APPENDIX D

Visual Resources Report

Visual Resources Report

Sapphire Solar Project

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
amsl	Above mean sea level
BG	Background
BLM	Bureau of Land Management
CEQA	California Environmental Quality Act
DFA	Developed Focus Area
DRECP	Desert Renewables Energy Conservation Plan
FG	Foreground
KOP	Key Observation Point
kV	Kilovolt
Gen-tie	Generation tie-line
I-	Interstate
LUPA	Land Use Plan Amendment
MG	Middle ground
MM	Mitigation Measure
MW	Megawatt
NEPA	National Environmental Policy Act
O&M	Operations & Maintenance
PV	Photovoltaic
REAT	Renewable Energy Action Team
ROD	Record of Decision
RMP	Resource Management Plan
SCADA	Supervisory control and data acquisition
SEZ	Solar Energy Zones
SR-	State Route
VRM	Visual Resource Management
VRR	Visual Resources Report

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1 Purpose and Intent

The purpose of this Visual Resources Report (VRR) is to document the existing visual resources and views in and around the proposed Sapphire Solar Project (Project), perform an assessment of potential effects to existing visual quality and character associated with Project development, and detail anticipated visual change and contrast utilizing the Bureau of Land Management (BLM) Visual Resources Management system for the purposes of National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) review. Specifically, anticipated visual change and contrast is evaluated in accordance with BLM Manual 8431 – Visual Resource Contrast Rating.

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2 Project Description

EDF Renewables Development, Inc. on behalf of Sapphire Solar, LLC (Applicant) proposes to entitle, construct, operate, and maintain the Project in Riverside County, California (Figure 1, Project Location). The Project would consist of PV panels, a single-axis tracker system, inverters, converters, transformers, electrical collection and communication lines, a 12 kilovolt (kV) distribution line for backup power, an on-site electrical substation, a battery energy storage system (BESS), security fence, an operations and maintenance facility including a stand-alone spare parts storage building, up to three on-site groundwater wells, a meteorological station and albedometer weather station, a microwave/communication tower, and a supervisory control and data acquisition (SCADA) system that are located on private lands (Figure 2, Site Plan).

The Project includes three Linear Facility Routes, a maximum of two of which would be constructed. The Linear Facility Routes include two 230-kV generation tie (gen-tie) line alignment options (only one of which would be constructed), three options for access roads, and one collector line route, all of which are located on lands administered by the BLM and designed to support the Project, located on adjacent private lands. The Project would interconnect with the Southern California Edison Red Bluff Substation via the existing Desert Harvest gen-tie line located on BLM-administered lands.

Construction of the Project is anticipated to occur in seven principal phases encompassing a total duration of between 12 and 18 months. The construction workforce would average 150 employees, with a maximum daily workforce of 250 employees. The Commercial Operation Date is anticipated to occur in December 2025. The operational life of the Project is anticipated to be 39 years or greater.

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3 Regulatory Setting

3.1 Federal

Federal Land Policy and Management Act

Section 102(a) of the Federal Land Policy and Management Act of 1976 (BLM, 1976) states that "…the public lands are to be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values." Section 103(c) identifies "scenic values" as one of the resources for which public land should be managed. Section 201(a) states, "the Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values (including scenic values)." Section 505(a) requires that "each ROW shall contain terms and conditions which will …minimize damage to the scenic and esthetic values."

Bureau of Land Management Visual Resources Management (VRM) System

Consistent with the BLM's VRM visual contrast rating system, the Proposed Action (i.e., development project) is analyzed for their anticipated contrasts with features (i.e., landform, vegetation, development) within the existing landscape. The contrast is measured by comparing the project features with the major features in the existing landscape and more specifically, the form, line, color, and texture presented by major features. This assessment process provides a means for determining visual impacts and for identifying measures to mitigate these impacts.

At each key observation point (KOP), both the existing landscape and Project's effect on the landscape are characterized using the BLM's VRM Visual Resources Contrast Rating Manual (Manual 8431; BLM 1986a). In addition to the major landscape features and character elements, elements that are considered in visual contrast evaluations including screening of project components by intervening vegetation, landforms, and development; placement of structures relative to existing vegetation, landforms, and other structures; viewing angle and orientation relative to the project; distance between viewer the project; view exposure/duration, atmospheric conditions; frequency of use/number of viewers at KOP, and relative or apparent scale of a project. Once the degree of anticipated contrast is determined (contrast is described as either strong, moderate, weak, or none), a conclusion on the overall level of visual change is presented (ranging from very low to high). Lastly, a determination of project conformance with the VRM Class Objectives (i.e., for project components located on public lands) is provided.

In accordance with BLM guidelines (BLM 1986a), visual contrast is defined as follows:

- None. The element contrast is not visible or perceived.
- Weak. The element contrast can be seen but does not attract attention.
- Moderate. The element contrast begins to attraction attention and begins to dominant the characteristic landscape.
- Strong. The element contrast demands attention, would not be overlooked, and is dominant in the landscape.

Areas of the Project site situated on public lands managed by the BLM are within the Desert Renewable Energy Conservation Plan (DRECP) area and are managed by the BLM in accordance with Visual Resource Management (VRM) Class IV objectives (BLM 2016):

VRM Class IV. To provide for management activities which require major modification of the existing character of the landscape. Allowed Level of Change: The level of change to the characteristic landscape can be high. Management activities may dominate the view and may be the major focus of viewer attention. However, the impact of these activities should be minimized through careful siting, minimal disturbance, and repeating the basic elements of form, line, color, and texture within the existing setting.

According to the BLM, if the Visual Contrast Rating process confirms that the project conforms to the VRM class objectives and the project is allowed, a concerted effort must still be made to reduce the visual contrasts, even if the proposed project meets the VRM class objectives. If the contrast rating determines that, as proposed, the project will not conform to the VRM class objectives, additional visual impact mitigation must be implemented until the project does comply with the VRM class requirements. If additional mitigation will not result in the project meeting VRM class requirements, the project is not permitted. However, in some circumstances the BLM may consider amending the applicable Resource Management Plan (RMP) to change the VRM class objective.

Californian Desert Renewable Energy Conservation Plan

In November 2008, pursuant to an executive order by the Governor of California, multiple federal and California state agencies formed the Renewable Energy Action Team (REAT) to, among other things, develop the DRECP to address renewable energy and species conservation concerns over approximately 22.5 million acres of federal and non-federal lands in the Mojave and Colorado desert regions of California. The purpose of the DRECP is to conserve and manage plant and wildlife communities in the desert regions of California while streamlining the permitting of compatible renewable energy projects. The Draft DRECP was published in September 2014. In March 2015, REAT announced that completion of the DRECP would follow a phased approach with the first phase consisting of 10 million acres of lands managed by BLM. In completion of the first DRECP phase, BLM published its Record of Decision (ROD) and final Land Use Plan Amendment (LUPA) to the California Desert Conservation Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan (DRECP LUPA ROD and DRECP LUPA) in September 2016. Out of the approximately 10 million acres of BLM-managed public lands in the Mojave and Colorado desert regions of California, the DRECP LUPA designates approximately 388,000 acres as Development Focus Areas (DFAs) for solar, wind, and geothermal projects, like the Solar Energy Zones (SEZs) under the Western Solar Plan.

All three Linear Facility Routes are located entirely within a DFA.

3.2 State

California Scenic Highway Program

Many state highways are in areas of outstanding natural beauty. California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263.

There are no officially designated State scenic highways within the vicinity of the proposed project.

California Building Code Title 24 Outdoor Lighting Standards[1]

The requirements of the state's Title 24 outdoor lighting standards ("Standards") vary according to which "Lighting Zone" the equipment is in. The Standards contain lighting power allowances for newly installed equipment and specific alterations that are dependent on which Lighting Zone the project is located in. Existing outdoor lighting systems are not required to meet these lighting power allowances. However, alterations that increase the connected load, or replace more than 50% of the existing luminaires, for each outdoor lighting application that is regulated by the Standards, must meet the lighting power allowances for newly installed equipment. An important part of the Standards is to base the lighting power that is allowed on how bright the surrounding conditions are. The eyes adapt to darker surrounding conditions, and less light is needed to properly see; when the surrounding conditions get brighter, more light is needed to see. The least power is allowed in Lighting Zone 1 and increasingly more power is allowed in Lighting Zones 2, 3, and 4.

By default, government designated parks, recreation areas and wildlife preserves are Lighting Zone 1; rural areas are Lighting Zone 2; and urban areas are Lighting Zone 3. Lighting Zone 4 is a special use district that may be adopted by a local government. The proposed Project site is in a rural area which includes a number of FAA-related lights that are associated with wind turbine development in the area.

3.2 Local

County of Riverside General Plan

Circulation Element

As depicted on Figure C-8, Scenic Highways, Interstate 10 is a County Eligible Scenic Highway. Policy C 19.1 is applicable to scenic highways (State or County) and seeks to "preserve scenic routes that have exceptional or unique visual features in accordance with Caltrans' Scenic Highways Plan" (County of Riverside 2020).

Land Use Element

According to the Land Use Element, the abundant natural visual resources of Riverside County include low-lying valleys, mountain ranges, rock formations, rivers, and lakes (County of Riverside 2021a). To conserve scenic resources along designated scenic highways (Eligible or Officially Designated State or County Scenic Highways), the County has adopted the following policies:

Policy LU 4.1. Require that new developments be located and designed to visually enhance, not degrade the character of the surrounding area through consideration of the following concepts:

a. Compliance with the design standards of the appropriate area plan land use category.
b. Require that structures be constructed in accordance with the requirements of Riverside County's zoning, building, and other pertinent codes and regulations.

[1] California Building Energy Efficiency Standards- Outdoor Lighting Zones. http://www.energy.ca.gov/title24/2005standards/outdoor_lighting/2004-09-30_LIGHTING_ZONES.PDF Accessed February 20, 2015.

c. Require that an appropriate landscape plan be submitted and implemented for development projects subject to discretionary review.

f. Incorporate water conservation techniques, such as groundwater recharge basins, use of porous pavement, drought tolerant landscaping, and water recycling, as appropriate.

k. Locate site entries and storage bays to minimize conflicts with adjacent residential neighbor-hoods.

l. Mitigate noise, odor, lighting, and other impacts on surrounding properties.

o. Preserve natural features, such as unique natural terrain, arroyos, canyons, and other drainage ways, and native vegetation, wherever possible, particularly where they provide continuity with more extensive regional systems

Policy LU 7.4. Retain and enhance the integrity of existing residential, employment, agricultural, and open space areas by protecting them from encroachment of land uses that would result in impacts from noise, noxious fumes, glare, shadowing, and traffic.

Policy LU 9.1. Provide for permanent preservation of open space lands that contain important natural resources, cultural resources, hazards, water features, watercourses including arroyos and canyons, and scenic and recreational values.

Policy LU 14.1 Preserve and protect outstanding scenic vistas and visual features for the enjoyment of the traveling public.

Policy LU 14.3 Ensure that the design and appearance of new landscaping, structures, equipment, signs, or grading within Designated and Eligible State and County scenic highway corridors are compatible with the surrounding scenic setting or environment.

Policy LU 14.5. Requires "new or relocated electric or communication distribution lines, which would be visible from Designated and Eligible State and County Scenic Highways, to be placed underground."

Policy LU 14.8. Avoid the blocking of public views by solid walls.

Policy LU 30.8. Require that industrial development be designed to consider the surroundings and visually enhance, not degrade the character of the surrounding area.

Policy LU 31.5. Requires that "public facilities be designed to consider their surroundings and visually enhance, not degrade the character of the surrounding area."

Multipurpose Open Space Element

As defined in the multipurpose Open Space Element, scenic resources include areas that are visible to the general public and considered visually attractive (County of Riverside 2015). Further and in addition to scenic corridors, scenic resources include "natural landmarks and prominent or unusual features of the landscape" County of Riverside 2015). Lastly, the County of Riverside defines scenic vistas as "points, accessible to the general public, that provide a view of the countryside" (County of River 2015).

The Multipurpose Element includes the following policies that seek to protect and maintain resources in corridors along scenic highways.

Policy OS 20.2. Prevent unnecessary extension of public facilities, services, and utilities, for urban uses, into Open Space-Conservation designated areas.

Policy OS 22.1. Design developments within designated scenic highway corridors to balance the objectives of maintaining scenic resources with accommodating compatible land uses.

Policy OS 22.4. Impose conditions on development within scenic highway corridors requiring dedication of scenic easements consistent with the Scenic Highways Plan, when it is necessary to preserve unique or special visual features.

Policy OS 22.5. Utilize contour grading and slope rounding to gradually transition graded road slopes into a natural configuration consistent with the topography of the areas within scenic highway corridors.

Desert Center Area Plan

The Project site is within the boundaries of the County of Riverside's Desert Center Area Plan. Located in the middle of the Colorado Desert in eastern Riverside County and far removed from urbanized areas, Desert Center encompasses a portion of the Chuckwalla Valley which is bordered by mountains (i.e., Eagle, Coxcomb, and Chuckwalla) and Joshua Tree National Park. The Project site is designated for Open Space – Conservation use (see Desert Center Area Plan Land Use Plan Figure 3) (County of Riverside 2021b).

The following policies of the Desert Center Plan concern lighting and scenic highway preservation and since the Project includes new lighting sources (and is located near a County Scenic Highway), are applicable:

Policy DCAP 4.1. When outdoor lighting is used, require the use of fixtures that would minimize effects on the nighttime sky and wildlife habitat areas, except as necessary for security reasons.

Policy DCAP 8.1. Protect the scenic highways within the Desert Center Area Plan from change that would diminish the aesthetic value of adjacent properties through adherence to the policies found in the Scenic Corridors sections of the General Plan Land Use, Multipurpose Open Space, and Circulation Elements.

County of Riverside Ordinance No. 655 ("Light Pollution Ordinance")

The intent of the County's Light Pollution Ordinance is to restrict the permitted use of certain light fixtures from emitting undesirable light rays into the night sky which have a detrimental effect on astronomical observation and research. The Light Pollution Ordinance establishes Zone A and Zone B for purposes of lighting regulation enforcement. Development within Zone A is subject to more stringent lighting regulations as this area encompasses lands within a fifteen-mile radius centered on Palomar Observatory. Development within Zone B is subject to less stringent measures as Zone B includes lands greater than 15 miles away from Palomar Observatory. Within both Zones A and B, low pressure sodium lamps are preferred and all non-exempt outdoor light fixtures must be shielded (County of Riverside 1988). Regarding Class II (i.e., parking lot, walkway, security) lighting, lighting above 4,050 lumens is prohibited in both zones.

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4 Existing Conditions

4.1 Project site

The majority of the approximately 1,192-acre Project site is currently vacant but was formerly developed as a jojoba farm. The topography of the Project site generally slopes downward toward the northeast at a gradient of less than 1%. Ground surface elevations at the Project site range from approximately 550 feet AMSL in the eastern solar parcel to 660 feet amsl near the western end of the parcel. As noted in the Biological Resources Technical Report prepared for the Project (Ironwood Consulting 2023), the entirety of the proposed solar facility boundary comprises privately owned land previously used for agriculture (i.e., a commercial jojoba cultivating operation) and aquaculture. Remnant low and scattered jojoba shrubs (primarily dead) intermixed with various desert plant species presenting a low to moderate height and drab green-grey color including cholla, smoke tree, jimson weed, and palo verde are present in areas previously used for commercial jojoba farming operations. Eroded access roads are also present in these areas as is evidence of past farming disturbances such as irrigation lines. The western most private parcel with the Project site boundary contains relatively recent disturbance related to active agricultural practices such as linear mounds of terrain to create basins/ponds and narrow irrigation lines/canals. The parcels also support low shrubs exhibiting a stippled texture and distribution in aerial images of the site. In addition to fallow agricultural lands, areas bordering the perimeter of the Project site consist of desert terrain supporting creosote brush scrub and dry desert wash woodland vegetation as evidenced by the presence of scattered, spreading, and the drab-green foliage (and seasonal yellow flowers) of creosote bush, green trunk and branched palo verde, and hardy ironwood trees/shrubs. Several narrow alluvial washes also traverse the area adjacent to the Project site and present meandering/braided lines that are followed by shrub clusters.

4.2 Surrounding Area

The Project site is in the western extent of Chuckwalla Valley in the Colorado Desert, north of Desert Center, east of Palm Springs and west of Blythe. The elevation of Chuckwalla Valley ranges from less than 350 feet above mean sea level (amsl) at Ford Dry Lake to approximately 1,800 feet amsl west of Desert Center and along the upper portions of the alluvial fans that surround the valley perimeter. The surrounding mountains rise to over 3,000 feet amsl.

Land uses near the Project site include aquaculture, transportation (Kaiser Road, Rice Road/State Route 177, Chuckwalla Valley Raceway and Desert Center Airport), agricultural, renewable energy (both existing and proposed), energy transmission, and unprogrammed recreational and wilderness areas. The community of Lake Tamarisk is located approximately 1.25 miles from the Project site at its nearest point. In addition to residential uses including mobile and manufactured homes and permanent homes, the community includes a golf course, recreational ponds, small community center and a fire station. A small church facility is located to the immediate north of the Lake Tamarisk area.

In addition to vacant undeveloped lands supporting the characteristic tan soils and scattered low shrubs of the valley landscape, an active aquaculture operation occurs to the west of the Project site and east of Kaiser Road. The northeastern corner of the operation is seemingly vacant but presents evidence of past disturbance associated with agricultural operations (e.g., north-south aligned mounds and/or depressions associated with irrigation lines). The remainder of the operations northern area (and the western most area) supports several long, rounded

rectangular basins/ponds filled with water (or other liquid utilized in the aquaculture process). In addition to several temporary trailers and a permanent "office" structure, repeating rows of white/clear tarped greenhouse structures with arched forms are stacked side by side and occur to the east of the rounded rectangular ponds. Several of the structures are in disarray as evidenced by torn tarps. Circular and squamous pond features are also constructed and occur near greenhouse structures. The aquaculture facility is accessed via a gated driveway road off Kaiser Road. As the facility is setback from Kaiser Road, vertical structures including temporary trailers, the permanent building, and greenhouse features are not particularly prominent or clear in views from Kaiser Road.

The proposed Easley Solar project would surround the Project on all sides. In addition to vacant, undeveloped lands featuring scattered and low desert shrubs and occasionally, electrical distribution infrastructure, and informal access roads, the existing Desert Sunlight and Desert Harvest solar projects are located north of the Project site; the existing Athos Solar Project is located south, northeast, and east of the Project site; and the recently approved Oberon Solar Project (a series of scattered yet interconnected, post-mounted photovoltaic solar array sites generally located to the south and east of Highway 177) is located to the south of the Project site and Lake Tamarisk. Like the approved Oberon Solar Project, repeating rows of low, dark, rectangular, and post-mounted photovoltaic modules intermixed with boxy power conversion stations, transformers, and faint overhead lines supported by thin poles are the primary visual element of existing solar developments in the surrounding area. The distance from each of these sites to the Project are listed in Table 1, below. Figure 3, Surrounding Area, shows the proposed Project in relation to other existing, approved, and proposed solar development projects.

Table 1. Surrounding Projects

Project Name	Status	Direction from Project site	Approximate Distance from Project site
Easley Solar	Proposed	All Sides	Directly adjacent
Desert Sunlight	Existing	North	0.25 miles
Desert Harvest	Existing	North	1.3 miles
Oberon	In construction1	South	1.7 miles
Athos	Existing	South/ Northeast / East	0.49 miles

Notes:

1 Final approval for construction was issued by the BLM on July 13, 2022 (https://www.blm.gov/press-release/blm-approves-start-construction-oberon-solar-project)

Regarding recreational and wilderness areas, the Desert Center and Lake Tamarisk areas (and more broadly, the western extent of the Chuckwalla Valley) are situated between mountain terrain to the north, east, south, and west. Specifically, Eagle Mountain lies to the west of the Project site, the Coxcomb Mountains are located to the north, the Palen/McCoy Mountains are located to the east (and east of Highway 177), and the Chuckwalla Mountains are located to the south (and south of Interstate 10). Both the Palen/McCoy Mountains and Chuckwalla Mountains encompass public lands managed by the BLM as wilderness and the southeastern extent of Joshua Tree National Park includes the southerly extension of the Coxcomb Mountains located to the north of Chuckwalla Valley and the Project site (this area is also managed as wilderness by the National Park Service). Eagle Mountain also encompasses National Park Service lands included within Joshua Tree National Park. Federal wilderness in the surrounding area comprises preserved lands that permit unprogrammed, trail-based recreation.

4.3 Scenic Vistas

There are no designated scenic vistas in the Desert Center Area Plan nor are there any designated scenic vistas on nearby public lands managed by the BLM (or other agencies). While not designated as scenic vistas, the surrounding terrain including ridgelines are valued for providing a scenic backdrop for the region (County of Riverside 2021b). In addition, and as described previously, the western extent of the Chuckwalla Valley is surrounded by mountainous terrain and as such, elevated slopes and ridgelines support potential scenic vistas offering unobstructed and panoramic views of the surrounding area. Despite this potential, formal trails in these mountainous areas are generally non-existent as are nearby staging areas for recreationists to access the mountain terrain.

4.4 Scenic Highways

In the region and from SR-62 to the Colorado River, Interstate 10 is a County Eligible Scenic Highway but is neither an eligible nor designated state scenic highway (County of Riverside 2020). At its closest point, the Project site is located 3.5 miles to the north of I-10 and northerly views from the interstate as motorists approach and pass the Desert Center area include low tan and muted green covered terrain intermixed with areas of exposed, tan soils, tall rust colored poles support electrical transmission lines, desert washes (occasionally), irrigated (i.e., green) landscaping near the Lake Tamarisk area, distant and dark, rectangular forms (solar arrays), the remaining undeveloped valley floor, and dark and visually prominent mountains in the background. The nearest facility of the California Scenic Highway System, SR-62 (an officially designated state scenic highway), is located approximately 20 miles to the north of the Project site and due to intervening terrain, views to the western extent of Chuckwalla Valley do not extend to SR-62 motorists.

4.5 Visual Character and Quality

The existing visual character and quality of the Project site and surrounding area is described above in Sections 4.1 and 4.2. Generally, the site and immediate surrounding area comprise a relatively flat desert landscape that supports a sparse to irregular distribution of low shrubs of subdued tans, browns, and drab/muted greens. The Project's valley landscape is generally indistinct from other locations in the Chuckwalla Valley and is visually submissive to prominent mountain terrain that provides a scenic backdrop of visual interest.

4.5.1 Key Observation Points

To further explore and contextualize existing visual character and view quality, Key Observation Points (KOPs) were established in the surrounding area and comprise representative public vantage points that include views to the Project site and surrounding valley and mountain landscape. KOPs were initially identified during a desktop review of the Project site and surrounding area and siting focused on publicly accessible vantage points with the viewshed of future solar arrays on the Project site. These KOPs were also reviewed and approved by Riverside County and the BLM, the selected KOPs comprise views from public roadways, recreational trails, the Desert Center Airport, and areas of cultural significance.

KOPs have been established to aid in the characterization of existing visual character of the Project site and surrounding area, and the existing quality of views to the Project site from publicly accessible vantage points in the surrounding area. A total of ten KOPs have been established and are representative of views available to existing

viewer groups in the surrounding area. The KOPs include a variety of viewing angles and distances toward and from the Project. The location of KOPs and their spatial relationship to the Project site is illustrated in Figure 4, Key Observation Points.

In May 2024, the BLM, in response to received comments during the scoping period, requested that Sapphire Solar, LLC assess visibility of the Solar Project and Linear Facility Routes when viewed from an outdoor viewing platform/deck approximately 10 feet above the ground surface. To address BLM's request, Dudek prepared a Supplemental Visual Resource Analysis, included as Appendix C. The Supplemental Visual Resource Analysis includes photographs and visual simulations from KOPs 7 and 8 taken from approximately 5 feet 6 inches above the ground surface and from approximately 10 feet above the ground surface. In addition, the Supplemental Visual Resource Analysis compares the views of the Linear Facility Routes from KOPs 7 and 8 when taken approximately 5 feet 6 inches above the ground surface and from approximately 10 feet above the ground surface.

KOP 1 – Dragon Wash Site

KOP 1 is located at the Dragon Wash rock art site that is significant to Native American communities in the region. Situated approximately 6.85 miles to the southwest of the Project site, KOP 1 presents a northeast-east view from elevated foothill terrain comprising the easterly extent of the Eagle Mountains across the Chuckwalla Valley landscape. See Figure 5, KOPs 1 and 2: Existing Conditions. As shown in the figure (see KOP 1 image), the available vista is broad and defined by mountain terrain to the north and south and extends to the Palen/McCoy Mountains (located approximately 20 miles away) and more distant mountainous terrain to the east. The foreground landscape is characterized by typically low, spreading shrubs (creosote and other) of muted green and brown tones intermixed with low, dried grasses, exposed greyish tan soils and scattered rocks. Several taller and wider shrubs including palo verde and ironwood occur to the west and the foreground landscape is spanned by a regional transmission line aligned in a general north-south orientation to the view (the transmission line is supported by lattice towers that partially blend into the surrounding landscape). The middle ground landscape is defined by seemingly flat terrain stippled with low, muted green shrubs that, in the distance, are interrupted by multiple dark and low geometric forms and lines (i.e., solar, residential, and agricultural development). The darkest forms on the valley floor are associated with solar development in the northern extent of the visible valley landscape. Terrain at the base of the Palen/McCoy Mountain is lighting in cooler and smoother in texture than other visible areas of the Chuckwalla Valley.

Although the rugged and visually interesting landforms of the Coxcomb Mountains to the north and Palen/McCoy Mountains to the east provide a backdrop of visual interest, the desert landscape captured in KOP 1 is relatively non-descript and common to much of the Chuckwalla Valley.

KOP 2 – Eagle Mountain Road

Located 4.15 miles northwest of the Project site on Eagle Mountain Road near the Eagle Mountain Pumping Plant, KOP 2 presents an east-southeast view from the elevated Eagle Mountain foothill terrain towards a low foreground berm, the seemingly flat terrain of the Chuckwalla Valley, and rugged Palen/McCoy Mountains. See Figure 5, KOPs 1 and 2 (KOP 2 image). As shown in the figure, the foreground landscape consists of scattered and dry shrubs amidst rocky, greyish soils and a low, rocky berm. Beyond these features, the valley landscapes is typified by tan/brown tones (vegetation and soils) and the dark greyish-blue colors and narrow tan lines of PV panels and access roads associated with solar development. As experienced from KOP 2, portions of the in-operations Desert Sunlight and Desert Harvest solar facilities are visible to the east and contribute smooth textures and dark and light colors to the

valley floor landscape. Due to these elements, the solar developments are not visually prominent and the landscape, while predominantly natural in appearance, is relatively non-descript and common to much of the Chuckwalla Valley.

KOP 3 - Joshua Tree Wilderness

Situated 3.3 miles to the northeast of the Project site on a rocky, maintained access road at the base of the Coxcomb Mountains, KOP 3 is representative of views available to trail-based recreationists on lower elevation lands within the Joshua Tree Wilderness. Managed by the National Park Service as a unit of Joshua Tree National Park, the Joshua Tree Wilderness boundary occurs to the immediate north of the access road upon which KOP 3 is located. The existing view from KOP 3 towards the Project site is presented as Figure 6, KOPs 3 and 4: Existing Conditions (see KOP 3 image). In addition to the access road and adjacent low berm, the foreground landscape at KOP 3 consists of a rocky ground plane supporting characteristic Chuckwalla Valley area shrubs (e.g., creosote and ironwood) and a narrow sandy wash running perpendicular to the access road. Beyond the foreground, the density of vegetation appears to increase so much that the ground is concealed. The broad valley landscape is evident in the middle ground an several indeterminant sources of light/blue tones are present on the valley floor including to the south of I-10. Solar development in the northern Chuckwalla Valley is visible (see “right” extent of the middle ground landscape in the KOP 3 view) but is rather indistinct and partially blocked from view by intervening desert shrubs. Similar to the visible landscape as experienced from other KOPs, distant mountain terrain including the Chuckwalla Mountains to the south and Eagle Mountains to the west provide an interesting backdrop to the relatively flat desert terrain in the foreground/middle ground distance but overall, landscape features are relatively non-descript and common to much of the Chuckwalla Valley.

KOP 4 – Kaiser Road

Kaiser Road and KOP 4 are located approximately 0.9 mile to the west of the Project site. A north-south roadway, Kaiser Road provides access between I-10 on the south and local communities and infrastructure such as Lake Tamarisk, solar developments, and the currently non-operating Eagle Mountain mine and town. A representative eastern view from Kaiser Road near the Project site is presented on Figure 6 (see KOP 4 image). As shown on the figure, the foreground landscape consists of exposed soils intermixed with small, strewn rocks and scattered desert shrubs (creosote and ironwood are visible in the existing conditions photograph). Several indeterminant structures are visible to the east in the middle ground (in the right extents of the view) but these features are partially blocked from view by intervening vegetation and as a result, visible structures are not visually prominent or especially distinct. There are several areas contributing darker tones to the landscape (see left extent of the photograph in the middle ground) but as viewed from KOP 4, the source of the dark tones is indeterminant. As with other KOPs, the KOP 4 landscape includes distant mountainous terrain (the McCoy/Palen Mountains are especially prominent in the KOP 4 view) that enhances vividness and interest but overall, visible landscape features are common throughout the Chuckwalla Valley.

KOP 5 – Desert Center Airport/Chuckwalla Valley Raceway Driveway at Highway 177

KOP 5 is located approximately 0.15 mile to the south of the Project site. It is situated at the intersection of Highway 177/Rice Road and the primary driveway to the Desert Center Airport and Chuckwalla Valley Raceway. See Figure 7, KOPs 5 and 6: Existing Conditions (KOP 5 image). KOP 5 is representative of views available to visitors to the Desert Center Airport and Chuckwalla Valley Raceway as they leave the facility and travel towards Highway 177.

In addition to the dark paved highway surface, the KOP 5 foreground consists of a wide, denuded highway shoulder with numerous tire tracks and the muted greens and yellows of characteristic desert valley vegetation. Bermed land/terrain is evident in the middle ground to the west and beyond this bermed terrain, the valley landscape including vegetation is relatively indistinct and unclear. While present in the middle ground, poles supporting transmission line are faint and tend to blend into the background mountain terrain. A reddish brown, mounded landform rises from the valley floor in the distance and the rugged Eagle Mountains provide a scenic backdrop to the visible desert terrain.

KOP 6 – Desert Center Airport

Situated on the landing strip of the Desert Center Airport, KOP 6 provides an east-southeast view towards the Project site (located approximately 1.45 miles to the northwest) and northern extent of the Chuckwalla Valley landscape. See Figure 7 (KOP 6 image). Similar to other KOPs, the immediate foreground of the KOP 6 landscape supports exposed soils, creeping grasses, and low, weedy shrubs. Further to the east, the terrain is covered with mounded, low shrubs of muted desert tones, several long and light-colored rectangular structures that appear to be modular or prefabricated trailers, and recreational trailers. Formal tree plantings are visible near the cluster of trailers/structures and appear to flank an access road/driveway. Several latticed communication towers are also erected near the trailers/structures and where not silhouetted against the background sky, these features tend to blend in with more distant mountain terrain. Rugged hill and mountain terrain provide visual interest in the landscape and an interesting juxtaposition of terrain form, line, and color.

Given that the Desert Center Airport is a private landing strip the total annual viewership at KOP 6 is low. The view includes an uncharacteristic concentration of modular structures, as well as the characteristic natural elements of the Chuckwalla Valley landscape.

KOP 7 – Desert Training Center Site

Located approximately 1.45 miles south of the Project at a site of the former World War II Desert Training Center/California-Arizona Maneuver Area, off Oasis Road, KOP 7 presents a north-oriented view across the Chuckwalla Valley landscape and to the Coxcomb Mountains. See Figure 8, KOPs 7 and 8: Existing Conditions (see KOP 7), Desert Training Center Site. As shown in the figure, the foreground desert valley landscape includes a large area of unvegetated, sandy terrain, isolated creosote shrubs and gnarled trees. The middle ground terrain to the north is obscured by intervening shrubs; however, narrow view corridors between dense vegetation clusters occur and reveal thin and noncontinuous specks of dark tones and smooth textures associated existing solar development in the area. Lastly, dark brown to reddish tan hues of the rugged Coxcomb Mountains are prominent in the view yet common throughout the Chuckwalla Valley.

KOP 8 – Shasta Drive - Lake Tamarisk Community

Shasta Drive is a local, north-south neighborhood road in the northwestern portion of the Lake Tamarisk community. Located 1.35 mile southwest of the Project site, KOP 8 is situated near the northern terminus of Shasta Drive and near existing one-story single-family residences. Thus, the view available from KOP 8 is representative of views available to residents in the Lake Tamarisk community including those residences to the east in the Lake Tamarisk Desert Resort (mobile home and RV resort). As shown in Figure 8, the view from KOP 8 is similar to the view from KOP 7: the immediate foreground encompasses rocky exposed soils, scattered and low, creosote shrubs and a limited number of trees. See Figure 8. Compared to the view at KOP 7, existing solar development in the middle

ground (i.e., Desert Harvest and Desert Sunlight) is visible yet presents as a relatively low, horizontal band of dark greyish color that is not visually prominent in the landscape. Finally, the dark brown to reddish tan hues of the rugged Coxcomb Mountains are prominent in the view yet are relatively common throughout the Chuckwalla Valley.

KOP 9 – Interstate 10

Located on Interstate 10 approximately 3. 5 miles to the south of the Project site, KOP 10 is oriented to the north and is representative of the views available to motorists as they pass through the Chuckwalla Valley and Desert Center area. See Figure 9, KOPs 9 and 10: Existing Conditions (see KOP 9 image). In addition to tan, rocky soils and mounded creosote shrubs, the grayish metallic backsides of panels associated with a nearby solar facility are low but visible in the landscape. A series of rust-colored poles supporting regional transmission lines run perpendicular to the view (the rust-colored poles tend to stand out when viewed against the dark grey/purple tones of the distant Coxcomb Mountains. Beyond this facility, the shrub covered desert terrain is regularly interrupted by boxy, light-colored structures of indeterminant use and by the dark, geometric forms and hard lines of existing solar developments. Contrast associated with solar developments in the desert landscape is muted by cloud cover and when experienced under sunny conditions, the juxtaposition of tan access roads viewed alongside dark rows of repeating panels would be more apparent than captured in the KOP 9 image. Lastly, the visible mountain terrain is seemingly continuous from west to east in the view and provides a rugged backdrop to the otherwise flat valley middle ground landscape.

KOP 10 – North Chuckwalla Mountains Petroglyph District

KOP 10 is located approximately 4.3 miles south/southeast of the Project site on the elevated foothill terrain of the Chuckwalla Mountains and provides a north oriented view of the Chuckwalla Valley landscape. See Figure 9 (KOP 10 image). Similar to other evaluated KOPs, the view from KOP 10 includes the characteristic vegetation and rocky tan soils of the Chuckwalla Valley. In addition, the KOP 10 foreground includes several braids of dark toned desert pavement. Low scattered shrub contributed muted greens to the landscape and a KOP 10, a tall tubular steel poles is centrally located in the foreground. A low hill rises to the north of this feature and low profile of Interstate 10 is concealed by intervening vegetation and terrain (truck traffic on the interstate reveals its location). North of the interstate there are visible disturbances in the valley landscape including linear rows of solar panels and more distant discoloration. These areas, typically broad and presenting as smooth geometric forms and gradational transitions of light and dark color, are associated with existing solar development that, as experienced from KOP 10, appear numerous in the landscape. See Figure 9 KOPs 9 and 10: Existing Conditions (see KOP 10 image). Lastly, local mountainous terrain including the Eagle Mountains to the northwest, Coxcomb Mountains to the north, and McCoy/Palen Mountains to the northeast, create a scenic backdrop to the valley landscape.

4.6 Light and Glare

As the Project site is currently vacant, there is no existing lighting within the Project site. Existing sources of light and glare (potential) near the Project site include lights from traffic on SR-177 to the east and I-10 to the south, limited lighting at the existing fishery located off Kaiser Road and at nearby operable solar facilities, the Desert Center Airport to the southeast, and the community of Lake Tamarisk to the southwest. Overall, these outdoor lights are muted and do not contribute significantly to the existing nighttime light environment. During daytime hours, roadways generate glare from the sun's reflection off cars and paved surfaces. At night, vehicle headlights on surrounding roadways are also sources of glare.

4.7 Visual Resource Management Objectives

The Project would consist of approximately 1,192 acres with approximately 1,082 acres of private lands and approximately 110 acres of BLM administered lands. For those areas on public lands managed by the BLM (see Figure 1), management occurs pursuant to the VRM class objectives as identified for the DRECP area. As previously described in Section 3.1, public lands within the Project boundary are managed by the BLM in accordance with Visual Resource Management (VRM) Class IV objectives.

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5 Methodology

Visual Resource Management System

Refer to Section 3.1, Federal (Bureau of Land Management Visual Resource Management System) above for a description of the Visual Resource Management System and the approach to the analysis undertaken in the preparation of this report.

After reviewing the proposed Project and VRM objectives for the Project area, KOPs were selected in coordination with the applicant, Riverside County, and the BLM. The selected KOPs reflect views of the Project site and surrounding area that motorists, recreationists, and residents are likely to encounter. KOPs are described in Section 4.5.1, above and visual simulations from KOPs are presented as Figures 10 through 19.

After preparing the visual simulations, the visual contrast rating process involves identifying the degree of contrast between simulated Project features and the major features (land/water, vegetation, and structures) in the existing landscape using the basic design elements of form, line, color, and texture by completing Form 8400-4 for each KOP. The degree of contrast is characterized as none, weak, moderate, or strong. When there is no degree of contrast between the existing landscape and proposed Project features, the proposed Project features are not visible or perceived. A weak degree of contrast can be seen but does not attract attention. A moderate degree of contrast begins to attract attention and begins to dominate the characteristic landscape. A strong degree of contrast demands attention, will not be overlooked, and is dominant in the landscape.

The visual resource contrast rating stage assesses changes to the characteristic landscape (i.e., land, water, vegetation, and structures) of BLM land from certain KOPs.

Scenic Vistas

For purposes of this report, scenic vistas are considered formally designated public vantage points offering views of primarily natural settings containing recognized scenic features or landscapes of special importance. As stated in Section 4.3 above, unincorporated Riverside County has not designated scenic vistas in the county.

The concepts of view blockage, interrupted, and degradation are used to determine the severity of potential impacts to scenic vista. If views from public vantage points across the Project site include recognized scenic features, Project components are examined to determine the likelihood for view obstruction (i.e., view blockage), view interruption (i.e., intrusion on available view due to contrasting features), or degradation (i.e., decline in scenic quality).

Scenic Highways

Scenic highways include those state facilities that have been officially designated or nominated for official designation through eligible status by Caltrans. If the Project site is located within the viewshed of a scenic highway, then the potential for impacts to scenic highways is informed by the presence of existing scenic resources on the Project site, project plans to avoid/protect or disturb existing scenic resources, and the visibility of scenic resource disturbance from an officially designated or eligible state scenic highway. Pursuant to CEQA Appendix G guidelines, scenic resources include trees, rock outcroppings, and historic buildings and may also include locally recognized scenic resources including oak trees, vineyards, and rolling hills.

Neither State Highway 177 nor I-10 are state scenic highways. No views of the Project site are available from a facility located on a state scenic highway.

Visual Character and Quality

Impacts to existing visual character and quality are determined through a comparison of pre- and post-development conditions on the Project site. Specifically, the project is examined for potential contrast with existing onsite feature and features in the surrounding area.

Lighting and Glare

The potential for lighting and glare impacts are evaluated based on a comparative review of pre- and post-development lighting and glare sources operating in the project area. If a project in an urban or developed area currently contains existing nighttime lighting and glare sources, then the likelihood for a project with comparable lighting to result in significant lighting and glare impacts is low (assuming the installation of standard control measures). On the other hand, if a dissimilar project in a low-lighting rural environment with excessive or unusually bright lighting is implemented, then the likelihood for potentially significant lighting and glare impacts would be high.

Project-specific lighting and glare analyses have been prepared and the results of the analysis are summarized below in Section 6.2.4. In addition, the project-specific analyses are presented as Appendix A, Photometric Lighting Study, and Appendix B, Glare Analysis Report, to this Visual Resources Report.

6 Analysis of Project Effects

6.1 CEQA Thresholds of Significance

The significance criteria for aesthetics listed in the CEQA Environmental Checklist, Appendix G of the State CEQA Guidelines, were used to assess the significance of visual impacts resulting from the Project. Except as provided in Public Resources Code Section 21099, these criteria indicate that a potentially significant impact would occur if the project would:

1. Have a substantial adverse effect on a scenic vista? (see Impact AES-1 below)
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (see Impact AES-2 below)
3. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? (see Impact AES-3 below)
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (see Impact AES-4 below)

Regarding Threshold 3, the Project site is located in unincorporated Desert Center which, as of the 2020 Census, is included in the Desert Center Census Designated Place that had a population of approximately 256 persons (United States Census Bureau 2020). Desert Center is surrounded by unincorporated desert lands and is not located within an urban growth boundary. Therefore, consistent with California Public Resources Code Section 21071, the Project site is within a nonurbanized setting and thus, the applicable significance threshold is whether the Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings.

The County of Riverside's Environmental Assessment Form includes additional significance criteria, which were also used in the analysis. According to the County's Environmental Assessment Form, a project could have potentially significant impact if it would:

A. Have a substantial effect upon a scenic highway corridor within which it is located? (see Impact AES-5 below)
B. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and unique or landmark features; obstruct any prominent scenic vista or view open to the public; or result in the creation of an aesthetically offensive site open to public view? (see Impact AES-3 below)
C. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (see Impact AES-4 below)
D. Interfere with the nighttime use of Mt. Palomar Observatory, as protected through Riverside County Ordinance No. 655? (see Impact AES-6 below)
E. Expose residential property to unacceptable light levels? (see Impact AES-4 below)

Potential impacts to daytime or nighttime views due to new sources of substantial light and glare (Significance Criteria C) and exposure of residential properties to unacceptable light levels (Significance Criteria E) are addressed under Impact AES-4, below.

6.2 Proposed Project Impact Analysis

This section presents the findings of the impact analysis of the proposed Project. The impact discussions are organized under the headings: Construction, Operation, and Decommissioning.

Impact AES-1: Would the Project have a substantial adverse effect on a scenic vista?

While there are no scenic vistas designated in the County's Desert Center Area Plan or General Plan, the surrounding mountainous terrain including ridgelines are valued for providing a scenic backdrop for the region (County of Riverside 2021). The Project site is in western Chuckwalla Valley, a landscape surrounded by mountainous terrain that provides opportunities for scenic vistas offering unobstructed and panoramic views of the valley and mountain area. Despite this potential, formal trails in these mountainous areas are generally non-existent as are nearby staging areas for recreationists to access the mountain terrain.

Construction

Construction is anticipated to occur over a 12- to 18- month period and would occur in a phased approach. Construction activities could result in short-term impacts on views related to the presence of equipment, materials, vehicles, and personnel in the landscape (at the soar facility site, along the gen-tie route, and along project area roads) and the generation of dust from ground disturbance and general vehicular movement. As described in the Impact AES-4 analysis below, infrequent, and limited nightwork during construction would not require use of mobile or other temporary light sources to facilitate construction activities and therefore, construction night lighting (and potential effects on views) is not considered in this analysis.

View effects due to temporary construction activities including vehicle/equipment/worker presence would be fleeting and would not result in substantial, prolonged obstruction or interruption of scenic resources (including mountainous terrain) in the surrounding area. Construction of the Project may entail the use of cranes, aerial lifts, heavy equipment including tractors, rubber-tired dozers, graders, and scrapers, temporary storage and operations facilities, and temporary laydown and staging areas. Construction activities would include site preparation and grading, construction of new access roads (internal and external), 230 kV gen-tie line, and collector line, construction of the electrical substation, operations and maintenance facility, and microwave tower, and installation of solar arrays, inverters, transformers, and battery energy storage units. The equipment, vehicles, and workforce involved with these activities (and components associated with the various phases of construction) would be visible from SR-177, Kaiser Road, the driveway to the Desert Center Airport and adjacent Chuckwalla Valley Raceway, Lake Tamarisk and Desert Center, I-10, and surrounding wilderness areas. Throughout the duration of construction, occurrences of blockage or interruption of scenic features in views would be momentary (i.e., experienced over a short duration of time) and temporary as taller pieces of equipment move around the site and specific phases of construction are completed. Ground surface disturbance and vegetation removal, and general grading and trenching activities could generate short-term dust clouds that have potential to temporarily affect general view quality including degradation of existing view quality. Potential for short-term dust clouds would be substantially limited by compliance with South Coast Air Quality Management District Rule 403 and implementation of fugitive dust control measures including watering active areas of construction two times daily (or the use of non-toxic soil

stabilizers/soil weighting agents), restrictions on construction vehicle speeds on unpaved areas within the construction site, and use of gravel at unpaved exits from the Project site to prevent track-out onto public roadways. Fugitive dust control measures are included in the Project's Fugitive Dust Control Plan that has been packaged as Mitigation Measure (MM)-AIR-1 (see Section 3.3, Air Quality, of the Project EIR).

Construction activities and equipment and vehicles would not result in a substantial short or long-term impact on scenic vistas. Impacts associated with the generation of dust during grading and trenching activities would be less than significant through compliance with South Coast Air Quality Management District Rule 403 and implementation of fugitive dust control measures as included in MM-AIR-1. Accordingly, no mitigation would be required for temporary effects on scenic vistas during construction.

Operations

Regular use of the areas for recreational enjoyment is assumed limited based on the remote nature of the area, lack of formal or informal staging and parking areas, and lack of formal or signed trails. However, views from elevated terrain in the area surrounding the Project site may provide opportunities for broad, panoramic, and long views of the Chuckwalla Valley and surrounding area. Therefore, the potential for the Project to substantially obstruct or interruption scenic views of the landscape is evaluated below using select KOPs and related visual simulations. The availability of scenic views is represented by KOP 1 (Dragon Wash Site), KOP 9 (Interstate 10), and KOP 10 (North Chuckwalla Mountains Petroglyph District). The existing conditions photos and visual simulations from these viewpoints are referenced below to determine the overall severity of effects to scenic vistas.

- KOP 1: Dragon Wash Site: As experienced from the elevated foothills of the Eagle Mountains on the western end of Chuckwalla Valley, existing solar facilities present a low and wide, blue/black color on the valley floor. See Figure 10, KOP 1: Dragon Wash Site. Due to distance between recreationists at the Dragon Wash Site and visible solar facilities, the superior vantage point available at the Dragon Wash Site, and the low vertical profile of distant solar panels, existing solar facilities do not result in blocked or obstructed views of the surrounding valley and mountain landscape. See Figure 10, Existing Conditions photo. Rather, the valley retains its characteristic form and predominant muted tones, and the distant mountains remain visually prominent in the view. With implementation of the Project, the dark tones and indeterminant form of existing solar facilities would appear to expand to the south (this apparent "expansion" encompasses solar panels on the Project site); occupying more of the valley floor, but anticipated color contrasts would not result in significant view interruption or degradation. See Figure 10, Visual Simulation of the Project. Within the broad view available at KOP 1, the introduction of the Project would result in altogether weak contrasts and scenic view effects would be less than significant. No mitigation would be required.
- KOP 9: I-10: While not an elevated, superior angle view, the view from KOP 9 (I-10) is relatively broad and free of topographical limitations to the east and west (mountains restrict total view length to the north). See Figure 18, KOP 9: Interstate 10. From KOP 9, existing solar facilities to the north have noticeably altered the valley landscape and have created dark geometric forms separated and surrounded by thin tan lines (i.e., access roads). See Figure 18. These forms are distinct from shadow covered lands in the existing condition photo on account of the visible, light colored access roads adjacent to panel rows. Anticipated visual change associated with the Project is illustrated in Figure x and as depicted, the presence of solar panels, tan access roads, battery storage containers, substation, and an O&M facility on the Project site would be noticeable in the view but would have a weak effect on existing view quality. Since Project implementation would not result in substantial view interruption or degradation, scenic vista impact would be less than significant.

- **KOP 10: North Chuckwalla Petroglyph Mountains District:** Anticipated visual change associated with Project implementation is illustrated in Figure 19, KOP 10: North Chuckwalla Mountains Petroglyph District. Like KOP 9, existing solar development is evident in the view from KOP 10 and generally appears as low-profile, geometric forms of light and dark color. With construction and operation of the Project, additional color contrast would be noticeable on the valley floor and while the dark tones of PV panels would be difficult to overlook (the dark color would result in some new view interruption), within the context of the existing landscape that includes several operating solar facilities that present similar color and line contrasts as the Project, impacts to scenic vistas associated with implementation of the Project would not have a substantial adverse impact. Substantial view degradation would not occur and overall impacts to scenic vistas would be less than significant.

The landscape of the western Coachella Valley has been noticeably altered in recent years by the development of commercial solar facilities including the Desert Harvest solar farm ((on approximately 1,200 acres; located 1.3 mile north of Project site), Desert Sunlight solar farm (on approximately 4,425 acres; located 0.25 mile north of Project site) and the Athos I and II solar installations (on approximately 3,440 acres; located 0.49 miles to the southeast of the Project site)). In addition to the numerous rows of solar PV panels, these installations include electrical substation, gen-ties, and access roads, (regional transmission lines are also present in the valley) all of which have altered views and the visual resources of the valley landscape. Other notable development in the valley includes Eagle Mountain Mine, Lake Tamarisk residential community, Desert Center airport and Chuckwalla Valley Raceway, and the palm farm located off SR-177. Within the western Chuckwalla Valley landscape, solar facilities are an established presence and are part of the existing visual and recreational experience. While the introduction of solar panels and other associated components associated with the Project would be noticeable and create color and line contrasts in the landscape as viewed from elevated vantage points in the surrounding area, anticipated contrasts would be like those created by existing, nearby solar facilities. As a result, operation of the Project would not result in substantial view interruption or degradation. From lower elevation foothill terrain and I-10, perceptible visual change would be weak and would not alter the availability of scenic backdrop views throughout the valley. Based on the analysis presented above and the anticipated visual change depicted in KOPs 1, 9, and 10 (i.e., representative vantage points for elevated viewing locations in mountainous areas surrounding the Project site – see Figures 10, 18, and 19), impacts to scenic vistas would be less than significant.

Decommissioning

Following the operational life of the Project, the solar facility would be decommissioned, and the site would be returned to near pre-project conditions. Decommissioning activities would result in similar temporary impacts as construction activities. As described in the Project's Closure, Decommissioning, and Reclamation Plan, the first step in the decommissioning process would be to assess existing site conditions and prepare the site for demolition. Project components that are no longer needed would be removed from the Project site and recycled, abandoned in place at least 36 inches below grade for all underground conductors, or disposed of at an appropriate waste handling facility. Decommissioning would entail the presence of equipment, vehicles, workers on the Project site and along Project area roadways and use of taller equipment (such as cranes and aerial lifts) to disassemble and remove Project components from the landscape may result in temporary occurrences of impaired views. In addition, and like temporary visual effects resulting from grading during construction, ground disturbance and general movement across the Project site by heavy vehicles may generate dust (occurrences of view impairing dust would be limited by the implementation of fugitive dust control measures). Once all equipment is removed and/or disconnected, all remaining disturbed areas on private and BLM lands would be restored to their pre-construction conditions, as required by the County of Riverside and the BLM, respectively.

While the complete removal of the Project from the landscape would create a prominent visual effect associated with strong color and line contrast created between graded, disturbed soil areas and undisturbed soil and vegetated areas, these effects would neither result in substantial view obstruction nor interruption from scenic vistas considered in this analysis. The presence of previously graded and disturbed areas on the valley floor may result in some interruption of views; however, hikers and other recreationists would be accustomed to these contrasts which would have been present in the landscape over the prior 30 plus year (i.e., over the operational life of the Project). Since decommissioning activities (and related effects on the landscape) are not anticipated to result in substantial effects on a scenic vista (refer to Section 6.2.3 for an analysis of decommissioning effects on visual character and quality) and would neither substantially obstruct or interrupt the visibility of a scenic resources in views, no mitigation is recommended or required. Impacts would be less than significant.

Impact AES-2: Would the Project substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

The Project site is located adjacent to SR-177 and is within 3.5 miles of I-10. Neither facility is included in the State Scenic Highway System. The nearest facility of the California Scenic Highway System, SR 62 (an eligible state scenic highway), is located approximately 20 miles to the north of the Project site and due to intervening terrain, views to the western extent of Chuckwalla Valley do not extend to SR 62 motorists. In addition, there are no scenic resources including trees, rock outcroppings, and historic buildings at the Project site. Because view to the proposed Project would not be available from a roadway included on the State Scenic Highway System, no Project construction, operational, or decommissioning impacts to scenic resources within a state scenic highway would occur.

Impact AES-3: Would the Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point).

The proposed Project consists of previously disturbed former agricultural and undeveloped land located in western Chuckwalla Valley. The construction, operation, and decommissioning of the proposed Project would be visible to motorists on local and regional roads, residents, and recreationists in the surrounding area including from the eastern extents of Joshua Tree National Park. Construction, operations, and decommissioning-related effects on visual character or quality of public views are analyzed below.

Construction

During construction, craft workers/contractors, management employees, and non-craft construction personnel are anticipated to be on site. Construction of the Project is anticipated to occur over a 12 to 18 month timeframe with activities anticipated to commence in late 2024/early 2025. The Commercial Operation Date (COD) is anticipated to occur in December of 2025. Generally, construction work schedules are expected to be at least 8 hours per day Monday through Friday, excluding federal holidays. Typically, the workday would consist of one shift beginning as early as 6:00 a.m. and ending as late as 7:00 p.m. The work schedule may be modified throughout the year to account for the changing weather conditions. For instance, during hot weather, it may be necessary to start work earlier to protect the health safety of workers and/or avoid pouring concrete during high ambient temperatures. Additional hours and/or nighttime work and weekend work (Saturdays and Sundays) may be necessary to make up schedule deficiencies, or to complete critical construction activities (e.g., PV block construction, foundation pouring, or working around time-critical shutdowns and constraints). Construction activities would be temporary and limited to the duration of the construction schedule.

The Project site is partially obscured from public view due to distance from public vantage points (e.g., roadways and trails) and partial screening associated with intervening desert vegetation. The clearest views to the Project site would be from elevated/slightly elevated vantage points in the surrounding area including KOPs 1, 2, 3, 9, and 10. Construction activities, equipment, and vehicles would be visible from these KOPs at varying levels of clarity.

Construction activities would disturb the ground surface by removing low, onsite vegetation and turning underlying soils. Anticipated surface disturbances would affect existing views and visual character by altering the existing site appearance through the creation of large areas of exposed soils with a relatively smooth texture and light tan color (texture and color contrast with adjacent undeveloped desert lands would occur). Further, site development would affect existing visual character through removal of remaining vegetation/vegetative material from the Project site and the creation of hard lines/edges at Project boundary extents (i.e., the hard line would result from vegetation removal and scrapping of topsoil for purposes of creating a level site experienced against unaltered offsite lands). Construction activities and specifically, the movement of vehicles and operation of equipment across the site, would generate dust that could result in reduced atmospheric clarity and view quality (dust generation would be reduced by application of water or other dust suppressing techniques across the site). As previously mentioned, fugitive dust control measures are included in the Project's Fugitive Dust Control Plan that has been packaged as MM-AIR-1 (see Section 3.3, Air Quality, of the Project EIR).

As experienced from KOP 1, 2, 3, 4, and 9, the movement of vehicles and operation of equipment would be difficult to detect due to distance. See Figures 10, 11, 12, and 18. At KOP 10, visibility of the site would be enhanced by the elevated vantage point; however, vehicles and equipment are still anticipated to be relatively indistinct in views due to distance. See Figure 19. Because partially or fully blocked views to the site are provided at KOPs 6 through 8, changes in the landscape resulting from construction would be partially (or fully) blocked from view and would not result in substantial degradation of existing character or view quality. While vehicle and equipment within the Project site would be difficult to detect, landscape effects and specifically, the introduction of contrasting colors, lines, and forms, would be most detectable from KOPs 1, 3, and 10 due to their slightly elevated vantage point relative to the Project site. See Figures 10, 12, and 19. However, the degree of construction-associated contrasts from KOP 1 would be weakened by the presence of similar colors, lines, and forms in the landscape (and by the temporary nature and brief duration experience of anticipated contrasts). At KOP 3, a relatively clear view corridor to the Project site is available and due to the slightly elevated nature of the vantage point and as a result, a larger portion of the construction area (i.e., compared to the visibility of the Project site from lower elevation vantage points) would be visible. At KOP 3, the anticipated degree of visible contrast in the landscape associated with Project construction would be moderate as the valley terrain would be altered by grading and the creation of hard lines (and comparatively lighter tones than adjacent undisturbed lands) along the site perimeter. Moderate visual contrast is also anticipated at KOP 10 for similar reasons. Viewer groups affected by these impacts and visible contrasts include limited recreation users in the surrounding mountains and foothills, dispersed recreation users on the valley floor; and motorists on I-10. Over the course of construction, the character of the under-construction site and gradual transformation from a previous jojoba farm to a solar facility would cause visual contrast and visual change. However, as construction activities would be temporary in nature, they would not result in substantial long-term effects to visual character and views. Therefore, with impacts would be less than significant and no mitigation would be required.

Operations

As previously stated, components of the Project (primarily solar panels but also gen-tie line and collection system poles) would have varying degrees of visibility from the ten (10) KOPs identified for analysis based on elevation of the vantage point, proximity to the Project site, and the presence (or lack thereof) of intervening screening elements

such as vegetation, terrain, and/or structures. A brief KOP by KOP analysis is presented below to inform the overall evaluation of impacts to existing visual character and existing view quality.

KOP 1: Dragon Wash Site

At the slightly elevated vantage point offered at KOP 1, views across the Chuckwalla Valley are relatively clear and free of obstructions/intervening elements in the immediate foreground. As a result, the view to the east is generally unimpeded and extends to the distant McCoy/Palen Mountains. See Figure 10. Elements of the Project would be visible at KOP 1, but individual forms and lines of components would be indistinct. Rather, the Project and more specifically, solar arrays, would be viewed as a singular element that would display a horizontal/geometric form on a portion of the northern valley floor. While the introduction of dark solar panels would result in visible color contrasts that would be amplified by the presence of light tan terrain near the base of the distant mountains, the resulting contrast would be moderated by the presence of similar dark tones from nearby solar development. Overall contrasts associated with the Project and experienced at KOP 1 would be weak/moderate; the dark color and straight lines of solar development would attract attention, but these elements would occupy a small portion of the seen landscape and would be viewed alongside existing nearby solar development.

Impacts to the existing visual character of the landscape and the quality of public views of the site and its surroundings would be less than significant. However, implementation of MM-VIS-1 (Project Design) is recommended as it would reduce the visual contrast of perceptible landscape alteration.

MM-VIS-1: Project Design. To the extent possible, the Applicant or Project owner /operator shall implement proper design fundamentals to reduce the visual contrast to the landscape. These include proper siting and location, reduction of visibility, repetition of form, line, color, and texture of the landscape, and reduction of unnecessary disturbance. Design strategies to address these fundamentals may include the following:

- The boundaries of all areas to be disturbed shall be delineated with stakes and flagging before construction, in consultation with the Designated Biologist, County Visual specialist, and BLM VRM specialist.
- Spoils and topsoil where feasible shall be stockpiled in disturbed areas approved by the Designated Biologist. All disturbances,
- Project vehicles and equipment shall be confined to the flagged areas.
- Where retention of vegetation is not possible, vegetation along roadways and boundaries of other disturbed areas shall be scalloped (refers to incorporating irregular (non-straight) edges of vegetation to make edges/transitions between managed and non-managed areas appear more natural) and feathered (refers to thinning edges of vegetation to make transitions from vegetated to non-vegetated area softer and less abrupt) to reduce the hard line visual impact, especially as seen from SR 177, Interstate 10, and the North Chuckwalla Mountains Petroglyph District.
- New and existing roads that are planned for construction, widening, or other improvements:
  - shall not extend beyond the minimum necessary and shall be flagged as described above.
  - All vehicles passing or turning around shall do so within the planned impact area or in previously disturbed areas.
  - Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., flagged or staked) before the onset of construction.

- Reduce the amount of disturbed area and blend the disturbed areas into the characteristic landscape.
  - Where feasible, replace soil, brush, rocks, and natural debris over disturbed area.

KOP 2: Eagle Mountain Road

At KOP 2, the dark to light blue tones displayed by existing solar panels and the straight tan lines of associated access roads captures the attention of viewers. See Figure 11. Due to the view perspective and lack of a high, superior viewing angle, existing solar facilities appear relatively close to Eagle Mountain Road and appear to occupy a large geographic area of the valley landscape. Comparatively, contrasts associated with the Project would be somewhat muted on account of a greater distance from KOP 2 (greater relatively to the Desert Sunlight and Desert Harvest Solar Farms) and the dark tones of solar panels would obscured by the underlying browns and tans of the valley floor. See Figure 11. Resulting color and line contrasts due to Project operations would be weak and as experienced from KOP 2, impacts to the existing visual character of the landscape and the quality of public views of the site and its surroundings would be less than significant. However, implementation of MM-VIS-1 (Project Design) is recommended as it would reduce the visual contrast of perceptible landscape alteration.

KOP 3: Joshua Tree Wilderness.

From the maintained access road fronting the Joshua Tree Wilderness boundary and base of the Coxcomb Mountains, several existing developments/elements displaying bright/glaring properties are visible. See Figure 12. The specific source of these properties is indistinct in the view but effects on the valley terrain are difficult to overlook. The Project (which would be partially visible through a narrow view corridor that, at KOP 3, is framed by two large shrubs/trees) would contribute dark greyish tones (solar panels) and tan lines (site perimeter and access roads) to the middle ground landscape. These elements would attraction attention but, due to the presence of visually prominent mountain terrain in the background and existing contrasting elements on the valley floor, they would not dominant the landscape nor result in substantial degradation of existing visual character. Overall contrast would be weak/moderate and impacts to visual character and view quality would be less than significant. However, implementation of MM- VIS-1 (Project Design) is recommended as it would reduce the visual contrast of perceptible landscape alteration.

KOP 4: Kaiser Road.

At KOP 4, the characteristic elements of the Chuckwalla Valley landscape (i.e., tan soils, muted green vegetation, rugged mountain terrain) are present and dominate the view. Existing solar development is visible from KOP 4 but the dark surface of solar panels is muted by the dark tans and browns of surrounding terrain and vegetation. While the low, horizontal line of panel edges would be noticeable and present moderate contrasts, dark solar panels within the Project boundary would be similarly softened by existing dark colors and muted tones in the landscape. Gen-tie poles would be visible but at KOP 4, most gen-tie poles would be in the periphery of Kaiser Road motorists views and would be silhouetted against distant terrain. As a result, the thin vertical line and tall form of poles would be partially obscured in the brief duration view. One pole would be partially silhouetted against the sky (see Figure 13) and as a result, form and line contrasts of the gen-tie line would slightly heightened. Overall, contrasts associated with the gen-tie would be attenuated by the presence of transmission and distribution lines in the surrounding landscape (including parallel to Kaiser Road) and the severity of the contrast would be lessened by view duration and limited visual exposure. At KOP 4, Project contrasts would be weak/moderate and based on the anticipated visual change illustrated in the visual simulation from Kaiser Road. While impacts to visual character

and view quality would be less than significant at KOP 4, implementation of MM-VIS-1 (Project Design) is recommended as it would reduce the visual contrast of perceptible landscape alteration.

KOP 5: Desert Center Airport/Chuckwalla Valley Raceway Driveway at Highway 177.

From KOP 5, the Project would be experienced as a low, near continuous dark line across a portion of the middle ground landscape. See Figure 14. Solar panels would be partially blocked by vegetation in the foreground but the low, dark line of panels would create moderate/strong line and color contrasts in the existing landscape. Despite these contrasts, overall impacts would be moderated by the low number of annual viewers at KOP 5 (according to the Project Glare Analysis Report, Appendix B to this Visual Resources Report), activity level at Desert Center Airport is "minimal" and the private use runway experiences no more than 2,300 take-offs./landings annually), the brief duration of the view, and by the presence of similar colors and lines in the landscape associated with the Athos I and II, Desert Harvest, and Desert Sunlight projects. Note that the effects of these existing solar facilities are not visible in the specific view orientation presented at KOP 5. While the effects associated the Project would be quite evident at KOP 5, the immediate surrounding area and views have been permanently altered by existing solar development and project solar panels including the Athos project that is partially located immediately adjacent to SR-177 and to the north and south of Desert Center Airport/Chuckwalla Valley Raceway driveway) would not be a "new" industry in the valley landscape. Therefore, with consideration to the existing context of the Chuckwalla Valley visual landscape, impacts to visual character and view quality would be less than significant. However, as recommended for other KOPs, implementation of MM-VIS-1 (Project Design) is recommended as it would reduce the visual contrast of perceptible landscape alteration.

KOP 6: Desert Center Airport.

At KOP 6, Project components would be blocked from view by intervening structures and vegetation. See Figure 15. Because overall Project contrasts would not be visible and introduction of Project components would not be noticeable, no impacts to visual character and view quality would occur.

KOP 7: Desert Center Training Site and KOP 8: Shasta Drive – Lake Tamarisk Community.

At KOPs 7 and 8, the middle ground valley landscape is almost entirely obscured and blocked by intervening vegetation. Once the Project is constructed and operating, solar panels would be detectable through narrow view corridors between foreground shrubs in the right extent of the KOP 7 view (Figure16; at KOP 8, solar panel visibility would be slightly greater on account of the comparatively higher vantage point and reduced height of foreground vegetation – see Figure 17). Solar panels would create a low, dark greyish, discontinuous line in the landscape; however, these components and contrasts would be muted by distance and the dark colors of middle ground vegetation and terrain. Line and color contrasts would be weak and would not attract attention. Impacts would be less than significant; however, implementation of MM-VIS-1 (Project Design) is recommended as it would reduce the visual contrast of perceptible landscape alteration.

KOP 9: Interstate 10

As depicted in Figure 9, the introduction of solar panels and associated components on the Project site would result in muted, somewhat obscured color and line contrasts in the landscape. See Figure 18. As the Project site and panels would be located lower in the landscape relatively to existing solar developments to the north, the line contrasts on the Project site would be partially concealed in views from Interstate 10 (and would be partially blocked

by intervening vegetation in the view). In addition, color contrasts associated with exposed tan soils at the project site surface would be muted by distance and intervening terrain. The Project substation and BESS are within the KOP 9 viewshed but due to distance from Interstate 10 and the horizontal footprint of the solar panels, the visual prominence and contrasts of these facilities is diminished. Furthermore, and as experienced from vehicles on Interstate 10 (prevailing travel speeds on the interstate are approximately 60 to 70 miles per hour), Project components would be in the peripheral view of motorists and would be experienced over a limited duration of time. Based on the degree of visual change depicted in the photographic simulations and when experienced over a limited duration within the context of existing solar development in western Coachella Valley, impacts would be less than significant. However, implementation of MM-VIS-1 (Project Design) is recommended as it would reduce the visual contrast of perceptible landscape alteration.

KOP 10: North Chuckwalla Mountains Petroglyph District

When experienced from the elevated vantage point of KOP 10, introduction of the Project on the valley floor would create strong color contrast. See Figure 19. While the form of individual solar panels would not be clear, the installation of panels would appear as a broad, dark, and flat geometric form that would stand out against the muted tones of desert terrain and vegetation. In addition, access roads and the denuded perimeter around the solar field would create moderate color and line contrasts. Due to proximity, the color of Project solar panels would be more distinct than more distant panels of solar development to the north and as a result, strong contrasts are anticipated. Therefore, when viewed from KOP 10, impacts would be potentially significant absent mitigation measures.

While MM-VIS-1 (Project Design) would be implemented to reduce the visual contrast of perceptible landscape alteration., the degree of contrast associated with solar panels at KOP 10 would be strong and thus, **significant and unavoidable.** There is no known mitigation that if implemented would soften the color contrasts associated with solar panels at KOP 10 due to the lack of screening elements between the KOP and Project site. Because the Applicant lacks site control at KOP 10, implementation of landscape screens to block the anticipated color contrast is not feasible.

Compliance with VRM Class IV Objective

Operation and maintenance of the Project would result in the disturbance of up to approximately 1,192 acres, a maximum of 110 acres of which would be located on BLM land designated VRM Class IV. As described above, impacts from operation and maintenance would be visible from public vantage points in the area surrounding the Project. The changes to the characteristic desert valley landscape that includes existing solar facilities from operation and maintenance would alter visual resources and views to varying degrees based on location/proximity to Project site, view angle, and the presence (or lack thereof) of intervening vegetation. For all KOPs, the anticipated degree of contrast would comply with visual resource management Class IV objective that permits high visual change and major modification of the existing character of the landscape. While color and line contrasts would be heightened at two KOPs (i.e., KOPs 5 and 10) low to moderate visual contrast is anticipated at most KOPs evaluated in this report. Further, with implementation of MM-VIS-1, color and line contrasts associated with access road development and vegetation removal would be reduced. In addition, and as previously analyzed, proposed gen-tie poles and lines would be most visible from local roadways adjacent to the Project site (i.e., Kaiser Road and SR 177) and from these mobile vantage points, the tall poles and horizontal lines would be experienced alongside existing transmission infrastructure and solar facilities.

Impact AES-4: Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Lighting

Construction and Decommissioning

Construction and decommissioning of the Project would not create a new source of substantial light or glare. As previously stated, construction work schedules are expected to be at least 8 hours per day Monday through Friday, excluding federal holidays. Typically, the workday would consist of one shift beginning as early as 6:00 a.m. and ending as late as 7:00 p.m. Additional hours and/or nighttime work and weekend work (Saturdays and Sundays) may be necessary to make up schedule deficiencies, or to complete critical construction activities (e.g., PV block construction, foundation pouring, or working around time-critical shutdowns and constraints). Nightwork would not require use of mobile or other temporary light sources to facilitate construction activities during night hours. Use of night lighting during site closure and decommissioning and reclamation activities is not anticipated. Because night work would not require the use of lighting, lighting and glare impacts during construction would be less than significant.

Operations

There are no state regulations regarding glare effects associated with the operation of solar panels and except for SR-177 that briefly abuts a portion for Project site, there are no sensitive viewers in the immediate vicinity of the Project site.. The closest off-site sensitive receptor to the Project site is a residence located 0.4 miles (2,115 feet) east of the Project site along the west side of SR 177. . Despite the lack of sensitive receptors in the immediate vicinity, the County of Riverside Code of Ordinances regulates outdoor lighting and specifically inadequately shielded outdoor lighting for purposes of reducing light trespass (refer to Title 8, Chapter 8.80, Outdoor Lighting). The general standard established in Chapter 8.80 requires all outdoor luminaires be “located, adequately shielded, and directed such that no direct light falls outside the parcel of origin.” Regarding light trespass, the County has not established a numerical light trespass value for parcels adjacent to the parcel of origin that would indicate when direct lighting is considered unacceptable/significant; rather, determination of light trespass is made on a case-by-case basis and is triggered by a property owner’s complaint.

On the Project site, outdoor lighting sources are anticipated to be installed at the Project entrance/driveway, parking area, project substation, BESS enclosure area, and O&M facility. During normal operations, lighting would typically be turned off and would only be utilized if needed (such as during needed/emergency maintenance or other required nighttime event). For these lighting sources, lamps/lights would be shielded and directed downward. According to the Photometric Lighting Study for the Project prepared by Michael Baker International, light levels associated with onsite lighting source would be zero (0) footcandles at the Project site boundary and onsite lighting would not directly illuminate any adjacent properties or nearby roadways (see Appendix A). To ensure implementation of appropriate lighting controls (and reduction of unnecessary illumination on the Project site), MM-VIS-2 (Lighting Control) would be implemented to reduce potentially significant lighting impacts to a less than significant level.

MM-VIS-2: Lighting Control. Consistent with safety and security considerations, the Applicant and/or Owner shall design and install all permanent exterior lighting and all temporary construction lighting (if required) such that a) lighting sources are not visible from beyond the Project site, b) lighting shall not cause

excessive reflected glare; c) direct lighting shall not unnecessarily illuminate the nighttime sky), d) illumination of the Project and its immediate vicinity shall be minimized; and e) the plan shall comply with local policies and ordinances. The Applicant shall submit to the County and BLM for review and approval a lighting plan that includes the following:

- Location and direction of light fixtures shall take the lighting mitigation requirements into account;
- Light fixtures that are visible from beyond the Project boundary shall have cutoff angles sufficient to prevent lamps and reflectors from being visible beyond the Project boundary, except where necessary for security; and
- Motion sensors shall be used, especially for security lighting.

Glare

While solar panels would be uniformly dark in color, they would also be non-reflective and designed to be highly absorptive of all light that strikes their glass surfaces. Other Project components, including the on-site substation, inverters, BESS enclosures, and the gen-tie line, would be constructed of steel and/or other metallic materials and depending on daily atmospheric conditions, may be sources of daytime glare.

According to the Glare Analysis Report prepared for the Project (see Appendix A), project-generated glare could be perceptible during brief portions of the day during certain times of year along public roads in the area including Airport Road, Eagle Mountain Road, Kaiser Road, and SR-177. The Glare Analysis Report indicated that no glare would be received on I-10. On local roads nearest to the Project site, the Glare Analysis Report noted that the hazard level of glare projected onto these facilities would be relatively low and would be less than glare associated with smooth water under conservative assumptions (visible existing glare is detectable in the existing conditions image at KOP 3, see Figure 12). Based on the general low hazard potential of project-generated glare, the brief duration of “yellow” glare exposure anticipated along local roads including SR-177, and the presence of existing solar panels in the western Chuckwalla Valley area (and existing glare), solar panel related glare impacts would be less than significant.

Project components, including on-site substation, inverters, BESS enclosures, and the gen-tie line, would have limited visibility from public roads. Due to their limited visibility and submissive nature of these components relative to solar panels, non-solar panel Project components do not have potential for significant glare and as such, these components were not assessed in the Glare Analysis Report (Appendix B). Nevertheless, implementation of MM-VIS-3 (Surface Treatment of Project Structures/Buildings) is recommended to reduce the potential for non-solar panel Project component glare generation.

MM-VIS-3: Surface Treatment of Project Structures/Buildings**.** Surfaces of all Project structures and buildings visible to the public would be designed such that their colors and finishes do not create excessive glare. Colors and finishes selected shall be consistent with local plans and policies. The transmission line conductors shall be non-specular and nonreflective, and the insulators shall be nonreflective and nonrefractive.

Impact AES-5: Would the Project have a substantial effect upon a scenic highway corridor within which it is located?

While SR 177 and Interstate 10 are not included in the State Scenic Highway System, Interstate 10 is a County Eligible Scenic Highway. Due to its County scenic highway designation, Interstate 10 is considered a scenic highway

corridor for purposes of this analysis. SR 177 is not identified by the County as a scenic corridor and therefore, effects to views from SR 177 are not assessed below.

Project-related impacts on the views of Interstate 10 motorists would generally be weak. Construction vehicles and equipment within the Project site would be difficult to detect from the interstate and gradual visual change in the landscape would be partially blocked by intervening vegetation. In addition and as previously discussed, Project activities would generally be within the peripheral viewing angle of interstate motorists and temporary construction effects would be experienced over a brief duration of time. Once constructed and operating, the introduction of solar panels and associated components on the Project site would result in muted, somewhat obscured color and line contrasts in the landscape. See Figure 18. As shown in the visual simulation, the visual prominence and contrasts resulting from the introduction of Project components would not have a substantial effect on views from the interstate. Furthermore, and as experienced from interstate vehicles, solar panels and other Project components would be experienced over a limited duration of time. Potential impacts resulting from decommissioning and reclamation activities would generally be similar as impacts anticipated during the Project's construction phase. Project effects to a scenic highway corridor (for purposes of Impact AES-5, Interstate 10) impacts would be less than significant. However, implementation of MM-VIS-1 (Project Design) is recommended as it would reduce the visual contrast of perceptible landscape alteration including as experienced from Interstate 10.

Impact AES-6: Would the Project interfere with the nighttime use of the Mt. Palomar Observatory, as protected through Riverside County Ordinance No. 655?

The Project site is located approximately 90 miles from the Mt. Palomar Observatory. Due to the distance and the presence of intervening natural topography, the Project site is not within the viewshed of the observatory. Further, a direct line of sight from the observatory to the Project site is not available due to the presence of multiple intervening mountain ranges. Therefore, based on the distance and the presence of intervening features between the Project site and Mt. Palomar Observatory, and based on an assumed limited number of outdoor lights installed on the Project site (i.e., lights at entrance gates/driveway, lighting installed near the substation and O&M facility) no adverse effects on the observatory and astronomical observation and research are expected. Therefore, impacts to the Mt. Palomar Observatory would be less than significant.

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7 References

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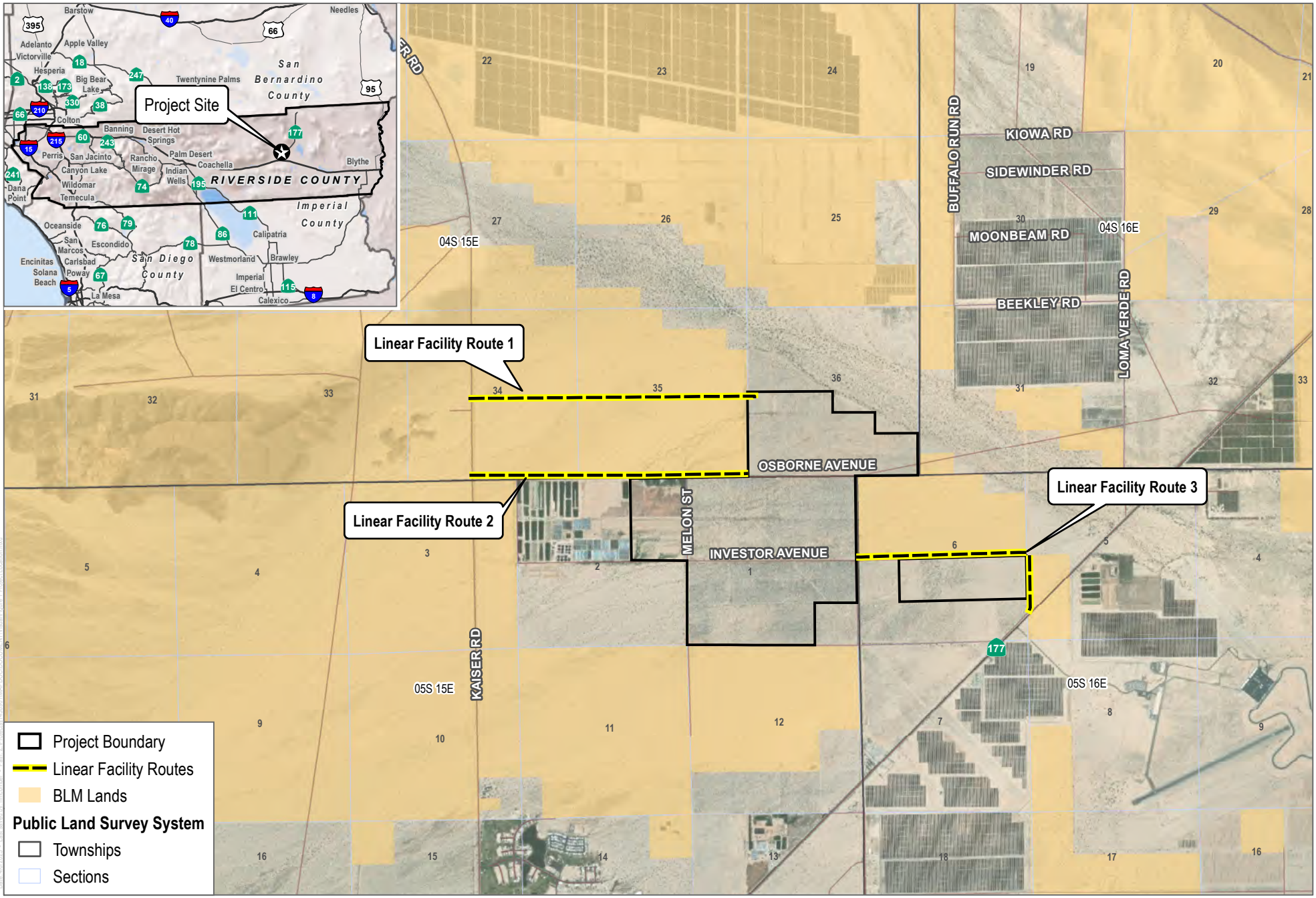

SOURCE: Esri World Imagery Basemap (accessed 2022); County of Riverside 2022; BLM 2022

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0 2,000 4,000 Feet

FIGURE 1

Project Location

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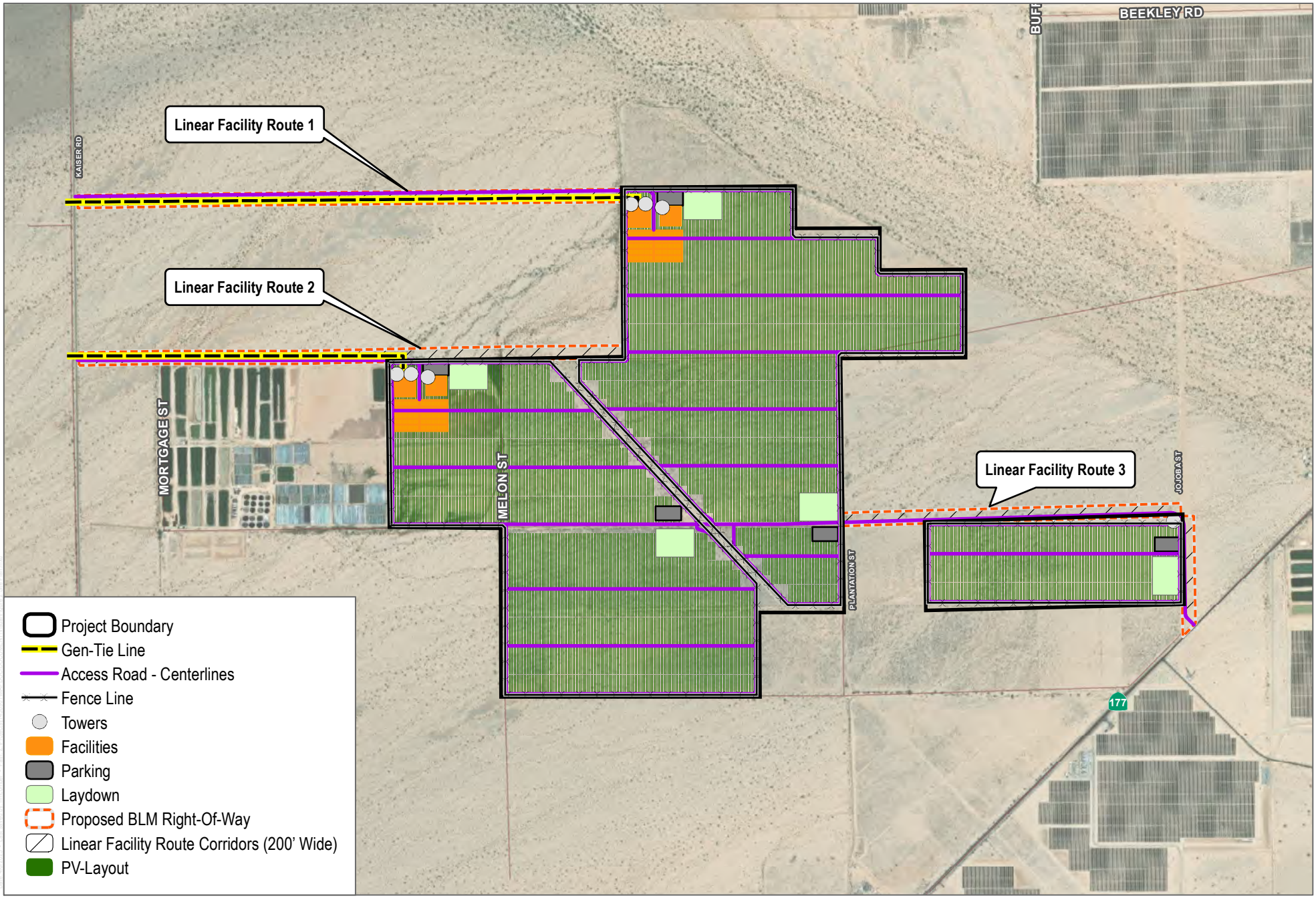

SOURCE: Esri World Imagery Basemap (accessed 2022); County of Riverside 2022; BLM 2022

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FIGURE 2

Site Plan

Sapphire Solar Project Visual Resources Report

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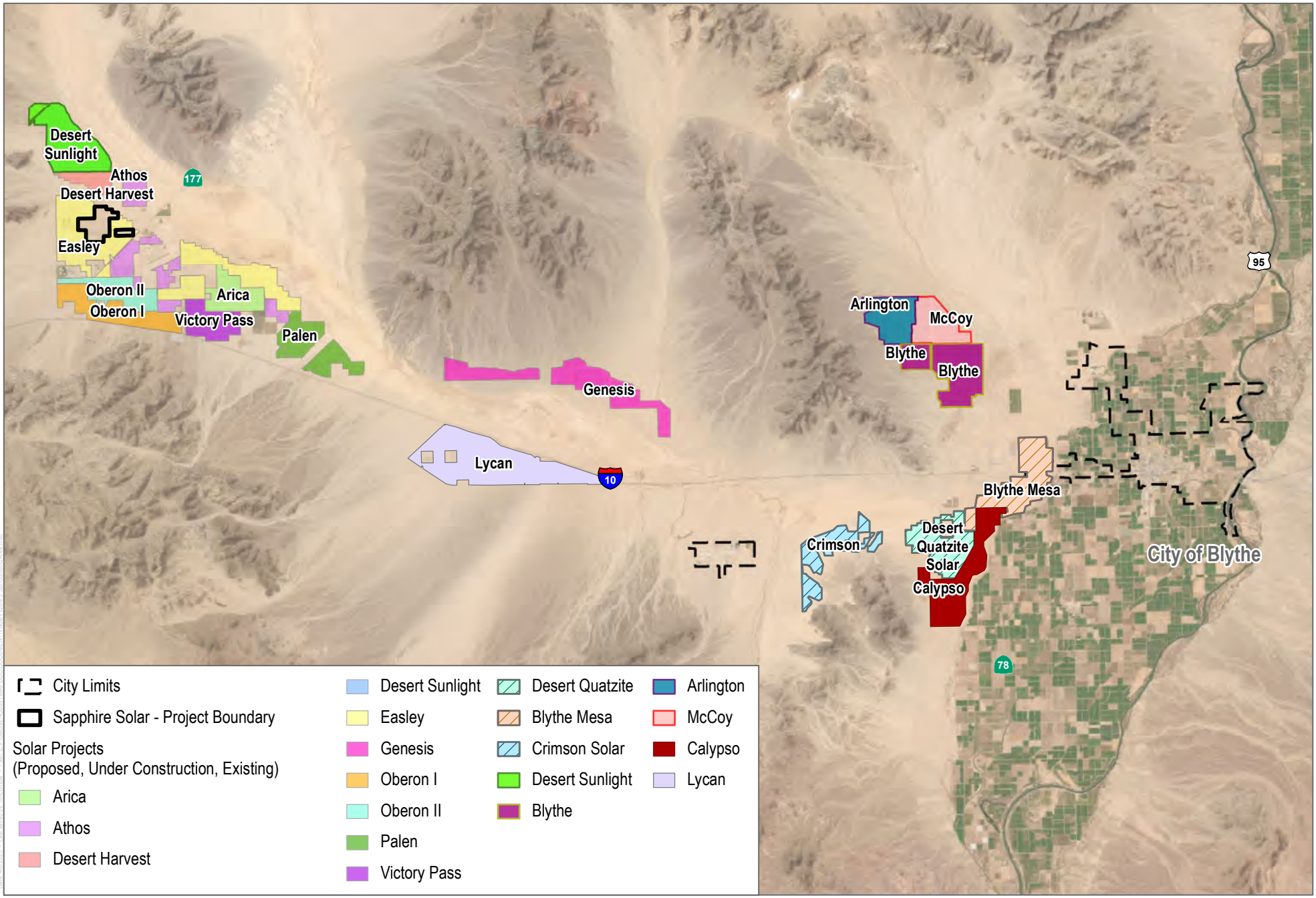

SOURCE: Esri World Imagery Basemap (accessed 2022); County of Riverside 2022; DRECP 2022; BLM 2021

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FIGURE 3

Surrounding Area

Sapphire Solar Project Visual Resources Report

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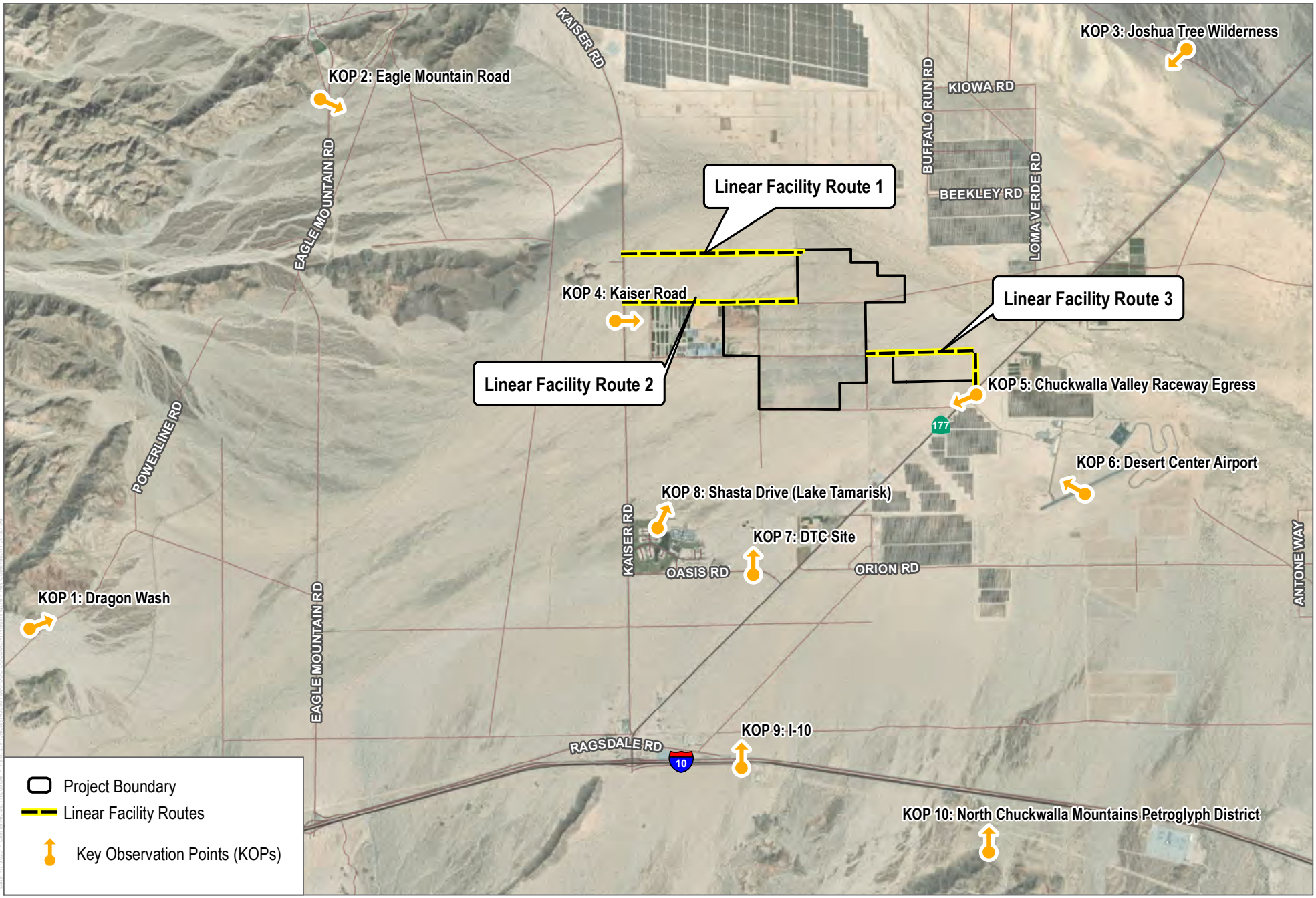

SOURCE: Esri World Imagery Basemap (accessed 2022); County of Riverside 2022

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0 3,200 6,400 Feet

FIGURE 4

Key Observation Points

Sapphire Solar Project Visual Resources Report

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KOP 1: View to east-northeast towards project site and McCoy/Palen Mountains

KOP 2: View to east-southeast from Eagle Mountain Road near MWD Pumping Plant

FIGURE 5

KOPs 1 and 2: Existing Conditions

Sapphire Solar Project Visual Resource Report

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KOP 3: View to southwest from Joshua Tree Wilderness adjacent Access Road to project site

KOP 4: View to east from Kaiser Road towards project site and McCoy/Palen Mountains

FIGURE 6

KOPs 3 and 4: Existing Conditions

Sapphire Solar Project Visual Resource Report

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KOP 5: View to west-southwest from Desert Center Airport Driveway at SR-177

KOP 6: View to west-northwest from Desert Center Airport

FIGURE 7

KOPs 5 and 6: Existing Conditions

Sapphire Solar Project Visual Resource Report

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KOP 7: View to north from DTC Site toward project site, Coxcomb Mountains and Eagle Mountains

KOP 8: View north-northeast from near Shasta Drive (Lake Tamarisk) towards project site, Coxcomb Mountains and Eagle Mountains

FIGURE 8

KOPs 7 and 8: Existing Conditions

Sapphire Solar Project Visual Resource Report

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KOP 9: View north from Interstate 10 across Chuckwalla Valley including project site, existing solar facilities, and mountain terrain

KOP 10: View north from North Chuckwalla Mountain Petroglyphs District Site across Chuckwalla Valley landscape including project site, existing solar facilities, and mountain terrain

FIGURE 9

KOPs 9 and 10: Existing Conditions

Sapphire Solar Project Visual Resource Report

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Existing Condition

Visual Simulation of Project

FIGURE 10

KOP 1: Dragon Wash Site

Sapphire Solar Project Visual Resource Report

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Existing Condition

Visual Simulation of Project

FIGURE 11

KOP 2: Eagle Mountain Road

Sapphire Solar Project Visual Resource Report

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Existing Condition

Visual Simulation of Project

FIGURE 12

KOP 3: Joshua Tree Wilderness

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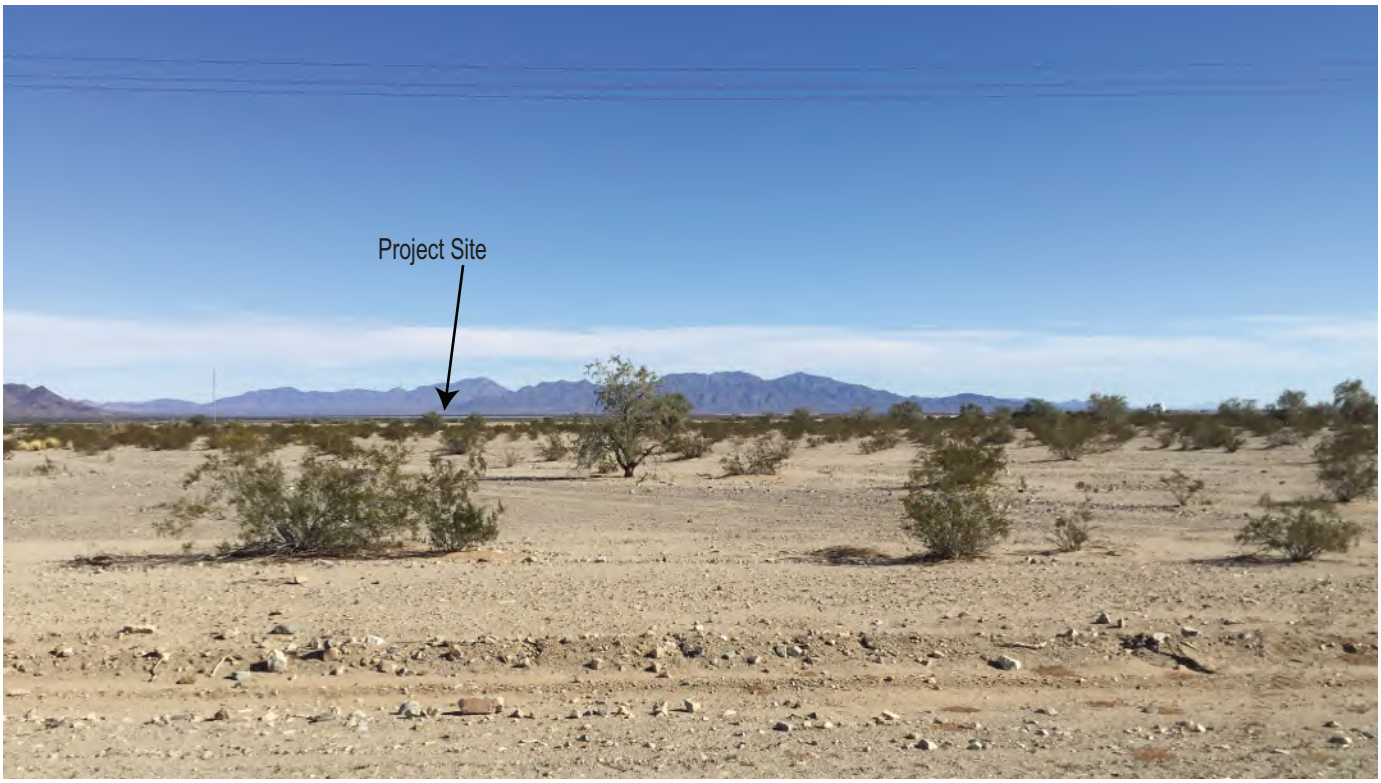
Existing Condition



Visual Simulation of Project

FIGURE 13

KOP 4: Kaiser Road

Sapphire Solar Project Visual Resource Report

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Existing Condition

Visual Simulation of Project

FIGURE 14

KOP 5: Desert Center Airport/Chuckwalla Valley Raceway Driveway at SR-177

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Existing Condition

Visual Simulation of Project (Project Components Blocked From View by Intervening Vegetation and Structures)

FIGURE 15

KOP 6: Desert Center Airport

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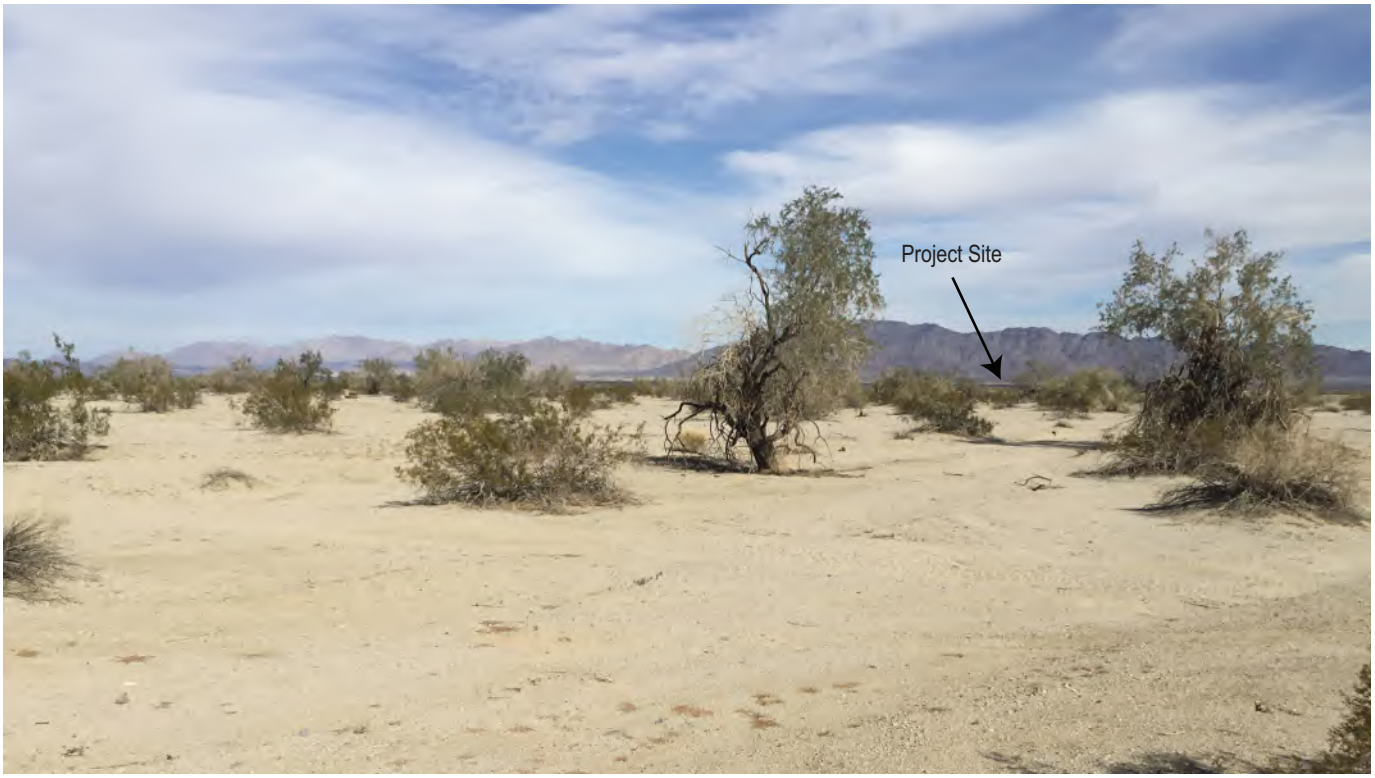
Existing Condition



Visual Simulation of Project

FIGURE 16

KOP 7: Desert Center Training Site

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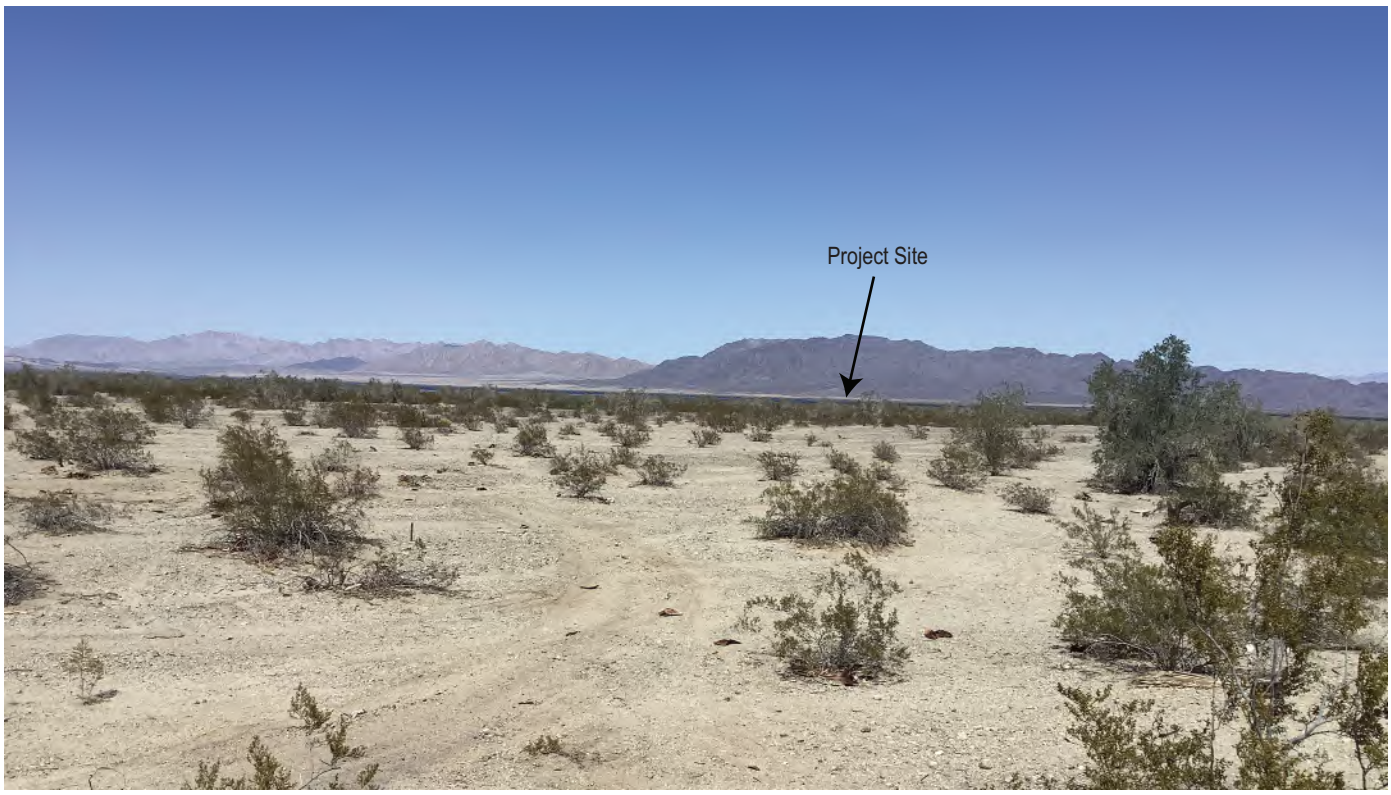
Existing Condition



Visual Simulation of Project

FIGURE 17

KOP 8: Shasta Drive - Lake Tamarisk Community

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Existing Condition

Visual Simulation of Project

FIGURE 18

KOP 9: Interstate 10

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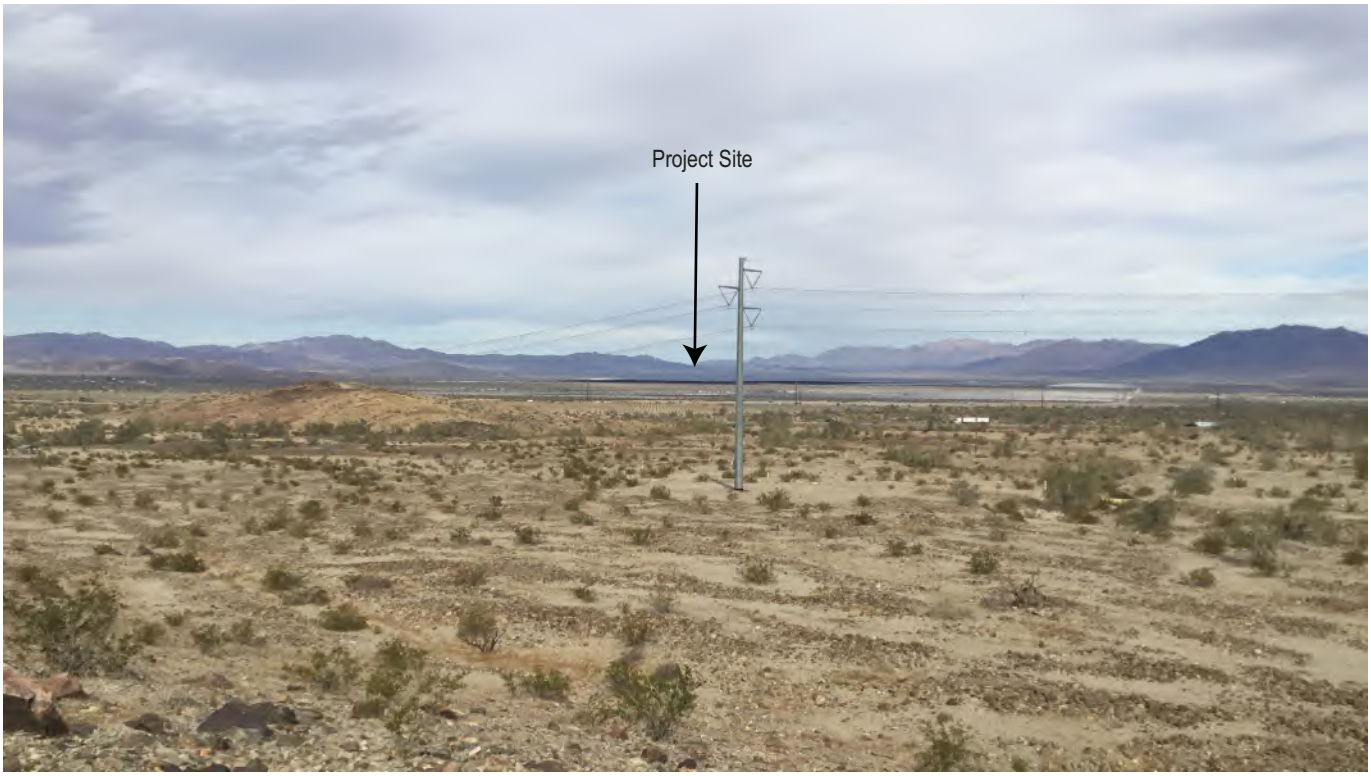
Existing Condition



Visual Simulation of Project

FIGURE 19

KOP 10: North Chuckwalla Mountains Petroglyph District

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Appendix A

Photometric Lighting Study

Michael Baker
INTERNATIONAL

We Make a Difference

MEMORANDUM

By: C. Erik Yamashiro, PE, LC

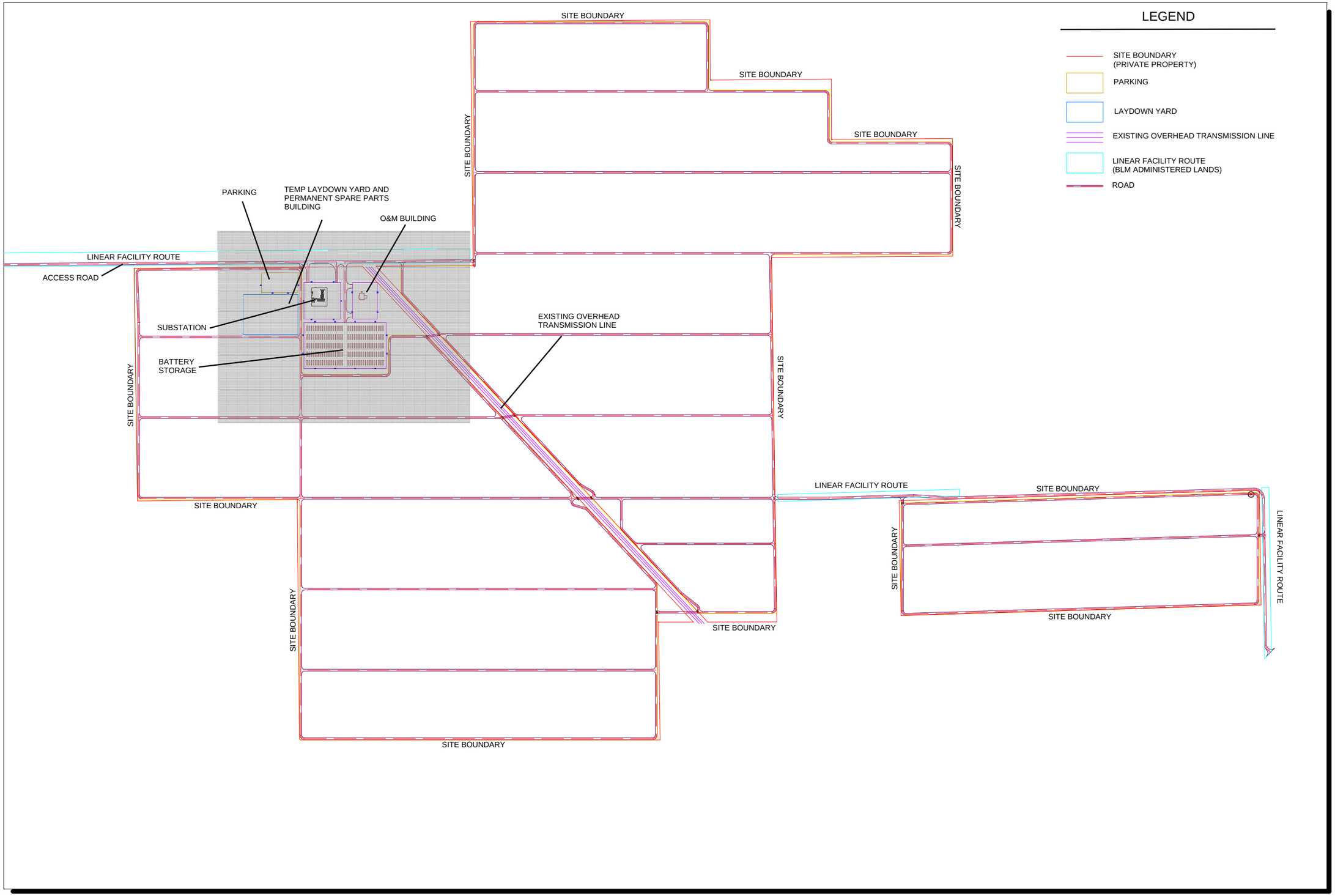
Date: July 5th, 2023

Subject: Sapphire Solar Site Description of Photometric Calculation Report

Michael Baker International (Michael Baker)/Akela Engineers has performed a Photometric Calculation Report for the proposed *Sapphire Solar Site in Riverside County, CA*.

The attached photometric lighting study for the proposed Sapphire Solar project includes a plan drawing and specifications for the lighting fixtures consisting of 26 area light units by LSI Industries, Inc. model Slice, anticipated to be installed at the onsite substation, battery storage, O&M Building and parking area for outdoor lighting. All area lighting units are designed to produce zero uplight and will be fitted with adjustable adapters (slip fitters) that allow the units to be tilted. The zero uplight design will prevent direct light pollution from illuminating the night sky. These units will have motion detection via integral passive infrared sensors that activate switching of the luminaire light levels. All units will be mounted at 35 feet above the ground and, where noted, tilted to a maximum of 30 degrees (see plan drawings in Attachment A for aiming information). Units not tilted to 30 degrees will be aimed straight down at 0 degrees. These units will be capable of being switched on and off manually for emergency operation use only.

As shown in the plan drawing within the attachment, the light levels will be reduced to zero within the property and will not illuminate any adjacent properties outside the project boundary. Additionally, no light spillage will occur onto the linear facility routes which are part of the project but located on adjacent lands managed by the Bureau of Land Management (BLM). No lighting installations will be made along roadways or fence lines at the perimeter of the property.



Michael Baker INTERNATIONAL

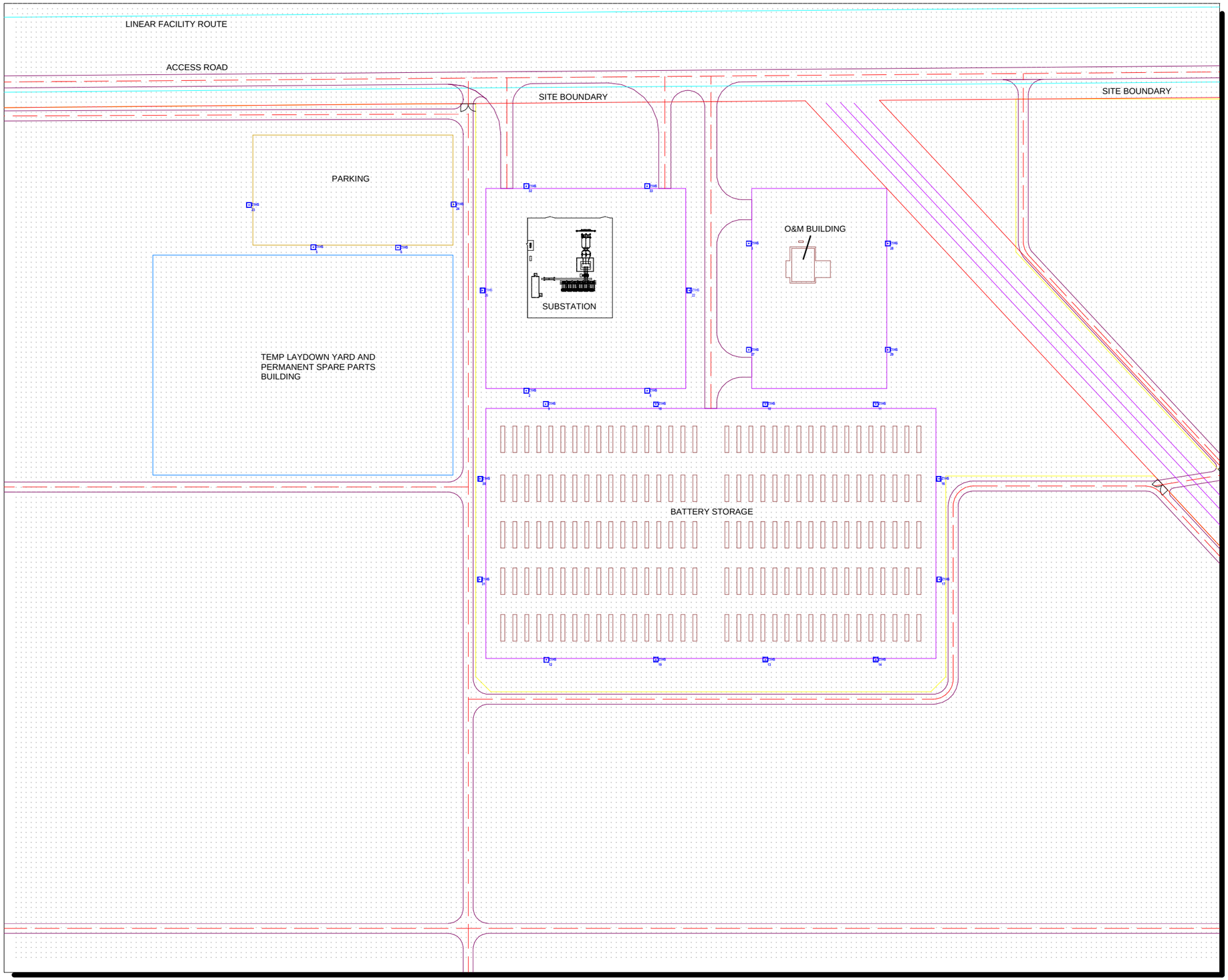
#	Date	Comments

Revisions

Drawn By: C. Erik Yamashiro
Checked By: Lance Mackie
Date:6/20/2023
Scale: N/A

Sapphire Solar

Lighting Photometrics



COLOR KEY:
FOOTCANDLES (FC)

GREEN 0.01 - 0.2 FC

BLUE 0.2 - 0.5 FC

RED 0.5 - 3 FC

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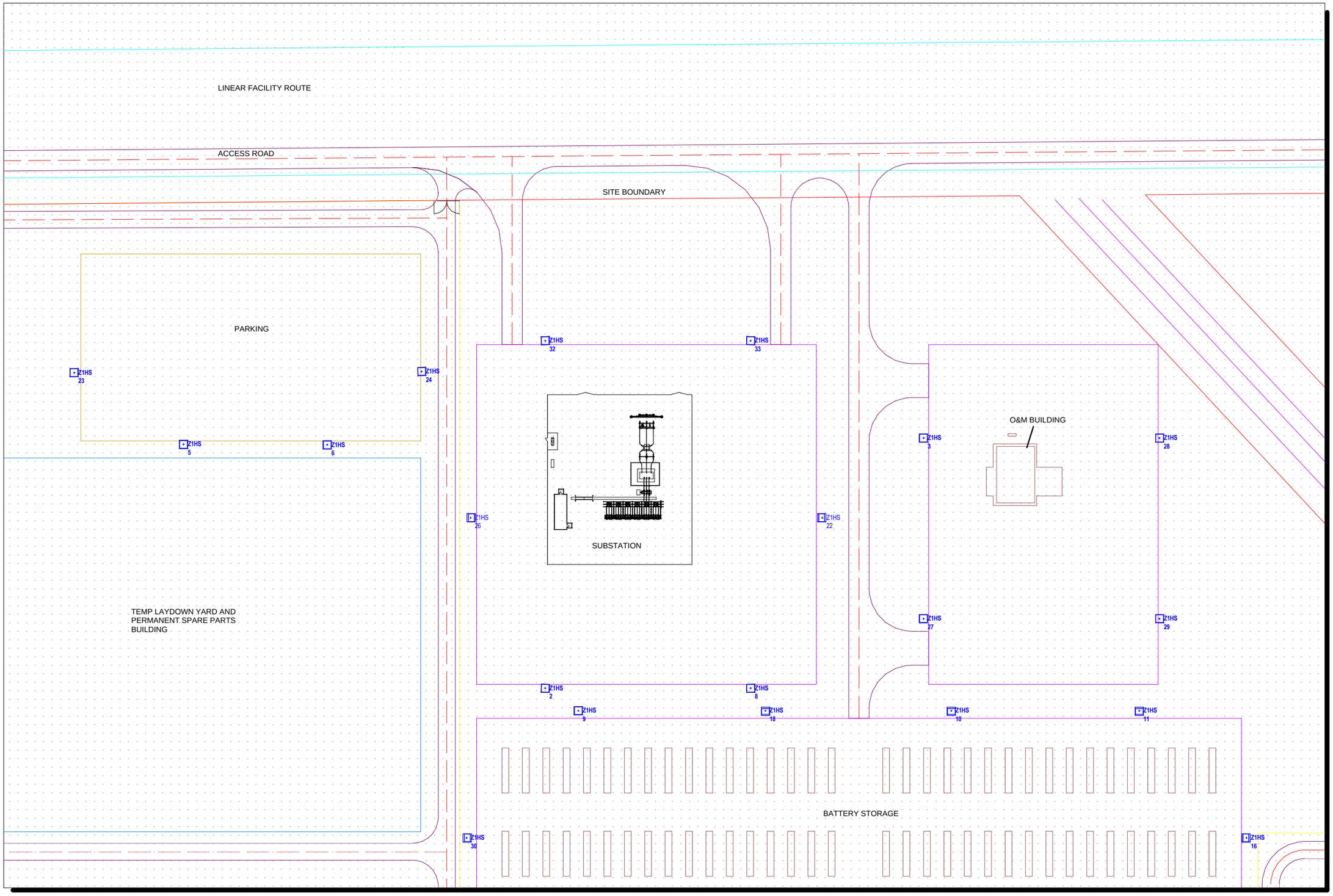
#	Date	Comments

Revisions

Drawn By: C. Erik Yamashiro
Checked By: Lance Mackie
Date:6/20/2023
Scale: N/A

Sapphire Solar

Lighting Photometrics



Michael Baker INTERNATIONAL

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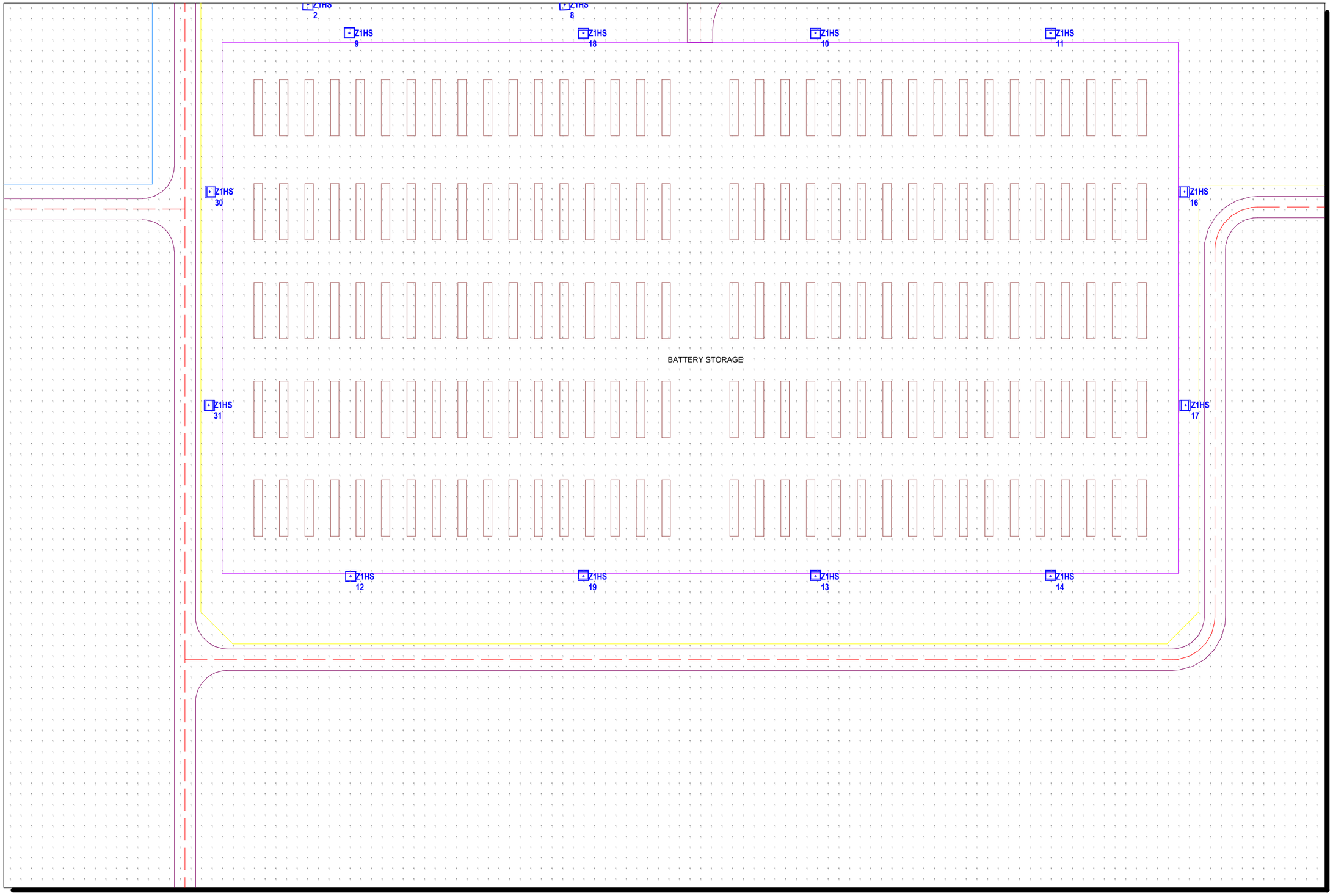
Checked By: Lance Mackie
Date:6/20/2023
Scale: N/A

Sapphire Solar

Lighting Photometrics



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#	Date	Comments

Revisions

Drawn By: C. Erik Yamashiro
Checked By: Lance Mackie
Date:6/20/2023
Scale: N/A

Sapphire Solar

Lighting Photometrics

Luminaire Schedule					
Symbol	Tag	Qty	Luminaire Lumens	LLF	Catalog
	Z1HS	26	19552	1.000	SLM-LED-30L-SIL-FT-27-IL-70CR

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Off-Site	Illuminance	Fc	?	?	?	N.A.	N.A.
Site	Illuminance	Fc	?	?	?	N.A.	N.A.

Luminaire Location Summary						
		Insertion Point				
LumNo	Label	X	Y	Z	Orient	Tilt
2	SLM-LED-30L-SIL-FT-27-IL-70CR	6826529.756	2225245.435	35	88.821	0
3	SLM-LED-30L-SIL-FT-27-IL-70CR	6826974.761	2225540.004	35	0	0
5	SLM-LED-30L-SIL-FT-27-IL-70CR	6826104.136	2225532.504	35	90	0
6	SLM-LED-30L-SIL-FT-27-IL-70CR	6826273.154	2225531.903	35	90	0
8	SLM-LED-30L-SIL-FT-27-IL-70CR	6826771.446	2225245.434	35	91.791	0
9	SLM-LED-30L-SIL-FT-27-IL-70CR	6826568.646	2225219.106	35	270	0
10	SLM-LED-30L-SIL-FT-27-IL-70CR	6827007.52	2225219.106	35	270	30
11	SLM-LED-30L-SIL-FT-27-IL-70CR	6827228.721	2225219.106	35	270	30
12	SLM-LED-30L-SIL-FT-27-IL-70CR	6826569.821	2224707.393	35	90	0
13	SLM-LED-30L-SIL-FT-27-IL-70CR	6827007.52	2224707.393	35	90	30
14	SLM-LED-30L-SIL-FT-27-IL-70CR	6827228.721	2224707.393	35	90	30
16	SLM-LED-30L-SIL-FT-27-IL-70CR	6827355.106	2225069.422	35	180	30
17	SLM-LED-30L-SIL-FT-27-IL-70CR	6827356.045	2224868.417	35	180	30
18	SLM-LED-30L-SIL-FT-27-IL-70CR	6826788.905	2225219.106	35	270	30
19	SLM-LED-30L-SIL-FT-27-IL-70CR	6826788.905	2224707.393	35	90	30
22	SLM-LED-30L-SIL-FT-27-IL-70CR	6826855.83	2225446.168	35	180	30
23	SLM-LED-30L-SIL-FT-27-IL-70CR	6825975.328	2225616.918	35	0	0
24	SLM-LED-30L-SIL-FT-27-IL-70CR	6826384.414	2225618.345	35	181.095	0
26	SLM-LED-30L-SIL-FT-27-IL-70CR	6826441.858	2225446.167	35	0	30
27	SLM-LED-30L-SIL-FT-27-IL-70CR	6826974.761	2225327.353	35	0	0
28	SLM-LED-30L-SIL-FT-27-IL-70CR	6827252.661	2225540.004	35	180	0
29	SLM-LED-30L-SIL-FT-27-IL-70CR	6827252.661	2225327.353	35	180	0
30	SLM-LED-30L-SIL-FT-27-IL-70CR	6826437.144	2225069.422	35	0	30
31	SLM-LED-30L-SIL-FT-27-IL-70CR	6826436.205	2224868.417	35	0	30
32	SLM-LED-30L-SIL-FT-27-IL-70CR	6826529.754	2225654.62	35	271.18	0
33	SLM-LED-30L-SIL-FT-27-IL-70CR	6826771.444	2225654.624	35	268.21	0

Michael Baker INTERNATIONAL

#	Date	Comments

Revisions

Drawn By: C. Erik Yamashiro
Checked By: Lance Mackie
Date:6/20/2023
Scale: N/A

Sapphire Solar

Lighting Photometrics

Catalog # :	Project :
Prepared By :	Date :

Slice Medium - SLM
Outdoor LED Area Light

The Slice's sleek design makes it perfectly-suited for Commercial & Industrial applications, while its cost-effective die-cast aluminum housing makes its acquisition cost very competitive. The Slice offers high performance silicone optics, die cast aluminum housing, 42,000+ lumens and is available with integral Airlink Synapse controls.

Features & Specifications

Optical System

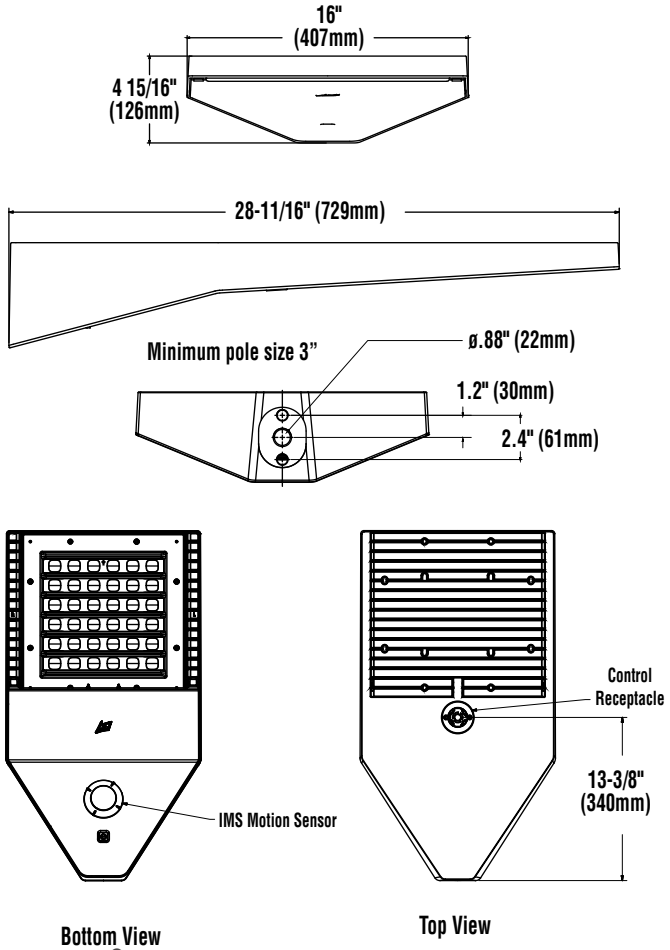
- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, 5W, FT and FTA.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, 3000K, and 2700K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral Louver (IL) option available for improved back-light control without sacrificing street side performance. See page 5 for more details.

Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 3)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L lumen package rated to +40°C.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Terminal block provided accepts up to 10ga wire.
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Dimmable | WIRELESS CONTROLS | IP66 | RoHS COMPLIANT | ARRA Funding Compliant | c UL us LISTED | MANUFACTURED IN USA | TITLE 24 COMPLIANT | ida DARK SKY APPROVED | DLC LISTED | DLC LISTED PREMIUM

Product Dimensions



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Features & Specifications (Cont.)

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square poles.
- Luminaire is proudly manufactured in the U.S.of U.S. and imported parts.
- IP66 rated luminaire protects integral components from harsh environments.
- 3G rated for ANSI C136.31 high vibration applications
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Controls

Wireless Controls System

To make this fixture AirLink ready, simply order one of the following options:

a. The integrated Wireless Lighting Controller: ALSC or ALSCH (see ordering guide) as the controls option, or

b. Integrated Wireless Controller option (above) with integrated motion sensor: ALSCS (ordering guide for mounting heights) or

c. The 7-Pin Photoelectric Control Receptacle: CR7P as the controls option; and either the 5-Pin or 7-Pin Twist Lock Controller: ALSC UNV TL5 or ALSC UNV TL7 as an accessory

To see how the components of AirLink system work together, reference the diagram in the controls section of this specsheet. For more information on our AirLink products, visit our website: www.lsi-airlink.com/airlink-synapse/

Stand-Alone Controls

- The integral passive infrared motion sensor (IMS) activates switching of luminaire light levels (see the controls section for more details).
- The 7-pin ANSI C136.41-2013 photocontrol receptacle option (CR7P) is available for twist lock photocontrols or wireless control modules.
- The Button Type Photocells (PCI) are capable of switching luminaires ON/OFF in response to the amount of available daylight.

Installation

- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment for installing/servicing.
- Included terminal block provides quick and easy on-site wiring.
- Utilizes LSI's traditional 3" drill pattern for easy fastening of LSI products. (See drawing on page 1)

Warranty

- LSI LED Fixtures carry a 5-year warranty.

Listings

- Listed to UL 1598 and UL 8750.
- RoHS Compliant.
- American Recovery and Reinvestment Act Funding Compliant.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable For wet Locations.
- IP66 rated Luminaire. IP66 rated optical chamber.
- 3G rated for ANSI C136.31 high vibration applications

Performance

ELECTRICAL DATA (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	68.2	0.6A	0.3A	0.3A	0.2A	0.2A	0.1A
12L	93.1	0.8A	0.4A	0.4A	0.3A	0.3A	0.2A
18L	148.5	1.2A	0.7A	0.6A	0.5A	0.4A	0.3A
24L	188.8	1.6A	0.9A	0.8A	0.7A	0.5A	0.4A
30L	248.6	2.1A	1.2A	1.0A	0.9A	0.7A	0.5A
36L	317.8	2.6A	1.5A	1.3A	1.1A	0.9A	0.7A
42L	393.4	3.3A	1.9A	1.6A	1.4A	1.1A	0.8A

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	74.3	0.6A	0.4A	0.3A	0.3A	0.2A	0.2A
12L	102.9	0.9A	0.5A	0.4A	0.4A	0.3A	0.2A

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%

RECOMMENDED LUMEN MAINTENANCE[1](24-42L)

Ambient	Initial[2]	25 hr[2]	50 hr[2]	75 hr[3]	100 hr[3]
0-40 C	100%	100%	97%	94%	92%

RECOMMENDED LUMEN MAINTENANCE[1](9-18L)

Ambient	Initial[2]	25 hr[2]	50 hr[2]	75 hr[3]	100 hr[3]
0-50 C	100%	96%	91%	87%	83%

1- Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2- In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3- In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing

DELIVERED LUMENS*

Lumen Package	Distribution	Phosphor Converted Amber (Peak 610nm)			Wattage
		Delivered Lumens	Efficacy	BUG Rating	
9L	2	5958	80	B2-U0-G1	74
	2 IL	3735	50	B0-U0-G1	
	3	6196	83	B1-U0-G1	
	3 IL	4205	56	B0-U0-G1	
	5W	5528	74	B3-U0-G1	
	FT	5922	79	B1-U0-G2	
	FT IL	3712	50	B0-U0-G1	
	FTA	5997	80	B2-U0-G2	
	FTA IL	4254	57	B0-U0-G1	
12L	2	7559	73	B2-U0-G2	103
	2 IL	4738	46	B0-U0-G1	
	3	7860	76	B2-U0-G2	
	3 IL	5335	52	B0-U0-G1	
	5W	7013	68	B3-U0-G2	
	FT	7513	73	B2-U0-G2	
	FT IL	4709	46	B0-U0-G2	
	FTA	7608	74	B2-U0-G2	
	FTA IL	5397	52	B0-U0-G1	

*LED Chips are frequently updated therefore values are nominal

LUMINAIRE EPA CHART - SLM

Tilt Degree		0°	30°	45°	Tilt Degree		0°	30°	45°
	Single	0.5	2.1	2.6		T90°	1.2	2.9	3.6
	D180°	1.1	2.1	2.6		TN120°	1.3	4.4	5.4
	D90°	0.9	2.5	3.1		Q90°	1.2	2.9	3.6

Specifications and dimensions subject to change without notice.

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Slice Medium - SLM
Outdoor LED Area Light

DELIVERED LUMENS*

Lumen Package	Distribution	CRI	2700K CCT Delivered Lumens	2700K CCT Efficacy	2700K CCT BUG Rating	3000K CCT Delivered Lumens	3000K CCT Efficacy	3000K CCT BUG Rating	4000K CCT Delivered Lumens	4000K CCT Efficacy	4000K CCT BUG Rating	5000K CCT Delivered Lumens	5000K CCT Efficacy	5000K CCT BUG Rating	Wattage
9L	2	70	8349	122	B2-U0-G2	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	69
	2 IL	70	5185	76	B0-U0-G1	5326	78	B0-U0-G1	5835	85	B0-U0-G1	6076	89	B0-U0-G1	
	3	70	8571	125	B1-U0-G2	8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	3 IL	70	6283	92	B0-U0-G2	6454	94	B0-U0-G2	7071	103	B0-U0-G2	7363	107	B0-U0-G2	
	5W	70	8158	119	B3-U0-G2	8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B4-U0-G2	
	FT	70	8337	122	B2-U0-G2	8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FT IL	70	5393	79	B0-U0-G2	5540	81	B0-U0-G2	6069	89	B0-U0-G2	6320	92	B0-U0-G2	
	FTA	70	8459	123	B2-U0-G2	8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	FTA IL	70	6200	91	B1-U0-G1	6369	93	B1-U0-G1	6978	102	B1-U0-G1	7266	106	B1-U0-G1	
12L	2	70	11157	119	B2-U0-G2	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	94
	2 IL	70	6929	74	B1-U0-G1	7117	76	B1-U0-G2	7798	83	B1-U0-G2	8119	86	B1-U0-G2	
	3	70	11454	122	B2-U0-G2	11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	3 IL	70	8396	89	B0-U0-G2	8625	92	B0-U0-G2	9449	101	B0-U0-G2	9839	105	B0-U0-G2	
	5W	70	10902	116	B4-U0-G2	11199	119	B4-U0-G2	12269	131	B4-U0-G2	12775	136	B4-U0-G2	
	FT	70	11141	119	B2-U0-G2	11444	122	B2-U0-G2	12538	133	B2-U0-G3	13055	139	B2-U0-G3	
	FT IL	70	7207	77	B0-U0-G2	7403	79	B0-U0-G2	8110	86	B0-U0-G2	8445	90	B0-U0-G2	
	FTA	70	11304	120	B2-U0-G2	11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	FTA IL	70	8286	88	B1-U0-G1	8511	91	B1-U0-G1	9325	99	B1-U0-G1	9710	103	B1-U0-G1	
18L	2	70	16714	112	B3-U0-G3	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	150
	2 IL	70	10379	69	B1-U0-G2	10662	71	B1-U0-G2	11681	78	B1-U0-G2	12163	81	B1-U0-G2	
	3	70	17158	115	B2-U0-G3	17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	3 IL	70	12578	84	B1-U0-G2	12920	86	B1-U0-G2	14155	95	B1-U0-G2	14739	99	B1-U0-G2	
	5W	70	16331	109	B4-U0-G2	16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT	70	16689	112	B3-U0-G3	17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FT IL	70	10795	72	B1-U0-G2	11089	74	B1-U0-G2	12149	81	B1-U0-G3	12651	85	B1-U0-G3	
	FTA	70	16934	113	B3-U0-G3	17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	FTA IL	70	12412	83	B1-U0-G1	12750	85	B1-U0-G2	13969	93	B1-U0-G2	14546	97	B1-U0-G2	
24L	2	70	20880	112	B3-U0-G3	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	187
	2 IL	70	13100	70	B1-U0-G2	14243	76	B1-U0-G2	15231	81	B1-U0-G2	15550	83	B1-U0-G2	
	3	70	21739	116	B3-U0-G3	23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	3 IL	70	15828	85	B1-U0-G3	17209	92	B1-U0-G3	18403	98	B1-U0-G4	18788	100	B1-U0-G4	
	5W	70	20632	110	B5-U0-G3	22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT	70	21611	116	B3-U0-G4	23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FT IL	70	13692	73	B1-U0-G3	14886	80	B1-U0-G3	15919	85	B1-U0-G3	16252	87	B1-U0-G3	
	FTA	70	21496	115	B3-U0-G3	23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	FTA IL	70	15226	81	B1-U0-G2	16555	89	B1-U0-G2	17703	95	B2-U0-G2	18073	97	B2-U0-G2	
30L	2	70	26581	108	B4-U0-G3	28900	117	B4-U0-G3	30905	125	B4-U0-G3	31551	128	B4-U0-G3	247
	2 IL	70	16677	68	B1-U0-G2	18132	73	B1-U0-G2	19390	79	B1-U0-G2	19796	80	B1-U0-G2	
	3	70	27675	112	B3-U0-G4	30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	3 IL	70	20150	82	B1-U0-G4	21908	89	B1-U0-G4	23428	95	B1-U0-G4	23918	97	B1-U0-G4	
	5W	70	26266	106	B5-U0-G3	28557	116	B5-U0-G3	30538	124	B5-U0-G4	31177	126	B5-U0-G4	
	FT	70	27512	111	B3-U0-G4	29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FT IL	70	17430	71	B1-U0-G3	18951	77	B1-U0-G4	20266	82	B1-U0-G4	20690	84	B1-U0-G4	
	FTA	70	27365	111	B3-U0-G3	29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	FTA IL	70	19384	78	B2-U0-G2	21075	85	B2-U0-G2	22537	91	B2-U0-G2	23008	93	B2-U0-G2	
36L	2	70	32214	102	B4-U0-G3	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	317
	2 IL	70	20212	64	B1-U0-G2	21975	69	B1-U0-G3	23499	74	B2-U0-G3	23991	76	B2-U0-G3	
	3	70	33540	106	B3-U0-G4	36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	3 IL	70	24421	77	B1-U0-G4	26551	84	B1-U0-G4	28393	90	B1-U0-G4	28987	92	B1-U0-G5	
	5W	70	31832	101	B5-U0-G4	34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT	70	33342	105	B3-U0-G5	36251	114	B3-U0-G5	38766	122	B4-U0-G5	39577	125	B4-U0-G5	
	FT IL	70	21125	67	B1-U0-G4	22968	73	B1-U0-G4	24561	78	B1-U0-G4	25075	79	B1-U0-G4	
	FTA	70	33164	105	B4-U0-G3	36058	114	B4-U0-G4	38559	122	B4-U0-G4	39366	124	B4-U0-G3	
	FTA IL	70	23492	74	B2-U0-G2	25541	81	B2-U0-G2	27313	86	B2-U0-G2	27885	88	B2-U0-G2	
42L	2	70	36785	94	B4-U0-G3	39994	103	B5-U0-G4	42768	110	B5-U0-G4	43663	112	B5-U0-G4	390
	2 IL	70	23079	59	B1-U0-G3	25093	64	B2-U0-G3	26833	69	B2-U0-G3	27395	70	B2-U0-G3	
	3	70	38299	98	B3-U0-G5	41640	107	B4-U0-G5	44528	114	B4-U0-G5	45460	117	B4-U0-G5	
	3 IL	70	27886	72	B1-U0-G4	30319	78	B1-U0-G5	32422	83	B1-U0-G5	33100	85	B1-U0-G5	
	5W	70	36349	93	B5-U0-G4	39520	101	B5-U0-G4	42261	108	B5-U0-G4	43145	111	B5-U0-G4	
	FT	70	38073	98	B4-U0-G5	41395	106	B4-U0-G5	44266	114	B4-U0-G5	45192	116	B4-U0-G5	
	FT IL	70	24122	62	B1-U0-G4	26226	67	B1-U0-G4	28045	72	B1-U0-G4	28632	73	B1-U0-G4	
	FTA	70	37870	97	B4-U0-G4	41174	106	B4-U0-G4	44030	113	B4-U0-G4	44951	115	B4-U0-G4	
	FTA IL	70	26825	69	B2-U0-G2	29165	75	B2-U0-G2	31188	80	B2-U0-G2	31841	82	B2-U0-G2	

*LED Chips are frequently updated therefore values are nominal

Specifications and dimensions subject to change without notice.

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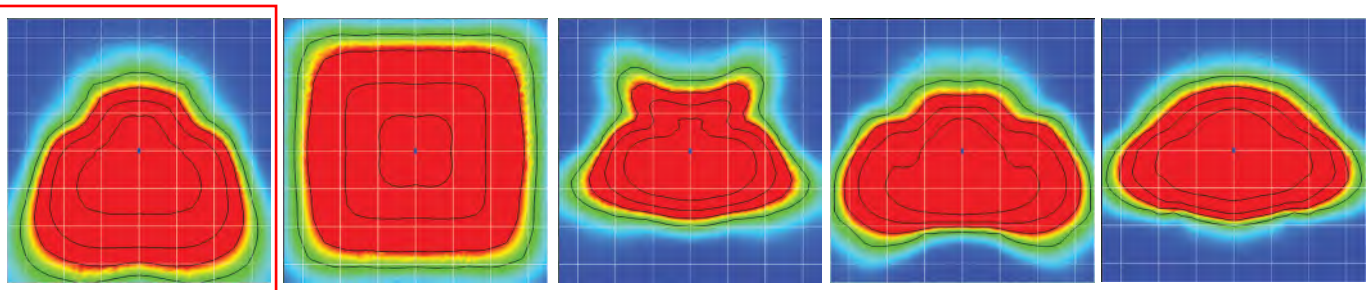
Performance (Cont.)

All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Slice (SLM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.



FT | 5W | FTA | Type 3 | Type 2

Ordering Guide

SLM-LED-36L-SIL-FT- -UNV-DIM-27-70CRI- -GPT

TYPICAL ORDER EXAMPLE: **SLM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package*	Light Output	Distribution	Orientation[1]	Voltage	Driver
SLM Slice Medium	**LED**	**9L** - 9,000 lms **12L** - 12,000 lms **18L** - 18,000 lms **24L** - 24,000 lms **30L** - 30,000 lms **36L** - 36,000 lms **42L** - 42,000 lms *Consult factory for programmable wattages and lumen packages	**SIL** - Silicone	**2** - Type 2 **3** - Type 3 **5W** - Type 5 Wide **FT** - Forward Throw **FTA** - Forward Throw Automotive	**(blank)** - standard **L**- Optics rotated left 90 **R** - Optics rotated right 90	**UNV** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)	**DIM** - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Controls (Choose One)	Finish	Options
50 - 5,000 CCT **40** - 4,000 CCT **30** - 3,000 CCT[2] **27** - 2,700 CCT[2] **AMB** - Phosphor Converted Amber[2,3]	**70CRI** - 70 CRI	**(Blank)** - None **Wireless Controls System** **ALSC** - AirLink Synapse Control System [4] **ALSCH** - AirLink Synapse Control System Host / Satelite [4,5] **ALSCS01** - AirLink Synapse Control System with 8-12' Motion Sensor [4] **ALSCHS01** - AirLink Synapse Control System Host / Satelite with 8-12' Motion Sensor [4,5] **ALSCS02** - AirLink Synapse Control System with 12-20' Motion Sensor[4] **ALSCHS02** - AirLink Synapse Control System Host / Satelite with 12-20' Motion Sensor [4,5] **ALSCS04** - AirLink Synapse Control System with 20-40' Motion Sensor [4] **ALSCHS04** - AirLink Synapse Control System Host / Satelite with 20-40' Motion Sensor [4,5] **Stand-Alone Controls** **EXT** - 0-10v Dimming (from external signal) **IMS0M1** - Integral Motion Sensor 8-12' 120-277V [4,6] **IMS0M2** - Integral Motion Sensor 12-20' 120-277V [4,6] **IMS0M4** - Integral Motion Sensor 20-40' 120-277V [4,6] **IMS0M1HV** - Integral Motion Sensor 8-12' 347-480V [6] **IMS0M2HV** - Integral Motion Sensor 12-20' 347-480V [6] **IMS0M4HV** - Integral Motion Sensor 20-40' 347-480V [6] **CR7P** - 7 Pin Control Receptacle ANSI C136.41 [7] **Button Type Photocells** **PCI120** - 120V **PCI208-277** - 208 -277V **PCI347** - 347V	**BRZ** - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**(Blank)** - None **IL** - Integral Louver HSS[1]

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Accessory Ordering Information[8]

Description	Order Number	Description	Order Number
PC120 Photocell for use with CR7P option (120V)[9]	122514	DFK208, 240 Double Fusing (208V, 240V)	DFK240
PC208-277 Photocell for use with CR7P option (208V, 240V, 277V)[9]	122515	DFK480 Double Fusing (480V)	DFK480
PC347 Photocell for use with CR7P option (347V)[9]	122516	DFK347 Double Fusing (347V)	DFK347
PC480 Photocell for use with CR7P option (480V)[9]	1225180	X5RPP - Round Pole Adapter for 5" Poles[10]	379968CLR
ALSC UNV TL5 - Airlink 5Pin Twist Lock Controller[4,9]	661409	IL - Integral Louver HSS	684812
ALSC UNV TL7 - Airlink 7Pin Twist Lock Controller[4,9]	661410	Universal Mounting Bracket (UMB)[10]	684616CLR
PMOS24 - 24V Pole-Mount Occupancy Sensor (ALSC/H Compatible)[10]	663284CLR	Adjustable Slip Fitter (ASF)[10]	688138CLR
IMS/PC Remote Configurator Tool	584929	Pole Quick Mount Bracket - Square Pole[10]	687073CLR
X3RPP - Round Pole Adapter for 3" Round Tapered Poles[10]	408273CLR	Pole Quick Mount Bracket - 4-5" Round Pole[10]	689903CLR
X4RPP - Round Pole Adapter for 4" Poles[10]	379967CLR	15° Tilt Pole Quick Mount Bracket - Square Pole[10]	688003CLR
FK120 Single Fusing (120V)	FK120	15° Tilt Pole Quick Mount Bracket - 4-5" Round Pole[10]	689905CLR
FK277 Single Fusing (277V)	FK277	BKS XBO WM * CLR Wall Mount Bracket[10]	382132CLR

FOOTNOTES:
1 - Not available on "Type 5W" distribution.
2 - Consult Factory for availability.
3 - Only available in 9L and 12L Lumen Packages
4 - Not available in HV.
5 - Consult Factory for Site Layout
6 - IMS is field adjustable, via a hand held Remote Configurator Tool, which must be ordered separately. See Accessory Ordering Information.
7 - Control device must be ordered separately. 7 pin standard. See Accessory Ordering Information.
8 - Accessories are shipped seperately and field installed.
9 - Factory installed CR7P option required. See Options.
10 - "CLR" denotes finish. See Finish options.

Accessories/Options

Integral Louver (IL)

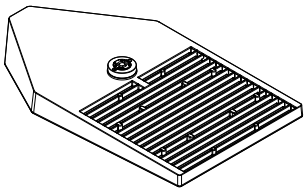
Accessory Integral Louver available for improved back-light control without sacrificing street side performance. LSI's Integral Louver (IL) option delivers backlight control that significantly reduces light spill behind the pole for applications with pole locations close to adjacent properties. The integrated louvers' design maximizes forward-reflected light while - reducing glare, maintaining the optical distribution selected, and most importantly, eliminating light trespass. The Integral louver rotates with the optical distribution.

Luminaire Shown with Integral Louver (IL)

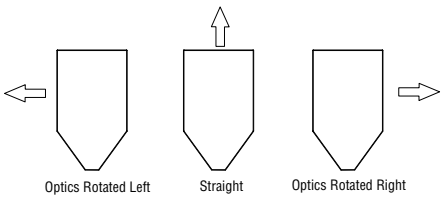
7 Pin Photoelectric Control

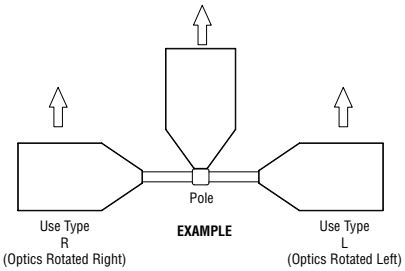
7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Fixture Shown with CR7P



Optics Rotation





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Stand-alone Controls: Occupancy Sensor (IMS)

The integral passive infrared motion sensor activates switching of luminaire light levels. Standard Factory settings: High level light is activated and increased to full bright upon detection of motion. Lowlight level (10% maximum drive current) is activated when target zone is absent of motion activity for ~5 minutes. See coverage diagram for detection cone.

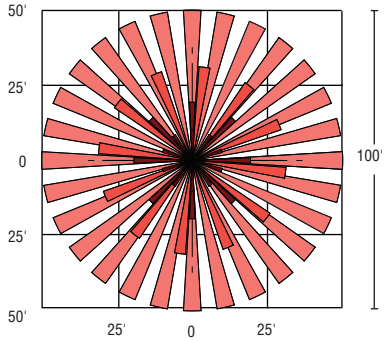
The Remote Configurator Tool allows for easy and safe programming of each luminaire from ground level.
See the Remote Configurator User Guide for programming instructions.

When ordering the Stand-alone Occupancy Sensor on the fixture, you must include IMS (see ordering guide for mounting height options) as the controls option in the fixture nomenclature.

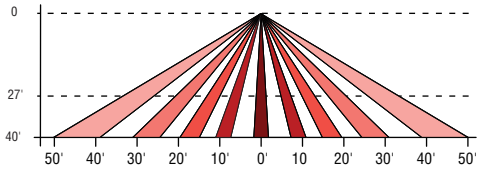
To order as a motion sensor with the AirLink Wireless Control System, see ordering guide under “Wireless Controls System” and select the ALSCS controls option with the desired mounting height.

IMS Coverage Diagrams

TOP VIEW



SIDE VIEW



Remote Configurator Tool

Luminaire Shown with IMS

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Slice Medium - SLM
Outdoor LED Area Light

AirLink™
enabled by Synapse®

The AirLink enabled by Synapse Wireless Lighting Control System is the perfect solution for commercial, industrial and municipal applications, such as: auto dealerships, parking lots, garages, shopping complexes and warehouses.

AirLink utilizes robust wireless communication via 2.4 GHz Self-Healing Mesh Network which not only increases reliability and accuracy of system, but also eliminates single point of failure.

The flexibility of the system make it perfect for new construction and retrofit projects. The user-friendly AirLink web application is accessible through any device with an internet connection and allows for complete customization of the system's features.

Some capabilities of the system include: occupancy/vacancy sensing, daylight harvesting, scheduling, high-end trim, dimming, zone control, BMS integration and energy monitoring.

The AirLink System

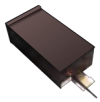
Wireless controls & sensors

Wireless & Override Switches

Occupcancy/Vacancy & Daylight Sensors

AirLink-integrated Fixtures

AirLink-compatible Fixtures



Circuit & Zone Controllers

Centralized control & integration

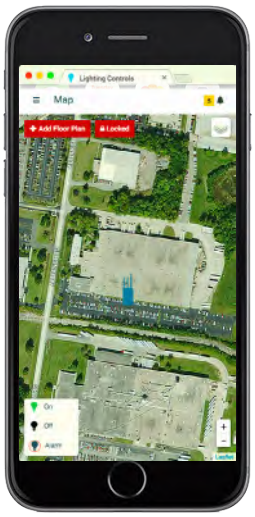
Site Manager Controller

Gateway Module

ASHRAE BACnet®

WiFi, Cellular or Ethernet Connection

Simple-to-use software



AirLink Site Manger: Lighting control web app

Contact LSI Controls

Sales
controls.sales@lsi-industries.com

Support
controls.support@lsi-industries.com
1 (800) 436-7800 (support, option 8)

More information
For more information on AirLink, visit our website at **www.lsi-airlink.com**

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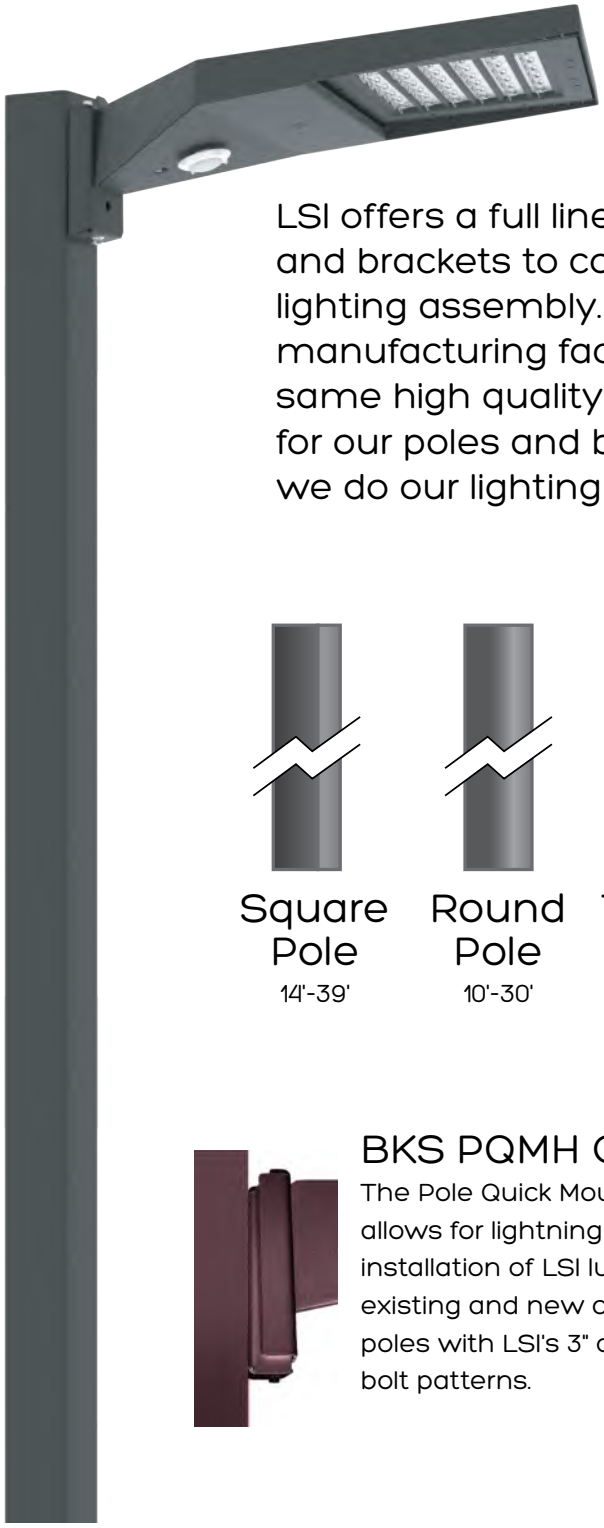
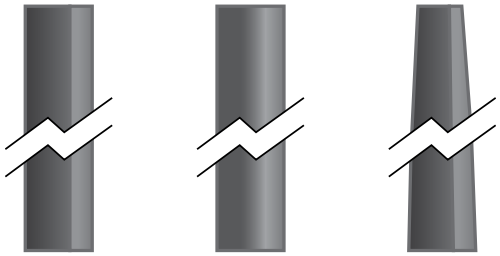
poles & Brackets



LSI offers a full line of poles and brackets to complete your lighting assembly. Our USA manufacturing facility has the same high quality standards for our poles and brackets as we do our lighting fixtures.

BKA UMB CLR

The 3G rated Universal Mounting Bracket (UMB) allows for seemless integration of LSI Luminaires onto existing or new construction poles. The UMB bracket was designed specifically for square or round (tapered/ straight) poles with (2) mounting hole spaces between 3.5"-5".



Square Pole
14'-39'

Round Pole
10'-30'

Tapered Pole
20'-39'

BKA ASF CLR

The adjustable Slip Fitter is a 3G rated rugged die cast aluminum adapter to mount LSI luminaires onto a 2" (51mm) IP, 2.375" (60mm) O.D. tenon. The Adjustable Slip Fitter can be rotated 180° allowing for tilting LSI luminaires up to 45° and 90° when using a vertical tenon.

BKS PQMH CLR

The Pole Quick Mount Bracket allows for lightning fast installation of LSI luminaires onto existing and new construction poles with LSI's 3" or 5"standard bolt patterns.

BKS PQM15 CLR

The Pole Quick Mount Bracket allows for preset 15° uptilt of LSI luminaires for greater throw of light and increased vertical illumination aswell as fast installation onto poles with LSI's 3" or 5" bolt pattern.

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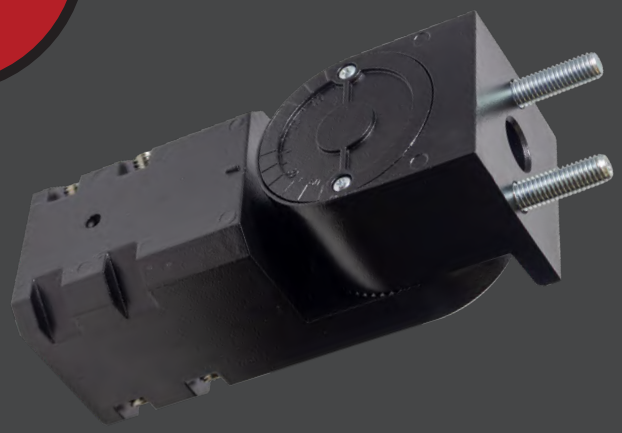
Catalog # :	Project :
Prepared By :	Date :

BKA ASF CLR
Area Light Brackets



The adjustable Slip Fitter is a 3G rated rugged die cast aluminum adapter to mount LSI luminaires onto a 2 3/8" O.D. tenon. The Adjustable Slip Fitter can be rotated 180° allowing for tilting LSI luminaires up to 45 degrees and 90° when using a vertical tenon

Features & Specifications

- Designed to mount LSI luminaires onto a 2" (51mm) IP, 2.375" (60mm) O.D. tenon.
- Can be rotated 180° allowing for tilting LSI luminaires up to 45 degrees for higher vertical illumination and 90° when using a vertical tenon
- Separate wireways for both line voltage and dimming wires
- Rugged 3pc Die Cast Aluminum construction, silicone pole gasket, fixture mounting studs, stainless steel visible hardware, and self-drilling screw for extra security
- EPA: .2
- Weight: 5lbs
- 3G rated for ANSI C136.31 high vibration applications in both Vertical and Horizontal mountings
- Bracket finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.

Compatible Fixtures

SLM

MRL

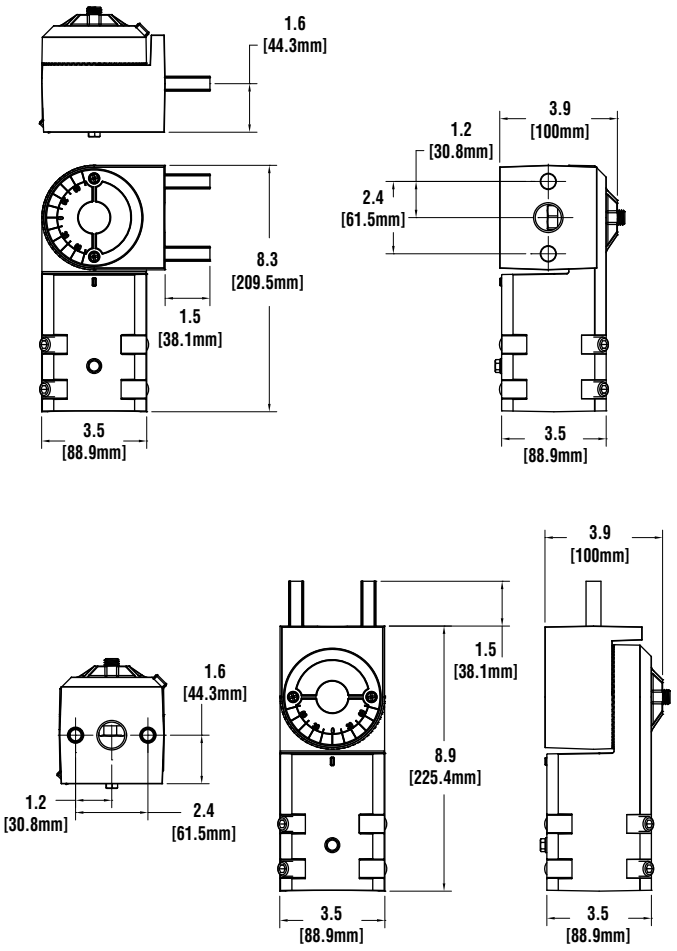
XALM/MRM

Ordering Guide

TYPICAL ORDER EXAMPLE: **BKA ASF CLR**

Prefix	Finish
BKA ASF	**BRZ** - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green

Product Dimensions



BKA-ASF-GPT

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Installation and Assembly Instructions
Slice Area Light (SLM) Series

⚠ WARNING

Risk of fire, electric shock, injury or property damage

Risk of electric shock--Disconnect power to equipment before installing or servicing.

This equipment must be installed according to all applicable codes & ordinances.

Installation and service of this equipment must be performed by qualified service personnel.

Do not install damaged equipment.

Read these instructions before installing, servicing or maintaining this equipment.

Save these instructions for maintaining and servicing.

⚠ CAUTION

Failure to follow instructions or altering equipment could result in damage and void warranty.

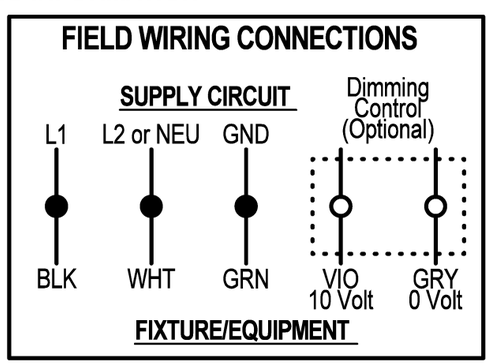
Edges may cut--wear gloves while handling or servicing this equipment.

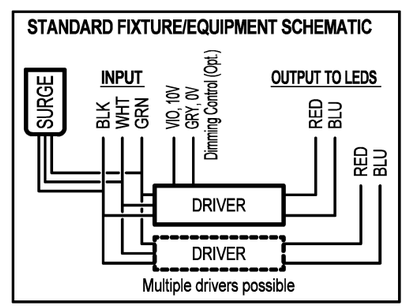
Inspect equipment for damage from shipping and handling.

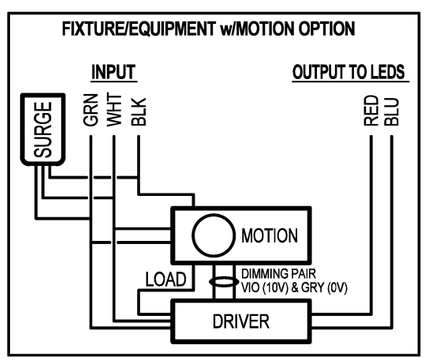
LUMINAIRE INSPECTION

1. Remove the luminaire from the carton and inspect luminaire for damage. Do not install a damaged luminaire.

WIRING INFORMATION





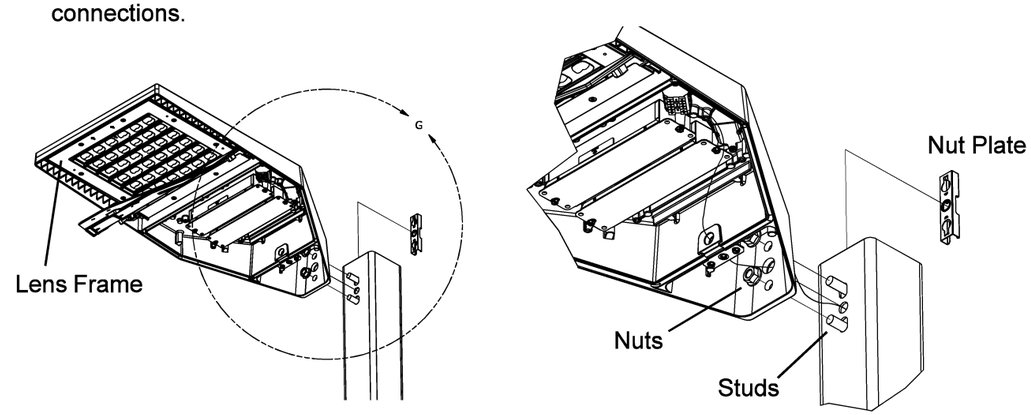


Installation Questions
Call LSI Field Service Dept.
800-436-7800 ext. 3300

Installation and Assembly Instructions
Slice Area Light (SLM) Series

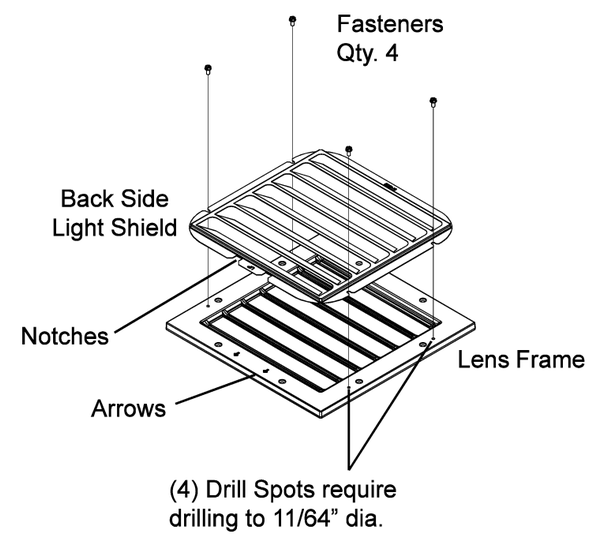
Luminaire Preparation and Mounting to Pole

1. Verify the luminaire optic type (2, 3, 5W, FT, FTA, etc.) and rotation (None, Left, Right) agree with site lighting plan for the specific pole location.
2. Open fixture driver compartment by loosening door fastener. Mounting hardware is located in luminaire.
3. Fasten luminaire to pole per the figure below. Tighten fasteners to 25 ft/lbs.
4. Route wires through center hole and grommet into driver compartment and make wiring connections.



Back Side Light Shield Attachment

1. Locate (4) drill spots on lens frame and drill (4) 11/64" diameter holes in lens frame to receive self-threading 10-24 fasteners.
2. Align Back Side Light Shield notches to Lens Frame arrows and place the Shield on the Lens Frame.
3. Attach Back Side Light Shield to Lens Frame with (4) fasteners provided.



Installation Questions
Call LSI Field Service Dept.
800-436-7800 ext. 3300

LSI Industries Inc. 10000 Alliance Rd. Cincinnati, OH 45242 www.lsi-industries.com
681282 Rev. 05-21-18

Appendix B
Glare Analysis Report

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T 626.204.9800

July 10, 2024

Sapphire Solar, LLC/EDF Renewables Development, Inc.
15445 Innovation Drive,
San Diego, California 92128

Subject: Explanation of Change in Glare Analysis Methodology and Results, Sapphire Solar Project

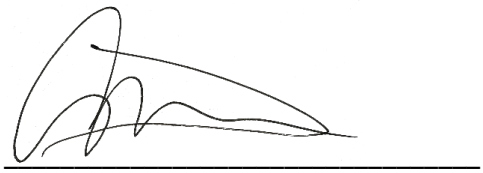
Subsequent to the original preparation of the Glare Analysis Report (report) for Sapphire Solar Project (project) in July of 2023, Dudek staff was requested by the Department of Defense and Bureau of Land Management to amend the report to include an analysis of military training routes (MTRs) within 2-nautical-miles of the project's proposed photovoltaic (PV) arrays. This amendment prompted Dudek staff to incorporate new tools and methodologies that have been developed since the original publication of the report to address known limitations in the 3D geometric glare analysis software. Dudek staff believes these new tools and methodologies provide a more realistic estimate of potential glare hazards. The following describes the changes in methodology, the reasons for the change, as well as the effect the change had on the analysis results.

- **Incorporation of Skyline Analysis** - The geometric glare modeling software uses a flat, featureless horizon when modeling glare that is not an accurate representation of the real-world skyline. To remedy this in the amendment to the report, Dudek incorporated a skyline analysis to account for times when the sun would be occluded by any mountains within 15 miles of the project. This change in methodology reduced the estimated duration of glare towards receptors that were most affected during the early mornings and late afternoons when the sun is lowest in the sky. Please see discussion in Section 4.2.5 of the report for an in-depth description of the skyline analysis and Section 4.3 for the glare analysis results.

- **Reduced Size and Complexity of Analysis Groups** – Since the original publication of the report, Dudek has discovered that the geometric glare modeling software does not always accurately simulate backtracking strategies (the methods used to rotate the PV panels back to their resting angle after they have reached their maximum tracking angle) for more complex PV array polygons containing concavities or linearly aligned vertices. To remedy this, Dudek staff reduced the size and complexity of the PV array polygons, increasing the total number of polygons being analyzed. This change resulted in a more accurate representation of the backtracking strategy in the modeling software, which resulted in less glare towards ground-based receptors during the morning and afternoon hours. Please see Section 4.2.4 for a description of the analysis groups and Section 4.3 for the glare analysis results.

Dudek believes that these changes offer a more accurate representation of the potential glare hazards, thereby facilitating a more informed decision-making process.

Sincerely,



Christopher Starbird
GIS/Glare Analysis Specialist

Glare Analysis Report

Sapphire Solar Project

JULY 2024

Prepared for:

SAPPHIRE SOLAR, LLC/EDF RENEWABLES DEVELOPMENT, INC.
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APPENDICES

A Detailed Modeling Results

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
3-D	Three Dimensional
amsl	Above Mean Sea Level
BLM	Bureau of Land Management
CN64	Desert Center Airport
DoD	Department of Defense
DRECP	Desert Renewable Energy Conservation Plan
FAA	Federal Aviation Administration
gen-tie	Generation Tie
hrs	Hours
I	Interstate
kV	Kilovolt
MTR	Military Training Route
MW	Megawatt
OFA	Object Free Area
OP	Observation Point
Project	Sapphire Solar Project
PV	Photovoltaic
Report	Glare Analysis Report
RPZ	Runway Protection Zone
RSA	Runway Safety Area
SR	State Route

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1 Introduction

1.1 Purpose and Scope

The purpose of this Glare Analysis Report (report) is to assess the potential glare impacts associated with implementation of the Sapphire Solar Project (Project) in order to comply with Item 12 of the Riverside County Planning Department's "Solar Power Plants – Supplemental Information List":

> Glare Study. The glare study shall show the impact of the site as it tracks the sun throughout the day. The study shall analyze potential glare impacts when viewed from aircraft and from ground level.

The Project is not located on federally obligated airport property; hence it doesn't need approval from the U.S. Federal Aviation Administration (FAA). Nevertheless, the analysis was conducted per the FAA's recommended procedures described in the Technical Guidance for Evaluating Selected Solar Technologies on Airports (FAA 2018); the geometric glare modeling software used adheres to FAA policy regarding solar energy system projects on federally obligated airports (86 FR 25801–25803).

This report focuses on the potential for glare on sensitive ground-based receptors within a 5-mile glare study, military training routes (MTRs) within a 2-nautical-mile study area, as well as the two runway approach paths associated with Desert Center Airport (CN64), which is a federally obligated private-use airport with an expected activity level of no more than 2,300 take-offs/landings annually, an activity level described as "minimal" in the Riverside Airport Land Use Compatibility Plan (Riverside County ALUC 2004).

This report includes an introduction to the photovoltaic (PV) technologies proposed to be implemented on the Project site and their potential to result in glare. Chapter 2, Project Description, provides a description of the Project and the Project location; Chapter 3, Regulations and Regulatory Requirements, describes the criteria that must be met for solar energy systems on airport property and relevant glare policies or standards adopted by Riverside County; and Chapter 4, Glare Impacts, describes the methodology used to perform the glare analysis and provides a summary of the analysis results. Chapter 5, References Reviewed, provides a list of the references cited in this report, and Chapter 6, Document Preparers, provides a list of those involved in the preparation of this report. Lastly, the complete detailed glare results generated by the modeling software are provided in Appendix A, Detailed Modeling Results.

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2 Project Description

2.1 Project Characteristics

The proposed Project is located on approximately 1,192 acres, of which approximately 1,082 acres is located on private lands and approximately 110 acres is located on land administered by the United States Department of Interior, Bureau of Land Management (BLM), Palm Springs-South Coast Field Office (Figure 1, Project Location). The 110-acre area on BLM-administered lands is located within a Development Focus Area for solar, wind, and geothermal projects as designated by the Desert Renewable Energy Conservation Plan (DRECP).

The Project's solar site (solar site) would include up to 117-megawatt (MW) of PV solar generation and up to 117-MW of battery storage. The Project would also include up to three linear facility alignment options for a 230 kilovolt (kV) generation tie (gen-tie) line, main site and secondary site access roads, distribution line, and collector line routes, collectively referred to as "Linear Facility Routes," that would be located on federal public lands administered by BLM and designed to support the proposed Project, which would be located on adjacent private lands. The Project would interconnect with the Southern California Edison 230-kV Red Bluff Substation via line tap on the existing Desert Harvest gen-tie line located on lands administered by the BLM.

This report considers the impacts of the PV solar arrays and their potential to generate glare on nearby sensitive receptors. The Project would include other components that do not have potential for significant glare and are therefore not analyzed in this report.

All of the Project components are located off airport property; outside of navigable airspace; and outside of the Runway Protection Zone (RPZ), Runway Safety Area (RSA), Object Free Area (OFA), and Clearway as defined by the FAA (FAA 2018).

2.2 Regional and Local Setting

The Project site is located in Riverside County, California, at the western extent of Chuckwalla Valley in the Colorado Desert, approximately 5 miles north of Desert Center, approximately 3.5 miles north of Interstate (I)-10, 70 miles east of Palm Springs, and 40 miles west of Blythe. The elevation of Chuckwalla Valley ranges from less than 350 feet above mean sea level (amsl) at Ford Dry Lake to approximately 1,800 feet amsl west of Desert Center and along the upper portions of the alluvial fans that surround the valley perimeter. The surrounding mountains rise to over 3,000 feet amsl.

The topography of the Project site generally slopes downward toward the northeast at a gradient of less than 1%. Ground surface elevations at the Project site range from approximately 580 feet amsl in the eastern solar parcel to 660 feet amsl near the western end of the parcel. Land use near the Project site include aquaculture, transportation (Kaiser Road, State Route (SR) 177), agricultural, photovoltaic energy (both existing and proposed), electrical transmission, historical military operations, and developed recreational uses.

Figure 1 shows the Project location, glare study area, and surrounding landscape, including the location of CN64 to the east; Interstate (I)-10 and the community of Desert Center to the south and SR 177 to the west.

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3 Regulations and Regulatory Requirements

3.1 Federal

U.S. Federal Aviation Administration

To understand and model glare, Dudek used FAA standards, which has approved the use of Sandia National Laboratories' Solar Glare Hazard Analysis Tool. With the Solar Glare Hazard Analysis Tool, standardized safety metrics define the anticipated glare intensity that would cause unwanted visual impacts to air traffic control towers and airplane pilots. Glare intensity is described according to potential for after-image, and is illustrated on FAA's Solar Glare Ocular Hazard Plot. Low potential for after-image is referred to as "green" glare, and potential for after-image is referred to as "Yellow" glare. "Red" glare is representative of glare conditions with potential for permanent eye damage.

The Solar Glare Hazard Analysis Tool and ForgeSolar (ForgeSolar 2019) are also able to evaluate the potential of a particular PV array to produce glare intensity, predicting when and where glare would occur from a proposed PV array at discrete observation points (e.g., from the air traffic control tower or runway approach). In instances where glare may be a concern, the tools can prescribe minor adjustments to the tilt, direction, and location of the panels to alleviate issues.

For this analysis, Dudek staff used the industry standard ForgeSolar 3-D geometric glare analysis software tool to disclose potential glare impacts associated with operation of the Project. See Section 4.2.2, Geometric Glare Analysis, and Section 4.2.3, Limitations of the Geometric Glare Analysis, for more information about the modeling parameters and limitations.

The FAA has crafted a policy regarding the ocular hazards posed by solar projects to federally obligated airports. Initially, it was assumed that solar energy systems might generate new glint and glare effects for pilots during the final approach. However, the FAA has since concluded that in most instances, the glint and glare from solar energy systems experienced by pilots during final approach are comparable to those routinely encountered from water bodies, glass facade buildings, parking lots, and similar features. Therefore, the FAA has retracted its prior interim guidance which mandated airports to analyze potential glint and glare effects for pilots on final approach (86 FR 25801–25803). Instead, the FAA has decided that its policy should primarily focus on the impact of on-airport solar energy systems on federally-obligated towered airports, especially the airport's Air Traffic Control Tower (ATCT) cab (86 FR 25801–25803).

Per FAA Policy 86 FR 25801–25803, the following criteria must be met for solar energy systems on airport property:

- No glare of any kind for Air Traffic Control Tower(s) at cab height

This policy only applies to proposed solar energy systems on federally obligated airport property and only those airports with control towers. Though Desert Center Airport is a federally obligated airport, the Project does not fall on airport property, and the airport does not utilize an air traffic control tower. For these reasons, this policy does

not apply to the Project, but was included in this reporting to describe the standard methodologies used to assess solar glare near operating airports.

As noted above, PV glare for pilots on final landing approach is no longer a major concern for the FAA. Dudek has included the final approach paths as receptors in this analysis to comply with the Riverside County Planning Department's "Solar Power Plants—Supplemental Information List," which requires a solar project applicant to "analyze potential glare impacts when viewed from aircraft."

Bureau of Land Management

Although the Project's solar energy facility would be located on private lands and not subject to BLM regulations or policies, the associated gen-tie alignments, access roads, and collector line routes (Linear Facility Routes) would be on BLM-administered lands. The BLM administered lands occupied by the Linear Facility Routes falls within a Development Focus Area (DFA) for solar, wind, and geothermal projects as designated by the Desert Renewable Energy Conservation Plan (DRECP). DFA's are areas with substantial energy generation potential, access to existing or planned transmission, and low resource conflicts. The DRECP Final Environmental Impact Statement was approved by a Record of Decision on September 14, 2016.

U.S. Department of Defense

On June 11, 2014, the U.S. Department of Defense (DoD) issued guidance requiring the use of the Solar Glare Hazard Analysis Tool for renewable energy projects near DoD aviation operations.

- Solar renewable energy projects using the authority found in 10 U.S.C., 2922a or in 10 U.S.C., 2667 (Enhanced Use Lease) will require the Solar Glare Hazard Analysis Tool analysis for Office of the Secretary of Defense review/approval/certification.

3.2 State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires an analysis of aesthetic impacts when an agency or individual proposes an activity that may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. In Appendix G, Environmental Checklist Form, the 2021 CEQA Statute and Guidelines contains the follow impact threshold related to glare:

- Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Other than the CEQA Guidelines, there are no state regulations pertaining to potential glare effects associated with the operation of solar facilities.

3.3 County of Riverside

County of Riverside General Plan Land Use Element

The following policies of the County's General Plan Land Use Element are applicable to aesthetics/visual resources and the Projects (County of Riverside 2020a):

- **Policy LU 7.4:** Retain and enhance the integrity of existing residential, employment, agricultural, and open space areas by protecting them from encroachment of land uses that would result in impacts from noise, noxious fumes, glare, shadowing, and traffic.

Riverside County Airport Land Use Commission

The Riverside County Airport Land Use Commission (ALUC) establishes policies applicable to land use compatibility planning in the vicinity of airports throughout Riverside County. In Chapter 2, Section 1.53 of the Riverside County Airport Land Use Compatibility Plan Policy Document, it is stated that ALUC review is required for any project within the influence area of CN64 (see Figure 1) that may have the potential to create visual hazards to aircraft in flight, including the following (Riverside County ALUC 2004):

- Glare in the eyes of pilots of aircraft using the airport.

The Project does not fall within the Airport Influence Area for CN64.

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4 Glare Impacts

4.1 General Concepts of Solar Technologies and Glare

The Project would involve the installation of PV panels to convert the sun's light into electrical energy. To increase the efficiency of this conversion process, designers of solar systems strive to maximize the amount of solar energy that can be absorbed by solar cells. This work towards increasing efficiency has the added benefit of reducing the amount of light that could potentially reflect off the solar panels. Reflected light can cause glint (a quick reflection) and glare (reflection that lasts for a longer duration), which can create hazards for air-traffic-control personnel, motorists, and other potential receptors. For the purpose of this report, any light reflected off of the solar panels or any other reflective surface is referred to as "glare."

There are several key design considerations that can reduce glare from solar panels. One of the main factors of reflectance is the position of the PV modules relative to the sun. A panel that has been designed to absorb 90% of the sunlight that directly meets the face of the panels (perpendicular to the sun's rays) may have that absorption significantly reduced if the panel is not directly facing the sun (ForgeSolar 2019). Because the sun tracks across the sky over the course of a day, fixed-mount stationary panels can only maximize its efficiency for a few minutes out of the day when the sunlight is directly perpendicular to the face of the panel. To maximize the amount of solar energy generated from the solar array, some PV systems employ tracking mechanisms that adjust to track the sun's trajectory as it crosses the sky. Figure 2, Comparison of Photovoltaic Tracking Systems, provides an illustrative example of a fixed-mount panel system, single-axis tracking system, and dual-axis tracking system.

In addition to panel orientation, the materials used in the panel construction play an important role in reducing glare and maximizing efficiency. For example. different glass textures can be used to absorb light beams into the solar array, and anti-reflective coatings can be added to the glass to further reduce reflectivity at high-incidence angles (the angle at which the light hits the solar array).

The Project is anticipated to employ a single-axis tracking system, as illustrated by the middle panel system in Figure 2. The axis of rotation would be aligned north-south with a maximum tracking angle of 60°. The surface of the panels would be constructed out of smooth glass and would include an anti-reflective coating, as further described in Section 4.2.3.

Glare can result in visual hazards and temporary loss of vision. The hazard level of glare depends on the ocular impact to the observer. Generally, an ocular impact is calculated as a function of the size of the glare spot and the intensity of the light. For the purpose of this report, an ocular impact is classified in one of three categories, as follows:

- **Green:** Low potential for the glare to cause an after-image (also known as flash blindness)
- **Yellow:** Potential to cause a temporary after-image
- **Red:** Potential to cause retinal burn and permanent eye damage

4.2 Methodology

In order to determine where and when glare might occur as a result of development of the Project, Dudek staff utilized a multi-step process that included a combination of spatial analysis, 3-D modeling, and aerial imagery interpolation. The following sections describe the receptors that were included in the glare analysis, their selection process, and their analysis parameters.

4.2.1 Airport Receptor Identification

All of the flight approach paths associated with CN64 were included in the analysis, regardless of distance from the project. Each modeled airport receptor type shown in Figure 4 is described in the following list, and the receptor's precise modeling parameters can be found in Appendix A:

- Air Traffic Control Tower Receptor – There is no currently-operating air traffic control tower at CN64.
- Airport Flight Approach Observation Route – Two flight approach observation routes were selected to simulate an aircraft following a straight-line approach toward each runway at the airport. Flight approach routes use glide slopes and elevation parameters, as well as cockpit visibility angles. Modeled flight approaches extended out 2 miles from each runway threshold.

Table 1 shows the flight approach parameters used for Runways 5 and 23 at CN64. The locations of the flight approach paths are depicted on Figure 4.

Table 1. Airport Flight Path Receptor Parameters

Runway Name	Threshold Crossing Height	Glide Slope	Direction (True Course)
Runway 5 (CN64 5)	50 feet	3.0 degrees	64.0 degrees
Runway 23 (CN64 23)	50 feet	3.0 degrees	244.0 degrees

4.2.2 Military Training Route Identification

Prior to beginning the glare analysis, a representative from the DoD was consulted and the following MTR identification methodology was deemed adequate for the purposes of this study.

The glare analysis included the following five flight path receptors representing MTRs in the vicinity of the Project: IR-217, IR-218, IR-255, VR-289, and VR-296. These MTRs were selected due to their buffered widths falling within two nautical miles of the proposed PV arrays. Each route was analyzed at three elevations: lower altitude limit, middle altitude, and upper altitude limit, which resulted in 15 analyzed flight vectors. The data for the MTR alignment, minimum/maximum altitude, and widths were obtained from publicly available data maintained by the FAA. The maximum field of view for a pilot on these MTRs was set to 90° azimuth (left and right of direction of travel) and 30° vertical (below direction of travel).

When determining MTR receptor flight paths, Dudek staff used a worst-case scenario analysis in which aircraft were simulated flying directly over the center point of the project's PV array field. In Dudek's experience, solar tracking systems similar to the single-axis system being implemented on the project will typically cause higher intensity glare

towards aircraft that are traveling directly towards solar fields at low altitudes. For all MTR's whose buffers overlap the project center point, the simulated direction of travel was aligned parallel to the MTR center line and positioned over the project center point. For MTR's whose buffers did not overlap the center of the project but are within the 2-nautical-mile study area buffer, the flight path was positioned as close to the project as possible while remaining within the MTR buffer zone. See Table 2, Military Training Route Receptor Parameters, for the analyzed MTR altitudes and direction of travel (true course). The MTR flight paths are illustrated on Figure 3.

Table 2. Military Training Route Receptor Parameters

MTR Name	Starting Altitude	Ending Altitude	Direction (True Course)
IR-217 (lower altitude limit)	779 feet	858 feet	228.5 degrees
IR-217 (middle altitude)	3,689 feet	3,729 feet	
IR-217 (upper altitude limit)	7,000 feet	7,000 feet	
IR-218 (lower altitude limit)	1,310 feet	1,062 feet	68.1 degrees
IR-218 (middle altitude)	3,155 feet	3,032 feet	
IR-218 (upper altitude limit)	6,000 feet	6,000 feet	
IR-255 (lower altitude limit)	706 feet	818 feet	300.3 degrees
IR-255 (middle altitude)	3,653 feet	3,709 feet	
IR-255 (upper altitude limit)	7,000 feet	7,000 feet	
VR-289 (lower altitude limit)	894 feet	955 feet	217.0 degrees
VR-289 (middle altitude)	2,147 feet	2,178 feet	
VR-289 (upper altitude limit)	4,000 feet	4,000 feet	
VR-296 (lower altitude limit)	847 feet	961 feet	241.9 degrees
VR-296 (middle altitude)	2,124 feet	2,181 feet	
VR-296 (upper altitude limit)	4,000 feet	4,000 feet	

4.2.3 Dwelling and Route Receptor Identification

Dudek performed a visibility analysis on the surrounding terrain to predict where the Project would be visible to an observer (using standard visual analysis methodology to depict the observer at an average height of 5'6") standing at any ground-level location within the 5-mile study area. This study radius was used for ground-based receptors because that distance approximates the maximum distance that an observer standing at ground-level could see the proposed photovoltaic panels before the curvature of the Earth would intervene (assuming a perfect sphere, no built environmental obstruction, and flat topography).

Using publicly available LiDAR (light detection and ranging) data, Dudek staff created a detailed elevation model that covered an area approximately 6 miles wide and approximately 5.5 miles tall, extending from two miles north of the Project, to approximately 3.5 miles south of the Project. This detailed elevation model included above-ground features, such as vegetation, other built solar plants, and structures to predict whether motorists on the surrounding highways and roads would have a true line of sight to the Project's photovoltaic arrays.

To model the remaining study area not covered by the available LiDAR data, Dudek used a lower resolution terrain model that did not represent above-ground features. This two-level approach was necessary due to constraints in data availability and processing time. Results of the visibility analysis can be seen on Figure 4, which illustrates that

a large portion of the potential road receptors within the study area would likely have a direct line of sight view of the Project.

Using the visibility analysis results in conjunction with aerial imagery, road centerline data, and land use data, Dudek staff selected potential receptors based on their distance from the Project, orientation to the Project, and the percentage of the Project visible from the receptor's location. To avoid false positives in the glare results, only receptors that were able to see the Project from their location were selected for the analysis. Figure 4, shows the locations of analyzed receptors as well as the modeled array locations. Each modeled receptor type shown on Figure 4 is described below and the receptor's precise modeling parameters can be found in Appendix A:

- Observation Point (OP) – Analysis of the Project included 19 existing potentially sensitive structures that were located within direct line of sight of the Project. Because modeling every dwelling would not be feasible, Dudek staff selected representative dwellings from the surrounding area closest to the site (near Lake Tamarisk). The eye-level height of all point observers was set to 5.5 feet. Descriptions of each observation point can be found in Table 3, Observation Point Descriptions, as well as each point's distance and direction from the Project.
- Highway/Road Observation Route – Analysis of the Project site included a combination of 20 Road and Highway (SR 117 and I-10) observation routes, which were selected based on visibility, sensitivity, distance to the Project site, and level of traffic expected on the roadways. To keep the number of receptor routes within the allowed limit by the geometric glare modeling software, Dudek staff selected routes that would be representative of each road type and road direction of travel within view of the Project. Per the American Association of State Highway and Transportation Officials (AASHTO), the eye-level height of observers on SR 177, and Interstate 10 was set to 7.6 feet, the average height for observers in large trucks. This height was selected to account for the higher potential for truck traffic on the highway and interstate routes. The rest of the routes used an eye-level height of 3.5 feet, the average height of observers in passenger vehicles.

Table 3. Observation Point Descriptions

Observation Point ID	Distance/Direction from Project	Description
OP 1	2.0 miles/east	Dwelling/agricultural building east of SR 177
OP 2	0.4 miles/east	Dwelling at 24475 Rice Rd (SR 177), Desert Center
OP 3	0.7 miles/west	Potential dwelling/agricultural buildings east of Kaiser Rd
OP 4	1.4 miles/east	Ground-based observer at race track
OP 5	0.8 miles/southeast	Ground-based observer at airport
OP 6	0.8 miles/south	Dwelling at Parker Towing, 25951 Rice Rd (SR 177), Desert Center
OP 7	1.5 miles/southwest	Dwelling at 25650, Kaiser Rd, Desert Center
OP 8	1.0 miles/south	Green Acres Mobile Park, 25950 Rice Rd, Desert Center
OP 9	1.4 miles/southwest	Church at 25980 Kaiser Rd, Desert Center
OP 10	1.4 miles/southwest	Dwelling at 43951 Shasta Dr, Desert Center
OP 11	1.4 miles/southwest	Representative Dwelling at Tamarisk Desert Resort, Desert Center
OP 12	1.4 miles/southwest	Representative Dwelling at Tamarisk Desert Resort, Desert Center
OP 13	1.3 miles/south	Representative Dwelling at Tamarisk Desert Resort, Desert Center
OP 14	1.3 miles/south	Dwelling at 26301 Rice Rd (SR 177), Desert Center

Table 3. Observation Point Descriptions

Observation Point ID	Distance/Direction from Project	Description
OP 15	1.4 miles/south	Dwelling at 26500 Greenvale Way, Desert Center
OP 16	1.5 miles/south	Dwelling at 26660 Greenvale Way, Desert Center
OP 17	2.9 miles/south	Potential dwelling at 27685 Rice Rd (SR 177), Desert Center
OP 18	3.1 miles/south	Potential dwelling east of intersection of Kaiser Rd and SR 177
OP 19	3.4 miles/southeast	Caltrans and Post Office Facilities

4.2.4 Geometric Glare Analysis

Dudek staff used an industry standard 3-D geometric glare analysis software tool developed by Sandia National Laboratories and licensed by ForgeSolar. Though initially developed for solar projects on airports, this software has been validated as effective for projects that are not located on airports. By inputting the solar panel locations and characteristics, as well as the locations and elevations of the receptors, the software is able to simulate the sun's progression across the sky over the course of a year and model the potential glare caused by the proposed solar arrays. If glare is detected, the software can quantify the level of ocular impact hazard (green, yellow, or red), and pinpoint the exact time of year the glare would occur. This analysis is automatically performed for every minute of the calendar year, for each module array analysis group, and for each potential receptor defined in the model.

Dudek staff consulted the Project applicant to obtain the precise characteristics of the proposed solar array system. Data gathered included the physical location, orientation, build material, tilt angle, and tracking technology. All of these characteristics were entered into the modeling software, as provided in Table 4.

Table 4. Solar Array Model Inputs

Solar Array Characteristics	Proposed Project Configuration
Tracking method	Single-axis
Module surface material	Smooth glass with anti-reflective coating
Tracking axis orientation	North-south
Maximum tracking angle	60 degrees
Resting angle (when sun leaves maximum tracking angle)	0 degrees

As described in Table 4, the Project is anticipated to utilize a single-axis tracking system. This tracking system would be oriented running north–south with the panel faces rotating from east to west. The system would be able to track the sun's progression across the sky, within the system's 120-degree range of motion (60 degrees to the east and 60 degrees to the west). When the sun is not within the range of motion, the panels would backtrack and rest at 0 degrees.

Due to limitations in the modeling software, the Project's photovoltaic arrays (shown on Figure 3) had to be grouped together to create 28 analysis groups, labeled "PV01" through "PV28". Additionally, these 28 analysis groups needed to be broken into 2 analysis batches named "Batch A" and "Batch B". Both analysis batches were analyzed using the same

project parameters and potential receptors. The detailed analysis results found in Appendix A reflect these batch names. The results of the 2 analysis batches were combined into one database for analysis in this report.

4.2.5 Glare Result Refinement Using Skyline Analysis

One of the known limitations of the geometric glare modeling software is its inability to account for times when the modeled PV arrays would be shaded by the surrounding landscape. A PV module in the shade of a nearby mountain range would not be a potential source of glare to potential receptors. The modeling software does report the elevation (in angular degrees above the horizon) and azimuth (true bearing) of the sun at any minute that glare is predicted. Using this information from the results, along with known elevations and azimuths of the surrounding terrain, it is possible to refine the analysis results to exclude predicted minutes of glare that occur during times when the sun would below the skyline from the perspective of the modeled PV array group.

To accomplish this data refinement, Dudek staff developed a custom analysis tool that uses Esri's ArcGIS Pro software to map the terrain skyline from the perspective of each PV array group. An angular elevation for the skyline is then recorded for each degree of azimuth (0 to 259) and adjusted to account for the curvature of the earth, which would cause mountains at further distances to appear lower on the horizon. The software is then able to compare the sun's position at the moment of predicted glare to the elevation of the skyline at that position. If the sun's position is predicted to be below the skyline, then the glare result is flagged as being unlikely to occur.

The glare results discussed in this report do not include minutes that were flagged as being unlikely to occur. The totals for those discounted minutes are disclosed in less detail in the discussion for each receptor. Because of this, the geometric glare modeling output included in Appendix A will not reflect the durations that are reported in the discussion of potential impacts.

4.2.6 Limitations of the Geometric Glare Analysis

The glare modeling software used in this analysis does not consider existing vegetation, structures, or terrain that might obscure the view of the panels from the receptor locations. Though the visibility and skyline analyses were performed to mitigate this software limitation, there is still a possibility that glare could be predicted at receptors that are unable to clearly see the panels, which would exaggerate the level of predicted glare discussed in Section 4.3, Geometric Analysis Results. The following features could partially conceal the solar panels from the receptors:

- Atmospheric conditions such as clouds, fog, dust, or haze.
- Buildings and other structures between the receptors and the Project site.
- Trees and other vegetation between the receptors and the Project site.

Additionally, because the geometric glare modeling software counts each minute of glare per PV array group, it is entirely possible for some projects to cast multiple minutes of glare (one for each panel group in the project) towards a receptor within 1 minute of elapsed time. This would essentially overestimate the number of minutes a receptor receives glare from a project, and potentially result in more glare minutes than there are daylight minutes in a year. To remedy this, Dudek staff eliminated any duplicate minutes of glare from a project towards a given receptor, resulting in a maximum of 1 minute of "discrete" glare between a project/receptor combination for any given minute of the year. Because of this, the geometric glare modeling output included in Appendix A will not reflect the durations that are reported in the discussion of potential impacts.

4.2.7 Baseline Glare Conditions

There are currently several sources of potentially impactful glare in the vicinity of the Project, which this analysis will refer to as "baseline conditions". While the level of glare caused by these sources was not assessed in this analysis, the potential glare caused by the Project should be considered in the context of the existing baseline conditions. The following list describes existing manmade features in the vicinity of the Project that could create potential for hazardous glare (also, see Figure 5, Potential Sources of Baseline Glare for their locations):

- **Existing Bodies of Water:** Lake Tamarisk and several small bodies of water used for aquaculture are located within the study area. These features have potential to produce daily 'Yellow' glare (potential to cause a temporary after image) towards sensitive receptors within the study area, likely in the early morning or late afternoon. The severity of this impact will increase as the turbulence of the water surface decreases (Riley 2011).
- **Existing Utility-Scale Photovoltaic Systems:** Figure 5 shows the locations of several existing utility-scale solar facilities within the study area. Like the Project, these facilities have the potential to produce glare in the 'Green' or 'Yellow' ocular impact categories.

4.3 Glare Analysis Results

This glare analysis was conducted per the FAA's recommended procedures described in the Technical Guidance for Evaluating Selected Solar Technologies on Airports (FAA 2018), and the geometric glare modeling software used adheres to FAA policy regarding solar energy system projects on federally obligated airports (86 FR 25801–25803). This policy does not apply to the Project but was included in this reporting to describe the standard methodologies used to assess solar glare near operating airports. Specifically, the glare analysis and software quantify the level of ocular impact hazard (reported as green or yellow glare), and pinpoints the exact time of year the glare would occur.

4.3.1 Results for Airport Receptors

Dudek determined that, according to the results of the geometric glare analysis, the Project could result in "Green" glare (low potential to cause temporary after image) to the two-mile approach path to runway 23 at CN64, a low-activity private-use runway (Riverside County ALUC 2004). The predicted glare is expected to occur for up to 3 minutes per day in the late afternoon hours from late March through mid-May and from late July through mid-September. A total of 1,722 minutes of predicted annual glare were excluded from these results because the skyline analysis determined that, at the time of the predicted glare, the sun would be behind the mountains to the west of the project. There was no glare predicted for the approach to runway 5 at CN64.

The FAA's current policy emphasizes the impact of solar glare on personnel in air traffic control towers rather than on pilots during final approaches. The FAA has concluded that glare from solar installations is similar to other reflective surfaces like water bodies and glass buildings that pilots regularly encounter (FAA 2021). For the detailed Project modeling results, please refer to Appendix A. See Section 4.2.6, Limitation of the Geometric Glare Analysis.

Table 5. Results for Airport Receptors

Airport Receptor	Average Minutes Per Day Green/Yellow	Max Minutes Per Day Green/Yellow	Days Out of the Year Green/Yellow
Runway 5 (CN64 5)	0 mins/0 mins	0 mins/0 mins	0 days/0 days
Runway 23 (CN64 23)	2 mins/0 mins	3 mins/0 mins	43 days/0 days

4.3.2 Results for Point and Route Receptors

The results of the analysis indicate that, under the proposed Project parameters described in Section 4.1, multiple point and route receptors within the study area will potentially receive some "Green" or "Yellow" glare over the course of the year.

Nine of the 19 observation points are predicted to receive some "Green" glare. The results indicate that none of the point receptors are anticipated to receive "Yellow" or "Red" glare. Observation points 1 through 3, 7, and 9 through 13 are predicted to receive some glare either in the early morning or late afternoon hours (depending on which side of the Project they fall). OP 1 is predicted to receive the most "Green" glare out of all the point receptors, with a maximum duration of up to 7 minutes of glare per day, for 50 days out of the year. The glare at this location is predicted to occur in the late afternoon hours from late October through December. A total of 1,139 minutes of predicted annual glare towards OP 1 through OP 4 were excluded from these results because the skyline analysis determined that, at the time of the predicted glare, the sun would be below the mountains to the east and west.

Four of the 20 route receptors analyzed are predicted to receive "Green" glare from the Project, with the route referred to as SR 177 C being the only route to receive any "Yellow" glare. None of the route receptors are anticipated to receive "Red" glare. Routes SR 177 A and B are predicted to receive the majority of the glare received by the route receptors, with about 8 minutes of "Green" glare per day for approximately 115 days out of the year. For this segment of SR 177, the "Green" glare is predicted to occur in the late afternoons starting in late October and continuing through mid-February. Route 177 C is predicted to receive a maximum of 1 minute of glare on 6 days out of the year.

The northern-most segment of Kaiser Road referred to as Kaiser Rd A is predicted to receive of 5 minutes per day of "Green" glare for 32 days out of the year, and no "Yellow" glare. This route is the only route to the west of the Project that is predicted to receive any glare, which would occur in the early mornings during the months of December and January.

A total of 6,720 minutes of predicted annual glare were excluded from the results for the route receptors because the skyline analysis determined that, at the time of the predicted glare, the sun would be behind the mountains to the east and west of the project.

Table 6 describes which receptors will receive "Green" or "Yellow" glare and the average and maximum minutes of glare received per day, along with the number of days per year that received any amount of glare. Refer to Figure 4 for the receptor locations and Appendix A for the detailed glare analysis results for each modeled receptor location.

Table 6. Results for Point and Route Receptors

Point and Route Receptors	Average Minutes Per Day Green/Yellow	Max Minutes Per Day Green/Yellow	Days Out of the Year Green/Yellow
OP 1	5 mins/0 mins	7 mins/0 mins	50 days/0 days
OP 2	1 mins/0 mins	2 mins/0 mins	8 days/0 days
OP 3	3 mins/0 mins	4 mins/0 mins	52 days/0 days
OP 4	0 mins/0 mins	0 mins/0 mins	0 days/0 days
OP 5	0 mins/0 mins	0 mins/0 mins	0 days/0 days
OP 6	0 mins/0 mins	0 mins/0 mins	0 days/0 days
OP 7	4 mins/0 mins	4 mins/0 mins	56 days/0 days
OP 8	0 mins/0 mins	0 mins/0 mins	0 days/0 days
OP 9	4 mins/0 mins	5 mins/0 mins	45 days/0 days
OP 10	4 mins/0 mins	5 mins/0 mins	45 days/0 days
OP 11	3 mins/0 mins	5 mins/0 mins	45 days/0 days
OP 12	3 mins/0 mins	4 mins/0 mins	40 days/0 days
OP 13	2 mins/0 mins	4 mins/0 mins	28 days/0 days
OP 14	0 mins/0 mins	0 mins/0 mins	0 days/0 days
OP 15	0 mins/0 mins	0 mins/0 mins	0 days/0 days
OP 16	0 mins/0 mins	0 mins/0 mins	0 days/0 days
OP 17	0 mins/0 mins	0 mins/0 mins	0 days/0 days
OP 18	0 mins/0 mins	0 mins/0 mins	0 days/0 days
OP 19	0 mins/0 mins	0 mins/0 mins	0 days/0 days
dAirport Rd A	0 mins/0 mins	0 mins/0 mins	0 days/0 days
Airport Rd B	0 mins/0 mins	0 mins/0 mins	0 days/0 days
Eagle Mountain Rd A	0 mins/0 mins	0 mins/0 mins	0 days/0 days
Eagle Mountain Rd B	0 mins/0 mins	0 mins/0 mins	0 days/0 days
I-10 EB A	0 mins/0 mins	0 mins/0 mins	0 days/0 days
I-10 EB B	0 mins/0 mins	0 mins/0 mins	0 days/0 days
I-10 EB C	0 mins/0 mins	0 mins/0 mins	0 days/0 days
I-10 WB A	0 mins/0 mins	0 mins/0 mins	0 days/0 days
I-10 WB B	0 mins/0 mins	0 mins/0 mins	0 days/0 days
I-10 WB C	0 mins/0 mins	0 mins/0 mins	0 days/0 days
Kaiser Rd A	2 mins/0 mins	5 mins/0 mins	32 days/0 days
Kaiser Rd B	0 mins/0 mins	0 mins/0 mins	0 days/0 days
Kaiser Rd C	0 mins/0 mins	0 mins/0 mins	0 days/0 days
Oasis Rd	0 mins/0 mins	0 mins/0 mins	0 days/0 days
Race Track	0 mins/0 mins	0 mins/0 mins	0 days/0 days
SR 177 A	6 mins/0 mins	8 mins/0 mins	110 days/0 days
SR 177 B	6 mins/0 mins	7 mins/0 mins	116 days/0 days
SR 177 C	2 mins/1 mins	3 mins/1 mins	31 days/6 days
SR 177 D	0 mins/0 mins	0 mins/0 mins	0 days/0 days

Table 6. Results for Point and Route Receptors

Point and Route Receptors	Average Minutes Per Day Green/Yellow	Max Minutes Per Day Green/Yellow	Days Out of the Year Green/Yellow
SR 177 E	0 mins/0 mins	0 mins/0 mins	0 days/0 days

4.3.3 Results for Military Training Routes

The results of the analysis indicate that, under the proposed Project parameters described in Section 4.1, all 15 of the MTRs analyzed are predicted to receive glare in the "Green" ocular impact category (low potential for after-image), and 11 of the 15 are predicted to receive glare in the "Yellow" ocular impact category (potential for after-image).

The effect of glare on an aircraft has a temporal, as well as spatial, component to it. Glare received by a flight route receptor will only affect an aircraft as it travels through a beam of light, and that duration of effect will be dictated by the speed of the aircraft and the size of the beam of light. The durations of glare reported in this section describe the number of minutes a beam of glare-causing light may intersect any point along the flight route, and not the total amount of time a pilot may experience the glare.

Additionally, the FAA's current policy emphasizes the impact of solar glare on personnel in air traffic control towers rather than on pilots. The FAA has concluded that glare from solar installations is similar to other reflective surfaces like water bodies and glass buildings that pilots regularly encounter (FAA 2021).

Military Training Route IR-217

According to the results of the geometric glare analysis, pilots operating aircraft on IR-217 have the potential to receive glare in the "Green" and "Yellow" ocular impact categories. The results of the analysis indicate that the potential for glare towards this MTR is highest for aircraft flying at low elevations, between approximately 780ft altitude and 860ft altitude. At lower altitudes, this flight route is anticipated to receive 138 minutes of "Green" glare per day, on average, every day of the year. Additionally, glare in the "Yellow" ocular impact category is anticipated to occur for 48 minutes per day, on average, all year long. This "Yellow" glare is expected to occur entirely in the late-afternoon hours, when the sun is between 6 and 8 degrees above the horizon.

Military Training Route IR-218

According to the results of the geometric glare analysis, pilots operating aircraft on IR-218 have the potential to receive glare in the "Green" and "Yellow" ocular impact categories. The results of the analysis indicate that the potential for glare towards this MTR is highest for aircraft flying at low elevations, between approximately 1,062ft altitude and 1,310ft altitude. At lower altitudes, this flight route is anticipated to receive 99 minutes of "Green" glare per day, on average, every day of the year. Additionally, glare in the "Yellow" ocular impact category is anticipated to occur for 46 minutes per day, on average, all year long. This "Yellow" glare is expected to occur entirely in the early morning hours, when the sun is about 5 degrees above the horizon, on average.

Military Training Route IR-255

According to the results of the geometric glare analysis, pilots operating aircraft on IR-255 have the potential to receive glare in the "Green" and "Yellow" ocular impact categories. The results of this analysis indicate that there is a higher potential for "Yellow" glare towards aircraft flying at low elevations along this route, but a much greater duration of "Green" glare towards aircraft at the middle and upper-limit altitudes. At middle altitudes, this flight route is has the potential to receive 76 minutes of "Green" glare per day, on average, every day of the year. Additionally, glare in the "Yellow" ocular impact category is anticipated to occur for 5 minutes per day, on average, but for only the lower altitude flights and only during the fall and winter months. This "Yellow" glare is expected to occur entirely in the very late afternoon/early evening hours, when the sun is about 2 degrees above the horizon, on average.

Military Training Route VR-289

According to the results of the geometric glare analysis, pilots operating aircraft on VR-289 have the potential to receive glare in the "Green" and "Yellow" ocular impact categories. The results of the analysis indicate that the potential for glare towards this MTR is relatively equal for all flight altitudes analyzed, but is highest for aircraft flying at low elevations, between approximately 890ft altitude and 960ft altitude. At lower altitudes, this flight route is anticipated to receive 146 minutes of "Green" glare per day, on average, every day of the year. Additionally, glare in the "Yellow" ocular impact category is anticipated to occur for 49 minutes per day, on average, all year long. This "Yellow" glare is expected to occur primarily in the late afternoon hours, when the sun is about 6 degrees above the horizon, on average.

Military Training Route VR-296

According to the results of the geometric glare analysis, pilots operating aircraft on VR-296 have the potential to receive glare in the "Green" and "Yellow" ocular impact categories. The results of the analysis indicate that the potential for glare towards this MTR is relatively equal for all flight altitudes analyzed, but the potential increases as the aircraft altitude decreases. At lower and middle altitudes, this flight route is anticipated to receive about 120 minutes of "Green" glare per day, on average, every day of the year. Additionally, glare in the "Yellow" ocular impact category is anticipated to occur for 47 minutes per day, on average, all year long for aircraft flying at lower altitudes. This "Yellow" glare is expected to occur primarily in the late afternoon hours, when the sun is about between 7 and 9 degrees above the horizon, on average.

Effect of Skyline Analysis on MTR Glare Results

Generally, for all MTR routes, the skyline analysis did not discount as much of the estimated glare as it did for the ground-based receptors. This is because glare towards these flight route receptors was predicted to occur during times when the sun is higher in the sky and thus would be less likely to be occluded by the surrounding terrain.

Table 7. Results for MTR Receptors

MTR Receptors	Average Minutes Per Day Green/Yellow	Max Minutes Per Day Green/Yellow	Days Out of the Year Green/Yellow
IR-217 (lower altitude limit)	138 mins/48 mins	403 mins/63 mins	366 days/366 days
IR-217 (middle altitude)	114 mins/9 mins	380 mins/12 mins	366 days/44 days
IR-217 (upper altitude limit)	92 mins/0 mins	211 mins/0 mins	243 days/0 days
IR-218 (lower altitude limit)	99 mins/46 mins	168 mins/54 mins	366 days/366 days
IR-218 (middle altitude)	81 mins/29 mins	136 mins/38 mins	366 days/113 days
IR-218 (upper altitude limit)	40 mins/6 mins	55 mins/11 mins	222 days/32 days
IR-255 (lower altitude limit)	7 mins/5 mins	12 mins/7 mins	157 days/111 days
IR-255 (middle altitude)	76 mins/0 mins	131 mins/0 mins	295 days/0 days
IR-255 (upper altitude limit)	61 mins/0 mins	112 mins/0 mins	366 days/0 days
VR-289 (lower altitude limit)	146 mins/49 mins	430 mins/86 mins	366 days/366 days
VR-289 (middle altitude)	143 mins/12 mins	428 mins/28 mins	366 days/366 days
VR-289 (upper altitude limit)	121 mins/0 mins	399 mins/0 mins	366 days/0 days
VR-296 (lower altitude limit)	116 mins/47 mins	337 mins/58 mins	366 days/366 days
VR-296 (middle altitude)	119 mins/24 mins	354 mins/42 mins	366 days/366 days
VR-296 (upper altitude limit)	101 mins/17 mins	315 mins/29 mins	366 days/117 days

4.3.4 Comparison of Results to Other Sources of Glare

The results indicate that the glare produced by the project will not result in more ocular impact than a smooth water body under conservative assumptions (Riley and Olson 2011) and will result in far less impact than the hazards posed due to viewing the unfiltered sun (ForgeSolar 2019).

4.3.5 Conclusions

The results of the analysis indicate that glare resulting from the Project will have the following effects to point and route receptors:

- **Effects on point receptors:**
  - The occurrence of glare towards point receptors will be relatively brief—typically less than 7 minutes per day—and would be observed in early mornings or late afternoons when the sun is low on the horizon. This glare would be seasonal, and no points are expected to experience it year-round.
  - The intensity of the predicted glare towards point receptors is characterized as having a low potential to cause an after-image. This is primarily due to the antireflective coating acting to scatter any reflected light and the fact that PV modules are designed to maximize efficiency by capturing as much light as possible.
  - It's important to note that the unfiltered sun produces glare that is substantially more intense and potentially harmful than that predicted to be reflected from the PV modules. Therefore, observers at the point receptors are more likely to be impacted by the sun's glare than by the Project-induced glare when the sun is low on the horizon.
  - These glare results do not factor in the potential for intervening above-ground features such as vegetation or structures. Because of this, the real-life effects on point receptors are expected to be less than what has been predicted in this analysis.
- **Effects on route receptors:**
  - Like the point receptors, the occurrence of glare towards route receptors will be relatively brief and would be observed in early mornings or late afternoons when the sun is low on the horizon. The duration of glare towards route receptors, typically occurred for less than 8 minutes per day. This glare would be seasonal, and no routes are expected to experience it year-round.
  - The vast majority of glare predicted for route receptors was in the “Green” category (low-potential for after image) with some very brief periods where “Yellow” glare (potential to cause after-image) was predicted. The yellow glare was predicted to last no more than 1 minute per day, on very select days of the year.
  - All predicted glare on route receptors would occur when the sun is low in the sky, just above the Project's PV modules from the perspective of the observers. All glare predicted towards route receptors will be significantly less intense than that of the unfiltered sun.
  - Like the point receptors, these glare results do not factor in the potential for intervening above-ground features such as vegetation or structures. Because of this, the real-life effects on route receptors are expected to be less than what has been predicted in this analysis.
- **Effects on MTRs:**

- The estimated durations of “Green” glare towards the MTR’s ranged between approximately 10 to 150 minutes per day, on average, and the estimated durations of “Yellow” glare towards the MTR’s ranged between approximately 5 to 50 minutes per day, on average.
- The estimated potential for glare for the MTRs typically increases as the altitude of the aircraft decreases, with most of the “Yellow” glare occurring for the lowest flight routes.
- The estimated durations of “Yellow” glare towards the MTR’s ranged between approximately 5 to 50 minutes per day, on average, depending greatly on the altitude of the flight.
- Nearly all of the “Yellow” glare predicted occurred at times when the sun is very low in the sky, during the very early morning and late afternoon hours.
- The FAA has concluded that glare from solar installations is similar to other reflective surfaces like water bodies and glass buildings that pilots regularly encounter (FAA 2021).

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5 References Reviewed

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6 Document Preparers

This Glare Analysis Report was prepared by Christopher Starbird and Joshua Saunders.

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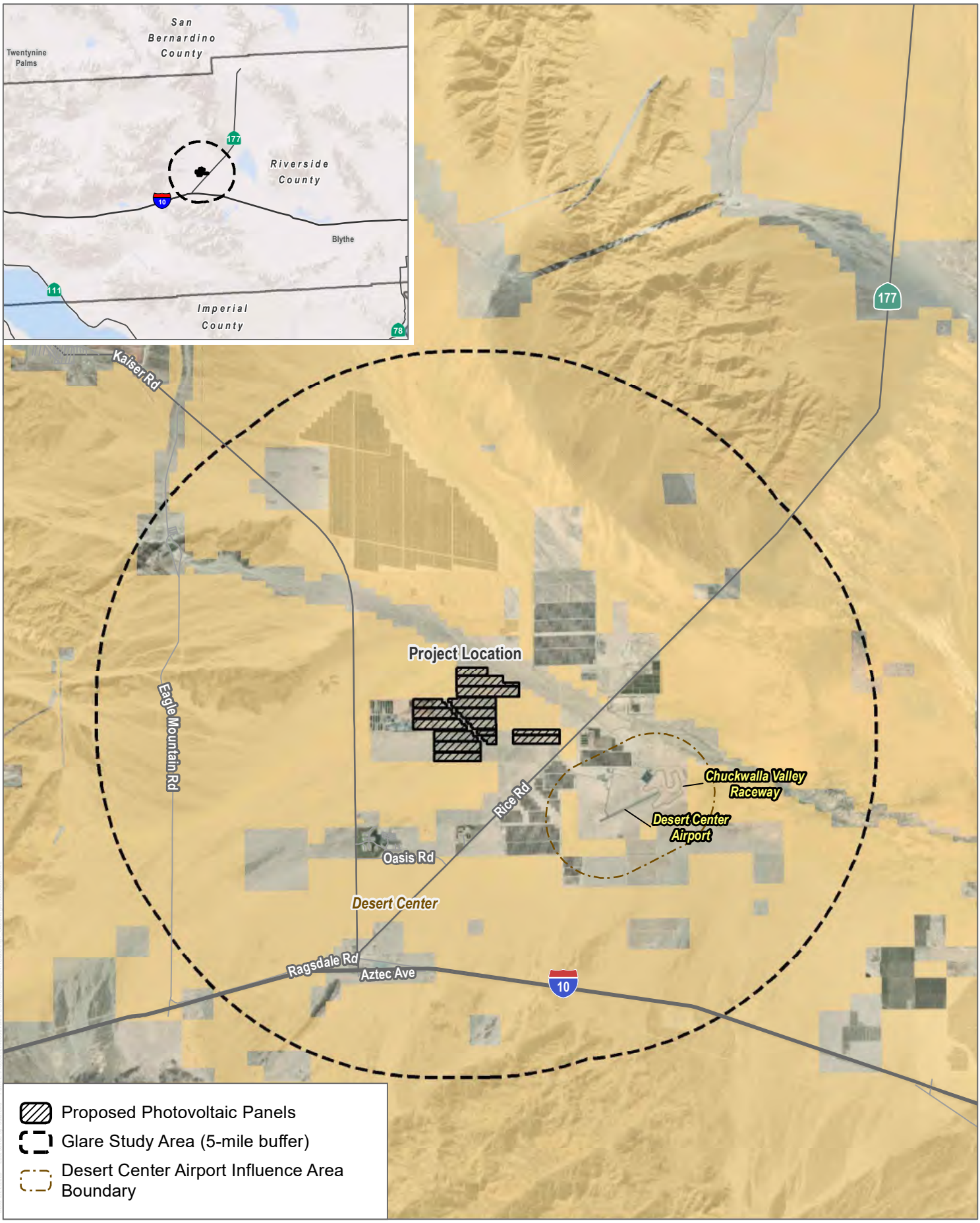

SOURCE: Esri 2020

DUDEK

0 1 2 Miles

FIGURE 1

Project Location

Sapphire Solar Project Glare Analysis Report

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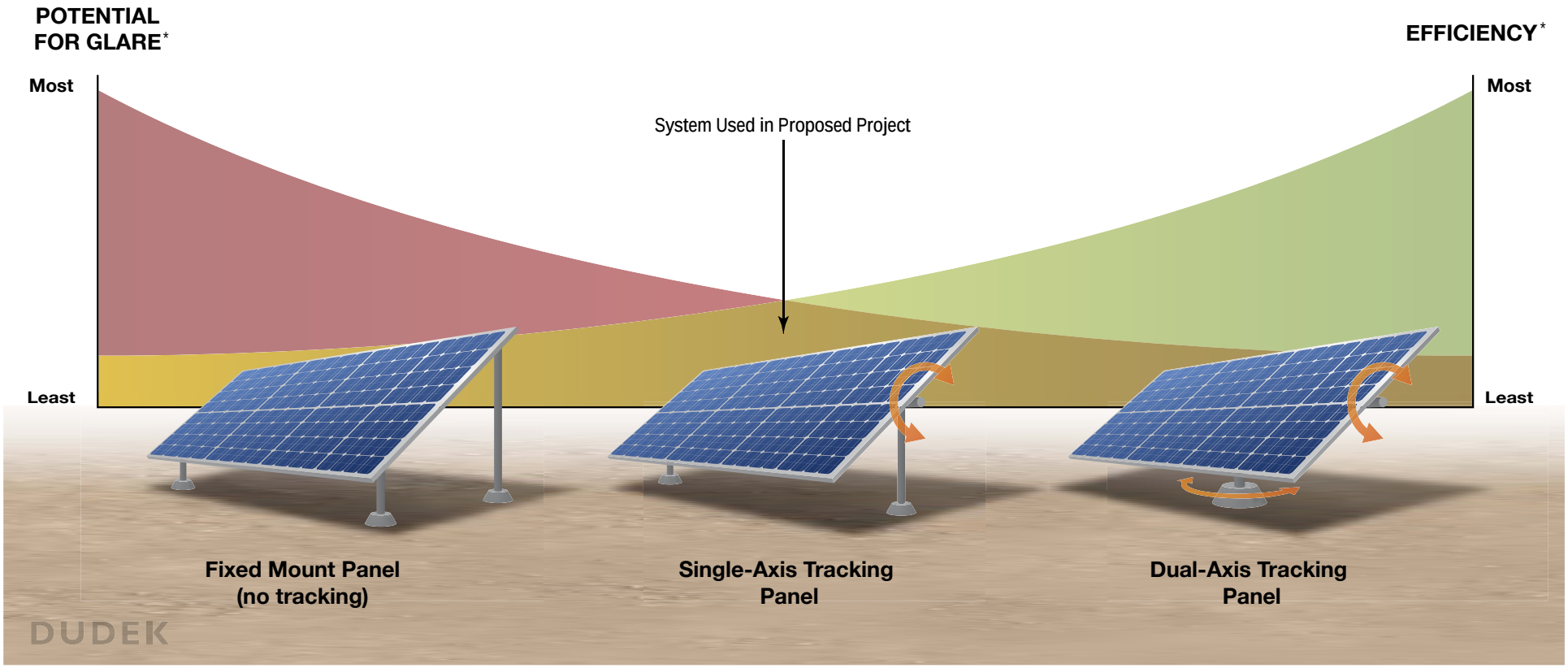

** Efficiency and glare relationships represented in this graphic have been exaggerated and are for illustrative purposes only.*

SOURCE: DUDEK 2023

DUDEK

FIGURE 2

Comparison of Photovoltaic Tracking Systems

Saphhire Solar Project Glare Analysis Report

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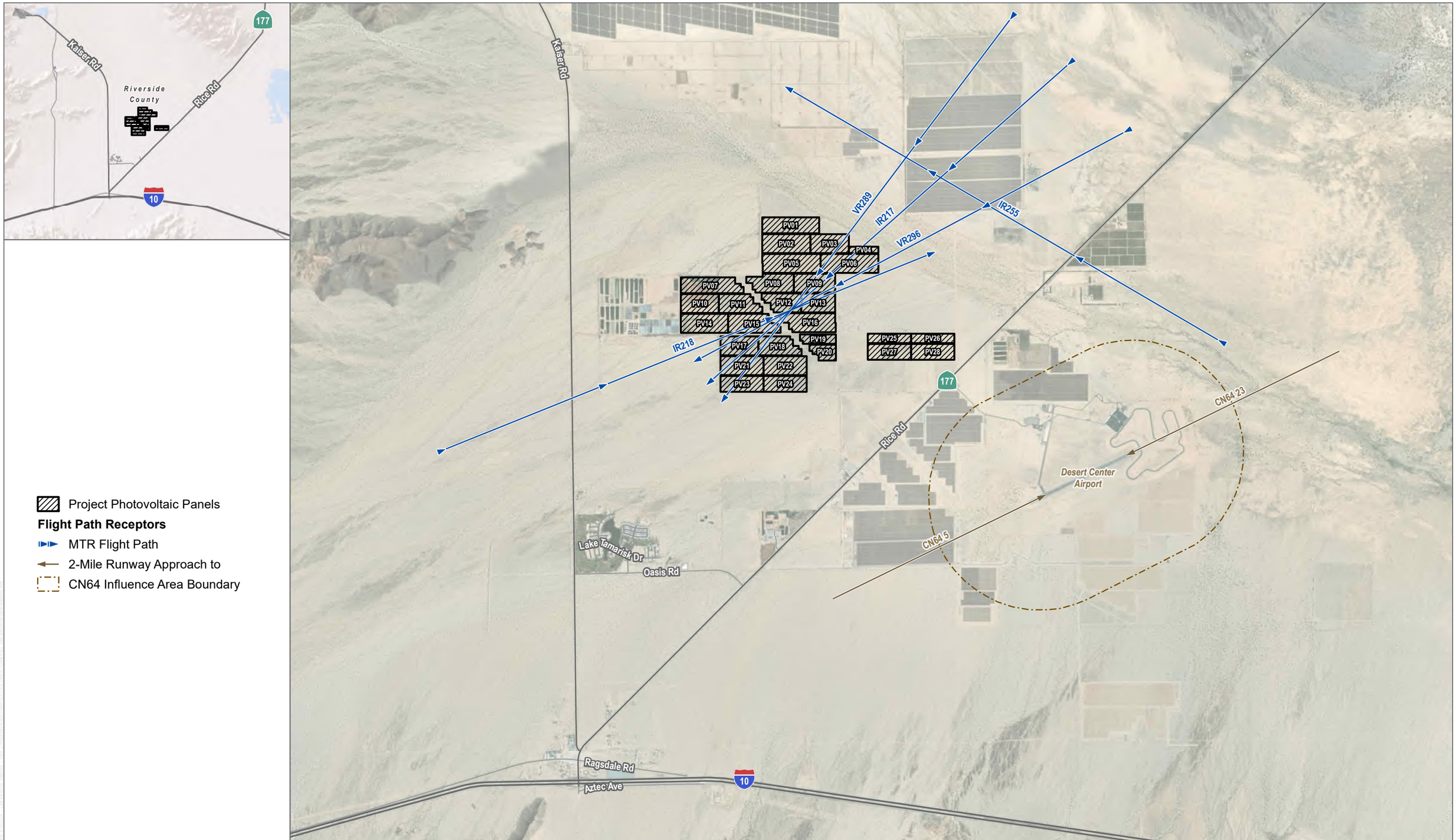

SOURCE: Esri Imagery (Accessed 2023)

DUDEK

0 2,000 4,000 Feet

FIGURE 3

Project Layout and Flight Receptor Locations

Sapphire Solar Project Glare Analysis Report

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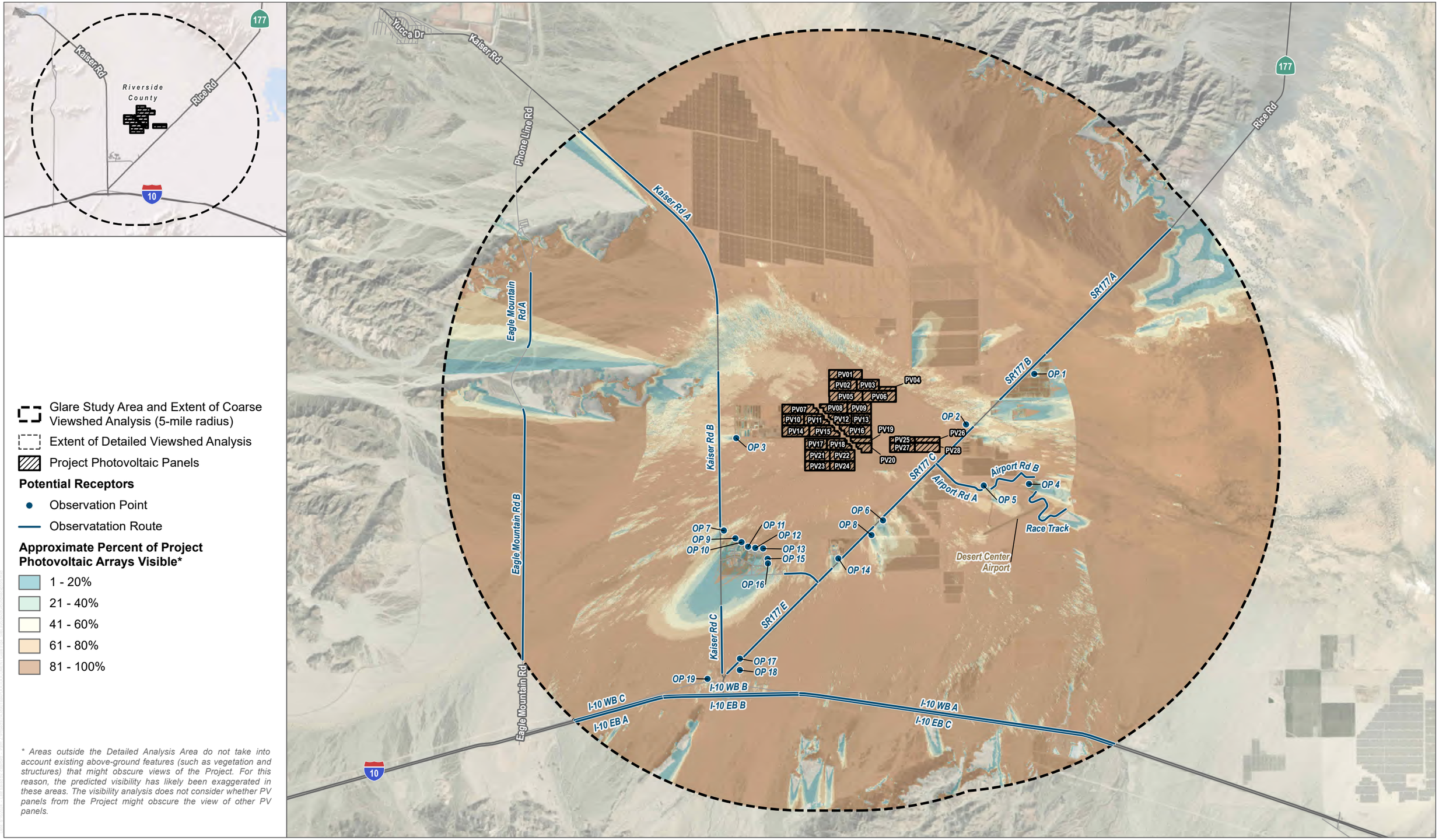

SOURCE: Esri Imagery (Accessed 2023)

DUDEK

0 0.65 1.3 Miles

FIGURE 4

Project Layout and Ground-Based Receptor Locations

Sapphire Solar Project Glare Analysis Report

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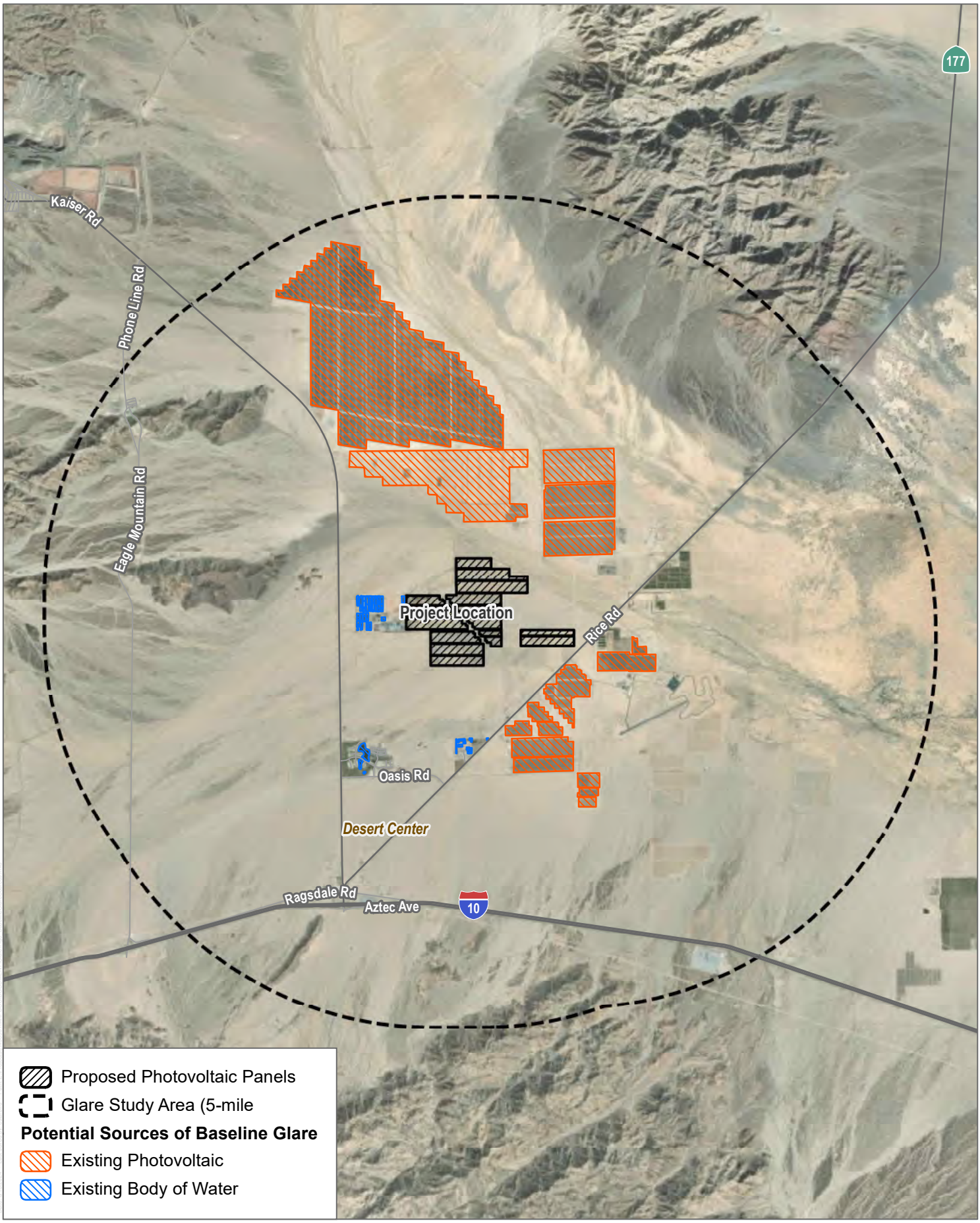
Figure 5 Potential Sources of Baseline Glare



SOURCE: Esri 2020

DUDEK

0 0.875 1.75 Miles

FIGURE 5

Potential Sources of Baseline Glare

Sapphire Solar Project Glare Analysis Report

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Appendix A
Detailed Modeling Results

FORGESOLAR GLARE ANALYSIS

Project: **Sapphire Solar Project**
Site configuration: **Sapphire Solar June 2024 Batch A**

Client: Sapphire Solar, LLC

Created 11 Jun, 2024
Updated 11 Jun, 2024
Time-step 1 minute
Timezone offset UTC-8
Minimum sun altitude 0.0 deg
DNI peaks at 1,000.0 W/m^2
Category 100 MW to 1 GW
Site ID 121456.14630

Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV01	SA tracking	SA tracking	82,400	1,373.3	13,779	229.7	-
PV02	SA tracking	SA tracking	85,453	1,424.2	15,090	251.5	-
PV03	SA tracking	SA tracking	124,905	2,081.8	25,925	432.1	-
PV04	SA tracking	SA tracking	115,919	1,932.0	10,134	168.9	-
PV05	SA tracking	SA tracking	119,131	1,985.5	28,412	473.5	-
PV06	SA tracking	SA tracking	197,959	3,299.3	35,866	597.8	-
PV07	SA tracking	SA tracking	79,857	1,331.0	12,414	206.9	-
PV08	SA tracking	SA tracking	98,180	1,636.3	22,947	382.4	-
PV09	SA tracking	SA tracking	181,862	3,031.0	40,436	673.9	-
PV10	SA tracking	SA tracking	75,129	1,252.2	8,976	149.6	-
PV11	SA tracking	SA tracking	92,385	1,539.8	18,574	309.6	-
PV12	SA tracking	SA tracking	172,180	2,869.7	45,329	755.5	-
PV13	SA tracking	SA tracking	200,085	3,334.8	20,874	347.9	-
PV14	SA tracking	SA tracking	93,454	1,557.6	16,890	281.5	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd A	648	10.8	0	0.0
AirportRd B	1,639	27.3	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0

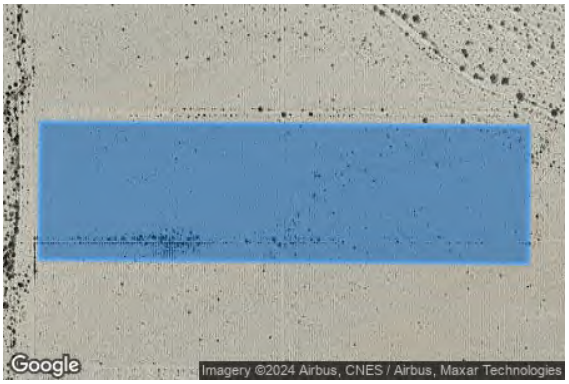
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
KaiserRd A	108	1.8	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	3,225	53.8	0	0.0
SR177 A	14,006	233.4	0	0.0
SR177 B	6,209	103.5	0	0.0
SR177 C	769	12.8	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
CN6423	13,736	228.9	0	0.0
CN645	0	0.0	0	0.0
IR217l	203,871	3,397.8	101,202	1,686.7
IR217m	127,468	2,124.5	633	10.6
IR217u	73,979	1,233.0	0	0.0
IR218l	40,626	677.1	9,348	155.8
IR218m	31,464	524.4	2,634	43.9
IR218u	24,707	411.8	80	1.3
IR255l	29,141	485.7	1,749	29.1
IR255m	144,516	2,408.6	0	0.0
IR255u	89,626	1,493.8	0	0.0
VR289l	227,476	3,791.3	97,077	1,618.0
VR289m	204,379	3,406.3	8,010	133.5
VR289u	141,908	2,365.1	0	0.0
VR296l	127,341	2,122.3	80,017	1,333.6
VR296m	127,246	2,120.8	13,895	231.6
VR296u	83,015	1,383.6	1,001	16.7
OP 1	1,158	19.3	0	0.0
OP 2	284	4.7	0	0.0
OP 3	286	4.8	0	0.0
OP 4	68	1.1	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

Component Data

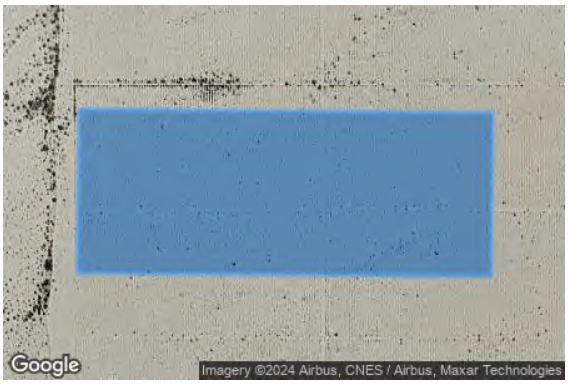
PV Arrays

Name: PV01
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



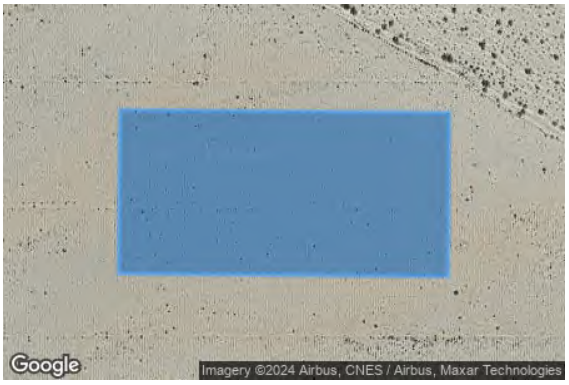
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.779678	-115.364172	587.20	8.50	595.70
2	33.777730	-115.364192	589.78	8.50	598.28
3	33.777789	-115.372590	607.99	8.50	616.49
4	33.779737	-115.372570	605.30	8.50	613.80

Name: PV02
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



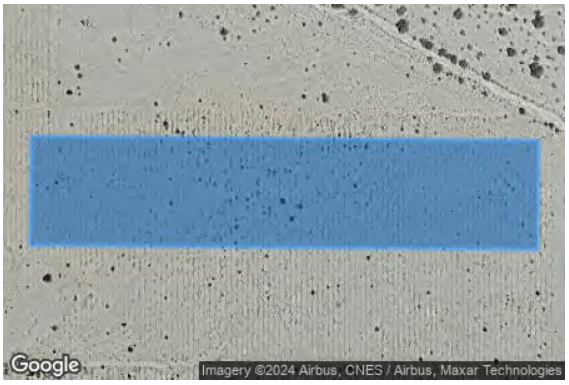
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.777629	-115.365493	592.36	8.50	600.86
2	33.775303	-115.365516	595.82	8.50	604.32
3	33.775353	-115.372615	611.45	8.50	619.95
4	33.777679	-115.372591	608.08	8.50	616.58

Name: PV03
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



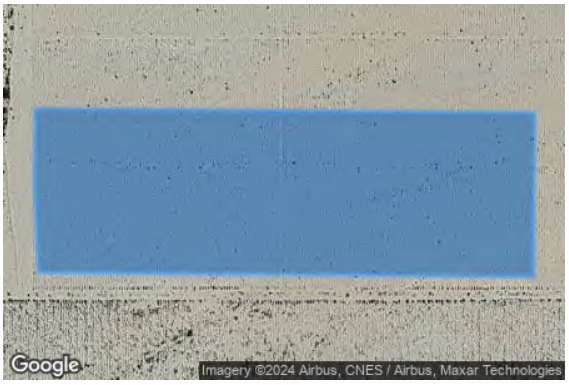
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.775263	-115.359862	582.48	8.50	590.98
2	33.775303	-115.365516	595.82	8.50	604.32
3	33.777629	-115.365493	592.36	8.50	600.86
4	33.777589	-115.359838	580.42	8.50	588.92

Name: PV04
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



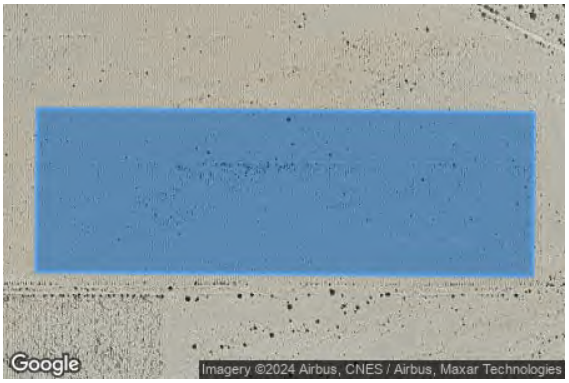
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.775263	-115.359862	582.48	8.50	590.98
2	33.776034	-115.359854	582.62	8.50	591.12
3	33.776003	-115.355499	573.19	8.50	581.69
4	33.775232	-115.355507	573.77	8.50	582.27

Name: PV05
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



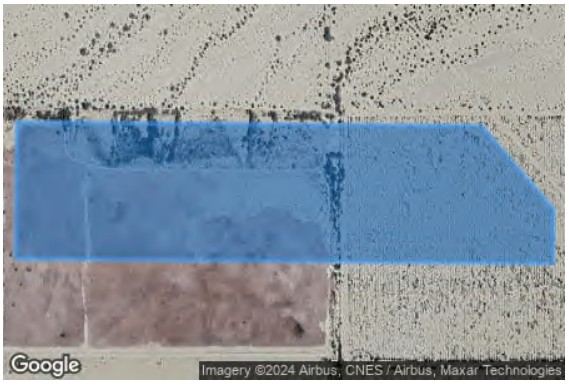
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.775182	-115.364041	593.31	8.50	601.81
2	33.772856	-115.364065	594.02	8.50	602.52
3	33.772917	-115.372555	616.07	8.50	624.57
4	33.774094	-115.372627	613.63	8.50	622.13
5	33.775243	-115.372616	611.61	8.50	620.11

Name: PV06
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



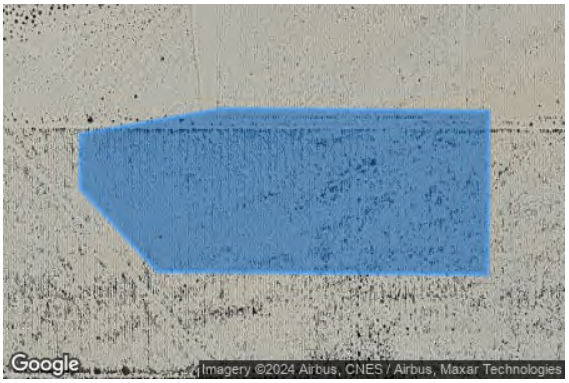
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.772856	-115.364065	594.02	8.50	602.52
2	33.775182	-115.364041	593.31	8.50	601.81
3	33.775122	-115.355508	573.90	8.50	582.40
4	33.772796	-115.355532	575.19	8.50	583.69

Name: PV07
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



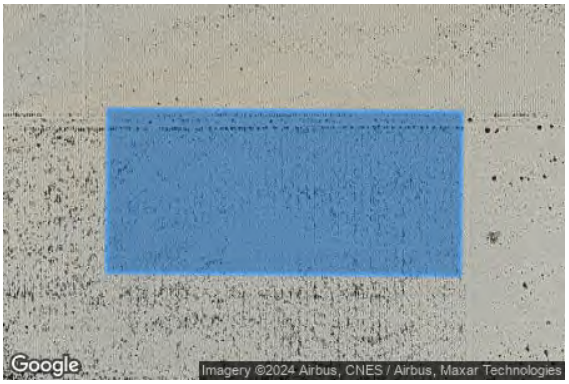
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.770434	-115.375392	626.84	8.50	635.34
2	33.770499	-115.384627	652.21	8.50	660.71
3	33.772447	-115.384608	648.26	8.50	656.76
4	33.772391	-115.376629	626.80	8.50	635.30
5	33.771205	-115.375384	625.71	8.50	634.21

Name: PV08
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



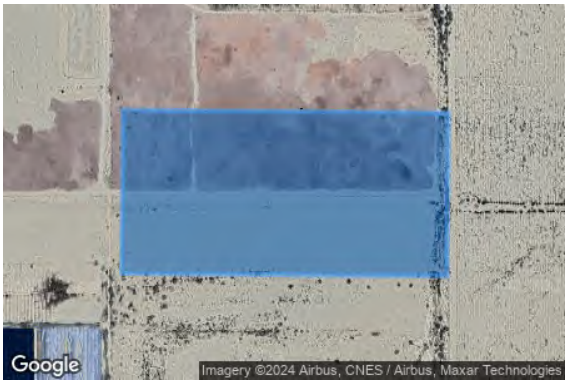
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.772774	-115.367977	604.51	8.50	613.01
2	33.770448	-115.368001	606.52	8.50	615.02
3	33.770488	-115.373669	621.77	8.50	630.27
4	33.771675	-115.374997	624.28	8.50	632.78
5	33.772446	-115.374989	622.21	8.50	630.71
6	33.772807	-115.372557	616.27	8.50	624.77

Name: PV09
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



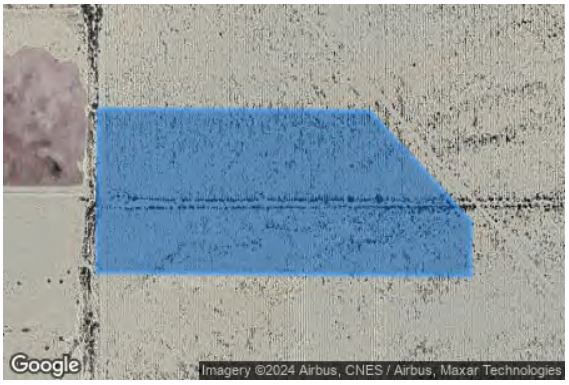
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.770448	-115.368001	606.52	8.50	615.02
2	33.772774	-115.367977	604.51	8.50	613.01
3	33.772731	-115.361898	589.16	8.50	597.66
4	33.770405	-115.361922	591.20	8.50	599.70

Name: PV10
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



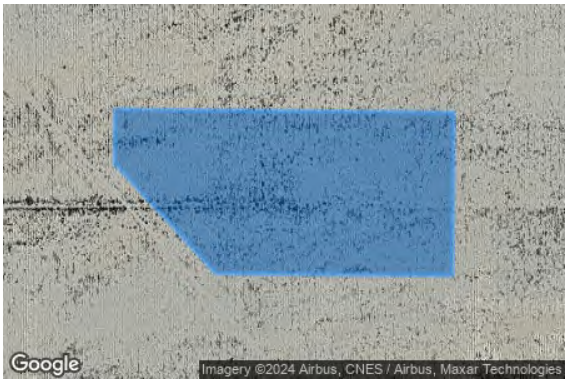
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.770350	-115.379036	638.18	8.50	646.68
2	33.768024	-115.379059	641.32	8.50	649.82
3	33.768063	-115.384651	656.91	8.50	665.41
4	33.770389	-115.384628	652.40	8.50	660.90

Name: PV11
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



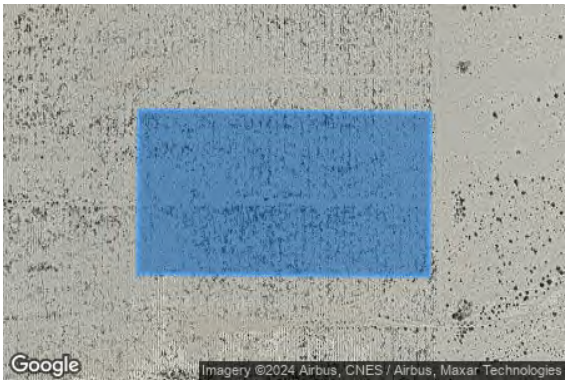
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.768024	-115.379059	641.32	8.50	649.82
2	33.770350	-115.379036	638.18	8.50	646.68
3	33.770317	-115.374388	624.36	8.50	632.86
4	33.768750	-115.372646	620.91	8.50	629.41
5	33.767979	-115.372653	622.43	8.50	630.93

Name: PV12
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.770331	-115.366928	604.15	8.50	612.65
2	33.768005	-115.366952	607.09	8.50	615.59
3	33.768034	-115.371014	617.74	8.50	626.24
4	33.769608	-115.372756	620.32	8.50	628.82
5	33.770372	-115.372749	619.15	8.50	627.65

Name: PV13
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.768005	-115.366952	607.09	8.50	615.59
2	33.770331	-115.366928	604.15	8.50	612.65
3	33.770295	-115.361923	591.44	8.50	599.94
4	33.767969	-115.361946	593.15	8.50	601.65

Name: PV14
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.767904	-115.377715	636.40	8.50	644.90
2	33.765578	-115.377738	640.24	8.50	648.74
3	33.765627	-115.384675	661.15	8.50	669.65
4	33.767953	-115.384652	657.24	8.50	665.74

Route Receptors

Name: AirportRd A
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.753911	-115.333760	545.59	3.50	549.09
2	33.753864	-115.333882	545.68	3.50	549.18
3	33.753777	-115.334268	546.54	3.50	550.04
4	33.753934	-115.334866	547.76	3.50	551.26
5	33.754069	-115.335025	548.33	3.50	551.83
6	33.754285	-115.335268	548.60	3.50	552.10
7	33.754426	-115.335573	548.94	3.50	552.44
8	33.755160	-115.339693	556.66	3.50	560.16
9	33.755379	-115.340319	558.19	3.50	561.69
10	33.755620	-115.340716	558.69	3.50	562.19
11	33.759526	-115.345368	566.08	3.50	569.58

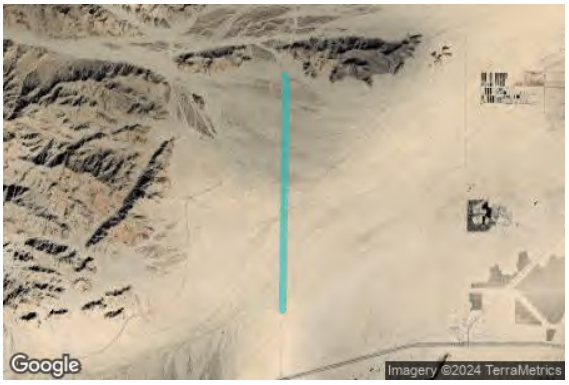
Name: AirportRd B
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.756527	-115.320346	522.07	3.50	525.57
2	33.756513	-115.322336	523.15	3.50	526.65
3	33.756622	-115.322682	524.32	3.50	527.82
4	33.757431	-115.323668	526.07	3.50	529.57
5	33.755889	-115.325559	529.81	3.50	533.31
6	33.755727	-115.325838	530.41	3.50	533.91
7	33.755691	-115.326186	530.79	3.50	534.29
8	33.756226	-115.329304	535.90	3.50	539.40
9	33.756161	-115.329640	536.57	3.50	540.07
10	33.755970	-115.329885	537.79	3.50	541.29
11	33.754928	-115.330197	538.39	3.50	541.89
12	33.754793	-115.330256	538.65	3.50	542.15
13	33.754659	-115.330385	538.97	3.50	542.47
14	33.754306	-115.331013	539.49	3.50	542.99
15	33.754088	-115.331361	540.15	3.50	543.65

Name: EagleMtnRd A
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.800940	-115.448607	947.69	3.50	951.19
2	33.796450	-115.448679	964.27	3.50	967.77
3	33.792085	-115.448744	983.20	3.50	986.70
4	33.787601	-115.448809	1000.99	3.50	1004.49
5	33.786507	-115.448890	1009.09	3.50	1012.59
6	33.785656	-115.449161	1014.46	3.50	1017.96
7	33.785075	-115.449540	1021.94	3.50	1025.44

Name: EagleMtnRd B
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.771880	-115.450828	1010.29	3.50	1013.79
2	33.771288	-115.450606	1009.40	3.50	1012.90
3	33.770618	-115.450445	1008.05	3.50	1011.55
4	33.769524	-115.450402	1005.92	3.50	1009.42
5	33.764028	-115.450517	996.38	3.50	999.88
6	33.755727	-115.450689	962.77	3.50	966.27
7	33.748001	-115.450843	943.77	3.50	947.27
8	33.740703	-115.450988	938.88	3.50	942.38
9	33.732401	-115.451156	967.83	3.50	971.33
10	33.724147	-115.451320	991.72	3.50	995.22
11	33.718431	-115.451433	1006.34	3.50	1009.84

Name: I-10 EB A
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.705105	-115.437919	1088.72	7.60	1096.32
2	33.706928	-115.429904	1047.84	7.60	1055.44
3	33.707872	-115.425528	1019.60	7.60	1027.20
4	33.709444	-115.418646	980.72	7.60	988.32
5	33.709805	-115.416981	968.39	7.60	975.99
6	33.709971	-115.416037	965.09	7.60	972.69
7	33.710052	-115.415352	963.42	7.60	971.02

Name: I-10 EB B
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.710052	-115.415352	963.42	7.60	971.02
2	33.710130	-115.414186	959.92	7.60	967.52
3	33.710207	-115.410709	946.02	7.60	953.62
4	33.710308	-115.396082	916.91	7.60	924.51
5	33.710471	-115.382413	880.68	7.60	888.28
6	33.710464	-115.381402	877.55	7.60	885.15
7	33.710431	-115.380683	875.18	7.60	882.78

Name: I-10 EB C
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.710431	-115.380683	875.18	7.60	882.78
2	33.710371	-115.379429	871.34	7.60	878.94
3	33.710102	-115.376777	867.77	7.60	875.37
4	33.709585	-115.372714	863.66	7.60	871.26
5	33.707856	-115.359373	830.91	7.60	838.51
6	33.706087	-115.345591	807.75	7.60	815.35
7	33.704570	-115.333818	814.70	7.60	822.30
8	33.702862	-115.320593	767.21	7.60	774.81
9	33.701393	-115.309277	755.89	7.60	763.49
10	33.701306	-115.308736	755.56	7.60	763.16
11	33.701055	-115.307567	754.53	7.60	762.13
12	33.700576	-115.305860	757.67	7.60	765.27
13	33.699937	-115.303666	762.03	7.60	769.63
14	33.699184	-115.301059	762.06	7.60	769.66

Name: I-10 WB A
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.699451	-115.300519	759.26	7.60	766.86
2	33.701193	-115.306440	754.71	7.60	762.31
3	33.701438	-115.307364	754.23	7.60	761.83
4	33.701623	-115.308162	752.35	7.60	759.95
5	33.701743	-115.308664	752.61	7.60	760.21
6	33.704165	-115.327515	781.57	7.60	789.17
7	33.704874	-115.332973	807.01	7.60	814.61
8	33.705899	-115.341026	818.50	7.60	826.10
9	33.707528	-115.353568	816.17	7.60	823.77
10	33.709081	-115.365555	837.94	7.60	845.54
11	33.710431	-115.376017	866.73	7.60	874.33
12	33.710801	-115.379524	871.87	7.60	879.47
13	33.710846	-115.380714	874.19	7.60	881.79

Name: I-10 WB B
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.710846	-115.380714	874.19	7.60	881.79
2	33.710896	-115.381792	875.58	7.60	883.18
3	33.710801	-115.390716	897.75	7.60	905.35
4	33.710603	-115.407913	934.12	7.60	941.72
5	33.710530	-115.414131	958.52	7.60	966.12
6	33.710479	-115.414971	961.36	7.60	968.96
7	33.710425	-115.415434	962.82	7.60	970.42

Name: I-10 WB C
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.710425	-115.415434	962.82	7.60	970.42
2	33.710364	-115.416068	965.70	7.60	973.30
3	33.710247	-115.416763	967.97	7.60	975.57
4	33.709713	-115.419277	982.79	7.60	990.39
5	33.707565	-115.428905	1040.73	7.60	1048.33
6	33.706063	-115.435530	1071.34	7.60	1078.94
7	33.705451	-115.438362	1085.30	7.60	1092.90

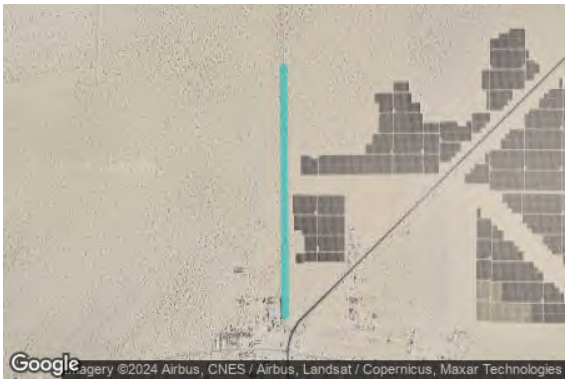
Name: KaiserRd A
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.831109	-115.435728	891.66	7.60	899.26
2	33.813464	-115.412017	755.20	7.60	762.80
3	33.811159	-115.409254	734.79	7.60	742.39
4	33.808817	-115.407018	717.15	7.60	724.75
5	33.806978	-115.405596	703.74	7.60	711.34
6	33.804377	-115.403954	689.04	7.60	696.64
7	33.801994	-115.402806	678.27	7.60	685.87
8	33.799507	-115.401894	671.92	7.60	679.52
9	33.797807	-115.401484	668.15	7.60	675.75
10	33.796500	-115.401237	665.95	7.60	673.55
11	33.795191	-115.401057	664.62	7.60	672.22
12	33.791971	-115.400937	662.89	7.60	670.49

Name: KaiserRd B
Path type: Two-way
Observer view angle: 50.0°

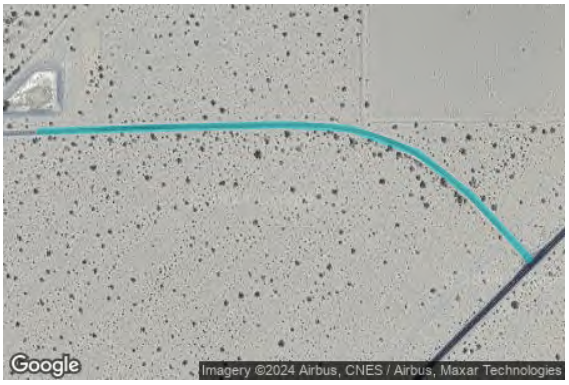
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.746500	-115.400703	745.93	7.60	753.53
2	33.753275	-115.400738	733.94	7.60	741.54
3	33.763914	-115.400792	713.75	7.60	721.35
4	33.769448	-115.400821	702.21	7.60	709.81
5	33.779516	-115.400868	675.89	7.60	683.49

Name: KaiserRd C
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.715283	-115.400523	881.24	7.60	888.84
2	33.729454	-115.400623	783.69	7.60	791.29

Name: OasisRd
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.736311	-115.384332	706.29	3.50	709.79
2	33.736406	-115.380158	692.86	3.50	696.36
3	33.736349	-115.378999	689.12	3.50	692.62
4	33.736009	-115.377862	686.99	3.50	690.49
5	33.735379	-115.376904	686.22	3.50	689.72
6	33.734487	-115.375919	687.38	3.50	690.88

Name: Race Track
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.749594	-115.312350	519.32	3.50	522.82
2	33.748167	-115.314833	530.83	3.50	534.33
3	33.748086	-115.315433	531.45	3.50	534.95
4	33.748218	-115.315911	529.20	3.50	532.70
5	33.748293	-115.316305	523.69	3.50	527.19
6	33.748011	-115.316822	515.20	3.50	518.70
7	33.747274	-115.317841	518.14	3.50	521.64
8	33.747179	-115.318518	525.63	3.50	529.13
9	33.747491	-115.319132	526.31	3.50	529.81
10	33.748065	-115.319289	524.24	3.50	527.74
11	33.748691	-115.318759	518.95	3.50	522.45
12	33.749904	-115.317341	519.50	3.50	523.00
13	33.750281	-115.317089	519.62	3.50	523.12
14	33.750711	-115.317161	519.60	3.50	523.10
15	33.751660	-115.317751	519.77	3.50	523.27
16	33.751863	-115.318091	519.59	3.50	523.09
17	33.751923	-115.318493	519.80	3.50	523.30
18	33.751153	-115.320772	522.04	3.50	525.54
19	33.751157	-115.321235	522.63	3.50	526.13
20	33.751496	-115.321642	523.63	3.50	527.13
21	33.751996	-115.321551	525.15	3.50	528.65
22	33.752251	-115.321146	524.66	3.50	528.16
23	33.752356	-115.320870	523.97	3.50	527.47
24	33.753373	-115.319951	522.41	3.50	525.91

Name: SR177 A
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.809144	-115.285014	537.28	7.60	544.88
2	33.806765	-115.287917	538.18	7.60	545.78
3	33.803052	-115.292448	528.44	7.60	536.04
4	33.799083	-115.297249	522.38	7.60	529.98
5	33.795412	-115.301717	524.60	7.60	532.20
6	33.791259	-115.306758	530.51	7.60	538.11
7	33.787659	-115.311136	532.58	7.60	540.18
8	33.785068	-115.314305	533.78	7.60	541.38
9	33.782942	-115.316904	537.52	7.60	545.12

Name: SR177 B
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.782942	-115.316904	537.52	7.60	545.12
2	33.773104	-115.328901	537.93	7.60	545.53

Name: SR177 C
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.767334	-115.335873	544.08	7.60	551.68
2	33.763143	-115.340966	554.95	7.60	562.55
3	33.758296	-115.346872	569.37	7.60	576.97
4	33.754507	-115.351474	583.94	7.60	591.54
5	33.750529	-115.356306	601.84	7.60	609.44
6	33.748176	-115.359165	612.09	7.60	619.69

Name: SR177 D
Path type: Two-way
Observer view angle: 50.0°

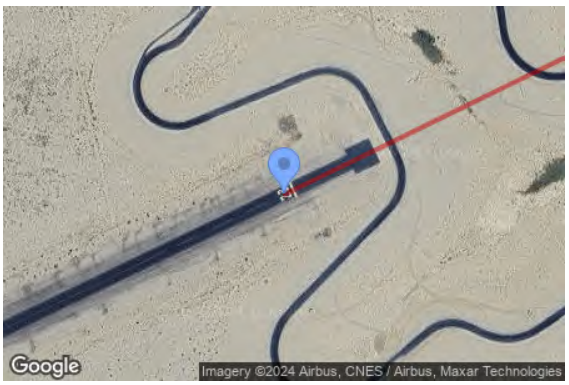
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.746196	-115.361570	621.65	7.60	629.25
2	33.739447	-115.369767	655.95	7.60	663.55

Name: SR177 E
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.737385	-115.372268	666.97	7.60	674.57
2	33.733078	-115.377504	697.85	7.60	705.45
3	33.728150	-115.383484	739.97	7.60	747.57
4	33.722891	-115.389865	791.70	7.60	799.30
5	33.718537	-115.395150	840.95	7.60	848.55
6	33.715180	-115.399225	879.82	7.60	887.42

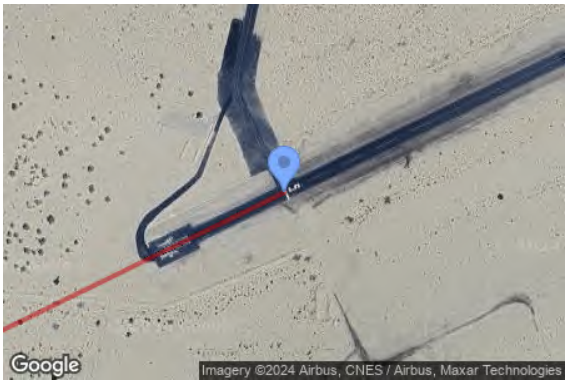
Flight Path Receptors

Name: CN6423
Description: None
Threshold height: 50 ft
Direction: 244.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.750158	-115.319082	518.50	50.00	568.50
Two-mile	33.762832	-115.287792	487.80	634.10	1121.90

Name: CN645
Description: None
Threshold height: 50 ft
Direction: 64.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.745236	-115.331386	550.50	50.00	600.50
Two-mile	33.732566	-115.362677	664.90	489.10	1154.00

Name: IR217l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.759140	-115.381050	658.09	200.00	858.09
Two-mile	33.798904	-115.326378	578.66	200.00	778.66

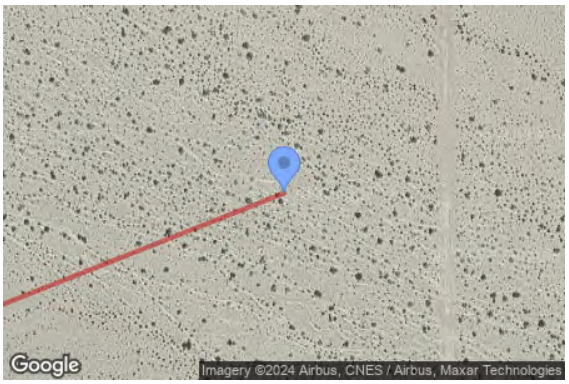
Name: IR217m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.759140	-115.381050	658.09	3071.00	3729.09
Two-mile	33.798904	-115.326378	578.66	3110.00	3688.66

Name: IR217u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

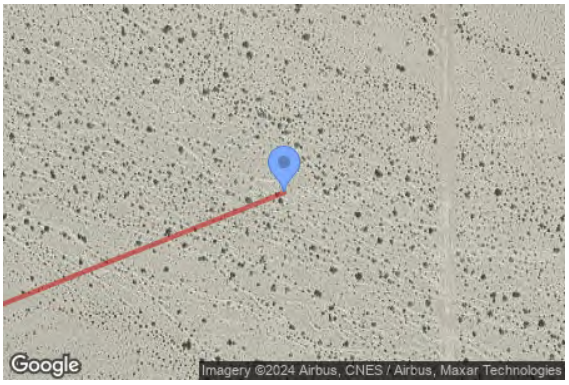
Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.759140	-115.381050	658.09	6342.00	7000.09
Two-mile	33.798904	-115.326378	578.66	6421.00	6999.66

Name: IR218l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°



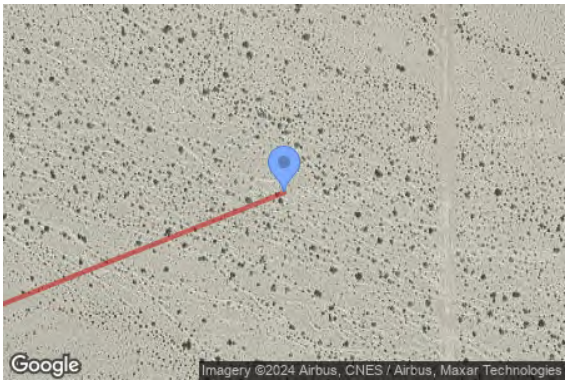
Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.775330	-115.347054	561.64	500.00	1061.64
Two-mile	33.751141	-115.420723	809.73	500.00	1309.73

Name: IR218m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.775330	-115.347054	561.64	2470.00	3031.64
Two-mile	33.751141	-115.420723	809.73	2345.00	3154.74

Name: IR218u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

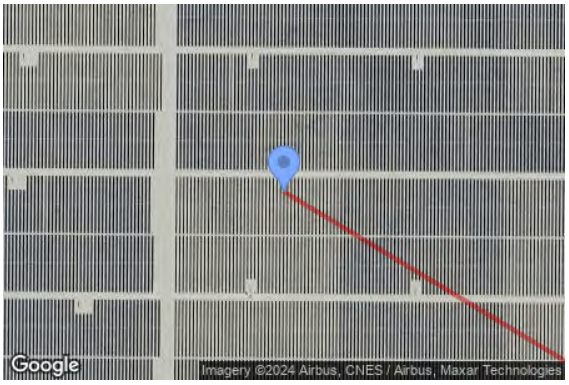


Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.775330	-115.347054	561.64	5438.00	5999.64
Two-mile	33.751141	-115.420723	809.73	5190.00	5999.74

Name: IR255l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

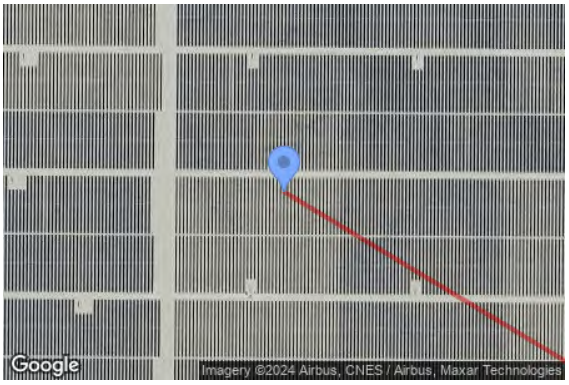
Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.795845	-115.369148	618.20	200.00	818.20
Two-mile	33.763584	-115.304428	505.85	200.00	705.85

Name: IR255m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.795845	-115.369148	618.20	3091.00	3709.20
Two-mile	33.763584	-115.304428	505.85	3147.00	3652.85

Name: IR255u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.795845	-115.369148	618.20	6382.00	7000.20
Two-mile	33.763584	-115.304428	505.85	6494.00	6999.85

Name: VR289l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.756954	-115.378883	654.52	300.00	954.52
Two-mile	33.804703	-115.335007	593.72	300.00	893.72

Name: VR289m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.756954	-115.378883	654.52	1523.00	2177.52
Two-mile	33.804703	-115.335007	593.72	1553.00	2146.72

Name: VR289u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.756954	-115.378883	654.52	3345.00	3999.52
Two-mile	33.804703	-115.335007	593.72	3406.00	3999.72

Name: VR296l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.761974	-115.382957	660.53	300.00	960.53
Two-mile	33.790321	-115.318008	547.35	300.00	847.35

Name: VR296m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.761974	-115.382957	660.53	1520.00	2180.53
Two-mile	33.790321	-115.318008	547.35	1577.00	2124.35

Name: VR296u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.761974	-115.382957	660.53	3339.00	3999.53
Two-mile	33.790321	-115.318008	547.35	3453.00	4000.35

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	33.778493	-115.320099	535.34	5.50
OP 2	2	33.767844	-115.337650	546.48	5.50
OP 3	3	33.765330	-115.396387	697.13	5.50
OP 4	4	33.755021	-115.321706	523.91	5.50
OP 5	5	33.754756	-115.333252	543.09	5.50
OP 6	6	33.747512	-115.359082	612.48	5.50
OP 7	7	33.745631	-115.399716	744.30	5.50
OP 8	8	33.744408	-115.362055	626.39	5.50
OP 9	9	33.743965	-115.396803	738.95	5.50
OP 10	10	33.743124	-115.395252	738.94	5.50
OP 11	11	33.742144	-115.393587	735.58	5.50
OP 12	12	33.741881	-115.391741	724.81	5.50
OP 13	13	33.741737	-115.389776	717.98	5.50
OP 14	14	33.739459	-115.370548	659.31	5.50
OP 15	15	33.739539	-115.388627	716.39	5.50
OP 16	16	33.738547	-115.388535	718.70	5.50
OP 17	17	33.718256	-115.395901	844.87	5.50
OP 18	18	33.715835	-115.395968	865.91	5.50
OP 19	19	33.713998	-115.404205	897.54	5.50

Glare Analysis Results

Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV01	SA tracking	SA tracking	82,400	1,373.3	13,779	229.7	-
PV02	SA tracking	SA tracking	85,453	1,424.2	15,090	251.5	-
PV03	SA tracking	SA tracking	124,905	2,081.8	25,925	432.1	-
PV04	SA tracking	SA tracking	115,919	1,932.0	10,134	168.9	-
PV05	SA tracking	SA tracking	119,131	1,985.5	28,412	473.5	-
PV06	SA tracking	SA tracking	197,959	3,299.3	35,866	597.8	-
PV07	SA tracking	SA tracking	79,857	1,331.0	12,414	206.9	-
PV08	SA tracking	SA tracking	98,180	1,636.3	22,947	382.4	-
PV09	SA tracking	SA tracking	181,862	3,031.0	40,436	673.9	-
PV10	SA tracking	SA tracking	75,129	1,252.2	8,976	149.6	-
PV11	SA tracking	SA tracking	92,385	1,539.8	18,574	309.6	-
PV12	SA tracking	SA tracking	172,180	2,869.7	45,329	755.5	-
PV13	SA tracking	SA tracking	200,085	3,334.8	20,874	347.9	-
PV14	SA tracking	SA tracking	93,454	1,557.6	16,890	281.5	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd A	648	10.8	0	0.0
AirportRd B	1,639	27.3	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	108	1.8	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	3,225	53.8	0	0.0
SR177 A	14,006	233.4	0	0.0
SR177 B	6,209	103.5	0	0.0
SR177 C	769	12.8	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
CN6423	13,736	228.9	0	0.0
CN645	0	0.0	0	0.0
IR217l	203,871	3,397.8	101,202	1,686.7
IR217m	127,468	2,124.5	633	10.6
IR217u	73,979	1,233.0	0	0.0
IR218l	40,626	677.1	9,348	155.8
IR218m	31,464	524.4	2,634	43.9
IR218u	24,707	411.8	80	1.3
IR255l	29,141	485.7	1,749	29.1
IR255m	144,516	2,408.6	0	0.0
IR255u	89,626	1,493.8	0	0.0
VR289l	227,476	3,791.3	97,077	1,618.0
VR289m	204,379	3,406.3	8,010	133.5
VR289u	141,908	2,365.1	0	0.0
VR296l	127,341	2,122.3	80,017	1,333.6
VR296m	127,246	2,120.8	13,895	231.6
VR296u	83,015	1,383.6	1,001	16.7
OP 1	1,158	19.3	0	0.0
OP 2	284	4.7	0	0.0
OP 3	286	4.8	0	0.0
OP 4	68	1.1	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

PV: PV01 potential temporary after-image

Receptor results ordered by category of glare

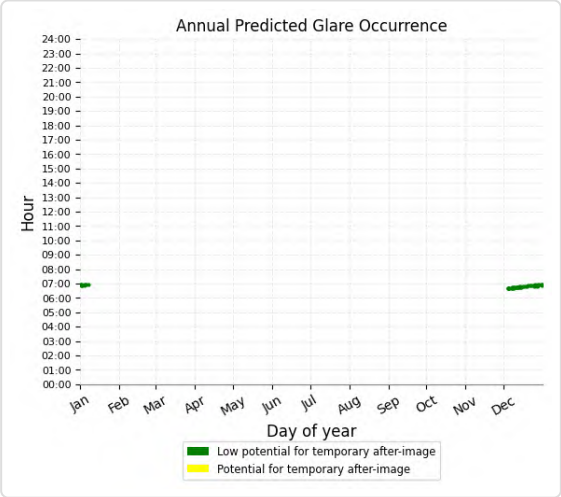
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
KaiserRd A	62	1.0	0	0.0
SR177 A	869	14.5	0	0.0
SR177 B	331	5.5	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	2,135	35.6	2,846	47.4
IR255l	1,924	32.1	545	9.1
VR289l	3,043	50.7	6,320	105.3
VR289m	14,583	243.1	1,016	16.9
VR296l	1,761	29.4	1,700	28.3
VR296m	4,532	75.5	1,352	22.5
CN6423	869	14.5	0	0.0
IR217m	9,403	156.7	0	0.0
IR217u	4,256	70.9	0	0.0
IR218l	196	3.3	0	0.0
IR218m	243	4.0	0	0.0
IR255m	16,701	278.4	0	0.0
IR255u	4,895	81.6	0	0.0
VR289u	10,236	170.6	0	0.0
VR296u	6,269	104.5	0	0.0
CN645	0	0.0	0	0.0
IR218u	0	0.0	0	0.0

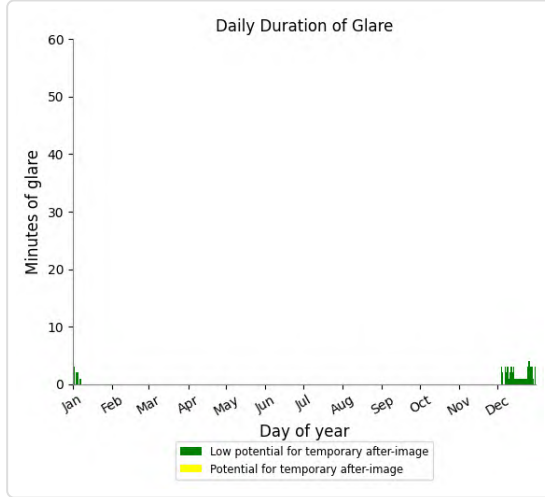
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	92	1.5	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

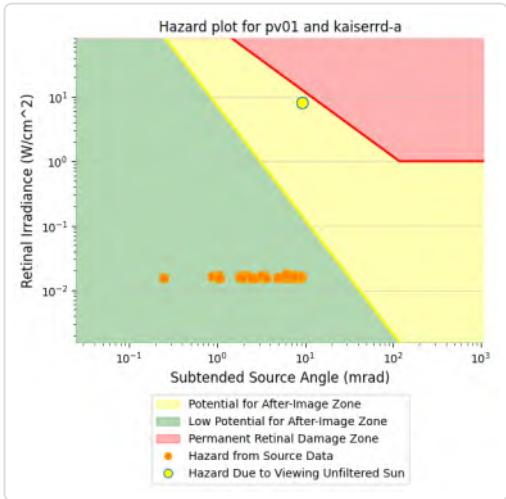
PV01 and Route: KaiserRd A

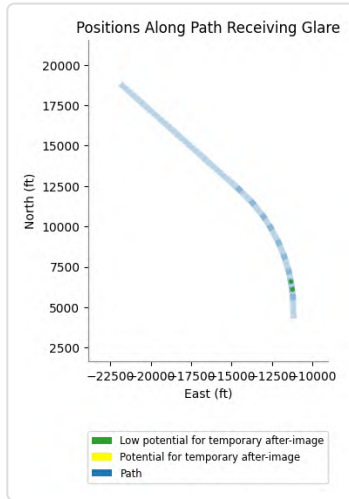
Yellow glare: none

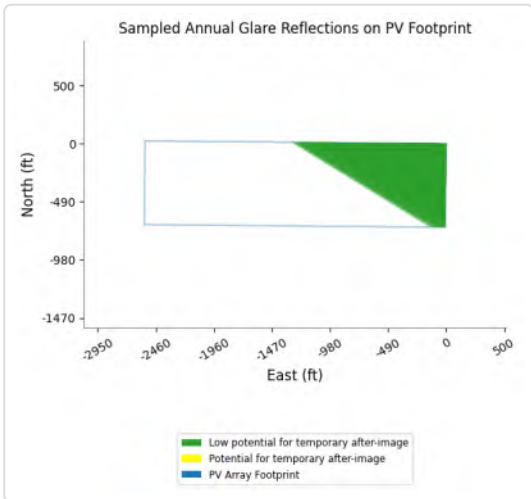
Green glare: 62 min.







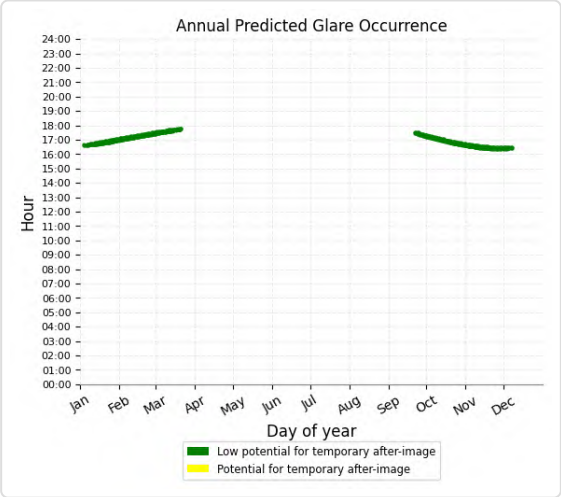


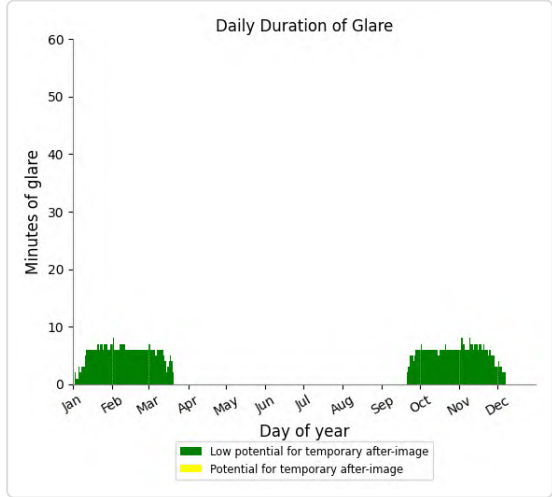


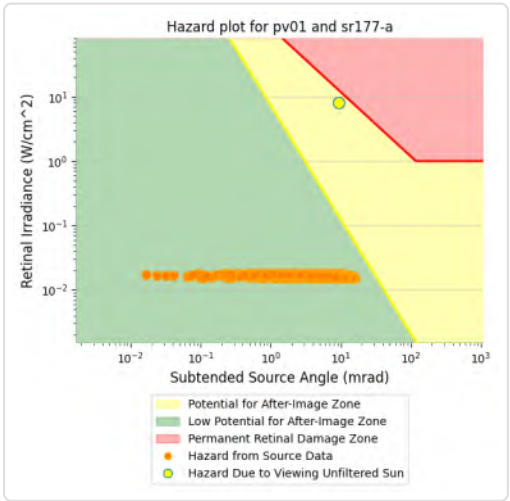
PV01 and Route: SR177 A

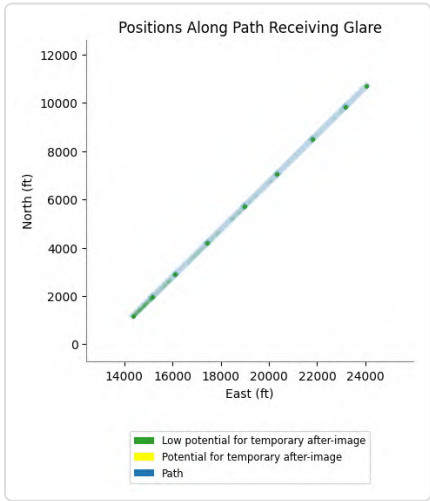
Yellow glare: none

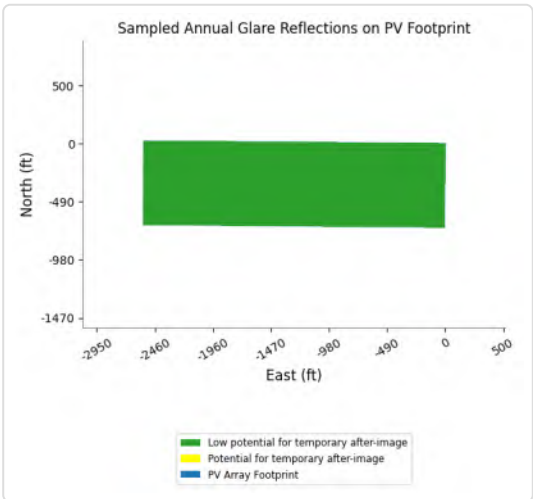
Green glare: 869 min.







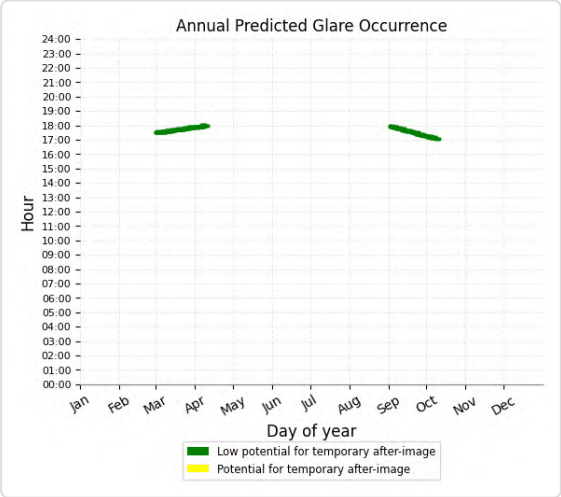


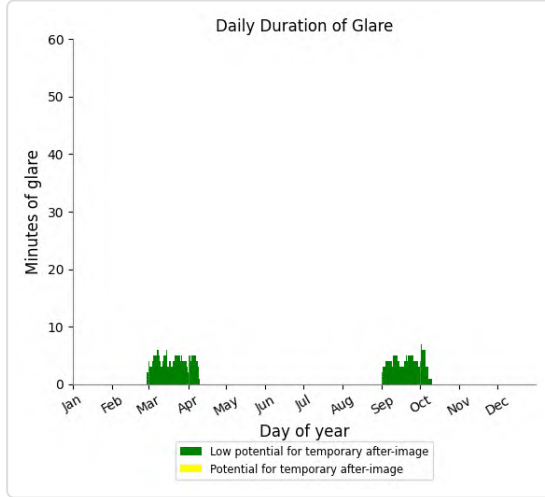


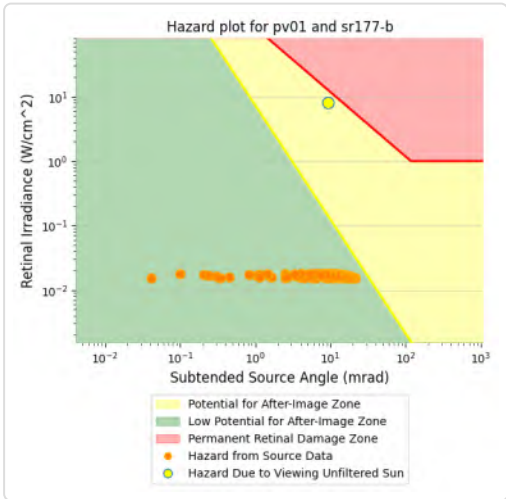
PV01 and Route: SR177 B

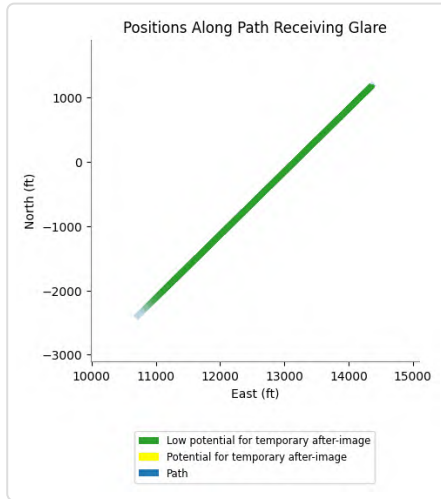
Yellow glare: none

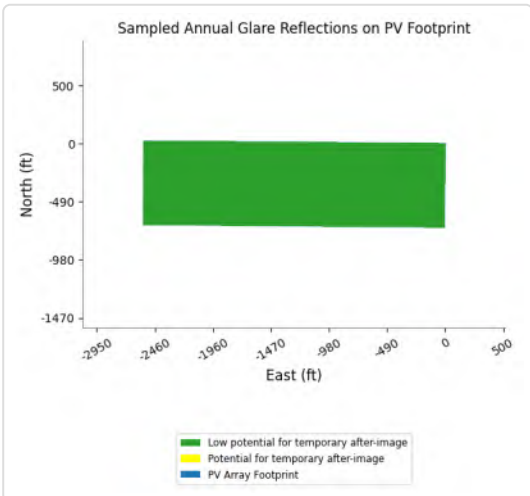
Green glare: 331 min.











PV01 and Route: AirportRd A

No glare found

PV01 and Route: AirportRd B

No glare found

PV01 and Route: EagleMtnRd A

No glare found

PV01 and Route: EagleMtnRd B

No glare found

PV01 and Route: I-10 EB A

No glare found

PV01 and Route: I-10 EB B

No glare found

PV01 and Route: I-10 EB C

No glare found

PV01 and Route: I-10 WB A

No glare found

PV01 and Route: I-10 WB B

No glare found

PV01 and Route: I-10 WB C

No glare found

PV01 and Route: KaiserRd B

No glare found

PV01 and Route: KaiserRd C

No glare found

PV01 and Route: OasisRd

No glare found

PV01 and Route: Race Track

No glare found

PV01 and Route: SR177 C

No glare found

PV01 and Route: SR177 D

No glare found

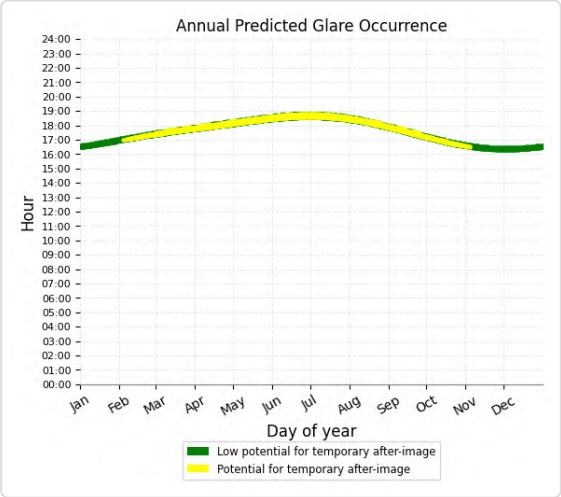
PV01 and Route: SR177 E

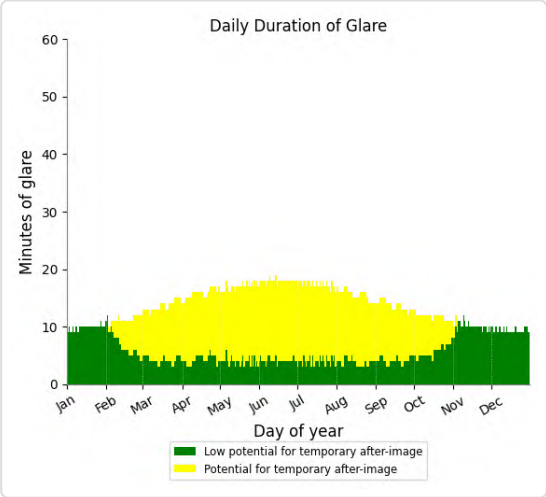
No glare found

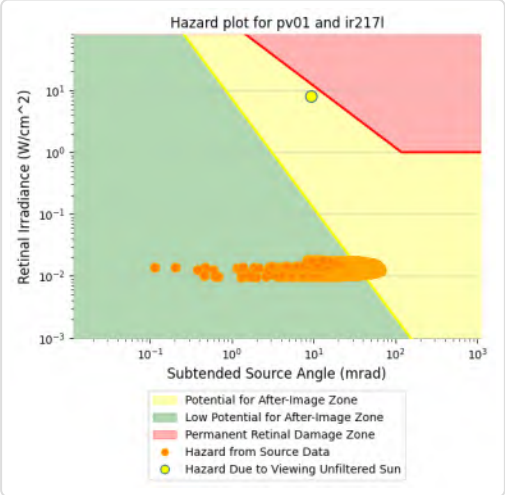
PV01 and FP: IR217l

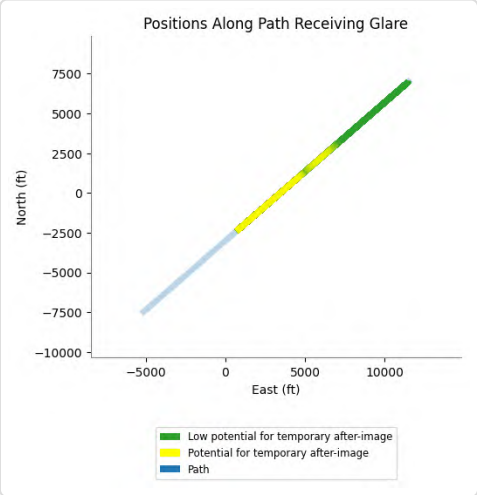
Yellow glare: 2,846 min.

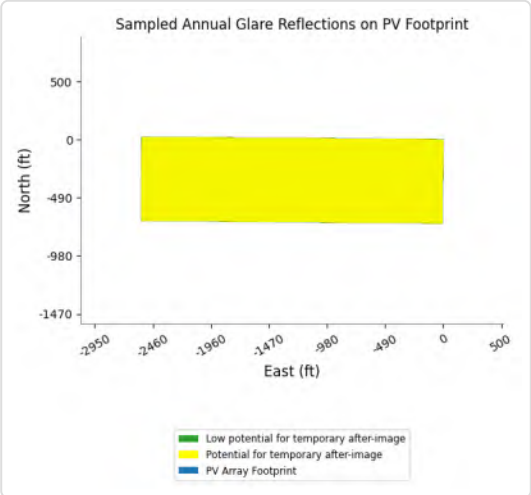
Green glare: 2,135 min.

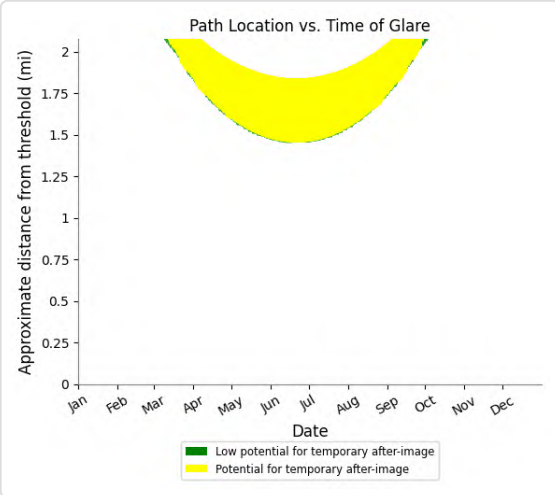








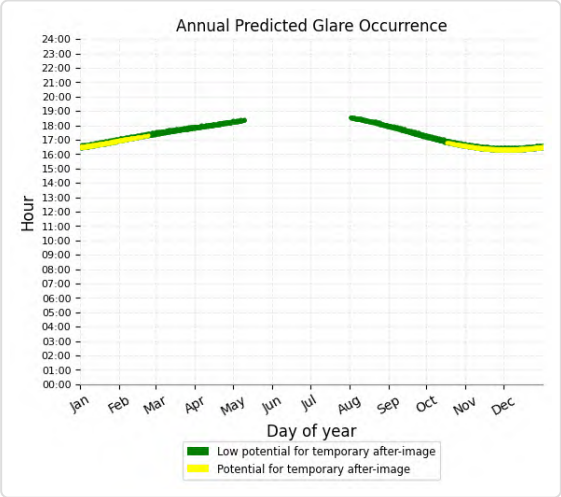


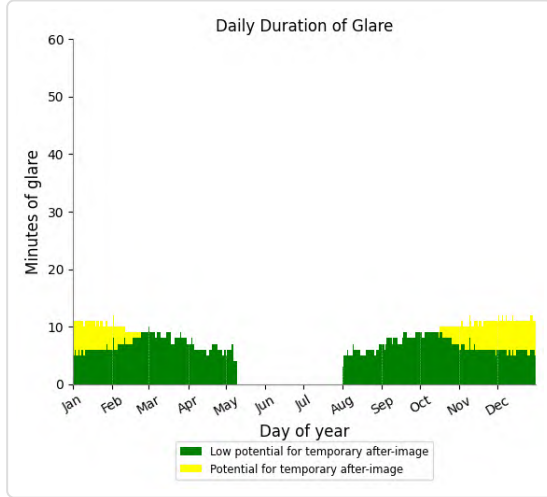


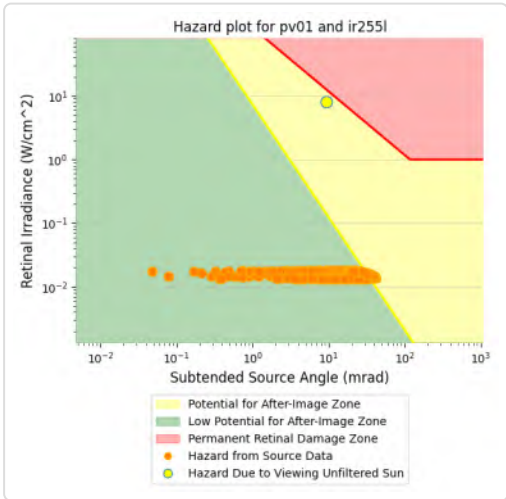
PV01 and FP: IR255l

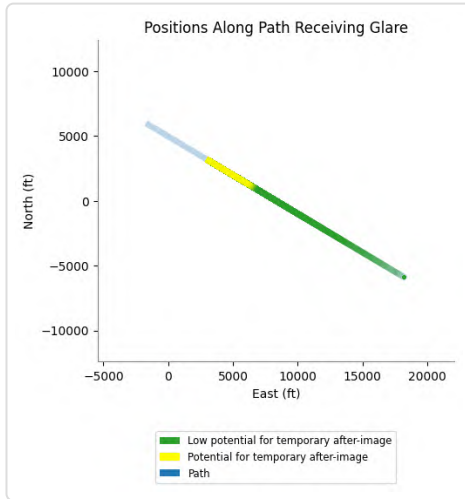
Yellow glare: 545 min.

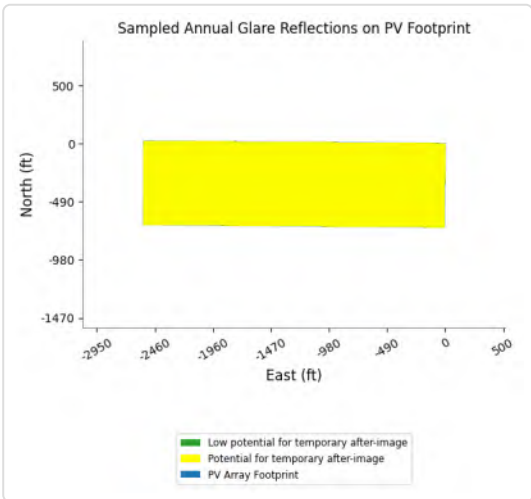
Green glare: 1,924 min.

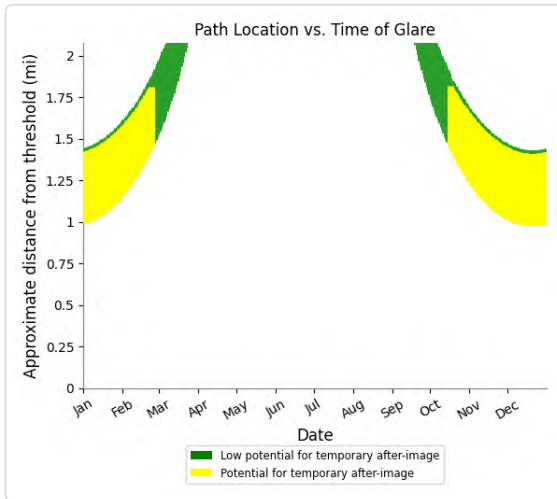








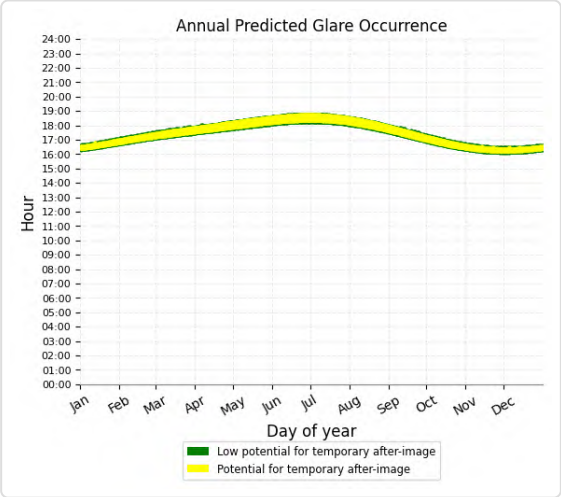


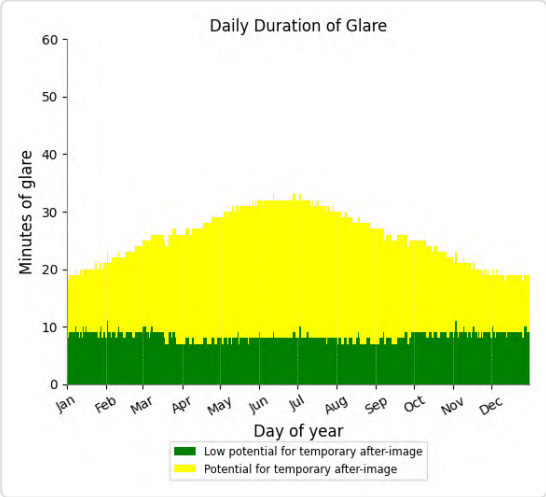


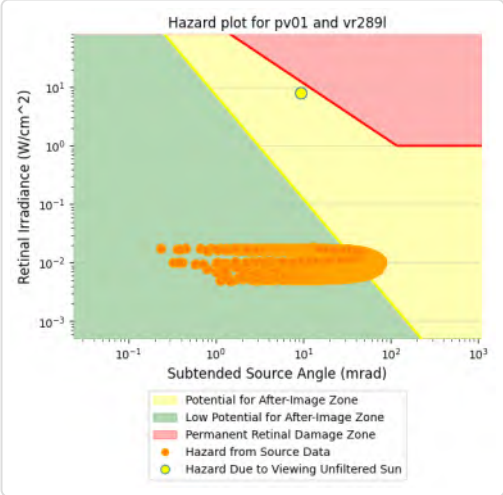
PV01 and FP: VR289I

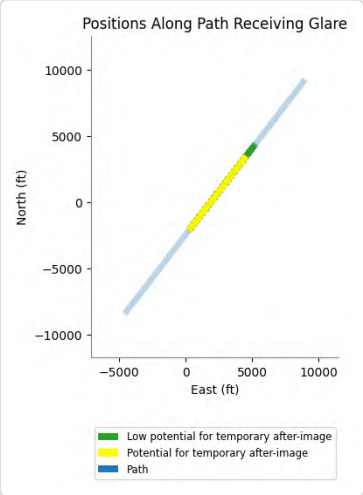
Yellow glare: 6,320 min.

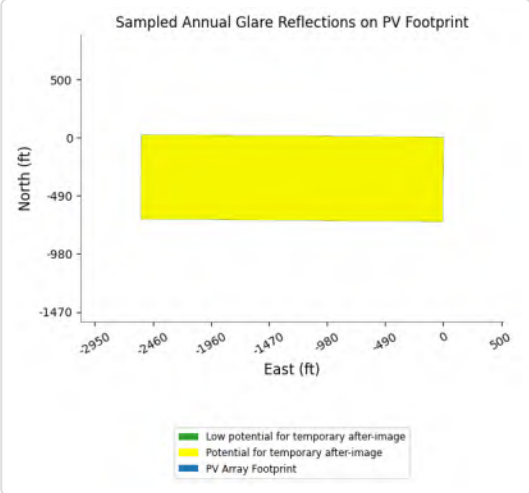
Green glare: 3,043 min.

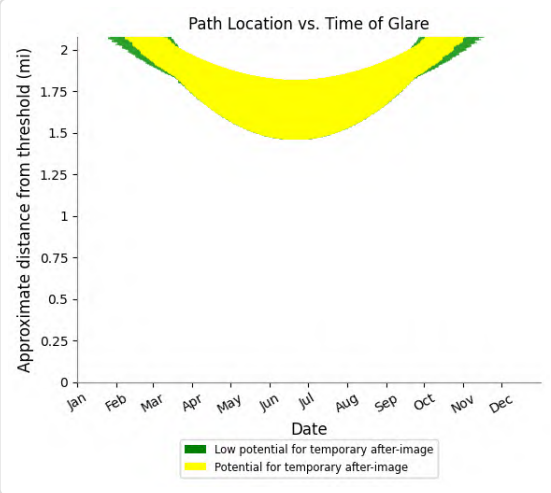








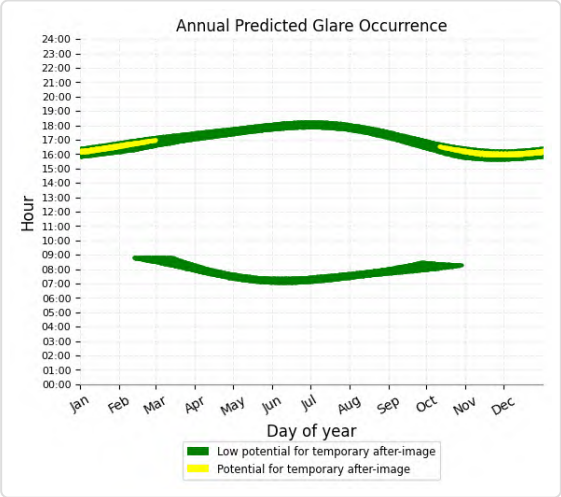


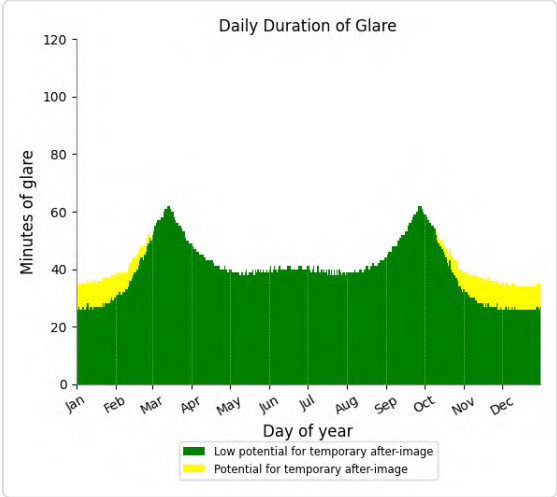


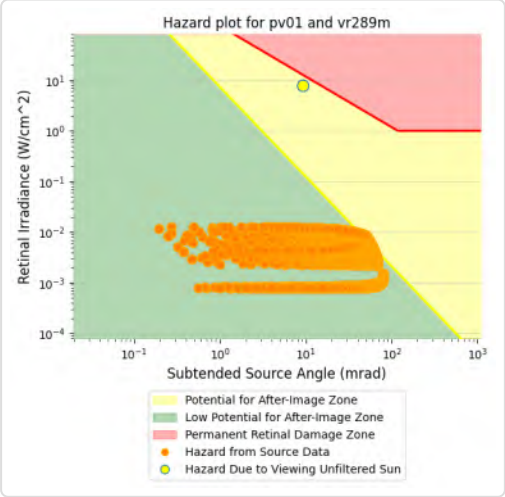
PV01 and FP: VR289m

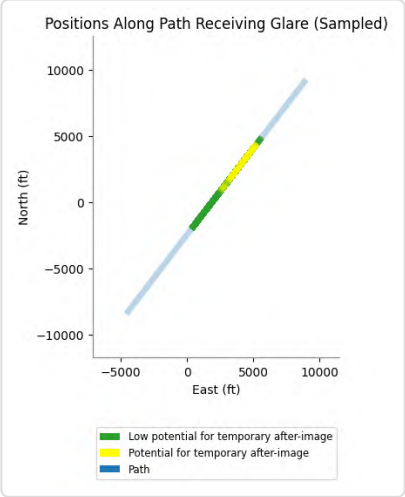
Yellow glare: 1,016 min.

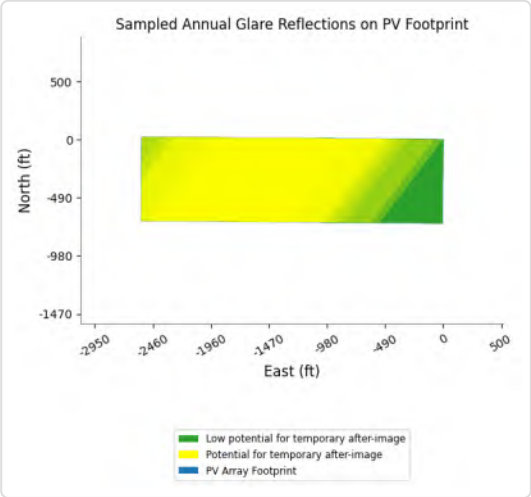
Green glare: 14,583 min.

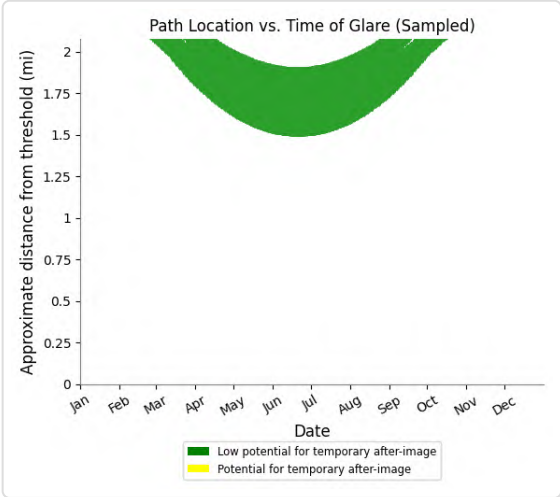








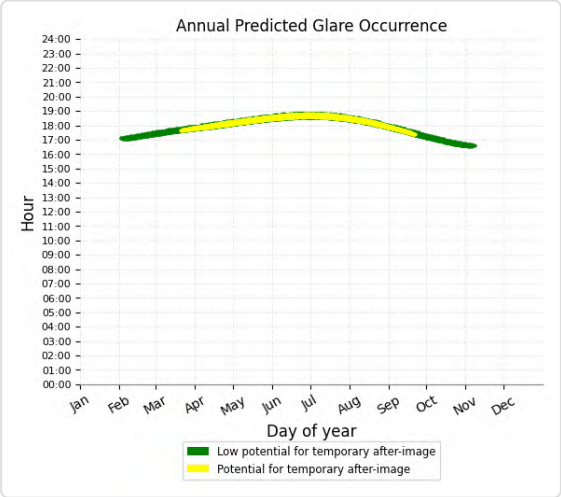


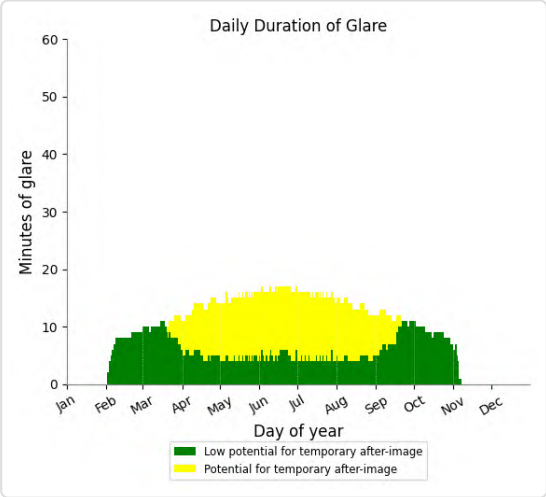


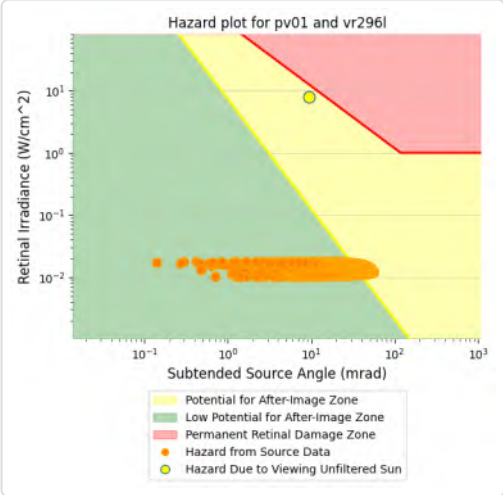
PV01 and FP: VR296l

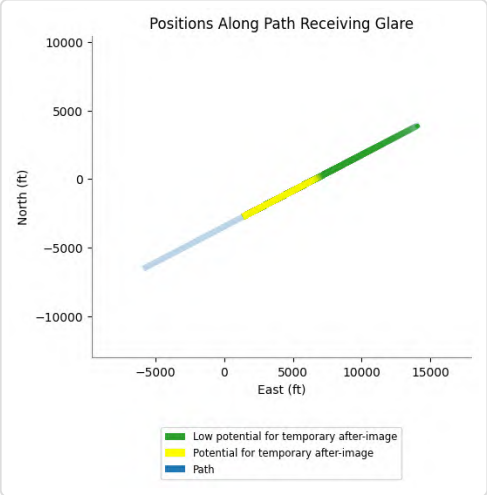
Yellow glare: 1,700 min.

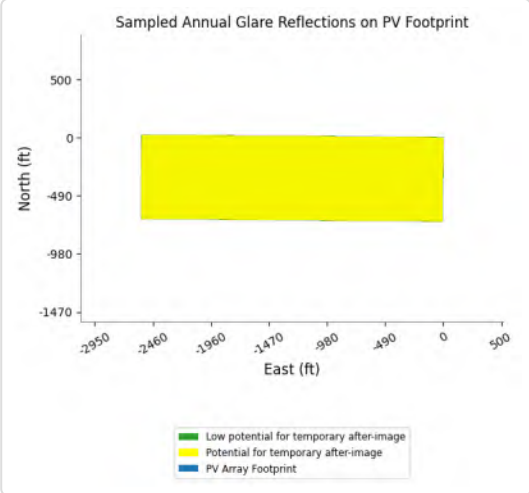
Green glare: 1,761 min.

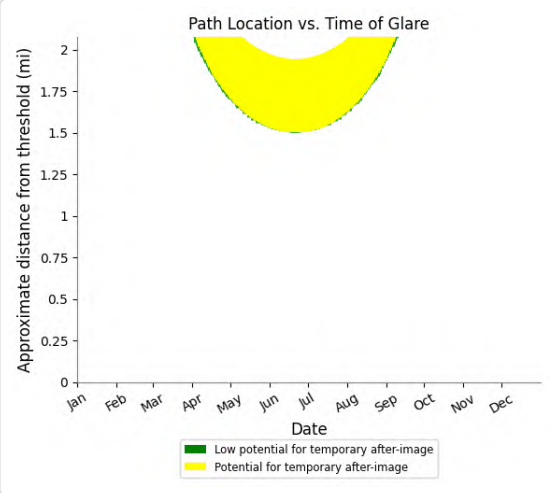








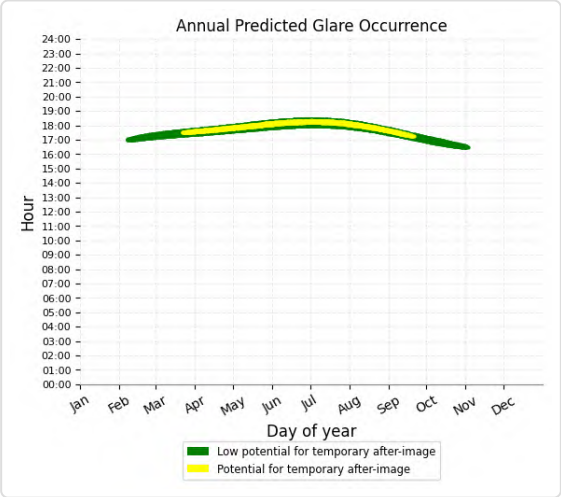


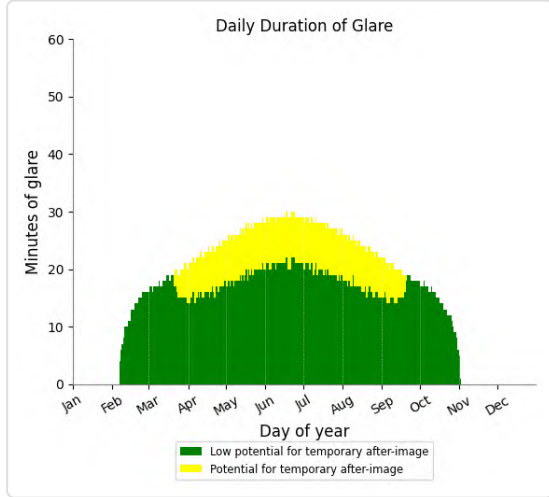


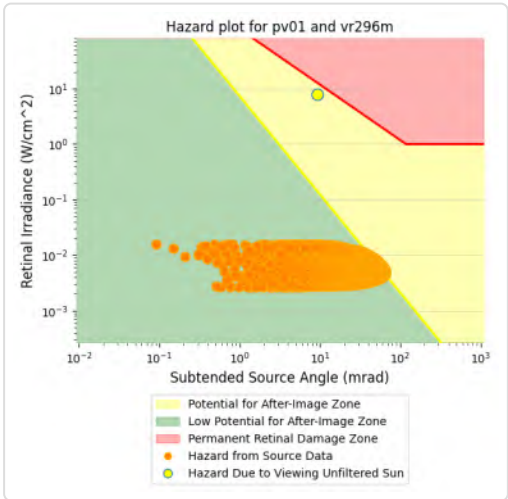
PV01 and FP: VR296m

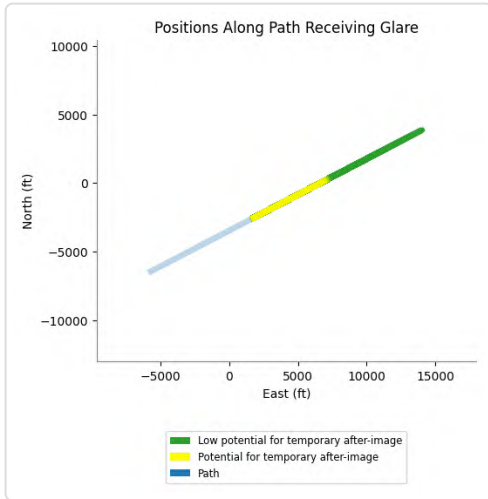
Yellow glare: 1,352 min.

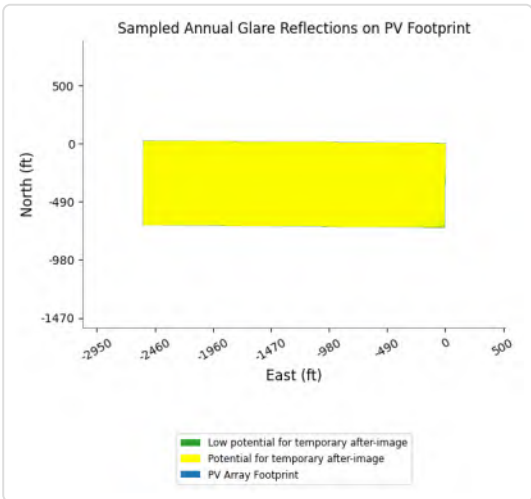
Green glare: 4,532 min.

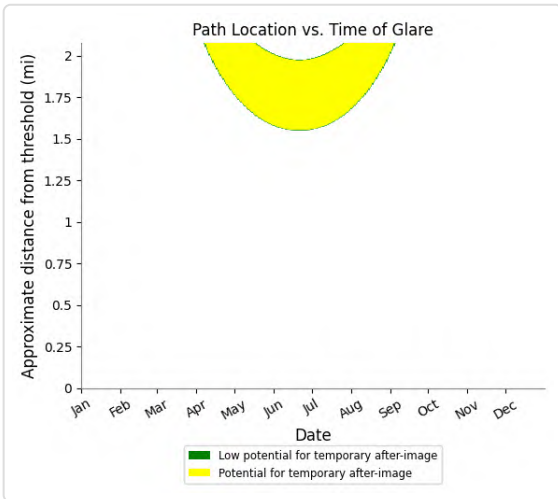








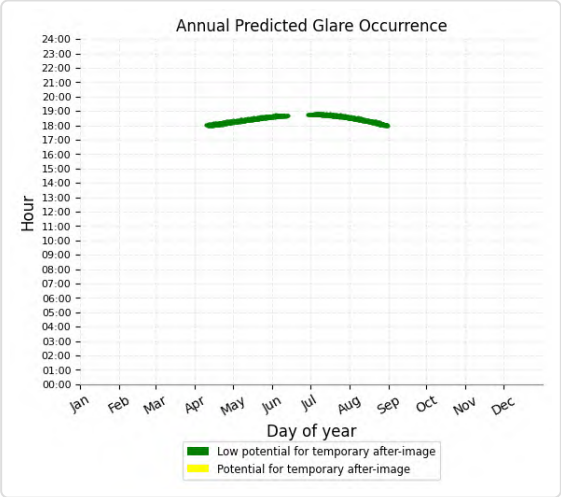


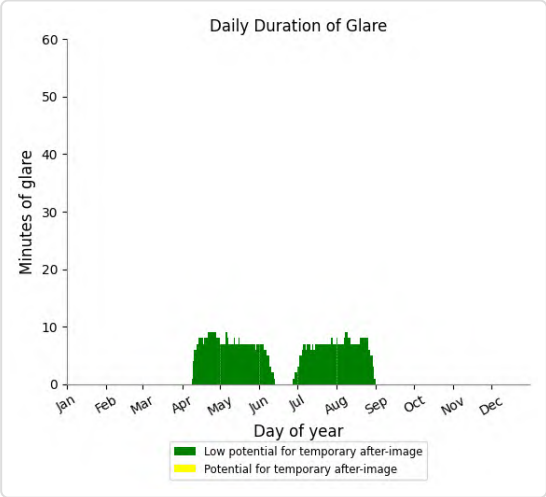


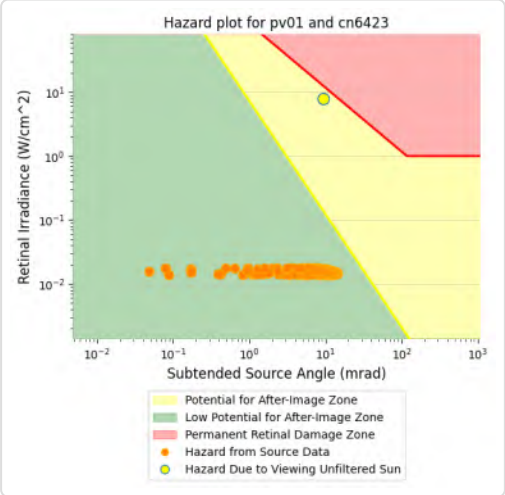
PV01 and FP: CN6423

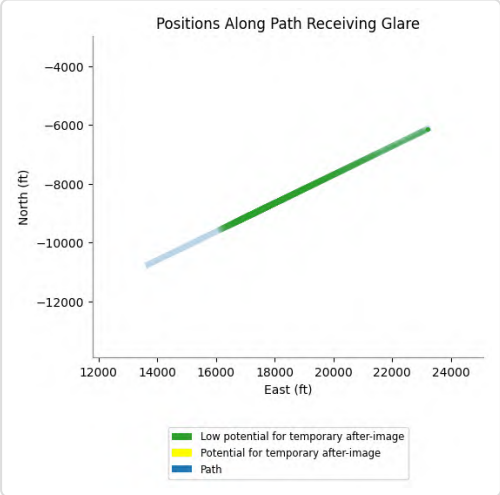
Yellow glare: none

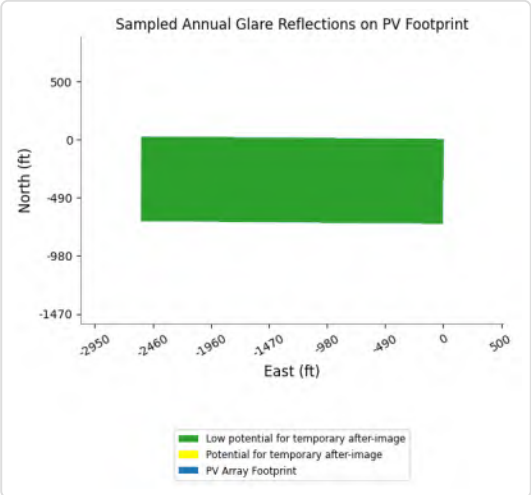
Green glare: 869 min.

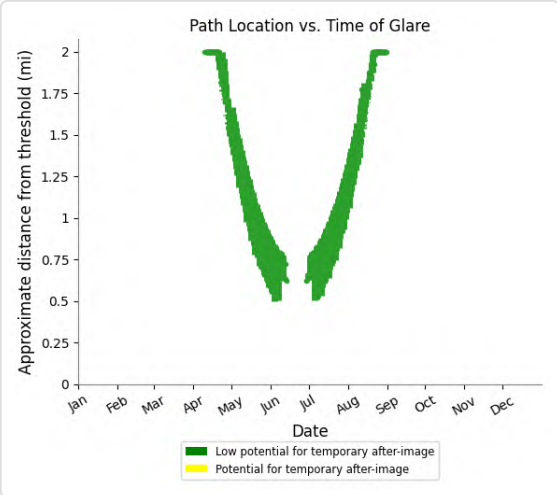








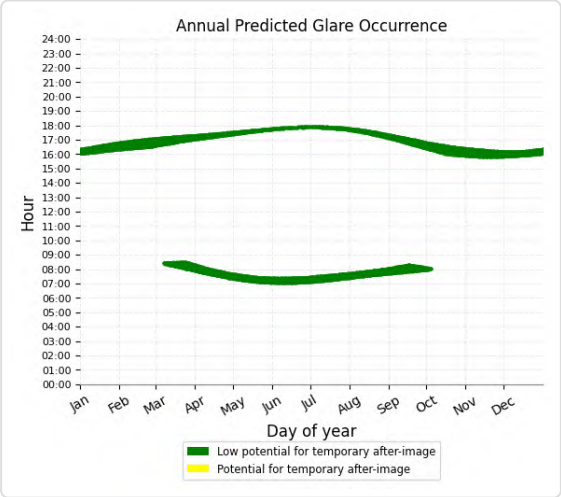


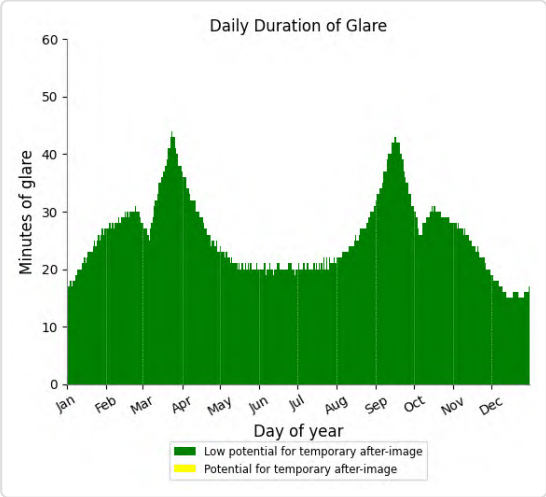


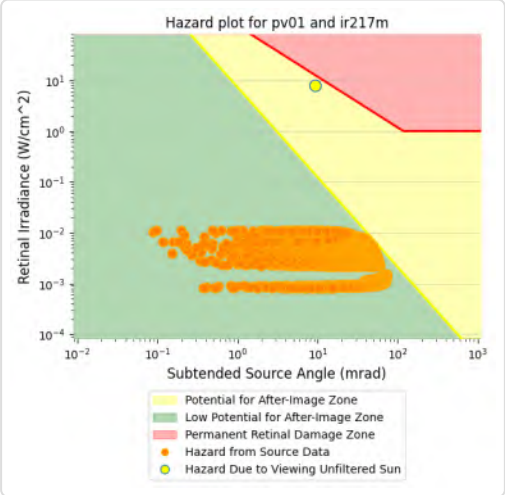
PV01 and FP: IR217m

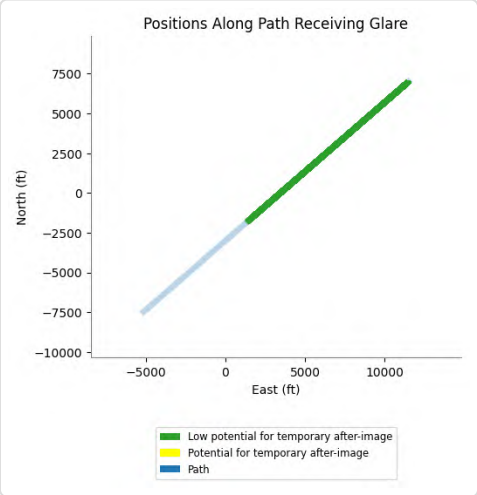
Yellow glare: none

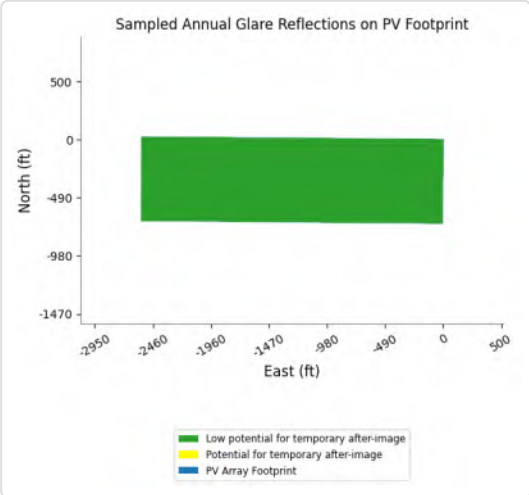
Green glare: 9,403 min.

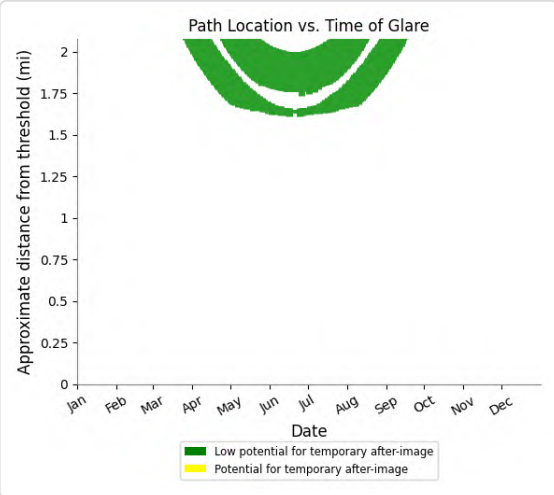








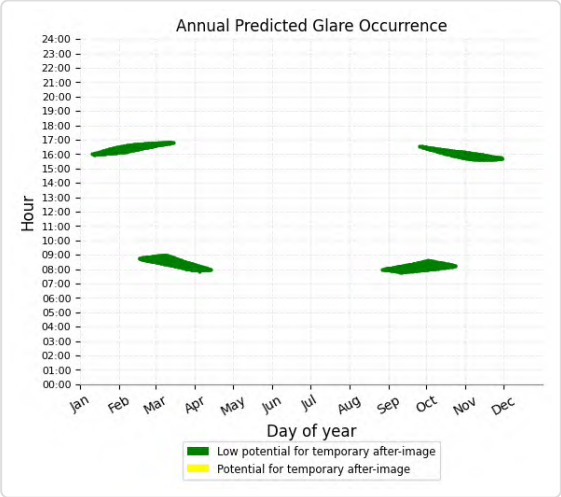


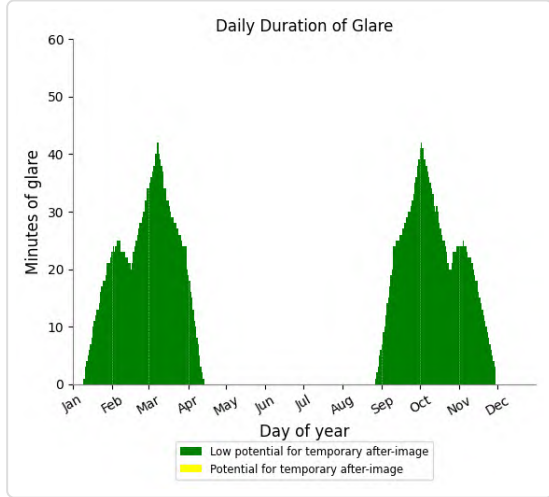


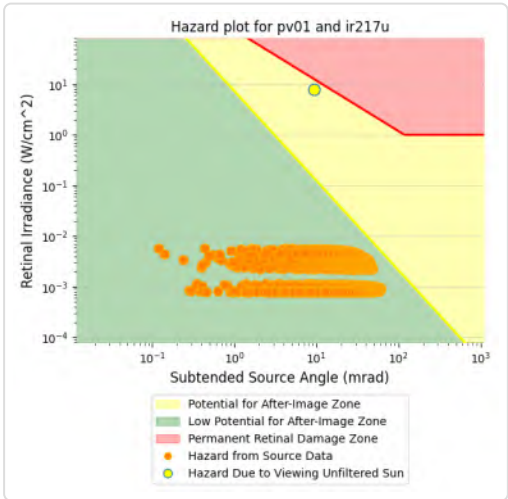
PV01 and FP: IR217u

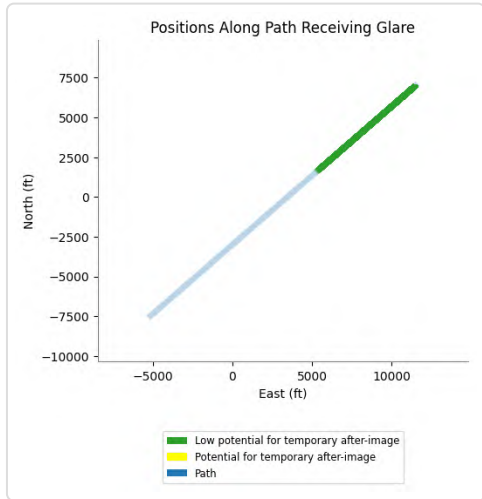
Yellow glare: none

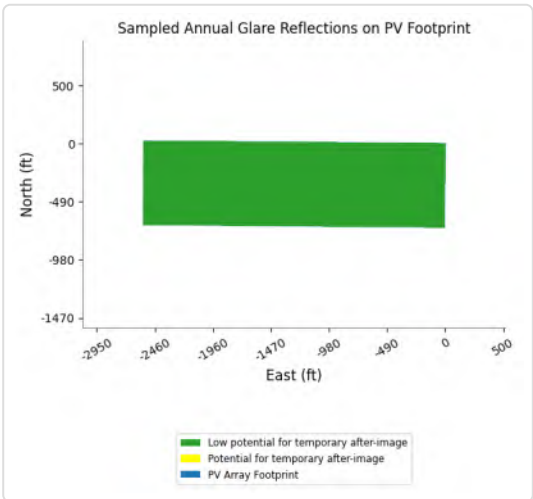
Green glare: 4,256 min.

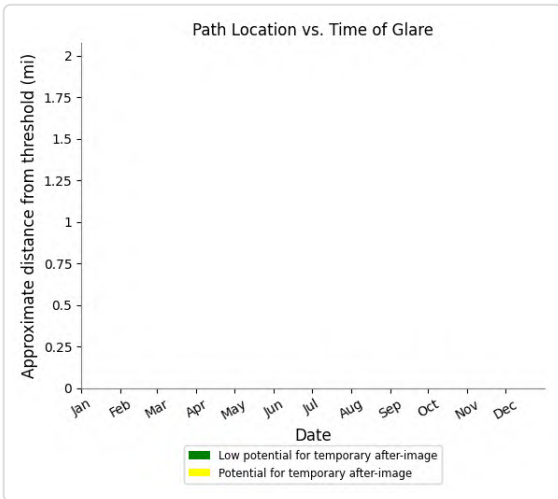








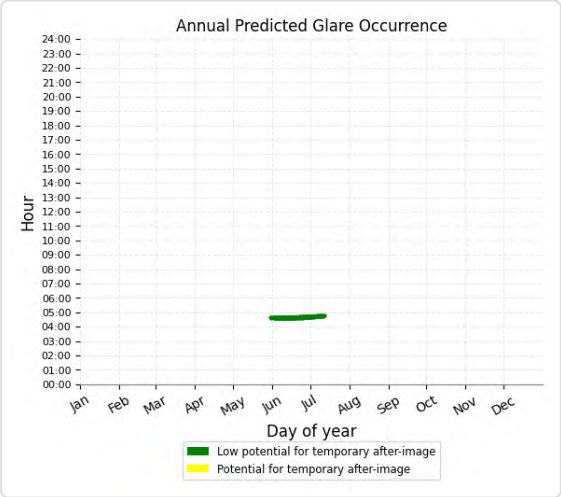


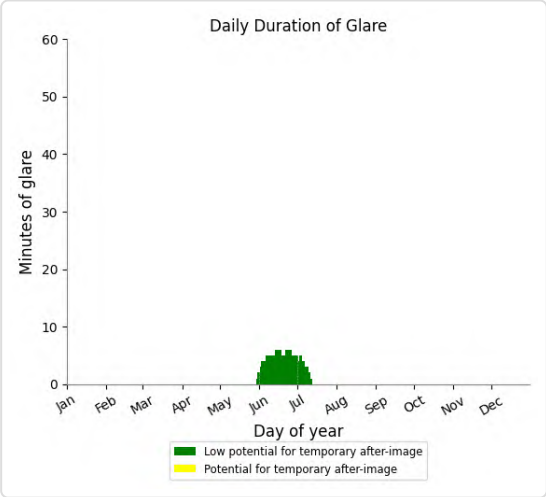


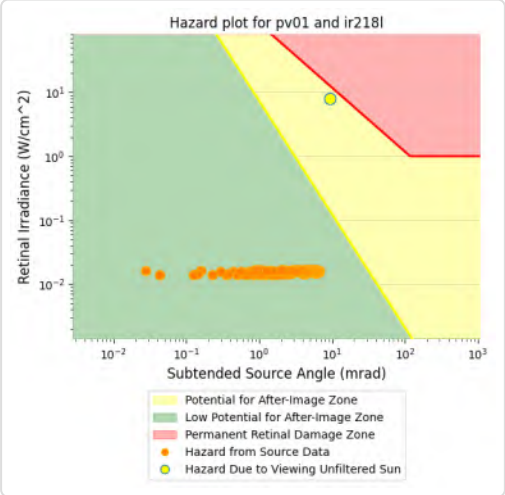
PV01 and FP: IR218l

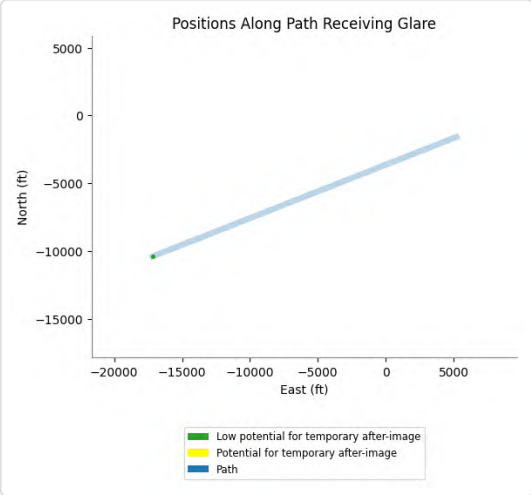
Yellow glare: none

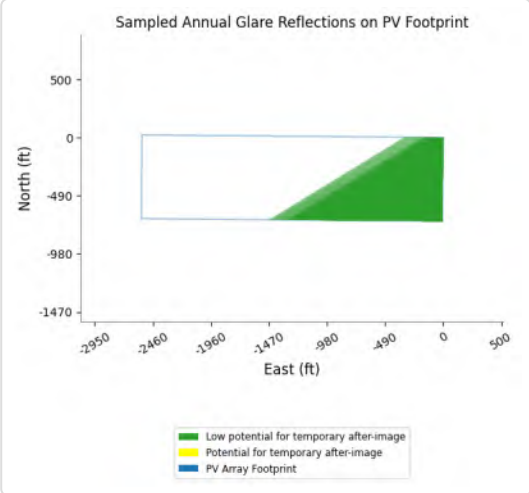
Green glare: 196 min.

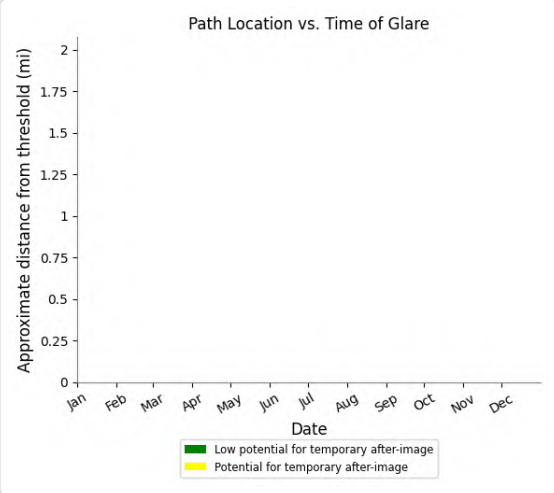








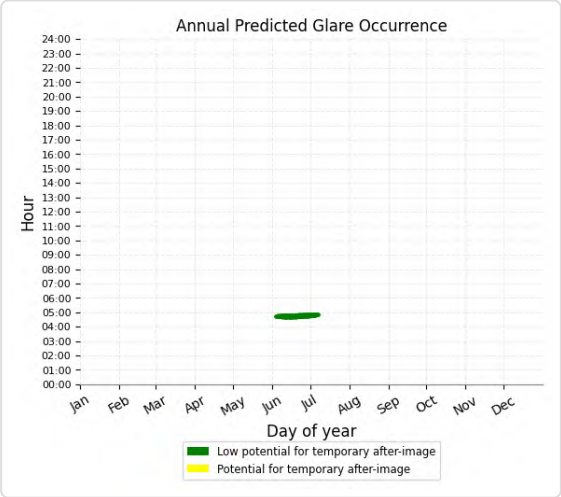


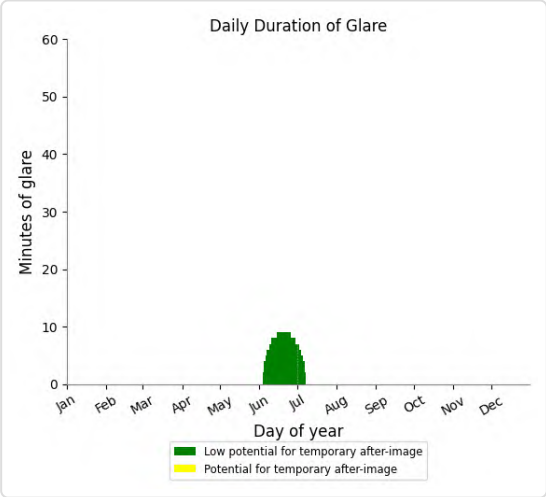


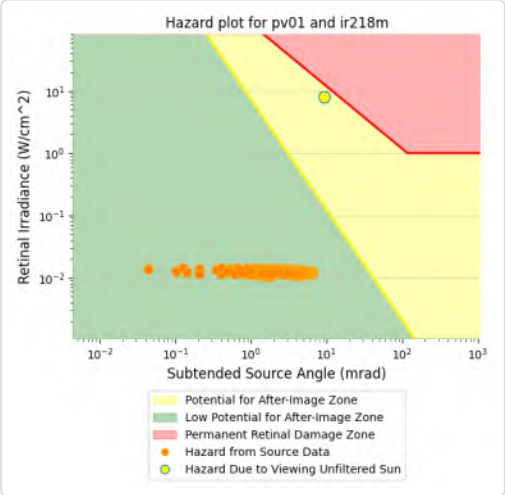
PV01 and FP: IR218m

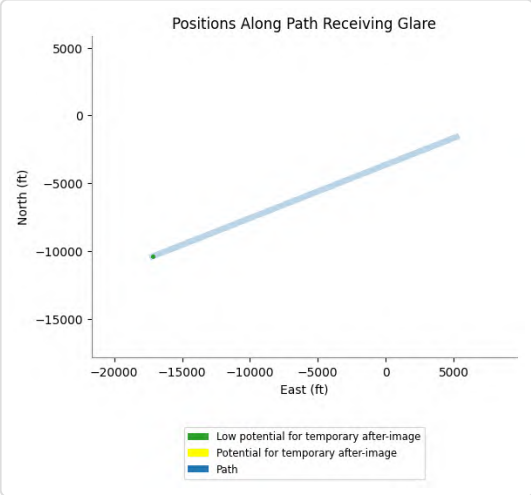
Yellow glare: none

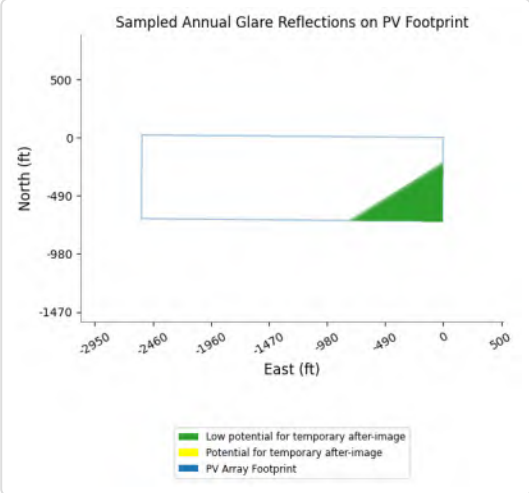
Green glare: 243 min.

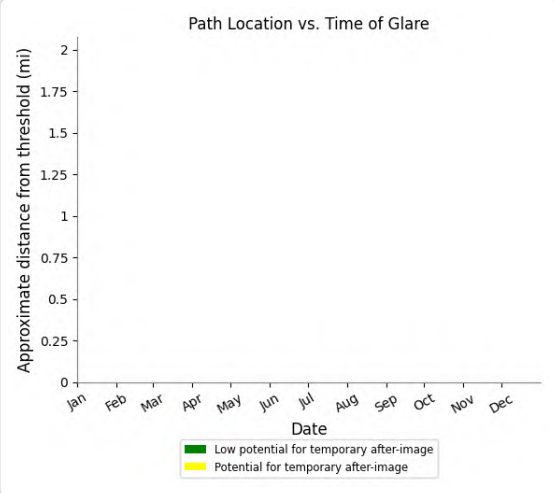








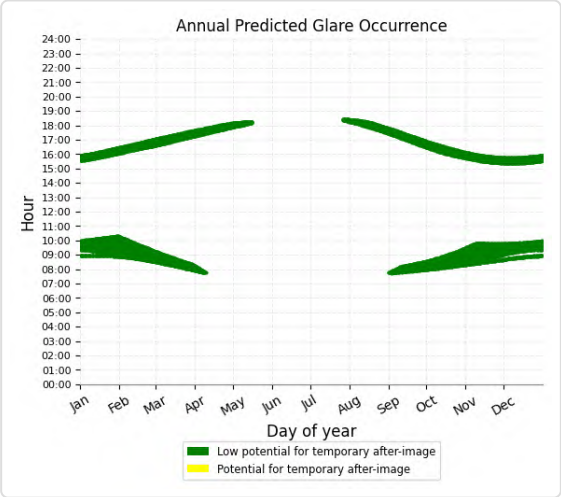


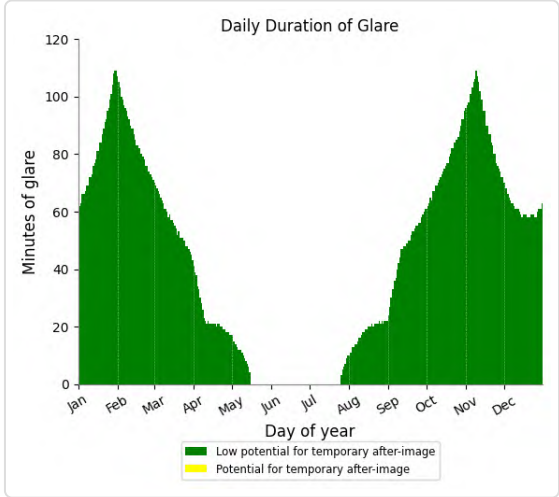


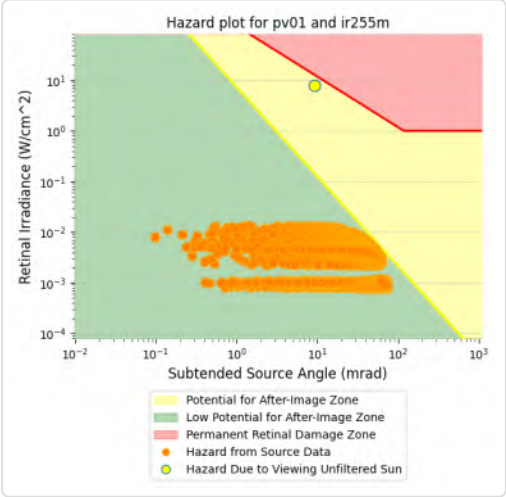
PV01 and FP: IR255m

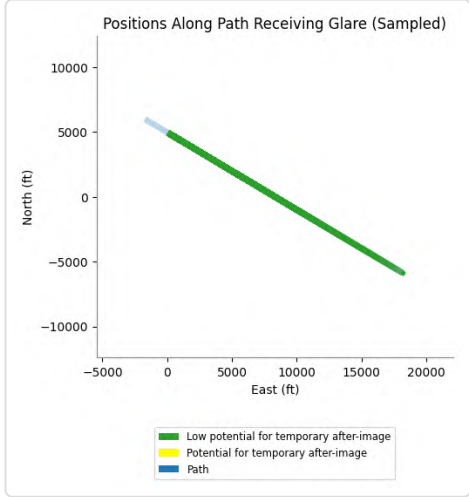
Yellow glare: none

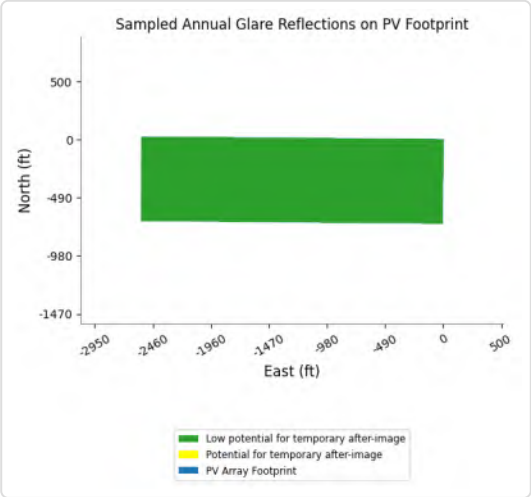
Green glare: 16,701 min.

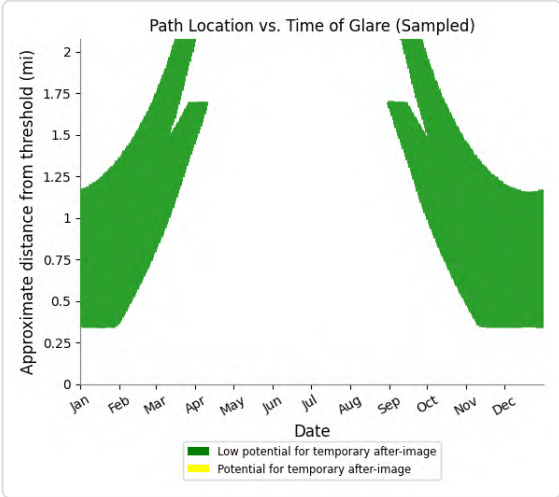








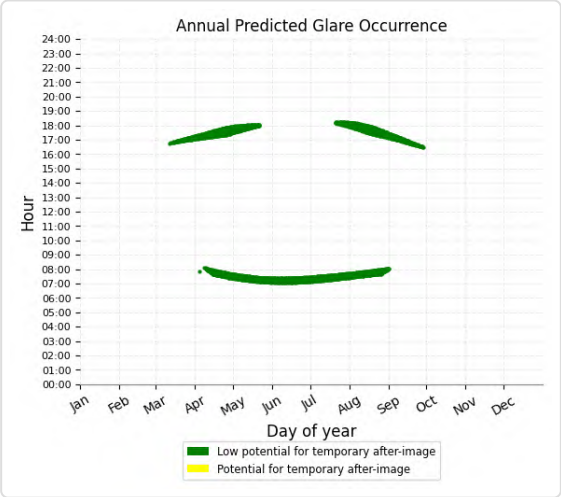


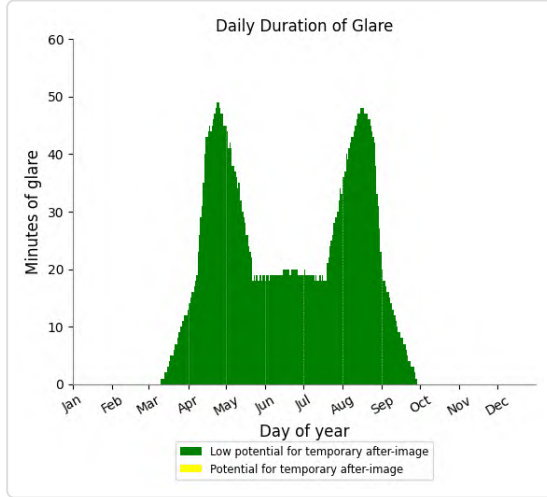


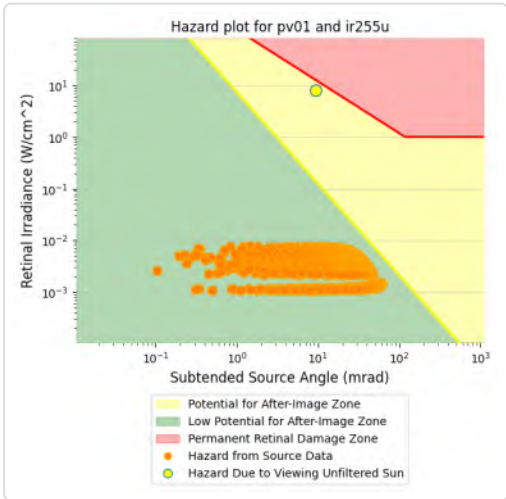
PV01 and FP: IR255u

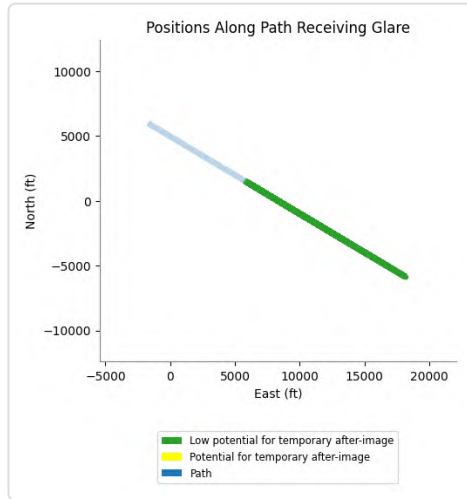
Yellow glare: none

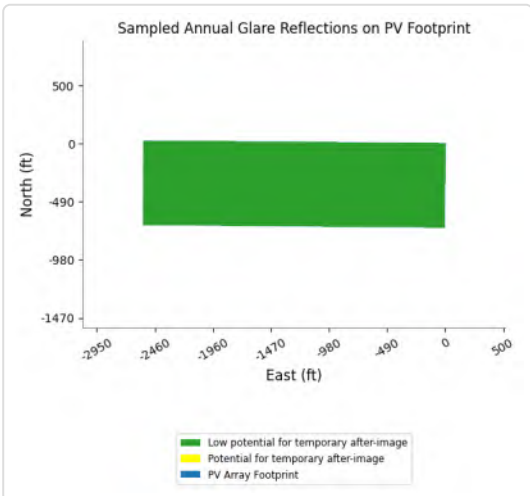
Green glare: 4,895 min.

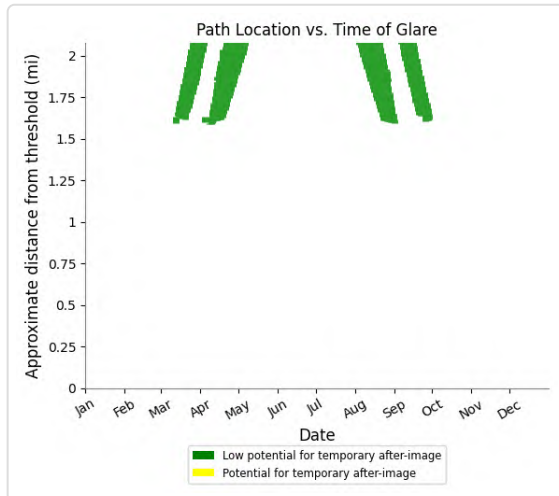








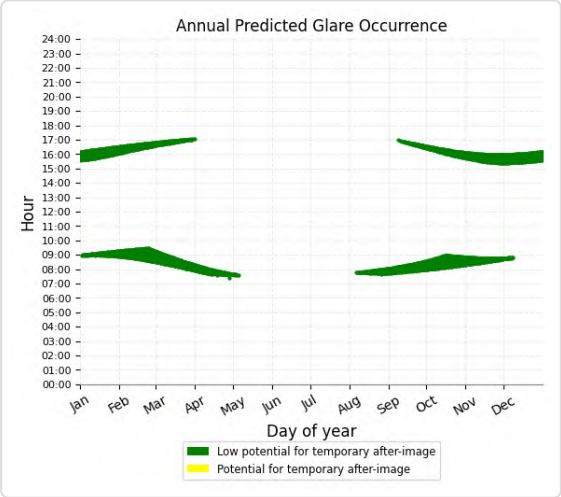


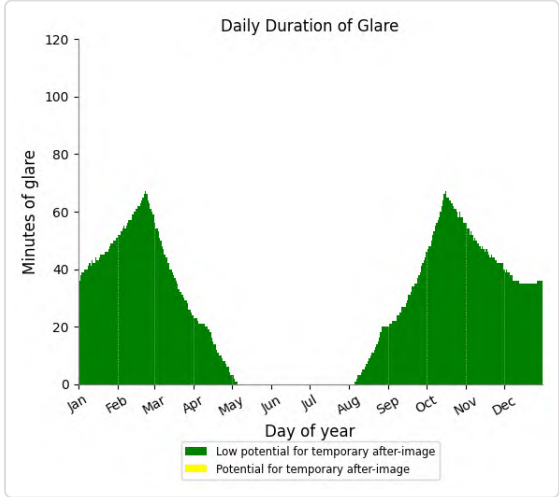


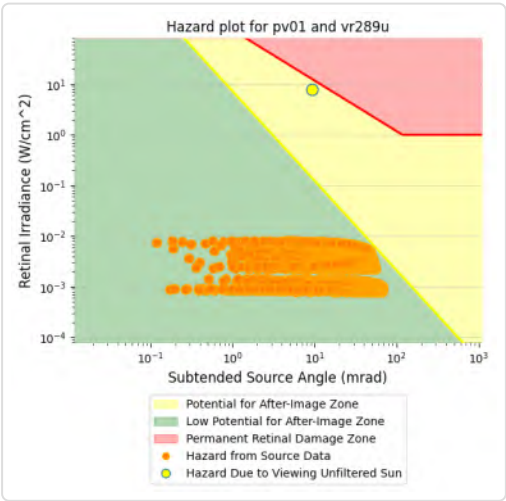
PV01 and FP: VR289u

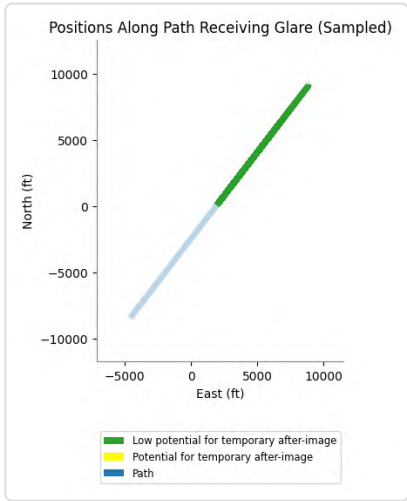
Yellow glare: none

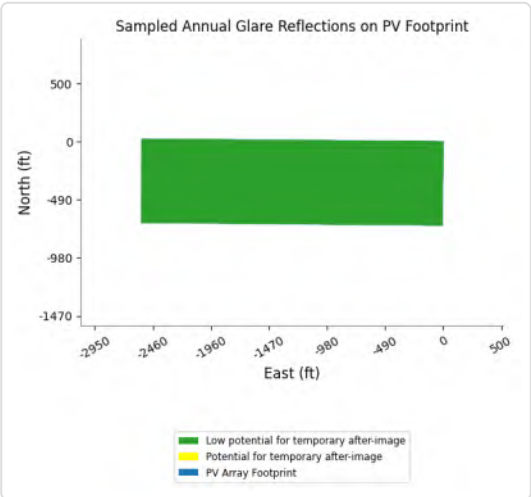
Green glare: 10,236 min.

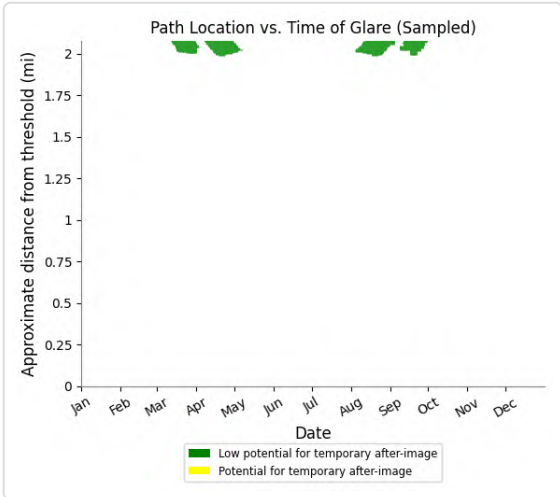








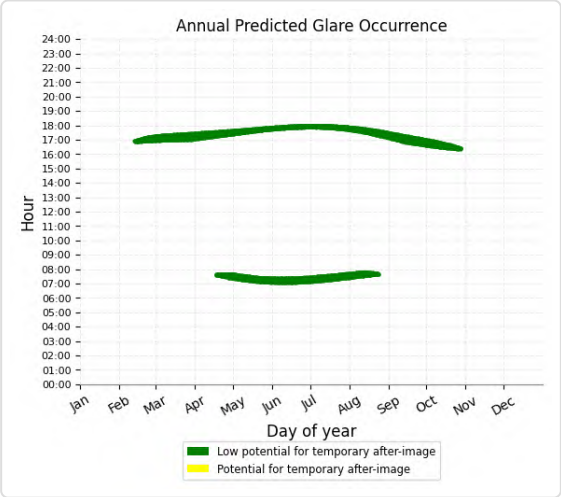


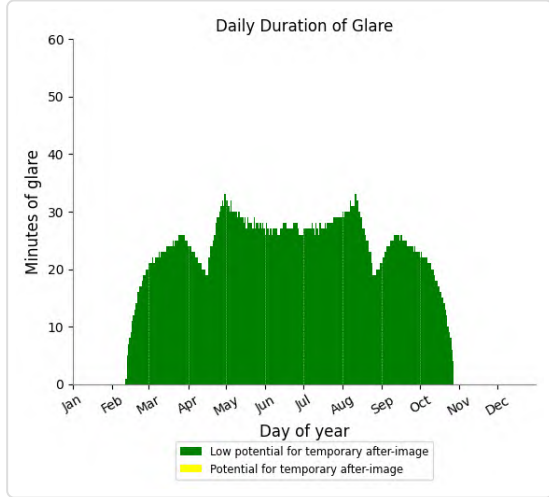


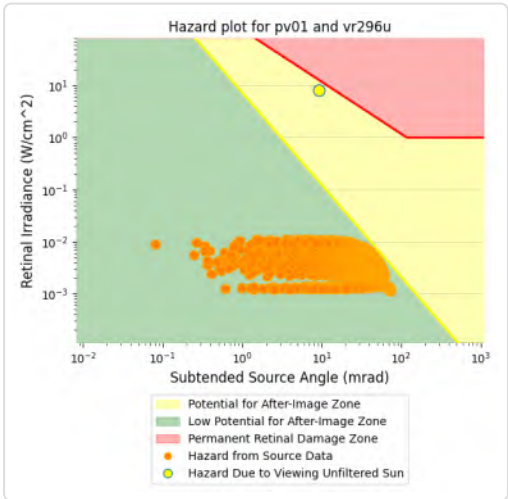
PV01 and FP: VR296u

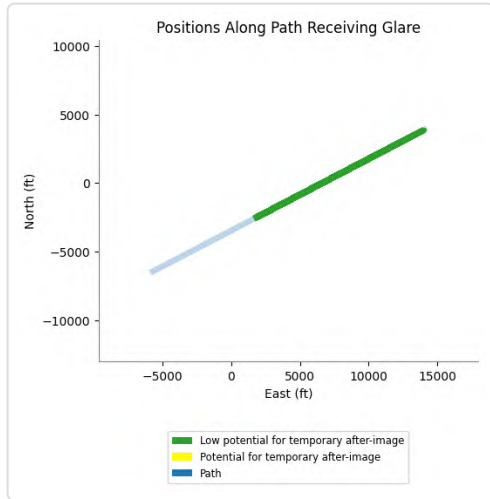
Yellow glare: none

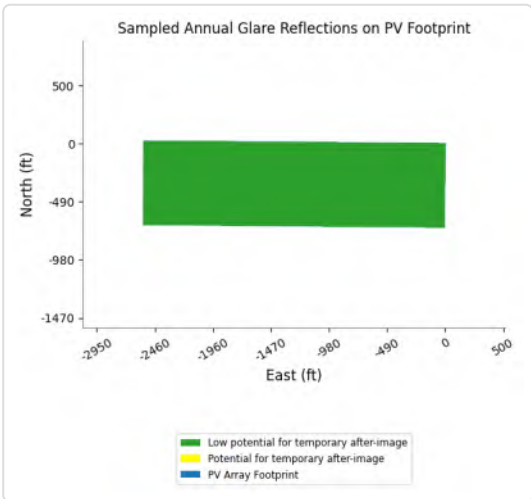
Green glare: 6,269 min.

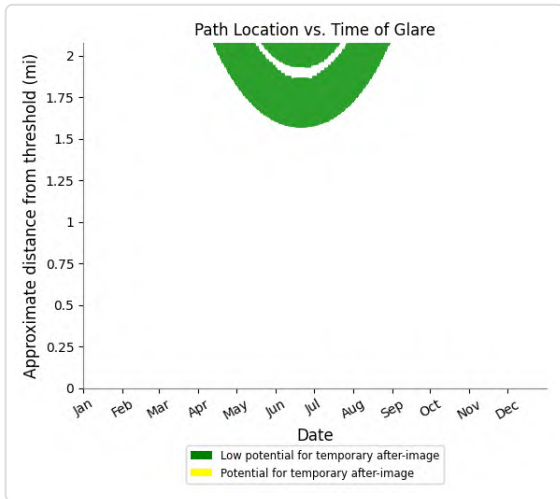












PV01 and FP: CN645

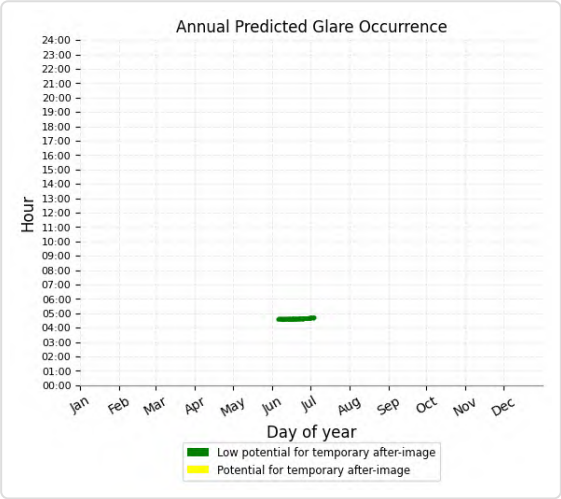
No glare found

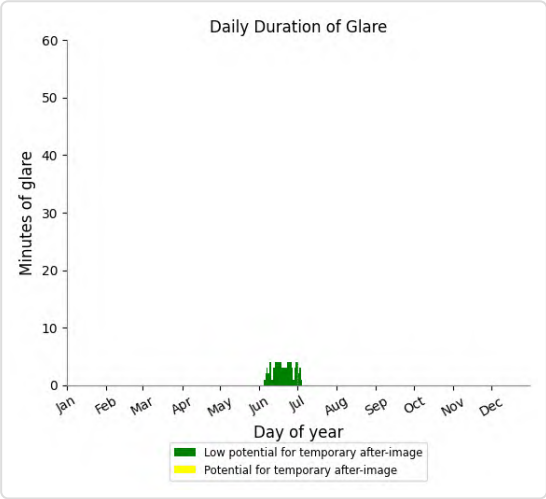
PV01 and FP: IR218u

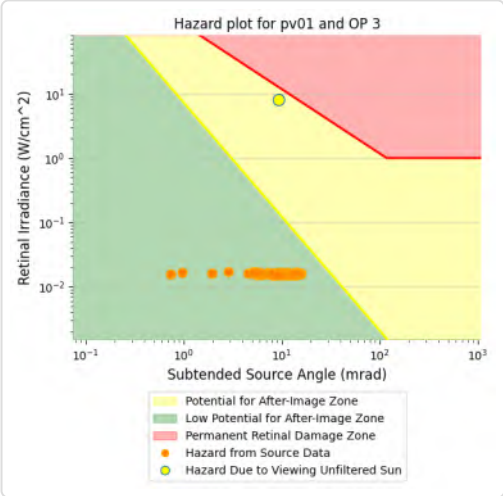
No glare found

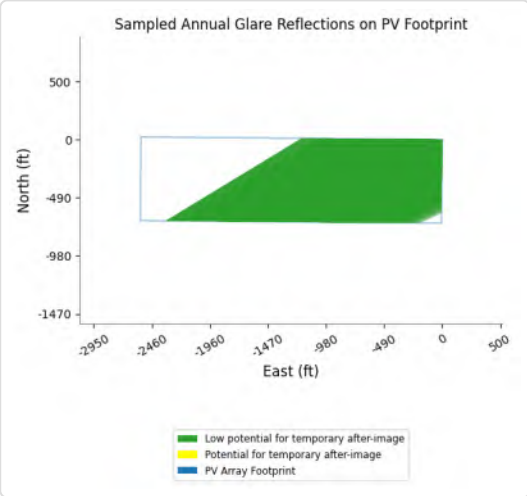
PV01 and OP 3

Yellow glare: none
Green glare: 92 min.









PV01 and OP 1

No glare found

PV01 and OP 2

No glare found

PV01 and OP 4

No glare found

PV01 and OP 5

No glare found

PV01 and OP 6

No glare found

PV01 and OP 7

No glare found

PV01 and OP 8

No glare found

PV01 and OP 9

No glare found

PV01 and OP 10

No glare found

PV01 and OP 11

No glare found

PV01 and OP 12

No glare found

PV01 and OP 13

No glare found

PV01 and OP 14

No glare found

PV01 and OP 15

No glare found

PV01 and OP 16

No glare found

PV01 and OP 17

No glare found

PV01 and OP 18

No glare found

PV01 and OP 19

No glare found

PV: PV02 potential temporary after-image

Receptor results ordered by category of glare

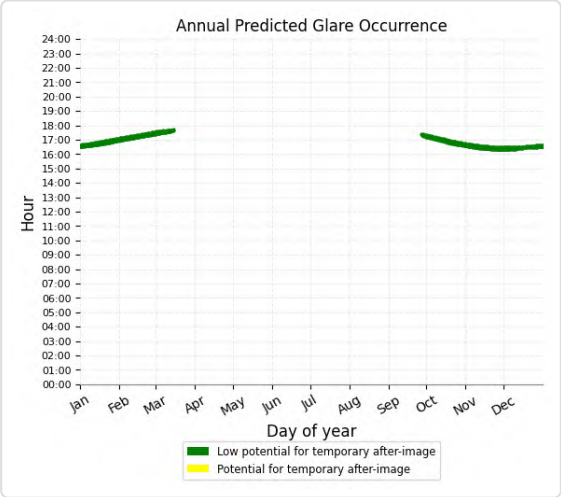
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
SR177 A	982	16.4	0	0.0
SR177 B	345	5.8	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	2,361	39.4	3,454	57.6
IR255l	2,072	34.5	128	2.1
VR289l	3,564	59.4	7,221	120.3
VR289m	14,667	244.4	1,016	16.9
VR296l	2,010	33.5	2,119	35.3
VR296m	5,932	98.9	1,152	19.2
CN6423	919	15.3	0	0.0
IR217m	9,085	151.4	0	0.0
IR217u	4,730	78.8	0	0.0
IR218l	331	5.5	0	0.0
IR218m	526	8.8	0	0.0
IR218u	362	6.0	0	0.0
IR255m	16,684	278.1	0	0.0
IR255u	4,589	76.5	0	0.0
VR289u	9,919	165.3	0	0.0
VR296u	6,169	102.8	0	0.0
CN645	0	0.0	0	0.0
OP 1	89	1.5	0	0.0
OP 3	117	1.9	0	0.0

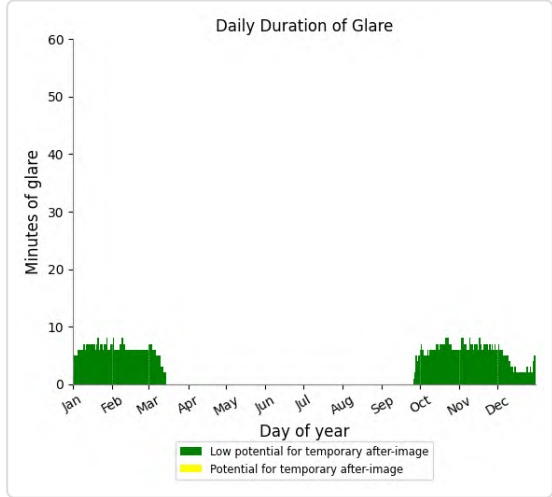
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

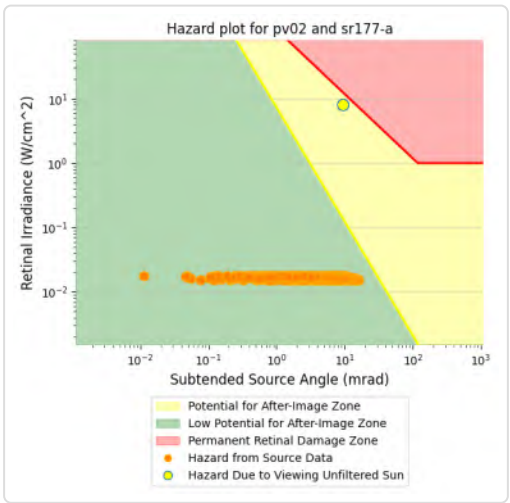
PV02 and Route: SR177 A

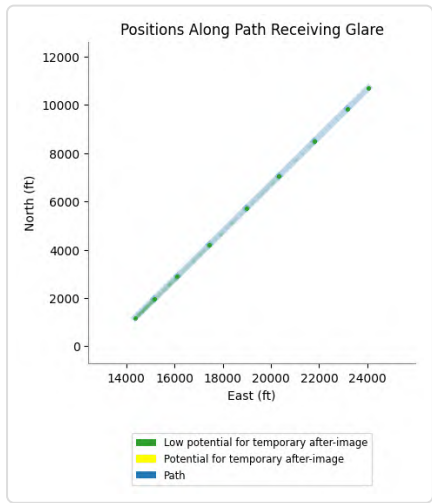
Yellow glare: none

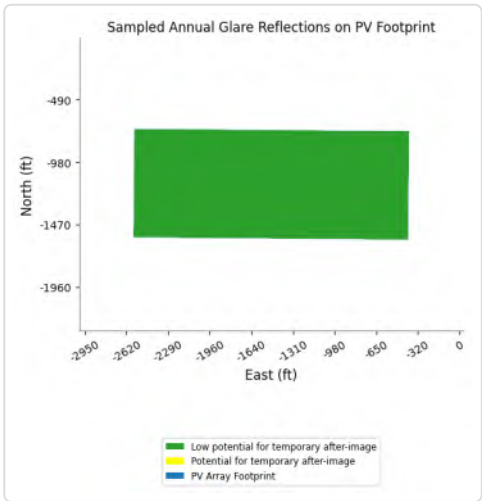
Green glare: 982 min.







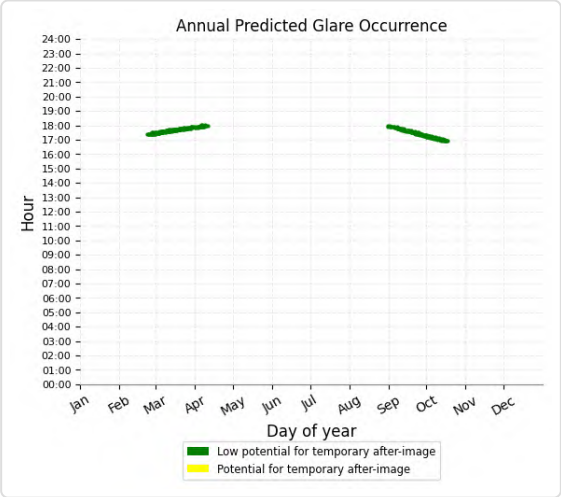


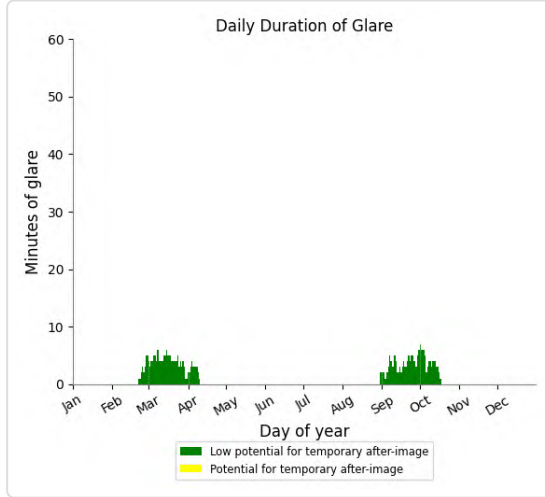


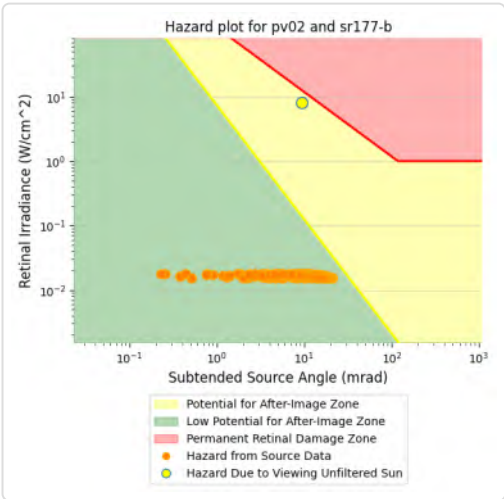
PV02 and Route: SR177 B

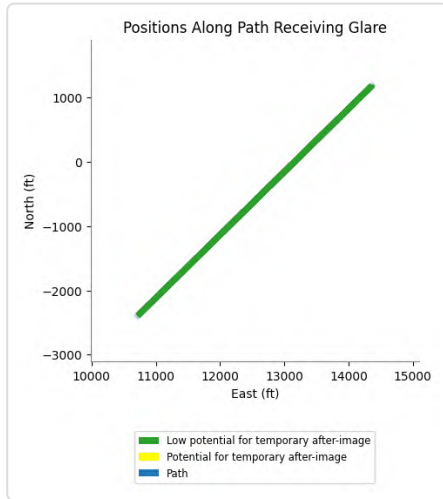
Yellow glare: none

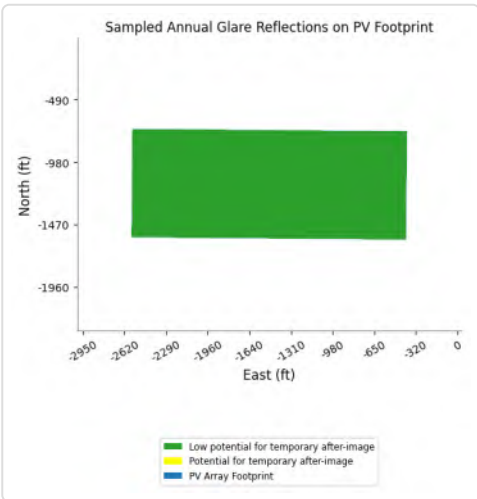
Green glare: 345 min.











PV02 and Route: AirportRd A

No glare found

PV02 and Route: AirportRd B

No glare found

PV02 and Route: EagleMtnRd A

No glare found

PV02 and Route: EagleMtnRd B

No glare found

PV02 and Route: I-10 EB A

No glare found

PV02 and Route: I-10 EB B

No glare found

PV02 and Route: I-10 EB C

No glare found

PV02 and Route: I-10 WB A

No glare found

PV02 and Route: I-10 WB B

No glare found

PV02 and Route: I-10 WB C

No glare found

PV02 and Route: KaiserRd A

No glare found

PV02 and Route: KaiserRd B

No glare found

PV02 and Route: KaiserRd C

No glare found

PV02 and Route: OasisRd

No glare found

PV02 and Route: Race Track

No glare found

PV02 and Route: SR177 C

No glare found

PV02 and Route: SR177 D

No glare found

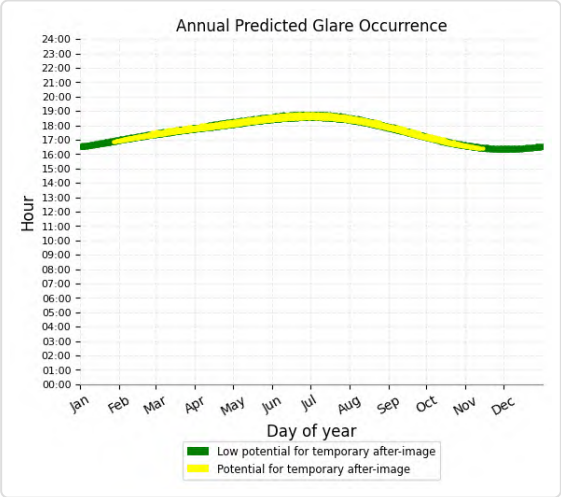
PV02 and Route: SR177 E

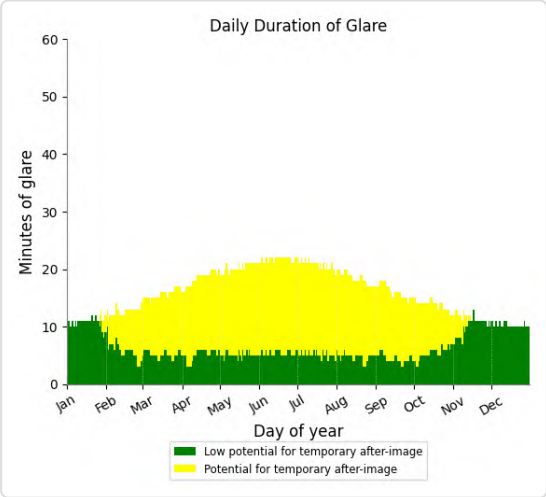
No glare found

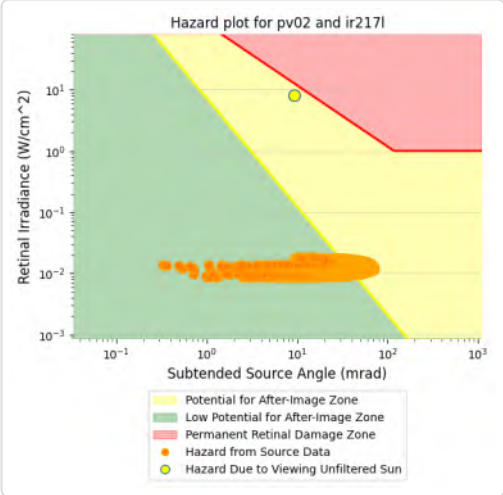
PV02 and FP: IR217l

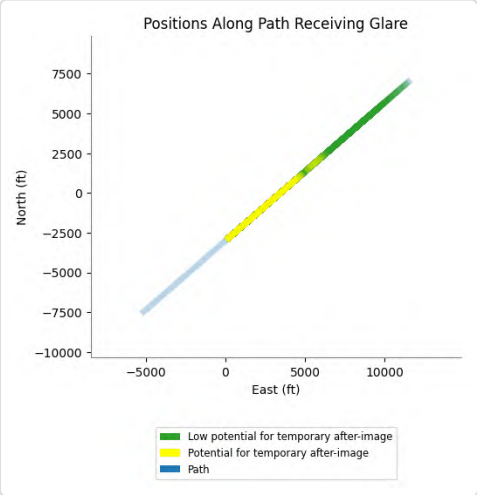
Yellow glare: 3,454 min.

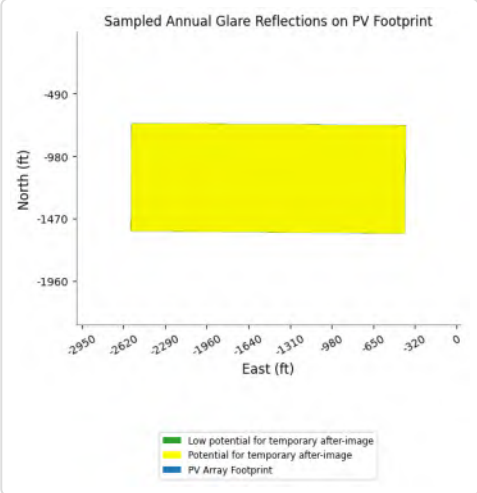
Green glare: 2,361 min.

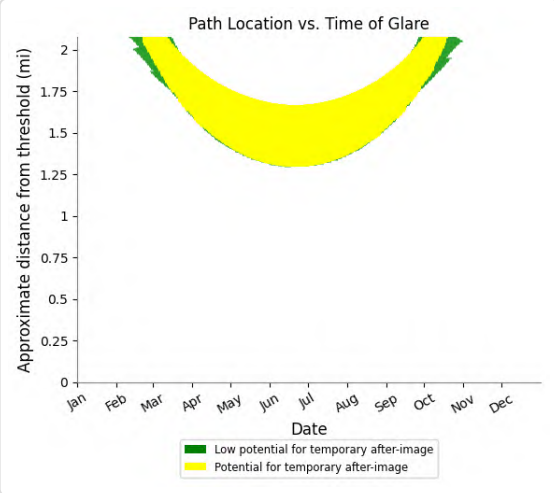








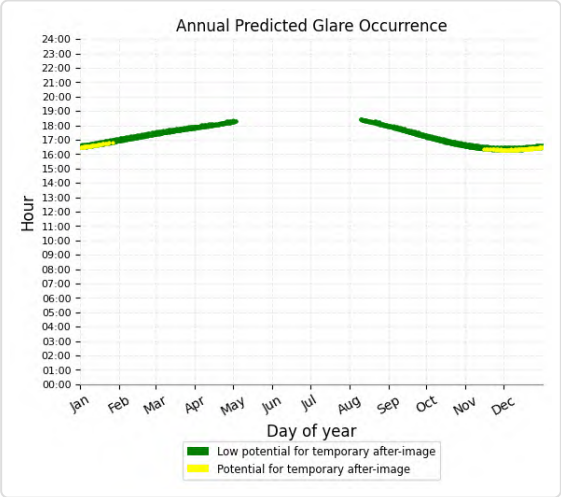


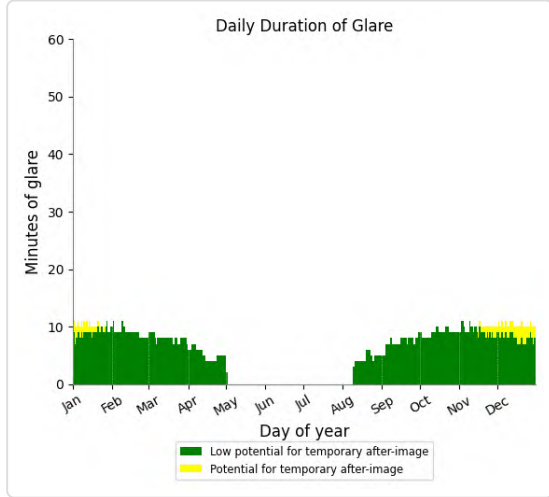


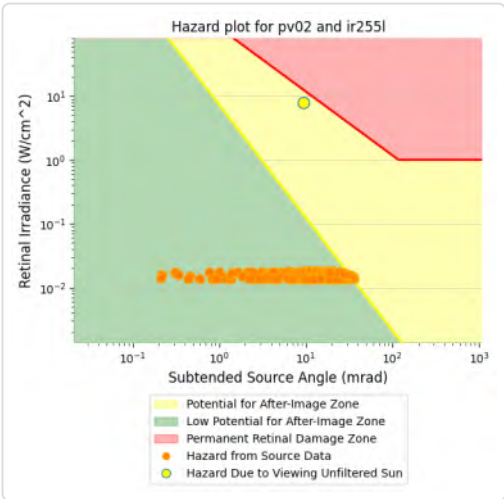
PV02 and FP: IR255l

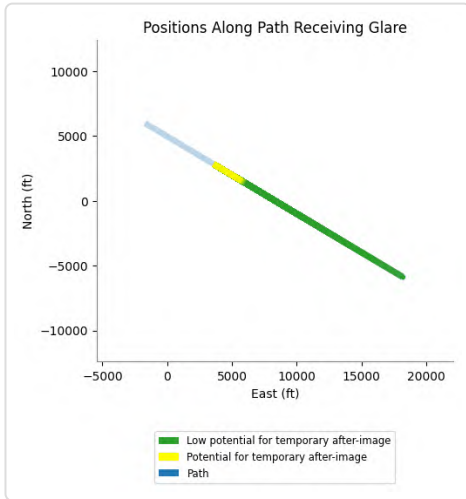
Yellow glare: 128 min.

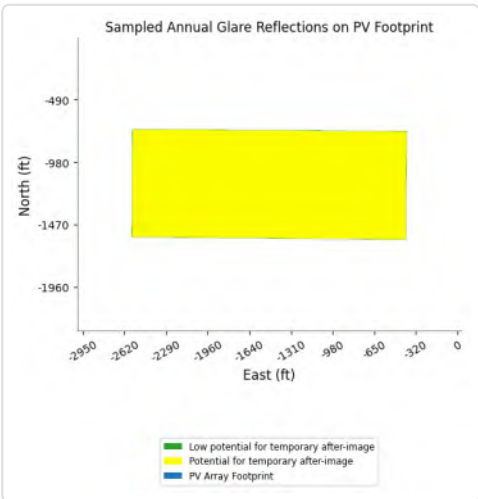
Green glare: 2,072 min.

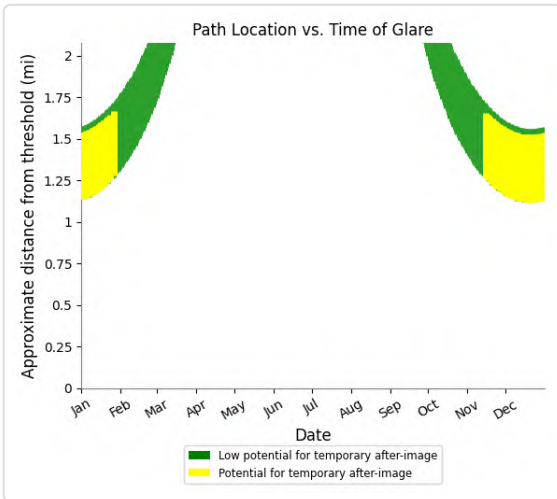








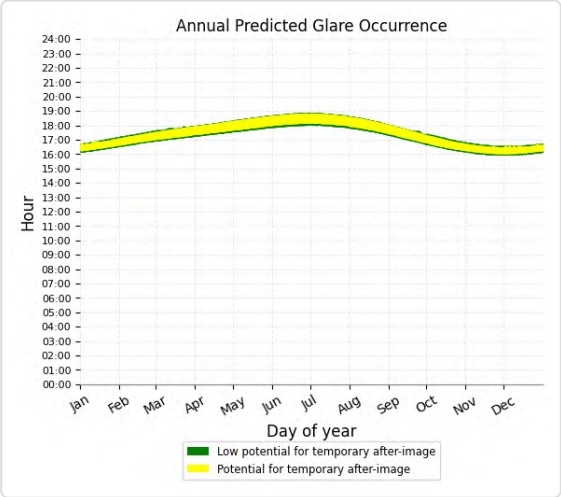


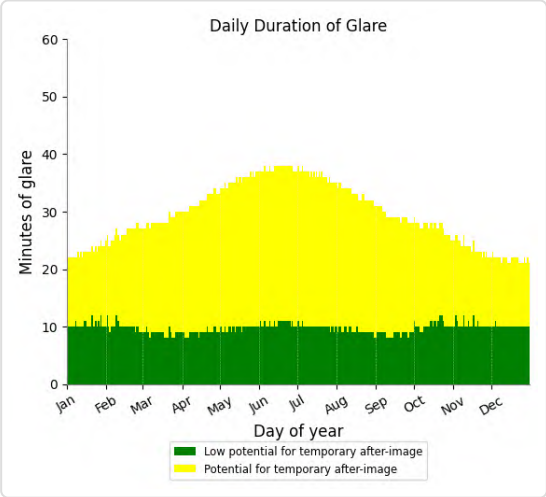


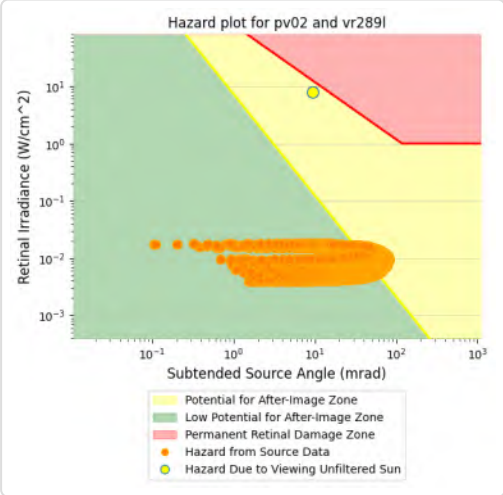
PV02 and FP: VR289I

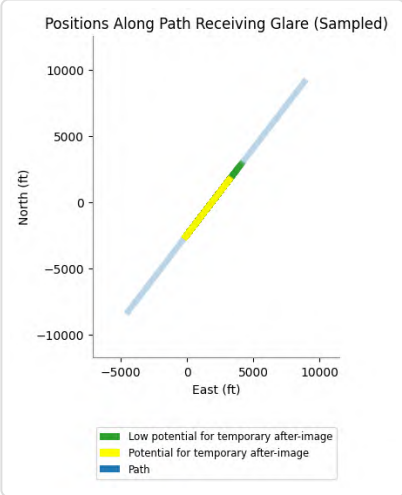
Yellow glare: 7,221 min.

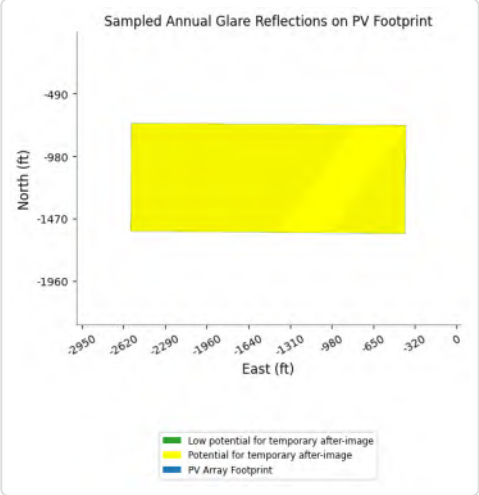
Green glare: 3,564 min.

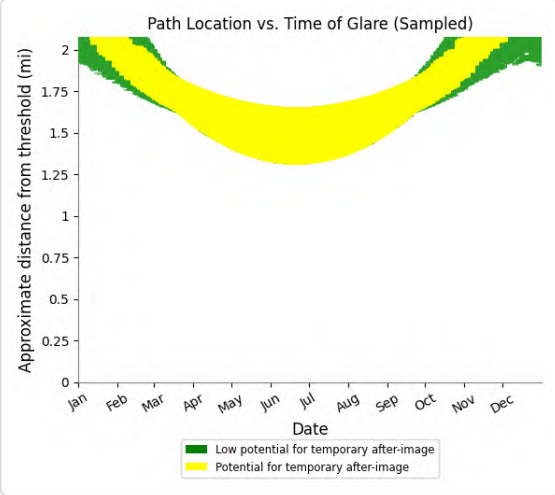








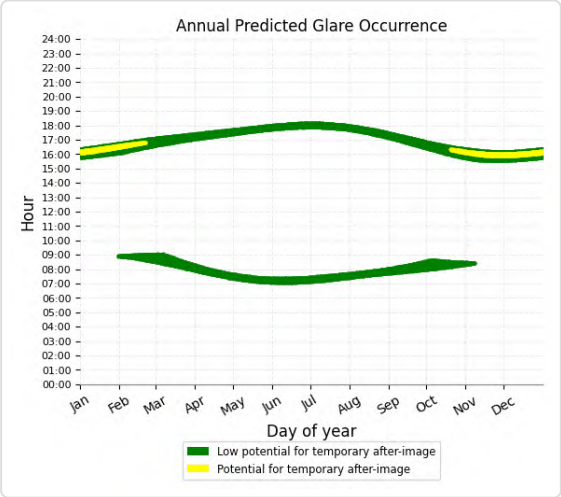


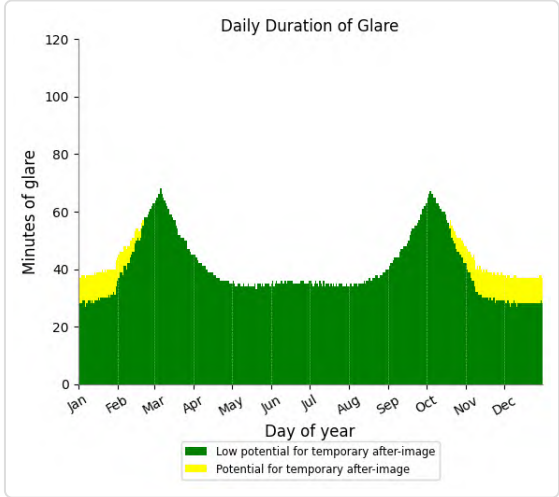


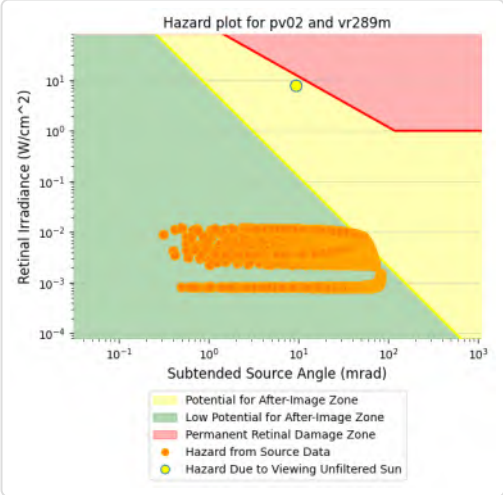
PV02 and FP: VR289m

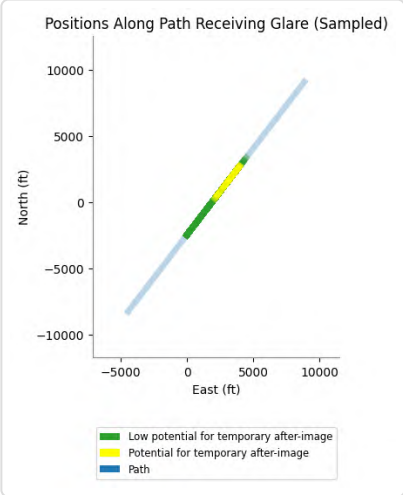
Yellow glare: 1,016 min.

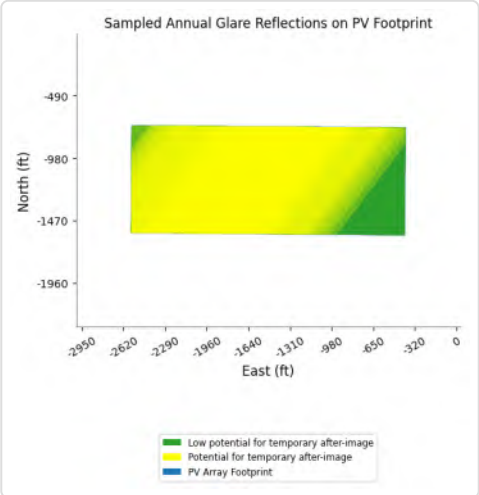
Green glare: 14,667 min.

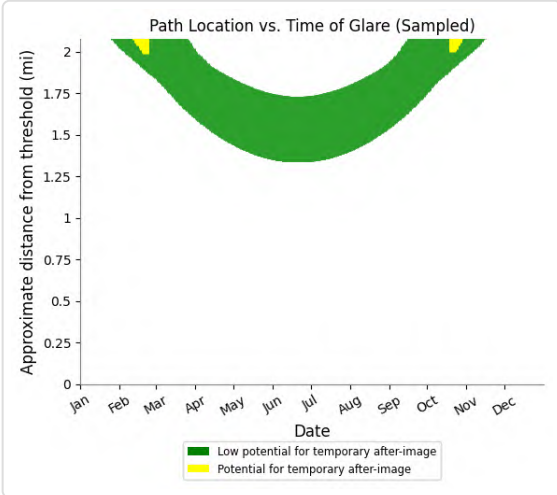








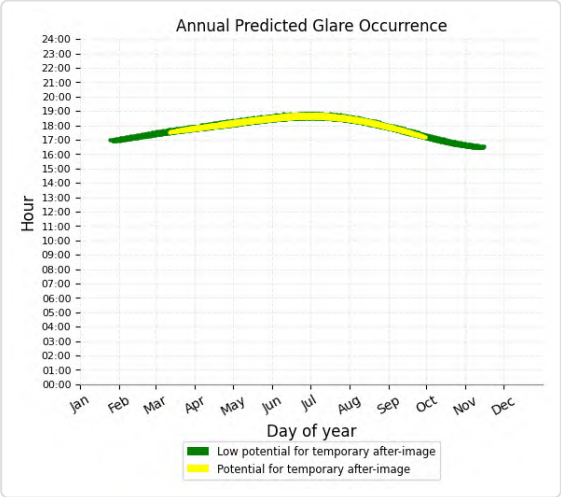


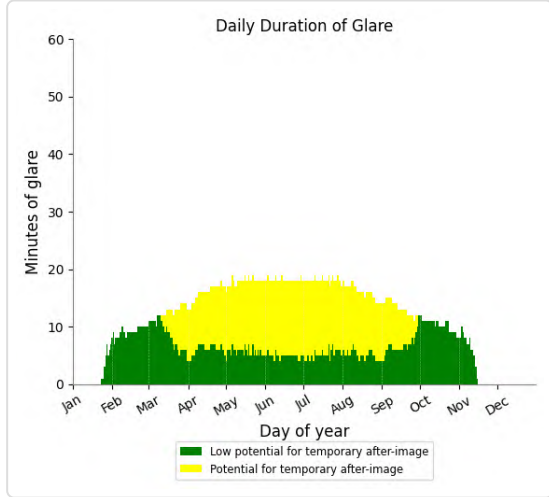


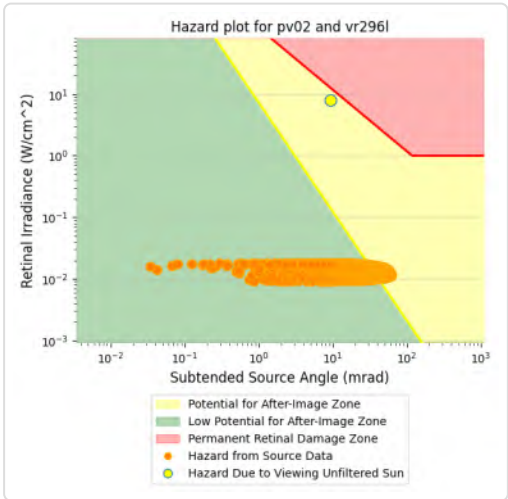
PV02 and FP: VR296I

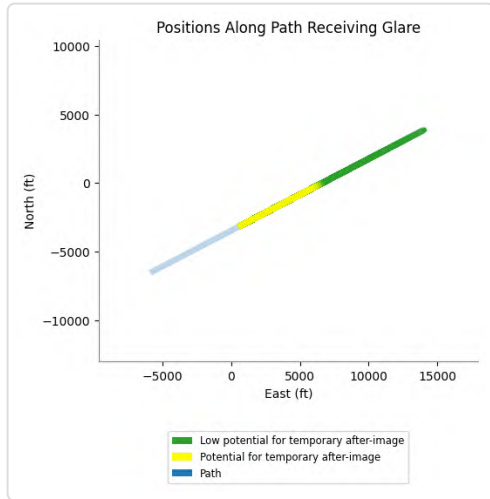
Yellow glare: 2,119 min.

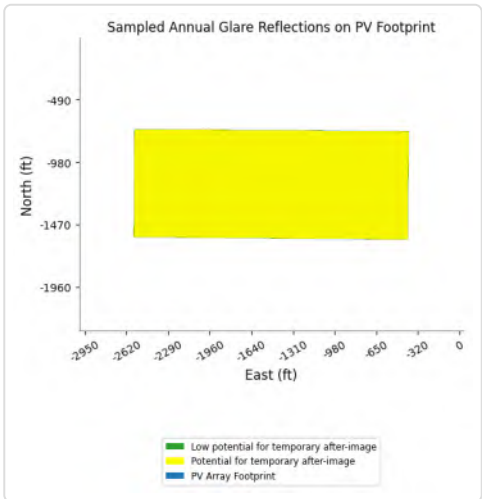
Green glare: 2,010 min.

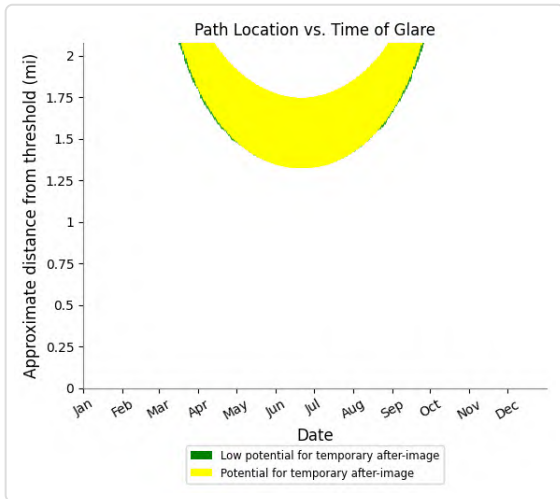








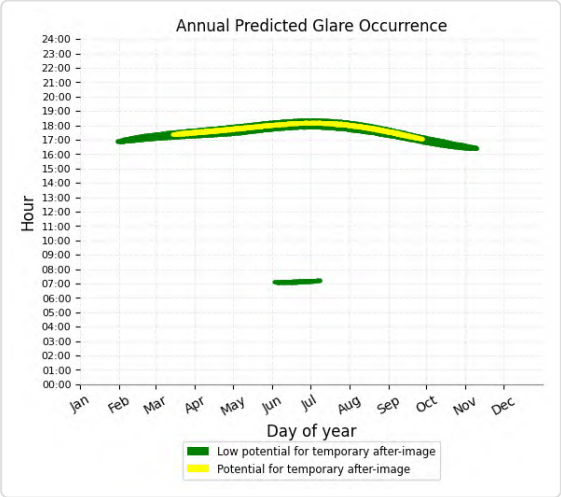


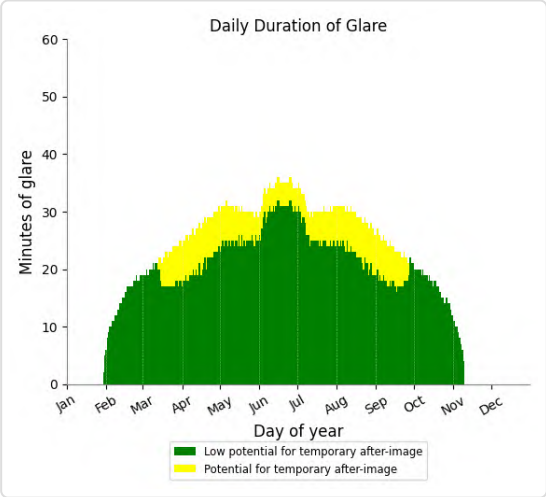


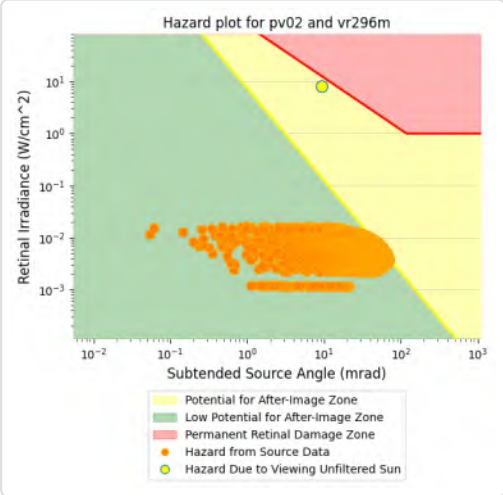
PV02 and FP: VR296m

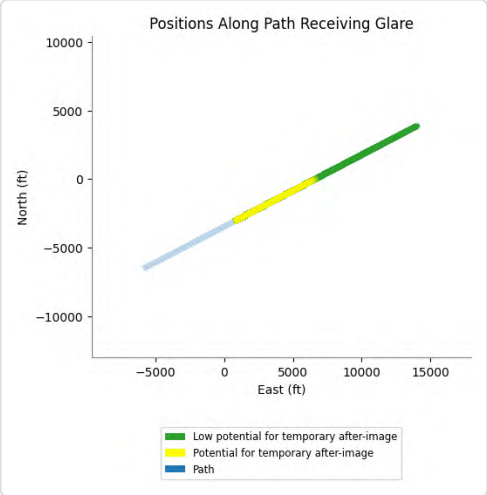
Yellow glare: 1,152 min.

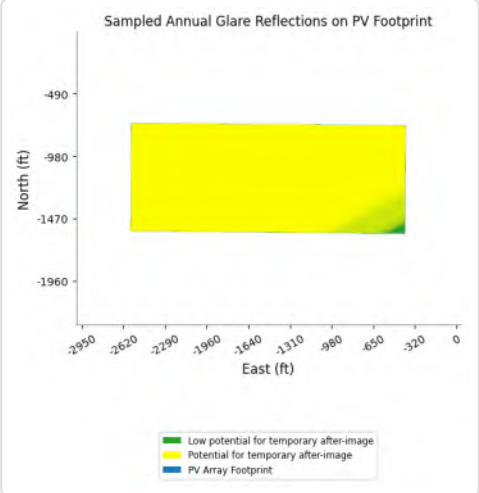
Green glare: 5,932 min.

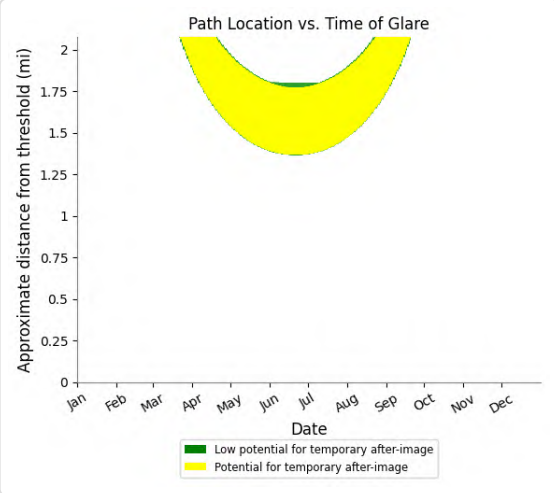








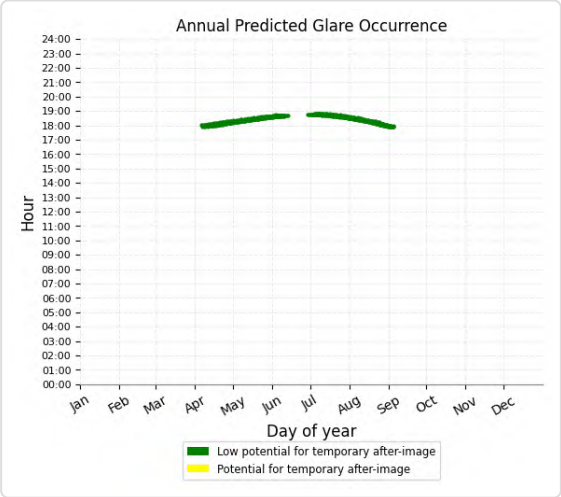


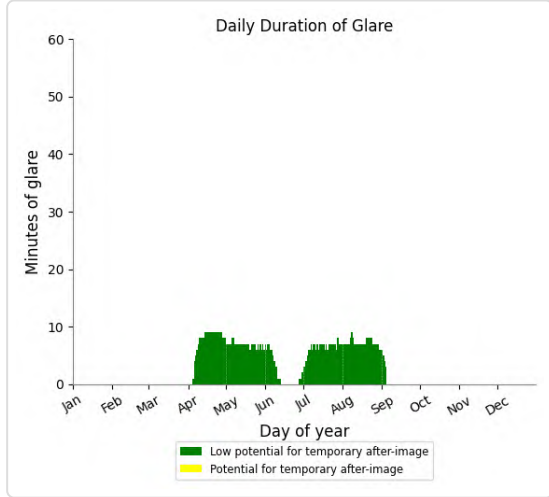


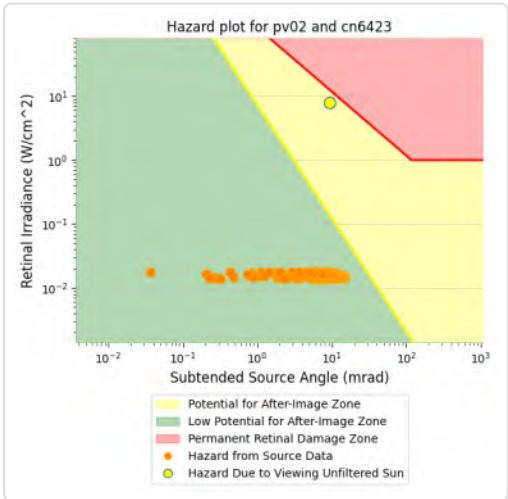
PV02 and FP: CN6423

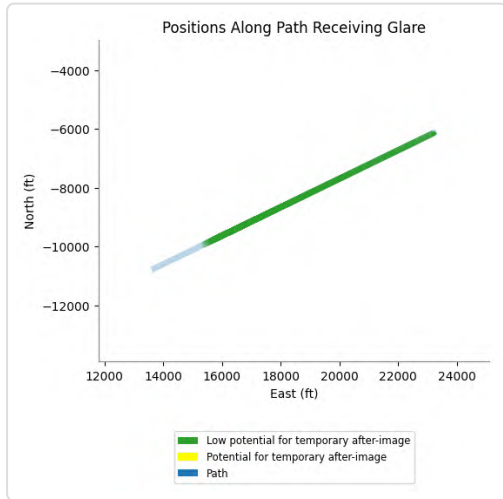
Yellow glare: none

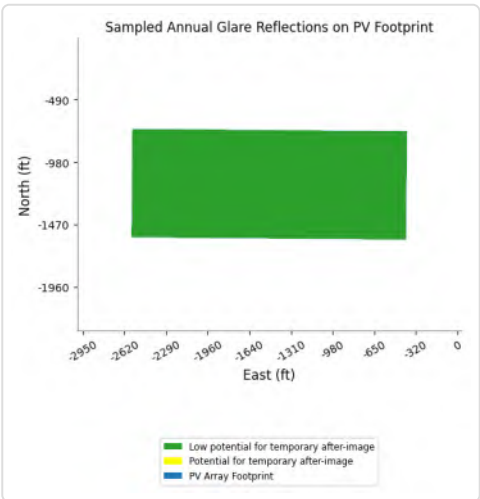
Green glare: 919 min.

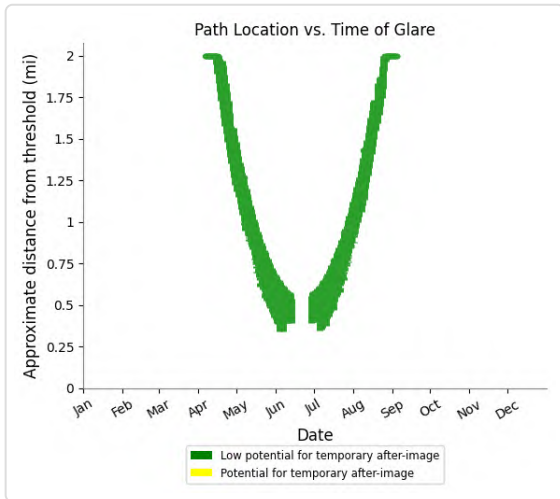








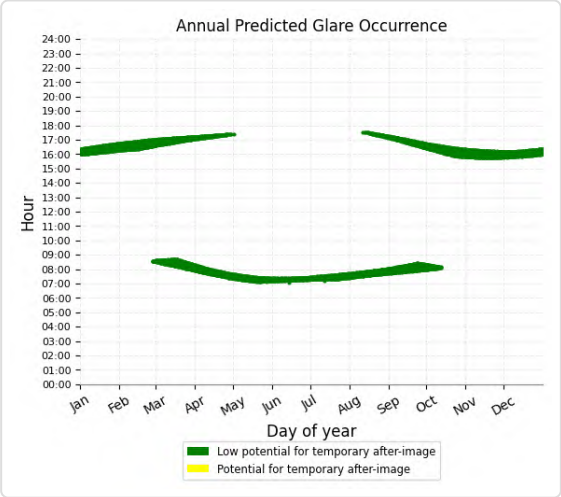


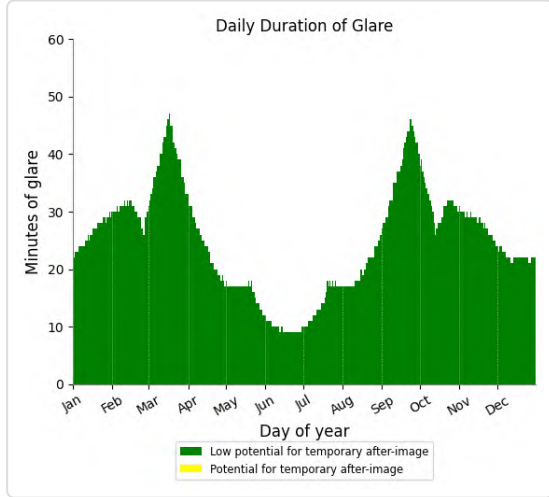


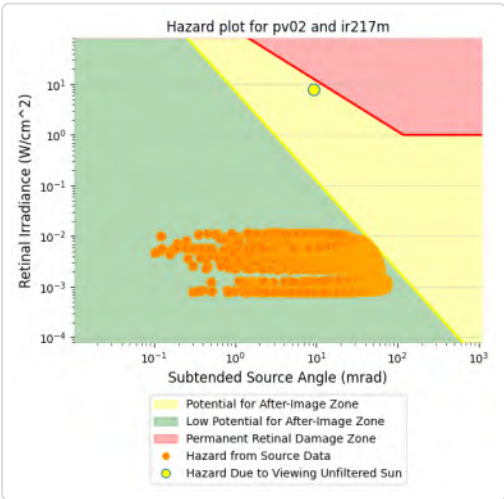
PV02 and FP: IR217m

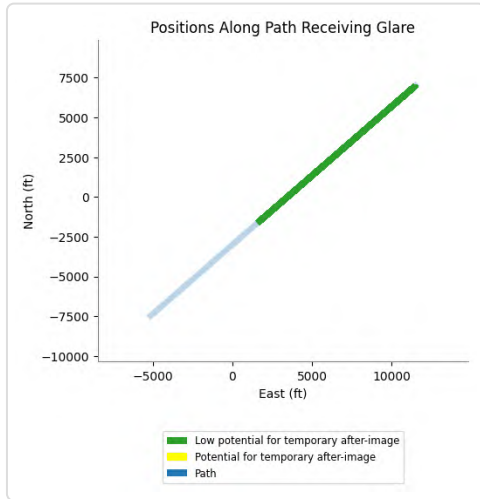
Yellow glare: none

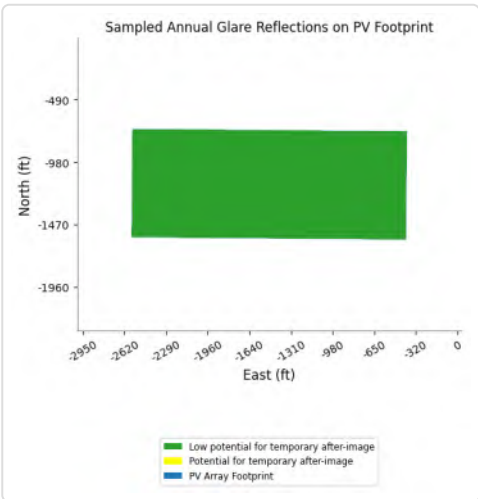
Green glare: 9,085 min.

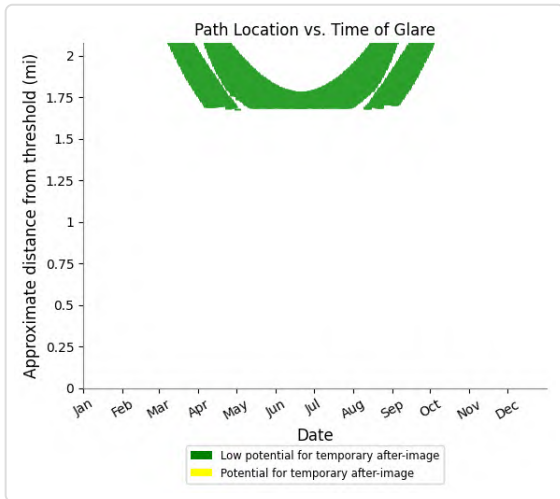








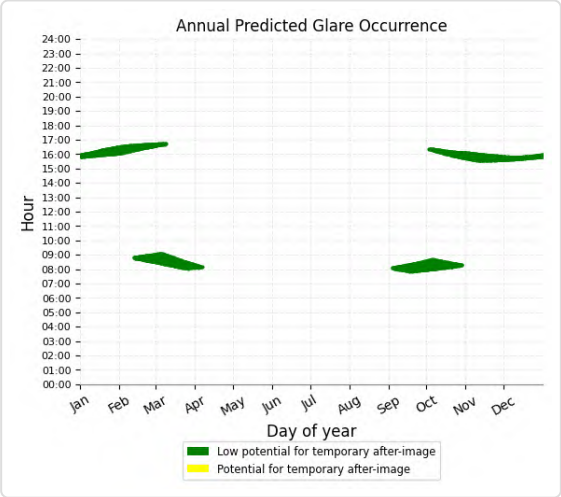


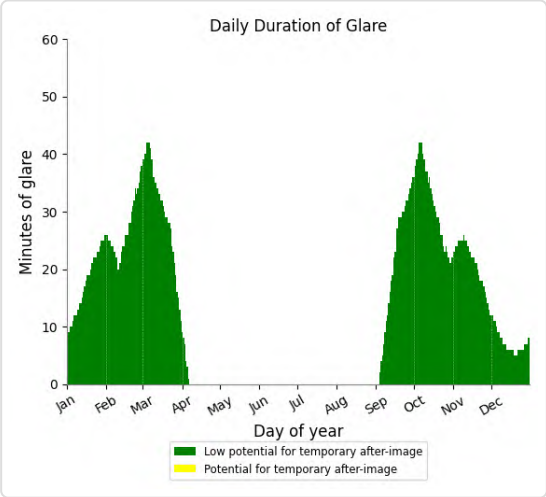


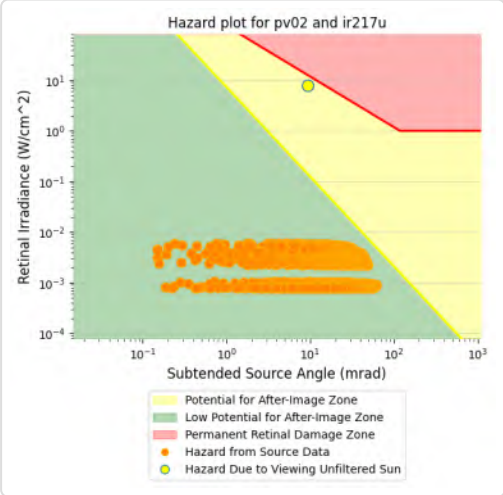
PV02 and FP: IR217u

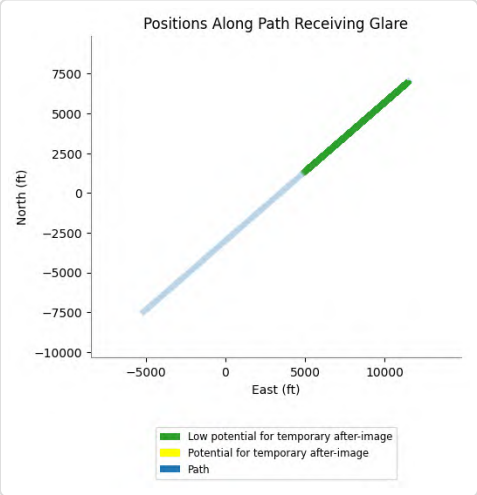
Yellow glare: none

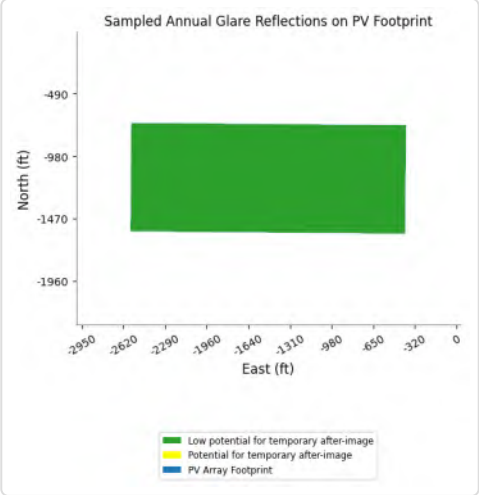
Green glare: 4,730 min.

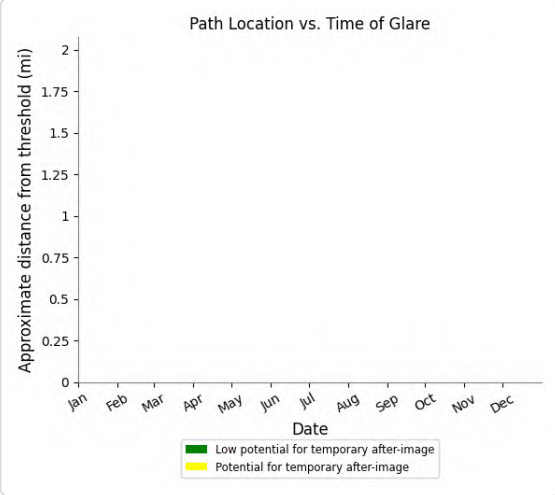








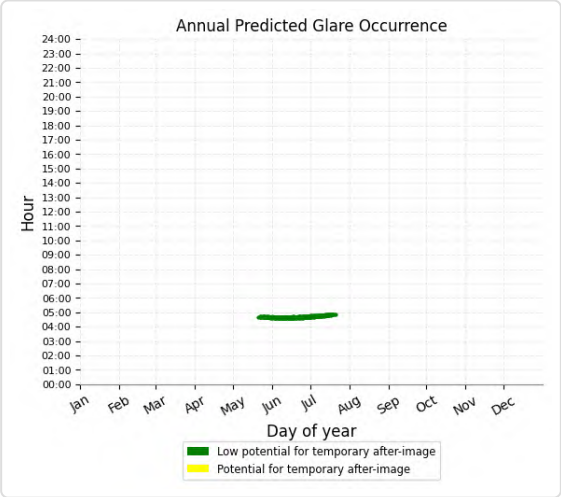


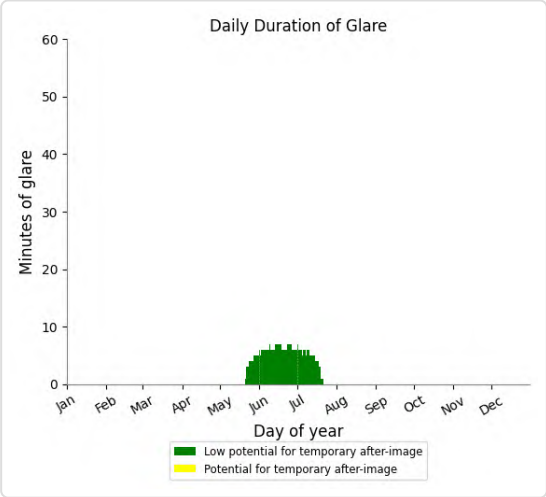


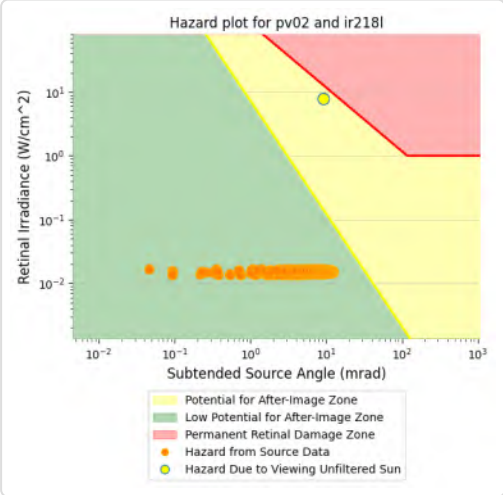
PV02 and FP: IR218l

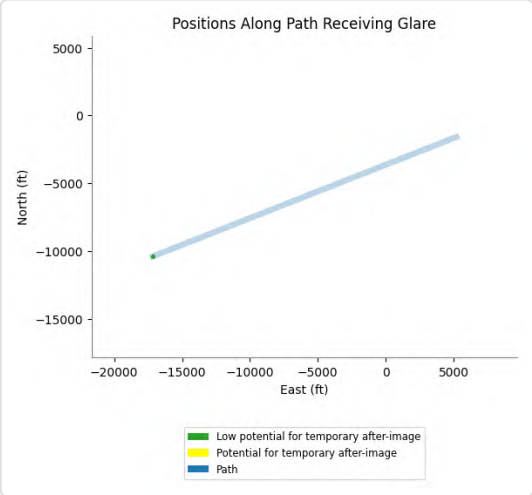
Yellow glare: none

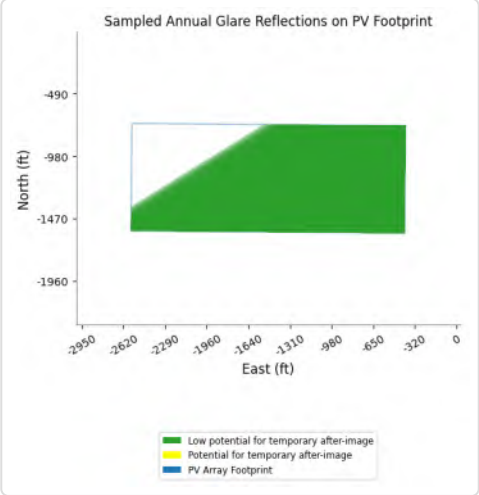
Green glare: 331 min.

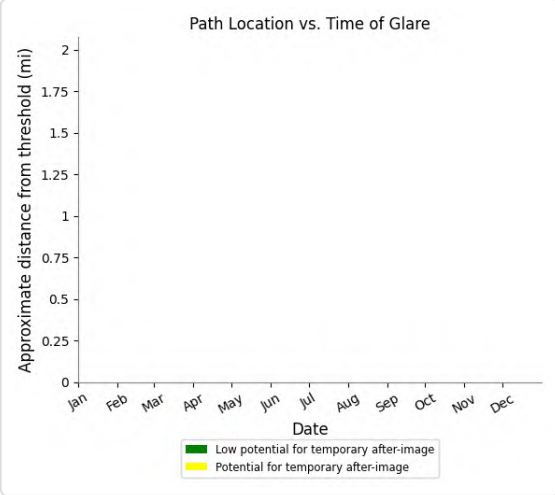








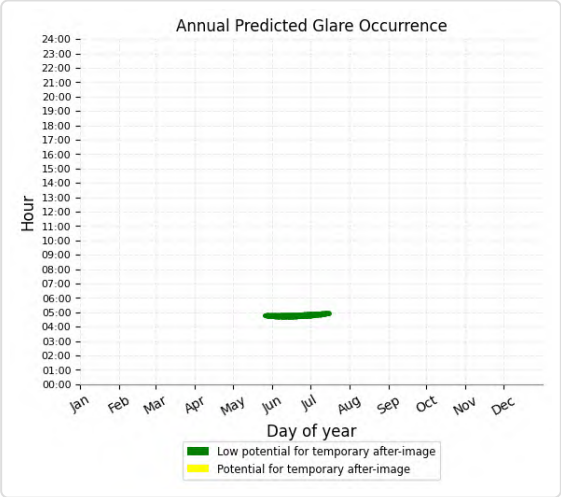


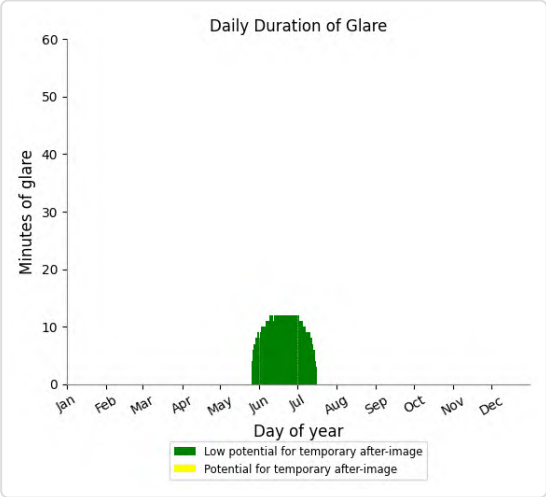


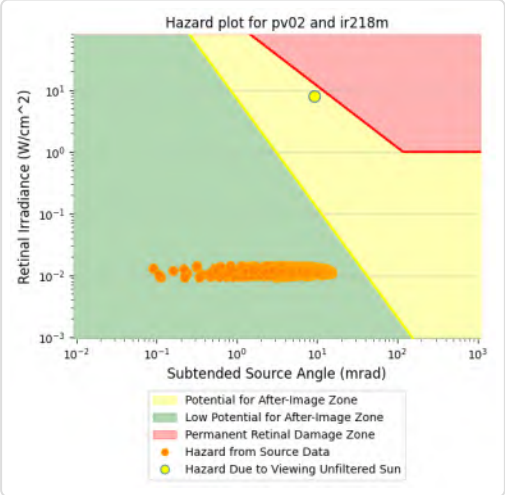
PV02 and FP: IR218m

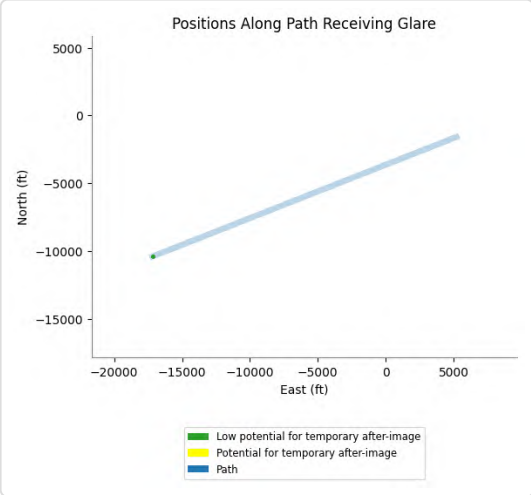
Yellow glare: none

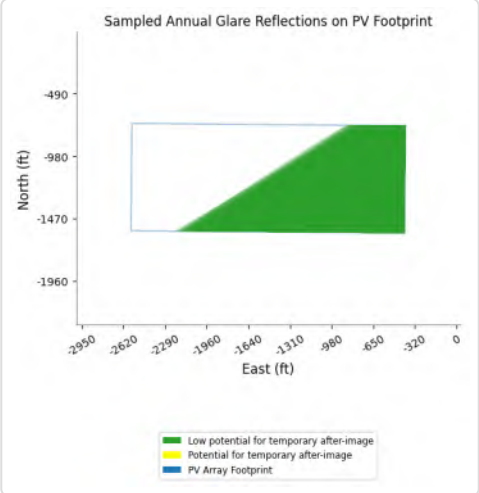
Green glare: 526 min.

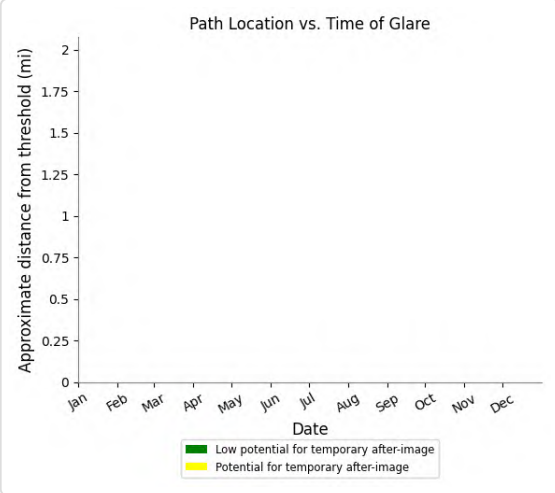








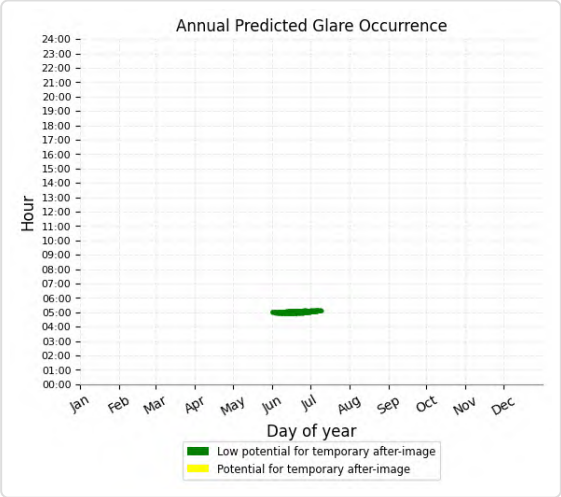


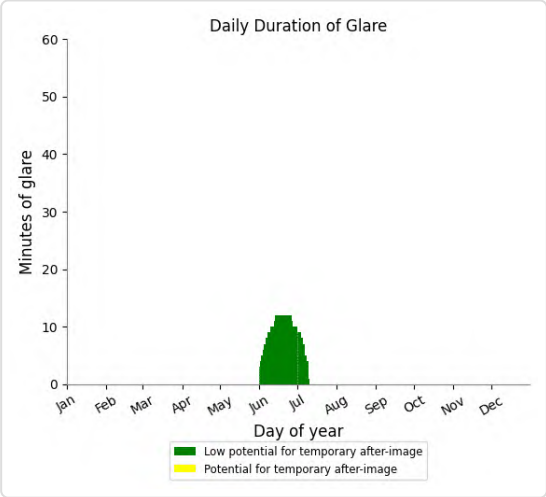


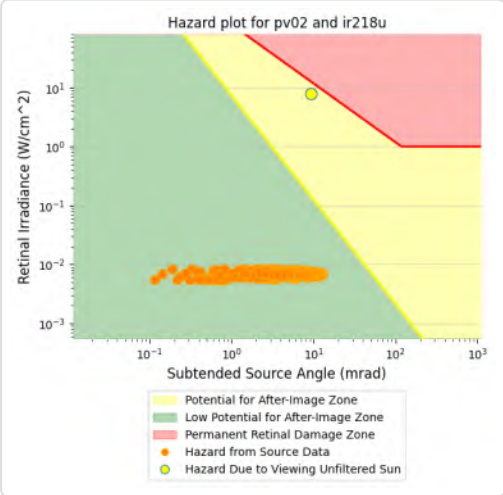
PV02 and FP: IR218u

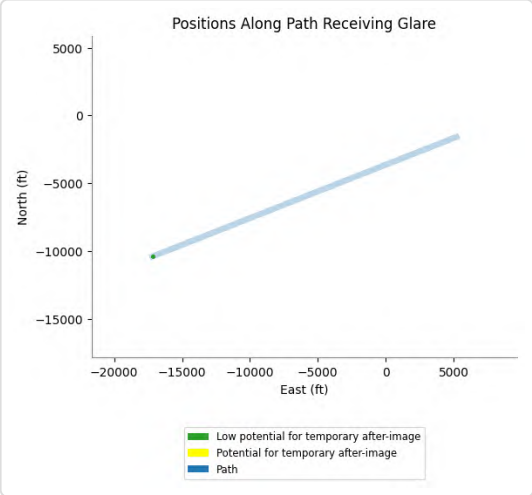
Yellow glare: none

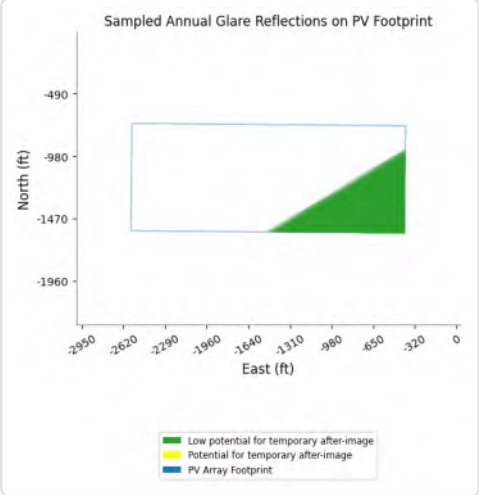
Green glare: 362 min.

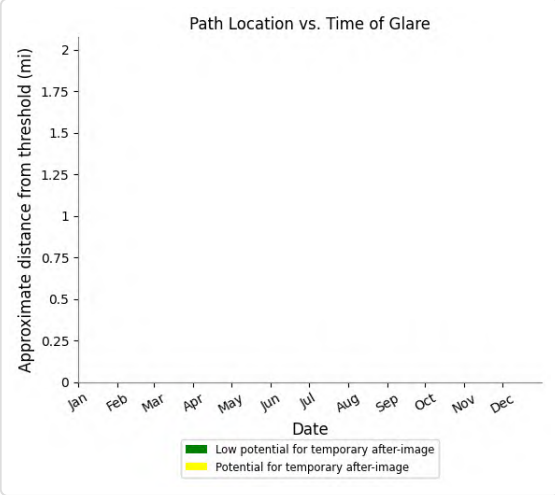








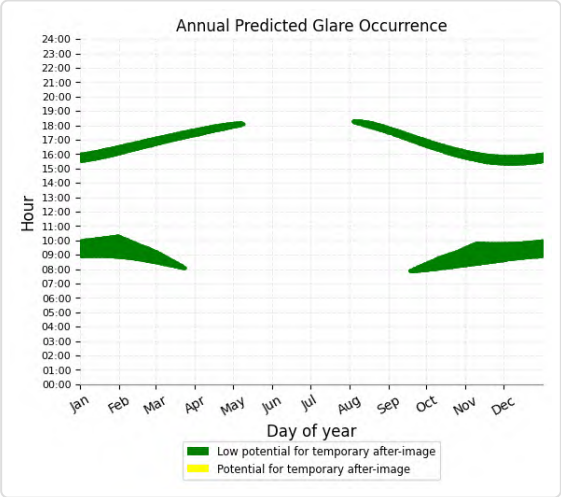


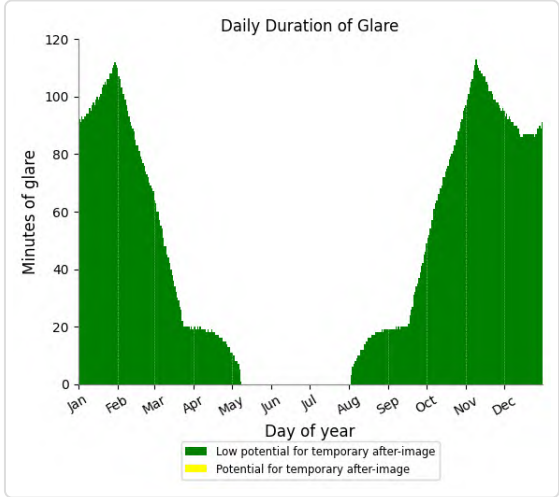


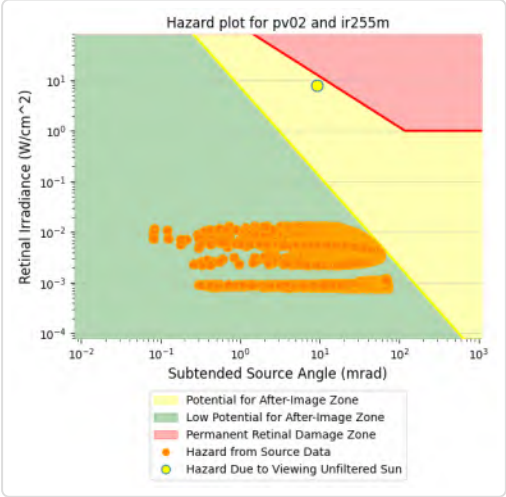
PV02 and FP: IR255m

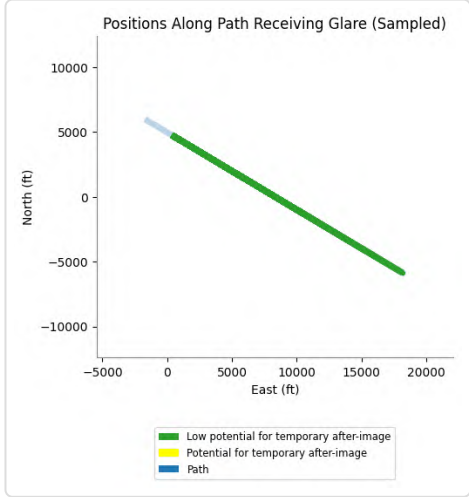
Yellow glare: none

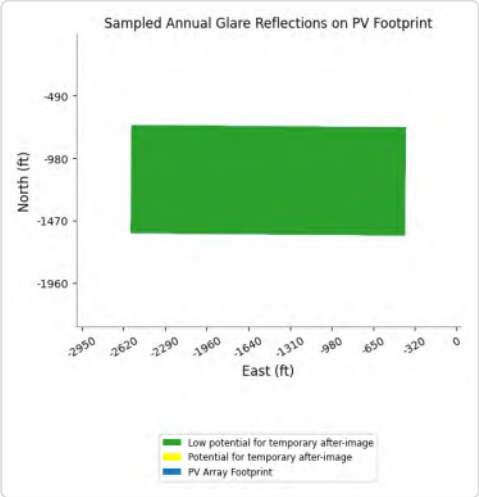
Green glare: 16,684 min.

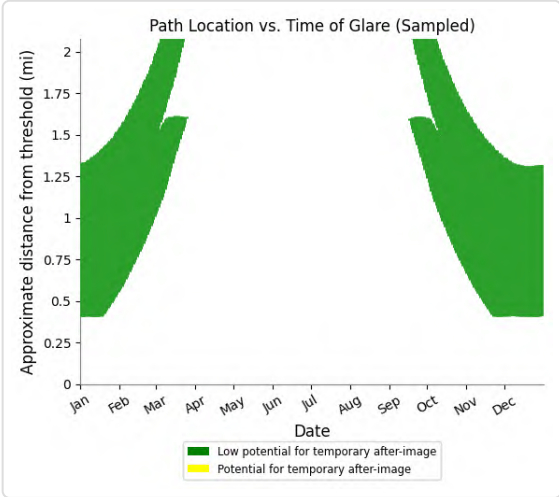








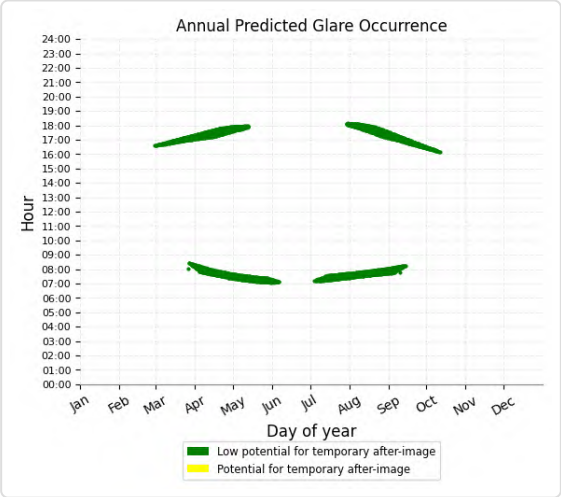


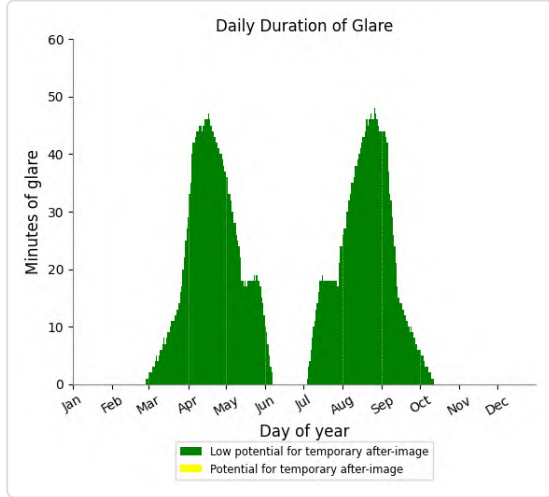


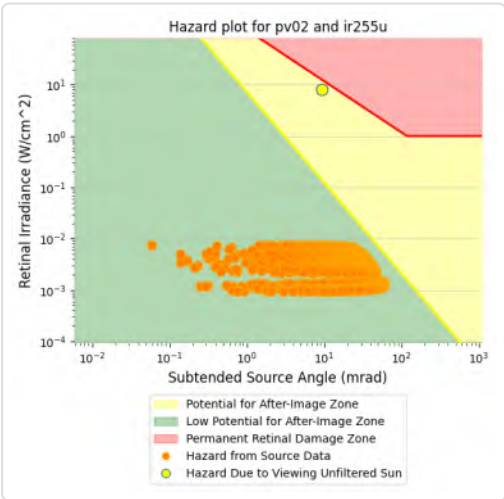
PV02 and FP: IR255u

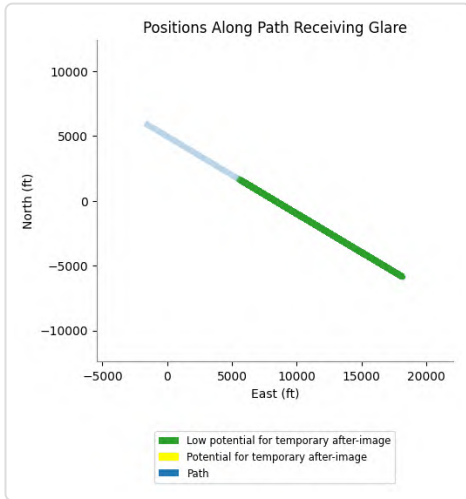
Yellow glare: none

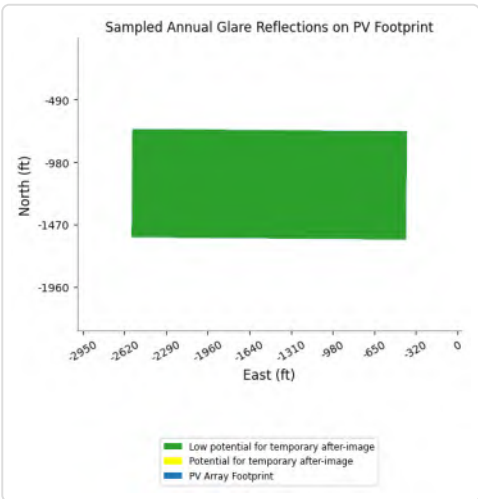
Green glare: 4,589 min.

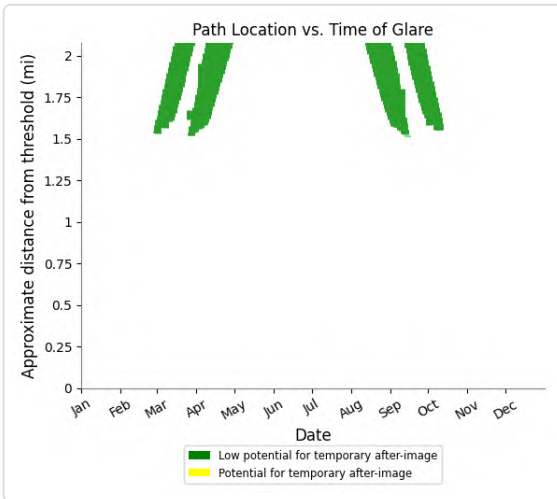








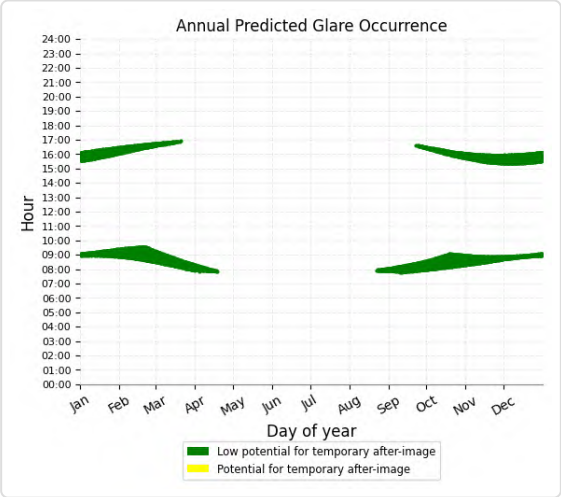


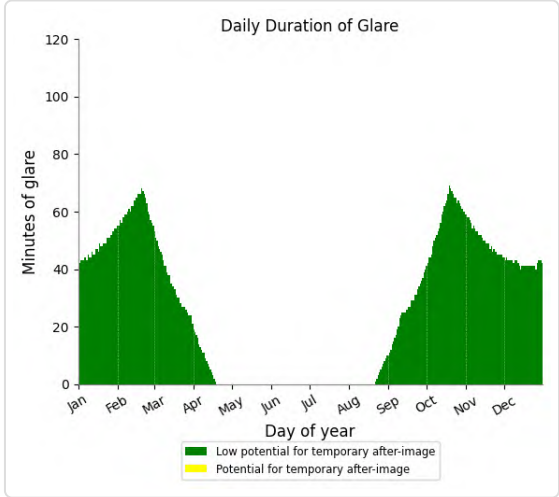


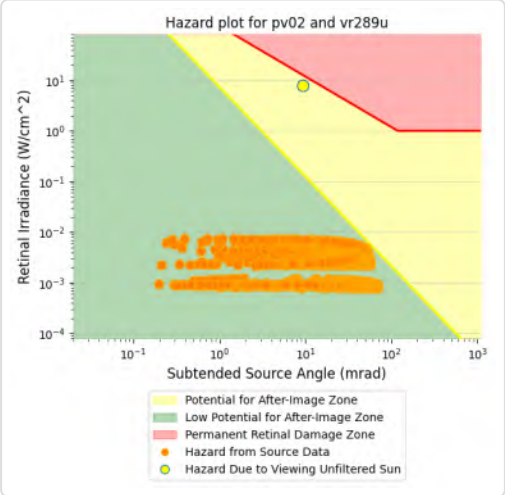
PV02 and FP: VR289u

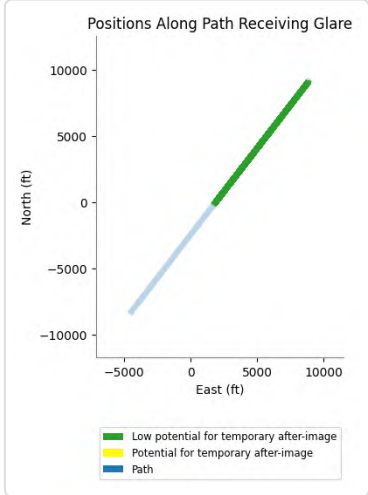
Yellow glare: none

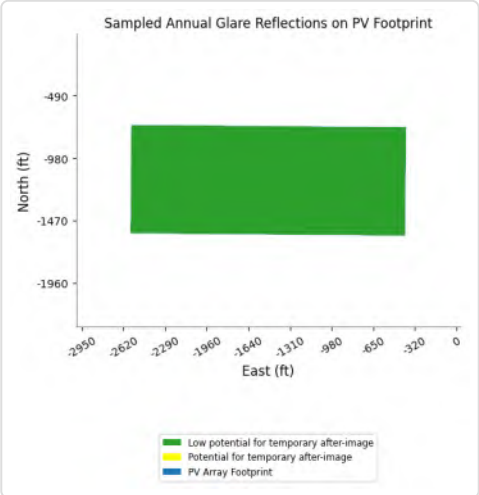
Green glare: 9,919 min.

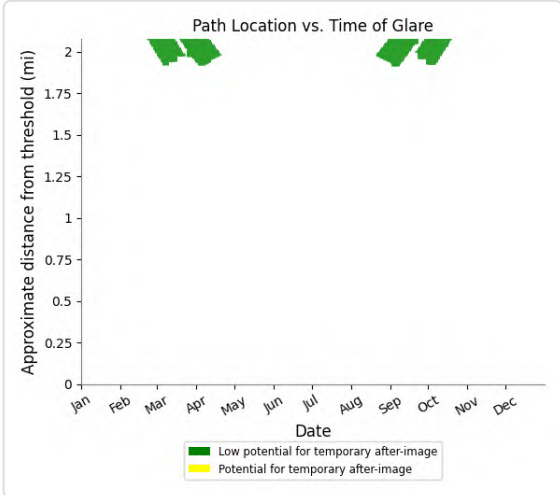








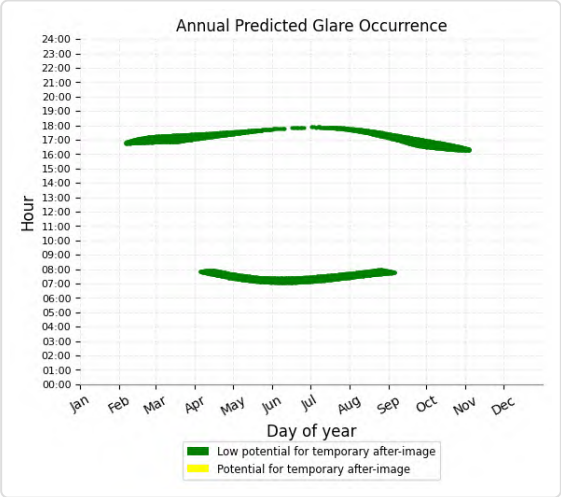


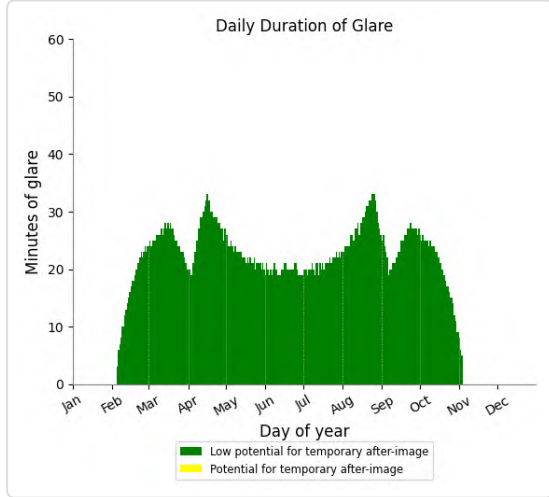


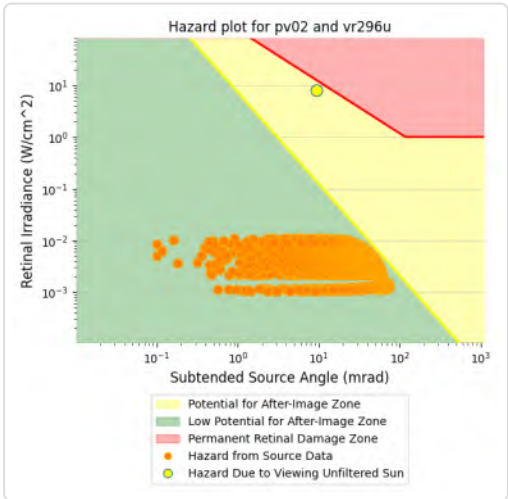
PV02 and FP: VR296u

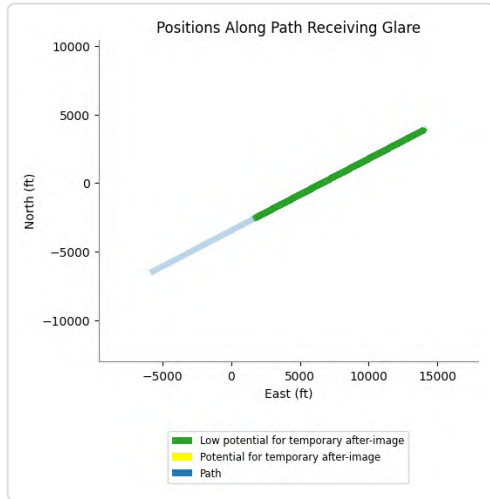
Yellow glare: none

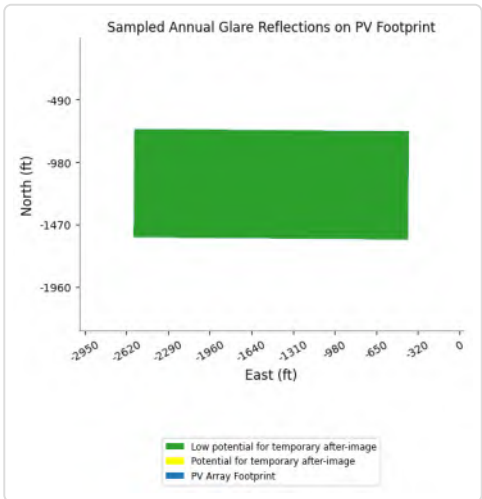
Green glare: 6,169 min.

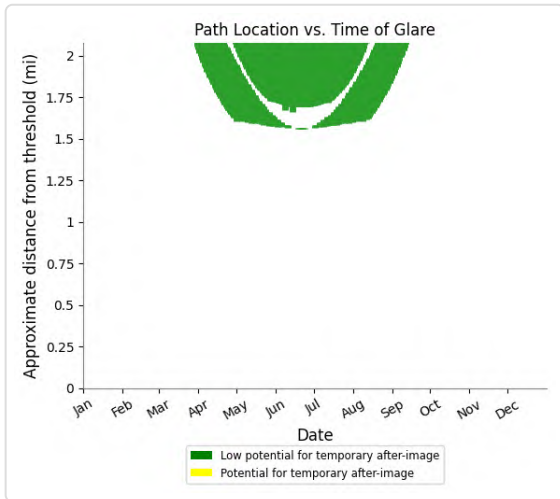












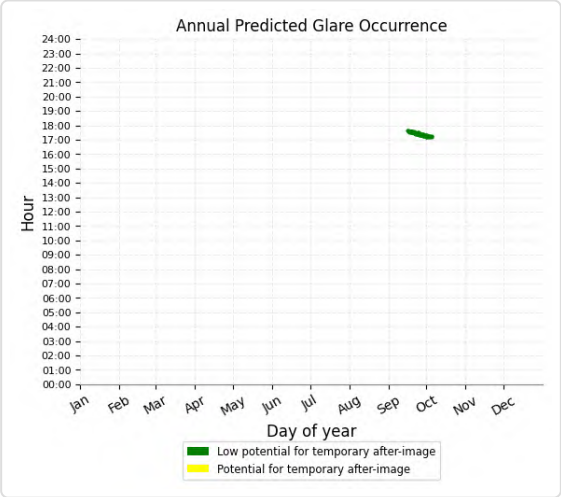
PV02 and FP: CN645

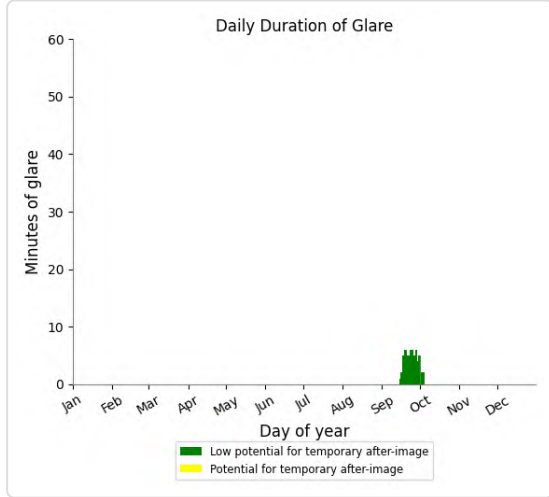
No glare found

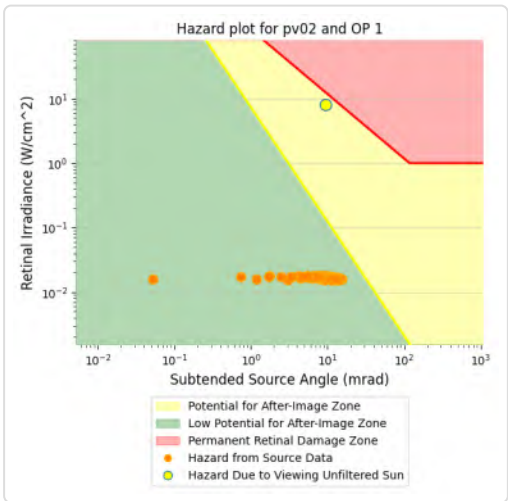
PV02 and OP 1

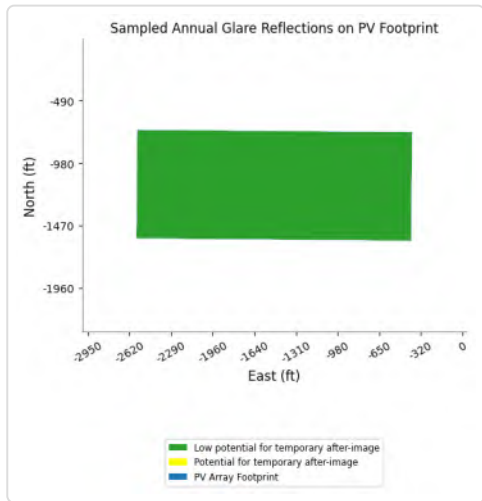
Yellow glare: none

Green glare: 89 min.



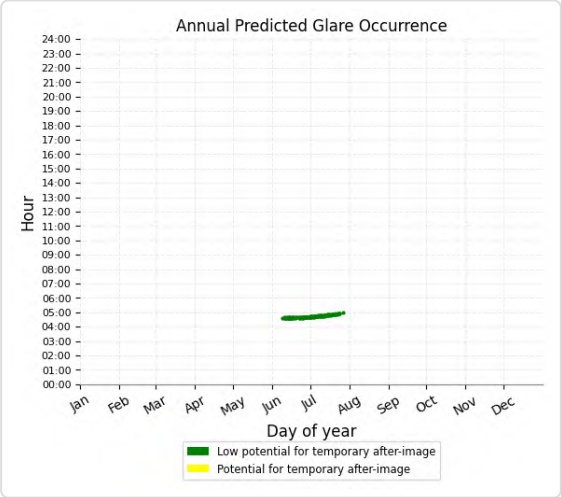


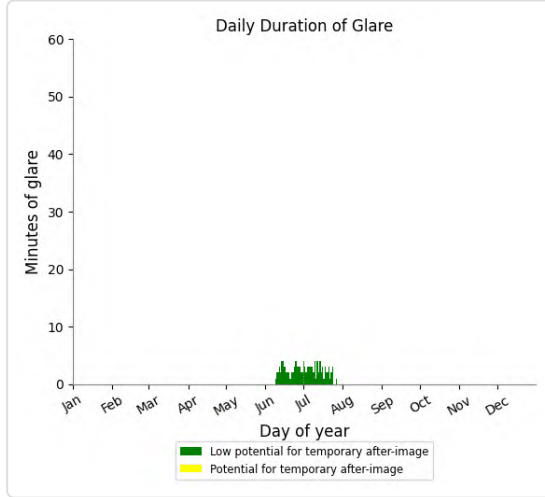


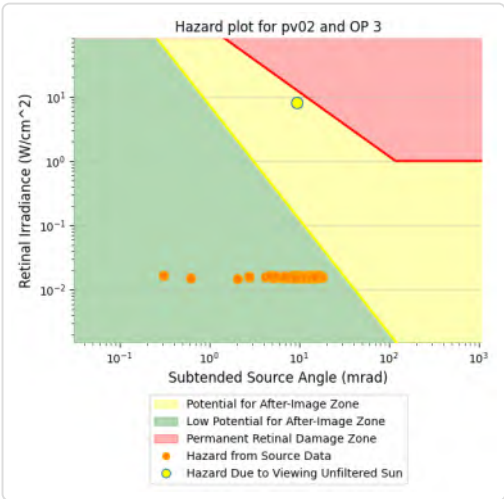


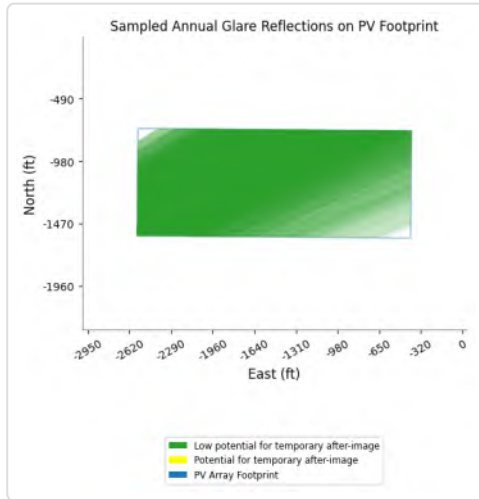
PV02 and OP 3

Yellow glare: none
Green glare: 117 min.









PV02 and OP 2

No glare found

PV02 and OP 4

No glare found

PV02 and OP 5

No glare found

PV02 and OP 6

No glare found

PV02 and OP 7

No glare found

PV02 and OP 8

No glare found

PV02 and OP 9

No glare found

PV02 and OP 10

No glare found

PV02 and OP 11

No glare found

PV02 and OP 12

No glare found

PV02 and OP 13

No glare found

PV02 and OP 14

No glare found

PV02 and OP 15

No glare found

PV02 and OP 16

No glare found

PV02 and OP 17

No glare found

PV02 and OP 18

No glare found

PV02 and OP 19

No glare found

PV: PV03 potential temporary after-image

Receptor results ordered by category of glare

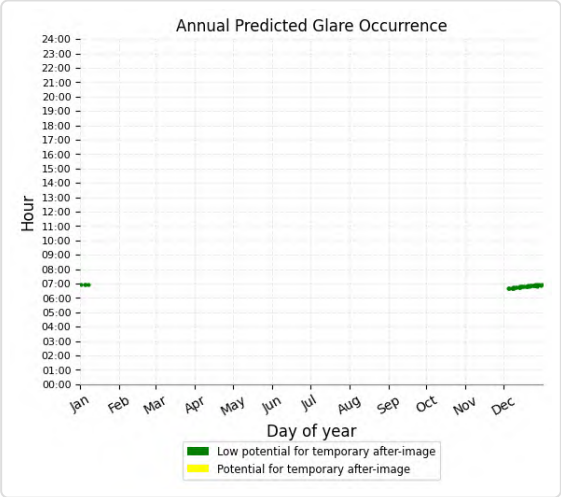
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
KaiserRd A	46	0.8	0	0.0
SR177 A	983	16.4	0	0.0
SR177 B	456	7.6	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	9,132	152.2	9,732	162.2
IR255l	2,225	37.1	297	5.0
VR289l	31,866	531.1	12,711	211.8
VR296l	2,631	43.9	3,113	51.9
VR296m	9,024	150.4	72	1.2
CN6423	939	15.7	0	0.0
IR217m	8,181	136.3	0	0.0
IR217u	4,907	81.8	0	0.0
IR218l	490	8.2	0	0.0
IR218m	1,036	17.3	0	0.0
IR218u	1,148	19.1	0	0.0
IR255m	15,146	252.4	0	0.0
IR255u	4,348	72.5	0	0.0
VR289m	16,818	280.3	0	0.0
VR289u	10,181	169.7	0	0.0
VR296u	5,228	87.1	0	0.0
CN645	0	0.0	0	0.0
OP 1	71	1.2	0	0.0
OP 3	49	0.8	0	0.0

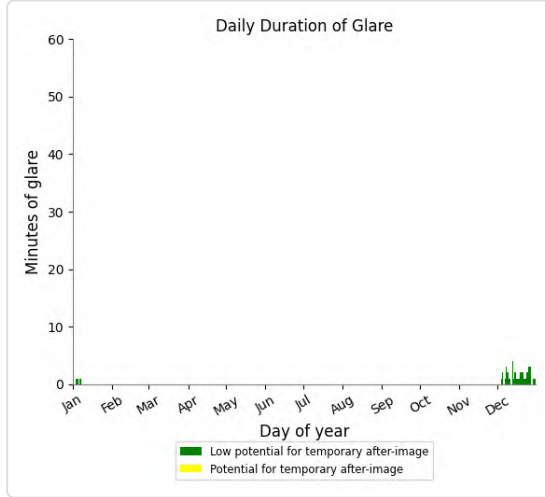
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

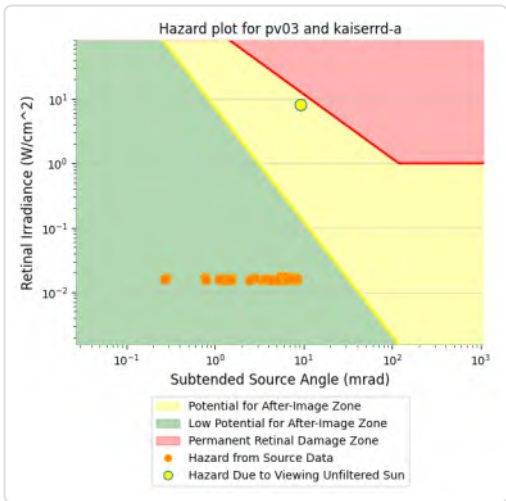
PV03 and Route: KaiserRd A

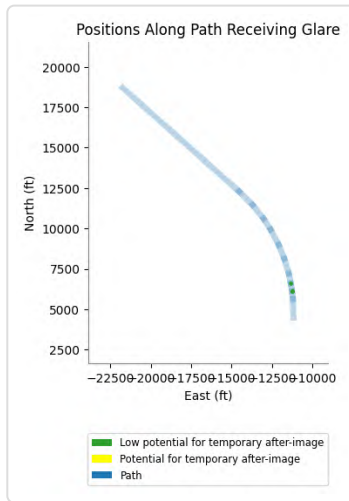
Yellow glare: none

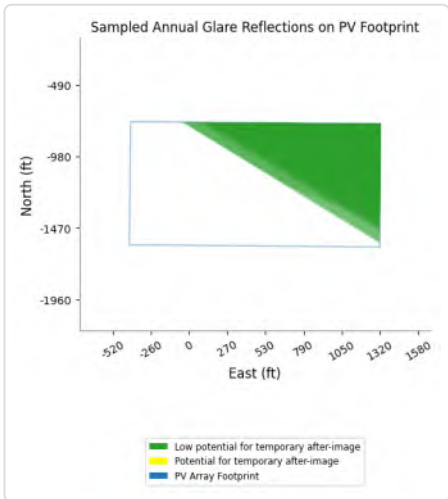
Green glare: 46 min.







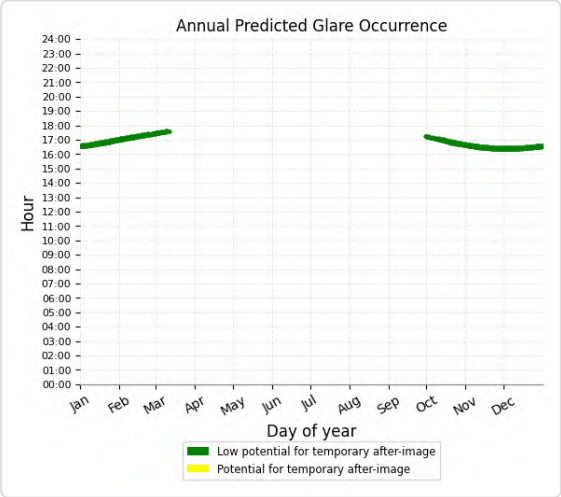


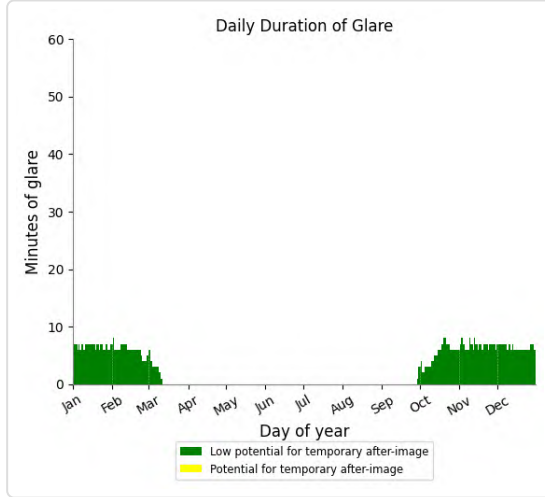


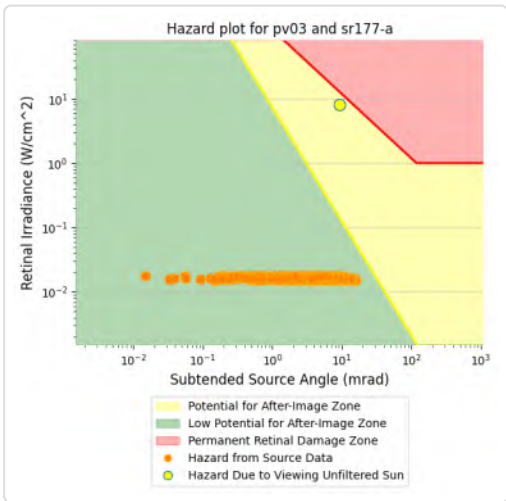
PV03 and Route: SR177 A

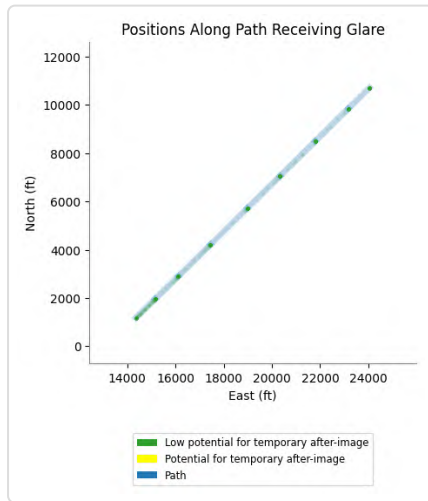
Yellow glare: none

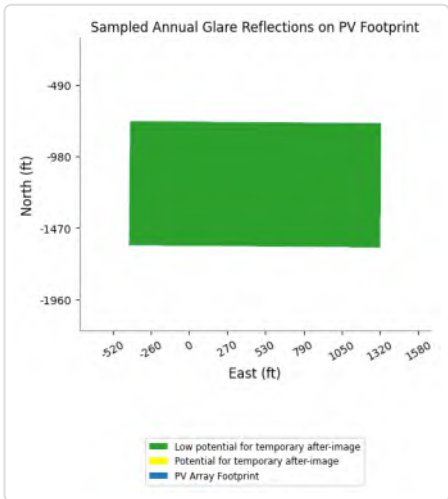
Green glare: 983 min.







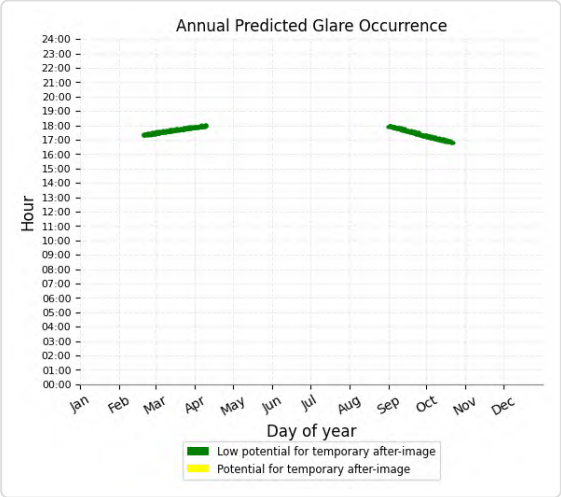


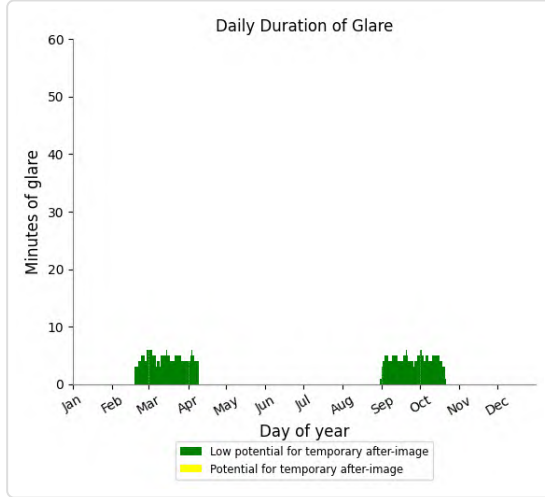


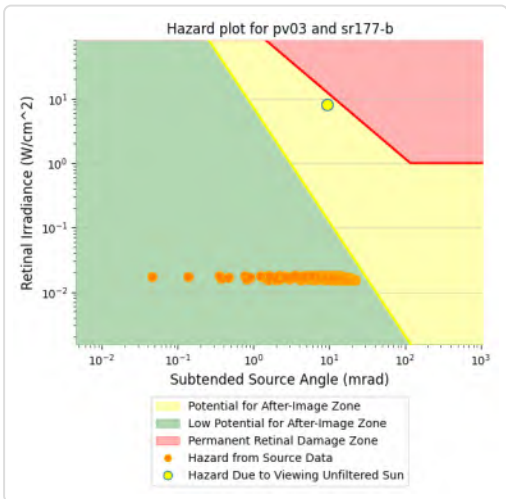
PV03 and Route: SR177 B

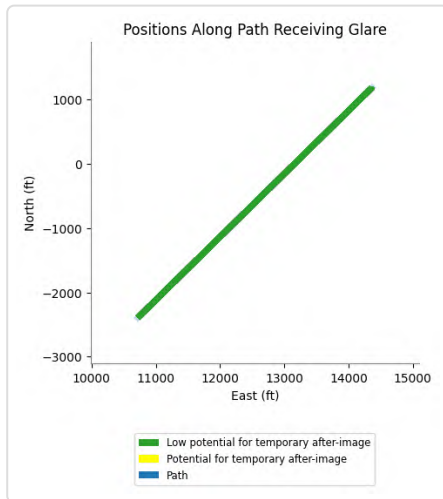
Yellow glare: none

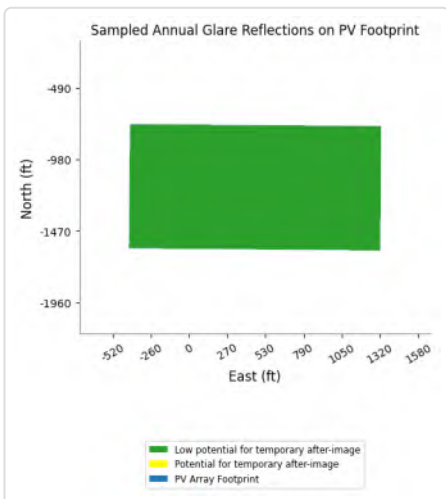
Green glare: 456 min.











PV03 and Route: AirportRd A

No glare found

PV03 and Route: AirportRd B

No glare found

PV03 and Route: EagleMtnRd A

No glare found

PV03 and Route: EagleMtnRd B

No glare found

PV03 and Route: I-10 EB A

No glare found

PV03 and Route: I-10 EB B

No glare found

PV03 and Route: I-10 EB C

No glare found

PV03 and Route: I-10 WB A

No glare found

PV03 and Route: I-10 WB B

No glare found

PV03 and Route: I-10 WB C

No glare found

PV03 and Route: KaiserRd B

No glare found

PV03 and Route: KaiserRd C

No glare found

PV03 and Route: OasisRd

No glare found

PV03 and Route: Race Track

No glare found

PV03 and Route: SR177 C

No glare found

PV03 and Route: SR177 D

No glare found

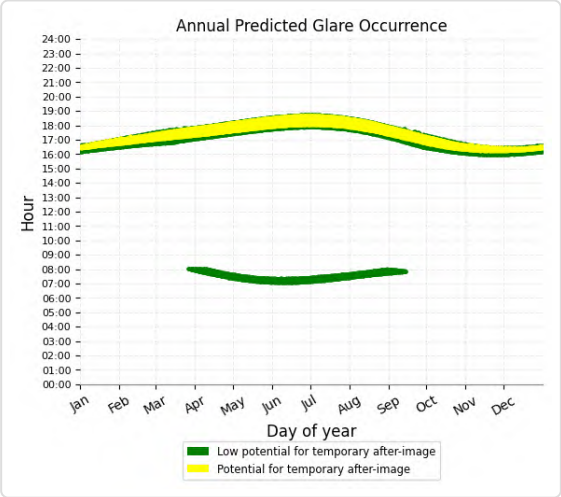
PV03 and Route: SR177 E

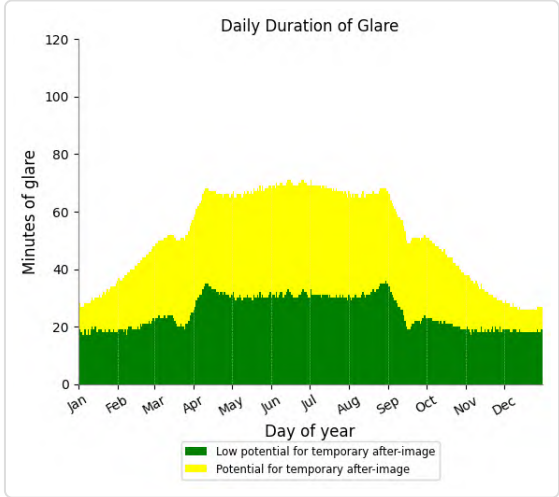
No glare found

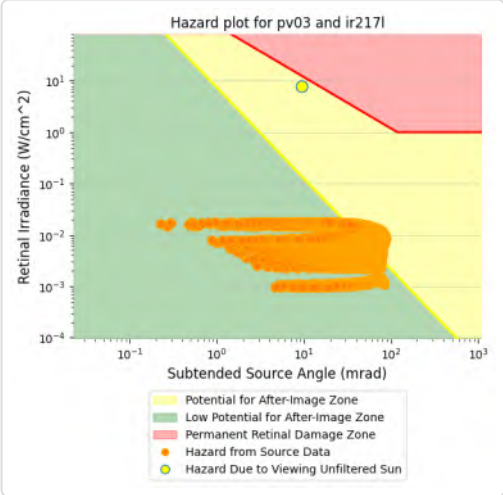
PV03 and FP: IR217l

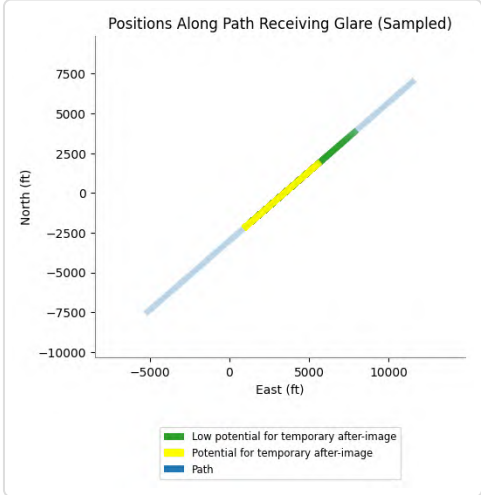
Yellow glare: 9,732 min.

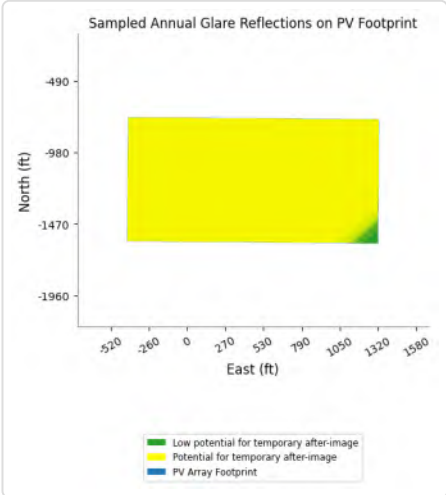
Green glare: 9,132 min.

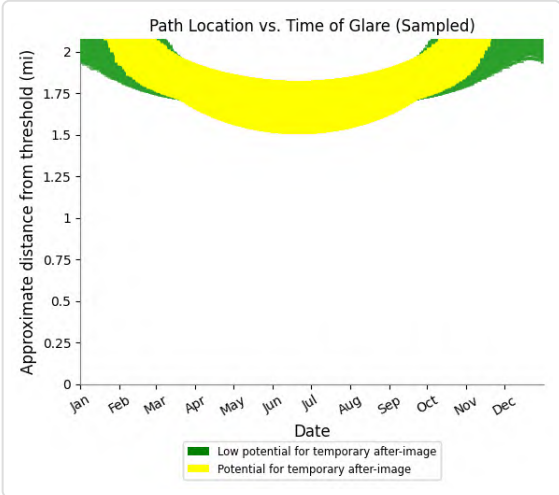








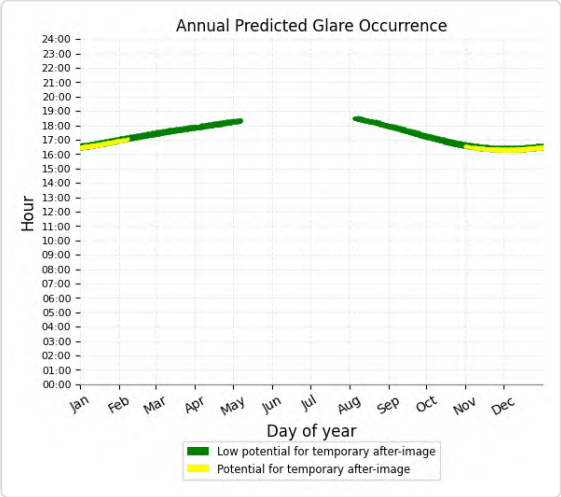


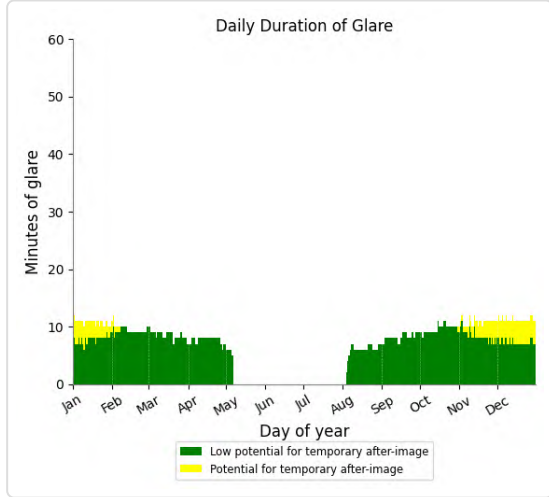


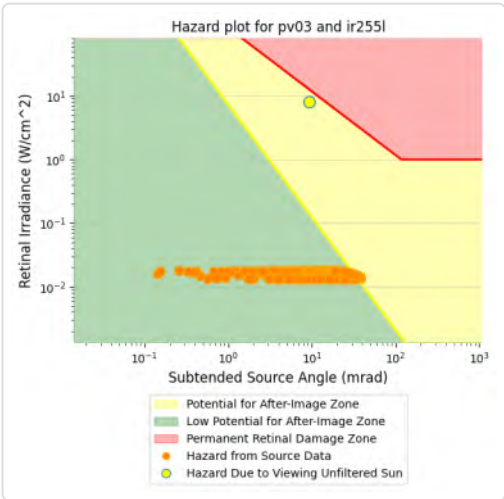
PV03 and FP: IR255l

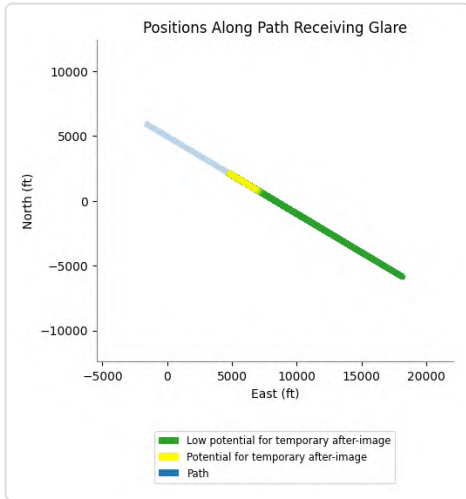
Yellow glare: 297 min.

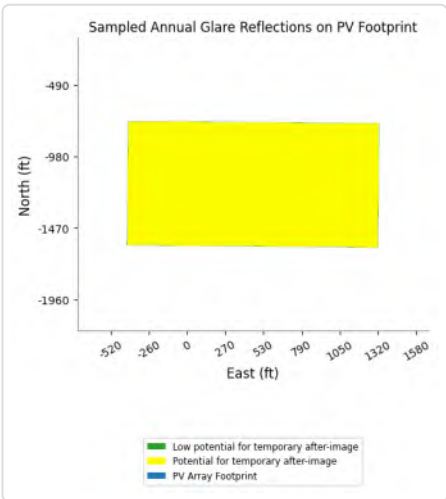
Green glare: 2,225 min.

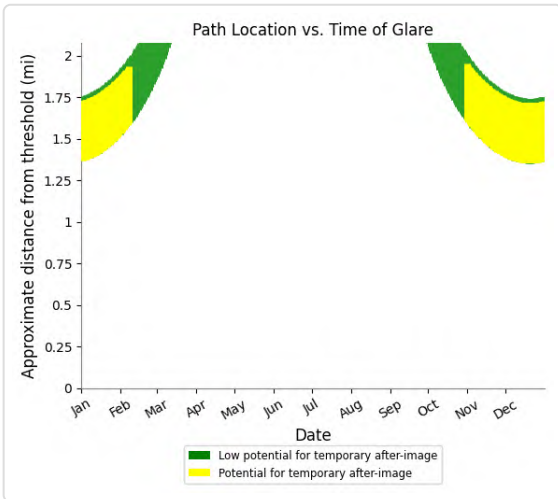








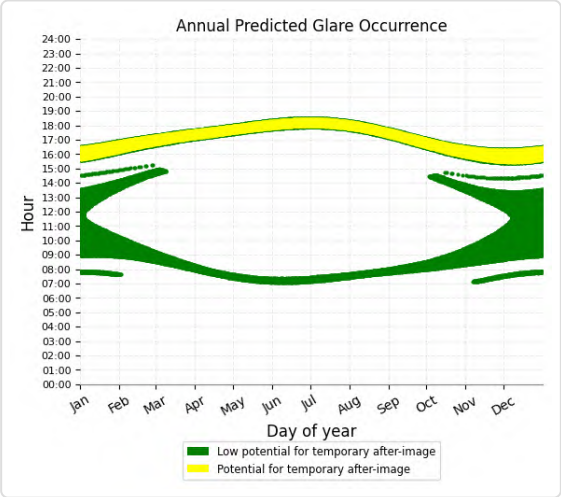


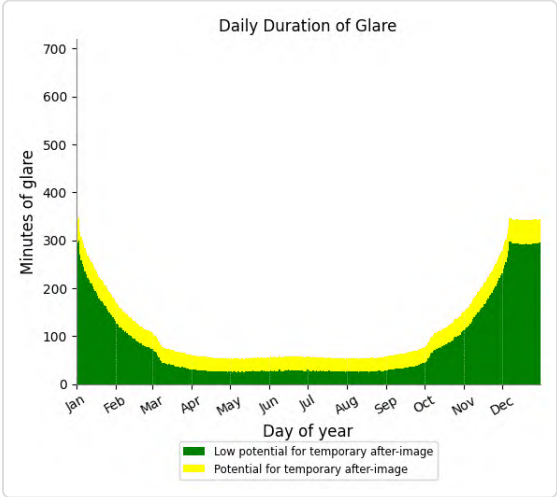


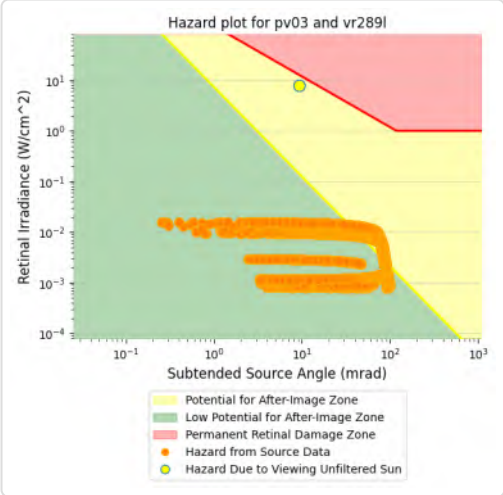
PV03 and FP: VR289I

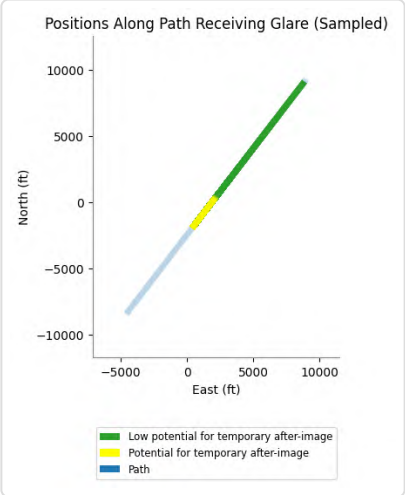
Yellow glare: 12,711 min.

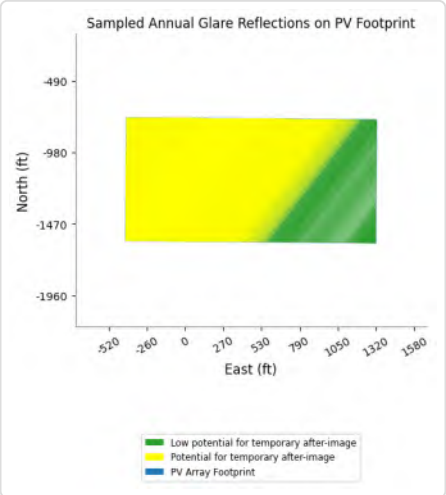
Green glare: 31,866 min.

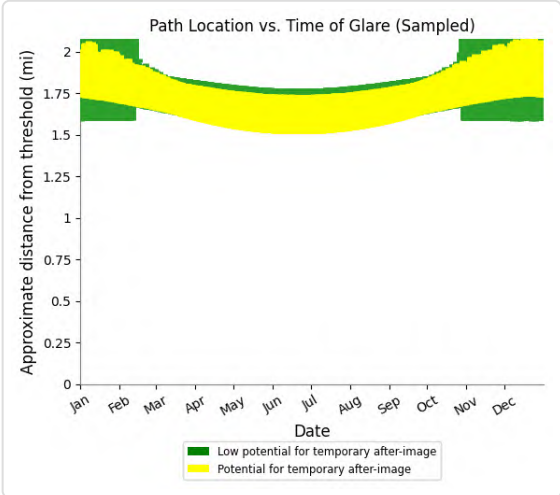








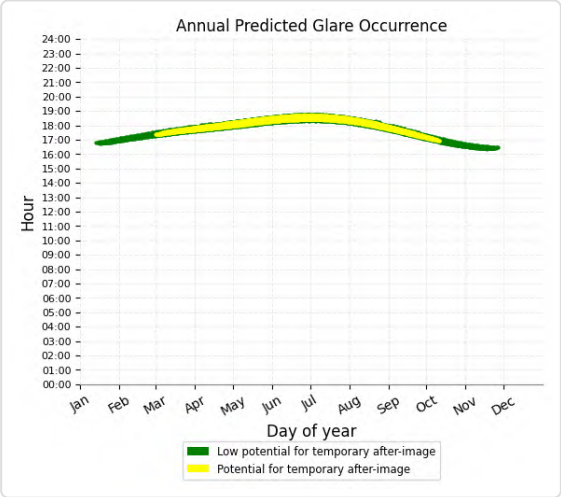


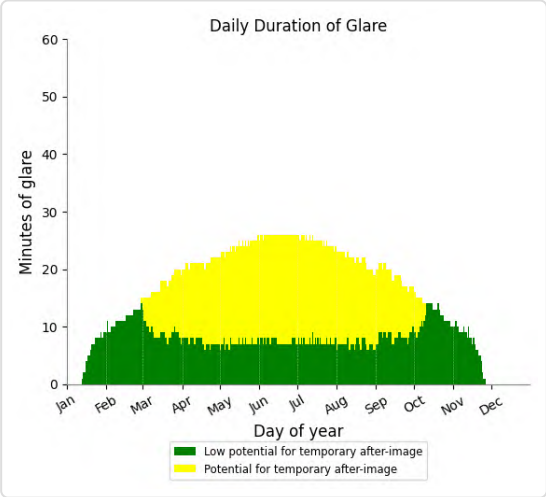


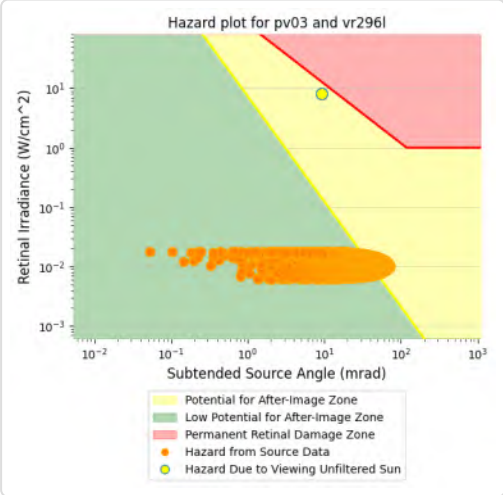
PV03 and FP: VR296I

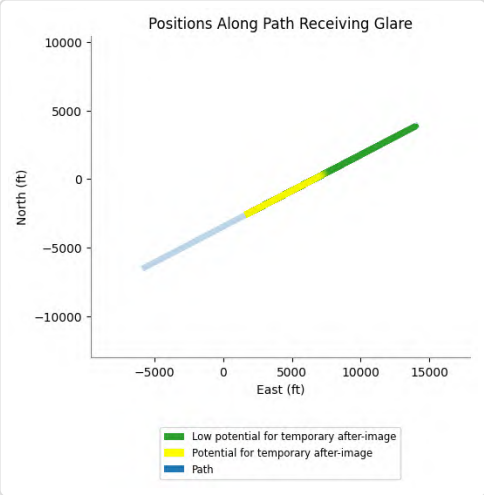
Yellow glare: 3,113 min.

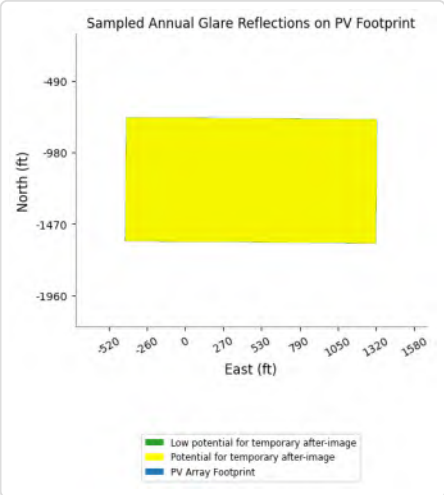
Green glare: 2,631 min.

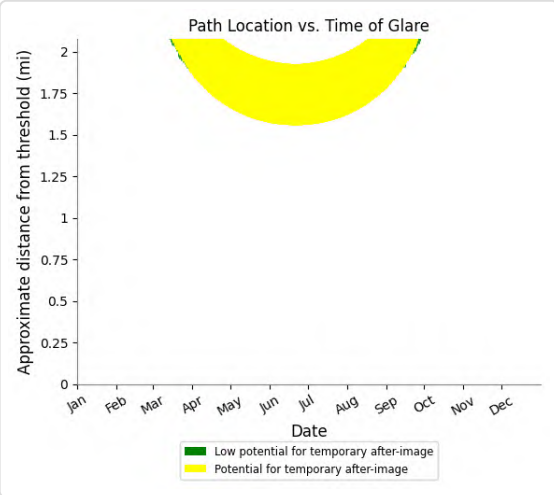








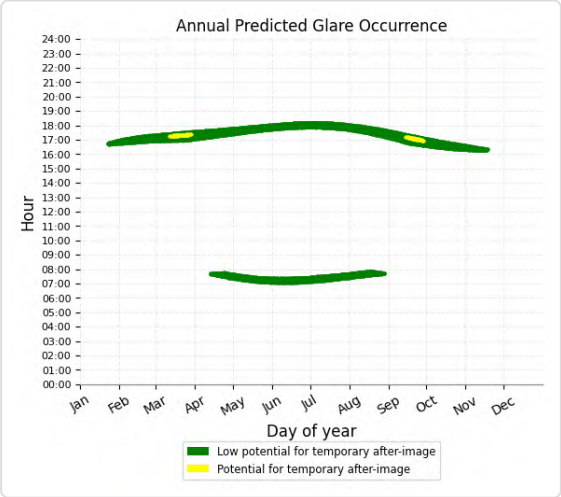


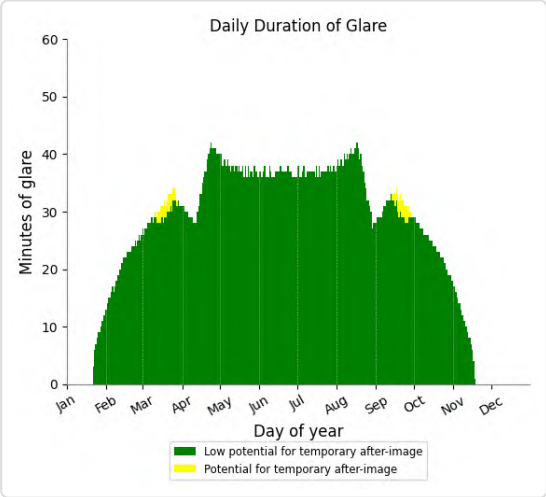


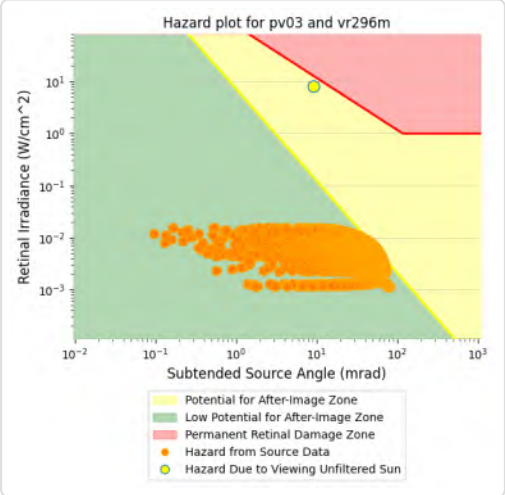
PV03 and FP: VR296m

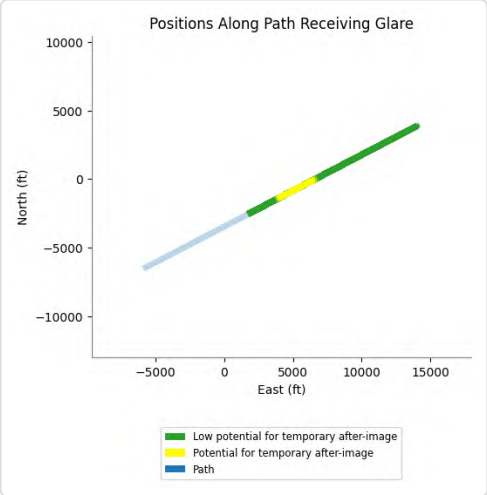
Yellow glare: 72 min.

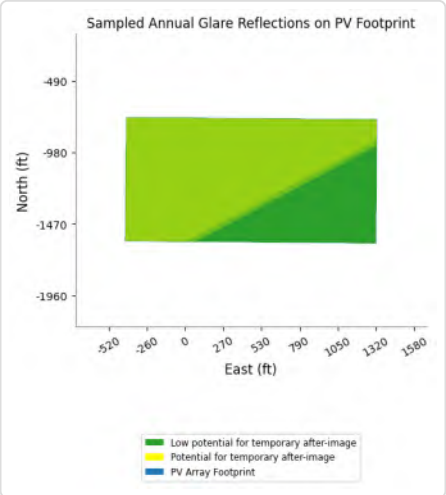
Green glare: 9,024 min.

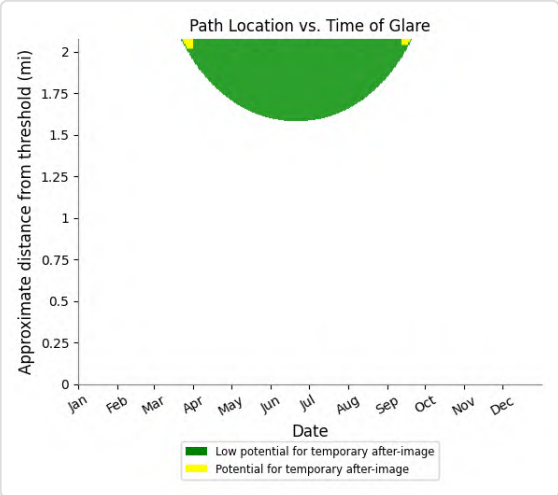








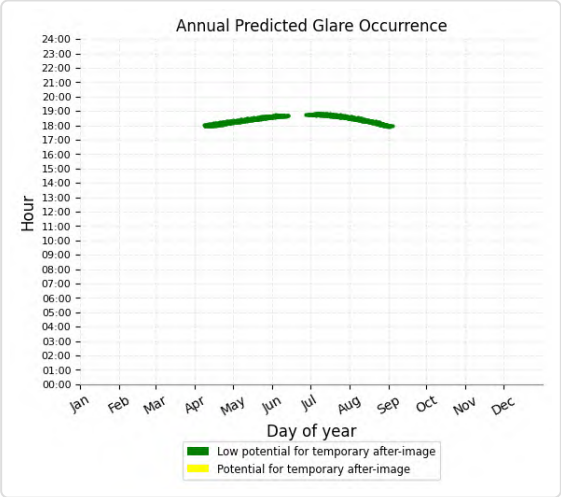


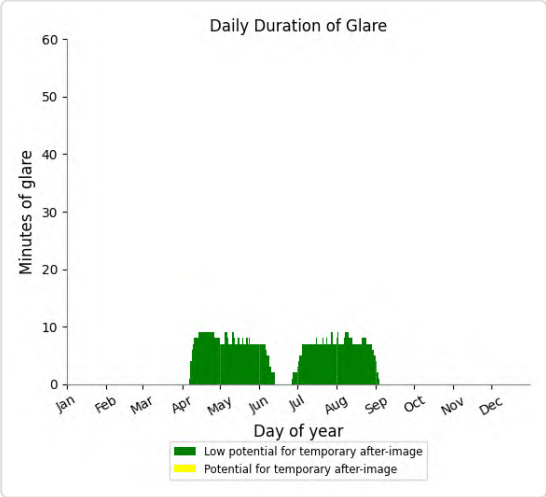


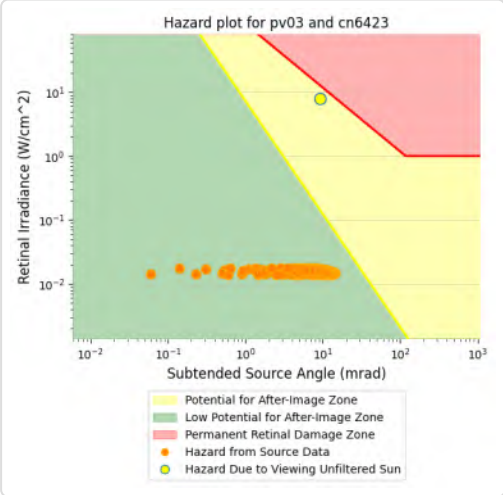
PV03 and FP: CN6423

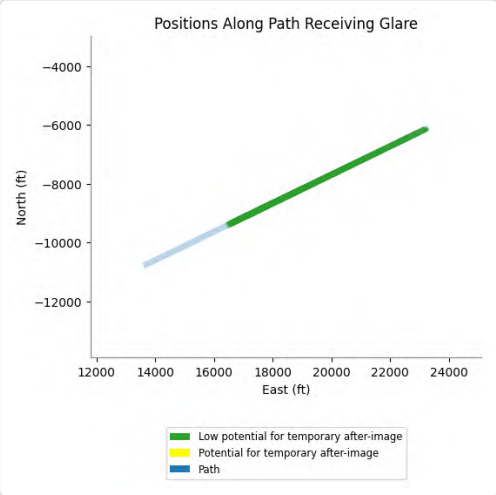
Yellow glare: none

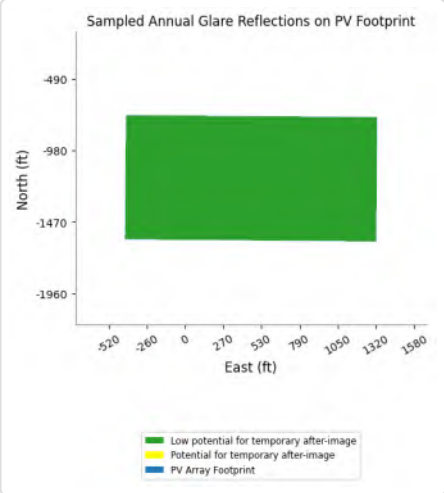
Green glare: 939 min.

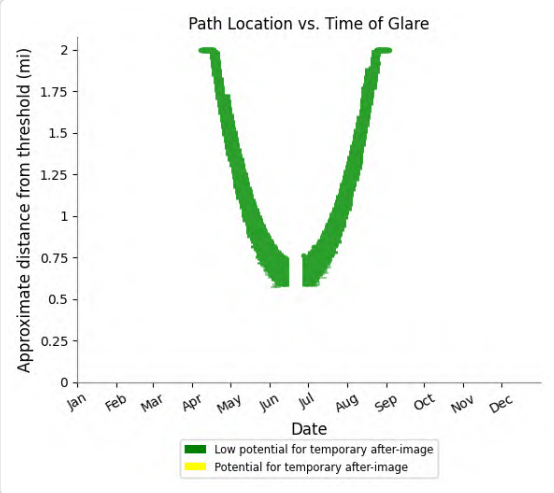








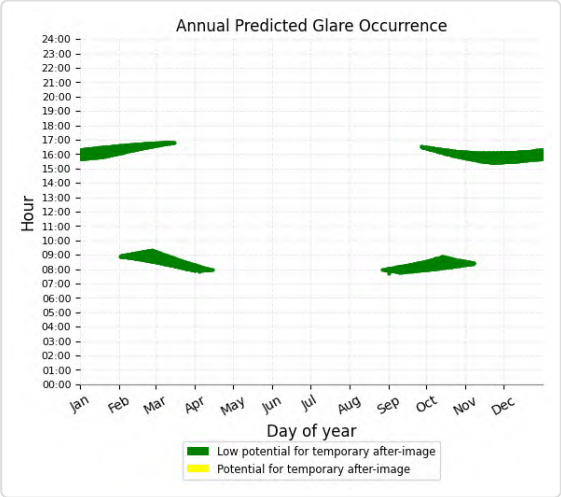


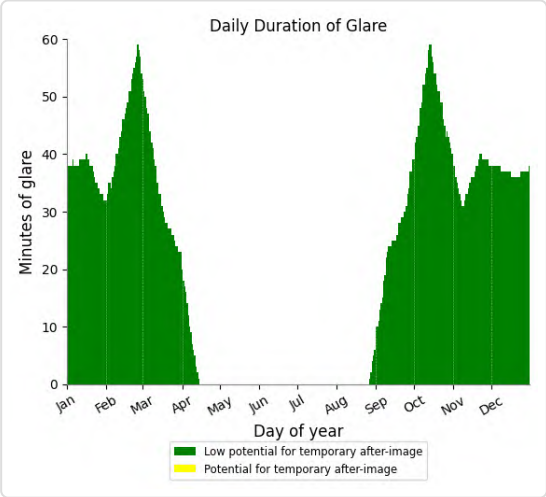


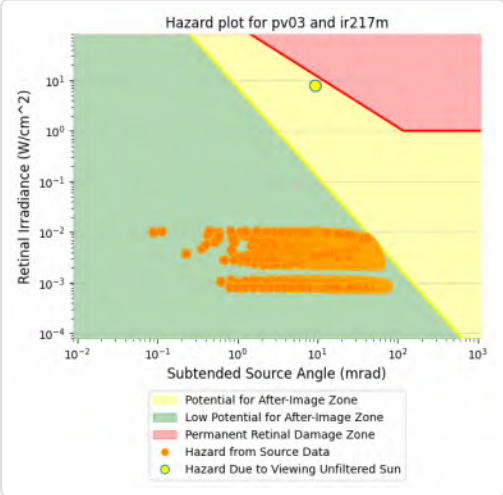
PV03 and FP: IR217m

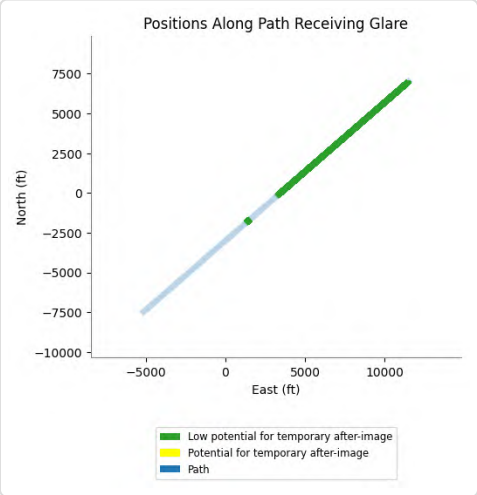
Yellow glare: none

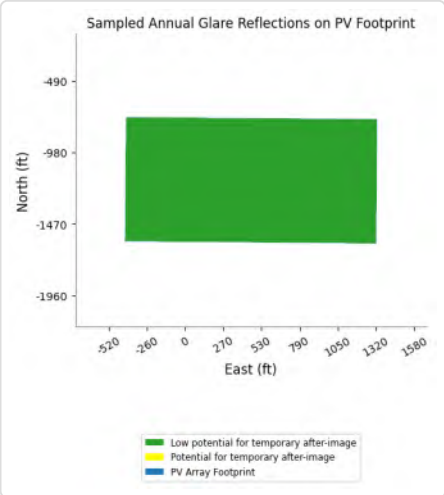
Green glare: 8,181 min.

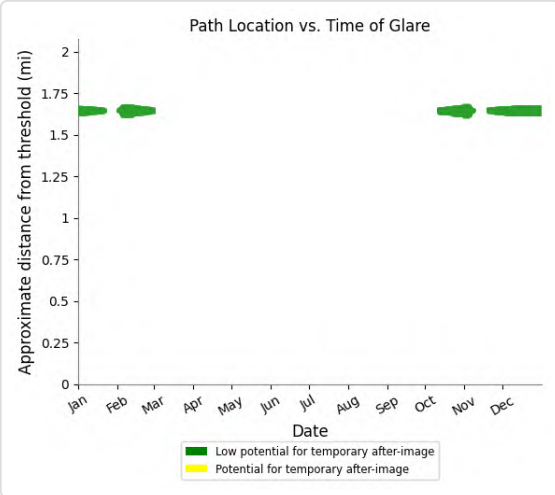








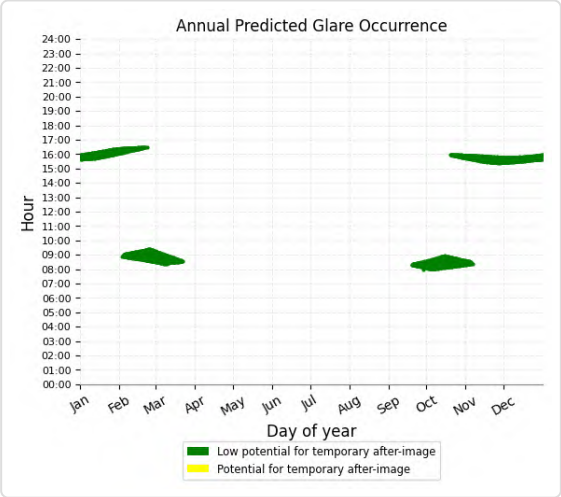


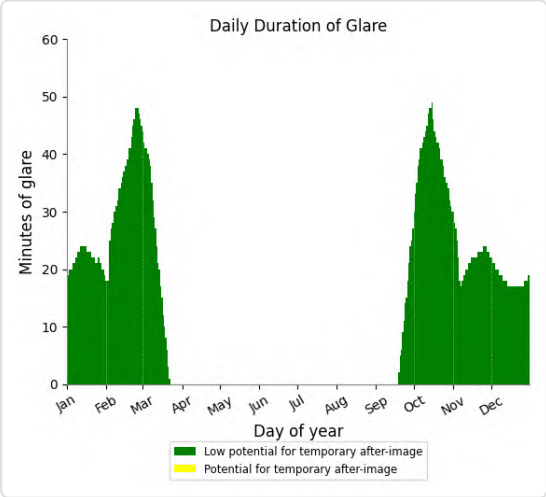


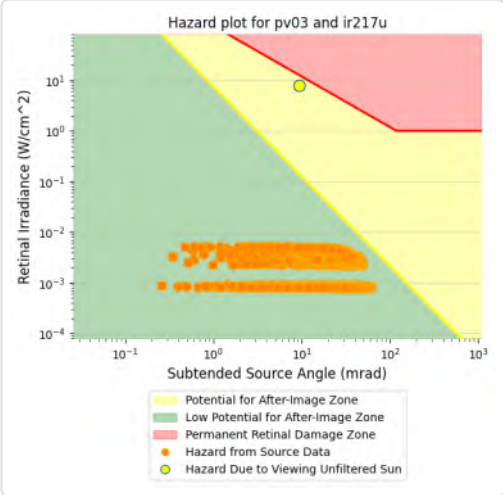
PV03 and FP: IR217u

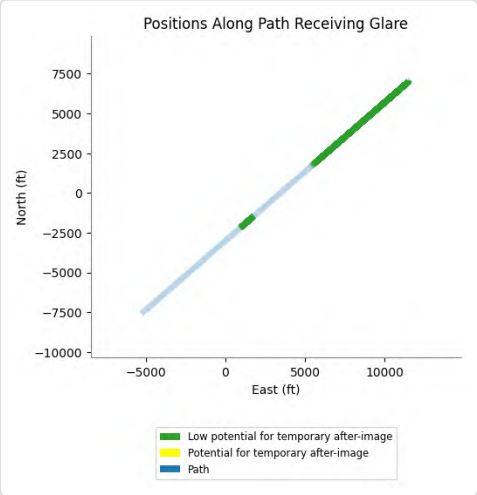
Yellow glare: none

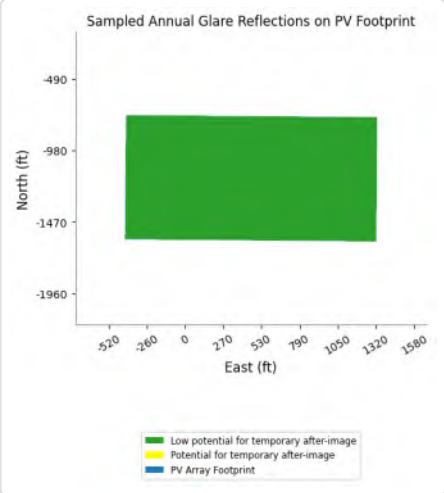
Green glare: 4,907 min.

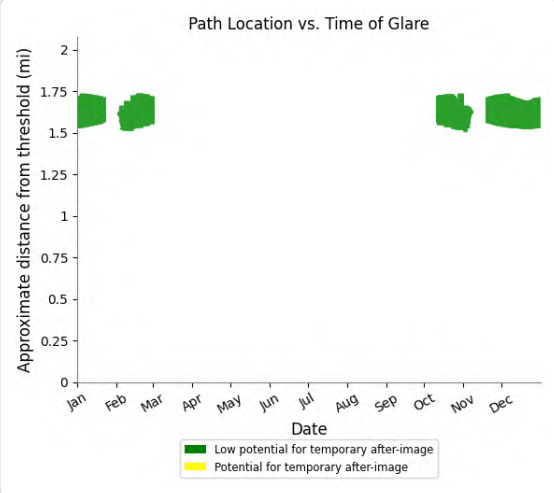








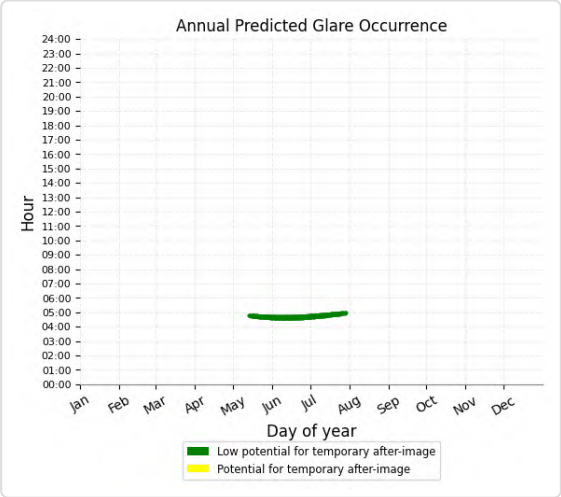


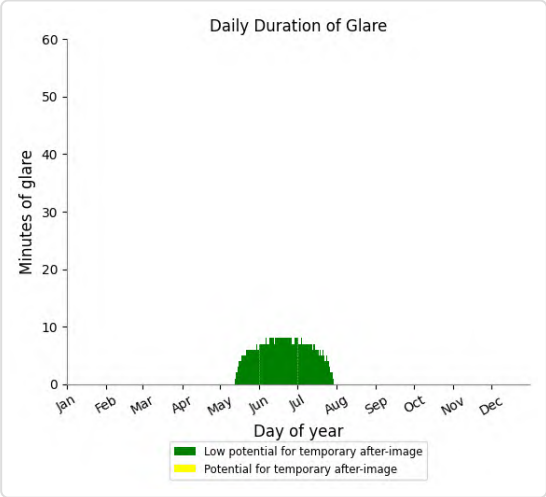


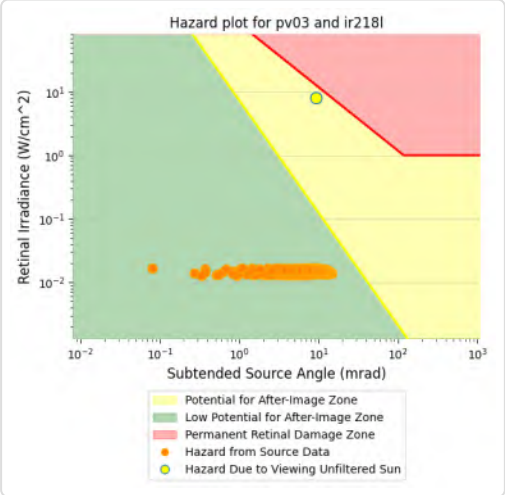
PV03 and FP: IR218l

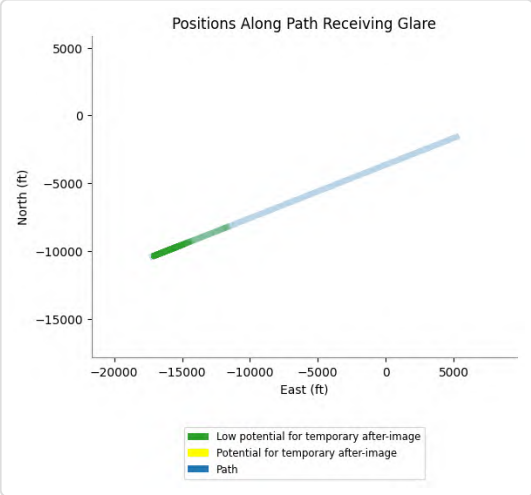
Yellow glare: none

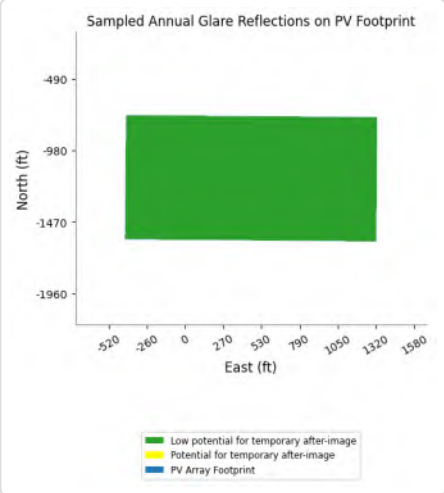
Green glare: 490 min.

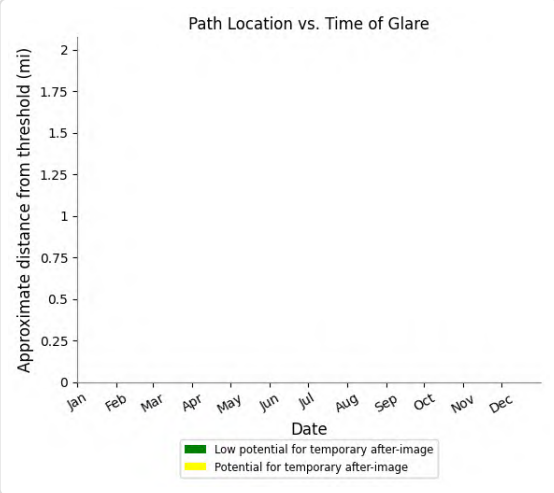








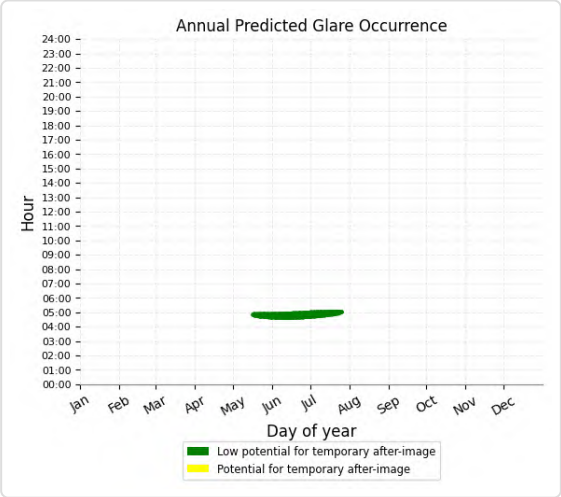


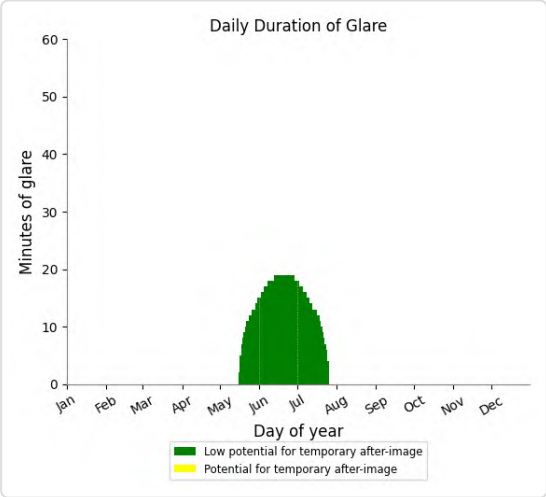


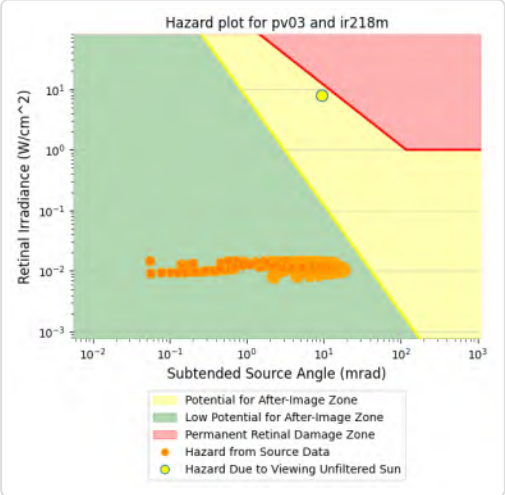
PV03 and FP: IR218m

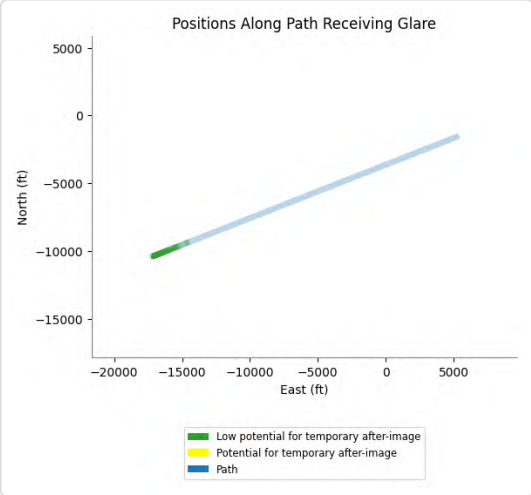
Yellow glare: none

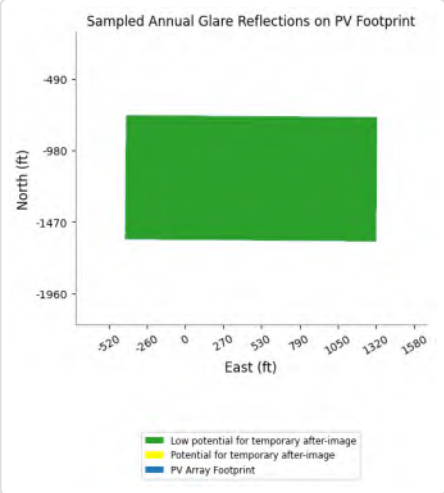
Green glare: 1,036 min.

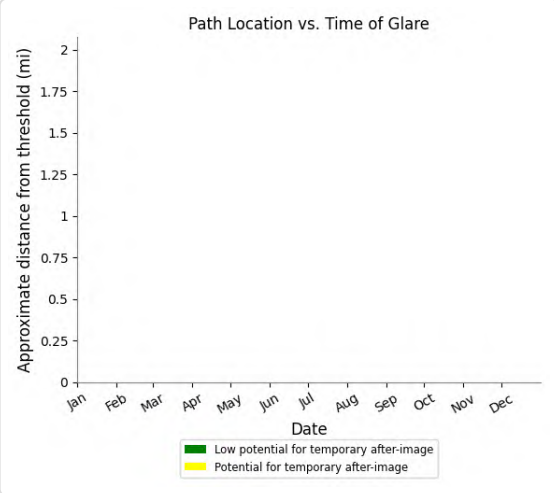








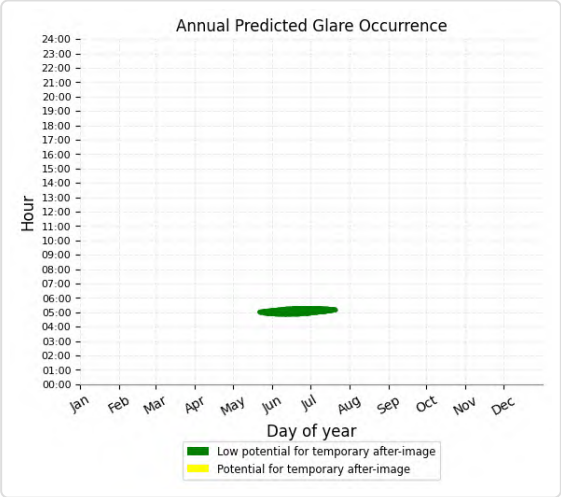


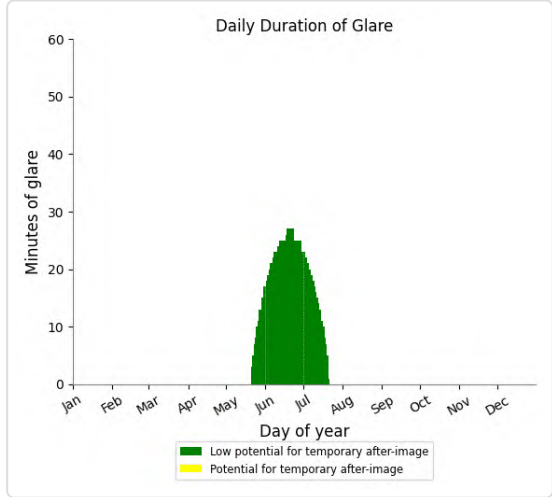


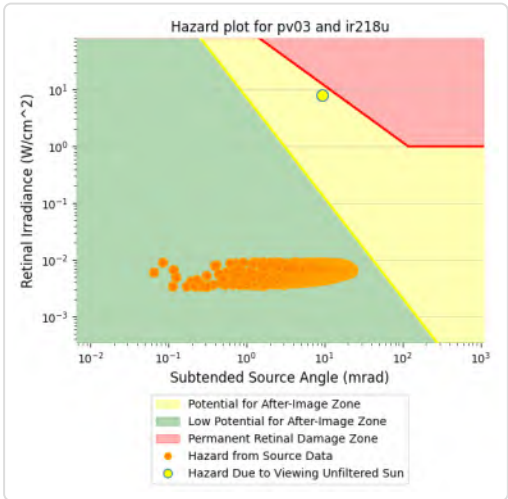
PV03 and FP: IR218u

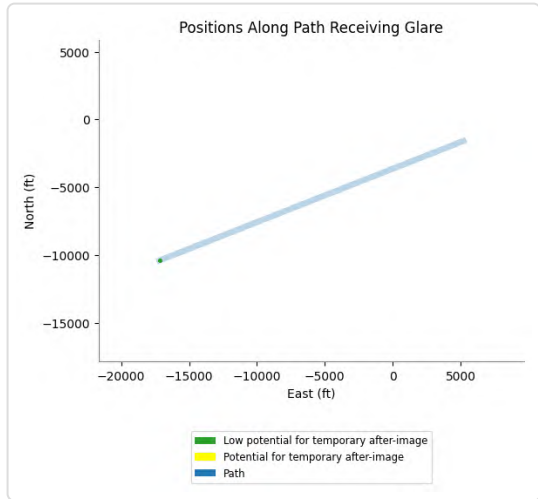
Yellow glare: none

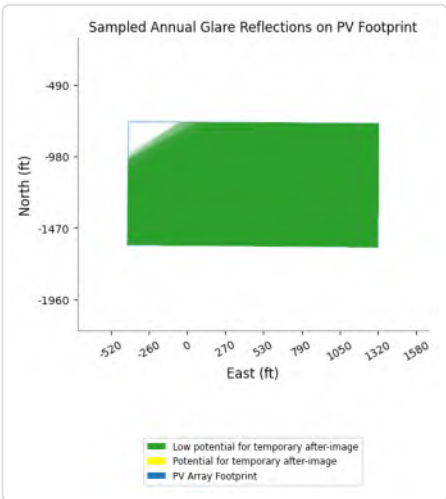
Green glare: 1,148 min.

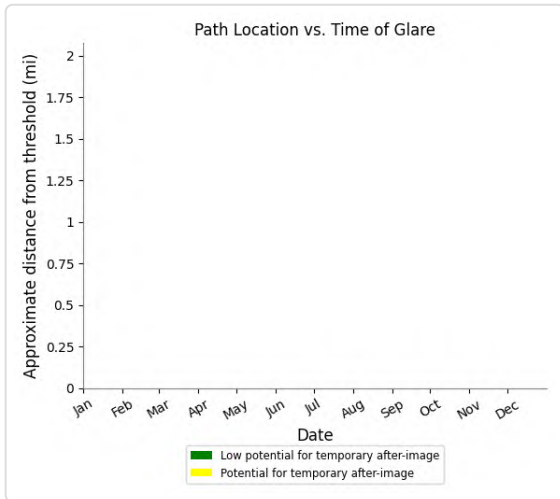








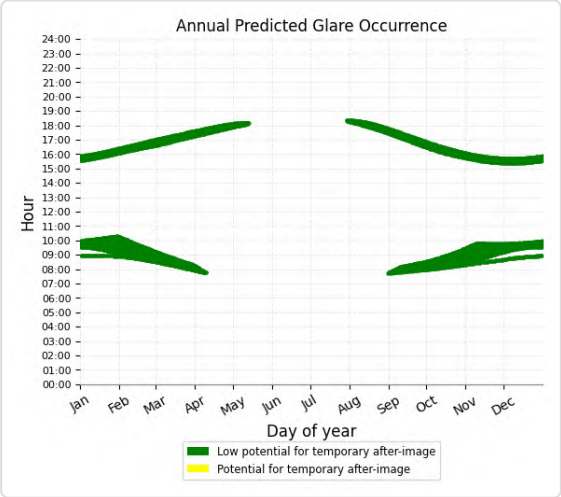


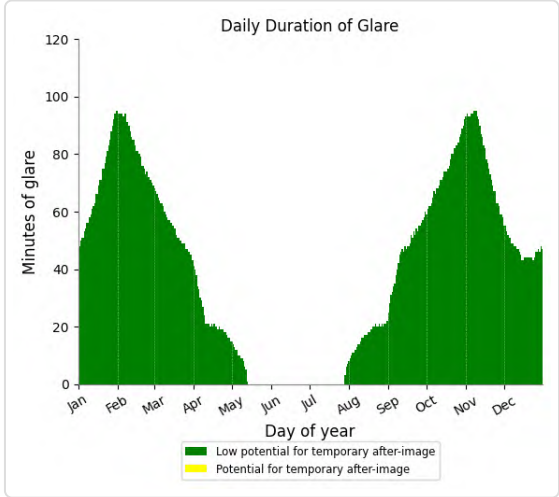


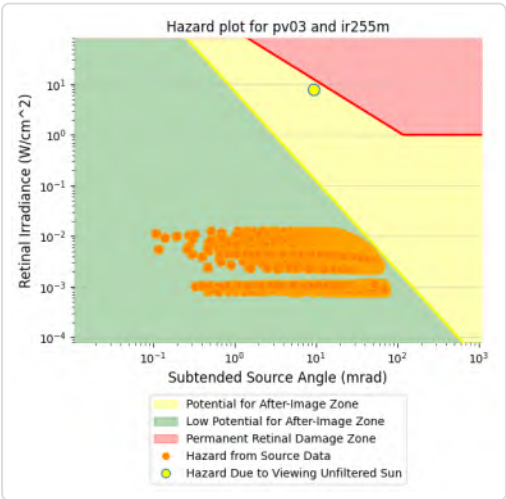
PV03 and FP: IR255m

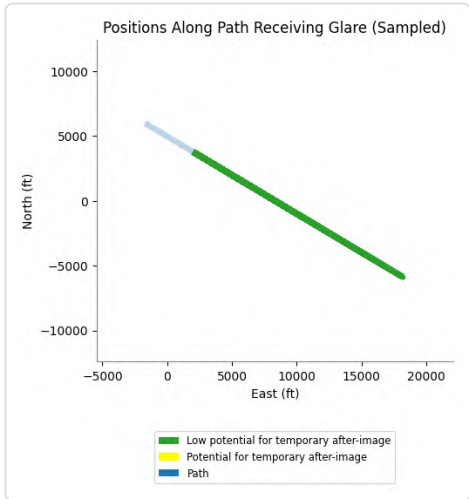
Yellow glare: none

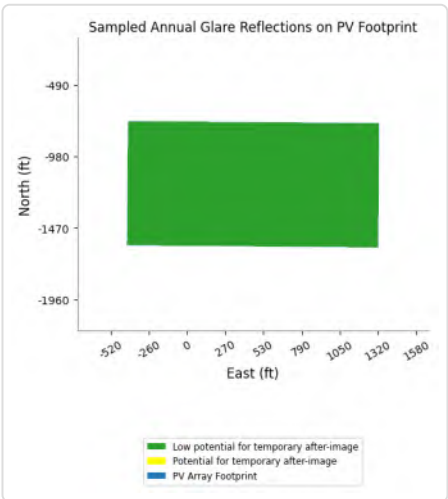
Green glare: 15,146 min.

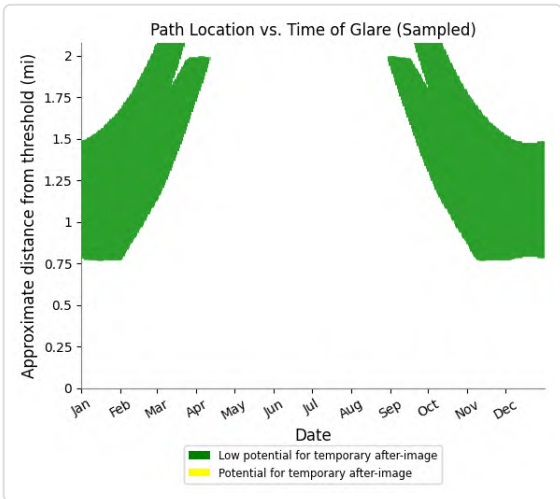








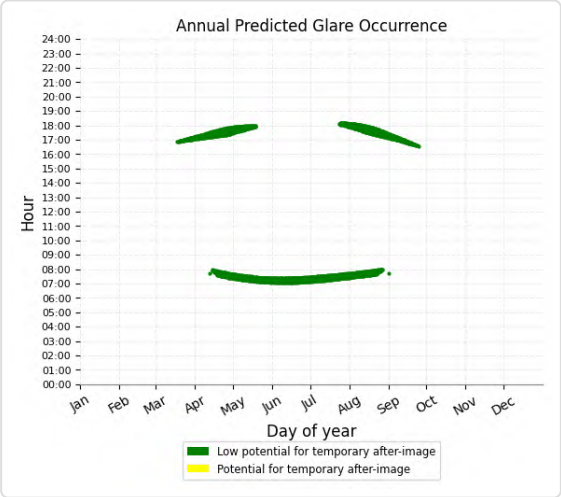


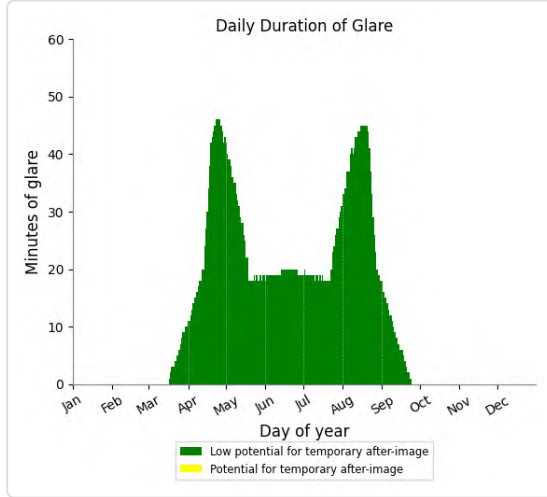


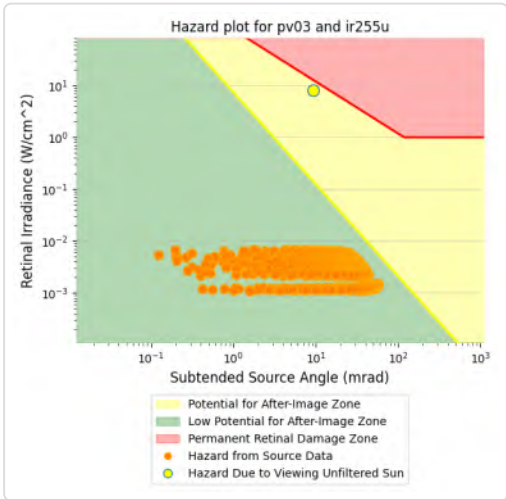
PV03 and FP: IR255u

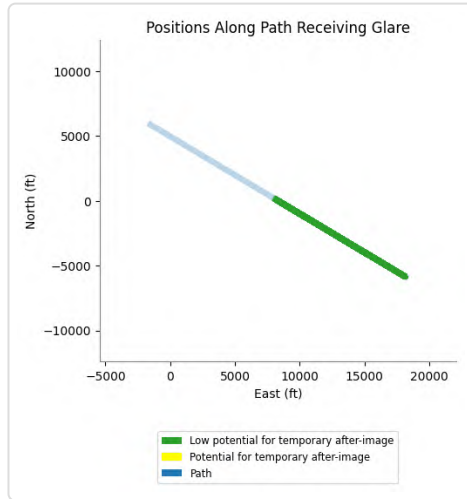
Yellow glare: none

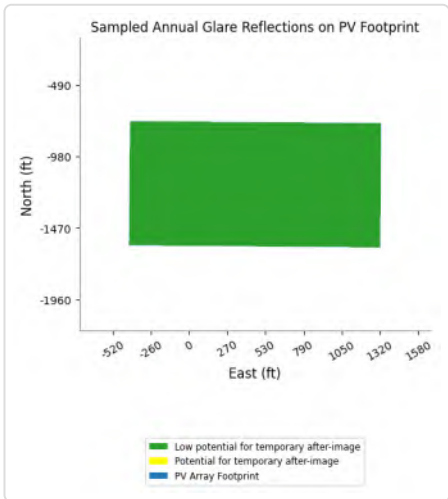
Green glare: 4,348 min.

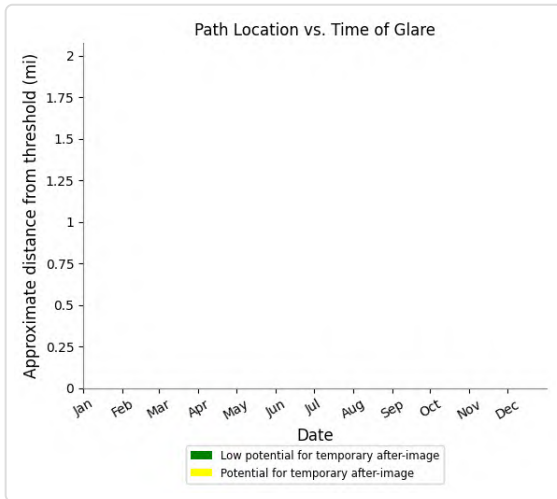








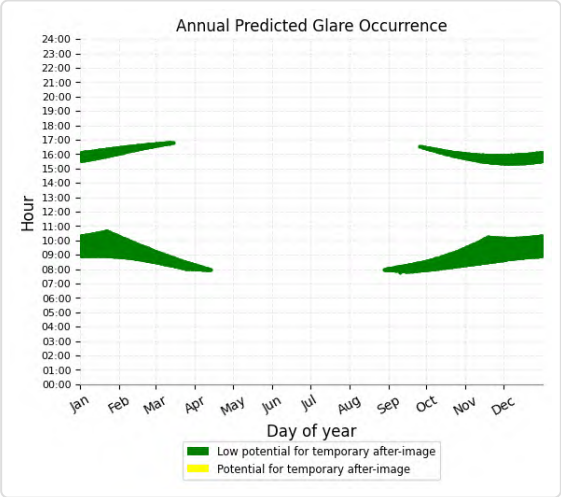


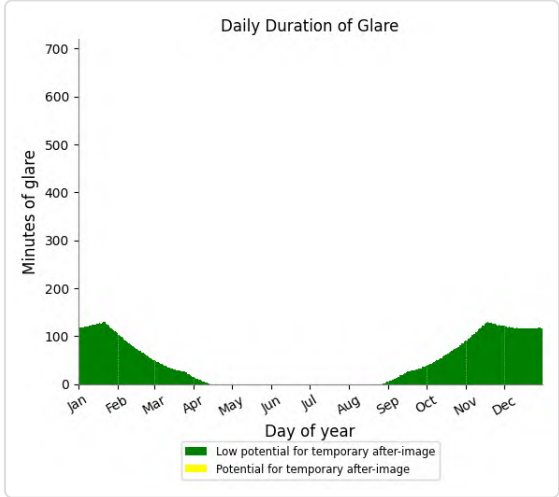


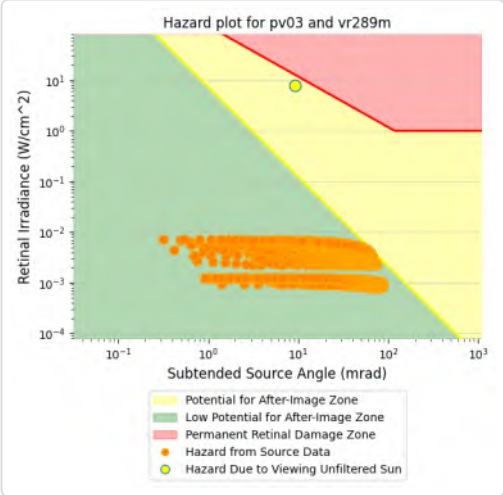
PV03 and FP: VR289m

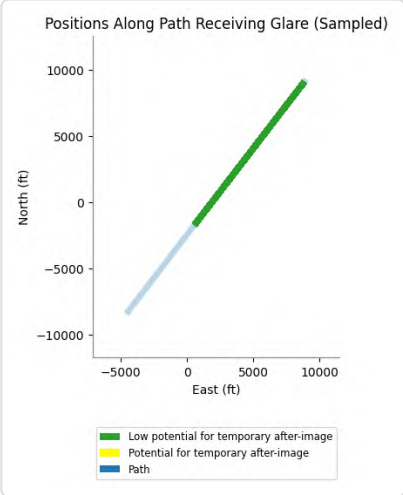
Yellow glare: none

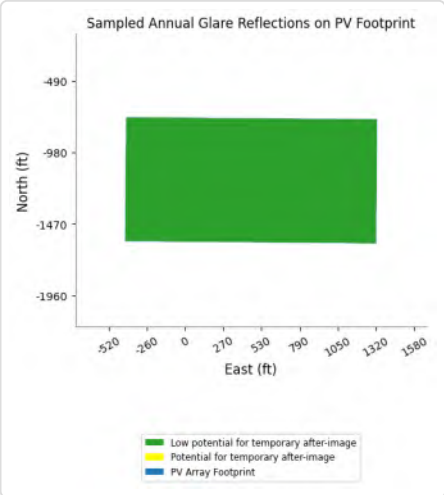
Green glare: 16,818 min.

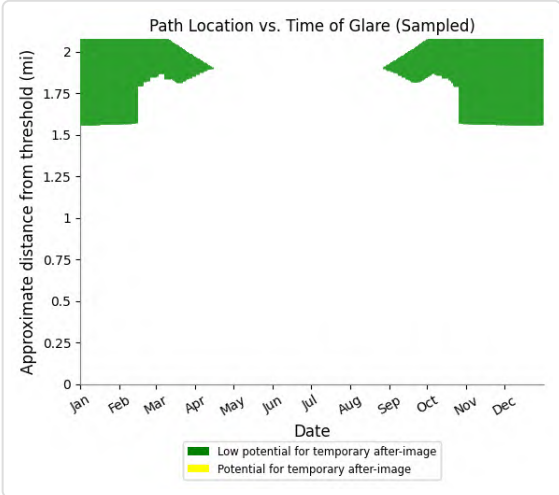








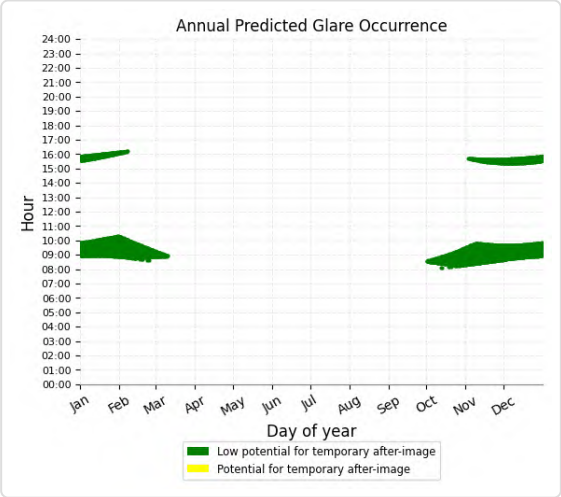


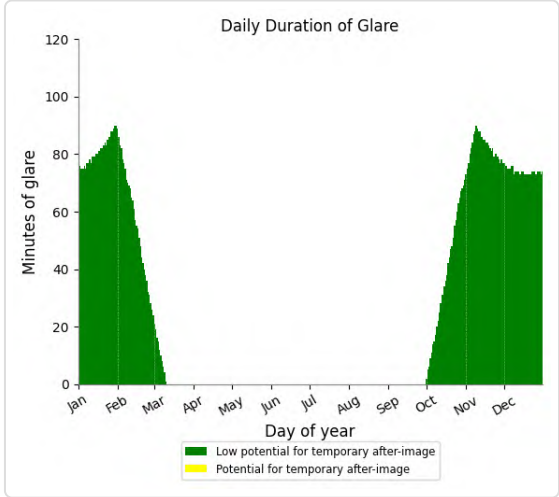


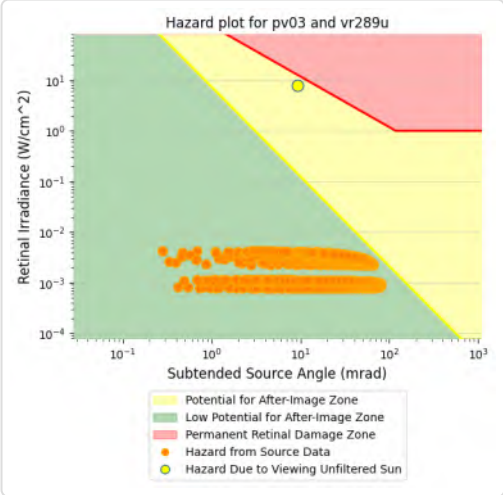
PV03 and FP: VR289u

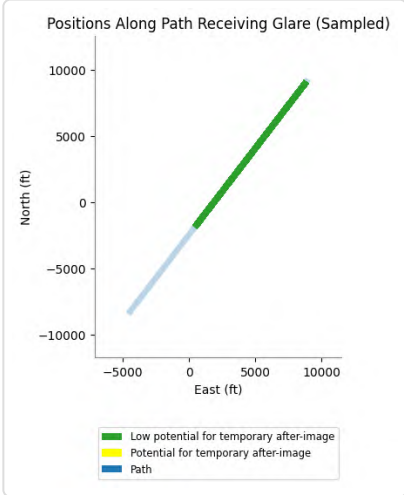
Yellow glare: none

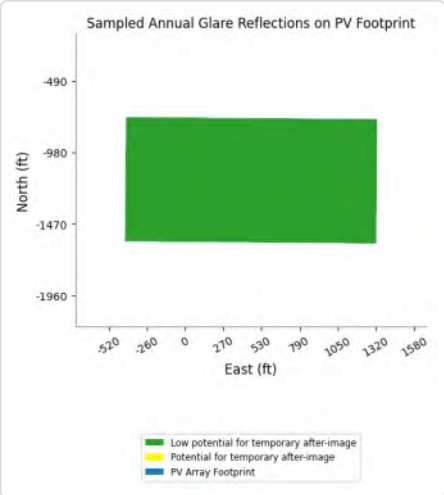
Green glare: 10,181 min.

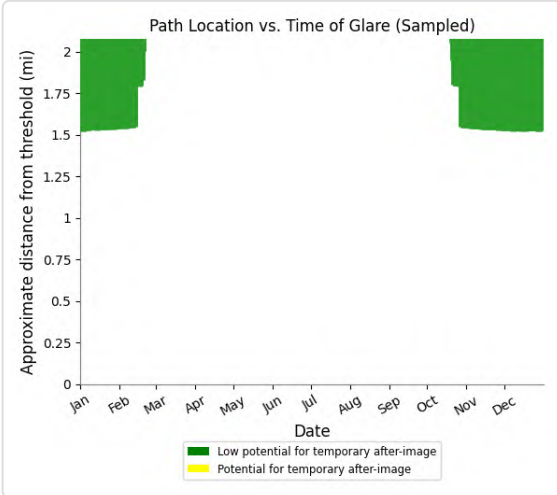








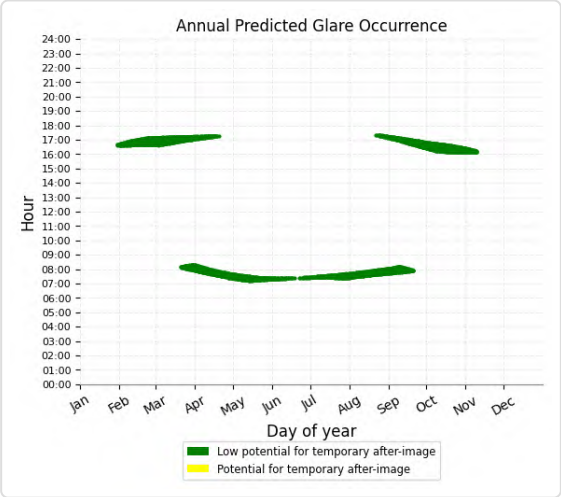


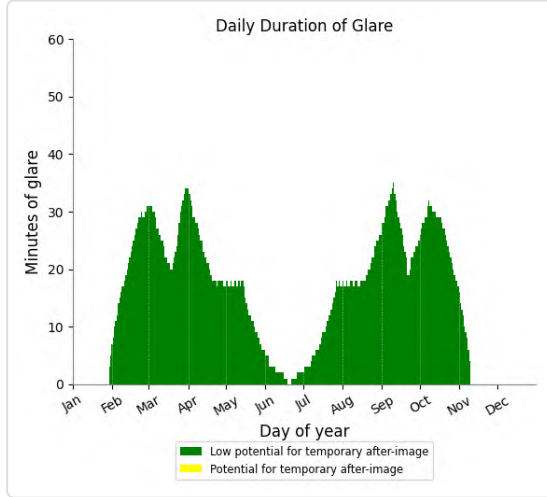


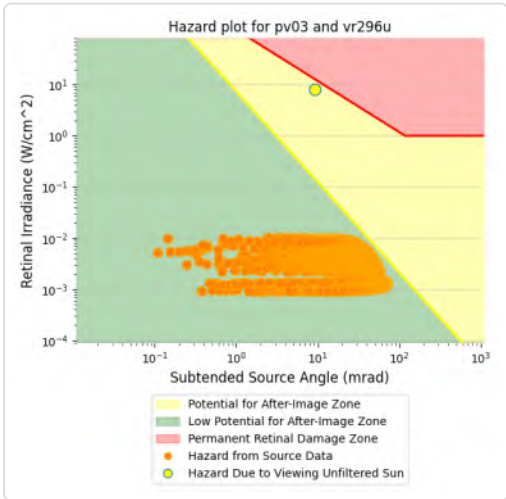
PV03 and FP: VR296u

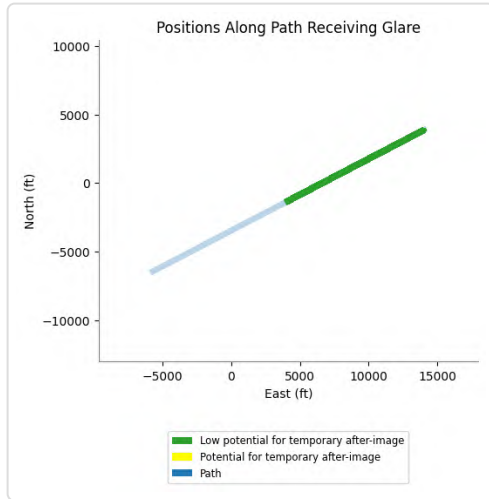
Yellow glare: none

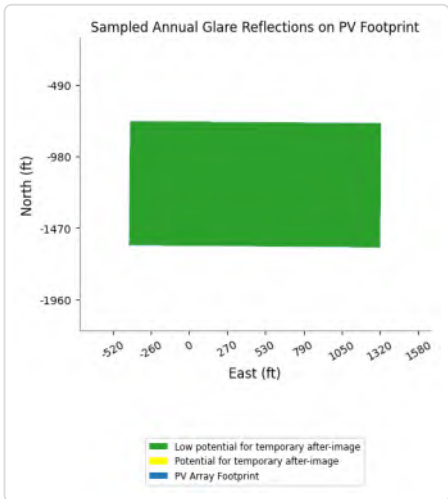
Green glare: 5,228 min.

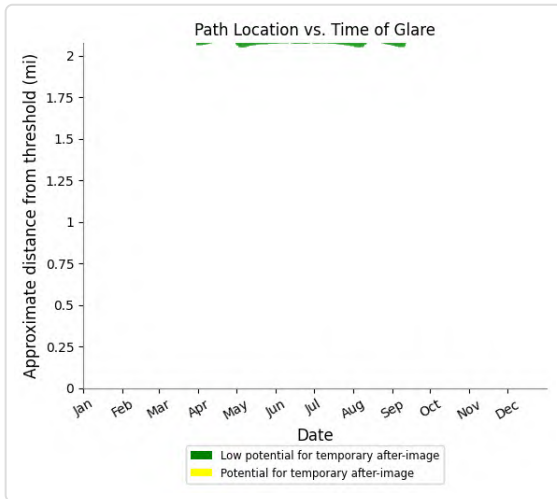












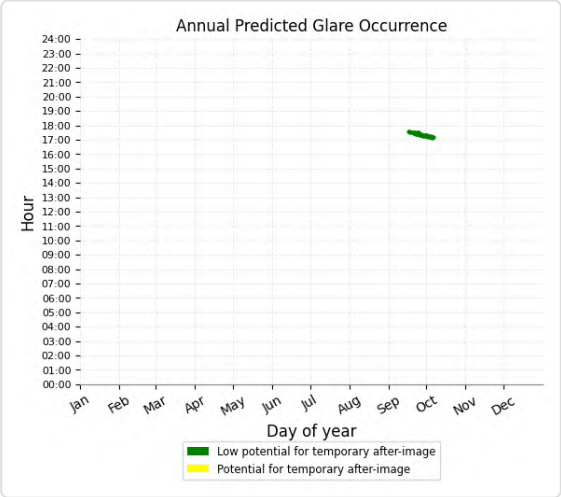
PV03 and FP: CN645

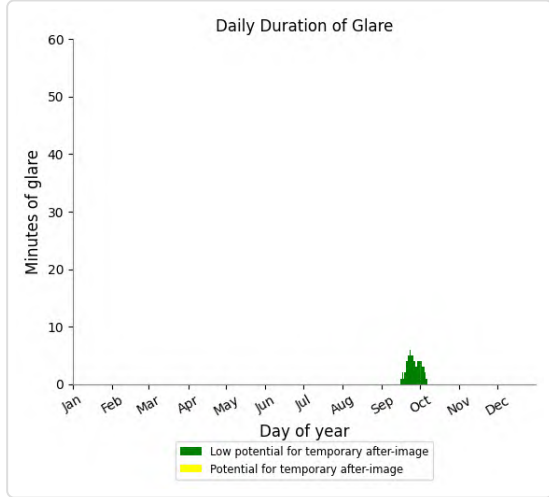
No glare found

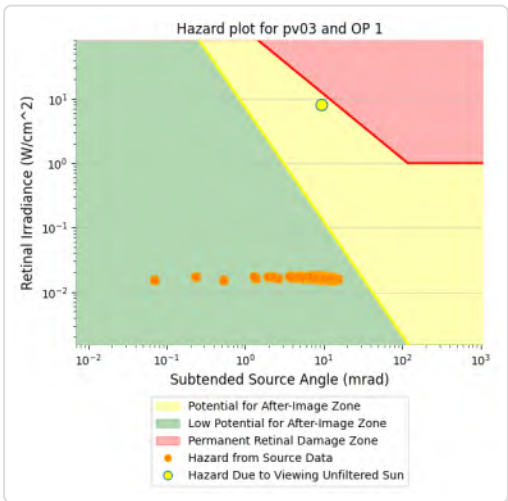
PV03 and OP 1

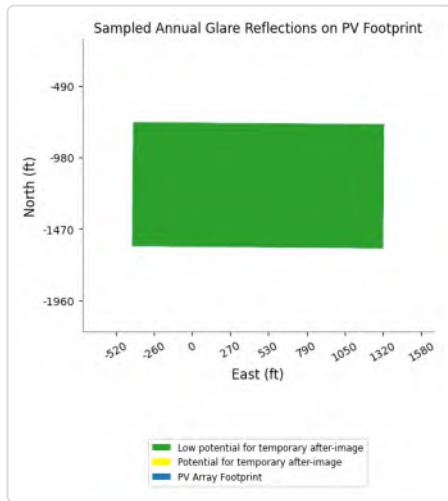
Yellow glare: none

Green glare: 71 min.



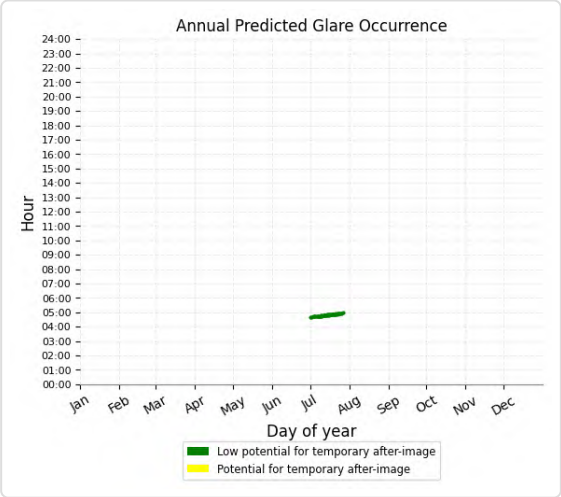


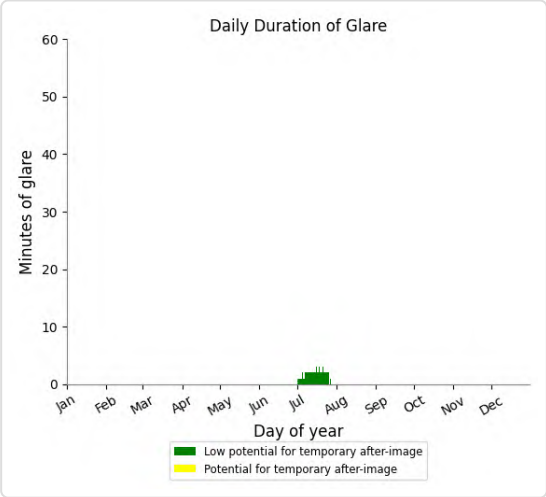


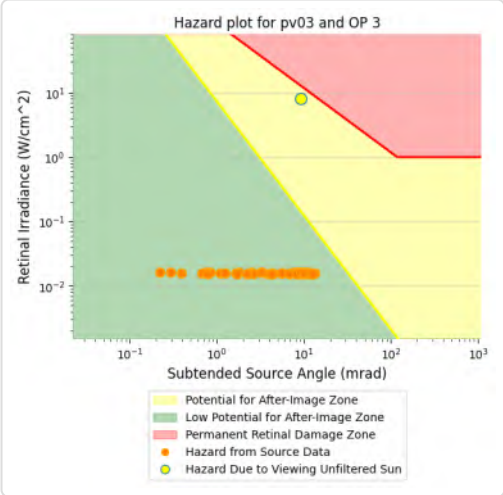


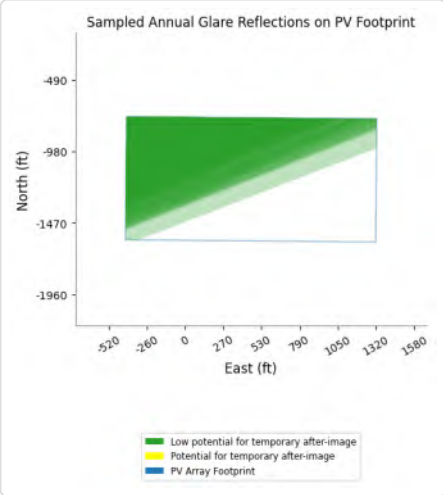
PV03 and OP 3

Yellow glare: none
Green glare: 49 min.









PV03 and OP 2

No glare found

PV03 and OP 4

No glare found

PV03 and OP 5

No glare found

PV03 and OP 6

No glare found

PV03 and OP 7

No glare found

PV03 and OP 8

No glare found

PV03 and OP 9

No glare found

PV03 and OP 10

No glare found

PV03 and OP 11

No glare found

PV03 and OP 12

No glare found

PV03 and OP 13

No glare found

PV03 and OP 14

No glare found

PV03 and OP 15

No glare found

PV03 and OP 16

No glare found

PV03 and OP 17

No glare found

PV03 and OP 18

No glare found

PV03 and OP 19

No glare found

PV: PV04 potential temporary after-image

Receptor results ordered by category of glare

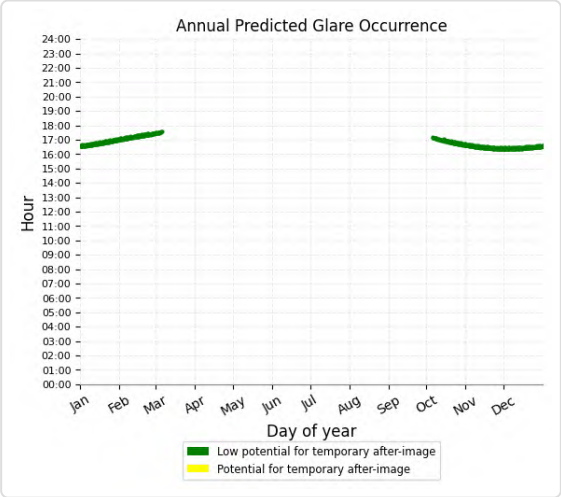
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
SR177 A	849	14.2	0	0.0
SR177 B	362	6.0	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	36,830	613.8	5,011	83.5
VR289l	14,971	249.5	882	14.7
VR296l	5,278	88.0	4,239	70.7
VR296m	6,787	113.1	2	0.0
CN6423	949	15.8	0	0.0
IR217m	6,526	108.8	0	0.0
IR217u	3,857	64.3	0	0.0
IR218l	706	11.8	0	0.0
IR218m	1,640	27.3	0	0.0
IR218u	2,087	34.8	0	0.0
IR255l	2,405	40.1	0	0.0
IR255m	10,031	167.2	0	0.0
IR255u	3,302	55.0	0	0.0
VR289m	8,507	141.8	0	0.0
VR289u	7,308	121.8	0	0.0
VR296u	3,480	58.0	0	0.0
CN645	0	0.0	0	0.0
OP 1	44	0.7	0	0.0
OP 2	0	0.0	0	0.0

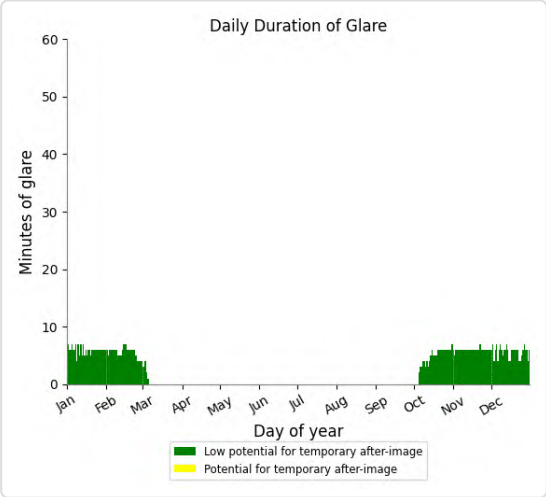
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

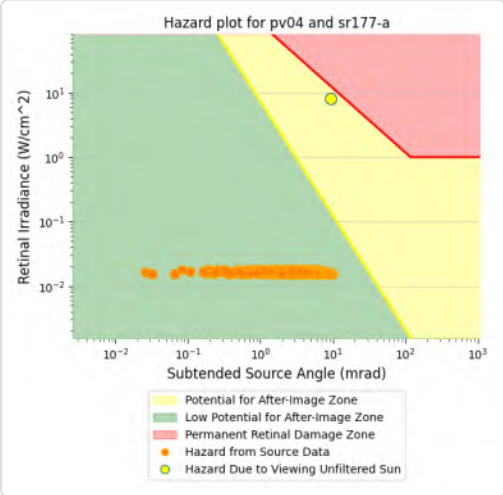
PV04 and Route: SR177 A

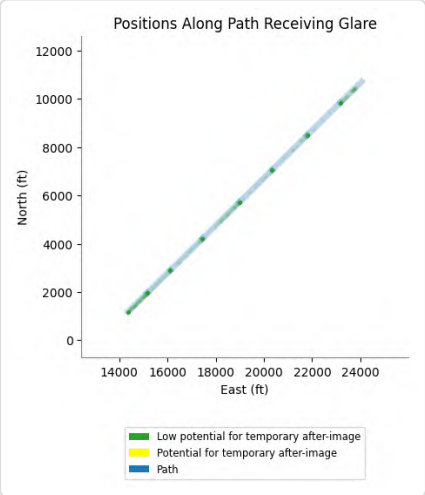
Yellow glare: none

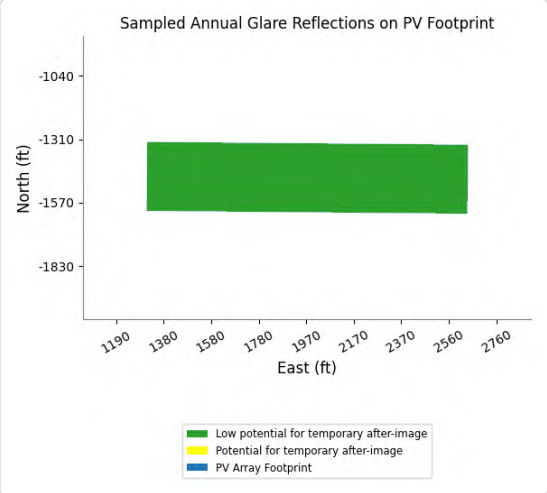
Green glare: 849 min.







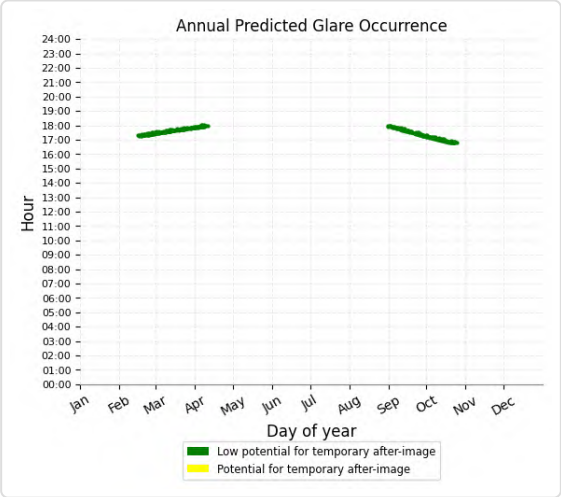


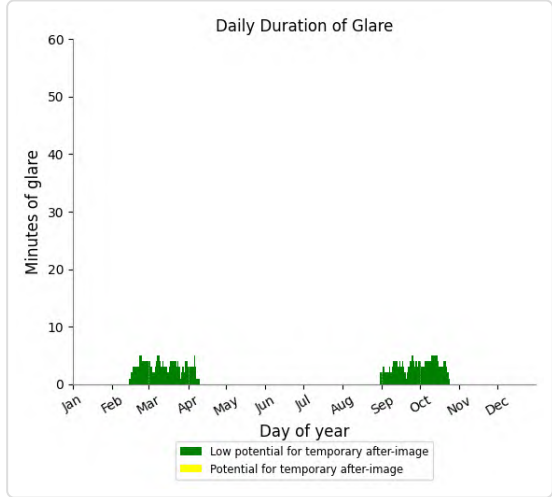


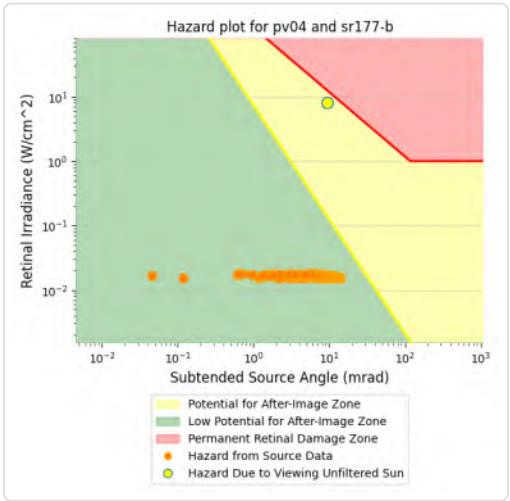
PV04 and Route: SR177 B

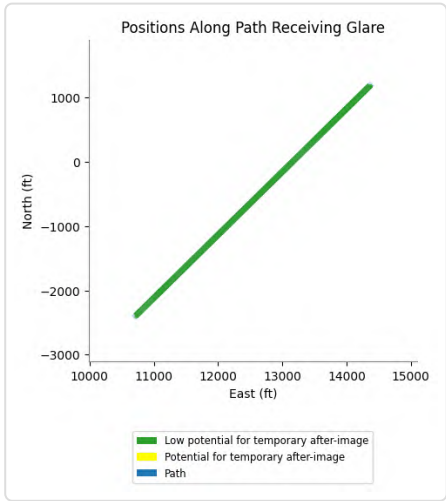
Yellow glare: none

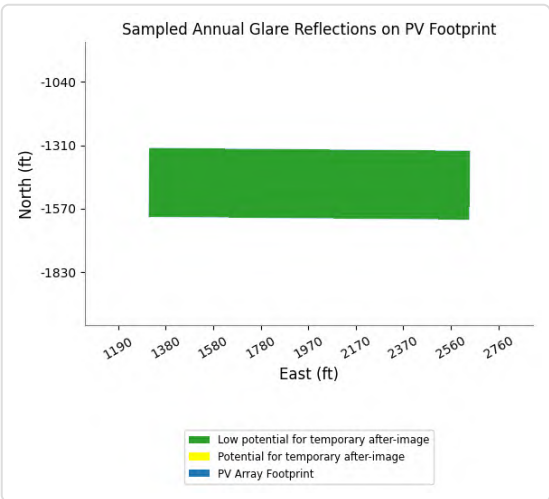
Green glare: 362 min.











PV04 and Route: AirportRd A

No glare found

PV04 and Route: AirportRd B

No glare found

PV04 and Route: EagleMtnRd A

No glare found

PV04 and Route: EagleMtnRd B

No glare found

PV04 and Route: I-10 EB A

No glare found

PV04 and Route: I-10 EB B

No glare found

PV04 and Route: I-10 EB C

No glare found

PV04 and Route: I-10 WB A

No glare found

PV04 and Route: I-10 WB B

No glare found

PV04 and Route: I-10 WB C

No glare found

PV04 and Route: KaiserRd A

No glare found

PV04 and Route: KaiserRd B

No glare found

PV04 and Route: KaiserRd C

No glare found

PV04 and Route: OasisRd

No glare found

PV04 and Route: Race Track

No glare found

PV04 and Route: SR177 C

No glare found

PV04 and Route: SR177 D

No glare found

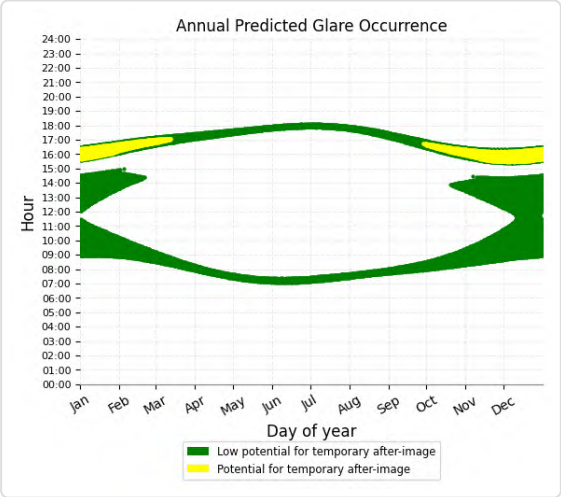
PV04 and Route: SR177 E

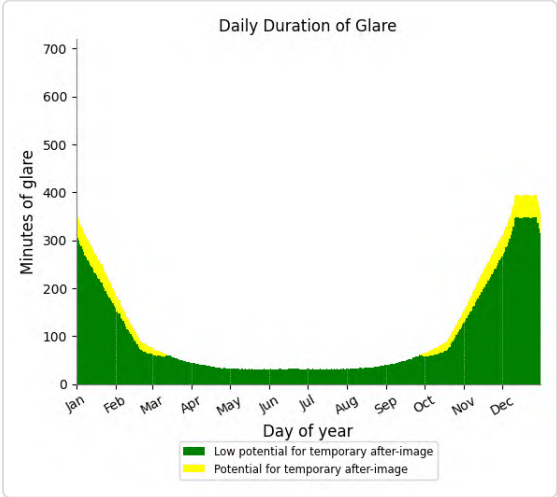
No glare found

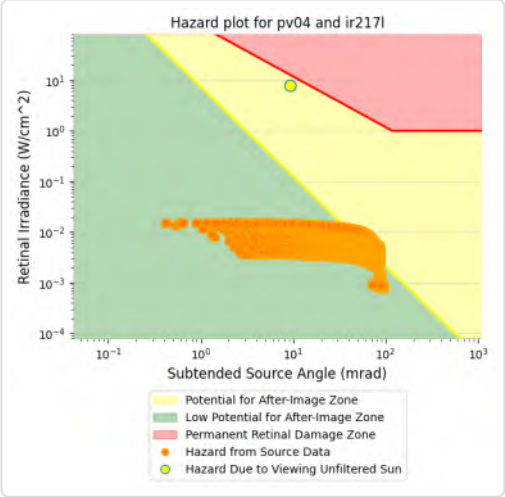
PV04 and FP: IR217l

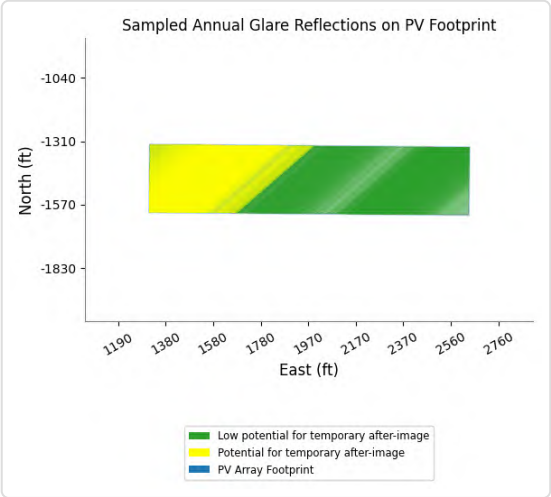
Yellow glare: 5,011 min.

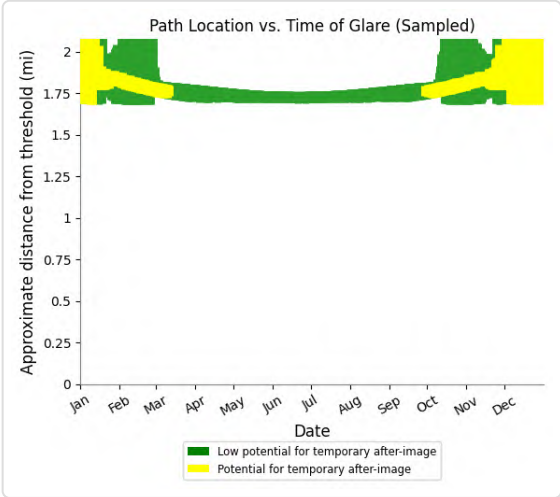
Green glare: 36,830 min.







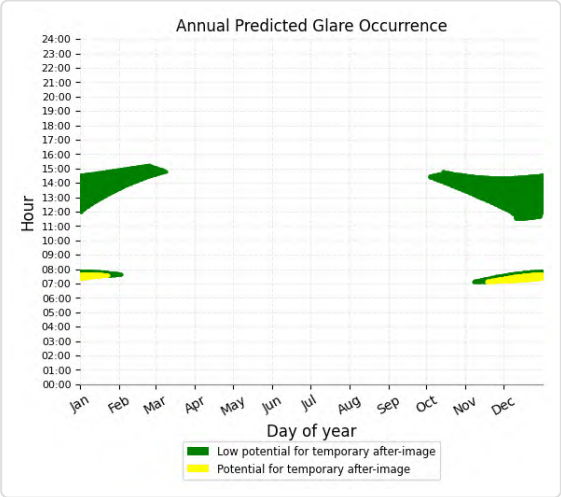


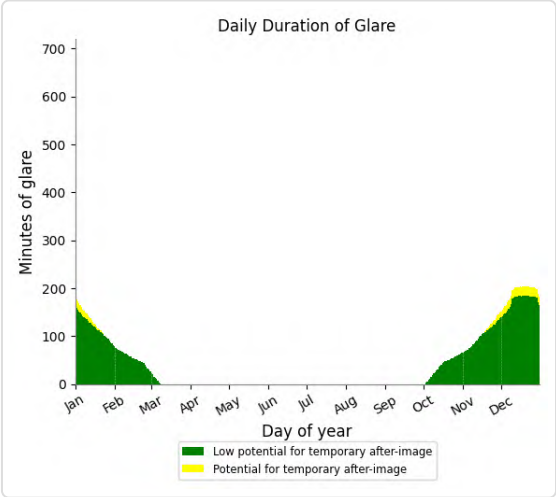


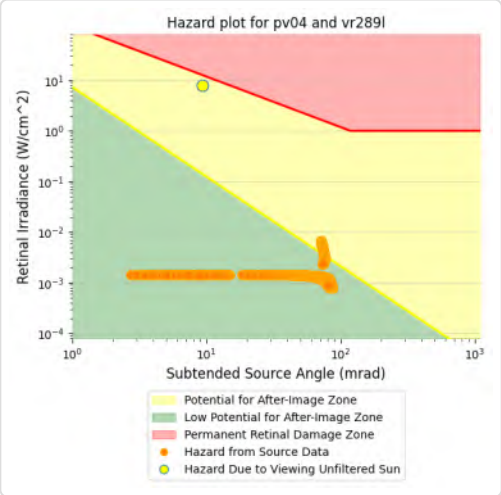
PV04 and FP: VR289I

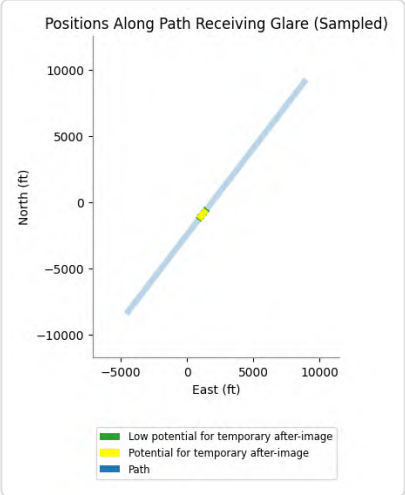
Yellow glare: 882 min.

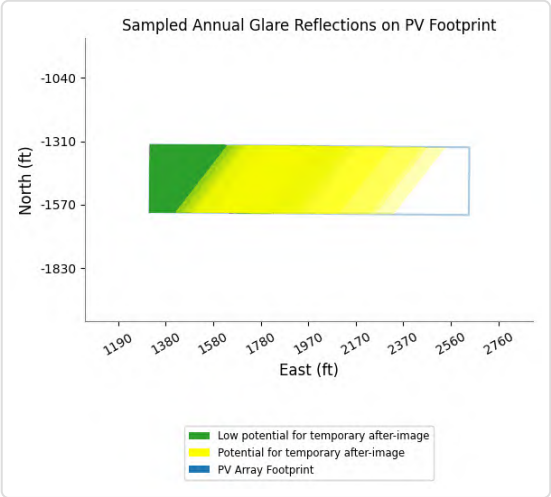
Green glare: 14,971 min.

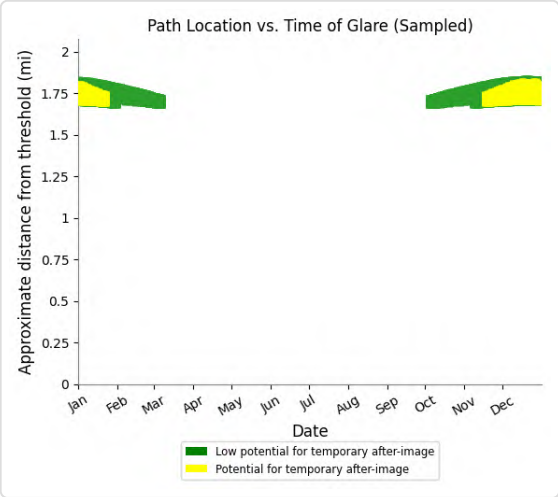








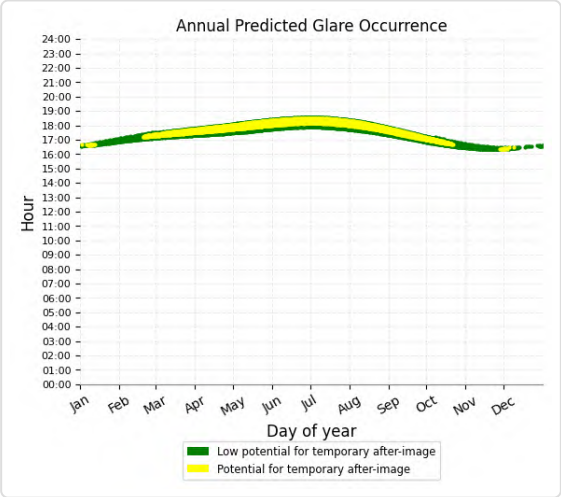


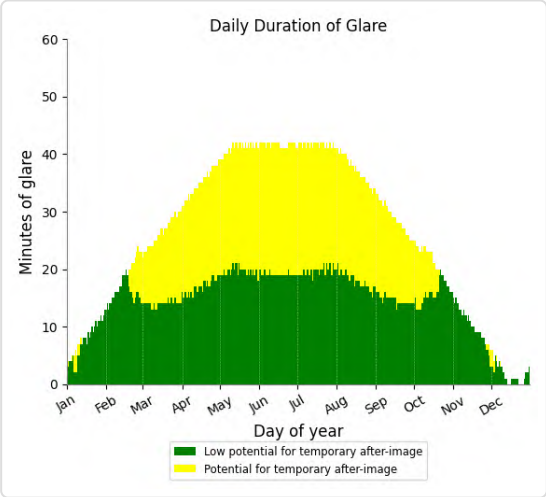


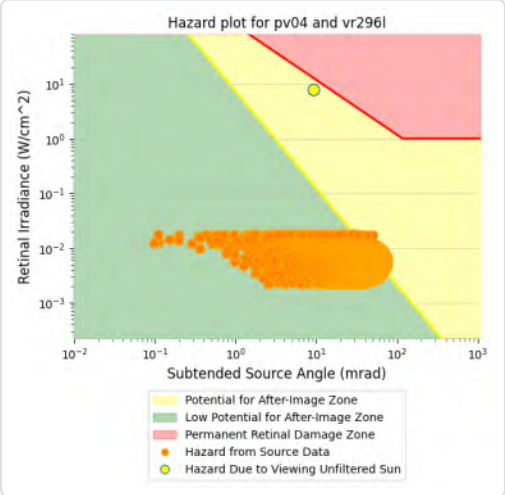
PV04 and FP: VR296I

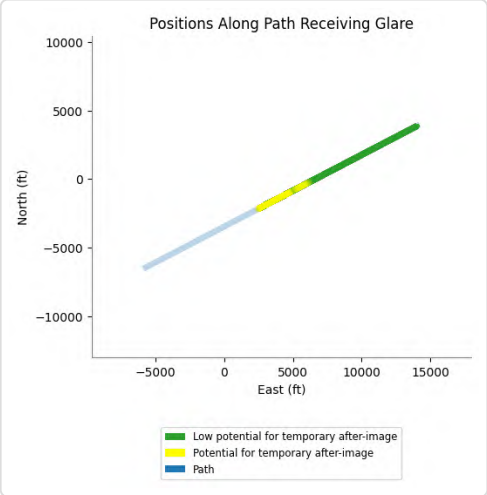
Yellow glare: 4,239 min.

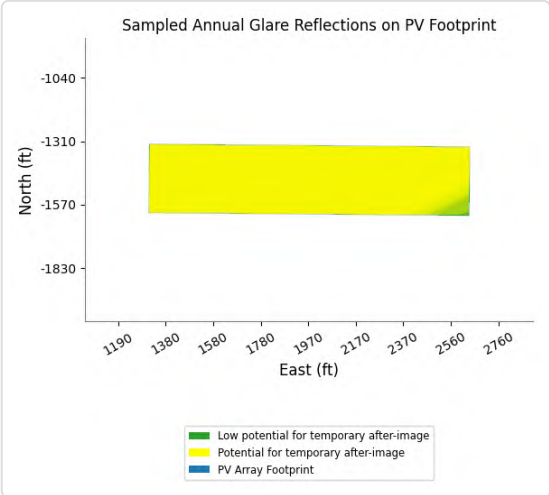
Green glare: 5,278 min.

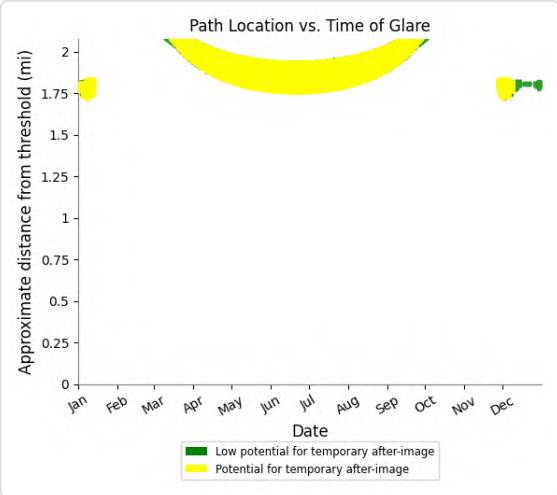








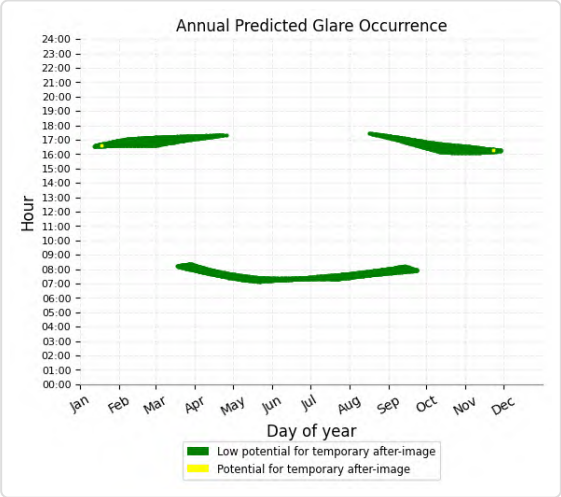


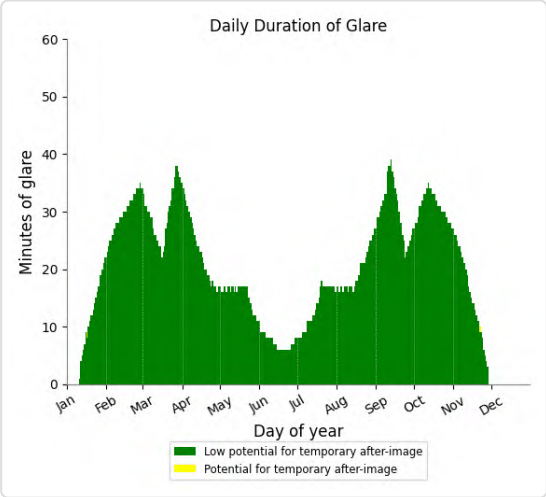


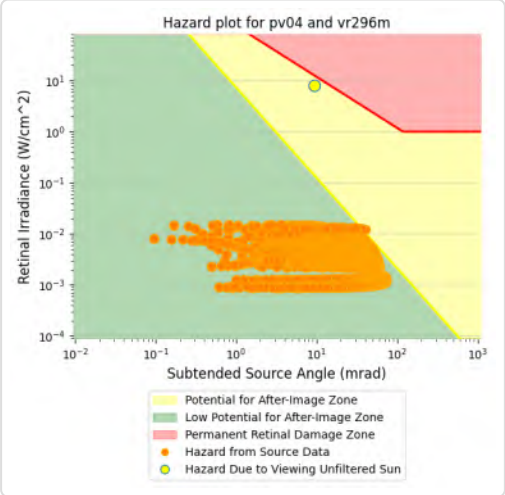
PV04 and FP: VR296m

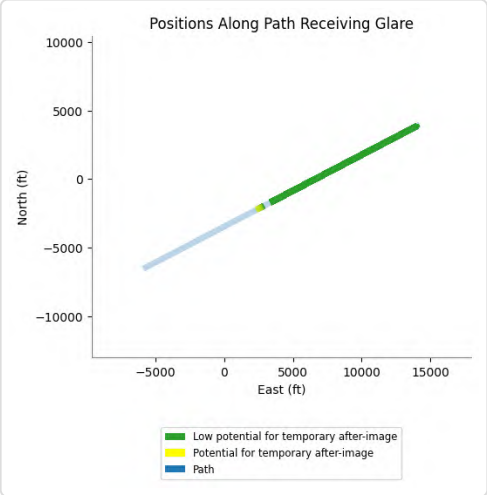
Yellow glare: 2 min.

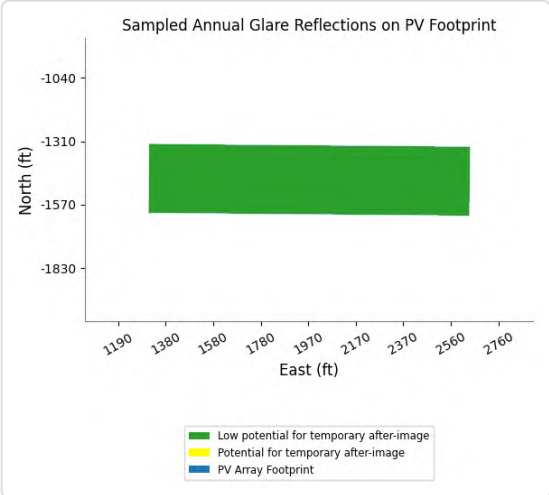
Green glare: 6,787 min.

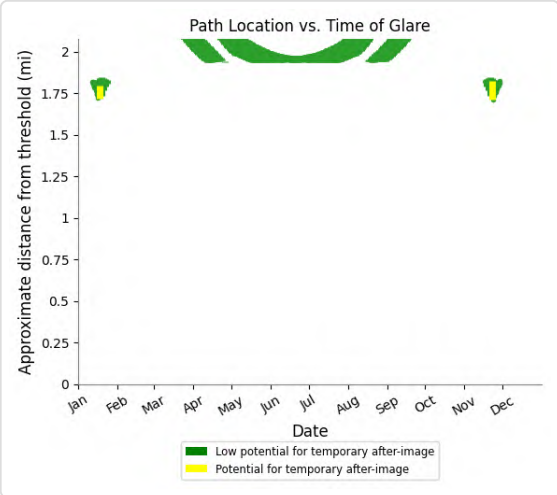








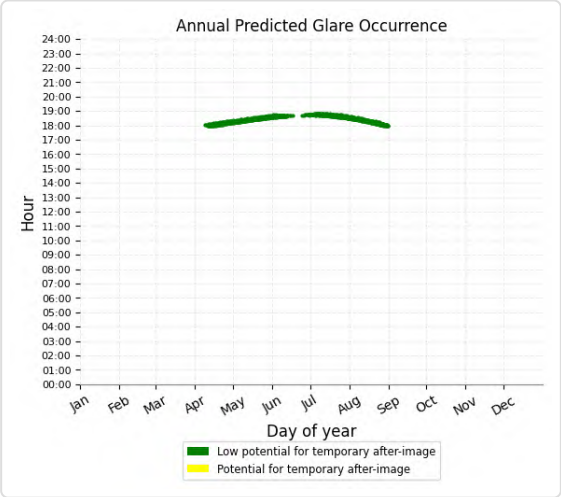


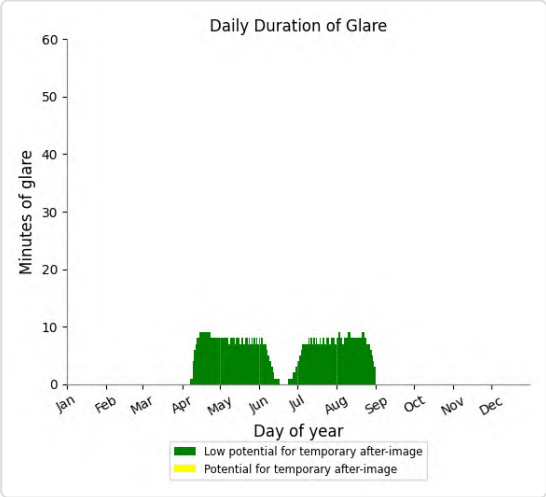


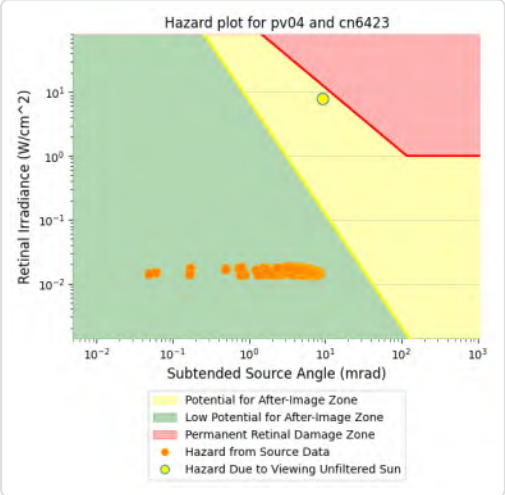
PV04 and FP: CN6423

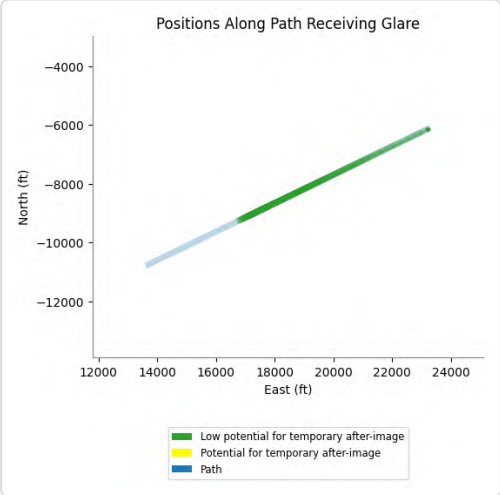
Yellow glare: none

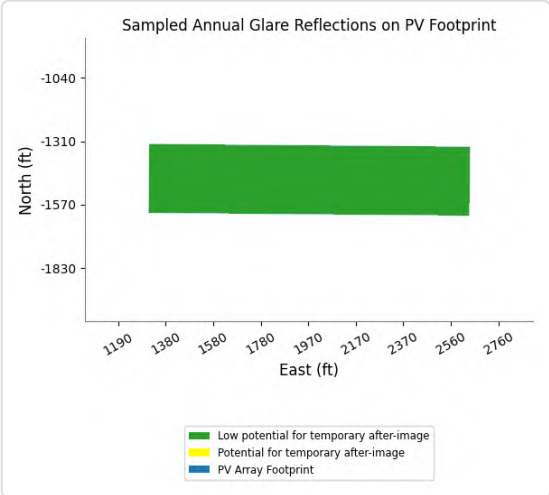
Green glare: 949 min.

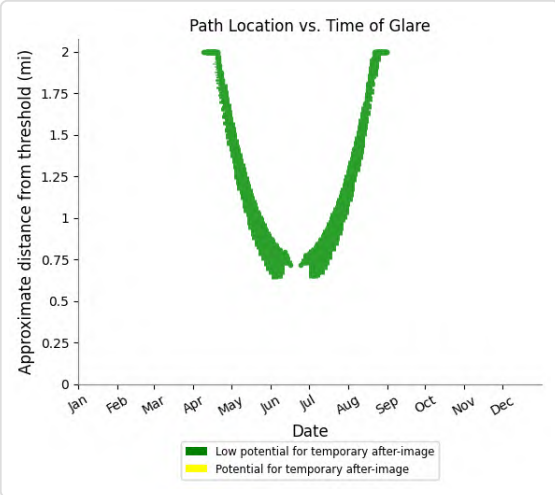








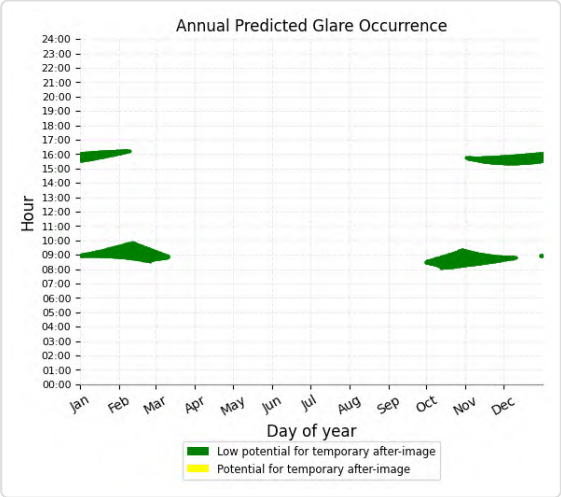


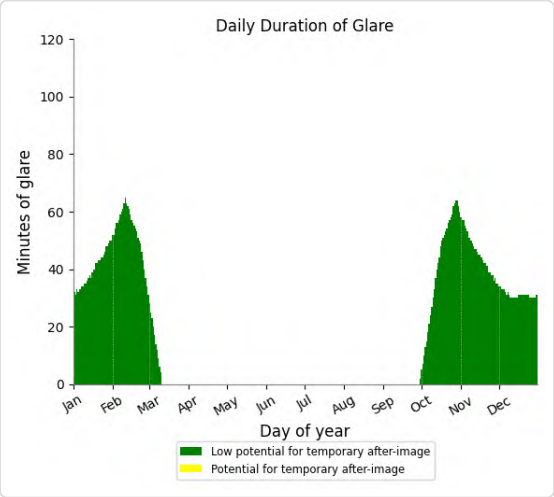


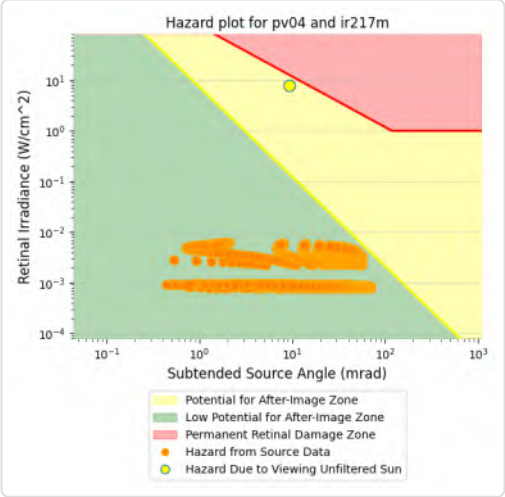
PV04 and FP: IR217m

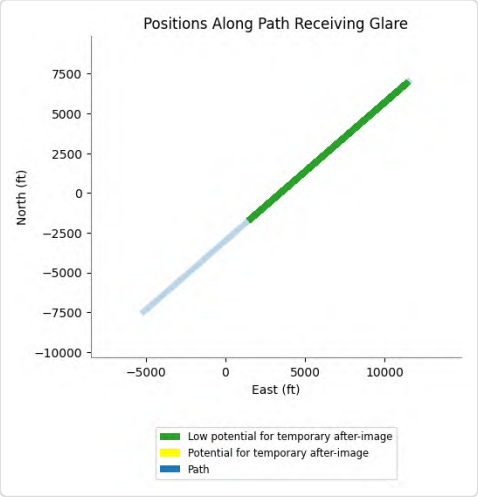
Yellow glare: none

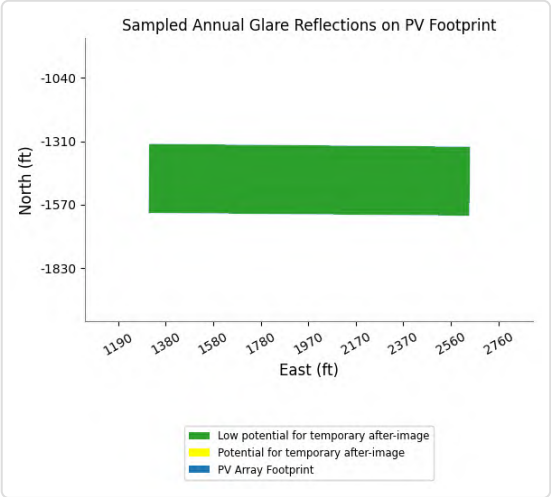
Green glare: 6,526 min.

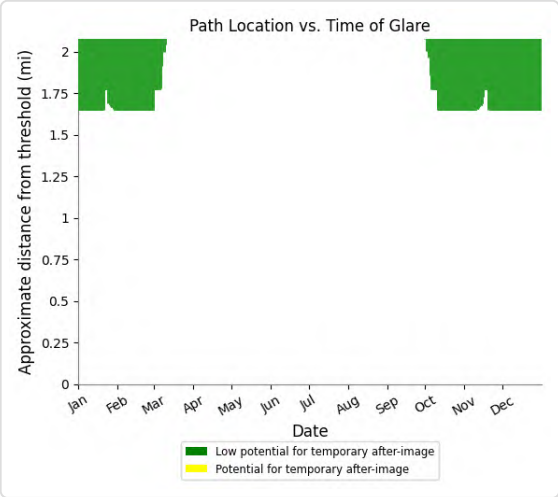








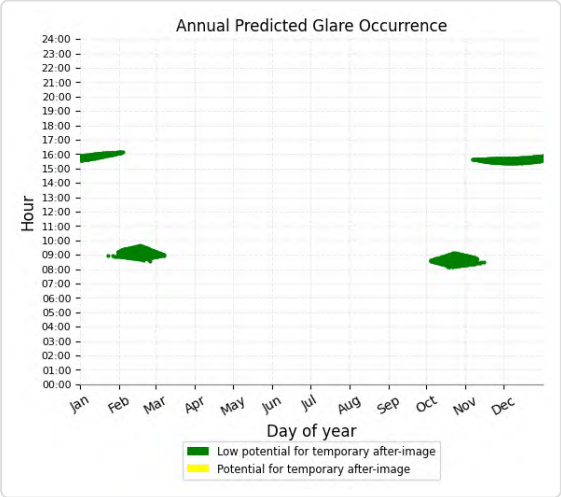


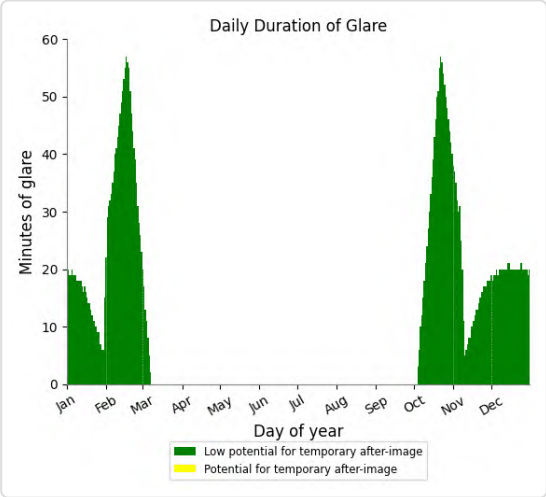


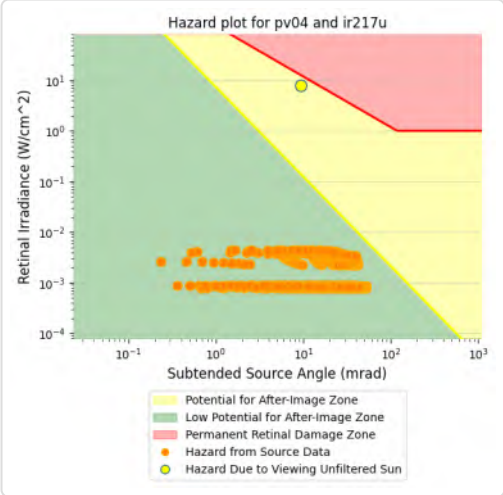
PV04 and FP: IR217u

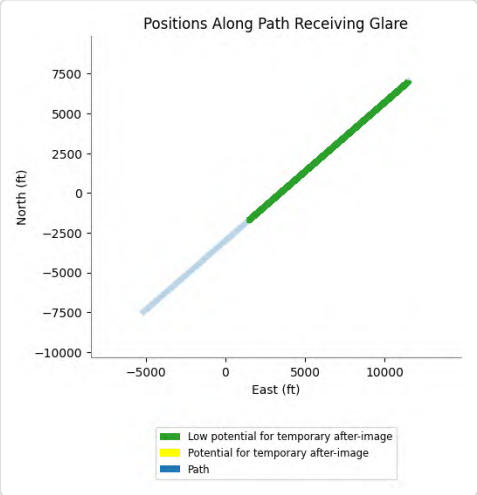
Yellow glare: none

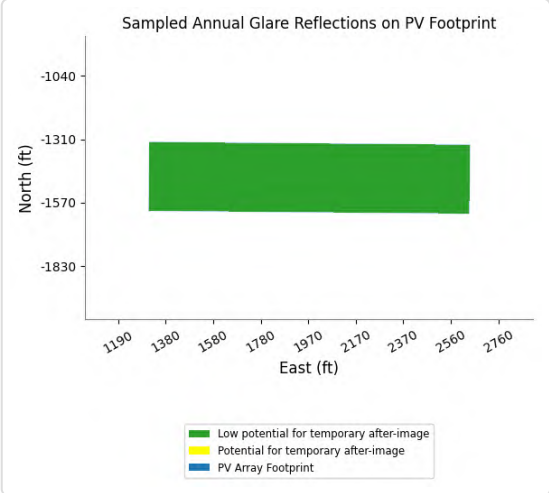
Green glare: 3,857 min.

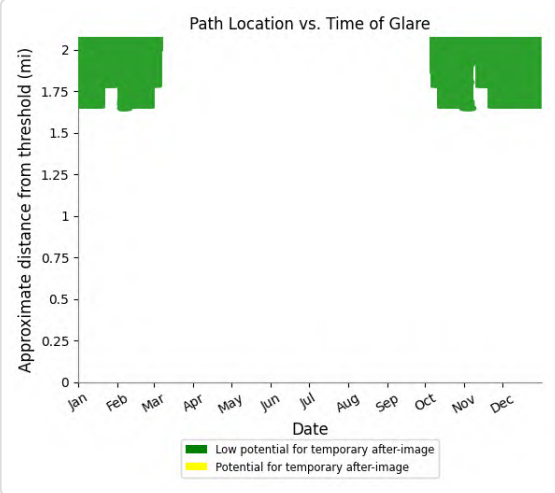








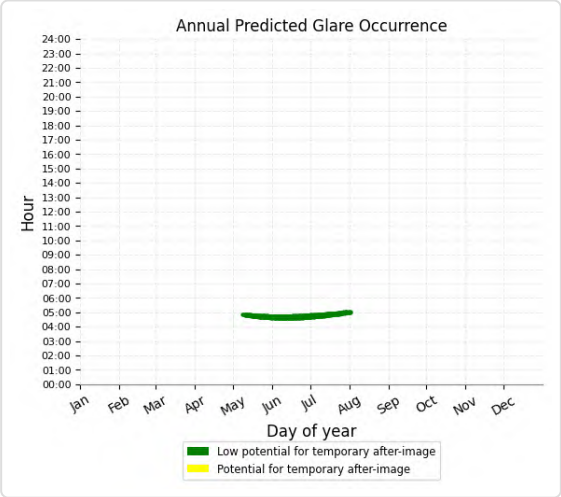


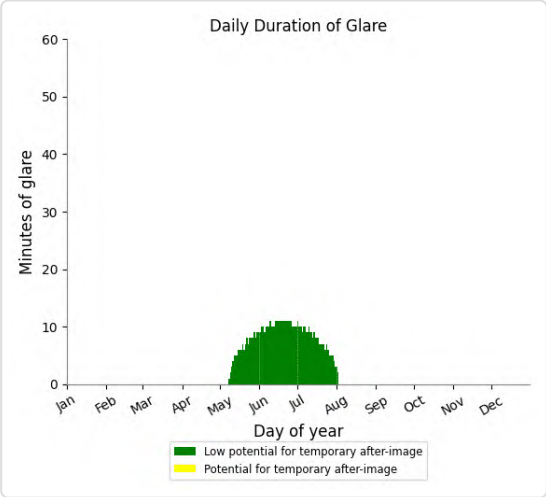


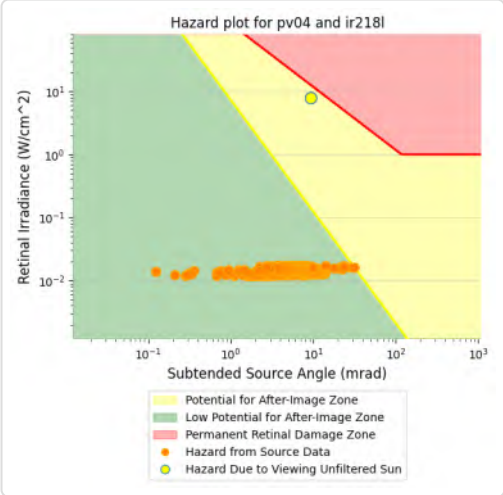
PV04 and FP: IR218l

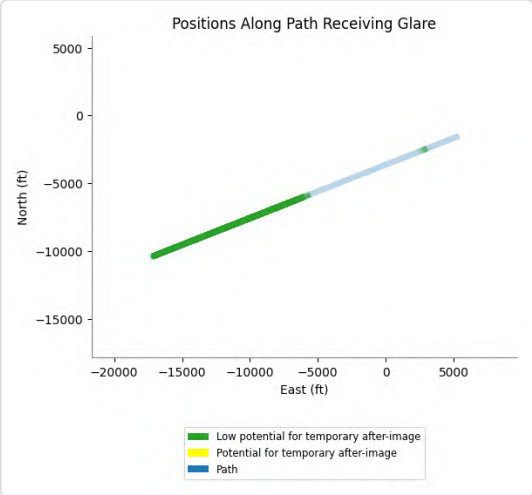
Yellow glare: none

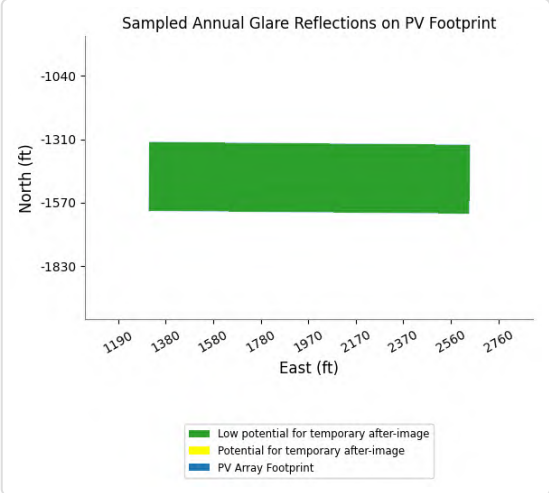
Green glare: 706 min.

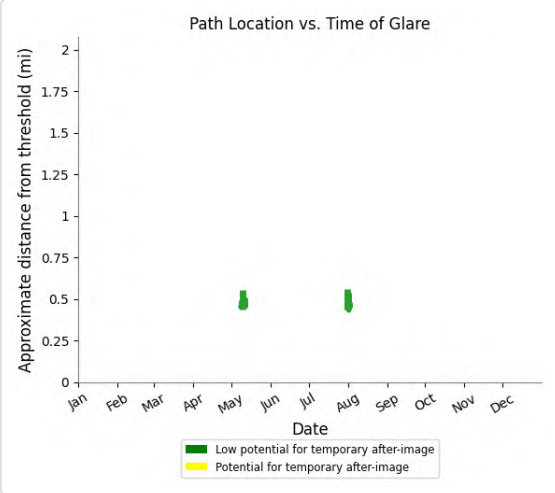








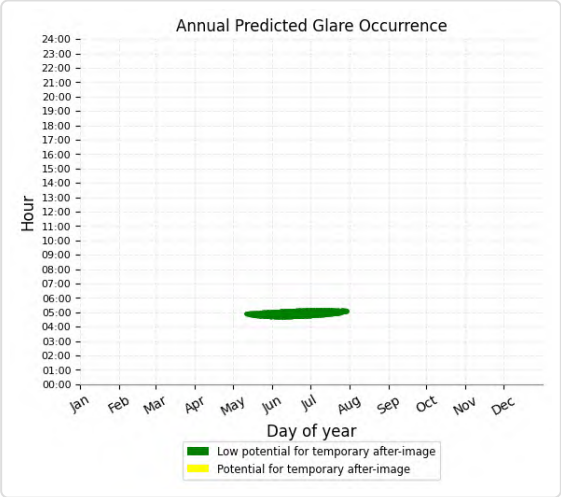


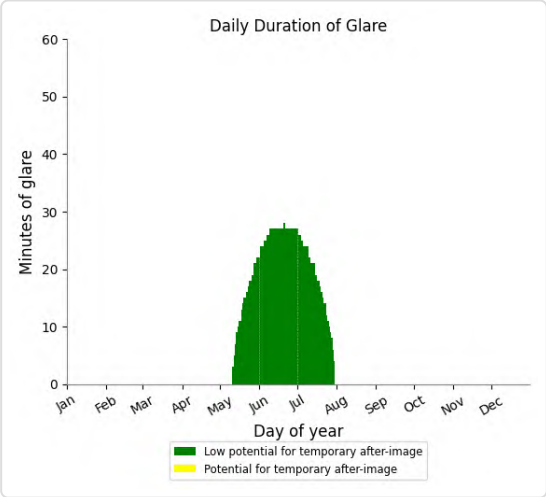


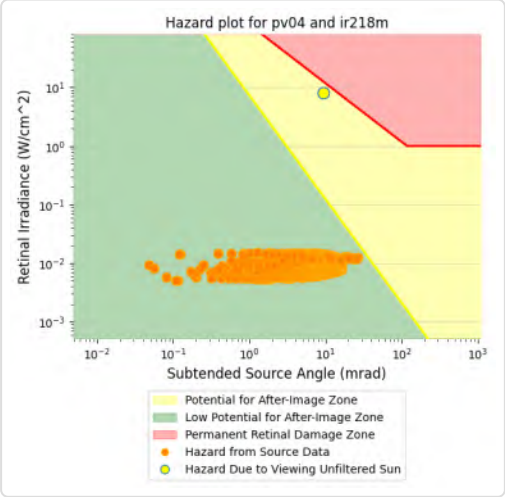
PV04 and FP: IR218m

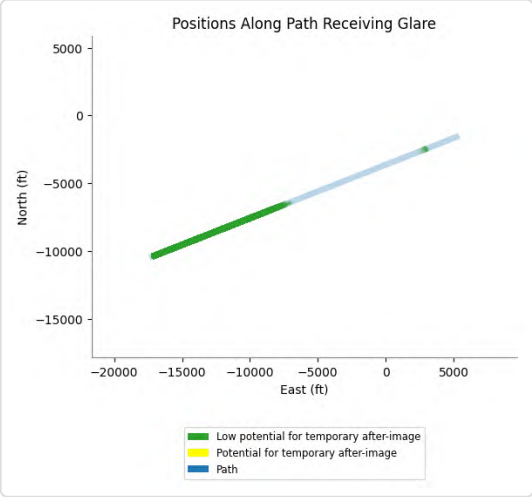
Yellow glare: none

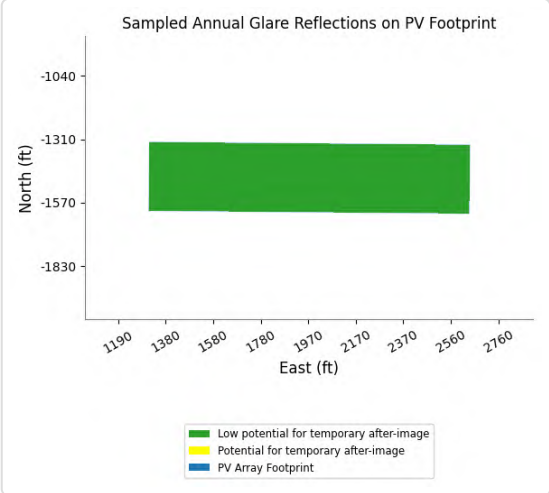
Green glare: 1,640 min.

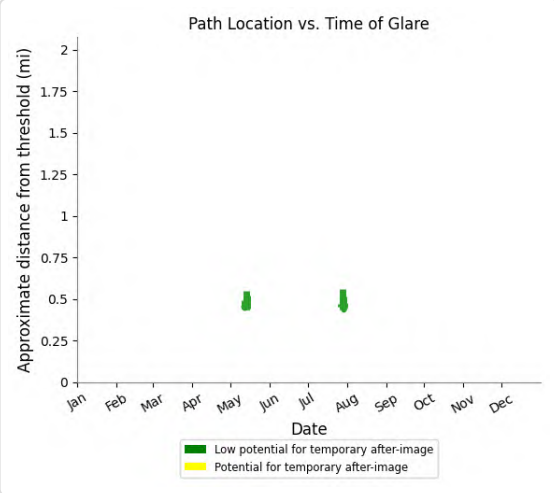








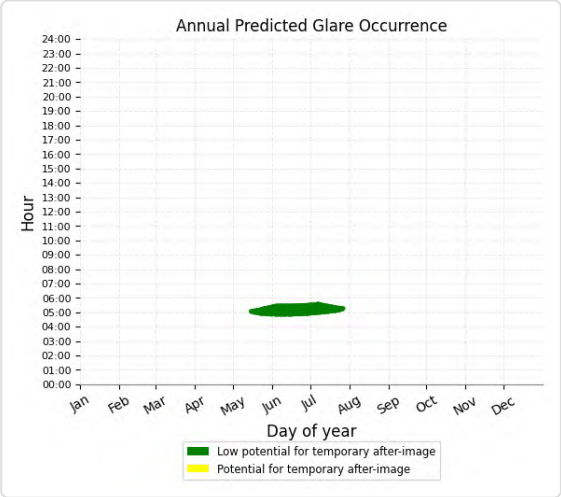


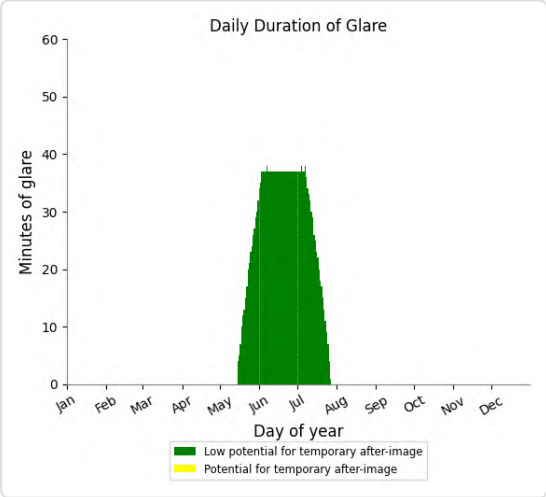


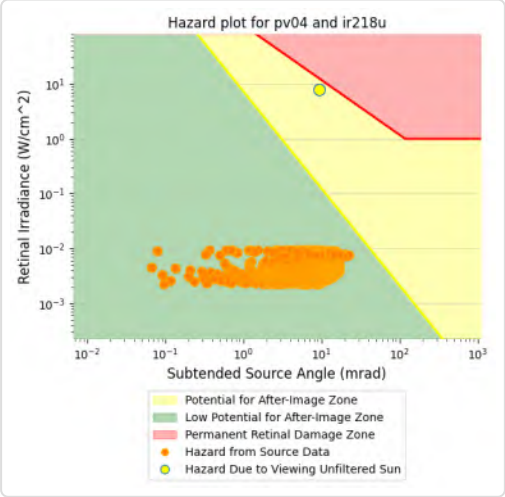
PV04 and FP: IR218u

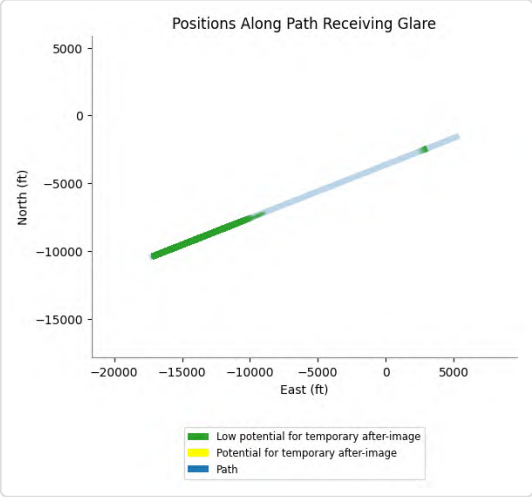
Yellow glare: none

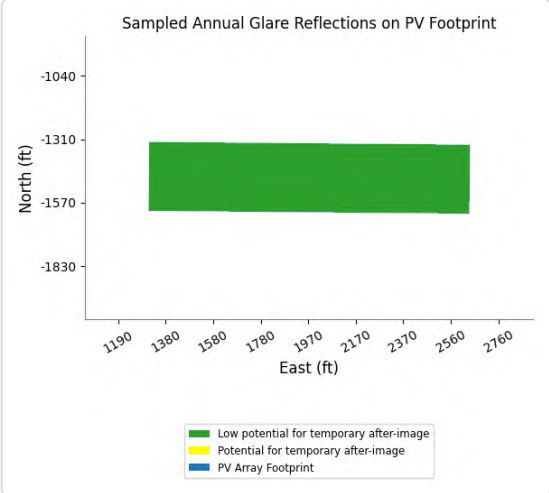
Green glare: 2,087 min.

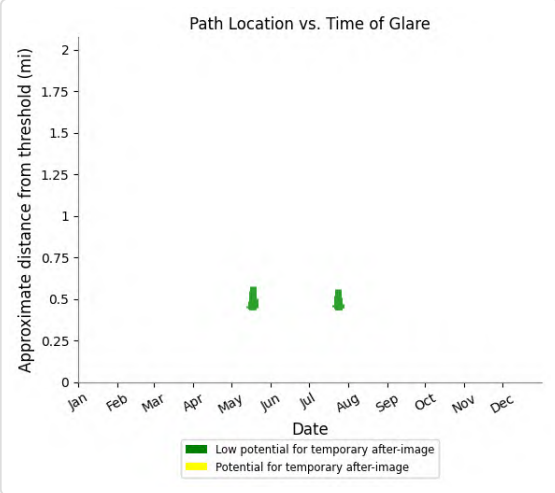








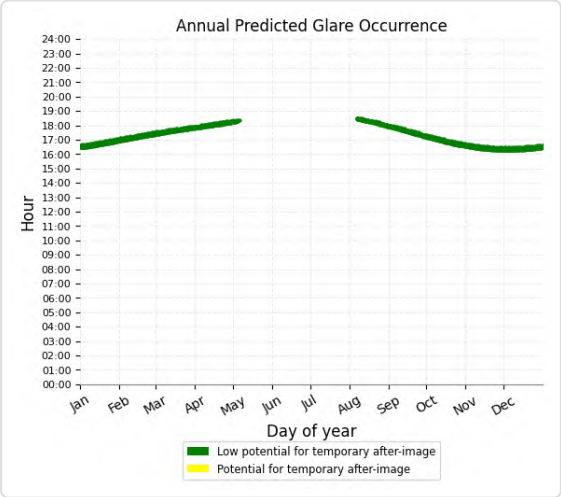


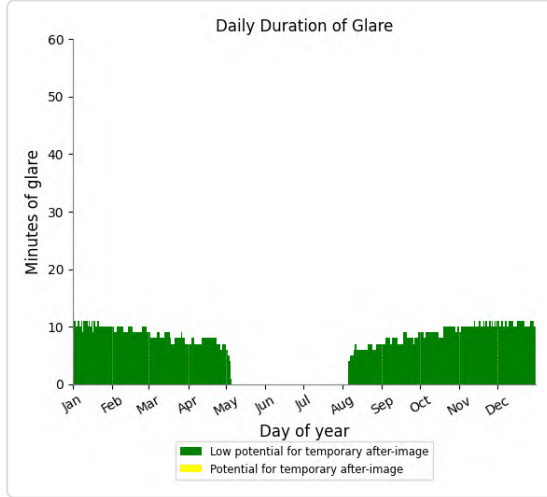


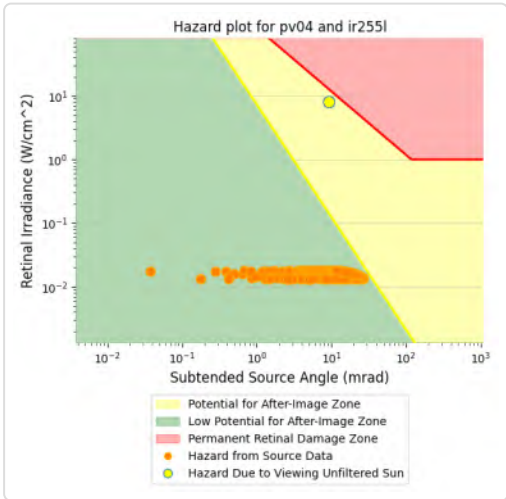
PV04 and FP: IR255I

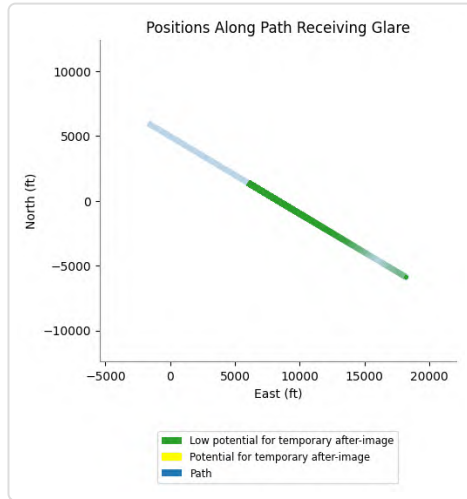
Yellow glare: none

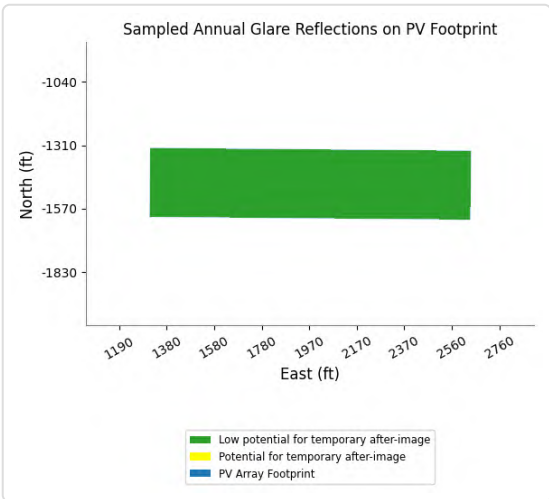
Green glare: 2,405 min.

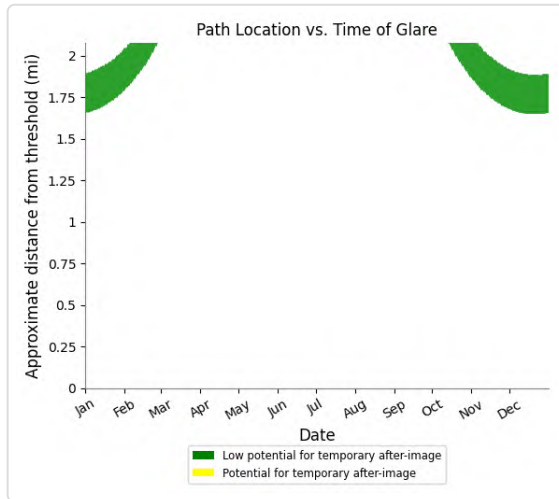








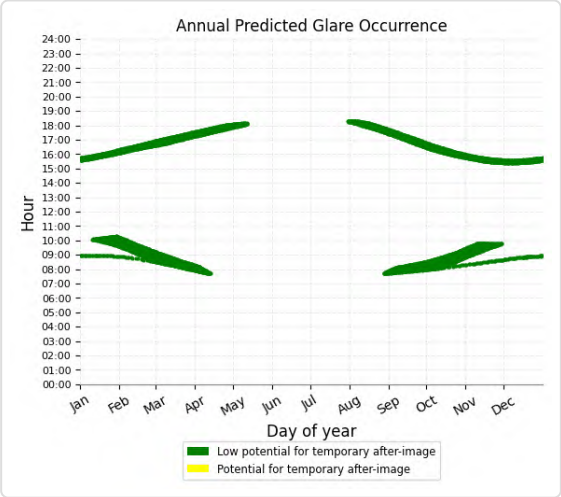


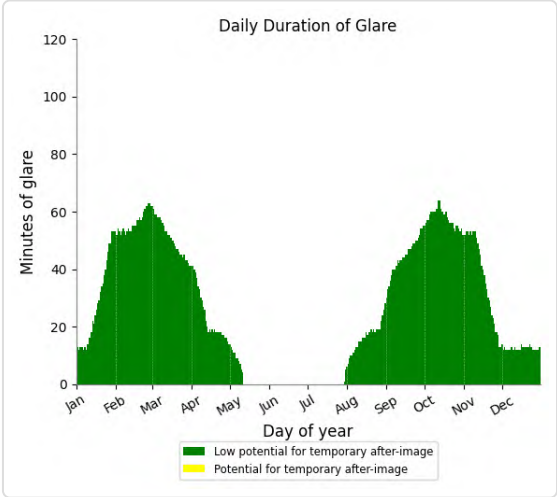


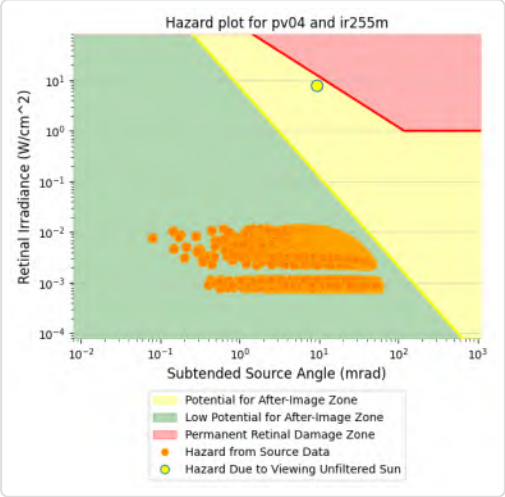
PV04 and FP: IR255m

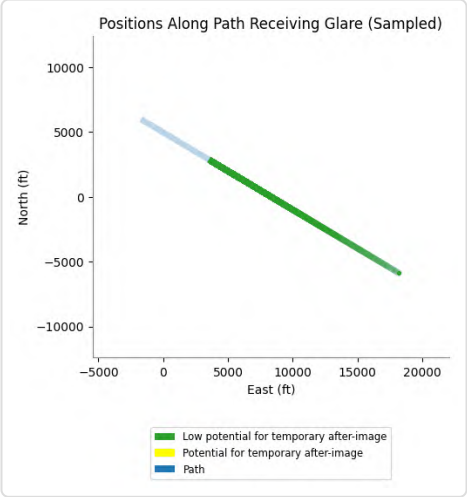
Yellow glare: none

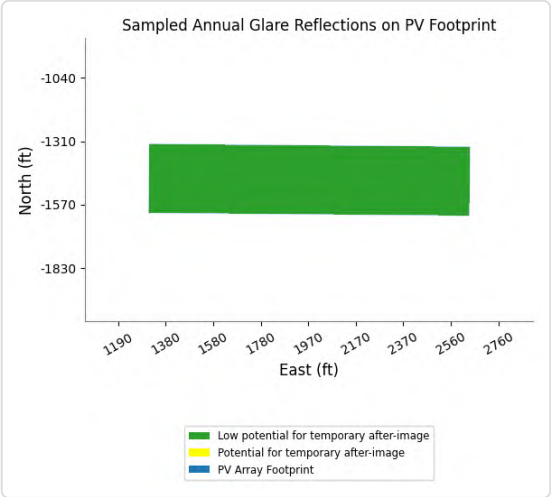
Green glare: 10,031 min.

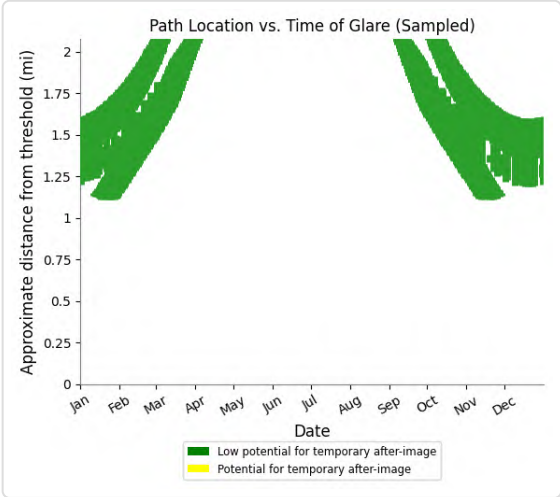








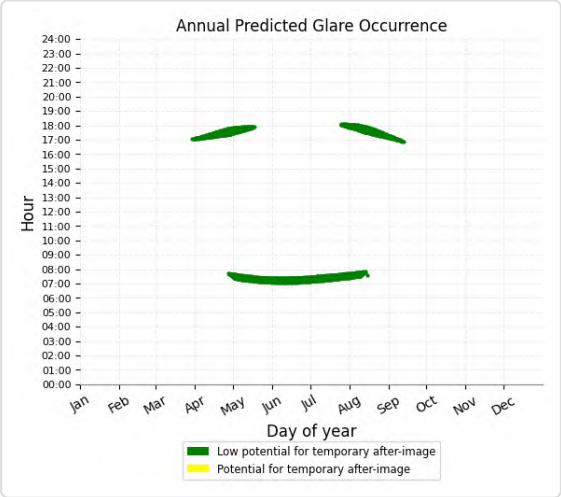


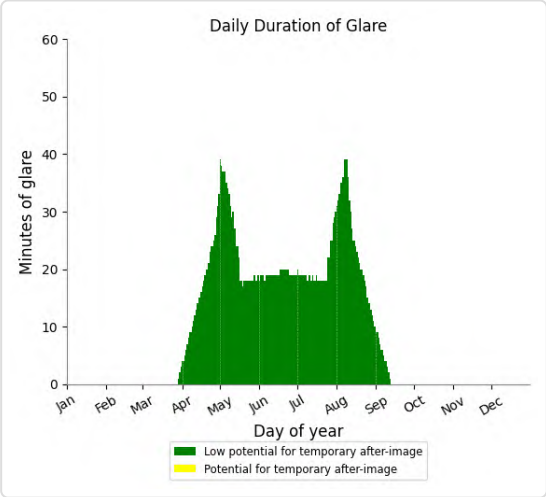


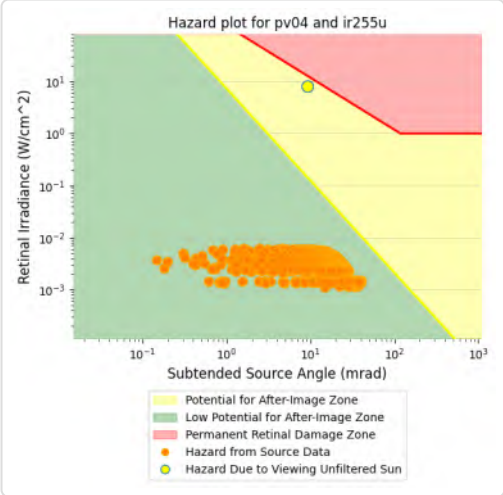
PV04 and FP: IR255u

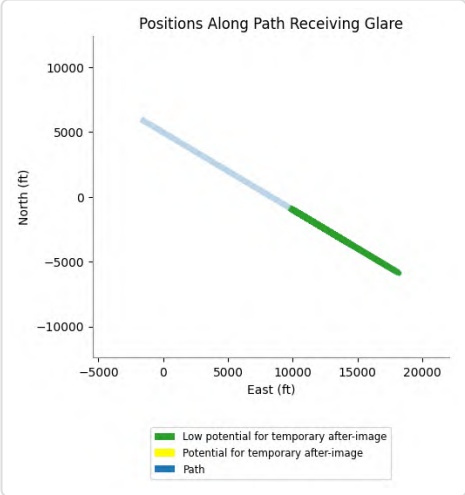
Yellow glare: none

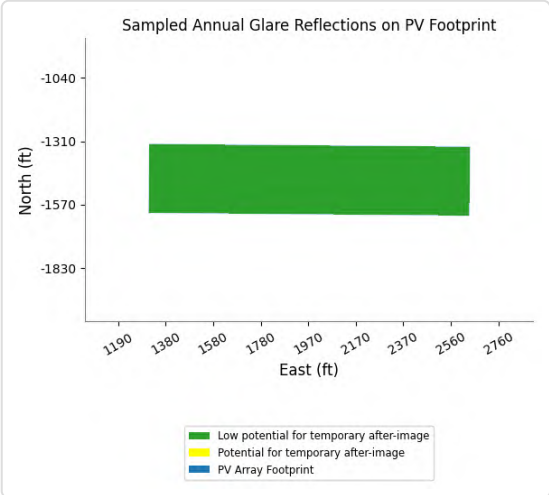
Green glare: 3,302 min.

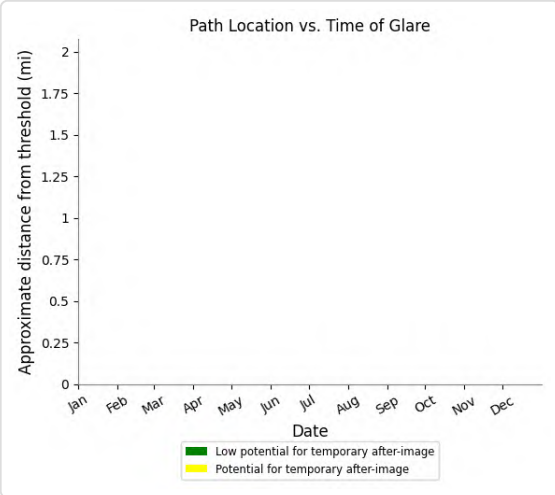








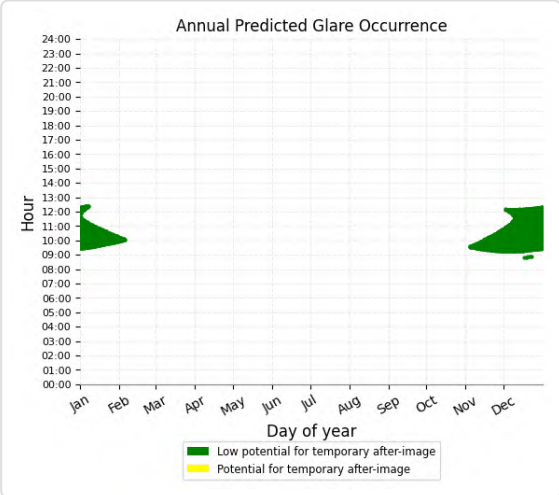


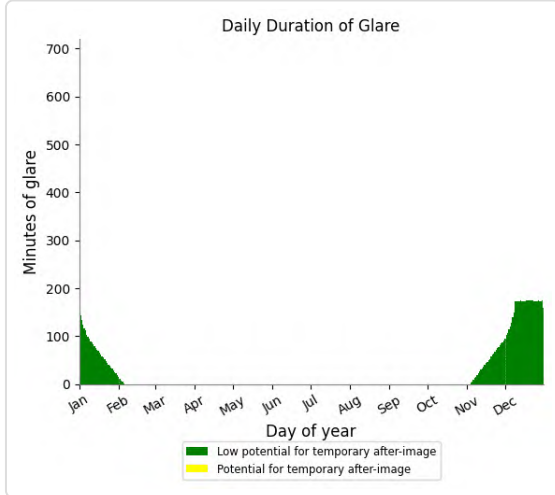


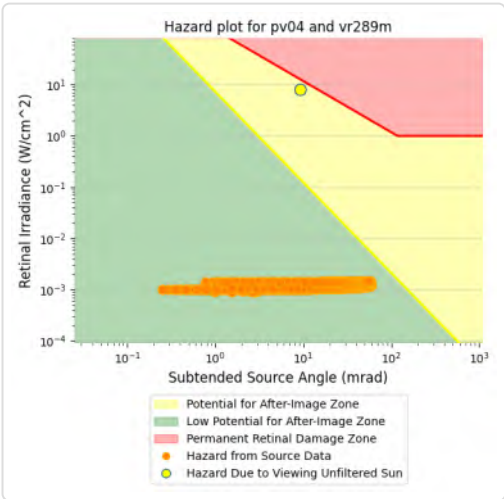
PV04 and FP: VR289m

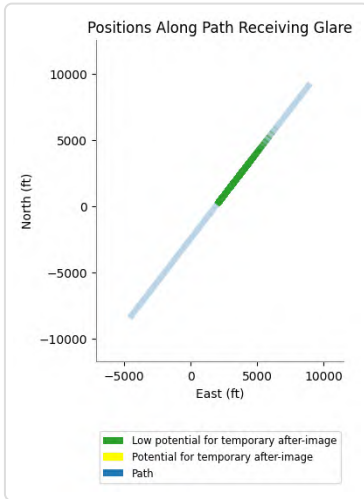
Yellow glare: none

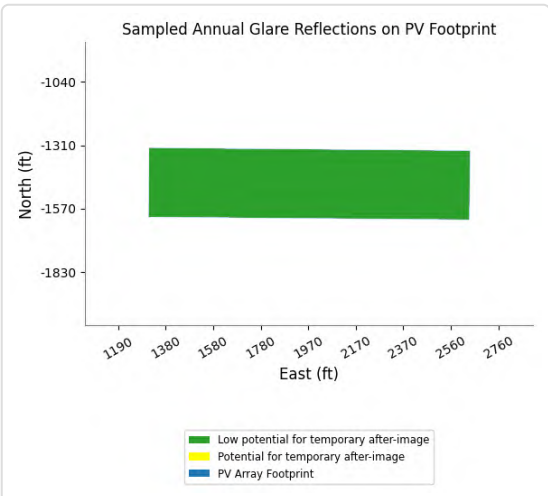
Green glare: 8,507 min.

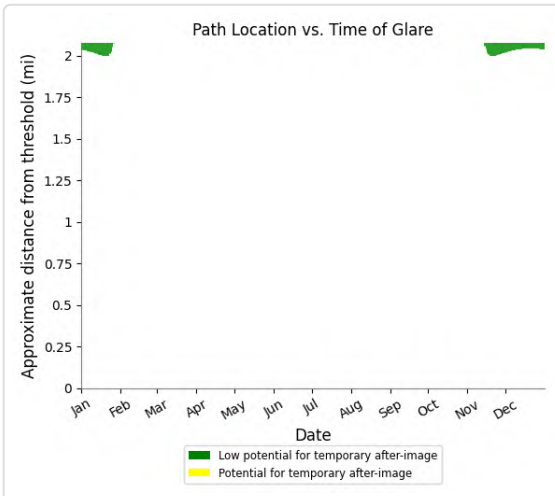








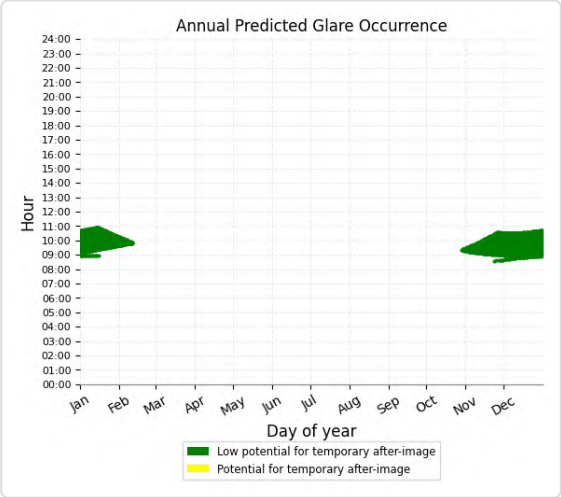


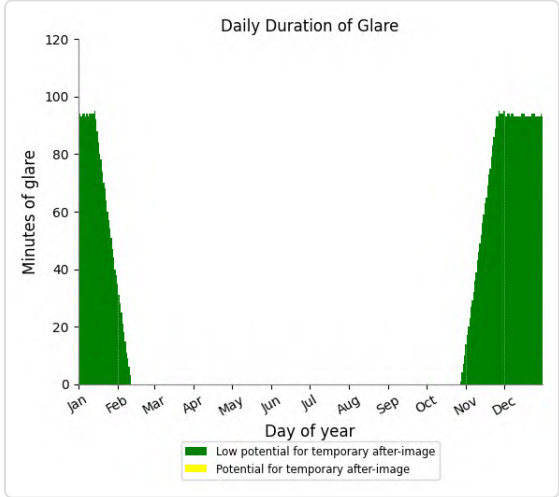


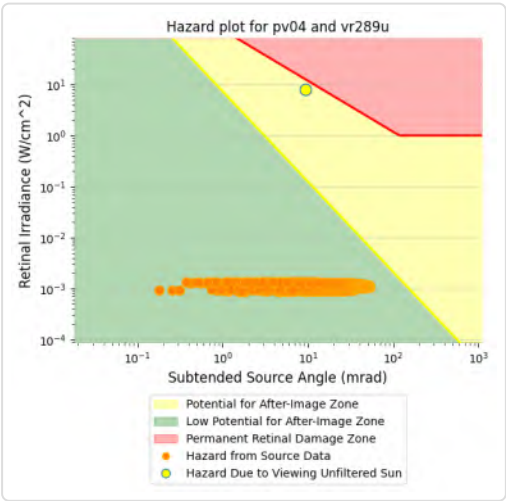
PV04 and FP: VR289u

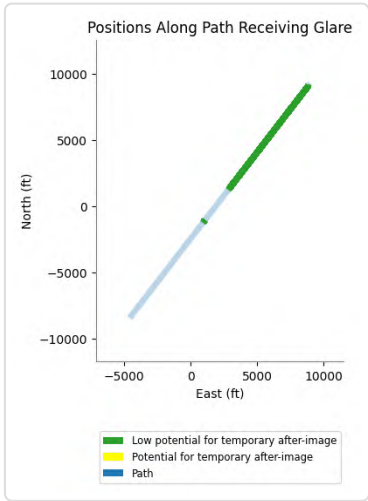
Yellow glare: none

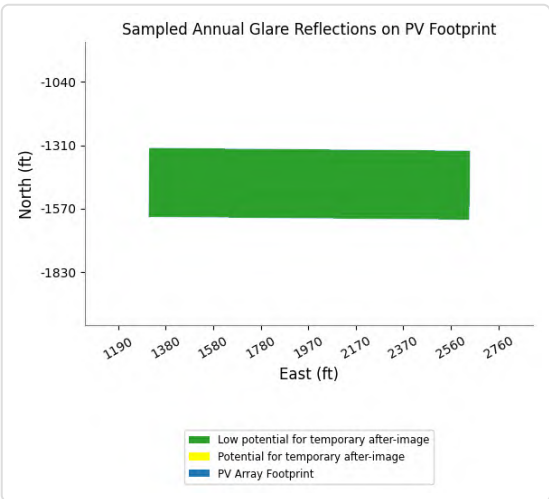
Green glare: 7,308 min.

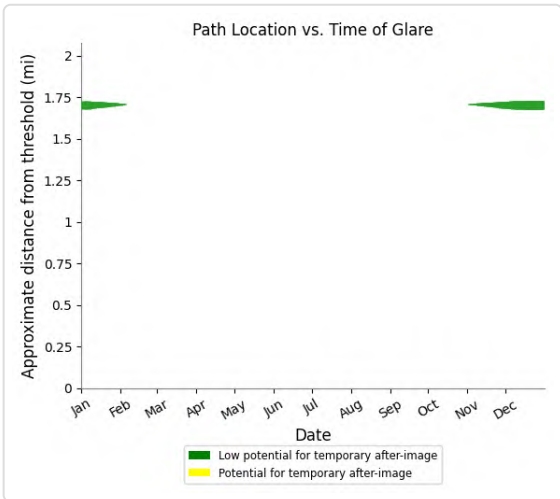








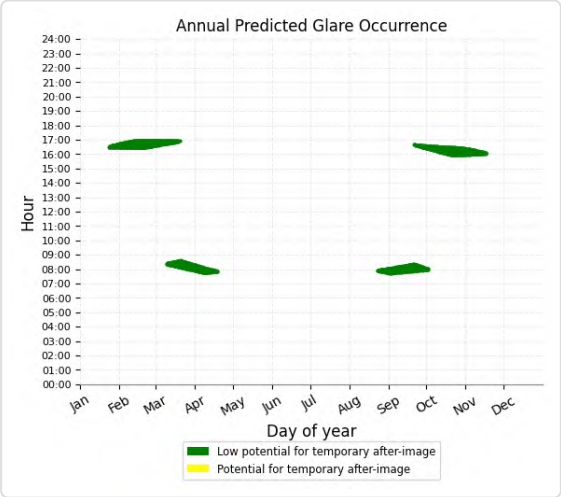


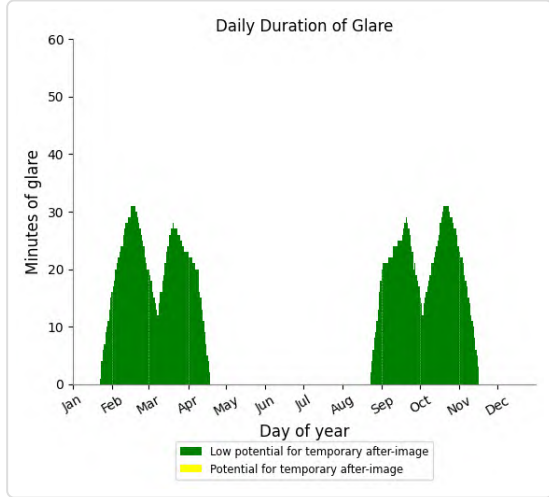


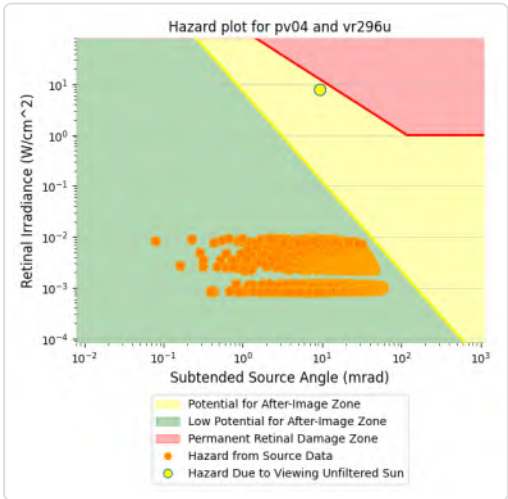
PV04 and FP: VR296u

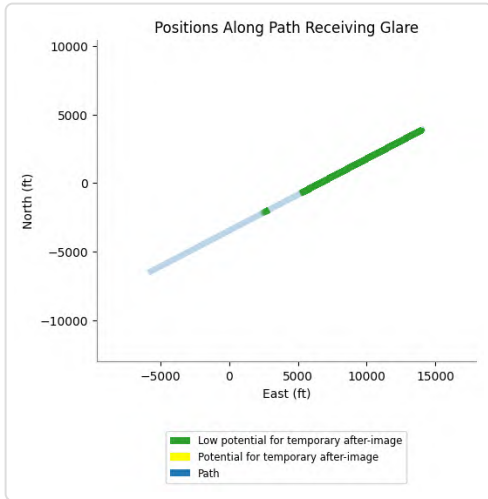
Yellow glare: none

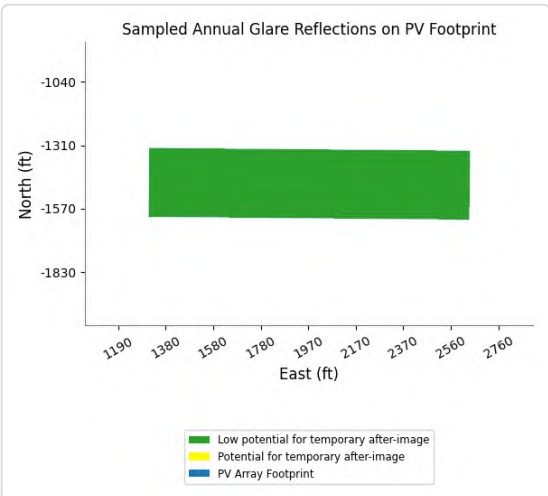
Green glare: 3,480 min.

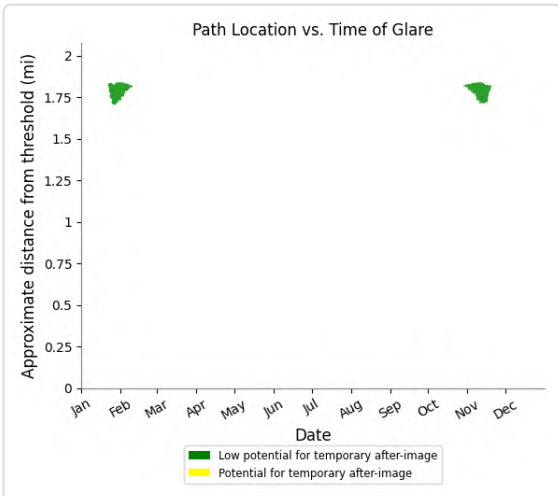










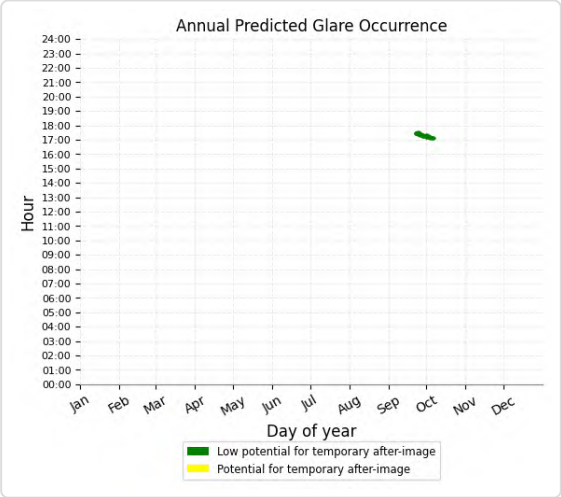


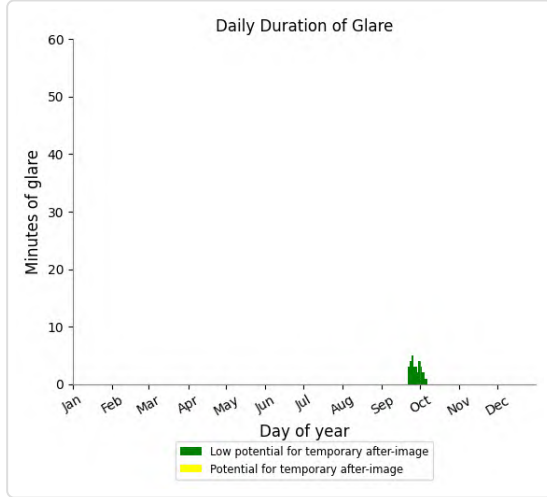
PV04 and FP: CN645

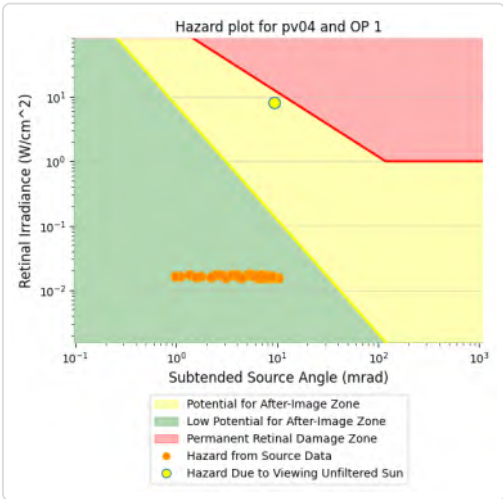
No glare found

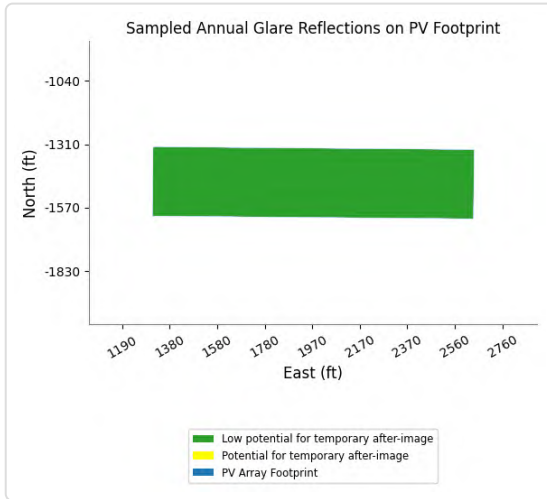
PV04 and OP 1

Yellow glare: none
Green glare: 44 min.









PV04 and OP 2

No glare found

PV04 and OP 3

No glare found

PV04 and OP 4

No glare found

PV04 and OP 5

No glare found

PV04 and OP 6

No glare found

PV04 and OP 7

No glare found

PV04 and OP 8

No glare found

PV04 and OP 9

No glare found

PV04 and OP 10

No glare found

PV04 and OP 11

No glare found

PV04 and OP 12

No glare found

PV04 and OP 13

No glare found

PV04 and OP 14

No glare found

PV04 and OP 15

No glare found

PV04 and OP 16

No glare found

PV04 and OP 17

No glare found

PV04 and OP 18

No glare found

PV04 and OP 19

No glare found

PV: PV05 potential temporary after-image

Receptor results ordered by category of glare

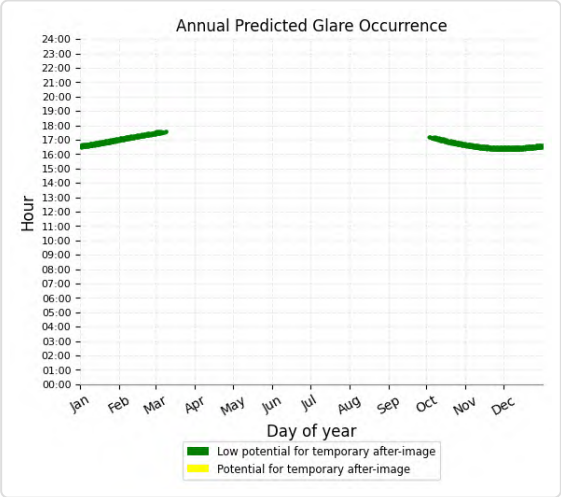
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
SR177 A	1,059	17.6	0	0.0
SR177 B	240	4.0	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	4,953	82.5	8,581	143.0
IR255l	2,170	36.2	140	2.3
VR289l	18,990	316.5	14,278	238.0
VR289m	20,495	341.6	628	10.5
VR296l	2,928	48.8	3,945	65.8
VR296m	9,672	161.2	840	14.0
CN6423	980	16.3	0	0.0
IR217m	9,818	163.6	0	0.0
IR217u	5,940	99.0	0	0.0
IR218l	550	9.2	0	0.0
IR218m	1,356	22.6	0	0.0
IR218u	1,634	27.2	0	0.0
IR255m	14,819	247.0	0	0.0
IR255u	4,813	80.2	0	0.0
VR289u	12,058	201.0	0	0.0
VR296u	6,628	110.5	0	0.0
CN645	0	0.0	0	0.0
OP 3	28	0.5	0	0.0
OP 1	0	0.0	0	0.0

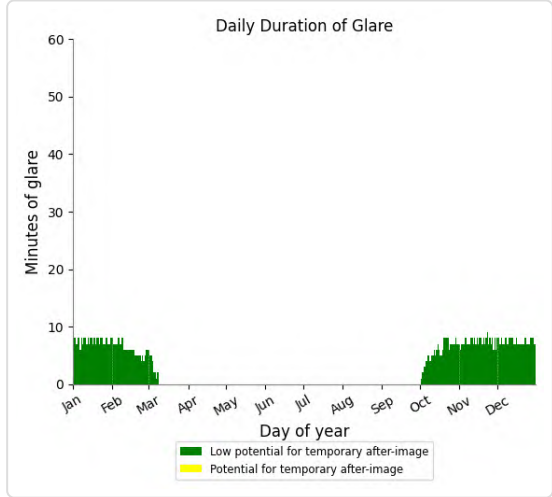
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

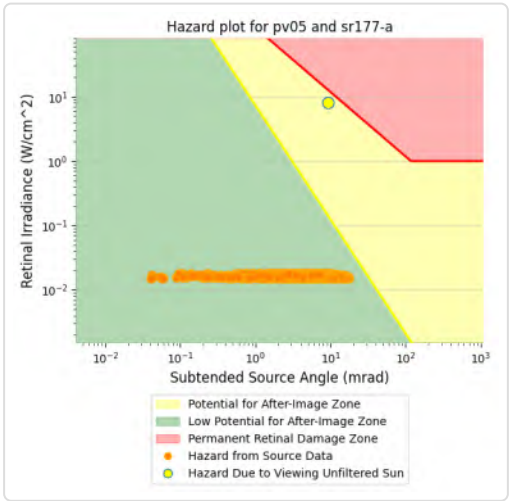
PV05 and Route: SR177 A

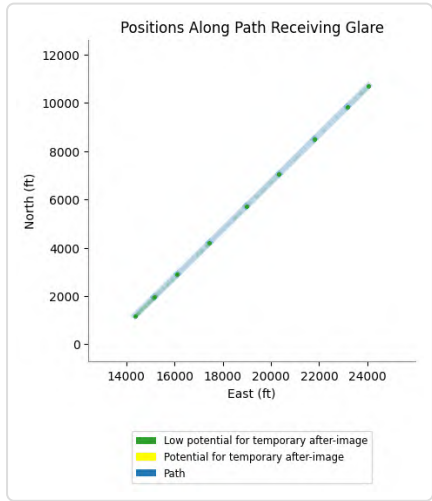
Yellow glare: none

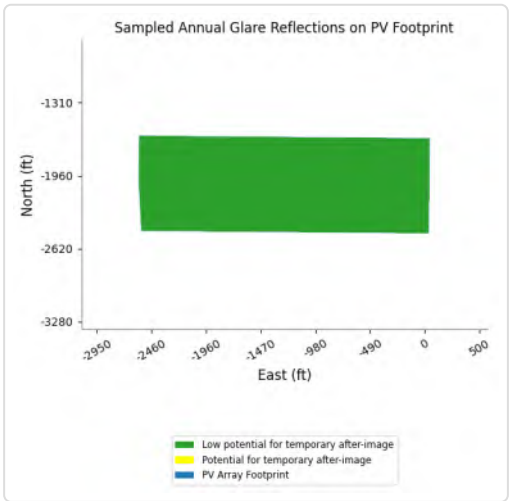
Green glare: 1,059 min.







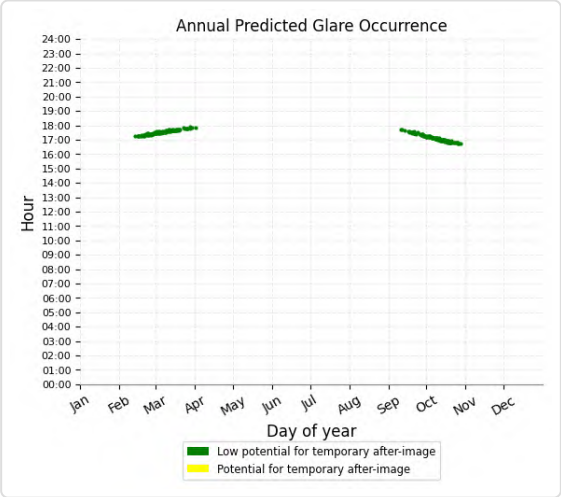


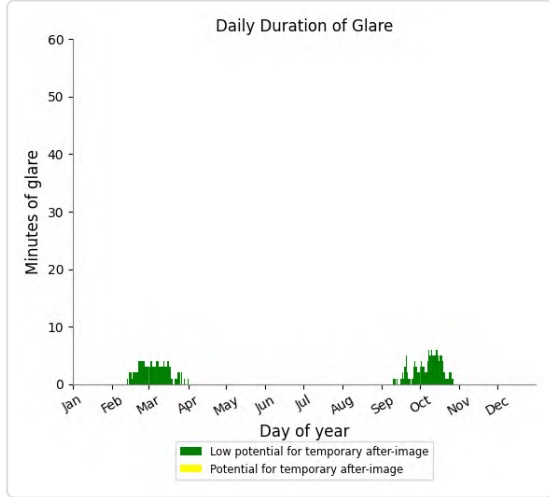


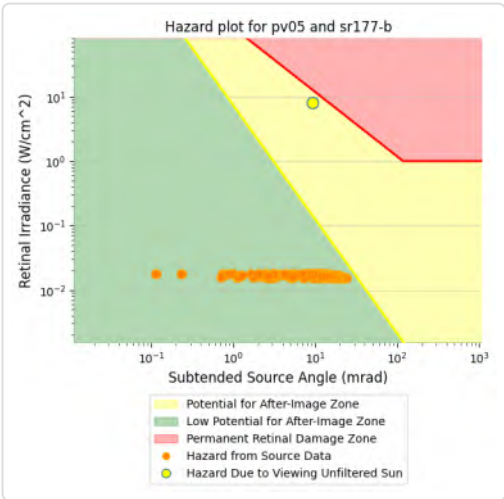
PV05 and Route: SR177 B

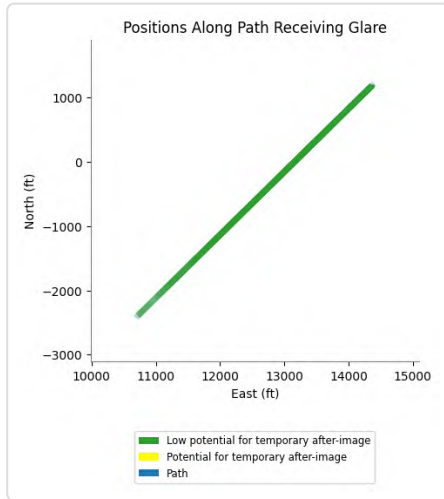
Yellow glare: none

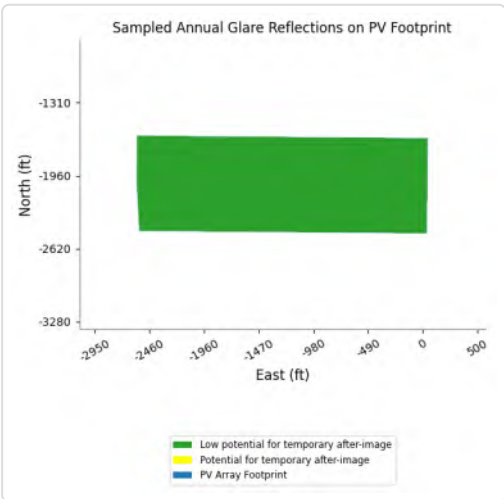
Green glare: 240 min.











PV05 and Route: AirportRd A

No glare found

PV05 and Route: AirportRd B

No glare found

PV05 and Route: EagleMtnRd A

No glare found

PV05 and Route: EagleMtnRd B

No glare found

PV05 and Route: I-10 EB A

No glare found

PV05 and Route: I-10 EB B

No glare found

PV05 and Route: I-10 EB C

No glare found

PV05 and Route: I-10 WB A

No glare found

PV05 and Route: I-10 WB B

No glare found

PV05 and Route: I-10 WB C

No glare found

PV05 and Route: KaiserRd A

No glare found

PV05 and Route: KaiserRd B

No glare found

PV05 and Route: KaiserRd C

No glare found

PV05 and Route: OasisRd

No glare found

PV05 and Route: Race Track

No glare found

PV05 and Route: SR177 C

No glare found

PV05 and Route: SR177 D

No glare found

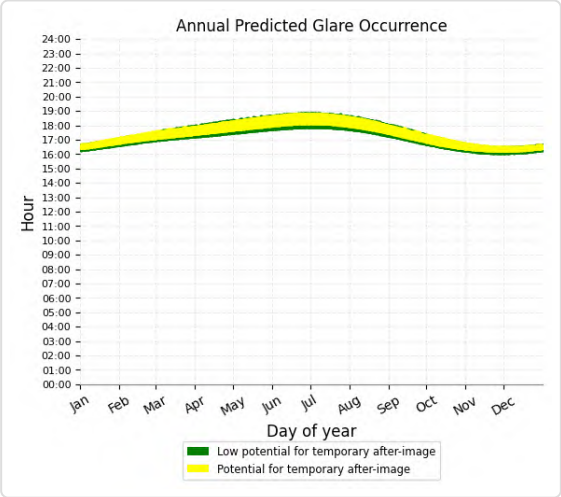
PV05 and Route: SR177 E

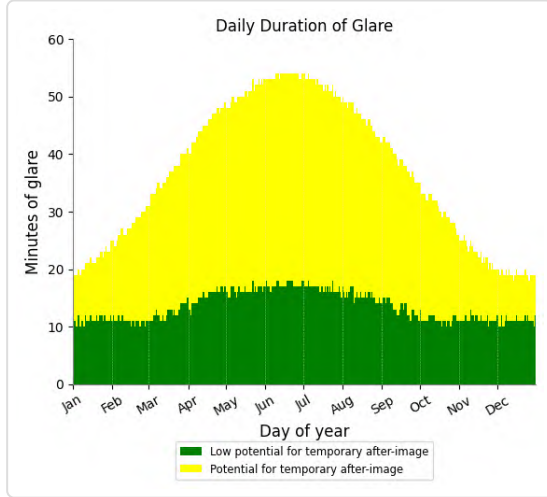
No glare found

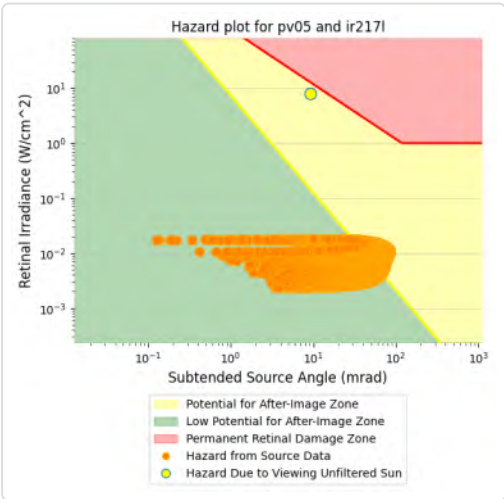
PV05 and FP: IR217l

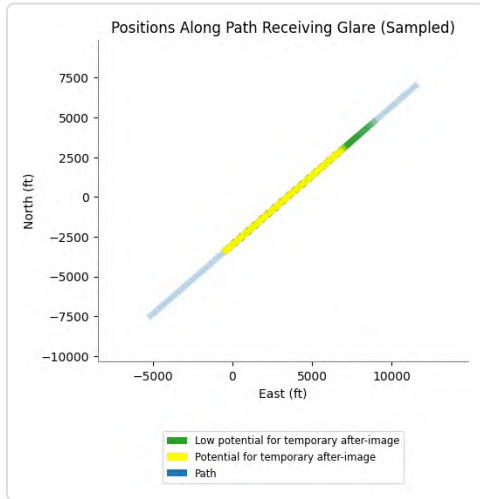
Yellow glare: 8,581 min.

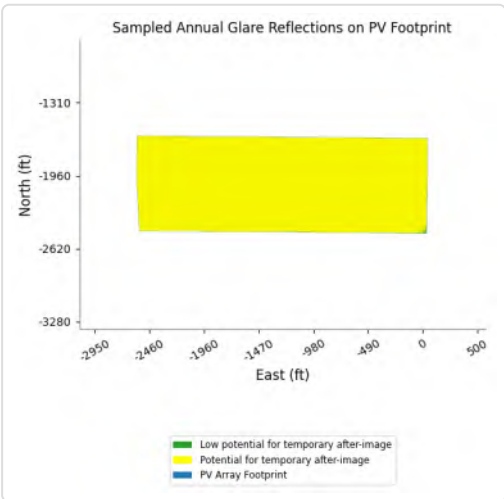
Green glare: 4,953 min.

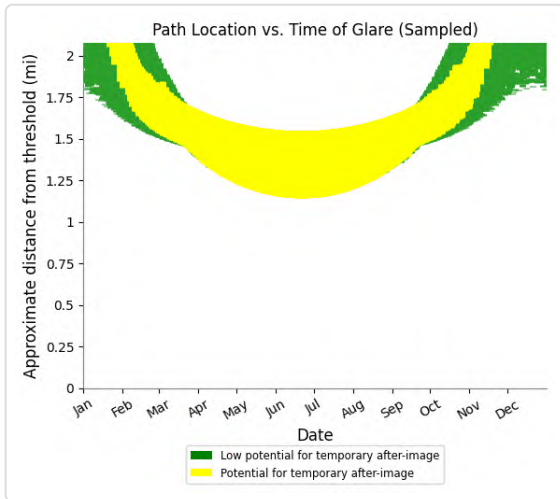








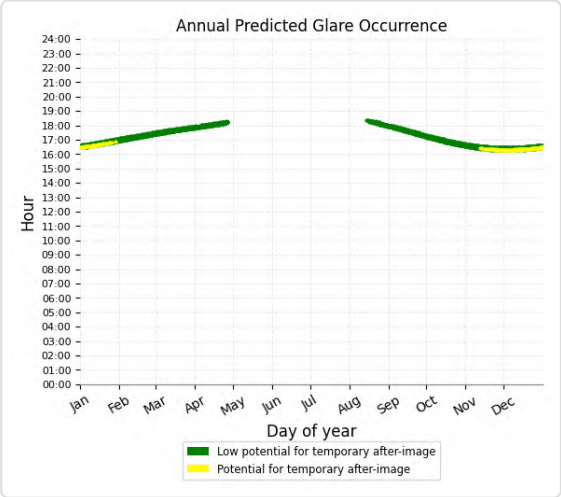


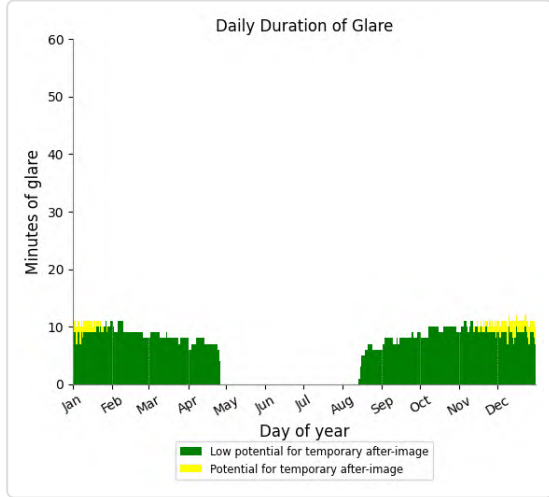


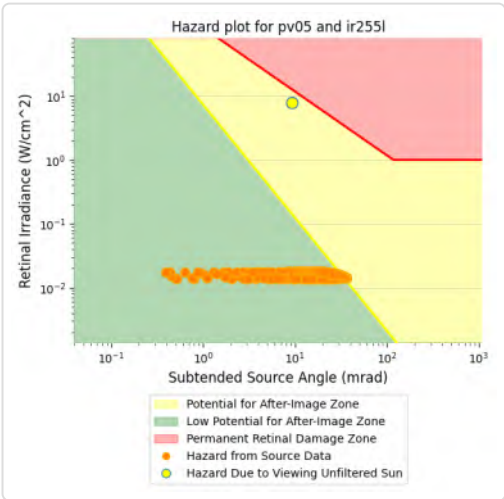
PV05 and FP: IR255l

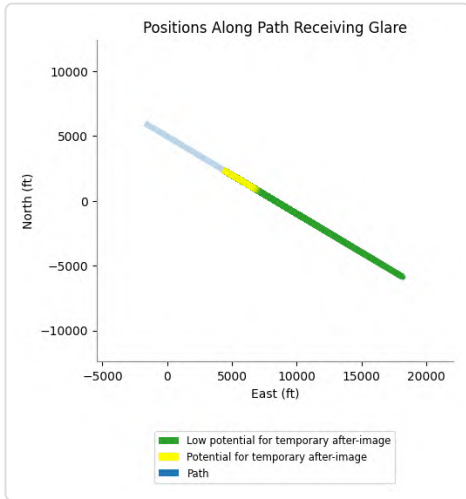
Yellow glare: 140 min.

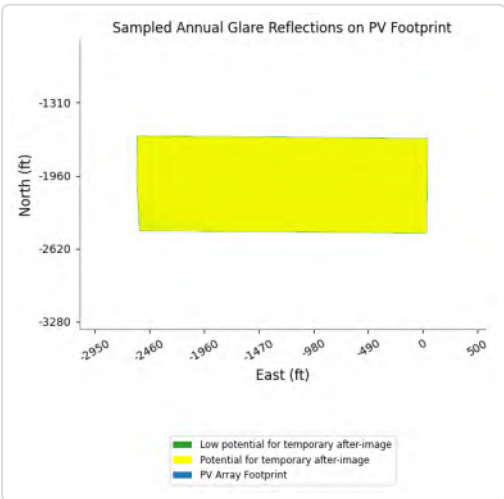
Green glare: 2,170 min.

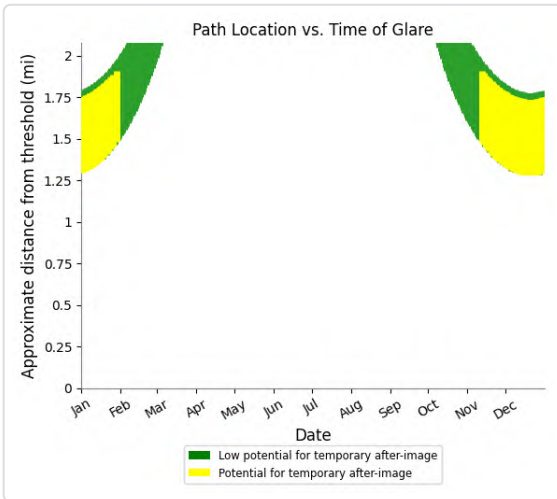








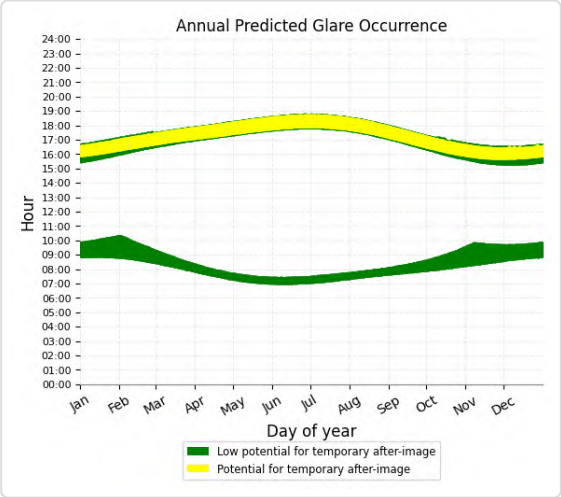


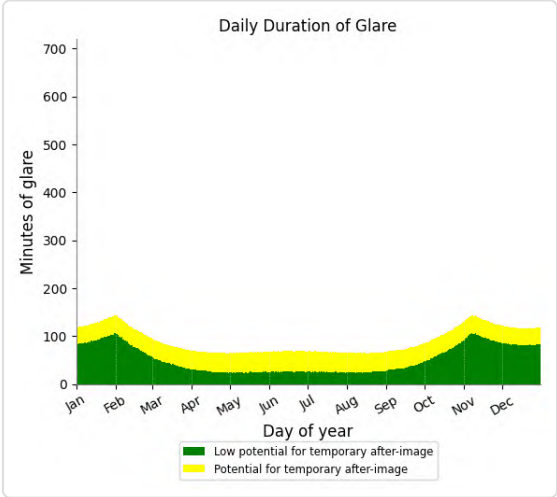


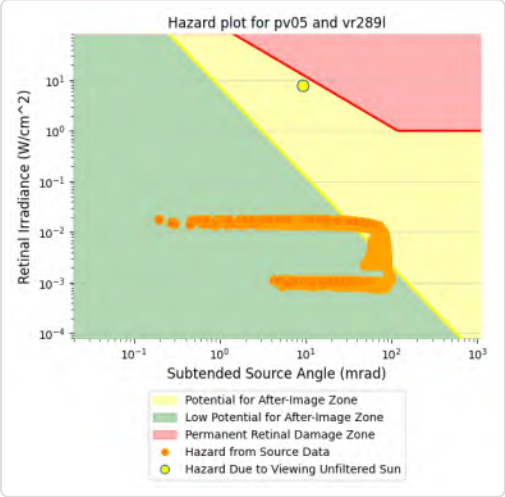
PV05 and FP: VR289l

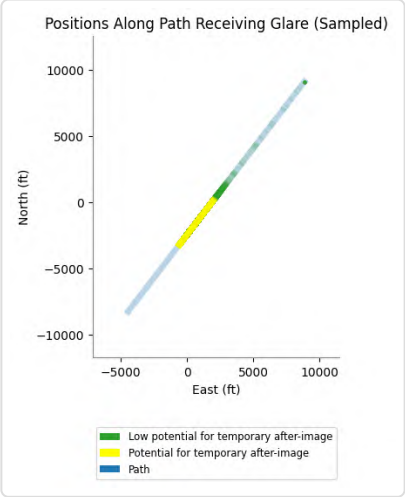
Yellow glare: 14,278 min.

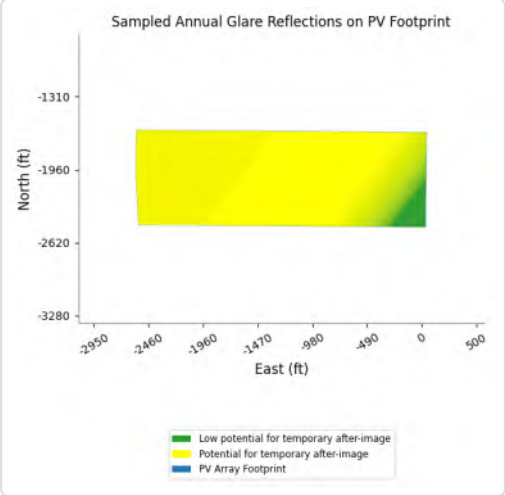
Green glare: 18,990 min.

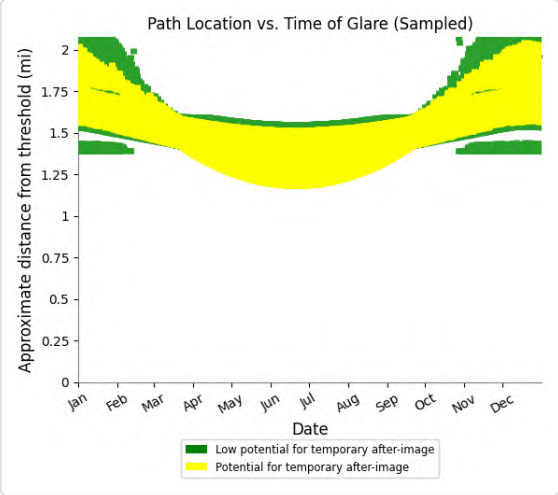








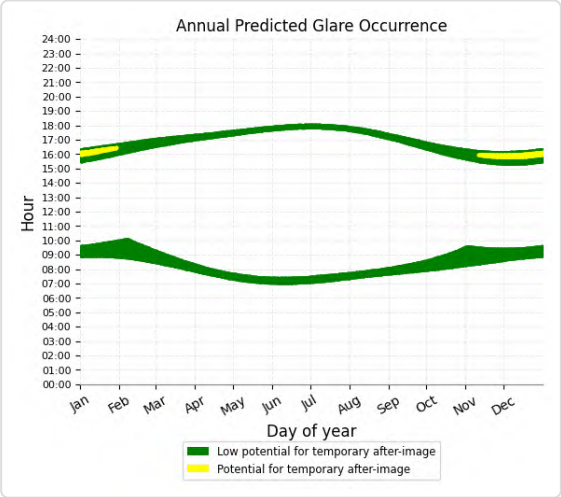


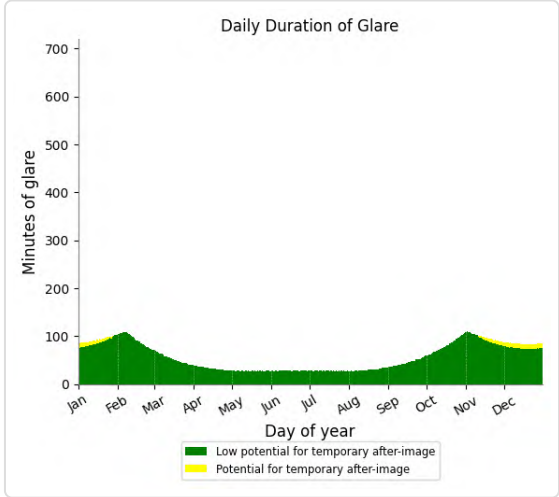


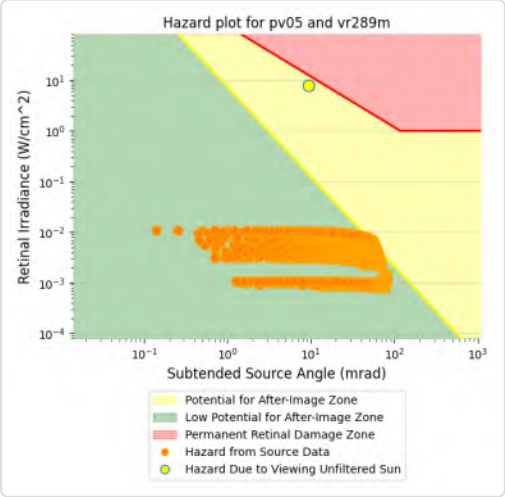
PV05 and FP: VR289m

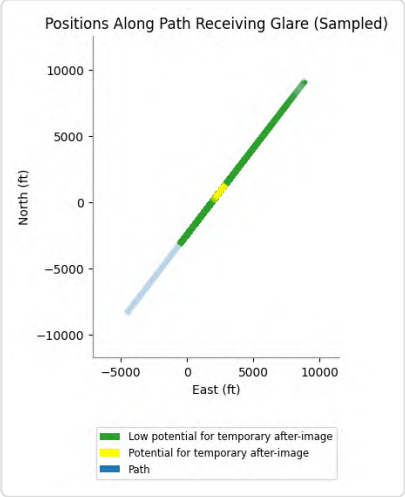
Yellow glare: 628 min.

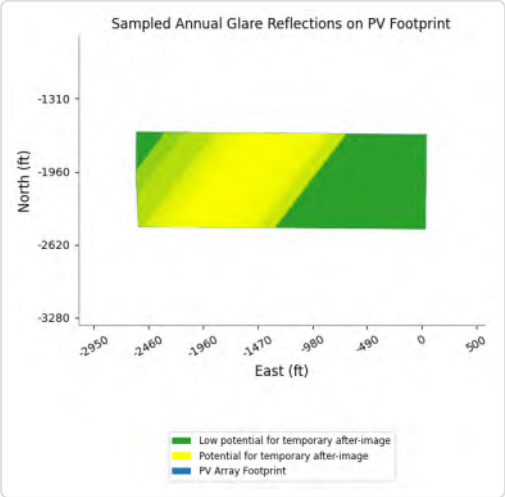
Green glare: 20,495 min.

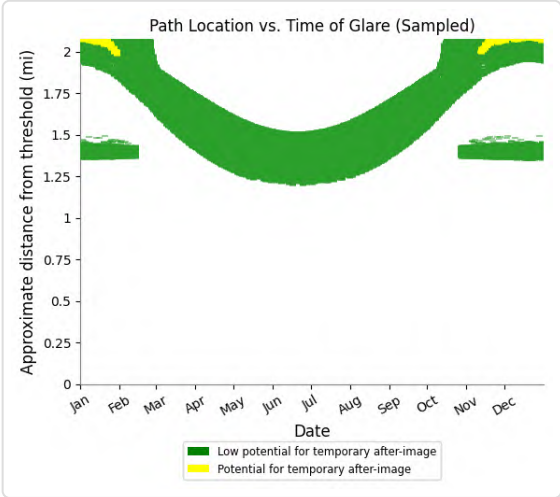








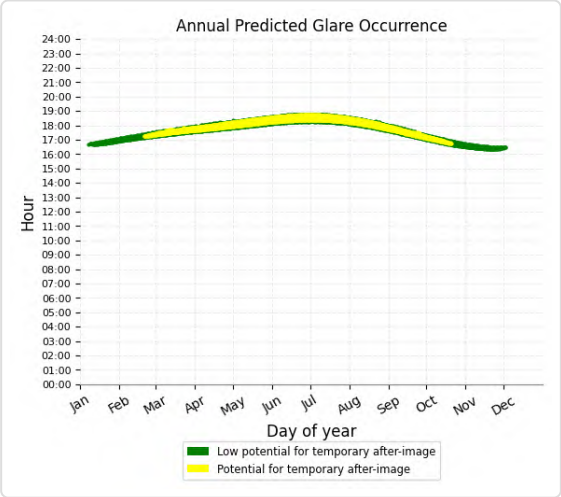


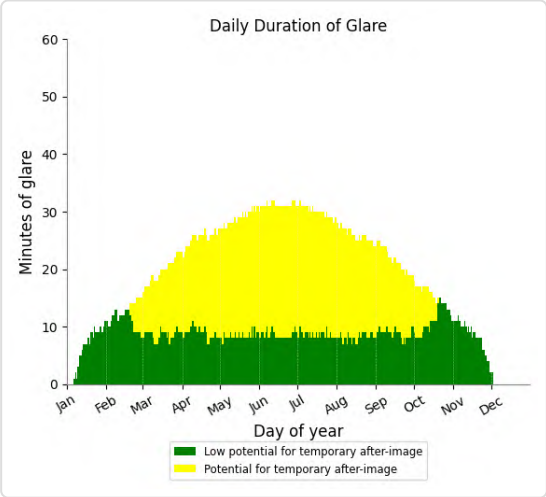


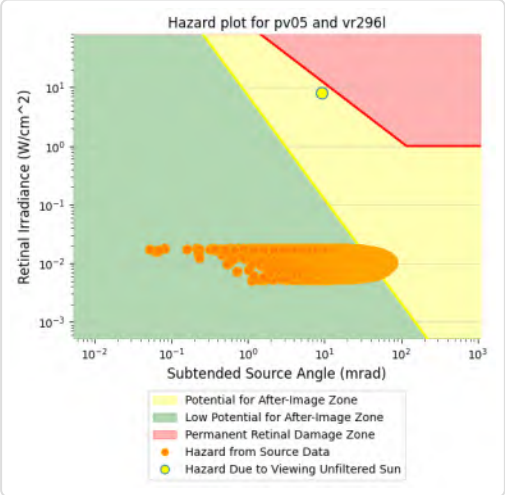
PV05 and FP: VR296l

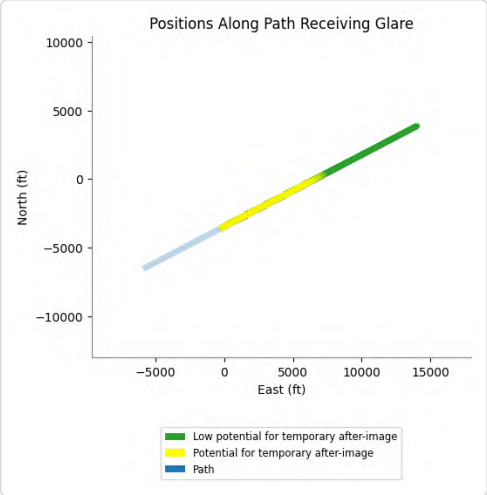
Yellow glare: 3,945 min.

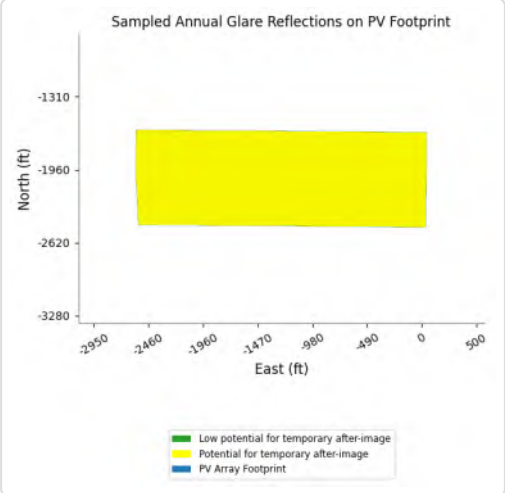
Green glare: 2,928 min.

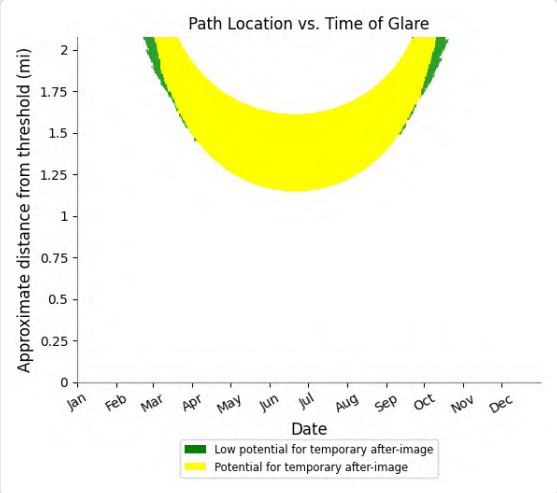








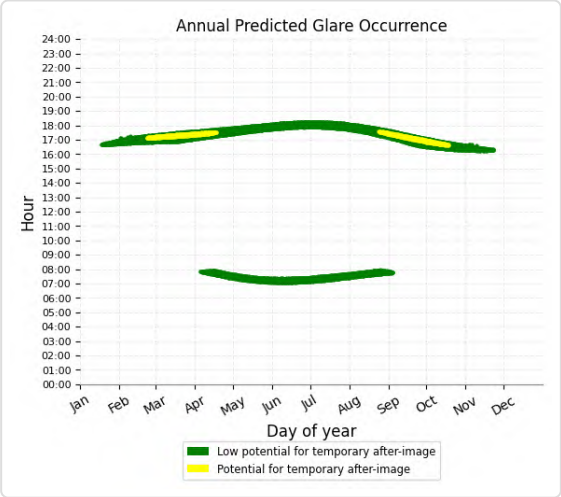


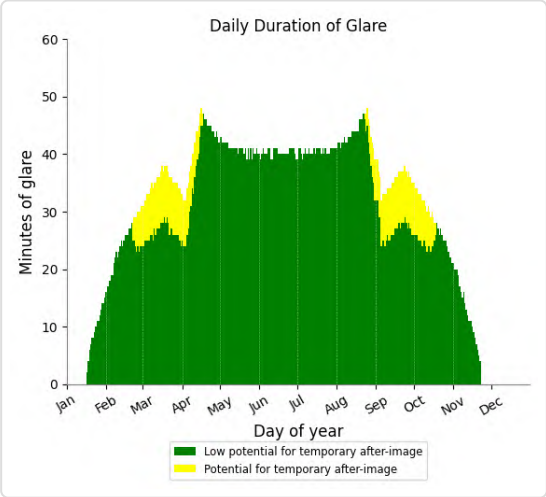


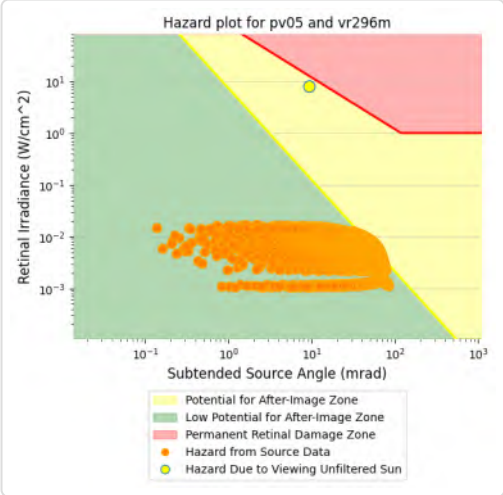
PV05 and FP: VR296m

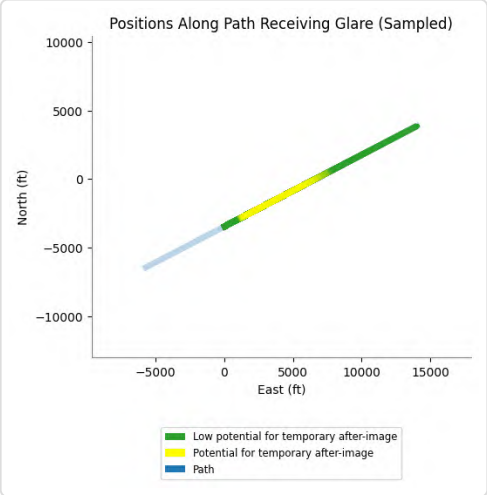
Yellow glare: 840 min.

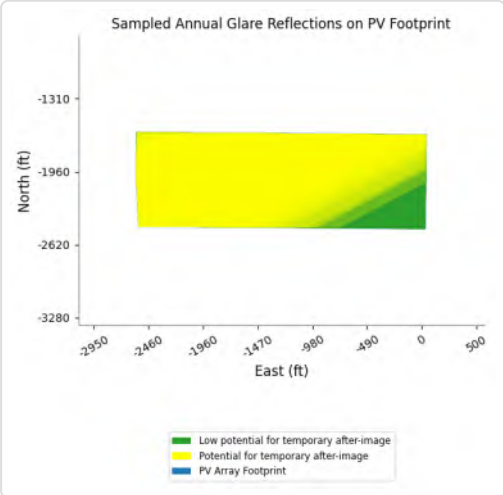
Green glare: 9,672 min.

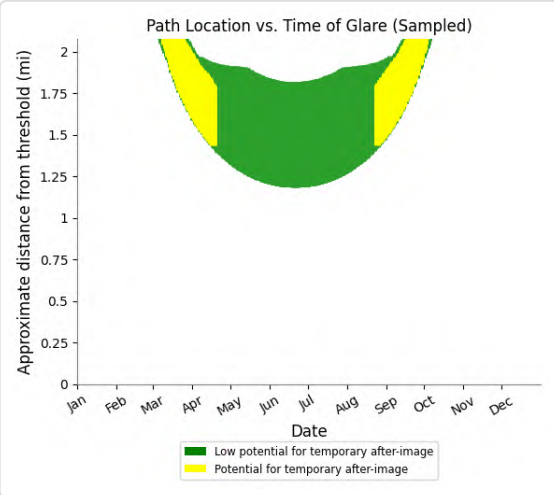








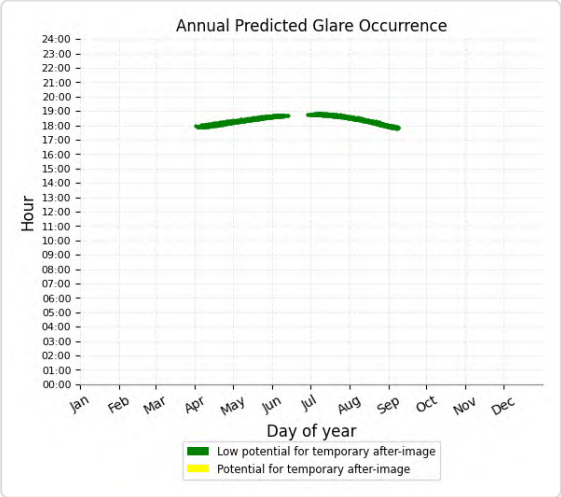


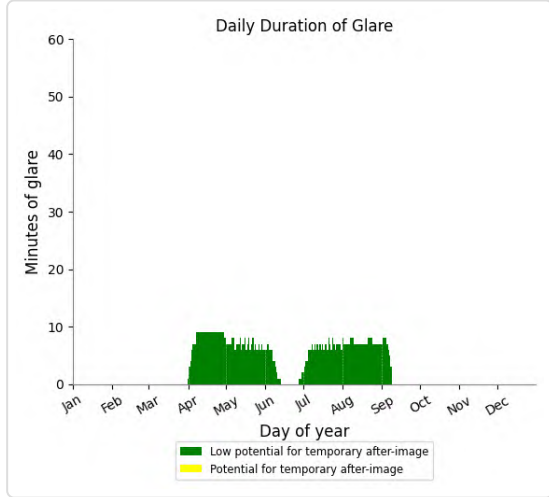


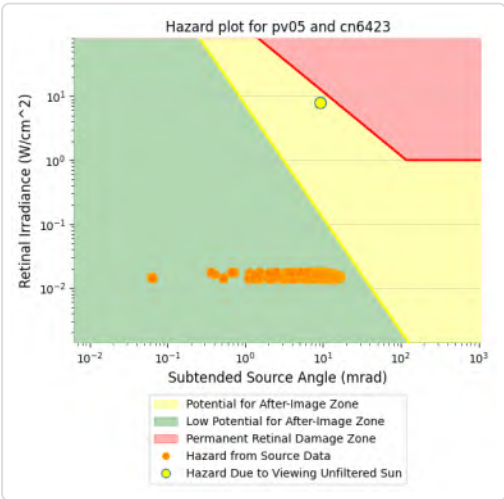
PV05 and FP: CN6423

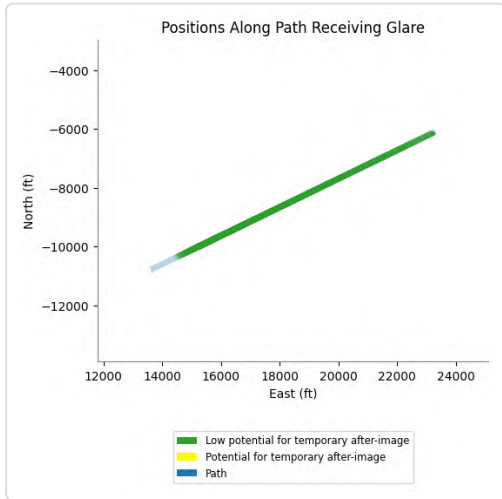
Yellow glare: none

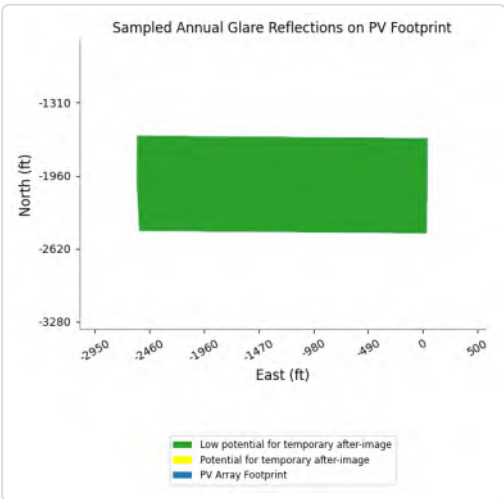
Green glare: 980 min.

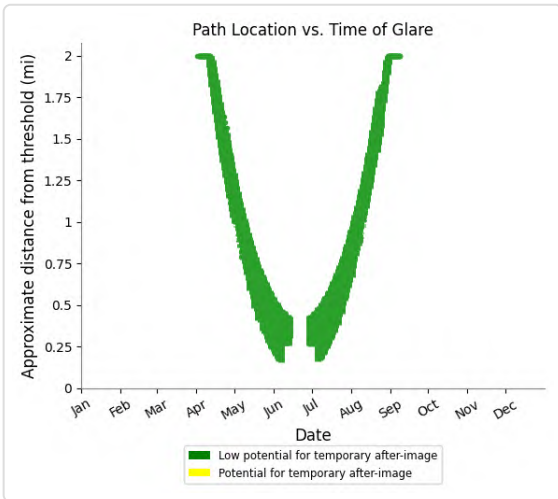








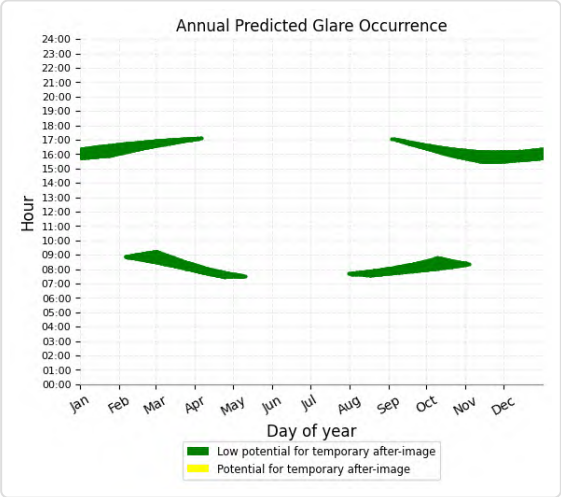


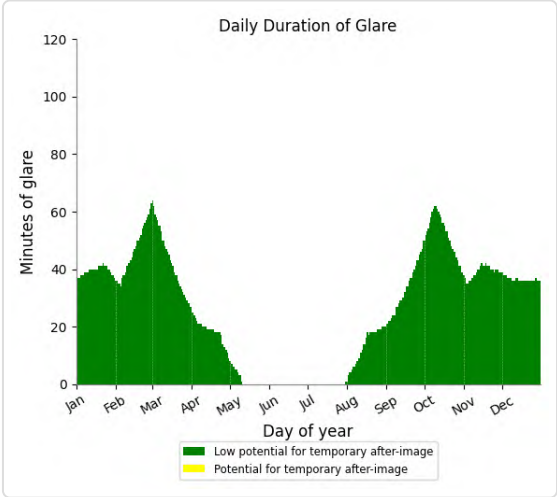


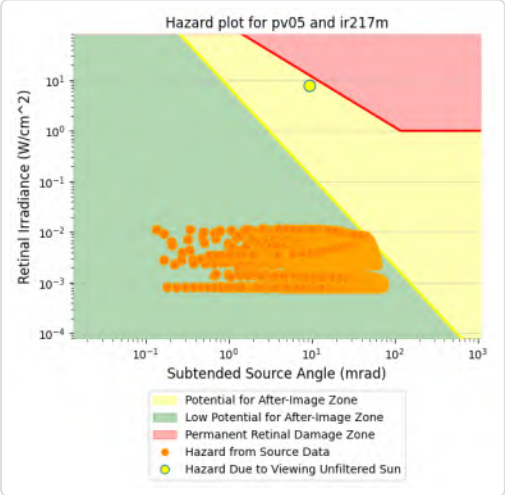
PV05 and FP: IR217m

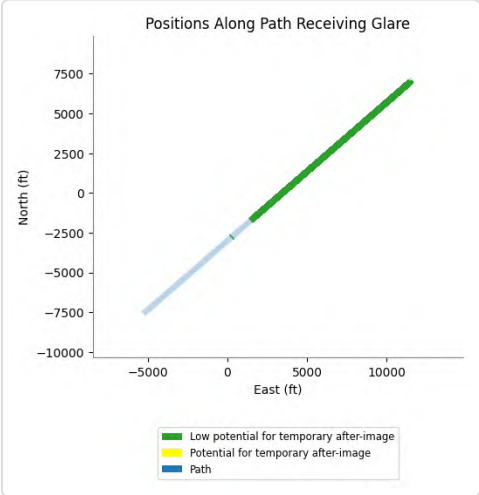
Yellow glare: none

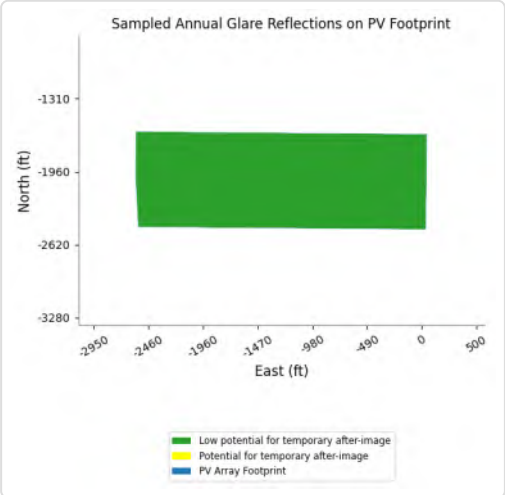
Green glare: 9,818 min.

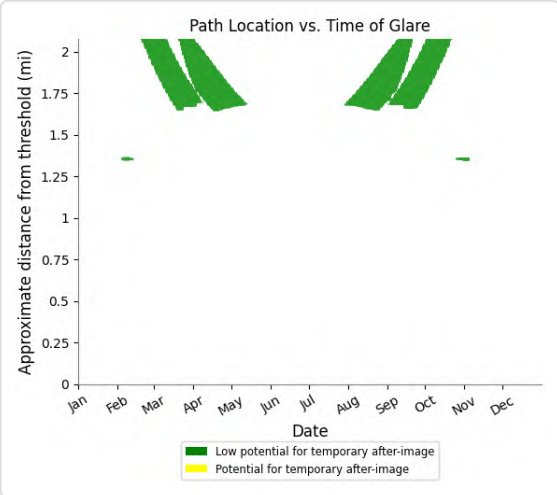








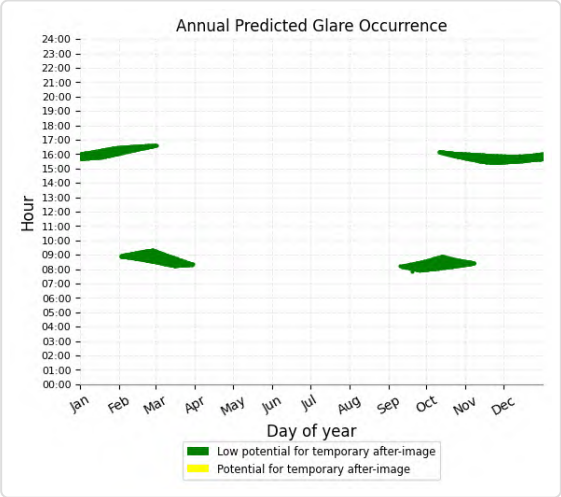


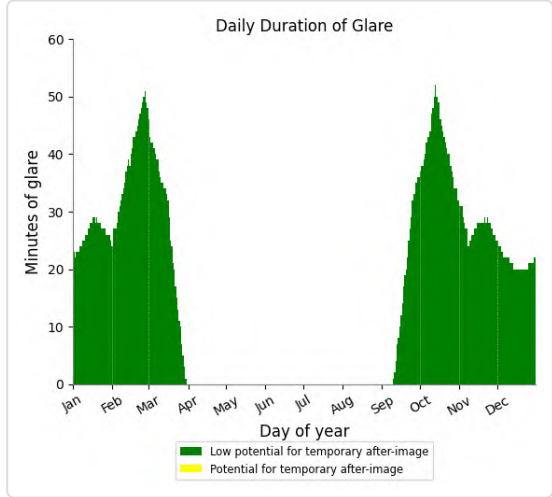


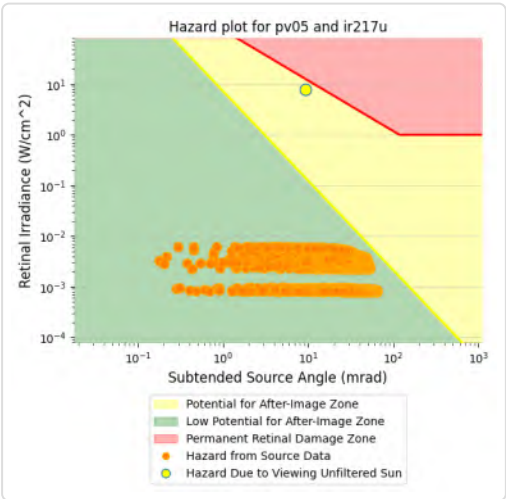
PV05 and FP: IR217u

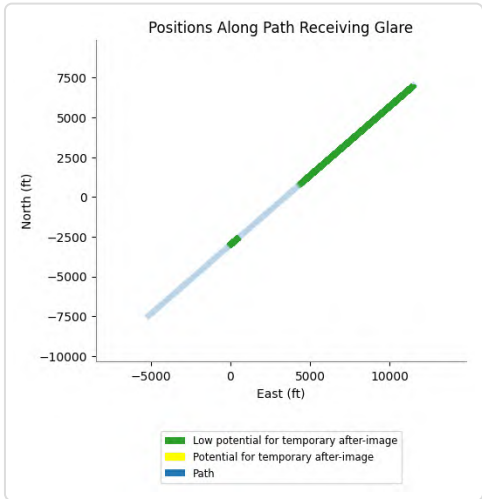
Yellow glare: none

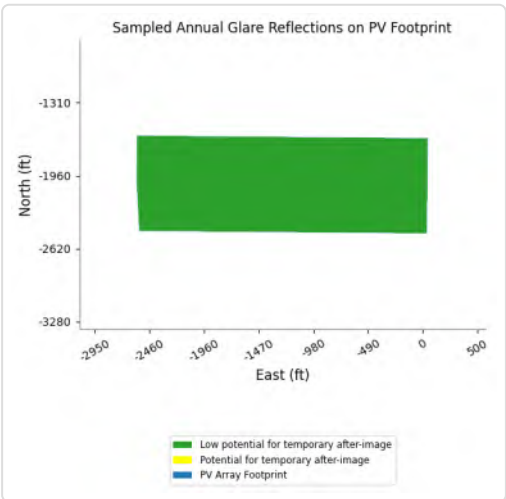
Green glare: 5,940 min.

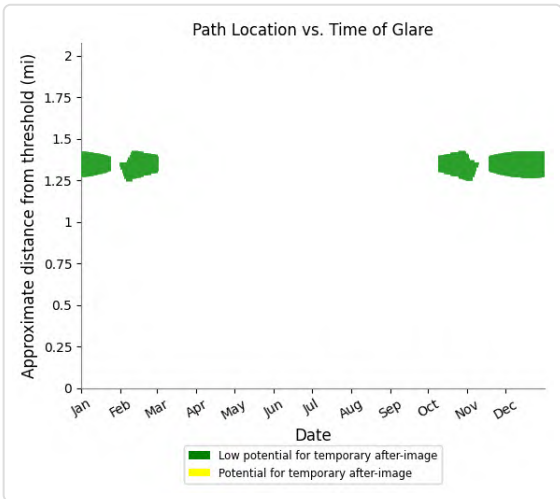








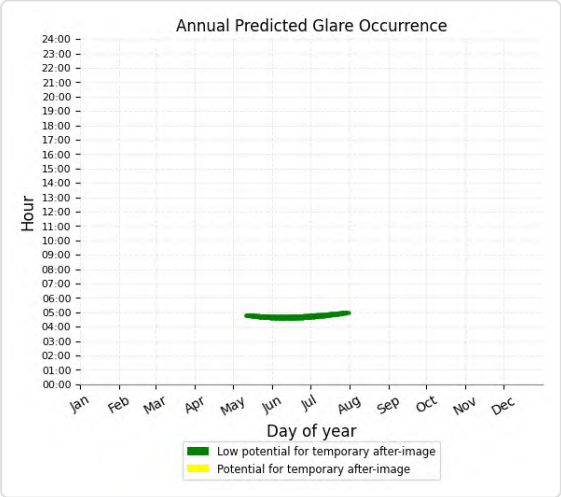


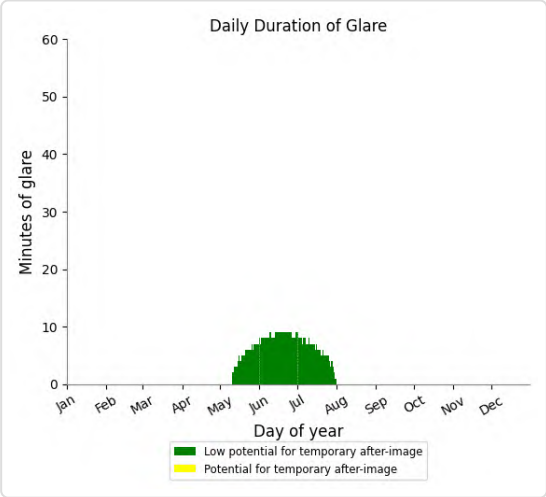


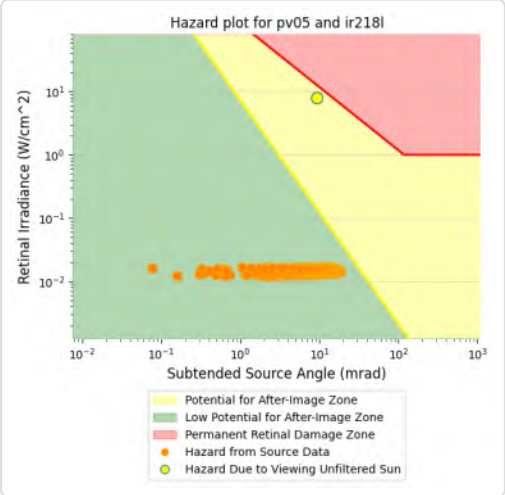
PV05 and FP: IR218l

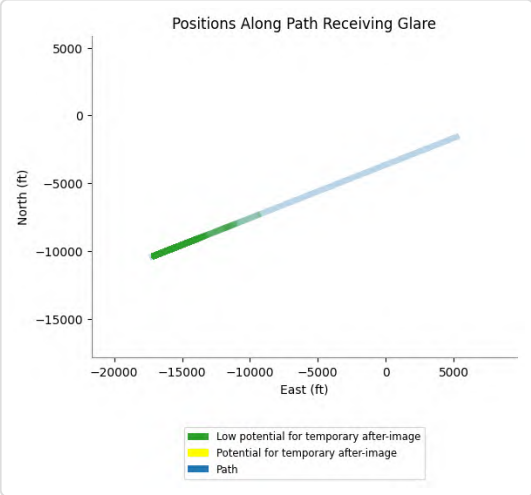
Yellow glare: none

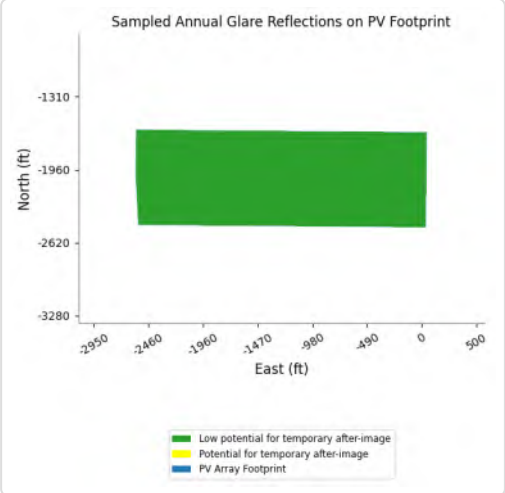
Green glare: 550 min.

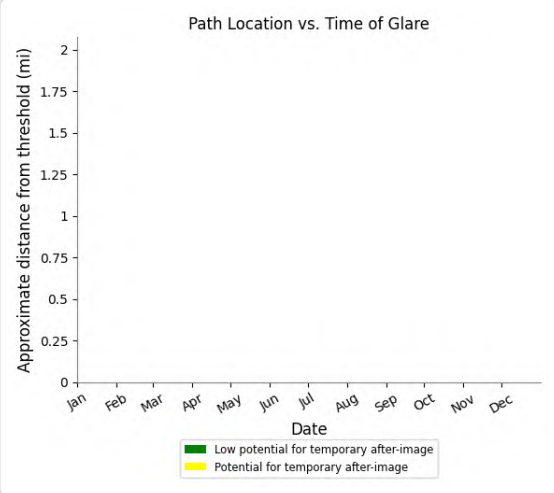








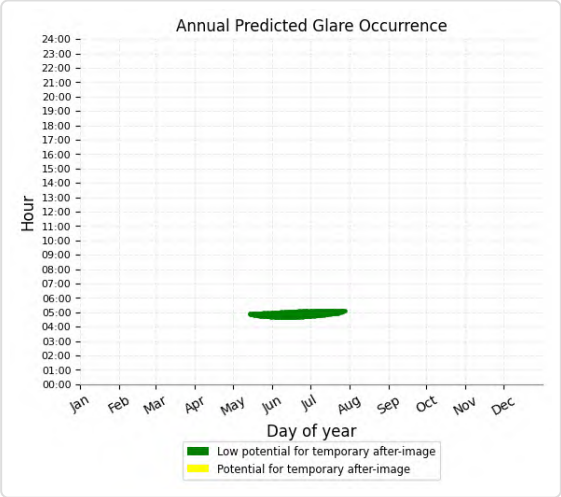


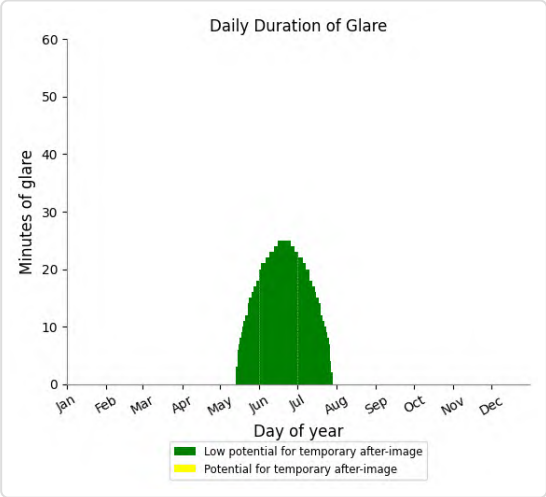


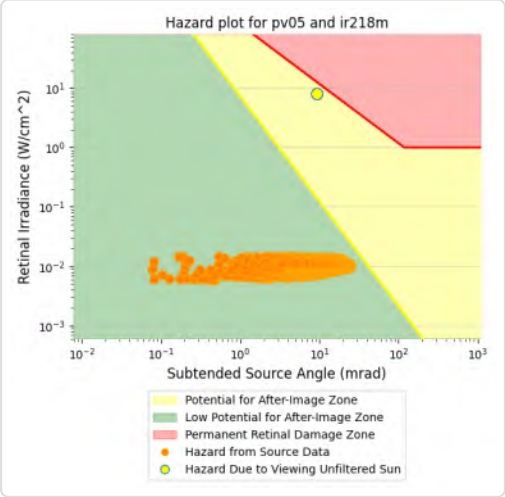
PV05 and FP: IR218m

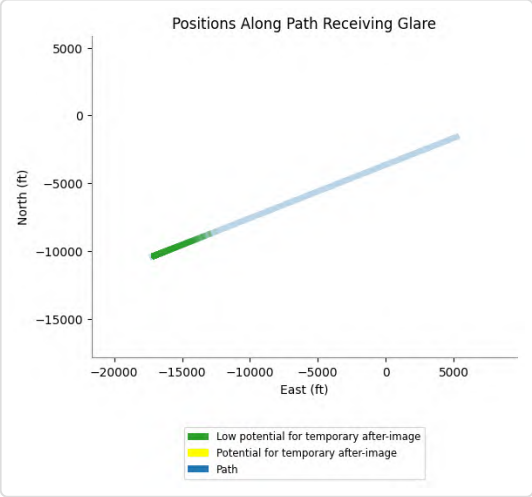
Yellow glare: none

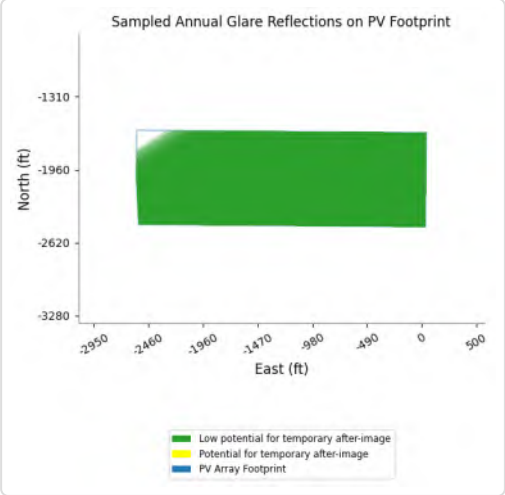
Green glare: 1,356 min.

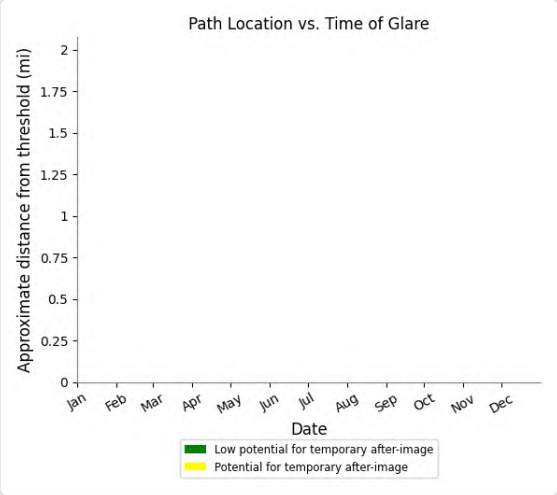








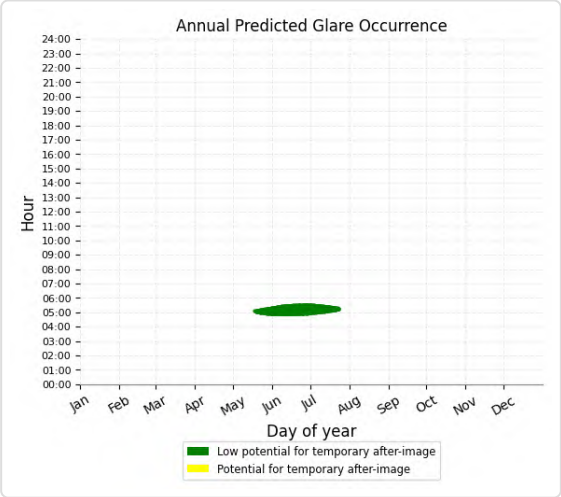


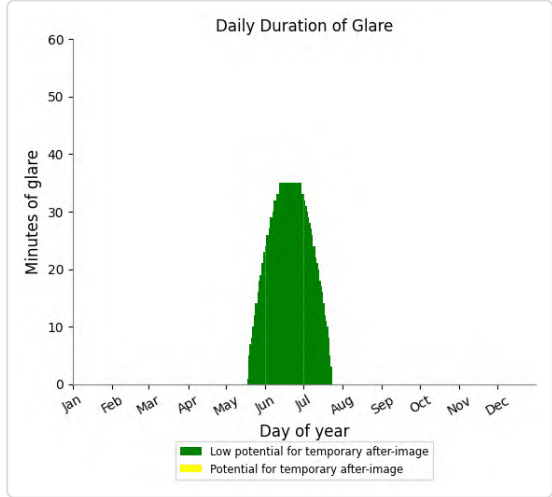


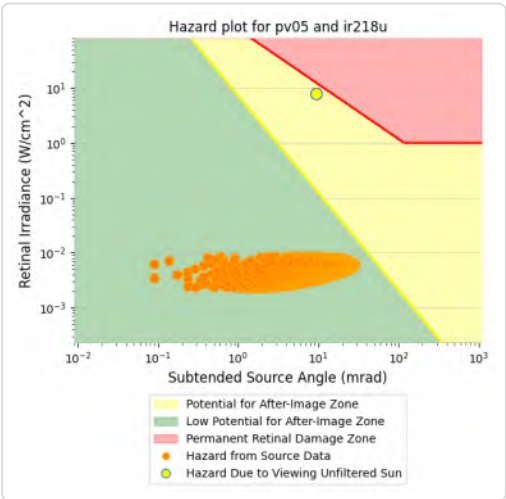
PV05 and FP: IR218u

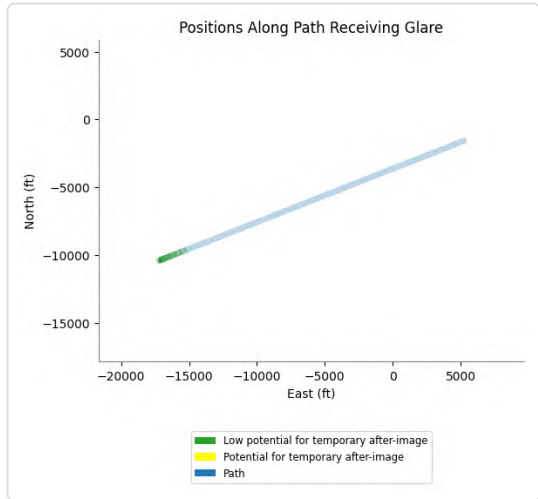
Yellow glare: none

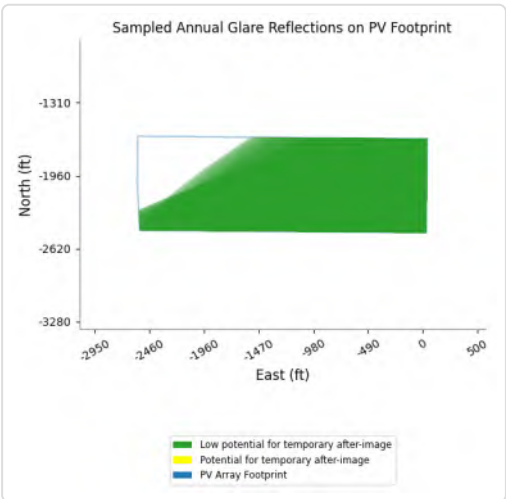
Green glare: 1,634 min.

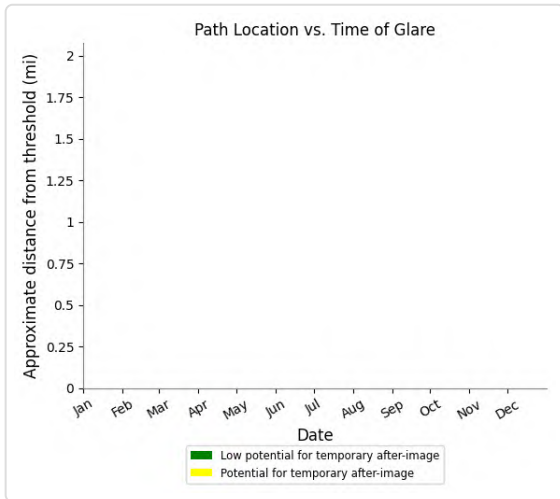








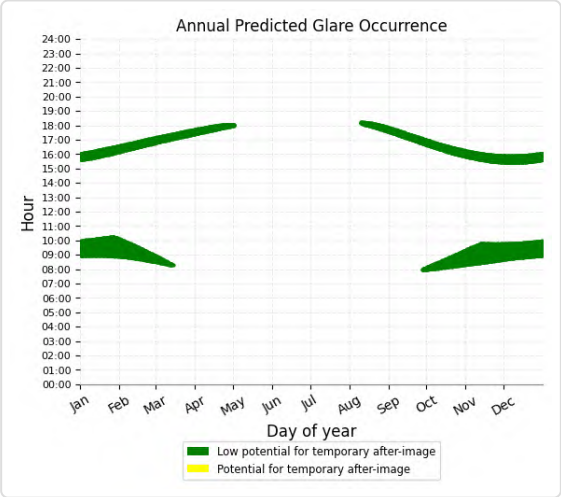


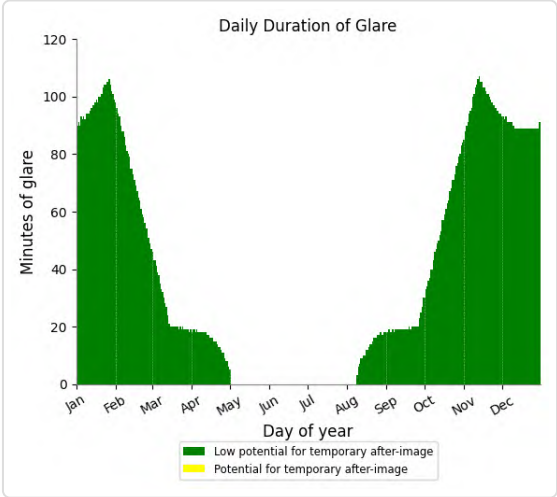


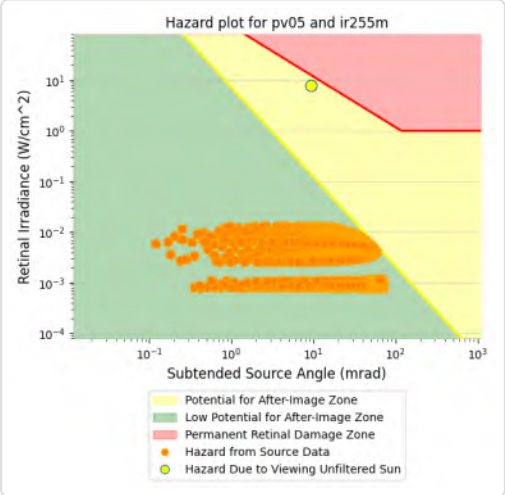
PV05 and FP: IR255m

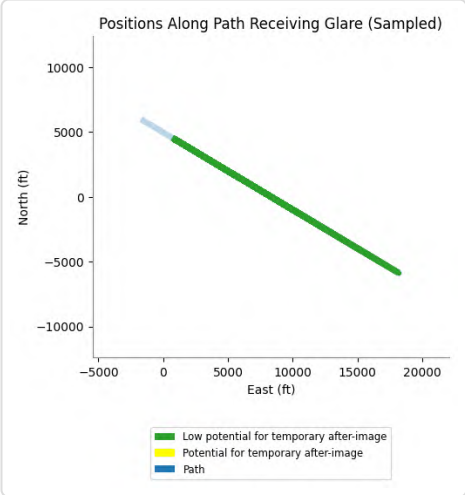
Yellow glare: none

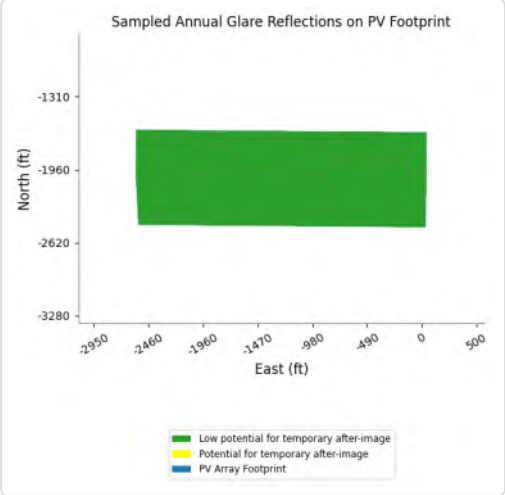
Green glare: 14,819 min.

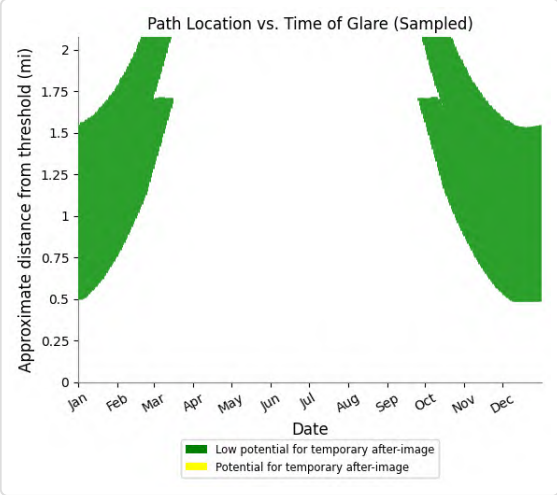








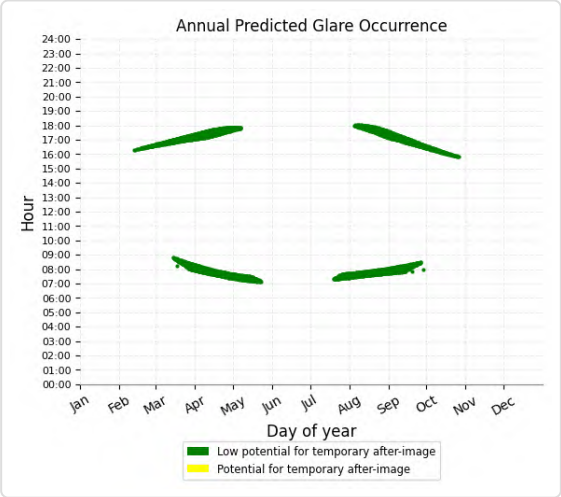


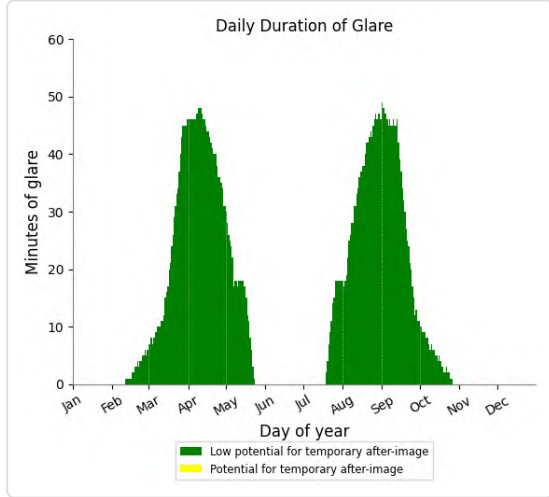


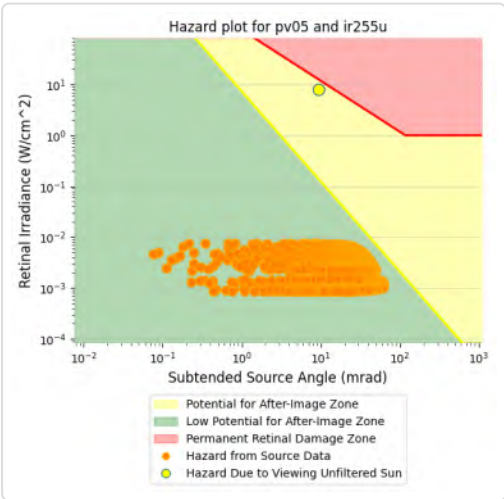
PV05 and FP: IR255u

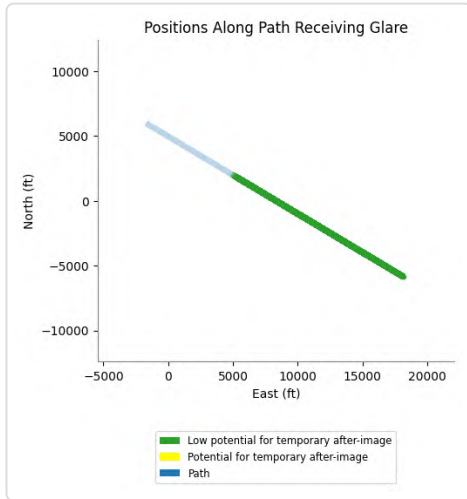
Yellow glare: none

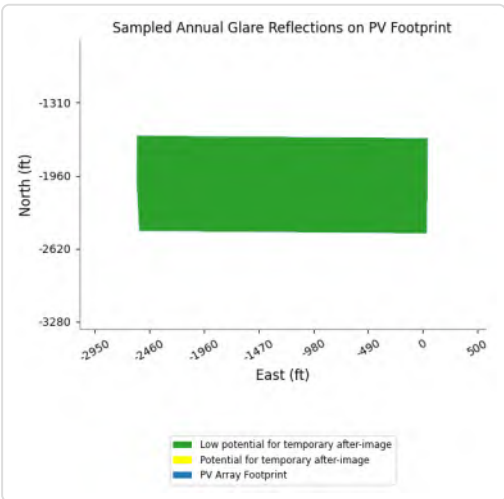
Green glare: 4,813 min.

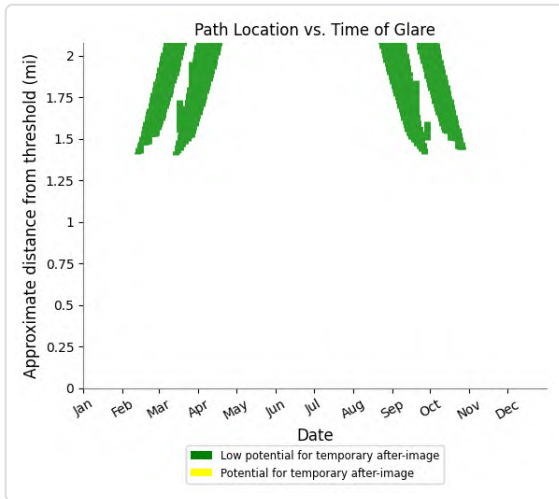








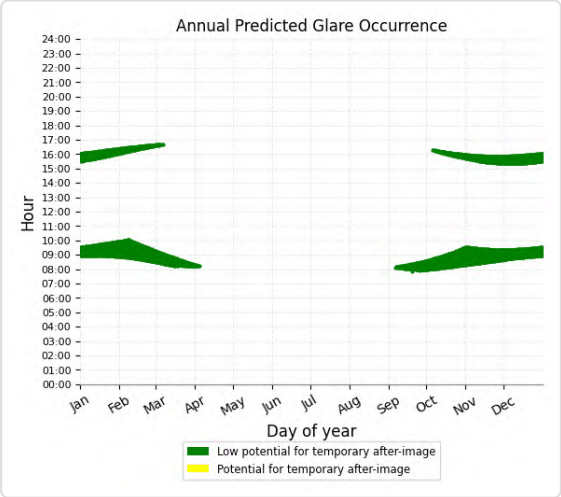


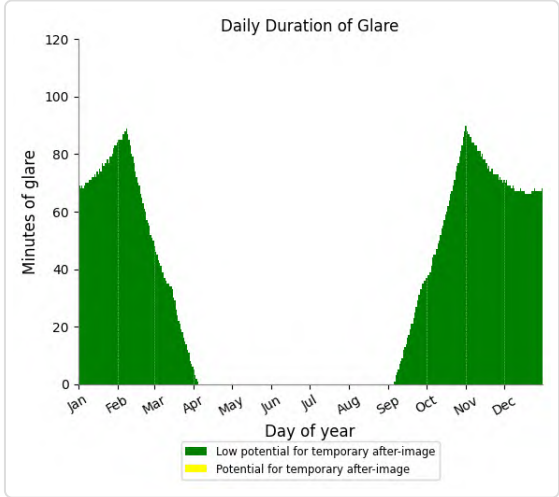


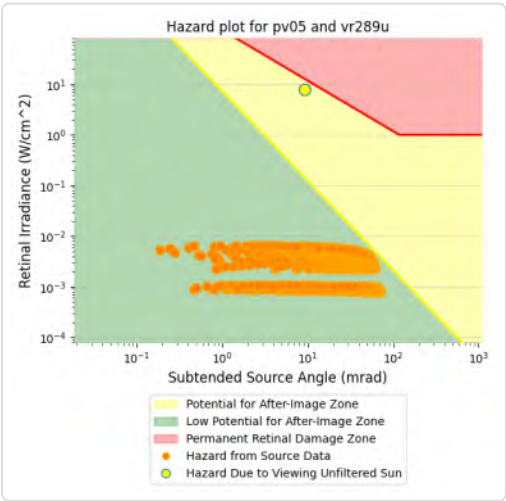
PV05 and FP: VR289u

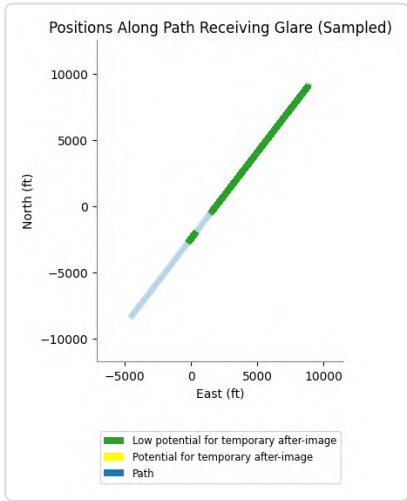
Yellow glare: none

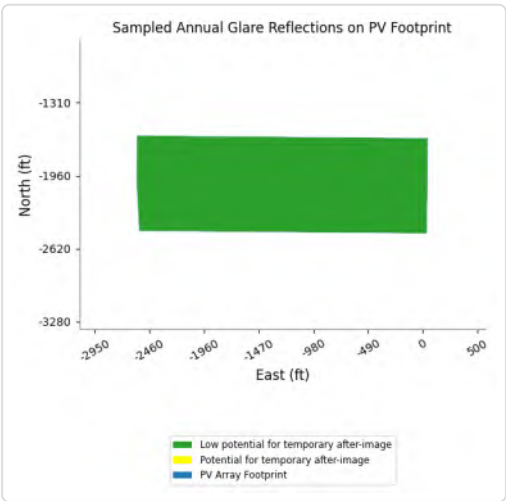
Green glare: 12,058 min.

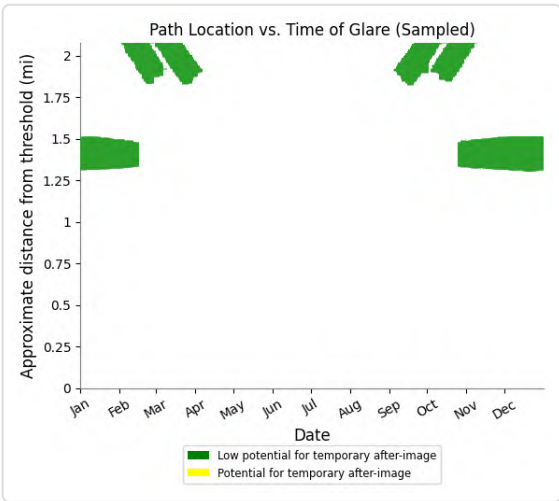








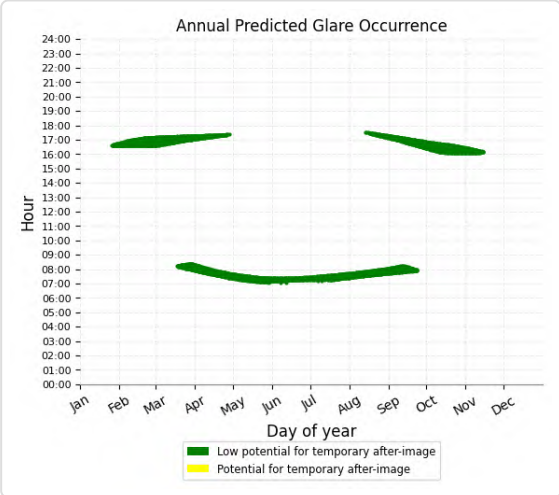


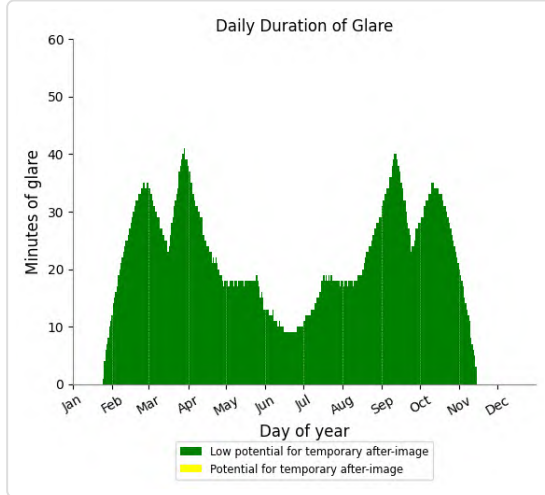


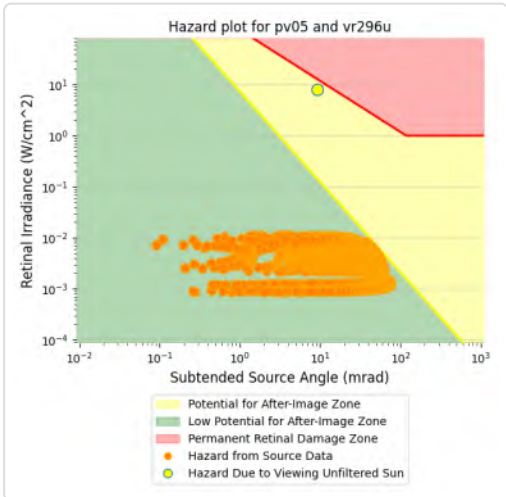
PV05 and FP: VR296u

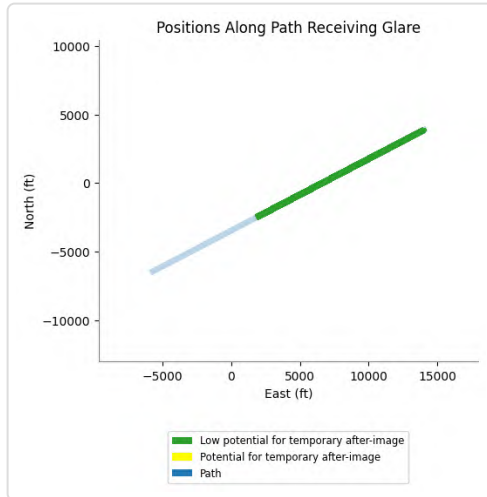
Yellow glare: none

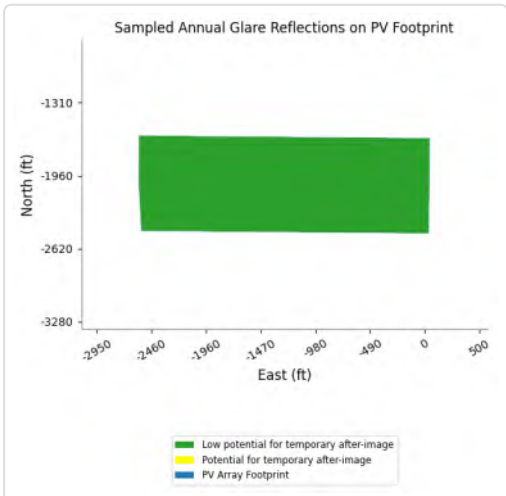
Green glare: 6,628 min.

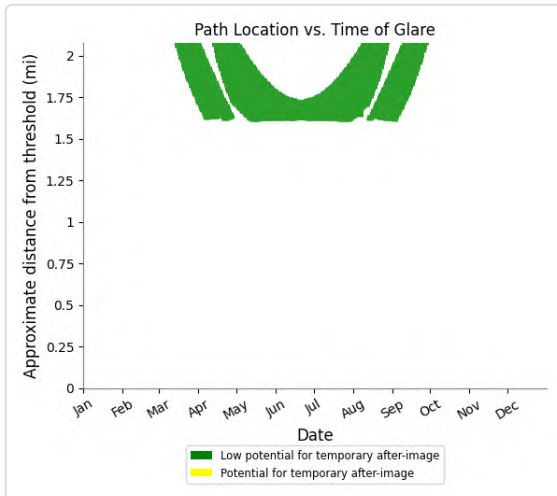










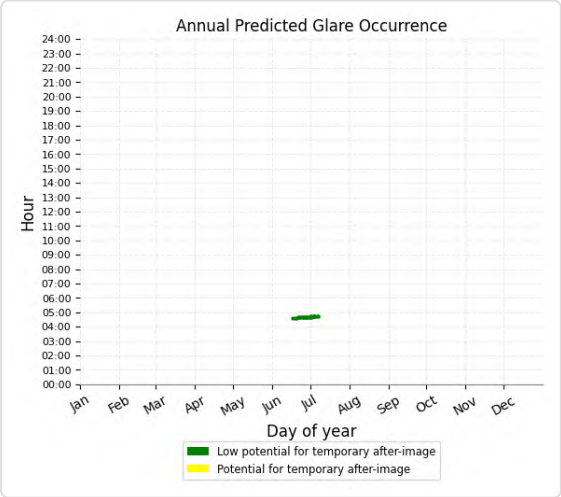


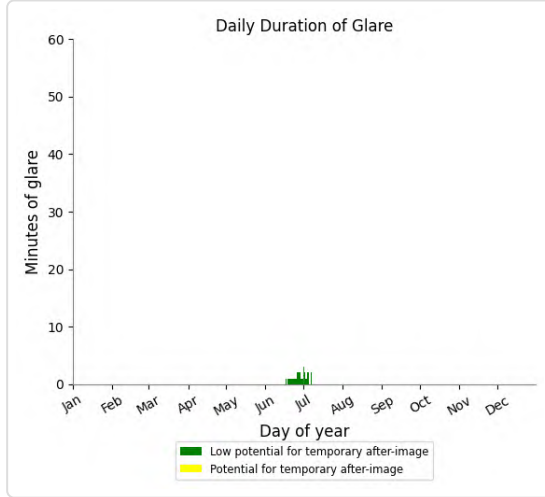
PV05 and FP: CN645

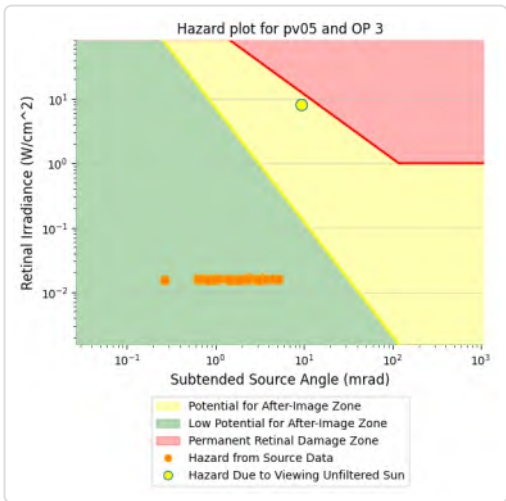
No glare found

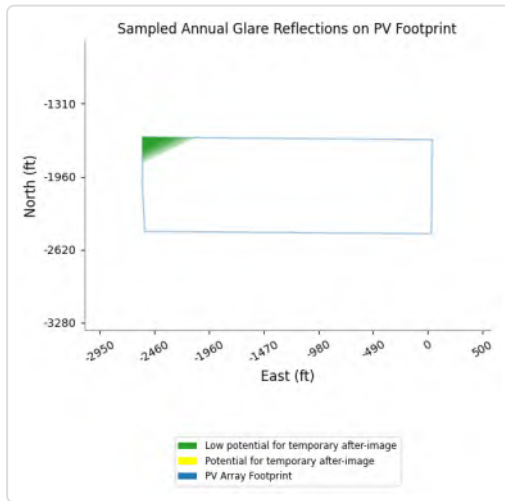
PV05 and OP 3

Yellow glare: none
Green glare: 28 min.









PV05 and OP 1

No glare found

PV05 and OP 2

No glare found

PV05 and OP 4

No glare found

PV05 and OP 5

No glare found

PV05 and OP 6

No glare found

PV05 and OP 7

No glare found

PV05 and OP 8

No glare found

PV05 and OP 9

No glare found

PV05 and OP 10

No glare found

PV05 and OP 11

No glare found

PV05 and OP 12

No glare found

PV05 and OP 13

No glare found

PV05 and OP 14

No glare found

PV05 and OP 15

No glare found

PV05 and OP 16

No glare found

PV05 and OP 17

No glare found

PV05 and OP 18

No glare found

PV05 and OP 19

No glare found

PV: PV06 potential temporary after-image

Receptor results ordered by category of glare

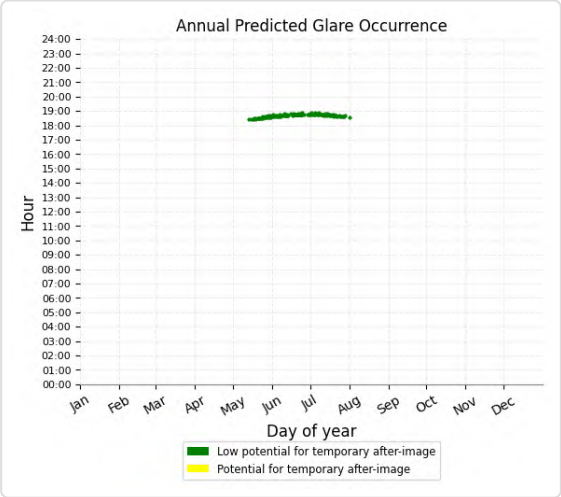
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd B	147	2.5	0	0.0
Race Track	96	1.6	0	0.0
SR177 A	903	15.1	0	0.0
SR177 B	481	8.0	0	0.0
AirportRd A	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	33,120	552.0	15,314	255.2
IR217m	11,884	198.1	247	4.1
IR218l	3,466	57.8	129	2.1
IR218m	3,930	65.5	153	2.5
IR218u	2,943	49.0	14	0.2
IR255l	1,694	28.2	639	10.7
VR289l	38,560	642.7	3,043	50.7
VR296l	22,929	382.1	14,001	233.3
VR296m	12,096	201.6	2,070	34.5
VR296u	6,175	102.9	256	4.3
CN6423	1,057	17.6	0	0.0
IR217u	6,035	100.6	0	0.0
IR255m	17,034	283.9	0	0.0
IR255u	4,723	78.7	0	0.0
VR289m	18,844	314.1	0	0.0
VR289u	11,723	195.4	0	0.0
CN645	0	0.0	0	0.0
OP 1	99	1.6	0	0.0
OP 4	20	0.3	0	0.0

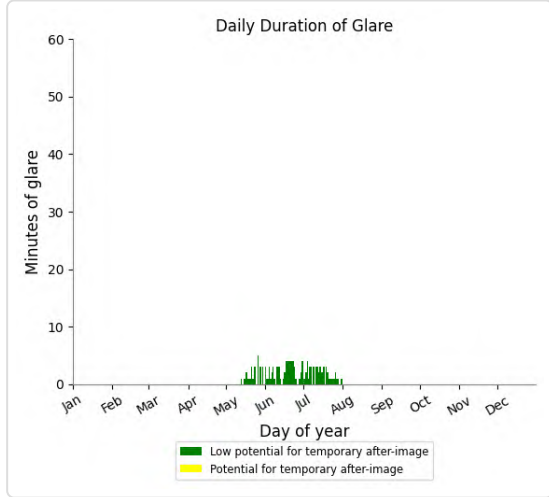
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

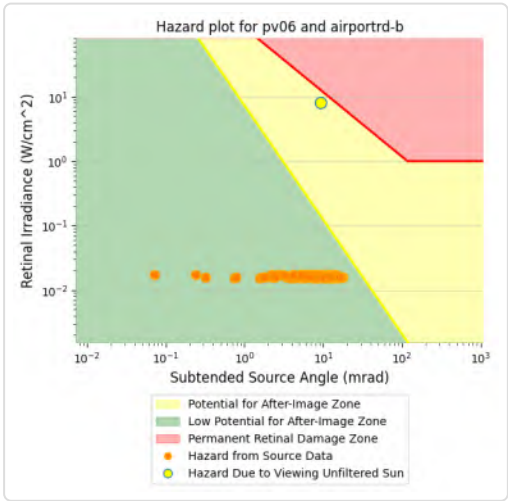
PV06 and Route: AirportRd B

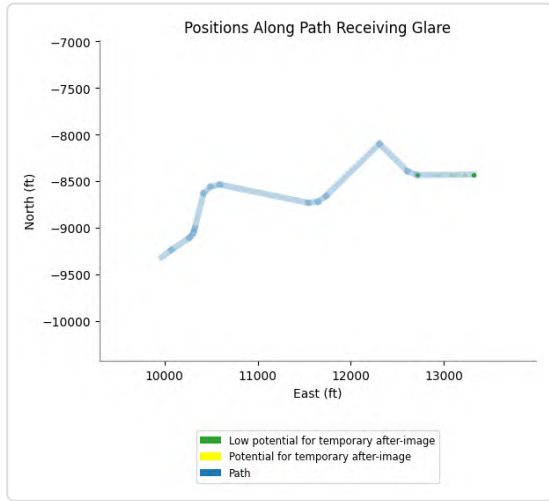
Yellow glare: none

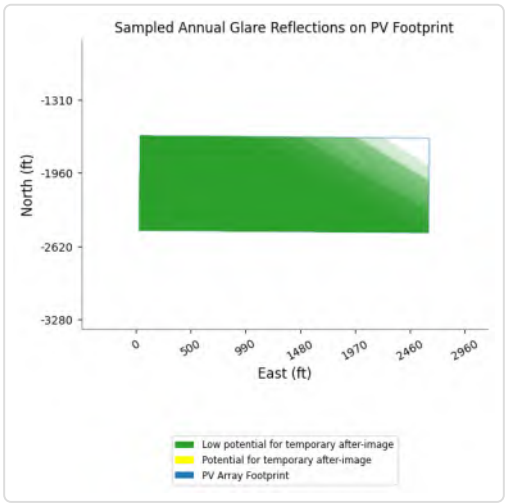
Green glare: 147 min.







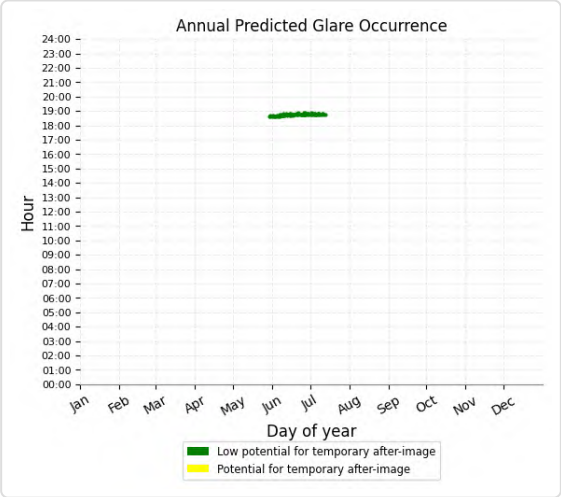


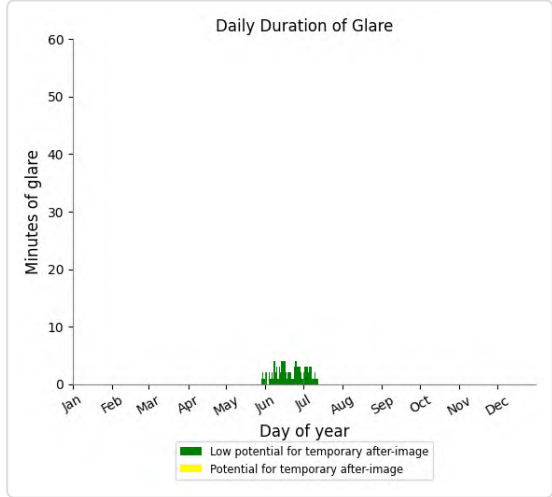


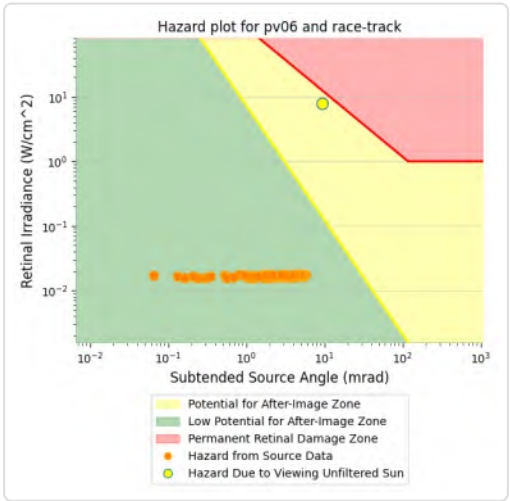
PV06 and Route: Race Track

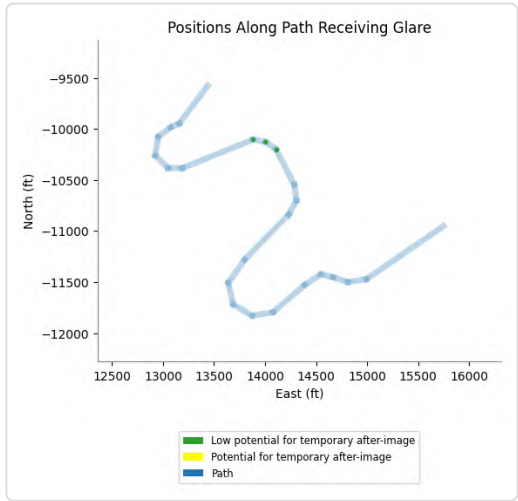
Yellow glare: none

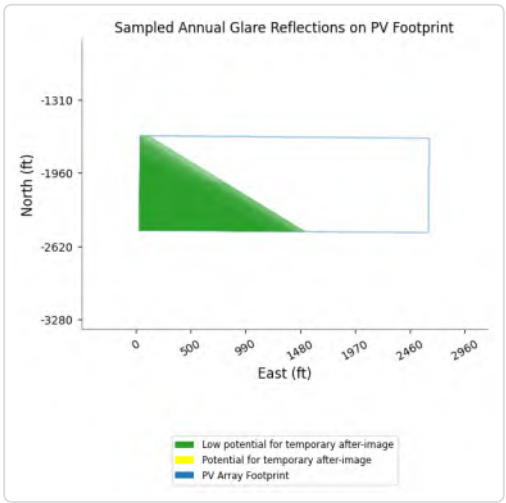
Green glare: 96 min.







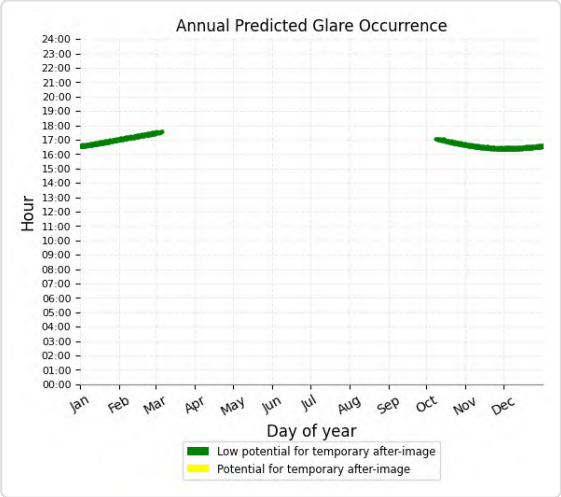


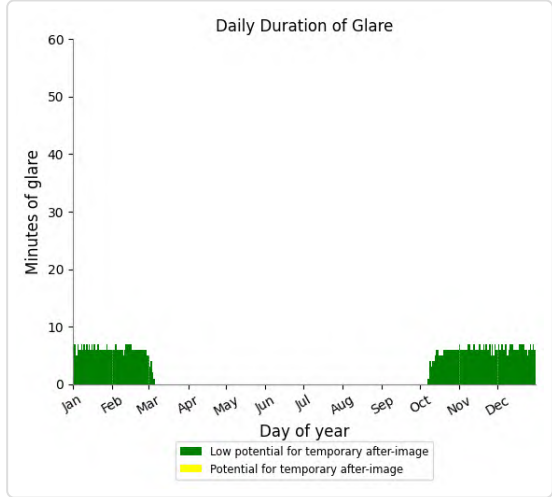


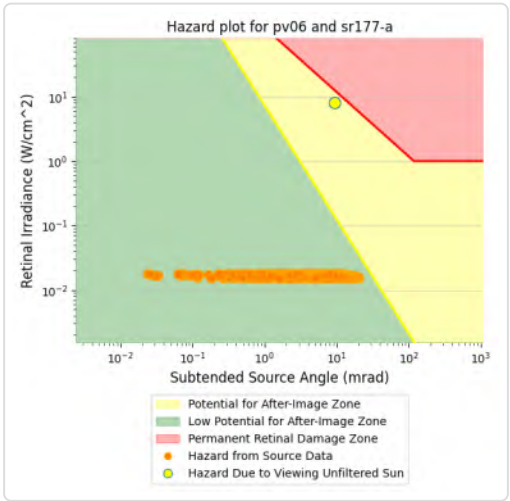
PV06 and Route: SR177 A

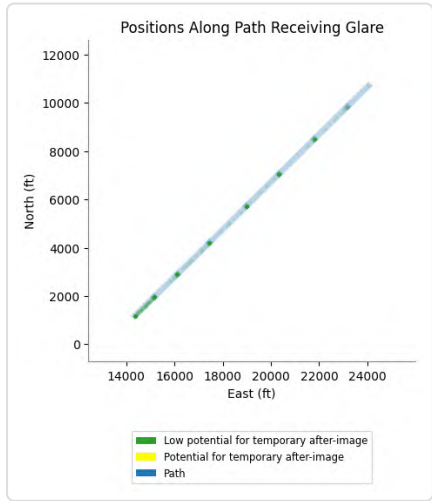
Yellow glare: none

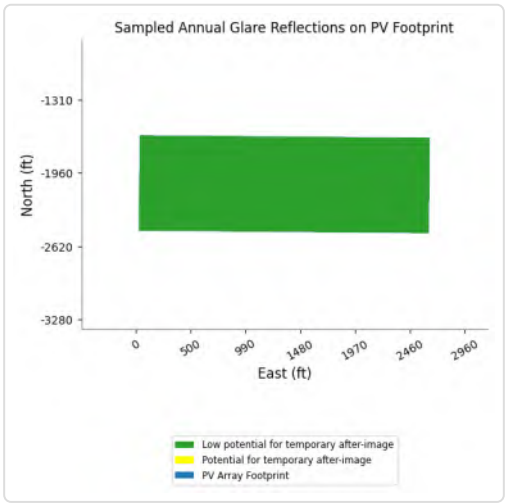
Green glare: 903 min.







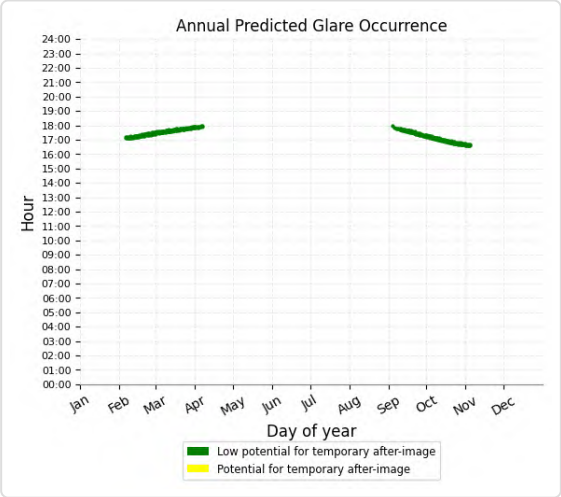


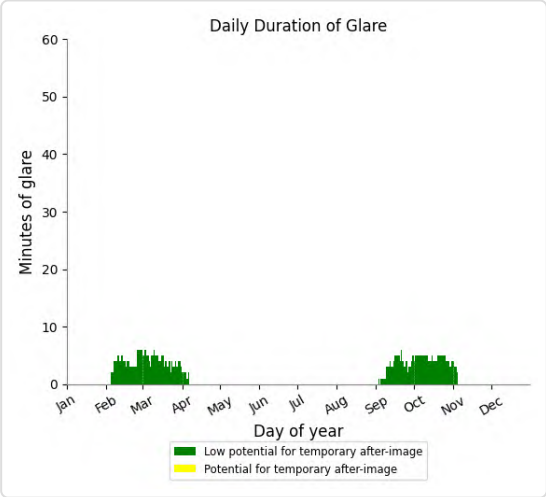


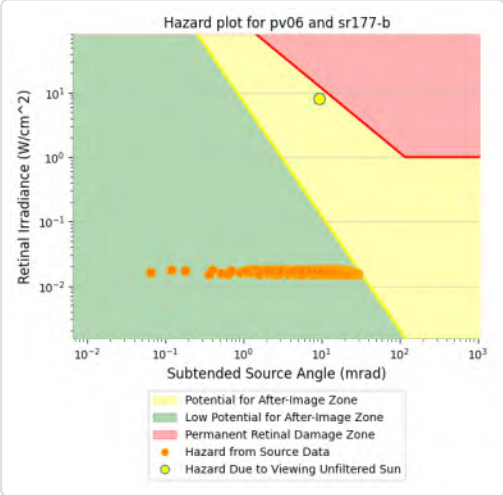
PV06 and Route: SR177 B

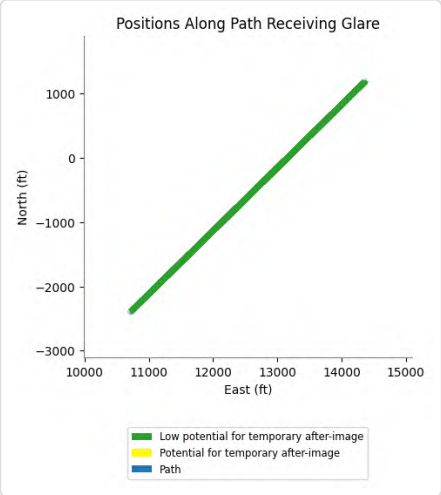
Yellow glare: none

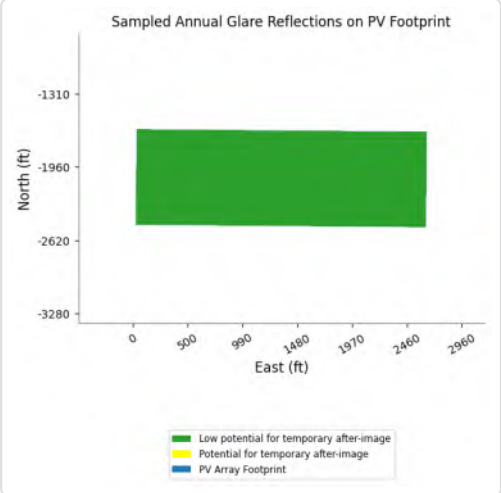
Green glare: 481 min.











PV06 and Route: AirportRd A

No glare found

PV06 and Route: EagleMtnRd A

No glare found

PV06 and Route: EagleMtnRd B

No glare found

PV06 and Route: I-10 EB A

No glare found

PV06 and Route: I-10 EB B

No glare found

PV06 and Route: I-10 EB C

No glare found

PV06 and Route: I-10 WB A

No glare found

PV06 and Route: I-10 WB B

No glare found

PV06 and Route: I-10 WB C

No glare found

PV06 and Route: KaiserRd A

No glare found

PV06 and Route: KaiserRd B

No glare found

PV06 and Route: KaiserRd C

No glare found

PV06 and Route: OasisRd

No glare found

PV06 and Route: SR177 C

No glare found

PV06 and Route: SR177 D

No glare found

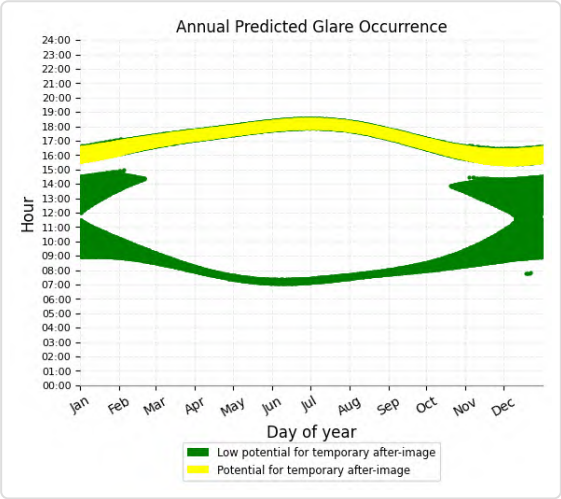
PV06 and Route: SR177 E

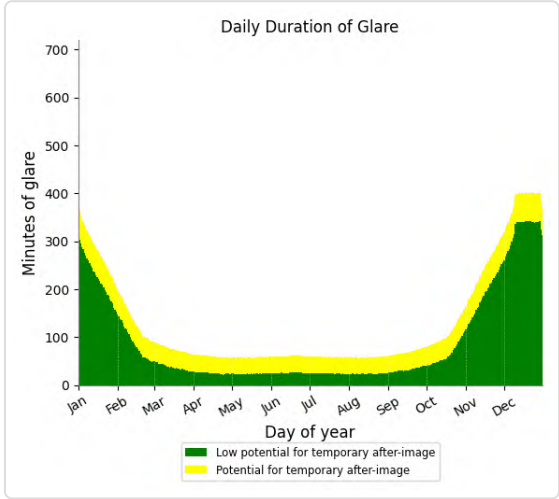
No glare found

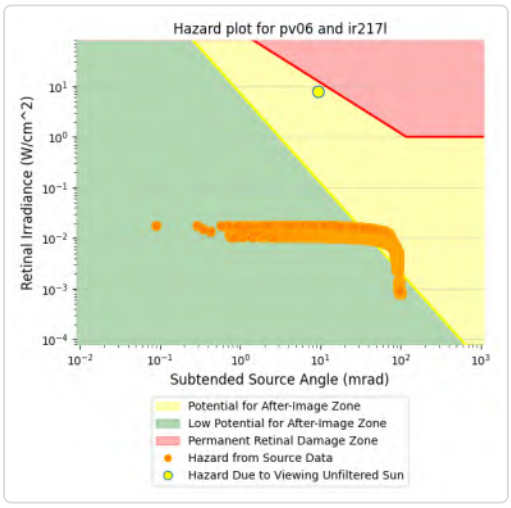
PV06 and FP: IR217I

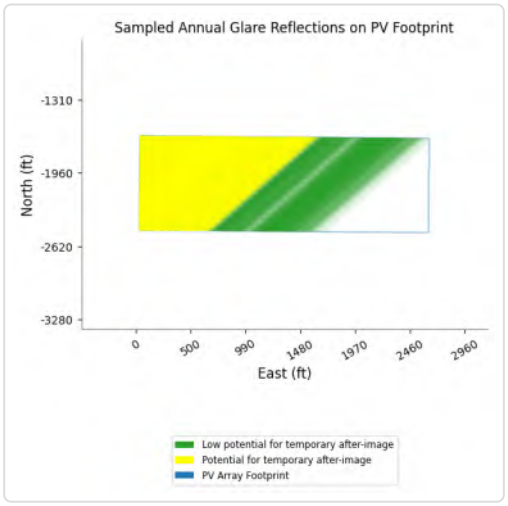
Yellow glare: 15,314 min.

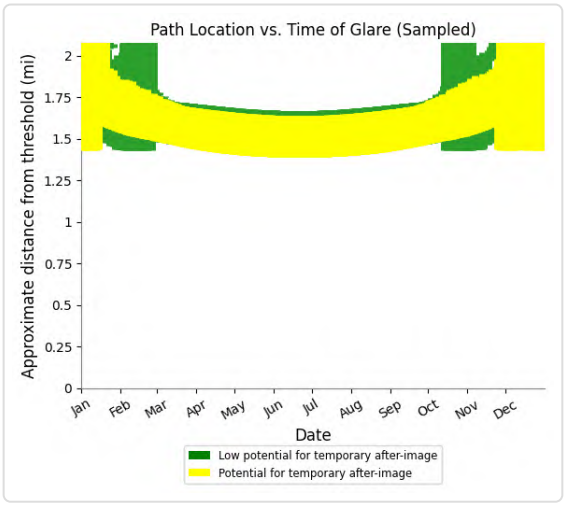
Green glare: 33,120 min.







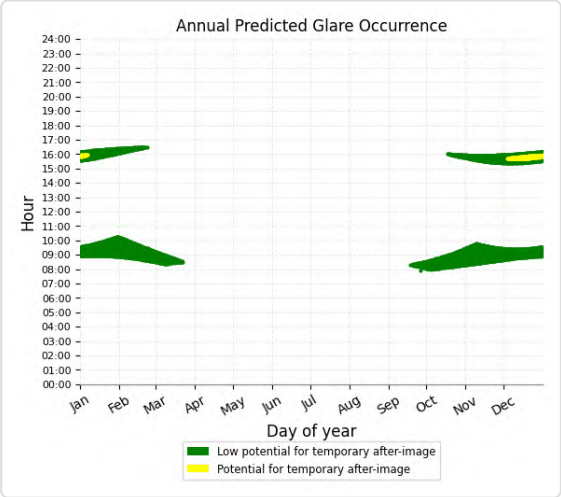


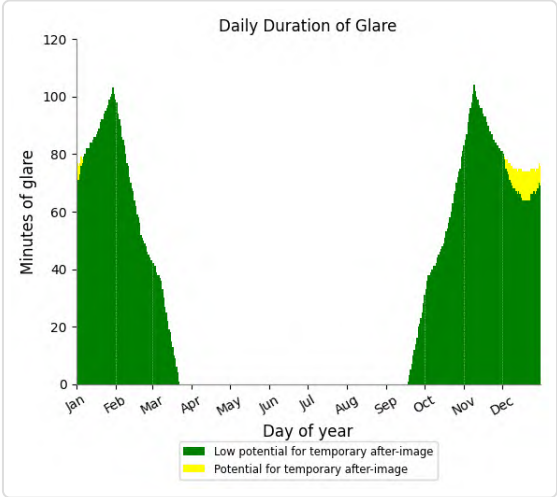


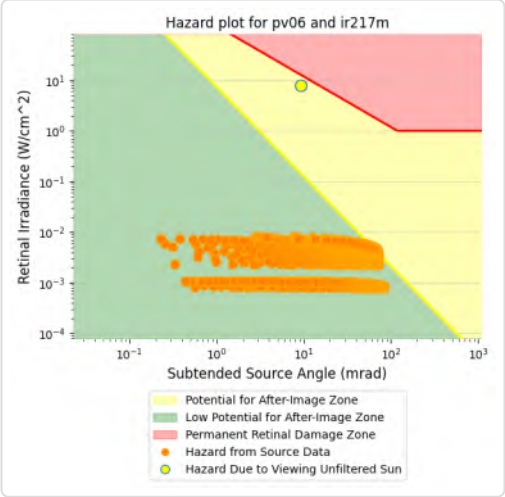
PV06 and FP: IR217m

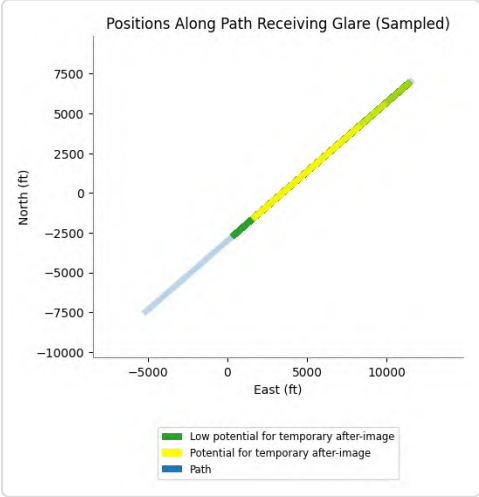
Yellow glare: 247 min.

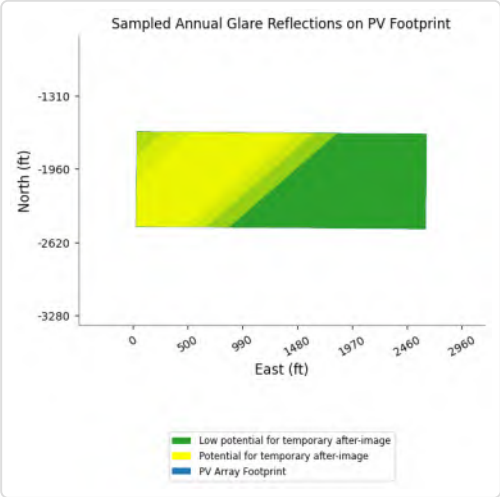
Green glare: 11,884 min.

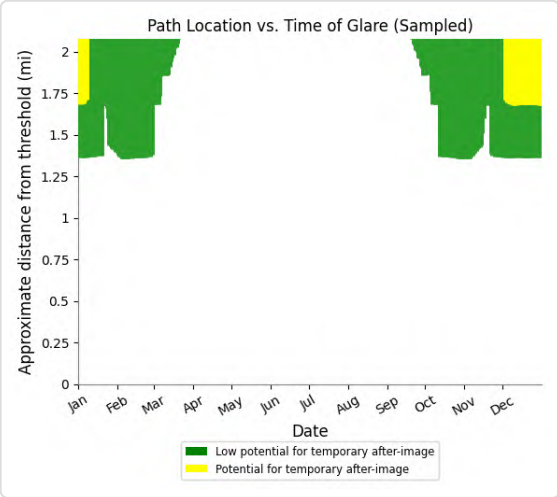








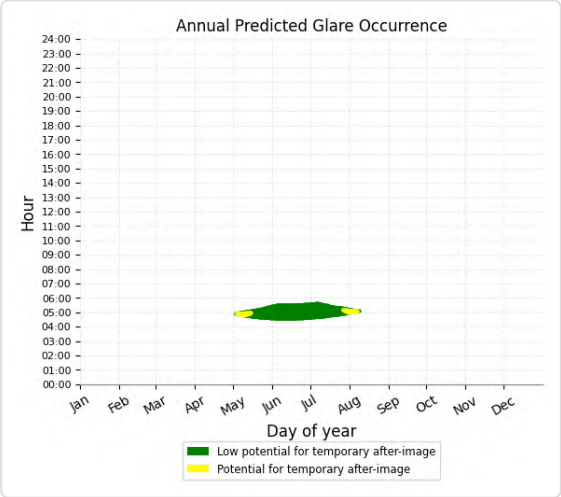


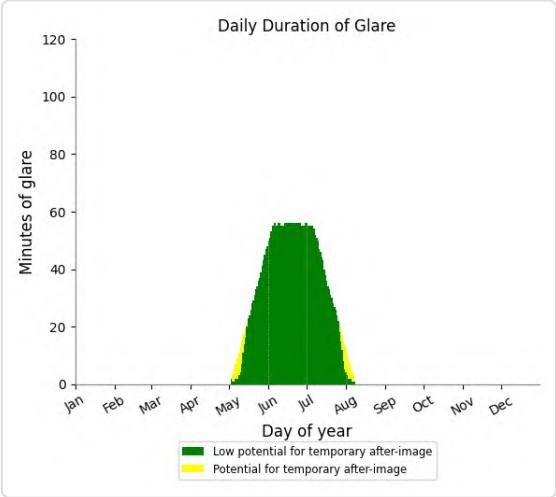


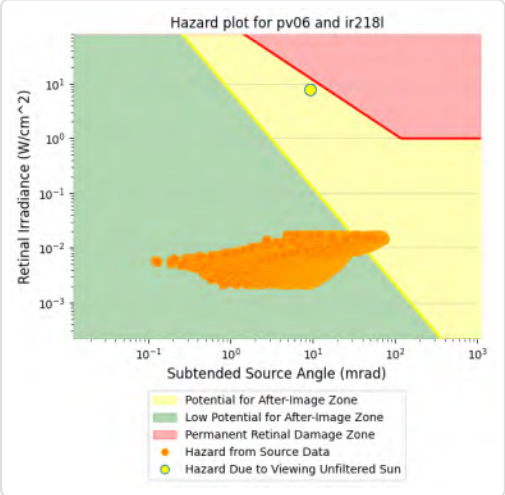
PV06 and FP: IR218l

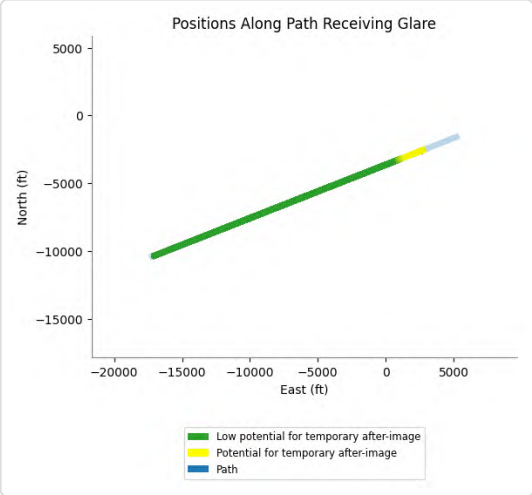
Yellow glare: 129 min.

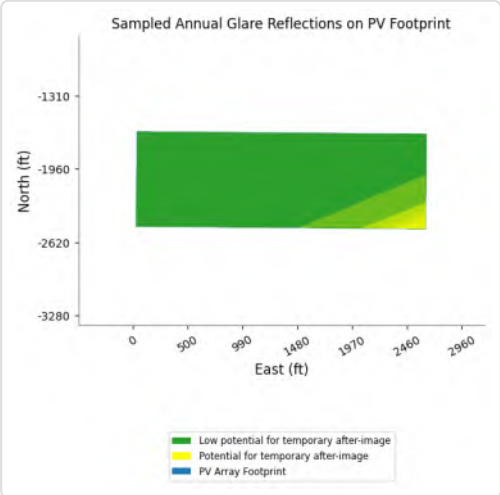
Green glare: 3,466 min.

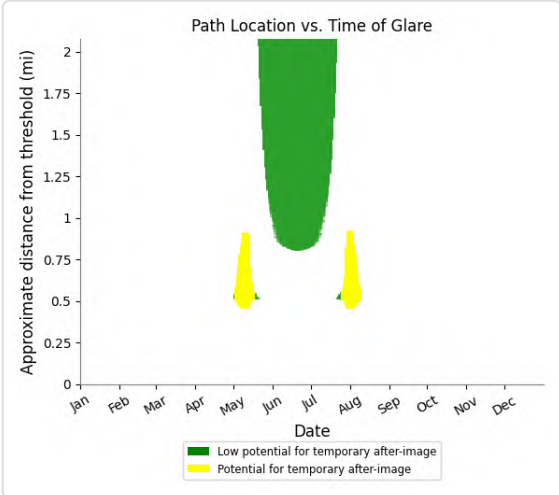








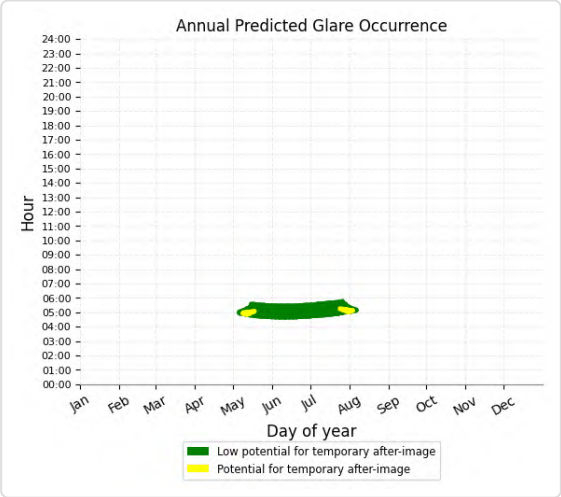


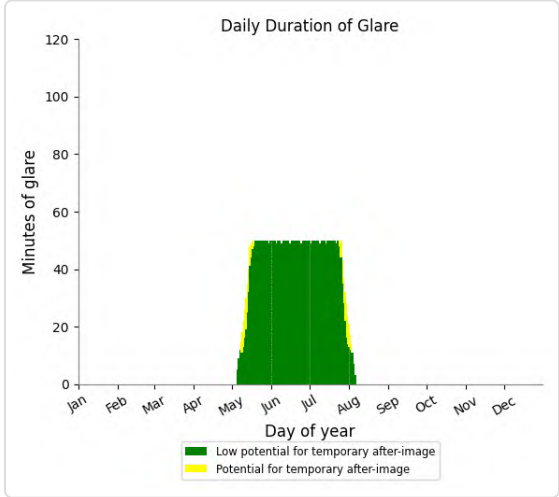


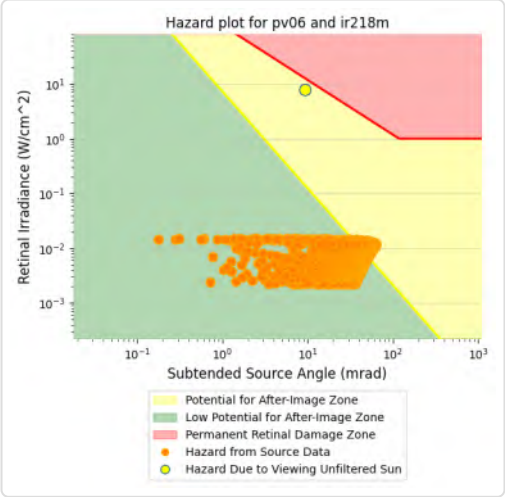
PV06 and FP: IR218m

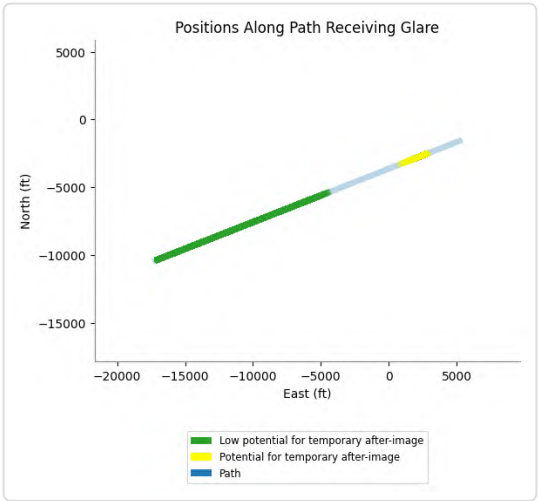
Yellow glare: 153 min.

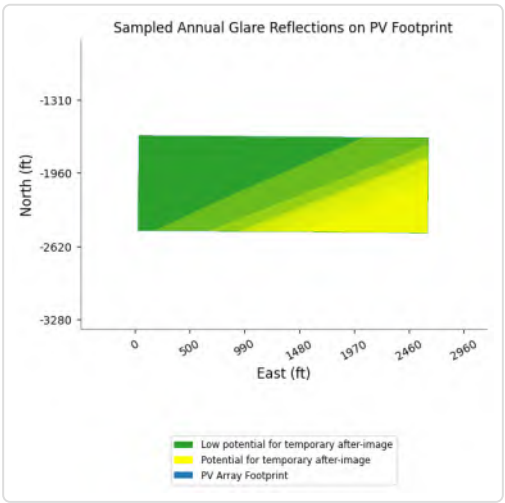
Green glare: 3,930 min.

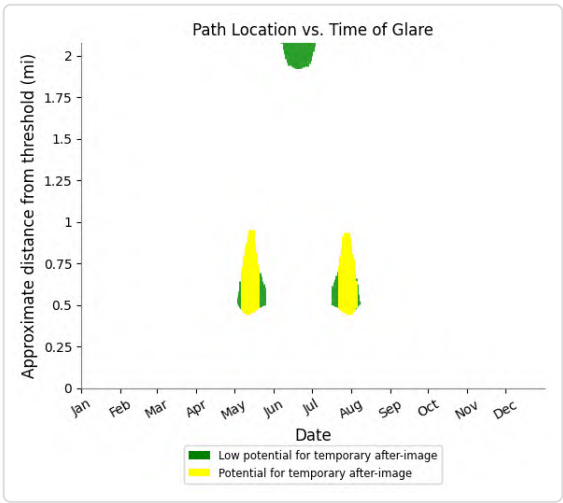








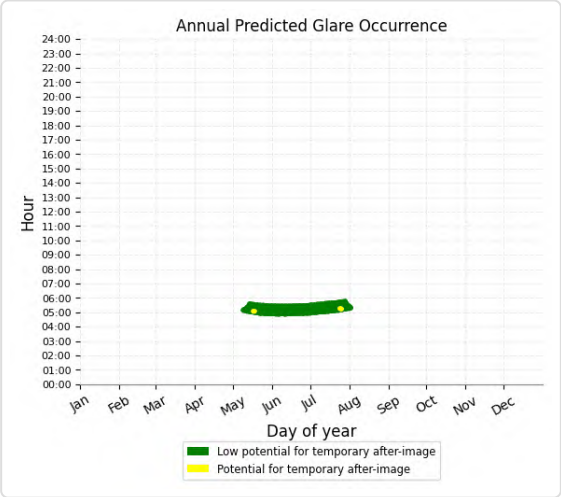


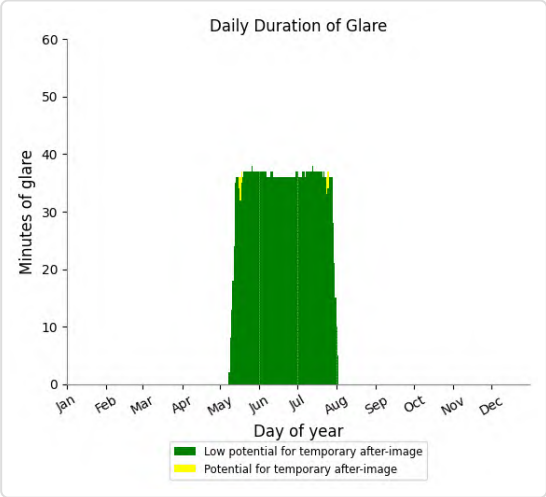


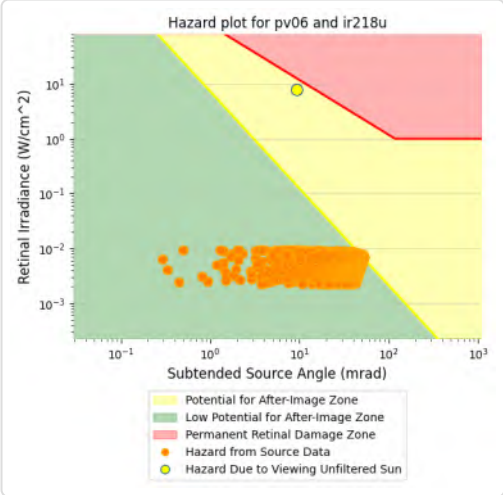
PV06 and FP: IR218u

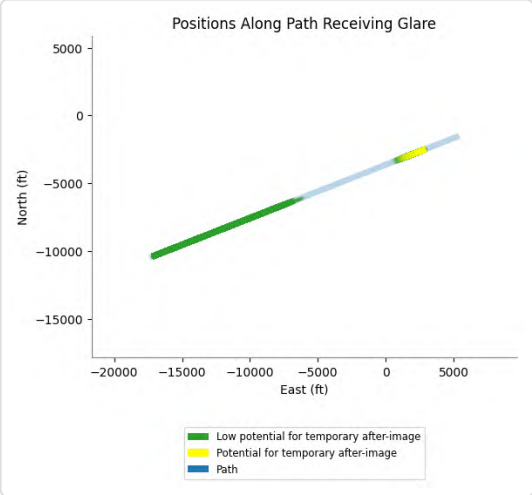
Yellow glare: 14 min.

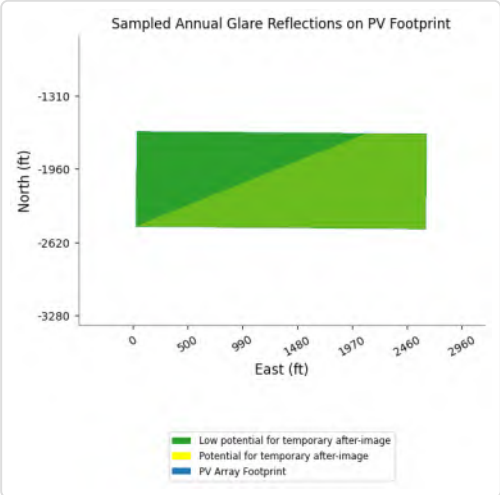
Green glare: 2,943 min.

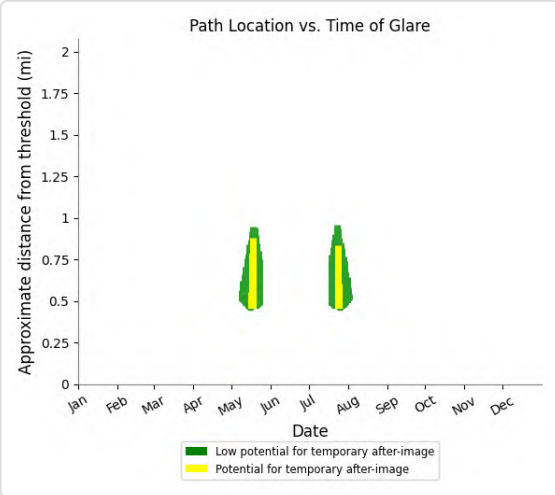








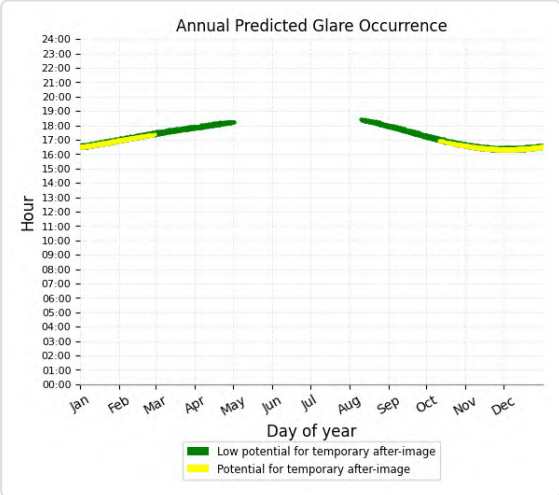


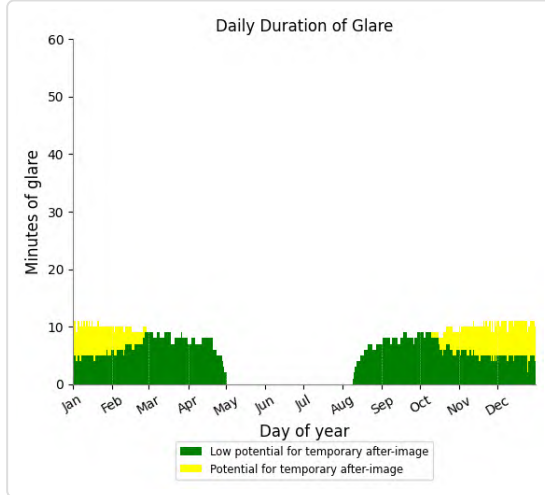


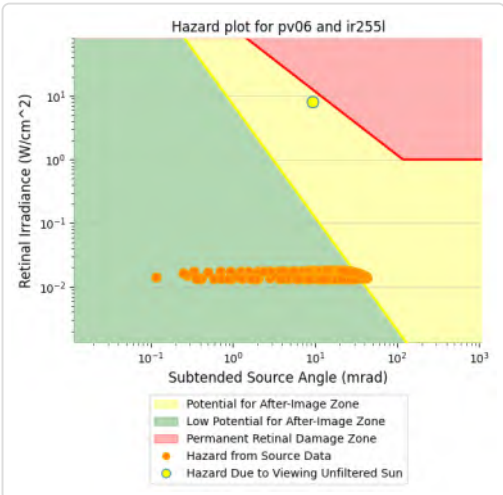
PV06 and FP: IR255I

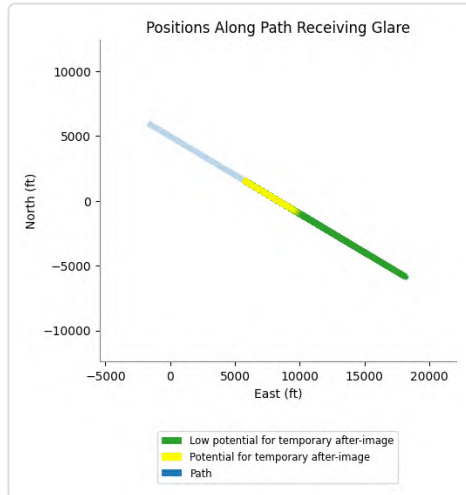
Yellow glare: 639 min.

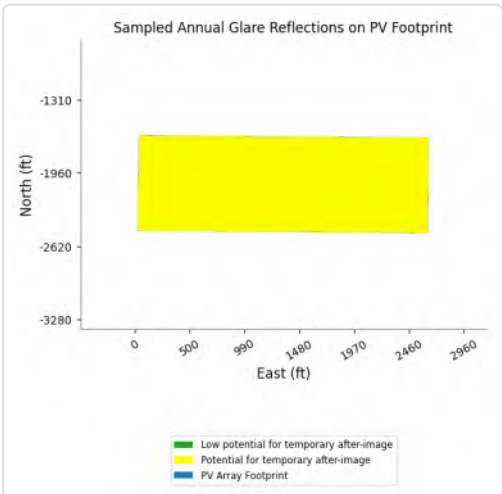
Green glare: 1,694 min.

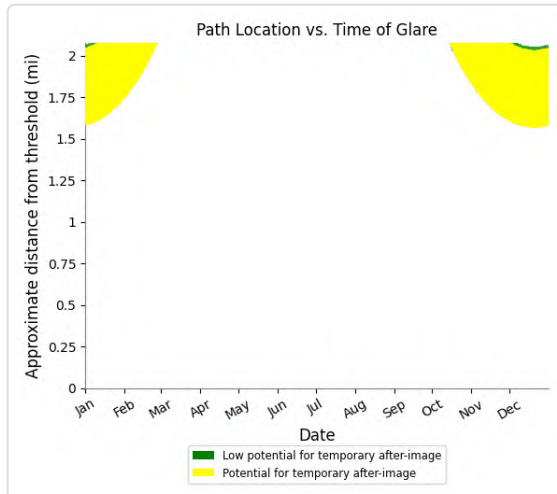








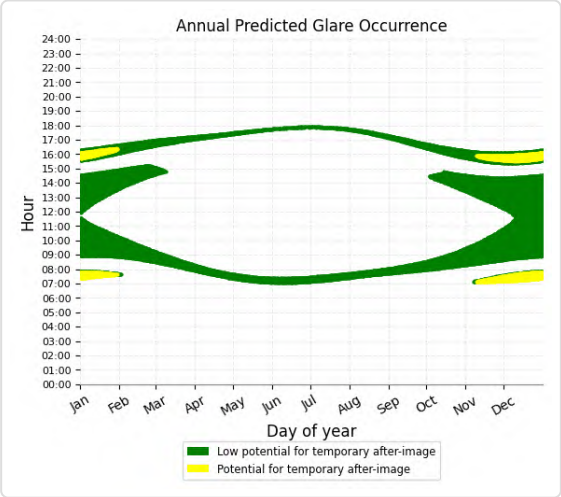


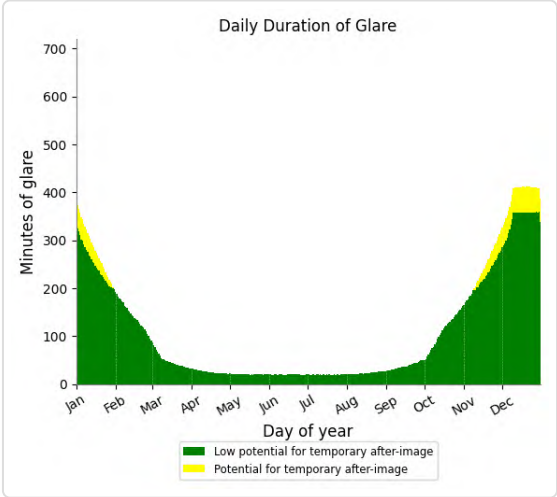


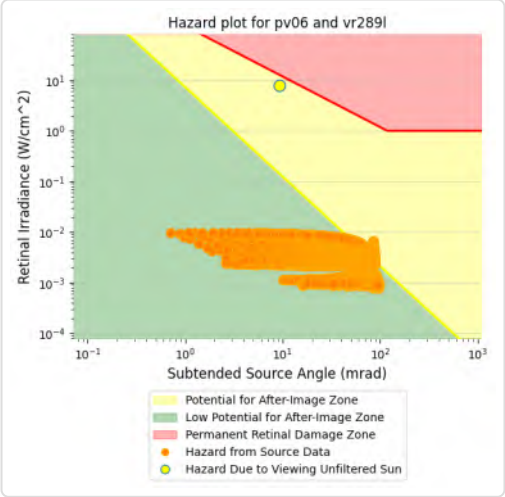
PV06 and FP: VR289I

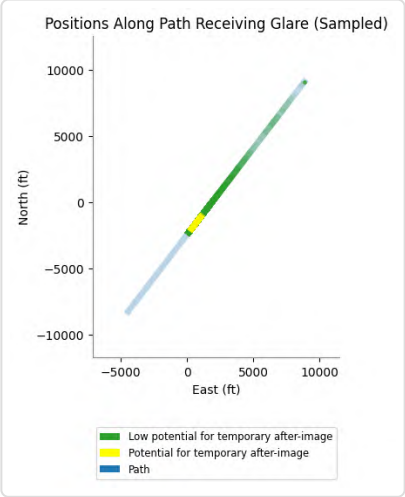
Yellow glare: 3,043 min.

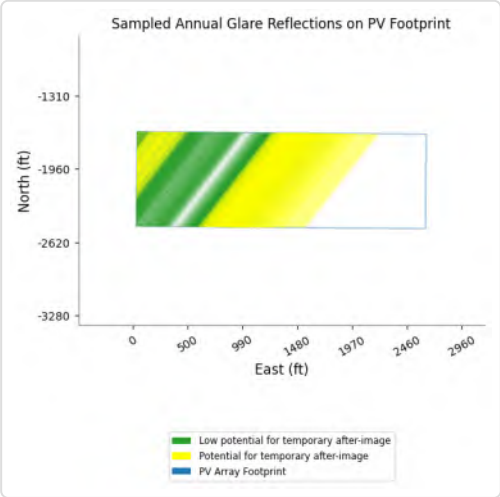
Green glare: 38,560 min.

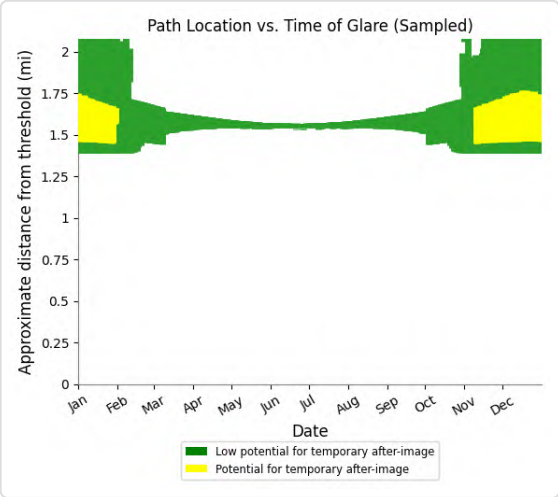








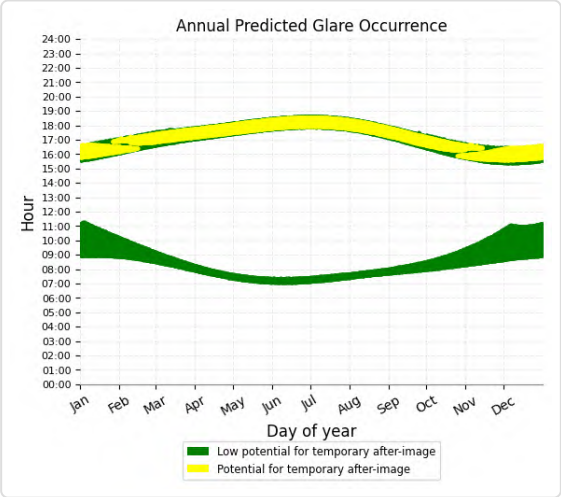


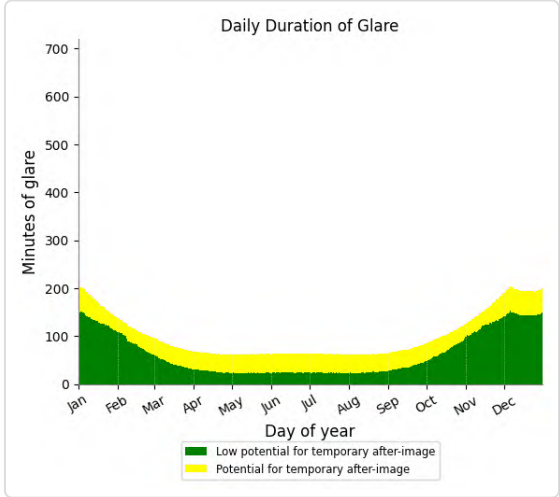


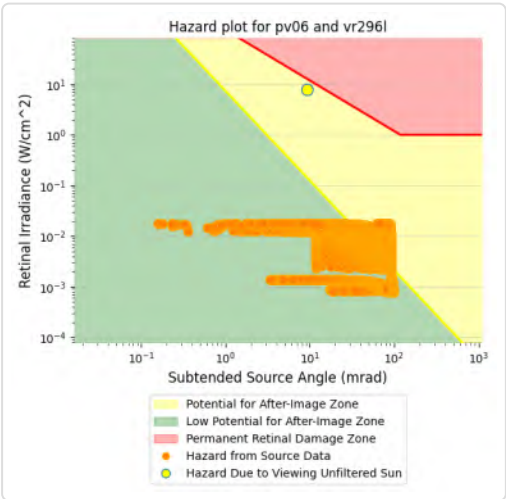
PV06 and FP: VR296I

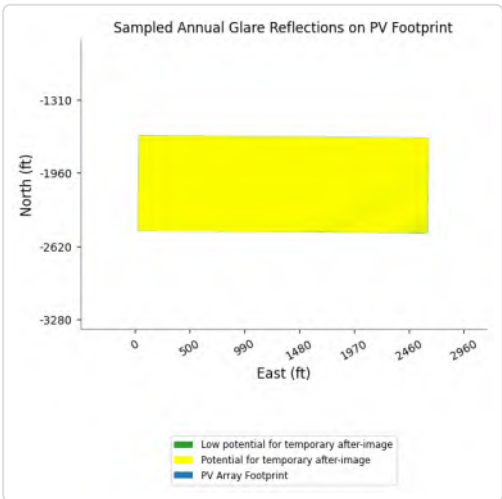
Yellow glare: 14,001 min.

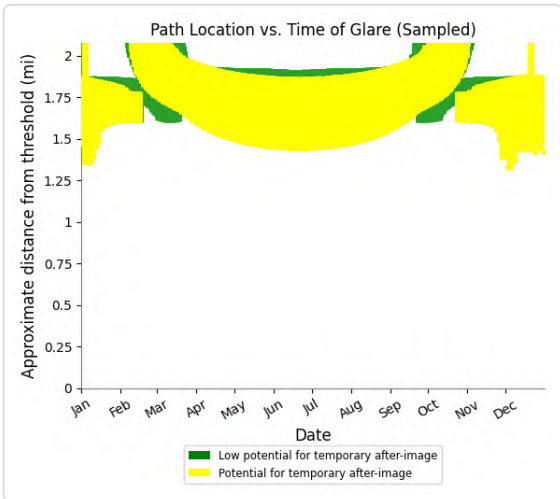
Green glare: 22,929 min.







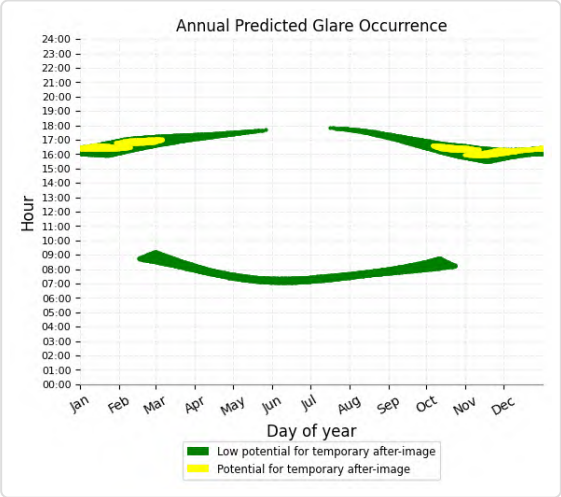


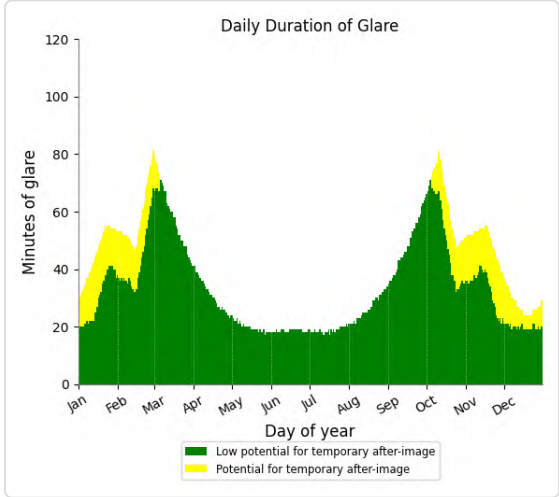


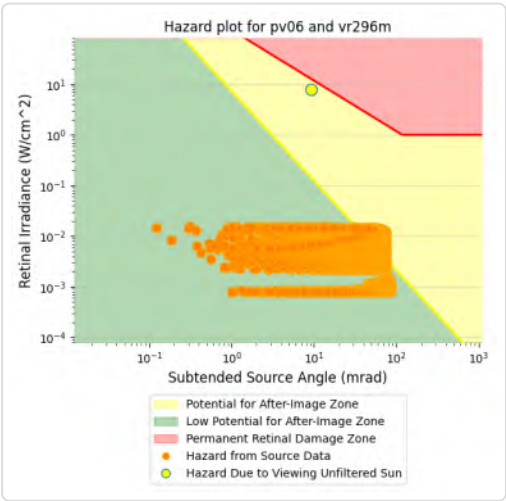
PV06 and FP: VR296m

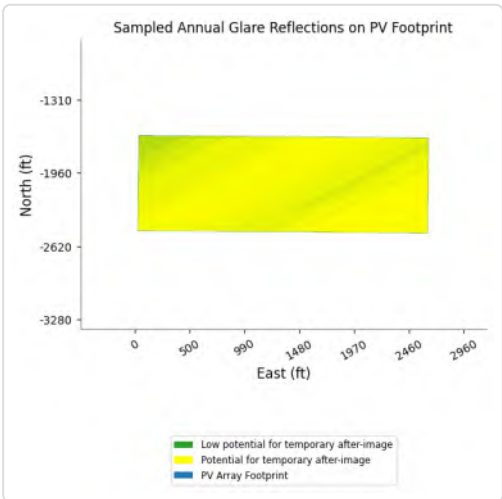
Yellow glare: 2,070 min.

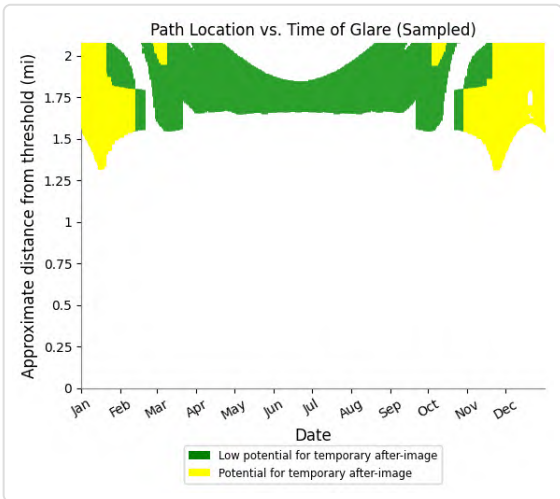
Green glare: 12,096 min.







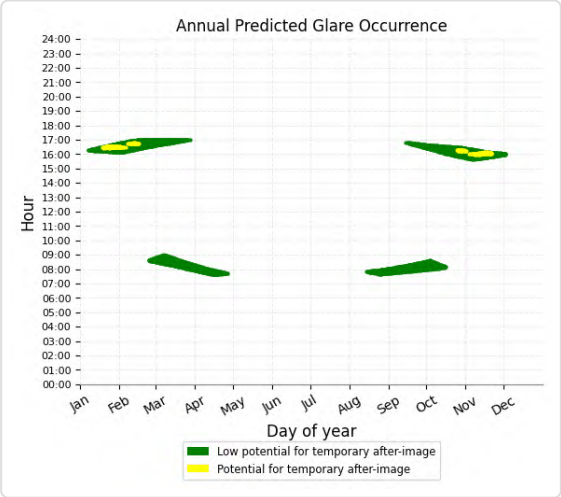


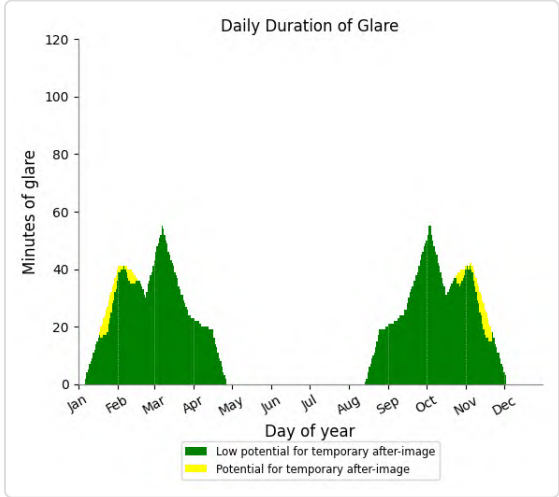


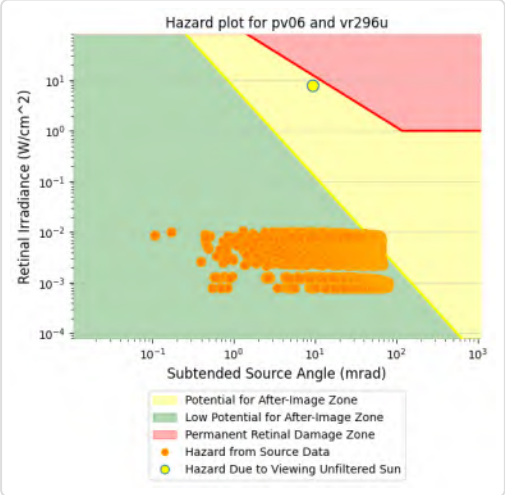
PV06 and FP: VR296u

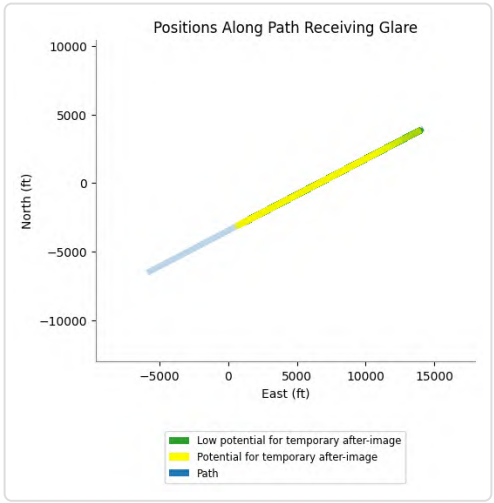
Yellow glare: 256 min.

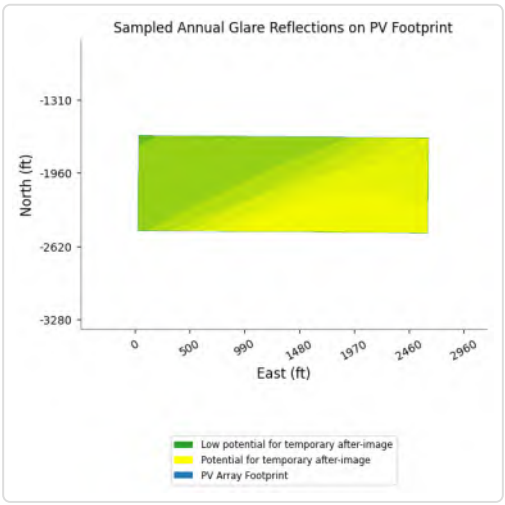
Green glare: 6,175 min.

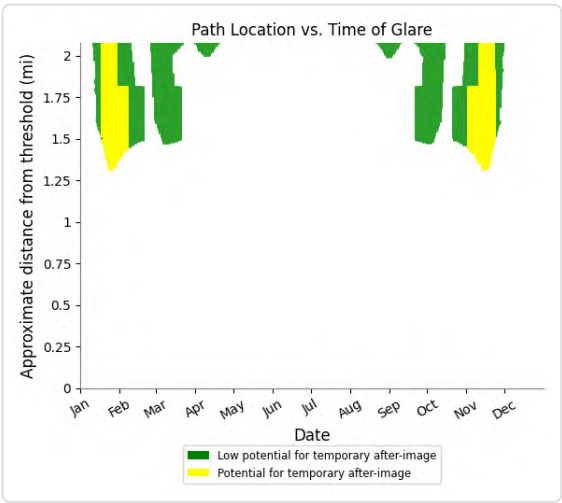








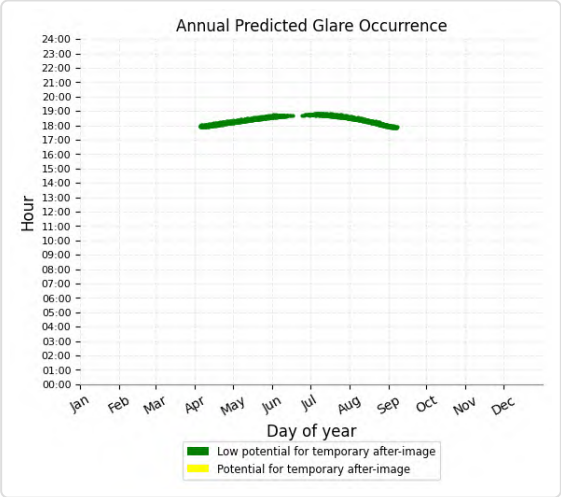


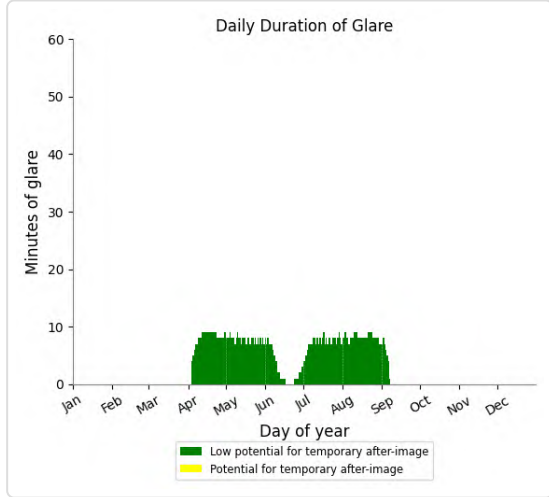


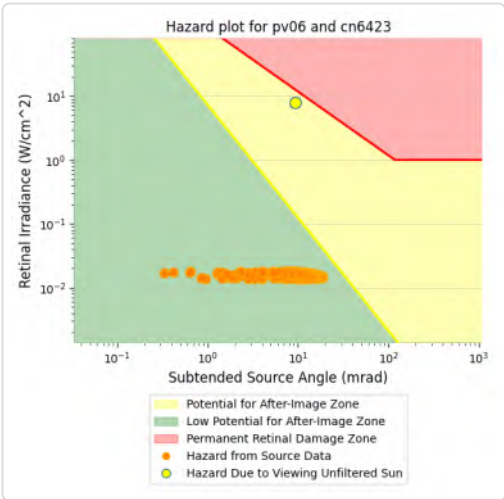
PV06 and FP: CN6423

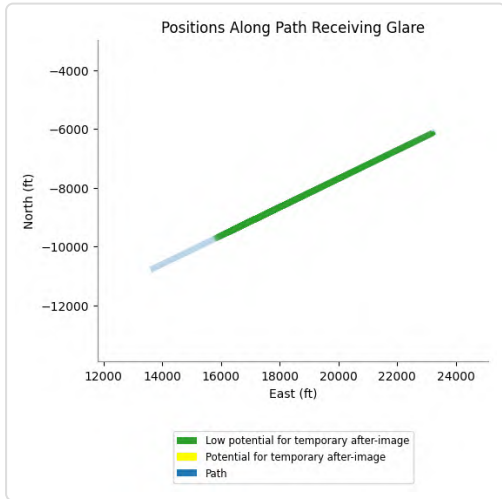
Yellow glare: none

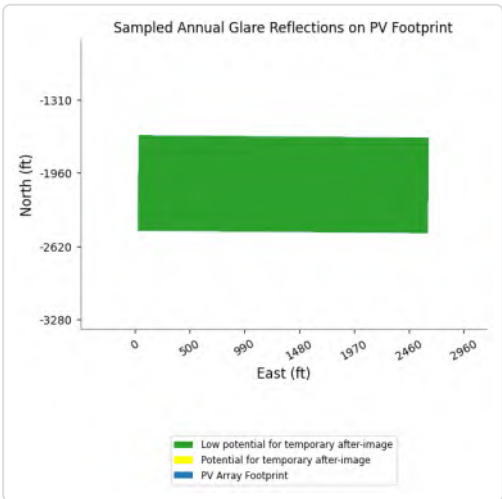
Green glare: 1,057 min.

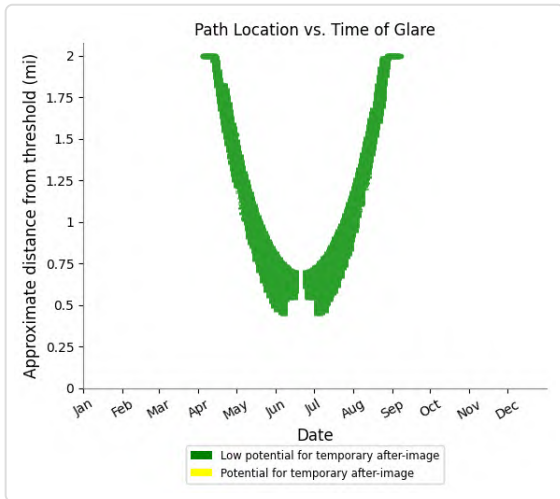








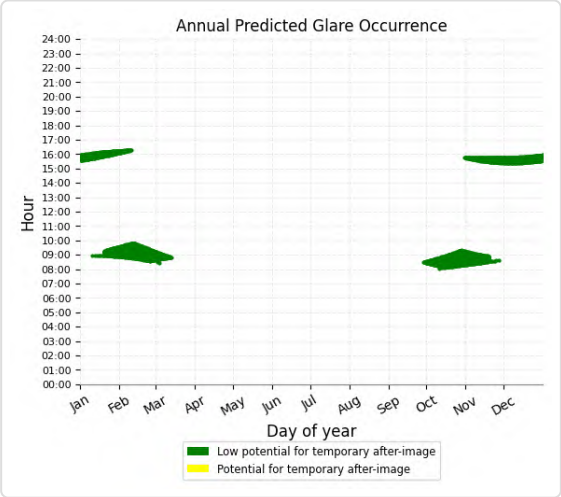


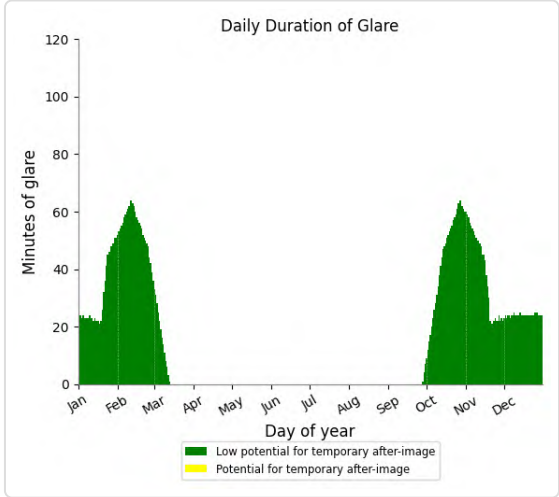


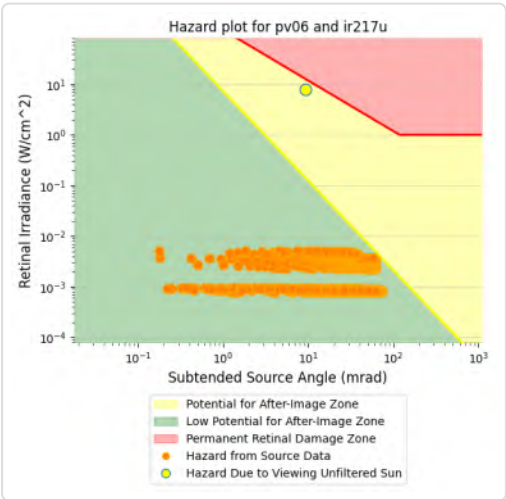
PV06 and FP: IR217u

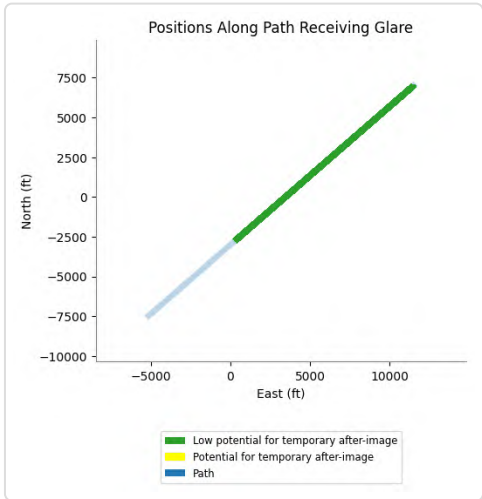
Yellow glare: none

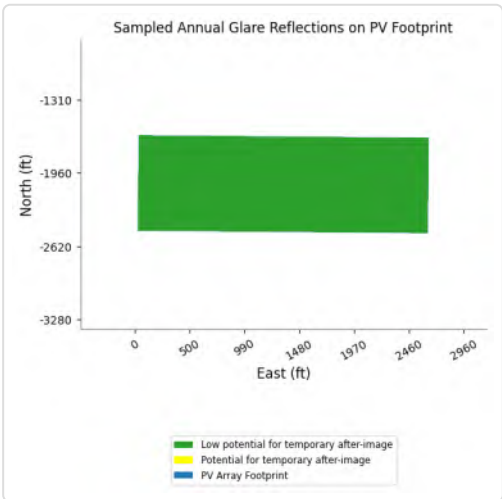
Green glare: 6,035 min.

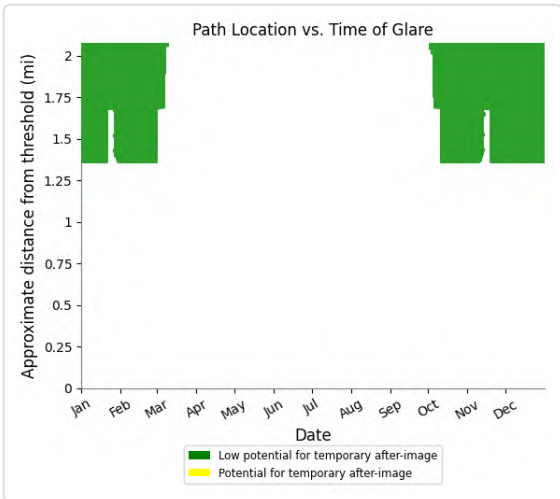








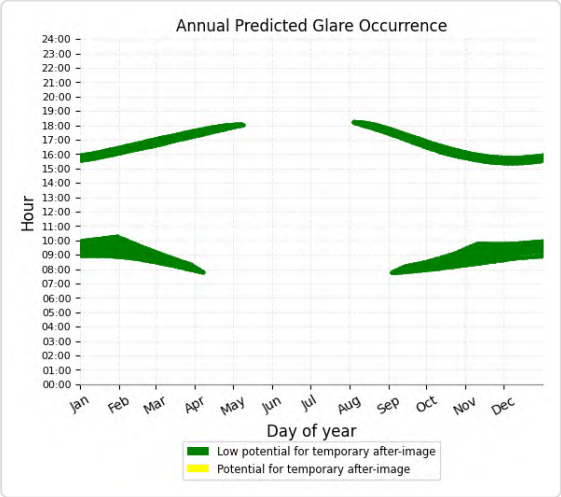


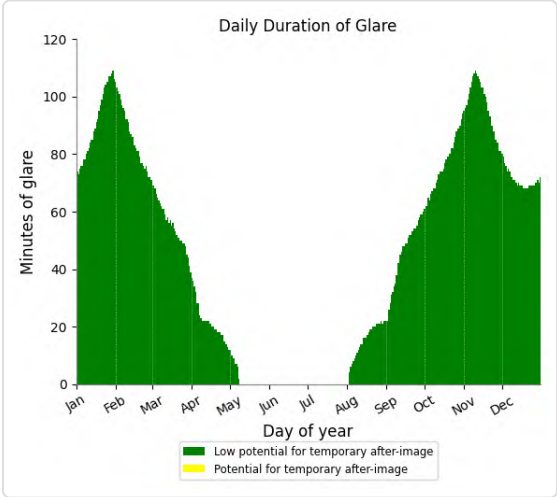


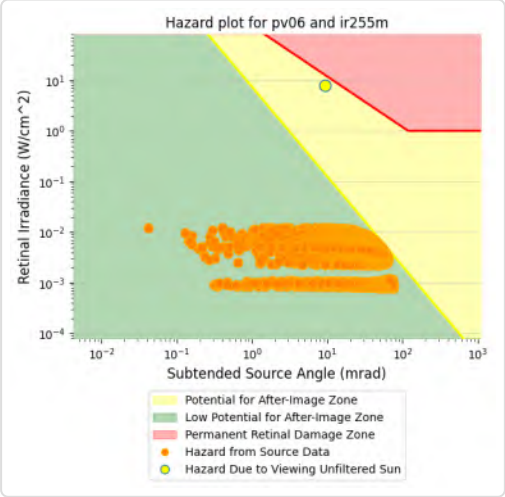
PV06 and FP: IR255m

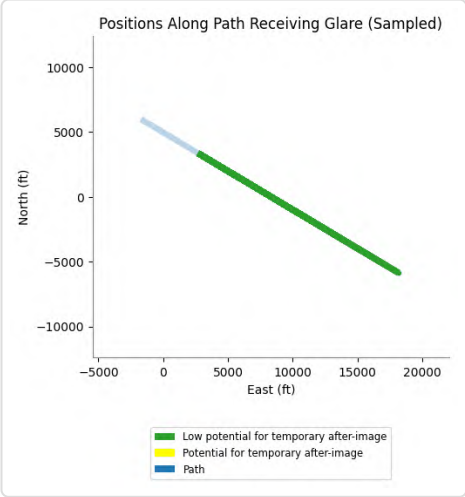
Yellow glare: none

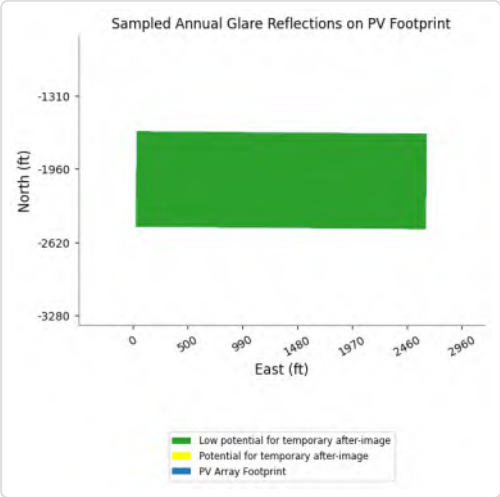
Green glare: 17,034 min.

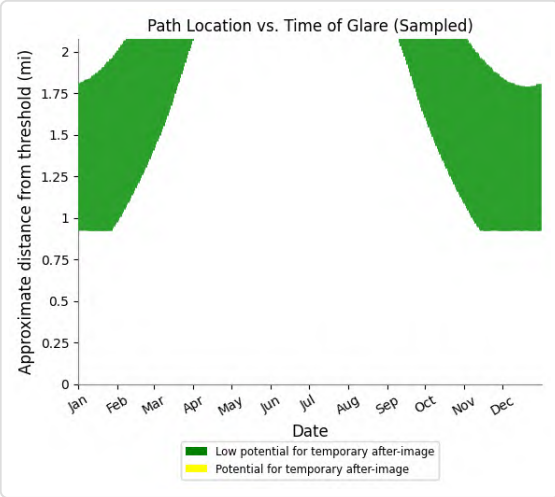








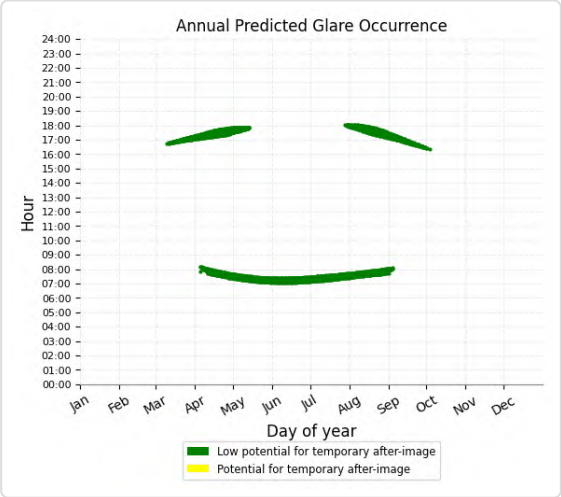


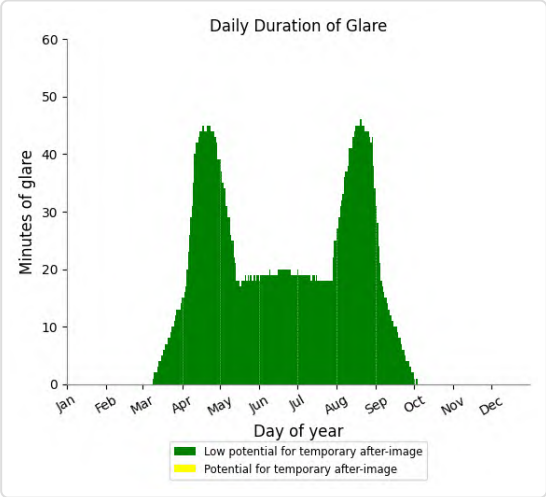


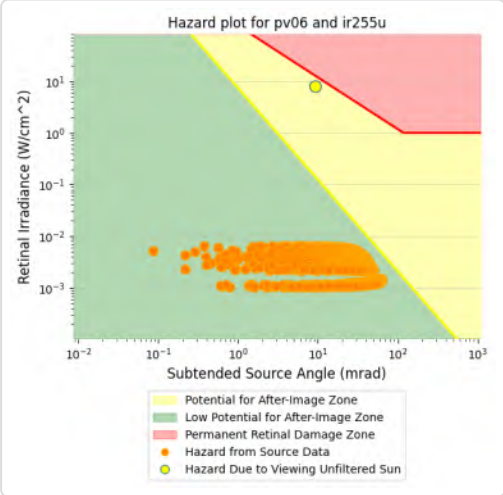
PV06 and FP: IR255u

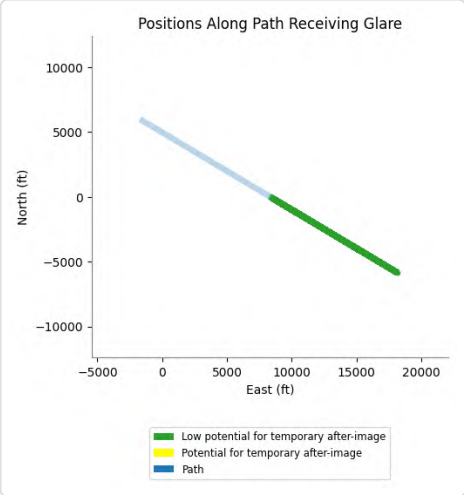
Yellow glare: none

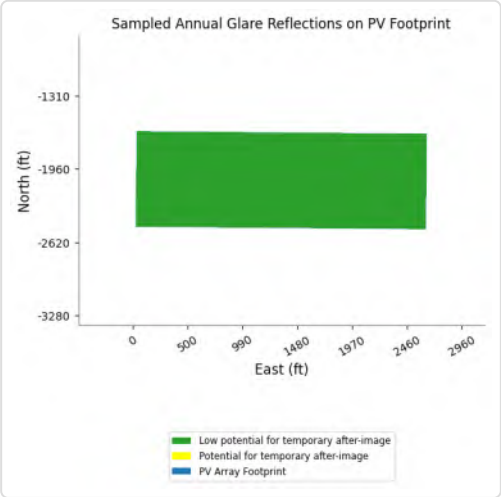
Green glare: 4,723 min.

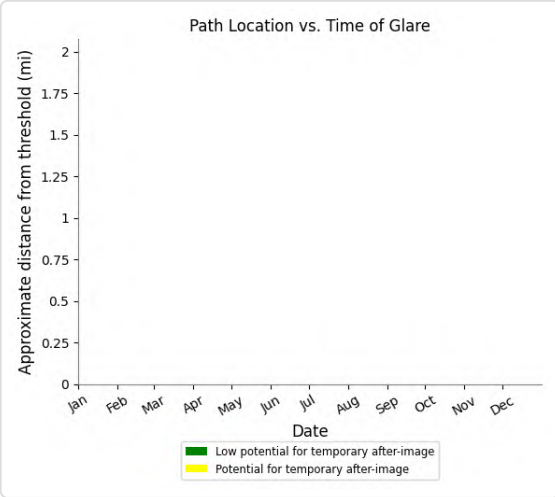








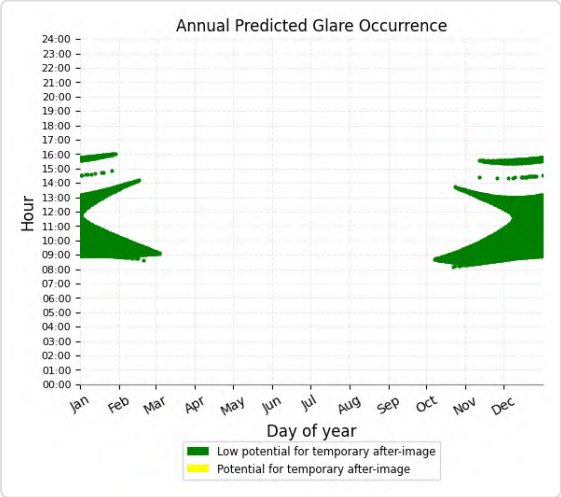


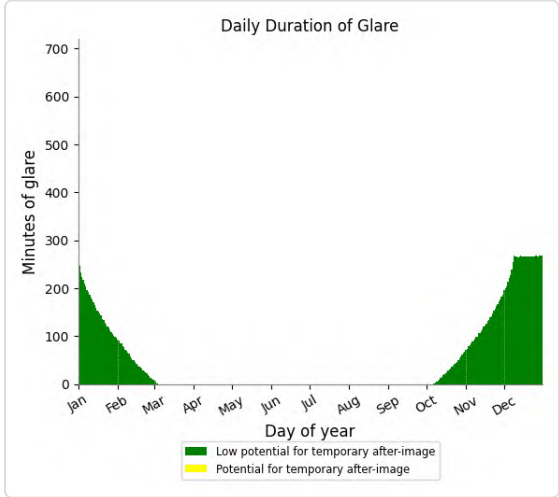


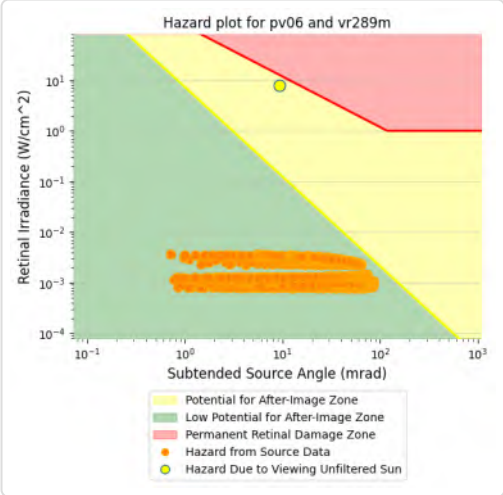
PV06 and FP: VR289m

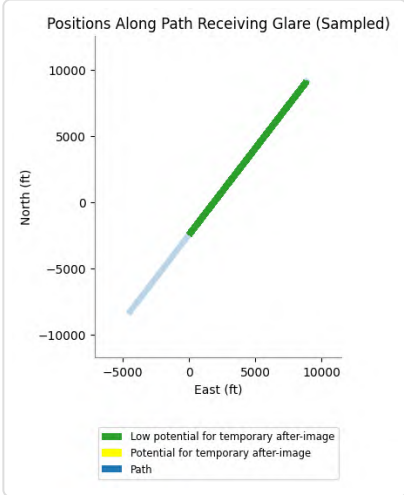
Yellow glare: none

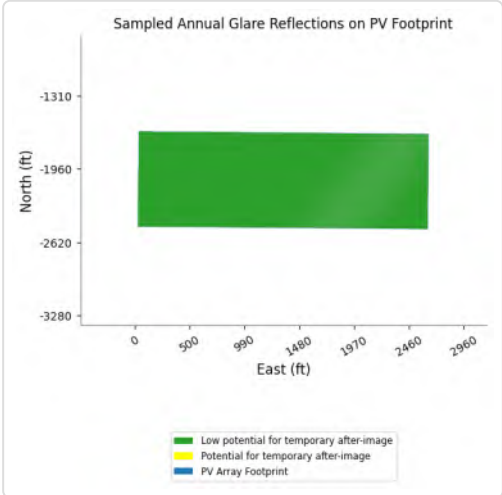
Green glare: 18,844 min.

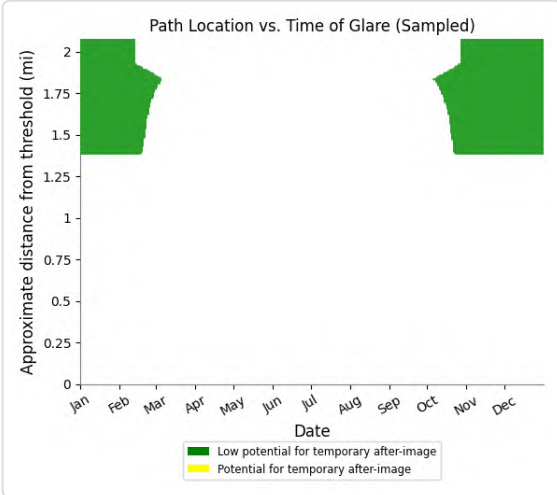








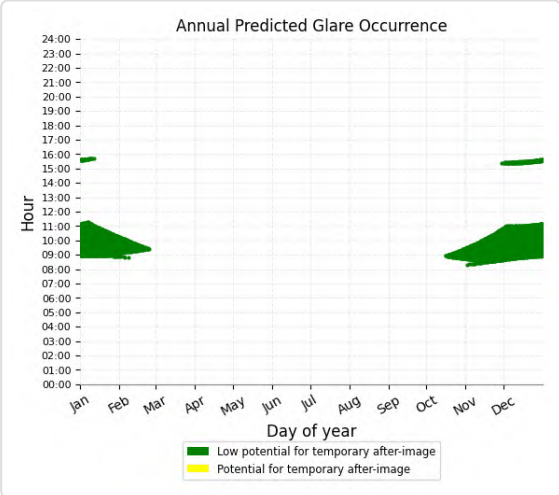


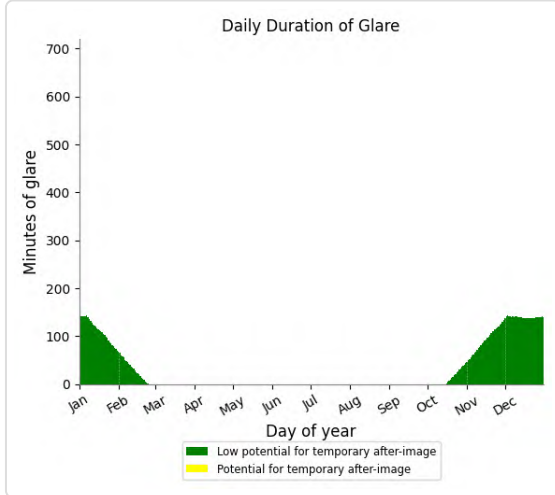


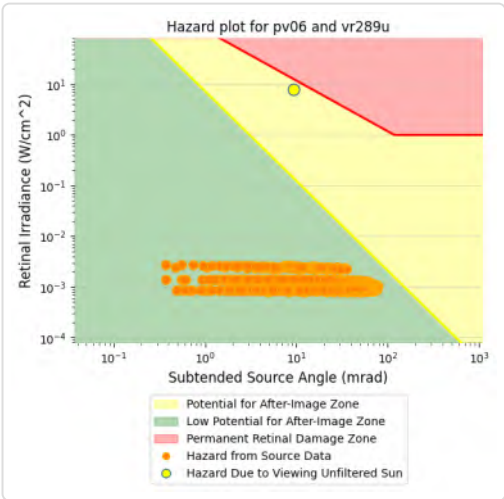
PV06 and FP: VR289u

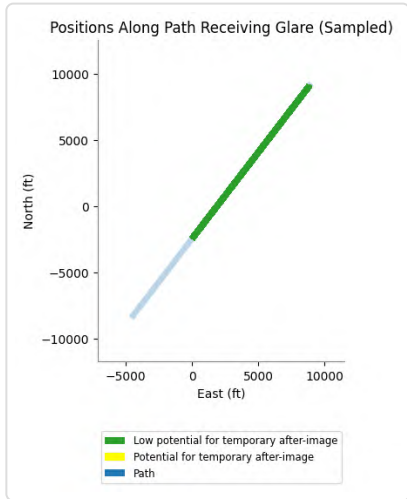
Yellow glare: none

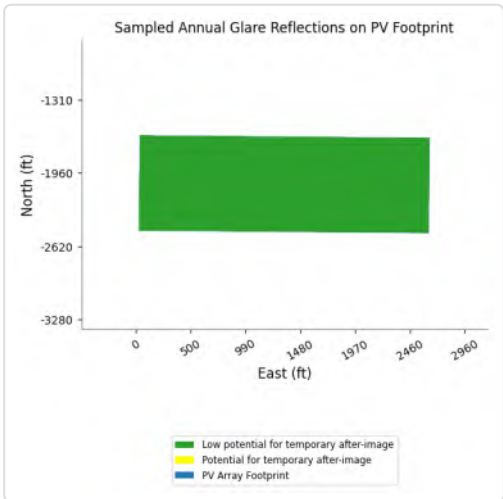
Green glare: 11,723 min.

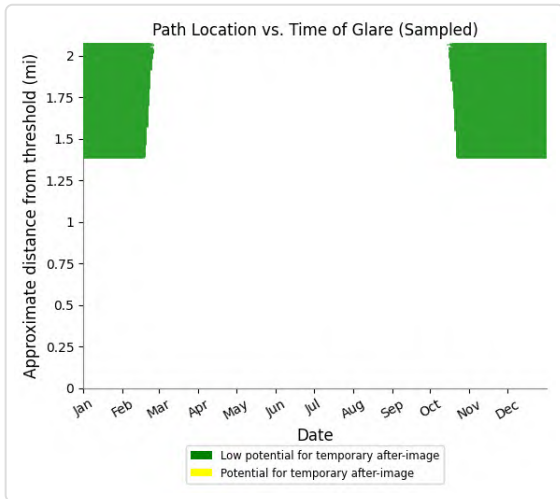












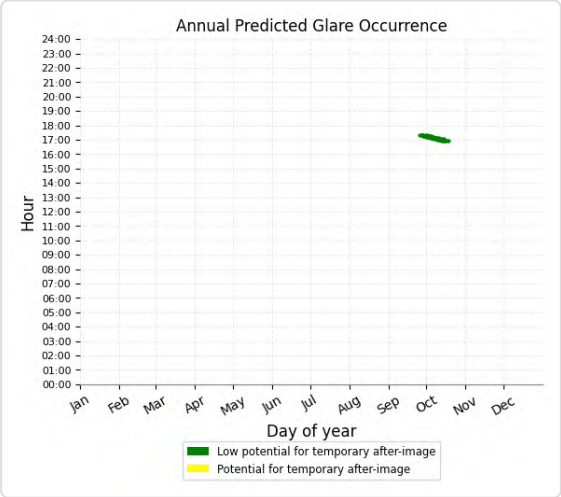
PV06 and FP: CN645

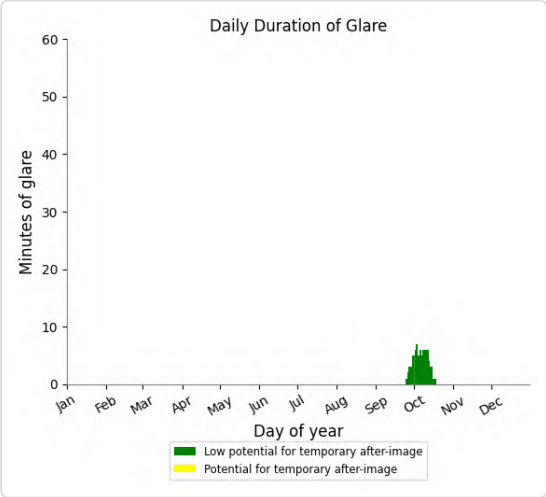
No glare found

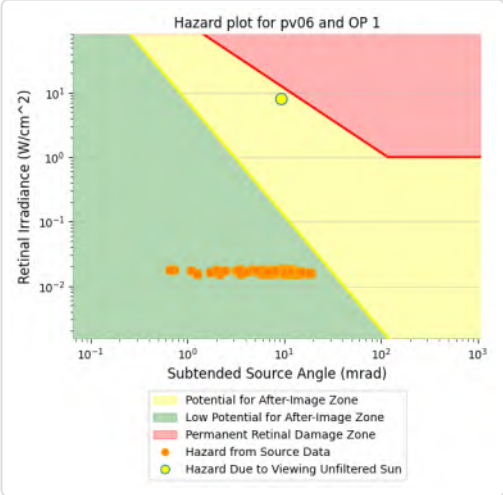
PV06 and OP 1

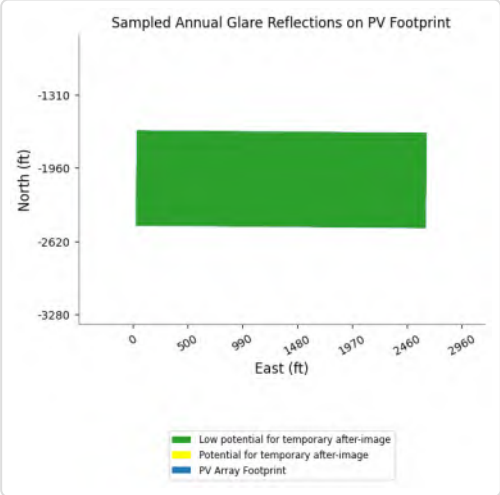
Yellow glare: none

Green glare: 99 min.



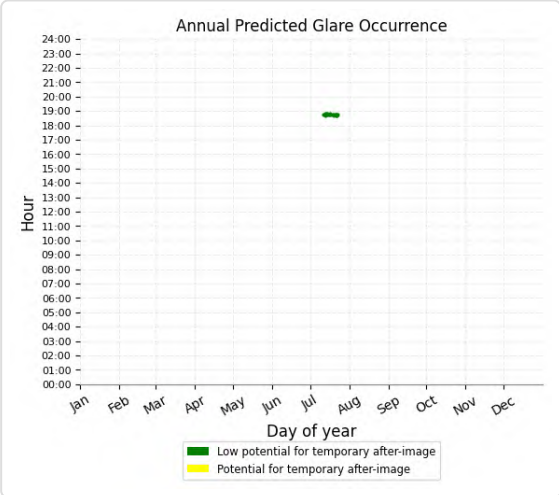


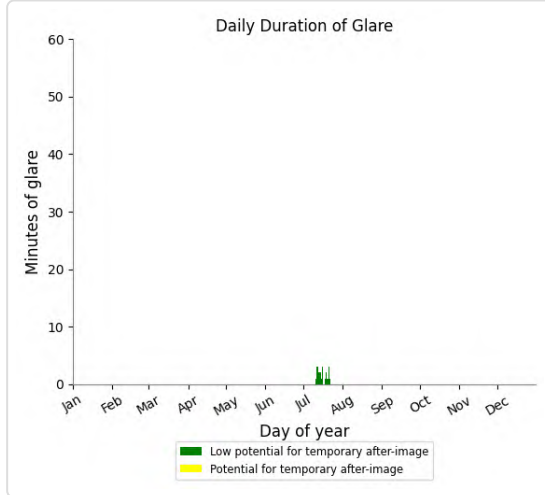


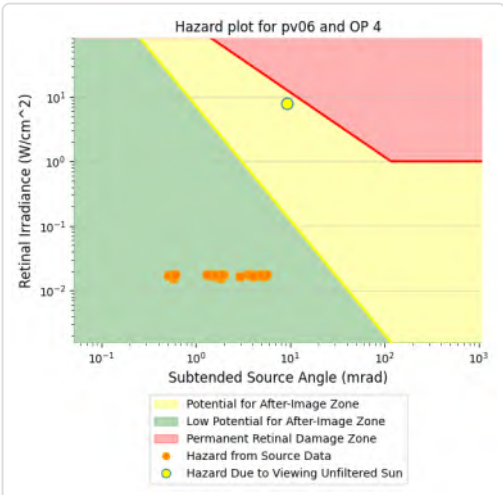


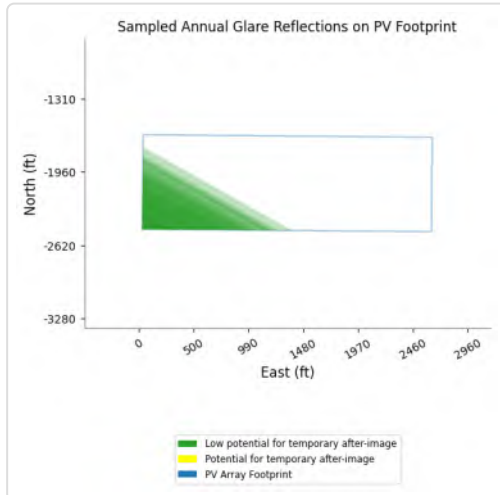
PV06 and OP 4

Yellow glare: none
Green glare: 20 min.









PV06 and OP 2

No glare found

PV06 and OP 3

No glare found

PV06 and OP 5

No glare found

PV06 and OP 6

No glare found

PV06 and OP 7

No glare found

PV06 and OP 8

No glare found

PV06 and OP 9

No glare found

PV06 and OP 10

No glare found

PV06 and OP 11

No glare found

PV06 and OP 12

No glare found

PV06 and OP 13

No glare found

PV06 and OP 14

No glare found

PV06 and OP 15

No glare found

PV06 and OP 16

No glare found

PV06 and OP 17

No glare found

PV06 and OP 18

No glare found

PV06 and OP 19

No glare found

PV: PV07 potential temporary after-image

Receptor results ordered by category of glare

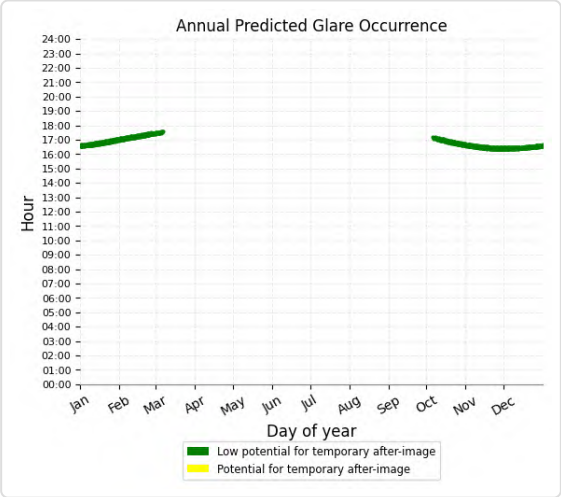
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
SR177 A	1,060	17.7	0	0.0
SR177 B	443	7.4	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	2,071	34.5	2,813	46.9
VR289l	2,900	48.3	3,444	57.4
VR289m	10,747	179.1	1,937	32.3
VR296l	2,268	37.8	2,497	41.6
VR296m	6,589	109.8	1,723	28.7
CN6423	903	15.1	0	0.0
IR217m	10,181	169.7	0	0.0
IR217u	5,492	91.5	0	0.0
IR218l	368	6.1	0	0.0
IR218m	643	10.7	0	0.0
IR218u	512	8.5	0	0.0
IR255l	2,090	34.8	0	0.0
IR255m	5,165	86.1	0	0.0
IR255u	9,878	164.6	0	0.0
VR289u	11,531	192.2	0	0.0
VR296u	6,904	115.1	0	0.0
CN645	0	0.0	0	0.0
OP 1	112	1.9	0	0.0
OP 2	0	0.0	0	0.0

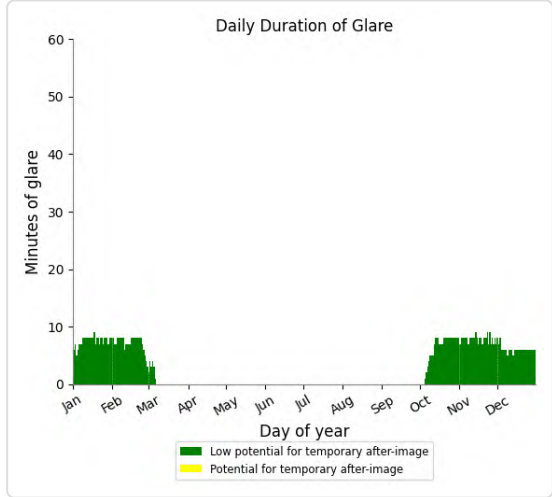
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

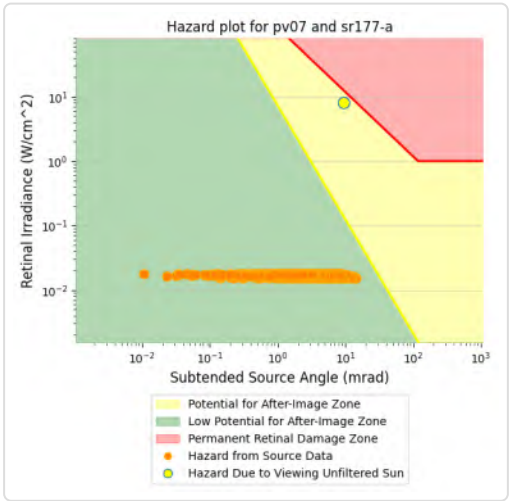
PV07 and Route: SR177 A

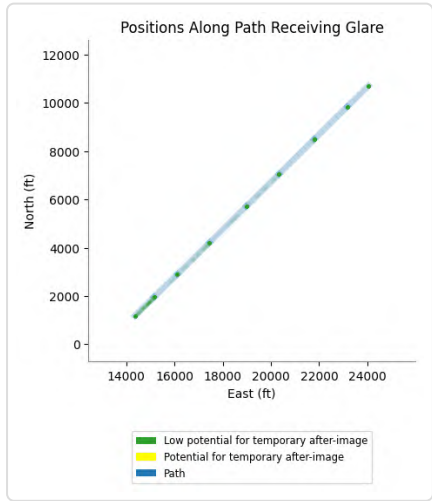
Yellow glare: none

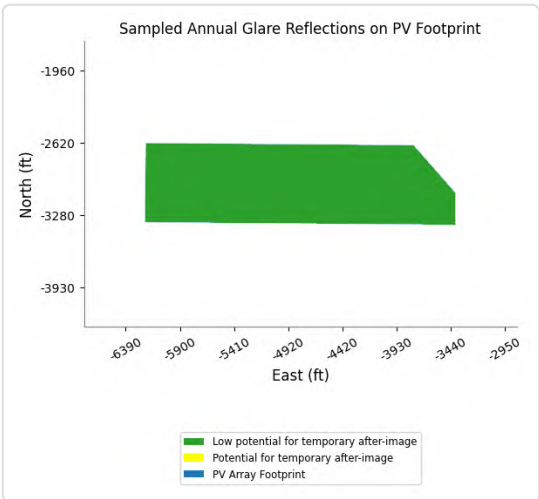
Green glare: 1,060 min.







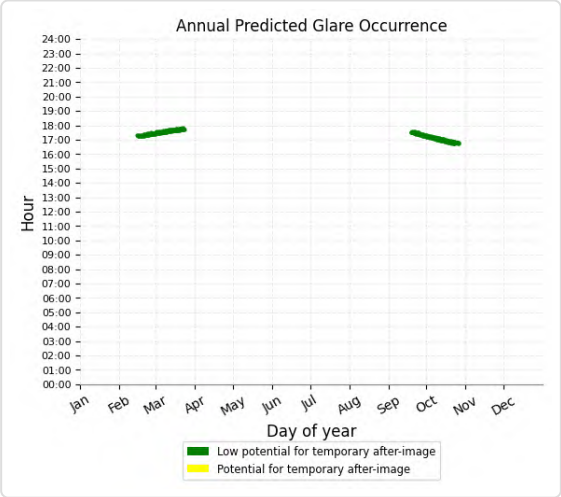


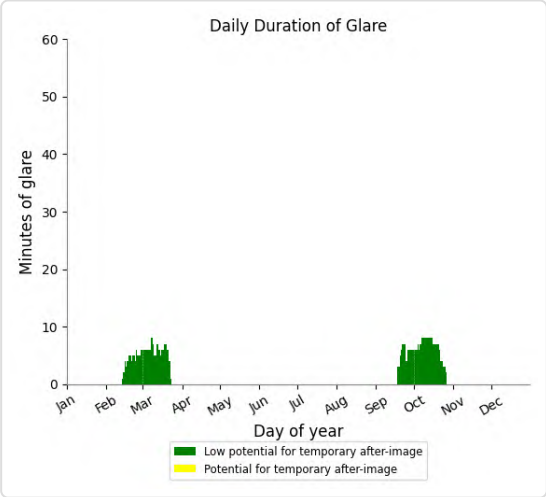


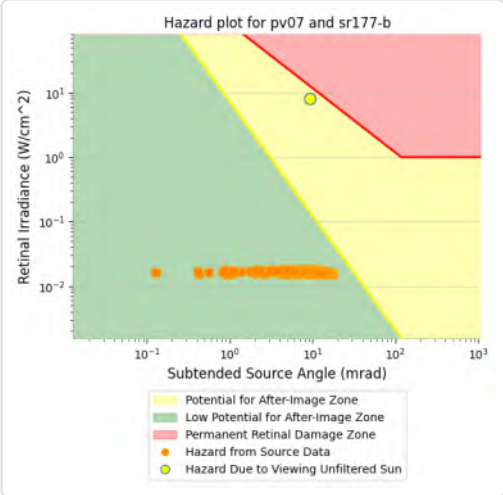
PV07 and Route: SR177 B

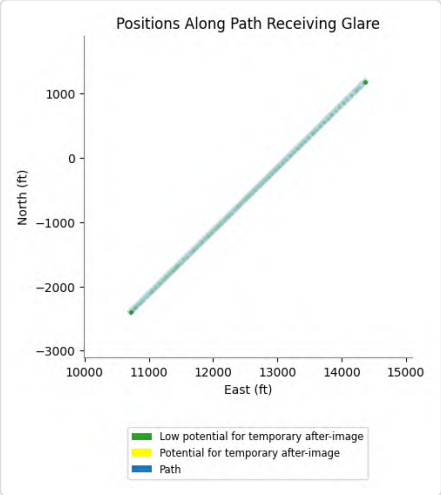
Yellow glare: none

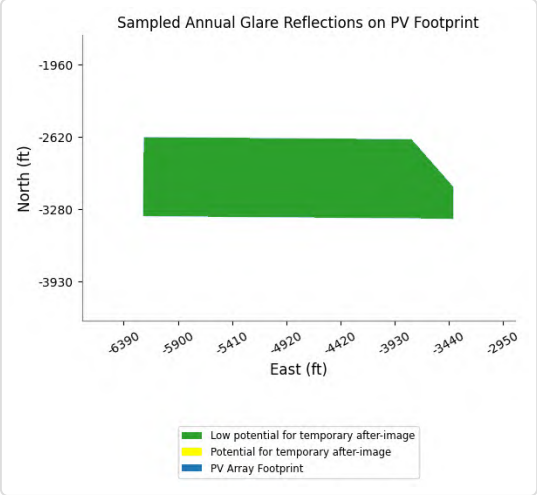
Green glare: 443 min.











PV07 and Route: AirportRd A

No glare found

PV07 and Route: AirportRd B

No glare found

PV07 and Route: EagleMtnRd A

No glare found

PV07 and Route: EagleMtnRd B

No glare found

PV07 and Route: I-10 EB A

No glare found

PV07 and Route: I-10 EB B

No glare found

PV07 and Route: I-10 EB C

No glare found

PV07 and Route: I-10 WB A

No glare found

PV07 and Route: I-10 WB B

No glare found

PV07 and Route: I-10 WB C

No glare found

PV07 and Route: KaiserRd A

No glare found

PV07 and Route: KaiserRd B

No glare found

PV07 and Route: KaiserRd C

No glare found

PV07 and Route: OasisRd

No glare found

PV07 and Route: Race Track

No glare found

PV07 and Route: SR177 C

No glare found

PV07 and Route: SR177 D

No glare found

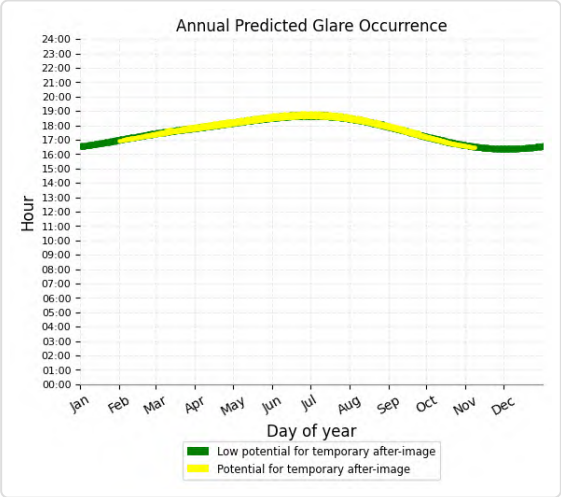
PV07 and Route: SR177 E

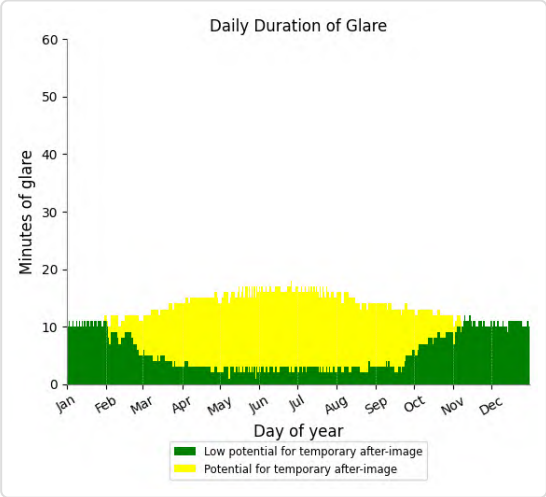
No glare found

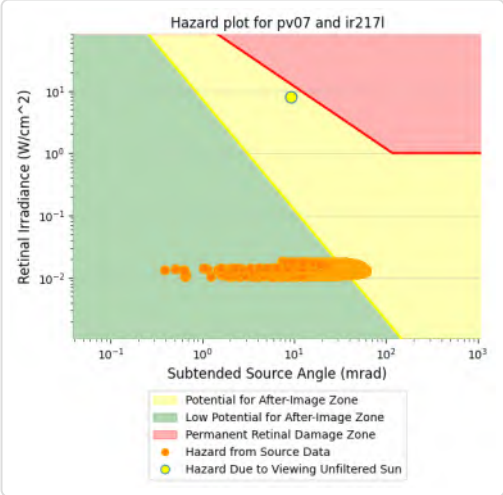
PV07 and FP: IR217l

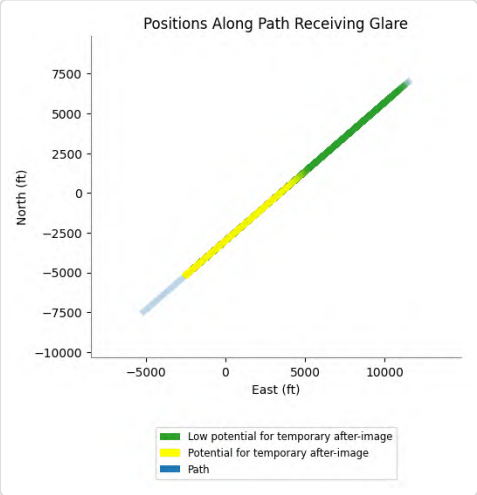
Yellow glare: 2,813 min.

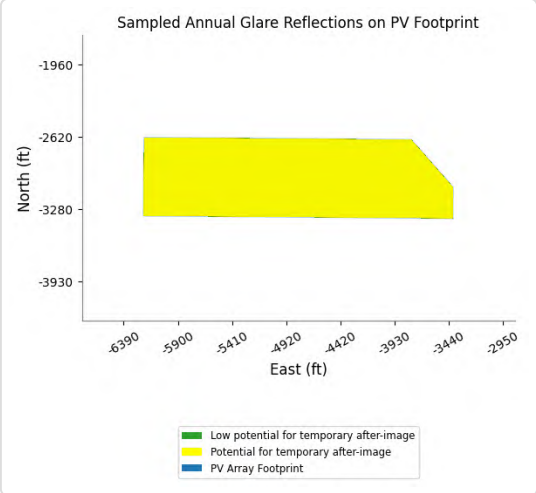
Green glare: 2,071 min.

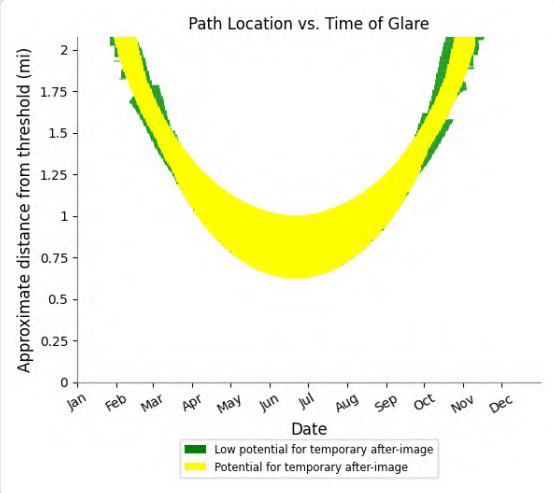








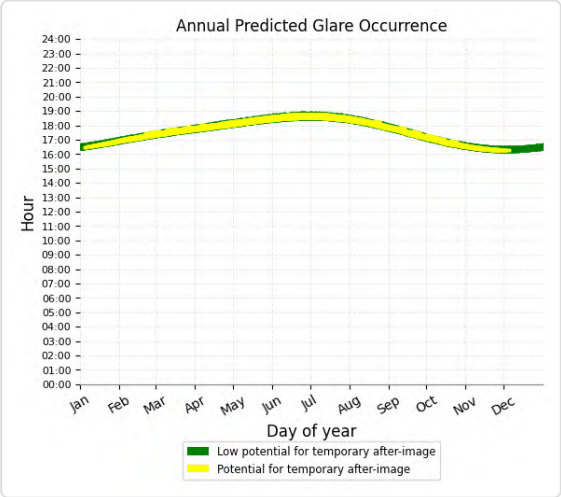


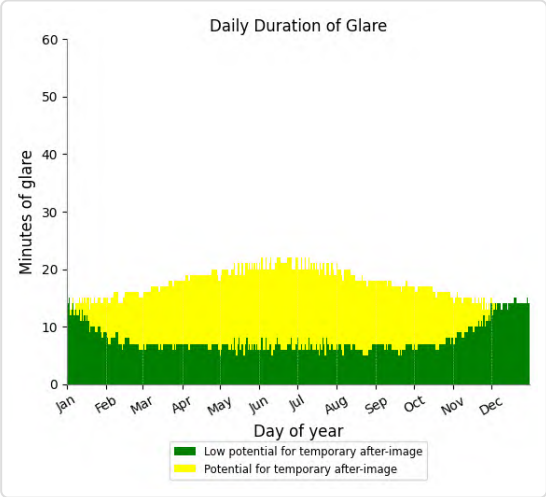


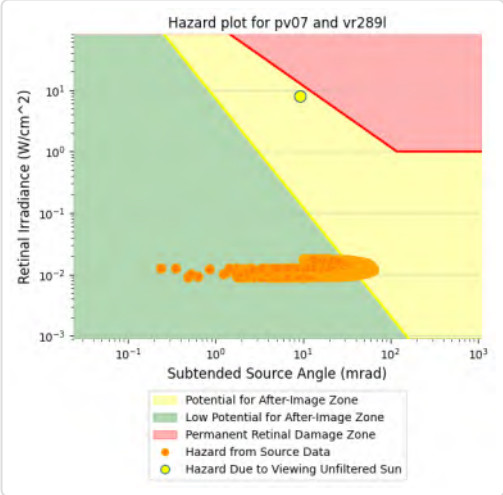
PV07 and FP: VR289I

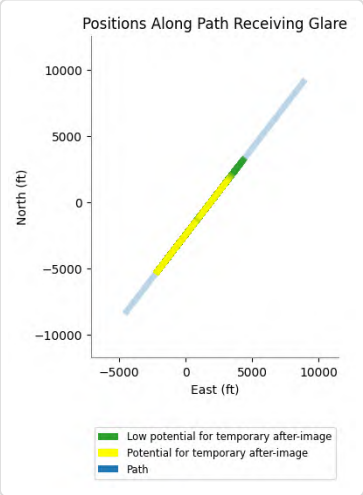
Yellow glare: 3,444 min.

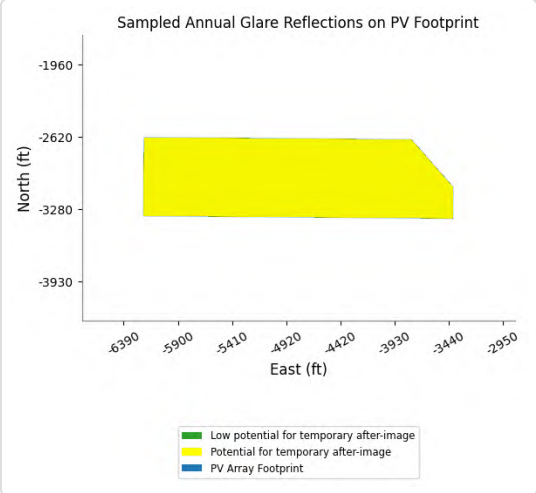
Green glare: 2,900 min.

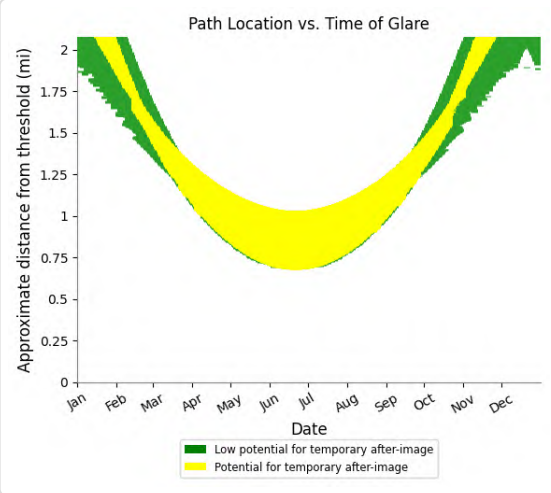








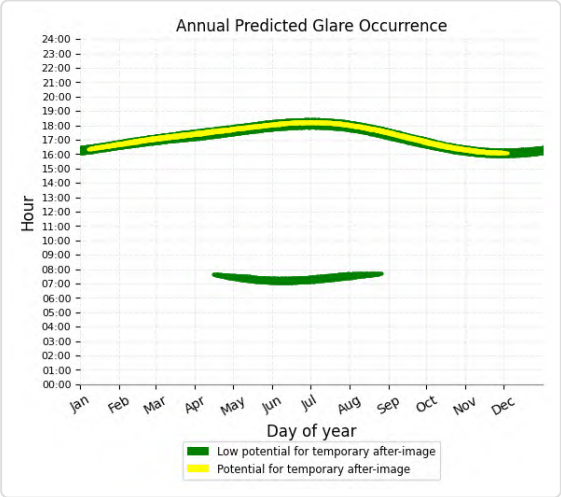


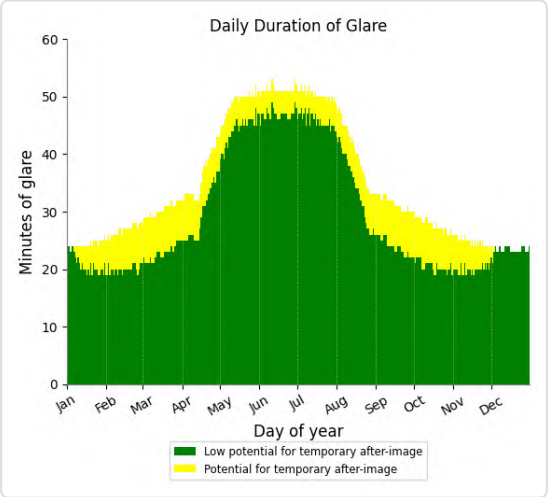


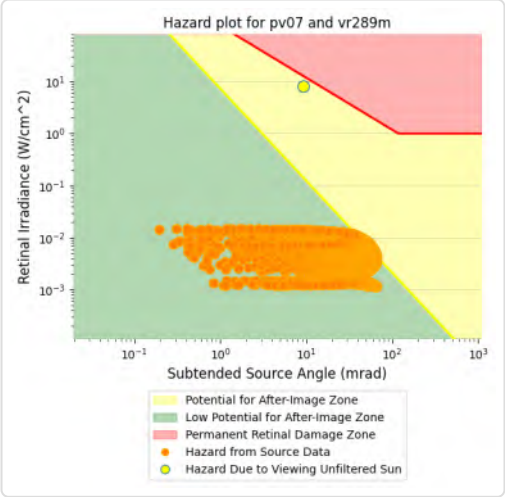
PV07 and FP: VR289m

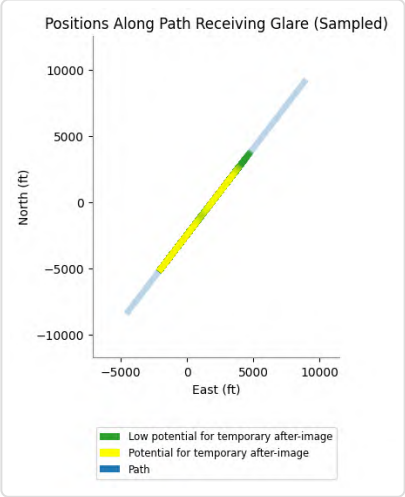
Yellow glare: 1,937 min.

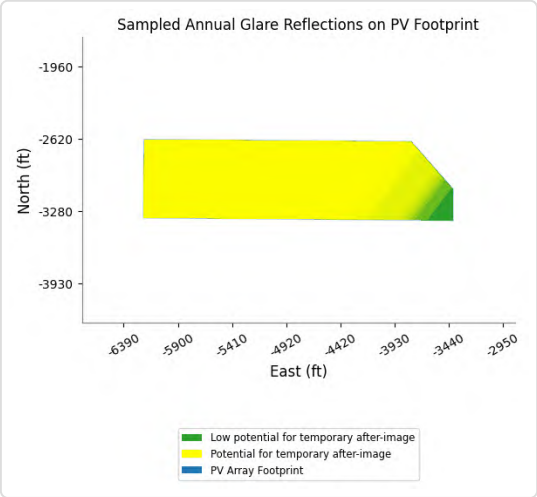
Green glare: 10,747 min.

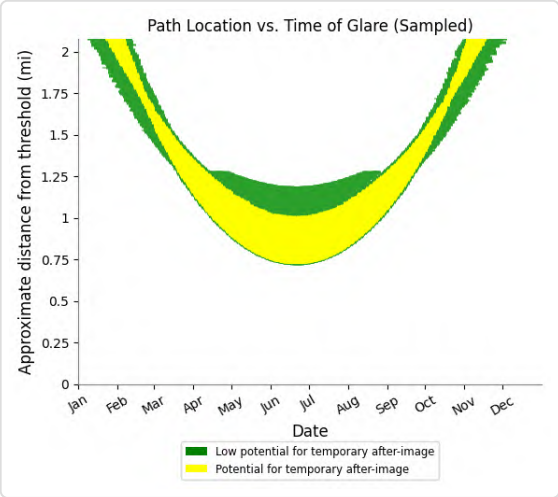








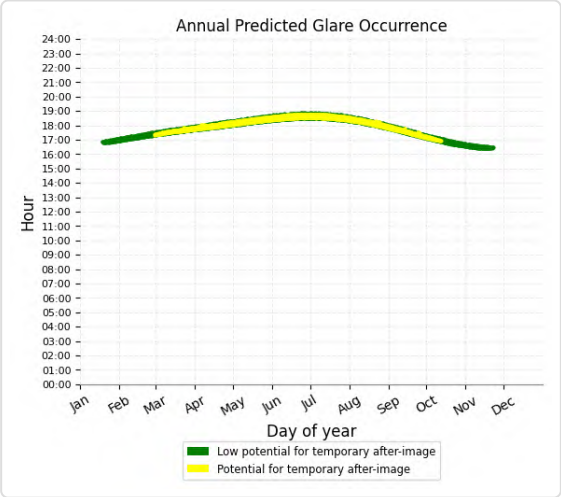


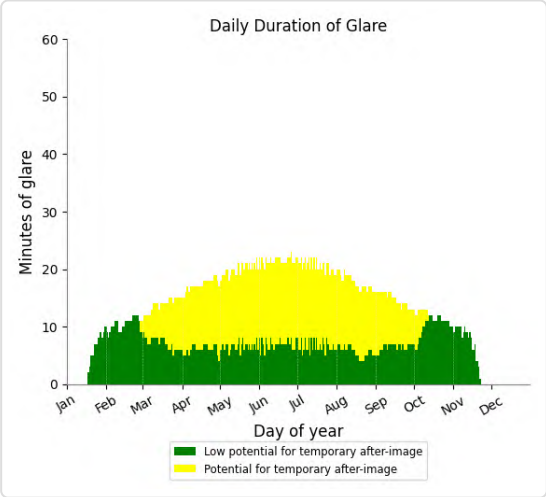


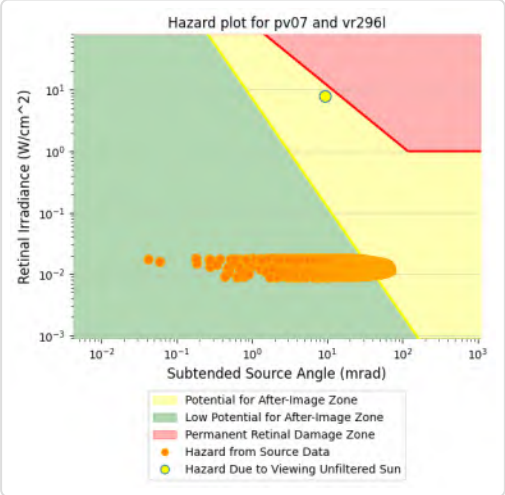
PV07 and FP: VR296l

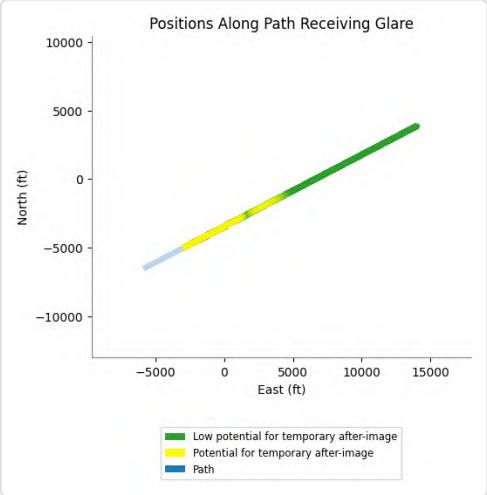
Yellow glare: 2,497 min.

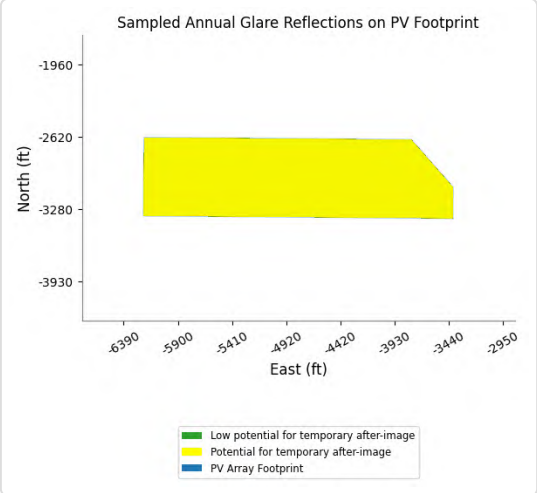
Green glare: 2,268 min.

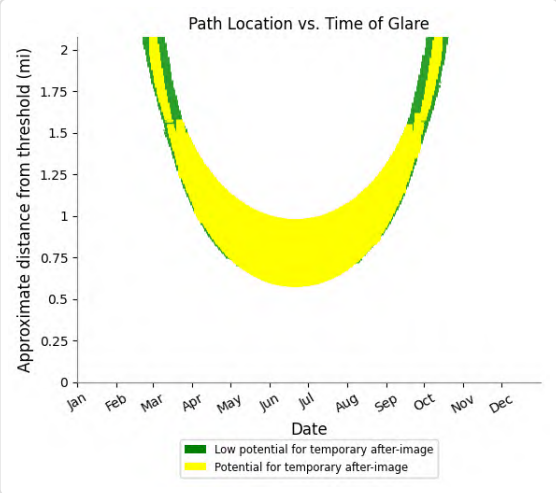








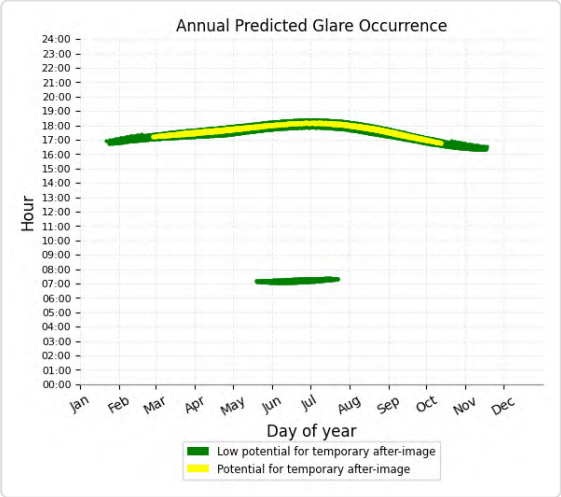


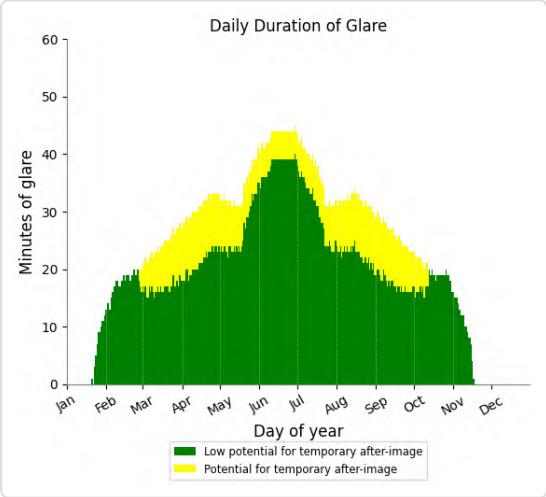


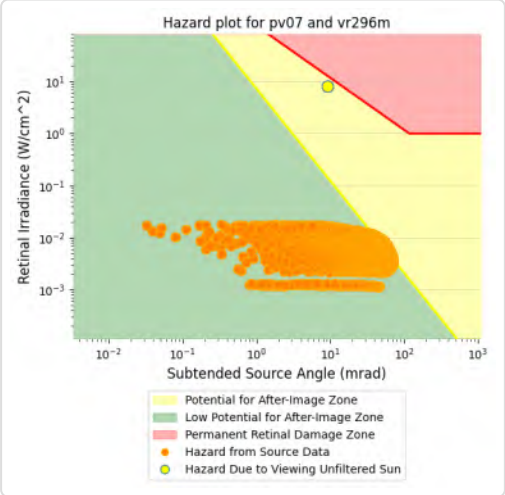
PV07 and FP: VR296m

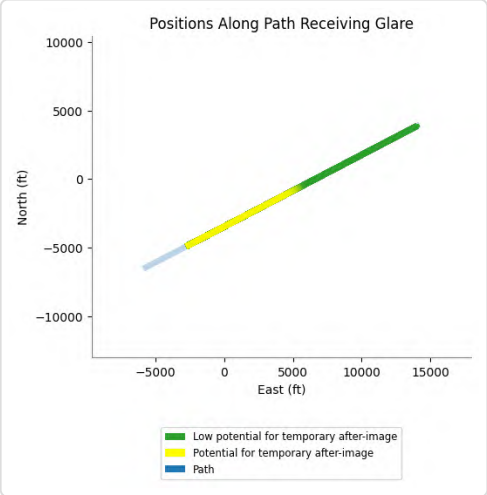
Yellow glare: 1,723 min.

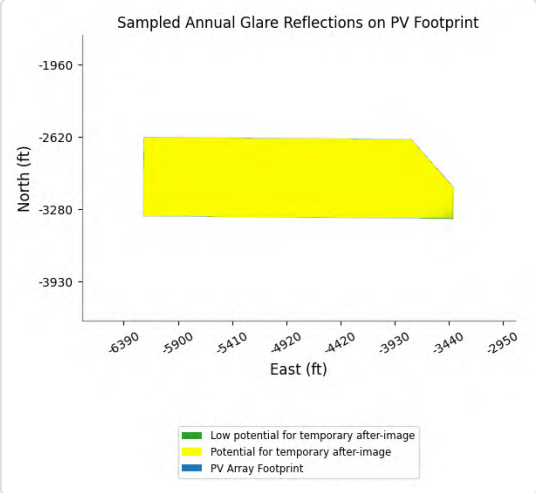
Green glare: 6,589 min.

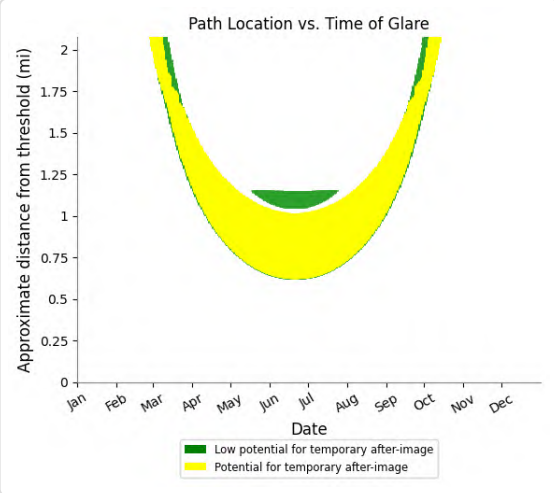








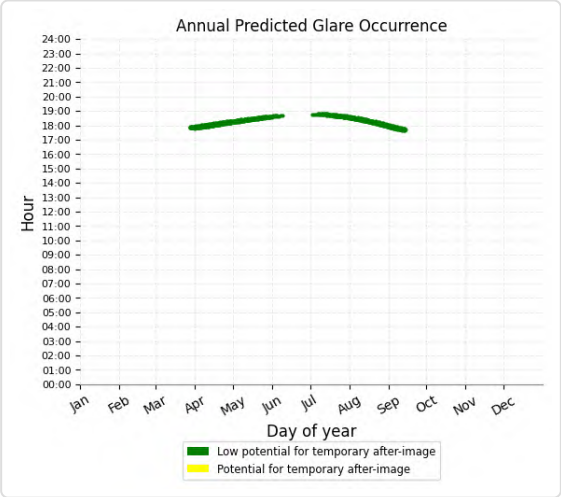


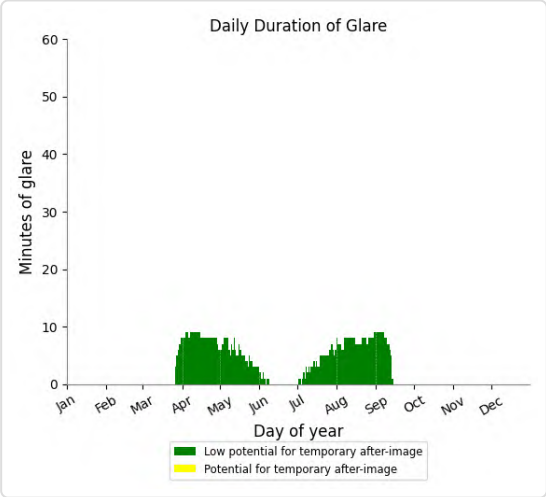


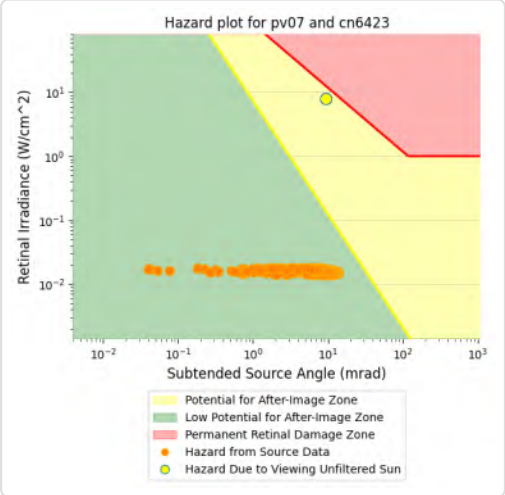
PV07 and FP: CN6423

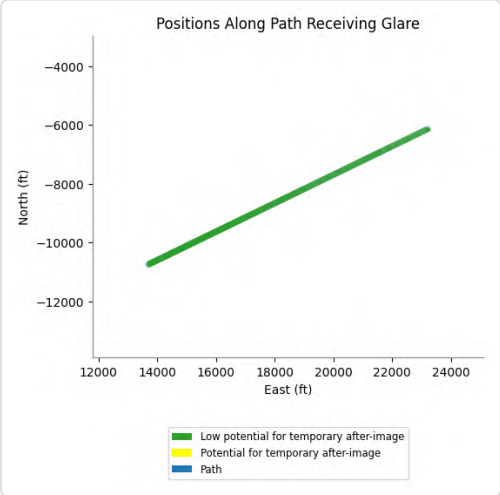
Yellow glare: none

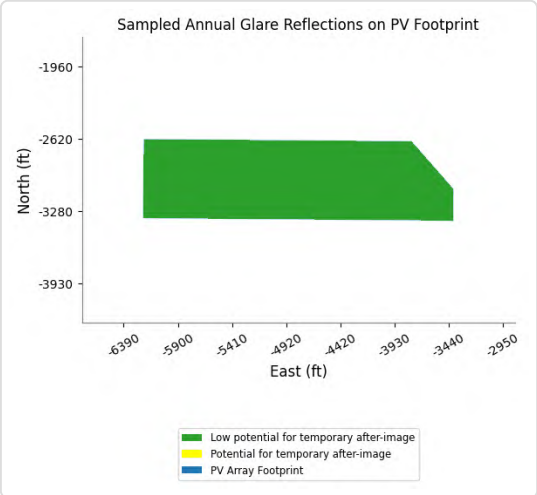
Green glare: 903 min.

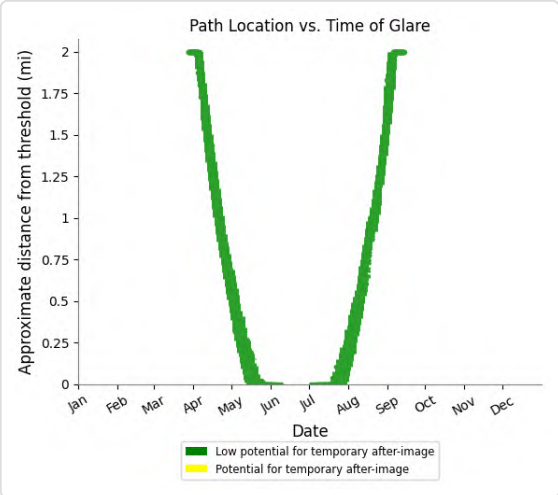








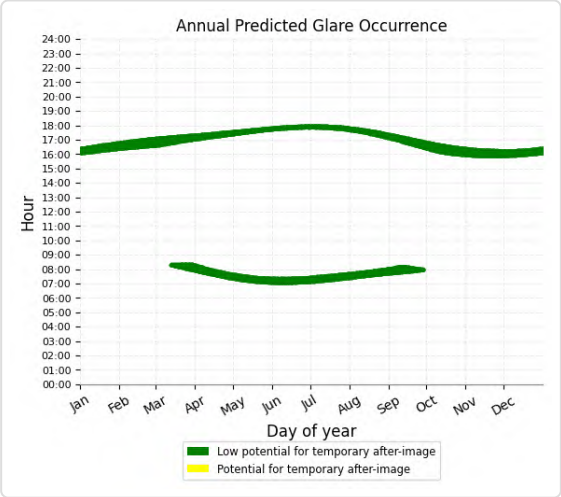


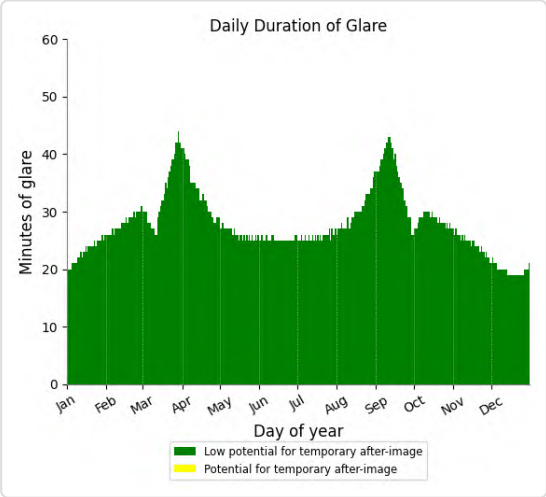


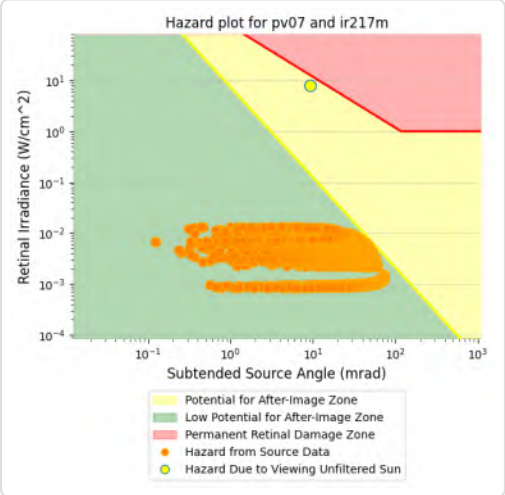
PV07 and FP: IR217m

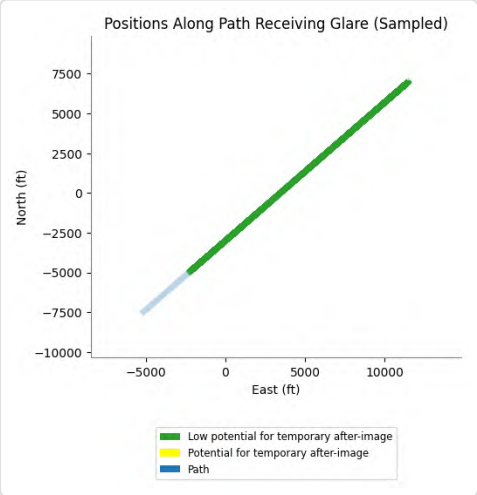
Yellow glare: none

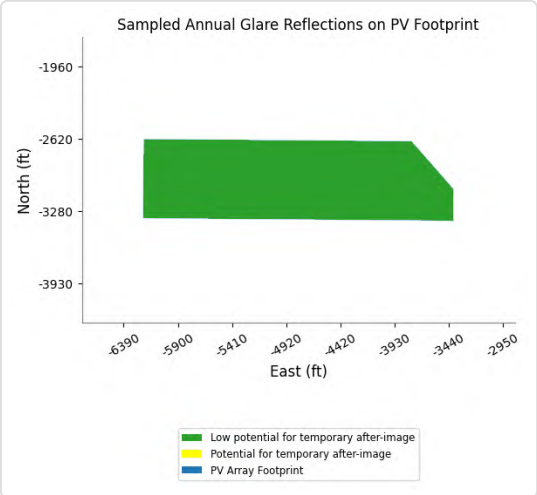
Green glare: 10,181 min.

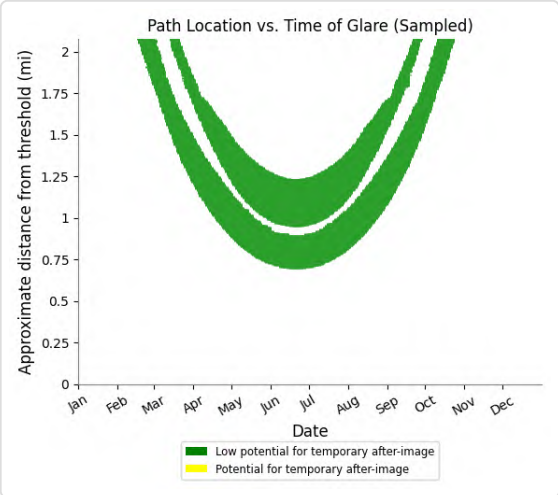








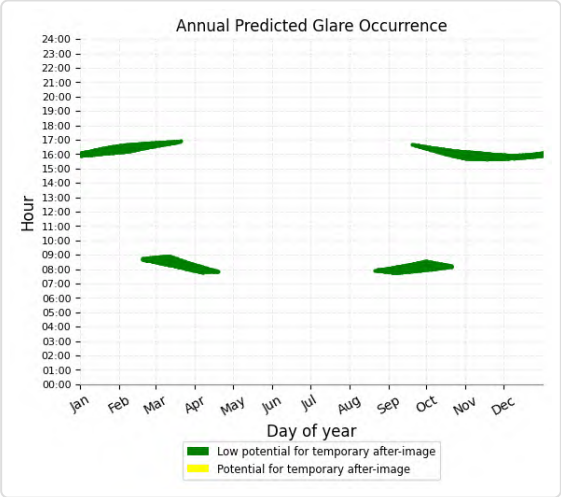


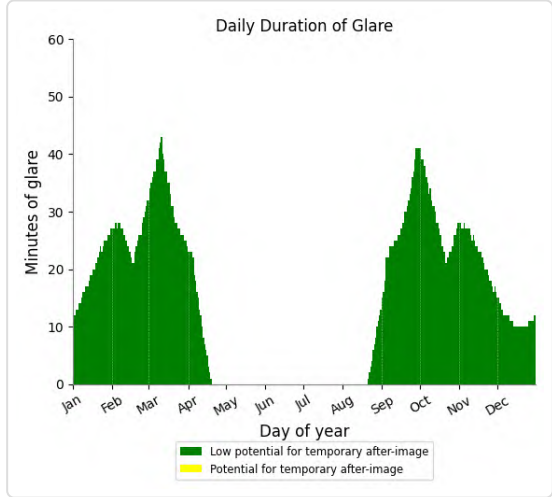


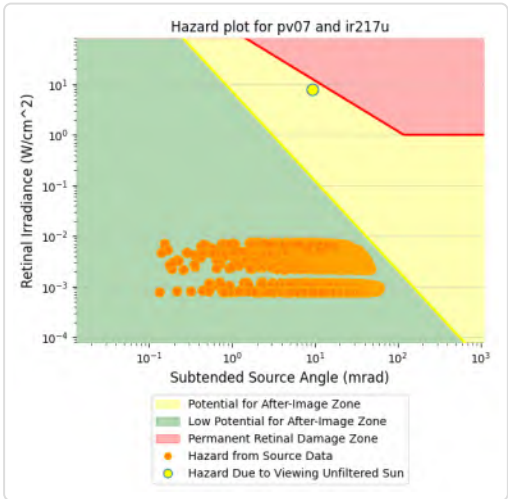
PV07 and FP: IR217u

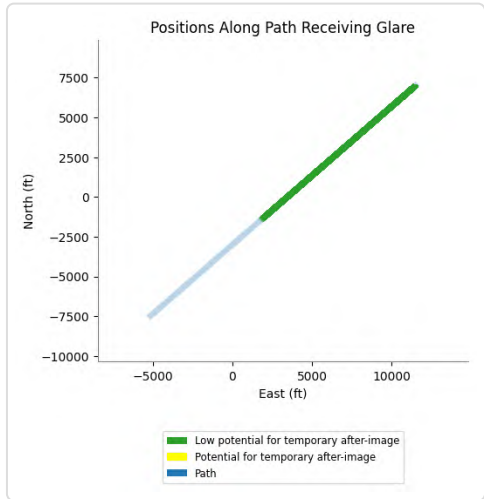
Yellow glare: none

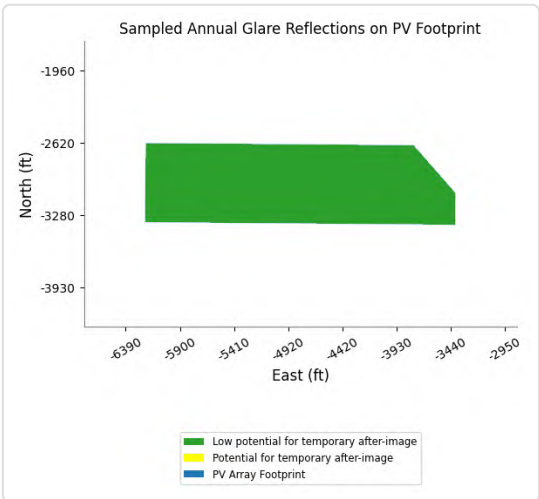
Green glare: 5,492 min.

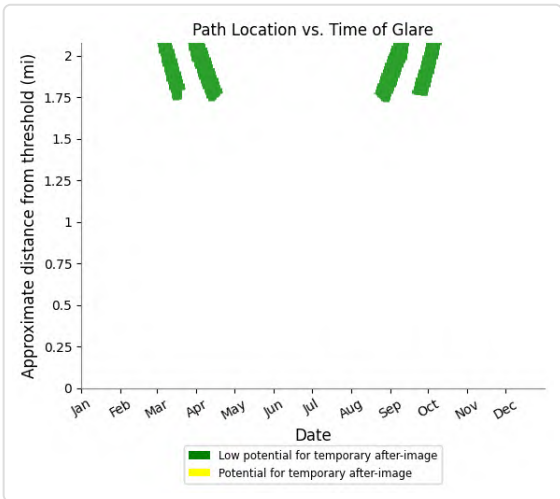








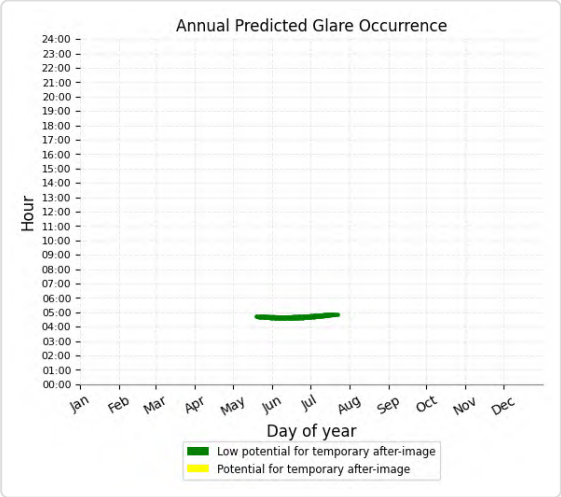


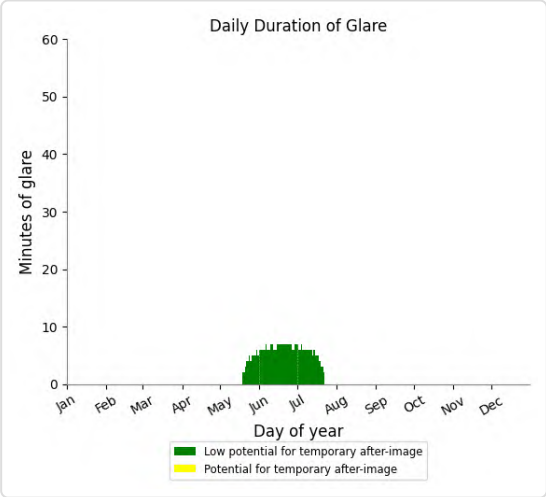


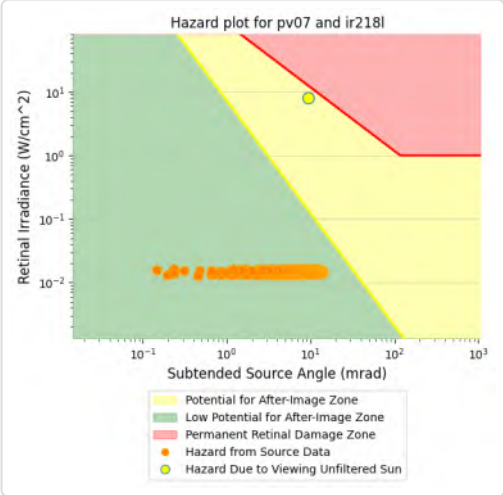
PV07 and FP: IR218l

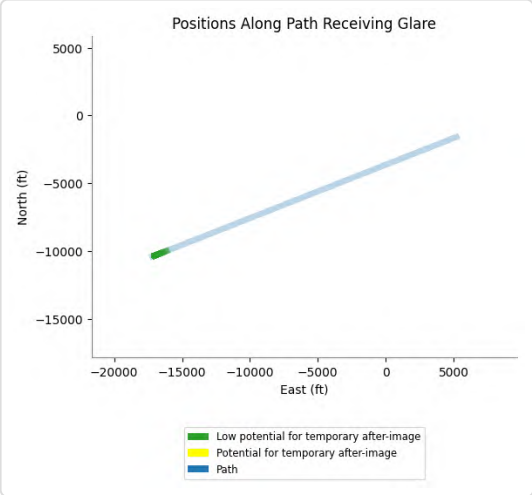
Yellow glare: none

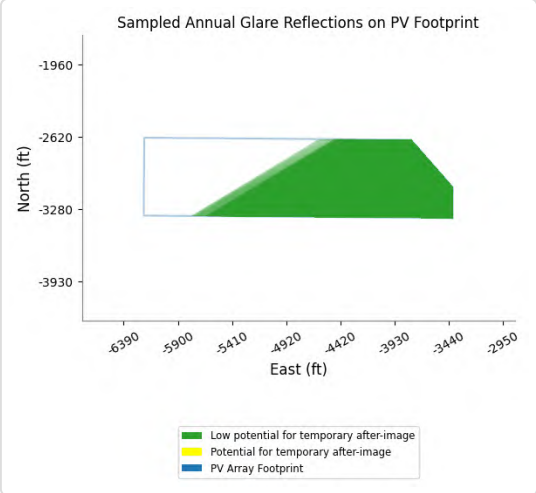
Green glare: 368 min.

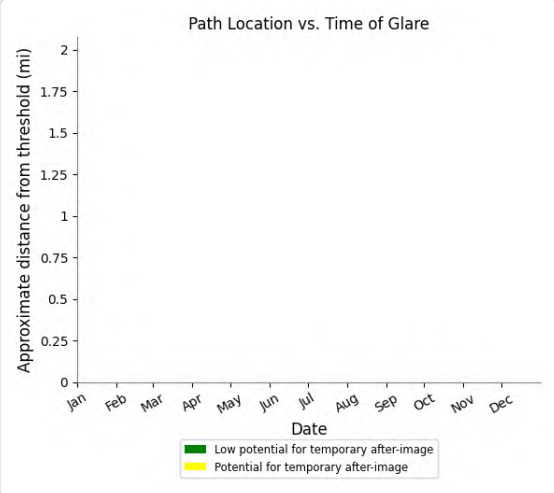








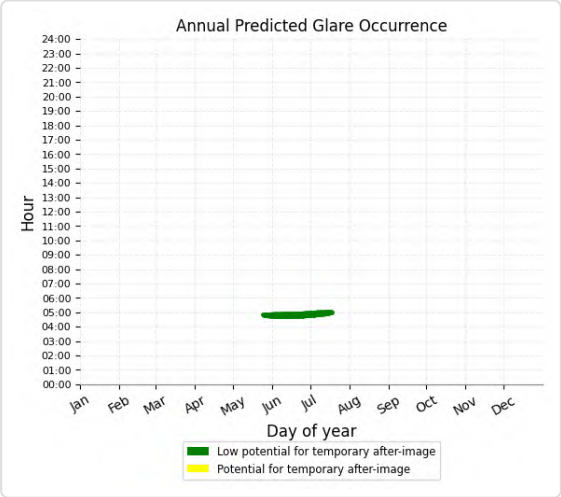


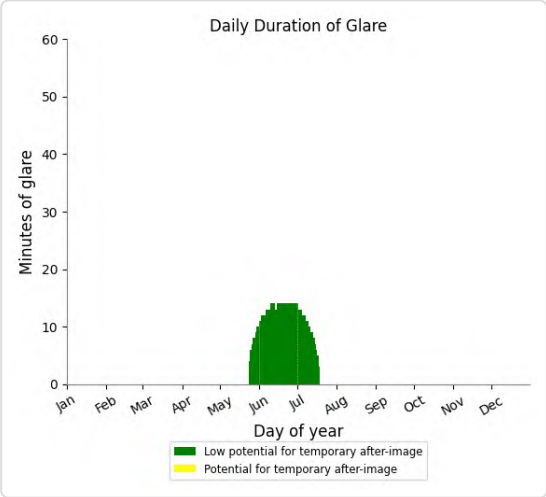


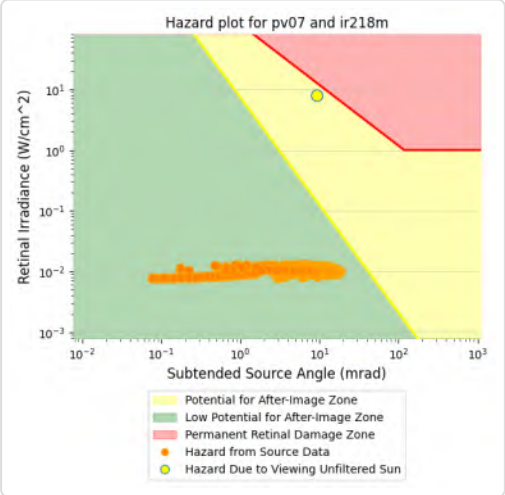
PV07 and FP: IR218m

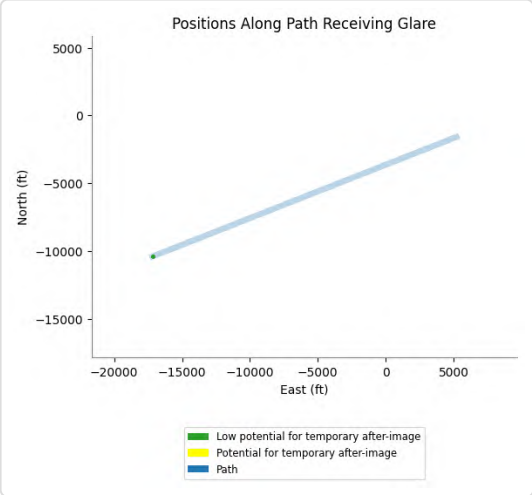
Yellow glare: none

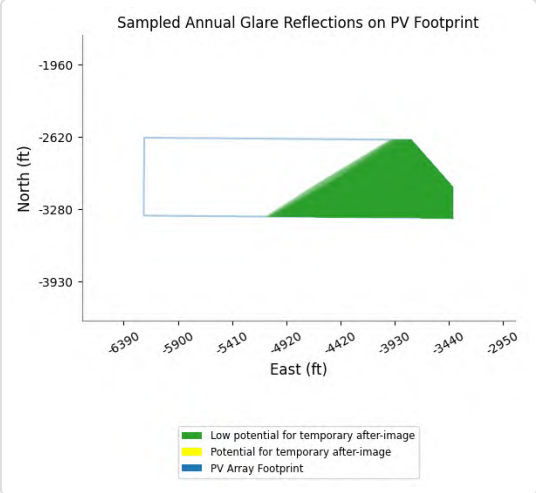
Green glare: 643 min.

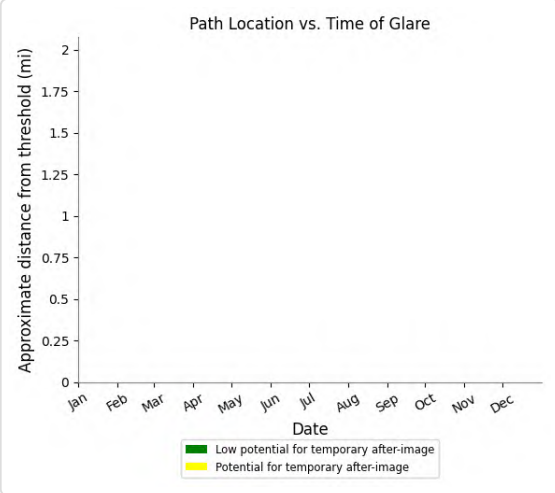








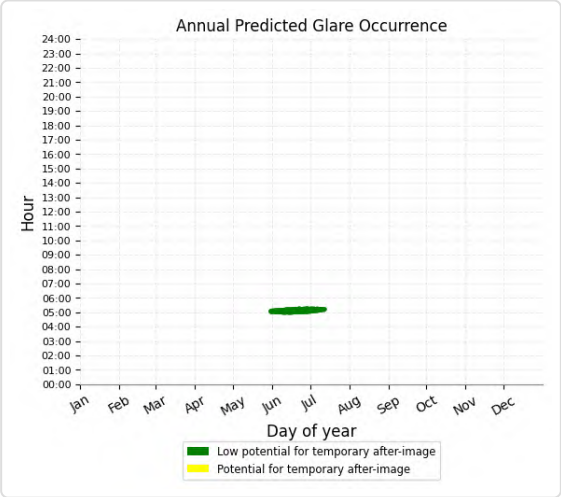


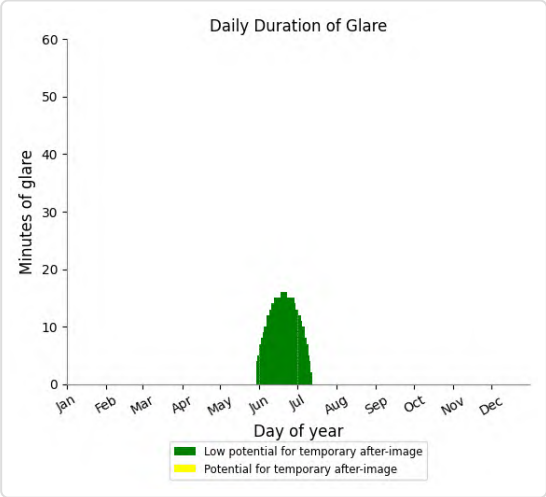


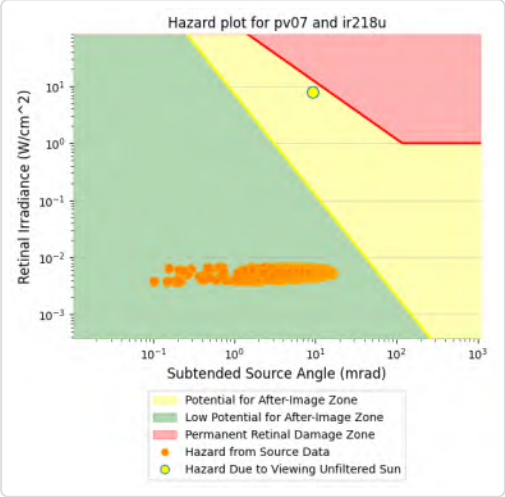
PV07 and FP: IR218u

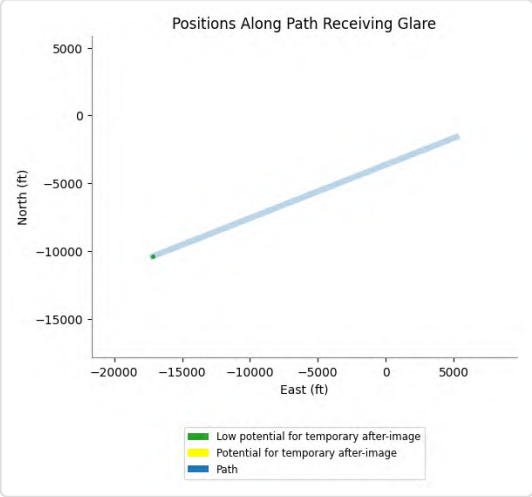
Yellow glare: none

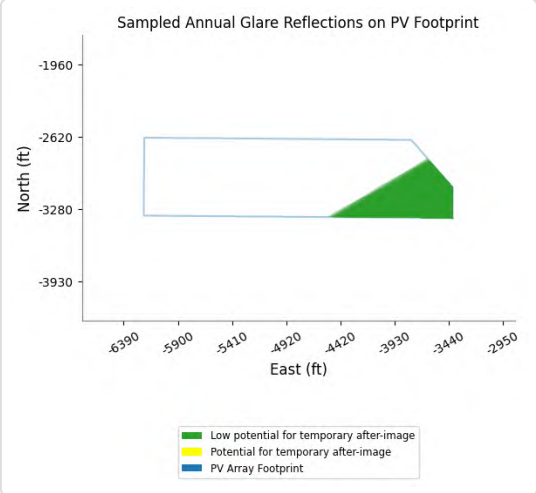
Green glare: 512 min.

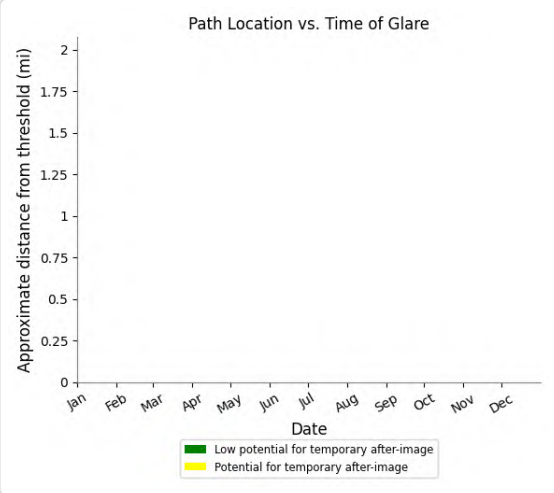








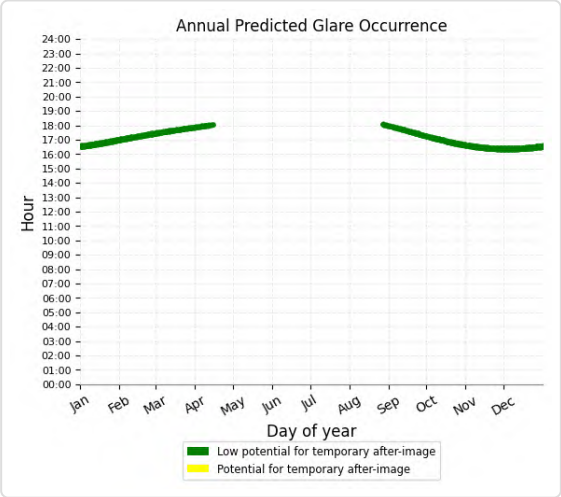


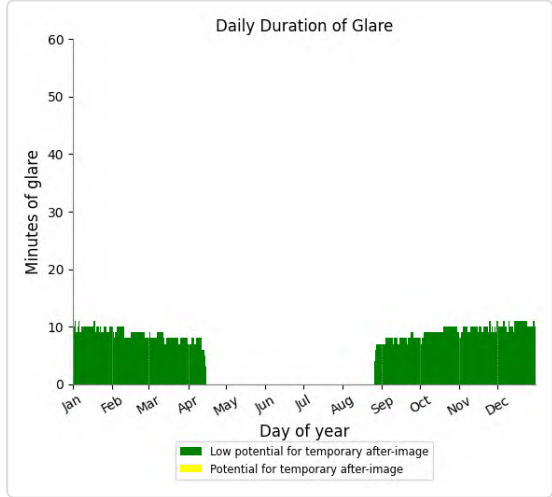


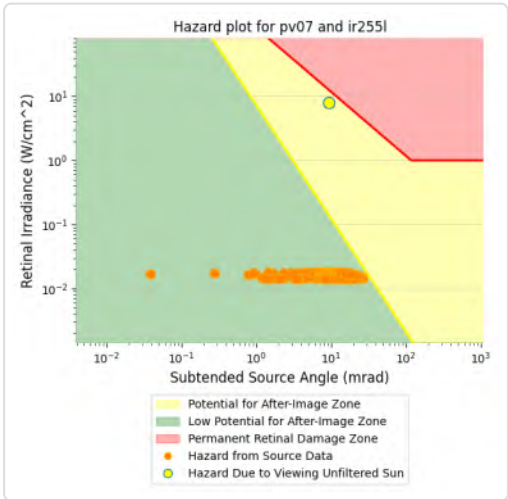
PV07 and FP: IR255I

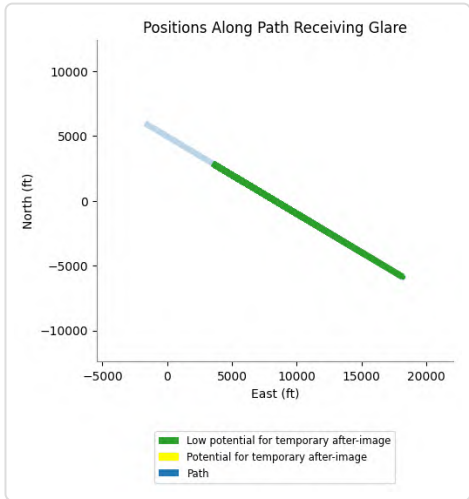
Yellow glare: none

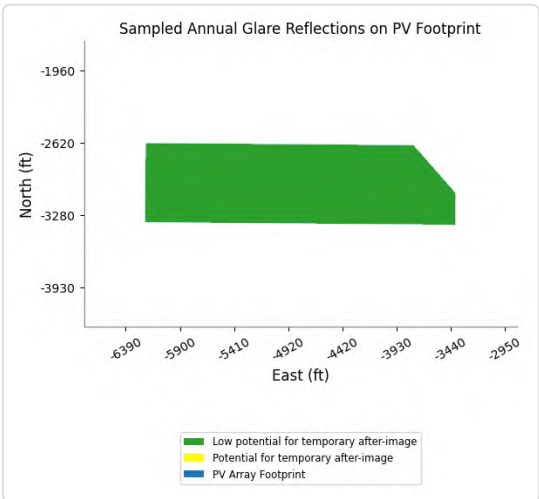
Green glare: 2,090 min.

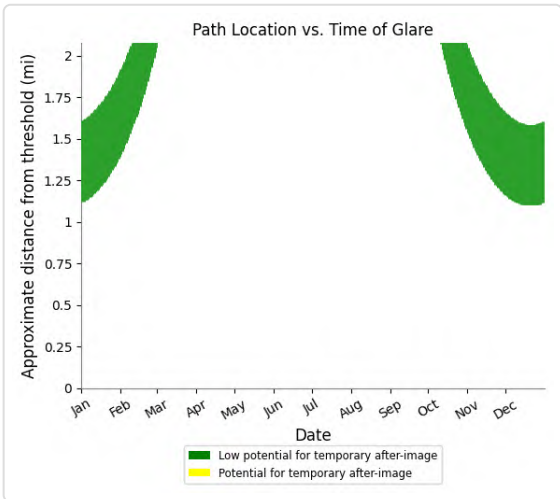








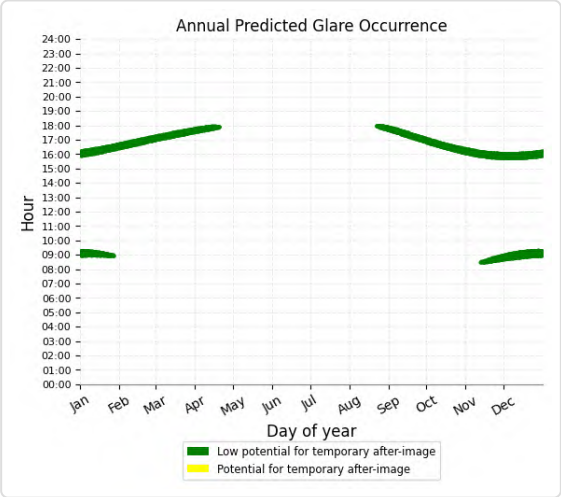


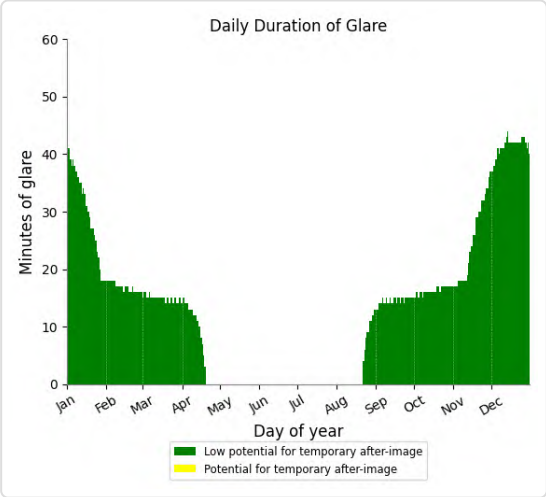


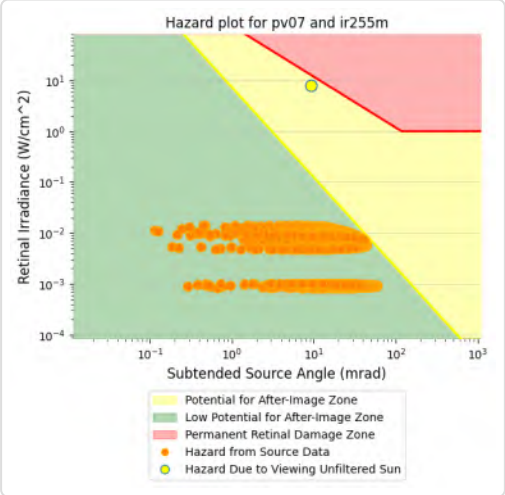
PV07 and FP: IR255m

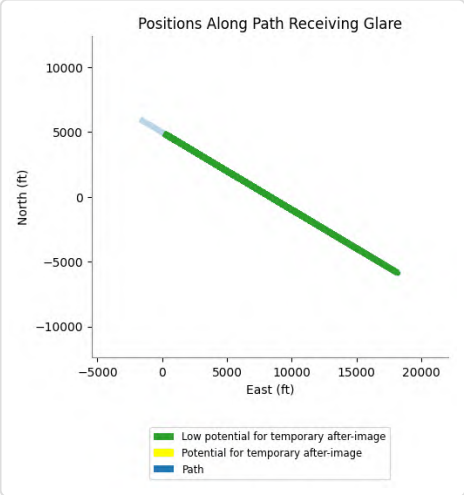
Yellow glare: none

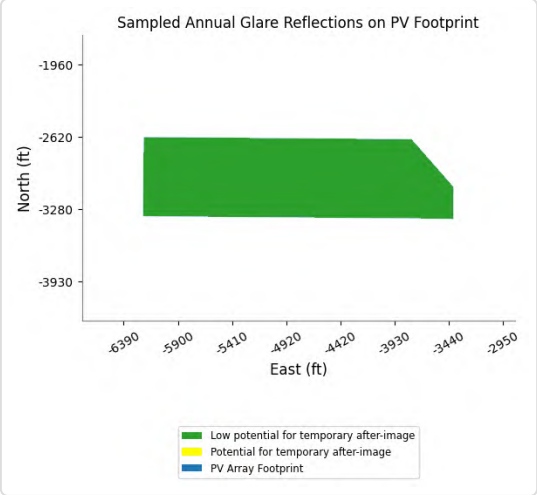
Green glare: 5,165 min.

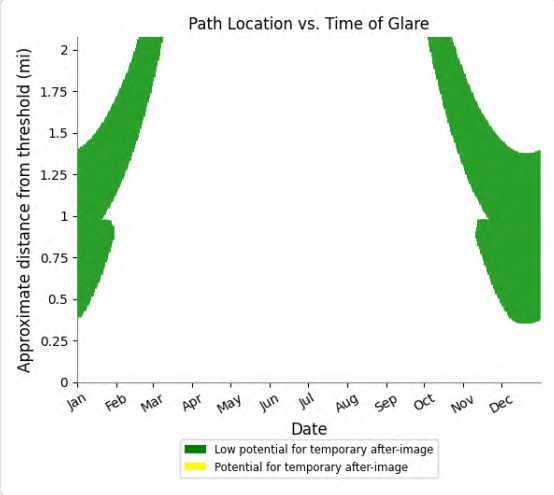








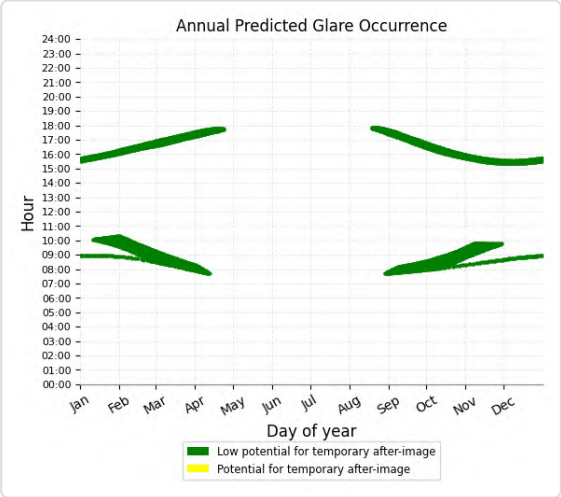


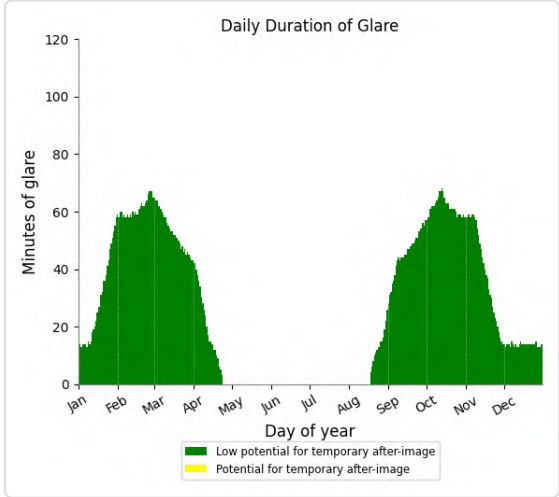


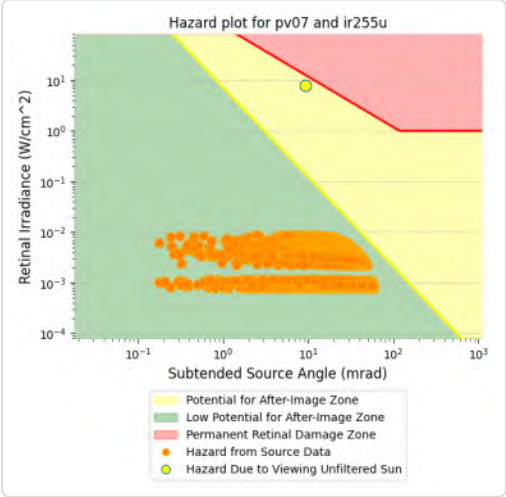
PV07 and FP: IR255u

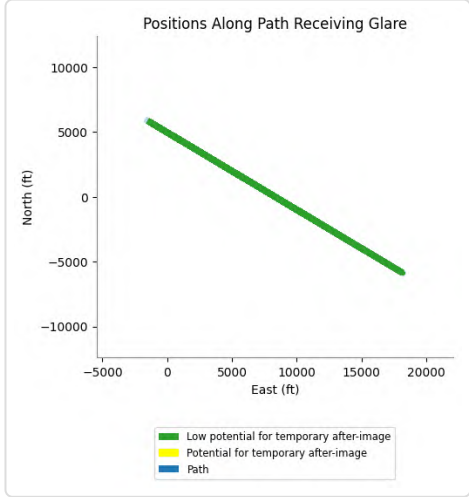
Yellow glare: none

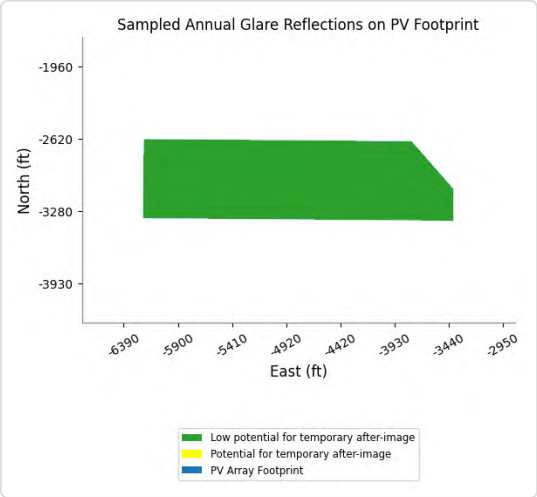
Green glare: 9,878 min.

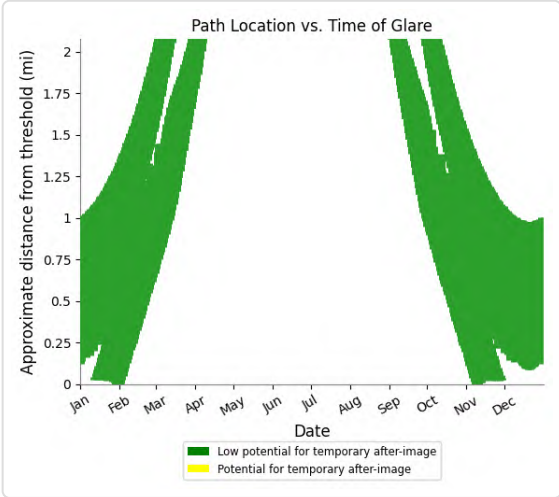








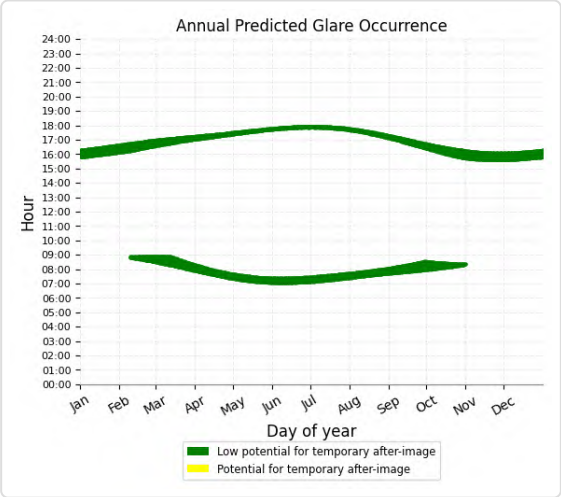


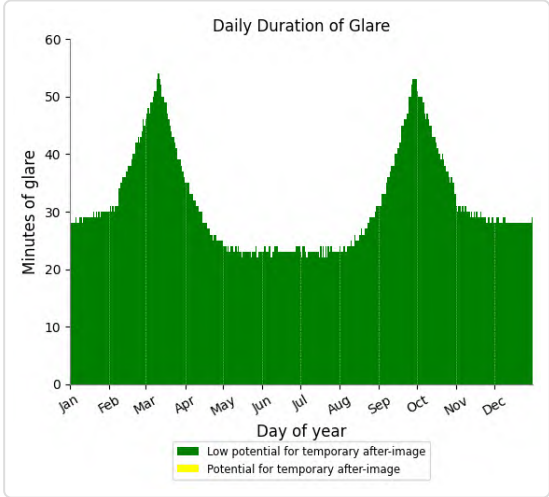


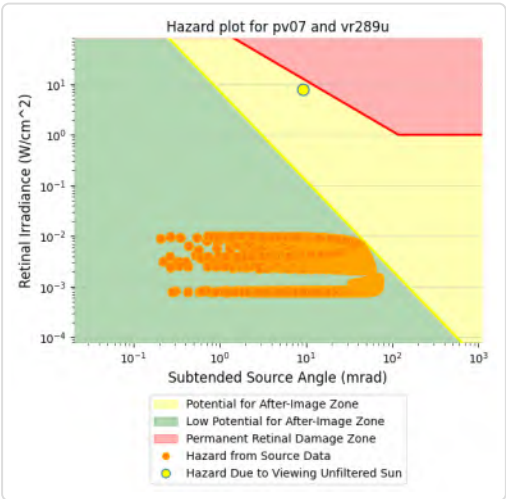
PV07 and FP: VR289u

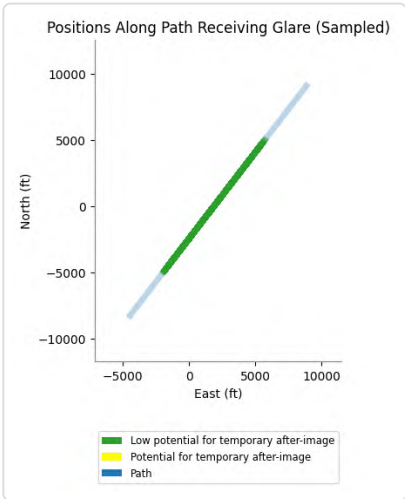
Yellow glare: none

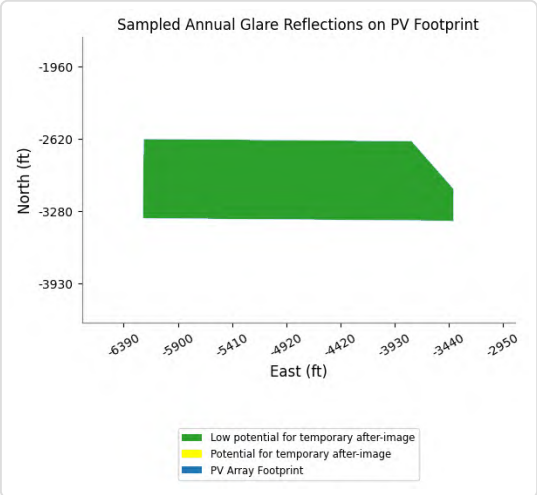
Green glare: 11,531 min.

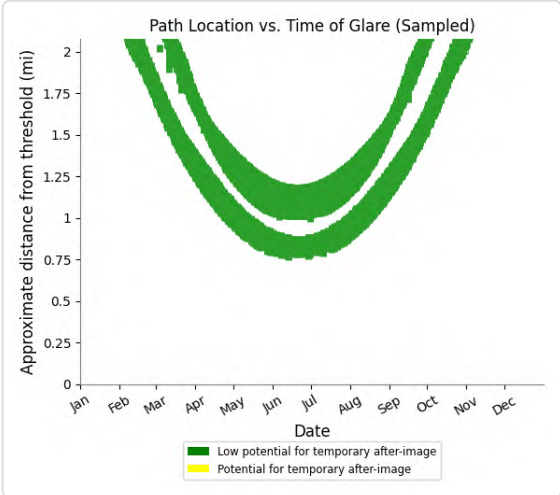








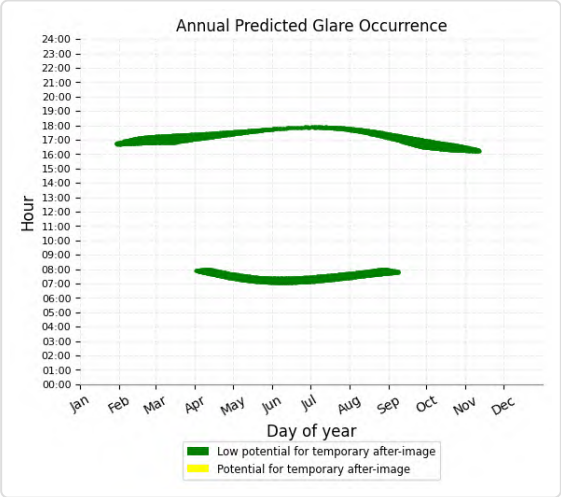


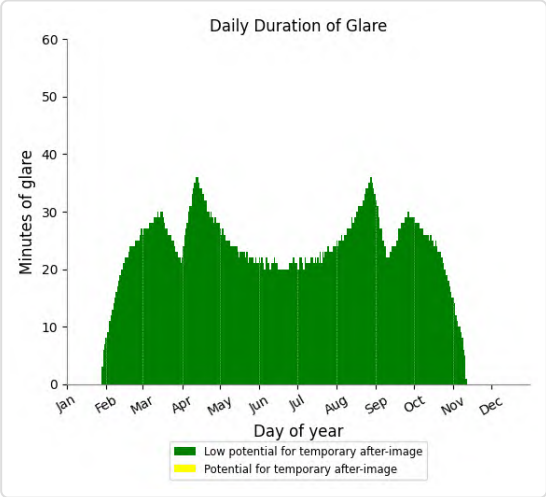


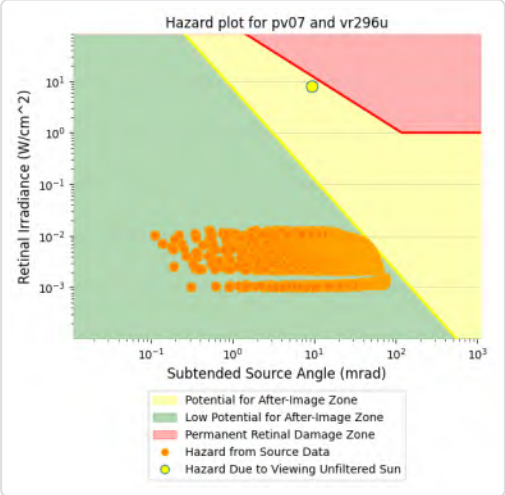
PV07 and FP: VR296u

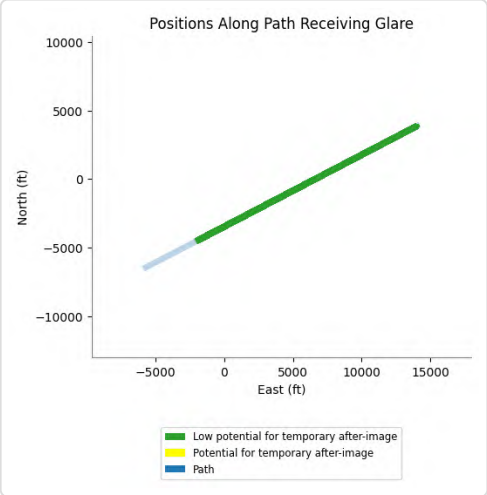
Yellow glare: none

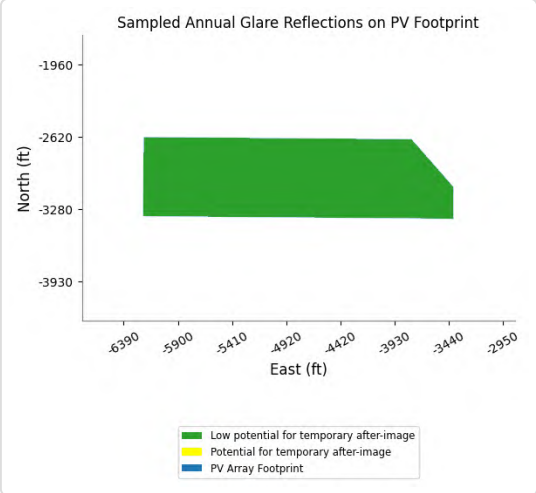
Green glare: 6,904 min.

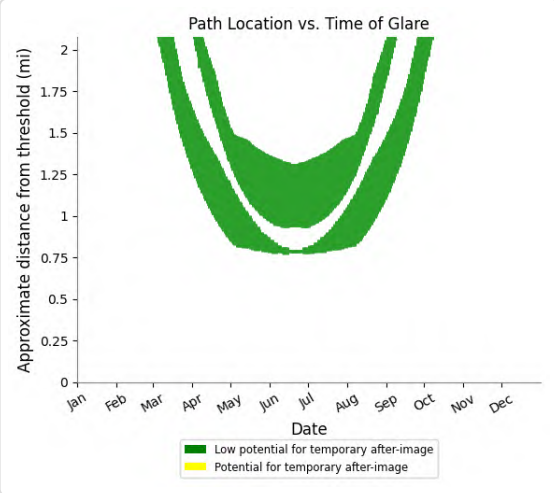










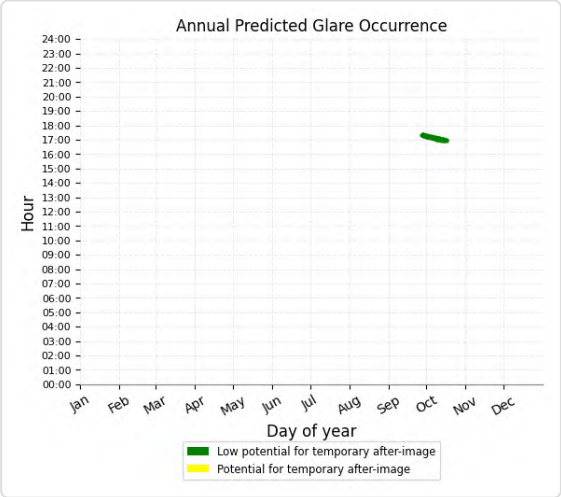


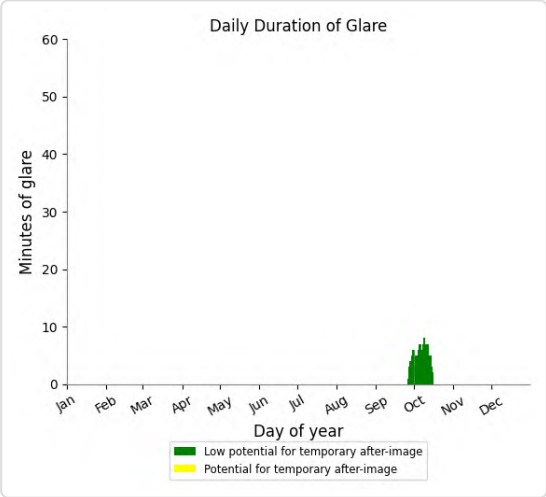
PV07 and FP: CN645

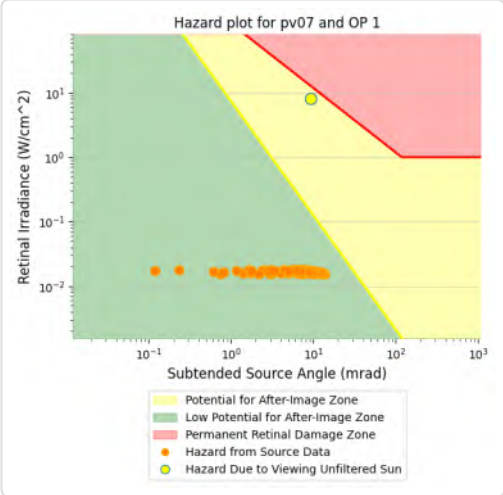
No glare found

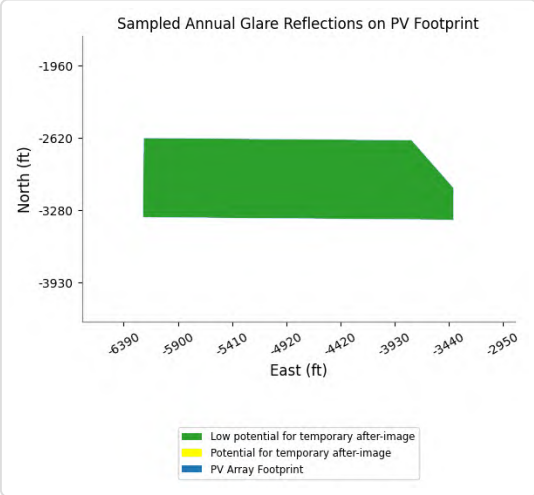
PV07 and OP 1

Yellow glare: none
Green glare: 112 min.









PV07 and OP 2

No glare found

PV07 and OP 3

No glare found

PV07 and OP 4

No glare found

PV07 and OP 5

No glare found

PV07 and OP 6

No glare found

PV07 and OP 7

No glare found

PV07 and OP 8

No glare found

PV07 and OP 9

No glare found

PV07 and OP 10

No glare found

PV07 and OP 11

No glare found

PV07 and OP 12

No glare found

PV07 and OP 13

No glare found

PV07 and OP 14

No glare found

PV07 and OP 15

No glare found

PV07 and OP 16

No glare found

PV07 and OP 17

No glare found

PV07 and OP 18

No glare found

PV07 and OP 19

No glare found

PV: PV08 potential temporary after-image

Receptor results ordered by category of glare

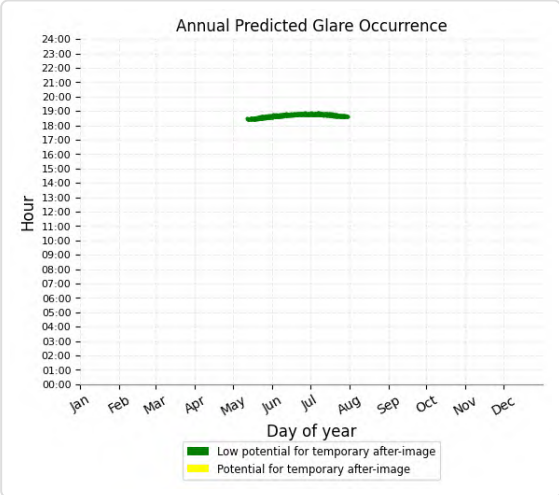
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Race Track	384	6.4	0	0.0
SR177 A	1,113	18.6	0	0.0
SR177 B	458	7.6	0	0.0
SR177 C	47	0.8	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	3,963	66.0	7,019	117.0
IR218l	753	12.6	3	0.1
VR289l	8,993	149.9	10,543	175.7
VR289m	16,976	282.9	533	8.9
VR296l	3,775	62.9	4,553	75.9
VR296m	9,929	165.5	296	4.9
CN6423	1,109	18.5	0	0.0
IR217m	8,613	143.6	0	0.0
IR217u	5,548	92.5	0	0.0
IR218m	2,013	33.5	0	0.0
IR218u	2,018	33.6	0	0.0
IR255l	2,135	35.6	0	0.0
IR255m	9,056	150.9	0	0.0
IR255u	5,388	89.8	0	0.0
VR289u	10,305	171.8	0	0.0
VR296u	5,489	91.5	0	0.0
CN645	0	0.0	0	0.0
OP 1	115	1.9	0	0.0
OP 2	0	0.0	0	0.0

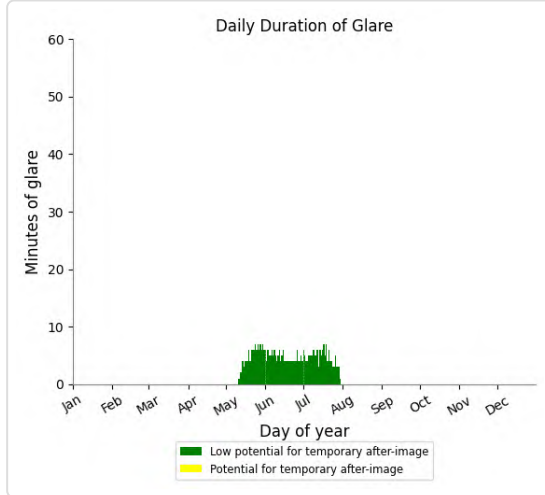
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

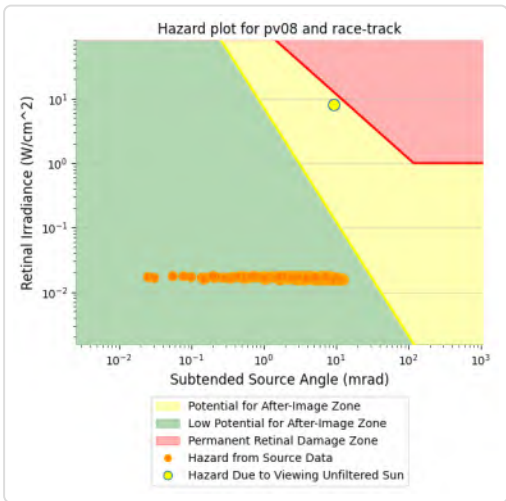
PV08 and Route: Race Track

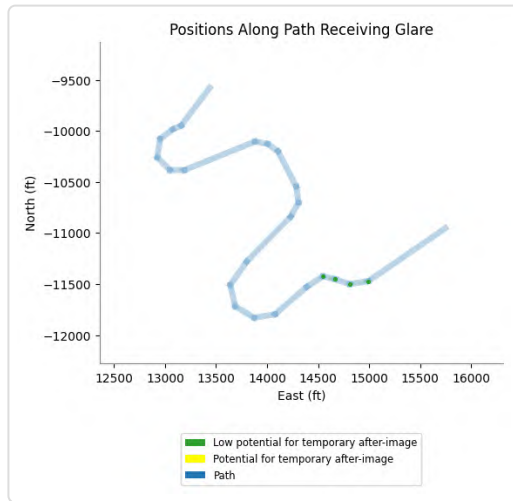
Yellow glare: none

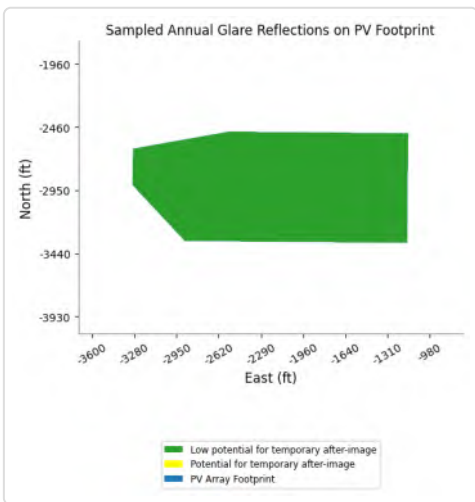
Green glare: 384 min.







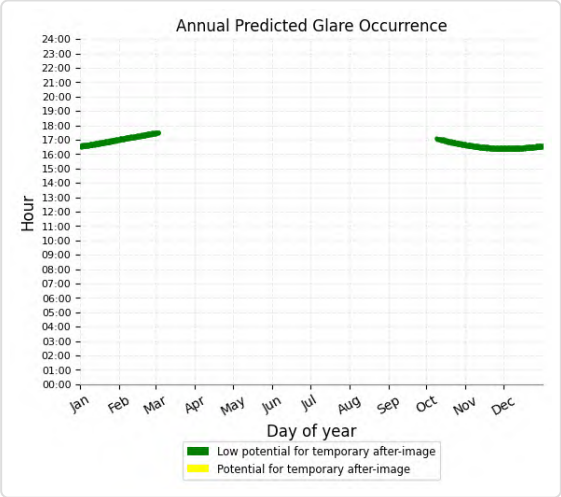


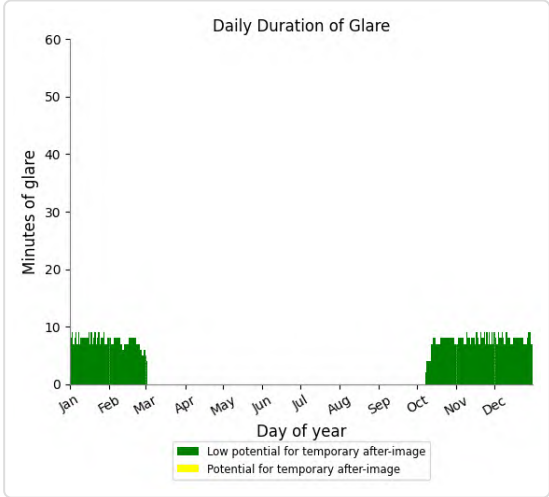


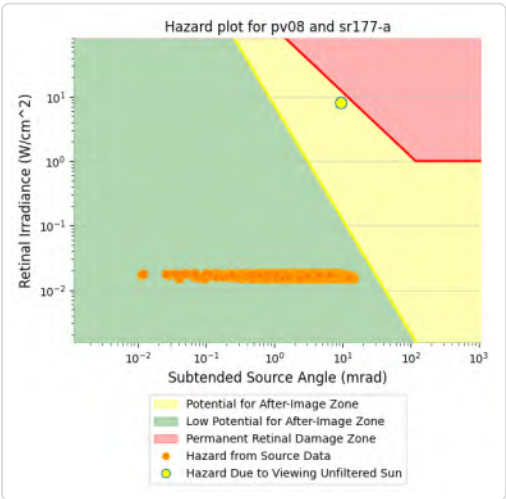
PV08 and Route: SR177 A

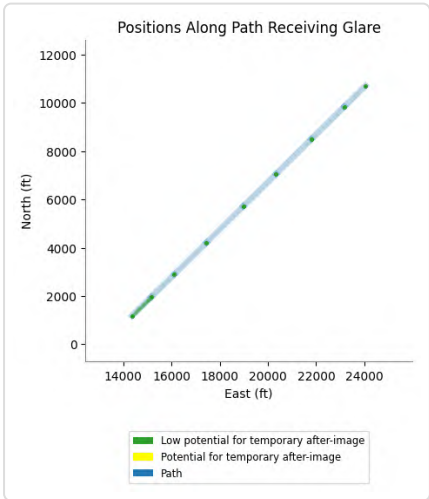
Yellow glare: none

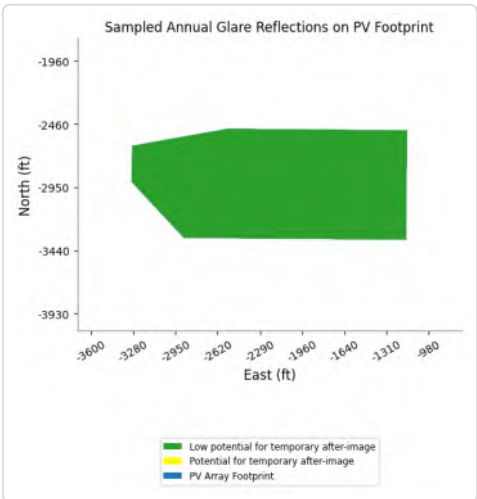
Green glare: 1,113 min.







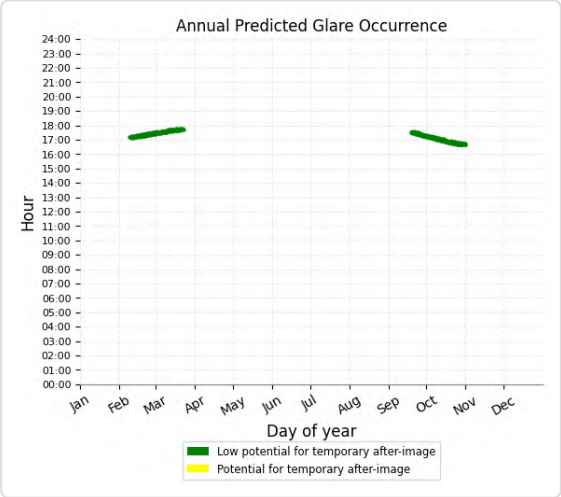


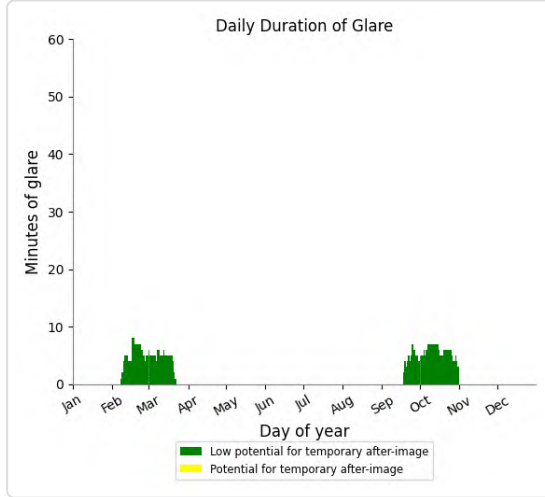


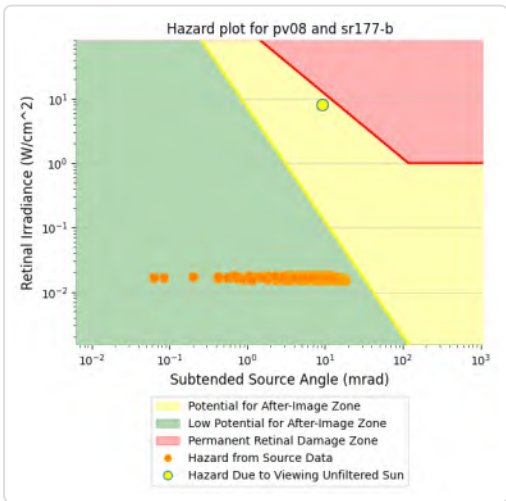
PV08 and Route: SR177 B

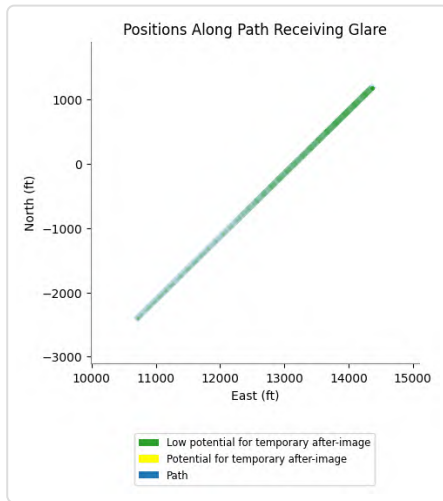
Yellow glare: none

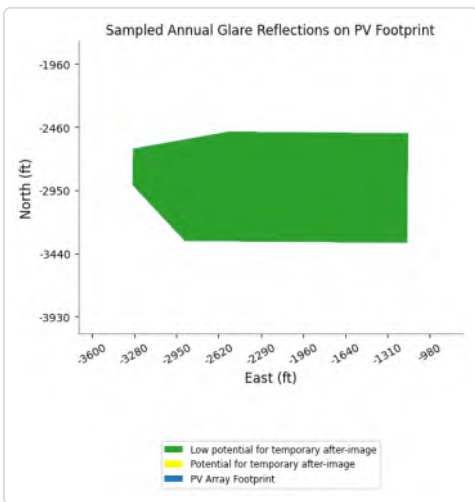
Green glare: 458 min.







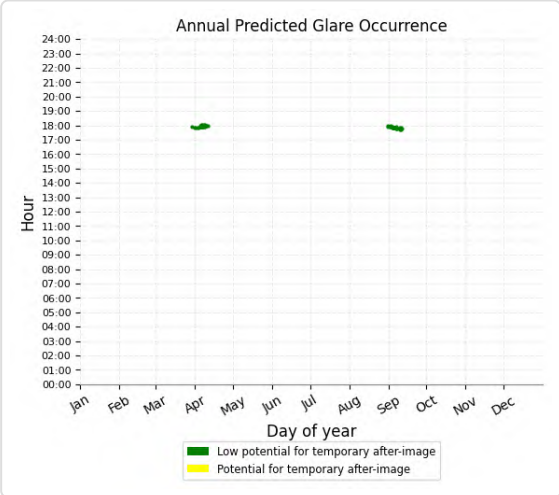


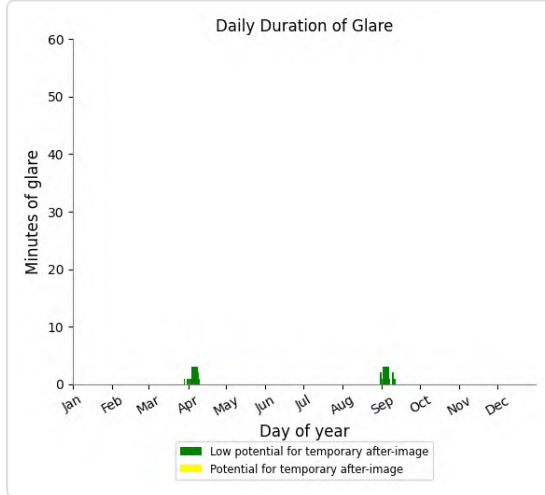


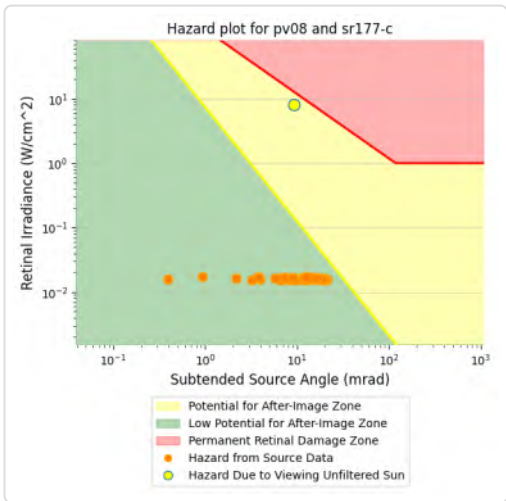
PV08 and Route: SR177 C

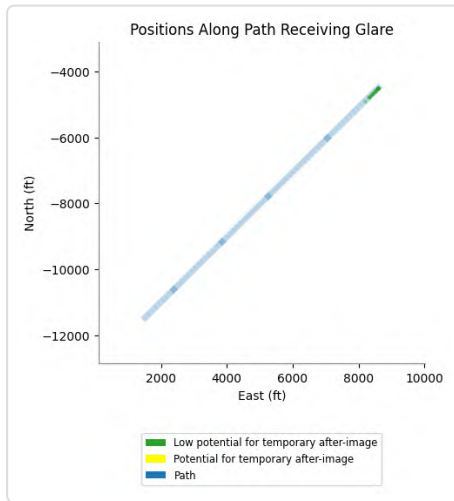
Yellow glare: none

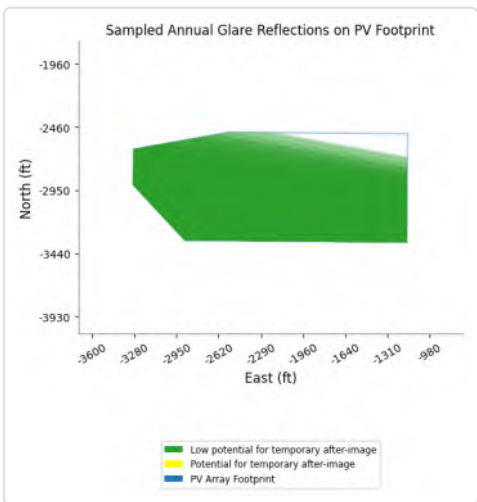
Green glare: 47 min.











PV08 and Route: AirportRd A

No glare found

PV08 and Route: AirportRd B

No glare found

PV08 and Route: EagleMtnRd A

No glare found

PV08 and Route: EagleMtnRd B

No glare found

PV08 and Route: I-10 EB A

No glare found

PV08 and Route: I-10 EB B

No glare found

PV08 and Route: I-10 EB C

No glare found

PV08 and Route: I-10 WB A

No glare found

PV08 and Route: I-10 WB B

No glare found

PV08 and Route: I-10 WB C

No glare found

PV08 and Route: KaiserRd A

No glare found

PV08 and Route: KaiserRd B

No glare found

PV08 and Route: KaiserRd C

No glare found

PV08 and Route: OasisRd

No glare found

PV08 and Route: SR177 D

No glare found

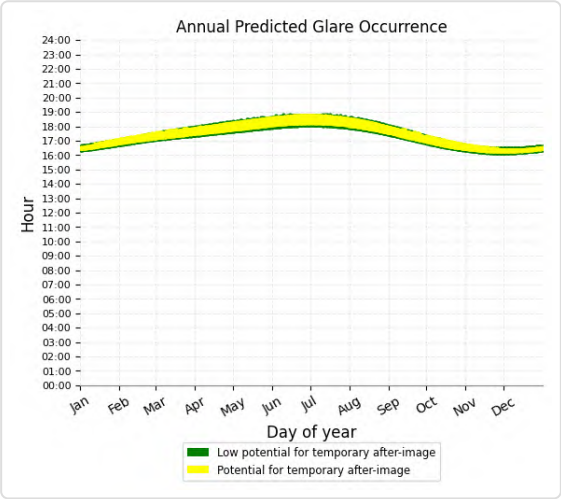
PV08 and Route: SR177 E

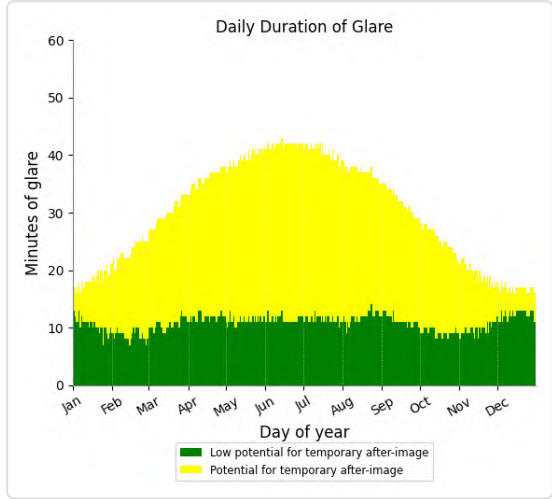
No glare found

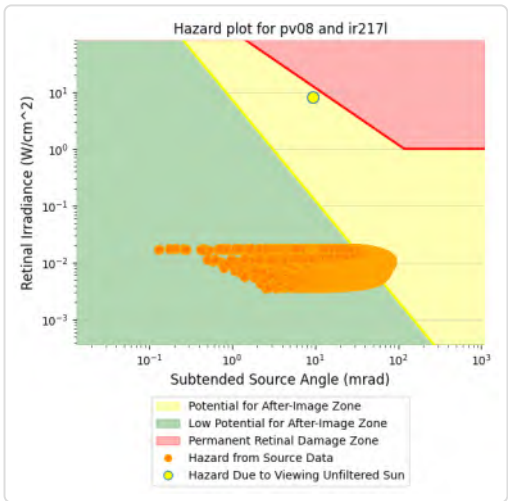
PV08 and FP: IR217I

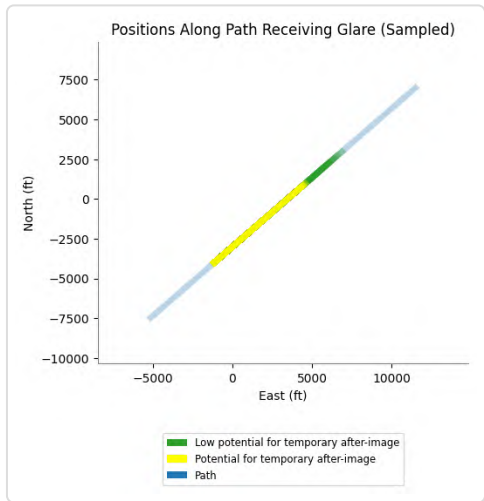
Yellow glare: 7,019 min.

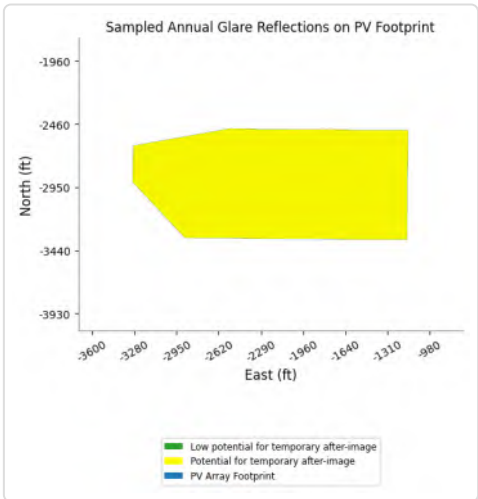
Green glare: 3,963 min.

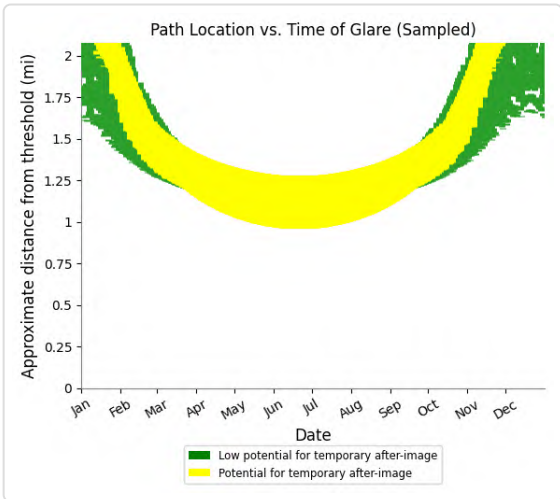








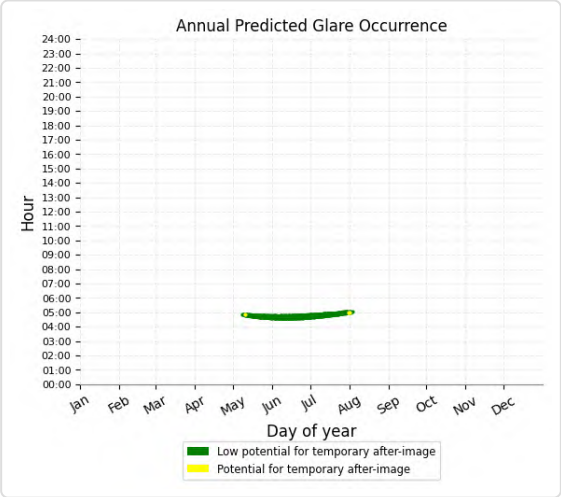


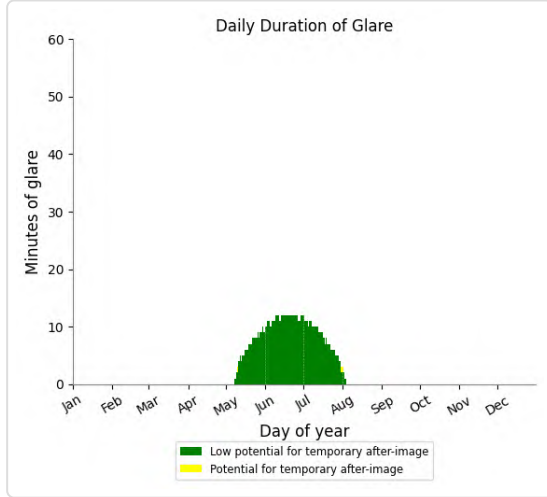


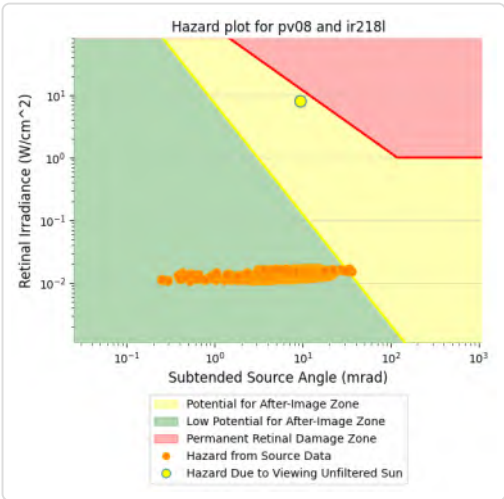
PV08 and FP: IR218l

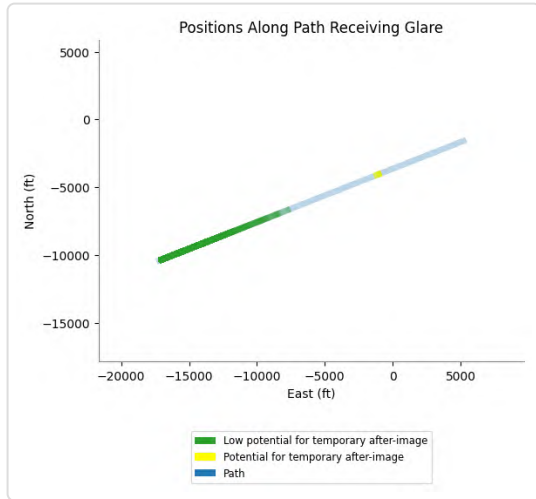
Yellow glare: 3 min.

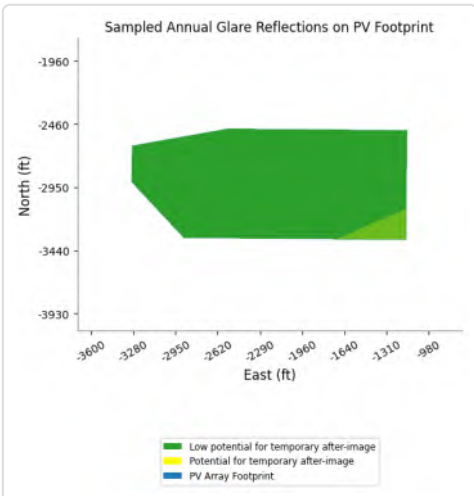
Green glare: 753 min.

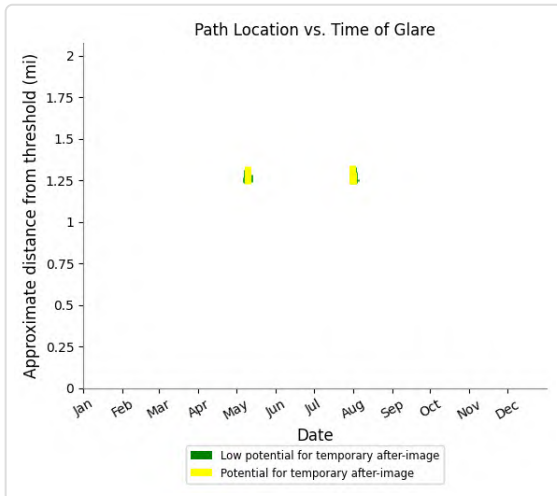








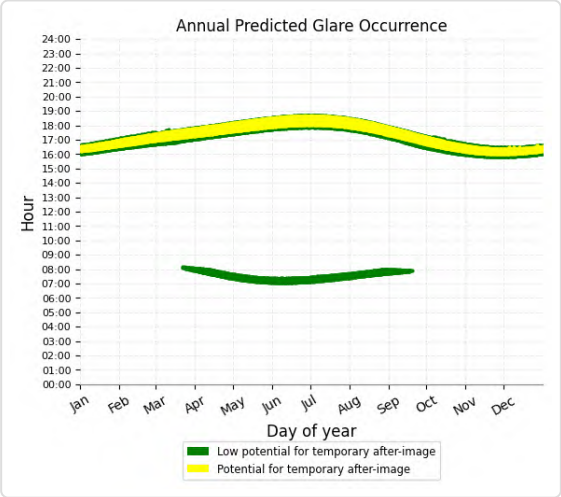


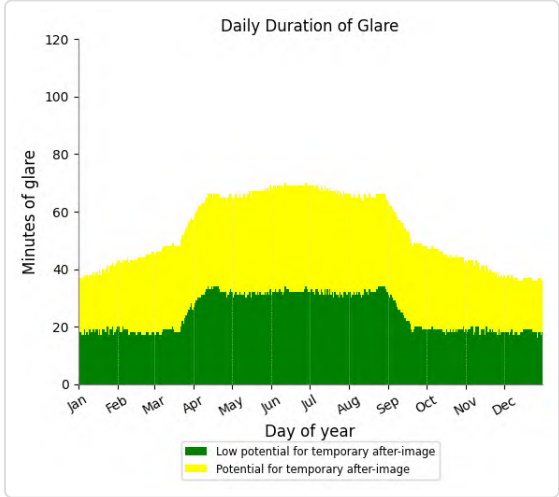


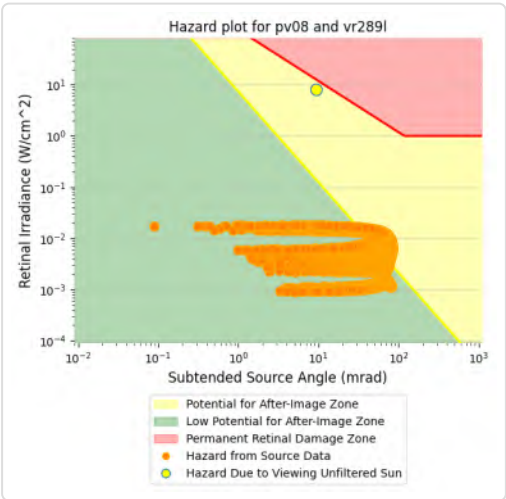
PV08 and FP: VR289l

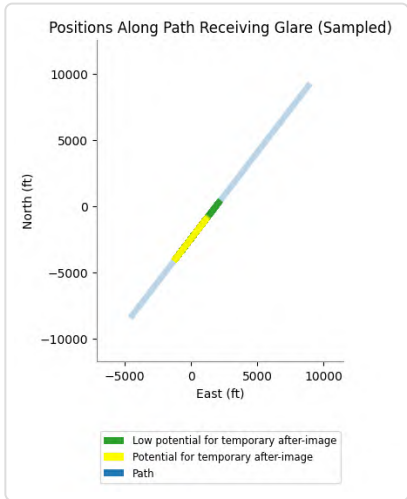
Yellow glare: 10,543 min.

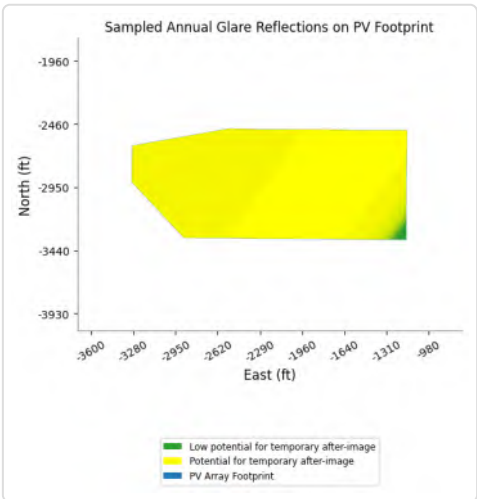
Green glare: 8,993 min.

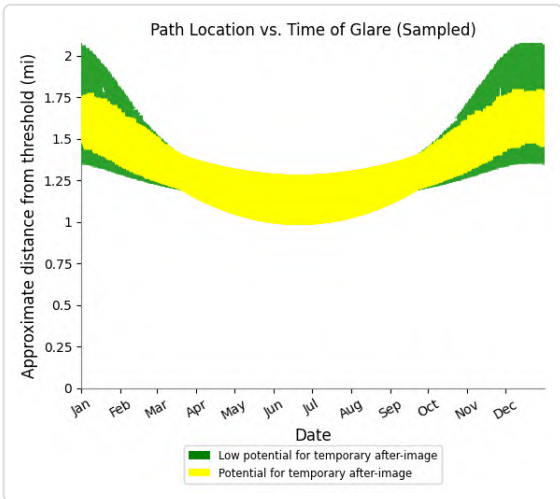








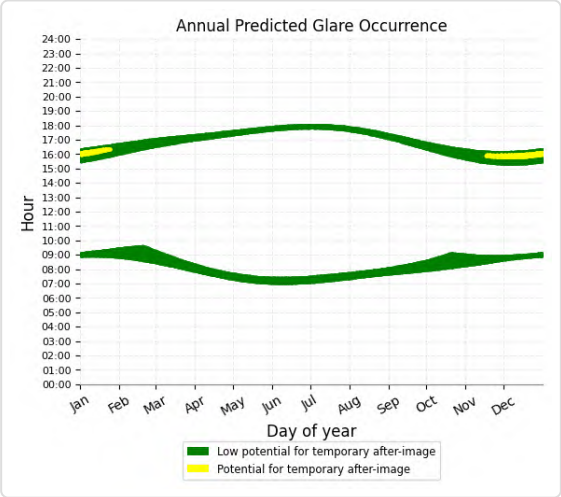


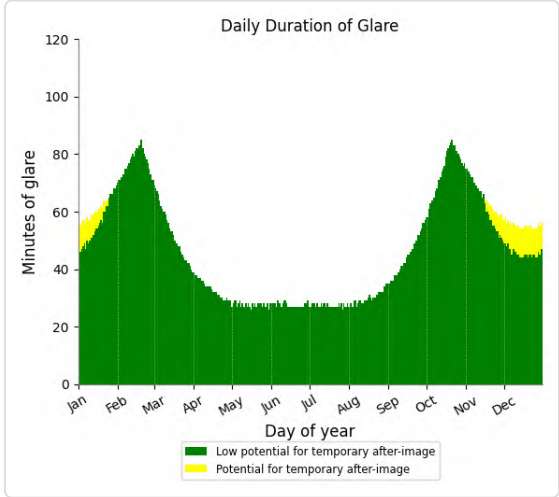


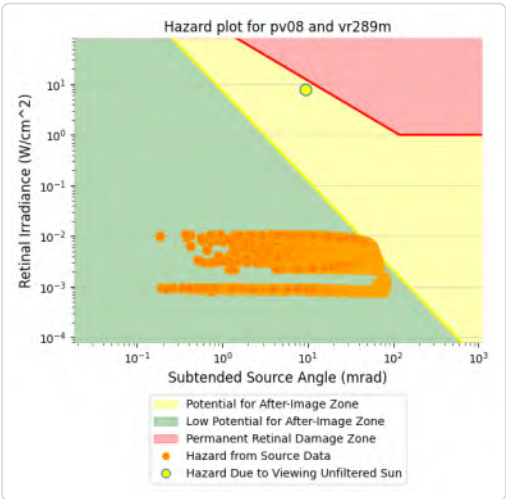
PV08 and FP: VR289m

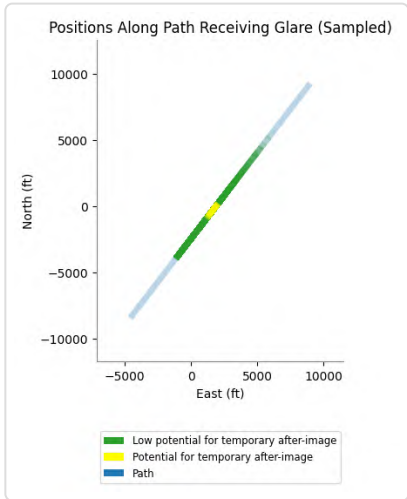
Yellow glare: 533 min.

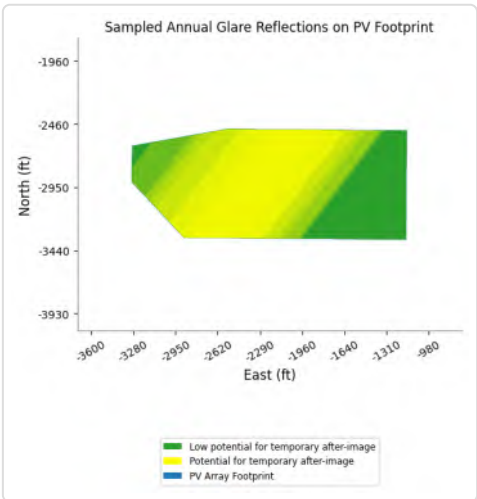
Green glare: 16,976 min.

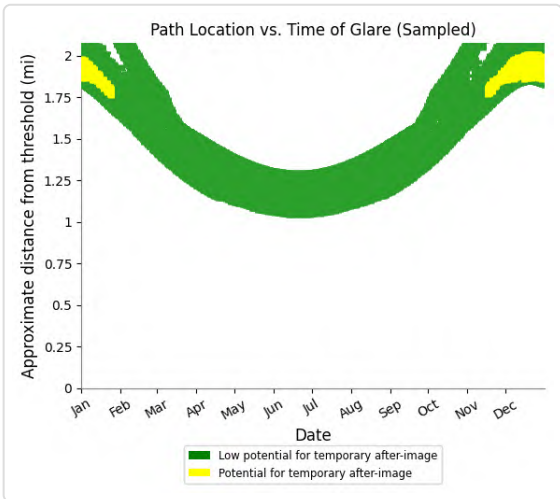








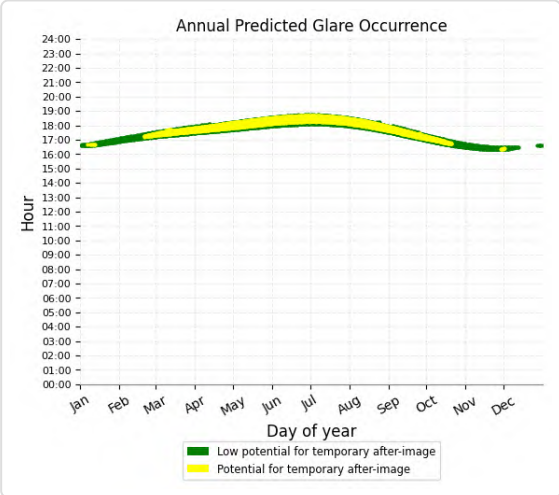


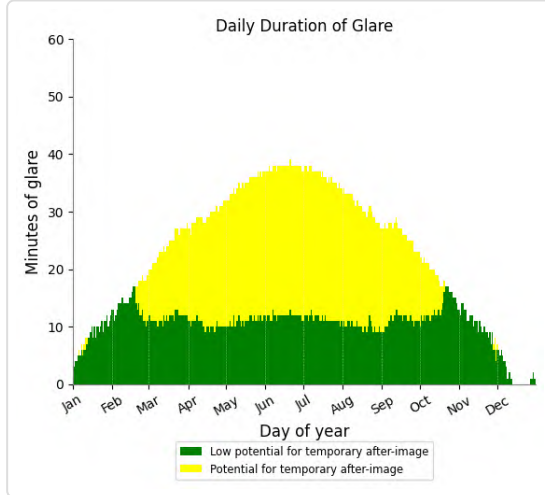


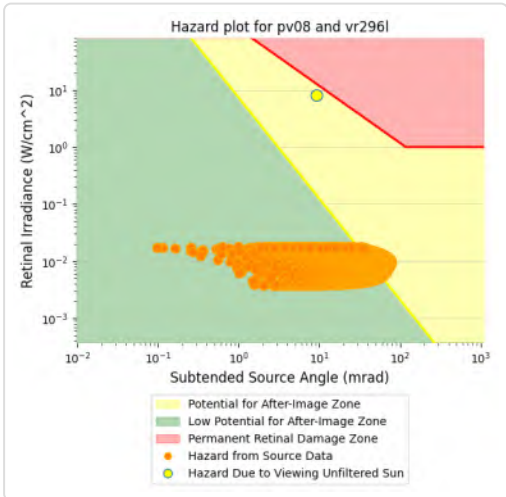
PV08 and FP: VR296l

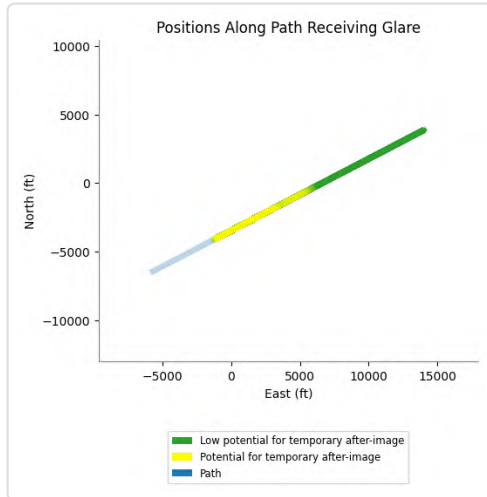
Yellow glare: 4,553 min.

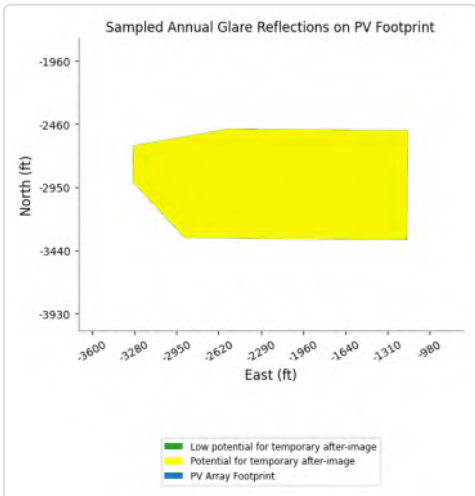
Green glare: 3,775 min.

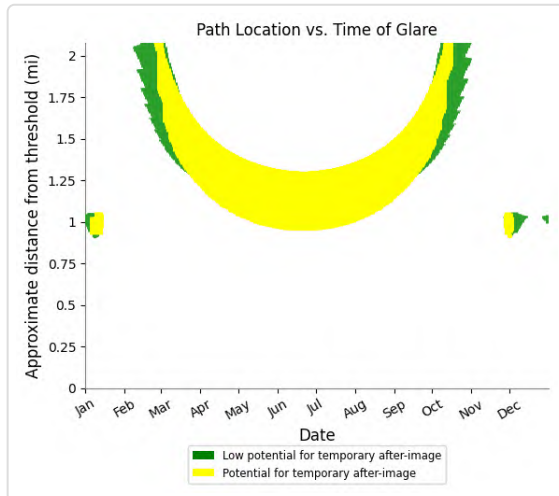








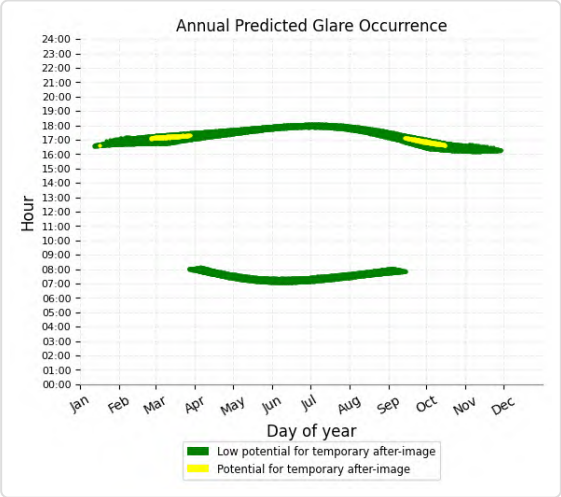


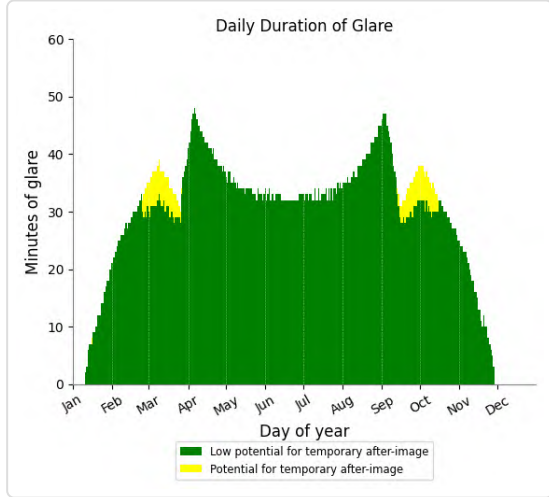


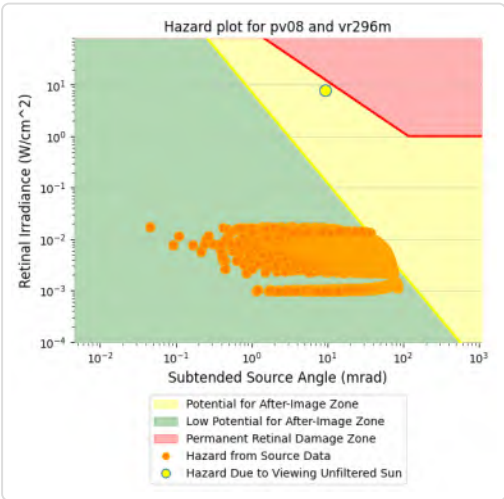
PV08 and FP: VR296m

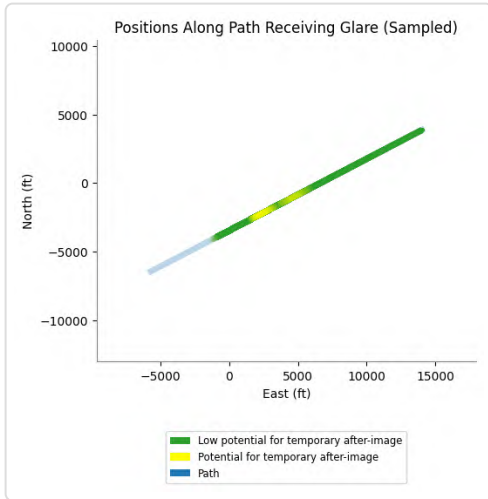
Yellow glare: 296 min.

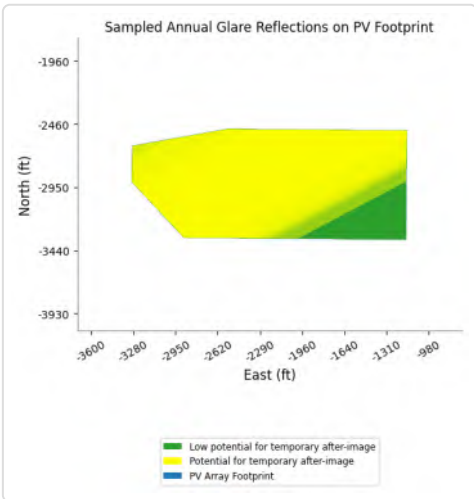
Green glare: 9,929 min.

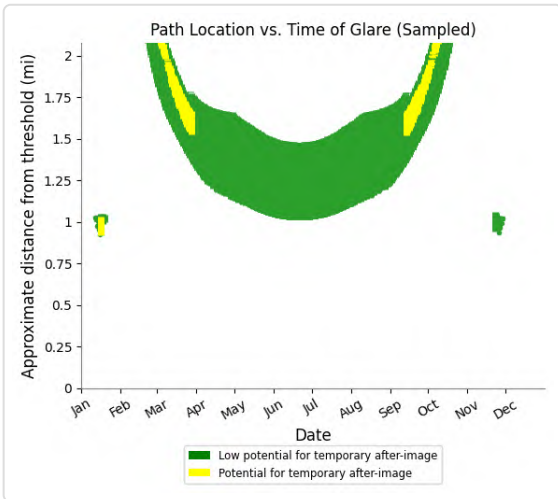








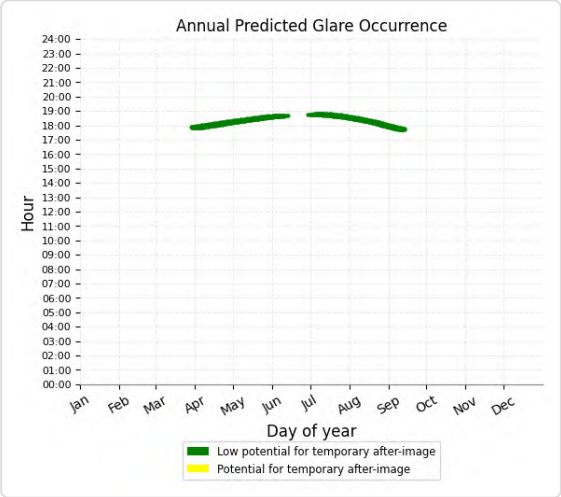


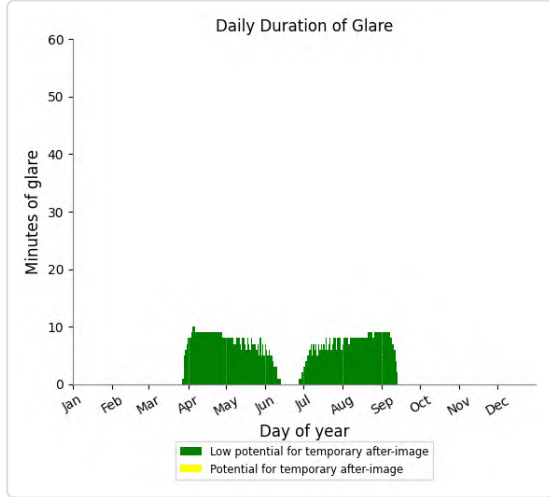


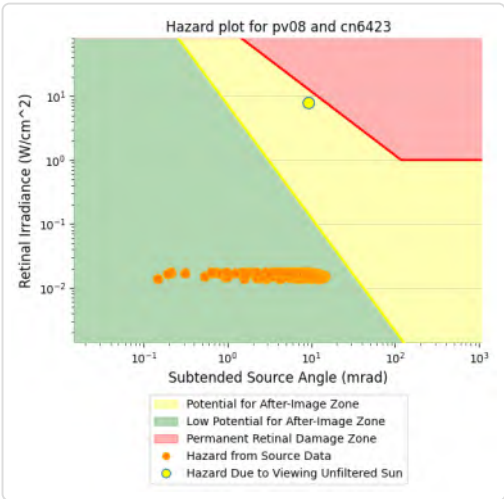
PV08 and FP: CN6423

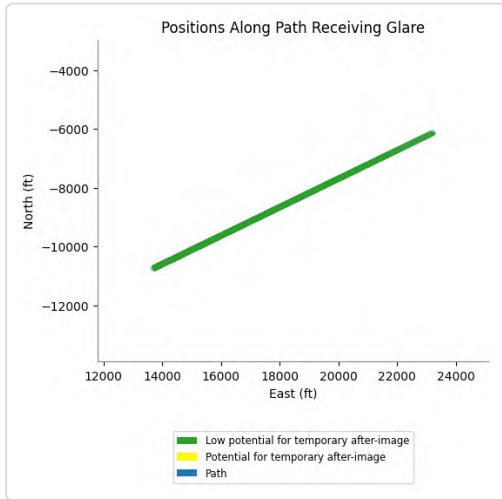
Yellow glare: none

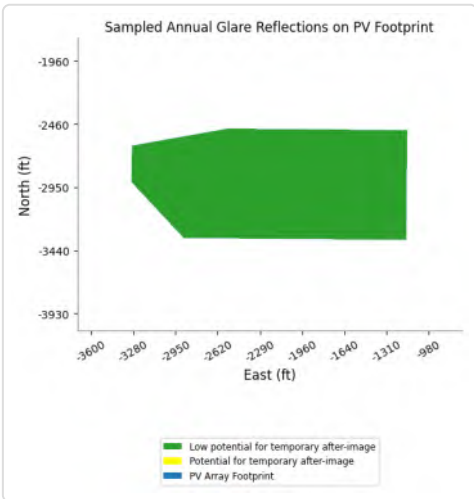
Green glare: 1,109 min.

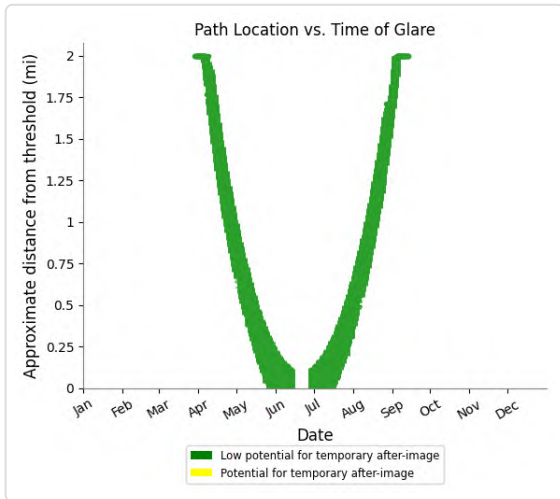








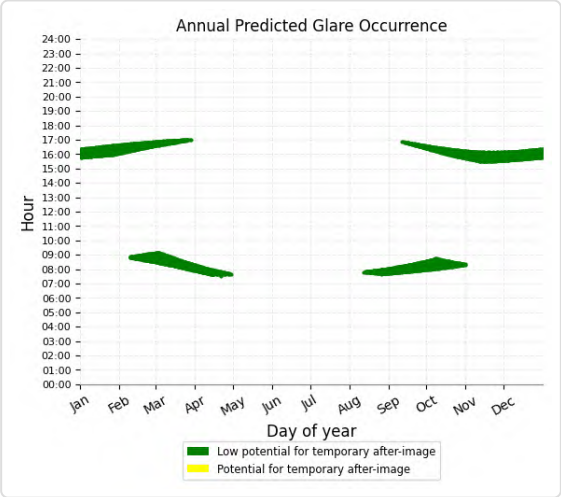


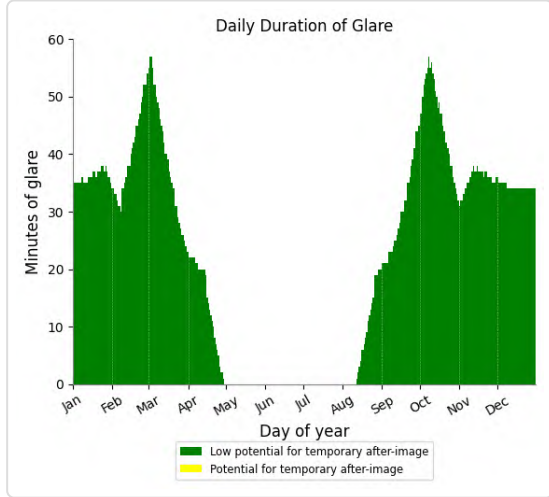


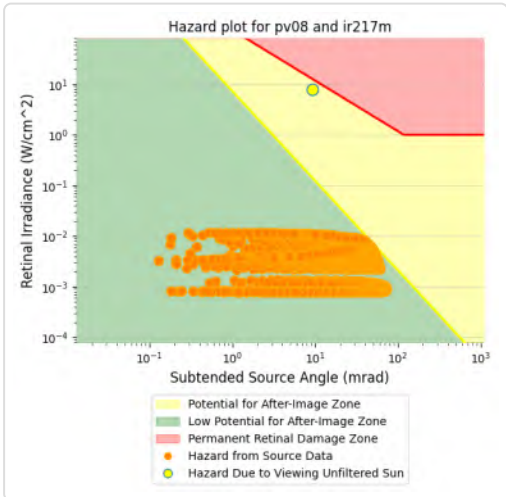
PV08 and FP: IR217m

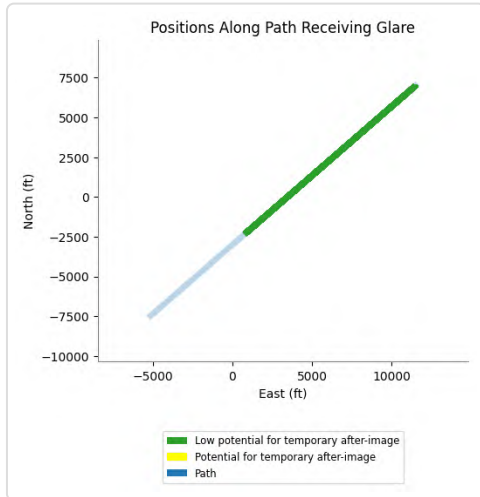
Yellow glare: none

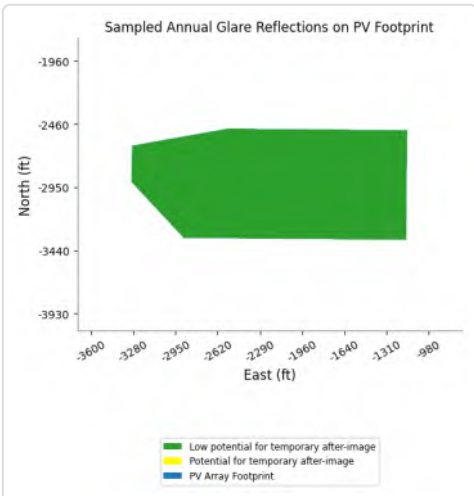
Green glare: 8,613 min.

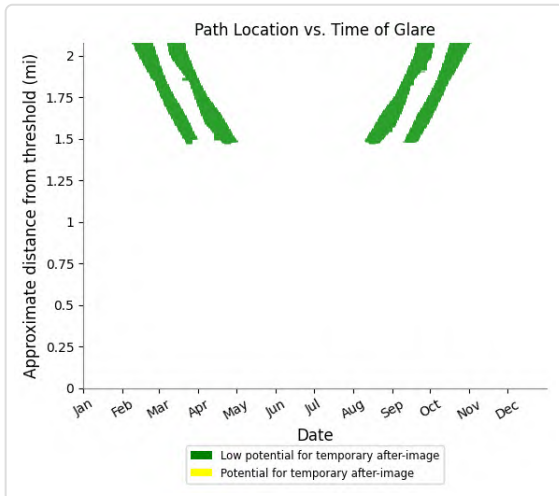








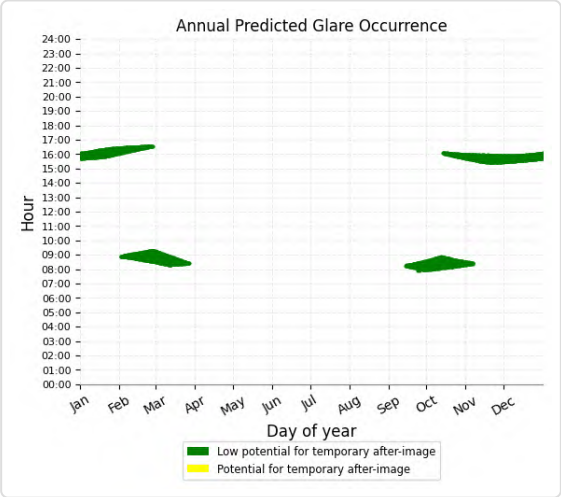


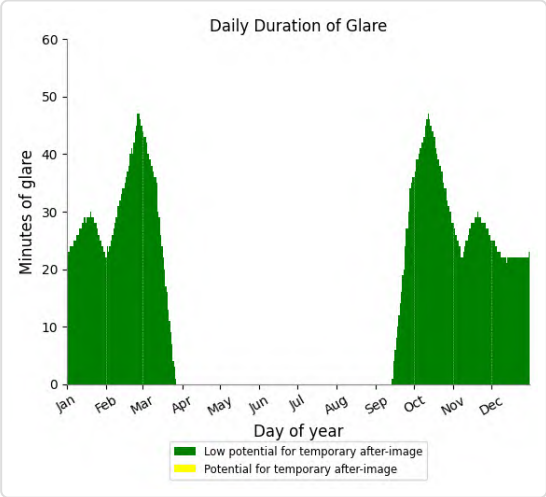


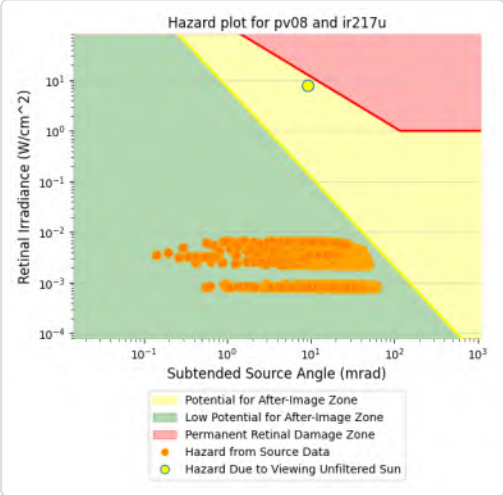
PV08 and FP: IR217u

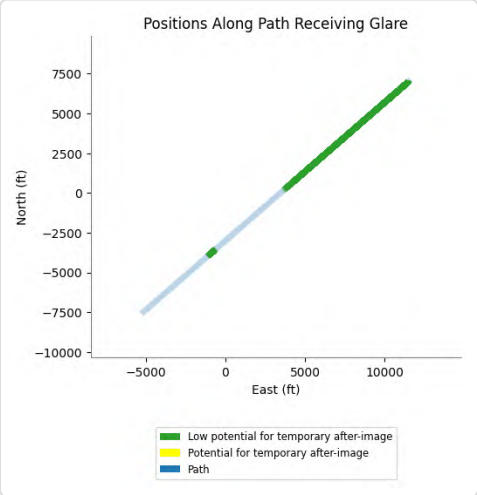
Yellow glare: none

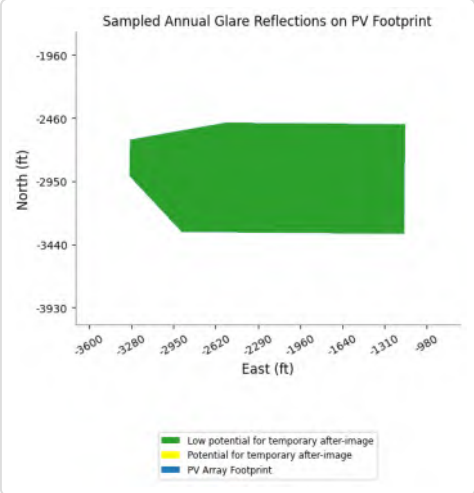
Green glare: 5,548 min.

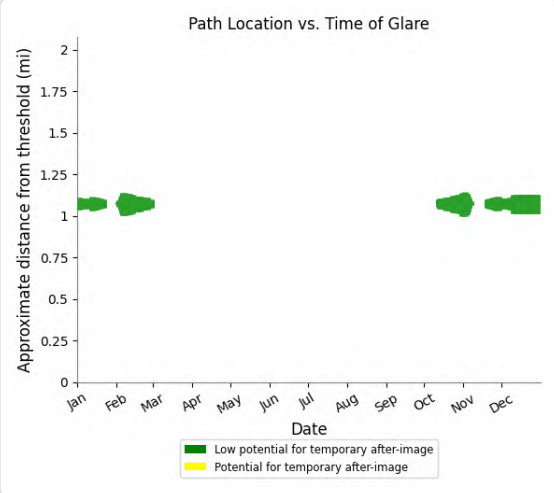








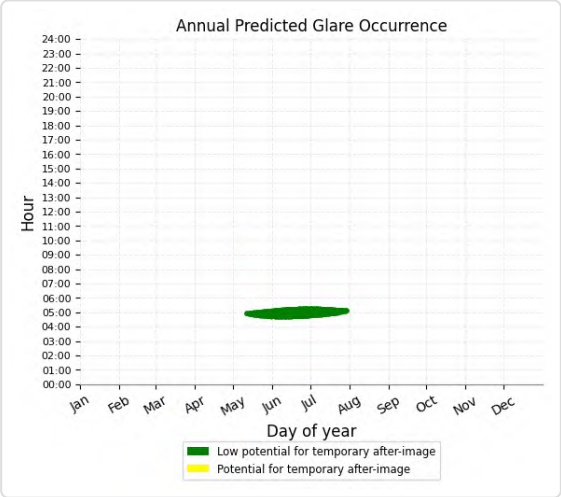


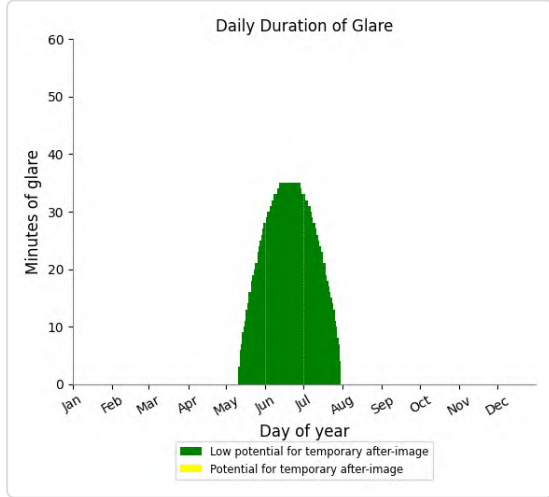


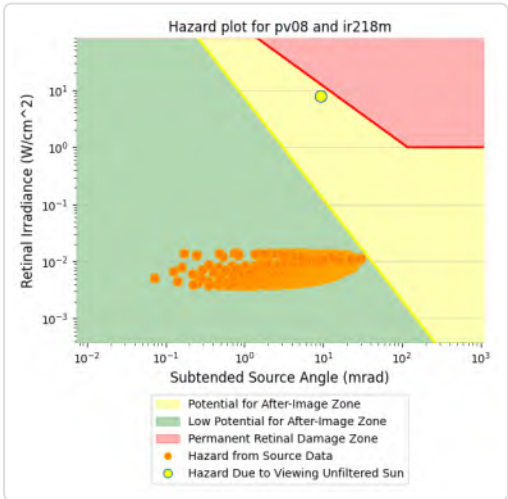
PV08 and FP: IR218m

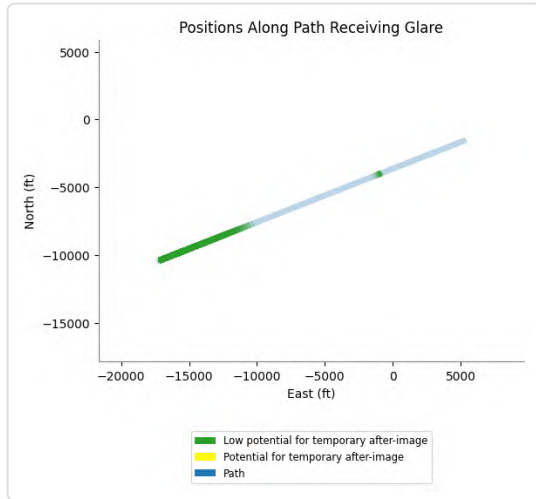
Yellow glare: none

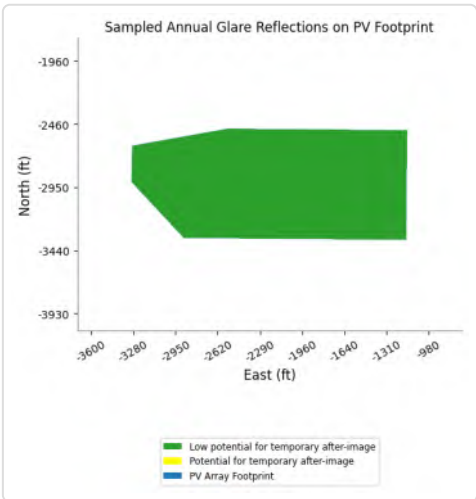
Green glare: 2,013 min.

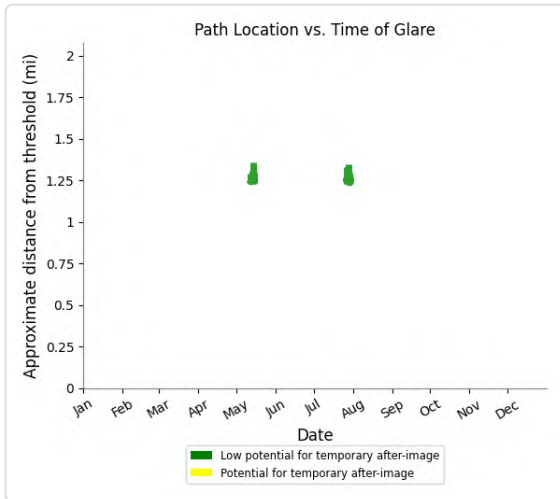








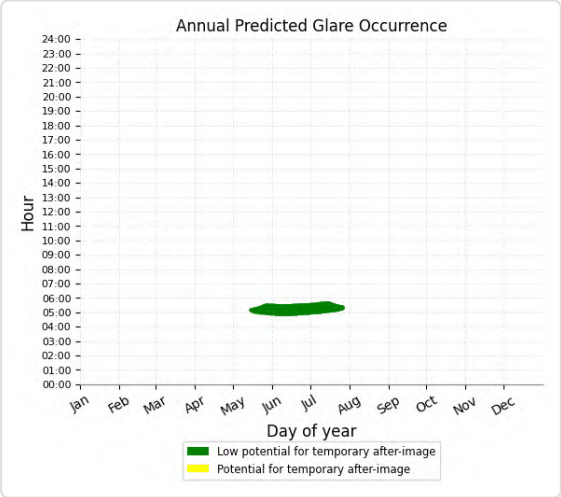


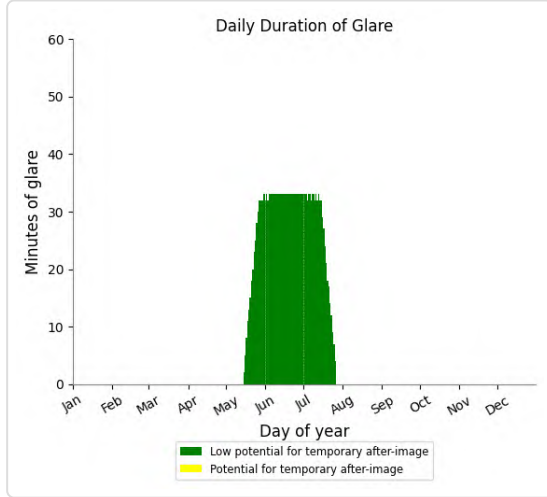


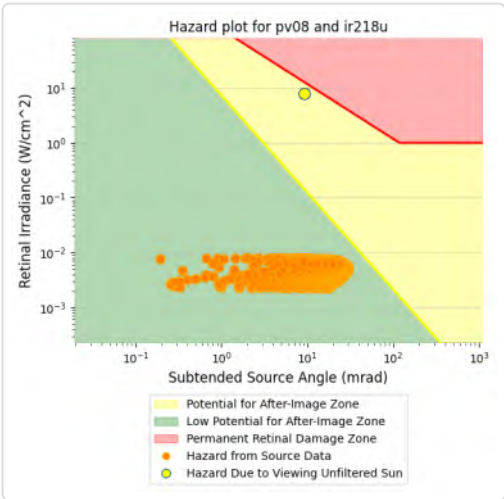
PV08 and FP: IR218u

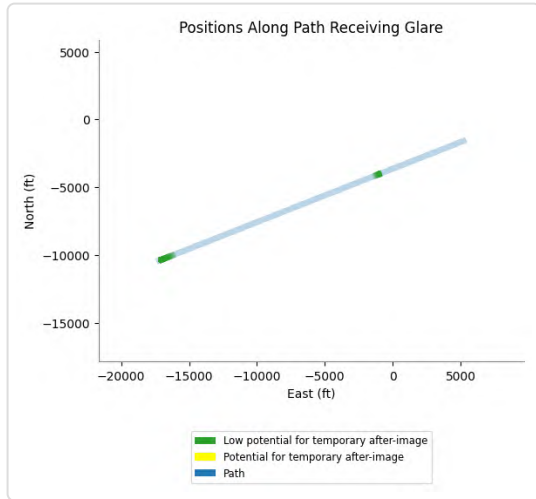
Yellow glare: none

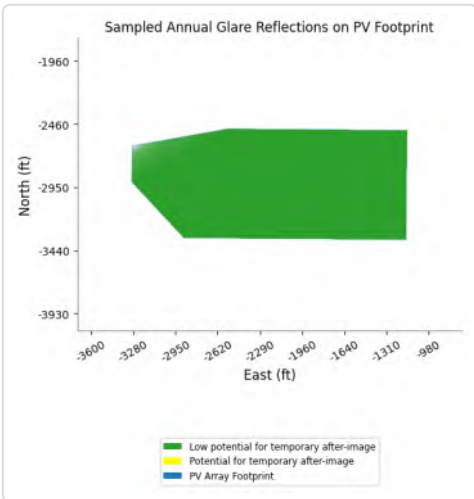
Green glare: 2,018 min.

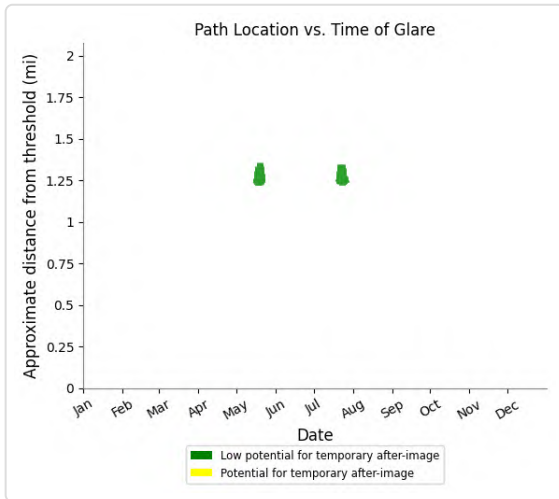








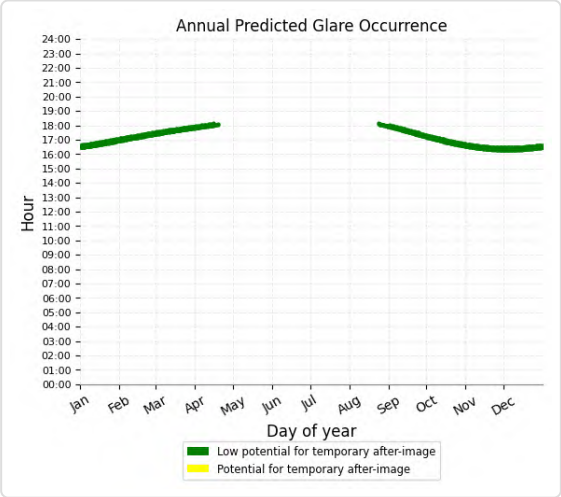


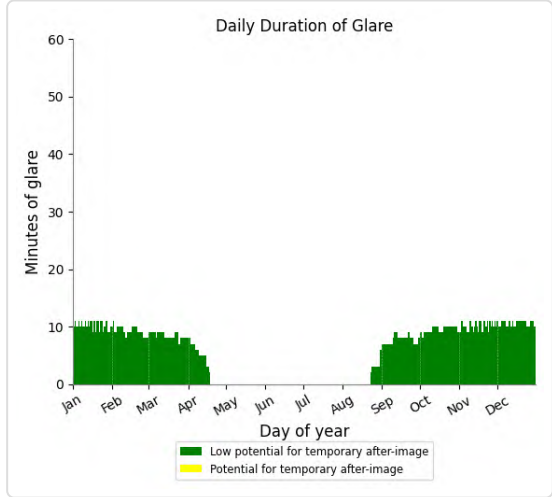


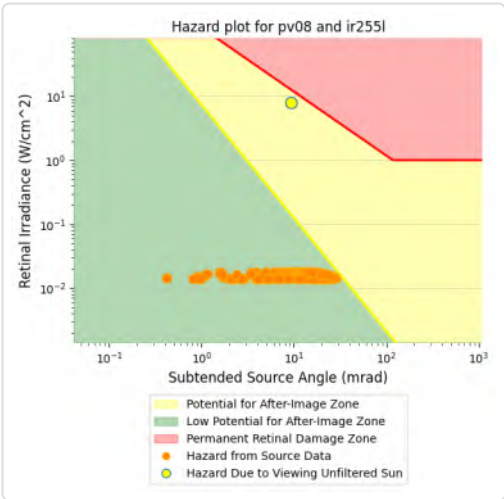
PV08 and FP: IR255I

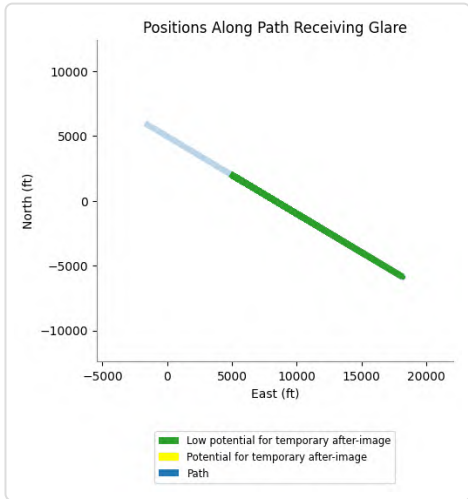
Yellow glare: none

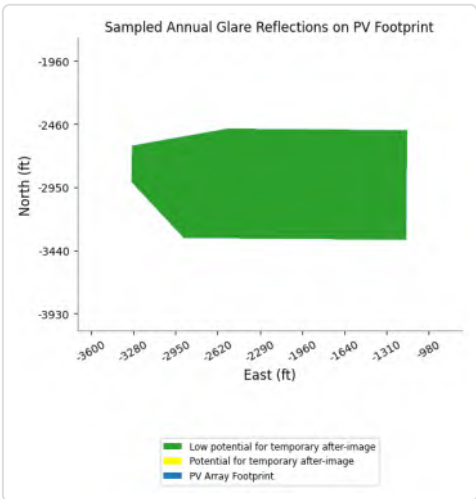
Green glare: 2,135 min.

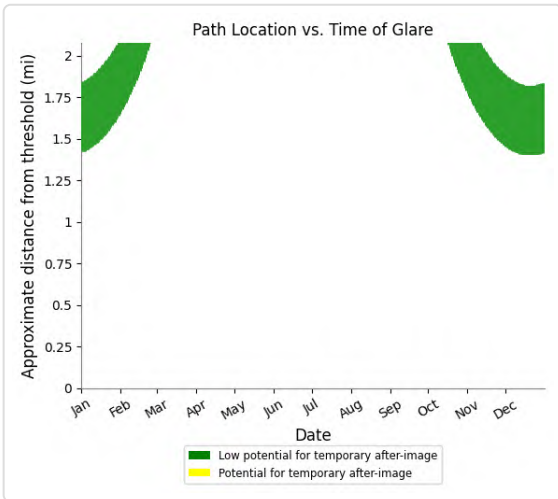








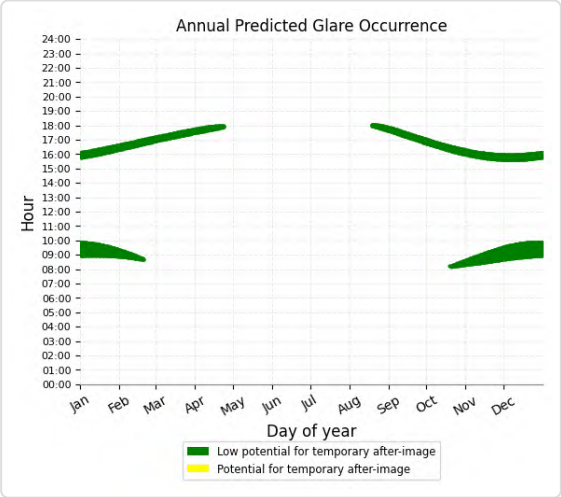


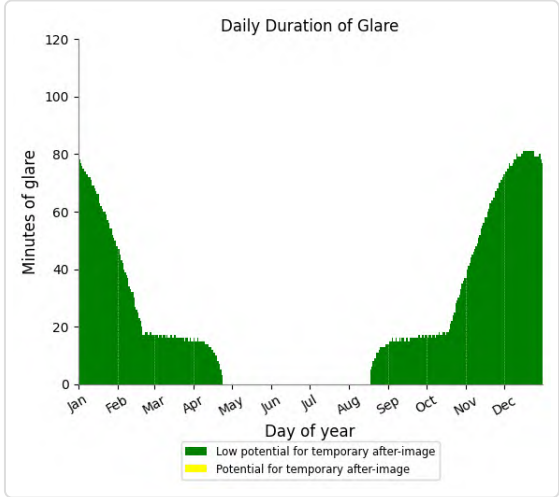


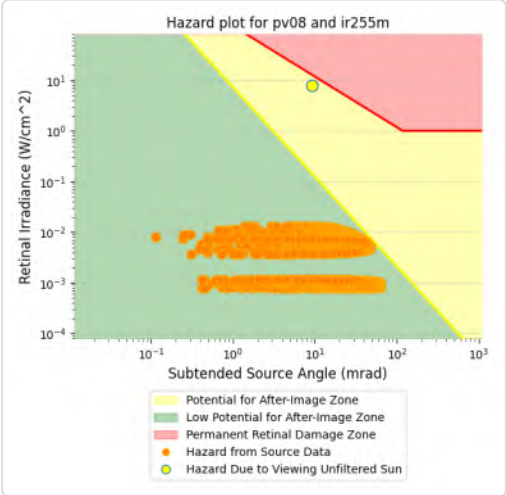
PV08 and FP: IR255m

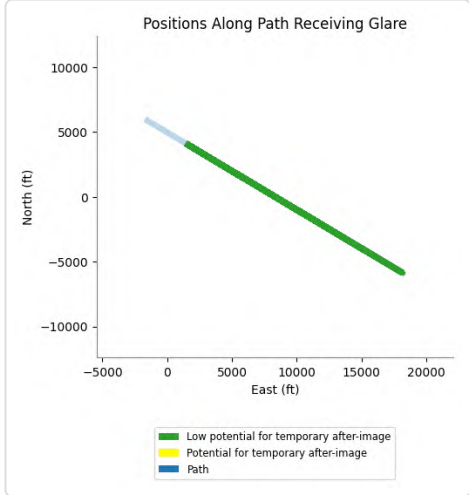
Yellow glare: none

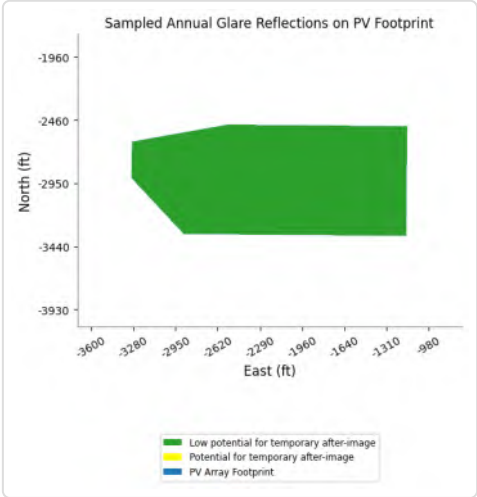
Green glare: 9,056 min.

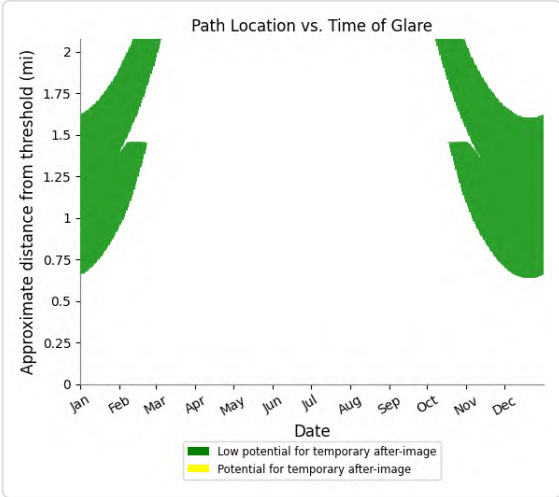








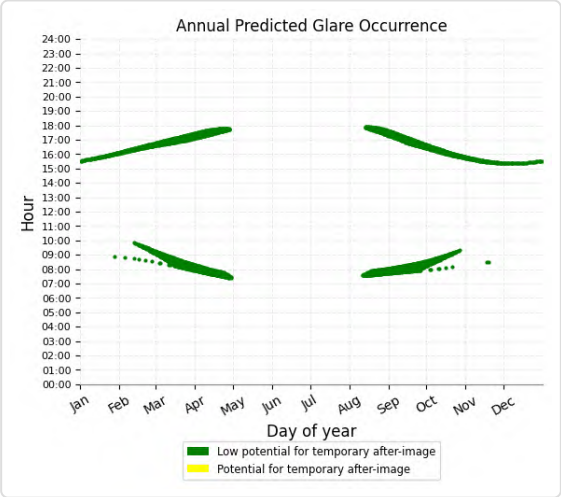


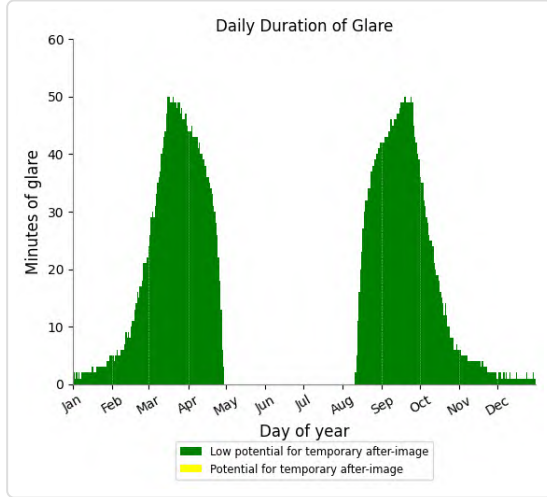


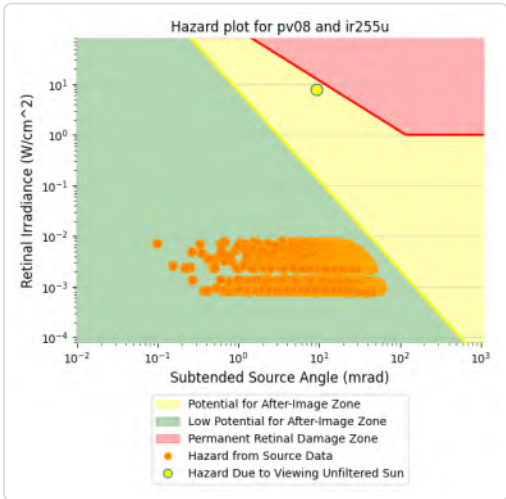
PV08 and FP: IR255u

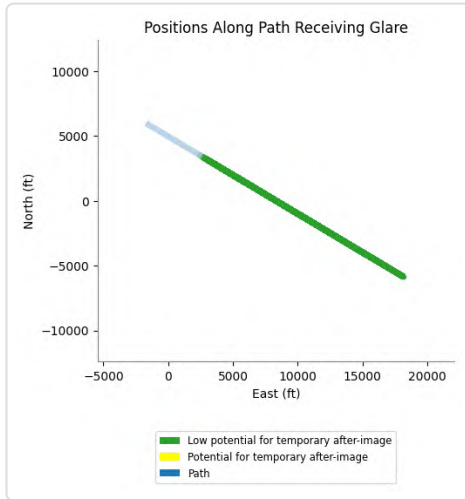
Yellow glare: none

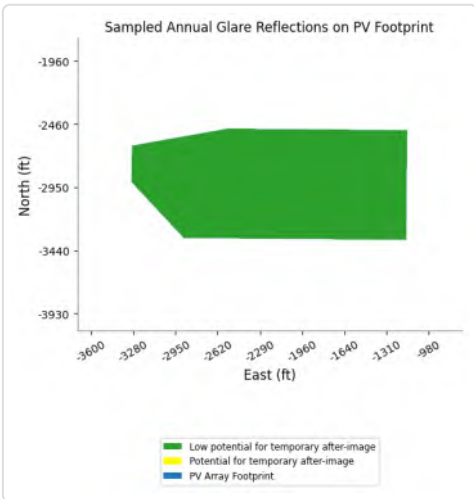
Green glare: 5,388 min.

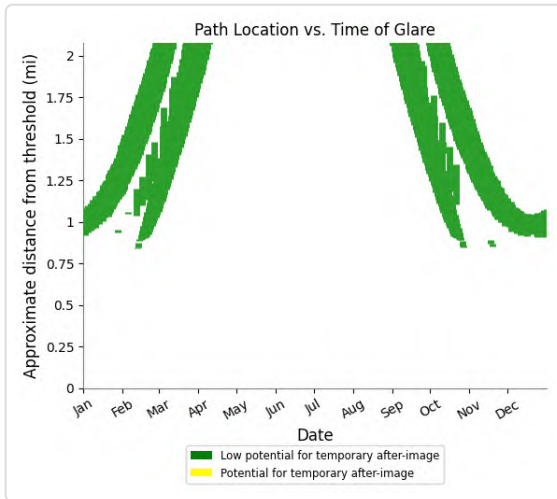








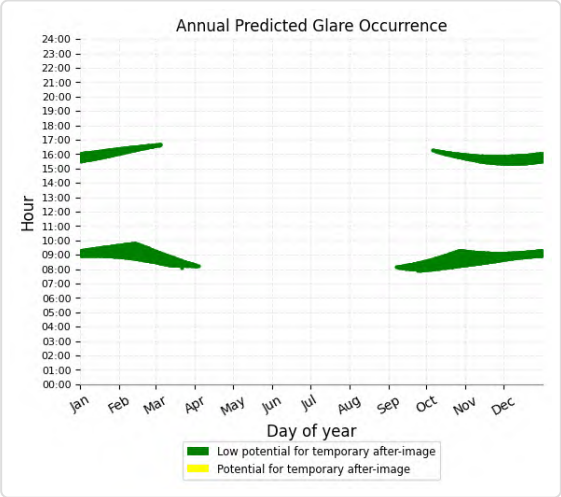


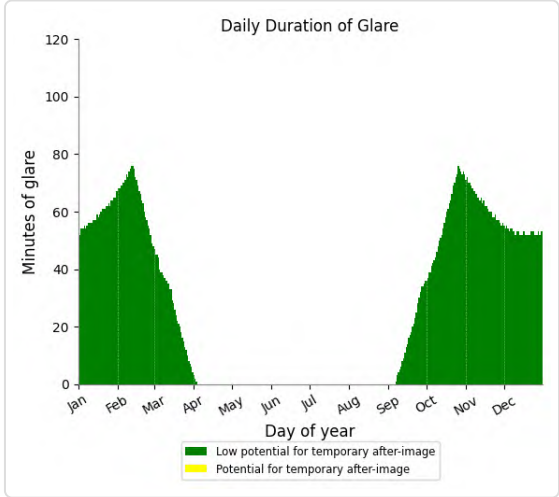


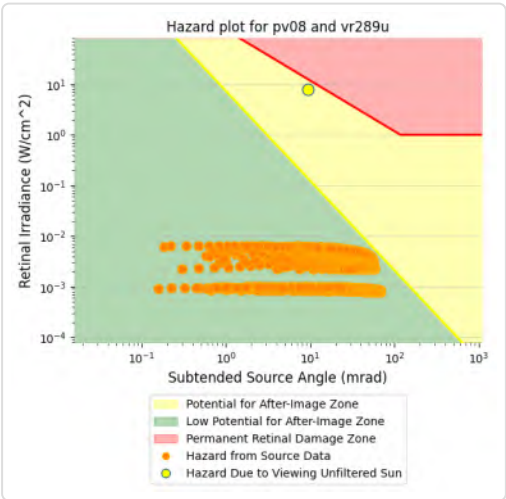
PV08 and FP: VR289u

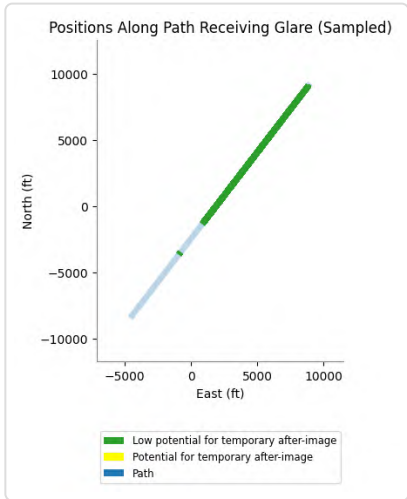
Yellow glare: none

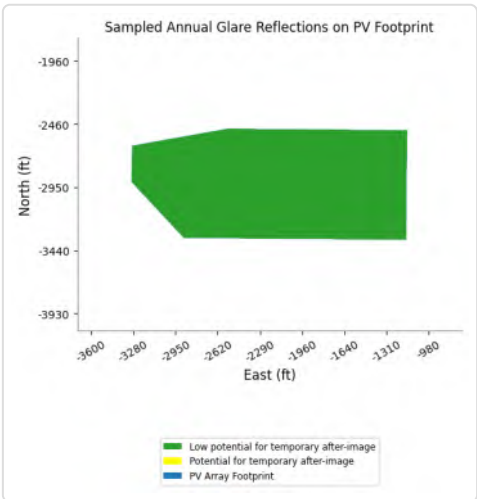
Green glare: 10,305 min.

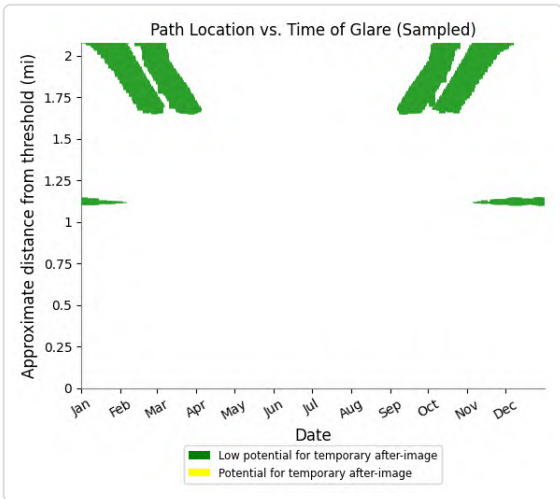








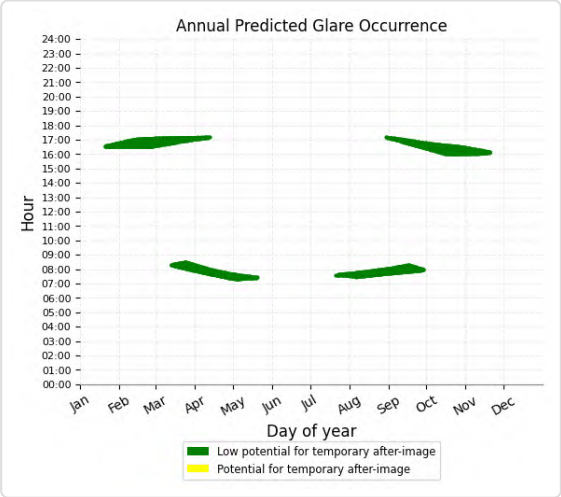


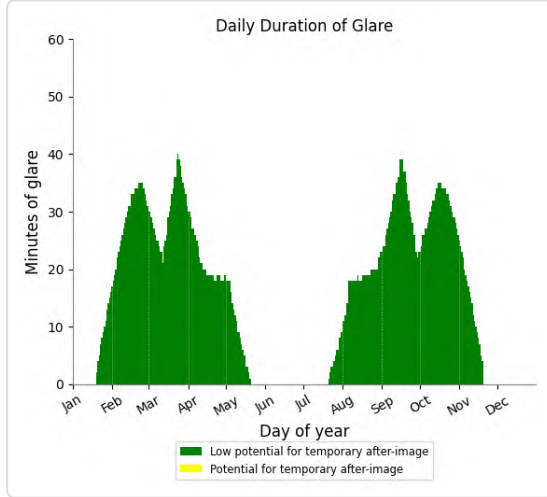


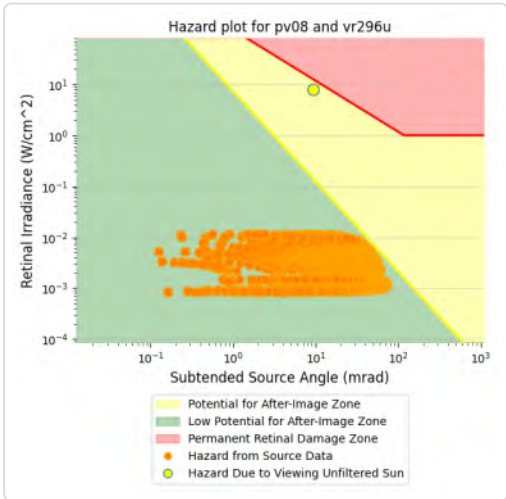
PV08 and FP: VR296u

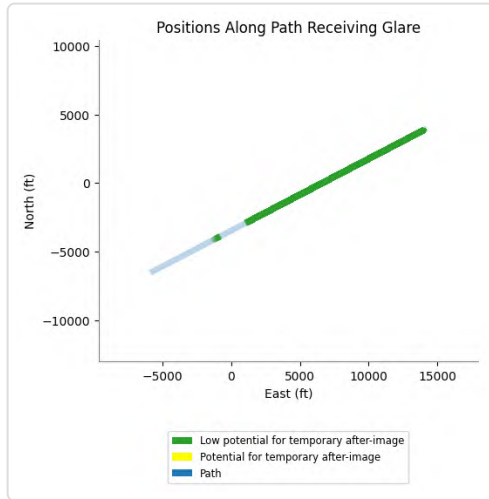
Yellow glare: none

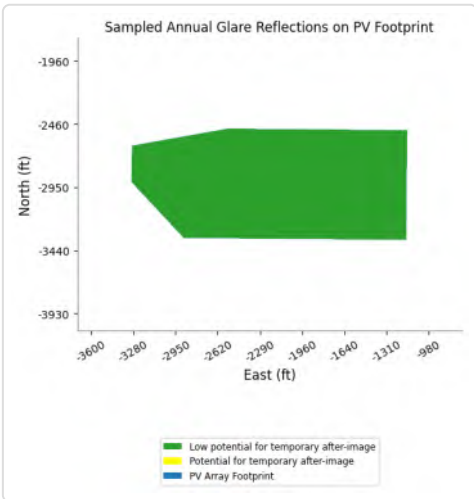
Green glare: 5,489 min.

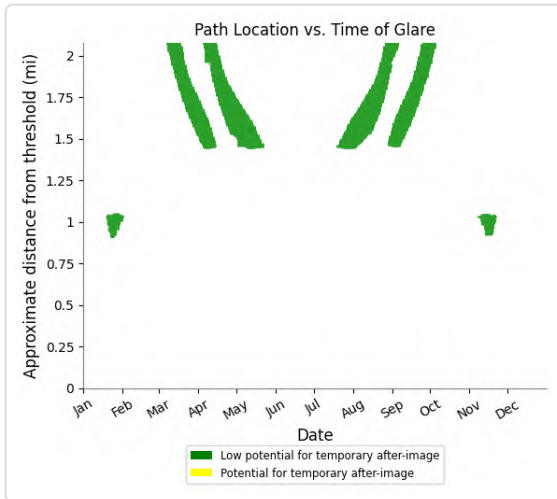










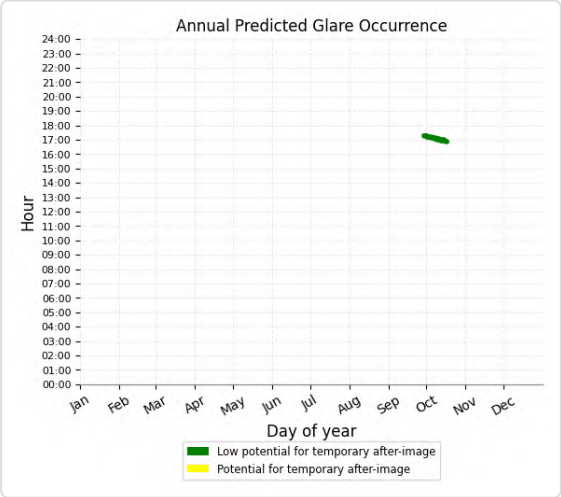


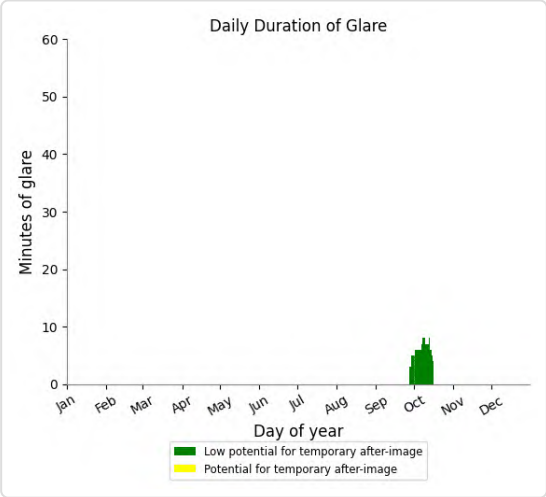
PV08 and FP: CN645

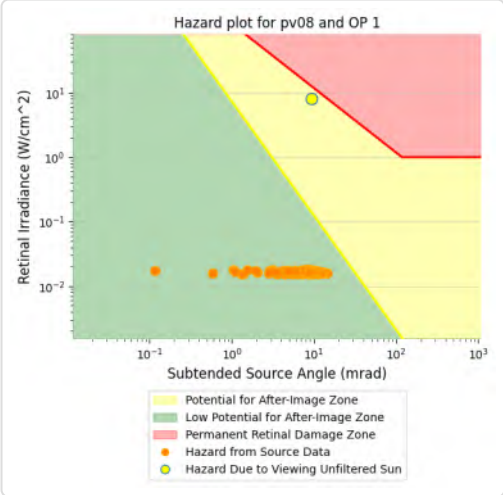
No glare found

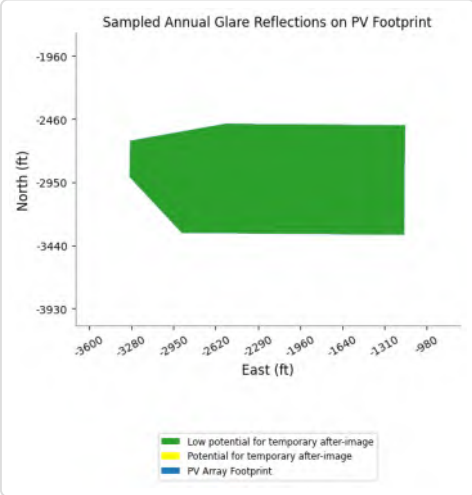
PV08 and OP 1

Yellow glare: none
Green glare: 115 min.









PV08 and OP 2

No glare found

PV08 and OP 3

No glare found

PV08 and OP 4

No glare found

PV08 and OP 5

No glare found

PV08 and OP 6

No glare found

PV08 and OP 7

No glare found

PV08 and OP 8

No glare found

PV08 and OP 9

No glare found

PV08 and OP 10

No glare found

PV08 and OP 11

No glare found

PV08 and OP 12

No glare found

PV08 and OP 13

No glare found

PV08 and OP 14

No glare found

PV08 and OP 15

No glare found

PV08 and OP 16

No glare found

PV08 and OP 17

No glare found

PV08 and OP 18

No glare found

PV08 and OP 19

No glare found

PV: PV09 potential temporary after-image

Receptor results ordered by category of glare

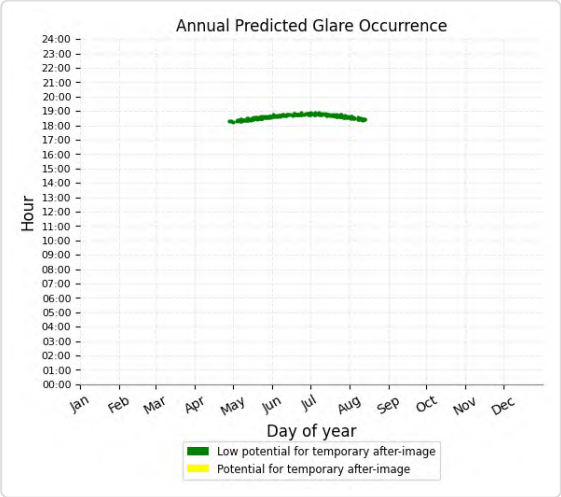
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd B	199	3.3	0	0.0
Race Track	435	7.2	0	0.0
SR177 A	970	16.2	0	0.0
SR177 B	525	8.8	0	0.0
SR177 C	48	0.8	0	0.0
AirportRd A	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	33,608	560.1	16,113	268.6
IR217m	8,868	147.8	348	5.8
IR218l	4,437	74.0	388	6.5
IR218m	3,967	66.1	191	3.2
IR218u	2,821	47.0	4	0.1
VR289l	39,121	652.0	9,805	163.4
VR296l	16,812	280.2	12,102	201.7
VR296m	10,937	182.3	1,309	21.8
VR296u	5,613	93.5	176	2.9
CN6423	1,073	17.9	0	0.0
IR217u	5,672	94.5	0	0.0
IR255l	2,163	36.0	0	0.0
IR255m	12,444	207.4	0	0.0
IR255u	4,272	71.2	0	0.0
VR289m	17,020	283.7	0	0.0
VR289u	10,645	177.4	0	0.0
CN645	0	0.0	0	0.0
OP 1	79	1.3	0	0.0
OP 2	85	1.4	0	0.0

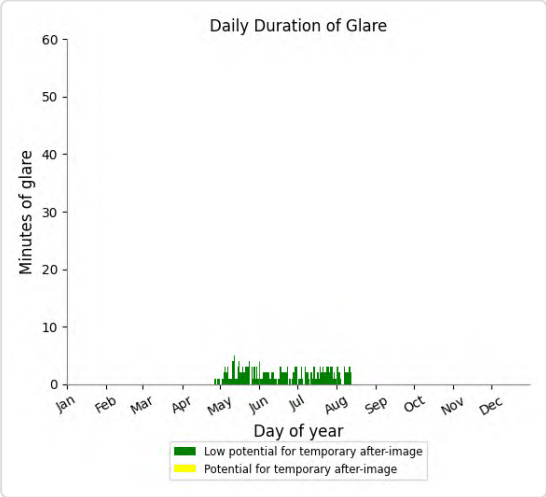
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 4	48	0.8	0	0.0
OP 3	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

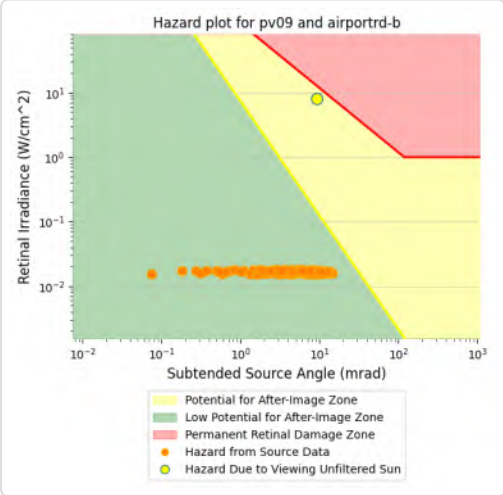
PV09 and Route: AirportRd B

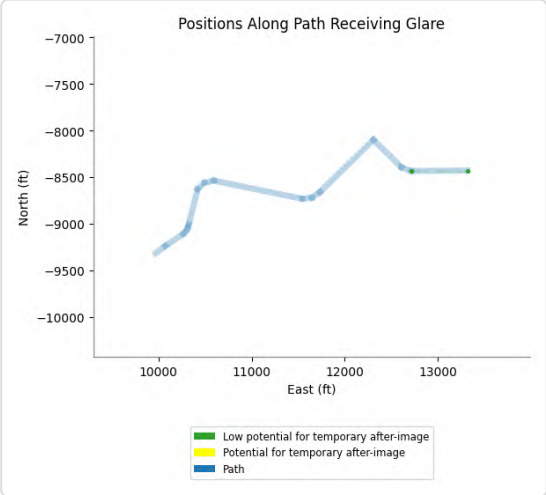
Yellow glare: none

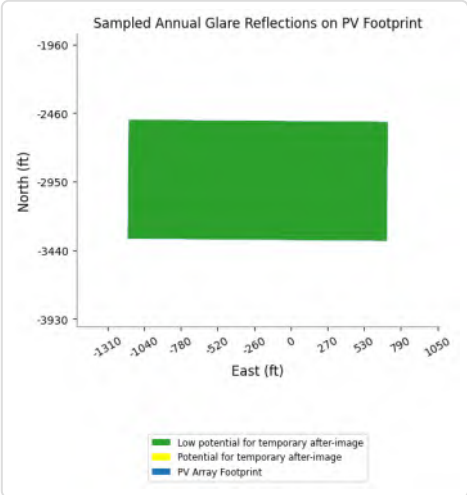
Green glare: 199 min.







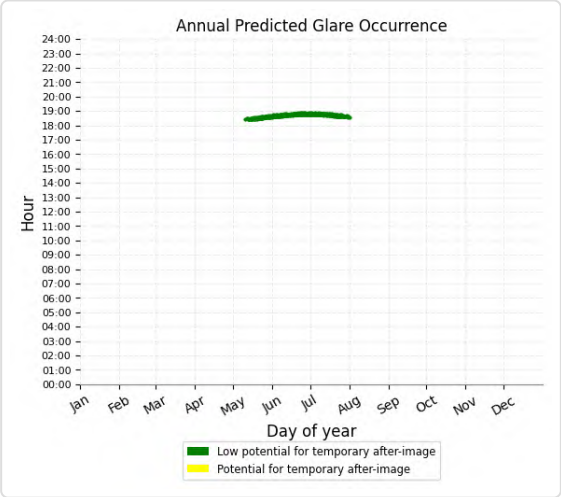


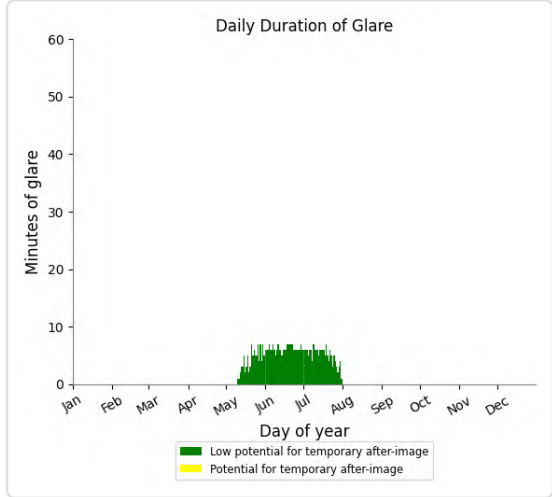


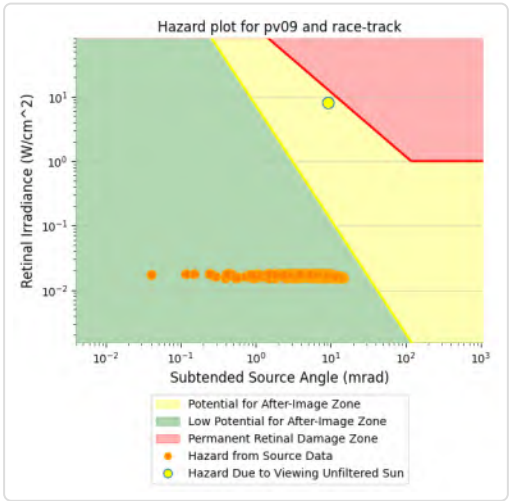
PV09 and Route: Race Track

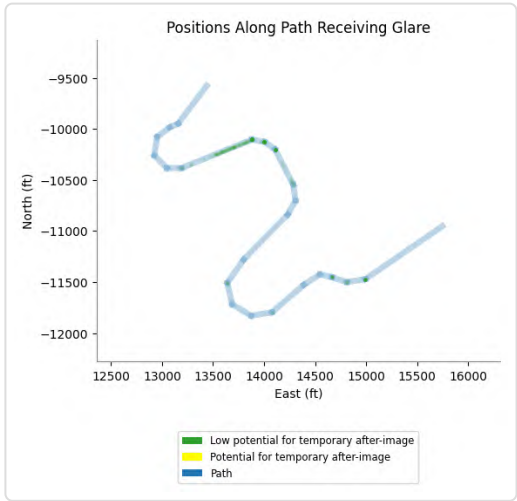
Yellow glare: none

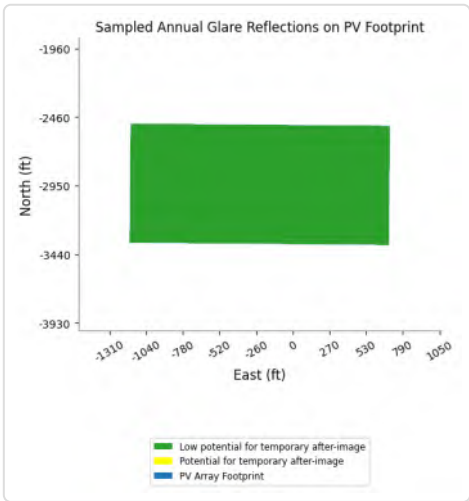
Green glare: 435 min.







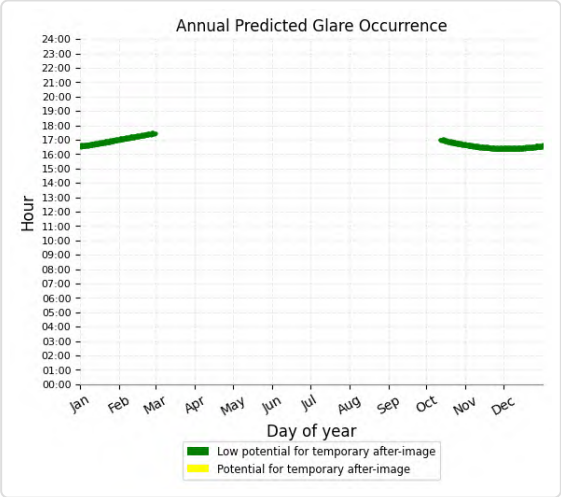


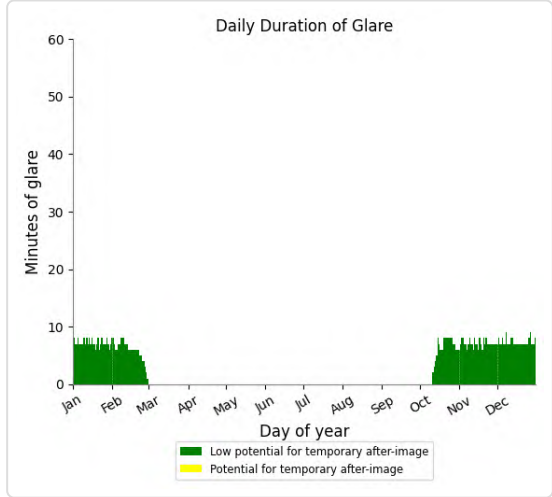


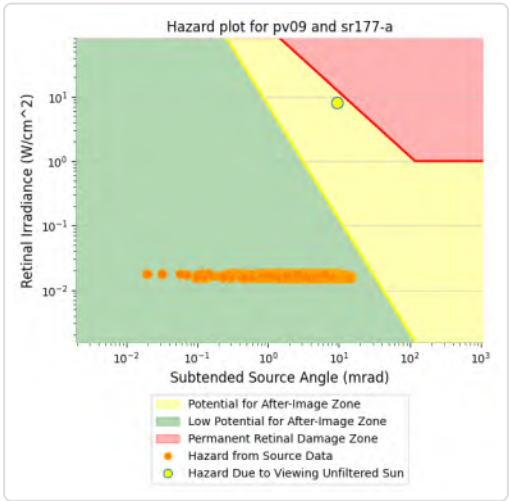
PV09 and Route: SR177 A

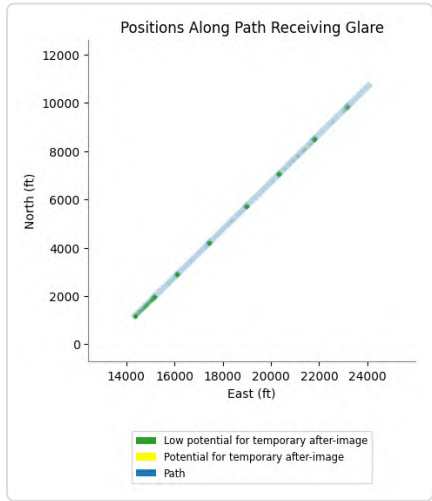
Yellow glare: none

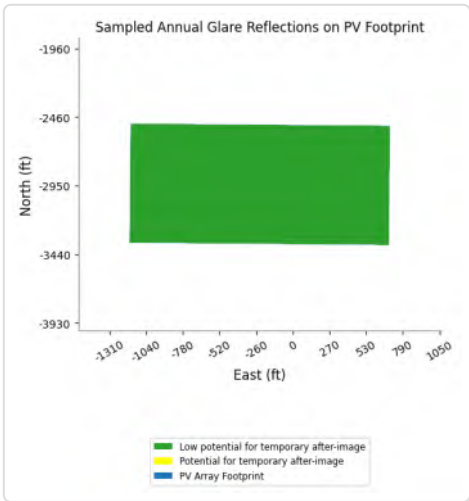
Green glare: 970 min.







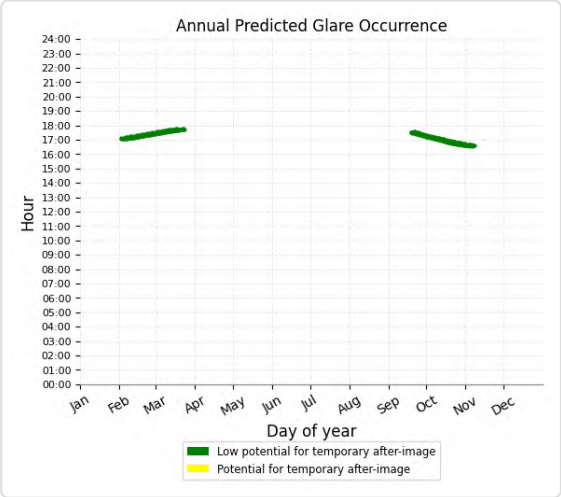


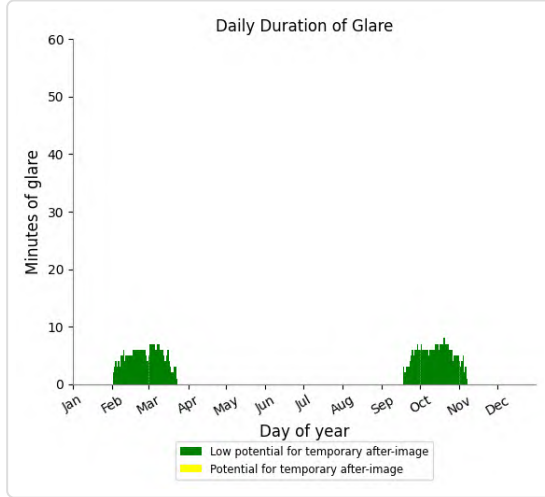


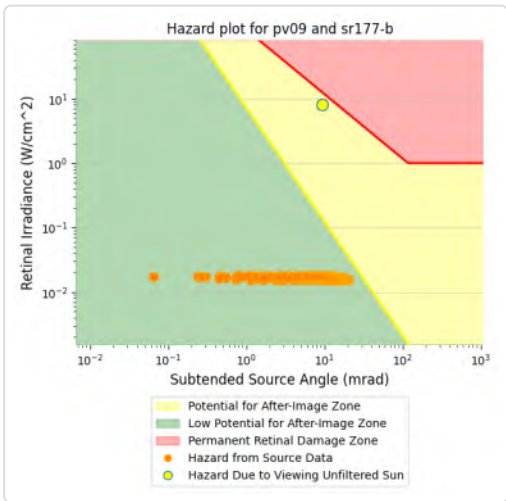
PV09 and Route: SR177 B

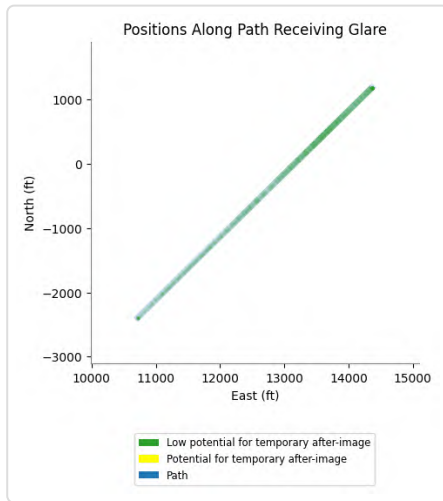
Yellow glare: none

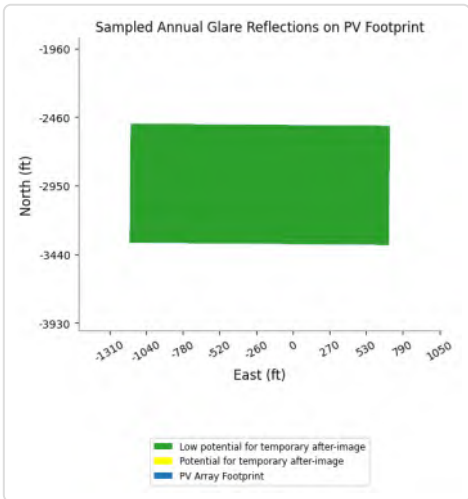
Green glare: 525 min.







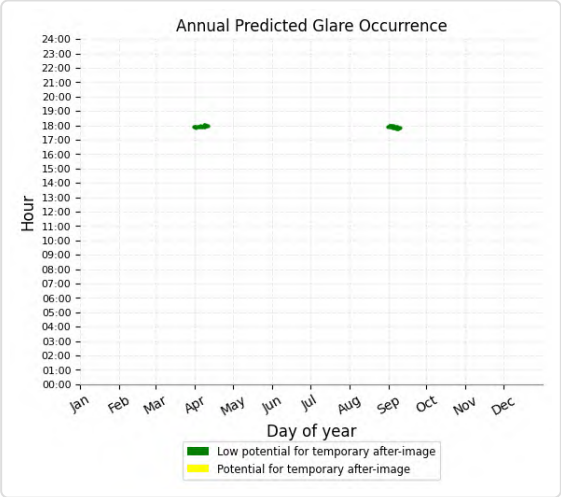


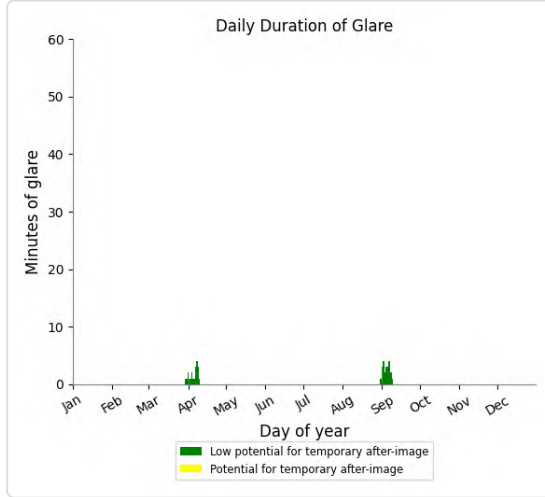


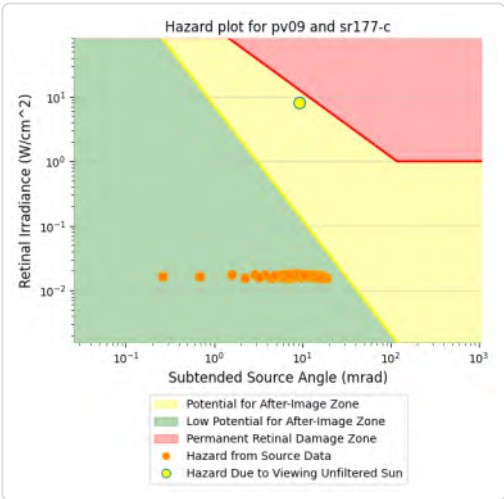
PV09 and Route: SR177 C

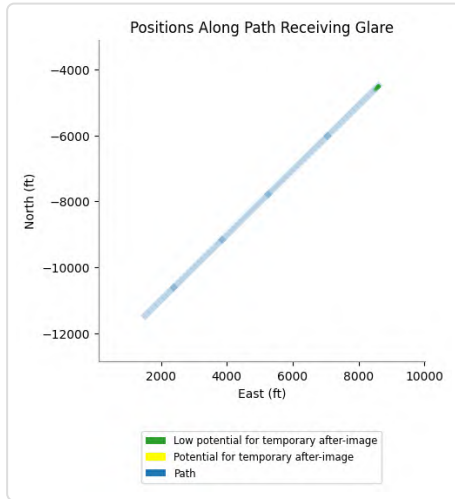
Yellow glare: none

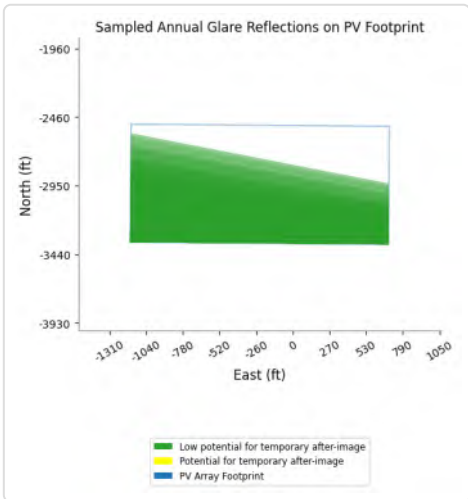
Green glare: 48 min.











PV09 and Route: AirportRd A

No glare found

PV09 and Route: EagleMtnRd A

No glare found

PV09 and Route: EagleMtnRd B

No glare found

PV09 and Route: I-10 EB A

No glare found

PV09 and Route: I-10 EB B

No glare found

PV09 and Route: I-10 EB C

No glare found

PV09 and Route: I-10 WB A

No glare found

PV09 and Route: I-10 WB B

No glare found

PV09 and Route: I-10 WB C

No glare found

PV09 and Route: KaiserRd A

No glare found

PV09 and Route: KaiserRd B

No glare found

PV09 and Route: KaiserRd C

No glare found

PV09 and Route: OasisRd

No glare found

PV09 and Route: SR177 D

No glare found

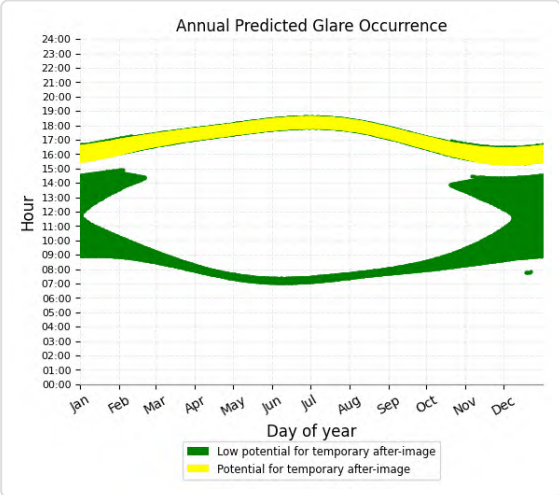
PV09 and Route: SR177 E

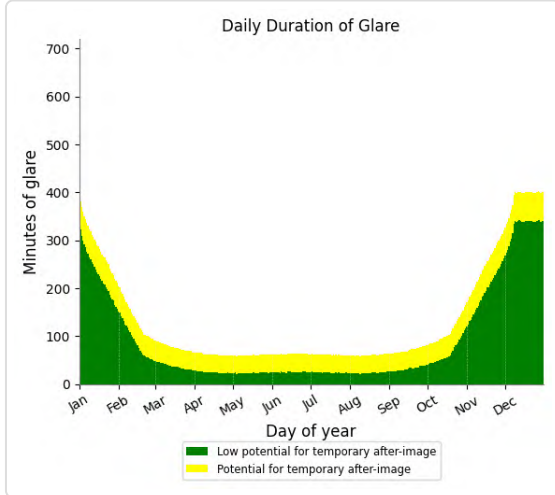
No glare found

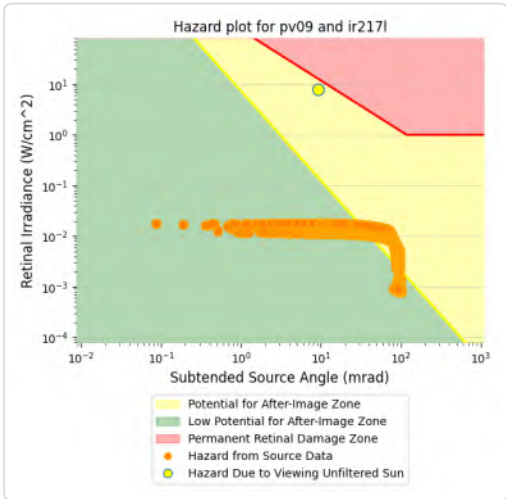
PV09 and FP: IR217I

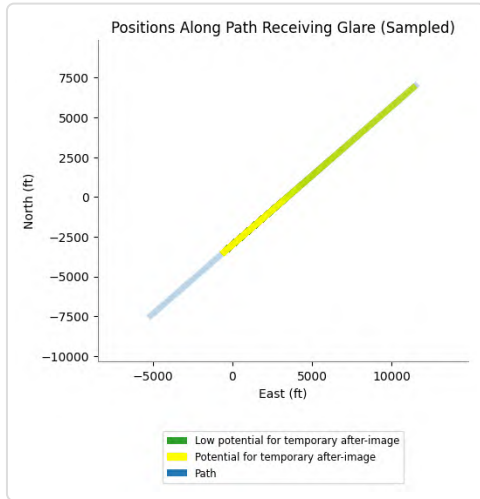
Yellow glare: 16,113 min.

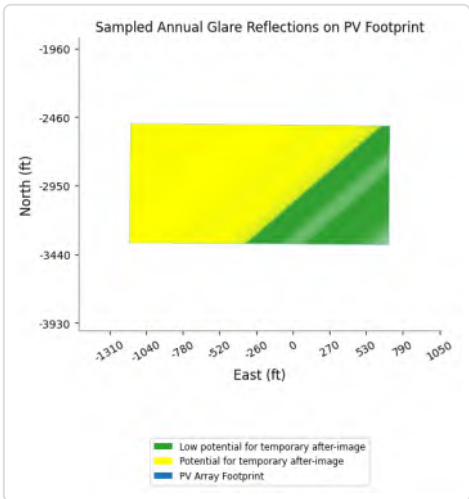
Green glare: 33,608 min.

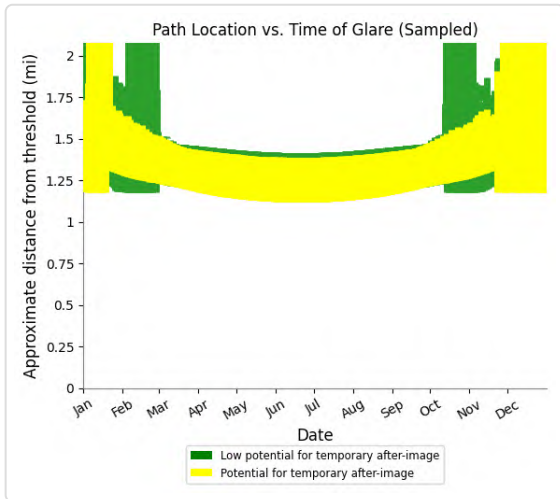








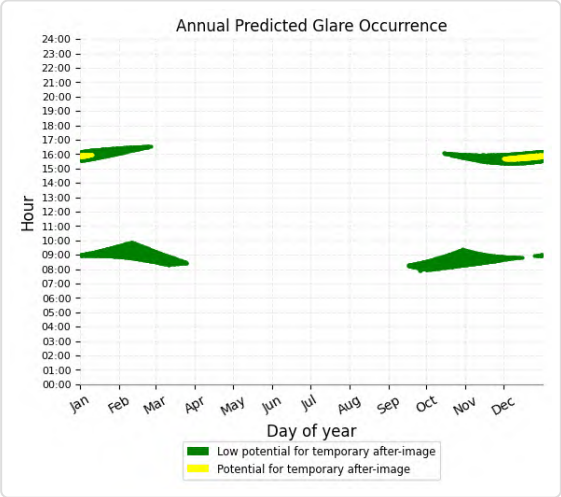


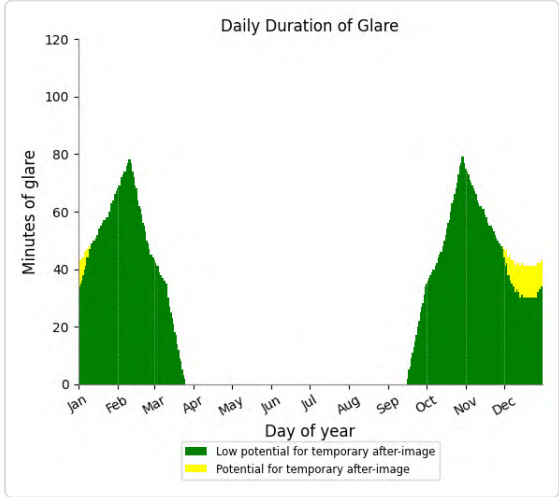


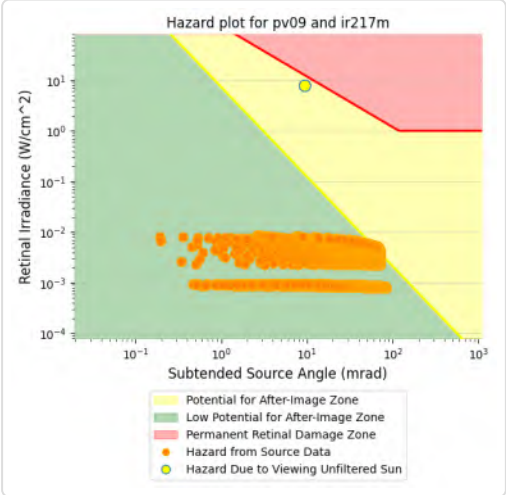
PV09 and FP: IR217m

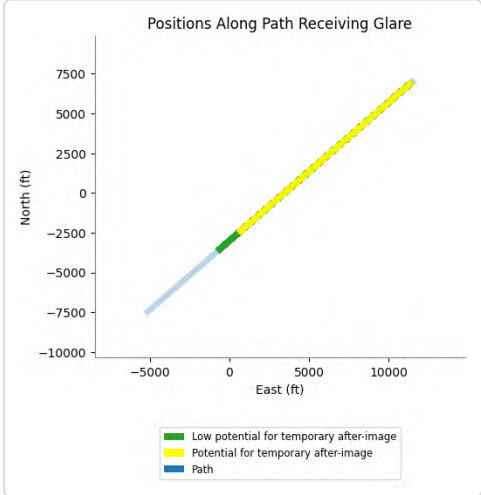
Yellow glare: 348 min.

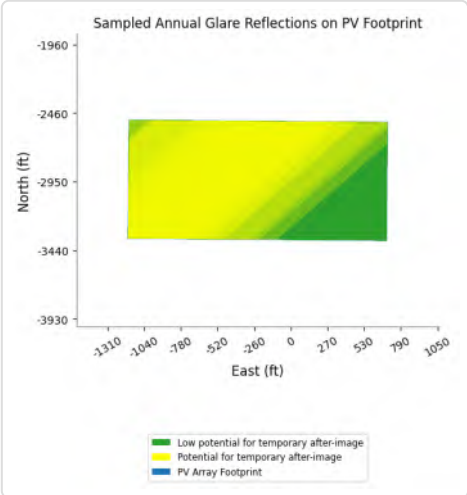
Green glare: 8,868 min.

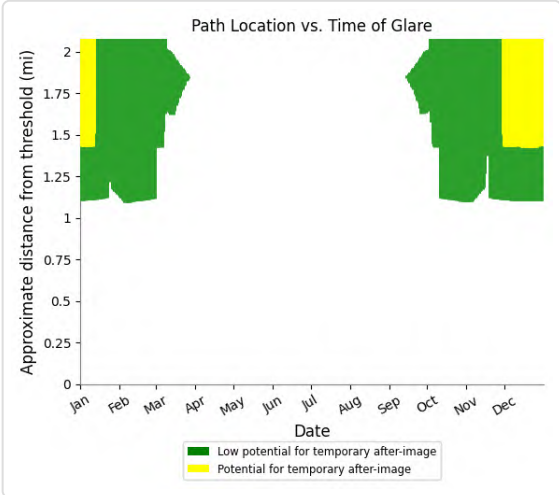








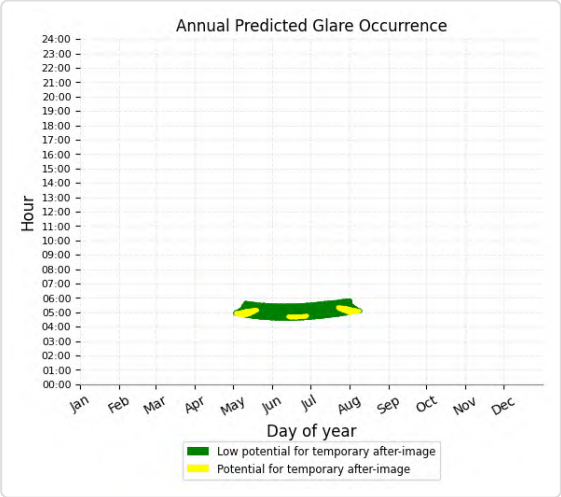


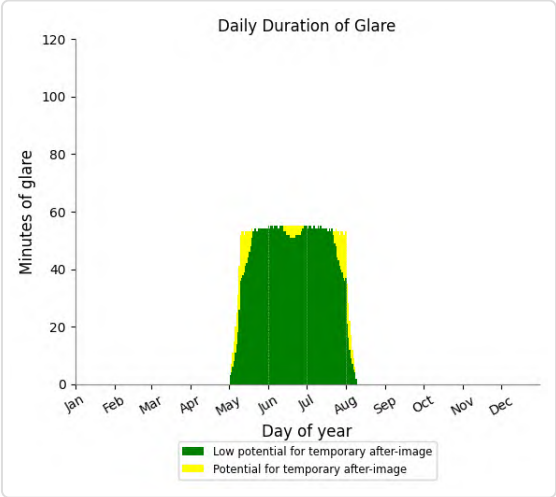


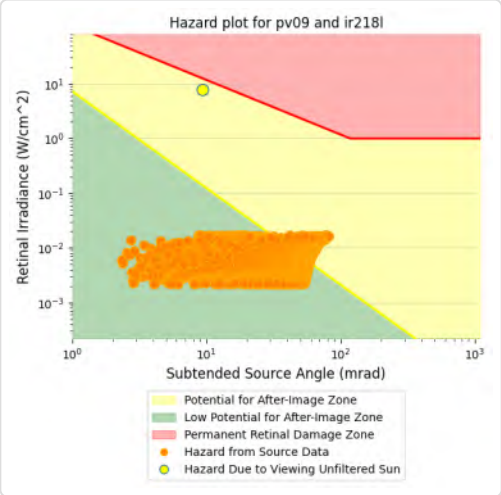
PV09 and FP: IR218l

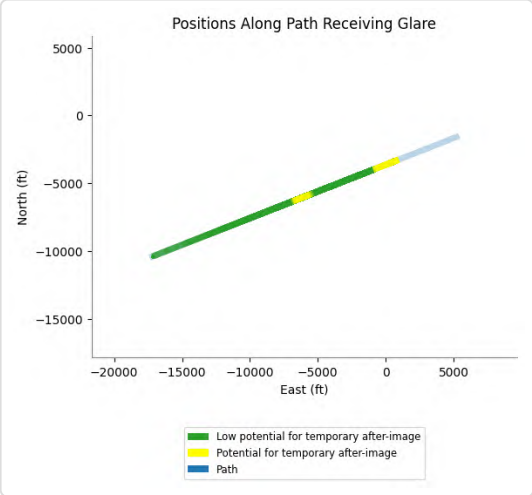
Yellow glare: 388 min.

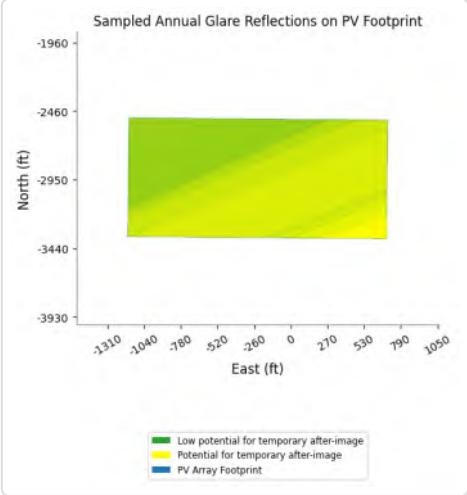
Green glare: 4,437 min.

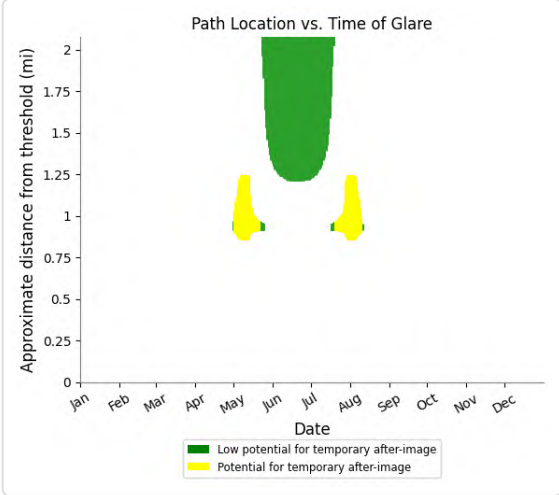








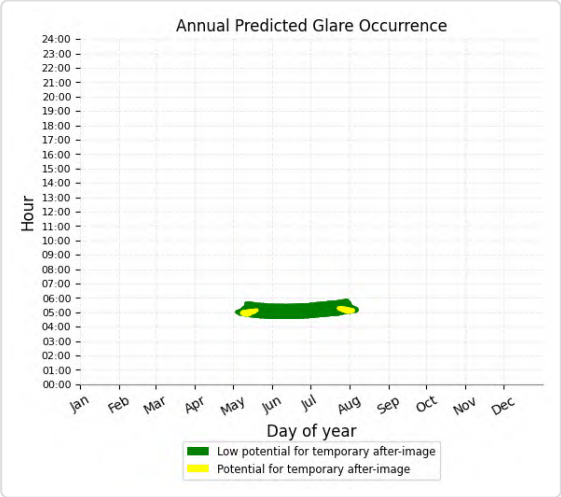


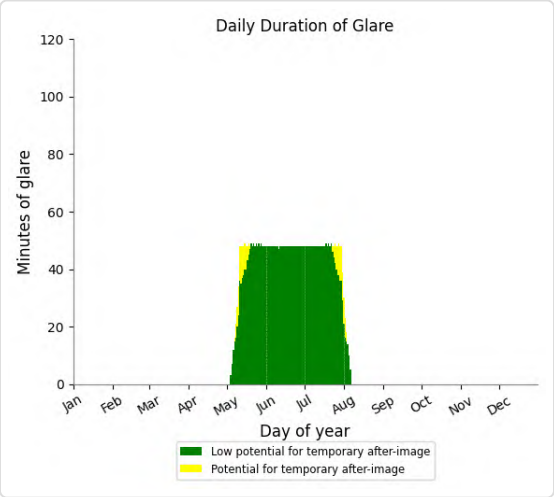


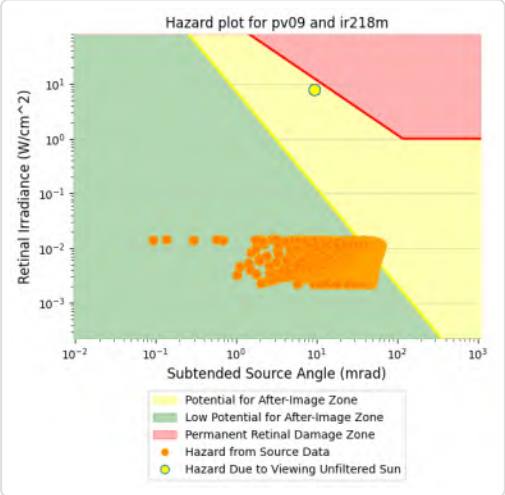
PV09 and FP: IR218m

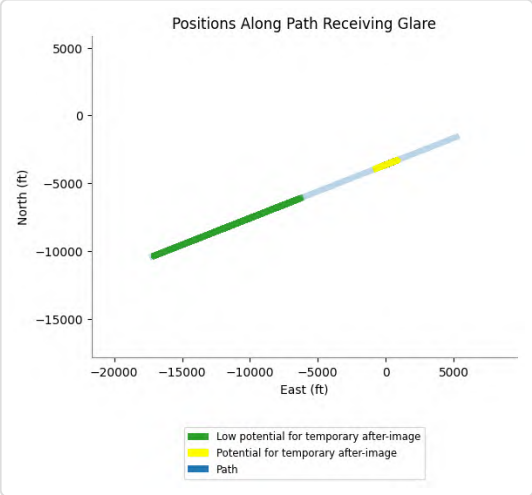
Yellow glare: 191 min.

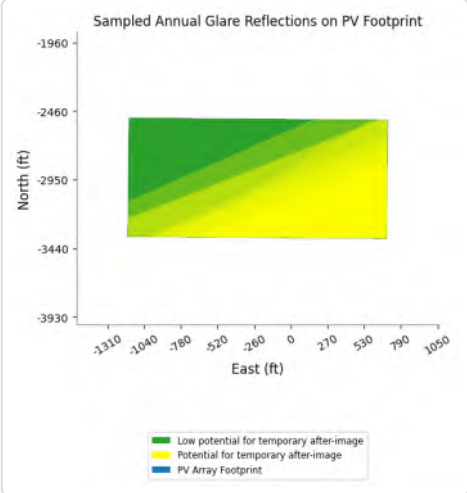
Green glare: 3,967 min.

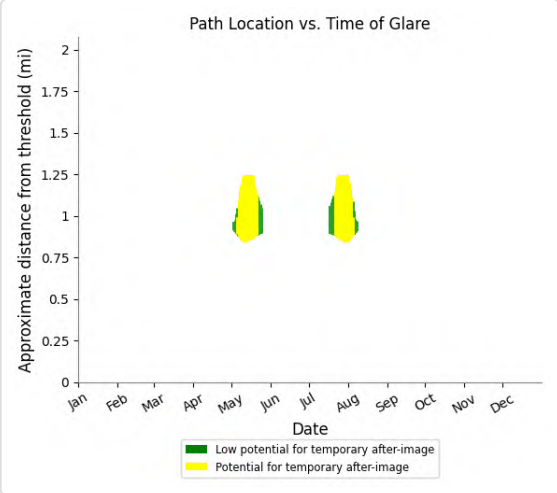








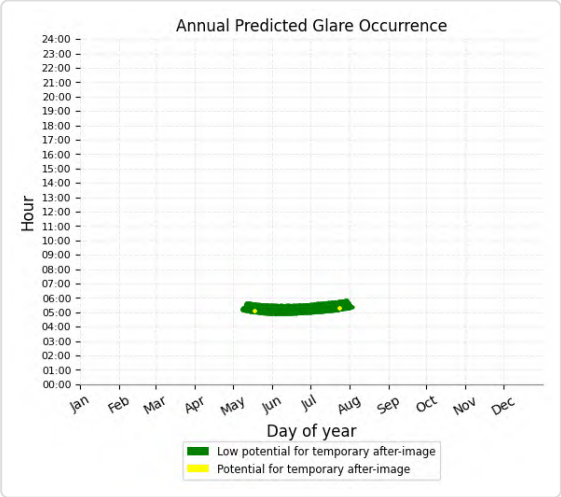


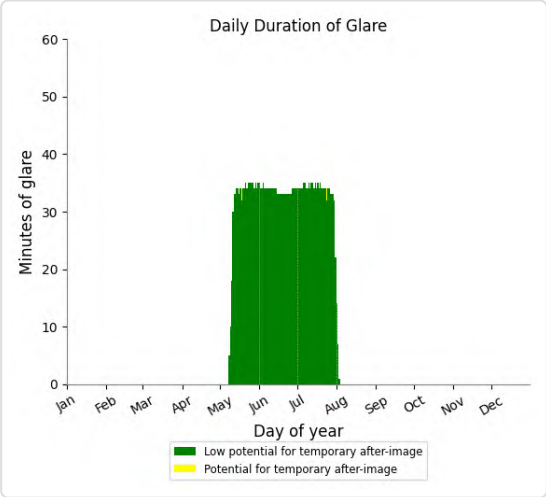


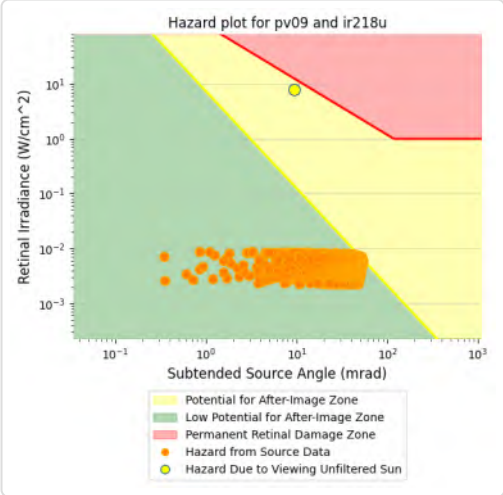
PV09 and FP: IR218u

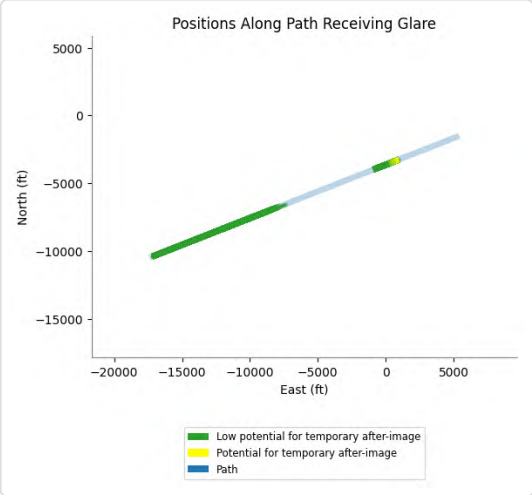
Yellow glare: 4 min.

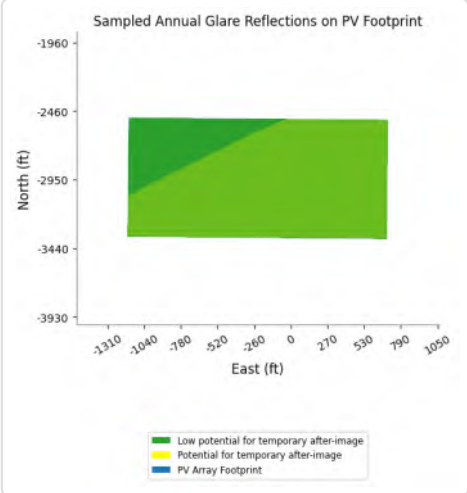
Green glare: 2,821 min.

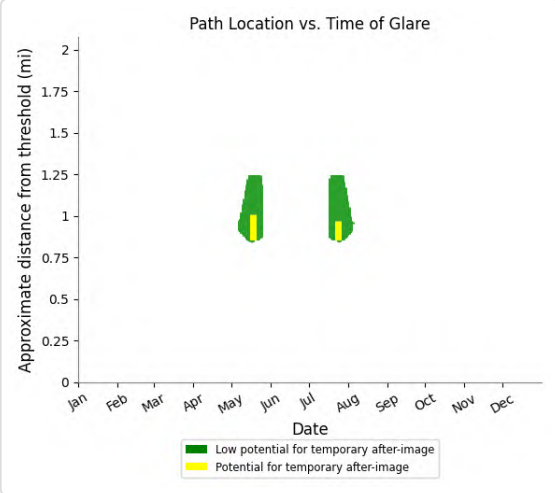








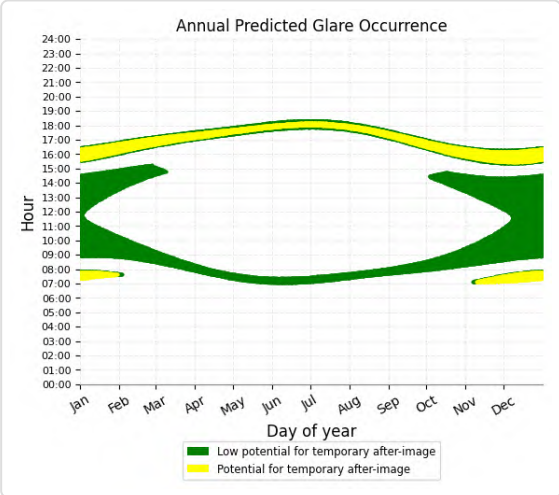


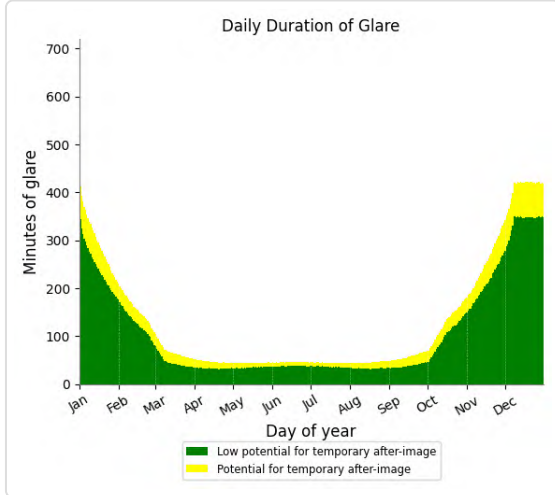


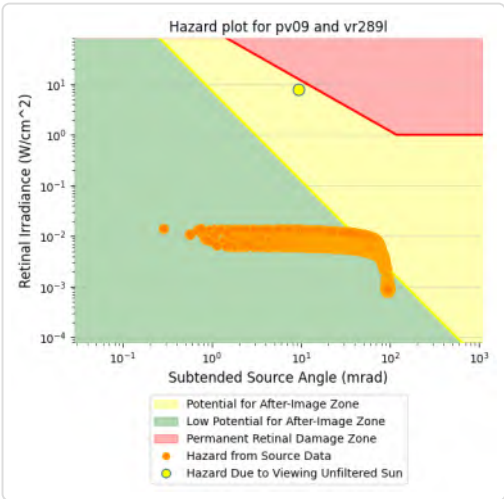
PV09 and FP: VR289I

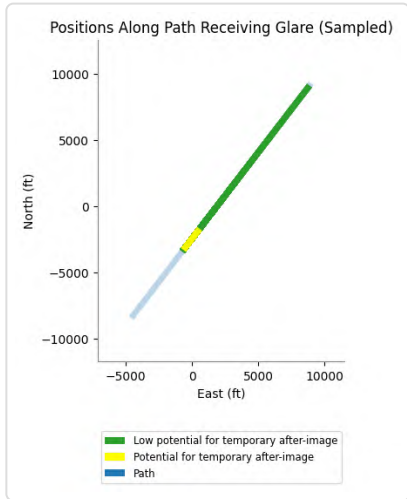
Yellow glare: 9,805 min.

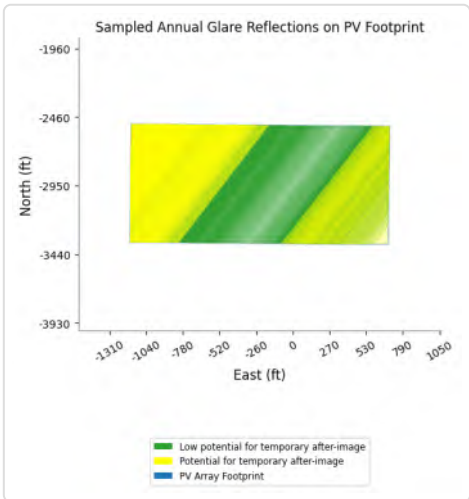
Green glare: 39,121 min.

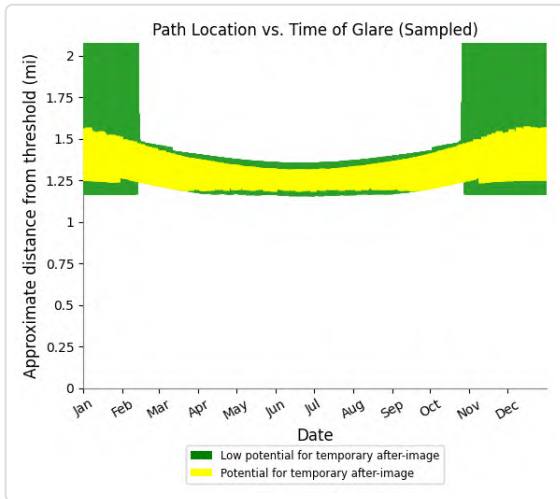








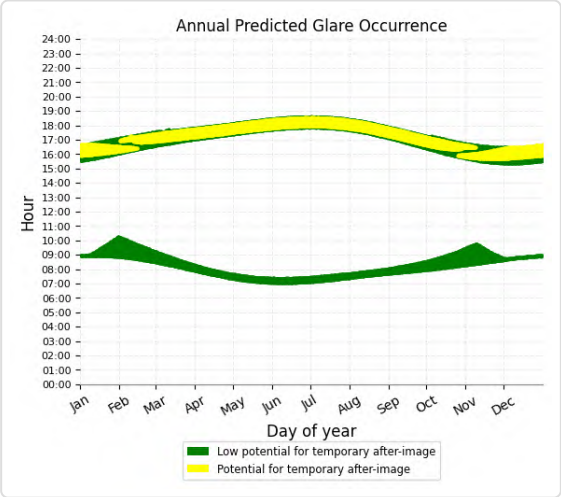


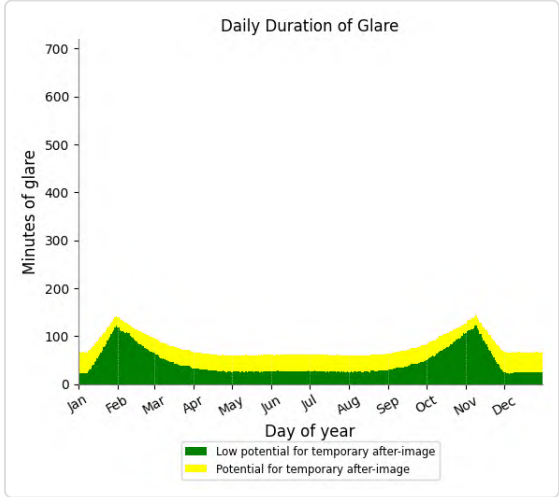


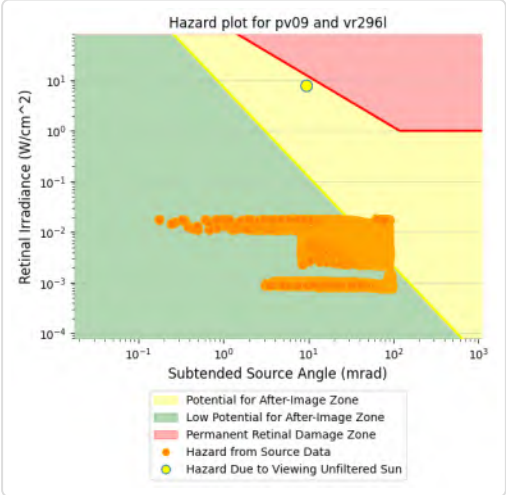
PV09 and FP: VR296l

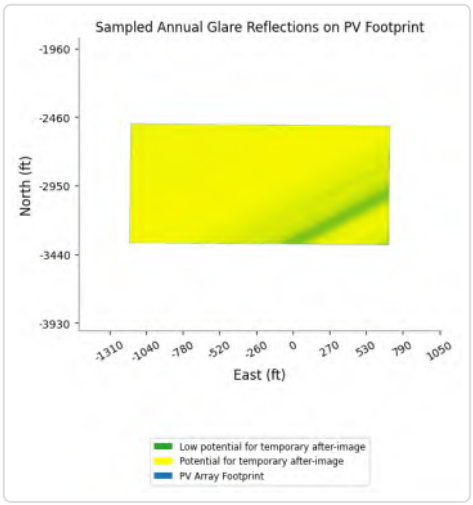
Yellow glare: 12,102 min.

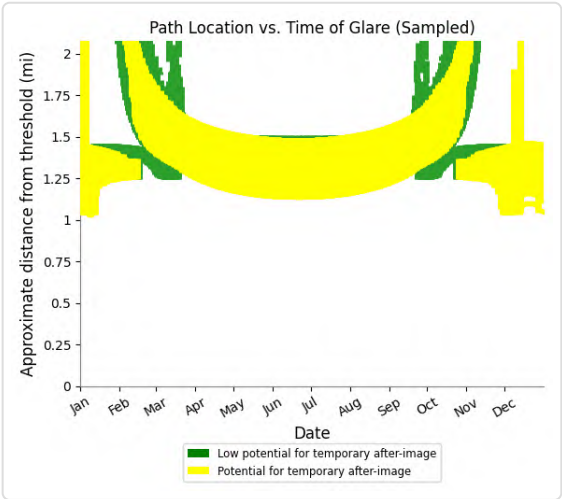
Green glare: 16,812 min.







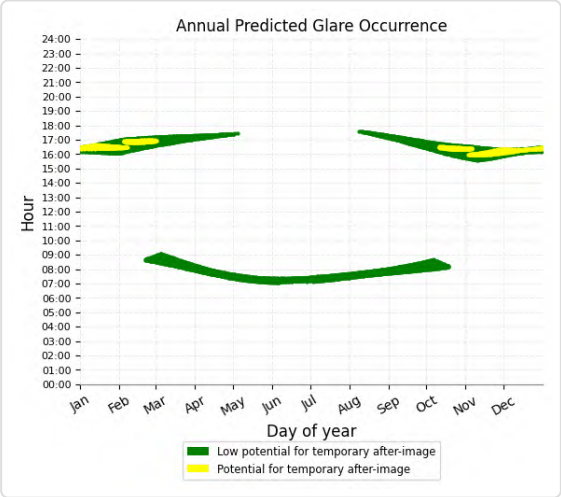


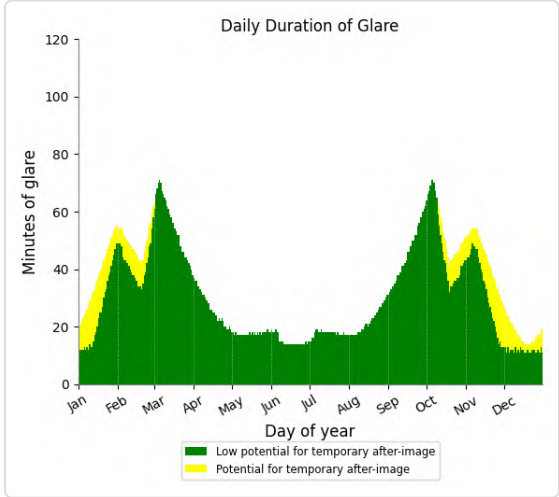


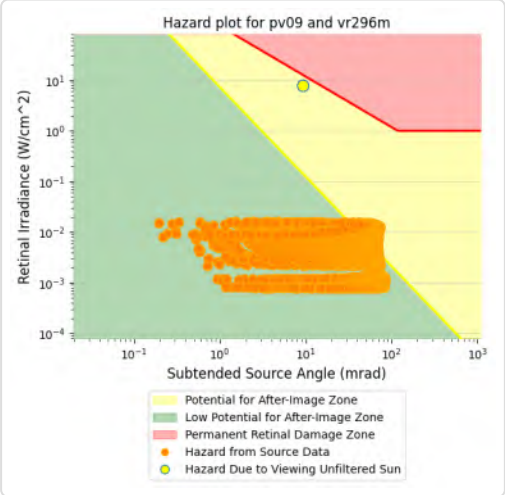
PV09 and FP: VR296m

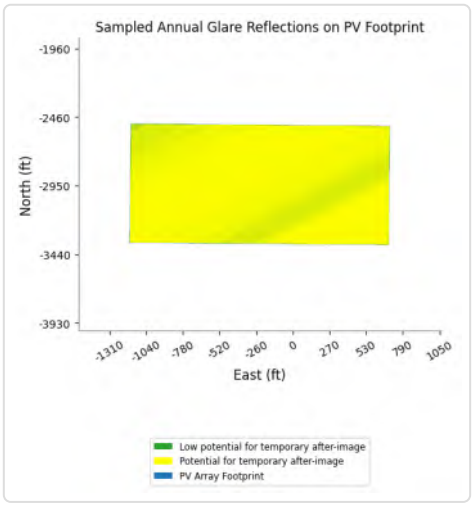
Yellow glare: 1,309 min.

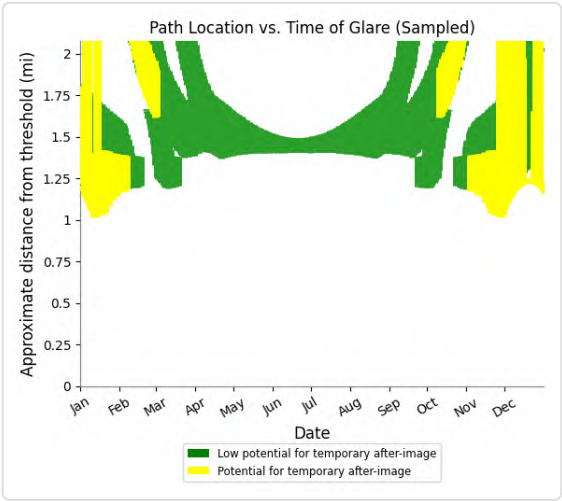
Green glare: 10,937 min.







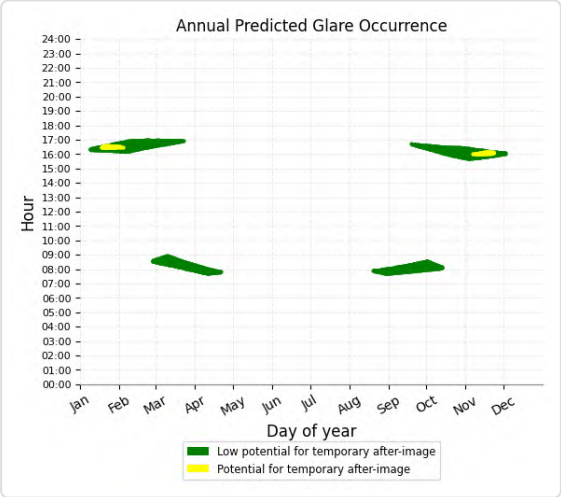


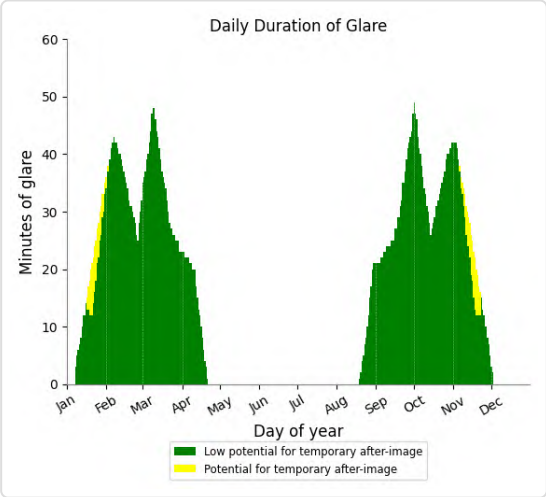


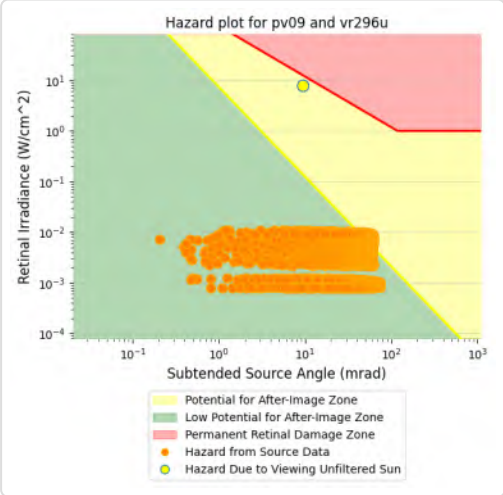
PV09 and FP: VR296u

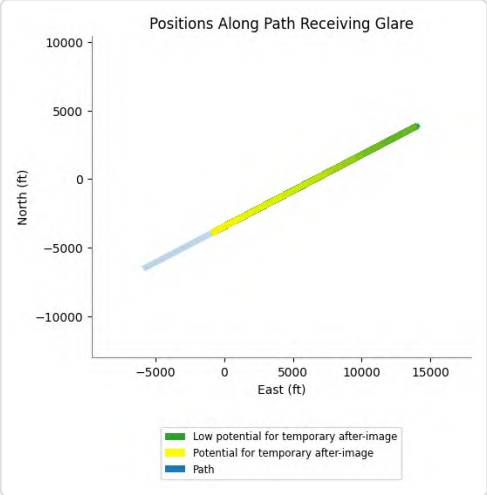
Yellow glare: 176 min.

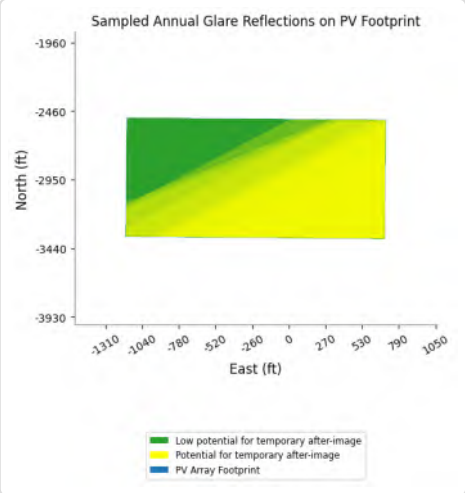
Green glare: 5,613 min.

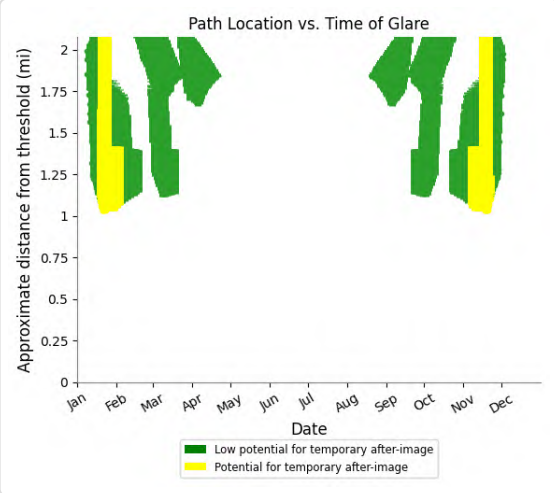








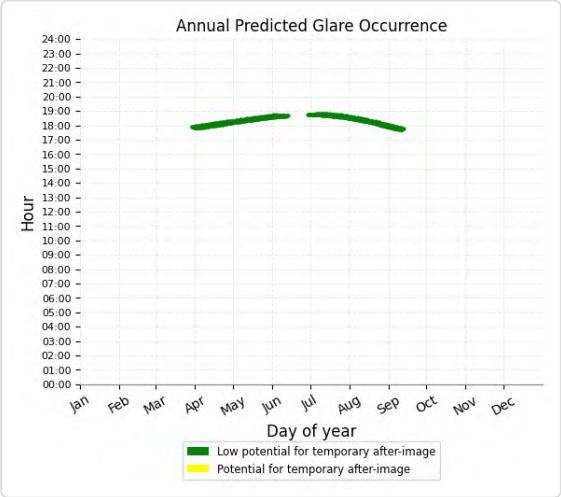


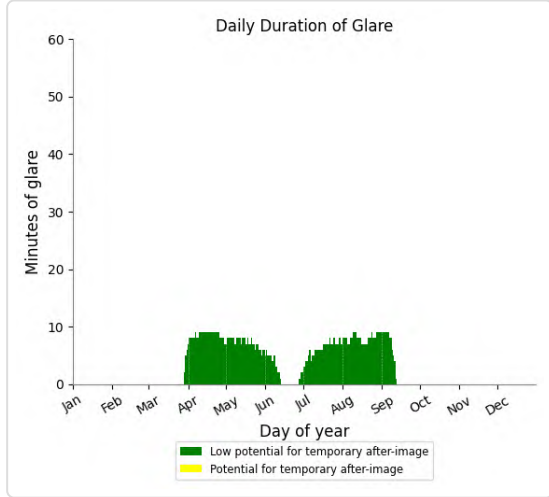


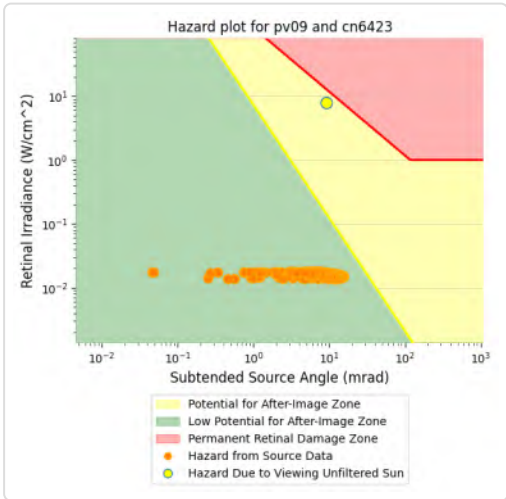
PV09 and FP: CN6423

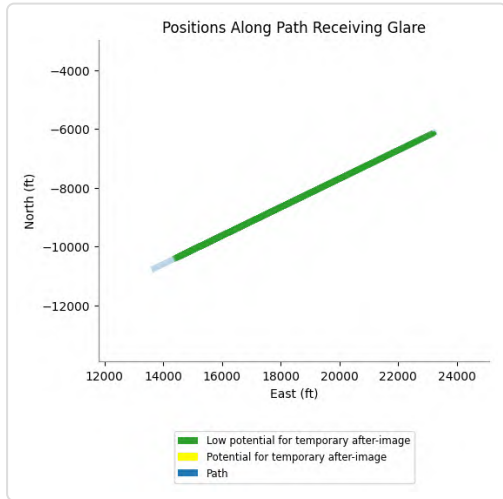
Yellow glare: none

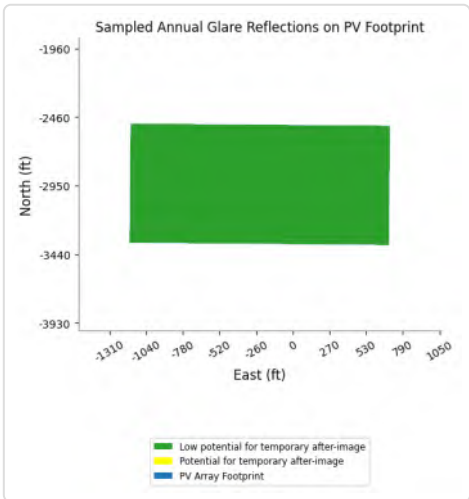
Green glare: 1,073 min.

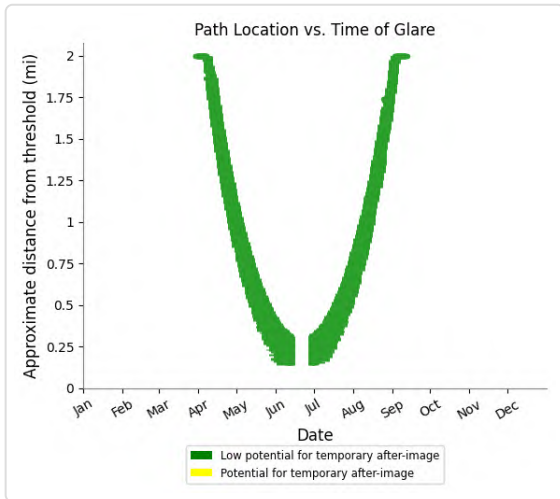








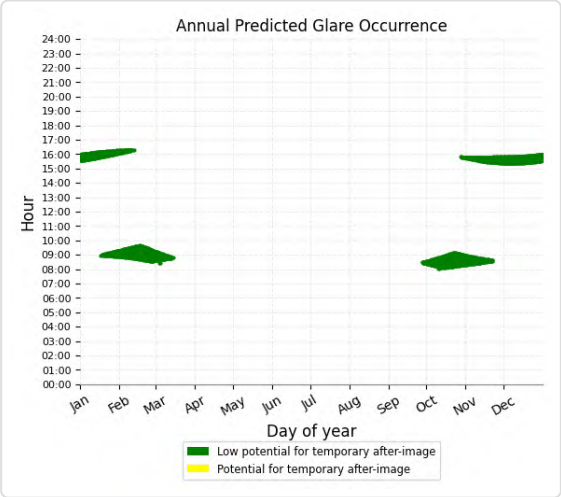


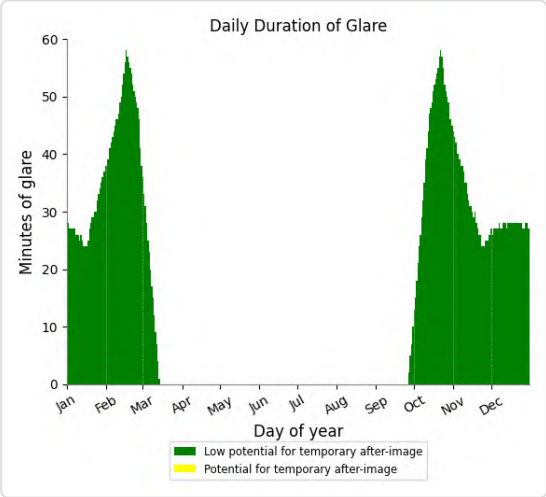


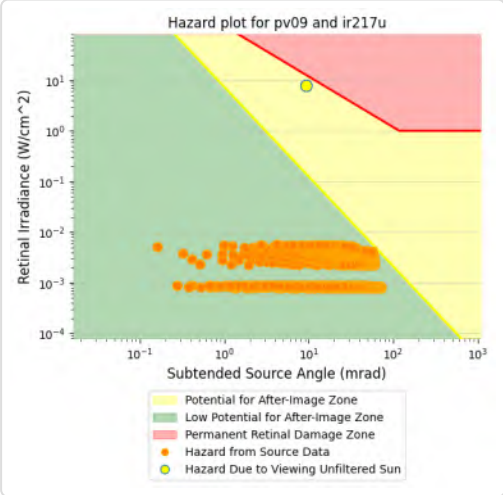
PV09 and FP: IR217u

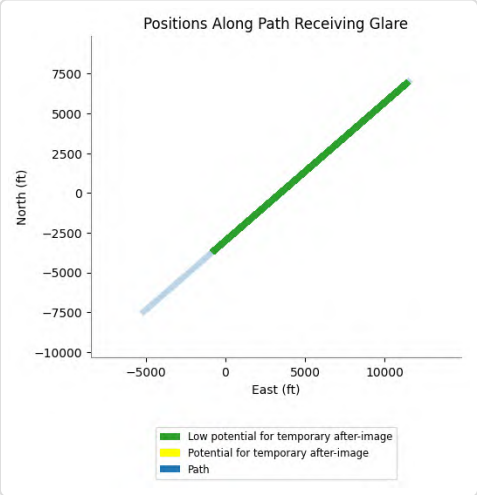
Yellow glare: none

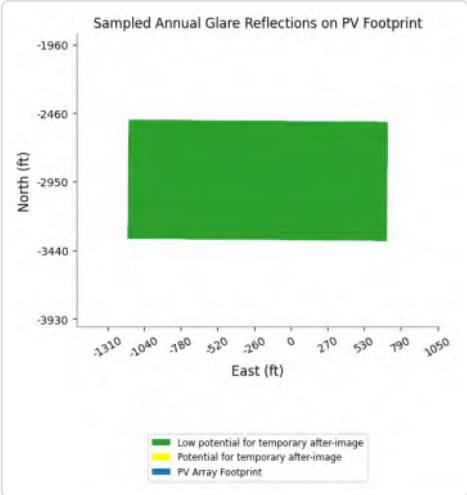
Green glare: 5,672 min.

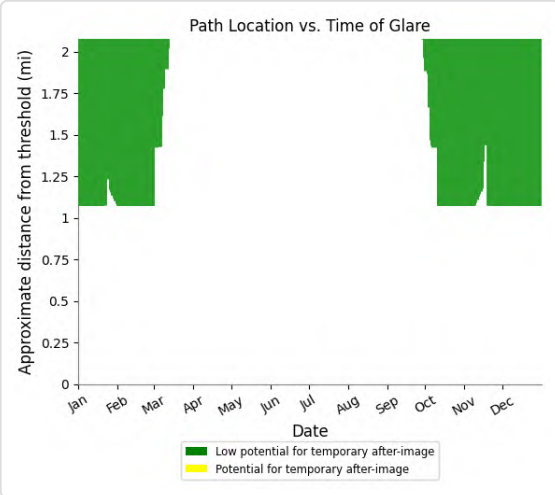








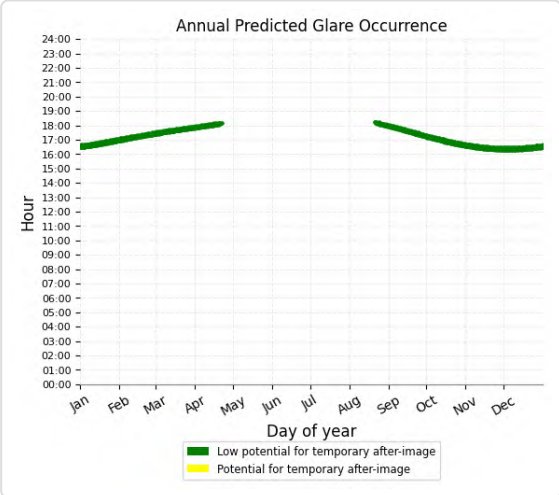


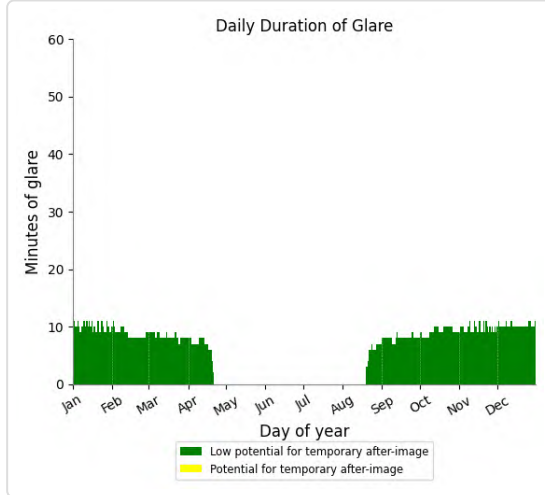


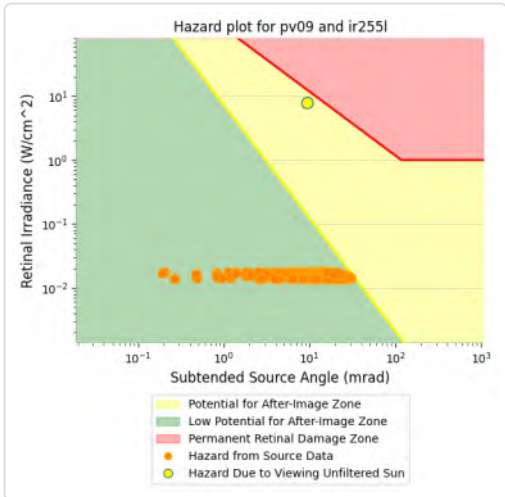
PV09 and FP: IR255I

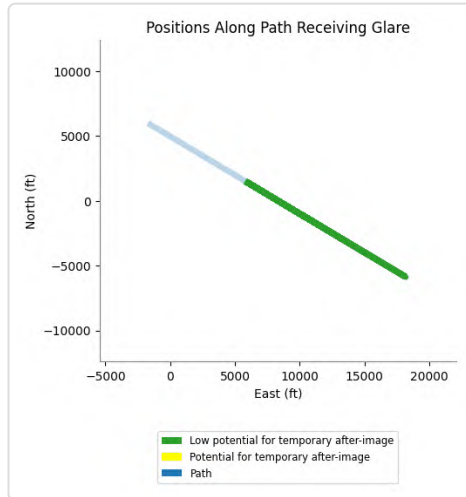
Yellow glare: none

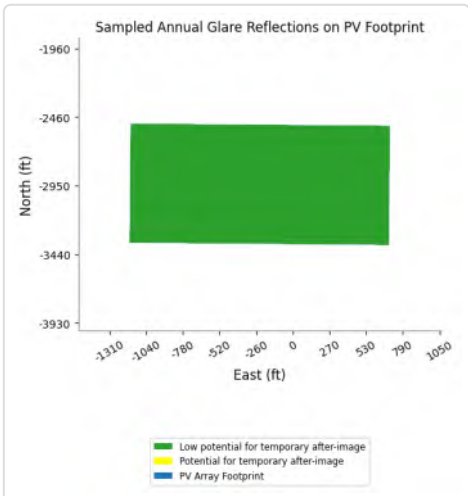
Green glare: 2,163 min.

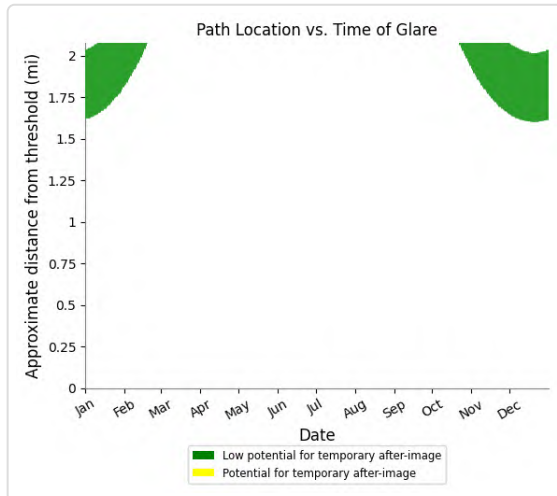








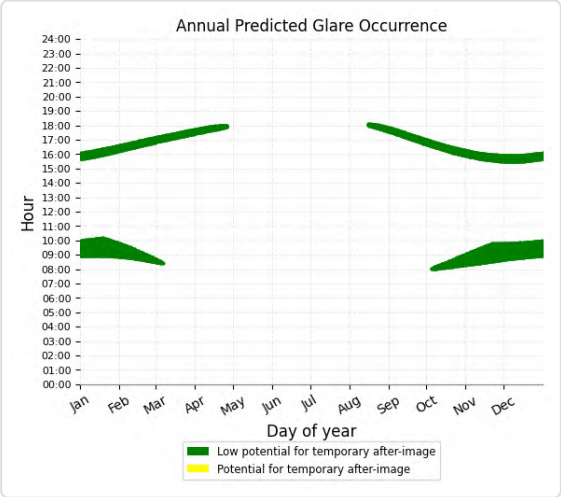


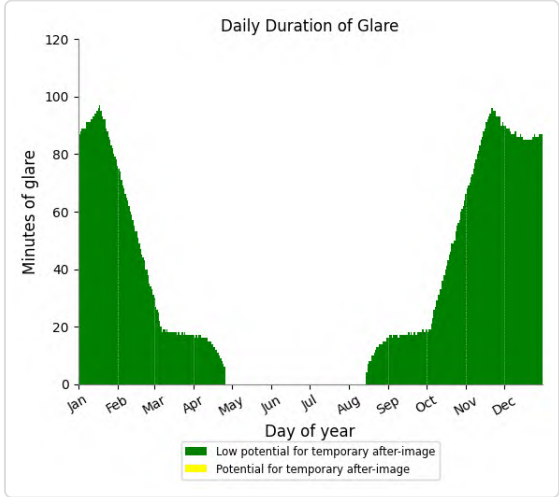


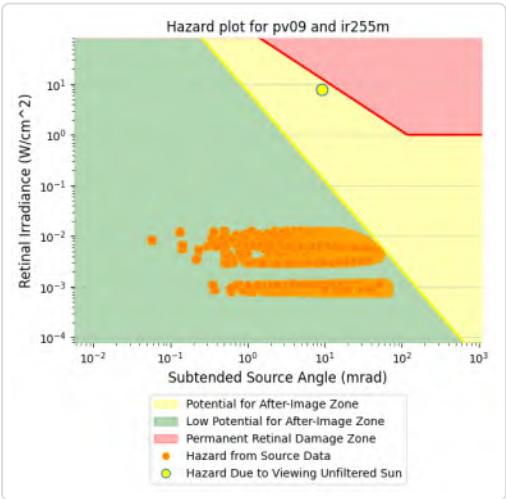
PV09 and FP: IR255m

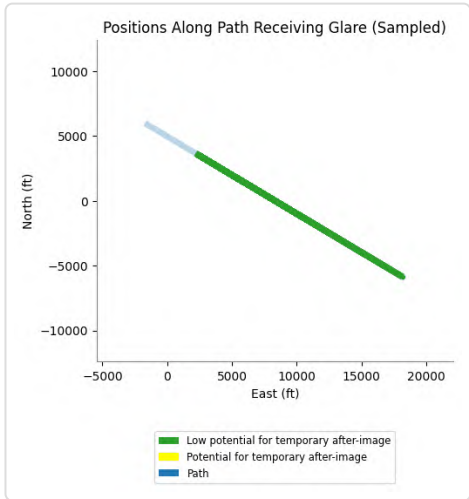
Yellow glare: none

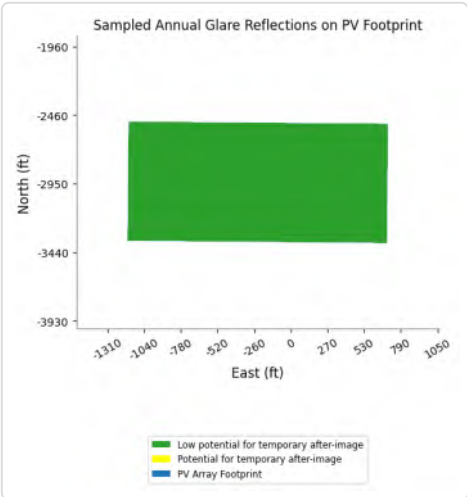
Green glare: 12,444 min.

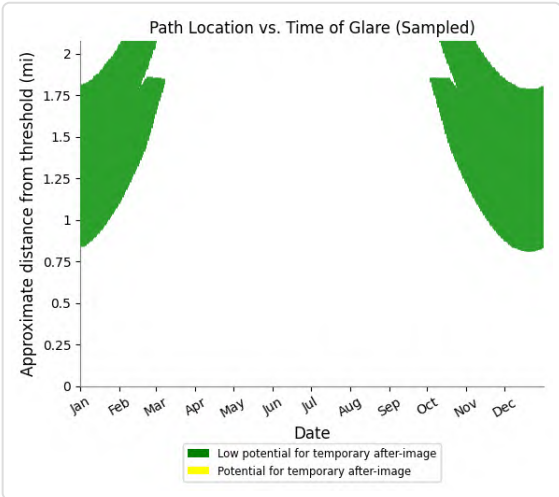








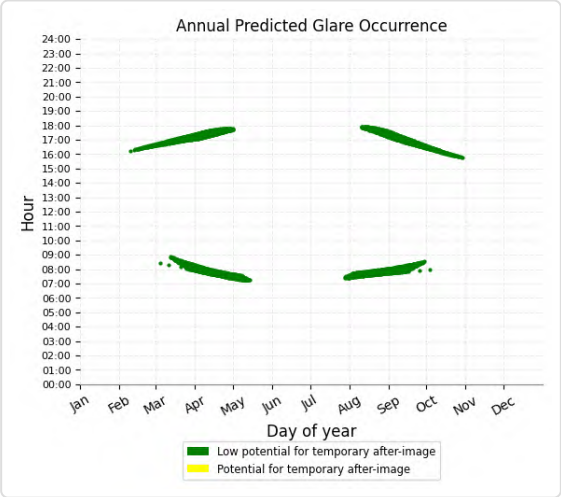


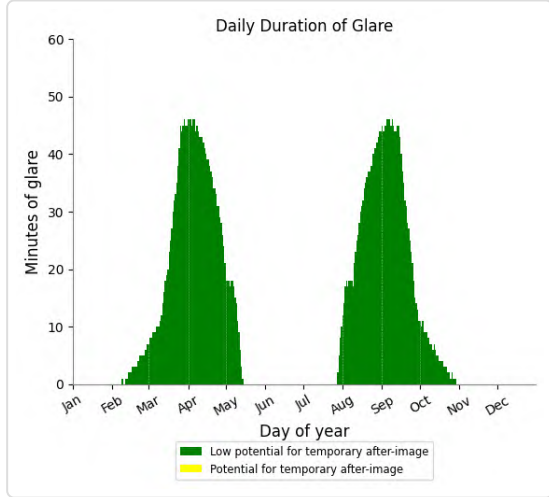


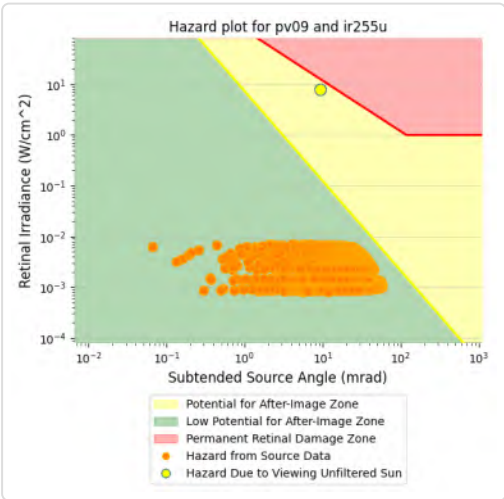
PV09 and FP: IR255u

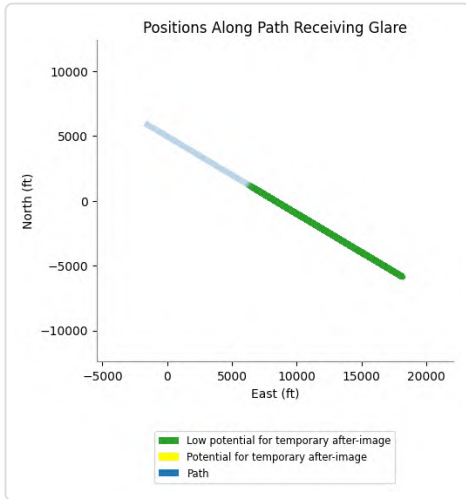
Yellow glare: none

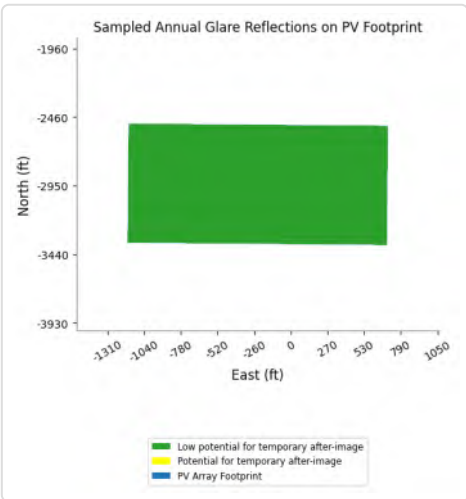
Green glare: 4,272 min.

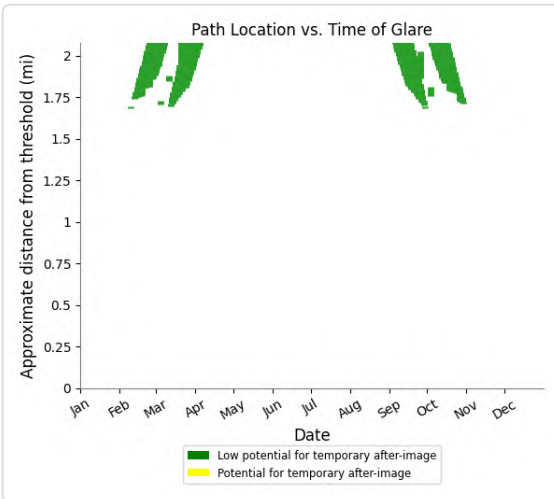








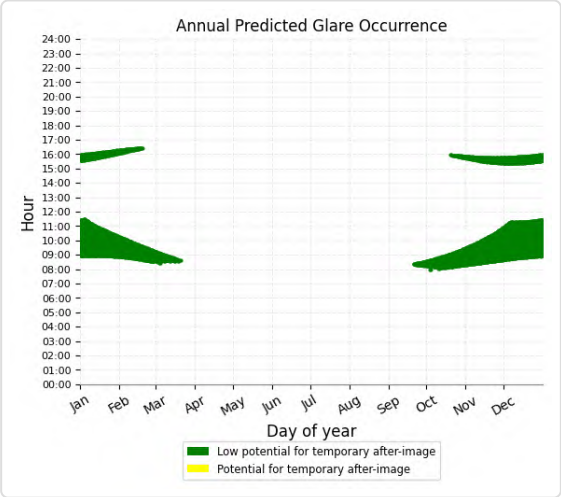


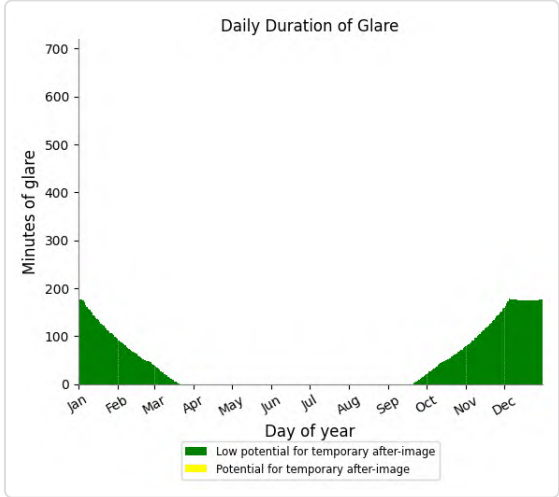


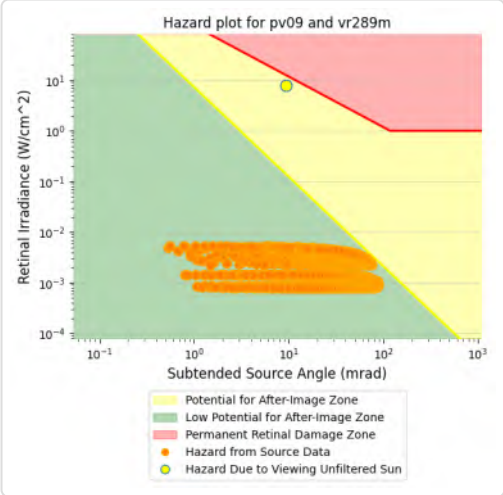
PV09 and FP: VR289m

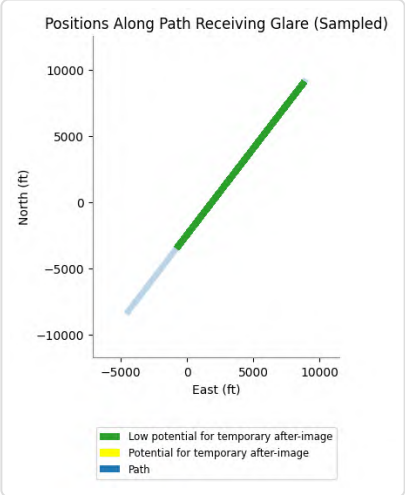
Yellow glare: none

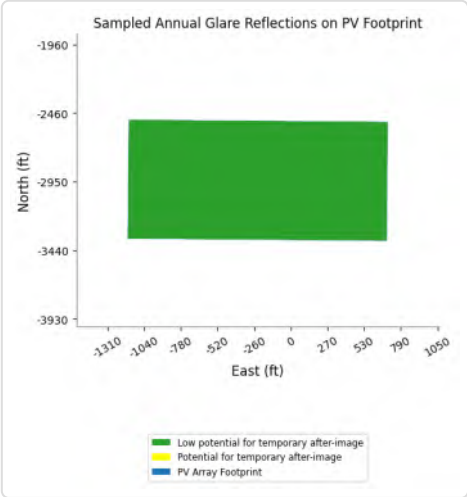
Green glare: 17,020 min.

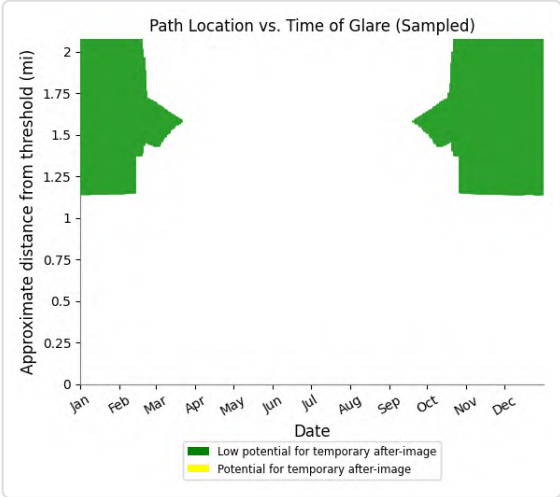








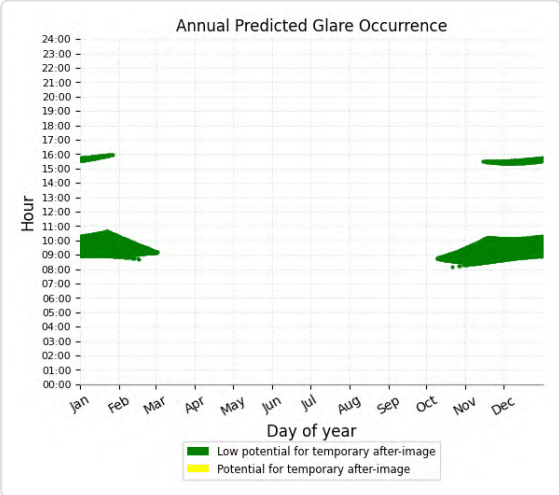


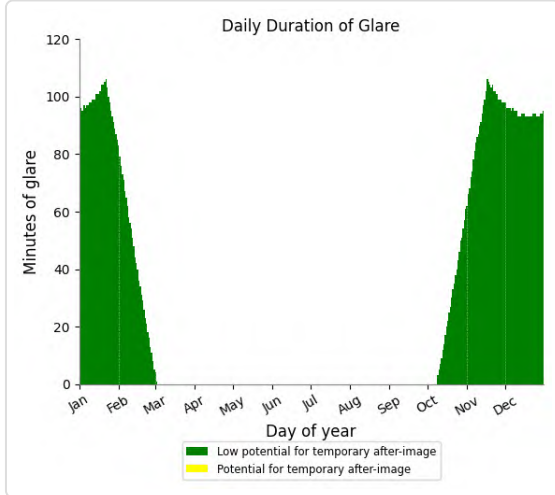


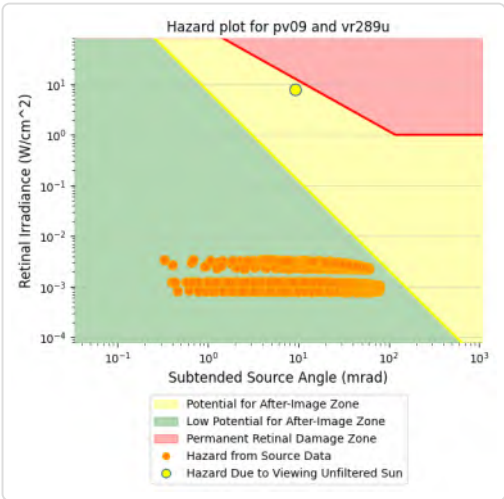
PV09 and FP: VR289u

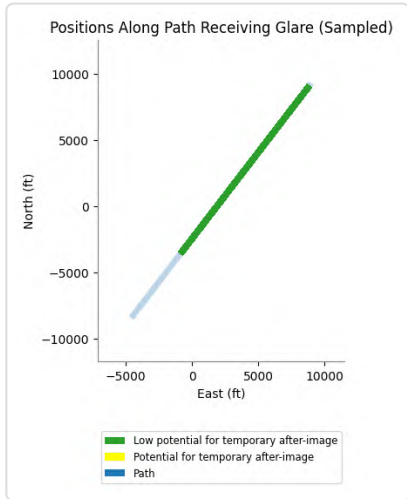
Yellow glare: none

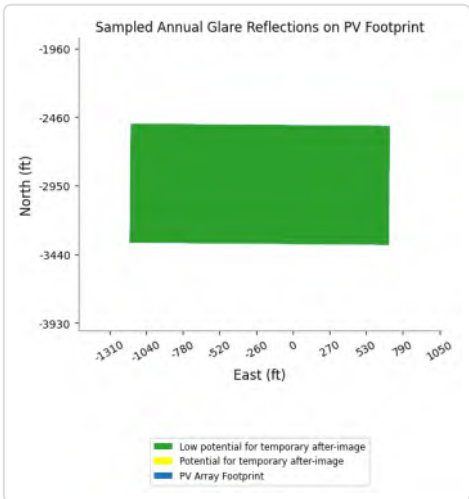
Green glare: 10,645 min.

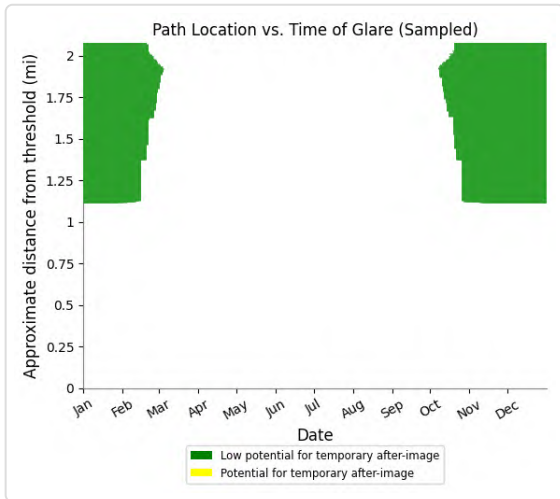












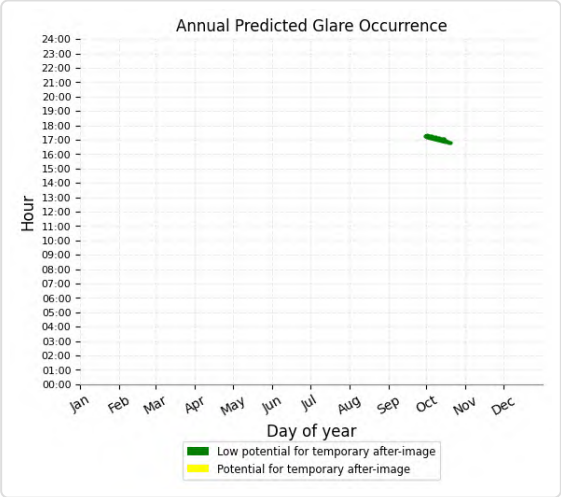
PV09 and FP: CN645

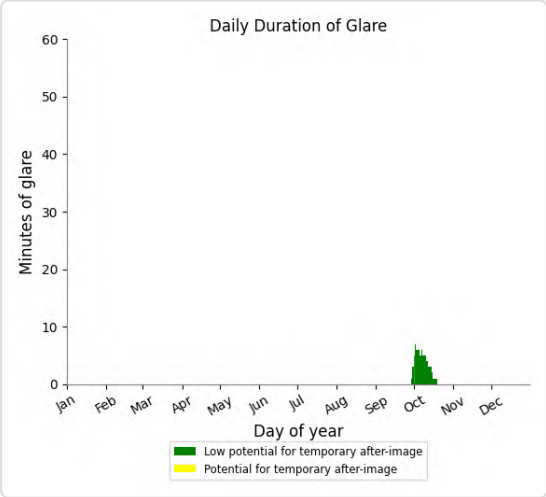
No glare found

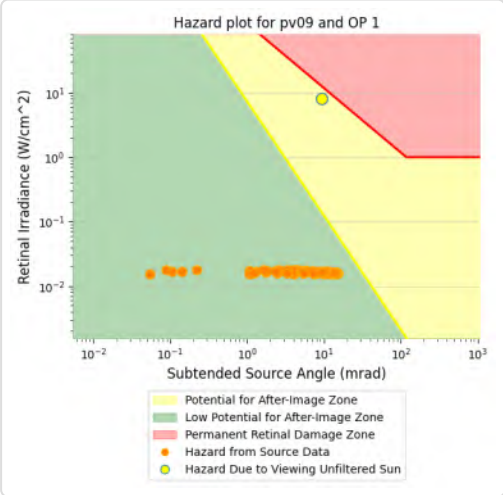
PV09 and OP 1

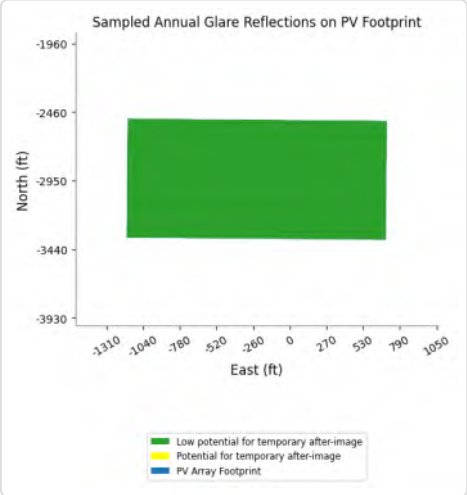
Yellow glare: none

Green glare: 79 min.





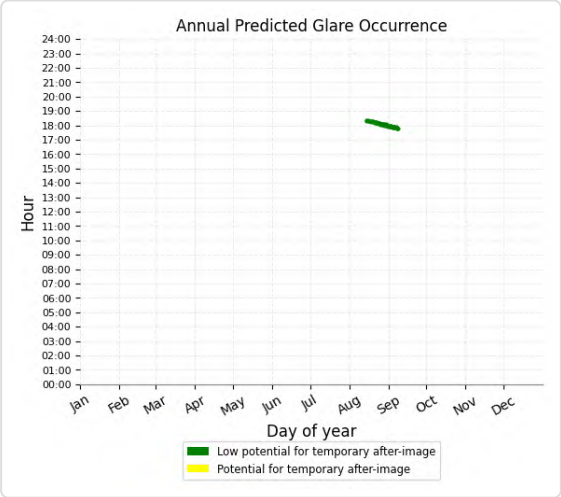


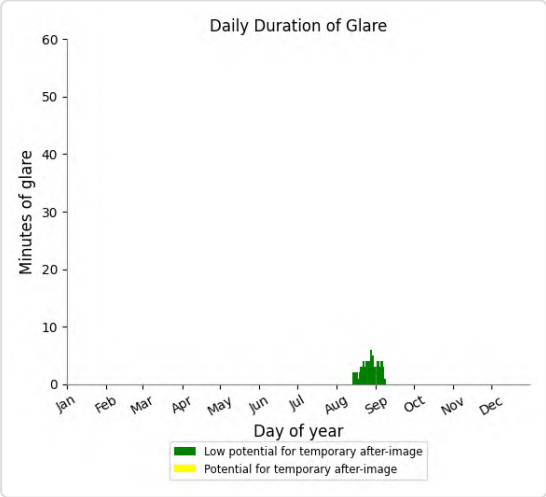


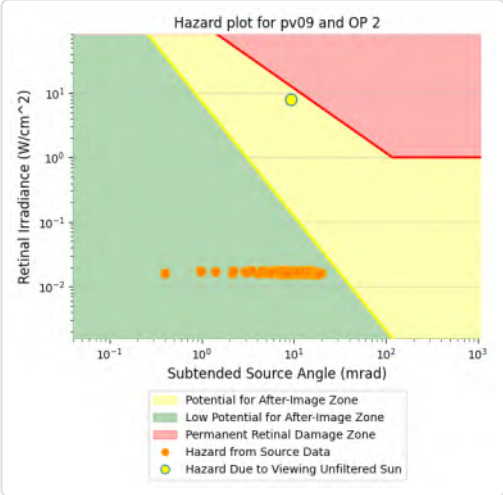
PV09 and OP 2

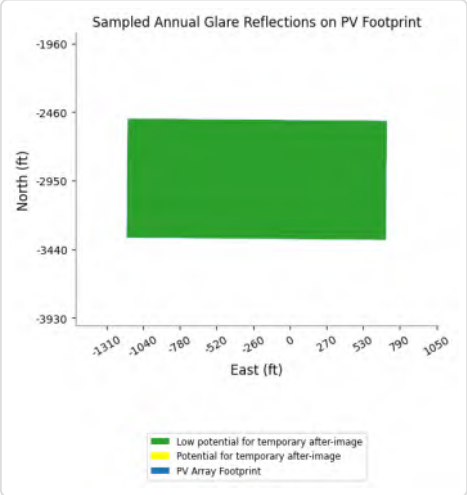
Yellow glare: none

Green glare: 85 min.



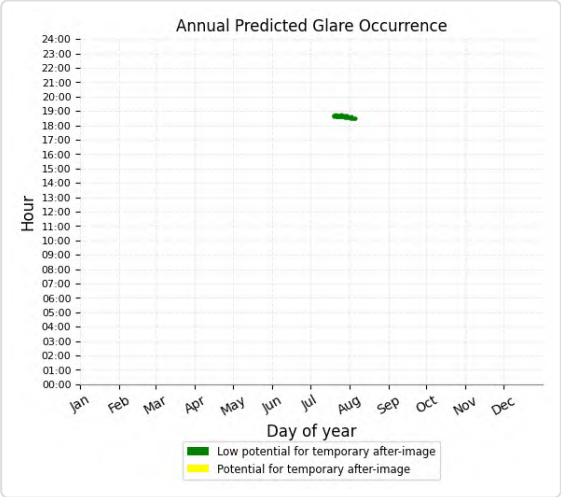


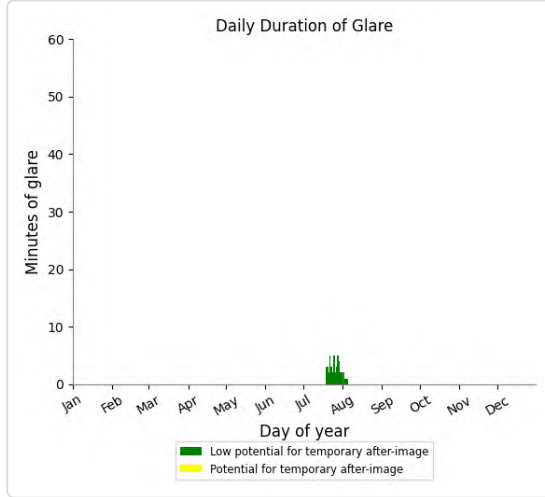


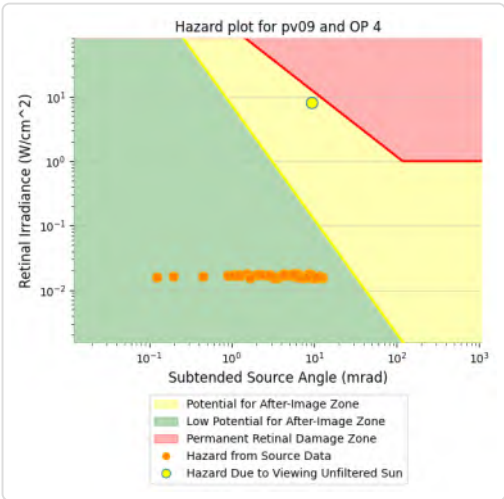


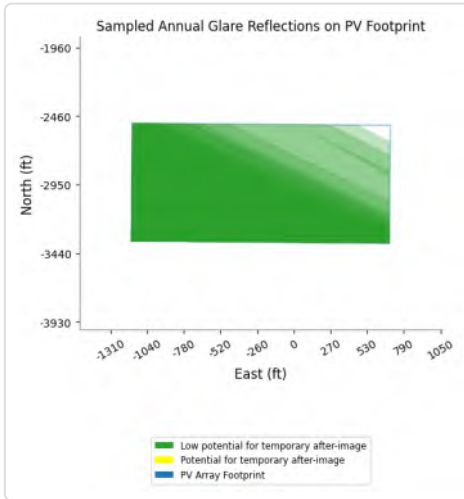
PV09 and OP 4

Yellow glare: none
Green glare: 48 min.









PV09 and OP 3

No glare found

PV09 and OP 5

No glare found

PV09 and OP 6

No glare found

PV09 and OP 7

No glare found

PV09 and OP 8

No glare found

PV09 and OP 9

No glare found

PV09 and OP 10

No glare found

PV09 and OP 11

No glare found

PV09 and OP 12

No glare found

PV09 and OP 13

No glare found

PV09 and OP 14

No glare found

PV09 and OP 15

No glare found

PV09 and OP 16

No glare found

PV09 and OP 17

No glare found

PV09 and OP 18

No glare found

PV09 and OP 19

No glare found

PV: PV10 potential temporary after-image

Receptor results ordered by category of glare

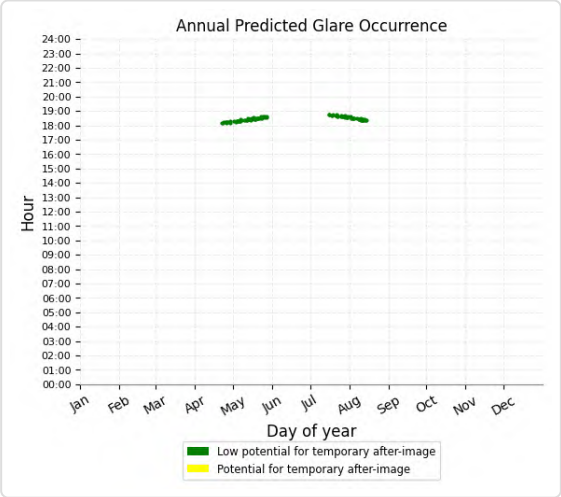
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Race Track	101	1.7	0	0.0
SR177 A	1,036	17.3	0	0.0
SR177 B	339	5.7	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	2,234	37.2	2,474	41.2
VR289l	2,894	48.2	2,783	46.4
VR289m	8,402	140.0	1,108	18.5
VR296l	2,559	42.6	2,411	40.2
VR296m	8,531	142.2	200	3.3
CN6423	839	14.0	0	0.0
IR217m	8,639	144.0	0	0.0
IR217u	4,891	81.5	0	0.0
IR218l	501	8.3	0	0.0
IR218m	942	15.7	0	0.0
IR218u	995	16.6	0	0.0
IR255l	1,961	32.7	0	0.0
IR255m	3,595	59.9	0	0.0
IR255u	11,163	186.1	0	0.0
VR289u	9,141	152.3	0	0.0
VR296u	6,257	104.3	0	0.0
CN645	0	0.0	0	0.0
OP 1	109	1.8	0	0.0
OP 2	0	0.0	0	0.0

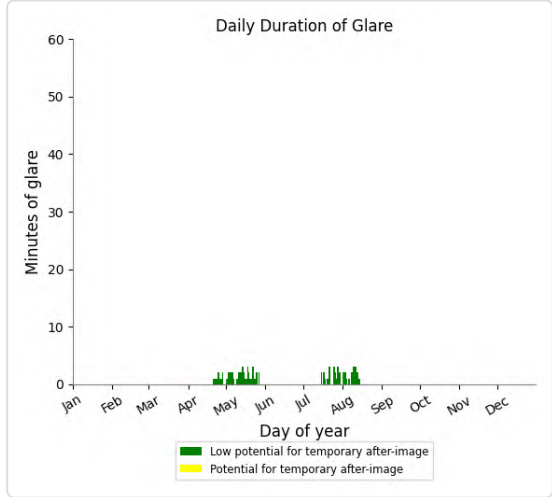
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

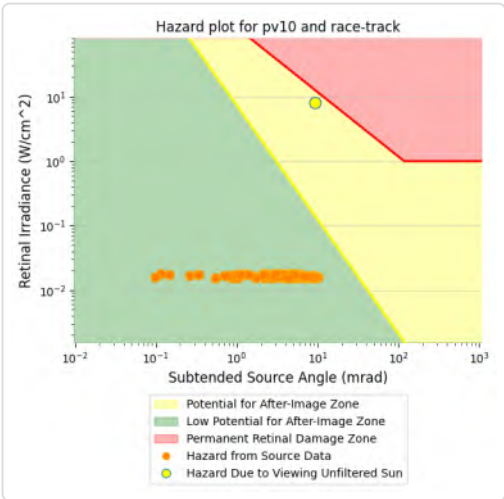
PV10 and Route: Race Track

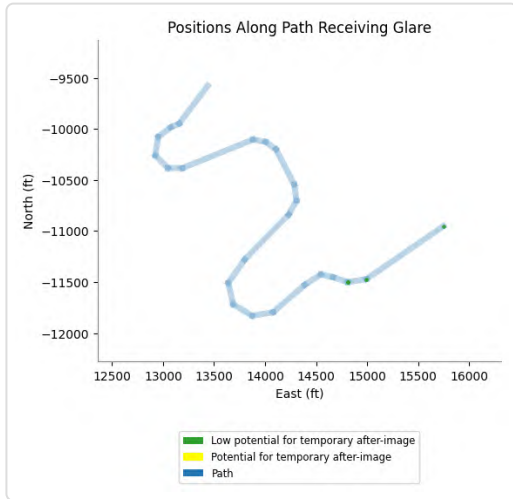
Yellow glare: none

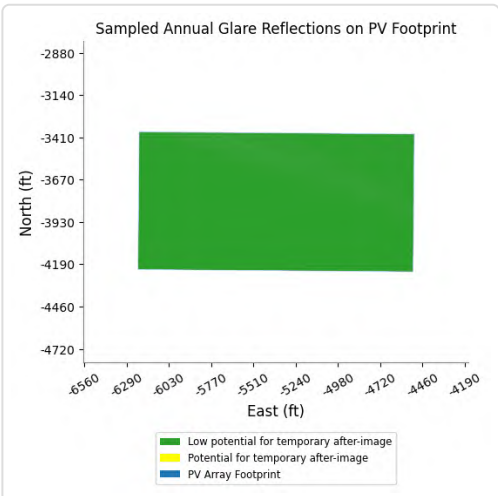
Green glare: 101 min.







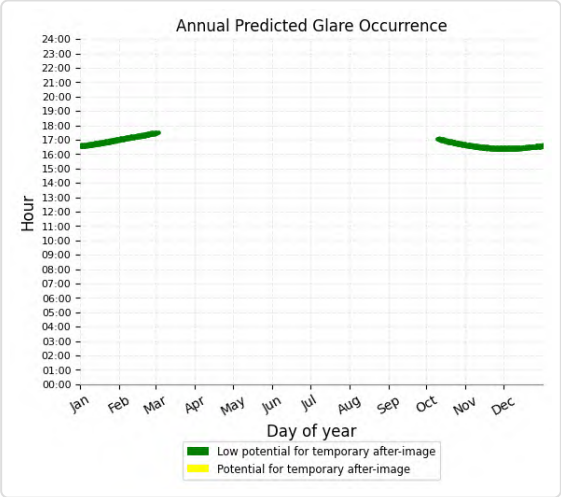


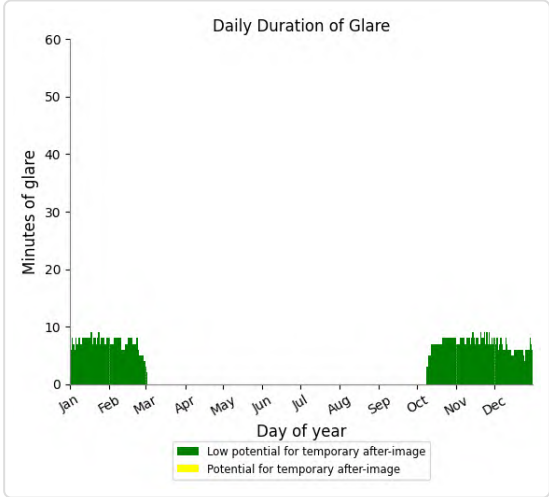


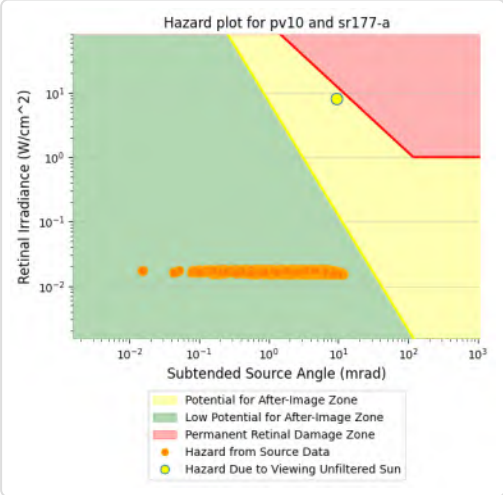
PV10 and Route: SR177 A

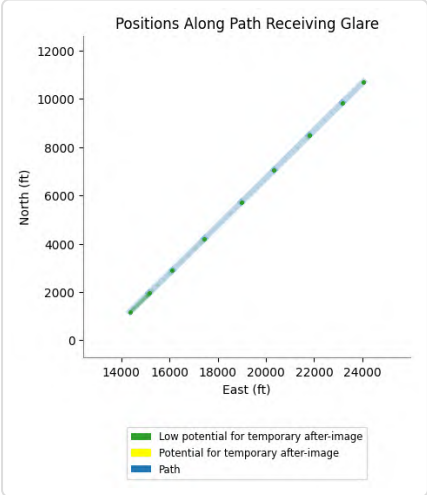
Yellow glare: none

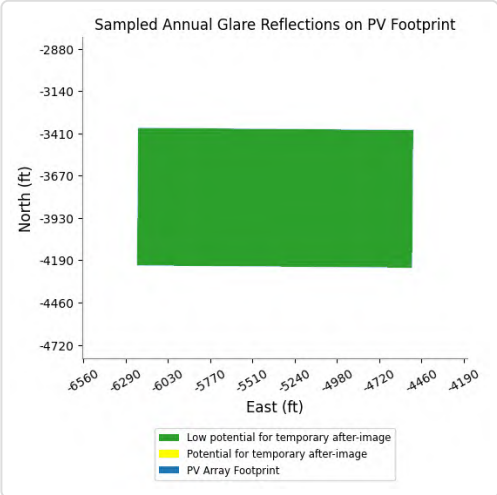
Green glare: 1,036 min.







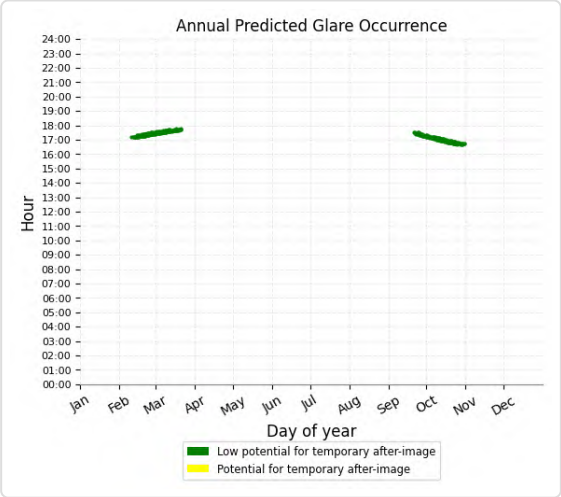


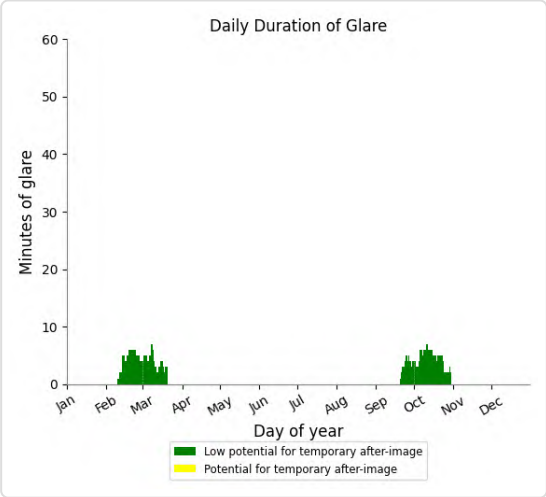


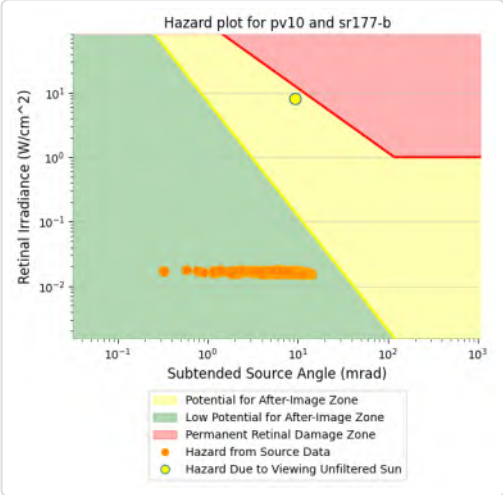
PV10 and Route: SR177 B

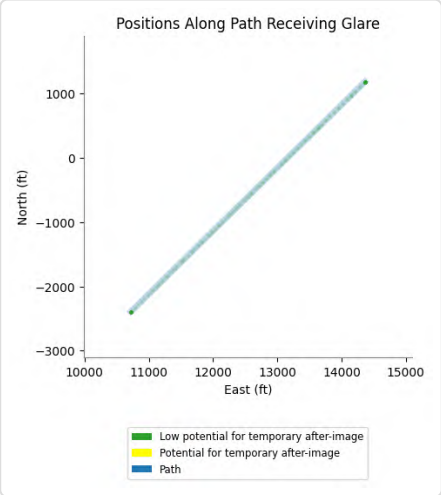
Yellow glare: none

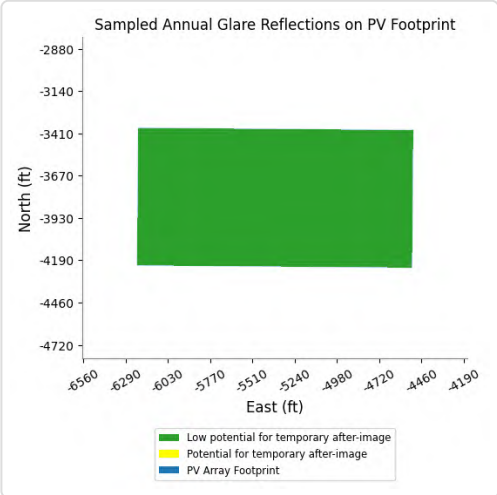
Green glare: 339 min.











PV10 and Route: AirportRd A

No glare found

PV10 and Route: AirportRd B

No glare found

PV10 and Route: EagleMtnRd A

No glare found

PV10 and Route: EagleMtnRd B

No glare found

PV10 and Route: I-10 EB A

No glare found

PV10 and Route: I-10 EB B

No glare found

PV10 and Route: I-10 EB C

No glare found

PV10 and Route: I-10 WB A

No glare found

PV10 and Route: I-10 WB B

No glare found

PV10 and Route: I-10 WB C

No glare found

PV10 and Route: KaiserRd A

No glare found

PV10 and Route: KaiserRd B

No glare found

PV10 and Route: KaiserRd C

No glare found

PV10 and Route: OasisRd

No glare found

PV10 and Route: SR177 C

No glare found

PV10 and Route: SR177 D

No glare found

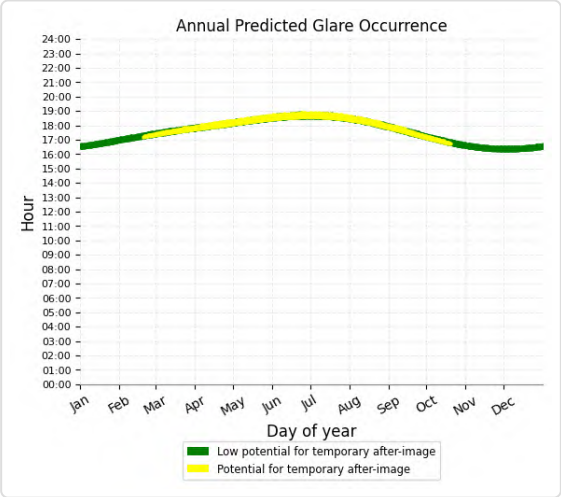
PV10 and Route: SR177 E

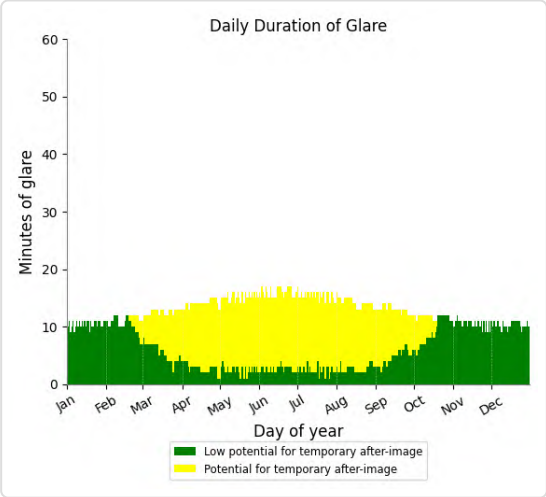
No glare found

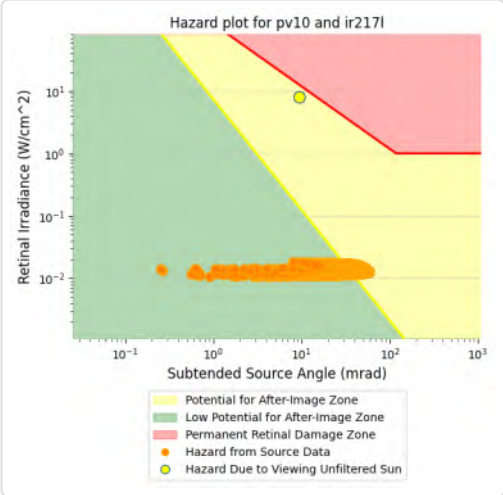
PV10 and FP: IR217I

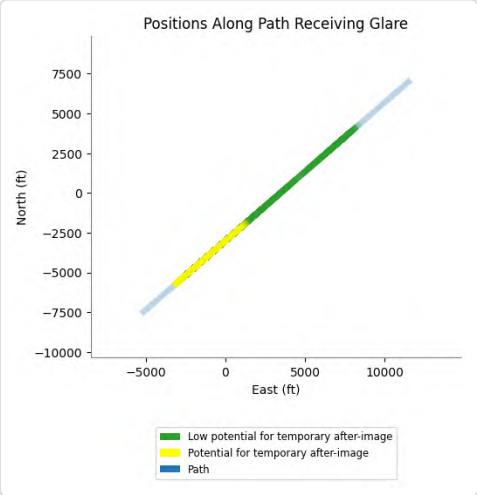
Yellow glare: 2,474 min.

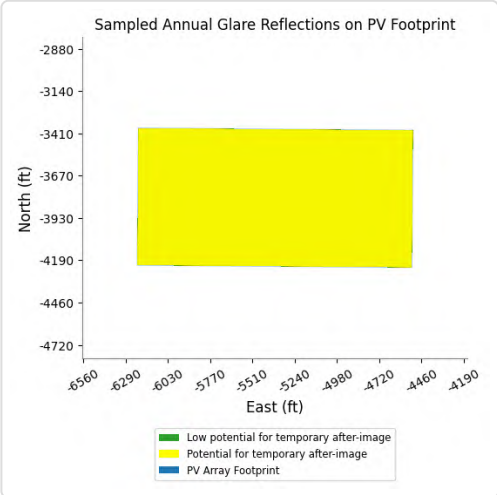
Green glare: 2,234 min.

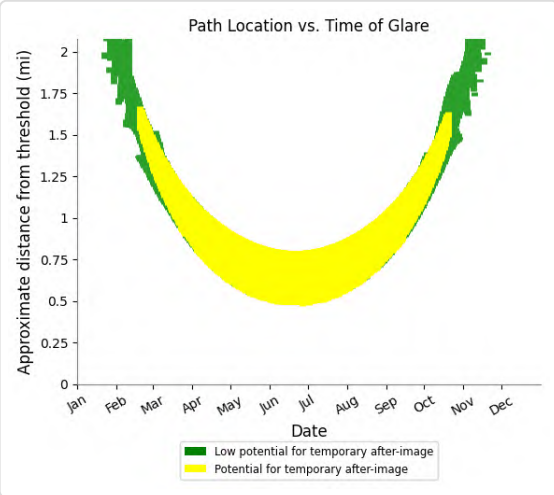








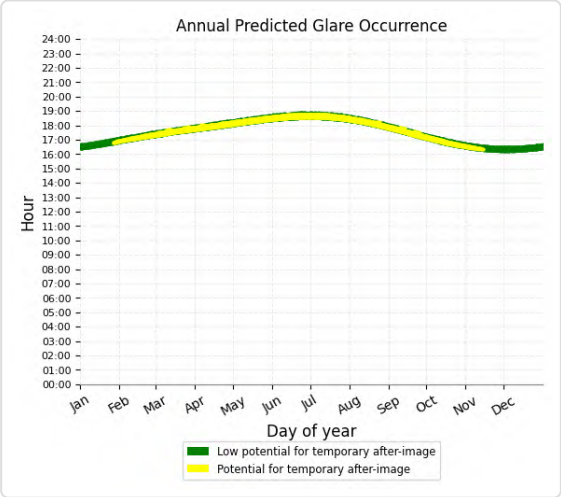


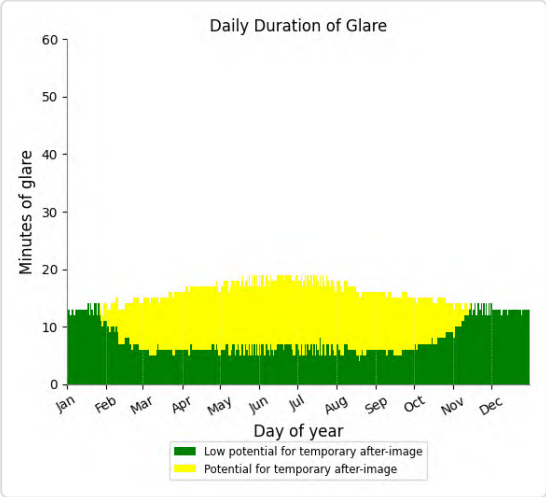


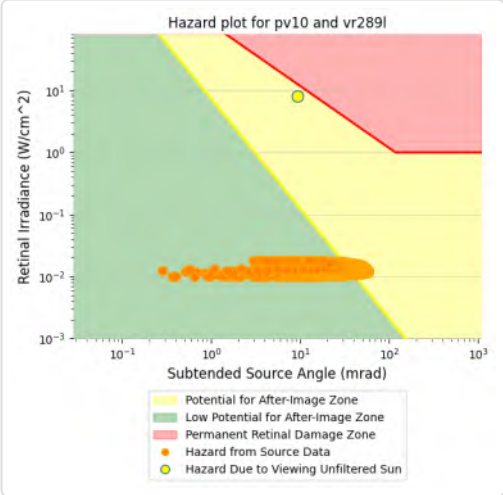
PV10 and FP: VR289I

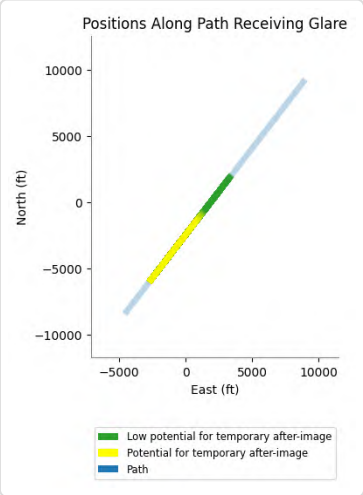
Yellow glare: 2,783 min.

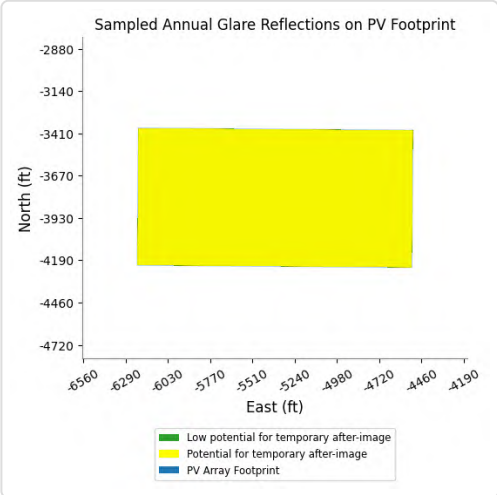
Green glare: 2,894 min.

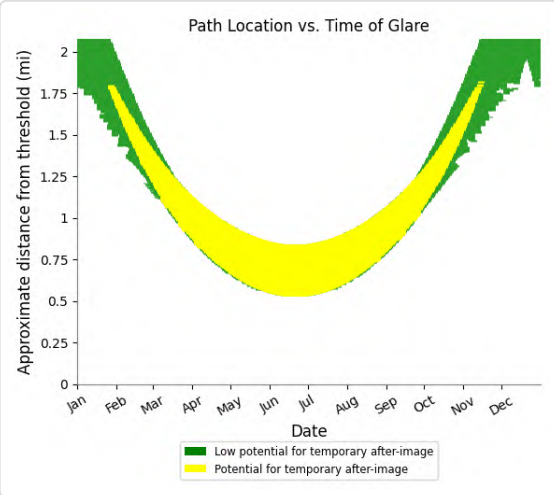








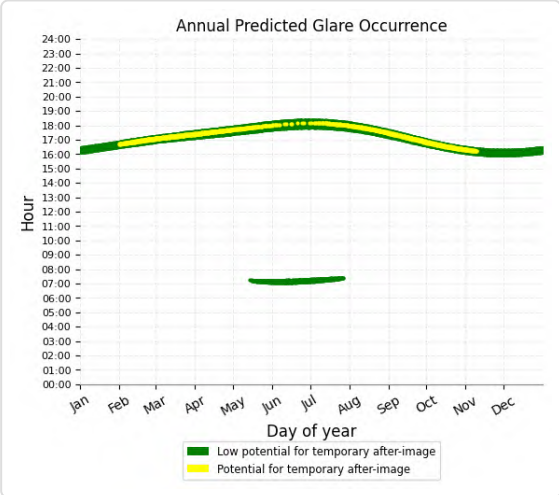


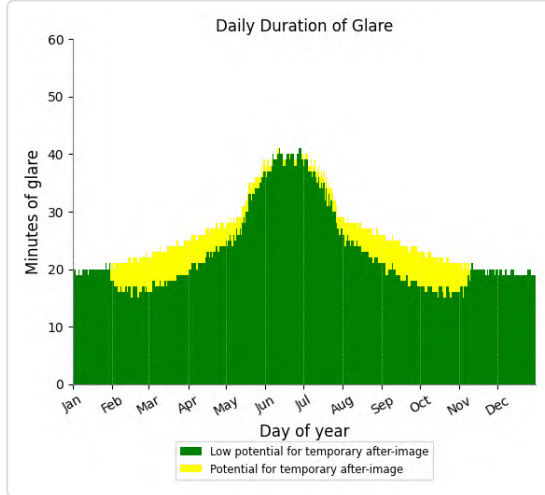


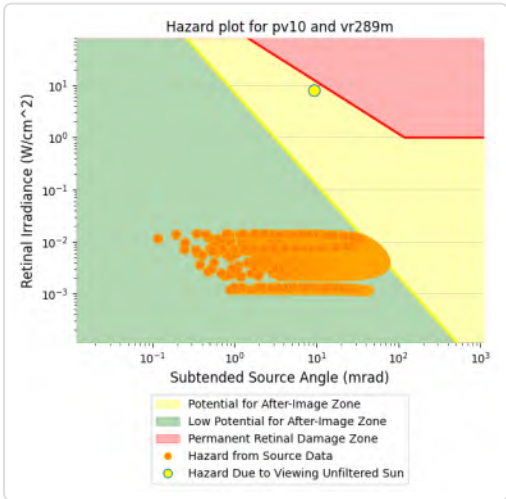
PV10 and FP: VR289m

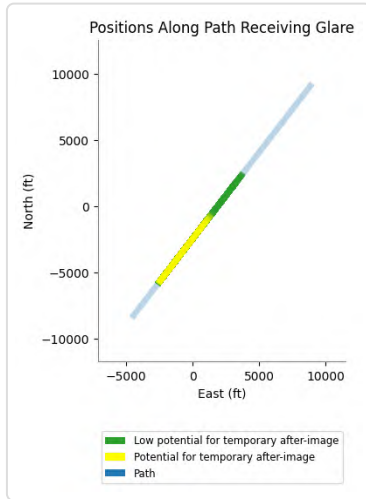
Yellow glare: 1,108 min.

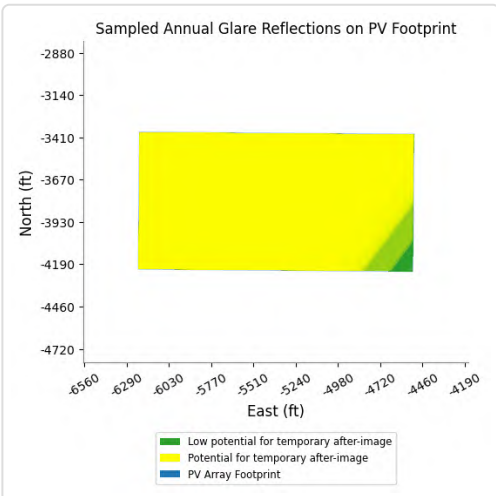
Green glare: 8,402 min.

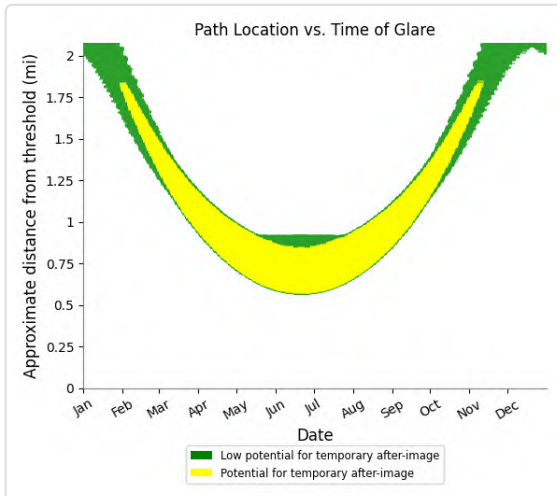








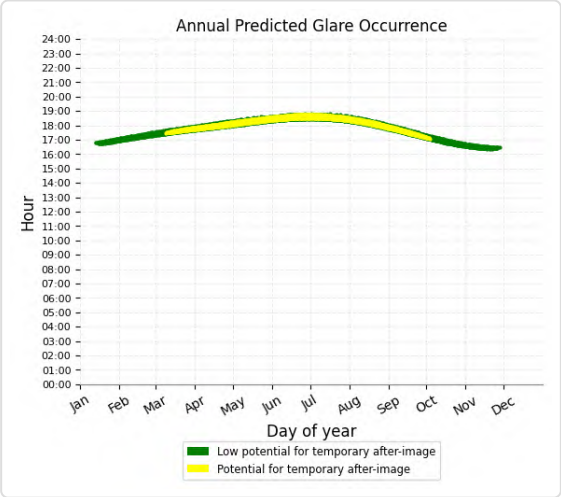


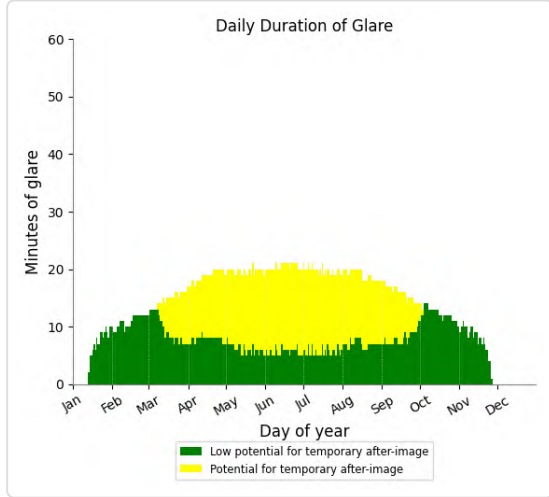


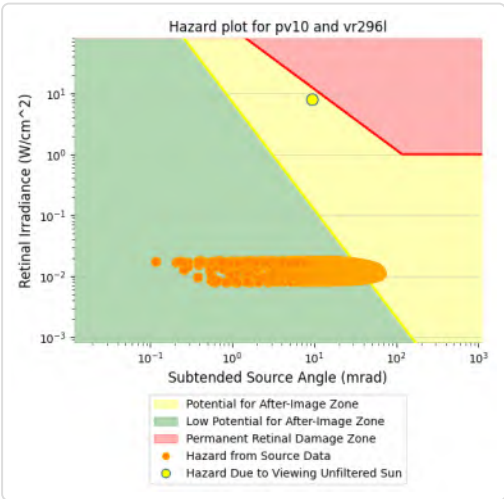
PV10 and FP: VR296l

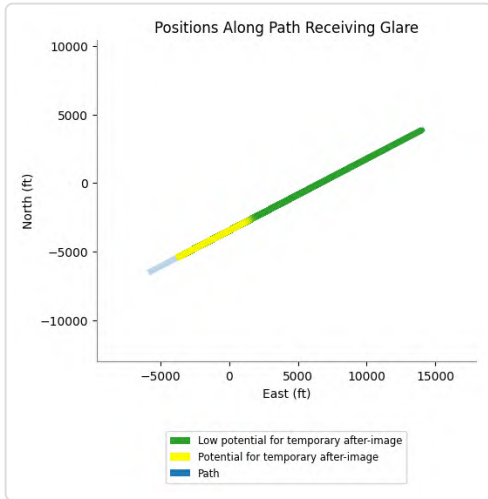
Yellow glare: 2,411 min.

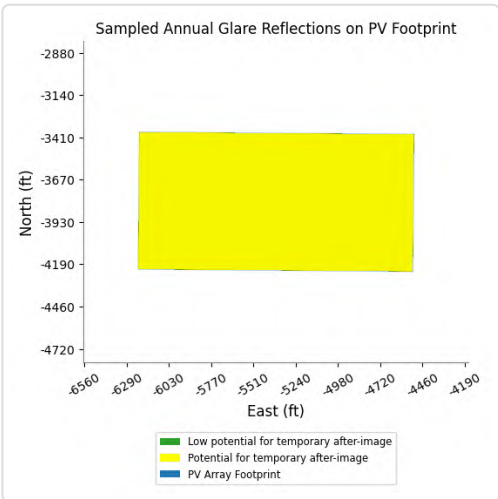
Green glare: 2,559 min.

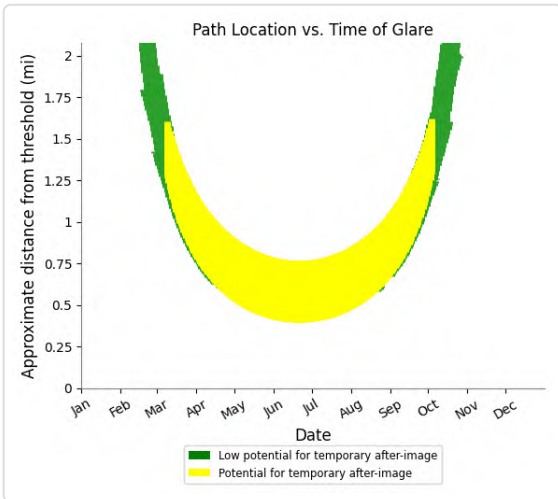








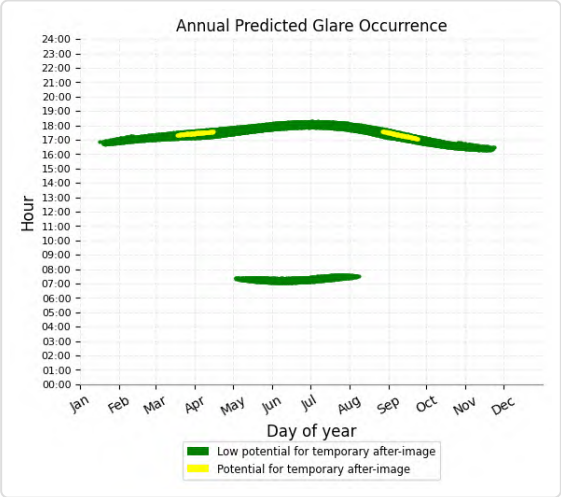


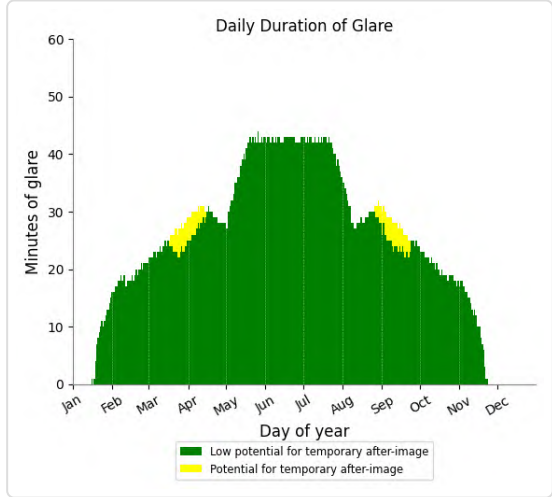


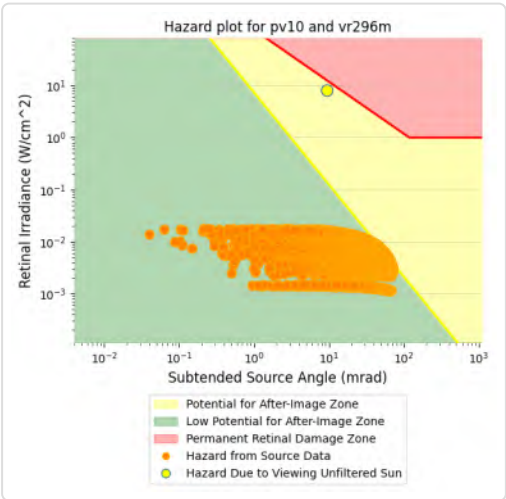
PV10 and FP: VR296m

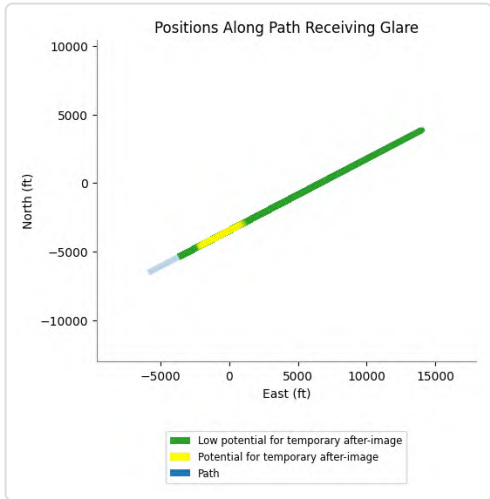
Yellow glare: 200 min.

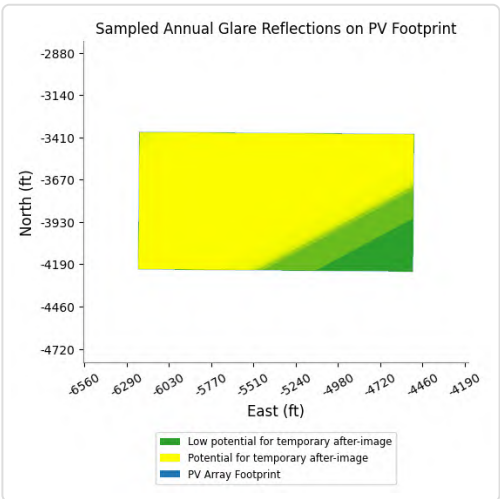
Green glare: 8,531 min.

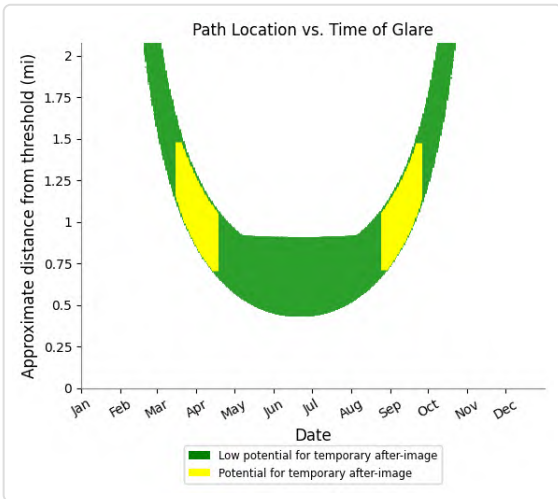








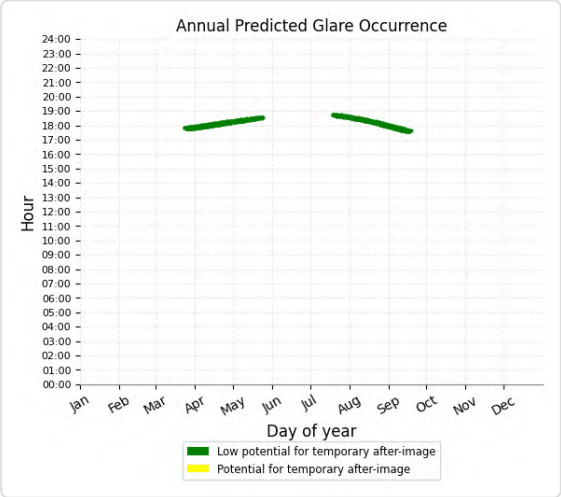


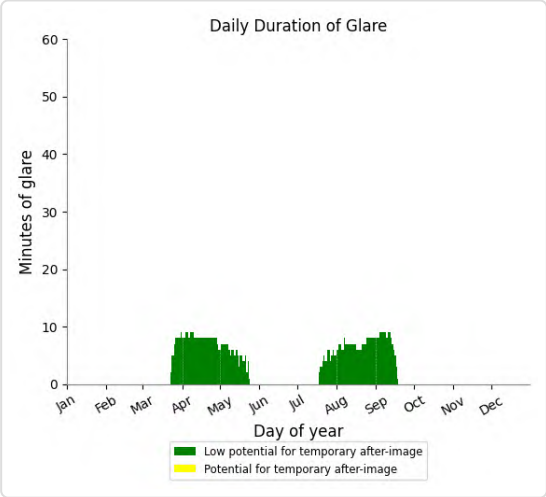


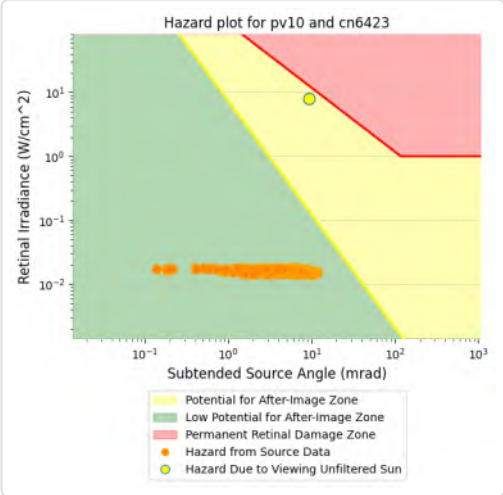
PV10 and FP: CN6423

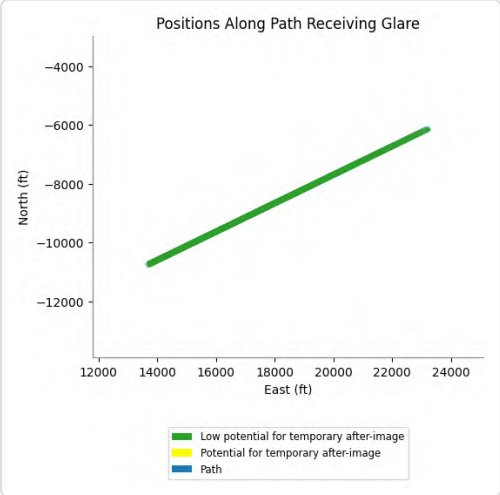
Yellow glare: none

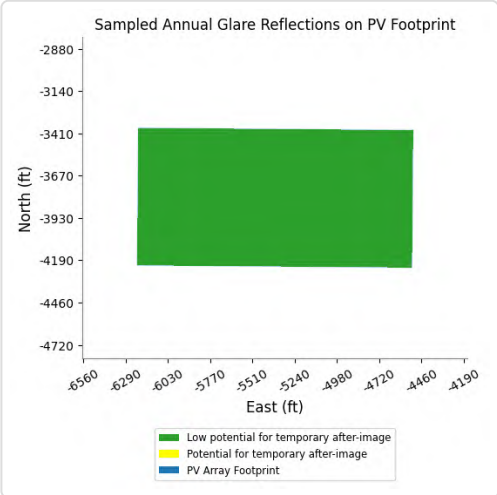
Green glare: 839 min.

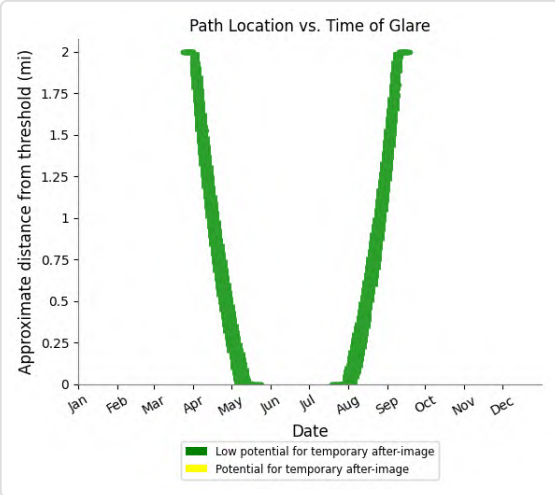








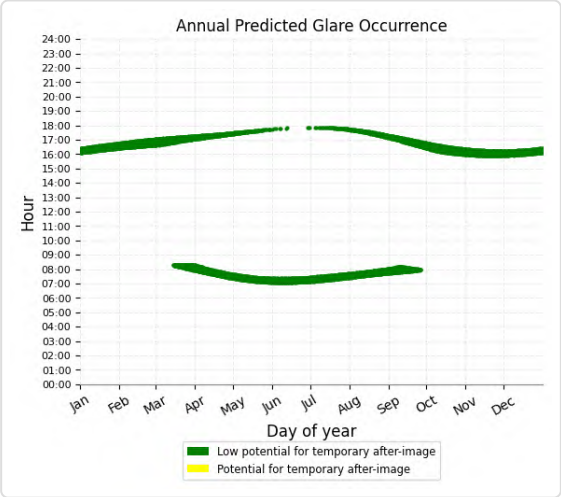


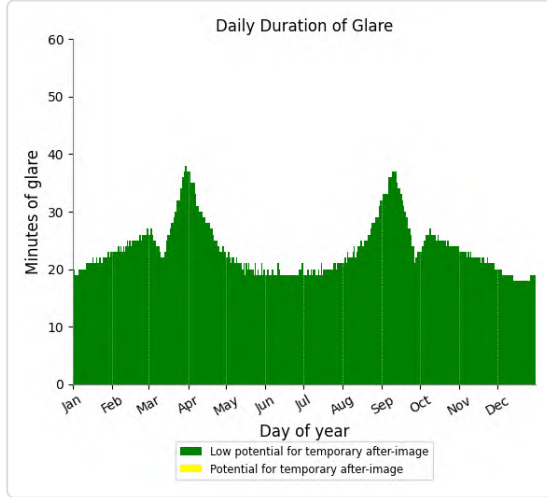


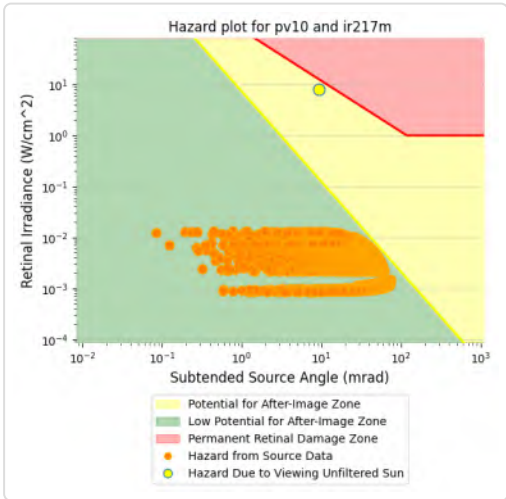
PV10 and FP: IR217m

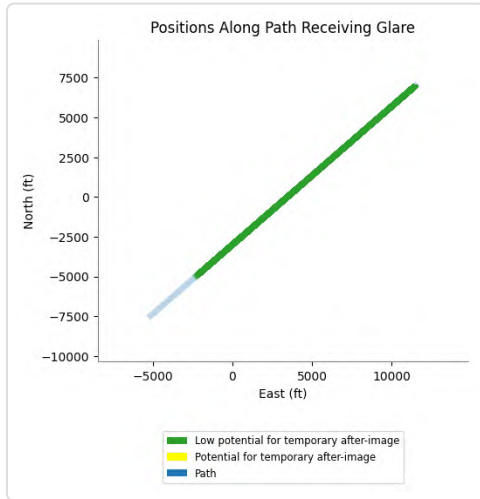
Yellow glare: none

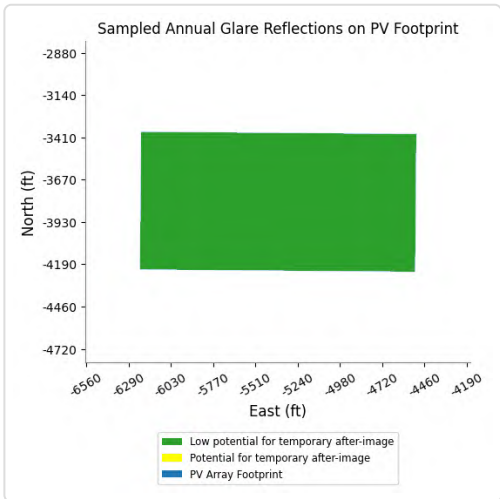
Green glare: 8,639 min.

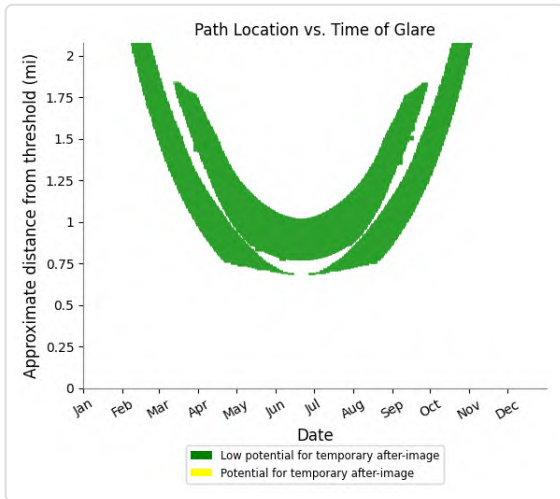








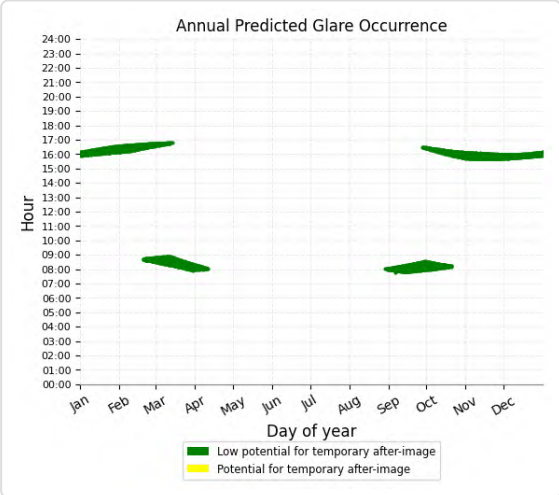


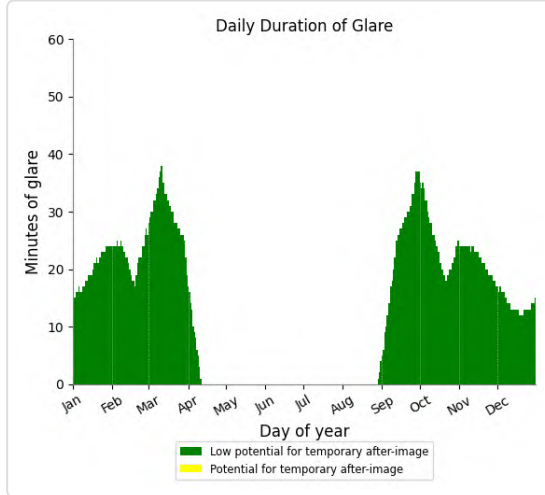


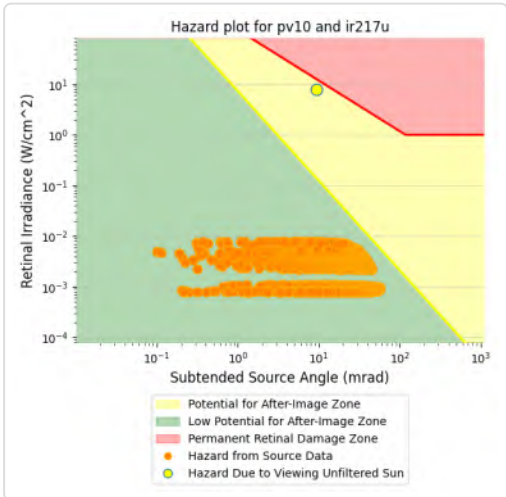
PV10 and FP: IR217u

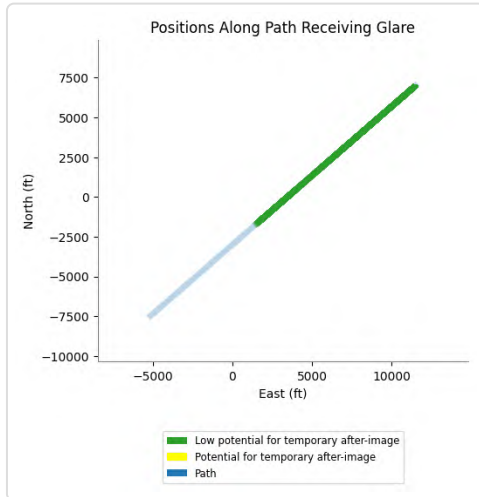
Yellow glare: none

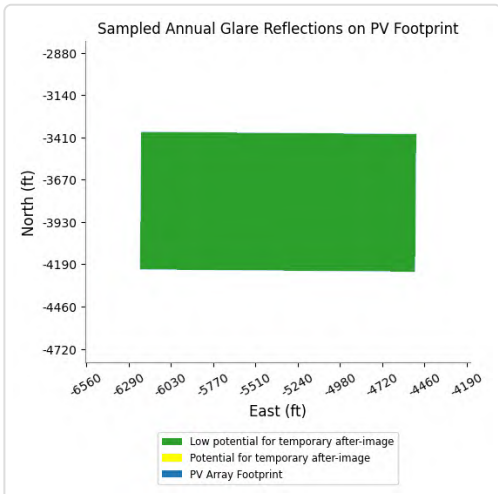
Green glare: 4,891 min.

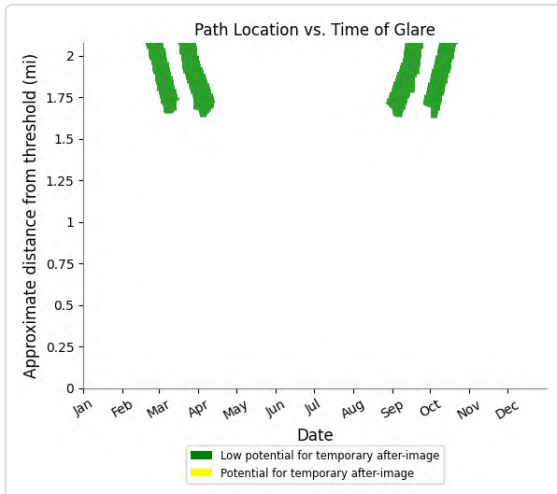








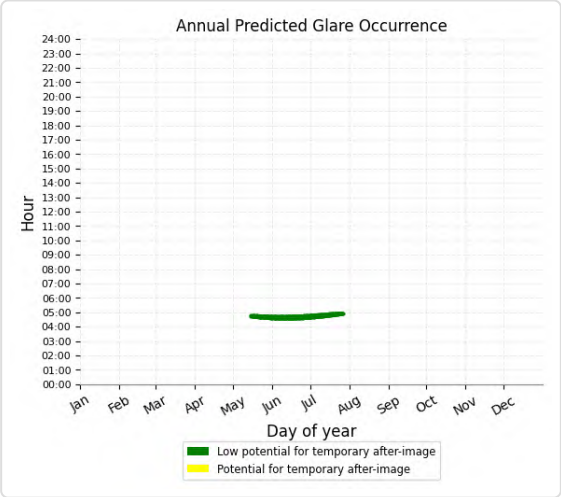


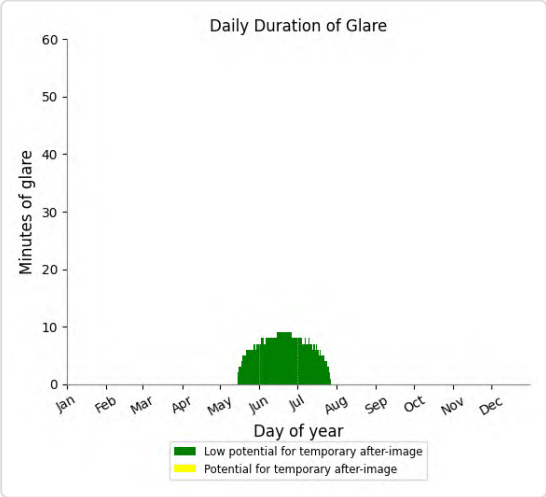


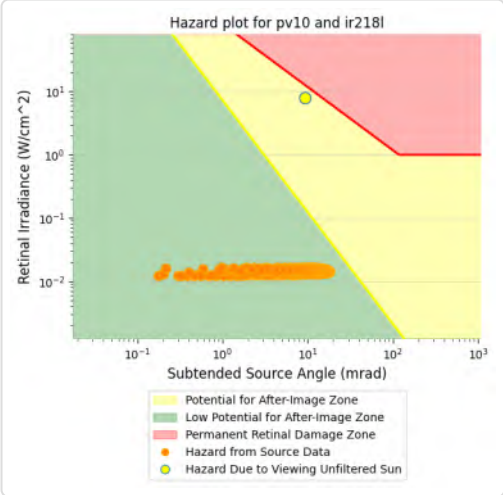
PV10 and FP: IR218l

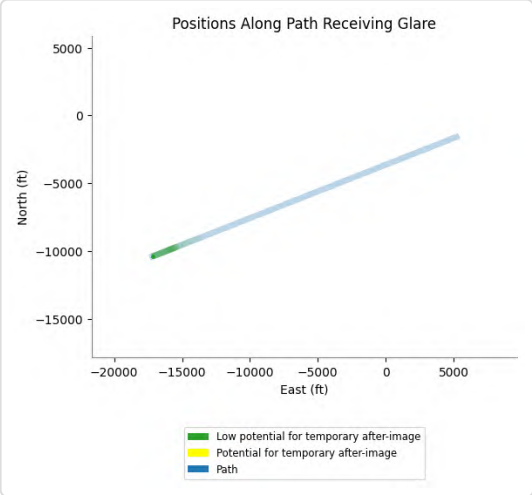
Yellow glare: none

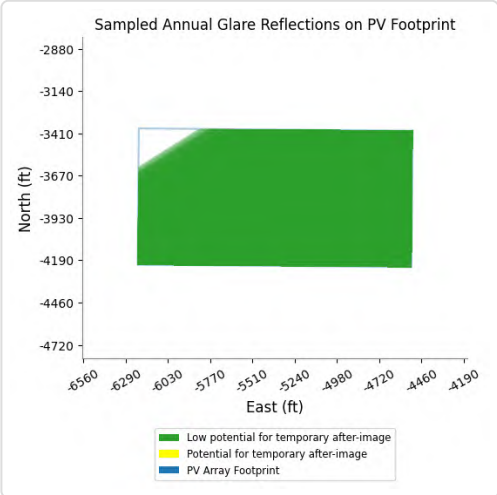
Green glare: 501 min.

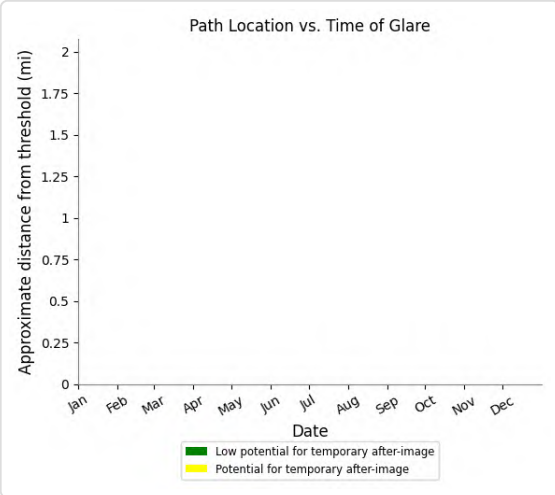








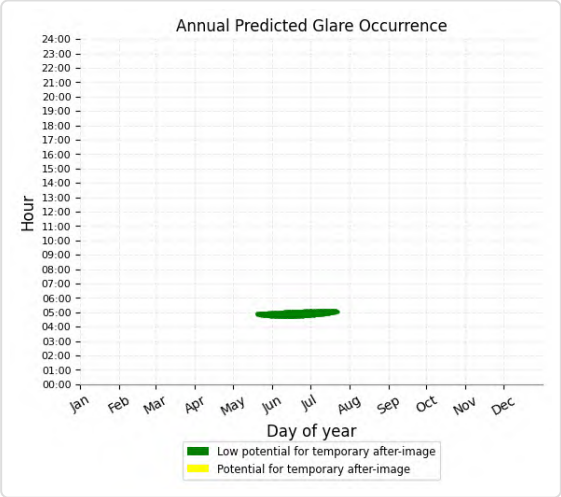


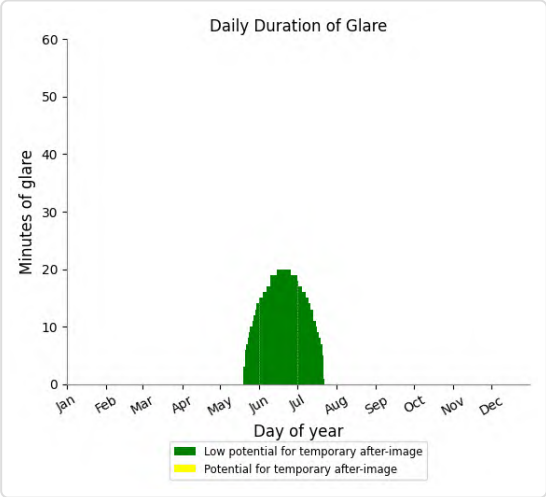


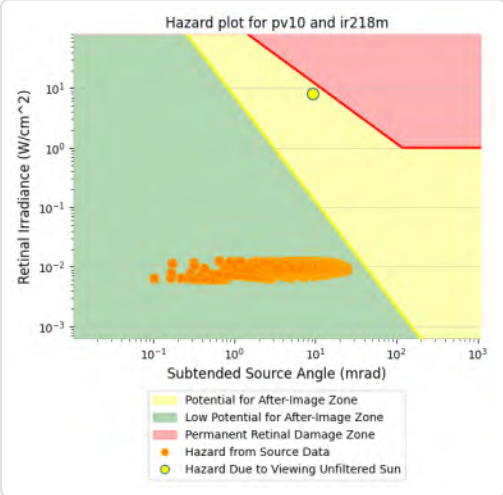
PV10 and FP: IR218m

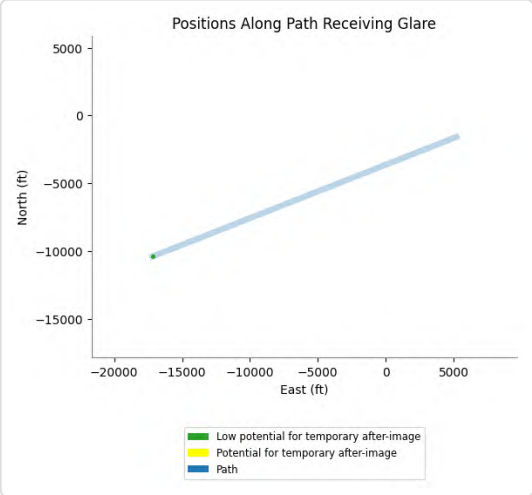
Yellow glare: none

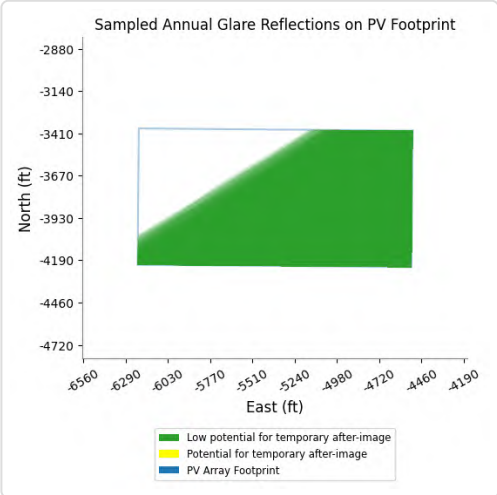
Green glare: 942 min.

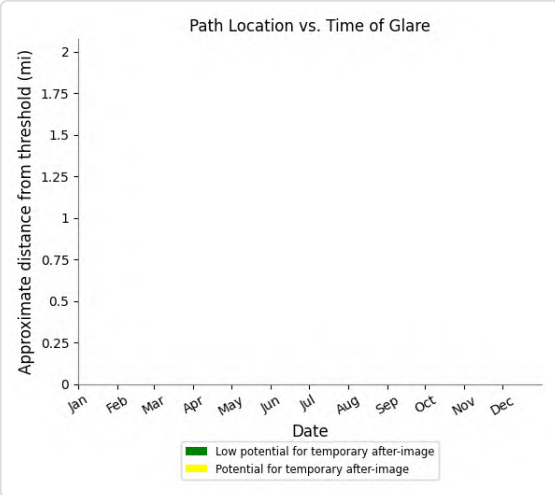








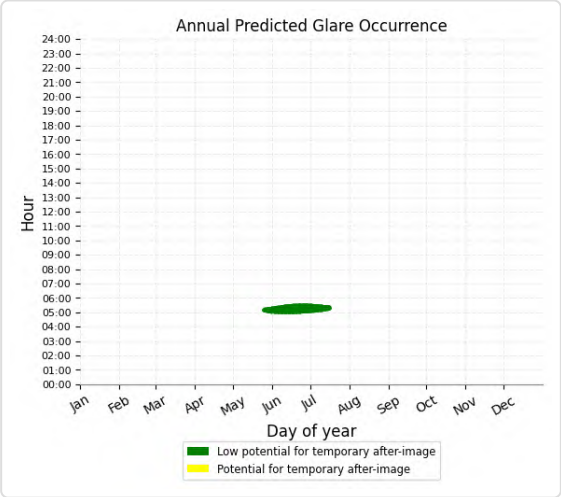


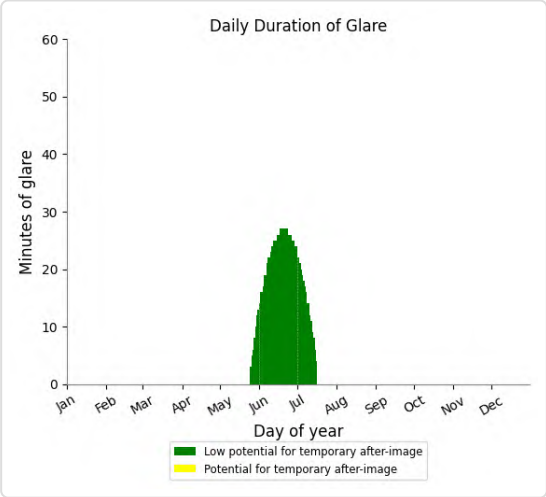


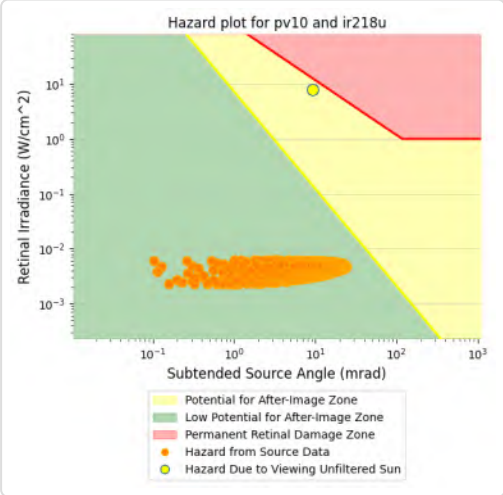
PV10 and FP: IR218u

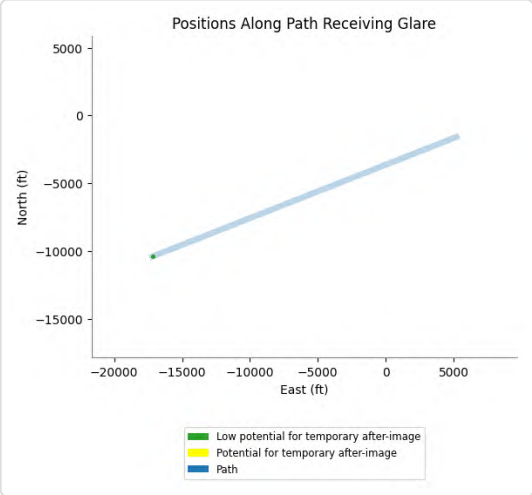
Yellow glare: none

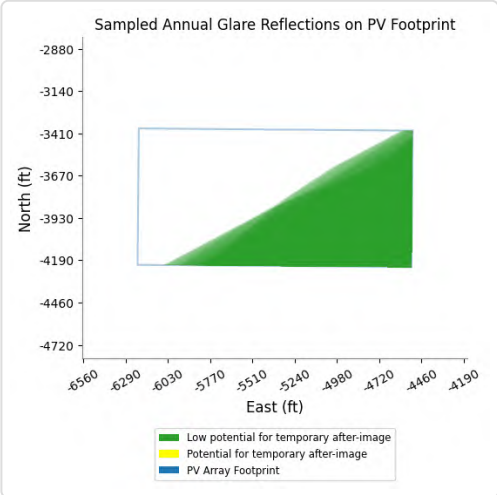
Green glare: 995 min.

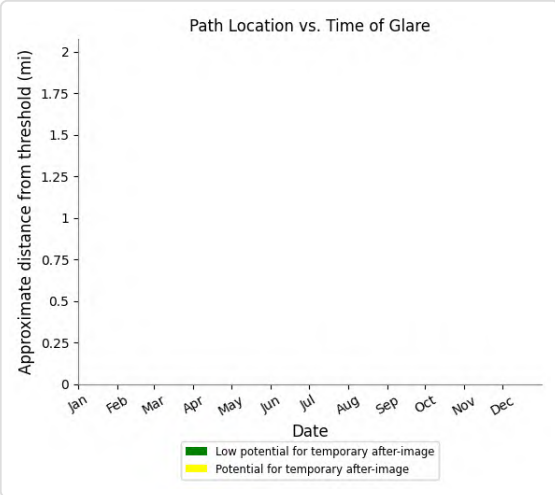








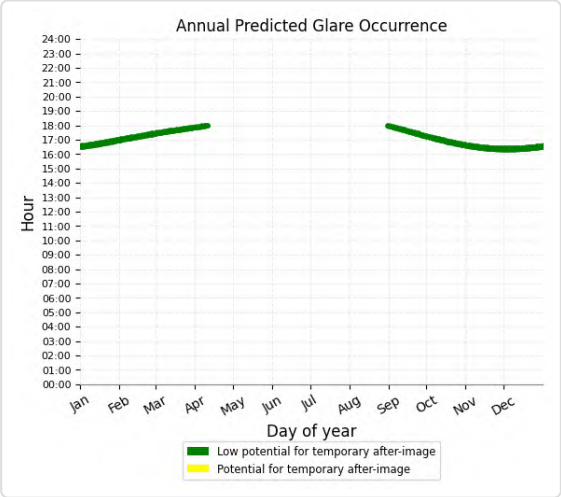


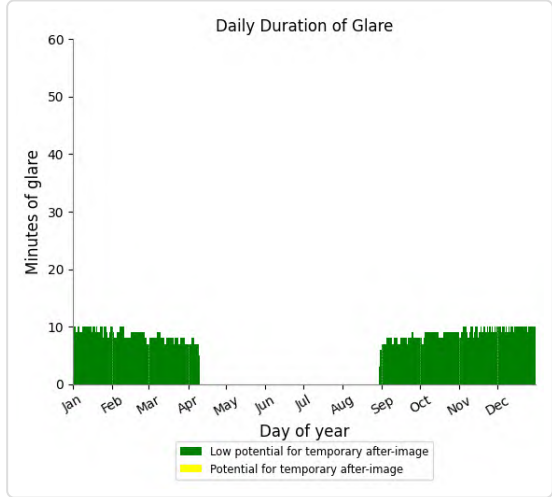


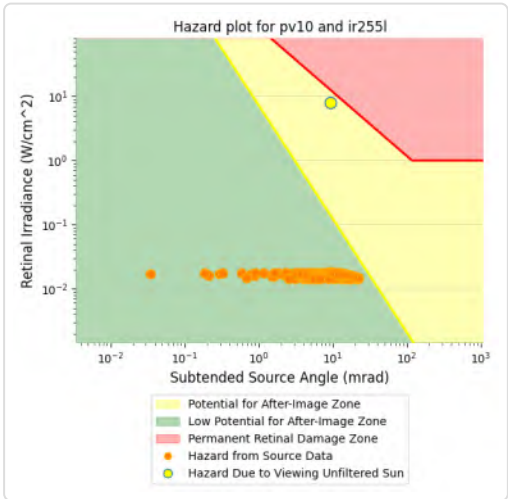
PV10 and FP: IR255I

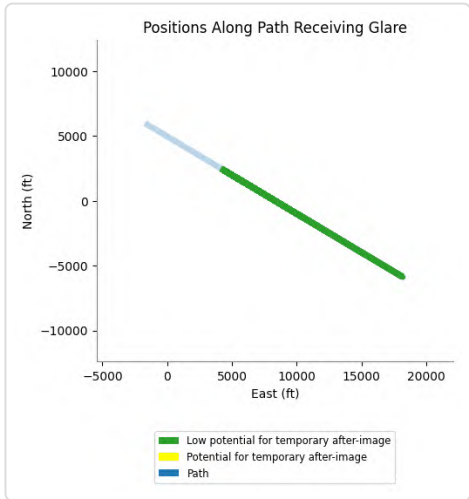
Yellow glare: none

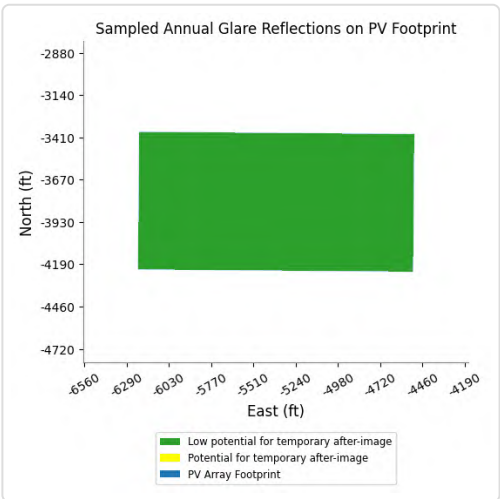
Green glare: 1,961 min.

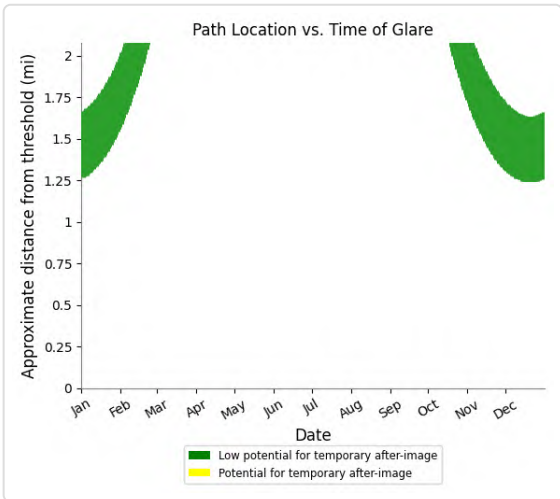








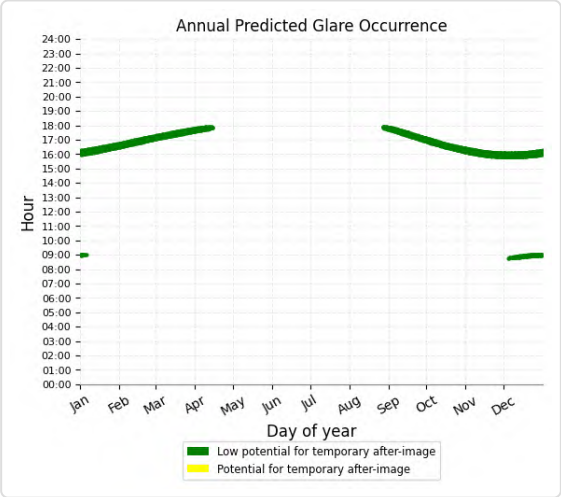


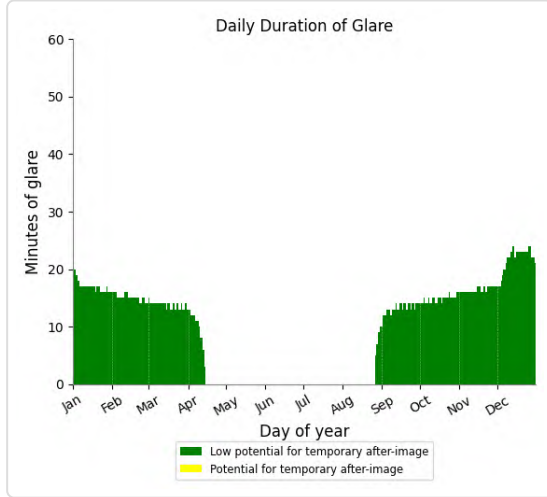


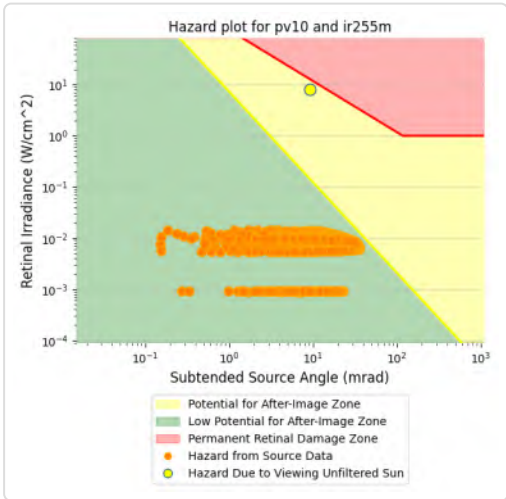
PV10 and FP: IR255m

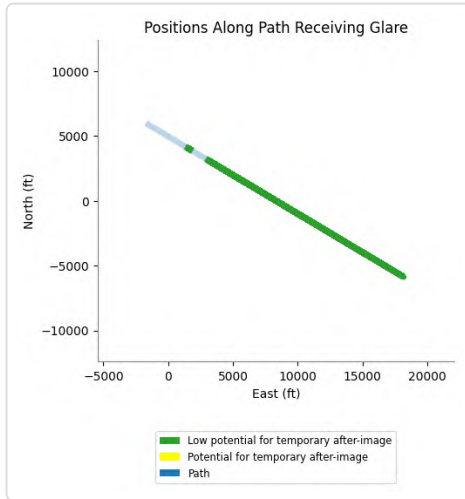
Yellow glare: none

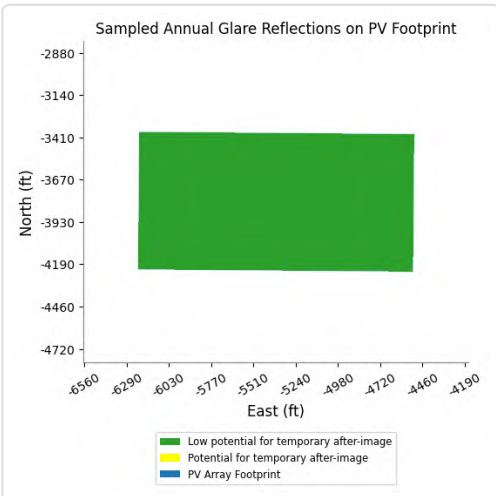
Green glare: 3,595 min.

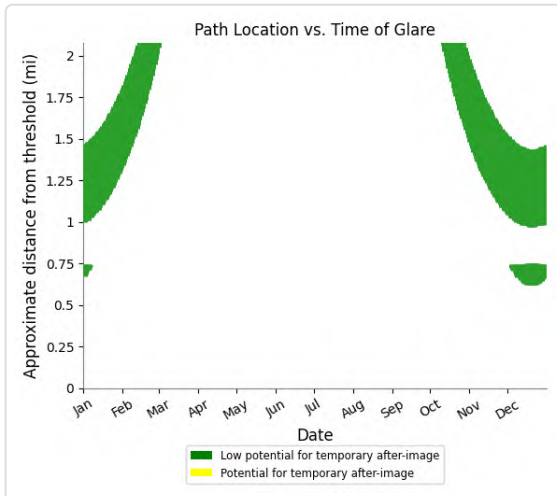








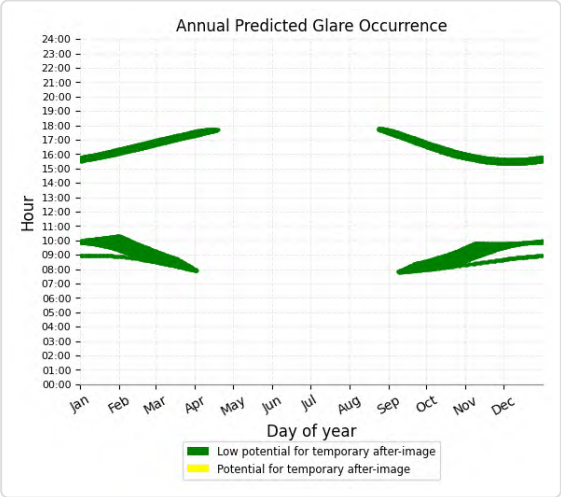


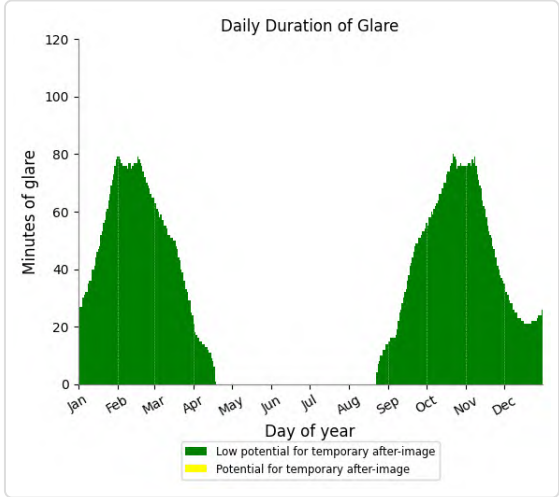


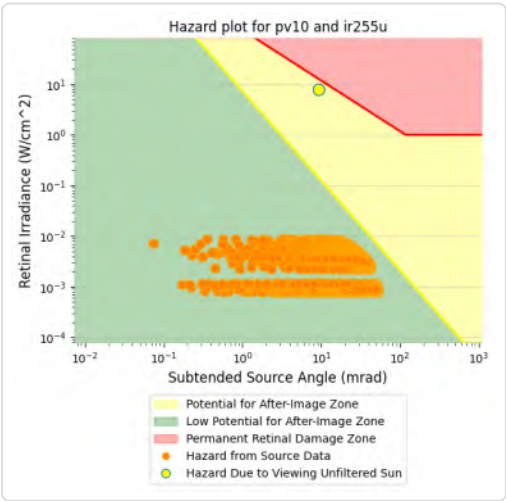
PV10 and FP: IR255u

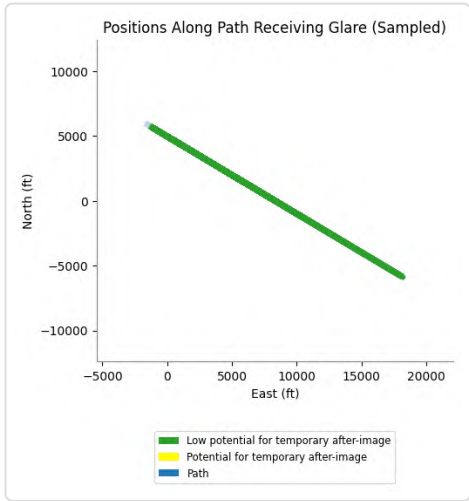
Yellow glare: none

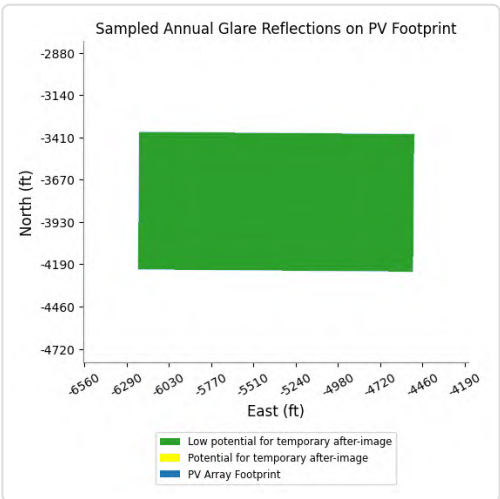
Green glare: 11,163 min.

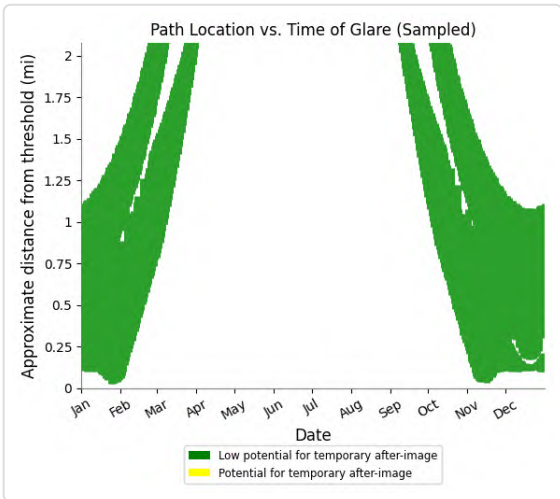








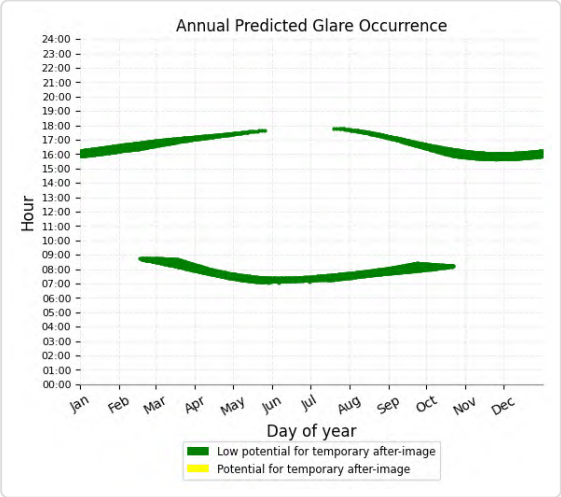


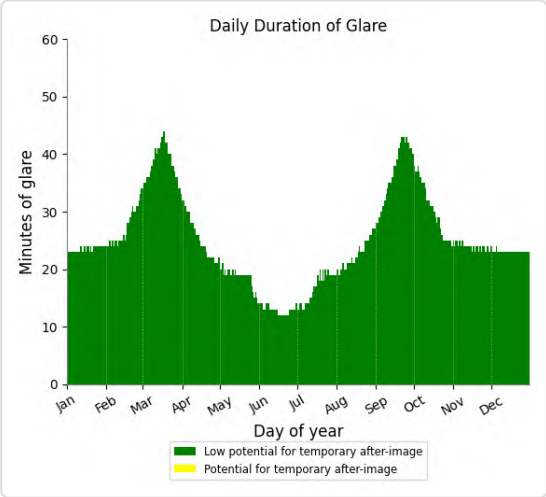


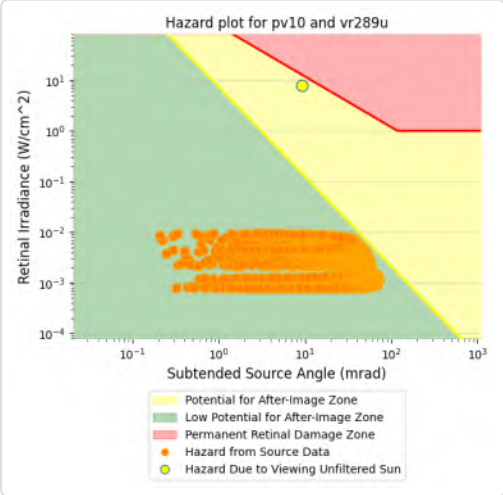
PV10 and FP: VR289u

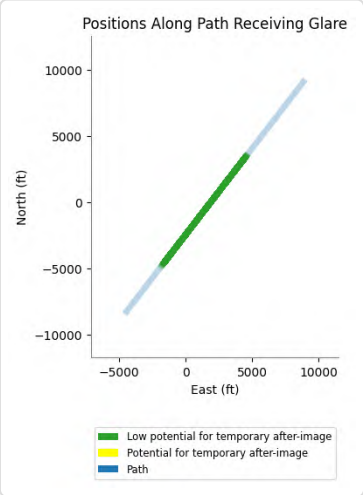
Yellow glare: none

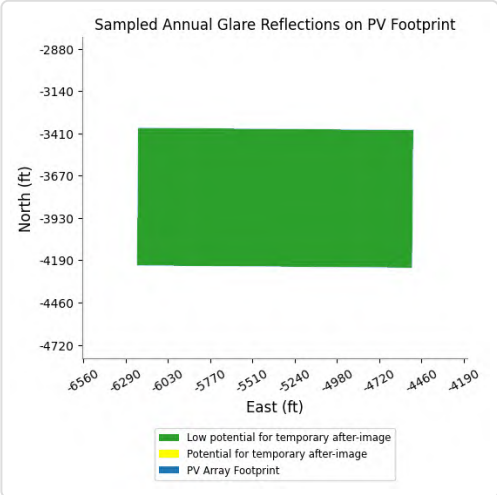
Green glare: 9,141 min.

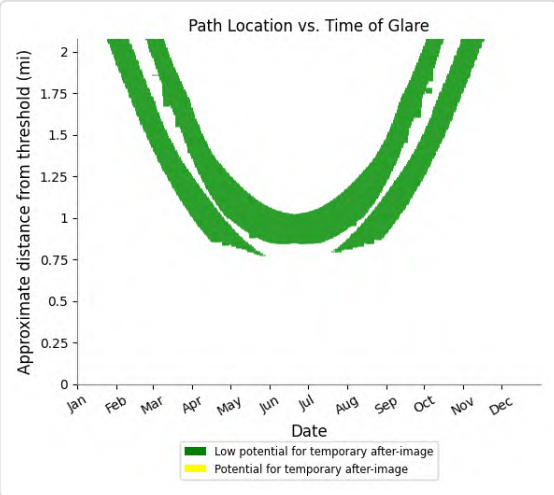








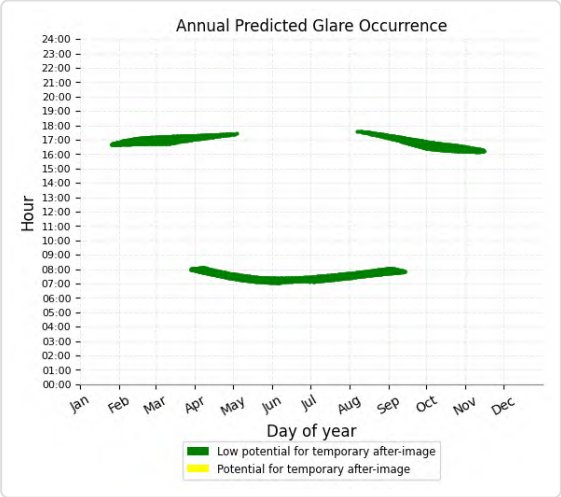


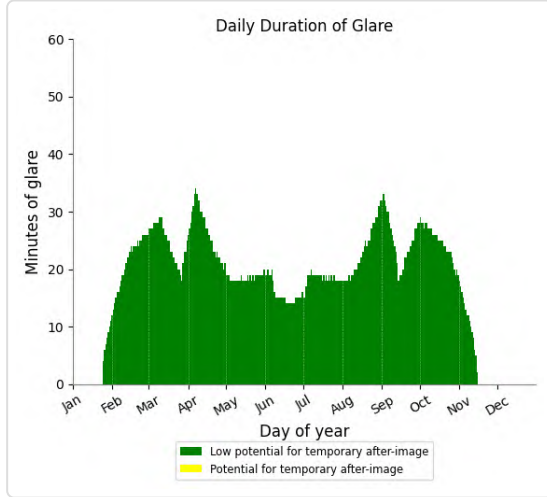


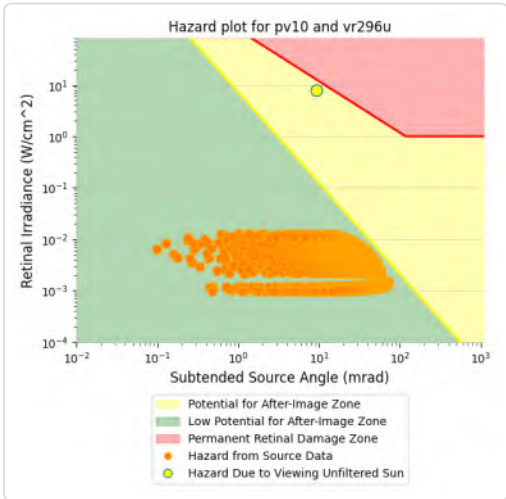
PV10 and FP: VR296u

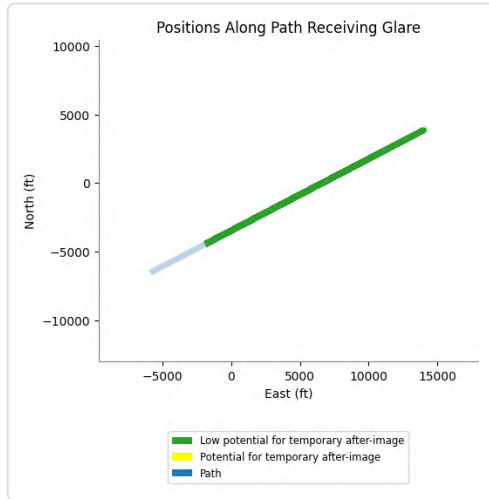
Yellow glare: none

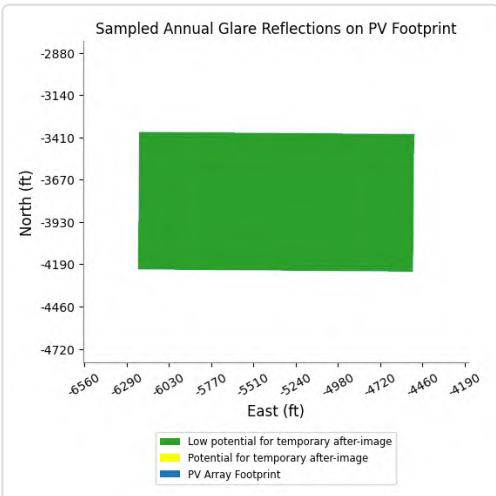
Green glare: 6,257 min.

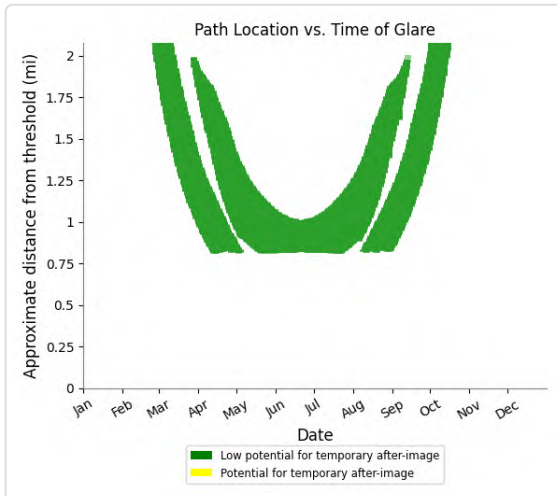










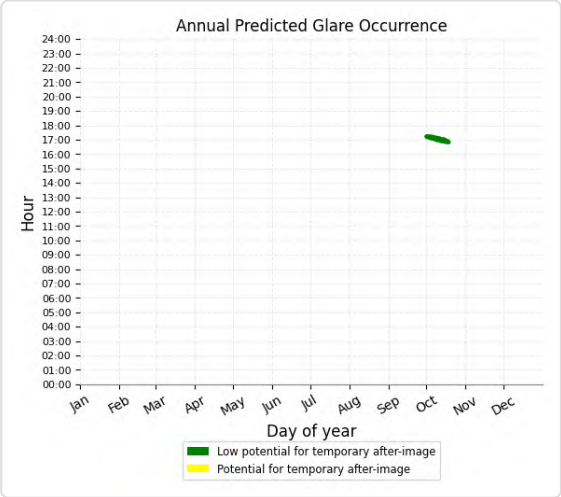


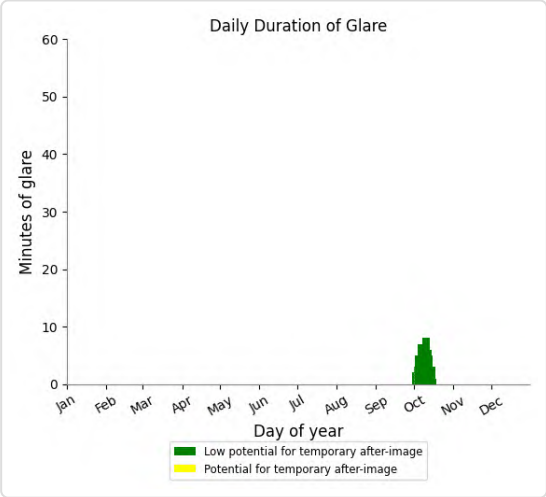
PV10 and FP: CN645

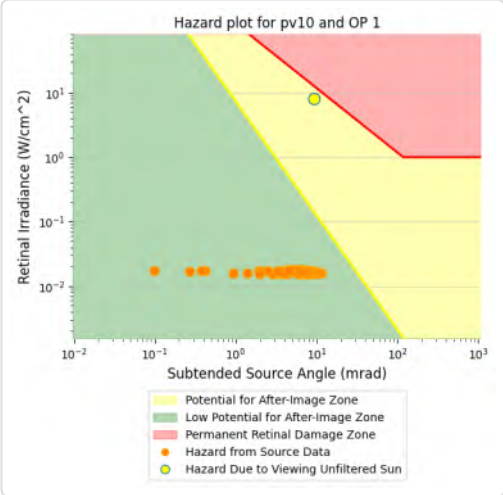
No glare found

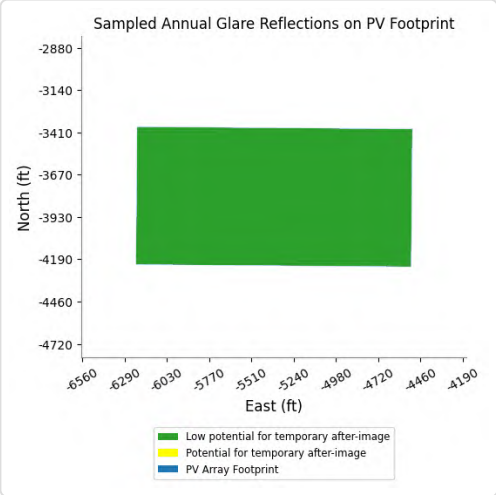
PV10 and OP 1

Yellow glare: none
Green glare: 109 min.









PV10 and OP 2

No glare found

PV10 and OP 3

No glare found

PV10 and OP 4

No glare found

PV10 and OP 5

No glare found

PV10 and OP 6

No glare found

PV10 and OP 7

No glare found

PV10 and OP 8

No glare found

PV10 and OP 9

No glare found

PV10 and OP 10

No glare found

PV10 and OP 11

No glare found

PV10 and OP 12

No glare found

PV10 and OP 13

No glare found

PV10 and OP 14

No glare found

PV10 and OP 15

No glare found

PV10 and OP 16

No glare found

PV10 and OP 17

No glare found

PV10 and OP 18

No glare found

PV10 and OP 19

No glare found

PV: PV11 potential temporary after-image

Receptor results ordered by category of glare

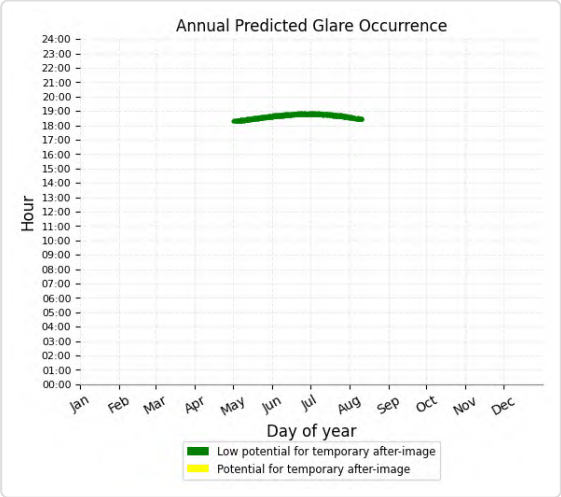
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd A	648	10.8	0	0.0
AirportRd B	418	7.0	0	0.0
Race Track	772	12.9	0	0.0
SR177 A	1,180	19.7	0	0.0
SR177 B	609	10.2	0	0.0
SR177 C	129	2.1	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	3,308	55.1	5,373	89.5
IR218l	1,068	17.8	158	2.6
IR218m	3,087	51.5	13	0.2
VR289l	3,712	61.9	6,254	104.2
VR289m	14,717	245.3	412	6.9
VR296l	4,448	74.1	5,661	94.3
VR296m	10,105	168.4	702	11.7
VR296u	5,749	95.8	1	0.0
CN6423	981	16.4	0	0.0
IR217m	8,516	141.9	0	0.0
IR217u	5,587	93.1	0	0.0
IR218u	2,093	34.9	0	0.0
IR255l	2,179	36.3	0	0.0
IR255m	4,336	72.3	0	0.0
IR255u	9,076	151.3	0	0.0
VR289u	9,526	158.8	0	0.0
CN645	0	0.0	0	0.0
OP 1	141	2.4	0	0.0
OP 2	0	0.0	0	0.0

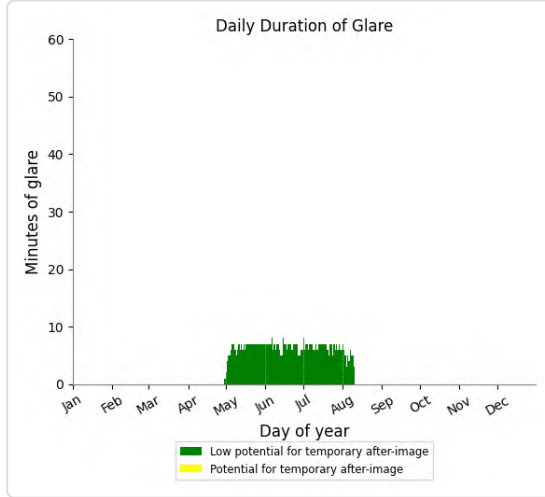
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

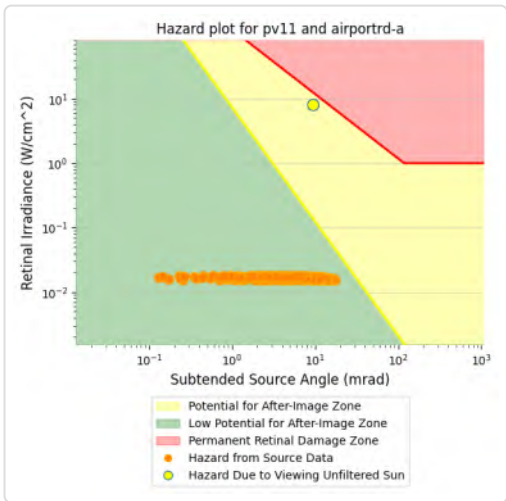
PV11 and Route: AirportRd A

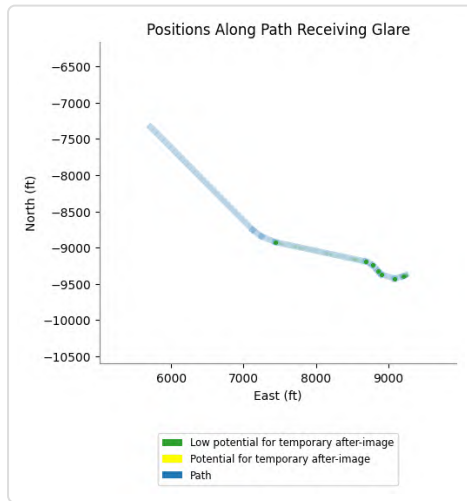
Yellow glare: none

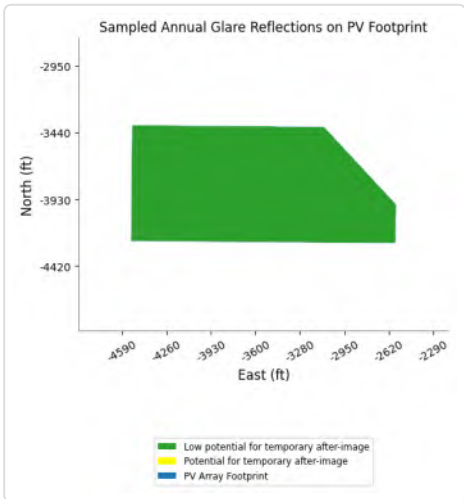
Green glare: 648 min.







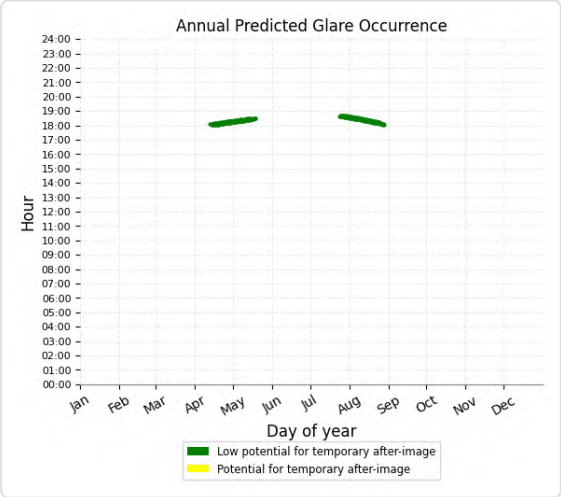


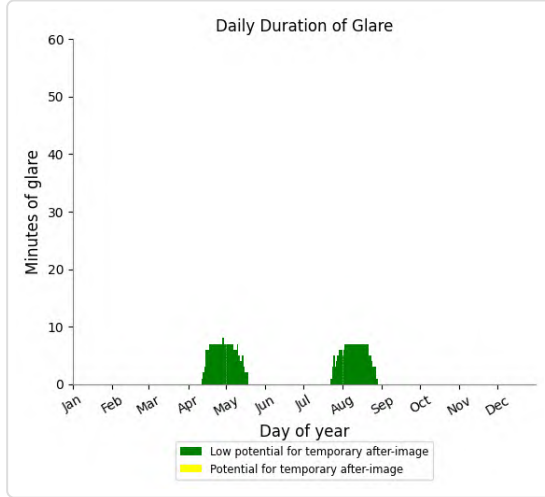


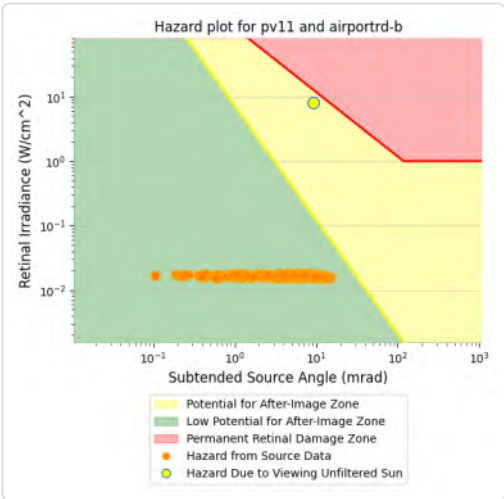
PV11 and Route: AirportRd B

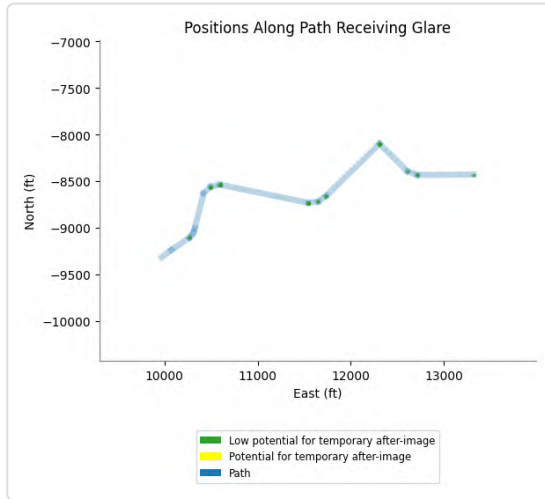
Yellow glare: none

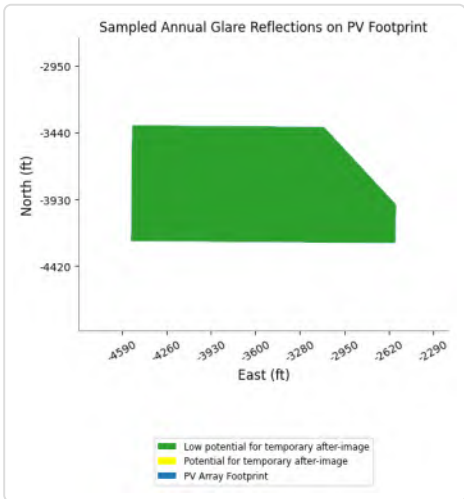
Green glare: 418 min.







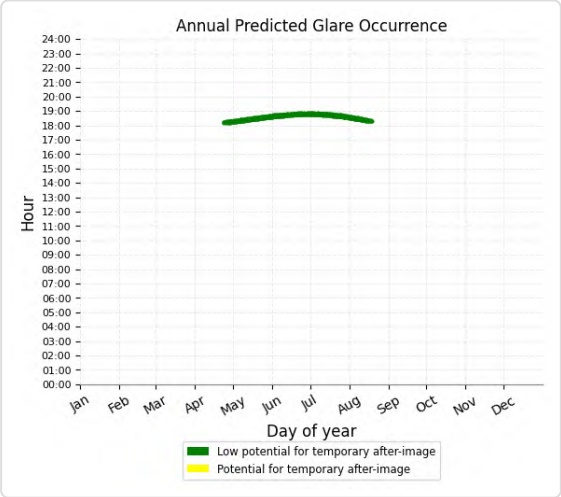


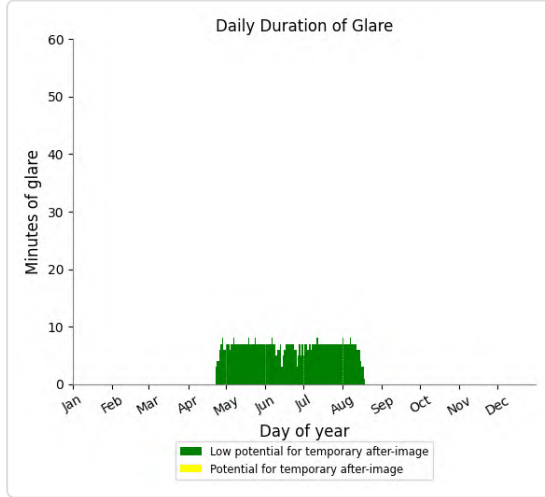


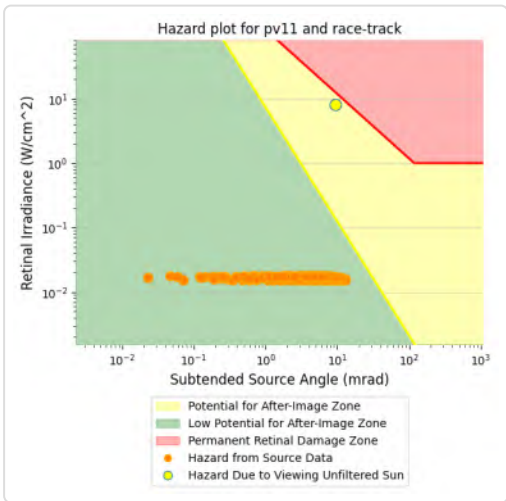
PV11 and Route: Race Track

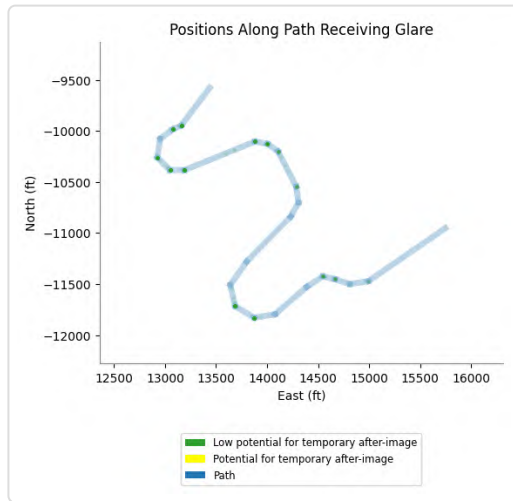
Yellow glare: none

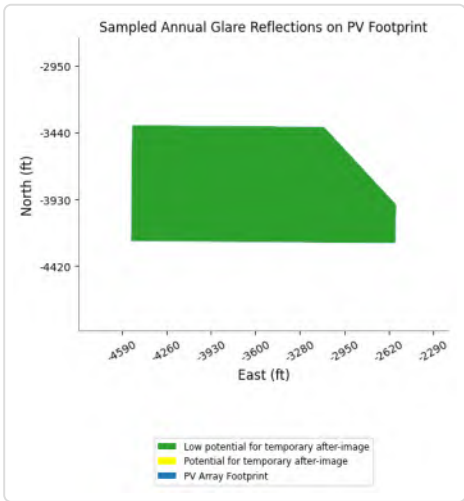
Green glare: 772 min.







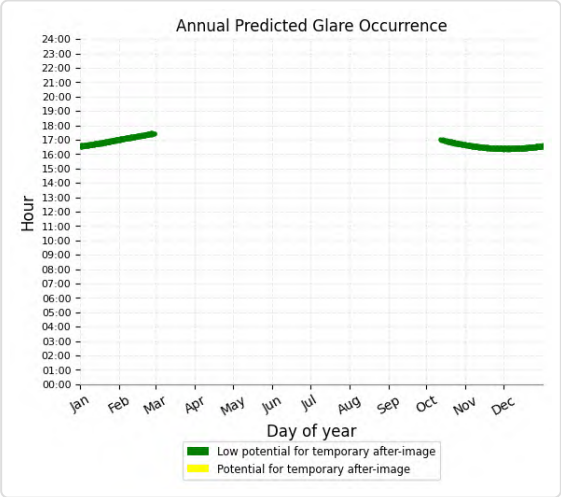


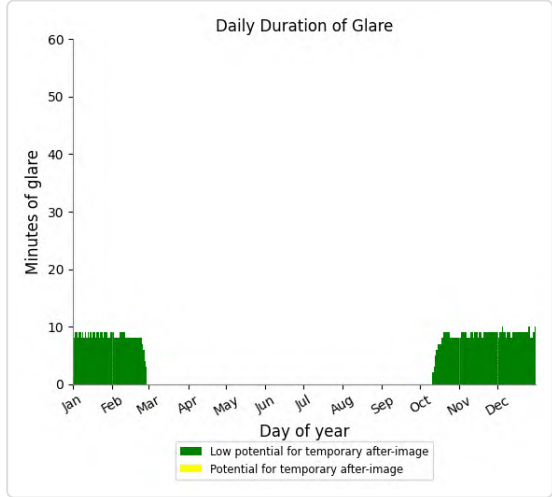


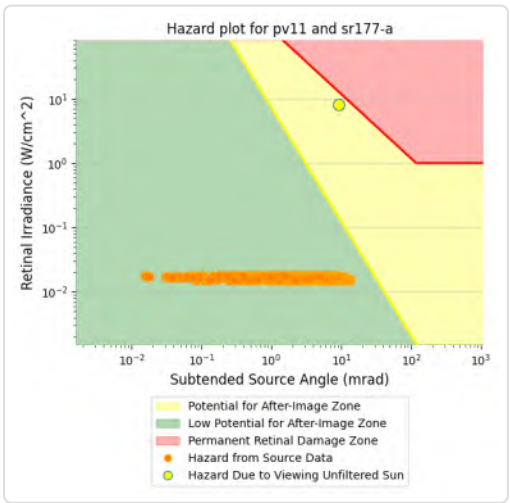
PV11 and Route: SR177 A

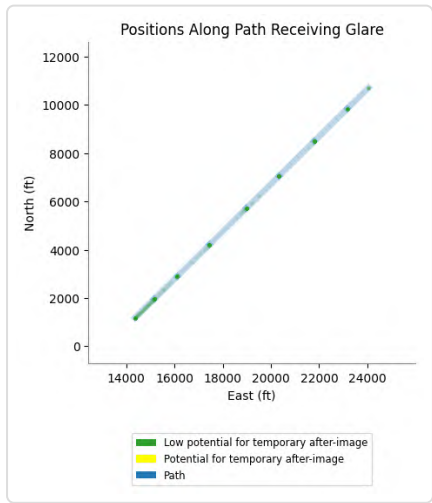
Yellow glare: none

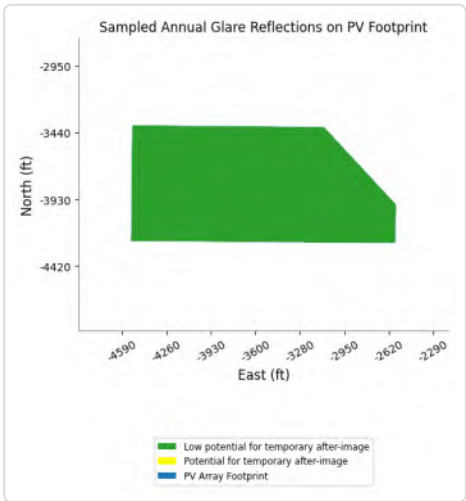
Green glare: 1,180 min.







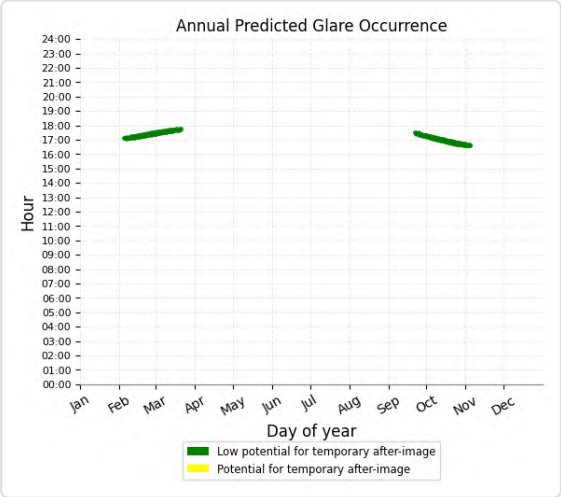


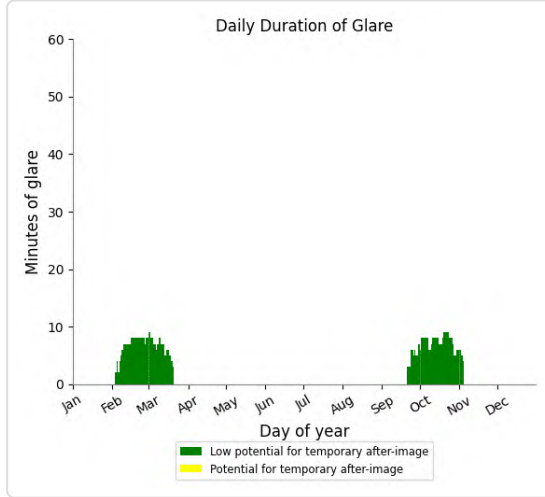


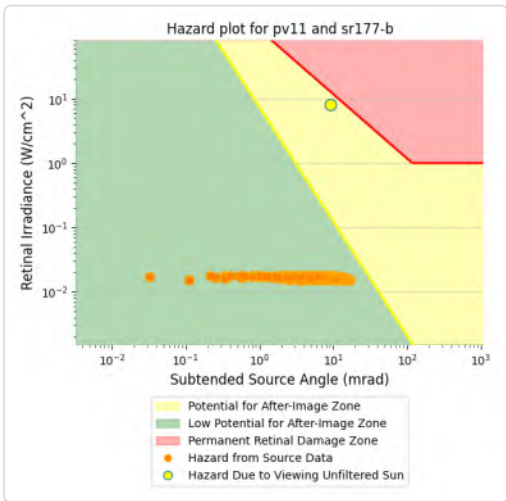
PV11 and Route: SR177 B

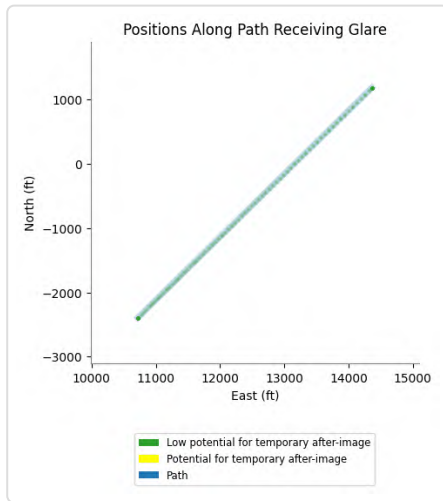
Yellow glare: none

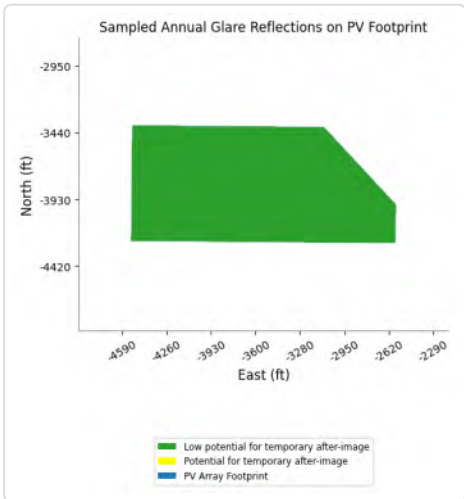
Green glare: 609 min.







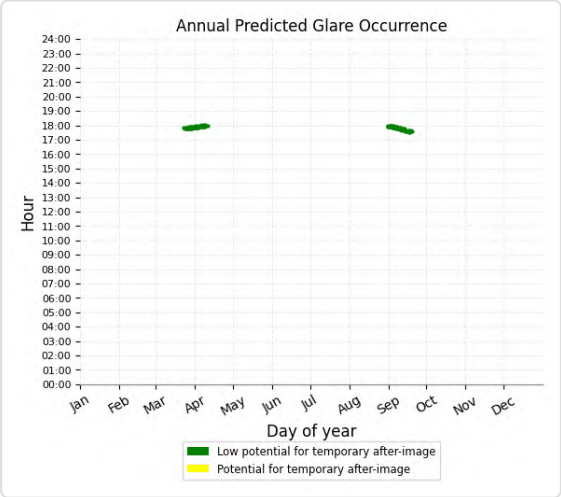


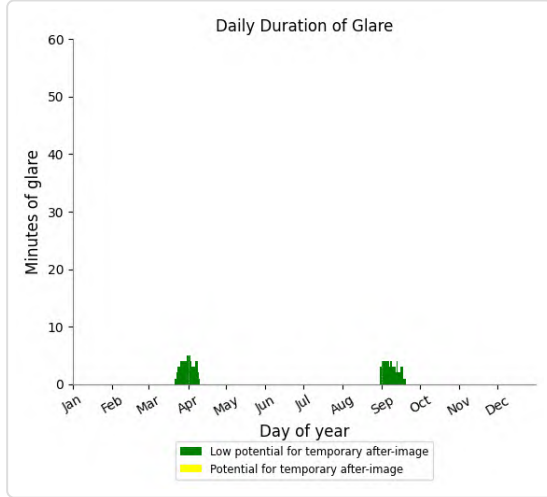


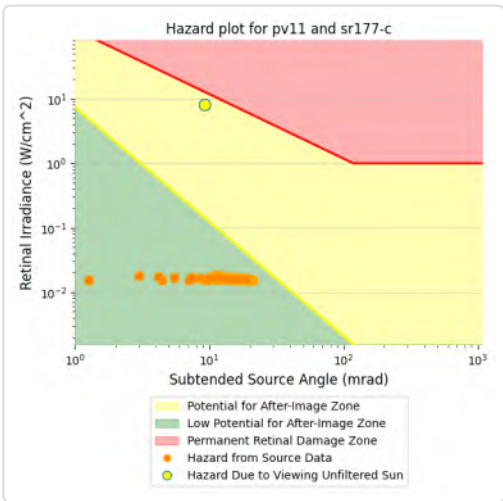
PV11 and Route: SR177 C

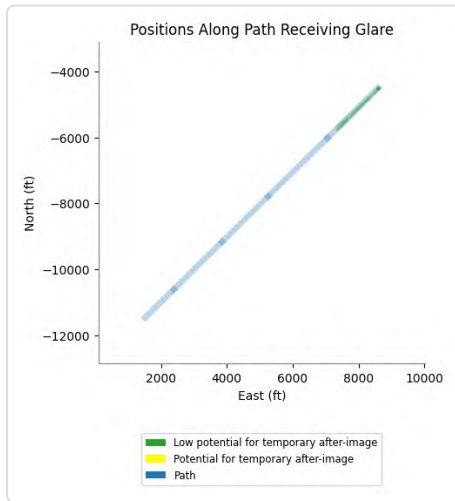
Yellow glare: none

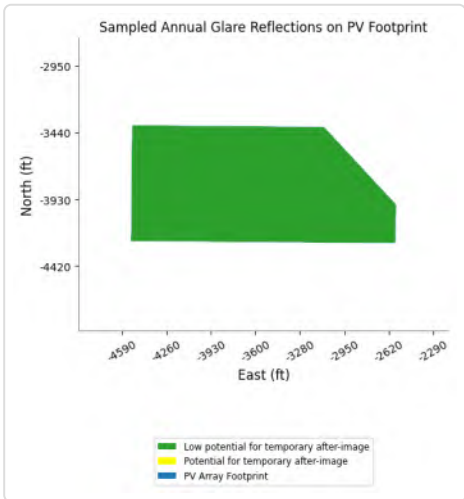
Green glare: 129 min.











PV11 and Route: EagleMtnRd A

No glare found

PV11 and Route: EagleMtnRd B

No glare found

PV11 and Route: I-10 EB A

No glare found

PV11 and Route: I-10 EB B

No glare found

PV11 and Route: I-10 EB C

No glare found

PV11 and Route: I-10 WB A

No glare found

PV11 and Route: I-10 WB B

No glare found

PV11 and Route: I-10 WB C

No glare found

PV11 and Route: KaiserRd A

No glare found

PV11 and Route: KaiserRd B

No glare found

PV11 and Route: KaiserRd C

No glare found

PV11 and Route: OasisRd

No glare found

PV11 and Route: SR177 D

No glare found

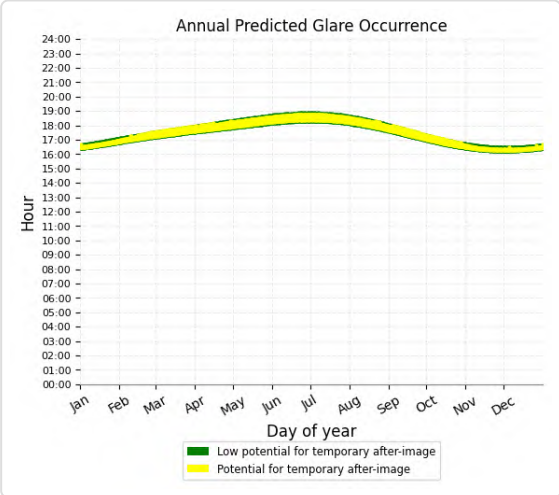
PV11 and Route: SR177 E

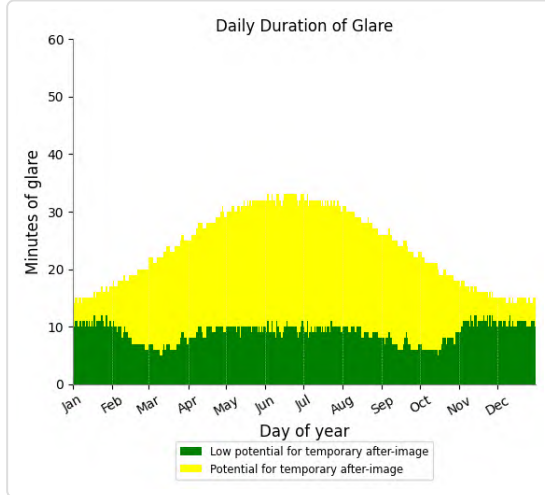
No glare found

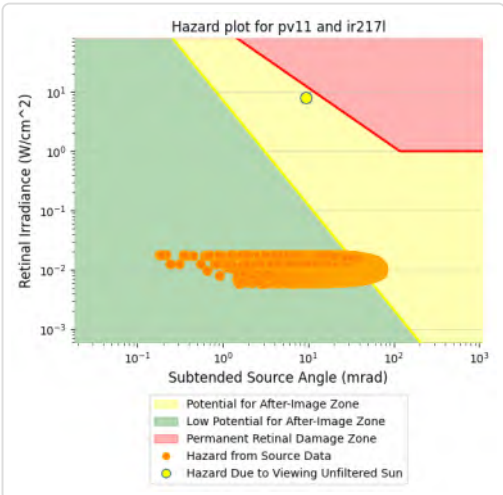
PV11 and FP: IR217l

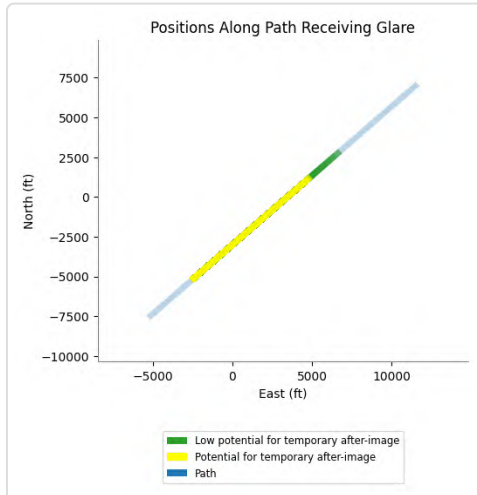
Yellow glare: 5,373 min.

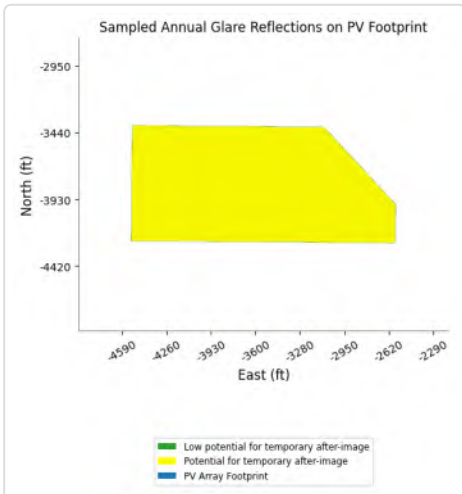
Green glare: 3,308 min.

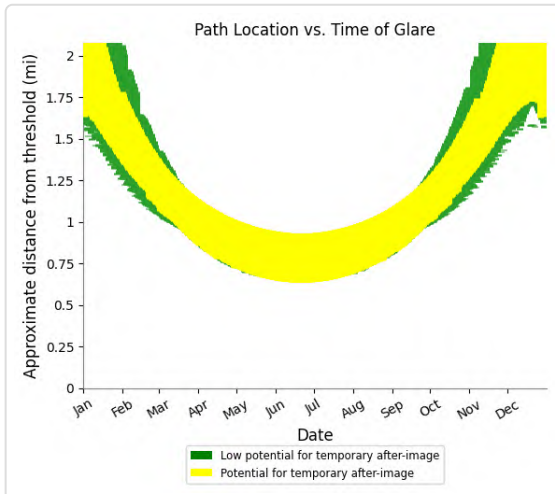








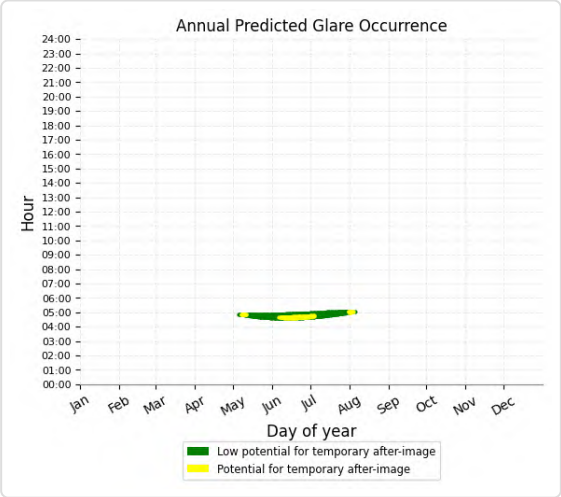


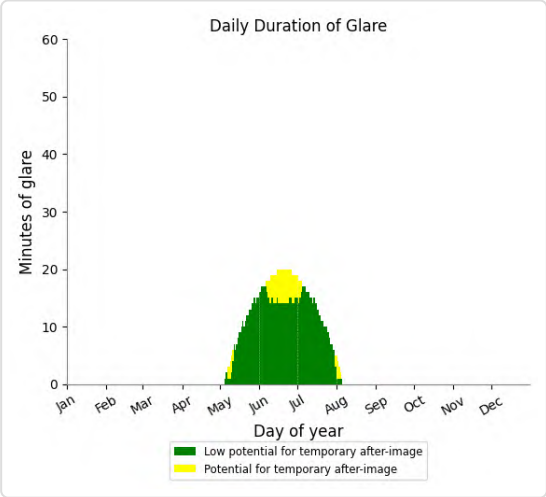


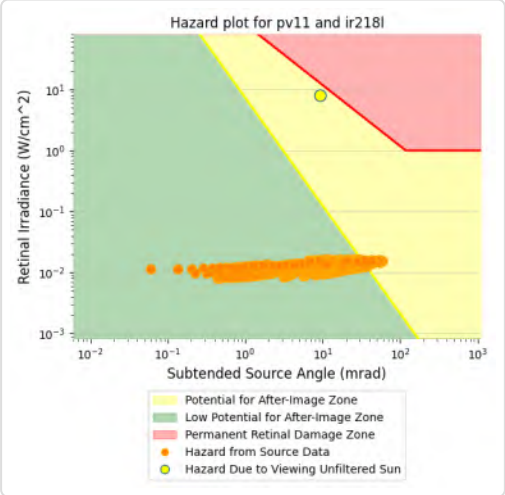
PV11 and FP: IR218l

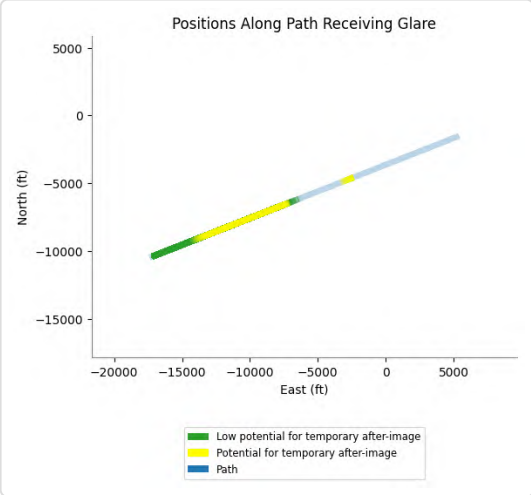
Yellow glare: 158 min.

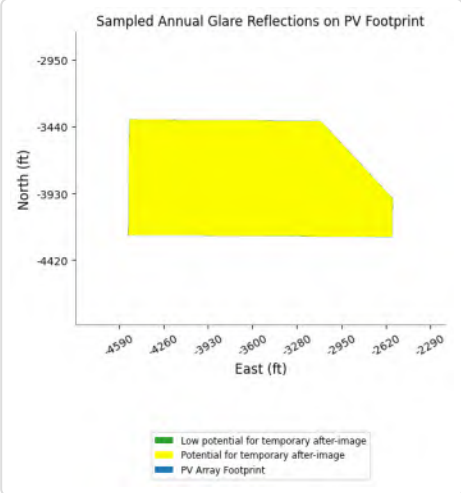
Green glare: 1,068 min.

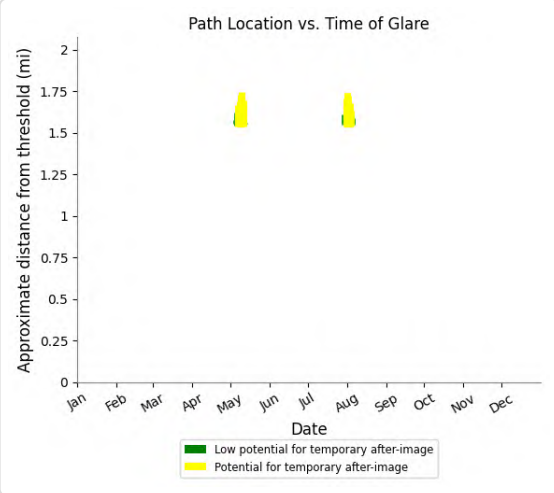








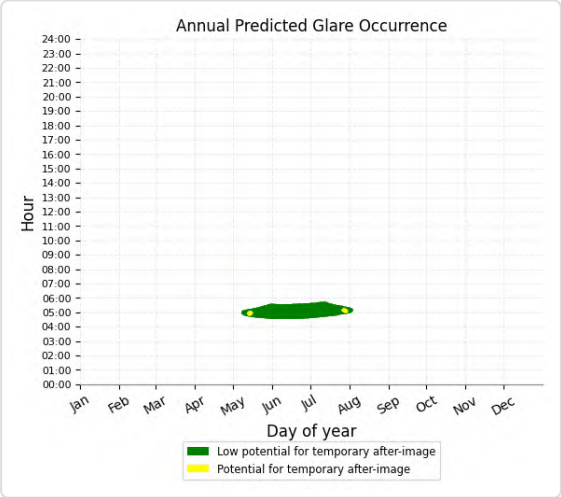


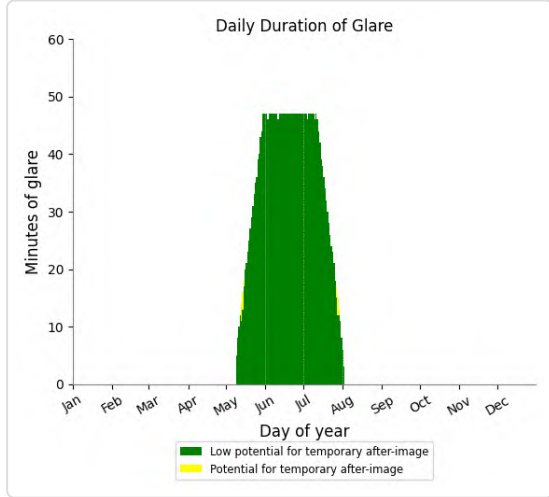


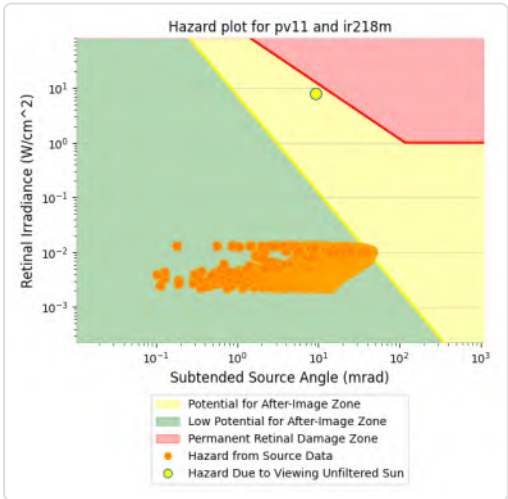
PV11 and FP: IR218m

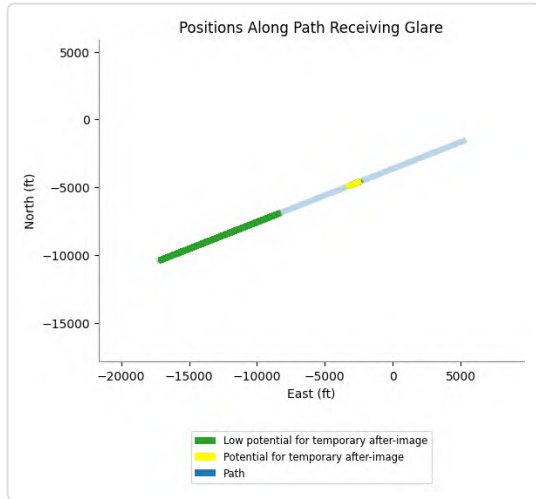
Yellow glare: 13 min.

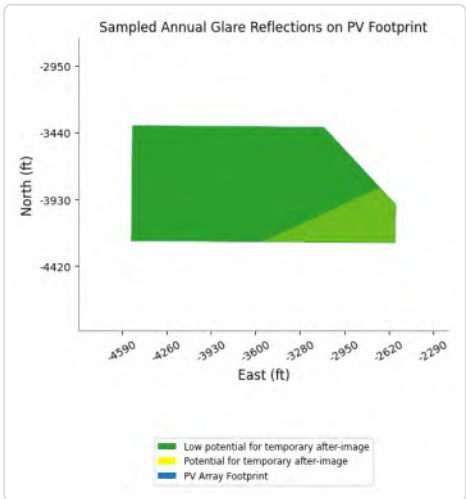
Green glare: 3,087 min.

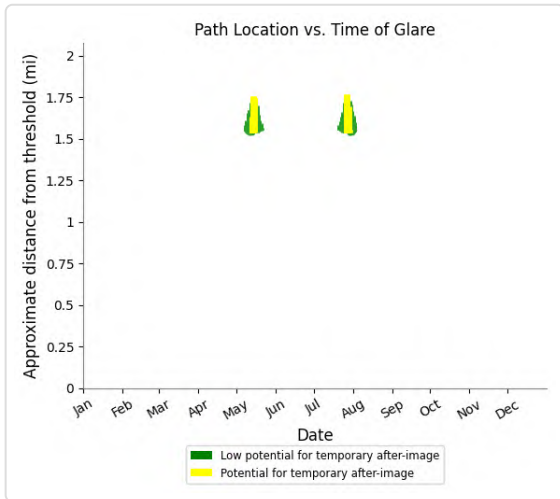








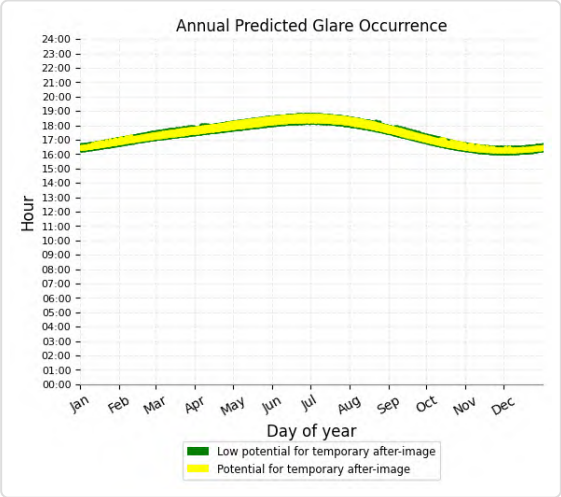


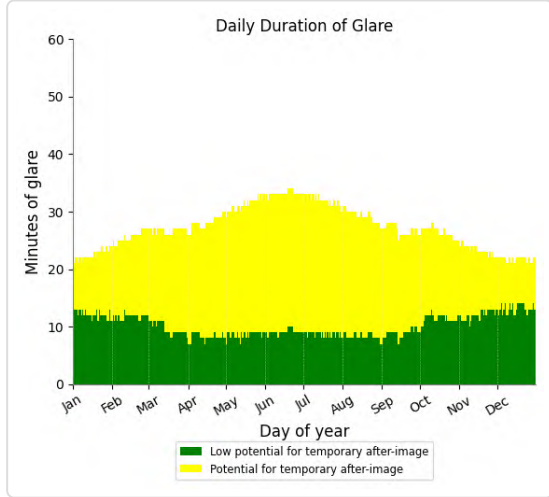


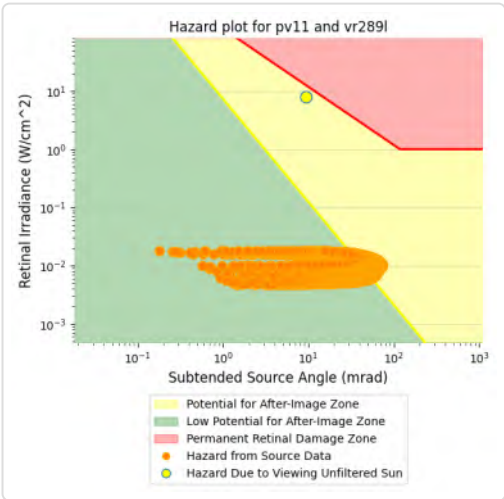
PV11 and FP: VR289I

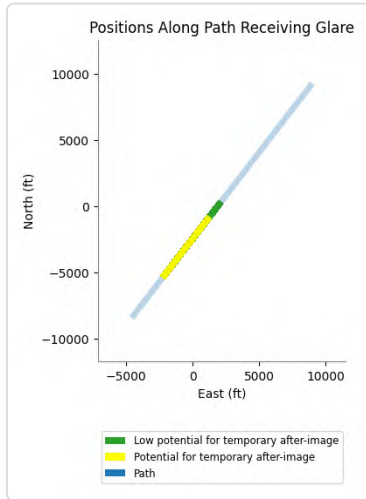
Yellow glare: 6,254 min.

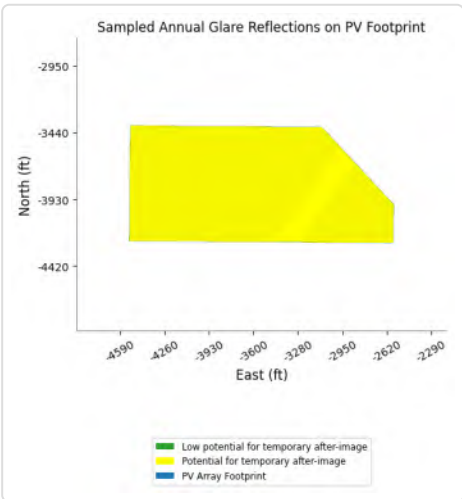
Green glare: 3,712 min.

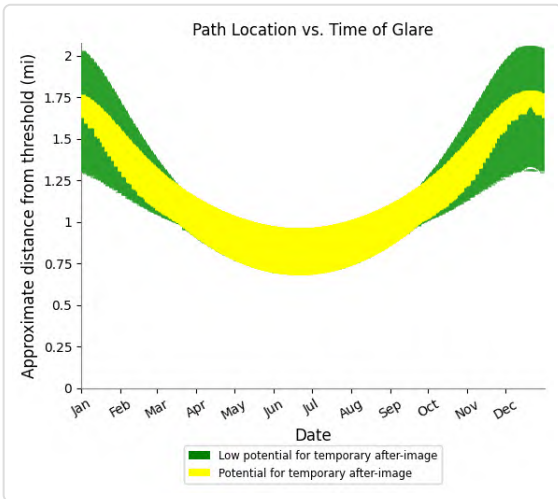








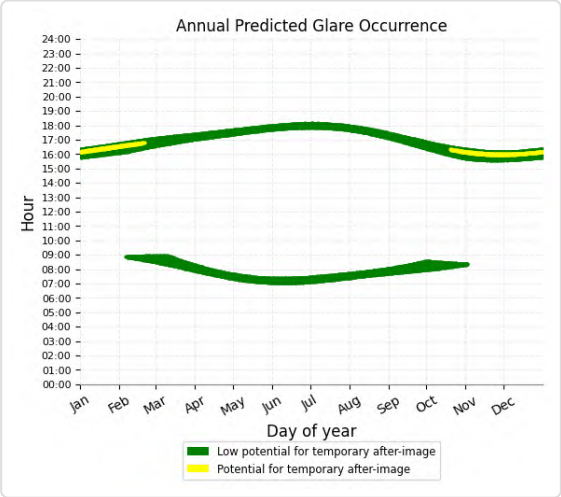


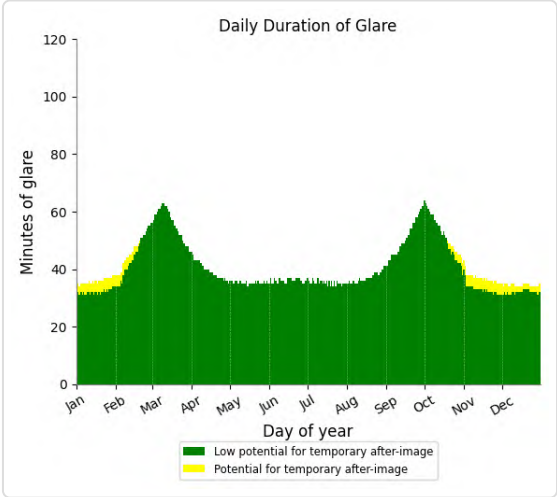


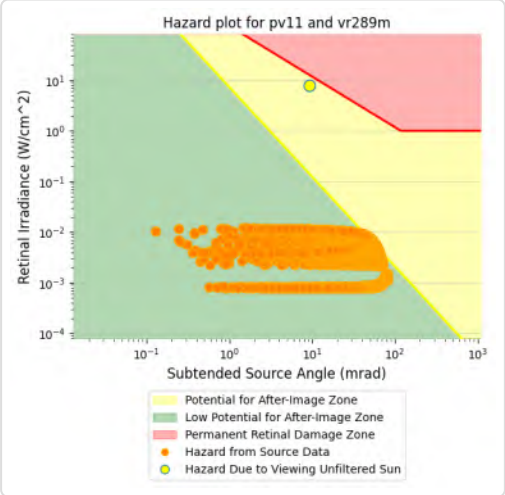
PV11 and FP: VR289m

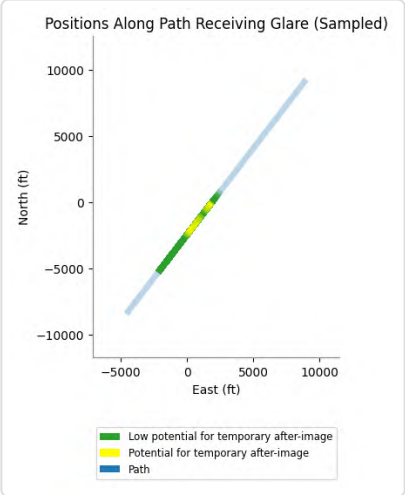
Yellow glare: 412 min.

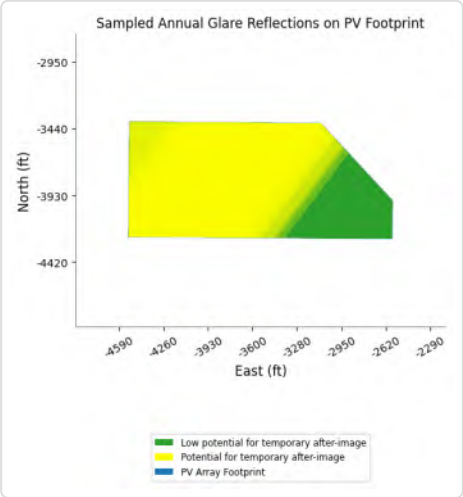
Green glare: 14,717 min.

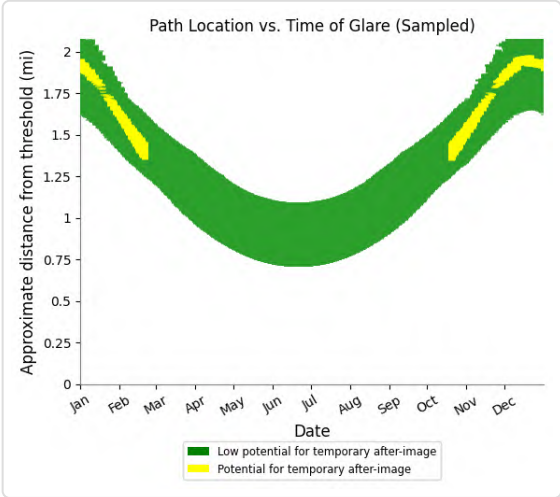








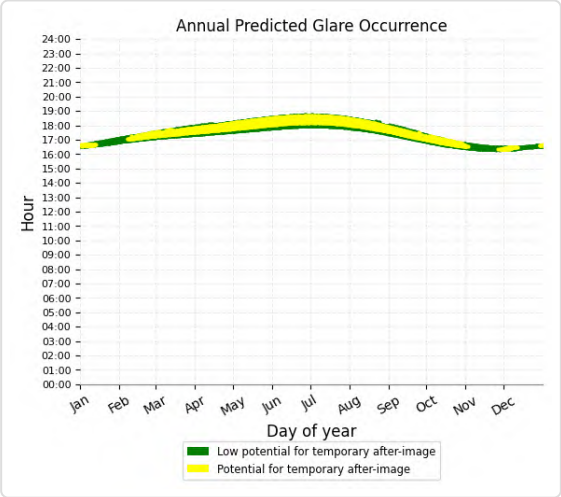


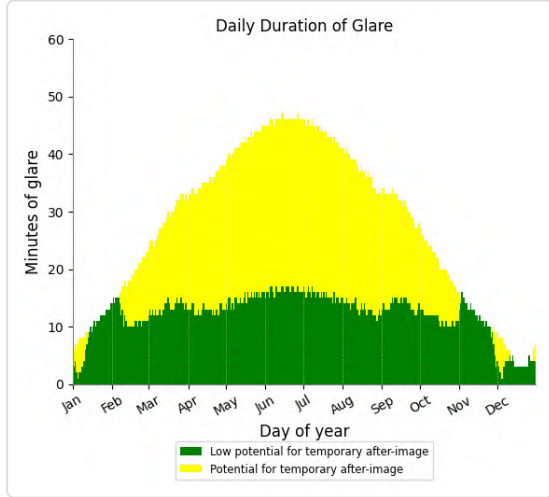


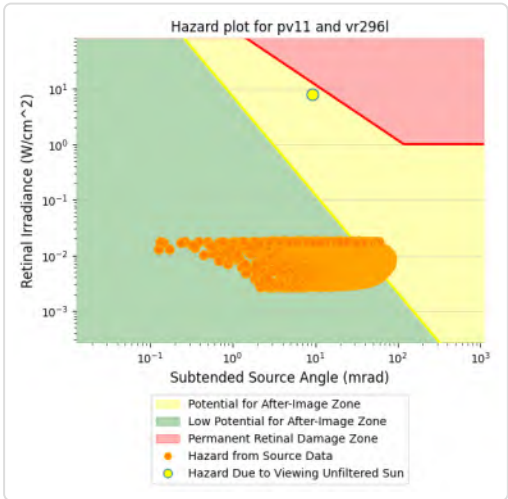
PV11 and FP: VR296l

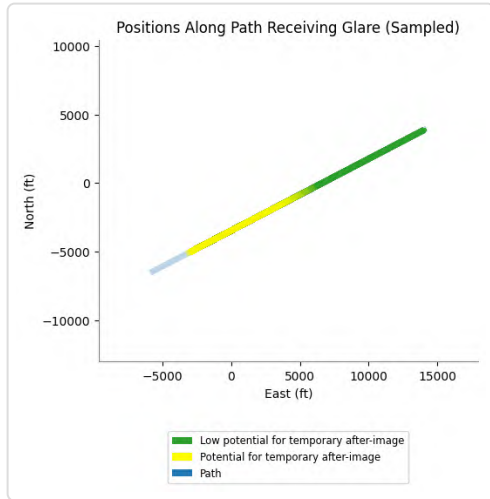
Yellow glare: 5,661 min.

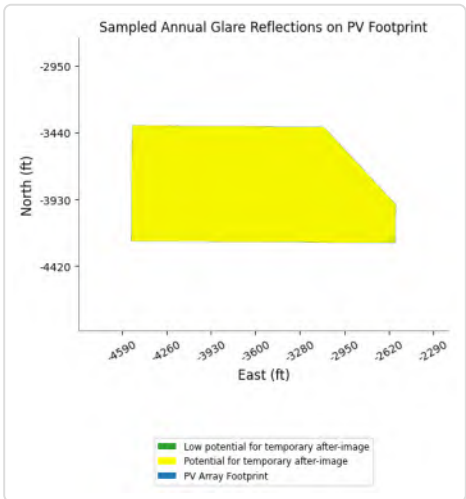
Green glare: 4,448 min.

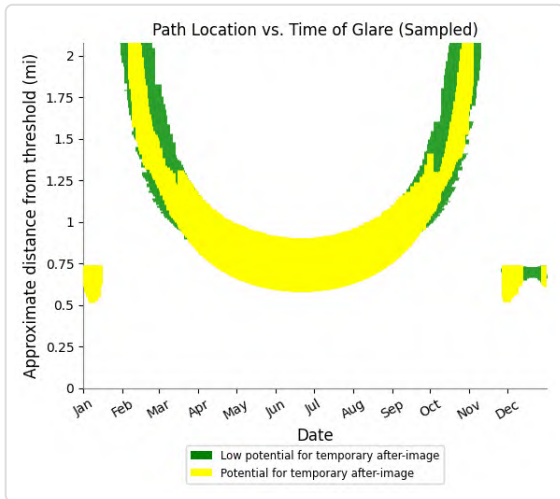








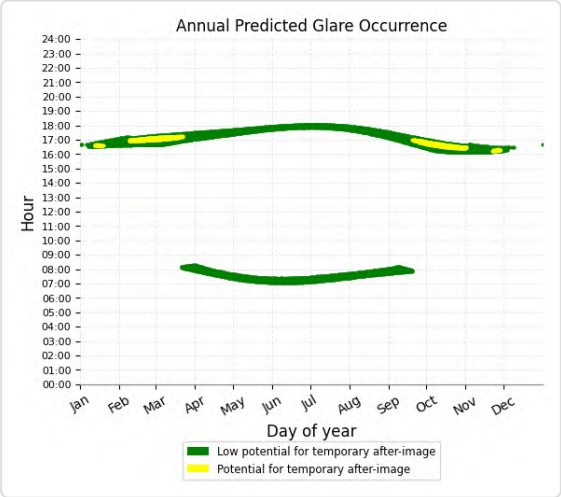


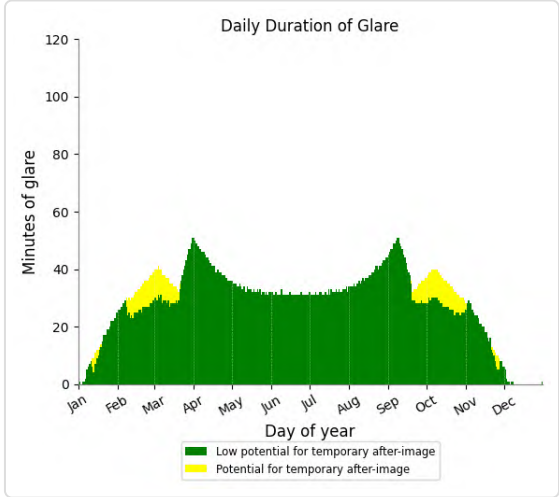


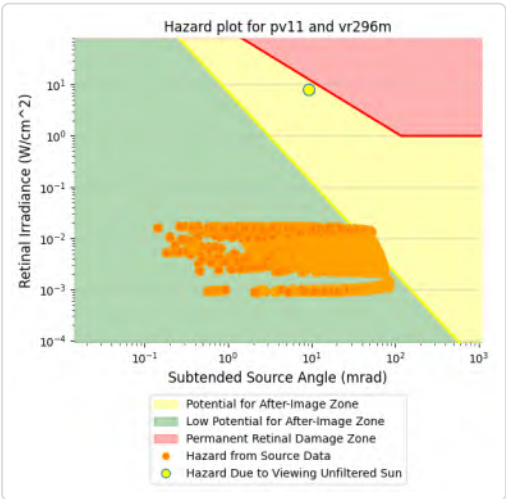
PV11 and FP: VR296m

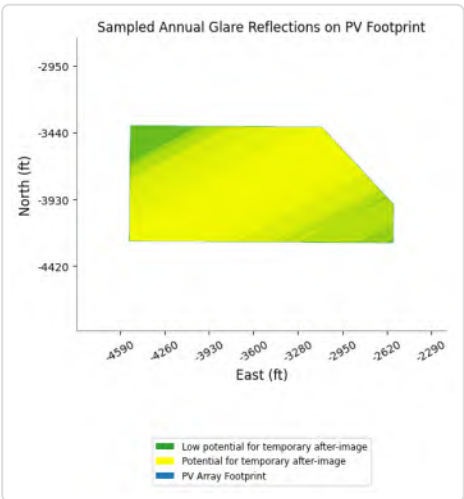
Yellow glare: 702 min.

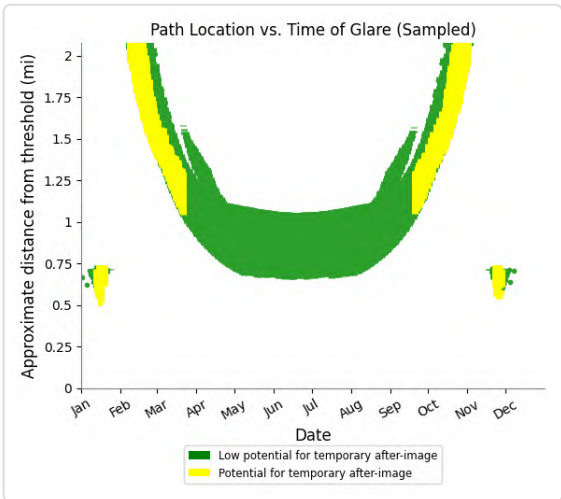
Green glare: 10,105 min.







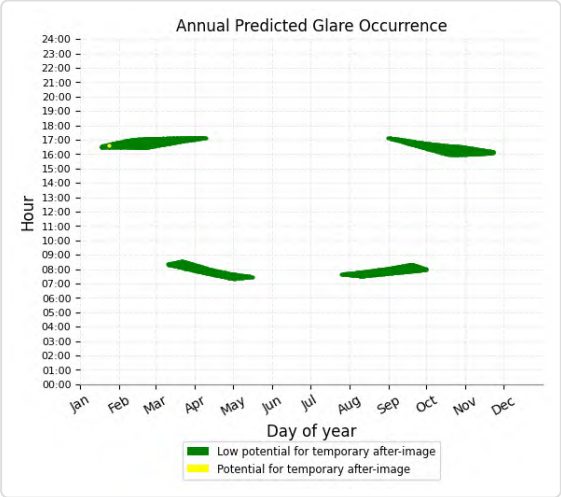


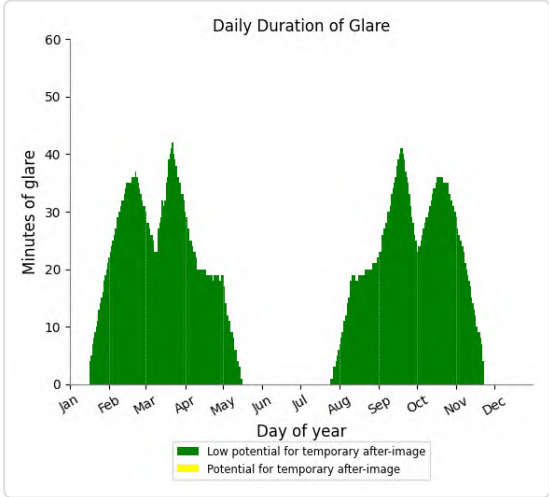


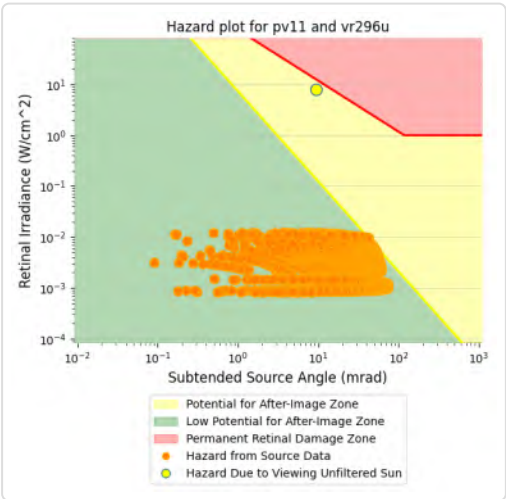
PV11 and FP: VR296u

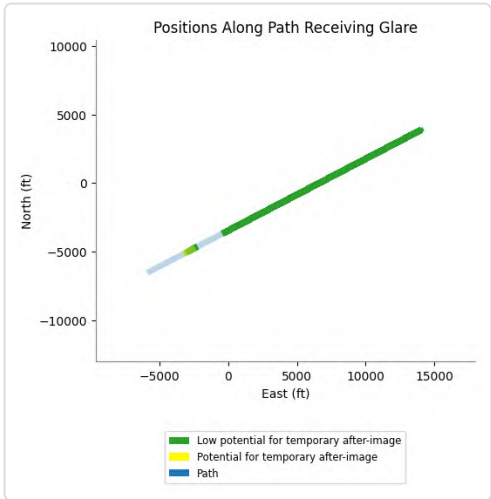
Yellow glare: 1 min.

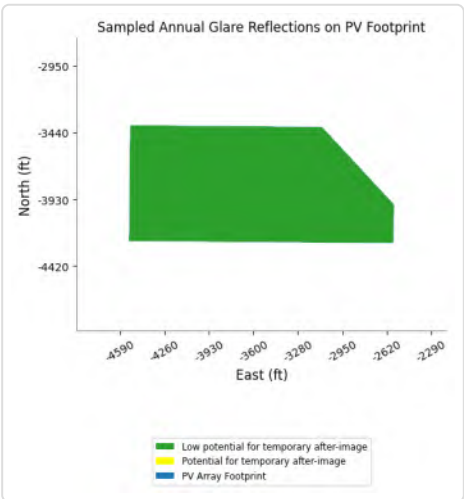
Green glare: 5,749 min.

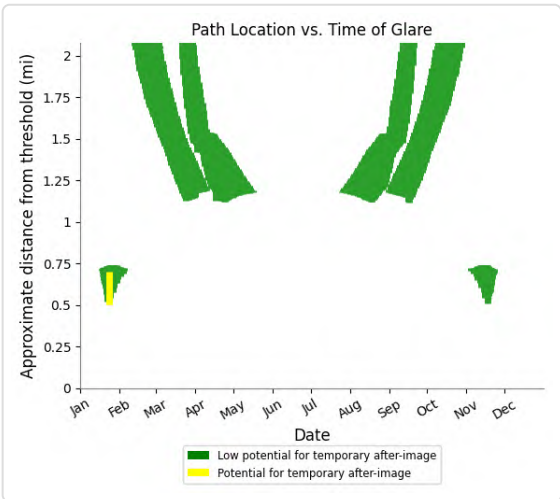








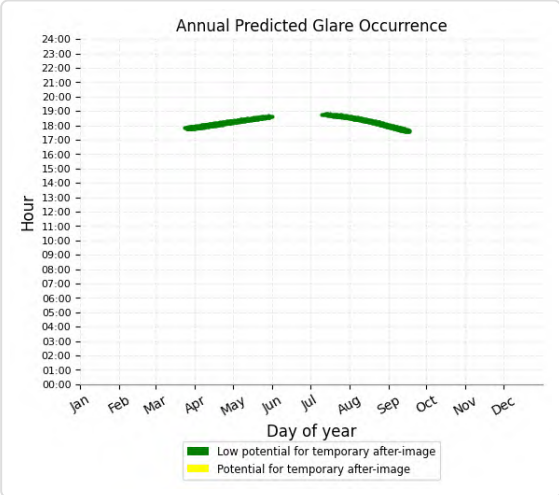


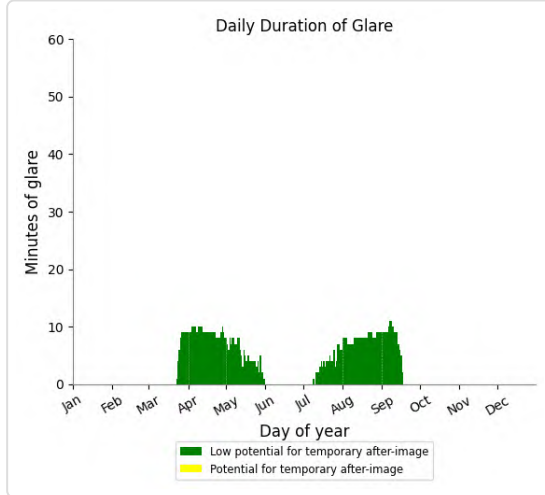


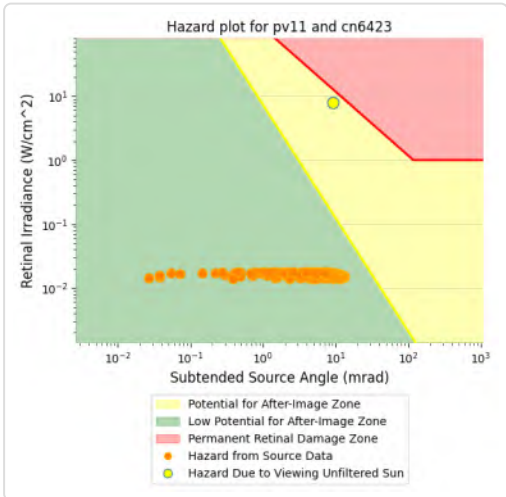
PV11 and FP: CN6423

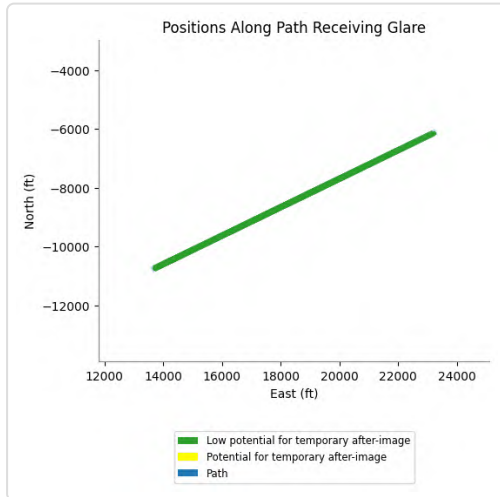
Yellow glare: none

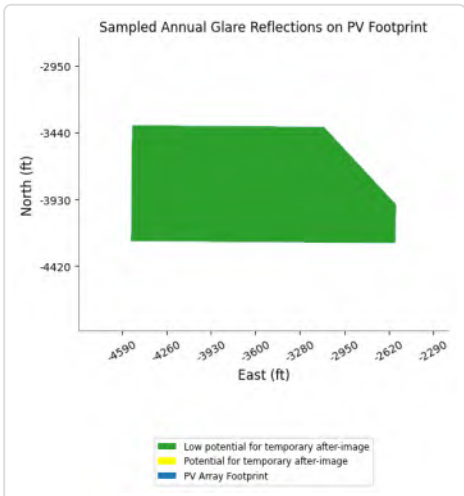
Green glare: 981 min.

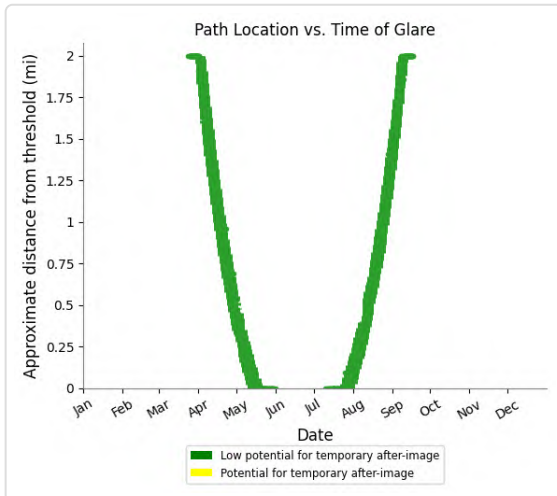








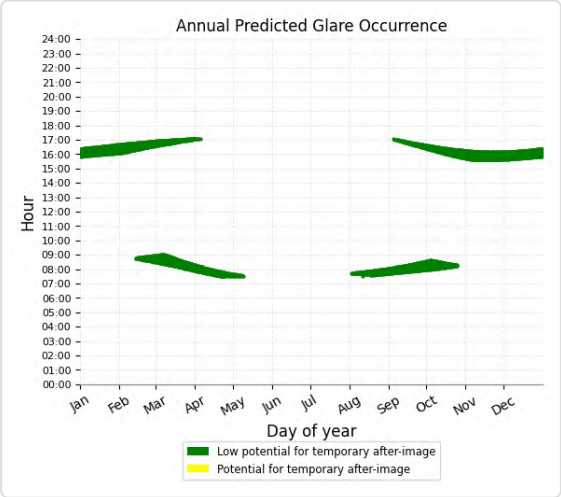


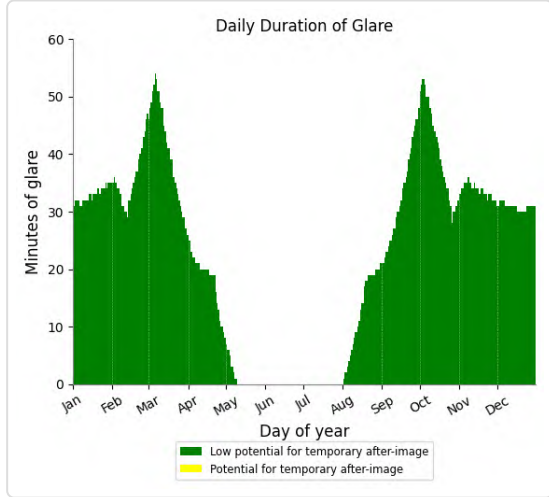


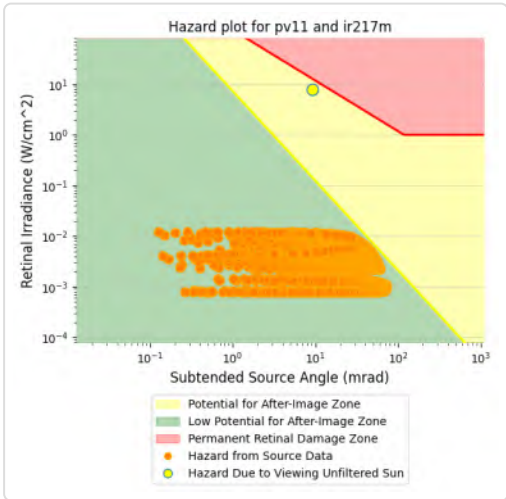
PV11 and FP: IR217m

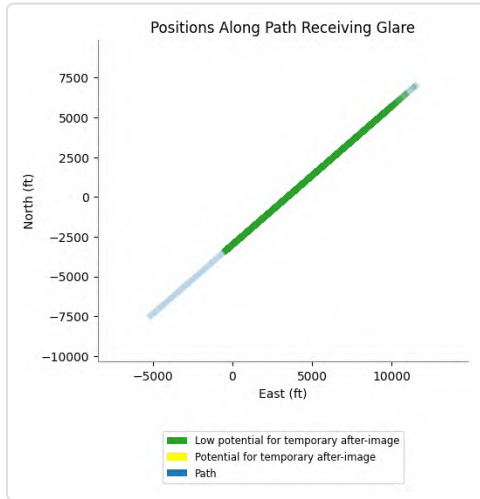
Yellow glare: none

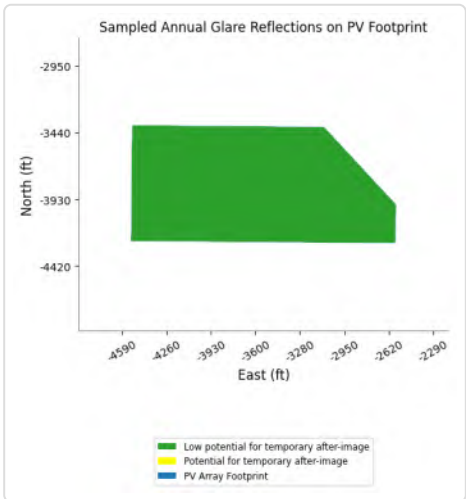
Green glare: 8,516 min.

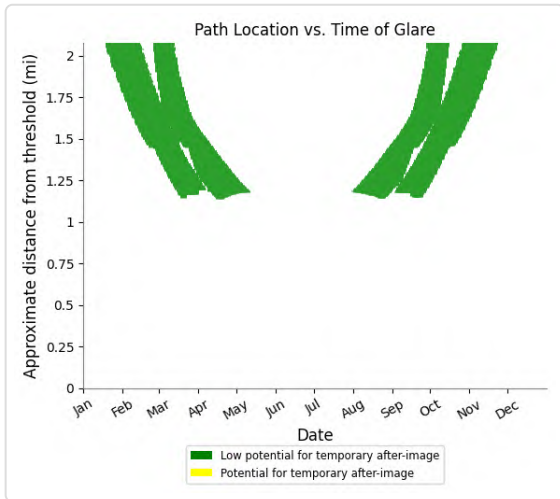








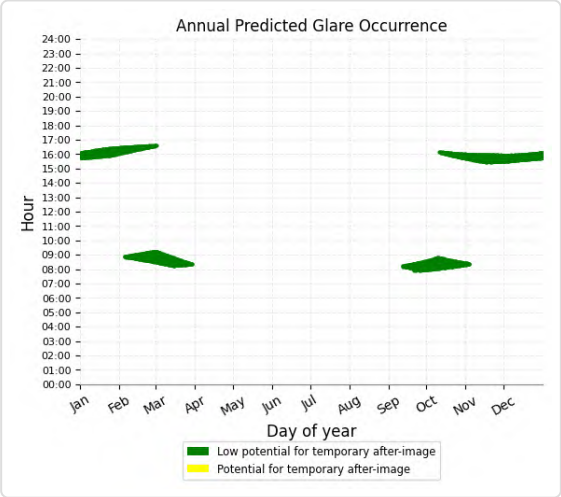


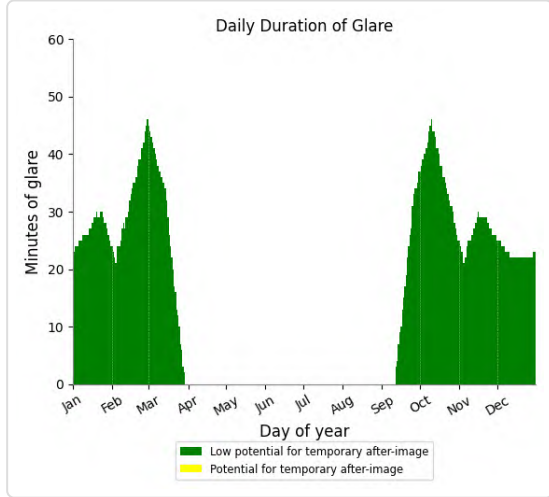


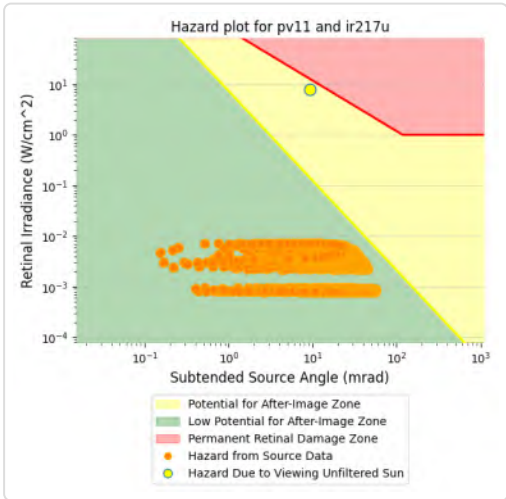
PV11 and FP: IR217u

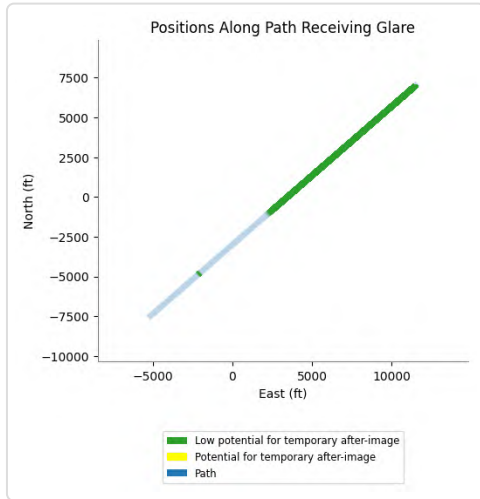
Yellow glare: none

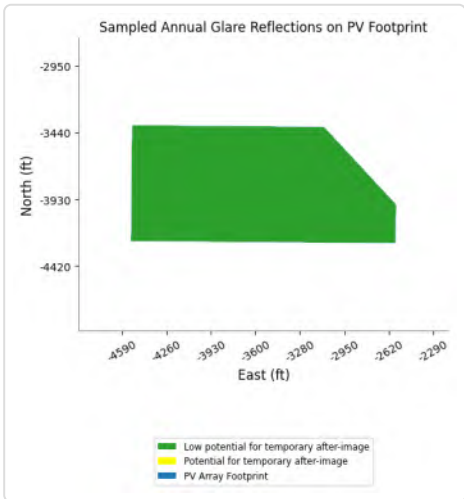
Green glare: 5,587 min.

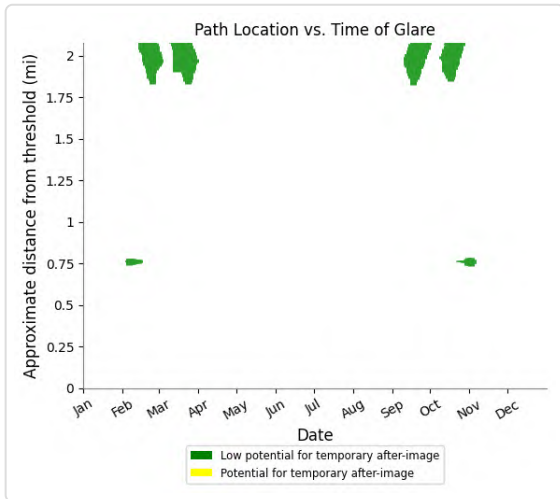








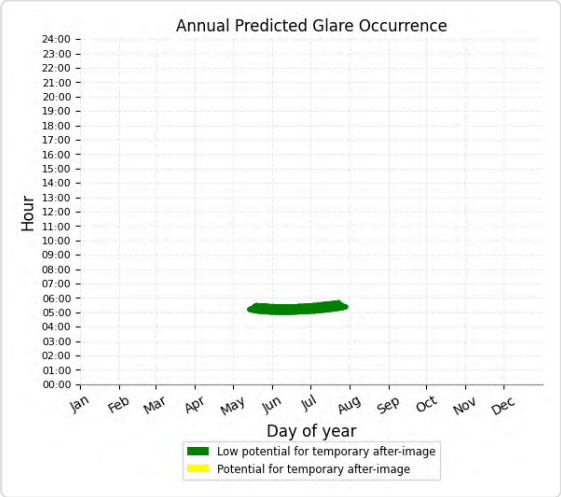


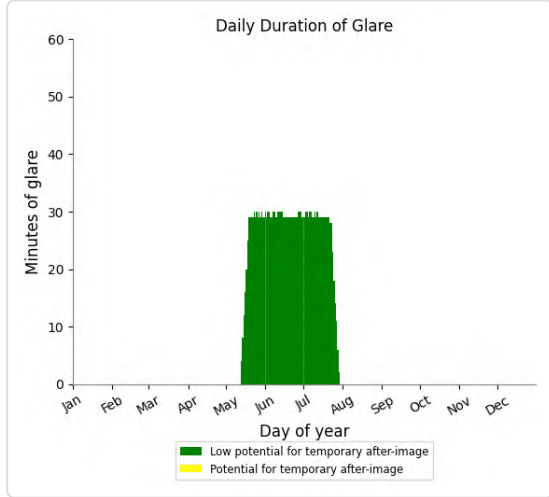


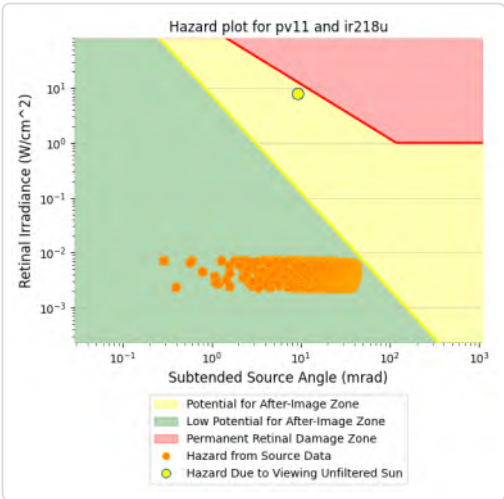
PV11 and FP: IR218u

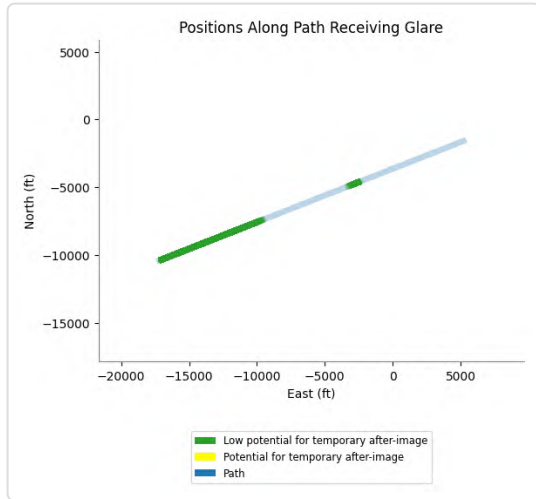
Yellow glare: none

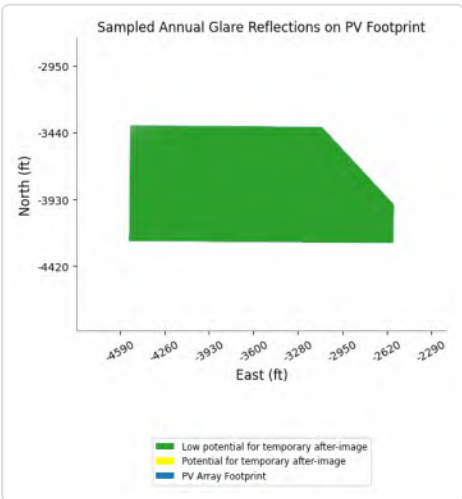
Green glare: 2,093 min.

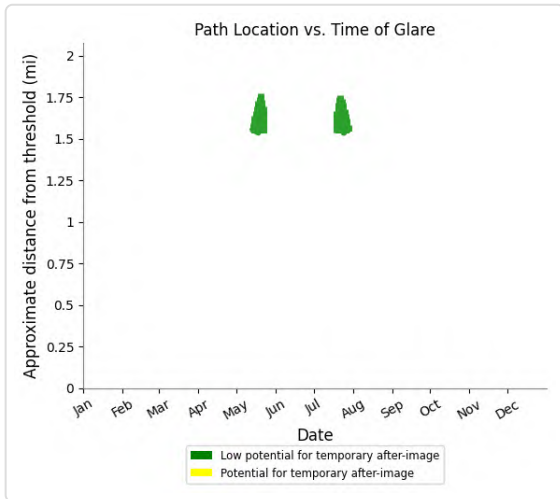








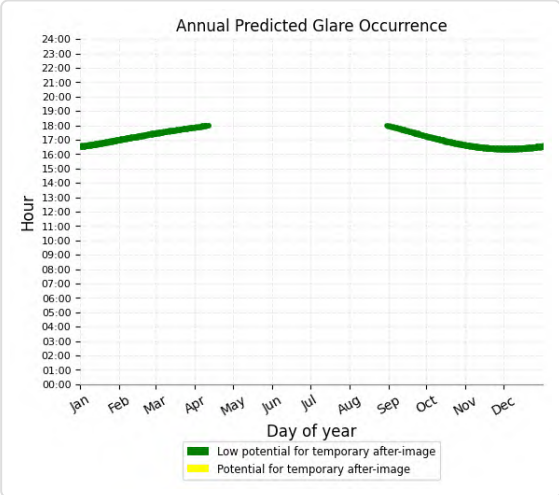


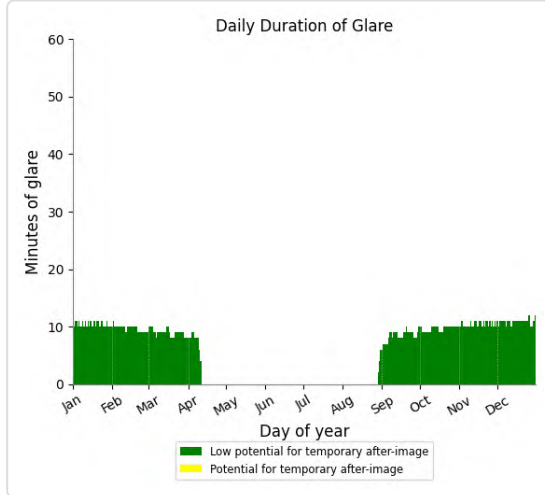


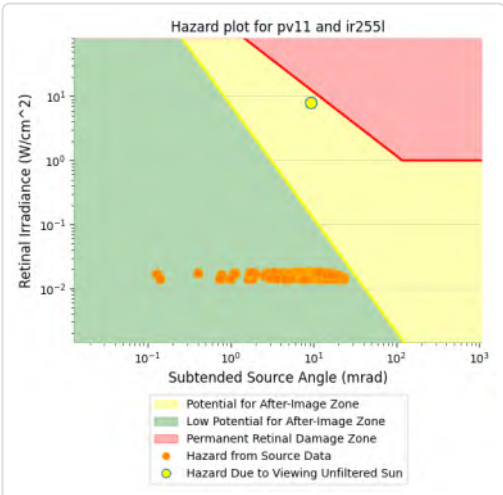
PV11 and FP: IR255I

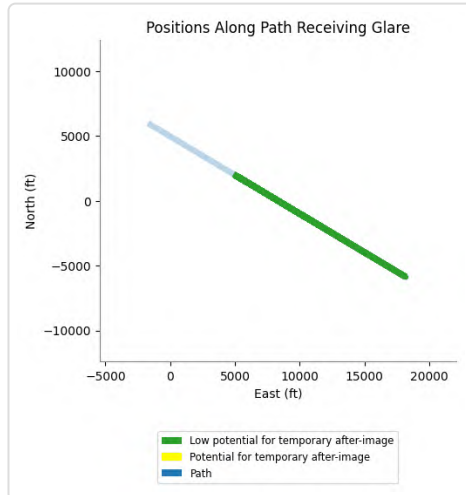
Yellow glare: none

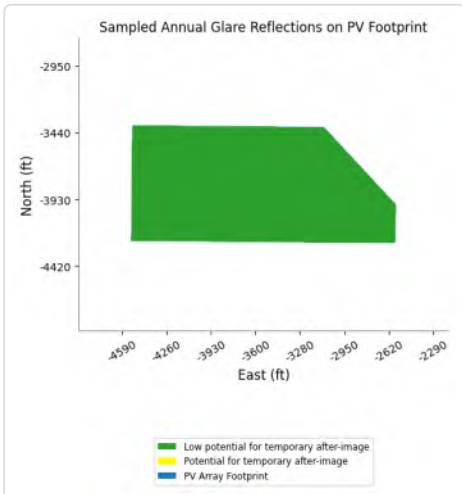
Green glare: 2,179 min.

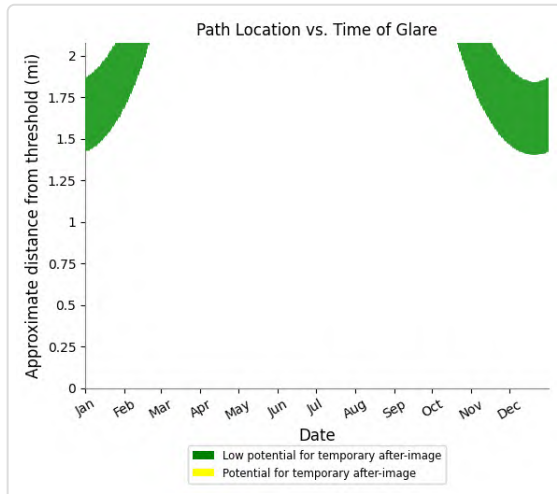








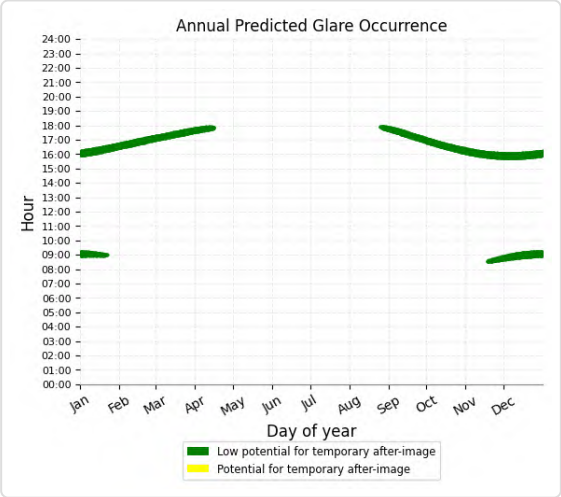


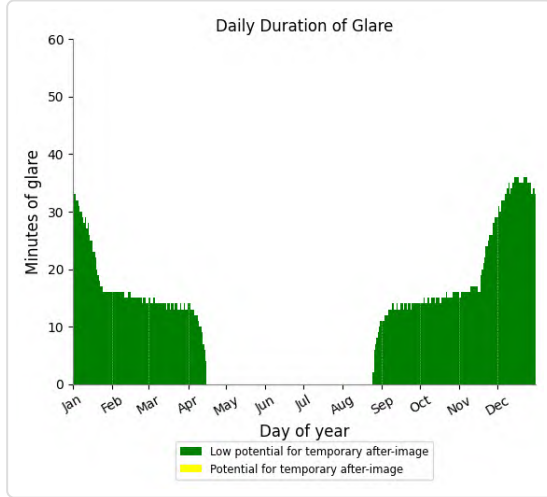


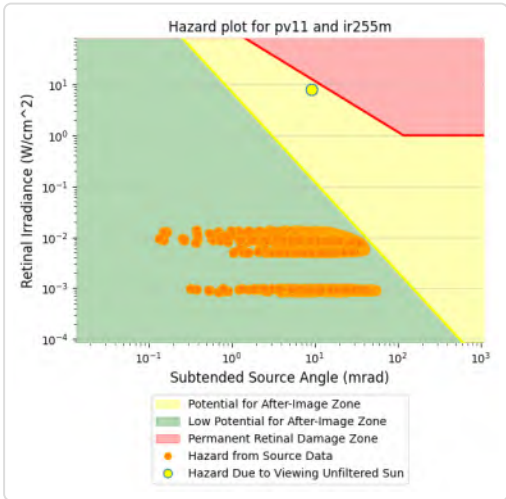
PV11 and FP: IR255m

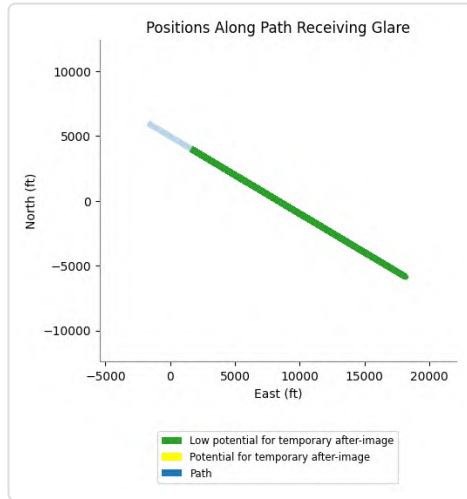
Yellow glare: none

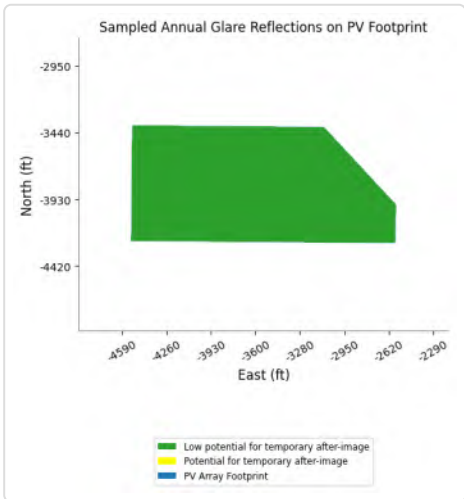
Green glare: 4,336 min.

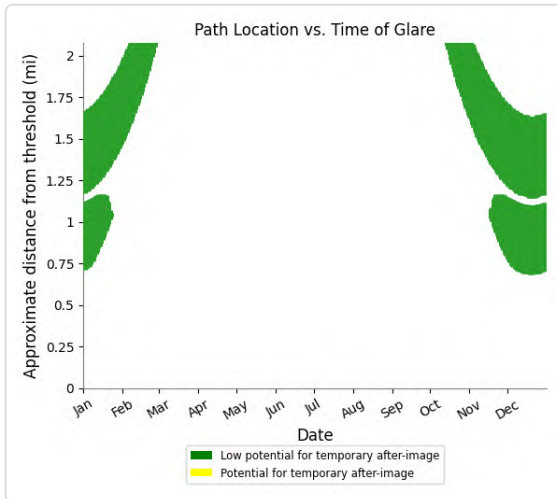








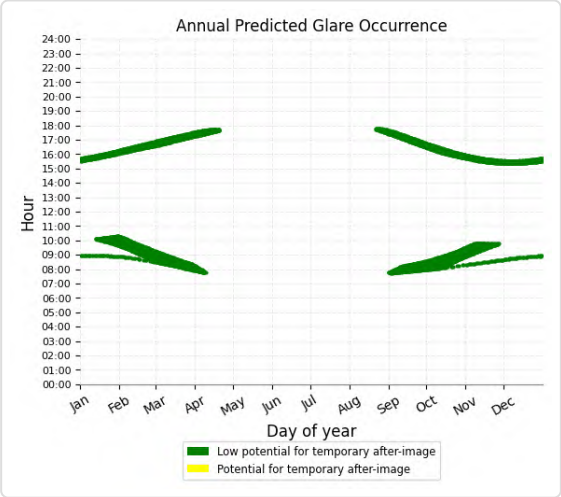


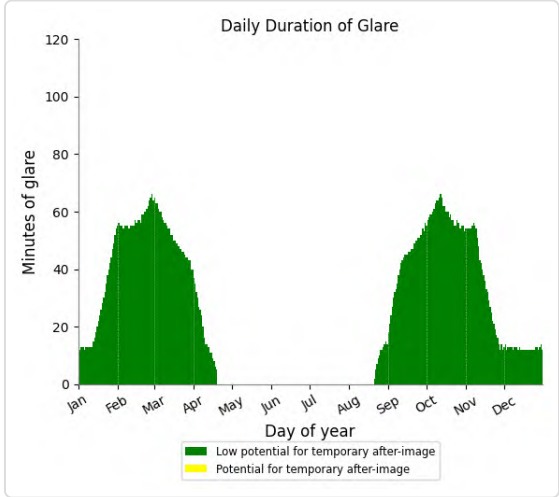


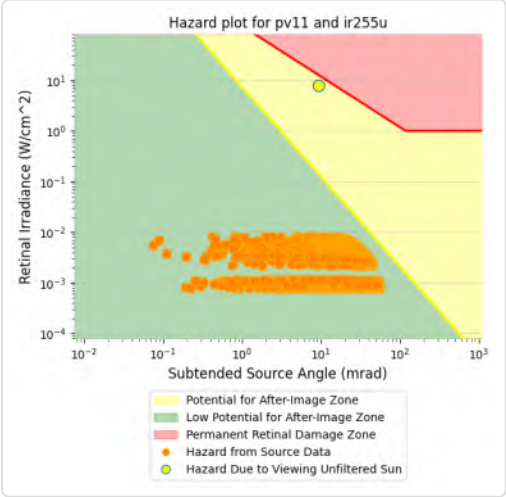
PV11 and FP: IR255u

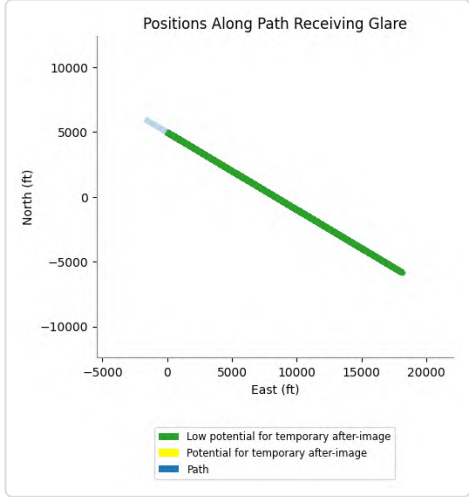
Yellow glare: none

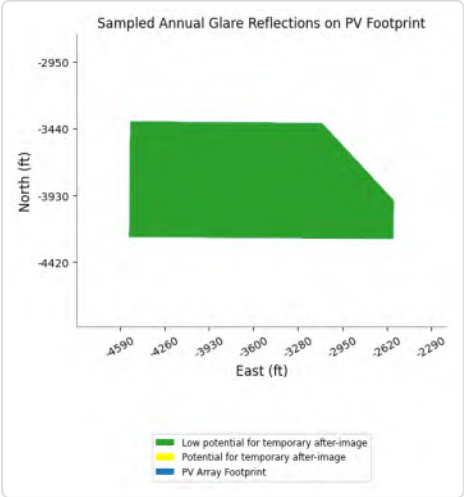
Green glare: 9,076 min.

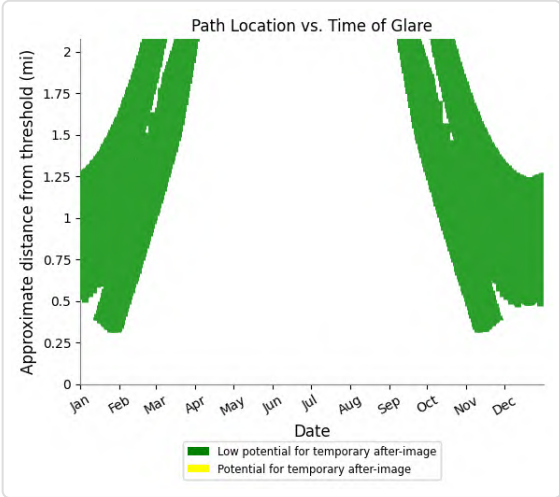








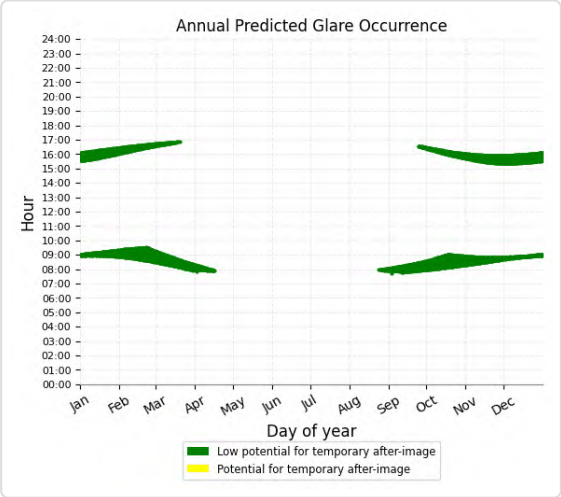


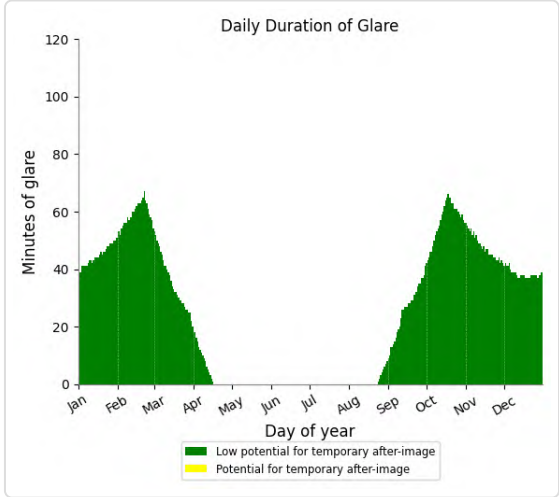


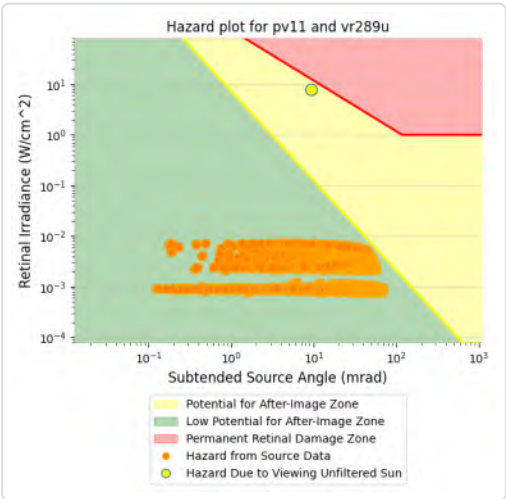
PV11 and FP: VR289u

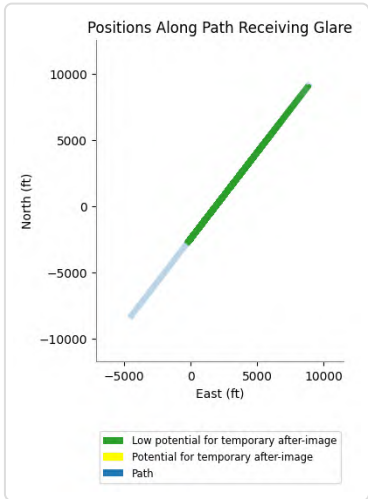
Yellow glare: none

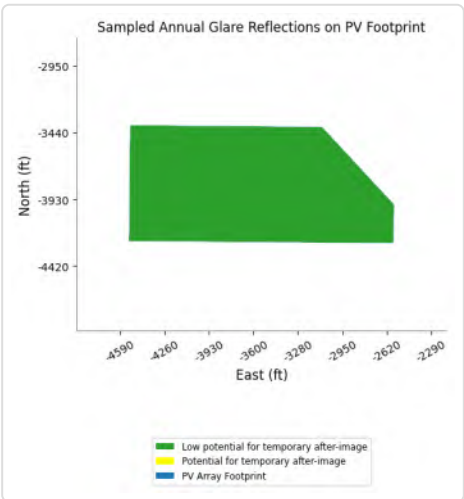
Green glare: 9,526 min.

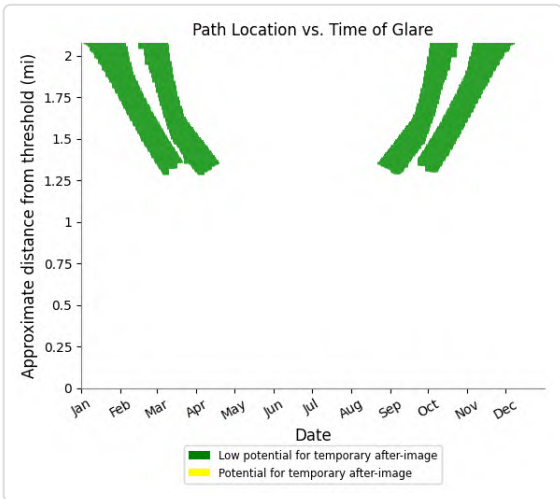










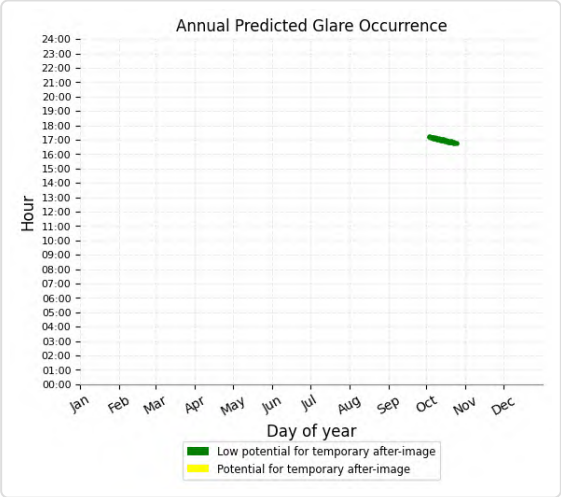


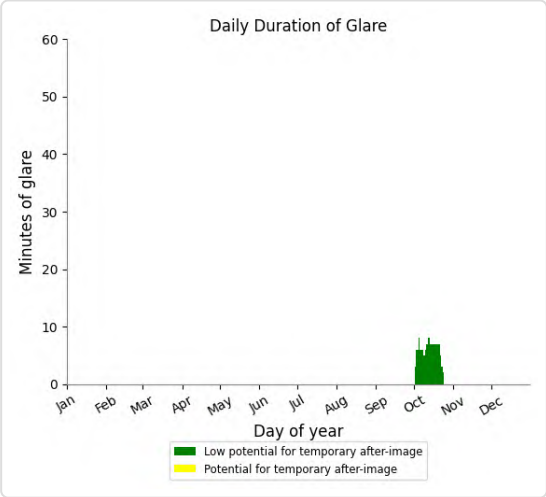
PV11 and FP: CN645

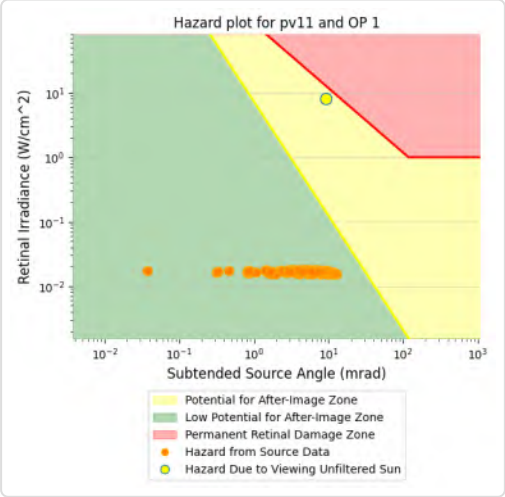
No glare found

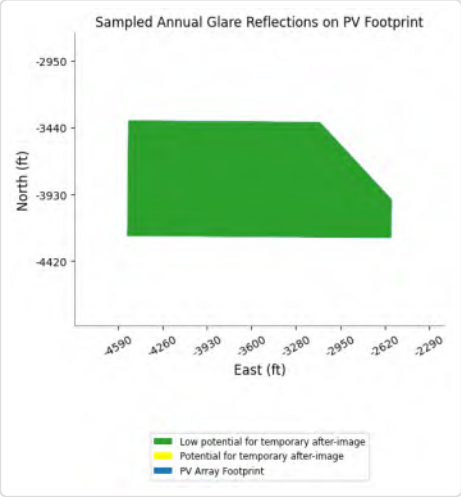
PV11 and OP 1

Yellow glare: none
Green glare: 141 min.









PV11 and OP 2

No glare found

PV11 and OP 3

No glare found

PV11 and OP 4

No glare found

PV11 and OP 5

No glare found

PV11 and OP 6

No glare found

PV11 and OP 7

No glare found

PV11 and OP 8

No glare found

PV11 and OP 9

No glare found

PV11 and OP 10

No glare found

PV11 and OP 11

No glare found

PV11 and OP 12

No glare found

PV11 and OP 13

No glare found

PV11 and OP 14

No glare found

PV11 and OP 15

No glare found

PV11 and OP 16

No glare found

PV11 and OP 17

No glare found

PV11 and OP 18

No glare found

PV11 and OP 19

No glare found

PV: PV12 potential temporary after-image

Receptor results ordered by category of glare

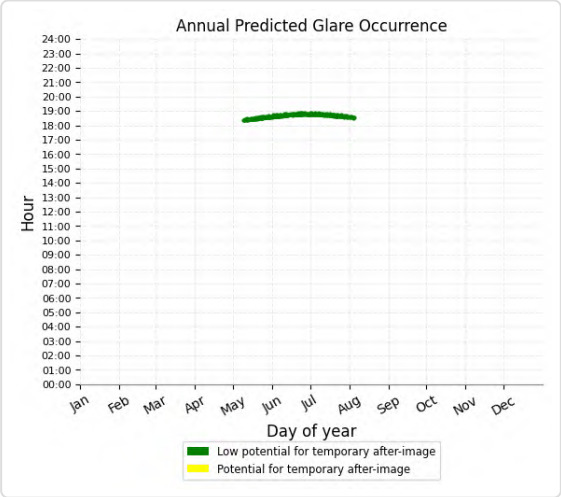
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Race Track	358	6.0	0	0.0
SR177 A	999	16.6	0	0.0
SR177 B	562	9.4	0	0.0
SR177 C	109	1.8	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	31,972	532.9	15,336	255.6
IR217m	8,744	145.7	38	0.6
IR218l	6,975	116.2	1,607	26.8
IR218m	4,164	69.4	408	6.8
VR289l	27,513	458.6	13,602	226.7
VR296l	21,712	361.9	12,683	211.4
VR296m	11,060	184.3	1,387	23.1
VR296u	5,775	96.2	268	4.5
CN6423	1,075	17.9	0	0.0
IR217u	5,756	95.9	0	0.0
IR218u	2,806	46.8	0	0.0
IR255l	2,036	33.9	0	0.0
IR255m	6,767	112.8	0	0.0
IR255u	6,006	100.1	0	0.0
VR289m	17,221	287.0	0	0.0
VR289u	10,388	173.1	0	0.0
CN645	0	0.0	0	0.0
OP 1	84	1.4	0	0.0
OP 2	98	1.6	0	0.0

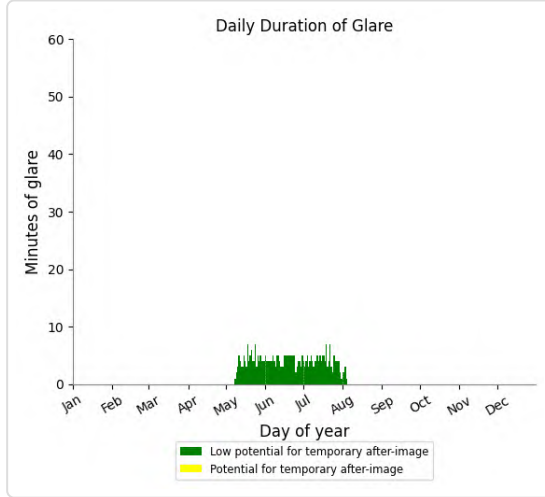
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

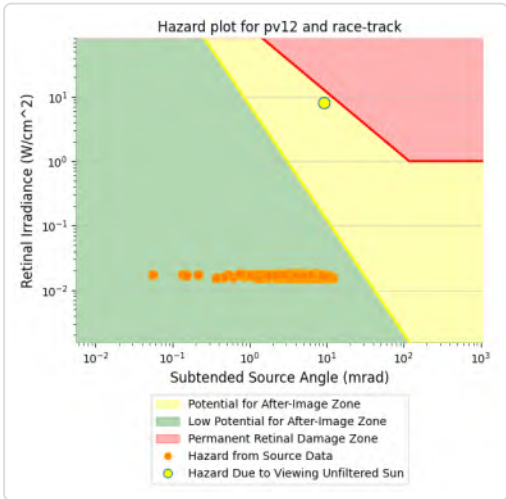
PV12 and Route: Race Track

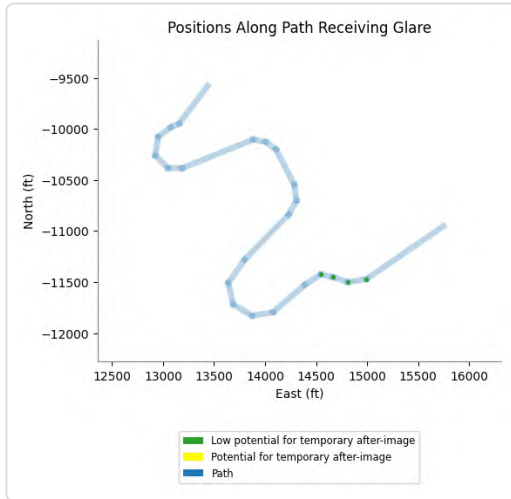
Yellow glare: none

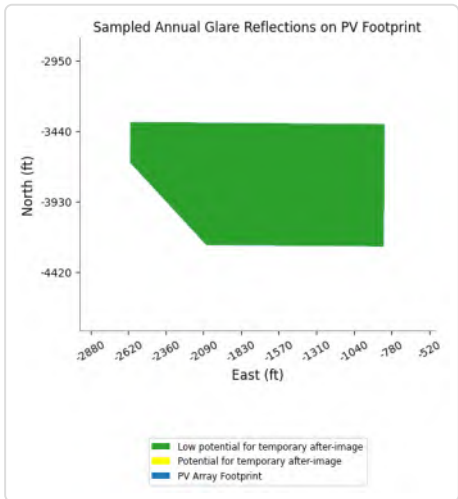
Green glare: 358 min.







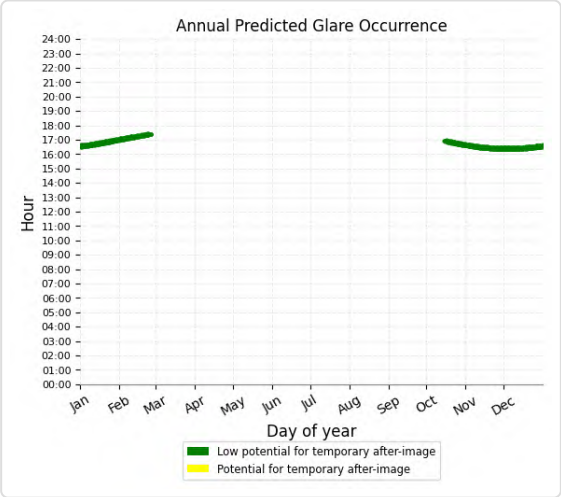


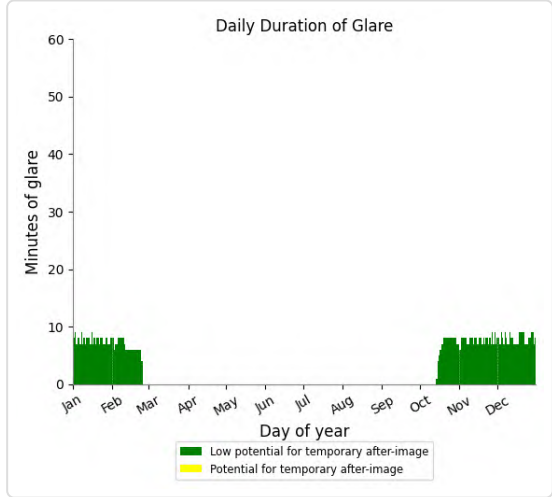


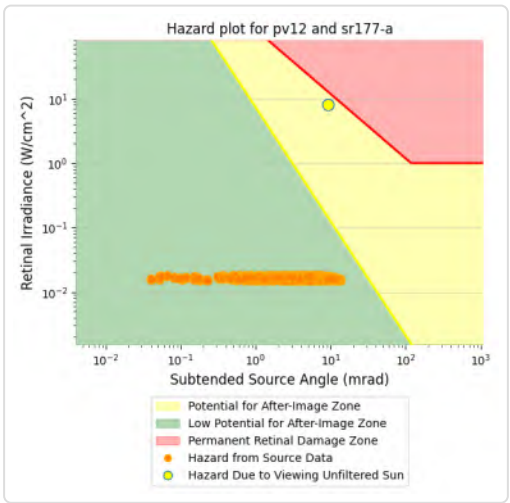
PV12 and Route: SR177 A

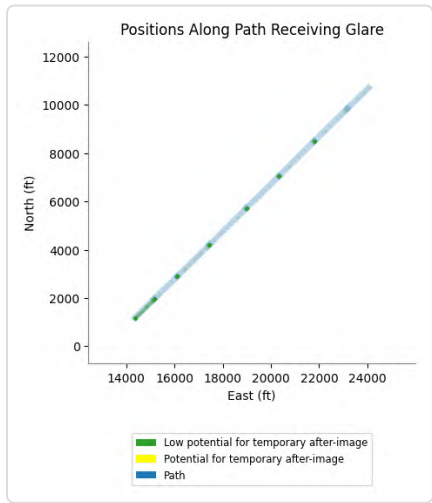
Yellow glare: none

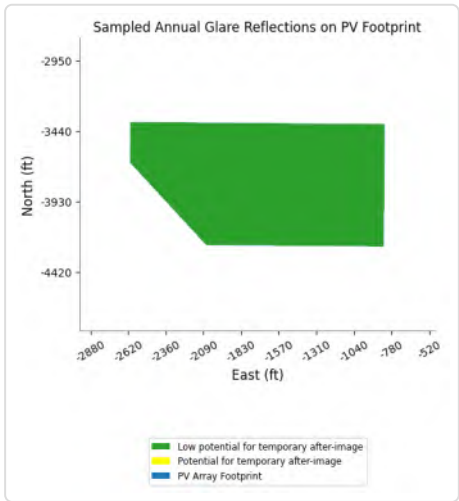
Green glare: 999 min.







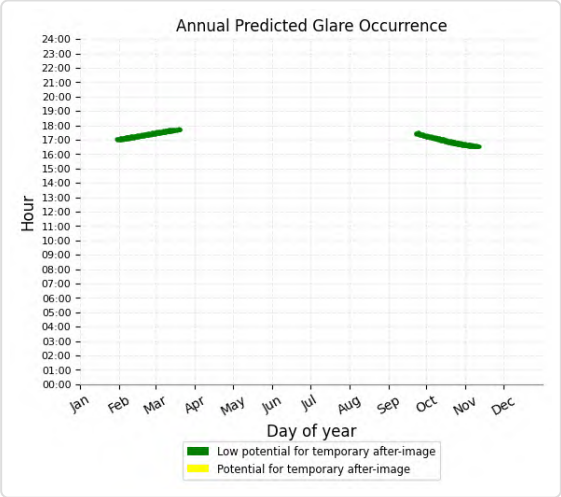


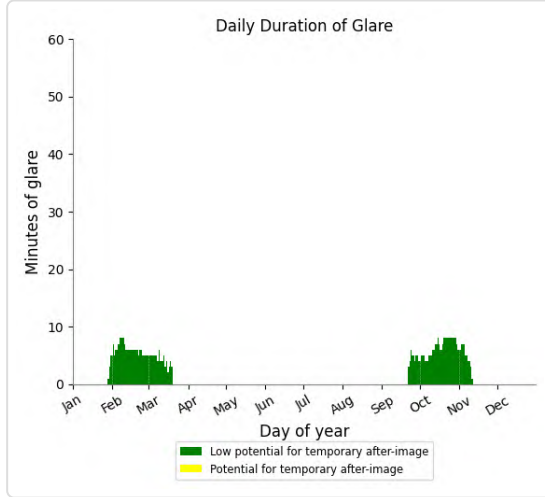


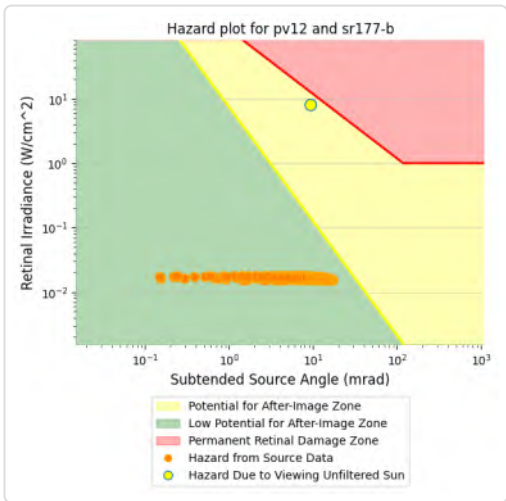
PV12 and Route: SR177 B

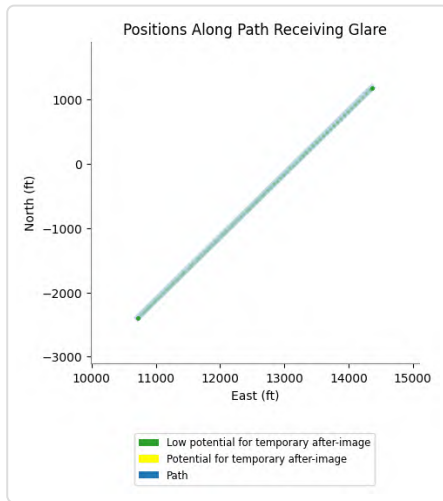
Yellow glare: none

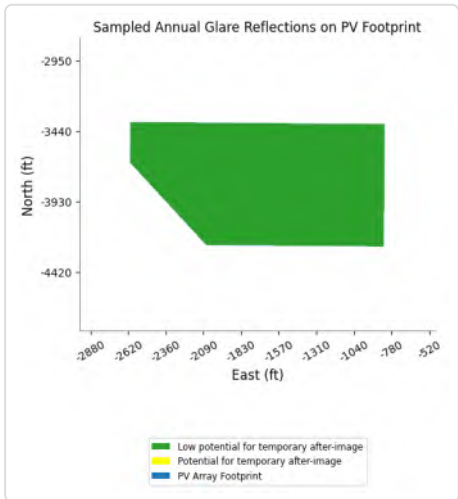
Green glare: 562 min.







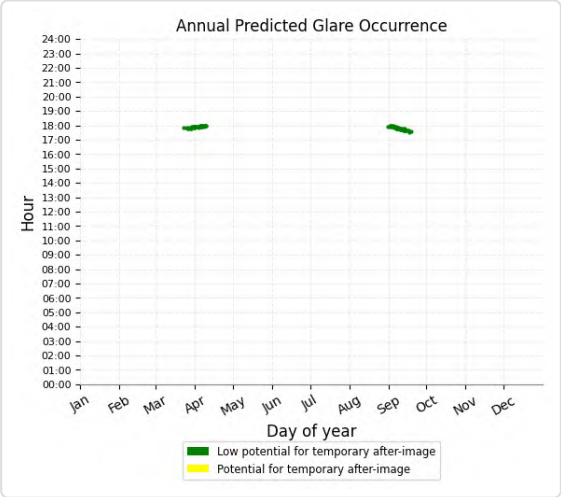


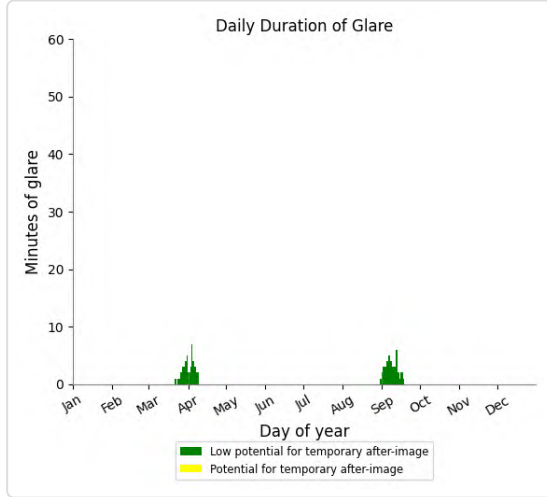


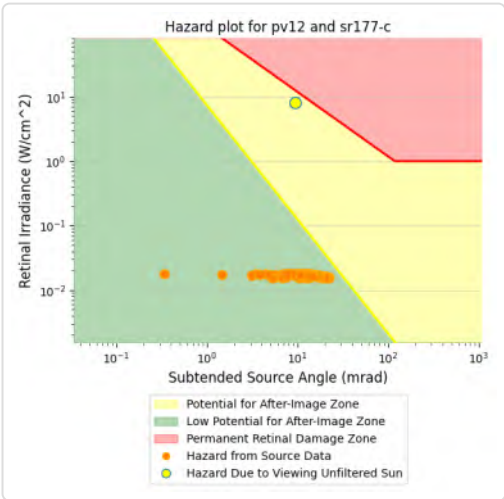
PV12 and Route: SR177 C

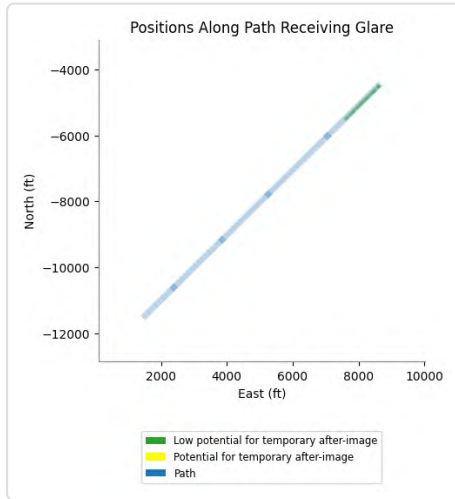
Yellow glare: none

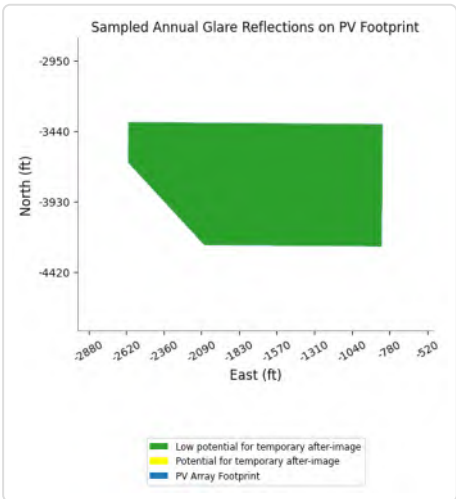
Green glare: 109 min.











PV12 and Route: AirportRd A

No glare found

PV12 and Route: AirportRd B

No glare found

PV12 and Route: EagleMtnRd A

No glare found

PV12 and Route: EagleMtnRd B

No glare found

PV12 and Route: I-10 EB A

No glare found

PV12 and Route: I-10 EB B

No glare found

PV12 and Route: I-10 EB C

No glare found

PV12 and Route: I-10 WB A

No glare found

PV12 and Route: I-10 WB B

No glare found

PV12 and Route: I-10 WB C

No glare found

PV12 and Route: KaiserRd A

No glare found

PV12 and Route: KaiserRd B

No glare found

PV12 and Route: KaiserRd C

No glare found

PV12 and Route: OasisRd

No glare found

PV12 and Route: SR177 D

No glare found

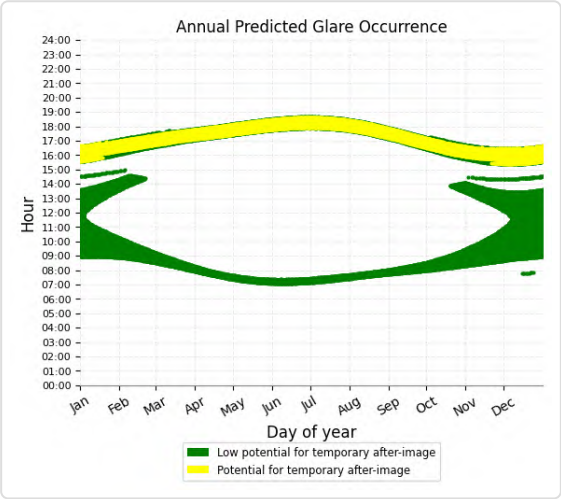
PV12 and Route: SR177 E

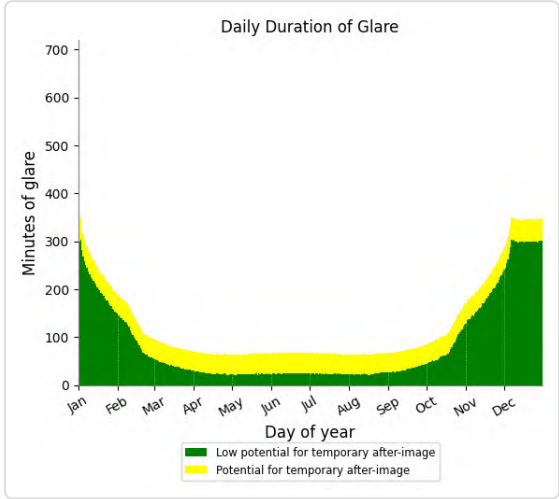
No glare found

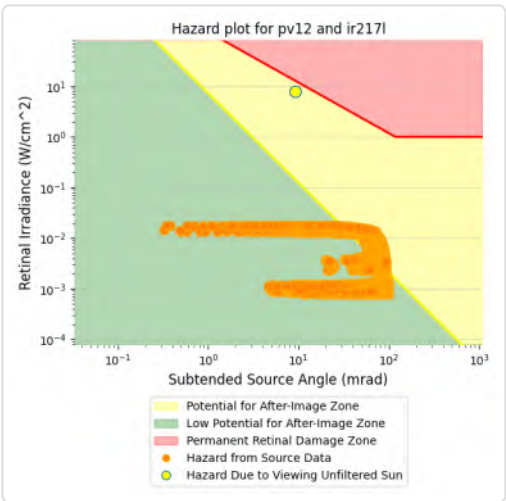
PV12 and FP: IR217I

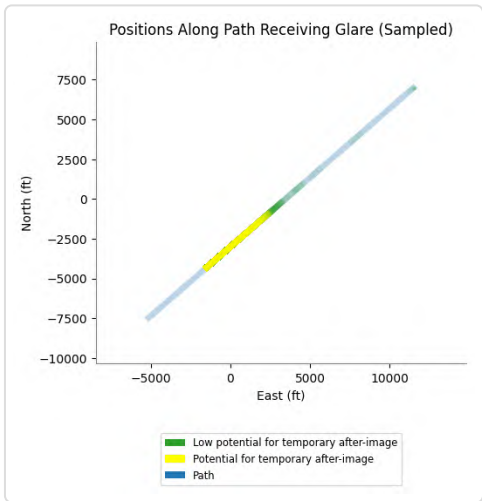
Yellow glare: 15,336 min.

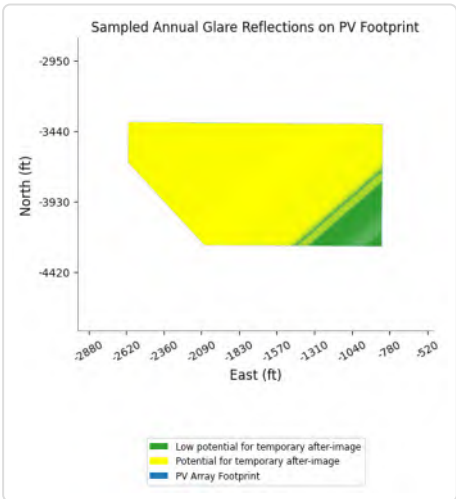
Green glare: 31,972 min.

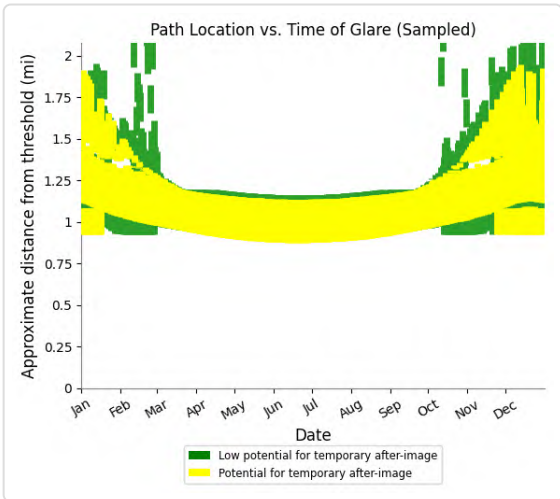








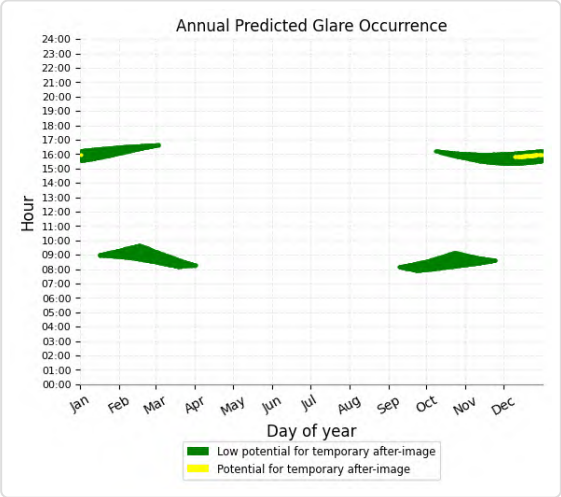


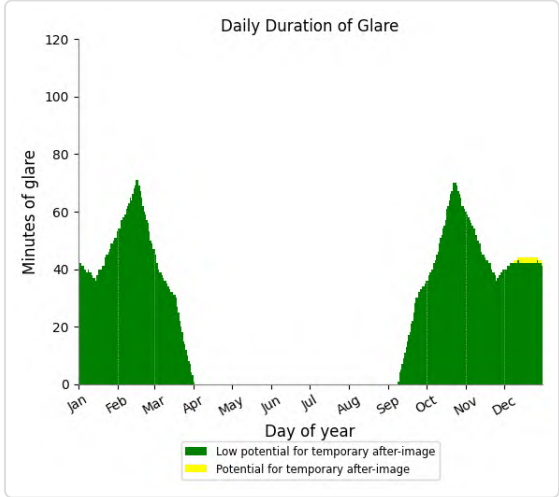


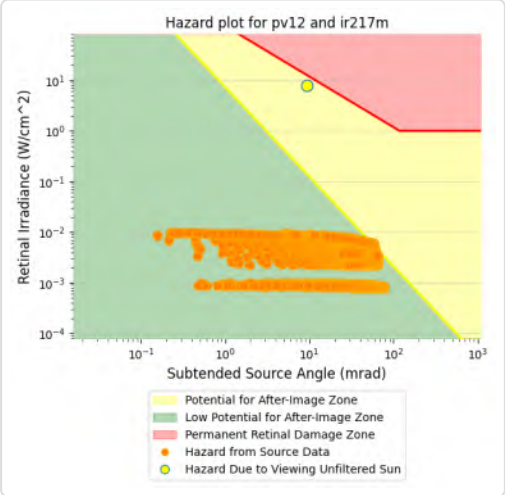
PV12 and FP: IR217m

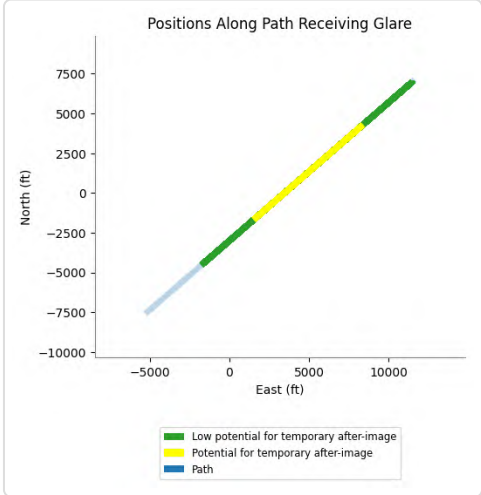
Yellow glare: 38 min.

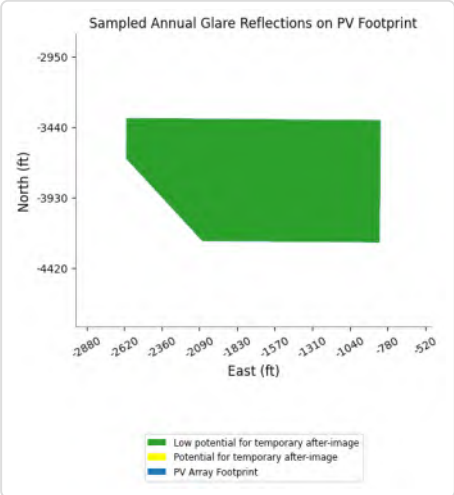
Green glare: 8,744 min.

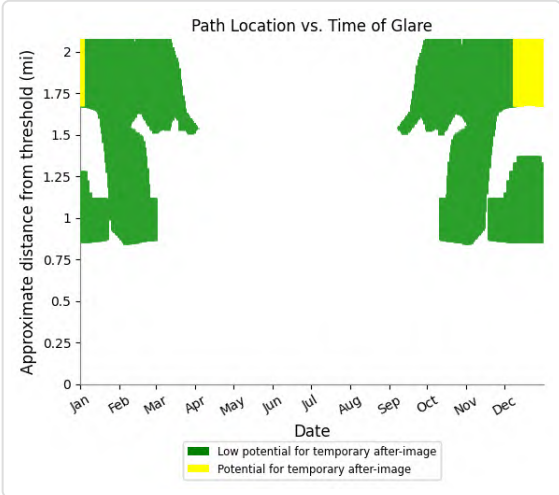








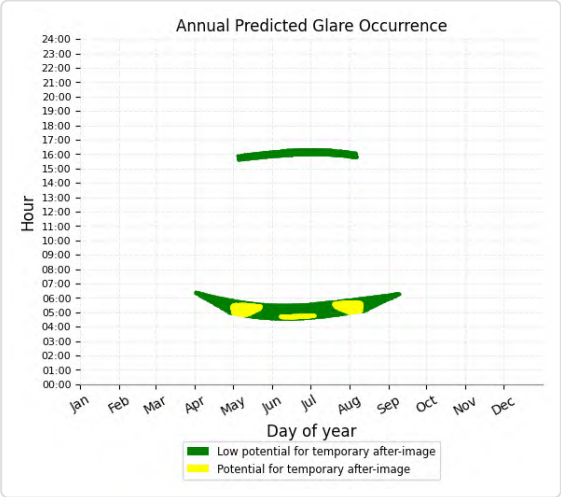


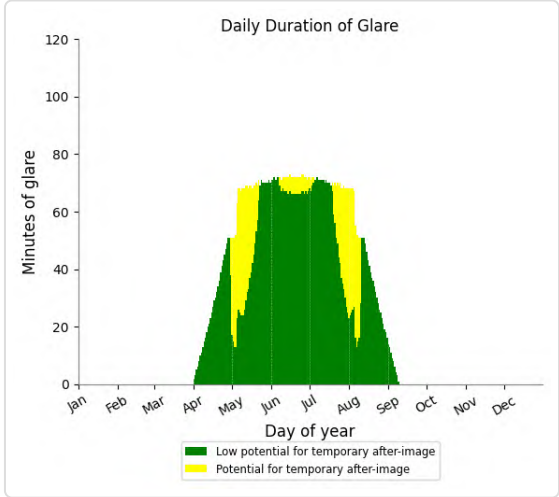


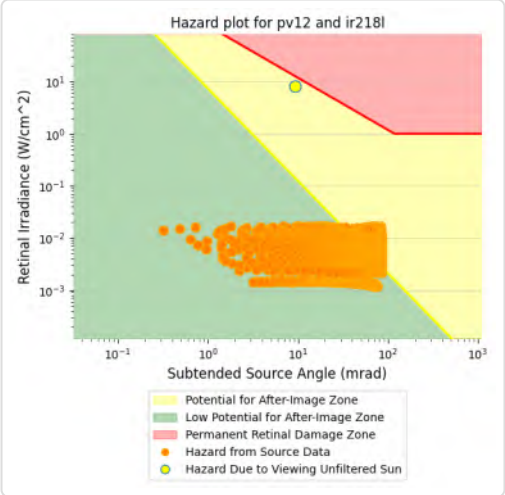
PV12 and FP: IR218l

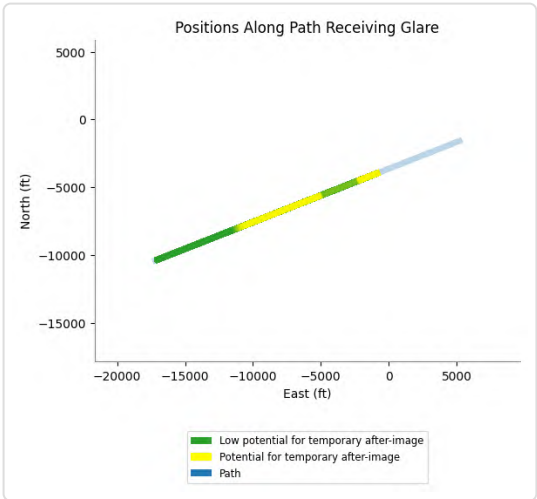
Yellow glare: 1,607 min.

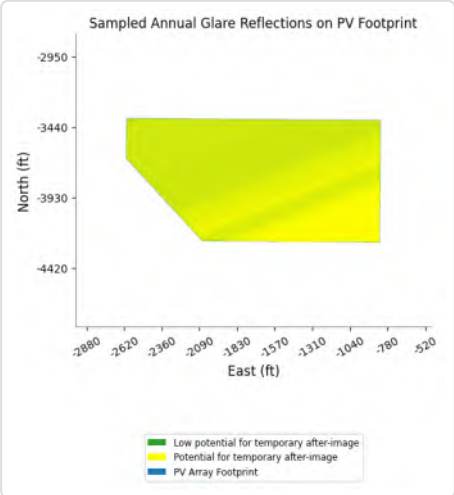
Green glare: 6,975 min.

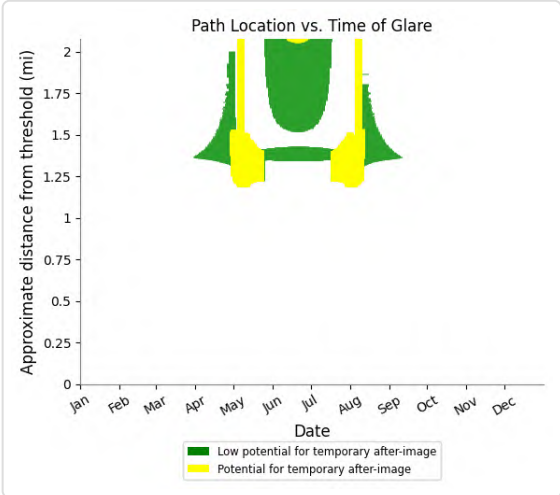








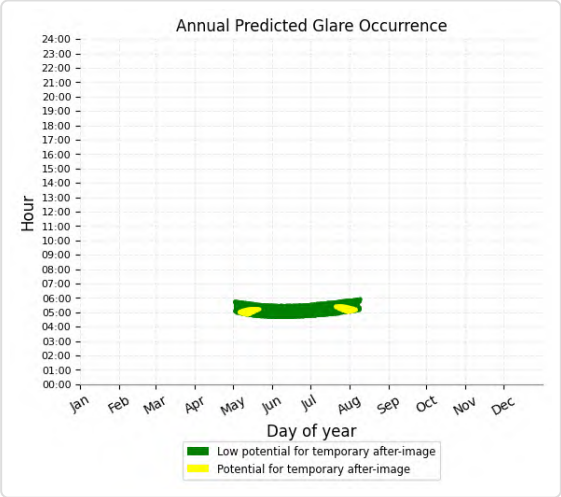


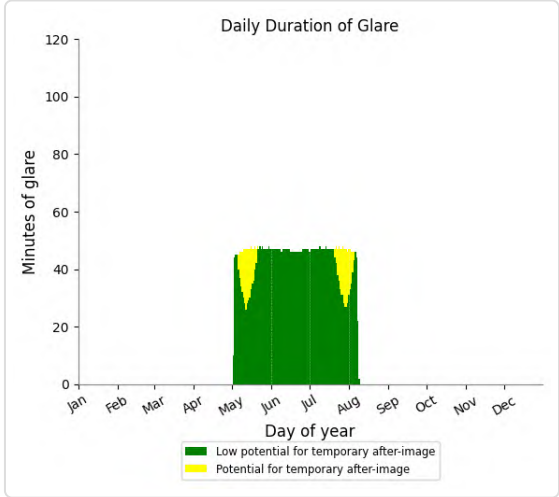


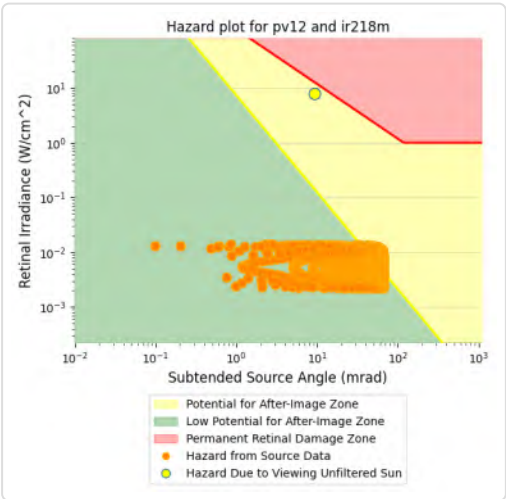
PV12 and FP: IR218m

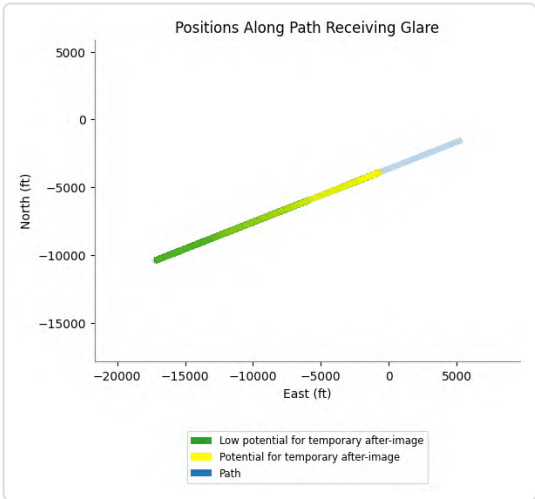
Yellow glare: 408 min.

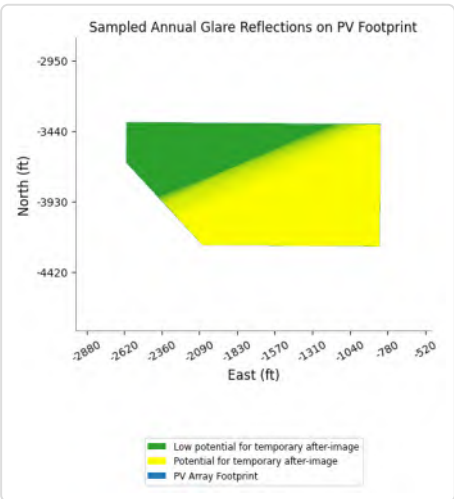
Green glare: 4,164 min.

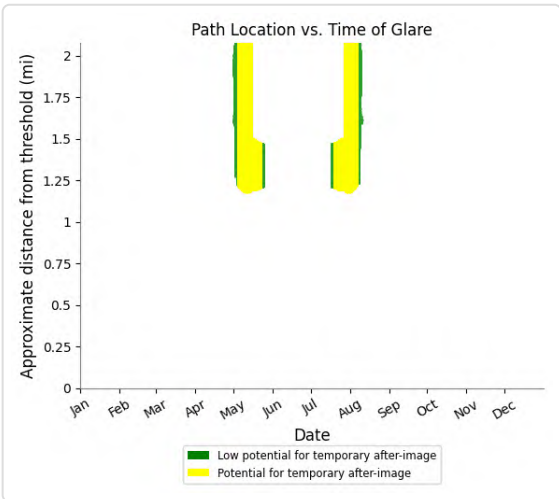








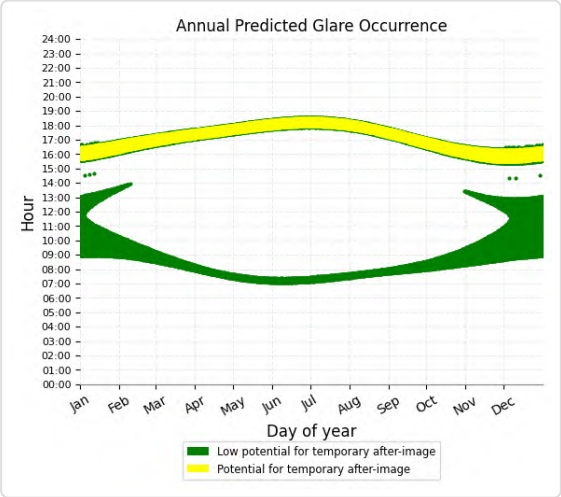


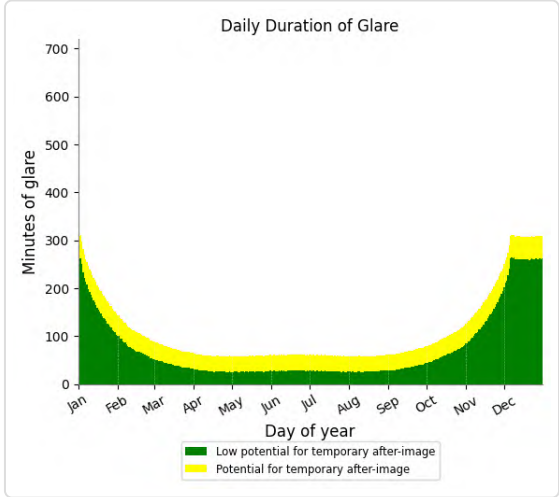


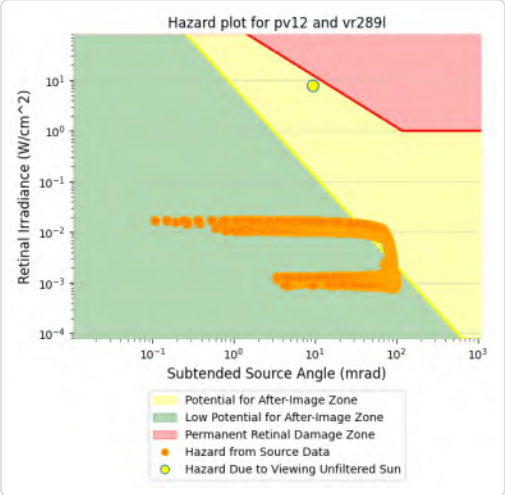
PV12 and FP: VR289l

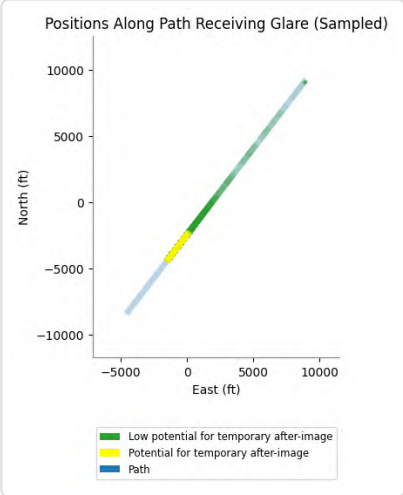
Yellow glare: 13,602 min.

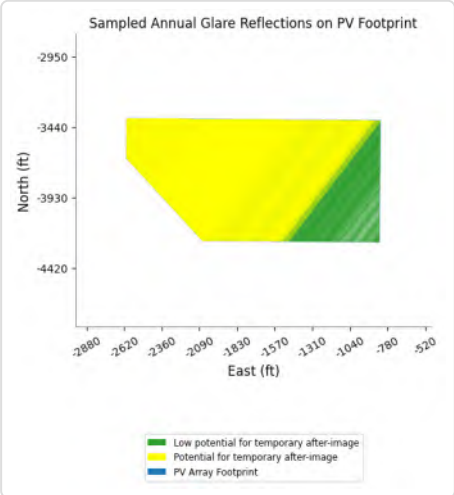
Green glare: 27,513 min.

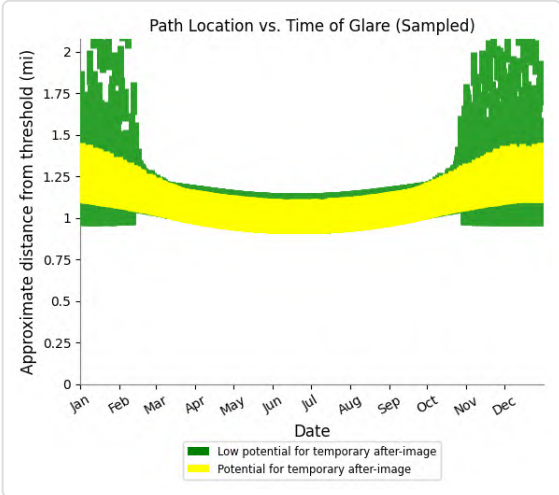








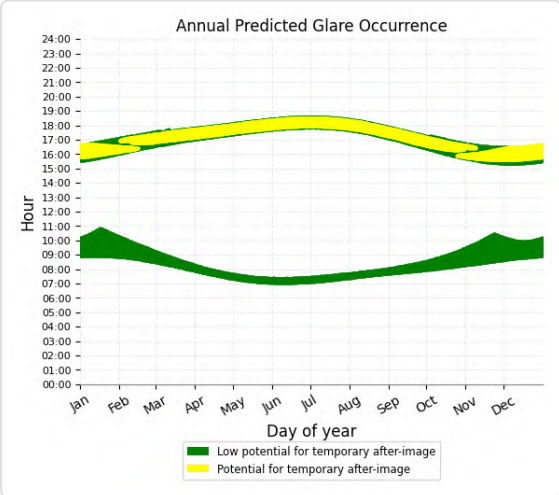


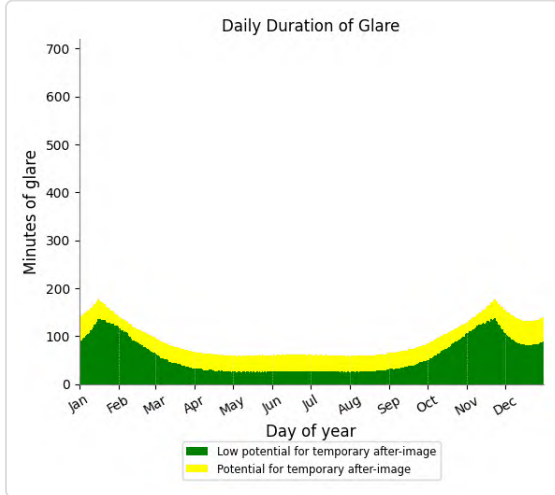


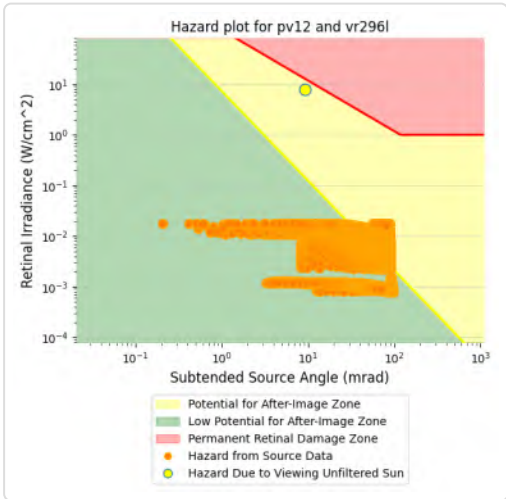
PV12 and FP: VR296I

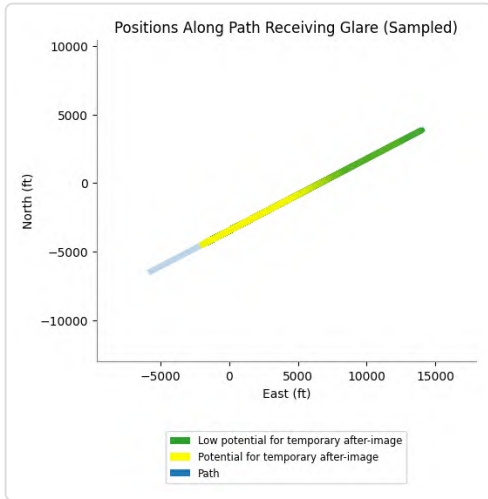
Yellow glare: 12,683 min.

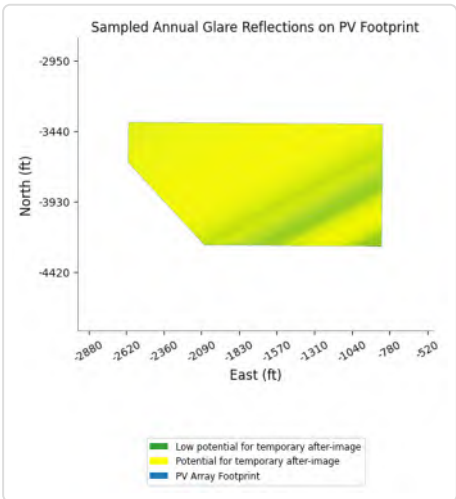
Green glare: 21,712 min.

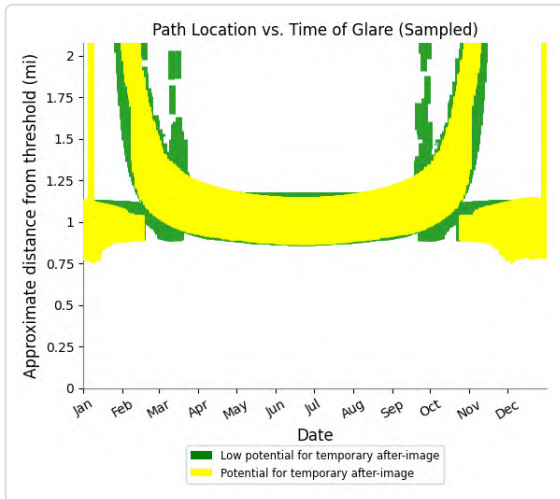








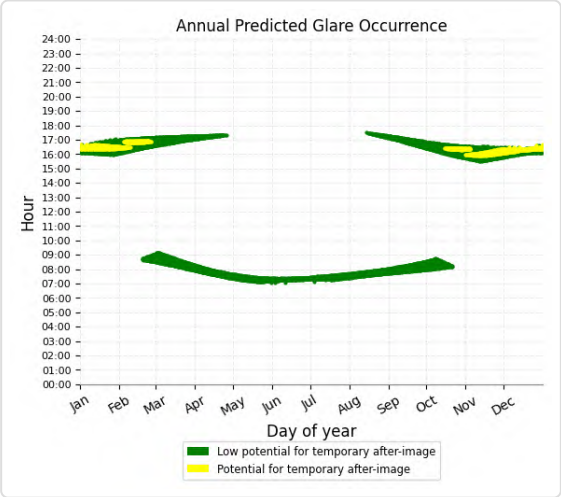


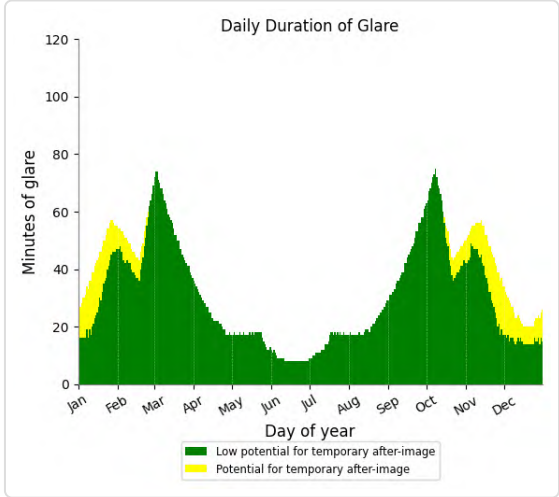


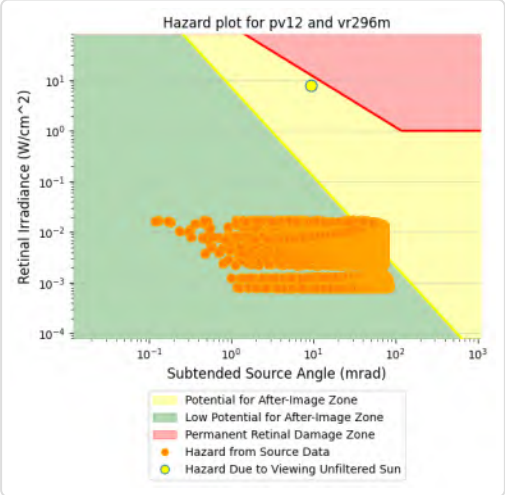
PV12 and FP: VR296m

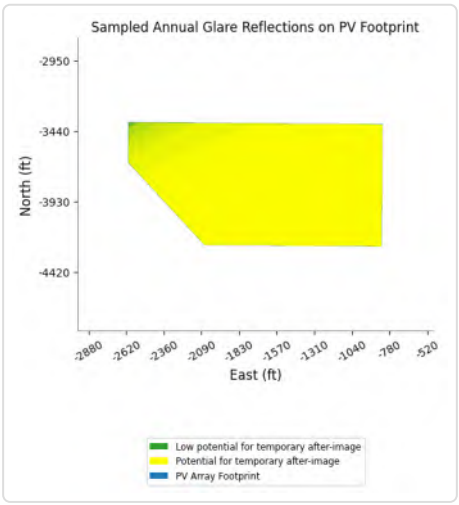
Yellow glare: 1,387 min.

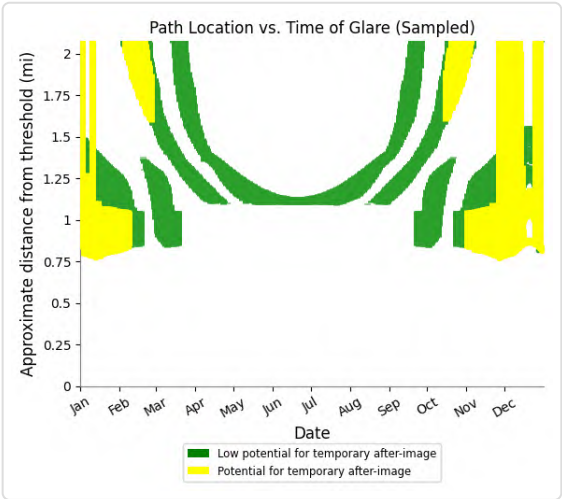
Green glare: 11,060 min.







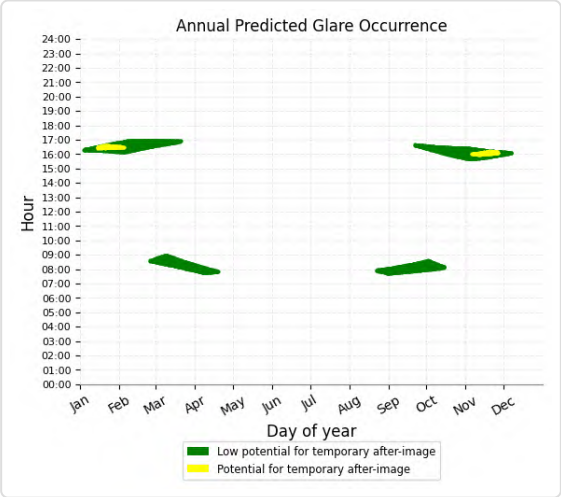


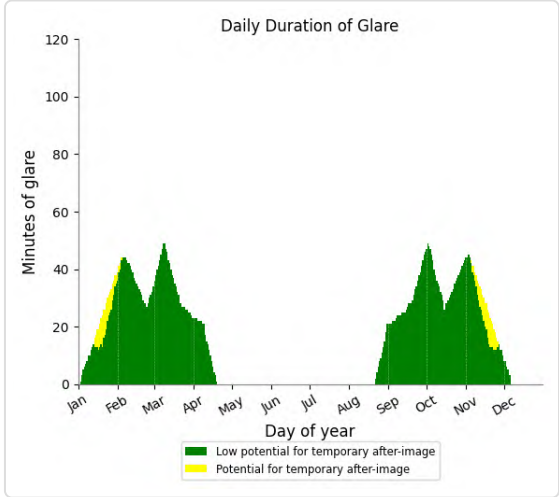


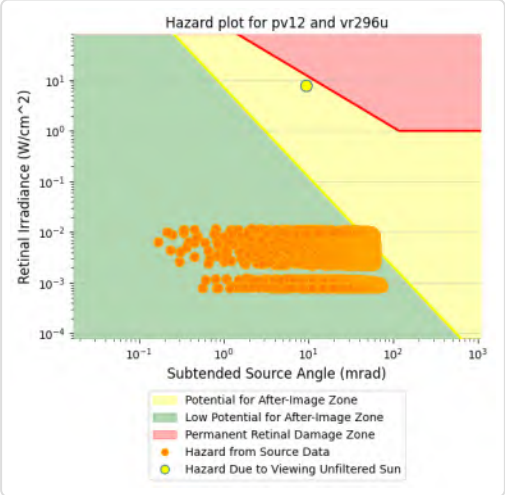
PV12 and FP: VR296u

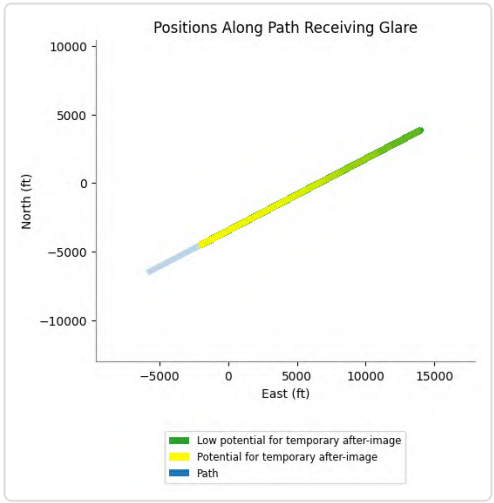
Yellow glare: 268 min.

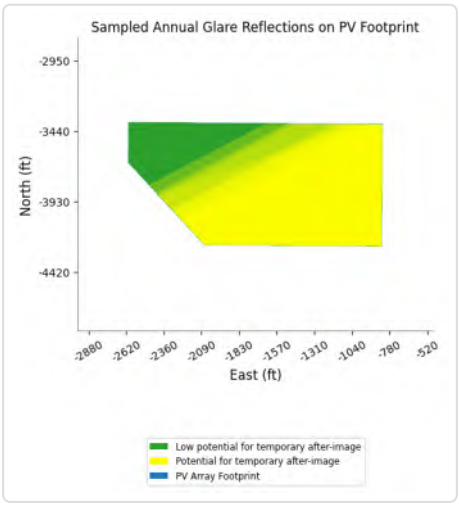
Green glare: 5,775 min.

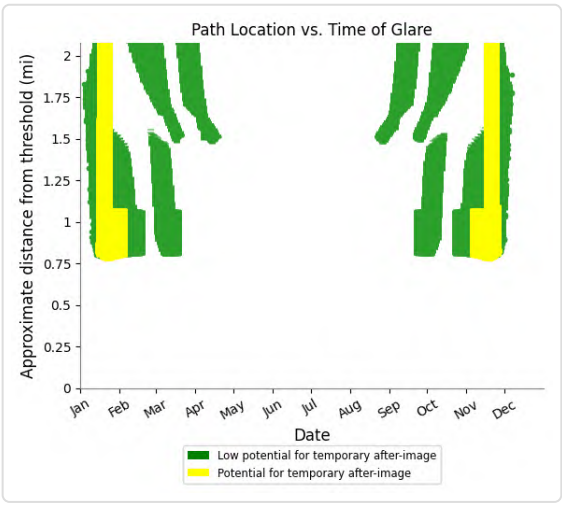








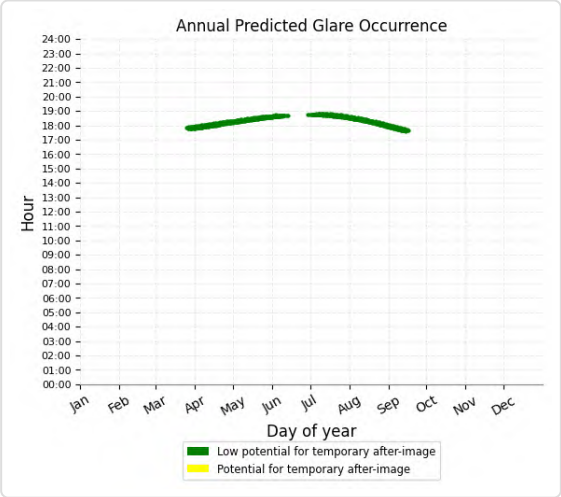


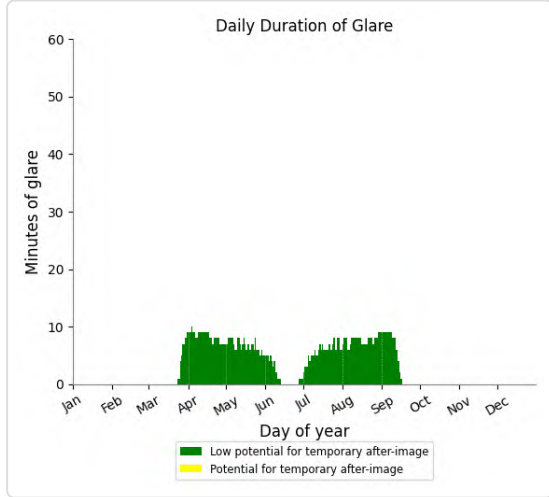


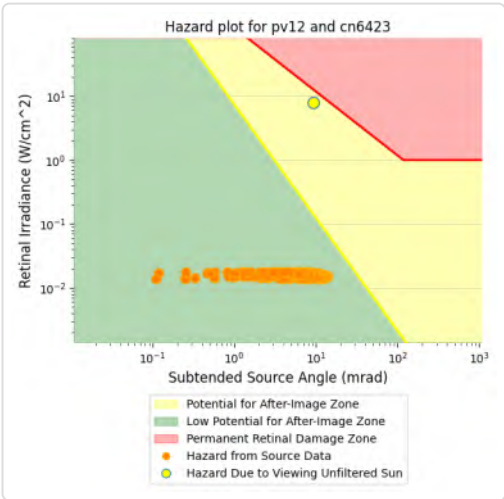
PV12 and FP: CN6423

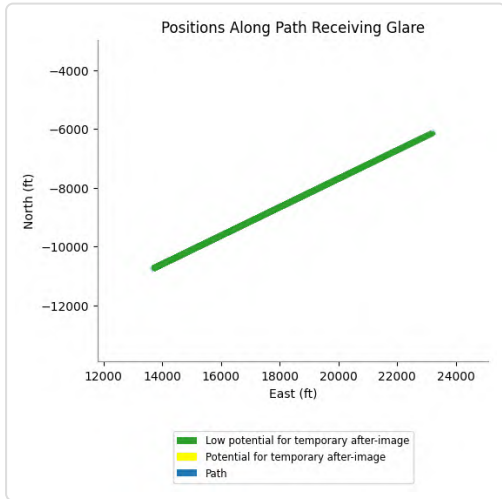
Yellow glare: none

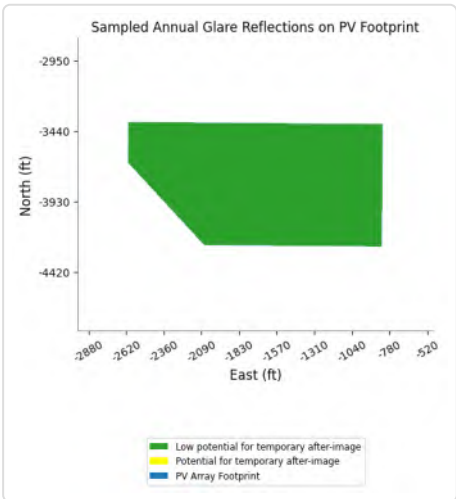
Green glare: 1,075 min.

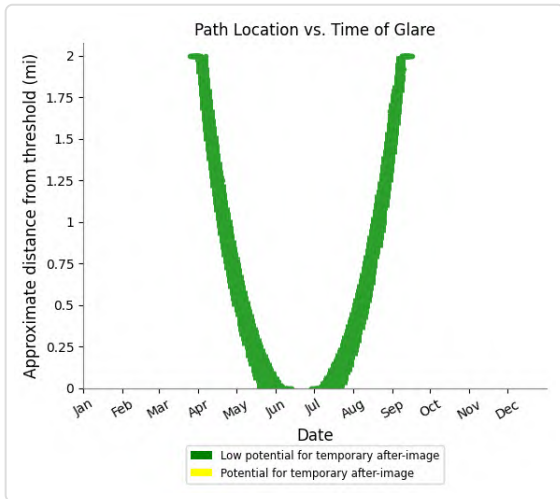








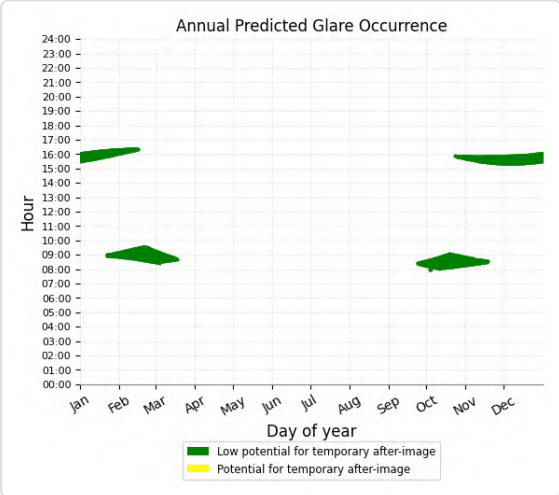


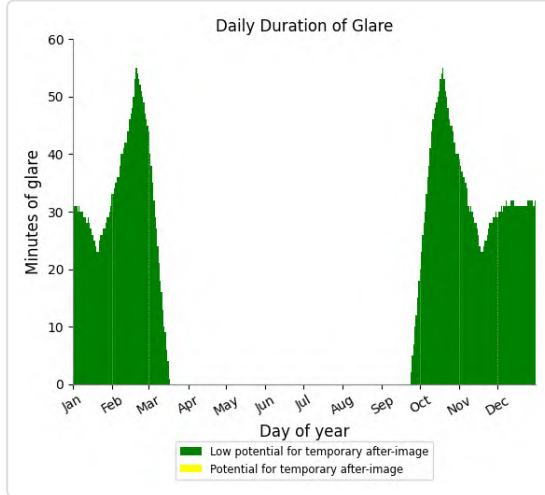


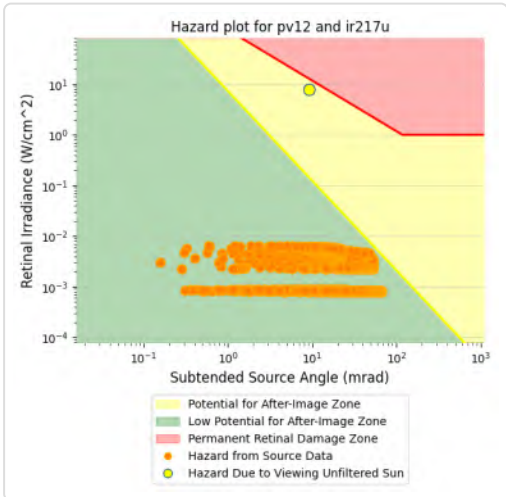
PV12 and FP: IR217u

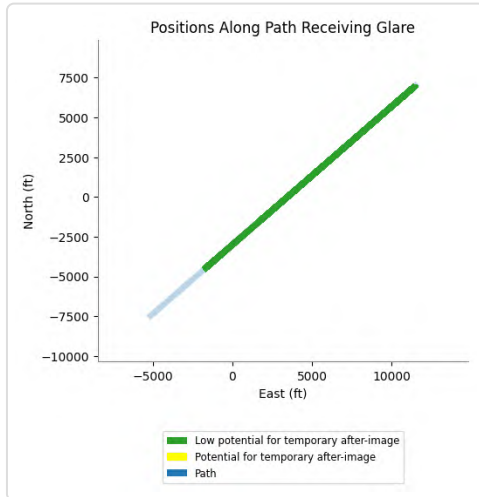
Yellow glare: none

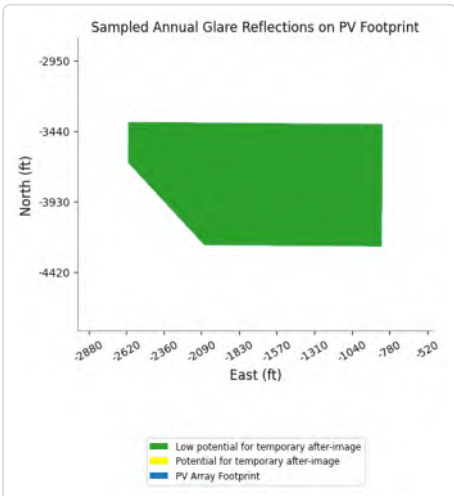
Green glare: 5,756 min.







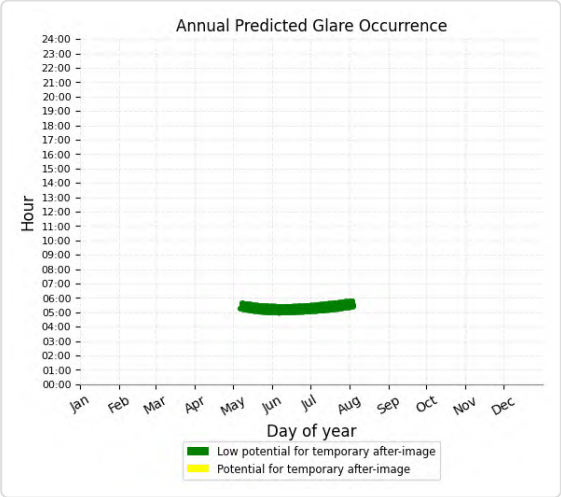


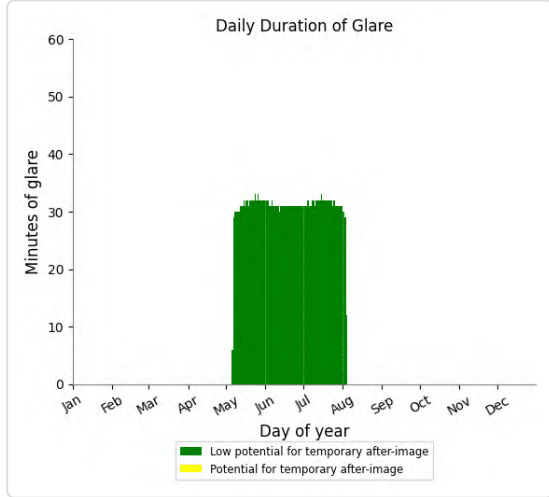


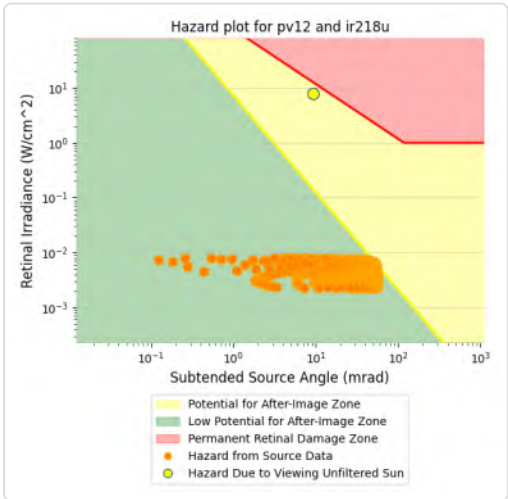
PV12 and FP: IR218u

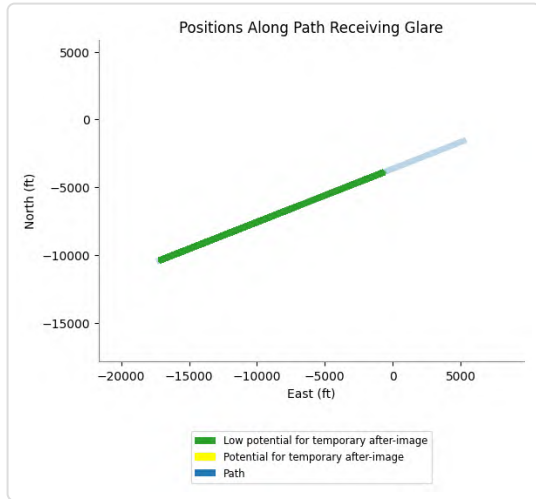
Yellow glare: none

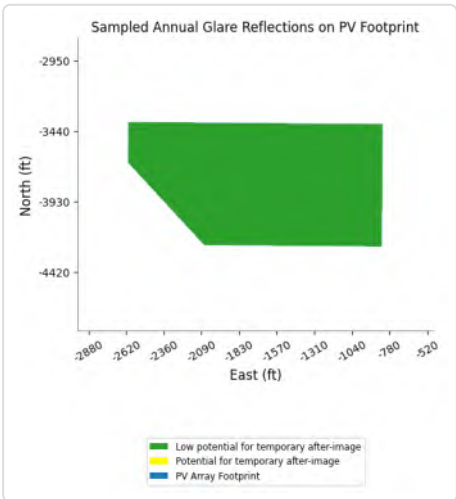
Green glare: 2,806 min.

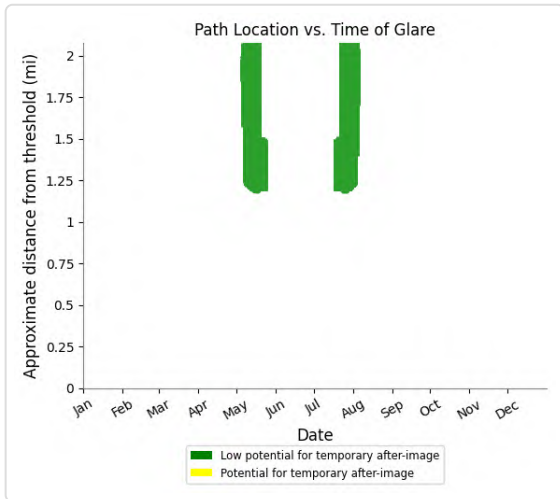








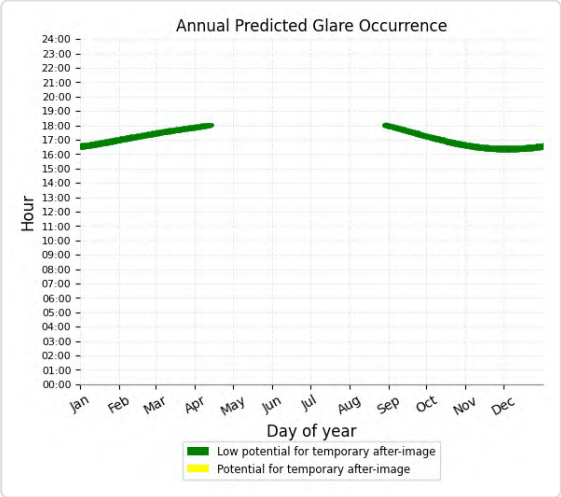


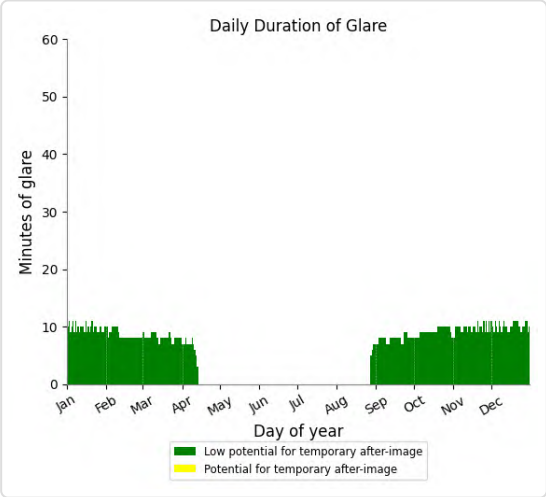


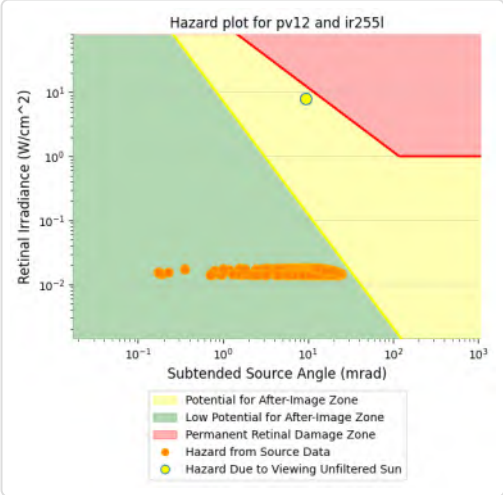
PV12 and FP: IR255l

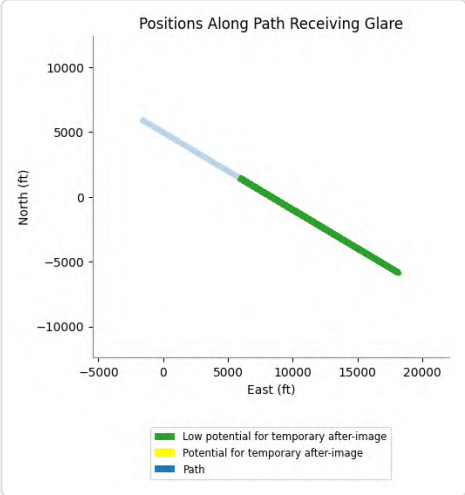
Yellow glare: none

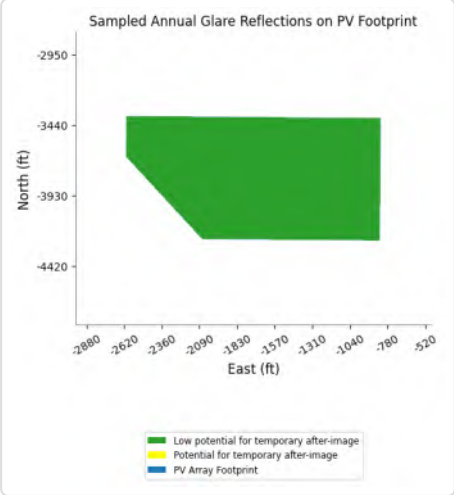
Green glare: 2,036 min.

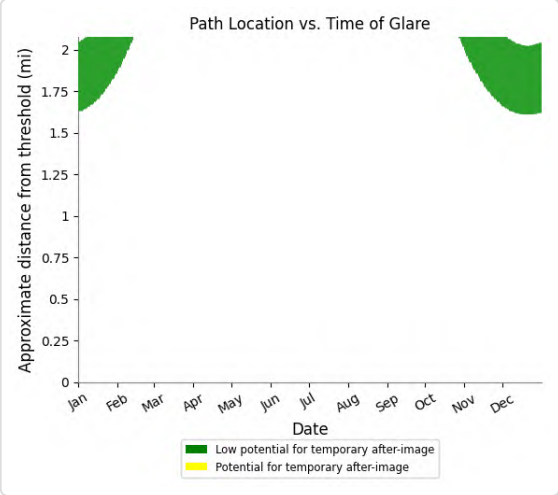








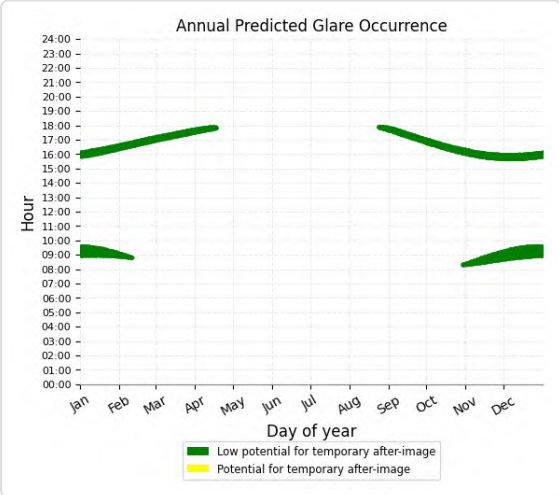


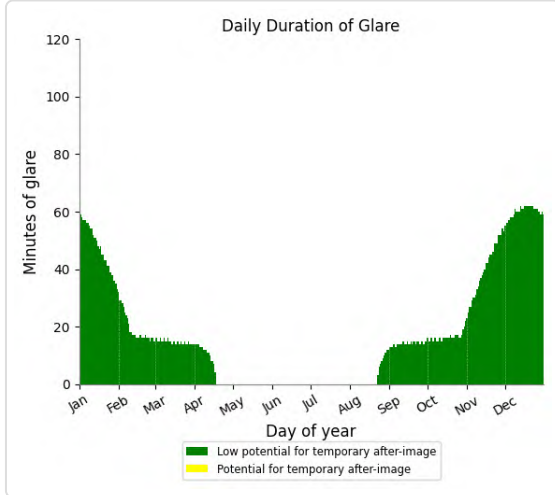


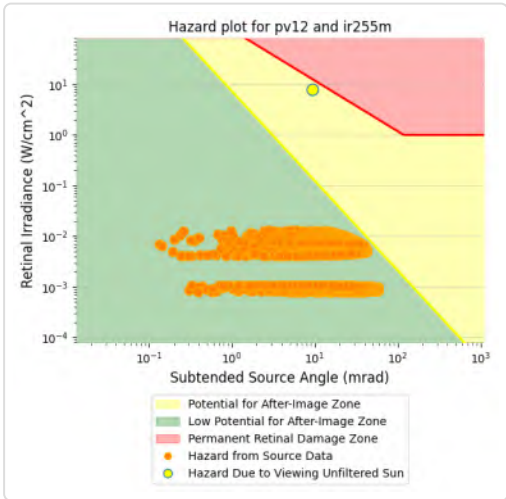
PV12 and FP: IR255m

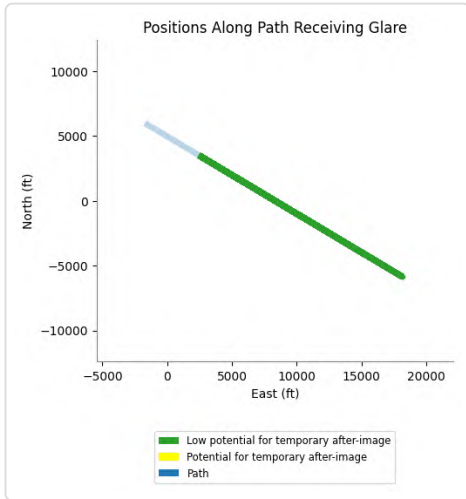
Yellow glare: none

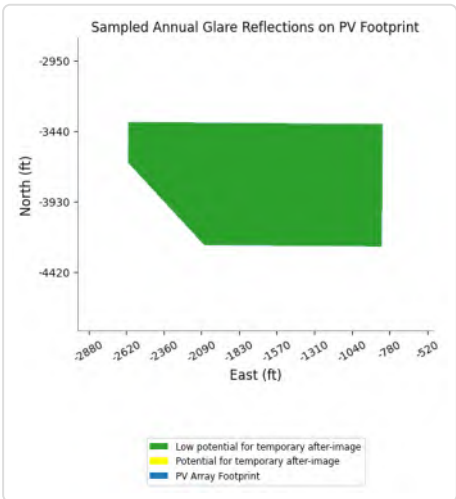
Green glare: 6,767 min.

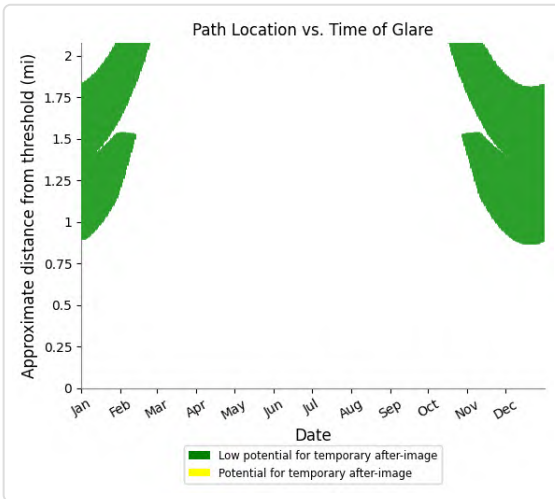








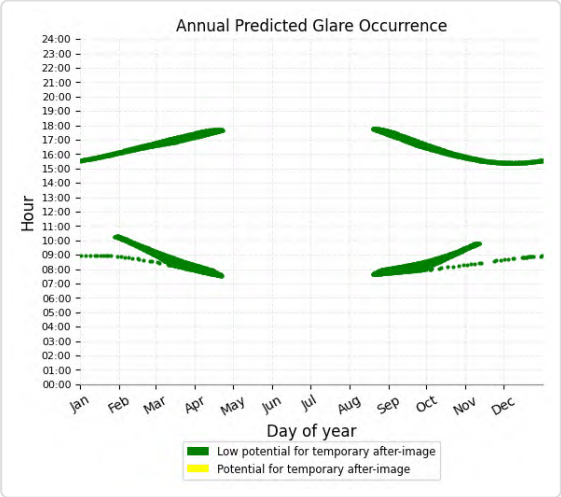


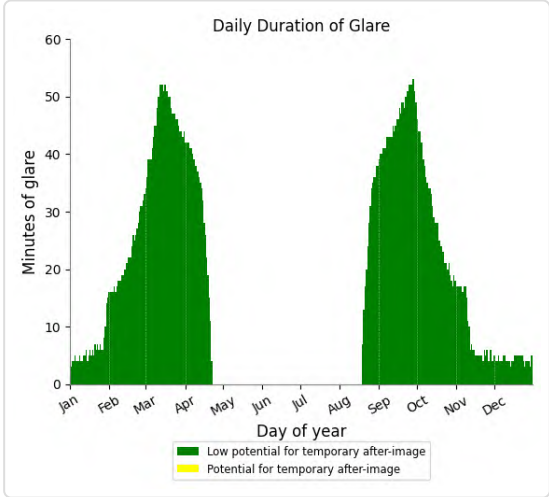


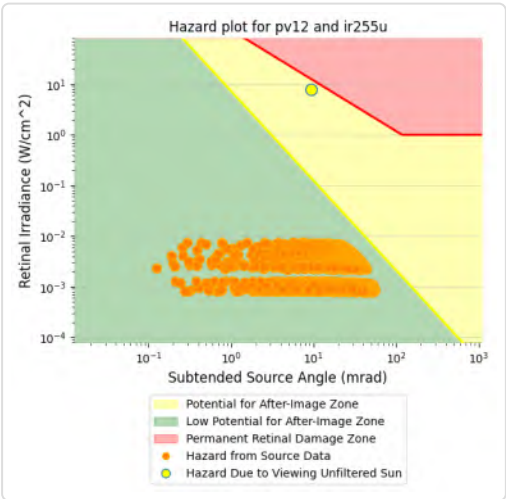
PV12 and FP: IR255u

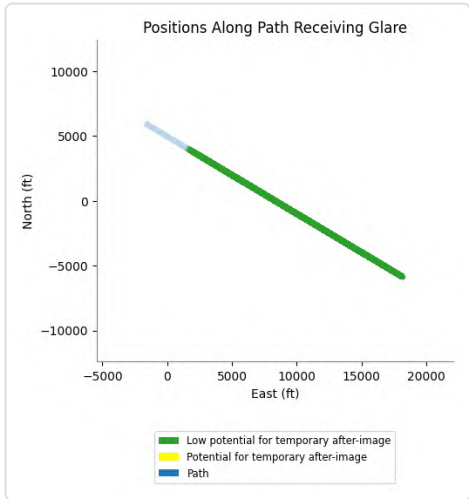
Yellow glare: none

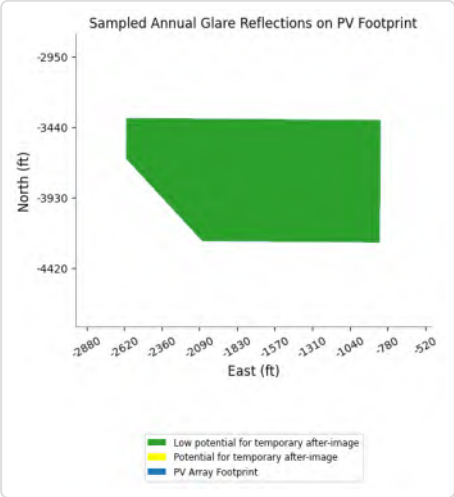
Green glare: 6,006 min.

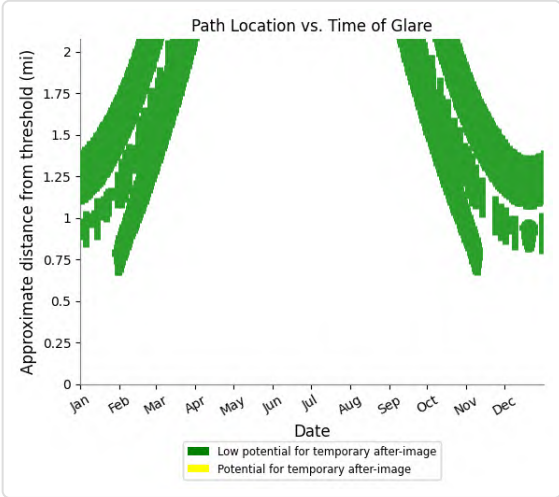








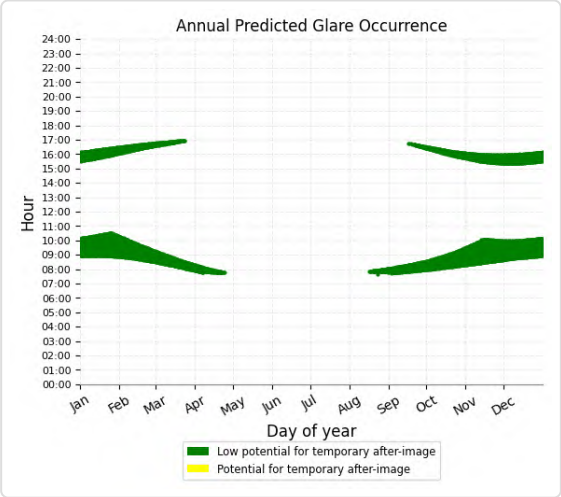


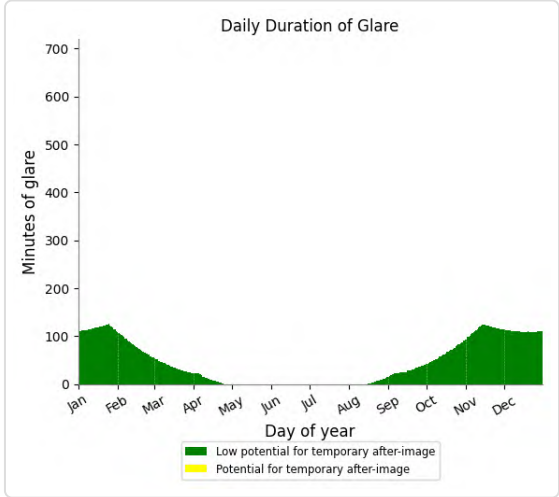


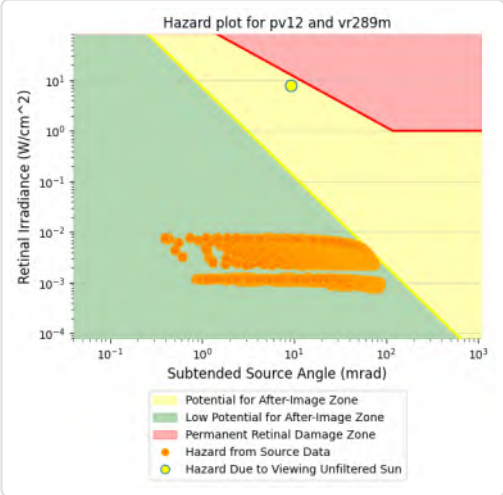
PV12 and FP: VR289m

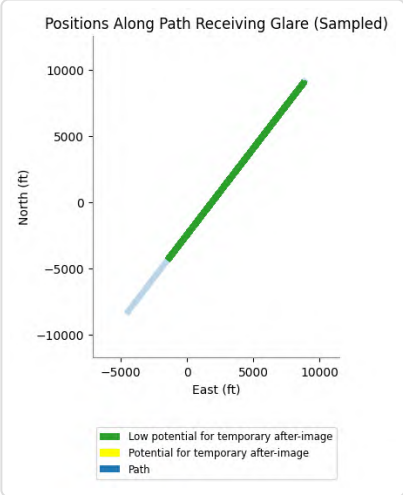
Yellow glare: none

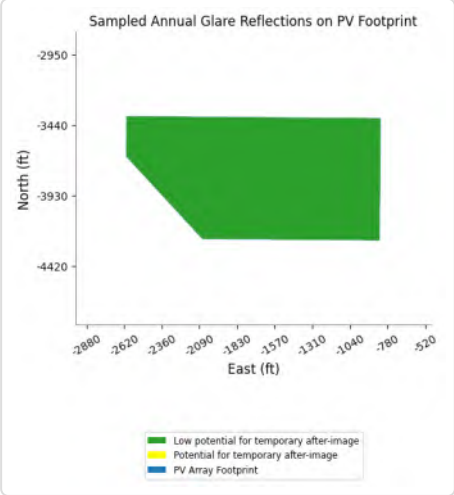
Green glare: 17,221 min.

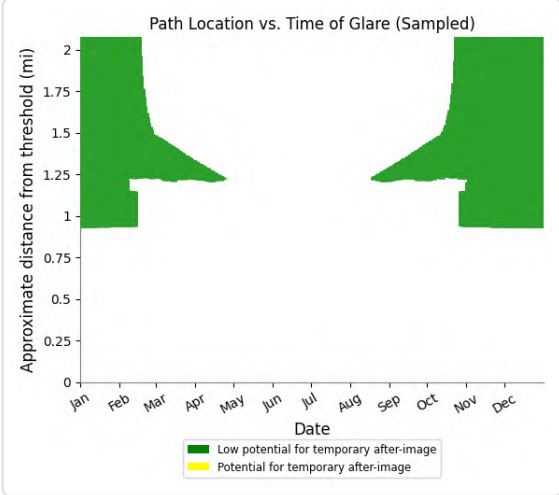








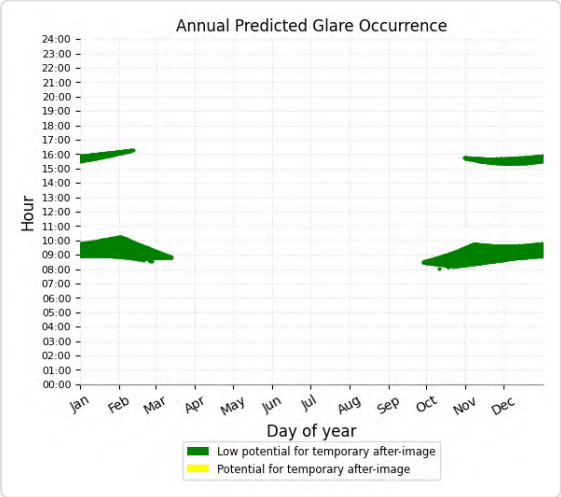


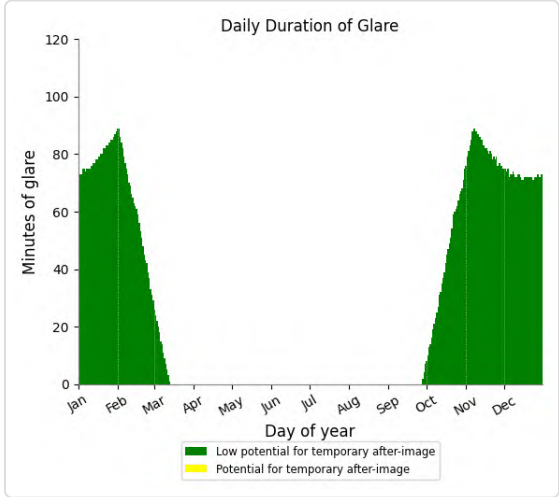


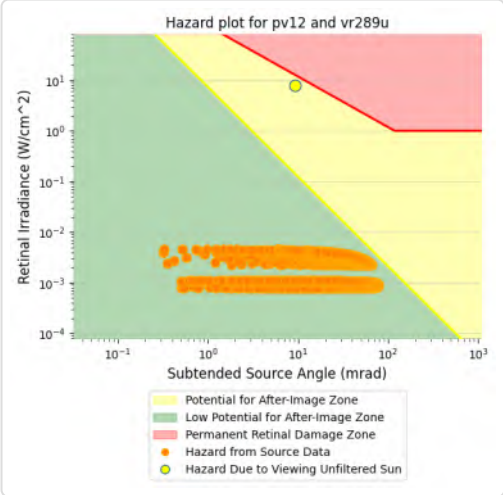
PV12 and FP: VR289u

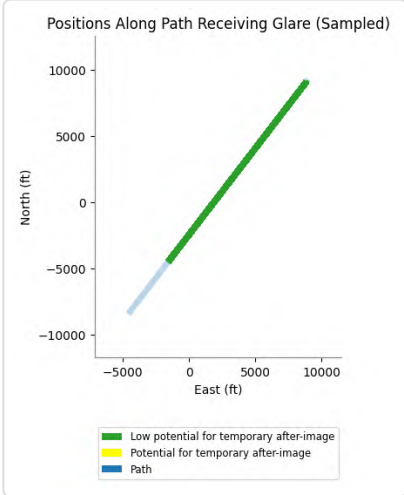
Yellow glare: none

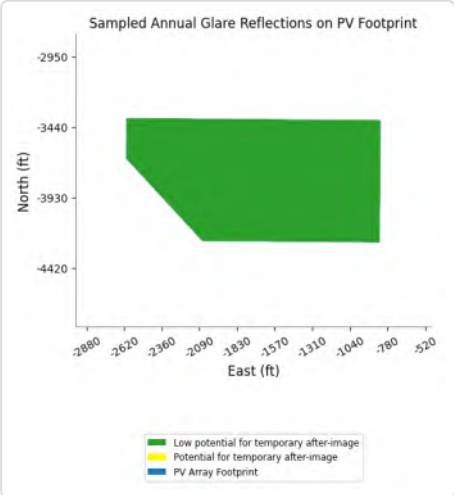
Green glare: 10,388 min.

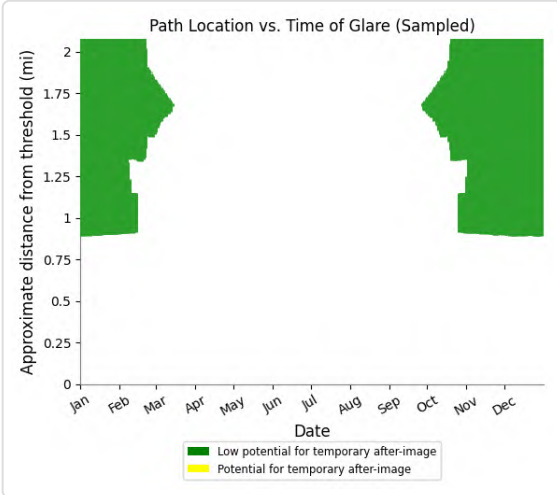












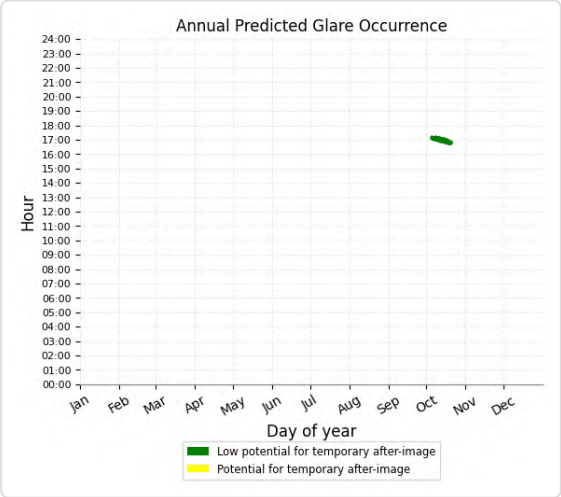
PV12 and FP: CN645

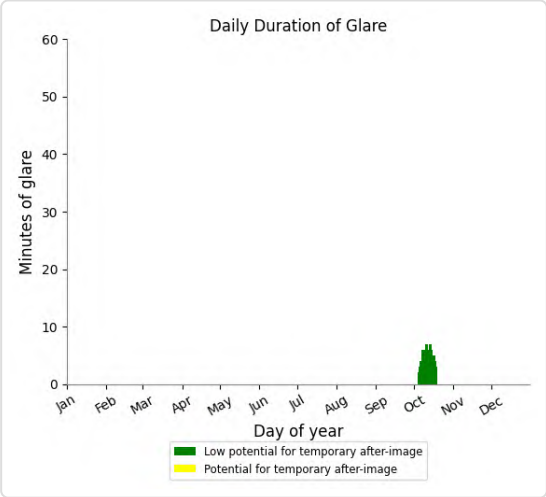
No glare found

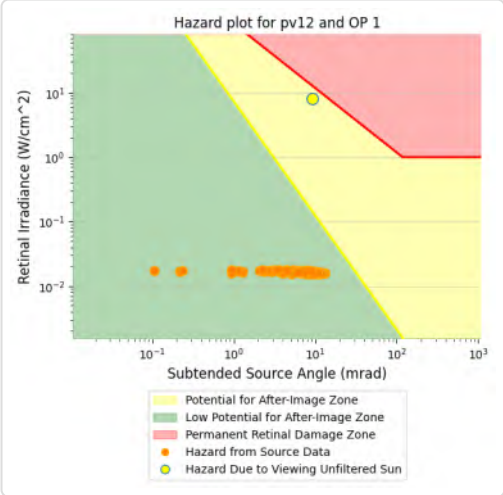
PV12 and OP 1

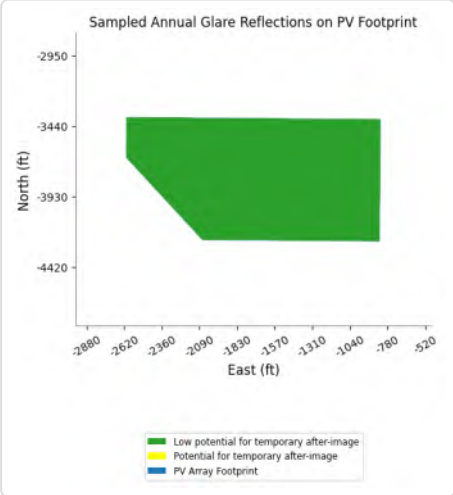
Yellow glare: none

Green glare: 84 min.



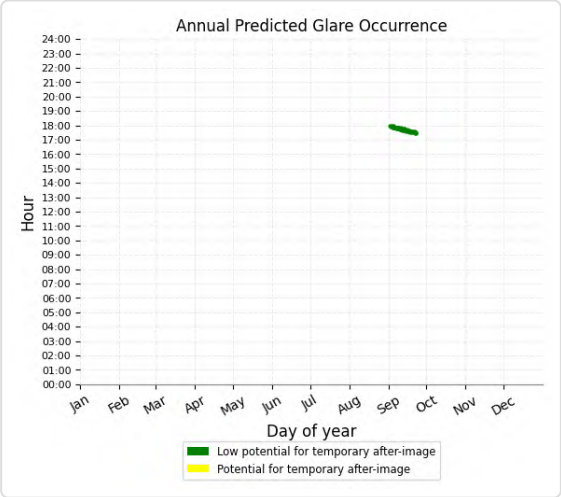


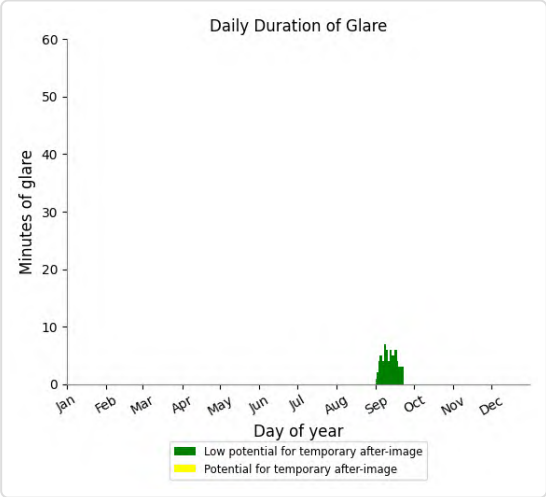


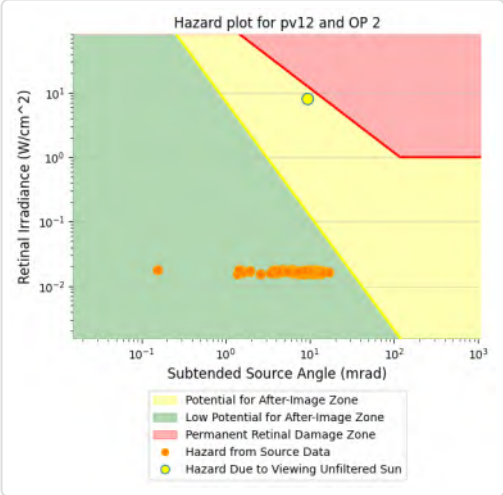


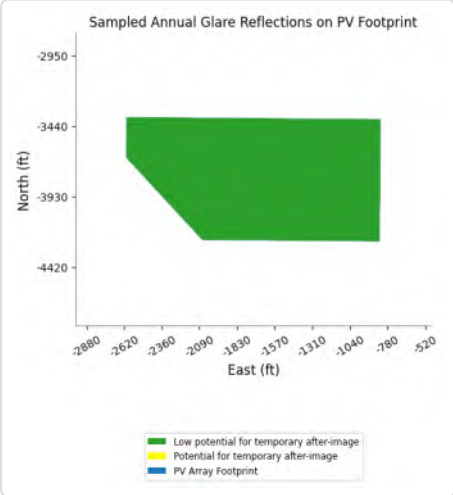
PV12 and OP 2

Yellow glare: none
Green glare: 98 min.









PV12 and OP 3

No glare found

PV12 and OP 4

No glare found

PV12 and OP 5

No glare found

PV12 and OP 6

No glare found

PV12 and OP 7

No glare found

PV12 and OP 8

No glare found

PV12 and OP 9

No glare found

PV12 and OP 10

No glare found

PV12 and OP 11

No glare found

PV12 and OP 12

No glare found

PV12 and OP 13

No glare found

PV12 and OP 14

No glare found

PV12 and OP 15

No glare found

PV12 and OP 16

No glare found

PV12 and OP 17

No glare found

PV12 and OP 18

No glare found

PV12 and OP 19

No glare found

PV: PV13 potential temporary after-image

Receptor results ordered by category of glare

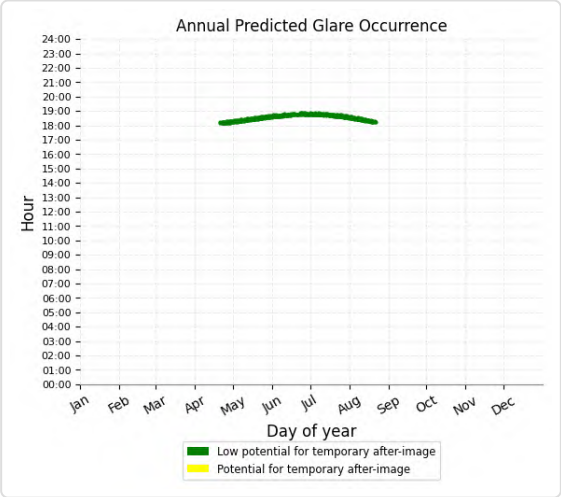
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd B	543	9.1	0	0.0
Race Track	582	9.7	0	0.0
SR177 A	877	14.6	0	0.0
SR177 B	497	8.3	0	0.0
SR177 C	163	2.7	0	0.0
AirportRd A	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	35,766	596.1	2,884	48.1
IR218l	17,796	296.6	6,967	116.1
IR218m	4,420	73.7	1,804	30.1
IR218u	3,250	54.2	62	1.0
VR289l	28,675	477.9	1,535	25.6
VR296l	33,267	554.5	5,047	84.1
VR296m	11,257	187.6	2,289	38.1
VR296u	7,228	120.5	286	4.8
CN6423	1,209	20.1	0	0.0
IR217m	9,931	165.5	0	0.0
IR217u	5,590	93.2	0	0.0
IR255l	2,069	34.5	0	0.0
IR255m	9,424	157.1	0	0.0
IR255u	4,578	76.3	0	0.0
VR289m	13,333	222.2	0	0.0
VR289u	9,476	157.9	0	0.0
CN645	0	0.0	0	0.0
OP 1	74	1.2	0	0.0
OP 2	80	1.3	0	0.0

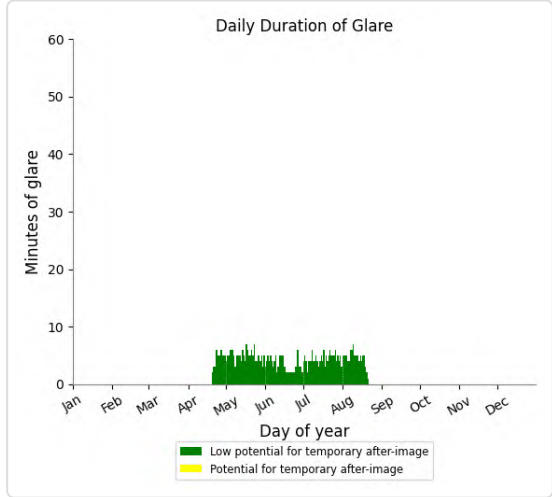
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

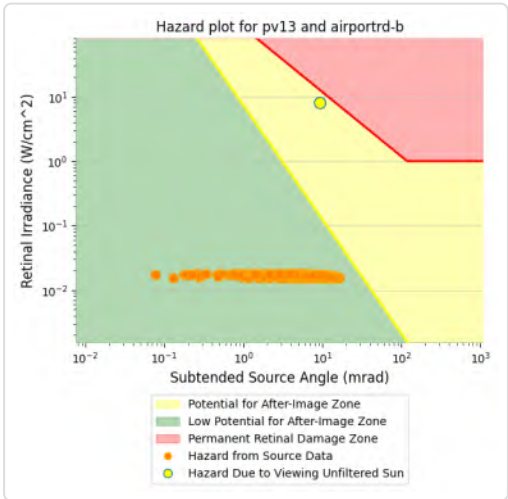
PV13 and Route: AirportRd B

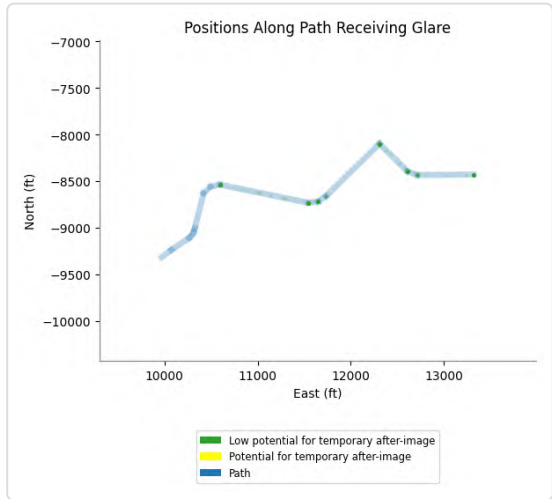
Yellow glare: none

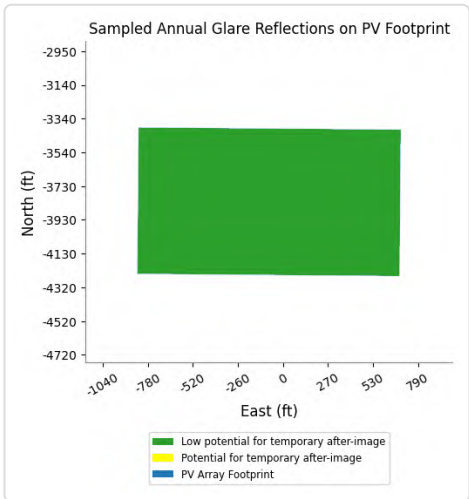
Green glare: 543 min.







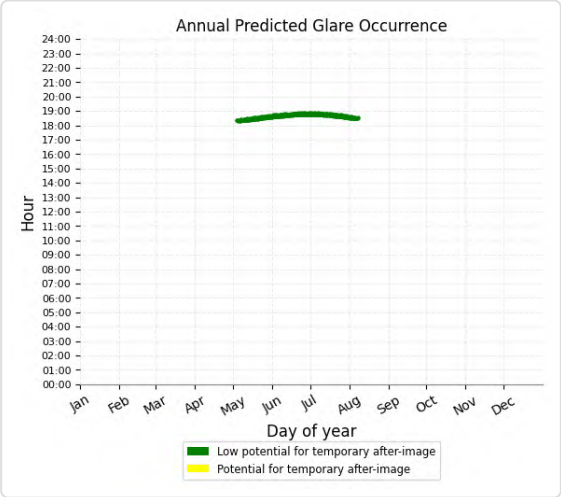


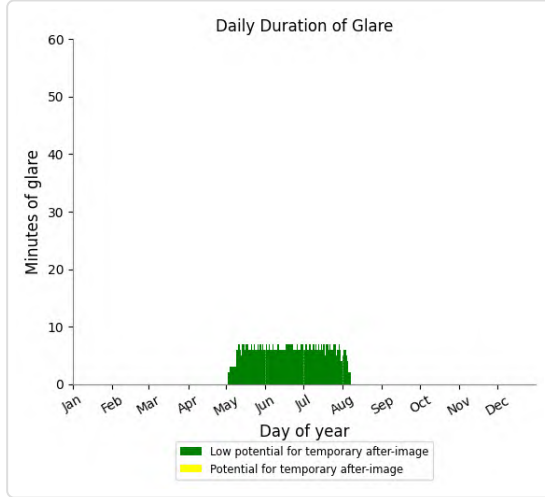


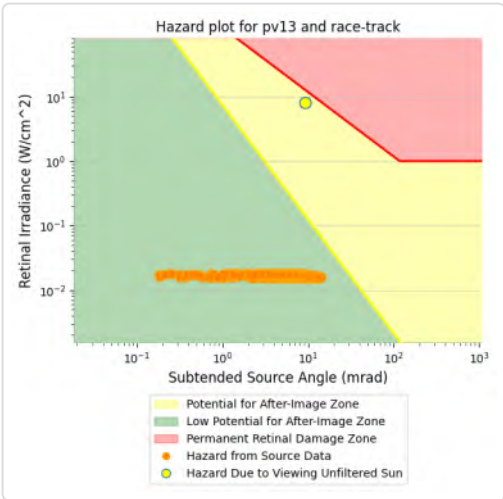
PV13 and Route: Race Track

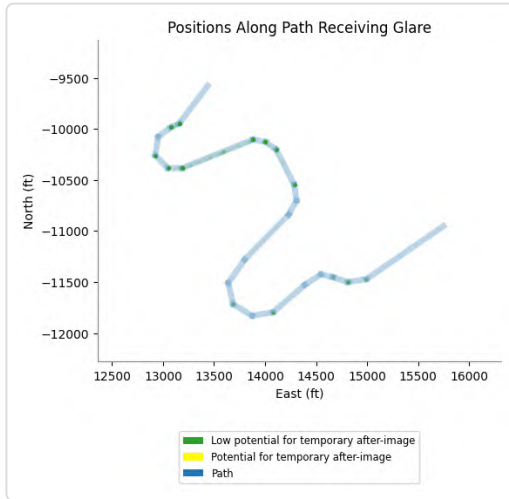
Yellow glare: none

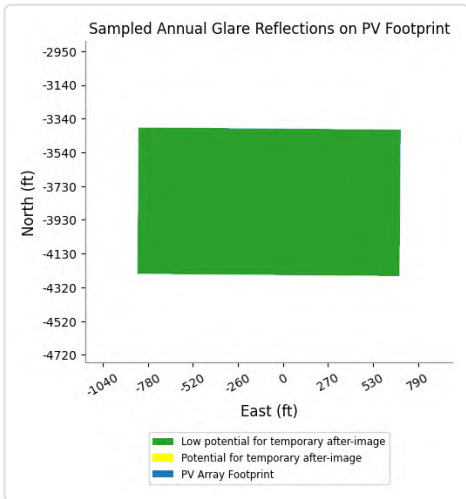
Green glare: 582 min.







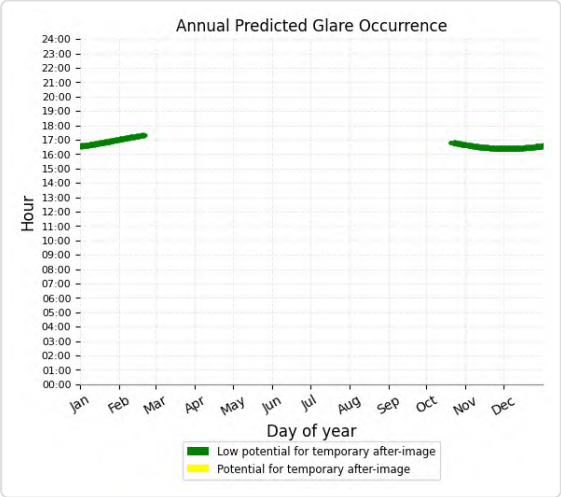


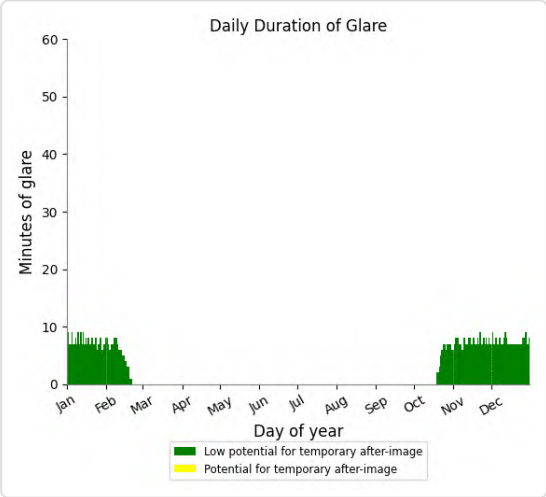


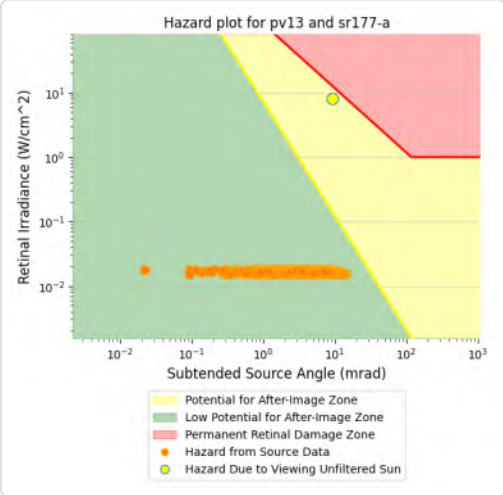
PV13 and Route: SR177 A

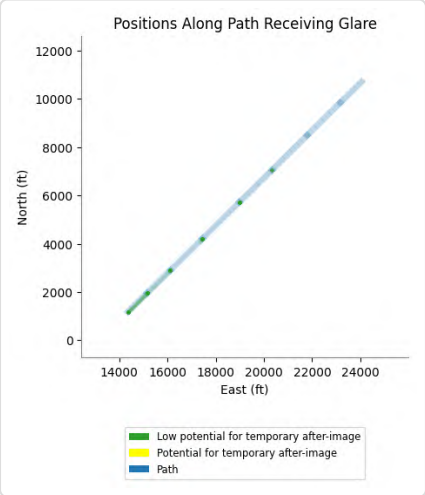
Yellow glare: none

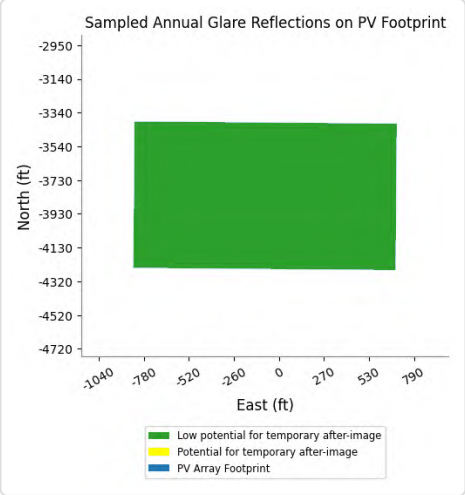
Green glare: 877 min.







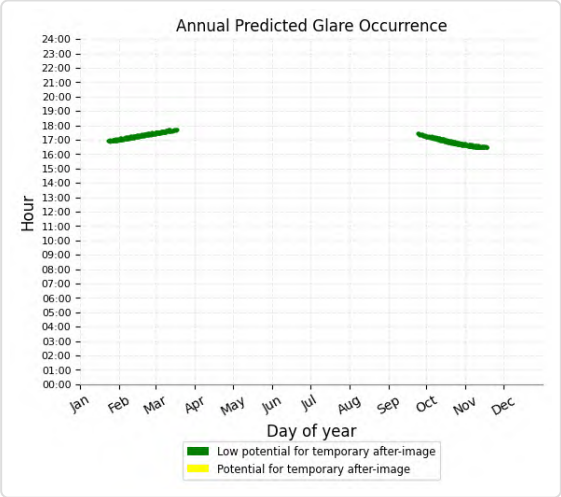


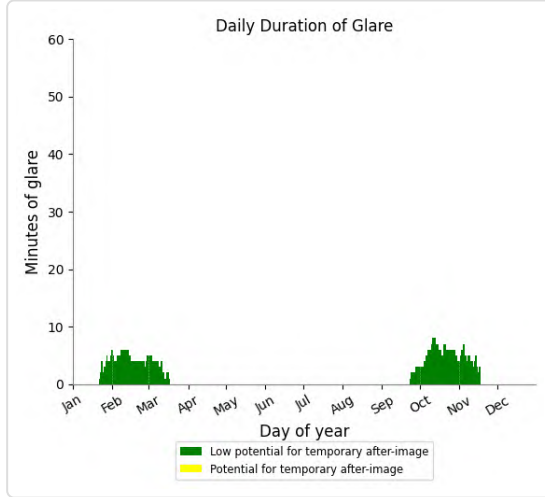


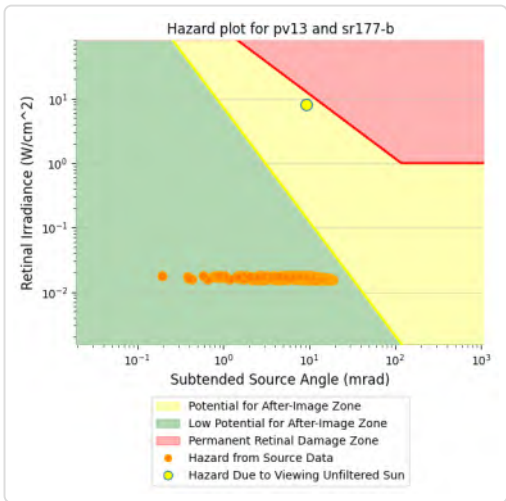
PV13 and Route: SR177 B

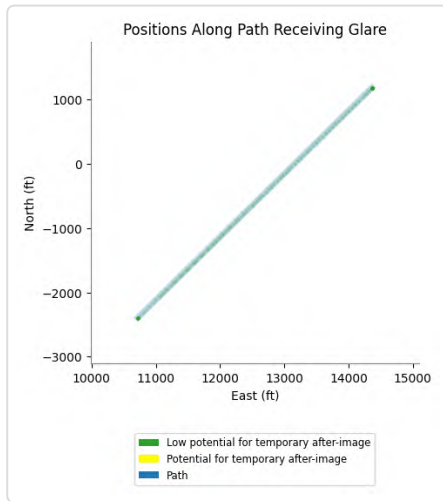
Yellow glare: none

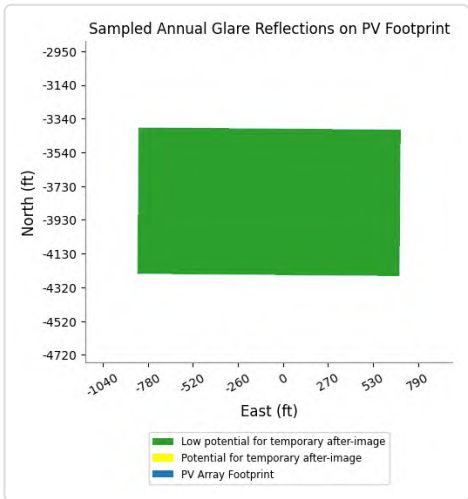
Green glare: 497 min.







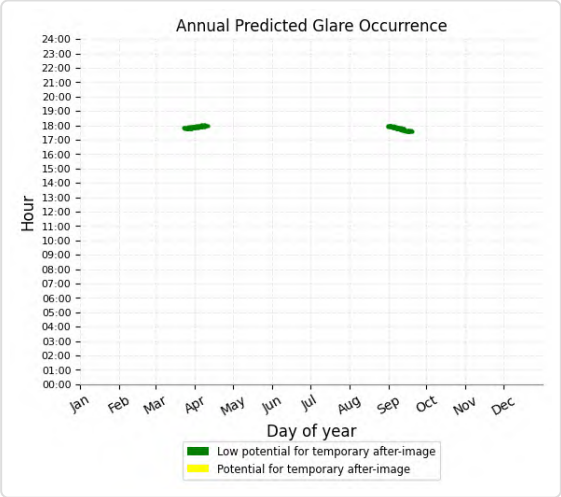


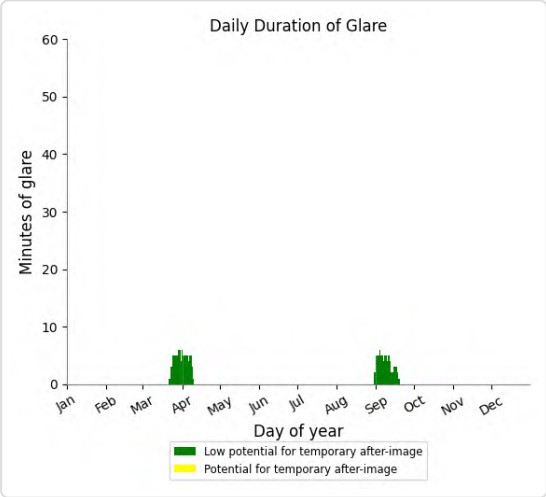


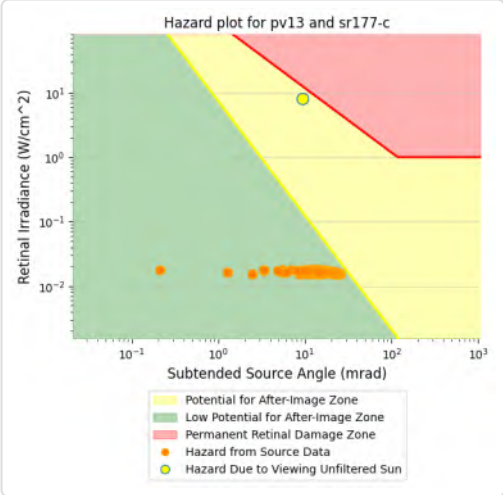
PV13 and Route: SR177 C

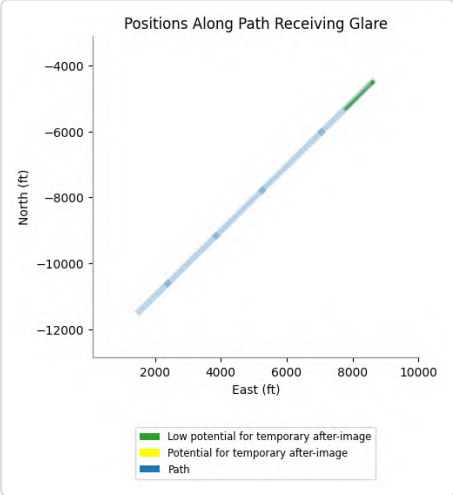
Yellow glare: none

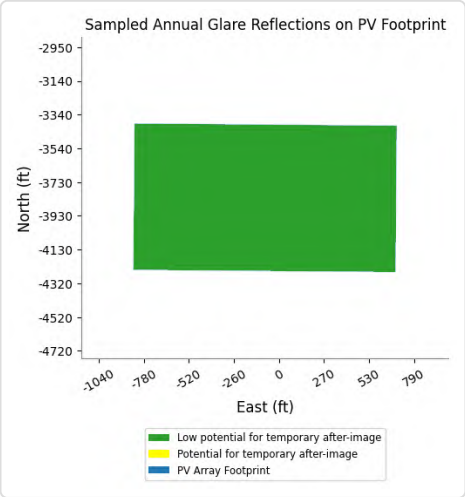
Green glare: 163 min.











PV13 and Route: AirportRd A

No glare found

PV13 and Route: EagleMtnRd A

No glare found

PV13 and Route: EagleMtnRd B

No glare found

PV13 and Route: I-10 EB A

No glare found

PV13 and Route: I-10 EB B

No glare found

PV13 and Route: I-10 EB C

No glare found

PV13 and Route: I-10 WB A

No glare found

PV13 and Route: I-10 WB B

No glare found

PV13 and Route: I-10 WB C

No glare found

PV13 and Route: KaiserRd A

No glare found

PV13 and Route: KaiserRd B

No glare found

PV13 and Route: KaiserRd C

No glare found

PV13 and Route: OasisRd

No glare found

PV13 and Route: SR177 D

No glare found

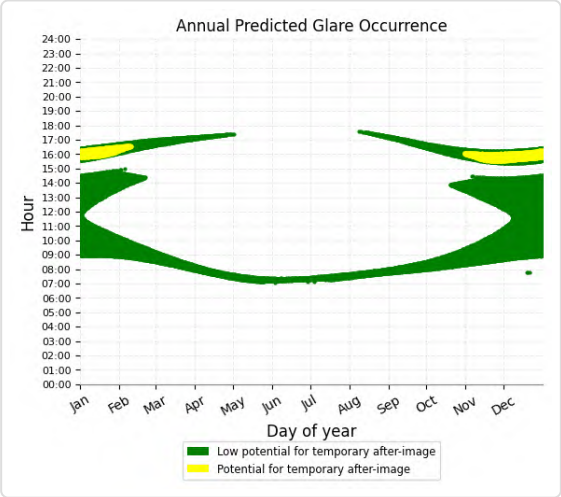
PV13 and Route: SR177 E

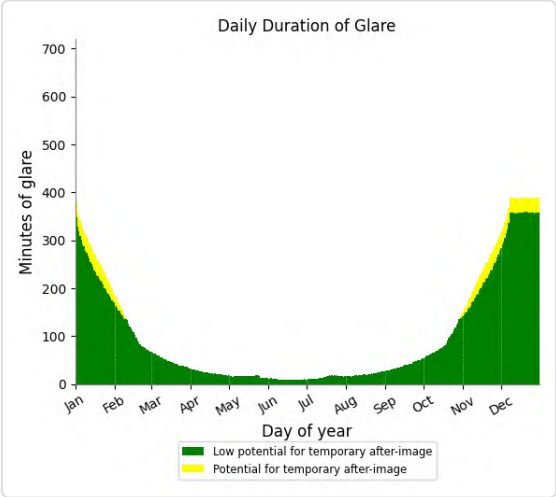
No glare found

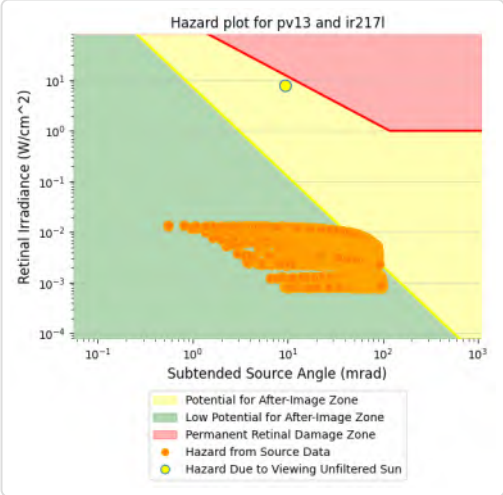
PV13 and FP: IR217l

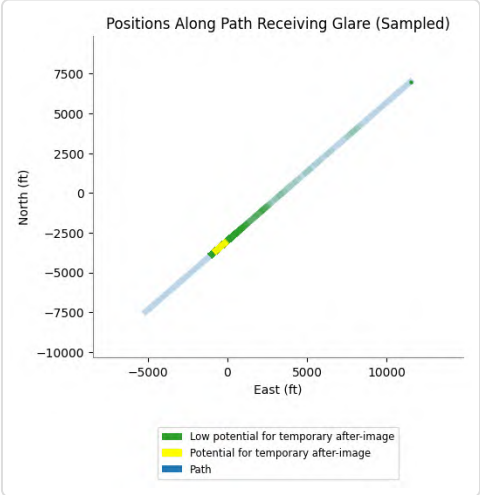
Yellow glare: 2,884 min.

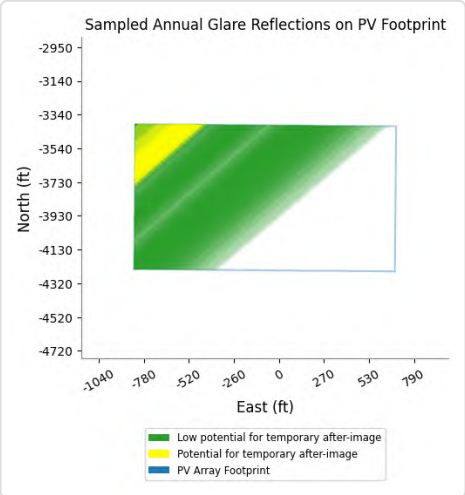
Green glare: 35,766 min.

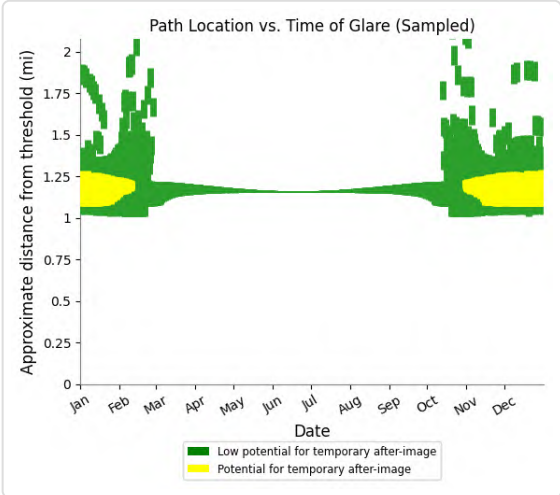








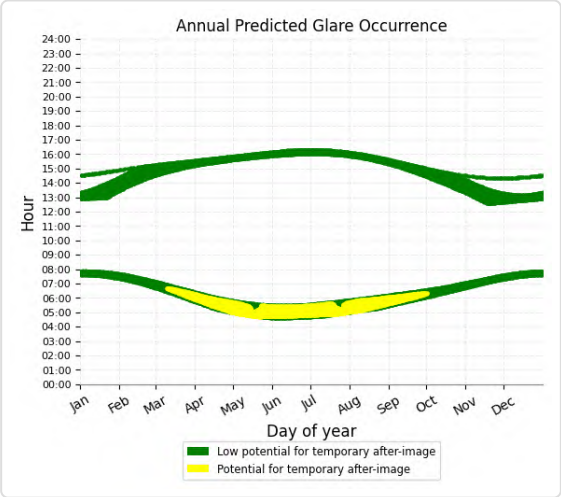


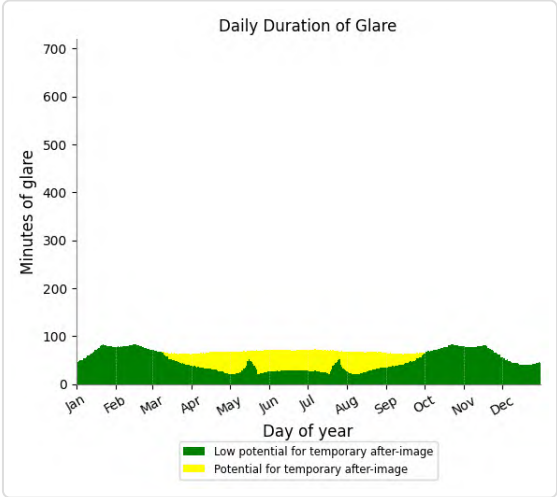


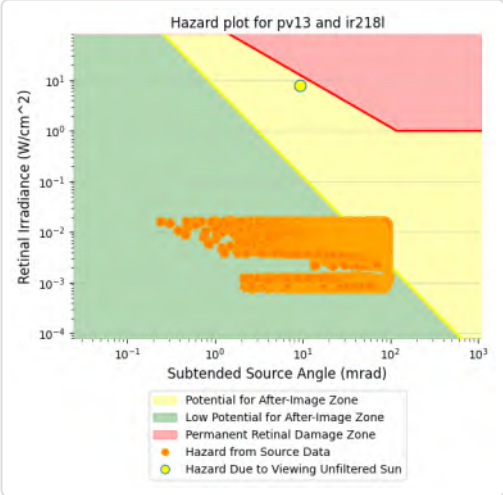
PV13 and FP: IR218l

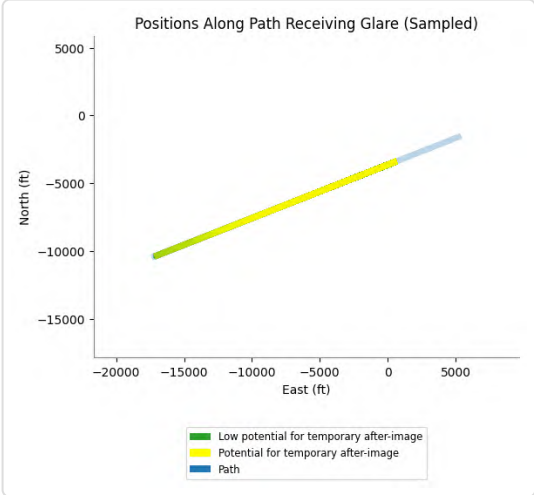
Yellow glare: 6,967 min.

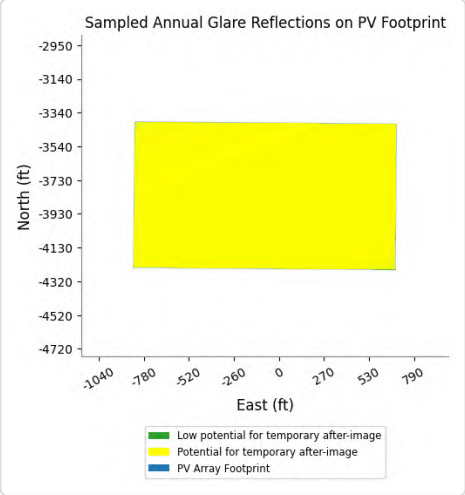
Green glare: 17,796 min.

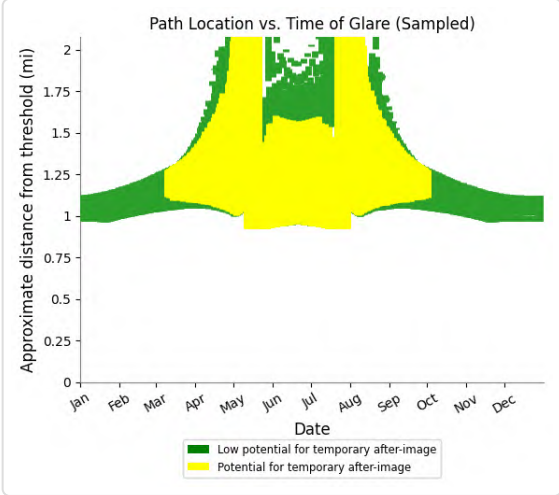








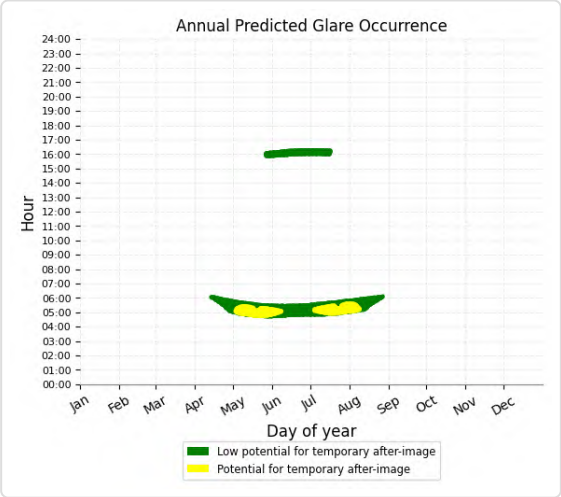


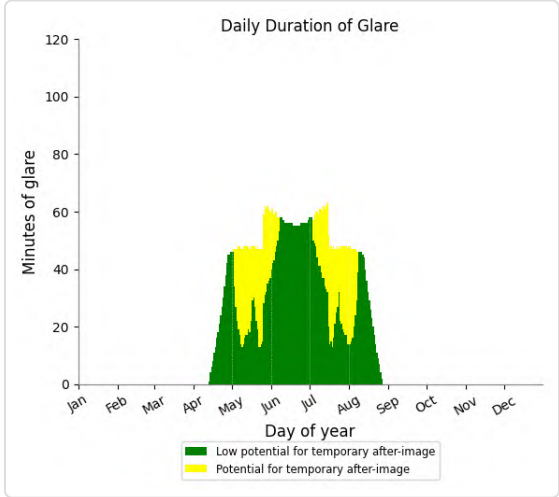


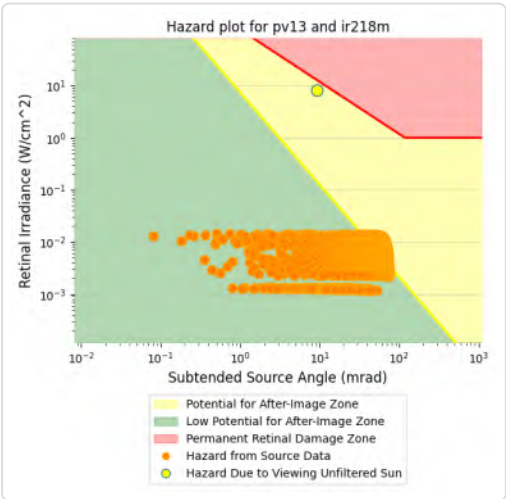
PV13 and FP: IR218m

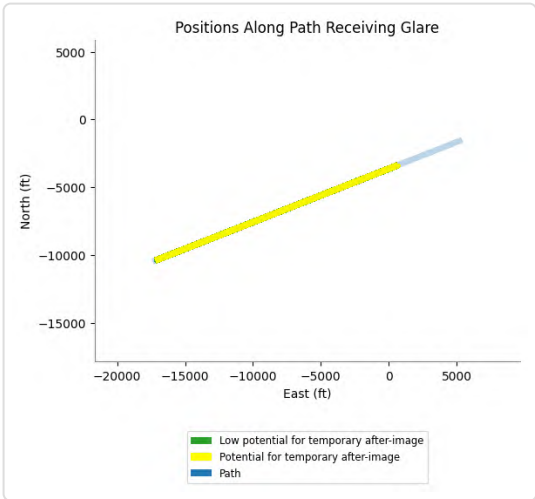
Yellow glare: 1,804 min.

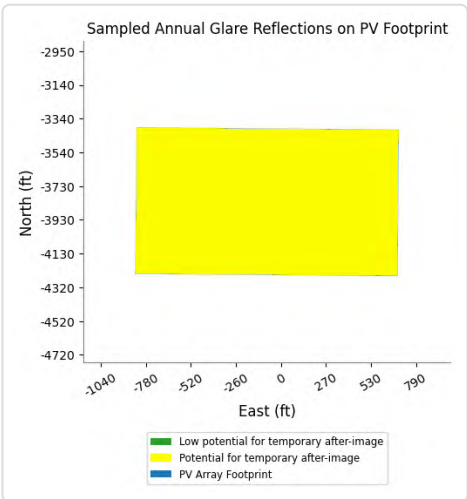
Green glare: 4,420 min.

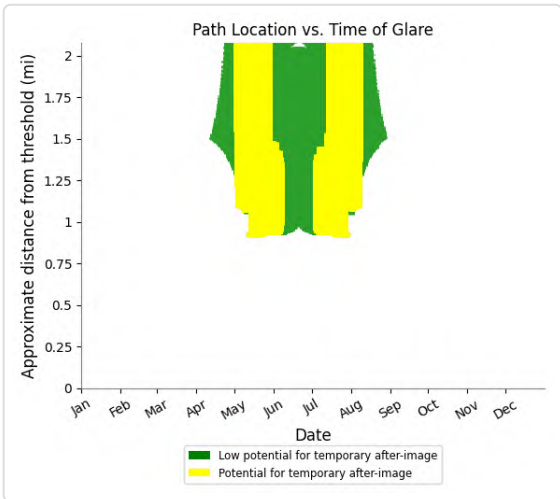








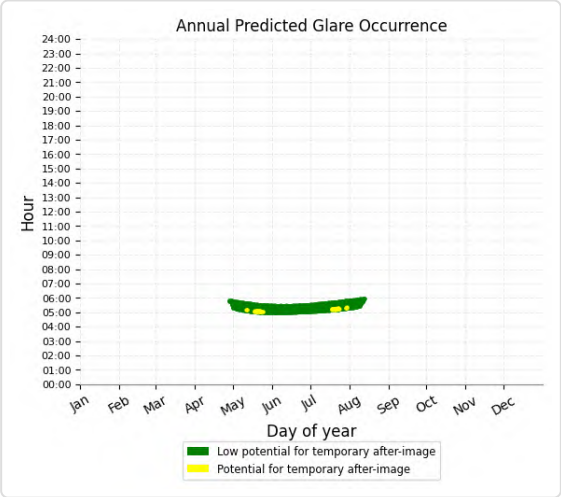


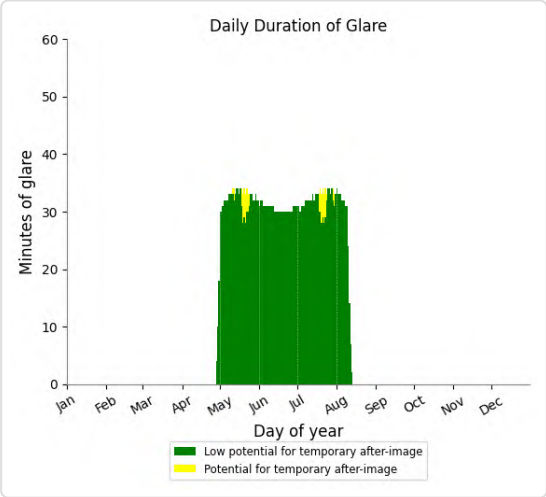


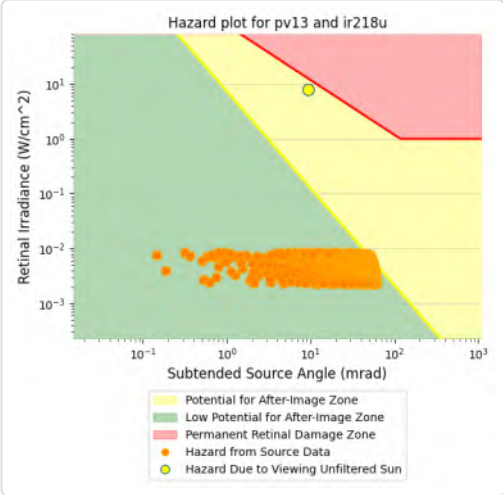
PV13 and FP: IR218u

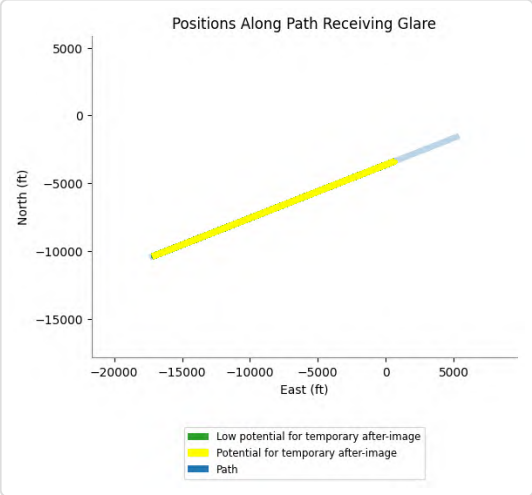
Yellow glare: 62 min.

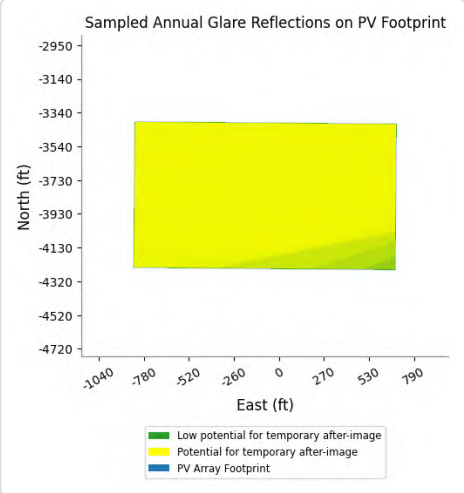
Green glare: 3,250 min.

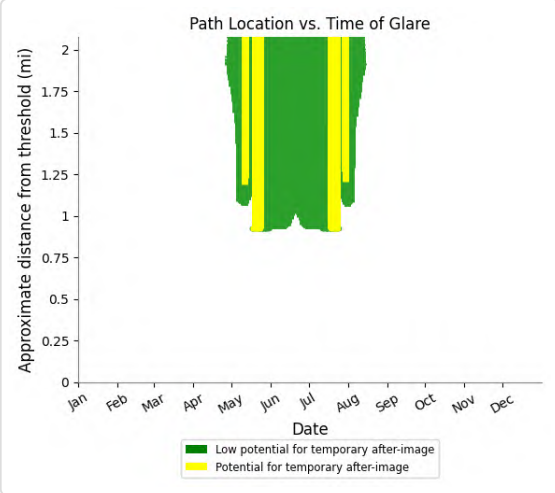








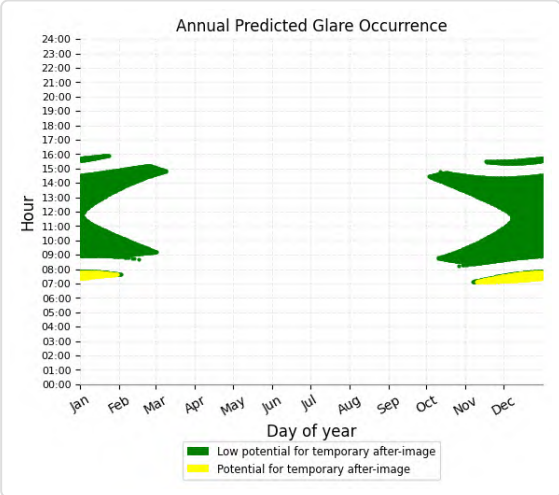


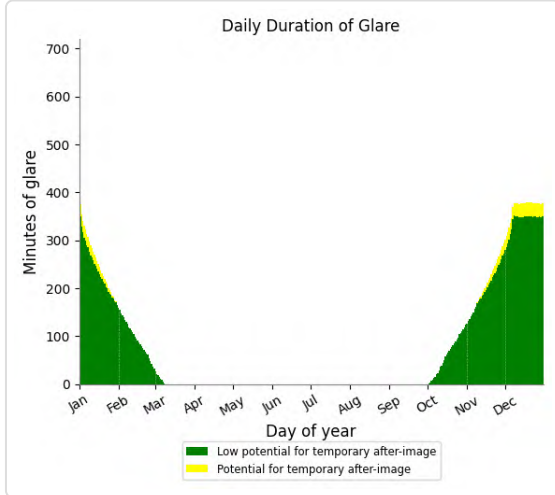


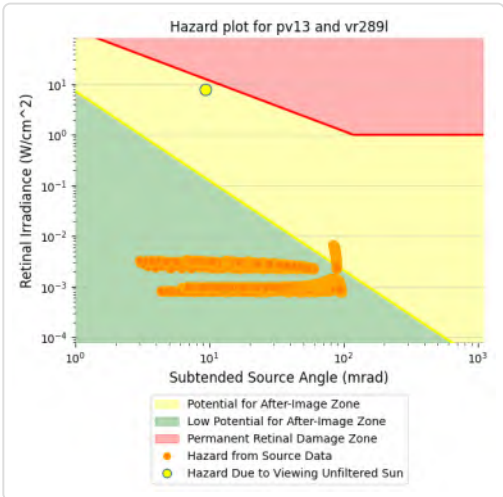
PV13 and FP: VR289I

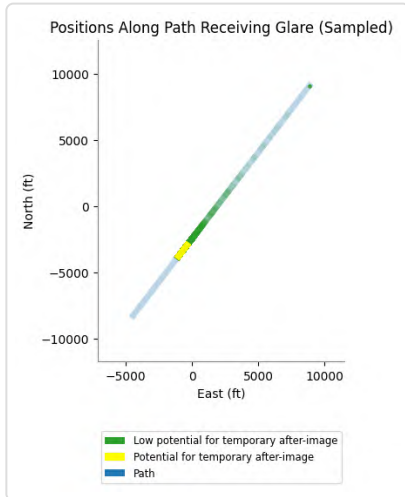
Yellow glare: 1,535 min.

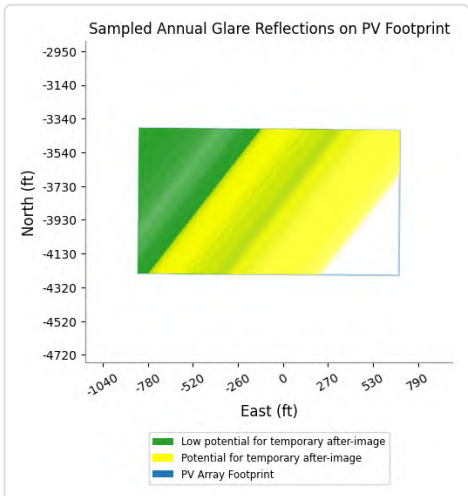
Green glare: 28,675 min.

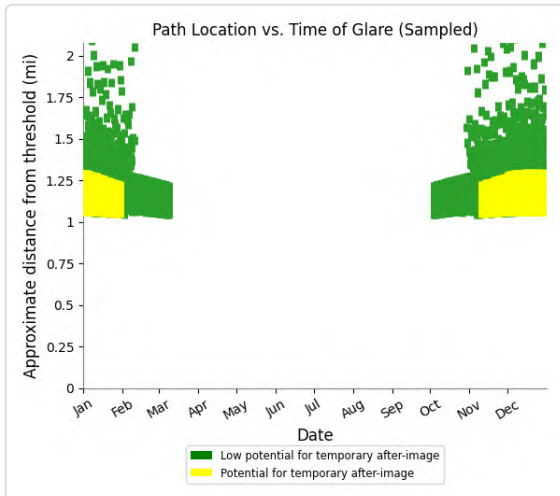








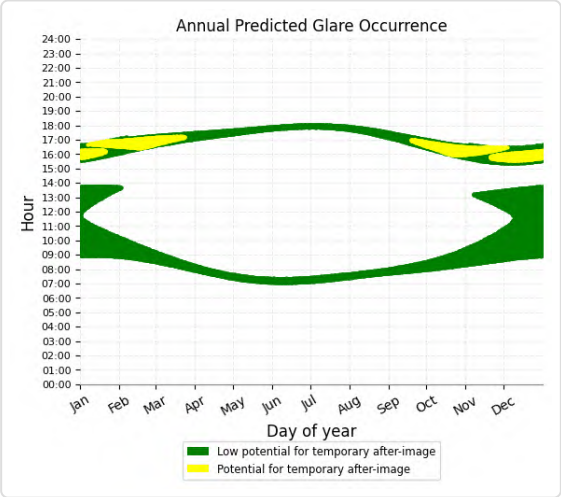


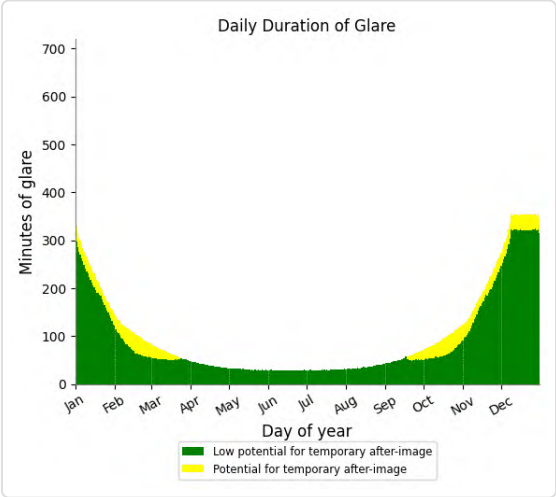


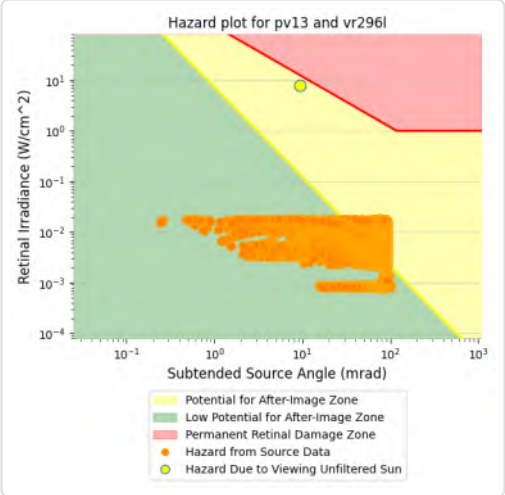
PV13 and FP: VR296I

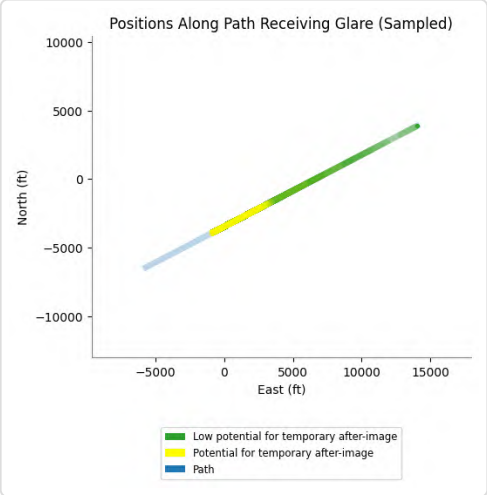
Yellow glare: 5,047 min.

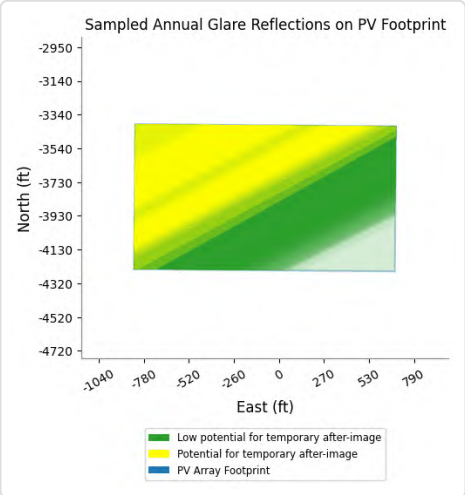
Green glare: 33,267 min.

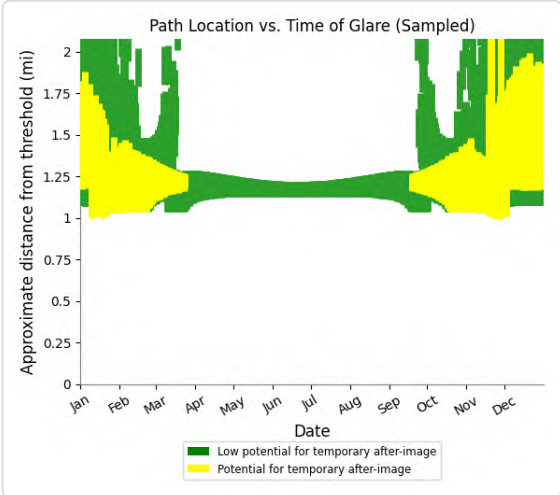








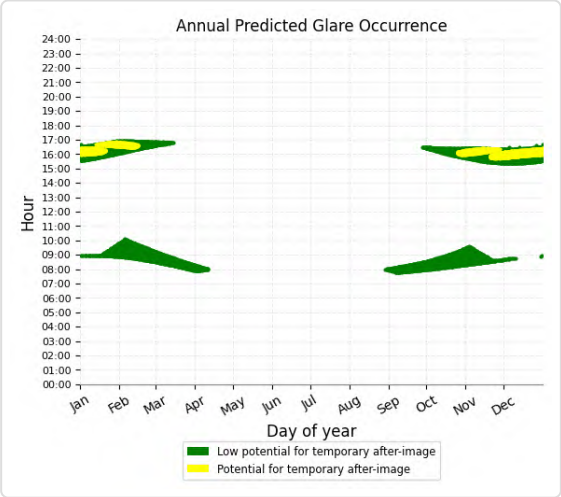


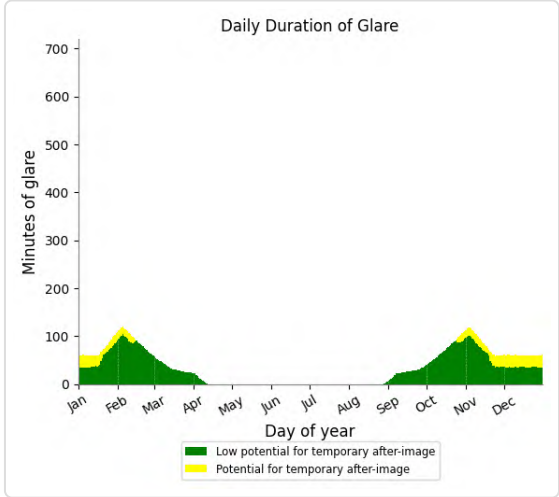


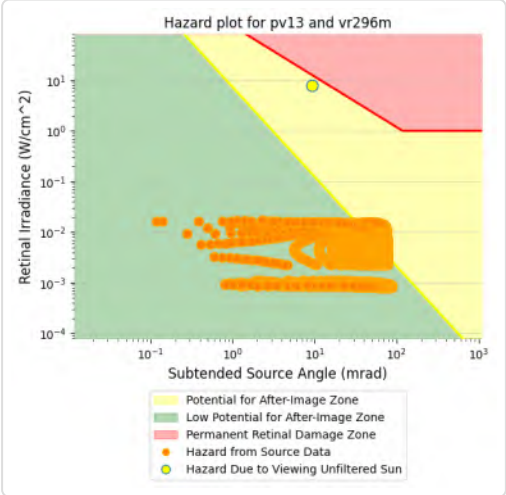
PV13 and FP: VR296m

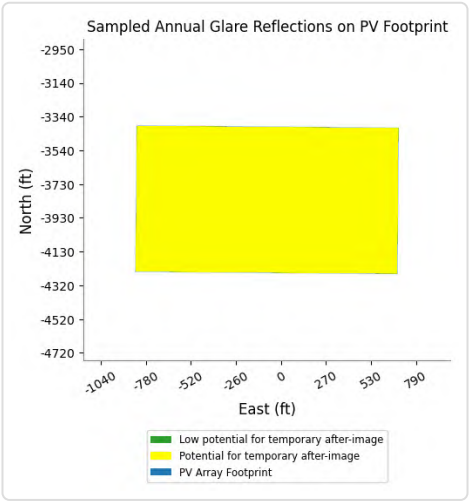
Yellow glare: 2,289 min.

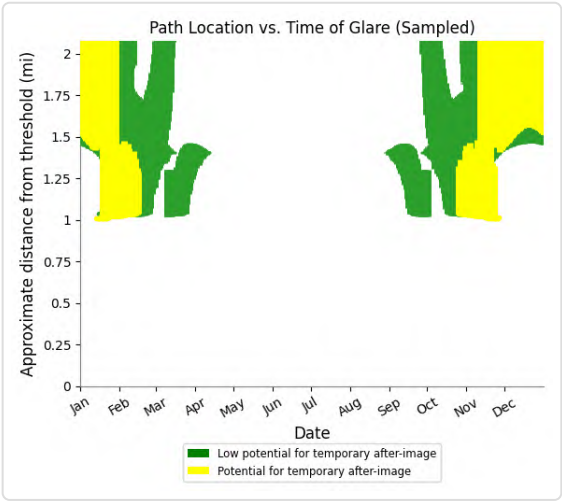
Green glare: 11,257 min.







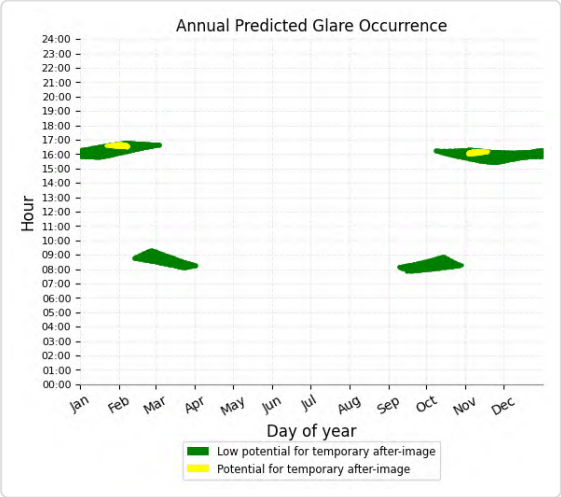


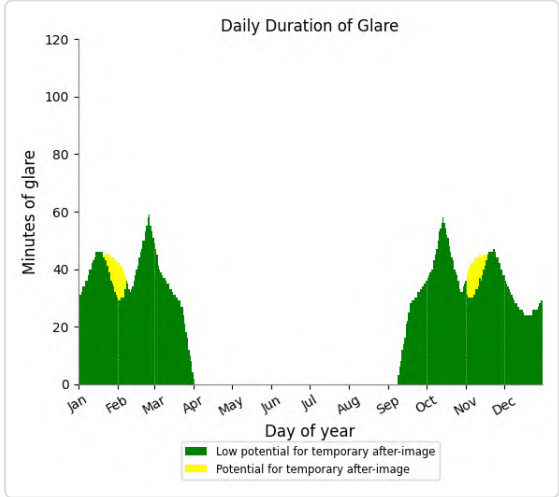


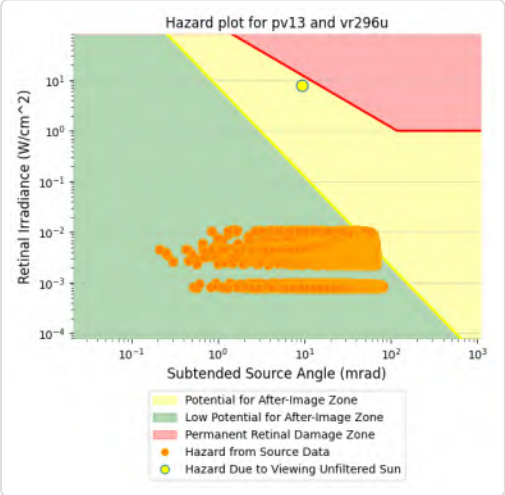
PV13 and FP: VR296u

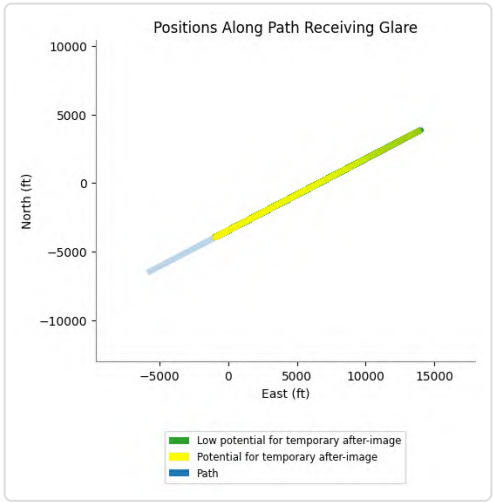
Yellow glare: 286 min.

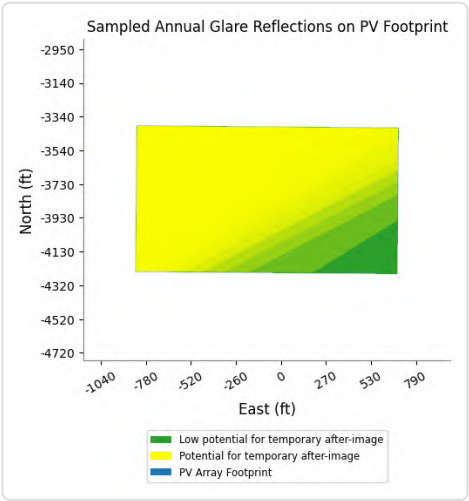
Green glare: 7,228 min.

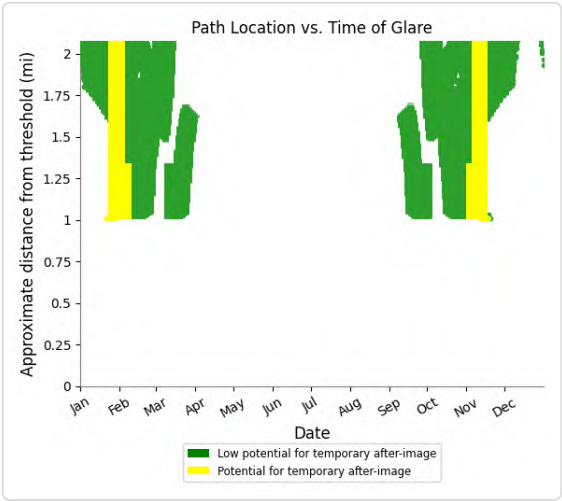








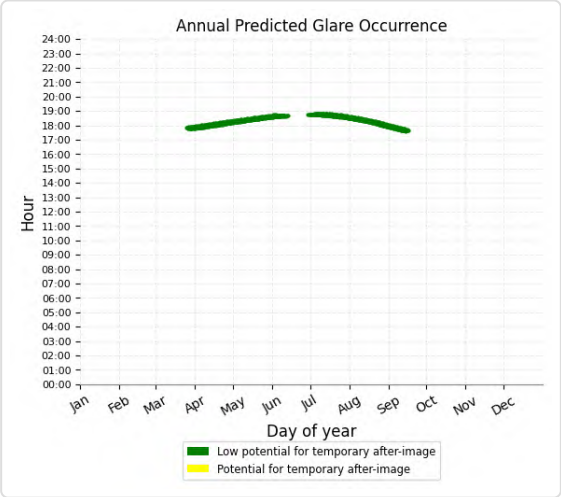


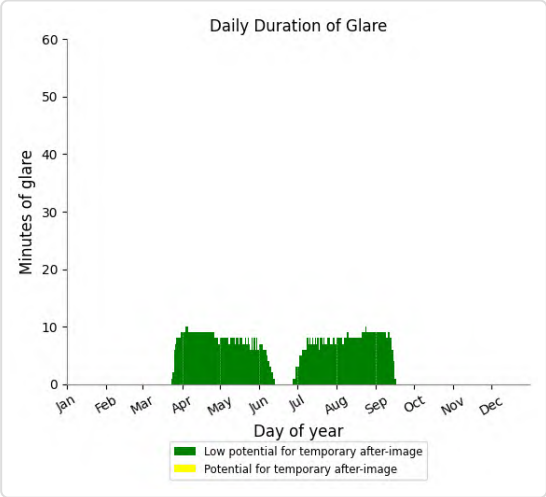


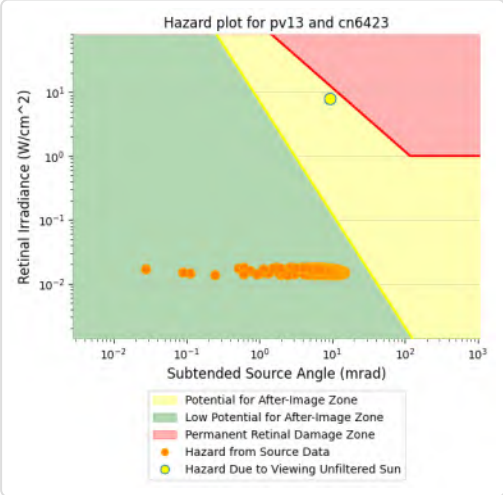
PV13 and FP: CN6423

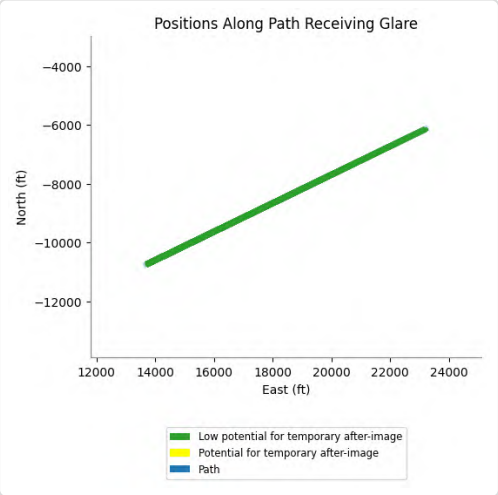
Yellow glare: none

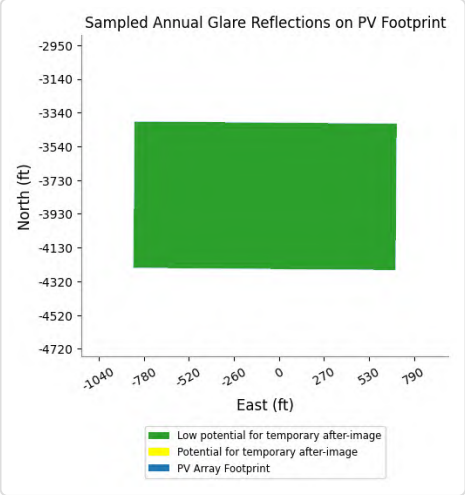
Green glare: 1,209 min.

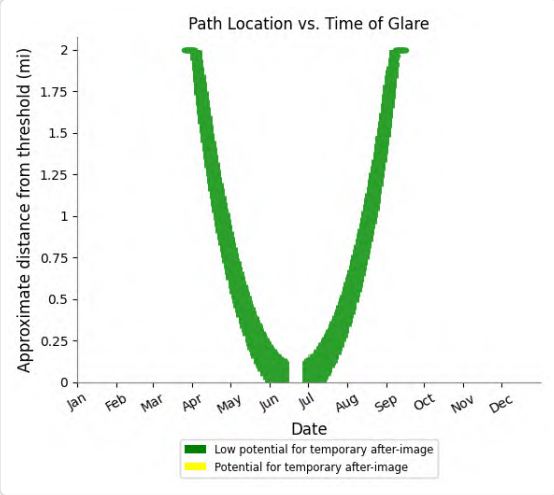








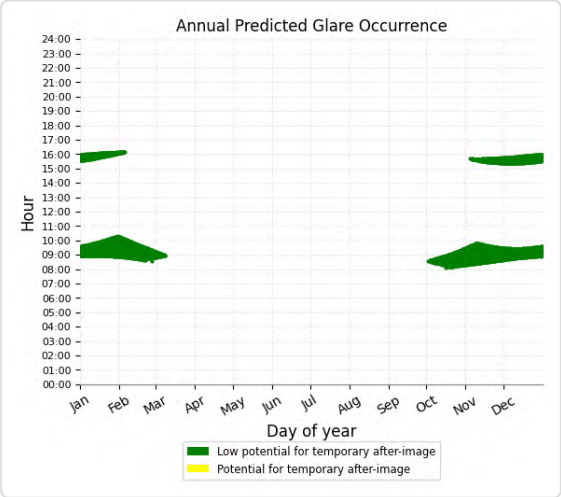


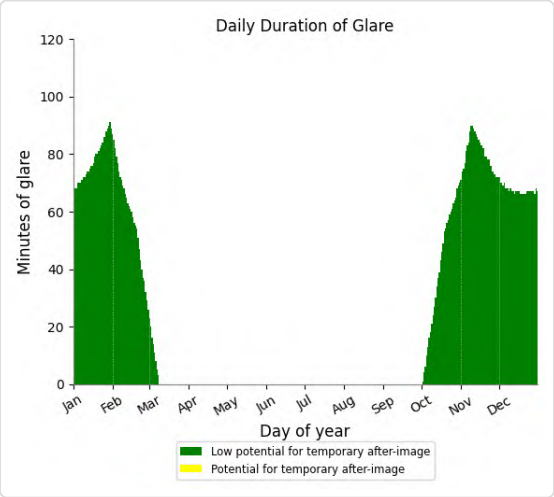


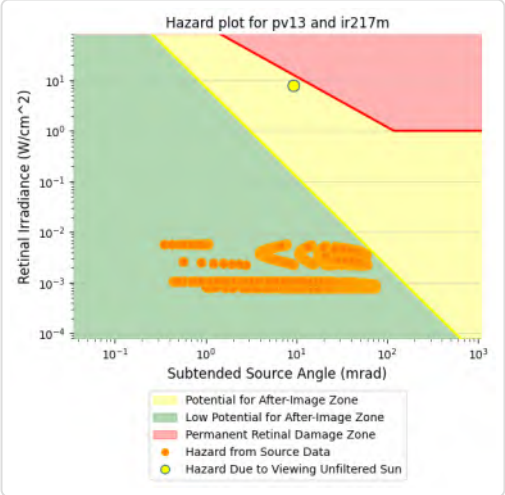
PV13 and FP: IR217m

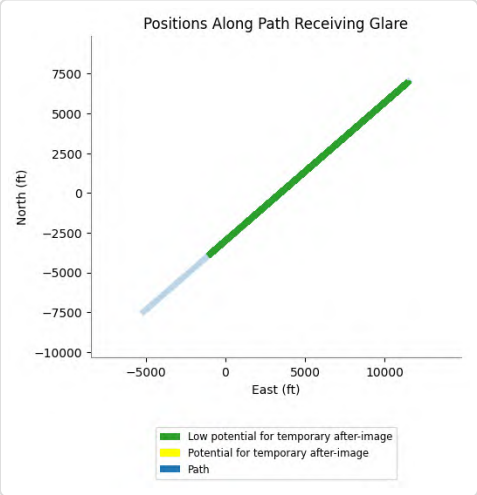
Yellow glare: none

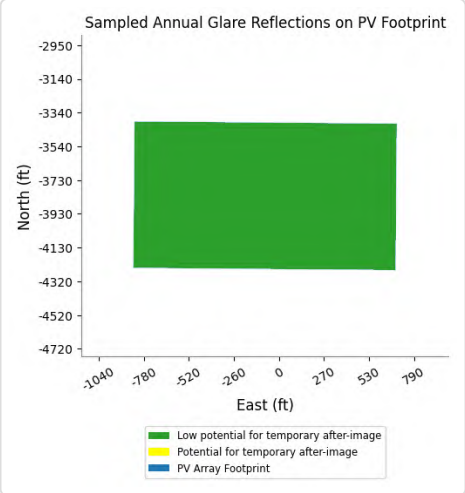
Green glare: 9,931 min.

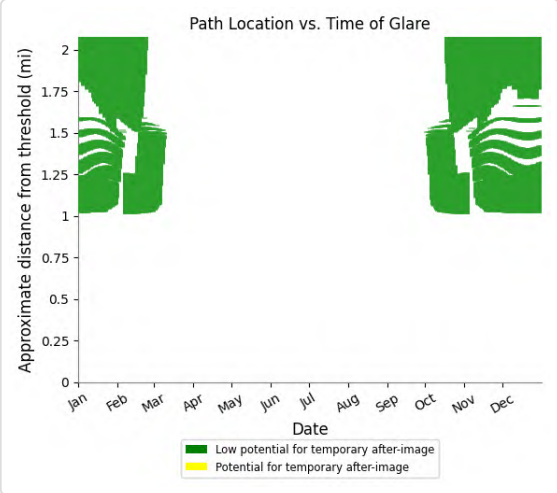








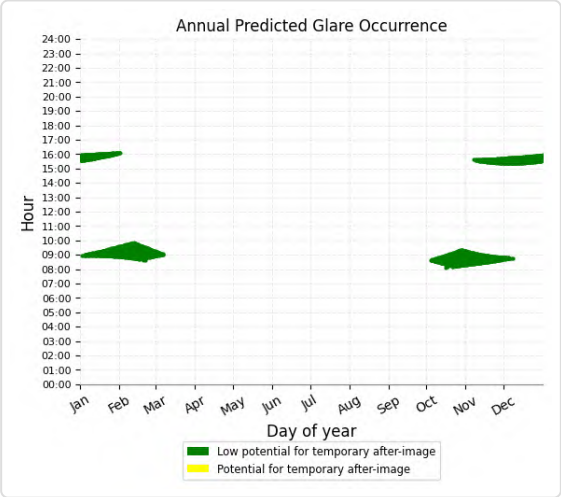


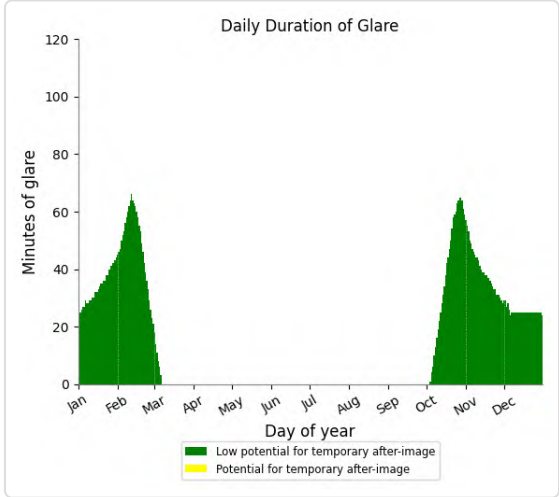


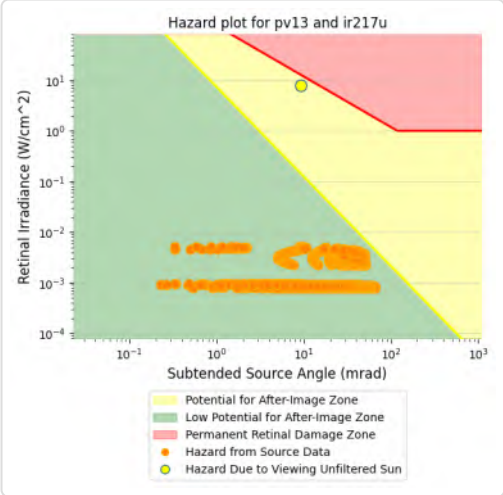
PV13 and FP: IR217u

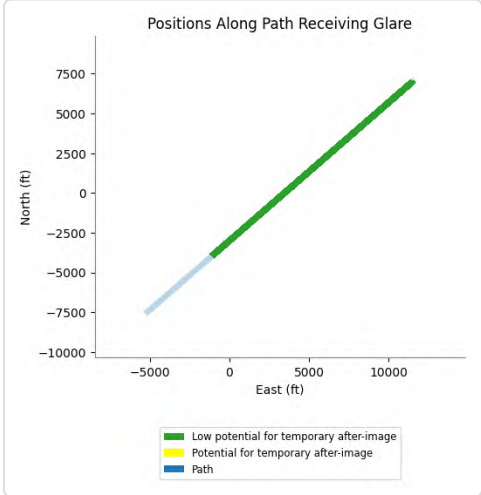
Yellow glare: none

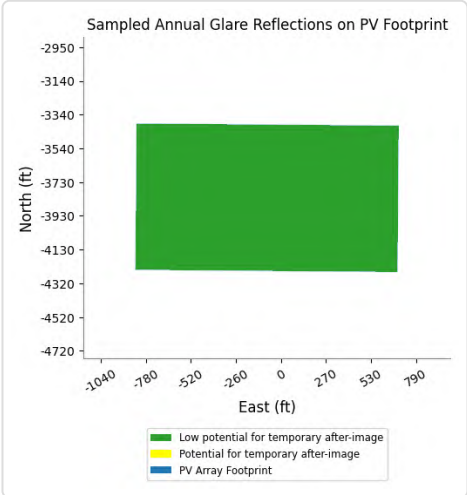
Green glare: 5,590 min.

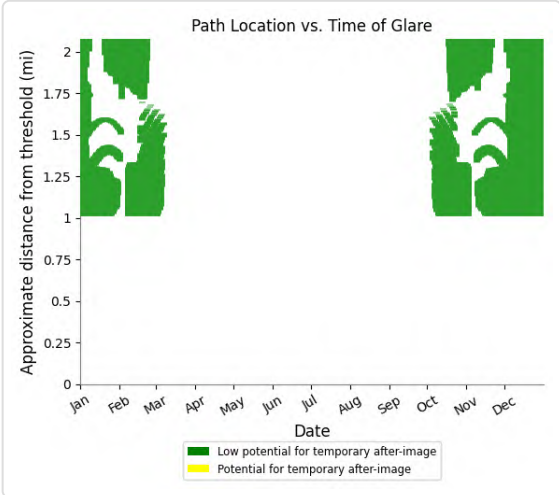








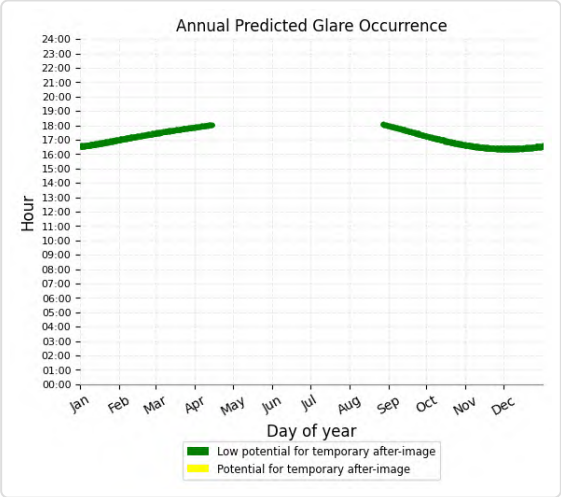


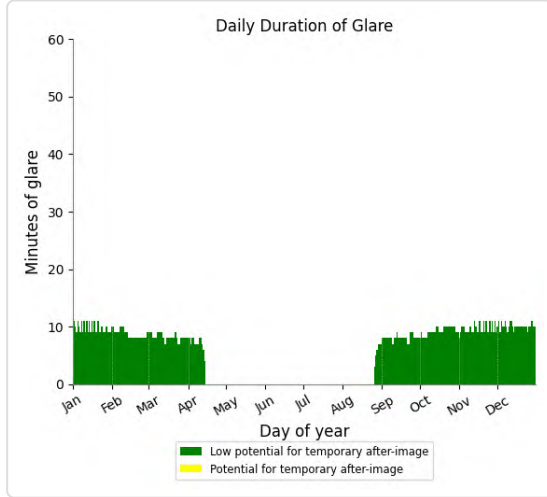


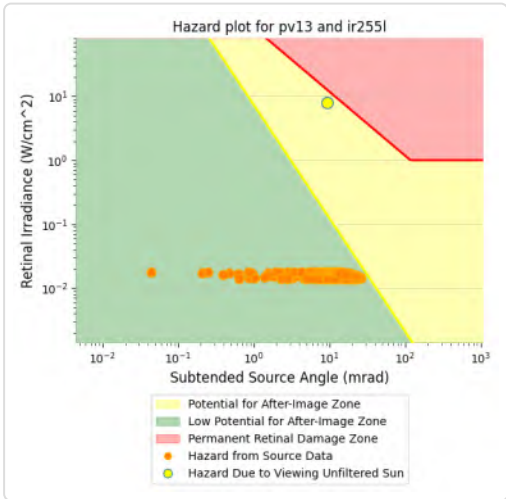
PV13 and FP: IR255I

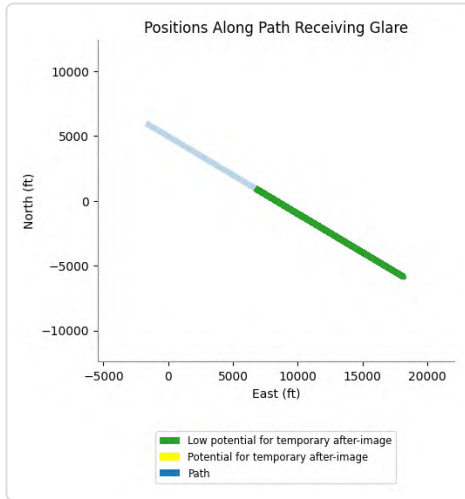
Yellow glare: none

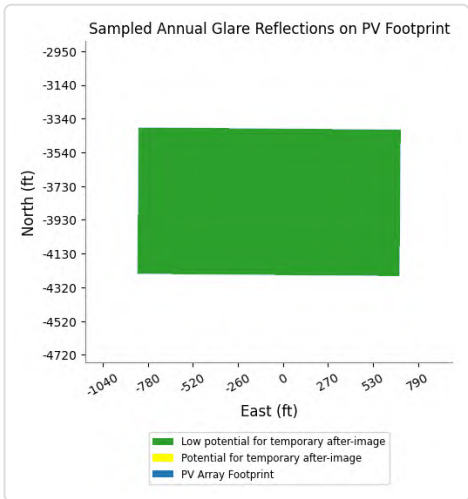
Green glare: 2,069 min.

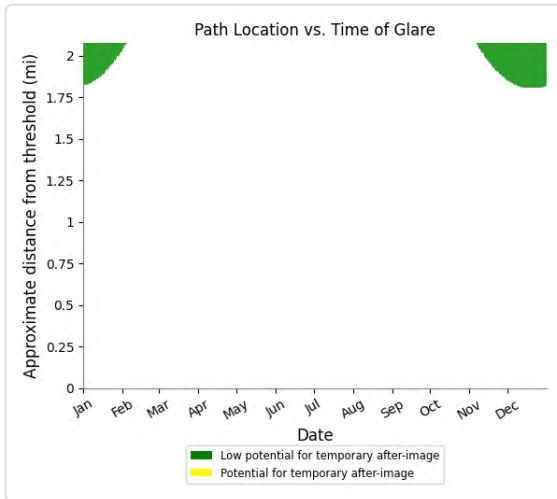








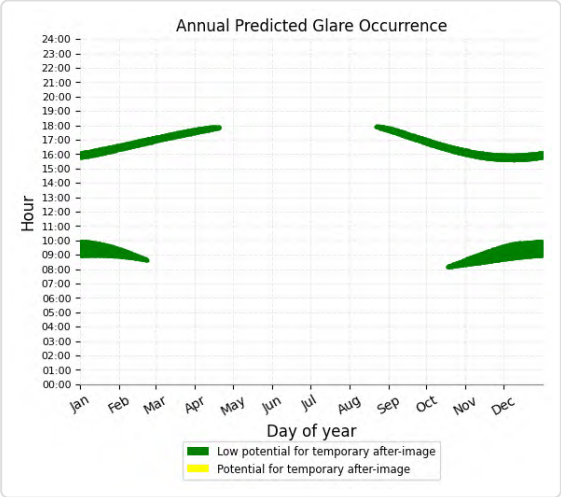


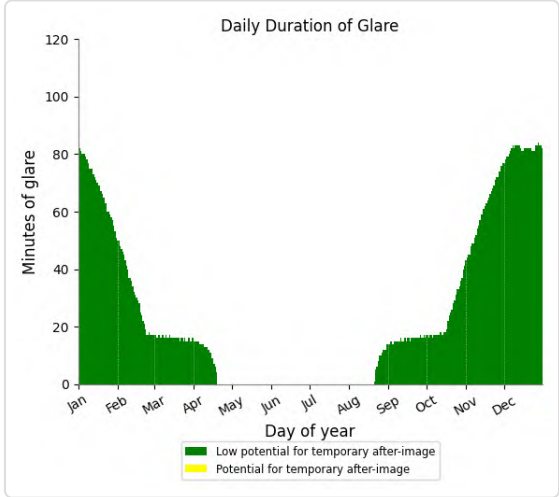


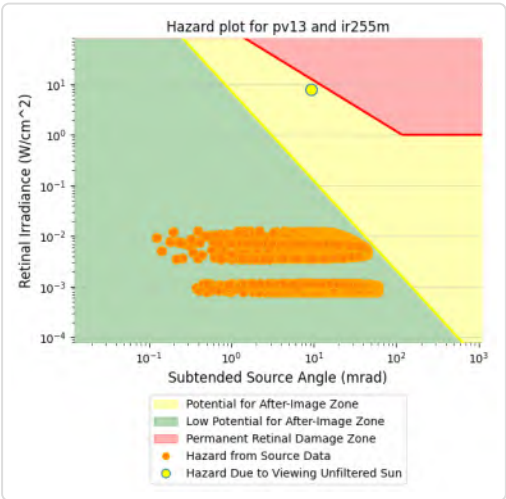
PV13 and FP: IR255m

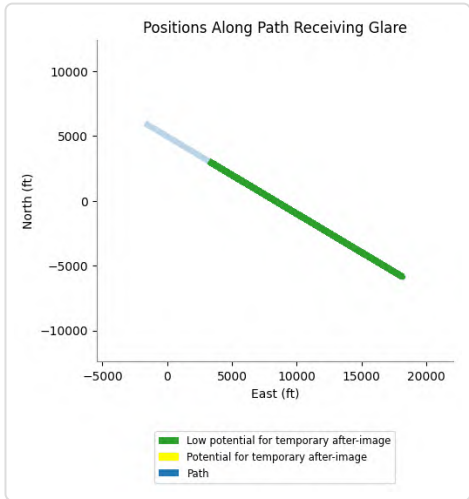
Yellow glare: none

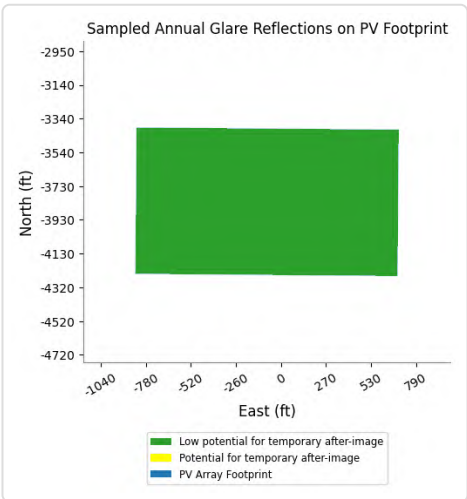
Green glare: 9,424 min.

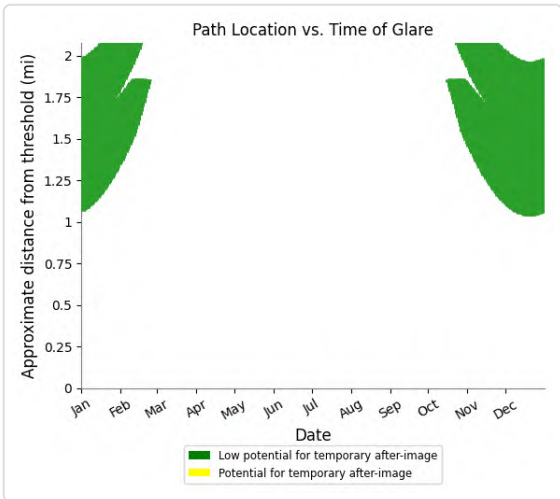








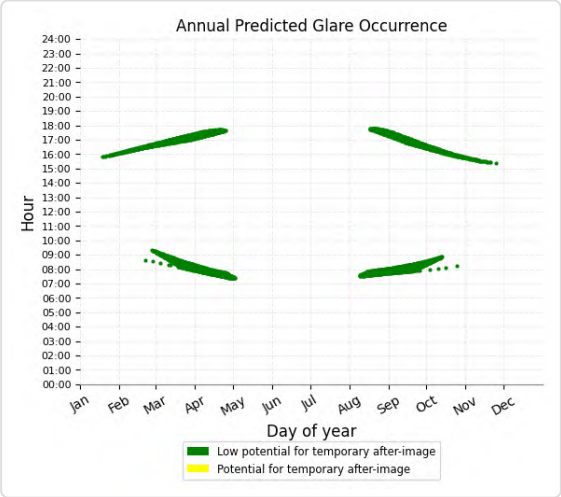


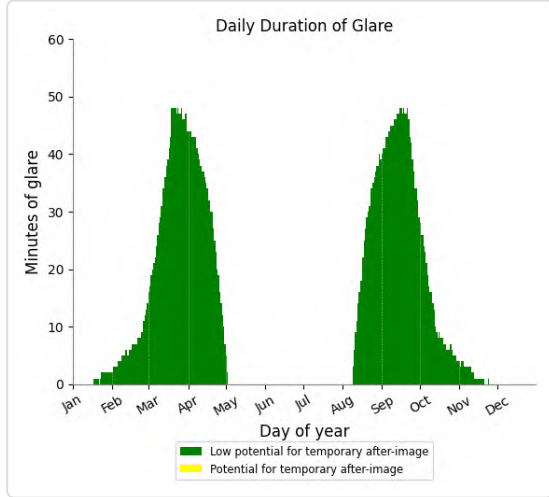


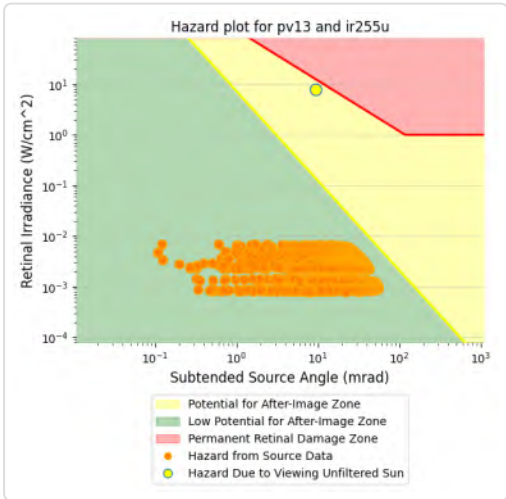
PV13 and FP: IR255u

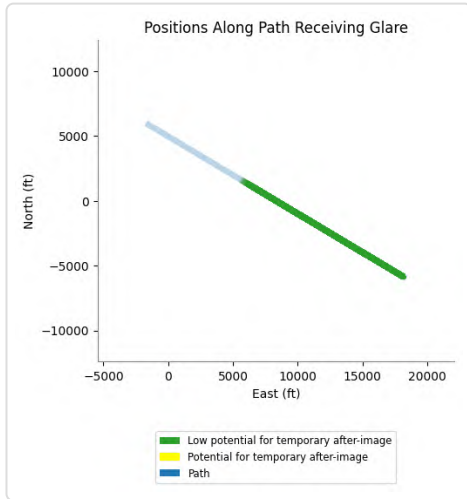
Yellow glare: none

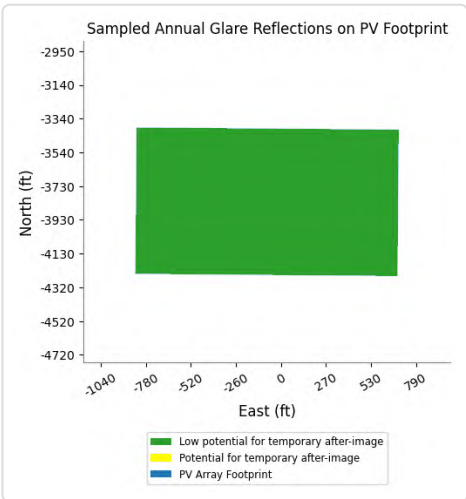
Green glare: 4,578 min.

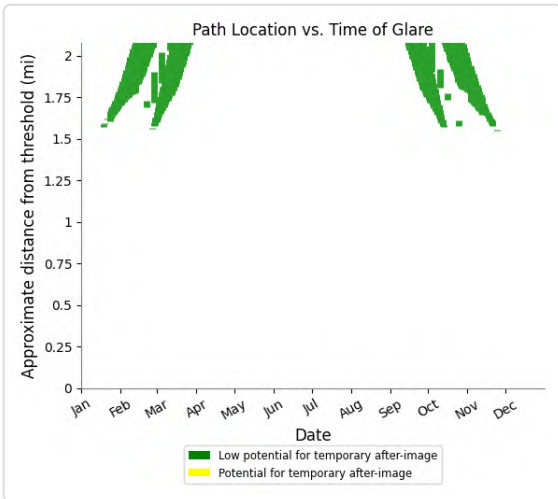








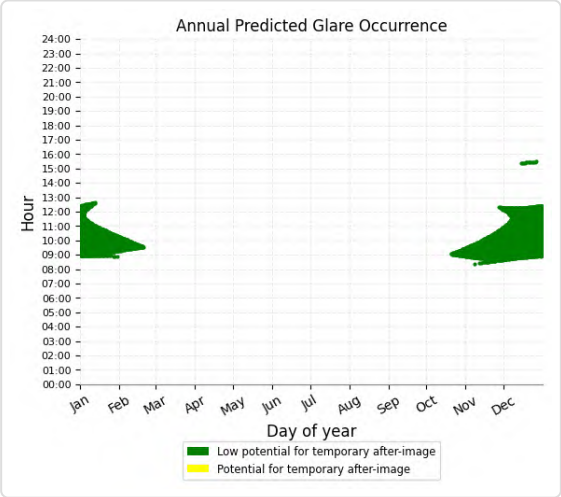


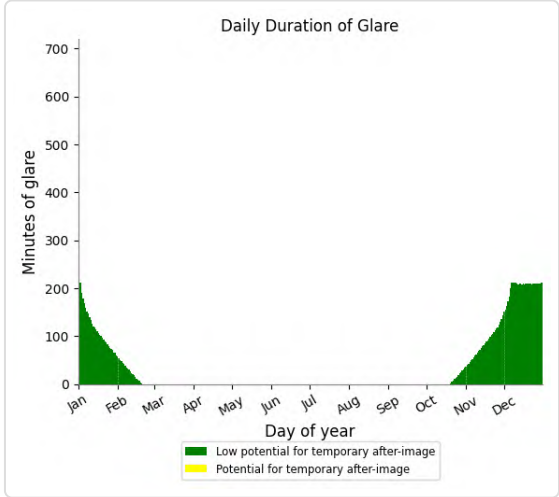


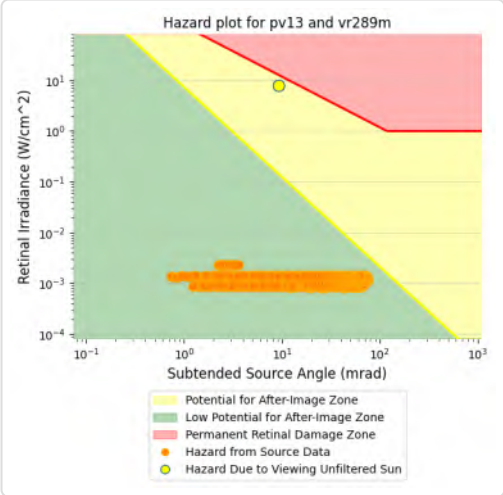
PV13 and FP: VR289m

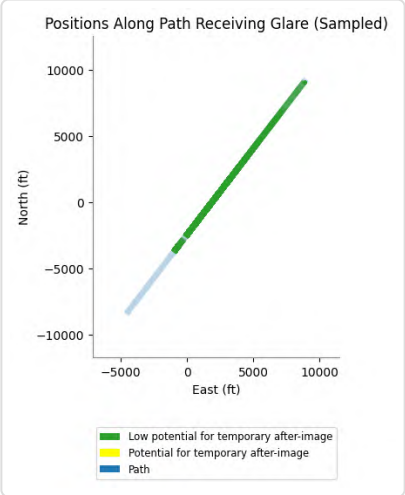
Yellow glare: none

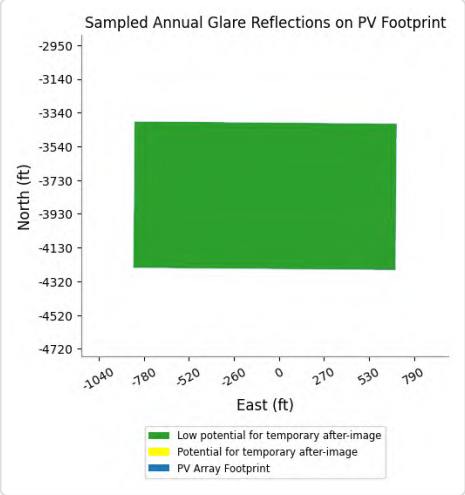
Green glare: 13,333 min.

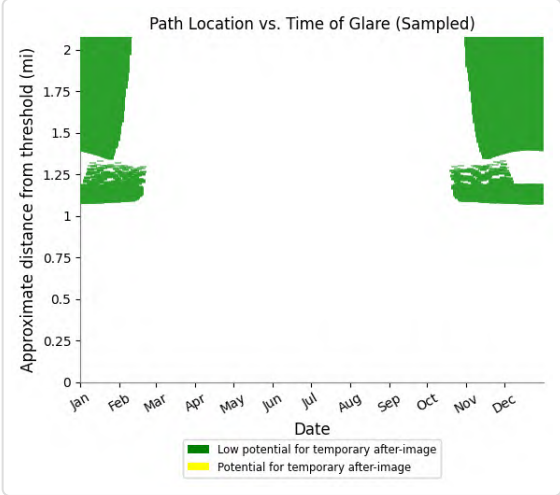








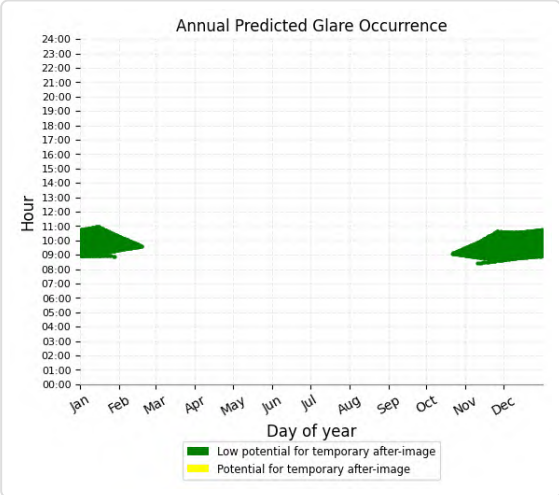


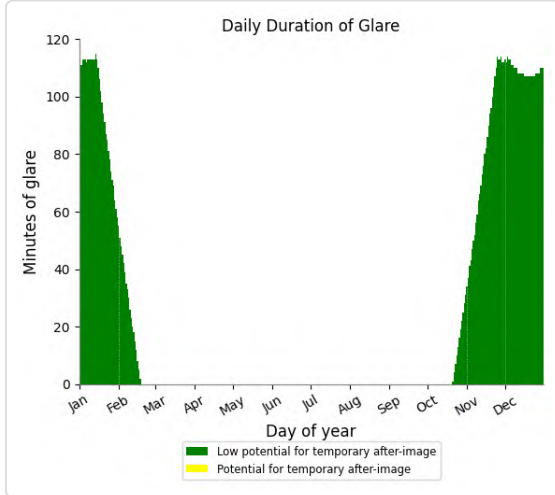


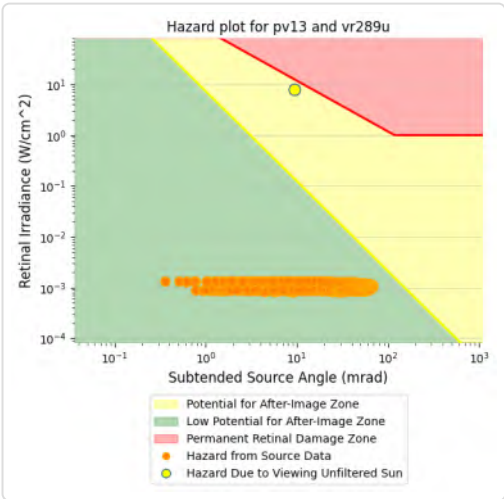
PV13 and FP: VR289u

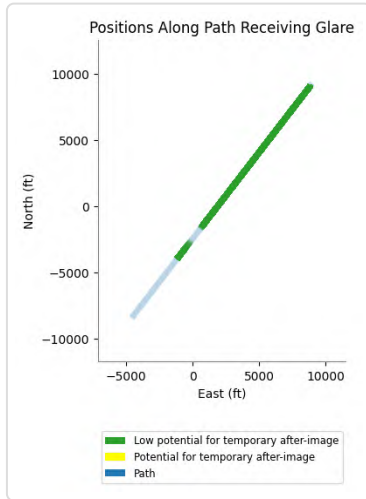
Yellow glare: none

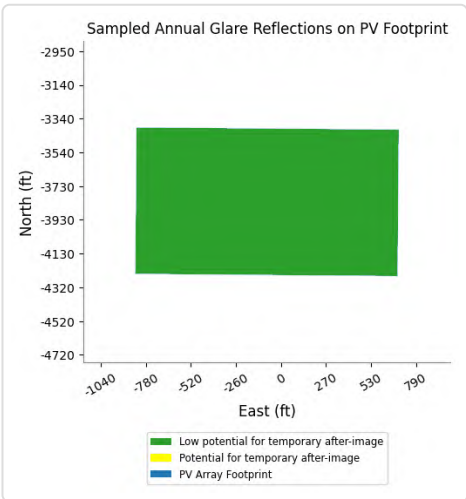
Green glare: 9,476 min.

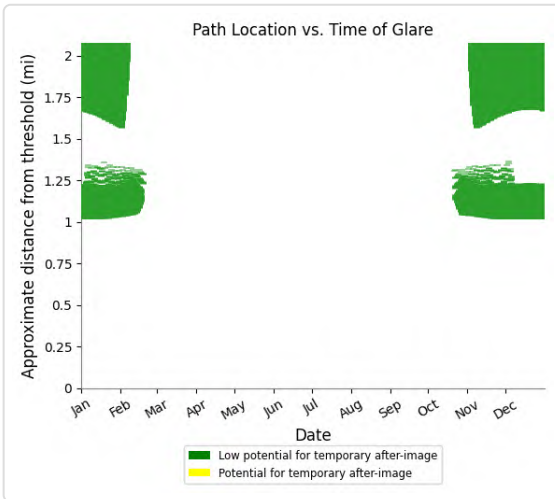












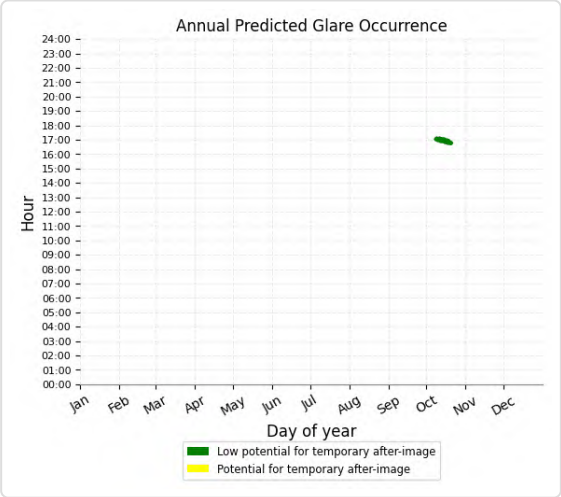
PV13 and FP: CN645

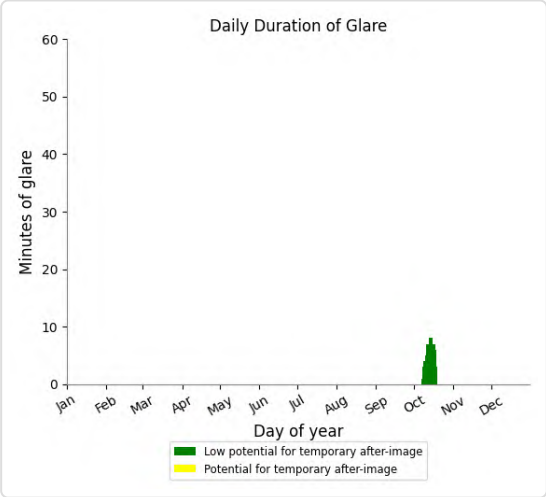
No glare found

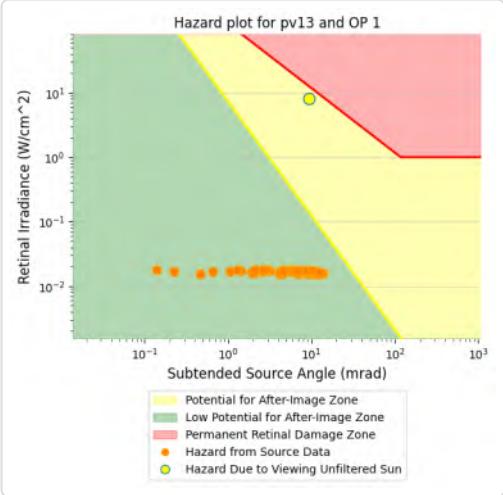
PV13 and OP 1

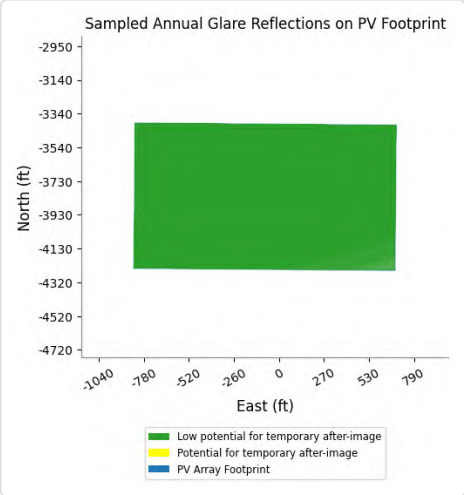
Yellow glare: none

Green glare: 74 min.



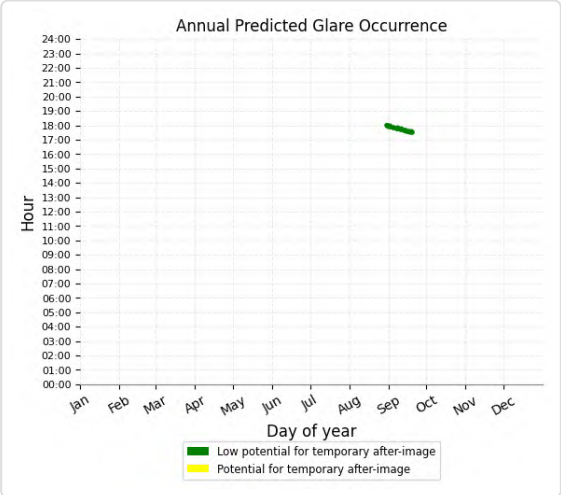


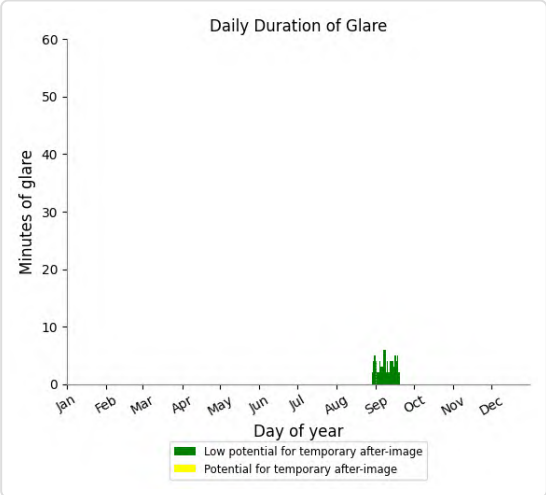


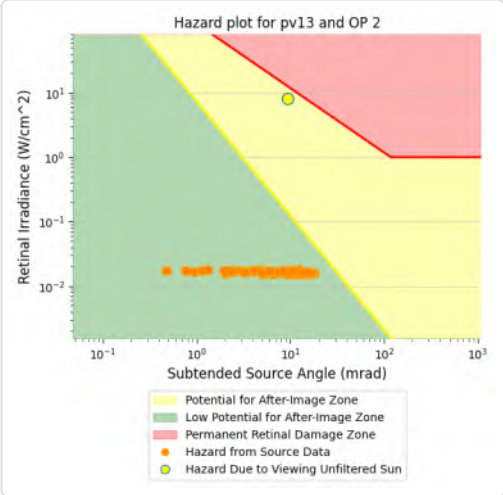


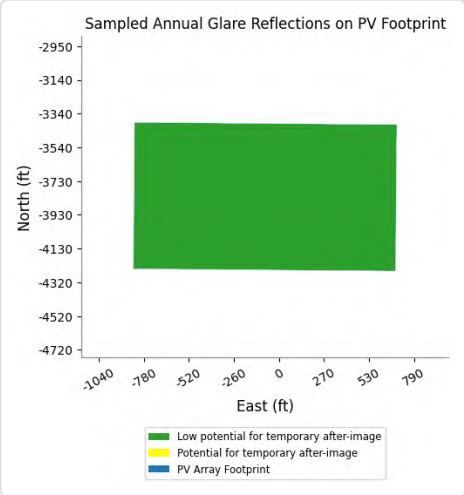
PV13 and OP 2

Yellow glare: none
Green glare: 80 min.









PV13 and OP 3

No glare found

PV13 and OP 4

No glare found

PV13 and OP 5

No glare found

PV13 and OP 6

No glare found

PV13 and OP 7

No glare found

PV13 and OP 8

No glare found

PV13 and OP 9

No glare found

PV13 and OP 10

No glare found

PV13 and OP 11

No glare found

PV13 and OP 12

No glare found

PV13 and OP 13

No glare found

PV13 and OP 14

No glare found

PV13 and OP 15

No glare found

PV13 and OP 16

No glare found

PV13 and OP 17

No glare found

PV13 and OP 18

No glare found

PV13 and OP 19

No glare found

PV: PV14 potential temporary after-image

Receptor results ordered by category of glare

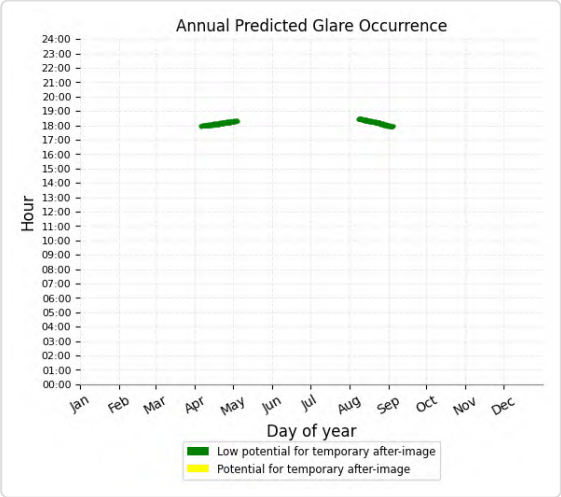
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd B	332	5.5	0	0.0
Race Track	497	8.3	0	0.0
SR177 A	1,126	18.8	0	0.0
SR177 B	561	9.3	0	0.0
SR177 C	273	4.5	0	0.0
AirportRd A	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	2,418	40.3	4,252	70.9
IR218l	2,989	49.8	96	1.6
IR218m	3,497	58.3	65	1.1
VR289l	2,674	44.6	4,656	77.6
VR289m	12,049	200.8	1,360	22.7
VR296l	4,963	82.7	5,946	99.1
VR296m	10,795	179.9	501	8.3
VR296u	6,051	100.8	14	0.2
CN6423	834	13.9	0	0.0
IR217m	9,079	151.3	0	0.0
IR217u	5,718	95.3	0	0.0
IR218u	2,038	34.0	0	0.0
IR255l	2,018	33.6	0	0.0
IR255m	3,314	55.2	0	0.0
IR255u	12,595	209.9	0	0.0
VR289u	9,471	157.8	0	0.0
CN645	0	0.0	0	0.0
OP 1	141	2.4	0	0.0
OP 2	21	0.3	0	0.0

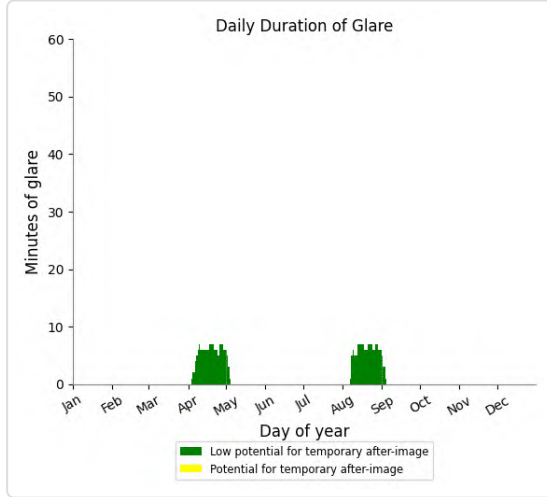
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

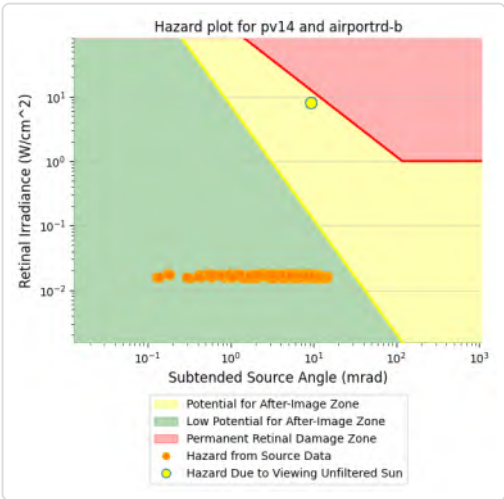
PV14 and Route: AirportRd B

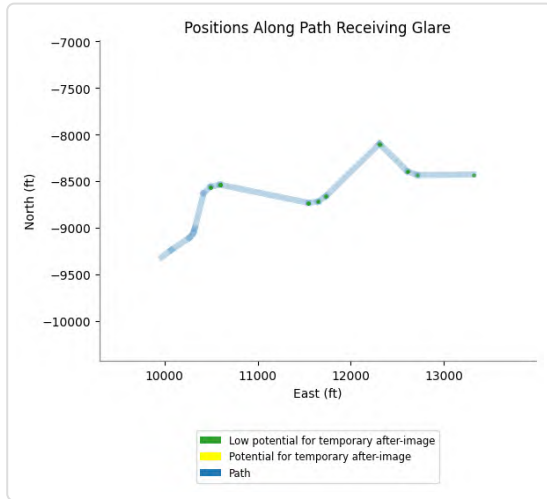
Yellow glare: none

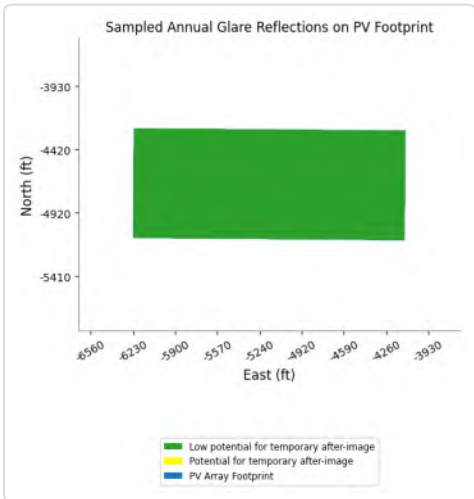
Green glare: 332 min.







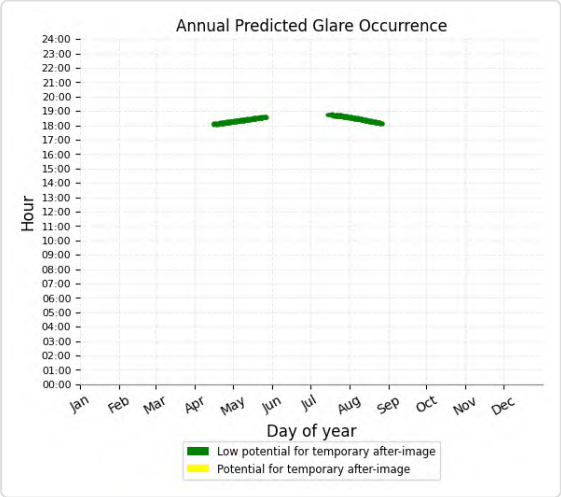


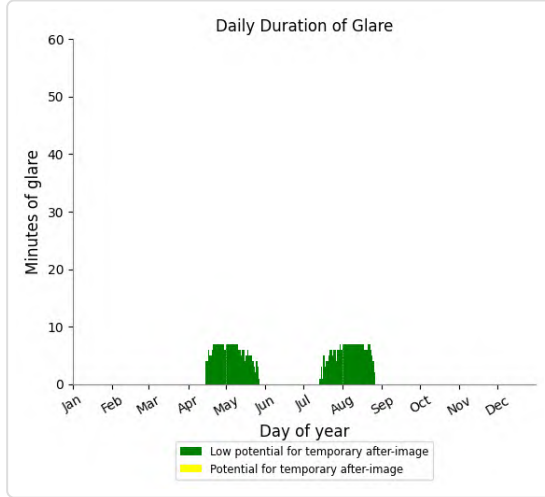


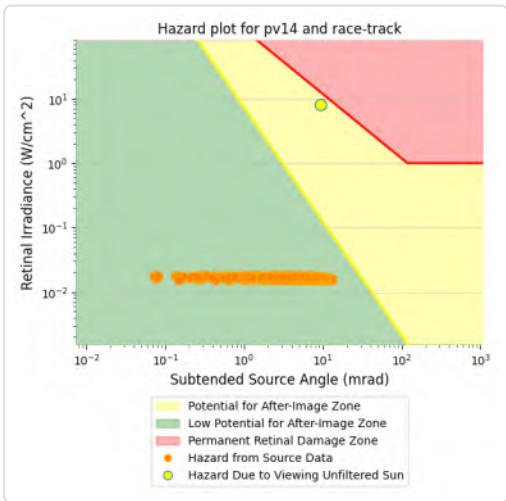
PV14 and Route: Race Track

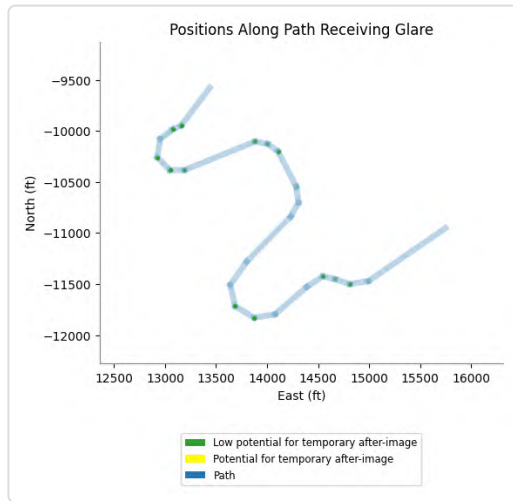
Yellow glare: none

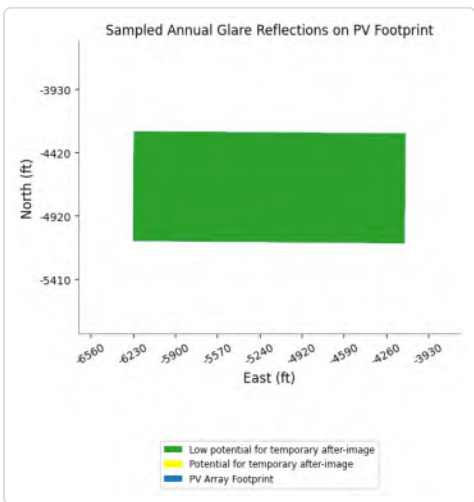
Green glare: 497 min.







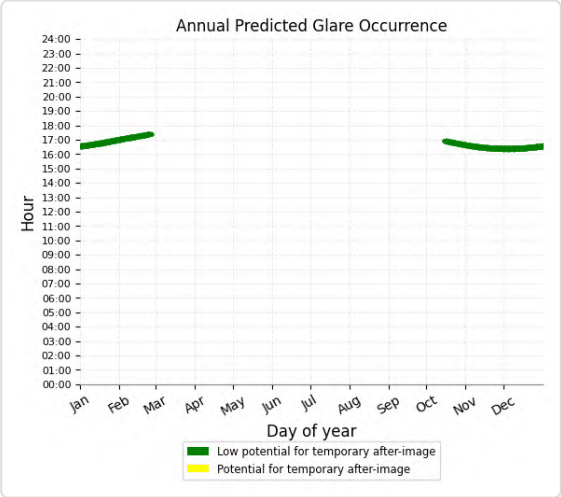


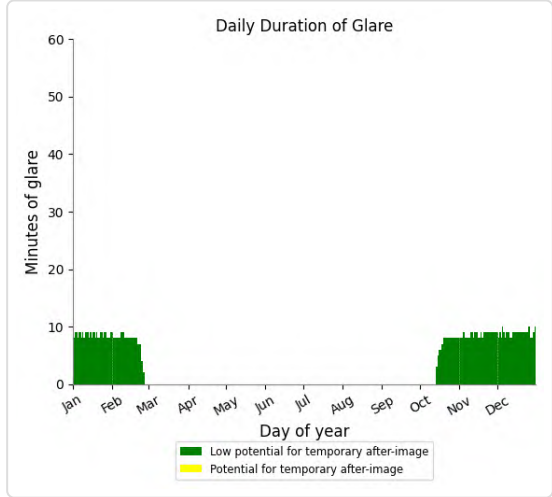


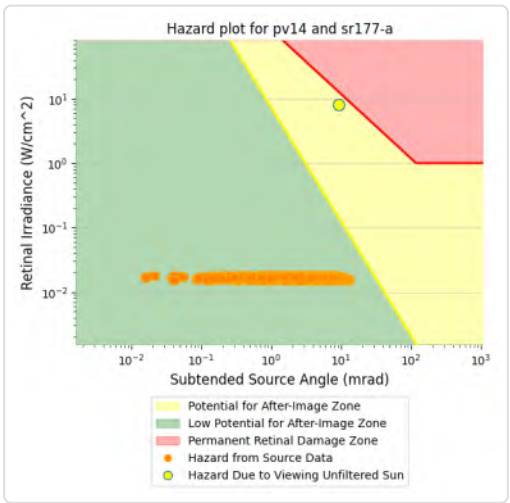
PV14 and Route: SR177 A

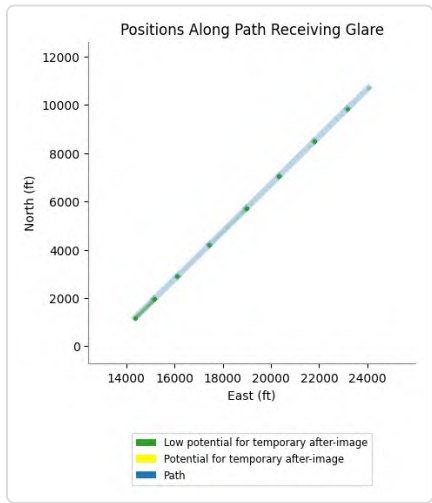
Yellow glare: none

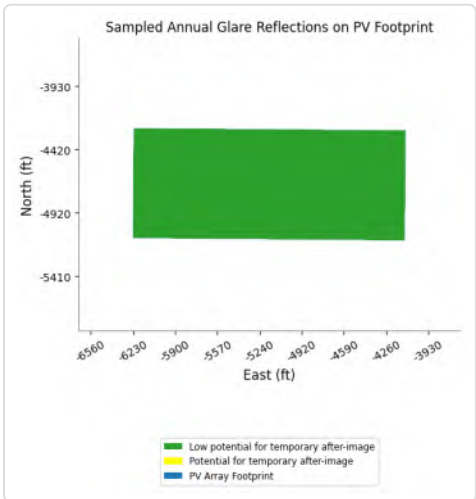
Green glare: 1,126 min.







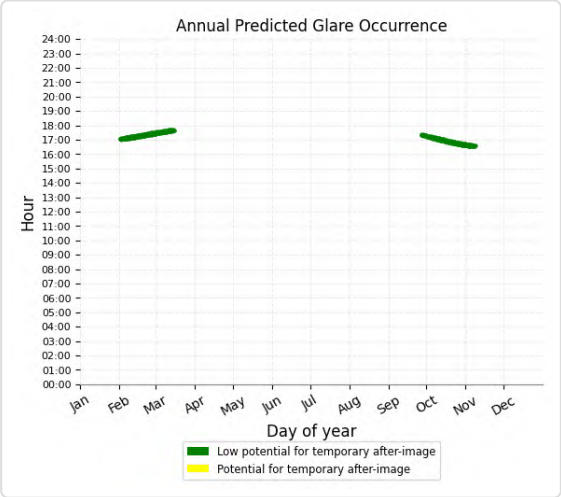


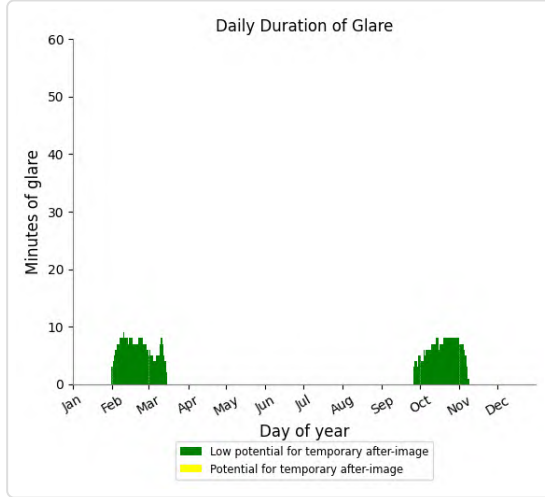


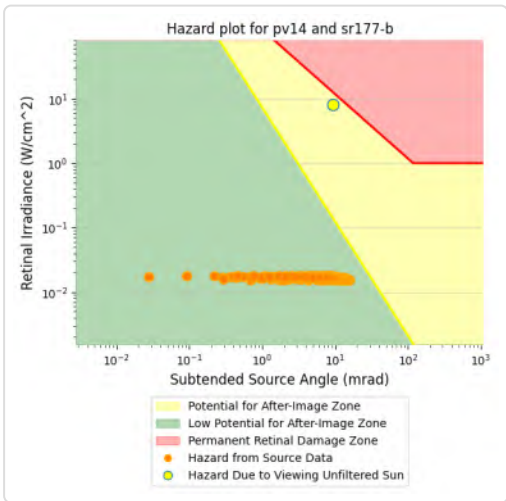
PV14 and Route: SR177 B

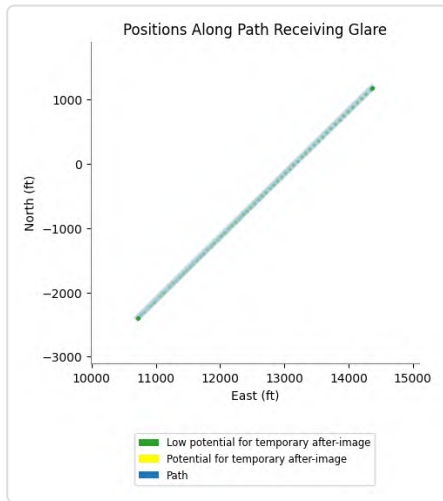
Yellow glare: none

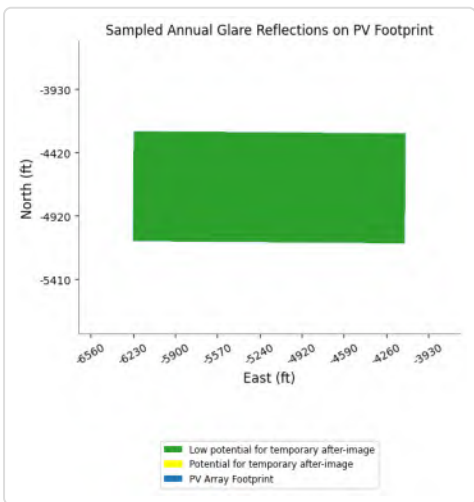
Green glare: 561 min.







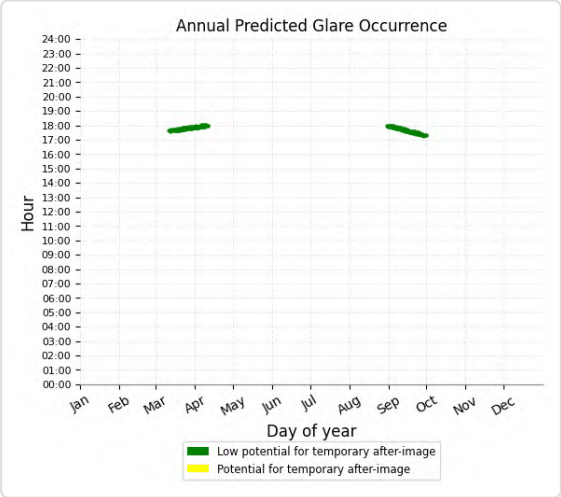


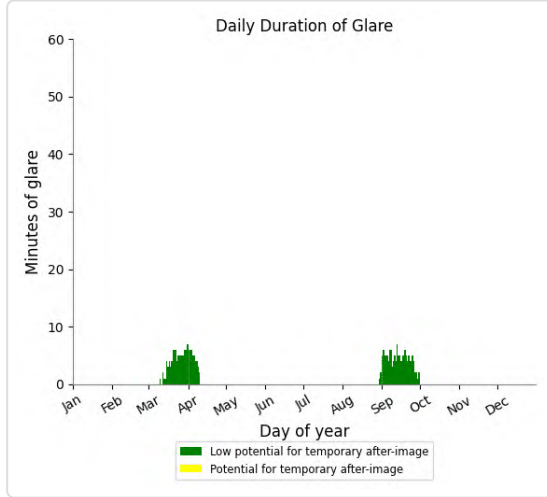


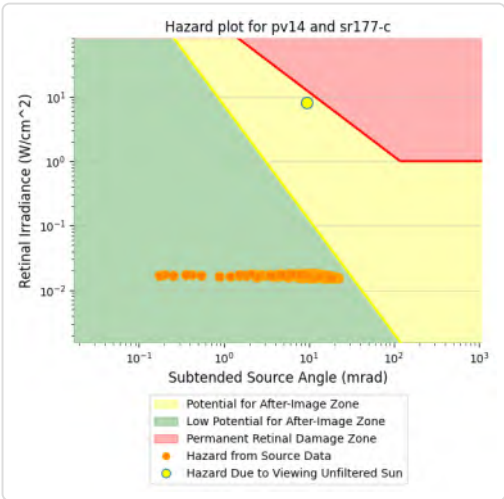
PV14 and Route: SR177 C

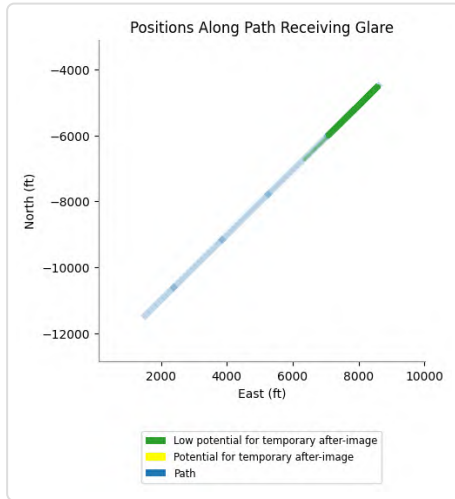
Yellow glare: none

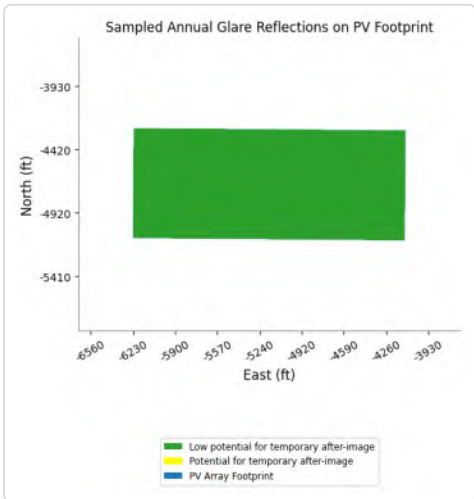
Green glare: 273 min.











PV14 and Route: AirportRd A

No glare found

PV14 and Route: EagleMtnRd A

No glare found

PV14 and Route: EagleMtnRd B

No glare found

PV14 and Route: I-10 EB A

No glare found

PV14 and Route: I-10 EB B

No glare found

PV14 and Route: I-10 EB C

No glare found

PV14 and Route: I-10 WB A

No glare found

PV14 and Route: I-10 WB B

No glare found

PV14 and Route: I-10 WB C

No glare found

PV14 and Route: KaiserRd A

No glare found

PV14 and Route: KaiserRd B

No glare found

PV14 and Route: KaiserRd C

No glare found

PV14 and Route: OasisRd

No glare found

PV14 and Route: SR177 D

No glare found

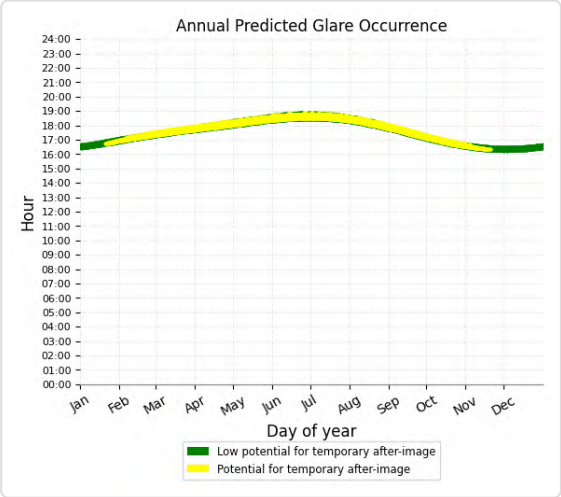
PV14 and Route: SR177 E

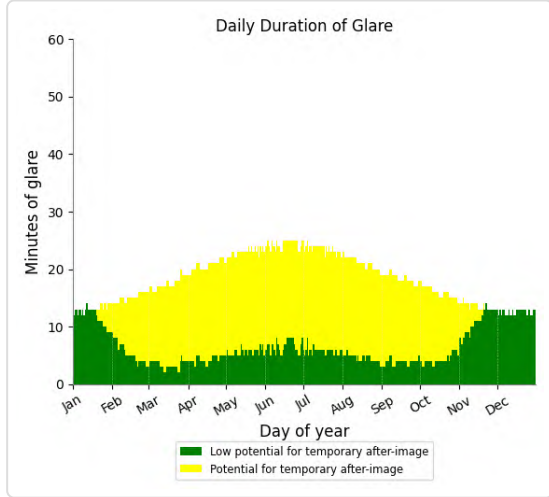
No glare found

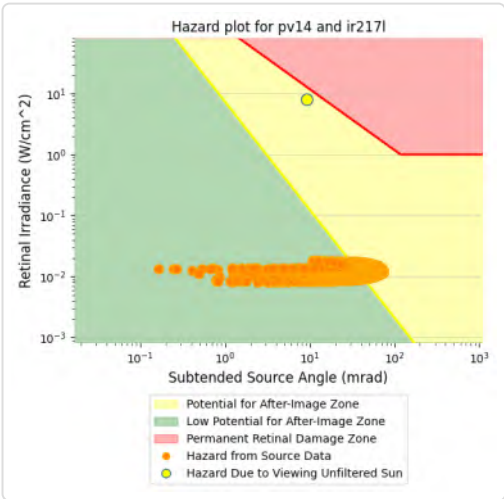
PV14 and FP: IR217l

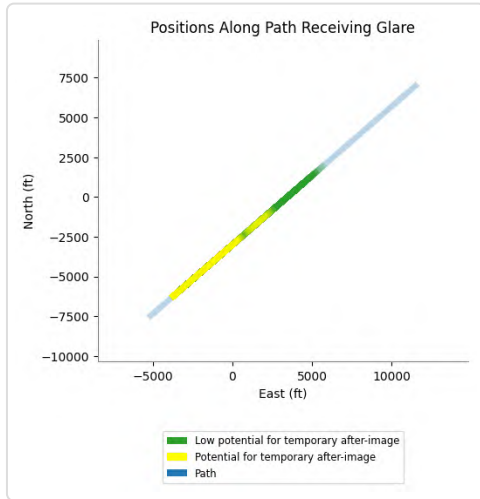
Yellow glare: 4,252 min.

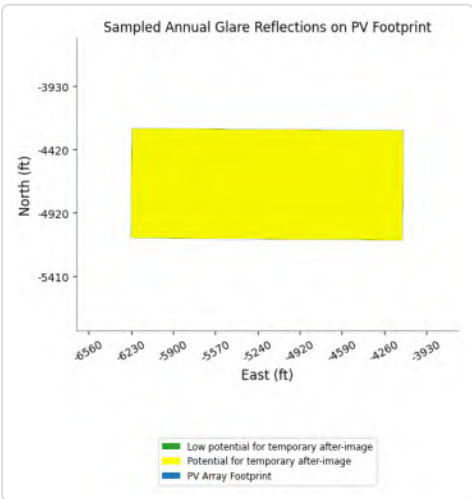
Green glare: 2,418 min.

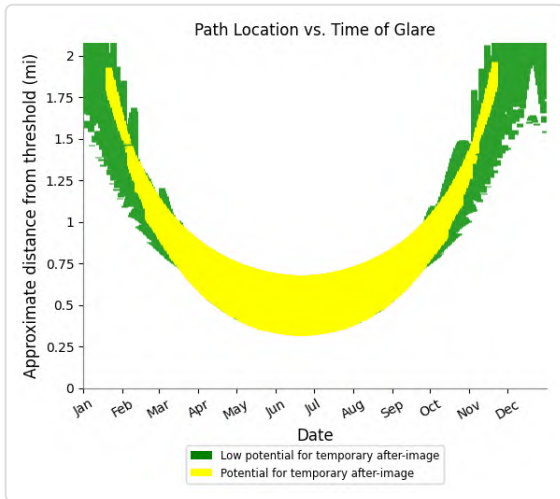








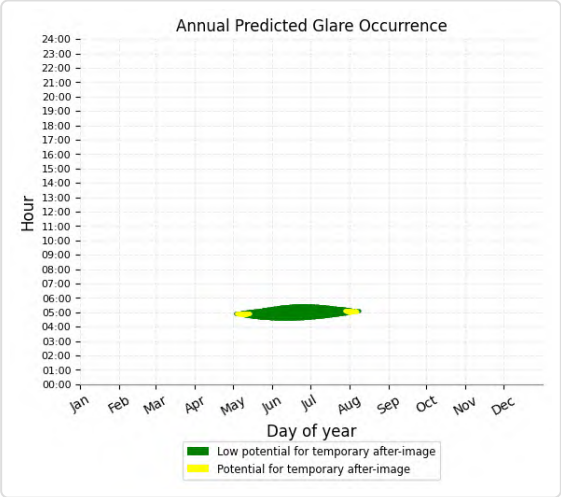


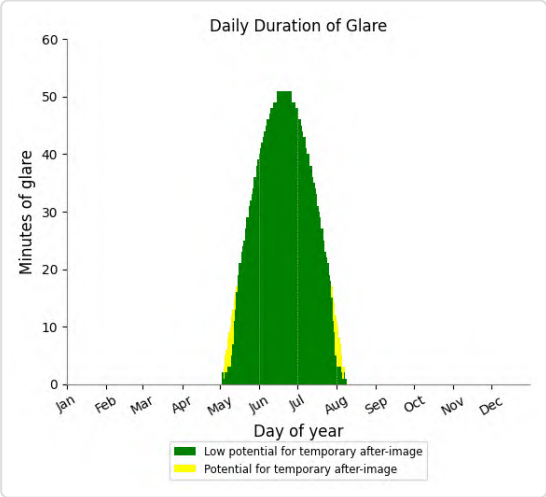


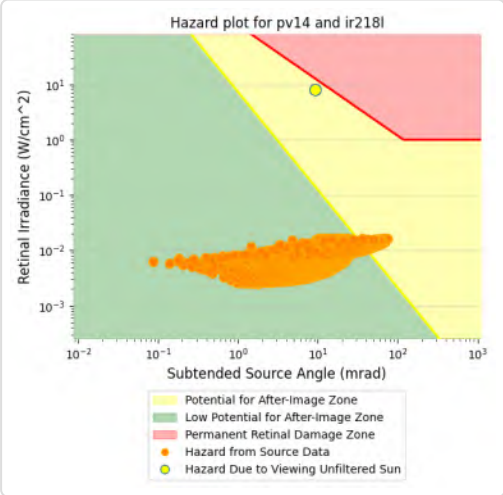
PV14 and FP: IR218l

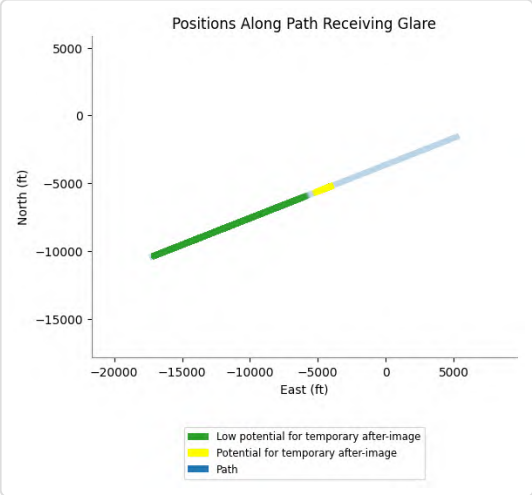
Yellow glare: 96 min.

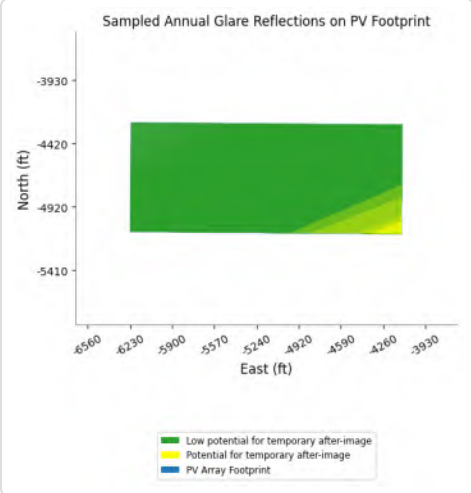
Green glare: 2,989 min.

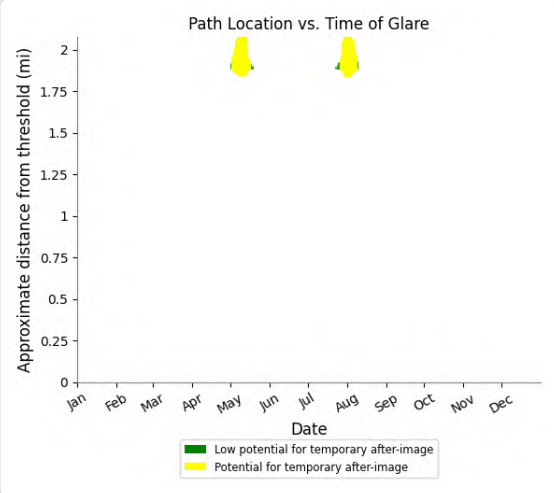








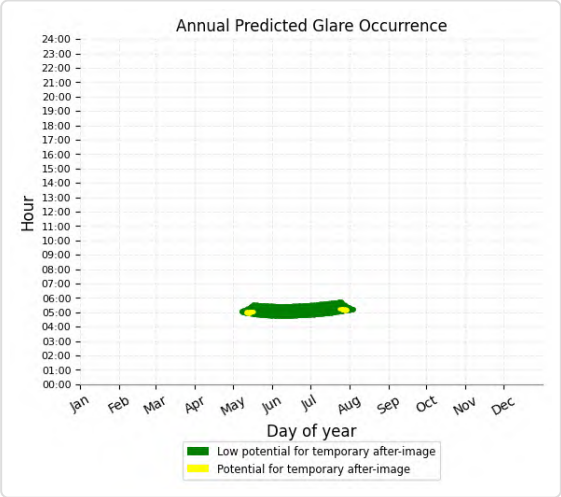


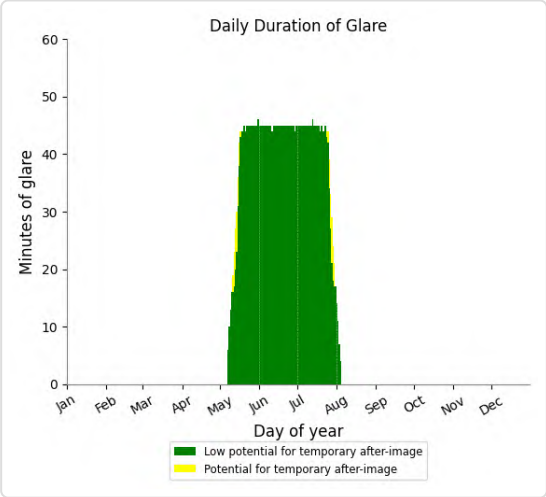


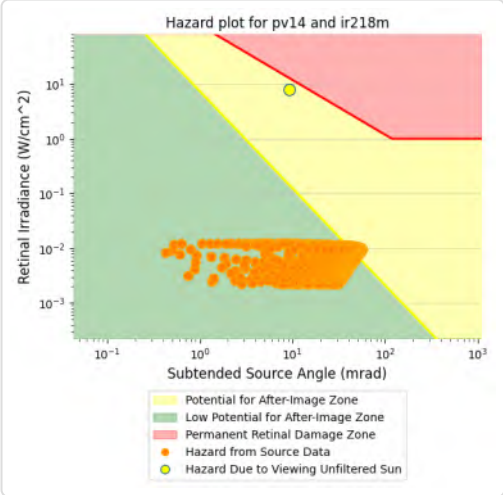
PV14 and FP: IR218m

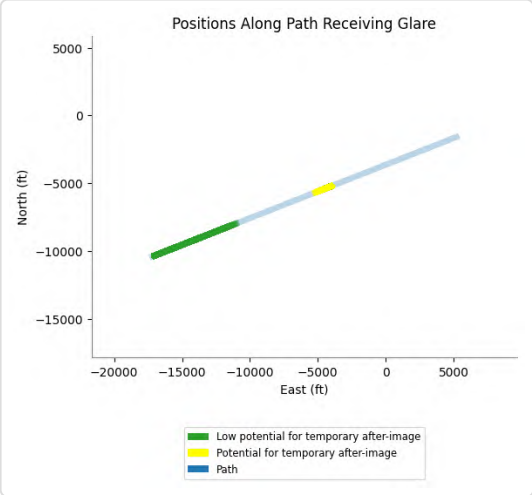
Yellow glare: 65 min.

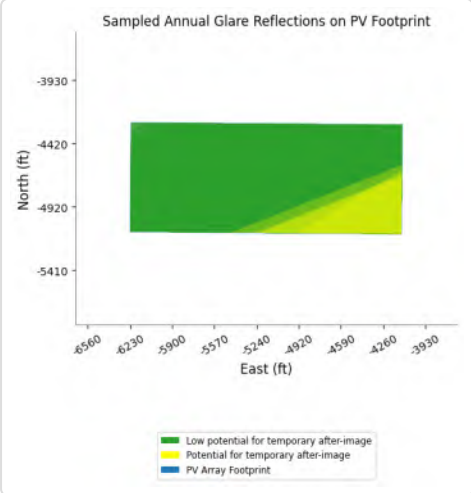
Green glare: 3,497 min.

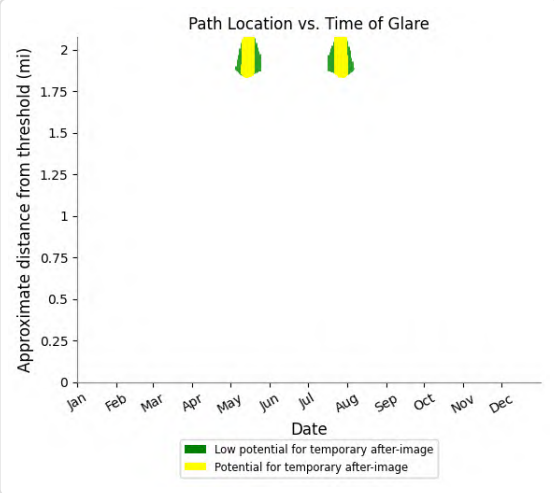








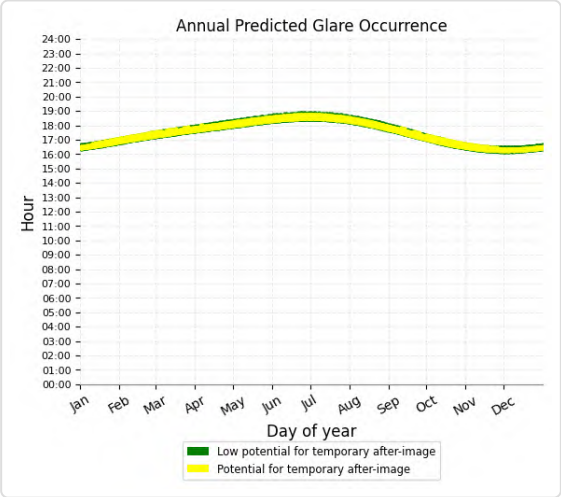


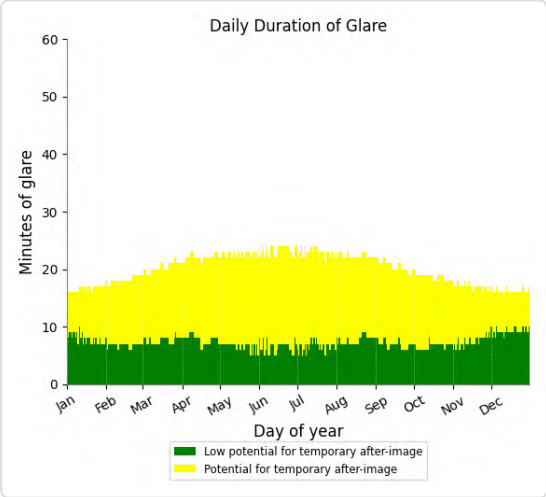


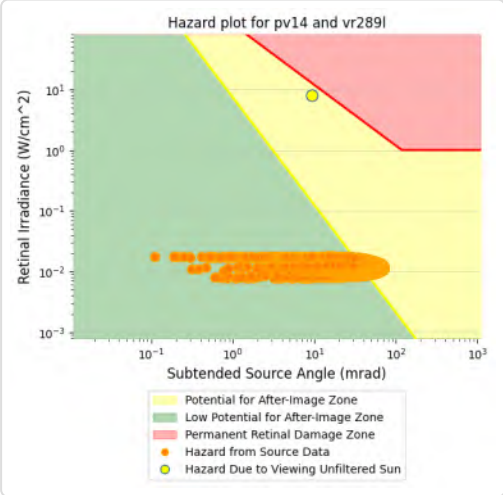
PV14 and FP: VR289l

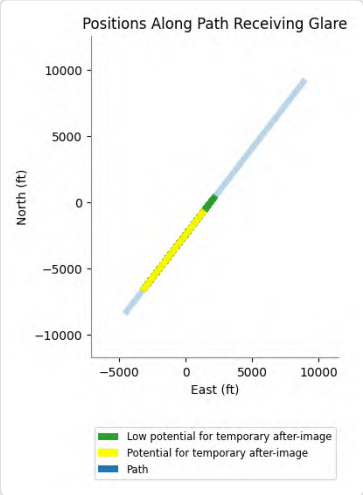
Yellow glare: 4,656 min.

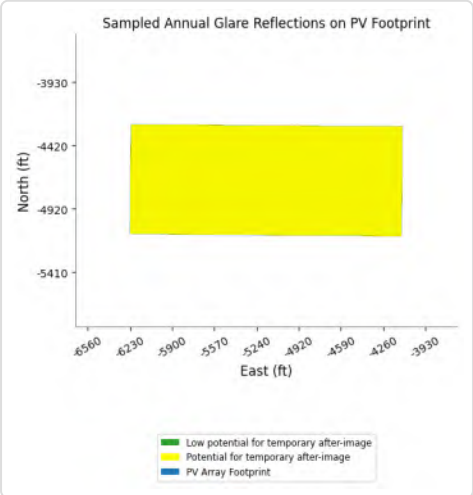
Green glare: 2,674 min.

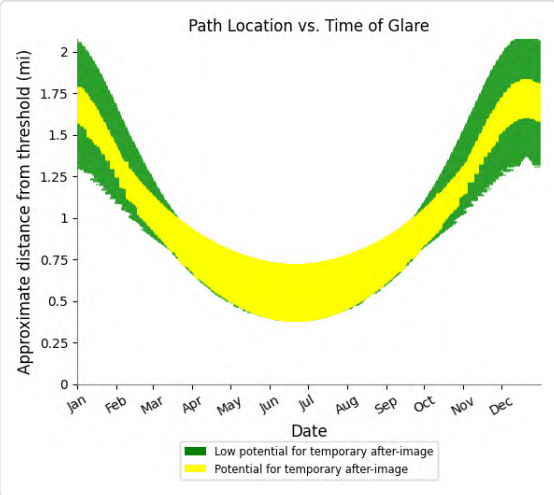








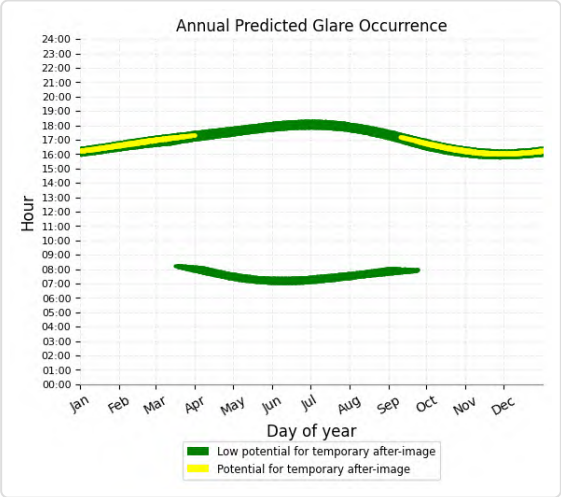


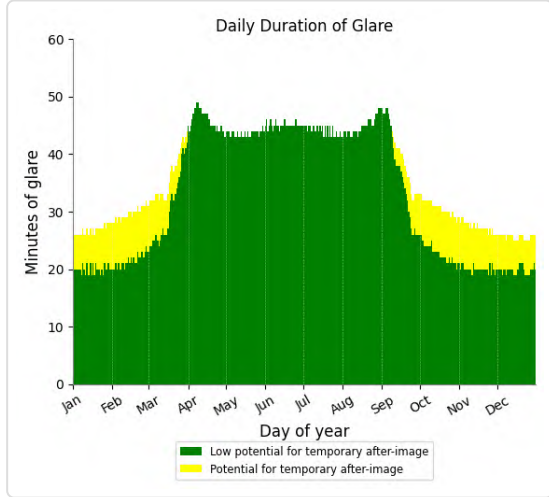


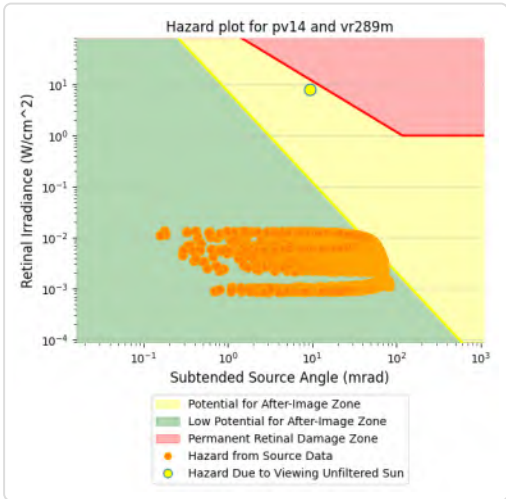
PV14 and FP: VR289m

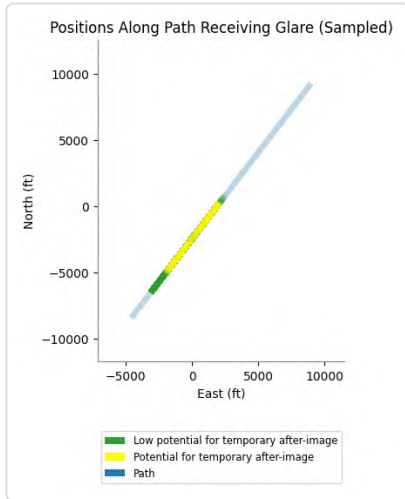
Yellow glare: 1,360 min.

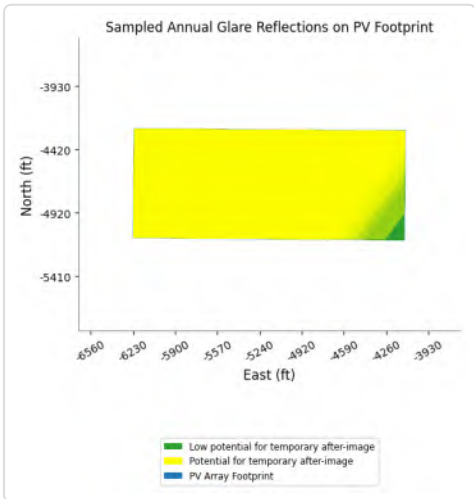
Green glare: 12,049 min.

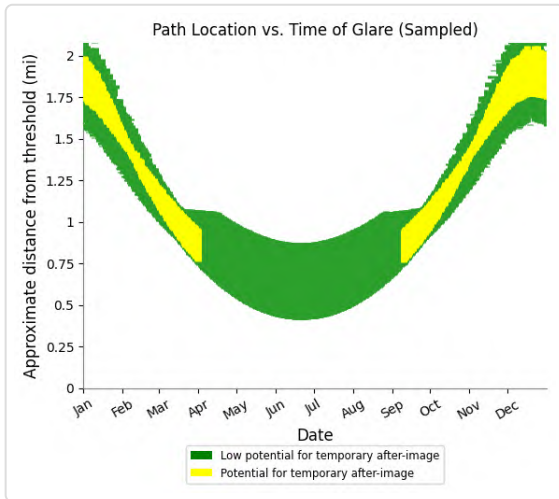








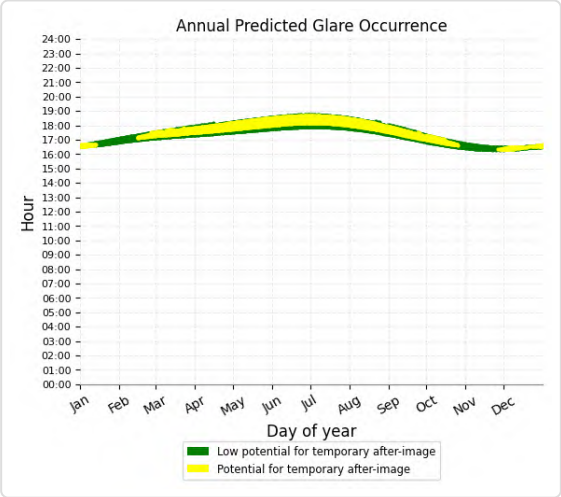


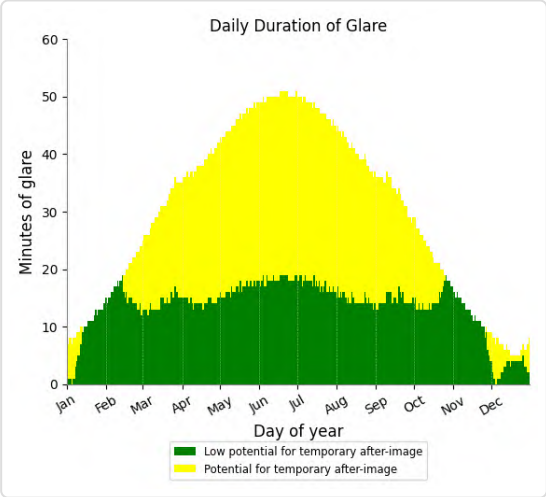


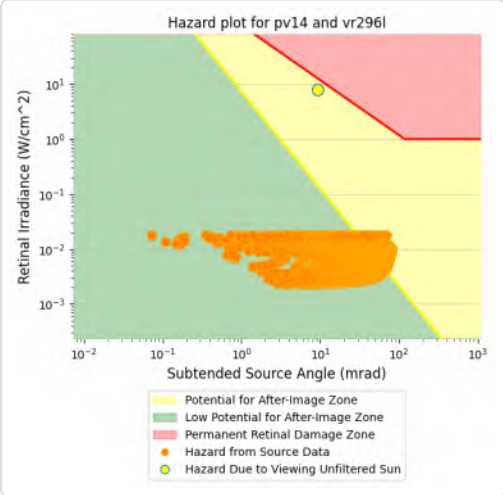
PV14 and FP: VR296l

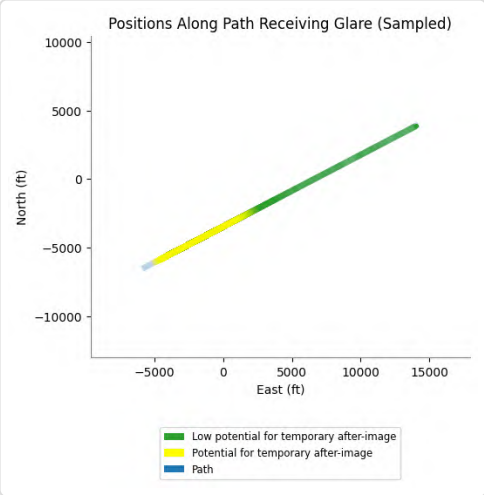
Yellow glare: 5,946 min.

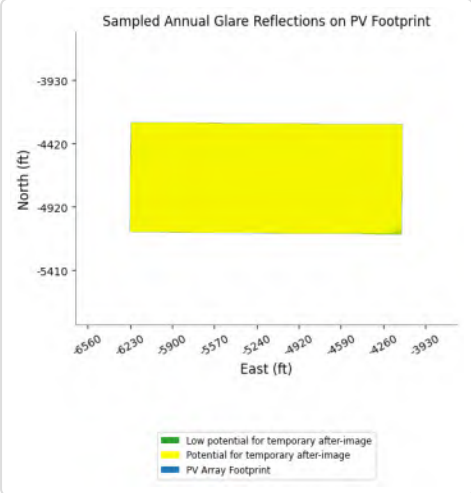
Green glare: 4,963 min.

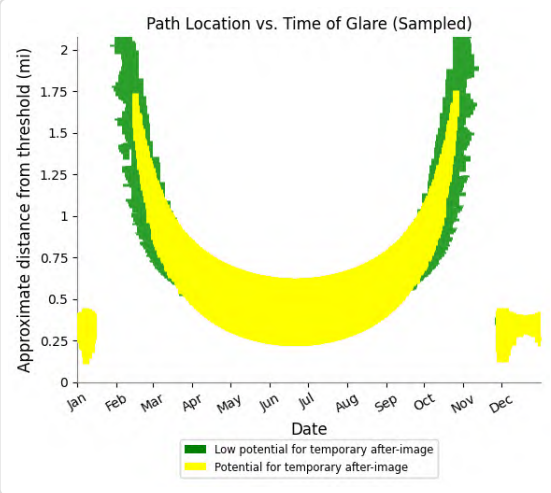








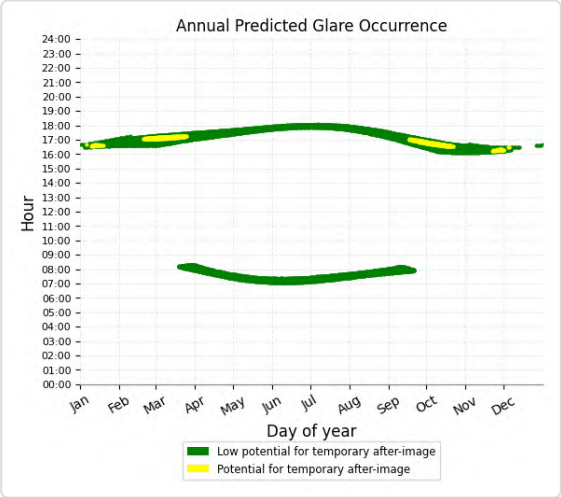


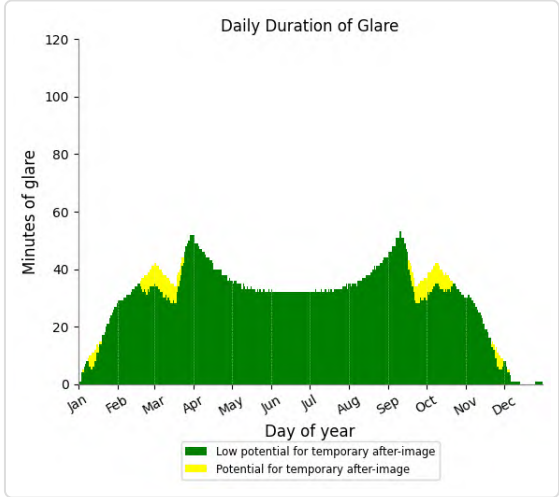


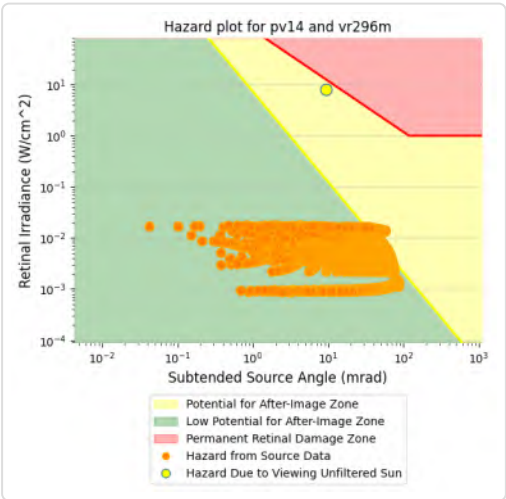
PV14 and FP: VR296m

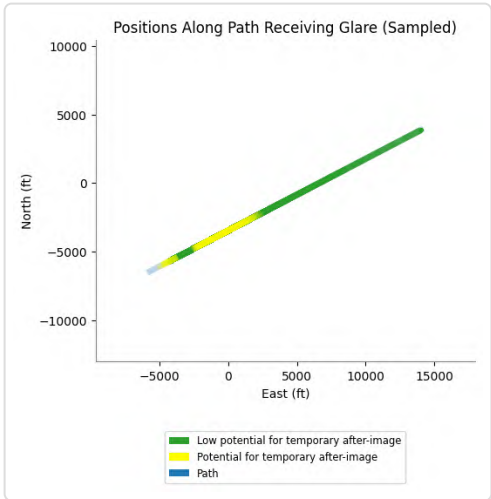
Yellow glare: 501 min.

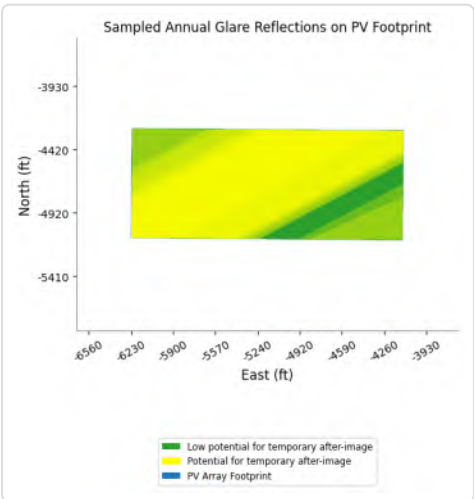
Green glare: 10,795 min.

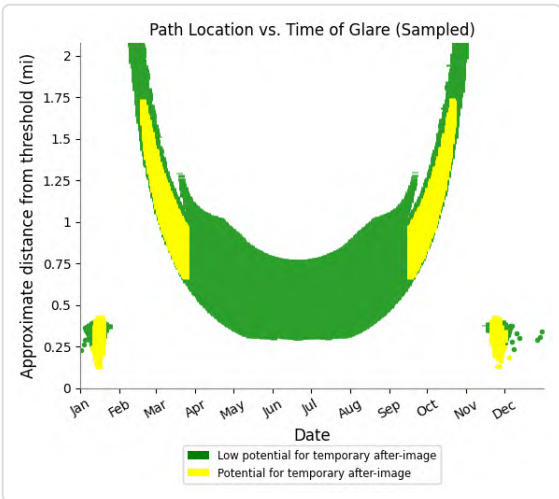








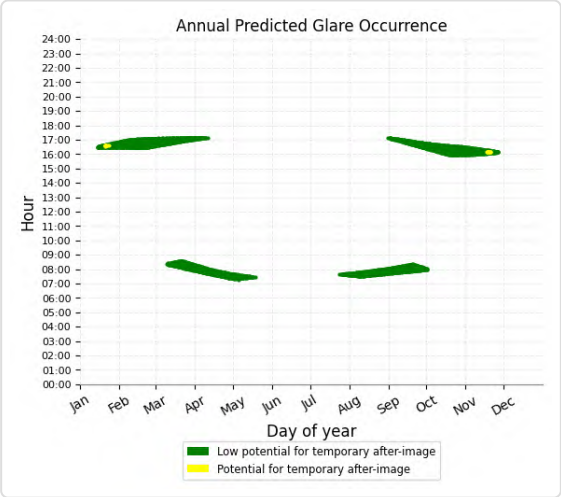


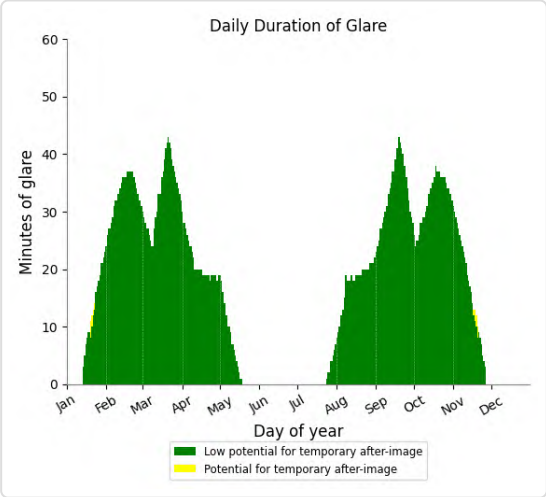


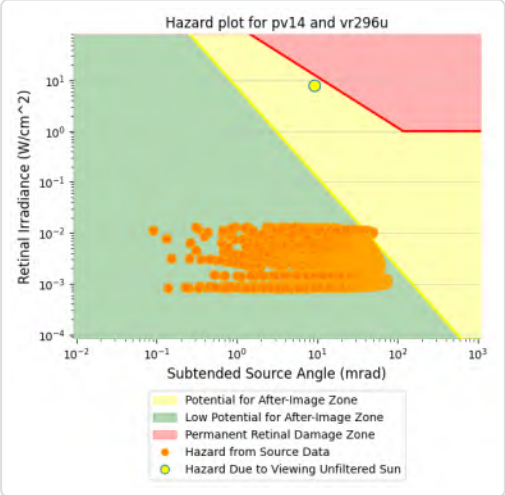
PV14 and FP: VR296u

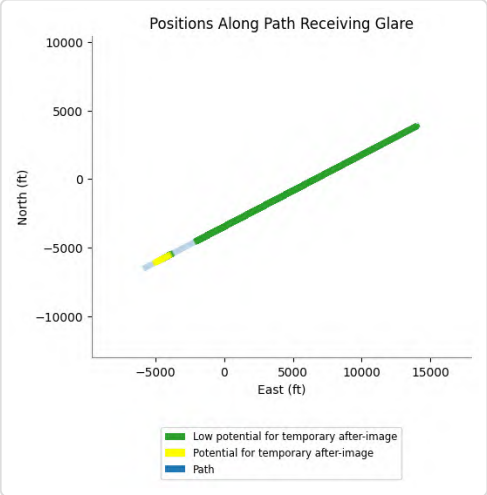
Yellow glare: 14 min.

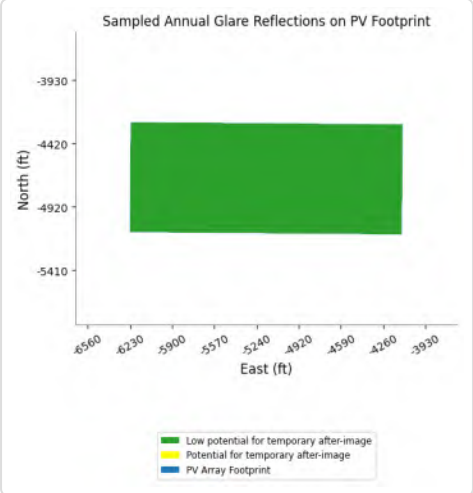
Green glare: 6,051 min.

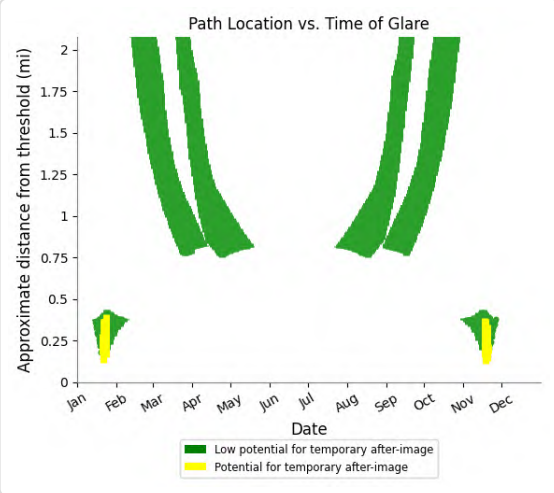








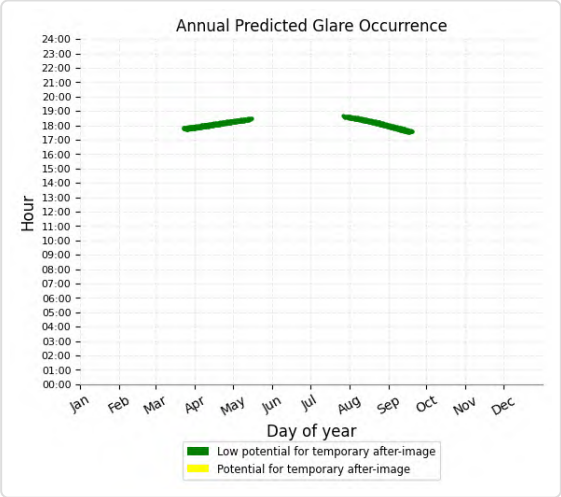


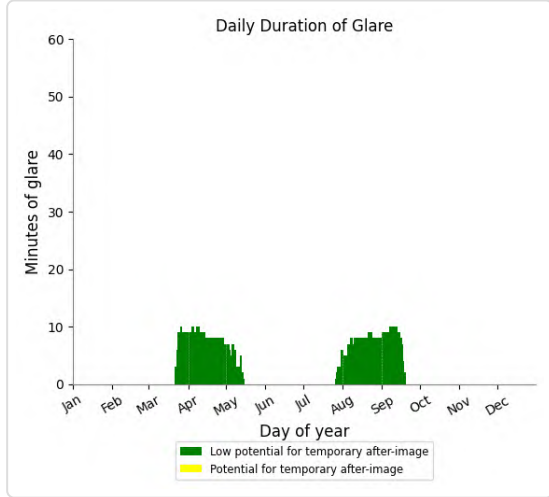


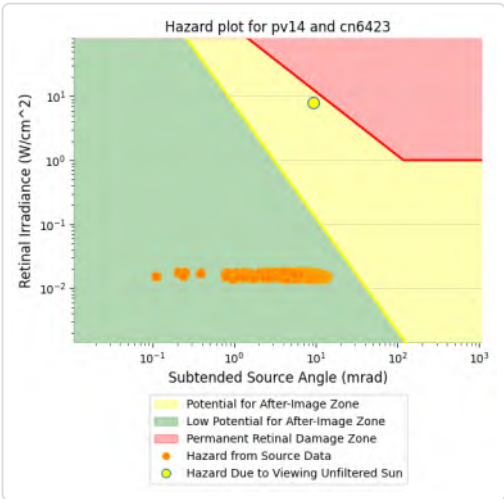
PV14 and FP: CN6423

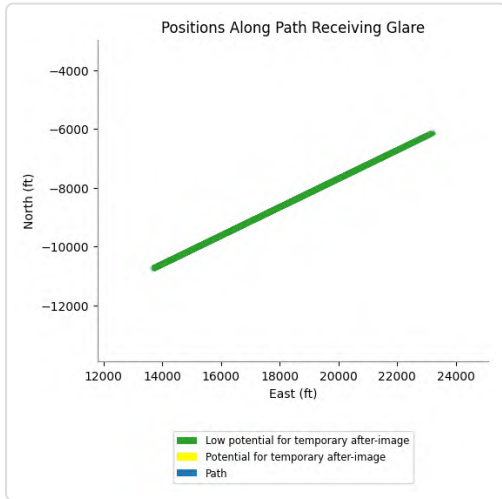
Yellow glare: none

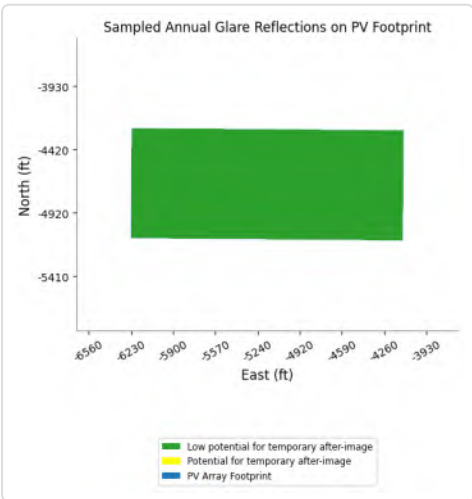
Green glare: 834 min.

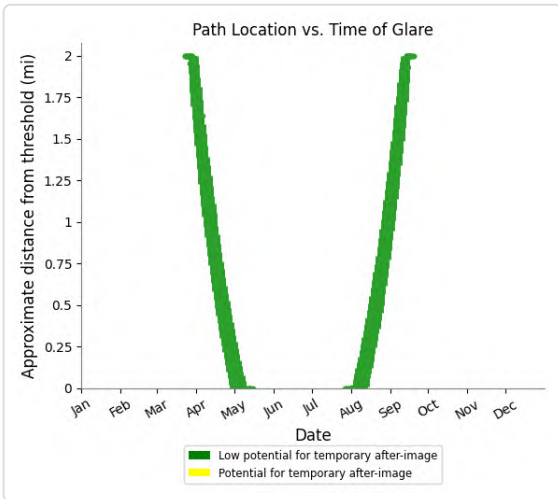








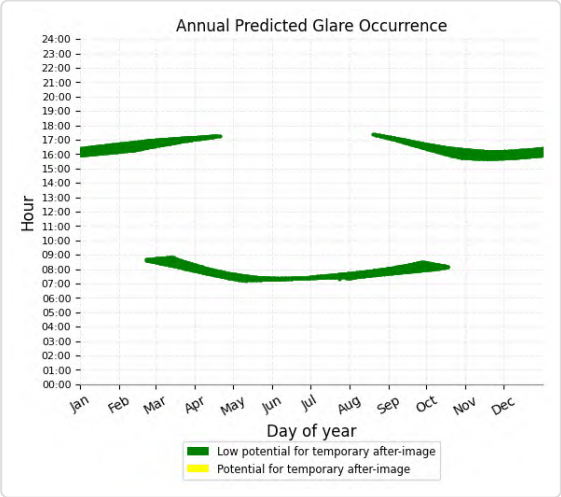


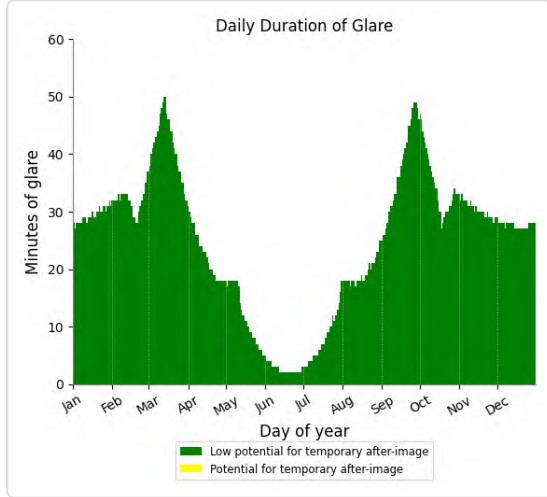


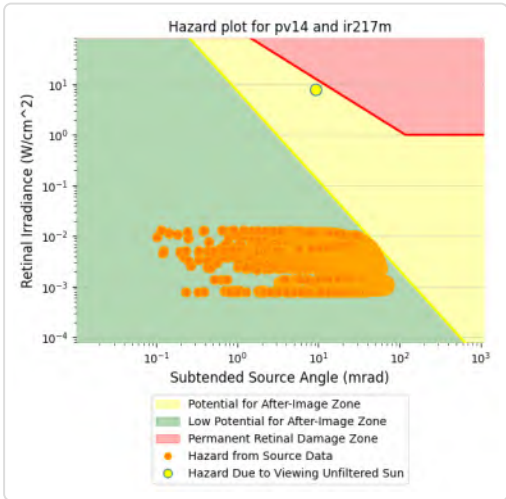
PV14 and FP: IR217m

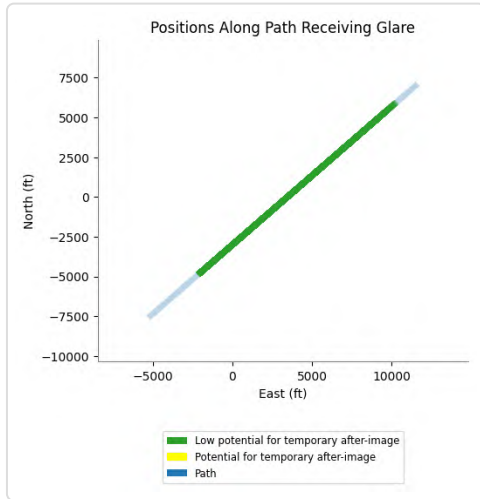
Yellow glare: none

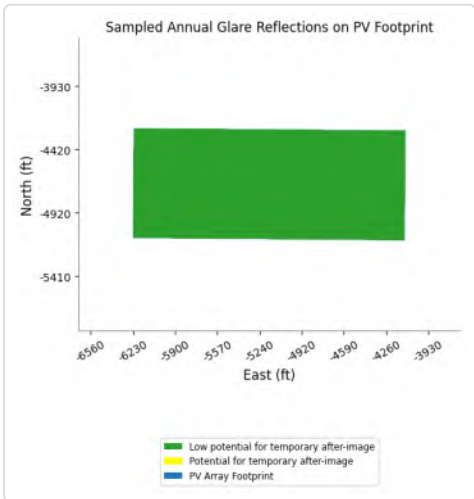
Green glare: 9,079 min.

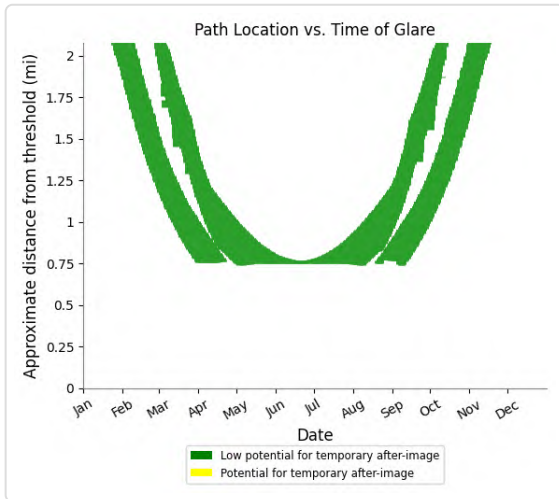








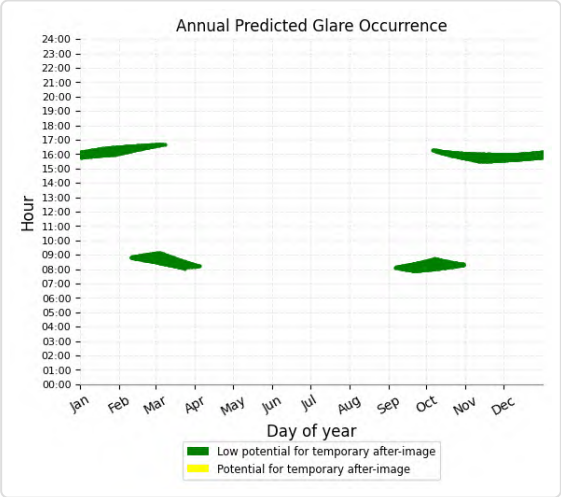


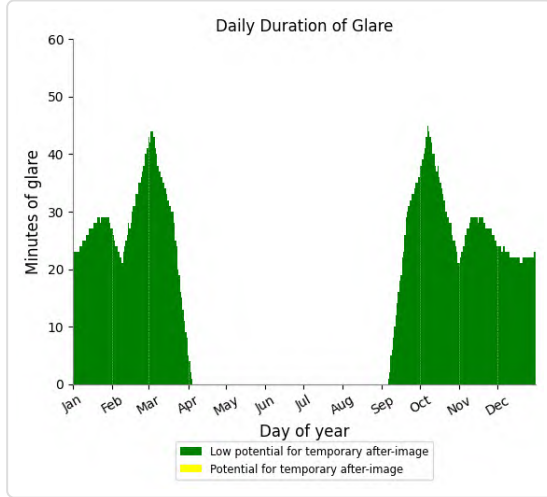


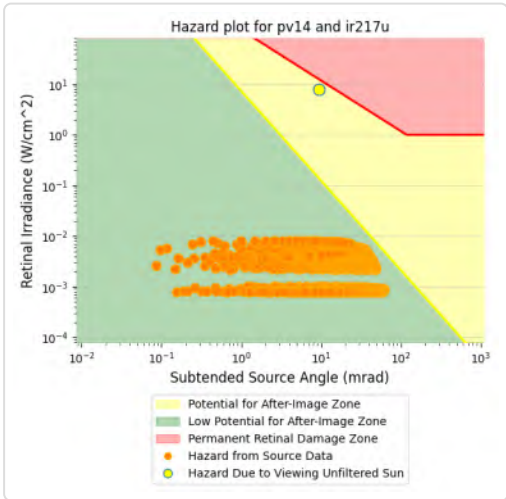
PV14 and FP: IR217u

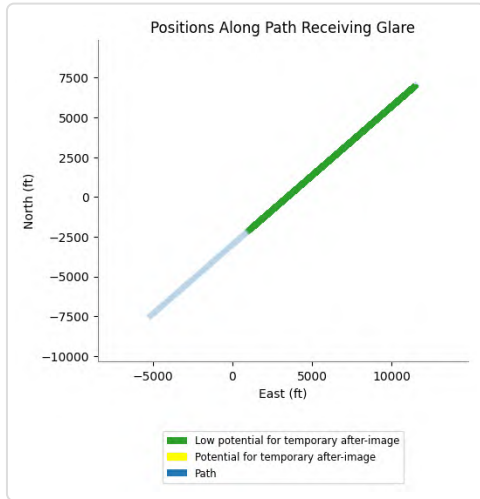
Yellow glare: none

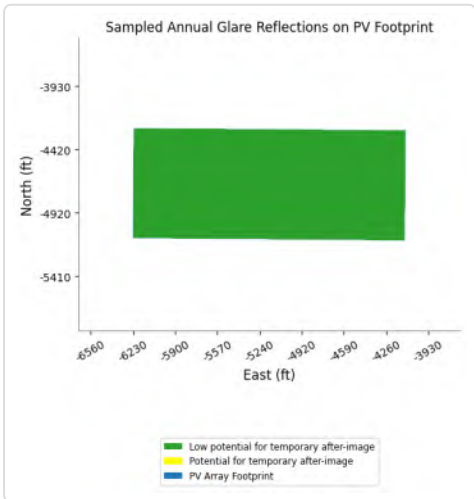
Green glare: 5,718 min.

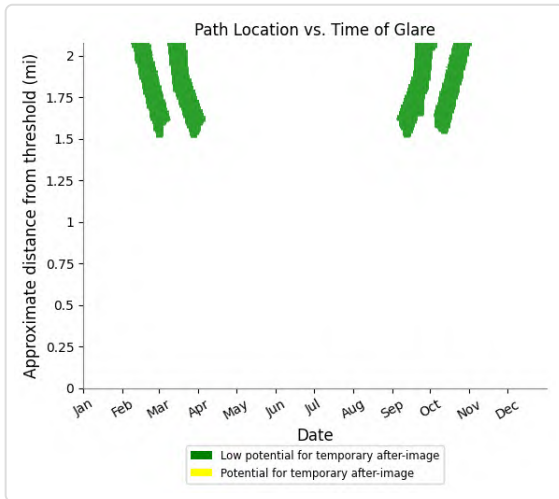








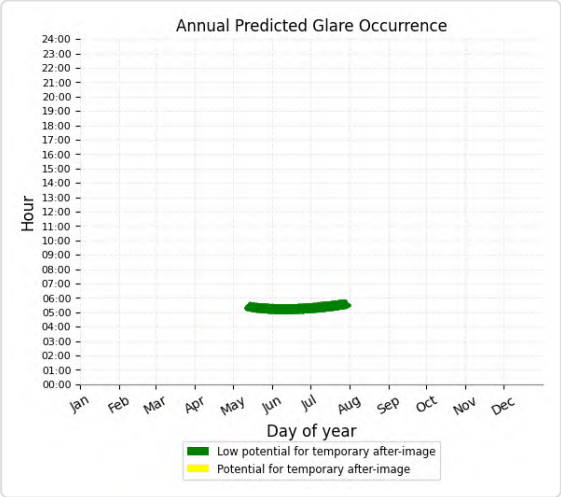


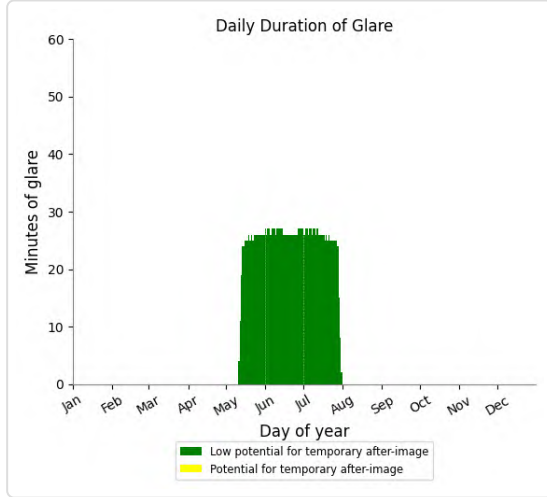


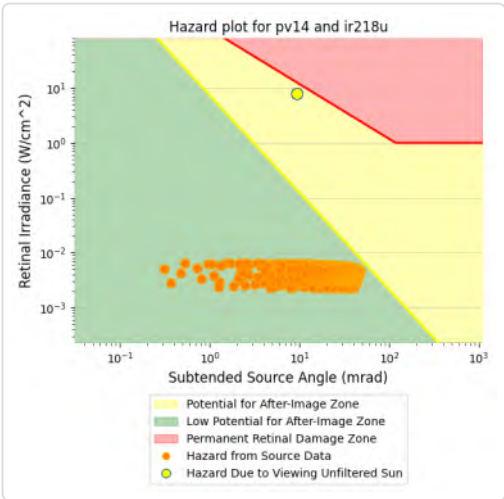
PV14 and FP: IR218u

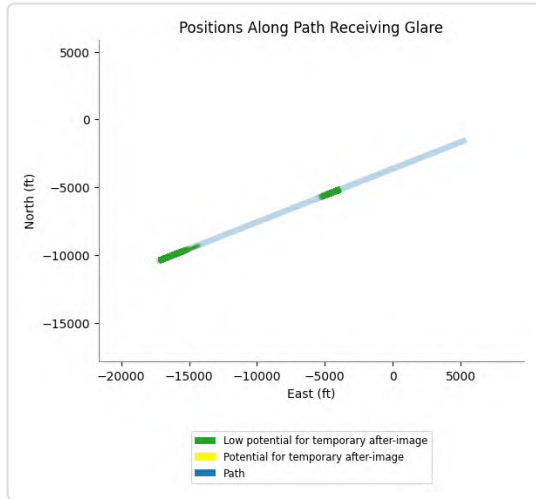
Yellow glare: none

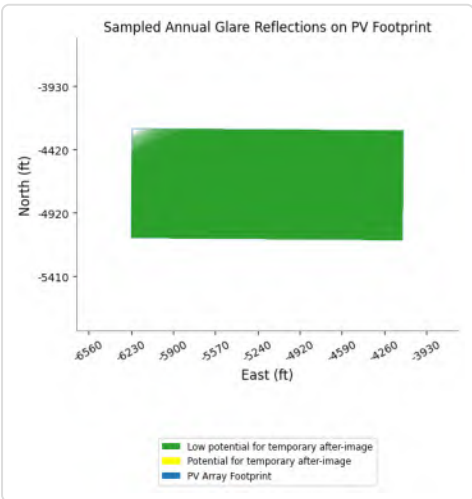
Green glare: 2,038 min.

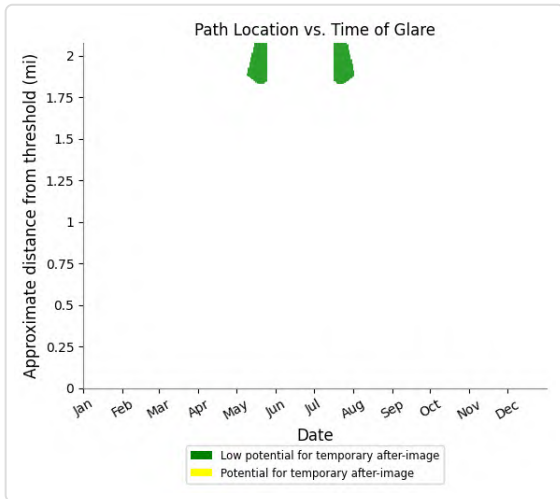








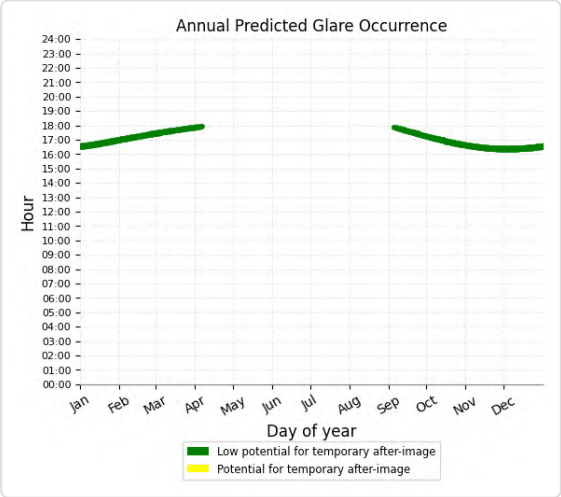


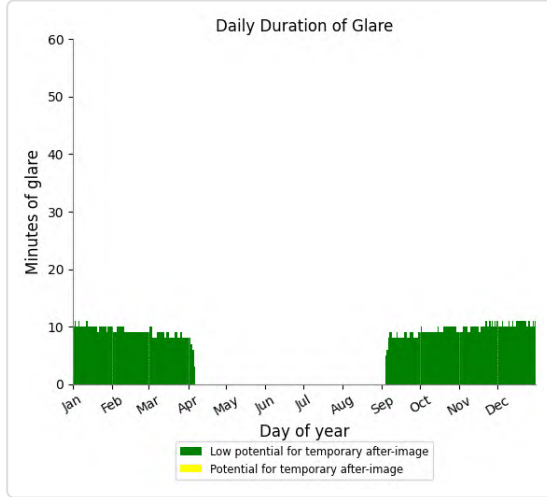


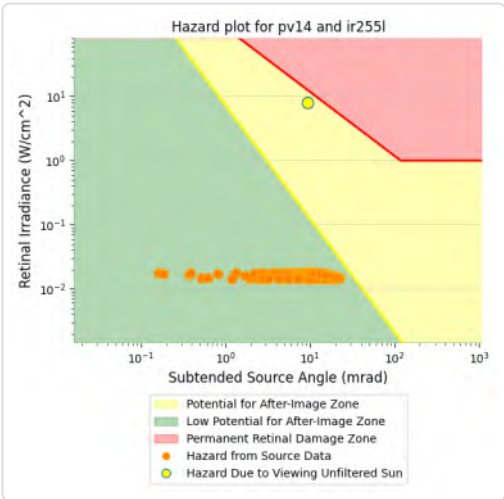
PV14 and FP: IR255I

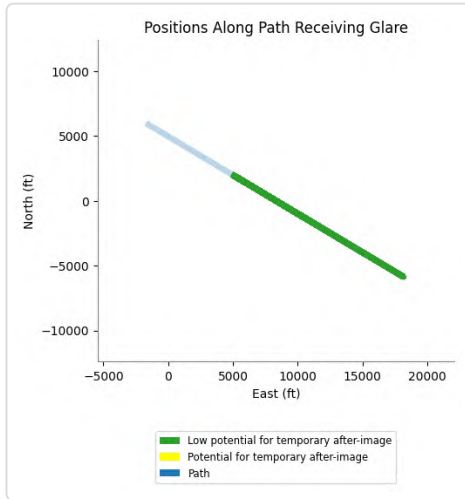
Yellow glare: none

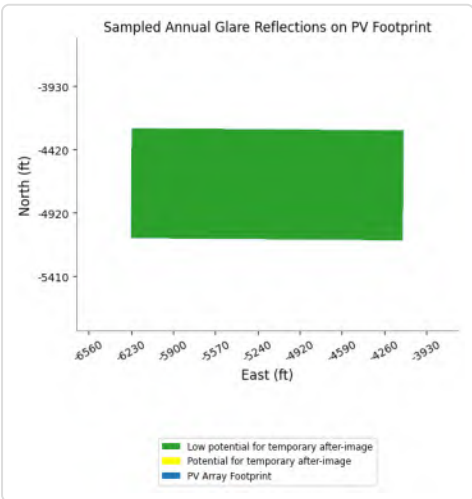
Green glare: 2,018 min.

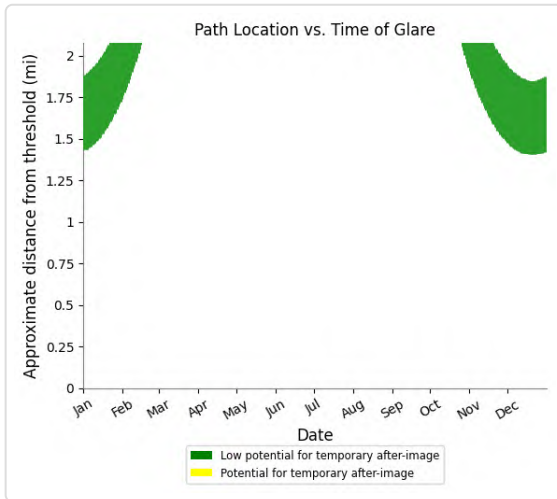








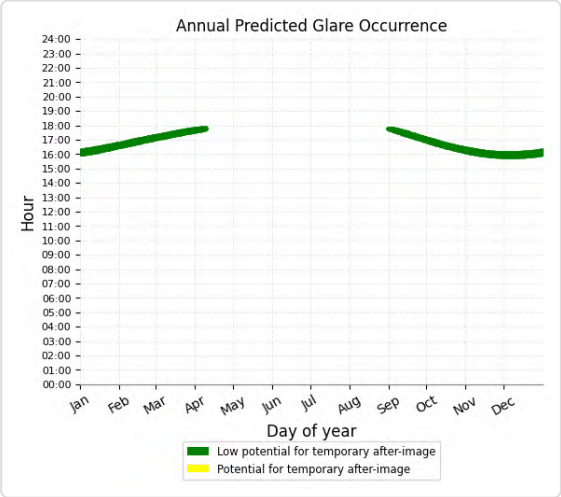


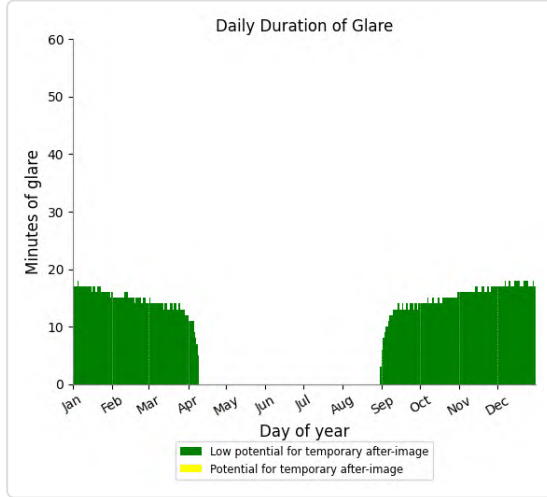


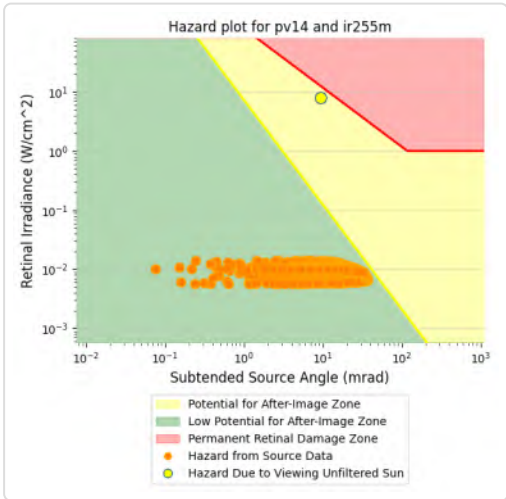
PV14 and FP: IR255m

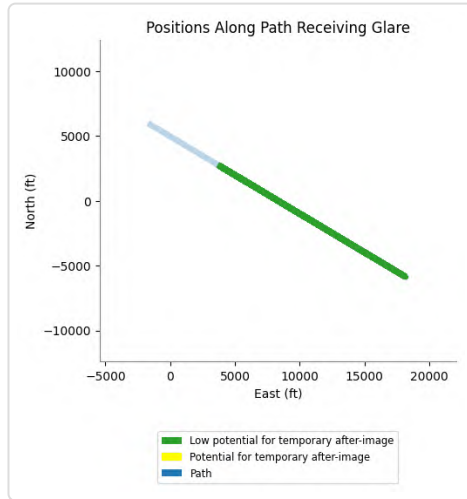
Yellow glare: none

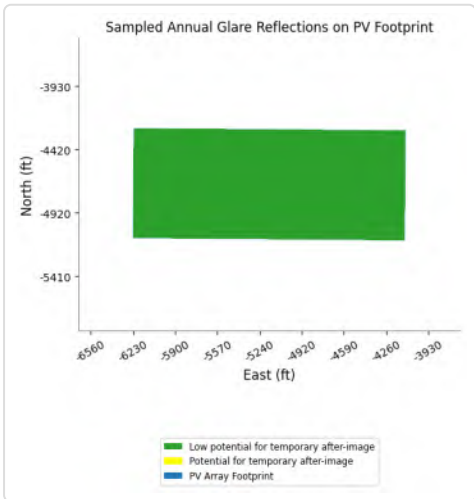
Green glare: 3,314 min.

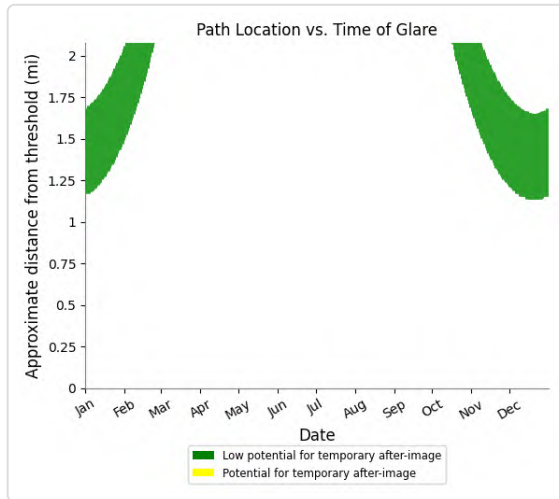








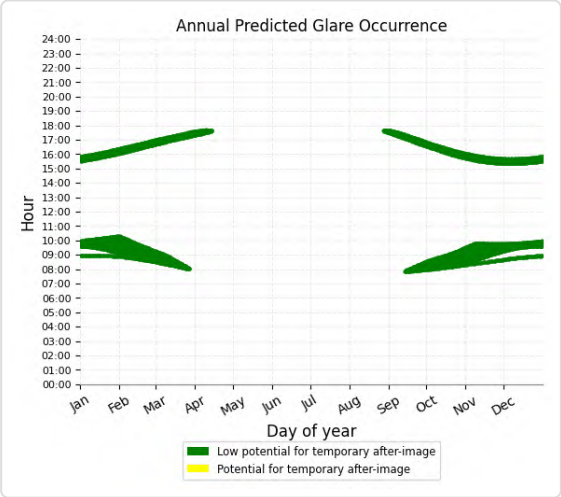


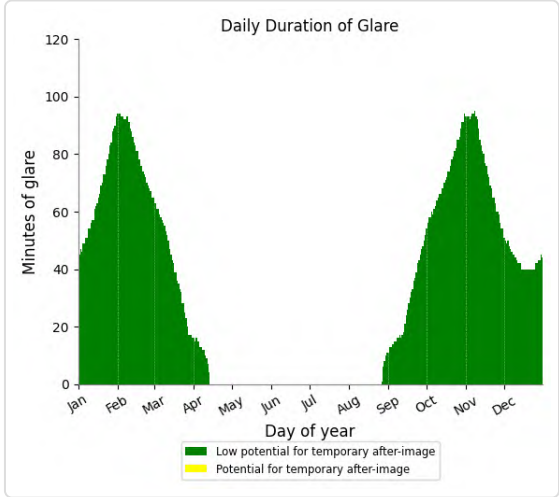


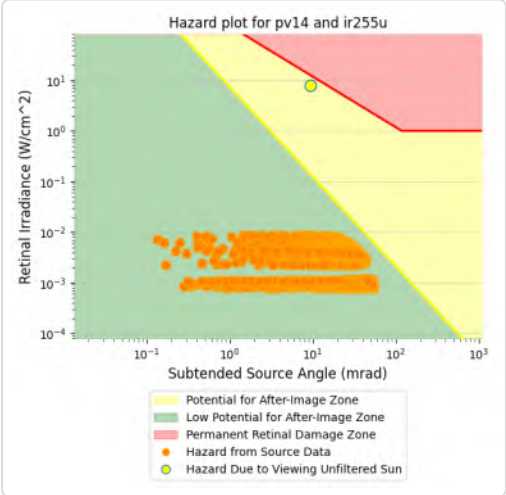
PV14 and FP: IR255u

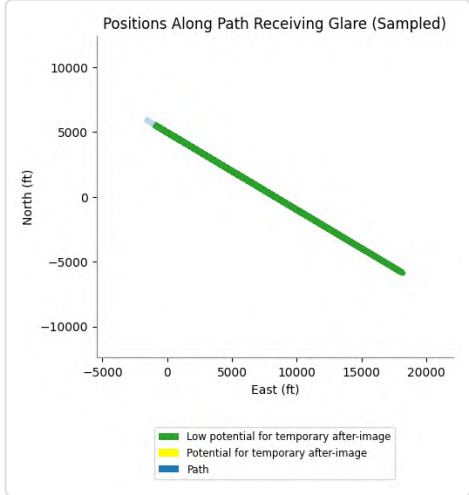
Yellow glare: none

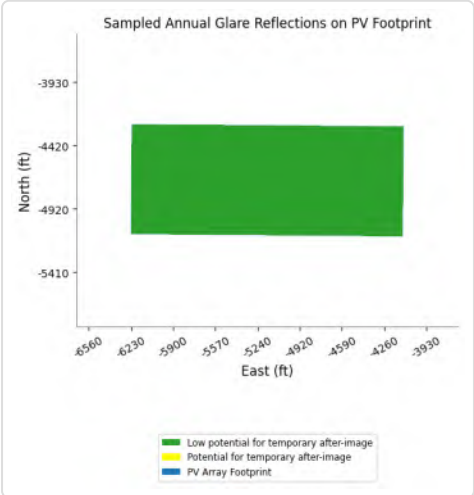
Green glare: 12,595 min.

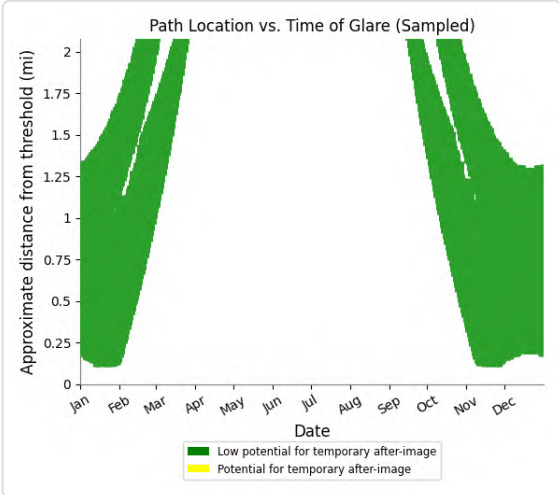








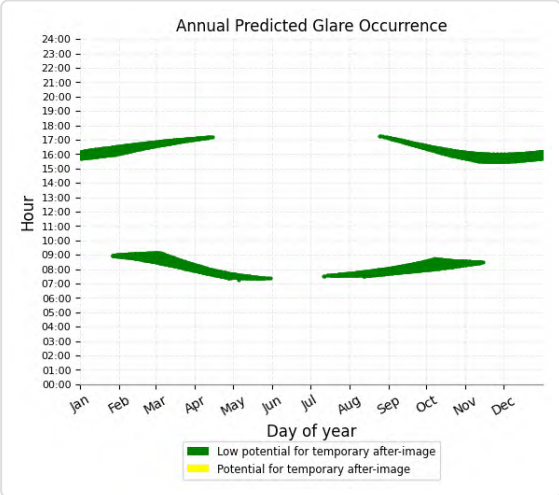


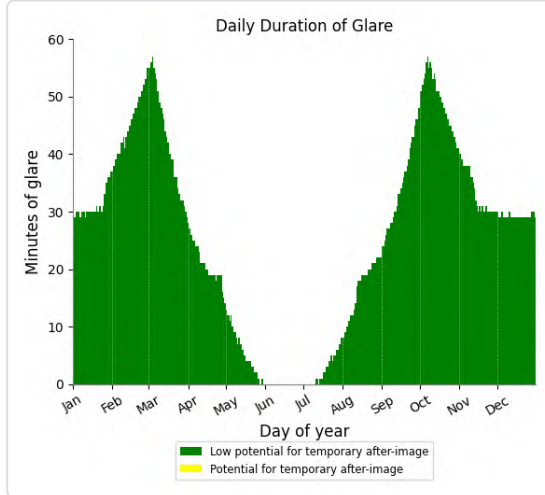


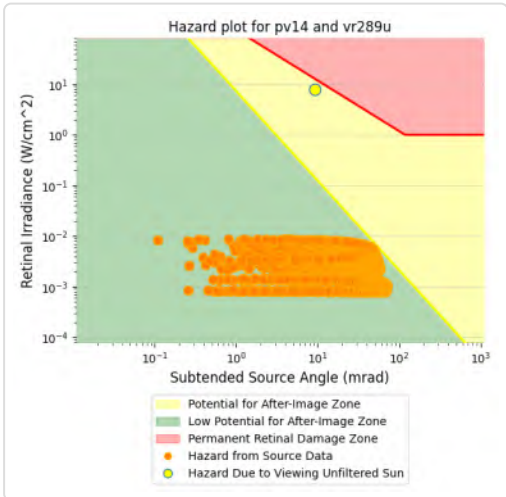
PV14 and FP: VR289u

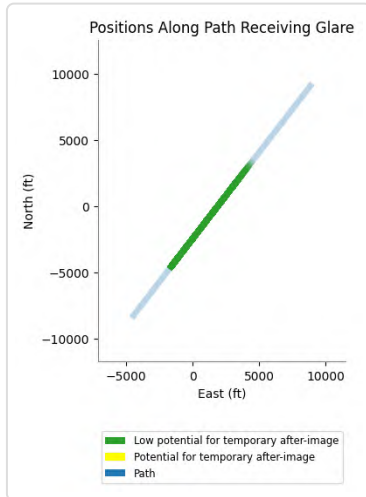
Yellow glare: none

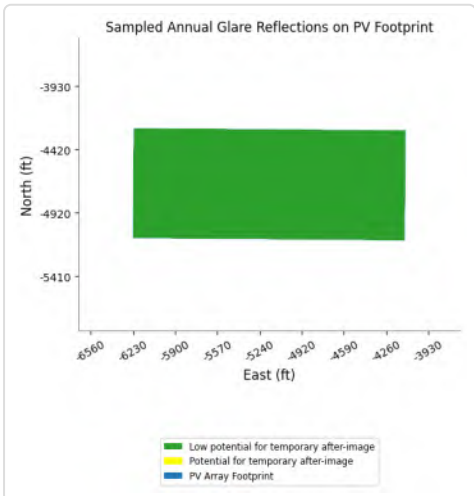
Green glare: 9,471 min.

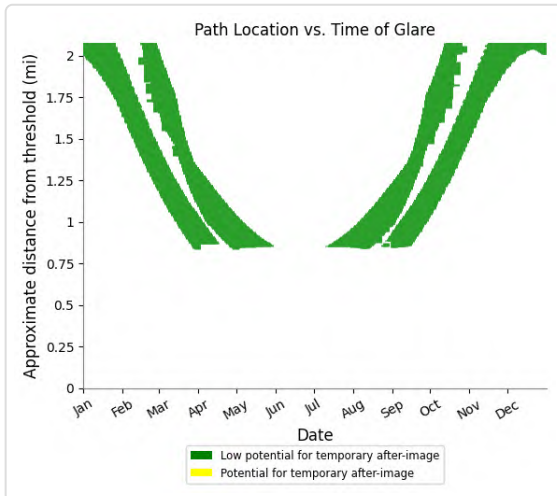












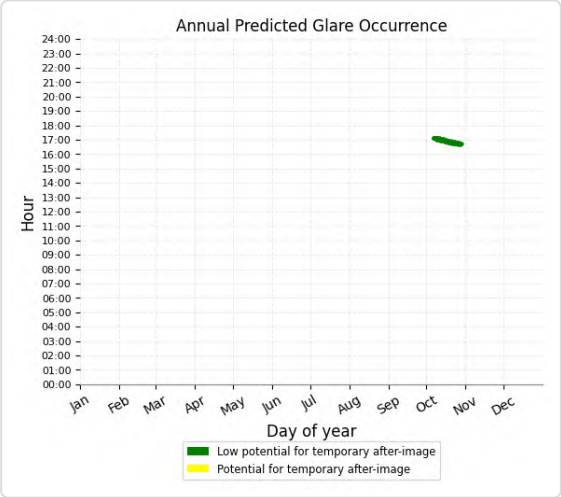
PV14 and FP: CN645

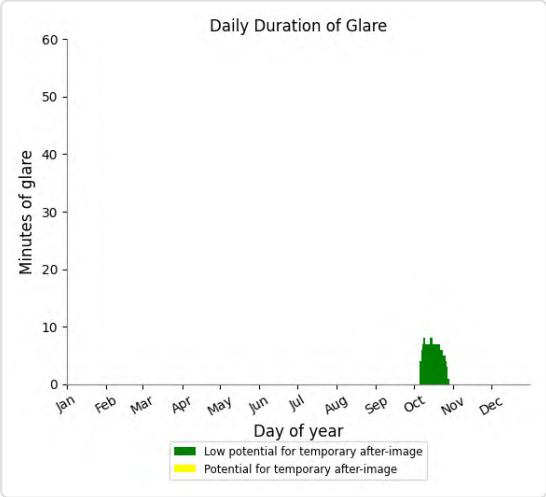
No glare found

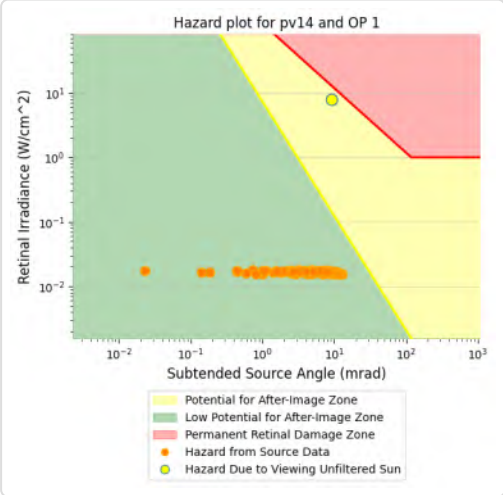
PV14 and OP 1

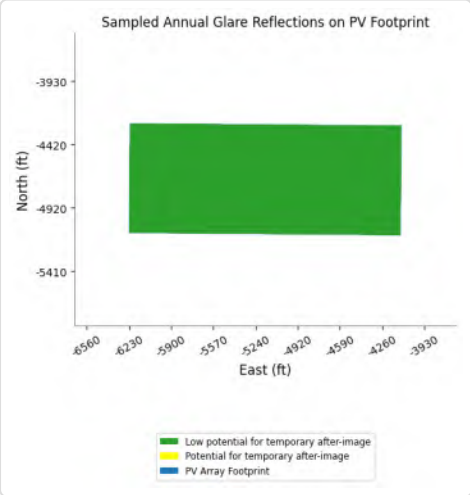
Yellow glare: none

Green glare: 141 min.



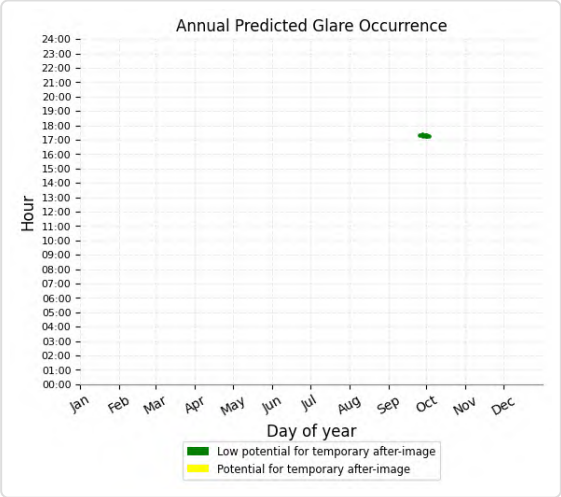


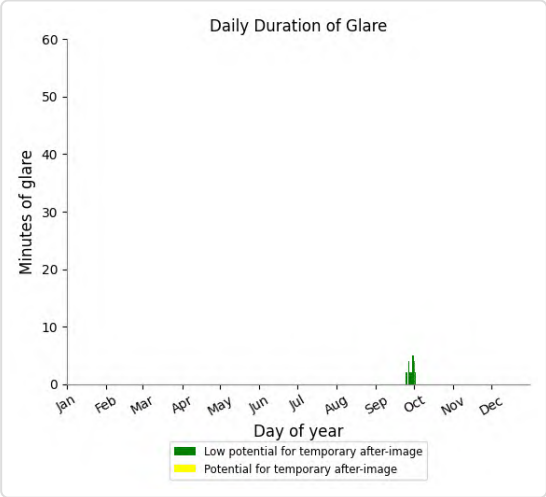


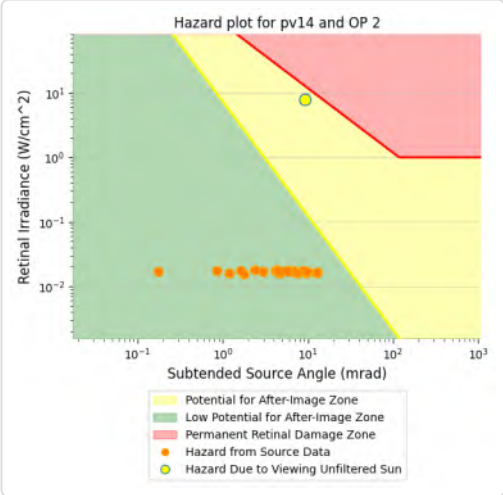


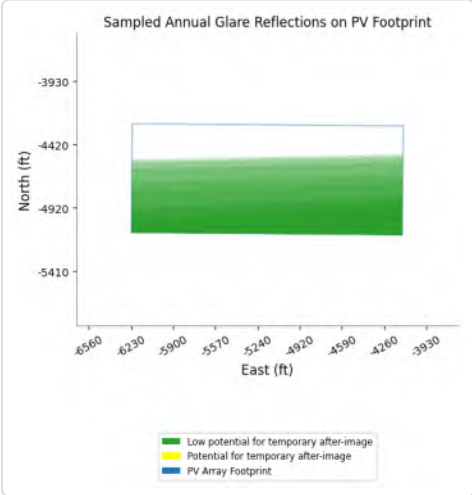
PV14 and OP 2

Yellow glare: none
Green glare: 21 min.









PV14 and OP 3

No glare found

PV14 and OP 4

No glare found

PV14 and OP 5

No glare found

PV14 and OP 6

No glare found

PV14 and OP 7

No glare found

PV14 and OP 8

No glare found

PV14 and OP 9

No glare found

PV14 and OP 10

No glare found

PV14 and OP 11

No glare found

PV14 and OP 12

No glare found

PV14 and OP 13

No glare found

PV14 and OP 14

No glare found

PV14 and OP 15

No glare found

PV14 and OP 16

No glare found

PV14 and OP 17

No glare found

PV14 and OP 18

No glare found

PV14 and OP 19

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

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FORGESOLAR GLARE ANALYSIS

Project: **Sapphire Solar Project**
Site configuration: **Sapphire Solar June 2024 Batch B**

Client: Sapphire Solar, LLC

Created 11 Jun, 2024
Updated 11 Jun, 2024
Time-step 1 minute
Timezone offset UTC-8
Minimum sun altitude 0.0 deg
DNI peaks at 1,000.0 W/m^2
Category 100 MW to 1 GW
Site ID 121457.14630

Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV15	SA tracking	SA tracking	194,096	3,234.9	62,031	1,033.8	-
PV16	SA tracking	SA tracking	231,937	3,865.6	19,799	330.0	-
PV17	SA tracking	SA tracking	204,767	3,412.8	45,601	760.0	-
PV18	SA tracking	SA tracking	210,228	3,503.8	10,067	167.8	-
PV19	SA tracking	SA tracking	93,043	1,550.7	2,921	48.7	-
PV20	SA tracking	SA tracking	87,165	1,452.8	2,076	34.6	-
PV21	SA tracking	SA tracking	215,178	3,586.3	29,430	490.5	-
PV22	SA tracking	SA tracking	125,446	2,090.8	3,982	66.4	-
PV23	SA tracking	SA tracking	172,191	2,869.8	10,653	177.6	-
PV24	SA tracking	SA tracking	107,783	1,796.4	1,935	32.2	-
PV25	SA tracking	SA tracking	80,671	1,344.5	1,503	25.1	-
PV26	SA tracking	SA tracking	82,776	1,379.6	843	14.1	-
PV27	SA tracking	SA tracking	85,330	1,422.2	1,692	28.2	-
PV28	SA tracking	SA tracking	86,108	1,435.1	953	15.9	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd A	1,132	18.9	0	0.0
AirportRd B	2,776	46.3	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0

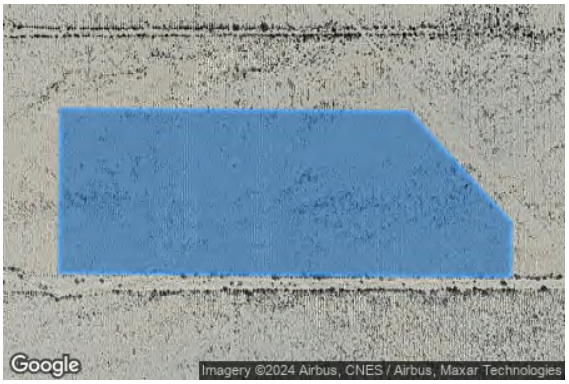
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	4,658	77.6	0	0.0
SR177 A	8,079	134.7	0	0.0
SR177 B	8,516	141.9	0	0.0
SR177 C	4,338	72.3	8	0.1
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
CN6423	13,277	221.3	0	0.0
CN645	0	0.0	0	0.0
IR217l	191,662	3,194.4	47,252	787.5
IR217m	146,903	2,448.4	377	6.3
IR217u	95,077	1,584.6	0	0.0
IR218l	124,828	2,080.5	52,301	871.7
IR218m	123,882	2,064.7	3,635	60.6
IR218u	44,624	743.7	108	1.8
IR255l	23,993	399.9	0	0.0
IR255m	79,270	1,321.2	0	0.0
IR255u	116,674	1,944.6	0	0.0
VR289l	219,125	3,652.1	54,248	904.1
VR289m	180,828	3,013.8	459	7.7
VR289u	142,072	2,367.9	0	0.0
VR296l	120,660	2,011.0	23,731	395.5
VR296m	175,269	2,921.2	8,721	145.3
VR296u	145,505	2,425.1	2,646	44.1
OP 1	794	13.2	0	0.0
OP 2	789	13.2	0	0.0
OP 3	92	1.5	0	0.0
OP 4	197	3.3	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	486	8.1	0	0.0
OP 8	0	0.0	0	0.0
OP 9	384	6.4	0	0.0
OP 10	384	6.4	0	0.0
OP 11	249	4.2	0	0.0
OP 12	132	2.2	0	0.0
OP 13	64	1.1	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

Component Data

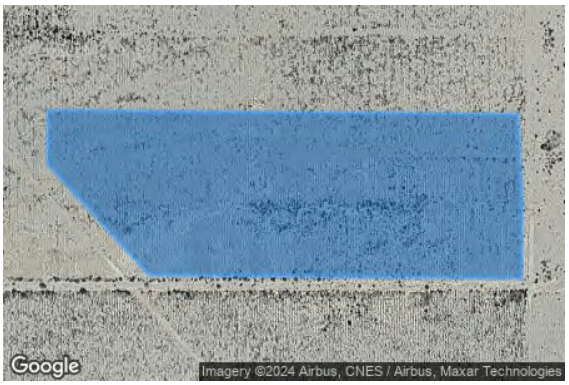
PV Arrays

Name: PV15
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



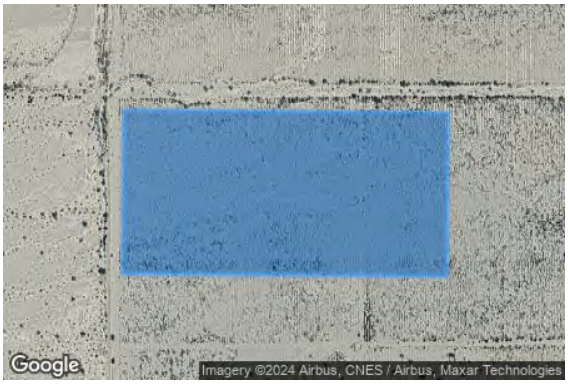
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.765578	-115.377738	640.24	8.50	648.74
2	33.767904	-115.377715	636.40	8.50	644.90
3	33.767862	-115.371733	619.91	8.50	628.41
4	33.766295	-115.369991	616.84	8.50	625.34
5	33.765524	-115.369998	617.62	8.50	626.12

Name: PV16
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



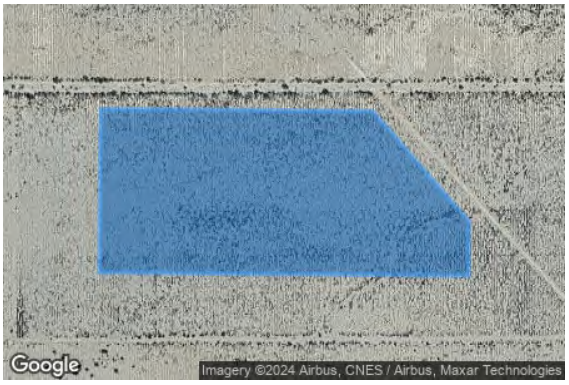
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.767859	-115.361948	593.30	8.50	601.80
2	33.766682	-115.361876	594.71	8.50	603.21
3	33.765533	-115.361888	595.99	8.50	604.49
4	33.765578	-115.368275	612.77	8.50	621.27
5	33.767153	-115.370017	616.12	8.50	624.62
6	33.767917	-115.370010	614.96	8.50	623.46

Name: PV17
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



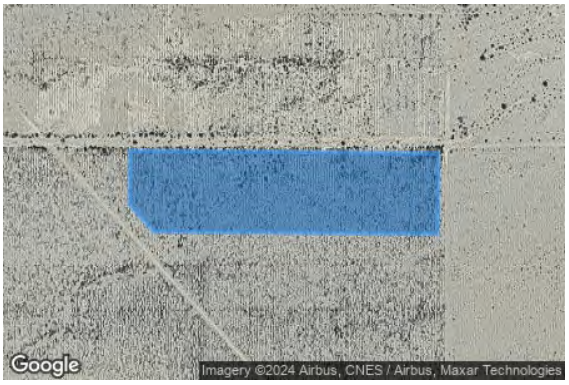
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.765105	-115.373272	627.23	8.50	635.73
2	33.762779	-115.373295	629.88	8.50	638.38
3	33.762818	-115.378866	646.52	8.50	655.02
4	33.765144	-115.378843	643.46	8.50	651.96

Name: PV18
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



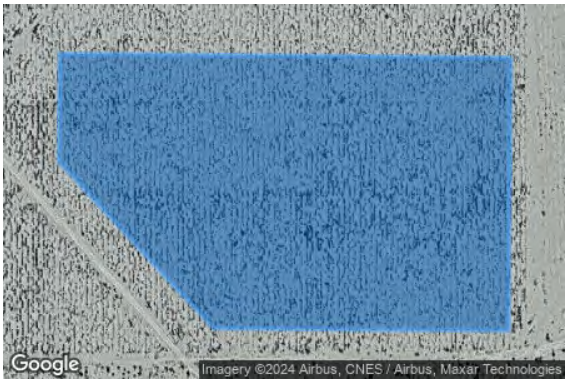
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.762779	-115.373295	629.88	8.50	638.38
2	33.765105	-115.373272	627.23	8.50	635.73
3	33.765072	-115.368604	613.96	8.50	622.46
4	33.763505	-115.366945	610.76	8.50	619.26
5	33.762734	-115.366953	611.89	8.50	620.39

Name: PV19
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



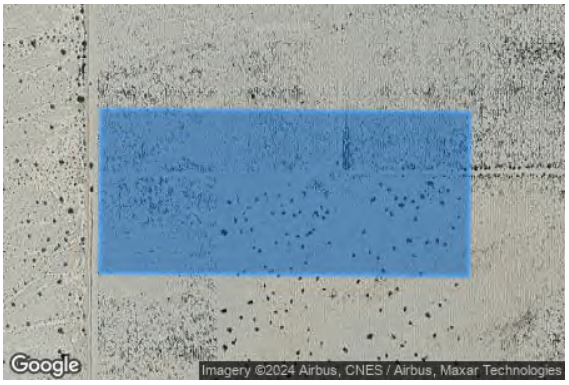
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.765296	-115.367168	609.79	8.50	618.29
2	33.765259	-115.361870	595.90	8.50	604.40
3	33.764110	-115.361881	597.29	8.50	605.79
4	33.764144	-115.366761	609.89	8.50	618.39
5	33.764525	-115.367176	610.50	8.50	619.00

Name: PV20
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



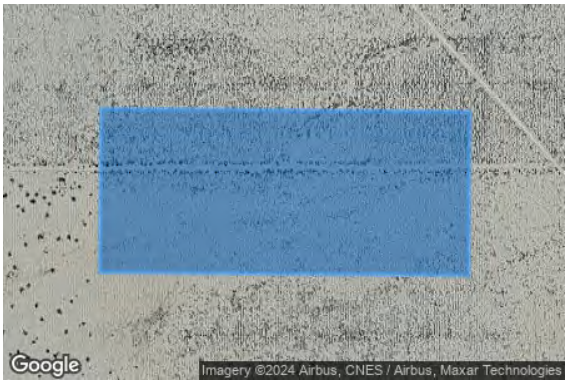
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.764000	-115.361883	597.36	8.50	605.86
2	33.762052	-115.361902	599.16	8.50	607.66
3	33.762070	-115.364438	605.63	8.50	614.13
4	33.763256	-115.365766	608.16	8.50	616.66
5	33.764027	-115.365758	607.39	8.50	615.89

Name: PV21
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



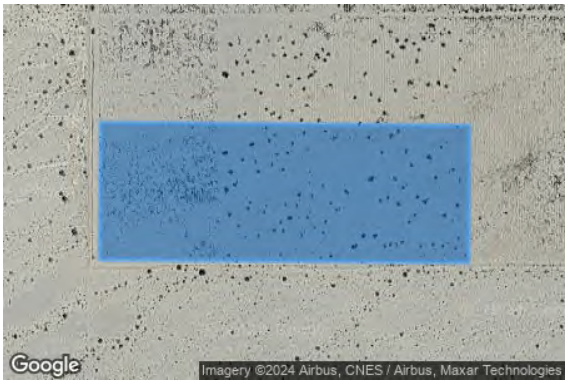
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.762663	-115.372534	627.63	8.50	636.13
2	33.760337	-115.372557	629.53	8.50	638.03
3	33.760382	-115.378891	649.03	8.50	657.53
4	33.762708	-115.378867	646.71	8.50	655.21

Name: PV22
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



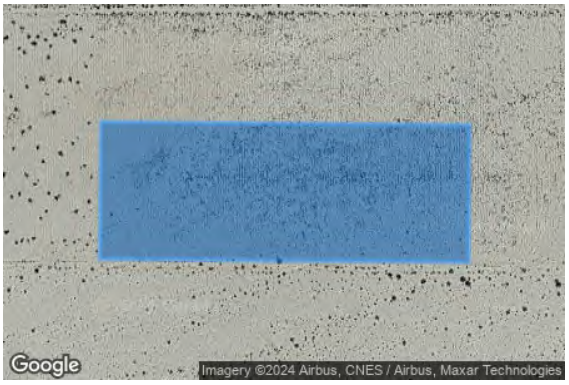
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.760337	-115.372557	629.53	8.50	638.03
2	33.762663	-115.372534	627.63	8.50	636.13
3	33.762619	-115.366200	609.97	8.50	618.47
4	33.760293	-115.366224	612.03	8.50	620.53

Name: PV23
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



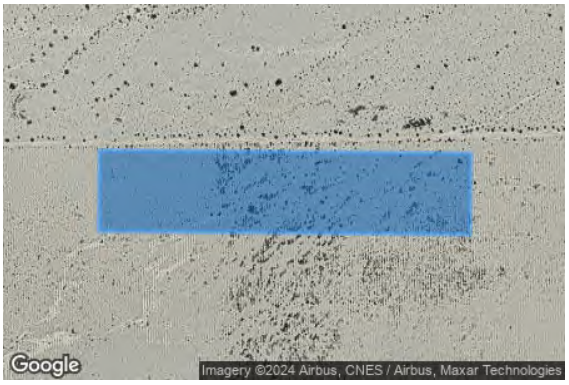
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.760227	-115.372558	629.67	8.50	638.17
2	33.758279	-115.372578	633.66	8.50	642.16
3	33.758324	-115.378911	652.28	8.50	660.78
4	33.760272	-115.378892	649.20	8.50	657.70

Name: PV24
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



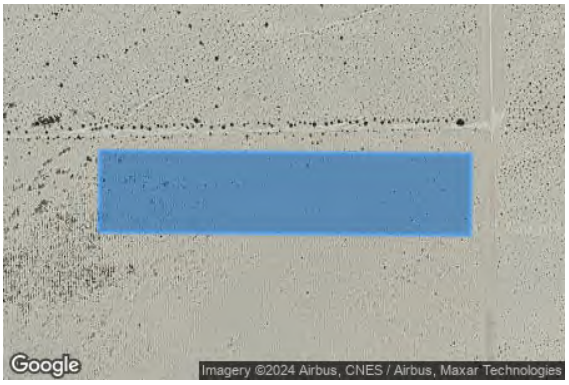
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.758279	-115.372578	633.66	8.50	642.16
2	33.760227	-115.372558	629.67	8.50	638.17
3	33.760183	-115.366225	612.10	8.50	620.60
4	33.758235	-115.366245	615.17	8.50	623.67

Name: PV25
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



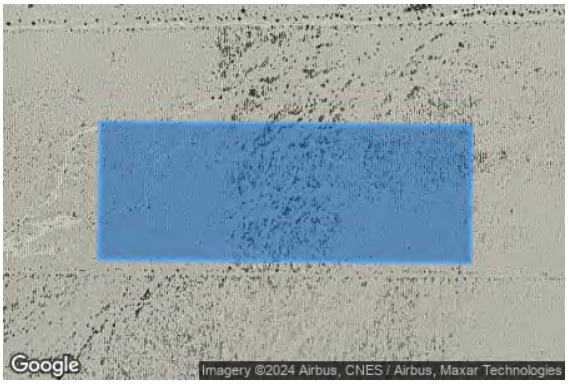
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.765272	-115.350799	571.66	8.50	580.16
2	33.764123	-115.350811	573.23	8.50	581.73
3	33.764169	-115.357187	586.52	8.50	595.02
4	33.765318	-115.357175	585.22	8.50	593.72

Name: PV26
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



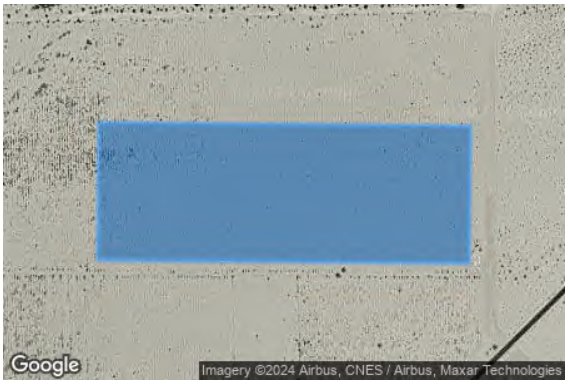
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.764123	-115.350811	573.23	8.50	581.73
2	33.765272	-115.350799	571.66	8.50	580.16
3	33.765226	-115.344424	559.73	8.50	568.23
4	33.764077	-115.344436	560.67	8.50	569.17

Name: PV27
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.764013	-115.350812	573.16	8.50	581.66
2	33.762065	-115.350832	575.08	8.50	583.58
3	33.762111	-115.357208	587.88	8.50	596.38
4	33.764059	-115.357188	586.49	8.50	594.99

Name: PV28
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.5
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.762065	-115.350832	575.08	8.50	583.58
2	33.764013	-115.350812	573.16	8.50	581.66
3	33.763967	-115.344437	560.80	8.50	569.30
4	33.762019	-115.344457	561.96	8.50	570.46

Route Receptors

Name: AirportRd A
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.753911	-115.333760	545.59	3.50	549.09
2	33.753864	-115.333882	545.68	3.50	549.18
3	33.753777	-115.334268	546.54	3.50	550.04
4	33.753934	-115.334866	547.76	3.50	551.26
5	33.754069	-115.335025	548.33	3.50	551.83
6	33.754285	-115.335268	548.60	3.50	552.10
7	33.754426	-115.335573	548.94	3.50	552.44
8	33.755160	-115.339693	556.66	3.50	560.16
9	33.755379	-115.340319	558.19	3.50	561.69
10	33.755620	-115.340716	558.69	3.50	562.19
11	33.759526	-115.345368	566.08	3.50	569.58

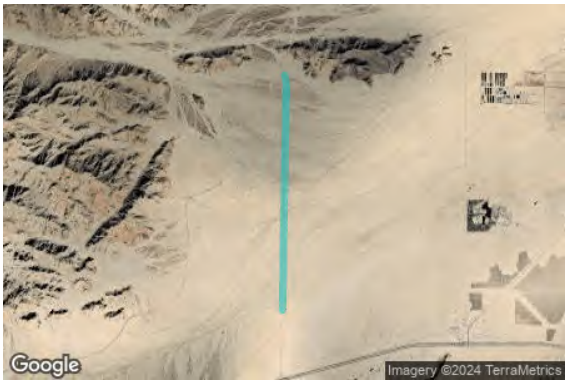
Name: AirportRd B
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.756527	-115.320346	522.07	3.50	525.57
2	33.756513	-115.322336	523.15	3.50	526.65
3	33.756622	-115.322682	524.32	3.50	527.82
4	33.757431	-115.323668	526.07	3.50	529.57
5	33.755889	-115.325559	529.81	3.50	533.31
6	33.755727	-115.325838	530.41	3.50	533.91
7	33.755691	-115.326186	530.79	3.50	534.29
8	33.756226	-115.329304	535.90	3.50	539.40
9	33.756161	-115.329640	536.57	3.50	540.07
10	33.755970	-115.329885	537.79	3.50	541.29
11	33.754928	-115.330197	538.39	3.50	541.89
12	33.754793	-115.330256	538.65	3.50	542.15
13	33.754659	-115.330385	538.97	3.50	542.47
14	33.754306	-115.331013	539.49	3.50	542.99
15	33.754088	-115.331361	540.15	3.50	543.65

Name: EagleMtnRd A
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.800940	-115.448607	947.69	3.50	951.19
2	33.796450	-115.448679	964.27	3.50	967.77
3	33.792085	-115.448744	983.20	3.50	986.70
4	33.787601	-115.448809	1000.99	3.50	1004.49
5	33.786507	-115.448890	1009.09	3.50	1012.59
6	33.785656	-115.449161	1014.46	3.50	1017.96
7	33.785075	-115.449540	1021.94	3.50	1025.44

Name: EagleMtnRd B
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.771880	-115.450828	1010.29	3.50	1013.79
2	33.771288	-115.450606	1009.40	3.50	1012.90
3	33.770618	-115.450445	1008.05	3.50	1011.55
4	33.769524	-115.450402	1005.92	3.50	1009.42
5	33.764028	-115.450517	996.38	3.50	999.88
6	33.755727	-115.450689	962.77	3.50	966.27
7	33.748001	-115.450843	943.77	3.50	947.27
8	33.740703	-115.450988	938.88	3.50	942.38
9	33.732401	-115.451156	967.83	3.50	971.33
10	33.724147	-115.451320	991.72	3.50	995.22
11	33.718431	-115.451433	1006.34	3.50	1009.84

Name: I-10 EB A
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.705105	-115.437919	1088.72	7.60	1096.32
2	33.706928	-115.429904	1047.84	7.60	1055.44
3	33.707872	-115.425528	1019.60	7.60	1027.20
4	33.709444	-115.418646	980.72	7.60	988.32
5	33.709805	-115.416981	968.39	7.60	975.99
6	33.709971	-115.416037	965.09	7.60	972.69
7	33.710052	-115.415352	963.42	7.60	971.02

Name: I-10 EB B
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.710052	-115.415352	963.42	7.60	971.02
2	33.710130	-115.414186	959.92	7.60	967.52
3	33.710207	-115.410709	946.02	7.60	953.62
4	33.710308	-115.396082	916.91	7.60	924.51
5	33.710471	-115.382413	880.68	7.60	888.28
6	33.710464	-115.381402	877.55	7.60	885.15
7	33.710431	-115.380683	875.18	7.60	882.78

Name: I-10 EB C
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.710431	-115.380683	875.18	7.60	882.78
2	33.710371	-115.379429	871.34	7.60	878.94
3	33.710102	-115.376777	867.77	7.60	875.37
4	33.709585	-115.372714	863.66	7.60	871.26
5	33.707856	-115.359373	830.91	7.60	838.51
6	33.706087	-115.345591	807.75	7.60	815.35
7	33.704570	-115.333818	814.70	7.60	822.30
8	33.702862	-115.320593	767.21	7.60	774.81
9	33.701393	-115.309277	755.89	7.60	763.49
10	33.701306	-115.308736	755.56	7.60	763.16
11	33.701055	-115.307567	754.53	7.60	762.13
12	33.700576	-115.305860	757.67	7.60	765.27
13	33.699937	-115.303666	762.03	7.60	769.63
14	33.699184	-115.301059	762.06	7.60	769.66

Name: I-10 WB A
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.699451	-115.300519	759.26	7.60	766.86
2	33.701193	-115.306440	754.71	7.60	762.31
3	33.701438	-115.307364	754.23	7.60	761.83
4	33.701623	-115.308162	752.35	7.60	759.95
5	33.701743	-115.308664	752.61	7.60	760.21
6	33.704165	-115.327515	781.57	7.60	789.17
7	33.704874	-115.332973	807.01	7.60	814.61
8	33.705899	-115.341026	818.50	7.60	826.10
9	33.707528	-115.353568	816.17	7.60	823.77
10	33.709081	-115.365555	837.94	7.60	845.54
11	33.710431	-115.376017	866.73	7.60	874.33
12	33.710801	-115.379524	871.87	7.60	879.47
13	33.710846	-115.380714	874.19	7.60	881.79

Name: I-10 WB B
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.710846	-115.380714	874.19	7.60	881.79
2	33.710896	-115.381792	875.58	7.60	883.18
3	33.710801	-115.390716	897.75	7.60	905.35
4	33.710603	-115.407913	934.12	7.60	941.72
5	33.710530	-115.414131	958.52	7.60	966.12
6	33.710479	-115.414971	961.36	7.60	968.96
7	33.710425	-115.415434	962.82	7.60	970.42

Name: I-10 WB C
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.710425	-115.415434	962.82	7.60	970.42
2	33.710364	-115.416068	965.70	7.60	973.30
3	33.710247	-115.416763	967.97	7.60	975.57
4	33.709713	-115.419277	982.79	7.60	990.39
5	33.707565	-115.428905	1040.73	7.60	1048.33
6	33.706063	-115.435530	1071.34	7.60	1078.94
7	33.705451	-115.438362	1085.30	7.60	1092.90

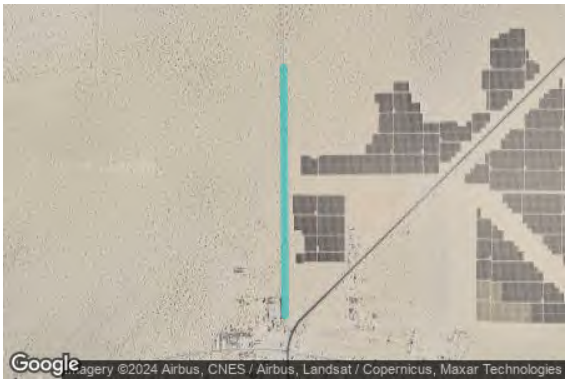
Name: KaiserRd A
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.831109	-115.435728	891.66	7.60	899.26
2	33.813464	-115.412017	755.20	7.60	762.80
3	33.811159	-115.409254	734.79	7.60	742.39
4	33.808817	-115.407018	717.15	7.60	724.75
5	33.806978	-115.405596	703.74	7.60	711.34
6	33.804377	-115.403954	689.04	7.60	696.64
7	33.801994	-115.402806	678.27	7.60	685.87
8	33.799507	-115.401894	671.92	7.60	679.52
9	33.797807	-115.401484	668.15	7.60	675.75
10	33.796500	-115.401237	665.95	7.60	673.55
11	33.795191	-115.401057	664.62	7.60	672.22
12	33.791971	-115.400937	662.89	7.60	670.49

Name: KaiserRd B
Path type: Two-way
Observer view angle: 50.0°

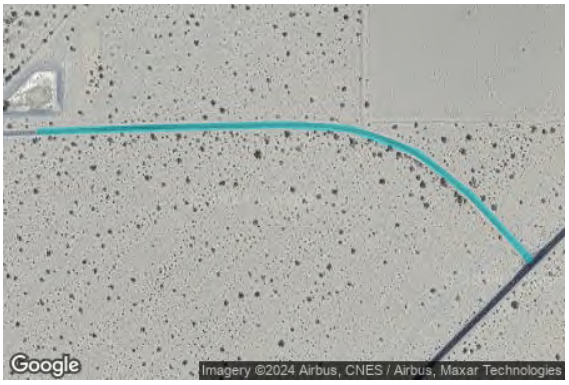
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.746500	-115.400703	745.93	7.60	753.53
2	33.753275	-115.400738	733.94	7.60	741.54
3	33.763914	-115.400792	713.75	7.60	721.35
4	33.769448	-115.400821	702.21	7.60	709.81
5	33.779516	-115.400868	675.89	7.60	683.49

Name: KaiserRd C
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.715283	-115.400523	881.24	7.60	888.84
2	33.729454	-115.400623	783.69	7.60	791.29

Name: OasisRd
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.736311	-115.384332	706.29	3.50	709.79
2	33.736406	-115.380158	692.86	3.50	696.36
3	33.736349	-115.378999	689.12	3.50	692.62
4	33.736009	-115.377862	686.99	3.50	690.49
5	33.735379	-115.376904	686.22	3.50	689.72
6	33.734487	-115.375919	687.38	3.50	690.88

Name: Race Track
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.749594	-115.312350	519.32	3.50	522.82
2	33.748167	-115.314833	530.83	3.50	534.33
3	33.748086	-115.315433	531.45	3.50	534.95
4	33.748218	-115.315911	529.20	3.50	532.70
5	33.748293	-115.316305	523.69	3.50	527.19
6	33.748011	-115.316822	515.20	3.50	518.70
7	33.747274	-115.317841	518.14	3.50	521.64
8	33.747179	-115.318518	525.63	3.50	529.13
9	33.747491	-115.319132	526.31	3.50	529.81
10	33.748065	-115.319289	524.24	3.50	527.74
11	33.748691	-115.318759	518.95	3.50	522.45
12	33.749904	-115.317341	519.50	3.50	523.00
13	33.750281	-115.317089	519.62	3.50	523.12
14	33.750711	-115.317161	519.60	3.50	523.10
15	33.751660	-115.317751	519.77	3.50	523.27
16	33.751863	-115.318091	519.59	3.50	523.09
17	33.751923	-115.318493	519.80	3.50	523.30
18	33.751153	-115.320772	522.04	3.50	525.54
19	33.751157	-115.321235	522.63	3.50	526.13
20	33.751496	-115.321642	523.63	3.50	527.13
21	33.751996	-115.321551	525.15	3.50	528.65
22	33.752251	-115.321146	524.66	3.50	528.16
23	33.752356	-115.320870	523.97	3.50	527.47
24	33.753373	-115.319951	522.41	3.50	525.91

Name: SR177 A
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.809144	-115.285014	537.28	7.60	544.88
2	33.806765	-115.287917	538.18	7.60	545.78
3	33.803052	-115.292448	528.44	7.60	536.04
4	33.799083	-115.297249	522.38	7.60	529.98
5	33.795412	-115.301717	524.60	7.60	532.20
6	33.791259	-115.306758	530.51	7.60	538.11
7	33.787659	-115.311136	532.58	7.60	540.18
8	33.785068	-115.314305	533.78	7.60	541.38
9	33.782942	-115.316904	537.52	7.60	545.12

Name: SR177 B
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.782942	-115.316904	537.52	7.60	545.12
2	33.773104	-115.328901	537.93	7.60	545.53

Name: SR177 C
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.767334	-115.335873	544.08	7.60	551.68
2	33.763143	-115.340966	554.95	7.60	562.55
3	33.758296	-115.346872	569.37	7.60	576.97
4	33.754507	-115.351474	583.94	7.60	591.54
5	33.750529	-115.356306	601.84	7.60	609.44
6	33.748176	-115.359165	612.09	7.60	619.69

Name: SR177 D
Path type: Two-way
Observer view angle: 50.0°

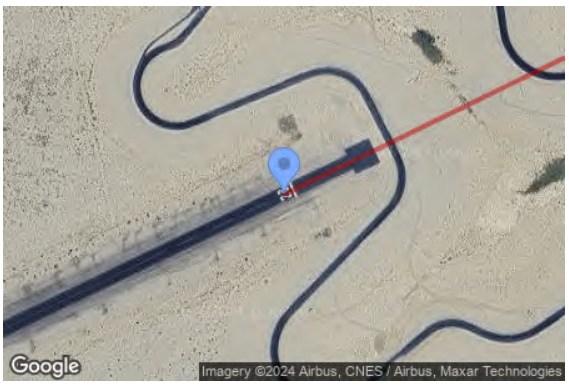
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.746196	-115.361570	621.65	7.60	629.25
2	33.739447	-115.369767	655.95	7.60	663.55

Name: SR177 E
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.737385	-115.372268	666.97	7.60	674.57
2	33.733078	-115.377504	697.85	7.60	705.45
3	33.728150	-115.383484	739.97	7.60	747.57
4	33.722891	-115.389865	791.70	7.60	799.30
5	33.718537	-115.395150	840.95	7.60	848.55
6	33.715180	-115.399225	879.82	7.60	887.42

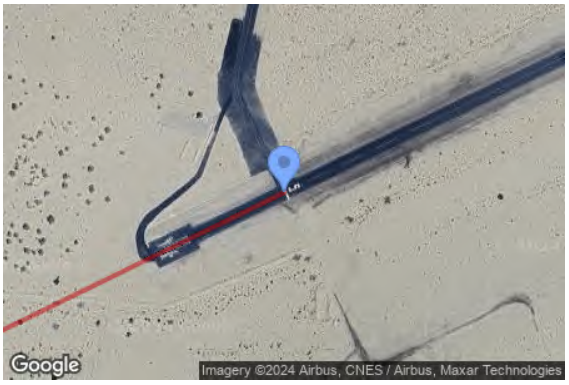
Flight Path Receptors

Name: CN6423
Description: None
Threshold height: 50 ft
Direction: 244.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.750158	-115.319082	518.50	50.00	568.50
Two-mile	33.762832	-115.287792	487.80	634.10	1121.90

Name: CN645
Description: None
Threshold height: 50 ft
Direction: 64.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.745236	-115.331386	550.50	50.00	600.50
Two-mile	33.732566	-115.362677	664.90	489.10	1154.00

Name: IR217l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.759140	-115.381050	658.09	200.00	858.09
Two-mile	33.798904	-115.326378	578.66	200.00	778.66

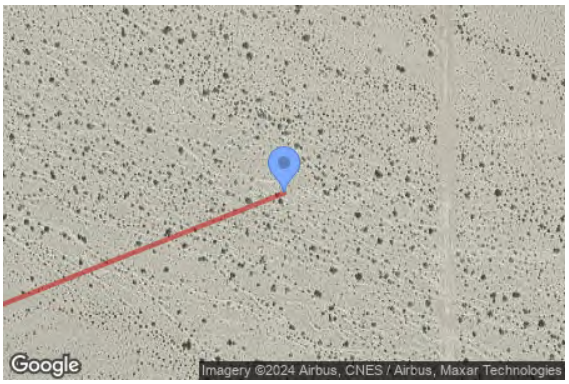
Name: IR217m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.759140	-115.381050	658.09	3071.00	3729.09
Two-mile	33.798904	-115.326378	578.66	3110.00	3688.66

Name: IR217u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

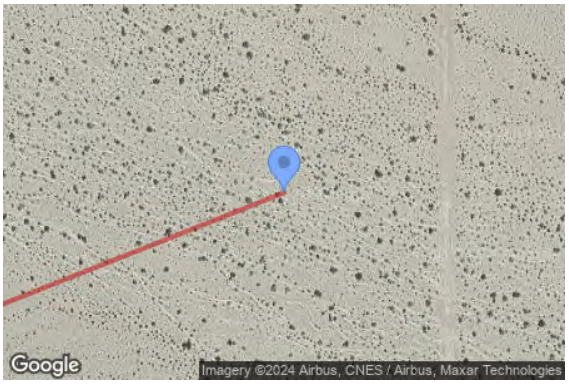
Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.759140	-115.381050	658.09	6342.00	7000.09
Two-mile	33.798904	-115.326378	578.66	6421.00	6999.66

Name: IR218l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°



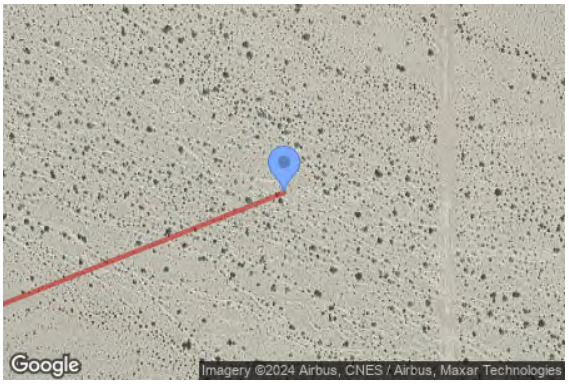
Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.775330	-115.347054	561.64	500.00	1061.64
Two-mile	33.751141	-115.420723	809.73	500.00	1309.73

Name: IR218m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.775330	-115.347054	561.64	2470.00	3031.64
Two-mile	33.751141	-115.420723	809.73	2345.00	3154.74

Name: IR218u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

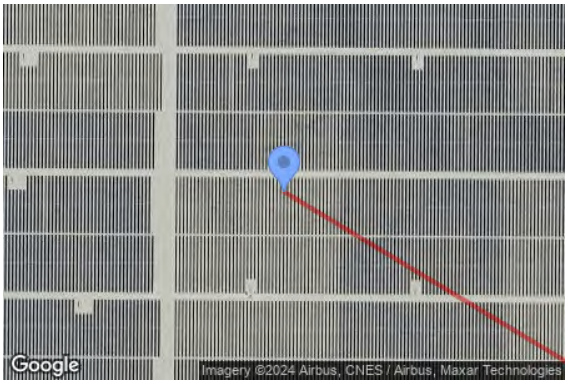


Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.775330	-115.347054	561.64	5438.00	5999.64
Two-mile	33.751141	-115.420723	809.73	5190.00	5999.74

Name: IR255l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

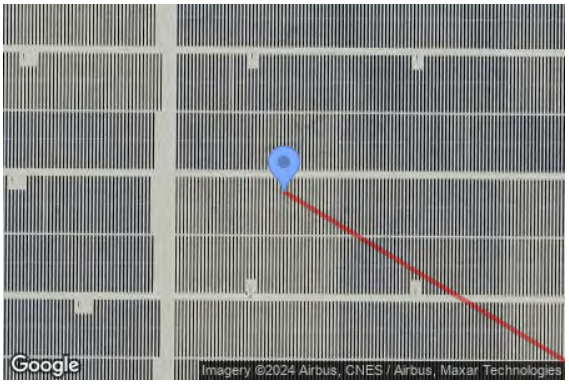
Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.795845	-115.369148	618.20	200.00	818.20
Two-mile	33.763584	-115.304428	505.85	200.00	705.85

Name: IR255m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.795845	-115.369148	618.20	3091.00	3709.20
Two-mile	33.763584	-115.304428	505.85	3147.00	3652.85

Name: IR255u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.795845	-115.369148	618.20	6382.00	7000.20
Two-mile	33.763584	-115.304428	505.85	6494.00	6999.85

Name: VR289l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.756954	-115.378883	654.52	300.00	954.52
Two-mile	33.804703	-115.335007	593.72	300.00	893.72

Name: VR289m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.756954	-115.378883	654.52	1523.00	2177.52
Two-mile	33.804703	-115.335007	593.72	1553.00	2146.72

Name: VR289u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.756954	-115.378883	654.52	3345.00	3999.52
Two-mile	33.804703	-115.335007	593.72	3406.00	3999.72

Name: VR296l
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.761974	-115.382957	660.53	300.00	960.53
Two-mile	33.790321	-115.318008	547.35	300.00	847.35

Name: VR296m
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.761974	-115.382957	660.53	1520.00	2180.53
Two-mile	33.790321	-115.318008	547.35	1577.00	2124.35

Name: VR296u
Description: None
Threshold height: 50 ft
Direction: 0.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 90.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.761974	-115.382957	660.53	3339.00	3999.53
Two-mile	33.790321	-115.318008	547.35	3453.00	4000.35

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	33.778493	-115.320099	535.34	5.50
OP 2	2	33.767844	-115.337650	546.48	5.50
OP 3	3	33.765330	-115.396387	697.13	5.50
OP 4	4	33.755021	-115.321706	523.91	5.50
OP 5	5	33.754756	-115.333252	543.09	5.50
OP 6	6	33.747512	-115.359082	612.48	5.50
OP 7	7	33.745631	-115.399716	744.30	5.50
OP 8	8	33.744408	-115.362055	626.39	5.50
OP 9	9	33.743965	-115.396803	738.95	5.50
OP 10	10	33.743124	-115.395252	738.94	5.50
OP 11	11	33.742144	-115.393587	735.58	5.50
OP 12	12	33.741881	-115.391741	724.81	5.50
OP 13	13	33.741737	-115.389776	717.98	5.50
OP 14	14	33.739459	-115.370548	659.31	5.50
OP 15	15	33.739539	-115.388627	716.39	5.50
OP 16	16	33.738547	-115.388535	718.70	5.50
OP 17	17	33.718256	-115.395901	844.87	5.50
OP 18	18	33.715835	-115.395968	865.91	5.50
OP 19	19	33.713998	-115.404205	897.54	5.50

Glare Analysis Results

Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV15	SA tracking	SA tracking	194,096	3,234.9	62,031	1,033.8	-
PV16	SA tracking	SA tracking	231,937	3,865.6	19,799	330.0	-
PV17	SA tracking	SA tracking	204,767	3,412.8	45,601	760.0	-
PV18	SA tracking	SA tracking	210,228	3,503.8	10,067	167.8	-
PV19	SA tracking	SA tracking	93,043	1,550.7	2,921	48.7	-
PV20	SA tracking	SA tracking	87,165	1,452.8	2,076	34.6	-
PV21	SA tracking	SA tracking	215,178	3,586.3	29,430	490.5	-
PV22	SA tracking	SA tracking	125,446	2,090.8	3,982	66.4	-
PV23	SA tracking	SA tracking	172,191	2,869.8	10,653	177.6	-
PV24	SA tracking	SA tracking	107,783	1,796.4	1,935	32.2	-
PV25	SA tracking	SA tracking	80,671	1,344.5	1,503	25.1	-
PV26	SA tracking	SA tracking	82,776	1,379.6	843	14.1	-
PV27	SA tracking	SA tracking	85,330	1,422.2	1,692	28.2	-
PV28	SA tracking	SA tracking	86,108	1,435.1	953	15.9	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd A	1,132	18.9	0	0.0
AirportRd B	2,776	46.3	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	4,658	77.6	0	0.0
SR177 A	8,079	134.7	0	0.0
SR177 B	8,516	141.9	0	0.0
SR177 C	4,338	72.3	8	0.1
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
CN6423	13,277	221.3	0	0.0
CN645	0	0.0	0	0.0
IR217l	191,662	3,194.4	47,252	787.5
IR217m	146,903	2,448.4	377	6.3
IR217u	95,077	1,584.6	0	0.0
IR218l	124,828	2,080.5	52,301	871.7
IR218m	123,882	2,064.7	3,635	60.6
IR218u	44,624	743.7	108	1.8
IR255l	23,993	399.9	0	0.0
IR255m	79,270	1,321.2	0	0.0
IR255u	116,674	1,944.6	0	0.0
VR289l	219,125	3,652.1	54,248	904.1
VR289m	180,828	3,013.8	459	7.7
VR289u	142,072	2,367.9	0	0.0
VR296l	120,660	2,011.0	23,731	395.5
VR296m	175,269	2,921.2	8,721	145.3
VR296u	145,505	2,425.1	2,646	44.1
OP 1	794	13.2	0	0.0
OP 2	789	13.2	0	0.0
OP 3	92	1.5	0	0.0
OP 4	197	3.3	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	486	8.1	0	0.0
OP 8	0	0.0	0	0.0
OP 9	384	6.4	0	0.0
OP 10	384	6.4	0	0.0
OP 11	249	4.2	0	0.0
OP 12	132	2.2	0	0.0
OP 13	64	1.1	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

PV: PV15 potential temporary after-image

Receptor results ordered by category of glare

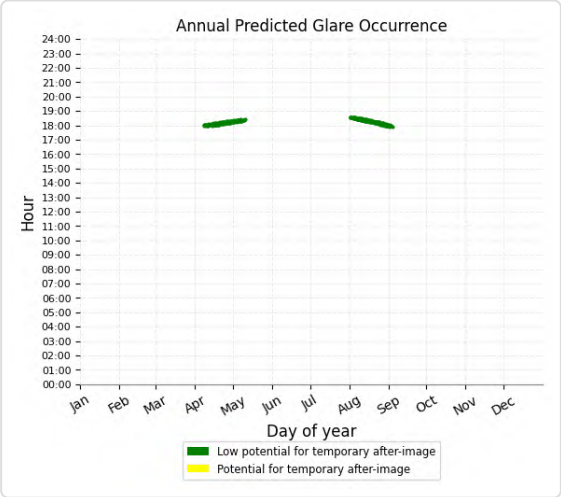
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd B	310	5.2	0	0.0
Race Track	613	10.2	0	0.0
SR177 A	991	16.5	0	0.0
SR177 B	605	10.1	0	0.0
SR177 C	246	4.1	0	0.0
AirportRd A	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	33,467	557.8	17,797	296.6
IR217m	9,898	165.0	106	1.8
IR218l	13,563	226.1	7,198	120.0
IR218m	3,340	55.7	2,638	44.0
IR218u	2,791	46.5	107	1.8
VR289l	25,275	421.2	13,346	222.4
VR289m	20,847	347.4	257	4.3
VR296l	28,306	471.8	15,950	265.8
VR296m	11,888	198.1	3,475	57.9
VR296u	6,500	108.3	1,157	19.3
CN6423	915	15.2	0	0.0
IR217u	6,435	107.2	0	0.0
IR255l	1,905	31.8	0	0.0
IR255m	3,889	64.8	0	0.0
IR255u	10,424	173.7	0	0.0
VR289u	11,743	195.7	0	0.0
CN645	0	0.0	0	0.0

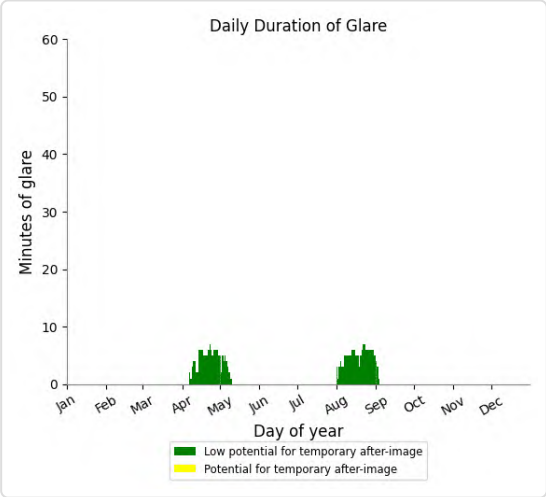
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 1	59	1.0	0	0.0
OP 4	86	1.4	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

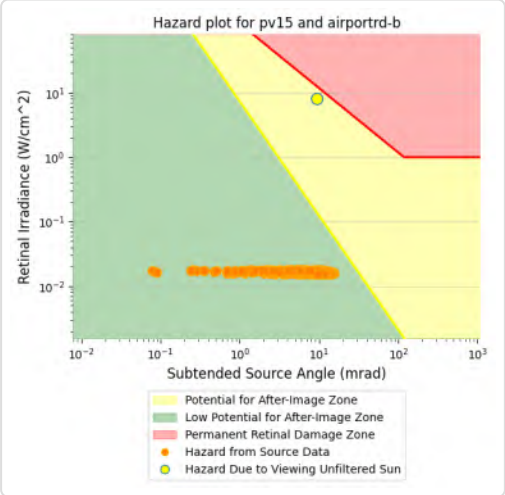
PV15 and Route: AirportRd B

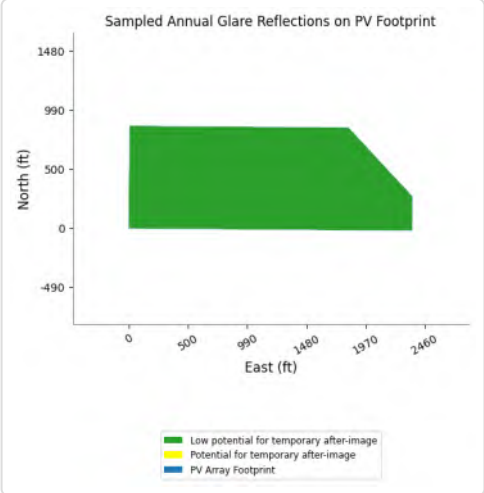
Yellow glare: none

Green glare: 310 min.





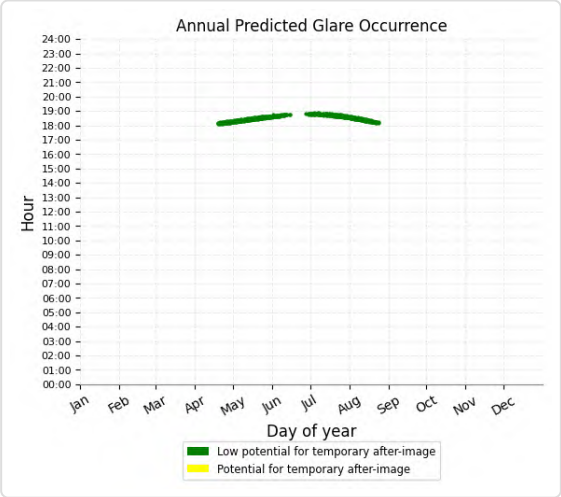


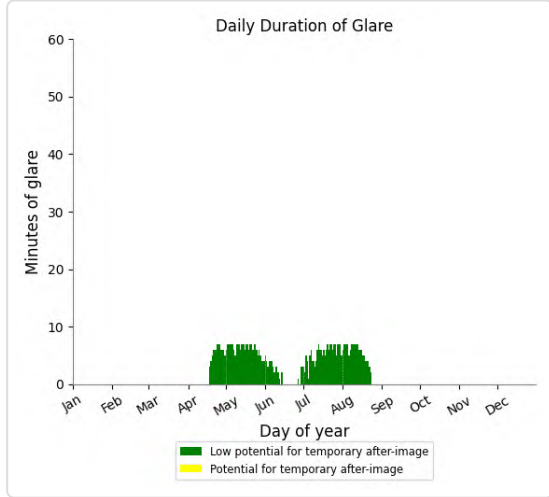


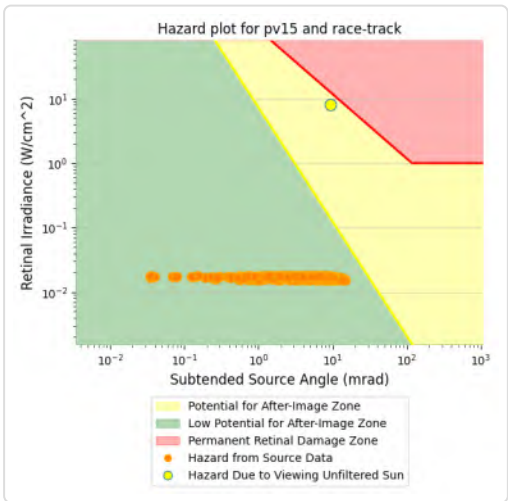
PV15 and Route: Race Track

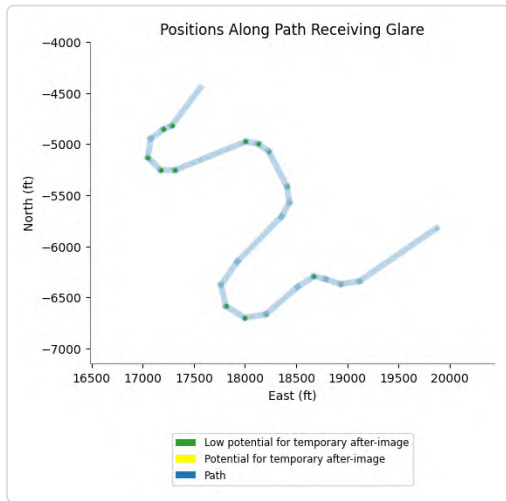
Yellow glare: none

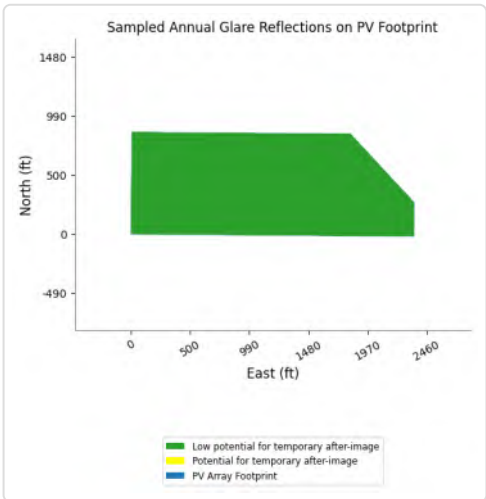
Green glare: 613 min.







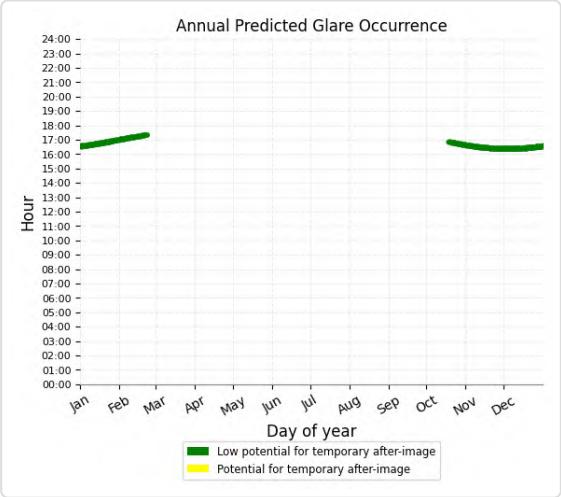


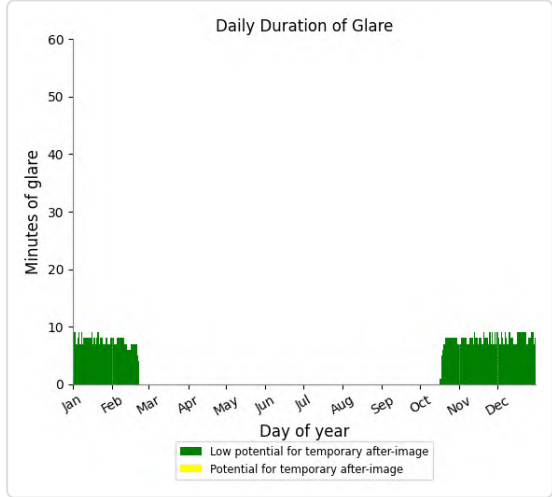


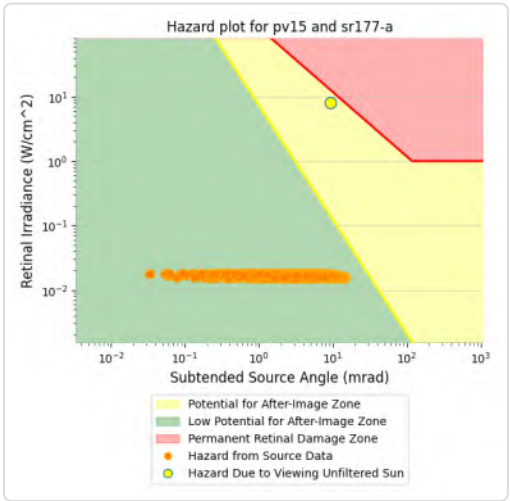
PV15 and Route: SR177 A

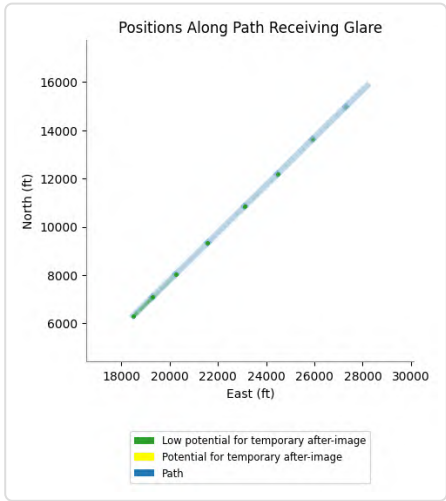
Yellow glare: none

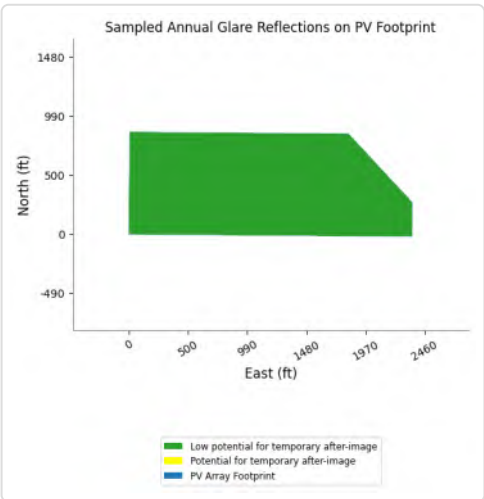
Green glare: 991 min.







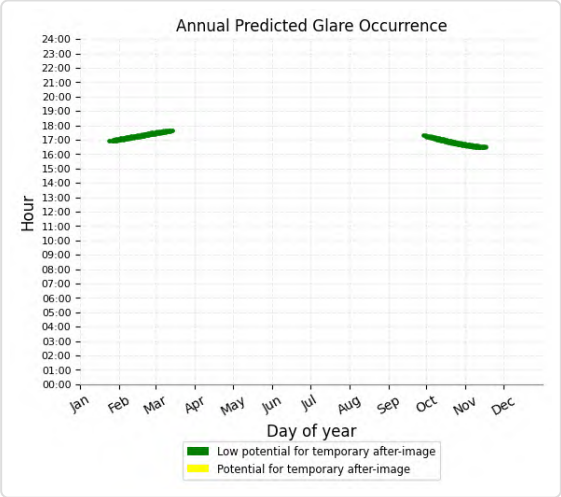


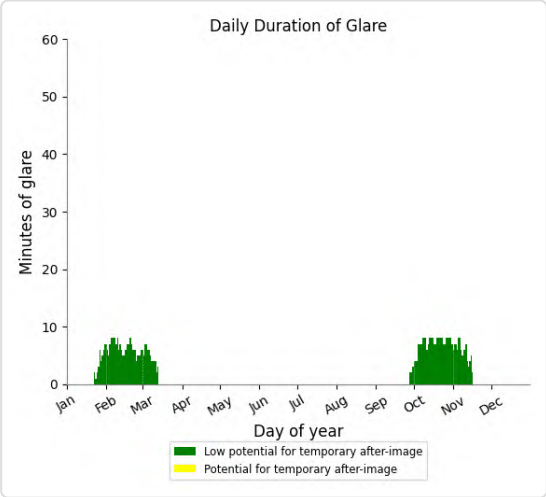


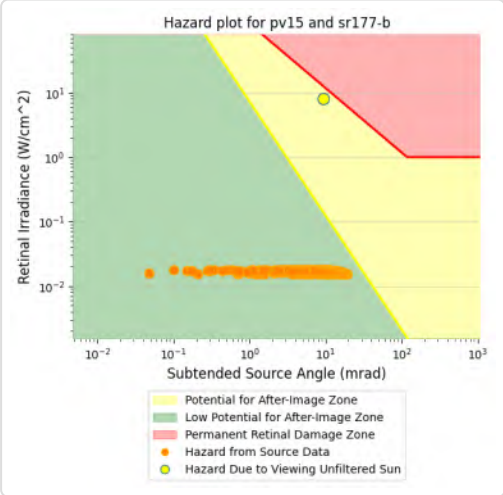
PV15 and Route: SR177 B

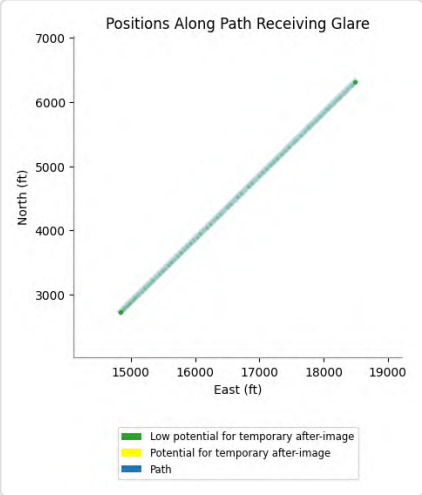
Yellow glare: none

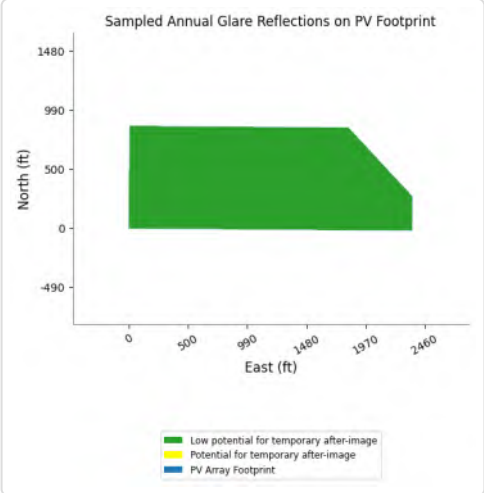
Green glare: 605 min.







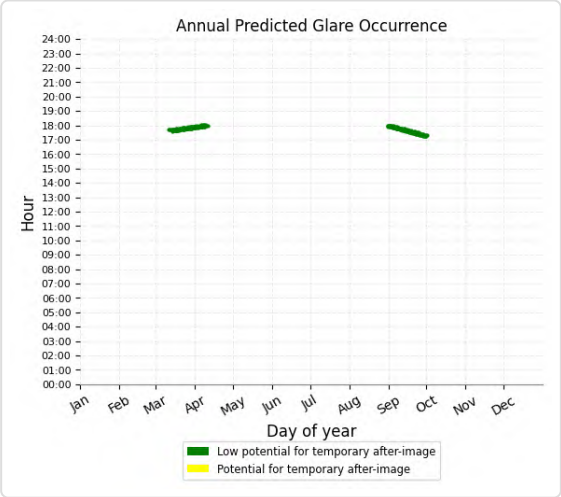


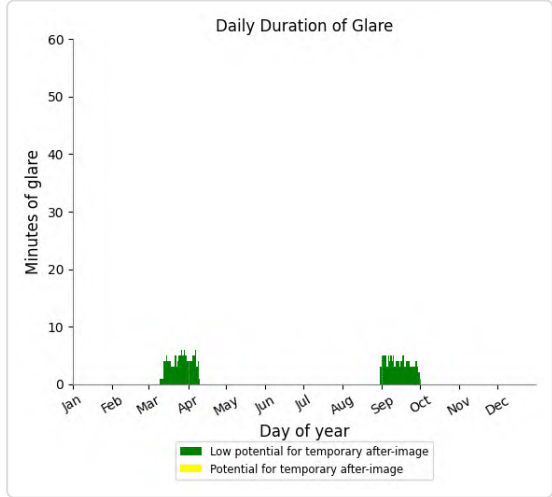


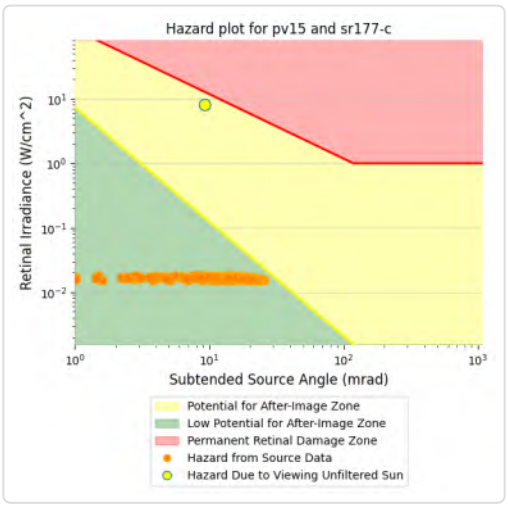
PV15 and Route: SR177 C

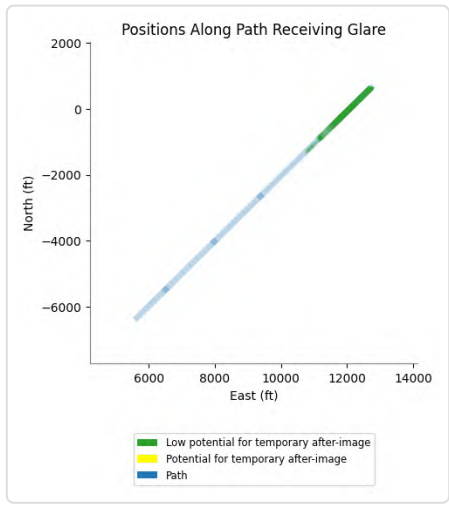
Yellow glare: none

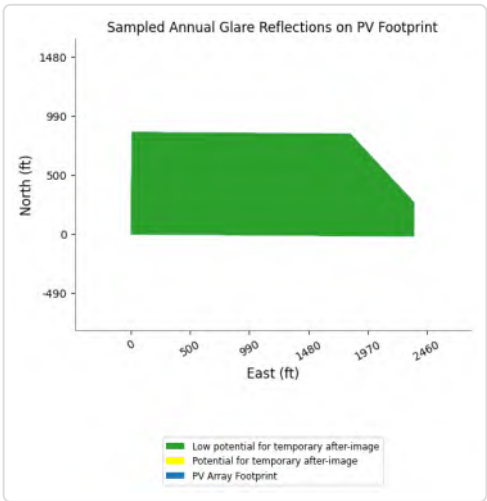
Green glare: 246 min.











PV15 and Route: AirportRd A

No glare found

PV15 and Route: EagleMtnRd A

No glare found

PV15 and Route: EagleMtnRd B

No glare found

PV15 and Route: I-10 EB A

No glare found

PV15 and Route: I-10 EB B

No glare found

PV15 and Route: I-10 EB C

No glare found

PV15 and Route: I-10 WB A

No glare found

PV15 and Route: I-10 WB B

No glare found

PV15 and Route: I-10 WB C

No glare found

PV15 and Route: KaiserRd A

No glare found

PV15 and Route: KaiserRd B

No glare found

PV15 and Route: KaiserRd C

No glare found

PV15 and Route: OasisRd

No glare found

PV15 and Route: SR177 D

No glare found

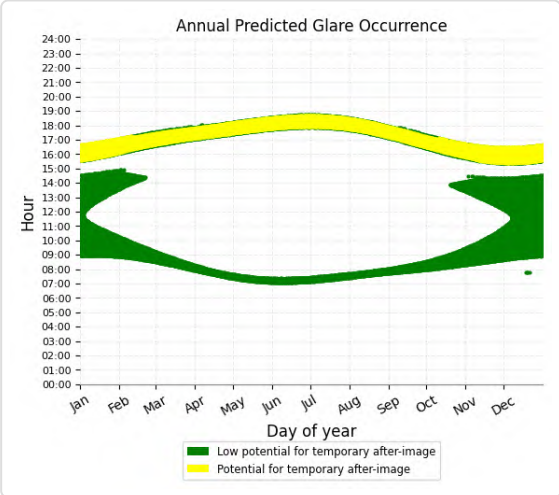
PV15 and Route: SR177 E

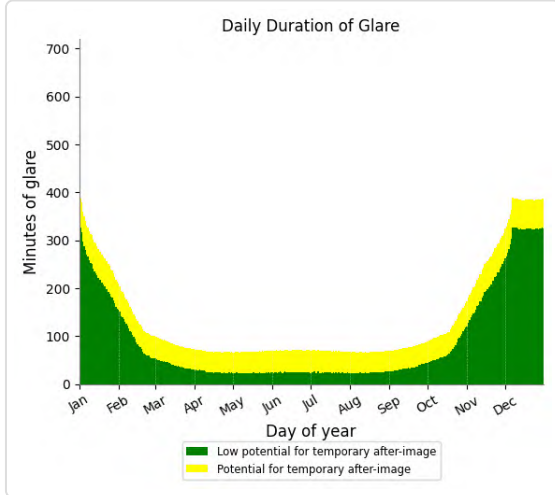
No glare found

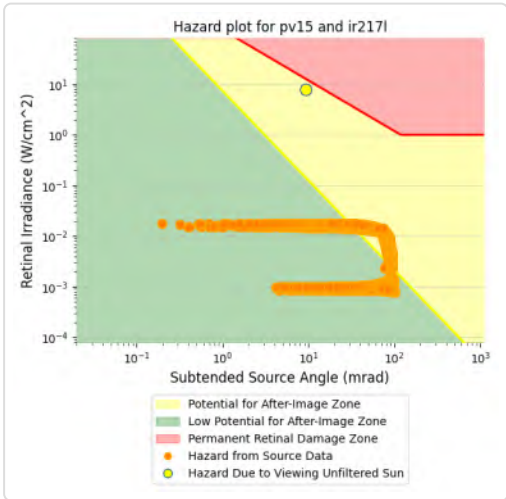
PV15 and FP: IR217I

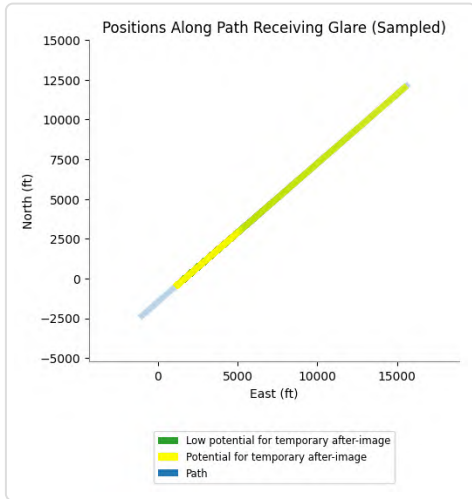
Yellow glare: 17,797 min.

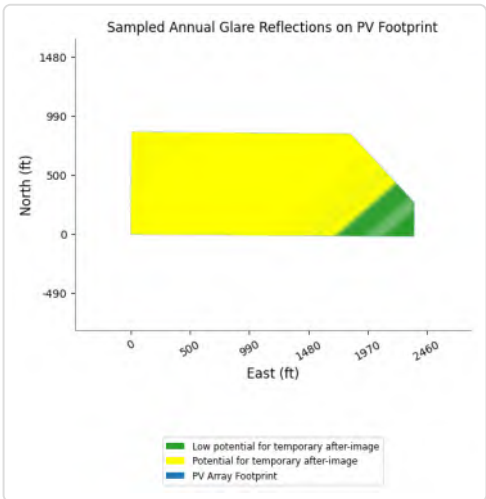
Green glare: 33,467 min.

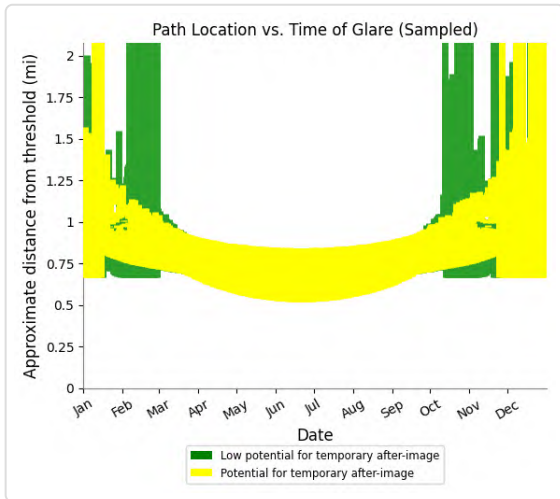








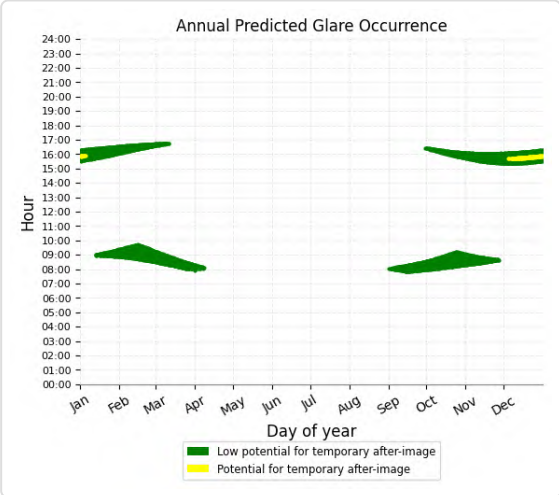


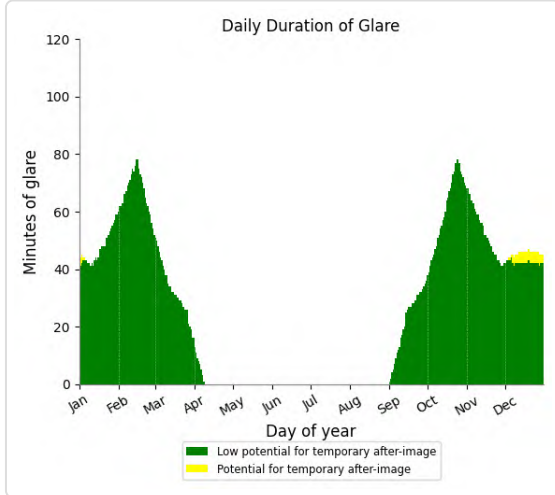


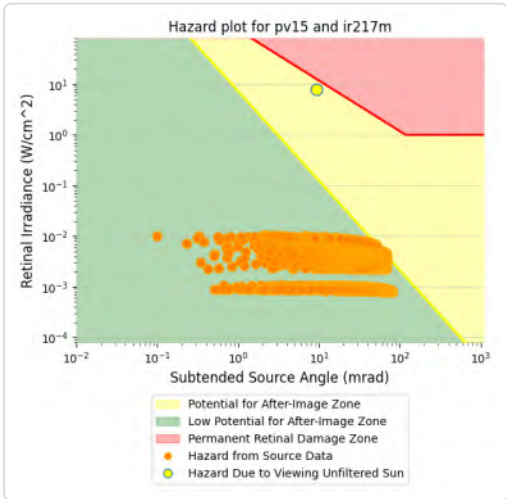
PV15 and FP: IR217m

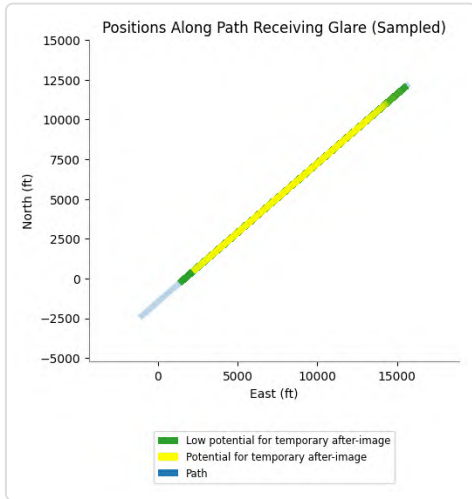
Yellow glare: 106 min.

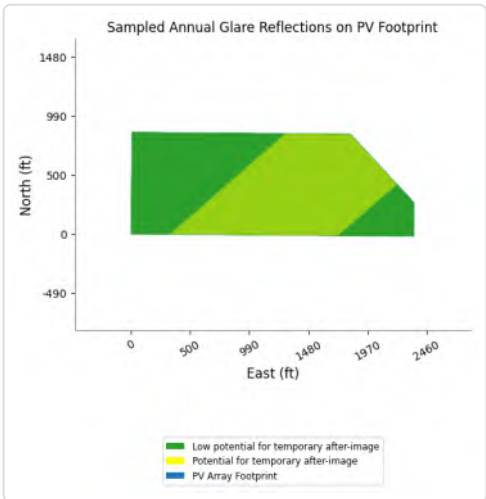
Green glare: 9,898 min.

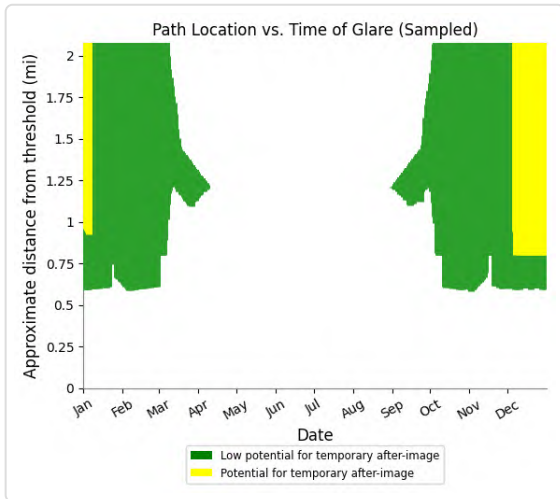








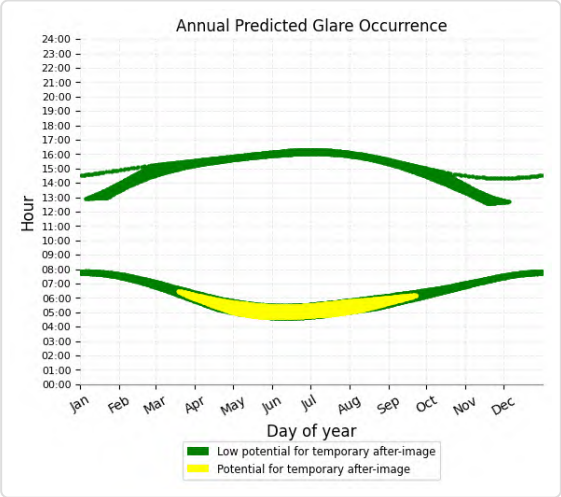


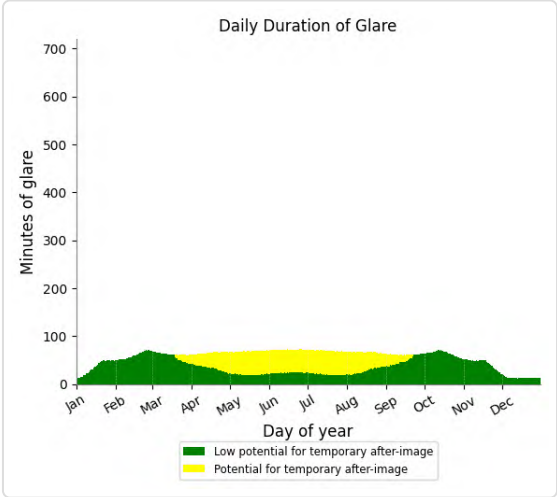


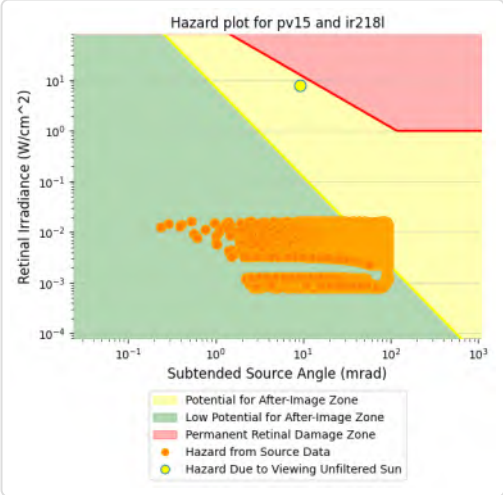
PV15 and FP: IR218l

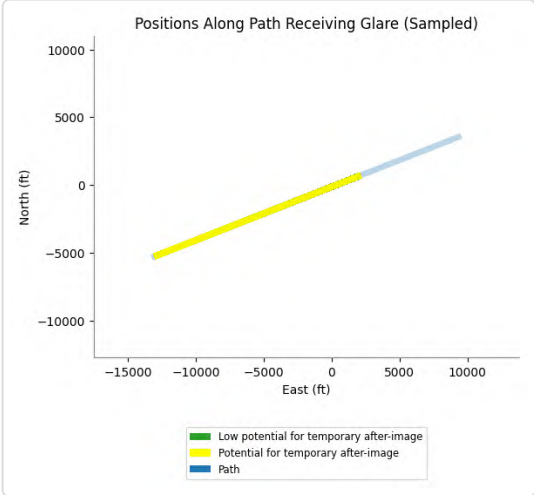
Yellow glare: 7,198 min.

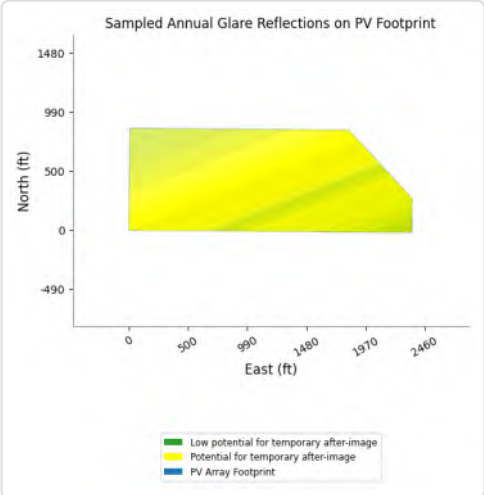
Green glare: 13,563 min.

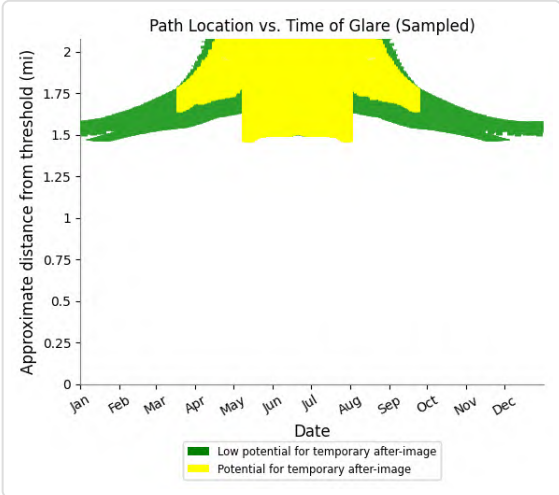








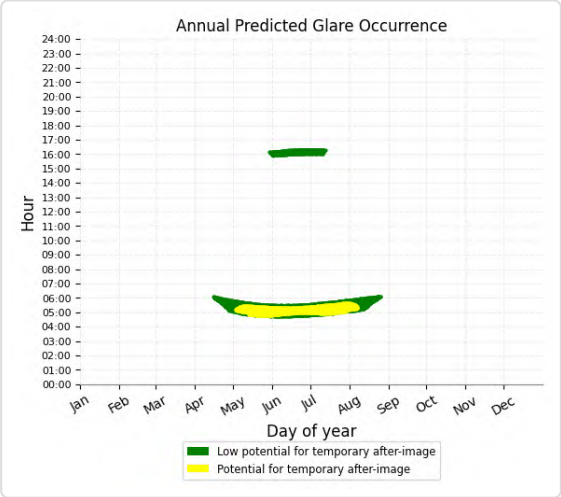


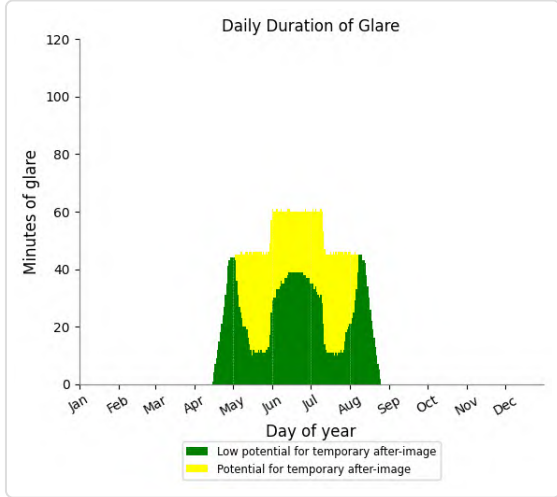


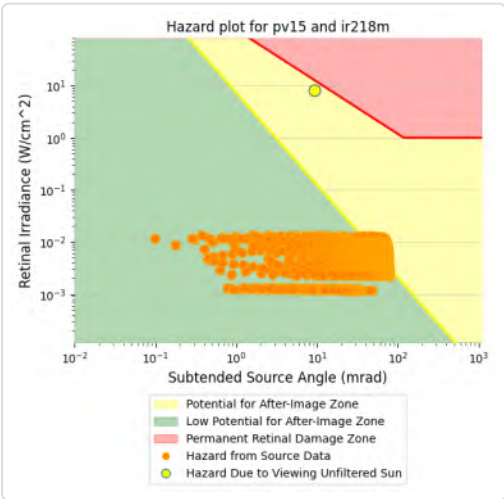
PV15 and FP: IR218m

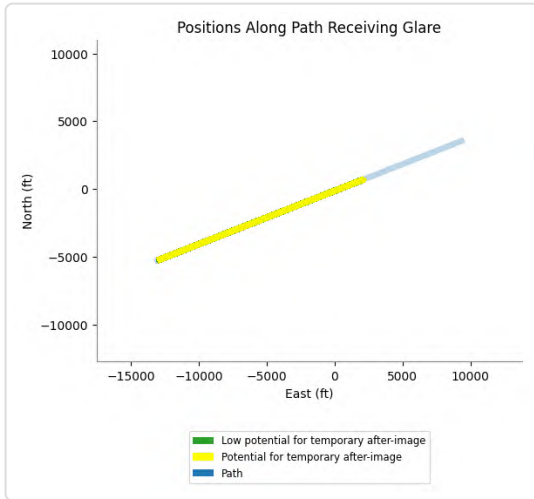
Yellow glare: 2,638 min.

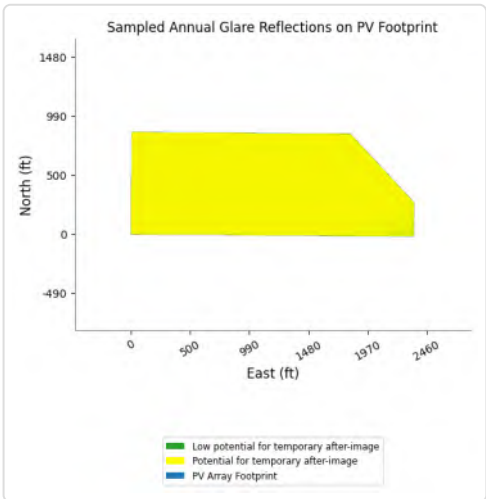
Green glare: 3,340 min.

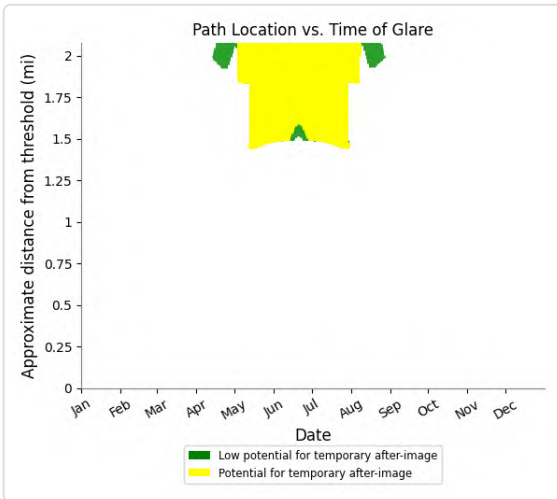








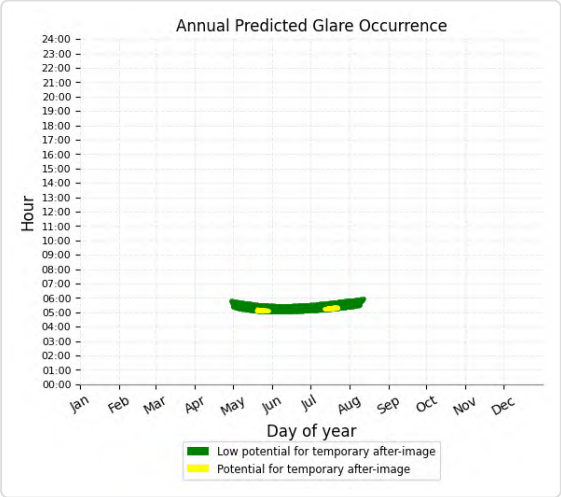


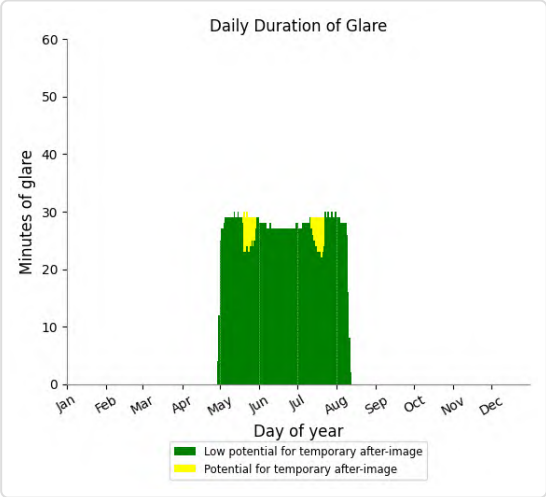


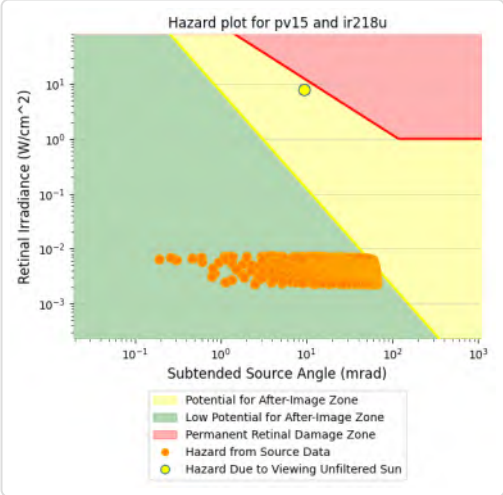
PV15 and FP: IR218u

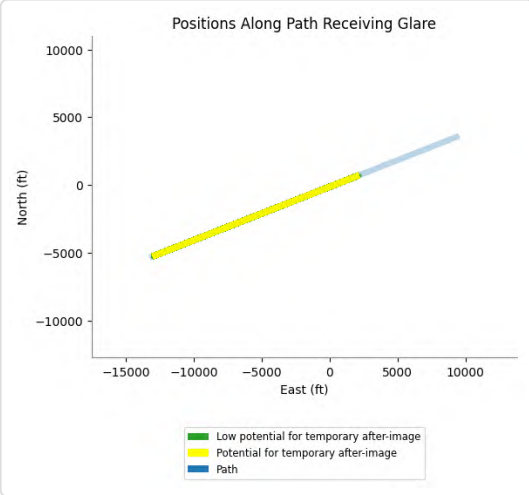
Yellow glare: 107 min.

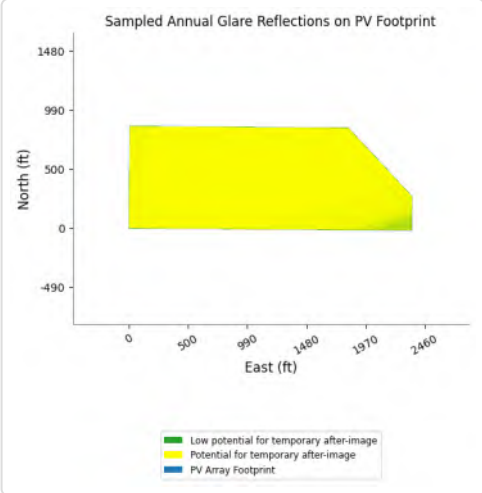
Green glare: 2,791 min.

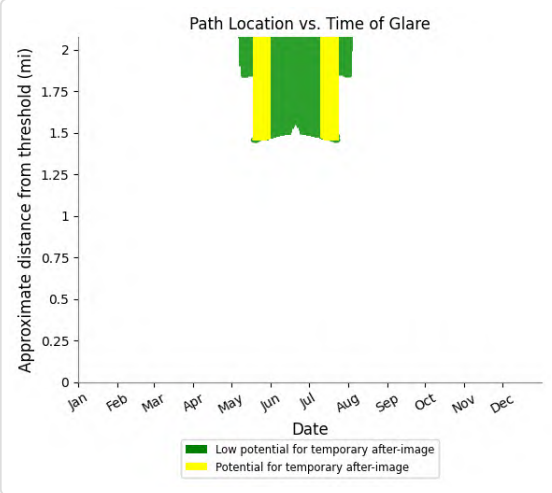








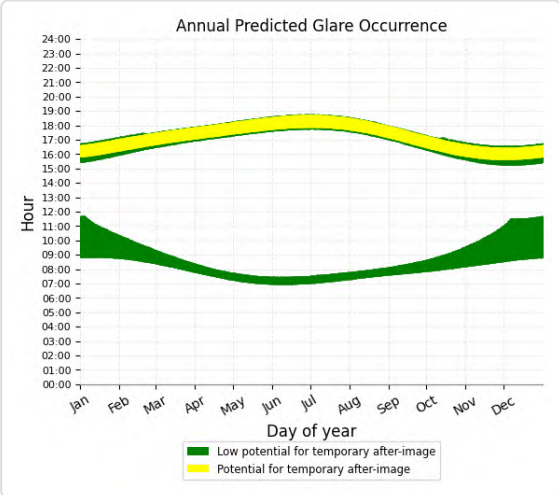


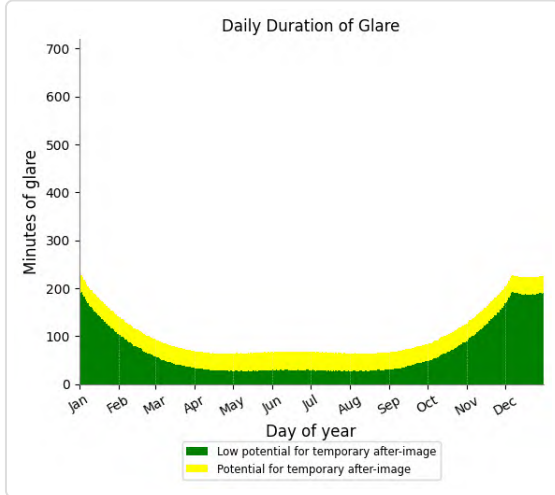


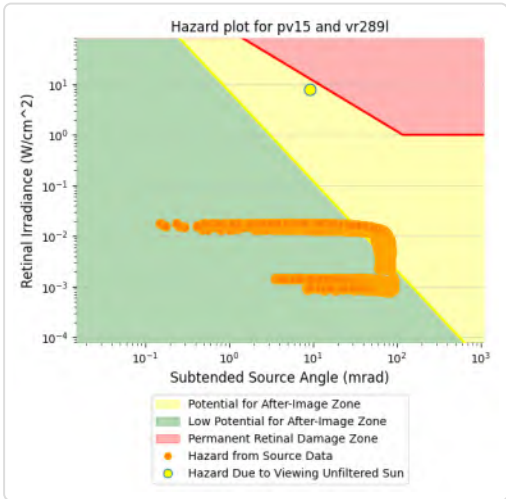
PV15 and FP: VR289I

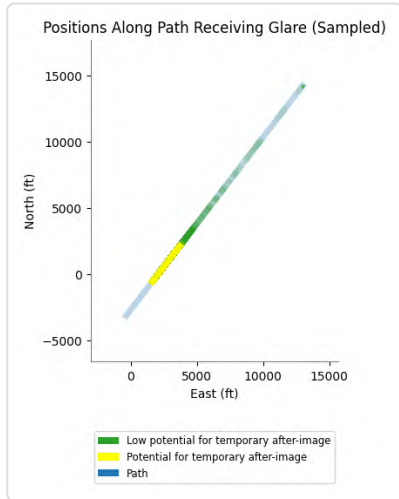
Yellow glare: 13,346 min.

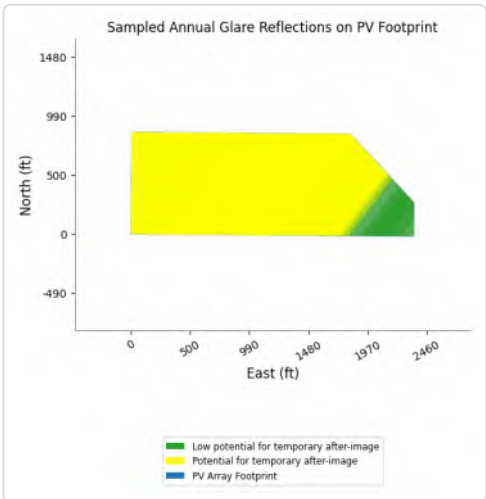
Green glare: 25,275 min.

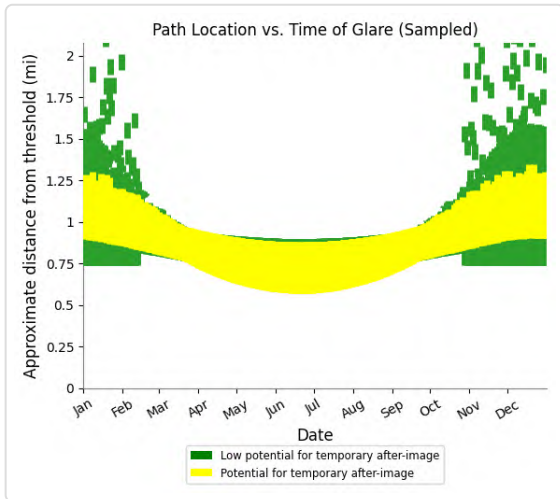








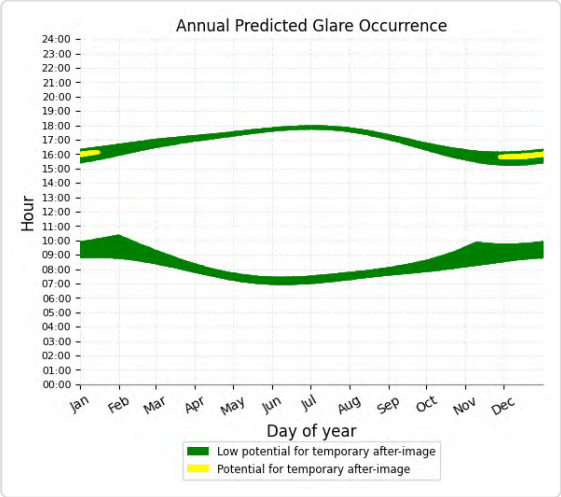


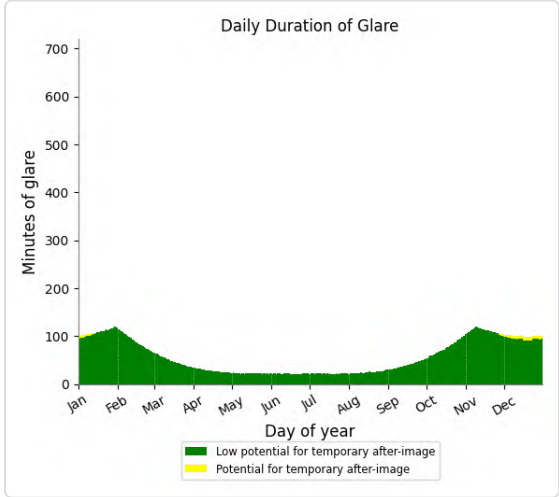


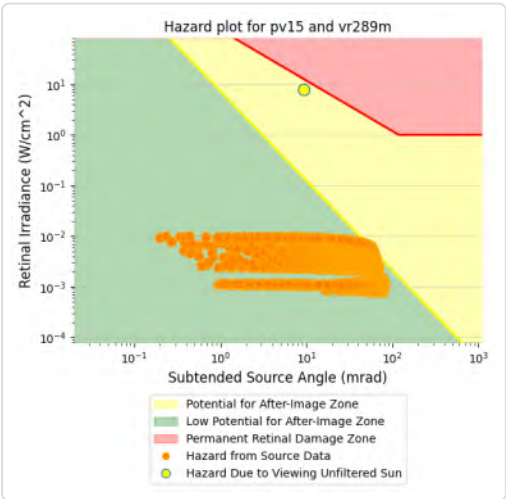
PV15 and FP: VR289m

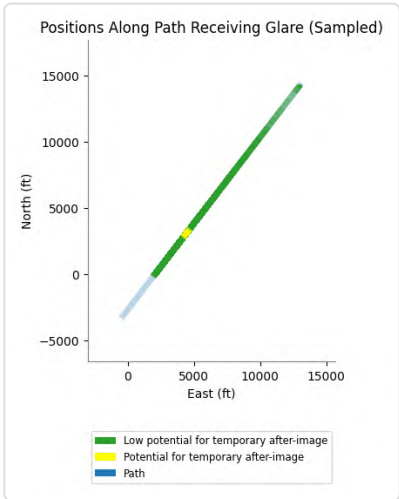
Yellow glare: 257 min.

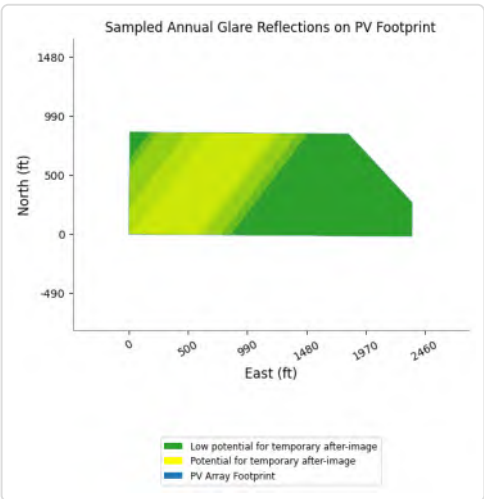
Green glare: 20,847 min.

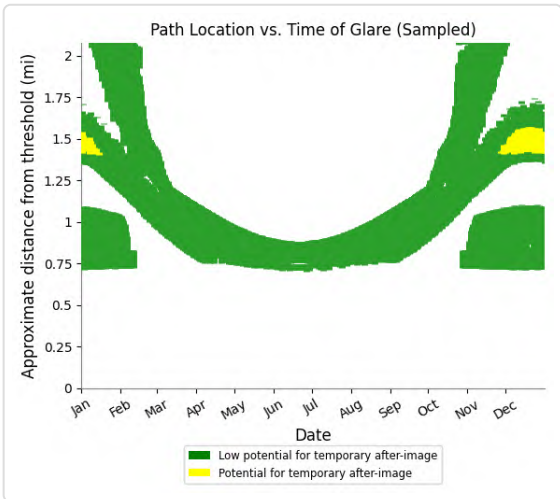








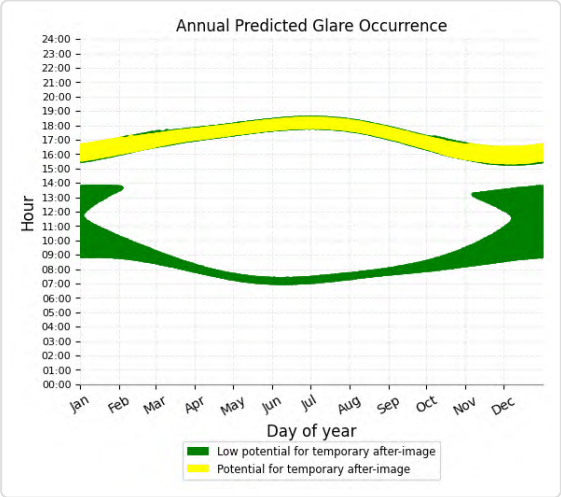


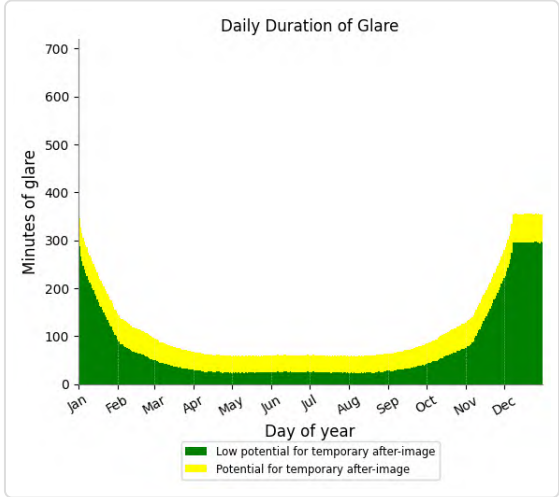


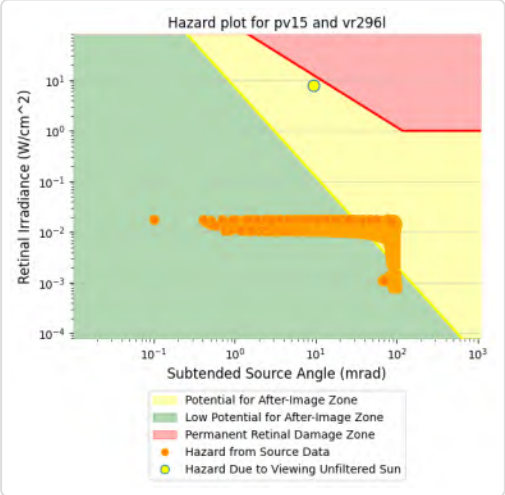
PV15 and FP: VR296I

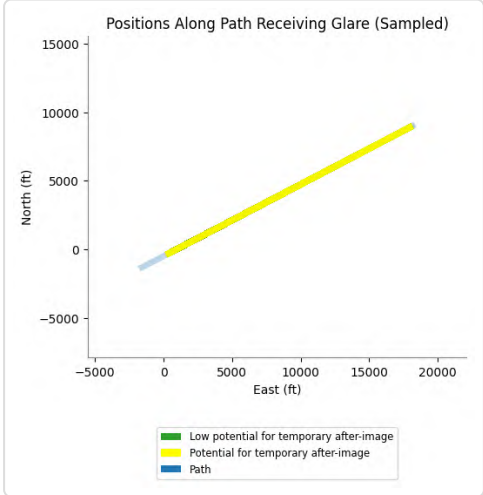
Yellow glare: 15,950 min.

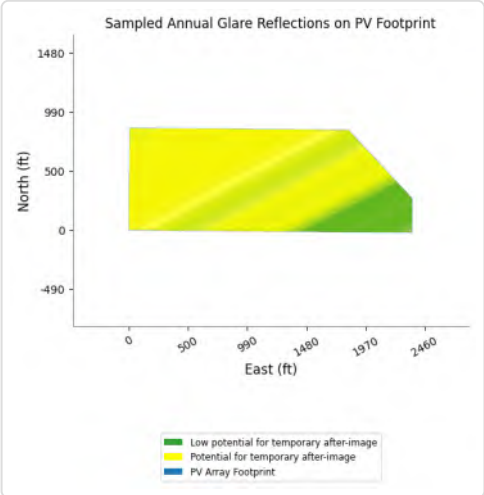
Green glare: 28,306 min.

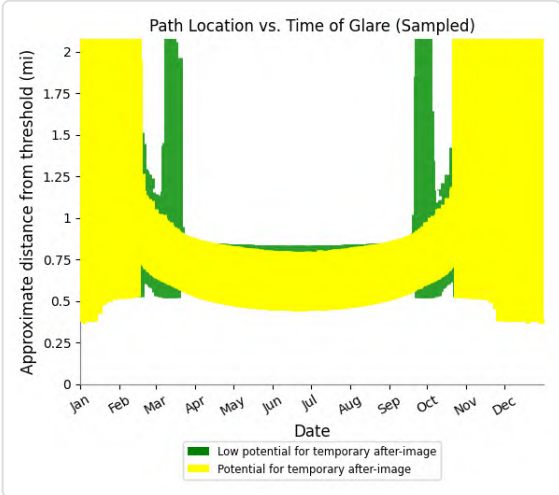








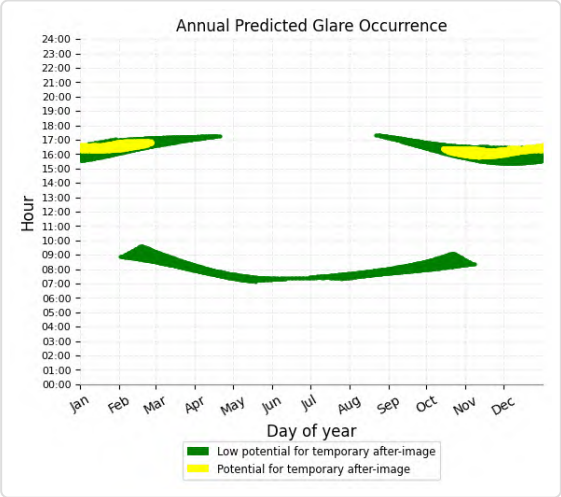


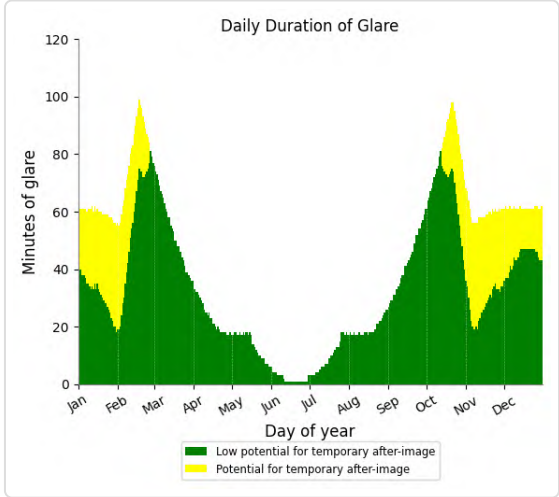


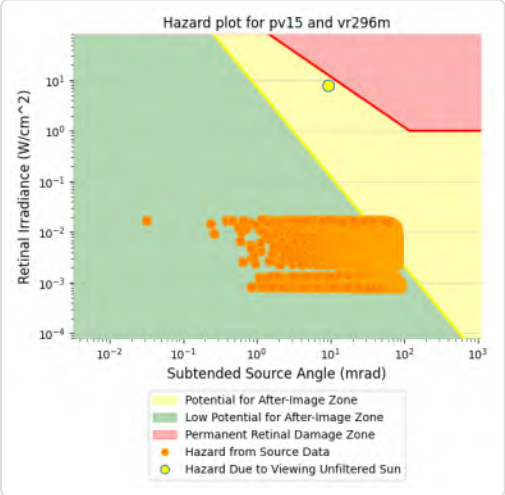
PV15 and FP: VR296m

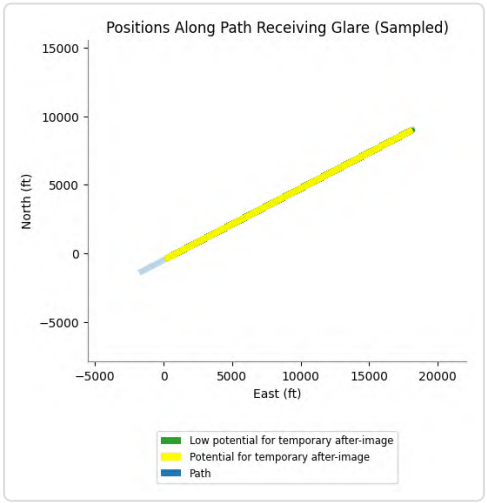
Yellow glare: 3,475 min.

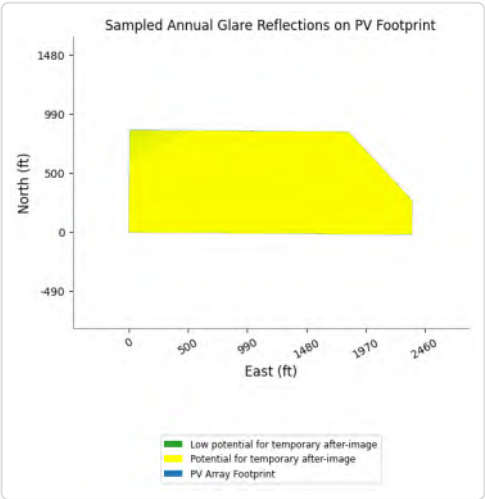
Green glare: 11,888 min.

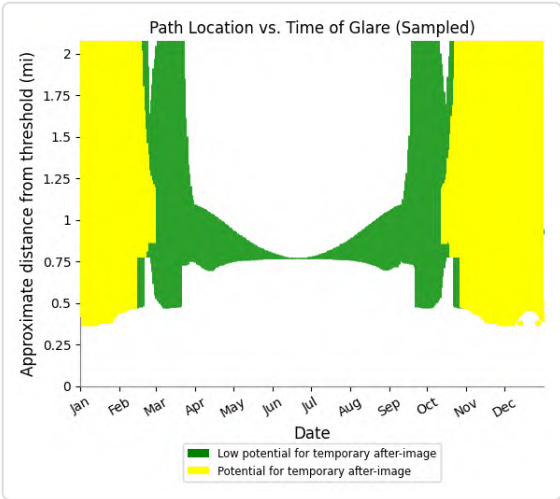








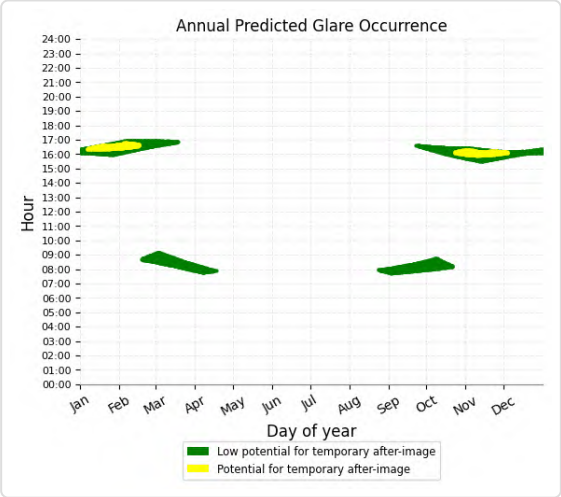


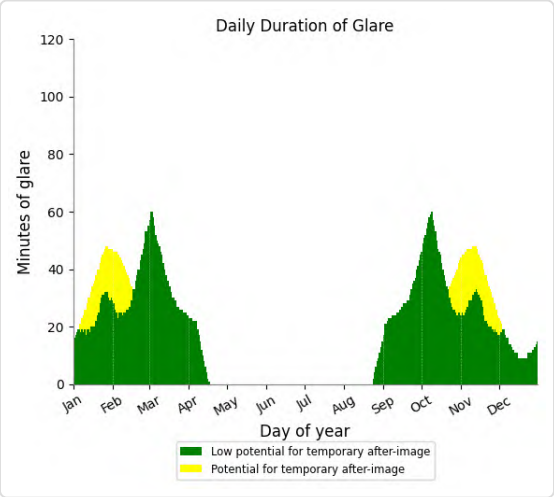


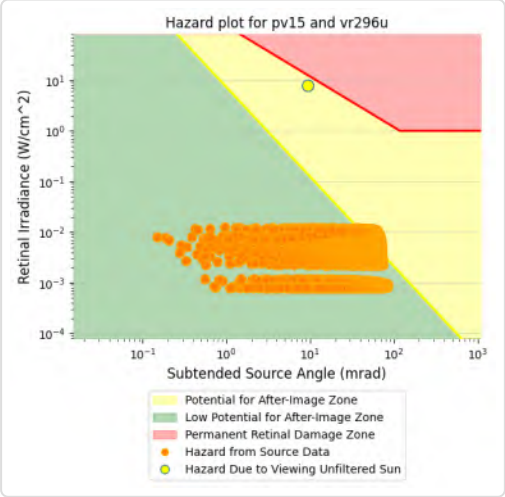
PV15 and FP: VR296u

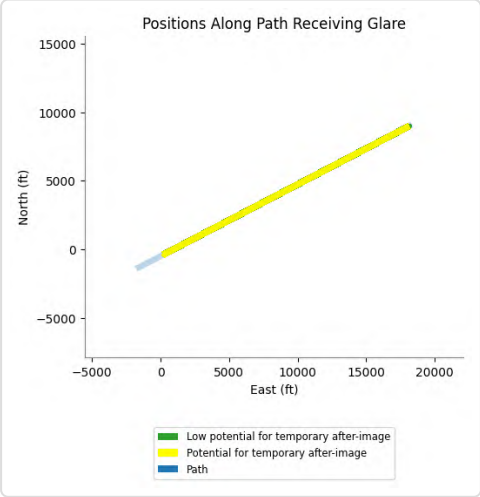
Yellow glare: 1,157 min.

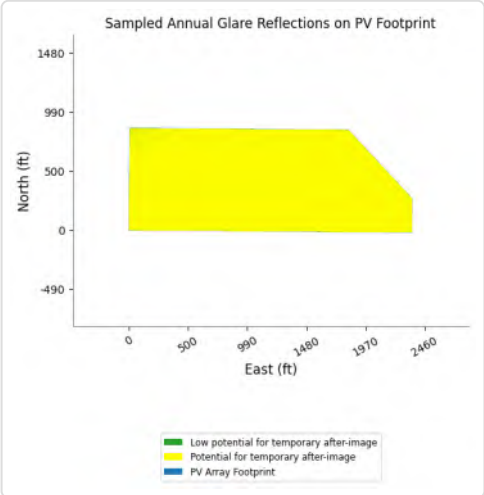
Green glare: 6,500 min.

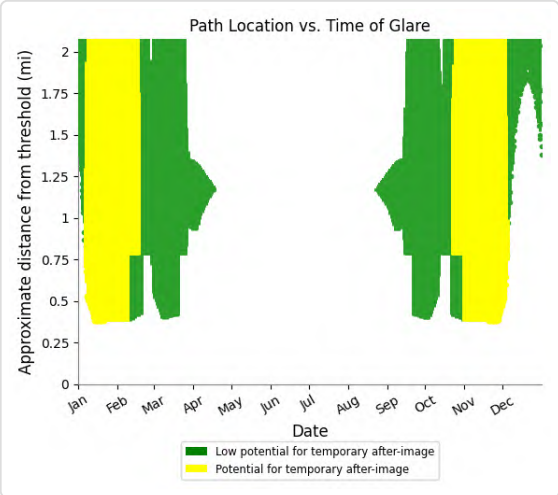








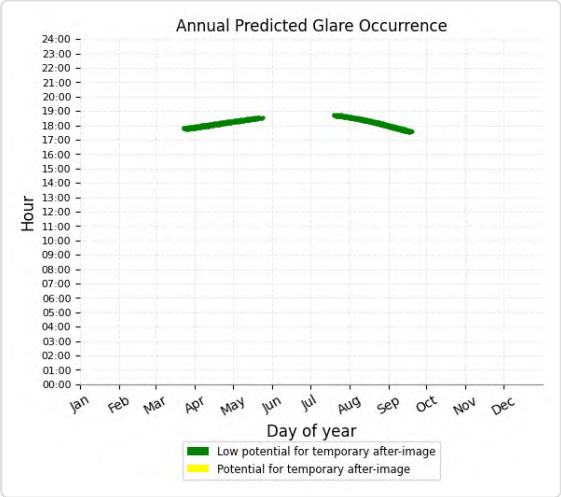


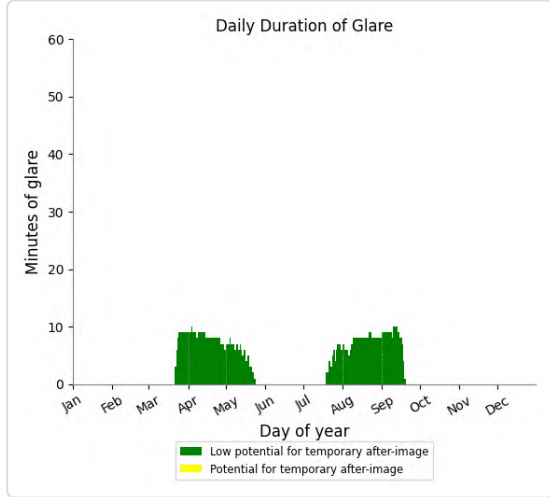


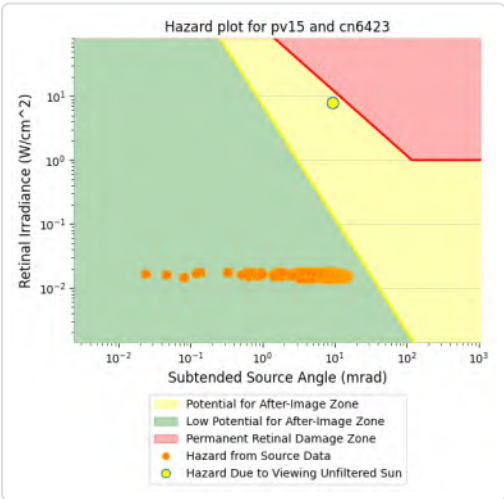
PV15 and FP: CN6423

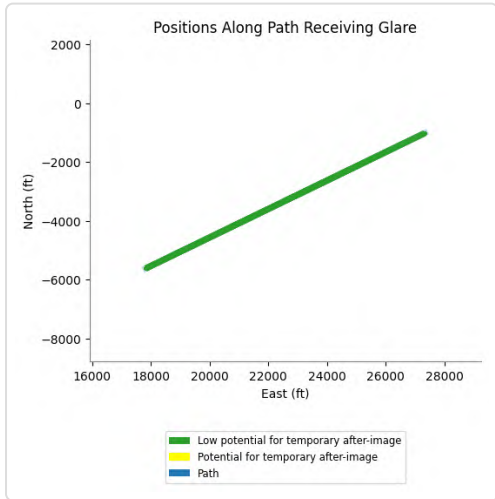
Yellow glare: none

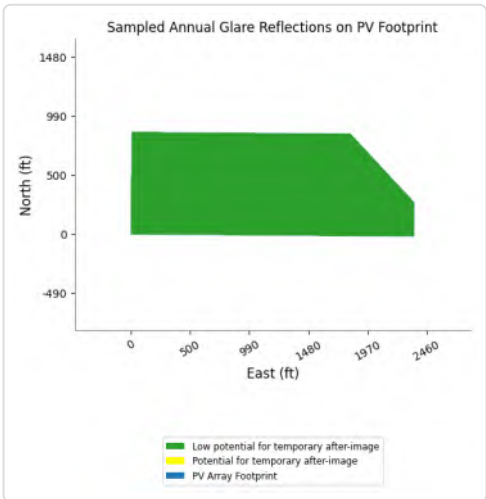
Green glare: 915 min.

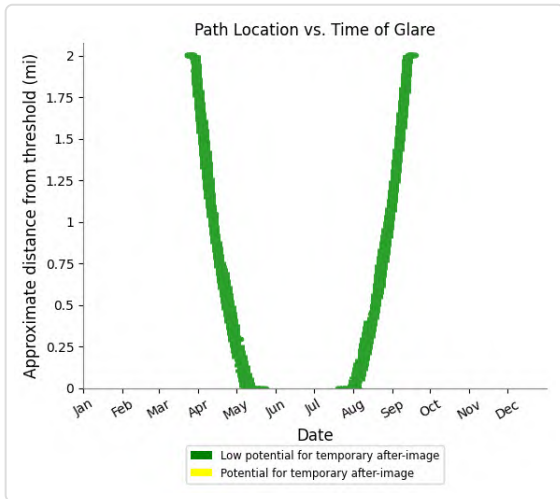








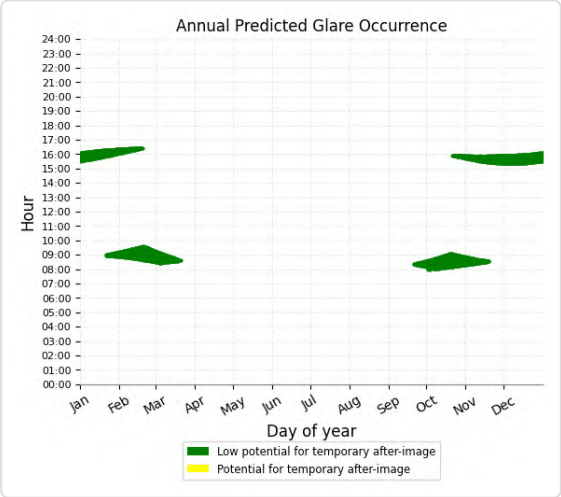


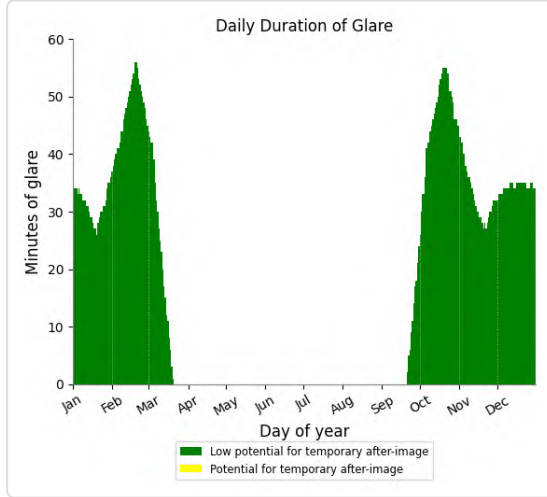


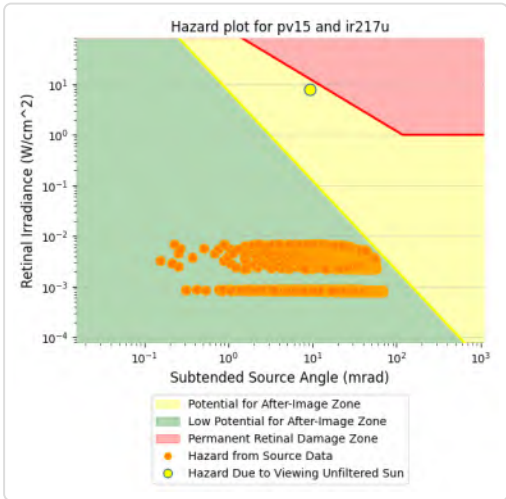
PV15 and FP: IR217u

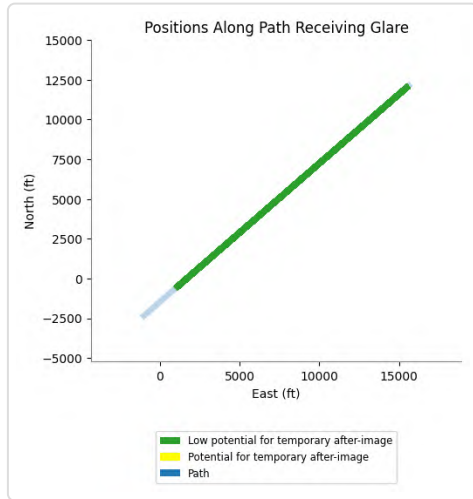
Yellow glare: none

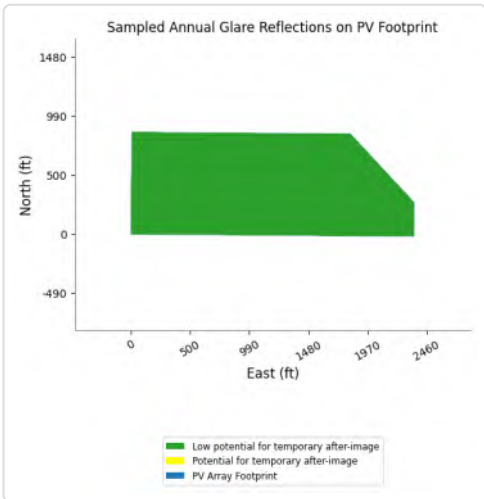
Green glare: 6,435 min.

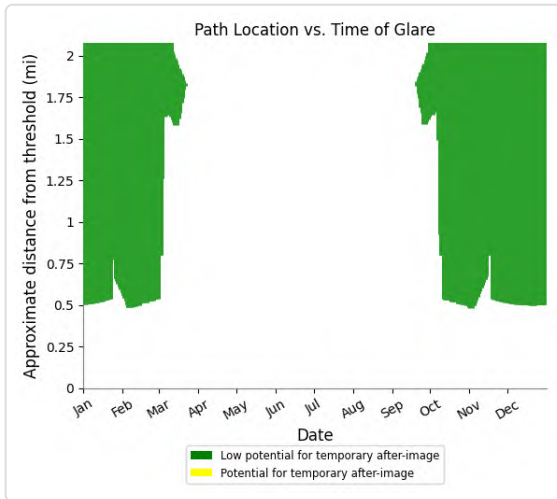








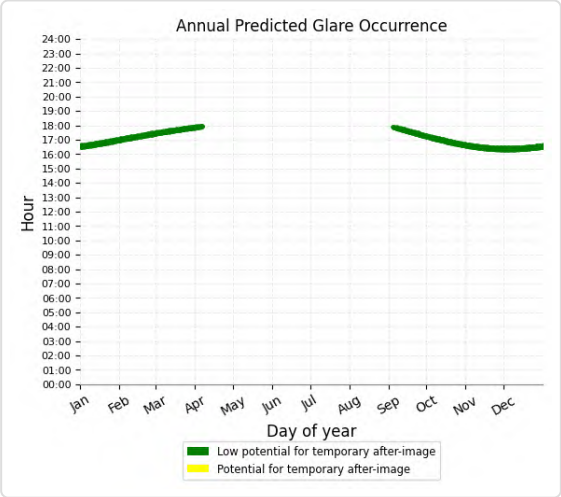


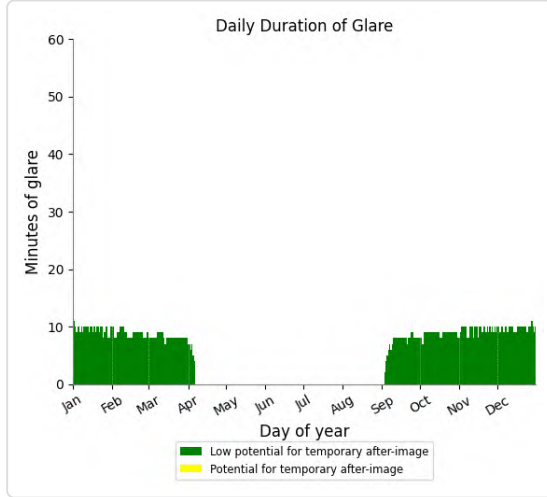


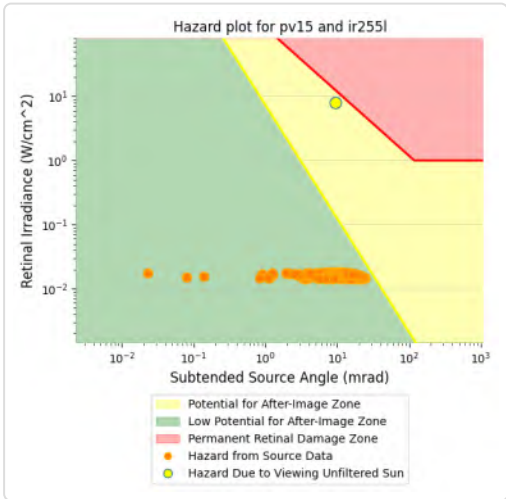
PV15 and FP: IR255I

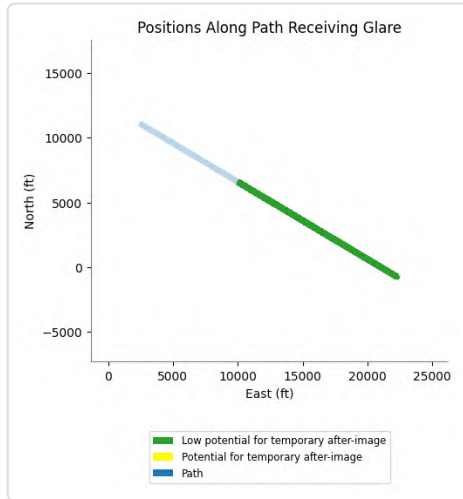
Yellow glare: none

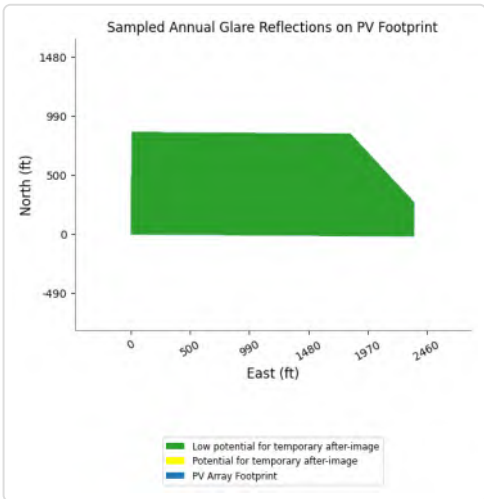
Green glare: 1,905 min.

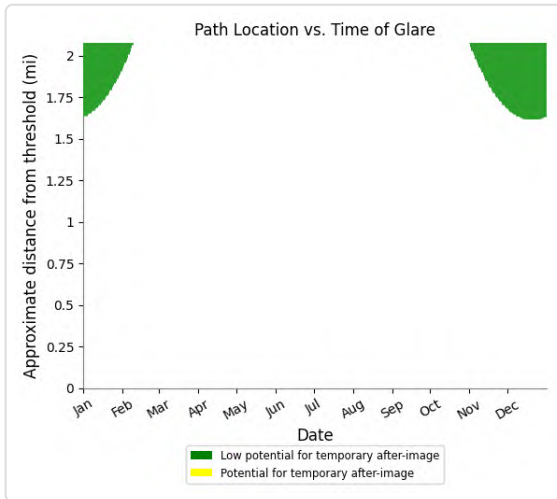








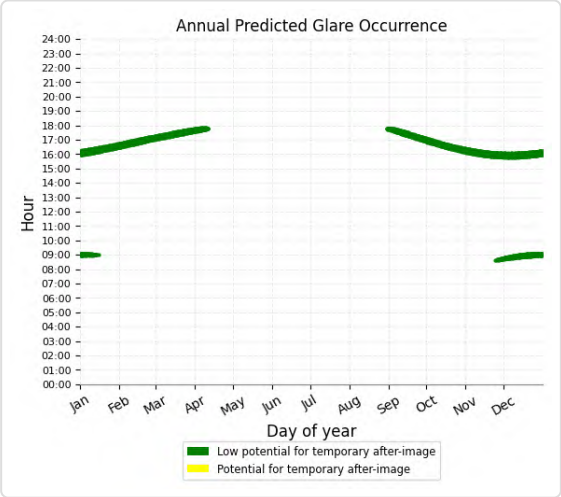


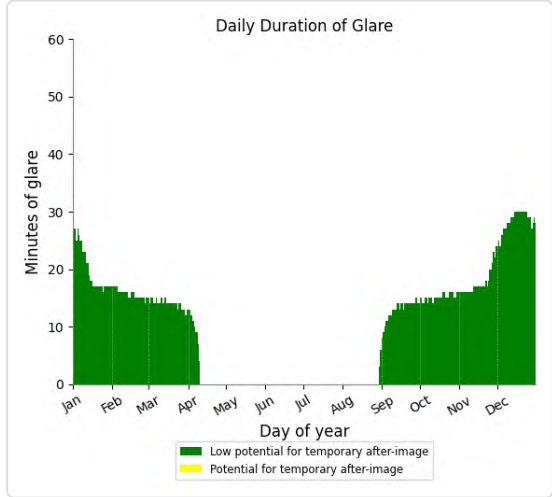


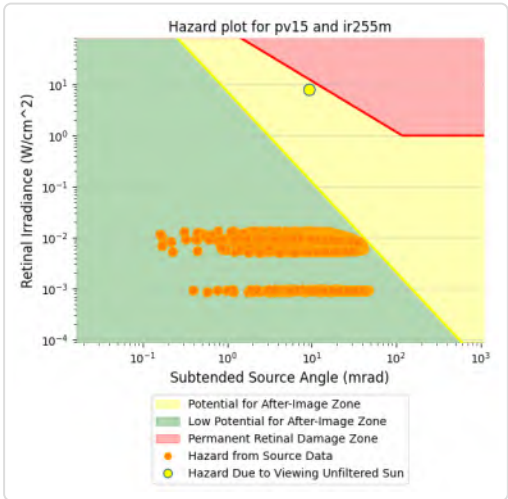
PV15 and FP: IR255m

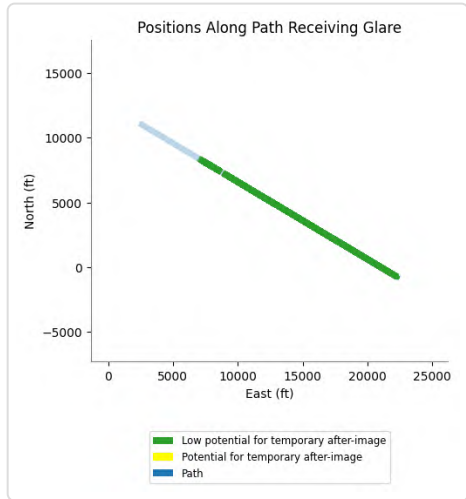
Yellow glare: none

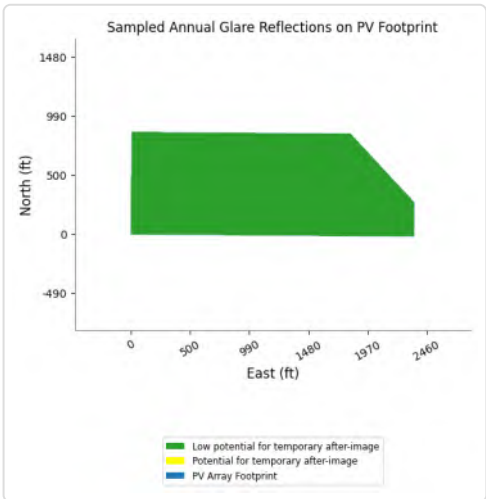
Green glare: 3,889 min.

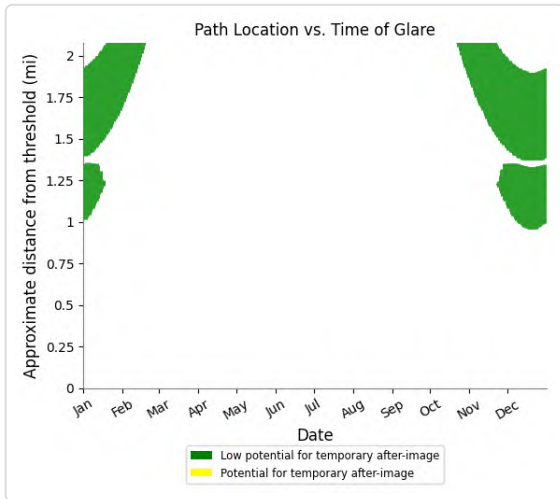








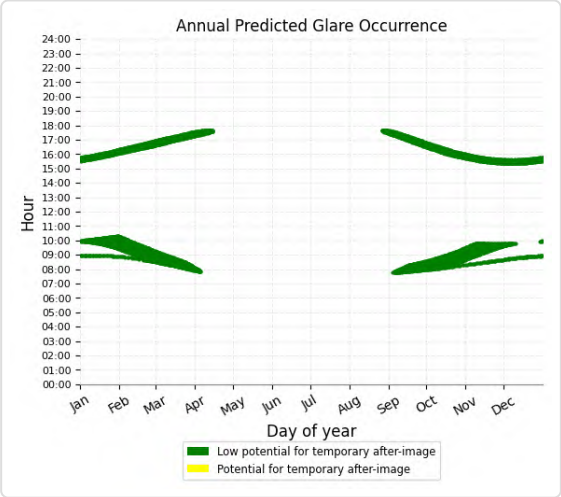


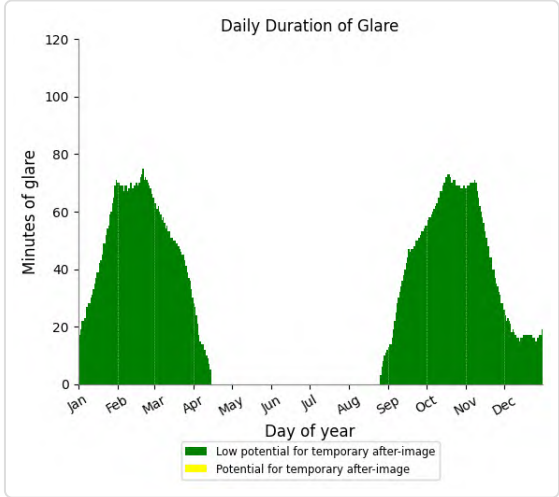


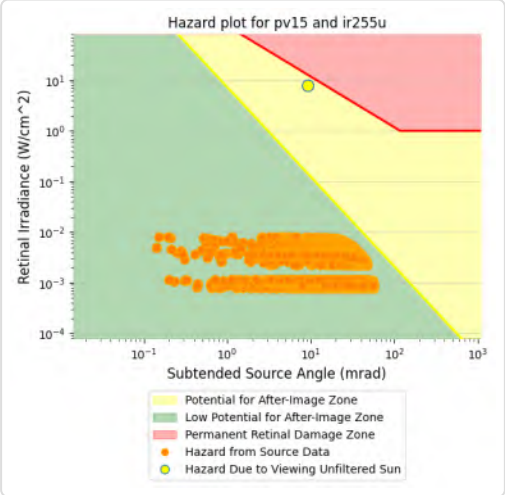
PV15 and FP: IR255u

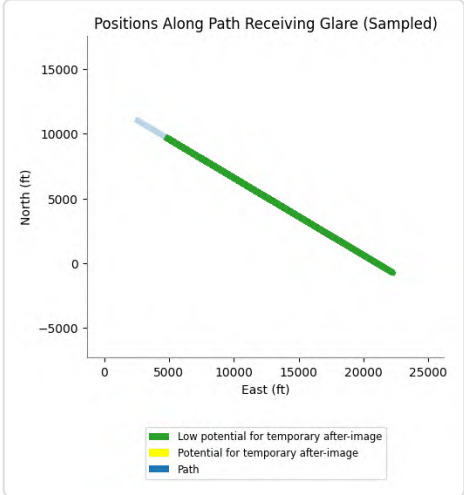
Yellow glare: none

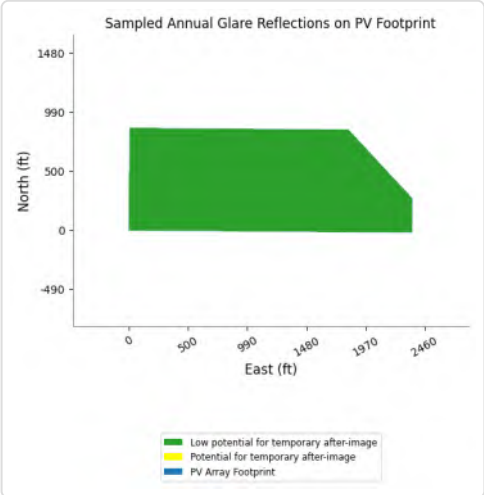
Green glare: 10,424 min.

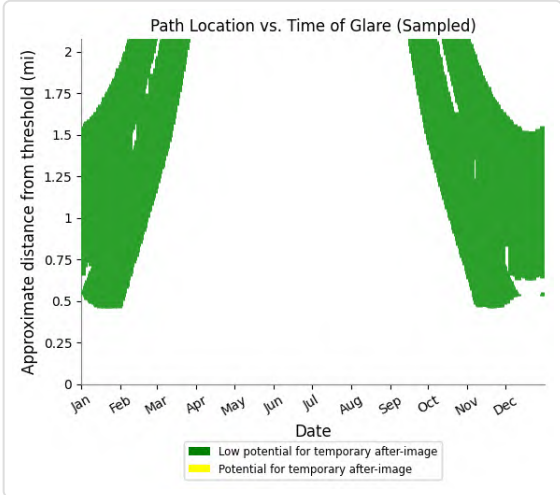








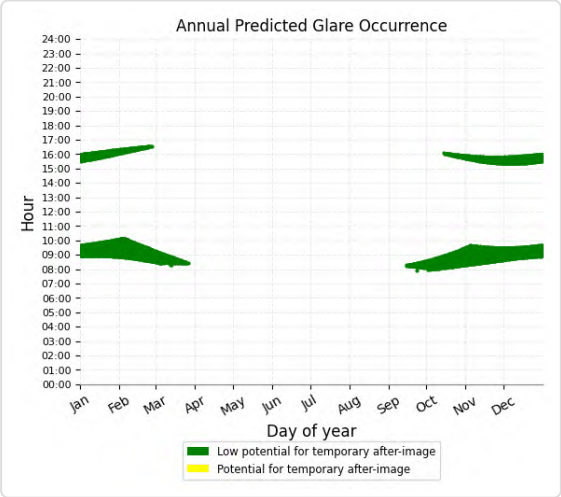


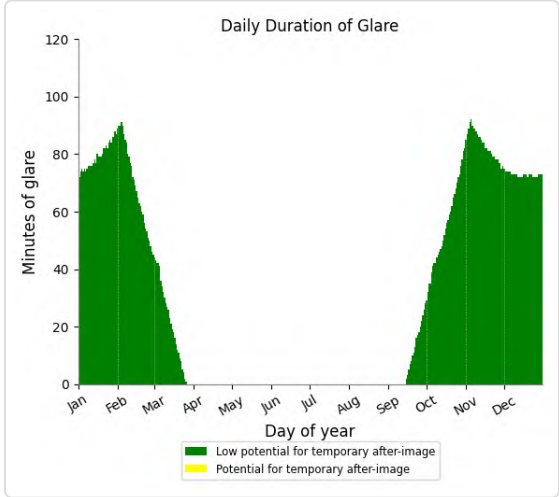


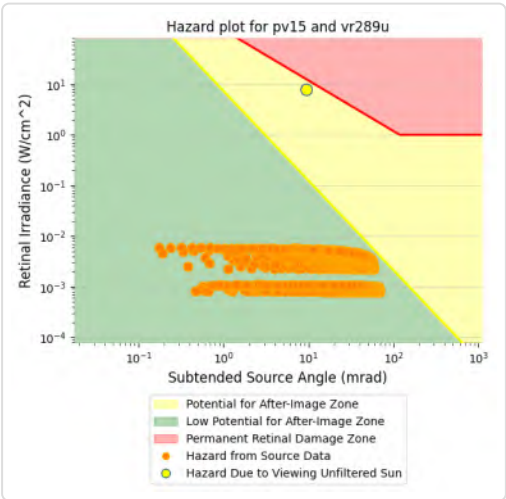
PV15 and FP: VR289u

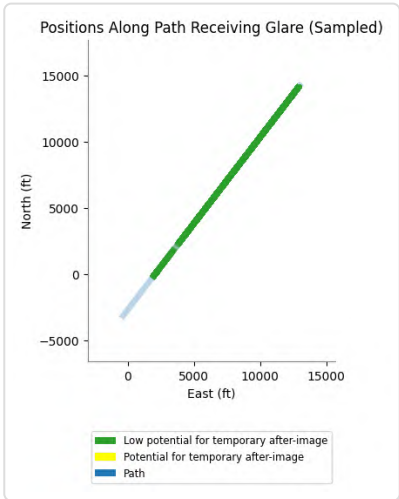
Yellow glare: none

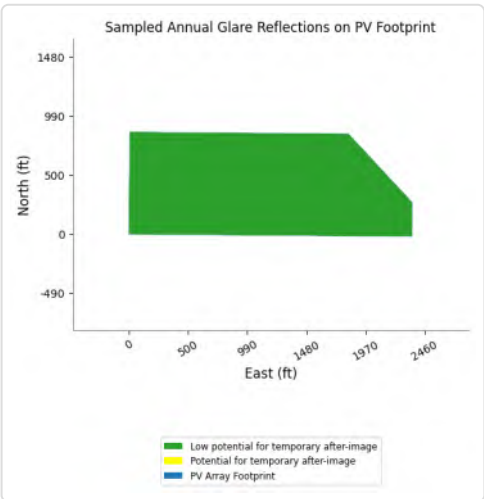
Green glare: 11,743 min.

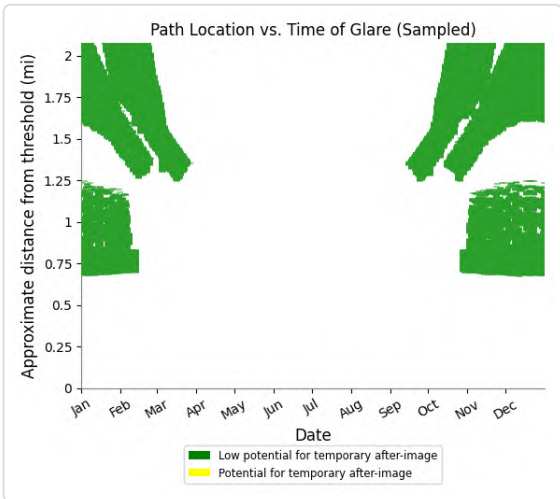












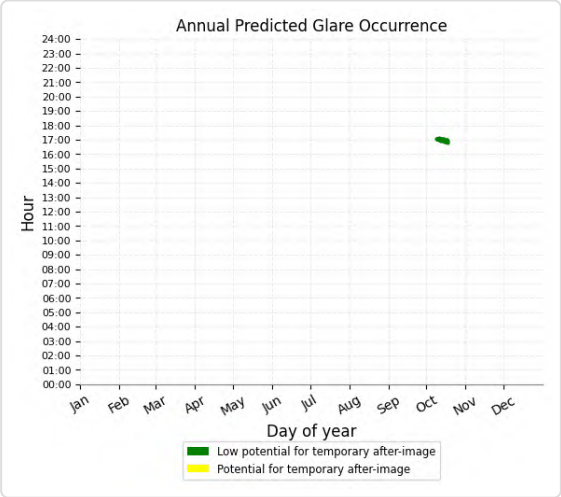
PV15 and FP: CN645

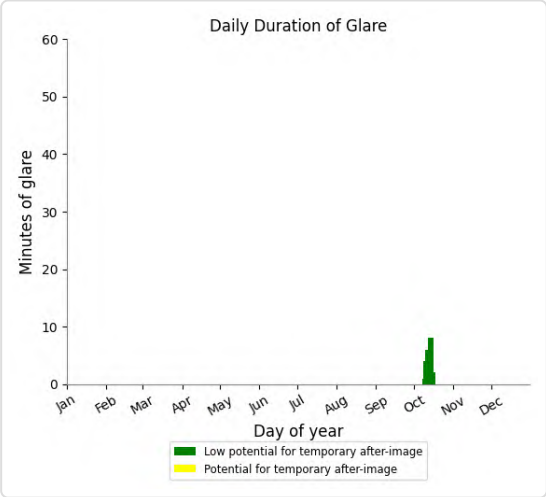
No glare found

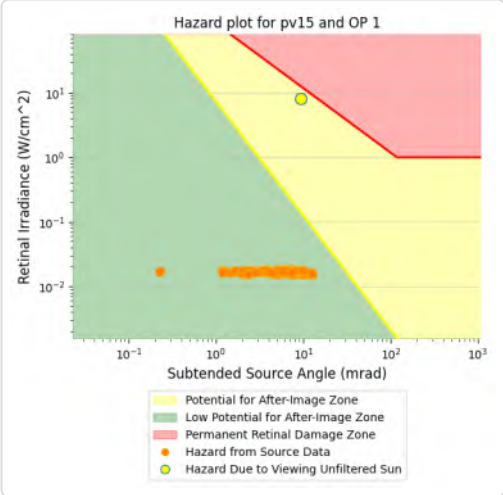
PV15 and OP 1

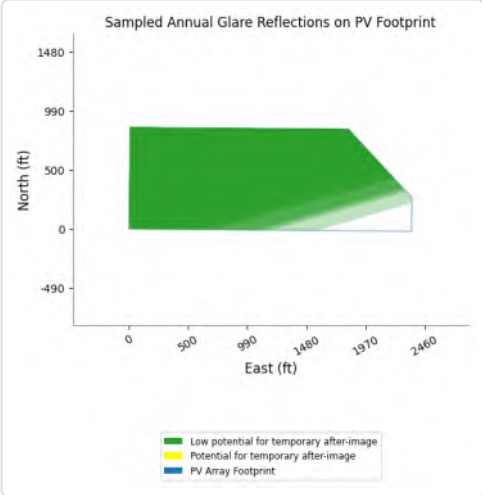
Yellow glare: none

Green glare: 59 min.



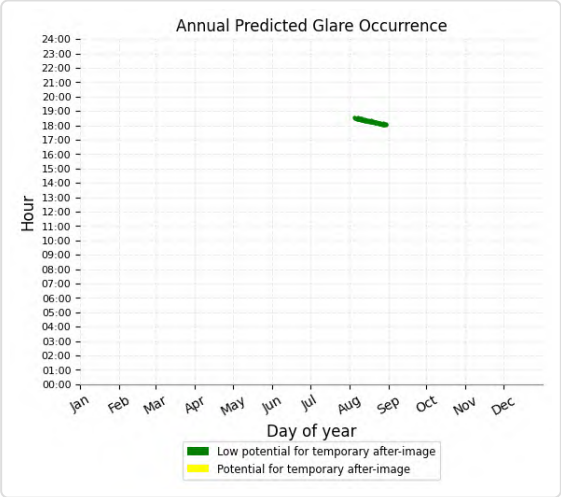


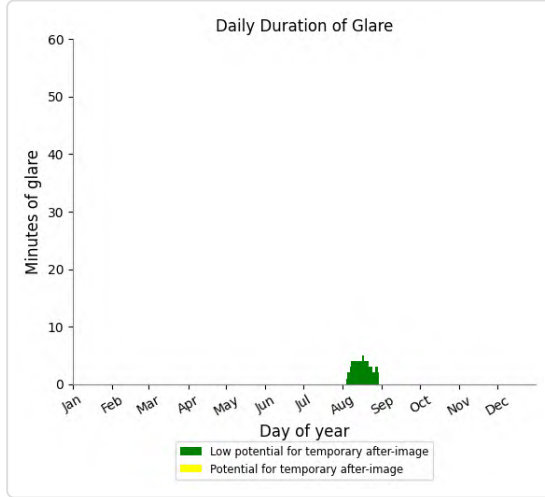


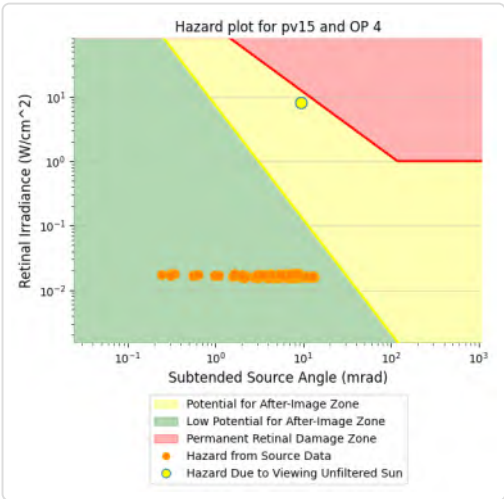


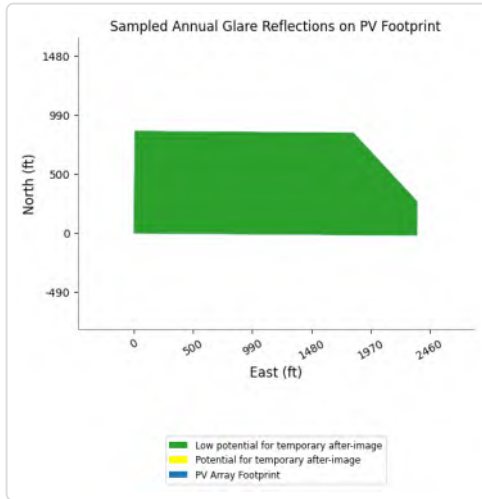
PV15 and OP 4

Yellow glare: none
Green glare: 86 min.









PV15 and OP 2

No glare found

PV15 and OP 3

No glare found

PV15 and OP 5

No glare found

PV15 and OP 6

No glare found

PV15 and OP 7

No glare found

PV15 and OP 8

No glare found

PV15 and OP 9

No glare found

PV15 and OP 10

No glare found

PV15 and OP 11

No glare found

PV15 and OP 12

No glare found

PV15 and OP 13

No glare found

PV15 and OP 14

No glare found

PV15 and OP 15

No glare found

PV15 and OP 16

No glare found

PV15 and OP 17

No glare found

PV15 and OP 18

No glare found

PV15 and OP 19

No glare found

PV: PV16 potential temporary after-image

Receptor results ordered by category of glare

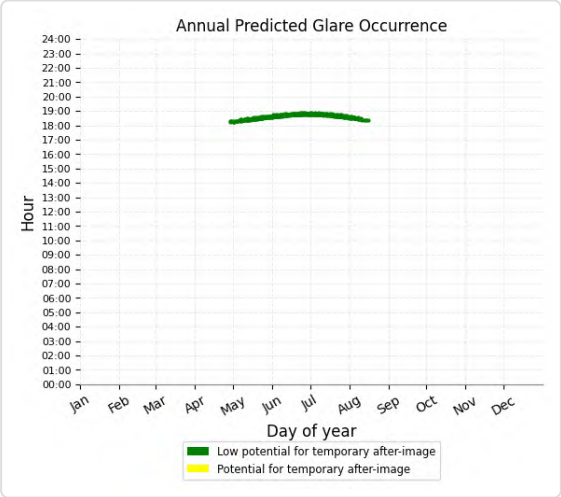
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Race Track	494	8.2	0	0.0
SR177 A	774	12.9	0	0.0
SR177 B	689	11.5	0	0.0
SR177 C	193	3.2	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	34,205	570.1	2,411	40.2
IR218l	23,800	396.7	9,624	160.4
IR218m	7,002	116.7	786	13.1
IR218u	3,830	63.8	1	0.0
VR289l	35,778	596.3	1,323	22.1
VR296l	28,445	474.1	2,066	34.4
VR296m	19,475	324.6	2,569	42.8
VR296u	8,605	143.4	1,019	17.0
CN6423	994	16.6	0	0.0
IR217m	13,101	218.3	0	0.0
IR217u	7,372	122.9	0	0.0
IR255l	1,927	32.1	0	0.0
IR255m	6,864	114.4	0	0.0
IR255u	7,017	117.0	0	0.0
VR289m	19,723	328.7	0	0.0
VR289u	11,577	192.9	0	0.0
CN645	0	0.0	0	0.0
OP 1	44	0.7	0	0.0
OP 2	28	0.5	0	0.0

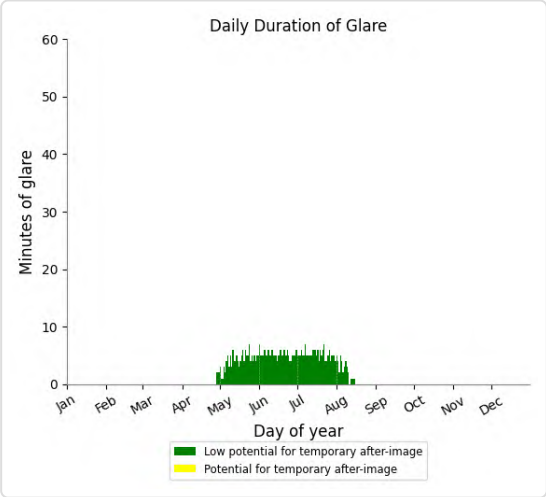
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

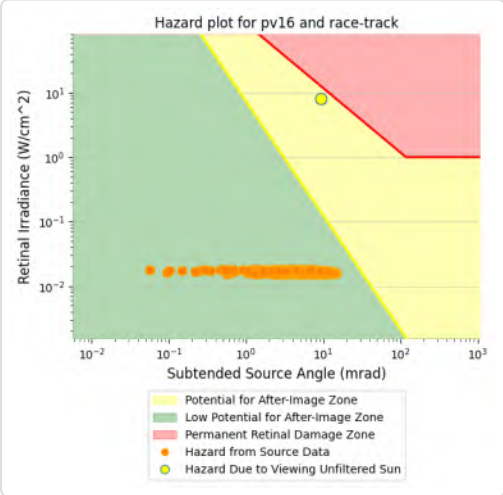
PV16 and Route: Race Track

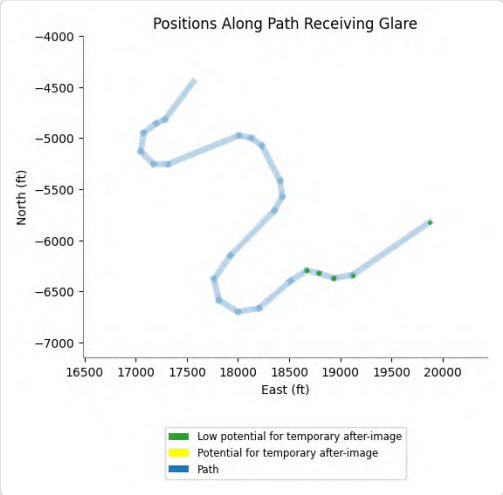
Yellow glare: none

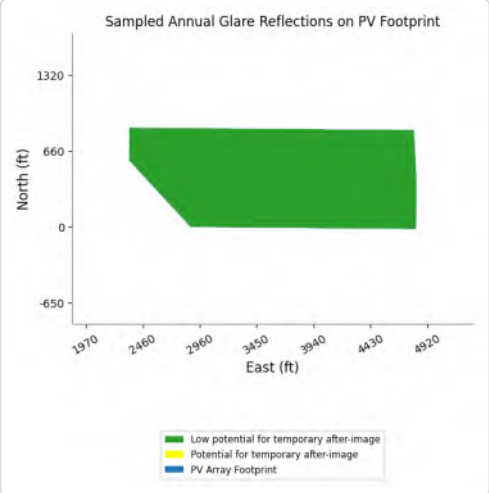
Green glare: 494 min.







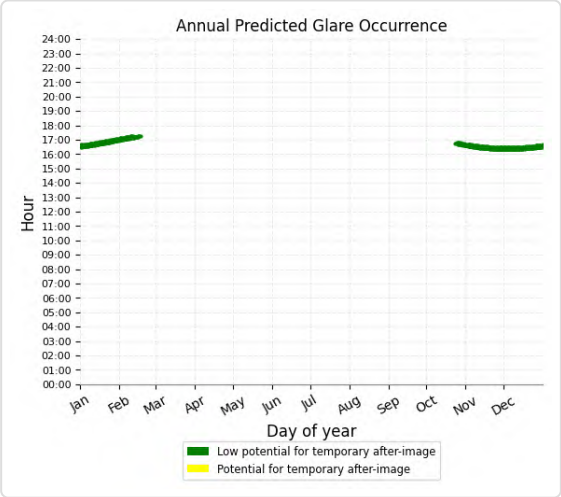


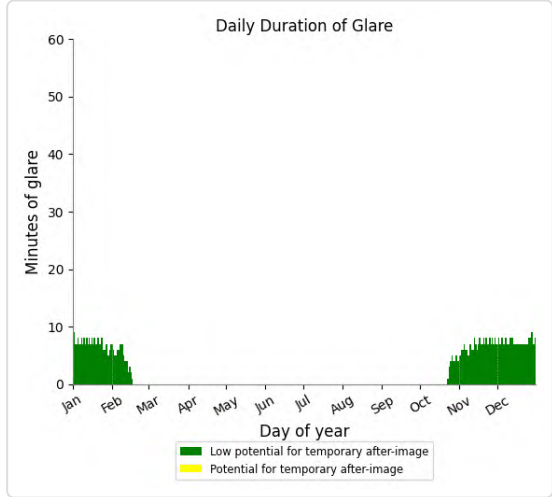


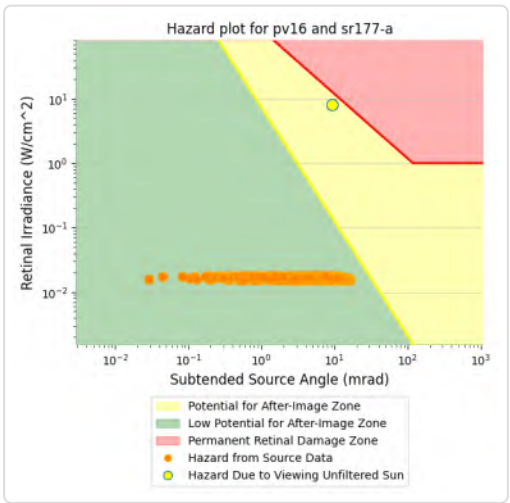
PV16 and Route: SR177 A

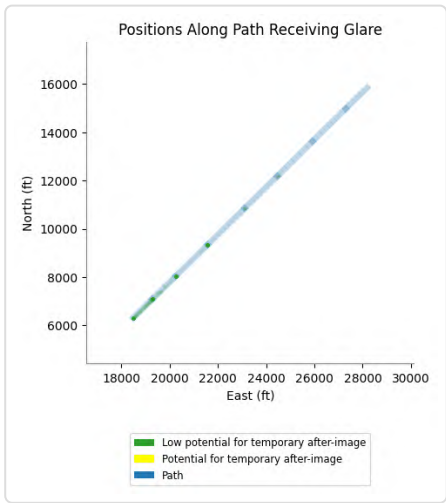
Yellow glare: none

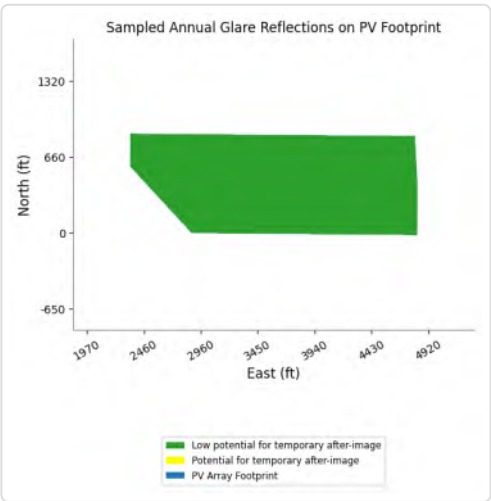
Green glare: 774 min.







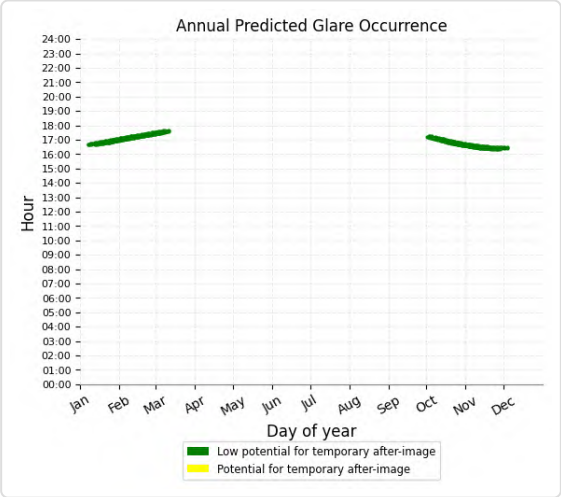


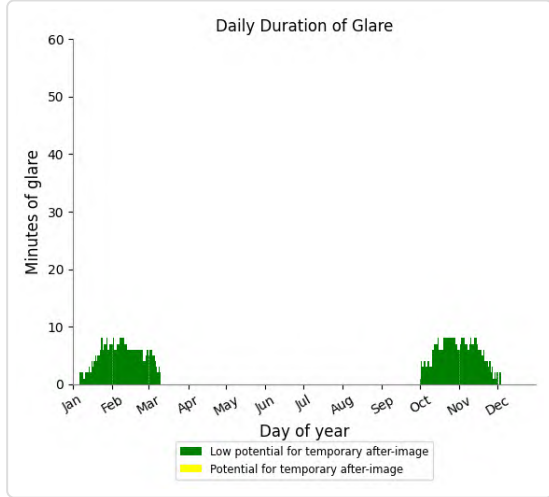


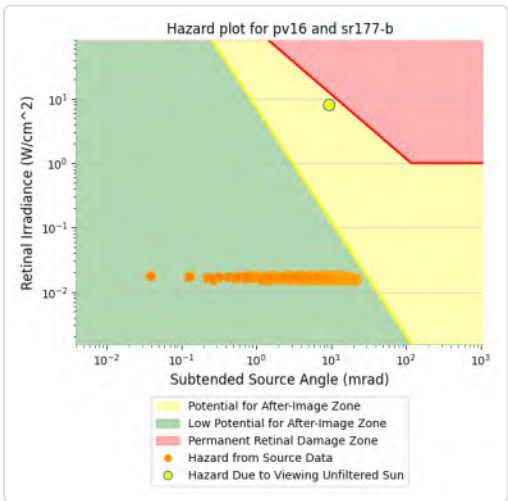
PV16 and Route: SR177 B

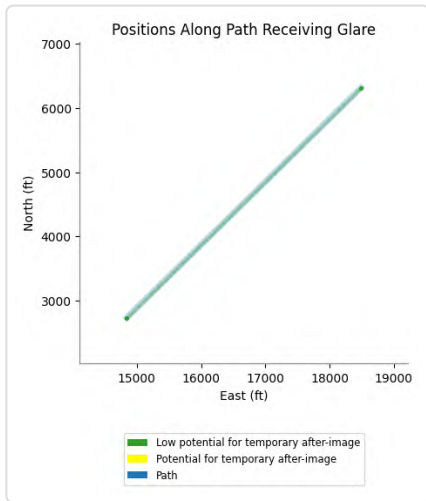
Yellow glare: none

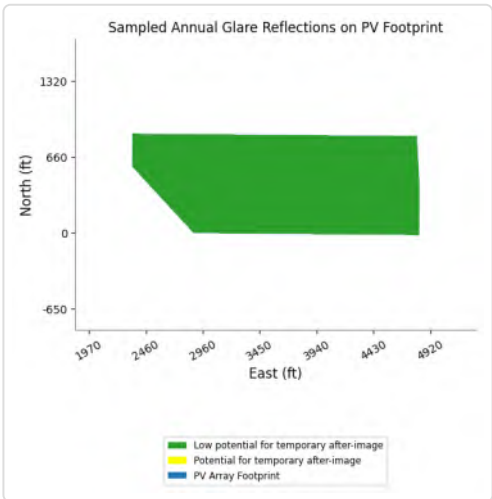
Green glare: 689 min.







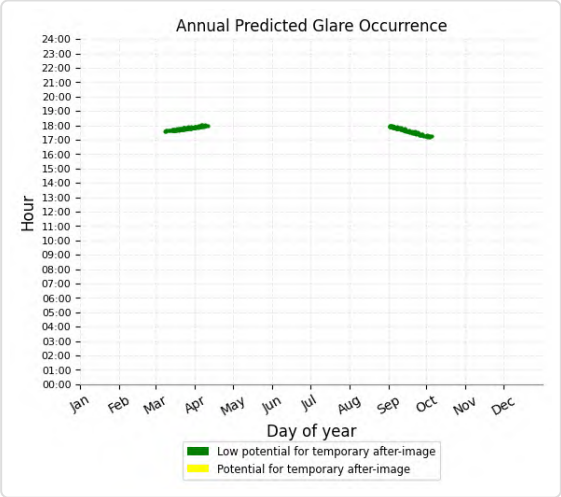


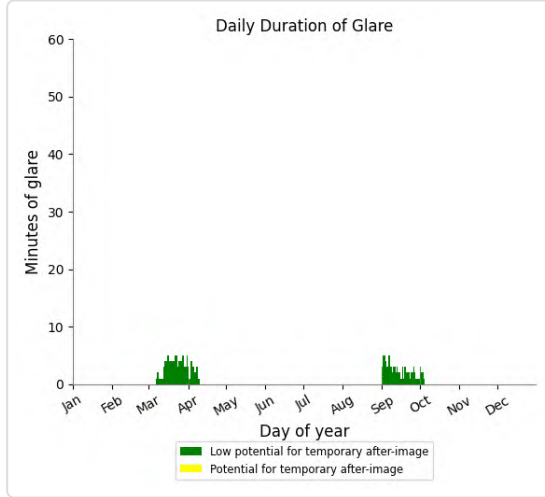


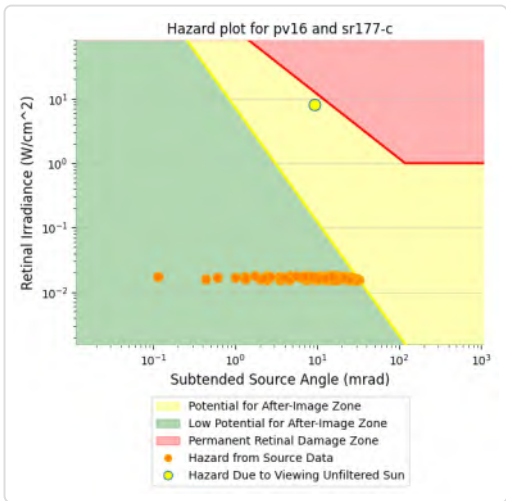
PV16 and Route: SR177 C

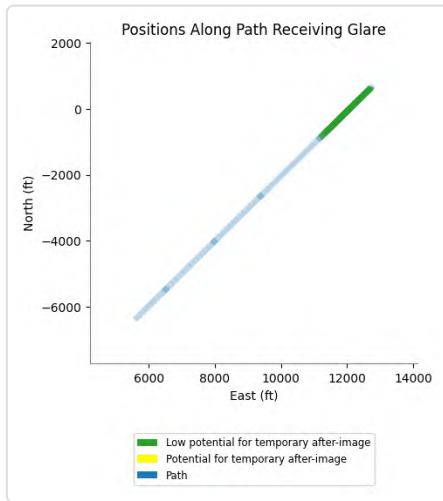
Yellow glare: none

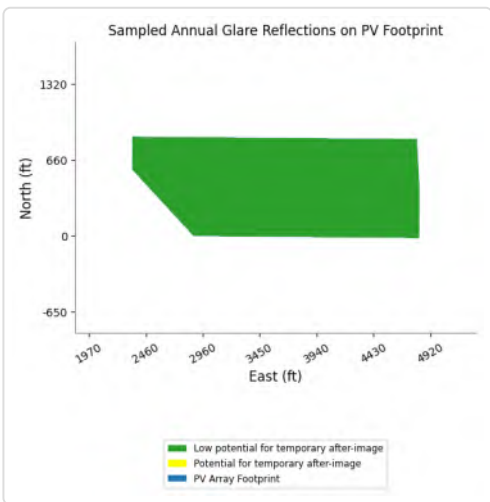
Green glare: 193 min.











PV16 and Route: AirportRd A

No glare found

PV16 and Route: AirportRd B

No glare found

PV16 and Route: EagleMtnRd A

No glare found

PV16 and Route: EagleMtnRd B

No glare found

PV16 and Route: I-10 EB A

No glare found

PV16 and Route: I-10 EB B

No glare found

PV16 and Route: I-10 EB C

No glare found

PV16 and Route: I-10 WB A

No glare found

PV16 and Route: I-10 WB B

No glare found

PV16 and Route: I-10 WB C

No glare found

PV16 and Route: KaiserRd A

No glare found

PV16 and Route: KaiserRd B

No glare found

PV16 and Route: KaiserRd C

No glare found

PV16 and Route: OasisRd

No glare found

PV16 and Route: SR177 D

No glare found

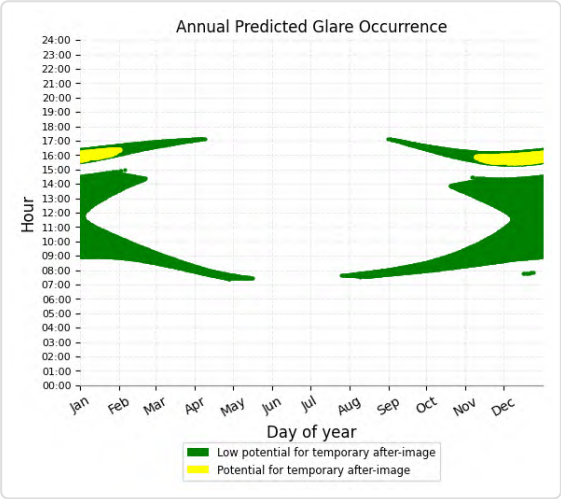
PV16 and Route: SR177 E

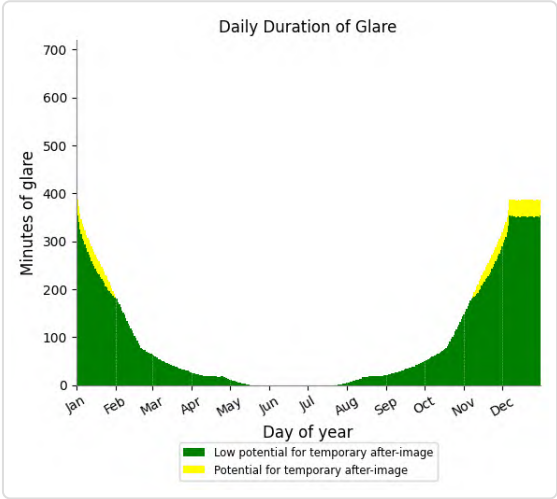
No glare found

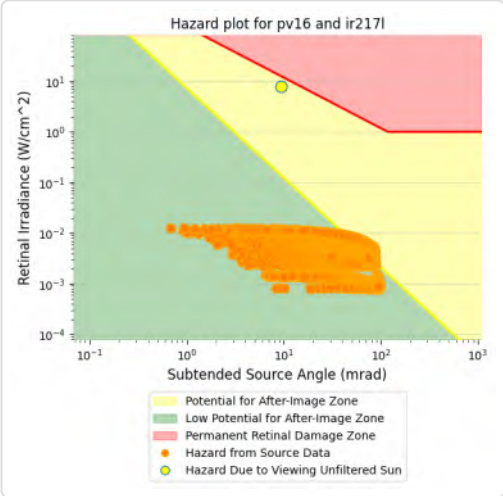
PV16 and FP: IR217I

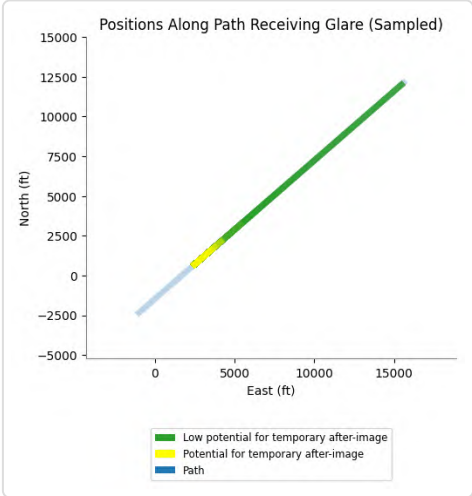
Yellow glare: 2,411 min.

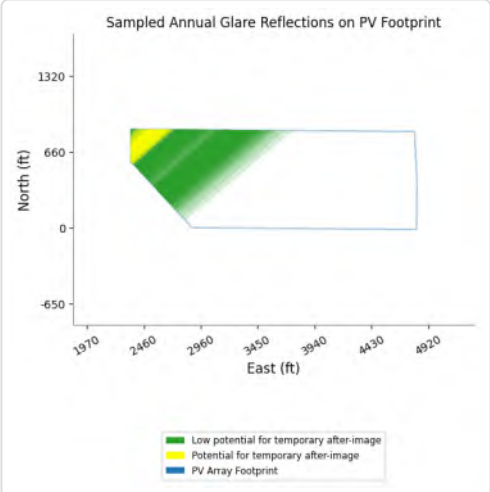
Green glare: 34,205 min.

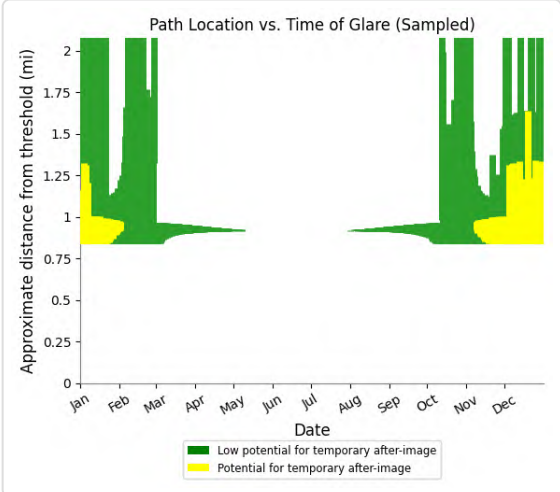








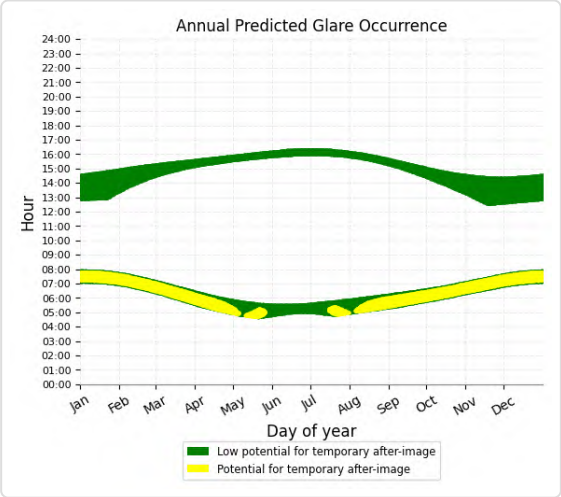


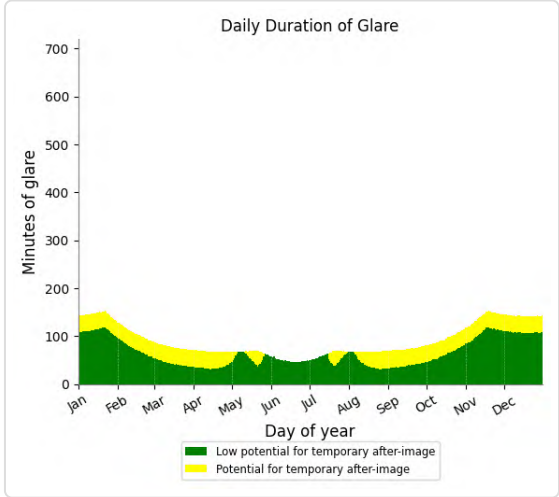


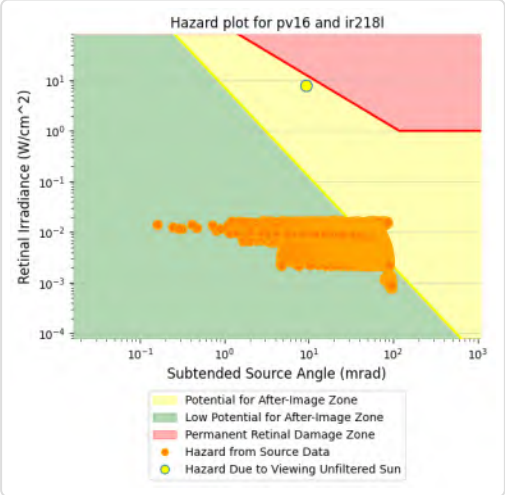
PV16 and FP: IR218I

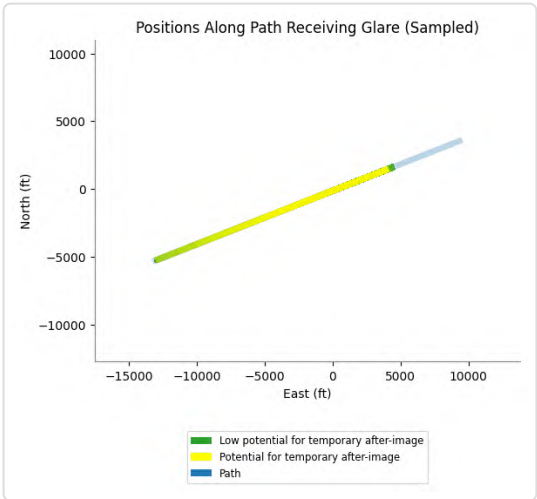
Yellow glare: 9,624 min.

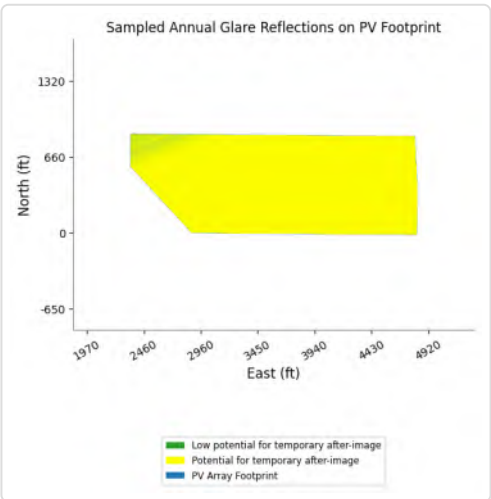
Green glare: 23,800 min.

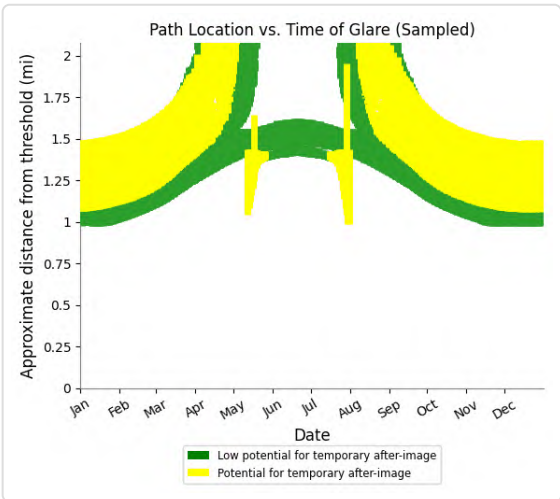








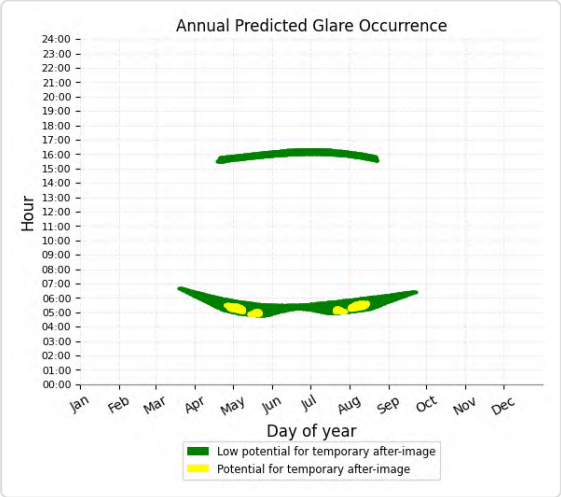


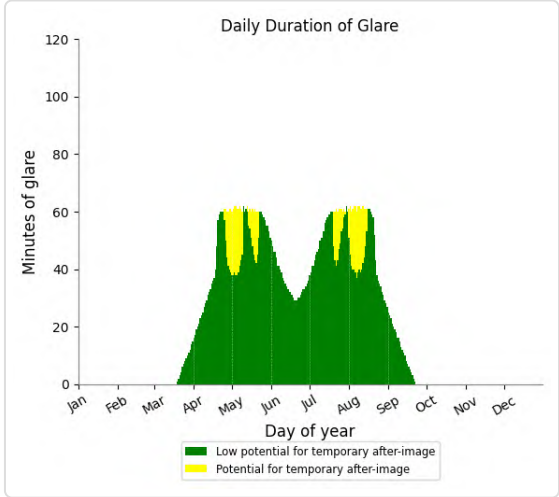


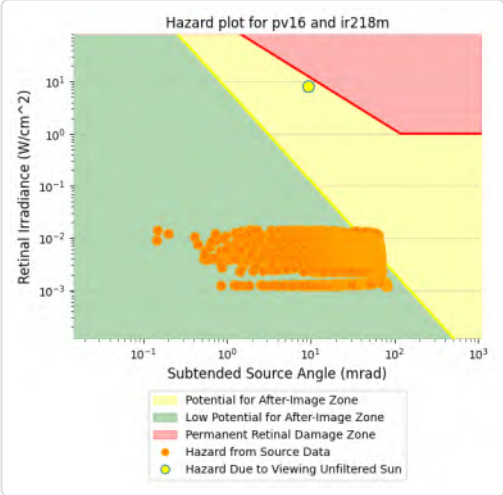
PV16 and FP: IR218m

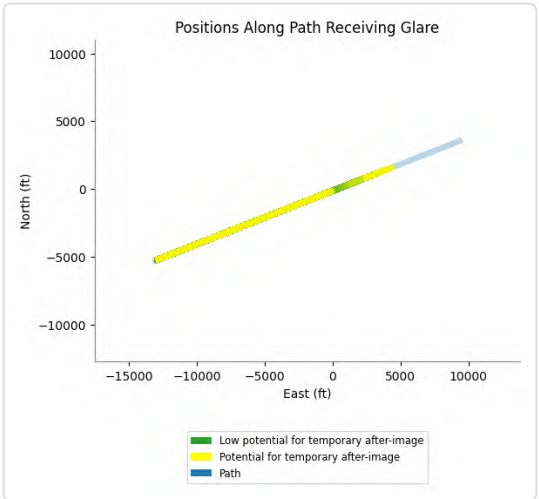
Yellow glare: 786 min.

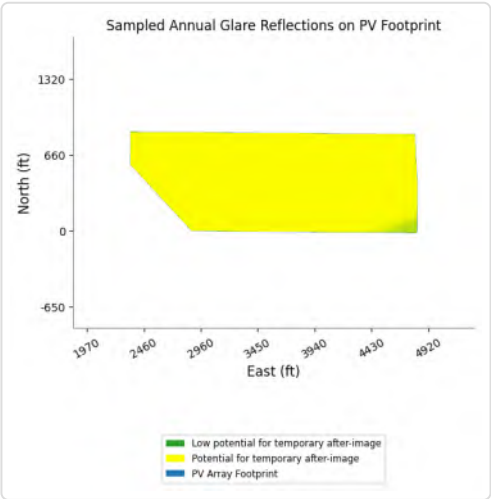
Green glare: 7,002 min.

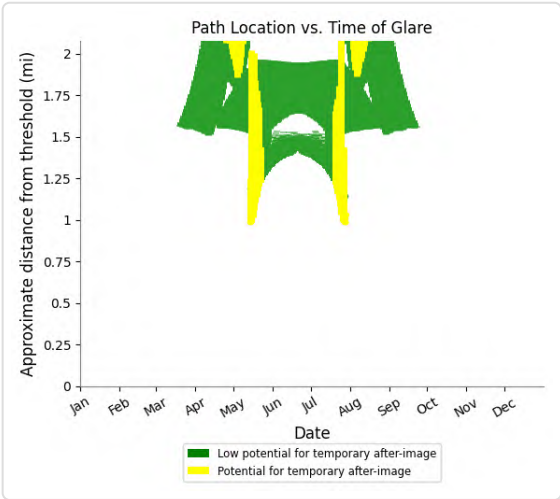








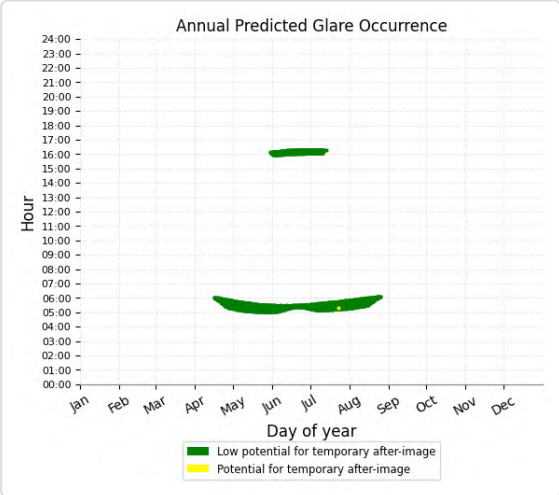


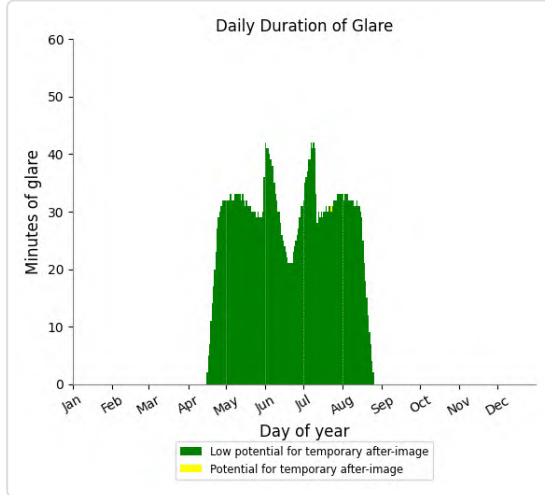


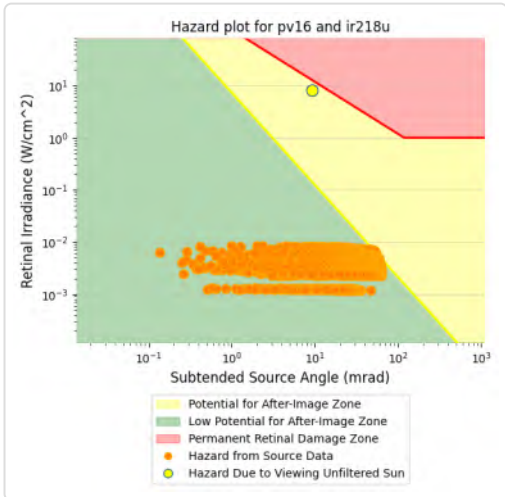
PV16 and FP: IR218u

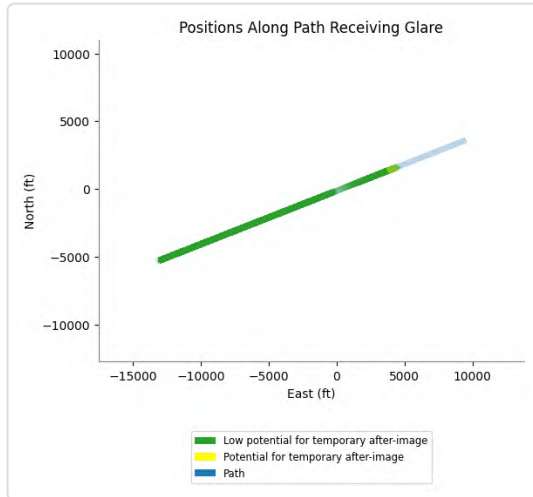
Yellow glare: 1 min.

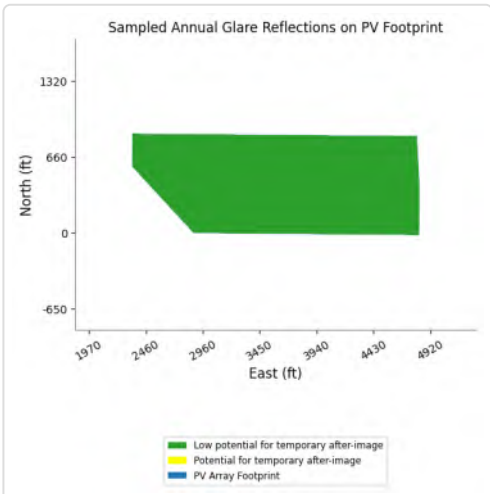
Green glare: 3,830 min.

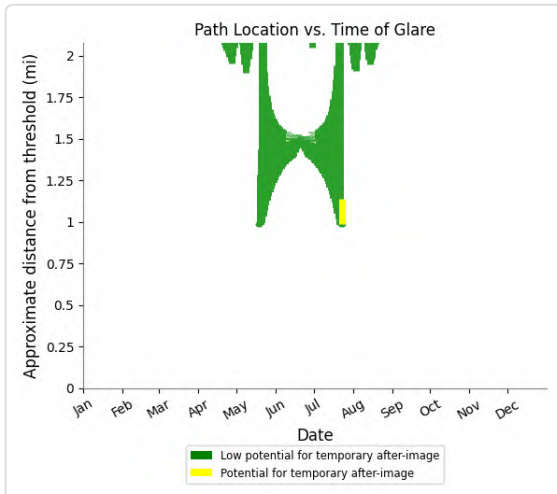








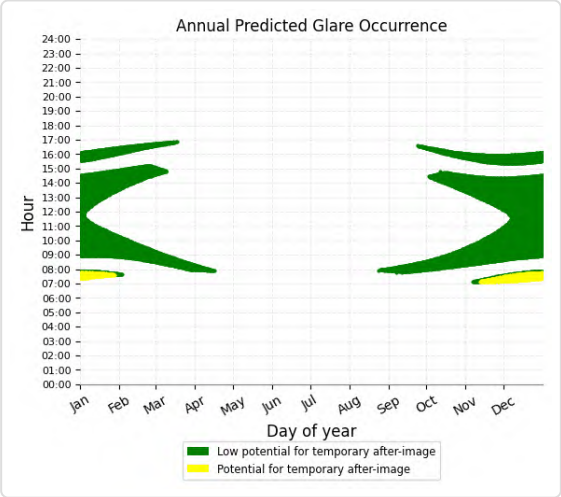


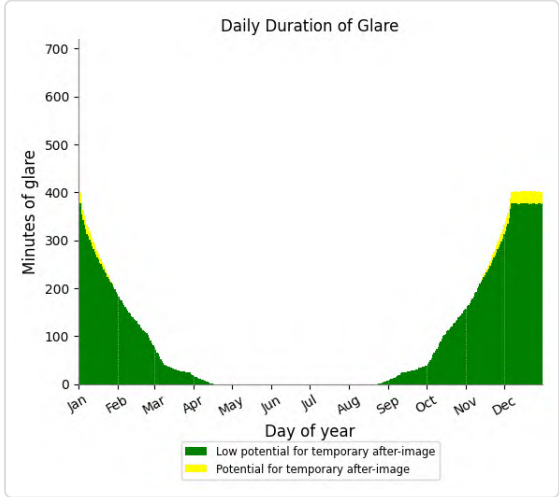


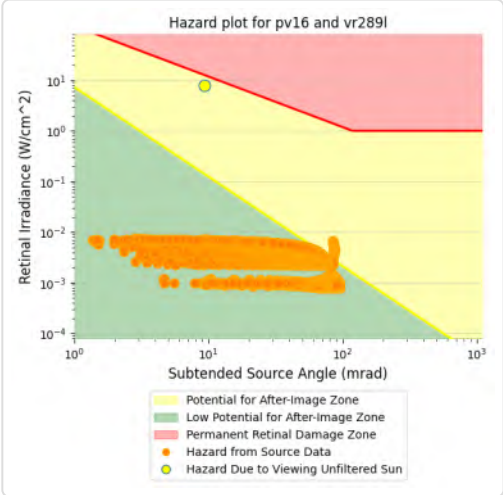
PV16 and FP: VR289I

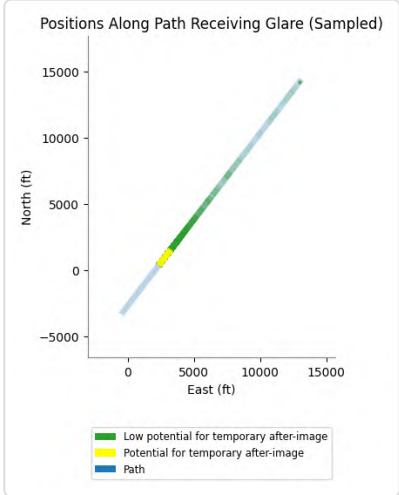
Yellow glare: 1,323 min.

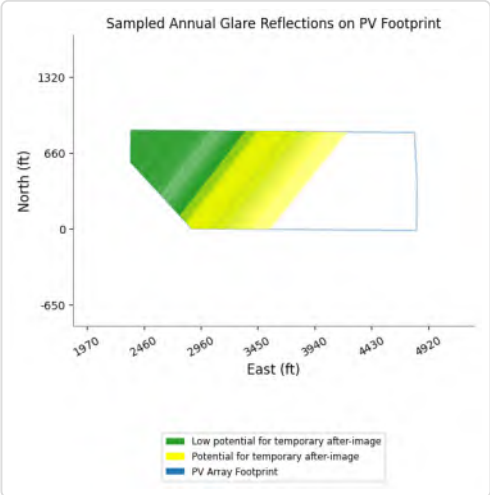
Green glare: 35,778 min.

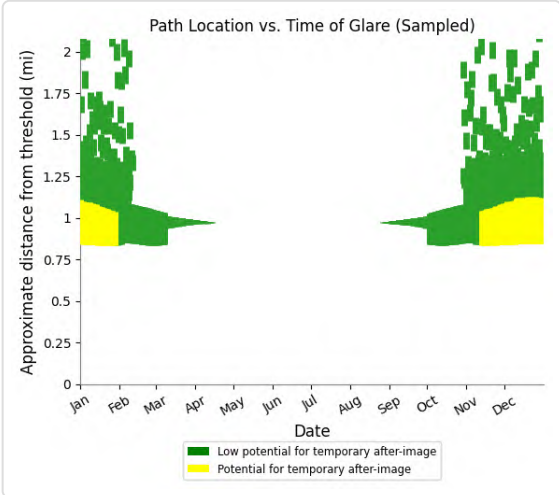








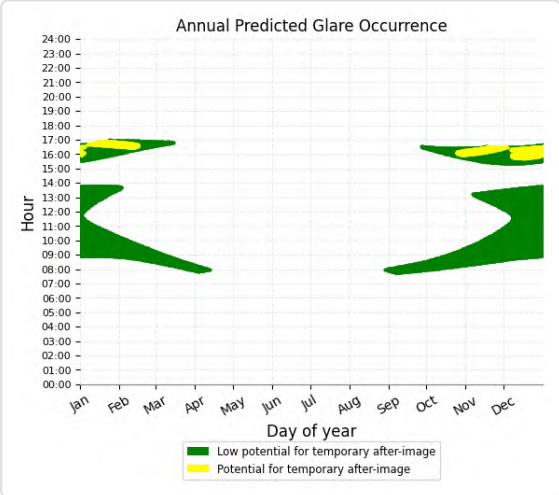


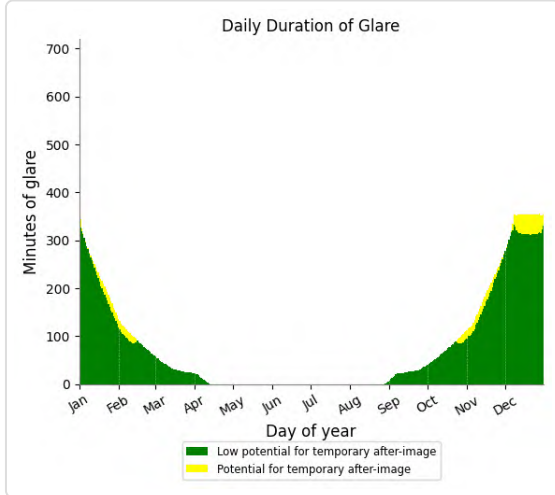


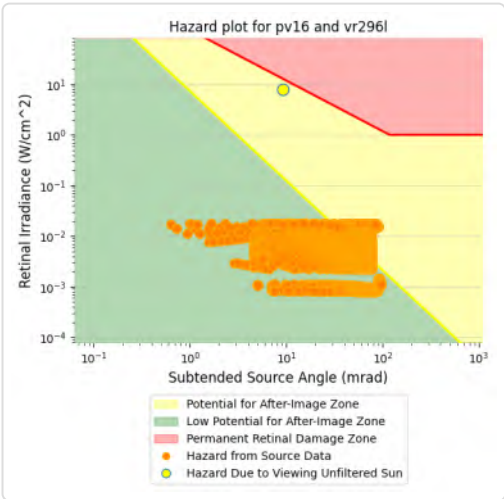
PV16 and FP: VR296I

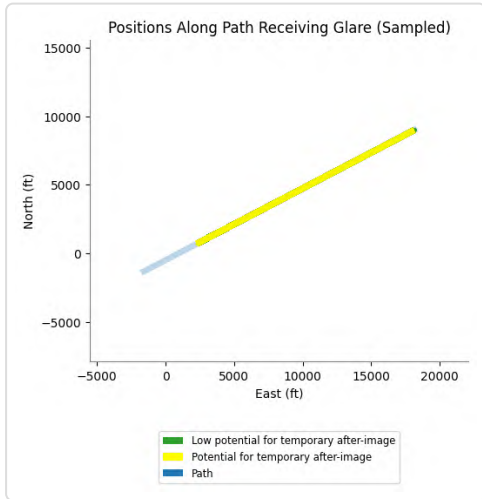
Yellow glare: 2,066 min.

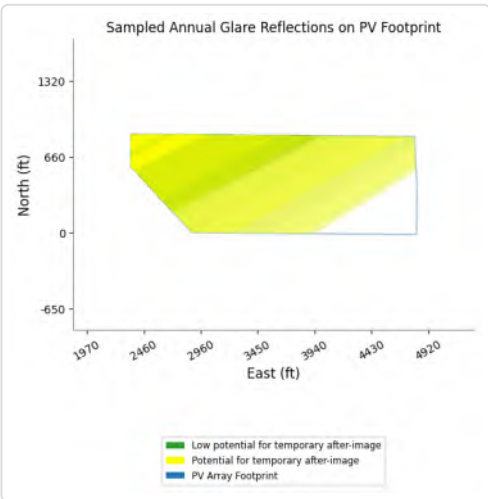
Green glare: 28,445 min.

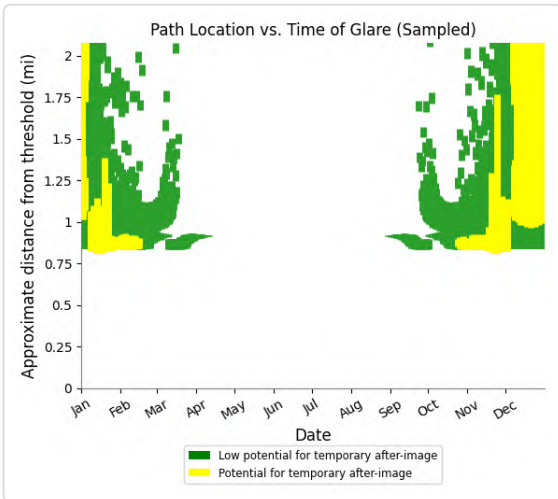








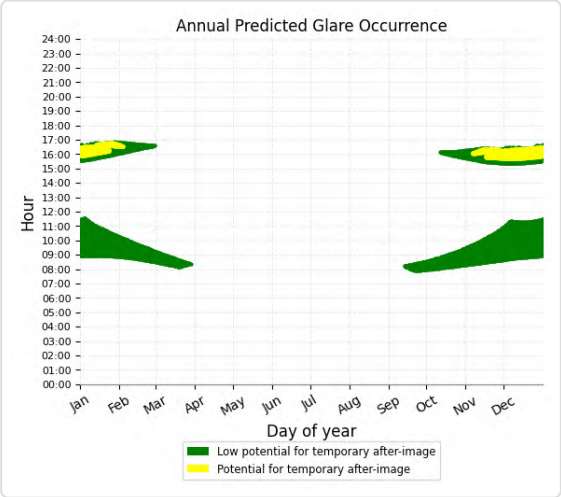


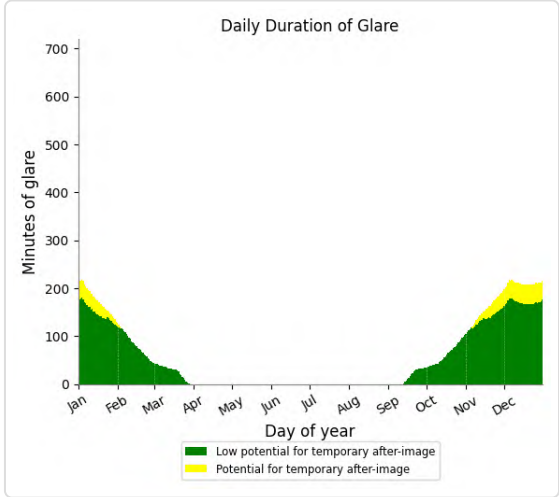


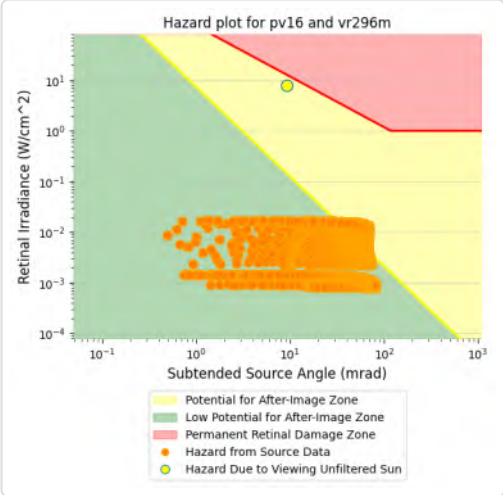
PV16 and FP: VR296m

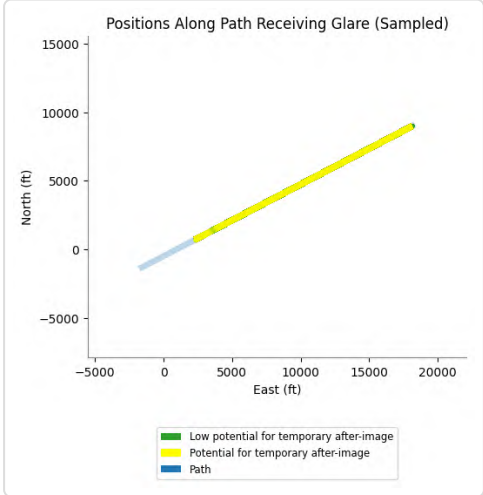
Yellow glare: 2,569 min.

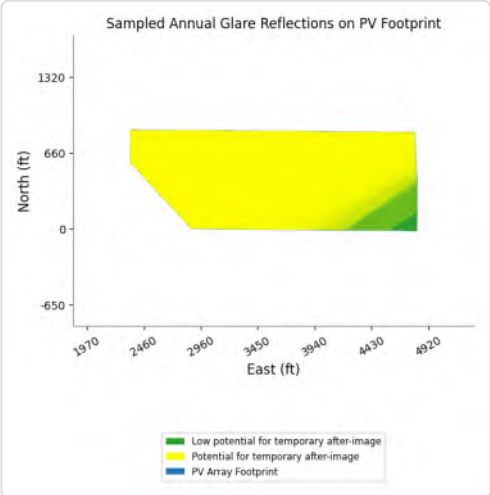
Green glare: 19,475 min.

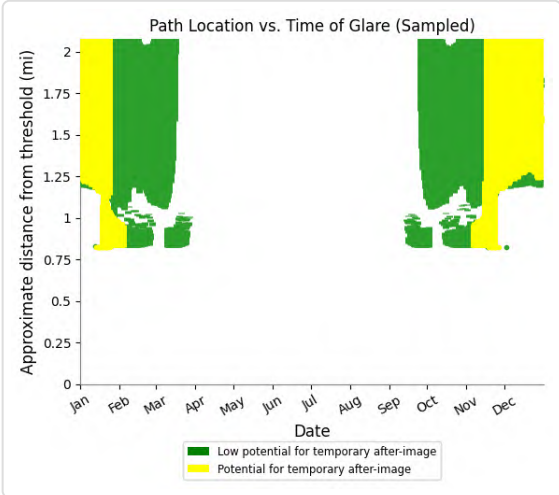








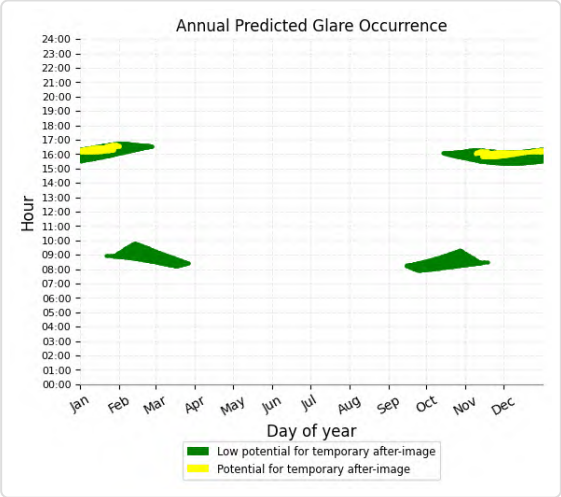


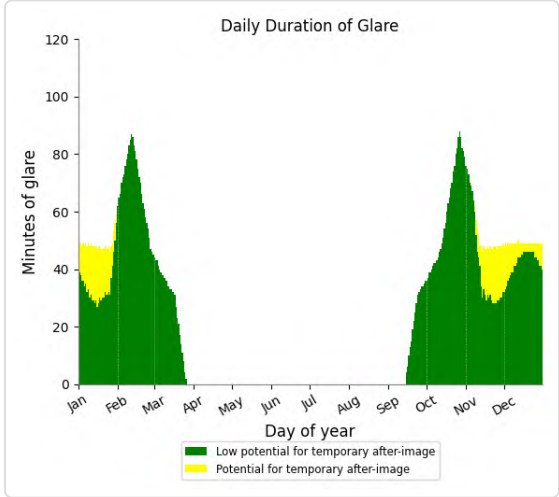


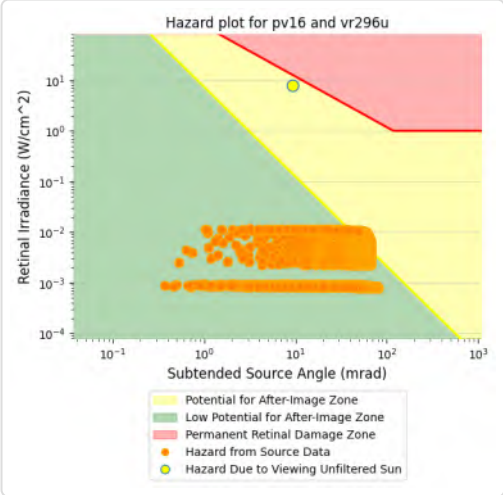
PV16 and FP: VR296u

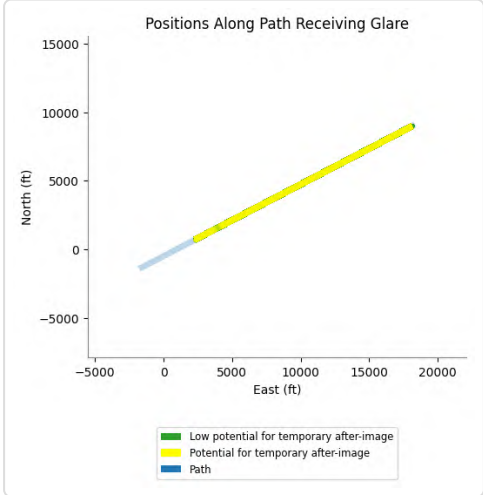
Yellow glare: 1,019 min.

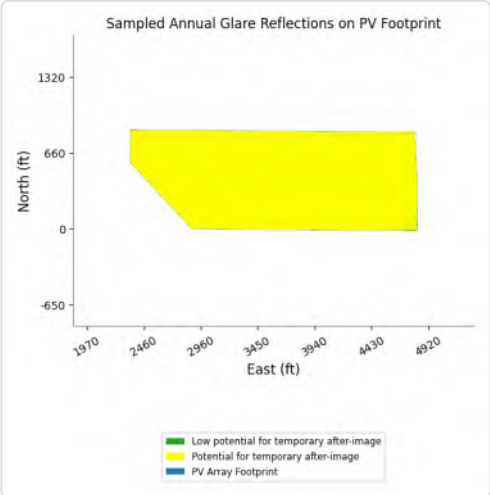
Green glare: 8,605 min.

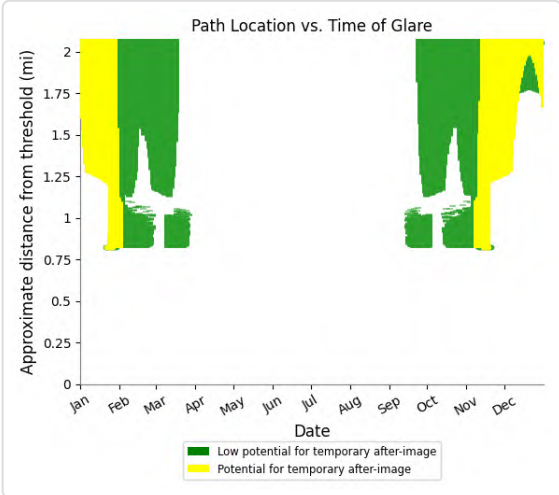








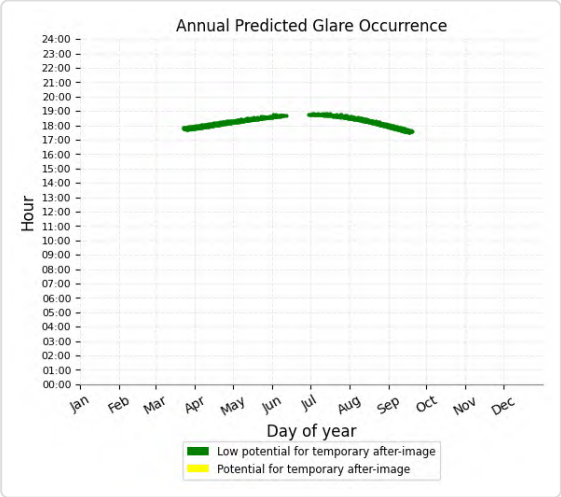


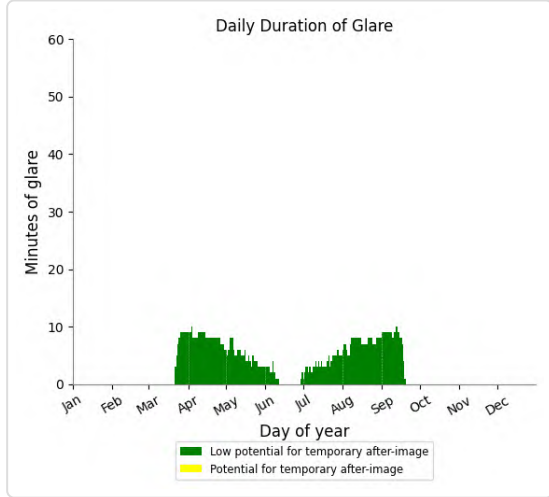


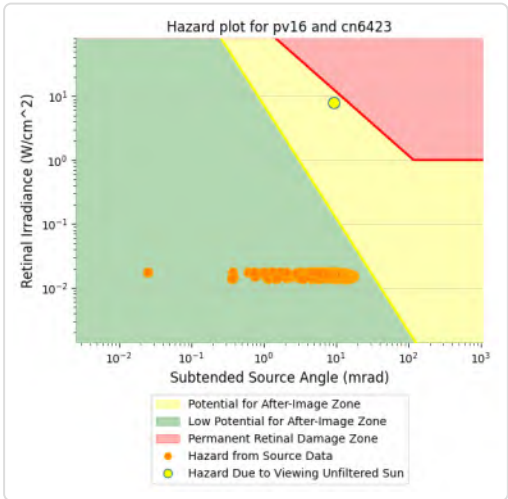
PV16 and FP: CN6423

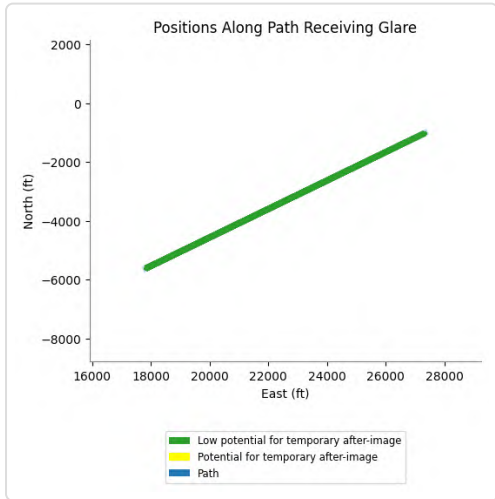
Yellow glare: none

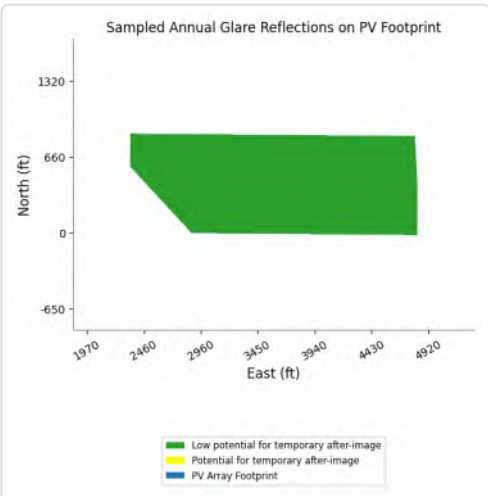
Green glare: 994 min.

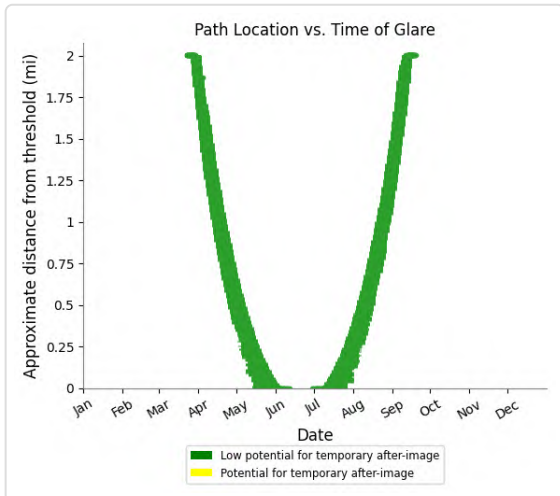








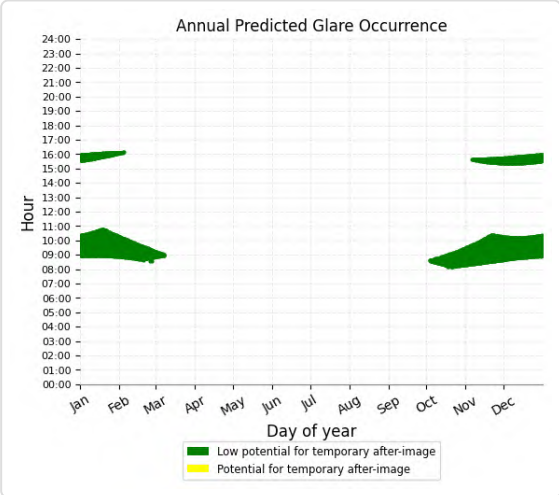


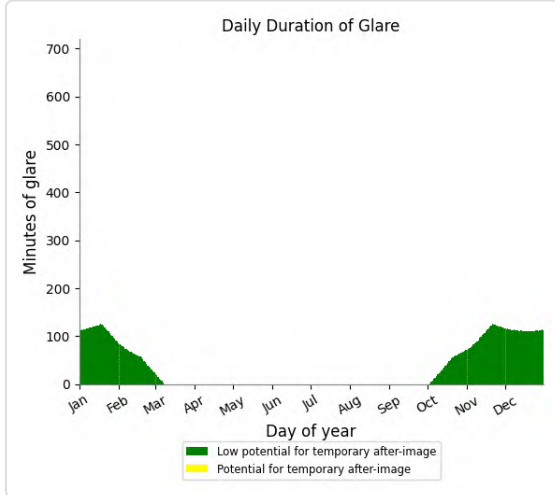


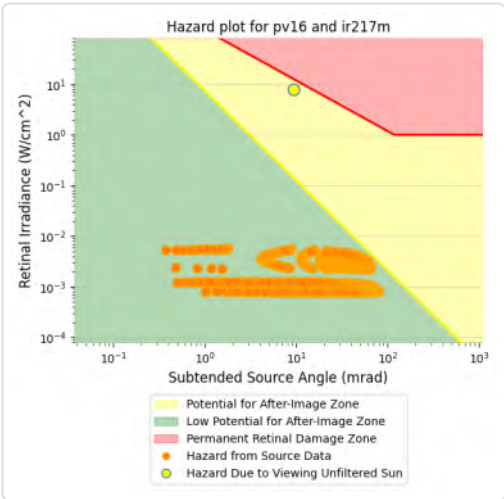
PV16 and FP: IR217m

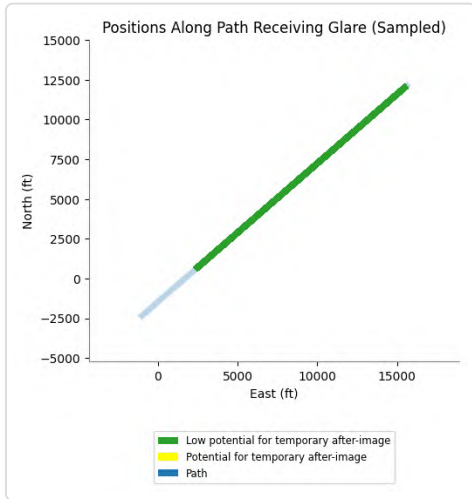
Yellow glare: none

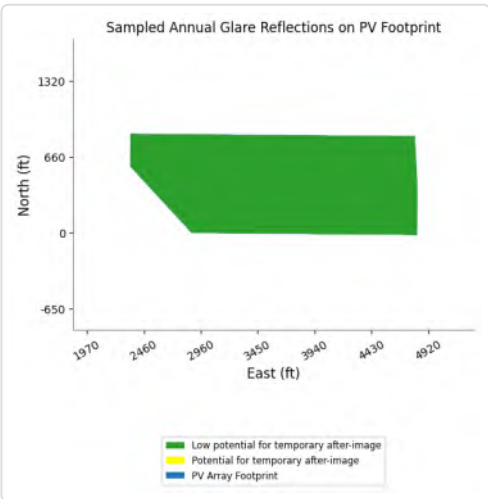
Green glare: 13,101 min.

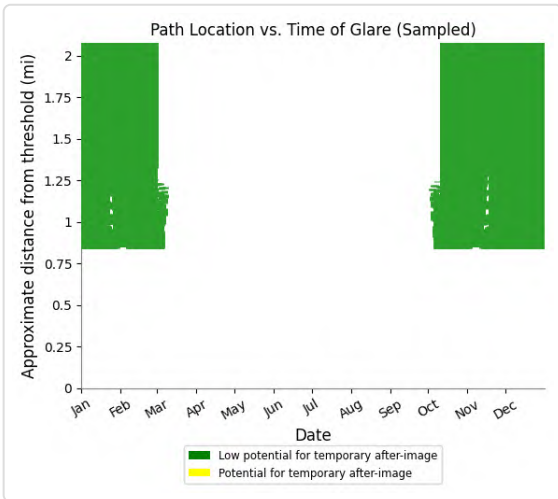








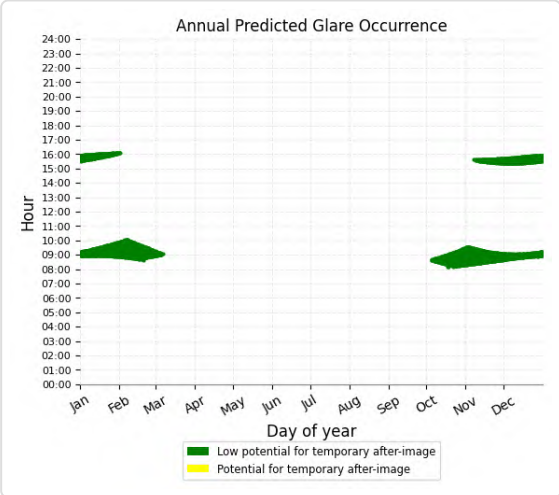


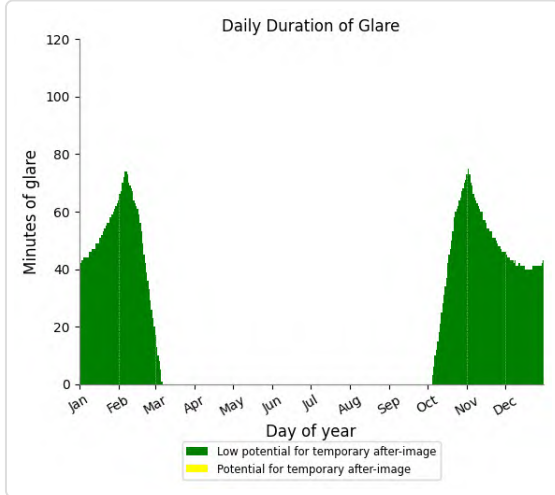


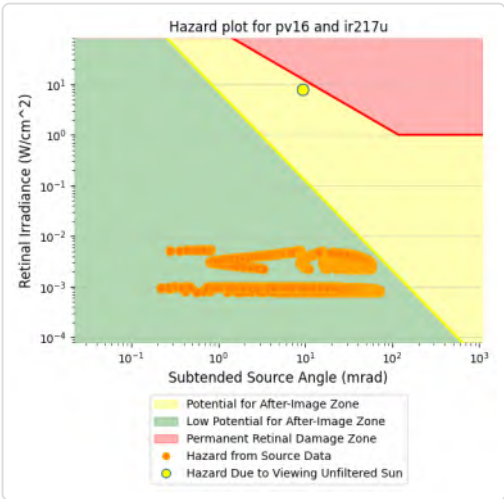
PV16 and FP: IR217u

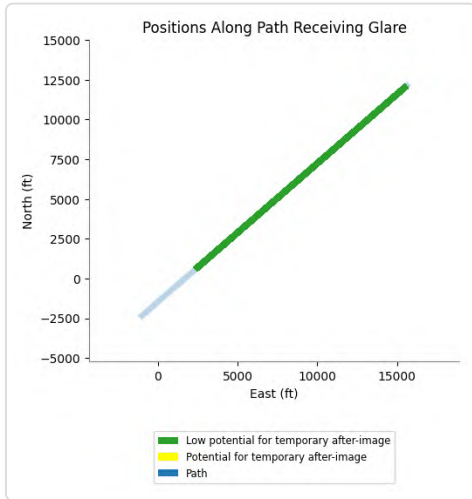
Yellow glare: none

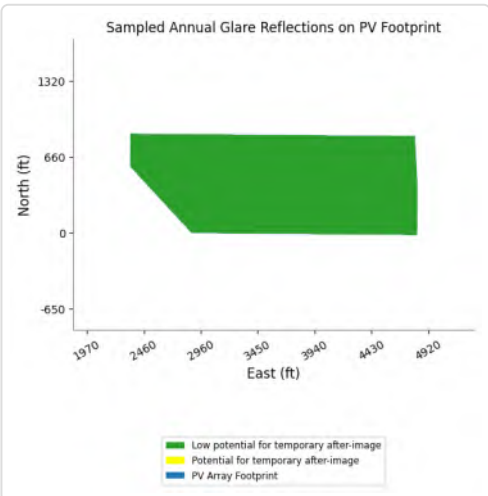
Green glare: 7,372 min.

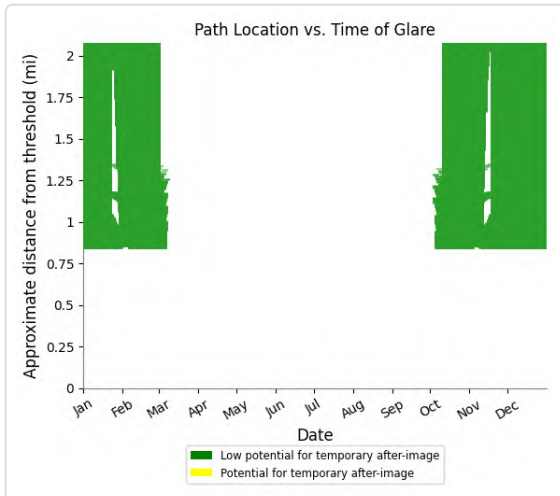








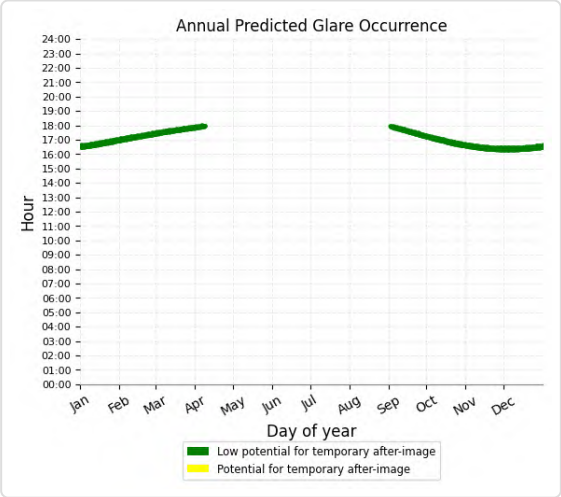


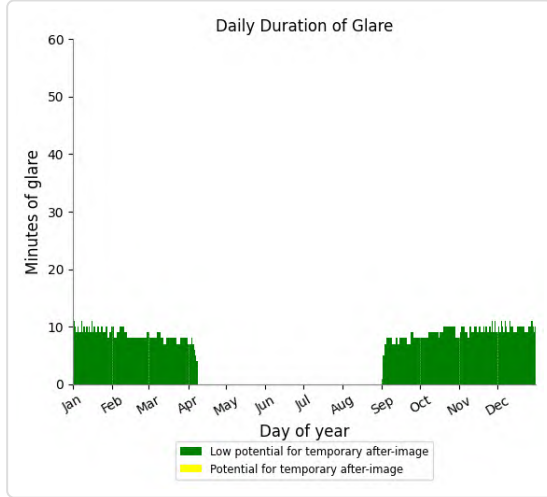


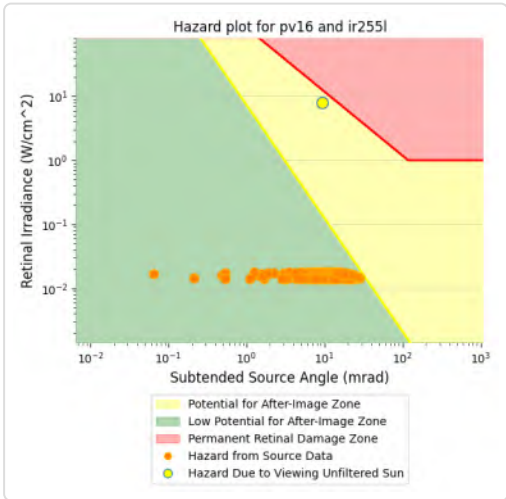
PV16 and FP: IR255I

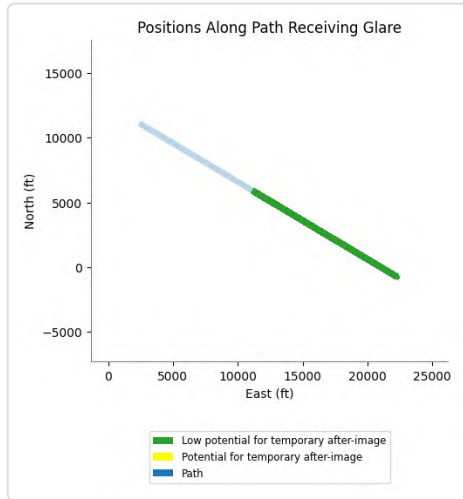
Yellow glare: none

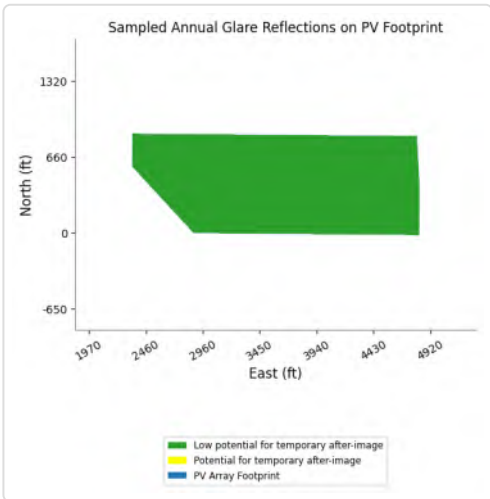
Green glare: 1,927 min.

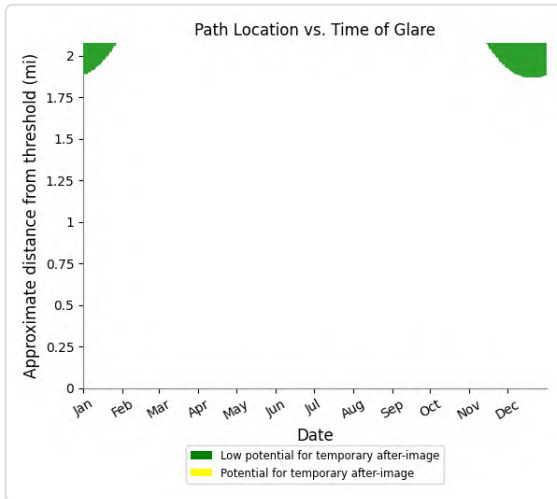








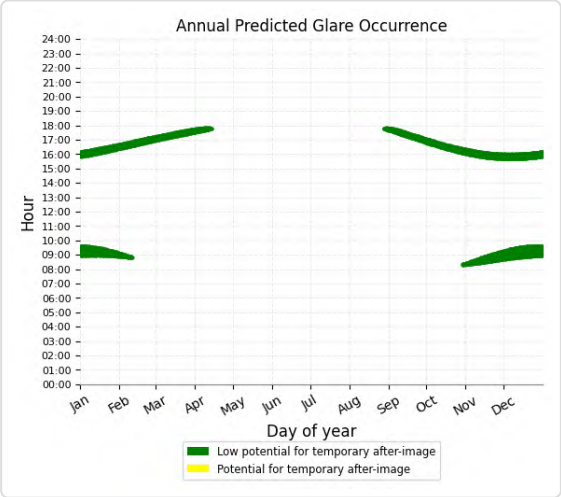


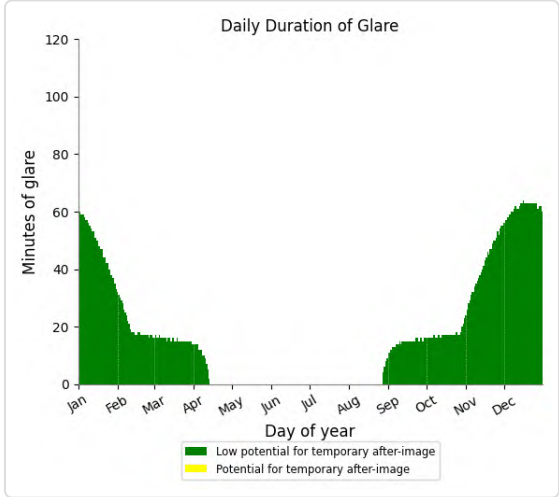


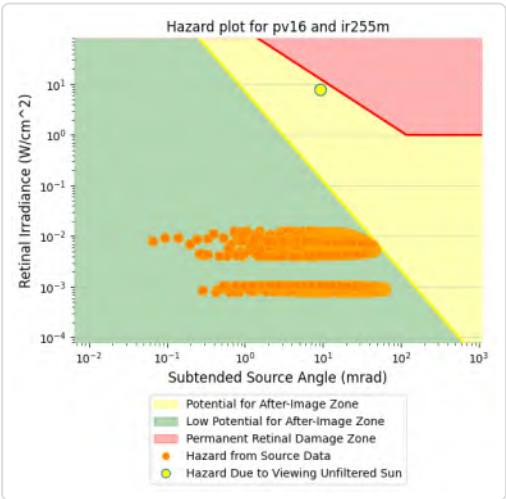
PV16 and FP: IR255m

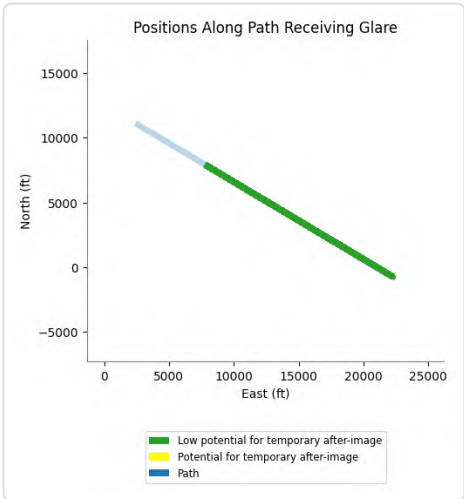
Yellow glare: none

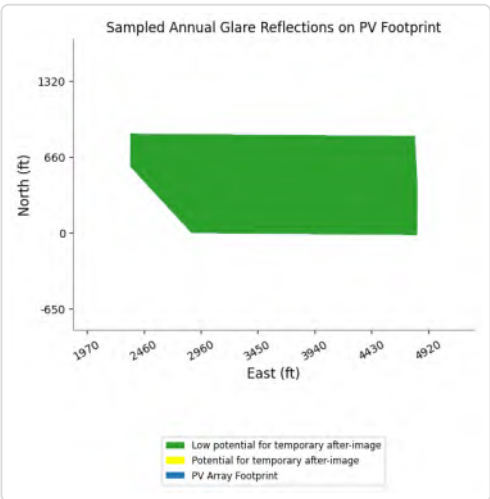
Green glare: 6,864 min.

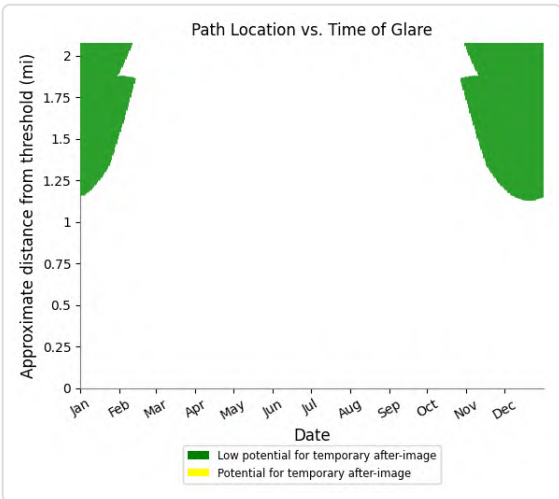








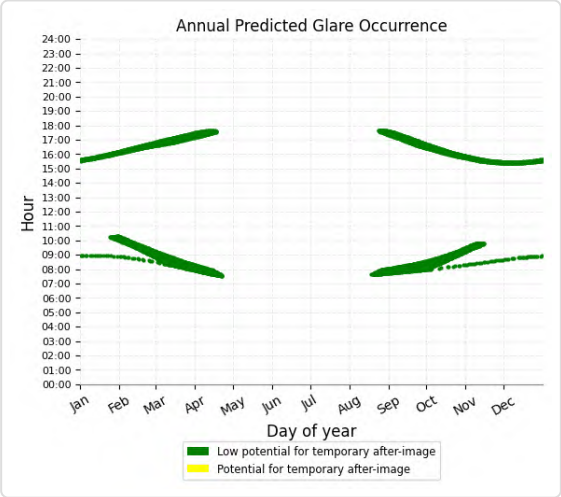


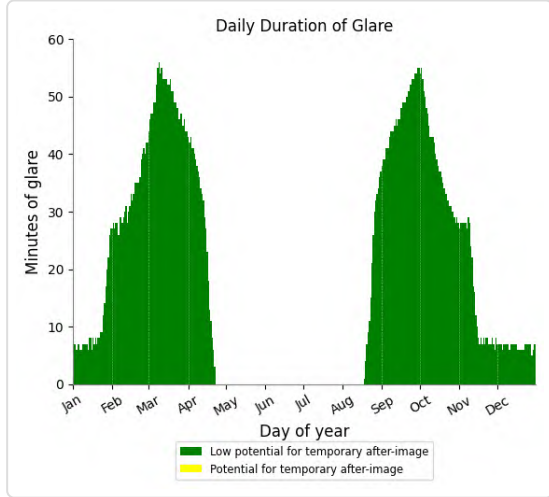


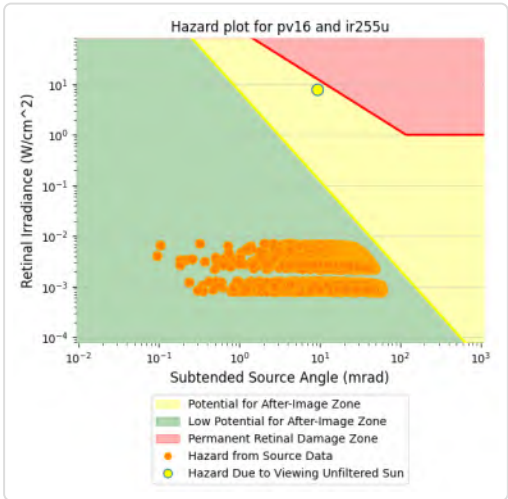
PV16 and FP: IR255u

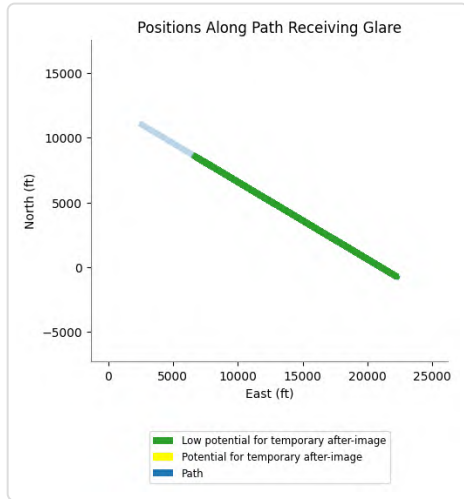
Yellow glare: none

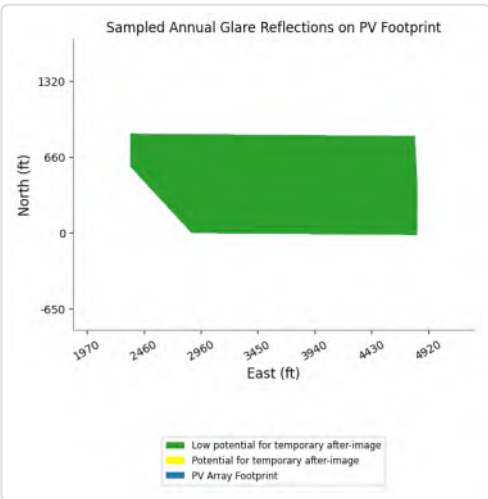
Green glare: 7,017 min.

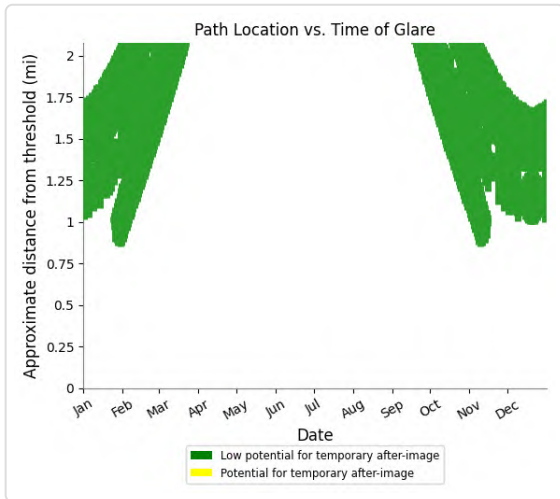








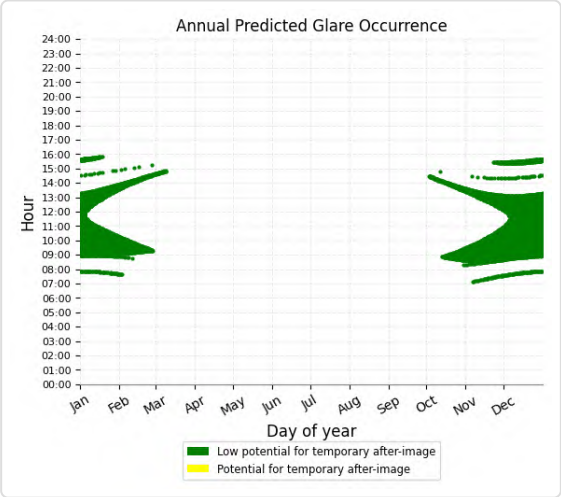


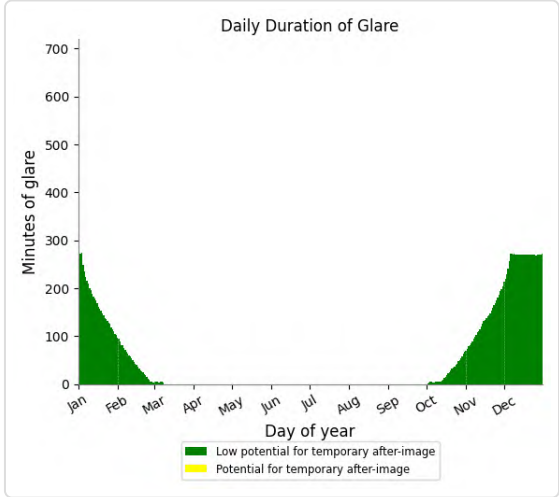


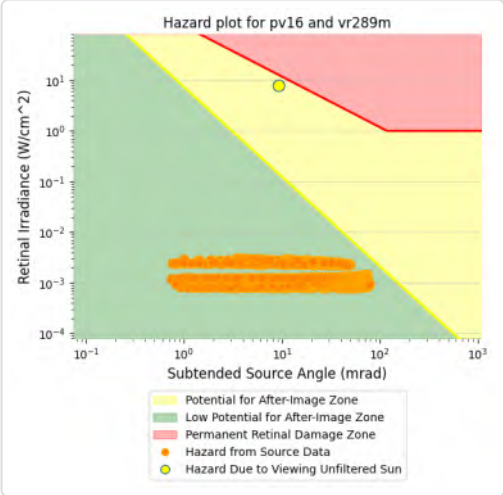
PV16 and FP: VR289m

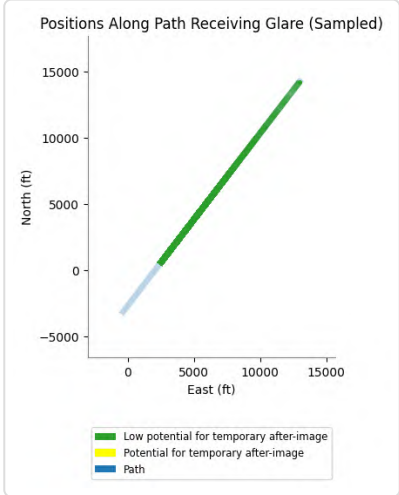
Yellow glare: none

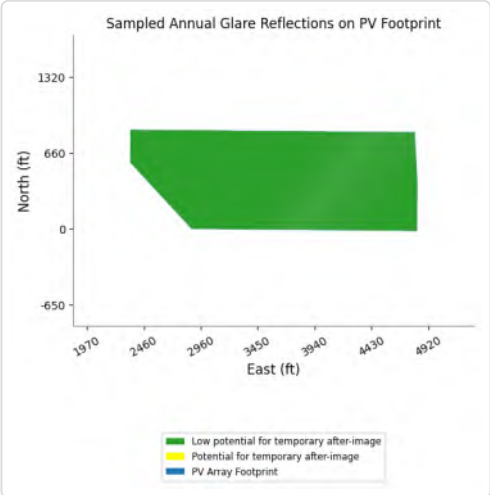
Green glare: 19,723 min.

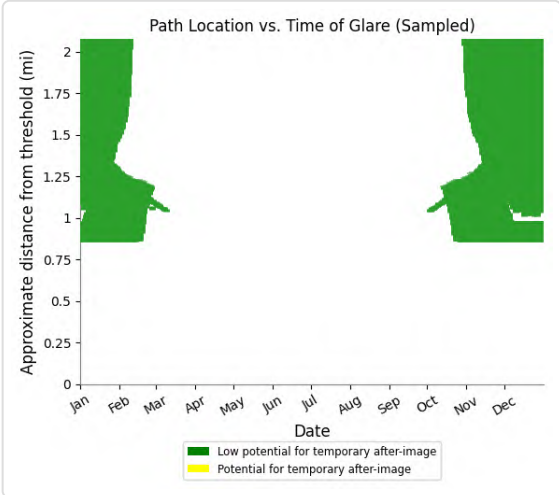








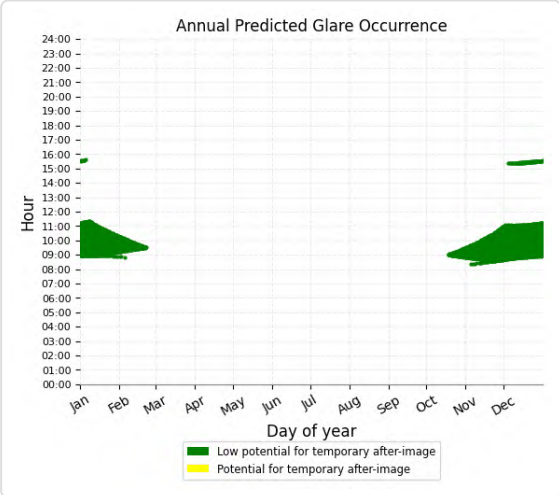


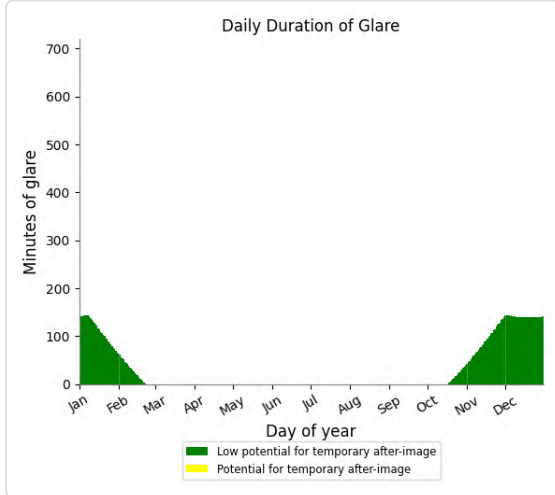


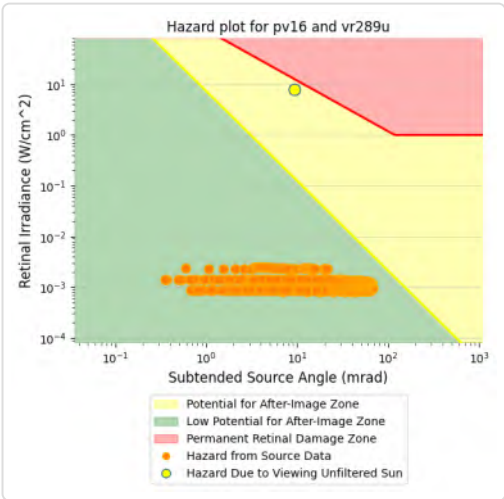
PV16 and FP: VR289u

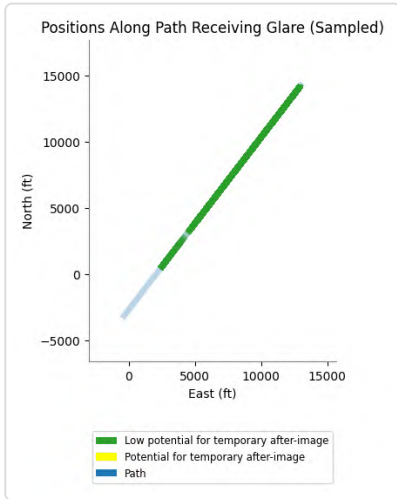
Yellow glare: none

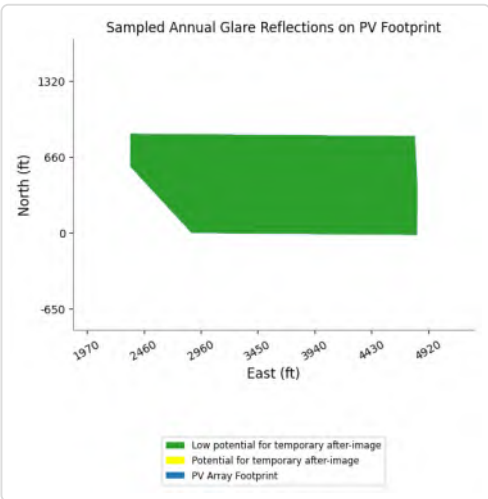
Green glare: 11,577 min.

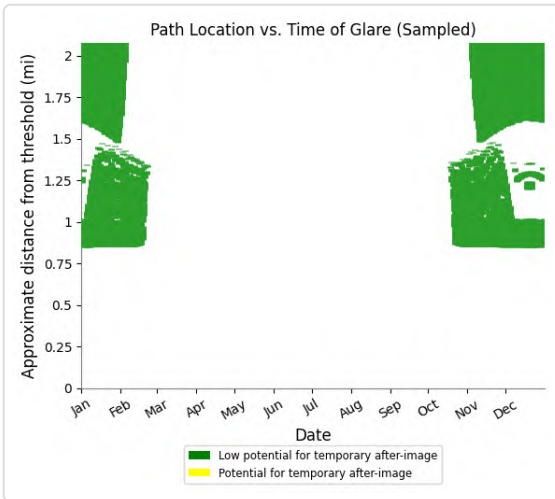












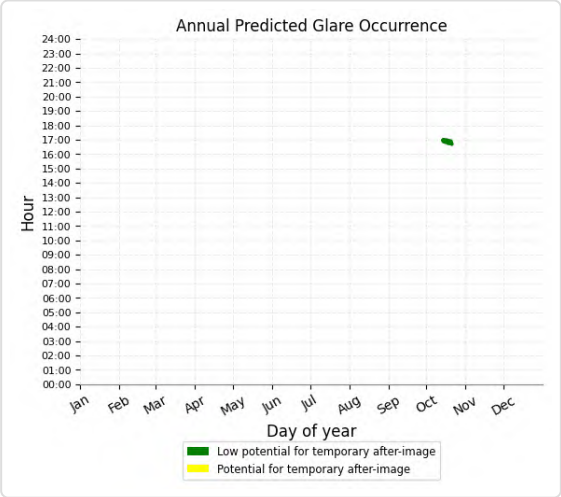
PV16 and FP: CN645

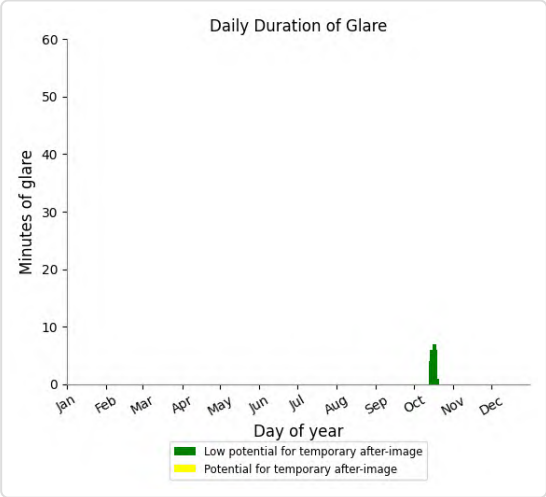
No glare found

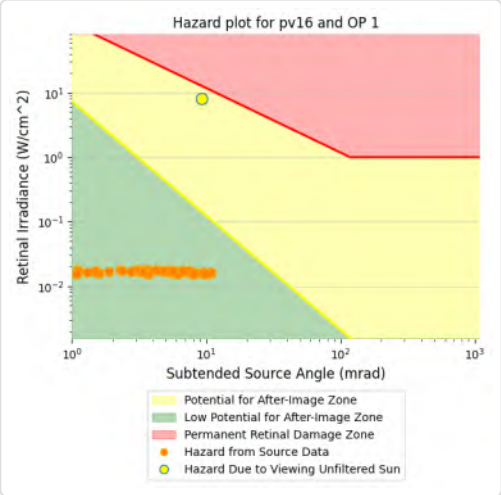
PV16 and OP 1

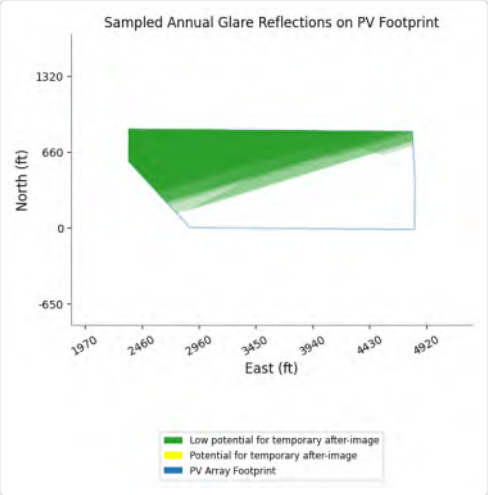
Yellow glare: none

Green glare: 44 min.



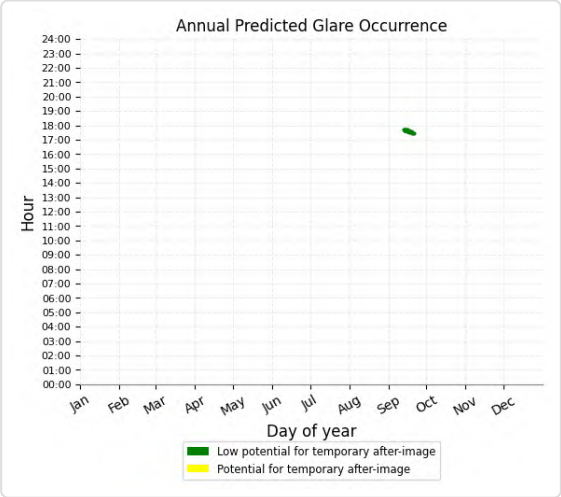


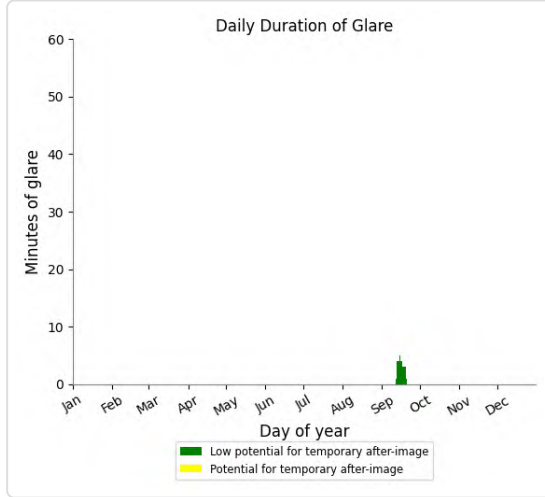


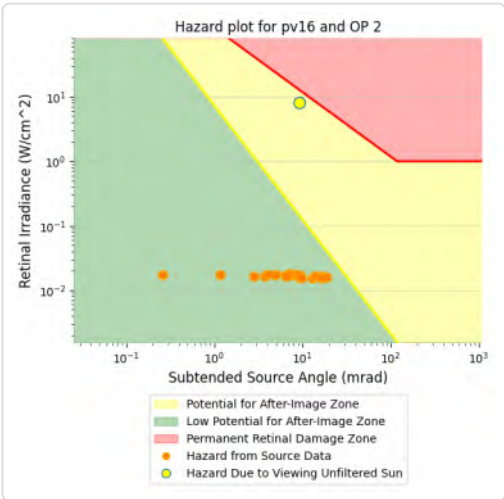


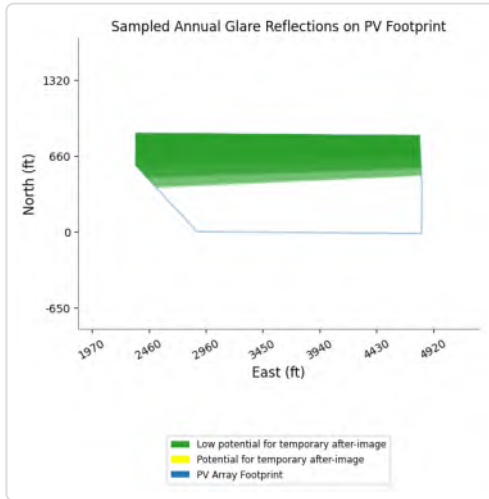
PV16 and OP 2

Yellow glare: none
Green glare: 28 min.









PV16 and OP 3

No glare found

PV16 and OP 4

No glare found

PV16 and OP 5

No glare found

PV16 and OP 6

No glare found

PV16 and OP 7

No glare found

PV16 and OP 8

No glare found

PV16 and OP 9

No glare found

PV16 and OP 10

No glare found

PV16 and OP 11

No glare found

PV16 and OP 12

No glare found

PV16 and OP 13

No glare found

PV16 and OP 14

No glare found

PV16 and OP 15

No glare found

PV16 and OP 16

No glare found

PV16 and OP 17

No glare found

PV16 and OP 18

No glare found

PV16 and OP 19

No glare found

PV: PV17 potential temporary after-image

Receptor results ordered by category of glare

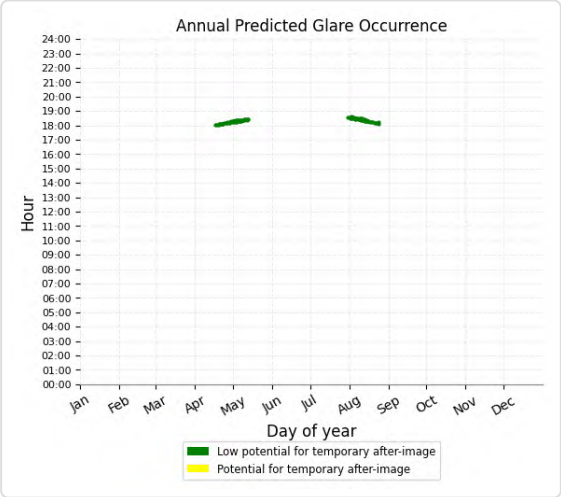
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd A	122	2.0	0	0.0
AirportRd B	384	6.4	0	0.0
Race Track	451	7.5	0	0.0
SR177 A	906	15.1	0	0.0
SR177 B	491	8.2	0	0.0
SR177 C	404	6.7	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	35,169	586.1	15,927	265.4
IR217m	8,539	142.3	271	4.5
IR218l	24,864	414.4	7,615	126.9
IR218m	6,628	110.5	211	3.5
VR289l	19,602	326.7	13,171	219.5
VR296l	33,781	563.0	5,473	91.2
VR296m	12,303	205.1	2,507	41.8
VR296u	7,931	132.2	426	7.1
CN6423	824	13.7	0	0.0
IR217u	5,805	96.8	0	0.0
IR218u	2,689	44.8	0	0.0
IR255l	1,845	30.8	0	0.0
IR255m	3,084	51.4	0	0.0
IR255u	12,126	202.1	0	0.0
VR289m	16,745	279.1	0	0.0
VR289u	9,990	166.5	0	0.0
CN645	0	0.0	0	0.0
OP 2	84	1.4	0	0.0
OP 1	0	0.0	0	0.0

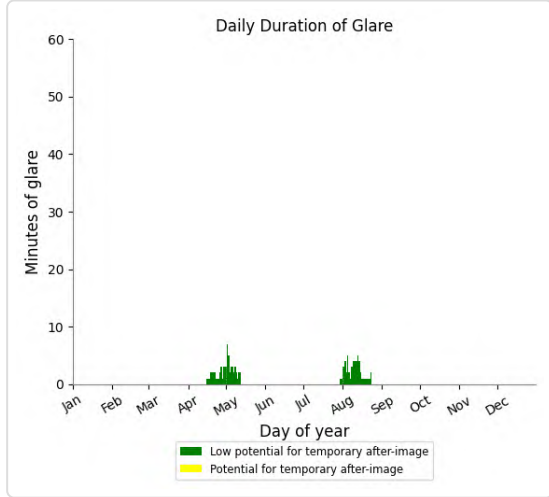
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

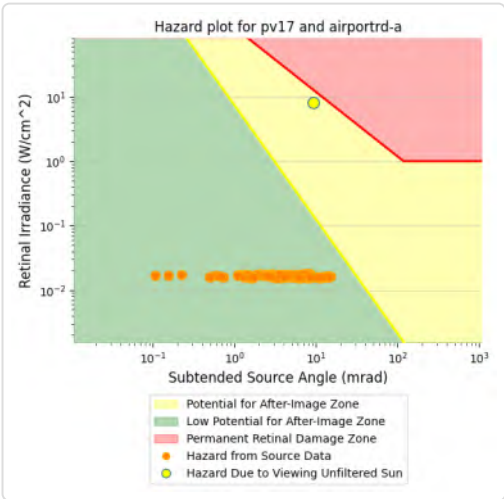
PV17 and Route: AirportRd A

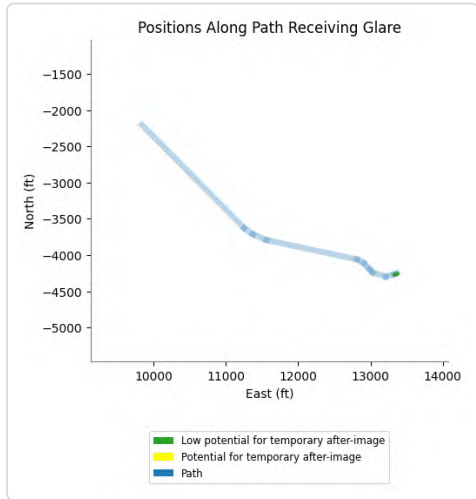
Yellow glare: none

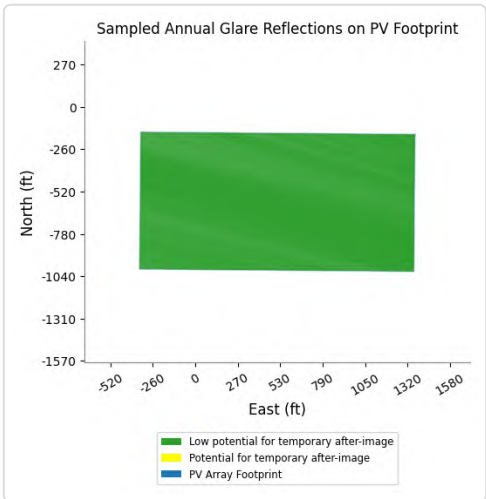
Green glare: 122 min.







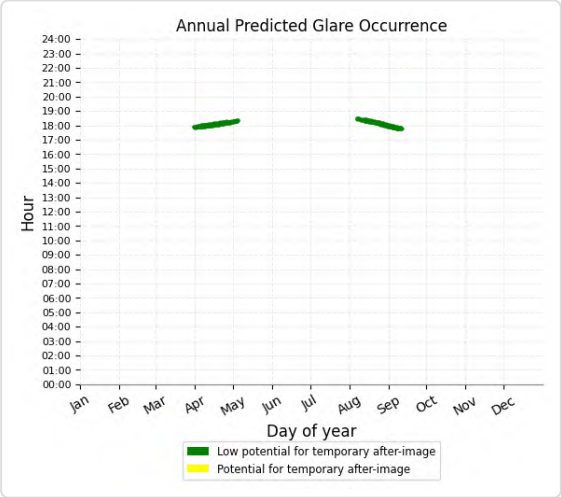


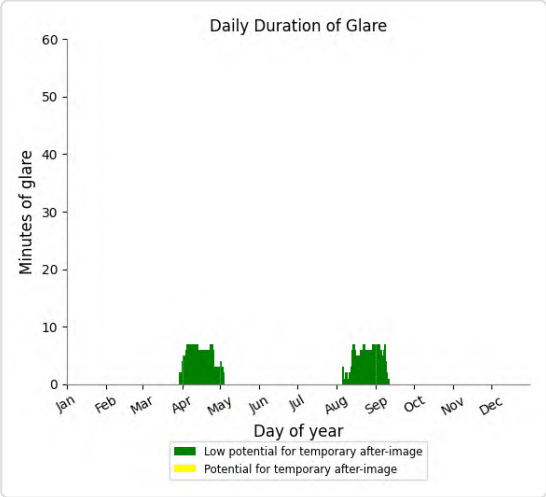


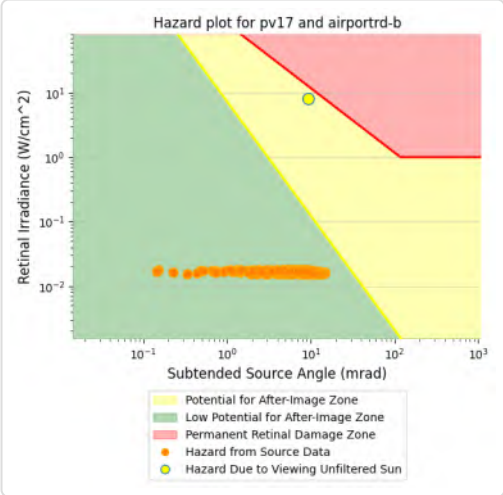
PV17 and Route: AirportRd B

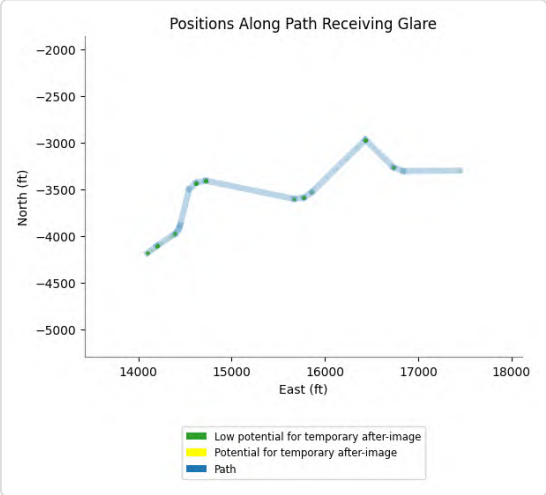
Yellow glare: none

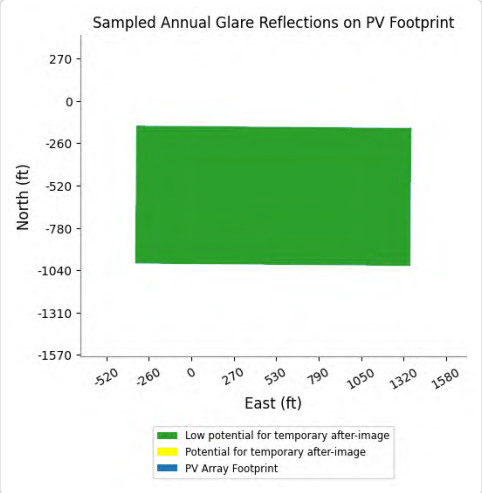
Green glare: 384 min.







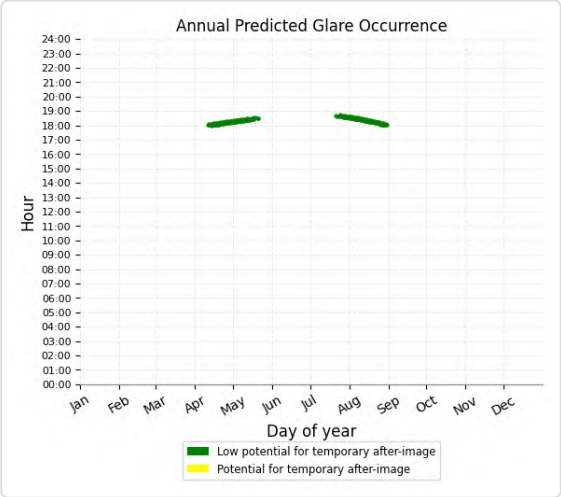


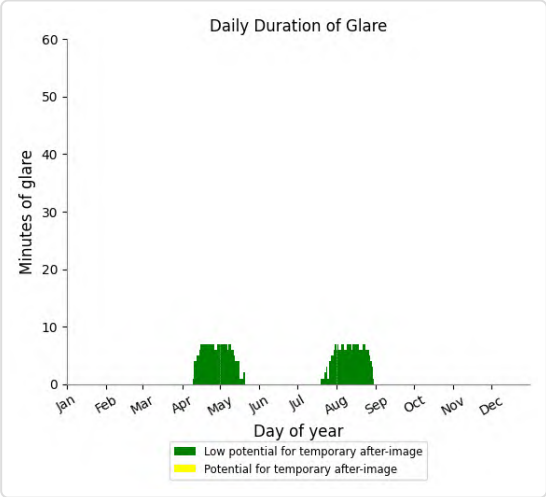


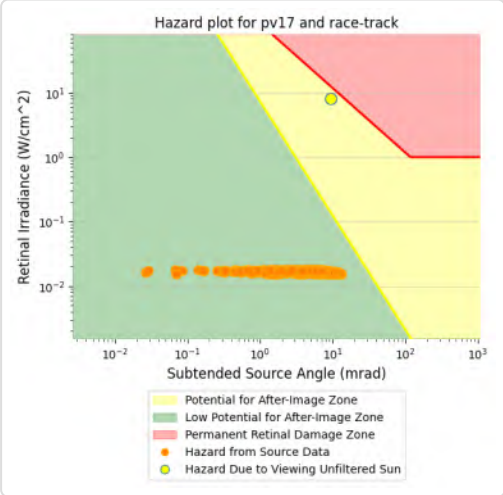
PV17 and Route: Race Track

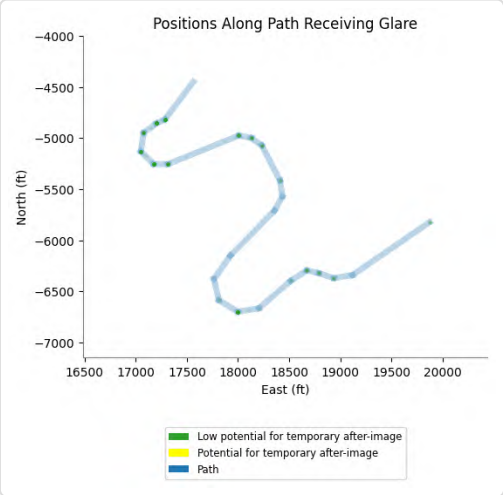
Yellow glare: none

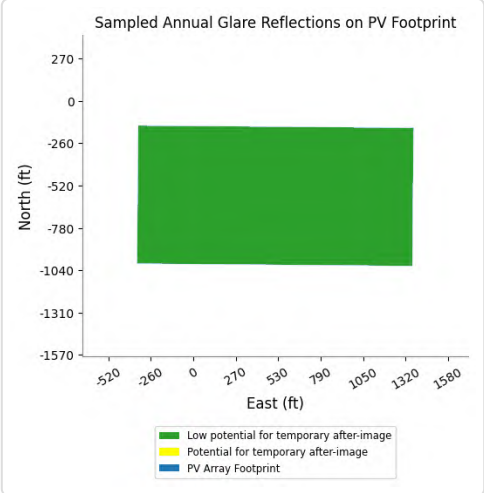
Green glare: 451 min.







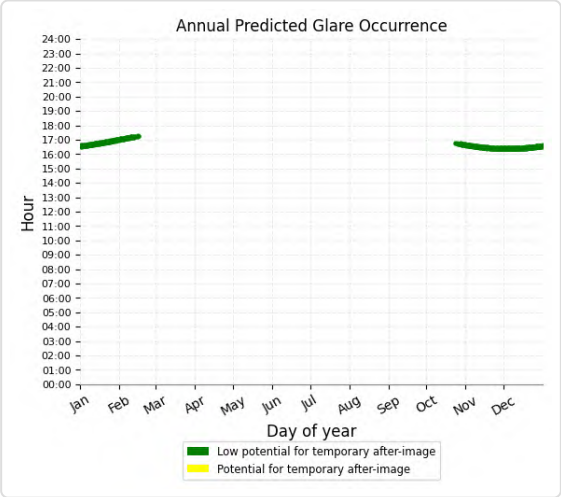


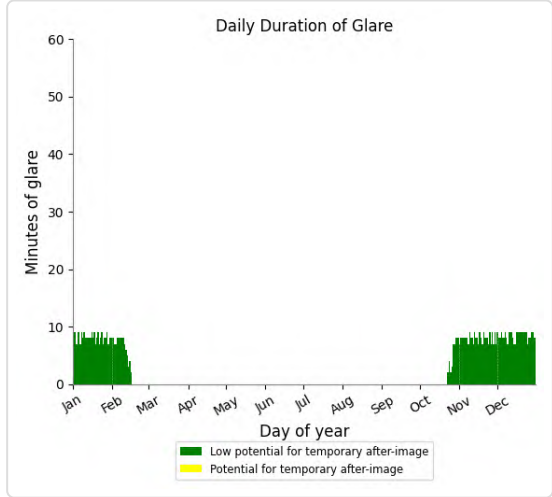


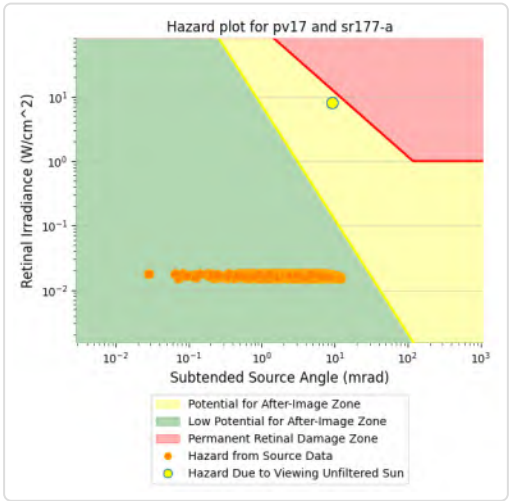
PV17 and Route: SR177 A

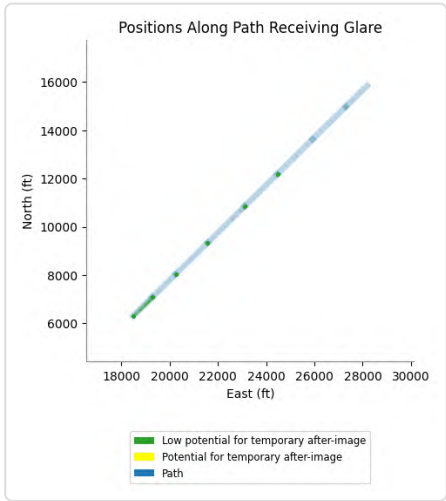
Yellow glare: none

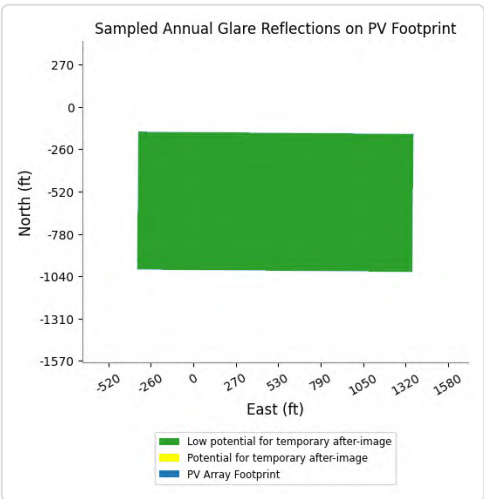
Green glare: 906 min.







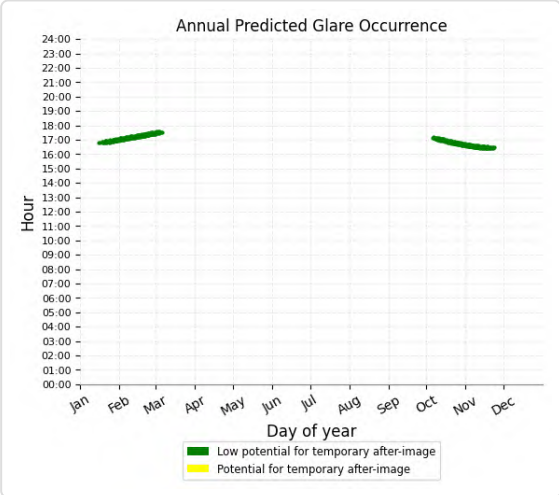


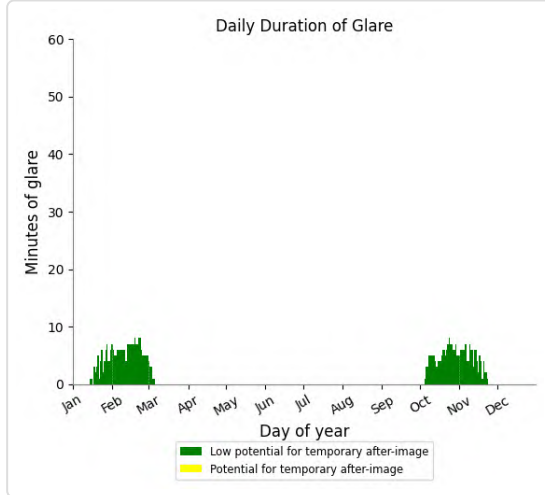


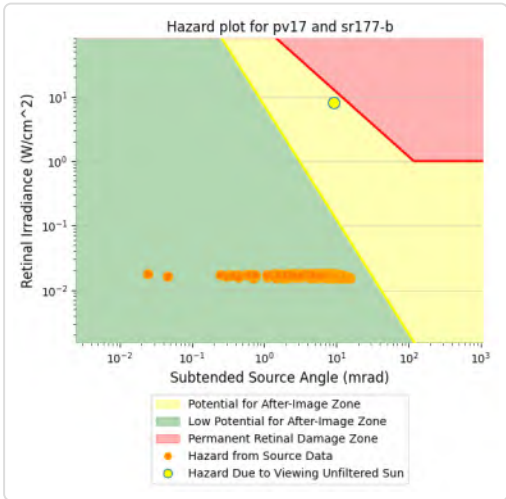
PV17 and Route: SR177 B

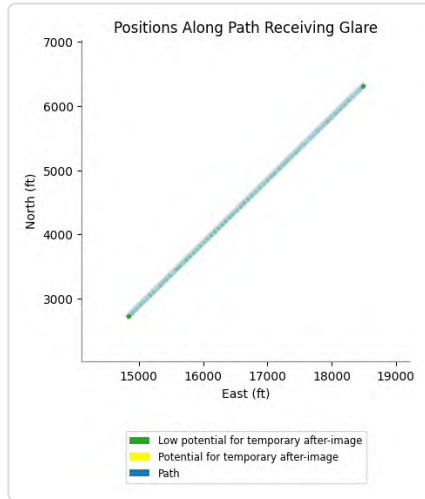
Yellow glare: none

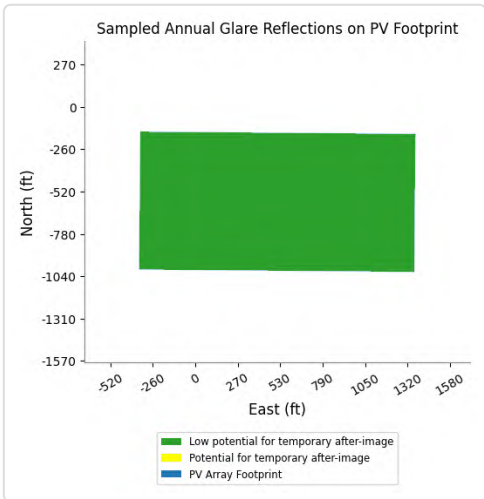
Green glare: 491 min.







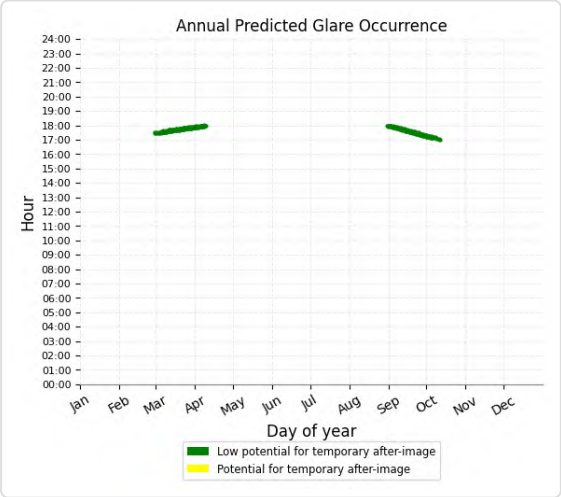


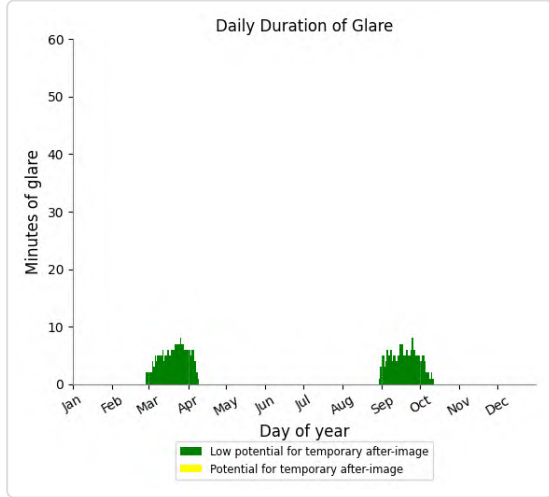


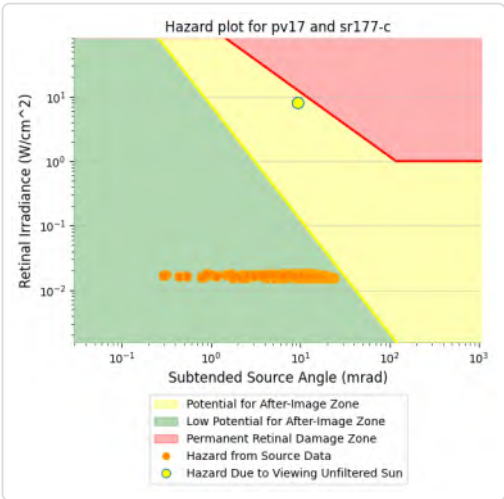
PV17 and Route: SR177 C

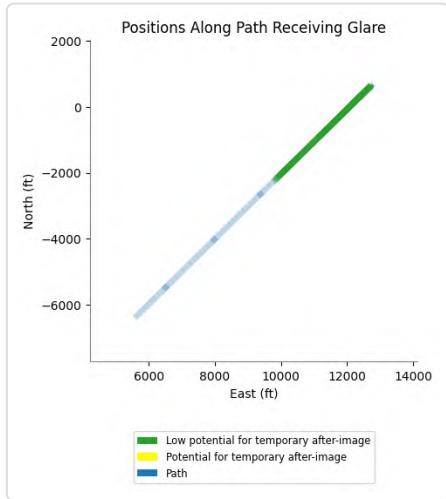
Yellow glare: none

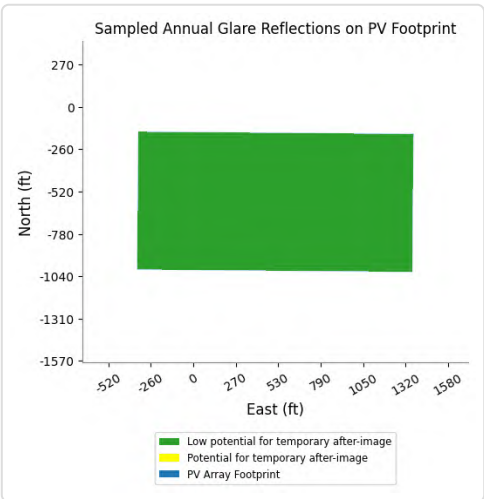
Green glare: 404 min.











PV17 and Route: EagleMtnRd A

No glare found

PV17 and Route: EagleMtnRd B

No glare found

PV17 and Route: I-10 EB A

No glare found

PV17 and Route: I-10 EB B

No glare found

PV17 and Route: I-10 EB C

No glare found

PV17 and Route: I-10 WB A

No glare found

PV17 and Route: I-10 WB B

No glare found

PV17 and Route: I-10 WB C

No glare found

PV17 and Route: KaiserRd A

No glare found

PV17 and Route: KaiserRd B

No glare found

PV17 and Route: KaiserRd C

No glare found

PV17 and Route: OasisRd

No glare found

PV17 and Route: SR177 D

No glare found

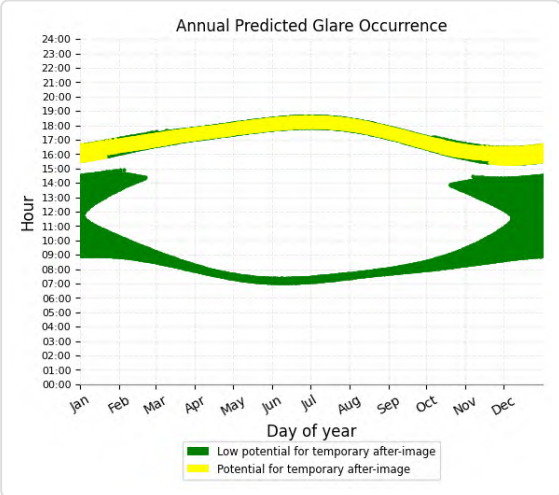
PV17 and Route: SR177 E

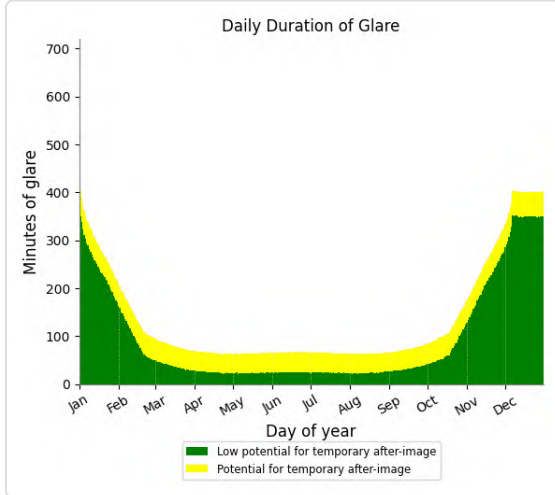
No glare found

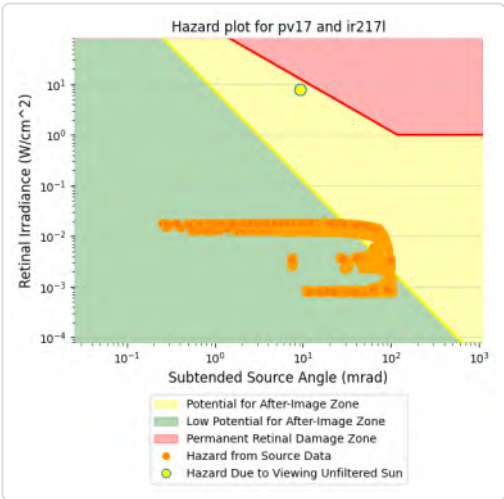
PV17 and FP: IR217l

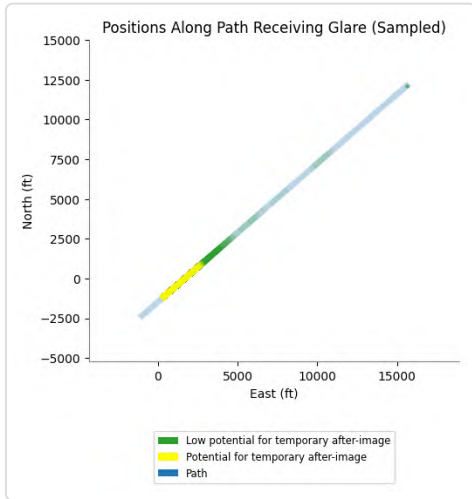
Yellow glare: 15,927 min.

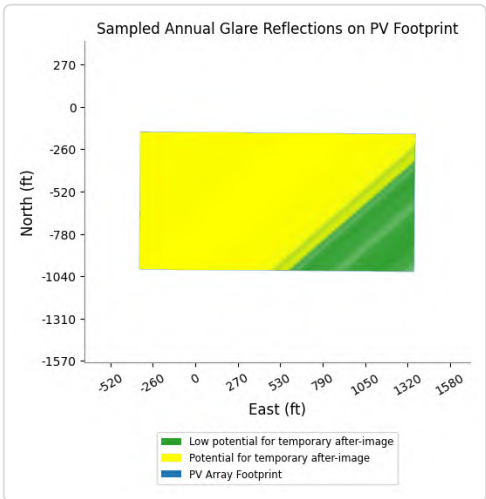
Green glare: 35,169 min.

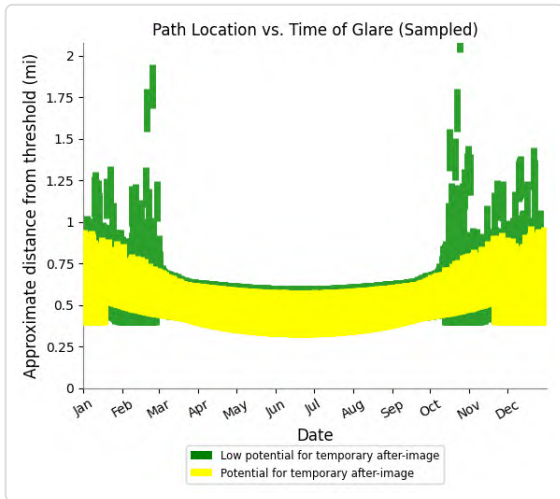








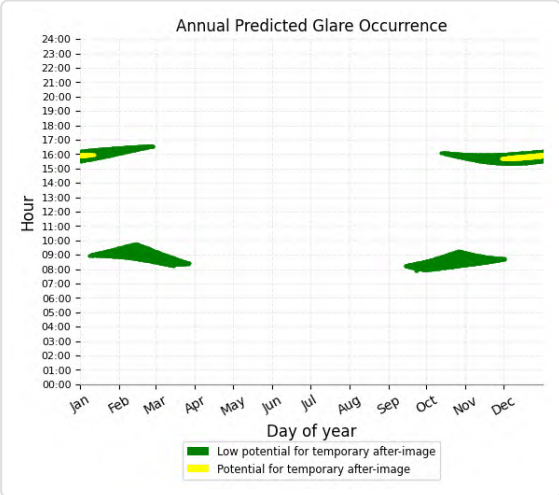


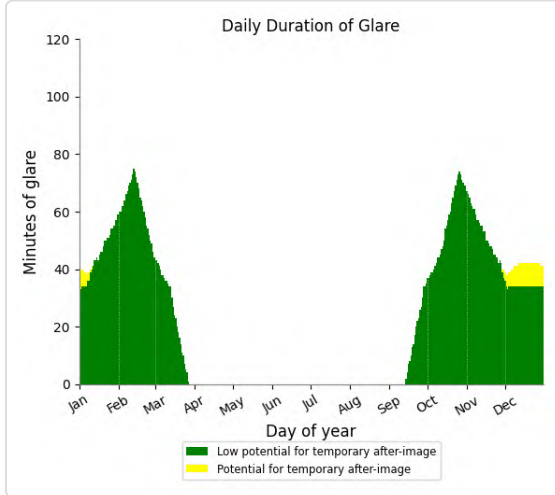


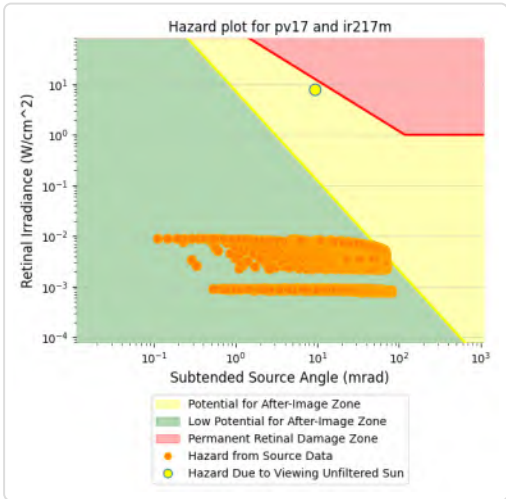
PV17 and FP: IR217m

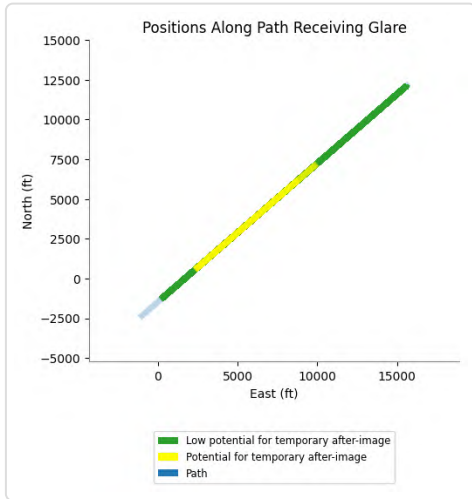
Yellow glare: 271 min.

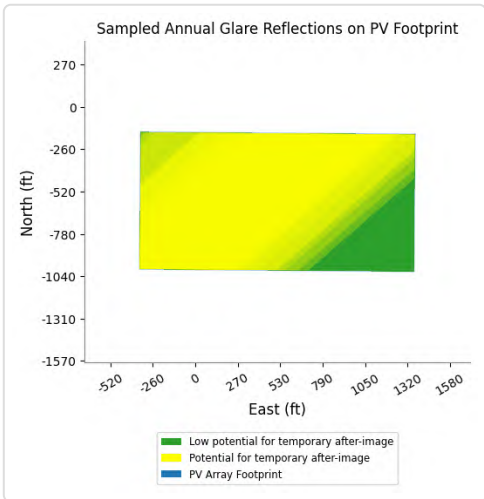
Green glare: 8,539 min.

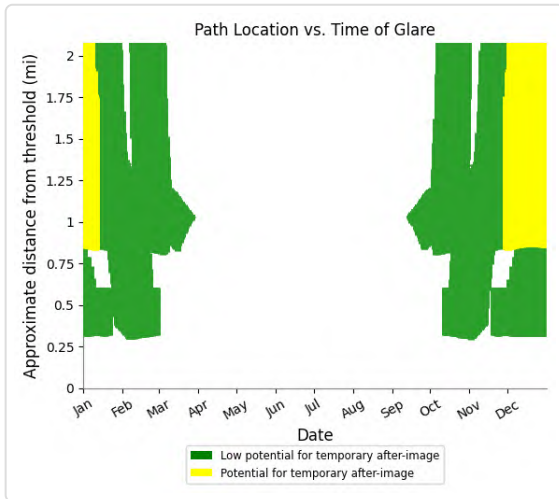








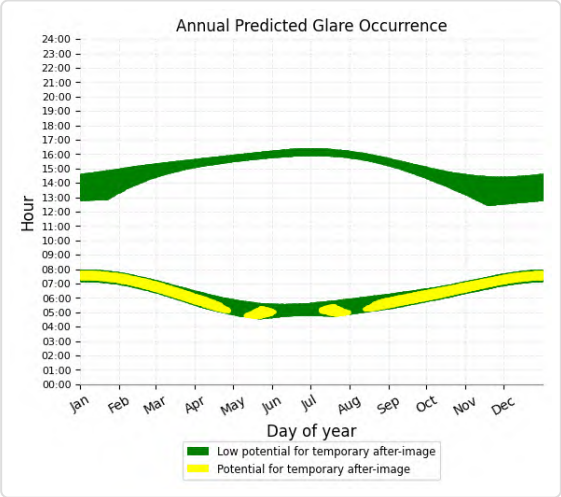


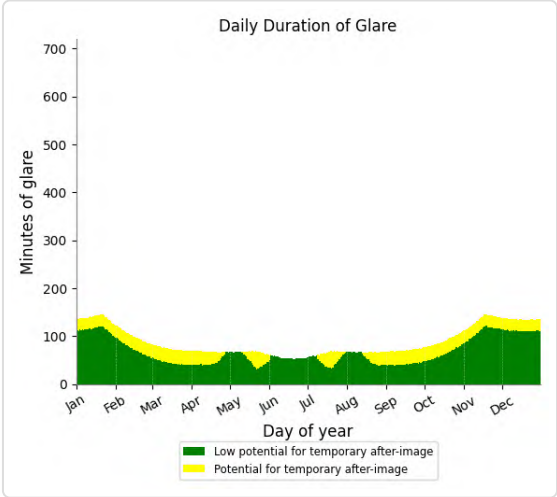


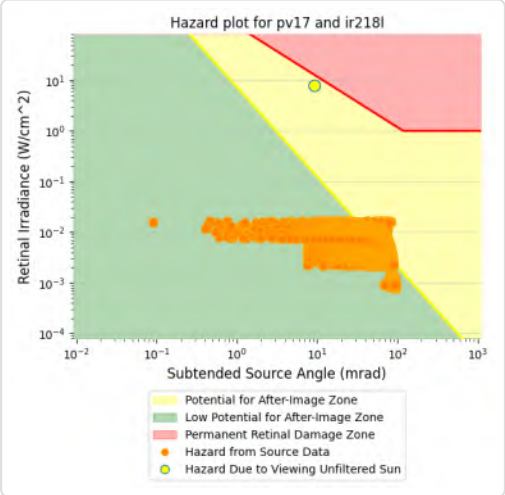
PV17 and FP: IR218l

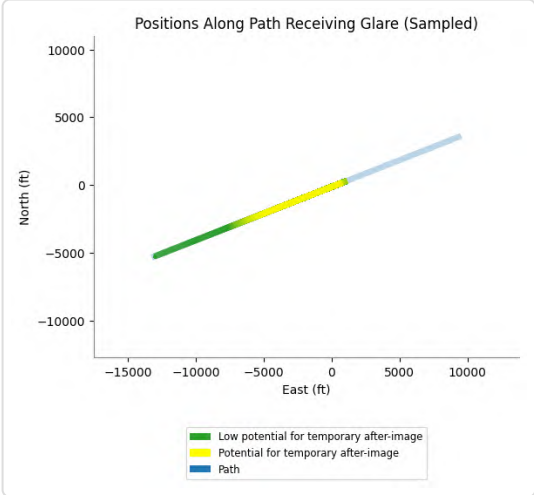
Yellow glare: 7,615 min.

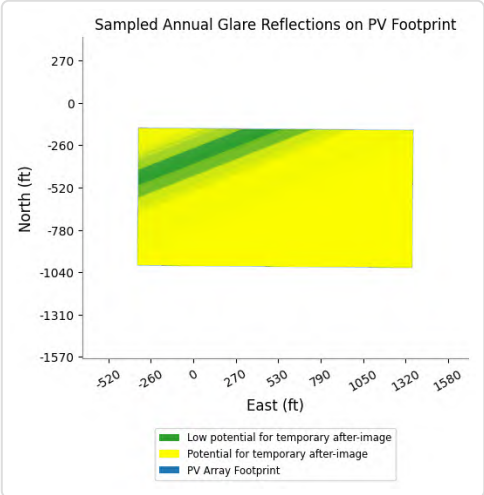
Green glare: 24,864 min.

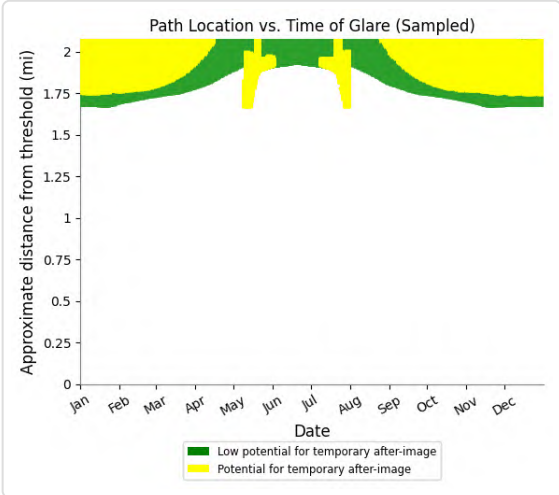








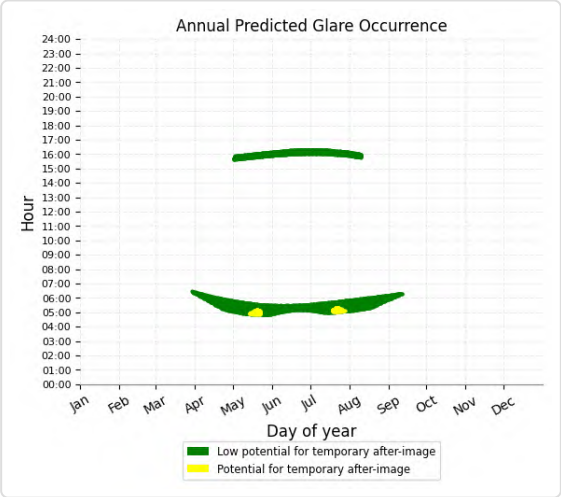


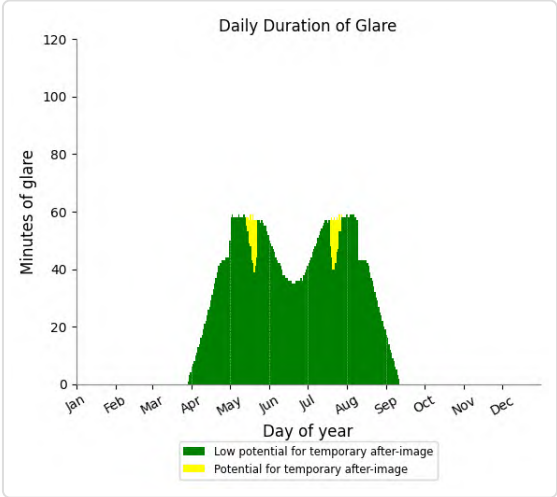


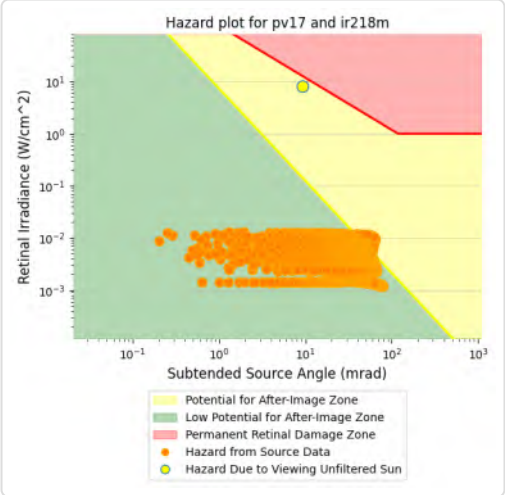
PV17 and FP: IR218m

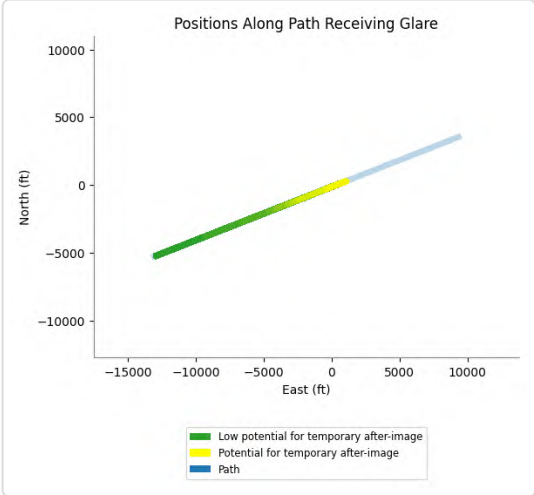
Yellow glare: 211 min.

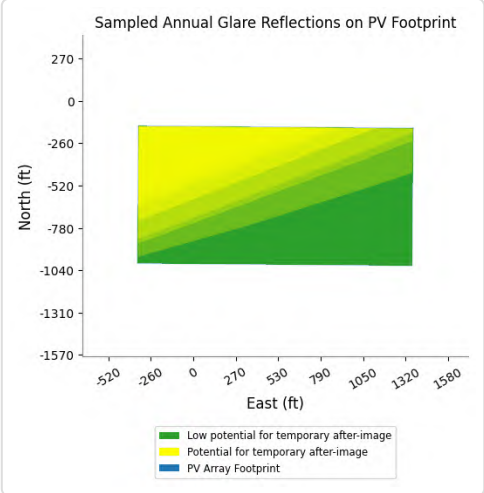
Green glare: 6,628 min.

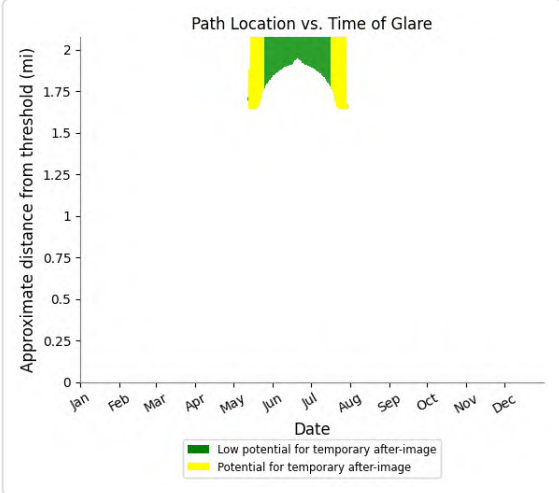








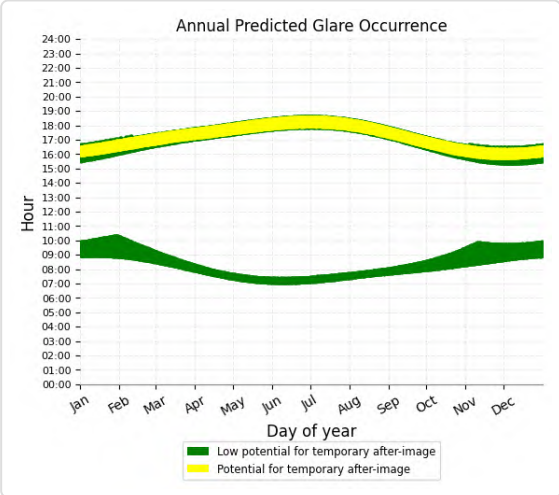


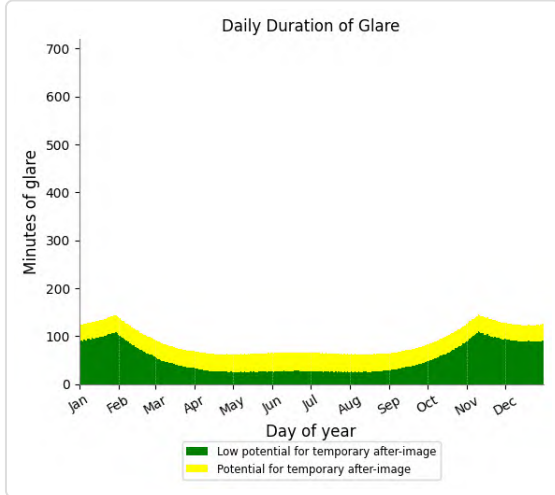


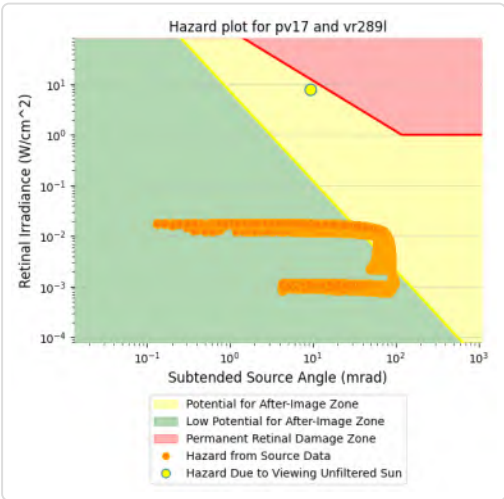
PV17 and FP: VR289I

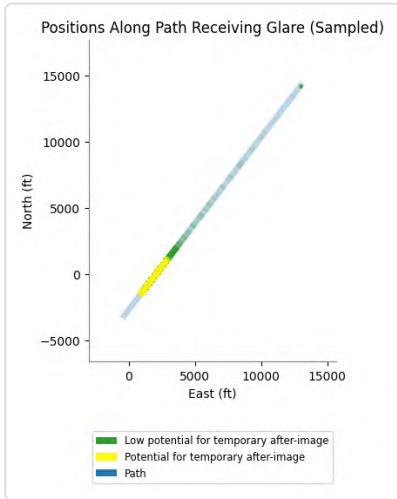
Yellow glare: 13,171 min.

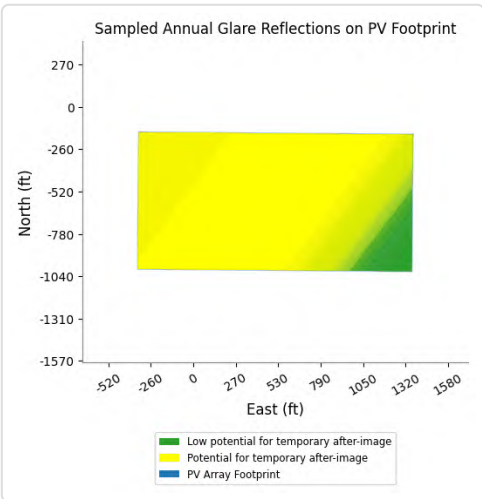
Green glare: 19,602 min.

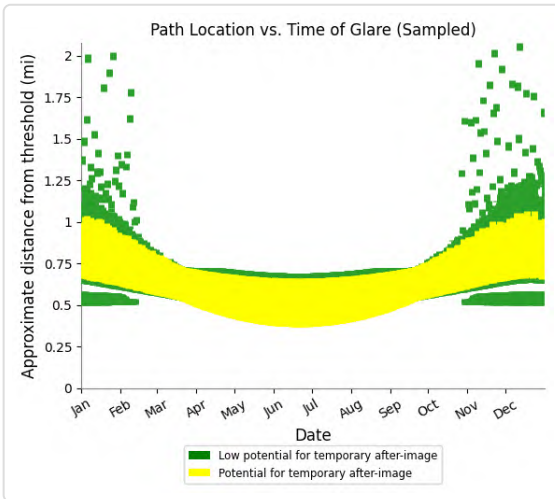








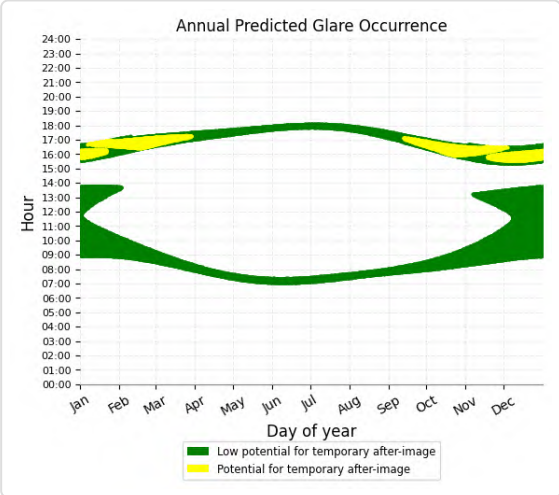


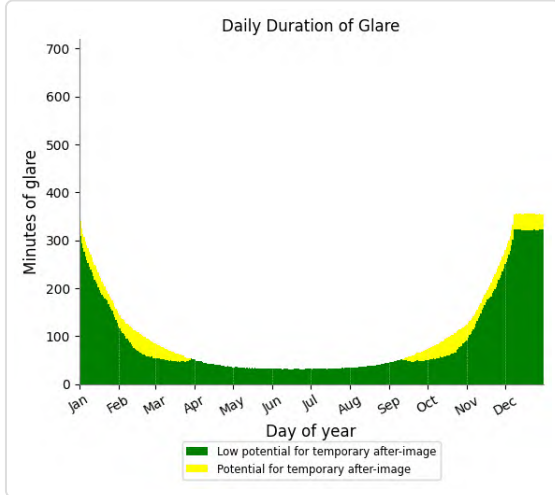


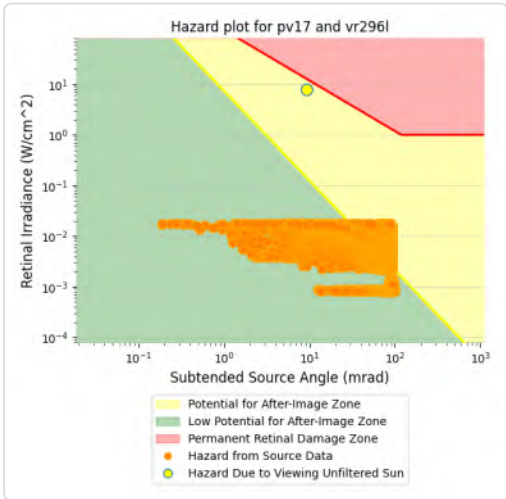
PV17 and FP: VR296l

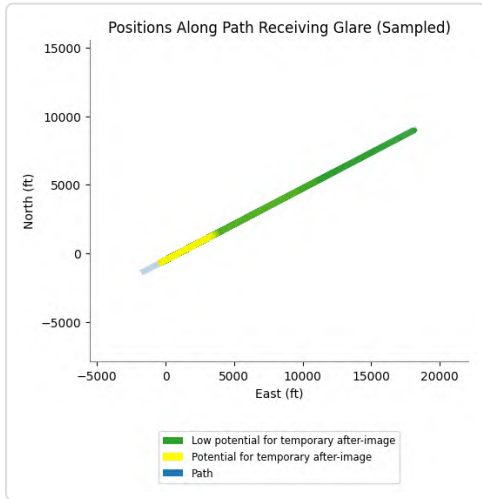
Yellow glare: 5,473 min.

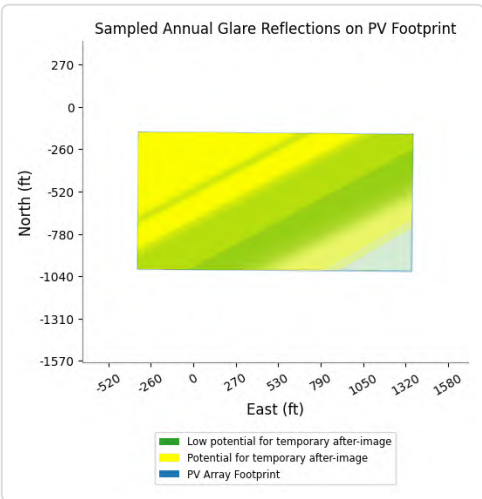
Green glare: 33,781 min.

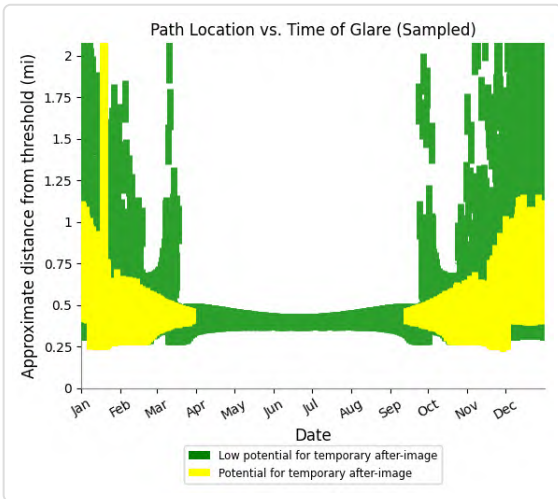








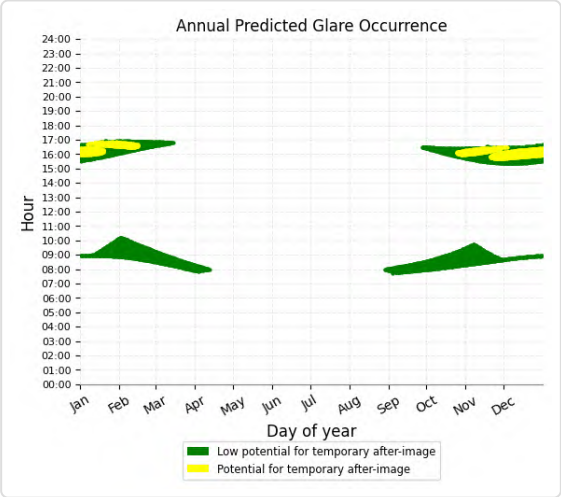


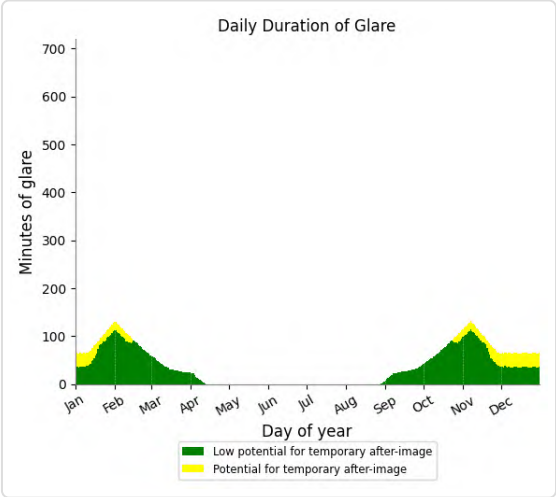


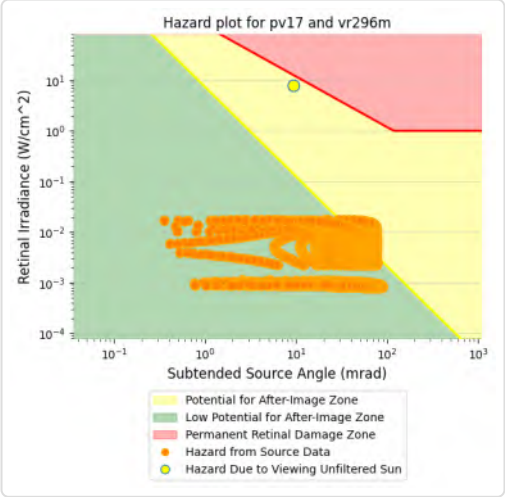
PV17 and FP: VR296m

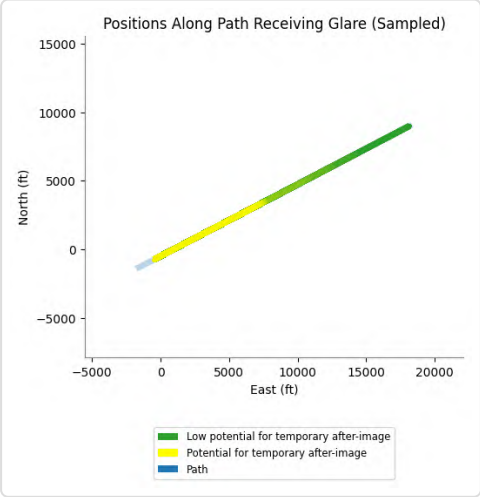
Yellow glare: 2,507 min.

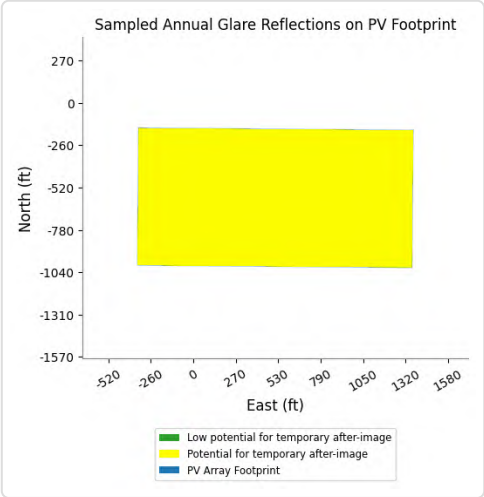
Green glare: 12,303 min.

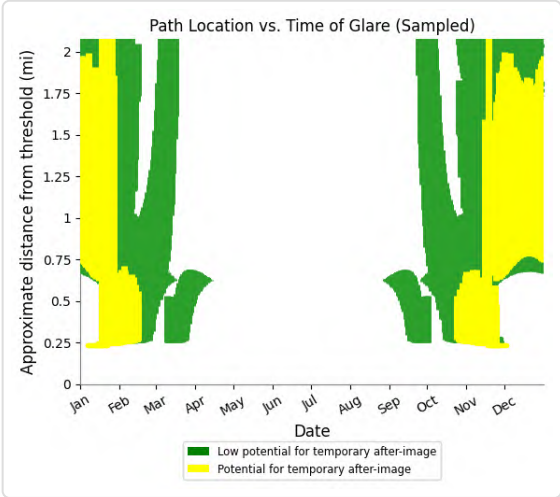








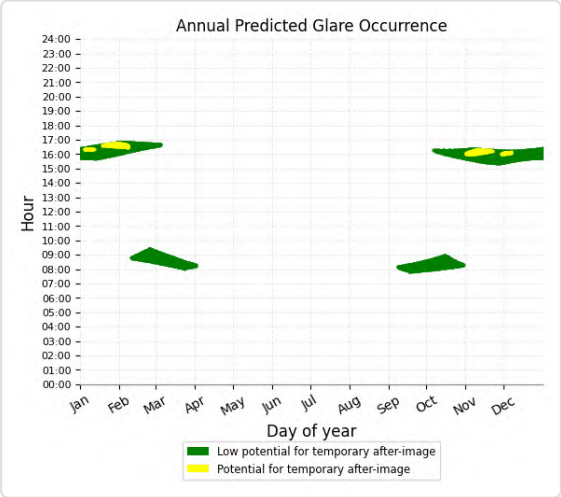


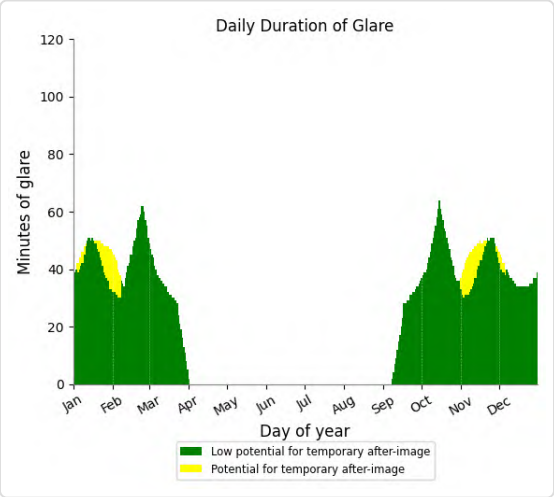


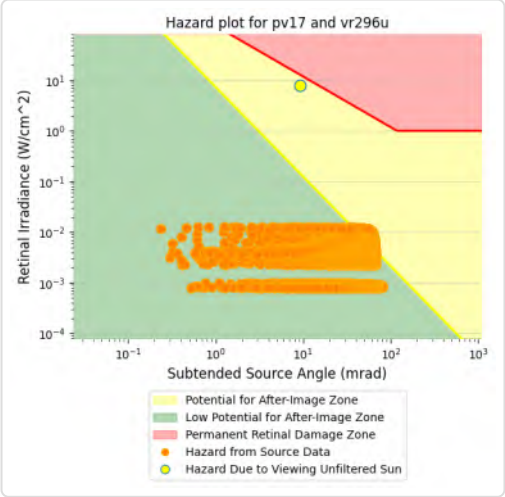
PV17 and FP: VR296u

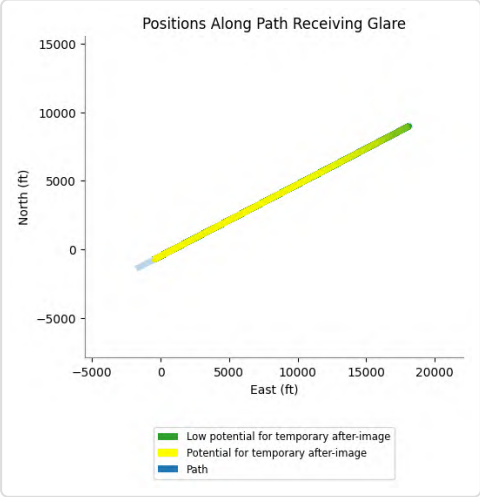
Yellow glare: 426 min.

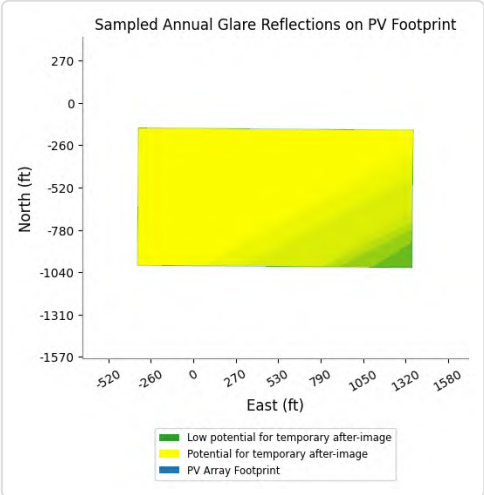
Green glare: 7,931 min.

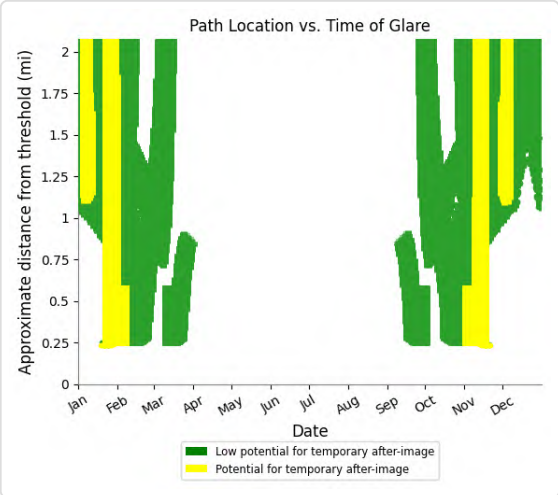








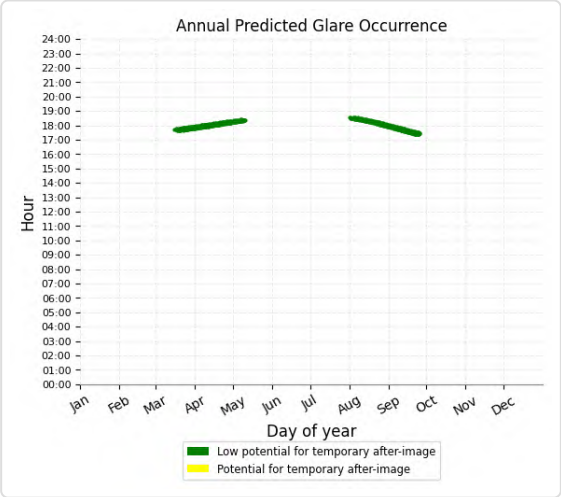


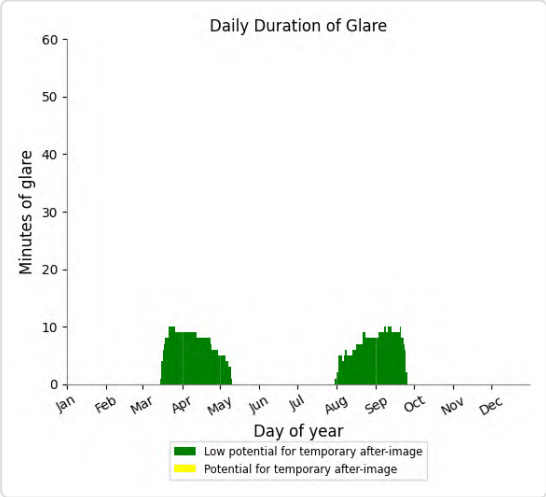


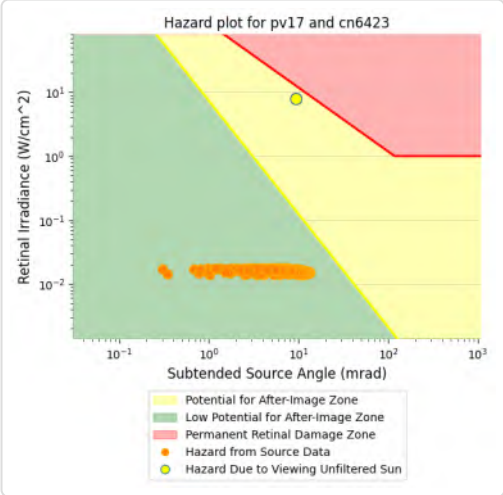
PV17 and FP: CN6423

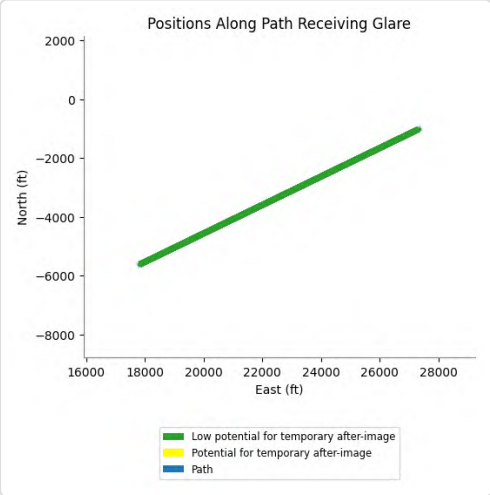
Yellow glare: none

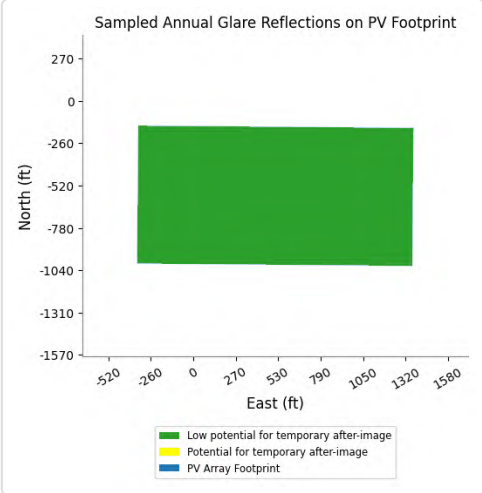
Green glare: 824 min.

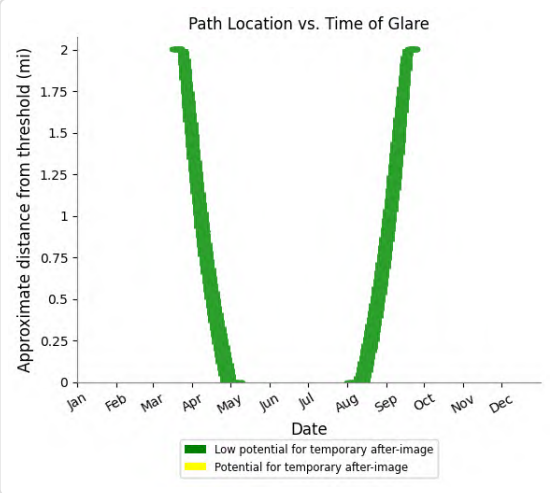








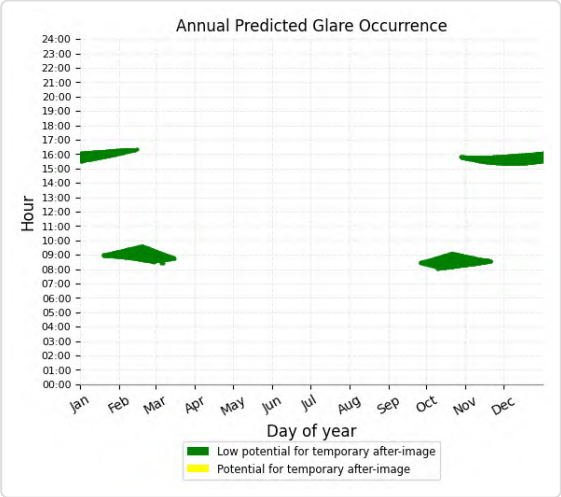


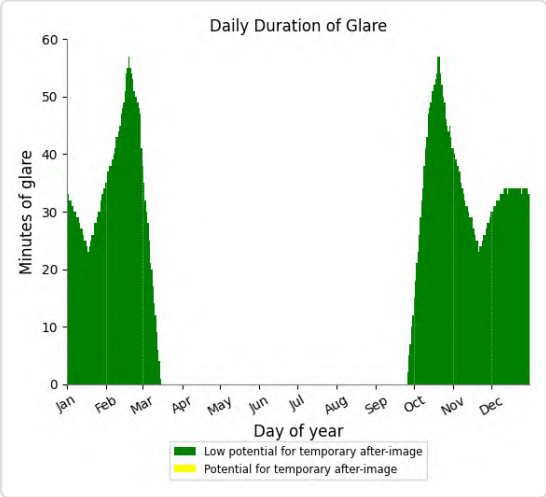


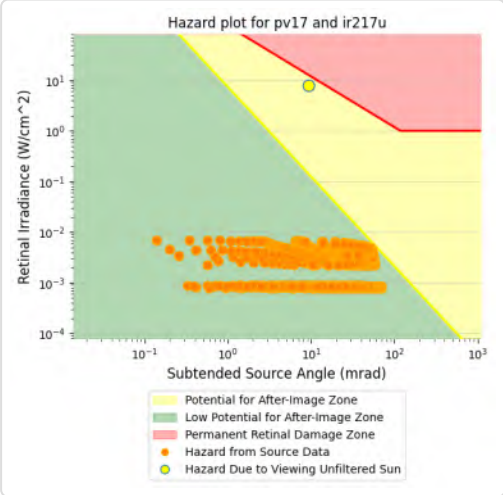
PV17 and FP: IR217u

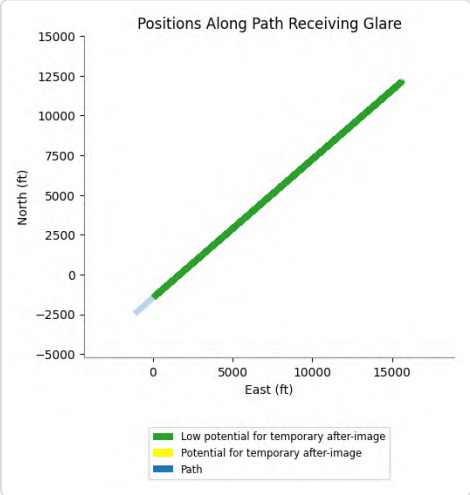
Yellow glare: none

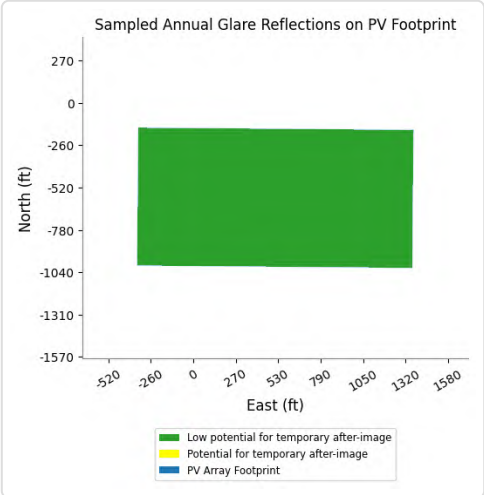
Green glare: 5,805 min.

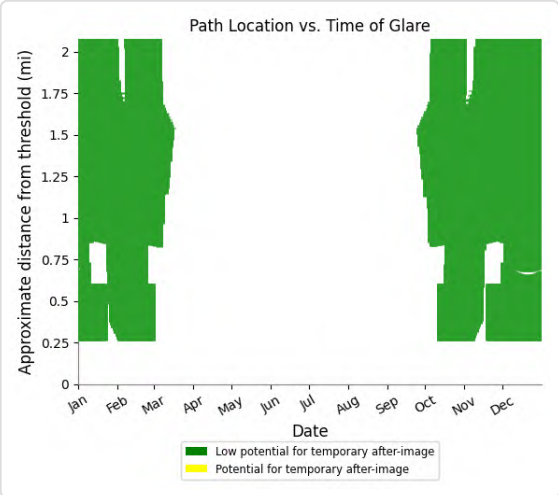








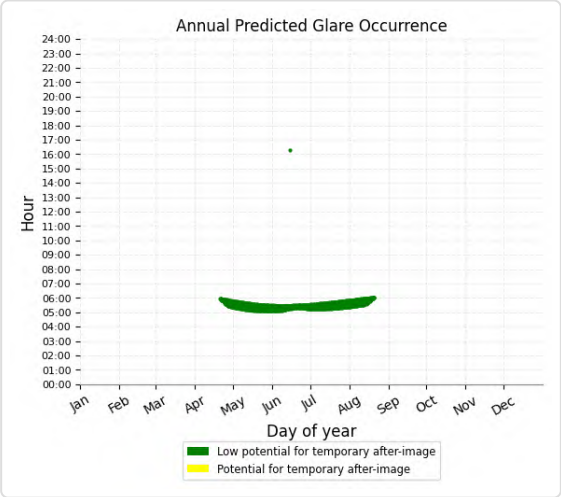


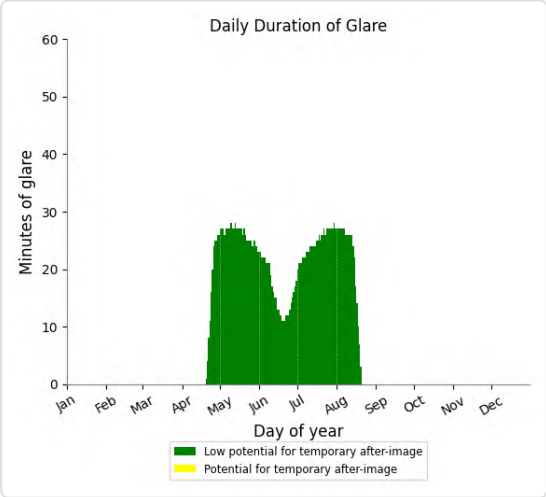


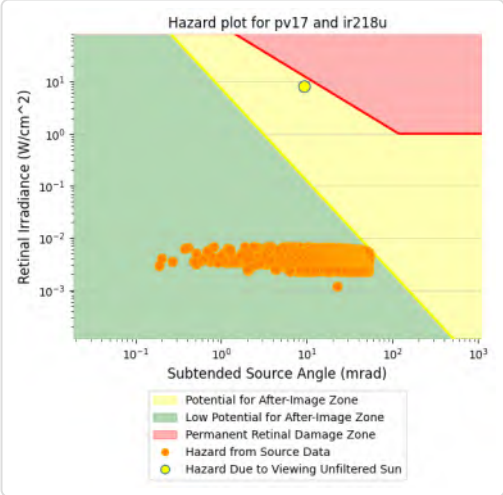
PV17 and FP: IR218u

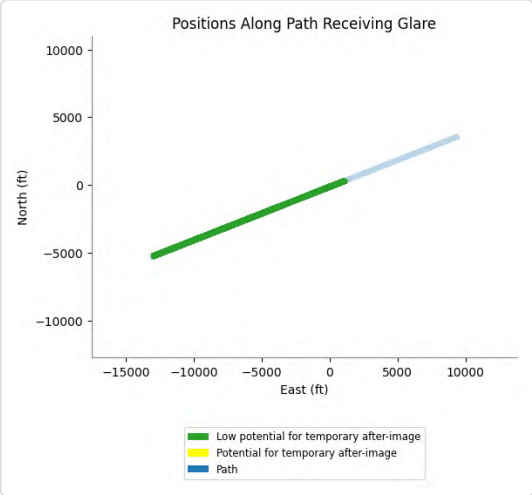
Yellow glare: none

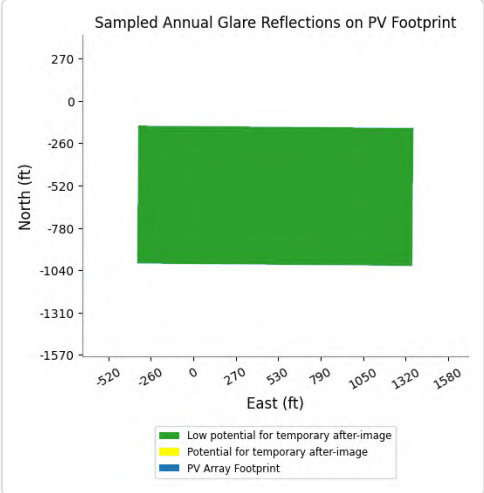
Green glare: 2,689 min.

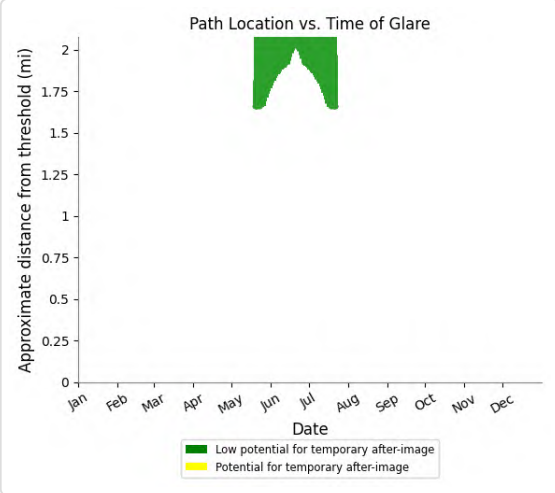








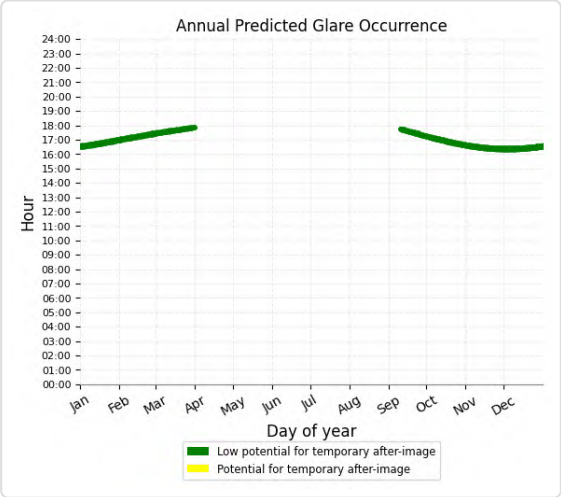


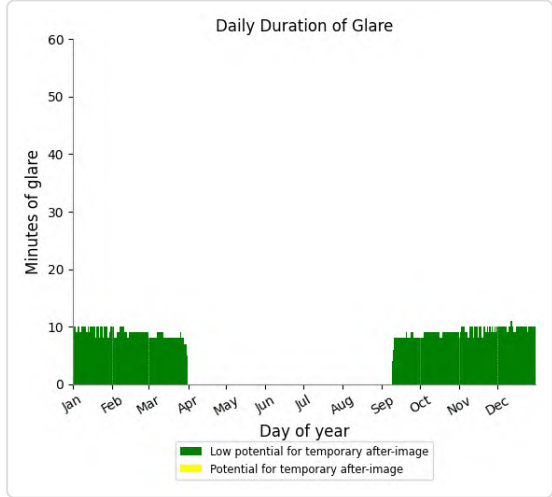


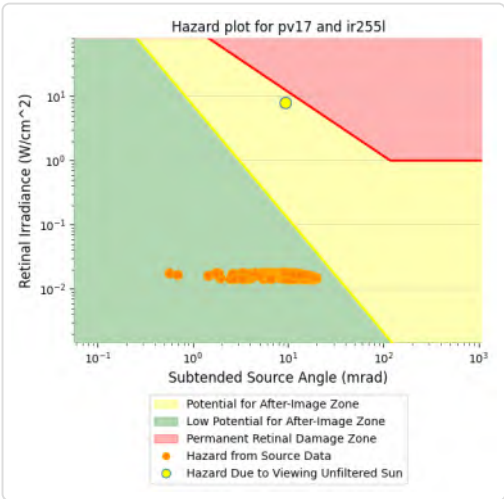
PV17 and FP: IR255l

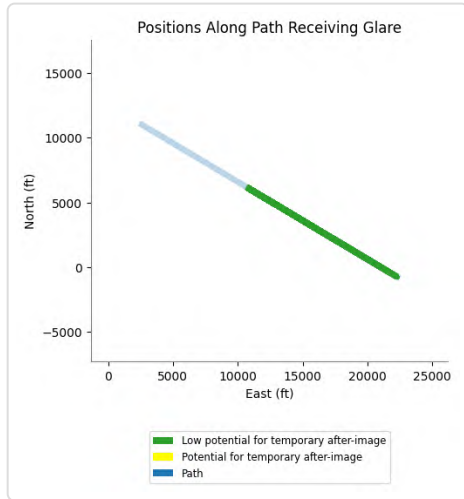
Yellow glare: none

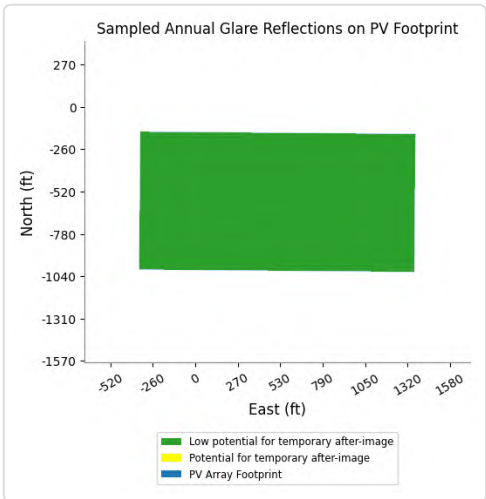
Green glare: 1,845 min.

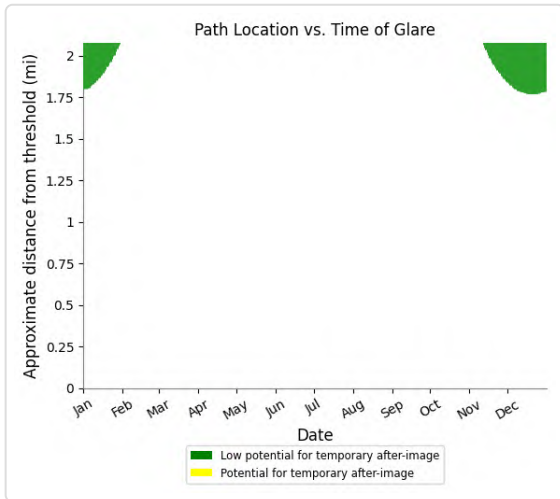








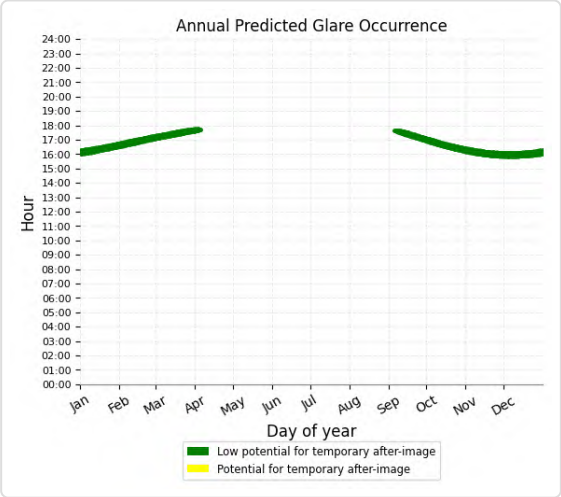


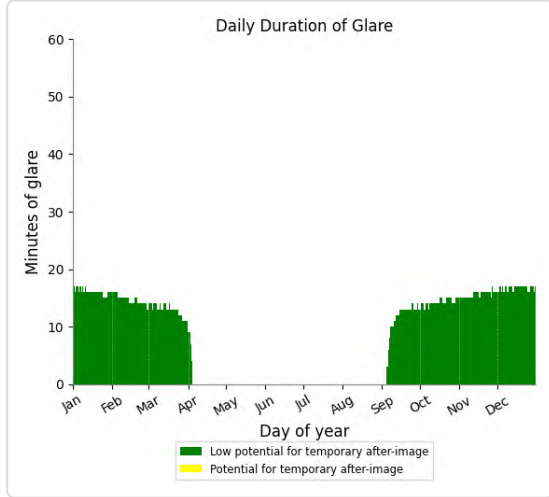


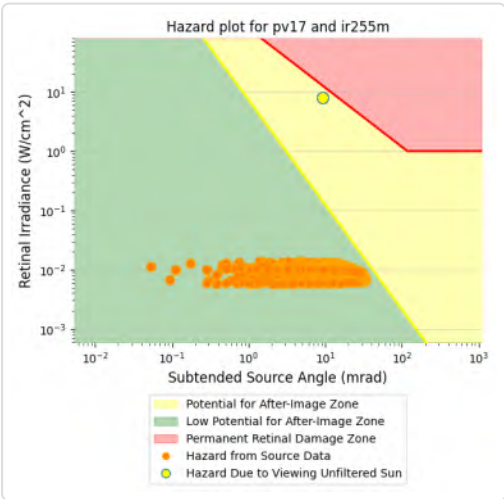
PV17 and FP: IR255m

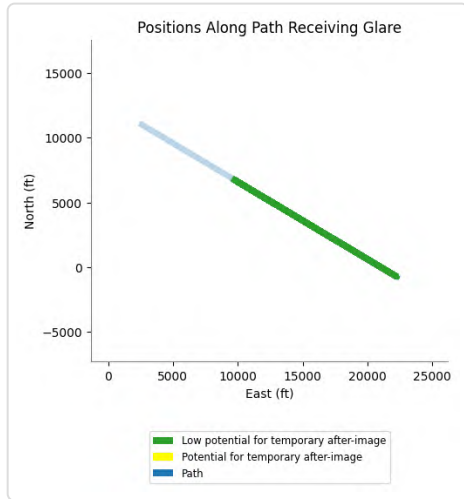
Yellow glare: none

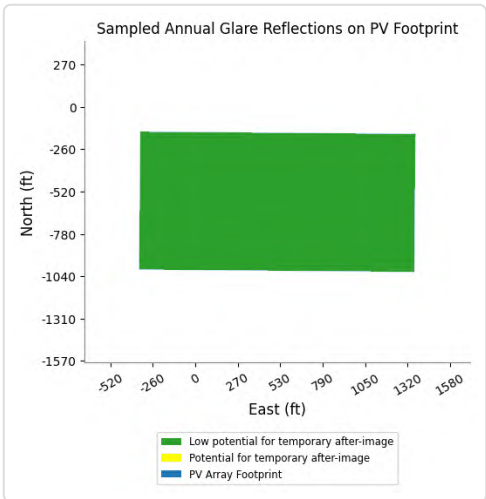
Green glare: 3,084 min.

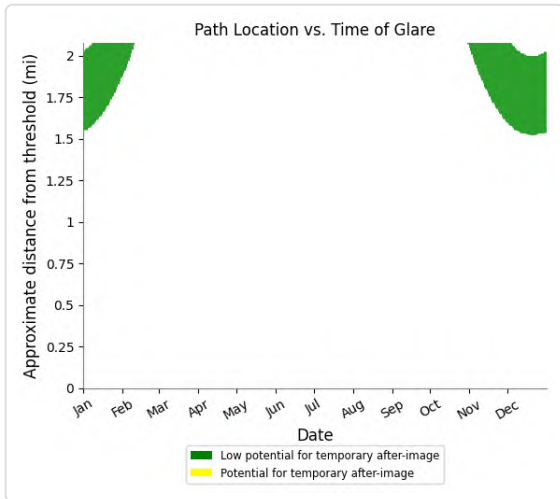








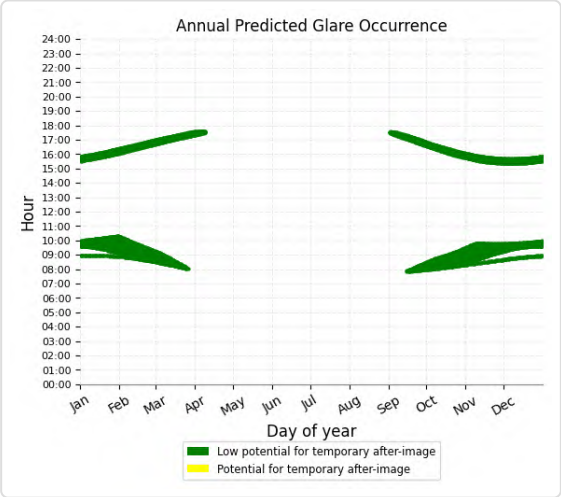


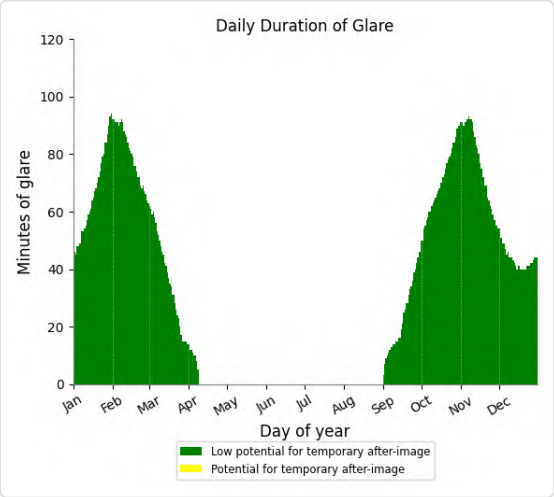


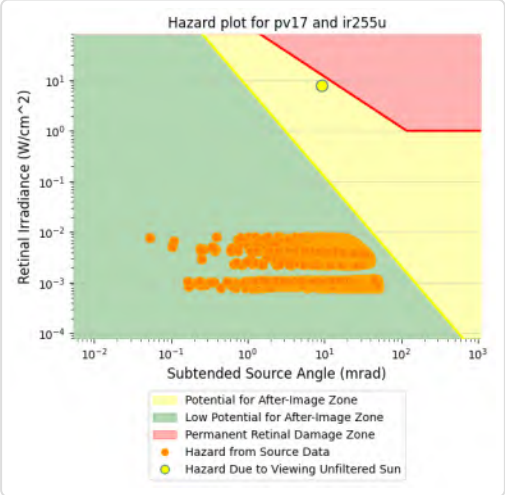
PV17 and FP: IR255u

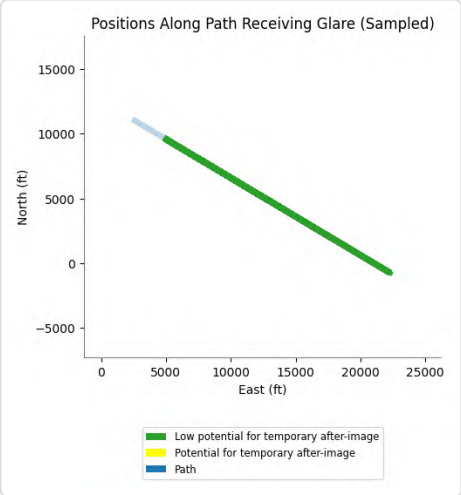
Yellow glare: none

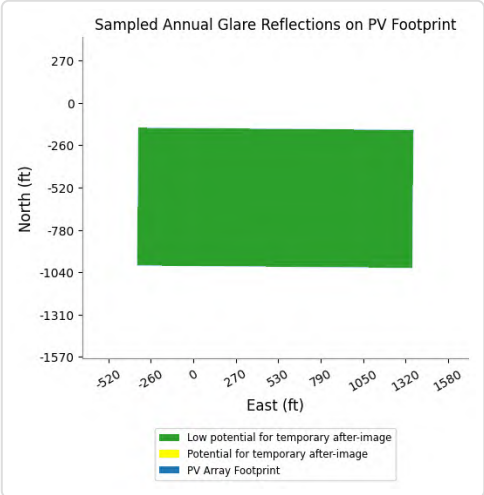
Green glare: 12,126 min.

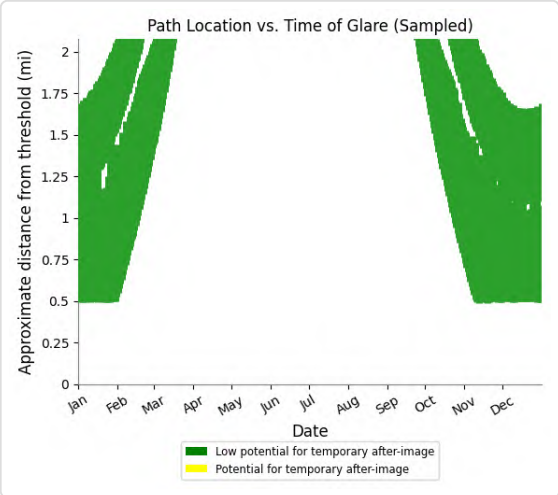








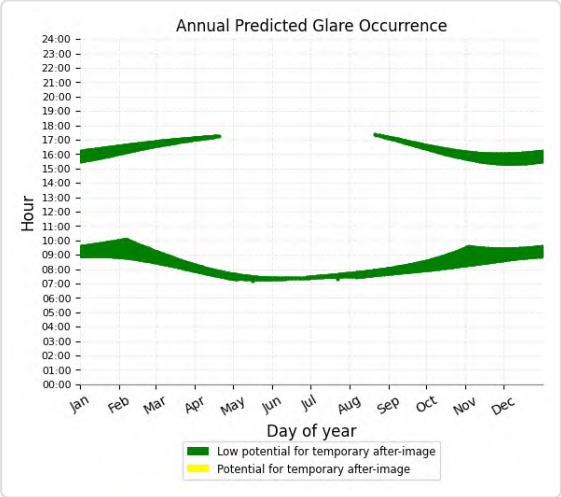


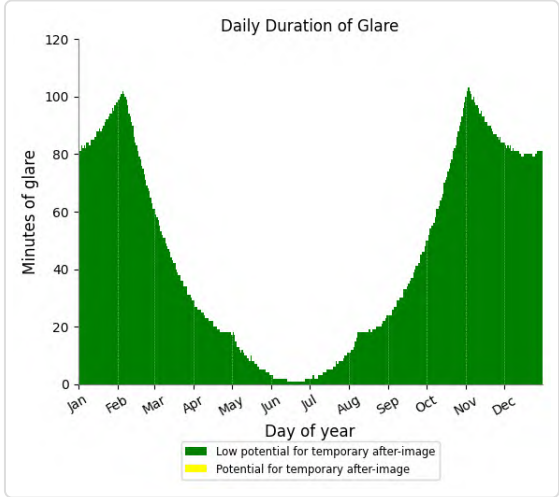


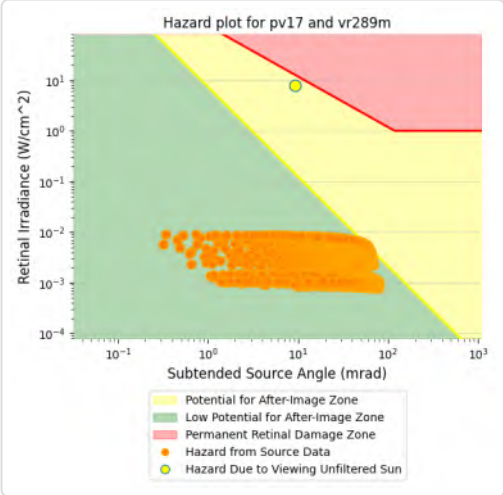
PV17 and FP: VR289m

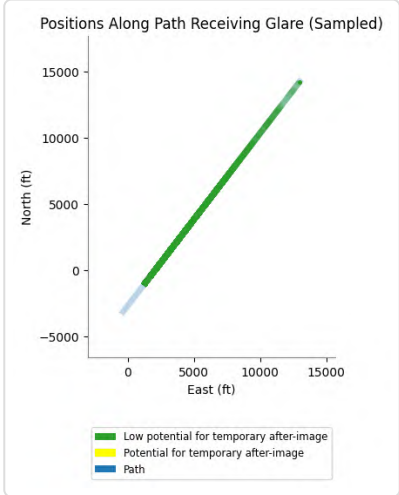
Yellow glare: none

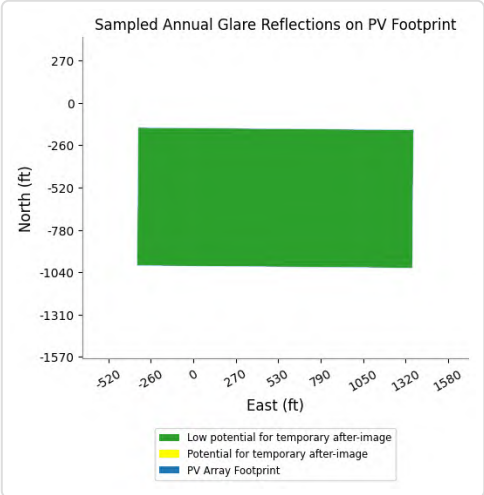
Green glare: 16,745 min.

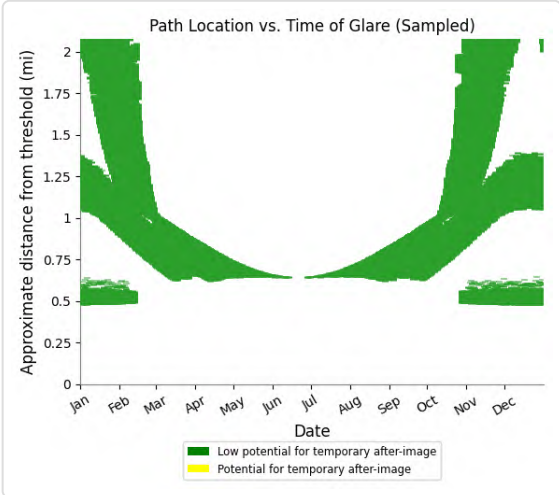








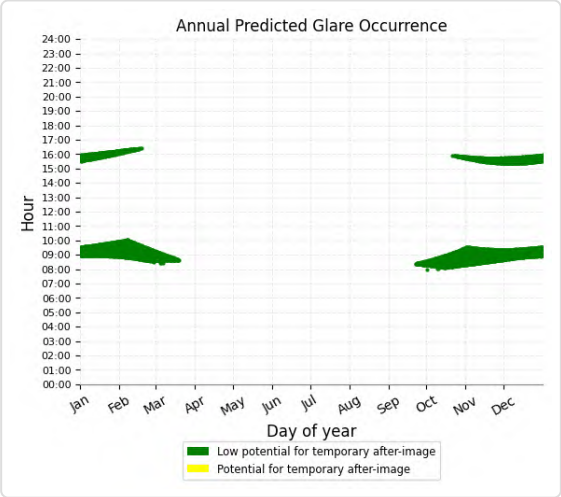


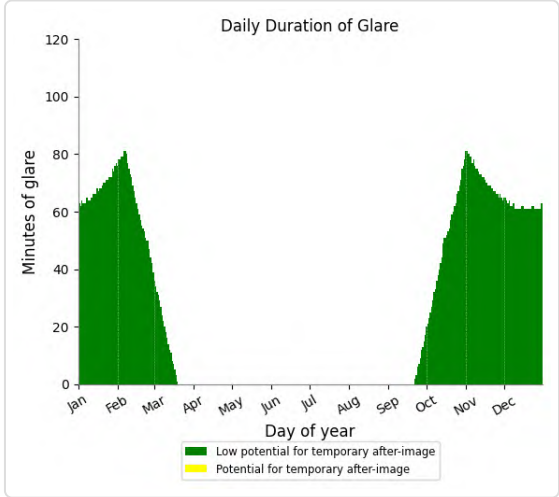


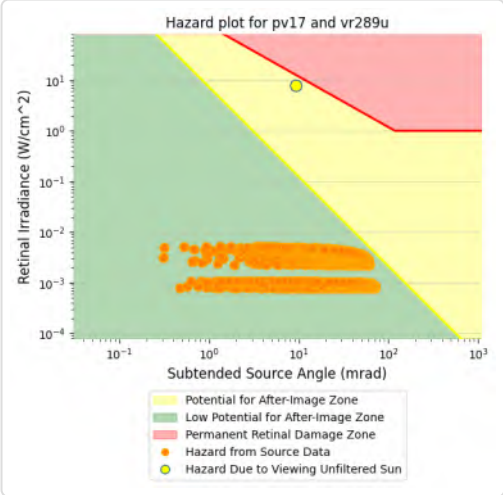
PV17 and FP: VR289u

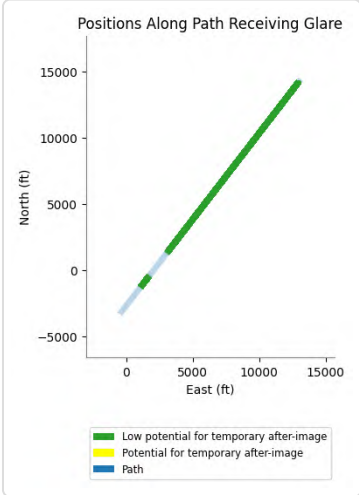
Yellow glare: none

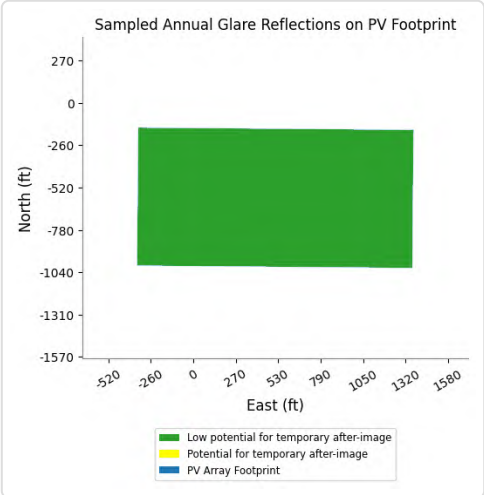
Green glare: 9,990 min.

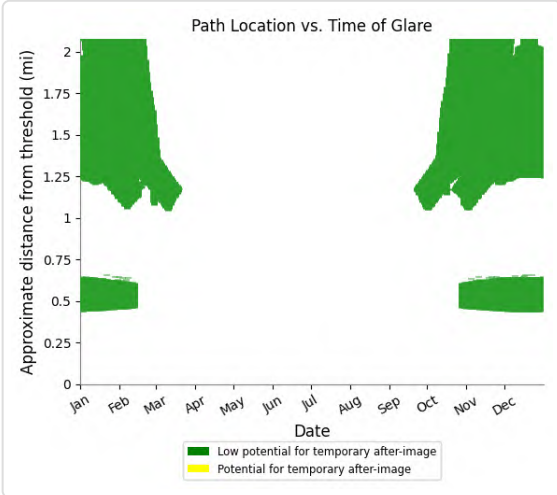










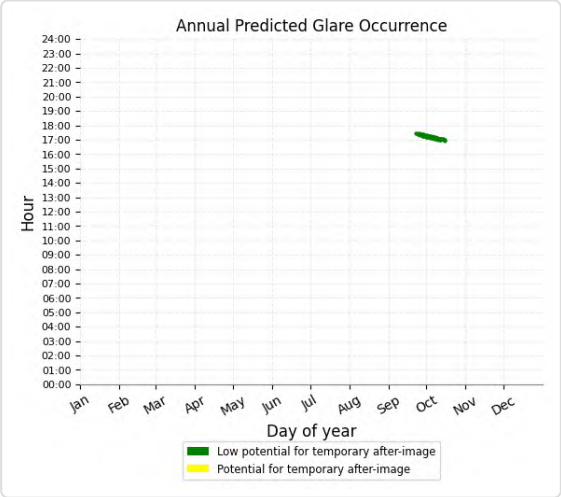


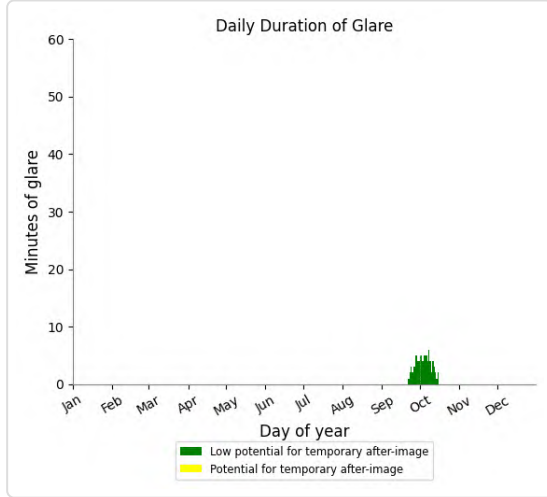
PV17 and FP: CN645

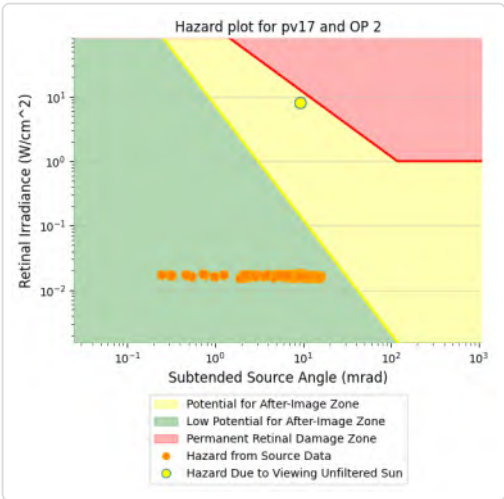
No glare found

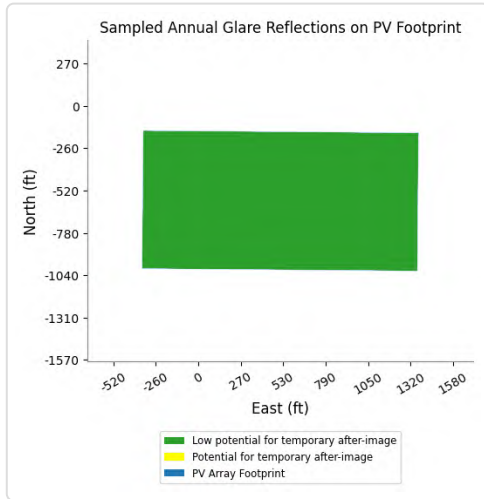
PV17 and OP 2

Yellow glare: none
Green glare: 84 min.









PV17 and OP 1

No glare found

PV17 and OP 3

No glare found

PV17 and OP 4

No glare found

PV17 and OP 5

No glare found

PV17 and OP 6

No glare found

PV17 and OP 7

No glare found

PV17 and OP 8

No glare found

PV17 and OP 9

No glare found

PV17 and OP 10

No glare found

PV17 and OP 11

No glare found

PV17 and OP 12

No glare found

PV17 and OP 13

No glare found

PV17 and OP 14

No glare found

PV17 and OP 15

No glare found

PV17 and OP 16

No glare found

PV17 and OP 17

No glare found

PV17 and OP 18

No glare found

PV17 and OP 19

No glare found

PV: PV18 potential temporary after-image

Receptor results ordered by category of glare

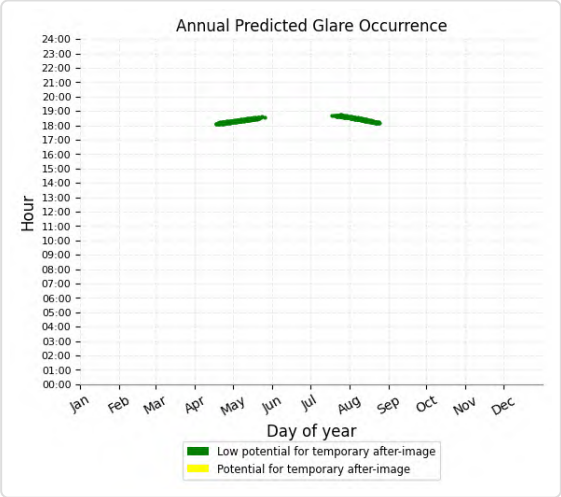
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd A	375	6.2	0	0.0
AirportRd B	367	6.1	0	0.0
Race Track	514	8.6	0	0.0
SR177 A	819	13.7	0	0.0
SR177 B	825	13.8	0	0.0
SR177 C	482	8.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	31,205	520.1	653	10.9
IR218l	19,764	329.4	5,746	95.8
VR289l	39,855	664.2	3,470	57.8
VR296l	14,759	246.0	109	1.8
VR296m	20,781	346.4	75	1.2
VR296u	9,341	155.7	14	0.2
CN6423	904	15.1	0	0.0
IR217m	11,570	192.8	0	0.0
IR217u	6,530	108.8	0	0.0
IR218m	6,480	108.0	0	0.0
IR218u	3,070	51.2	0	0.0
IR255l	1,840	30.7	0	0.0
IR255m	3,292	54.9	0	0.0
IR255u	10,340	172.3	0	0.0
VR289m	16,209	270.1	0	0.0
VR289u	10,749	179.2	0	0.0
CN645	0	0.0	0	0.0
OP 2	132	2.2	0	0.0
OP 4	25	0.4	0	0.0

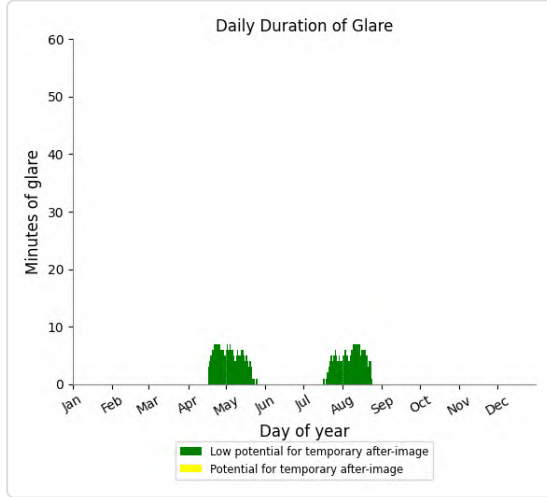
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 1	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

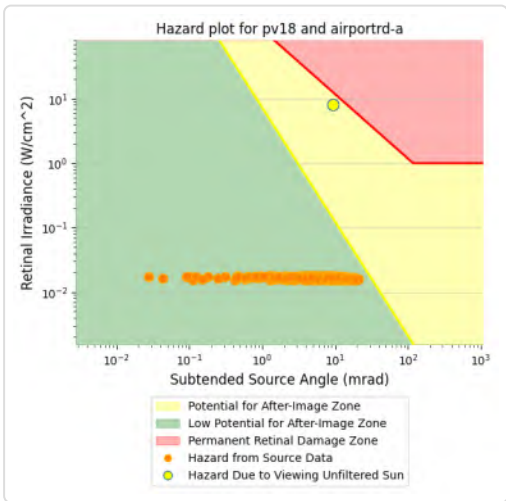
PV18 and Route: AirportRd A

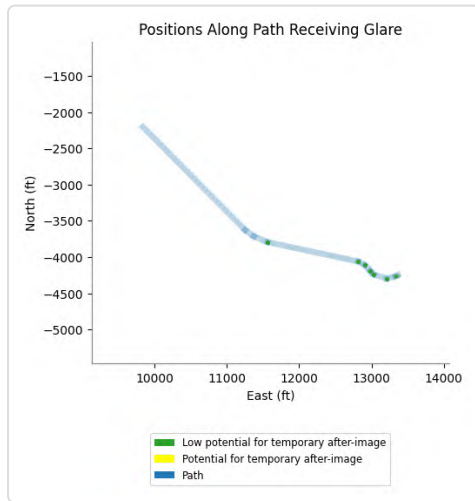
Yellow glare: none

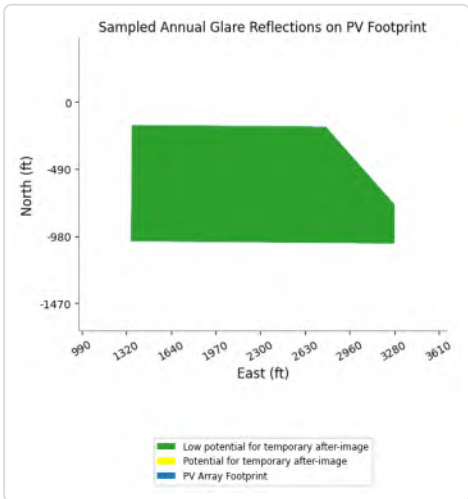
Green glare: 375 min.







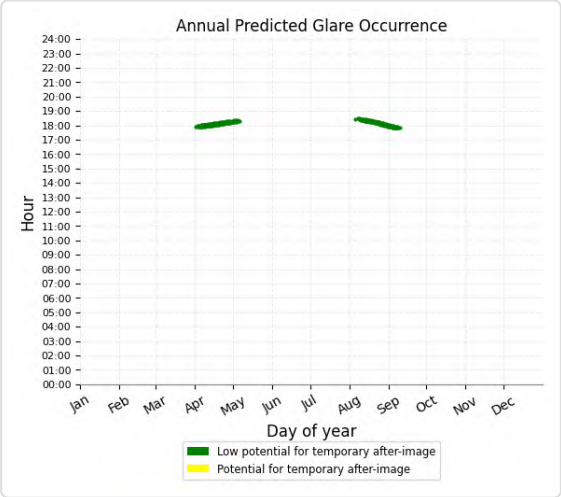


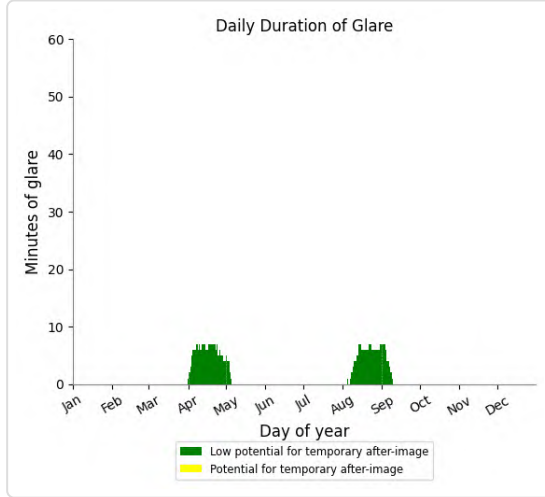


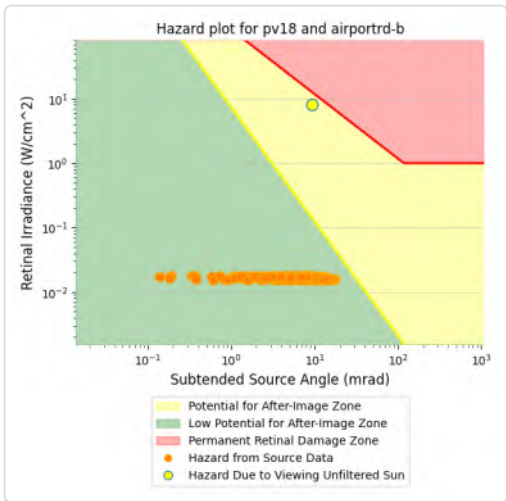
PV18 and Route: AirportRd B

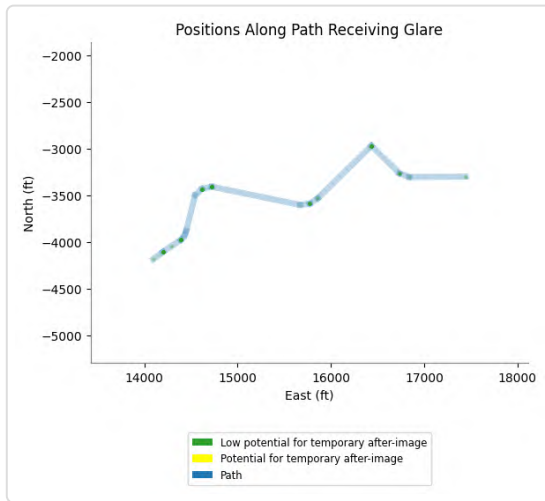
Yellow glare: none

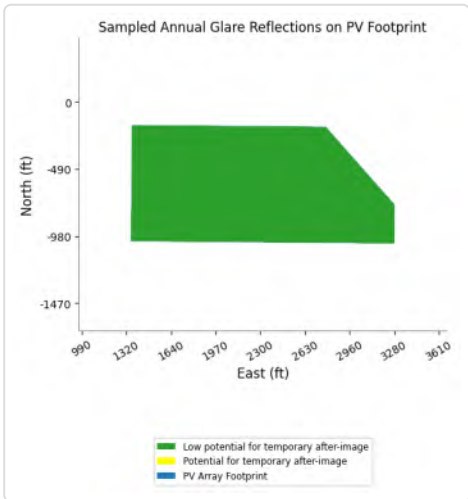
Green glare: 367 min.







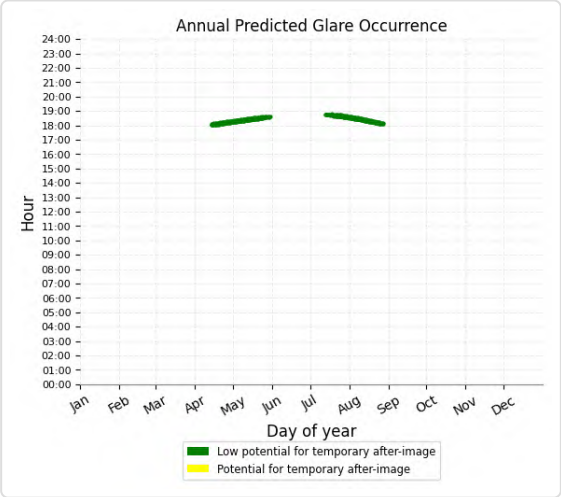


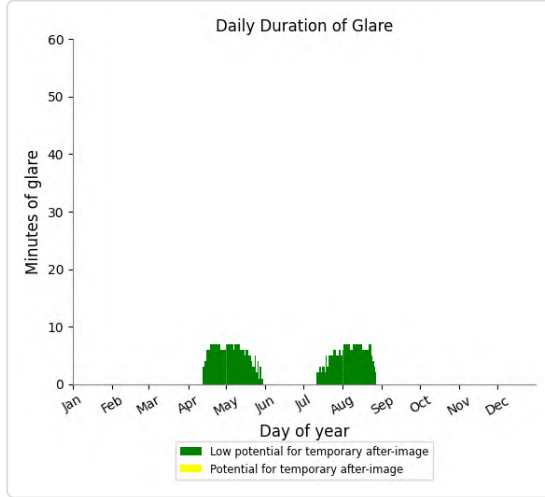


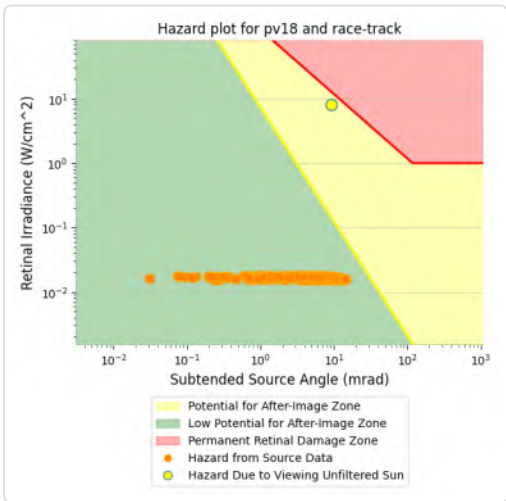
PV18 and Route: Race Track

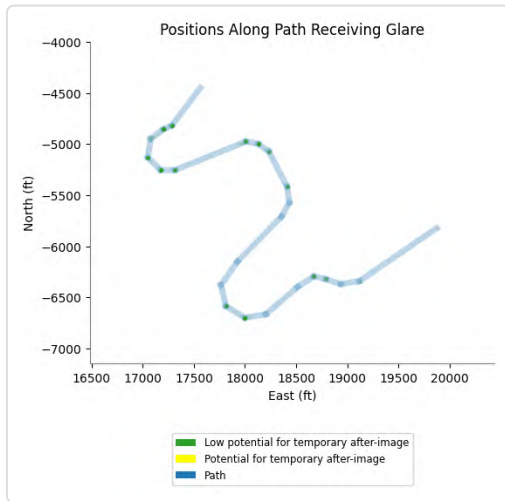
Yellow glare: none

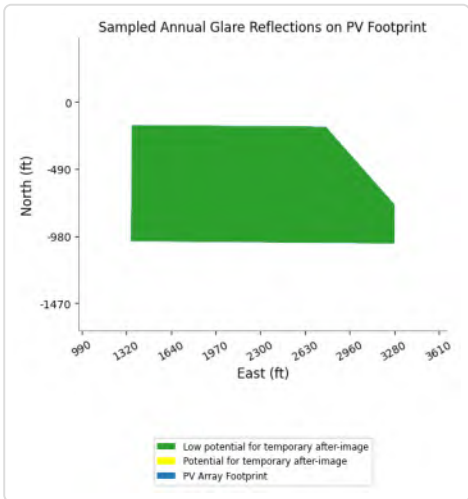
Green glare: 514 min.







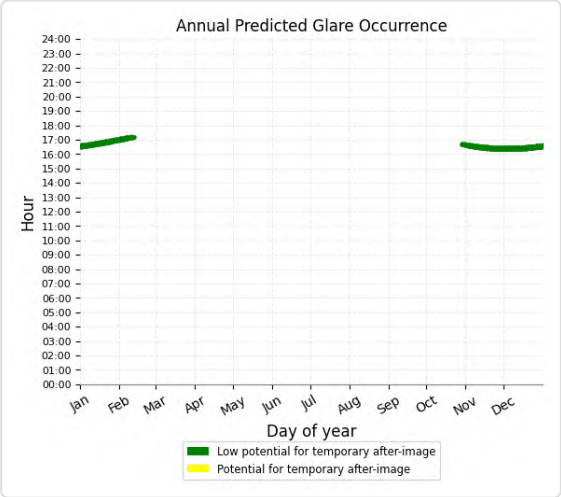


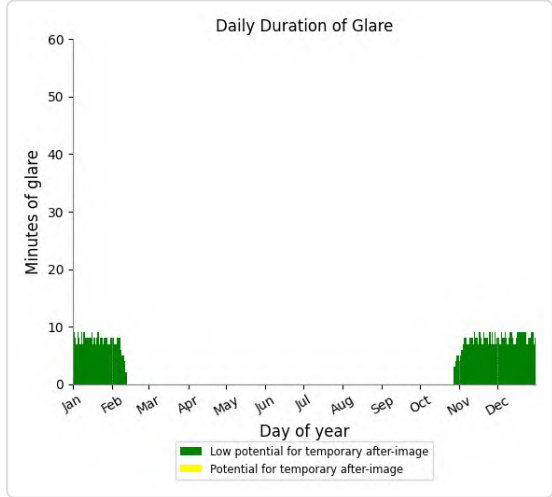


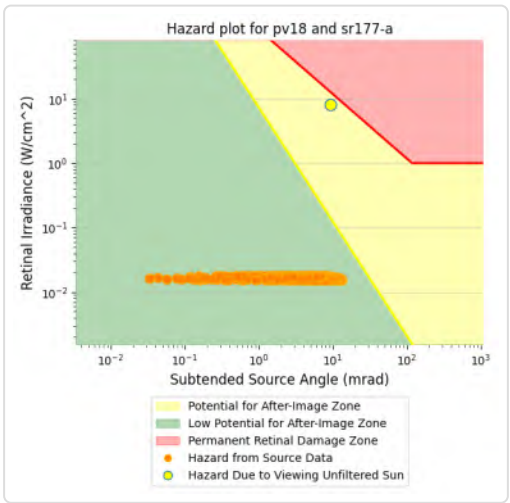
PV18 and Route: SR177 A

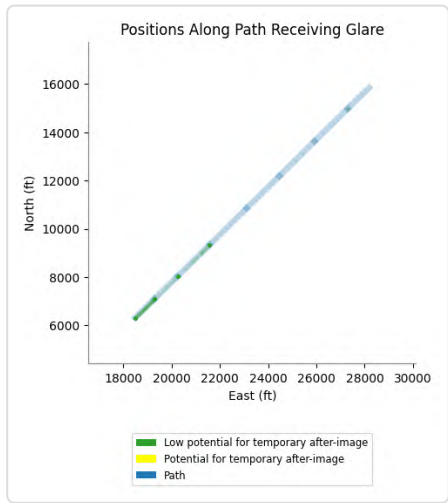
Yellow glare: none

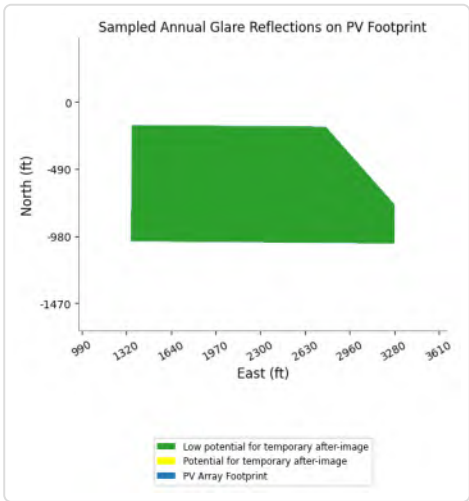
Green glare: 819 min.







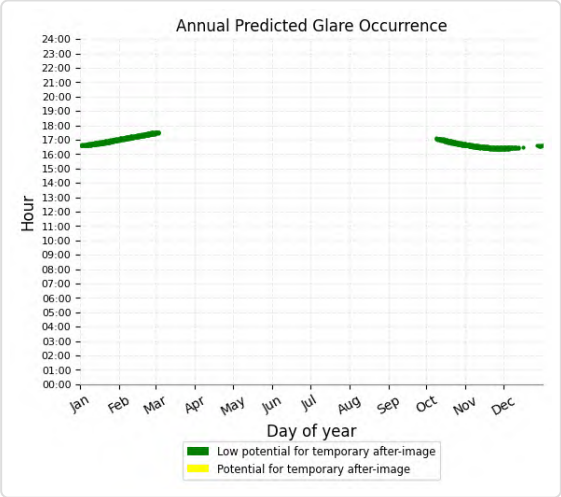


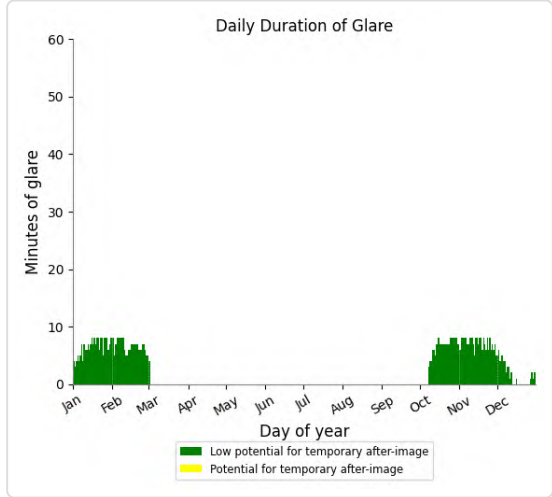


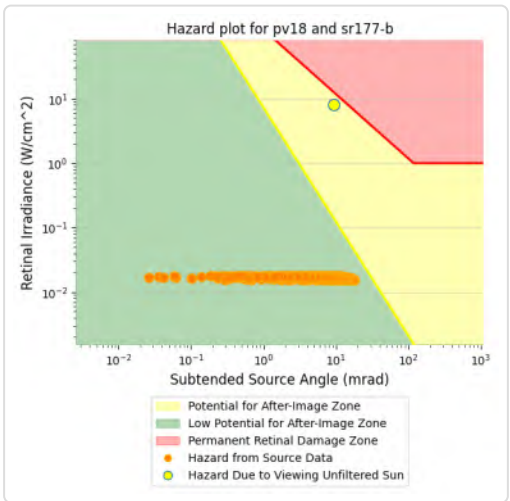
PV18 and Route: SR177 B

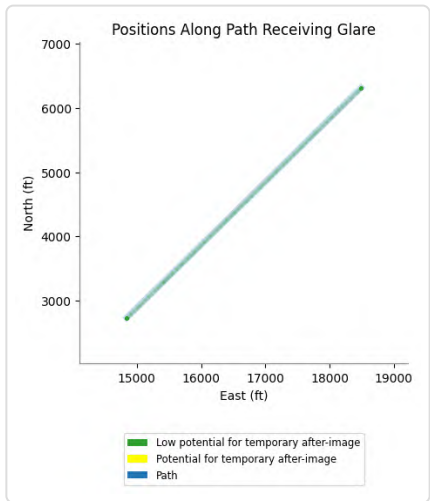
Yellow glare: none

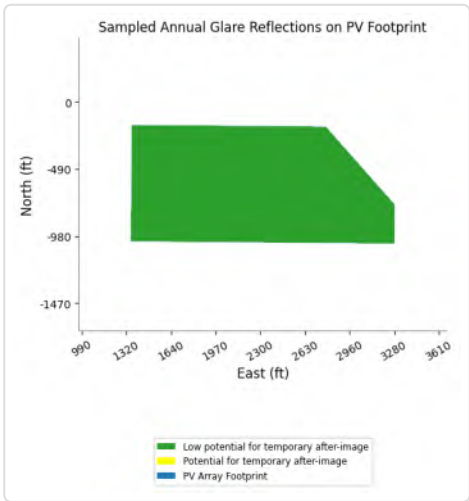
Green glare: 825 min.







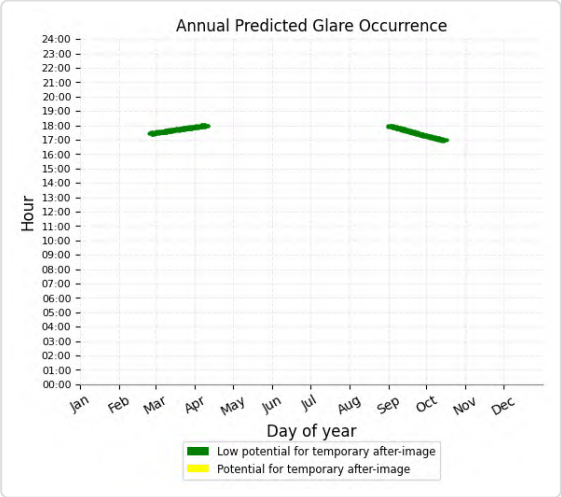


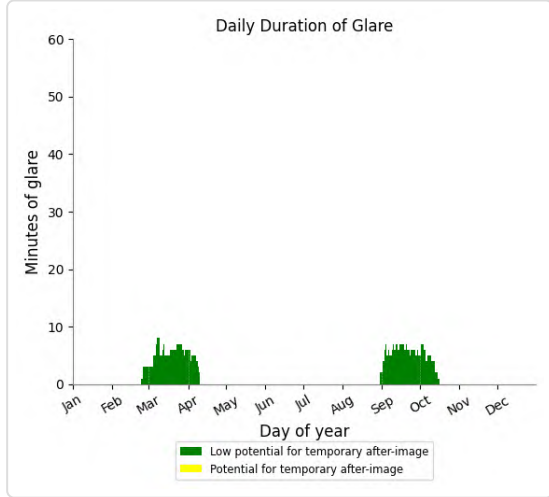


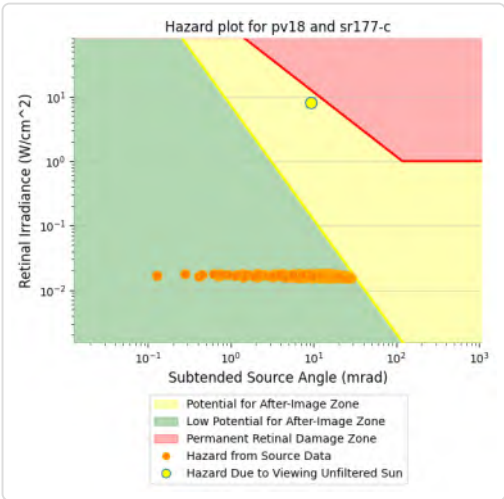
PV18 and Route: SR177 C

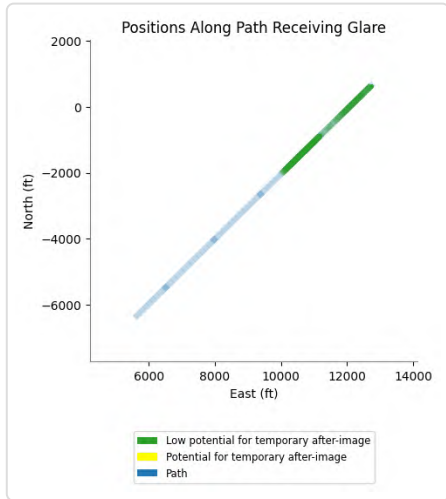
Yellow glare: none

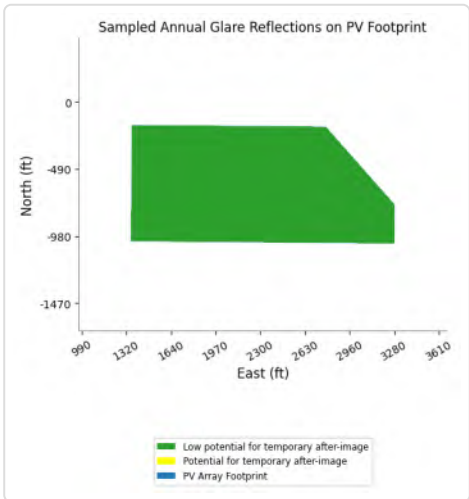
Green glare: 482 min.











PV18 and Route: EagleMtnRd A

No glare found

PV18 and Route: EagleMtnRd B

No glare found

PV18 and Route: I-10 EB A

No glare found

PV18 and Route: I-10 EB B

No glare found

PV18 and Route: I-10 EB C

No glare found

PV18 and Route: I-10 WB A

No glare found

PV18 and Route: I-10 WB B

No glare found

PV18 and Route: I-10 WB C

No glare found

PV18 and Route: KaiserRd A

No glare found

PV18 and Route: KaiserRd B

No glare found

PV18 and Route: KaiserRd C

No glare found

PV18 and Route: OasisRd

No glare found

PV18 and Route: SR177 D

No glare found

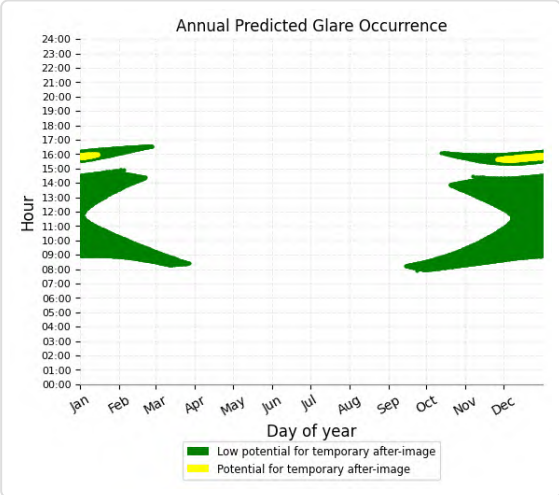
PV18 and Route: SR177 E

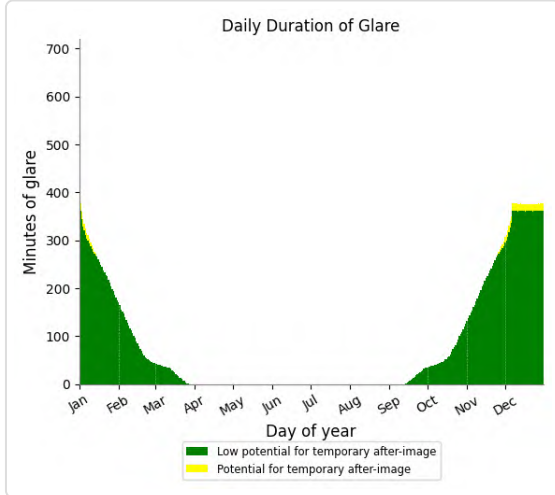
No glare found

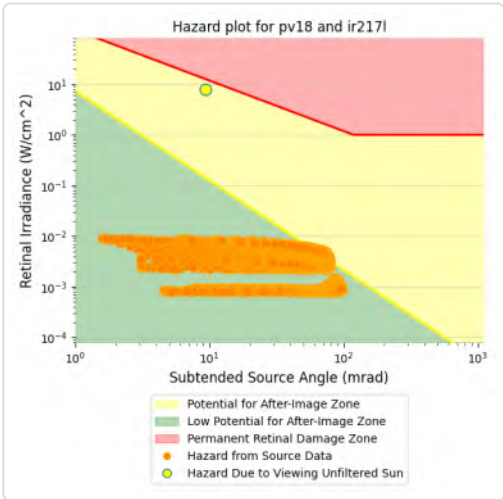
PV18 and FP: IR217I

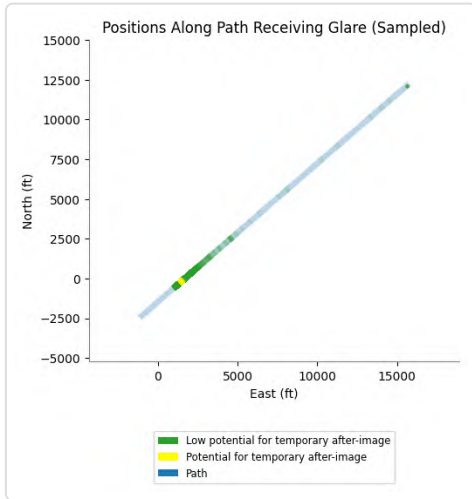
Yellow glare: 653 min.

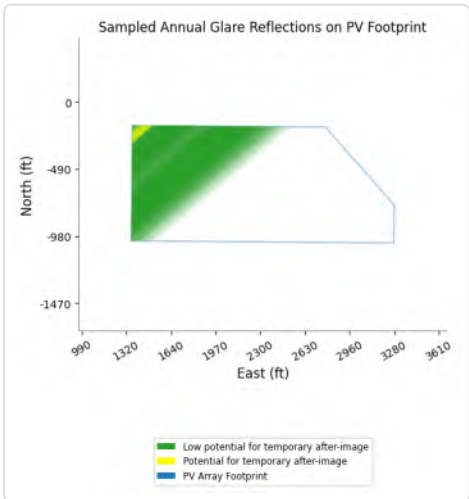
Green glare: 31,205 min.

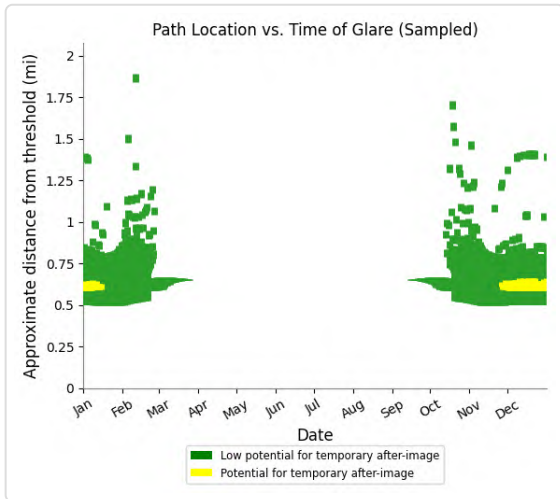








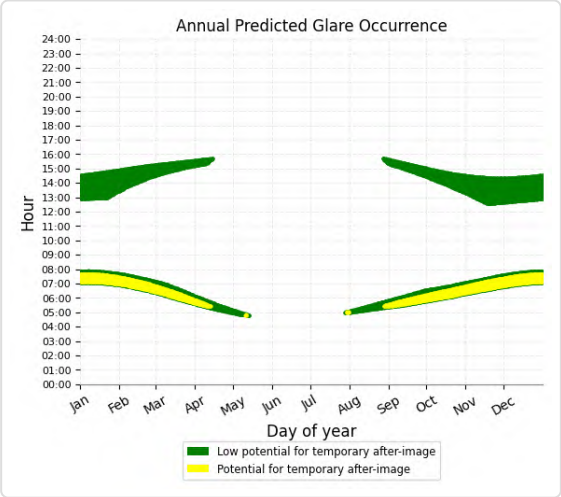


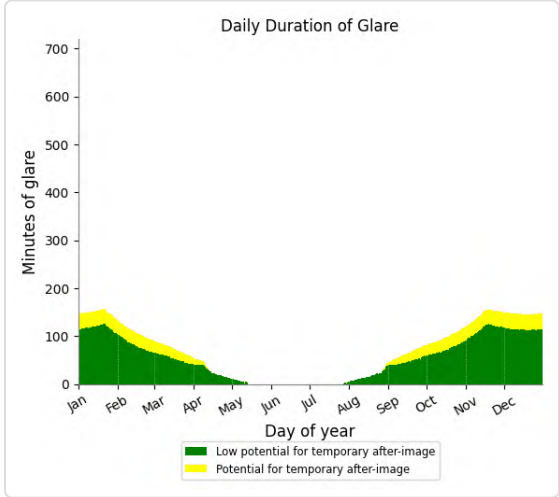


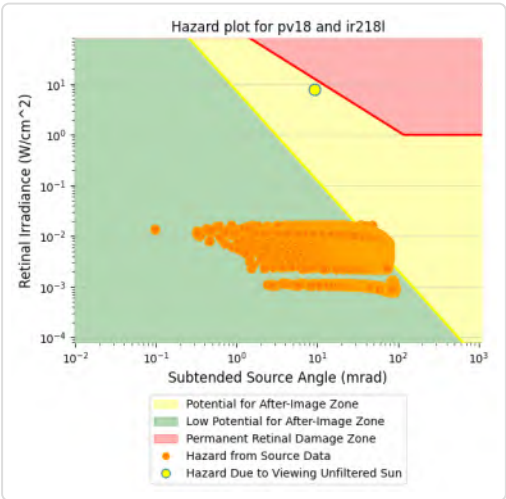
PV18 and FP: IR218I

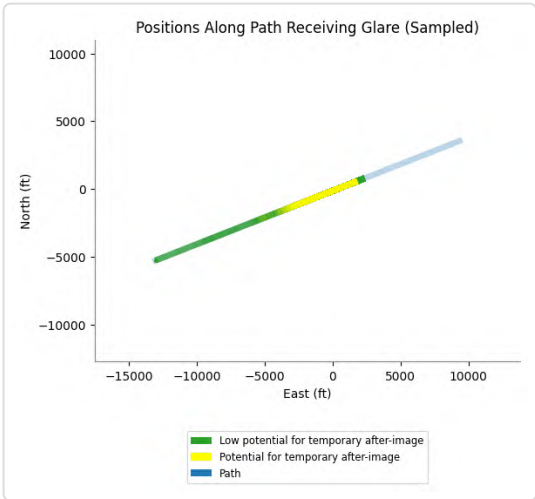
Yellow glare: 5,746 min.

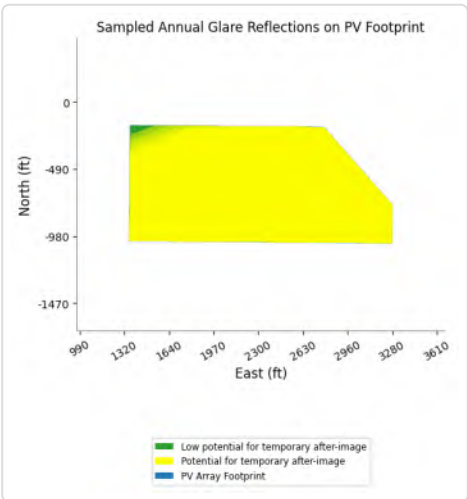
Green glare: 19,764 min.

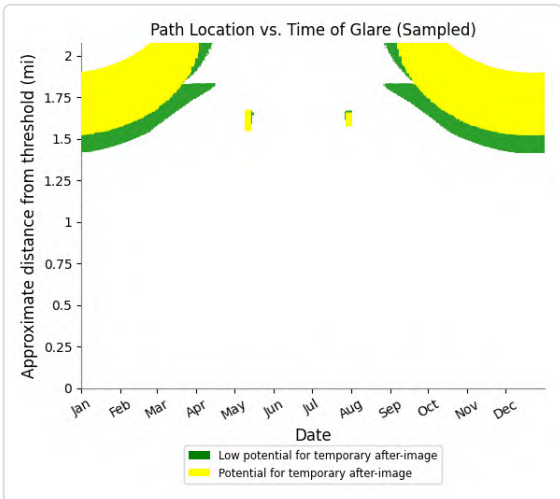








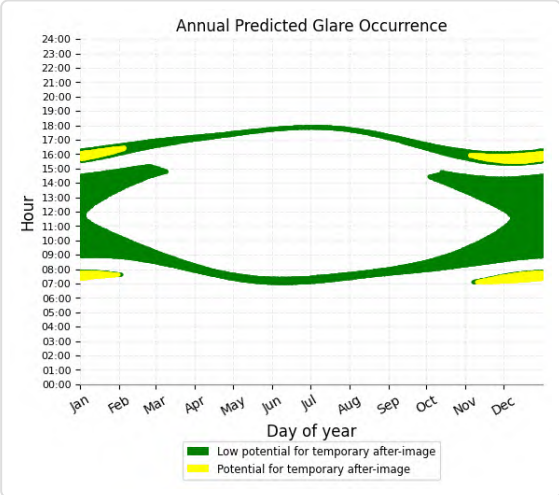


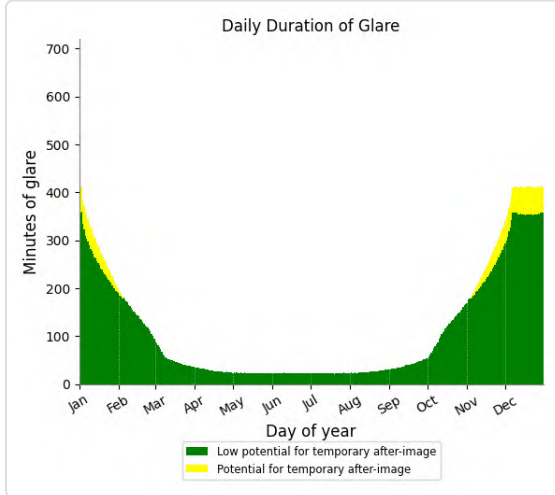


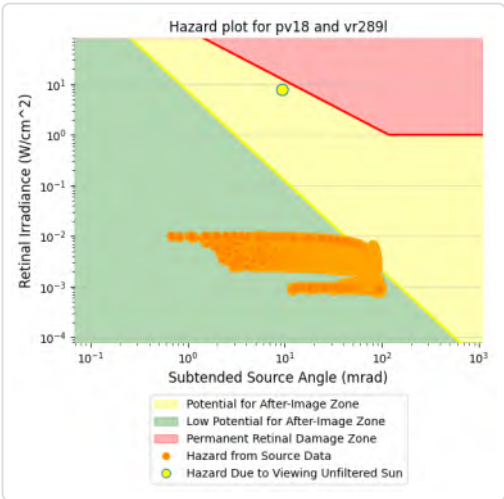
PV18 and FP: VR289I

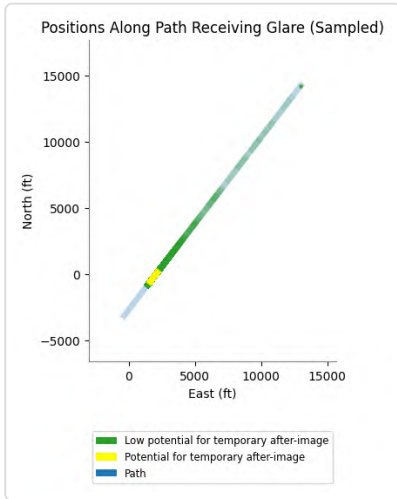
Yellow glare: 3,470 min.

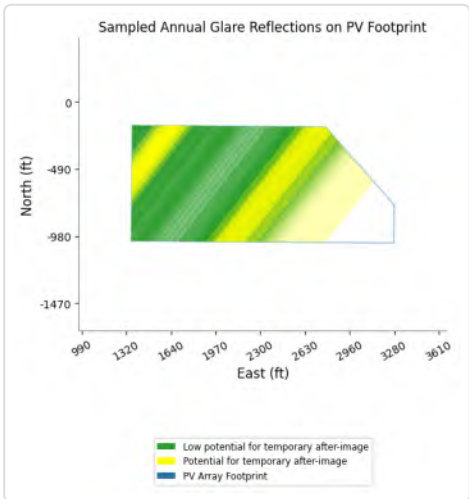
Green glare: 39,855 min.

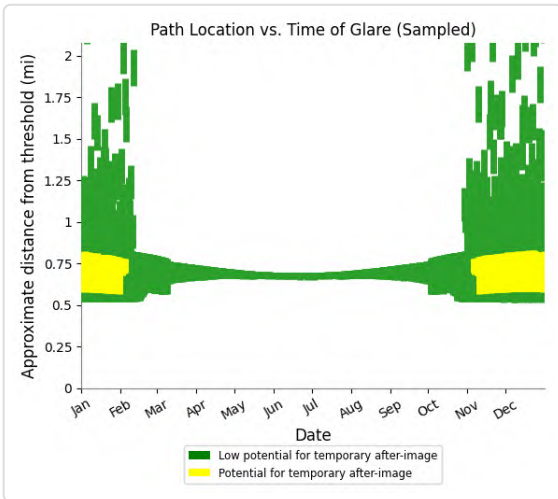








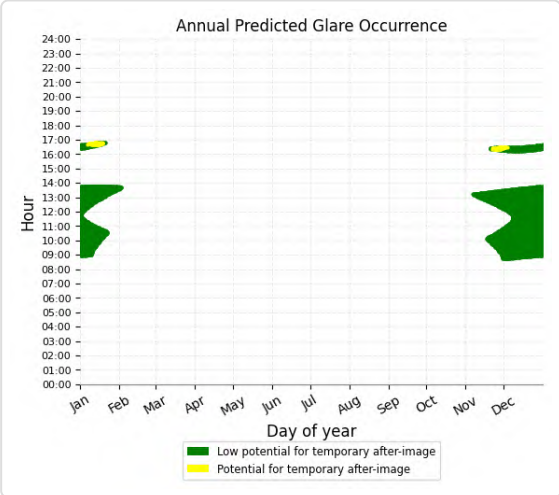


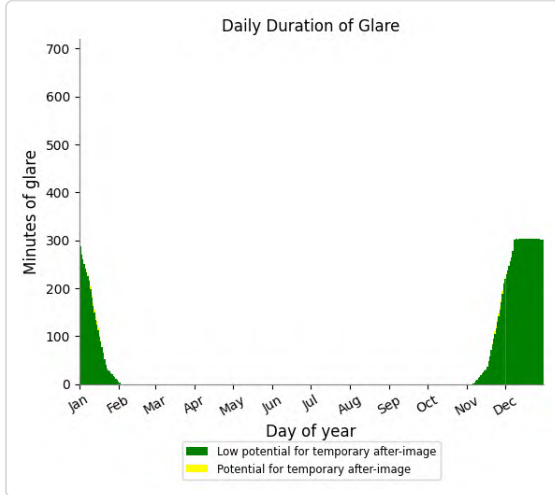


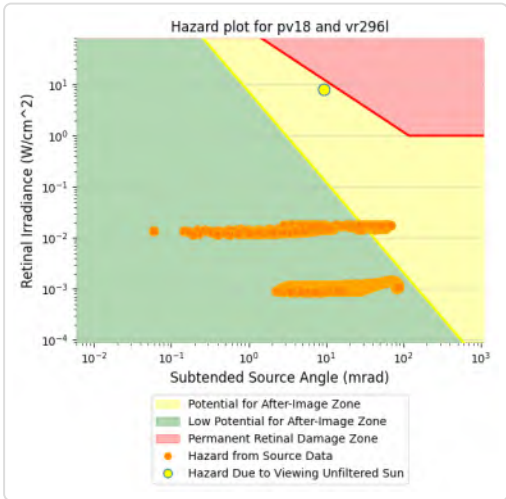
PV18 and FP: VR296l

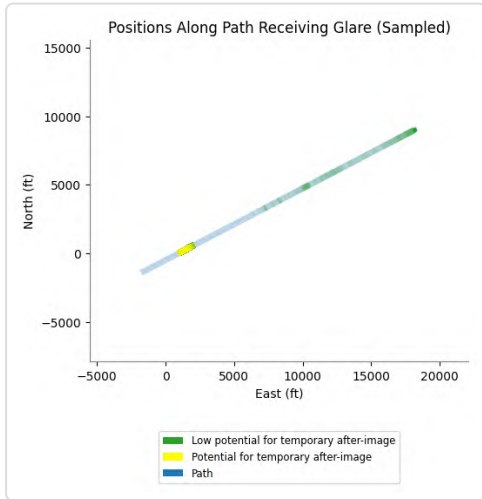
Yellow glare: 109 min.

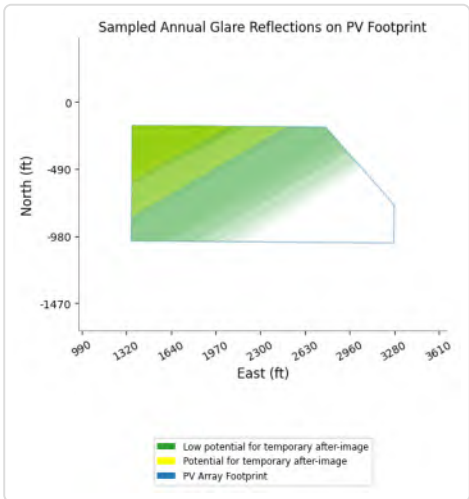
Green glare: 14,759 min.

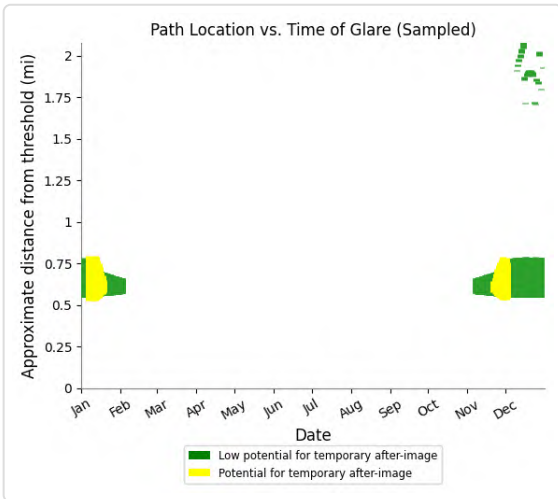








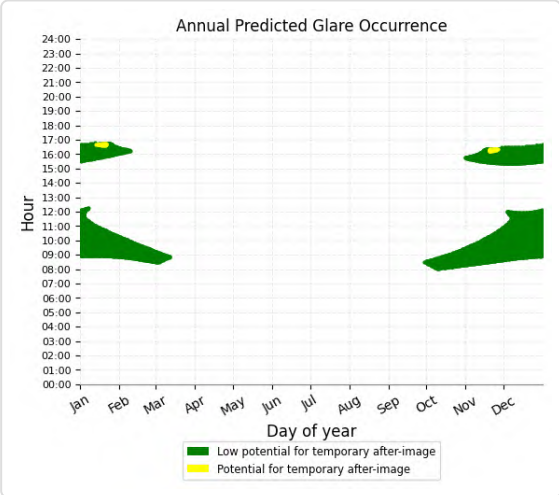


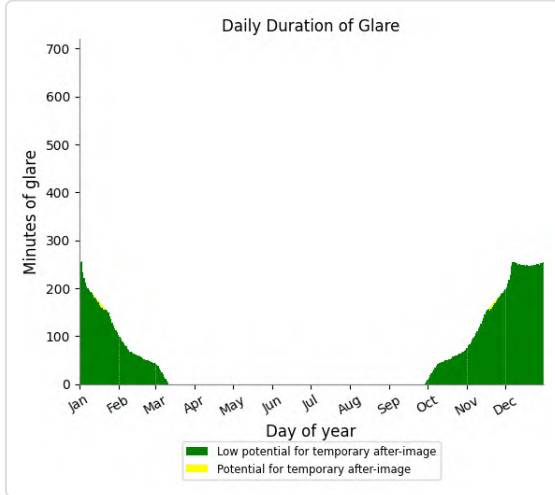


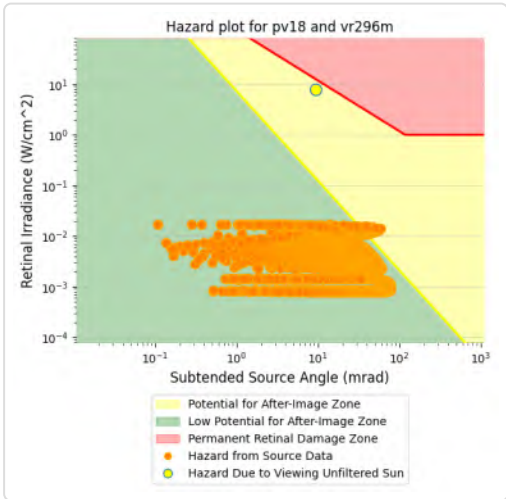
PV18 and FP: VR296m

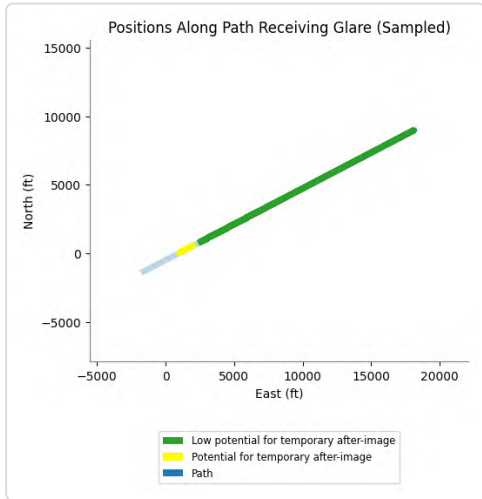
Yellow glare: 75 min.

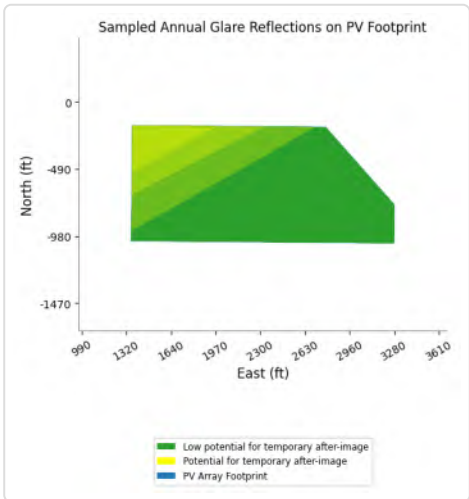
Green glare: 20,781 min.

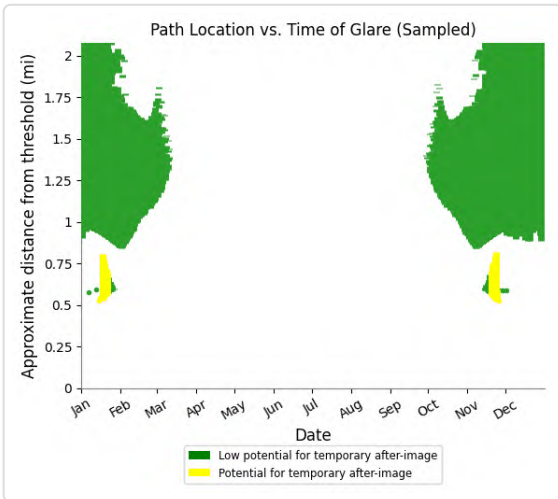








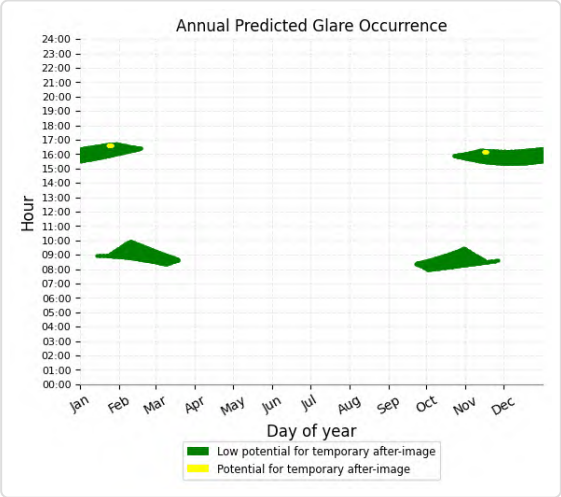


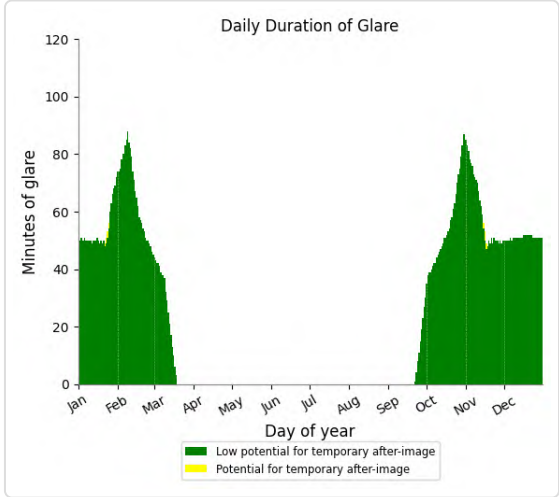


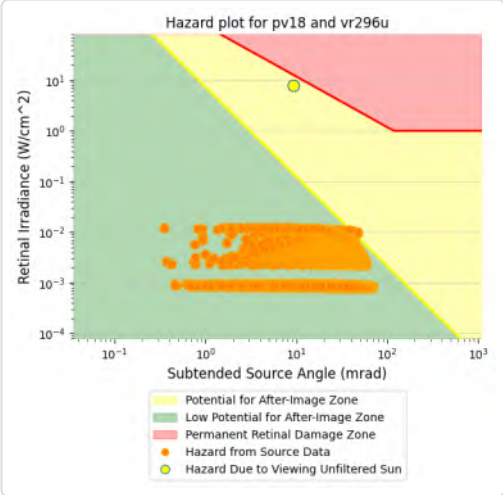
PV18 and FP: VR296u

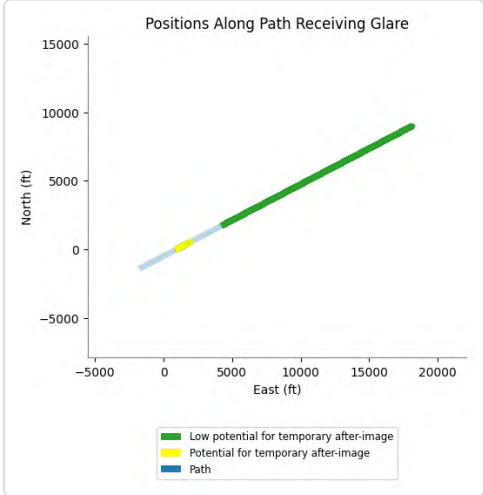
Yellow glare: 14 min.

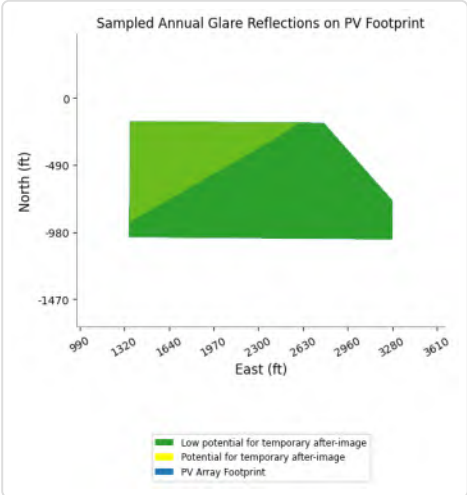
Green glare: 9,341 min.

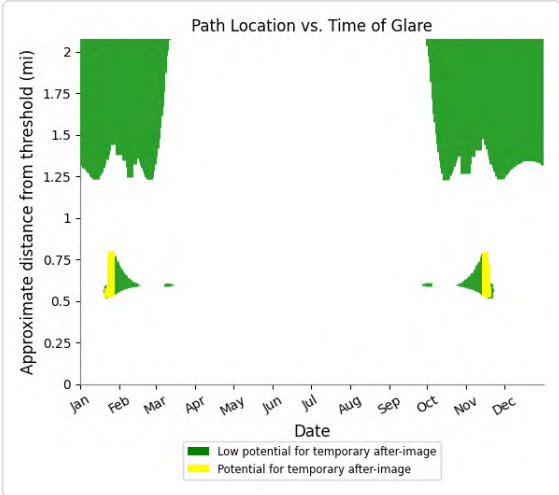








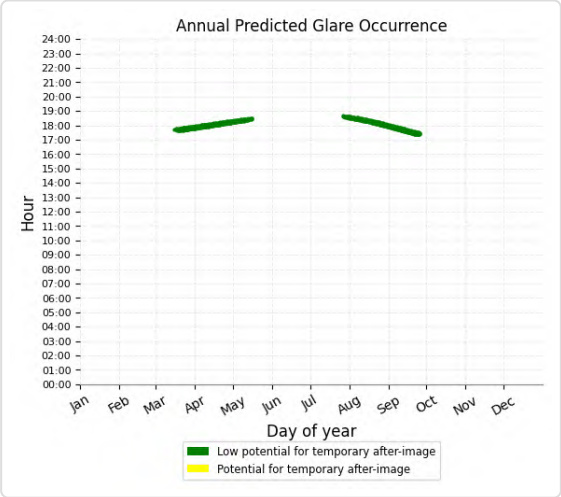


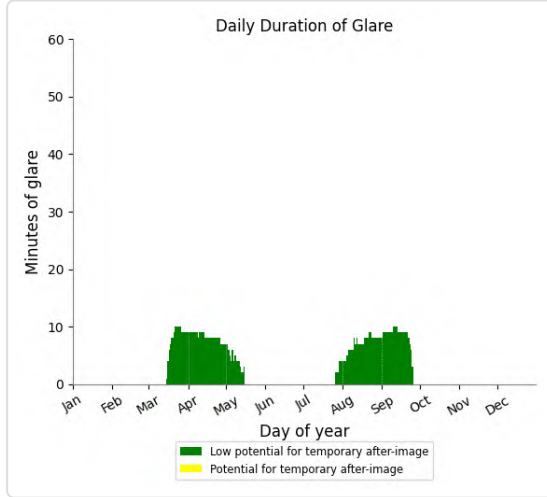


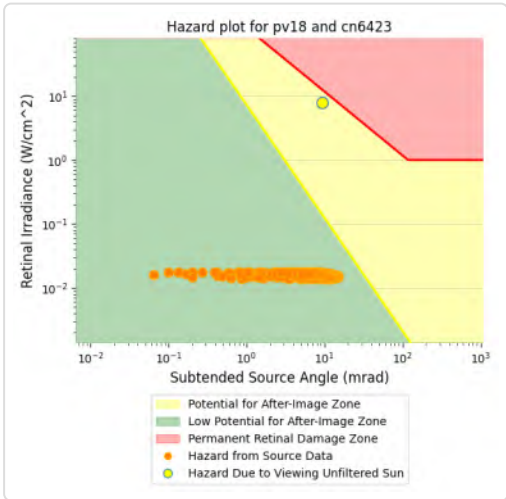
PV18 and FP: CN6423

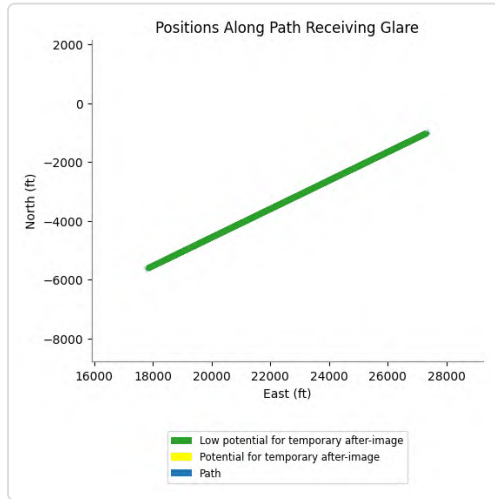
Yellow glare: none

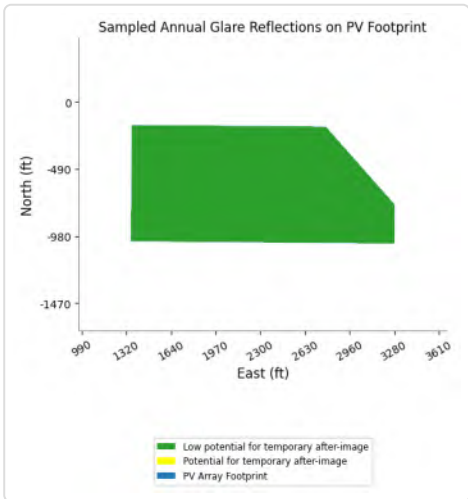
Green glare: 904 min.

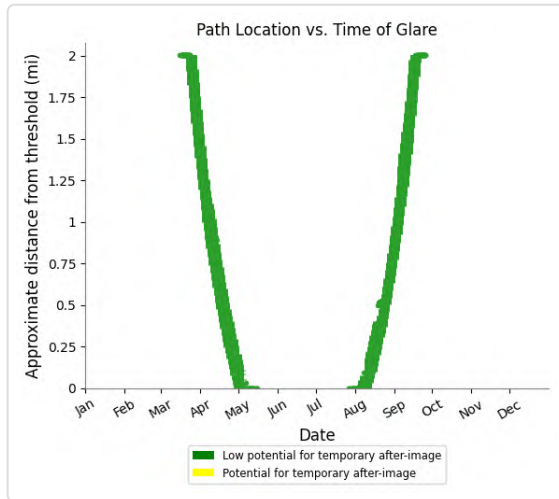








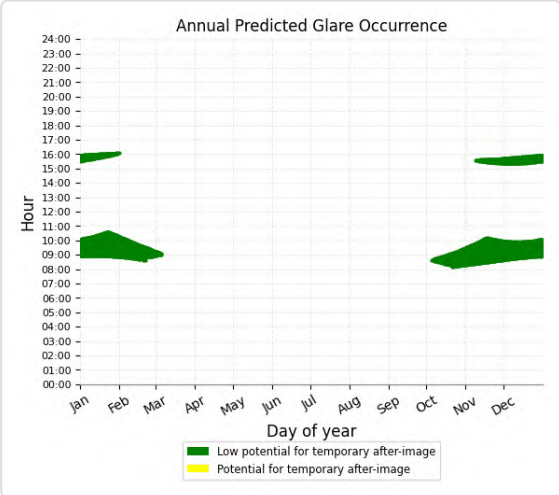


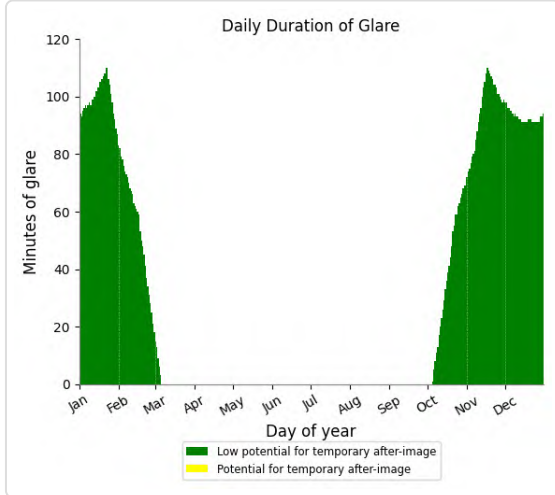


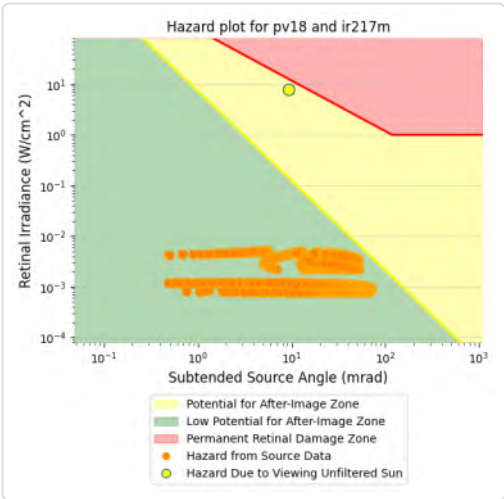
PV18 and FP: IR217m

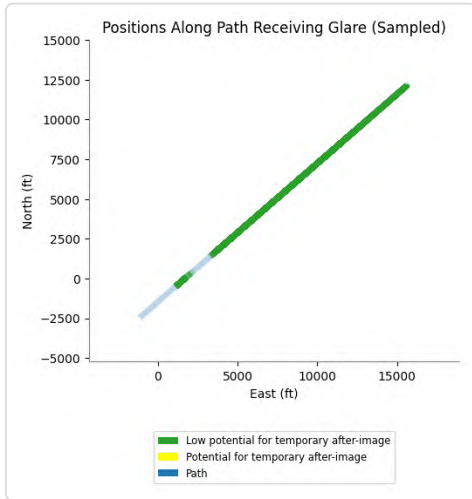
Yellow glare: none

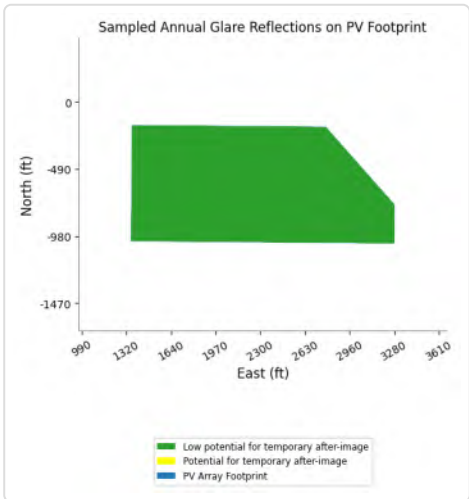
Green glare: 11,570 min.

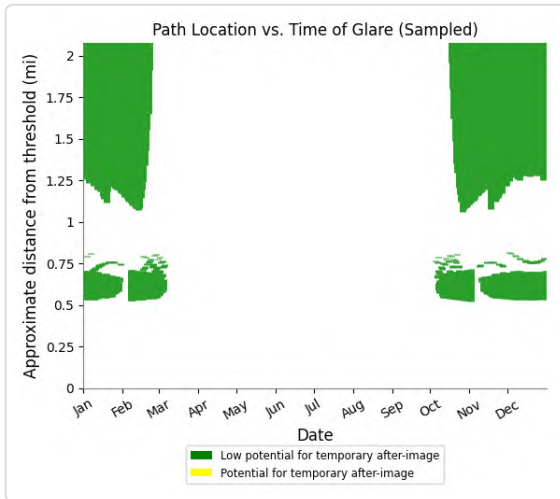








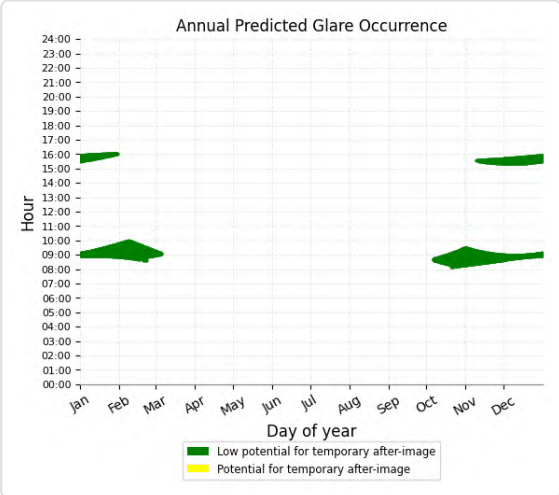


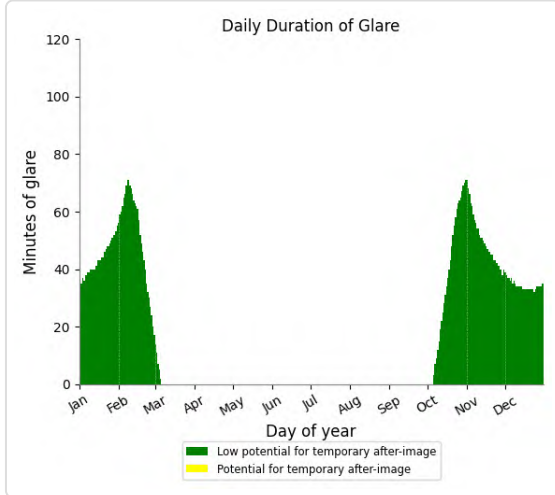


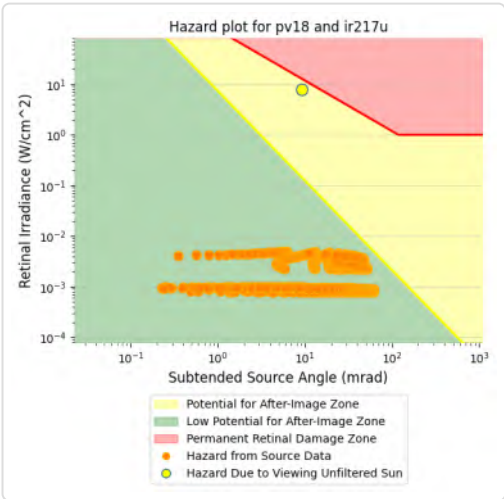
PV18 and FP: IR217u

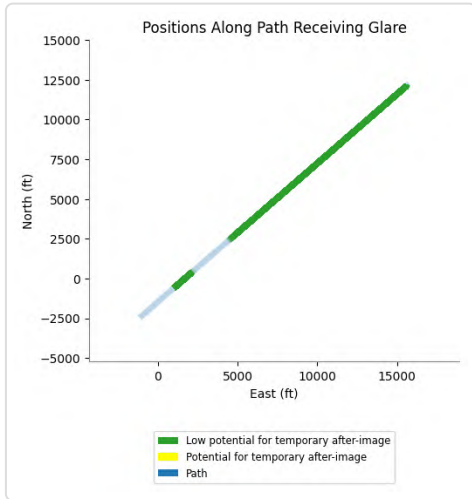
Yellow glare: none

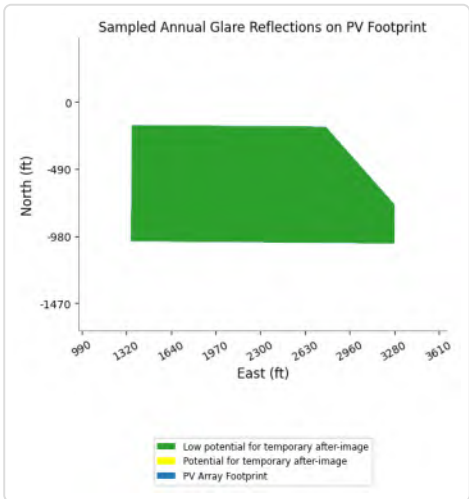
Green glare: 6,530 min.

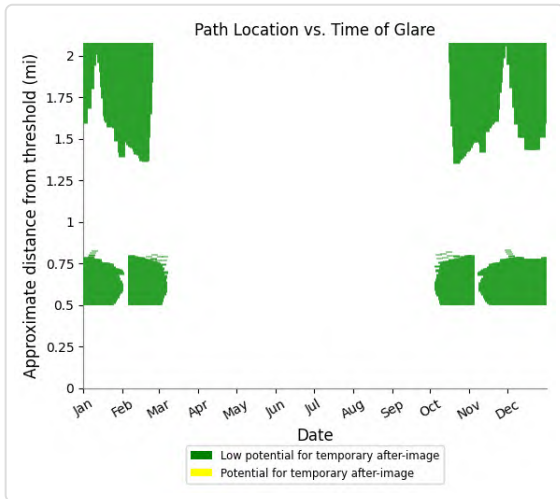








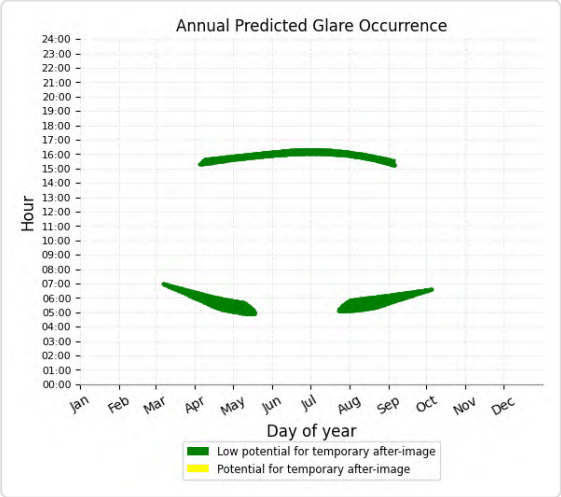


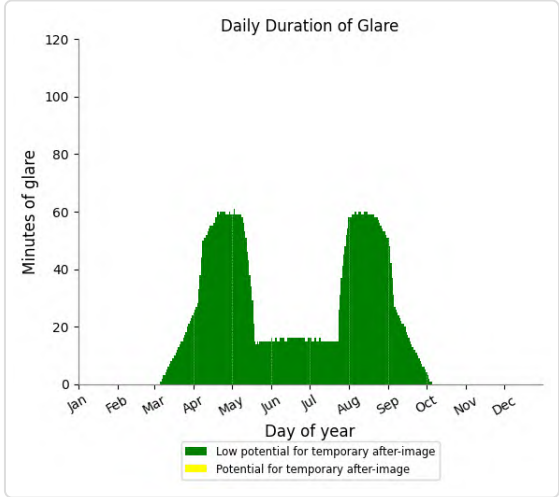


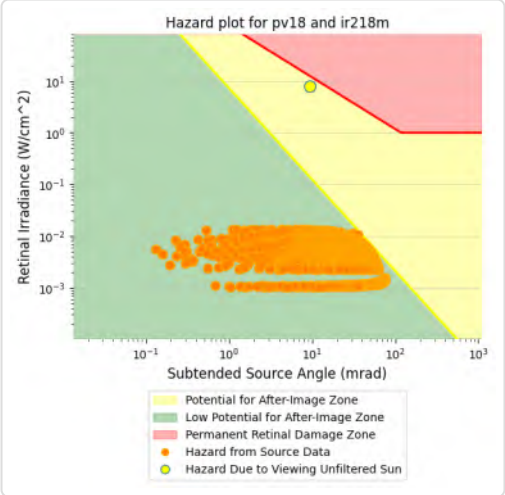
PV18 and FP: IR218m

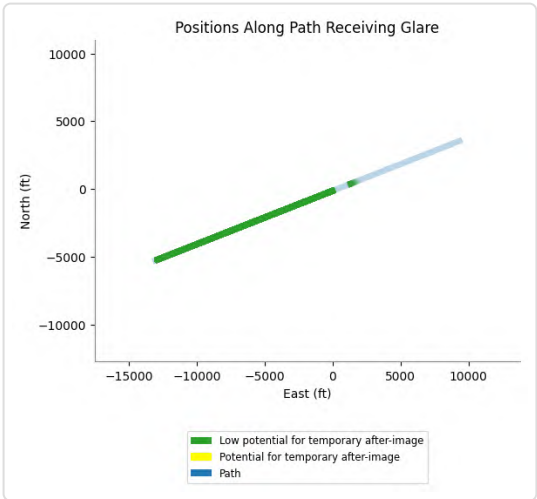
Yellow glare: none

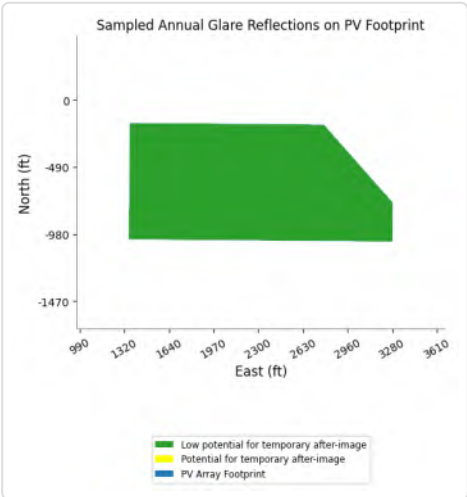
Green glare: 6,480 min.

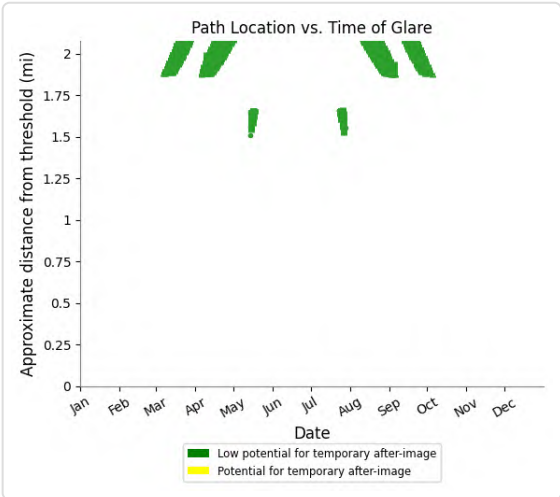








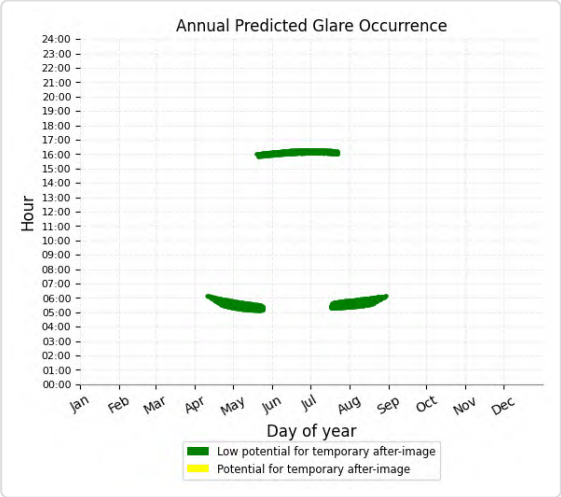


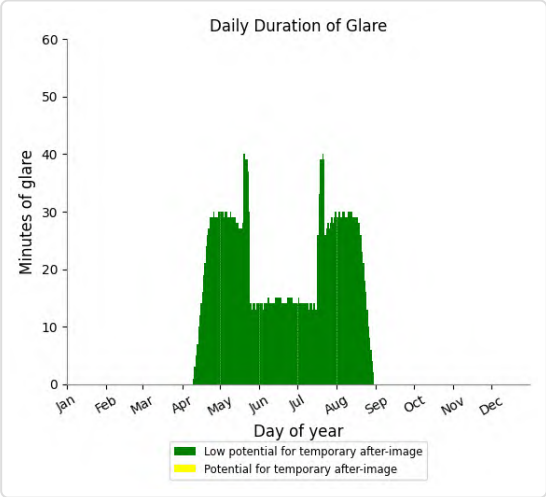


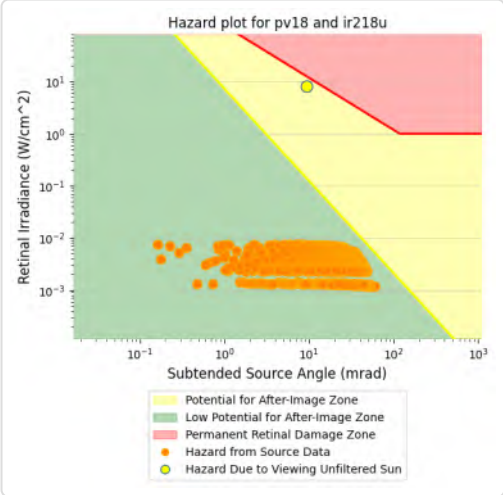
PV18 and FP: IR218u

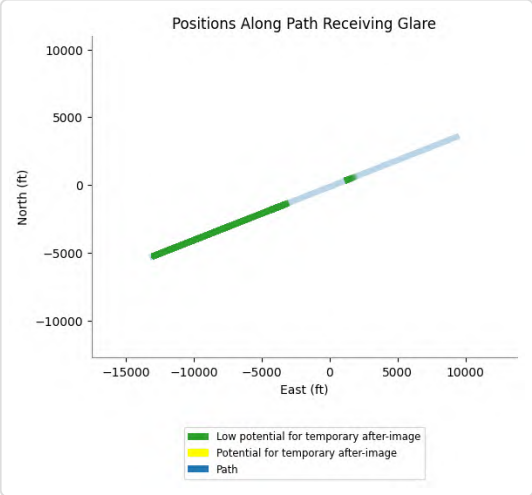
Yellow glare: none

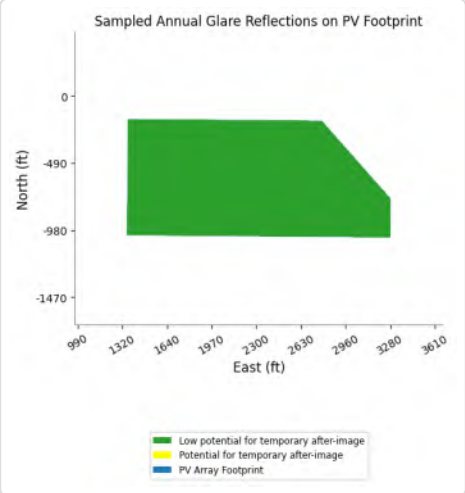
Green glare: 3,070 min.

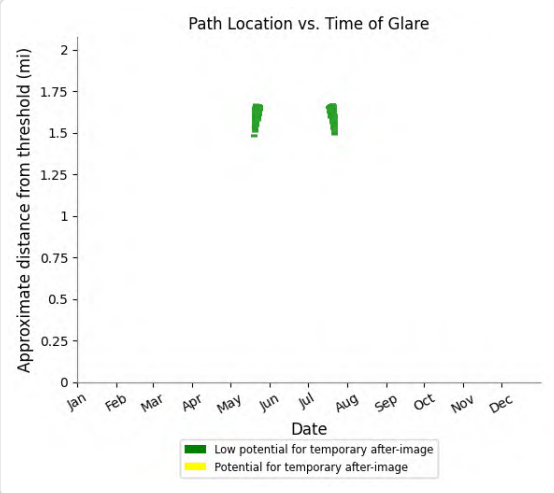








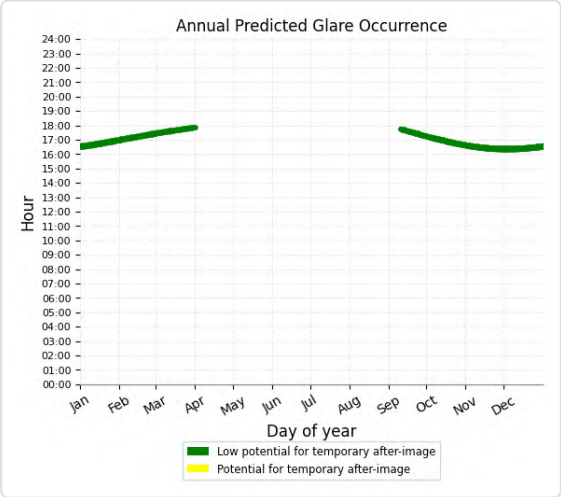


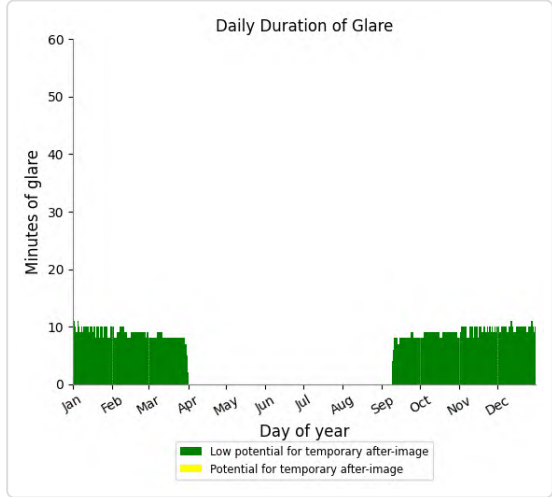


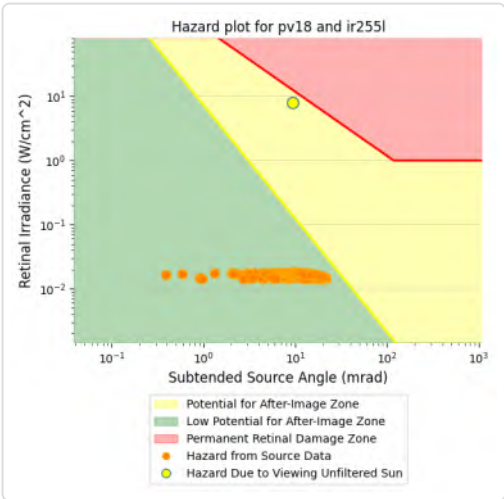
PV18 and FP: IR255l

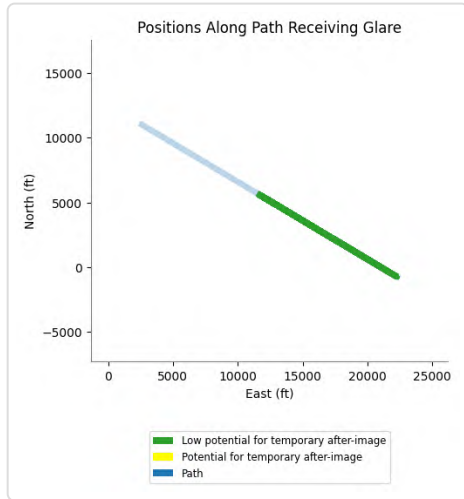
Yellow glare: none

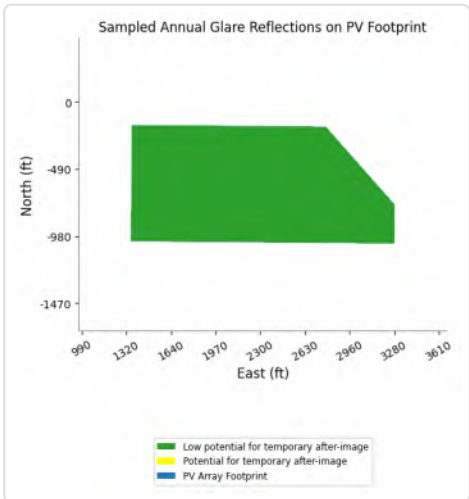
Green glare: 1,840 min.

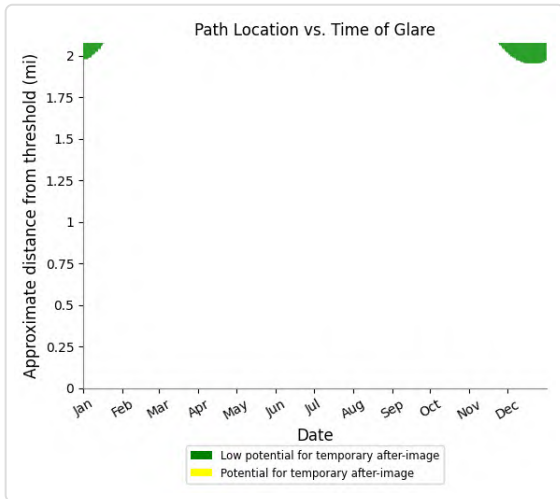








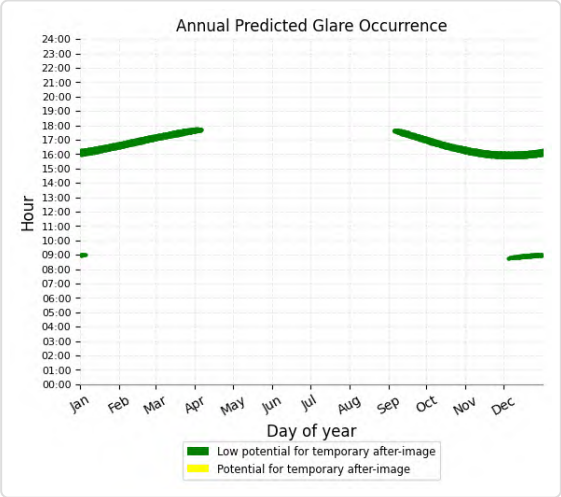


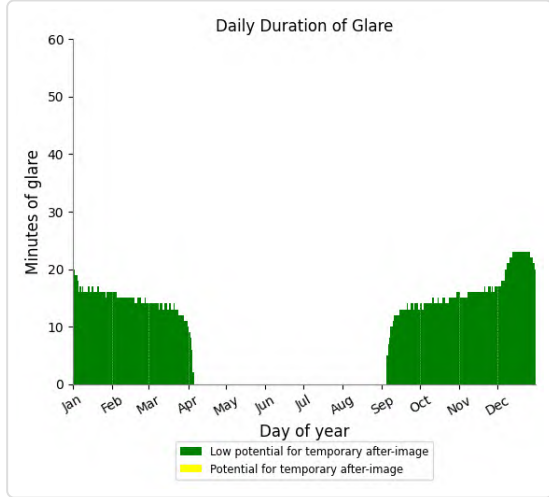


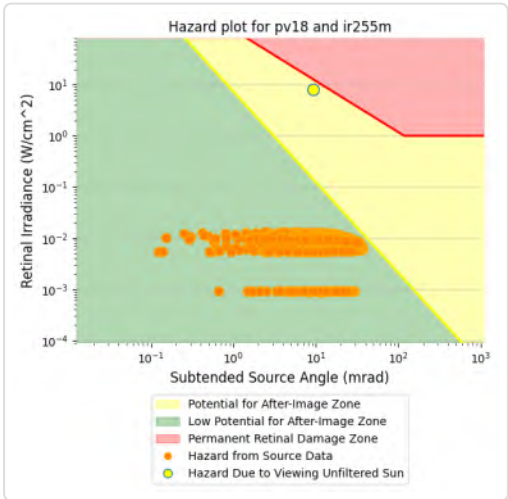
PV18 and FP: IR255m

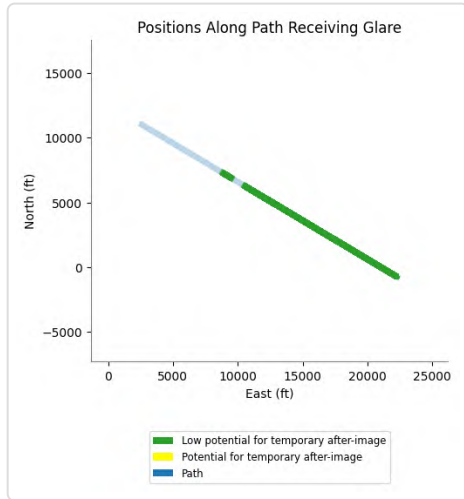
Yellow glare: none

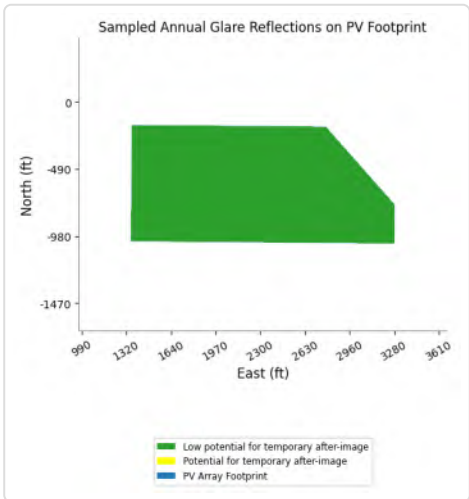
Green glare: 3,292 min.

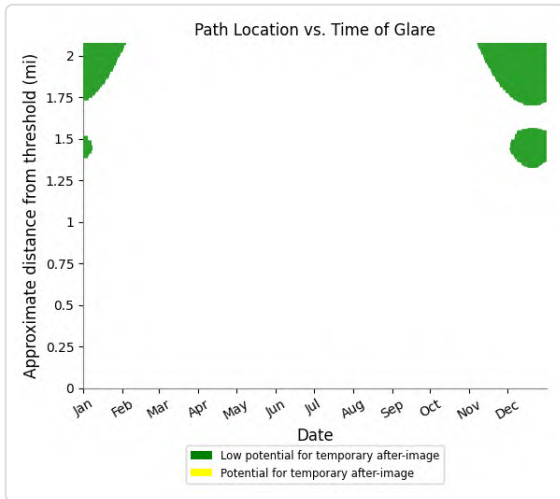








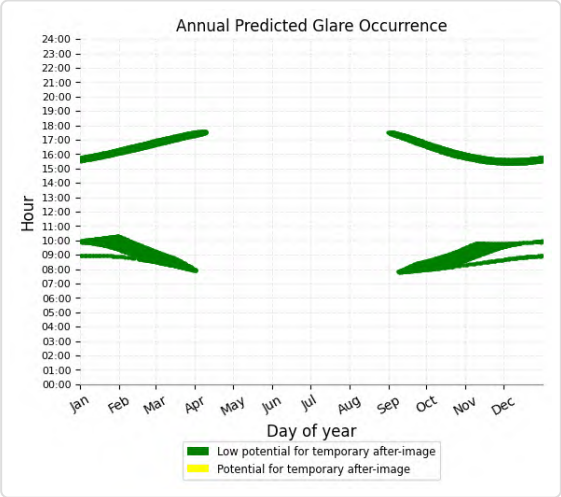


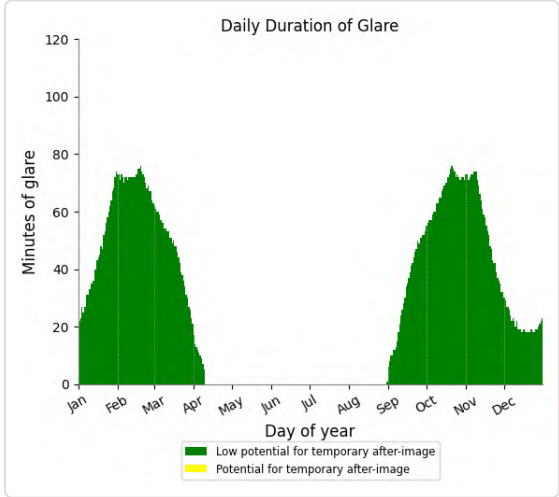


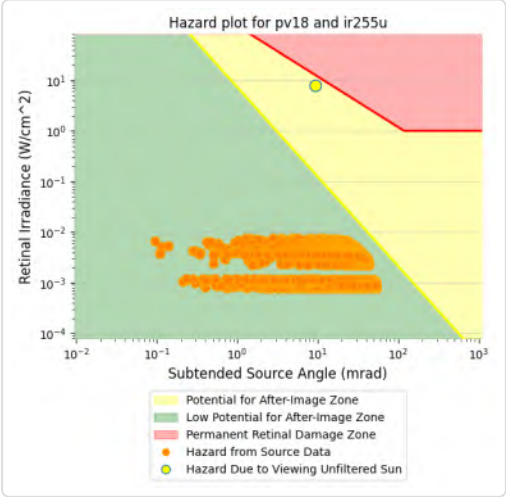
PV18 and FP: IR255u

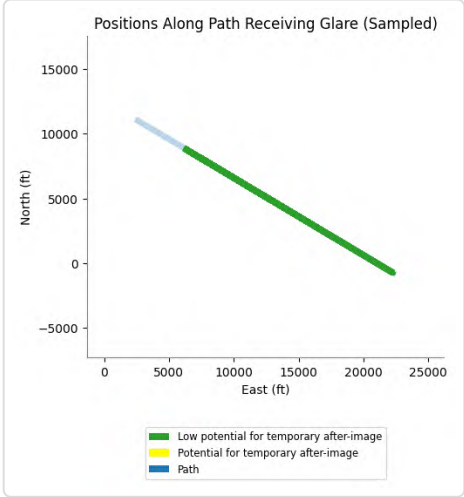
Yellow glare: none

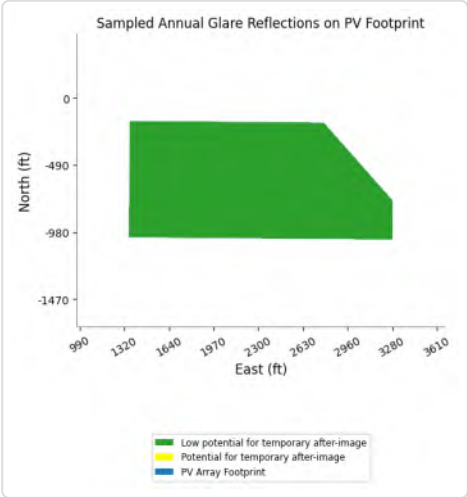
Green glare: 10,340 min.

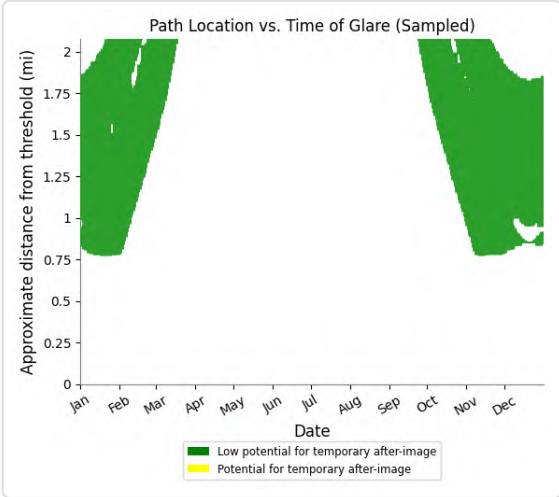








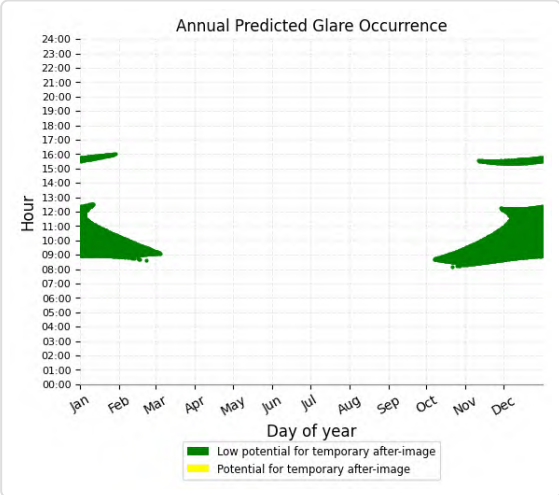


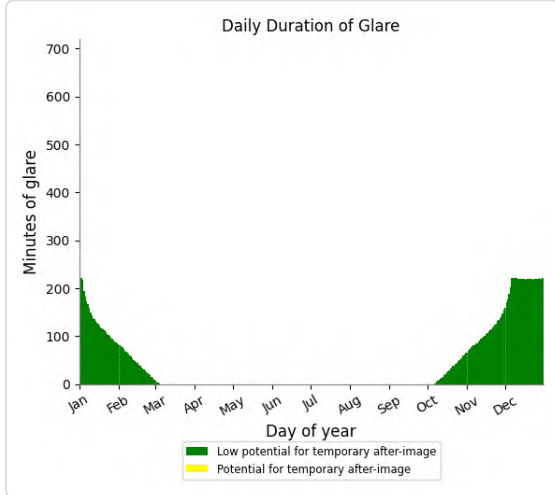


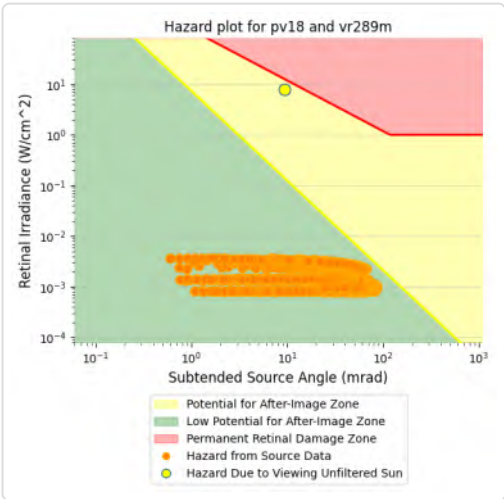
PV18 and FP: VR289m

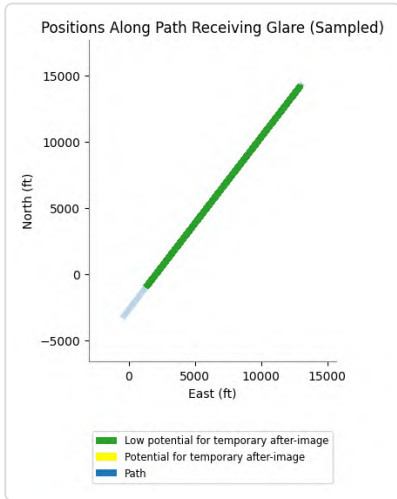
Yellow glare: none

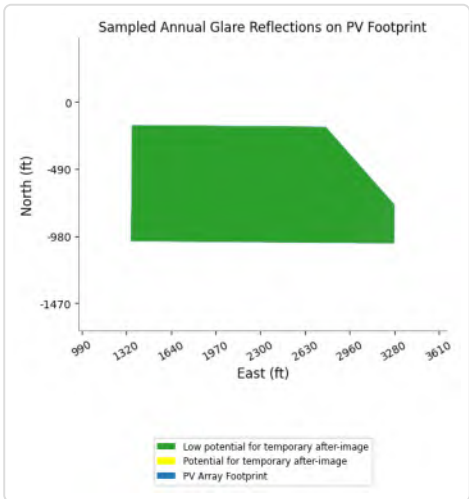
Green glare: 16,209 min.

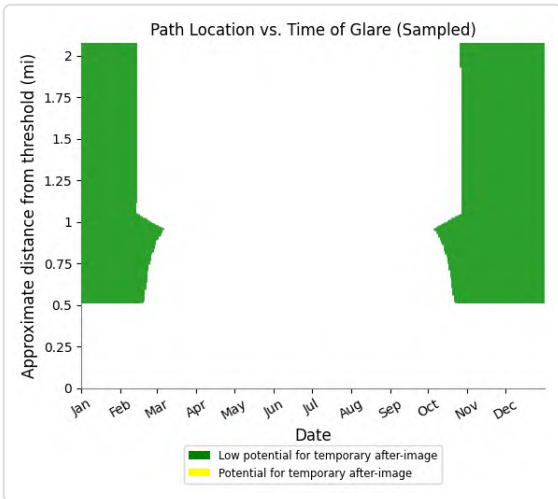








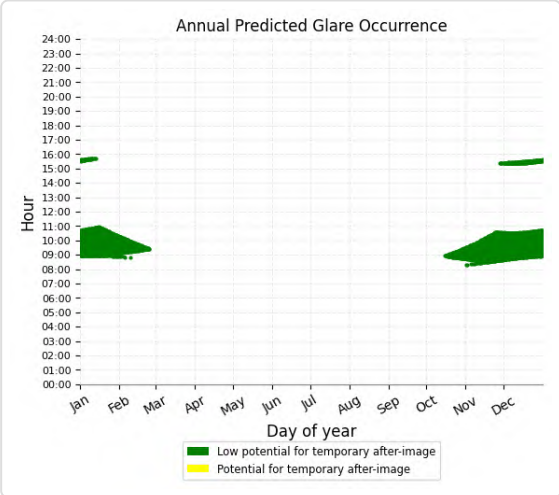


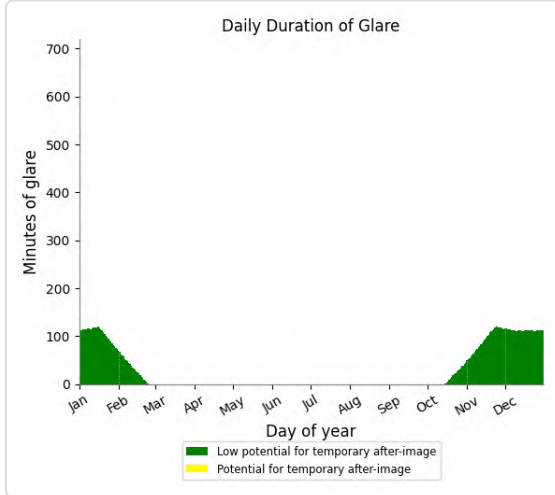


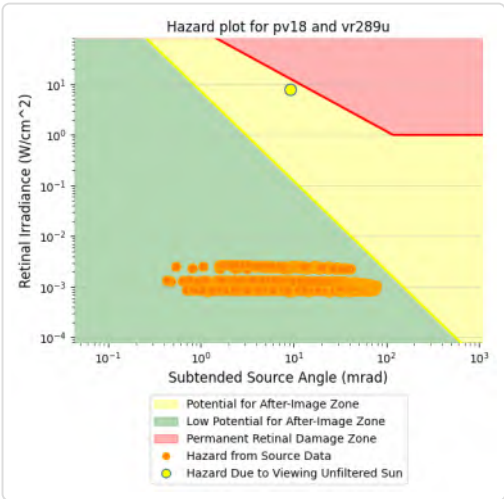
PV18 and FP: VR289u

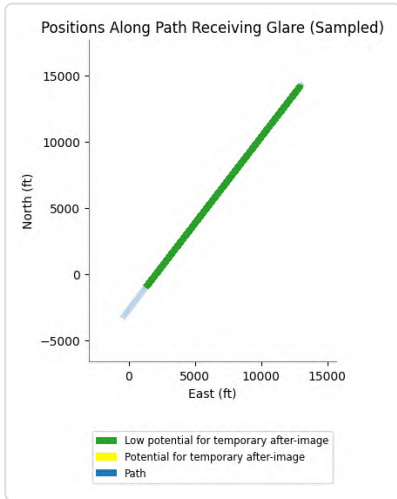
Yellow glare: none

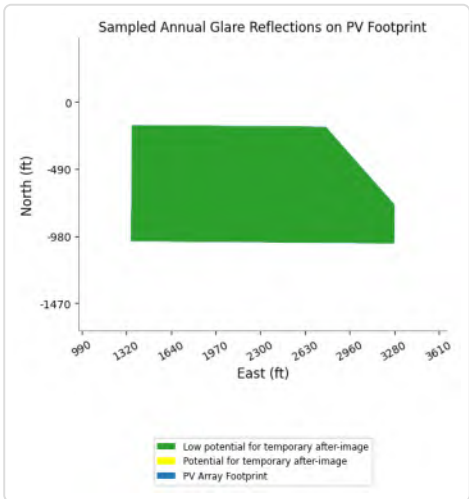
Green glare: 10,749 min.

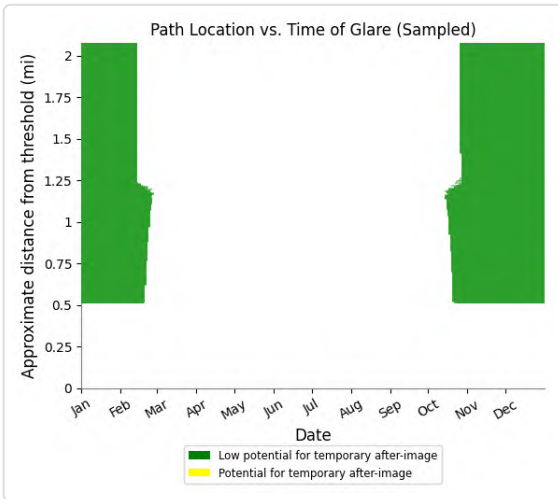












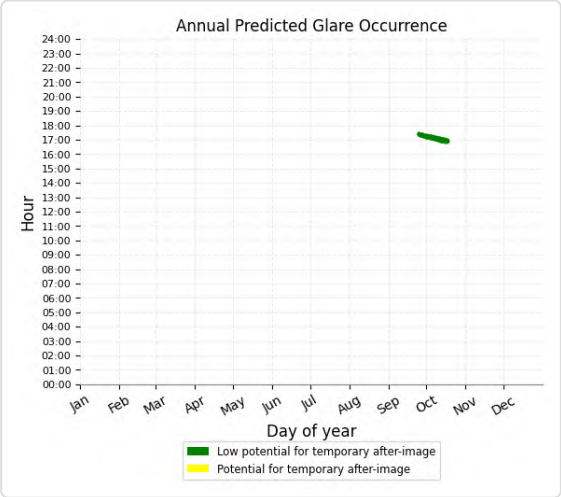
PV18 and FP: CN645

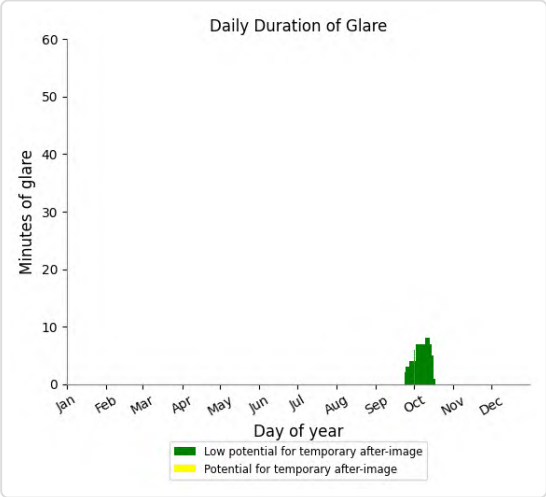
No glare found

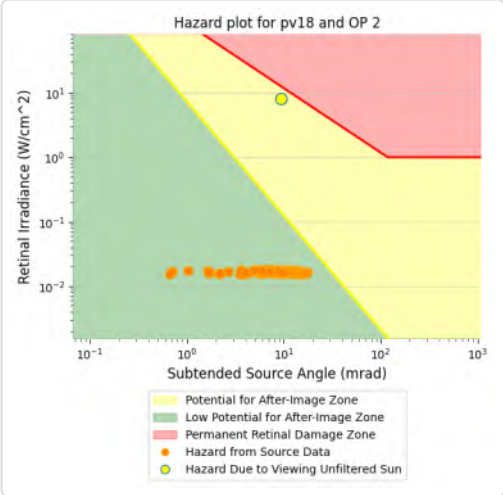
PV18 and OP 2

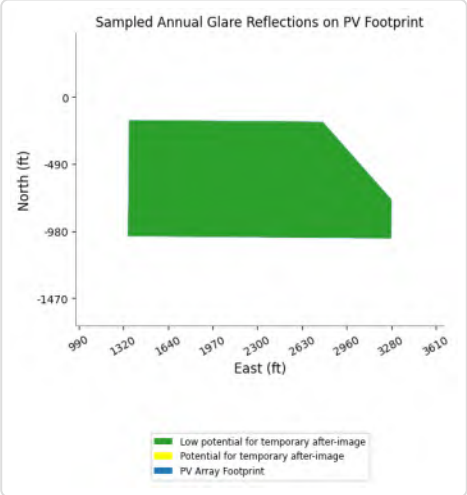
Yellow glare: none

Green glare: 132 min.



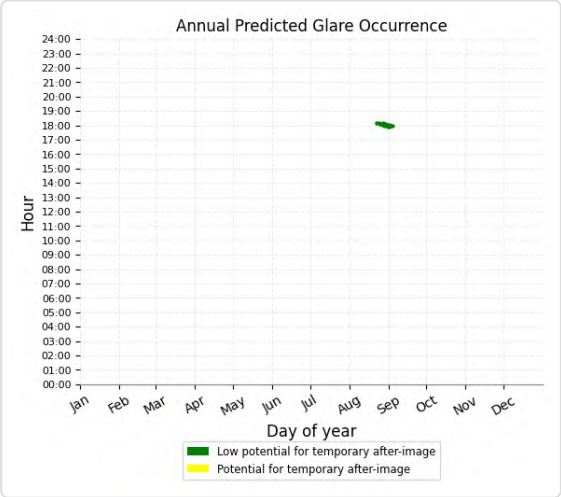


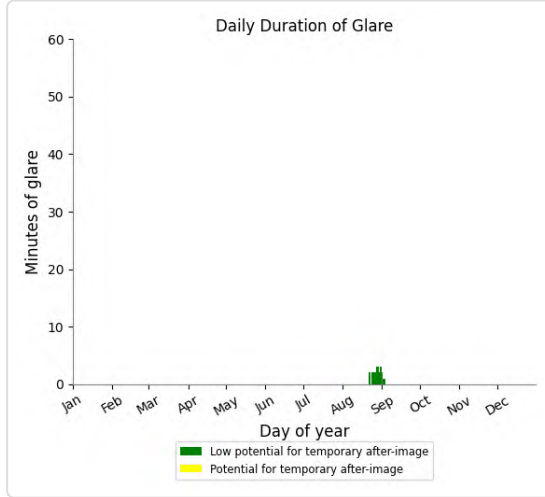


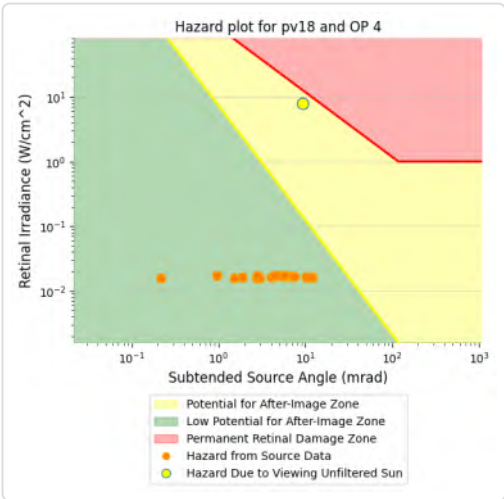


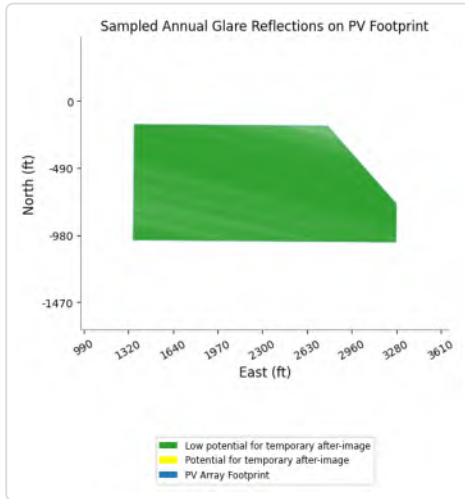
PV18 and OP 4

Yellow glare: none
Green glare: 25 min.









PV18 and OP 1

No glare found

PV18 and OP 3

No glare found

PV18 and OP 5

No glare found

PV18 and OP 6

No glare found

PV18 and OP 7

No glare found

PV18 and OP 8

No glare found

PV18 and OP 9

No glare found

PV18 and OP 10

No glare found

PV18 and OP 11

No glare found

PV18 and OP 12

No glare found

PV18 and OP 13

No glare found

PV18 and OP 14

No glare found

PV18 and OP 15

No glare found

PV18 and OP 16

No glare found

PV18 and OP 17

No glare found

PV18 and OP 18

No glare found

PV18 and OP 19

No glare found

PV: PV19 potential temporary after-image

Receptor results ordered by category of glare

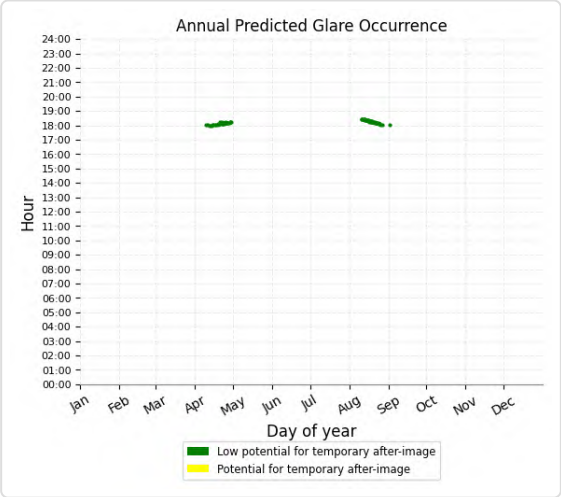
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd B	72	1.2	0	0.0
Race Track	281	4.7	0	0.0
SR177 A	639	10.7	0	0.0
SR177 B	526	8.8	0	0.0
SR177 C	336	5.6	0	0.0
AirportRd A	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR218l	7,130	118.8	2,892	48.2
VR289l	354	5.9	29	0.5
CN6423	912	15.2	0	0.0
IR217m	10,136	168.9	0	0.0
IR217u	6,062	101.0	0	0.0
IR218m	5,670	94.5	0	0.0
IR218u	2,760	46.0	0	0.0
IR255l	1,749	29.1	0	0.0
IR255m	4,509	75.2	0	0.0
IR255u	6,888	114.8	0	0.0
VR289m	13,158	219.3	0	0.0
VR289u	6,907	115.1	0	0.0
VR296l	244	4.1	0	0.0
VR296m	16,524	275.4	0	0.0
VR296u	8,054	134.2	0	0.0
CN645	0	0.0	0	0.0
IR217l	0	0.0	0	0.0
OP 2	71	1.2	0	0.0
OP 4	37	0.6	0	0.0

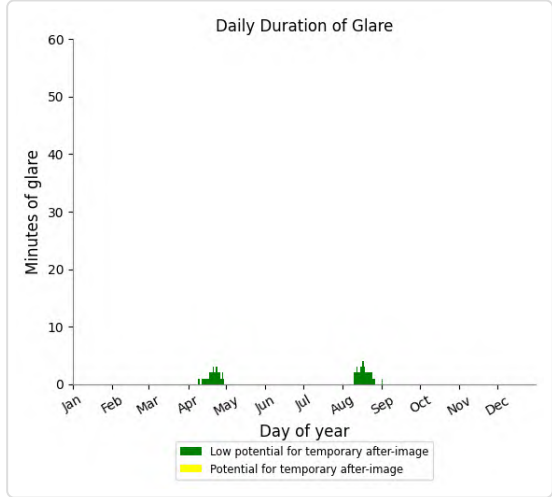
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 7	24	0.4	0	0.0
OP 1	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

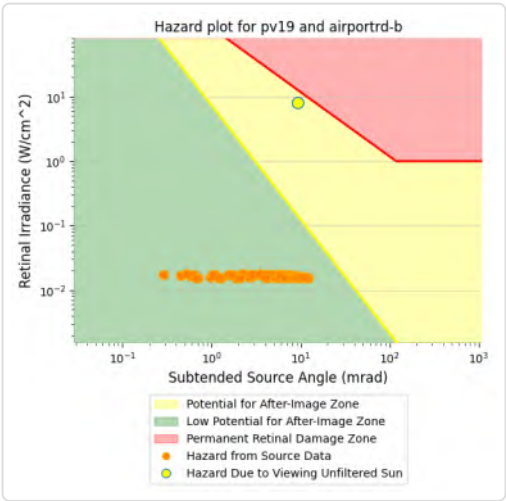
PV19 and Route: AirportRd B

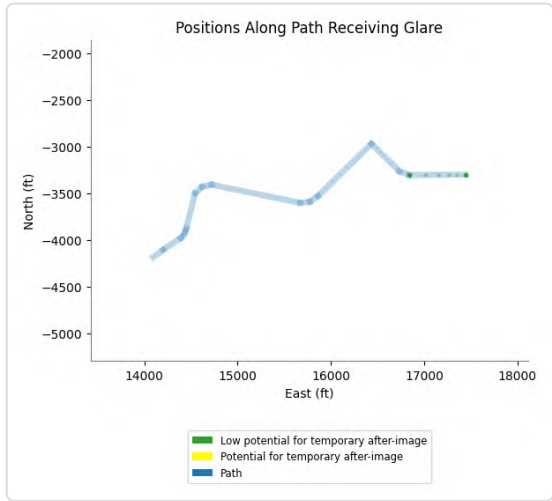
Yellow glare: none

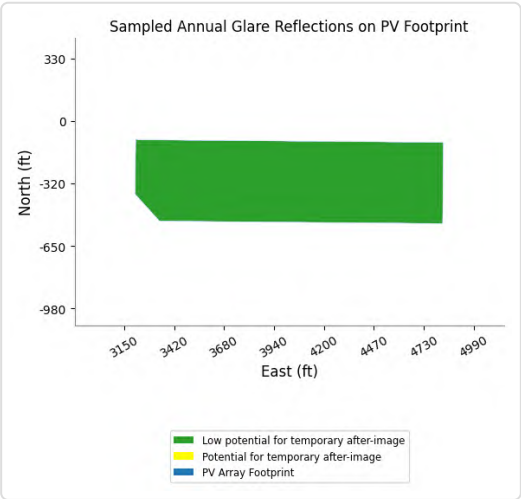
Green glare: 72 min.







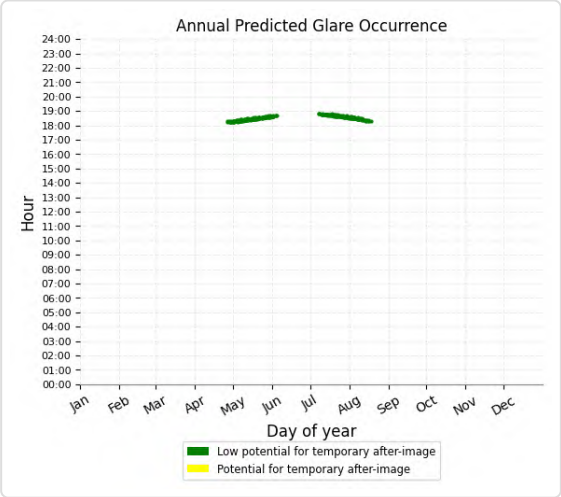


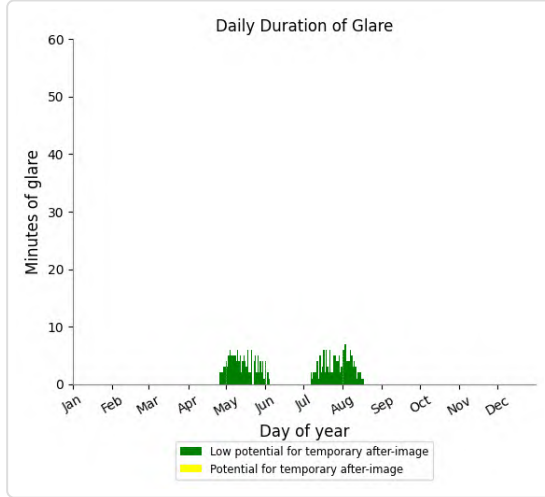


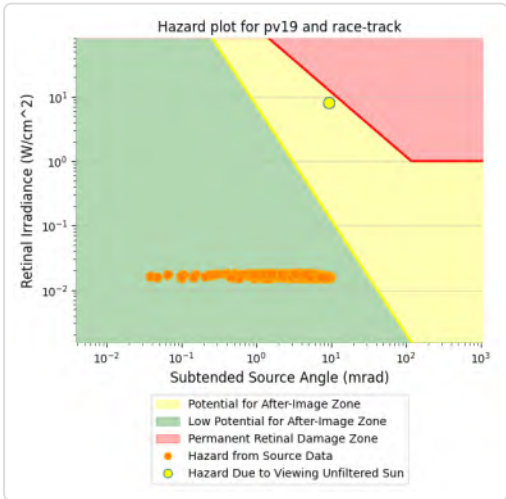
PV19 and Route: Race Track

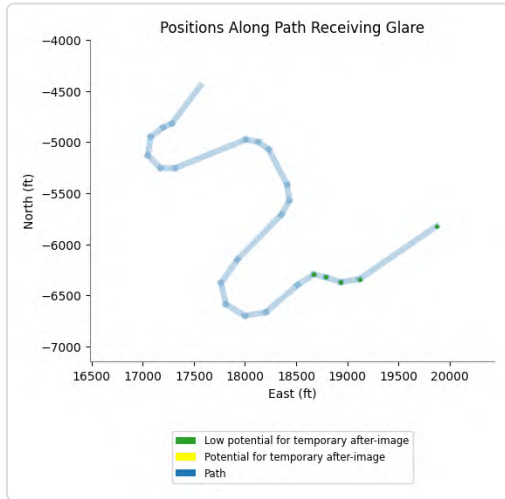
Yellow glare: none

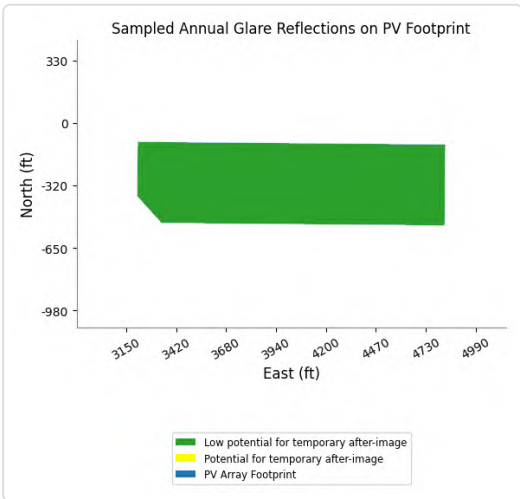
Green glare: 281 min.







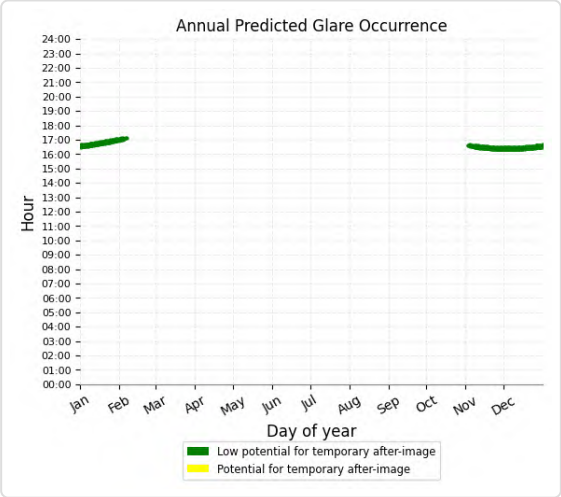


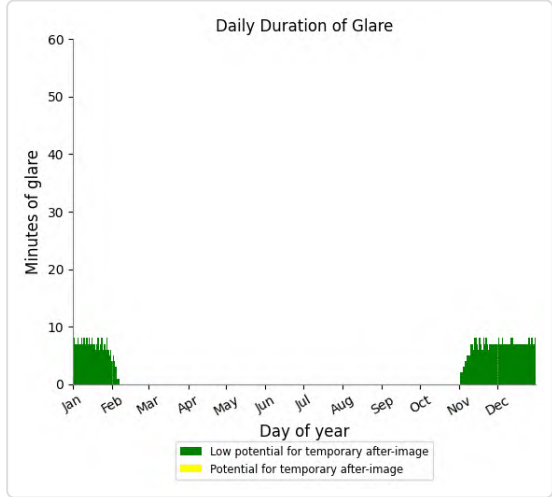


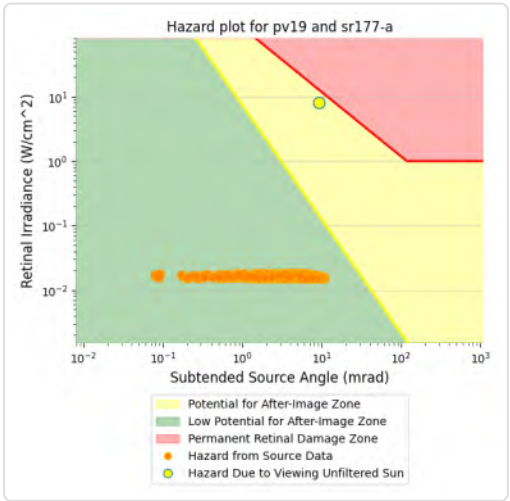
PV19 and Route: SR177 A

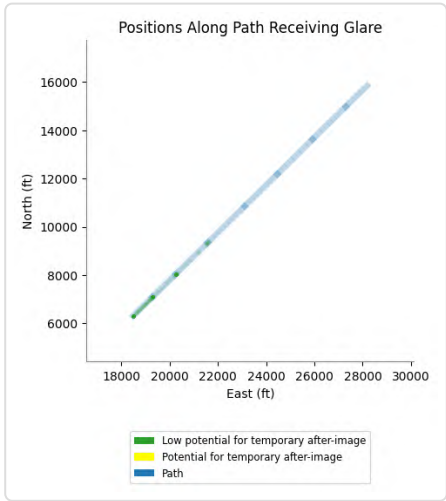
Yellow glare: none

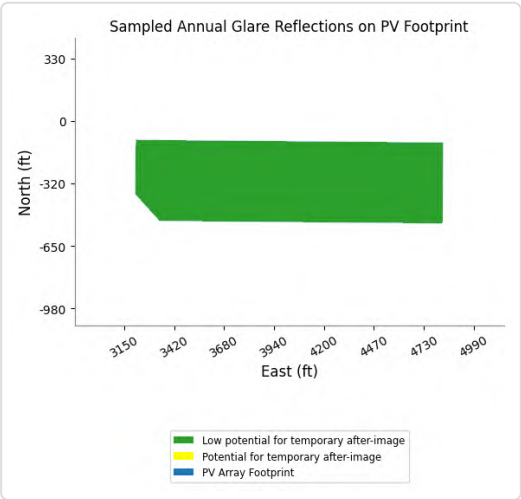
Green glare: 639 min.







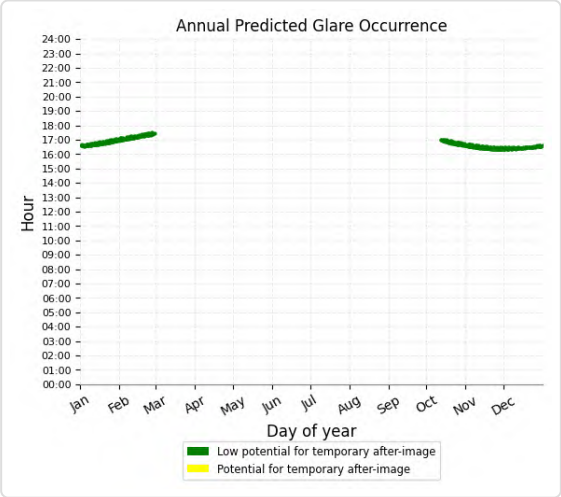


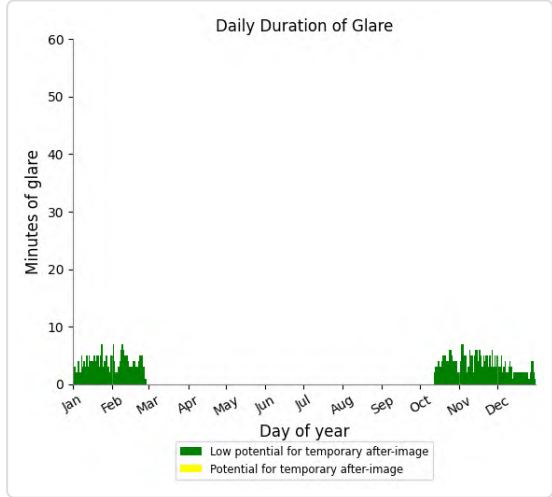


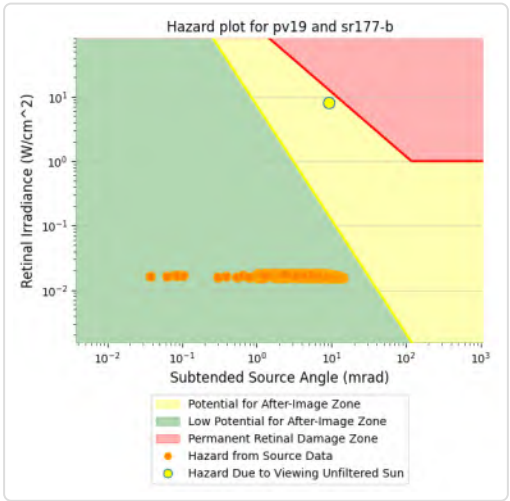
PV19 and Route: SR177 B

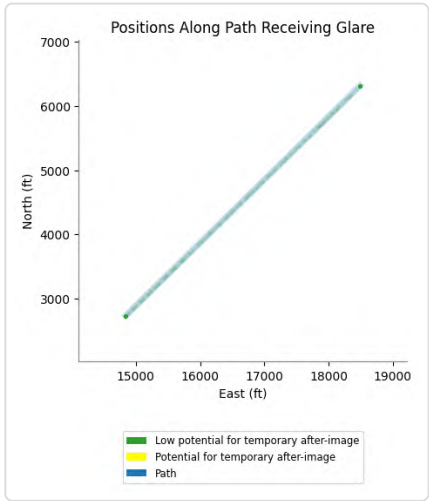
Yellow glare: none

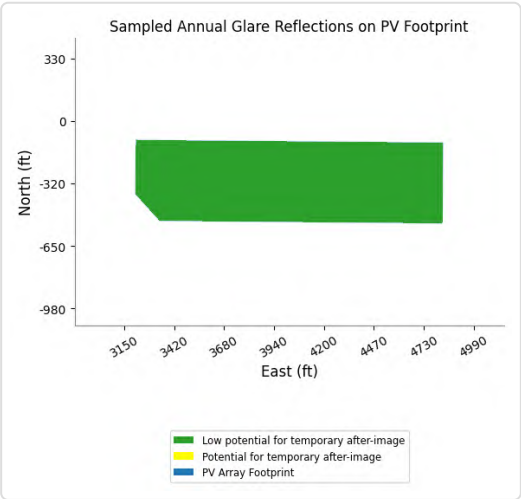
Green glare: 526 min.







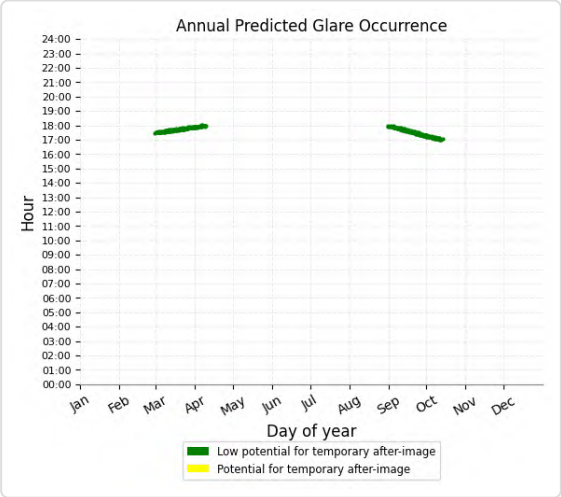


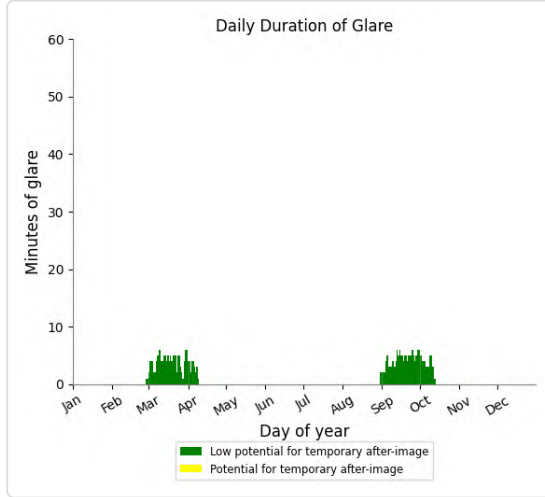


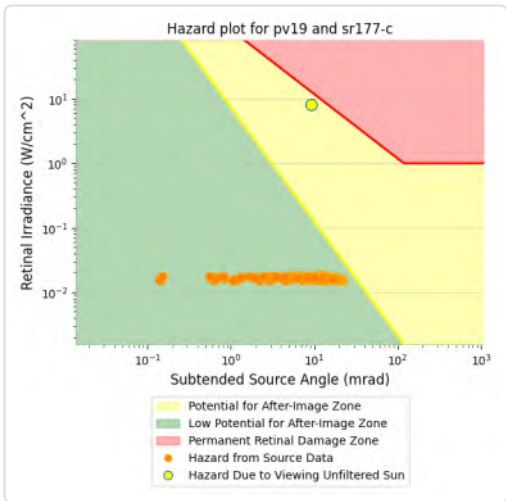
PV19 and Route: SR177 C

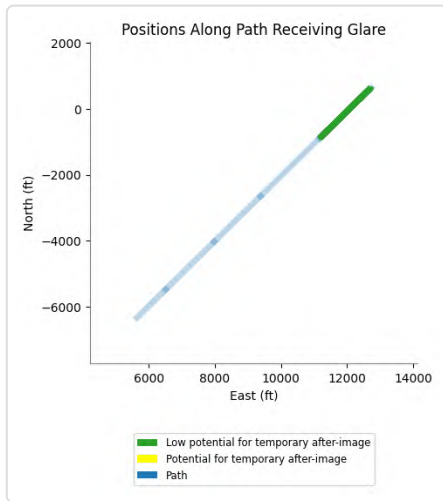
Yellow glare: none

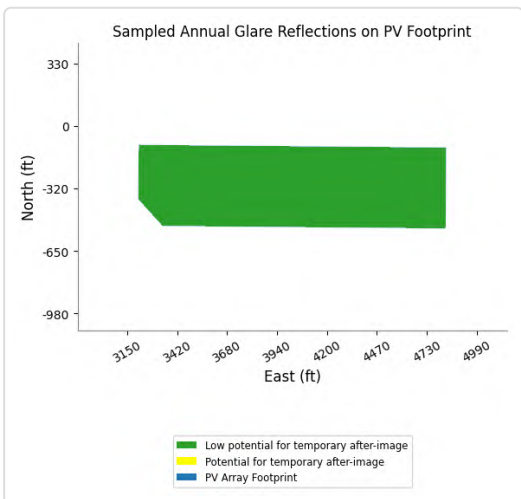
Green glare: 336 min.











PV19 and Route: AirportRd A

No glare found

PV19 and Route: EagleMtnRd A

No glare found

PV19 and Route: EagleMtnRd B

No glare found

PV19 and Route: I-10 EB A

No glare found

PV19 and Route: I-10 EB B

No glare found

PV19 and Route: I-10 EB C

No glare found

PV19 and Route: I-10 WB A

No glare found

PV19 and Route: I-10 WB B

No glare found

PV19 and Route: I-10 WB C

No glare found

PV19 and Route: KaiserRd A

No glare found

PV19 and Route: KaiserRd B

No glare found

PV19 and Route: KaiserRd C

No glare found

PV19 and Route: OasisRd

No glare found

PV19 and Route: SR177 D

No glare found

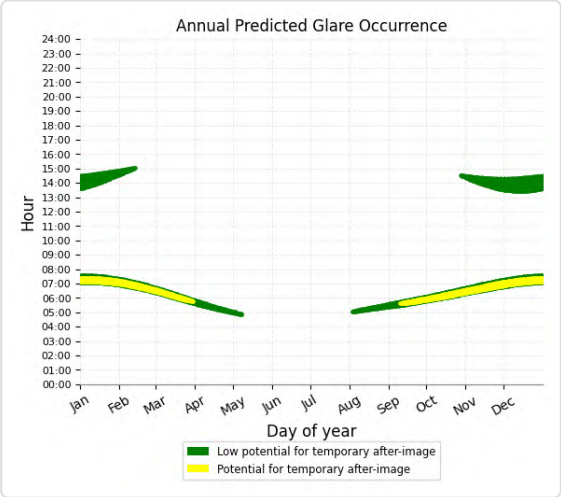
PV19 and Route: SR177 E

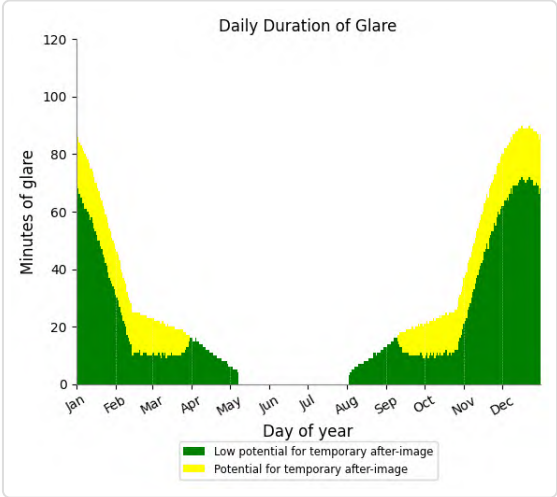
No glare found

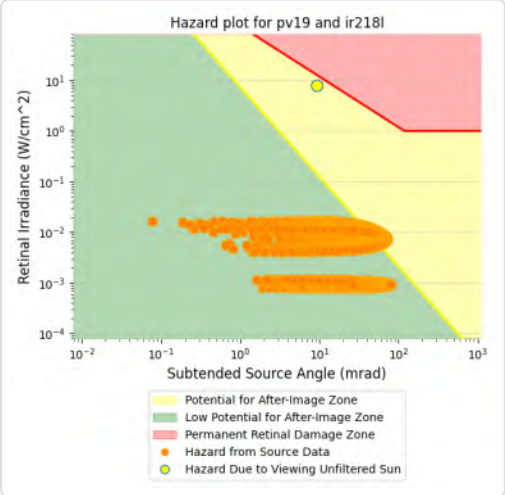
PV19 and FP: IR218l

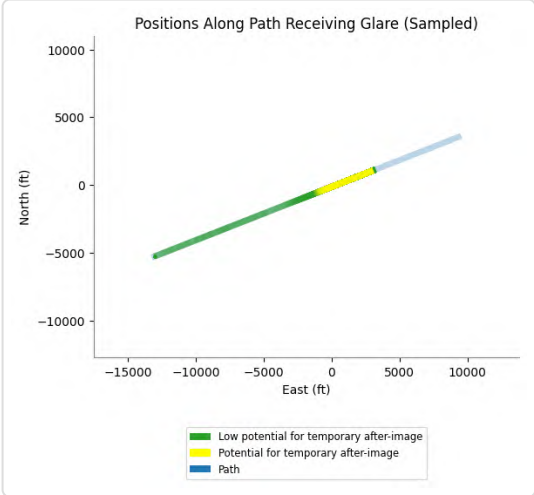
Yellow glare: 2,892 min.

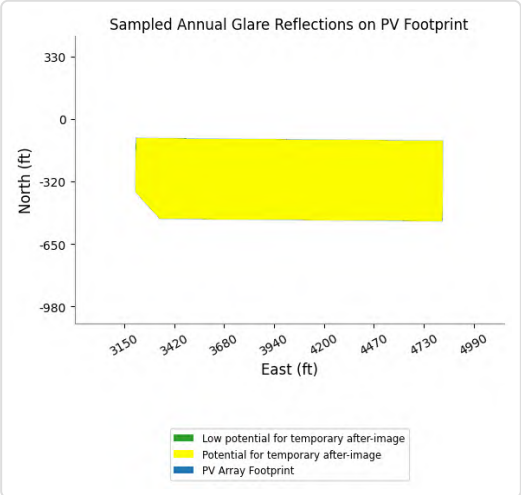
Green glare: 7,130 min.

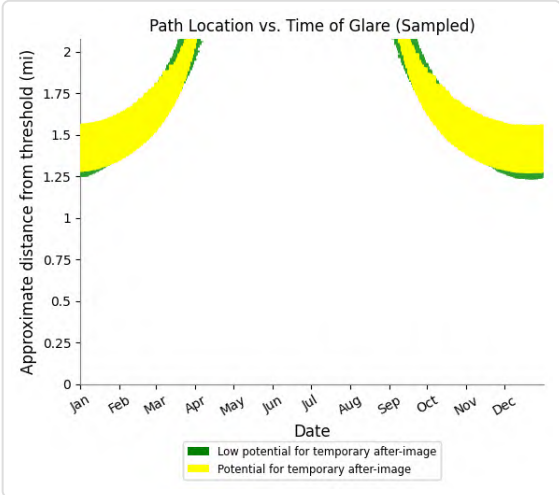








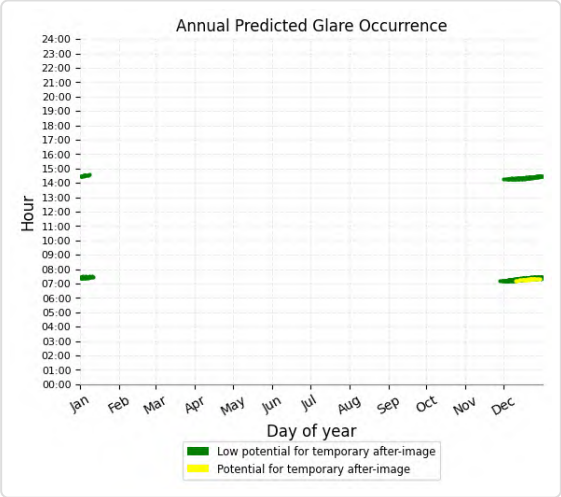


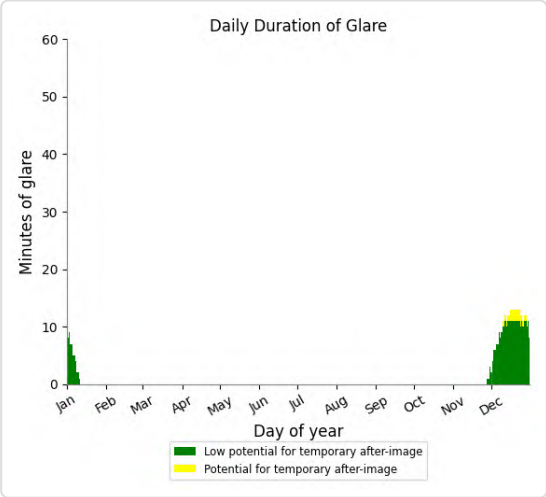


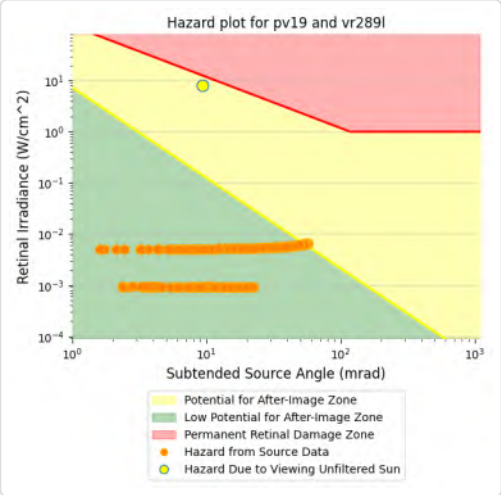
PV19 and FP: VR289I

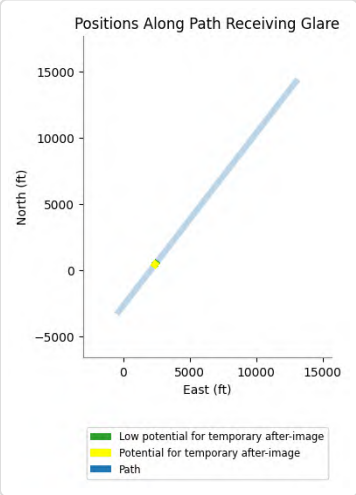
Yellow glare: 29 min.

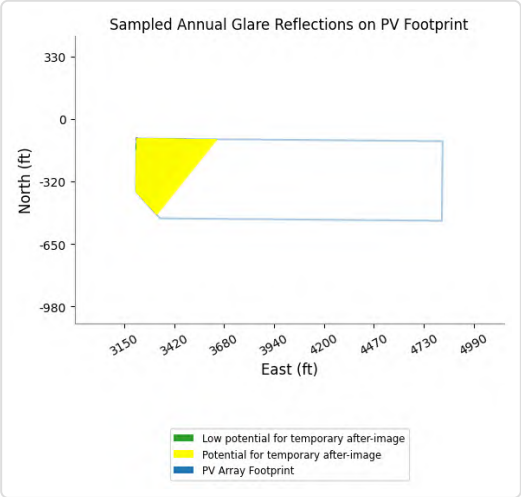
Green glare: 354 min.

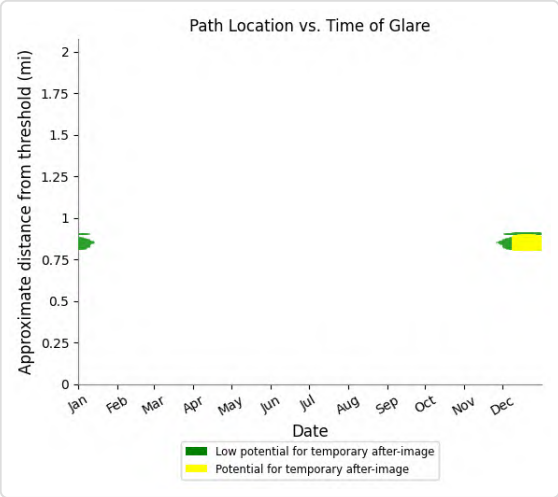








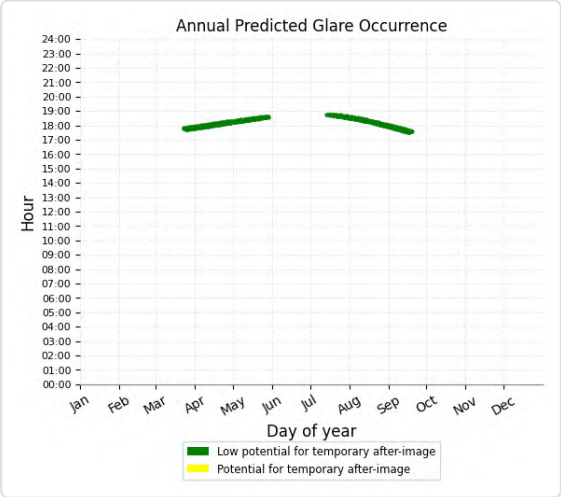


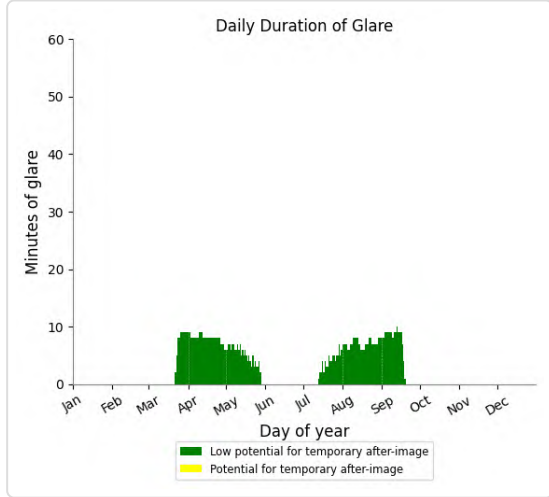


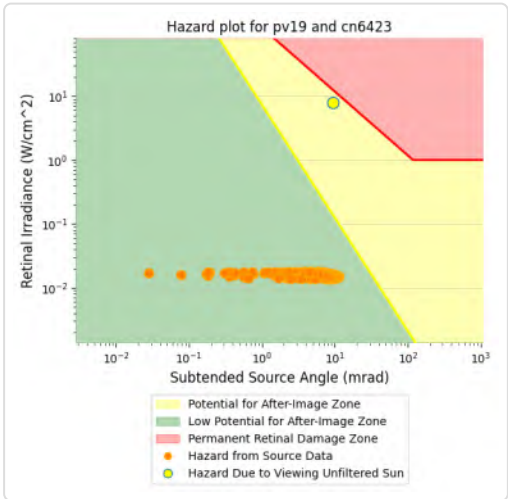
PV19 and FP: CN6423

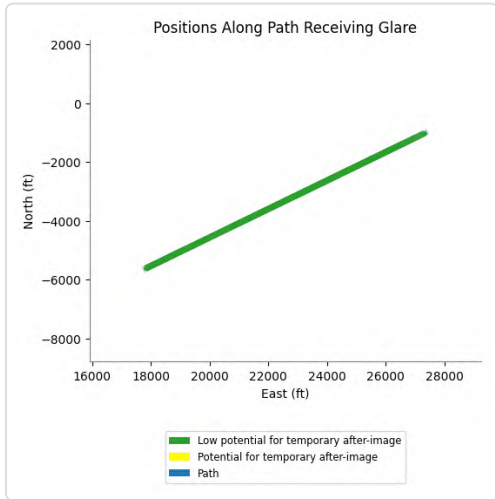
Yellow glare: none

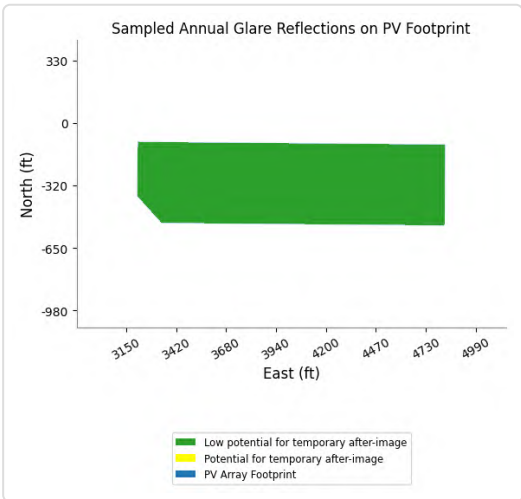
Green glare: 912 min.

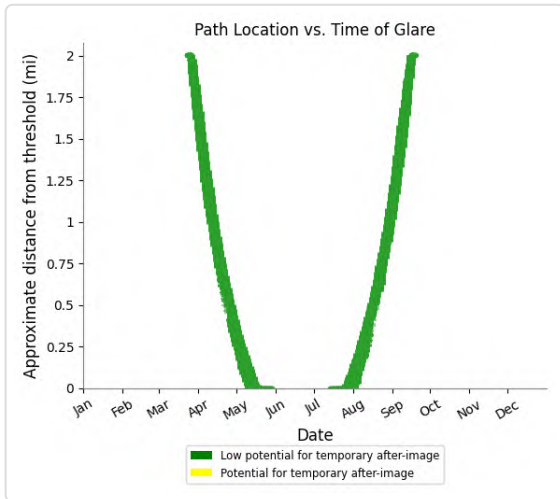








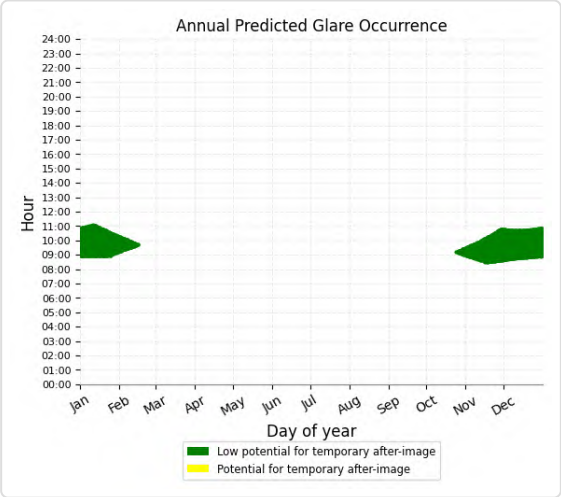


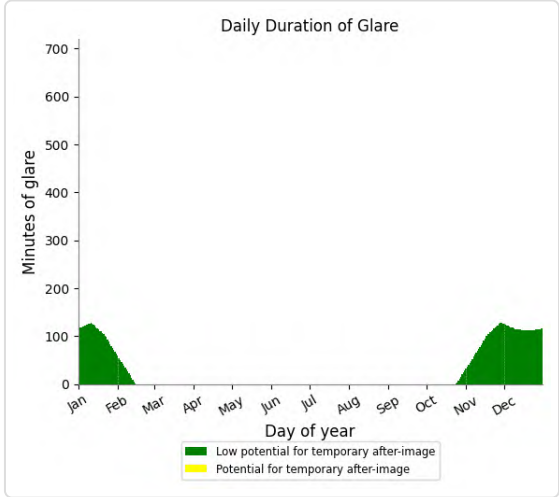


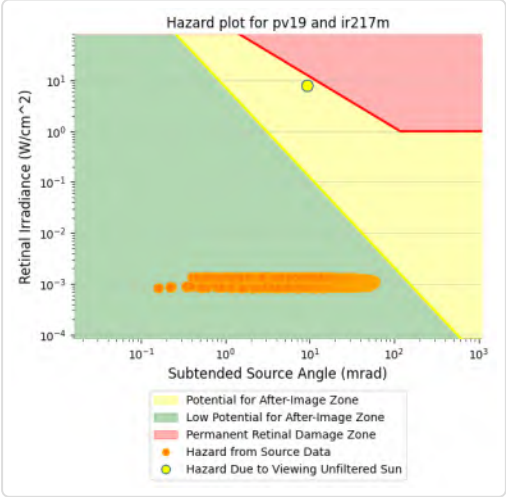
PV19 and FP: IR217m

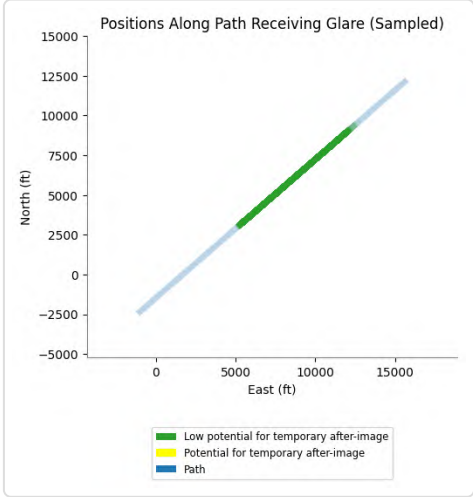
Yellow glare: none

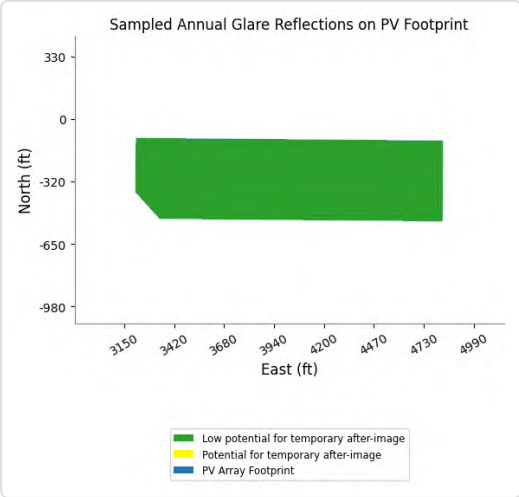
Green glare: 10,136 min.

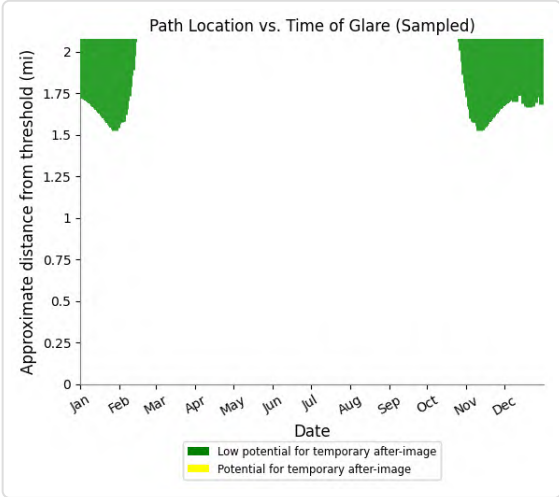








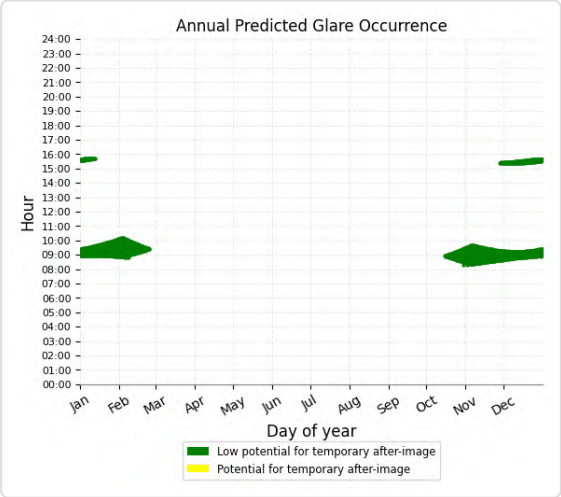


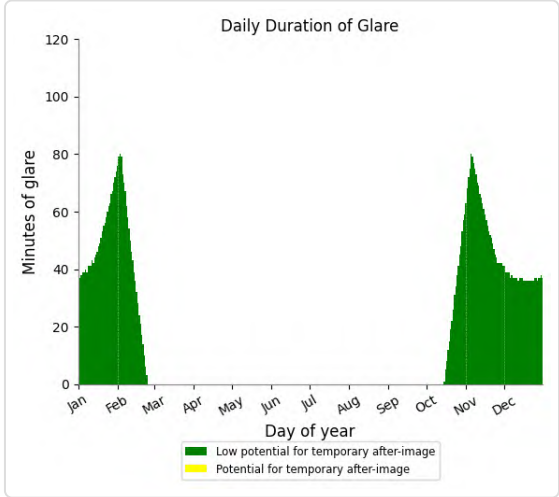


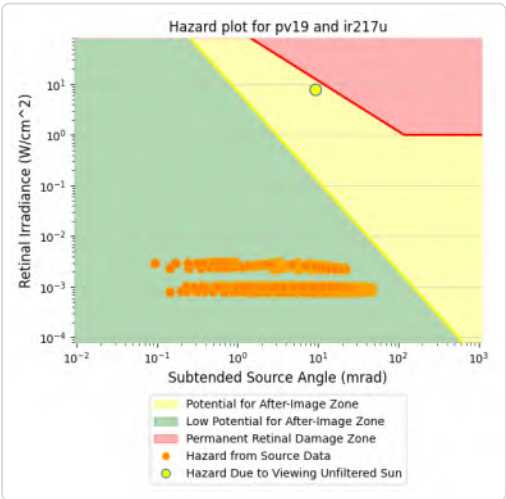
PV19 and FP: IR217u

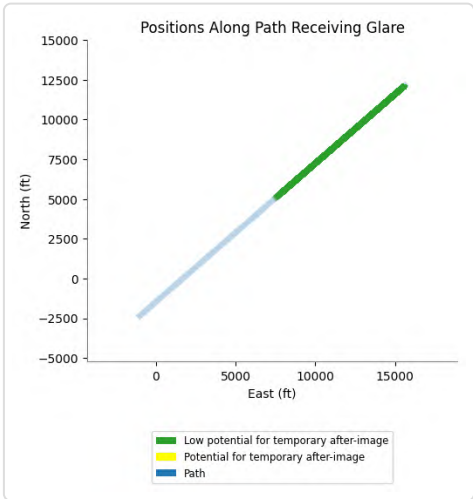
Yellow glare: none

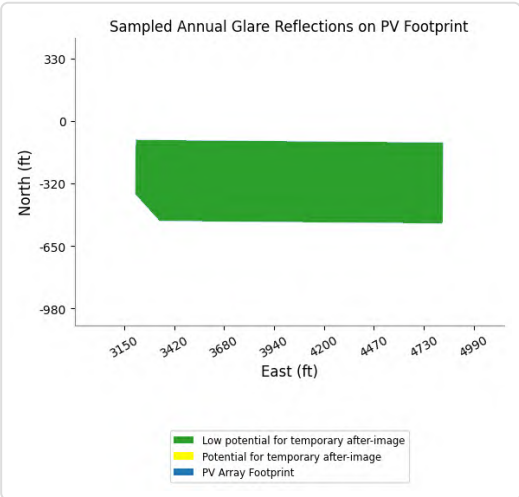
Green glare: 6,062 min.

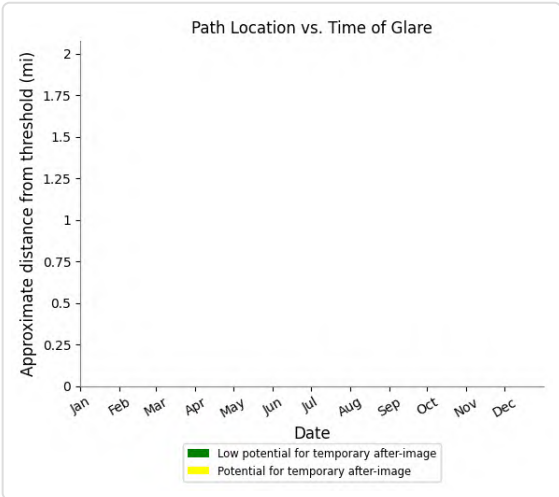








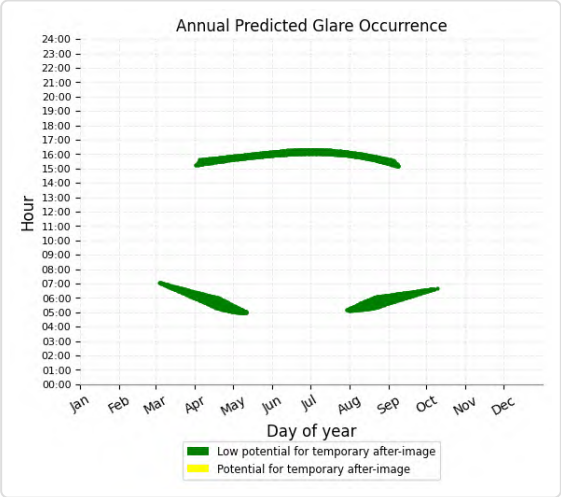


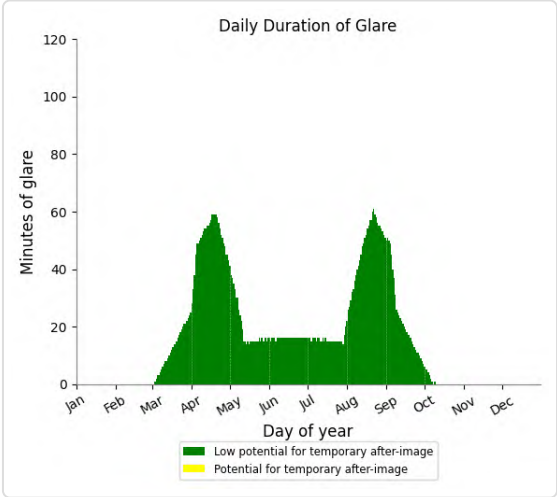


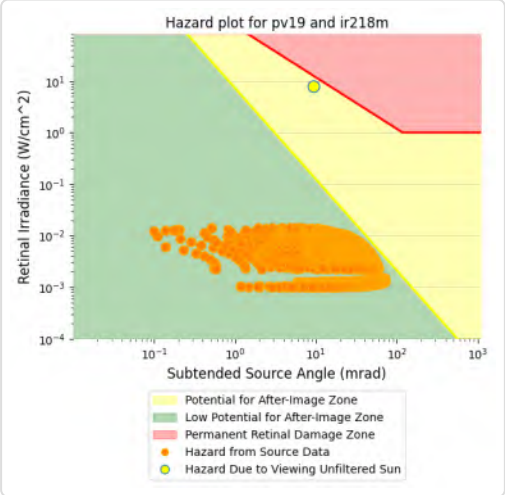
PV19 and FP: IR218m

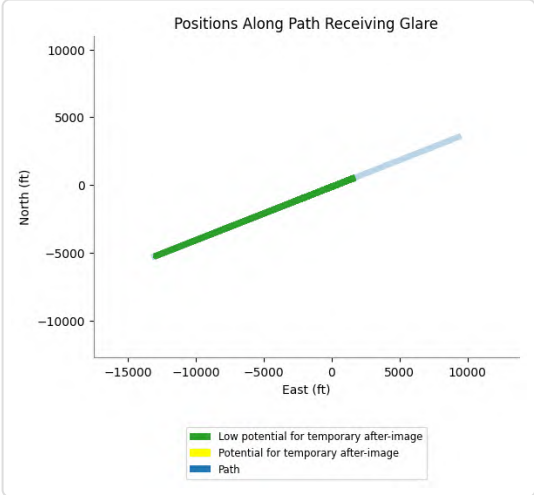
Yellow glare: none

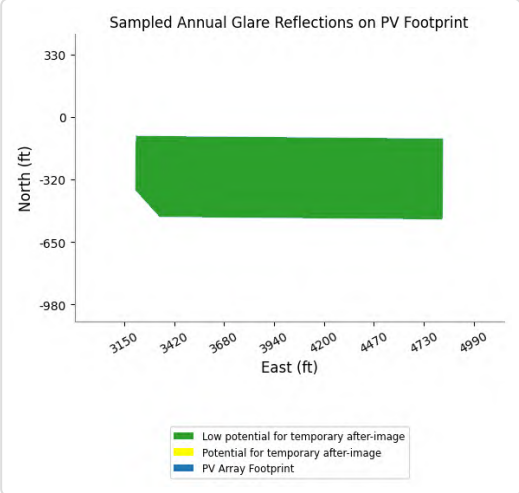
Green glare: 5,670 min.

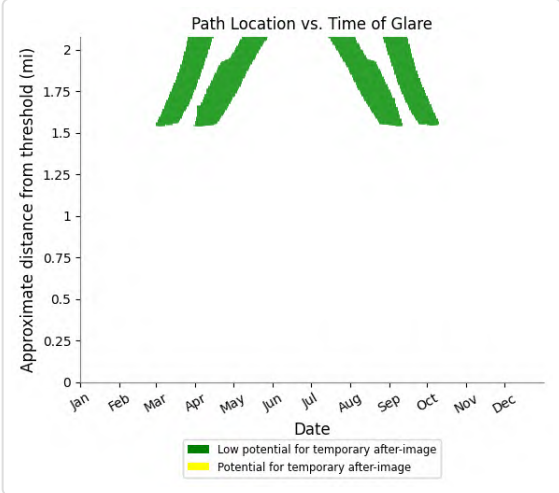








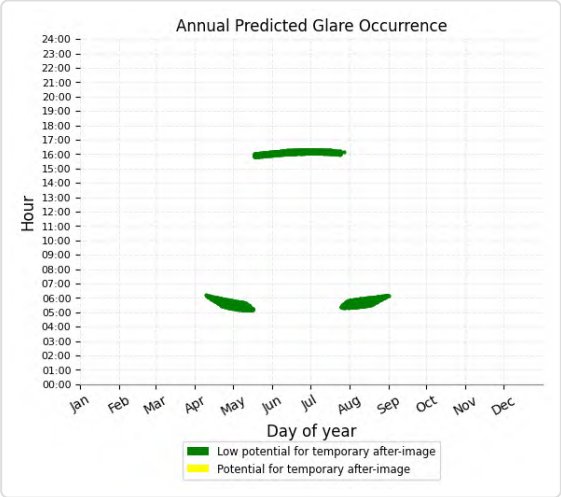


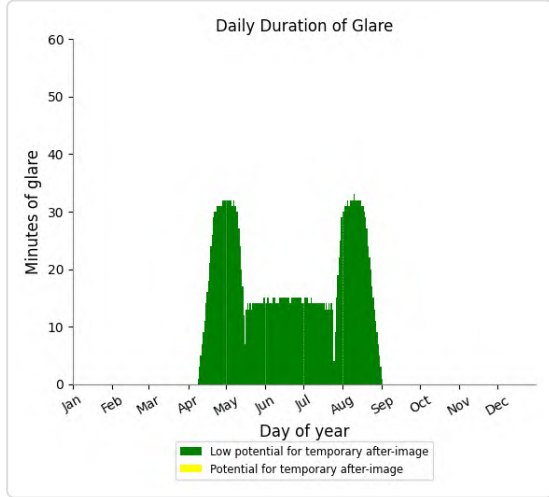


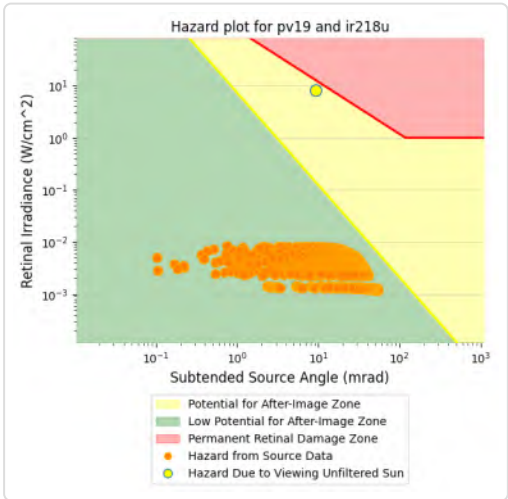
PV19 and FP: IR218u

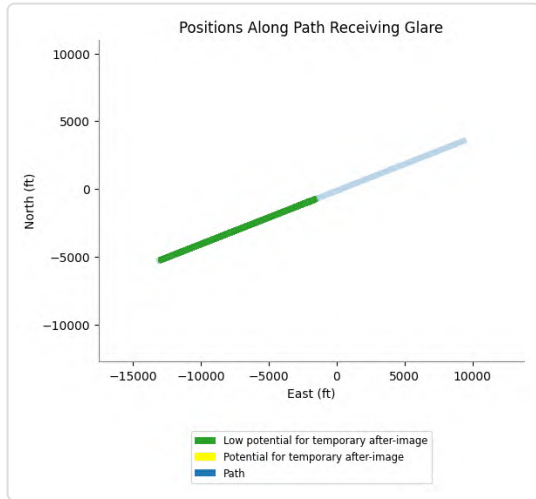
Yellow glare: none

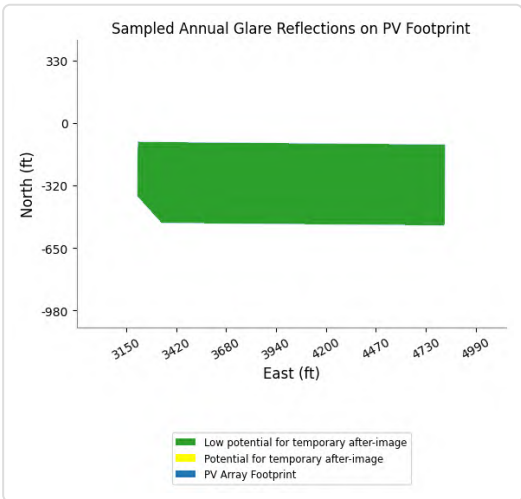
Green glare: 2,760 min.

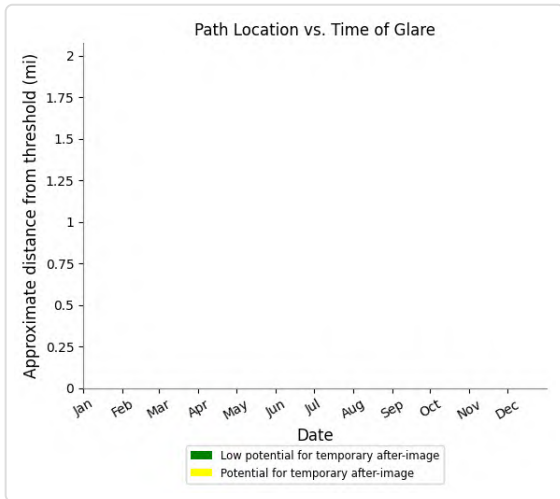








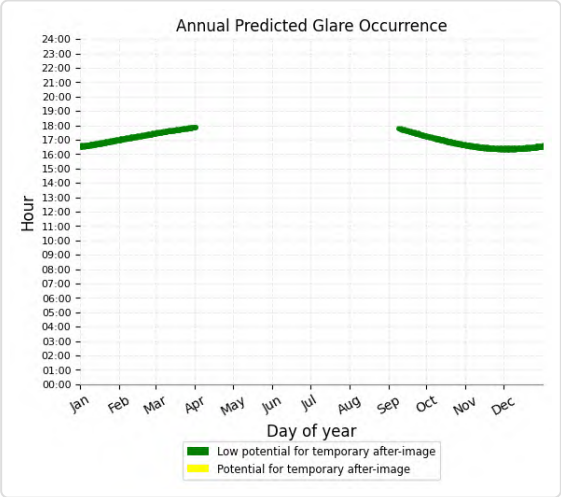


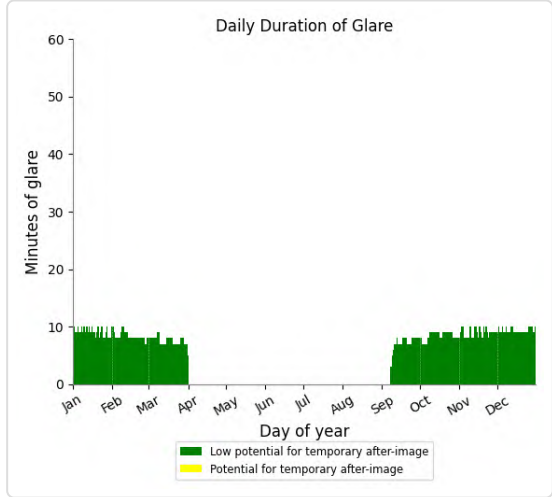


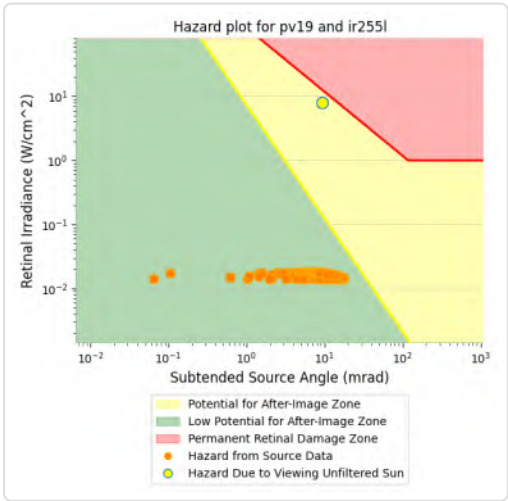
PV19 and FP: IR255I

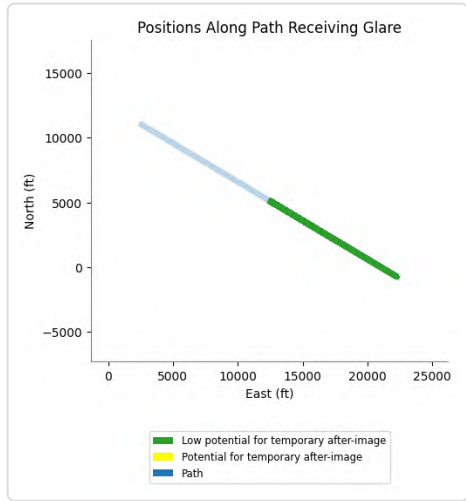
Yellow glare: none

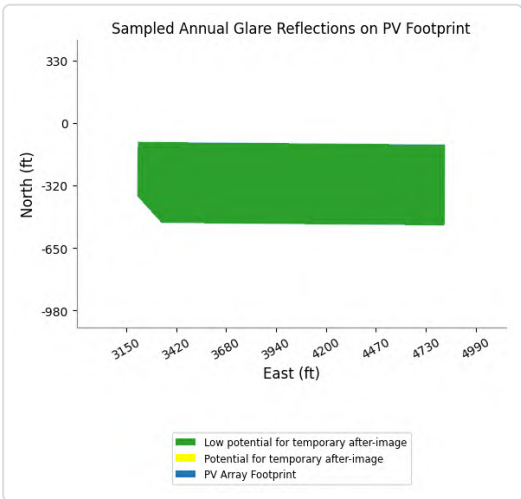
Green glare: 1,749 min.

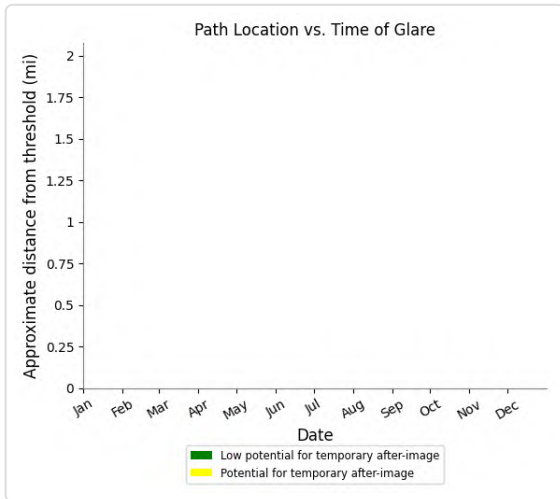








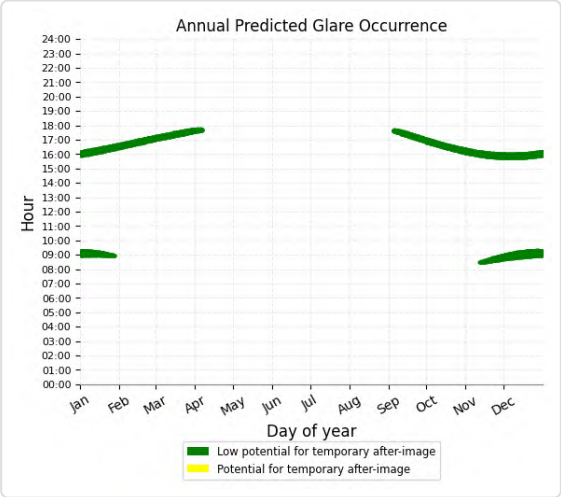


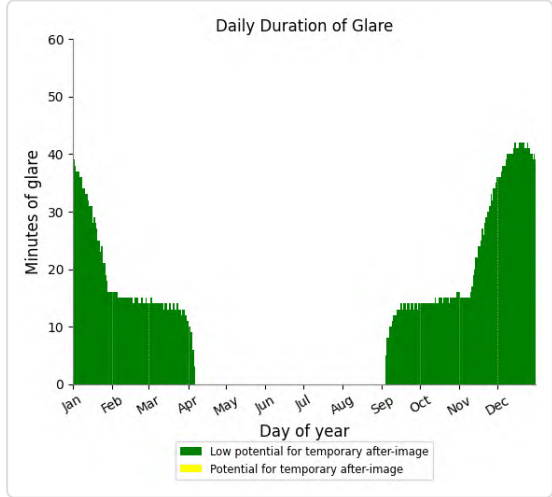


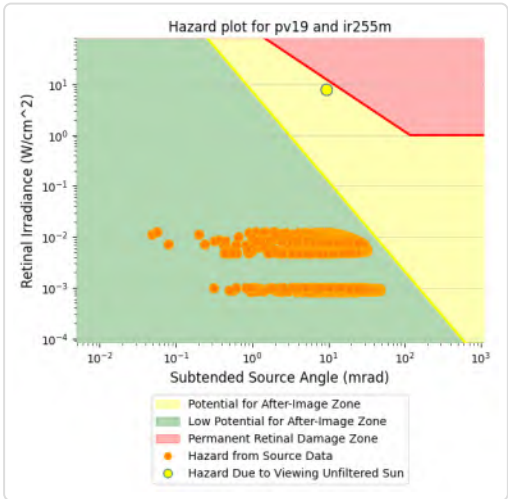
PV19 and FP: IR255m

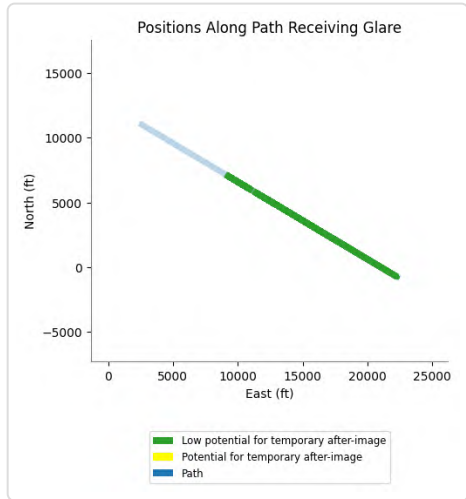
Yellow glare: none

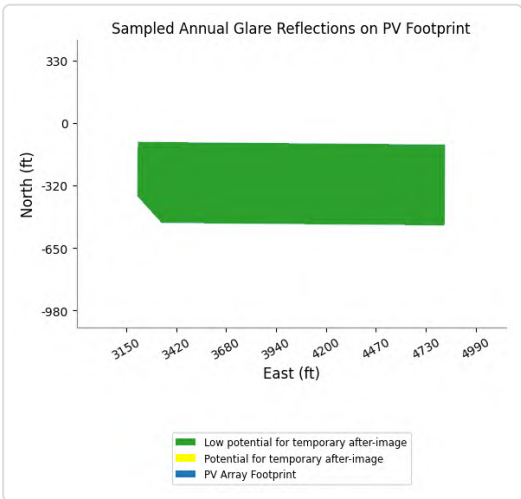
Green glare: 4,509 min.

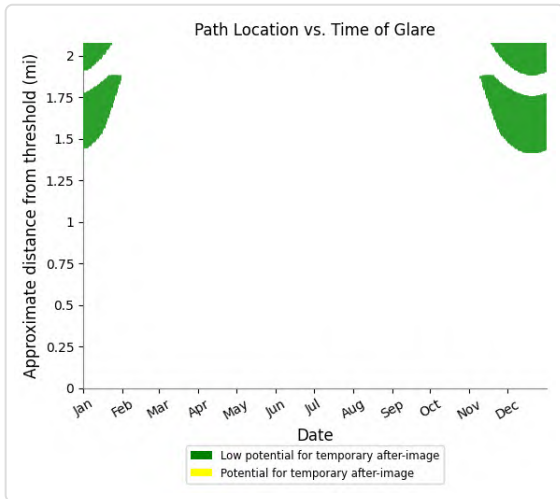








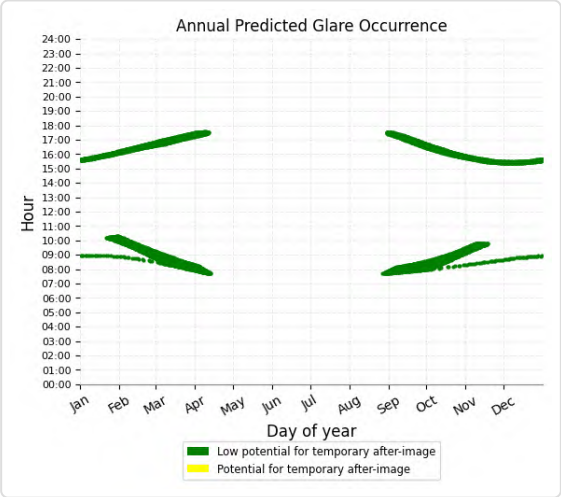


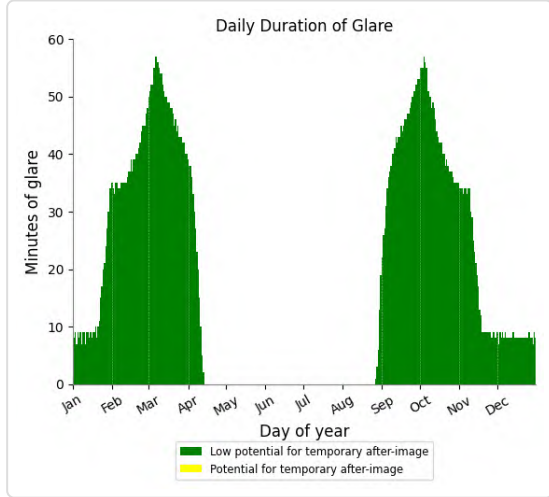


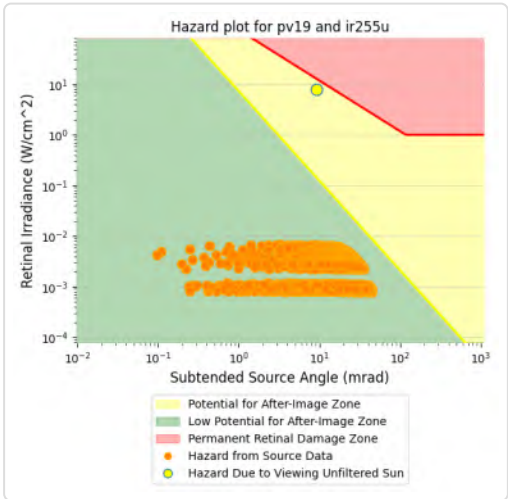
PV19 and FP: IR255u

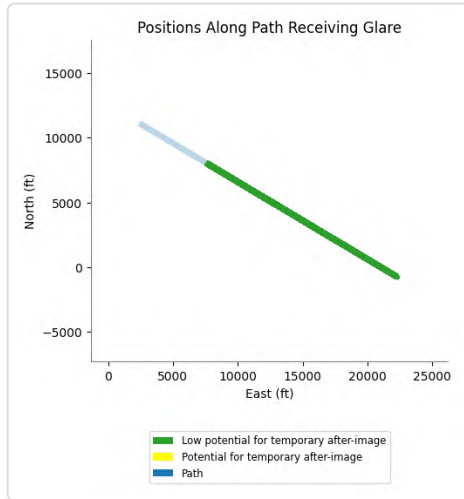
Yellow glare: none

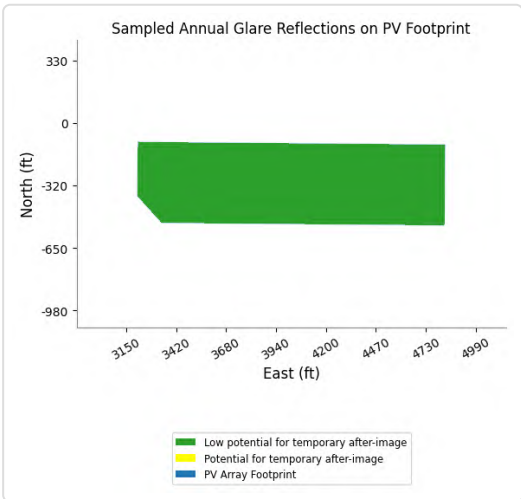
Green glare: 6,888 min.

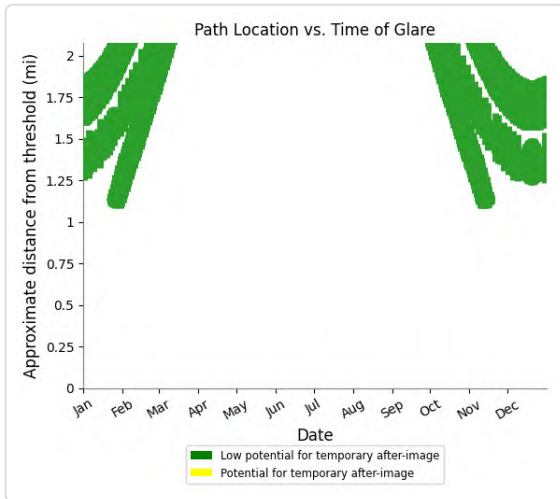








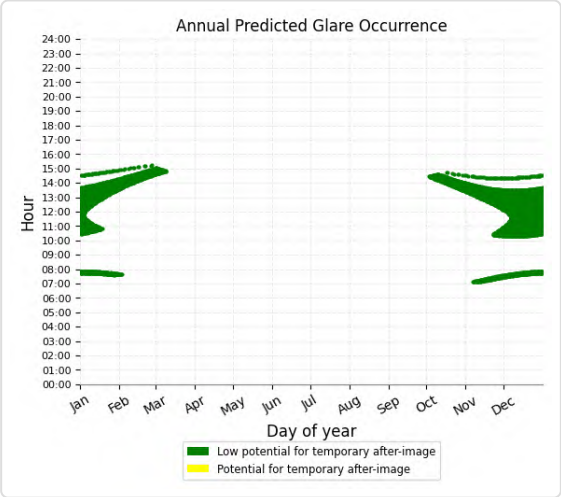


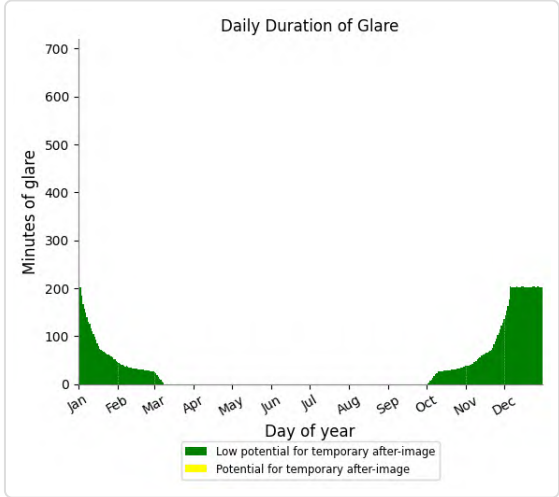


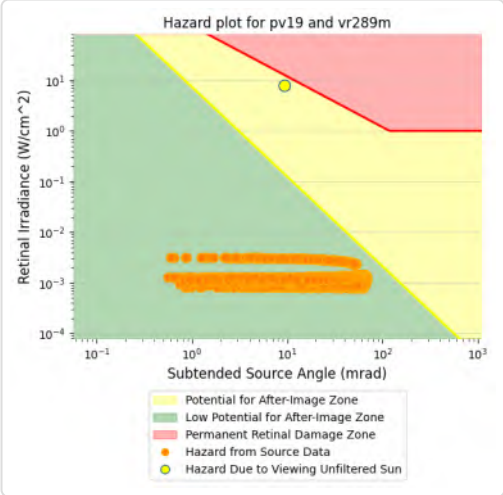
PV19 and FP: VR289m

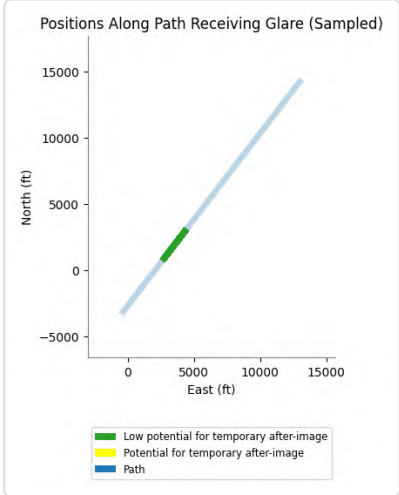
Yellow glare: none

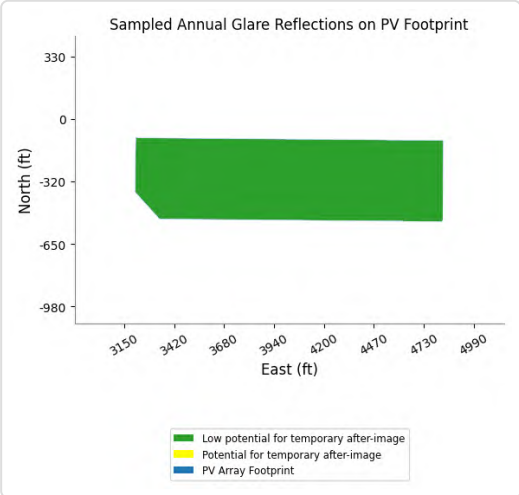
Green glare: 13,158 min.

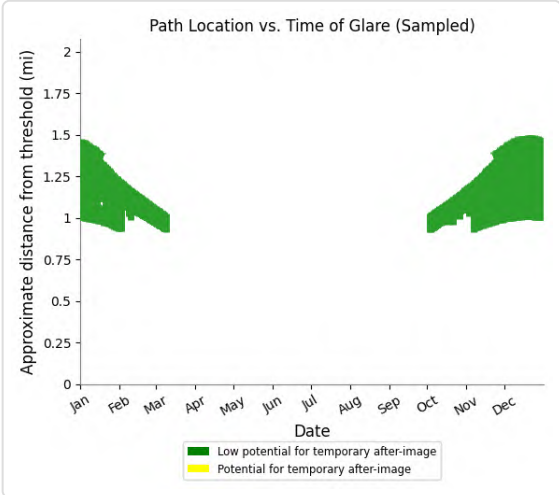








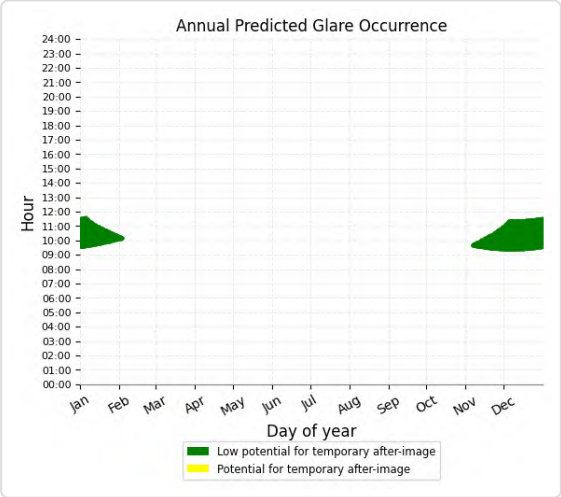


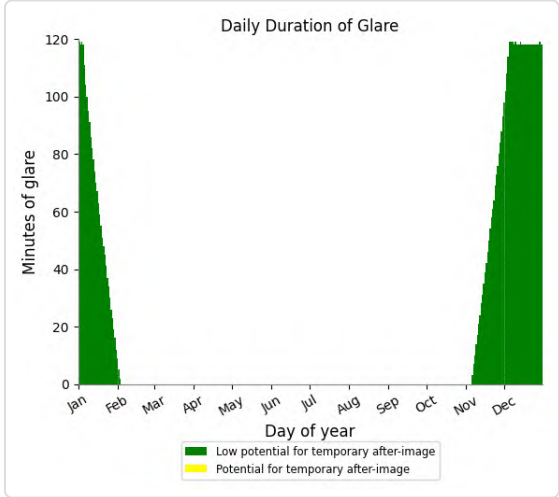


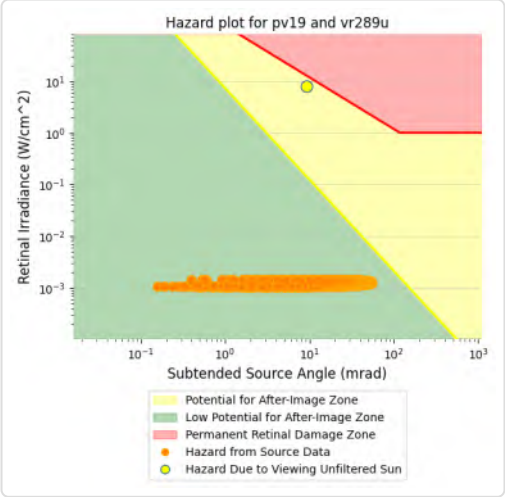
PV19 and FP: VR289u

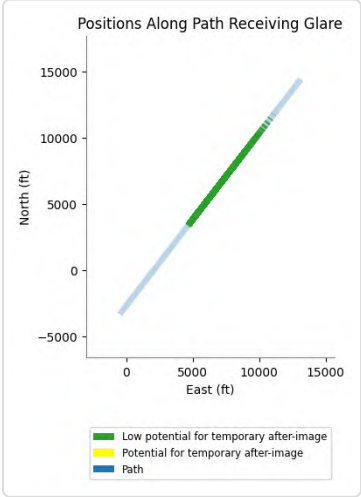
Yellow glare: none

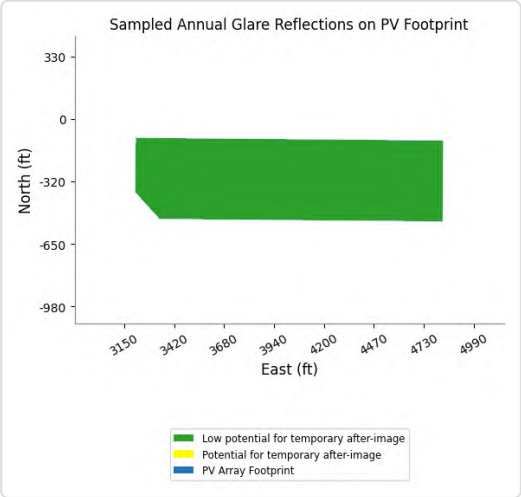
Green glare: 6,907 min.

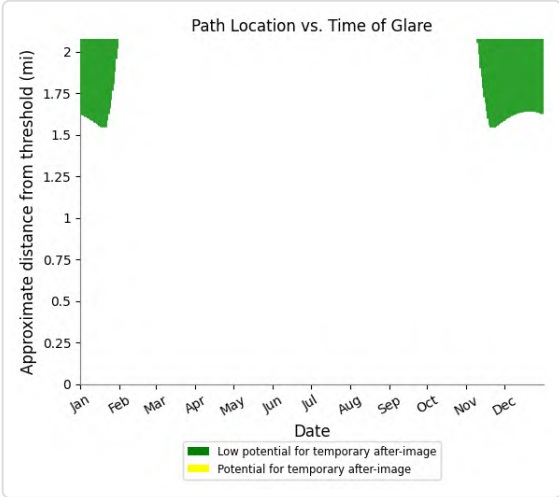








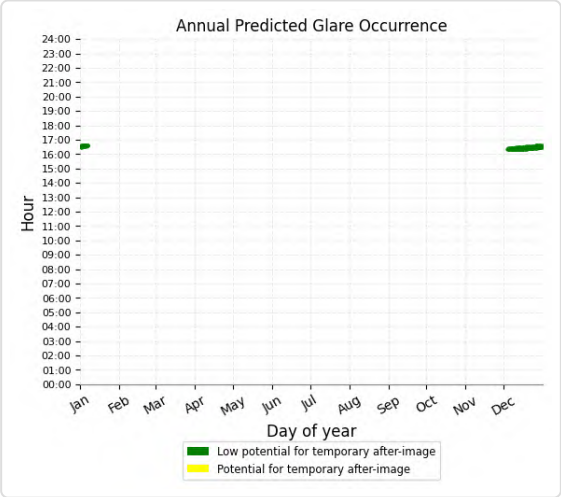


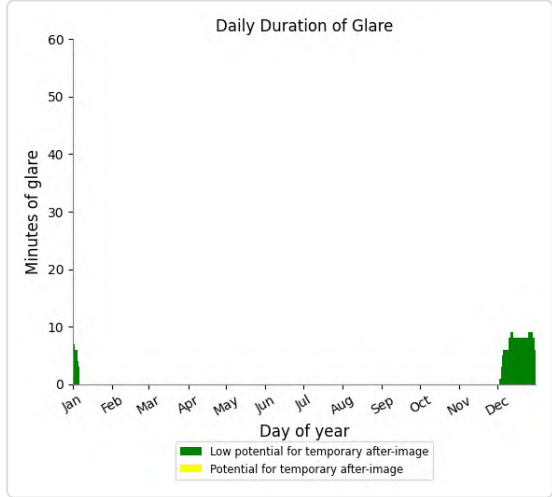


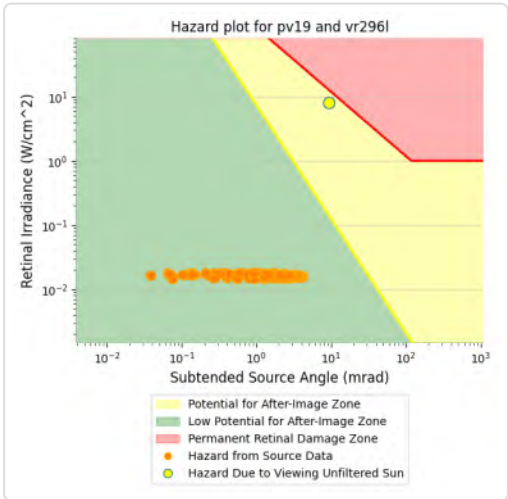
PV19 and FP: VR296l

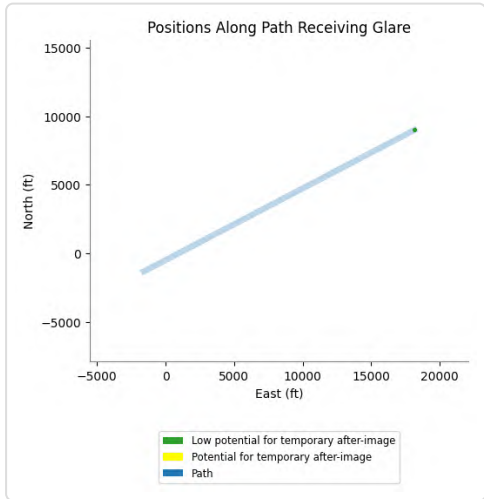
Yellow glare: none

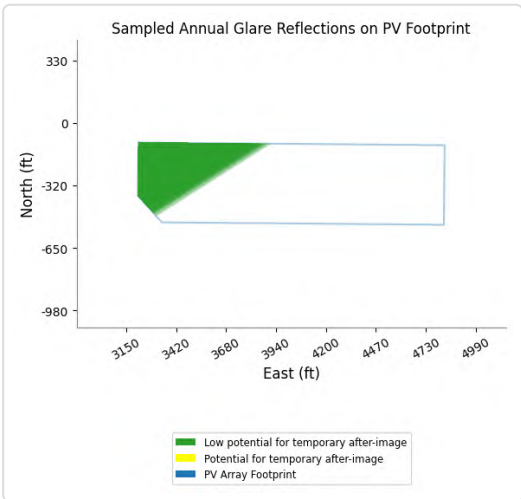
Green glare: 244 min.

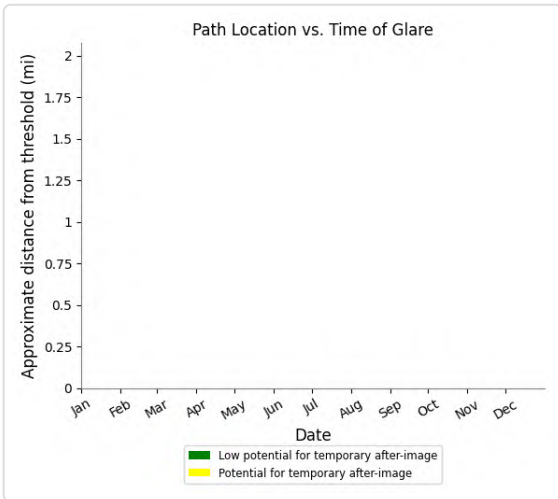








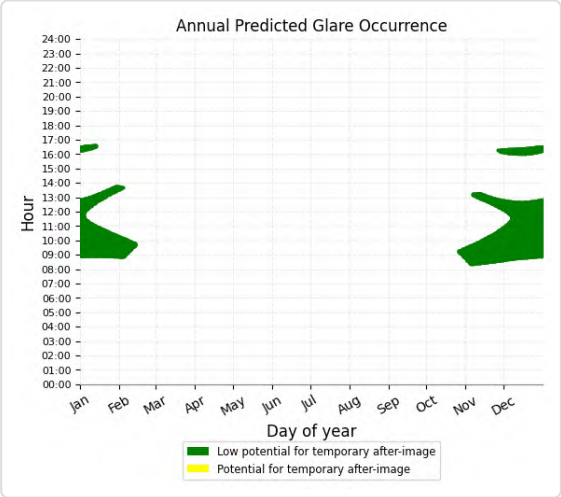


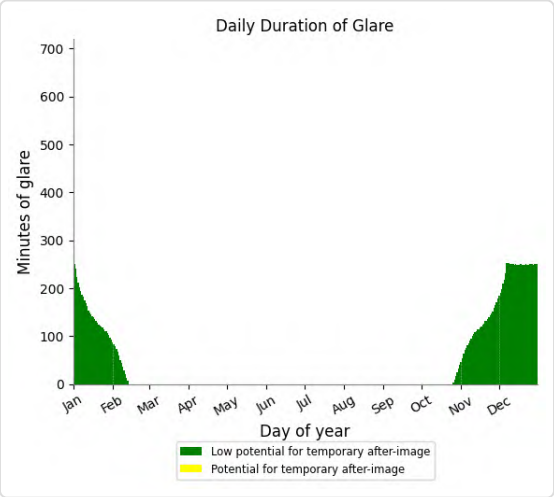


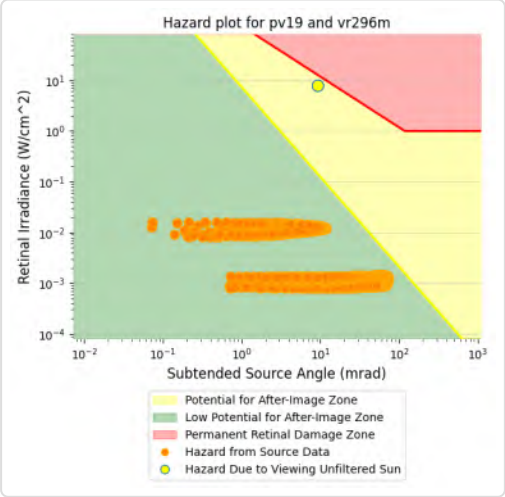
PV19 and FP: VR296m

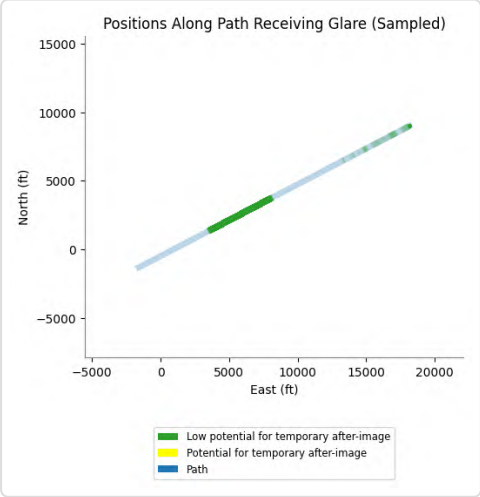
Yellow glare: none

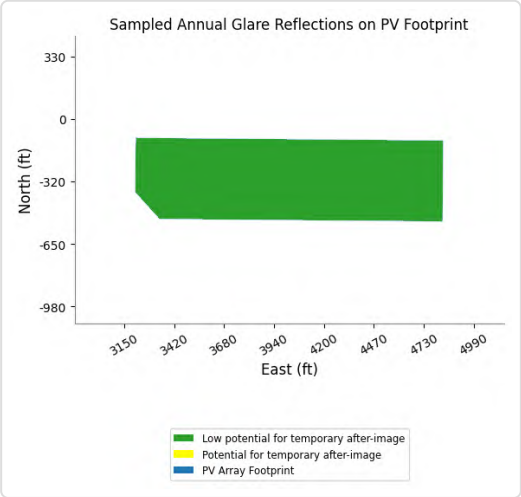
Green glare: 16,524 min.

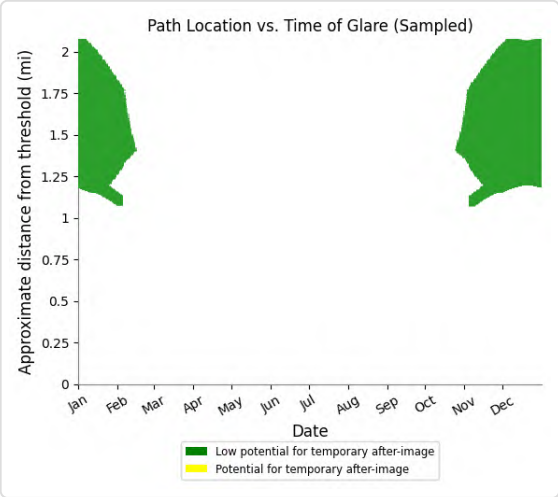








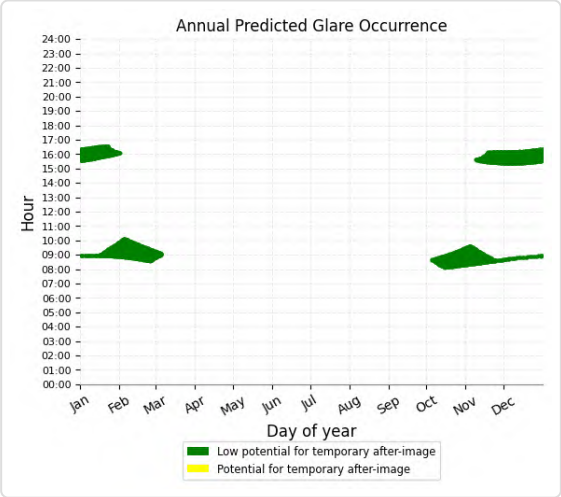


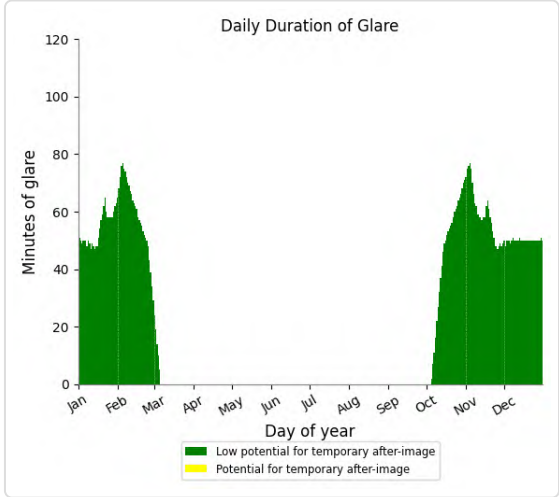


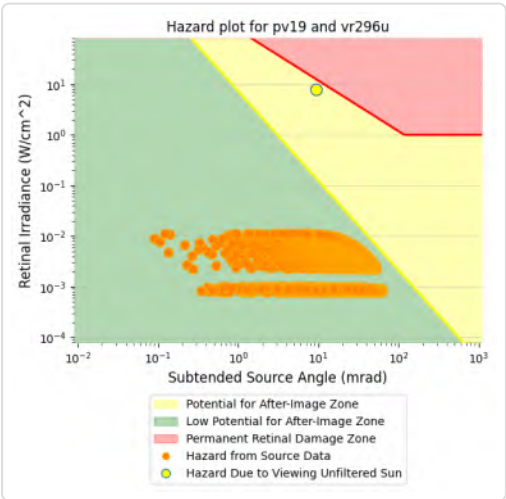
PV19 and FP: VR296u

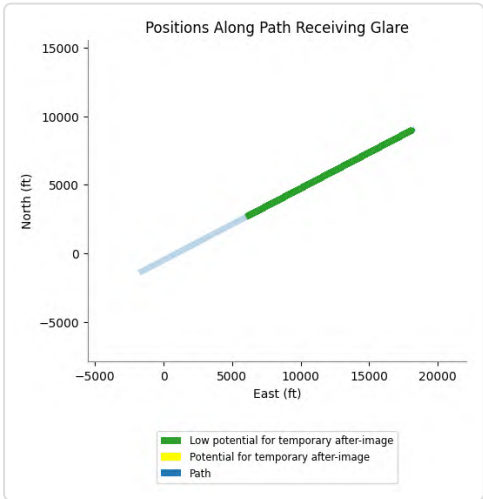
Yellow glare: none

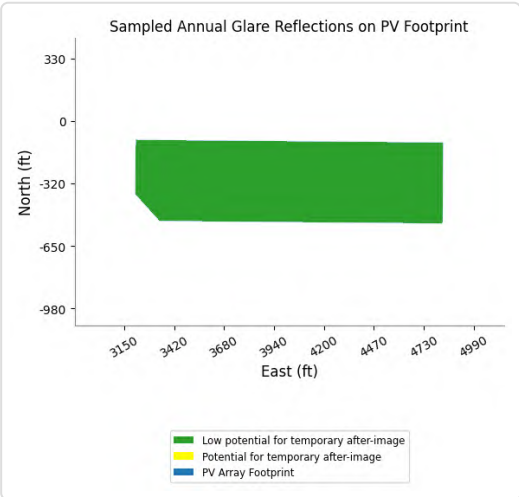
Green glare: 8,054 min.

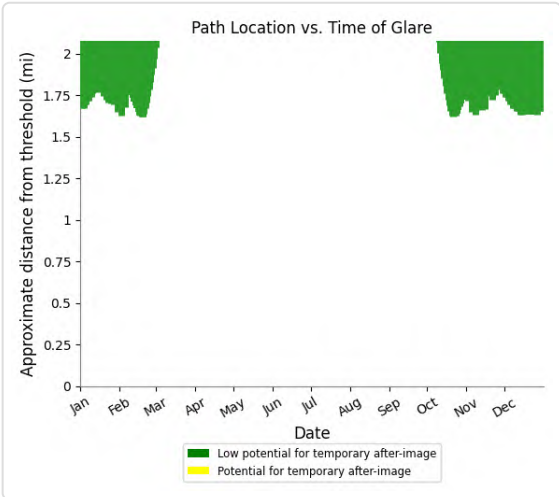












PV19 and FP: CN645

No glare found

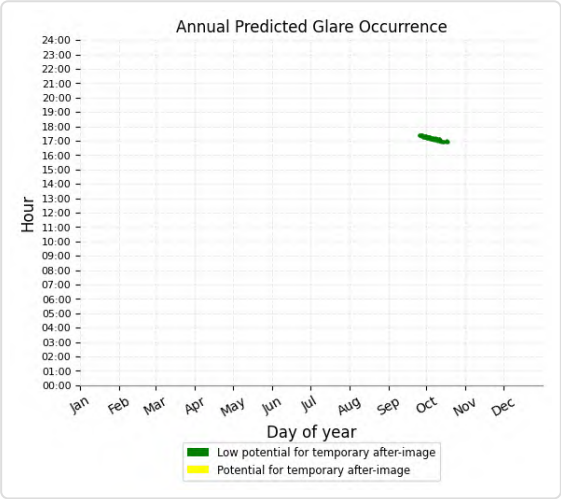
PV19 and FP: IR217I

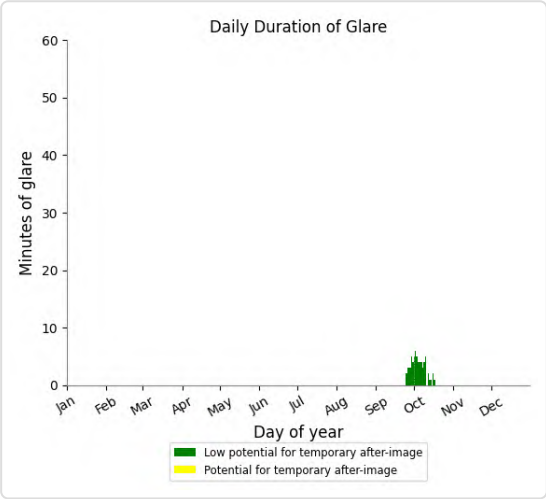
No glare found

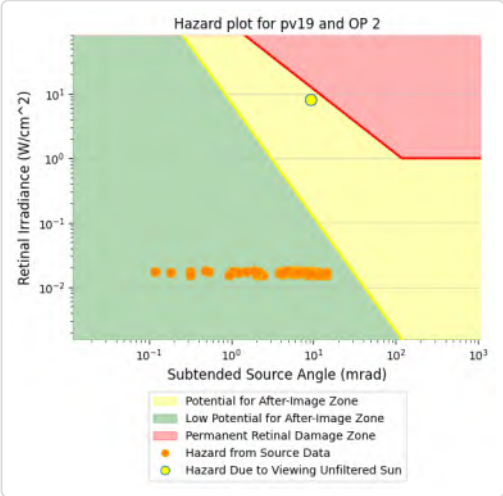
PV19 and OP 2

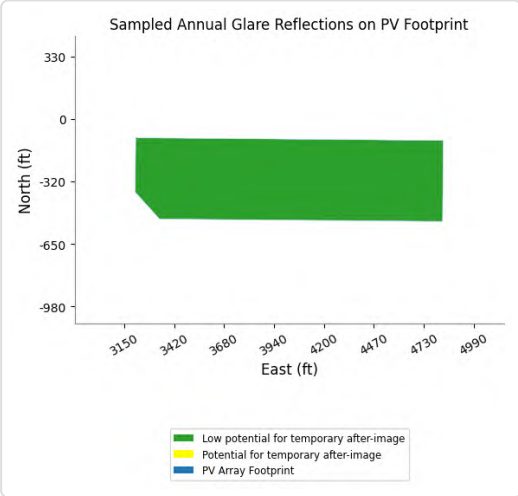
Yellow glare: none

Green glare: 71 min.





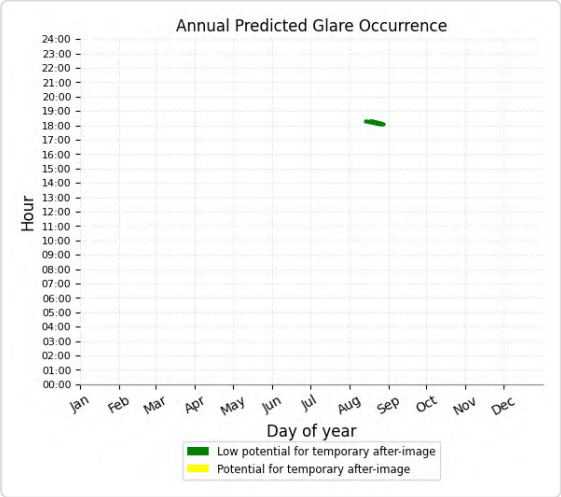


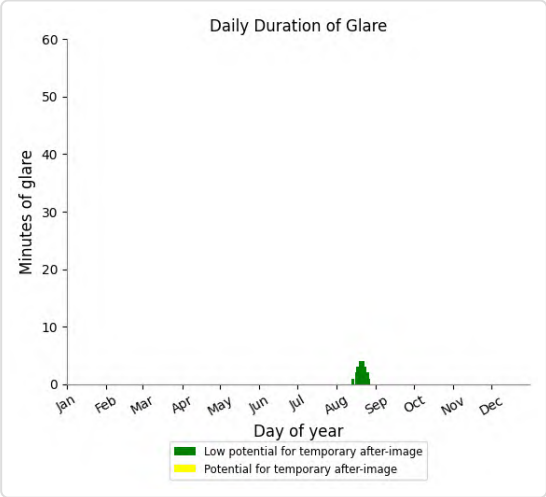


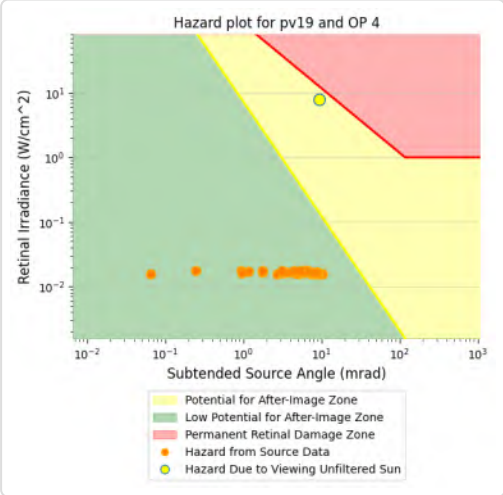
PV19 and OP 4

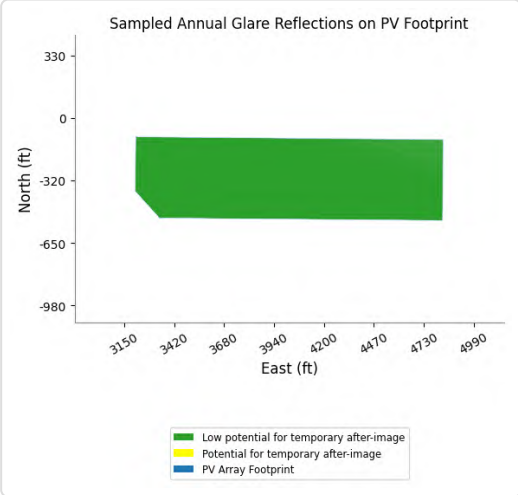
Yellow glare: none

Green glare: 37 min.



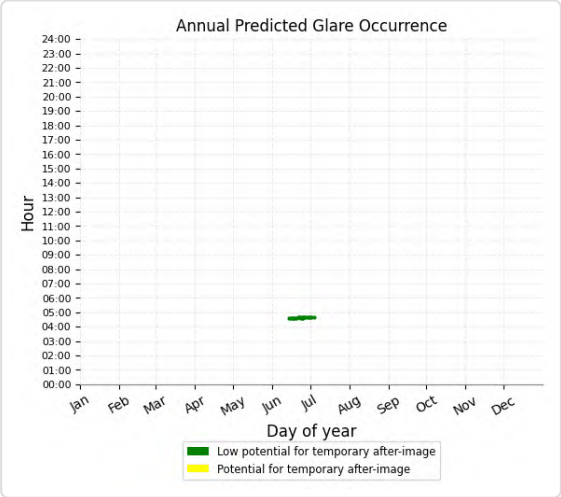


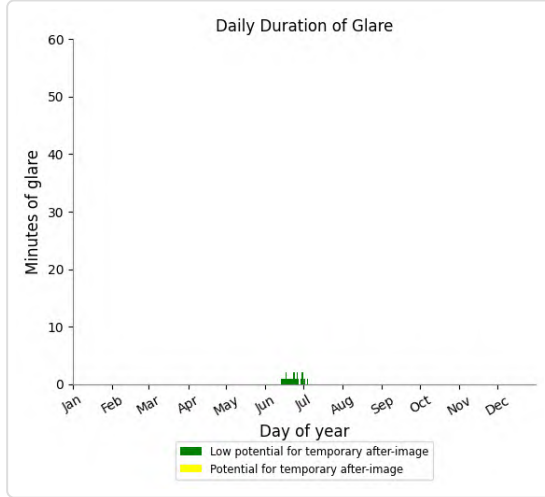


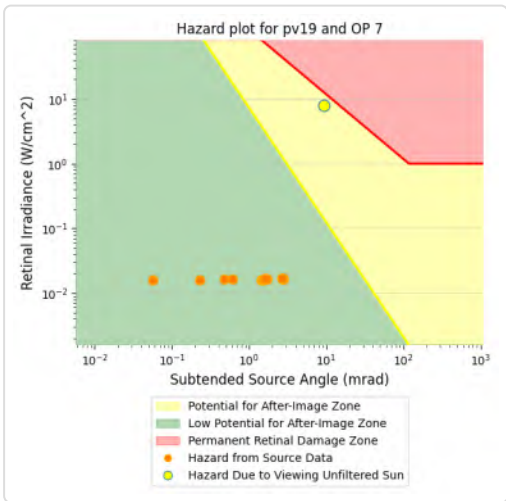


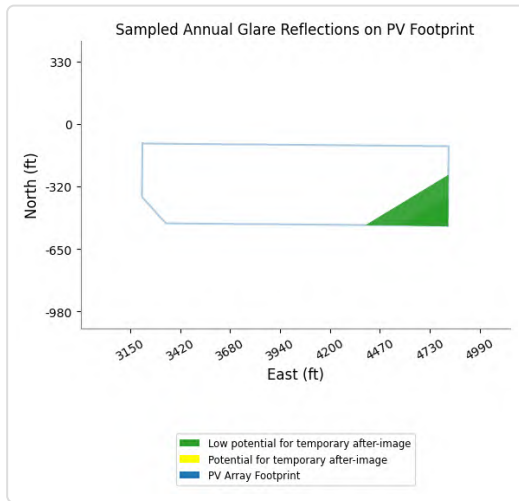
PV19 and OP 7

Yellow glare: none
Green glare: 24 min.









PV19 and OP 1

No glare found

PV19 and OP 3

No glare found

PV19 and OP 5

No glare found

PV19 and OP 6

No glare found

PV19 and OP 8

No glare found

PV19 and OP 9

No glare found

PV19 and OP 10

No glare found

PV19 and OP 11

No glare found

PV19 and OP 12

No glare found

PV19 and OP 13

No glare found

PV19 and OP 14

No glare found

PV19 and OP 15

No glare found

PV19 and OP 16

No glare found

PV19 and OP 17

No glare found

PV19 and OP 18

No glare found

PV19 and OP 19

No glare found

PV: PV20 potential temporary after-image

Receptor results ordered by category of glare

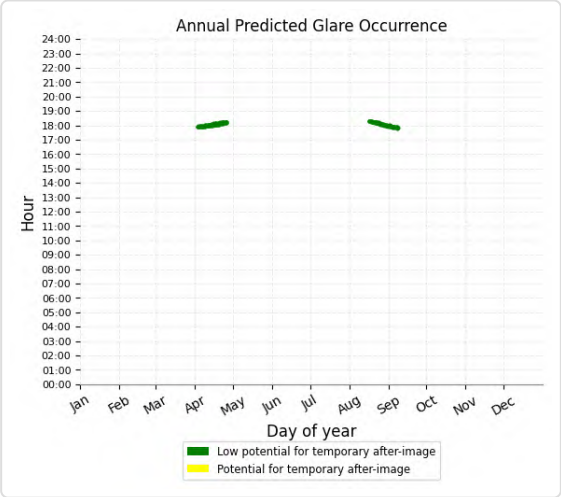
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd B	199	3.3	0	0.0
Race Track	536	8.9	0	0.0
SR177 A	560	9.3	0	0.0
SR177 B	531	8.8	0	0.0
SR177 C	403	6.7	0	0.0
AirportRd A	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR218l	2,266	37.8	2,076	34.6
CN6423	899	15.0	0	0.0
IR217m	9,255	154.2	0	0.0
IR217u	6,386	106.4	0	0.0
IR218m	5,974	99.6	0	0.0
IR218u	3,093	51.5	0	0.0
IR255l	1,688	28.1	0	0.0
IR255m	3,710	61.8	0	0.0
IR255u	7,323	122.0	0	0.0
VR289m	14,252	237.5	0	0.0
VR289u	5,230	87.2	0	0.0
VR296m	14,531	242.2	0	0.0
VR296u	10,100	168.3	0	0.0
CN645	0	0.0	0	0.0
IR217l	0	0.0	0	0.0
VR289l	0	0.0	0	0.0
VR296l	0	0.0	0	0.0
OP 2	103	1.7	0	0.0
OP 4	49	0.8	0	0.0

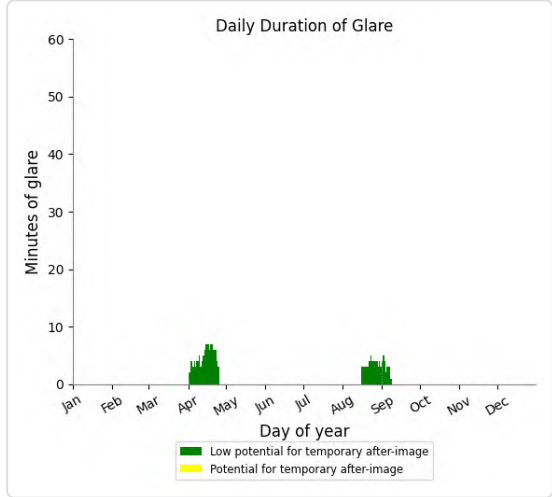
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 7	77	1.3	0	0.0
OP 1	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

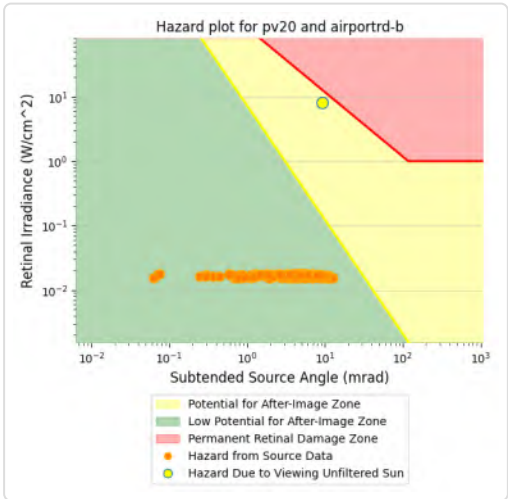
PV20 and Route: AirportRd B

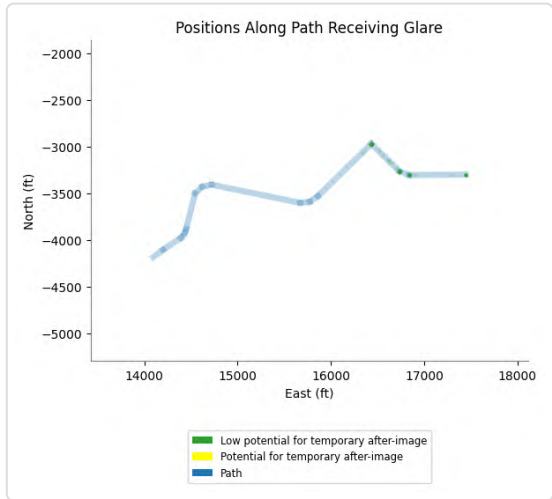
Yellow glare: none

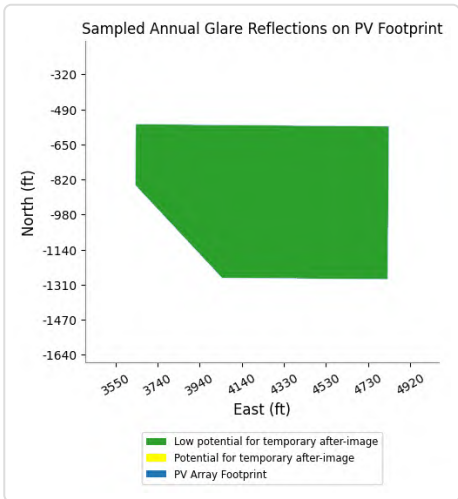
Green glare: 199 min.







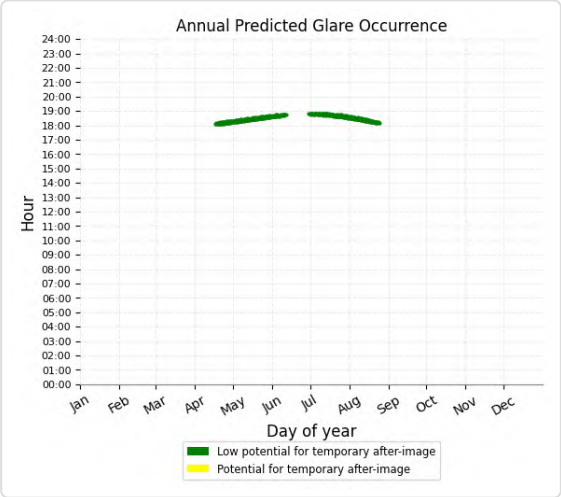


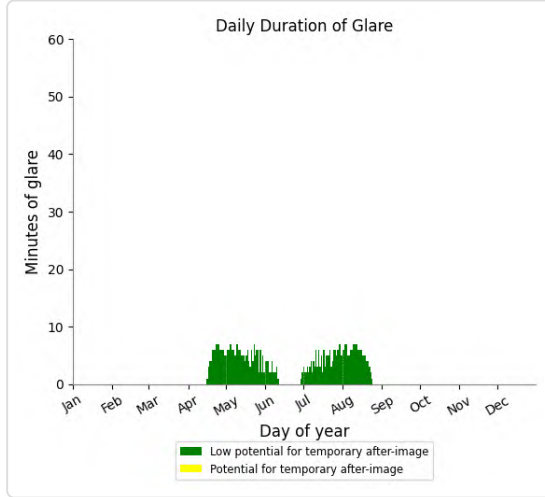


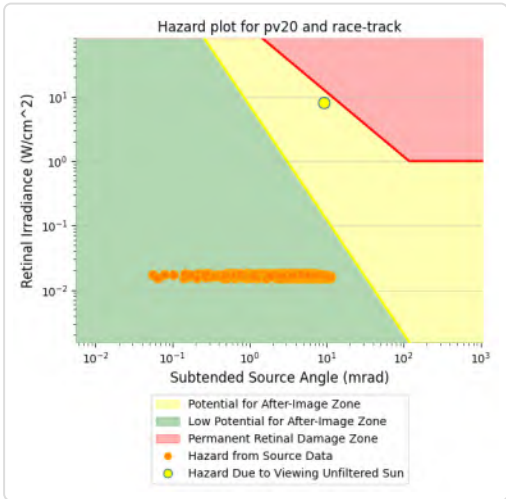
PV20 and Route: Race Track

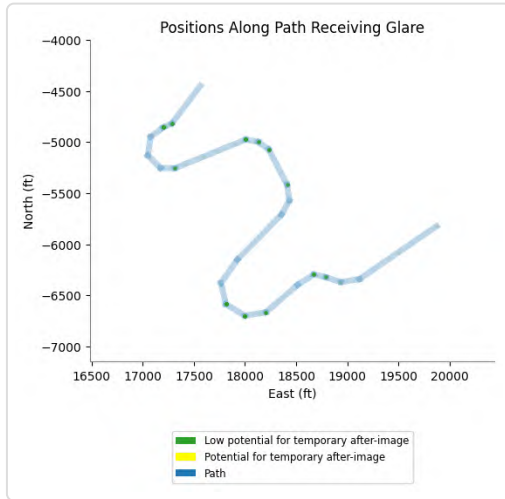
Yellow glare: none

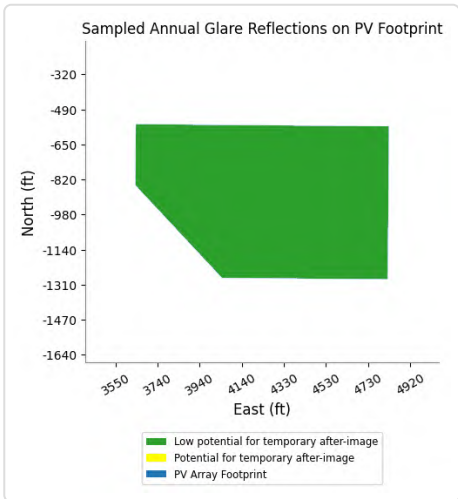
Green glare: 536 min.







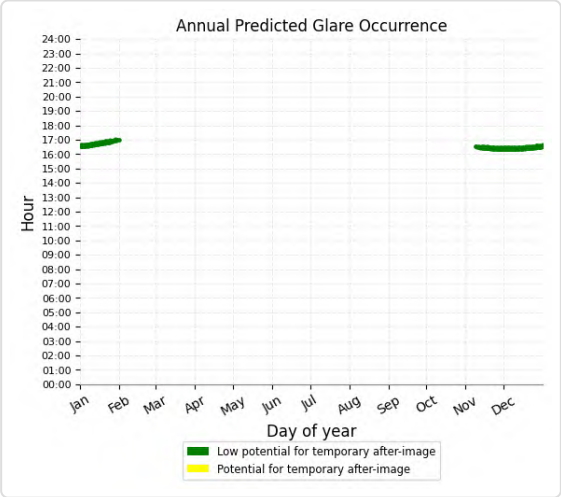


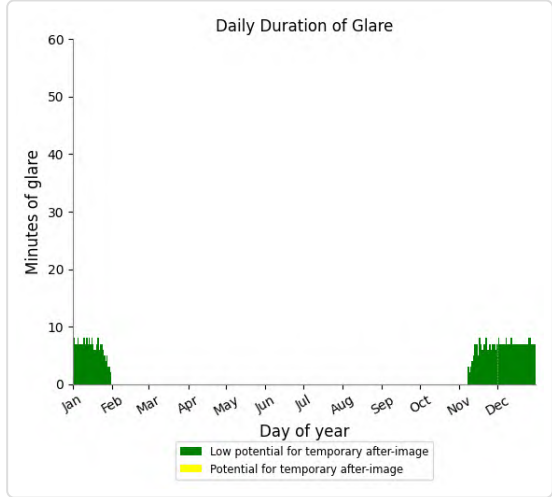


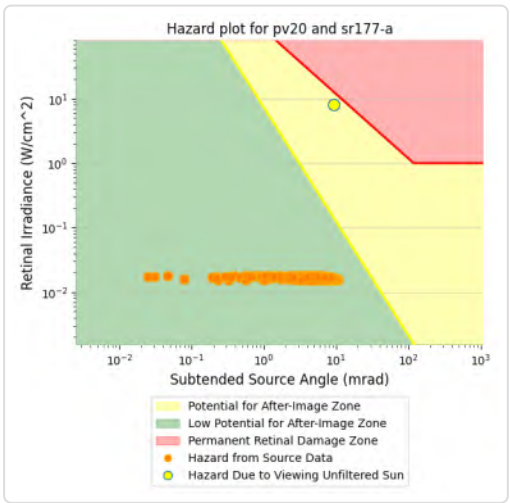
PV20 and Route: SR177 A

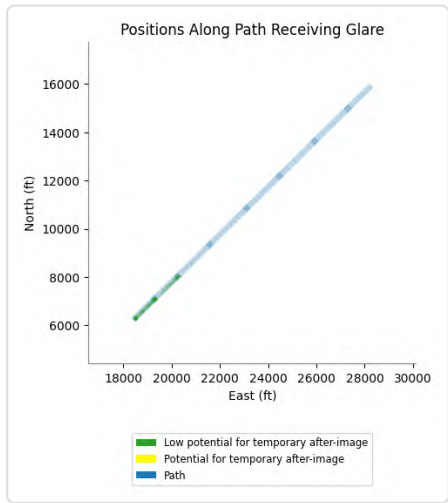
Yellow glare: none

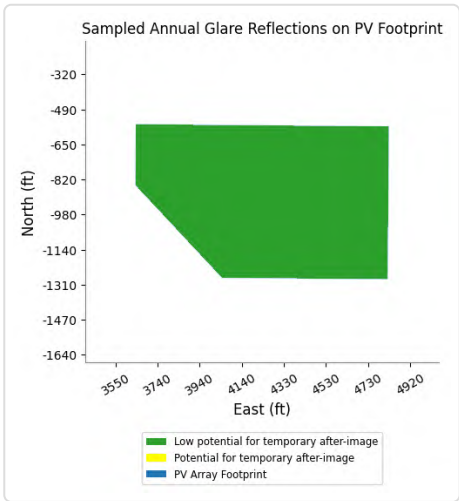
Green glare: 560 min.







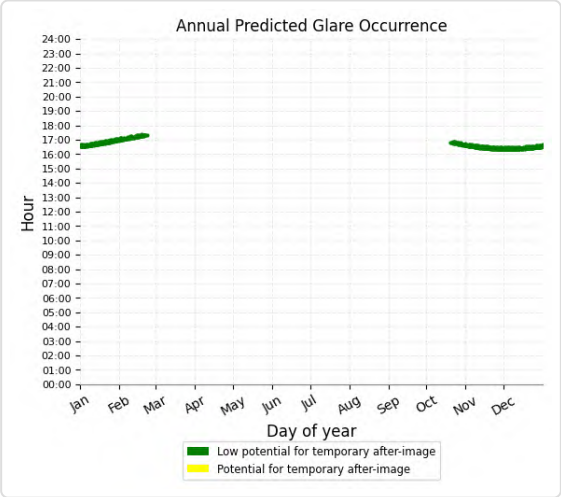


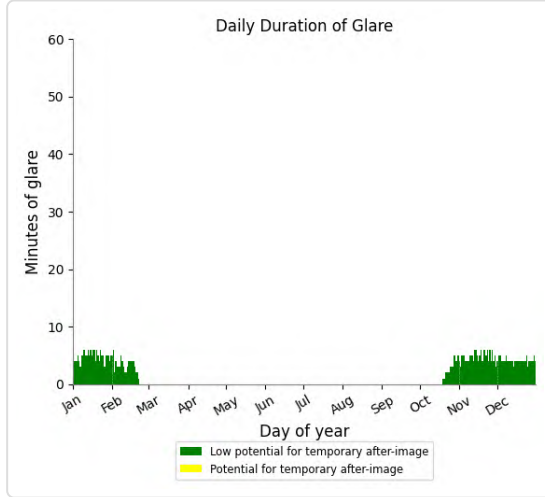


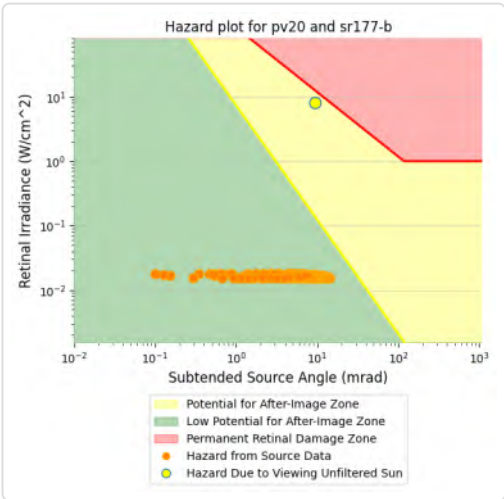
PV20 and Route: SR177 B

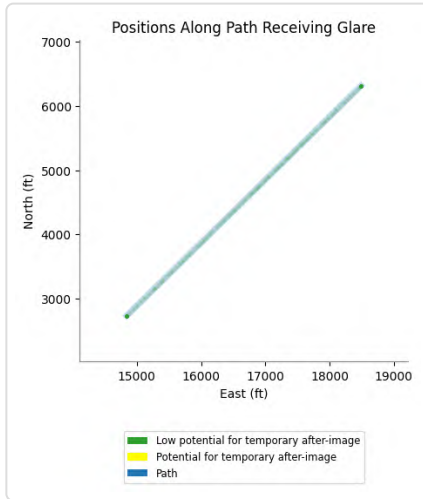
Yellow glare: none

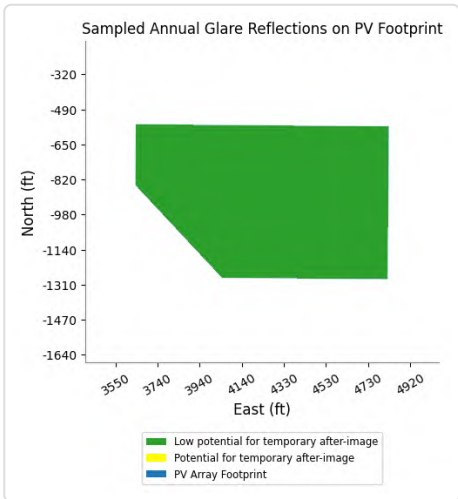
Green glare: 531 min.







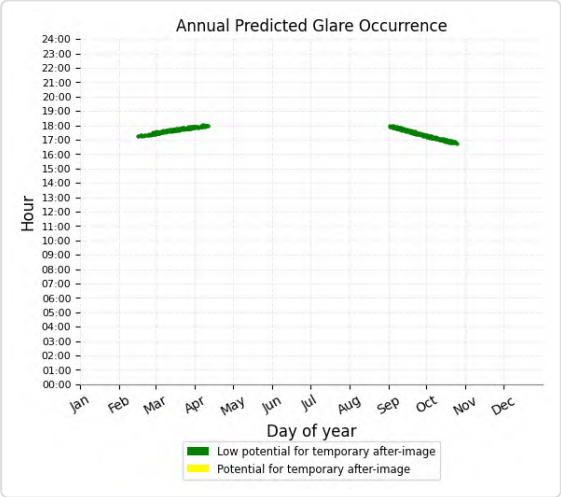


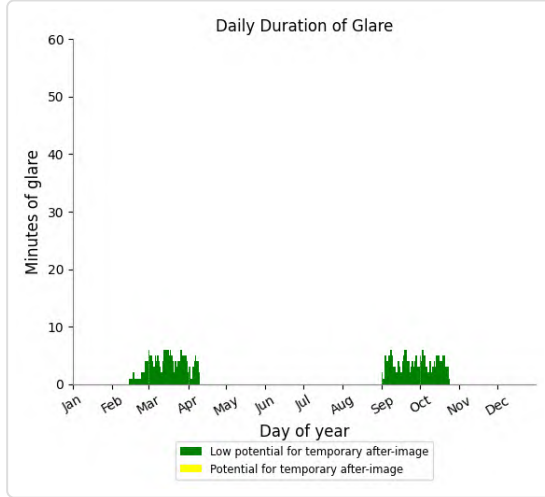


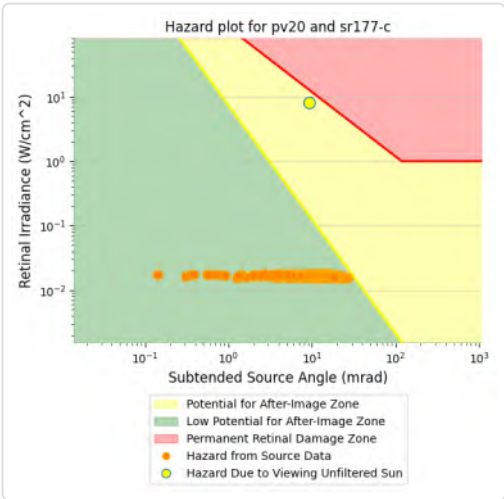
PV20 and Route: SR177 C

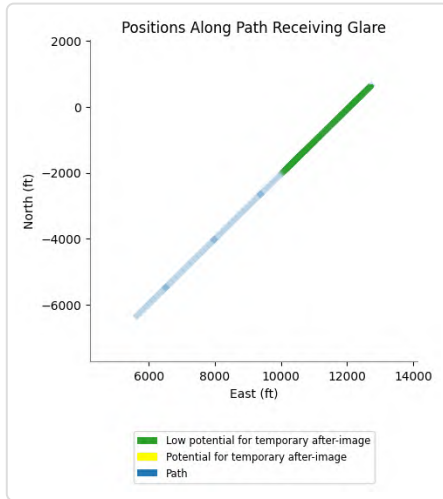
Yellow glare: none

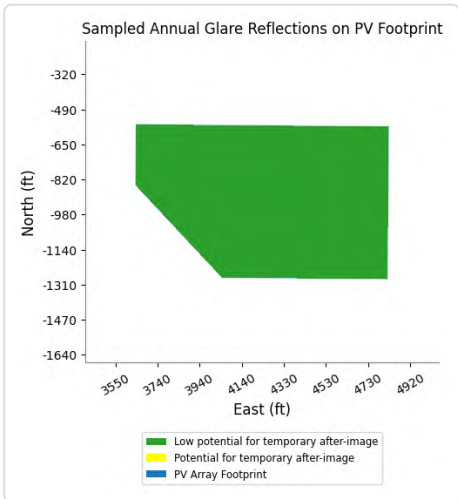
Green glare: 403 min.











PV20 and Route: AirportRd A

No glare found

PV20 and Route: EagleMtnRd A

No glare found

PV20 and Route: EagleMtnRd B

No glare found

PV20 and Route: I-10 EB A

No glare found

PV20 and Route: I-10 EB B

No glare found

PV20 and Route: I-10 EB C

No glare found

PV20 and Route: I-10 WB A

No glare found

PV20 and Route: I-10 WB B

No glare found

PV20 and Route: I-10 WB C

No glare found

PV20 and Route: KaiserRd A

No glare found

PV20 and Route: KaiserRd B

No glare found

PV20 and Route: KaiserRd C

No glare found

PV20 and Route: OasisRd

No glare found

PV20 and Route: SR177 D

No glare found

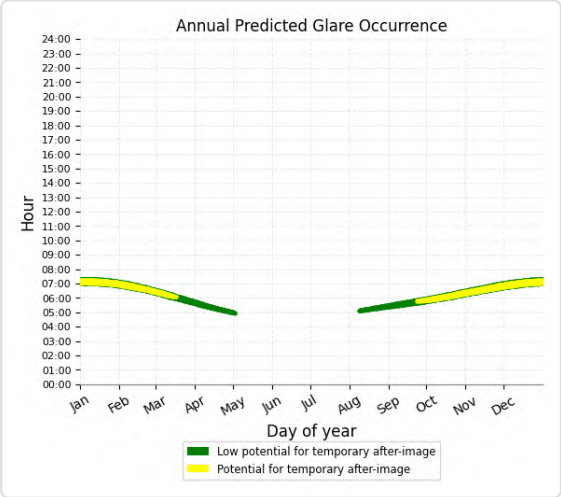
PV20 and Route: SR177 E

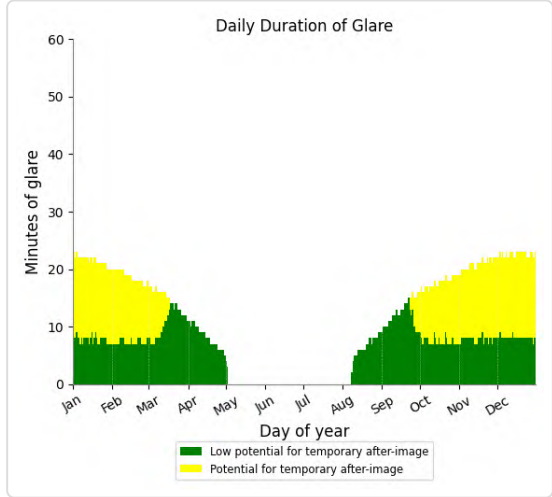
No glare found

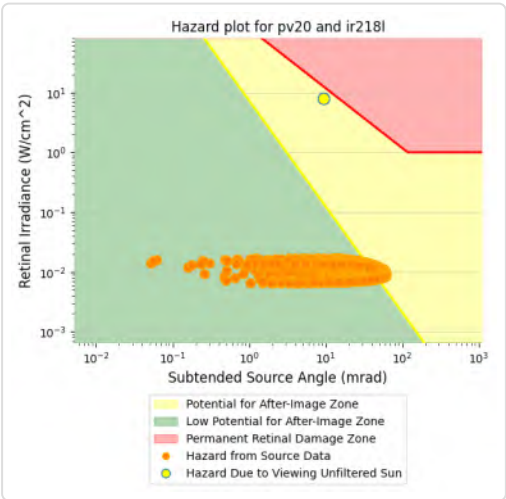
PV20 and FP: IR218I

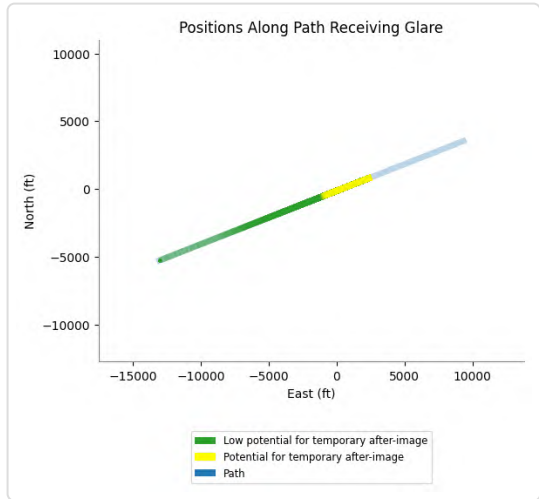
Yellow glare: 2,076 min.

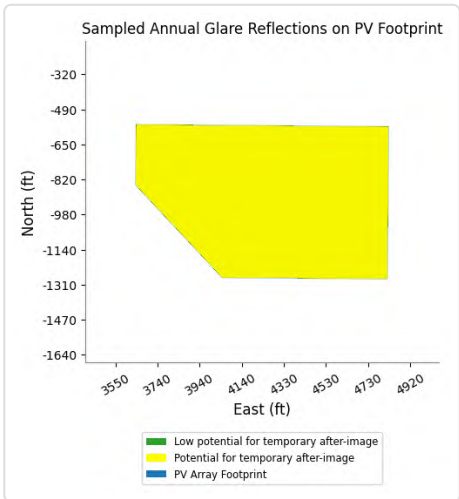
Green glare: 2,266 min.

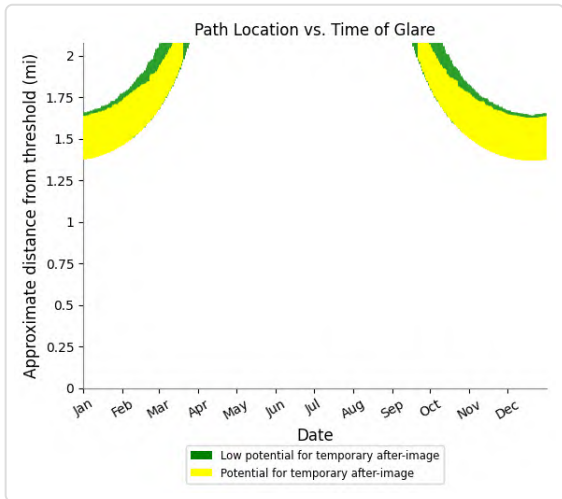








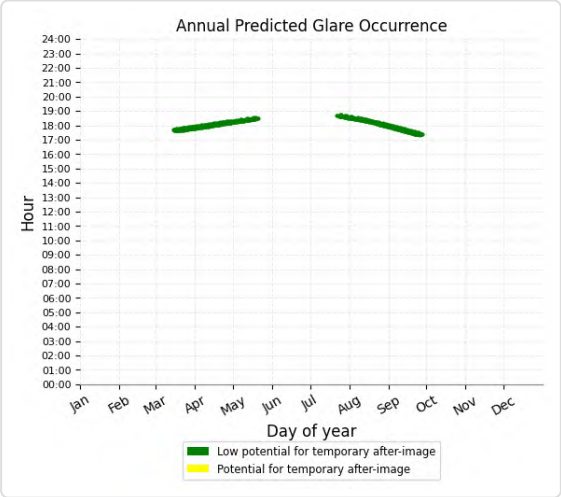


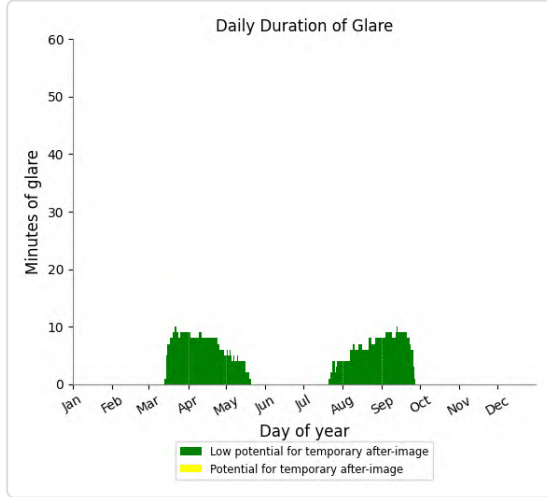


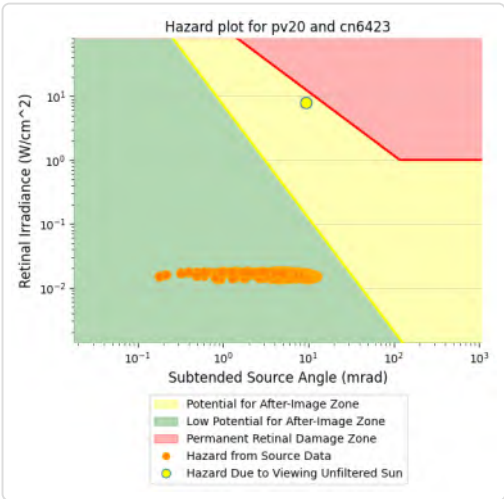
PV20 and FP: CN6423

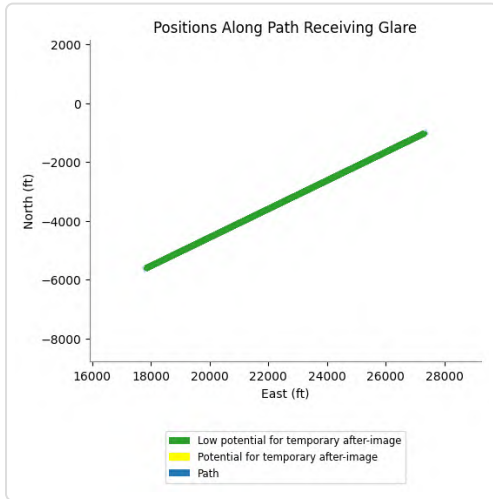
Yellow glare: none

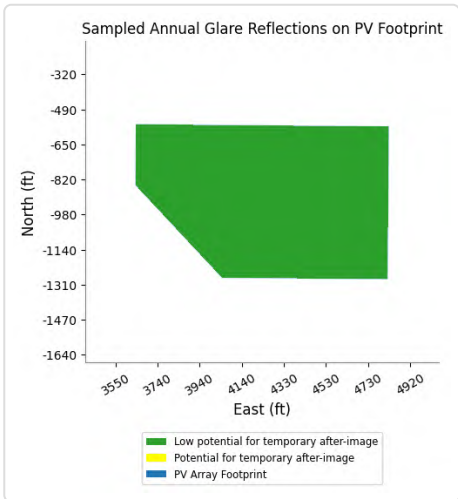
Green glare: 899 min.

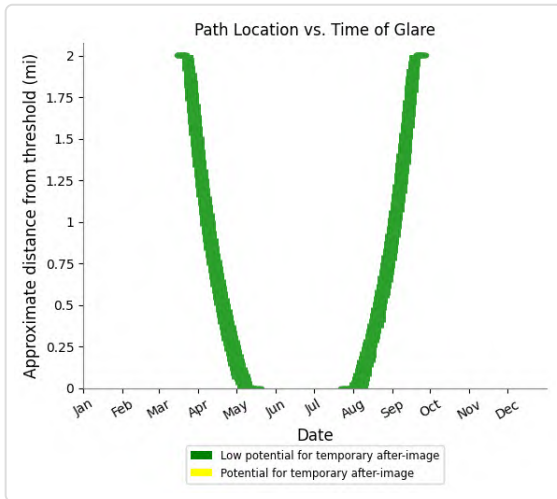








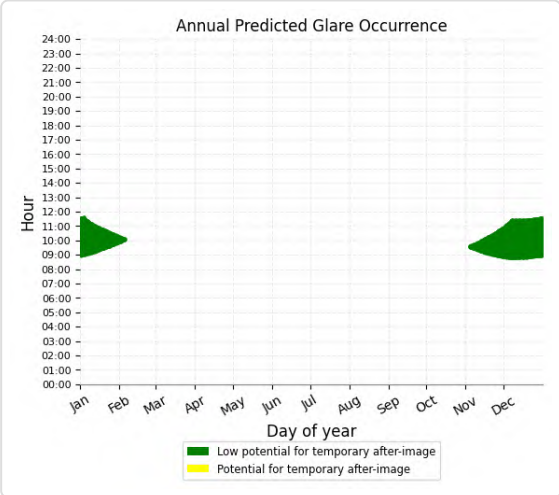


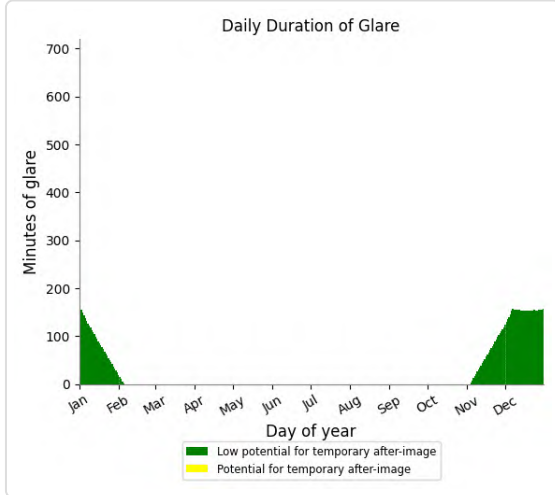


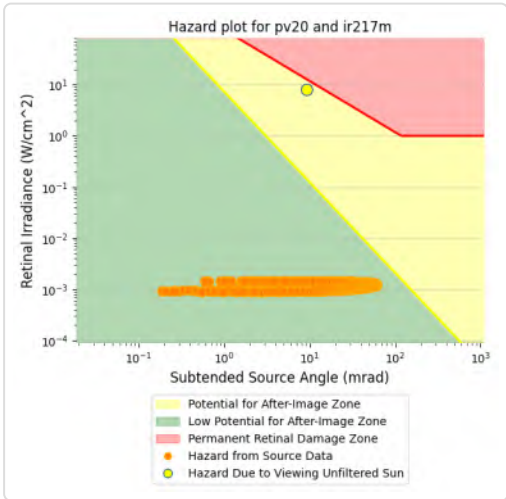
PV20 and FP: IR217m

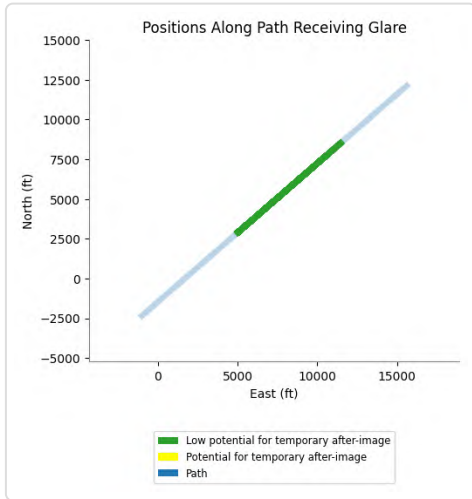
Yellow glare: none

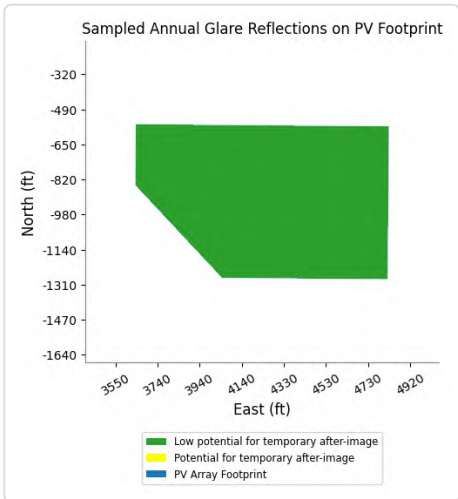
Green glare: 9,255 min.

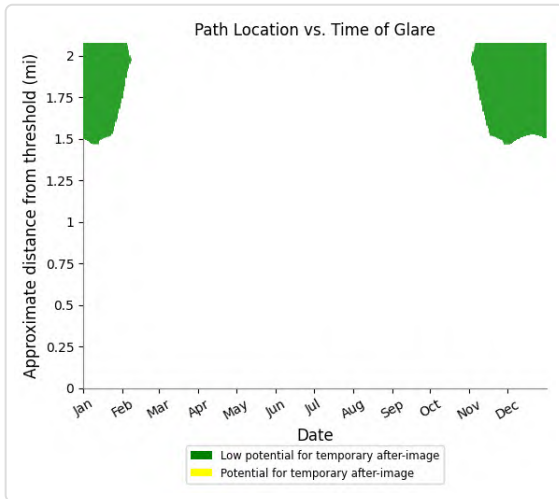








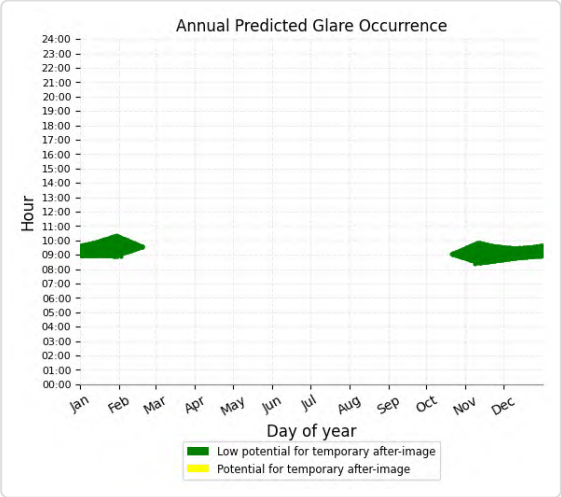


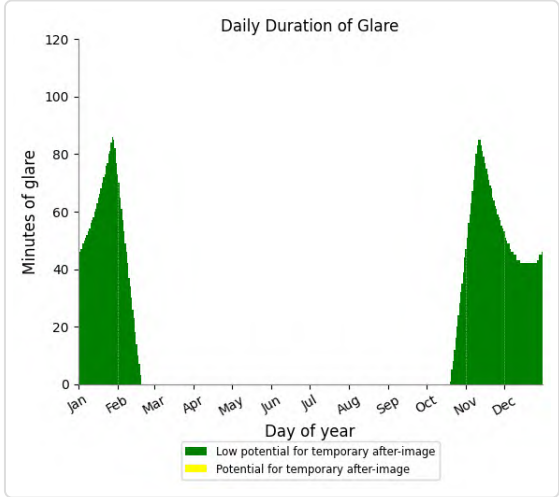


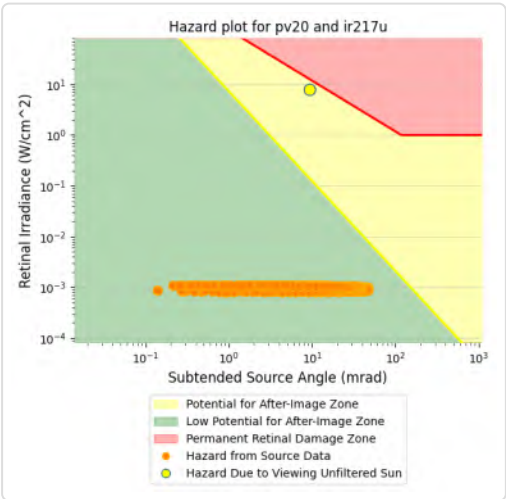
PV20 and FP: IR217u

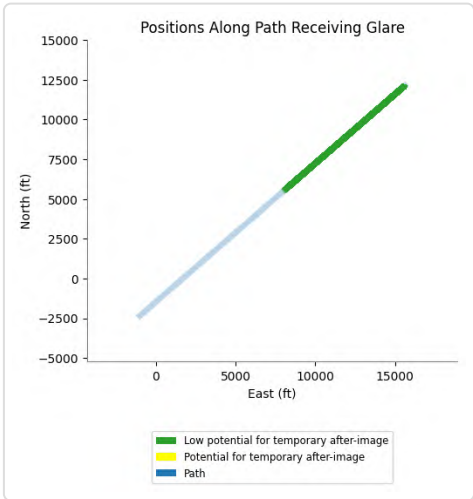
Yellow glare: none

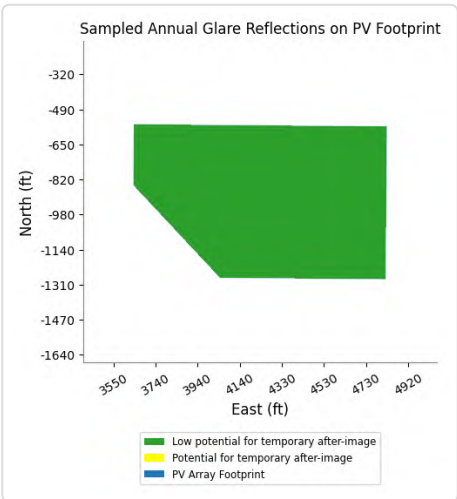
Green glare: 6,386 min.

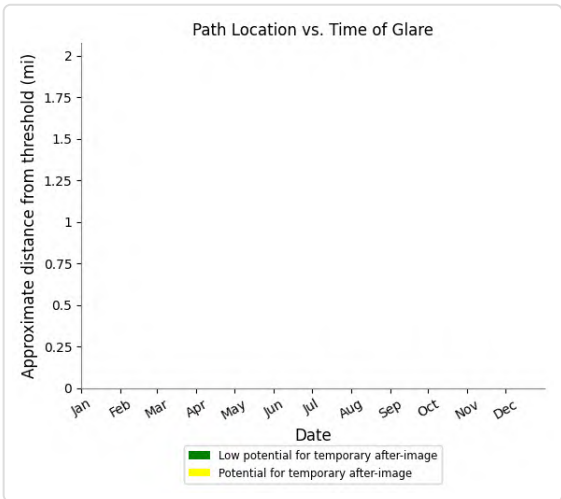








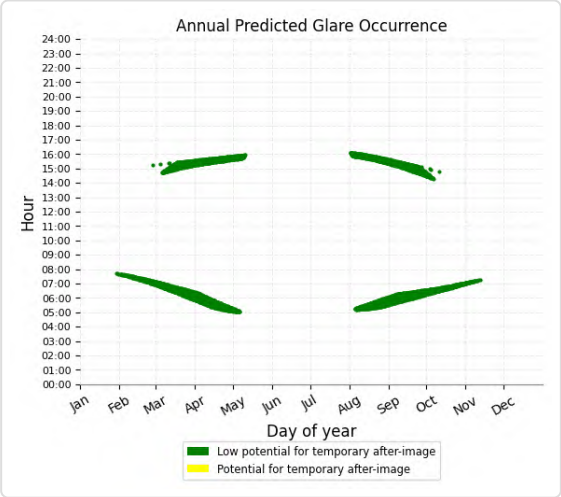


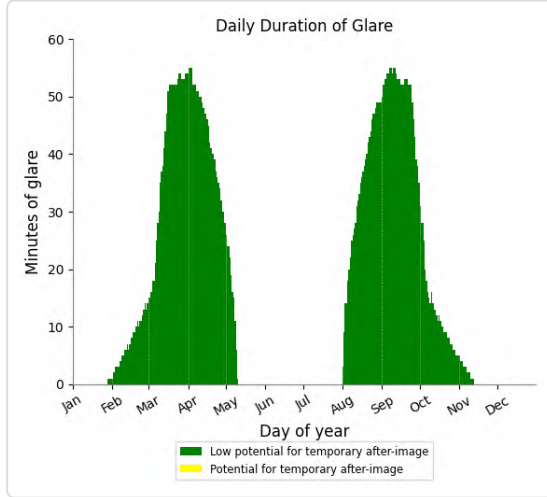


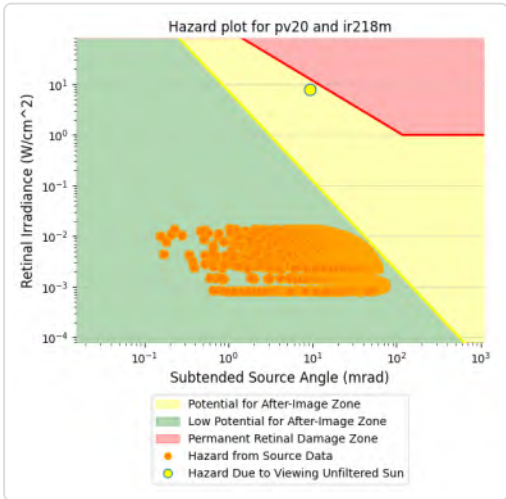
PV20 and FP: IR218m

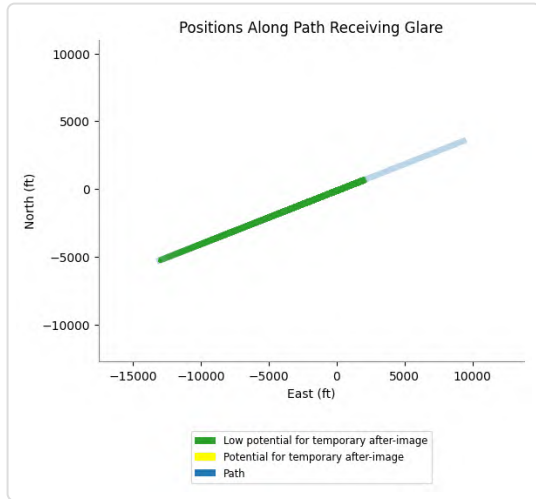
Yellow glare: none

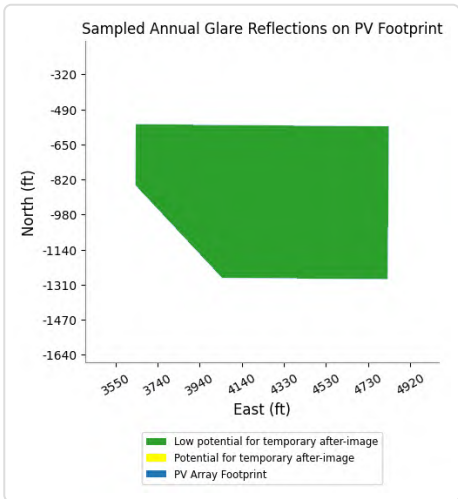
Green glare: 5,974 min.

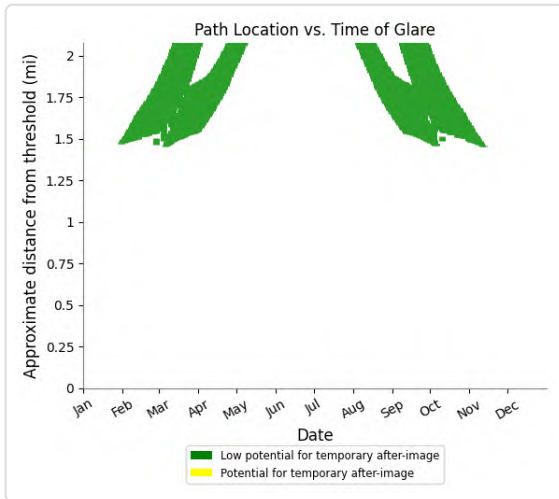








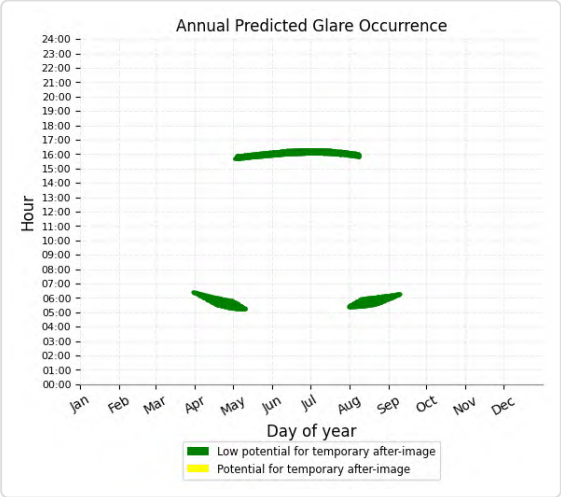


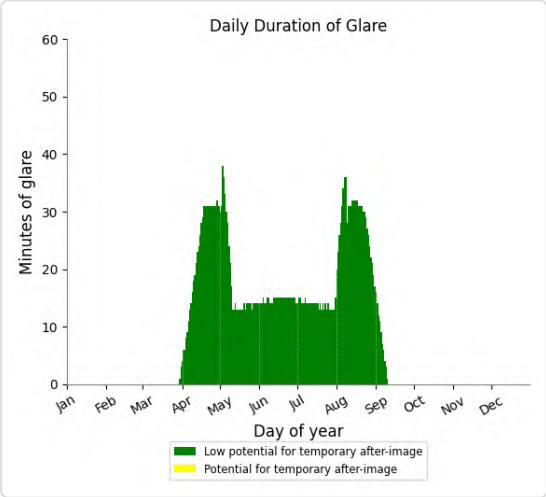


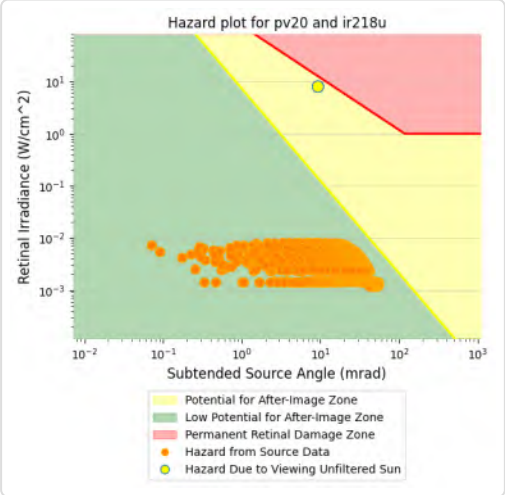
PV20 and FP: IR218u

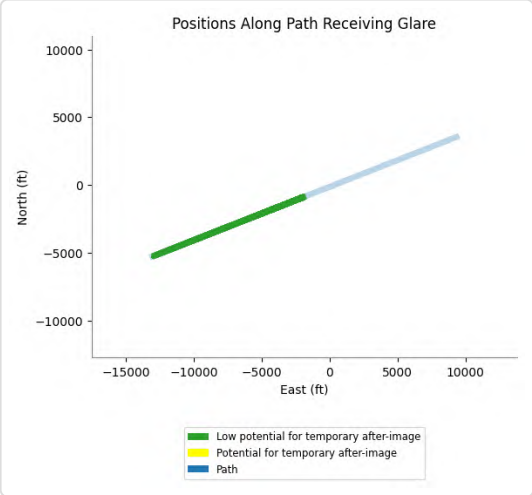
Yellow glare: none

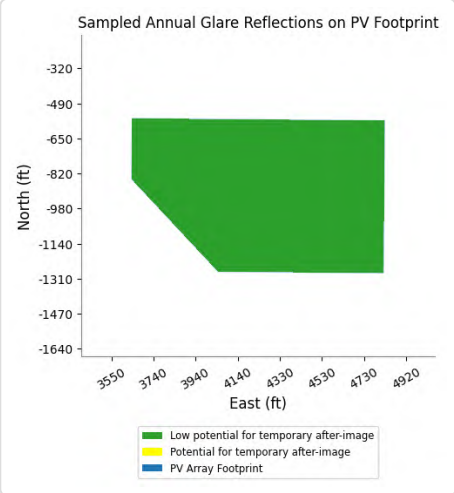
Green glare: 3,093 min.

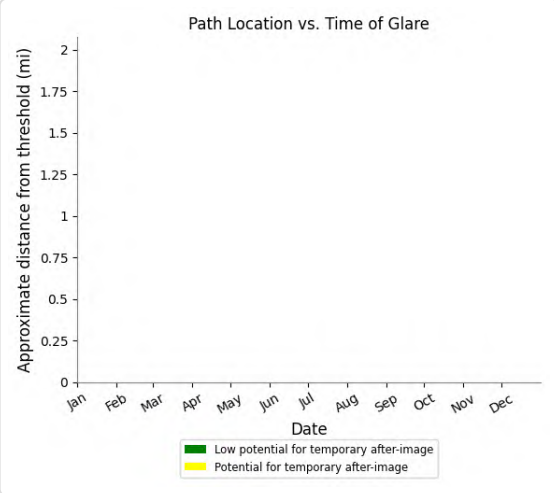








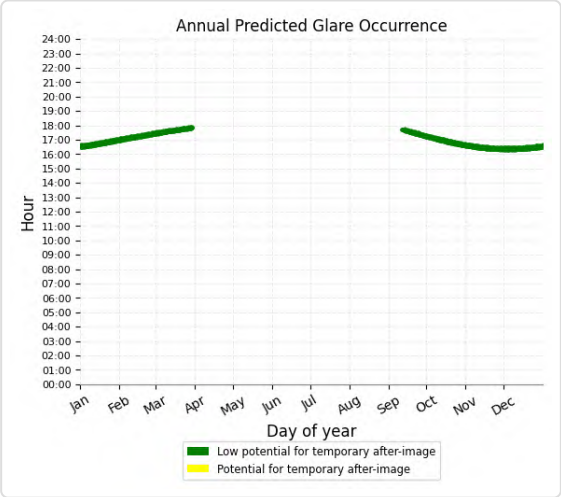


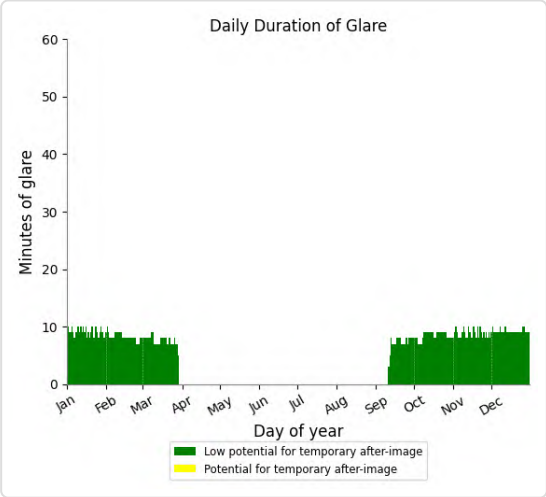


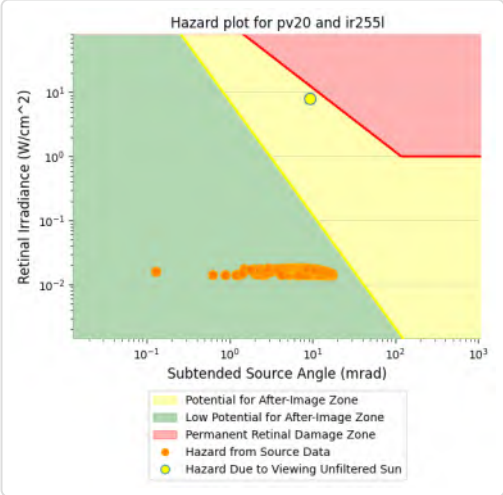
PV20 and FP: IR255I

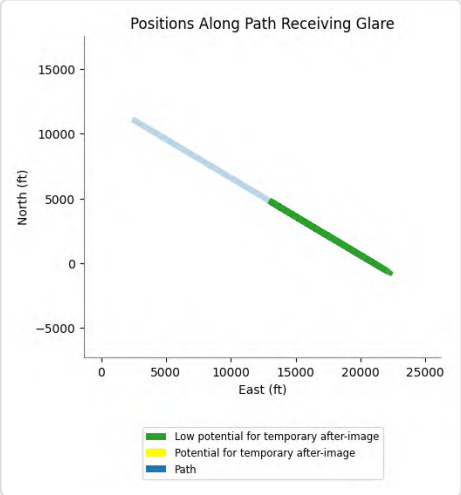
Yellow glare: none

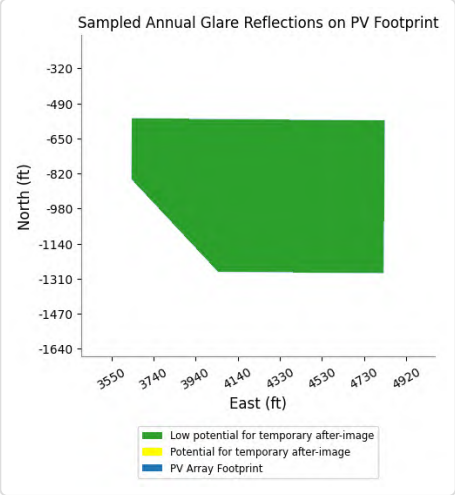
Green glare: 1,688 min.

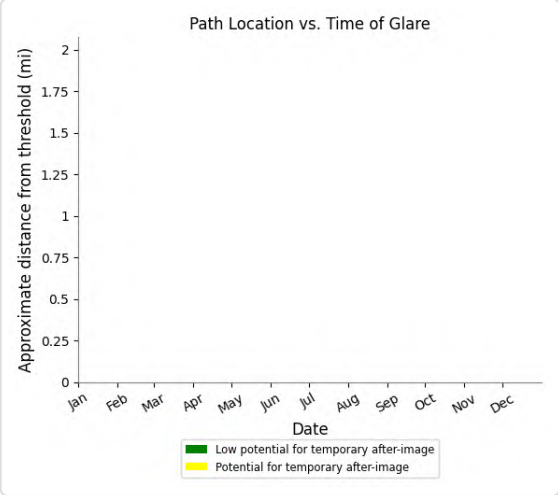








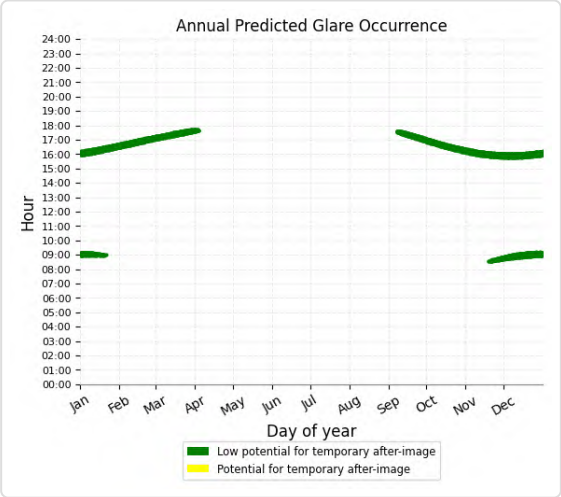


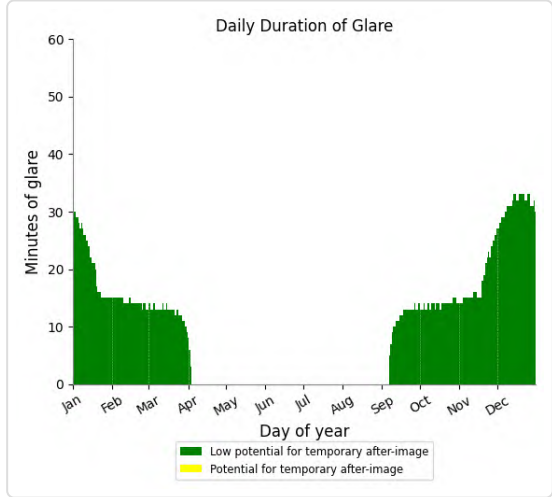


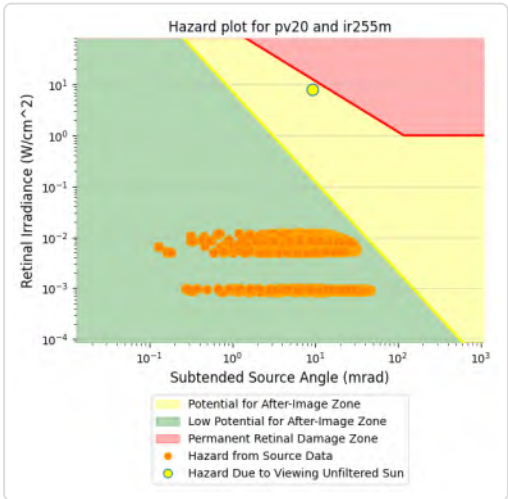
PV20 and FP: IR255m

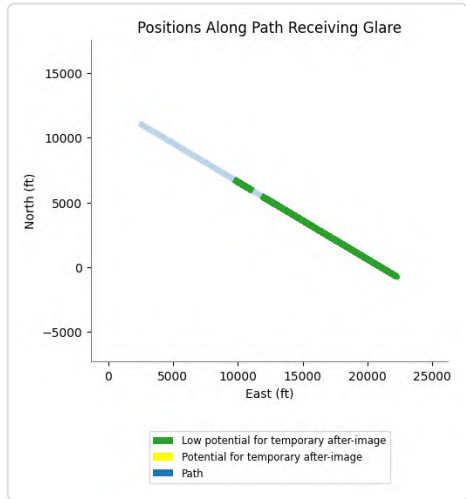
Yellow glare: none

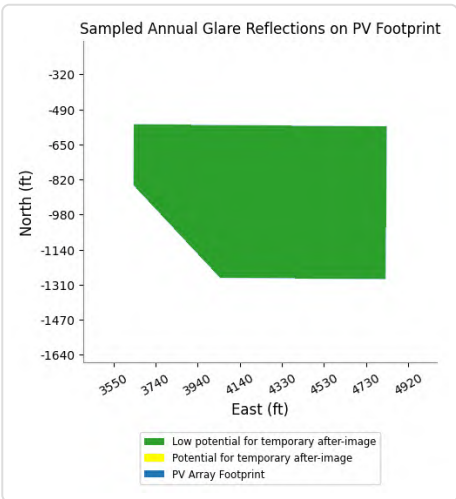
Green glare: 3,710 min.

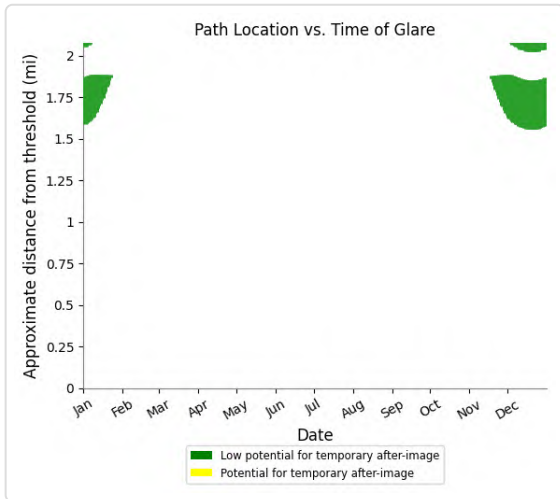








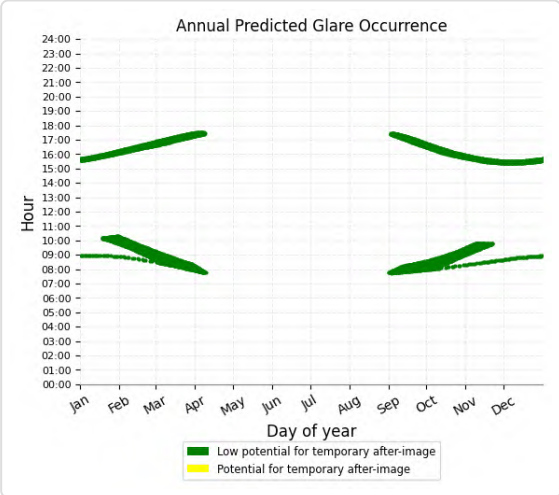


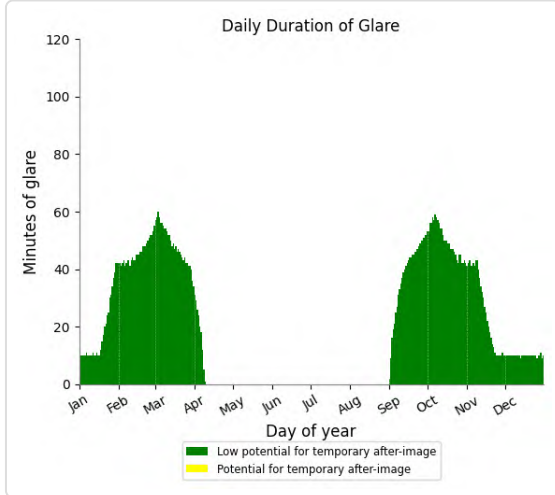


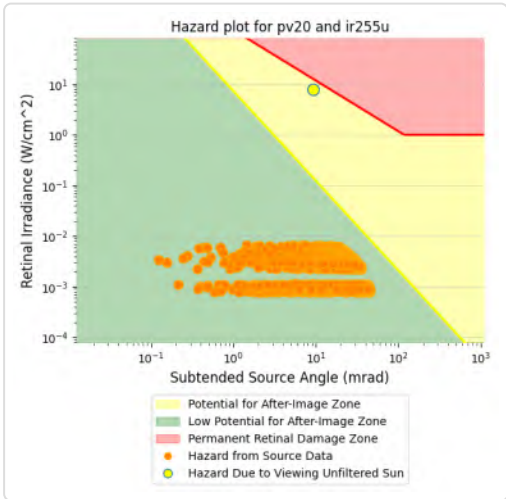
PV20 and FP: IR255u

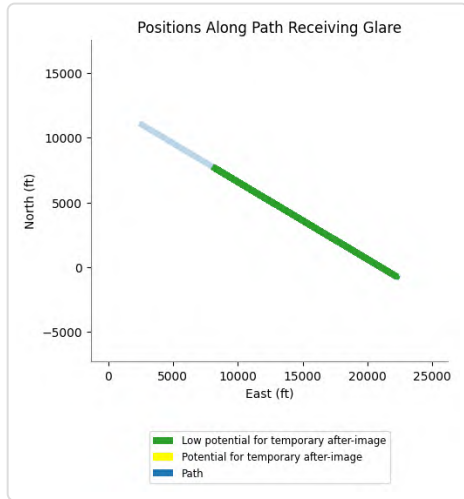
Yellow glare: none

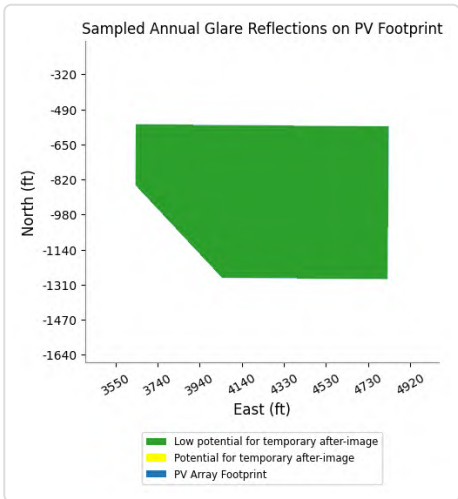
Green glare: 7,323 min.

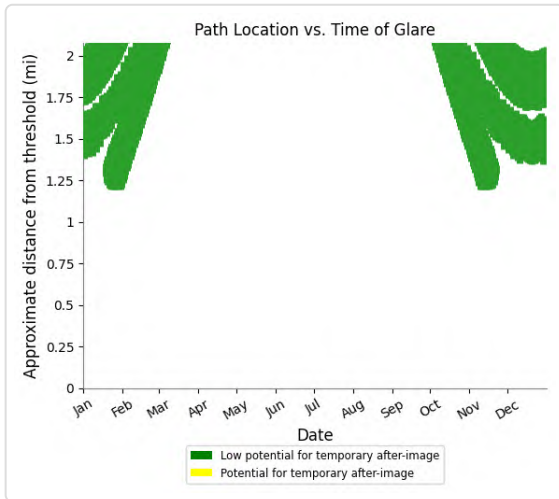








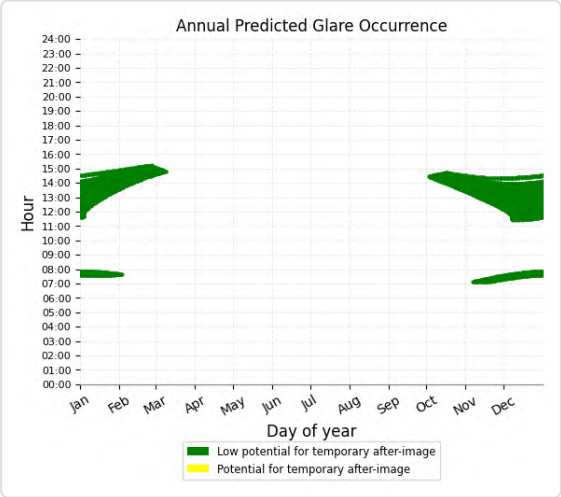


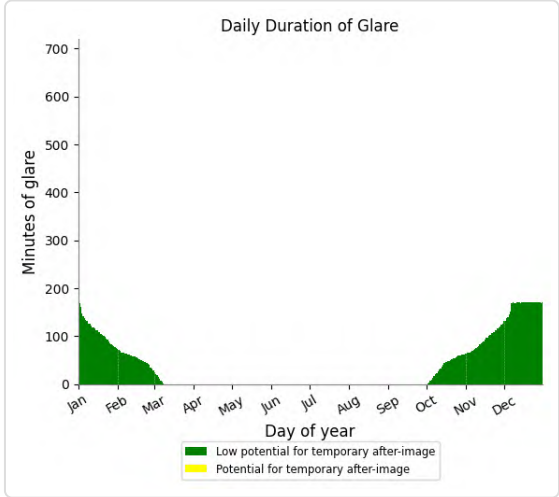


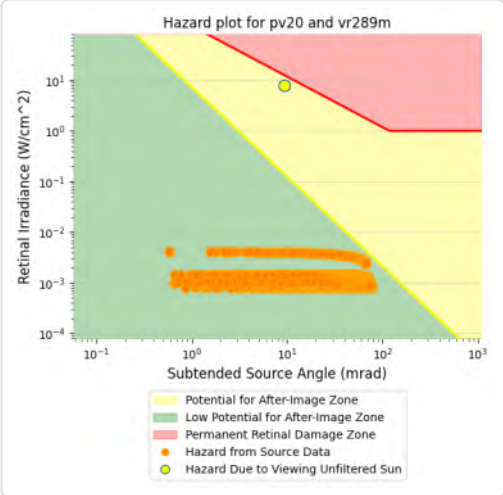
PV20 and FP: VR289m

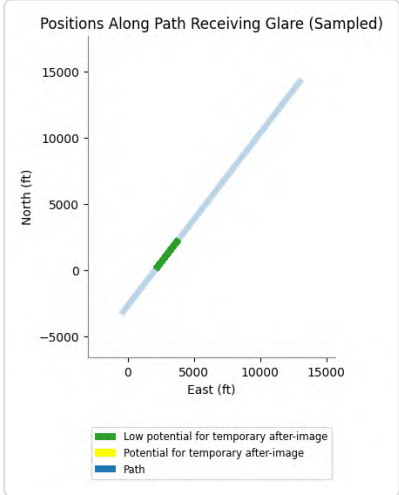
Yellow glare: none

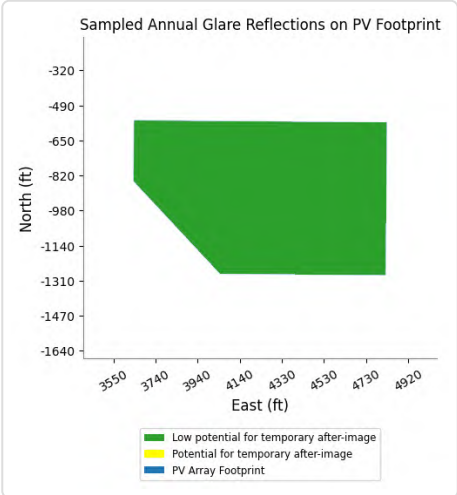
Green glare: 14,252 min.

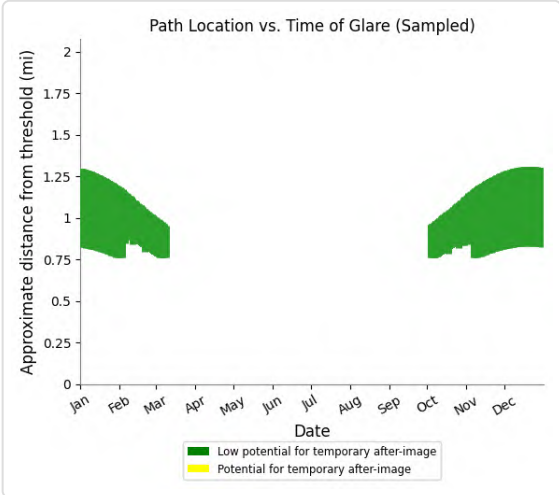








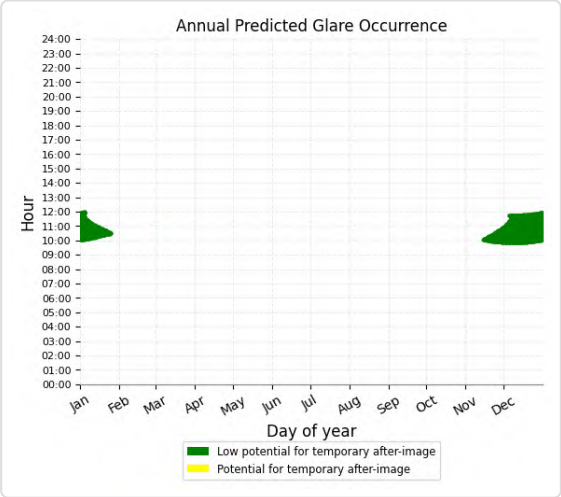


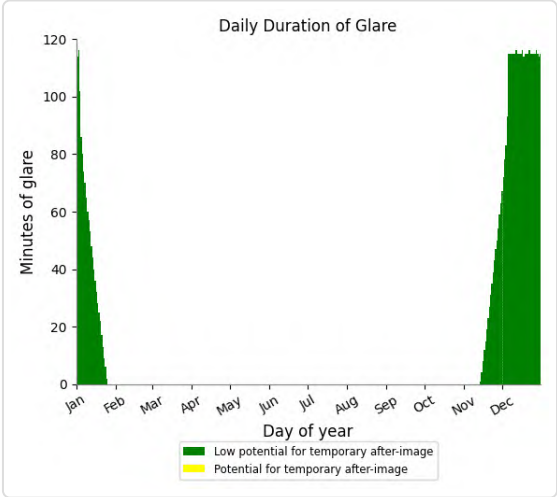


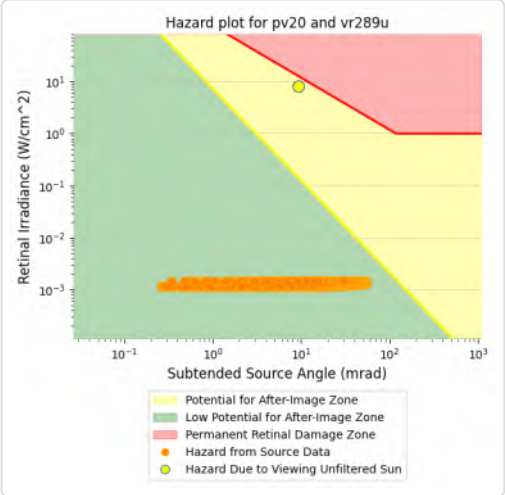
PV20 and FP: VR289u

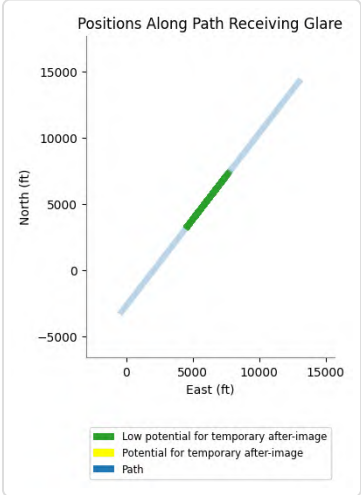
Yellow glare: none

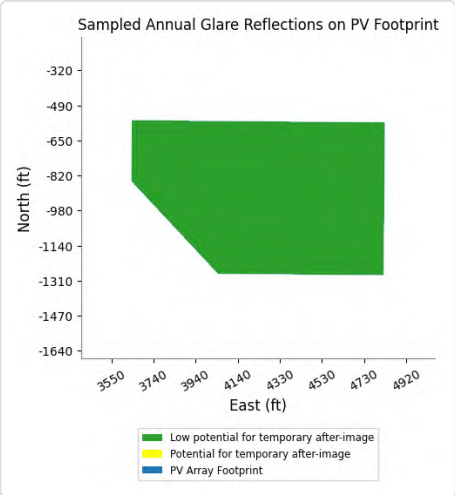
Green glare: 5,230 min.

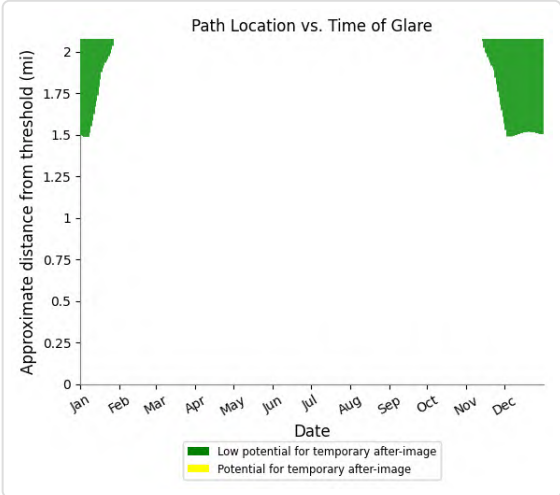








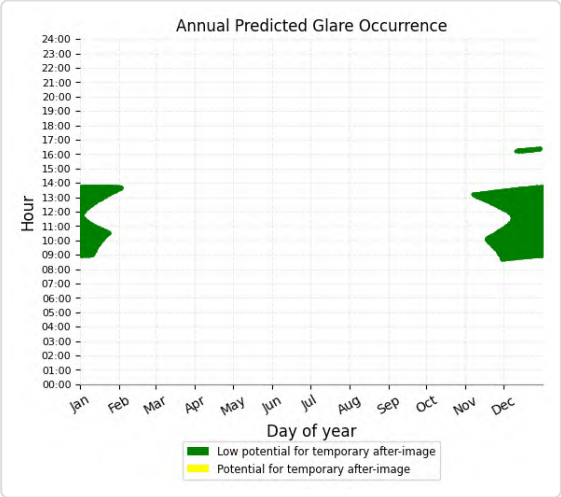


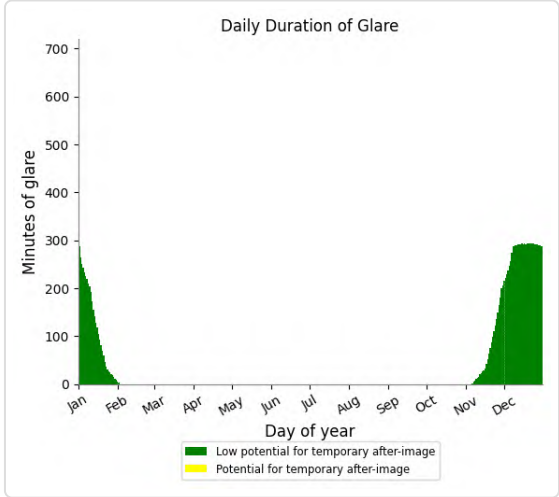


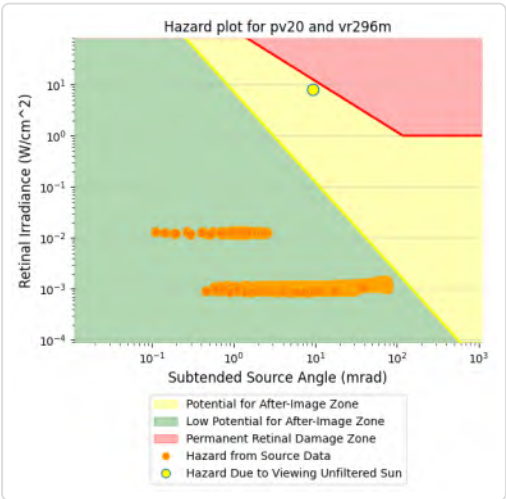
PV20 and FP: VR296m

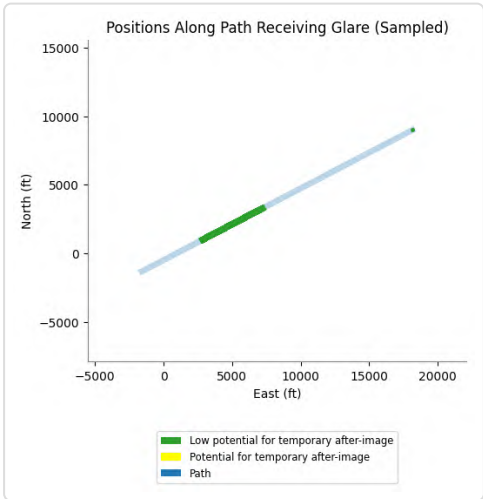
Yellow glare: none

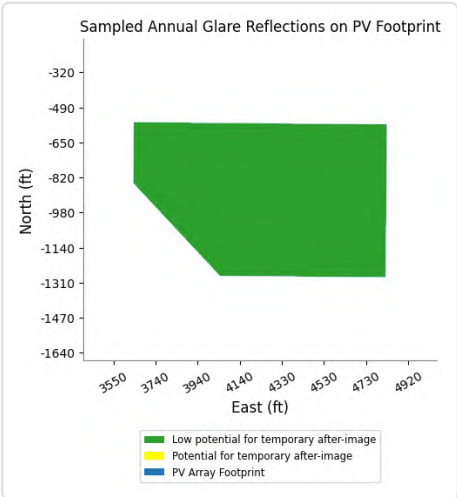
Green glare: 14,531 min.

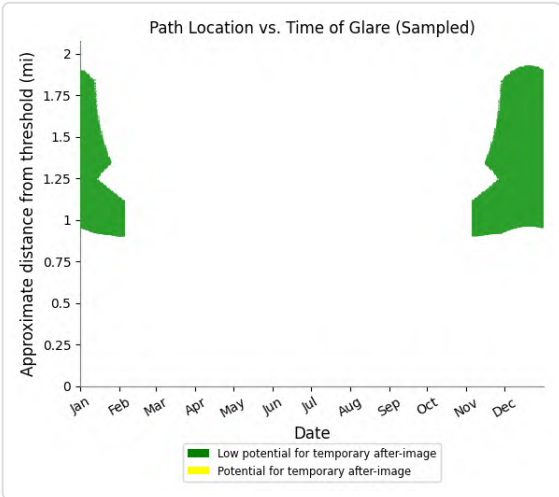








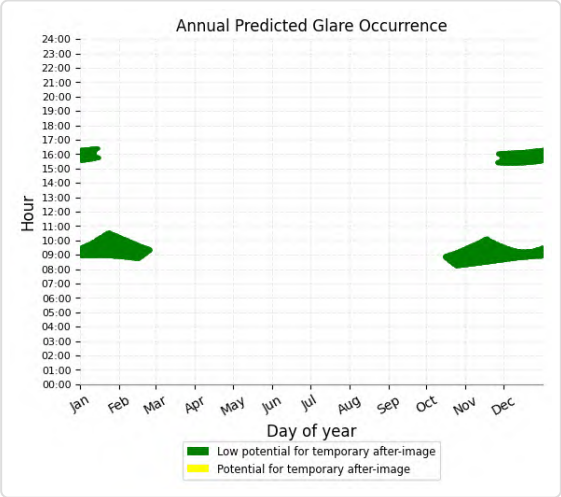


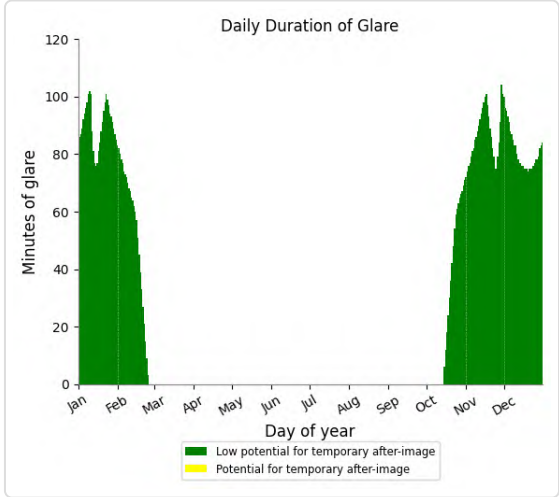


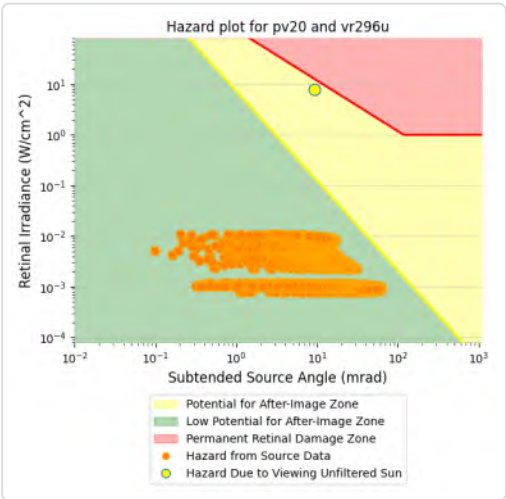
PV20 and FP: VR296u

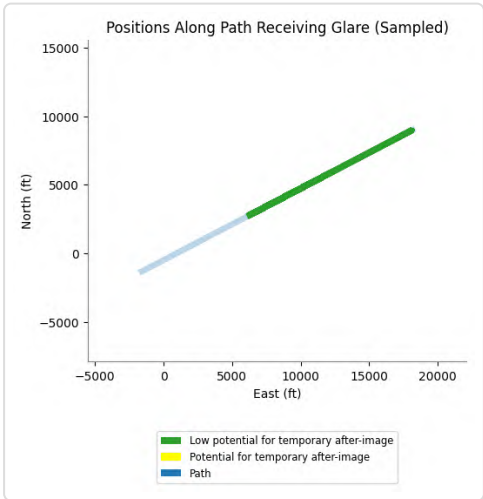
Yellow glare: none

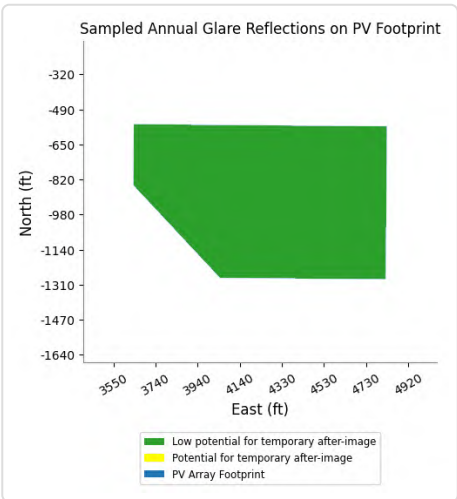
Green glare: 10,100 min.

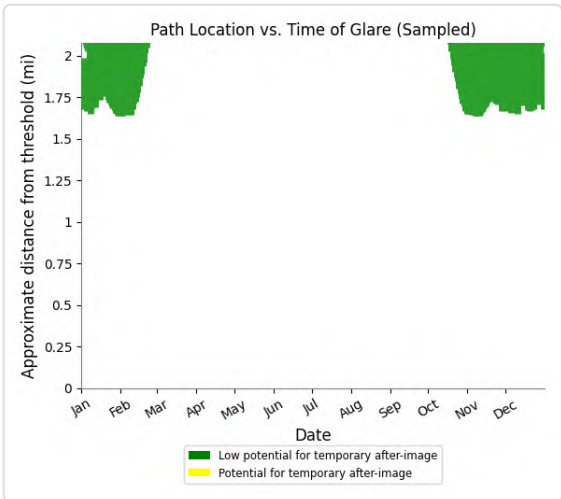












PV20 and FP: CN645

No glare found

PV20 and FP: IR217I

No glare found

PV20 and FP: VR289I

No glare found

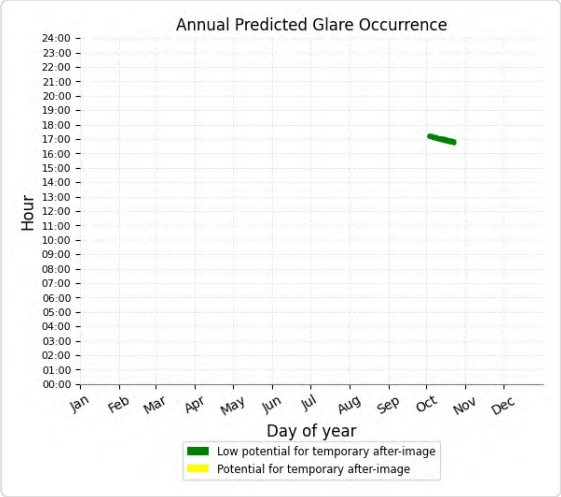
PV20 and FP: VR296I

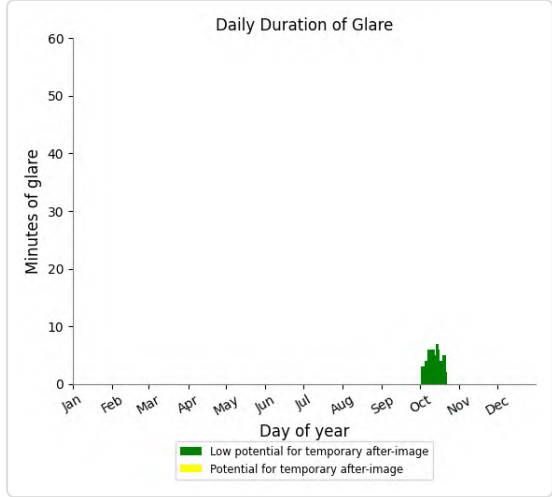
No glare found

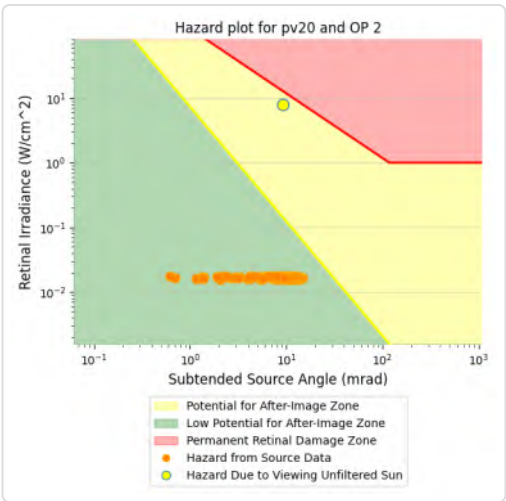
PV20 and OP 2

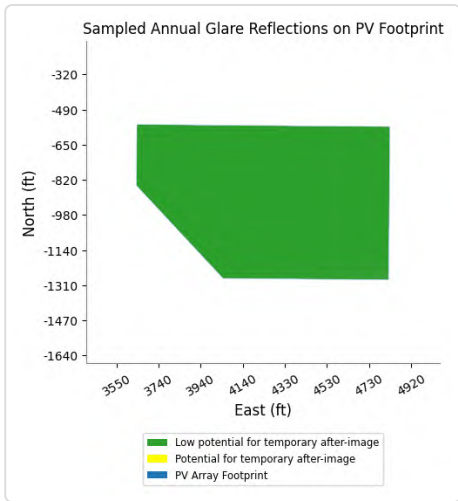
Yellow glare: none

Green glare: 103 min.





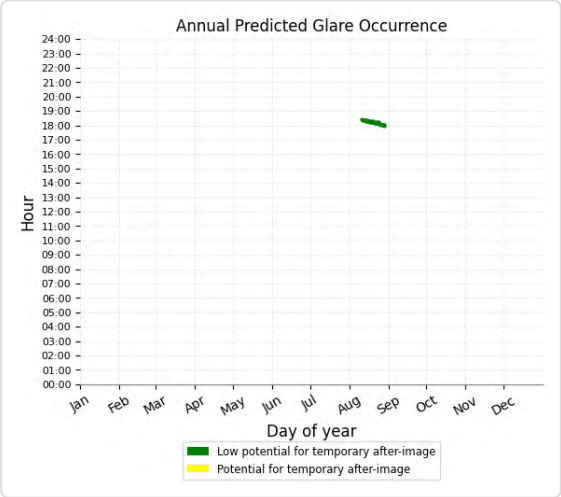


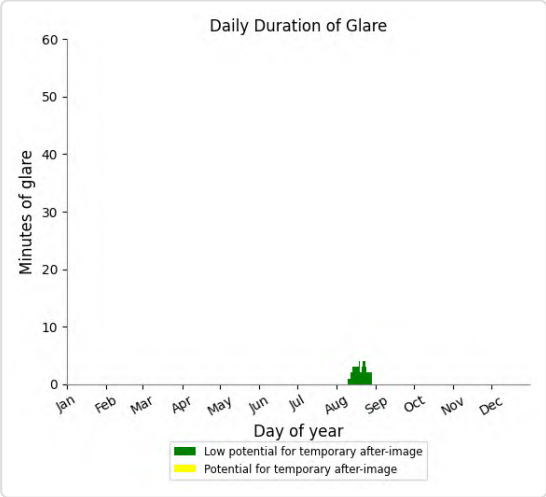


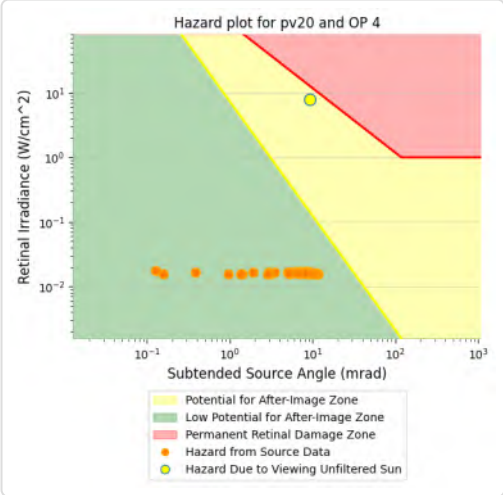
PV20 and OP 4

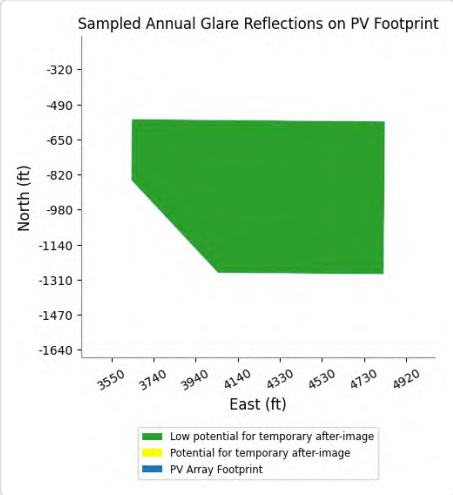
Yellow glare: none

Green glare: 49 min.



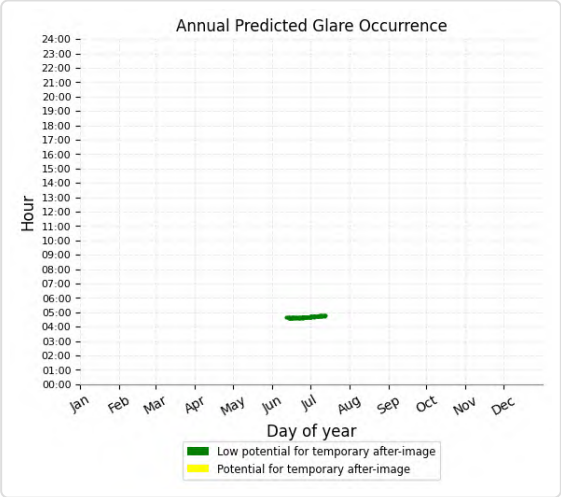


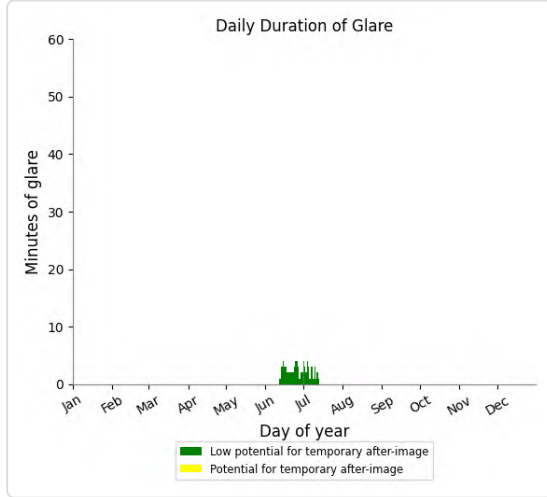


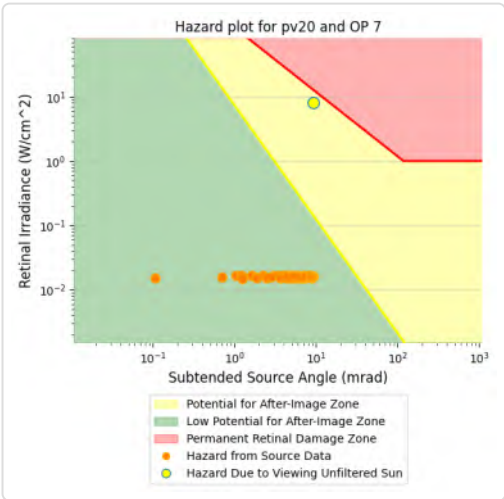


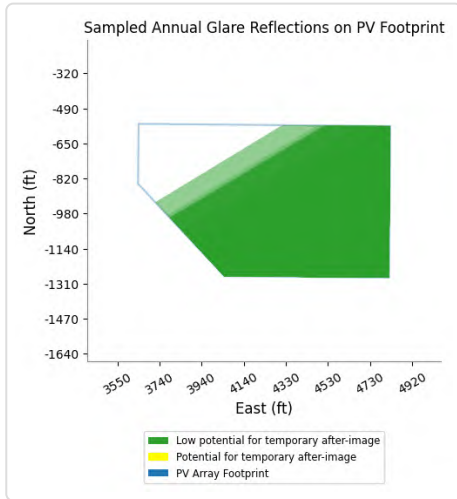
PV20 and OP 7

Yellow glare: none
Green glare: 77 min.









PV20 and OP 1

No glare found

PV20 and OP 3

No glare found

PV20 and OP 5

No glare found

PV20 and OP 6

No glare found

PV20 and OP 8

No glare found

PV20 and OP 9

No glare found

PV20 and OP 10

No glare found

PV20 and OP 11

No glare found

PV20 and OP 12

No glare found

PV20 and OP 13

No glare found

PV20 and OP 14

No glare found

PV20 and OP 15

No glare found

PV20 and OP 16

No glare found

PV20 and OP 17

No glare found

PV20 and OP 18

No glare found

PV20 and OP 19

No glare found

PV: PV21 potential temporary after-image

Receptor results ordered by category of glare

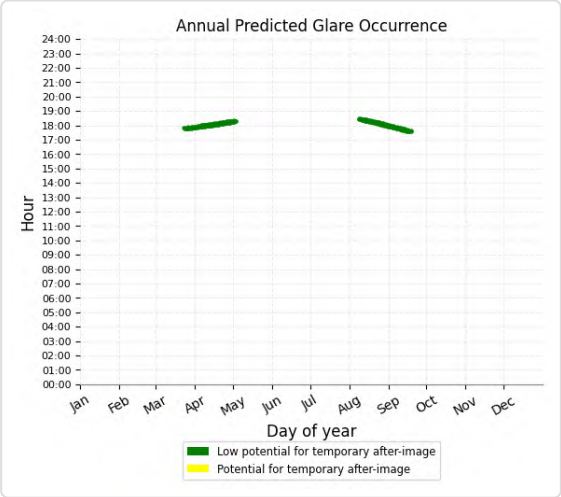
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd A	491	8.2	0	0.0
AirportRd B	424	7.1	0	0.0
Race Track	473	7.9	0	0.0
SR177 A	809	13.5	0	0.0
SR177 B	740	12.3	0	0.0
SR177 C	570	9.5	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR217l	36,251	604.2	10,464	174.4
IR218l	18,104	301.7	5,062	84.4
VR289l	38,604	643.4	13,646	227.4
VR296l	14,505	241.8	133	2.2
VR296m	20,845	347.4	95	1.6
VR296u	9,485	158.1	30	0.5
CN6423	841	14.0	0	0.0
IR217m	10,975	182.9	0	0.0
IR217u	6,147	102.5	0	0.0
IR218m	6,520	108.7	0	0.0
IR218u	2,880	48.0	0	0.0
IR255l	1,687	28.1	0	0.0
IR255m	2,801	46.7	0	0.0
IR255u	12,559	209.3	0	0.0
VR289m	18,336	305.6	0	0.0
VR289u	10,959	182.7	0	0.0
CN645	0	0.0	0	0.0
OP 1	62	1.0	0	0.0
OP 2	110	1.8	0	0.0

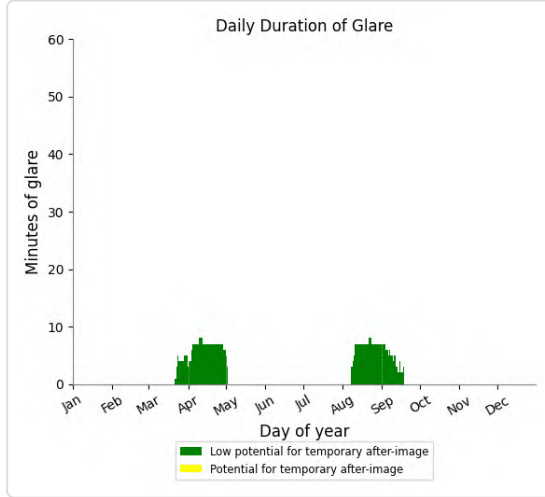
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

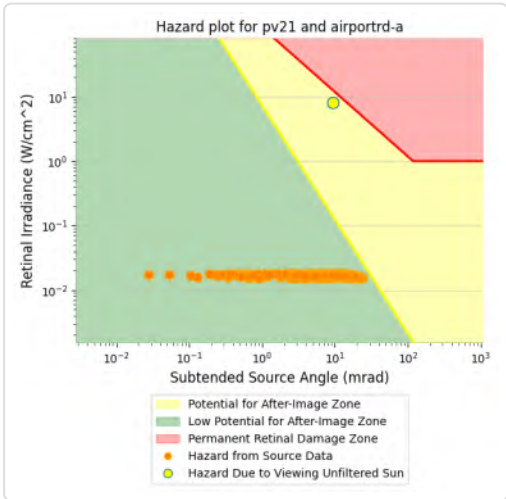
PV21 and Route: AirportRd A

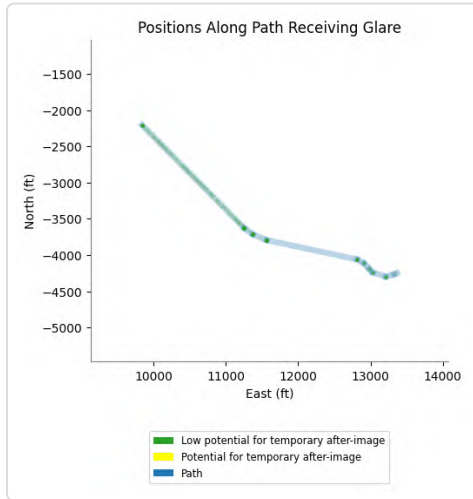
Yellow glare: none

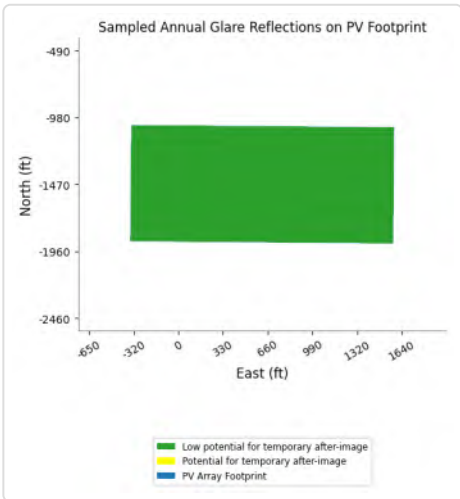
Green glare: 491 min.







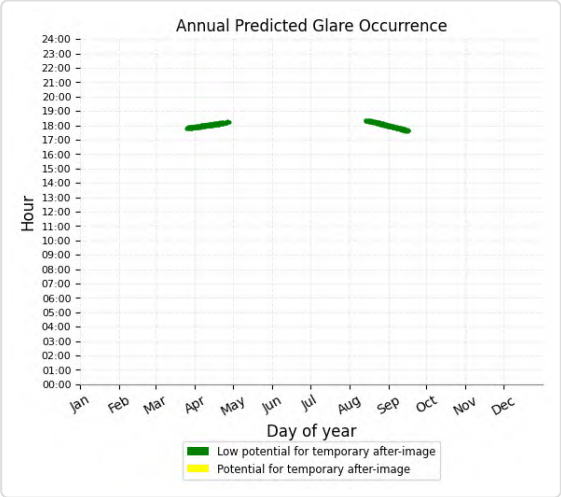


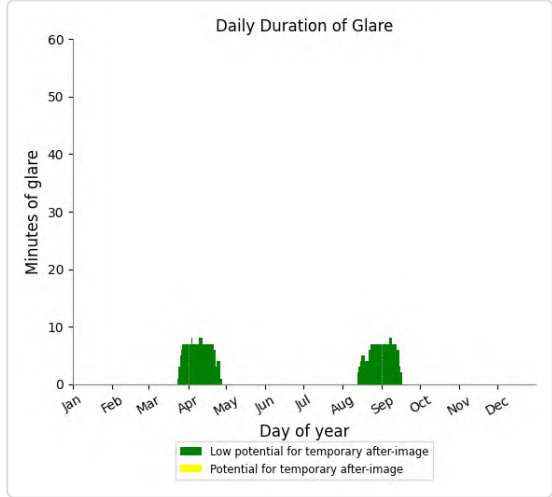


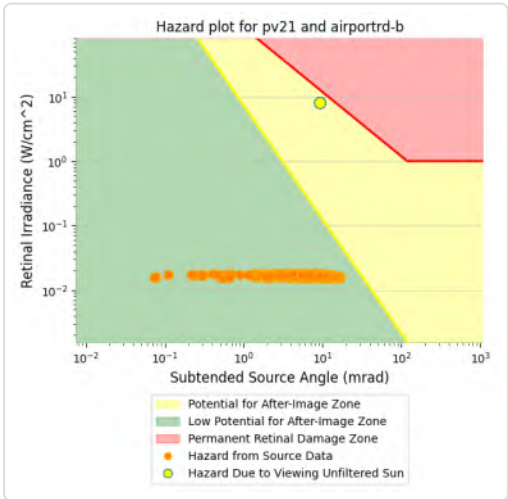
PV21 and Route: AirportRd B

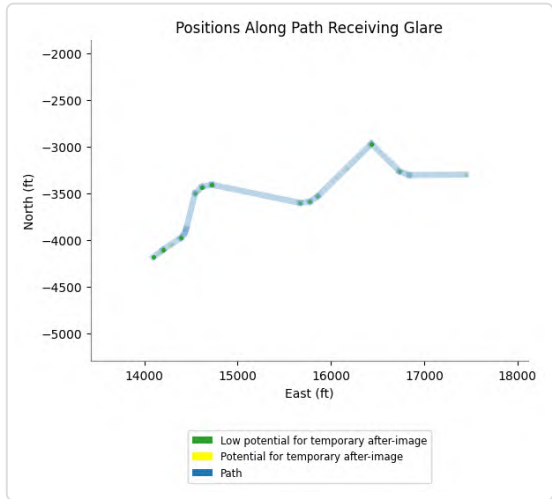
Yellow glare: none

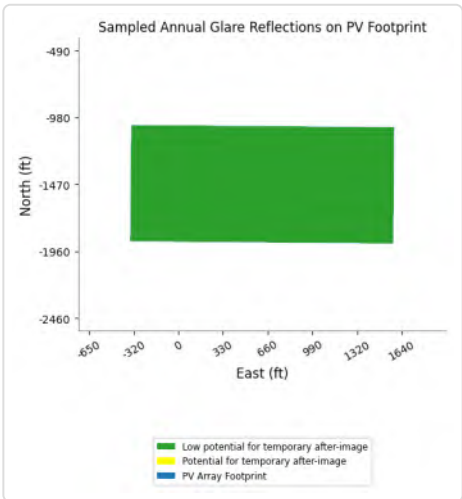
Green glare: 424 min.







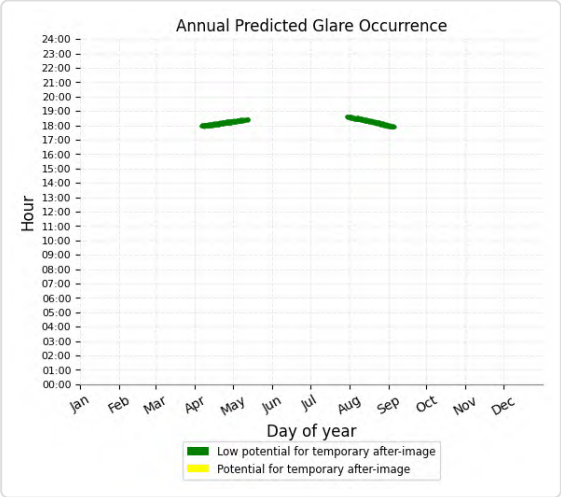


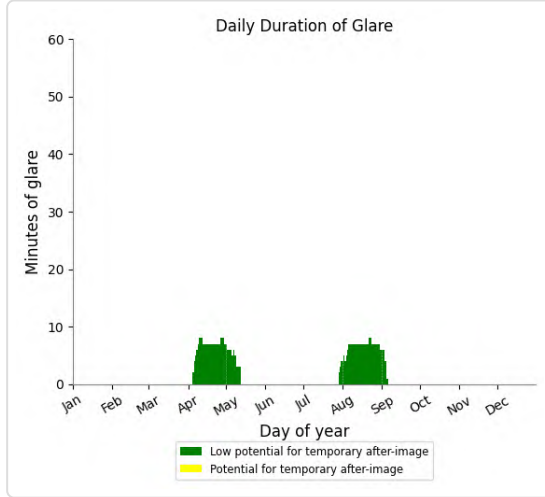


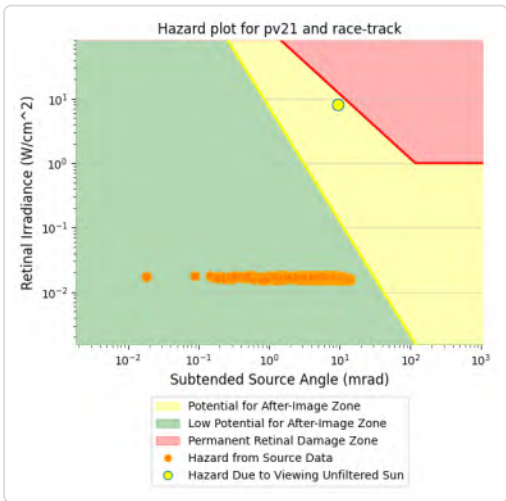
PV21 and Route: Race Track

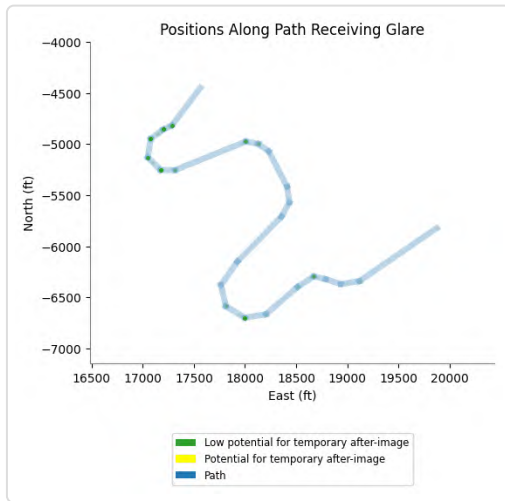
Yellow glare: none

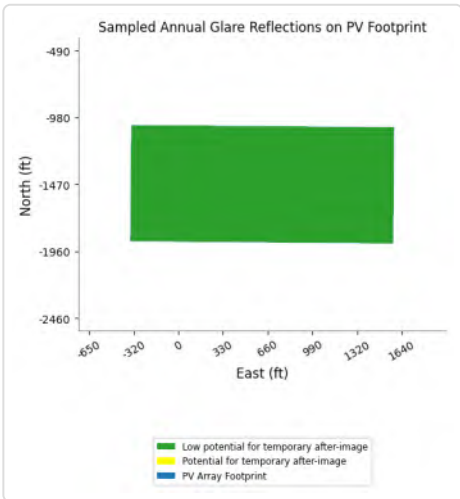
Green glare: 473 min.







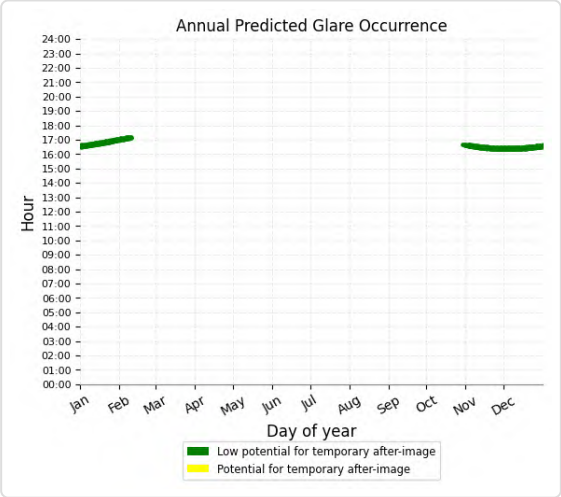


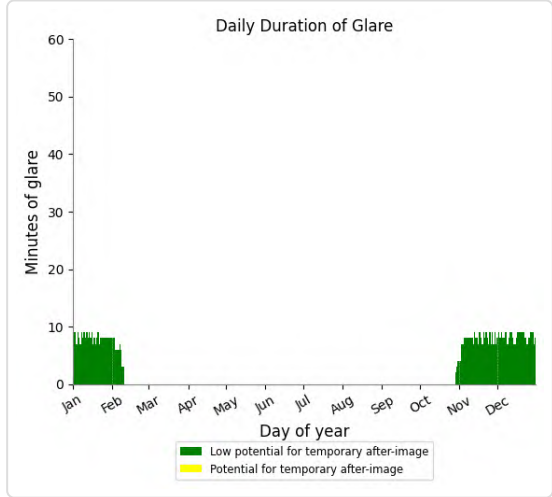


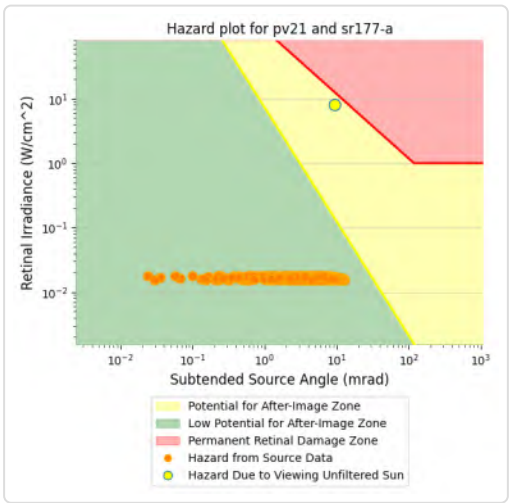
PV21 and Route: SR177 A

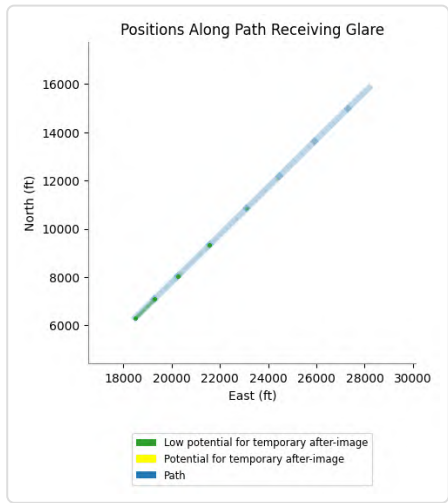
Yellow glare: none

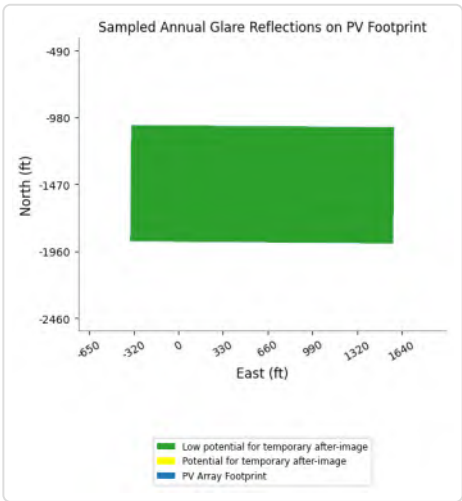
Green glare: 809 min.







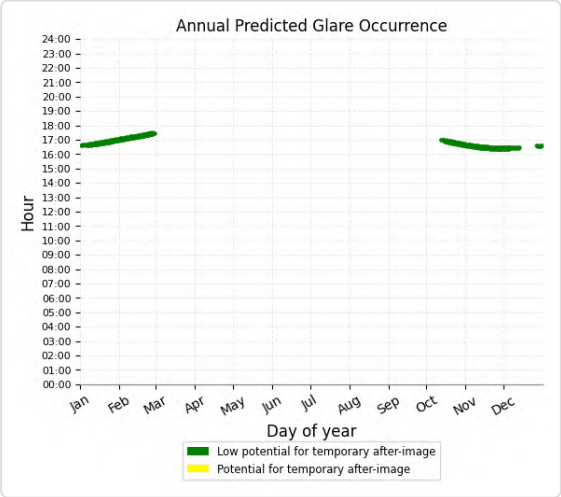


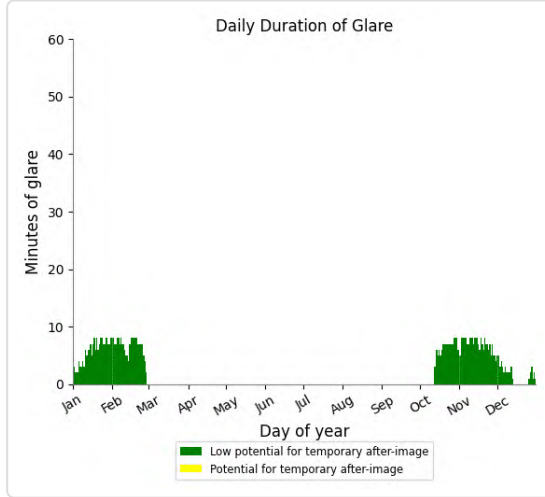


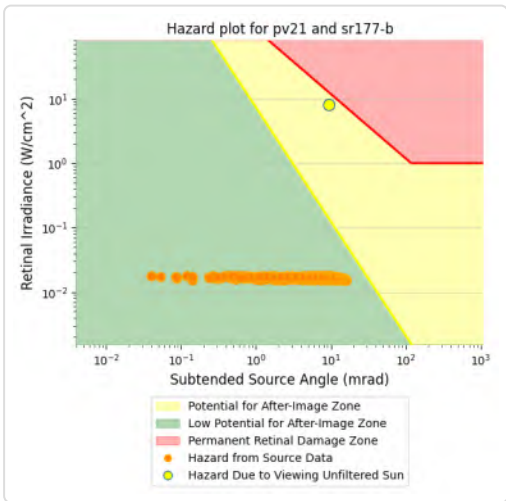
PV21 and Route: SR177 B

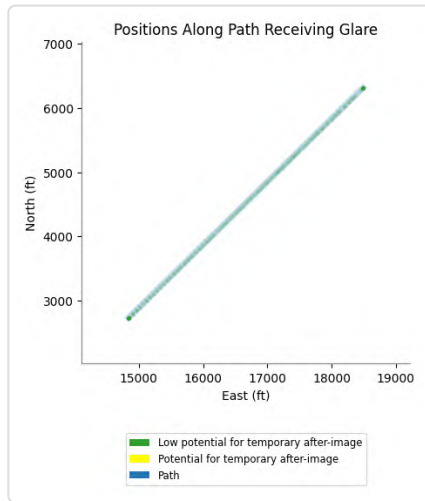
Yellow glare: none

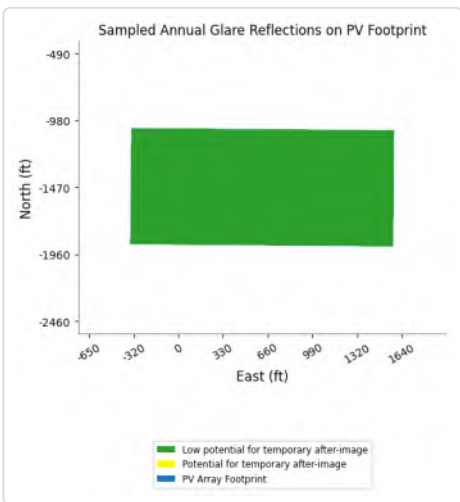
Green glare: 740 min.







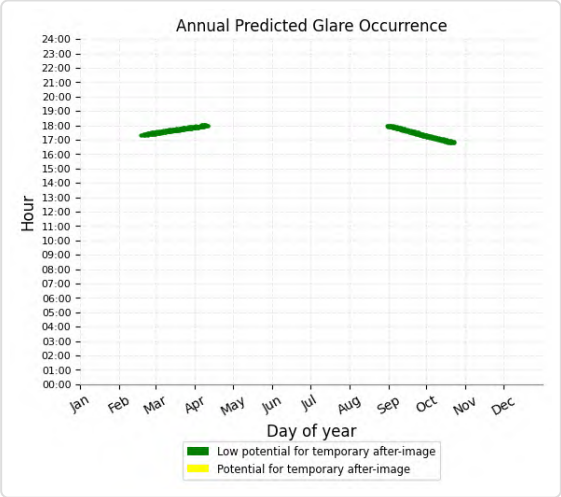


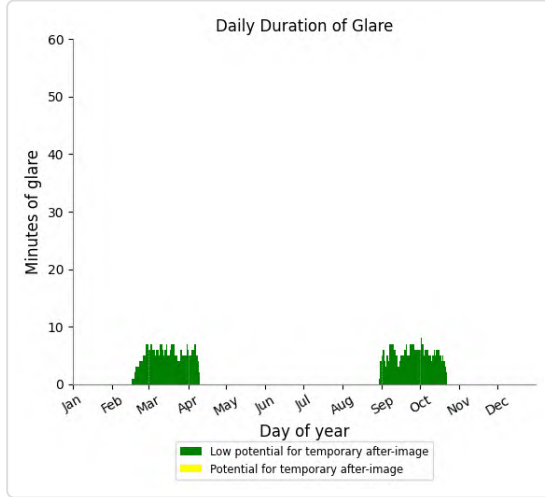


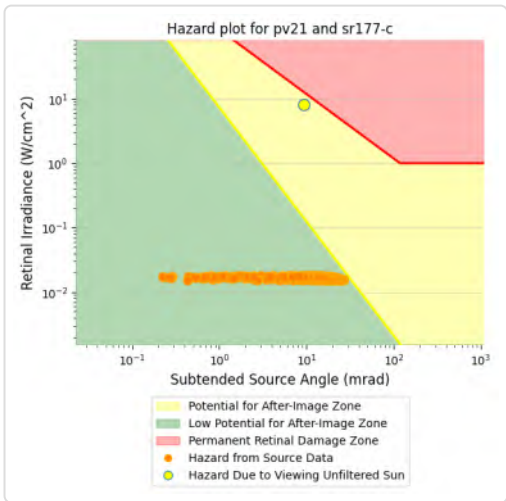
PV21 and Route: SR177 C

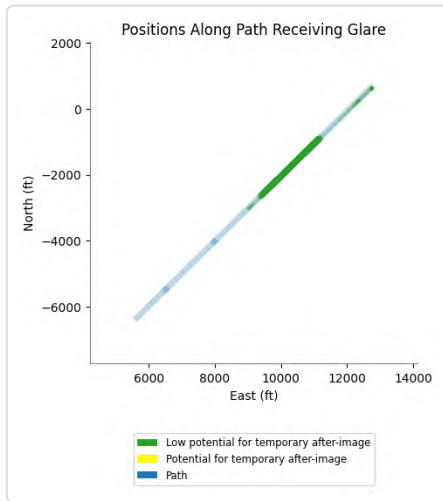
Yellow glare: none

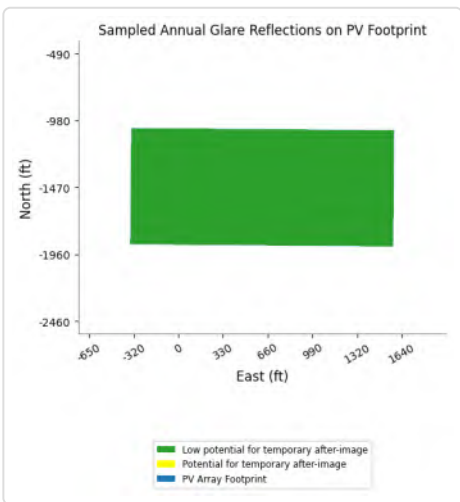
Green glare: 570 min.











PV21 and Route: EagleMtnRd A

No glare found

PV21 and Route: EagleMtnRd B

No glare found

PV21 and Route: I-10 EB A

No glare found

PV21 and Route: I-10 EB B

No glare found

PV21 and Route: I-10 EB C

No glare found

PV21 and Route: I-10 WB A

No glare found

PV21 and Route: I-10 WB B

No glare found

PV21 and Route: I-10 WB C

No glare found

PV21 and Route: KaiserRd A

No glare found

PV21 and Route: KaiserRd B

No glare found

PV21 and Route: KaiserRd C

No glare found

PV21 and Route: OasisRd

No glare found

PV21 and Route: SR177 D

No glare found

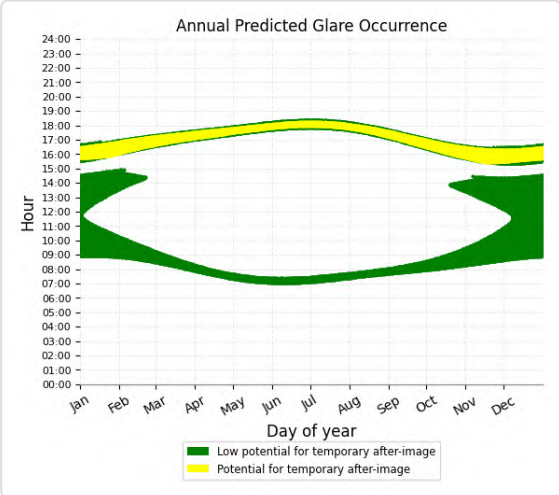
PV21 and Route: SR177 E

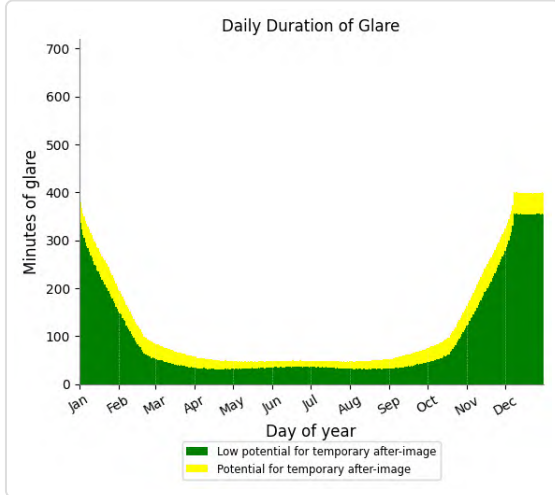
No glare found

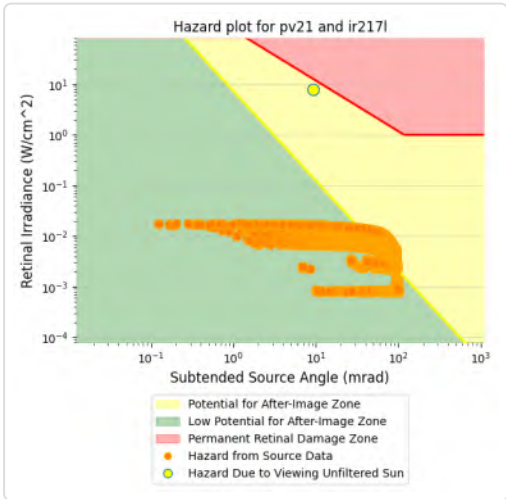
PV21 and FP: IR217I

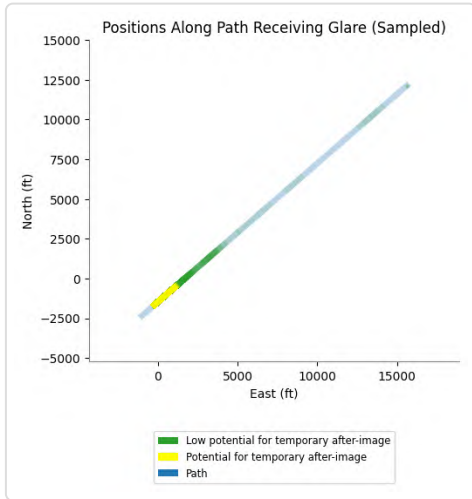
Yellow glare: 10,464 min.

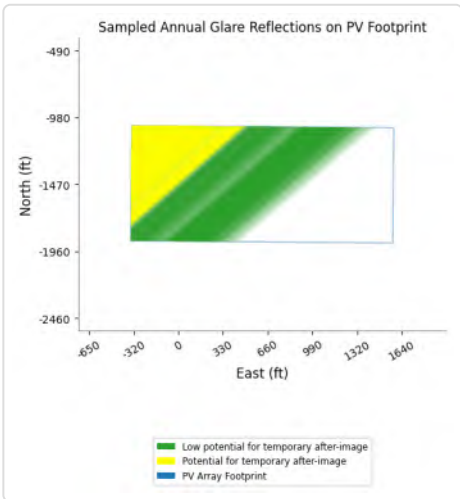
Green glare: 36,251 min.

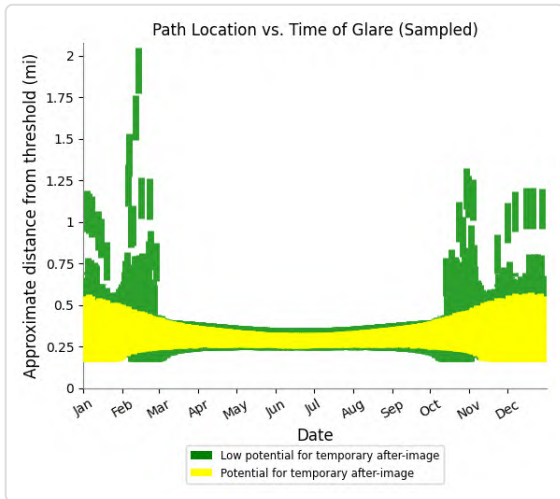








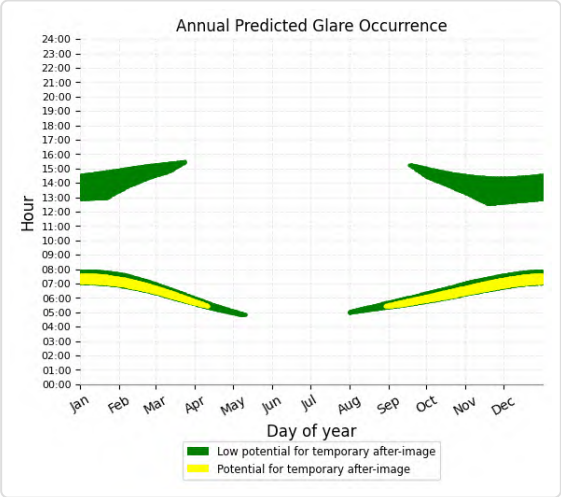


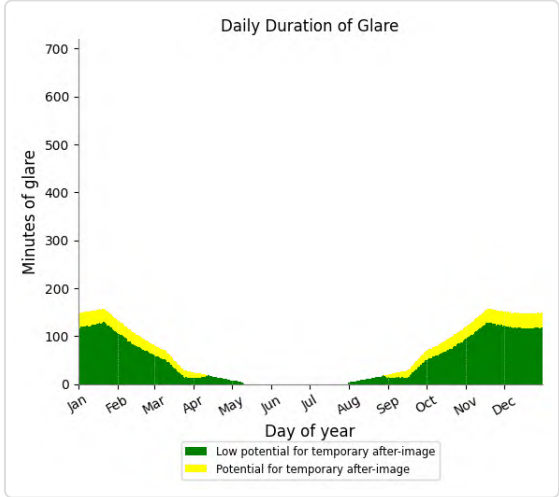


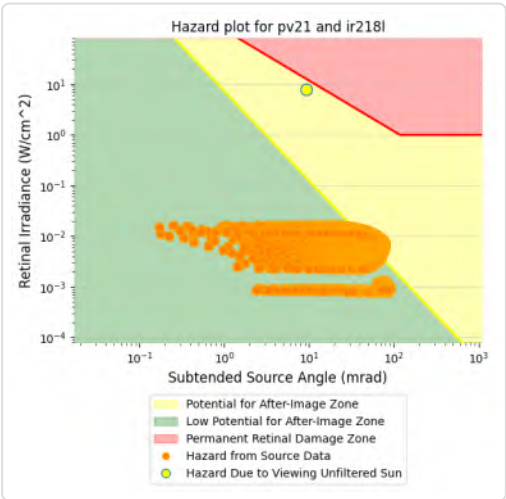
PV21 and FP: IR218I

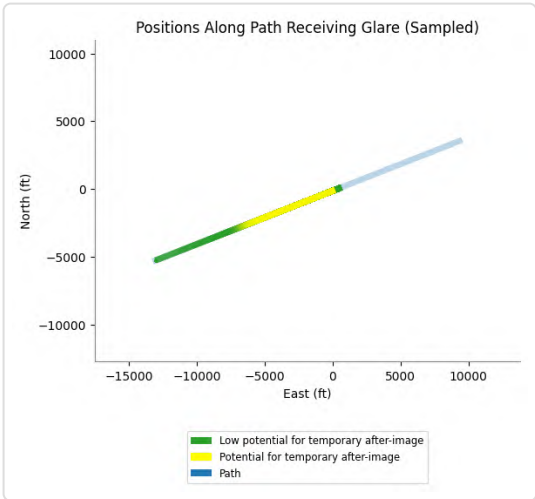
Yellow glare: 5,062 min.

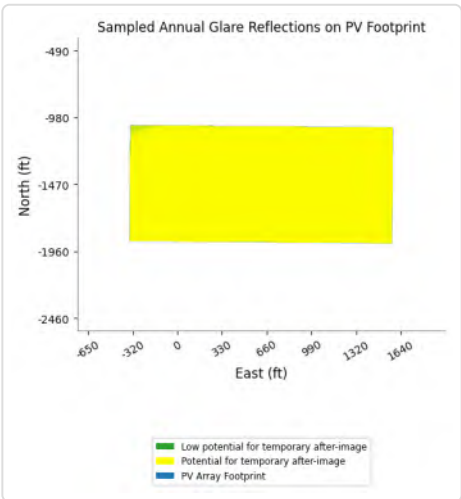
Green glare: 18,104 min.

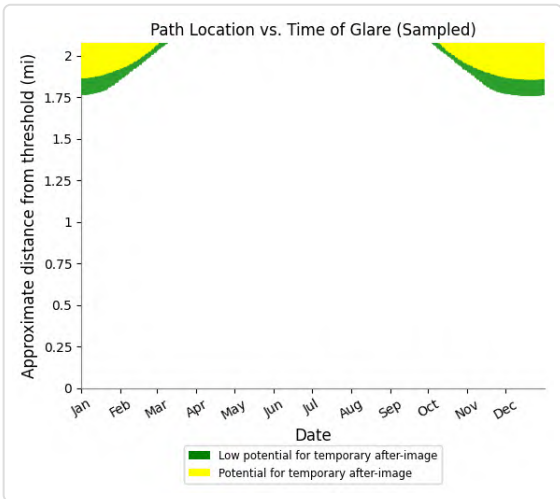








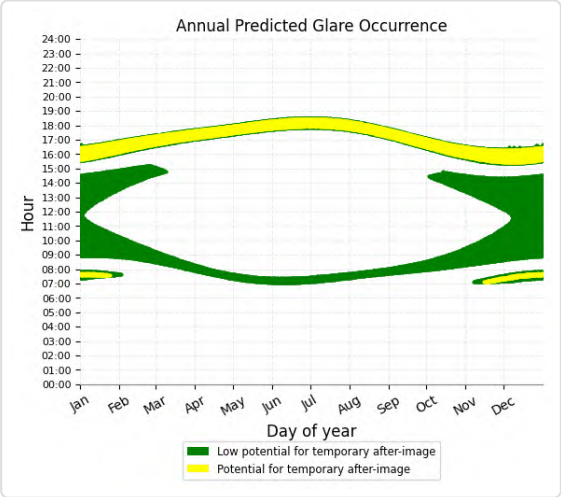


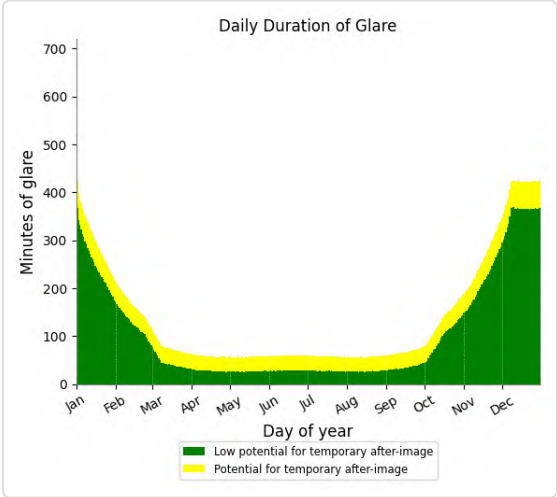


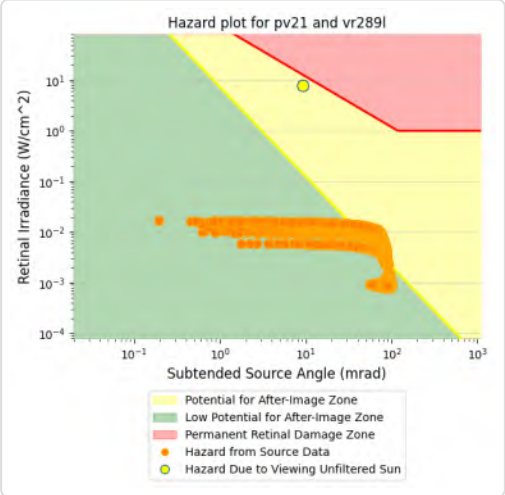
PV21 and FP: VR289I

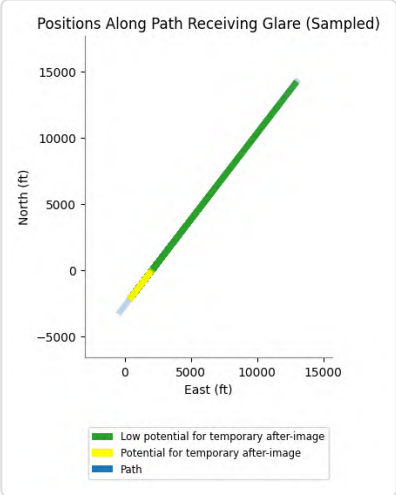
Yellow glare: 13,646 min.

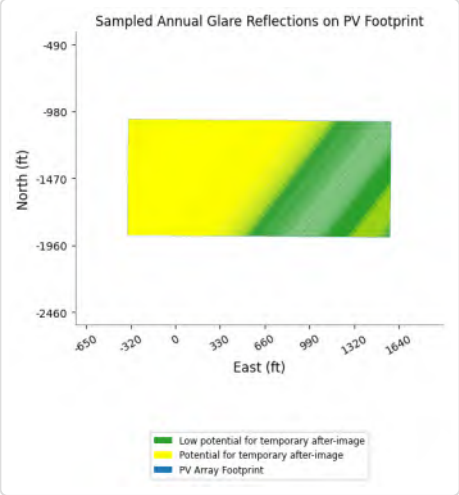
Green glare: 38,604 min.

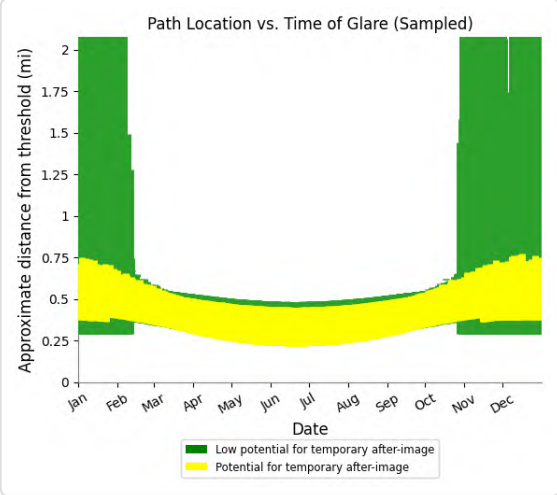








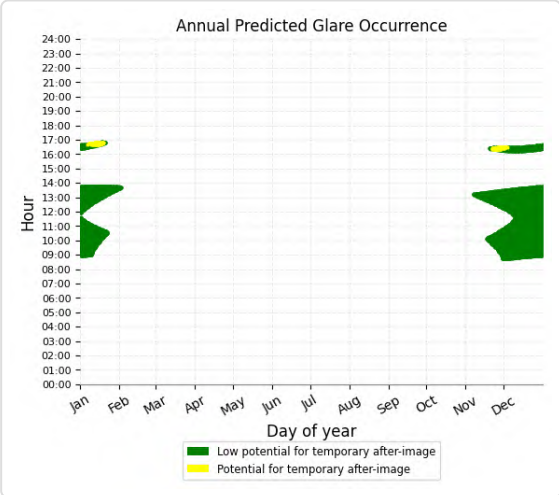


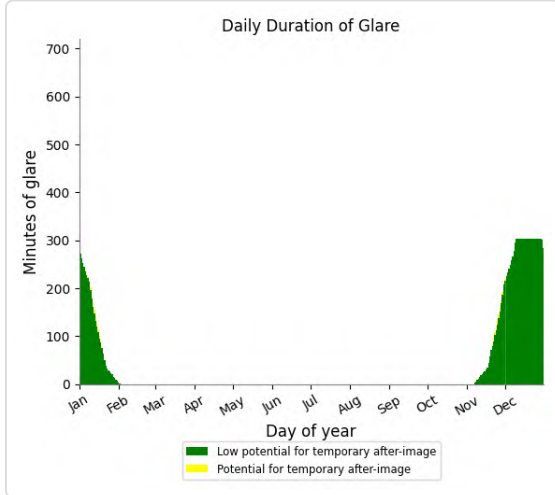


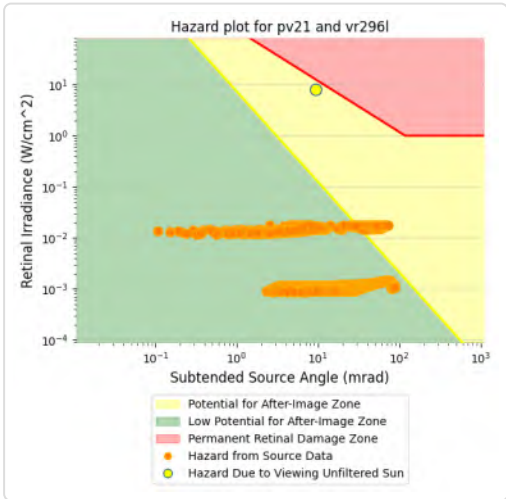
PV21 and FP: VR296I

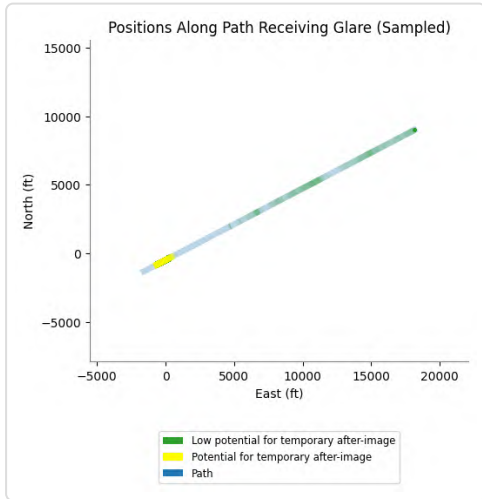
Yellow glare: 133 min.

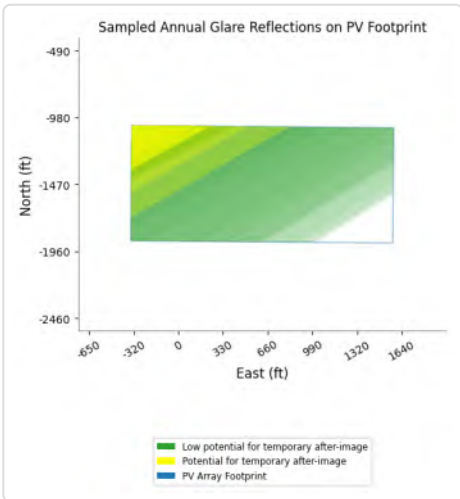
Green glare: 14,505 min.

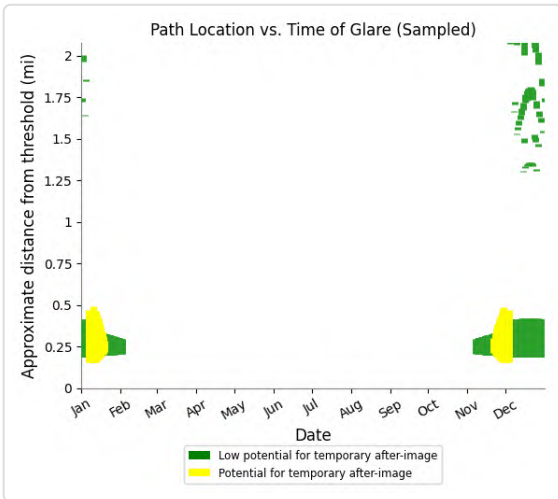








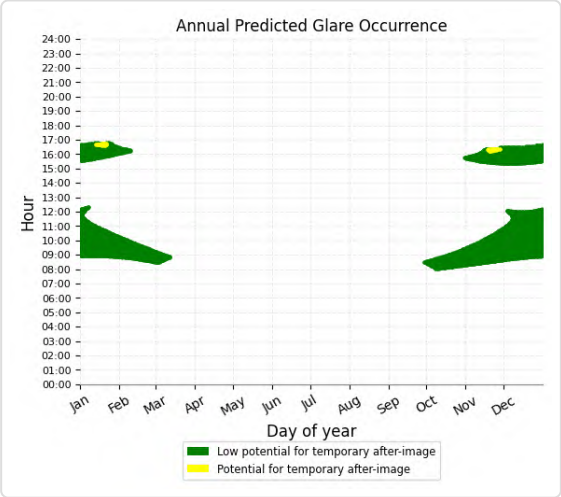


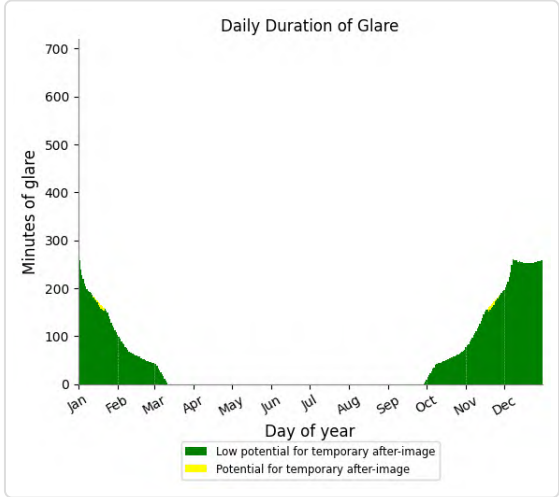


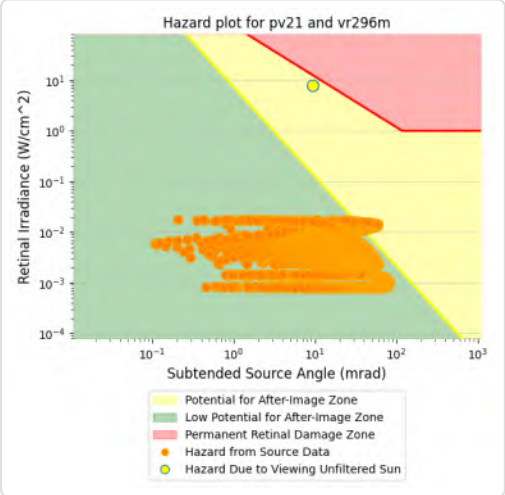
PV21 and FP: VR296m

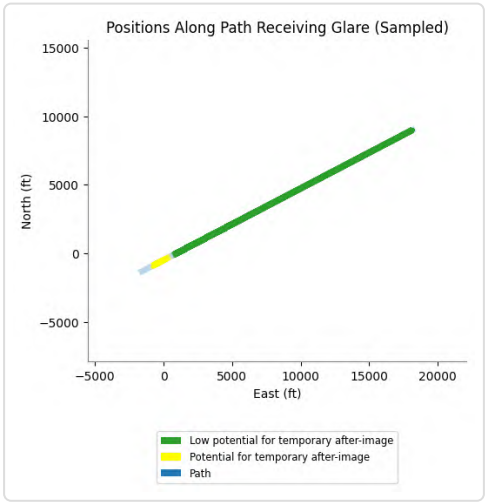
Yellow glare: 95 min.

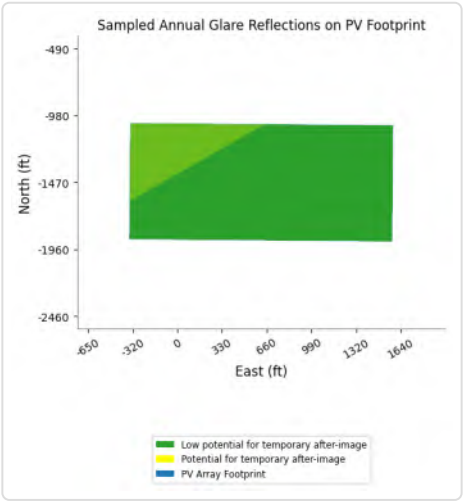
Green glare: 20,845 min.

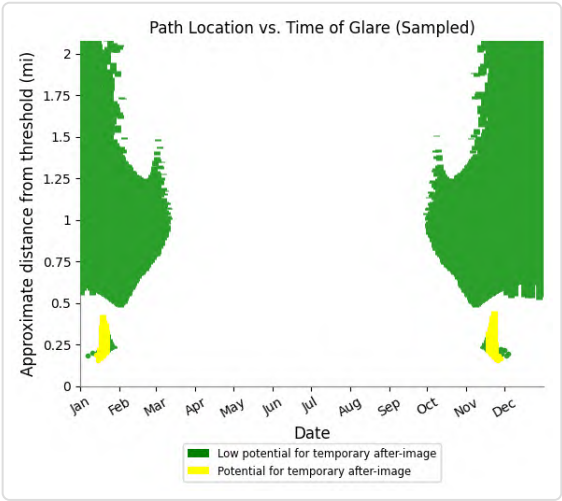








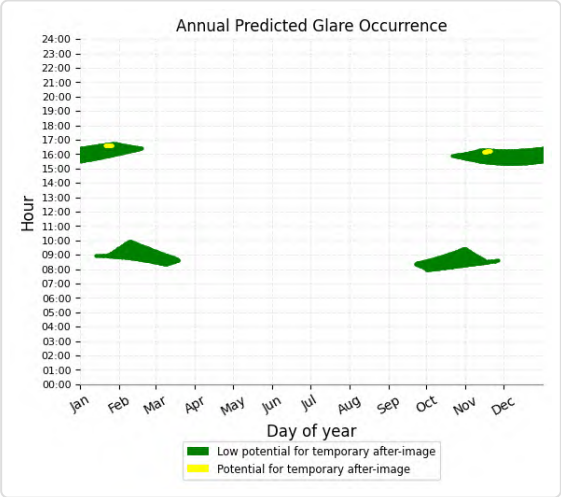


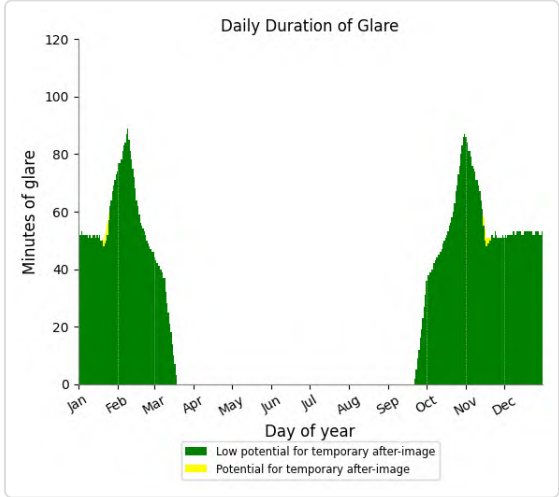


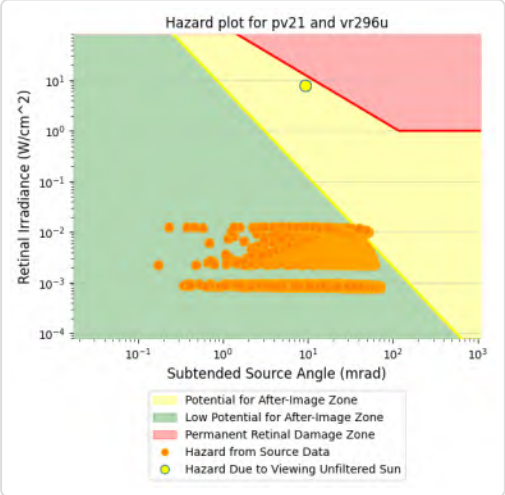
PV21 and FP: VR296u

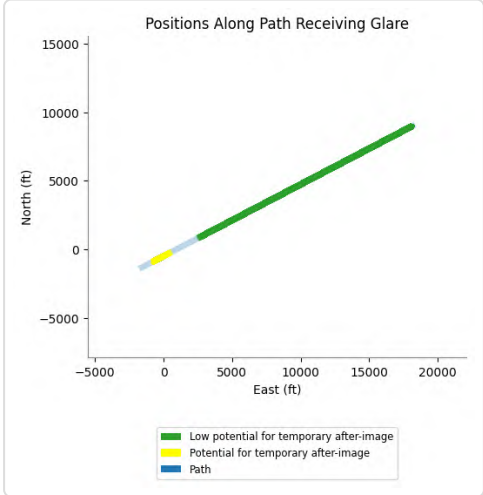
Yellow glare: 30 min.

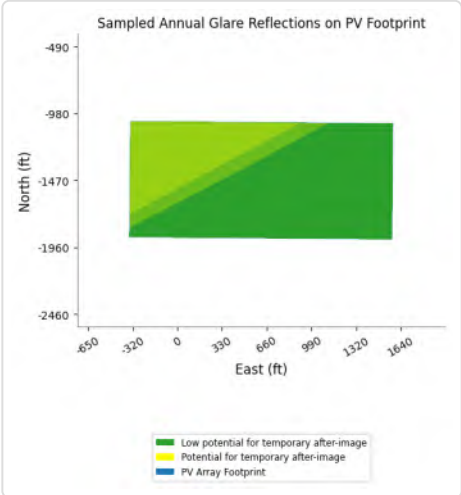
Green glare: 9,485 min.

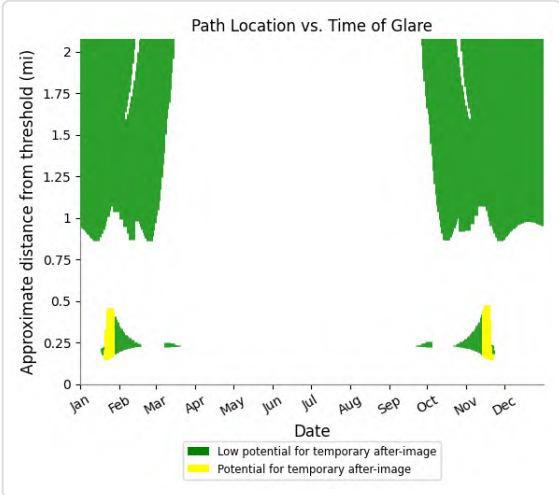








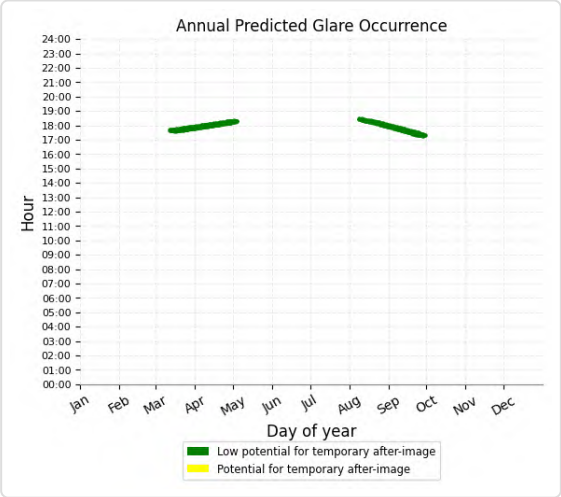


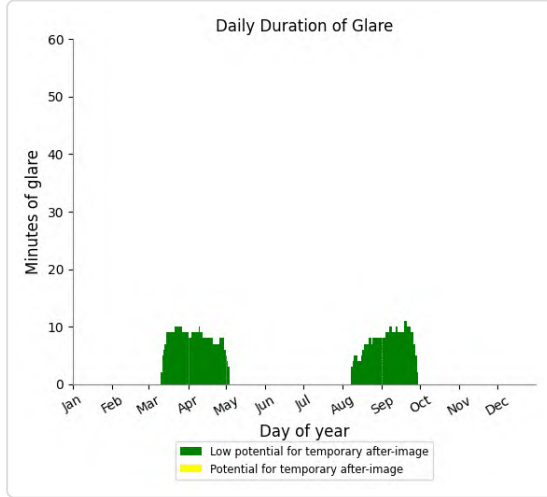


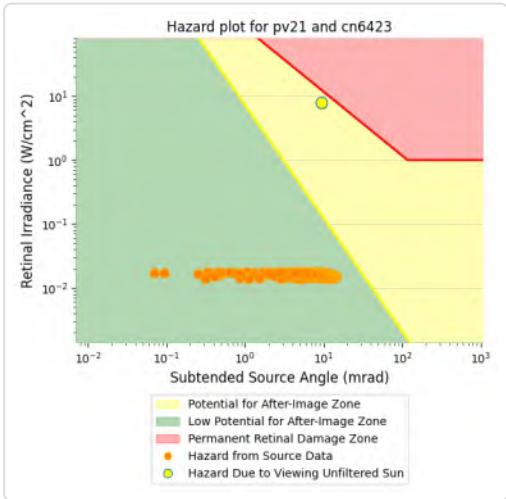
PV21 and FP: CN6423

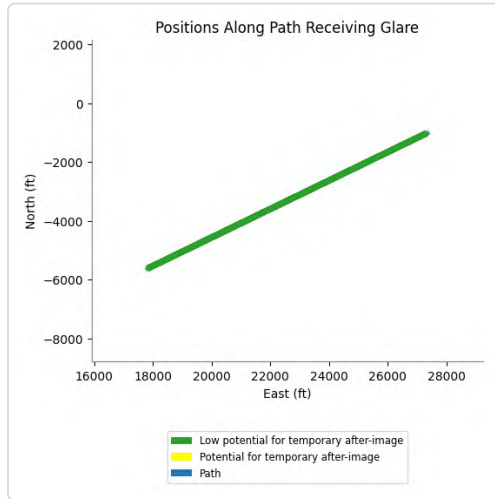
Yellow glare: none

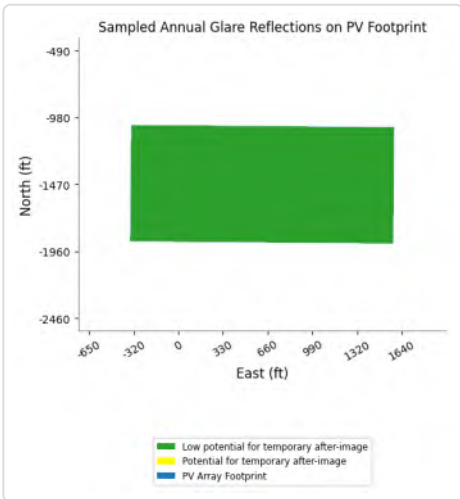
Green glare: 841 min.

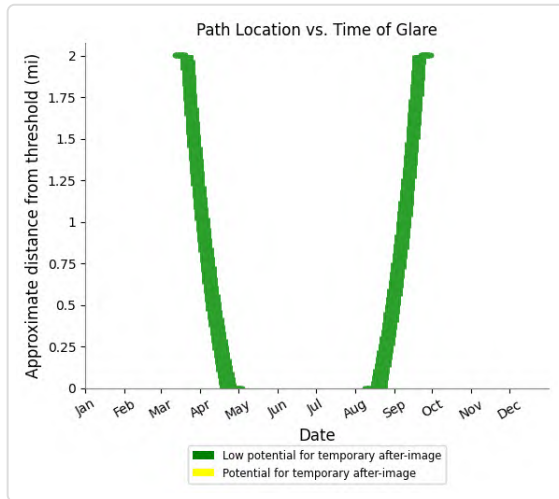








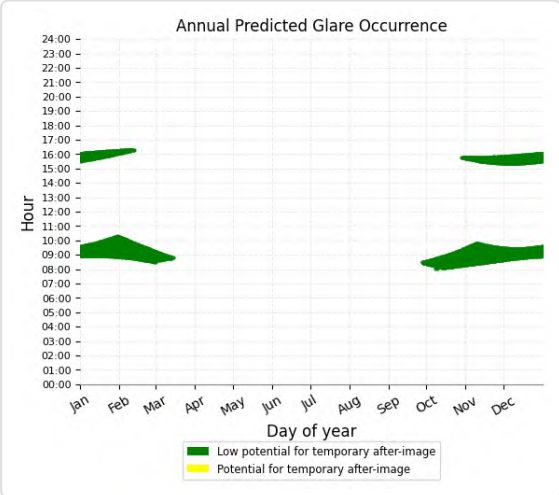


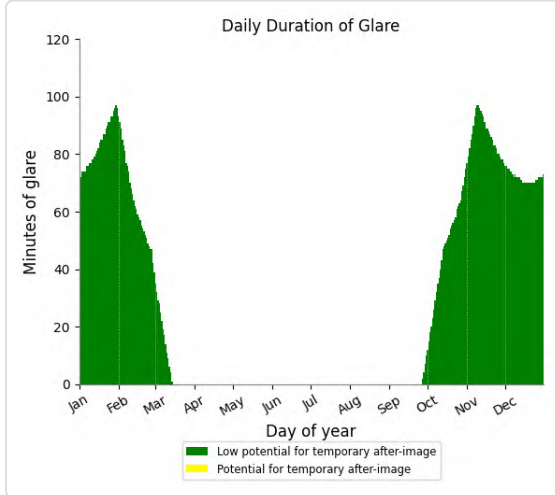


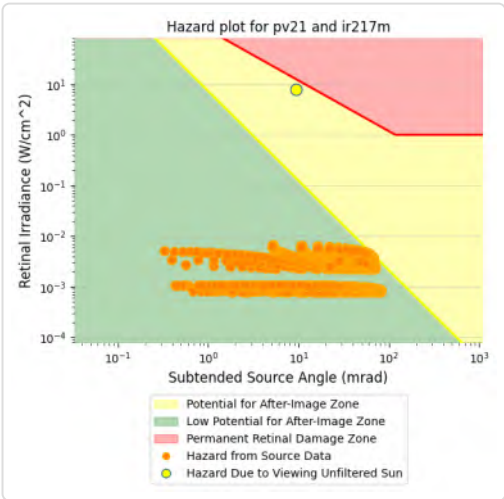
PV21 and FP: IR217m

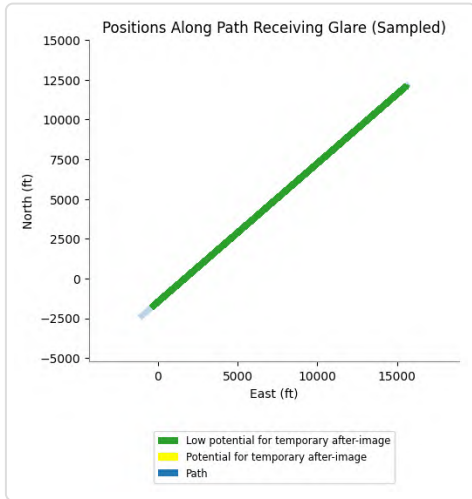
Yellow glare: none

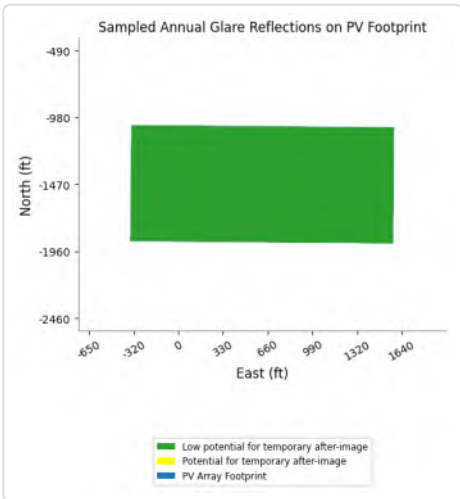
Green glare: 10,975 min.

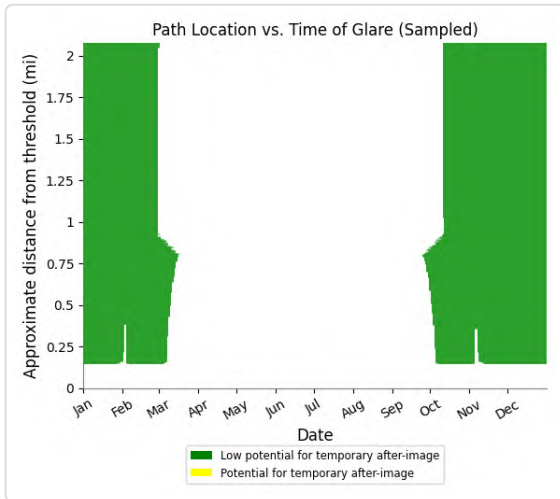








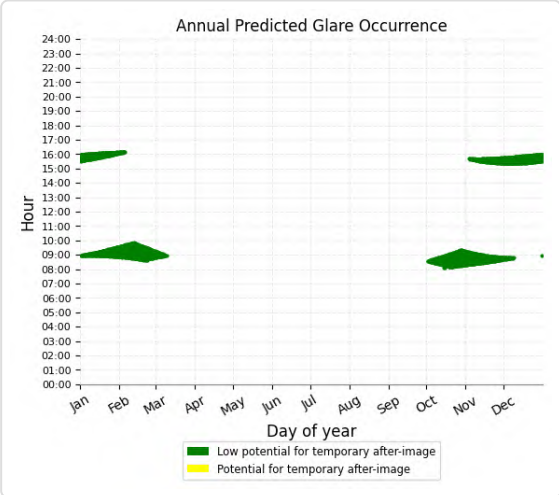


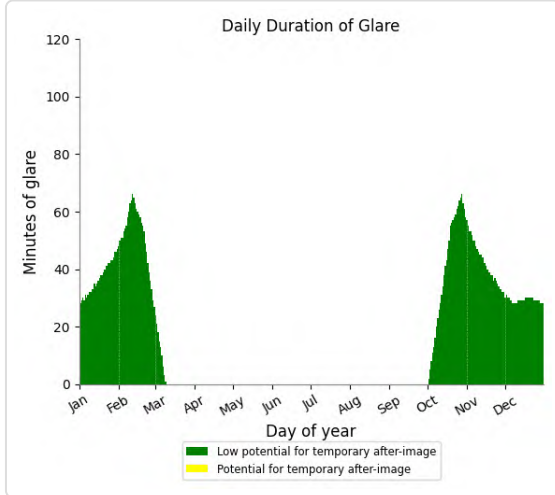


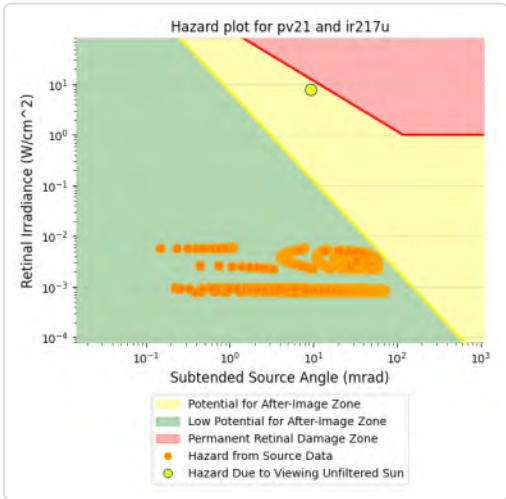
PV21 and FP: IR217u

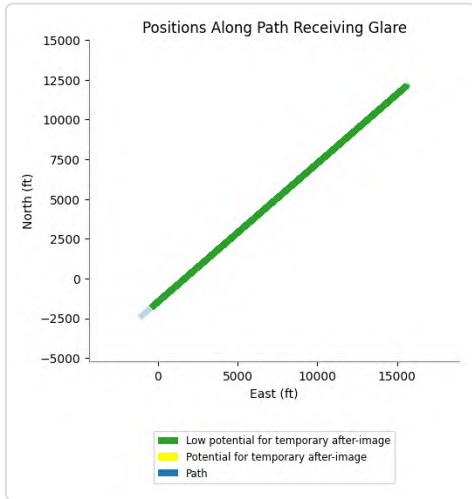
Yellow glare: none

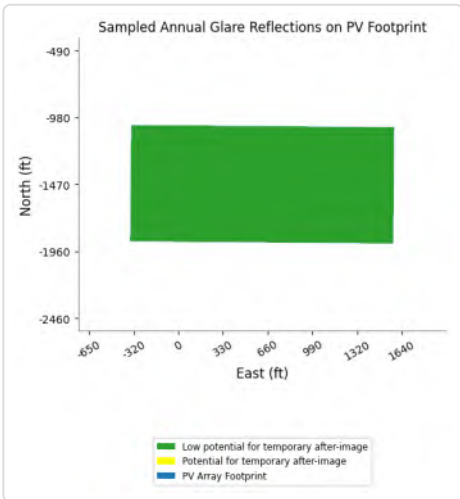
Green glare: 6,147 min.

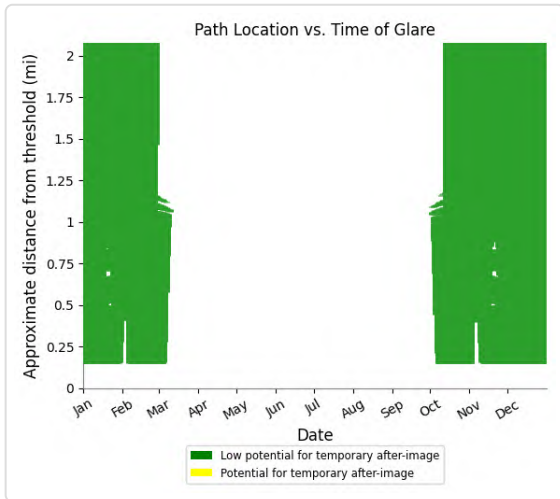








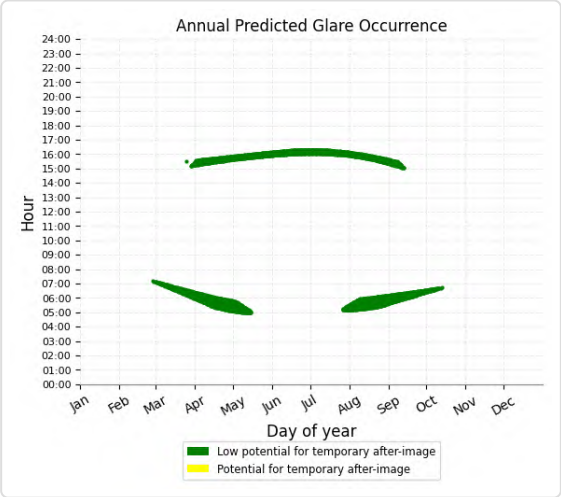


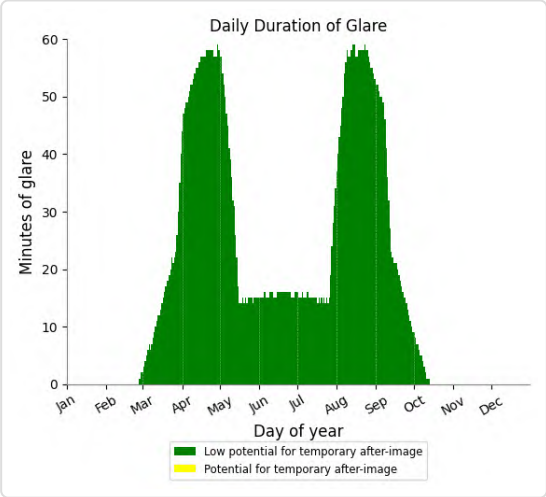


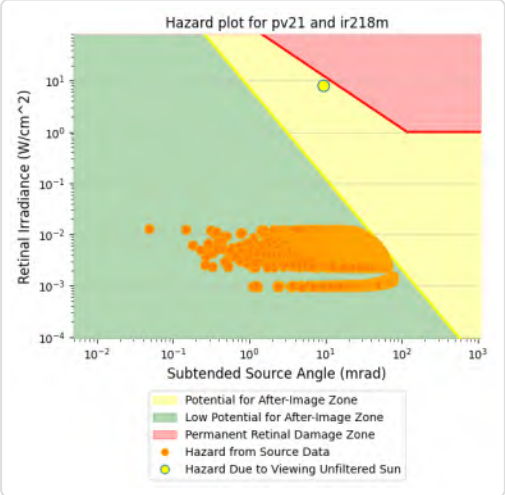
PV21 and FP: IR218m

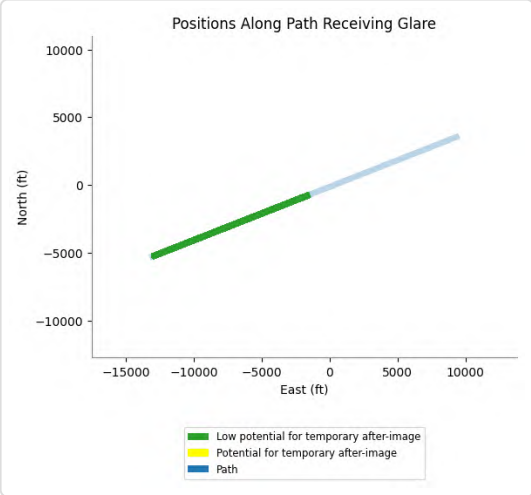
Yellow glare: none

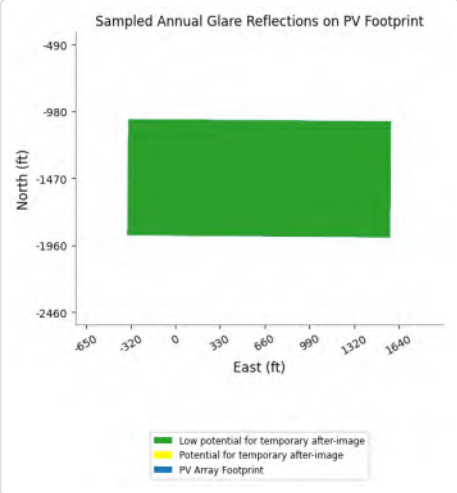
Green glare: 6,520 min.

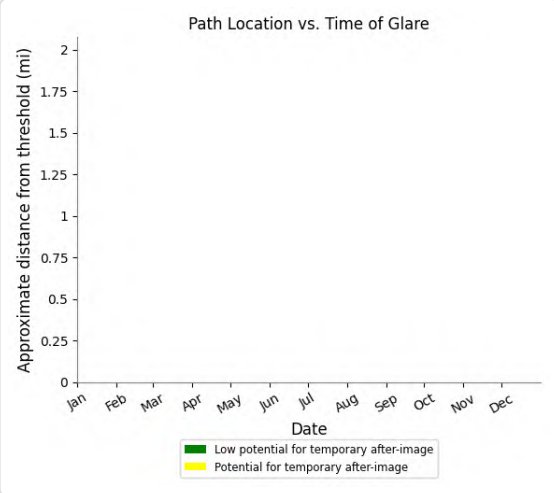








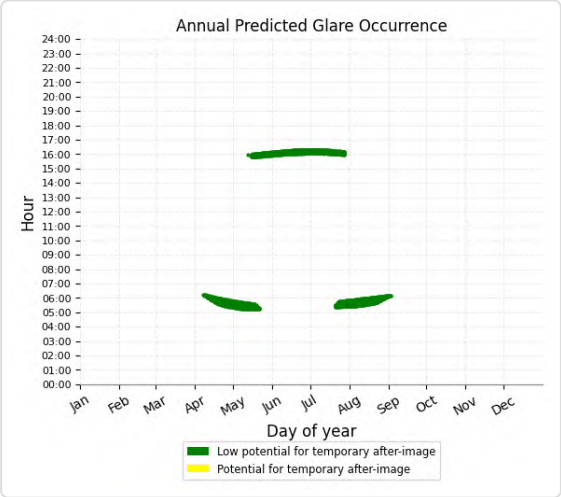


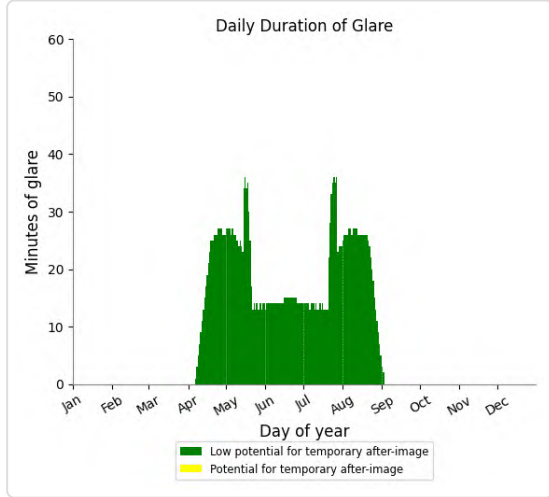


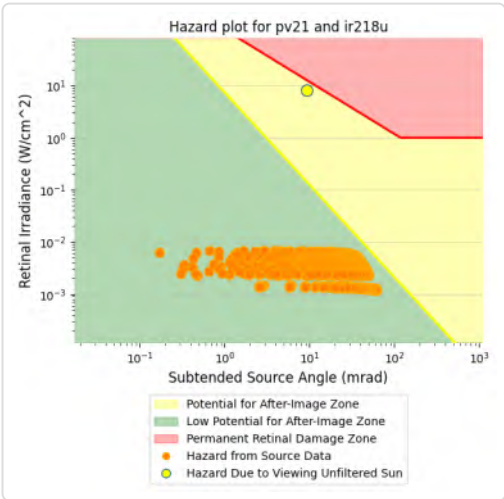
PV21 and FP: IR218u

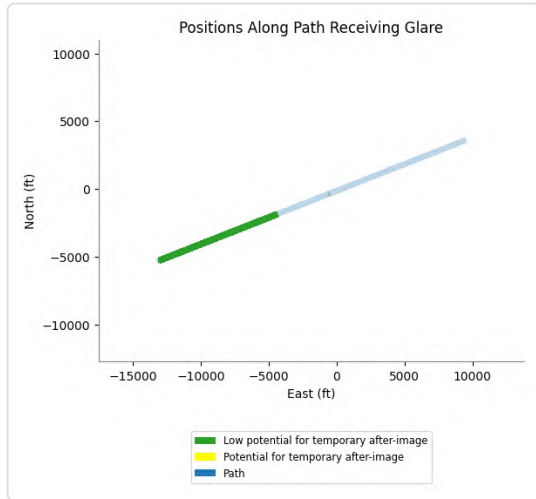
Yellow glare: none

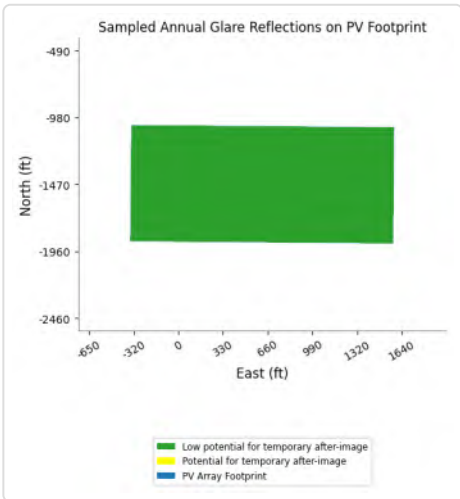
Green glare: 2,880 min.

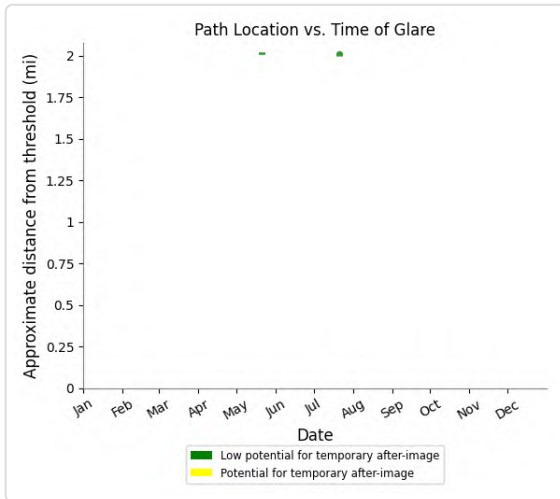








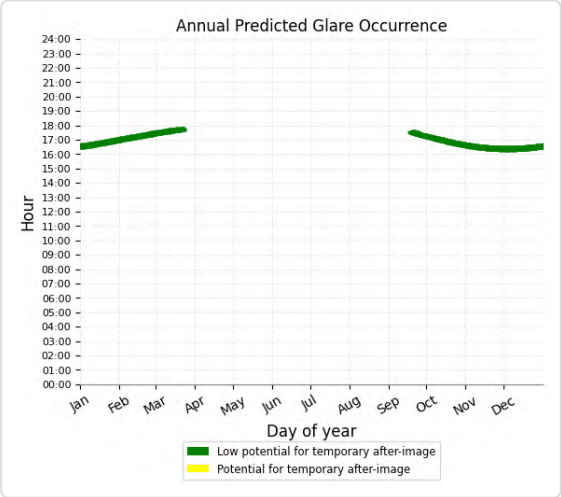


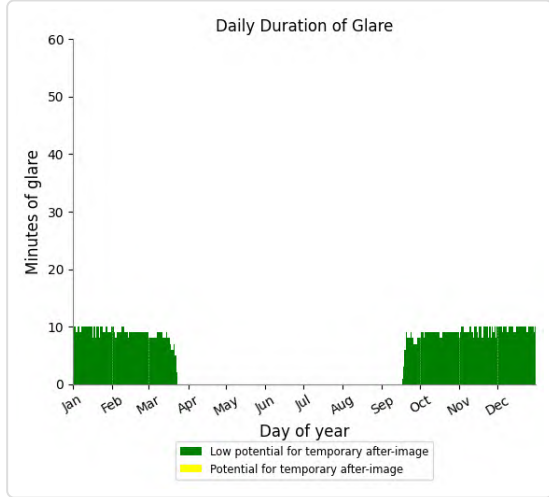


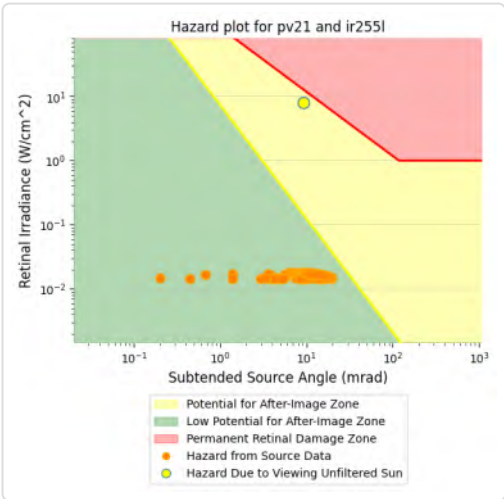
PV21 and FP: IR255I

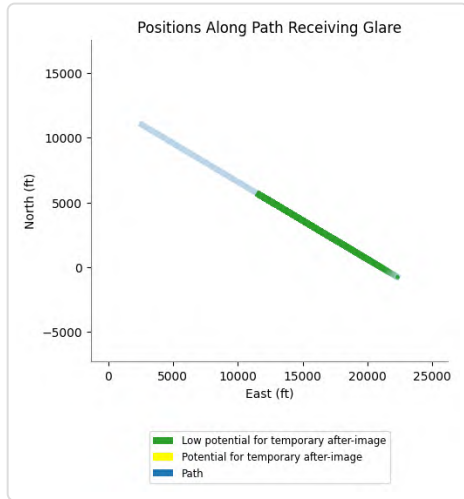
Yellow glare: none

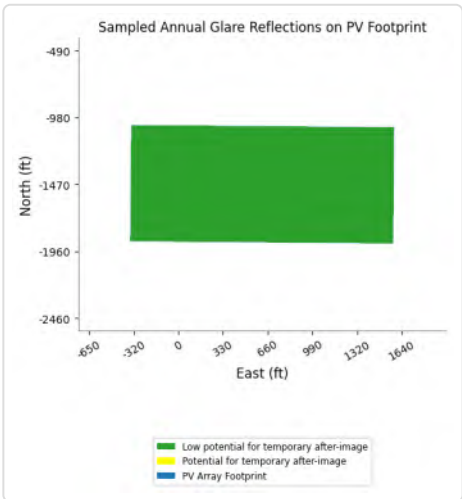
Green glare: 1,687 min.

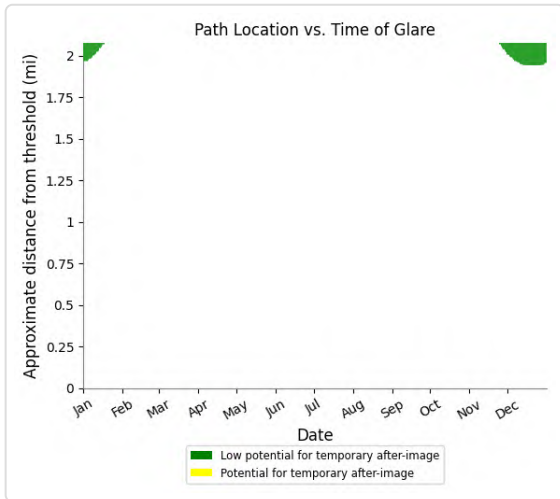








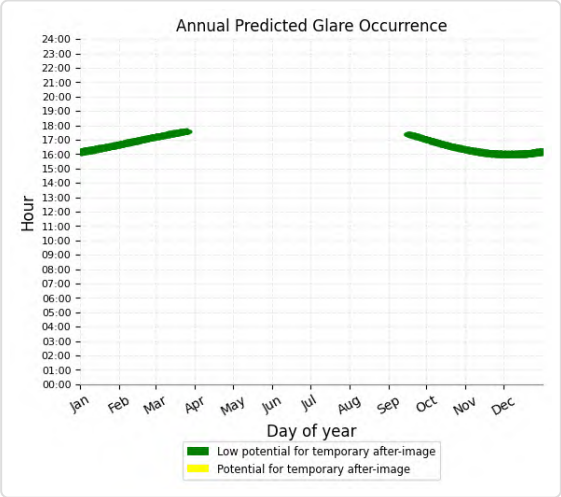


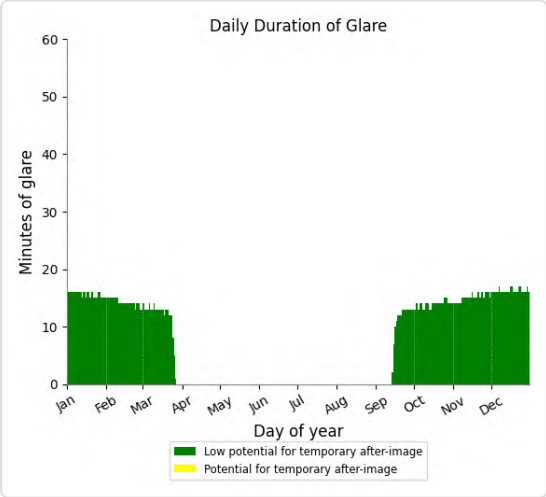


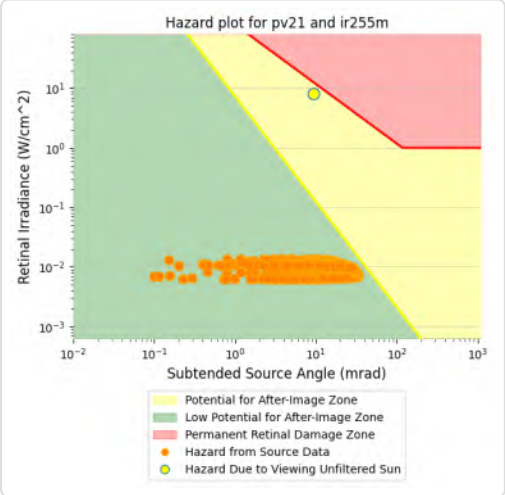
PV21 and FP: IR255m

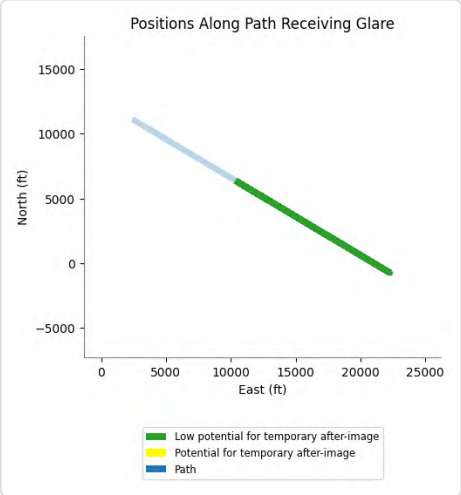
Yellow glare: none

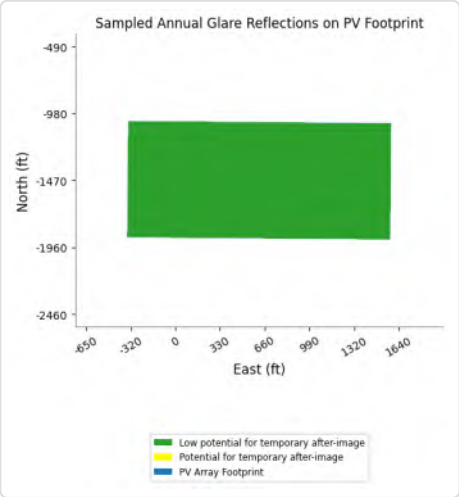
Green glare: 2,801 min.

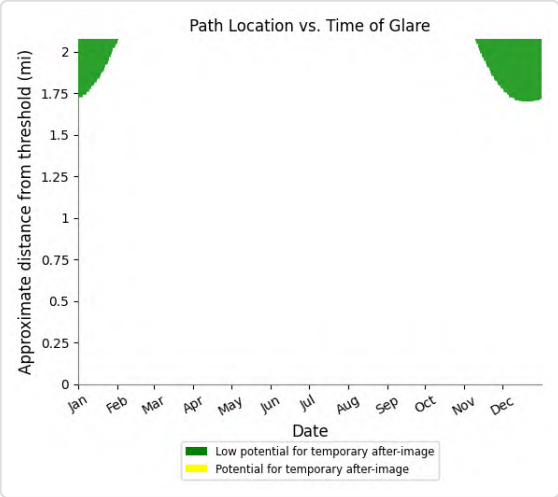








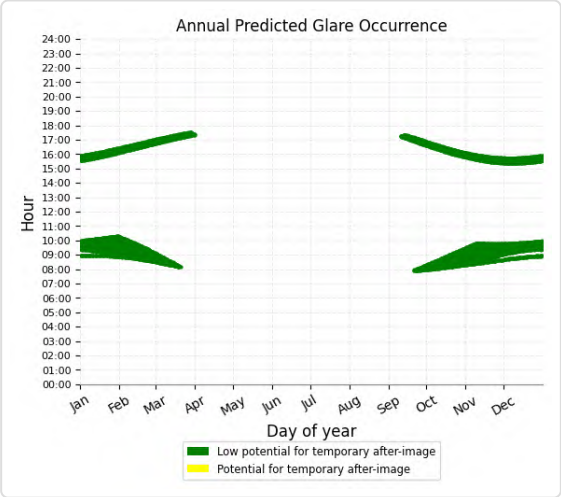


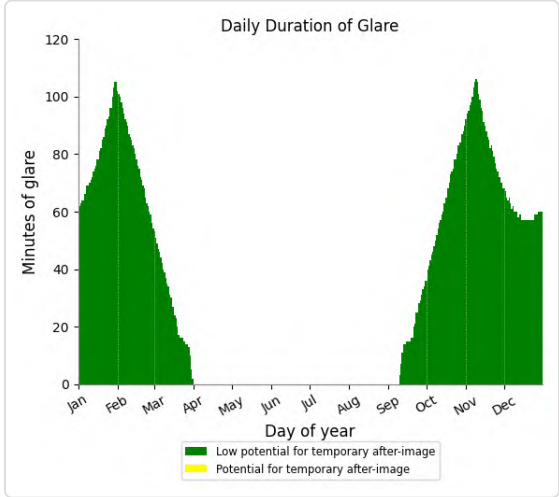


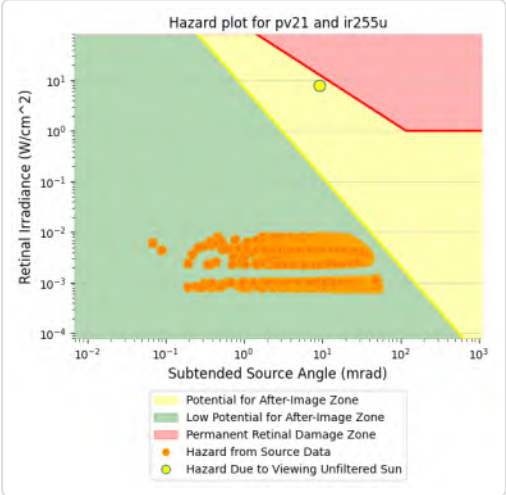
PV21 and FP: IR255u

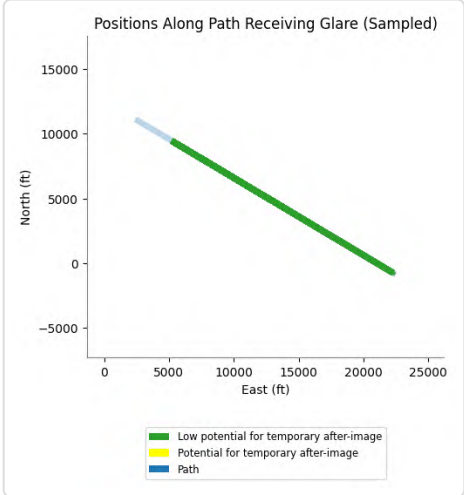
Yellow glare: none

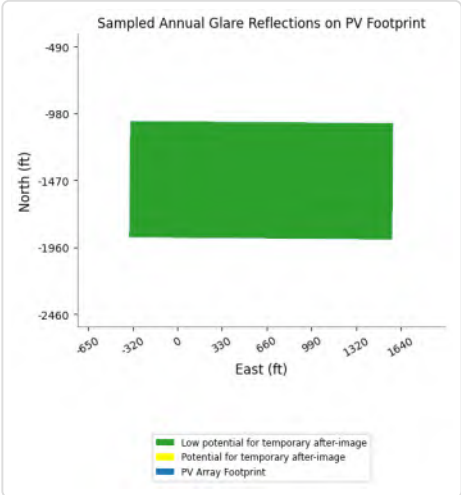
Green glare: 12,559 min.

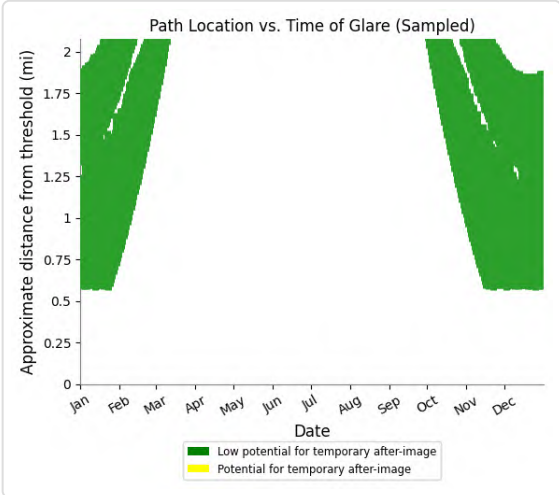








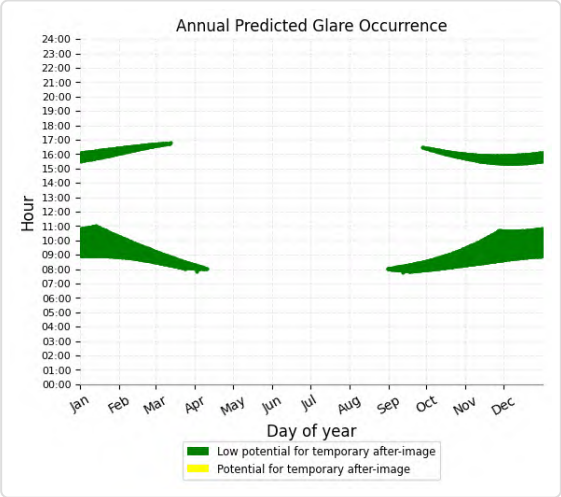


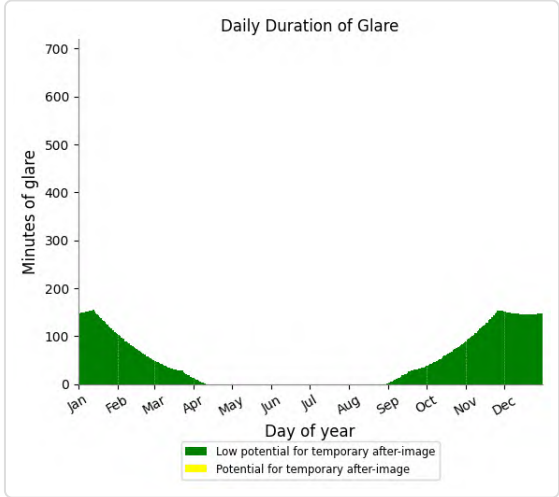


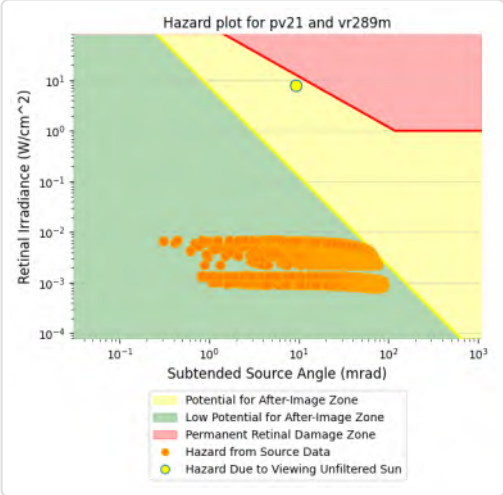
PV21 and FP: VR289m

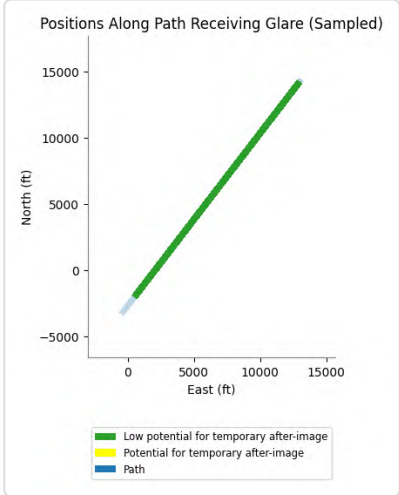
Yellow glare: none

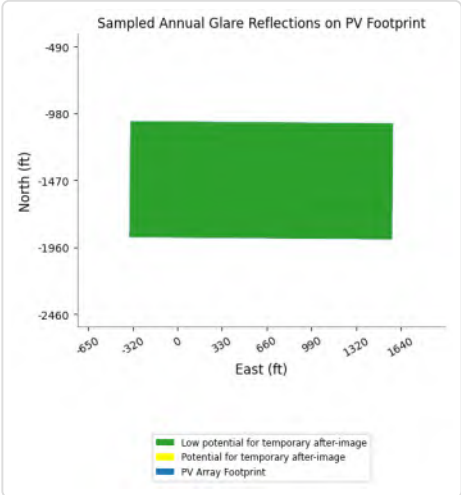
Green glare: 18,336 min.

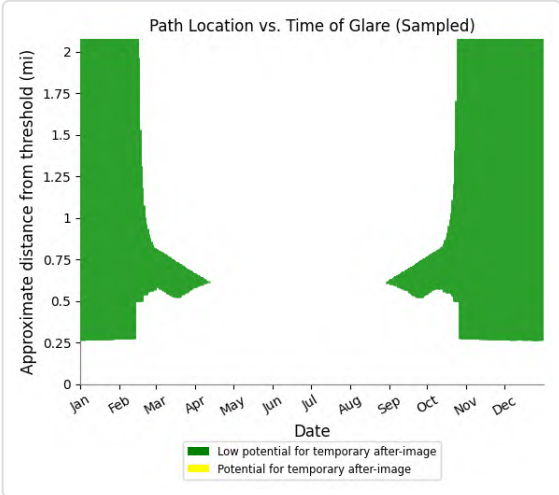








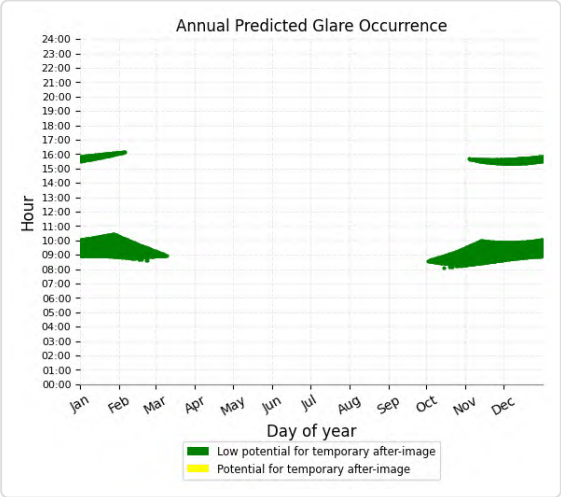


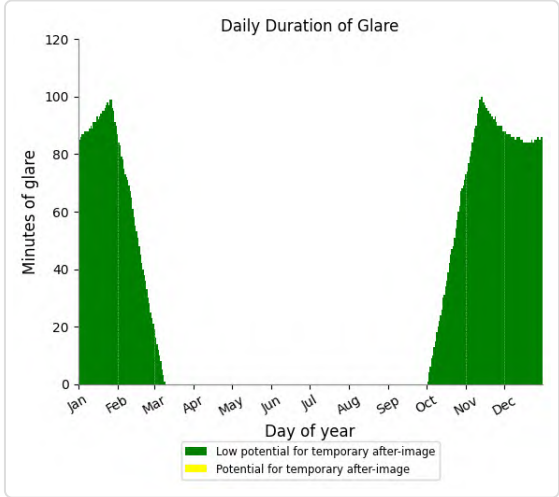


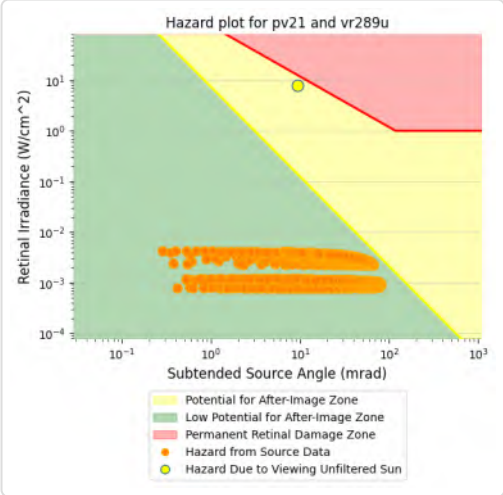
PV21 and FP: VR289u

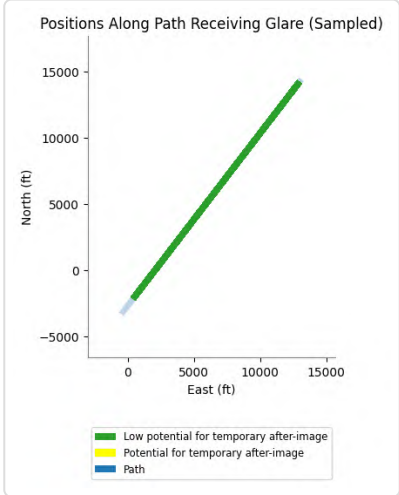
Yellow glare: none

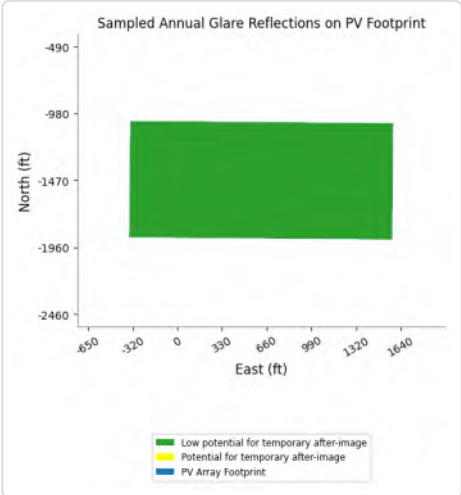
Green glare: 10,959 min.

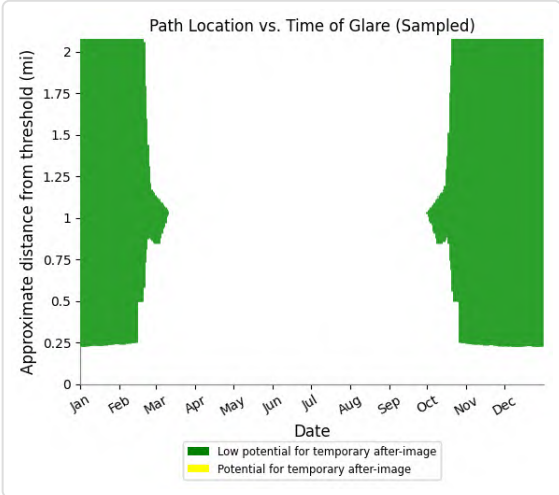












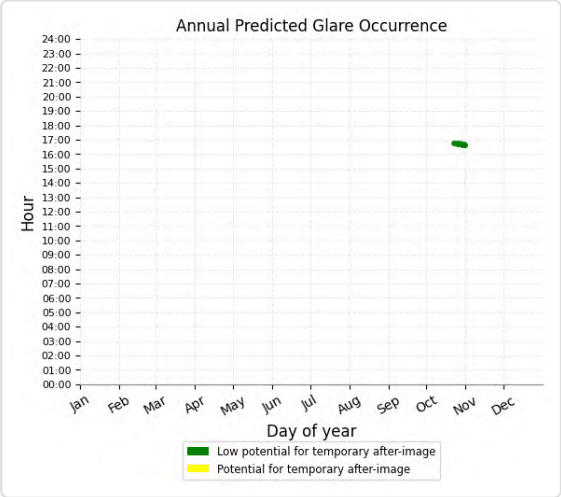
PV21 and FP: CN645

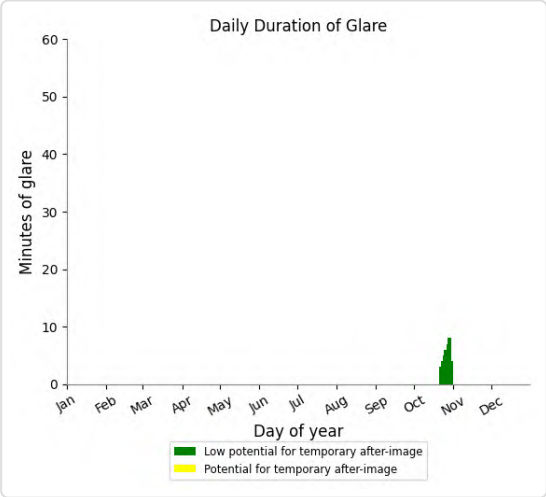
No glare found

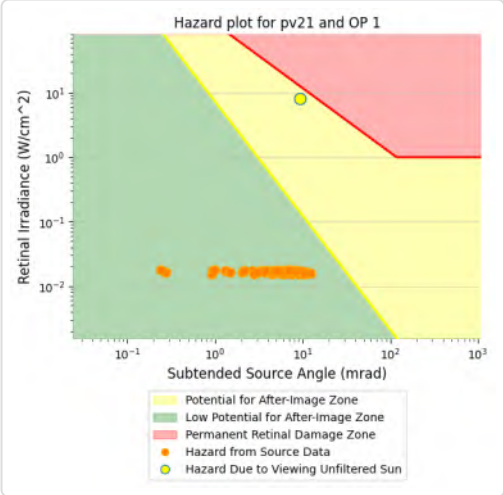
PV21 and OP 1

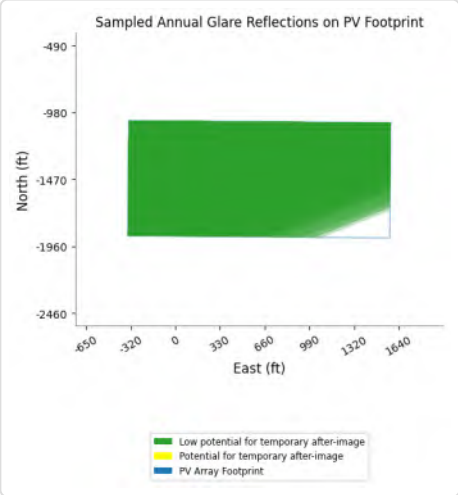
Yellow glare: none

Green glare: 62 min.



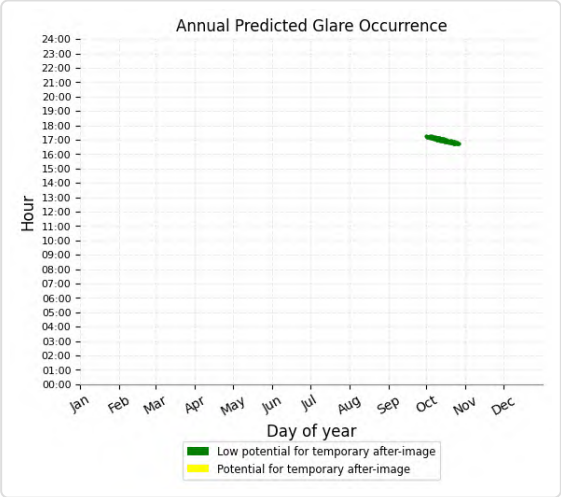


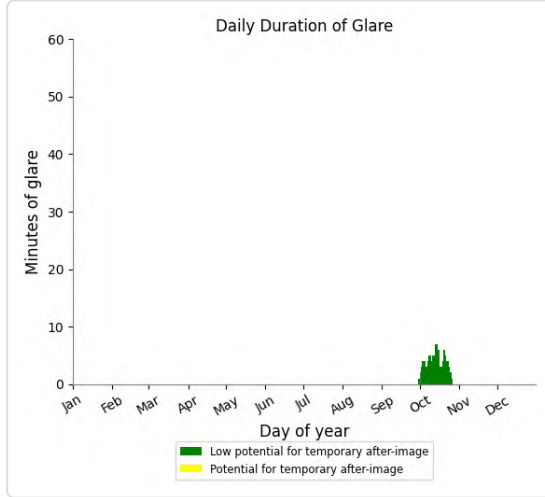


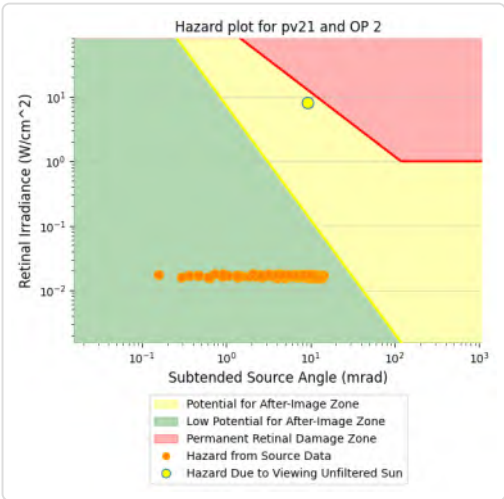


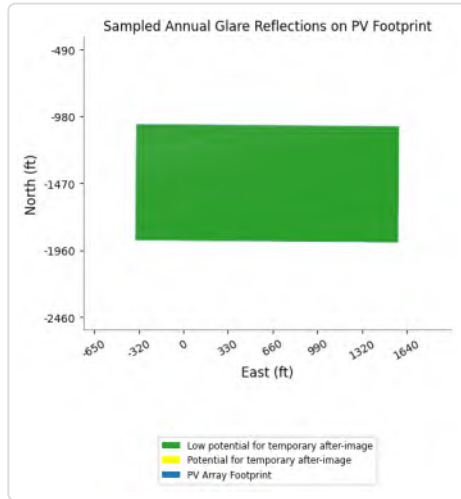
PV21 and OP 2

Yellow glare: none
Green glare: 110 min.









PV21 and OP 3

No glare found

PV21 and OP 4

No glare found

PV21 and OP 5

No glare found

PV21 and OP 6

No glare found

PV21 and OP 7

No glare found

PV21 and OP 8

No glare found

PV21 and OP 9

No glare found

PV21 and OP 10

No glare found

PV21 and OP 11

No glare found

PV21 and OP 12

No glare found

PV21 and OP 13

No glare found

PV21 and OP 14

No glare found

PV21 and OP 15

No glare found

PV21 and OP 16

No glare found

PV21 and OP 17

No glare found

PV21 and OP 18

No glare found

PV21 and OP 19

No glare found

PV: PV22 potential temporary after-image

Receptor results ordered by category of glare

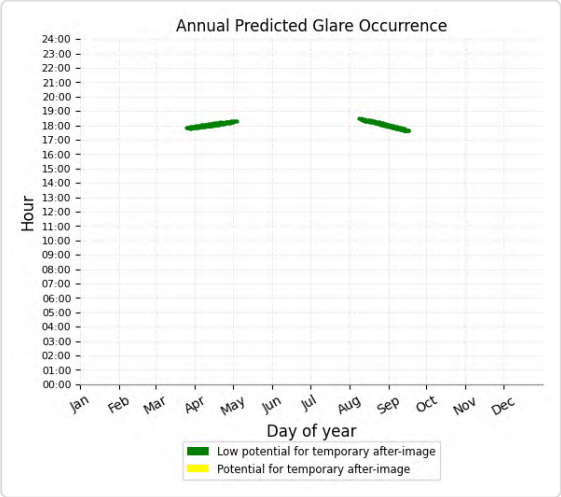
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd B	411	6.8	0	0.0
Race Track	486	8.1	0	0.0
SR177 A	661	11.0	0	0.0
SR177 B	854	14.2	0	0.0
SR177 C	476	7.9	0	0.0
AirportRd A	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR218l	2,863	47.7	2,911	48.5
VR289l	16,093	268.2	1,071	17.9
CN6423	897	14.9	0	0.0
IR217m	11,649	194.2	0	0.0
IR217u	7,195	119.9	0	0.0
IR218m	7,271	121.2	0	0.0
IR218u	3,286	54.8	0	0.0
IR255l	1,613	26.9	0	0.0
IR255m	2,957	49.3	0	0.0
IR255u	11,713	195.2	0	0.0
VR289m	16,426	273.8	0	0.0
VR289u	9,508	158.5	0	0.0
VR296l	237	4.0	0	0.0
VR296m	18,770	312.8	0	0.0
VR296u	11,865	197.8	0	0.0
CN645	0	0.0	0	0.0
IR217l	0	0.0	0	0.0
OP 1	33	0.6	0	0.0
OP 2	102	1.7	0	0.0

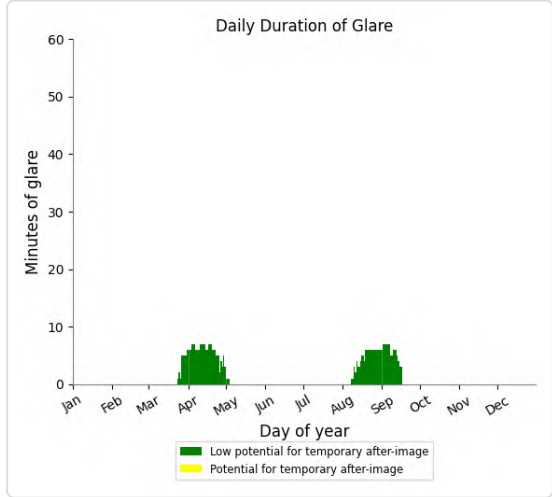
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 7	80	1.3	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

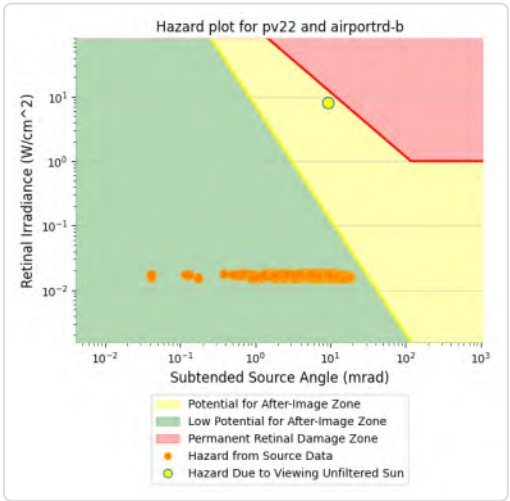
PV22 and Route: AirportRd B

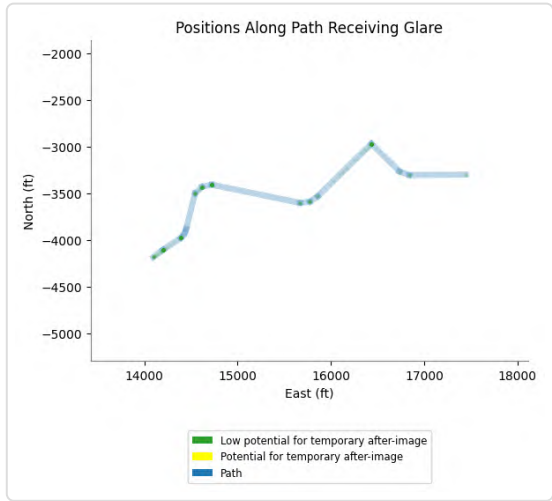
Yellow glare: none

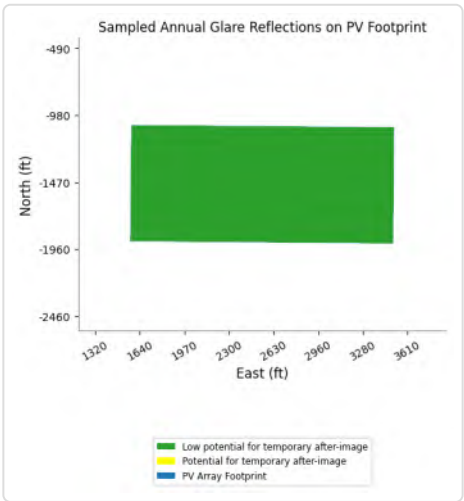
Green glare: 411 min.







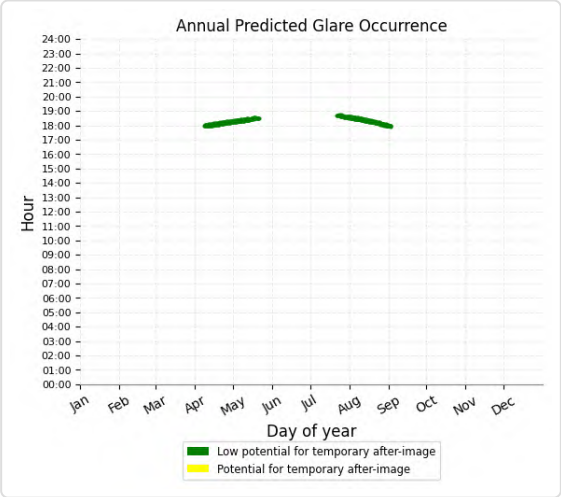


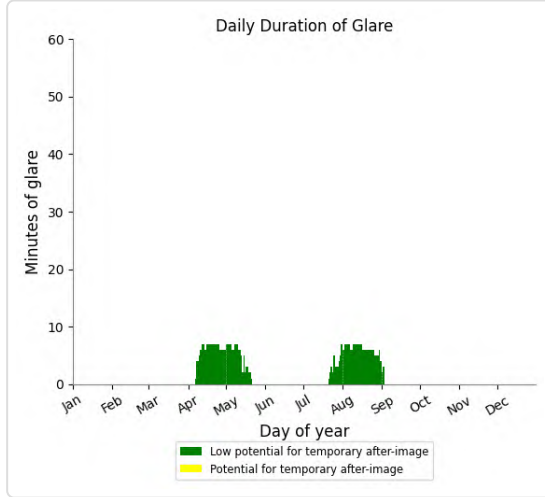


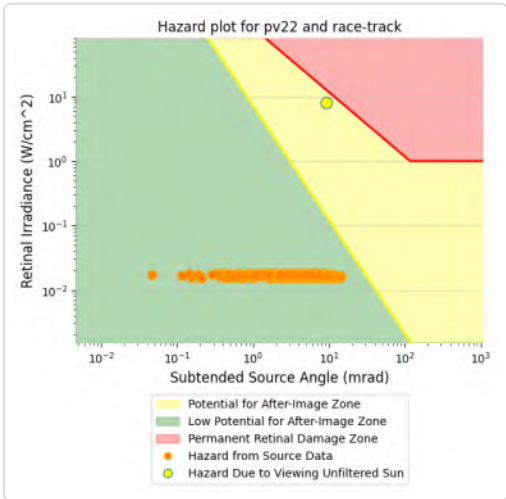
PV22 and Route: Race Track

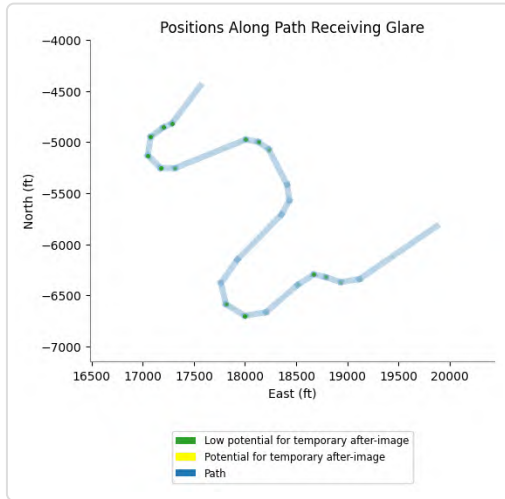
Yellow glare: none

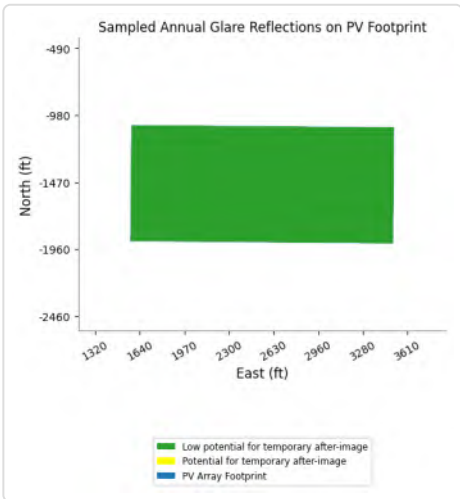
Green glare: 486 min.







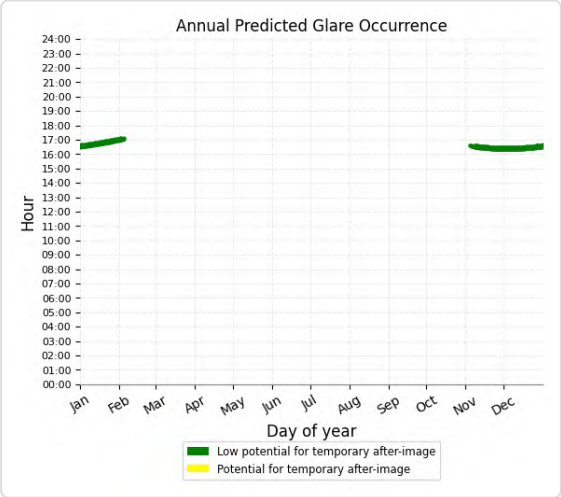


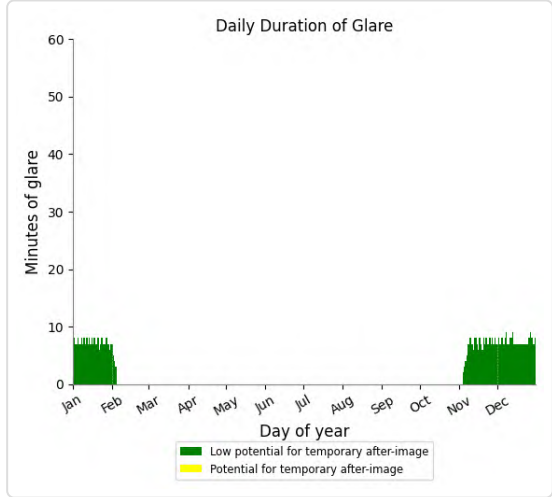


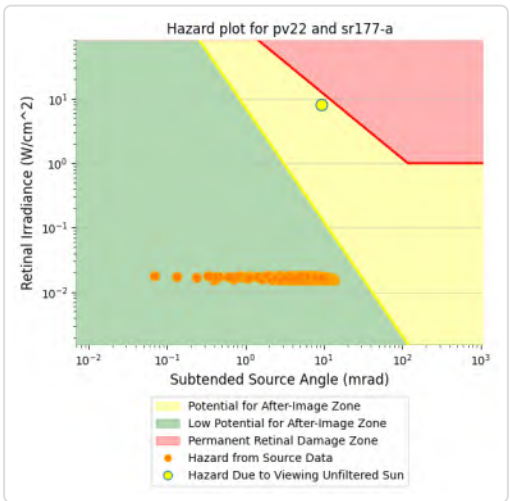
PV22 and Route: SR177 A

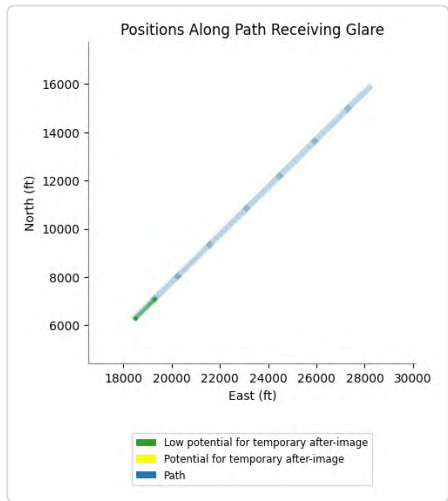
Yellow glare: none

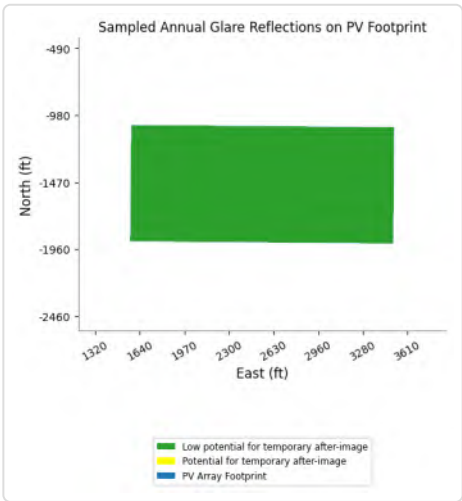
Green glare: 661 min.







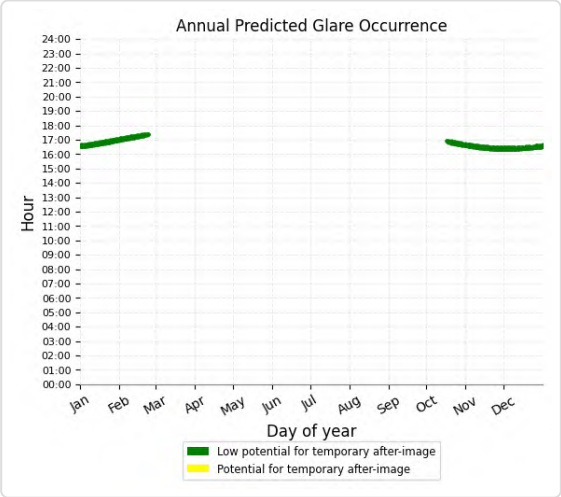


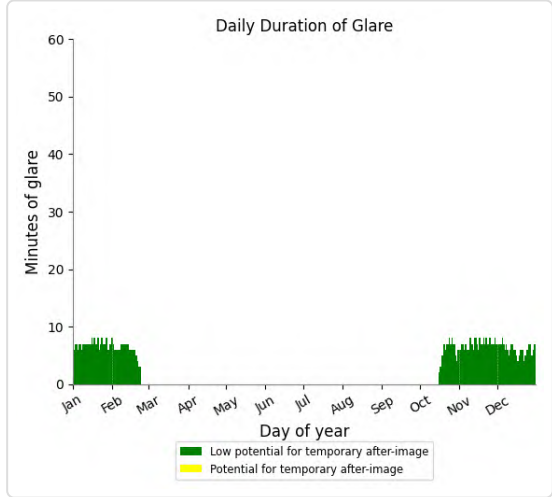


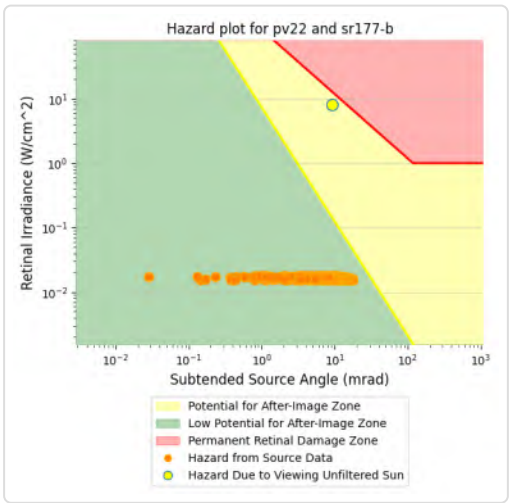
PV22 and Route: SR177 B

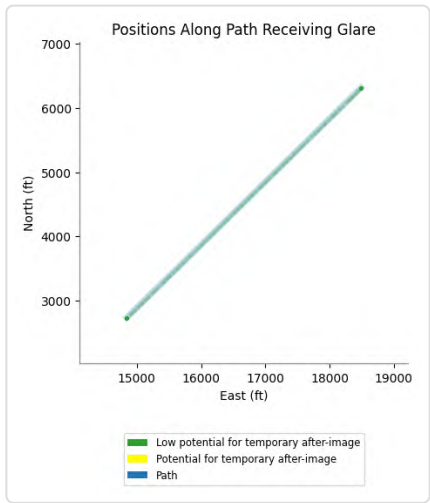
Yellow glare: none

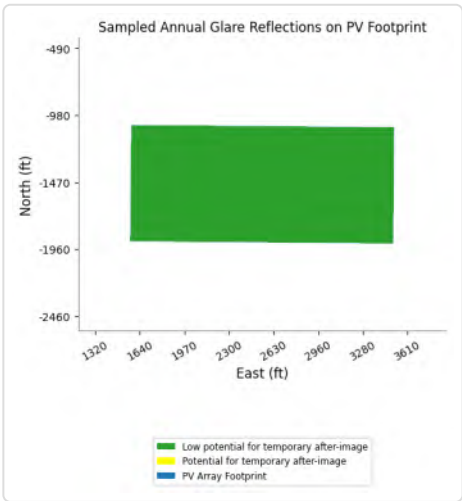
Green glare: 854 min.







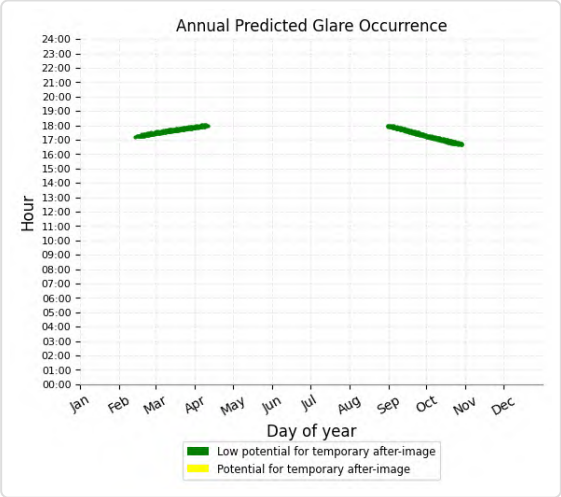


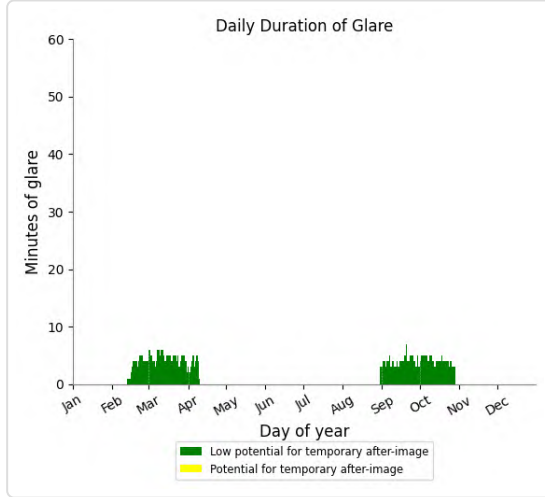


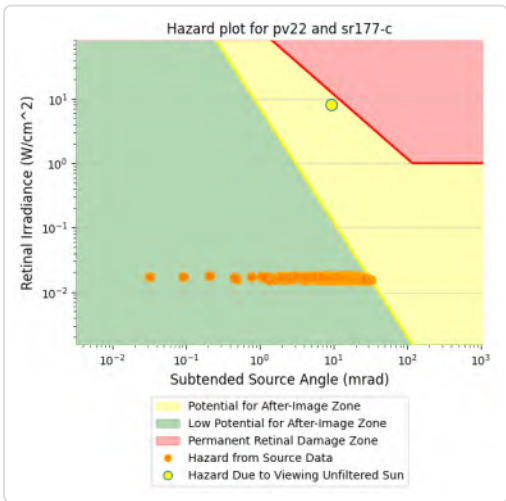
PV22 and Route: SR177 C

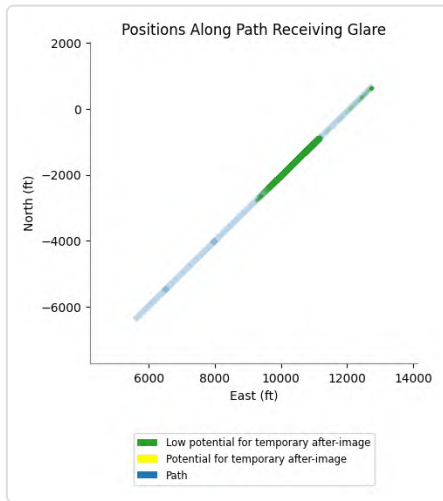
Yellow glare: none

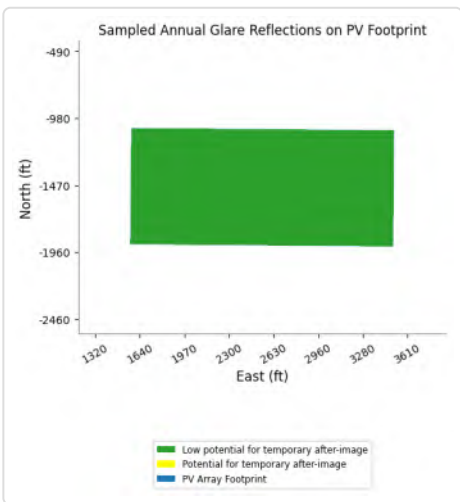
Green glare: 476 min.











PV22 and Route: AirportRd A

No glare found

PV22 and Route: EagleMtnRd A

No glare found

PV22 and Route: EagleMtnRd B

No glare found

PV22 and Route: I-10 EB A

No glare found

PV22 and Route: I-10 EB B

No glare found

PV22 and Route: I-10 EB C

No glare found

PV22 and Route: I-10 WB A

No glare found

PV22 and Route: I-10 WB B

No glare found

PV22 and Route: I-10 WB C

No glare found

PV22 and Route: KaiserRd A

No glare found

PV22 and Route: KaiserRd B

No glare found

PV22 and Route: KaiserRd C

No glare found

PV22 and Route: OasisRd

No glare found

PV22 and Route: SR177 D

No glare found

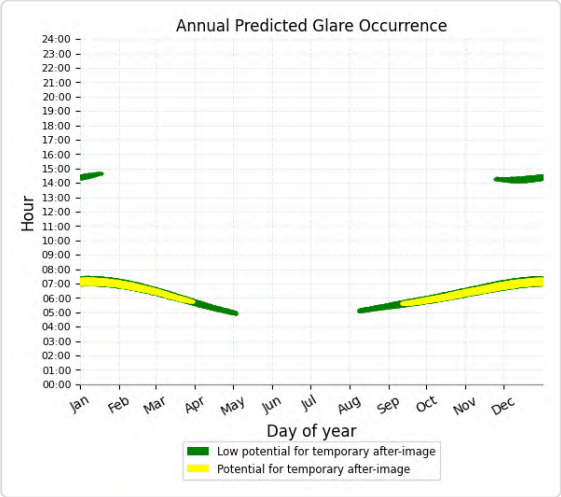
PV22 and Route: SR177 E

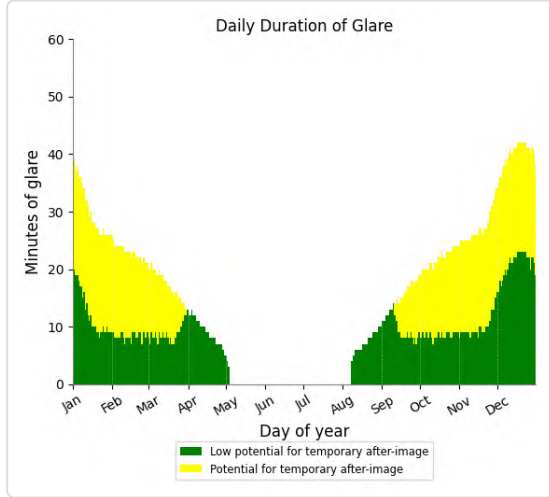
No glare found

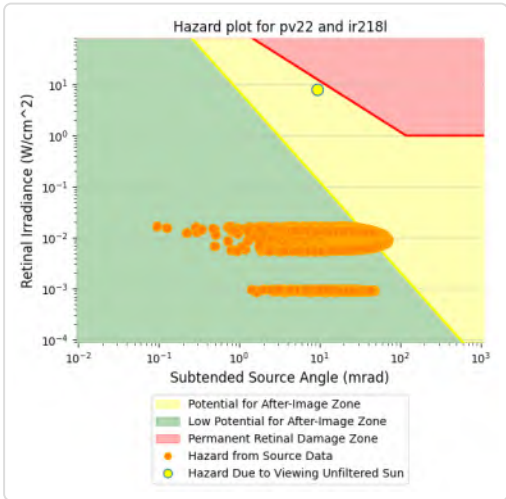
PV22 and FP: IR218l

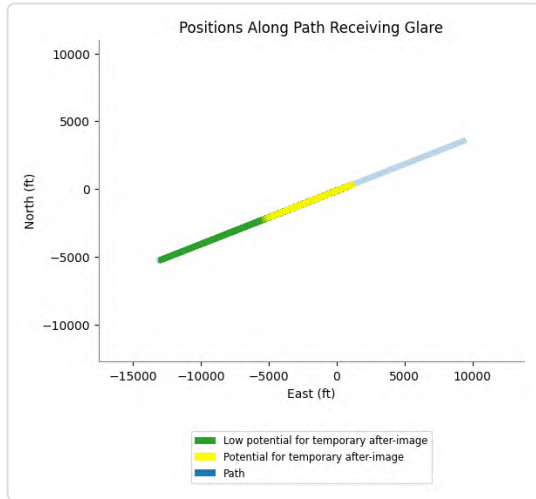
Yellow glare: 2,911 min.

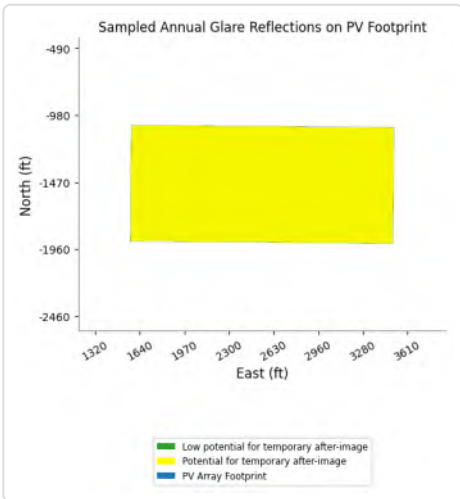
Green glare: 2,863 min.

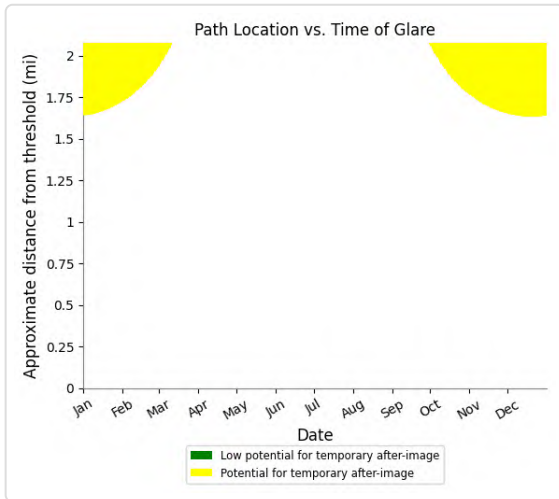








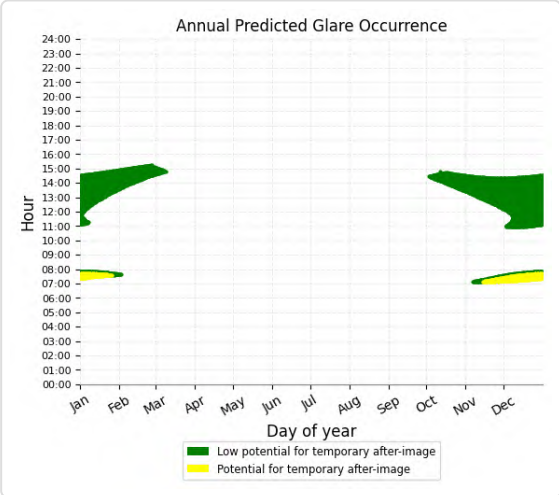


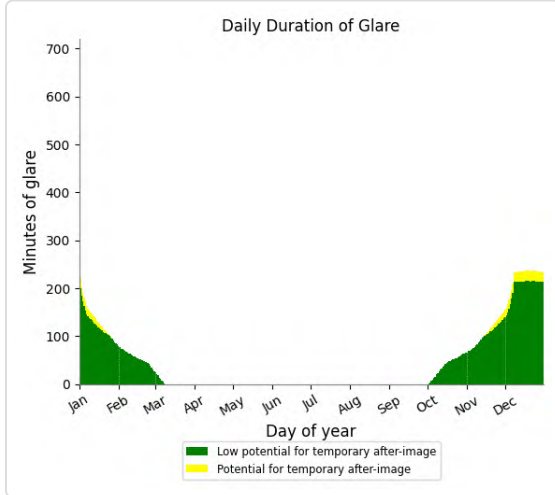


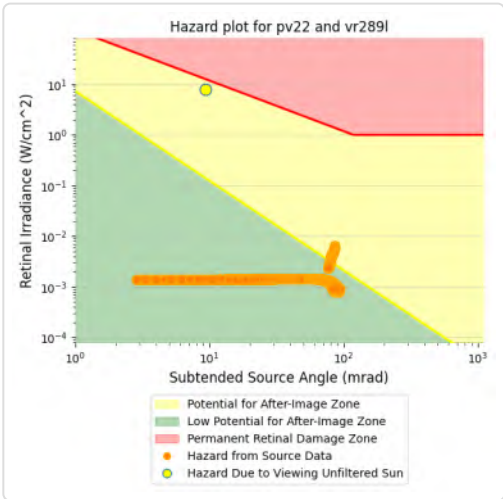
PV22 and FP: VR289I

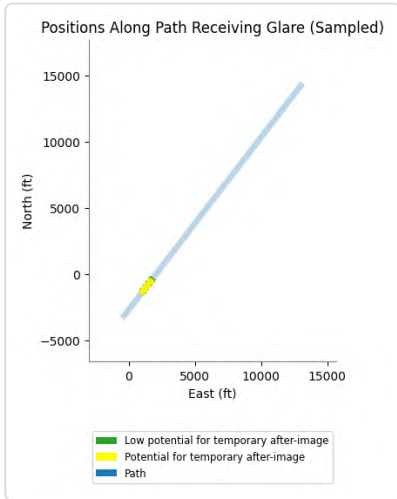
Yellow glare: 1,071 min.

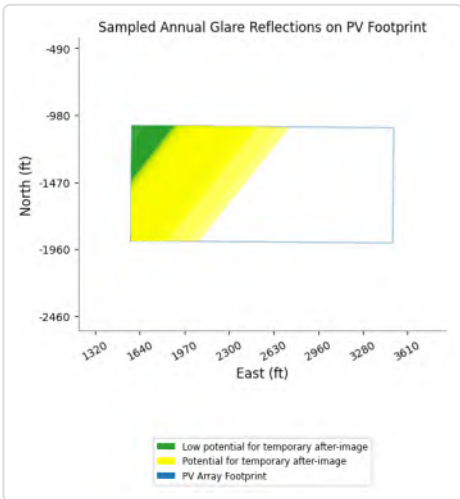
Green glare: 16,093 min.

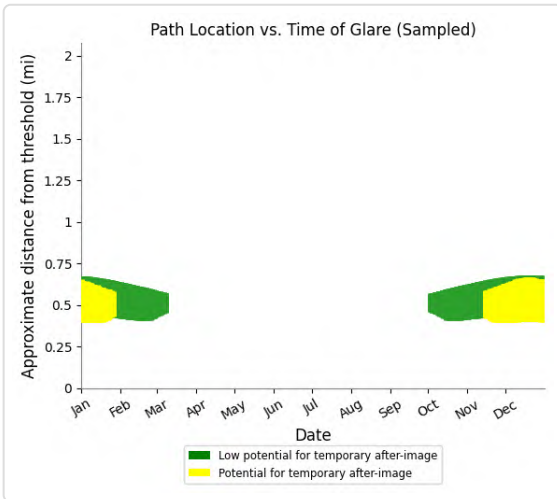








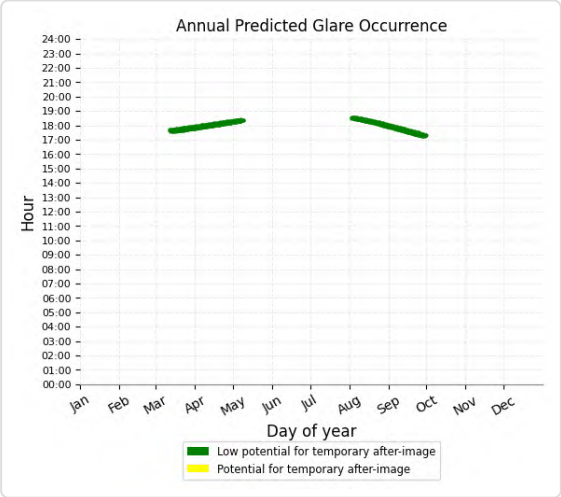


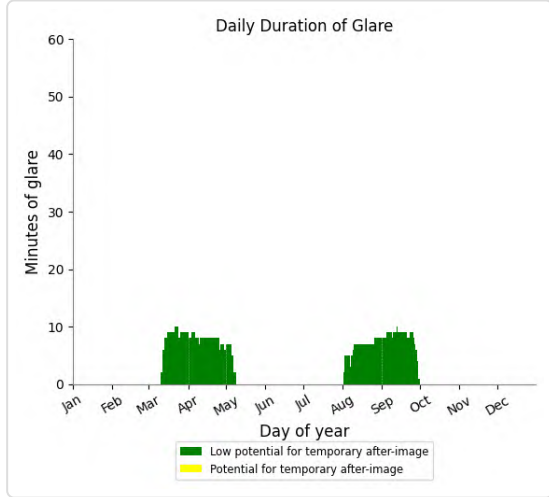


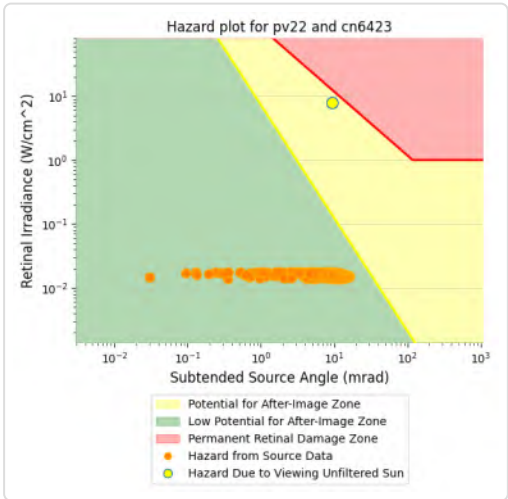
PV22 and FP: CN6423

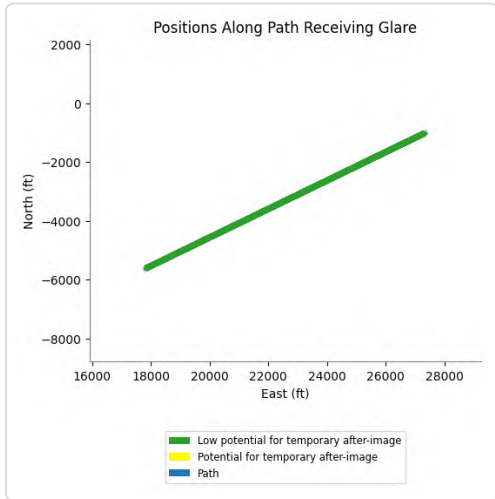
Yellow glare: none

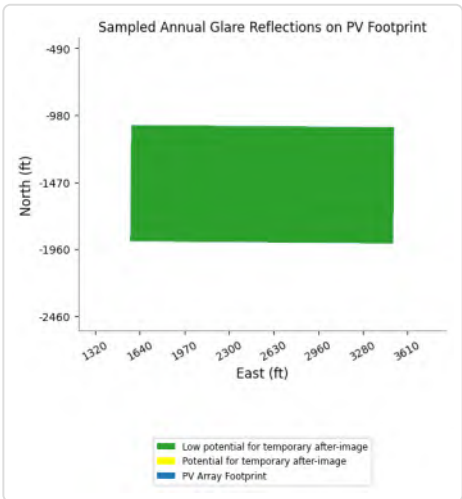
Green glare: 897 min.

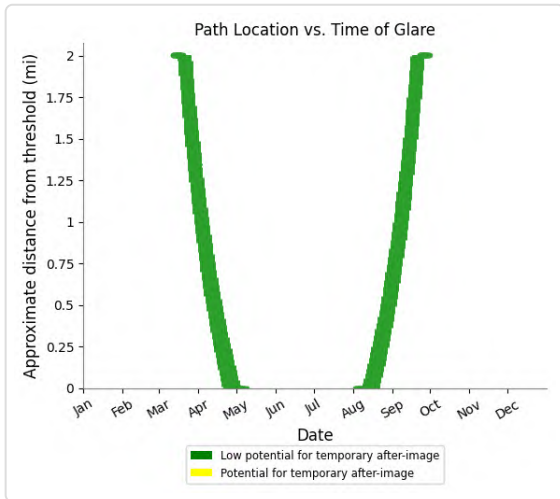








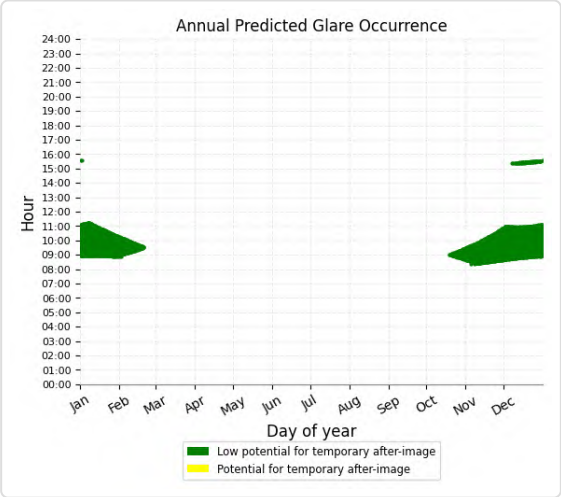


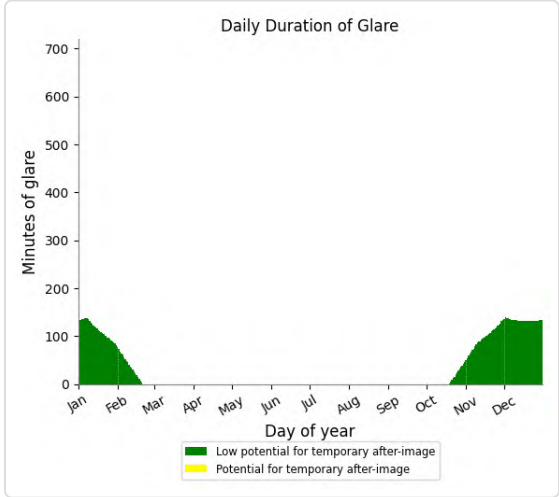


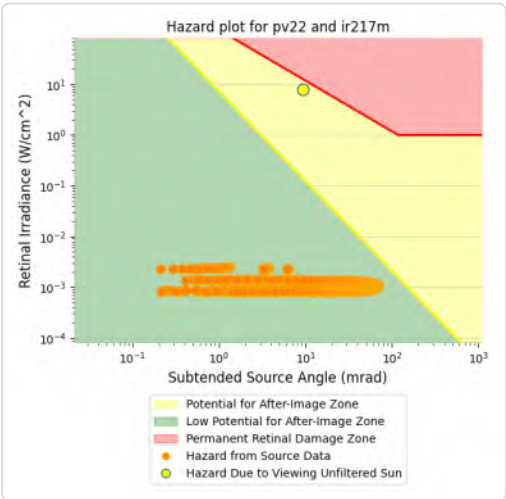
PV22 and FP: IR217m

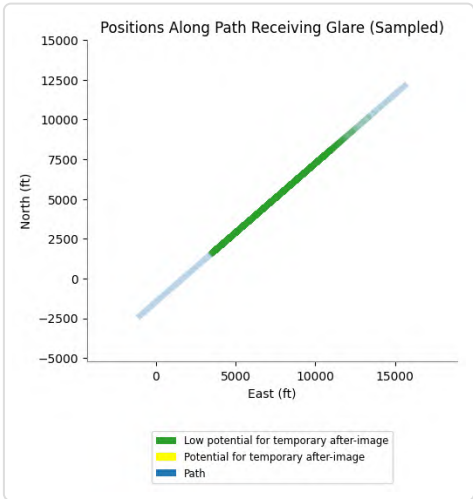
Yellow glare: none

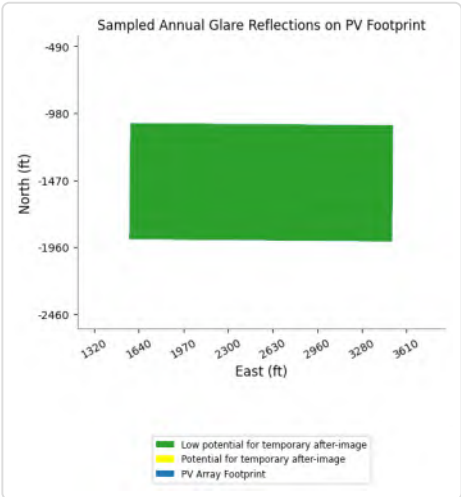
Green glare: 11,649 min.

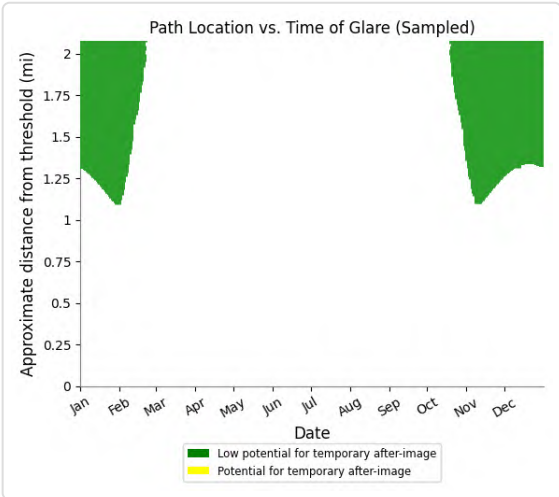








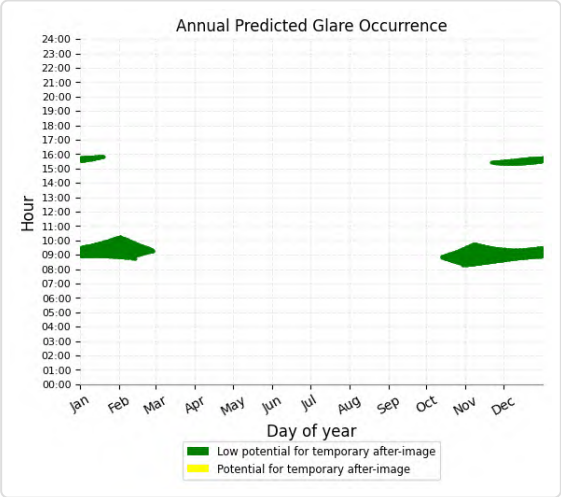


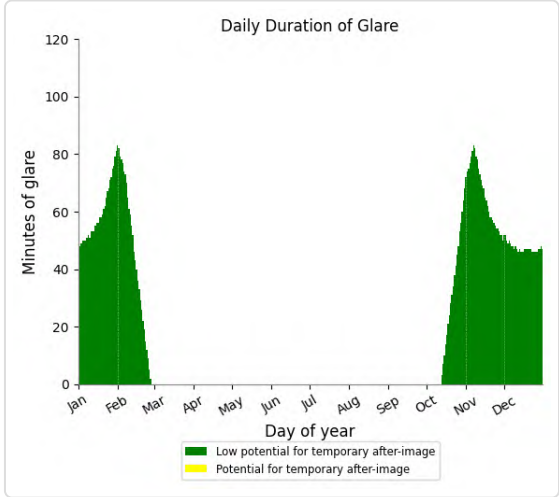


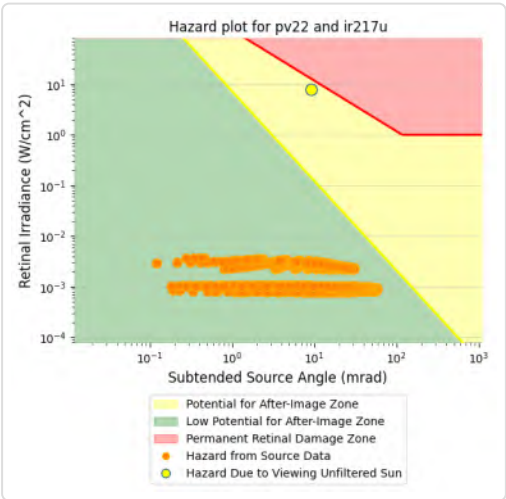
PV22 and FP: IR217u

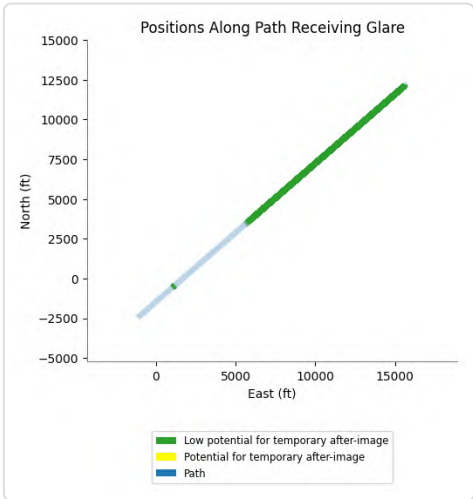
Yellow glare: none

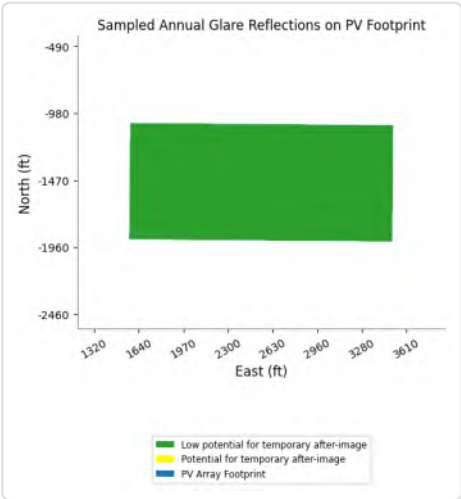
Green glare: 7,195 min.

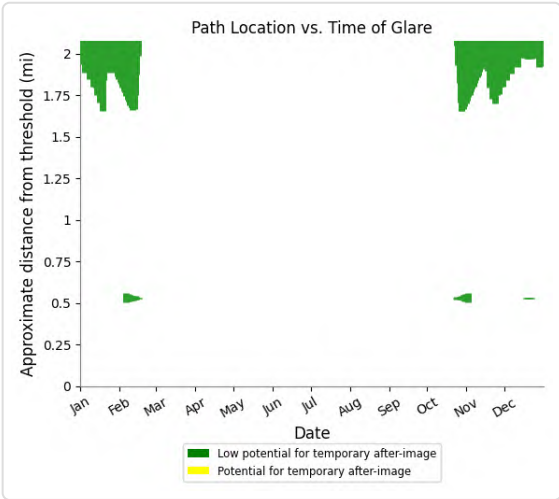








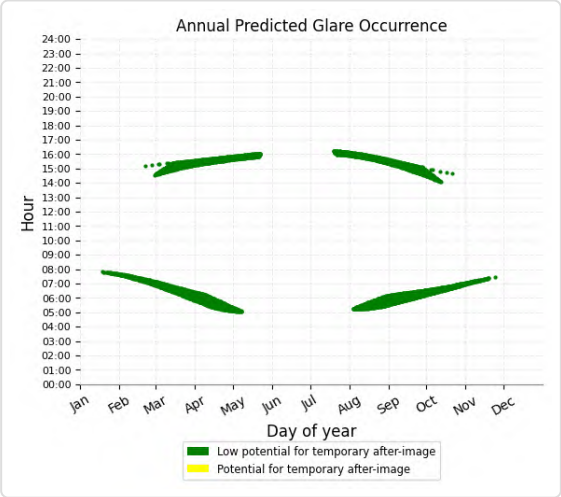


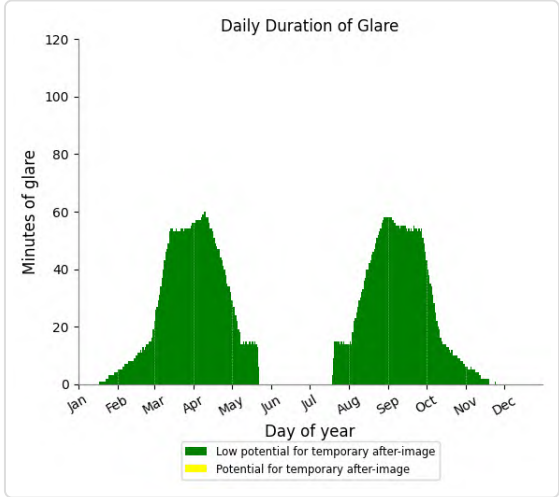


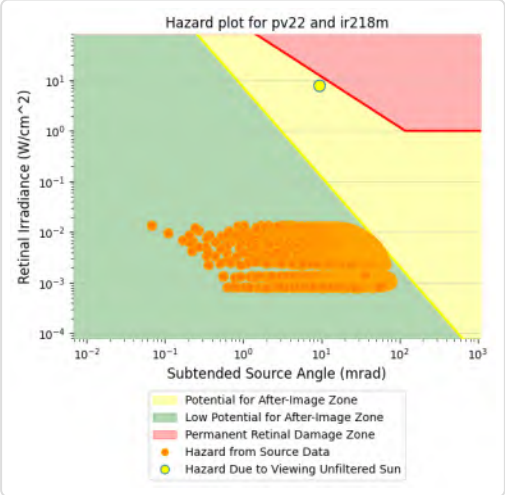
PV22 and FP: IR218m

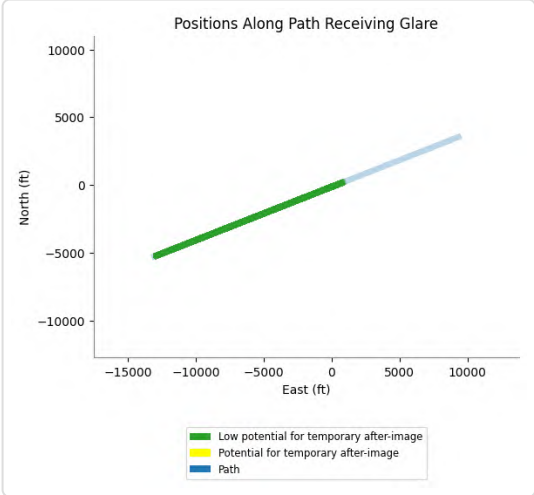
Yellow glare: none

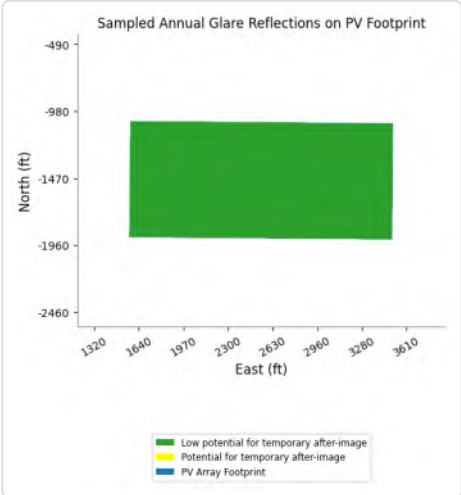
Green glare: 7,271 min.

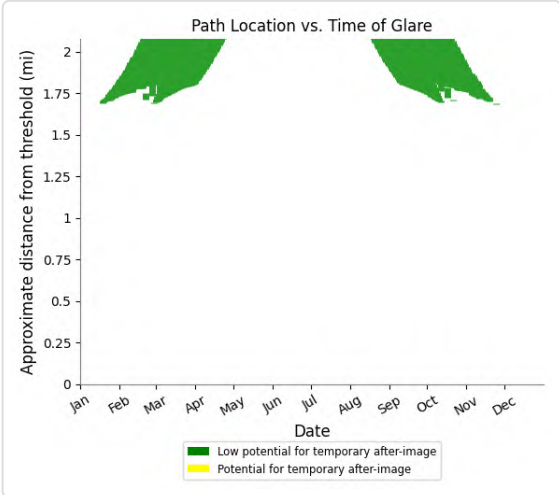








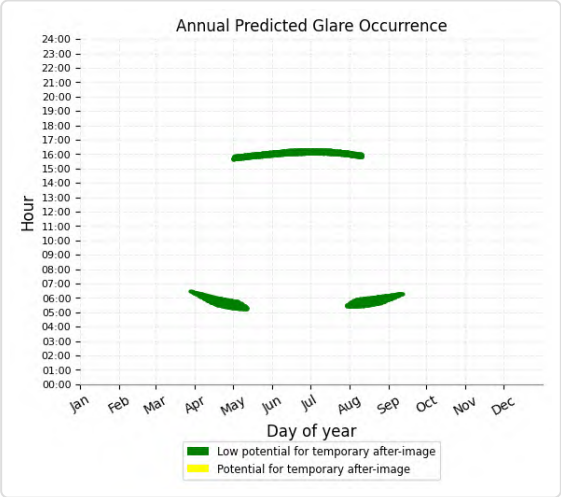


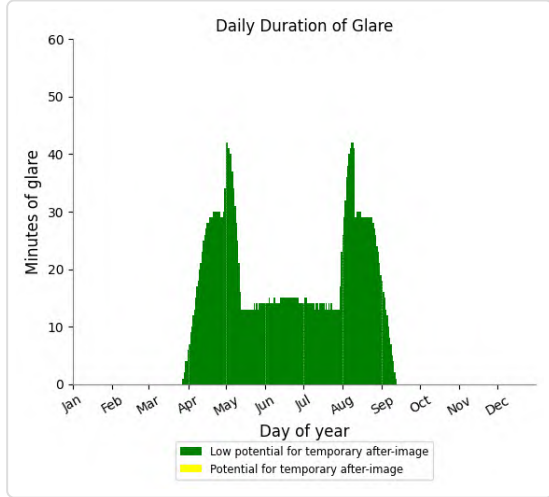


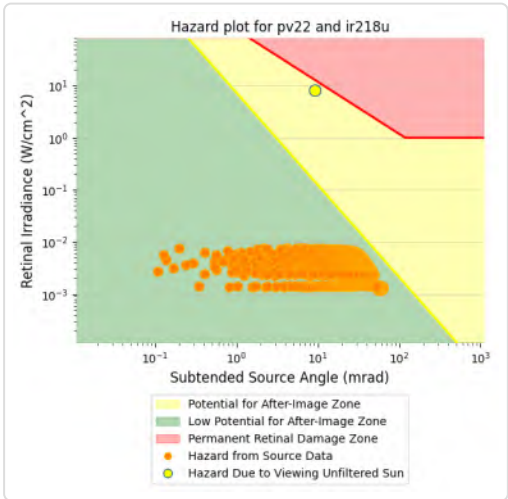
PV22 and FP: IR218u

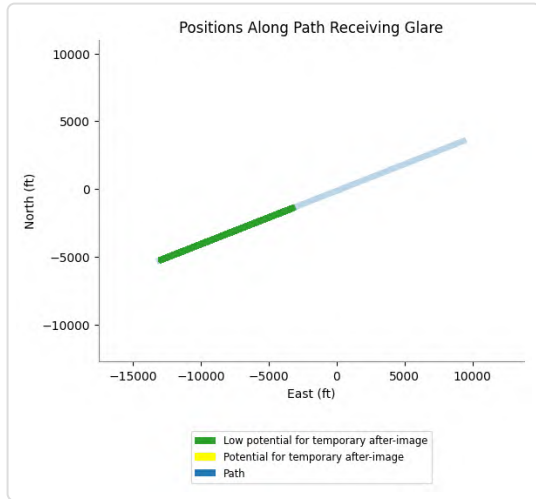
Yellow glare: none

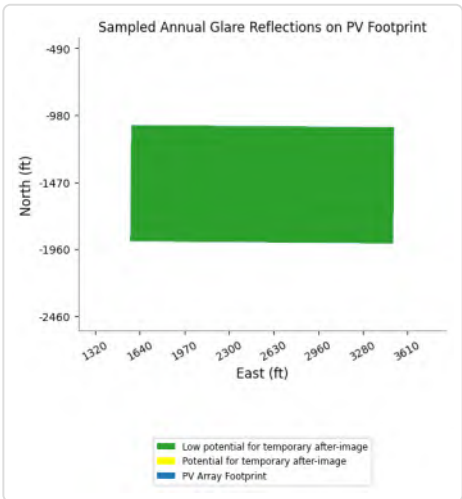
Green glare: 3,286 min.

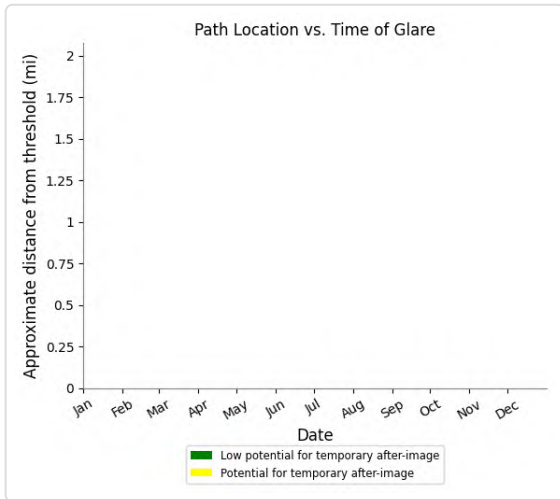








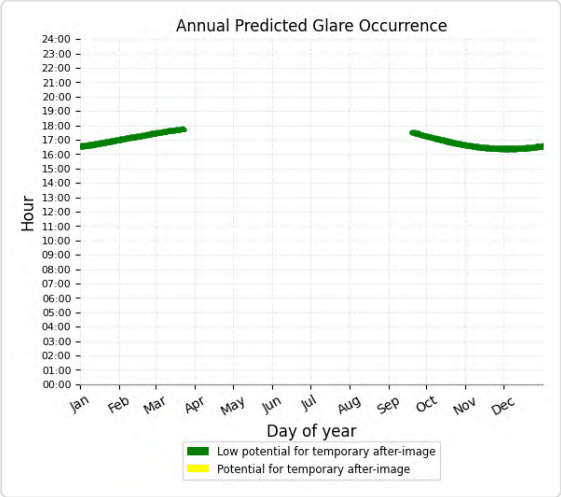


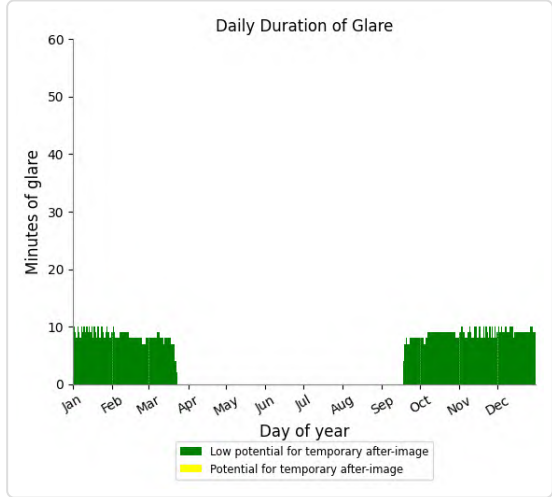


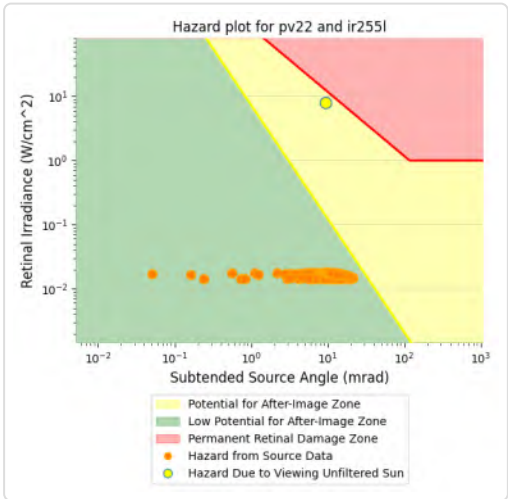
PV22 and FP: IR255I

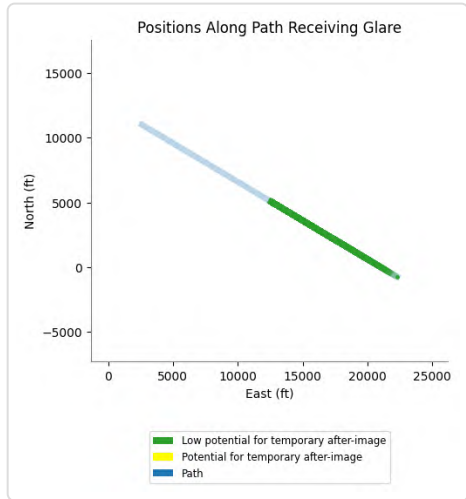
Yellow glare: none

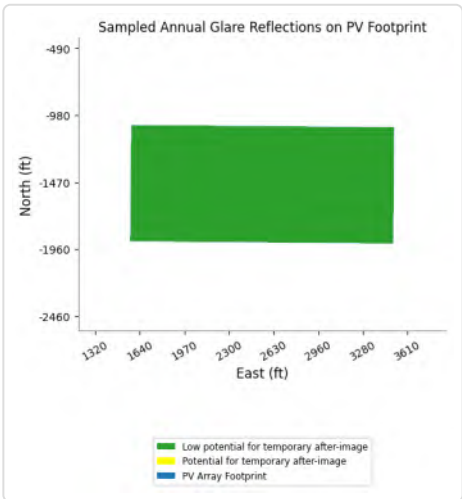
Green glare: 1,613 min.

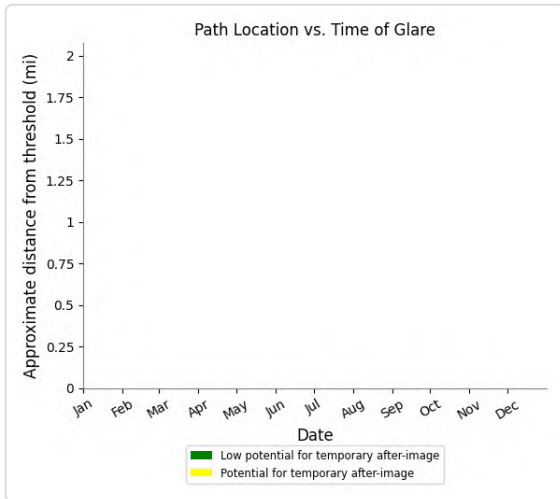








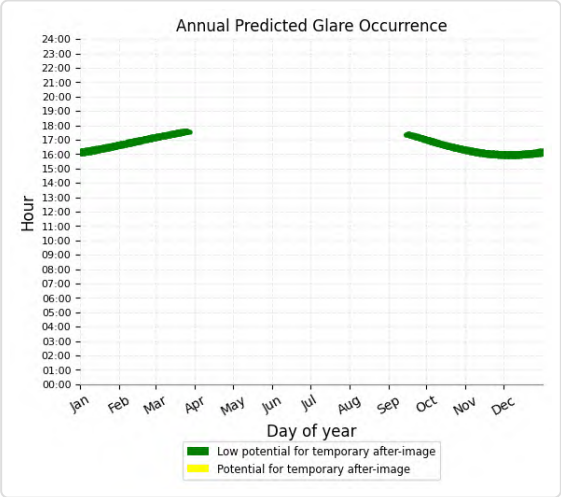


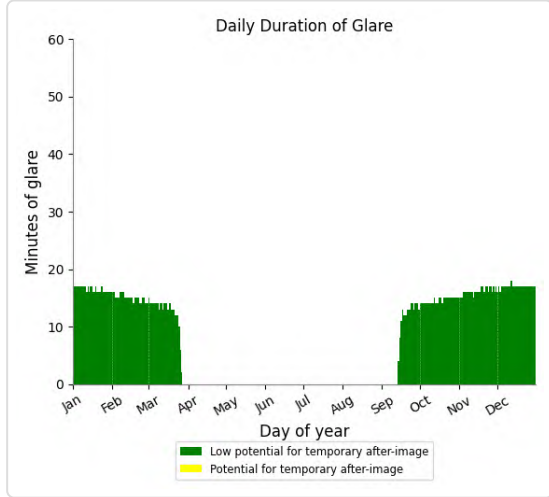


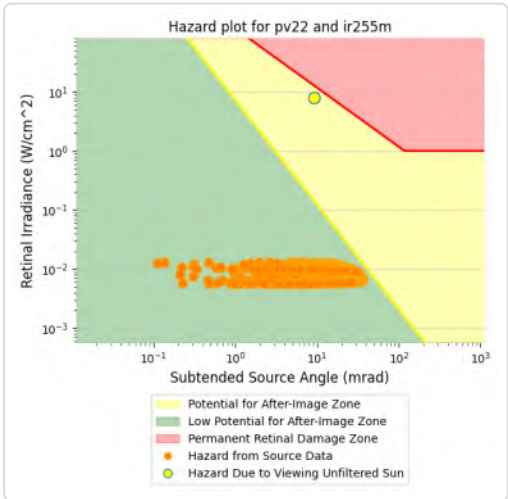
PV22 and FP: IR255m

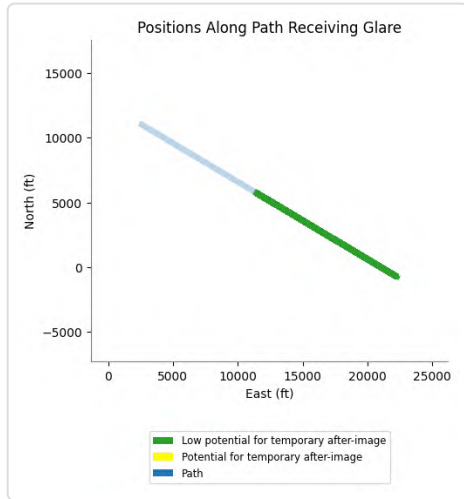
Yellow glare: none

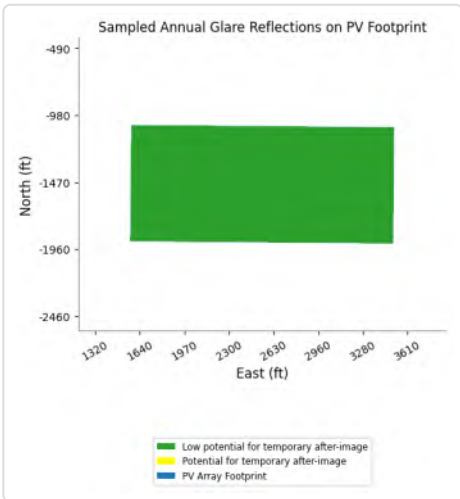
Green glare: 2,957 min.

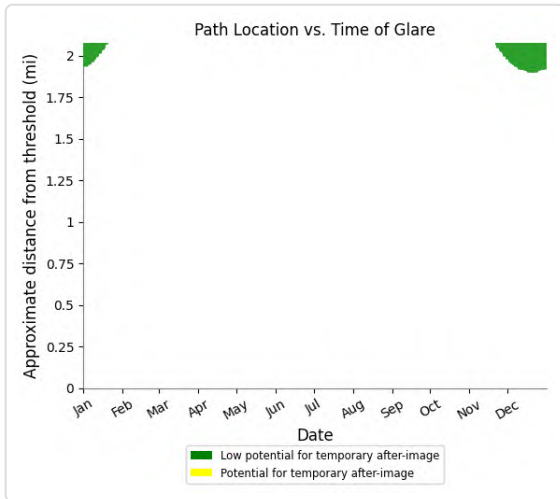








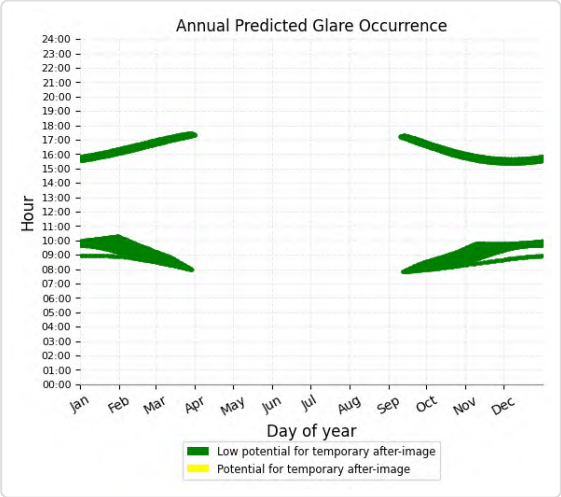


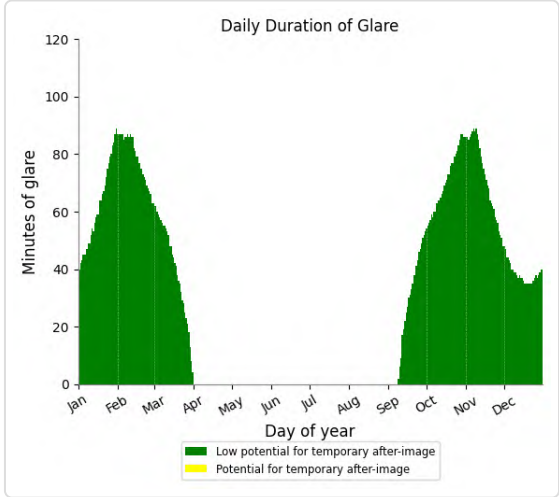


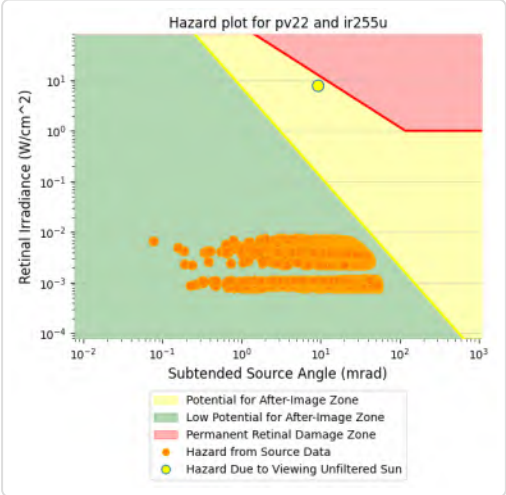
PV22 and FP: IR255u

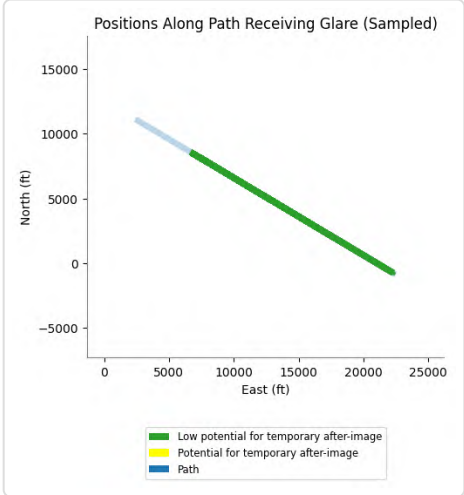
Yellow glare: none

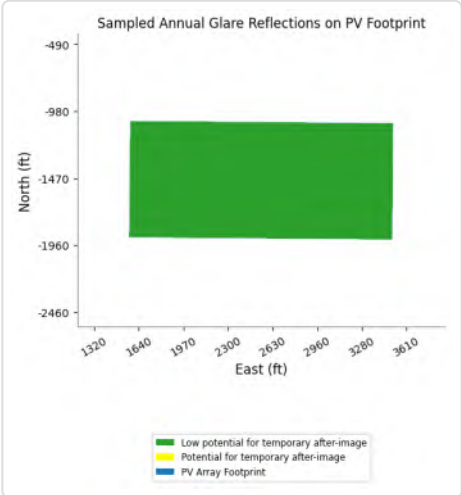
Green glare: 11,713 min.

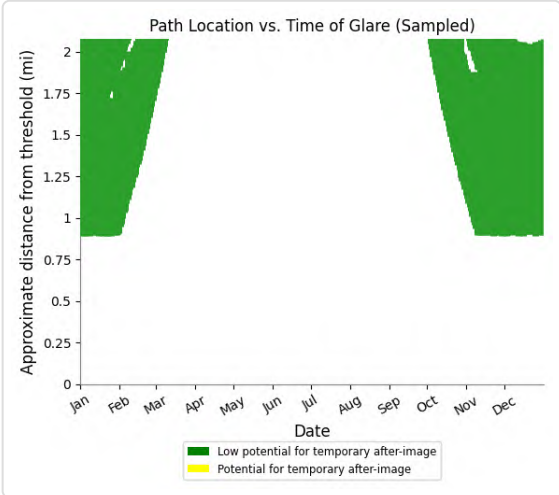








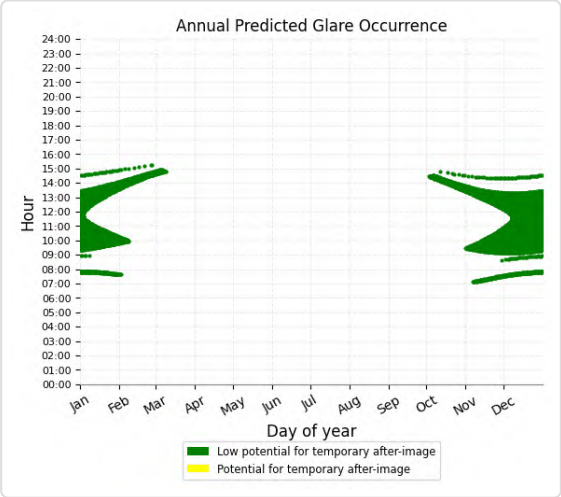


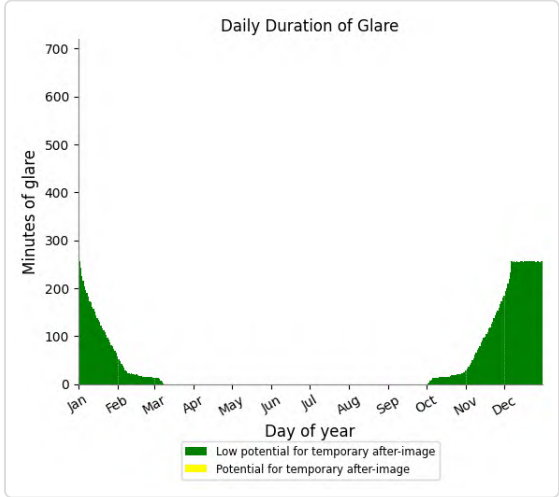


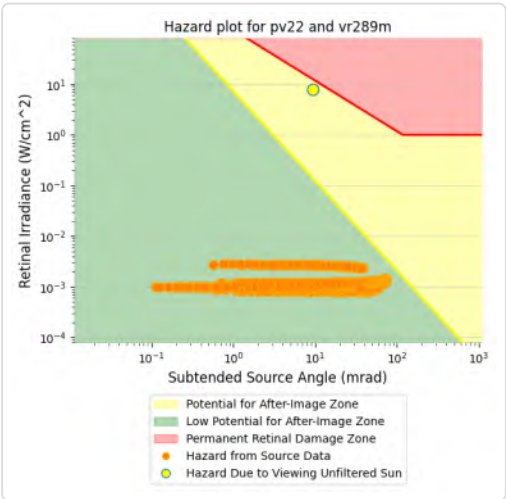
PV22 and FP: VR289m

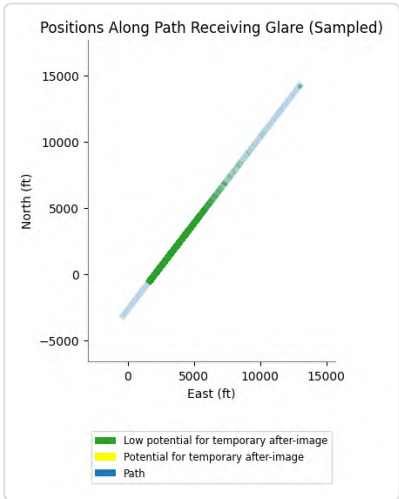
Yellow glare: none

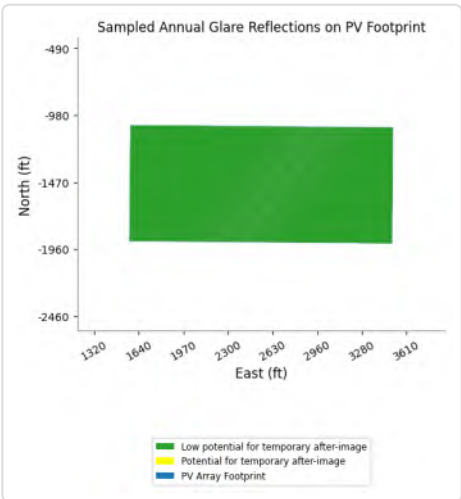
Green glare: 16,426 min.

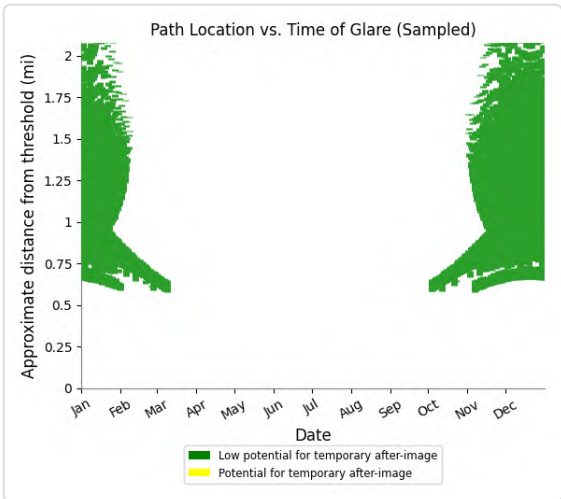








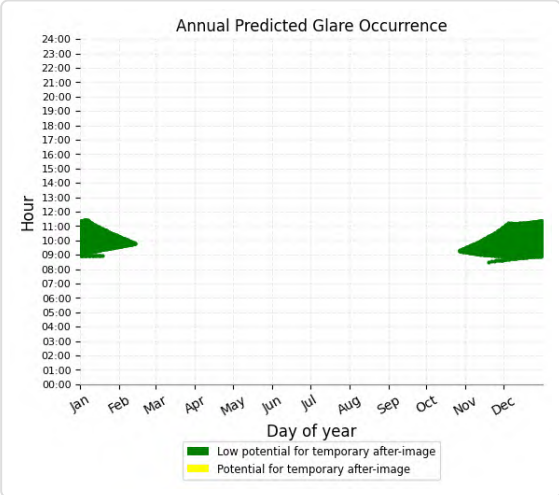


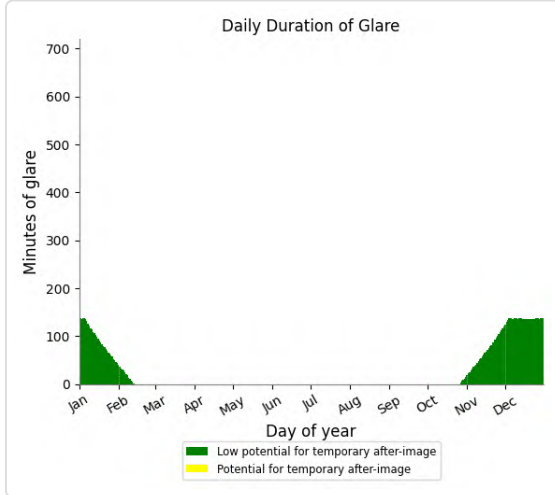


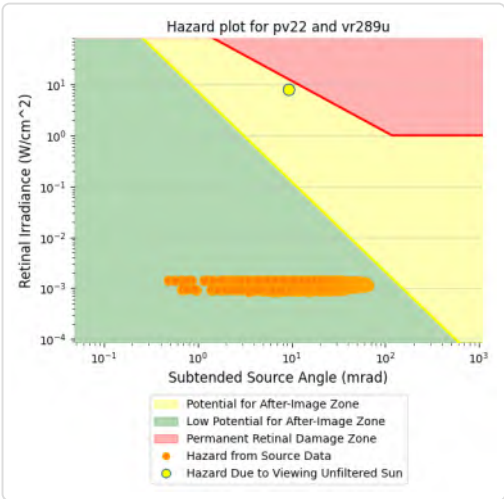
PV22 and FP: VR289u

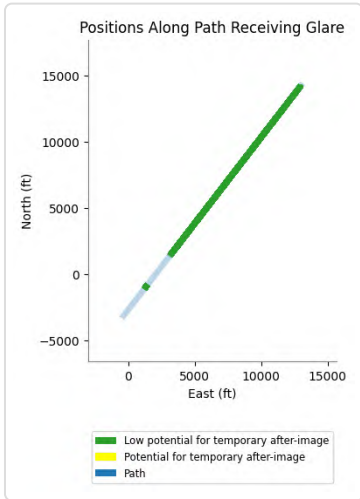
Yellow glare: none

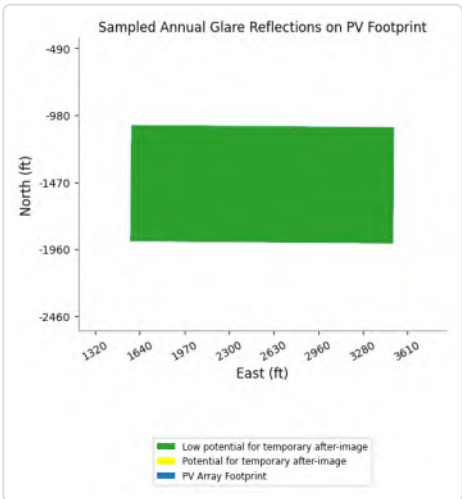
Green glare: 9,508 min.

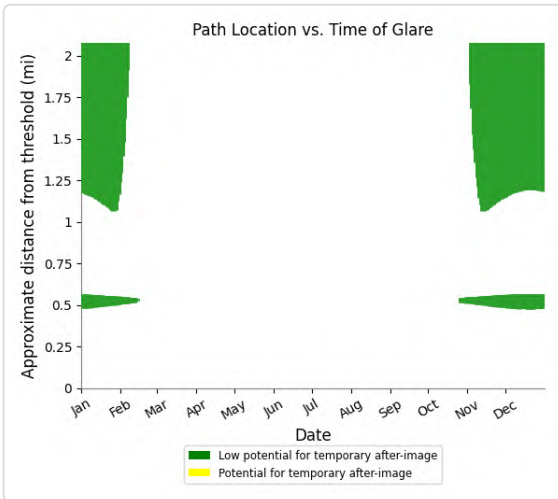








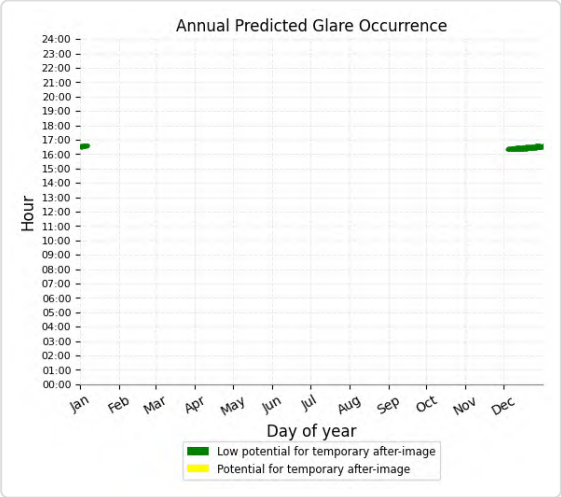


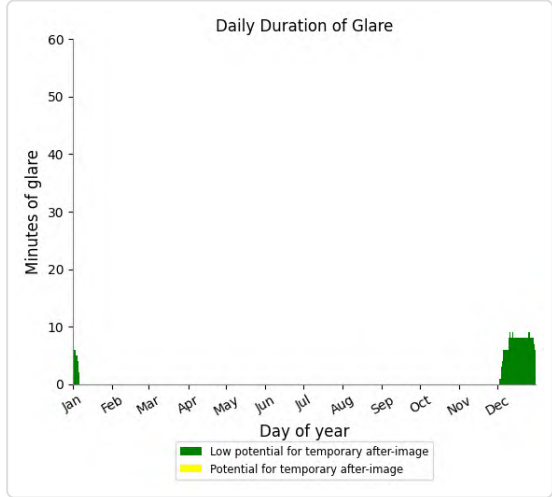


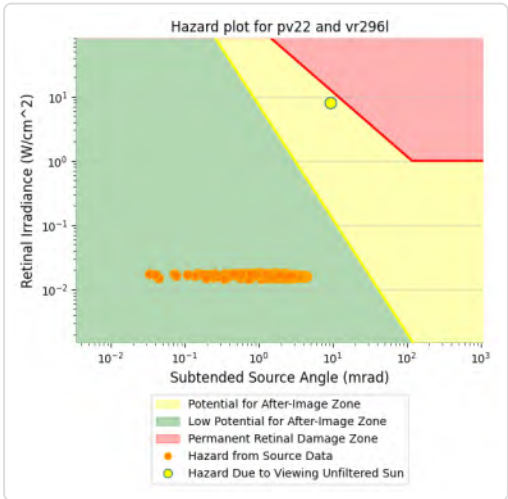
PV22 and FP: VR296l

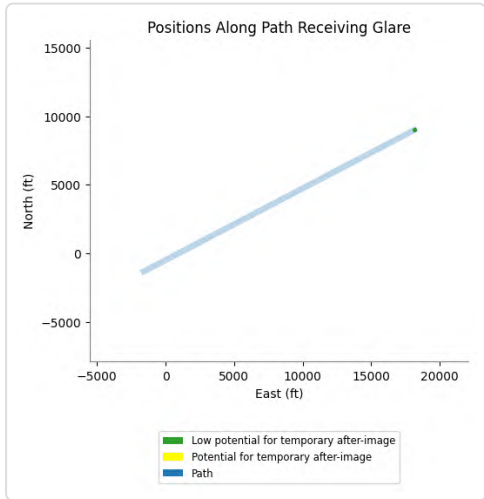
Yellow glare: none

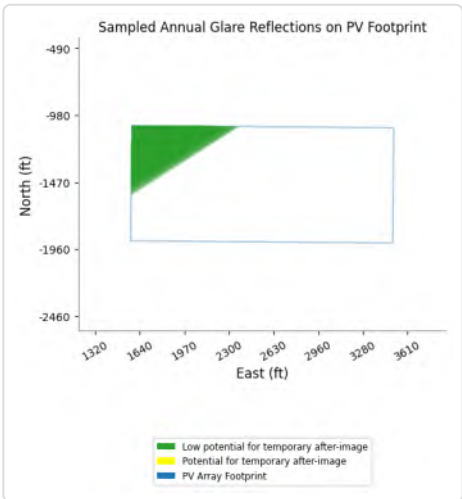
Green glare: 237 min.

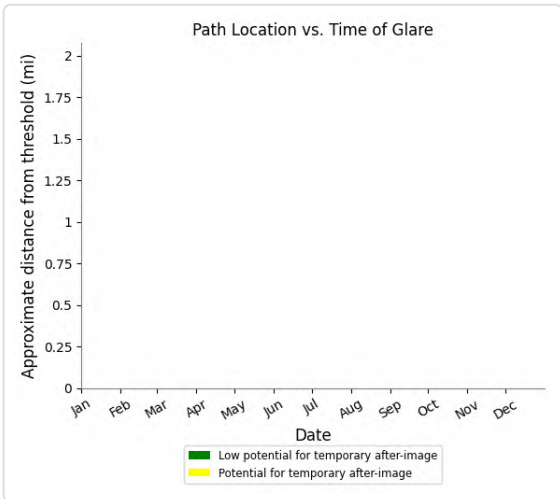








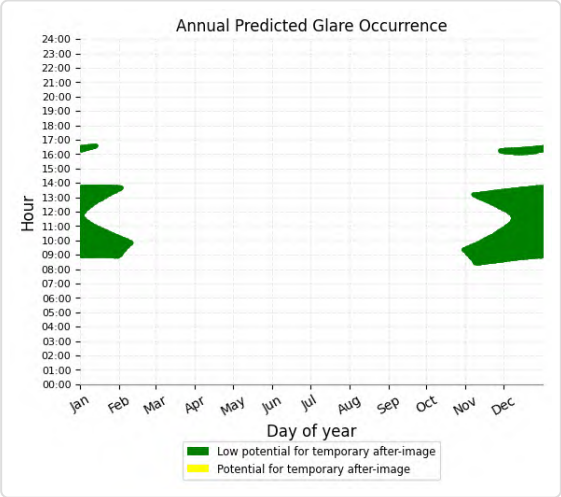


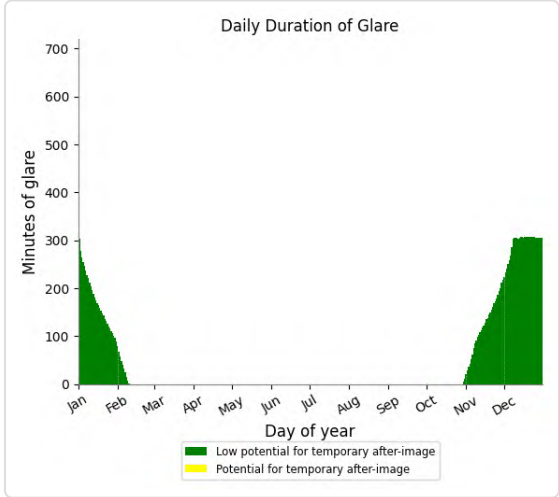


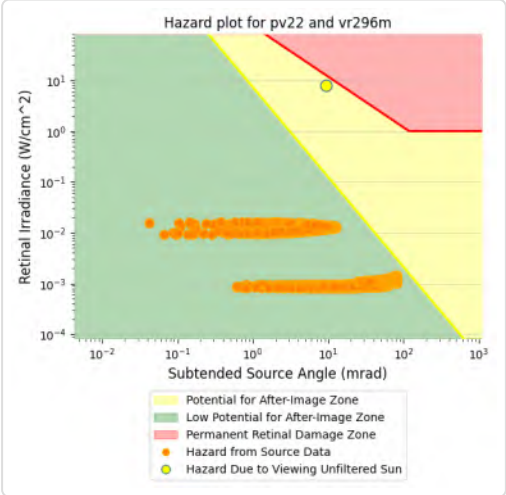
PV22 and FP: VR296m

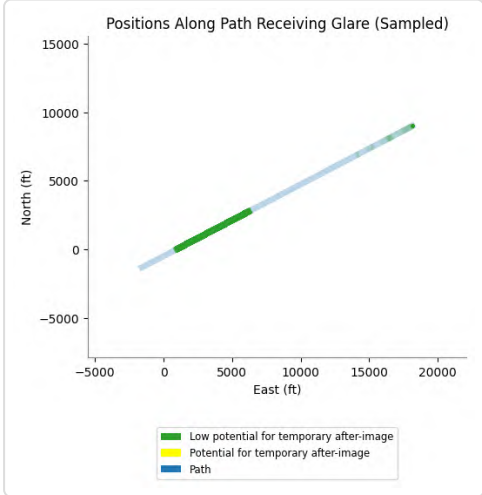
Yellow glare: none

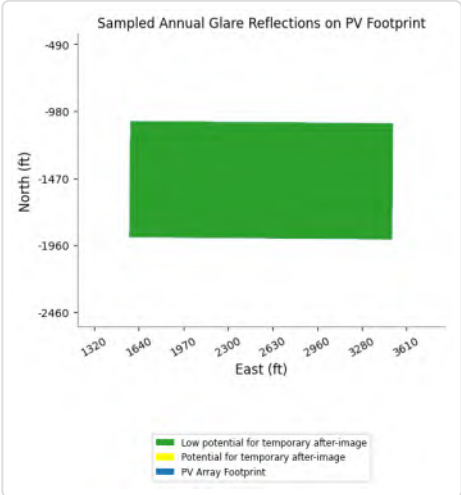
Green glare: 18,770 min.

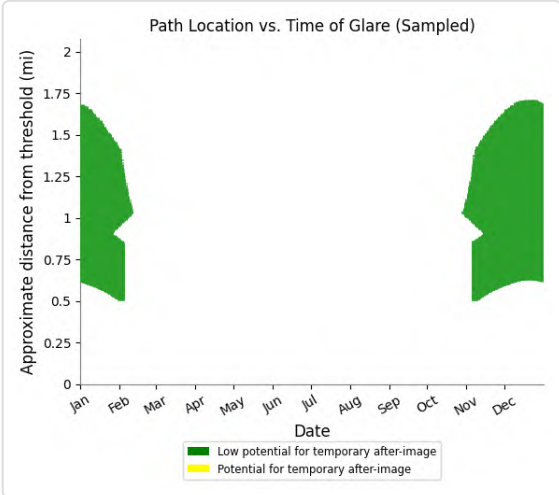








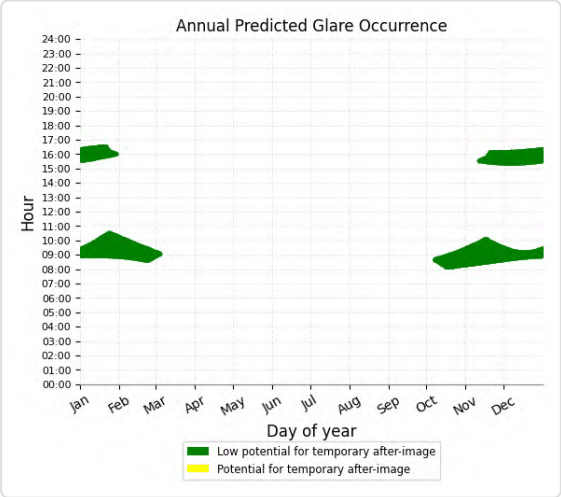


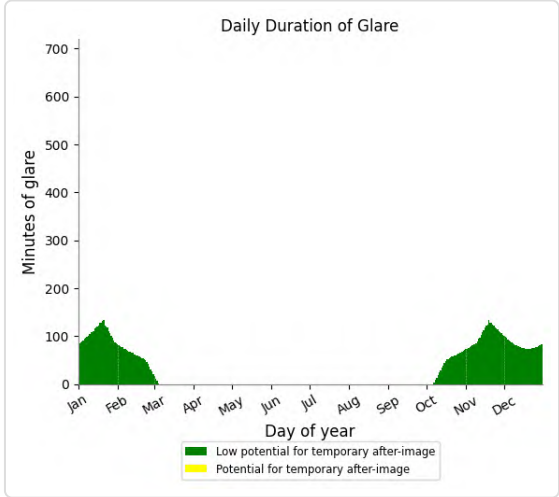


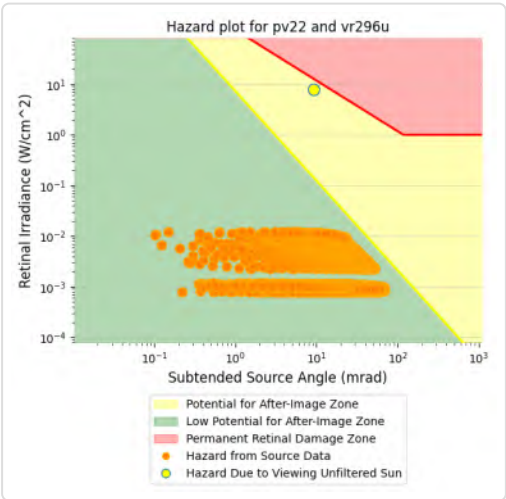
PV22 and FP: VR296u

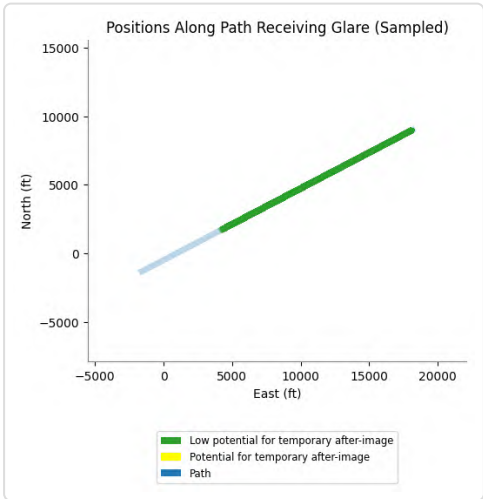
Yellow glare: none

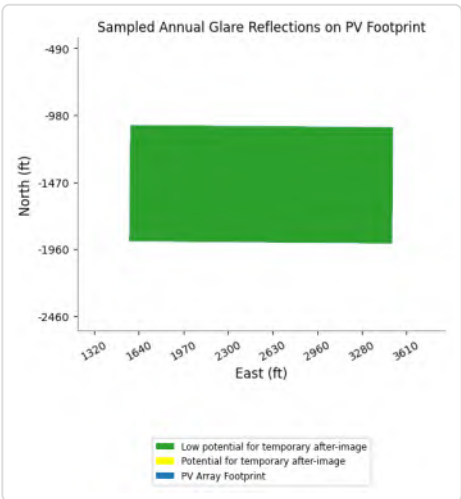
Green glare: 11,865 min.

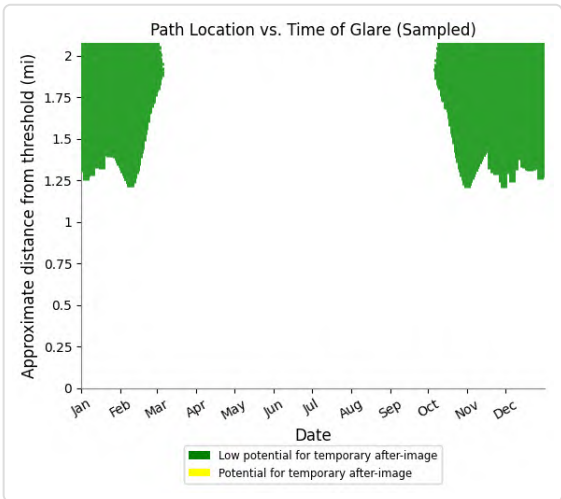












PV22 and FP: CN645

No glare found

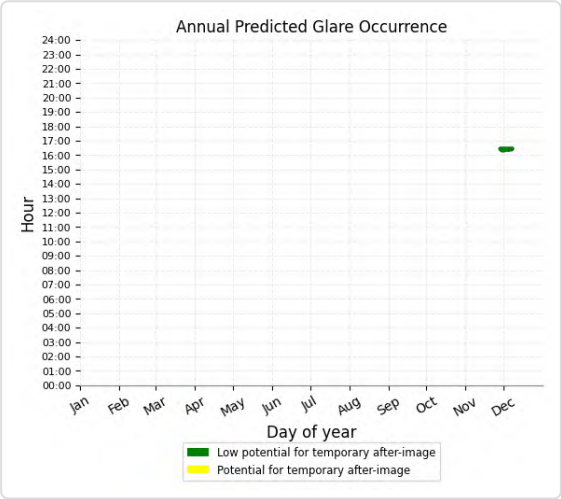
PV22 and FP: IR217l

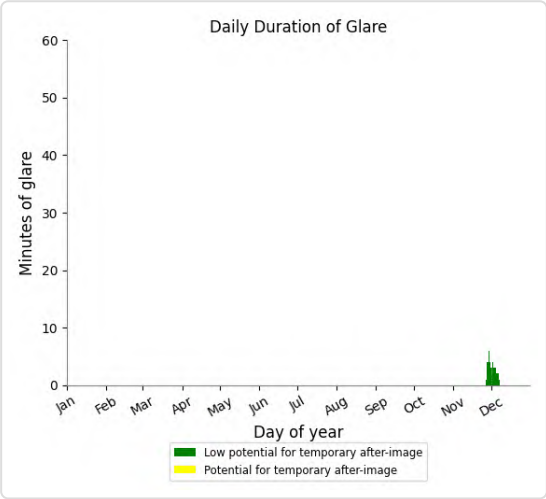
No glare found

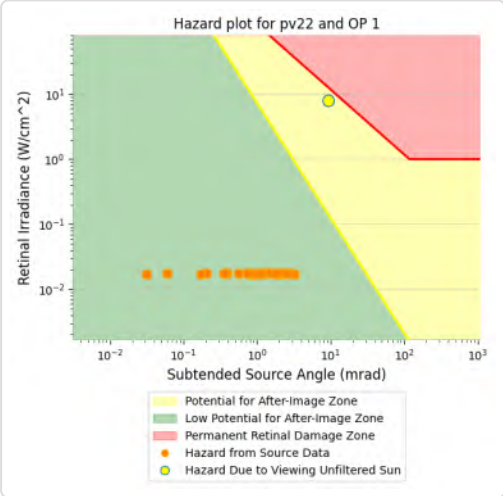
PV22 and OP 1

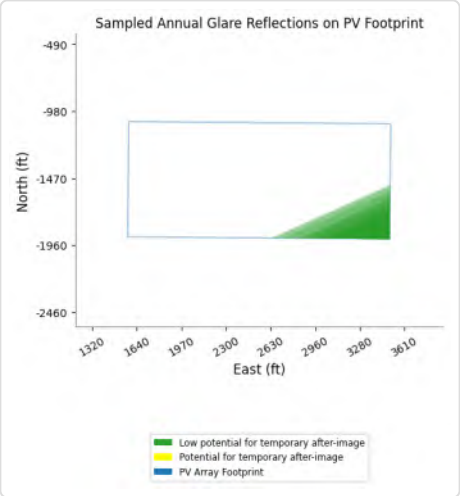
Yellow glare: none

Green glare: 33 min.





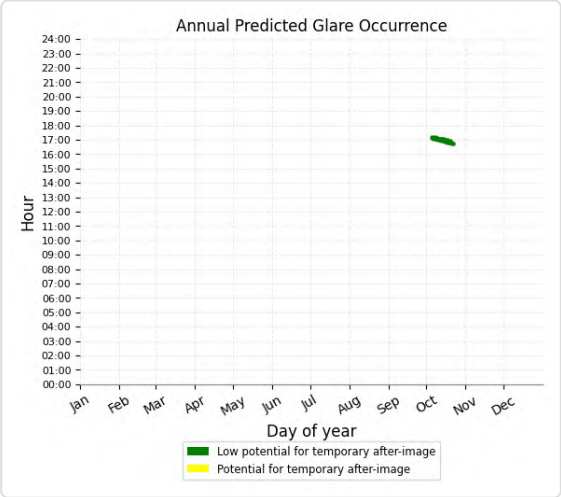


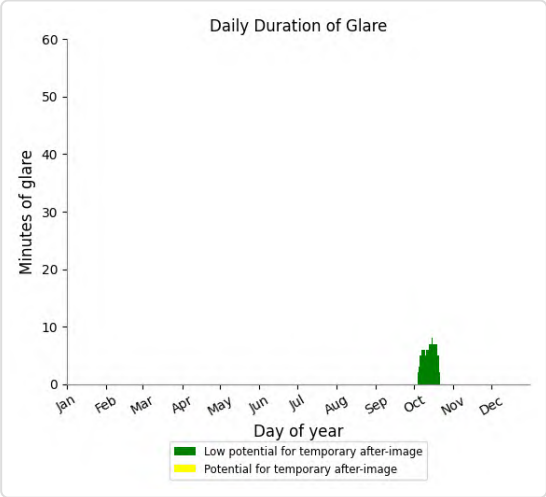


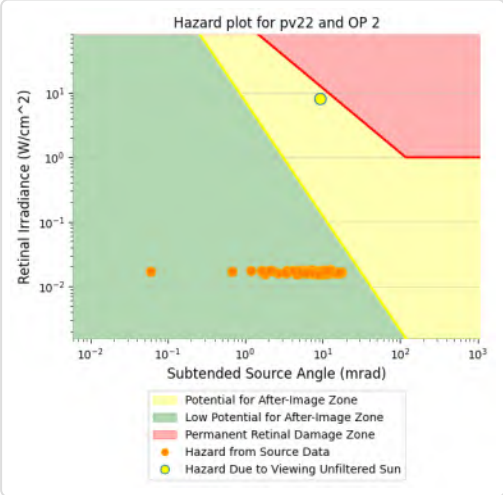
PV22 and OP 2

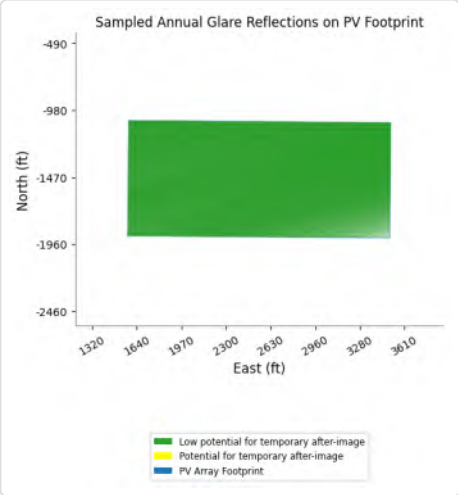
Yellow glare: none

Green glare: 102 min.



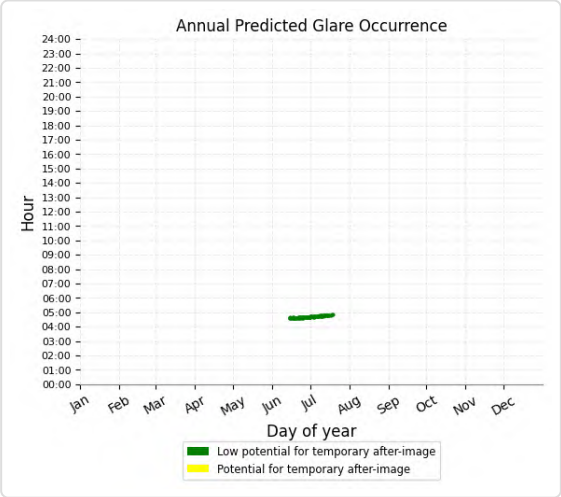


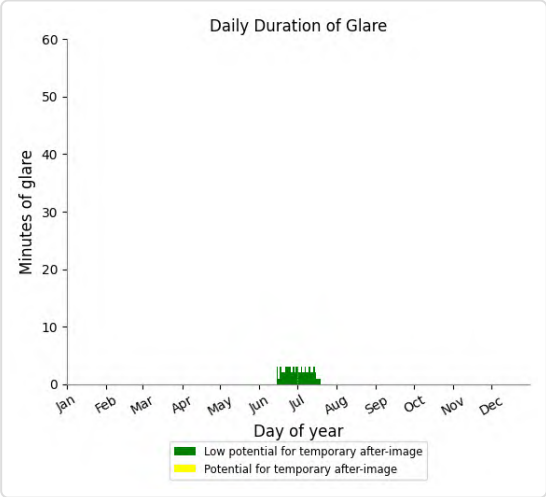


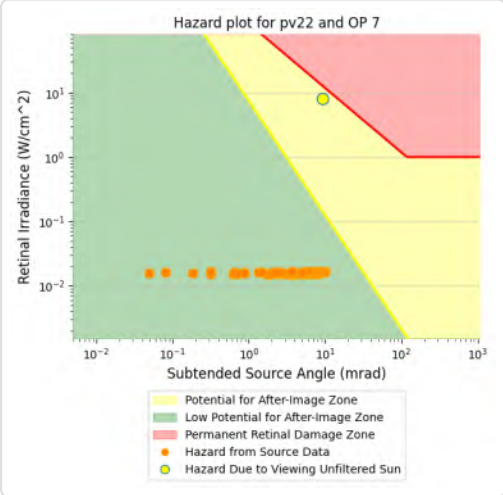


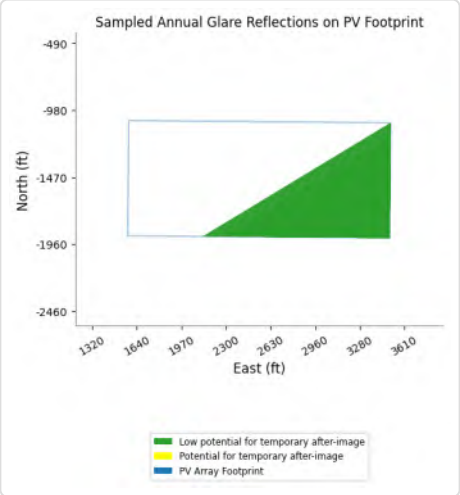
PV22 and OP 7

Yellow glare: none
Green glare: 80 min.









PV22 and OP 3

No glare found

PV22 and OP 4

No glare found

PV22 and OP 5

No glare found

PV22 and OP 6

No glare found

PV22 and OP 8

No glare found

PV22 and OP 9

No glare found

PV22 and OP 10

No glare found

PV22 and OP 11

No glare found

PV22 and OP 12

No glare found

PV22 and OP 13

No glare found

PV22 and OP 14

No glare found

PV22 and OP 15

No glare found

PV22 and OP 16

No glare found

PV22 and OP 17

No glare found

PV22 and OP 18

No glare found

PV22 and OP 19

No glare found

PV: PV23 potential temporary after-image

Receptor results ordered by category of glare

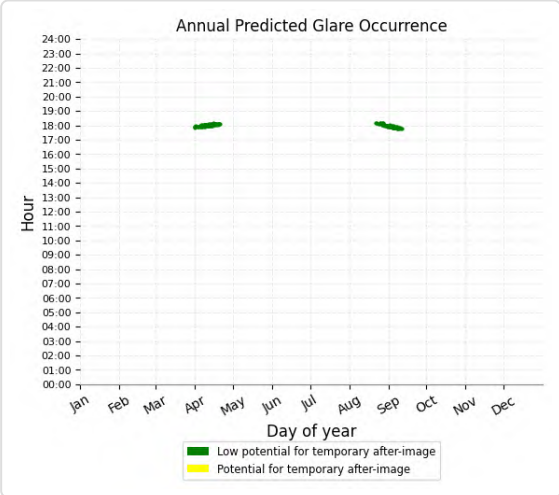
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd A	144	2.4	0	0.0
AirportRd B	338	5.6	0	0.0
Race Track	405	6.8	0	0.0
SR177 A	745	12.4	0	0.0
SR177 B	863	14.4	0	0.0
SR177 C	602	10.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR218l	2,335	38.9	2,611	43.5
VR289l	41,493	691.5	8,042	134.0
CN6423	769	12.8	0	0.0
IR217l	21,365	356.1	0	0.0
IR217m	11,442	190.7	0	0.0
IR217u	6,470	107.8	0	0.0
IR218m	6,751	112.5	0	0.0
IR218u	2,913	48.5	0	0.0
IR255l	1,722	28.7	0	0.0
IR255m	2,680	44.7	0	0.0
IR255u	11,716	195.3	0	0.0
VR289m	17,270	287.8	0	0.0
VR289u	10,798	180.0	0	0.0
VR296l	383	6.4	0	0.0
VR296m	20,290	338.2	0	0.0
VR296u	10,458	174.3	0	0.0
CN645	0	0.0	0	0.0
OP 1	80	1.3	0	0.0
OP 2	159	2.6	0	0.0

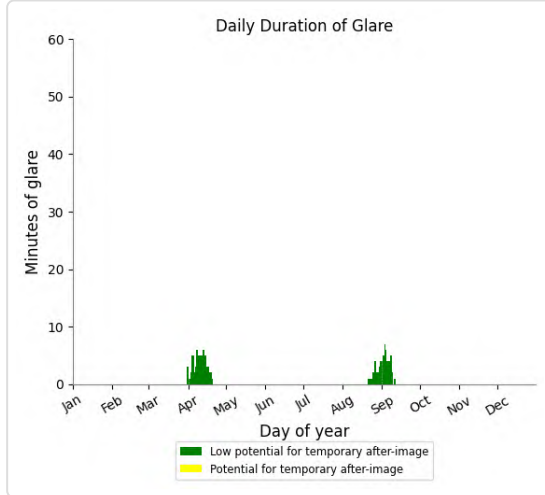
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

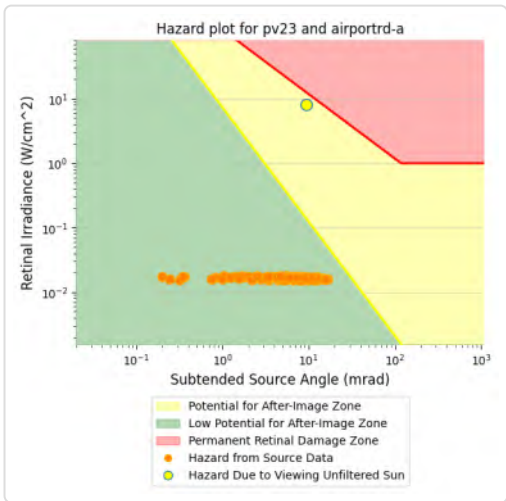
PV23 and Route: AirportRd A

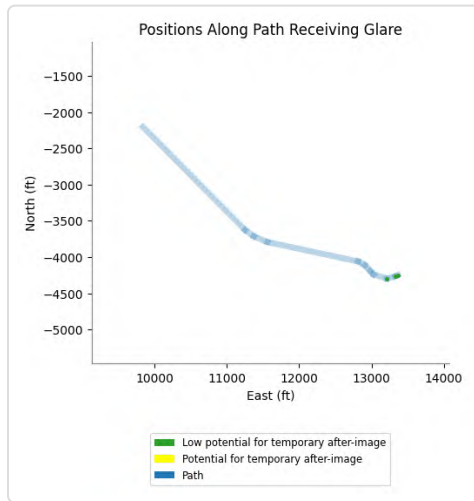
Yellow glare: none

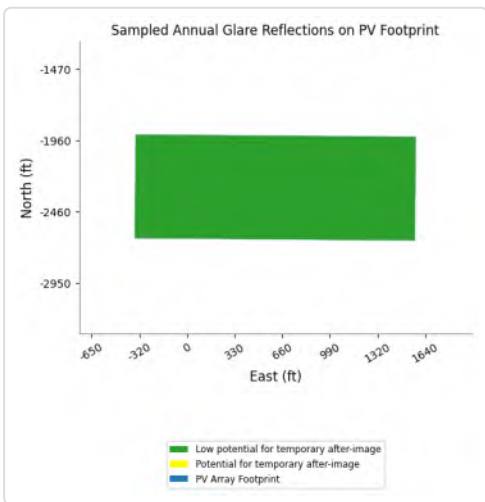
Green glare: 144 min.







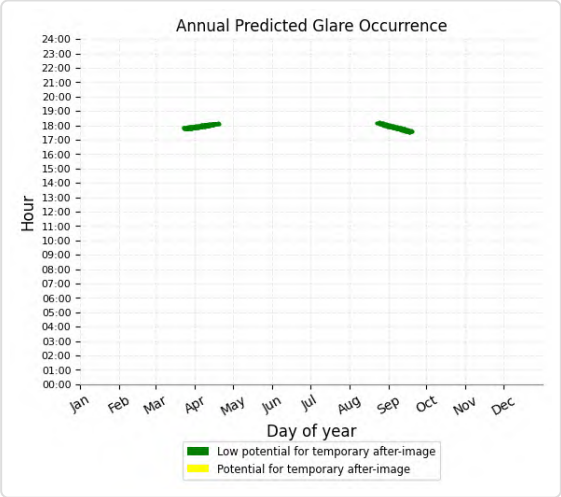


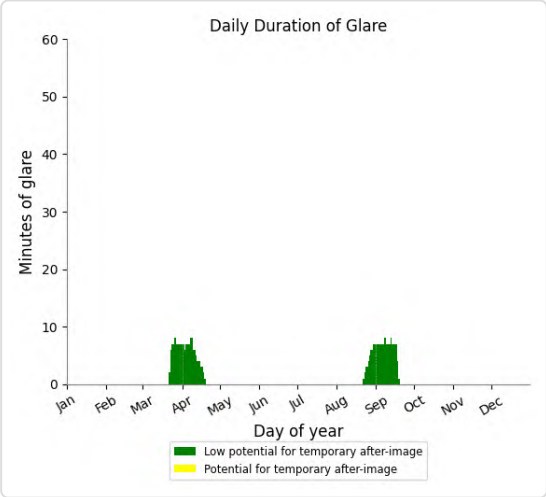


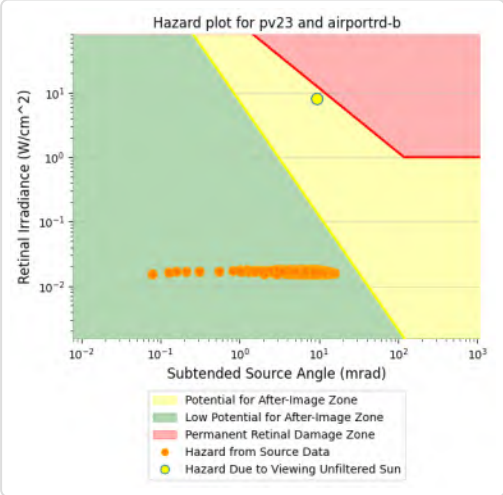
PV23 and Route: AirportRd B

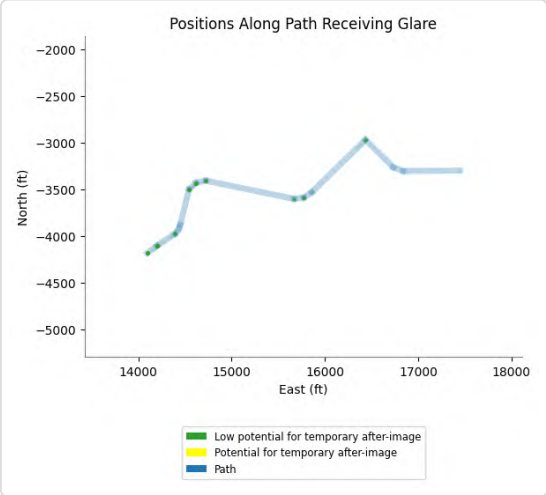
Yellow glare: none

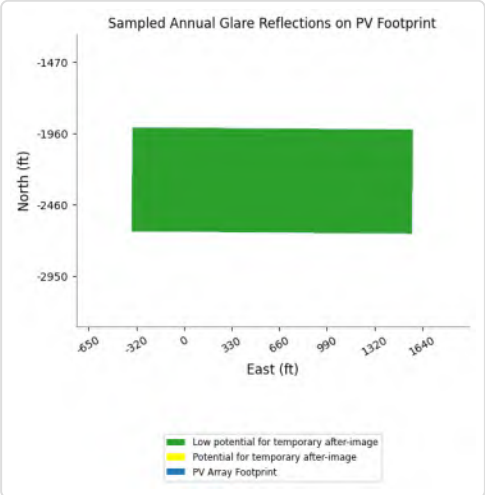
Green glare: 338 min.







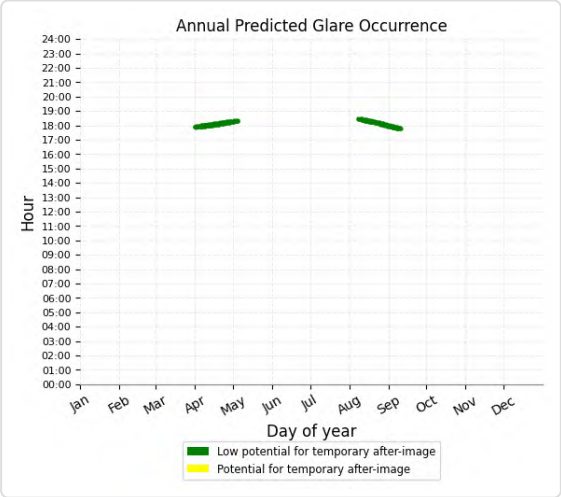


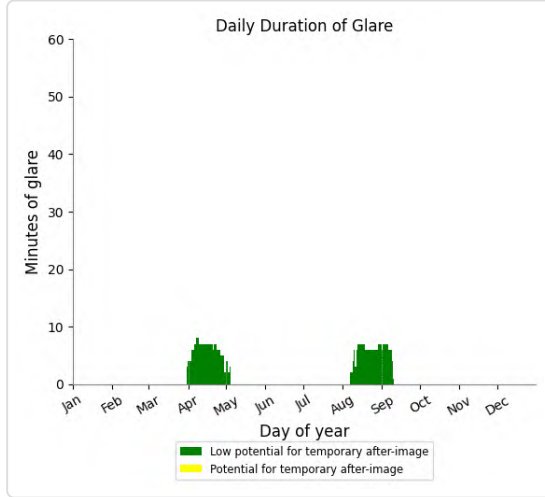


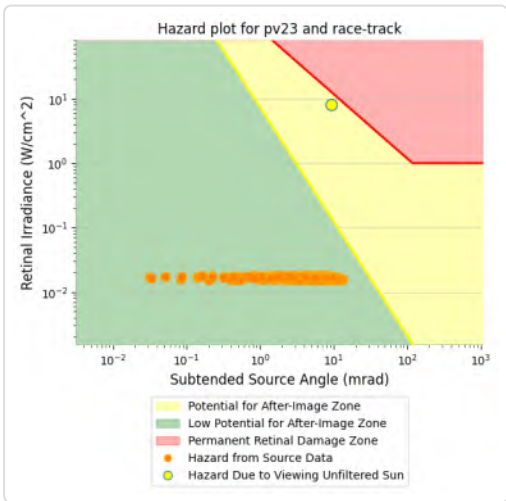
PV23 and Route: Race Track

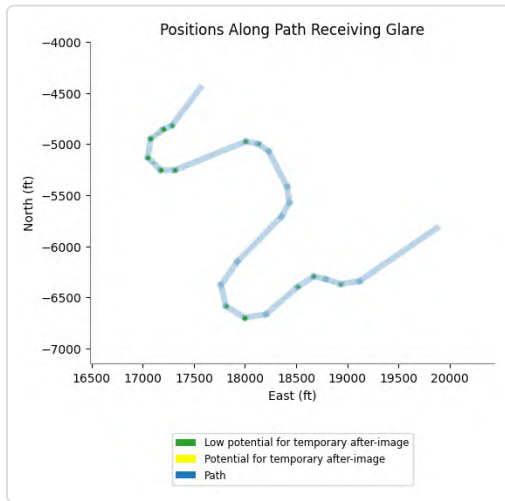
Yellow glare: none

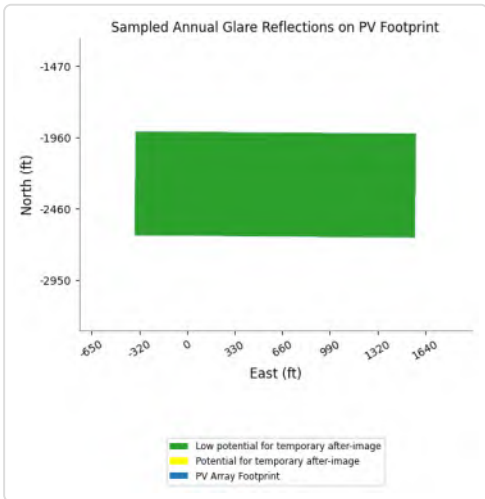
Green glare: 405 min.







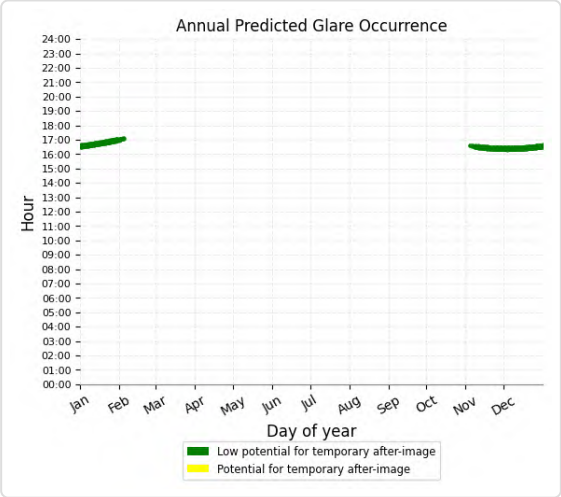


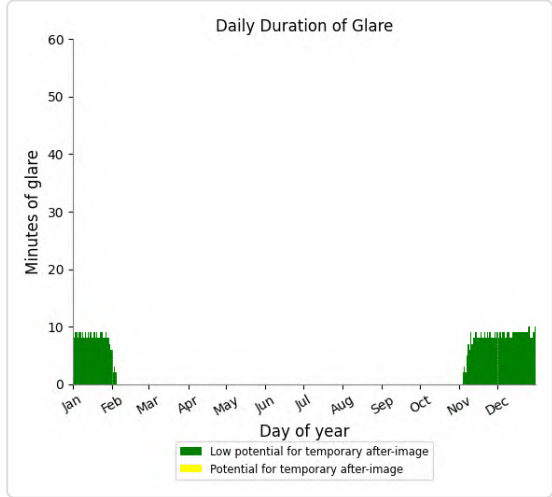


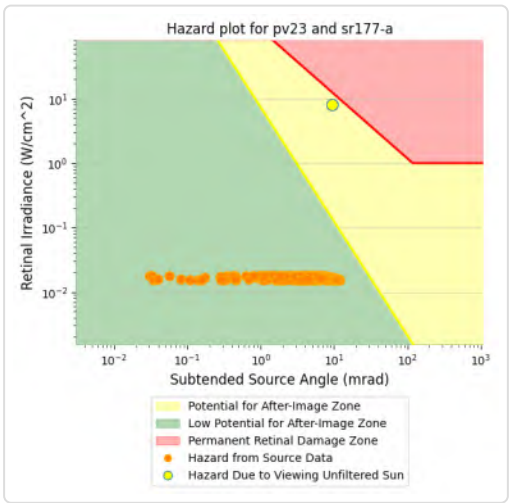
PV23 and Route: SR177 A

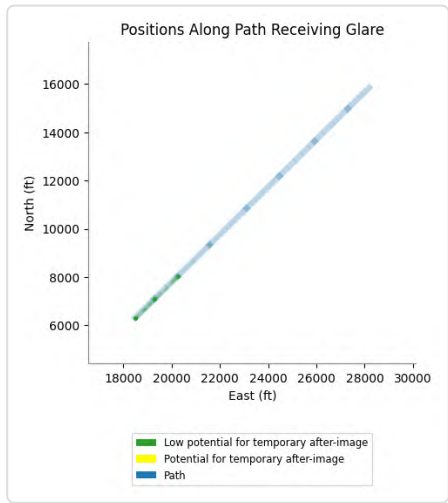
Yellow glare: none

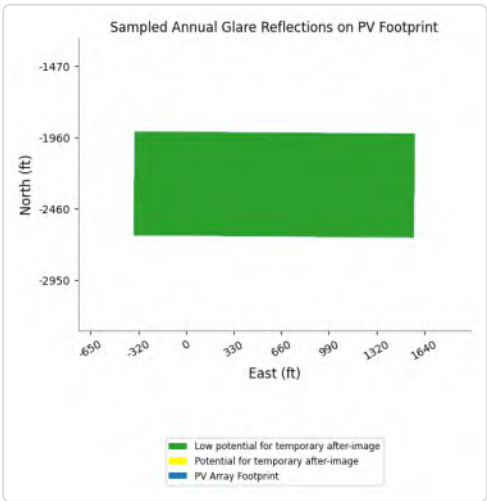
Green glare: 745 min.







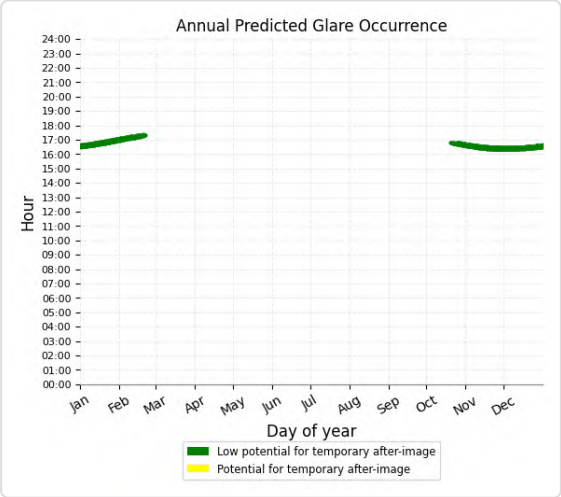


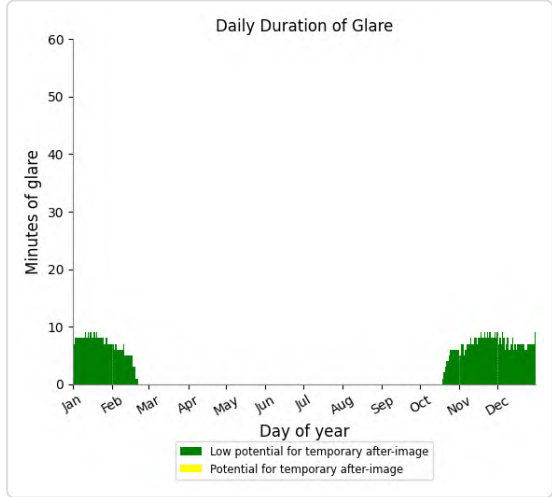


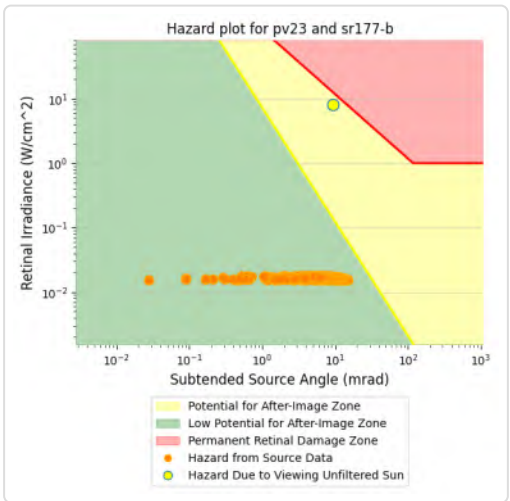
PV23 and Route: SR177 B

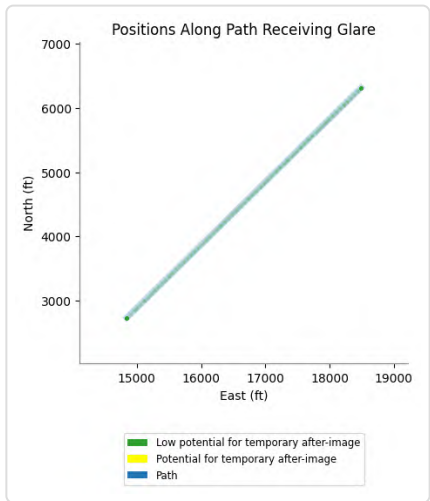
Yellow glare: none

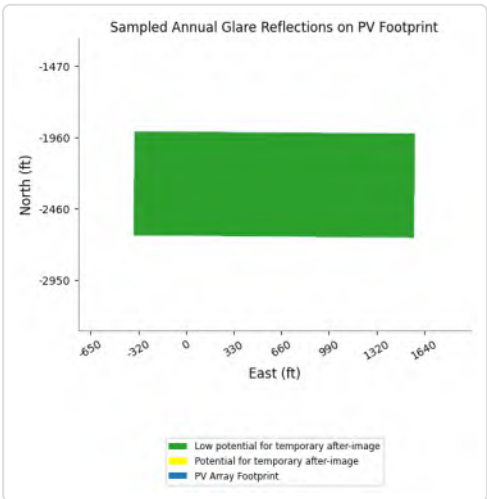
Green glare: 863 min.







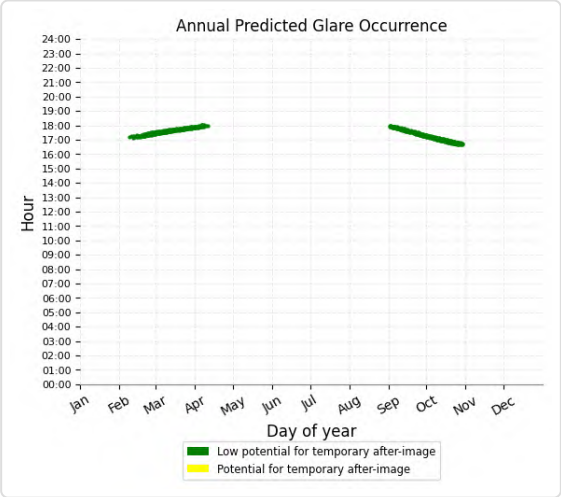


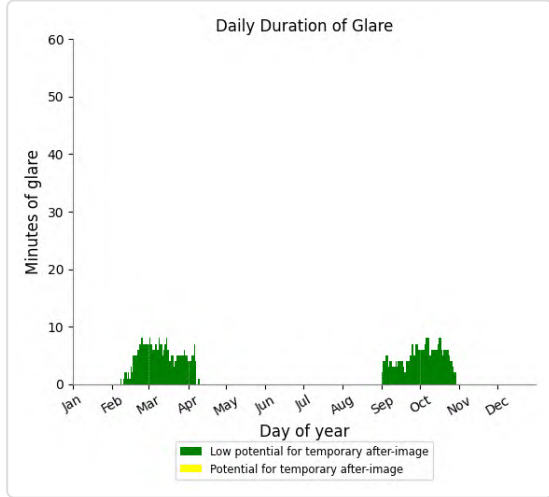


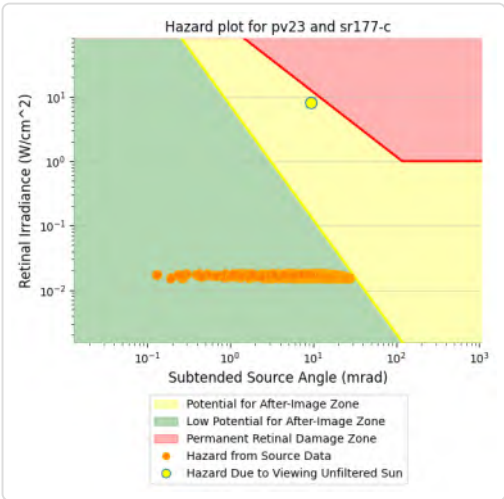
PV23 and Route: SR177 C

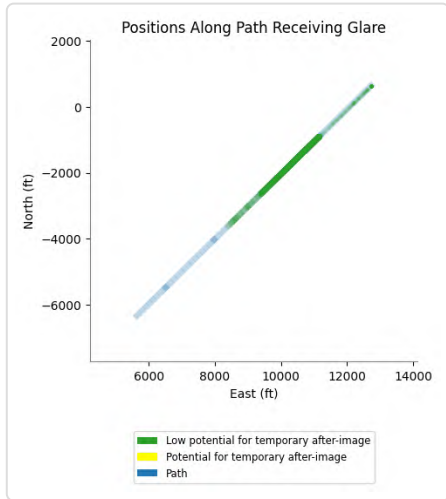
Yellow glare: none

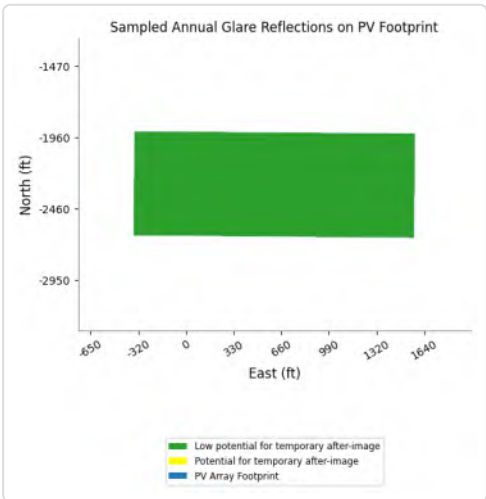
Green glare: 602 min.











PV23 and Route: EagleMtnRd A

No glare found

PV23 and Route: EagleMtnRd B

No glare found

PV23 and Route: I-10 EB A

No glare found

PV23 and Route: I-10 EB B

No glare found

PV23 and Route: I-10 EB C

No glare found

PV23 and Route: I-10 WB A

No glare found

PV23 and Route: I-10 WB B

No glare found

PV23 and Route: I-10 WB C

No glare found

PV23 and Route: KaiserRd A

No glare found

PV23 and Route: KaiserRd B

No glare found

PV23 and Route: KaiserRd C

No glare found

PV23 and Route: OasisRd

No glare found

PV23 and Route: SR177 D

No glare found

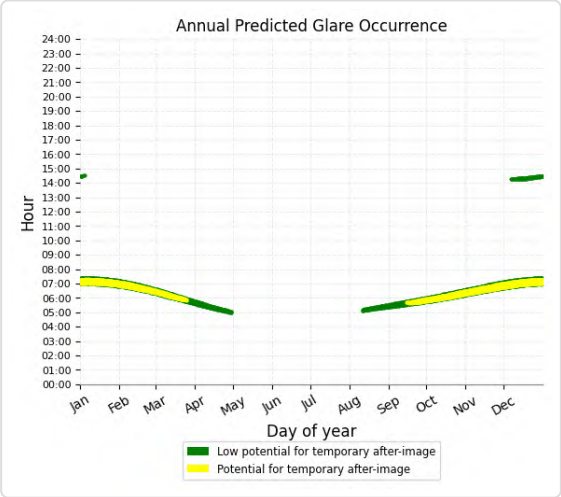
PV23 and Route: SR177 E

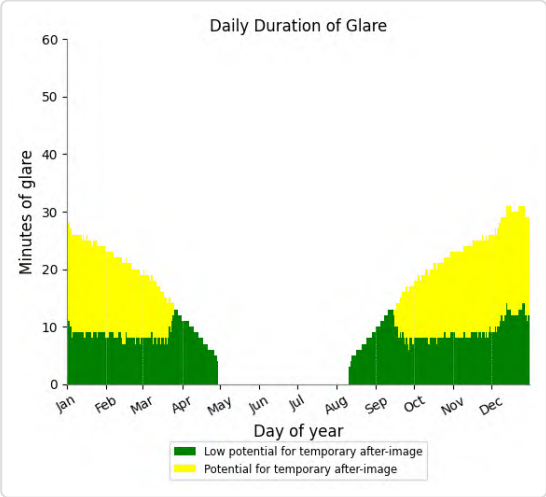
No glare found

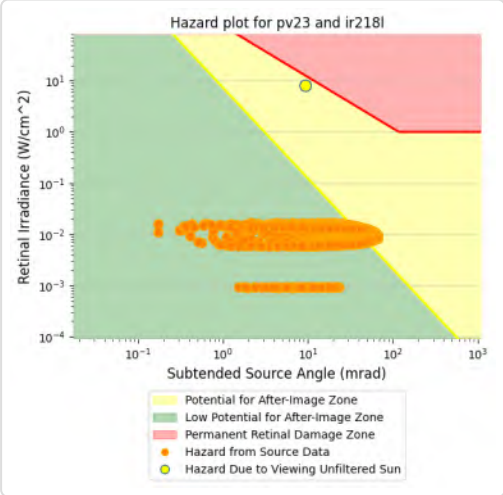
PV23 and FP: IR218l

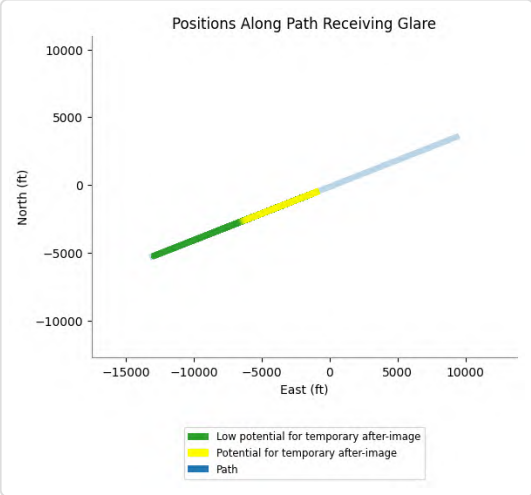
Yellow glare: 2,611 min.

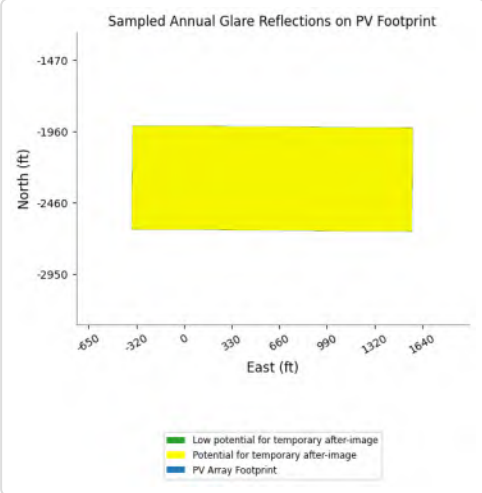
Green glare: 2,335 min.

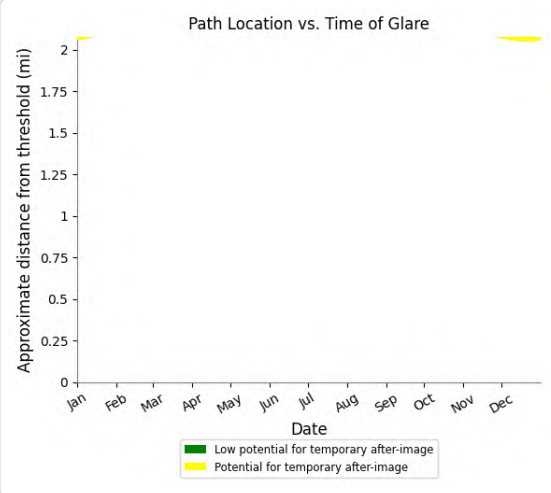








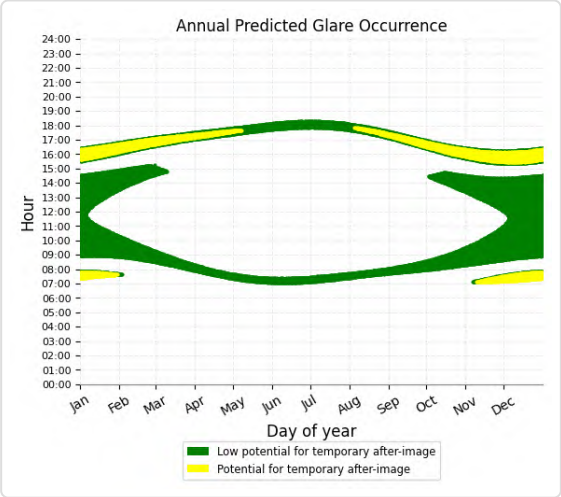


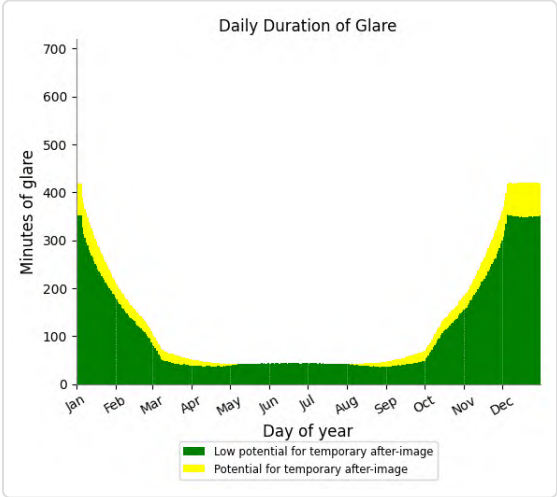


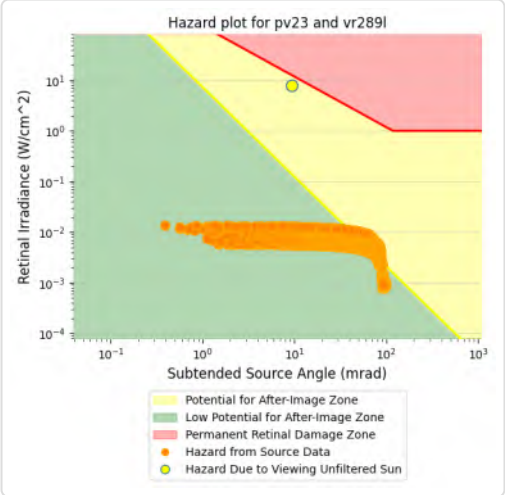
PV23 and FP: VR289I

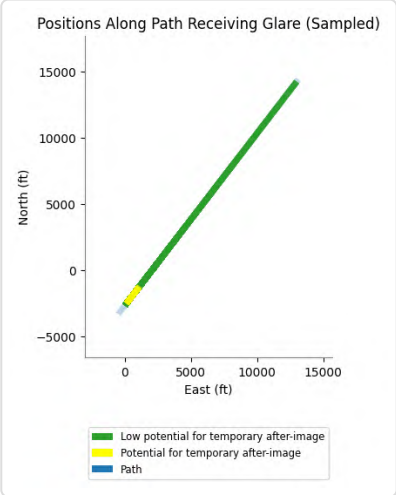
Yellow glare: 8,042 min.

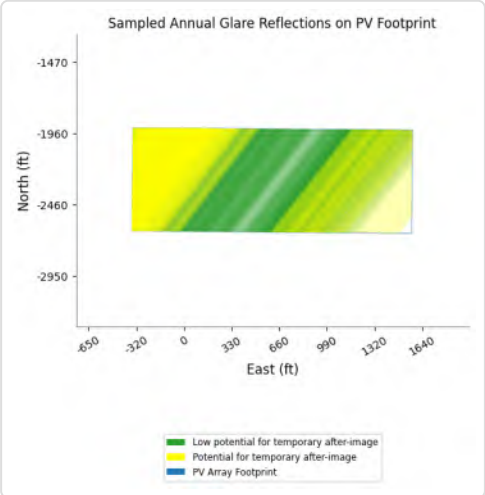
Green glare: 41,493 min.

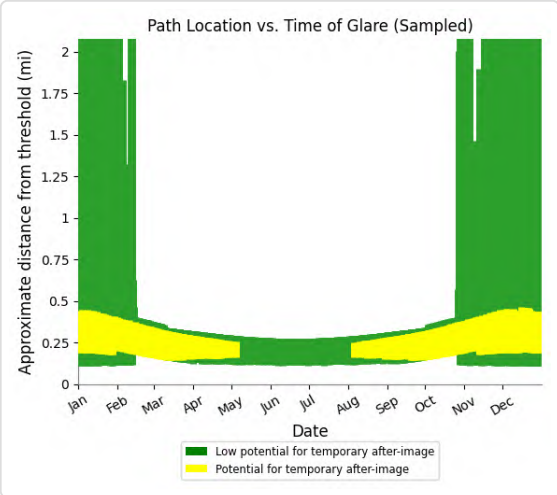








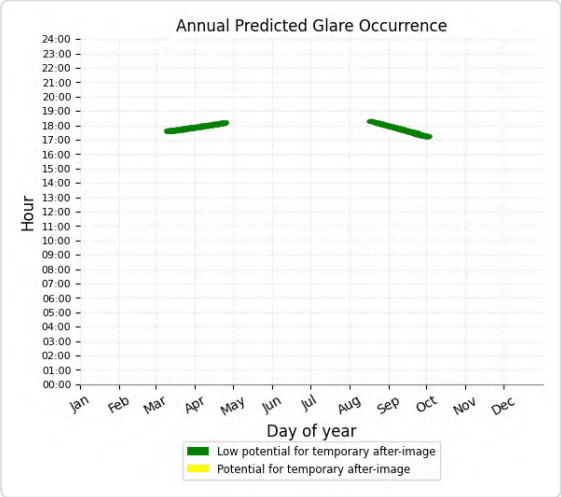


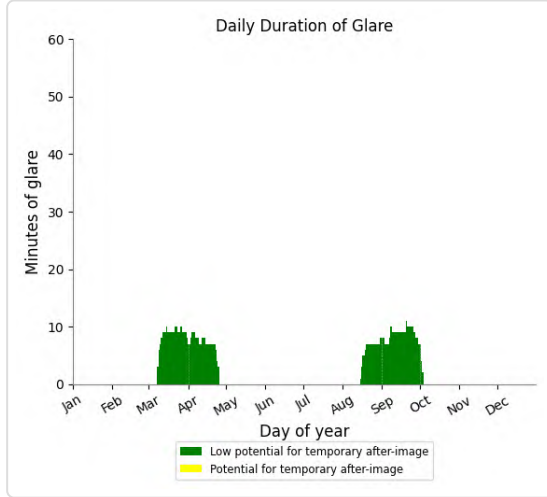


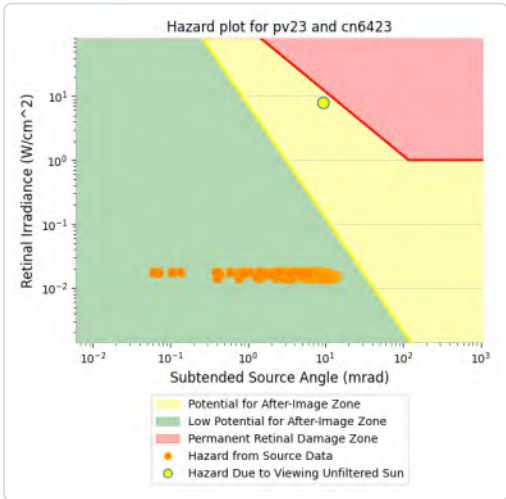
PV23 and FP: CN6423

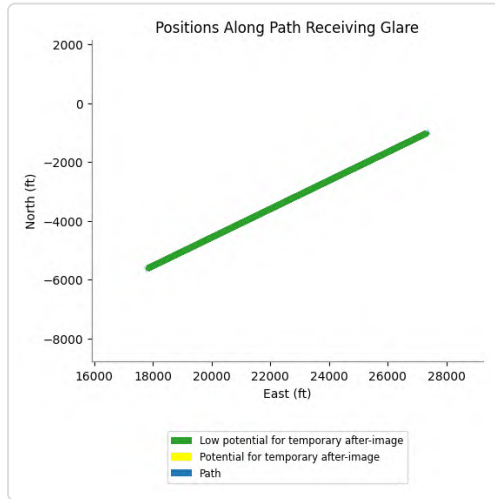
Yellow glare: none

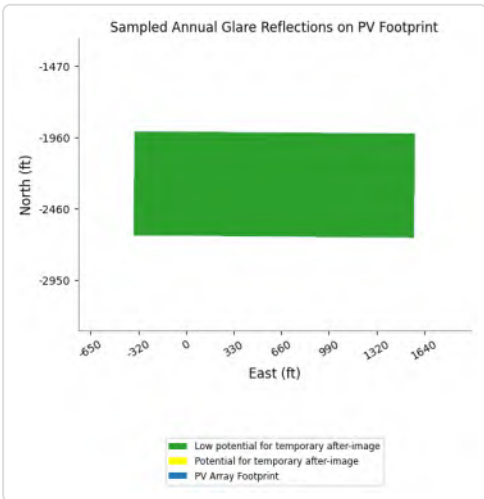
Green glare: 769 min.

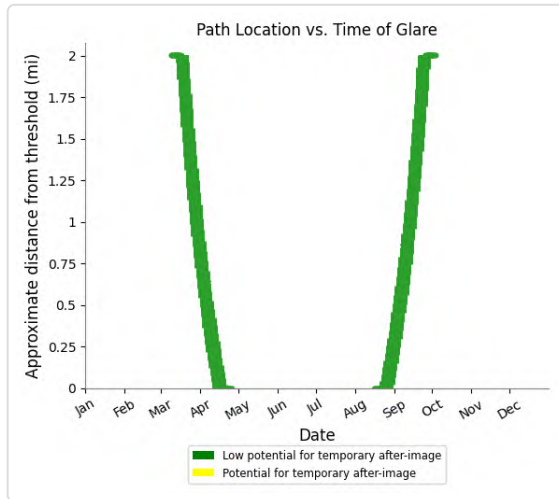








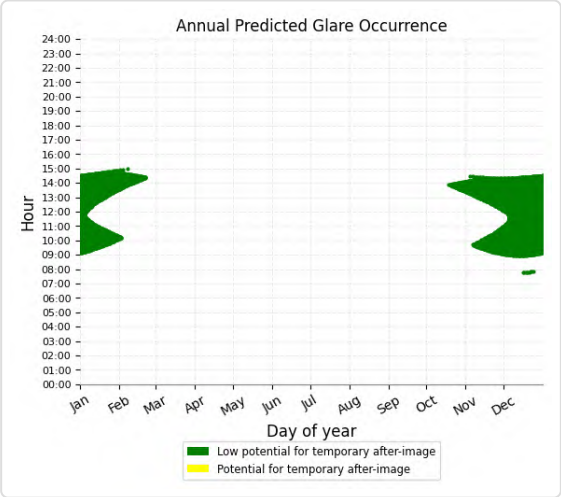


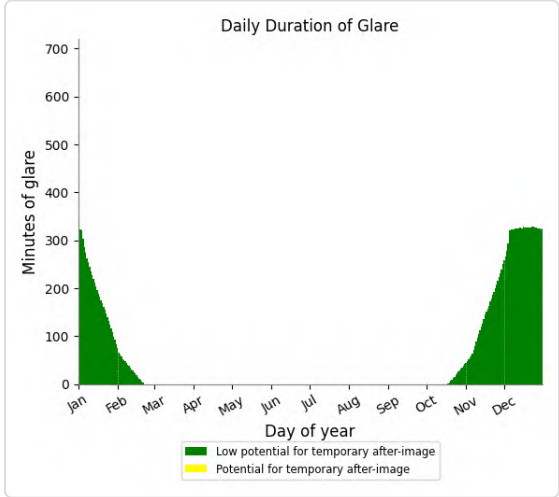


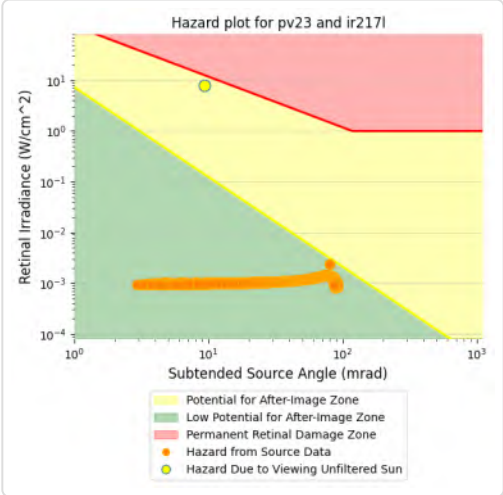
PV23 and FP: IR217l

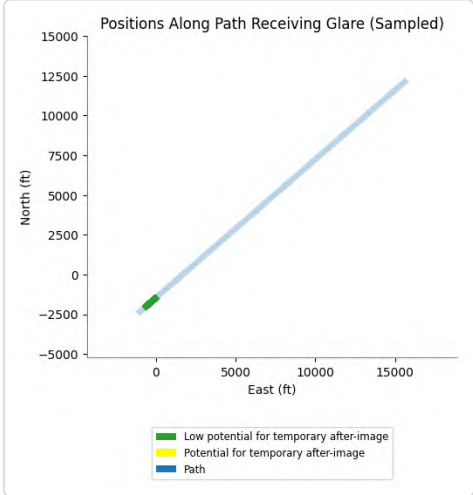
Yellow glare: none

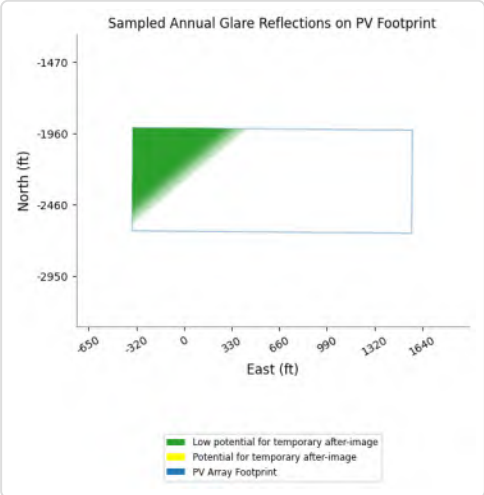
Green glare: 21,365 min.

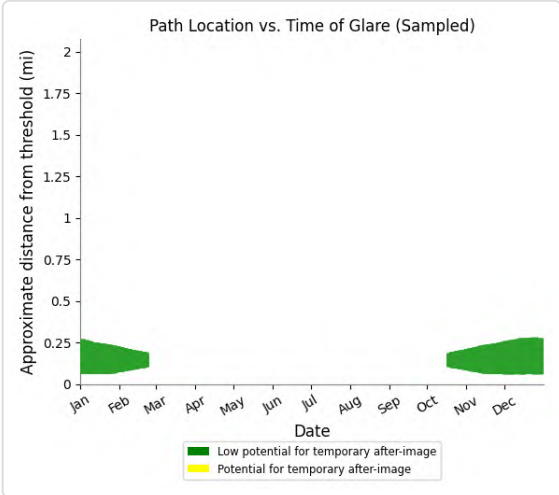








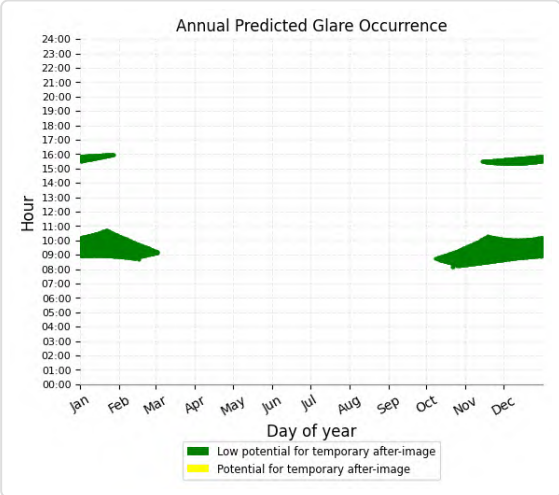


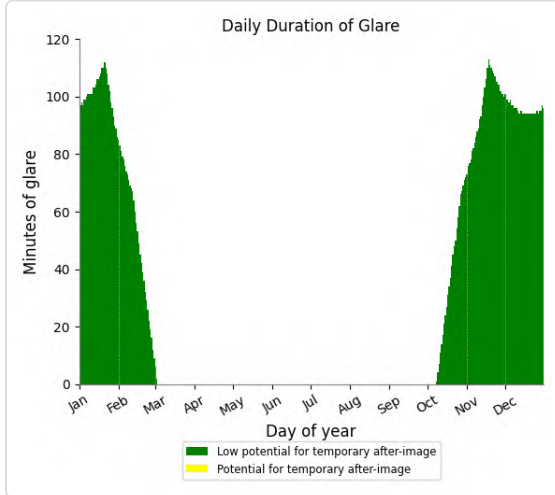


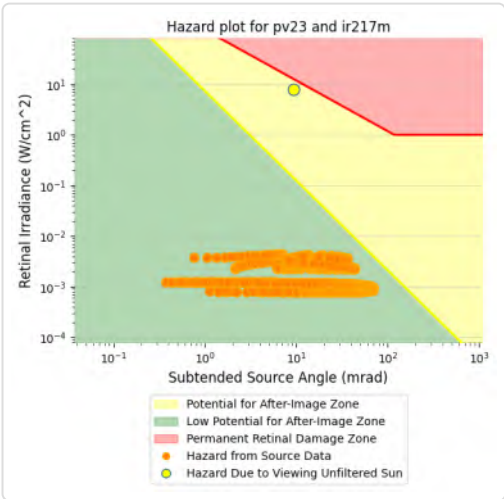
PV23 and FP: IR217m

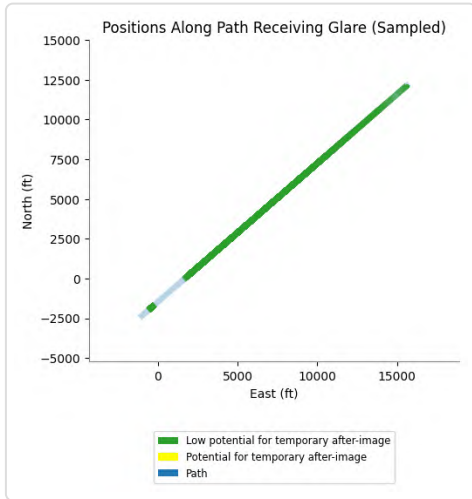
Yellow glare: none

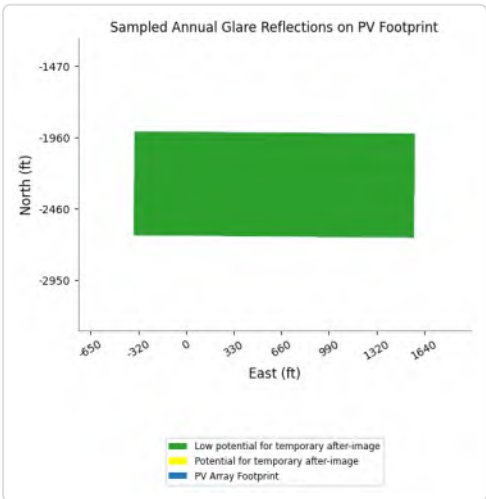
Green glare: 11,442 min.

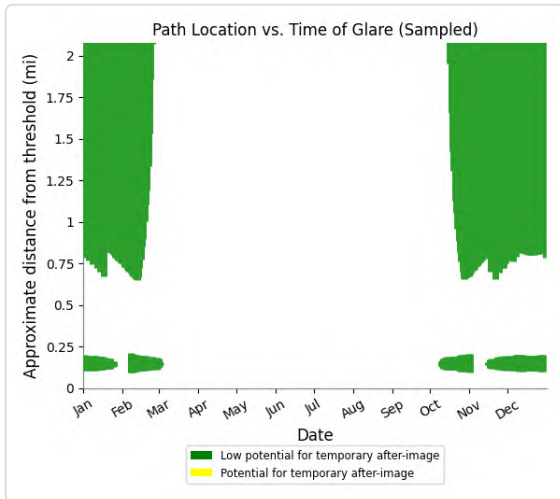








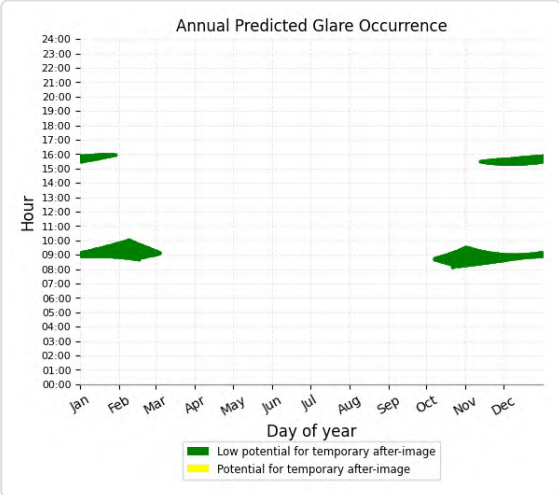


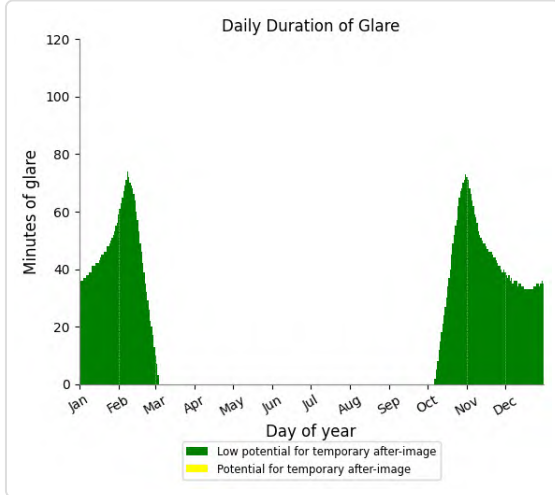


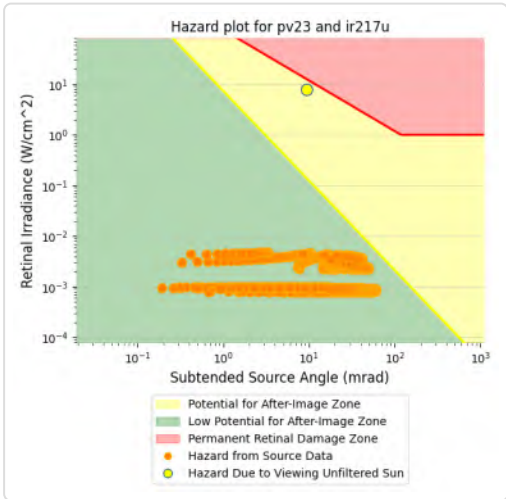
PV23 and FP: IR217u

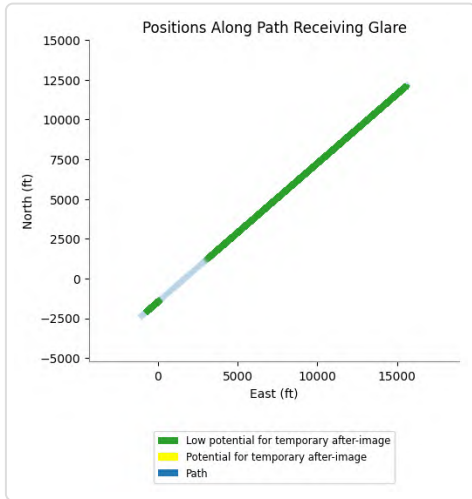
Yellow glare: none

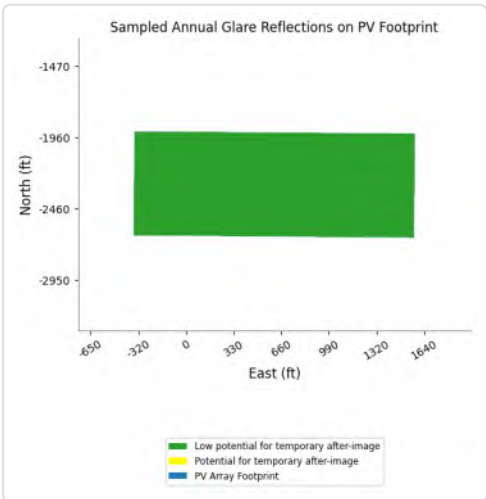
Green glare: 6,470 min.

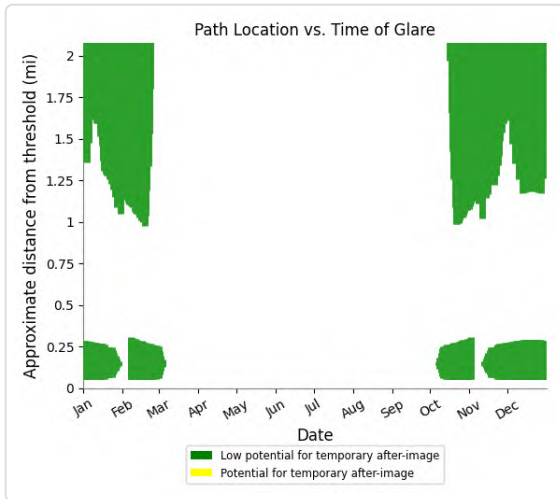








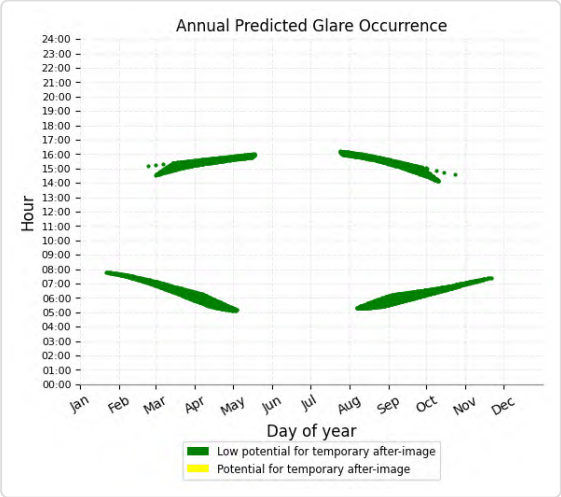


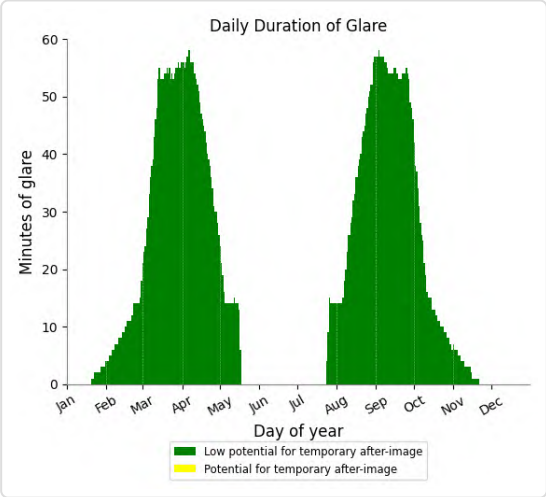


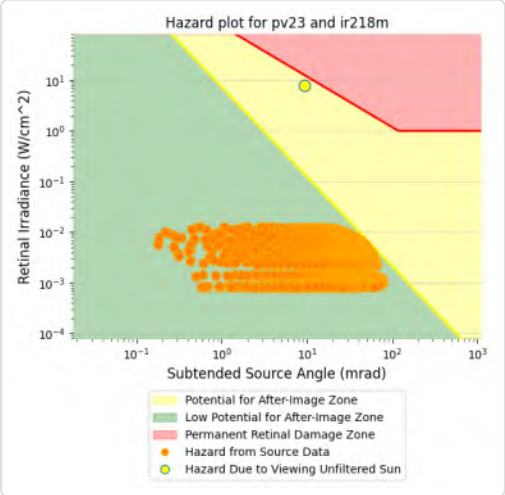
PV23 and FP: IR218m

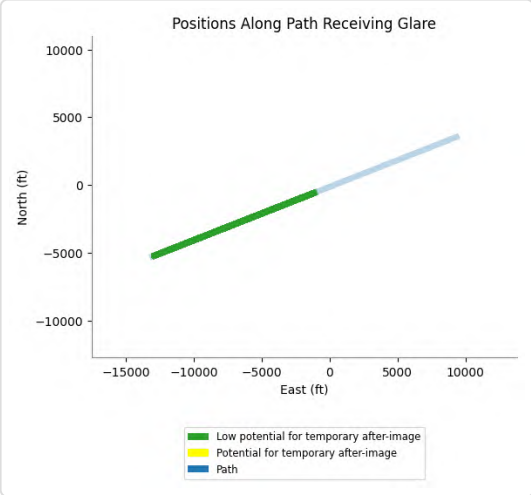
Yellow glare: none

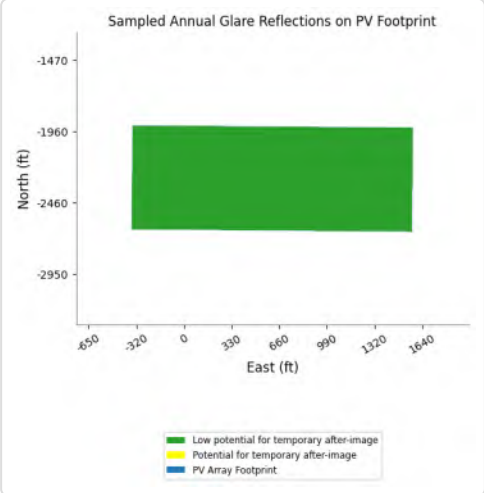
Green glare: 6,751 min.

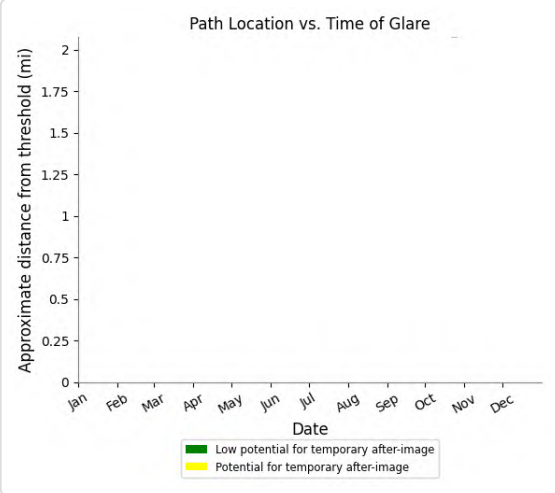








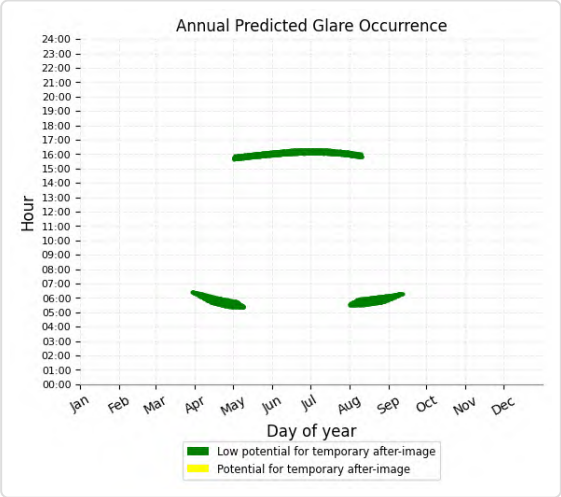


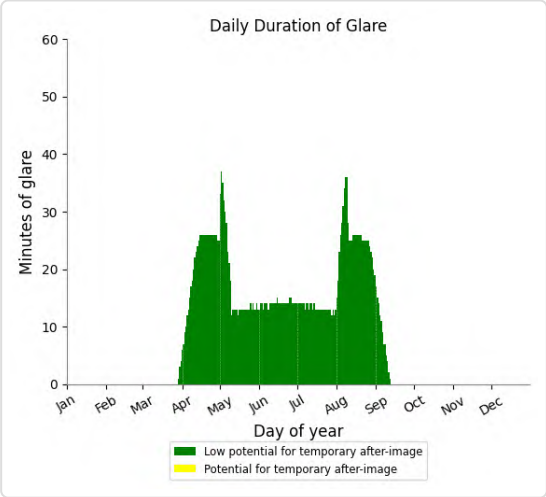


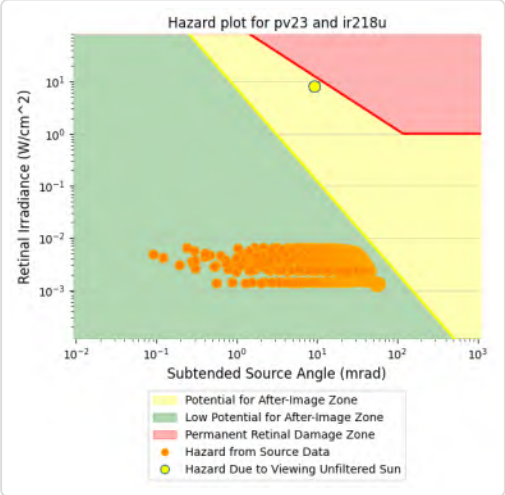
PV23 and FP: IR218u

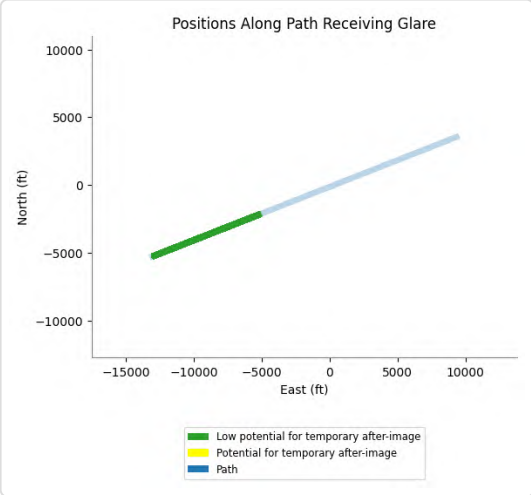
Yellow glare: none

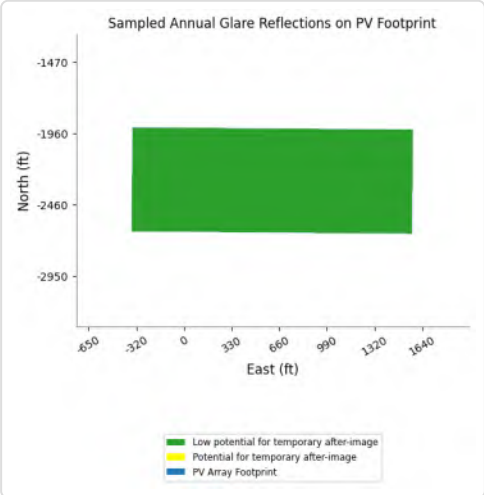
Green glare: 2,913 min.

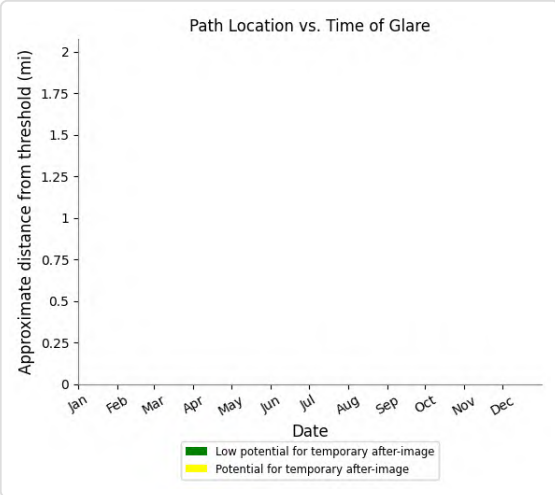








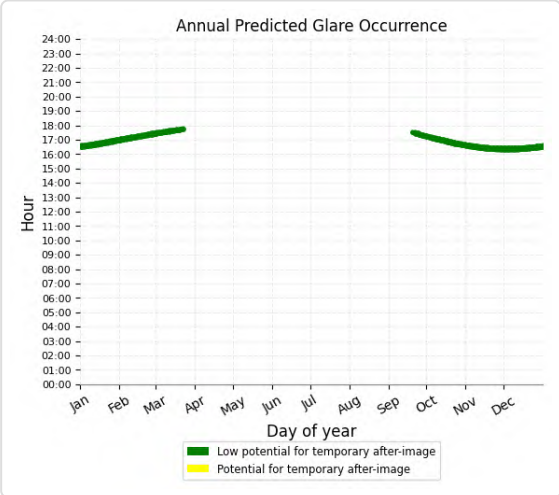


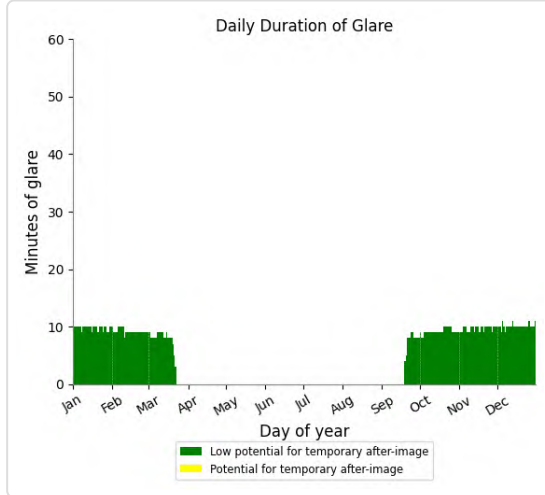


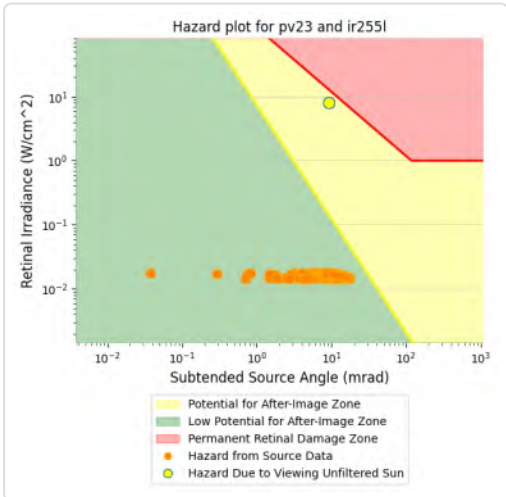
PV23 and FP: IR255I

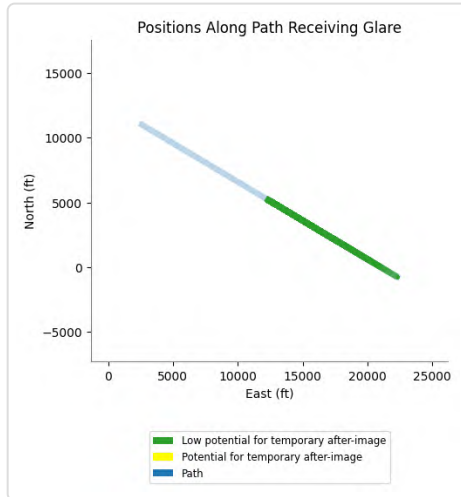
Yellow glare: none

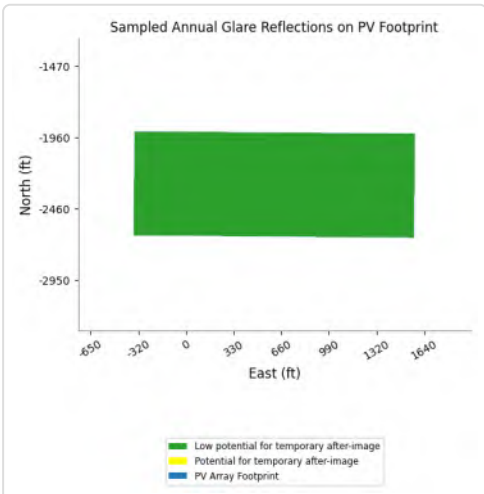
Green glare: 1,722 min.

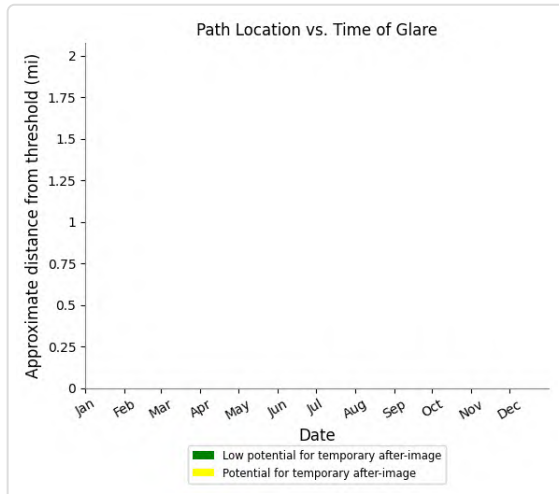








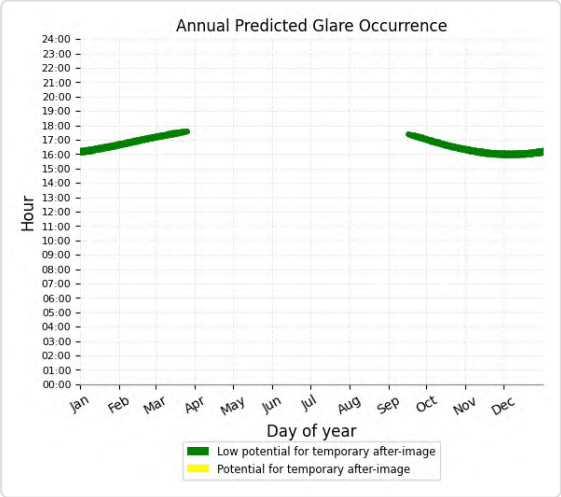


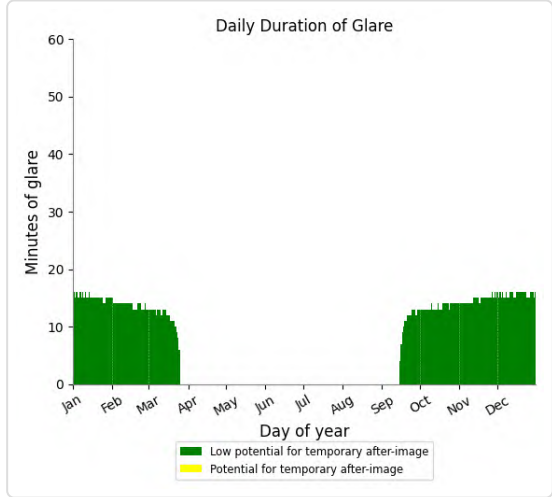


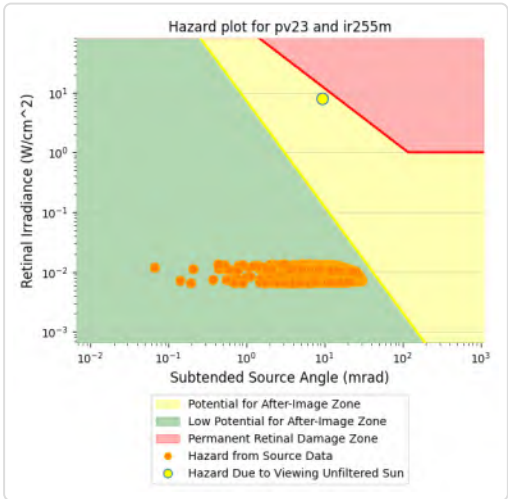
PV23 and FP: IR255m

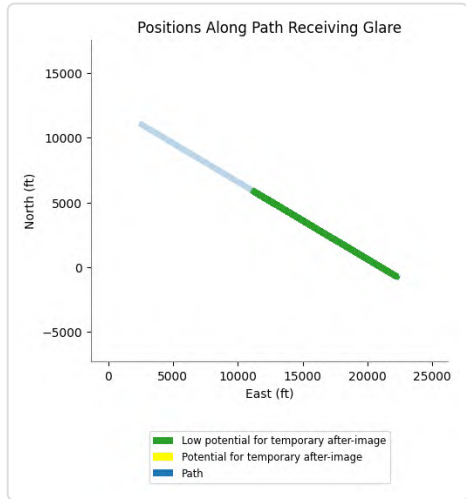
Yellow glare: none

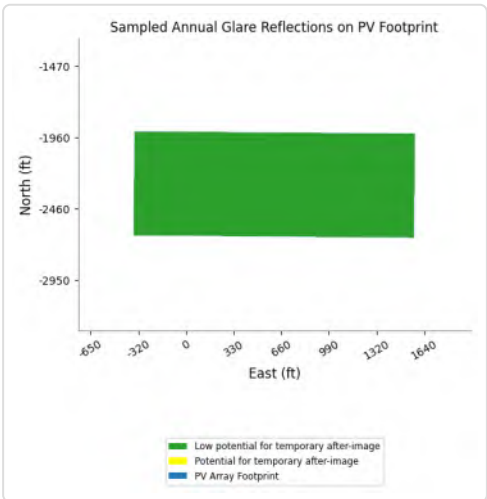
Green glare: 2,680 min.

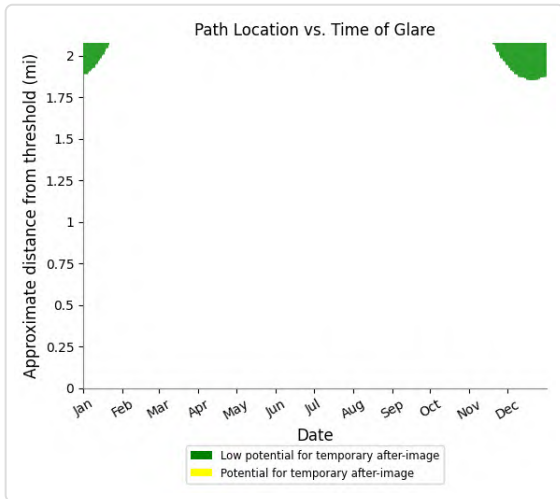








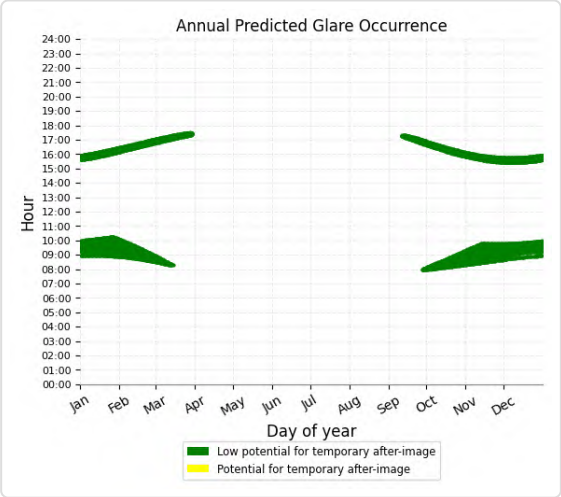


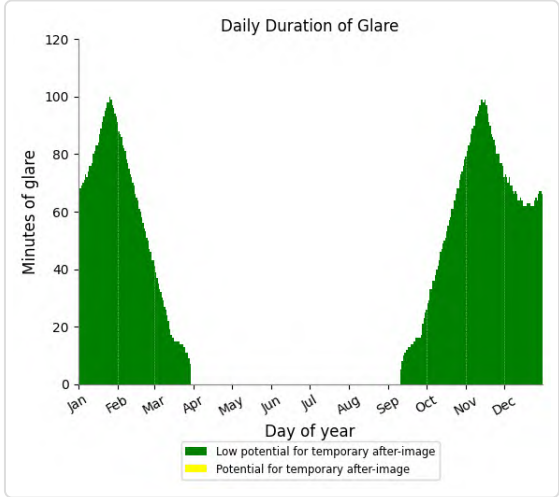


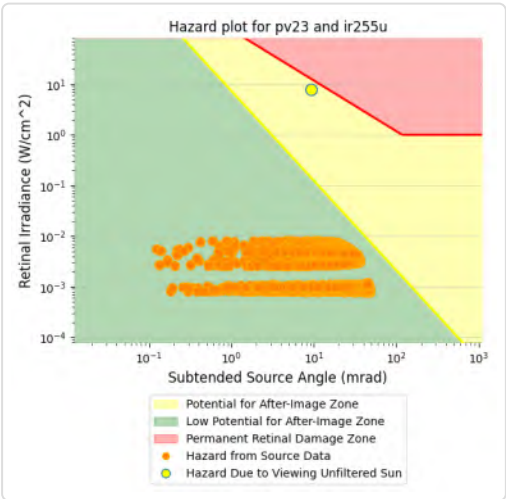
PV23 and FP: IR255u

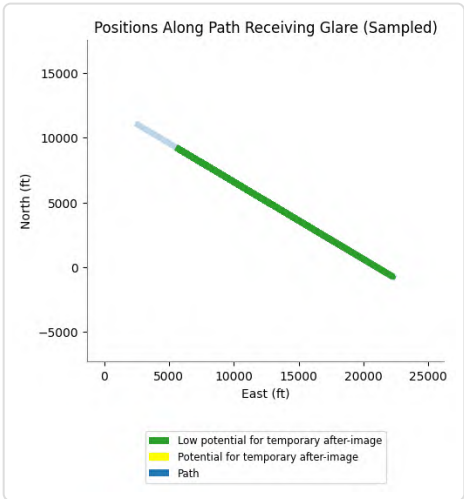
Yellow glare: none

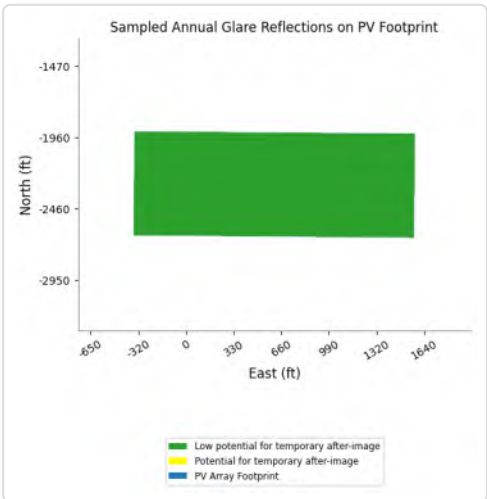
Green glare: 11,716 min.

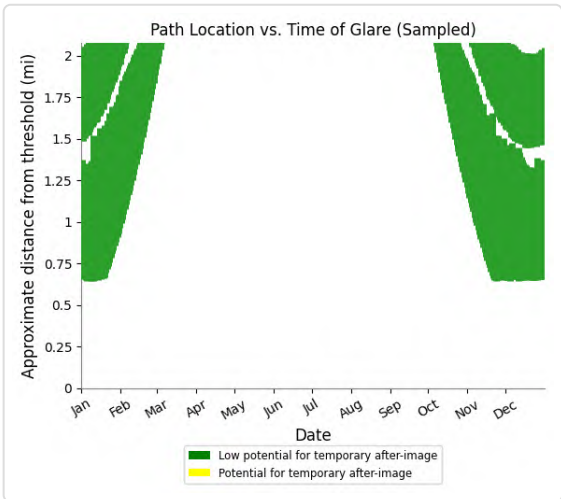








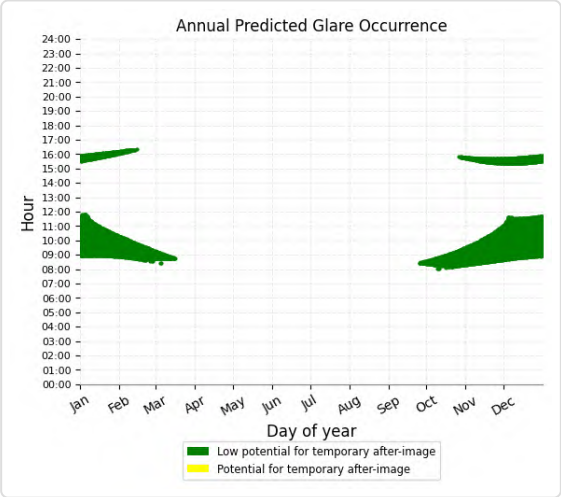


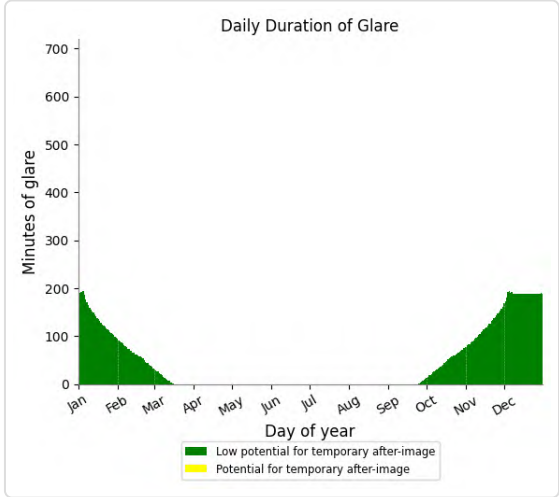


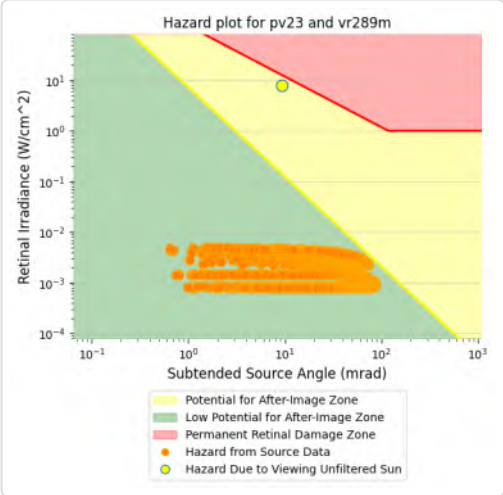
PV23 and FP: VR289m

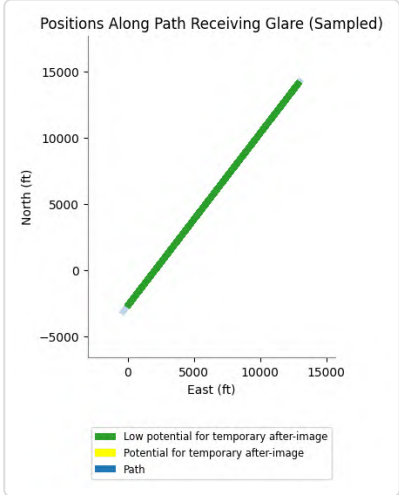
Yellow glare: none

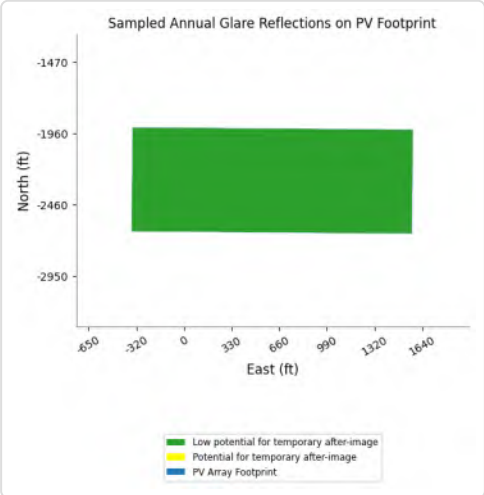
Green glare: 17,270 min.

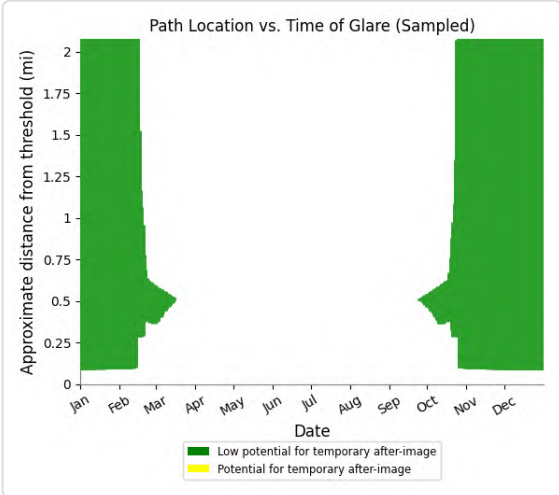








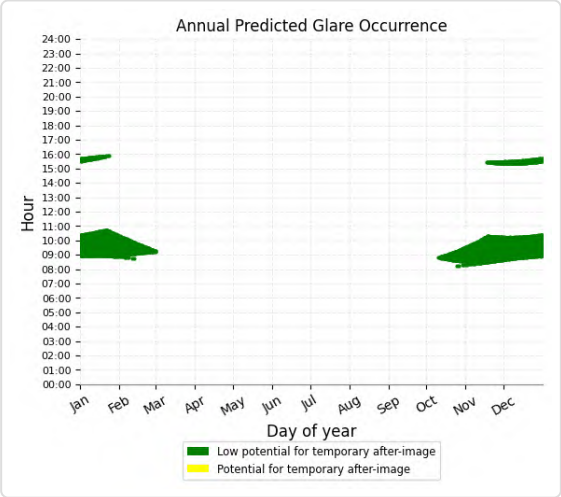


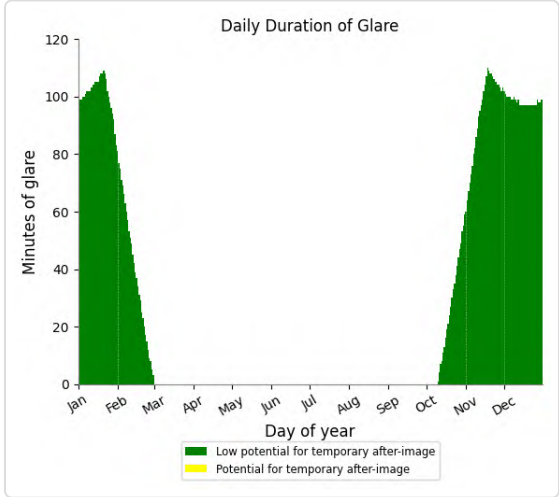


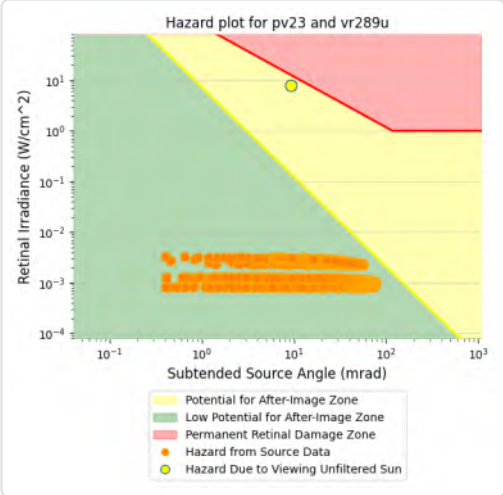
PV23 and FP: VR289u

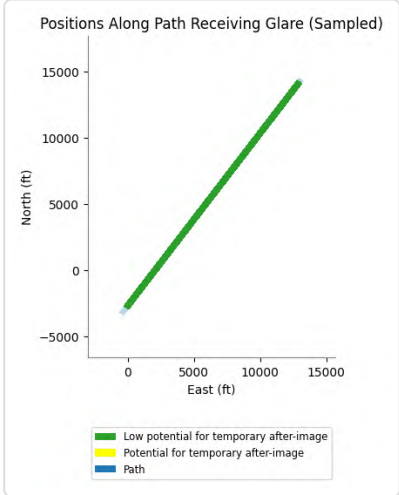
Yellow glare: none

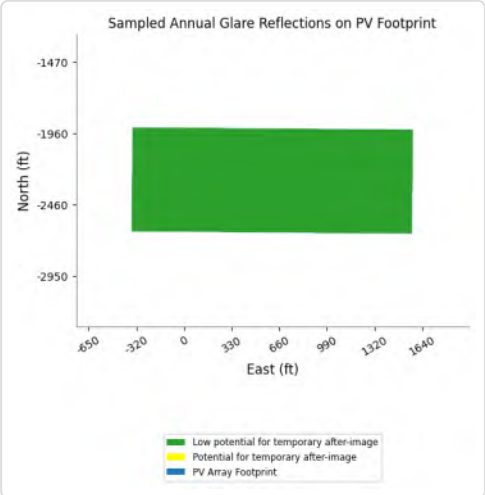
Green glare: 10,798 min.

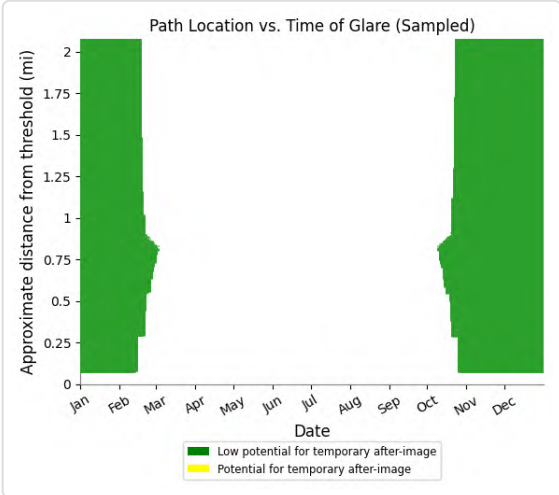








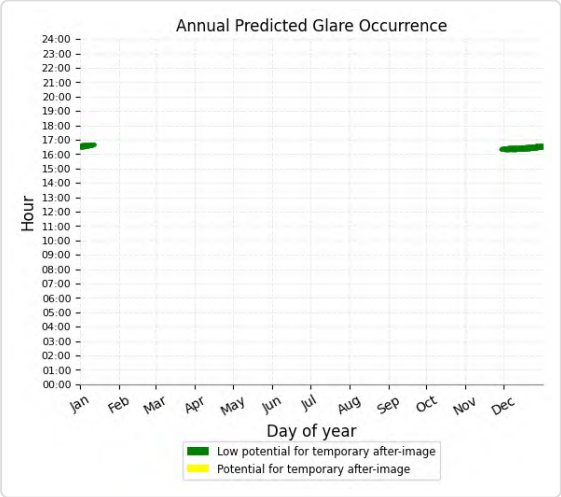


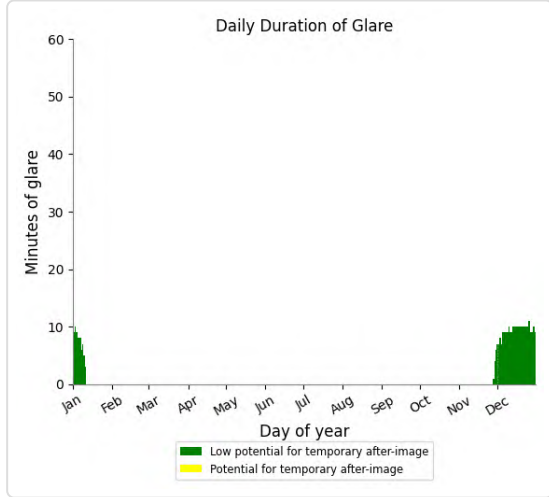


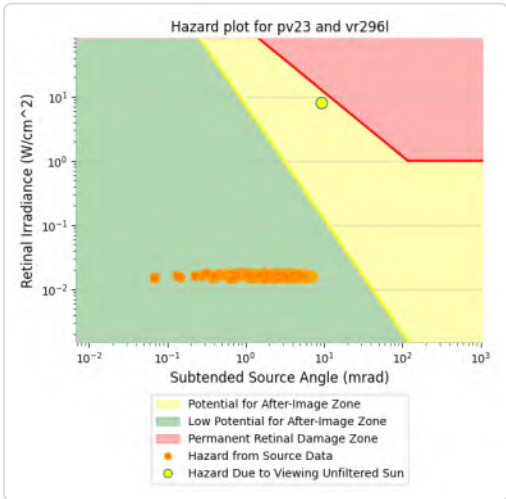
PV23 and FP: VR296l

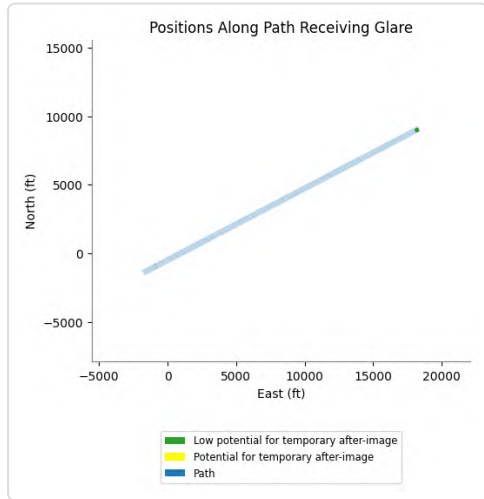
Yellow glare: none

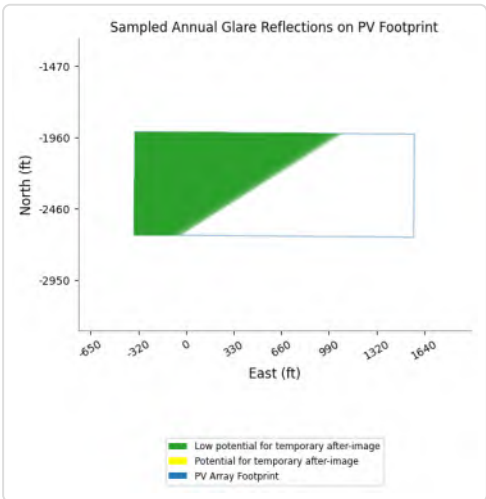
Green glare: 383 min.

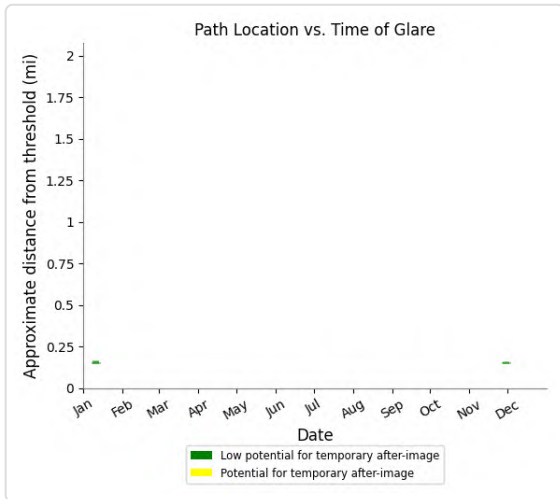








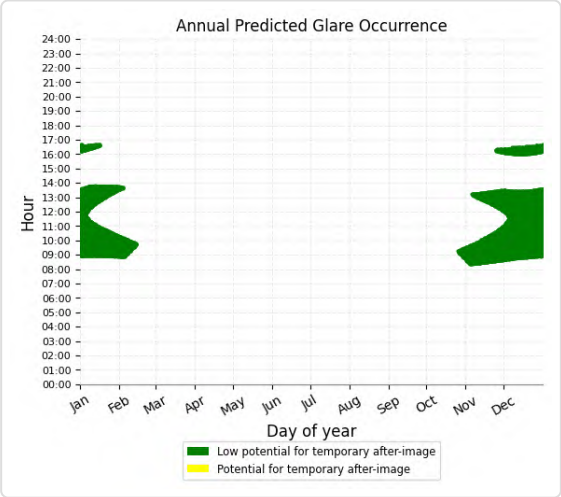


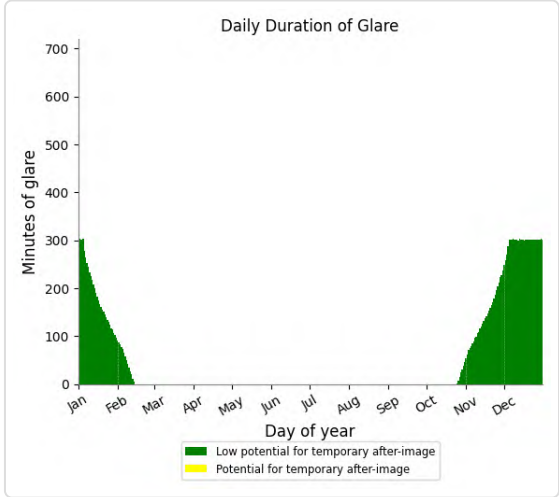


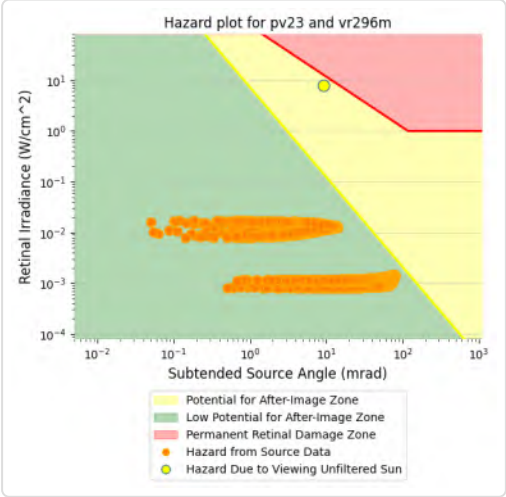
PV23 and FP: VR296m

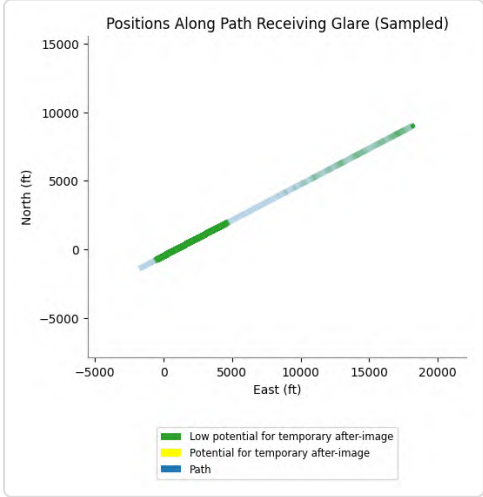
Yellow glare: none

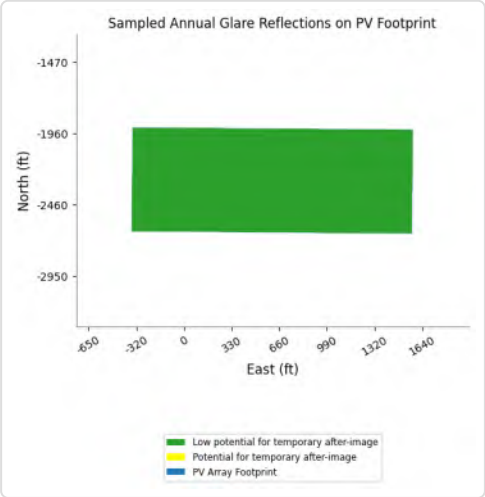
Green glare: 20,290 min.

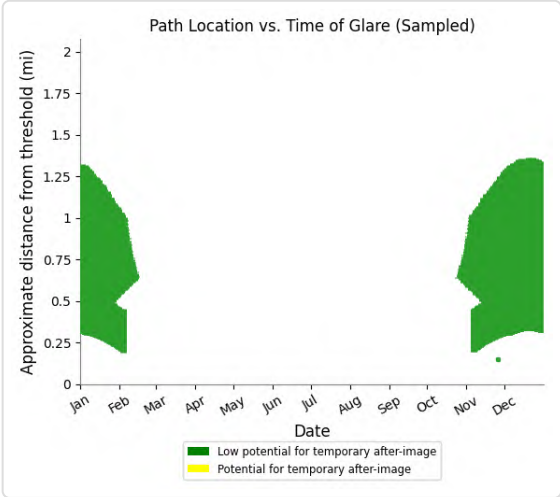








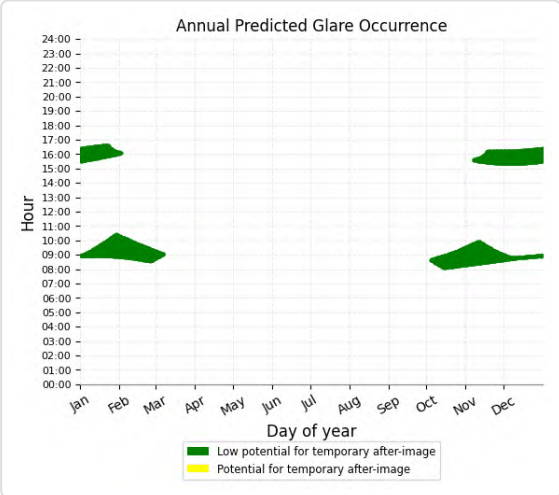


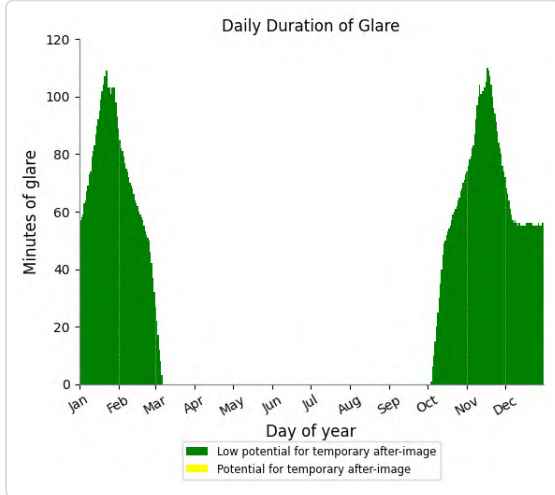


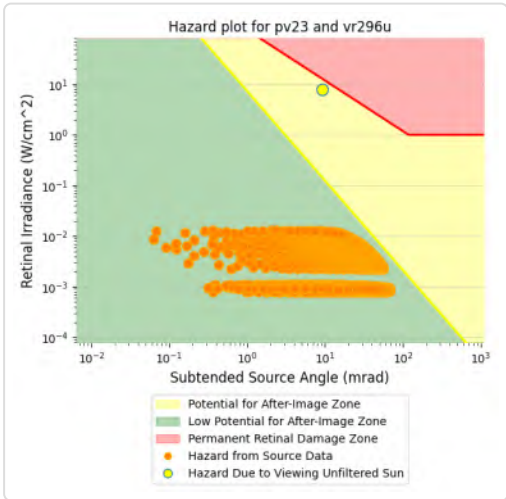
PV23 and FP: VR296u

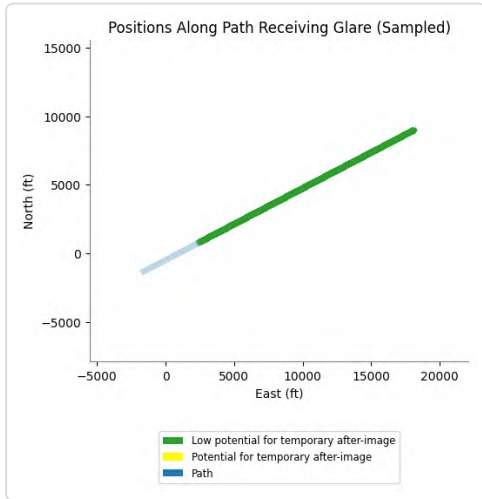
Yellow glare: none

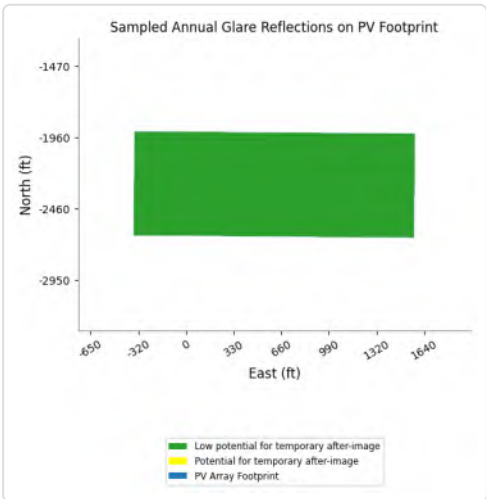
Green glare: 10,458 min.

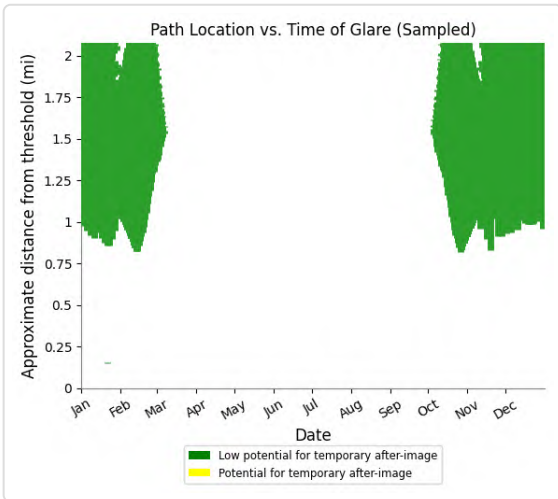












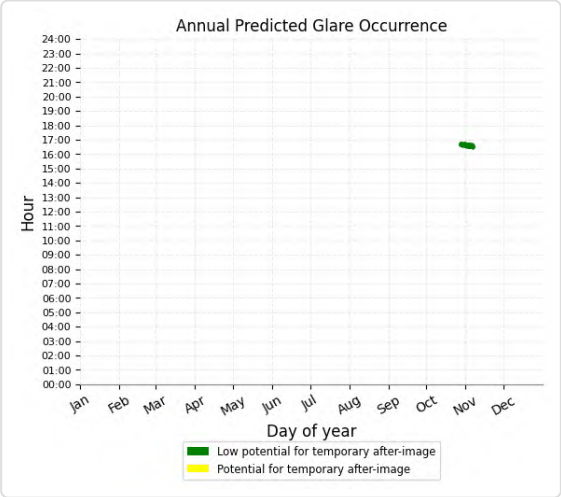
PV23 and FP: CN645

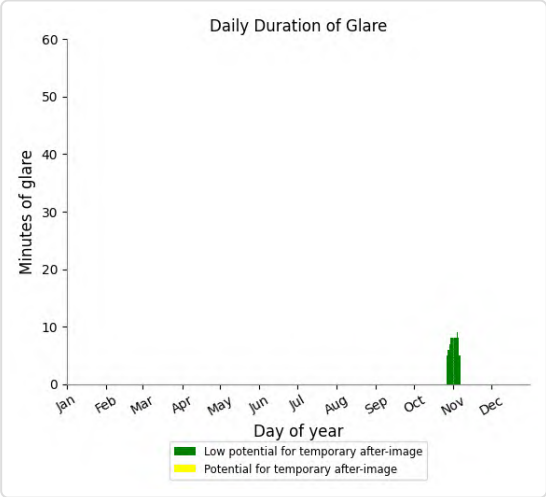
No glare found

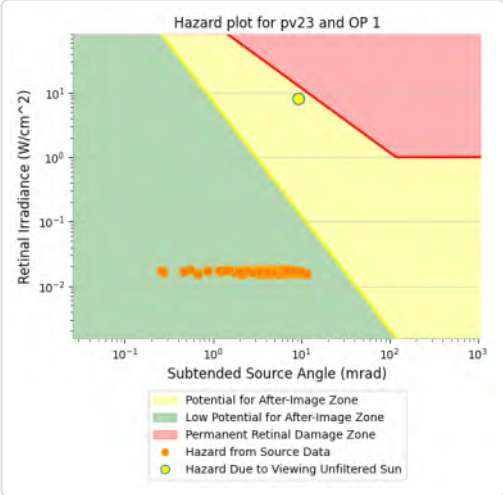
PV23 and OP 1

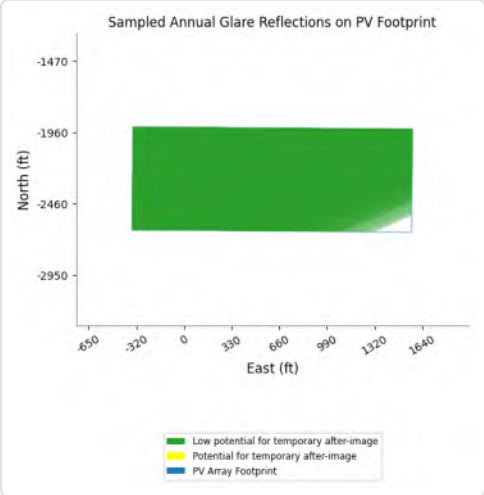
Yellow glare: none

Green glare: 80 min.



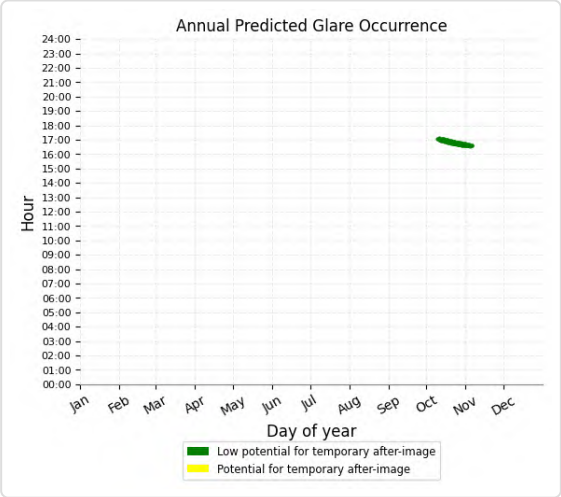


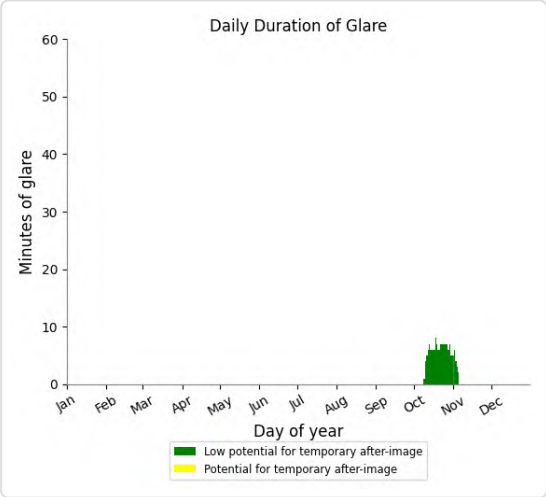


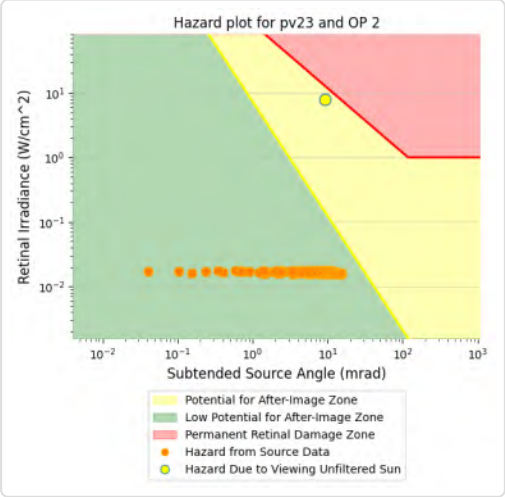


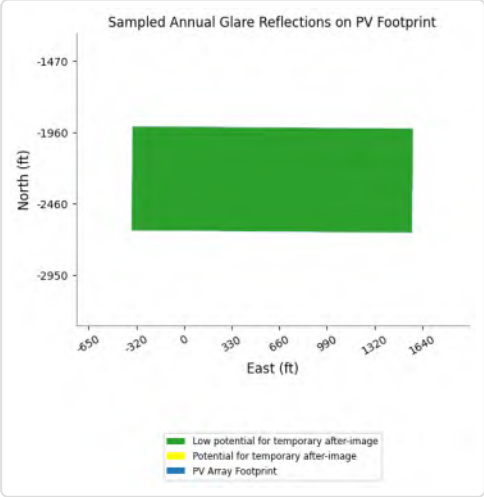
PV23 and OP 2

Yellow glare: none
Green glare: 159 min.









PV23 and OP 3

No glare found

PV23 and OP 4

No glare found

PV23 and OP 5

No glare found

PV23 and OP 6

No glare found

PV23 and OP 7

No glare found

PV23 and OP 8

No glare found

PV23 and OP 9

No glare found

PV23 and OP 10

No glare found

PV23 and OP 11

No glare found

PV23 and OP 12

No glare found

PV23 and OP 13

No glare found

PV23 and OP 14

No glare found

PV23 and OP 15

No glare found

PV23 and OP 16

No glare found

PV23 and OP 17

No glare found

PV23 and OP 18

No glare found

PV23 and OP 19

No glare found

PV: PV24 potential temporary after-image

Receptor results ordered by category of glare

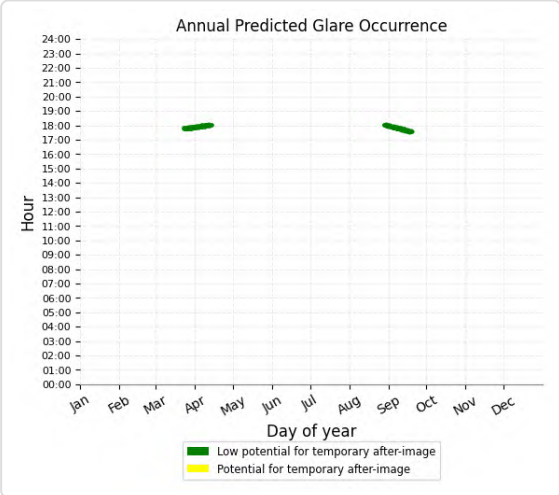
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
AirportRd B	271	4.5	0	0.0
Race Track	405	6.8	0	0.0
SR177 A	605	10.1	0	0.0
SR177 B	809	13.5	0	0.0
SR177 C	618	10.3	0	0.0
AirportRd A	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR218l	1,815	30.2	1,785	29.8
VR289l	2,071	34.5	150	2.5
CN6423	791	13.2	0	0.0
IR217m	11,410	190.2	0	0.0
IR217u	7,482	124.7	0	0.0
IR218m	11,417	190.3	0	0.0
IR218u	3,376	56.3	0	0.0
IR255l	1,644	27.4	0	0.0
IR255m	2,786	46.4	0	0.0
IR255u	12,166	202.8	0	0.0
VR289m	17,585	293.1	0	0.0
VR289u	8,449	140.8	0	0.0
VR296m	10,513	175.2	0	0.0
VR296u	13,316	221.9	0	0.0
CN645	0	0.0	0	0.0
IR217l	0	0.0	0	0.0
VR296l	0	0.0	0	0.0
OP 1	254	4.2	0	0.0
OP 2	0	0.0	0	0.0

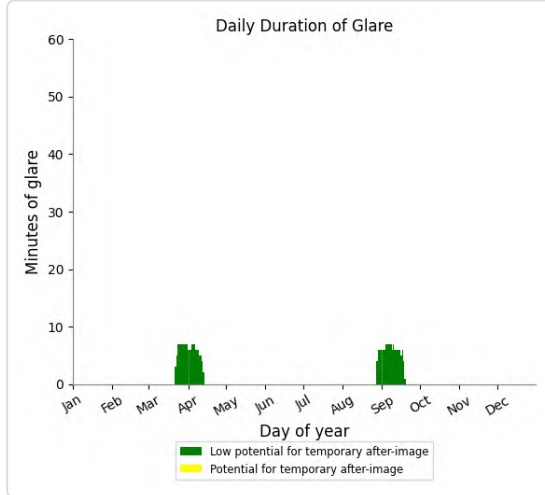
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

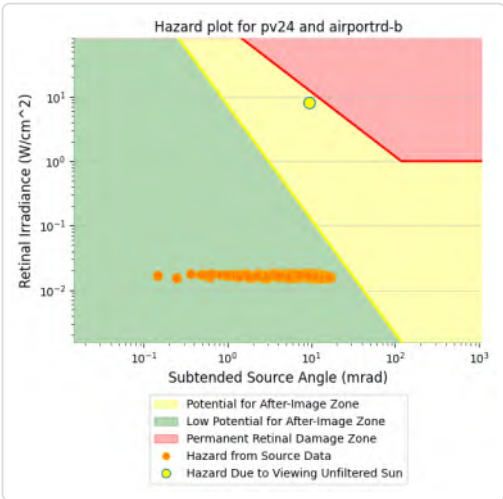
PV24 and Route: AirportRd B

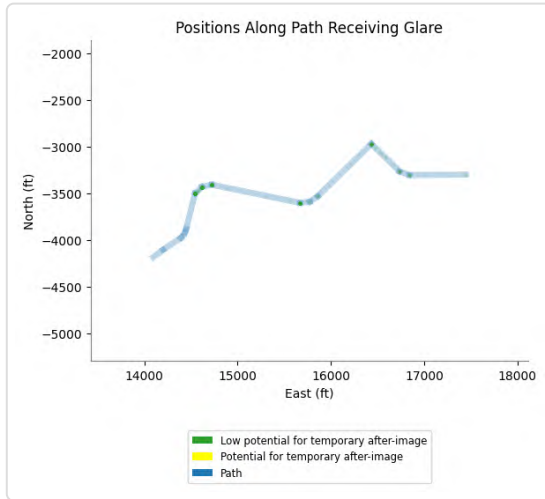
Yellow glare: none

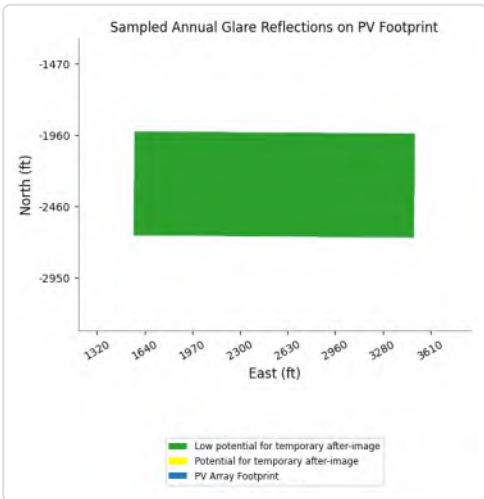
Green glare: 271 min.







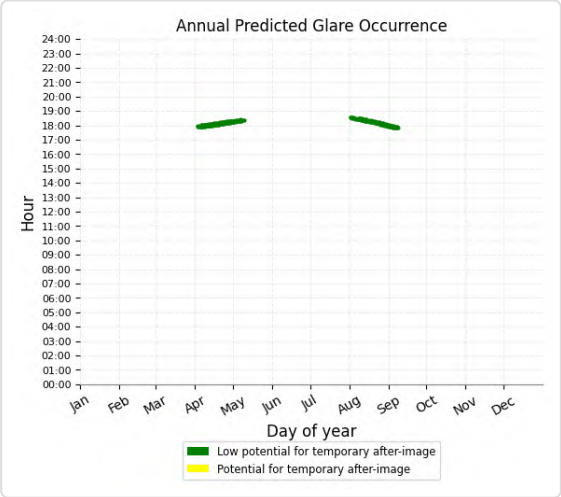


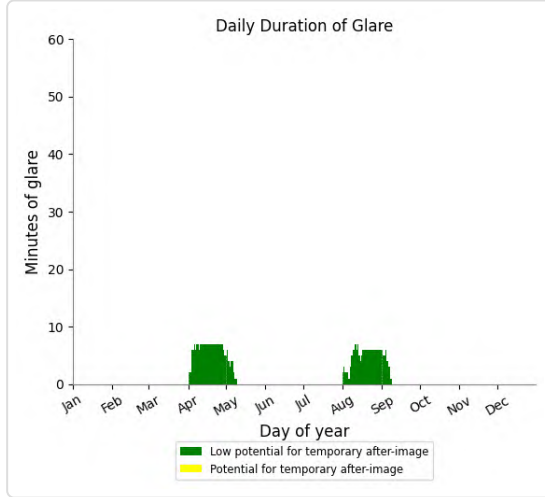


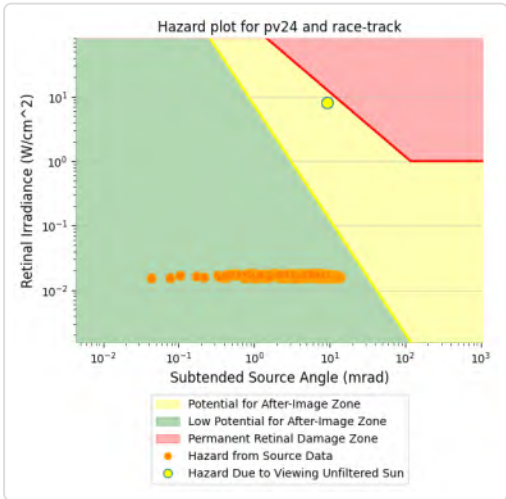
PV24 and Route: Race Track

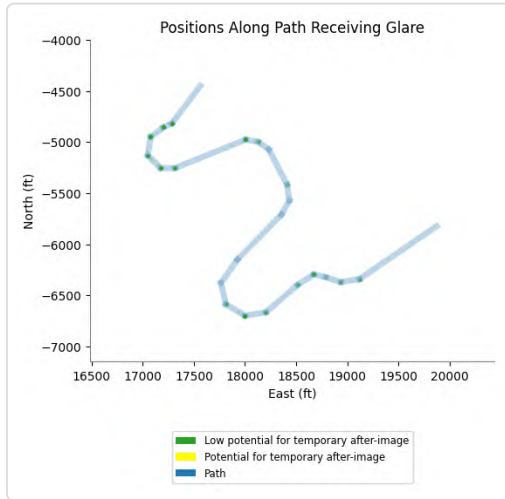
Yellow glare: none

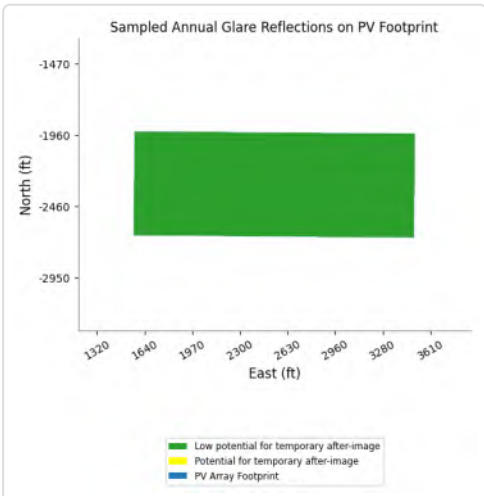
Green glare: 405 min.







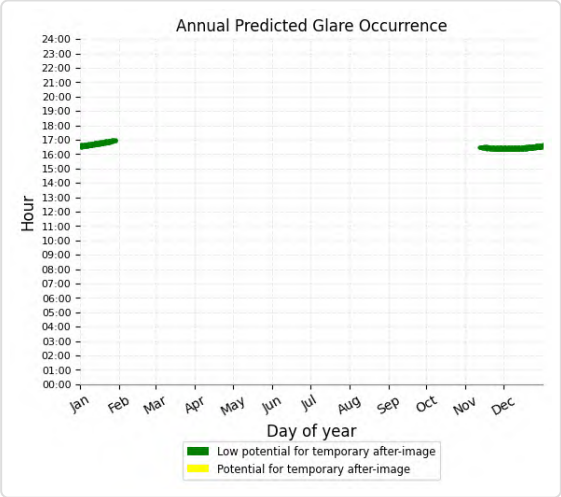


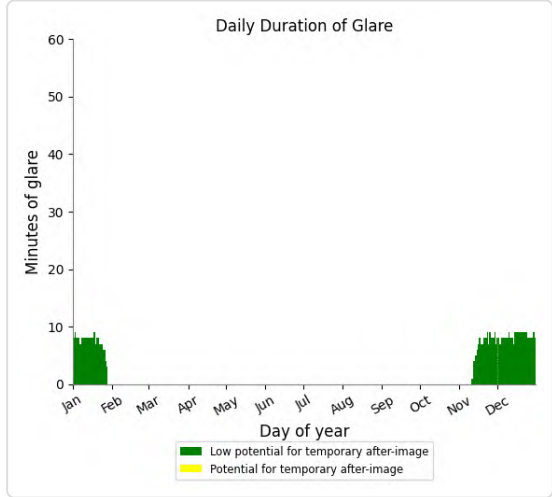


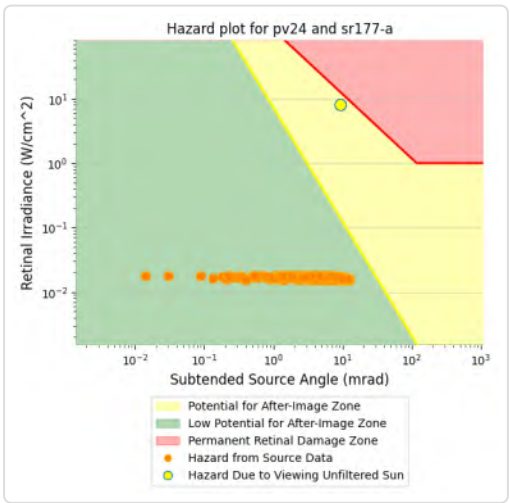
PV24 and Route: SR177 A

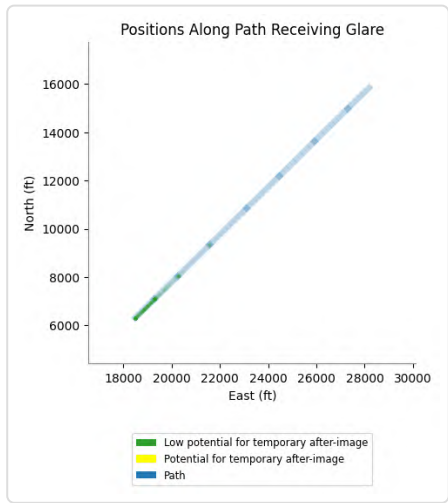
Yellow glare: none

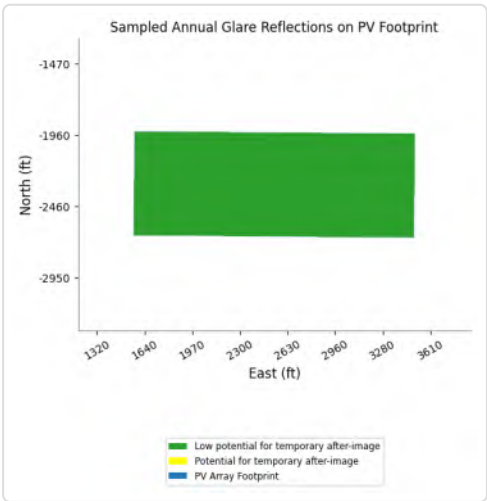
Green glare: 605 min.







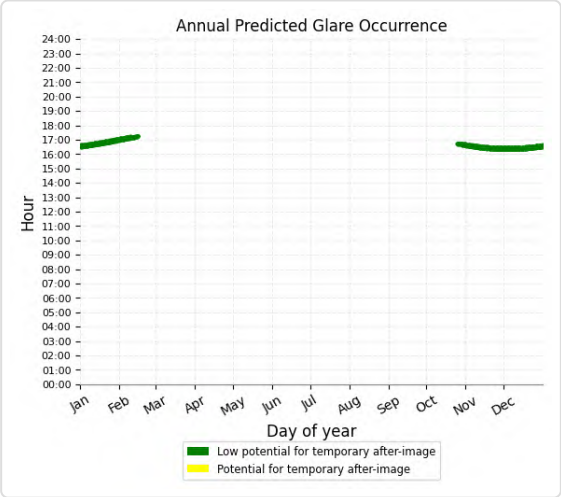


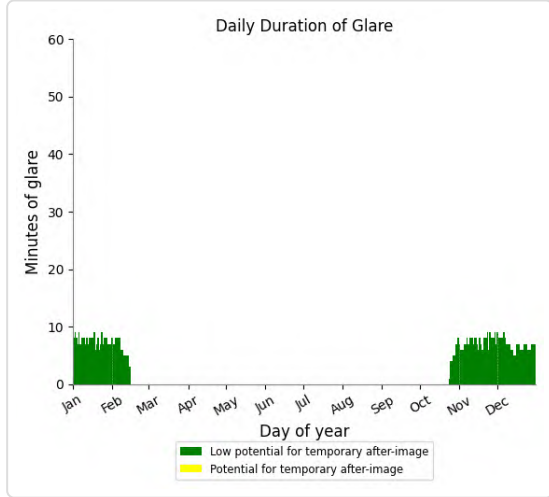


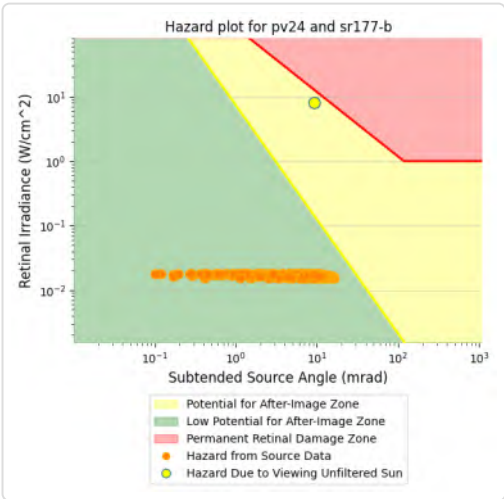
PV24 and Route: SR177 B

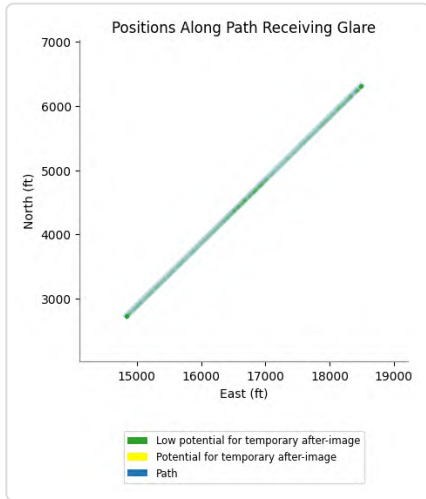
Yellow glare: none

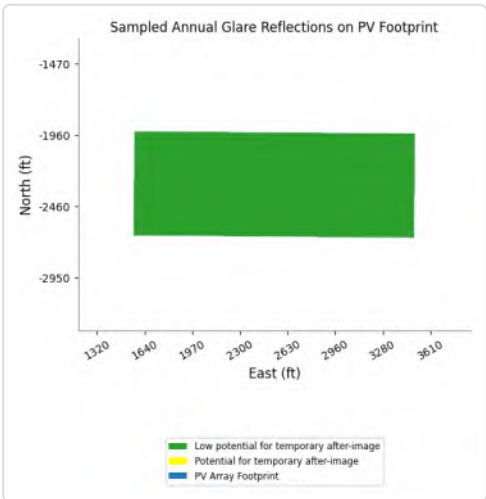
Green glare: 809 min.







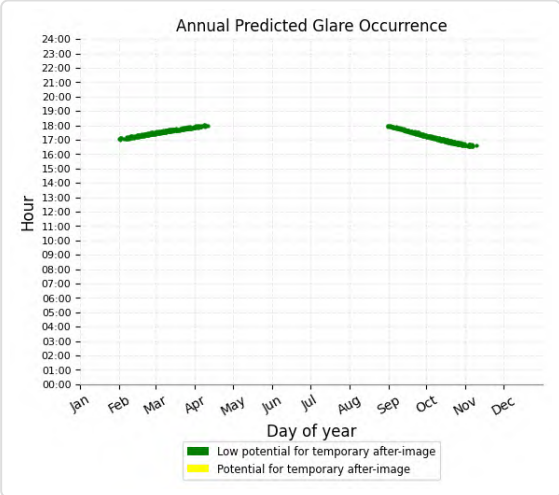


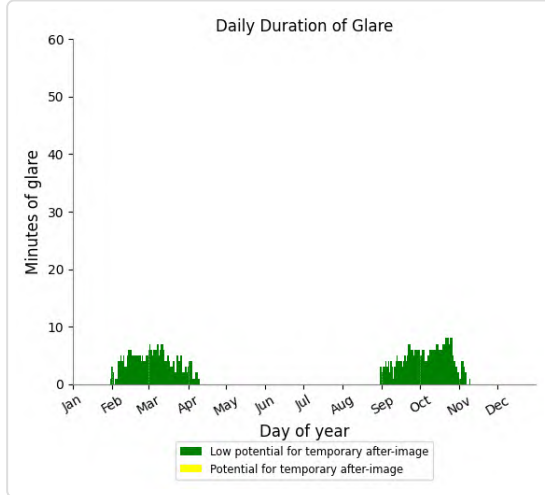


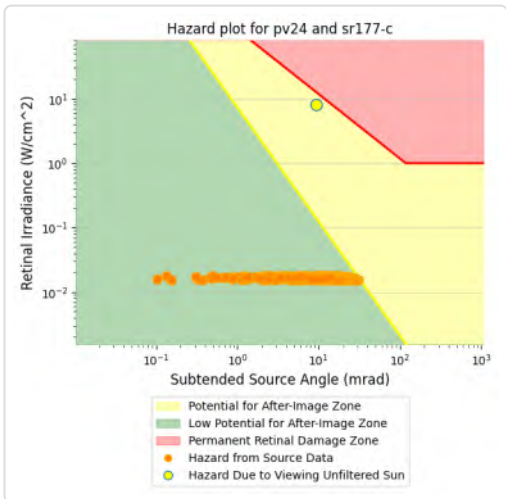
PV24 and Route: SR177 C

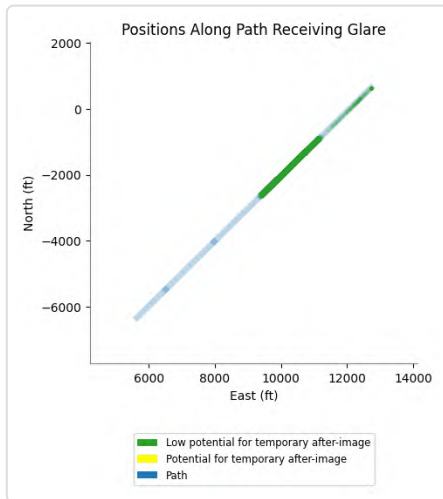
Yellow glare: none

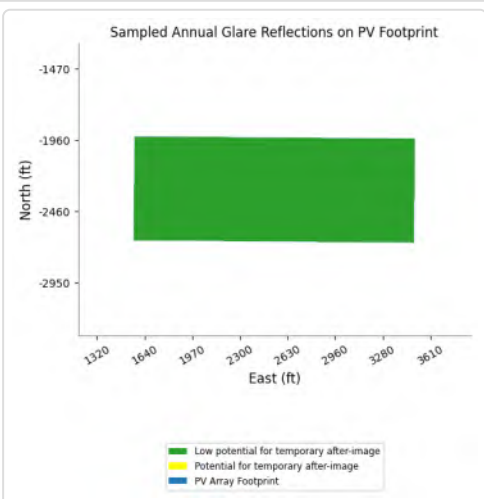
Green glare: 618 min.











PV24 and Route: AirportRd A

No glare found

PV24 and Route: EagleMtnRd A

No glare found

PV24 and Route: EagleMtnRd B

No glare found

PV24 and Route: I-10 EB A

No glare found

PV24 and Route: I-10 EB B

No glare found

PV24 and Route: I-10 EB C

No glare found

PV24 and Route: I-10 WB A

No glare found

PV24 and Route: I-10 WB B

No glare found

PV24 and Route: I-10 WB C

No glare found

PV24 and Route: KaiserRd A

No glare found

PV24 and Route: KaiserRd B

No glare found

PV24 and Route: KaiserRd C

No glare found

PV24 and Route: OasisRd

No glare found

PV24 and Route: SR177 D

No glare found

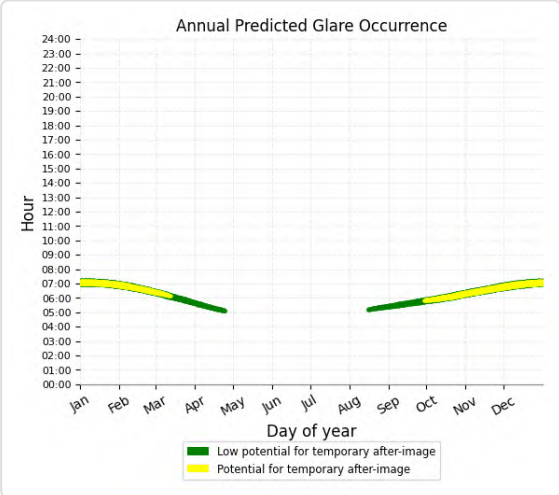
PV24 and Route: SR177 E

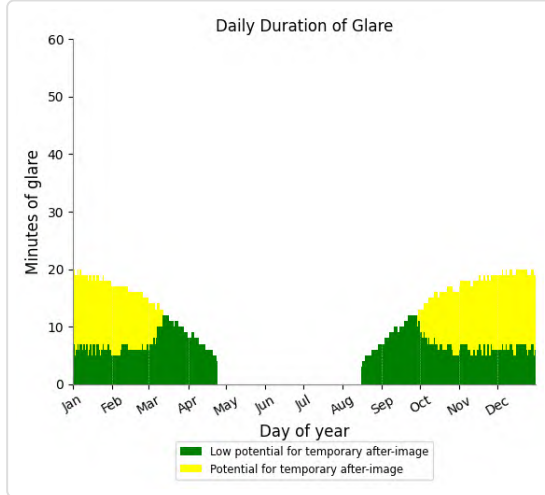
No glare found

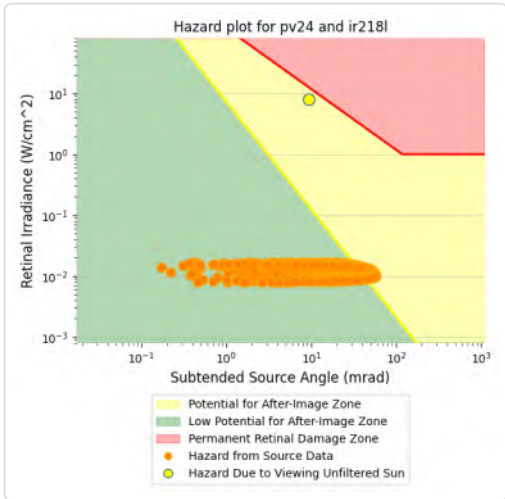
PV24 and FP: IR218l

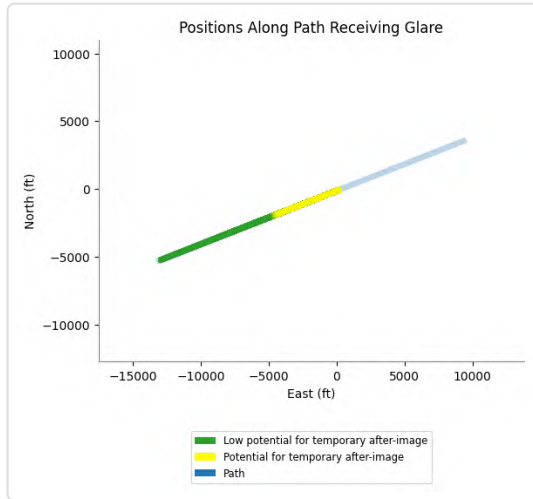
Yellow glare: 1,785 min.

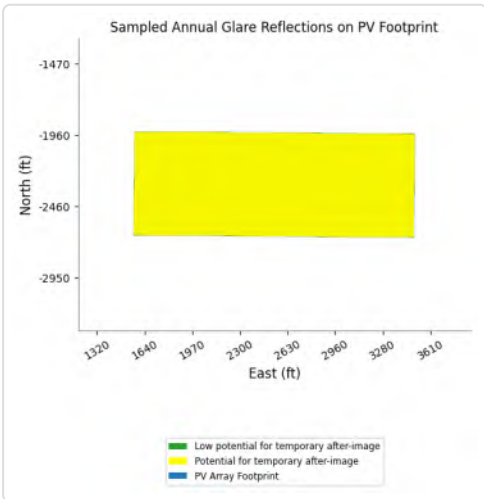
Green glare: 1,815 min.

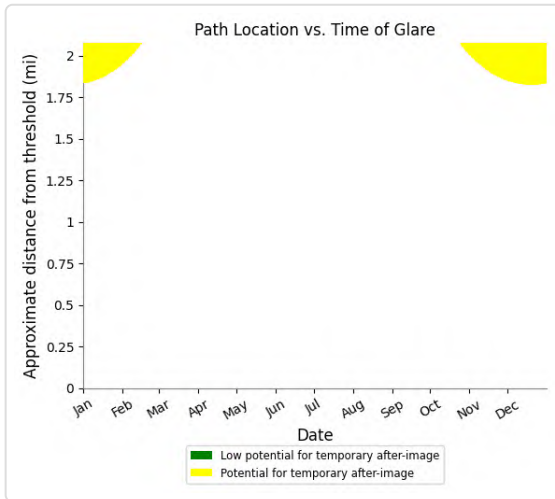








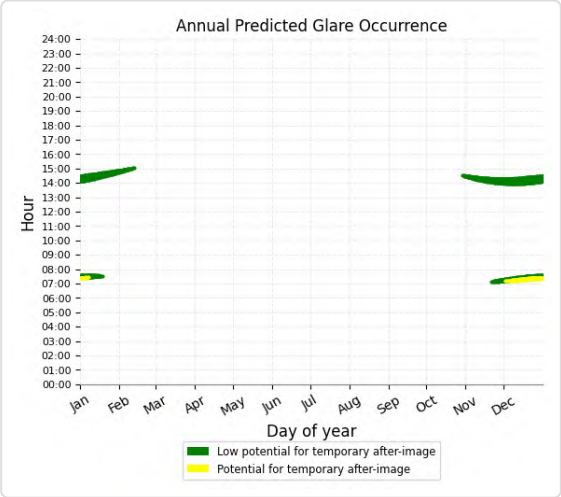


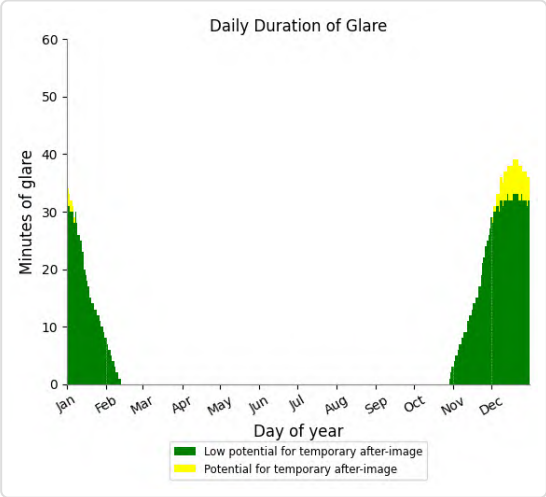


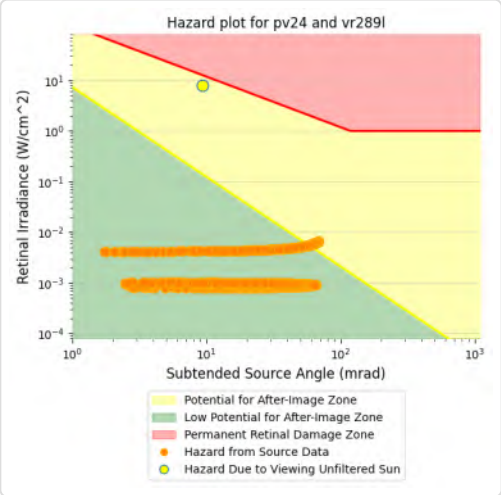
PV24 and FP: VR289I

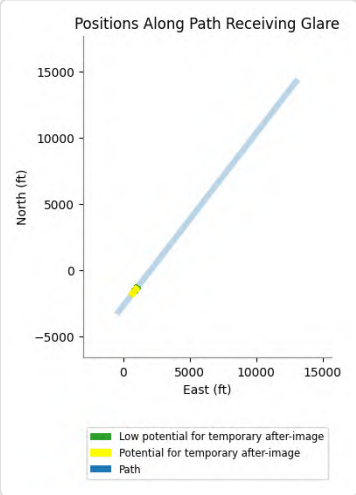
Yellow glare: 150 min.

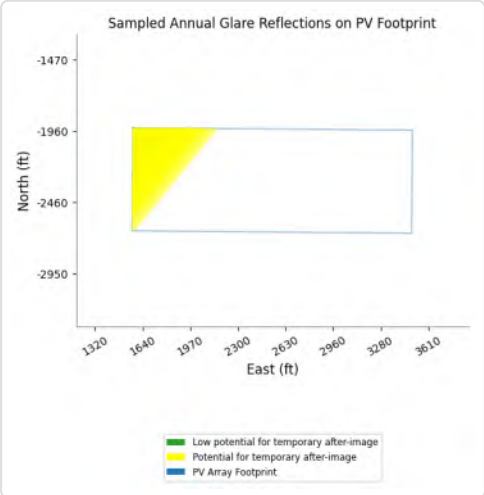
Green glare: 2,071 min.

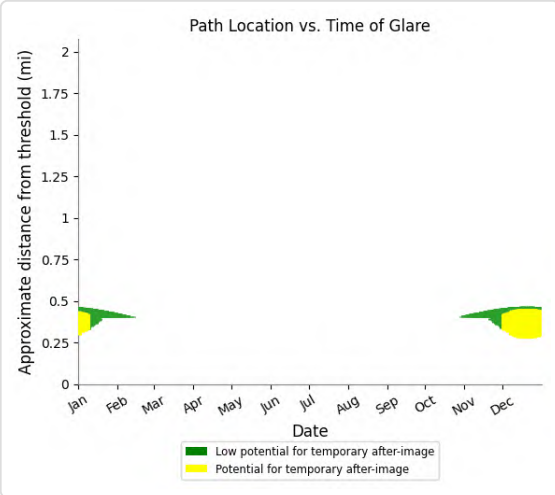








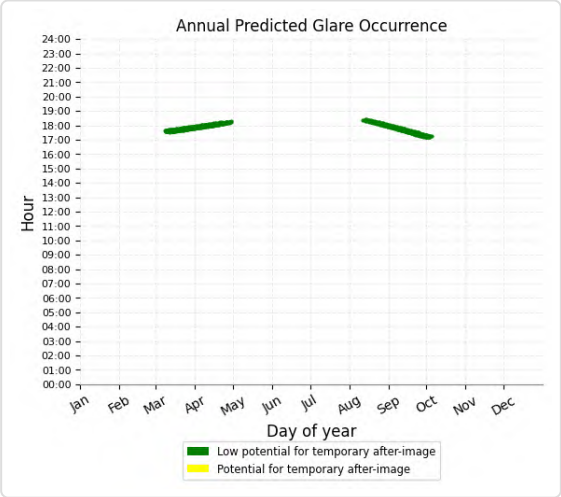


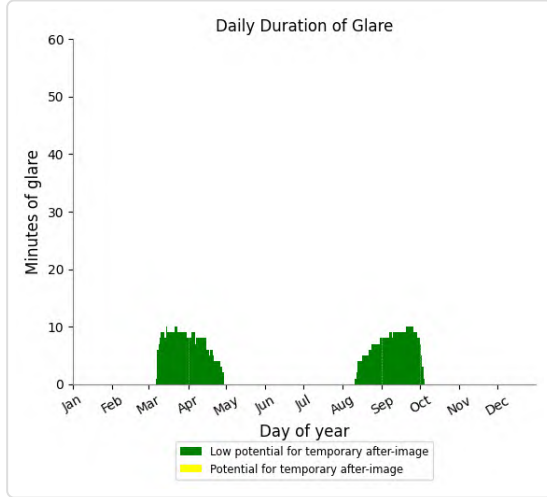


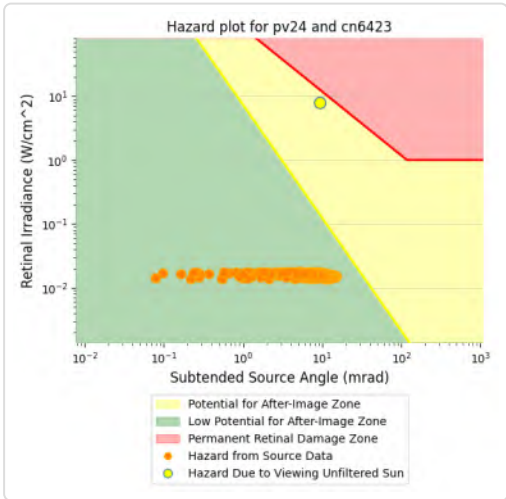
PV24 and FP: CN6423

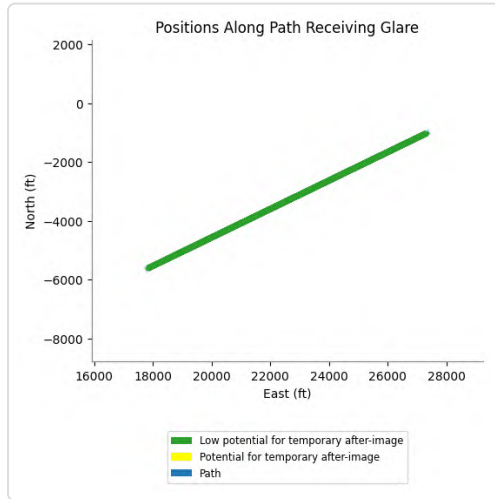
Yellow glare: none

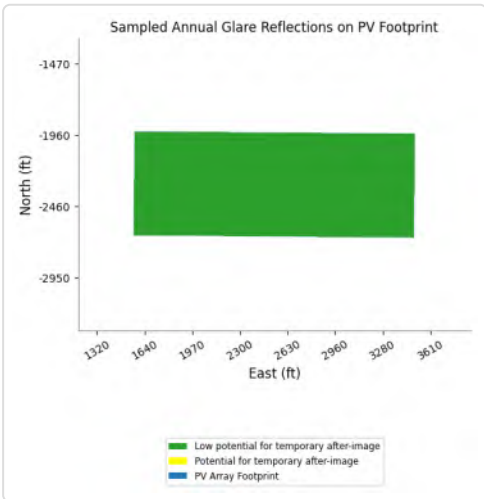
Green glare: 791 min.

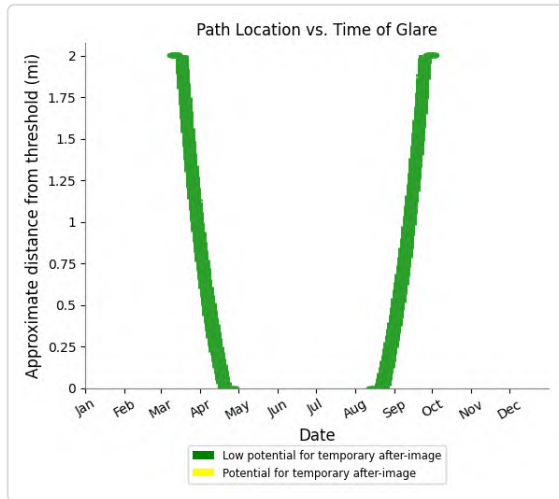








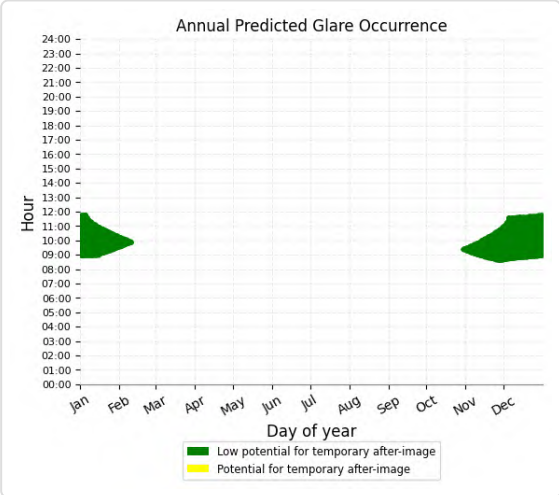


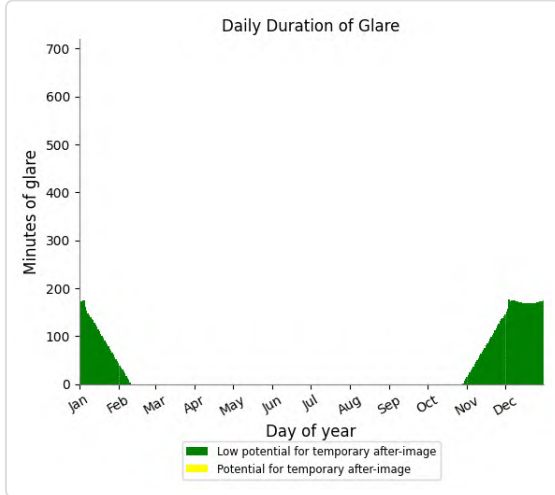


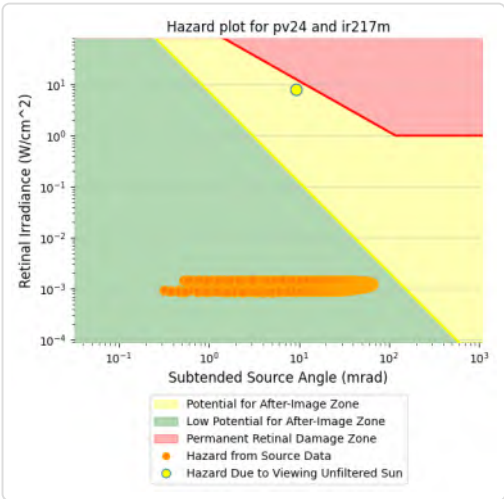
PV24 and FP: IR217m

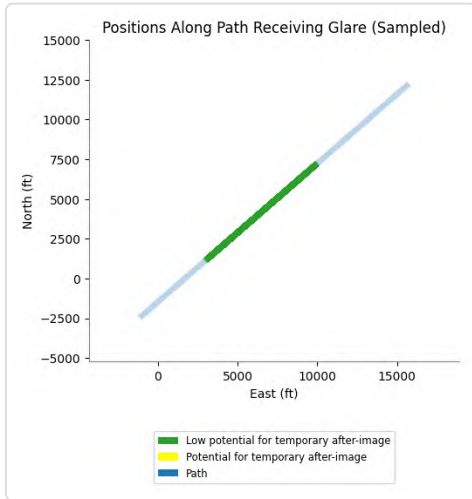
Yellow glare: none

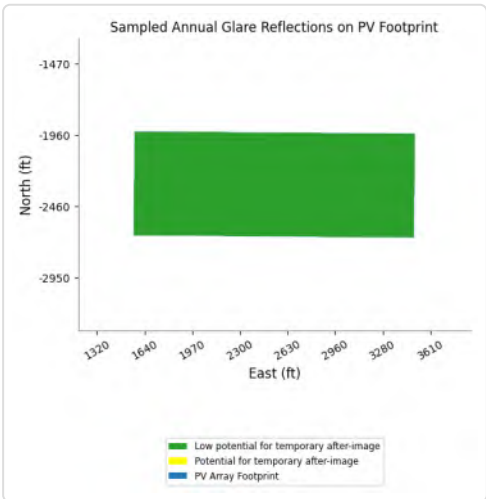
Green glare: 11,410 min.

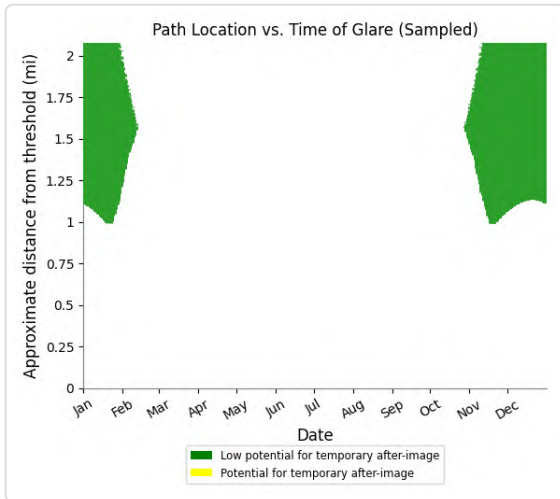








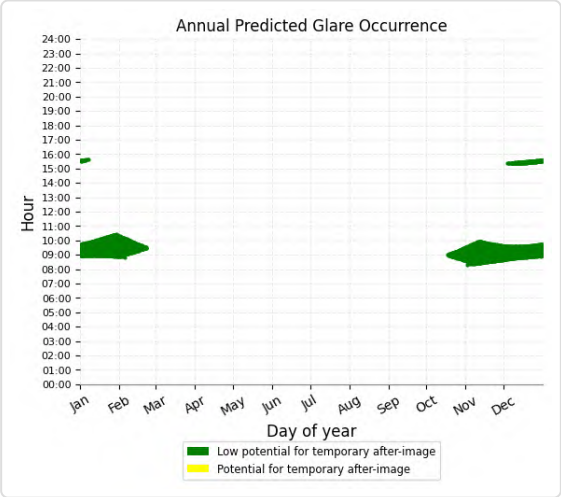


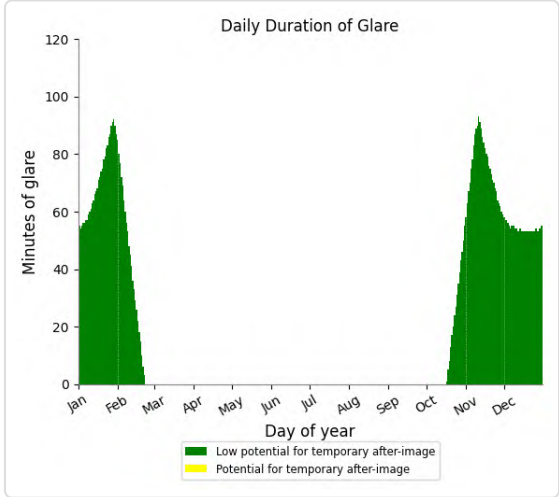


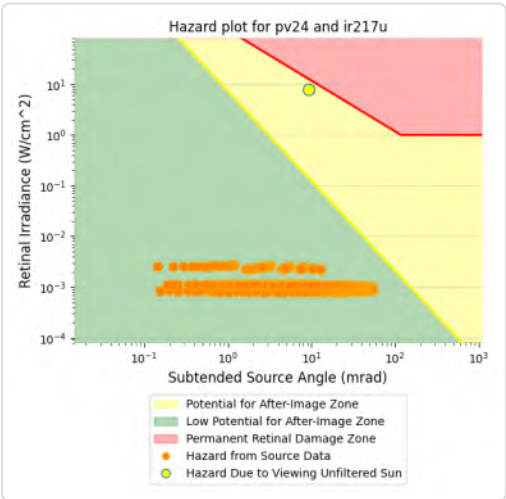
PV24 and FP: IR217u

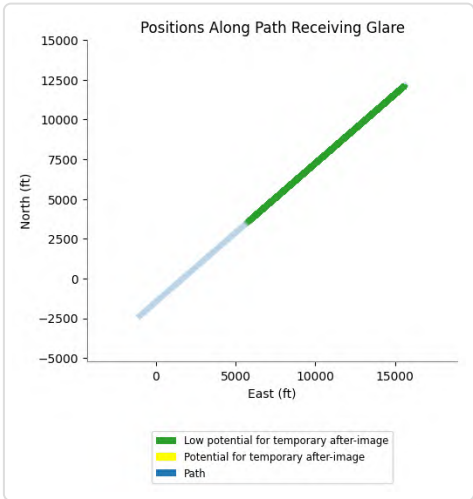
Yellow glare: none

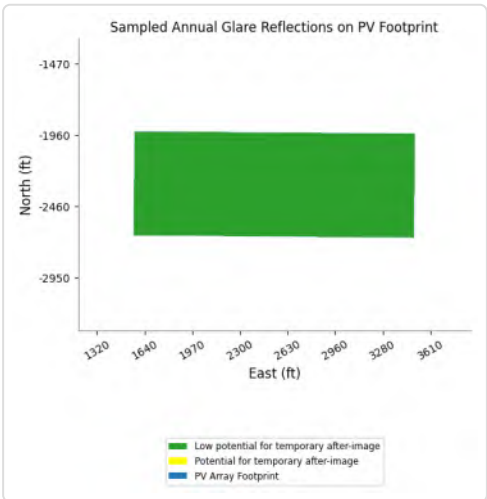
Green glare: 7,482 min.

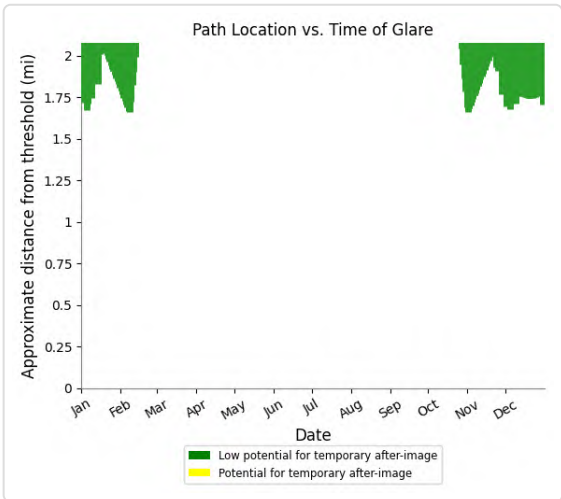








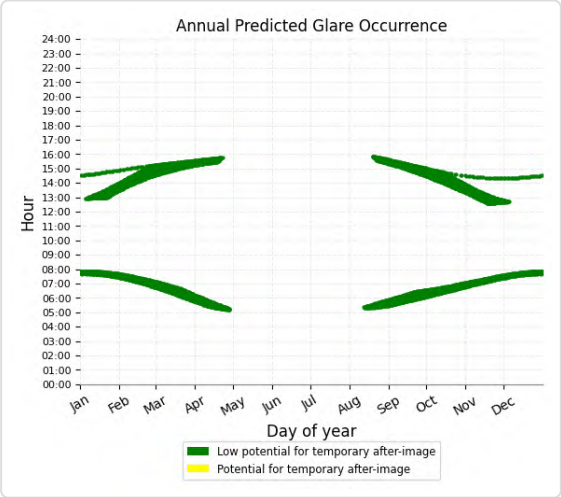


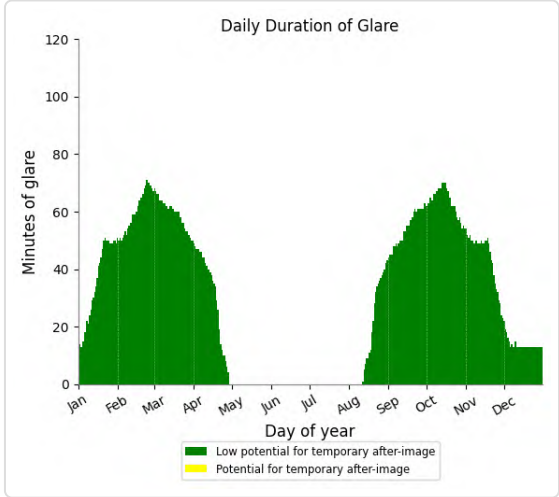


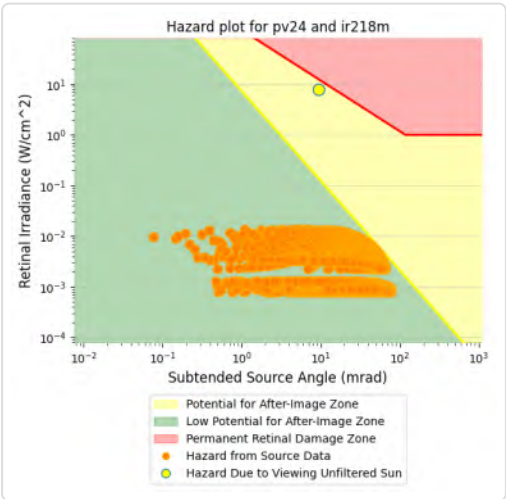
PV24 and FP: IR218m

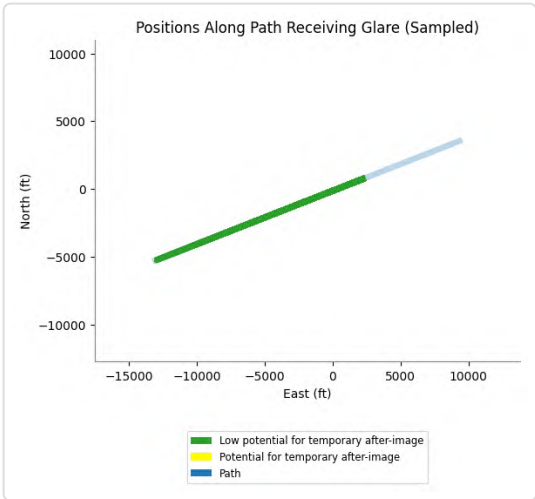
Yellow glare: none

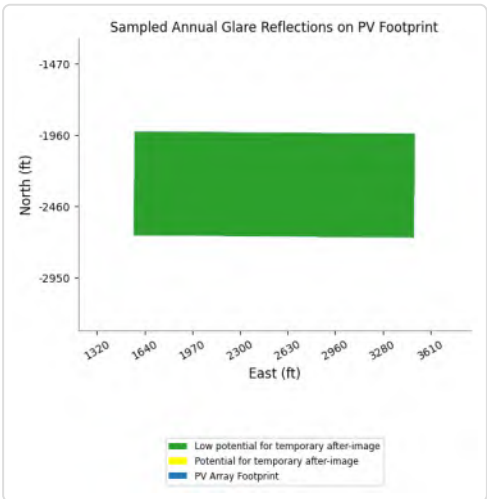
Green glare: 11,417 min.

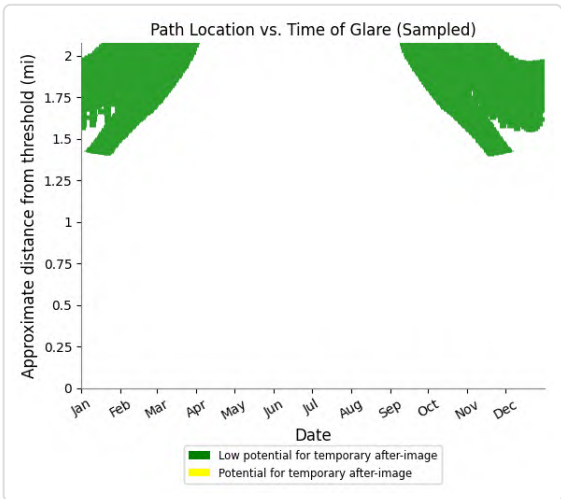








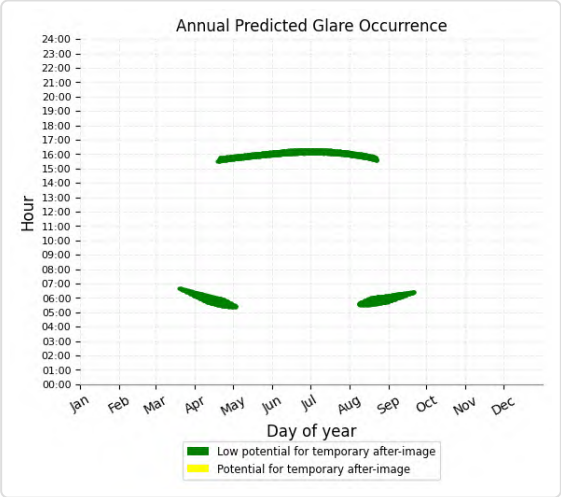


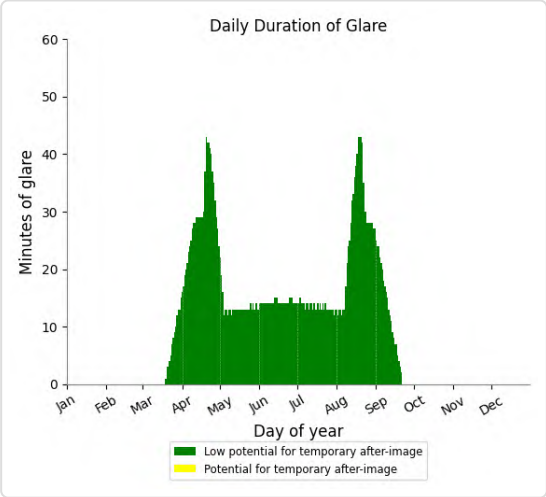


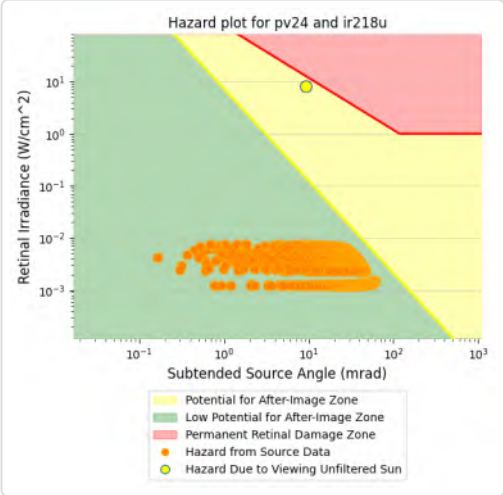
PV24 and FP: IR218u

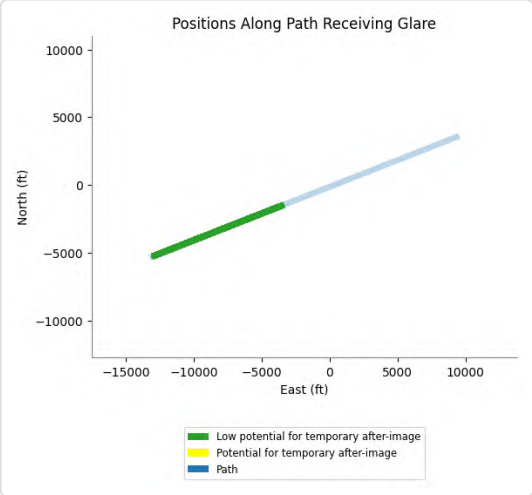
Yellow glare: none

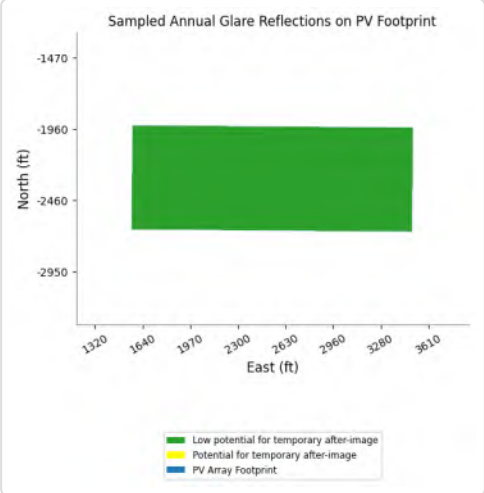
Green glare: 3,376 min.

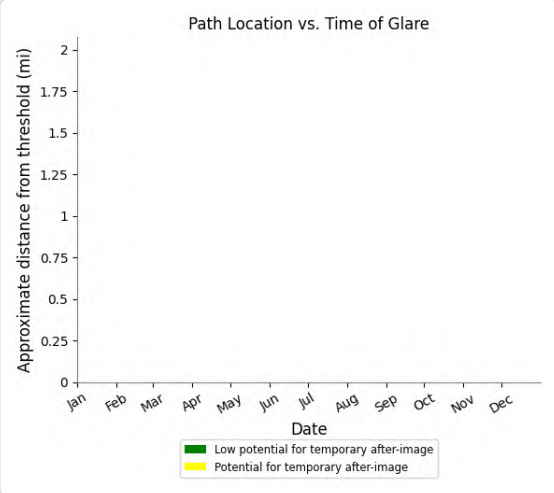








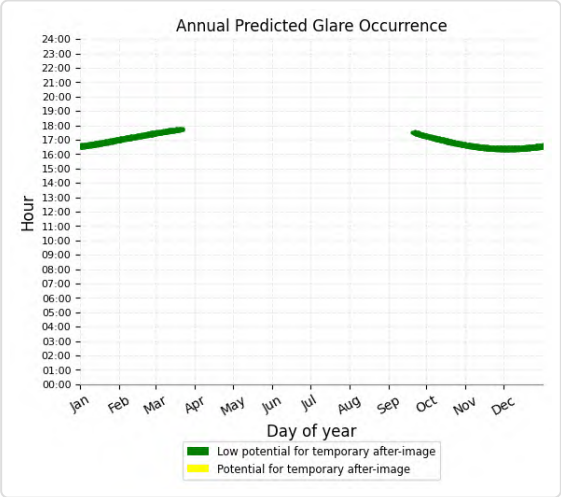


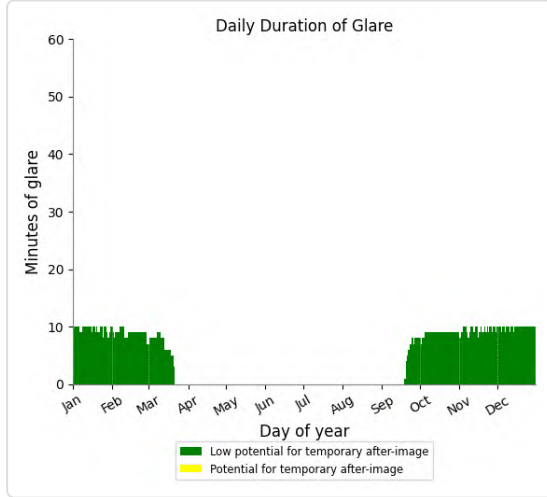


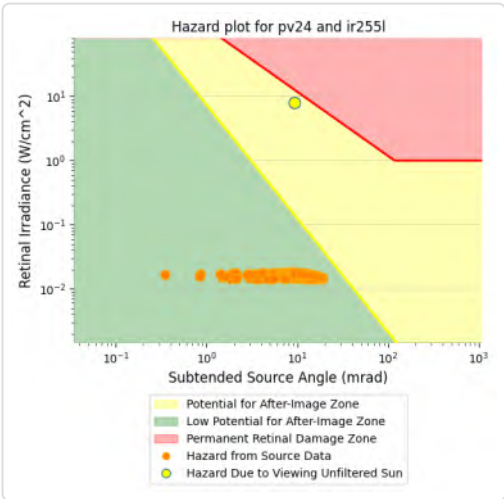
PV24 and FP: IR255I

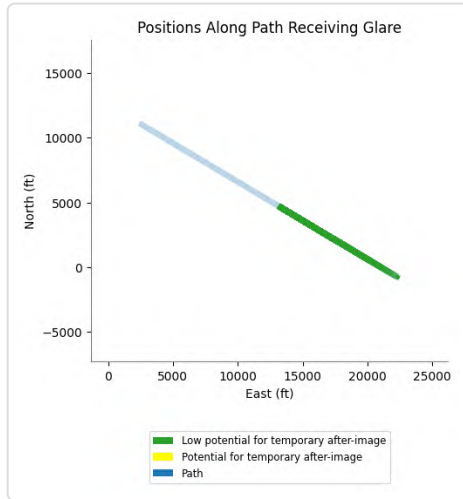
Yellow glare: none

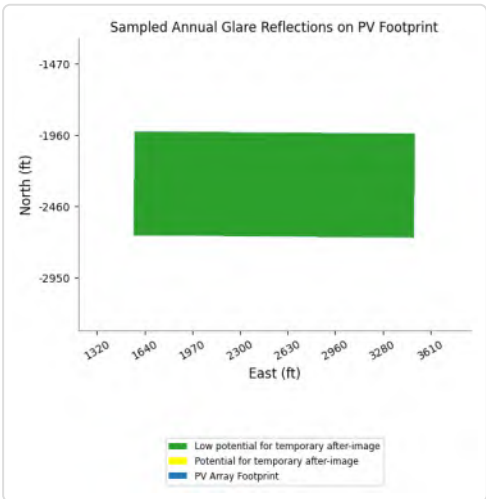
Green glare: 1,644 min.

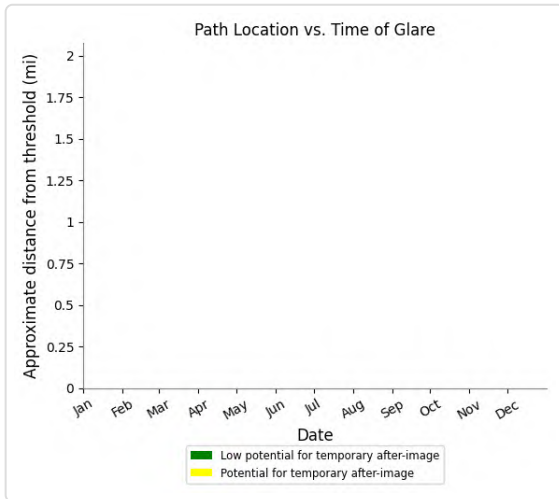








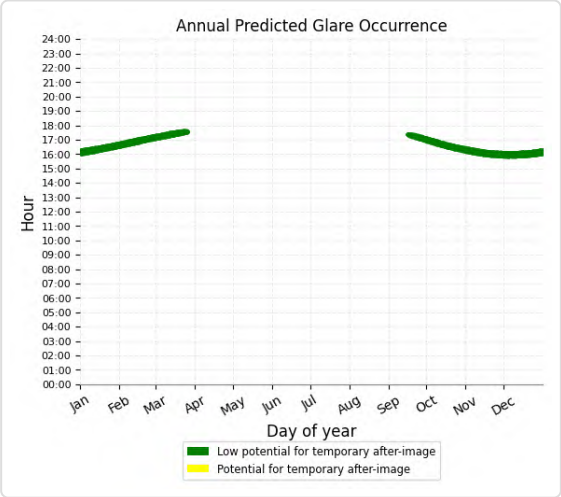


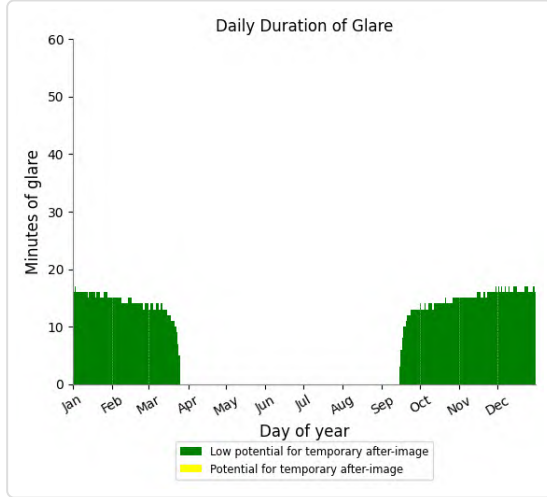


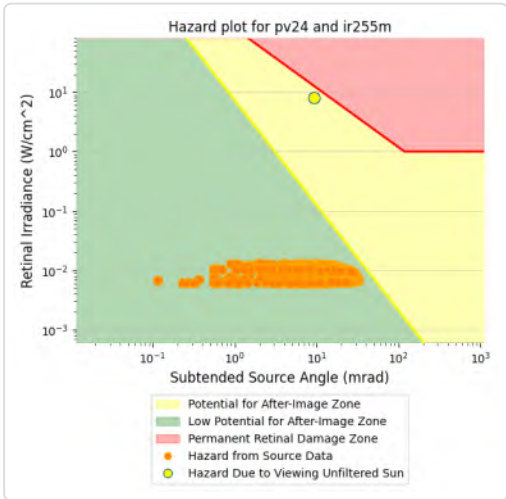
PV24 and FP: IR255m

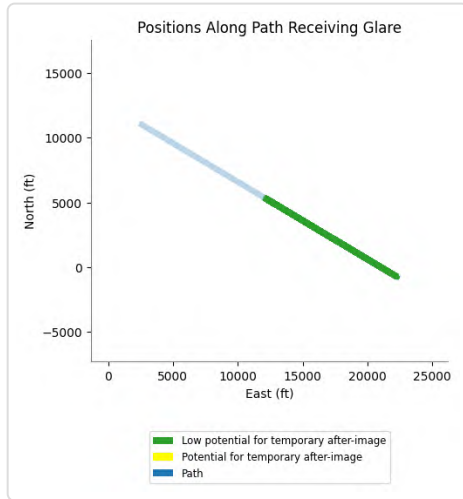
Yellow glare: none

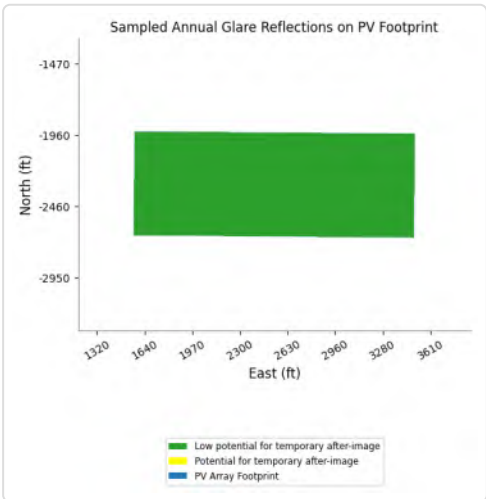
Green glare: 2,786 min.

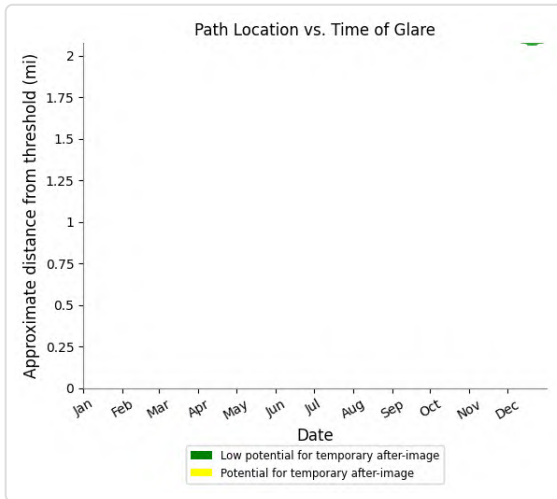








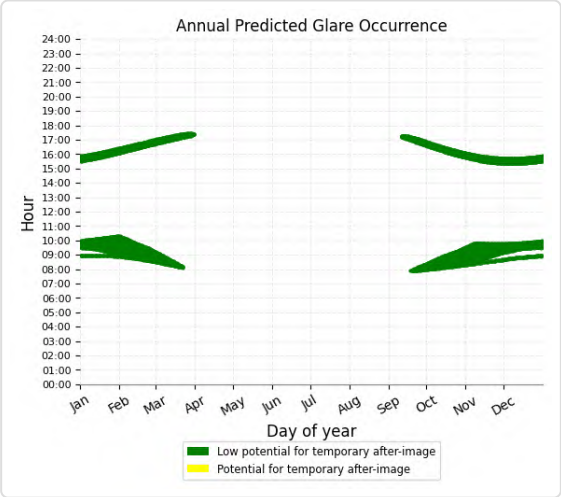


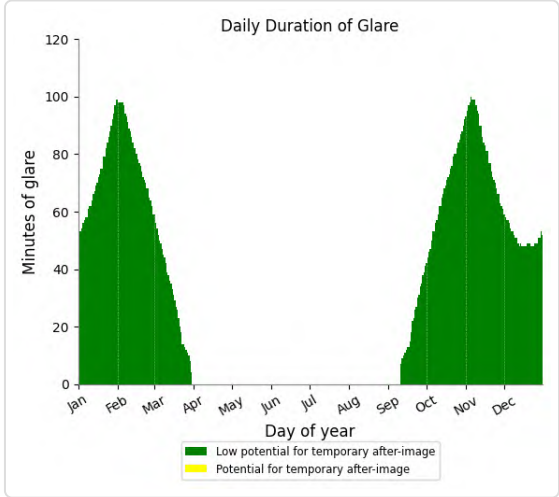


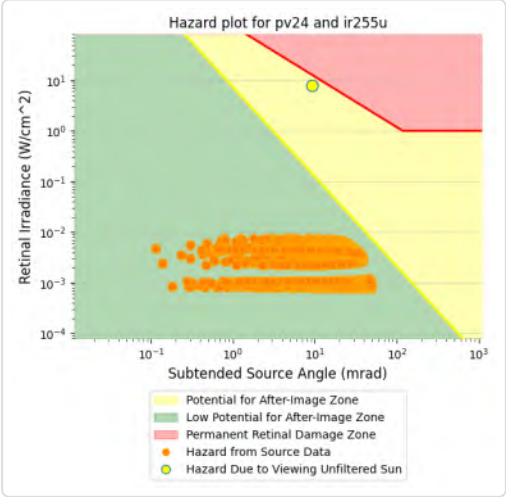
PV24 and FP: IR255u

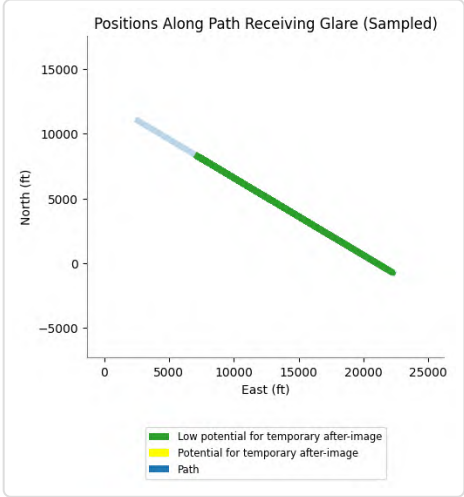
Yellow glare: none

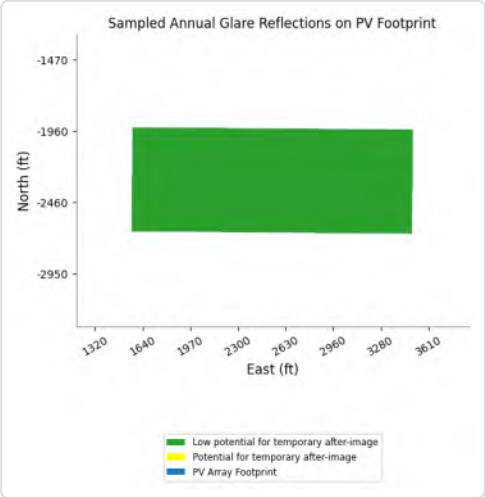
Green glare: 12,166 min.

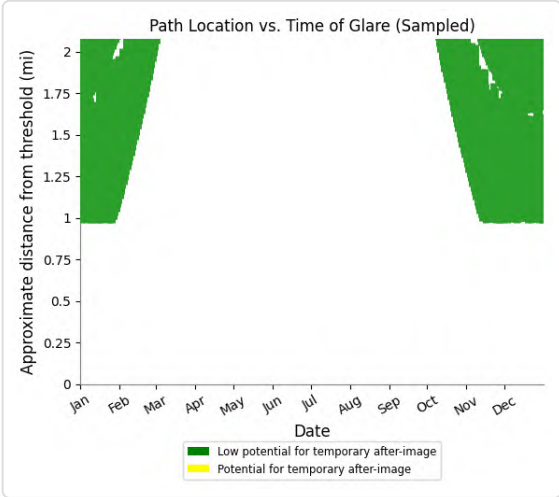








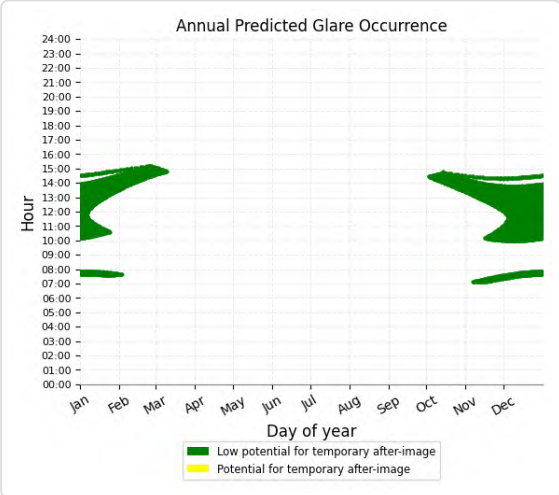


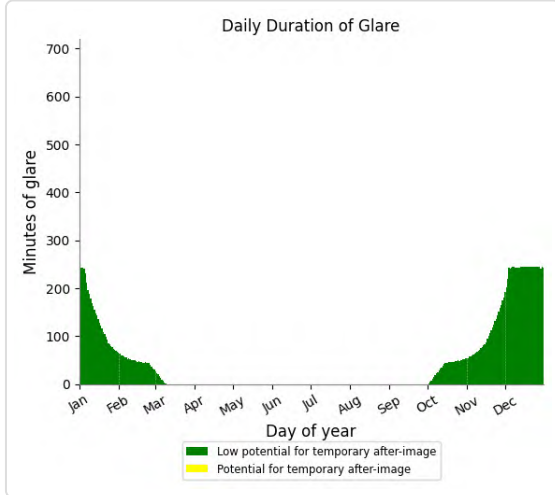


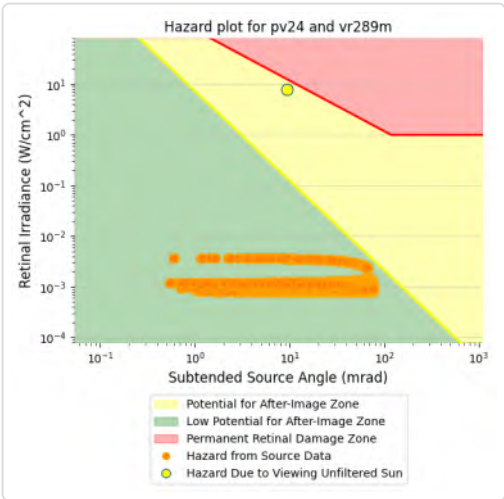
PV24 and FP: VR289m

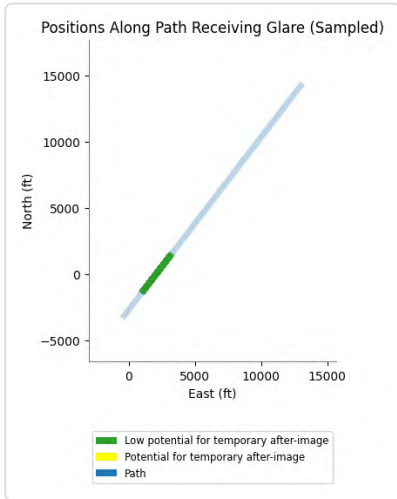
Yellow glare: none

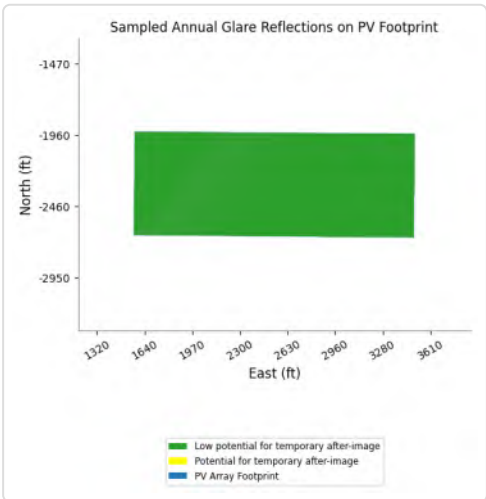
Green glare: 17,585 min.

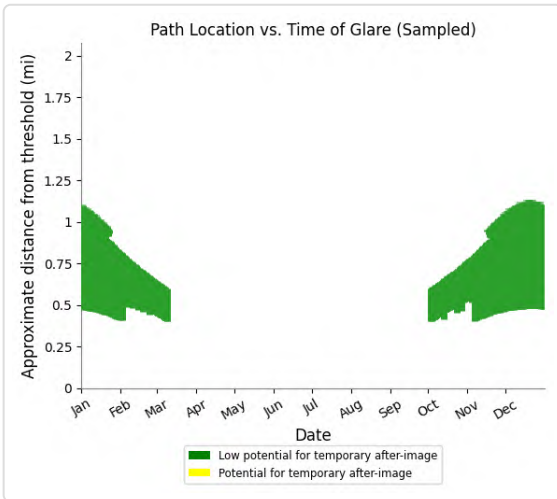








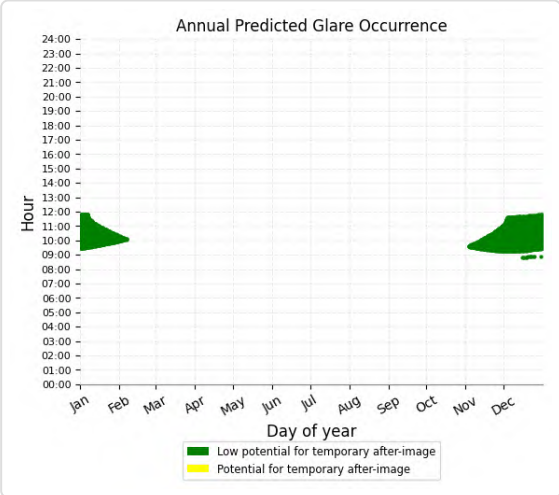


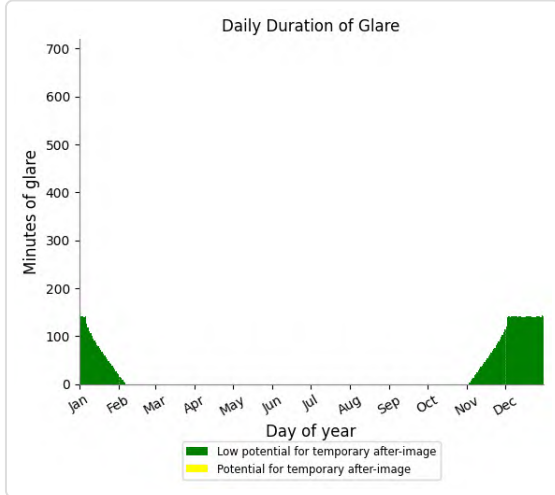


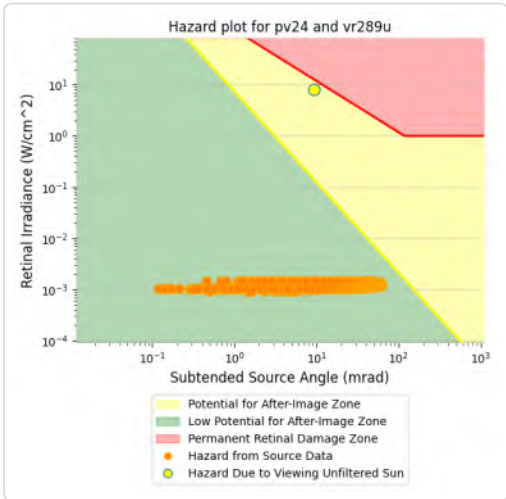
PV24 and FP: VR289u

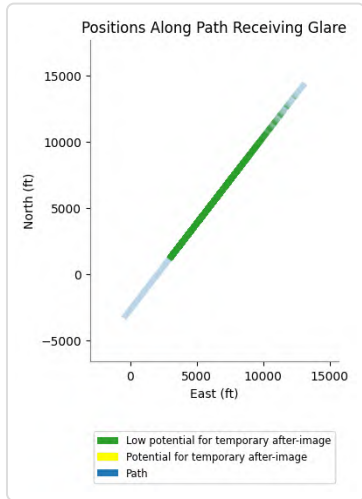
Yellow glare: none

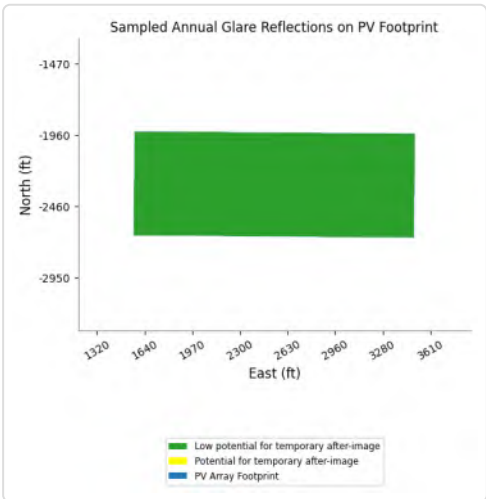
Green glare: 8,449 min.

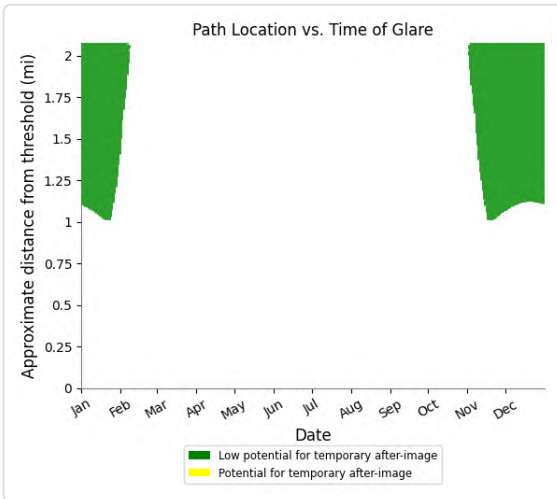








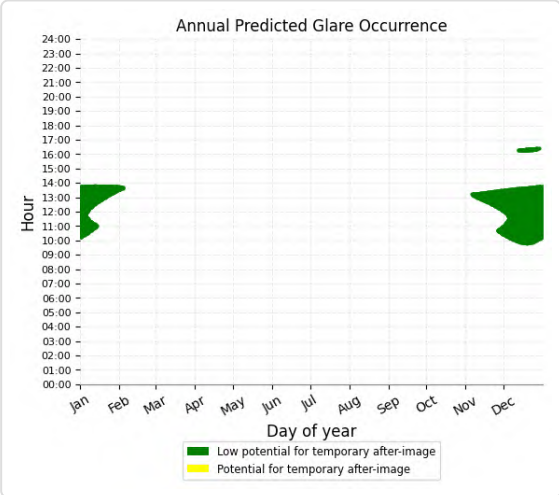


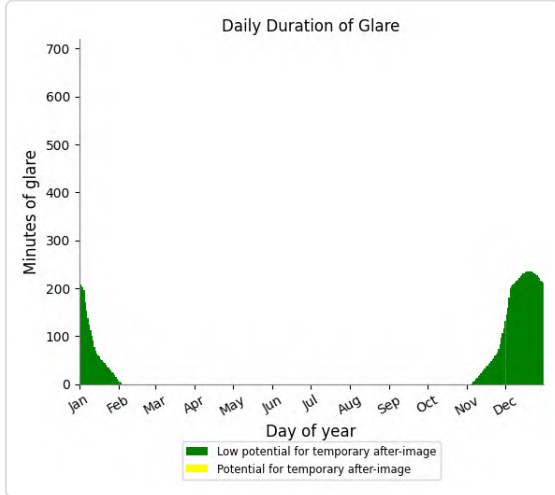


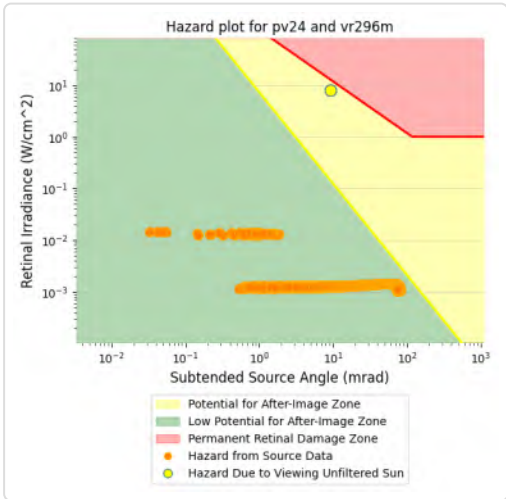
PV24 and FP: VR296m

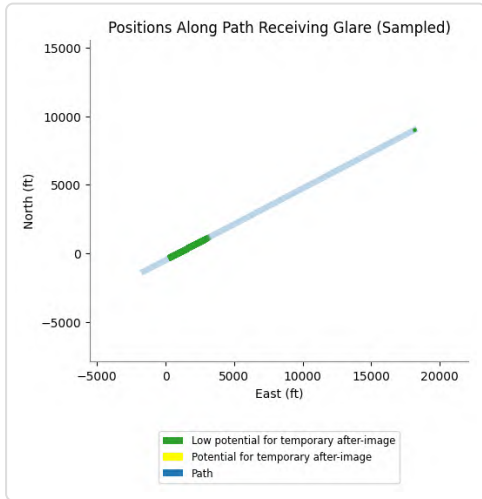
Yellow glare: none

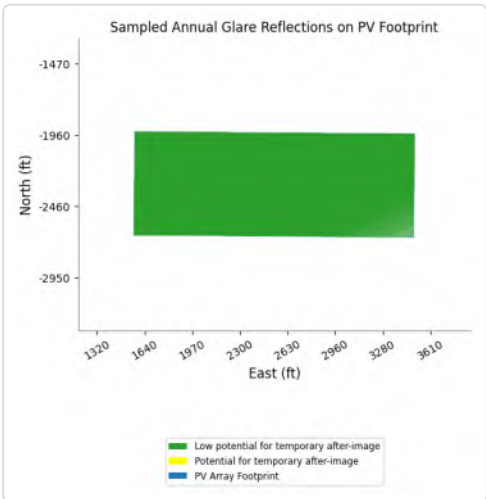
Green glare: 10,513 min.

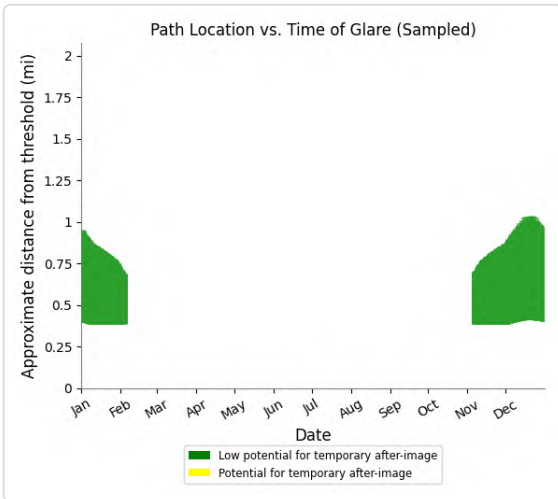








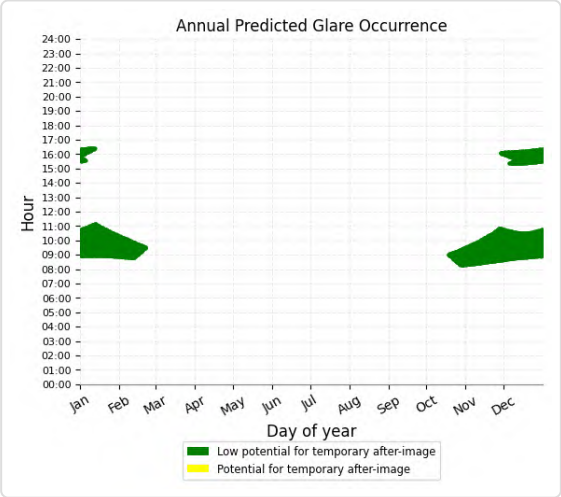


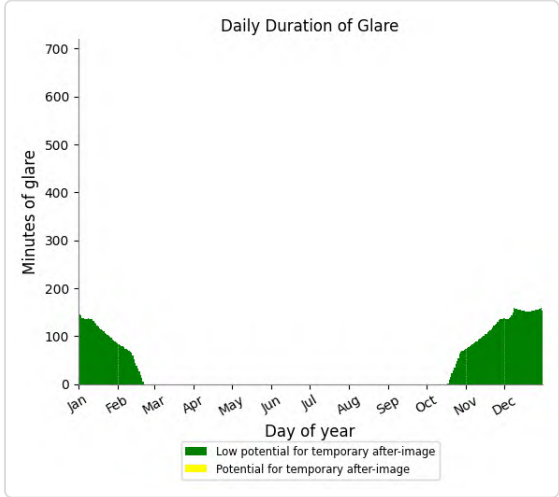


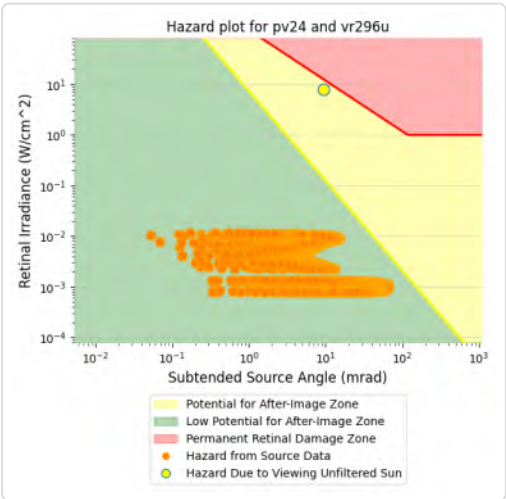
PV24 and FP: VR296u

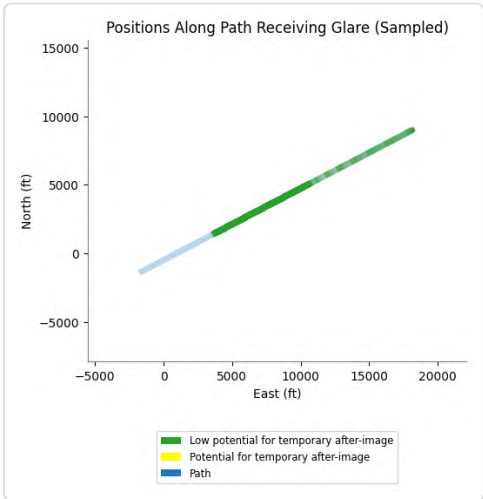
Yellow glare: none

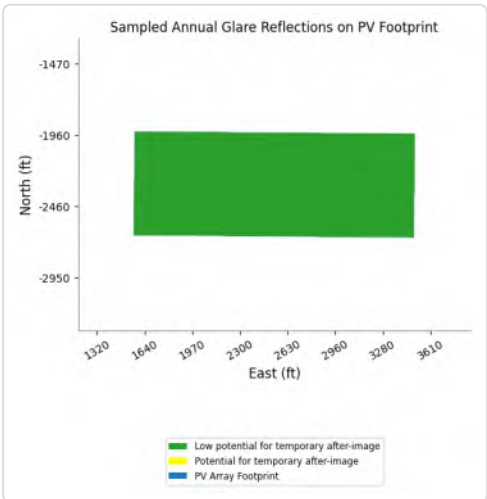
Green glare: 13,316 min.

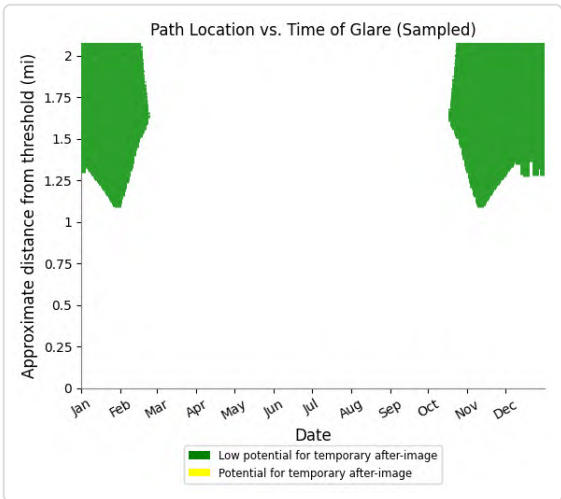












PV24 and FP: CN645

No glare found

PV24 and FP: IR217I

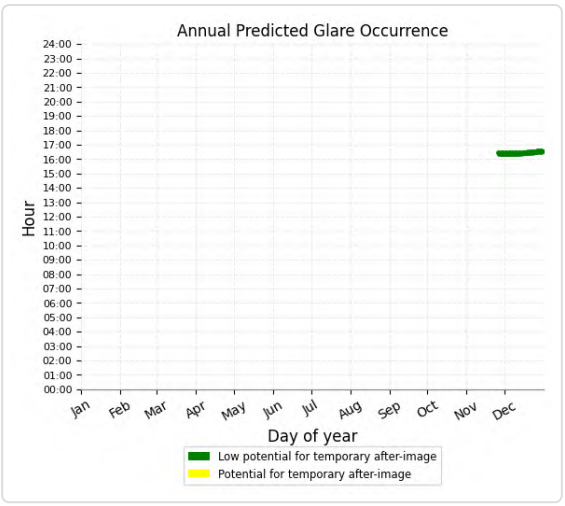
No glare found

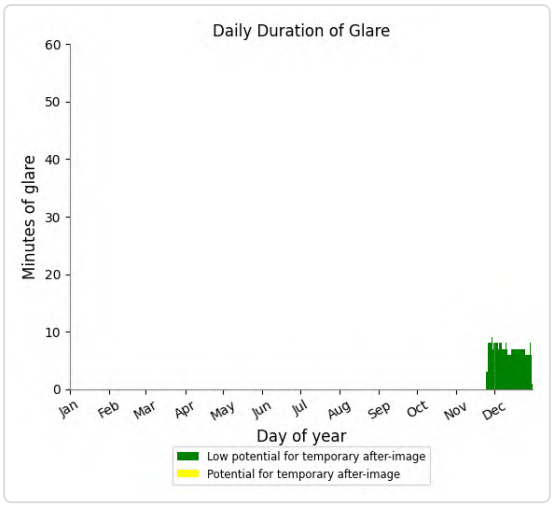
PV24 and FP: VR296I

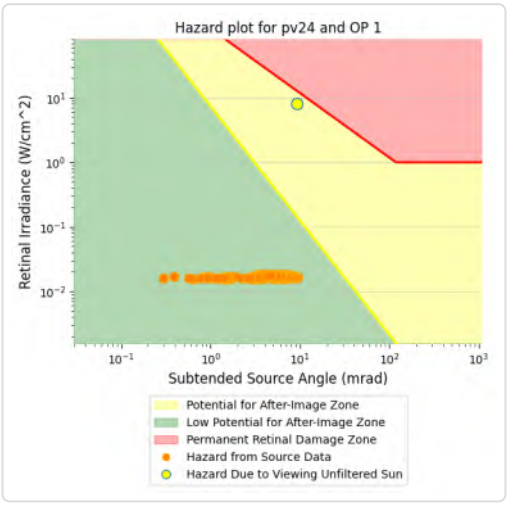
No glare found

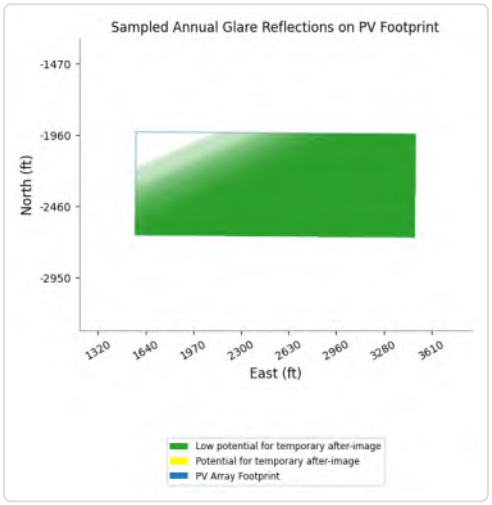
PV24 and OP 1

Yellow glare: none
Green glare: 254 min.









PV24 and OP 2

No glare found

PV24 and OP 3

No glare found

PV24 and OP 4

No glare found

PV24 and OP 5

No glare found

PV24 and OP 6

No glare found

PV24 and OP 7

No glare found

PV24 and OP 8

No glare found

PV24 and OP 9

No glare found

PV24 and OP 10

No glare found

PV24 and OP 11

No glare found

PV24 and OP 12

No glare found

PV24 and OP 13

No glare found

PV24 and OP 14

No glare found

PV24 and OP 15

No glare found

PV24 and OP 16

No glare found

PV24 and OP 17

No glare found

PV24 and OP 18

No glare found

PV24 and OP 19

No glare found

PV: PV25 potential temporary after-image

Receptor results ordered by category of glare

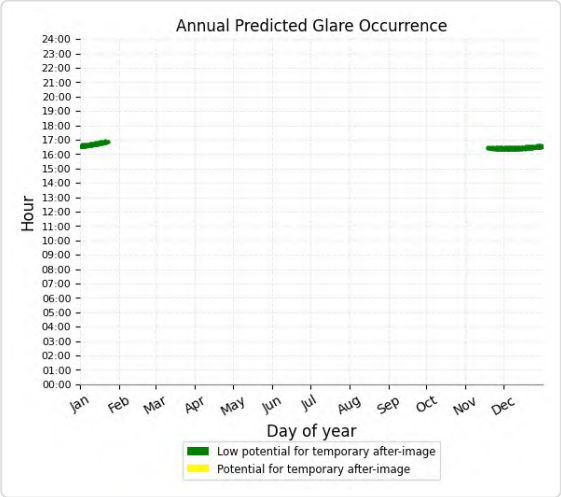
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
SR177 A	329	5.5	0	0.0
SR177 B	542	9.0	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR218l	2,142	35.7	1,503	25.1
CN6423	1,073	17.9	0	0.0
IR217m	8,573	142.9	0	0.0
IR217u	7,914	131.9	0	0.0
IR218m	8,548	142.5	0	0.0
IR218u	3,518	58.6	0	0.0
IR255l	1,656	27.6	0	0.0
IR255m	9,632	160.5	0	0.0
IR255u	3,603	60.0	0	0.0
VR289m	5,997	100.0	0	0.0
VR289u	9,129	152.2	0	0.0
VR296m	6,065	101.1	0	0.0
VR296u	11,660	194.3	0	0.0
CN645	0	0.0	0	0.0
IR217l	0	0.0	0	0.0
VR289l	0	0.0	0	0.0
VR296l	0	0.0	0	0.0
OP 3	25	0.4	0	0.0
OP 7	104	1.7	0	0.0

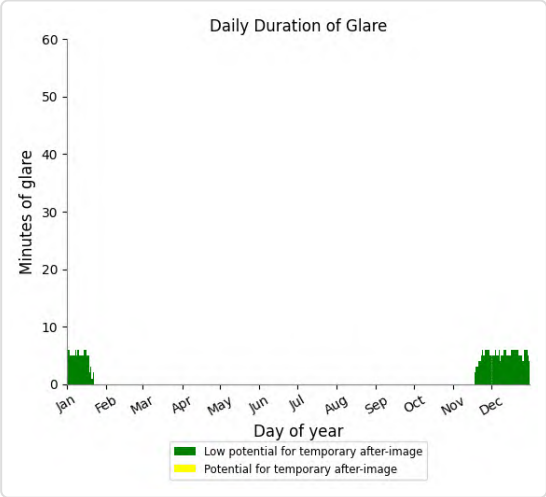
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 9	91	1.5	0	0.0
OP 10	70	1.2	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

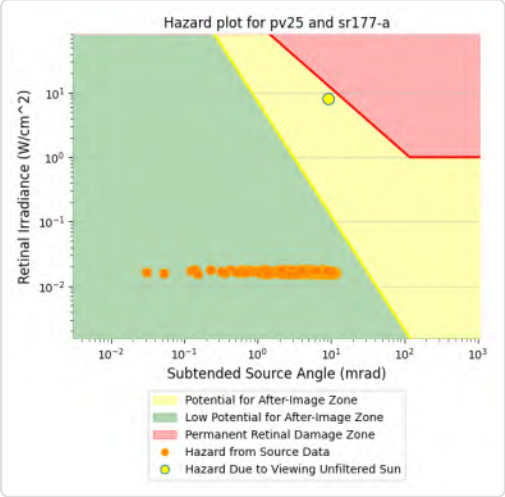
PV25 and Route: SR177 A

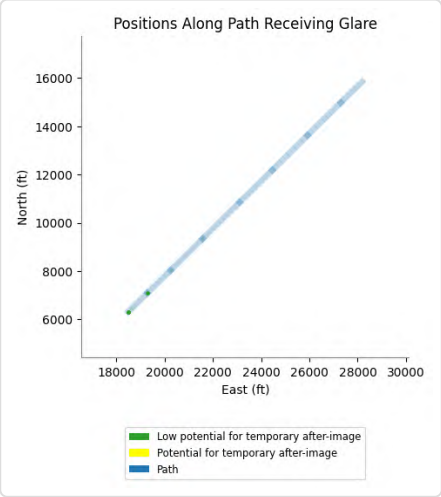
Yellow glare: none

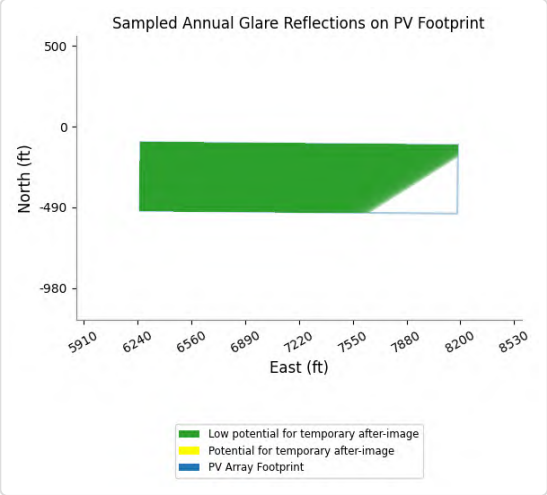
Green glare: 329 min.







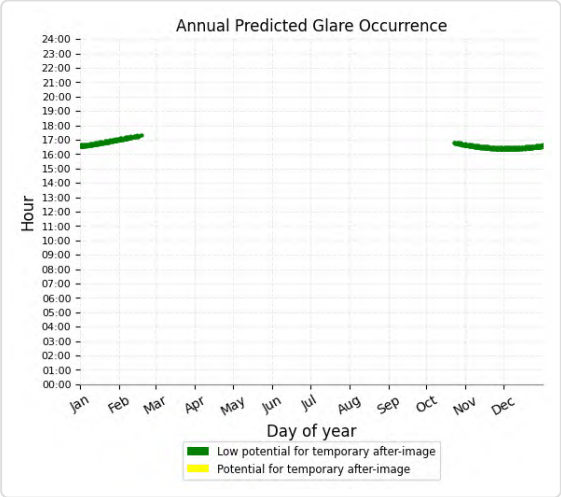


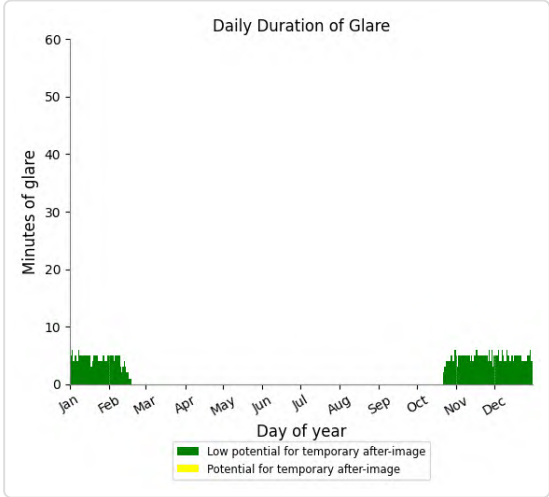


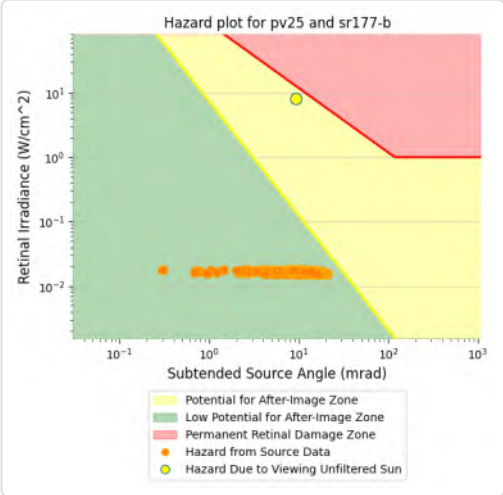
PV25 and Route: SR177 B

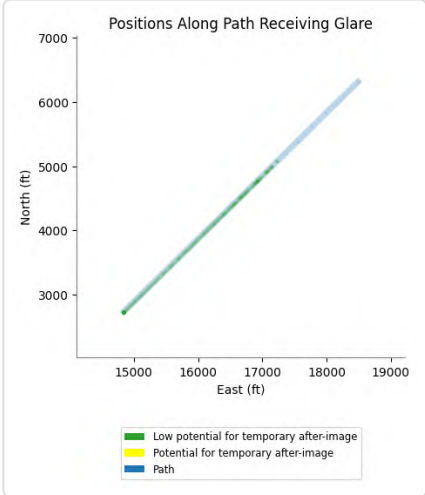
Yellow glare: none

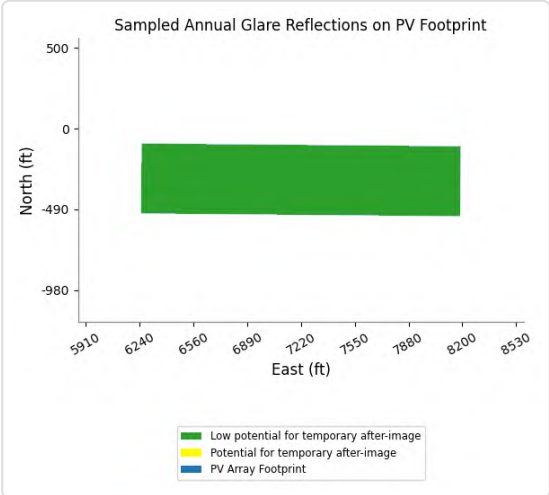
Green glare: 542 min.











PV25 and Route: AirportRd A

No glare found

PV25 and Route: AirportRd B

No glare found

PV25 and Route: EagleMtnRd A

No glare found

PV25 and Route: EagleMtnRd B

No glare found

PV25 and Route: I-10 EB A

No glare found

PV25 and Route: I-10 EB B

No glare found

PV25 and Route: I-10 EB C

No glare found

PV25 and Route: I-10 WB A

No glare found

PV25 and Route: I-10 WB B

No glare found

PV25 and Route: I-10 WB C

No glare found

PV25 and Route: KaiserRd A

No glare found

PV25 and Route: KaiserRd B

No glare found

PV25 and Route: KaiserRd C

No glare found

PV25 and Route: OasisRd

No glare found

PV25 and Route: Race Track

No glare found

PV25 and Route: SR177 C

No glare found

PV25 and Route: SR177 D

No glare found

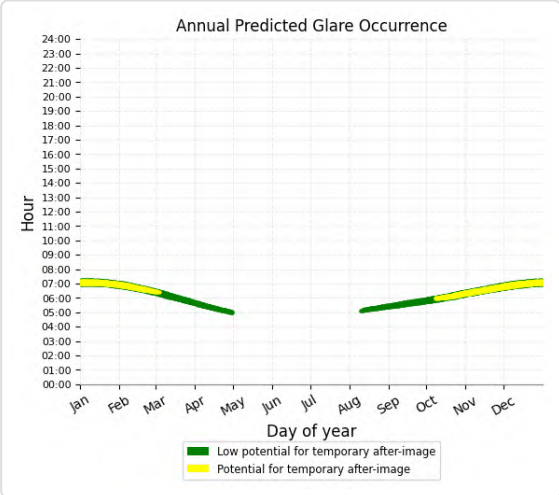
PV25 and Route: SR177 E

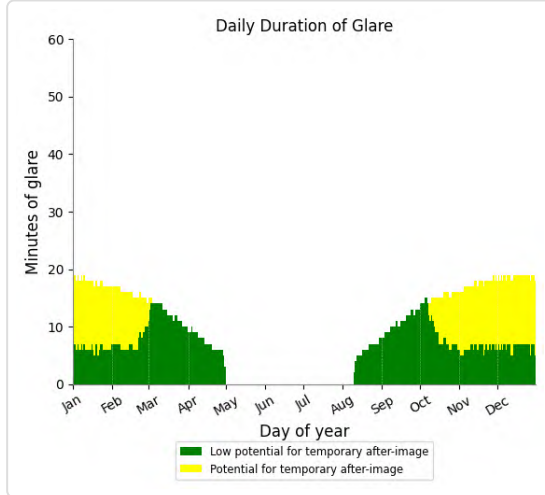
No glare found

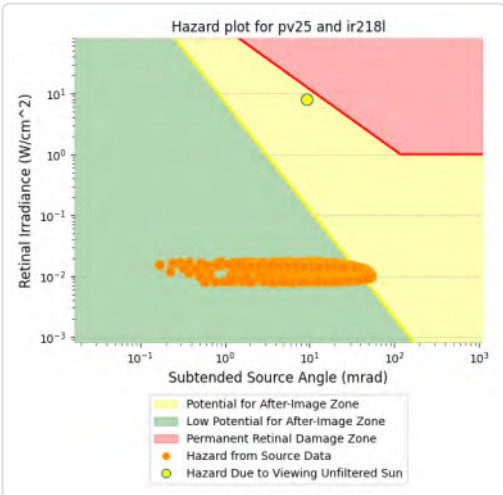
PV25 and FP: IR218l

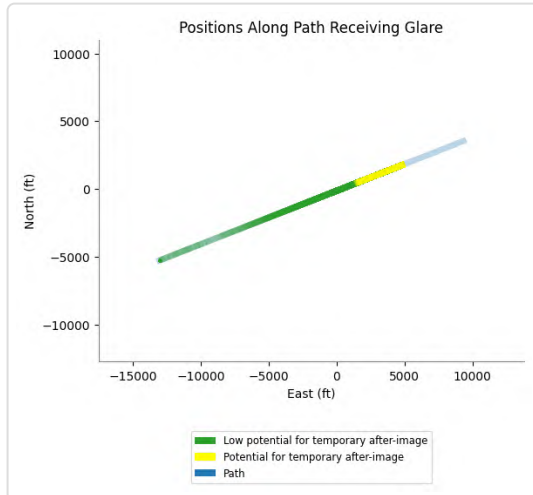
Yellow glare: 1,503 min.

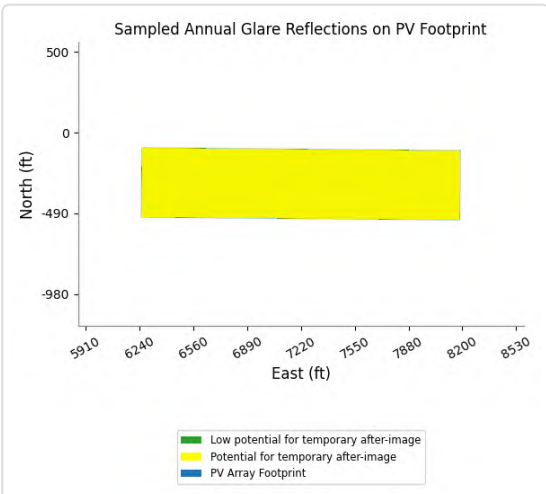
Green glare: 2,142 min.

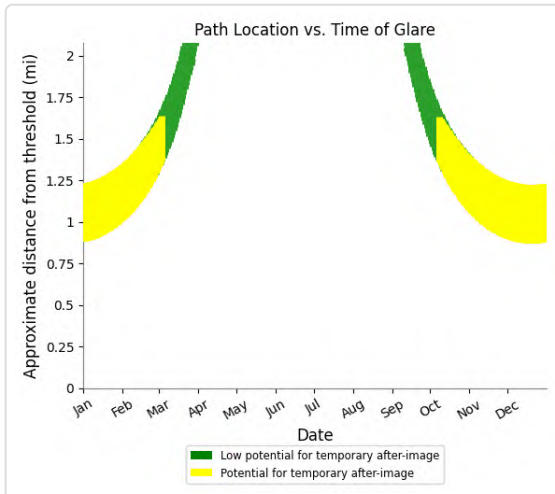








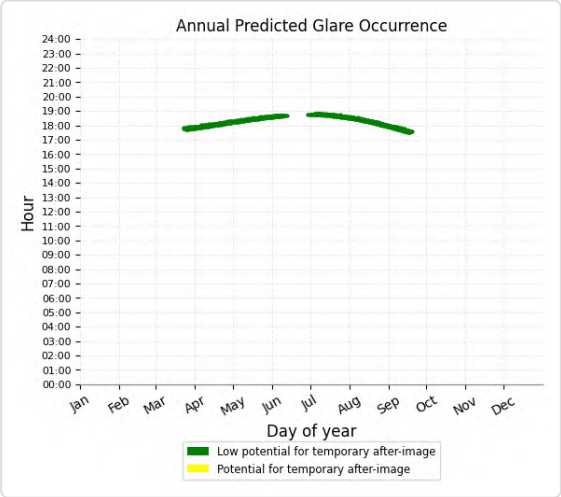


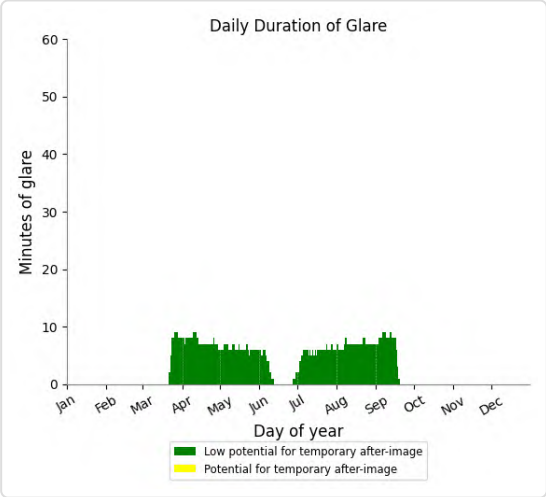


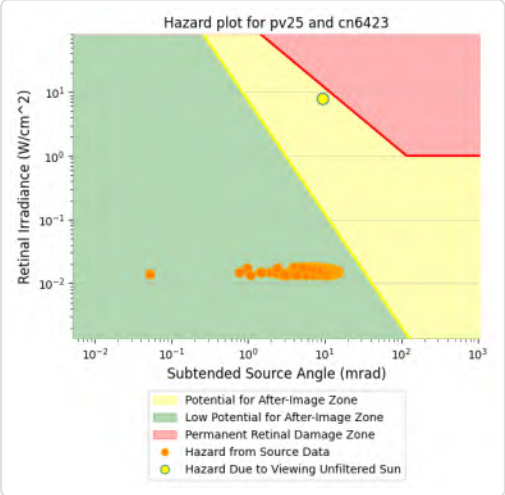
PV25 and FP: CN6423

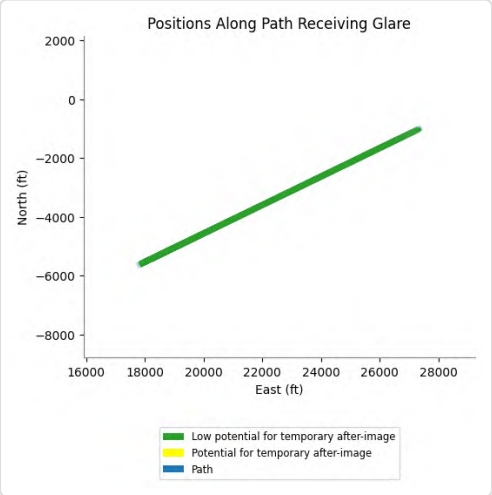
Yellow glare: none

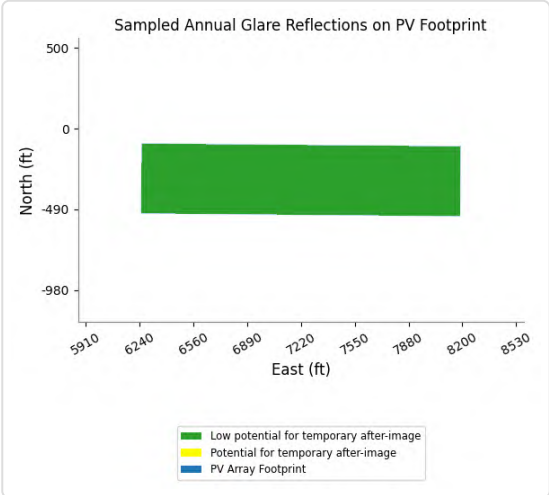
Green glare: 1,073 min.

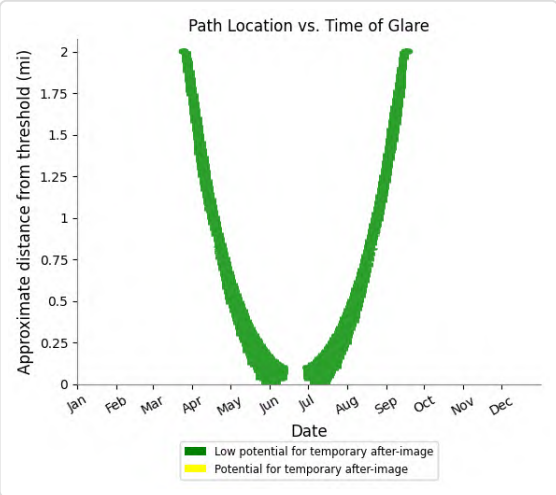








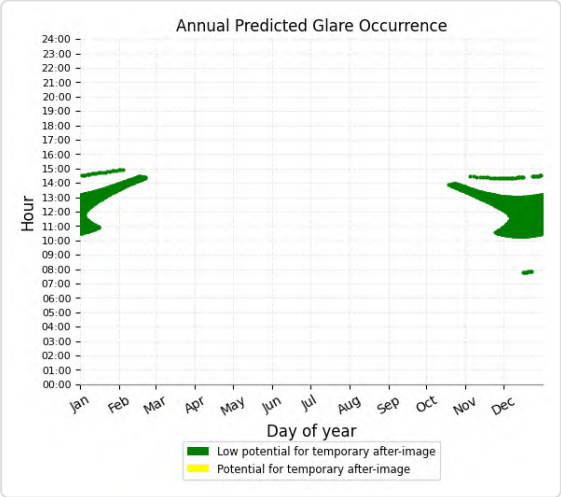


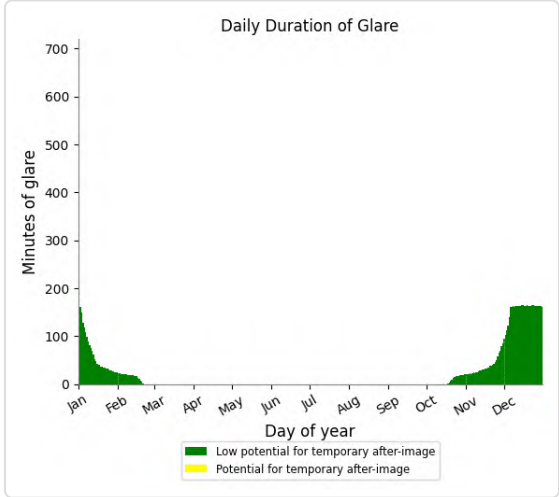


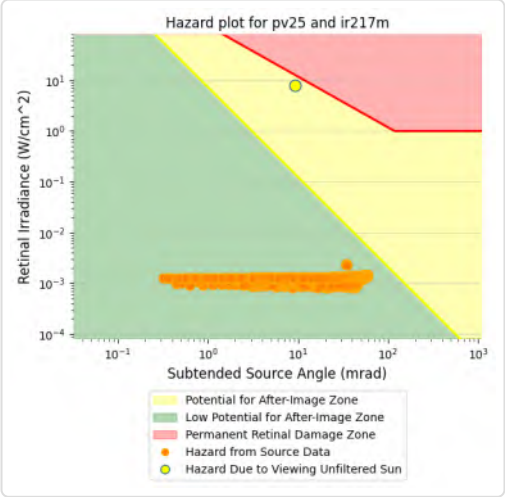
PV25 and FP: IR217m

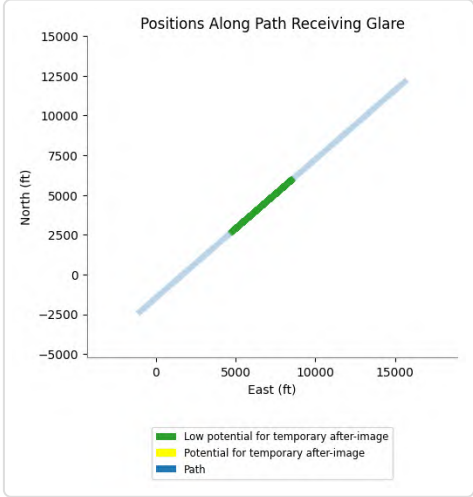
Yellow glare: none

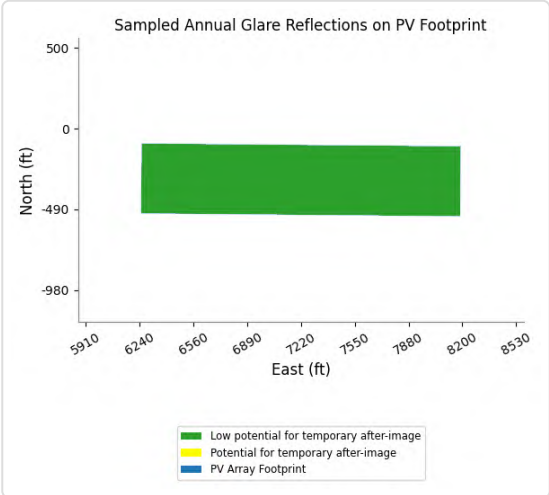
Green glare: 8,573 min.

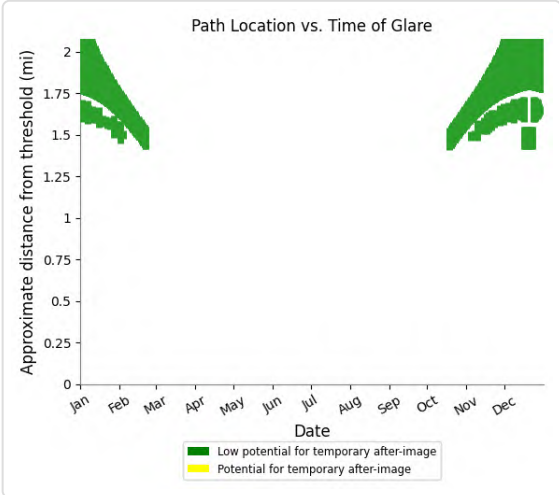








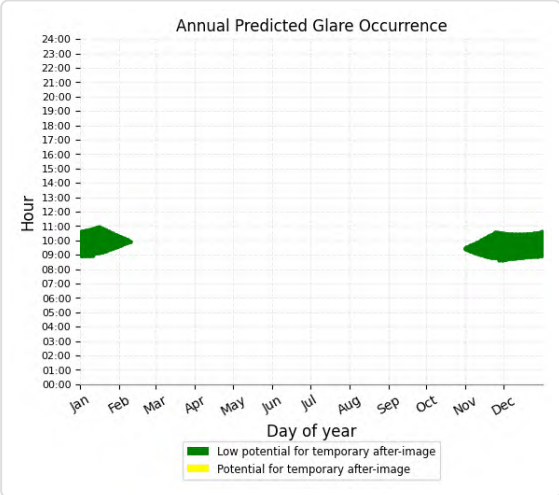


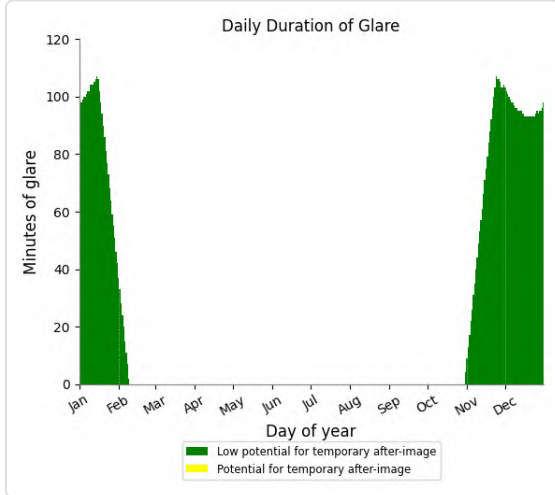


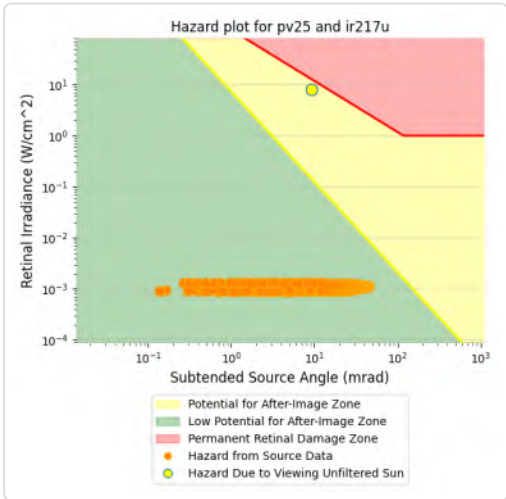
PV25 and FP: IR217u

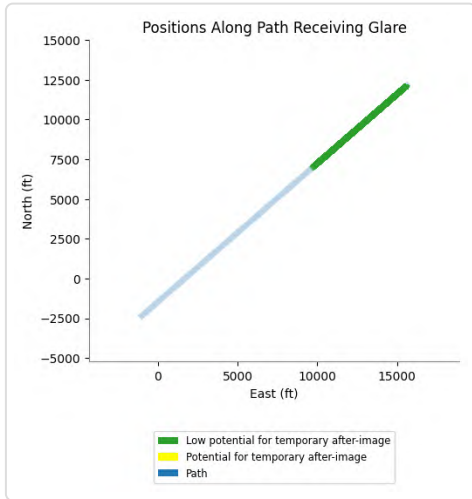
Yellow glare: none

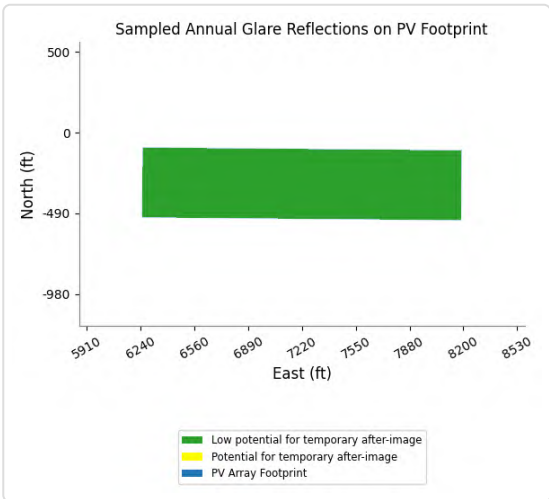
Green glare: 7,914 min.

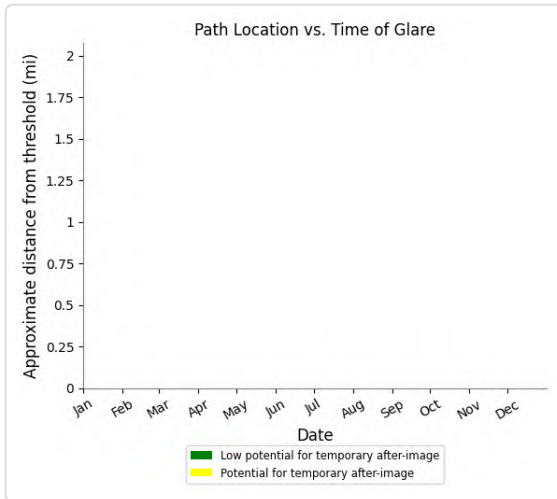








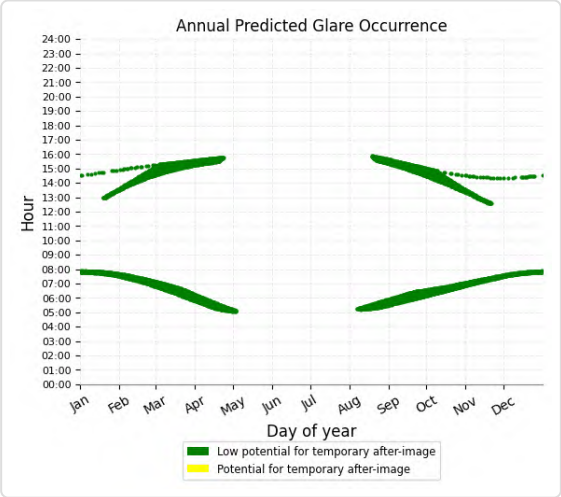


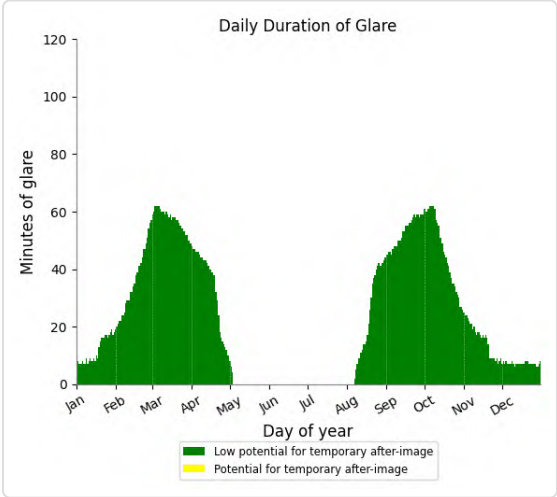


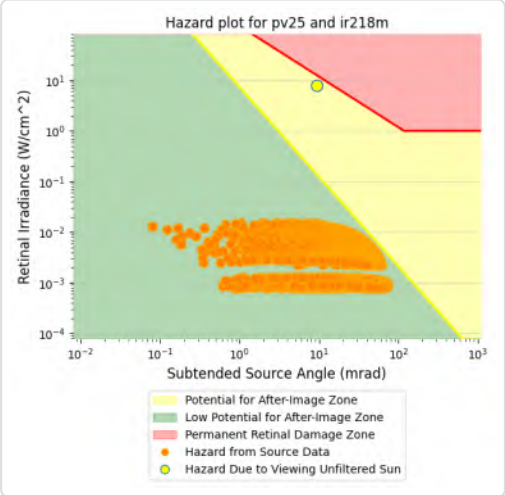
PV25 and FP: IR218m

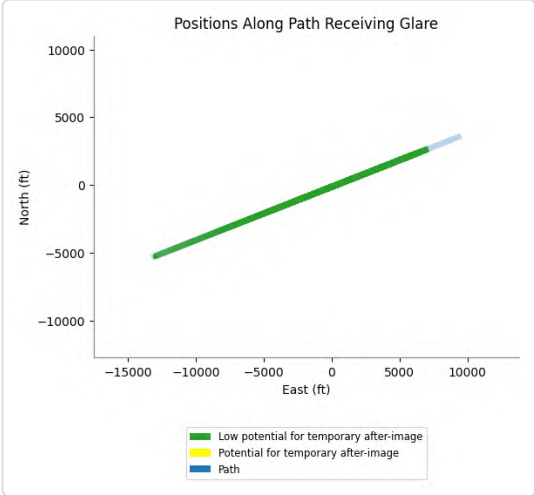
Yellow glare: none

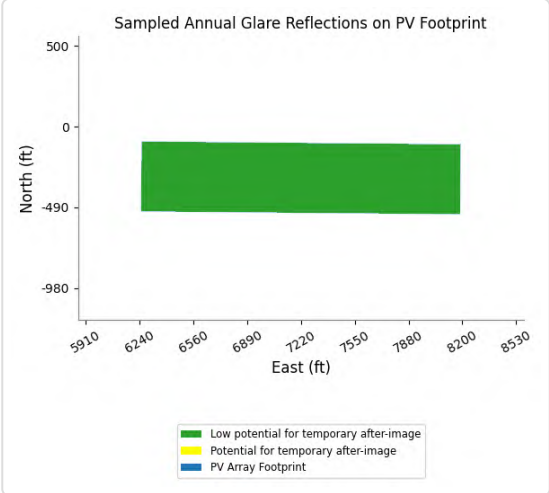
Green glare: 8,548 min.

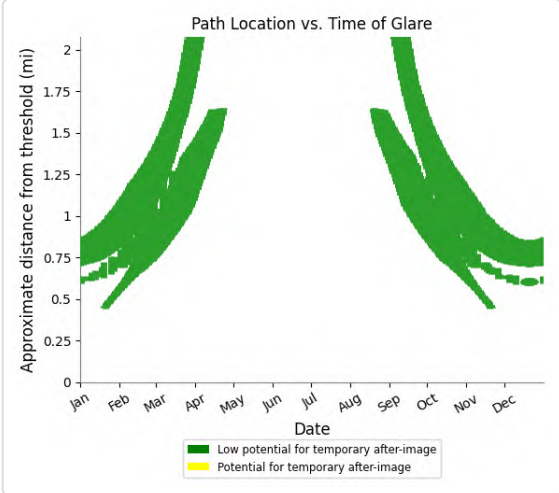








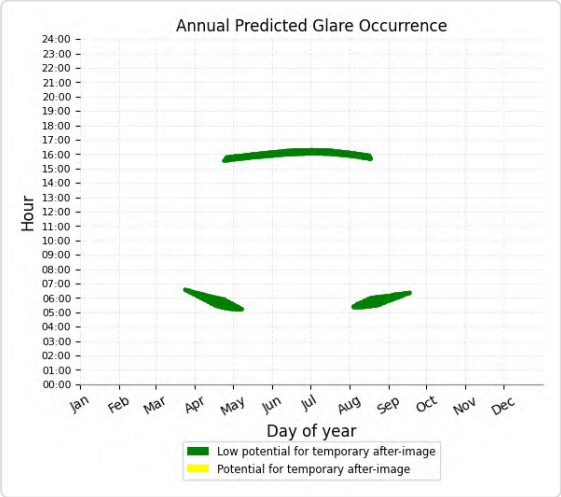


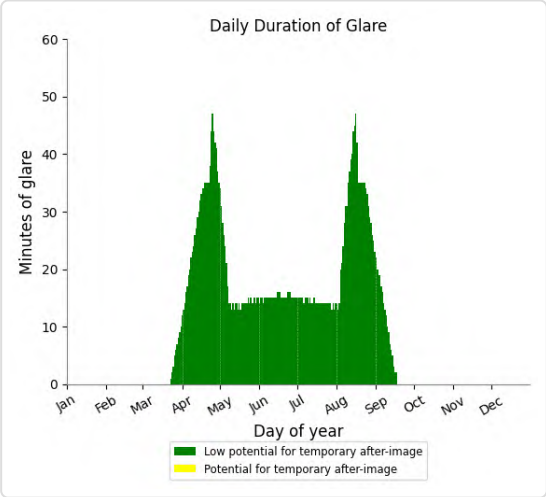


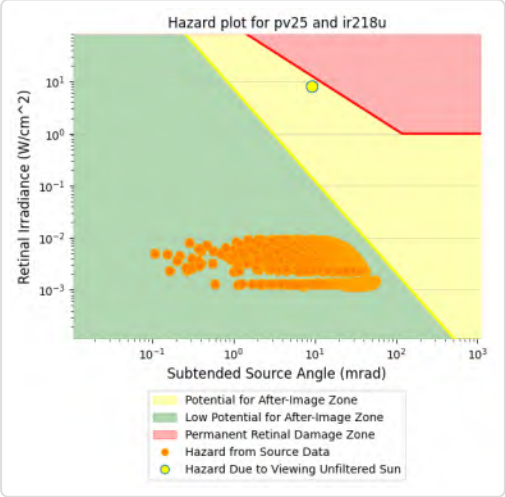
PV25 and FP: IR218u

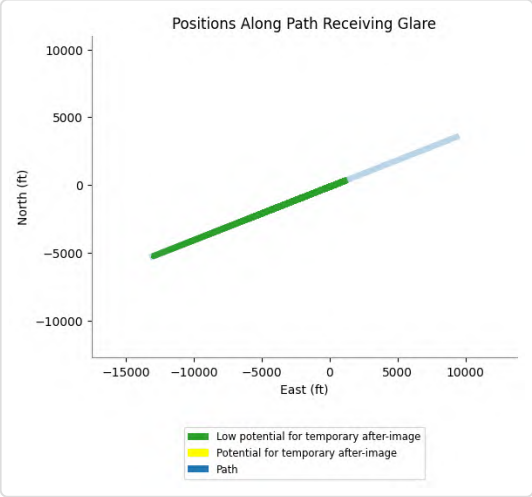
Yellow glare: none

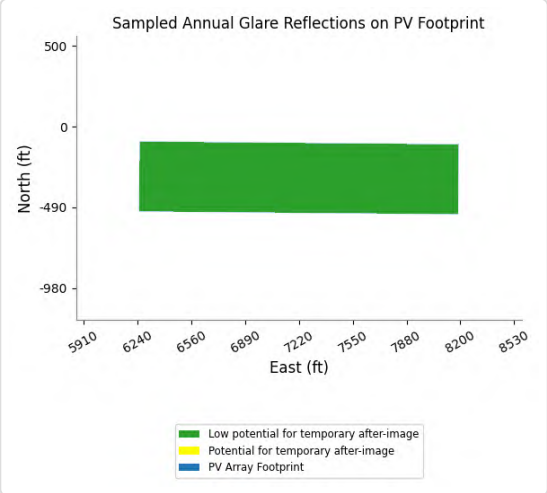
Green glare: 3,518 min.

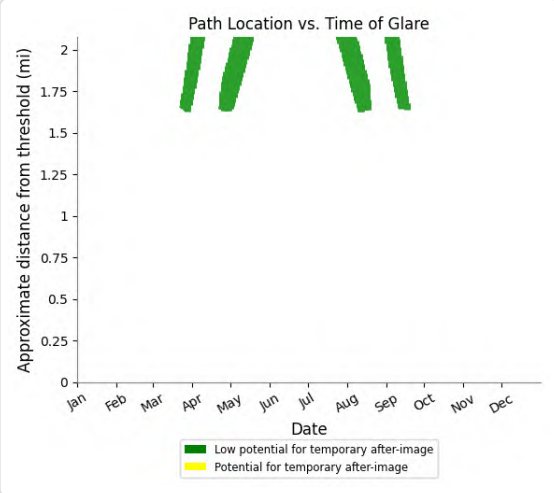








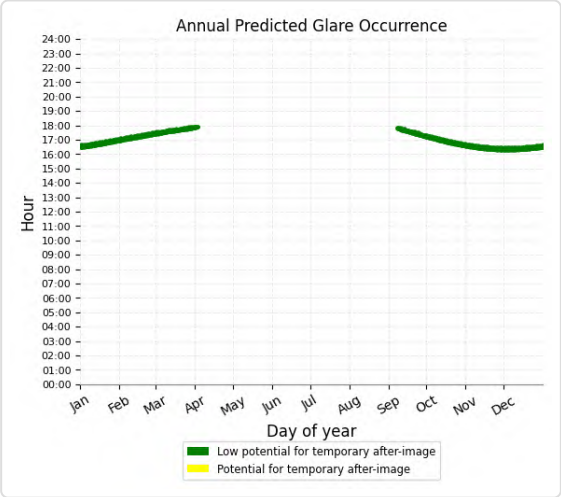


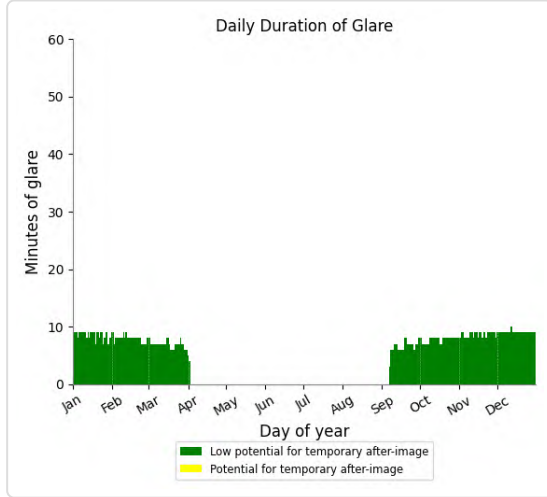


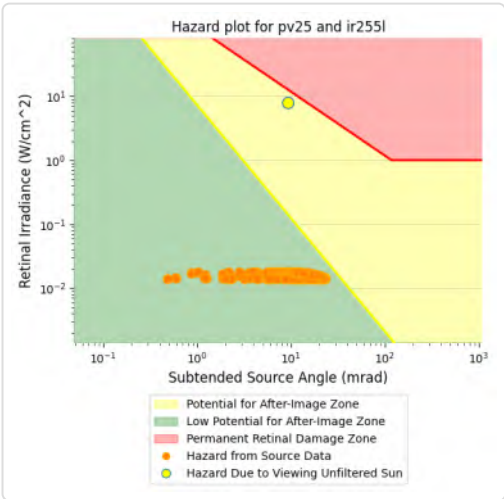
PV25 and FP: IR255I

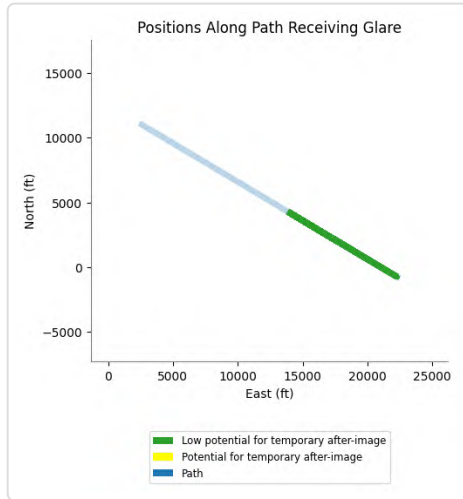
Yellow glare: none

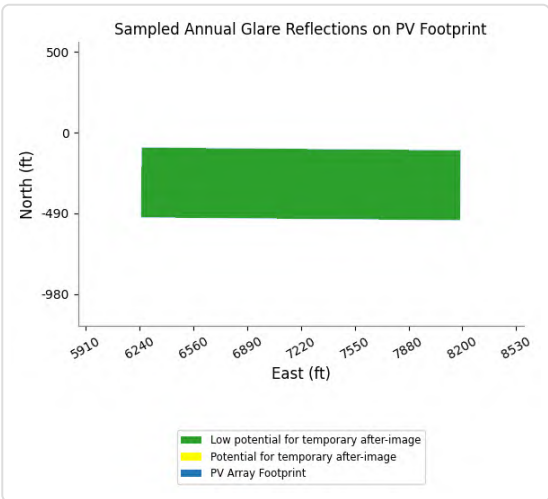
Green glare: 1,656 min.

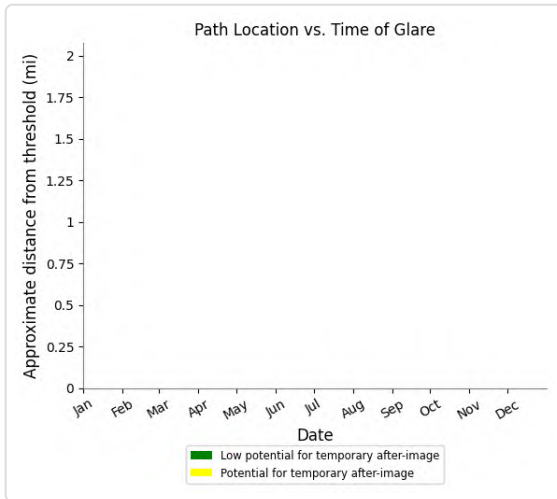








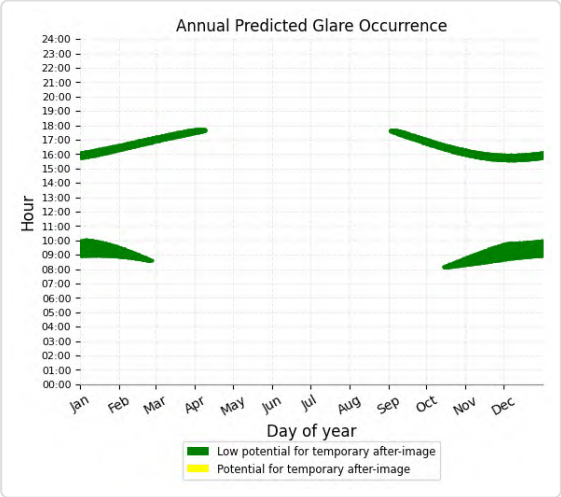


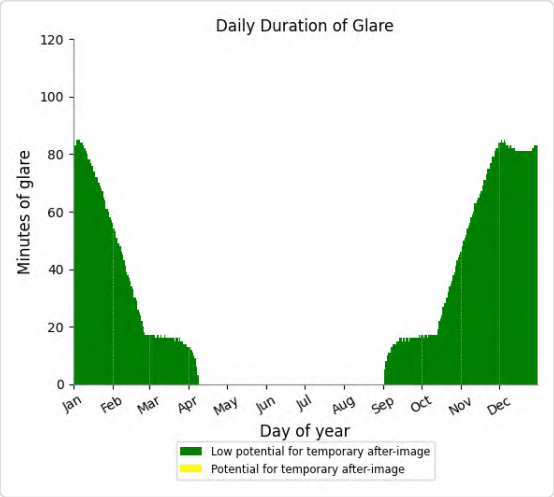


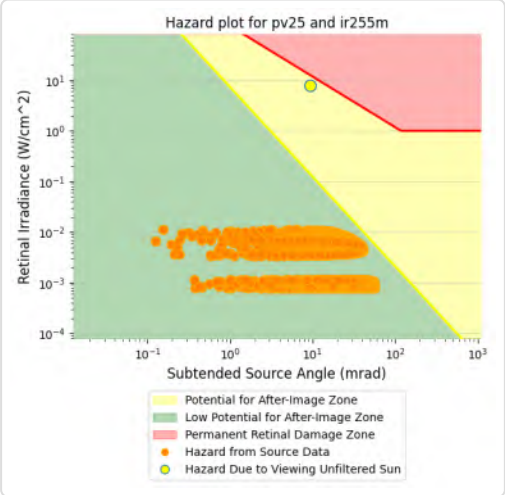
PV25 and FP: IR255m

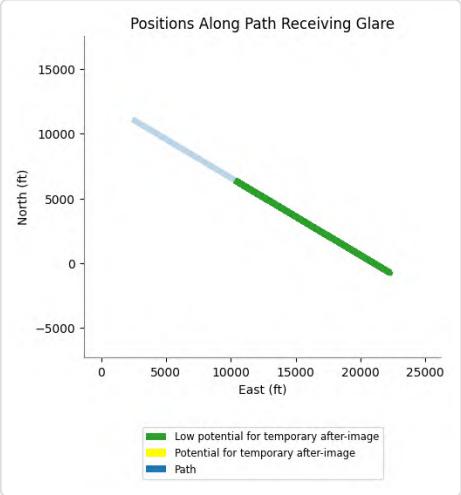
Yellow glare: none

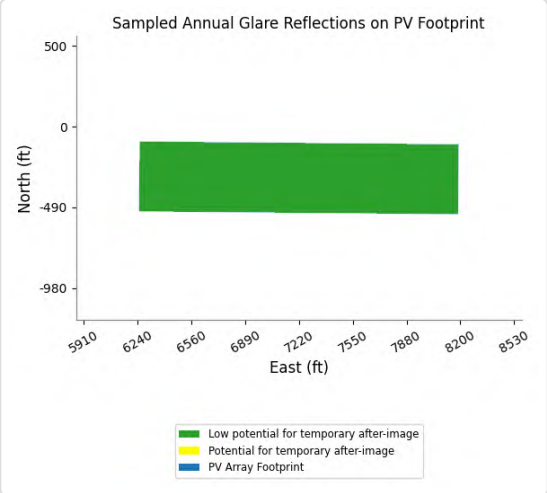
Green glare: 9,632 min.

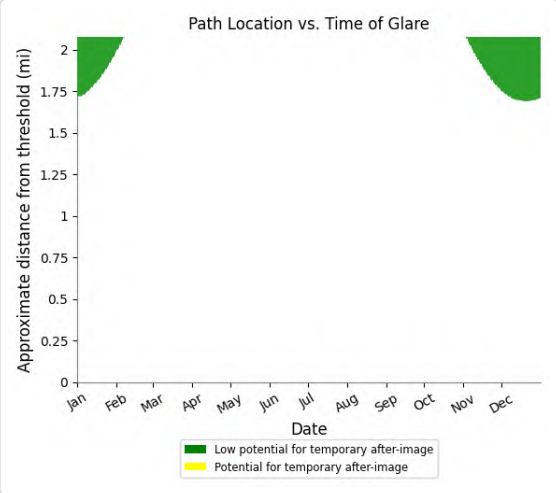








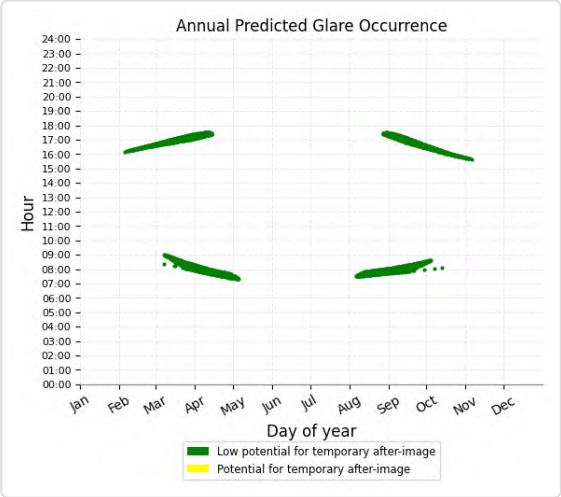


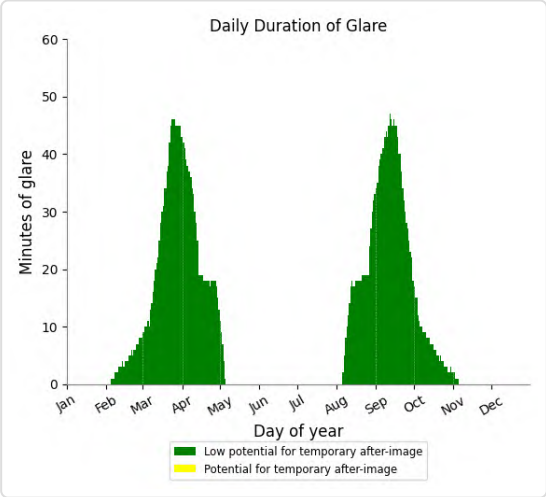


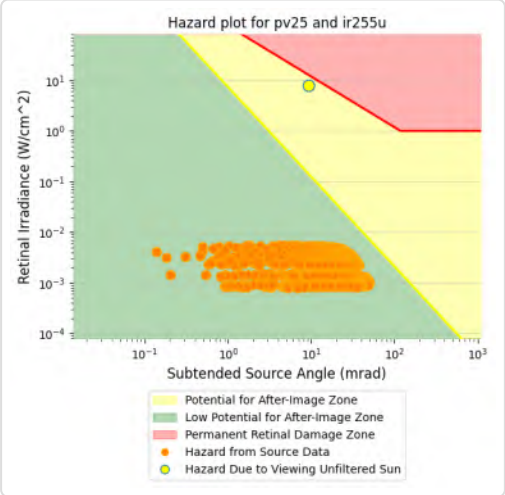
PV25 and FP: IR255u

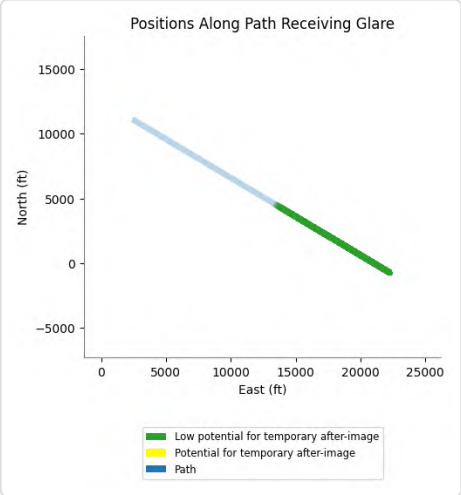
Yellow glare: none

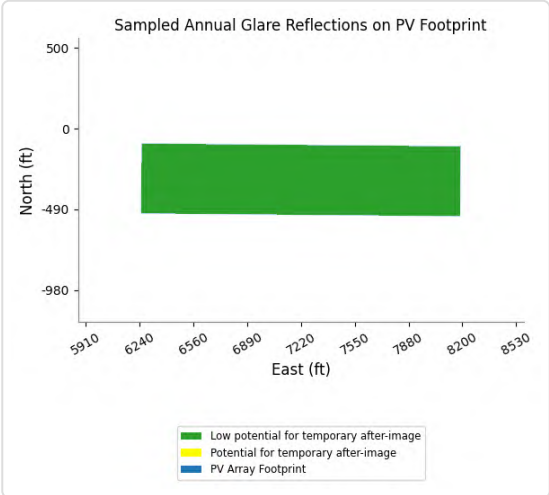
Green glare: 3,603 min.

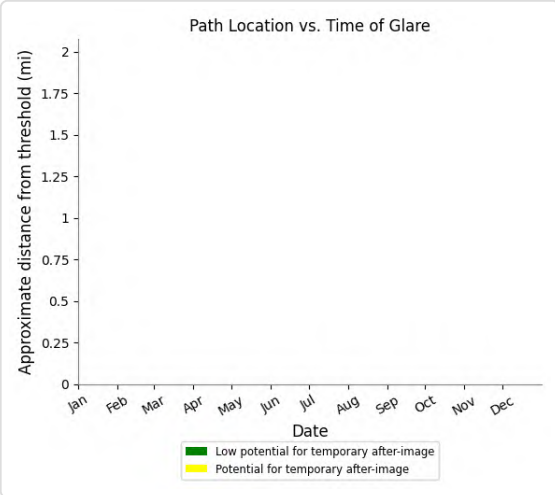








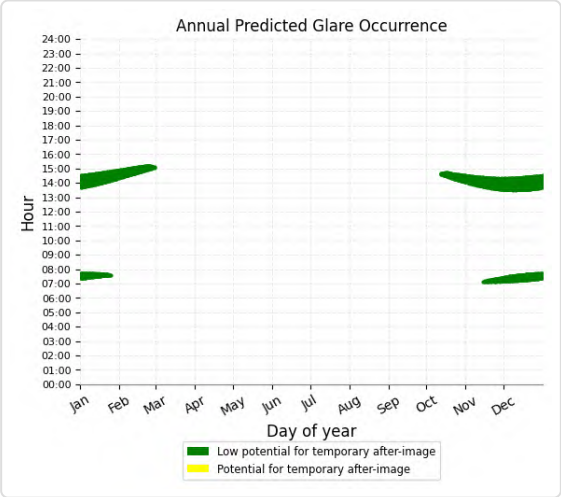


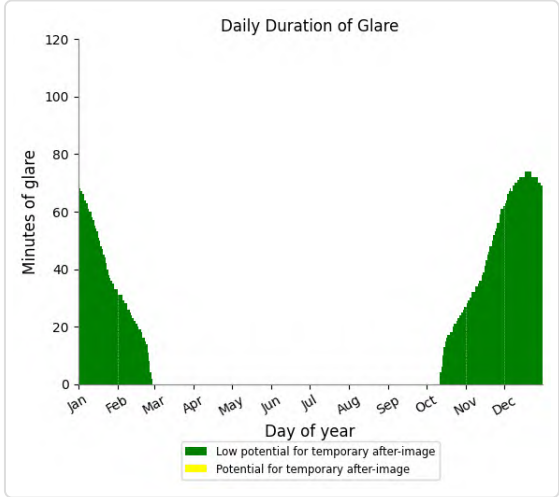


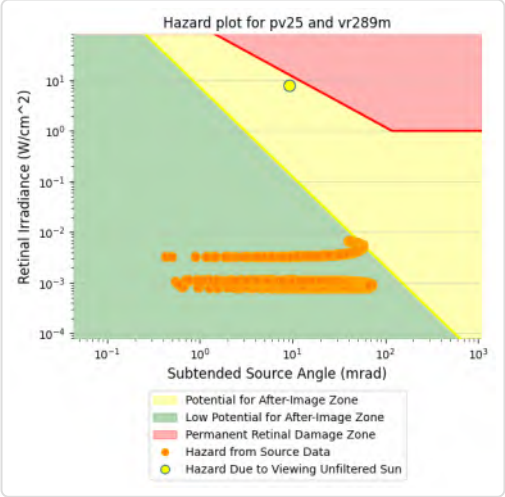
PV25 and FP: VR289m

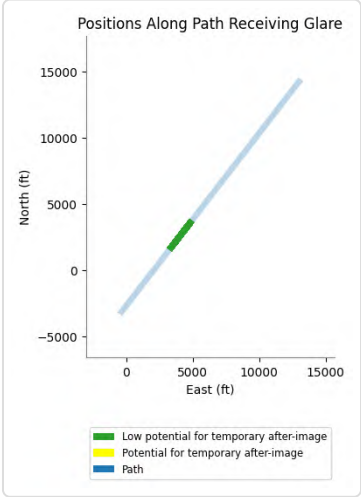
Yellow glare: none

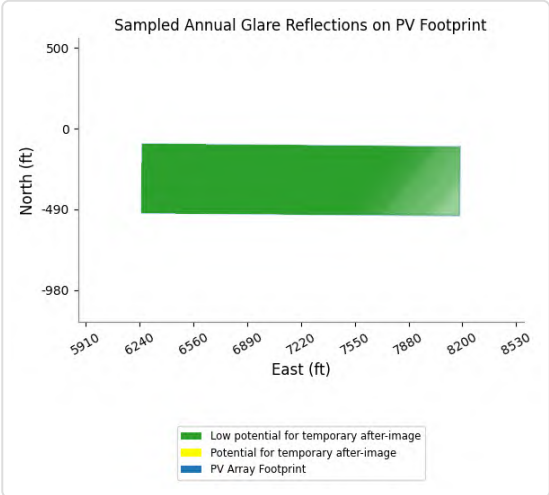
Green glare: 5,997 min.

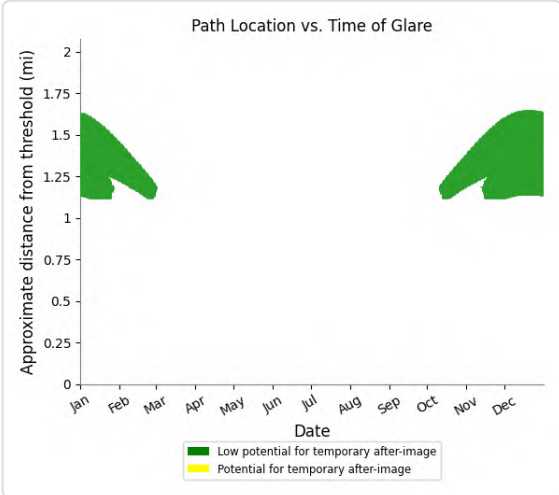








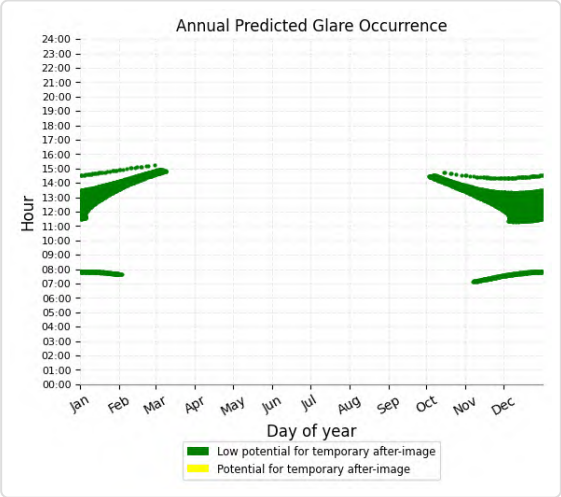


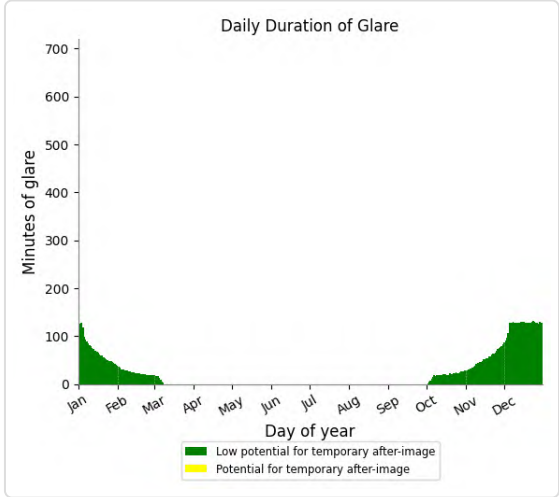


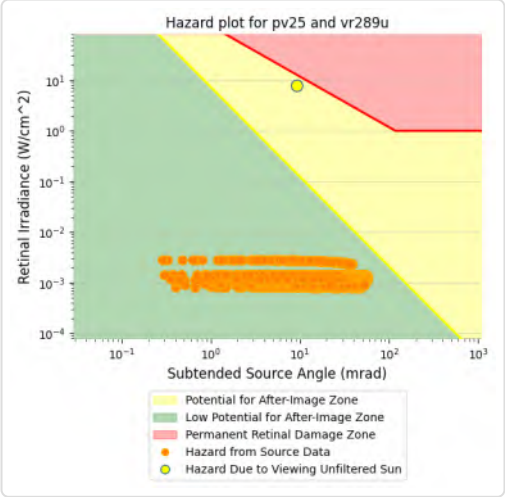
PV25 and FP: VR289u

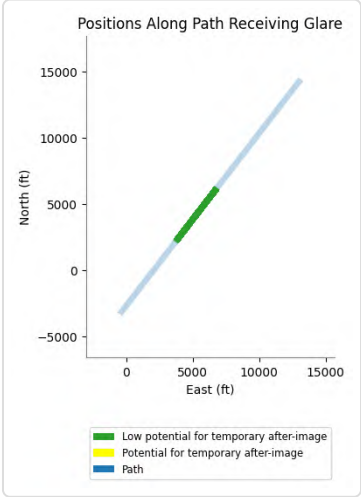
Yellow glare: none

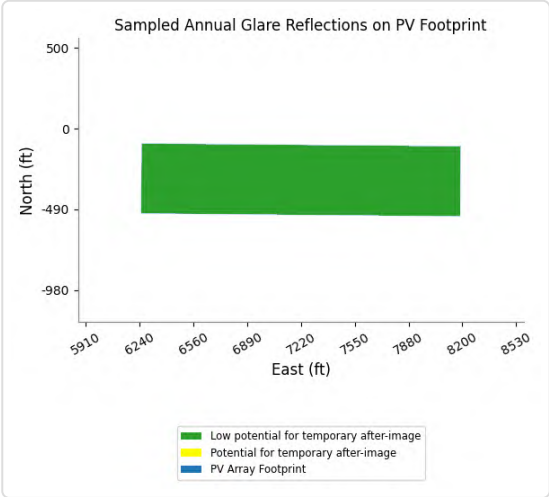
Green glare: 9,129 min.

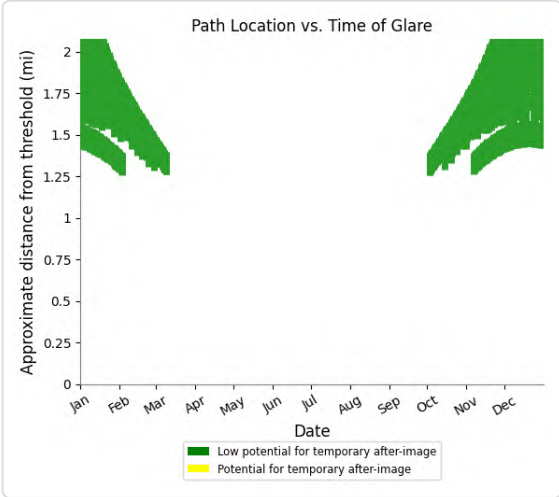








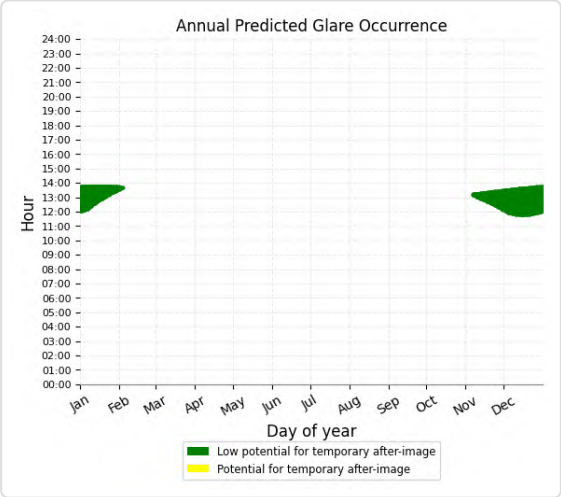


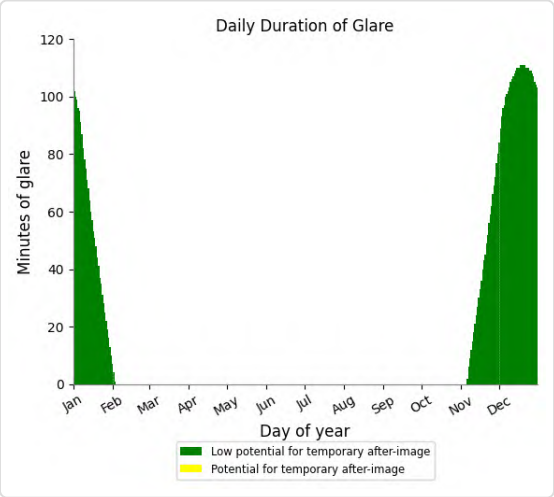


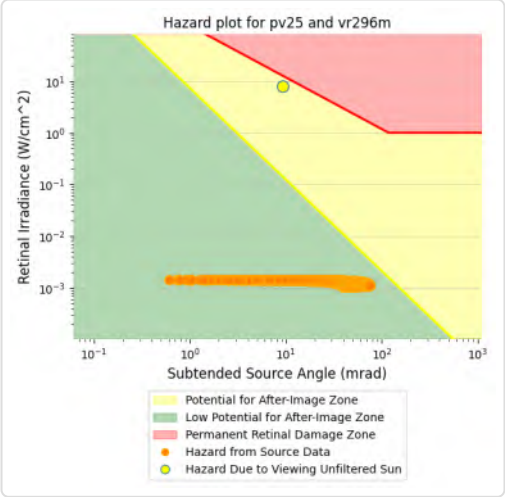
PV25 and FP: VR296m

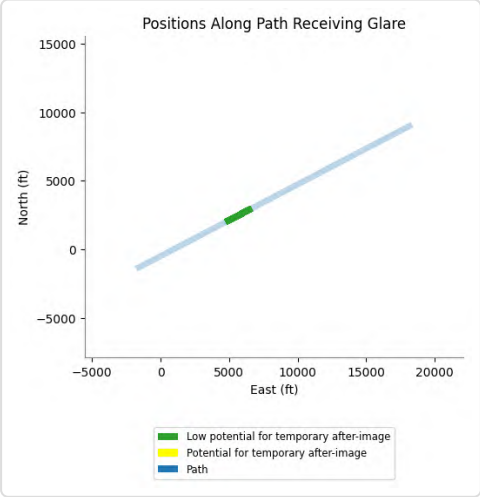
Yellow glare: none

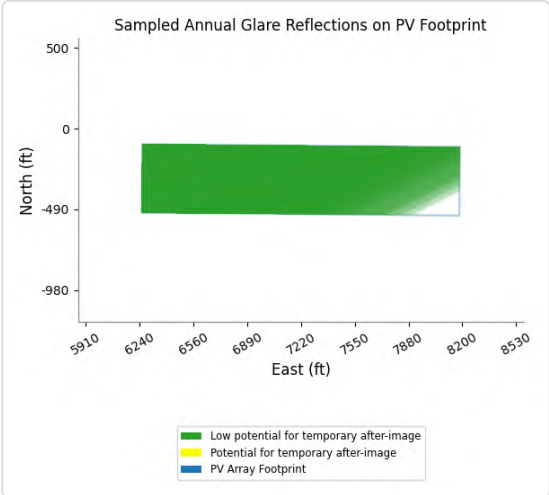
Green glare: 6,065 min.

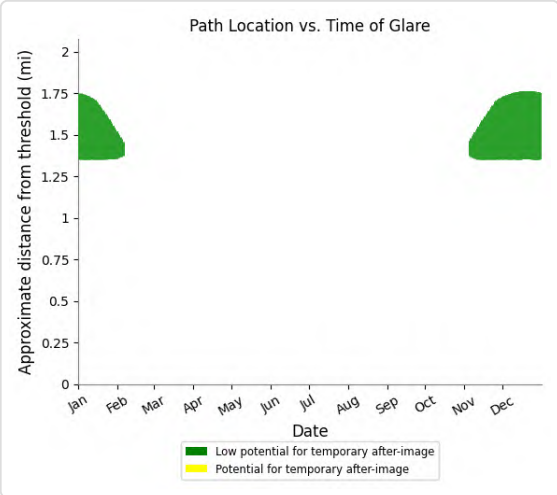








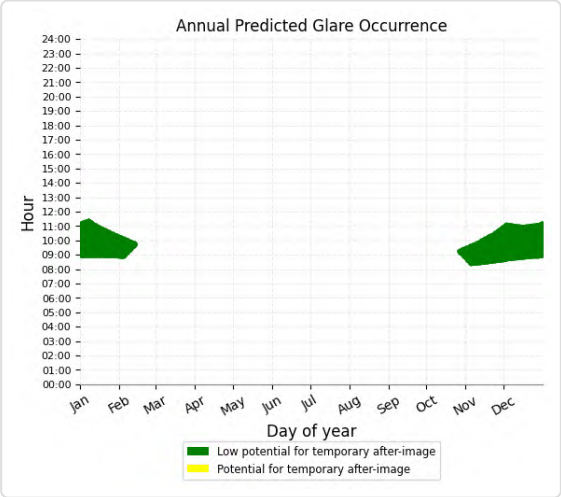


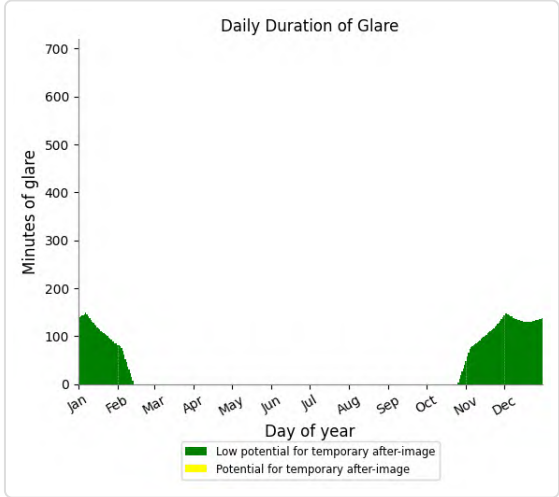


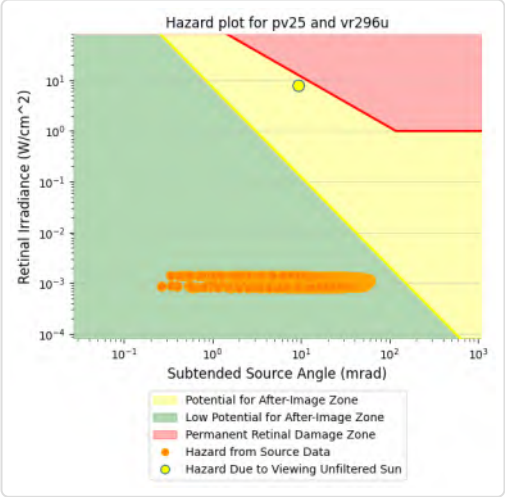
PV25 and FP: VR296u

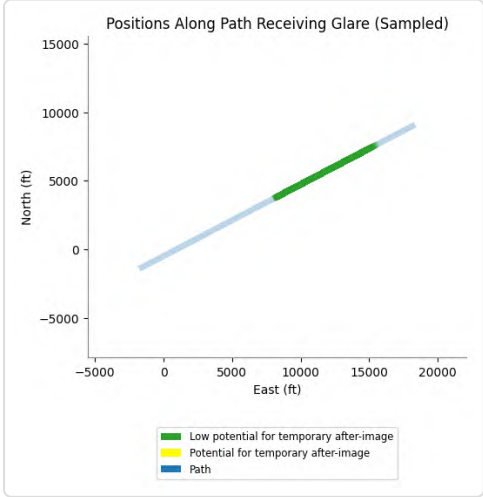
Yellow glare: none

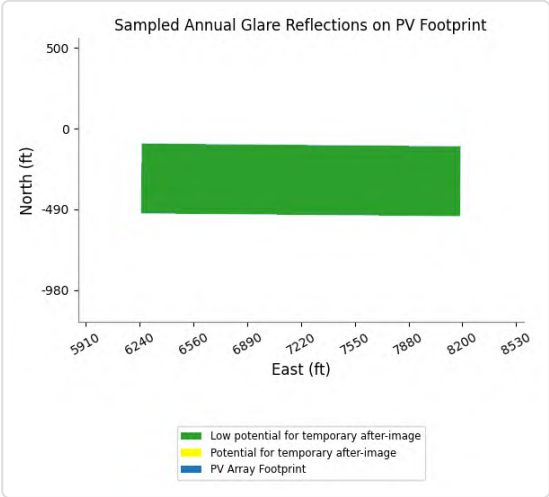
Green glare: 11,660 min.

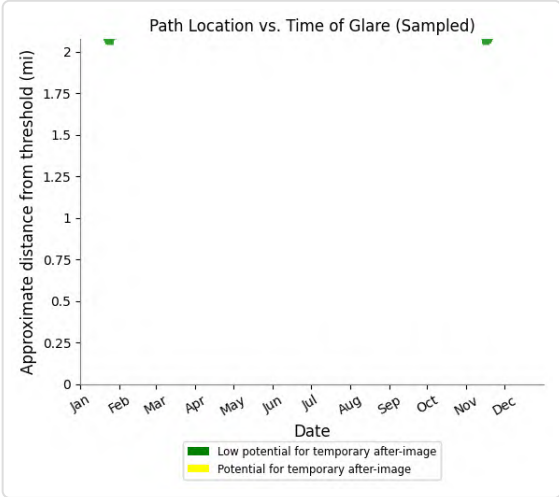












PV25 and FP: CN645

No glare found

PV25 and FP: IR217I

No glare found

PV25 and FP: VR289I

No glare found

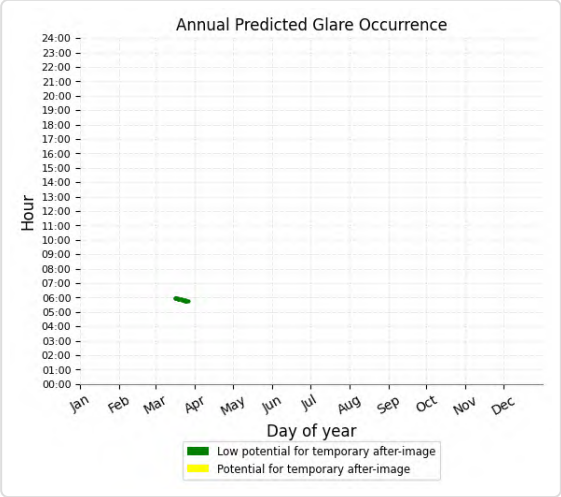
PV25 and FP: VR296I

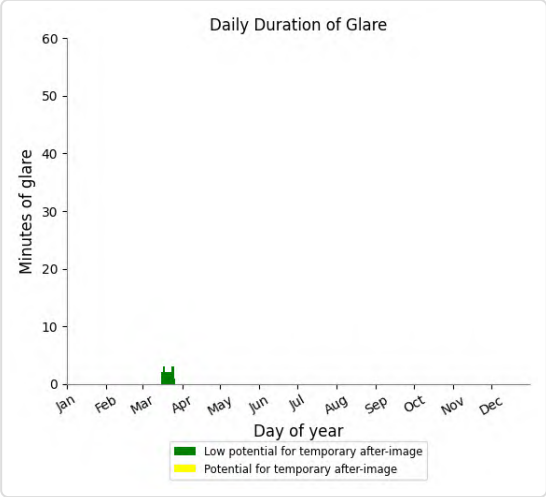
No glare found

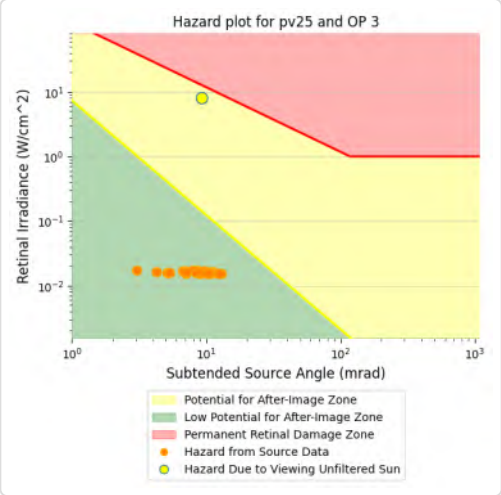
PV25 and OP 3

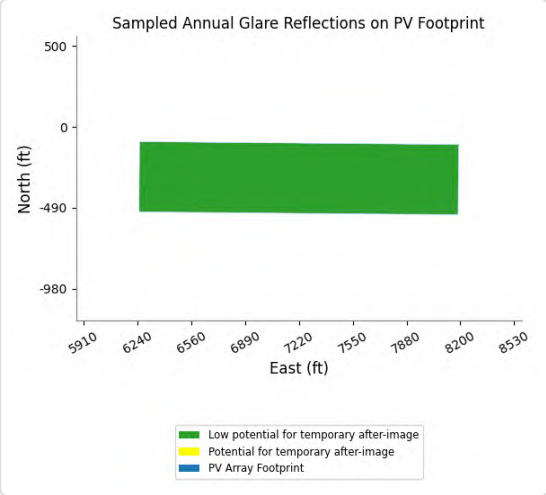
Yellow glare: none

Green glare: 25 min.





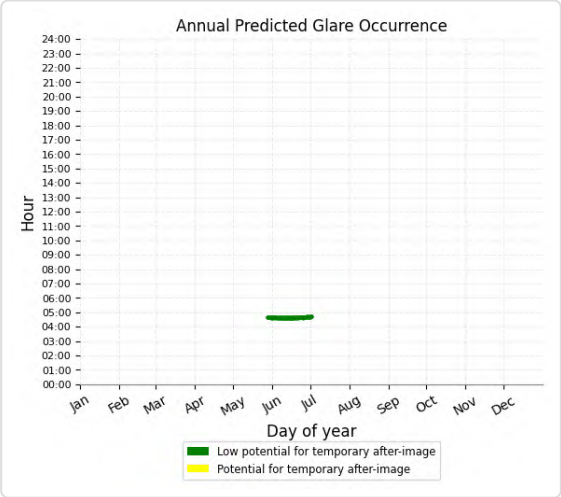


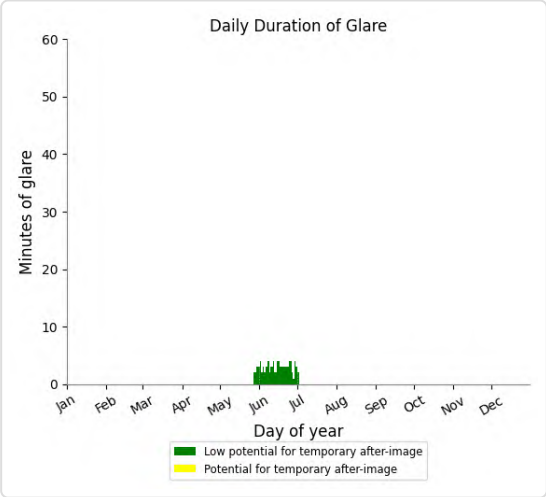


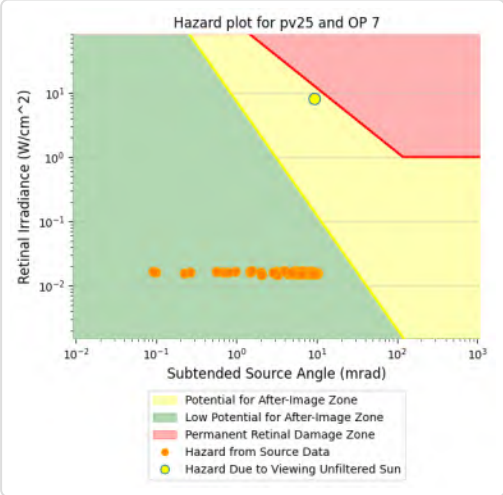
PV25 and OP 7

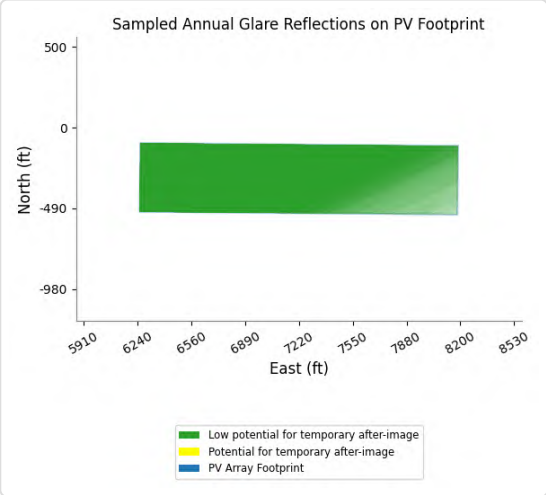
Yellow glare: none

Green glare: 104 min.





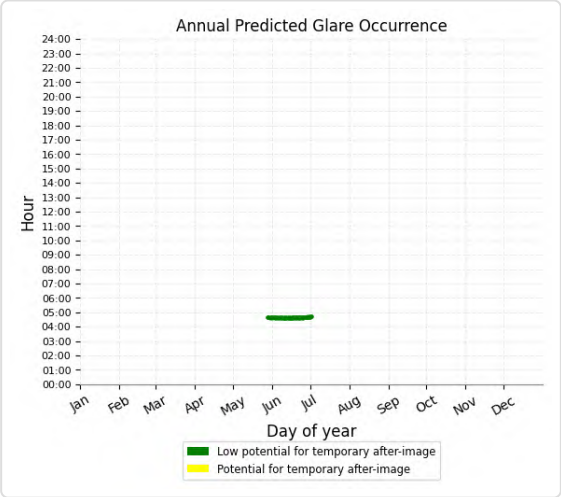


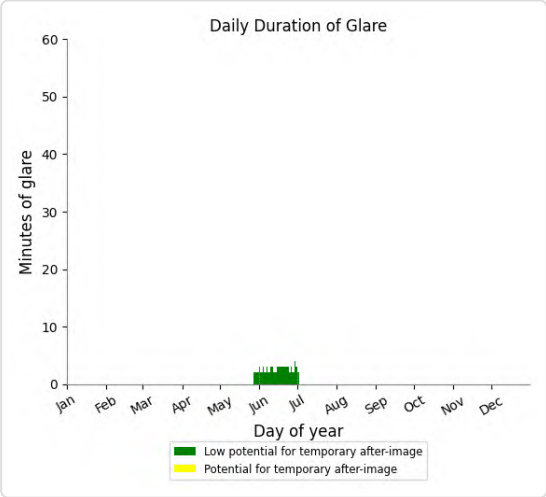


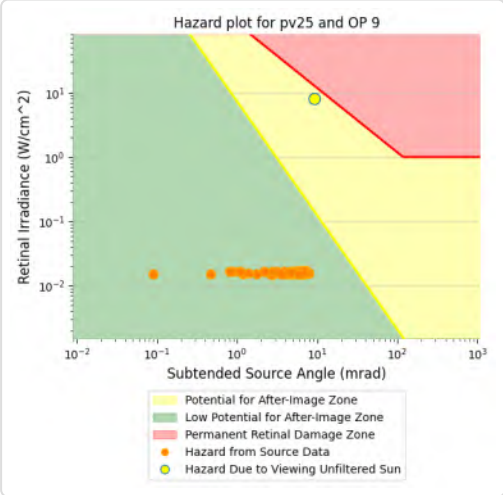
PV25 and OP 9

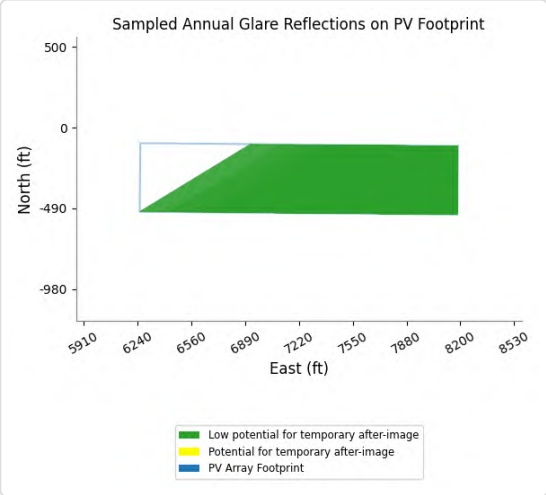
Yellow glare: none

Green glare: 91 min.



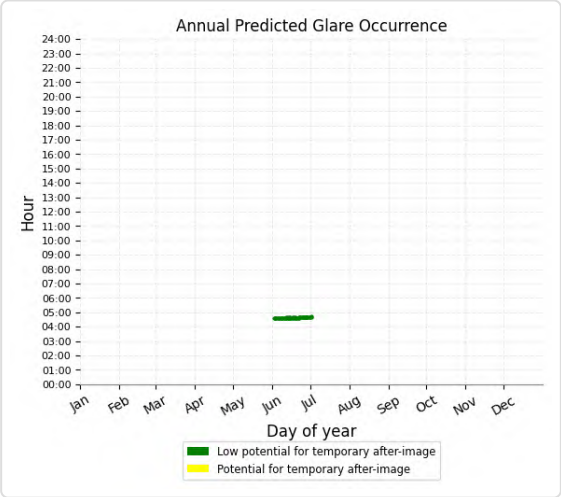


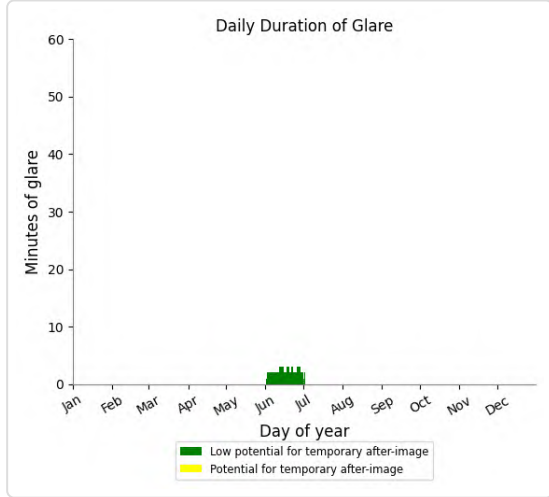


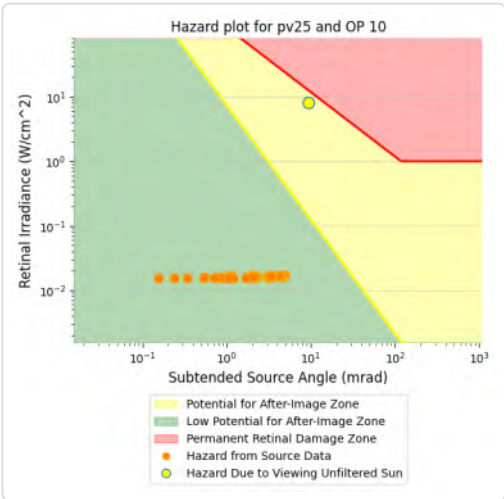


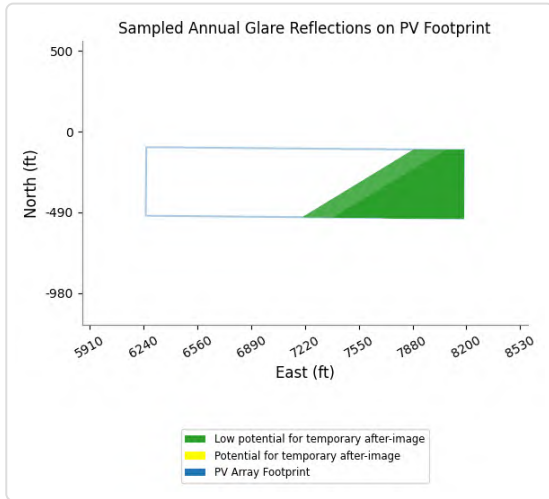
PV25 and OP 10

Yellow glare: none
Green glare: 70 min.









PV25 and OP 1

No glare found

PV25 and OP 2

No glare found

PV25 and OP 4

No glare found

PV25 and OP 5

No glare found

PV25 and OP 6

No glare found

PV25 and OP 8

No glare found

PV25 and OP 11

No glare found

PV25 and OP 12

No glare found

PV25 and OP 13

No glare found

PV25 and OP 14

No glare found

PV25 and OP 15

No glare found

PV25 and OP 16

No glare found

PV25 and OP 17

No glare found

PV25 and OP 18

No glare found

PV25 and OP 19

No glare found

PV: PV26 potential temporary after-image

Receptor results ordered by category of glare

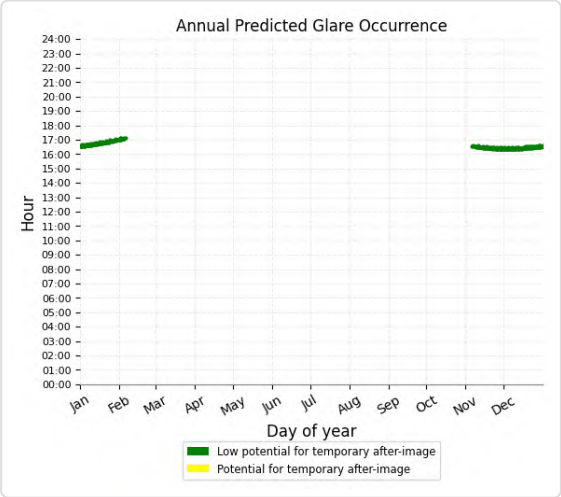
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
SR177 B	392	6.5	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 A	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR218l	2,289	38.1	843	14.1
CN6423	1,093	18.2	0	0.0
IR217m	10,114	168.6	0	0.0
IR217u	6,669	111.2	0	0.0
IR218m	14,822	247.0	0	0.0
IR218u	3,250	54.2	0	0.0
IR255l	1,651	27.5	0	0.0
IR255m	13,183	219.7	0	0.0
IR255u	2,879	48.0	0	0.0
VR289m	257	4.3	0	0.0
VR289u	12,960	216.0	0	0.0
VR296m	505	8.4	0	0.0
VR296u	12,289	204.8	0	0.0
CN645	0	0.0	0	0.0
IR217l	0	0.0	0	0.0
VR289l	0	0.0	0	0.0
VR296l	0	0.0	0	0.0
OP 1	212	3.5	0	0.0
OP 3	45	0.8	0	0.0

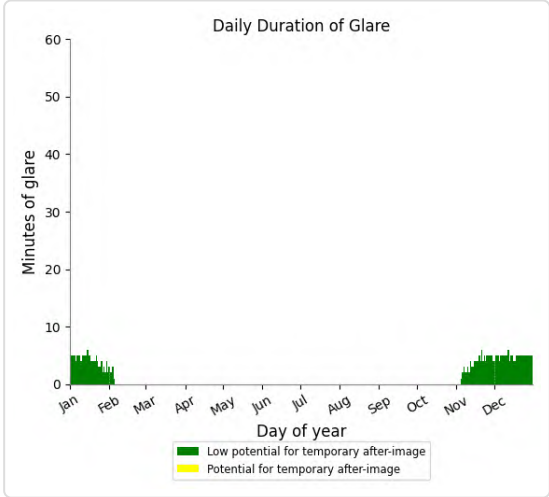
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 7	38	0.6	0	0.0
OP 9	46	0.8	0	0.0
OP 10	47	0.8	0	0.0
OP 11	35	0.6	0	0.0
OP 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

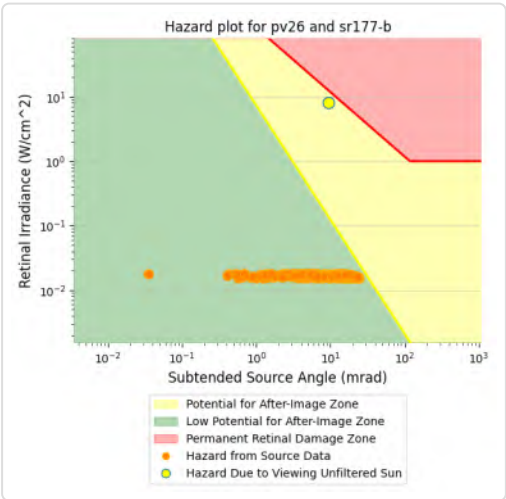
PV26 and Route: SR177 B

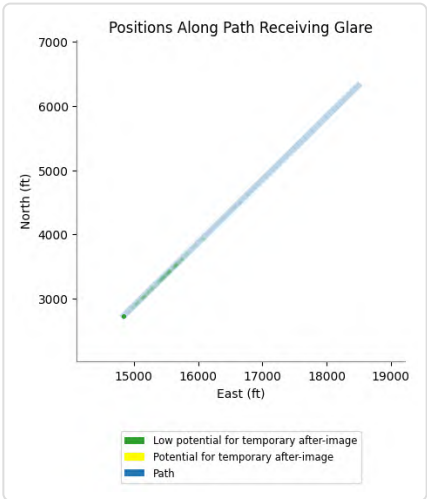
Yellow glare: none

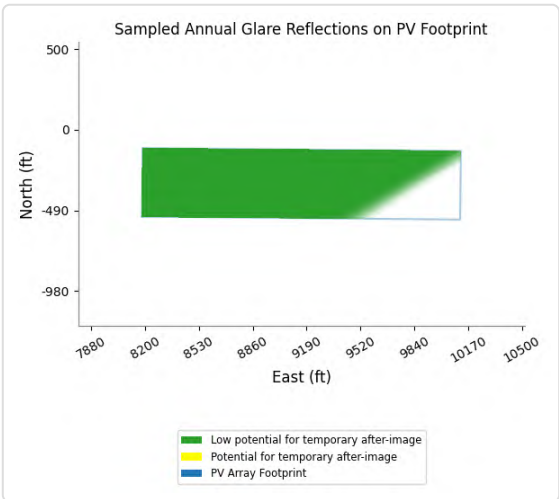
Green glare: 392 min.











PV26 and Route: AirportRd A

No glare found

PV26 and Route: AirportRd B

No glare found

PV26 and Route: EagleMtnRd A

No glare found

PV26 and Route: EagleMtnRd B

No glare found

PV26 and Route: I-10 EB A

No glare found

PV26 and Route: I-10 EB B

No glare found

PV26 and Route: I-10 EB C

No glare found

PV26 and Route: I-10 WB A

No glare found

PV26 and Route: I-10 WB B

No glare found

PV26 and Route: I-10 WB C

No glare found

PV26 and Route: KaiserRd A

No glare found

PV26 and Route: KaiserRd B

No glare found

PV26 and Route: KaiserRd C

No glare found

PV26 and Route: OasisRd

No glare found

PV26 and Route: Race Track

No glare found

PV26 and Route: SR177 A

No glare found

PV26 and Route: SR177 C

No glare found

PV26 and Route: SR177 D

No glare found

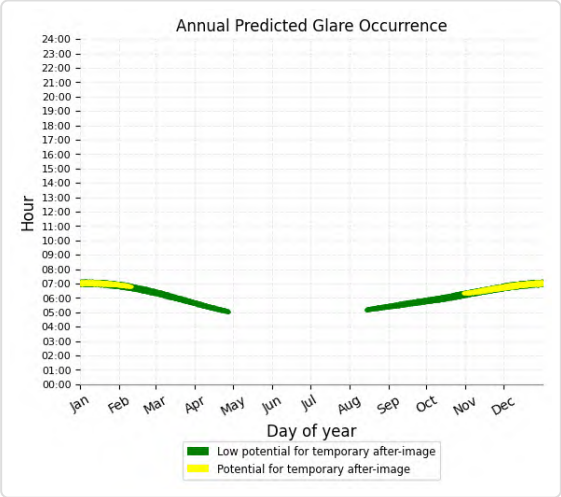
PV26 and Route: SR177 E

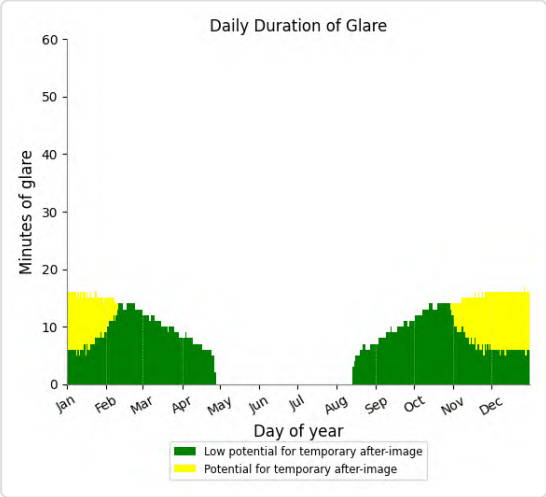
No glare found

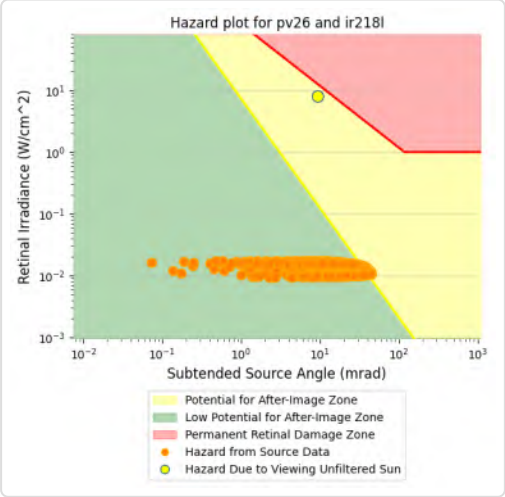
PV26 and FP: IR218l

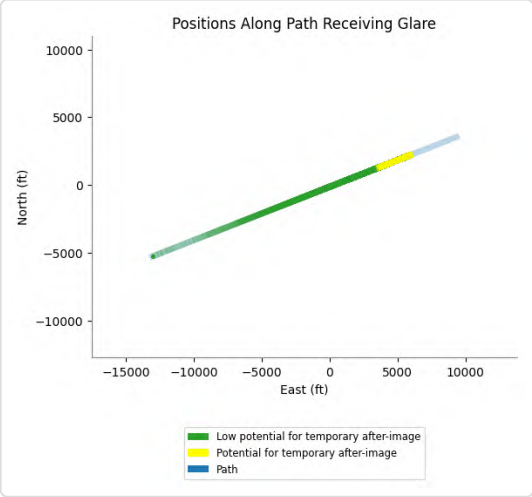
Yellow glare: 843 min.

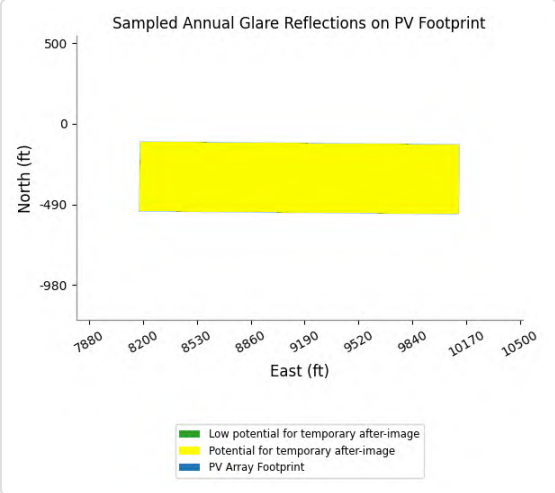
Green glare: 2,289 min.

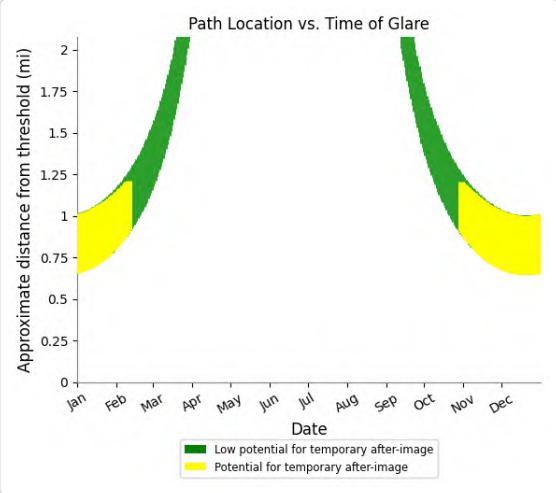








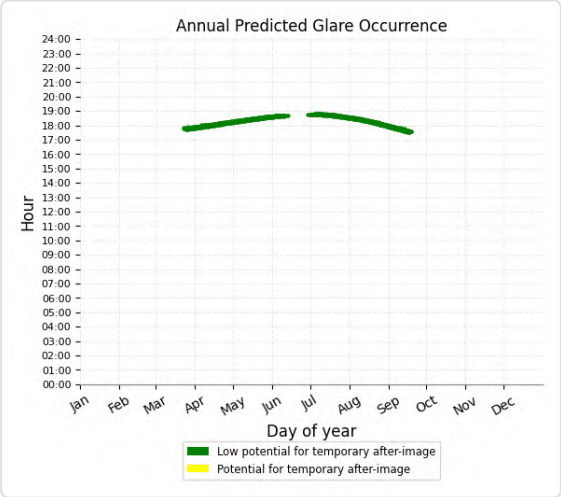


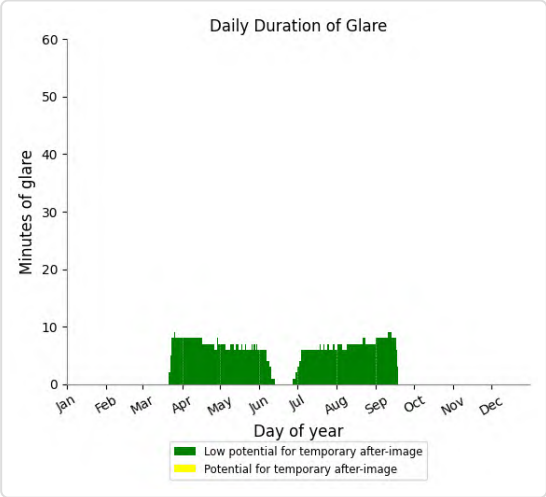


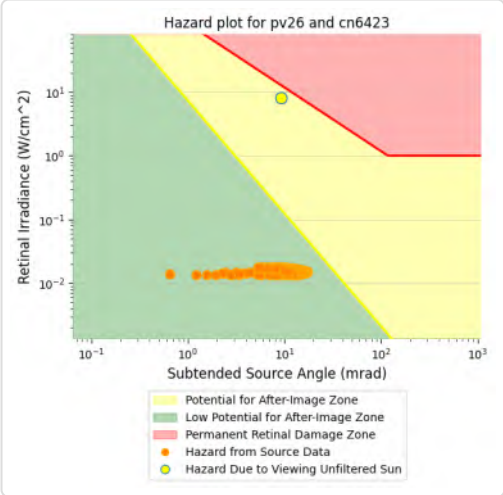
PV26 and FP: CN6423

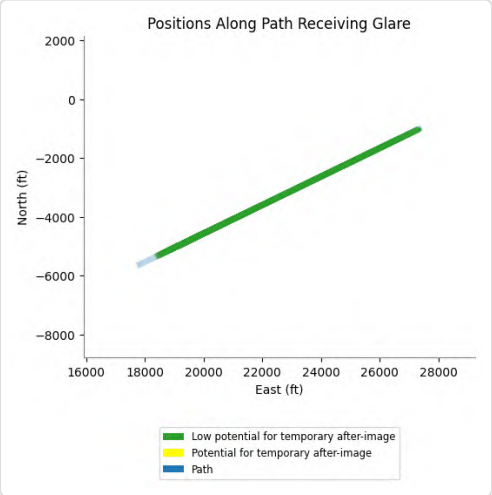
Yellow glare: none

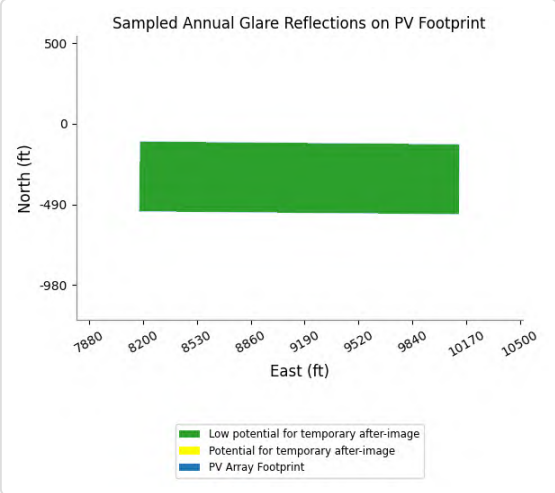
Green glare: 1,093 min.

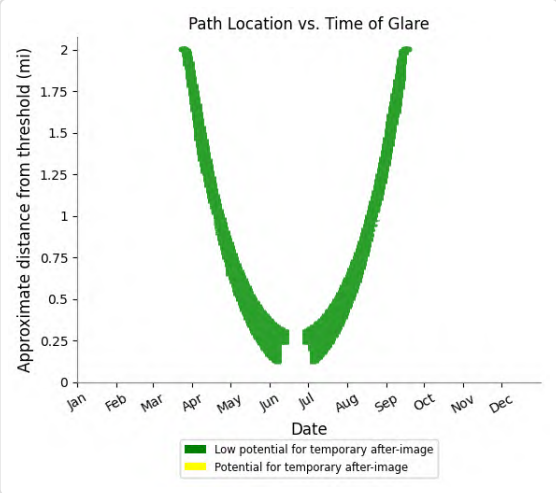








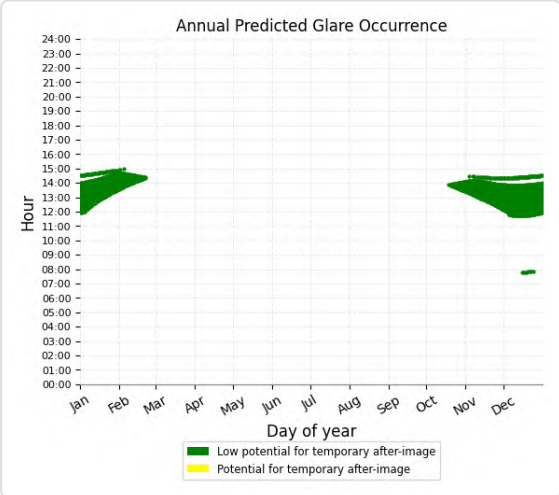


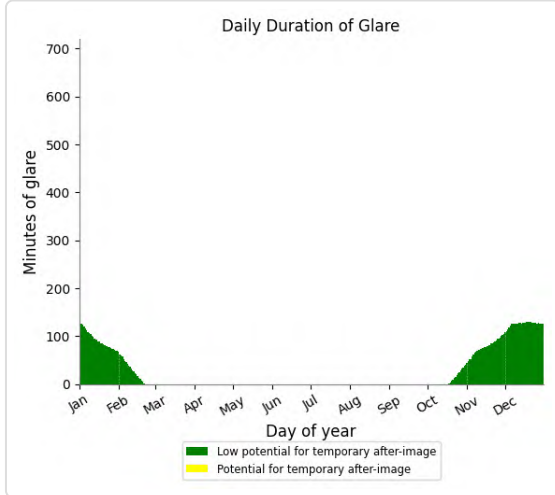


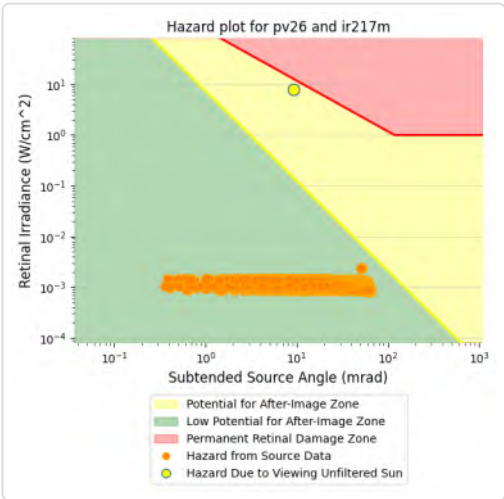
PV26 and FP: IR217m

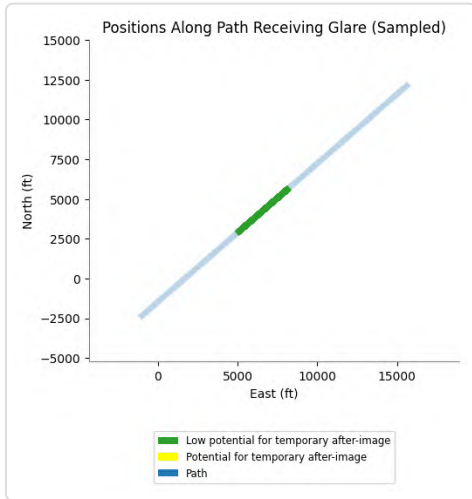
Yellow glare: none

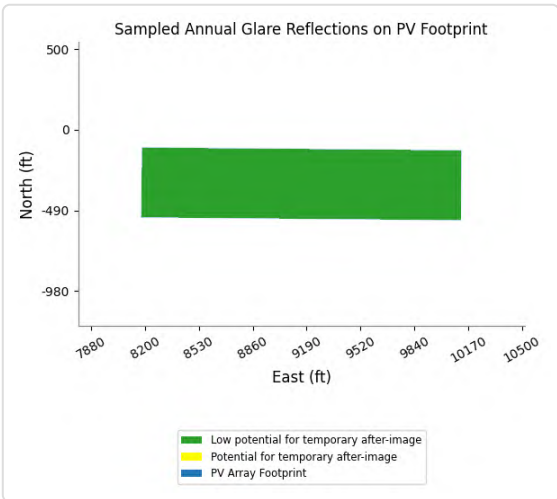
Green glare: 10,114 min.

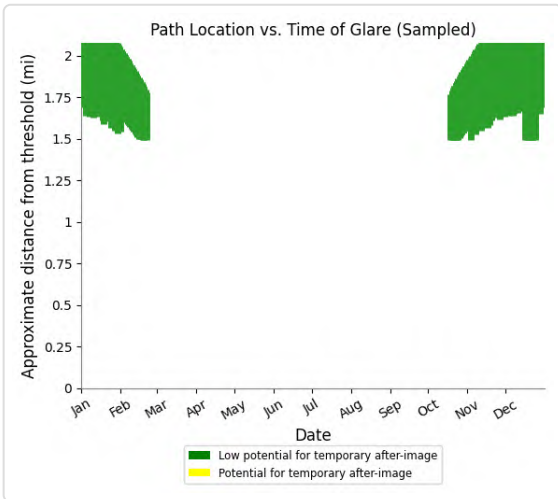








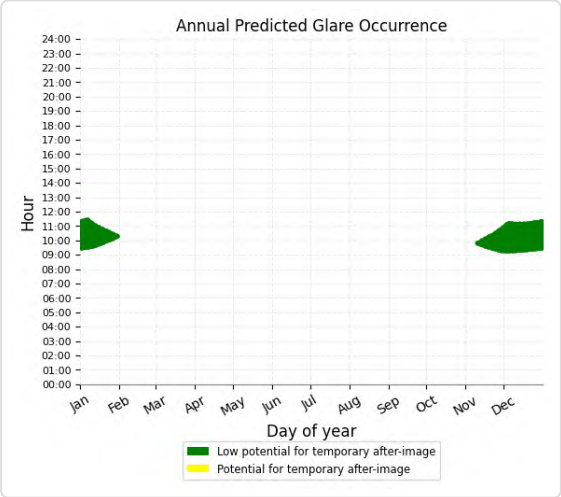


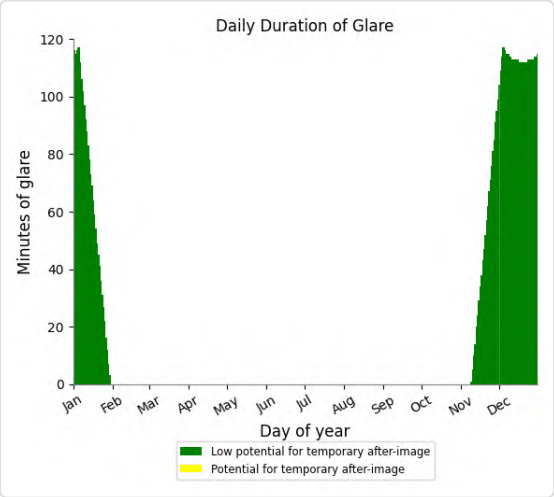


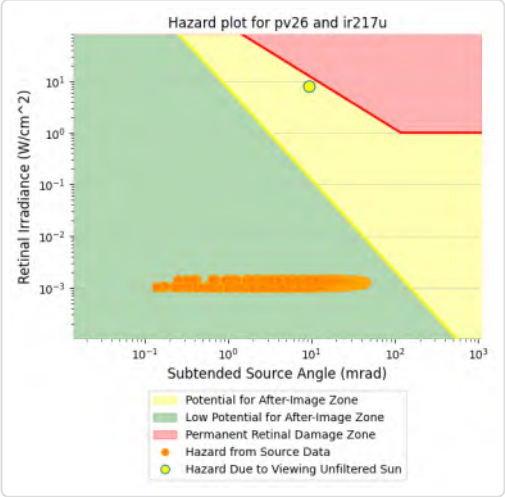
PV26 and FP: IR217u

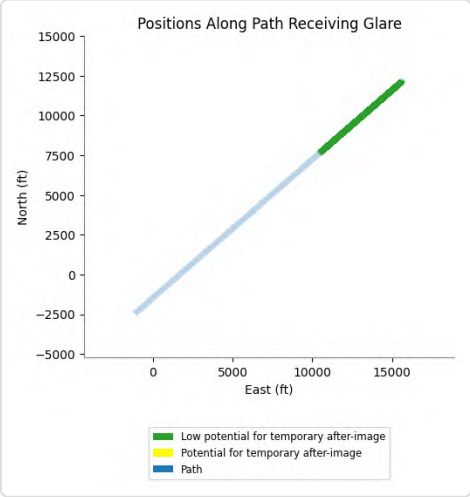
Yellow glare: none

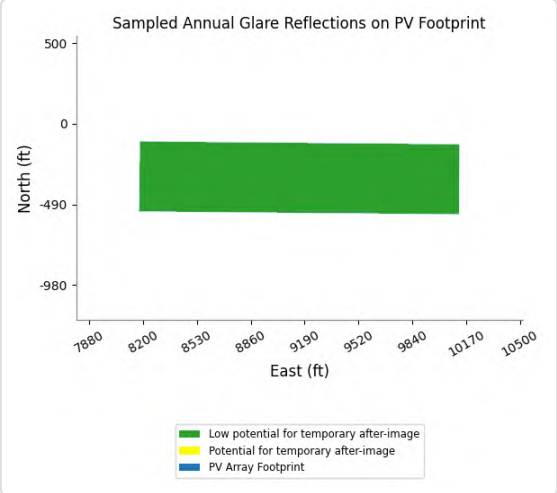
Green glare: 6,669 min.

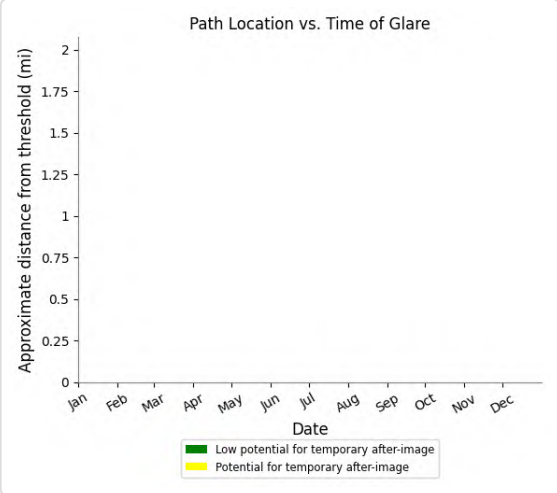








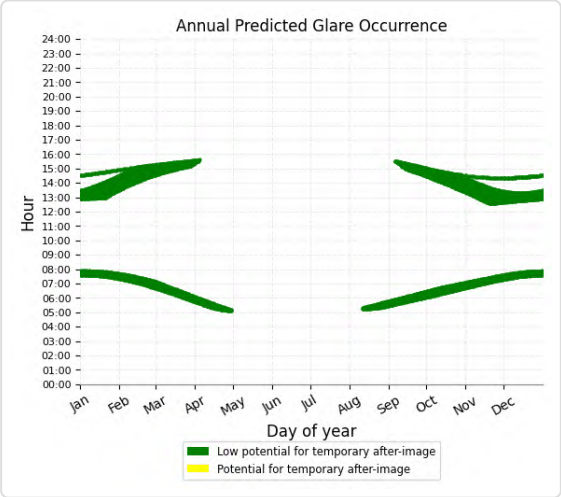


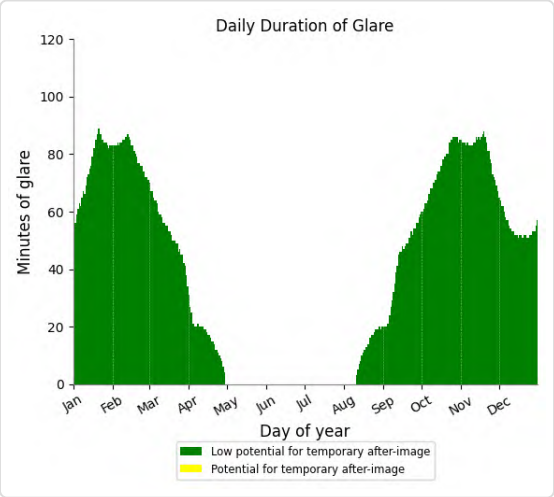


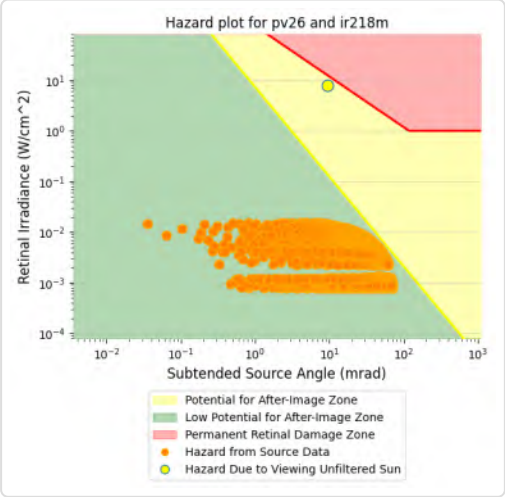
PV26 and FP: IR218m

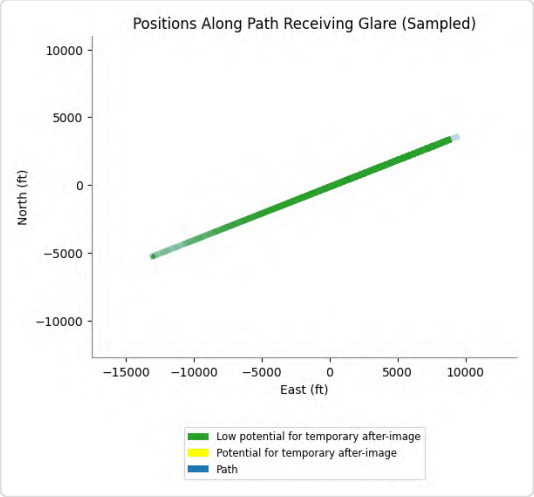
Yellow glare: none

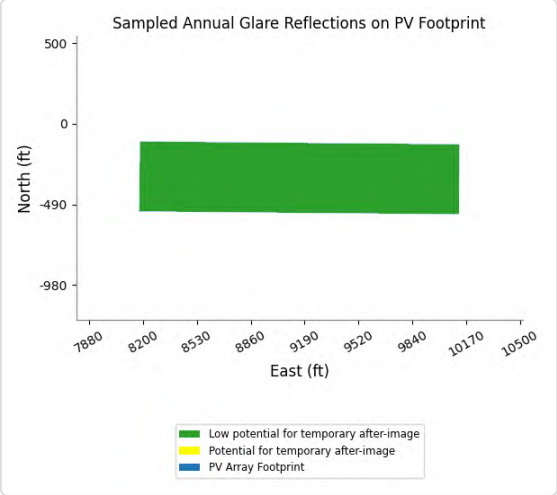
Green glare: 14,822 min.

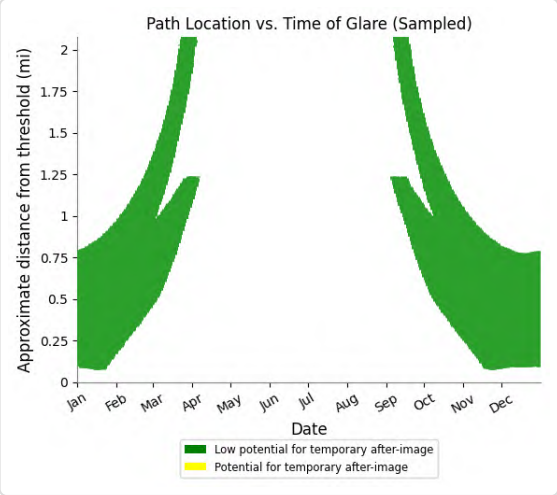








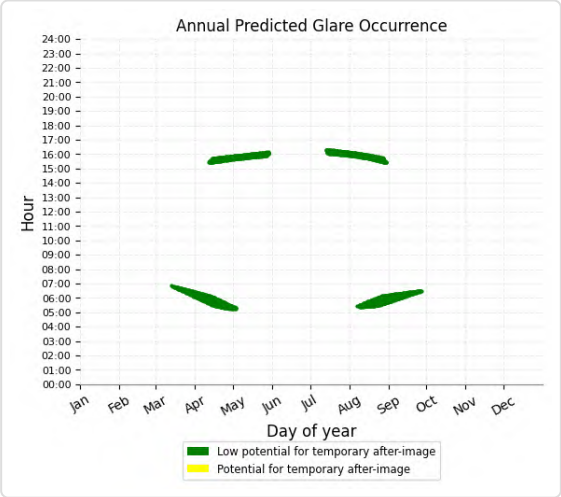


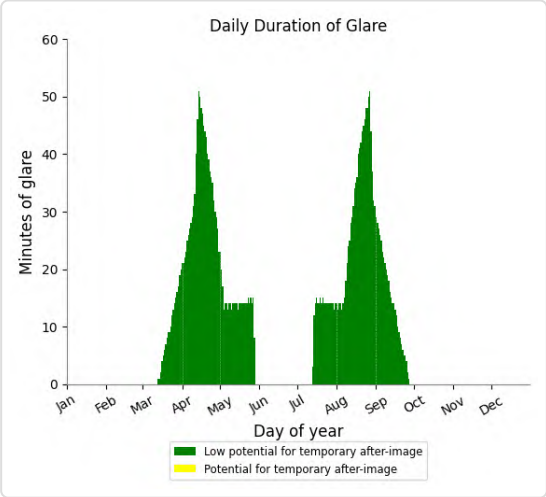


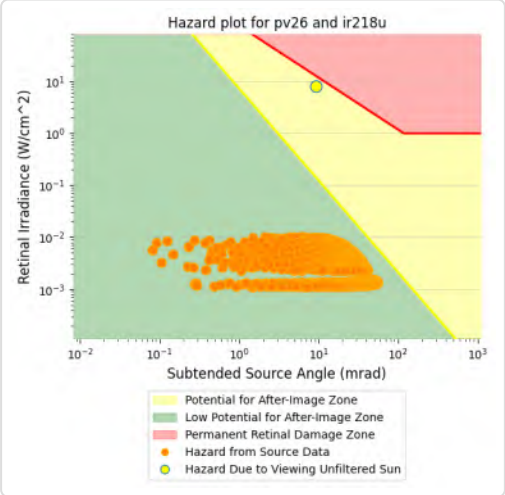
PV26 and FP: IR218u

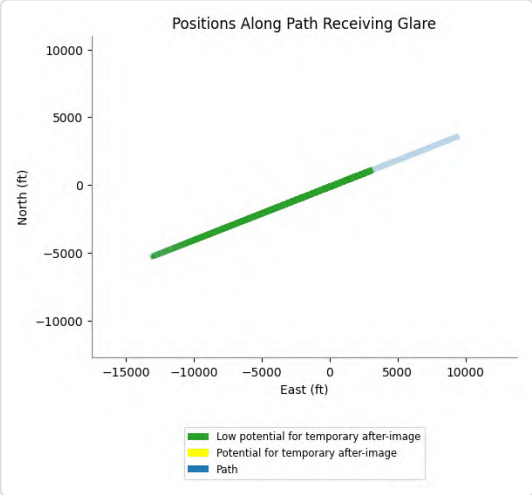
Yellow glare: none

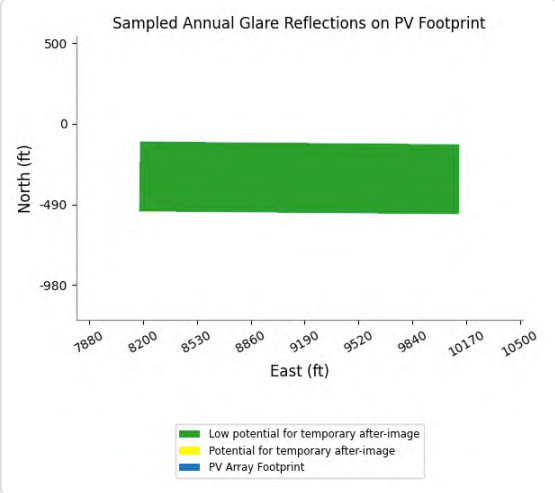
Green glare: 3,250 min.

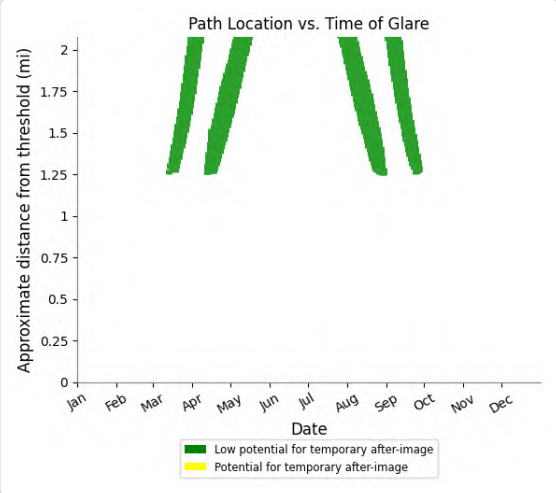








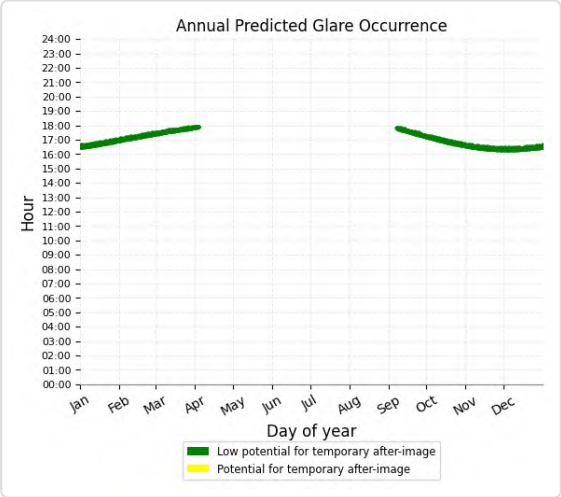


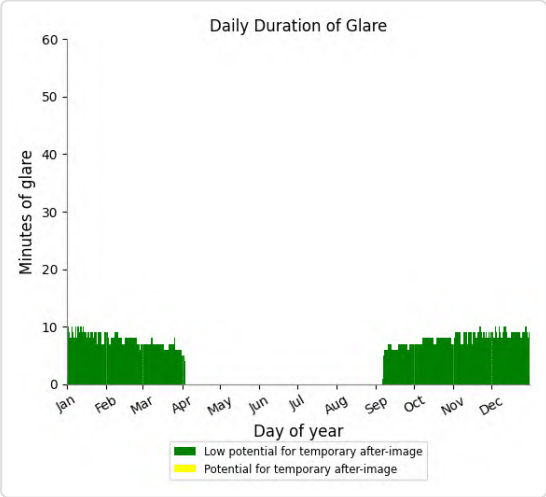


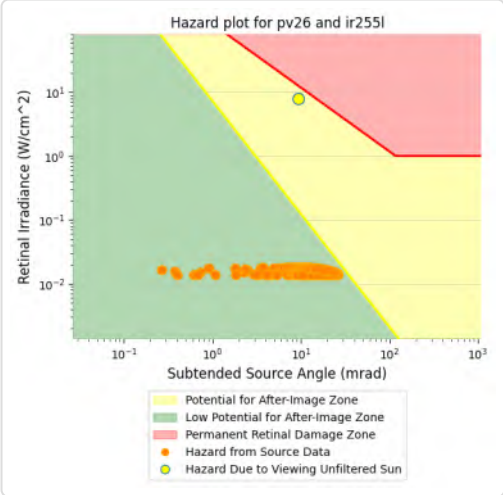
PV26 and FP: IR255I

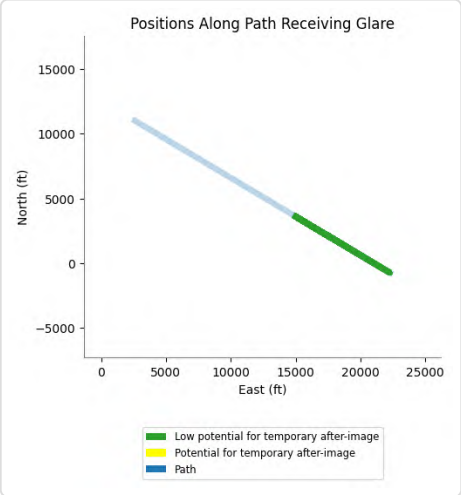
Yellow glare: none

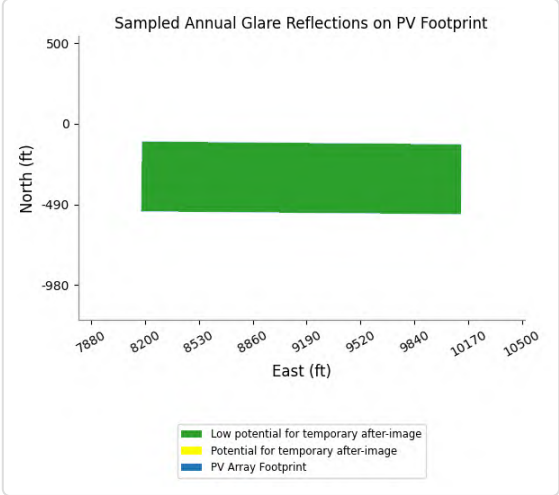
Green glare: 1,651 min.

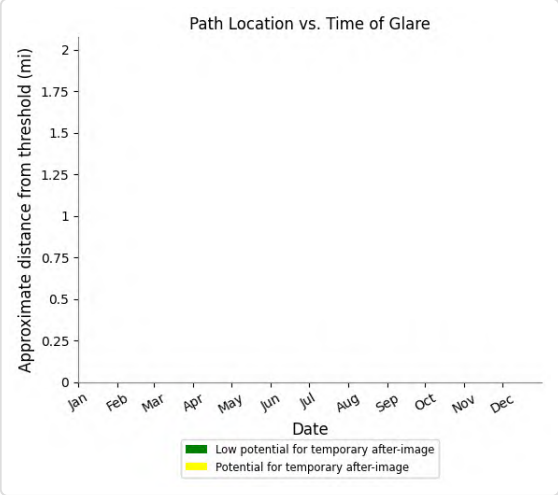








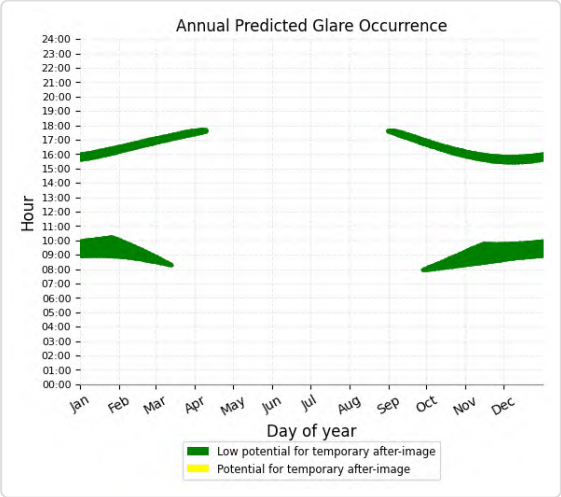


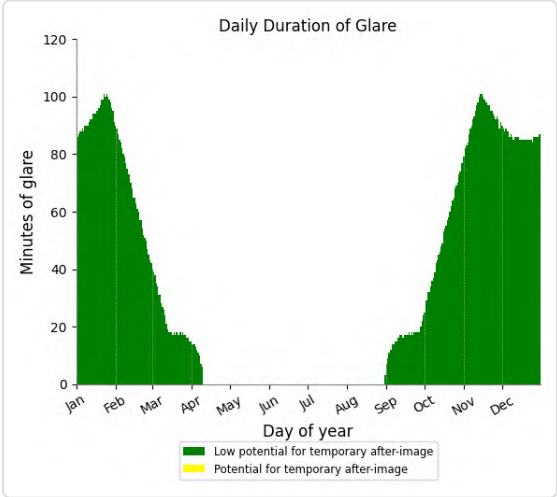


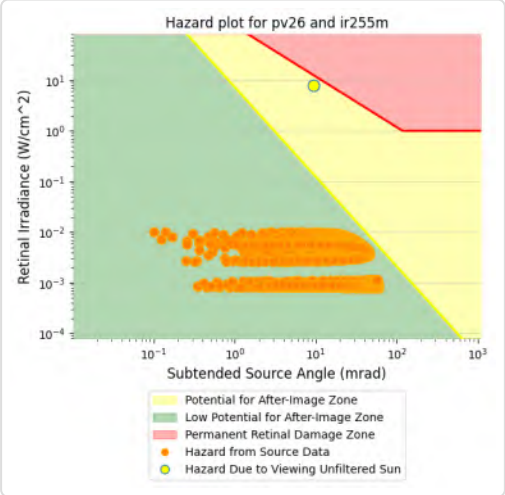
PV26 and FP: IR255m

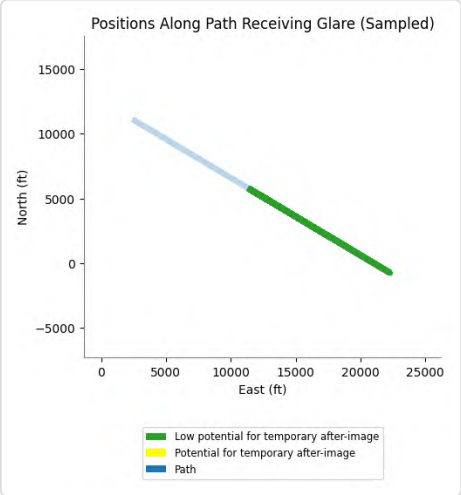
Yellow glare: none

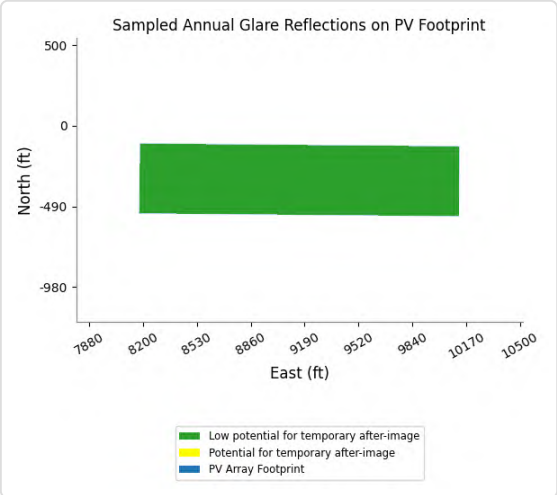
Green glare: 13,183 min.

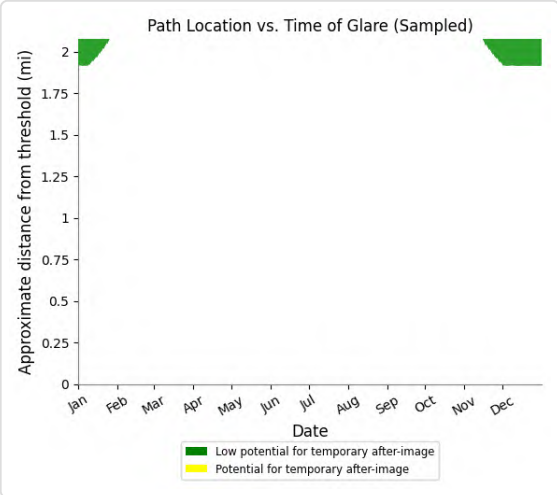








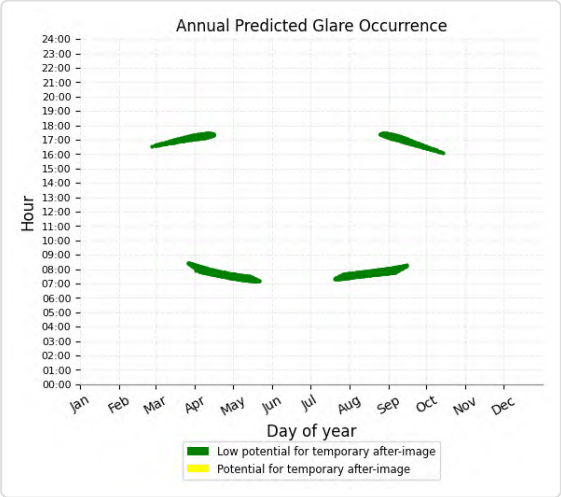


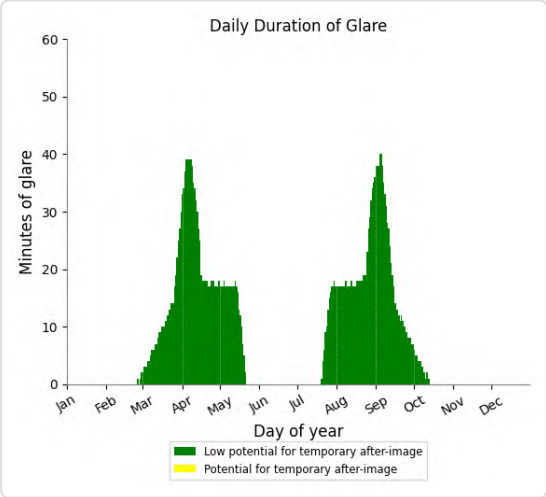


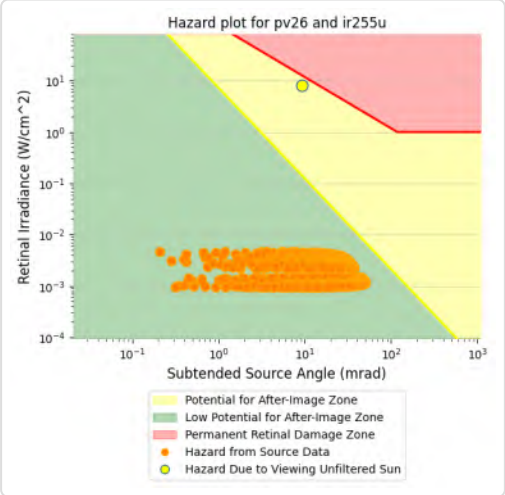
PV26 and FP: IR255u

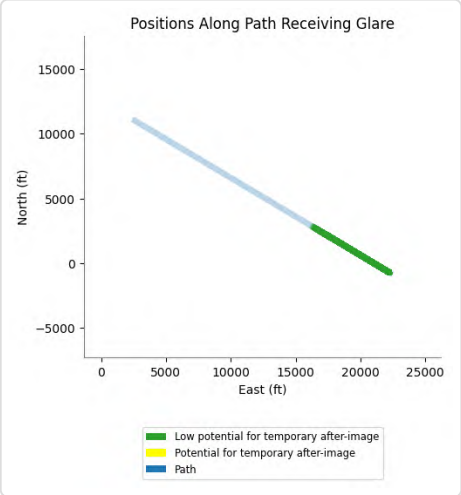
Yellow glare: none

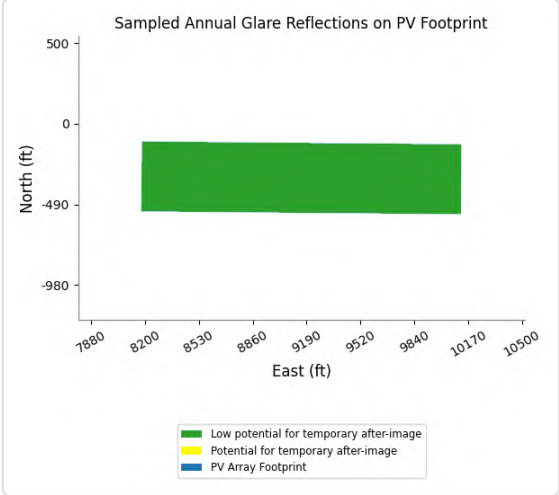
Green glare: 2,879 min.

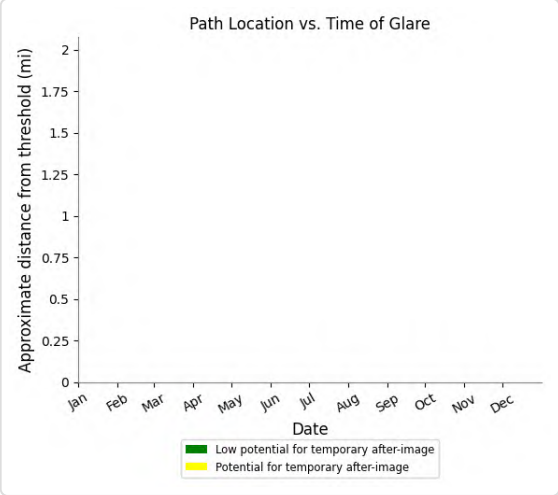








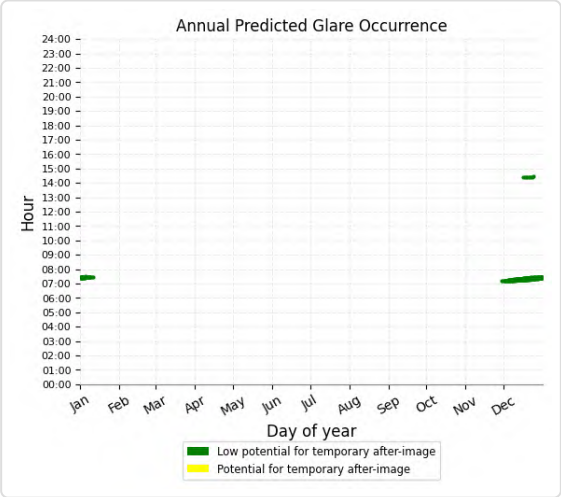


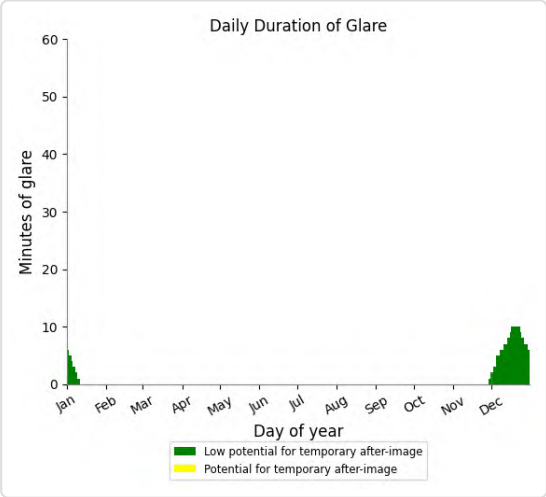


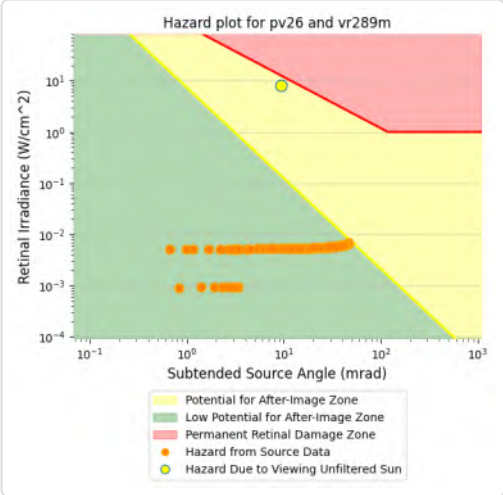
PV26 and FP: VR289m

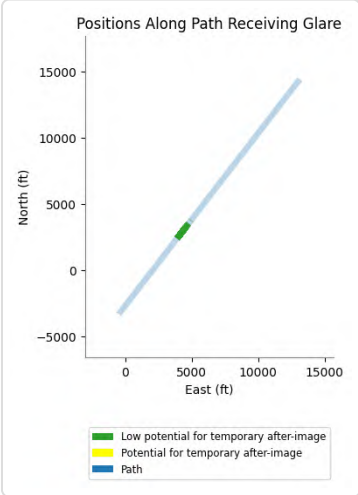
Yellow glare: none

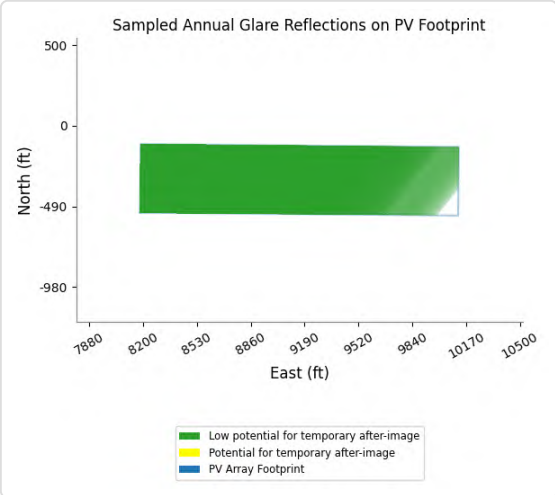
Green glare: 257 min.

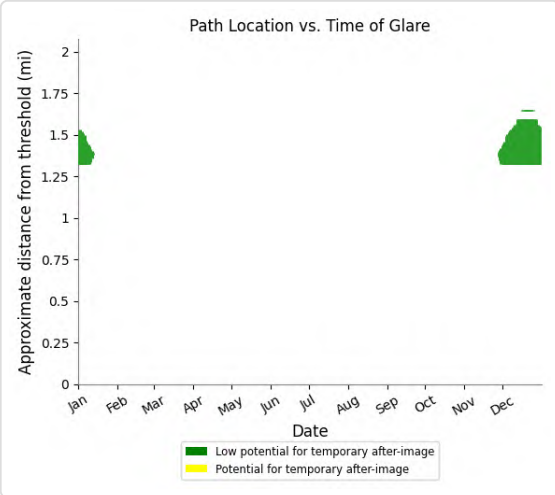








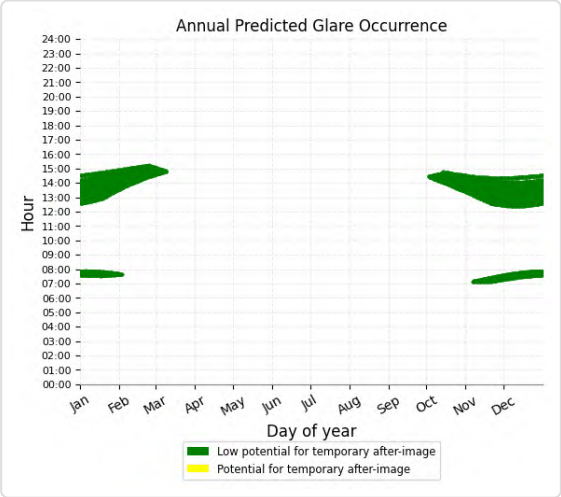


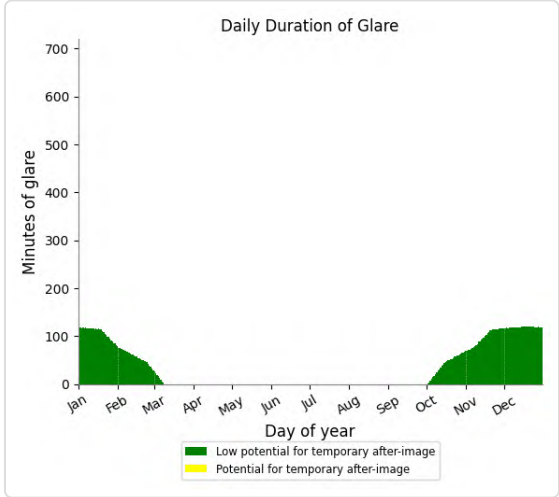


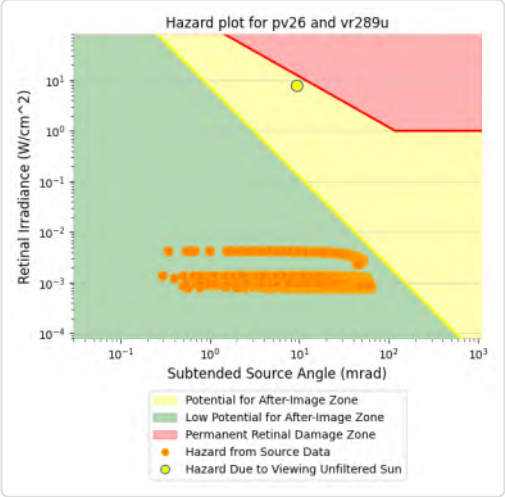
PV26 and FP: VR289u

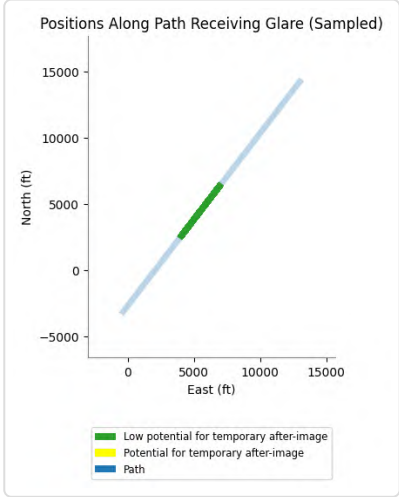
Yellow glare: none

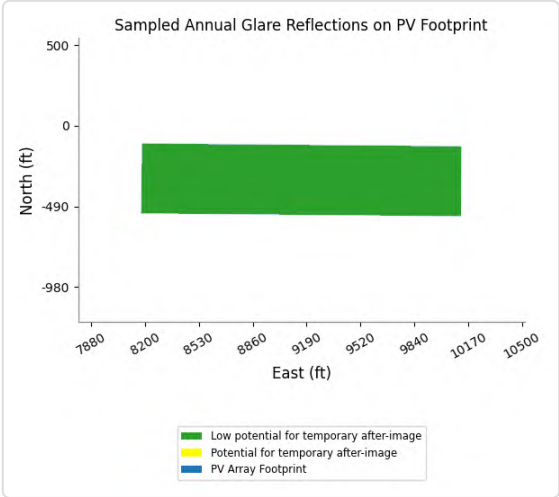
Green glare: 12,960 min.

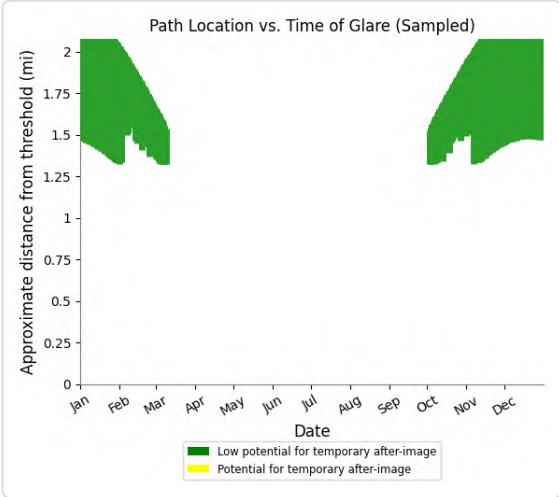








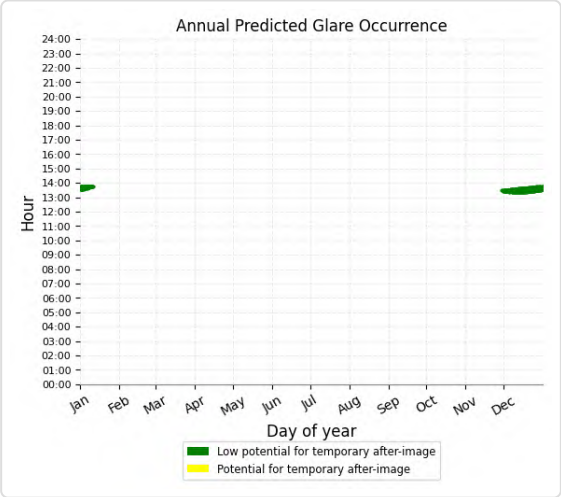


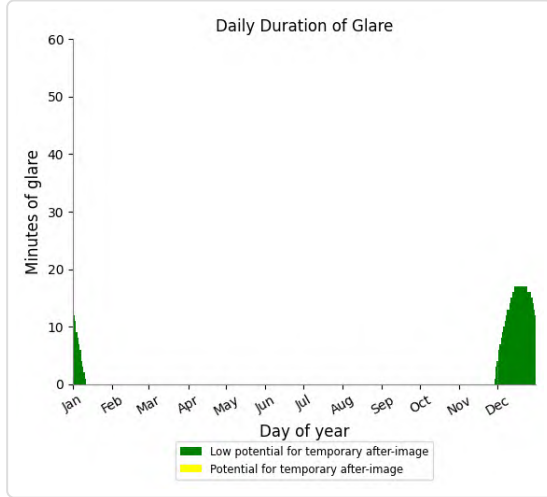


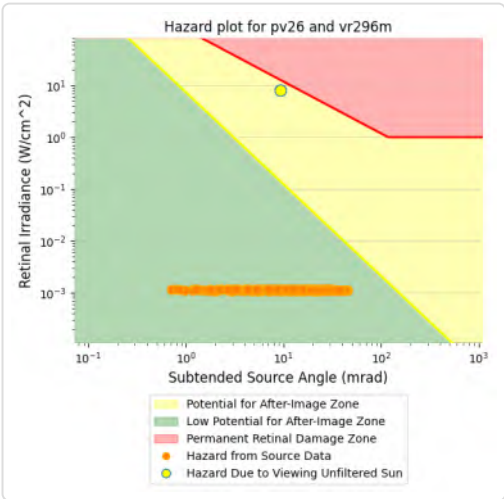
PV26 and FP: VR296m

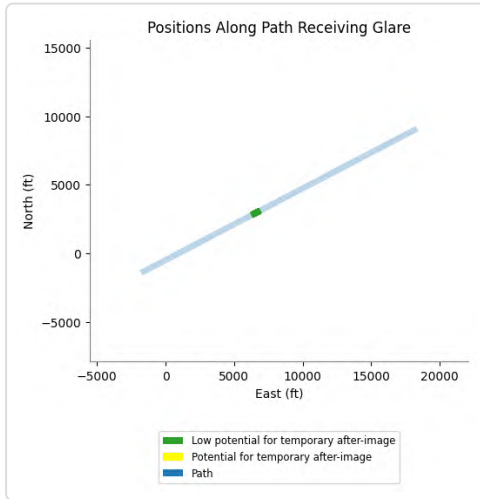
Yellow glare: none

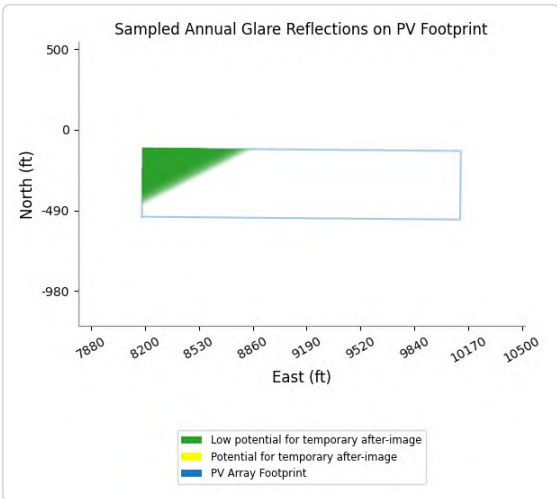
Green glare: 505 min.

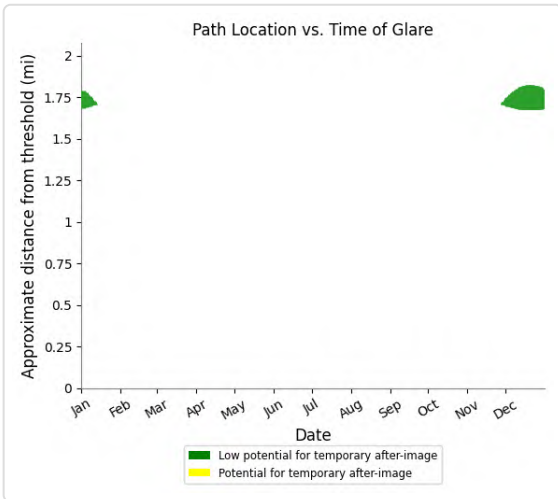








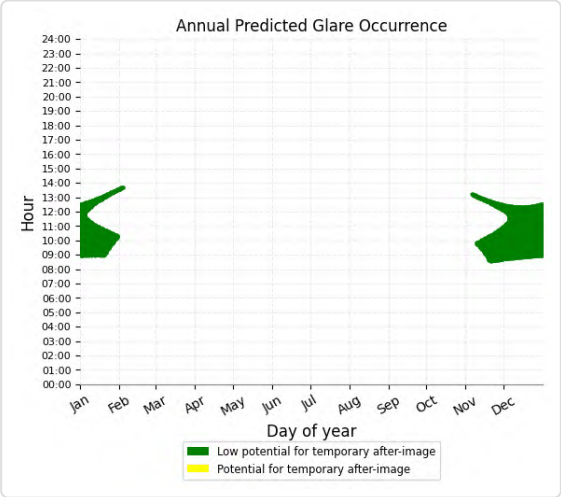


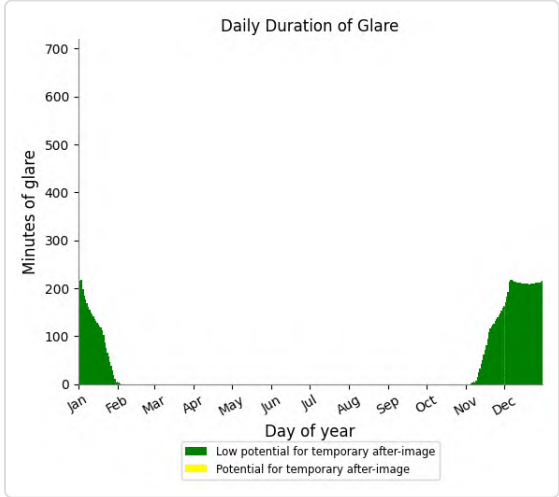


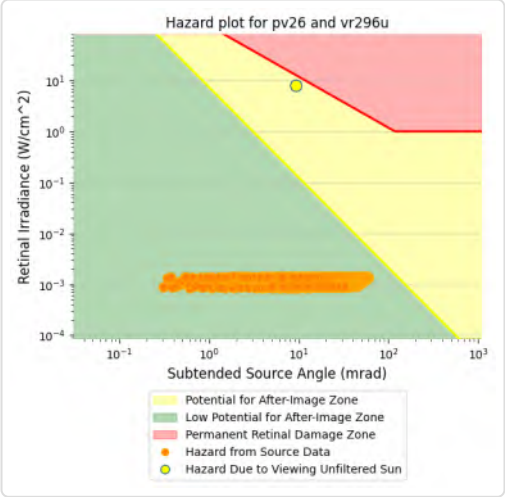
PV26 and FP: VR296u

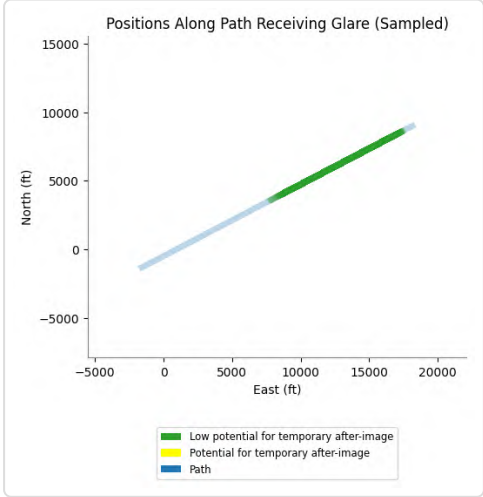
Yellow glare: none

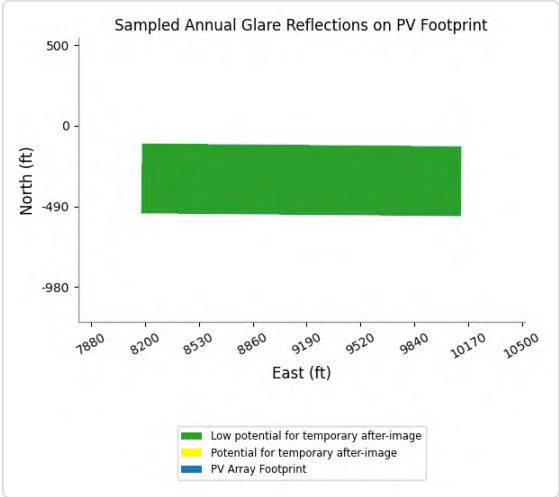
Green glare: 12,289 min.

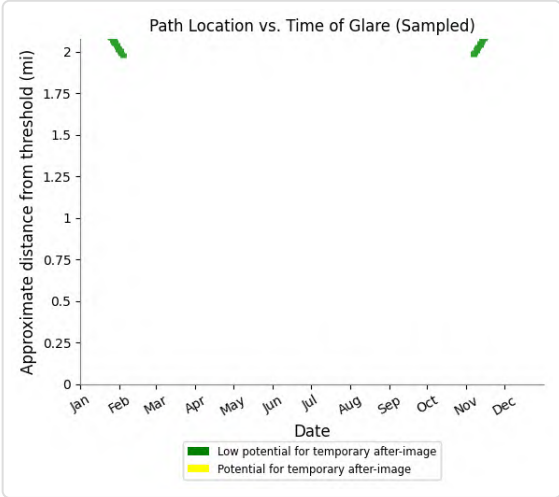












PV26 and FP: CN645

No glare found

PV26 and FP: IR217I

No glare found

PV26 and FP: VR289I

No glare found

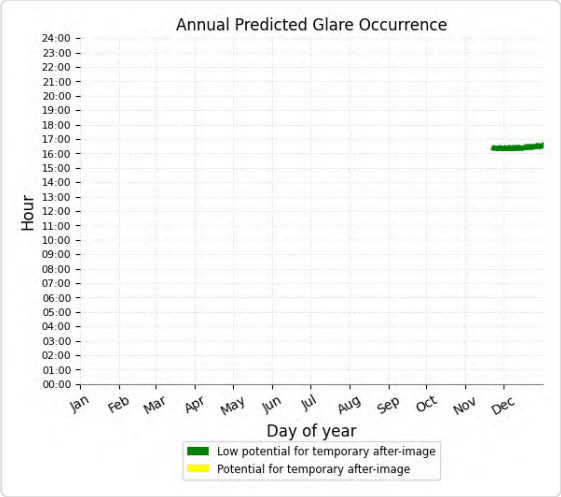
PV26 and FP: VR296I

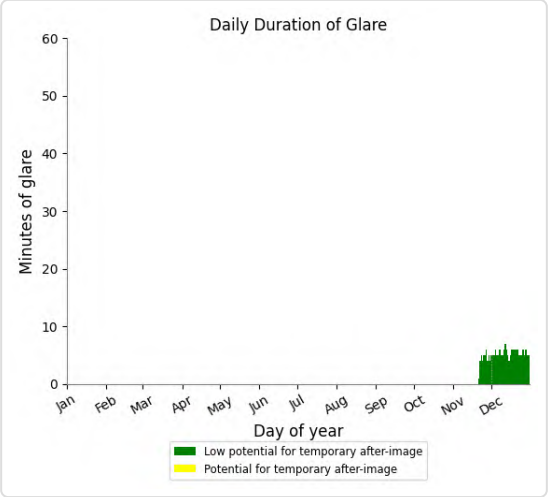
No glare found

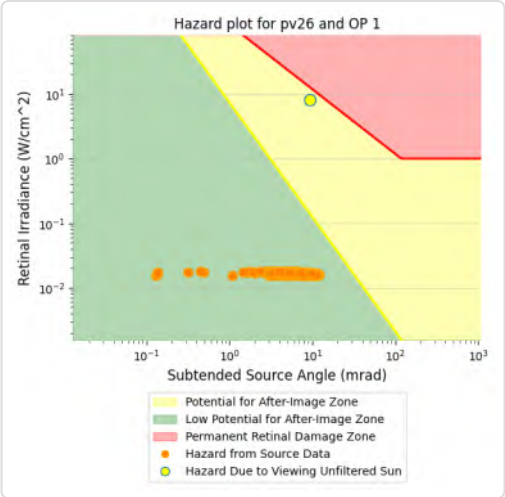
PV26 and OP 1

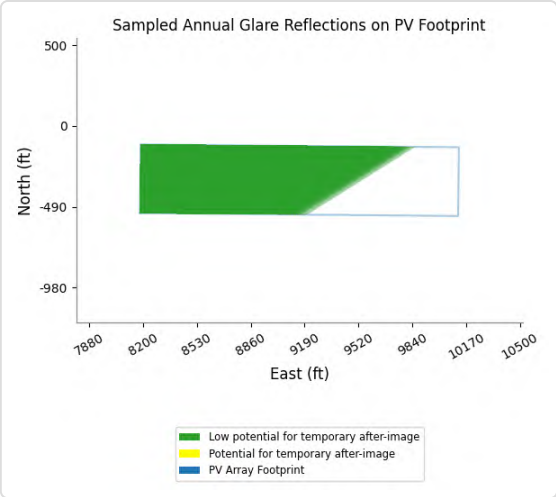
Yellow glare: none

Green glare: 212 min.





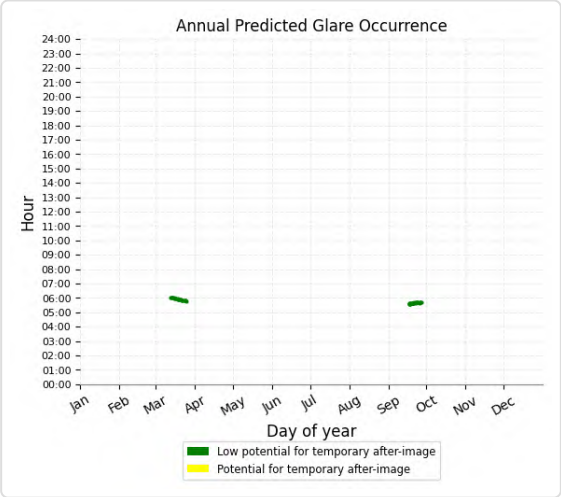


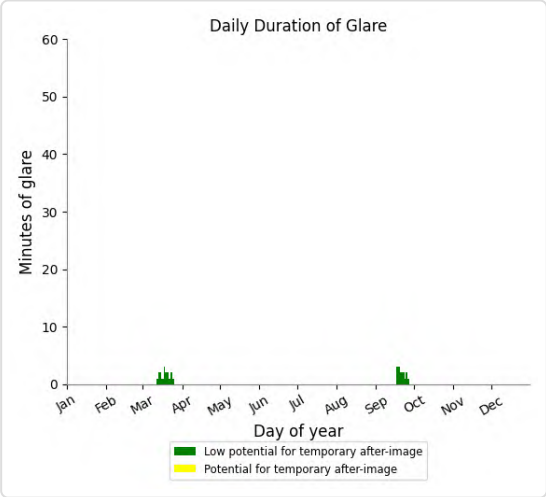


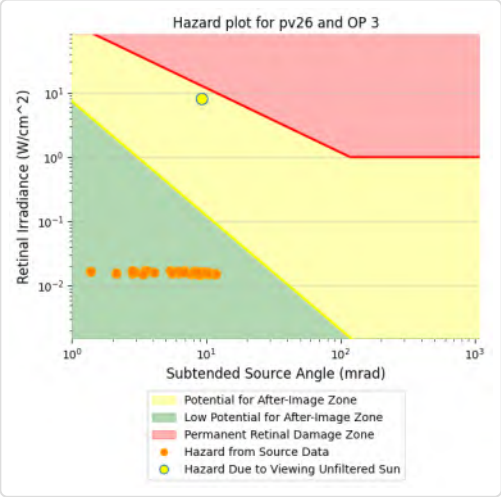
PV26 and OP 3

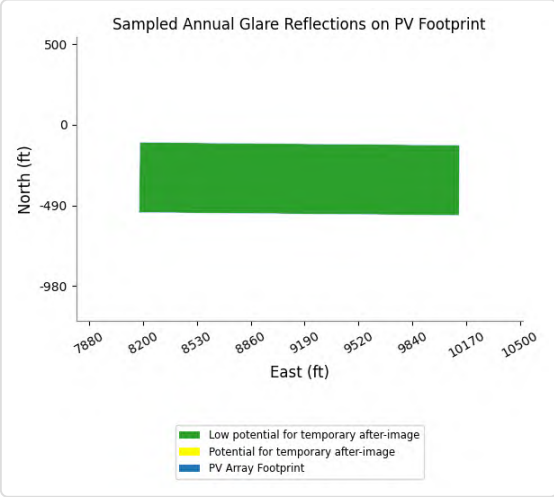
Yellow glare: none

Green glare: 45 min.





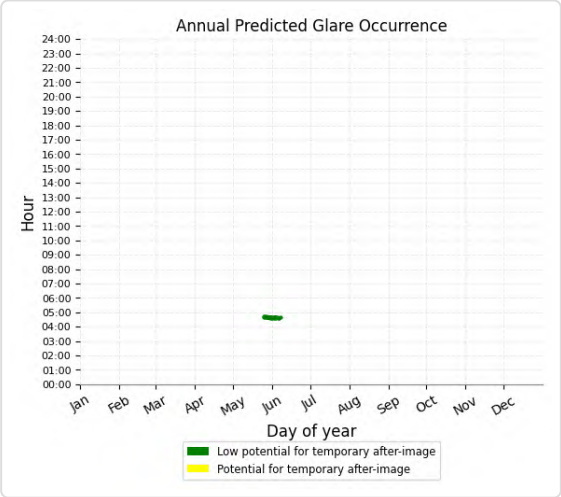


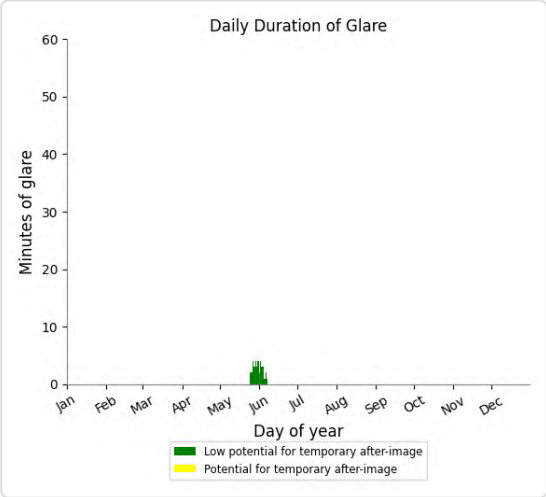


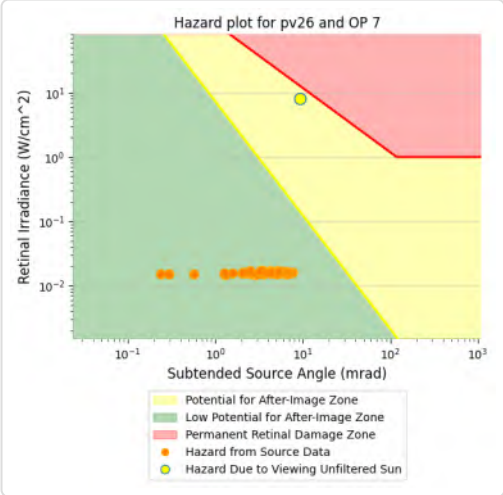
PV26 and OP 7

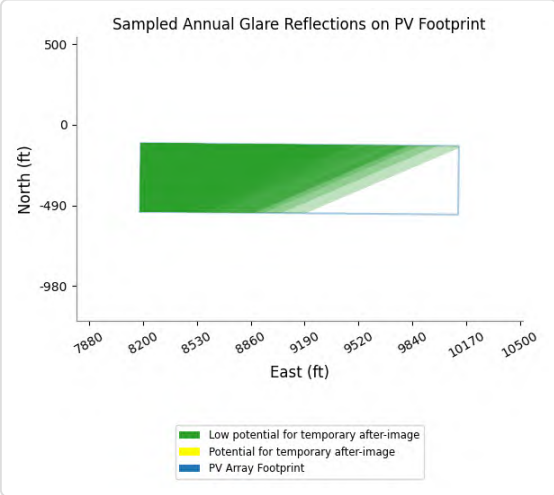
Yellow glare: none

Green glare: 38 min.





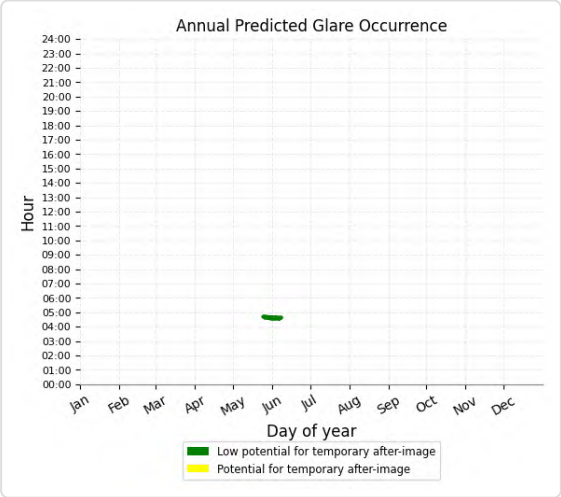


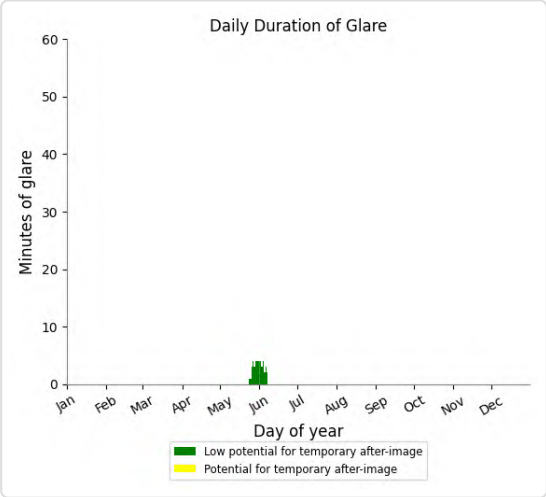


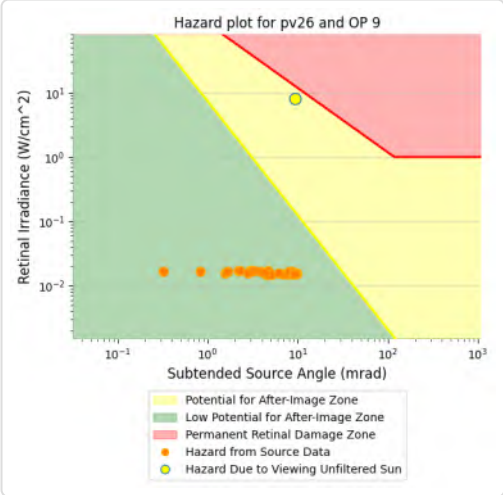
PV26 and OP 9

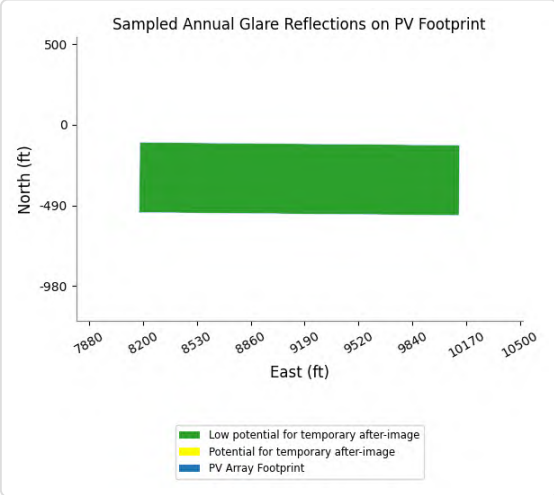
Yellow glare: none

Green glare: 46 min.





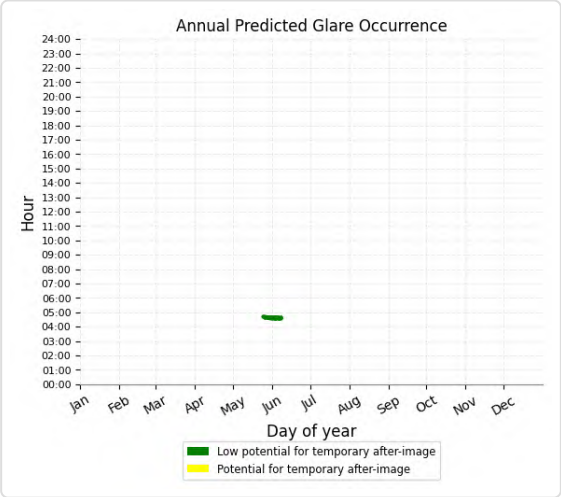


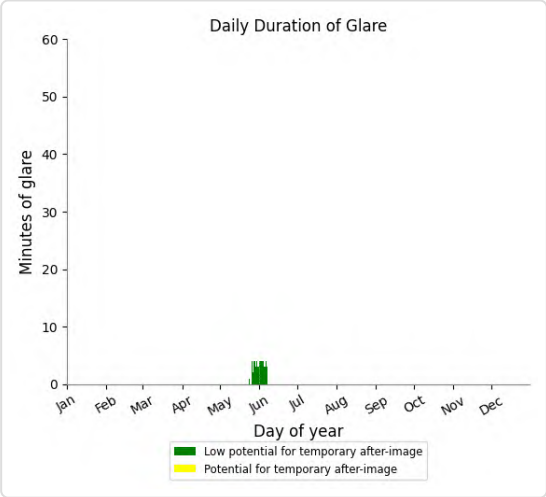


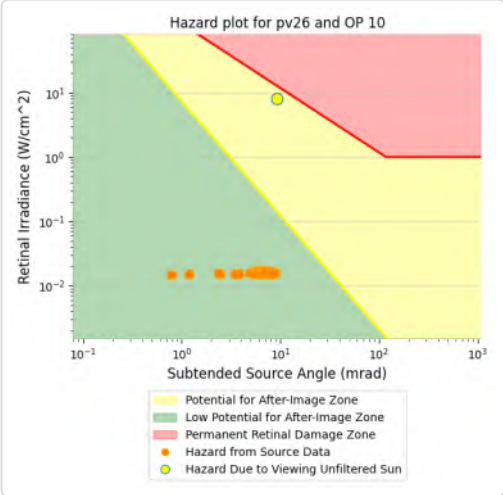
PV26 and OP 10

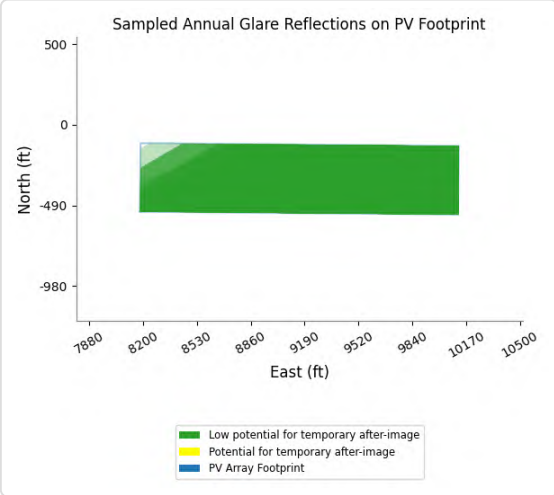
Yellow glare: none

Green glare: 47 min.



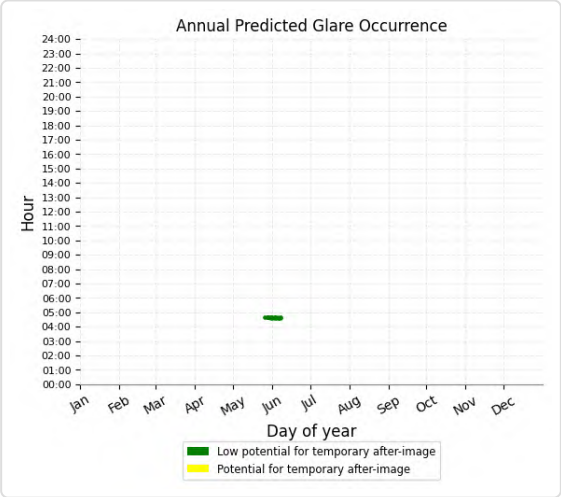


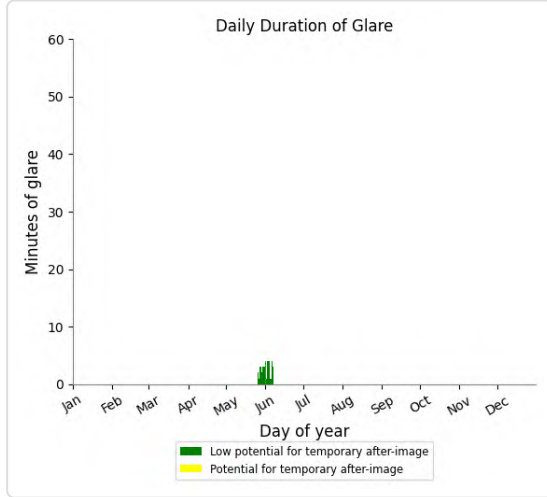


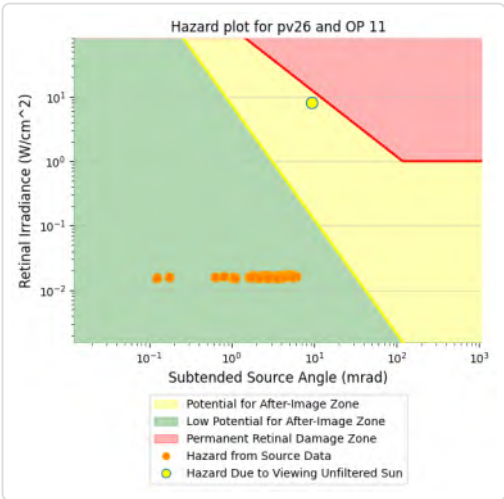


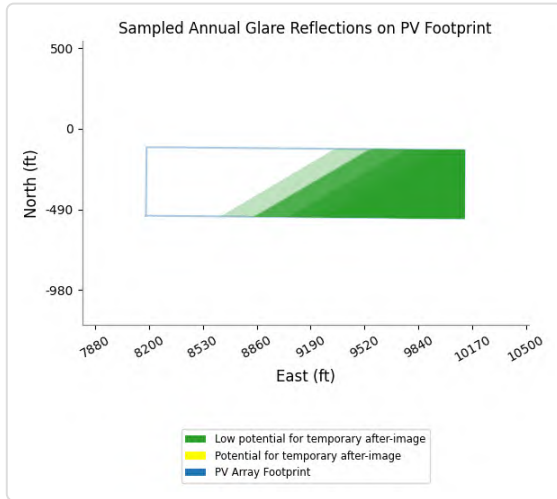
PV26 and OP 11

Yellow glare: none
Green glare: 35 min.









PV26 and OP 2

No glare found

PV26 and OP 4

No glare found

PV26 and OP 5

No glare found

PV26 and OP 6

No glare found

PV26 and OP 8

No glare found

PV26 and OP 12

No glare found

PV26 and OP 13

No glare found

PV26 and OP 14

No glare found

PV26 and OP 15

No glare found

PV26 and OP 16

No glare found

PV26 and OP 17

No glare found

PV26 and OP 18

No glare found

PV26 and OP 19

No glare found

PV: PV27 potential temporary after-image

Receptor results ordered by category of glare

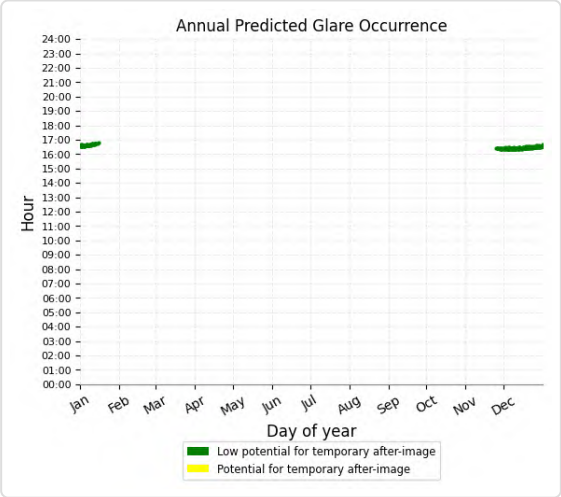
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
SR177 A	241	4.0	0	0.0
SR177 B	384	6.4	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 C	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR218l	1,889	31.5	1,490	24.8
VR289m	3,854	64.2	202	3.4
CN6423	1,131	18.9	0	0.0
IR217m	9,662	161.0	0	0.0
IR217u	8,136	135.6	0	0.0
IR218m	15,211	253.5	0	0.0
IR218u	3,663	61.0	0	0.0
IR255l	1,529	25.5	0	0.0
IR255m	8,188	136.5	0	0.0
IR255u	4,656	77.6	0	0.0
VR289u	10,859	181.0	0	0.0
VR296m	2,779	46.3	0	0.0
VR296u	12,547	209.1	0	0.0
CN645	0	0.0	0	0.0
IR217l	0	0.0	0	0.0
VR289l	0	0.0	0	0.0
VR296l	0	0.0	0	0.0
OP 7	145	2.4	0	0.0
OP 9	167	2.8	0	0.0

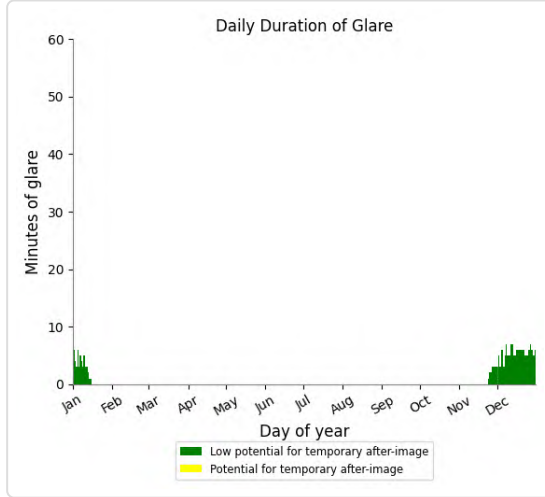
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 10	149	2.5	0	0.0
OP 11	101	1.7	0	0.0
OP 12	39	0.7	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

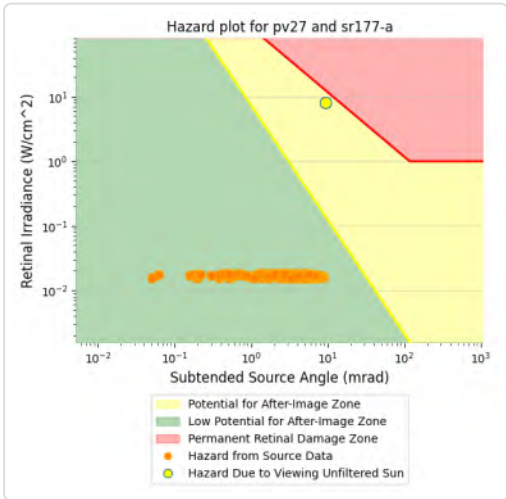
PV27 and Route: SR177 A

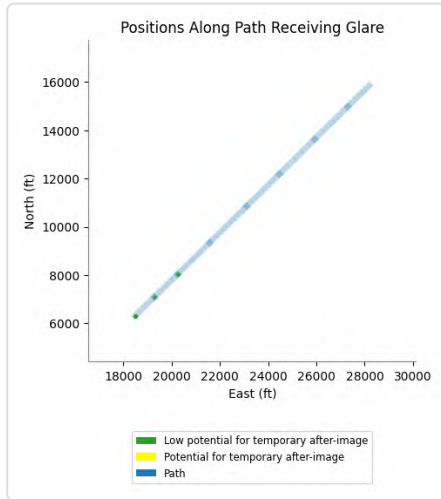
Yellow glare: none

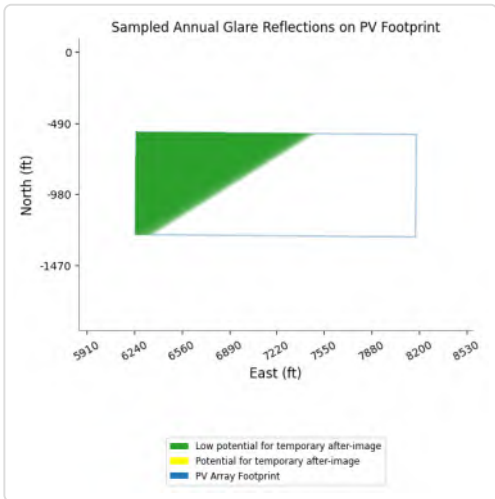
Green glare: 241 min.







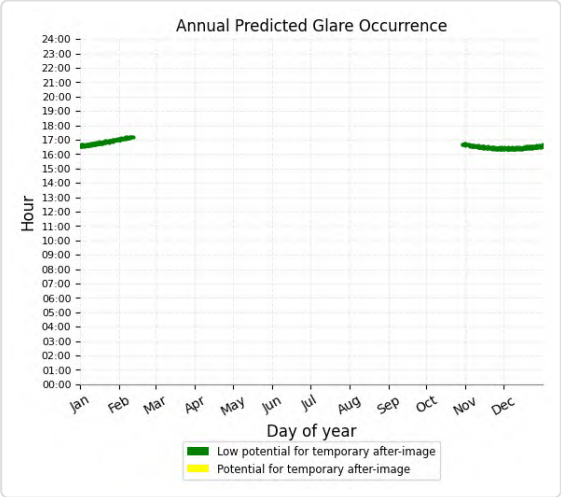


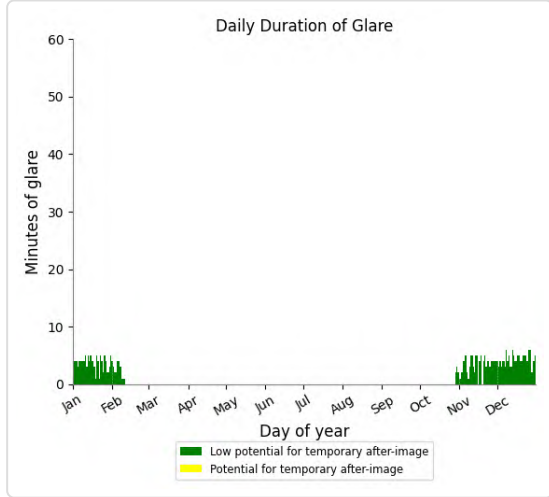


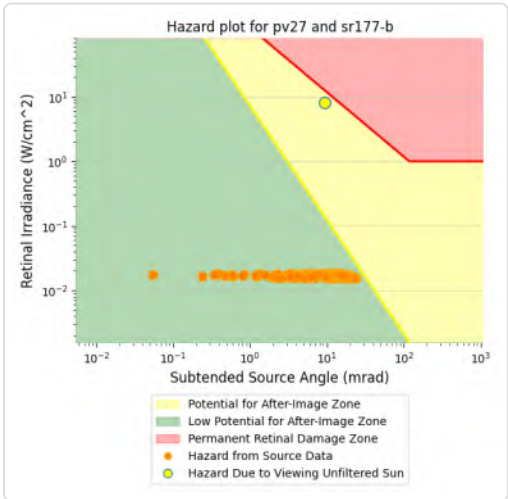
PV27 and Route: SR177 B

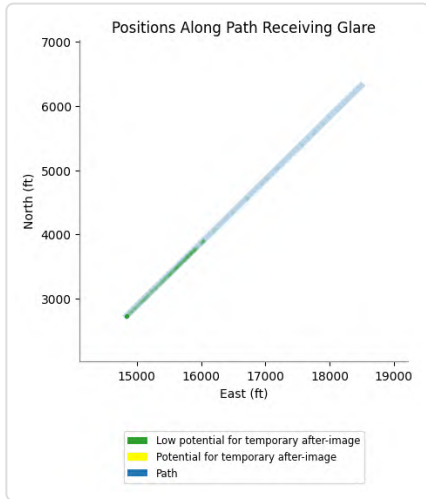
Yellow glare: none

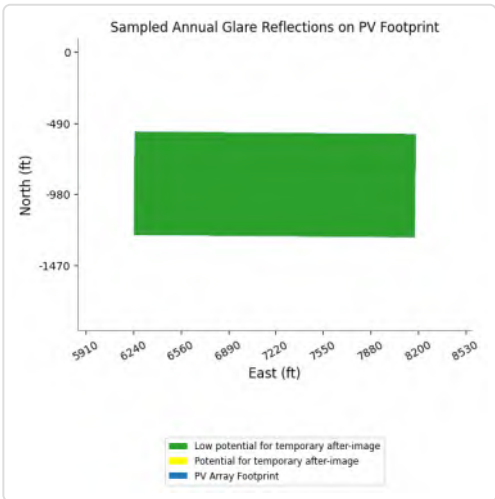
Green glare: 384 min.











PV27 and Route: AirportRd A

No glare found

PV27 and Route: AirportRd B

No glare found

PV27 and Route: EagleMtnRd A

No glare found

PV27 and Route: EagleMtnRd B

No glare found

PV27 and Route: I-10 EB A

No glare found

PV27 and Route: I-10 EB B

No glare found

PV27 and Route: I-10 EB C

No glare found

PV27 and Route: I-10 WB A

No glare found

PV27 and Route: I-10 WB B

No glare found

PV27 and Route: I-10 WB C

No glare found

PV27 and Route: KaiserRd A

No glare found

PV27 and Route: KaiserRd B

No glare found

PV27 and Route: KaiserRd C

No glare found

PV27 and Route: OasisRd

No glare found

PV27 and Route: Race Track

No glare found

PV27 and Route: SR177 C

No glare found

PV27 and Route: SR177 D

No glare found

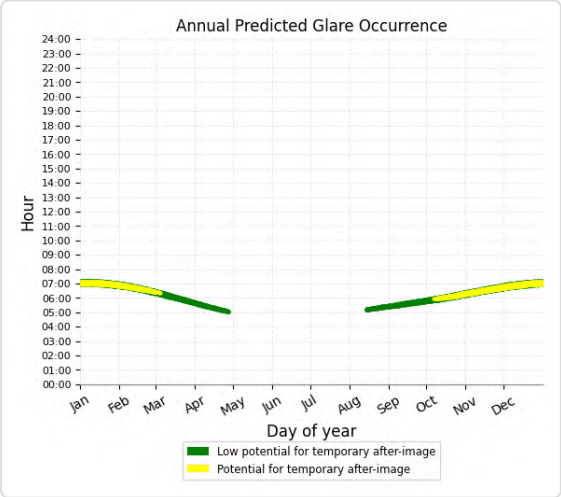
PV27 and Route: SR177 E

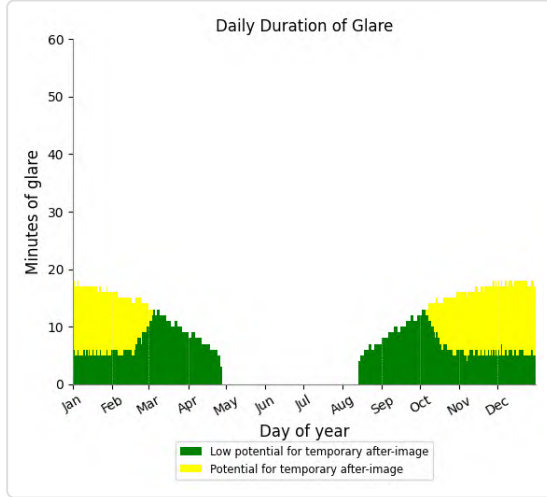
No glare found

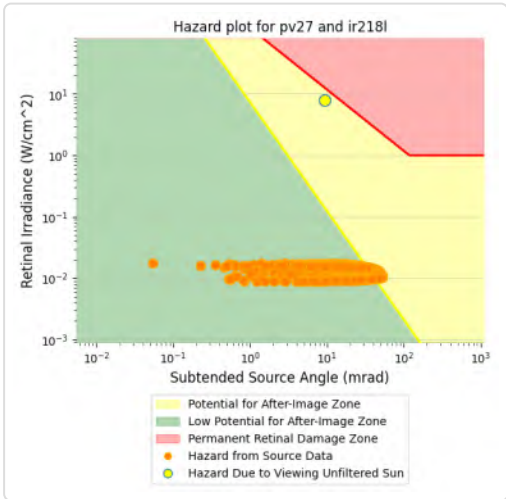
PV27 and FP: IR218I

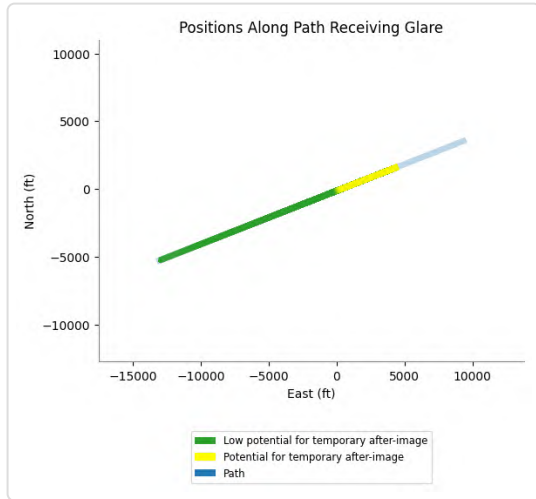
Yellow glare: 1,490 min.

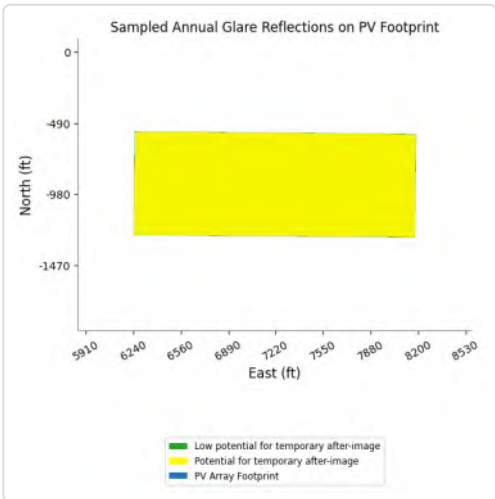
Green glare: 1,889 min.

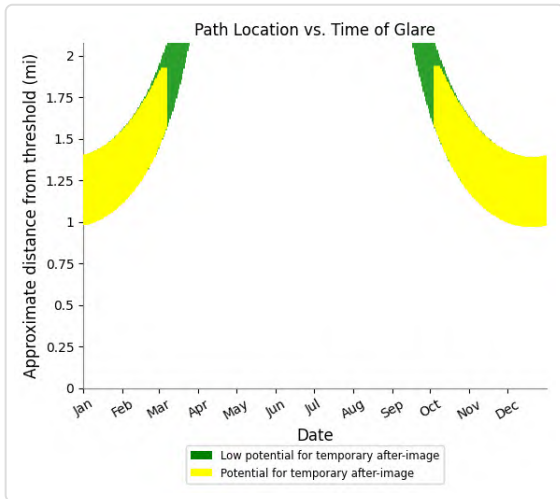








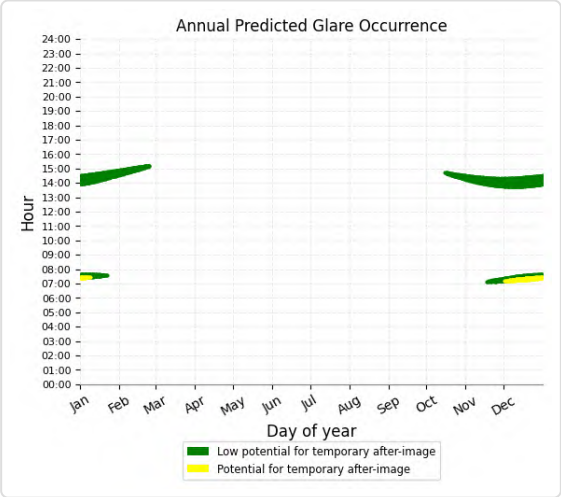


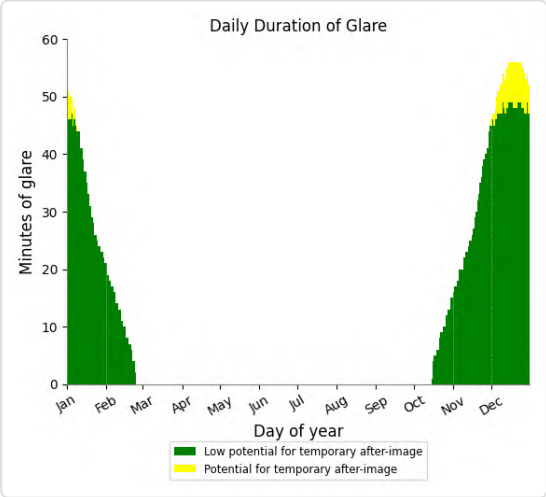


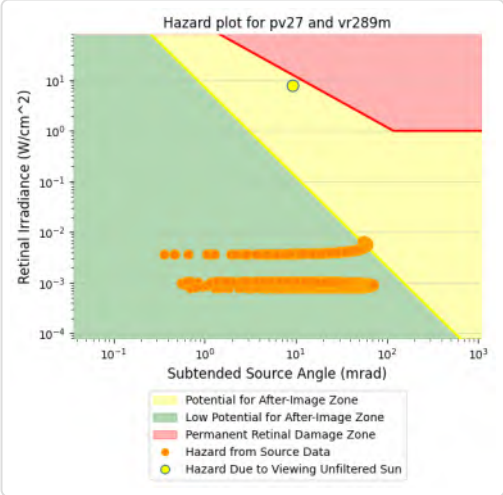
PV27 and FP: VR289m

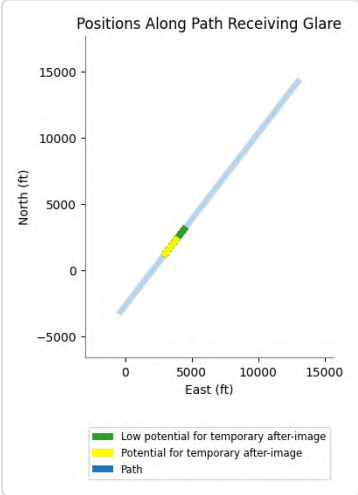
Yellow glare: 202 min.

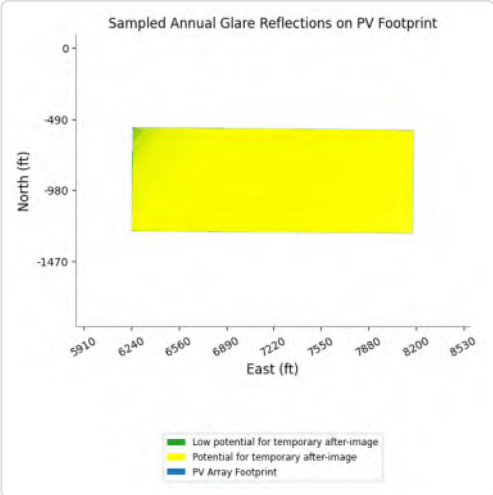
Green glare: 3,854 min.

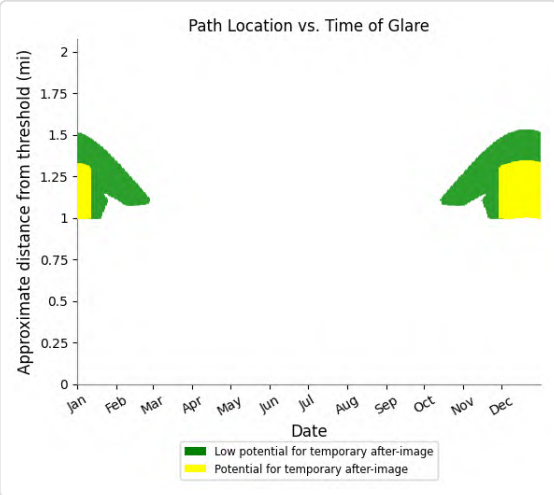








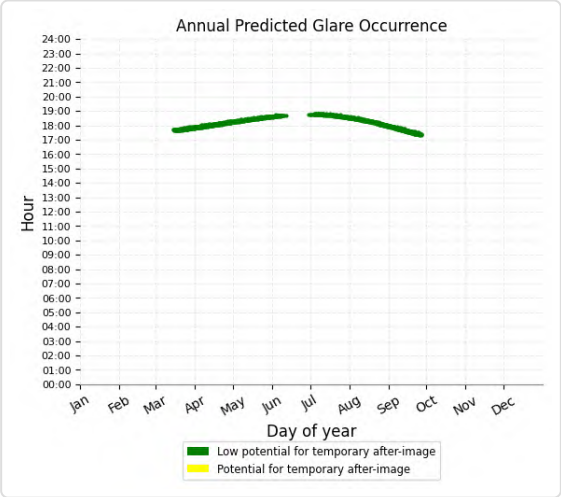


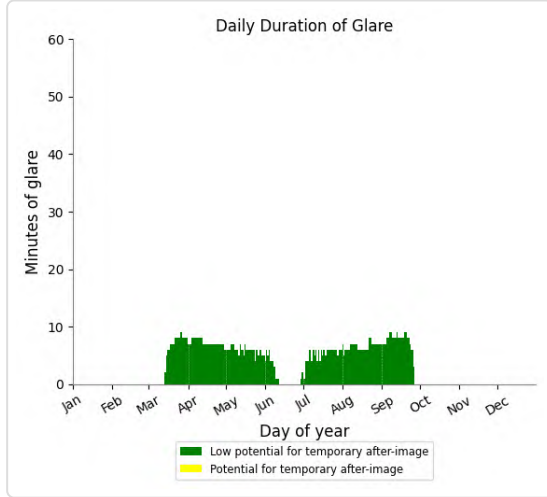


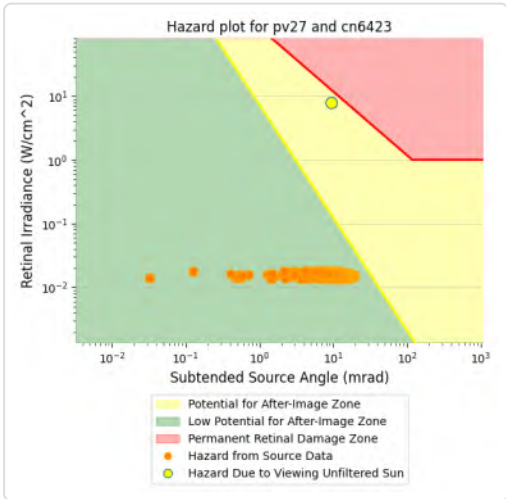
PV27 and FP: CN6423

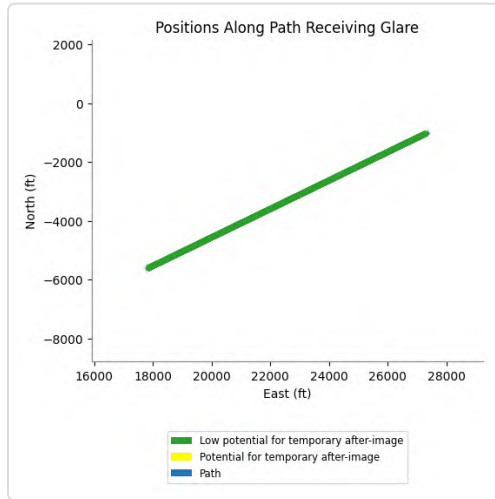
Yellow glare: none

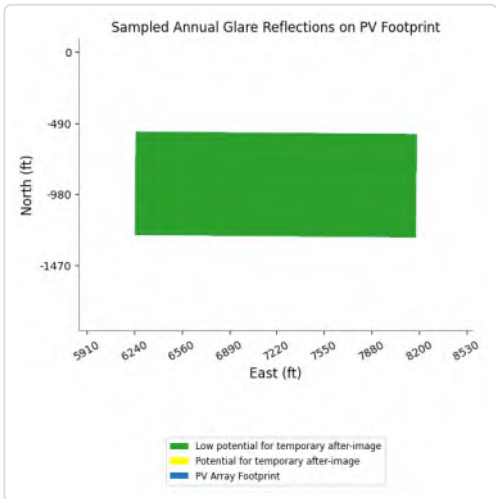
Green glare: 1,131 min.

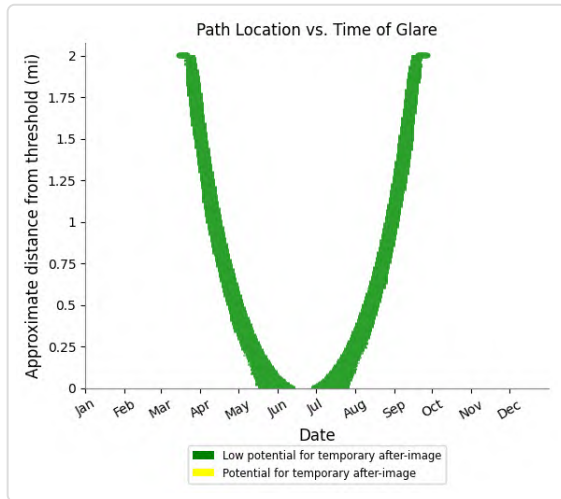








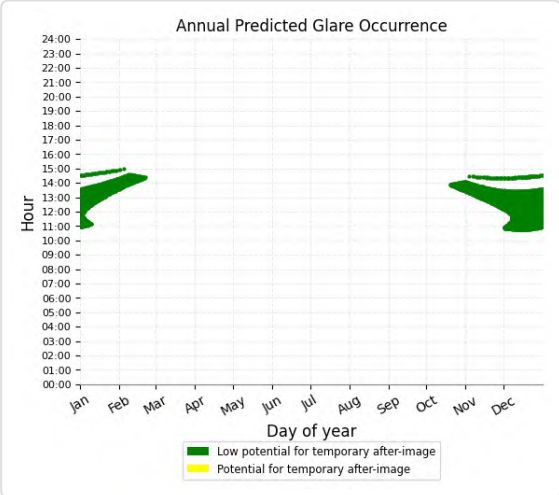


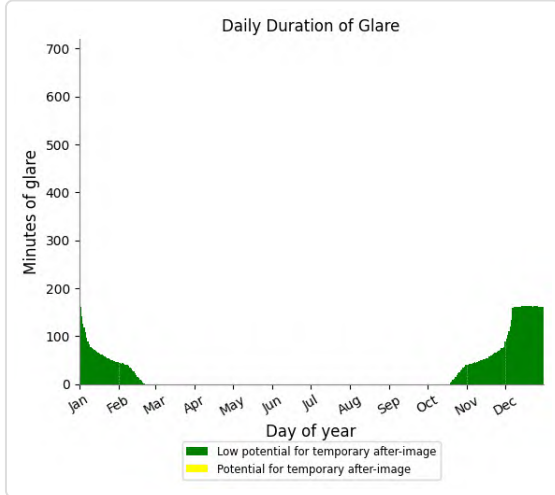


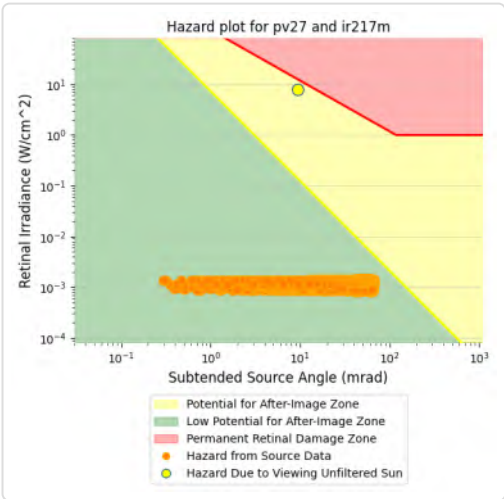
PV27 and FP: IR217m

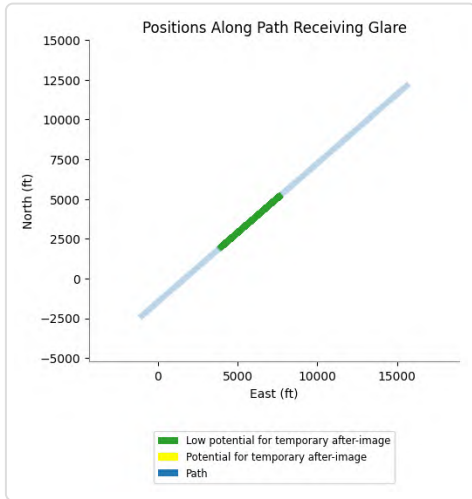
Yellow glare: none

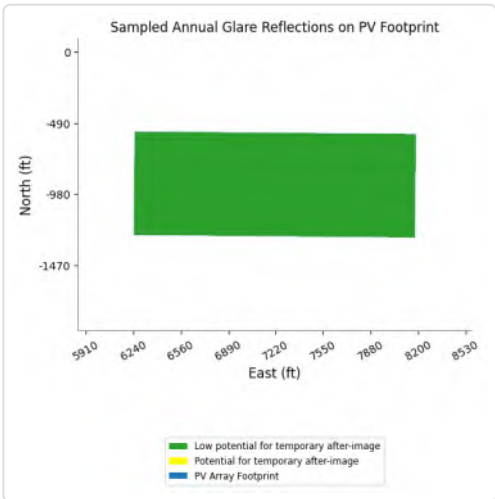
Green glare: 9,662 min.

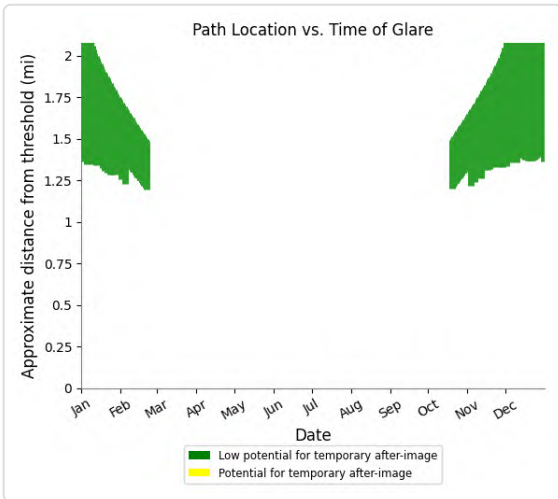








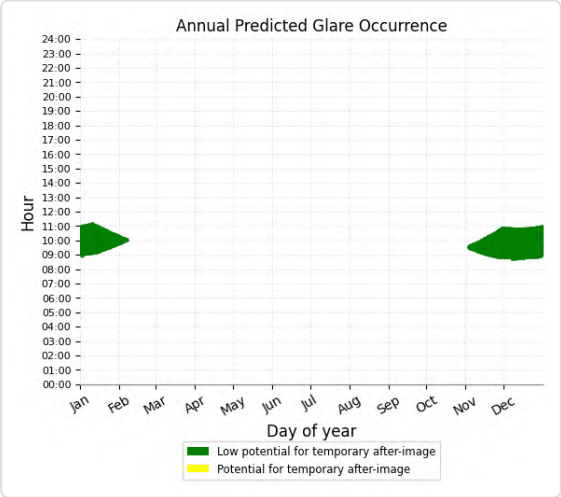


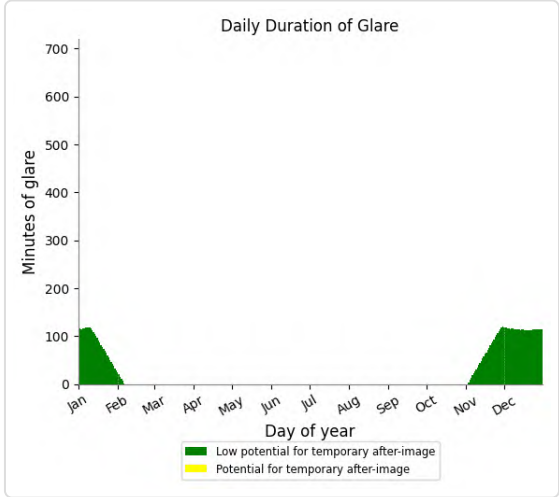


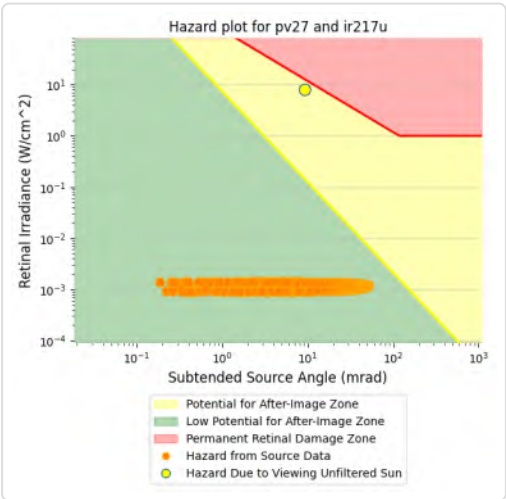
PV27 and FP: IR217u

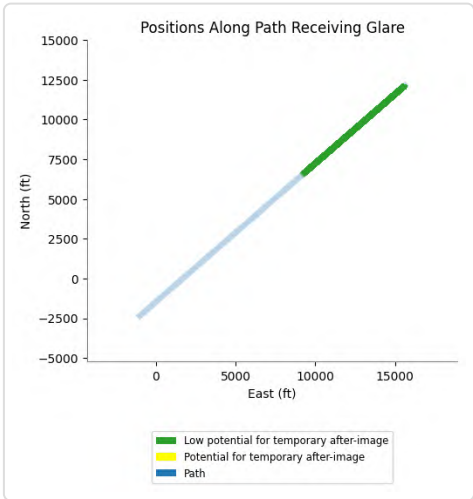
Yellow glare: none

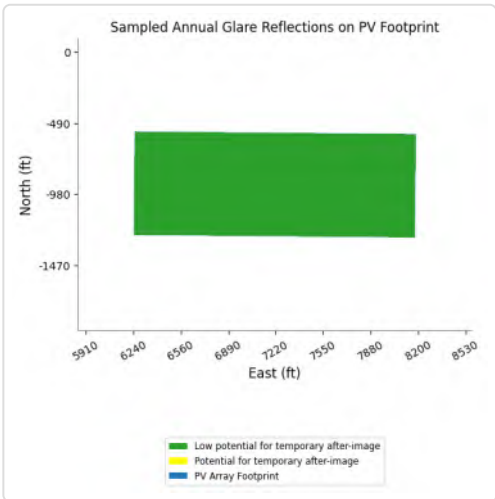
Green glare: 8,136 min.

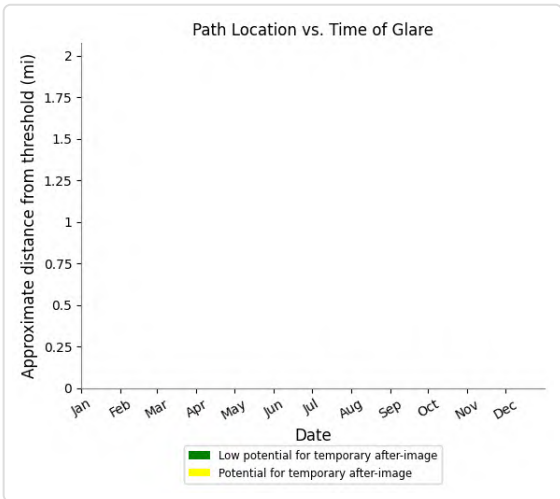








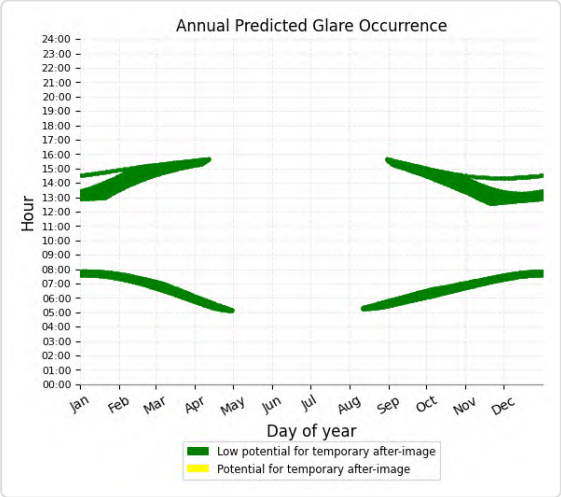


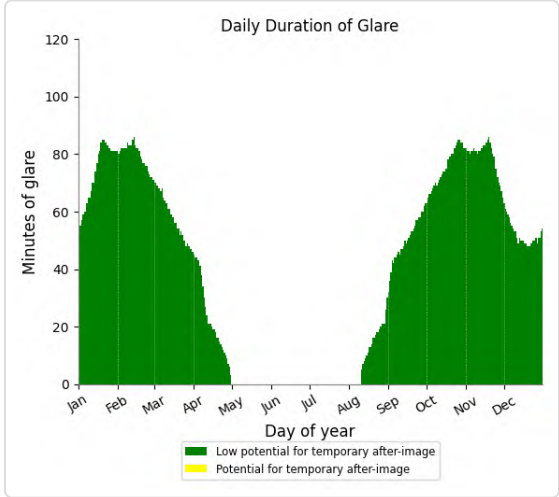


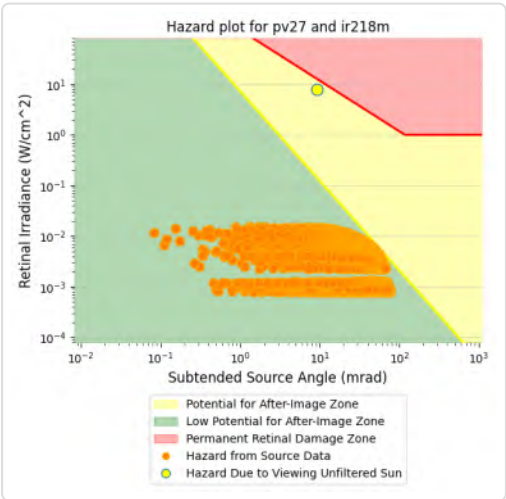
PV27 and FP: IR218m

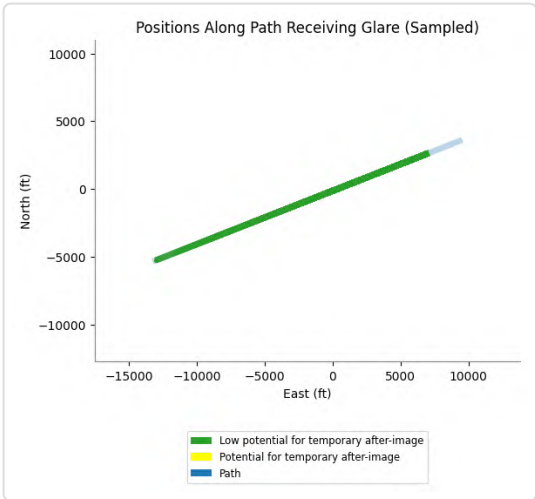
Yellow glare: none

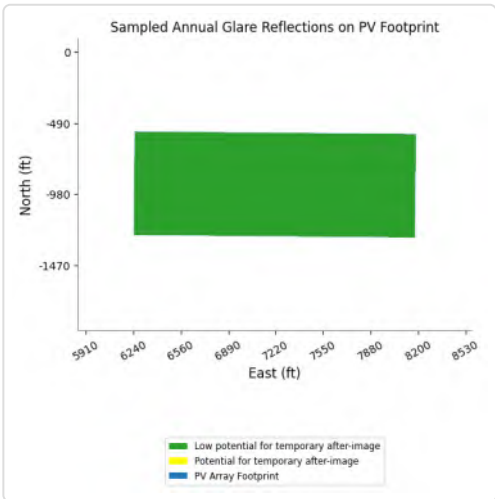
Green glare: 15,211 min.

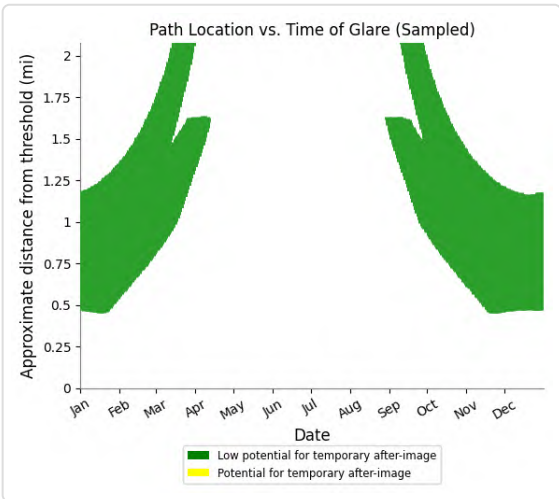








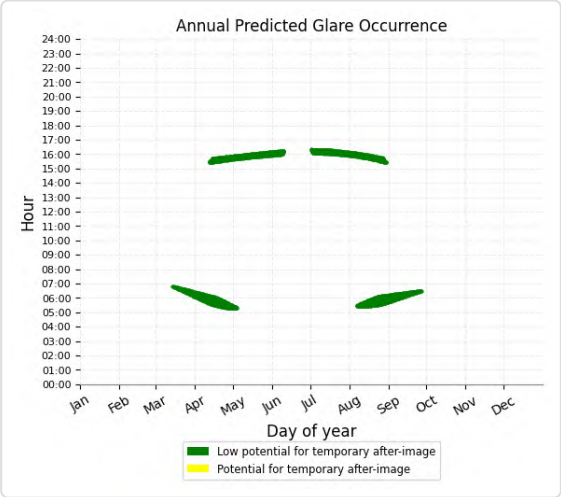


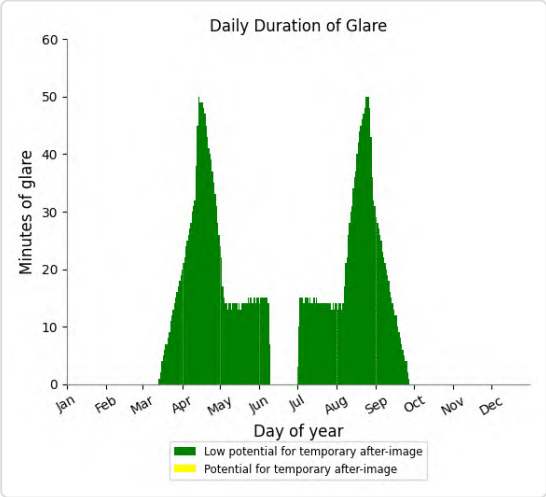


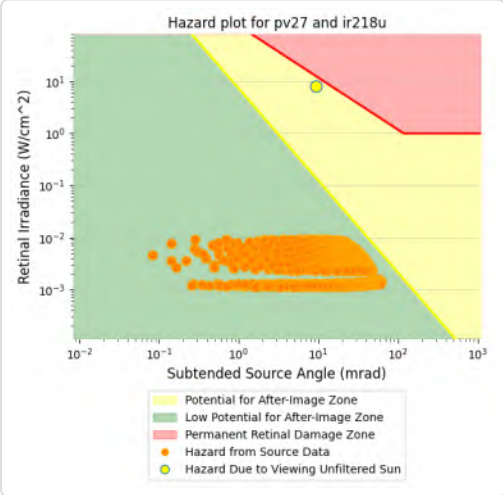
PV27 and FP: IR218u

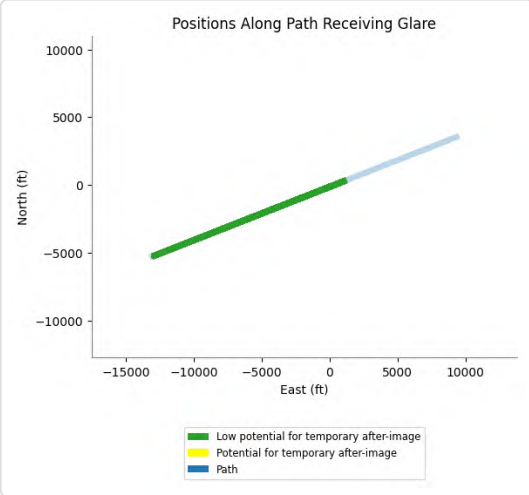
Yellow glare: none

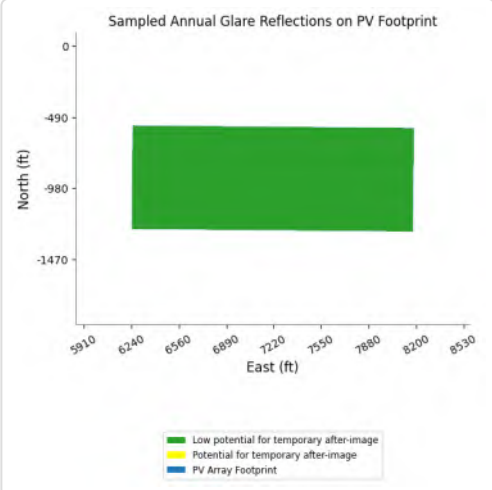
Green glare: 3,663 min.

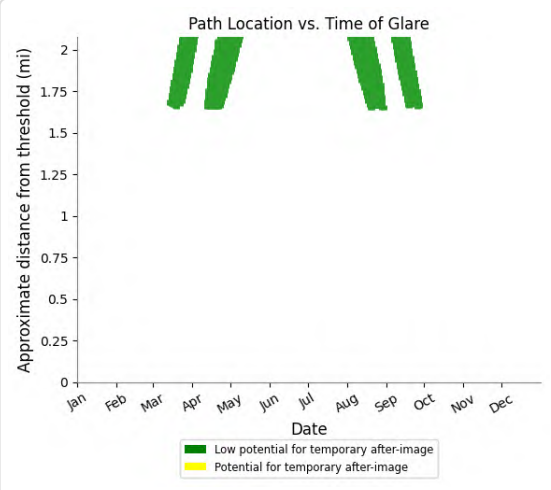








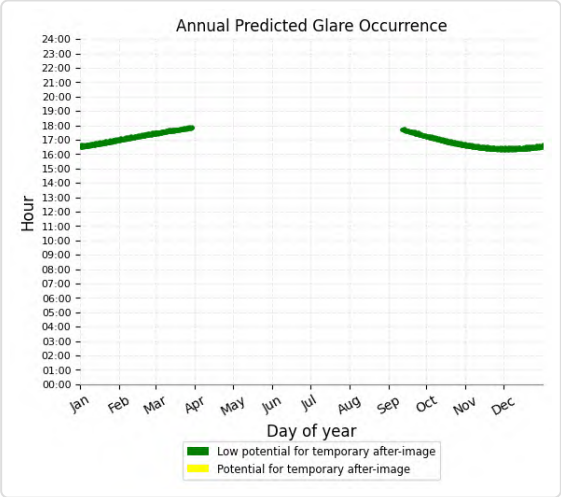


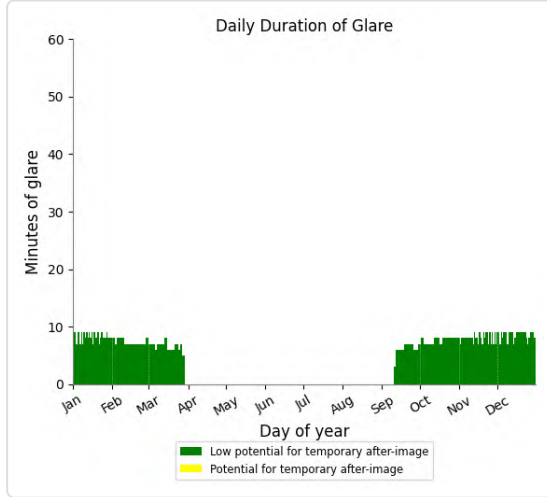


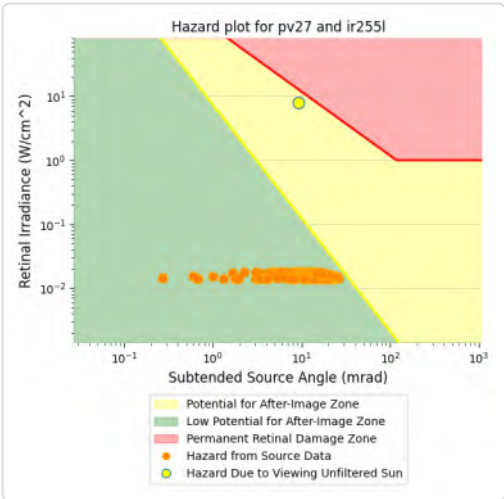
PV27 and FP: IR255l

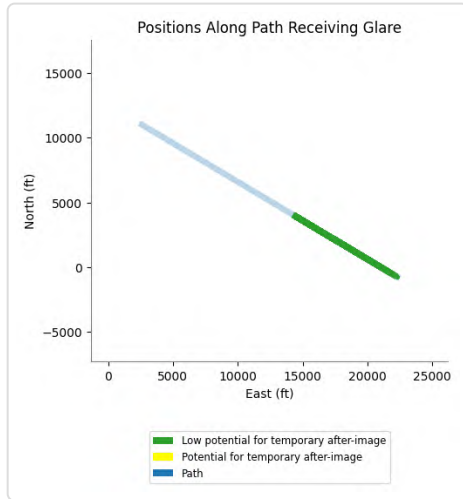
Yellow glare: none

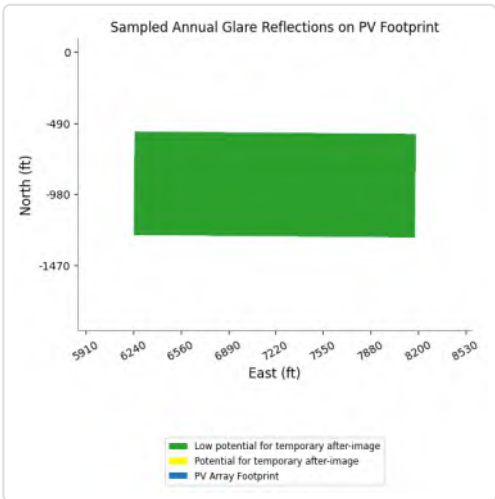
Green glare: 1,529 min.

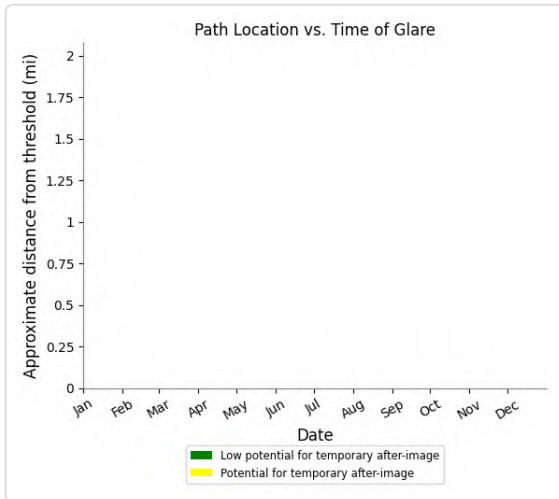








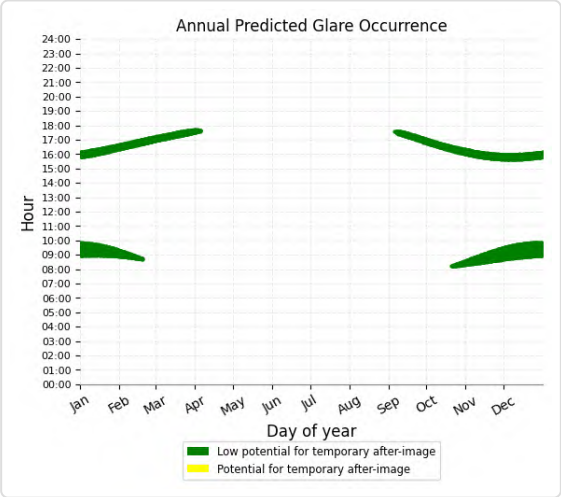


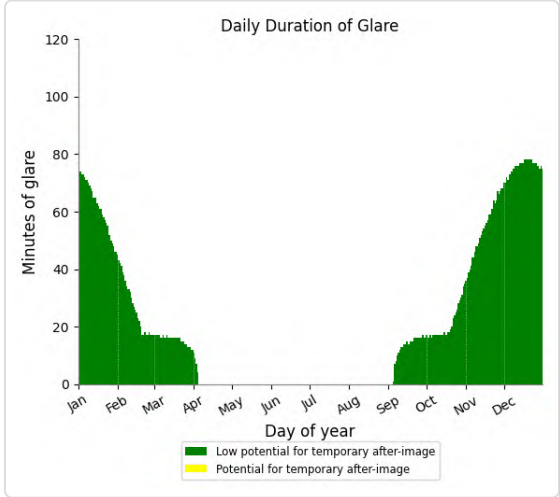


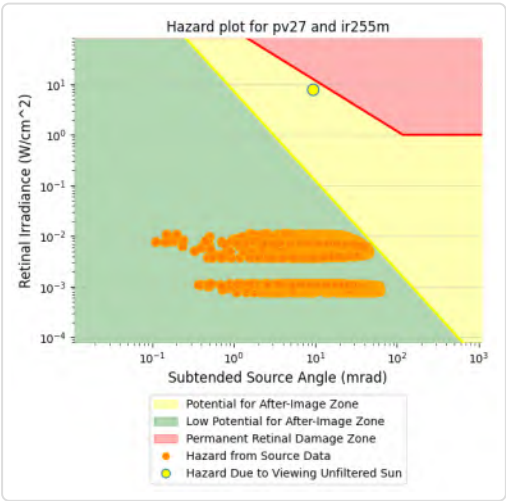
PV27 and FP: IR255m

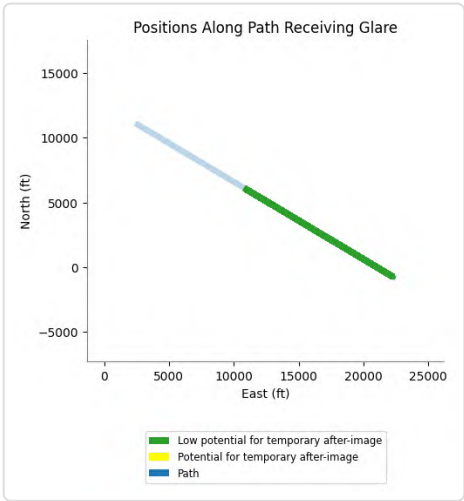
Yellow glare: none

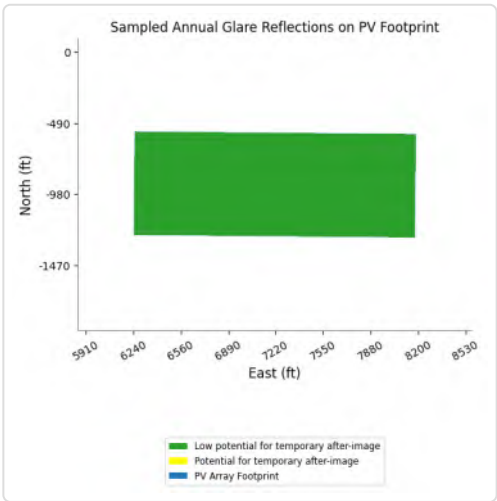
Green glare: 8,188 min.

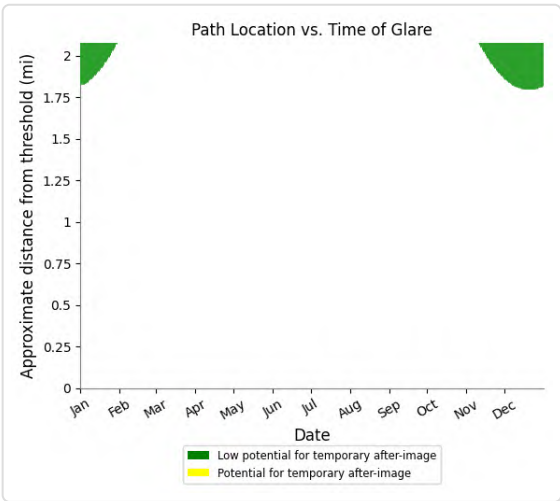








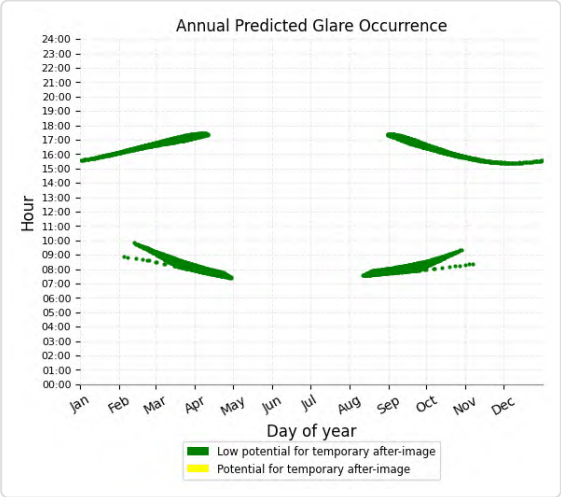


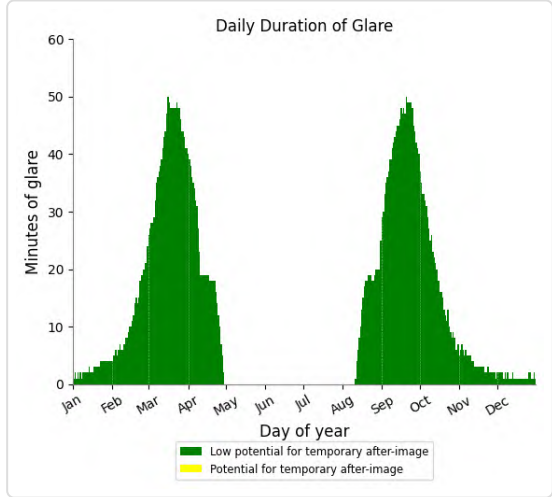


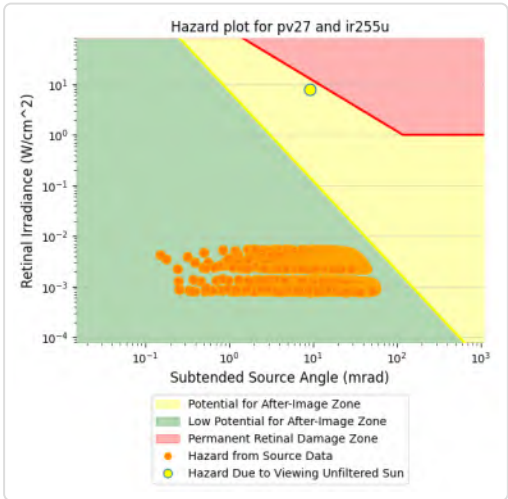
PV27 and FP: IR255u

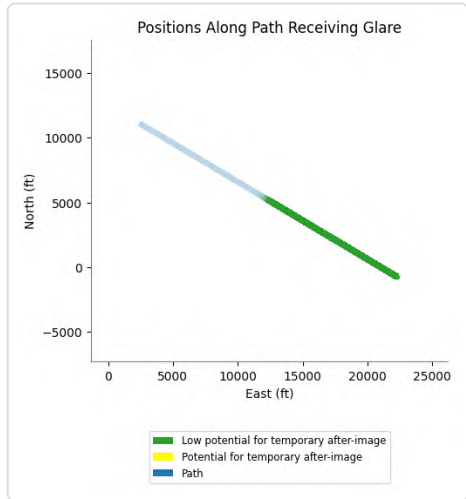
Yellow glare: none

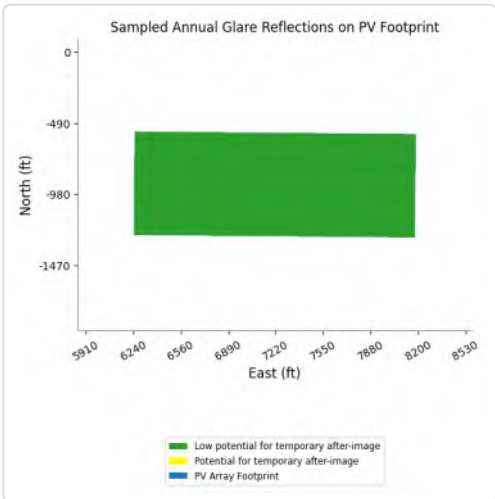
Green glare: 4,656 min.

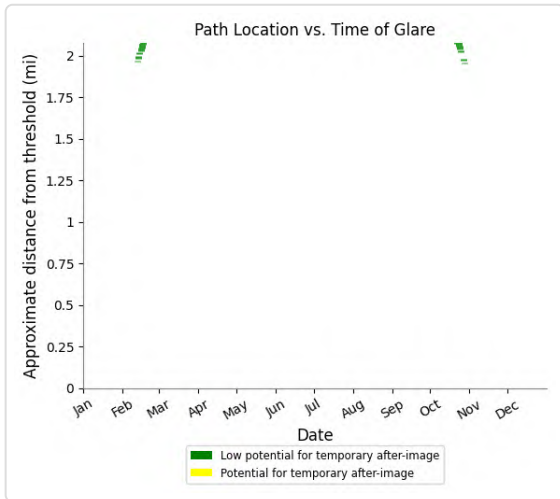








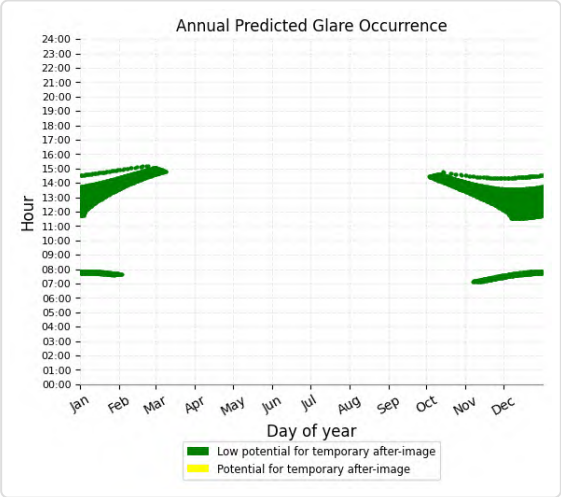


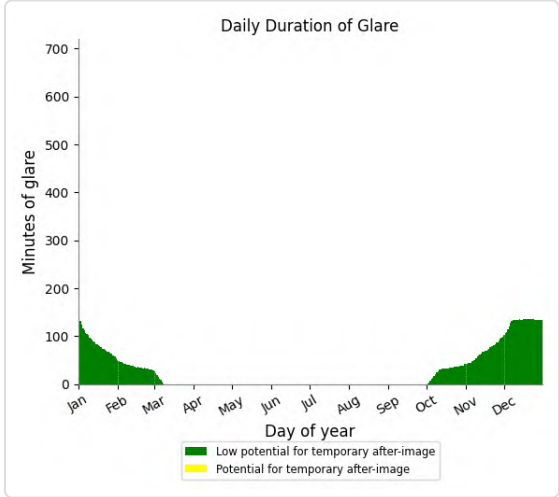


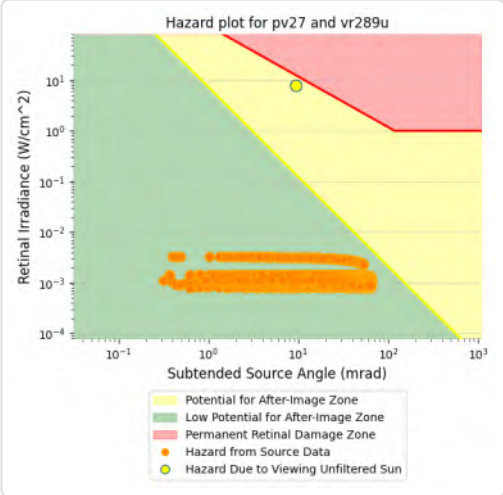
PV27 and FP: VR289u

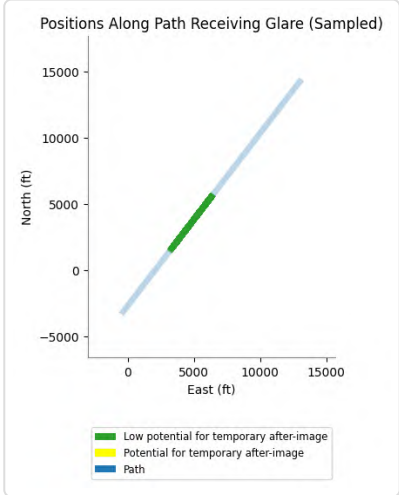
Yellow glare: none

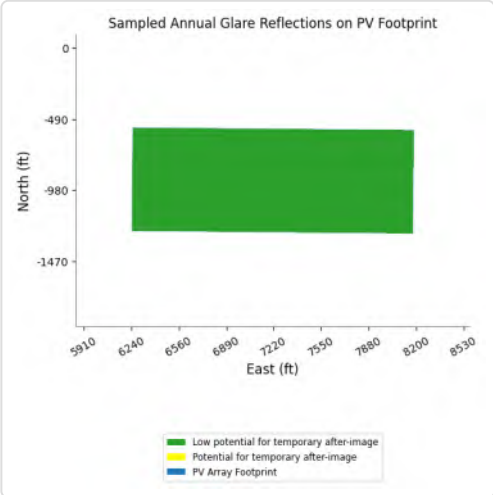
Green glare: 10,859 min.

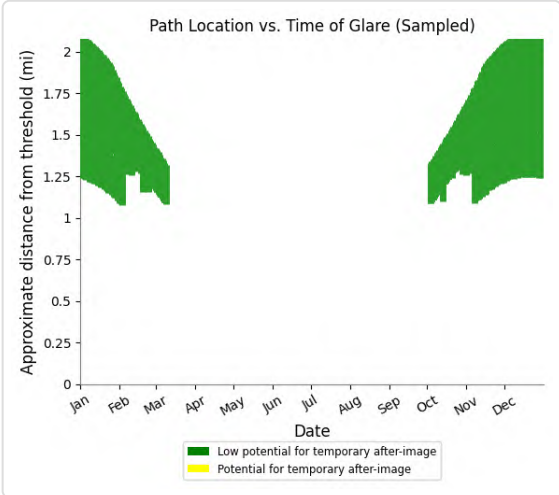








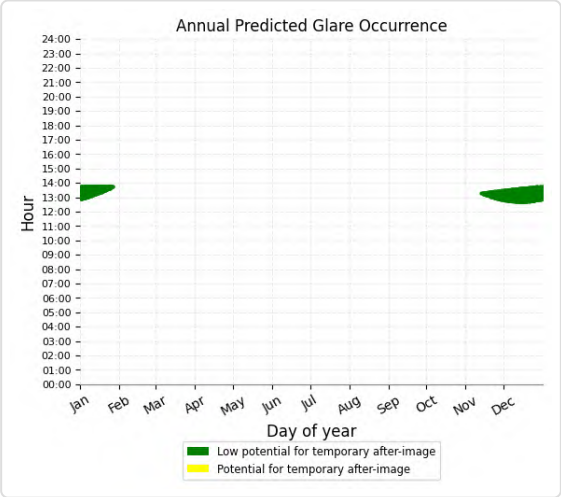


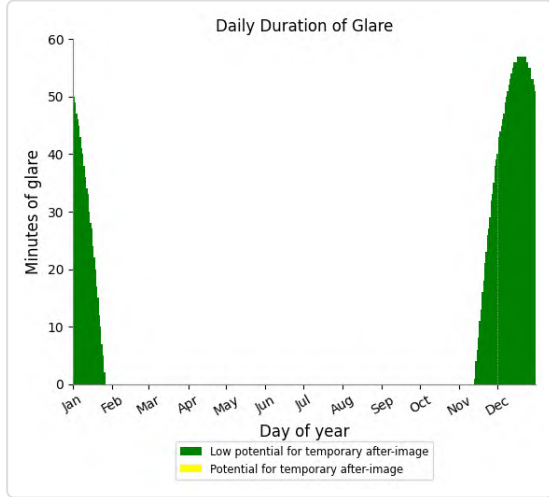


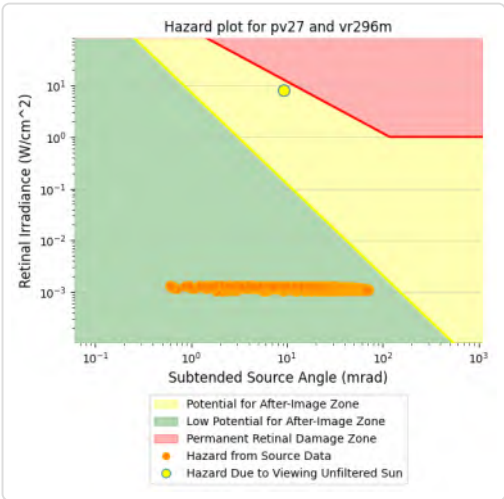
PV27 and FP: VR296m

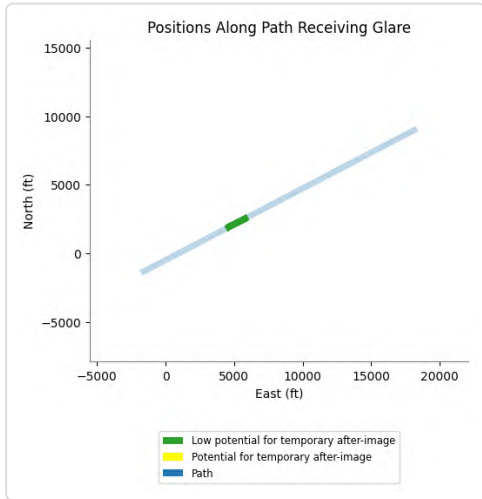
Yellow glare: none

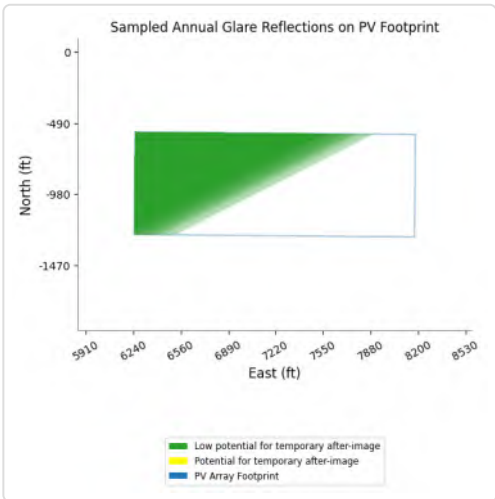
Green glare: 2,779 min.

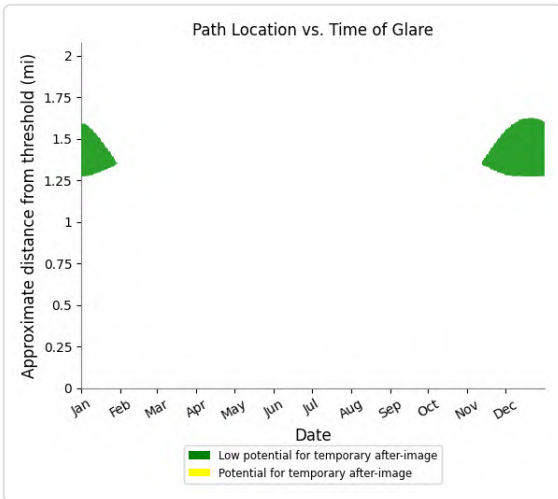








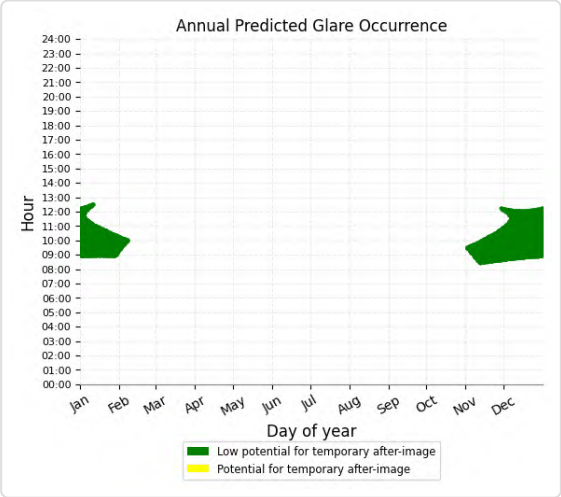


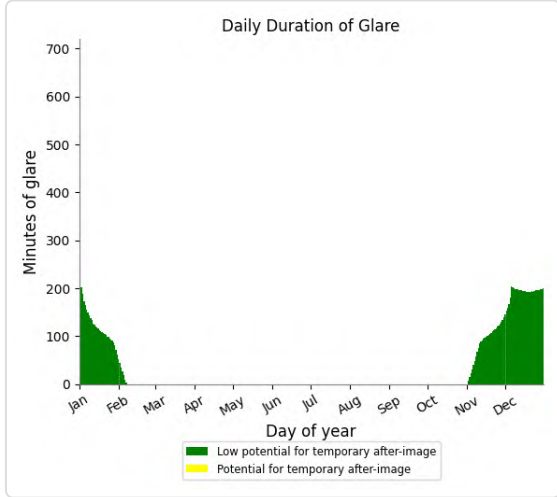


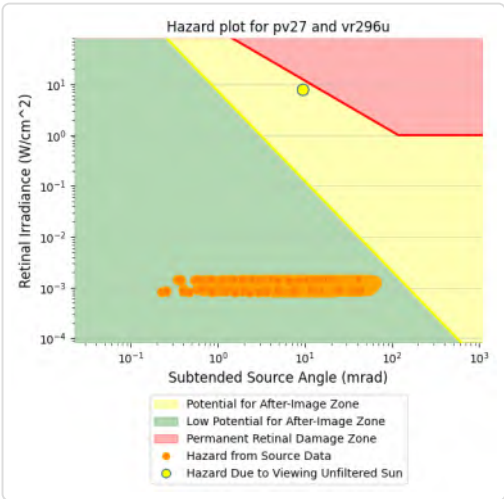
PV27 and FP: VR296u

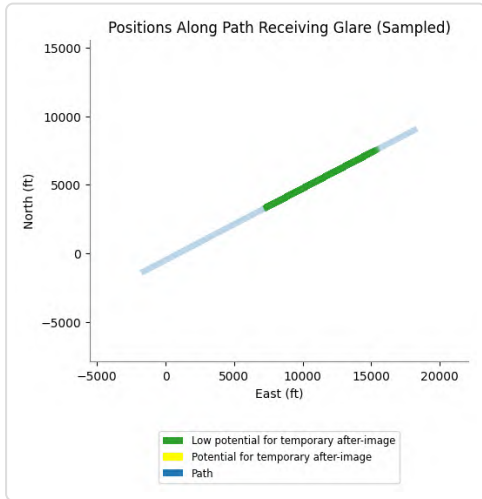
Yellow glare: none

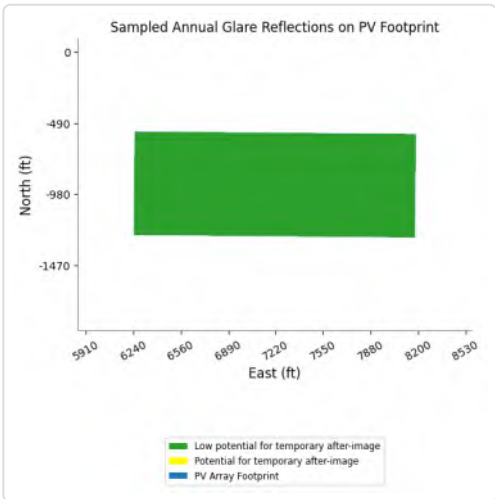
Green glare: 12,547 min.

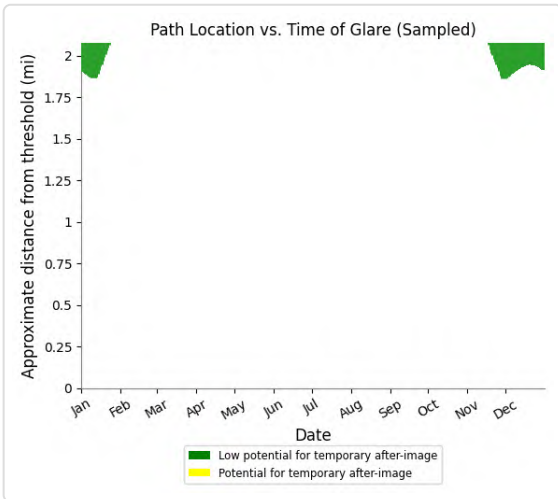












PV27 and FP: CN645

No glare found

PV27 and FP: IR217I

No glare found

PV27 and FP: VR289I

No glare found

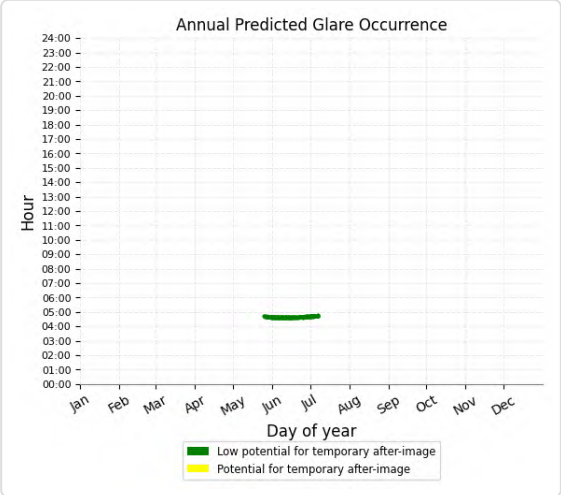
PV27 and FP: VR296I

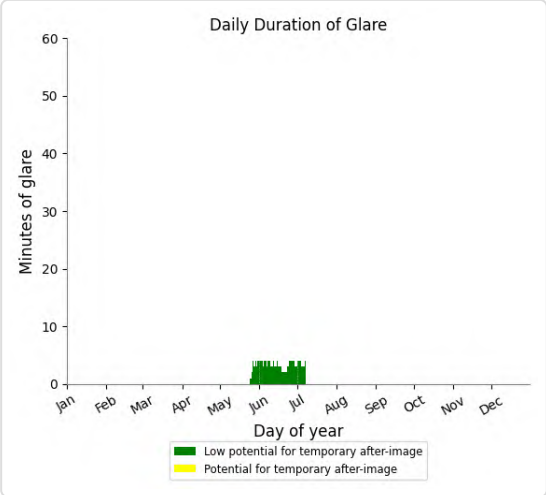
No glare found

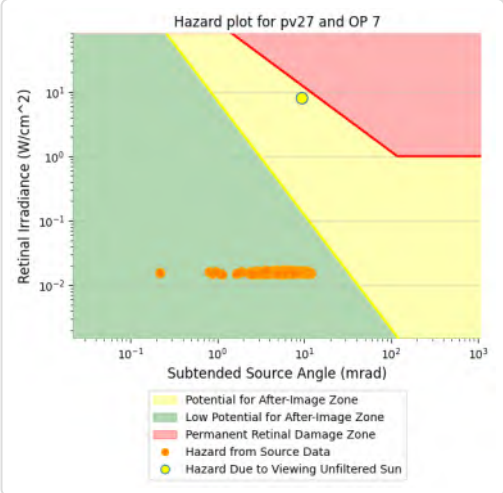
PV27 and OP 7

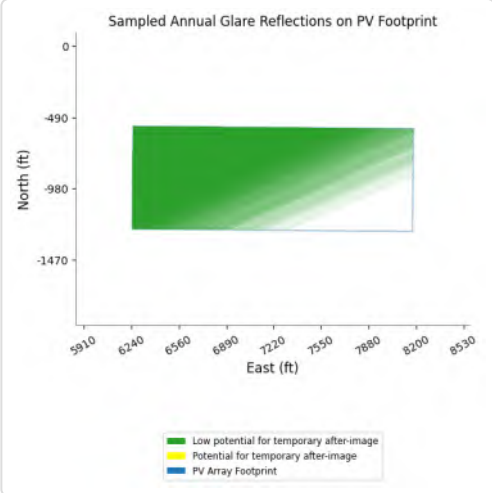
Yellow glare: none

Green glare: 145 min.





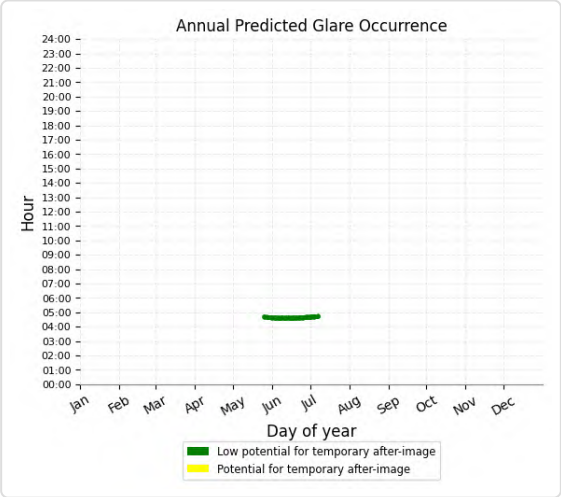


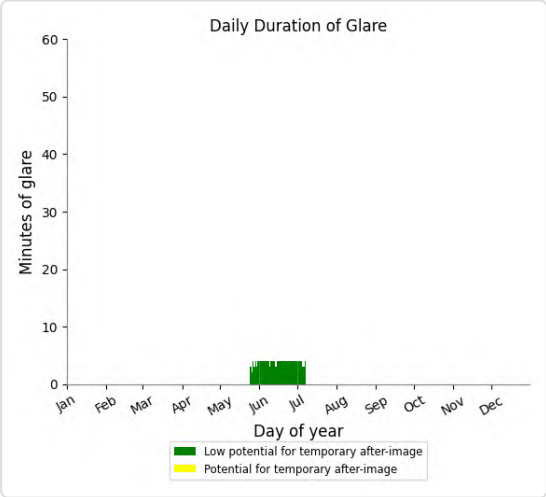


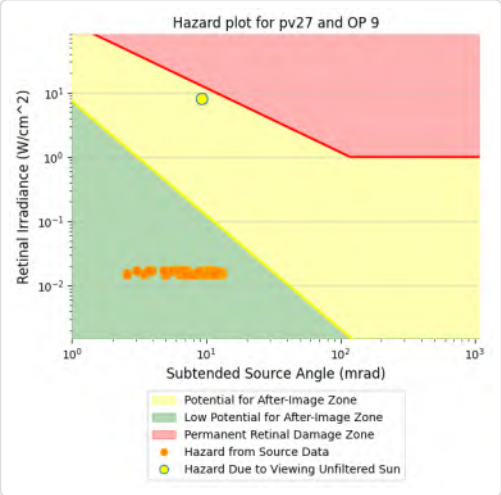
PV27 and OP 9

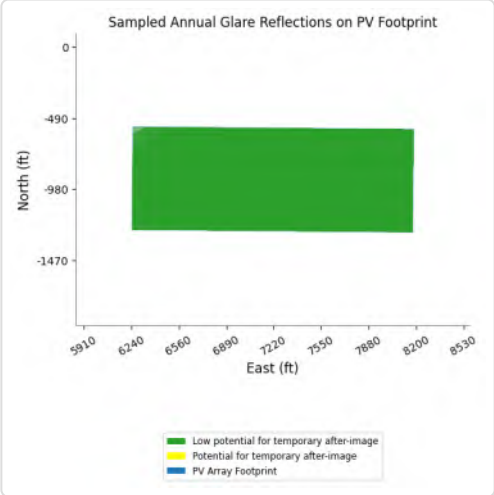
Yellow glare: none

Green glare: 167 min.





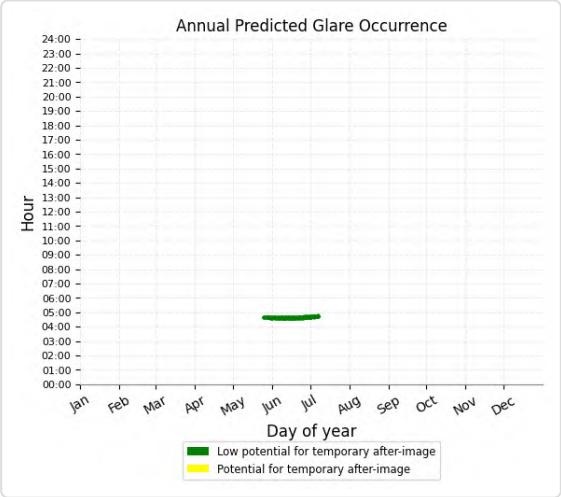


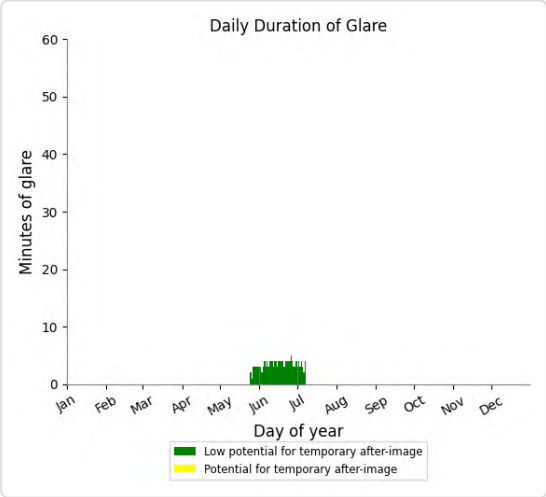


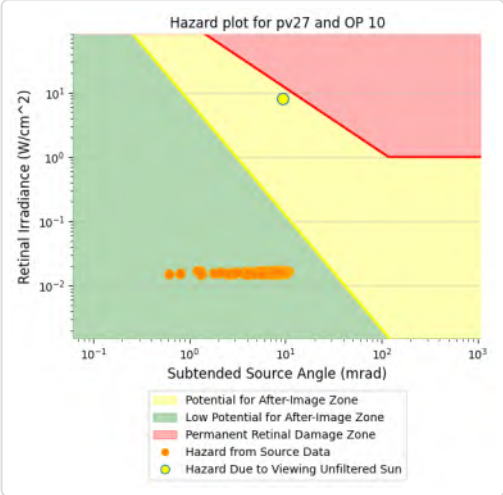
PV27 and OP 10

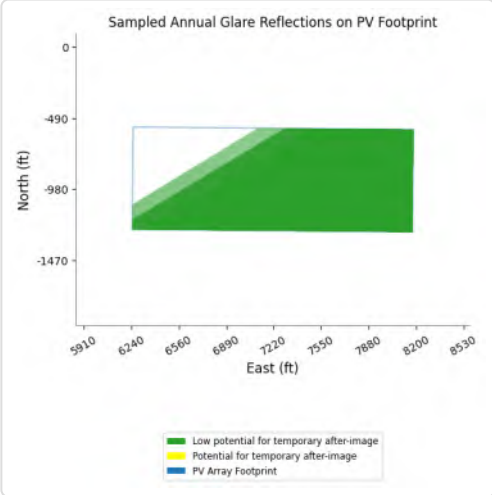
Yellow glare: none

Green glare: 149 min.





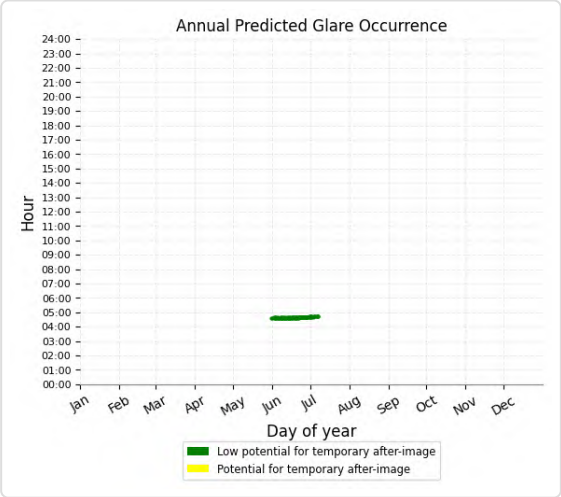


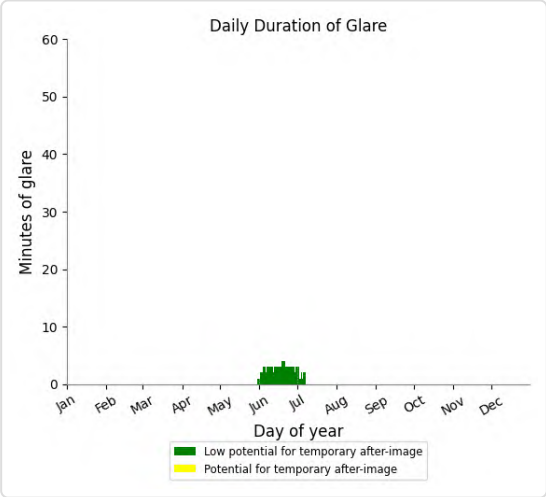


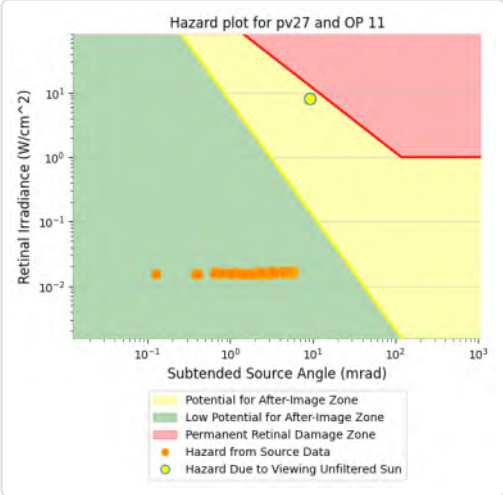
PV27 and OP 11

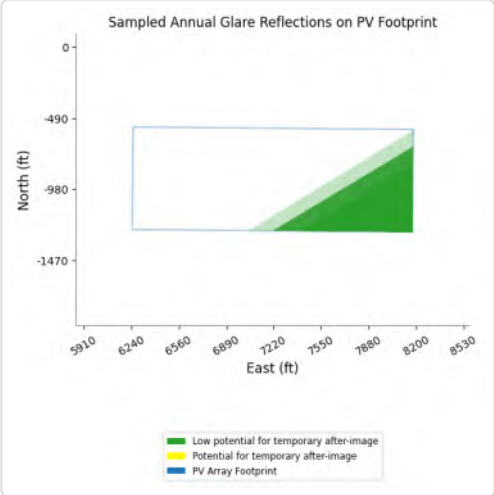
Yellow glare: none

Green glare: 101 min.



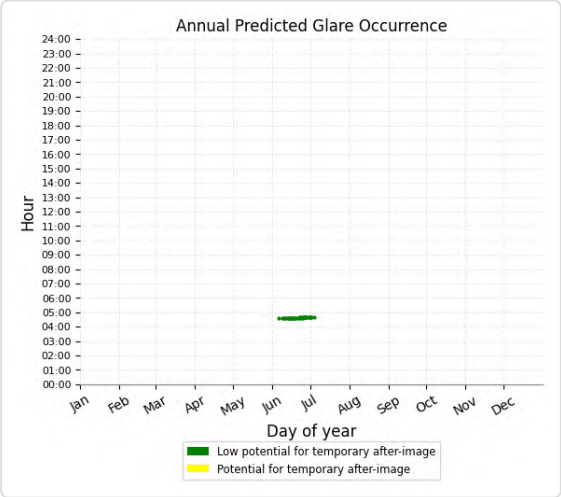


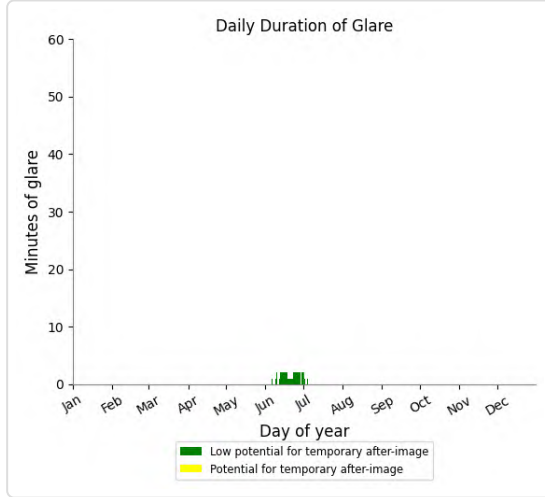


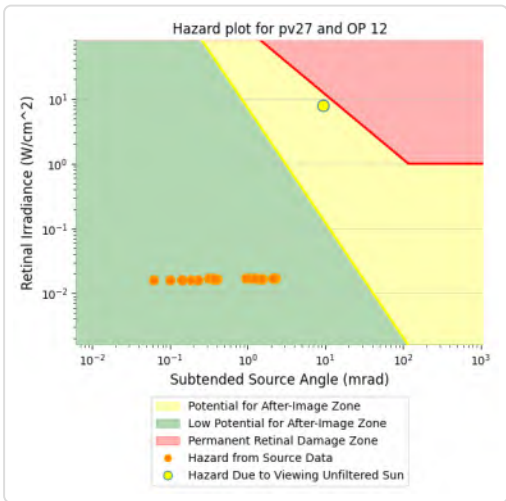


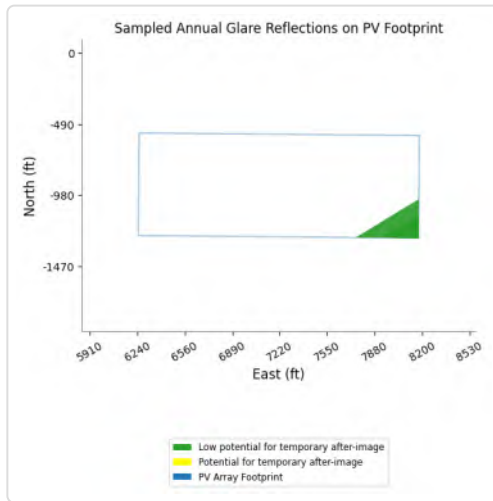
PV27 and OP 12

Yellow glare: none
Green glare: 39 min.









PV27 and OP 1

No glare found

PV27 and OP 2

No glare found

PV27 and OP 3

No glare found

PV27 and OP 4

No glare found

PV27 and OP 5

No glare found

PV27 and OP 6

No glare found

PV27 and OP 8

No glare found

PV27 and OP 13

No glare found

PV27 and OP 14

No glare found

PV27 and OP 15

No glare found

PV27 and OP 16

No glare found

PV27 and OP 17

No glare found

PV27 and OP 18

No glare found

PV27 and OP 19

No glare found

PV: PV28 potential temporary after-image

Receptor results ordered by category of glare

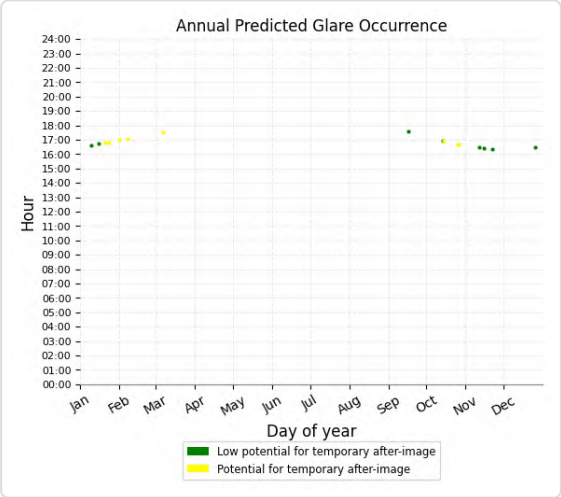
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
SR177 C	8	0.1	8	0.1
SR177 B	265	4.4	0	0.0
AirportRd A	0	0.0	0	0.0
AirportRd B	0	0.0	0	0.0
EagleMtnRd A	0	0.0	0	0.0
EagleMtnRd B	0	0.0	0	0.0
I-10 EB A	0	0.0	0	0.0
I-10 EB B	0	0.0	0	0.0
I-10 EB C	0	0.0	0	0.0
I-10 WB A	0	0.0	0	0.0
I-10 WB B	0	0.0	0	0.0
I-10 WB C	0	0.0	0	0.0
KaiserRd A	0	0.0	0	0.0
KaiserRd B	0	0.0	0	0.0
KaiserRd C	0	0.0	0	0.0
OasisRd	0	0.0	0	0.0
Race Track	0	0.0	0	0.0
SR177 A	0	0.0	0	0.0
SR177 D	0	0.0	0	0.0
SR177 E	0	0.0	0	0.0
IR218l	2,004	33.4	945	15.8
CN6423	1,234	20.6	0	0.0
IR217m	10,579	176.3	0	0.0
IR217u	6,474	107.9	0	0.0
IR218m	18,248	304.1	0	0.0
IR218u	3,505	58.4	0	0.0
IR255l	1,537	25.6	0	0.0
IR255m	11,695	194.9	0	0.0
IR255u	3,264	54.4	0	0.0
VR289m	169	2.8	0	0.0
VR289u	13,214	220.2	0	0.0
VR296u	13,354	222.6	0	0.0
CN645	0	0.0	0	0.0
IR217l	0	0.0	0	0.0
VR289l	0	0.0	0	0.0
VR296l	0	0.0	0	0.0
VR296m	0	0.0	0	0.0
OP 1	50	0.8	0	0.0
OP 3	22	0.4	0	0.0

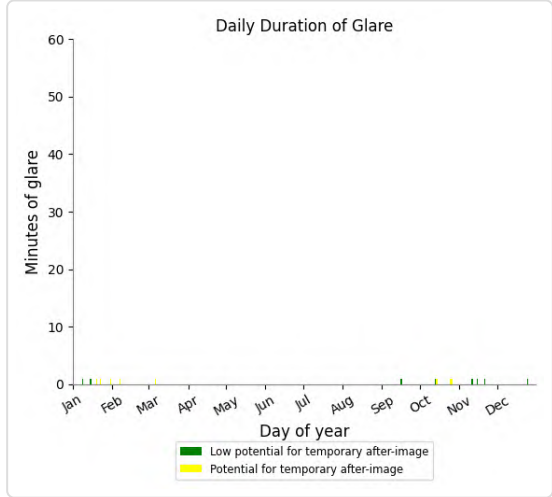
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 7	18	0.3	0	0.0
OP 9	80	1.3	0	0.0
OP 10	118	2.0	0	0.0
OP 11	113	1.9	0	0.0
OP 12	93	1.6	0	0.0
OP 13	64	1.1	0	0.0
OP 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

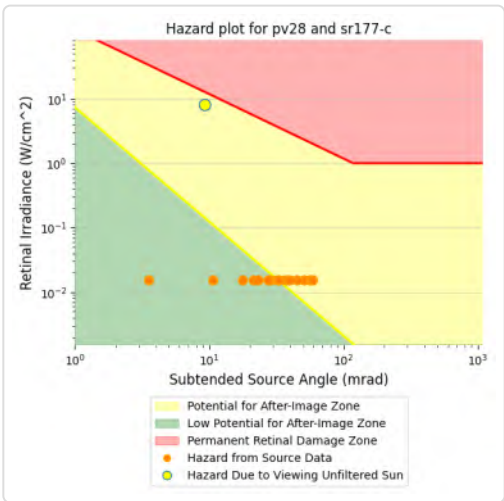
PV28 and Route: SR177 C

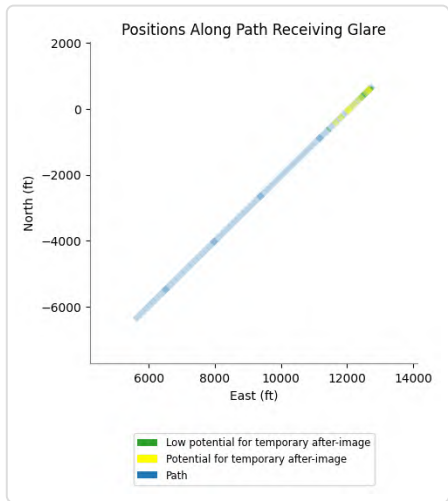
Yellow glare: 8 min.

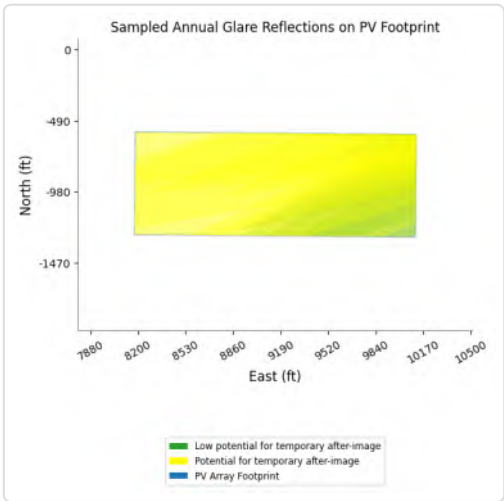
Green glare: 8 min.







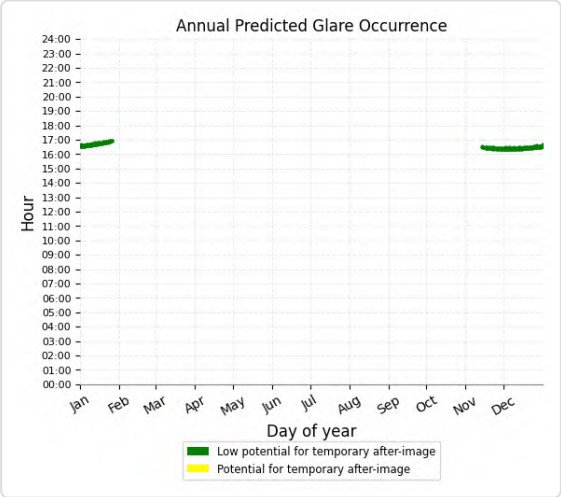


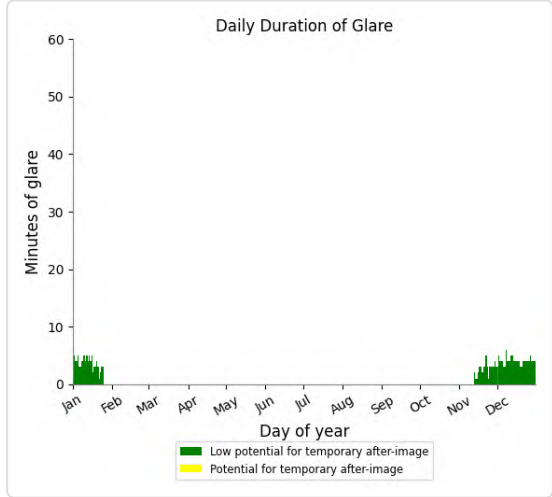


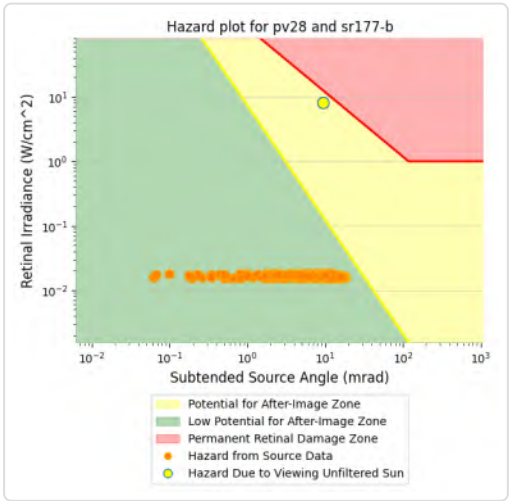
PV28 and Route: SR177 B

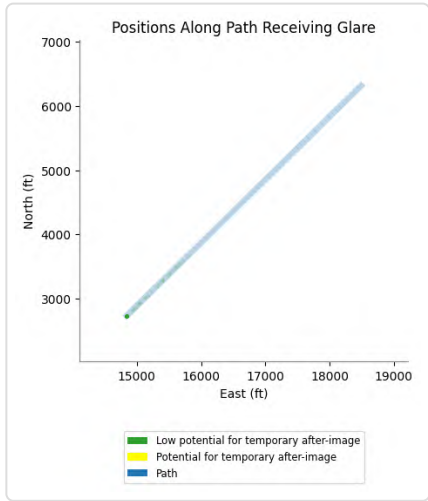
Yellow glare: none

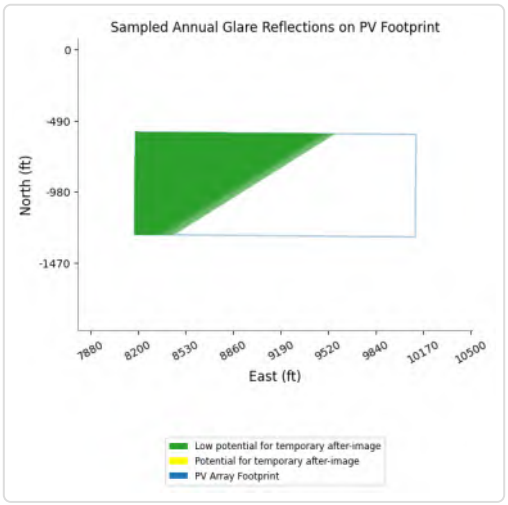
Green glare: 265 min.











PV28 and Route: AirportRd A

No glare found

PV28 and Route: AirportRd B

No glare found

PV28 and Route: EagleMtnRd A

No glare found

PV28 and Route: EagleMtnRd B

No glare found

PV28 and Route: I-10 EB A

No glare found

PV28 and Route: I-10 EB B

No glare found

PV28 and Route: I-10 EB C

No glare found

PV28 and Route: I-10 WB A

No glare found

PV28 and Route: I-10 WB B

No glare found

PV28 and Route: I-10 WB C

No glare found

PV28 and Route: KaiserRd A

No glare found

PV28 and Route: KaiserRd B

No glare found

PV28 and Route: KaiserRd C

No glare found

PV28 and Route: OasisRd

No glare found

PV28 and Route: Race Track

No glare found

PV28 and Route: SR177 A

No glare found

PV28 and Route: SR177 D

No glare found

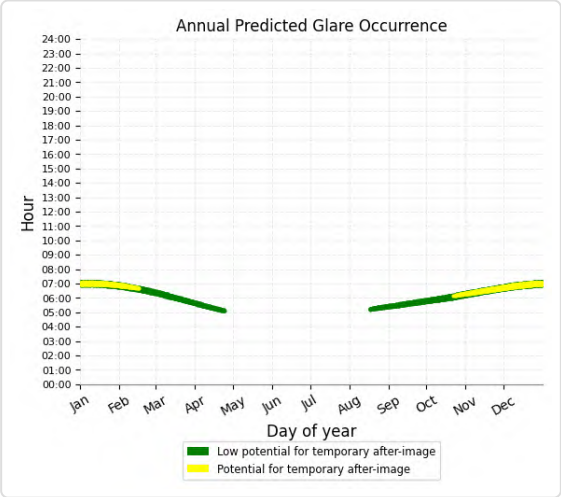
PV28 and Route: SR177 E

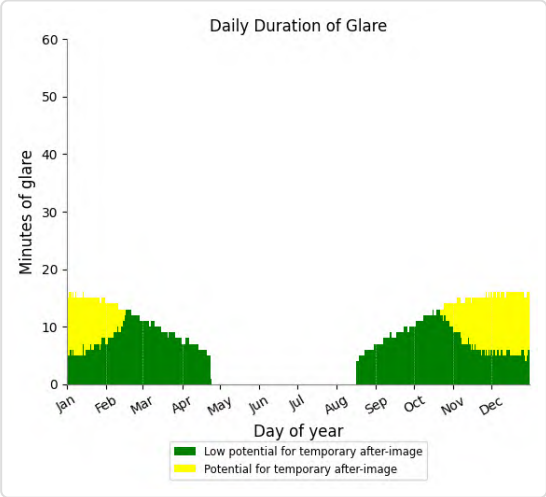
No glare found

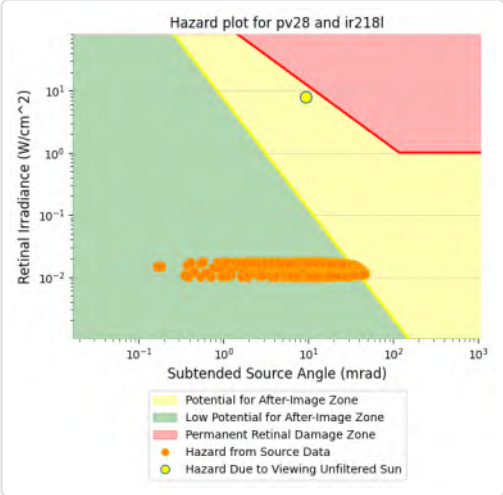
PV28 and FP: IR218I

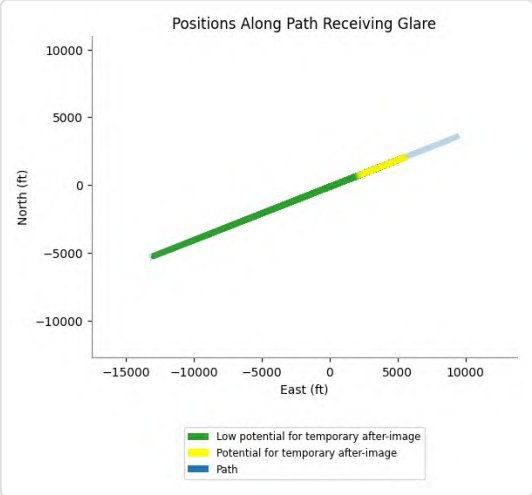
Yellow glare: 945 min.

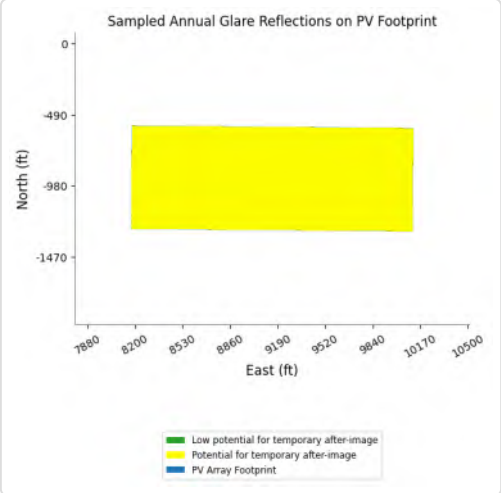
Green glare: 2,004 min.

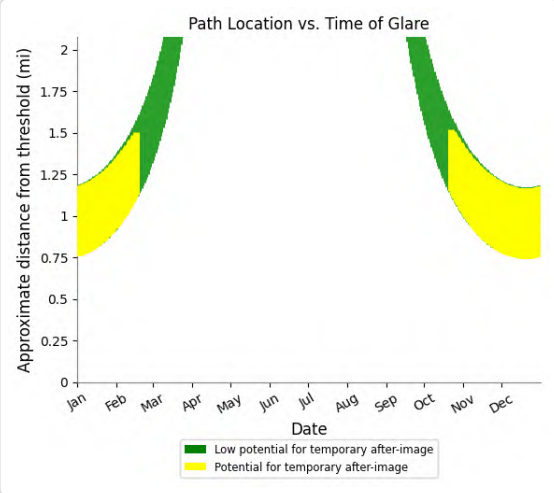








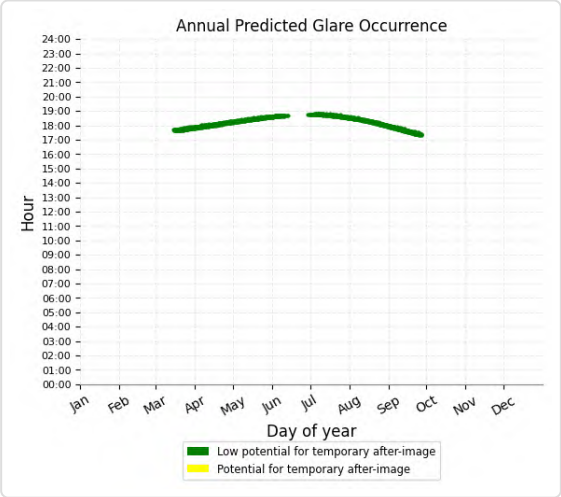


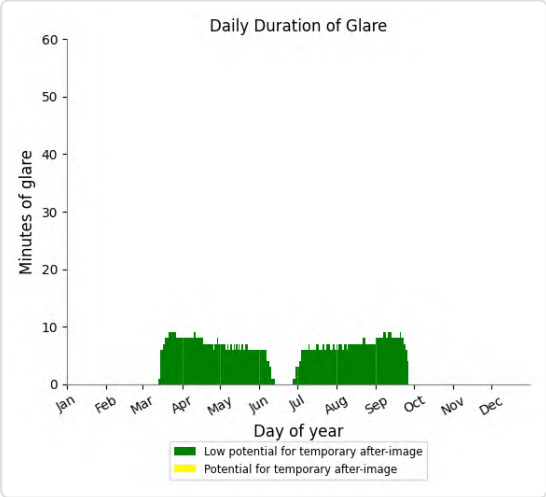


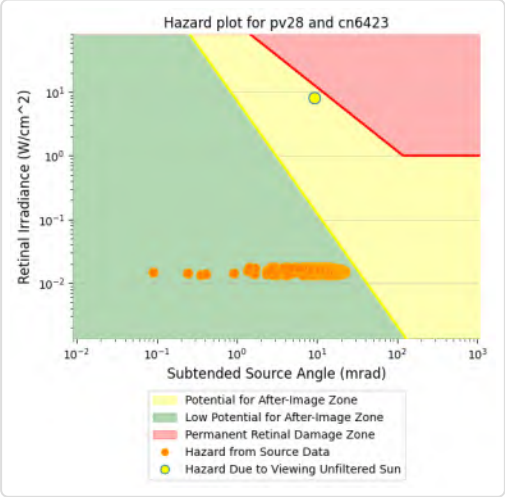
PV28 and FP: CN6423

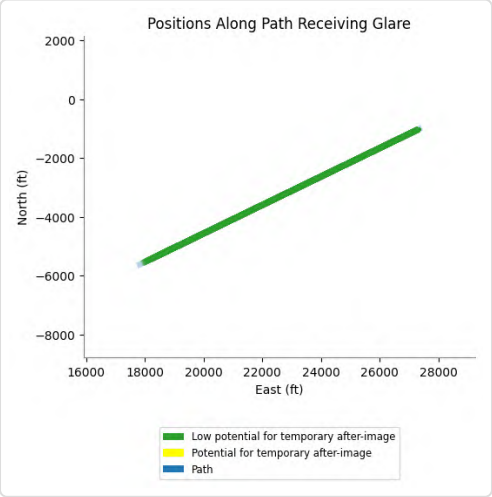
Yellow glare: none

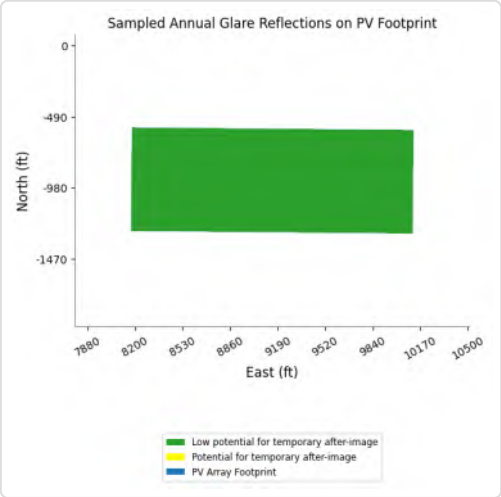
Green glare: 1,234 min.

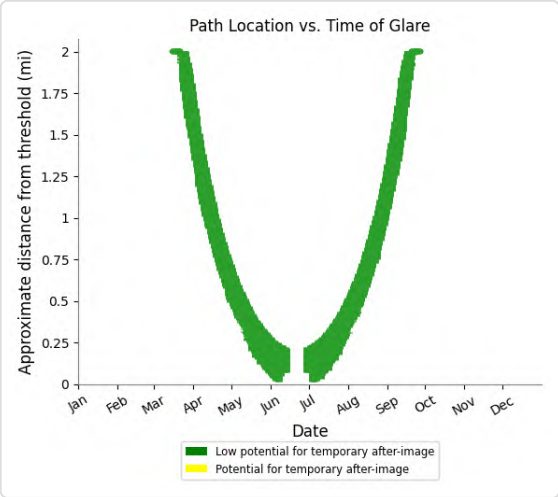








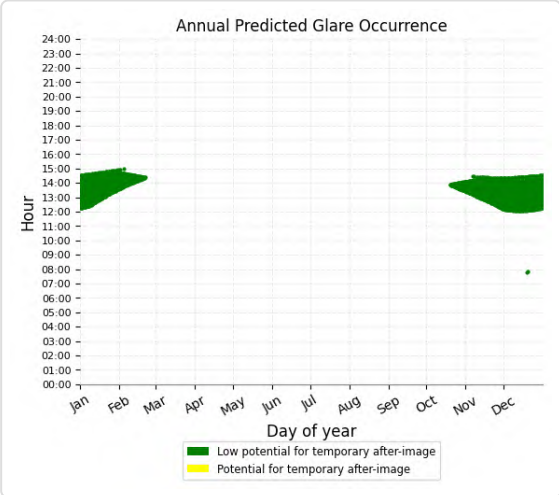


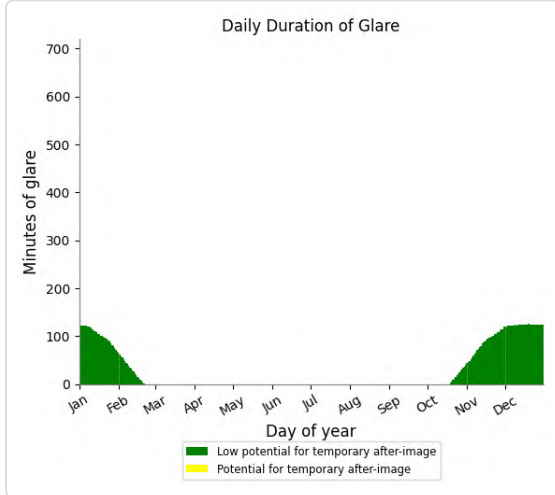


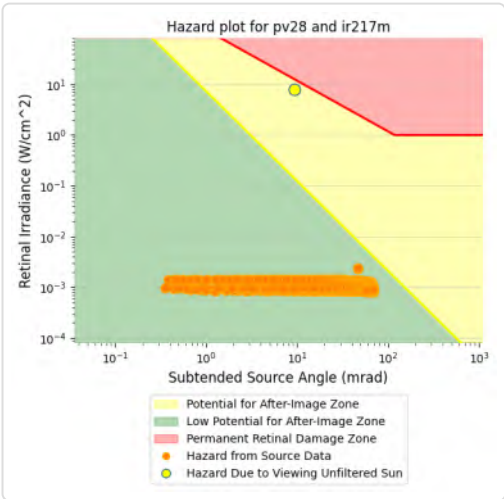
PV28 and FP: IR217m

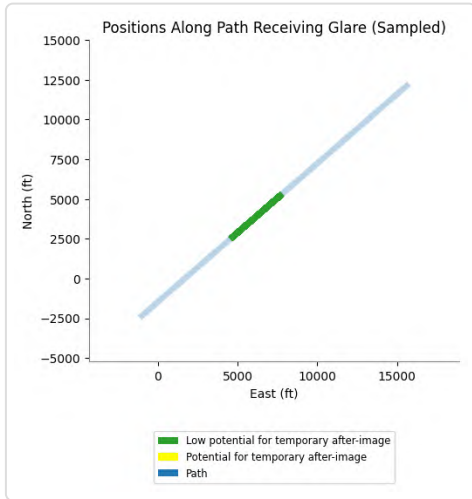
Yellow glare: none

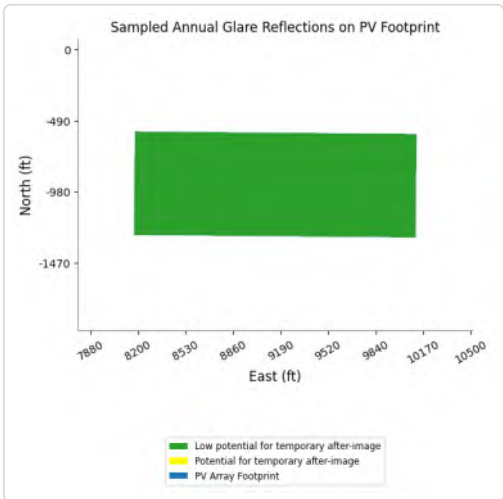
Green glare: 10,579 min.

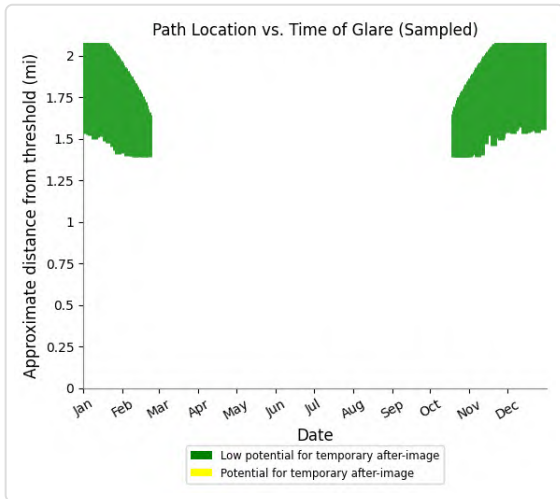








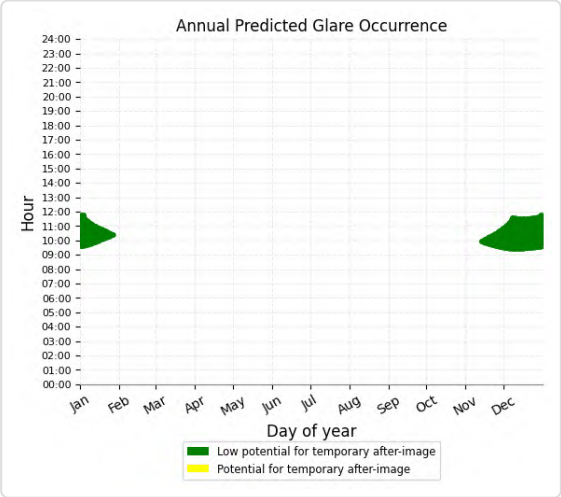


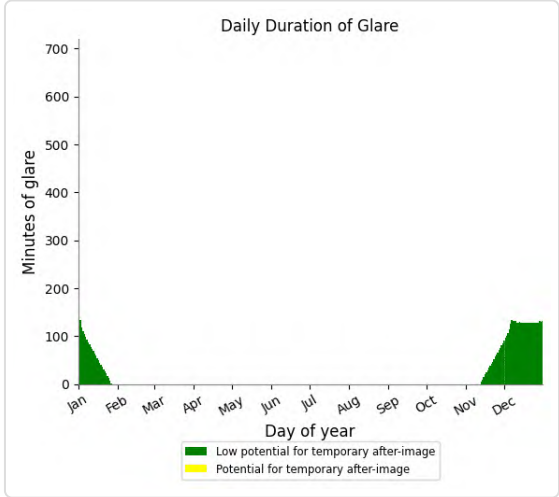


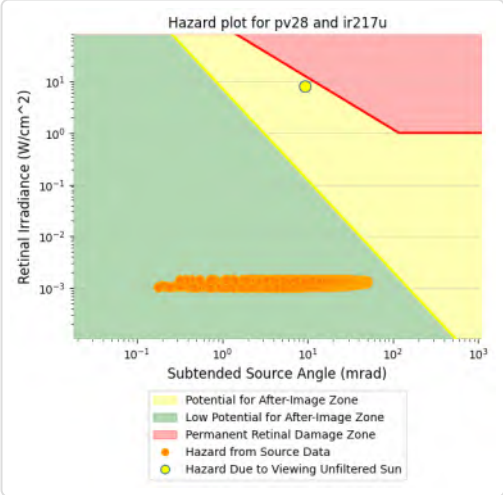
PV28 and FP: IR217u

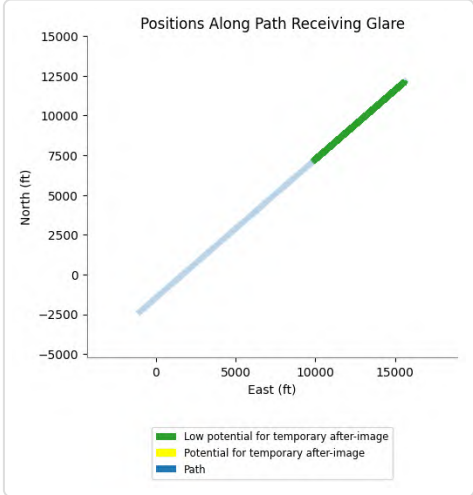
Yellow glare: none

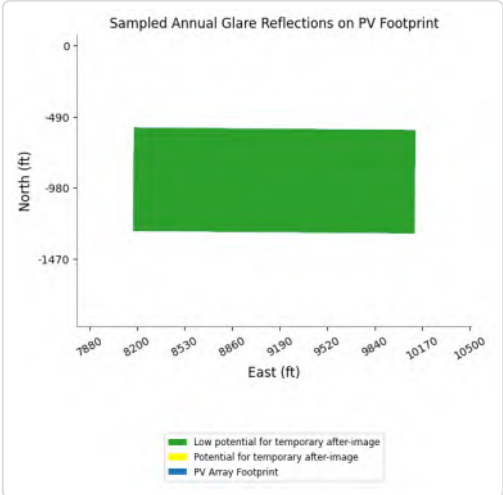
Green glare: 6,474 min.

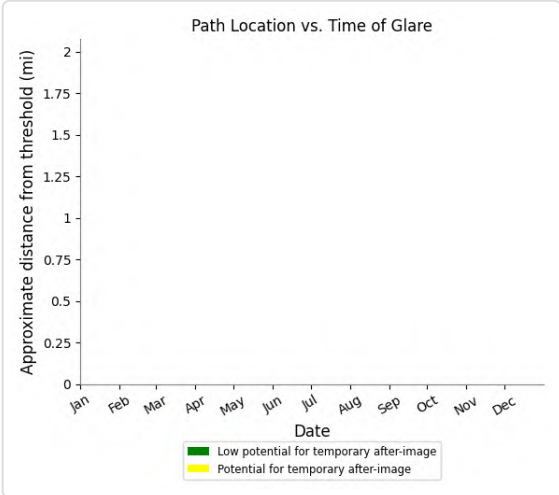








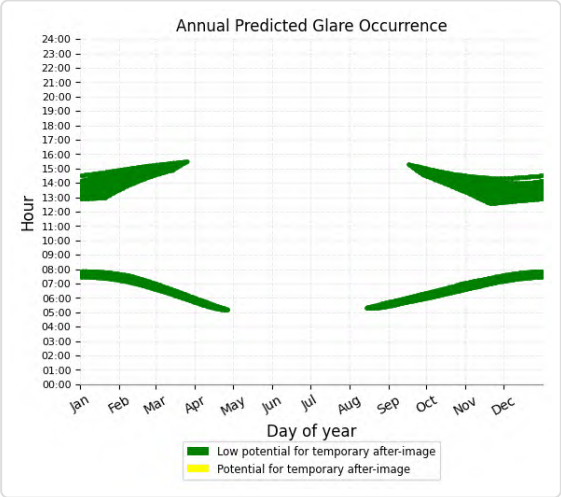


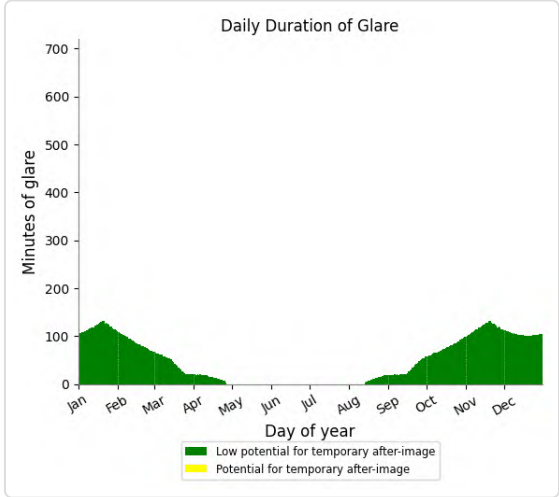


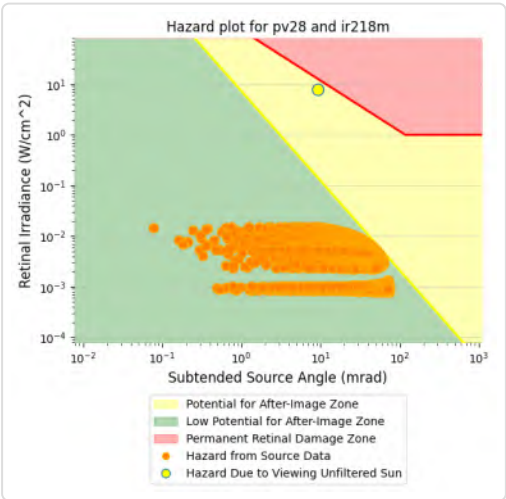
PV28 and FP: IR218m

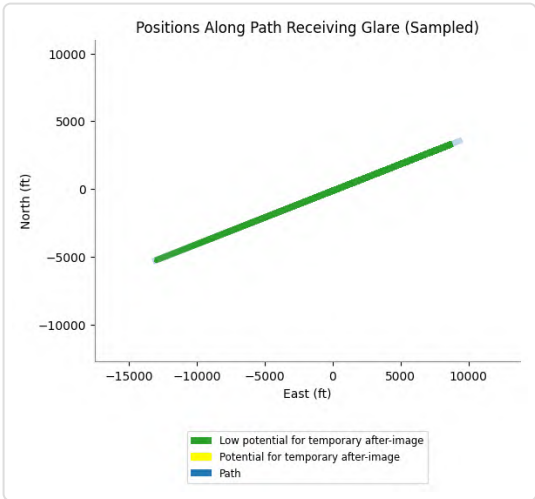
Yellow glare: none

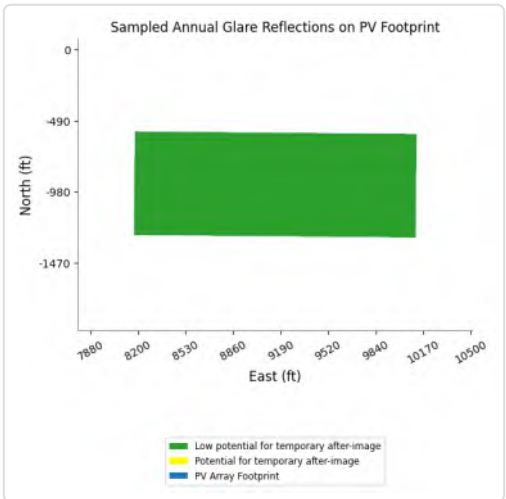
Green glare: 18,248 min.

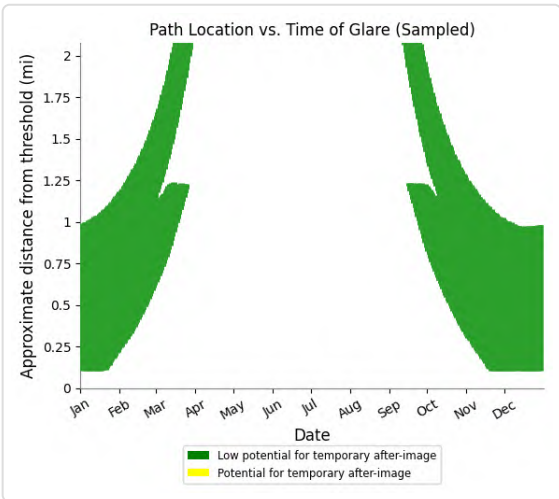








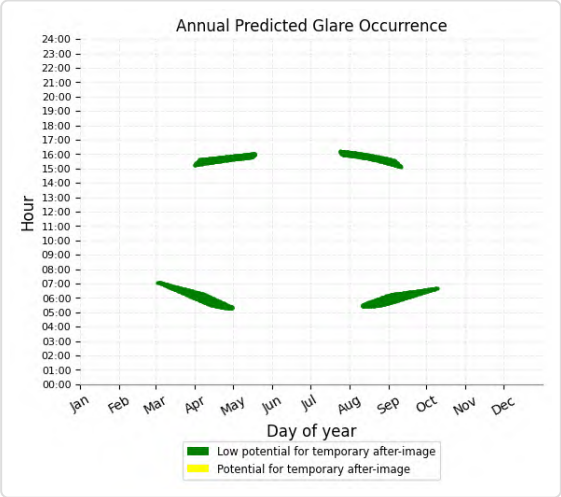


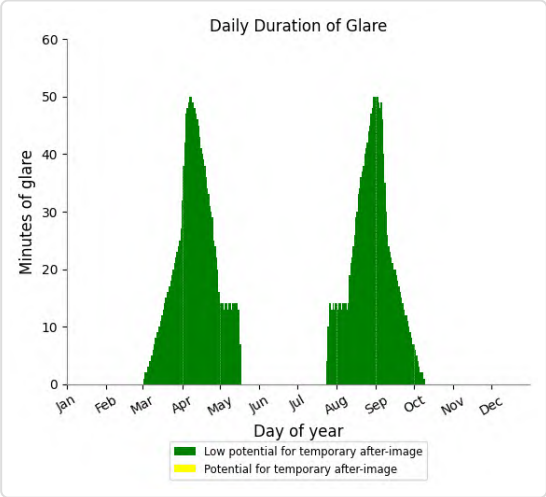


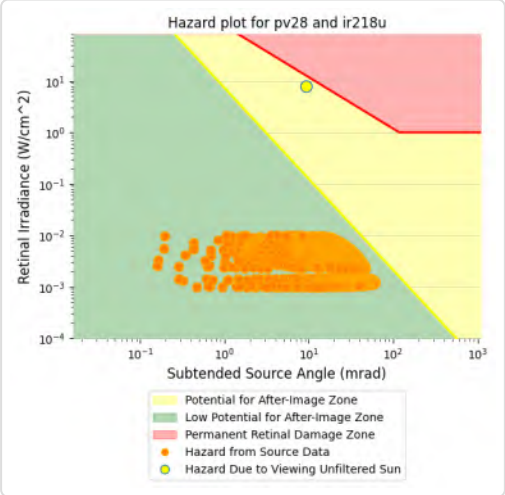
PV28 and FP: IR218u

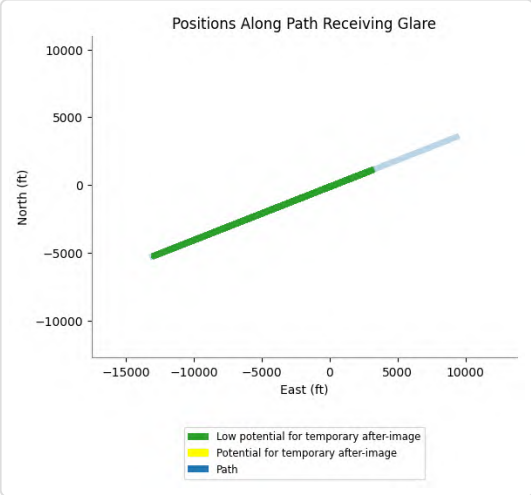
Yellow glare: none

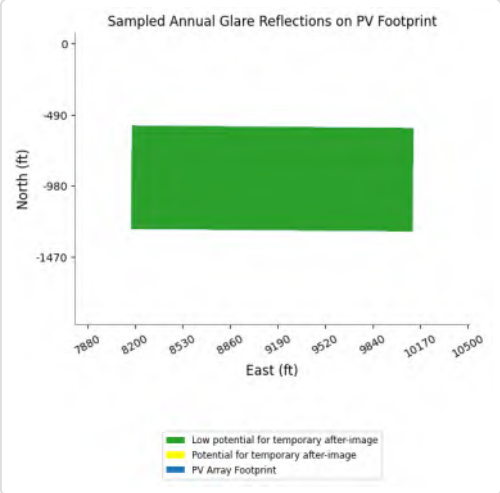
Green glare: 3,505 min.

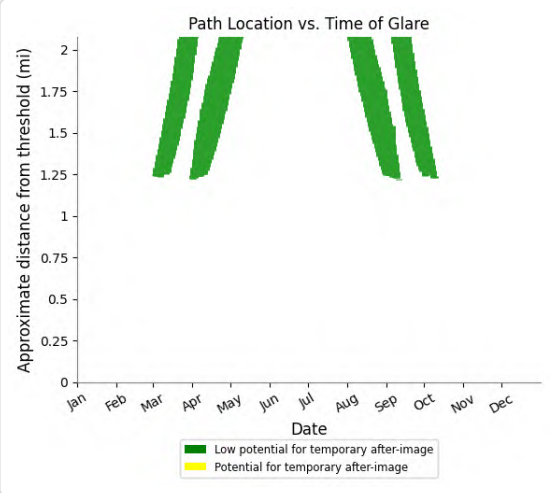








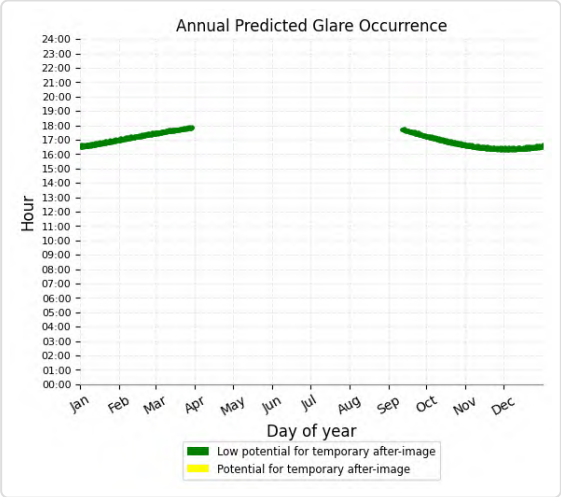


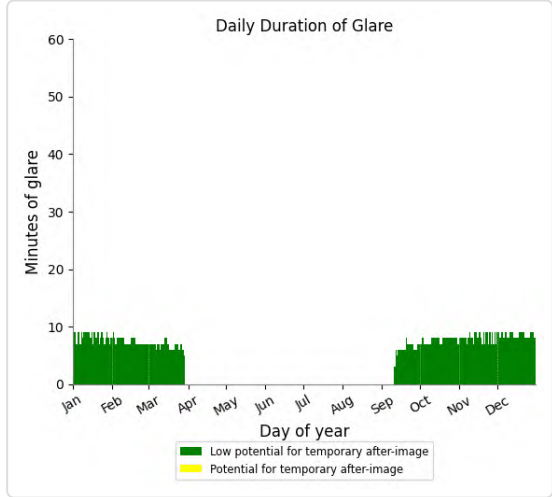


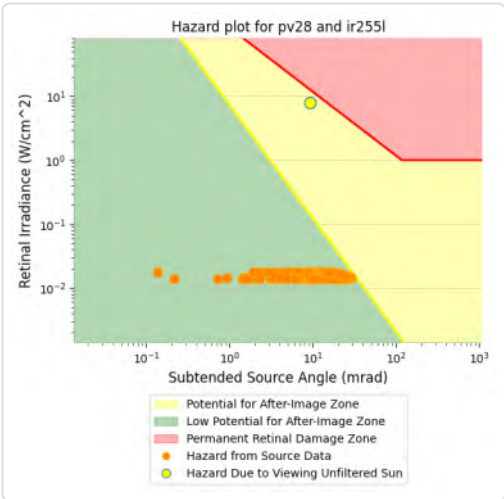
PV28 and FP: IR255I

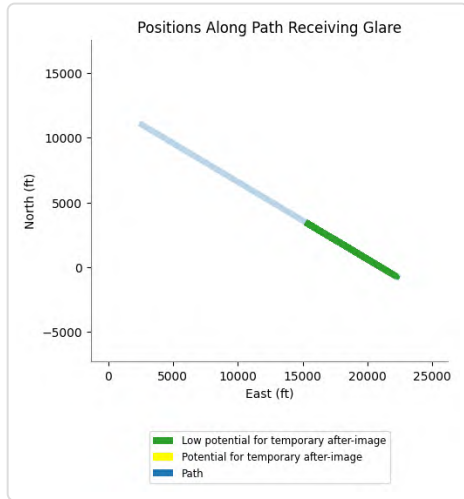
Yellow glare: none

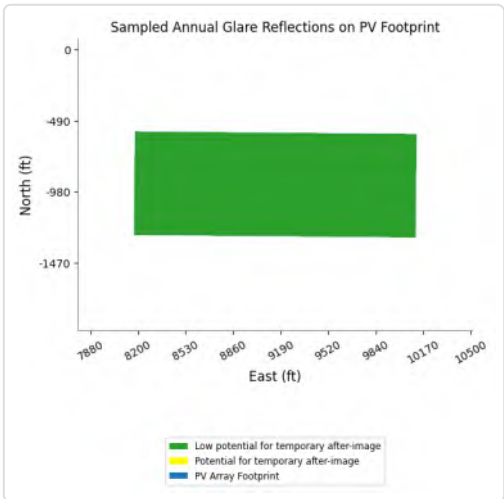
Green glare: 1,537 min.

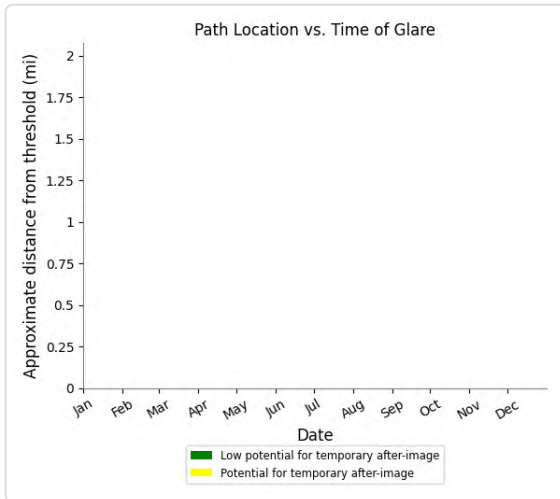








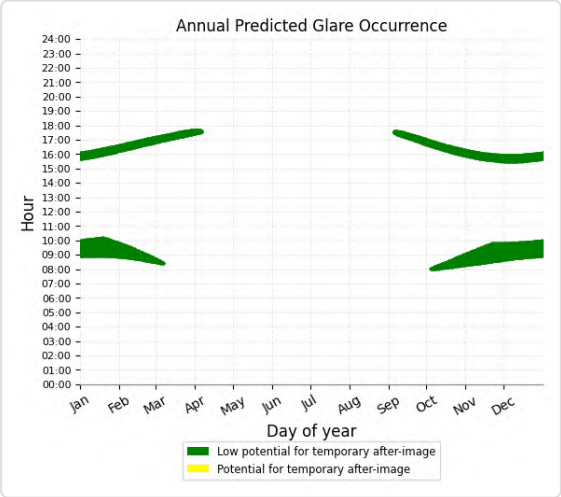


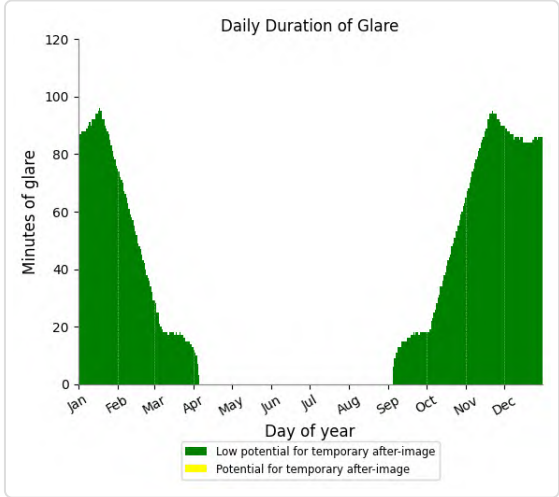


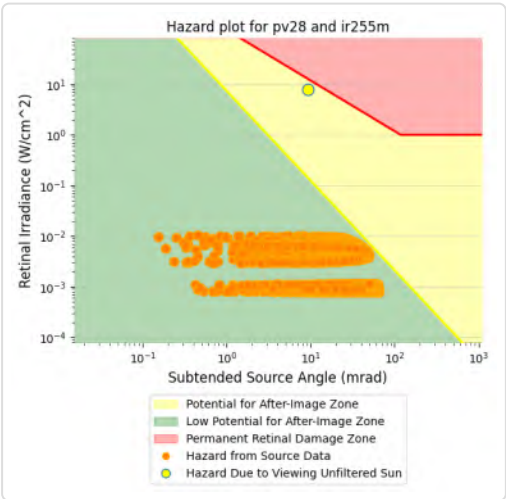
PV28 and FP: IR255m

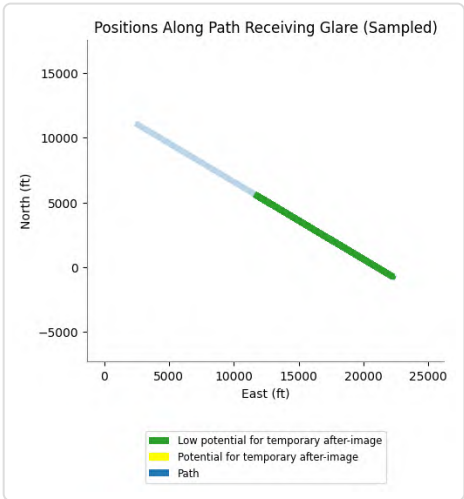
Yellow glare: none

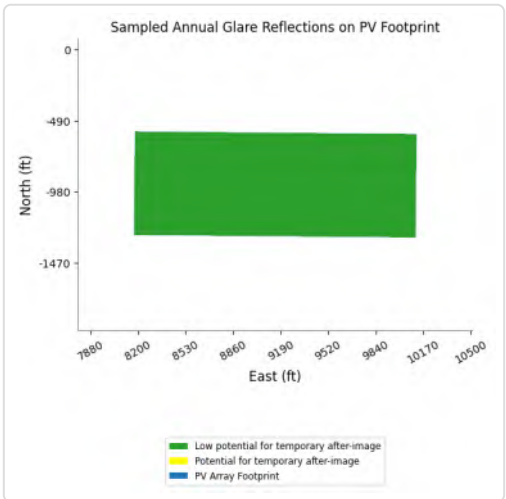
Green glare: 11,695 min.

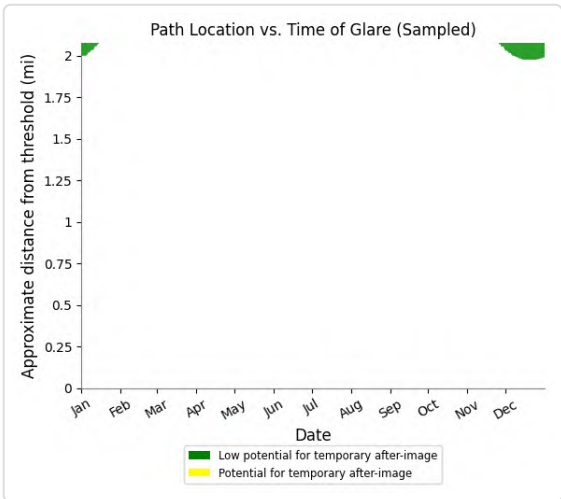








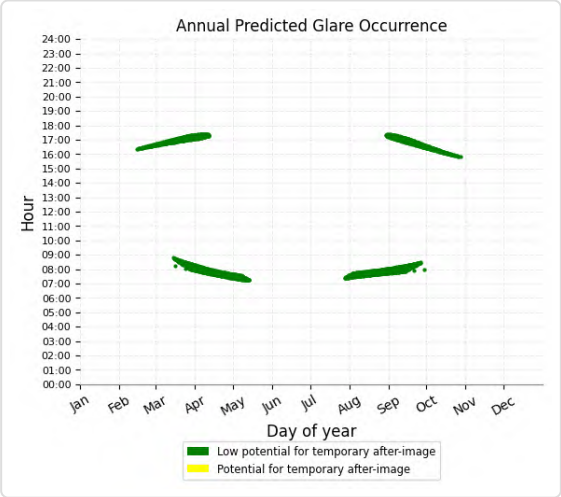


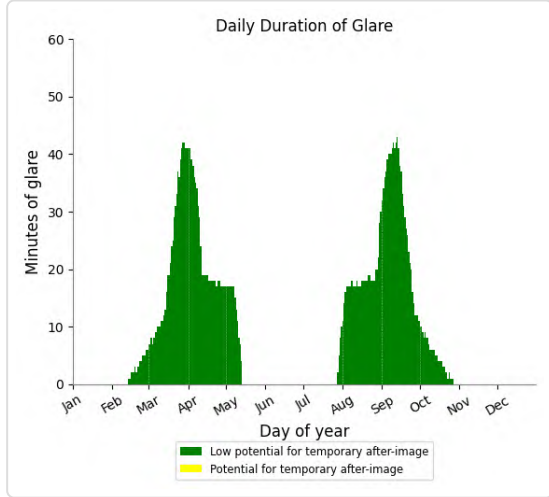


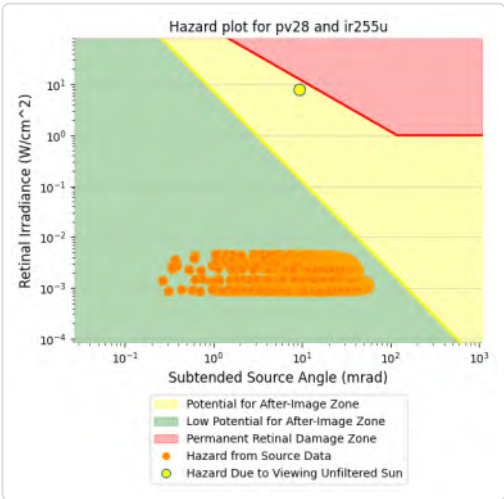
PV28 and FP: IR255u

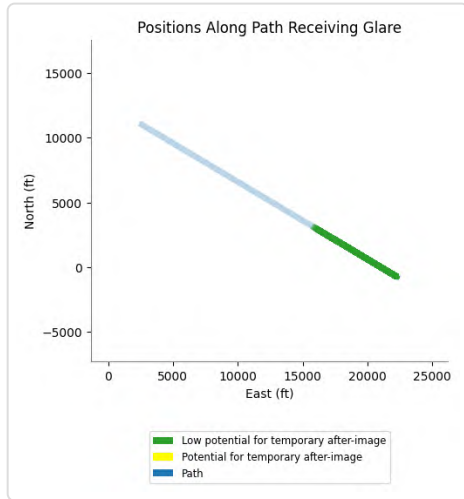
Yellow glare: none

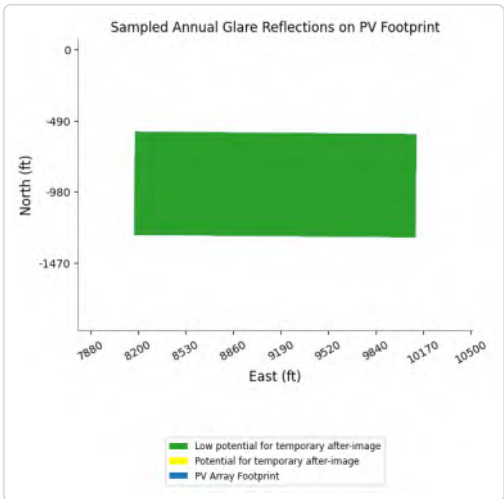
Green glare: 3,264 min.

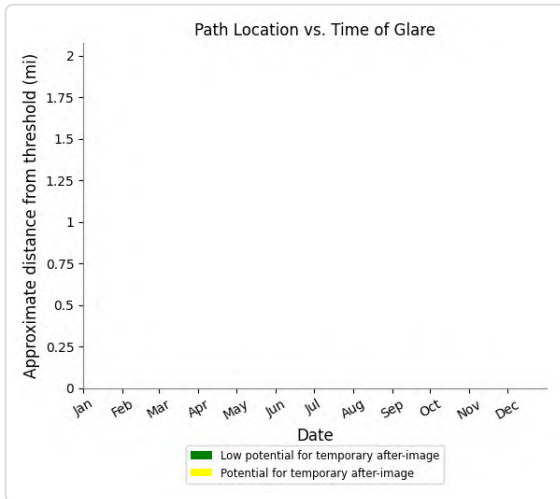








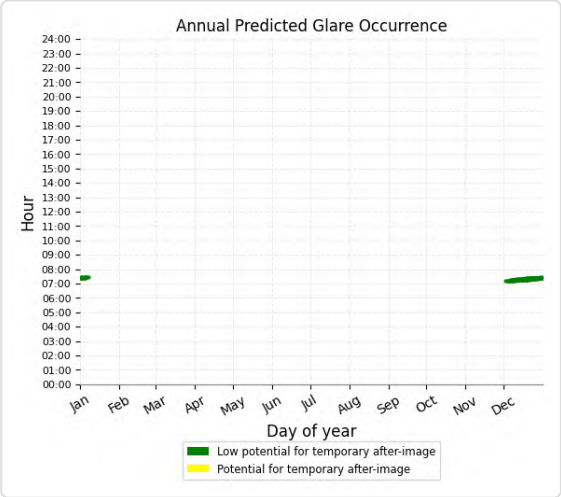


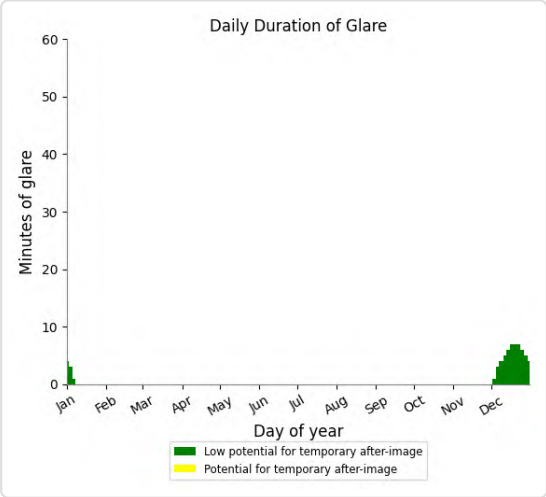


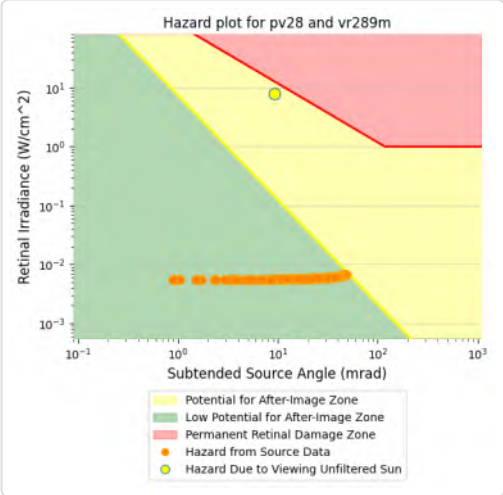
PV28 and FP: VR289m

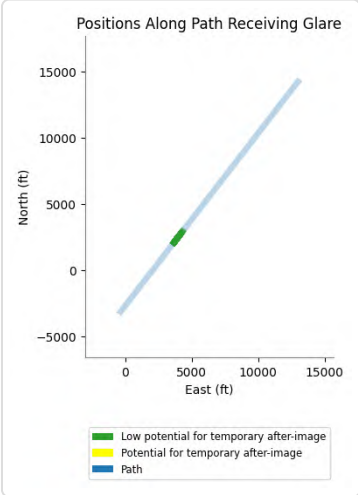
Yellow glare: none

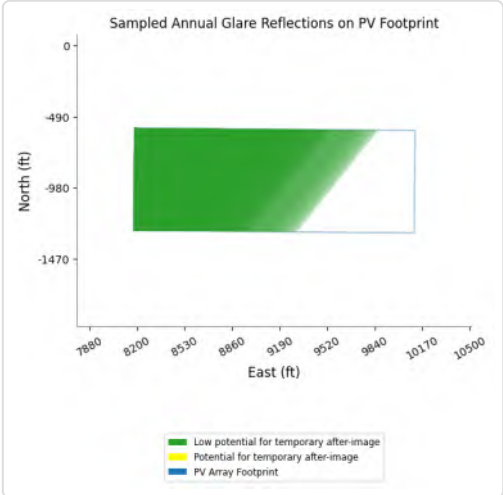
Green glare: 169 min.

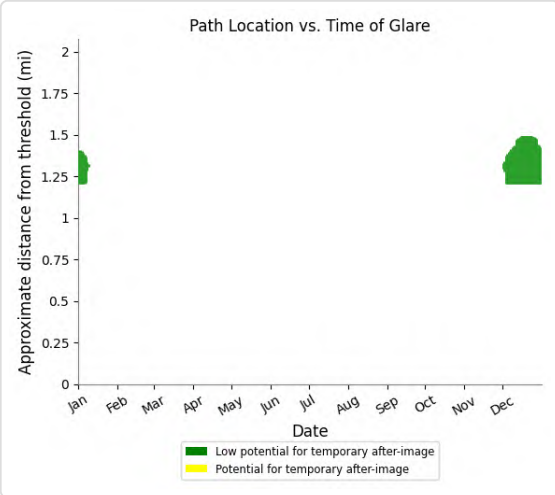








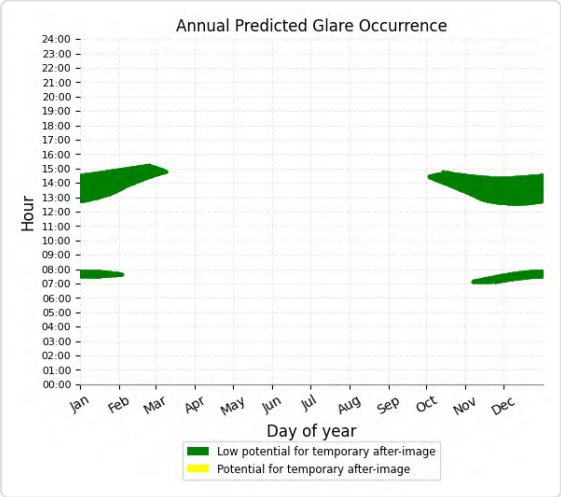


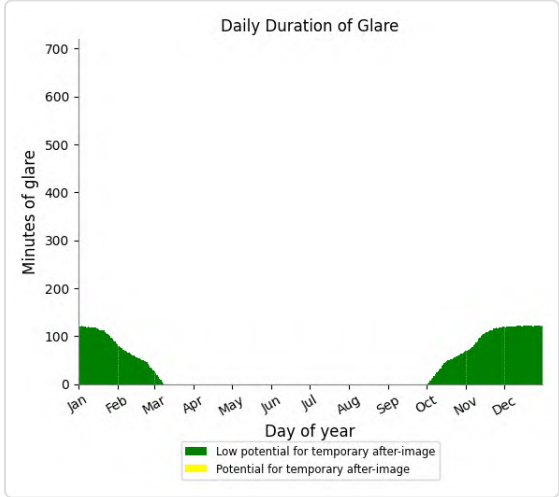


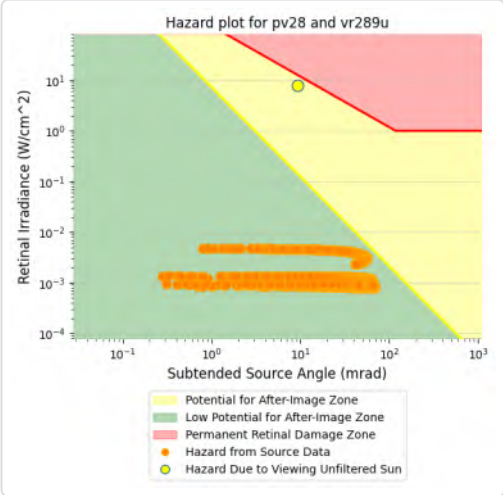
PV28 and FP: VR289u

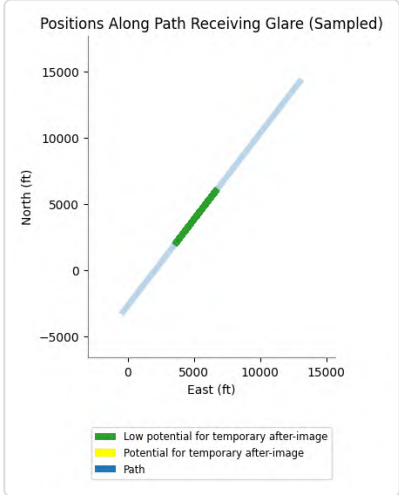
Yellow glare: none

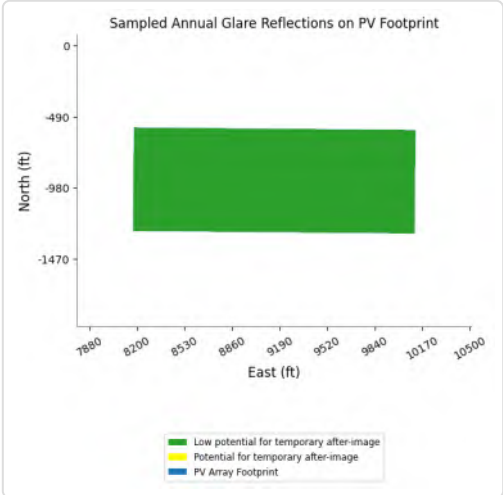
Green glare: 13,214 min.

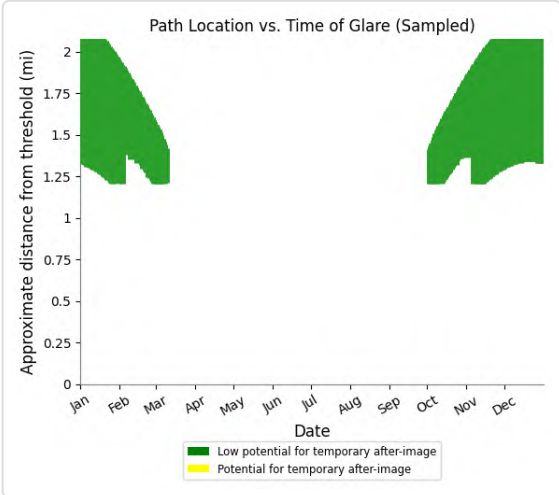








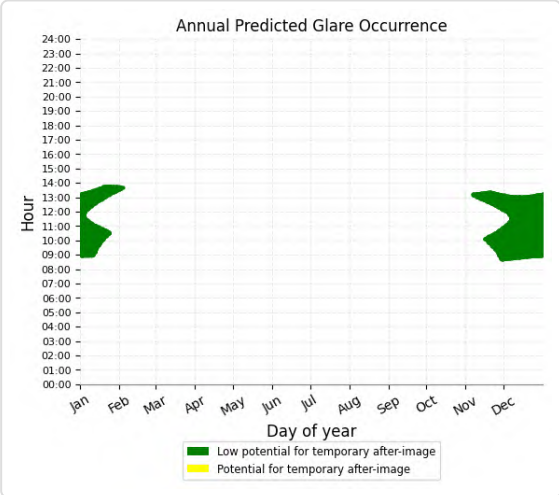


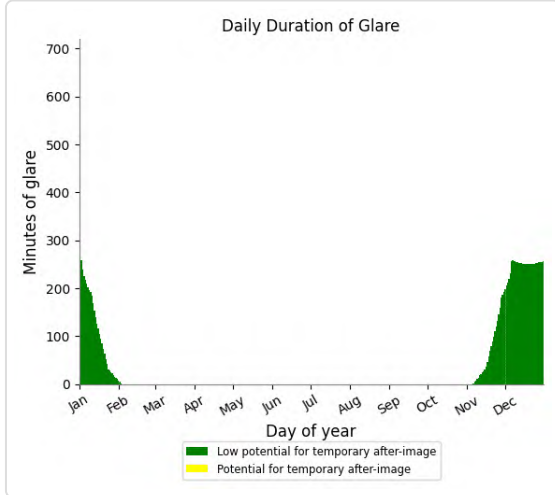


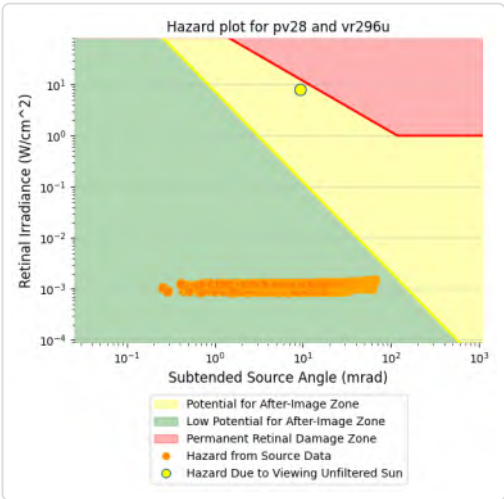
PV28 and FP: VR296u

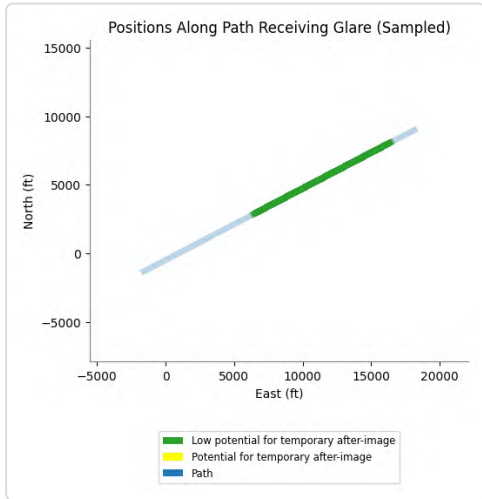
Yellow glare: none

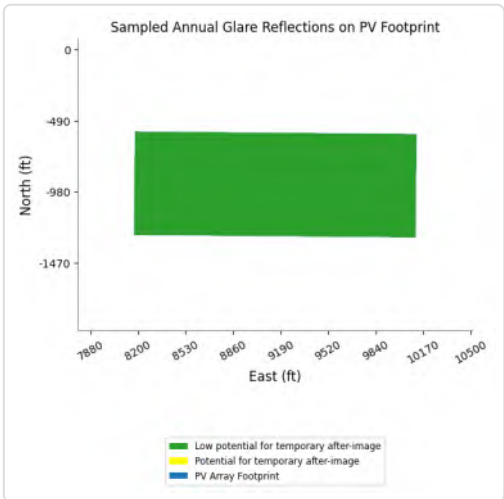
Green glare: 13,354 min.

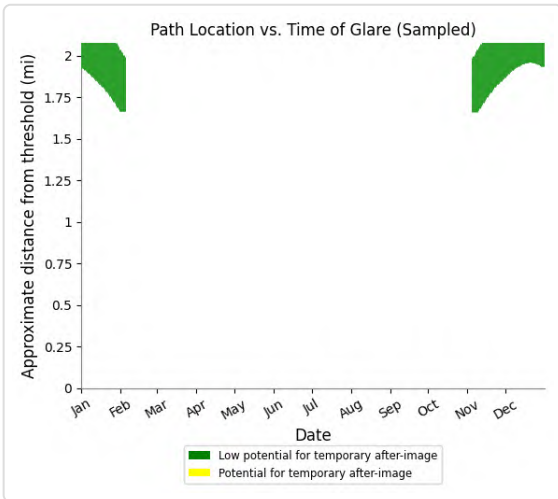












PV28 and FP: CN645

No glare found

PV28 and FP: IR217l

No glare found

PV28 and FP: VR289l

No glare found

PV28 and FP: VR296l

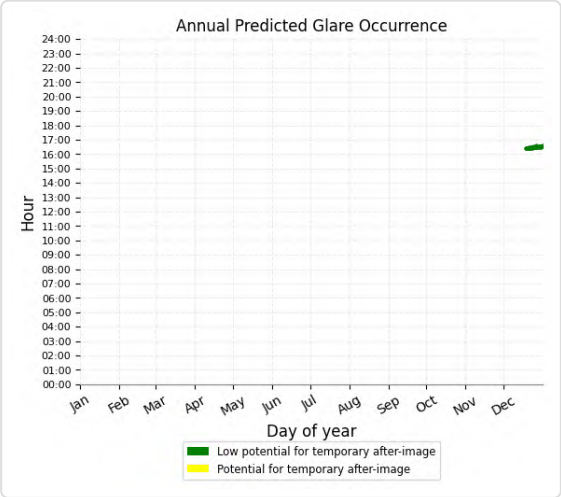
No glare found

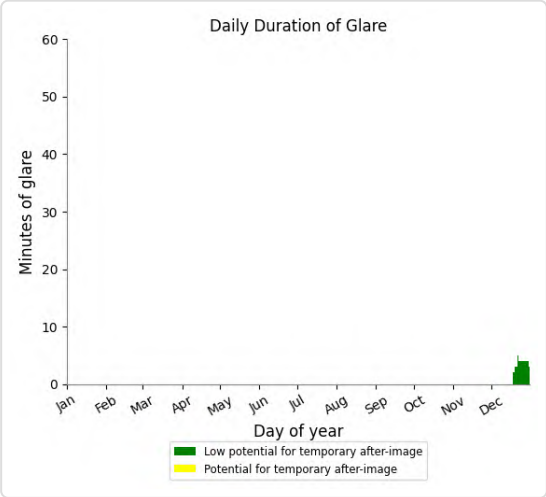
PV28 and FP: VR296m

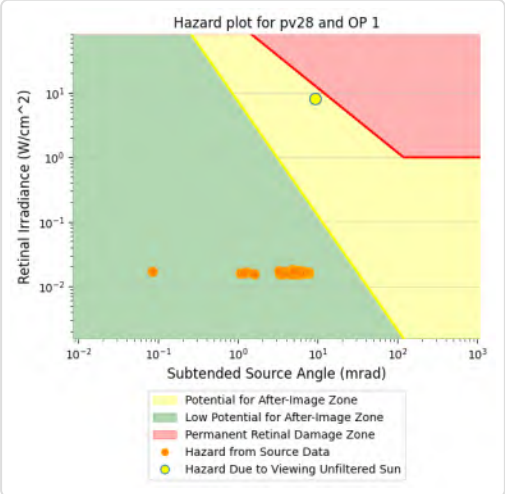
No glare found

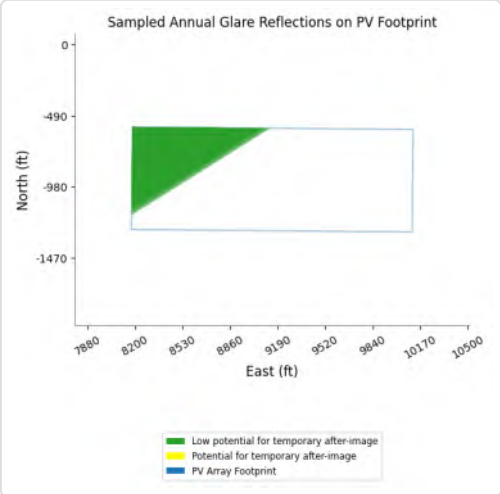
PV28 and OP 1

Yellow glare: none
Green glare: 50 min.





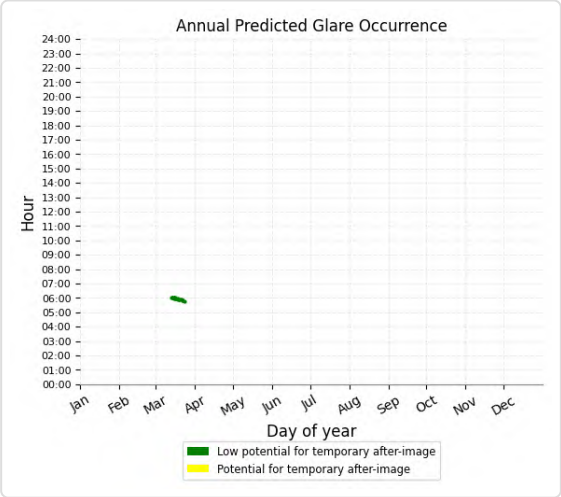


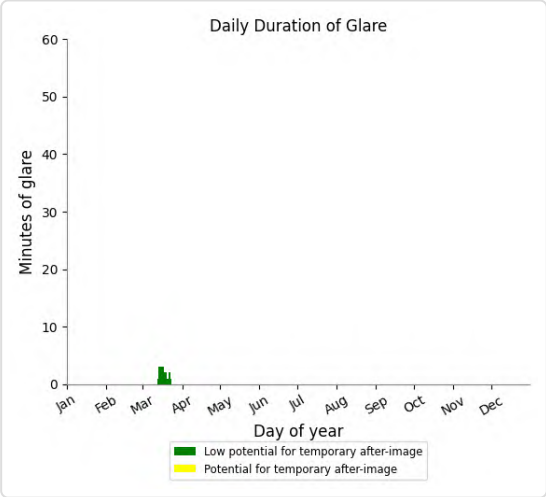


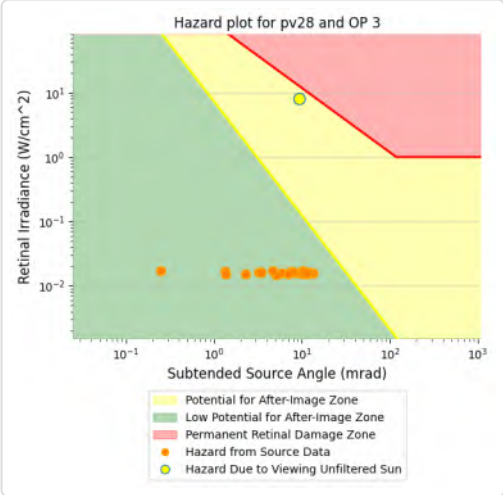
PV28 and OP 3

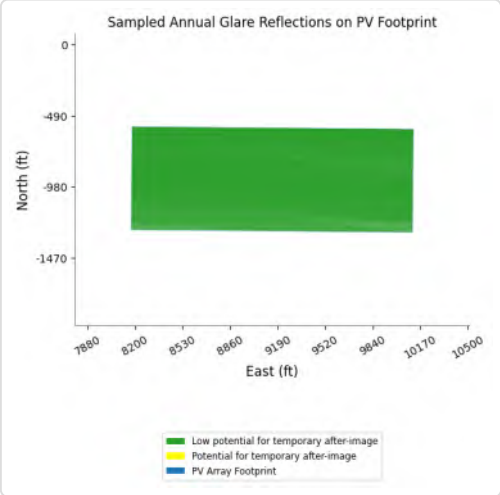
Yellow glare: none

Green glare: 22 min.





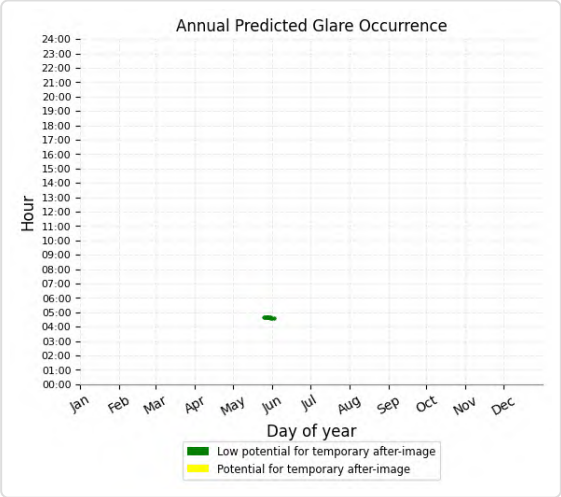


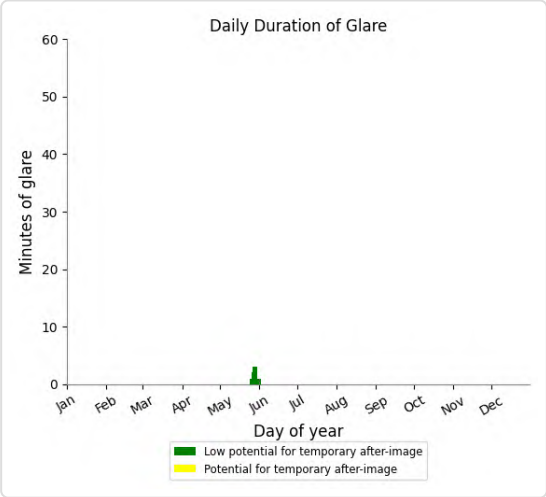


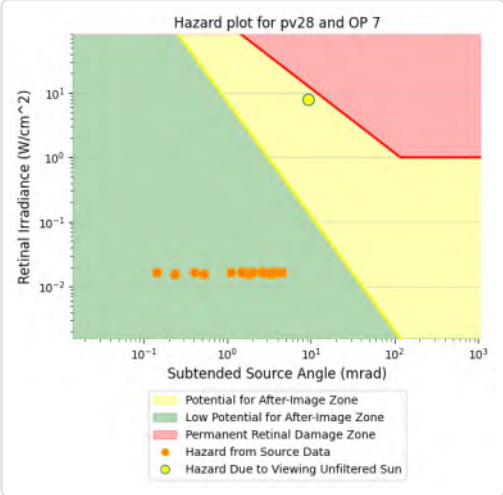
PV28 and OP 7

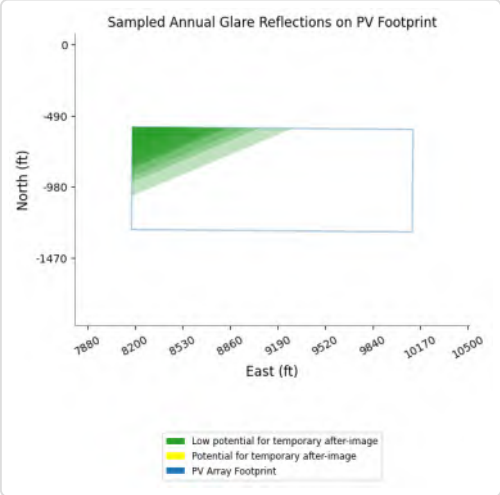
Yellow glare: none

Green glare: 18 min.





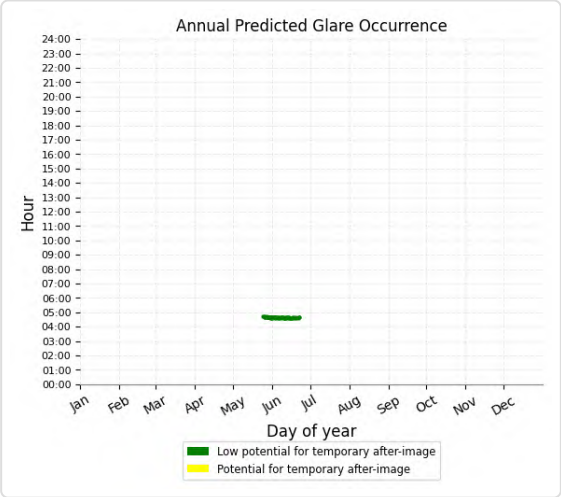


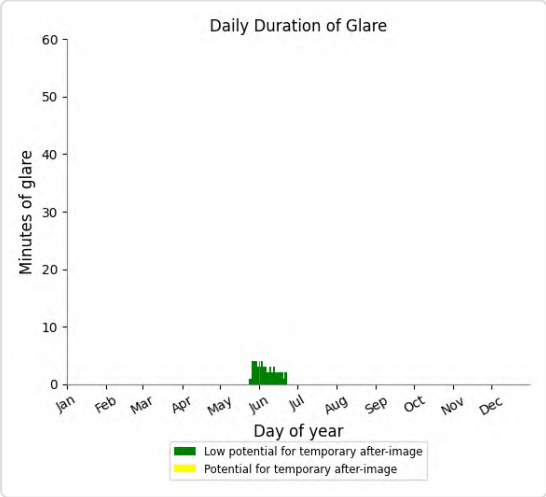


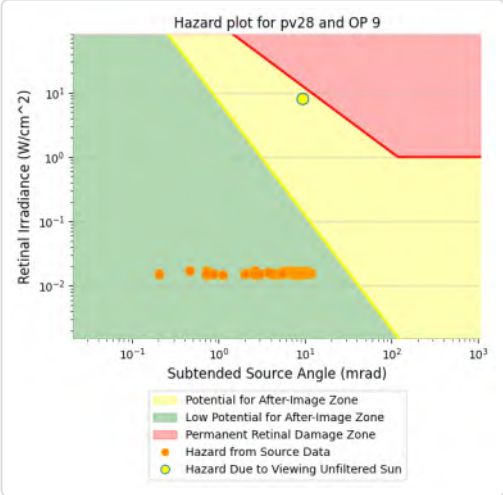
PV28 and OP 9

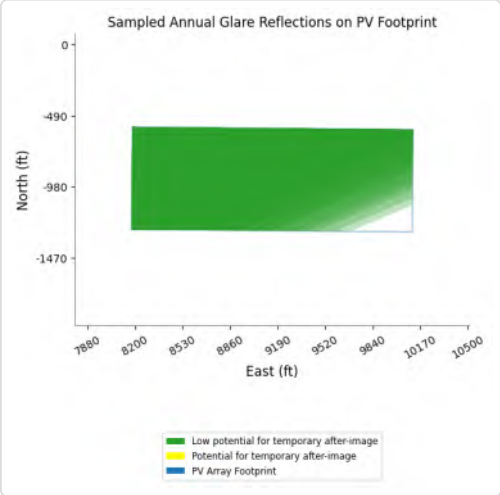
Yellow glare: none

Green glare: 80 min.





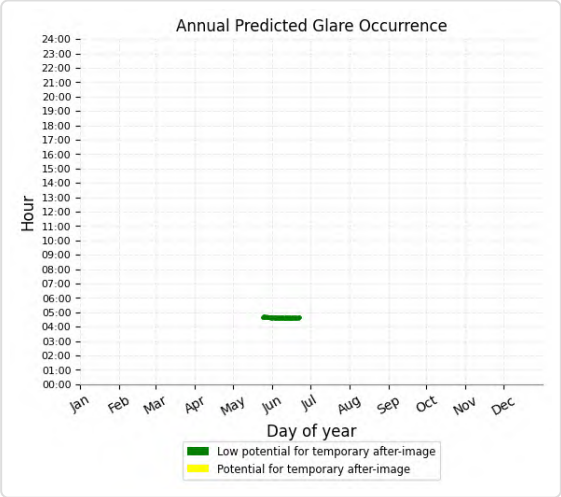


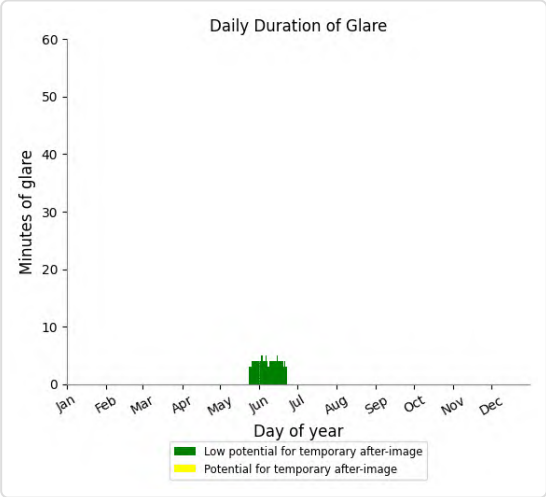


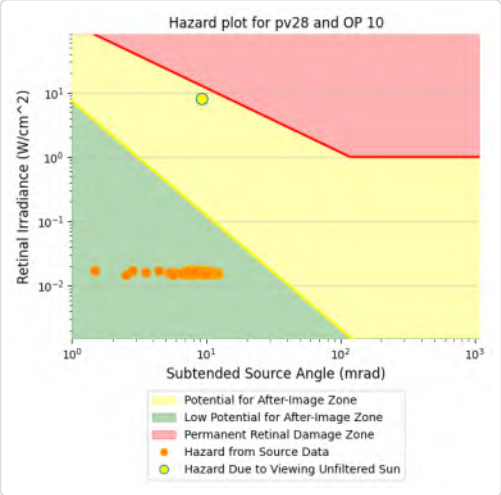
PV28 and OP 10

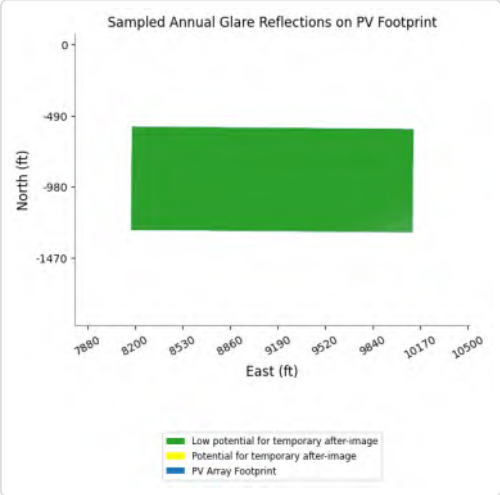
Yellow glare: none

Green glare: 118 min.





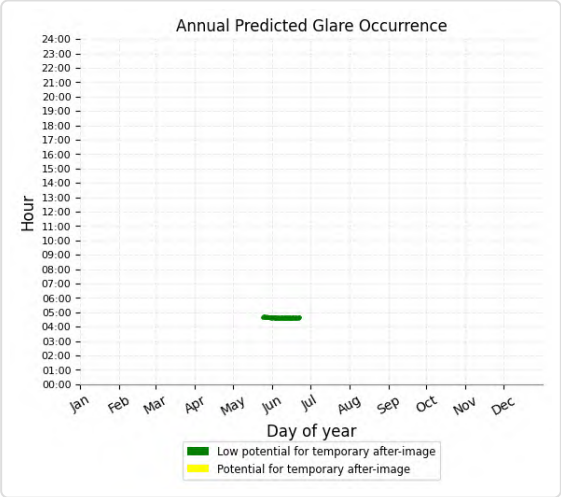


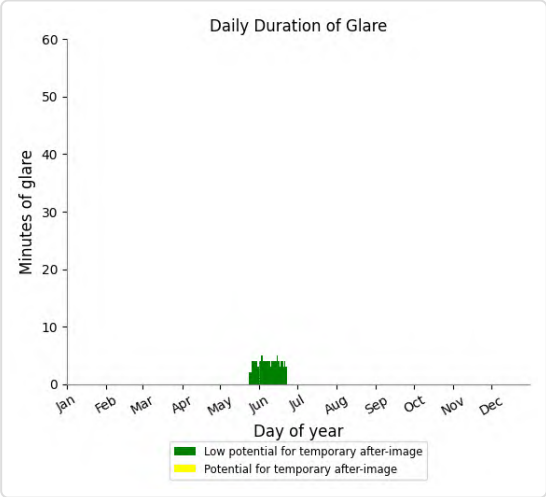


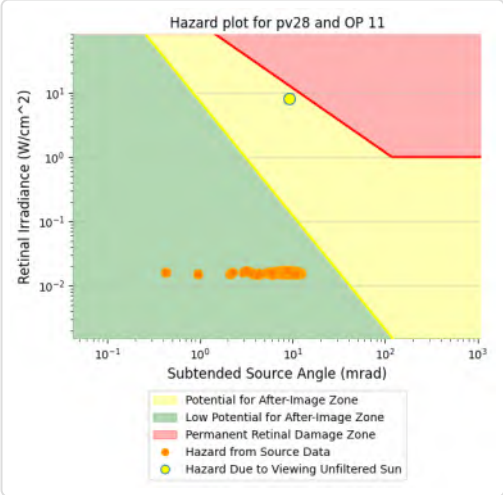
PV28 and OP 11

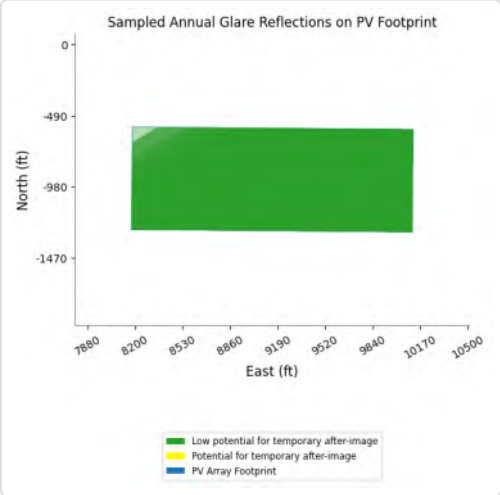
Yellow glare: none

Green glare: 113 min.





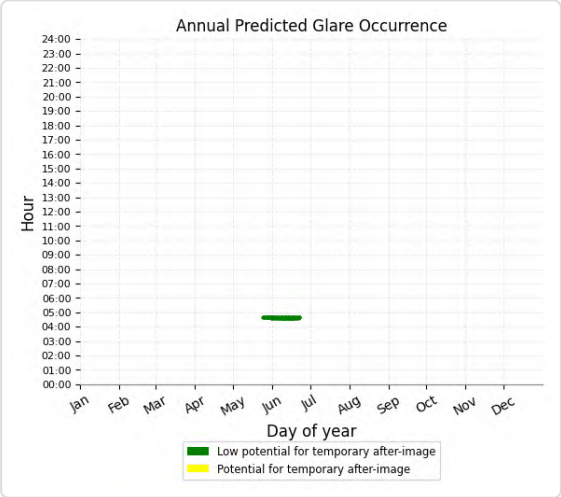


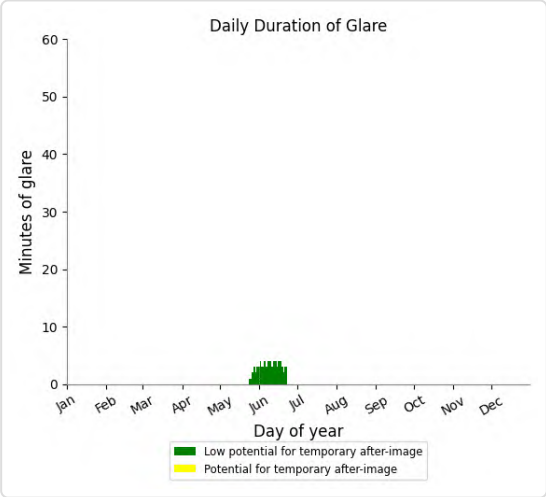


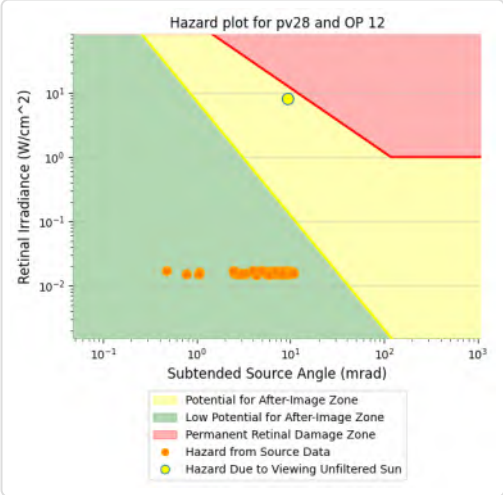
PV28 and OP 12

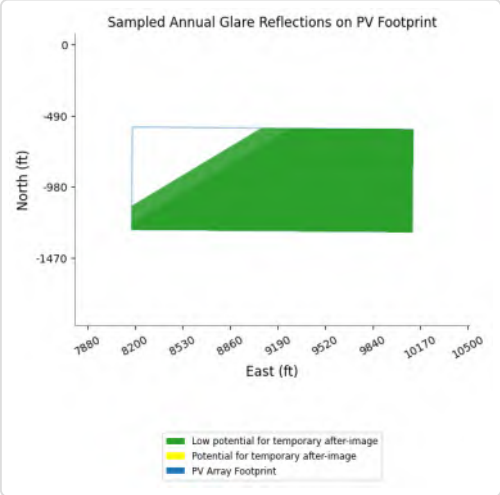
Yellow glare: none

Green glare: 93 min.



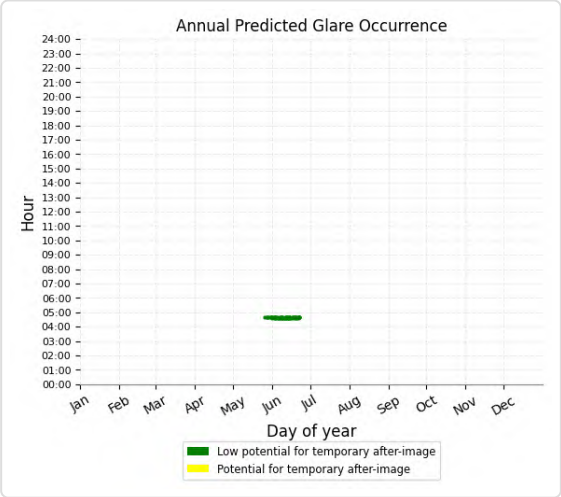


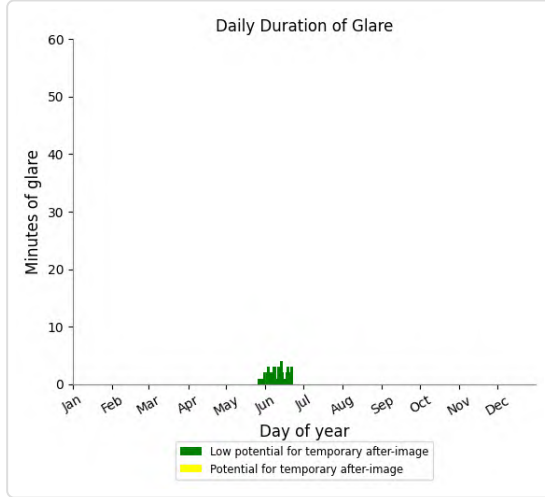


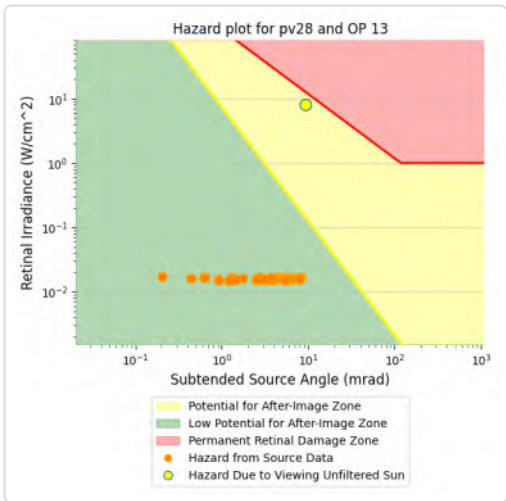


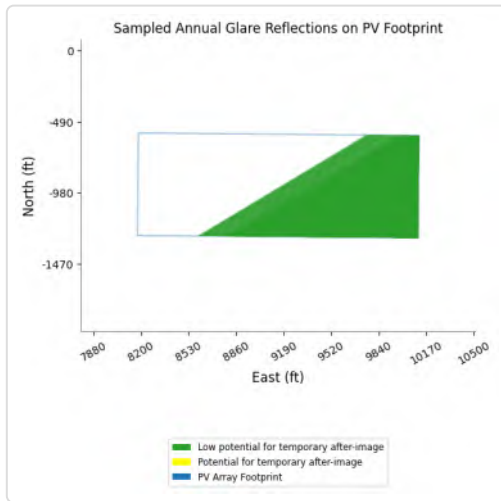
PV28 and OP 13

Yellow glare: none
Green glare: 64 min.









PV28 and OP 2

No glare found

PV28 and OP 4

No glare found

PV28 and OP 5

No glare found

PV28 and OP 6

No glare found

PV28 and OP 8

No glare found

PV28 and OP 14

No glare found

PV28 and OP 15

No glare found

PV28 and OP 16

No glare found

PV28 and OP 17

No glare found

PV28 and OP 18

No glare found

PV28 and OP 19

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

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Appendix C

Key Observation Points 7 and 8 Supplemental Visual Resource Analysis

MEMORANDUM

To:	Amanda Moore - Bureau of Land Management
From:	Joshua B. Saunders, AICP – Dudek
Subject:	Sapphire Solar – Key Observation Points 7 and 8 Supplemental Visual Resource Analysis
Date:	June 27, 2024
cc:	Katie Kuplevich and Christa Hudson – Sapphire Solar, LLC/EDF Renewables Development, Inc. Keith Carwana and Chelsea Ohanesian – Dudek
Attachment(s):	A – Key Observation Points B – Existing Conditions and Photo Simulations

This memorandum has been prepared in response to the Bureau of Land Management (BLM) request to assess visibility of the Sapphire Solar Project (Project) Linear Facility Routes when viewed from an outdoor viewing platform/deck (approximate above ground height of 10 feet). Dudek conducted an additional photo inventory on May 8, 2024 of Key Observation Points (KOPs) 7 and 8 from the Sapphire Solar Visual Resources Study. The goal of the photo inventory was to revisit the two locations in the Lake Tamarisk Community that were selected for analysis and visual simulations for the Sapphire Solar Project Visual Resources Study (Dudek, November 2023). Dudek staff revisited KOP 8 – Shasta Drive (Lake Tamarisk) (please see **Attachment A - Key Observation Points**) and took photographs representing the available view from the KOP towards the Project site at an approximate height of 10 feet above ground level.

For KOP 7 – DTC Site, Dudek staff visited a location near KOP 7 (within 125 feet) that provided a similar view to the Project site and surrounding landscape but avoided the inclusion of taller trees/shrubs in the immediate foreground that screen areas of the Project site from view. The 10-foot above ground level height view was executed using a ladder, an altimeter, tape measure, and a digital single-lens reflex (DSLR) camera. An aerial drone was used to capture photos of Dudek staff taking the ladder-based photos for general methodology support. Photos were then run through the same visual modeling system and process as the original KOPs.

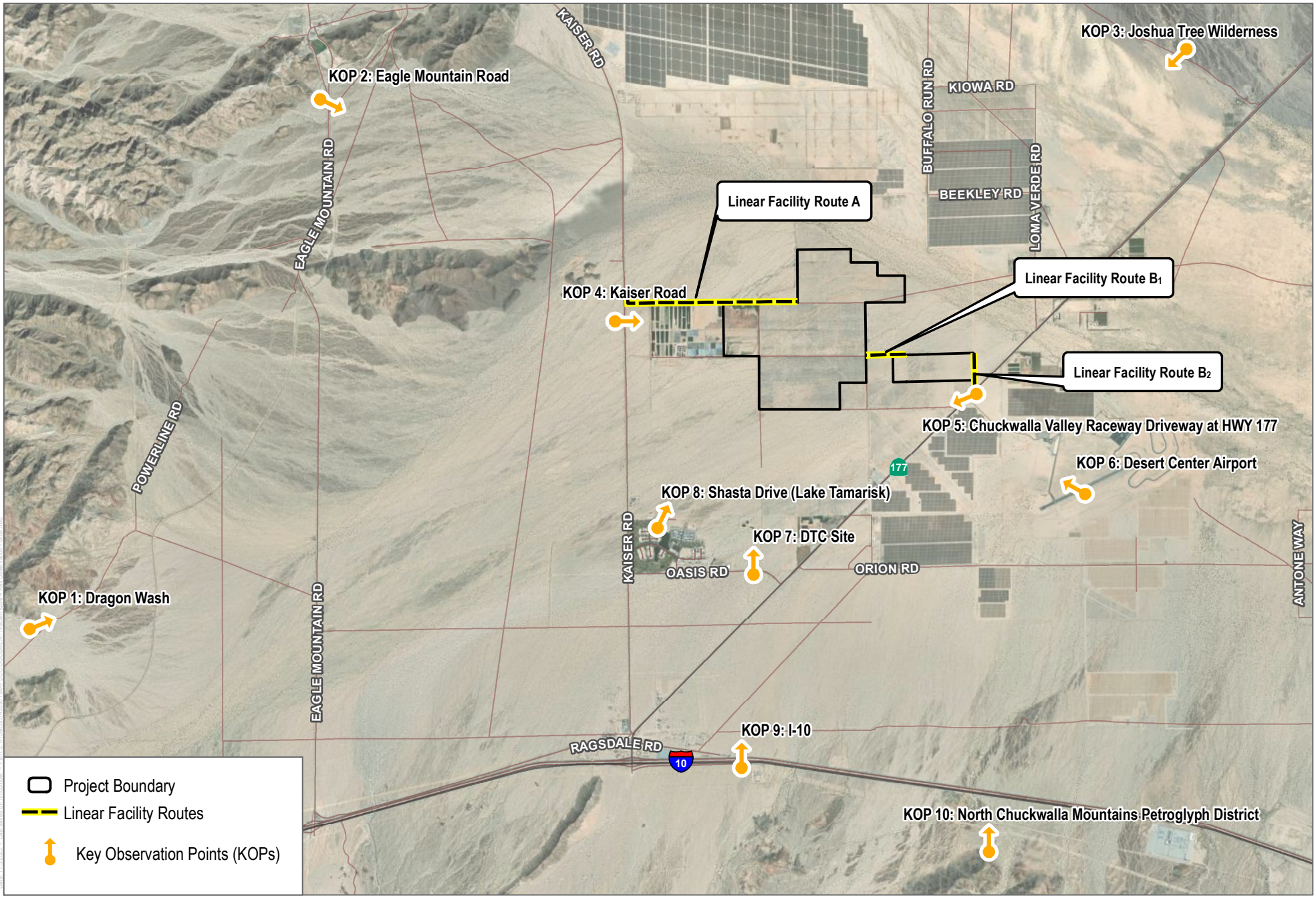
The “10-foot high” photos were compared to the ground-based photos included in the Visual Resources Study, which were taken at a height of approximately 5 feet 6 inches (eye level for an average height individual). While the view from 10 feet does provide an elevated viewing angle, the available view to the Project site at the two heights is altogether similar. The severity of view and visual character impacts from a height of 10 feet above ground level at KOP 7 and KOP 8 would be the same as experienced at a ground-based height of 5 feet 6 inches due to distance between Project components and KOPs, the relatively low vertical scale of visible Project components as viewed from these KOPs, and the screening effect of intervening desert vegetation.

While the specific KOP 7 location from the Sapphire Solar Project Visual Resources Study was not revisited during the additional photo inventory, the visual simulation of the Project prepared from a nearby location (within 125 feet of the original location) at a photograph height of 10 feet above ground level demonstrates, via a less obstructed view than the original location, that the view to Project components would be the same as experienced at KOP 7 from a ground-based height of 5 feet 6 inches. Specifically, views to the Project site from a height of 10 feet above ground level would be partially screened by intervening desert vegetation and due to distance and the low height of solar panels, Project impacts would be the same as viewed from a ground-based height of 5 feet 6 inches.

Photographs showing baseline conditions taken at 5 feet 6 inches and 10 feet above the ground surface are included in **Attachment B – Existing Conditions and Photo Simulations**, as are visual simulations representing the relative scale and extent of change to the existing visual environment anticipated to occur as a result of Project Linear Facility Routes.

Attachment A

Key Observation Points



SOURCE: Esri World Imagery Basemap (accessed 2022); County of Riverside 2022

DUDEK

0 3,200 6,400 Feet

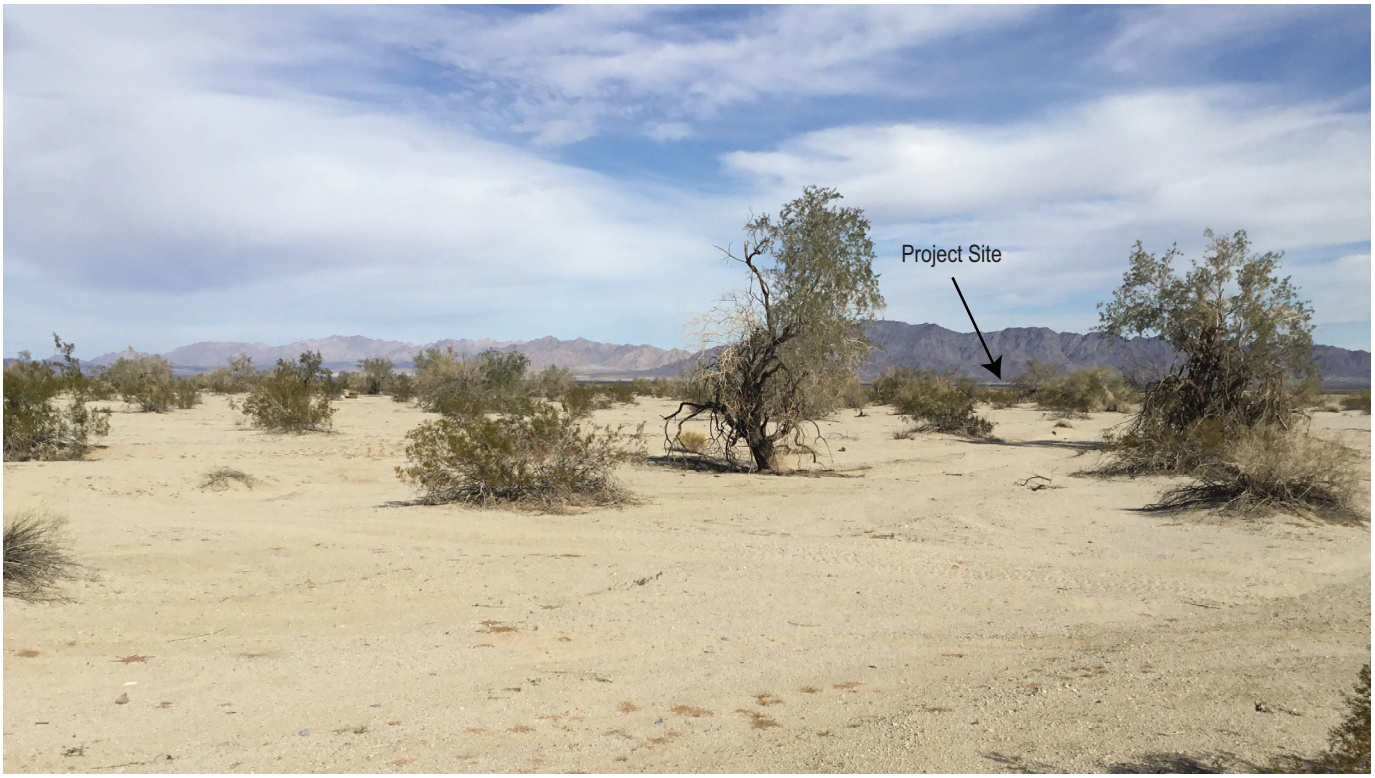
Key Observation Points

Sapphire Solar Project

Attachment B

Existing Conditions and Photo Simulations KOPs 7 & 8

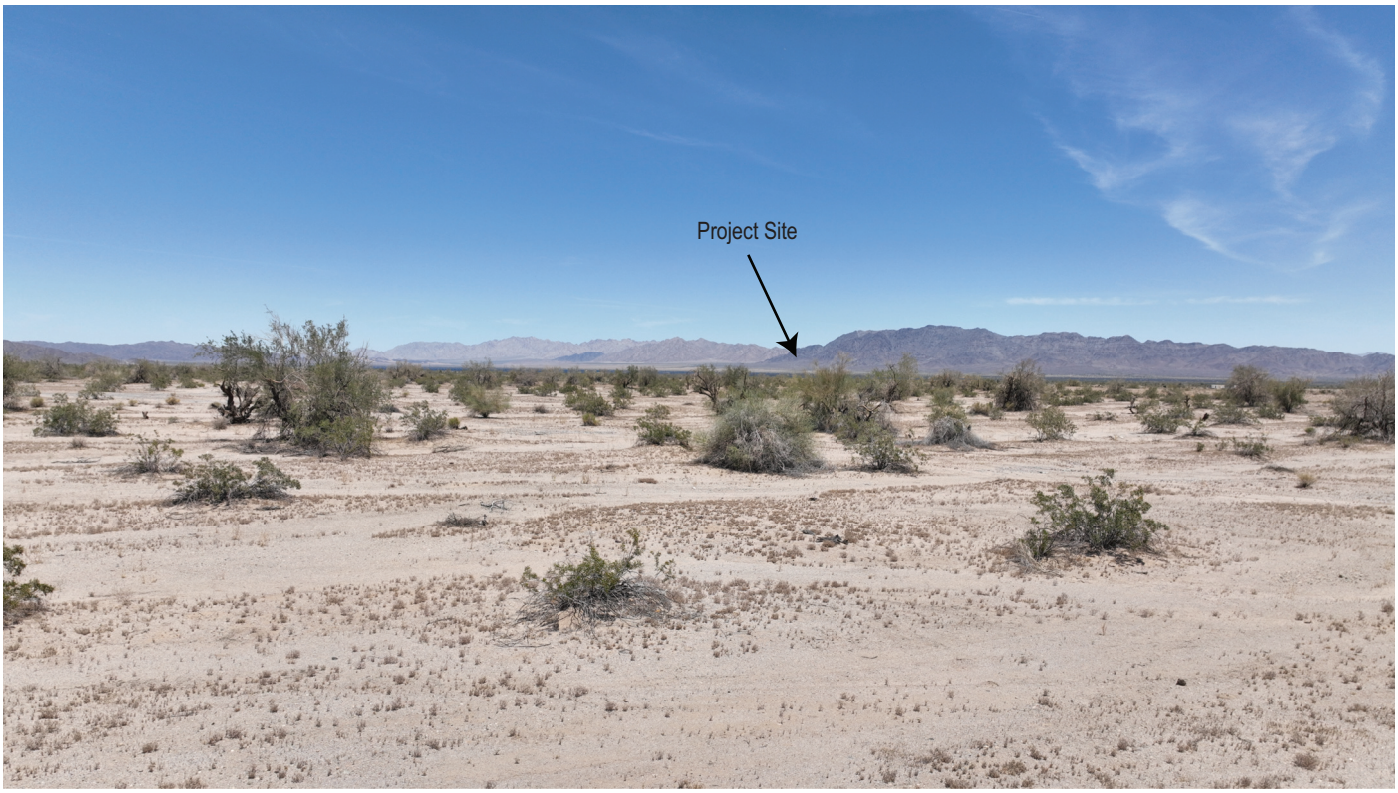
Existing Condition



Visual Simulation of Project

KOP 7: Desert Center Training Site (Photo taken 5' 6" above the ground surface)

Existing Condition - Photo was taken 10-feet above the ground surface.



Visual Simulation of Project - Photo was taken 10-feet above the ground surface.

KOP 7: Desert Center Training Site (Photo taken 10-feet above ground surface)

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Sapphire Solar Project

Photo Methodology: Photo was taken 10-feet above the ground (as measured by a tape measure) using a ladder.

KOP 7: Desert Center Training Site (Photo taken 10-feet above ground surface)

Existing Condition

Visual Simulation of Project

KOP 8: Shasta Drive - Lake Tamarisk Community (Photo taken 5' 6" above the ground surface)

Existing Condition - Photo was taken 10-feet above the ground surface.

Visual Simulation of Project - Photo was taken 10-feet above the ground surface.

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KOP 8: Shasta Drive - Lake Tamarisk Community (Photo taken 10-feet above ground surface)

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Photo Methodology: Photo was taken 10-feet above the ground (as measured by a tape measure) using a ladder.

KOP 8: Shasta Drive - Lake Tamarisk Community (Photo taken 10-feet above ground surface)

Sapphire Solar Project

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