

# REHBEIN AIRPORT CONSULTING

DATE 20 July 2023

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**Proposed Hazelwood North Solar Farm  
Aviation Impact Assessment  
For Manthos Investment Pty Ltd**

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**APPENDIX A**

FIGURES

**APPENDIX B**

NASF GUIDELINE C – ATTACHMENT 1

**APPENDIX C**

FORGESOLAR GLAREGAUGE REPORTS

| Revision | Date       | Description | Author | Verifier | Approver |
|----------|------------|-------------|--------|----------|----------|
| 0        | 4.10.2022  | Draft       | BMW    | BJH      |          |
| 1        | 17.05.2023 | Final       | BMW    | BJH      |          |
| 2        | 20.07.2023 | Final       | BMW    | BJH      |          |
|          |            |             |        |          |          |

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## 1.0 INTRODUCTION

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Mathos Investment Pty Ltd via Robert Luxmoore Project Management has engaged REHBEIN Airport Consulting to undertake an aviation assessment for the proposed Hazelwood North Solar Farm against the National Airports Safeguarding Framework (NASF) Guidelines.

Robert Luxmoore Project Management provided the following drawings for assessment:

- FTC Solar drawing no 0063I00000oAYTLAA4/A-100/Rev E - Site Plan (PDF Only)
- Martec Aerial Services Plan of Contour & Features V. 01 (GDA 2020) 29/01/2022
- Moir Landscape Architecture *Hazelwood North Solar Farm – Landscape and Visual Impact Assessment* - Draft Landscape Plan Pages 38 – 40 (PDF Only)
- Urban Fold *Hazelwood North Solar Farm – Preliminary Concept* Rev 09 (22 June 2023)

Robert Luxmoore advises that the northern and central transmission easements as illustrated on the Urban Fold *Hazelwood North Solar Farm – Preliminary Concept* Rev 09 are existing. Additional or modified transmission infrastructure, as well as the 'Other Components' listed are subject to separate assessments and are not the subject of this report.

The proposed Hazelwood North Solar Farm solar panel layout has been assessed against the NASF Guidelines as they relate to the adjacent Latrobe Regional Airport.

The power module dimensions were obtained from the Preliminary design IDEEMATEC Deutschland GmbH drawing no 6322-Hazelwood/P1-02/LTEC-1V\_27M (2022-02-28).

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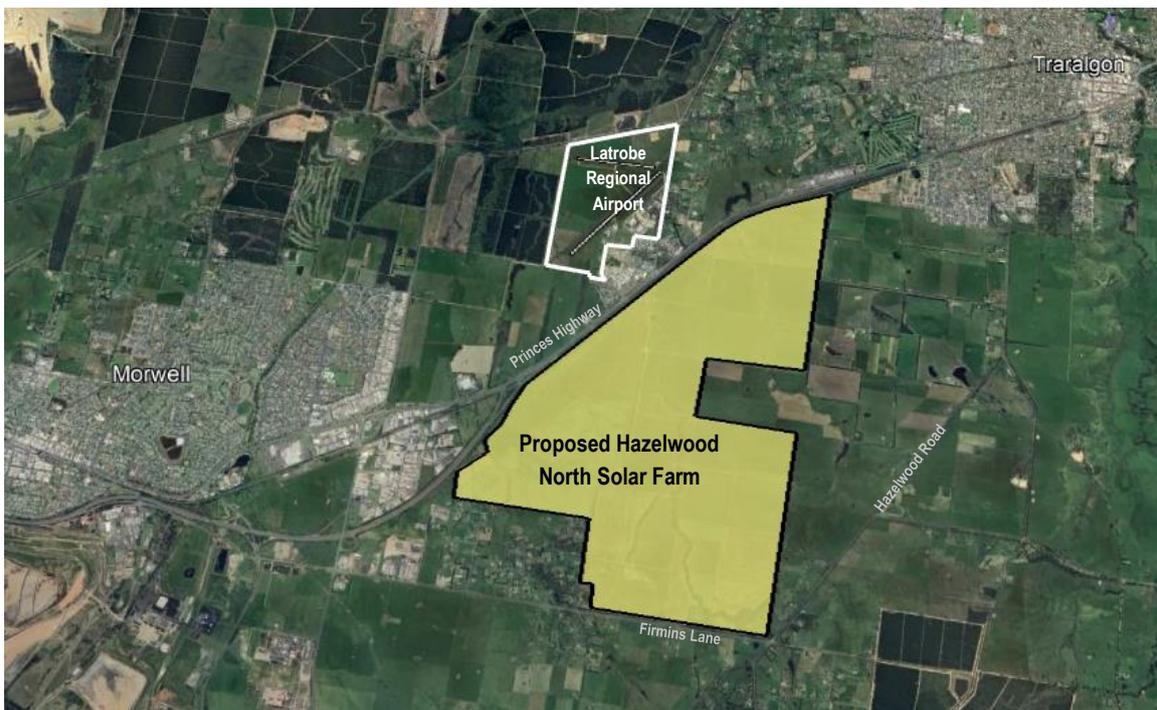
## 2.0 PROPOSED HAZELWOOD NORTH SOLAR FARM

The proposed Hazelwood North Solar Farm is a large-scale solar farm and battery storage facility (1,079 ha) with associated infrastructure such as inverter stations and access roads as shown on FTC Solar drawing no 0063I00000oAYTLAA4/A-100/RevE – Site Plan. The site is currently used for livestock grazing which is intended to remain.

The proposed Solar Farm is located to the south of Latrobe Regional Airport on the eastern side of the Princes Highway as illustrated below on **Figure 1**. The proposed solar panels are a ground mounted structure. Each proposed solar panel is 4.6 m wide and will rotate on a central axis which is approximately 1.6 m above the ground. The maximum height of the solar panel is therefore assumed at 4 m high (2.3 panel + 1.6 mount = 3.9 m). The land rises from the north to the south from between approximately 50 m AHD rising to about 99 m AHD at the southern end of the subject area. The elevation of the solar panels across the site therefore ranges from approximately 54 m AHD to 103 m AHD.

Any change to the solar panel installation as described above is likely to change the outcome of this assessment.

**Figure 1: Location Plan**



Source: Google Earth

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### 3.0 LATROBE REGIONAL AIRPORT

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Latrobe Regional Airport is a general aviation airport, owned and operated by the Latrobe City Council. The *Latrobe Regional Airport Master Plan 2015 (Updated 2019)* estimates in the order of 30,000 aircraft movements per year (pre-covid - 2019) of which 34% are made up of private, sports and recreational users, almost a third consists of flight training and the remainder is emergency services, helicopters, charter, business and warbird activity.

The airport consists of one main runway 03/21 (sealed), a gravel cross runway 09/27 and a grass strip 03L/24R<sup>1</sup>. Operators at the airport include<sup>2</sup>:

- Mahindra/GippsAero;
- Bandicoot Adventure Flights;
- Latrobe Flying Museum;
- East Coast Aviation;
- Latrobe Valley Airframes and Welding;
- Helimed 1 – Ambulance Air Rescue;
- Regional Fire Base - Department of Environment and Primary Industries;
- Latrobe Valley Aero Club; and
- Aerial Extras.

The *Latrobe Regional Airport Master Plan 2015 (Updated 2019)* adopted vision is:

*To promote the development and expansion of the Latrobe Regional Airport as a regionally significant airport providing a hub for aviation services and employment thereby adding economic and social benefit to the region whilst maintaining options for future passenger transport services.*

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<sup>1</sup> Aeronautical Information Publication Australia FAC YLTV – 1 (08 Sep 2022)

<sup>2</sup> Latrobe Regional Airport Master Plan 2015 (Updated 2019)

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## 4.0 NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK

The National Airports Safeguarding Framework (NASF) is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms; and
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety related issues.

The National Airports Safeguarding Advisory Group (NASAG), comprising of Commonwealth, State and Territory Government planning and transport officials, the Australian Government Department of Defence, the Civil Aviation Safety Authority (CASA), Airservices Australia and the Australian Local Government Association (ALGA), has developed the National Airports Safeguarding Framework.

Commonwealth, State and Territory Ministers considered NASF at the Standing Council on Transport and Infrastructure meeting on 18 May 2012. Ministers agreed to the NASF, noting reservations from New South Wales on the format of Guideline A on measures for managing impacts of aircraft noise. The agreement represents a collective commitment from Governments to ensure that an appropriate balance is maintained between the social, economic and environmental needs of the community and the effective use of airport sites<sup>3</sup>.

NASF currently consists of seven principles and a set of nine guidelines. All Guidelines can be found at [www.infrastructure.gov.au](http://www.infrastructure.gov.au). Each has been summarised in the following sub-sections for its relevance to the subject land and likely implications the proposed Hazelwood North Solar Farm.

### 4.1 GUIDELINE A: MEASURES FOR MANAGING IMPACTS OF AIRCRAFT NOISE

NASF Guideline A is to provide guidance to Commonwealth, State, Territory and Local Government decision makers to manage the impacts of noise around airports including assessing the suitability of developments.

The proposed development would not be considered a noise sensitive use, therefore Guideline A is not relevant to the proposal and no further action in relation to Guideline A is expected.

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<sup>3</sup> [https://www.transportinfrastructurecouncil.gov.au/sites/default/files/SCOTI\\_2nd\\_Communique\\_FINAL.pdf](https://www.transportinfrastructurecouncil.gov.au/sites/default/files/SCOTI_2nd_Communique_FINAL.pdf)

## 4.2 GUIDELINE B: MANAGING THE RISK OF BUILDING GENERATED WINDSHEAR AND TURBULENCE AT AIRPORTS

The purpose of this Guideline is to assist land use planners and airport operators in their planning and development processes to reduce the risk of building generated windshear and turbulence near runways. Applicability of this Guideline is initially determined by the location of the 'assessment trigger area' around the runway, that is:

- 1200 m or closer perpendicular from the runway centreline (or extended runway centreline);
- 900 m or closer in front of runway threshold (towards the landside of the airport); and
- 500 m or closer from the runway threshold along the runway.

Should any building developments be proposed within the assessment trigger area, Guideline B refers to the mitigation of risk by use of a 'height multiplier' (that is, the 1 in 35 rule) determining that buildings meeting this rule are not expected to create unsafe wind effects.

A portion of the north-eastern side of the subject site, along Princes Highway, is within the windshear and turbulence assessment trigger area for Runway 03/21 and Runway 09/27 as illustrated on **Figure M22057/01** (refer Appendix A). The land elevations are in the order of 60 m AHD within the assessment trigger areas. At approximately 800 m (closest point) from the runway centreline this would allow for buildings approximately 22 m ( $800 / 35 = 22.8$ ) high above the runway centreline. We have estimated the runway centreline at approximately 54 m AHD. As a result, structures up 76 m AHD ( $22 \text{ m} + 54 \text{ m AHD}$ ) would be acceptable in this area in accordance with Guideline B.

The proposed solar panels at 4 m high would not infringe the 1 in 35 rule and therefore as per Guideline B no further assessment is required.

## 4.3 GUIDELINE C: MANAGING THE RISK OF WILDLIFE STRIKES IN THE VICINITY OF AIRPORTS

Guideline C pertains to the way in which existing land use is managed in the vicinity of airports with respect to the attraction of wildlife, particularly birds and bats. Guideline C establishes buffer areas of 3 km, 8 km and 13 km from an airport, where the Aerodrome Reference Point (ARP) is generally used as the point of origin. However, the Guideline acknowledges there may be some circumstances where multiple points of origin may be appropriate. In the case of Latrobe Regional Airport, buffer zones have been applied from the centre of each runway threshold.

### 4.3.1 WILDLIFE BUFFER ZONES

The subject land straddles the 3 km and 8 km Wildlife buffer zone as illustrated on **Figure M22057/02** (refer Appendix A). Attachment 1 to Guideline C (Refer to Appendix B) provides guidance on the land uses that present a risk of attracting wildlife and triggers (based on distance from the airport) for

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adopting active measures to mitigate that risk. Robert Luxmoore advised that the subject land is currently used for livestock grazing which will continue upon installation of the solar farm.

The proposed activity on the subject land does not relate to any land use that Attachment 1 to Guideline C identifies as either 'high' or 'moderate' wildlife attraction risk, which are as follows:

- HIGH wildlife attraction risk:
  - Agricultural - Turf farm, Piggery, Fruit tree farm, Fish processing/packaging plant
  - Conservation - Wildlife sanctuary / conservation area – wetland
  - Recreation - Showground
  - Commercial food processing plant
  - Utilities – food/organic waste facility and putrescible waste facility (landfill and transfer station); and
- MODERATE wildlife attraction risk:
  - Agriculture – Cattle / dairy farm and poultry farm
  - Conservation – Wildlife sanctuary / conservation area – dryland
  - Recreation – Racetrack/horse riding school, Golf course, sports facility, park/playground and picnic/camping ground
  - Utilities – non-putrescible waste facility (both landfill and transfer station) and sewage/wastewater treatment facility.

#### 4.3.2 DRAFT LANDSCAPE PLAN

Australian civil aviation safety legislation includes provisions to meet Australia's international obligations. Part 139 of the Civil Aviation Safety Regulations 1998 (the Regulations) imposes an obligation on airports to reduce the risks of wildlife strikes. These regulations are administered by CASA. All Certified Airports are required to document procedures for wildlife hazard management. Often airports in putting together wildlife hazard management plans can include a list of vegetation species that are permitted/not permitted in the vicinity of the airport to assist in management of attraction of bird wildlife.

Robert Luxmoore provided pages 38 to 40 comprising the Draft Landscape Plan of the Moir Landscape Architecture *Hazelwood North Solar Farm | Landscape and Visual Impact Assessment*. The plan illustrates that the existing vegetation along Princess Highway, the southwest boundary of the site and along Hazelwood Road to the east of the site, is proposed to be retained. The Draft Landscape Plan includes additional perimeter planning along Firmins Lane, the south-eastern corner and along the eastern boundary of the site, to filter views of the project. An indicative planting schedule is provided as follows:

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**Table 1: Indicative Planting Schedule**

|        | Botanical Name                  | Common Name     | Mature Height |
|--------|---------------------------------|-----------------|---------------|
| Trees  | <i>Allocasuarina littoralis</i> | Black Sheoak    | 12 m          |
|        | <i>Acacia implexa</i>           | Lightwood       | 5 m           |
|        | <i>Acacia pycnantha</i>         | Golden Wattle   | 8 m           |
|        | <i>Melaleuca ericifolia</i>     | Swamp Paperbark | 9 m           |
| Shrubs | <i>Acacia paradoxa</i>          | Hedge Wattle    | 4 m           |
|        | <i>Banksia marginata</i>        | Silver Banksia  | 5 m           |
|        | <i>Bursaria spinosa</i>         | Sweet Bursaria  | 4 m           |
|        | <i>Hakea nodosa</i>             | Yellow Hakea    | 3 m           |
|        | <i>Indigofera australis</i>     | Austral Indigo  | 2 m           |

With respect to attraction of wildlife, particularly birds, the landscape proposal when developed in detail must be submitted to Latrobe Regional Airport operator for review against Wildlife Hazard Management Plan and approval of vegetation species.

In addition, the mature vegetation maximum height will need to be considered in relation to the OLS and PANS-OPS as discussed in **Section 4.6.3**.

#### **4.4 GUIDELINE D: MANAGING THE RISK OF WIND TURBINE FARMS AS PHYSICAL OBSTACLES TO AIR NAVIGATION**

Guideline D provides guidance to State/Territory and local government decision makers, airport operators and developers of wind farms to jointly address the risk to civil aviation arising from development, presence and use of wind farms and wind monitoring towers.

The proposed solar farm does not include any proposal for wind turbines or wind monitoring towers as such no further action with respect to Guideline D is required.

#### **4.5 GUIDELINE E: MANAGING THE RISK OF DISTRACTION TO PILOTS FROM LIGHTING IN THE VICINITY OF AIRPORTS**

NASF Guideline E provides guidance on the risk of distractions to pilots of aircraft from lighting and light fixtures near airports. Advice for the guidance of designers and installation contractors is

provided for situations where lights are to be installed within a 6 km radius (applied from the centre point of each runway) of a known aerodrome.

The CASA *Part 139 (Aerodromes) Manual of Standards 2019*, Section 9.144: *Lights – requirements for zones*, sets out the restrictions and degree of interference ground lights can cause as a pilot approaches. Within the 6 km radius is a primary area which is divided into four light control zones: A, B, C and D. These zones reflect the varying degrees of interference ground lights may cause to pilots. The subject land is within the 6 km radius of Latrobe Regional Airport and outside the lateral extents of the primary area (light control zones A, B, C and D) as illustrated on **Figure M22057/03** (refer Appendix A).

Any lighting that may be proposed within this area should not infringe the provisions of regulation 94 of the Civil Aviation Regulations 1988 (CAR 1988). The regulations allow for CASA to authorise notice upon the owner of the place to remove or screen effectually the light where the light is likely to endanger the safety of aircraft, whether by reason of glare, or by causing confusion.

Glare caused by reflective surfaces can also be a source of distraction to pilots. As a proposed large scale solar panel installation, particular consideration must be given to any glare/reflectivity affecting aircraft in various stages of flight as well as ATC operations. A solar glare hazard analysis has been undertaken (refer **Section 5.0**) to assist Latrobe Regional Airport operators and CASA in their review of the proposal.

## 4.6 GUIDELINE F: MANAGING THE RISK OF INTRUSIONS INTO THE PROTECTED OPERATIONAL AIRSPACE OF AIRPORTS

NASF Guideline F is designed to address the issue of intrusions into the operational airspace of airports by tall structures, such as buildings and cranes as well as trees in the vicinity of airports. The Guideline also addresses activities that could cause air turbulence and/or emissions of steam, gas, smoke, dust or other particulate matter that could affect the normal flight of aircraft operating in the prescribed airspace in accordance with Visual Flight Rules (VFR).

### 4.6.1 OBSTACLE LIMITATION SURFACES (OLS)

The Obstacle Limitation Surfaces (OLS) is the protection for aircraft operating by visual reference in visual meteorological conditions. It is a series of virtual surfaces around a runway, which together establish the height limits for objects in and around an airport.

The proposed solar farm is within the lateral extents of the Latrobe Regional Airport OLS inner horizontal and conical surfaces as illustrated on **Figure M22057/04** (refer Appendix A).

Most of the land lies below of the OLS inner horizontal surface at 96.5 m AHD. The ground level beneath the OLS inner horizontal surface is less than 90 m AHD. The solar panels are proposed to

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extend to a maximum 4 m above the ground. A maximum elevation of 94 m AHD would remain below the OLS inner horizontal surface at 96.5 m AHD.

The OLS conical surface lies over the south-eastern end of the land. The maximum ground level under the OLS is of 99 m AHD. The maximum elevation of the solar panels in this area at 103 m AHD would also remain below the OLS conical surface at 104.5 m AHD.

With the solar panel installation as described above, there is no infringement of the Latrobe Regional Airport OLS. The proposal, however, should be provided to the airport operator to advise of the installation and that the OLS is not infringed.

#### 4.6.2 PANS-OPS AIRSPACE

The PANS-OPS protective surfaces are for the protection of aircraft operating under instrument flight rules. The subject land is within the lateral extents of the following existing PANS-OPS procedure areas:

- RNAV GNSS Runway 03
- RNAV GNSS Runway 21
- NDB-A
- NDB-B
- Circling Cat A/B; and
- Circling C

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The most restrictive PANS-OPS procedure over the site we have estimated to be the RNAV GNSS Runway 21 estimated at 121.6 m AHD. The proposed solar panel installation at a maximum elevation of 103 m AHD would remain below the existing PANS-OPS surfaces as illustrated on **Figure M22057/05** (refer Appendix A).

The proposal should be submitted to Airservices Australia for confirmation of PANS-OPS limits over the site, as well as assessment against all existing and any planned Airservices procedures and all Communication, Navigation and Surveillance (CNS) facilities.

#### 4.6.3 DRAFT LANDSCAPING PLAN

As discussed in **Section 4.3** the proposed planting schedule will need to be considered in relation to the Latrobe Regional Airport airspace as it relates to mature vegetation height. The indicative planting schedule as shown in Table 1 identifies the maximum mature height of vegetation to be the Black Sheoak (*Allocasuarina littoralis*) at 12 m high. Based on the ground contours, the areas identified as perimeter planting on page 38 of the Draft Landscape Plan, trees at a maximum mature height of 12 m appear to remain below the OLS and the PANS-OPS as shown on **Figures M22057/04** and **M22057/05**. Once the Draft Landscape Plan is developed in detail all vegetation should be confirmed to remain below the OLS and PANS-OPS.

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## 4.7 GUIDELINE G: PROTECTING AVIATION FACILITIES – COMMUNICATION, NAVIGATION AND SURVEILLANCE (CNS)

The purpose of Guideline G is to formalise the protection of CNS facilities in land use planning decisions. This Guideline provides land use planning guidance to better protect CNS facilities which support the system and processes in place by various agencies to safely manage the flow of aircraft into, out of and across Australian airspace. The Guideline also informs procedures which ensure development associated activities within Building Restricted Areas (BRA) of CNS facilities do not adversely affect the facility or cause interference for air traffic controllers or aircraft in transit.

Airservices Australia operates a Non-Directional Beacon (NDB) navigation aid at Latrobe Regional Airport which provides lateral guidance to aircraft operating in marginal weather conditions. The NDB is located on the north side of Runway 09/27. Building Restricted Areas are set out in NASF Guideline G for navigation aids, to prevent interference with the performance and integrity of the navigation aid's signal.

The Building Restricted Area for the NDB extend to a radius of 300 m from the NDB antenna. The subject land is approximately 1,400 m south of the NDB and is therefore outside the lateral extents of the NDB building restricted area as set out in Guideline G.

In accordance with Guideline G the installation of the solar farm will not interfere with the performance and integrity of the NDB and as such no further assessment or investigation is required. However, the proposal should be submitted to Airservices Australia for assessment against all existing and any planned CNS facilities.

## 4.8 GUIDELINE H: PROTECTING STRATEGICALLY IMPORTANT HELICOPTER LANDING SITES

Guideline H provides guidance to State/Territory and local government decision makers as well as the owners/operators of identified strategically important Helicopter Landing Sites (SHLS) for the ongoing operations and to ensure SHLS are not compromised by any propose development. For the purposes of this Guideline, an SHLS is an area not located on an aerodrome.

A SHLS is that as identified as being of strategic importance as well as associated with a hospital, elevated in a populated area and/or subject to instrument flight procedures. The flight path protection areas extend 3.5 km from the SHLS. The Latrobe Regional Hospital is adjacent the proposed solar farm on north side of Princes Highway and includes a Helicopter Landing Site (HLS).

The Latrobe Planning Scheme Map 85 DDO identifies DDO5 and DDO6 partially within the subject land. Both DDO5 and DDO6 relate to the Latrobe Regional Hospital Emergency Medical Services Helicopter Flight Path Protection as illustrated below on **Figure 2**

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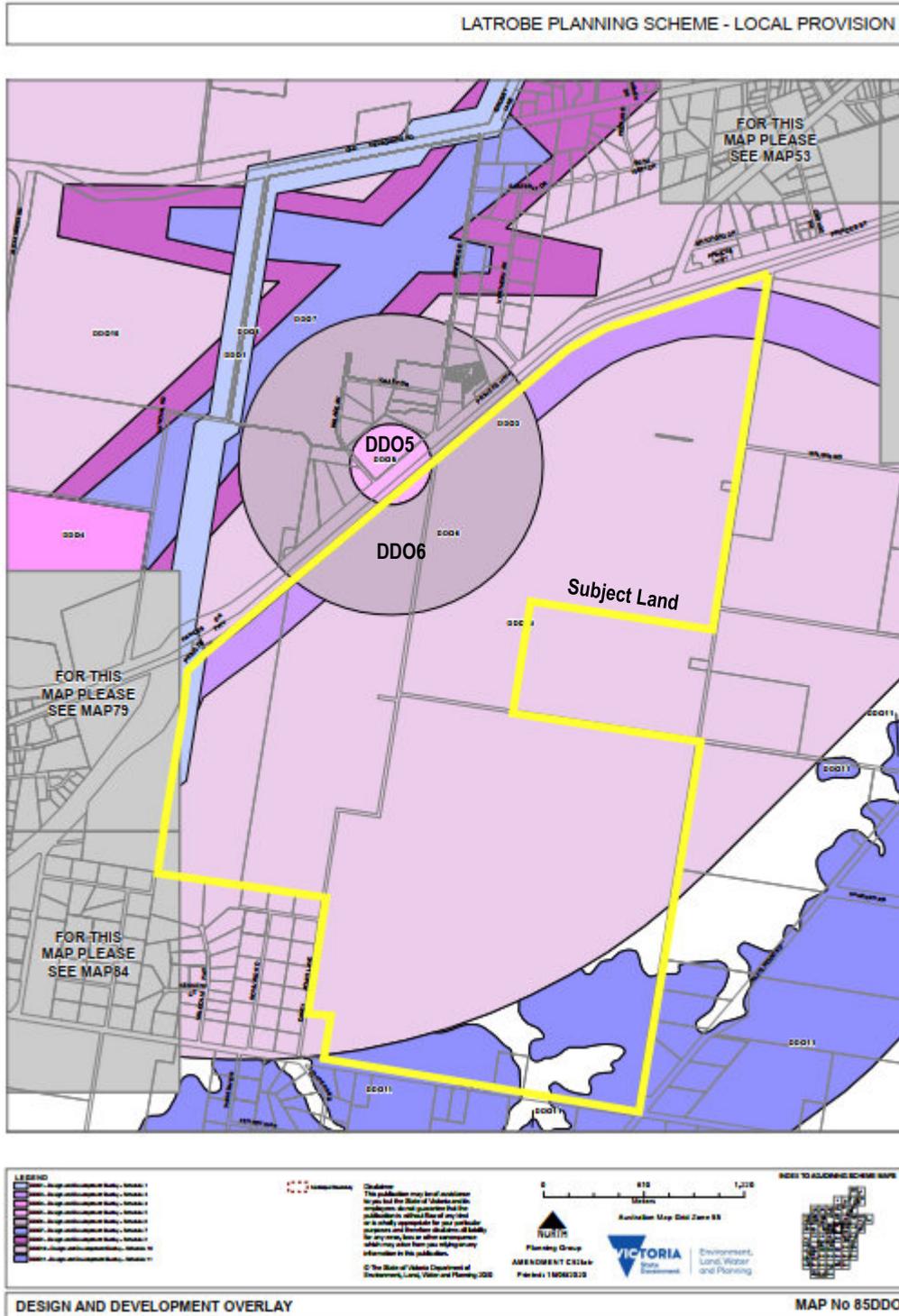
The objective of Latrobe Planning Scheme Schedule 5 and Schedule 6 to clause 43.02 Design and Development Overlay (DDO5 & DDO6) is to ensure that the height of all buildings and works are constrained within specified limits to avoid creating a hazard to aircraft in the vicinity of the Latrobe Regional Hospital and to facilitate safe Emergency Medical Service (EMS) helicopter operations. A permit is not required to construct a building or carry out works with the height of less than 56.44 m AHD within DDO5 and 68.4 m AHD within DDO6.

The subject land within DDO5 appears to be the buffer area and the concept layout does not illustrate solar panels in this area. The subject land within the DD06 area is estimated to be between 60 - 65 m AHD. Should solar panels in this area exceed the elevation of 68.4 m AHD the permit process and decision guidelines will need to be followed. Due to the proximity of site to the Latrobe Regional Hospital HLS, any construction that may take place either in close proximity to the DDO or within the extents of the DDO, we recommend consultation with the Department of Health to ensure there is no impact to helicopter operations to and from the Latrobe Regional Hospital HLS.

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Figure 2: Latrobe Planning Scheme - Map No 85DDO



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#### 4.9 GUIDELINE I: MANAGING THE RISK IN PUBLIC SAFETY ZONES AT THE ENDS OF RUNWAYS

Guideline I provides guidance on approaches for the application of Public Safety Areas (PSA) planning framework in Australian jurisdictions. The Guideline is intended to ensure there is no increase in risk from new development and assist land-use planners to better consider public safety when assessing development proposals, rezoning requirements and when developing strategic land use plans.

Latrobe Regional Airport Master Plan 2015 (Updated 2019) has identified Public Safety Areas at the ends of Runway 03/21. The proposed solar farm is not within the extents of the public safety areas as illustrated on **Figure M22057/06** (refer Appendix A).

No further assessment in relation to the Latrobe Regional Airport PSA is therefore required.

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## 5.0 SOLAR GLARE HAZARD ANALYSIS

### 5.1 ASSESSMENT METHODOLOGY

A Solar glare hazards analysis was undertaken using the ForgeSolar GlareGauge tool, which analyses the location, duration and extent of glare from solar panel installations against aircraft flight paths at airports and other defined observation points, such as air traffic control towers. The tool classifies glare into three levels:

- '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 for after-image (flash blindness) when observed prior to a typical blink response time; and
- Glare with potential for permanent eye damage (retinal burn).

These glare hazard zone boundaries approximate actual ocular impact outcomes which encompass a continuous spectrum. According to ForgeSolar, "after image" is the term applied to a common retinal phenomenon that most people have experienced at some point or other, such as the effect that occurs when a photo with flash is taken in front of a person who then sees spots in front of their eyes for a few seconds. A more extreme example of "after-image" occurs when staring at the sun.

### 5.2 SITE CONFIGURATION & COMPONENTS

REHBEIN Airport Consulting, using ForgeSolar GlareGauge software, has completed three (3) photovoltaic glare analyses on the proposed Hazelwood North solar panel installation. Each analysis was completed using the below component inputs, as shown in on **Table 2**.

**Table 2: Component Inputs & Assumptions**

| Component                       | Setting      | Source  |
|---------------------------------|--------------|---|
| Solar Panel Installation Layout | 16 PV Arrays | FTC Solar drg no 0063100000oAYTLAA4/A-100/RevE (FTC Solar Preliminary Drawing)<br><br>The layout was estimated in sections broadly around the access road arrangement and within the limits of the allowable PV array and max. vertices within the ForgeSolar tool. The PV Array are identified as shown below on <b>Figure 3</b> |
| Axis Tracking                   | Single Axis  | Sections were based on the Voyager Trackers Specification Sheet (DOC: 06-02-DS-001-H) which states the design specifications.   |
| Backtracking Method             | Shade-slope  |   |

|  |   |   |
|--|---|---|
| Tracking Axis Orientation              | 0°  | Typical/assumed setting for the Southern Hemisphere   |
| Maximum Tracking Angle                 | 50°                                       | FTC Solar Drawing tracker description   |
| Resting Angle                          | 0°  | The final east/west rotation angle when sun is outside the rotation range during backtracking angle is a typical/default program setting. |
| Ground Coverage Ratio                  | 45%                                       | FTC Solar Drawing tracker description   |
| Panel Material                         | Smooth glass with Anti-Reflective Coating | Documentation provided on various solar panels in the Hazelwood NSF – Documentation suggest glass with anti-reflective coatings           |
| Vary reflectivity with sun position    | Yes                                       | Program default setting   |
| Corelate slope error with surface type | Yes                                       | Program default setting   |
| Slope Error                            | 8.43 mrad                                 | Program default setting   |

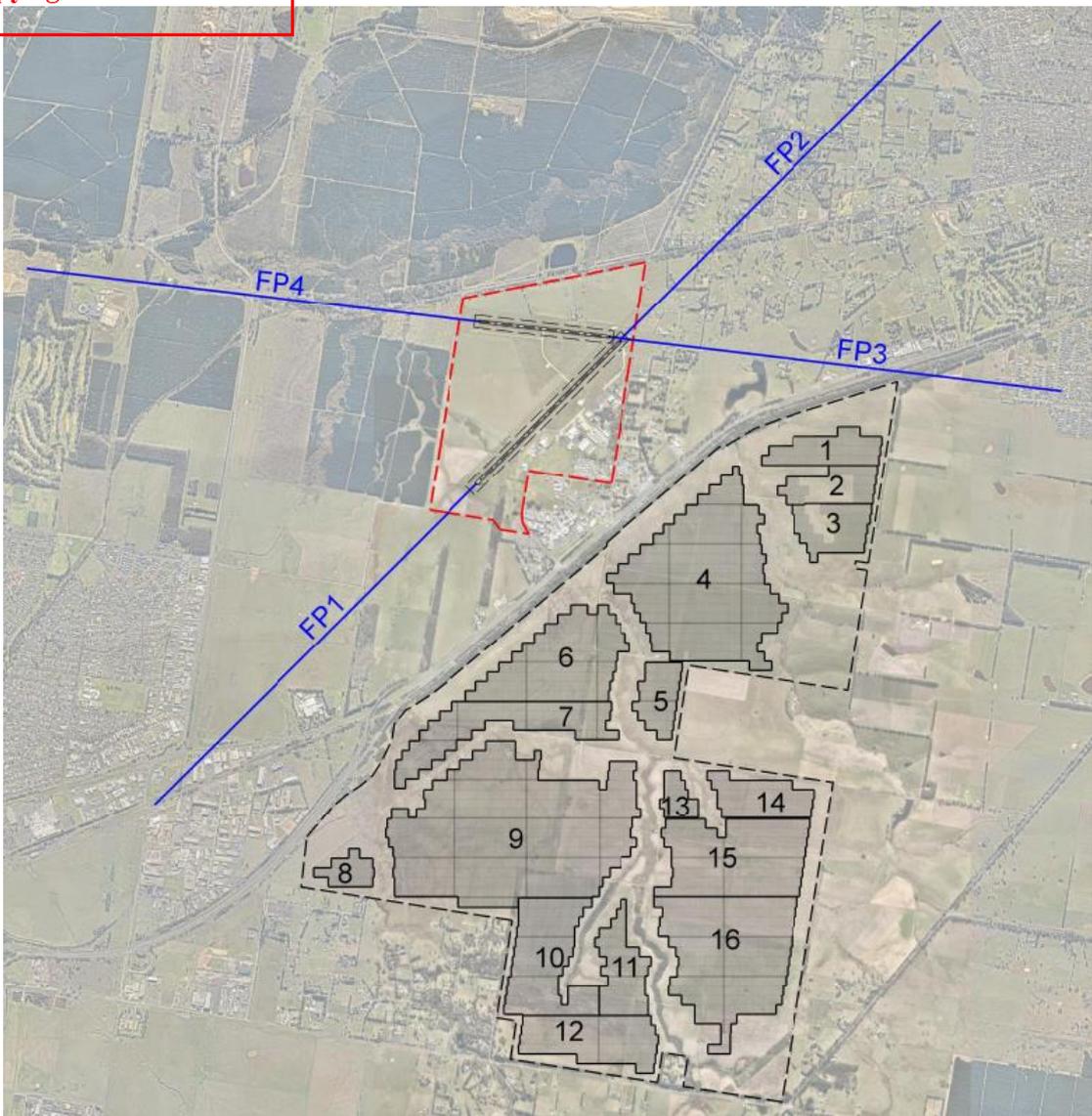
As the software only allows a maximum of 20 arrays to be defined within each analysis project, for the purposes of analysis, the site was divided into 16 PV arrays configured broadly on the site access roads and the waterway divisions as shown on **Figure 3** below. These arrays/footprints are defined by a latitude, longitude, elevation and height and are the areas that are approximated to be filled with PV modules by the software.

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Figure 3. Flight Paths and PV Arrays



The ForgeSolar GlareGauge tool modifies the vertex elevations where they do not initially reside on a single planar surface. The user guidance suggests that for more accuracy, the user should perform runs using minimum and maximum values for the vertex heights to bound the height of the plane containing the solar array.

As such, REHBEIN Airport Consulting has conducted three (3) analyses as follows:

- *Hazelwood – 1* – where each PV array is aligned with a plane defined by the total heights of the coordinates outlined in the Google map;
- *Hazelwood – 1\_Min* – where each PV array is bound to the minimum vertex height of the plane; and

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Hazelwood - 1\_Max – where each PV array is bound to the maximum vertex height of the plane.

### 5.3 RESULTS

Each of the three (3) analysis were conducted on the same component inputs. The results are summarised below in **Table 3** with each ForgeSolar report provided in **Appendix C**.

**Table 3: Summary of Results**

|             | Hazelwood - 1           | Hazelwood - 1_Min | Hazelwood - 1_Max | Hazelwood - 1            | Hazelwood - 1_Min | Hazelwood - 1_Max |
|-------------|-------------------------|-------------------|-------------------|--------------------------|-------------------|-------------------|
|             | "Green" Glare (minutes) |                   |                   | "Yellow" Glare (minutes) |                   |                   |
| PV array 1  | 1,922                   | 2,426             | 2,361             | 1,822                    | 1,881             | 1,848             |
| PV array 2  | 2,013                   | 2,552             | 2,326             | 1,473                    | 1,403             | 1,371             |
| PV array 3  | 2,012                   | 2,499             | 2,432             | 105                      | 180               | 172               |
| PV array 4  | 1,489                   | 1,755             | 1,653             | 2,827                    | 2,590             | 2,402             |
| PV array 5  | 123                     | 1,049             | 1,030             | 0                        | 35                | 28                |
| PV array 6  | 1,559                   | 1,459             | 1,472             | 487                      | 1,342             | 1,324             |
| PV array 7  | 1,433                   | 1,057             | 982               | 172                      | 1,093             | 1,068             |
| PV array 8  | 174                     | 160               | 178               | 0                        | 0                 | 0                 |
| PV array 9  | 511                     | 496               | 517               | 538                      | 506               | 521               |
| PV array 10 | 0                       | 0                 | 0                 | 0                        | 0                 | 0                 |
| PV array 11 | 48                      | 28                | 26                | 0                        | 0                 | 0                 |
| PV array 12 | 0                       | 0                 | 0                 | 0                        | 0                 | 0                 |
| PV array 13 | 0                       | 430               | 418               | 0                        | 0                 | 0                 |
| PV array 14 | 763                     | 358               | 352               | 321                      | 17                | 14                |
| PV array 15 | 58                      | 173               | 164               | 0                        | 0                 | 0                 |
| PV array 16 | 0                       | 0                 | 0                 | 0                        | 0                 | 0                 |

Generally, the ForgeSolar GlareGauge results predicts both 'green glare' and 'yellow glare' could be encountered by pilots on approach to Latrobe Regional Airport Runway 03 (FP1), Runway 27 (FP3) and Runway 09 (FP4) as a result of the proposed Hazelwood North Solar Farm.

### 5.4 EVALUATION

The Civil Aviation Safety Authority (CASA) currently has no criteria for assessing the acceptability of solar glare with respect to solar panel installations using theoretical glare analysis tool(s). In REHBEIN Airport Consulting's experience CASA may provide comment to the airport operator should the airport operator submit the solar glare analysis to CASA. However, the responsibility lies with the airport operator to make the decision on acceptability of solar installations within the context of the airport.

Under the civil aviation legislation, CASA may instruct removal of solar panels and other reflective surfaces should any safety impacts or concerns be apparent after the installation, at the responsibility of the owner of the facility causing the hazard. As such it is prudent that the analysis of the glare results are understood by the airport operator as the risk, should the impact be adverse to the safety of aircraft operations, is that the owner of the facility will need to remove or alter the sections causing the hazard.

While CASA will not approve (or refuse) proposals for installation of solar panels, it will provide comment, should an airport operator submit a solar glare analysis to CASA. In providing comment, CASA has previously advised that it would be guided by the US Federal Aviation Administration (FAA) approach to determining likely acceptability of solar panel installations. In May 2021, the FAA replaced its Interim Policy (published on 23 October 2013) which had provided clear criteria for acceptability of the installation of solar panels based on the nature of glare predicted using GlareGauge analysis. The current FAA Policy<sup>4</sup> states that the FAA have now

*... concluded that in most cases, the glint and glare from solar energy systems to pilots on final approach is similar to glint and glare pilots routinely experience from water bodies, glass-façade buildings, parking lots and similar features.*

However, the FAA encourages proponents of such systems to consider ocular impact for proposed systems and coordinate with the local airport authority to ensure no impact to the safety of airport operations.

The results summarised in **Section 5.3** show that 'yellow glare' is predicted to be encountered at points along the 2 nautical mile final of Runway 03 and 27 as well Runway 09. As the responsibility lies with the airport operator, in this case Latrobe Regional Council, in consultation with CASA to make a decision on the acceptability of the solar panel installation, it may be beneficial to detail further the specifics of the 'yellow glare' identifying matters such as predicted locations along flight paths, time of year and duration of glare occurrence. Robert Luxmoore has advised that this detail is to be undertaken at a later stage, if required, to assist in discussions with the airport operator and CASA to inform a decision of the impact to the safety of aircraft operations.

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<sup>4</sup> Rules and Regulations. Federal Register Vol.86, No.89 Tuesday May 11, 2021 Department of Transportation Federal Aviation Administration 14 CFR Part 77 *Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports*

## 6.0 CONCLUSION

---

REHBEIN Airport Consulting has conducted a NASF Guidelines assessment and a ForgeSolar glare analysis on the proposed Hazelwood North Solar Farm located south of Latrobe Regional Airport.

The results of the aviation impact assessment are summarised below:

- Would remain below the 1 in 35 surfaces as per Guideline B: Managing The Risk Of Building Generated Windshear And Turbulence At Airports. No further assessment is required in accordance with Guideline B.
- The solar farm as a land use does not relate to land uses with 'high' or 'moderate' wildlife attraction risk as per Guideline C: Managing The Risk Of Wildlife Strikes In The Vicinity Of Airports. However, the Draft Landscaping Plan in particular the planned vegetation to be planted on the perimeter of the solar farm site must be submitted to the airport operator to ensure the proposed vegetation is not a wildlife (in particular bird) attraction.
- Is within the 6 km radius of the Latrobe Regional Airport and as such any lighting that may be proposed within this area should not infringe the provision of regulation 94 of the Civil Aviation Regulations 1988
- The proposed solar panels as identified in this report would not infringe the Latrobe Regional Airport Obstacle Limitation Surfaces or the PANS-OPS surfaces ;
- Proposed perimeter planting vegetation mature height at maximum 12 m must remain below the Latrobe Regional Airport Obstacle Limitation Surfaces and the PANS-OPS surfaces.
- Is outside the lateral extents of the public safety areas for Latrobe Regional Airport as per Guideline I: Managing The Risk In Public Safety Zones At The Ends Of Runways, as such no further assessment in accordance with Guideline I is required.
- Solar glare hazard analysis predicts 'yellow glare' (glare with potential for temporary after image) may be produced on the approach paths to Runway 03, Runway 27 and Runway 09. The analysis results should be submitted to the airport operator and the local planning authority. As advised by Robert Luxmoore, further detail of the 'yellow glare' predicted will be provided in due course to assist in discussions with the Latrobe Regional Airport operator and decision making on the acceptability of the solar installations within the context of the airport.

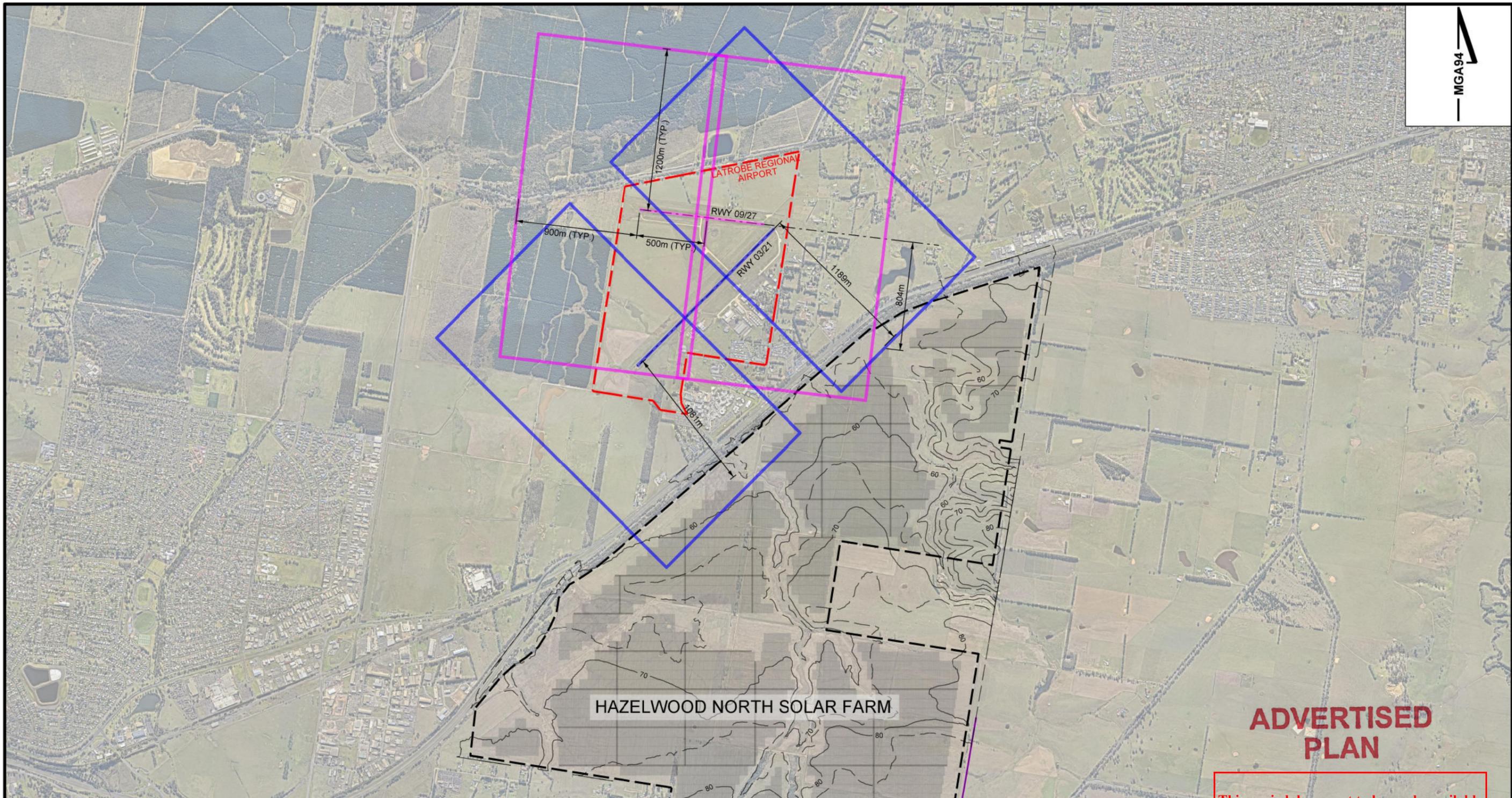
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## APPENDIX A

### FIGURES



HAZELWOOD NORTH SOLAR FARM

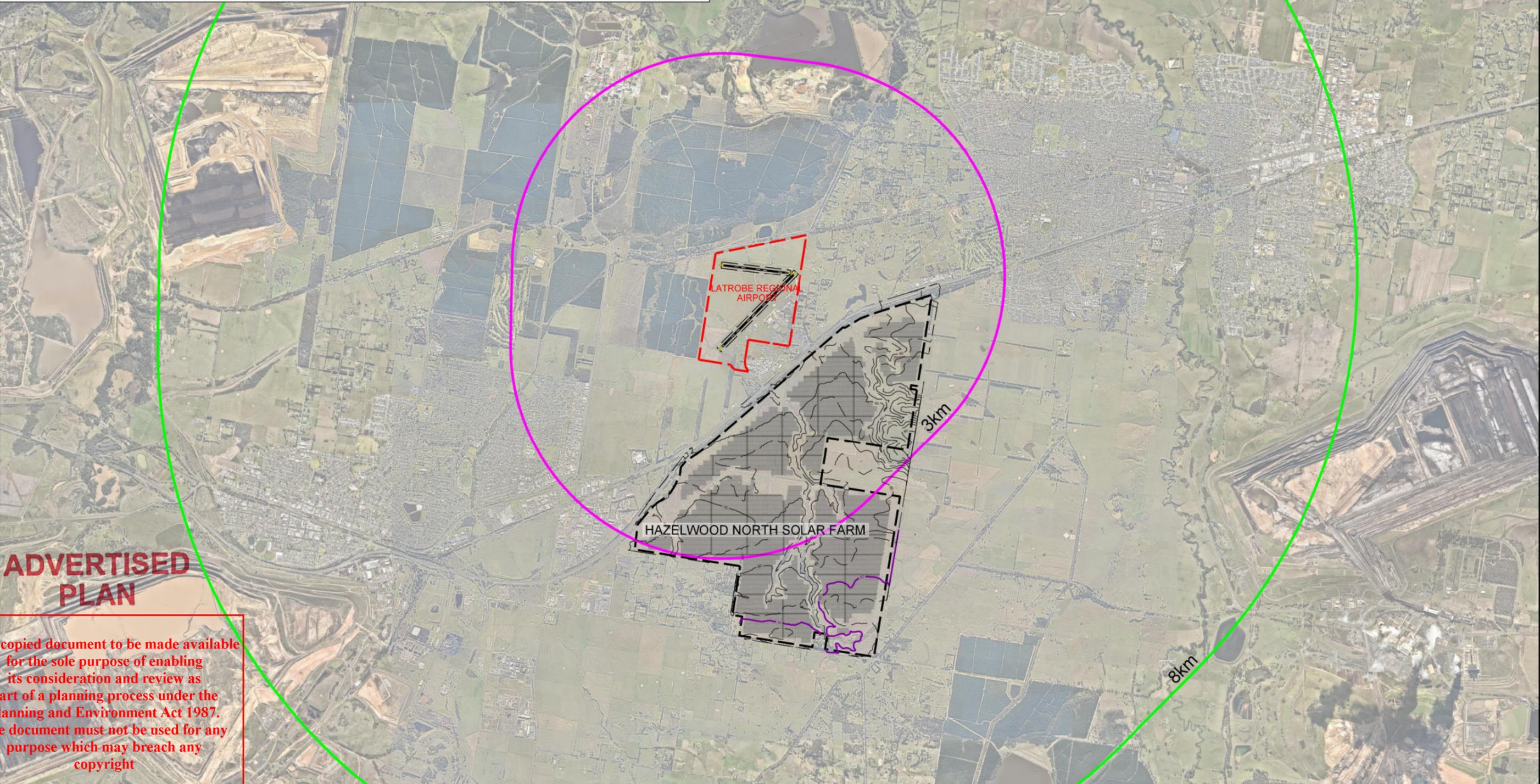
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  2. GROUND CONTOURS SHOWN AS PER Hazlewood\_Contours\_3mt Minor 3mt Major.DWG PROVIDED BY ROBERT LUXMOORE PROJECT MANAGEMENT VIA ONEDIRVE LINK DATED 07SEP2022, AND ADJUSTED TO BEST FIT TO MGA94.
  3. THRESHOLD COORDINATES AS PER DAH\_16JUN2020.PDF
  4. RUNWAY DISTANCE SUPPLEMENT CONSIDERED FROM RDS\_YLTV\_08SEP2022.
  5. ASSESSMENT TRIGGER AREAS ARE BASED ON NATIONAL AIRPORTS SAFEGAURDING FRAMEWORK (NASF) GUIDELINE B.
  6. AERIAL IMAGE IS FOR REFERENCE ONLY.

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|  | Title<br>NASF GUIDELINE B BUILDING GENERATED WINDSHEAR & TURBULENCE ASSESSMENT TRIGGER AREAS |  | Scale 128,000          |
|  | Drawn MK   | Checked BMW  | Approved BJH           |
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  3. THRESHOLD COORDINATES AS PER DAH\_16JUN2020.PDF
  4. RUNWAY DISTANCE SUPPLEMENT CONSIDERED FROM RDS\_YLTV\_08SEP2022.
  5. WILDLIFE STRIKES AIRPORT BUFFER ZONES ARE BASED ON NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK (NASF) GUIDELINE C VERSION 3.1.4
  6. THE LIMITS OF THE AREA IS DEFINED BY AN ARC DRAWN FROM THE CENTRE OF THE THRESHOLD OF EACH USABLE RUNWAY WITH A RADIUS APPROPRIATE TO THE BUFFER ZONE, AND TANGENT LINES DRAWN FROM THE EXTREMITIES OF THE ADJACENT ARCS.



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PROPOSED HAZELWOOD  
NORTH SOLAR FARM  
AVIATION ASSESSMENT

**Client**  
MANTHOS INVESTMENTS PTY LTD

**Title**  
NASF GUIDELINE C  
WILDLIFE STRIKE AIRPORT BUFFER ZONES

**REHBEIN** Airport Consulting

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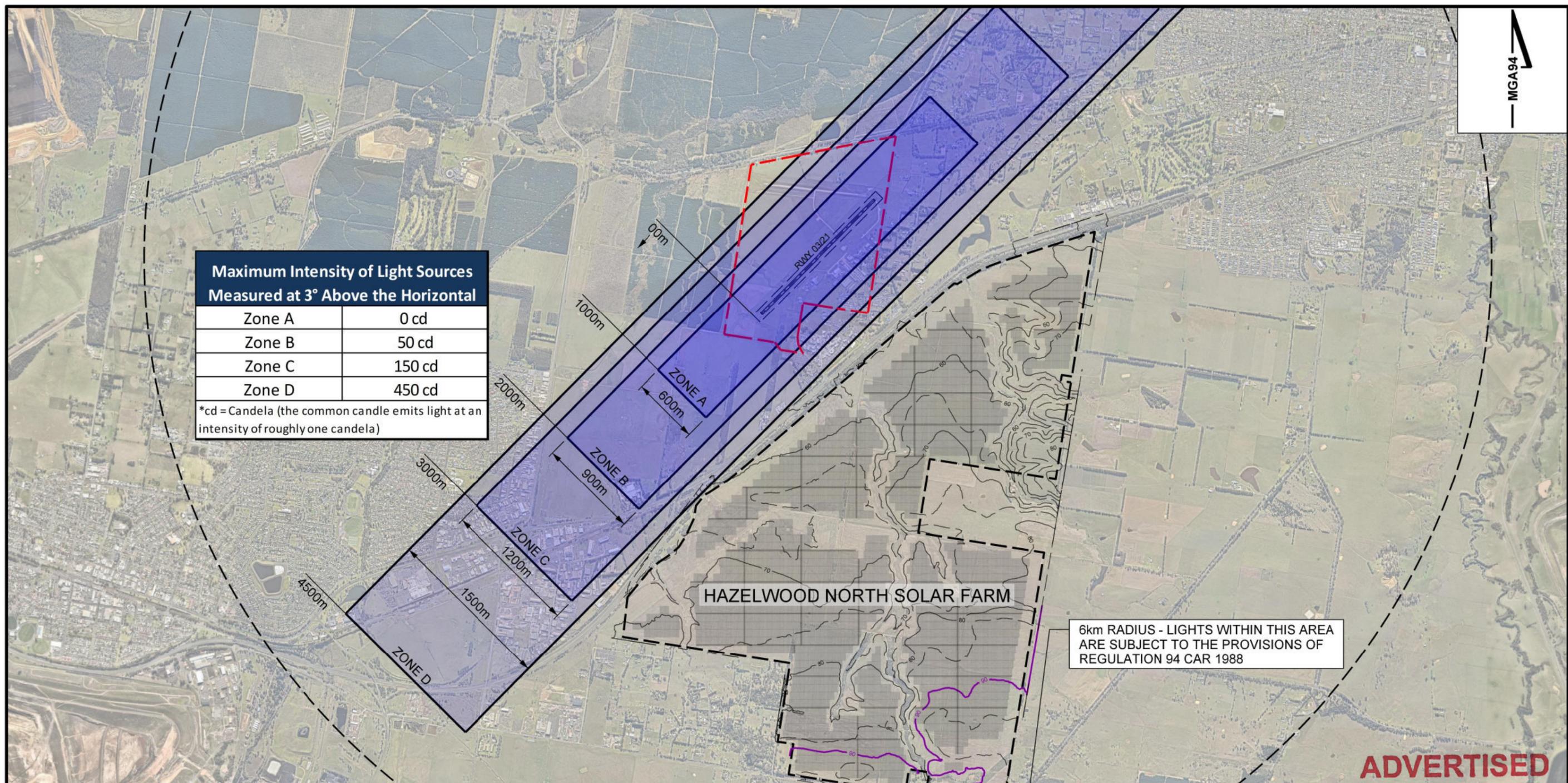
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| Maximum Intensity of Light Sources Measured at 3° Above the Horizontal |        |
|--|--------|
| Zone A   | 0 cd   |
| Zone B   | 50 cd  |
| Zone C   | 150 cd |
| Zone D   | 450 cd |

\*cd = Candela (the common candle emits light at an intensity of roughly one candela)



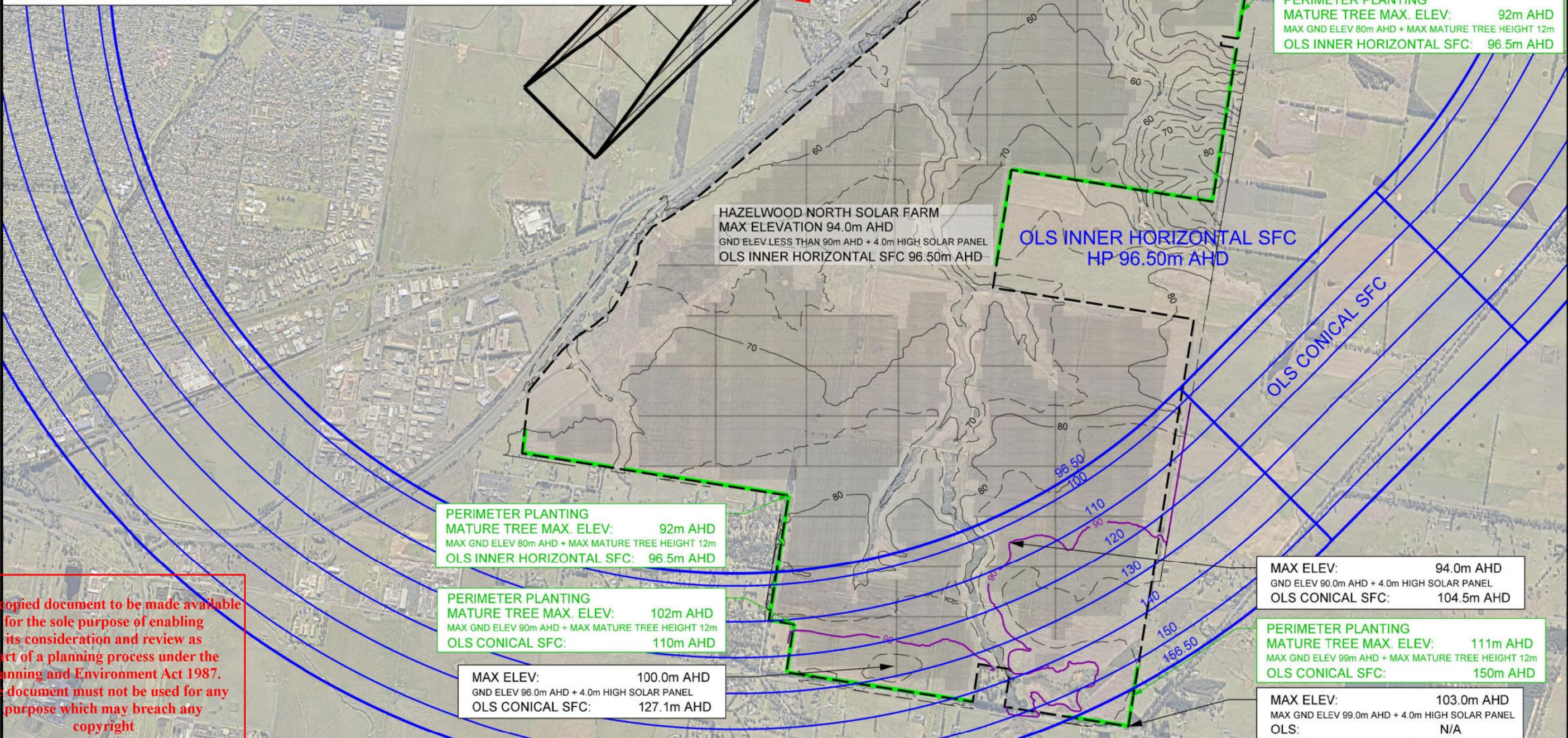
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  3. THRESHOLD COORDINATES AS PER DAH\_16JUN2020.PDF
  4. RUNWAY DISTANCE SUPPLEMENT CONSIDERED FROM RDS\_YLTV\_08SEP2022.
  5. MAXIMUM LIGHTING INTENSITY ZONES AS PER NASF GUIDELINE E ATTACHMENT 1 AND PART 139 (AERODROMES) MANUAL OF STANDARDS 2019 SECTION 9.144: LIGHTS - REQUIREMENTS FOR ZONES.
  6. LIGHTING ZONES SHOWN ARE FOR RWY 09/ 27 AND RWY 03/ 21 AS PER LATROBE REGIONAL AIRPORT MASTER PLAN 2015 (UPDATED 2019).
  7. ALL DISTANCES SHOWN IN METRES.
  8. AERIAL IMAGE IS FOR REFERENCE ONLY.

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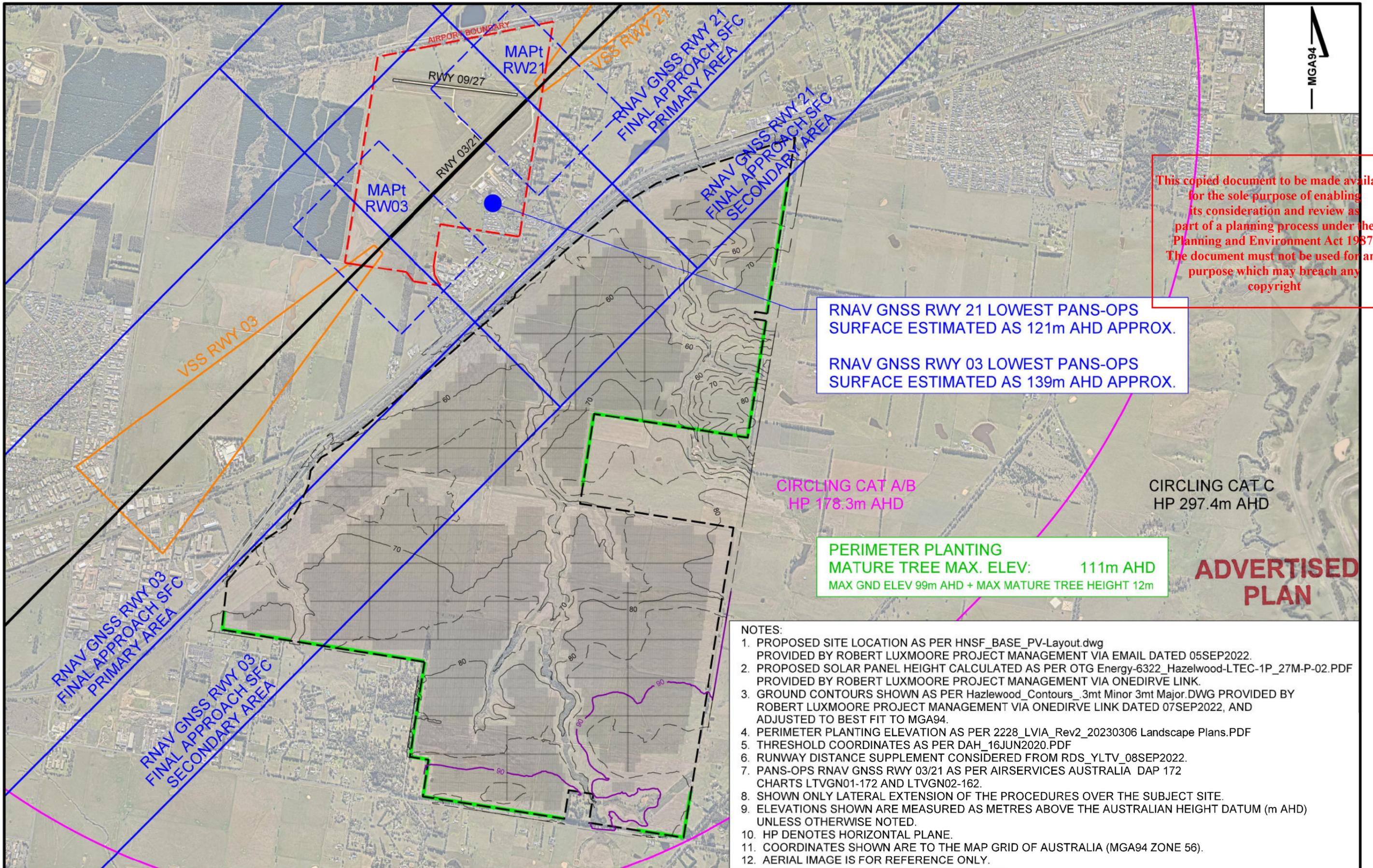
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4. PERIMETER PLANTING ELEVATION AS PER 2228\_LVIA\_Rev2\_20230306 Landscape Plans.PDF
5. THRESHOLD COORDINATES AS PER DAH\_16JUN2020.PDF
6. RUNWAY DISTANCE SUPPLEMENT CONSIDERED FROM RDS\_YLTV\_08SEP2022.
7. OBSTACLE LIMITATION SURFACES AS PER LATROBE REGIONAL AIRPORT MASTER PLAN 2015 (UPDATED 2019).
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RNAV GNSS RWY 21 LOWEST PANS-OPS SURFACE ESTIMATED AS 121m AHD APPROX.  
 RNAV GNSS RWY 03 LOWEST PANS-OPS SURFACE ESTIMATED AS 139m AHD APPROX.

CIRCLING CAT A/B  
 HP 178.3m AHD

CIRCLING CAT C  
 HP 297.4m AHD

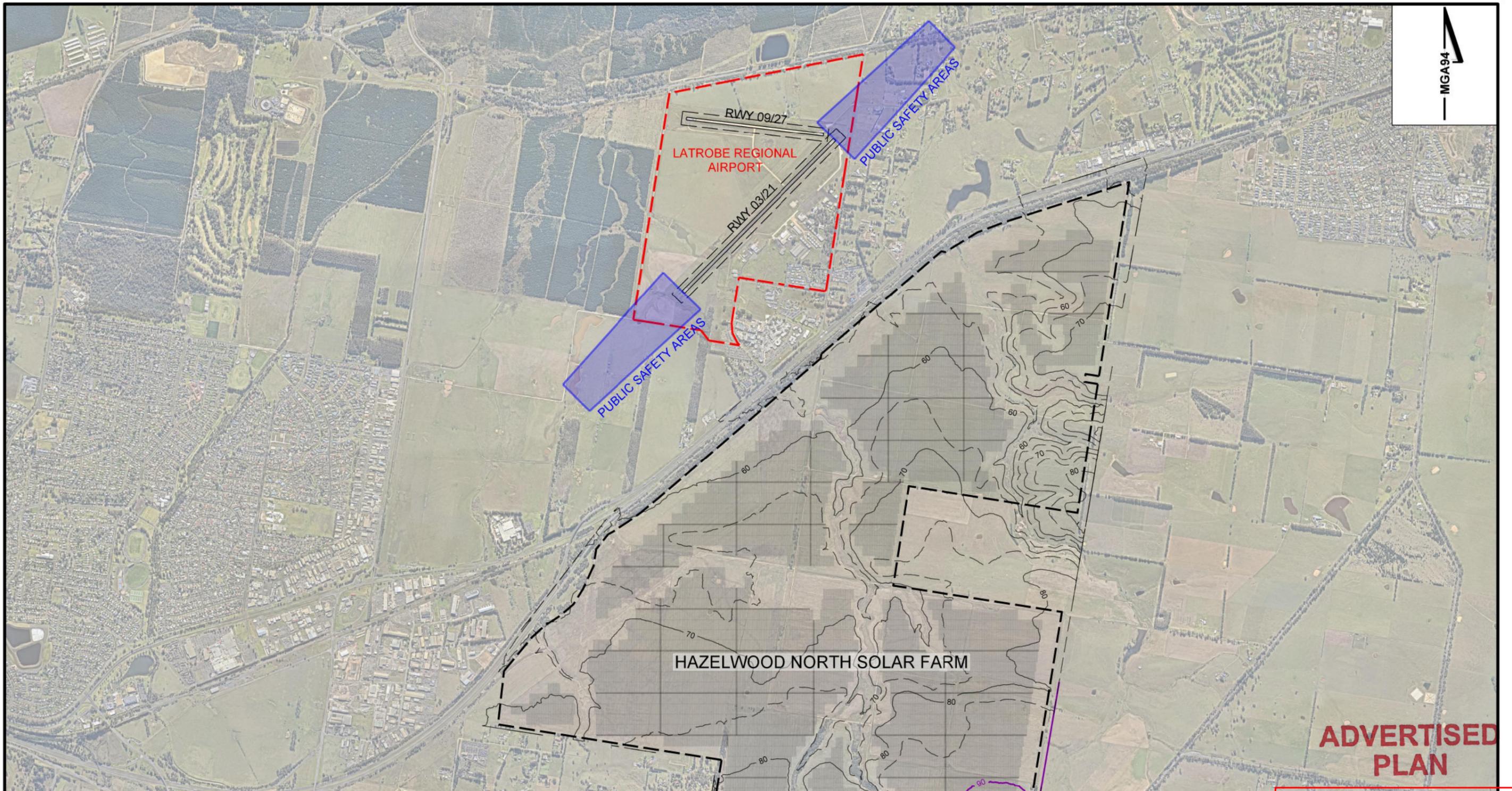
PERIMETER PLANTING  
 MATURE TREE MAX. ELEV: 111m AHD  
 MAX GND ELEV 99m AHD + MAX MATURE TREE HEIGHT 12m

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  4. PERIMETER PLANTING ELEVATION AS PER 2228\_LVIA\_Rev2\_20230306 Landscape Plans.PDF
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  6. RUNWAY DISTANCE SUPPLEMENT CONSIDERED FROM RDS\_YLTV\_08SEP2022.
  7. PANS-OPS RNAV GNSS RWY 03/21 AS PER AIRSERVICES AUSTRALIA DAP 172 CHARTS LTVGN01-172 AND LTVGN02-162.
  8. SHOWN ONLY LATERAL EXTENSION OF THE PROCEDURES OVER THE SUBJECT SITE.
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|  | Title<br>LATROBE REGIONAL AIRPORT<br>PANS-OPS RNAV GNSS RWY 03/RWY 21<br>PANS-OPS CIRCLING CAT A/B AND CAT C |  | Scale 1:25,000  |   |          |   |          |     |      |
| Drawn MK   | Checked BMW  | Approved BJH   | <table border="1"> <tr> <td>1</td> <td>17 05 23</td> </tr> <tr> <td>0</td> <td>04 10 22</td> </tr> <tr> <td>Rev</td> <td>Date</td> </tr> </table> | 1 | 17 05 23 | 0 | 04 10 22 | Rev | Date |
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| 0  | 04 10 22   |  |   |   |          |   |          |     |      |
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  3. GROUND CONTOURS SHOWN AS PER Hazlewood\_Contours\_3m Minor 3m Major.DWG PROVIDED BY ROBERT LUXMOORE PROJECT MANAGEMENT VIA ONEDIRVE LINK DATED 07SEP2022, AND ADJUSTED TO BEST FIT TO MGA94.
  4. PUBLIC SAFETY AREA (PSA) SHOWN AS PER LATROBE REGIONAL AIRPORT MASTER PLAN 2015 (UPDATED 2019).
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 PROPOSED HAZELWOOD NORTH SOLAR FARM AVIATION ASSESSMENT

**Client**  
 MANTHOS INVESTMENTS PTY LTD

**Title**  
 NASF GUIDELINE I  
 LATROBE REGIONAL AIRPORT MP19

**REHBEIN** Airport Consulting

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## APPENDIX B

### NASF GUIDELINE C – ATTACHMENT 1

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| Land Use  | Wildlife Attraction Risk | Actions for Existing Developments |                      |                       | Actions for Proposed Developments/<br>Changes to Existing Developments |                      |                       |
|---|--------------------------|-----------------------------------|----------------------|-----------------------|--|----------------------|-----------------------|
|   |                          | 3 km radius (Area A)              | 8 km radius (Area B) | 13 km radius (Area C) | 3 km radius (Area A)   | 8 km radius (Area B) | 13 km radius (Area C) |
| <b>Agriculture</b>                                |                          |                                   |                      |                       |  |                      |                       |
| Turf farm   | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Piggery   | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Fruit tree farm                                   | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Fish processing /packing plant                    | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Cattle /dairy farm                                | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| Poultry farm                                      | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| Forestry  | Low                      | Monitor                           | Monitor              | No Action             | Monitor  | Monitor              | No Action             |
| Plant nursery                                     | Low                      | Monitor                           | Monitor              | No Action             | Monitor  | Monitor              | No Action             |
| <b>Conservation</b>                               |                          |                                   |                      |                       |  |                      |                       |
| Wildlife sanctuary / conservation area - wetland  | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Wildlife sanctuary / conservation area - dryland  | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| <b>Recreation</b>                                 |                          |                                   |                      |                       |  |                      |                       |
| Showground  | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Racetrack / horse riding school                   | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| Golf course                                       | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| Sports facility (tennis, bowls, etc)              | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| Park / Playground                                 | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| Picnic / camping ground                           | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| <b>Commercial</b>                                 |                          |                                   |                      |                       |  |                      |                       |
| Food processing plant                             | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Warehouse (food storage)                          | Low                      | Monitor                           | Monitor              | No Action             | Monitor  | Monitor              | No Action             |
| Fast food / drive-in / outdoor restaurant         | Low                      | Monitor                           | Monitor              | No Action             | Monitor  | Monitor              | No Action             |
| Shopping centre                                   | Low                      | Monitor                           | Monitor              | No Action             | Monitor  | Monitor              | No Action             |
| Office building                                   | Very Low                 | Monitor                           | No Action            | No Action             | Monitor  | No Action            | No Action             |
| Hotel / motel                                     | Very Low                 | Monitor                           | No Action            | No Action             | Monitor  | No Action            | No Action             |
| Car park  | Very Low                 | Monitor                           | No Action            | No Action             | Monitor  | No Action            | No Action             |
| Cinemas   | Very Low                 | Monitor                           | No Action            | No Action             | Monitor  | No Action            | No Action             |
| Warehouse (non-food storage)                      | Very Low                 | Monitor                           | No Action            | No Action             | Monitor  | No Action            | No Action             |
| Petrol station                                    | Very Low                 | Monitor                           | No Action            | No Action             | Monitor  | No Action            | No Action             |
| <b>Utilities</b>                                  |                          |                                   |                      |                       |  |                      |                       |
| Food / organic waste facility                     | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Putrescible waste facility - landfill             | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Putrescible waste facility - transfer station     | High                     | Mitigate                          | Mitigate             | Monitor               | Incompatible   | Mitigate             | Monitor               |
| Non-putrescible waste facility - landfill         | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| Non-putrescible waste facility - transfer station | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| Sewage / wastewater treatment facility            | Moderate                 | Mitigate                          | Monitor              | Monitor               | Mitigate   | Mitigate             | Monitor               |
| Potable water treatment facility                  | Low                      | Monitor                           | Monitor              | No Action             | Monitor  | Monitor              | No Action             |

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## APPENDIX C

### FORGESOLAR GLAREGAUGE REPORTS



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ForgeSolar

# Hazelwood North Solar Farm

## Hazelwood 1

**Created** Sept. 28, 2022  
**Updated** Sept. 29, 2022  
**Time-step** 1 minute  
**Timezone offset** UTC10  
**Site ID** 76761.13552  
  
**Project type** Advanced  
**Project status:** active  
**Category** 100 MW to 1 GW



### Misc. Analysis Settings

**DNI: varies (1,000.0 W/m<sup>2</sup> peak)**  
**Ocular transmission coefficient: 0.5**  
**Pupil diameter: 0.002 m**  
**Eye focal length: 0.017 m**  
**Sun subtended angle: 9.3 mrad**

**Analysis Methodology: Version 2**  
**Enhanced subtended angle calculation: On**

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

| PV Name     | Tilt        | Orientation | "Green" Glare | "Yellow" Glare | Energy Produced |
|-------------|-------------|-------------|---------------|----------------|-----------------|
|             | deg         | deg         | min           | min            | kWh             |
| PV array 1  | SA tracking | SA tracking | 1,922         | 1,822          | -               |
| PV array 10 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 11 | SA tracking | SA tracking | 48            | 0              | -               |
| PV array 12 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 13 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 14 | SA tracking | SA tracking | 763           | 321            | -               |
| PV array 15 | SA tracking | SA tracking | 58            | 0              | -               |
| PV array 16 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 2  | SA tracking | SA tracking | 2,013         | 1,473          | -               |
| PV array 3  | SA tracking | SA tracking | 2,012         | 105            | -               |
| PV array 4  | SA tracking | SA tracking | 1,489         | 2,827          | -               |
| PV array 5  | SA tracking | SA tracking | 123           | 0              | -               |
| PV array 6  | SA tracking | SA tracking | 1,559         | 487            | -               |
| PV array 7  | SA tracking | SA tracking | 1,433         | 172            | -               |
| PV array 8  | SA tracking | SA tracking | 174           | 0              | -               |
| PV array 9  | SA tracking | SA tracking | 511           | 538            | -               |

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## Component Data

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### PV Array(s)

Total PV footprint area: 8,117,225 m<sup>2</sup>

**Name:** PV array 1  
**Footprint area:** 143,285 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.211219 | 146.498454 | 72.51            | 3.90                | 76.41           |
| 2      | -38.210848 | 146.492961 | 67.98            | 3.90                | 71.88           |
| 3      | -38.212736 | 146.489785 | 66.20            | 3.90                | 70.10           |
| 4      | -38.213377 | 146.497939 | 70.35            | 3.90                | 74.25           |

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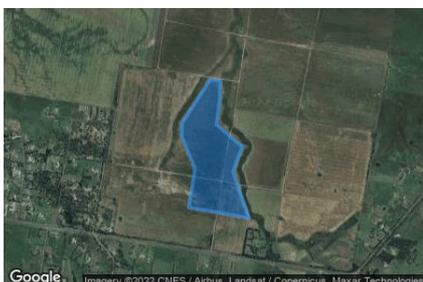
**Name:** PV array 10  
**Footprint area:** 353,381 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.243180 | 146.468384 | 83.72            | 3.90                | 87.62           |
| 2      | -38.249651 | 146.466882 | 92.88            | 3.90                | 96.78           |
| 3      | -38.250460 | 146.474478 | 94.39            | 3.90                | 98.29           |
| 4      | -38.247730 | 146.474907 | 88.11            | 3.90                | 92.01           |
| 5      | -38.247528 | 146.473191 | 87.01            | 3.90                | 90.91           |
| 6      | -38.248505 | 146.473105 | 88.43            | 3.90                | 92.33           |
| 7      | -38.248235 | 146.471302 | 87.00            | 3.90                | 90.90           |
| 8      | -38.246988 | 146.471517 | 88.00            | 3.90                | 91.90           |
| 9      | -38.245842 | 146.472676 | 87.40            | 3.90                | 91.30           |
| 10     | -38.243820 | 146.473105 | 85.14            | 3.90                | 89.04           |

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**Name:** PV array 11  
**Footprint area:** 335,504 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.241393 | 146.477396 | 79.89            | 3.90                | 83.79           |
| 2      | -38.241259 | 146.476495 | 80.77            | 3.90                | 84.67           |
| 3      | -38.244461 | 146.473877 | 84.58            | 3.90                | 88.48           |
| 4      | -38.245438 | 146.473877 | 86.01            | 3.90                | 89.91           |
| 5      | -38.245842 | 146.474092 | 86.35            | 3.90                | 90.25           |
| 6      | -38.247730 | 146.475079 | 88.21            | 3.90                | 92.11           |
| 7      | -38.250527 | 146.474521 | 94.86            | 3.90                | 98.76           |
| 8      | -38.251269 | 146.480014 | 94.85            | 3.90                | 98.75           |
| 9      | -38.247932 | 146.478555 | 89.59            | 3.90                | 93.49           |
| 10     | -38.246146 | 146.479413 | 86.89            | 3.90                | 90.79           |
| 11     | -38.244528 | 146.477053 | 85.69            | 3.90                | 89.59           |
| 12     | -38.242742 | 146.477353 | 81.93            | 3.90                | 85.83           |

**Name:** PV array 12  
**Footprint area:** 310,038 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.249853 | 146.468127 | 93.36            | 3.90                | 97.26           |
| 2      | -38.252414 | 146.467783 | 98.96            | 3.90                | 102.86          |
| 3      | -38.253965 | 146.479585 | 100.04           | 3.90                | 103.94          |
| 4      | -38.251269 | 146.480100 | 94.59            | 3.90                | 98.49           |



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**Name:** PV array 13  
**Footprint area:** 197,783 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.233873 | 146.481715 | 78.34            | 3.90                | 82.24           |
| 2      | -38.233738 | 146.479483 | 75.61            | 3.90                | 79.51           |
| 3      | -38.234817 | 146.479312 | 76.49            | 3.90                | 80.39           |
| 4      | -38.236840 | 146.479784 | 79.20            | 3.90                | 83.10           |
| 5      | -38.237952 | 146.479440 | 79.62            | 3.90                | 83.52           |
| 6      | -38.238693 | 146.479655 | 80.74            | 3.90                | 84.64           |
| 7      | -38.239502 | 146.485406 | 84.19            | 3.90                | 88.09           |
| 8      | -38.238795 | 146.485792 | 82.67            | 3.90                | 86.57           |
| 9      | -38.237042 | 146.483346 | 83.61            | 3.90                | 87.51           |



**Name:** PV array 14  
**Footprint area:** 459,443 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.233941 | 146.483947 | 80.50            | 3.90                | 84.40           |
| 2      | -38.235222 | 146.493645 | 87.02            | 3.90                | 90.92           |
| 3      | -38.240750 | 146.492444 | 89.18            | 3.90                | 93.08           |
| 4      | -38.239570 | 146.485449 | 84.39            | 3.90                | 88.29           |
| 5      | -38.238727 | 146.485749 | 82.52            | 3.90                | 86.42           |
| 6      | -38.236873 | 146.484333 | 84.41            | 3.90                | 88.31           |
| 7      | -38.235525 | 146.483861 | 83.75            | 3.90                | 87.65           |
| 8      | -38.234547 | 146.483560 | 82.31            | 3.90                | 86.21           |



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**Name:** PV array 15  
**Footprint area:** 631,932 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.238716 | 146.479651 | 80.64            | 3.90                | 84.54           |
| 2      | -38.239541 | 146.480252 | 82.92            | 3.90                | 86.82           |
| 3      | -38.240637 | 146.479287 | 81.77            | 3.90                | 85.67           |
| 4      | -38.244412 | 146.478750 | 84.82            | 3.90                | 88.72           |
| 5      | -38.245204 | 146.491238 | 95.47            | 3.90                | 99.37           |
| 6      | -38.240738 | 146.492397 | 89.21            | 3.90                | 93.11           |



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**Name:** PV array 16  
**Footprint area:** 663,843 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.245259 | 146.491299 | 95.29            | 3.90                | 99.19           |
| 2      | -38.244467 | 146.478767 | 84.96            | 3.90                | 88.86           |
| 3      | -38.245765 | 146.480698 | 90.51            | 3.90                | 94.41           |
| 4      | -38.246624 | 146.480677 | 90.49            | 3.90                | 94.39           |
| 5      | -38.247652 | 146.479905 | 89.95            | 3.90                | 93.85           |
| 6      | -38.251949 | 146.481879 | 95.09            | 3.90                | 98.99           |
| 7      | -38.252017 | 146.486857 | 94.35            | 3.90                | 98.25           |
| 8      | -38.250433 | 146.490161 | 104.14           | 3.90                | 108.04          |



**Name:** PV array 2  
**Footprint area:** 277,441 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.213410 | 146.497896 | 70.56            | 3.90                | 74.46           |
| 2      | -38.212736 | 146.489613 | 66.38            | 3.90                | 70.28           |
| 3      | -38.216951 | 146.490686 | 72.93            | 3.90                | 76.83           |
| 4      | -38.216816 | 146.497424 | 78.47            | 3.90                | 82.37           |



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**Name:** PV array 3  
**Footprint area:** 233,139 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.216816 | 146.497510 | 78.04            | 3.90                | 81.94           |
| 2      | -38.220558 | 146.496608 | 80.54            | 3.90                | 84.44           |
| 3      | -38.220862 | 146.490858 | 75.42            | 3.90                | 79.32           |
| 4      | -38.216951 | 146.490686 | 72.93            | 3.90                | 76.83           |



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**Name:** PV array 4  
**Footprint area:** 1,285,554 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.213511 | 146.485665 | 59.53            | 3.90                | 63.43           |
| 2      | -38.216243 | 146.486867 | 64.63            | 3.90                | 68.53           |
| 3      | -38.217962 | 146.488283 | 66.88            | 3.90                | 70.78           |
| 4      | -38.219277 | 146.488111 | 68.54            | 3.90                | 72.44           |
| 5      | -38.220120 | 146.488626 | 69.49            | 3.90                | 73.39           |
| 6      | -38.221738 | 146.488712 | 70.14            | 3.90                | 74.04           |
| 7      | -38.222581 | 146.489570 | 72.00            | 3.90                | 75.90           |
| 8      | -38.222682 | 146.490600 | 72.56            | 3.90                | 76.46           |
| 9      | -38.223559 | 146.490815 | 72.70            | 3.90                | 76.60           |
| 10     | -38.225144 | 146.489656 | 73.01            | 3.90                | 76.91           |
| 11     | -38.227268 | 146.489012 | 75.87            | 3.90                | 79.77           |
| 12     | -38.228211 | 146.490171 | 72.27            | 3.90                | 76.17           |
| 13     | -38.226863 | 146.479056 | 76.49            | 3.90                | 80.39           |
| 14     | -38.224301 | 146.478455 | 74.16            | 3.90                | 78.06           |
| 15     | -38.222750 | 146.477339 | 71.17            | 3.90                | 75.07           |
| 16     | -38.222143 | 146.475666 | 65.29            | 3.90                | 69.19           |
| 17     | -38.219716 | 146.475966 | 64.33            | 3.90                | 68.23           |



**Name:** PV array 5  
**Footprint area:** 201,837 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.227335 | 146.481931 | 81.55            | 3.90                | 85.45           |
| 2      | -38.232594 | 146.480773 | 82.57            | 3.90                | 86.47           |
| 3      | -38.232358 | 146.478756 | 77.16            | 3.90                | 81.06           |
| 4      | -38.230605 | 146.477168 | 77.58            | 3.90                | 81.48           |
| 5      | -38.229391 | 146.477039 | 75.27            | 3.90                | 79.17           |
| 6      | -38.227470 | 146.477726 | 75.44            | 3.90                | 79.34           |
| 7      | -38.226762 | 146.478241 | 75.15            | 3.90                | 79.05           |



**ADVERTISED PLAN**

**Name:** PV array 6  
**Footprint area:** 605,385 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.228854 | 146.462419 | 66.16            | 3.90                | 70.06           |
| 2      | -38.222280 | 146.472719 | 63.02            | 3.90                | 66.92           |
| 3      | -38.223325 | 146.473706 | 64.34            | 3.90                | 68.24           |
| 4      | -38.223190 | 146.475079 | 65.02            | 3.90                | 68.92           |
| 5      | -38.224808 | 146.476838 | 72.03            | 3.90                | 75.93           |
| 6      | -38.226089 | 146.477268 | 73.80            | 3.90                | 77.70           |
| 7      | -38.226629 | 146.477139 | 74.09            | 3.90                | 77.99           |
| 8      | -38.226898 | 146.476409 | 74.56            | 3.90                | 78.46           |
| 9      | -38.229899 | 146.475808 | 77.47            | 3.90                | 81.37           |

**Name:** PV array 7  
**Footprint area:** 509,058 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.228887 | 146.462419 | 66.22            | 3.90                | 70.12           |
| 2      | -38.231584 | 146.458342 | 68.32            | 3.90                | 72.22           |
| 3      | -38.235832 | 146.457527 | 74.17            | 3.90                | 78.07           |
| 4      | -38.231079 | 146.465638 | 69.91            | 3.90                | 73.81           |
| 5      | -38.232730 | 146.477997 | 75.36            | 3.90                | 79.26           |
| 6      | -38.229966 | 146.475851 | 77.51            | 3.90                | 81.41           |

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**Name:** PV array 8  
**Footprint area:** 153,897 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.238023 | 146.455166 | 72.31            | 3.90                | 76.21           |
| 2      | -38.240214 | 146.451175 | 74.98            | 3.90                | 78.88           |
| 3      | -38.241360 | 146.450918 | 75.22            | 3.90                | 79.12           |
| 4      | -38.241966 | 146.457140 | 76.03            | 3.90                | 79.93           |
| 5      | -38.239270 | 146.456883 | 74.03            | 3.90                | 77.93           |

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**Name:** PV array 9  
**Footprint area:** 1,755,707 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.233539 | 146.478126 | 77.15            | 3.90                | 81.05           |
| 2      | -38.231989 | 146.466324 | 70.08            | 3.90                | 73.98           |
| 3      | -38.236877 | 146.457913 | 76.67            | 3.90                | 80.57           |
| 4      | -38.242000 | 146.457956 | 78.59            | 3.90                | 82.49           |
| 5      | -38.243787 | 146.473362 | 84.71            | 3.90                | 88.61           |
| 6      | -38.238832 | 146.477396 | 80.10            | 3.90                | 84.00           |
| 7      | -38.236843 | 146.478169 | 78.57            | 3.90                | 82.47           |



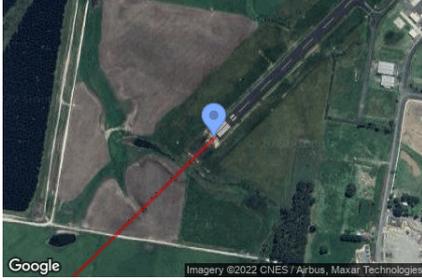
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### 2-Mile Flight Path Receptor(s)

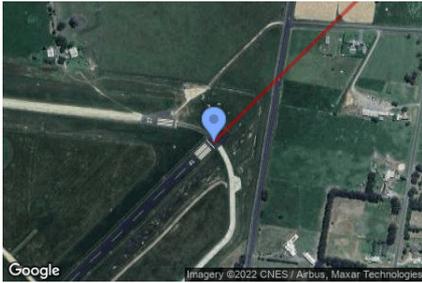
**Name:** FP 1  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 45.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.215525      | 146.465053       | 51.19                    | 15.24                       | 66.43                   |
| 2-mile<br>point | -38.235919      | 146.438938       | 66.15                    | 168.97                      | 235.11                  |



**Name:** FP 2  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 225.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

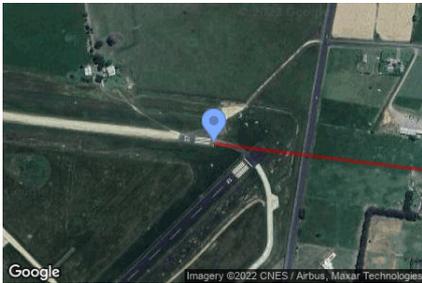
| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.206436      | 146.476628       | 57.79                    | 15.24                       | 73.03                   |
| 2-mile<br>point | -38.186038      | 146.502735       | 52.47                    | 189.25                      | 241.72                  |



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**Name:** FP 3  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 277.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

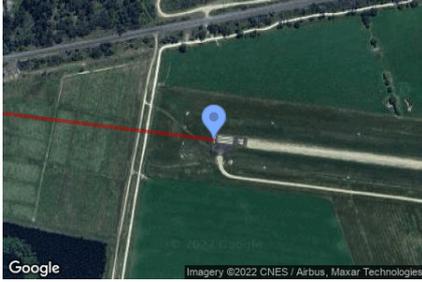
| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.206142      | 146.475786       | 55.28                    | 15.24                       | 70.52                   |
| 2-mile<br>point | -38.209736      | 146.512338       | 69.94                    | 169.27                      | 239.20                  |



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**Name:** FP 4  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 97.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

| Point        | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------------|------------|------------|------------------|---------------------|-----------------|
|              | deg        | deg        | m                | m                   | m               |
| Threshold    | -38.205111 | 146.465369 | 50.98            | 15.24               | 66.22           |
| 2-mile point | -38.201512 | 146.428819 | 94.82            | 140.09              | 234.91          |



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# Summary of PV Glare Analysis

PV configuration and total predicted glare

| PV Name     | Tilt        | Orientation | "Green" Glare | "Yellow" Glare | Energy Produced | Data File |
|-------------|-------------|-------------|---------------|----------------|-----------------|-----------|
|             | deg         | deg         | min           | min            | kWh             |           |
| PV array 1  | SA tracking | SA tracking | 1,922         | 1,822          | -               | -         |
| PV array 10 | SA tracking | SA tracking | 0             | 0              | -               | -         |
| PV array 11 | SA tracking | SA tracking | 48            | 0              | -               | -         |
| PV array 12 | SA tracking | SA tracking | 0             | 0              | -               | -         |
| PV array 13 | SA tracking | SA tracking | 0             | 0              | -               | -         |
| PV array 14 | SA tracking | SA tracking | 763           | 321            | -               | -         |
| PV array 15 | SA tracking | SA tracking | 58            | 0              | -               | -         |
| PV array 16 | SA tracking | SA tracking | 0             | 0              | -               | -         |
| PV array 2  | SA tracking | SA tracking | 2,013         | 1,473          | -               | -         |
| PV array 3  | SA tracking | SA tracking | 2,012         | 105            | -               | -         |
| PV array 4  | SA tracking | SA tracking | 1,489         | 2,827          | -               | -         |
| PV array 5  | SA tracking | SA tracking | 123           | 0              | -               | -         |
| PV array 6  | SA tracking | SA tracking | 1,559         | 487            | -               | -         |
| PV array 7  | SA tracking | SA tracking | 1,433         | 172            | -               | -         |
| PV array 8  | SA tracking | SA tracking | 174           | 0              | -               | -         |
| PV array 9  | SA tracking | SA tracking | 511           | 538            | -               | -         |

## Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

| PV                   | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| pv-array-1 (green)   | 165 | 238 | 167 | 72  | 148 | 173 | 169 | 102 | 48  | 300 | 168 | 172 |
| pv-array-1 (yellow)  | 440 | 281 | 24  | 0   | 0   | 0   | 0   | 0   | 0   | 208 | 400 | 469 |
| pv-array-11 (green)  | 0   | 0   | 23  | 0   | 0   | 0   | 0   | 0   | 0   | 25  | 0   | 0   |
| pv-array-11 (yellow) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-14 (green)  | 0   | 0   | 381 | 1   | 0   | 0   | 0   | 0   | 322 | 59  | 0   | 0   |
| pv-array-14 (yellow) | 0   | 15  | 144 | 0   | 0   | 0   | 0   | 0   | 0   | 162 | 0   | 0   |
| pv-array-15 (green)  | 0   | 0   | 28  | 0   | 0   | 0   | 0   | 0   | 10  | 20  | 0   | 0   |
| pv-array-15 (yellow) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-2 (green)   | 290 | 367 | 95  | 61  | 65  | 59  | 68  | 68  | 54  | 336 | 285 | 265 |
| pv-array-2 (yellow)  | 410 | 177 | 0   | 3   | 0   | 0   | 0   | 0   | 3   | 77  | 368 | 435 |
| pv-array-3 (green)   | 528 | 123 | 50  | 82  | 73  | 0   | 41  | 95  | 65  | 64  | 421 | 470 |
| pv-array-3 (yellow)  | 8   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 97  |
| pv-array-4 (green)   | 69  | 604 | 40  | 0   | 0   | 0   | 0   | 0   | 0   | 546 | 155 | 75  |
| pv-array-4 (yellow)  | 917 | 169 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 10  | 773 | 958 |
| pv-array-5 (green)   | 6   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 116 |
| pv-array-5 (yellow)  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-6 (green)   | 560 | 61  | 23  | 0   | 0   | 0   | 0   | 0   | 13  | 9   | 466 | 427 |
| pv-array-6 (yellow)  | 93  | 0   | 9   | 0   | 0   | 0   | 0   | 0   | 1   | 9   | 13  | 362 |
| pv-array-7 (green)   | 448 | 0   | 22  | 33  | 0   | 0   | 0   | 29  | 28  | 6   | 273 | 594 |
| pv-array-7 (yellow)  | 0   | 0   | 71  | 15  | 0   | 0   | 0   | 2   | 61  | 23  | 0   | 0   |
| pv-array-8 (green)   | 10  | 0   | 28  | 0   | 0   | 0   | 0   | 0   | 0   | 31  | 0   | 105 |
| pv-array-8 (yellow)  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-9 (green)   | 25  | 0   | 46  | 118 | 0   | 0   | 0   | 37  | 117 | 13  | 1   | 154 |
| pv-array-9 (yellow)  | 0   | 0   | 256 | 14  | 0   | 0   | 0   | 0   | 181 | 87  | 0   | 0   |

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# PV & Receptor Analysis Results

Results for each PV array and receptor

## PV array 1 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 687               | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 1053              | 1822               |
| FP: FP 4  | 182               | 0                  |

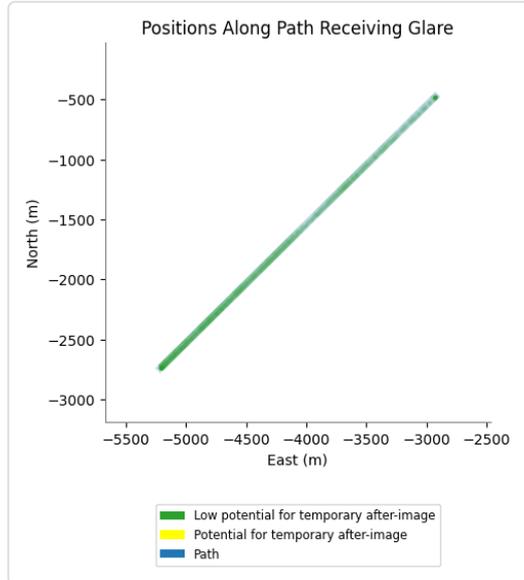
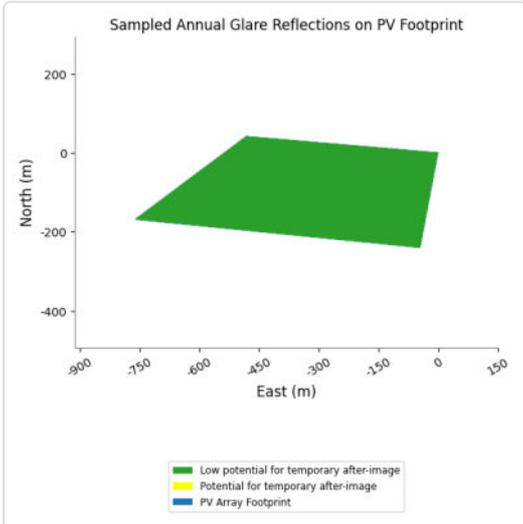
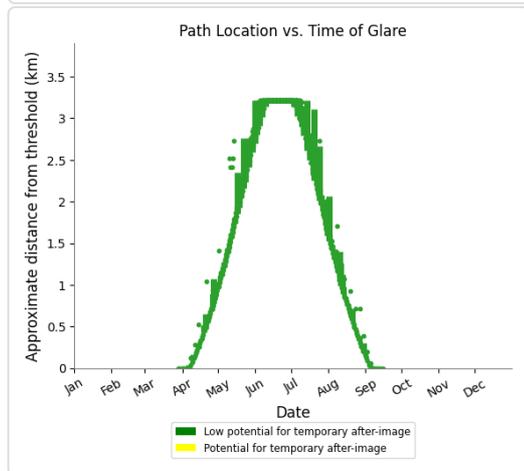
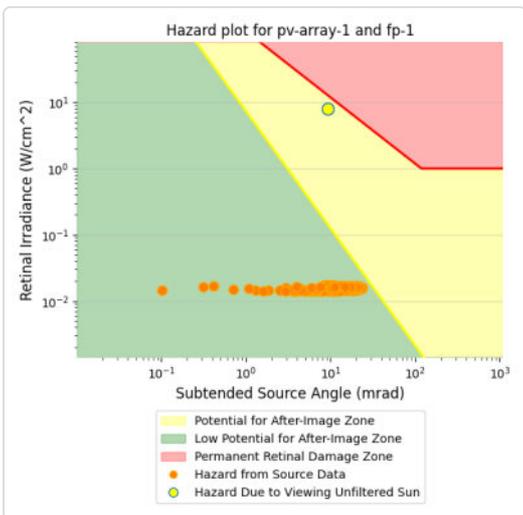
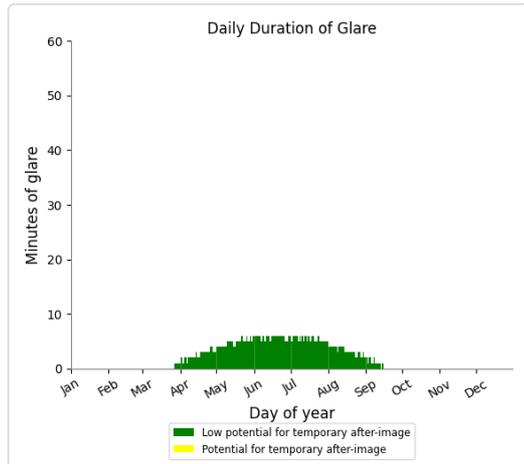
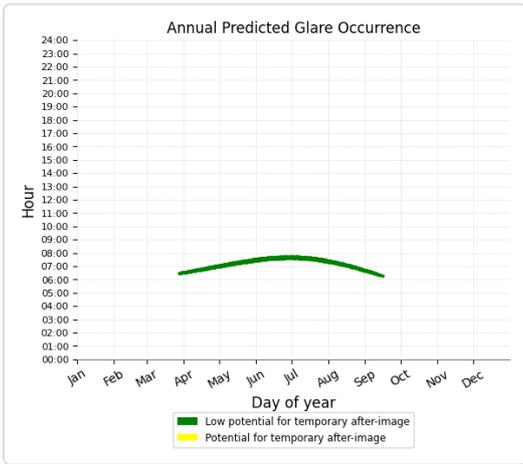
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### PV array 1 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 687 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 1 - Receptor (FP 2)

No glare found

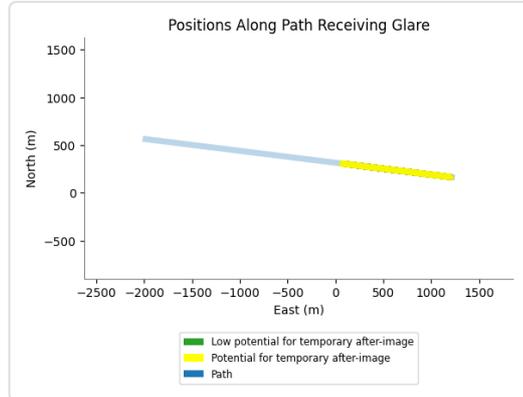
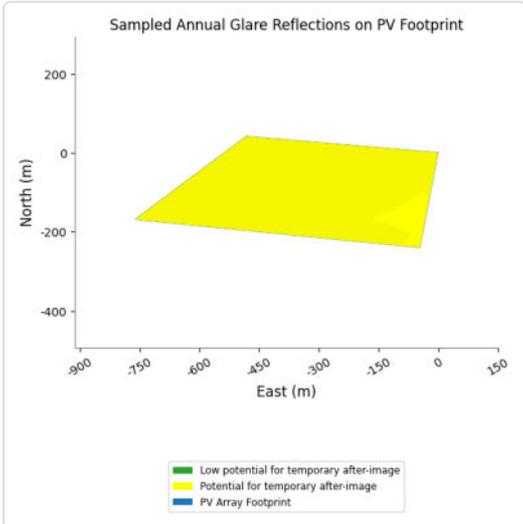
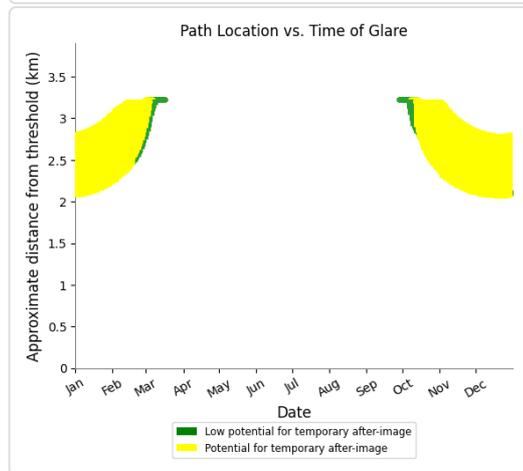
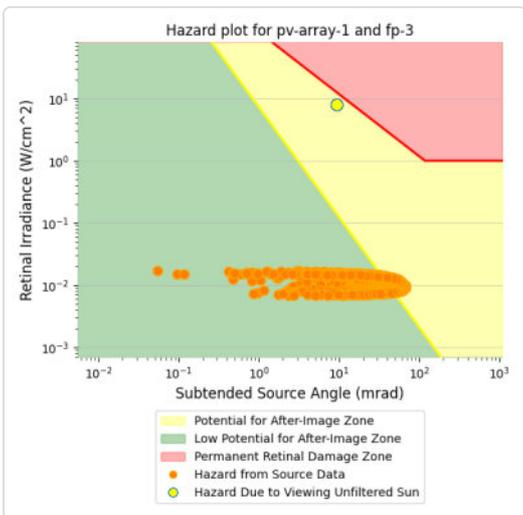
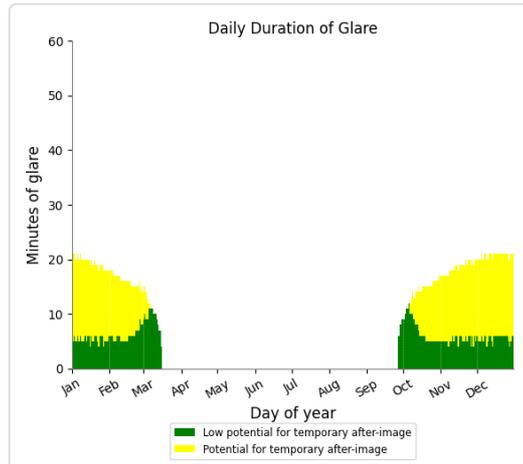
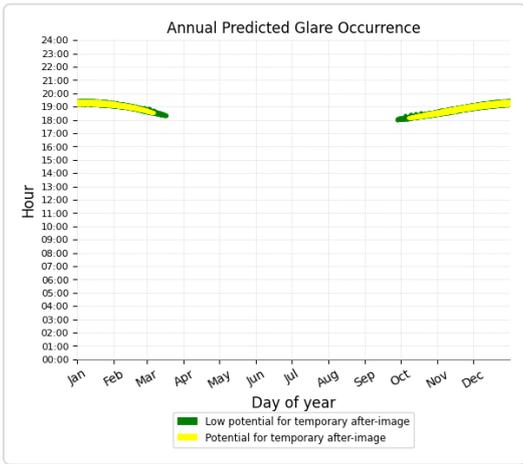
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### PV array 1 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 1,053 minutes of "green" glare with low potential to cause temporary after-image.
- 1,822 minutes of "yellow" glare with potential to cause temporary after-image.



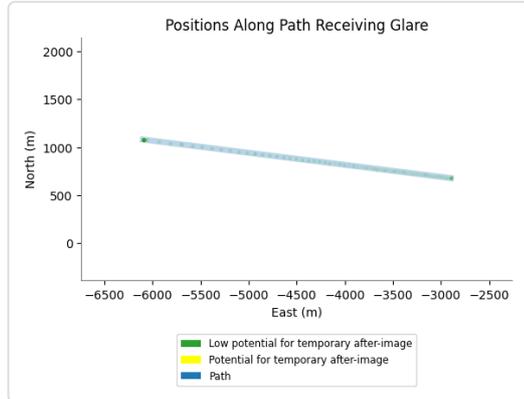
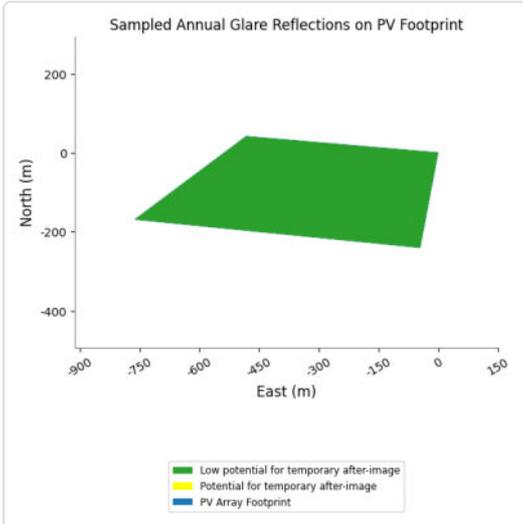
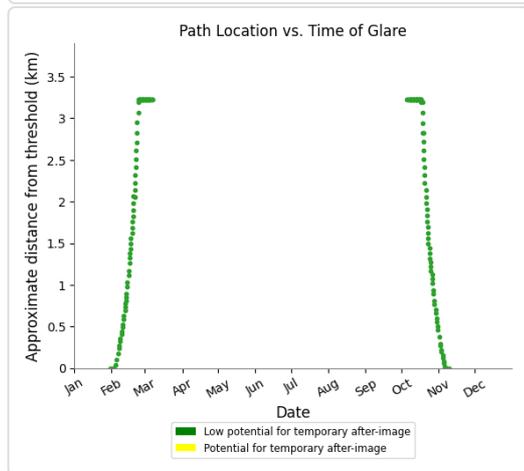
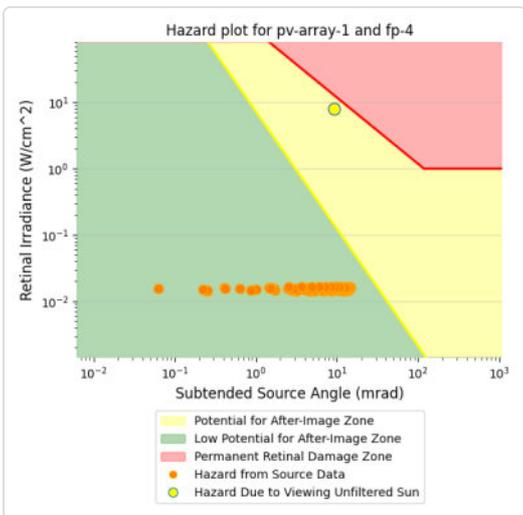
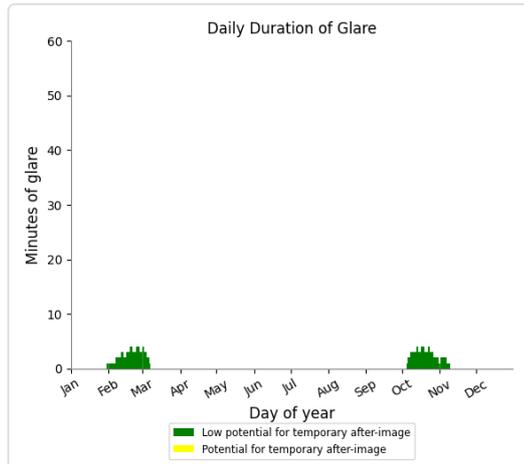
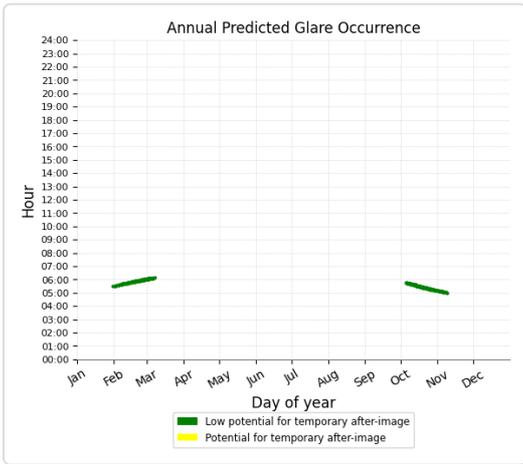
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### PV array 1 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 182 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



PV array 10 no glare found

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| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

No glare found

**PV array 11** low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 48                | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

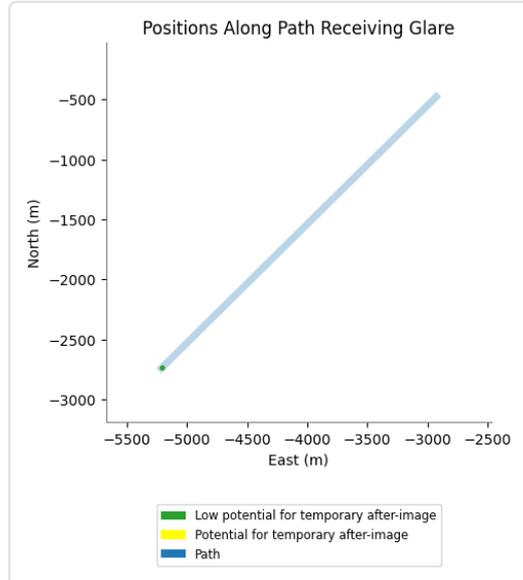
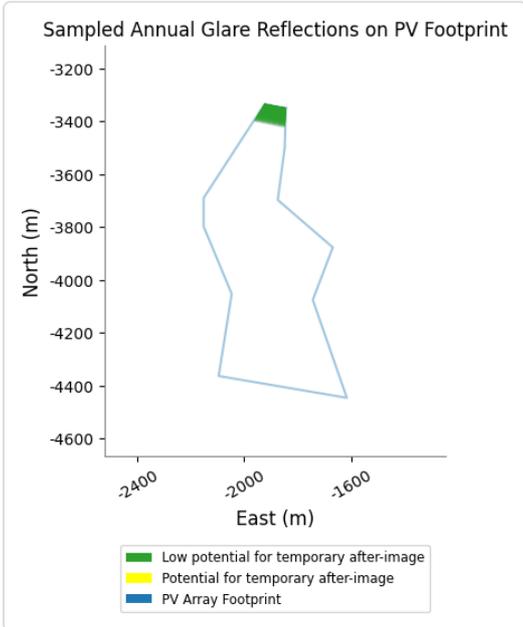
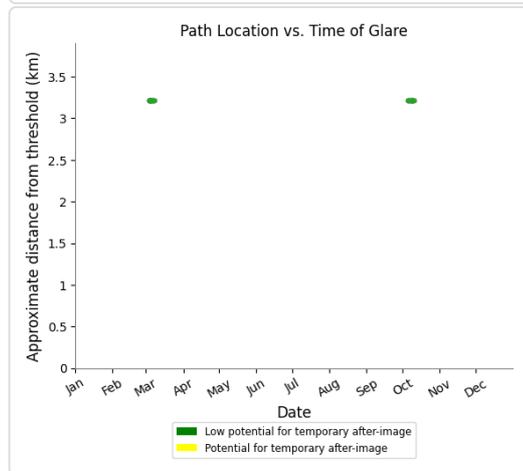
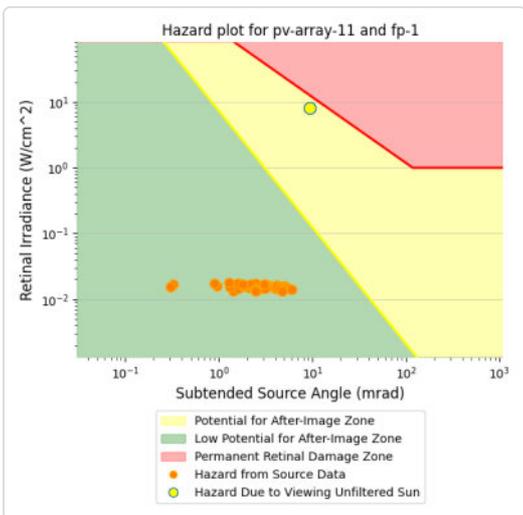
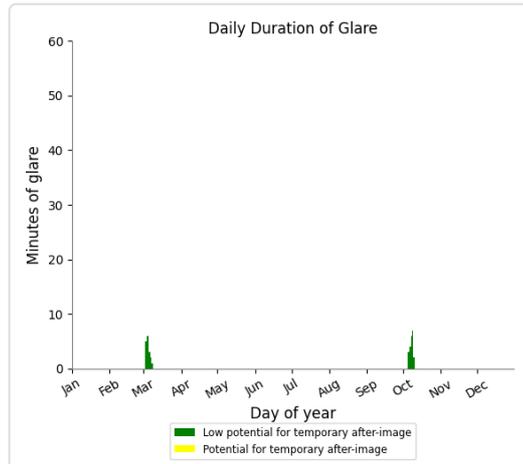
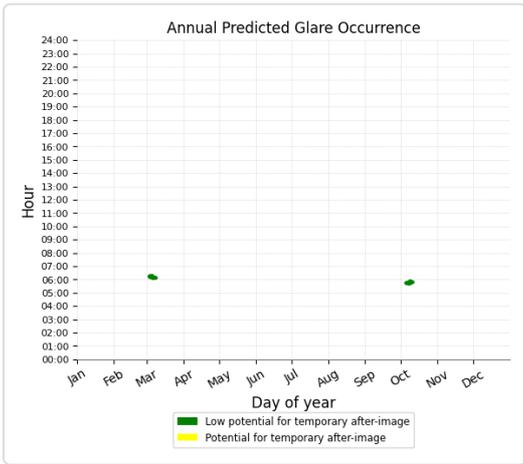
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**PV array 11 - Receptor (FP 1)**

- PV array is expected to produce the following glare for observers on this flight path:
- 48 minutes of "green" glare with low potential to cause temporary after-image.
  - 0 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 11 - Receptor (FP 2)**

No glare found

**PV array 11 - Receptor (FP 3)**

No glare found

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### PV array 11 - Receptor (FP 4)

No glare found

### PV array 12 no glare found

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

No glare found

### PV array 13 no glare found

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

No glare found

### PV array 14 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 763               | 321                |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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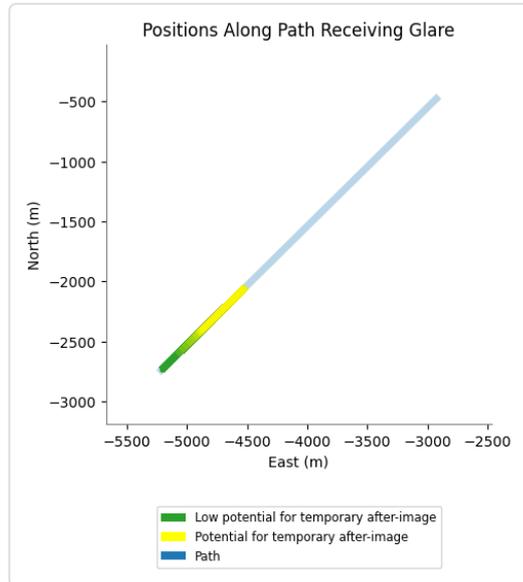
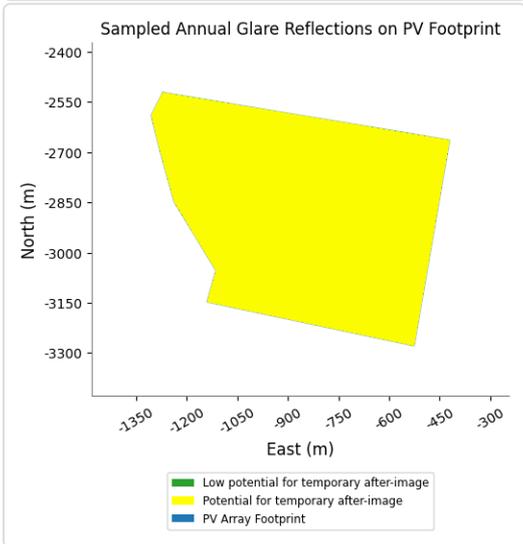
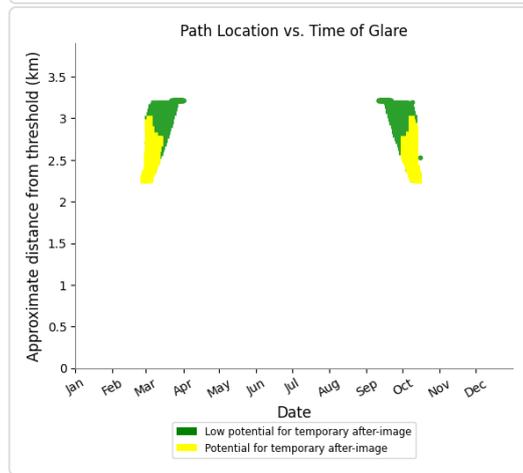
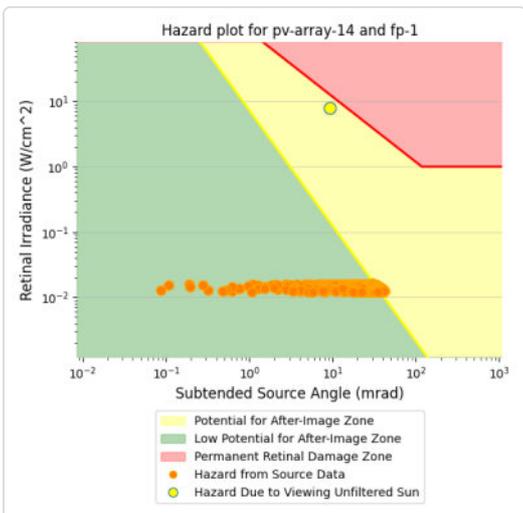
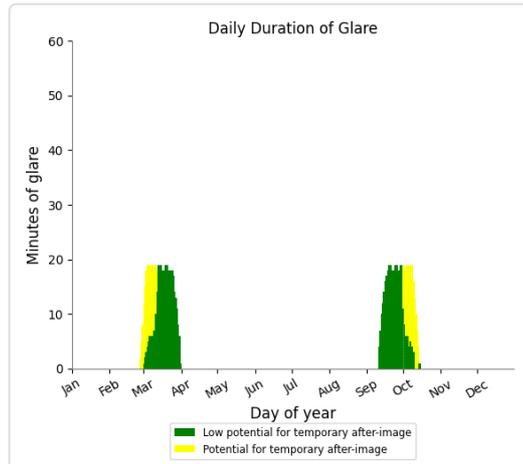
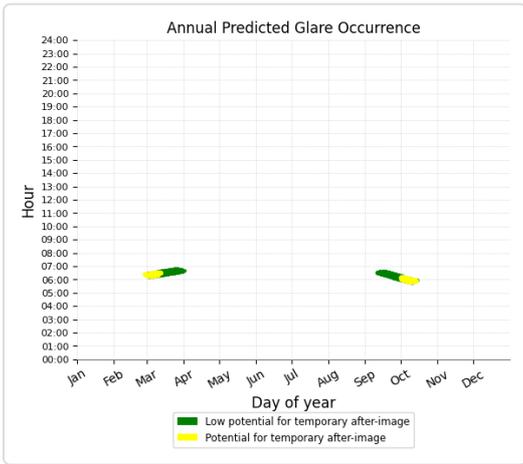
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**PV array 14 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 763 minutes of "green" glare with low potential to cause temporary after-image.
- 321 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 14 - Receptor (FP 2)**

No glare found

**PV array 14 - Receptor (FP 3)**

No glare found

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**PV array 14 - Receptor (FP 4)***No glare found***PV array 15** low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 58                | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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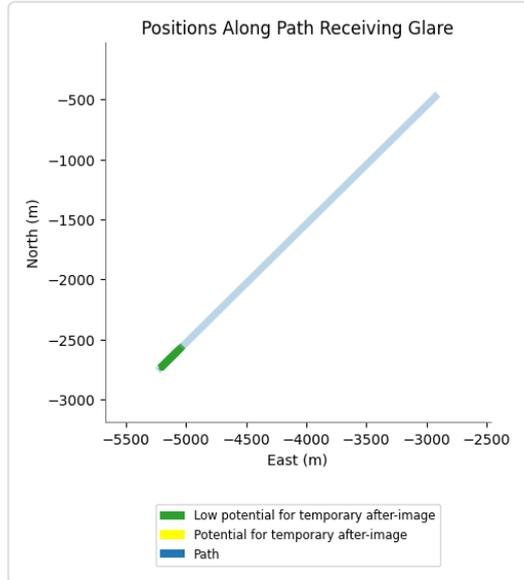
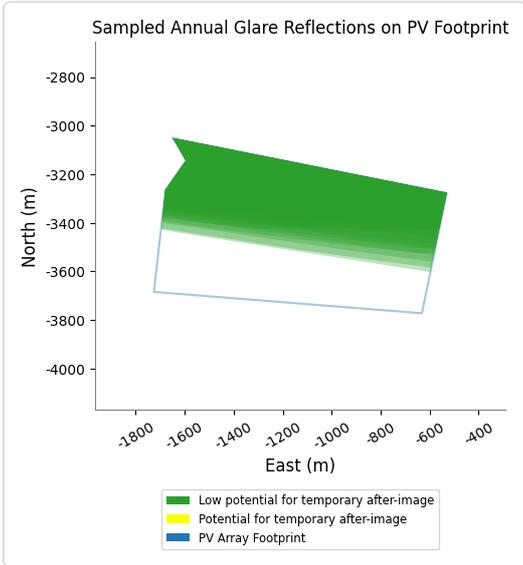
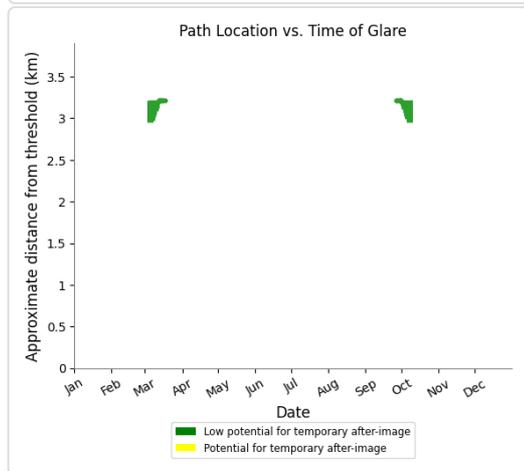
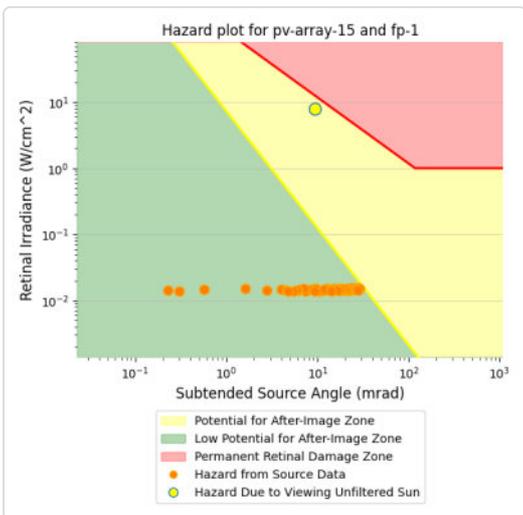
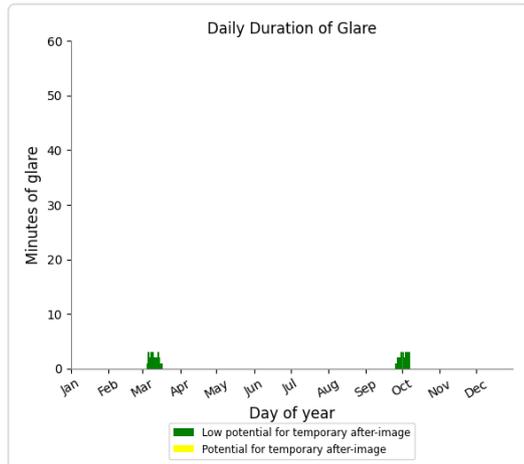
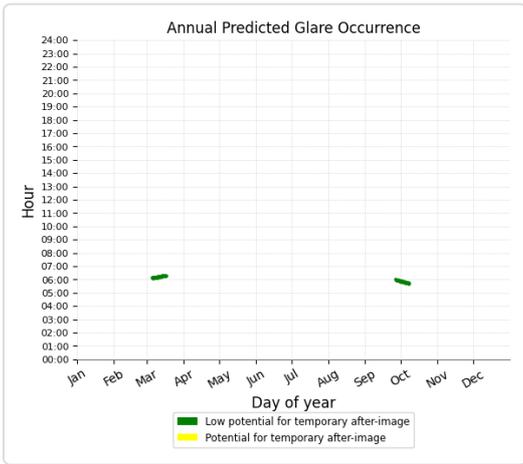
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## PV array 15 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 58 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



## PV array 15 - Receptor (FP 2)

No glare found

## PV array 15 - Receptor (FP 3)

No glare found

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**PV array 15 - Receptor (FP 4)**

*No glare found*

**PV array 16** no glare found

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

*No glare found*

**PV array 2** potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 415               | 6                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 881               | 1467               |
| FP: FP 4  | 717               | 0                  |

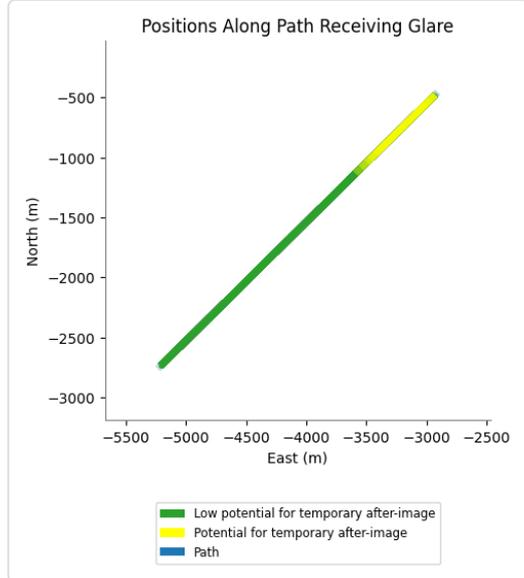
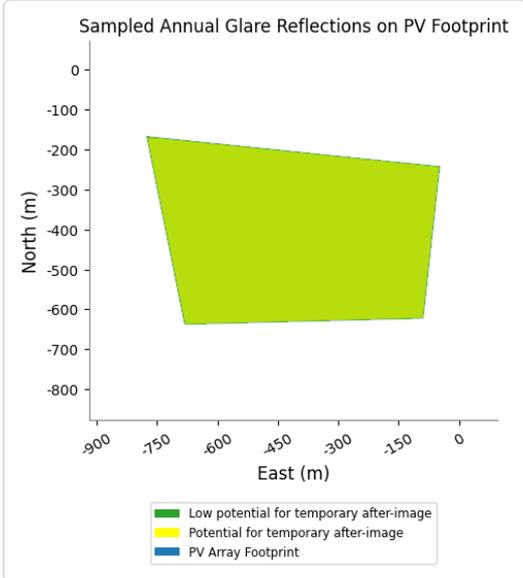
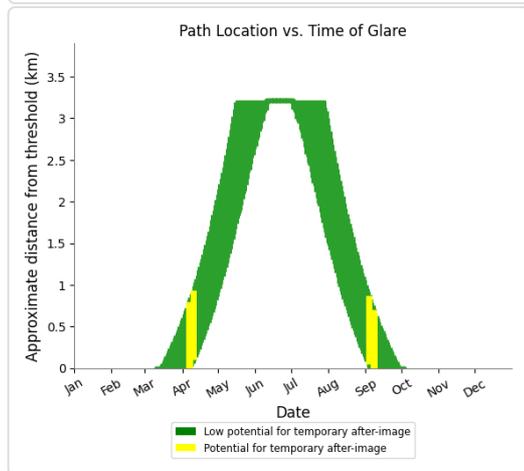
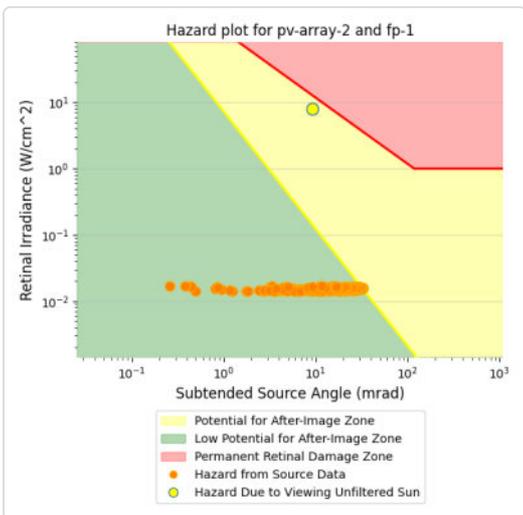
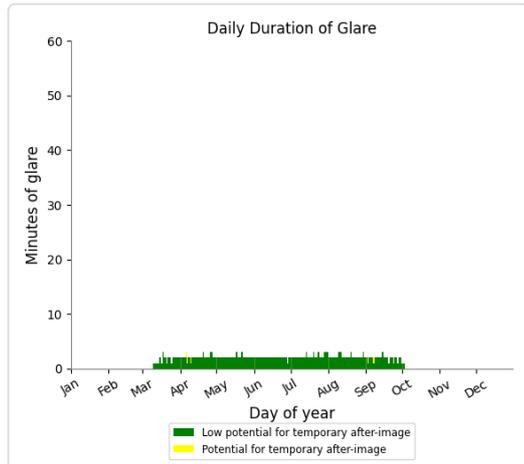
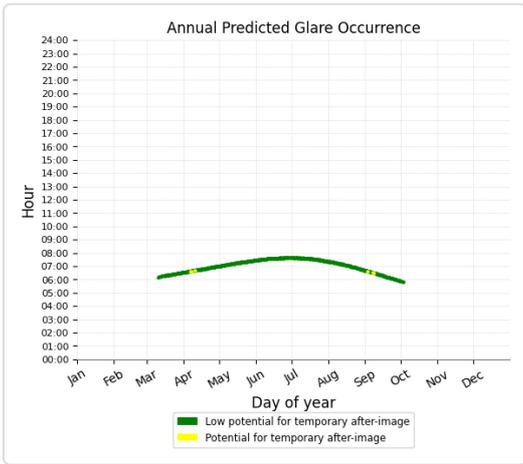
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### PV array 2 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 415 minutes of "green" glare with low potential to cause temporary after-image.
- 6 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 2 - Receptor (FP 2)

No glare found

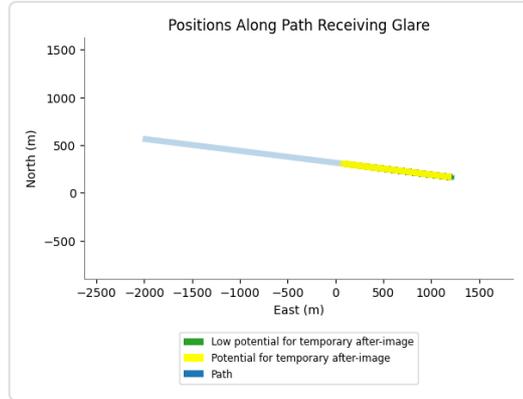
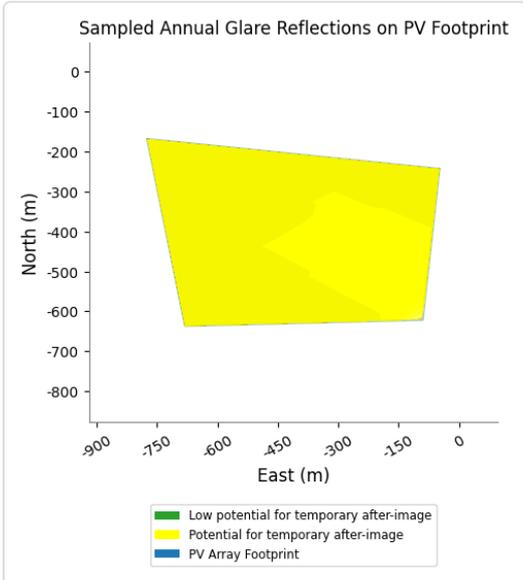
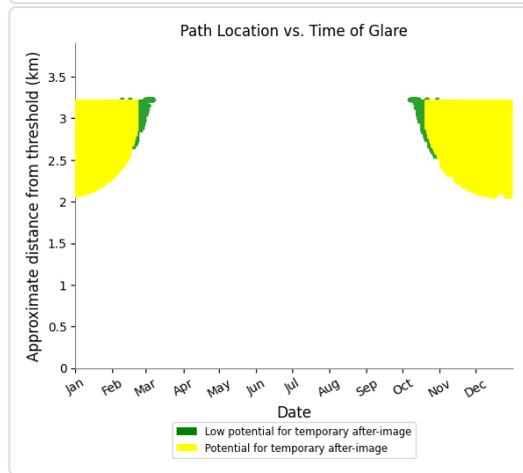
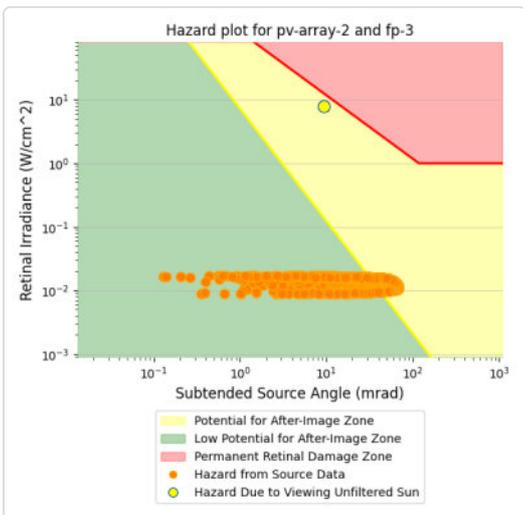
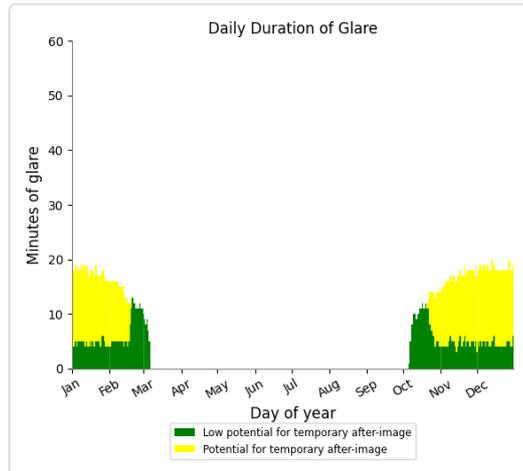
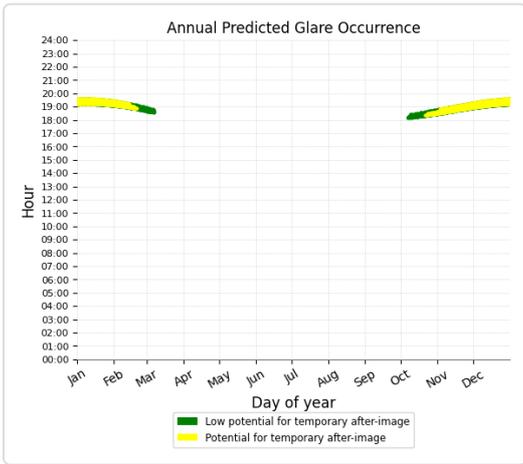
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### PV array 2 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 881 minutes of "green" glare with low potential to cause temporary after-image.
- 1,467 minutes of "yellow" glare with potential to cause temporary after-image.



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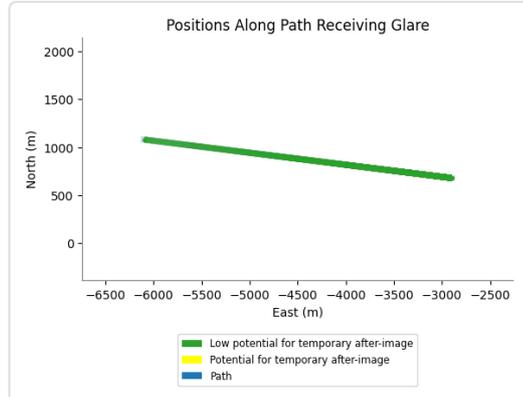
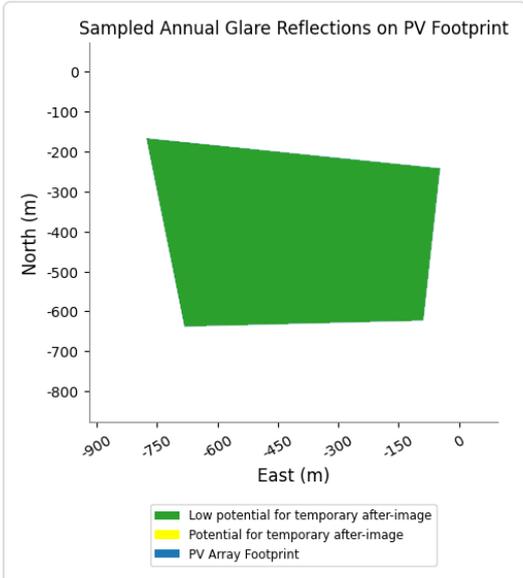
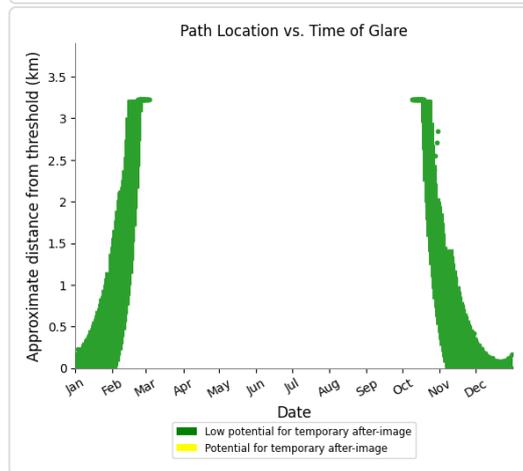
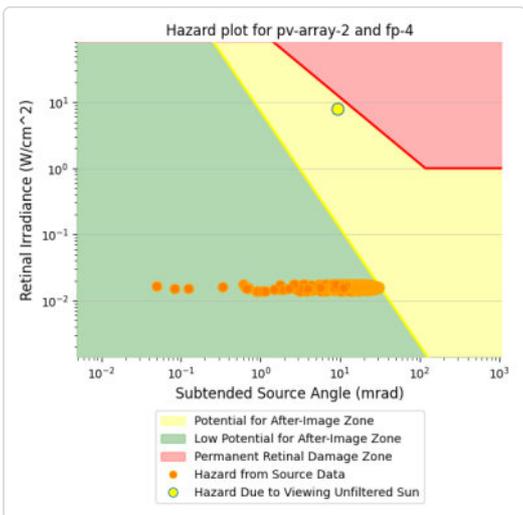
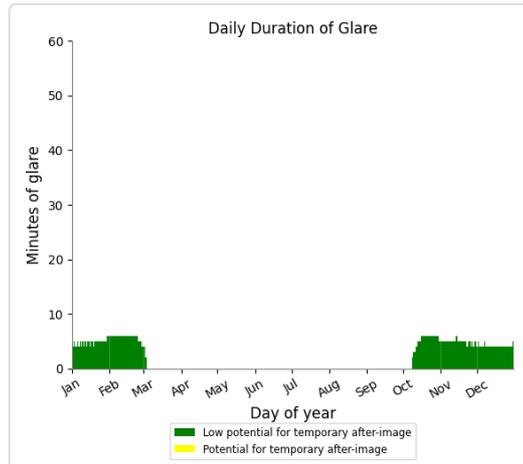
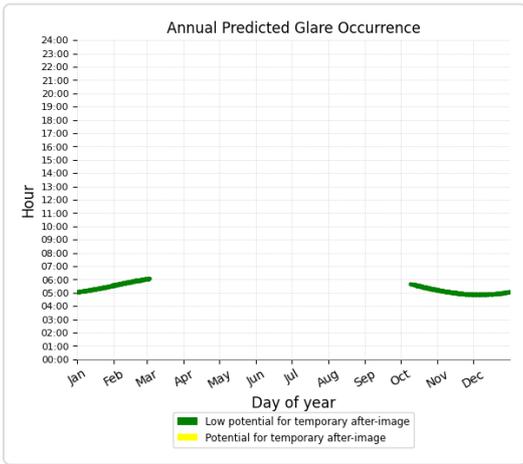
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### PV array 2 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 717 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 3 potential temporary after-image

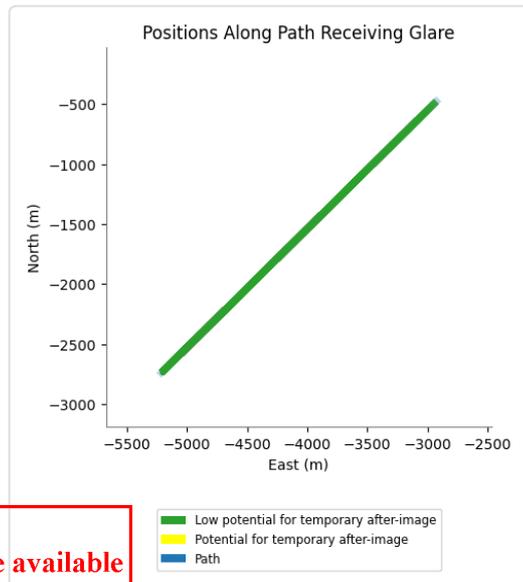
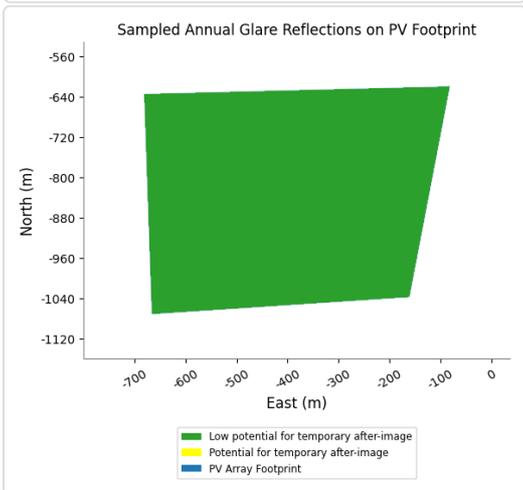
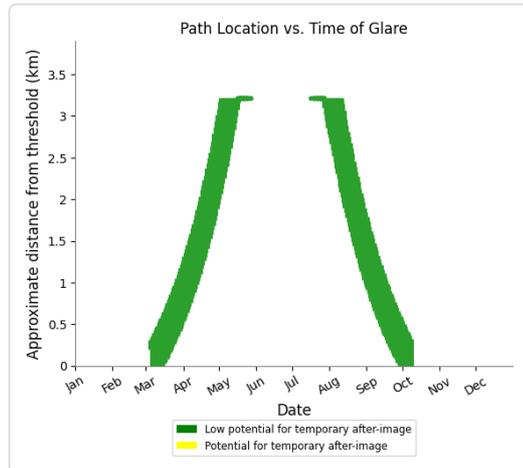
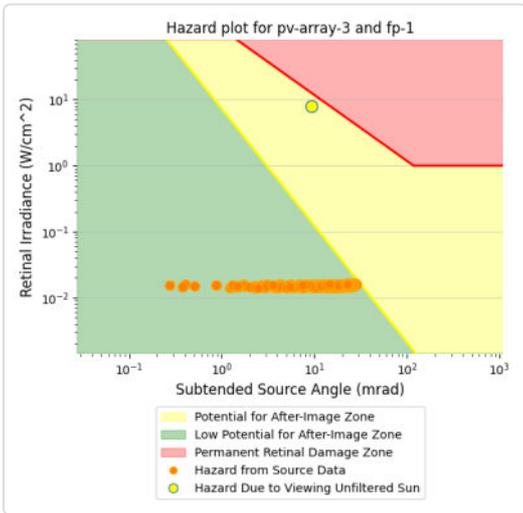
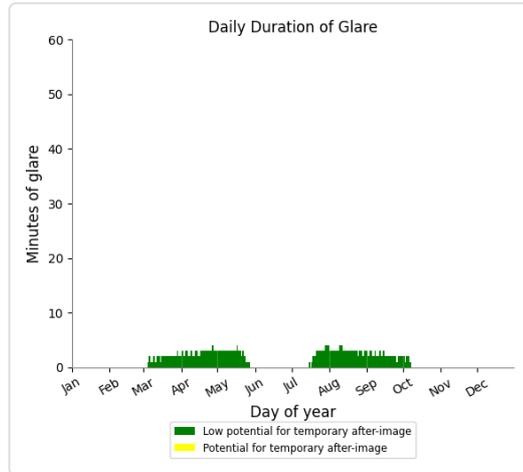
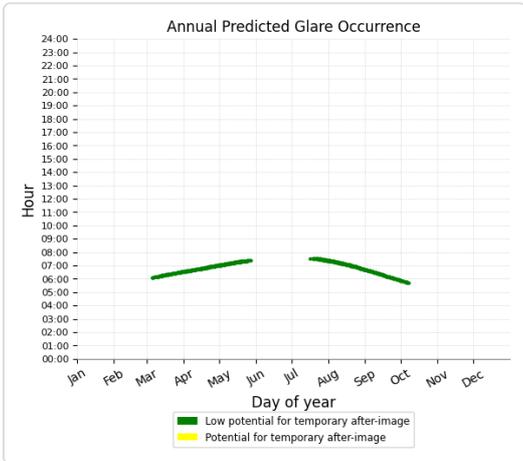
| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 418               | 0                  |
| FP: FP 2  | 0                 | 0                  |

|          |      |     |
|----------|------|-----|
| FP: FP 3 | 1027 | 105 |
| FP: FP 4 | 567  | 0   |

### PV array 3 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 418 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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### PV array 3 - Receptor (FP 2)

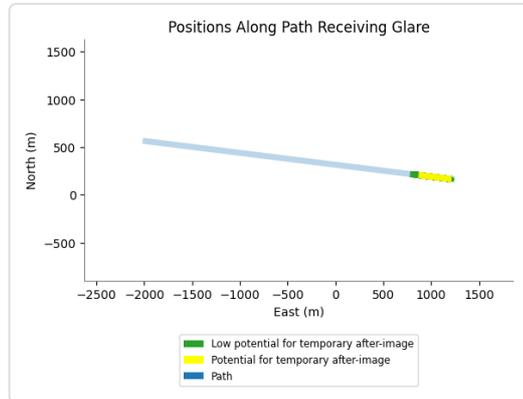
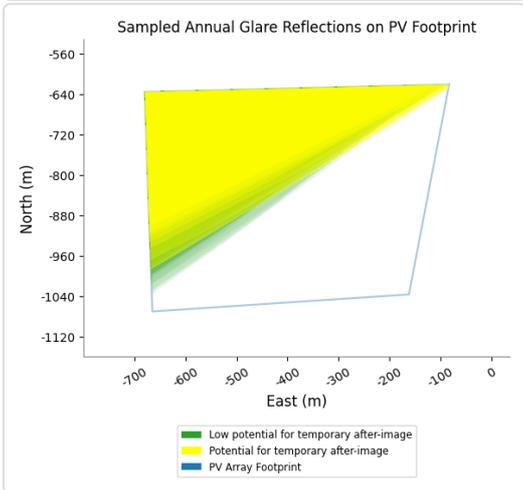
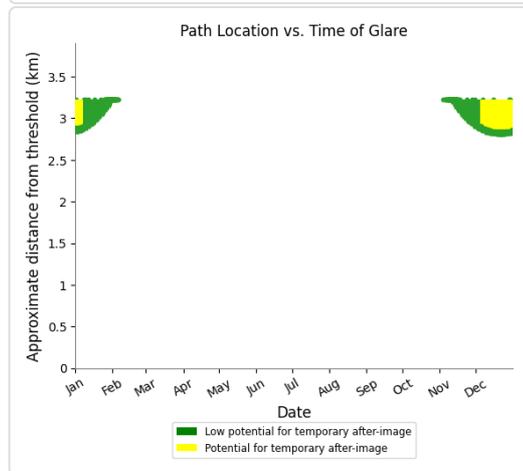
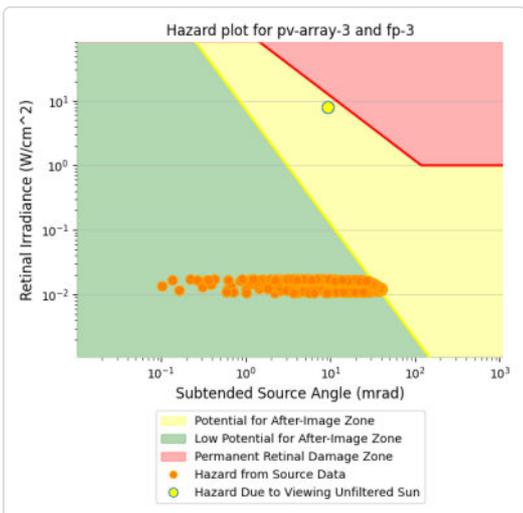
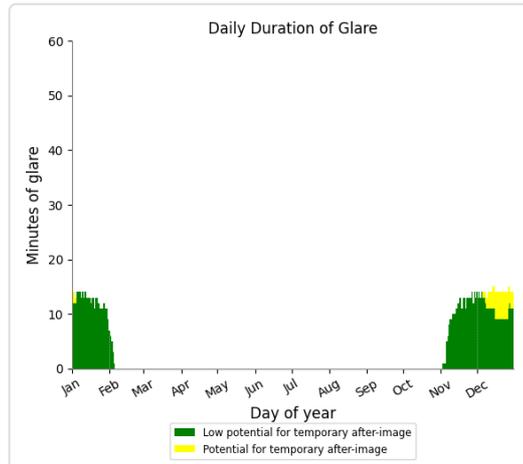
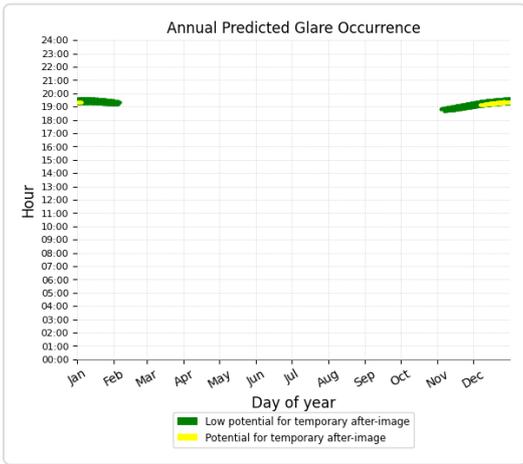
No glare found

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### PV array 3 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 1,027 minutes of "green" glare with low potential to cause temporary after-image.
- 105 minutes of "yellow" glare with potential to cause temporary after-image.



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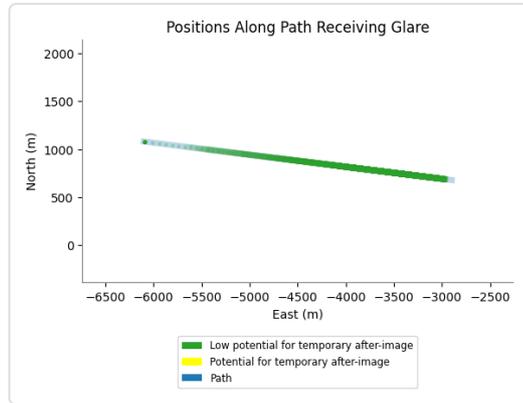
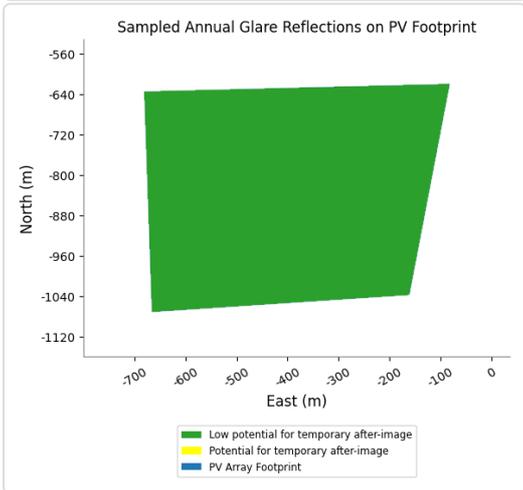
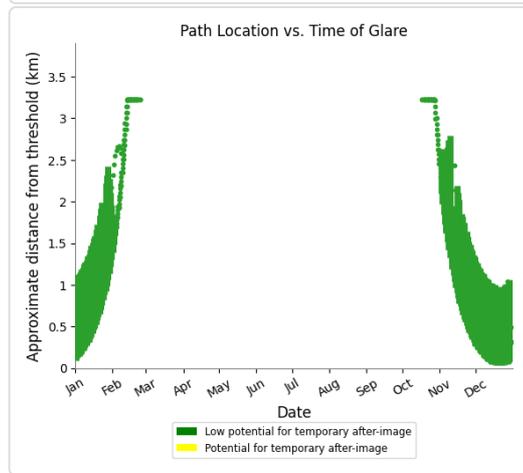
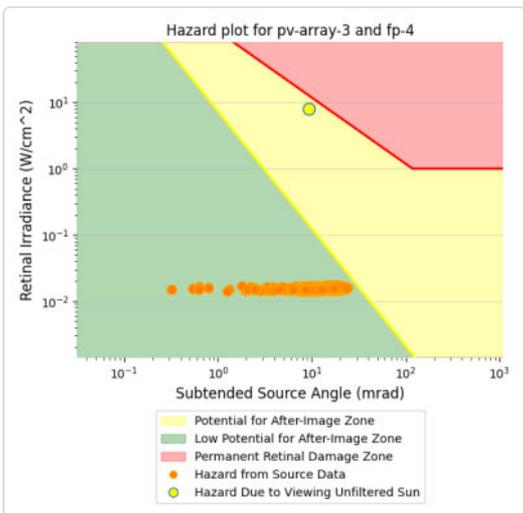
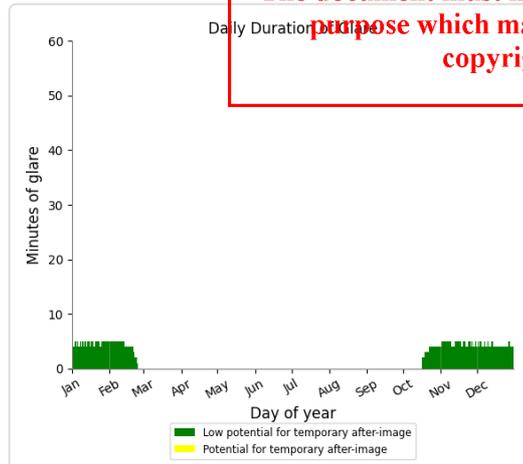
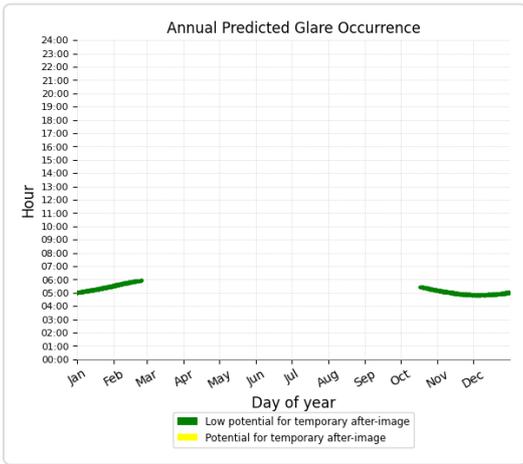
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### PV array 3 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 567 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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### PV array 4 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 1489              | 2827               |
| FP: FP 4  | 0                 | 0                  |

### PV array 4 - Receptor (FP 1)

No glare found

### PV array 4 - Receptor (FP 2)

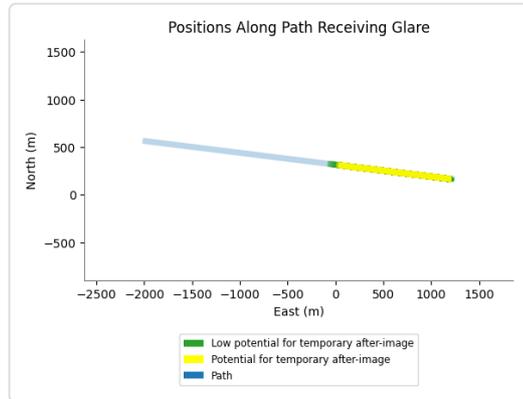
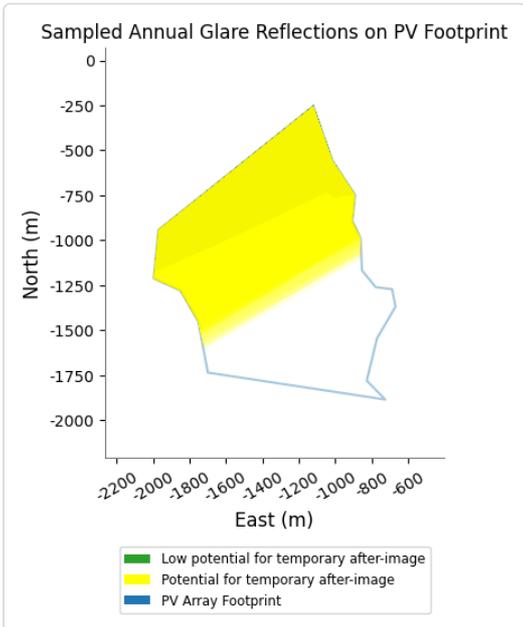
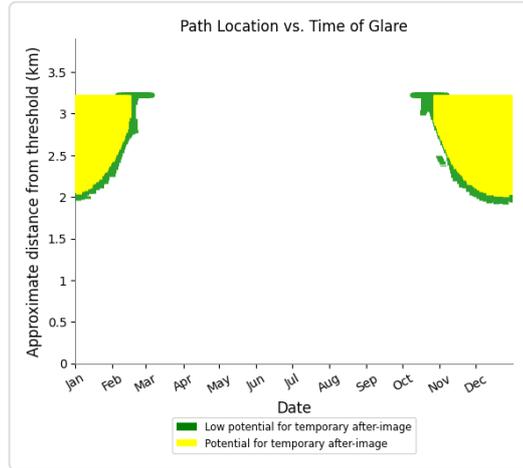
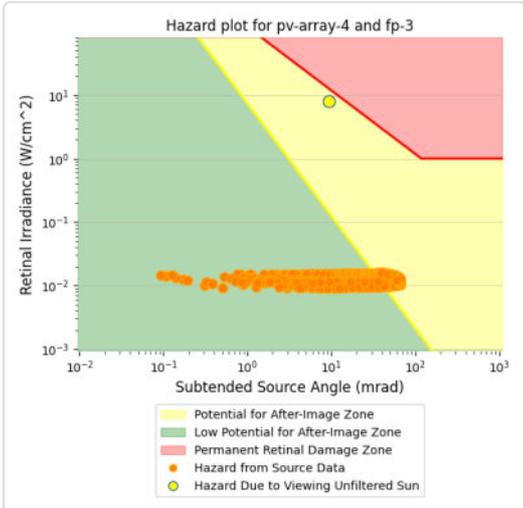
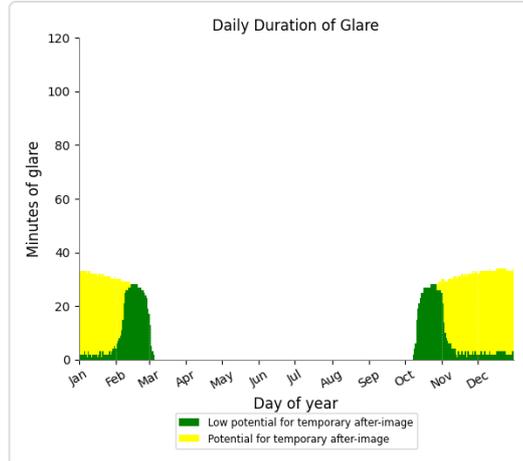
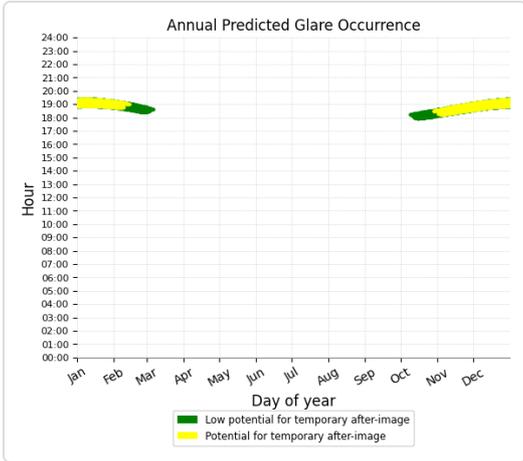
No glare found

### PV array 4 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 1,489 minutes of "green" glare with low potential to cause temporary after-image.
- 2,827 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 4 - Receptor (FP 4)***No glare found***PV array 5** low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 1                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 99                | 0                  |
| FP: FP 4  | 23                | 0                  |

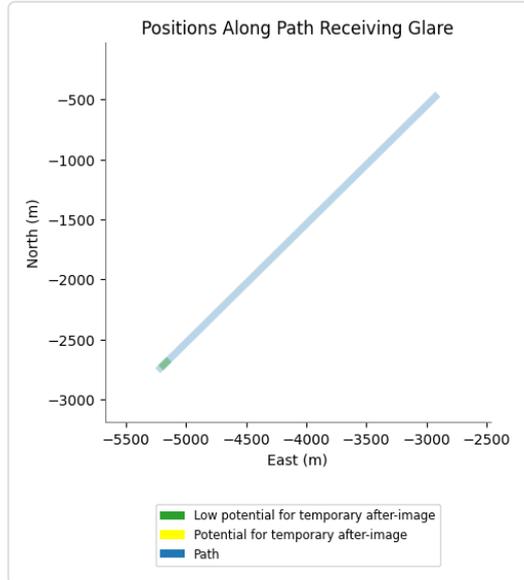
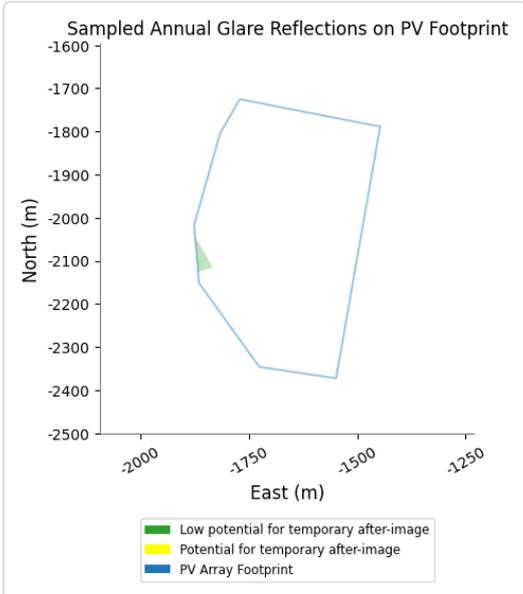
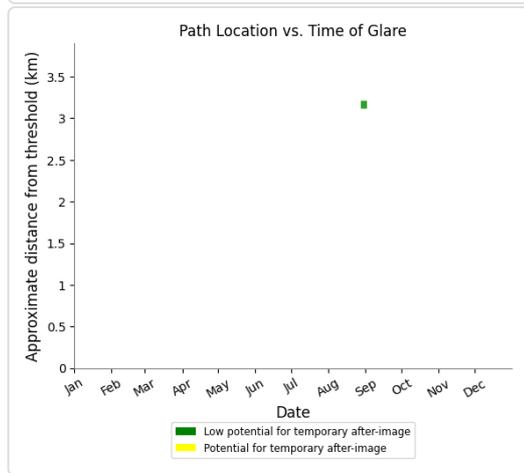
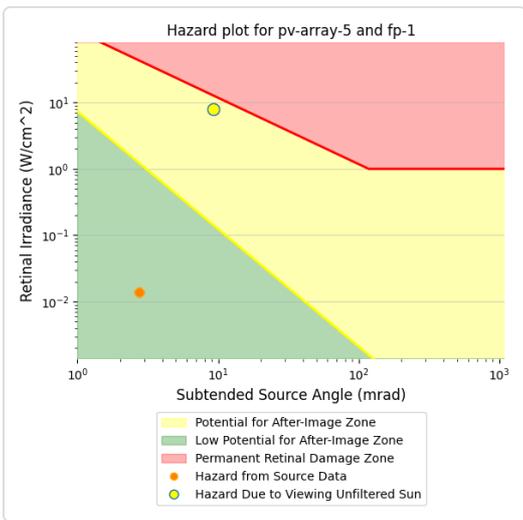
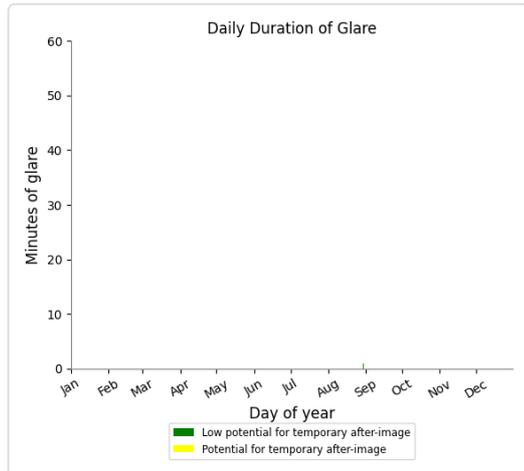
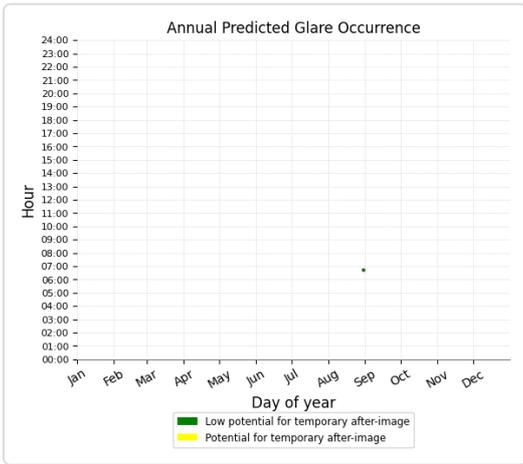
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### PV array 5 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 1 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 5 - Receptor (FP 2)

No glare found

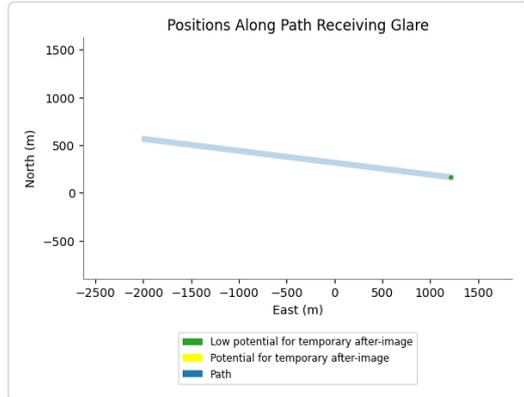
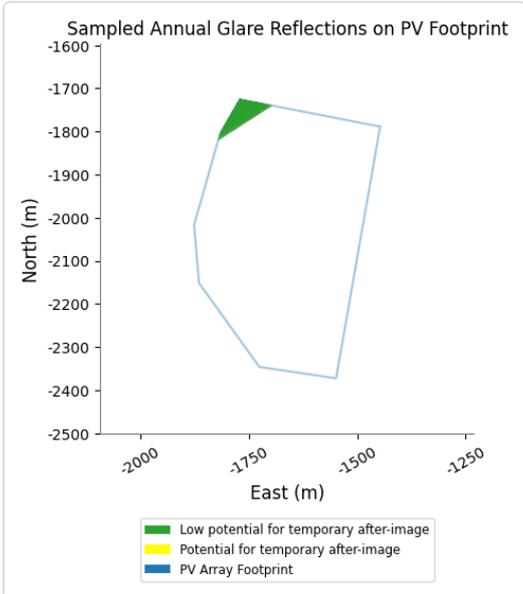
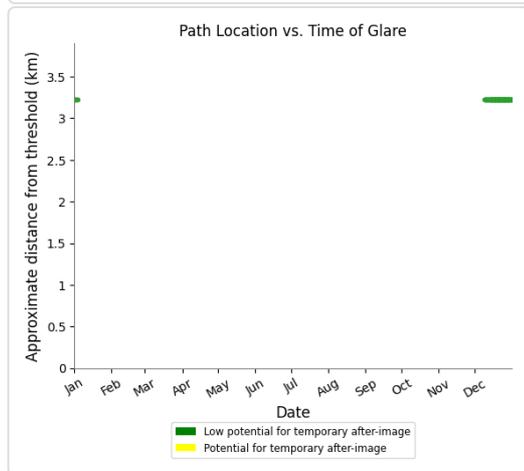
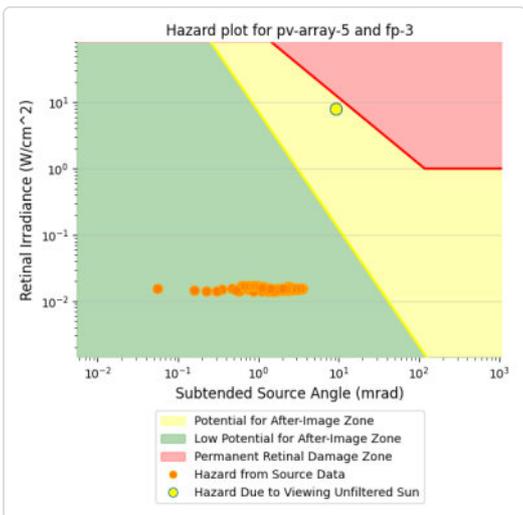
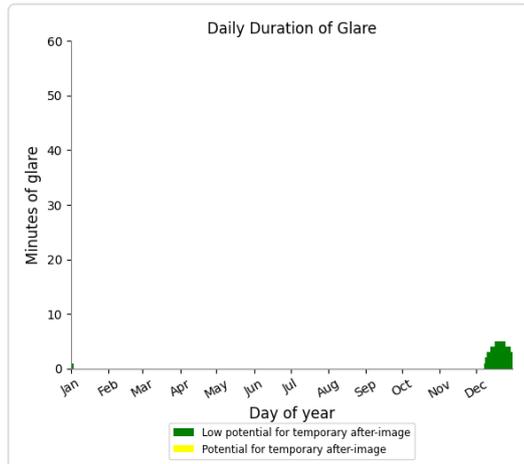
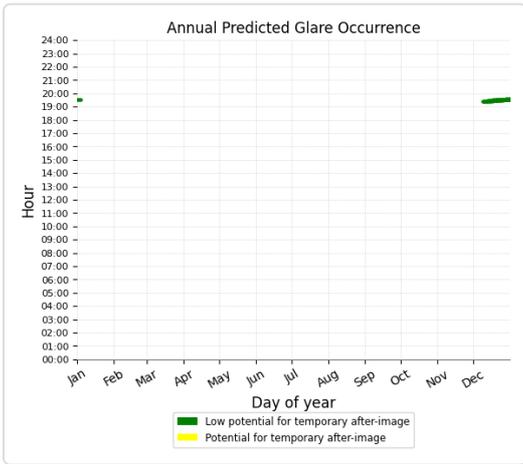
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### PV array 5 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 99 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



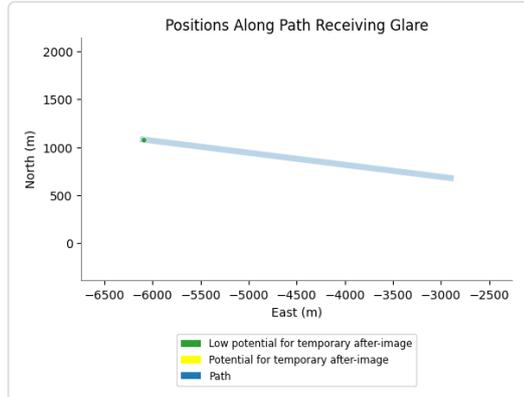
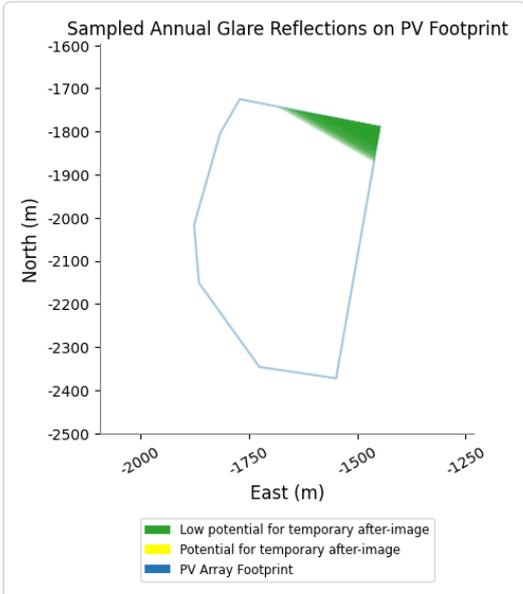
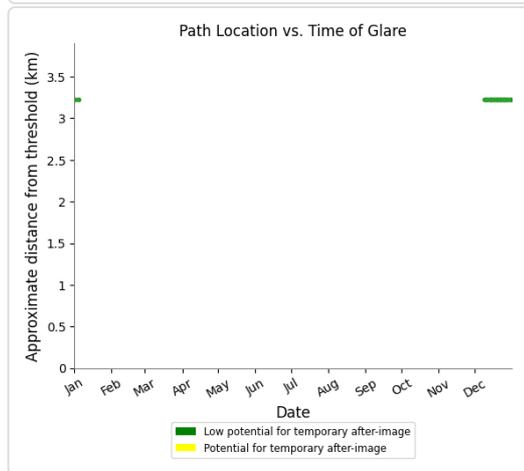
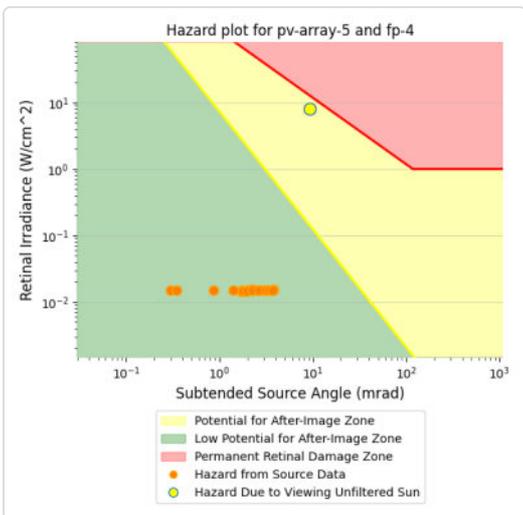
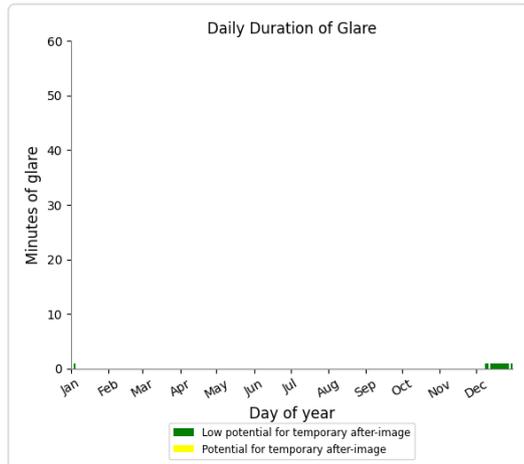
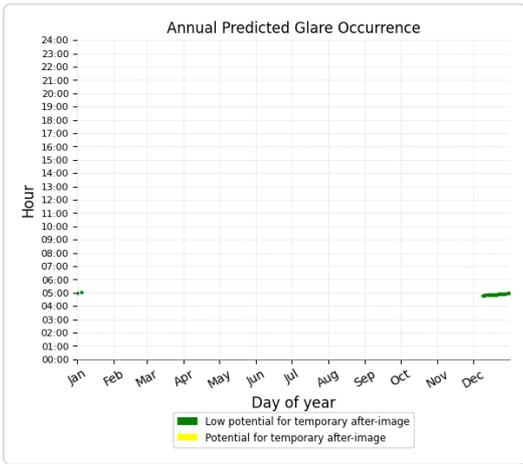
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### PV array 5 - Receptor (FP 4)

- PV array is expected to produce the following glare for observers on this flight path:
- 23 minutes of "green" glare with low potential to cause temporary after-image.
  - 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 6 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 45                | 19                 |
| FP: FP 2  | 0                 | 0                  |

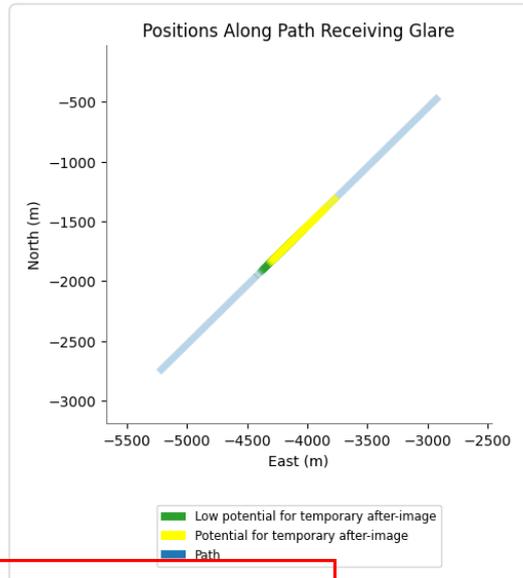
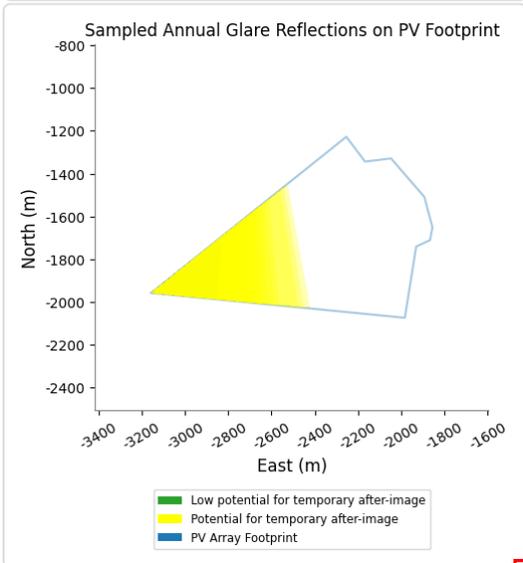
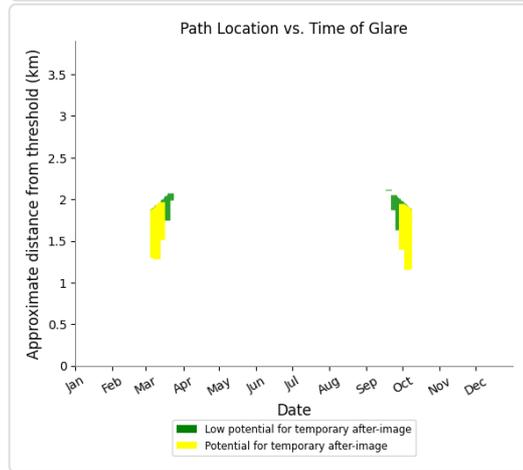
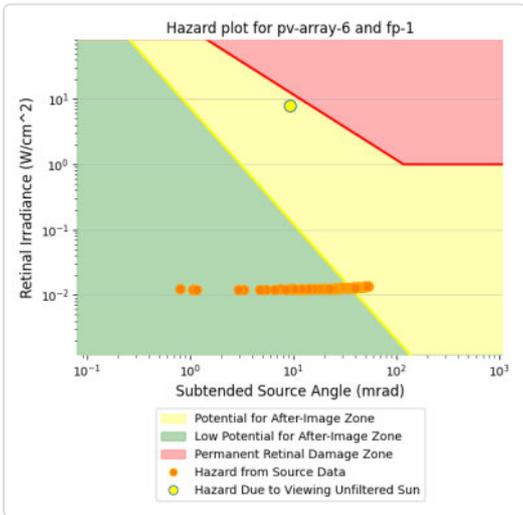
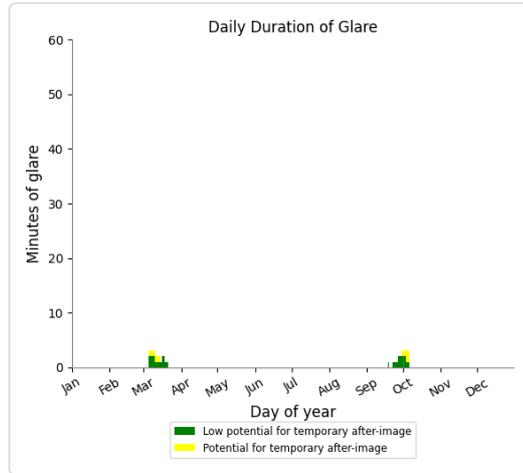
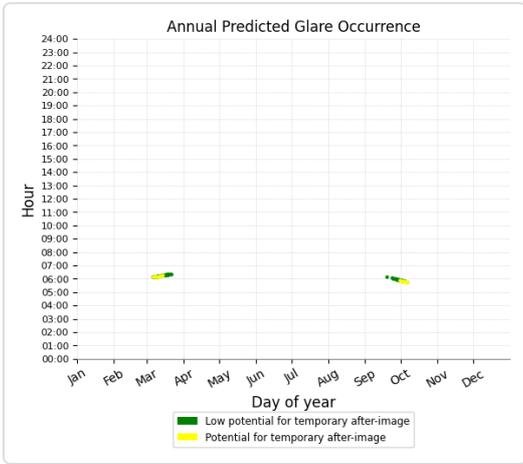
|          |      |     |
|----------|------|-----|
| FP: FP 3 | 1237 | 468 |
| FP: FP 4 | 277  | 0   |

### PV array 6 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 45 minutes of "green" glare with low potential to cause temporary after-image.
- 19 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 6 - Receptor (FP 2)

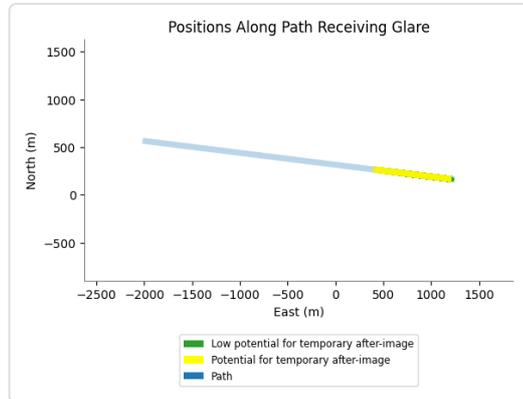
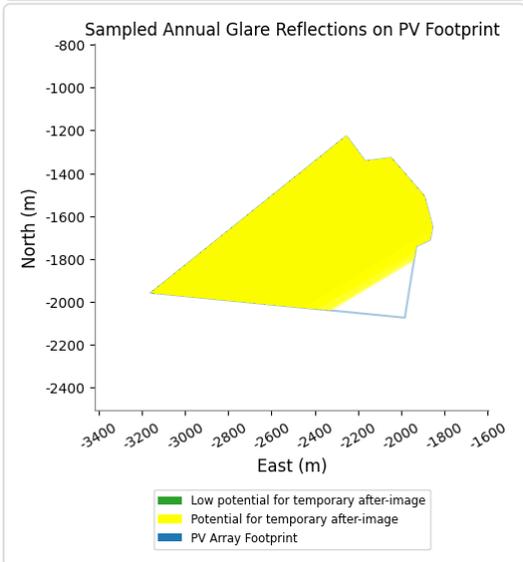
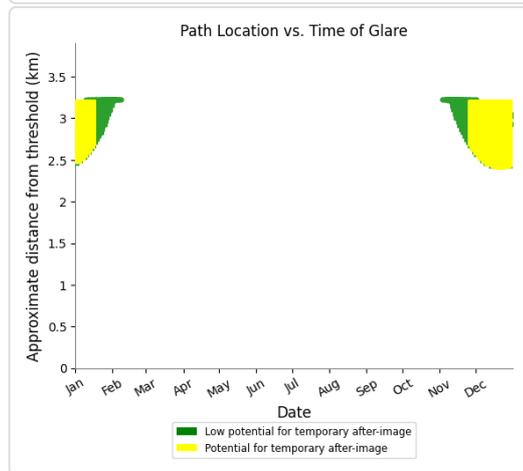
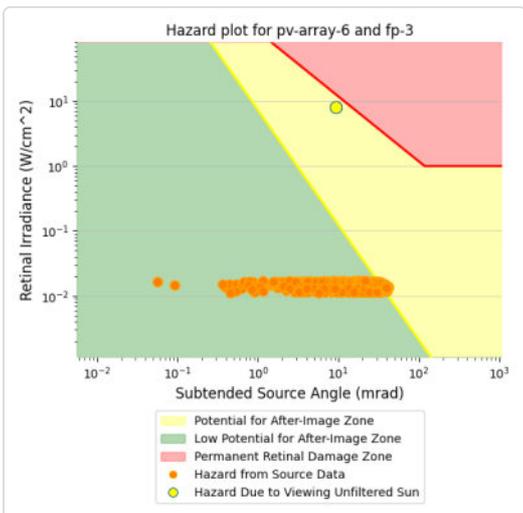
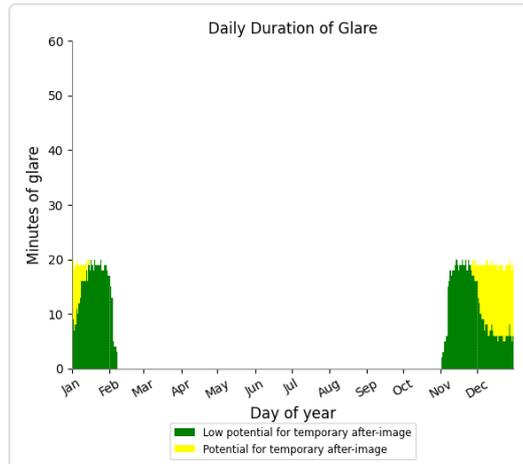
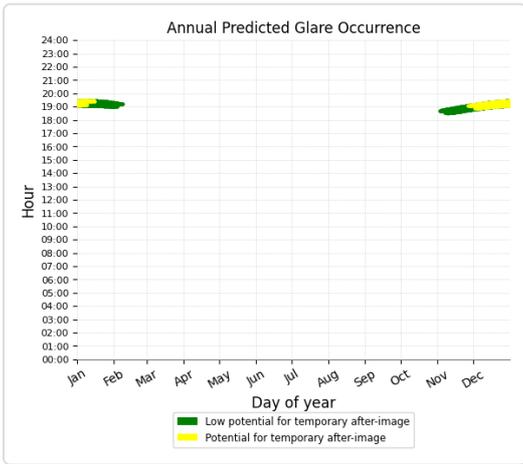
No glare found

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### PV array 6 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 1,237 minutes of "green" glare with low potential to cause temporary after-image.
- 468 minutes of "yellow" glare with potential to cause temporary after-image.



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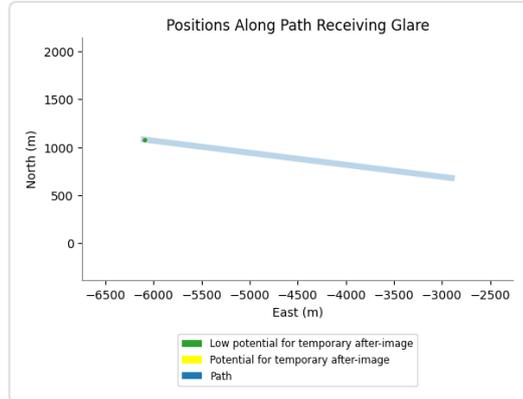
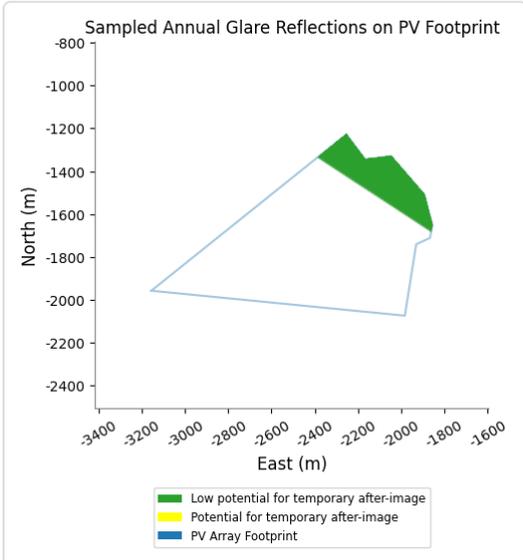
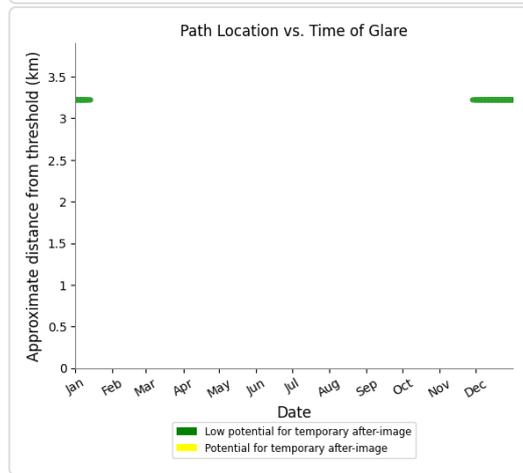
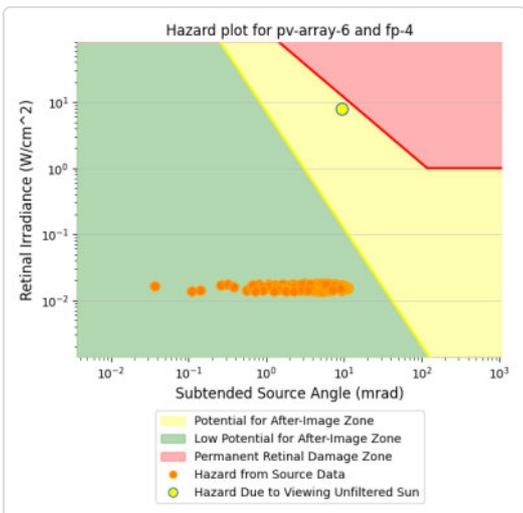
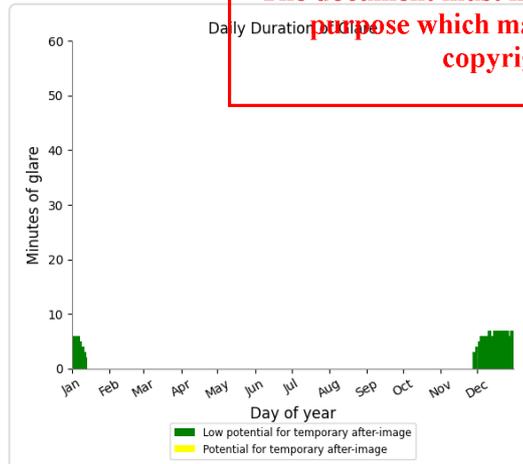
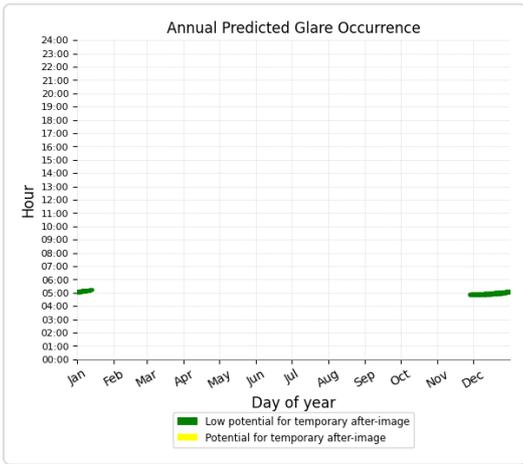
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### PV array 6 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 277 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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### PV array 7 potential temporary after-image

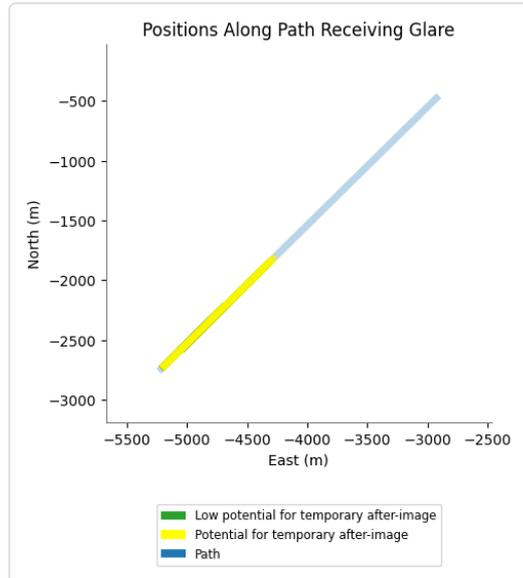
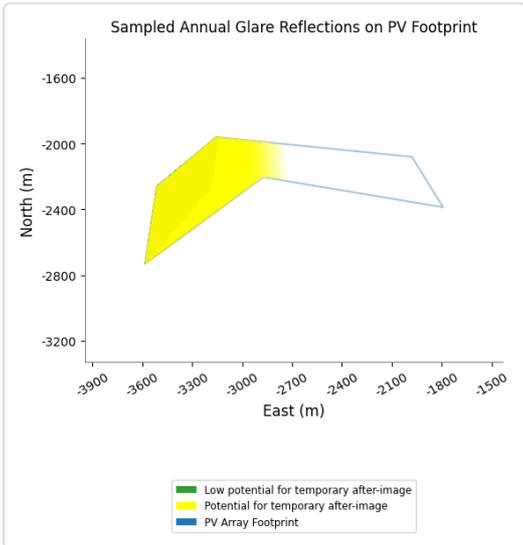
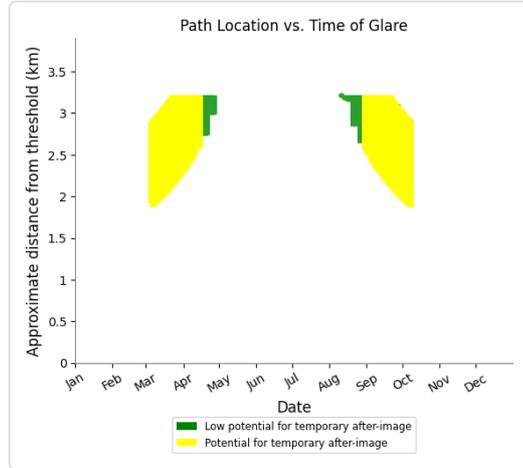
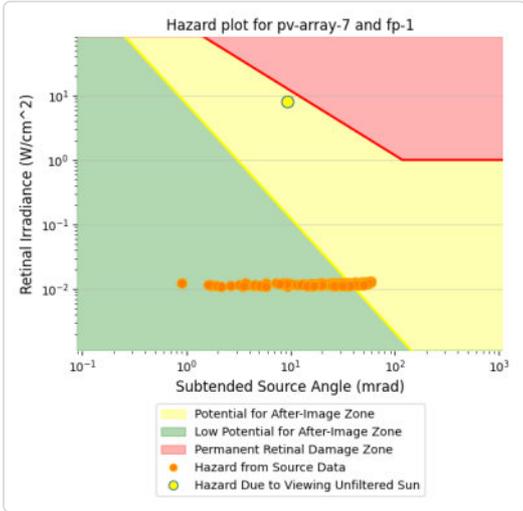
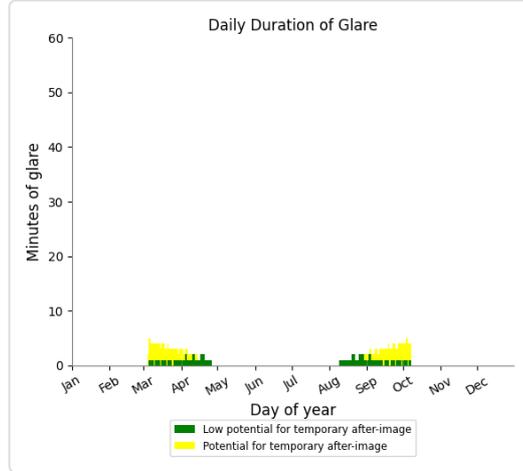
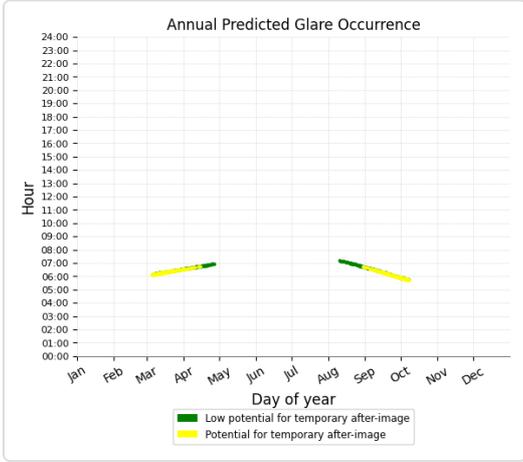
| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 118               | 172                |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 1315              | 0                  |

### PV array 7 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 118 minutes of "green" glare with low potential to cause temporary after-image.
- 172 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 7 - Receptor (FP 2)

No glare found

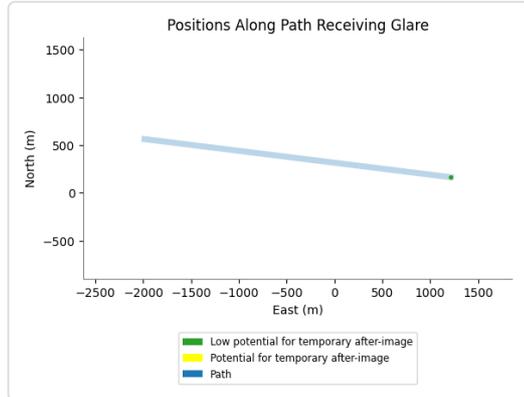
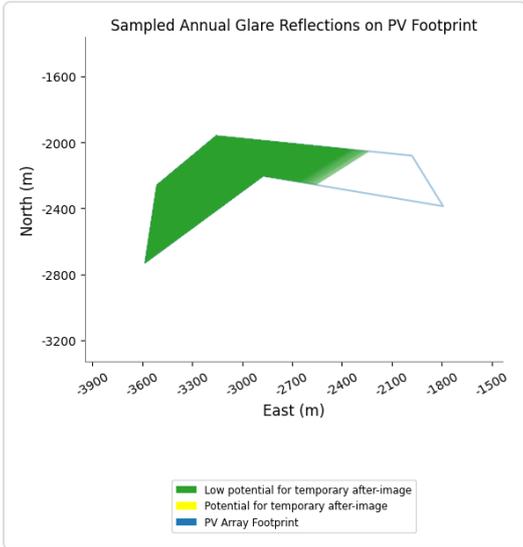
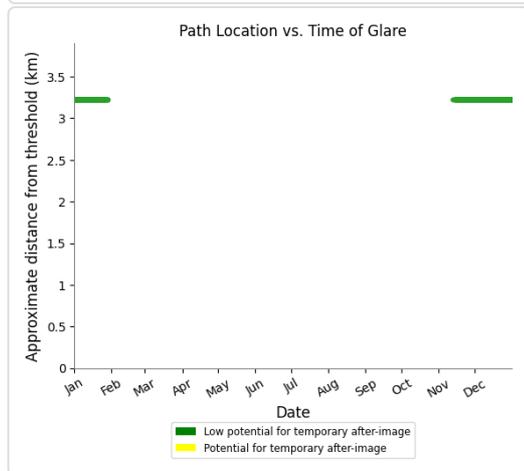
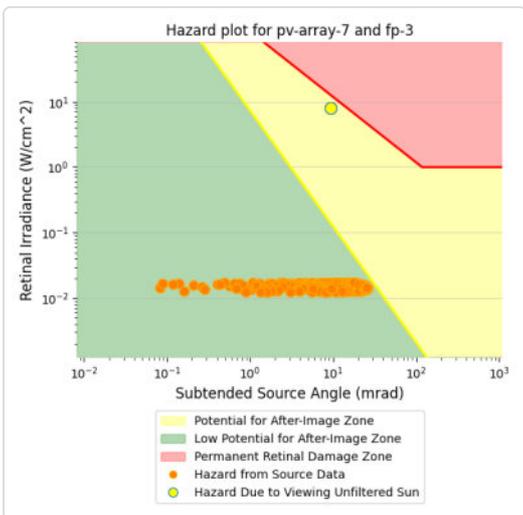
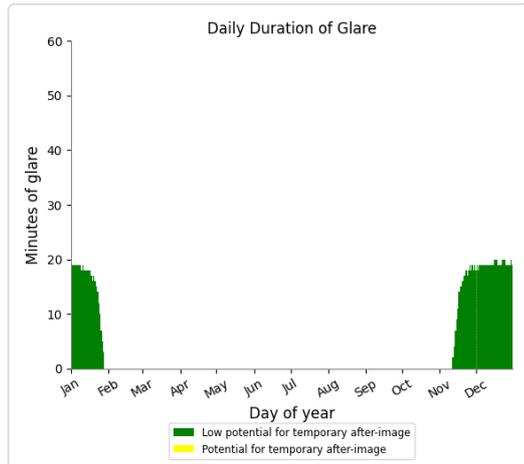
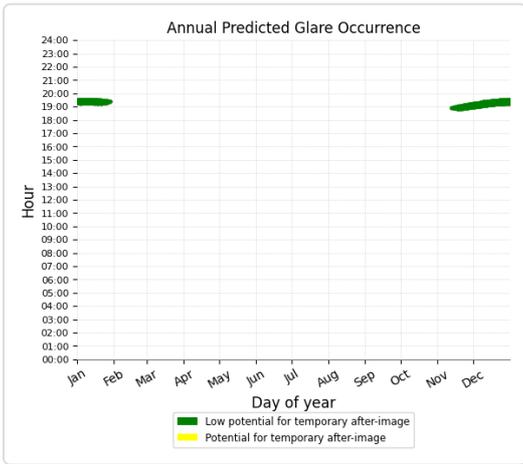
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## PV array 7 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 1,315 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



## PV array 7 - Receptor (FP 4)

No glare found

## PV array 8 low potential for temporary after-image

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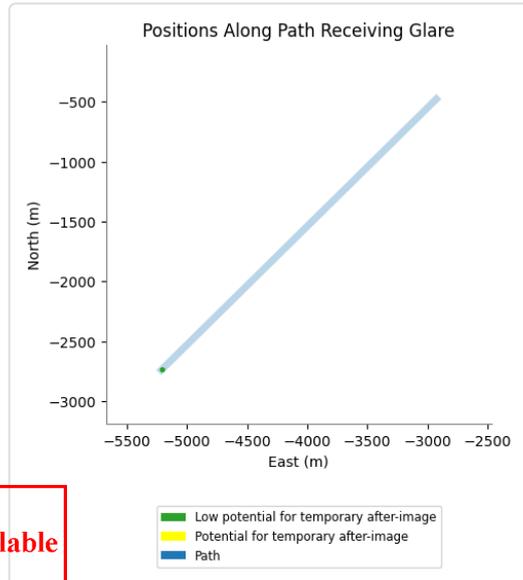
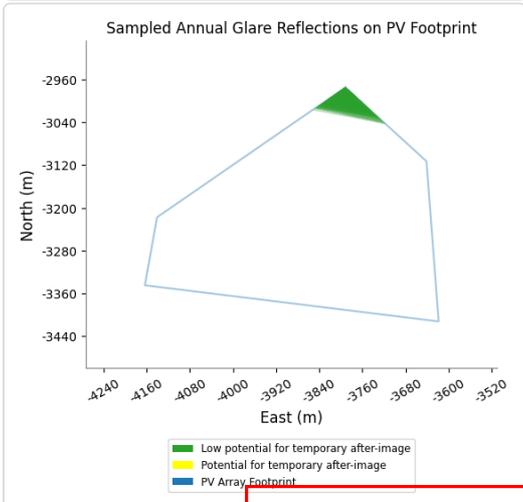
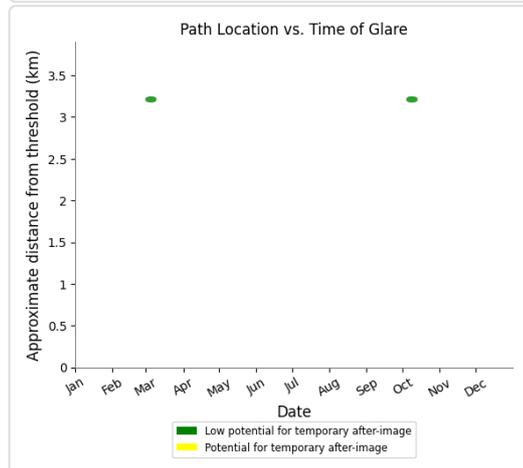
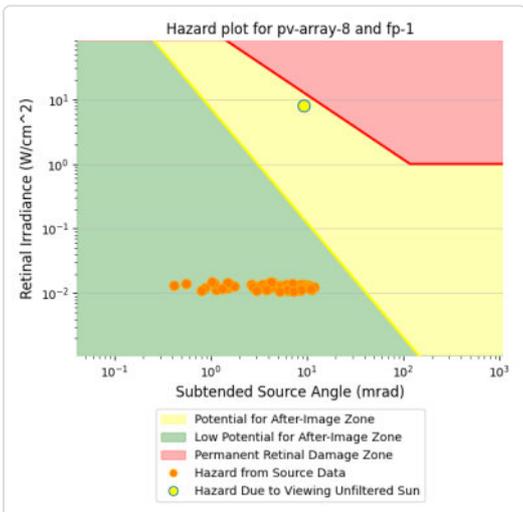
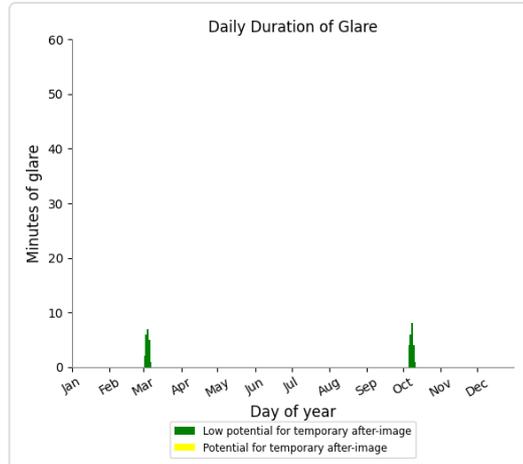
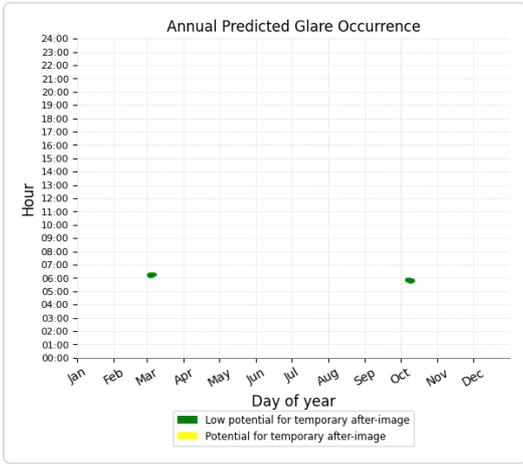
| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
|-----------|-------------------|--------------------|

|          |     |   |
|----------|-----|---|
| FP: FP 1 | 59  | 0 |
| FP: FP 2 | 0   | 0 |
| FP: FP 3 | 115 | 0 |
| FP: FP 4 | 0   | 0 |

### PV array 8 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 59 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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### PV array 8 - Receptor (FP 2)

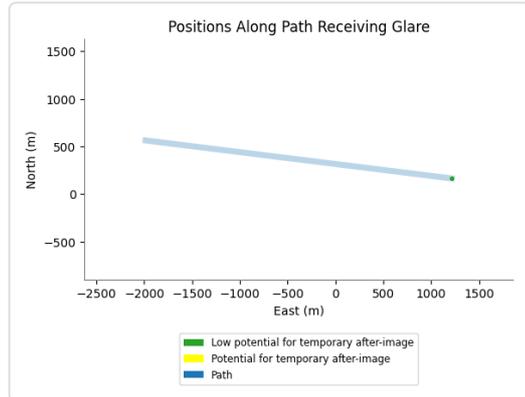
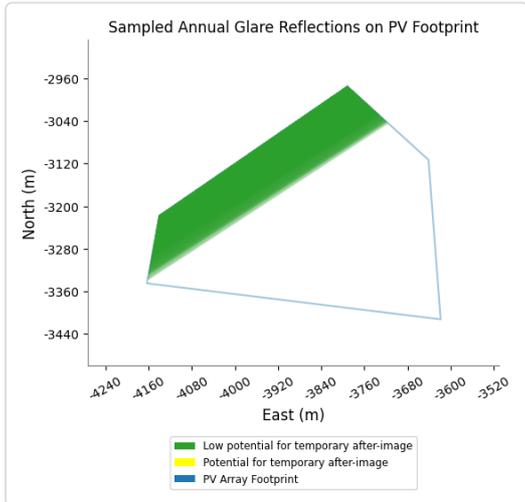
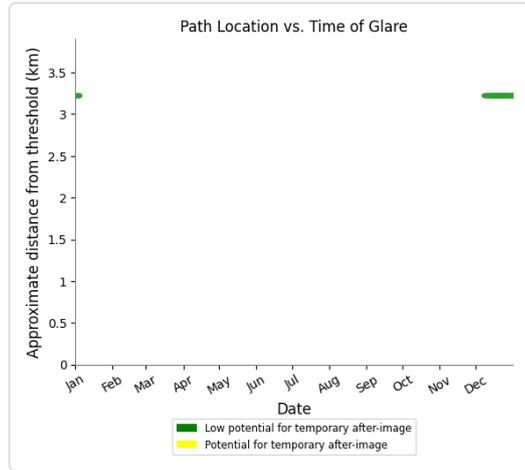
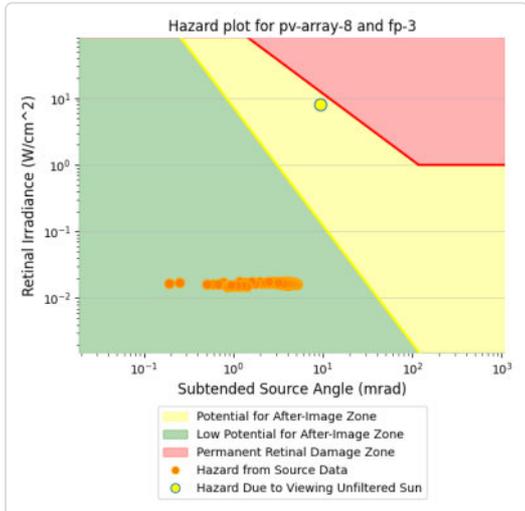
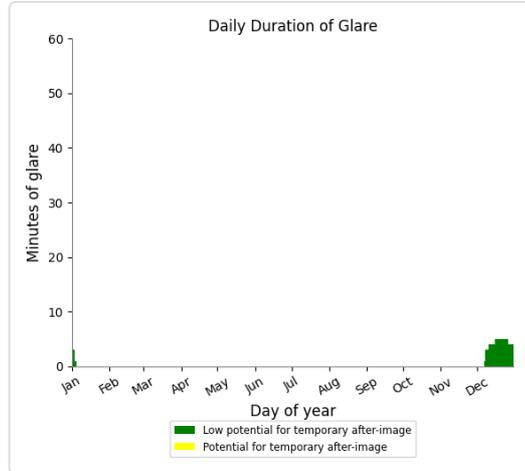
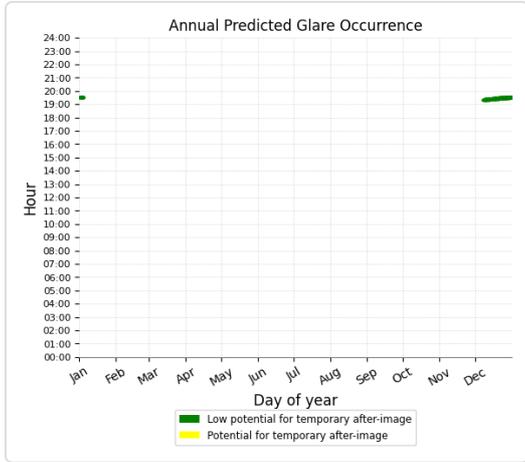
No glare found

### PV array 8 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 115 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 8 - Receptor (FP 4)

No glare found

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### PV array 9 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 331               | 538                |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 180               | 0                  |
| FP: FP 4  | 0                 | 0                  |

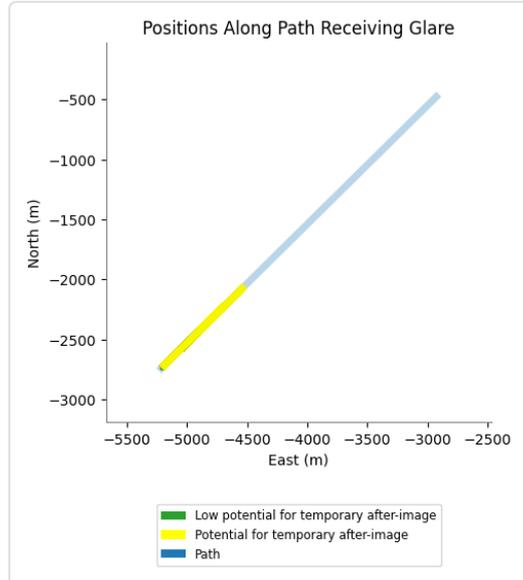
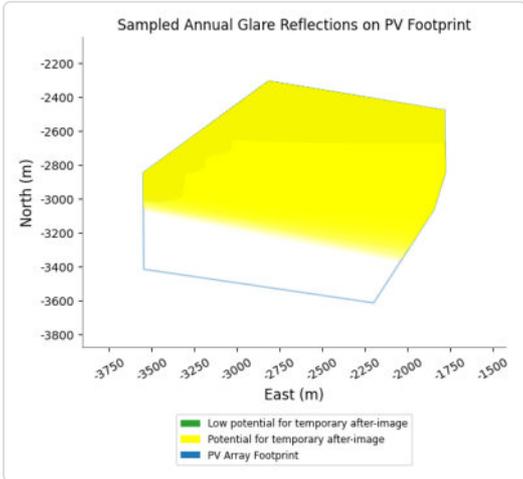
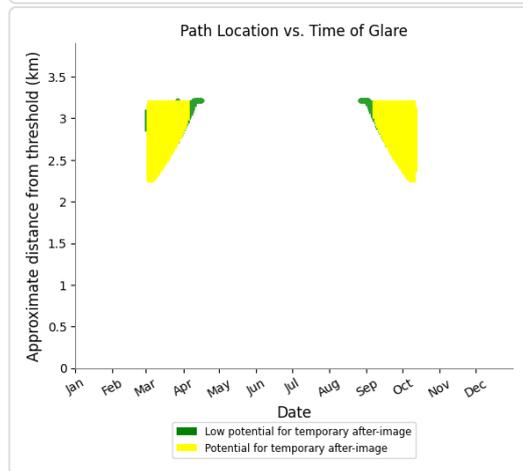
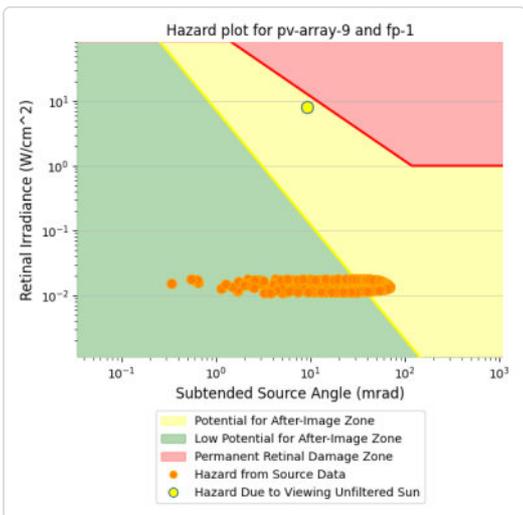
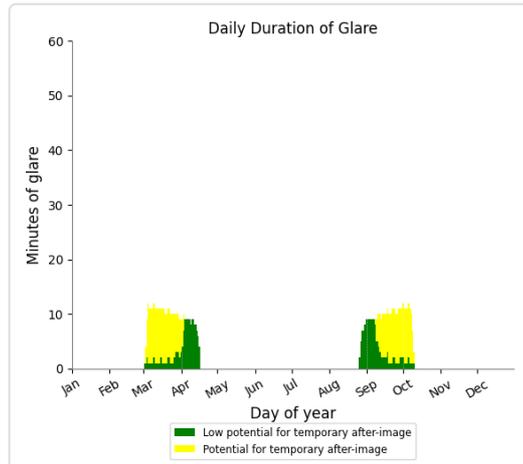
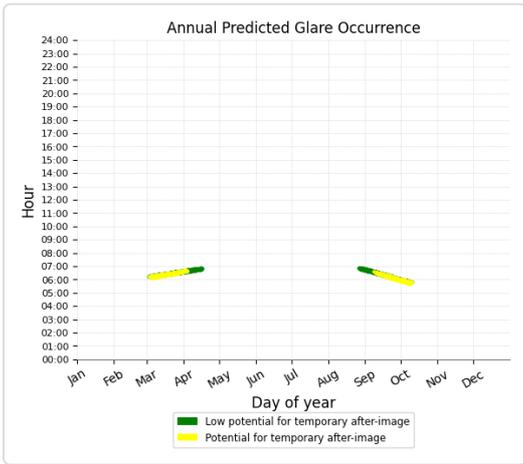
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### PV array 9 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 331 minutes of "green" glare with low potential to cause temporary after-image.
- 538 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 9 - Receptor (FP 2)

No glare found

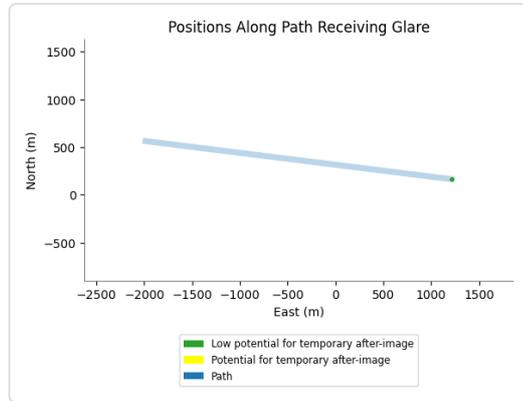
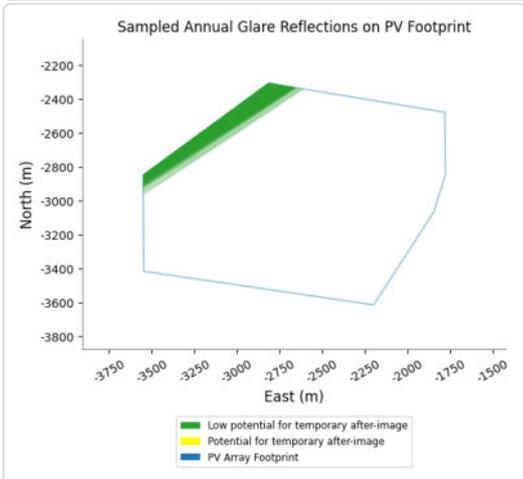
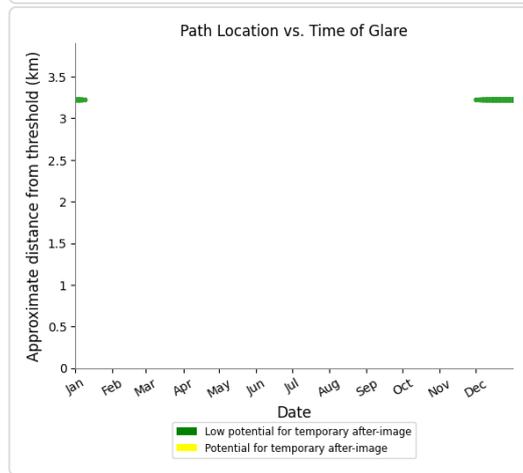
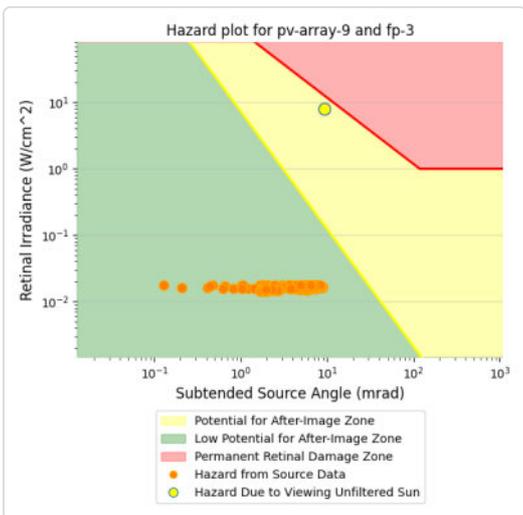
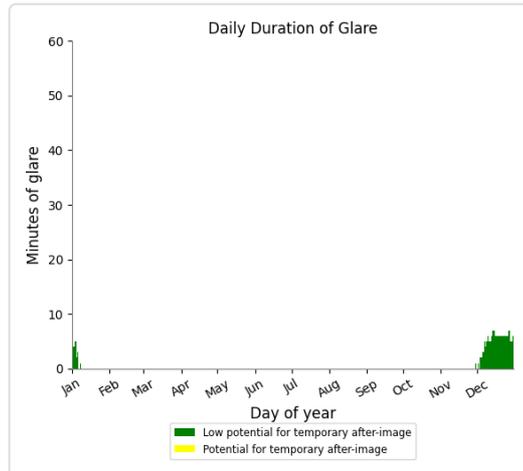
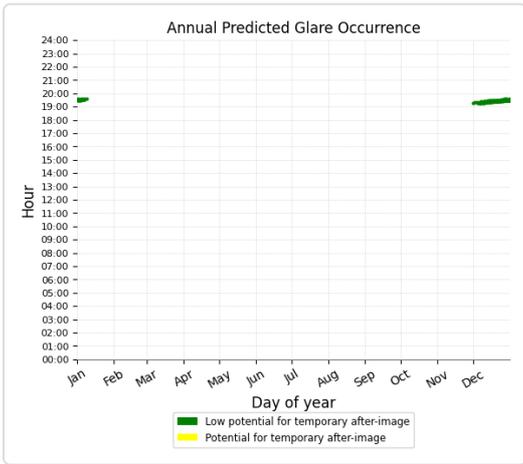
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### PV array 9 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 180 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 9 - Receptor (FP 4)

No glare found

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### Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.

- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- 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.
- 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.
- 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.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. 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** for detailed assumptions and limitations not listed here.

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ForgeSolar

# Hazelwood North Solar Farm

## Hazelwood 1\_Max

**Created** Sept. 29, 2022  
**Updated** Sept. 29, 2022  
**Time-step** 1 minute  
**Timezone offset** UTC10  
**Site ID** 76765.13552

**Project type** Advanced  
**Project status:** active  
**Category** 100 MW to 1 GW



### Misc. Analysis Settings

**DNI:** varies (1,000.0 W/m<sup>2</sup> peak)  
**Ocular transmission coefficient:** 0.5  
**Pupil diameter:** 0.002 m  
**Eye focal length:** 0.017 m  
**Sun subtended angle:** 9.3 mrad

**Analysis Methodology:** Version 2  
**Enhanced subtended angle calculation:** On

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

| PV Name     | Tilt        | Orientation | "Green" Glare | "Yellow" Glare | Energy Produced |
|-------------|-------------|-------------|---------------|----------------|-----------------|
|             | deg         | deg         | min           | min            | kWh             |
| PV array 1  | SA tracking | SA tracking | 2,361         | 1,848          | -               |
| PV array 10 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 11 | SA tracking | SA tracking | 26            | 0              | -               |
| PV array 12 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 13 | SA tracking | SA tracking | 418           | 0              | -               |
| PV array 14 | SA tracking | SA tracking | 352           | 14             | -               |
| PV array 15 | SA tracking | SA tracking | 164           | 0              | -               |
| PV array 16 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 2  | SA tracking | SA tracking | 2,326         | 1,371          | -               |
| PV array 3  | SA tracking | SA tracking | 2,432         | 172            | -               |
| PV array 4  | SA tracking | SA tracking | 1,653         | 2,402          | -               |
| PV array 5  | SA tracking | SA tracking | 1,030         | 28             | -               |
| PV array 6  | SA tracking | SA tracking | 1,472         | 1,324          | -               |
| PV array 7  | SA tracking | SA tracking | 982           | 1,068          | -               |
| PV array 8  | SA tracking | SA tracking | 178           | 0              | -               |
| PV array 9  | SA tracking | SA tracking | 517           | 521            | -               |

ADVERTISED  
 PLAN

## Component Data

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### PV Array(s)

Total PV footprint area: 8,125,069 m<sup>2</sup>

**Name:** PV array 1  
**Description:** Ground Max 72\_505  
**Footprint area:** 143,282 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.211219 | 146.498454 | 72.51            | 3.90                | 76.41           |
| 2      | -38.210848 | 146.492961 | 72.50            | 3.90                | 76.41           |
| 3      | -38.212736 | 146.489785 | 72.50            | 3.90                | 76.41           |
| 4      | -38.213377 | 146.497939 | 72.50            | 3.90                | 76.41           |



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**Name:** PV array 10  
**Description:** Ground Max 94\_385  
**Footprint area:** 353,819 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.243180 | 146.468384 | 94.39            | 3.90                | 98.29           |
| 2      | -38.249651 | 146.466882 | 94.39            | 3.90                | 98.29           |
| 3      | -38.250460 | 146.474478 | 94.39            | 3.90                | 98.29           |
| 4      | -38.247730 | 146.474907 | 94.39            | 3.90                | 98.29           |
| 5      | -38.247528 | 146.473191 | 94.39            | 3.90                | 98.29           |
| 6      | -38.248505 | 146.473105 | 94.39            | 3.90                | 98.29           |
| 7      | -38.248235 | 146.471302 | 94.39            | 3.90                | 98.29           |
| 8      | -38.246988 | 146.471517 | 94.39            | 3.90                | 98.29           |
| 9      | -38.245842 | 146.472676 | 94.39            | 3.90                | 98.29           |
| 10     | -38.243820 | 146.473105 | 94.39            | 3.90                | 98.29           |



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**Name:** PV array 11  
**Description:** Ground Max 94\_864  
**Footprint area:** 336,526 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.241393 | 146.477396 | 94.86            | 3.90                | 98.76           |
| 2      | -38.241259 | 146.476495 | 94.86            | 3.90                | 98.76           |
| 3      | -38.244461 | 146.473877 | 94.86            | 3.90                | 98.76           |
| 4      | -38.245438 | 146.473877 | 94.86            | 3.90                | 98.76           |
| 5      | -38.245842 | 146.474092 | 94.86            | 3.90                | 98.76           |
| 6      | -38.247730 | 146.475079 | 94.86            | 3.90                | 98.76           |
| 7      | -38.250527 | 146.474521 | 94.86            | 3.90                | 98.76           |
| 8      | -38.251269 | 146.480014 | 94.86            | 3.90                | 98.76           |
| 9      | -38.247932 | 146.478555 | 94.86            | 3.90                | 98.76           |
| 10     | -38.246146 | 146.479413 | 94.86            | 3.90                | 98.76           |
| 11     | -38.244528 | 146.477053 | 94.86            | 3.90                | 98.76           |
| 12     | -38.242742 | 146.477353 | 94.86            | 3.90                | 98.76           |

**Name:** PV array 12  
**Description:** Ground Max 100\_037  
**Footprint area:** 309,979 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.249853 | 146.468127 | 100.04           | 3.90                | 103.94          |
| 2      | -38.252414 | 146.467783 | 100.04           | 3.90                | 103.94          |
| 3      | -38.253965 | 146.479585 | 100.04           | 3.90                | 103.94          |
| 4      | -38.251269 | 146.480100 | 100.04           | 3.90                | 103.94          |

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**Name:** PV array 13  
**Description:** Ground Max 84\_194  
**Footprint area:** 197,878 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.233873 | 146.481715 | 84.19            | 3.90                | 88.09           |
| 2      | -38.233738 | 146.479483 | 84.19            | 3.90                | 88.09           |
| 3      | -38.234817 | 146.479312 | 84.19            | 3.90                | 88.09           |
| 4      | -38.236840 | 146.479784 | 84.19            | 3.90                | 88.09           |
| 5      | -38.237952 | 146.479440 | 84.19            | 3.90                | 88.09           |
| 6      | -38.238693 | 146.479655 | 84.19            | 3.90                | 88.09           |
| 7      | -38.239502 | 146.485406 | 84.19            | 3.90                | 88.09           |
| 8      | -38.238795 | 146.485792 | 84.19            | 3.90                | 88.09           |
| 9      | -38.237042 | 146.483346 | 84.19            | 3.90                | 88.09           |

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**Name:** PV array 14  
**Description:** Ground Max 89\_179  
**Footprint area:** 460,156 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.233941 | 146.483947 | 89.18            | 3.90                | 93.08           |
| 2      | -38.235222 | 146.493645 | 89.18            | 3.90                | 93.08           |
| 3      | -38.240750 | 146.492444 | 89.18            | 3.90                | 93.08           |
| 4      | -38.239570 | 146.485449 | 89.18            | 3.90                | 93.08           |
| 5      | -38.238727 | 146.485749 | 89.18            | 3.90                | 93.08           |
| 6      | -38.236873 | 146.484333 | 89.18            | 3.90                | 93.08           |
| 7      | -38.235525 | 146.483861 | 89.18            | 3.90                | 93.08           |
| 8      | -38.234547 | 146.483560 | 89.18            | 3.90                | 93.08           |



**Name:** PV array 15  
**Description:** Ground Max 95\_467  
**Footprint area:** 631,952 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.238716 | 146.479651 | 95.47            | 3.90                | 99.37           |
| 2      | -38.239541 | 146.480252 | 95.47            | 3.90                | 99.37           |
| 3      | -38.240637 | 146.479287 | 95.47            | 3.90                | 99.37           |
| 4      | -38.244412 | 146.478750 | 95.47            | 3.90                | 99.37           |
| 5      | -38.245204 | 146.491238 | 95.47            | 3.90                | 99.37           |
| 6      | -38.240738 | 146.492397 | 95.47            | 3.90                | 99.37           |



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**Name:** PV array 16  
**Description:** Ground Max 104\_141  
**Footprint area:** 664,065 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.245259 | 146.491299 | 104.14           | 3.90                | 108.04          |
| 2      | -38.244467 | 146.478767 | 104.14           | 3.90                | 108.04          |
| 3      | -38.245765 | 146.480698 | 104.14           | 3.90                | 108.04          |
| 4      | -38.246624 | 146.480677 | 104.14           | 3.90                | 108.04          |
| 5      | -38.247652 | 146.479905 | 104.14           | 3.90                | 108.04          |
| 6      | -38.251949 | 146.481879 | 104.14           | 3.90                | 108.04          |
| 7      | -38.252017 | 146.486857 | 104.14           | 3.90                | 108.04          |
| 8      | -38.250433 | 146.490161 | 104.14           | 3.90                | 108.04          |



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**Name:** PV array 2  
**Description:** Ground Max 78\_47  
**Footprint area:** 277,401 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.213410 | 146.497896 | 78.47            | 3.90                | 82.37           |
| 2      | -38.212736 | 146.489613 | 78.47            | 3.90                | 82.37           |
| 3      | -38.216951 | 146.490686 | 78.47            | 3.90                | 82.37           |
| 4      | -38.216816 | 146.497424 | 78.47            | 3.90                | 82.37           |

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**Name:** PV array 3  
**Description:** Ground Max 80\_544  
**Footprint area:** 233,124 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.216816 | 146.497510 | 80.54            | 3.90                | 84.44           |
| 2      | -38.220558 | 146.496608 | 80.54            | 3.90                | 84.44           |
| 3      | -38.220862 | 146.490858 | 80.54            | 3.90                | 84.44           |
| 4      | -38.216951 | 146.490686 | 80.54            | 3.90                | 84.44           |

## ADVERTISED PLAN

**Name:** PV array 4  
**Description:** Ground Max 76\_493  
**Footprint area:** 1,289,644 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.213511 | 146.485665 | 76.49            | 3.90                | 80.39           |
| 2      | -38.216243 | 146.486867 | 76.49            | 3.90                | 80.39           |
| 3      | -38.217962 | 146.488283 | 76.49            | 3.90                | 80.39           |
| 4      | -38.219277 | 146.488111 | 76.49            | 3.90                | 80.39           |
| 5      | -38.220120 | 146.488626 | 76.49            | 3.90                | 80.39           |
| 6      | -38.221738 | 146.488712 | 76.49            | 3.90                | 80.39           |
| 7      | -38.222581 | 146.489570 | 76.49            | 3.90                | 80.39           |
| 8      | -38.222682 | 146.490600 | 76.49            | 3.90                | 80.39           |
| 9      | -38.223559 | 146.490815 | 76.49            | 3.90                | 80.39           |
| 10     | -38.225144 | 146.489656 | 76.49            | 3.90                | 80.39           |
| 11     | -38.227268 | 146.489012 | 76.49            | 3.90                | 80.39           |
| 12     | -38.228211 | 146.490171 | 76.49            | 3.90                | 80.39           |
| 13     | -38.226863 | 146.479056 | 76.49            | 3.90                | 80.39           |
| 14     | -38.224301 | 146.478455 | 76.49            | 3.90                | 80.39           |
| 15     | -38.222750 | 146.477339 | 76.49            | 3.90                | 80.39           |
| 16     | -38.222143 | 146.475666 | 76.49            | 3.90                | 80.39           |
| 17     | -38.219716 | 146.475966 | 76.49            | 3.90                | 80.39           |

**Name:** PV array 5  
**Description:** Ground Max 82\_567  
**Footprint area:** 201,837 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.227335 | 146.481931 | 82.57            | 3.90                | 86.47           |
| 2      | -38.232594 | 146.480773 | 82.57            | 3.90                | 86.47           |
| 3      | -38.232358 | 146.478756 | 82.57            | 3.90                | 86.47           |
| 4      | -38.230605 | 146.477168 | 82.57            | 3.90                | 86.47           |
| 5      | -38.229391 | 146.477039 | 82.57            | 3.90                | 86.47           |
| 6      | -38.227470 | 146.47726  | 82.57            | 3.90                | 86.47           |
| 7      | -38.226762 | 146.478241 | 82.57            | 3.90                | 86.47           |



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**Name:** PV array 6  
**Description:** Ground Max 77\_468  
**Footprint area:** 606,570 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.228854 | 146.462419 | 77.47            | 3.90                | 81.37           |
| 2      | -38.222280 | 146.472719 | 77.47            | 3.90                | 81.37           |
| 3      | -38.223325 | 146.473706 | 77.47            | 3.90                | 81.37           |
| 4      | -38.223190 | 146.475079 | 77.47            | 3.90                | 81.37           |
| 5      | -38.224808 | 146.476838 | 77.47            | 3.90                | 81.37           |
| 6      | -38.226089 | 146.477268 | 77.47            | 3.90                | 81.37           |
| 7      | -38.226629 | 146.477139 | 77.47            | 3.90                | 81.37           |
| 8      | -38.226898 | 146.476409 | 77.47            | 3.90                | 81.37           |
| 9      | -38.229899 | 146.475808 | 77.47            | 3.90                | 81.37           |



**Name:** PV array 7  
**Description:** Ground Max 77\_511  
**Footprint area:** 509,280 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.228887 | 146.462419 | 77.51            | 3.90                | 81.41           |
| 2      | -38.231584 | 146.458342 | 77.51            | 3.90                | 81.41           |
| 3      | -38.235832 | 146.457527 | 77.51            | 3.90                | 81.41           |
| 4      | -38.231079 | 146.465638 | 77.51            | 3.90                | 81.41           |
| 5      | -38.232730 | 146.477997 | 77.51            | 3.90                | 81.41           |
| 6      | -38.229966 | 146.475851 | 77.51            | 3.90                | 81.41           |



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**Name:** PV array 8  
**Description:** Ground Max 76\_031  
**Footprint area:** 153,895 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.238023 | 146.455166 | 76.03            | 3.90                | 79.93           |
| 2      | -38.240214 | 146.451175 | 76.03            | 3.90                | 79.93           |
| 3      | -38.241360 | 146.450918 | 76.03            | 3.90                | 79.93           |
| 4      | -38.241966 | 146.457140 | 76.03            | 3.90                | 79.93           |
| 5      | -38.239270 | 146.456883 | 76.03            | 3.90                | 79.93           |



**Name:** PV array 9  
**Description:** Ground Max 84\_708  
**Footprint area:** 1,755,661 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.233539 | 146.478126 | 84.71            | 3.90                | 88.61           |
| 2      | -38.231989 | 146.466324 | 84.71            | 3.90                | 88.61           |
| 3      | -38.236877 | 146.457913 | 84.71            | 3.90                | 88.61           |
| 4      | -38.242000 | 146.457956 | 84.71            | 3.90                | 88.61           |
| 5      | -38.243787 | 146.473362 | 84.71            | 3.90                | 88.61           |
| 6      | -38.238832 | 146.477396 | 84.71            | 3.90                | 88.61           |
| 7      | -38.236843 | 146.478169 | 84.71            | 3.90                | 88.61           |



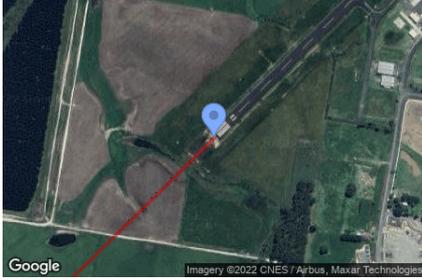
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### 2-Mile Flight Path Receptor(s)

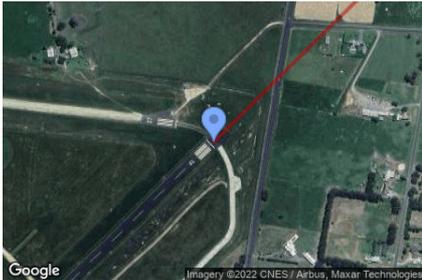
**Name:** FP 1  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 45.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.215525      | 146.465053       | 51.19                    | 15.24                       | 66.43                   |
| 2-mile<br>point | -38.235919      | 146.438938       | 66.15                    | 168.97                      | 235.11                  |



**Name:** FP 2  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 225.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

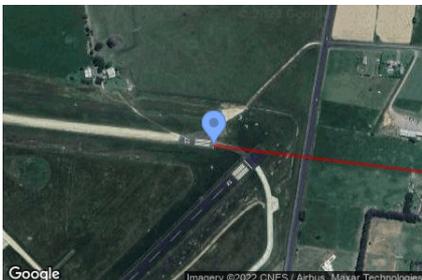
| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.206436      | 146.476628       | 57.79                    | 15.24                       | 73.03                   |
| 2-mile<br>point | -38.186038      | 146.502735       | 52.47                    | 189.25                      | 241.72                  |



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**Name:** FP 3  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 277.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

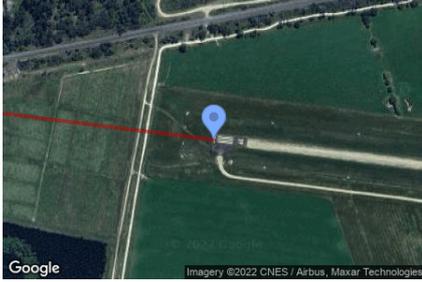
| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.206142      | 146.475786       | 55.28                    | 15.24                       | 70.52                   |
| 2-mile<br>point | -38.209736      | 146.512338       | 69.94                    | 169.27                      | 239.20                  |



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**Name:** FP 4  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 97.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.205111      | 146.465369       | 50.98                    | 15.24                       | 66.22                   |
| 2-mile<br>point | -38.201512      | 146.428819       | 94.82                    | 140.09                      | 234.91                  |



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# Summary of PV Glare Analysis

*PV configuration and total predicted glare*

| PV Name     | Tilt        | Orientation | "Green" Glare | "Yellow" Glare | Energy Produced | Data File |
|-------------|-------------|-------------|---------------|----------------|-----------------|-----------|
|             | deg         | deg         | min           | min            | kWh             |           |
| PV array 1  | SA tracking | SA tracking | 2,361         | 1,848          | -               | -         |
| PV array 10 | SA tracking | SA tracking | 0             | 0              | -               | -         |
| PV array 11 | SA tracking | SA tracking | 26            | 0              | -               | -         |
| PV array 12 | SA tracking | SA tracking | 0             | 0              | -               | -         |
| PV array 13 | SA tracking | SA tracking | 418           | 0              | -               | -         |
| PV array 14 | SA tracking | SA tracking | 352           | 14             | -               | -         |
| PV array 15 | SA tracking | SA tracking | 164           | 0              | -               | -         |
| PV array 16 | SA tracking | SA tracking | 0             | 0              | -               | -         |
| PV array 2  | SA tracking | SA tracking | 2,326         | 1,371          | -               | -         |
| PV array 3  | SA tracking | SA tracking | 2,432         | 172            | -               | -         |
| PV array 4  | SA tracking | SA tracking | 1,653         | 2,402          | -               | -         |
| PV array 5  | SA tracking | SA tracking | 1,030         | 28             | -               | -         |
| PV array 6  | SA tracking | SA tracking | 1,472         | 1,324          | -               | -         |
| PV array 7  | SA tracking | SA tracking | 982           | 1,068          | -               | -         |
| PV array 8  | SA tracking | SA tracking | 178           | 0              | -               | -         |
| PV array 9  | SA tracking | SA tracking | 517           | 521            | -               | -         |

## Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

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| PV                   | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| pv-array-1 (green)   | 181 | 309 | 185 | 106 | 198 | 199 | 214 | 158 | 52  | 370 | 200 | 189 |
| pv-array-1 (yellow)  | 445 | 286 | 29  | 0   | 0   | 0   | 0   | 0   | 0   | 216 | 401 | 471 |
| pv-array-11 (green)  | 0   | 0   | 12  | 0   | 0   | 0   | 0   | 0   | 0   | 14  | 0   | 0   |
| pv-array-11 (yellow) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-13 (green)  | 0   | 0   | 192 | 15  | 0   | 0   | 0   | 0   | 153 | 58  | 0   | 0   |
| pv-array-13 (yellow) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-14 (green)  | 0   | 0   | 169 | 6   | 0   | 0   | 0   | 0   | 132 | 45  | 0   | 0   |
| pv-array-14 (yellow) | 0   | 0   | 7   | 0   | 0   | 0   | 0   | 0   | 0   | 7   | 0   | 0   |
| pv-array-15 (green)  | 0   | 0   | 81  | 0   | 0   | 0   | 0   | 0   | 28  | 55  | 0   | 0   |
| pv-array-15 (yellow) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-2 (green)   | 218 | 336 | 77  | 147 | 212 | 195 | 213 | 176 | 61  | 316 | 240 | 135 |
| pv-array-2 (yellow)  | 377 | 170 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 82  | 344 | 398 |
| pv-array-3 (green)   | 502 | 164 | 91  | 173 | 162 | 0   | 81  | 192 | 137 | 86  | 443 | 401 |
| pv-array-3 (yellow)  | 23  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 149 |
| pv-array-4 (green)   | 158 | 298 | 60  | 15  | 117 | 221 | 195 | 21  | 14  | 277 | 201 | 76  |
| pv-array-4 (yellow)  | 406 | 130 | 160 | 203 | 127 | 0   | 48  | 213 | 185 | 96  | 334 | 500 |
| pv-array-5 (green)   | 26  | 0   | 172 | 209 | 0   | 0   | 0   | 136 | 209 | 43  | 0   | 235 |
| pv-array-5 (yellow)  | 0   | 0   | 15  | 0   | 0   | 0   | 0   | 0   | 2   | 11  | 0   | 0   |
| pv-array-6 (green)   | 243 | 55  | 42  | 48  | 208 | 32  | 192 | 83  | 42  | 18  | 216 | 293 |
| pv-array-6 (yellow)  | 54  | 0   | 243 | 253 | 63  | 0   | 0   | 224 | 258 | 72  | 10  | 147 |
| pv-array-7 (green)   | 191 | 0   | 22  | 117 | 84  | 0   | 0   | 190 | 27  | 5   | 121 | 225 |
| pv-array-7 (yellow)  | 0   | 0   | 318 | 215 | 0   | 0   | 0   | 111 | 322 | 102 | 0   | 0   |
| pv-array-8 (green)   | 13  | 0   | 32  | 0   | 0   | 0   | 0   | 0   | 0   | 31  | 0   | 102 |
| pv-array-8 (yellow)  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-9 (green)   | 31  | 0   | 47  | 119 | 0   | 0   | 0   | 35  | 118 | 14  | 0   | 153 |
| pv-array-9 (yellow)  | 0   | 0   | 250 | 10  | 0   | 0   | 0   | 0   | 176 | 85  | 0   | 0   |

## PV & Receptor Analysis Results

Results for each PV array and receptor

### PV array 1 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 887               | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 1136              | 1848               |
| FP: FP 4  | 338               | 0                  |

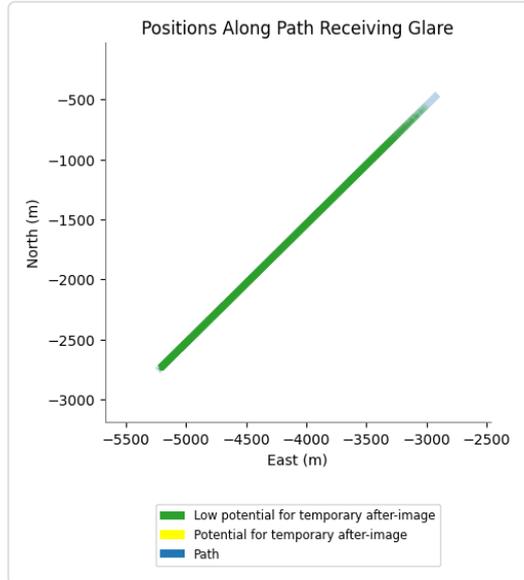
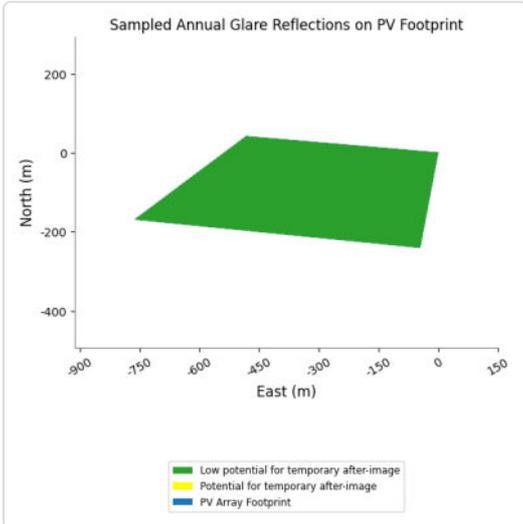
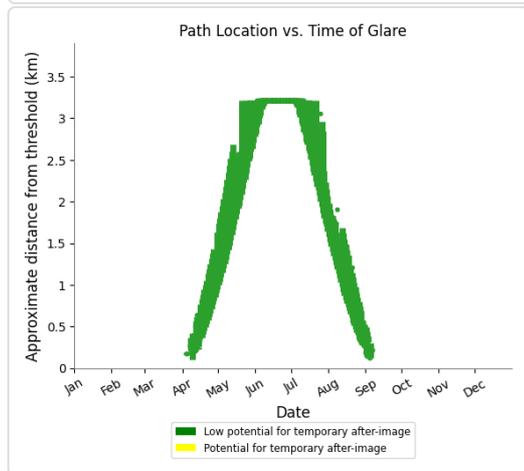
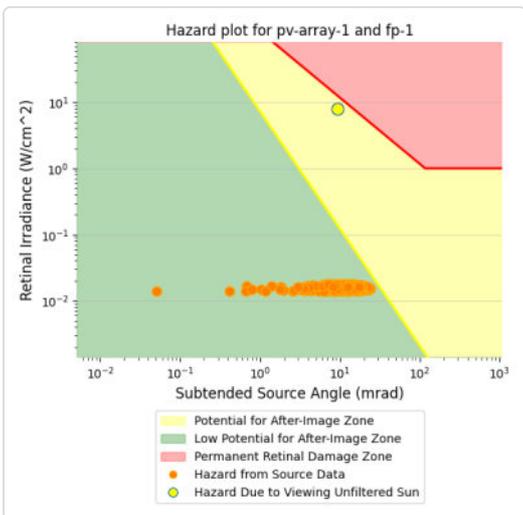
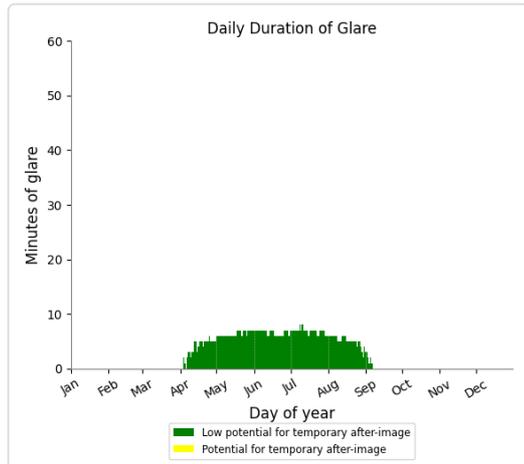
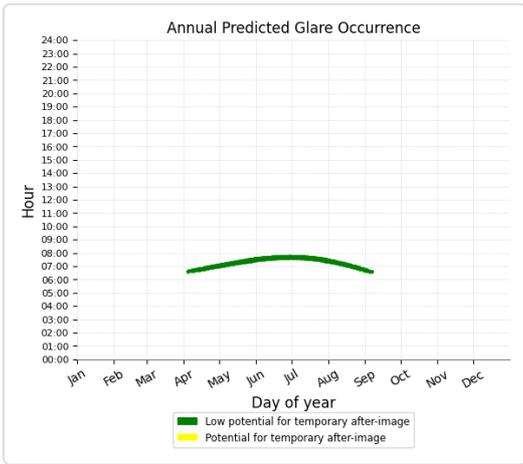
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### PV array 1 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 887 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 1 - Receptor (FP 2)

No glare found

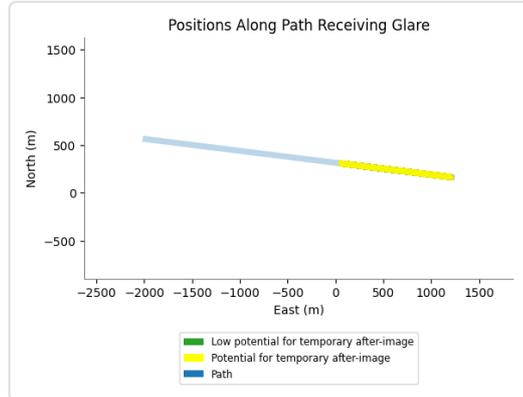
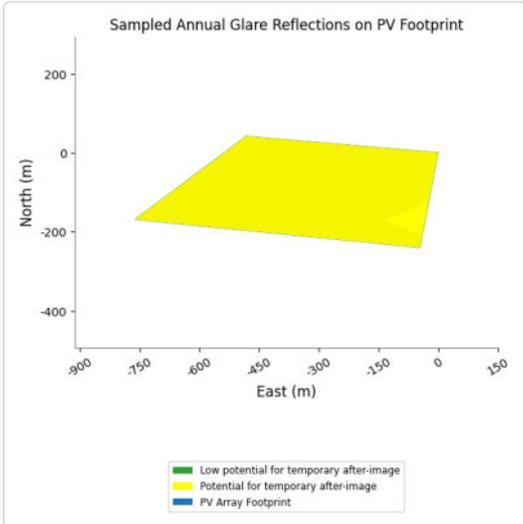
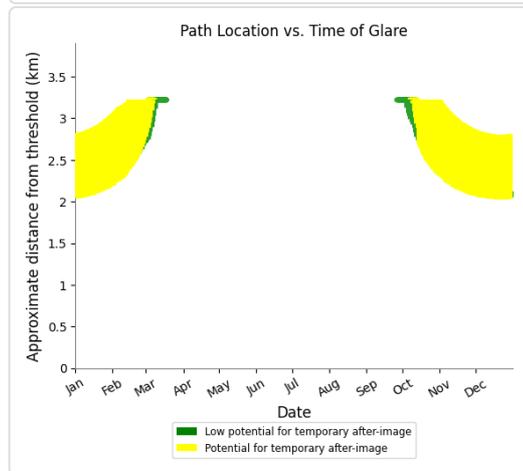
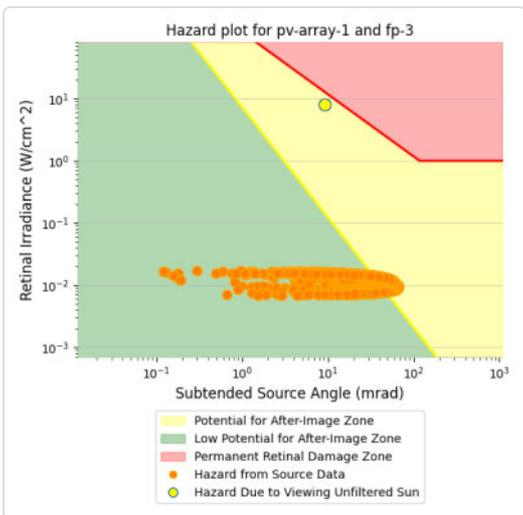
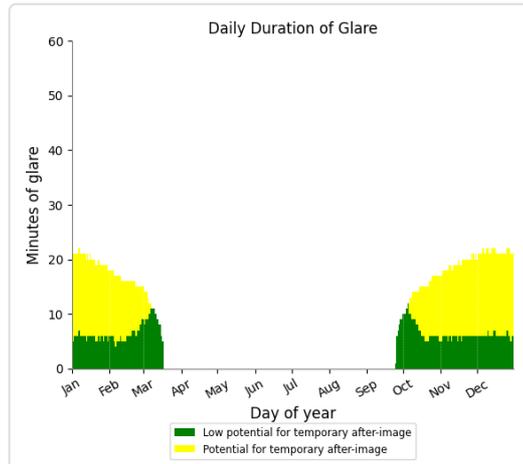
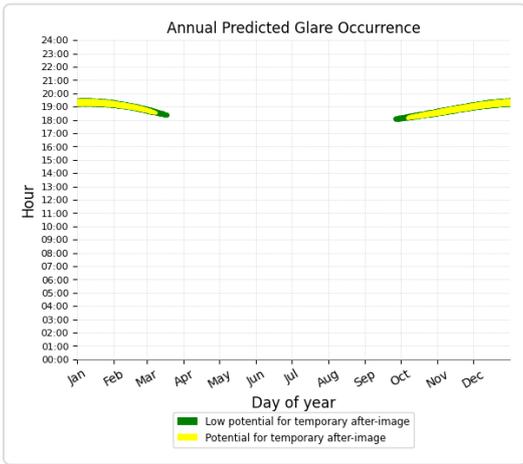
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### PV array 1 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 1,136 minutes of "green" glare with low potential to cause temporary after-image.
- 1,848 minutes of "yellow" glare with potential to cause temporary after-image.



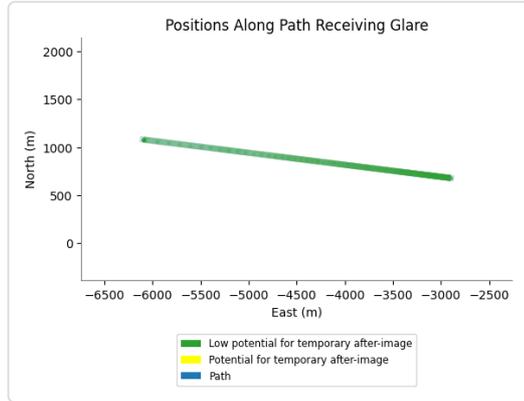
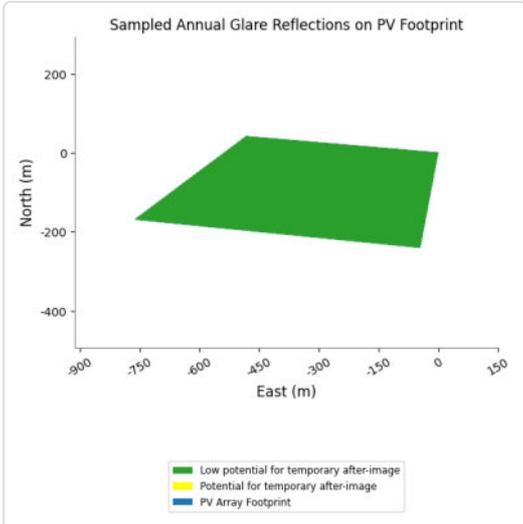
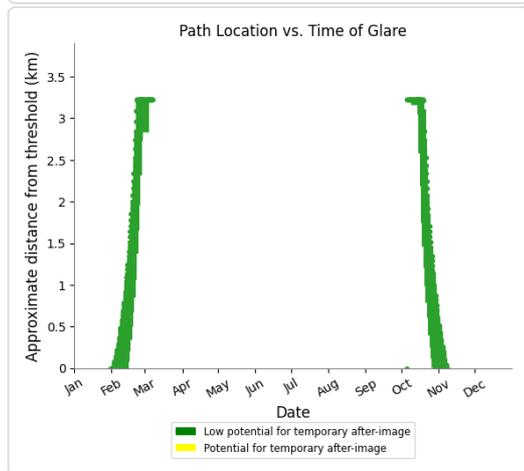
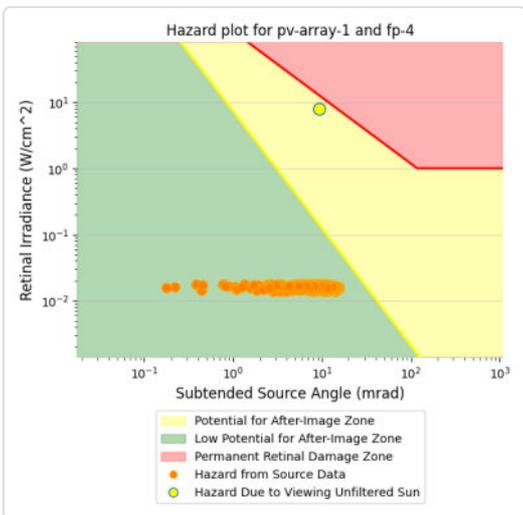
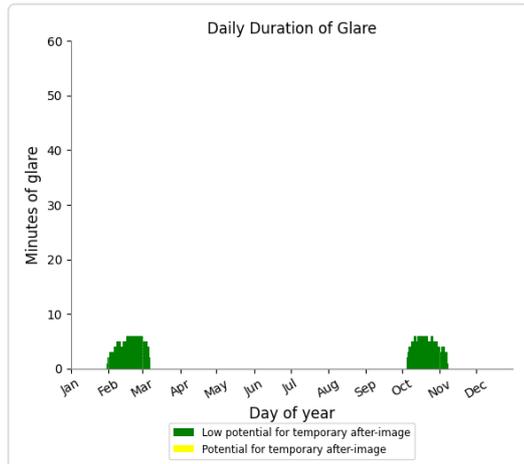
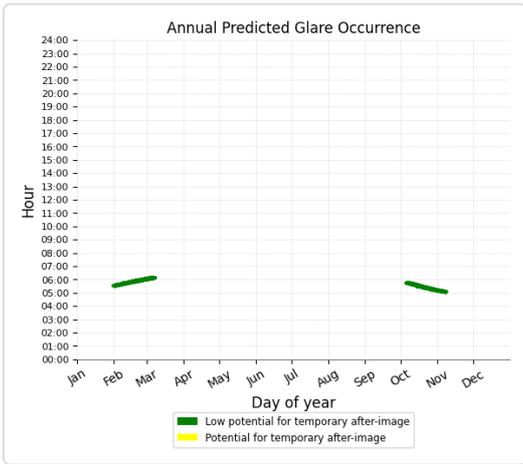
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### PV array 1 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 338 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



PV array 10 no glare found

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| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

No glare found

**PV array 11** low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 26                | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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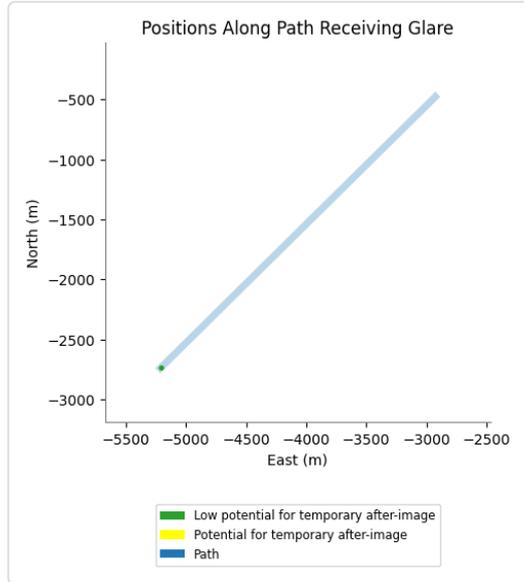
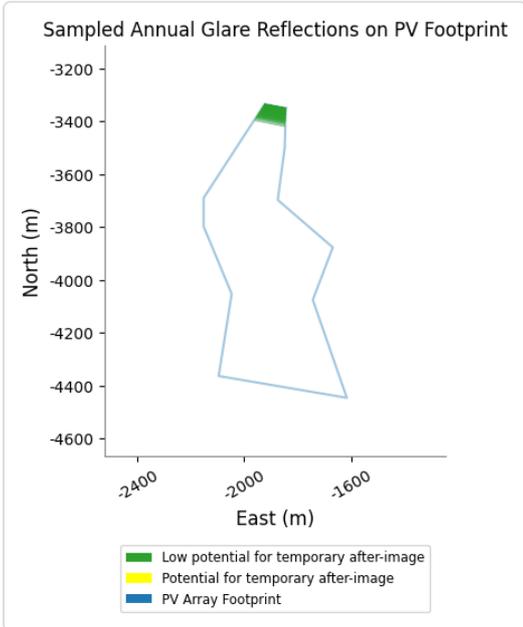
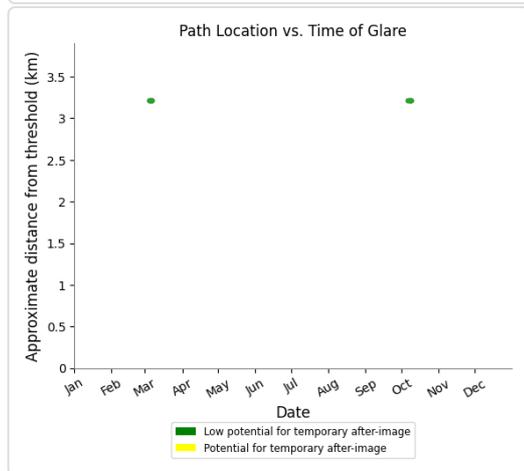
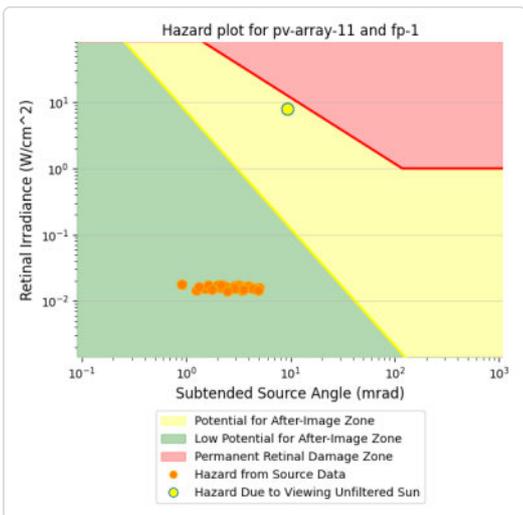
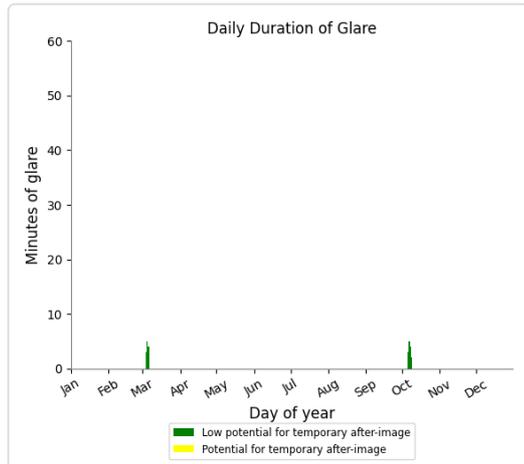
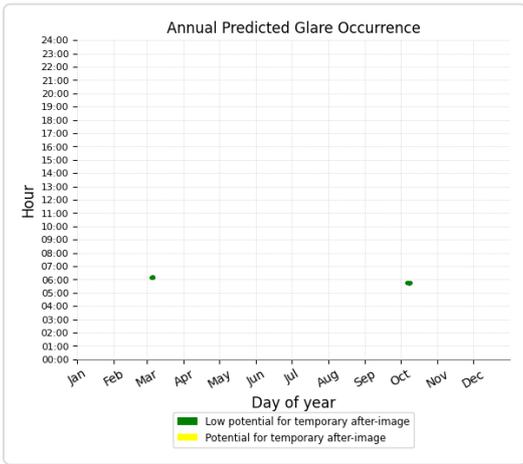
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**PV array 11 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 26 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 11 - Receptor (FP 2)**

No glare found

**PV array 11 - Receptor (FP 3)**

No glare found

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**PV array 11 - Receptor (FP 4)**

*No glare found*

**PV array 12** no glare found

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

*No glare found*

**PV array 13** low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 418               | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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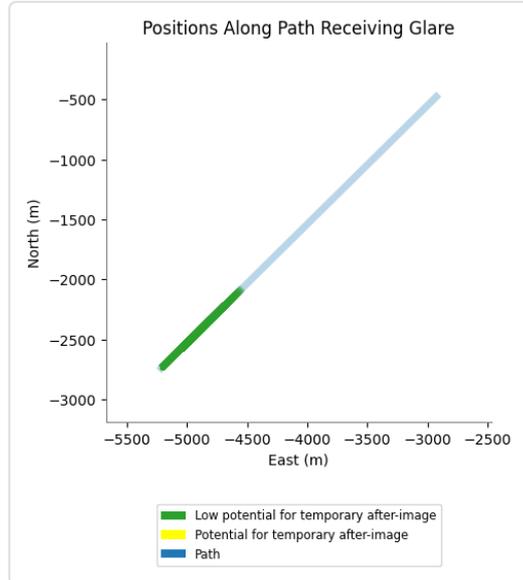
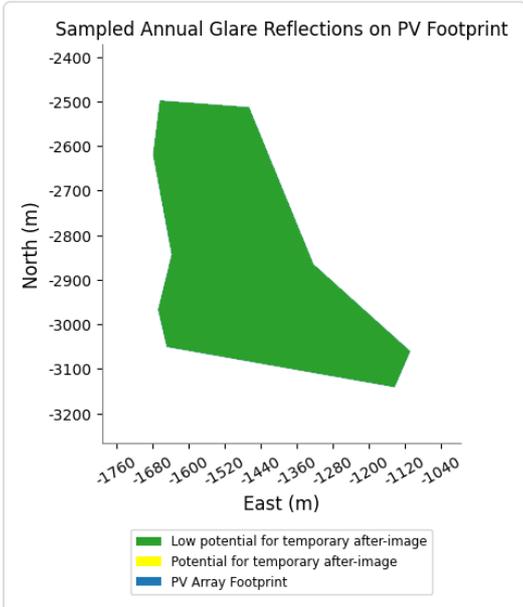
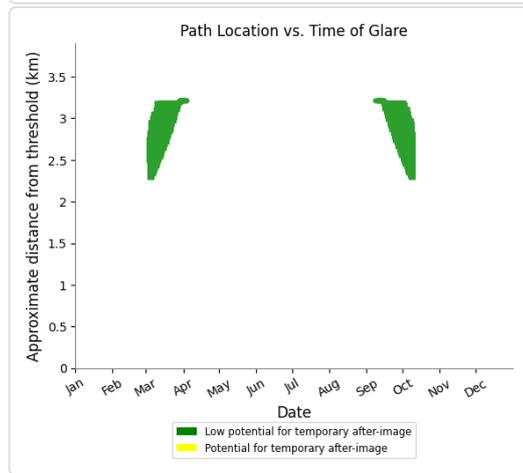
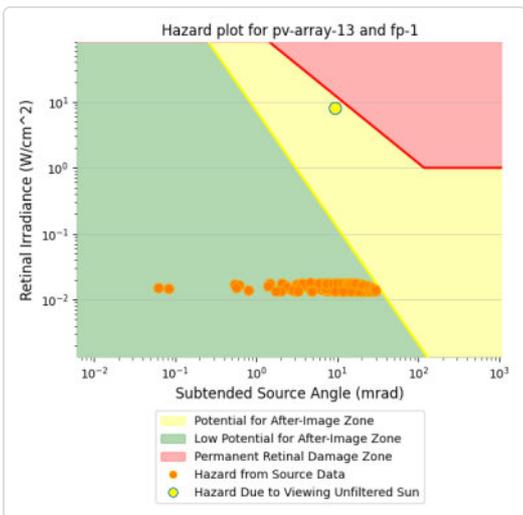
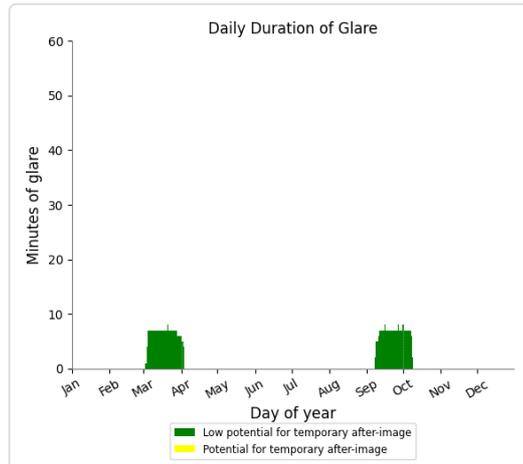
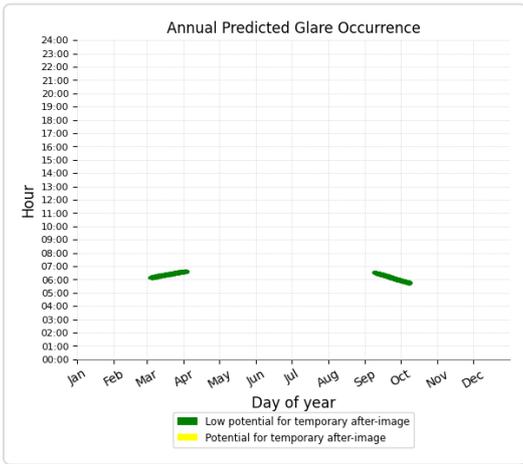
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**PV array 13 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 418 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 13 - Receptor (FP 2)**

No glare found

**PV array 13 - Receptor (FP 3)**

No glare found

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### PV array 13 - Receptor (FP 4)

*No glare found*

### PV array 14 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 352               | 14                 |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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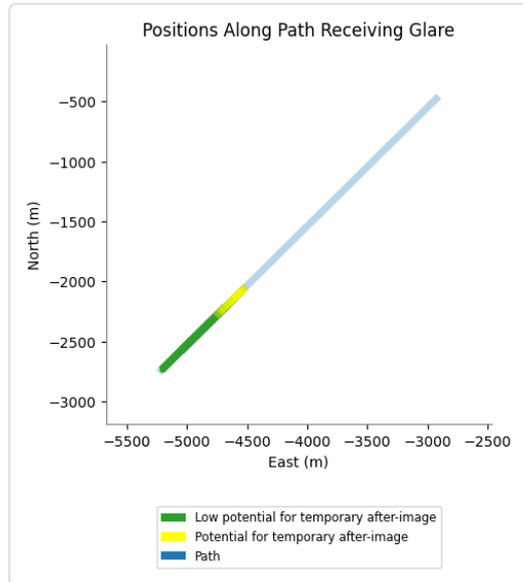
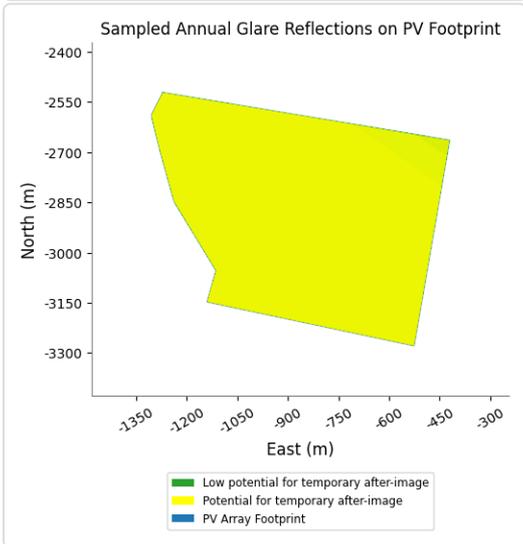
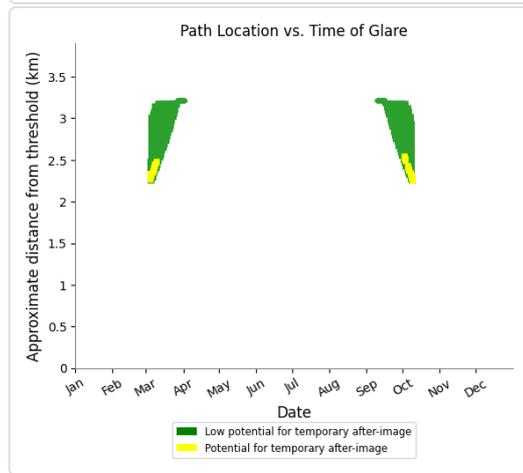
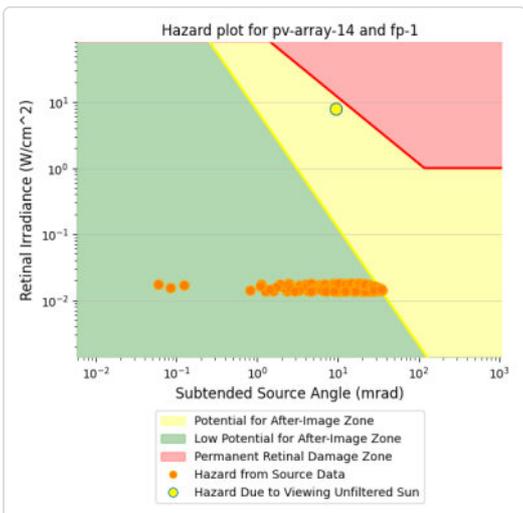
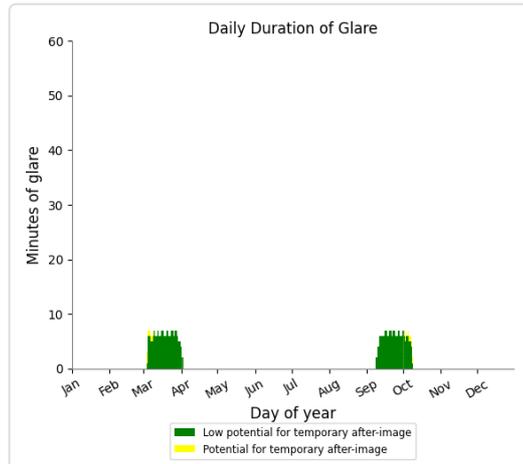
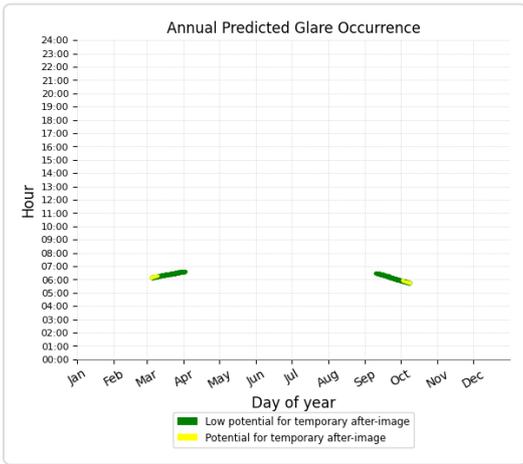
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**PV array 14 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 352 minutes of "green" glare with low potential to cause temporary after-image.
- 14 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 14 - Receptor (FP 2)**

No glare found

**PV array 14 - Receptor (FP 3)**

No glare found

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**PV array 14 - Receptor (FP 4)***No glare found***PV array 15** low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 164               | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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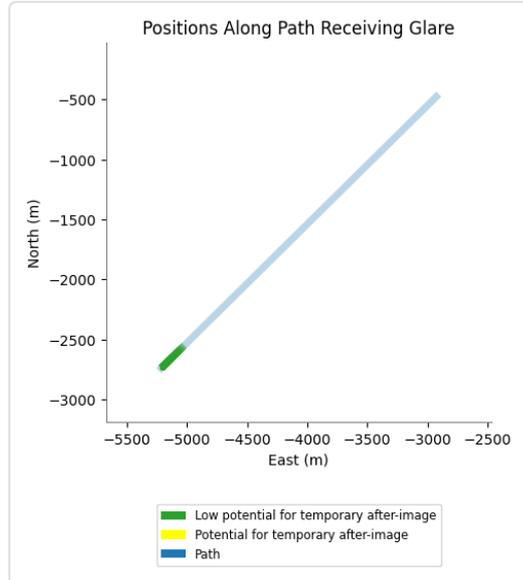
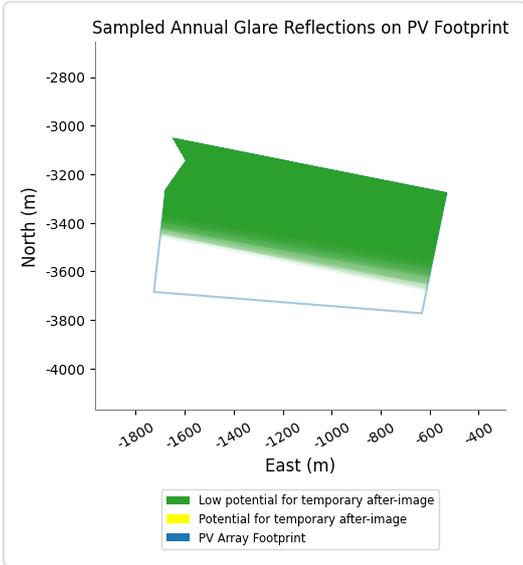
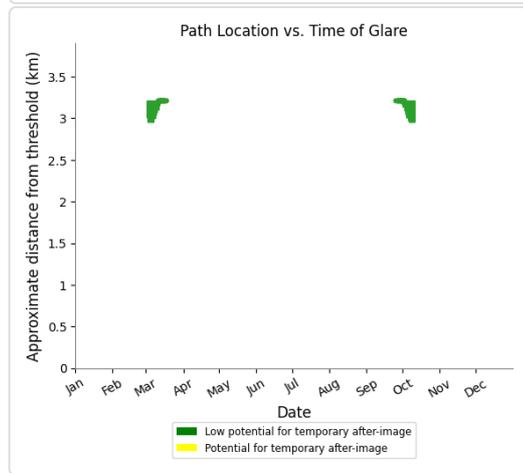
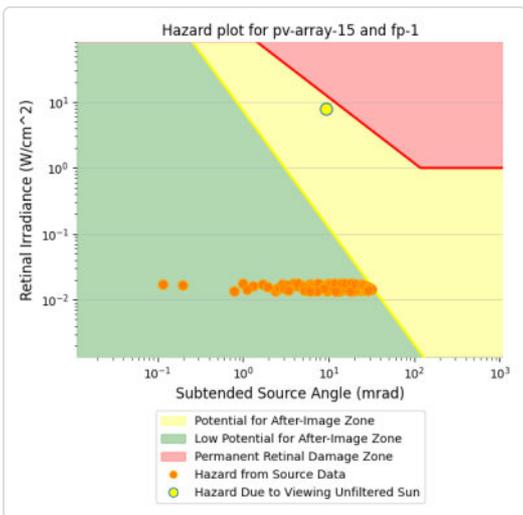
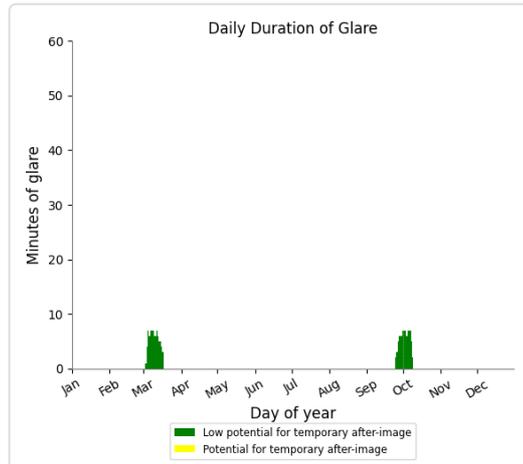
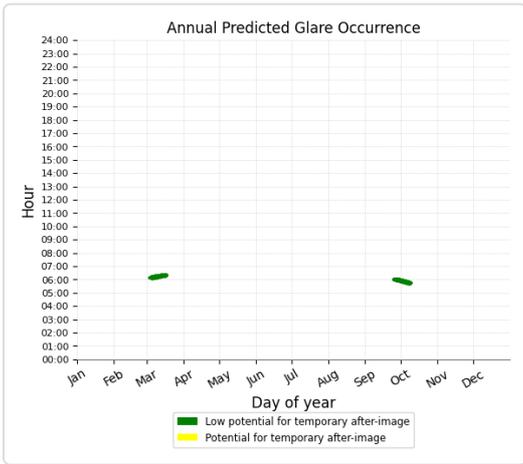
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**PV array 15 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 164 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 15 - Receptor (FP 2)**

No glare found

**PV array 15 - Receptor (FP 3)**

No glare found

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**PV array 15 - Receptor (FP 4)**

*No glare found*

**PV array 16** no glare found

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

*No glare found*

**PV array 2** potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 1022              | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 726               | 1371               |
| FP: FP 4  | 578               | 0                  |

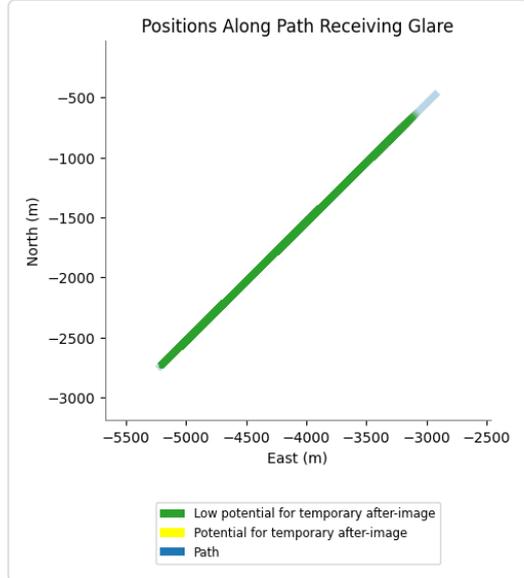
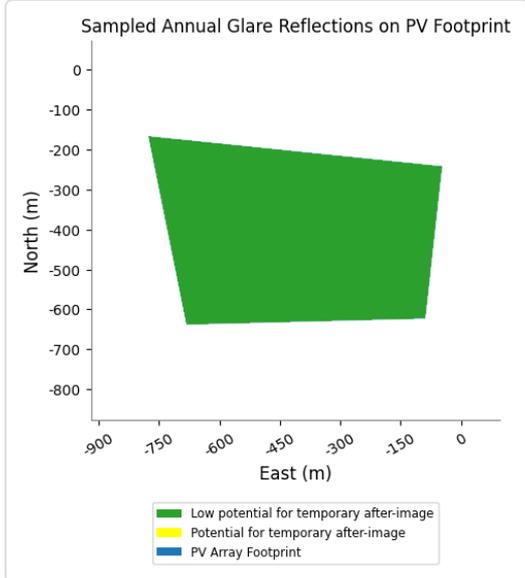
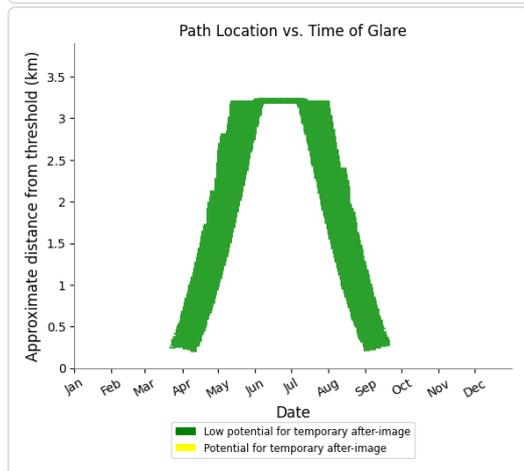
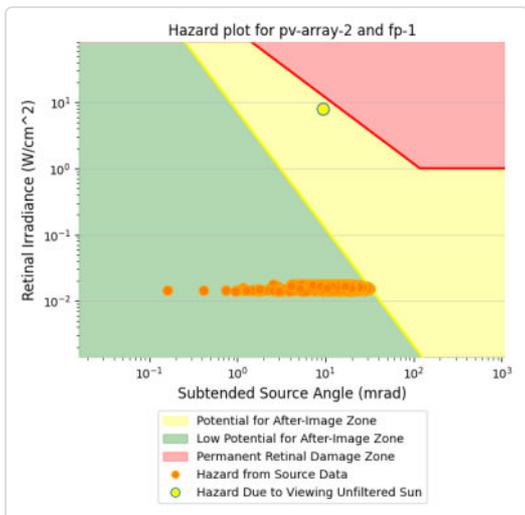
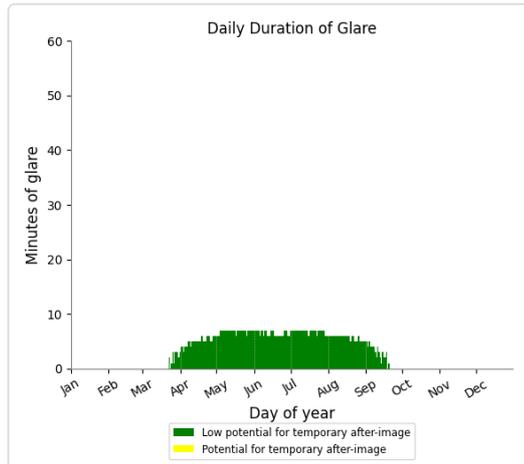
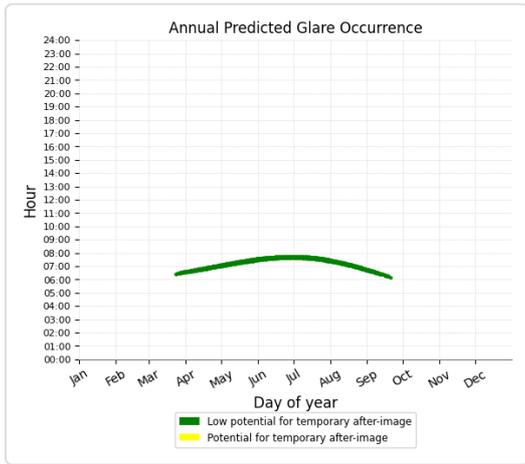
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### PV array 2 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 1,022 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 2 - Receptor (FP 2)

No glare found

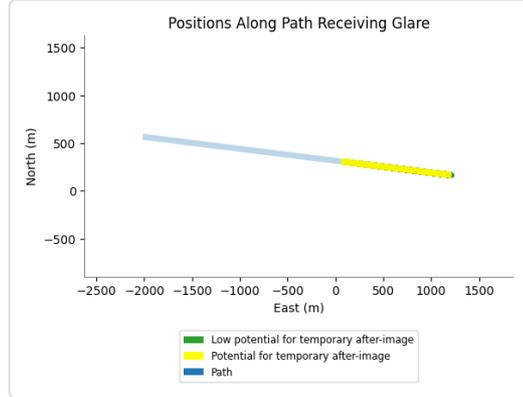
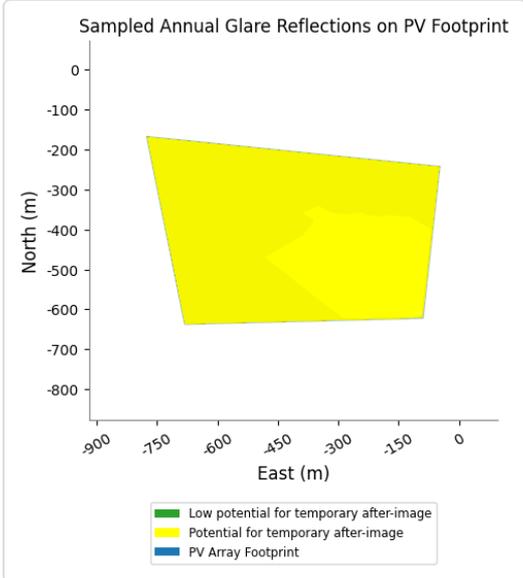
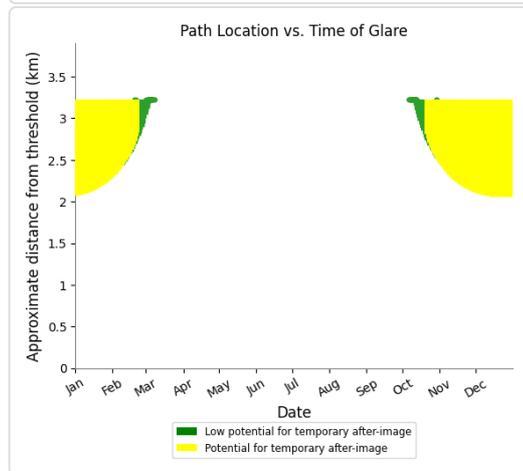
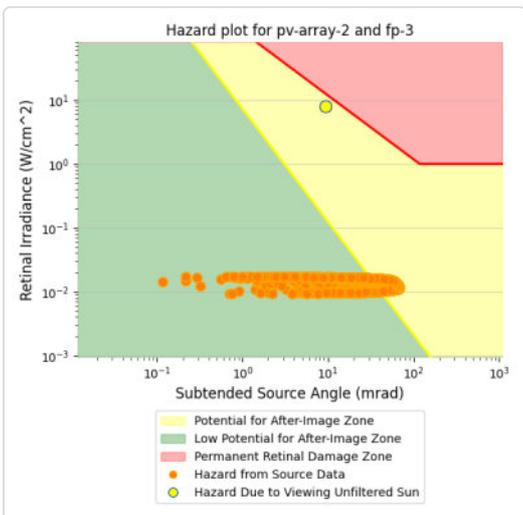
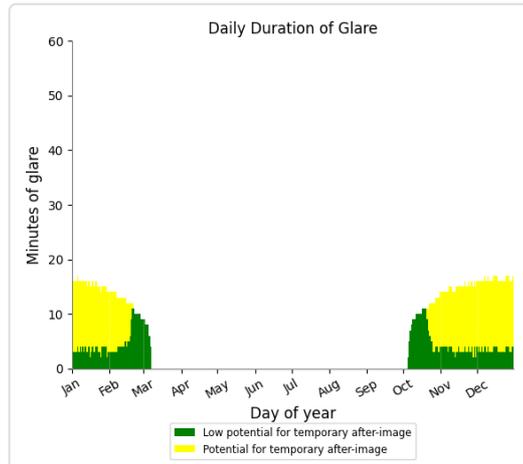
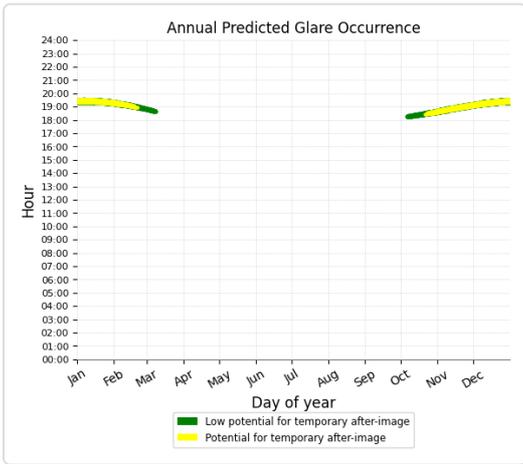
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### PV array 2 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 726 minutes of "green" glare with low potential to cause temporary after-image.
- 1,371 minutes of "yellow" glare with potential to cause temporary after-image.



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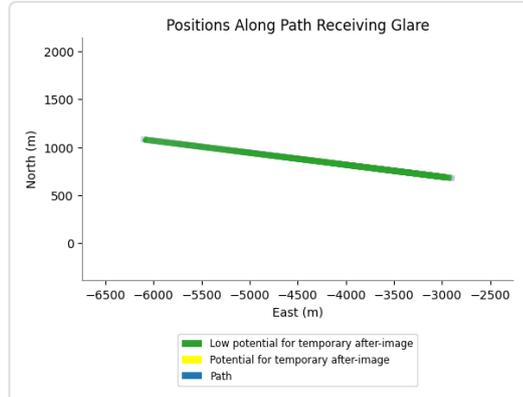
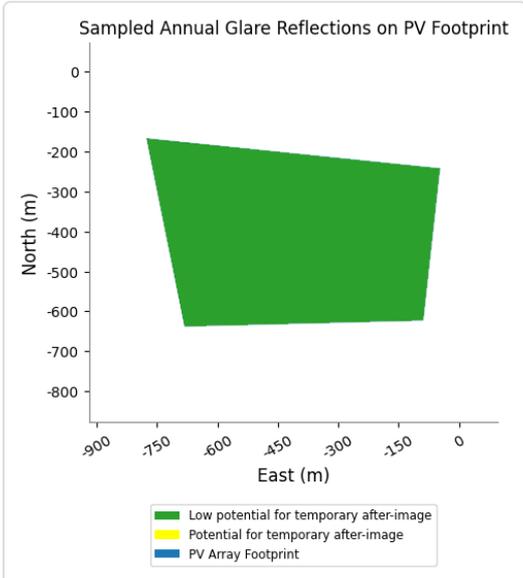
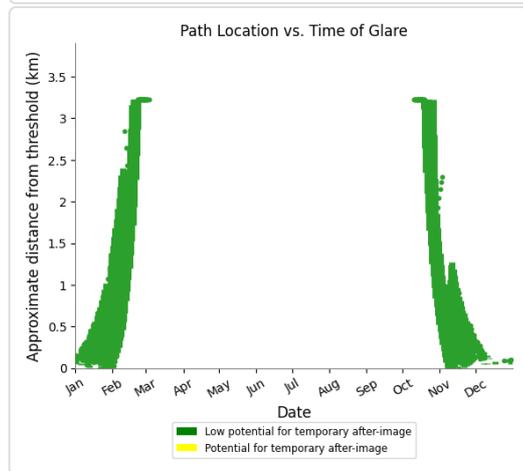
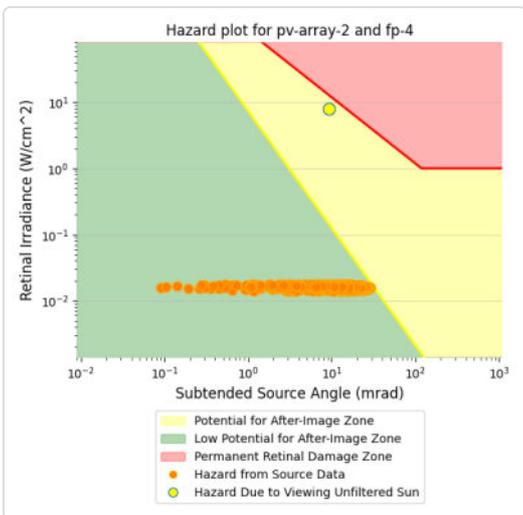
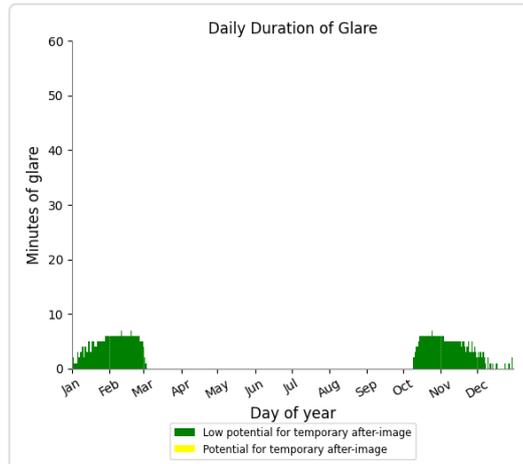
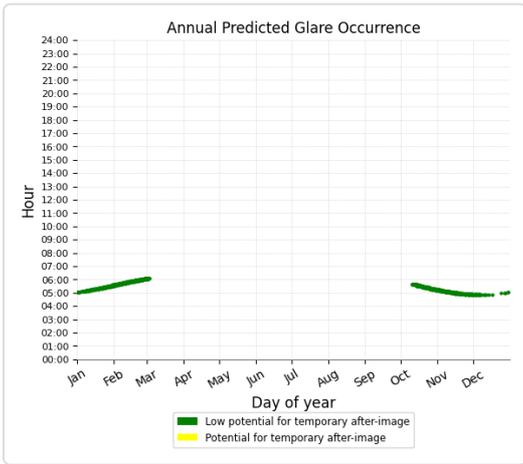
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### PV array 2 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 578 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 3 potential temporary after-image

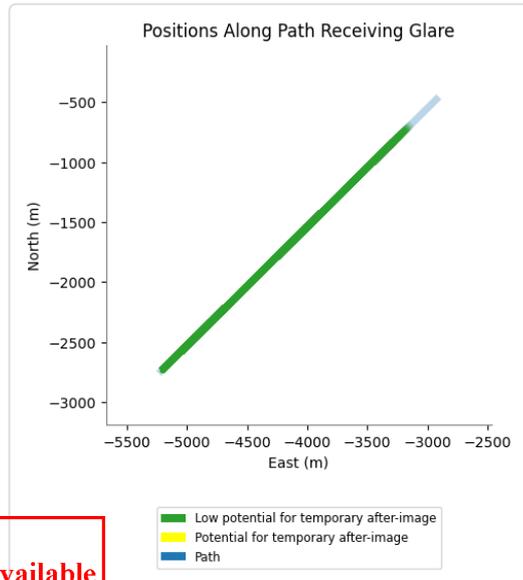
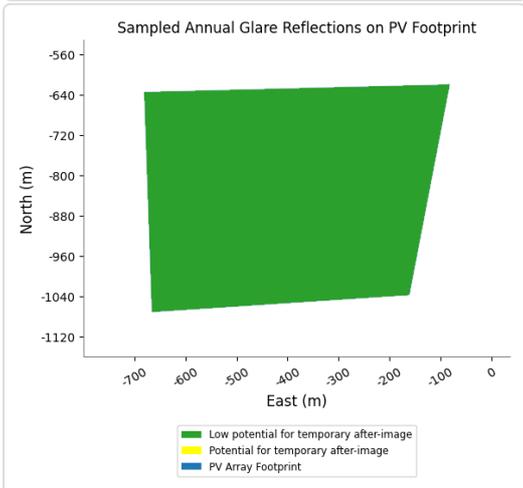
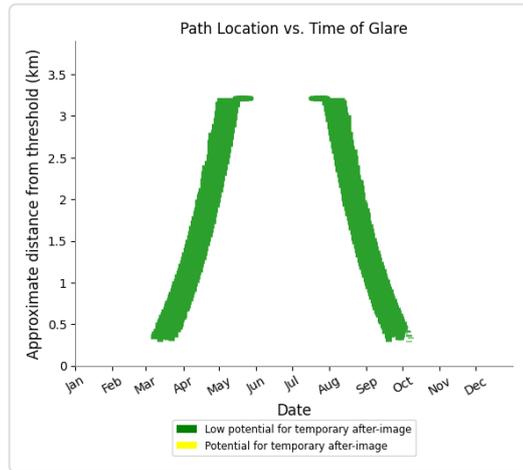
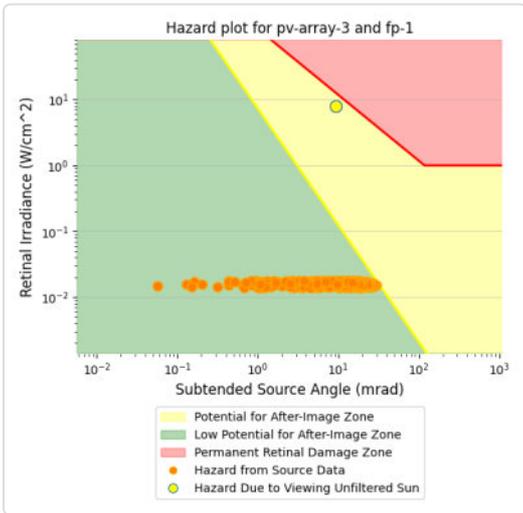
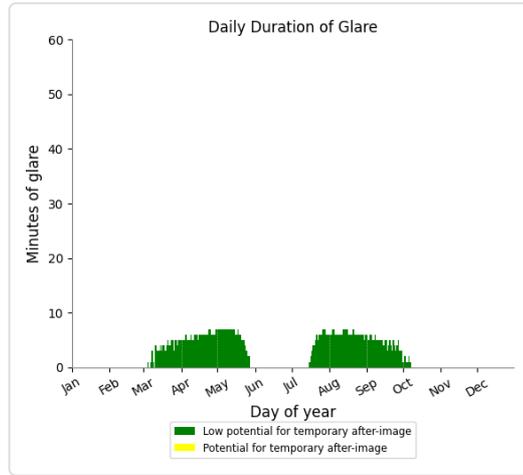
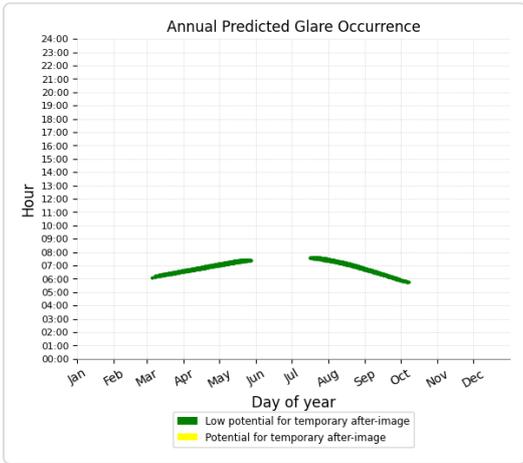
| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 846               | 0                  |
| FP: FP 2  | 0                 | 0                  |

|          |     |     |
|----------|-----|-----|
| FP: FP 3 | 873 | 172 |
| FP: FP 4 | 713 | 0   |

### PV array 3 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 846 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 3 - Receptor (FP 2)

No glare found

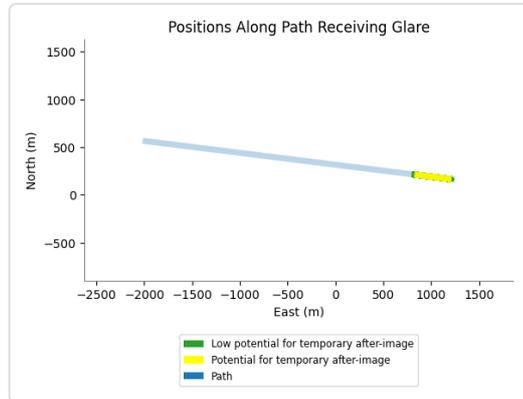
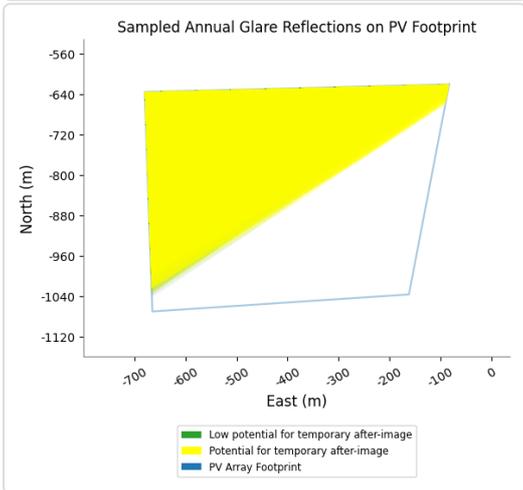
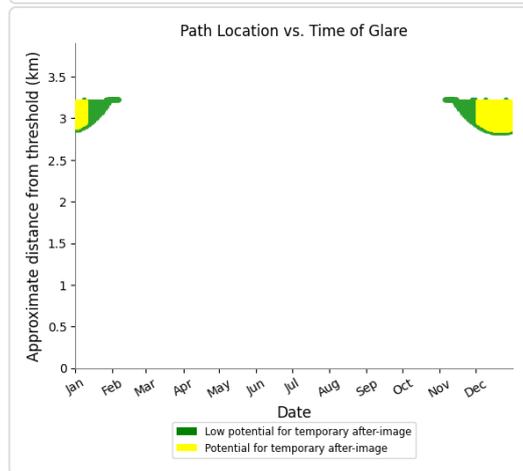
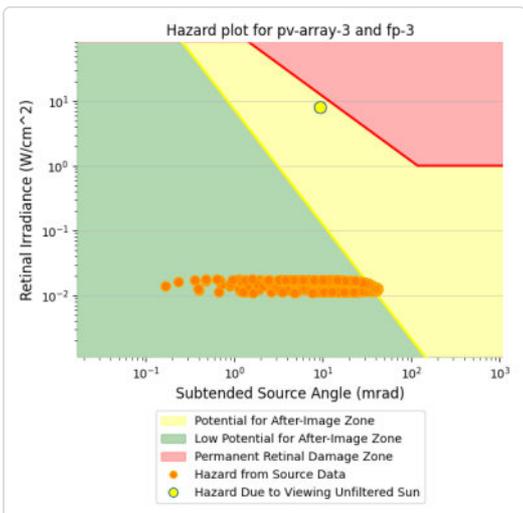
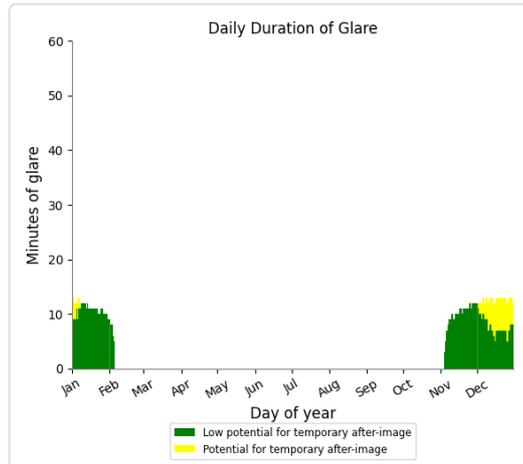
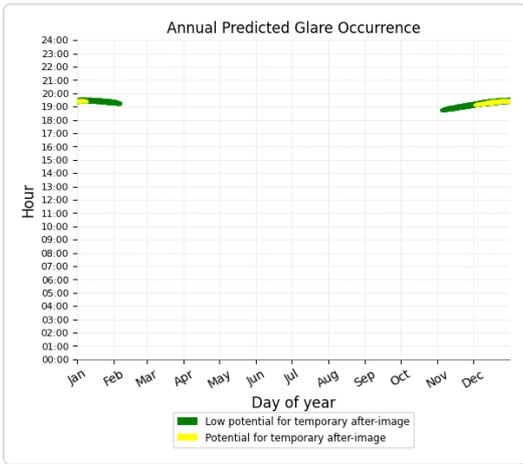
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### PV array 3 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 873 minutes of "green" glare with low potential to cause temporary after-image.
- 172 minutes of "yellow" glare with potential to cause temporary after-image.



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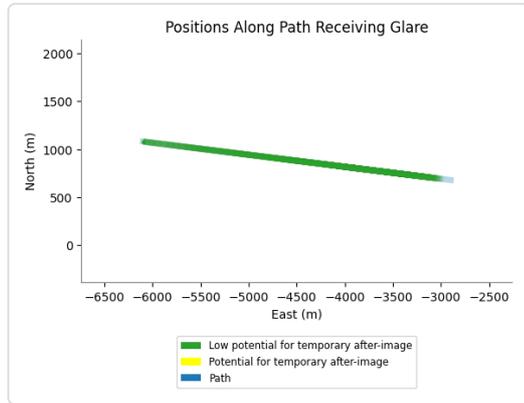
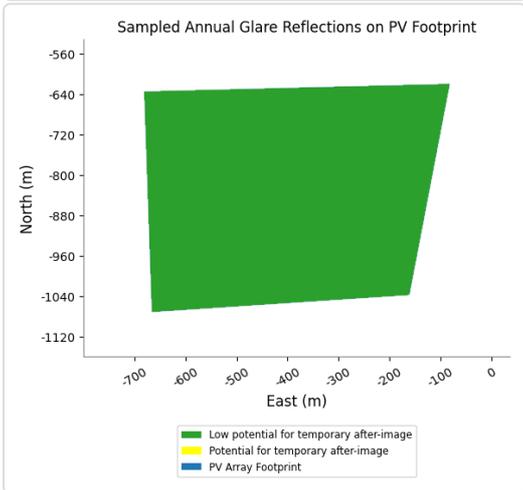
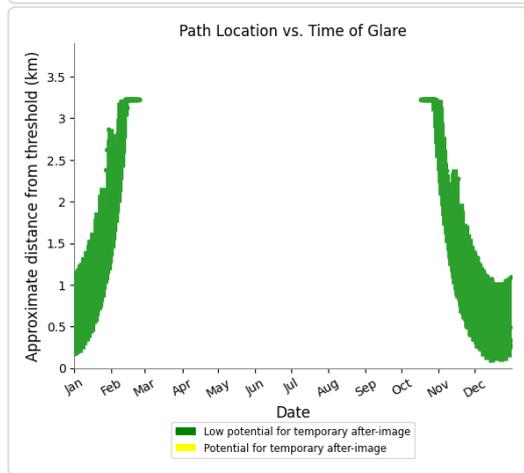
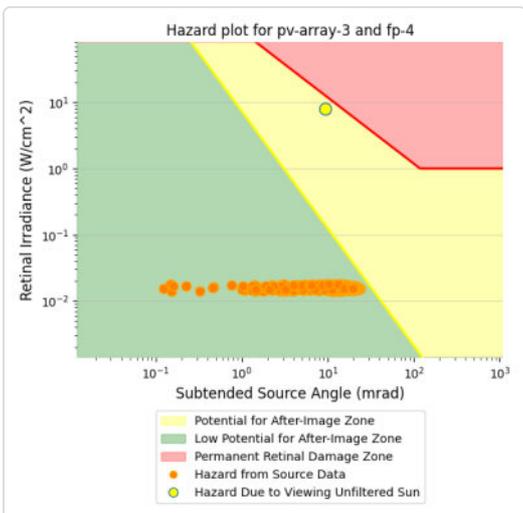
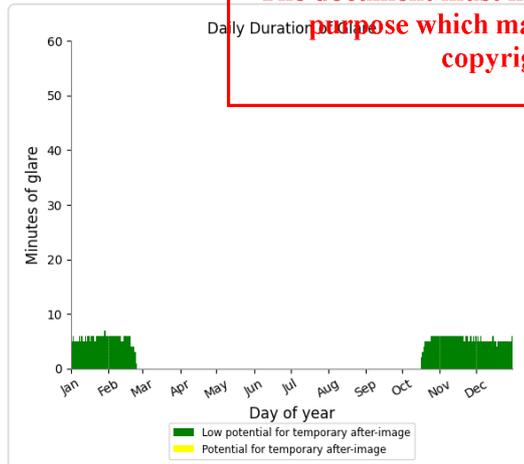
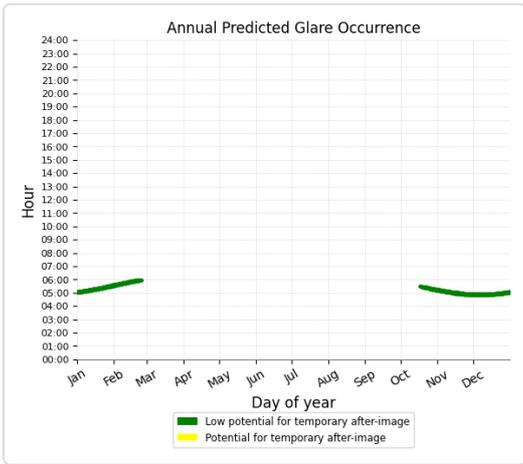
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### PV array 3 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 713 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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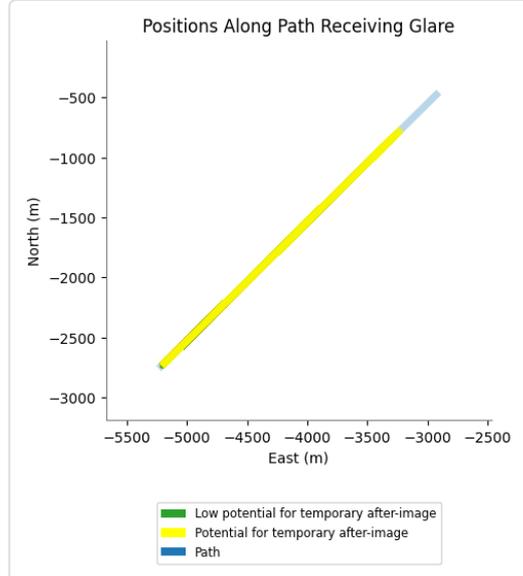
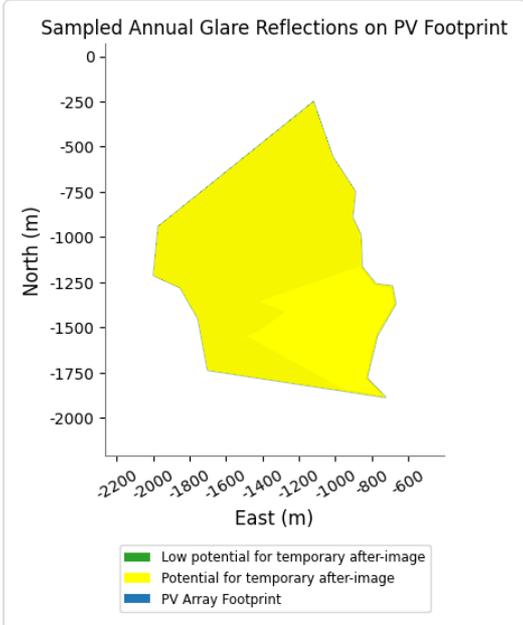
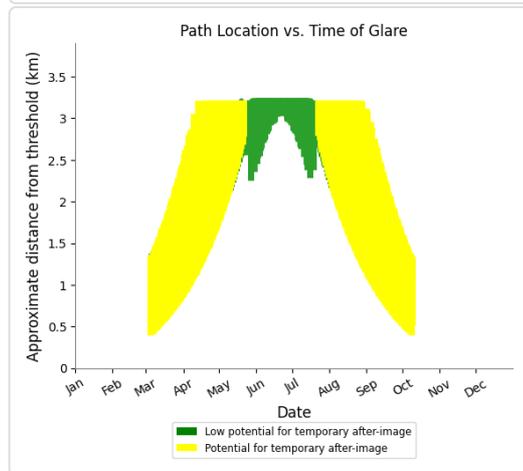
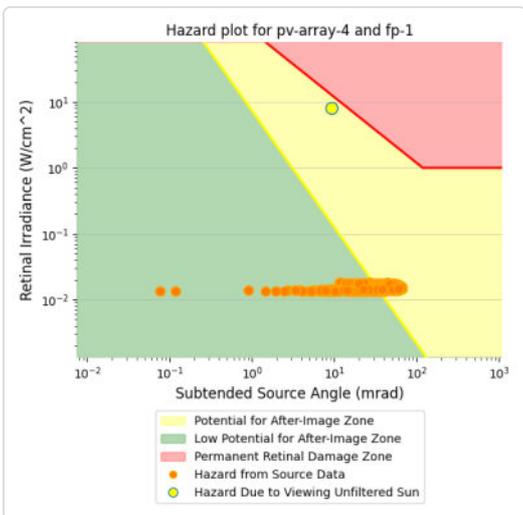
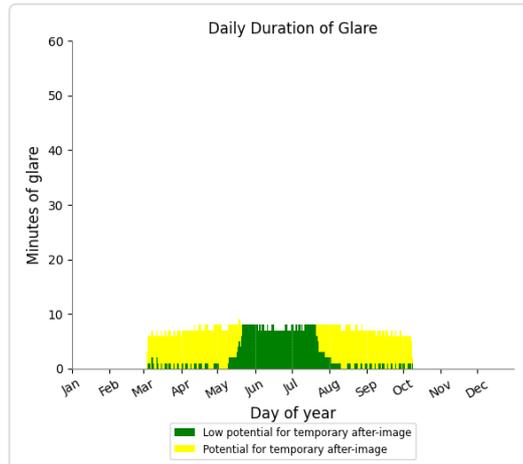
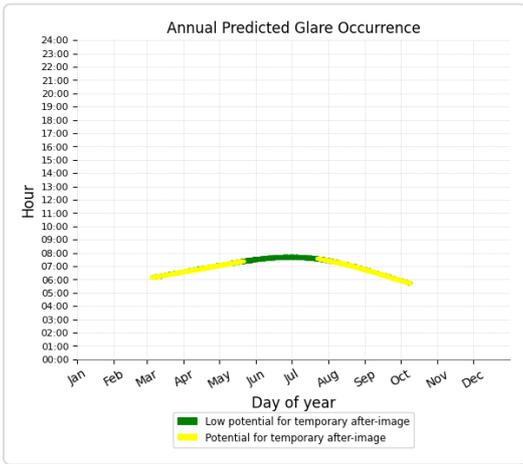
### PV array 4 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 605               | 979                |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 437               | 1118               |
| FP: FP 4  | 611               | 305                |

### PV array 4 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 605 minutes of "green" glare with low potential to cause temporary after-image.
- 979 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 4 - Receptor (FP 2)

No glare found

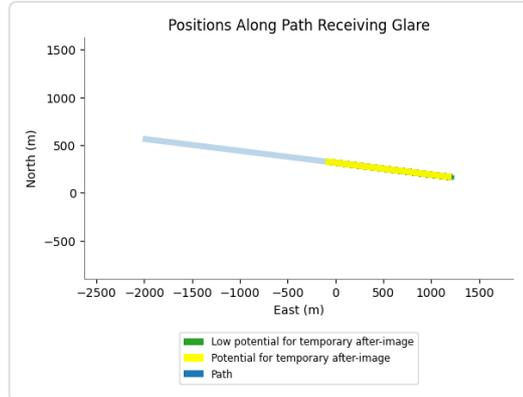
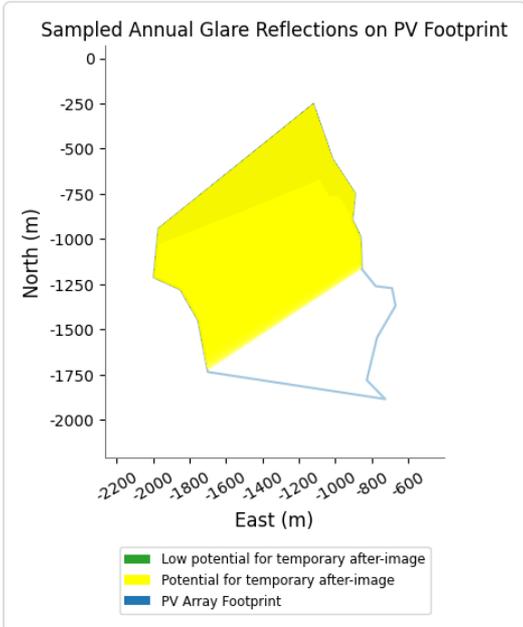
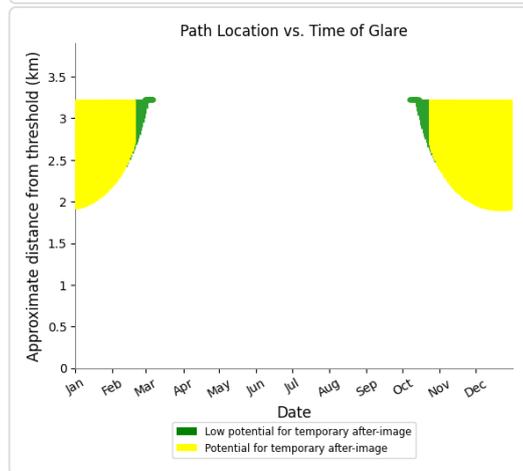
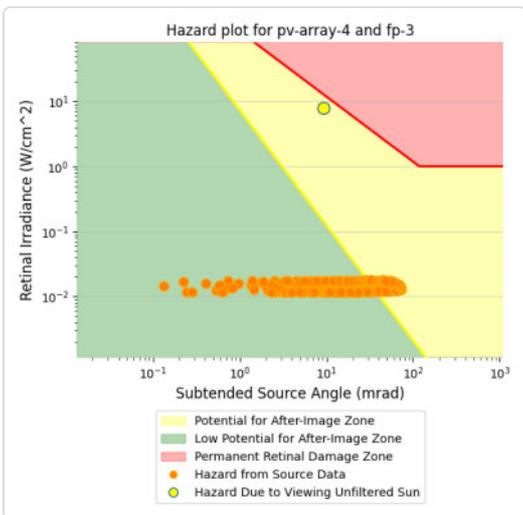
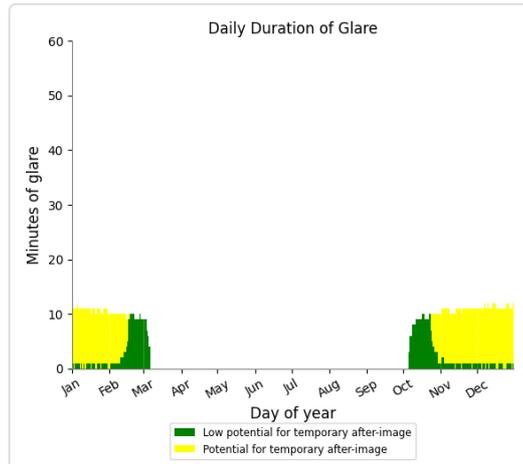
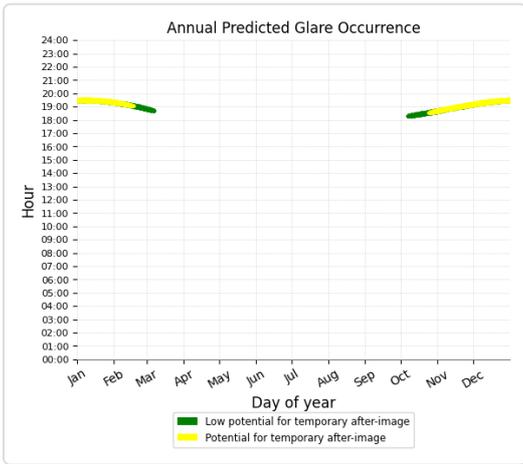
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### PV array 4 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 437 minutes of "green" glare with low potential to cause temporary after-image.
- 1,118 minutes of "yellow" glare with potential to cause temporary after-image.



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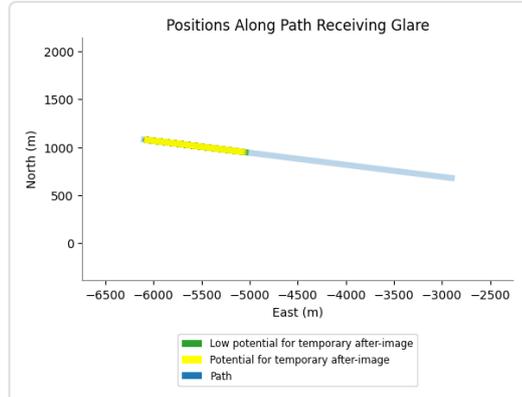
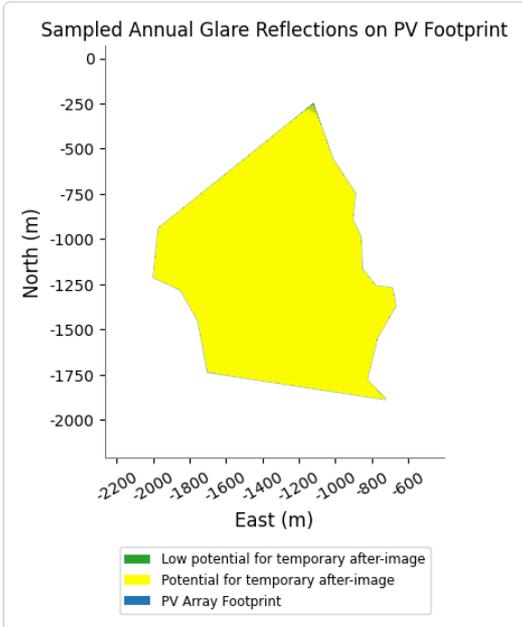
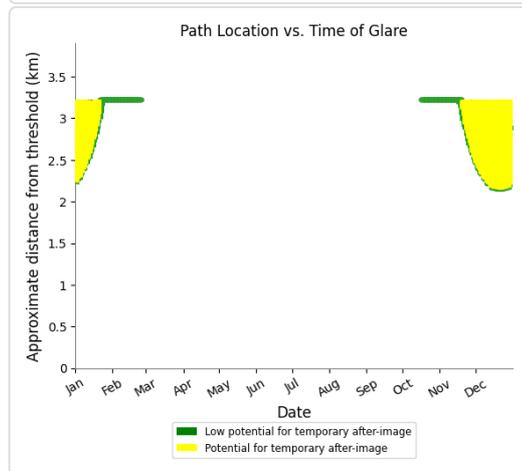
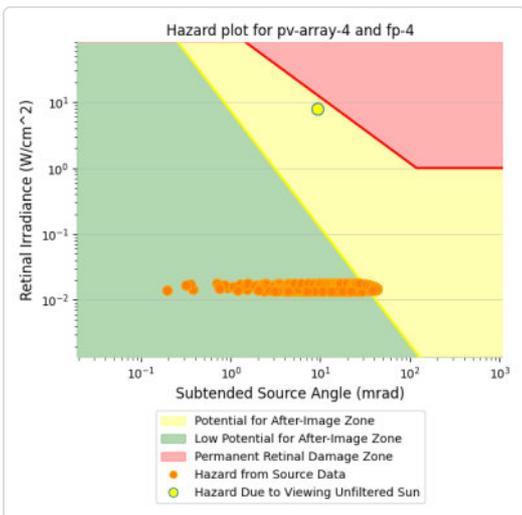
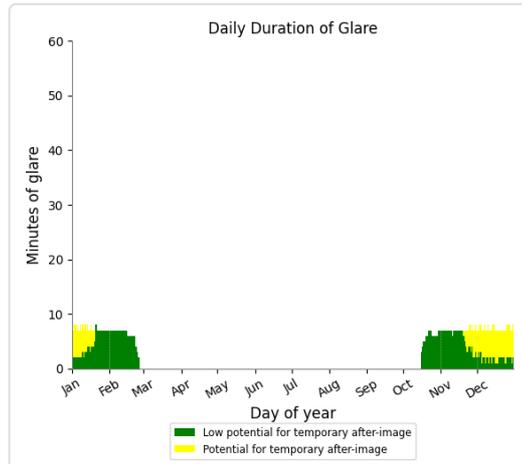
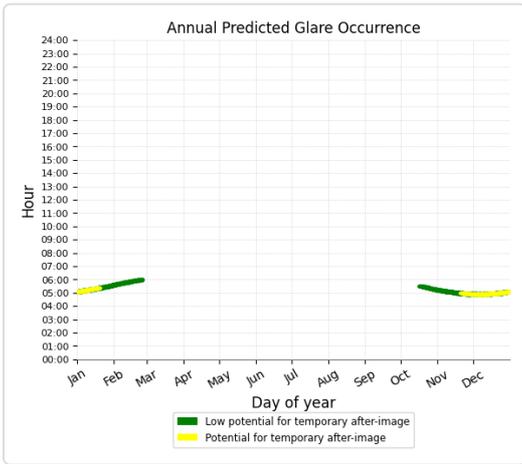
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### PV array 4 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 611 minutes of "green" glare with low potential to cause temporary after-image.
- 305 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 5 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 769               | 28                 |

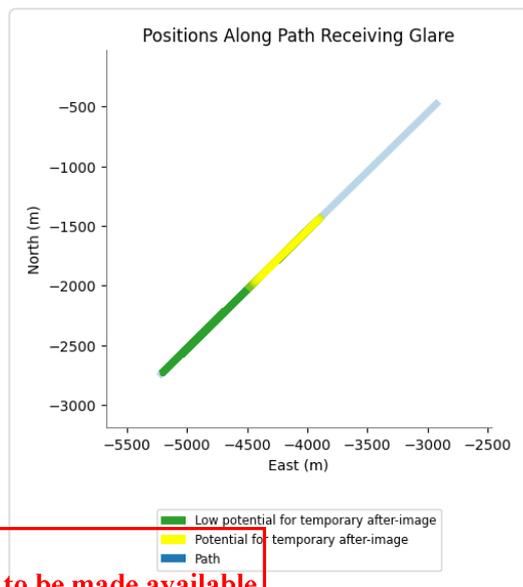
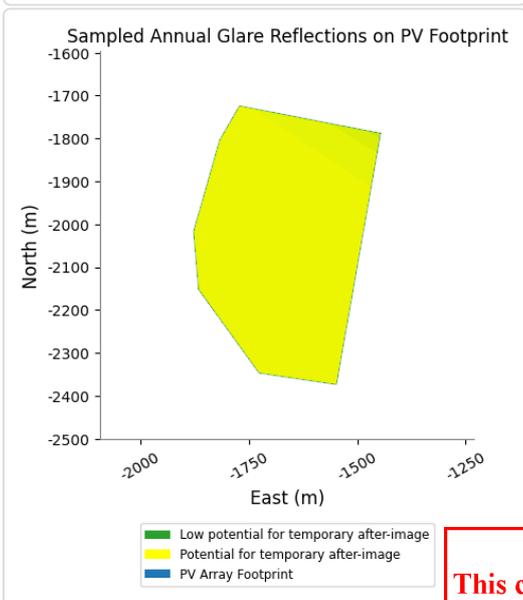
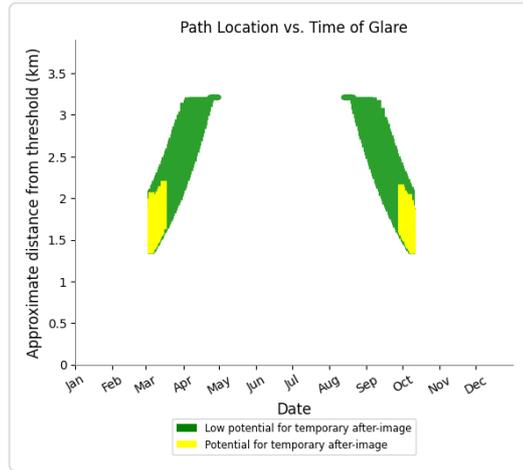
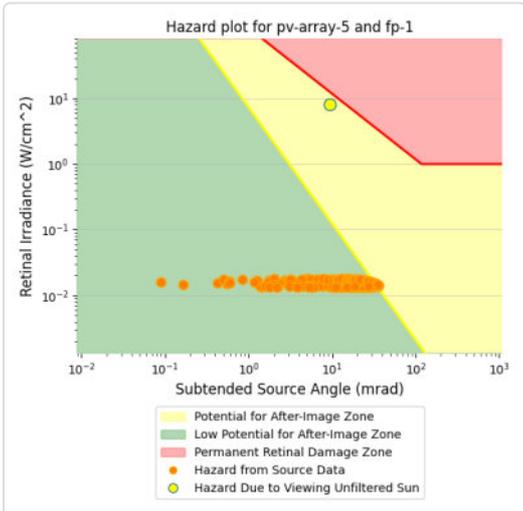
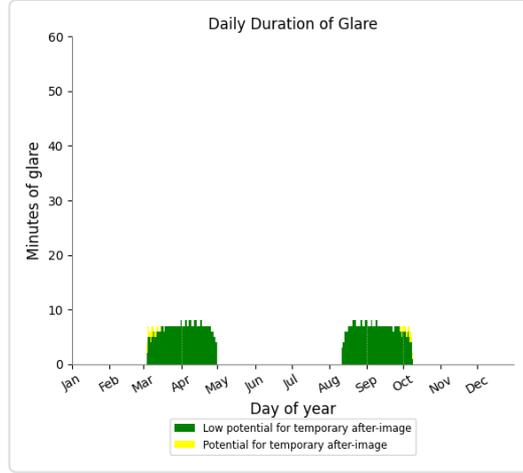
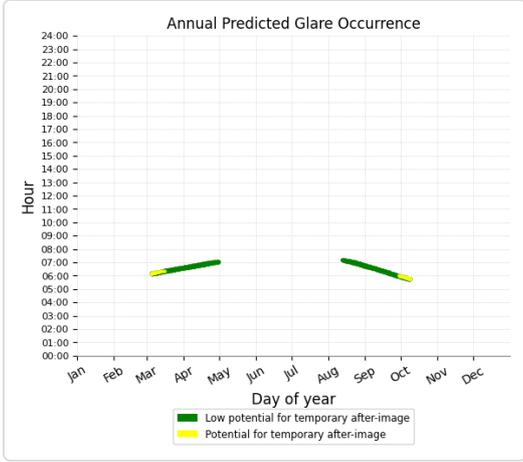
|          |     |   |
|----------|-----|---|
| FP: FP 2 | 0   | 0 |
| FP: FP 3 | 108 | 0 |
| FP: FP 4 | 153 | 0 |

### PV array 5 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 769 minutes of "green" glare with low potential to cause temporary after-image.
- 28 minutes of "yellow" glare with potential to cause temporary after-image.

# ADVERTISED PLAN



### PV array 5 - Receptor (FP 2)

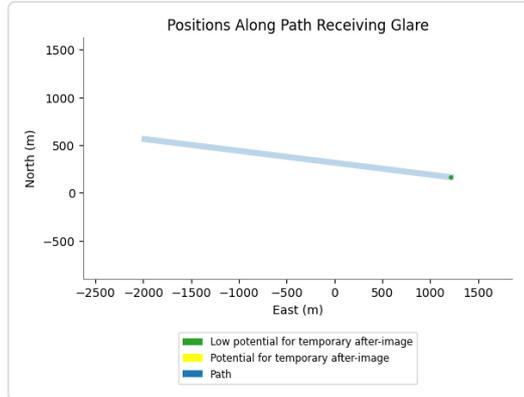
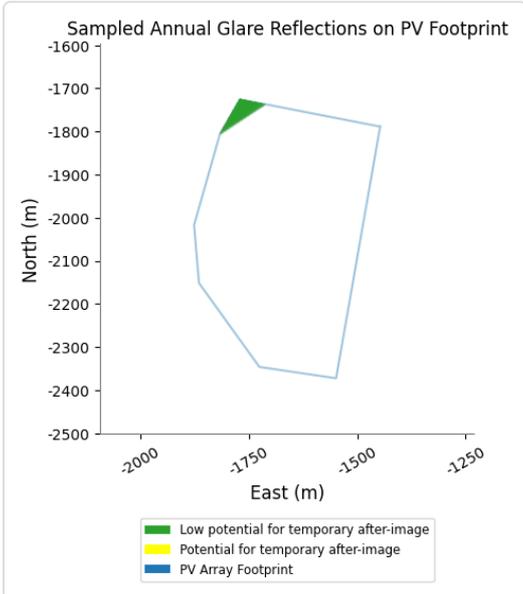
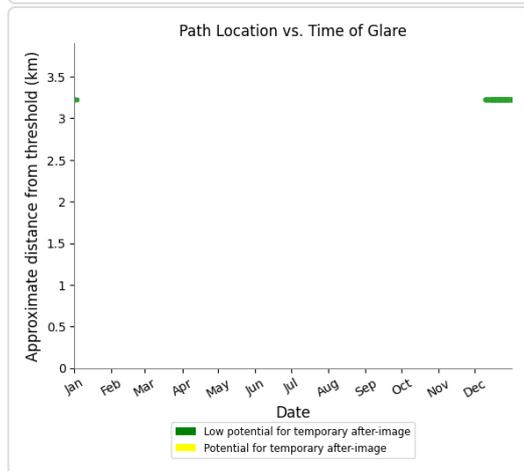
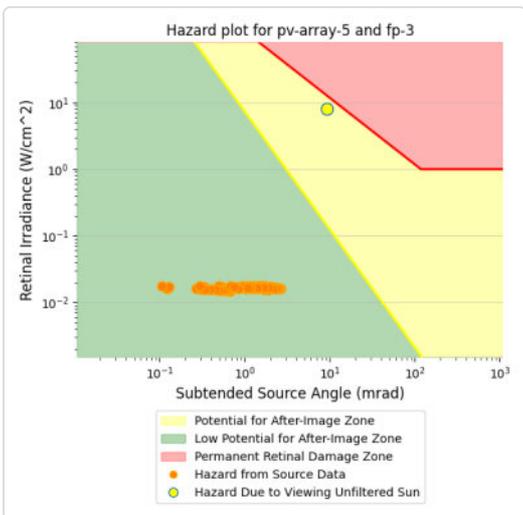
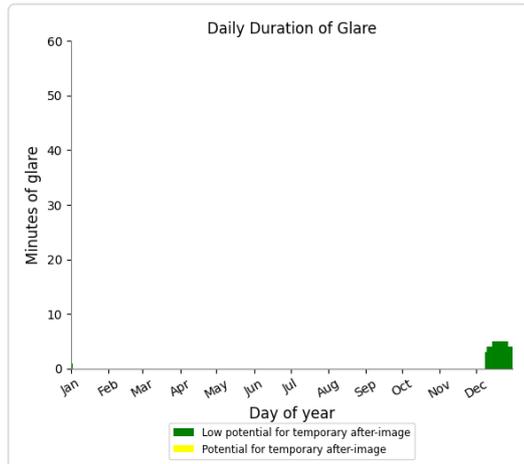
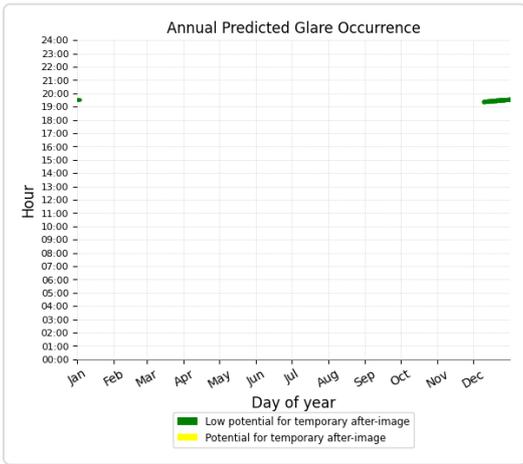
No glare found

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### PV array 5 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 108 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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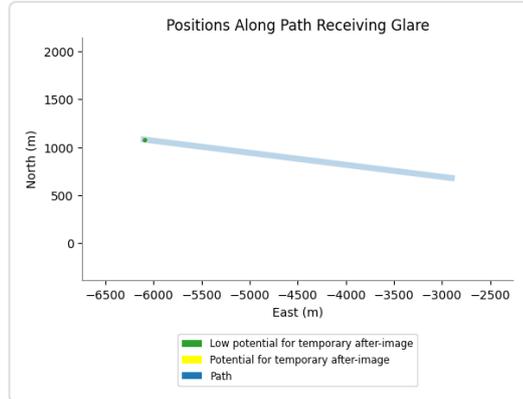
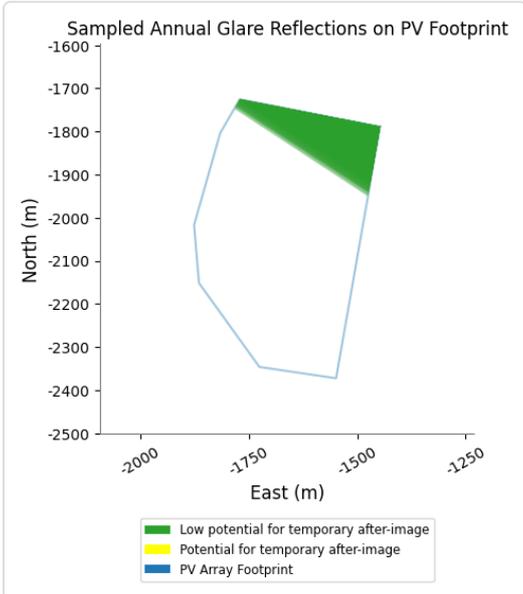
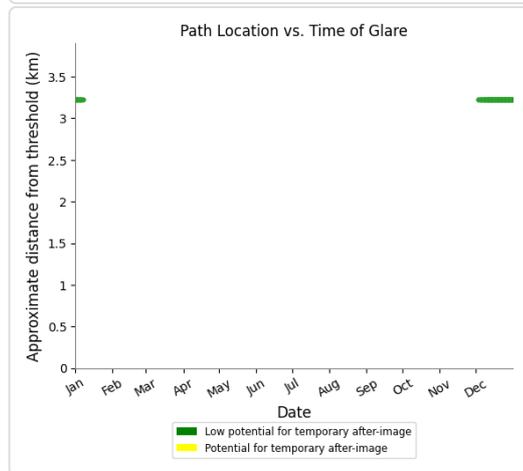
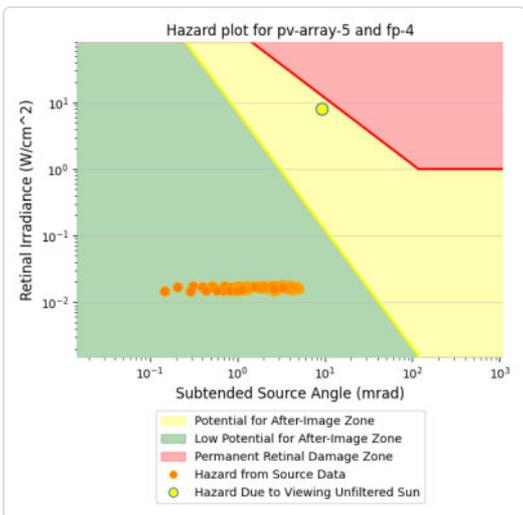
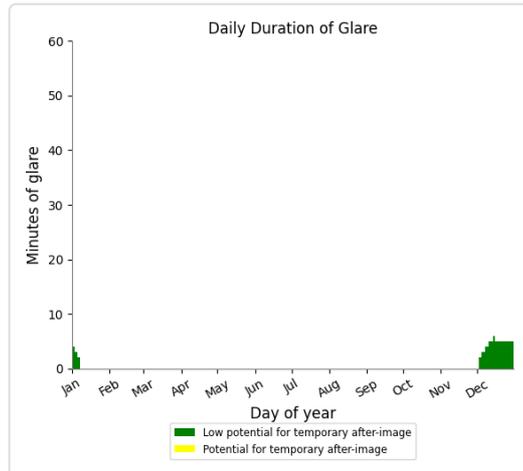
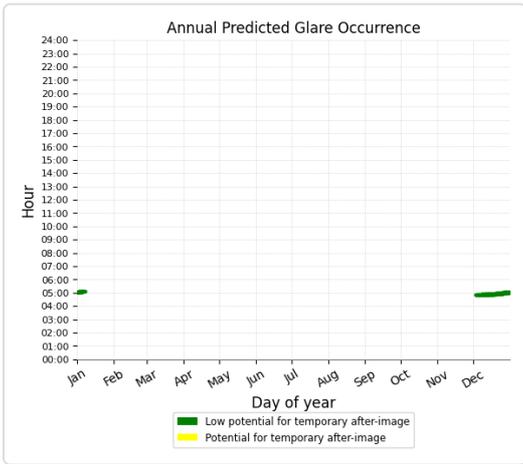
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### PV array 5 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 153 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 6 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 663               | 1113               |
| FP: FP 2  | 0                 | 0                  |

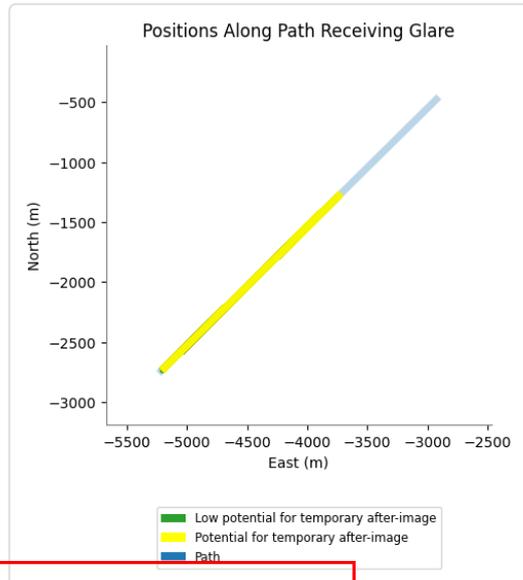
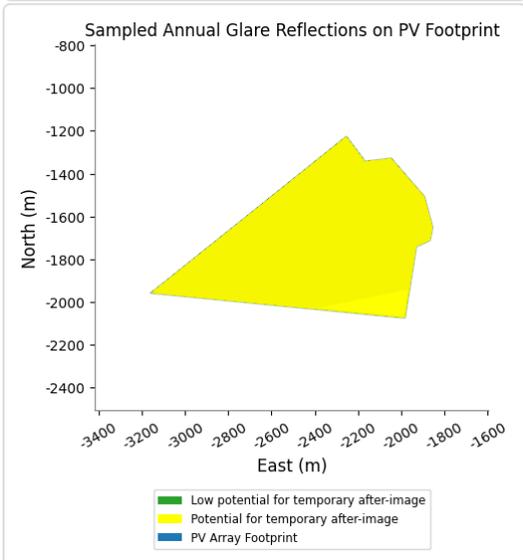
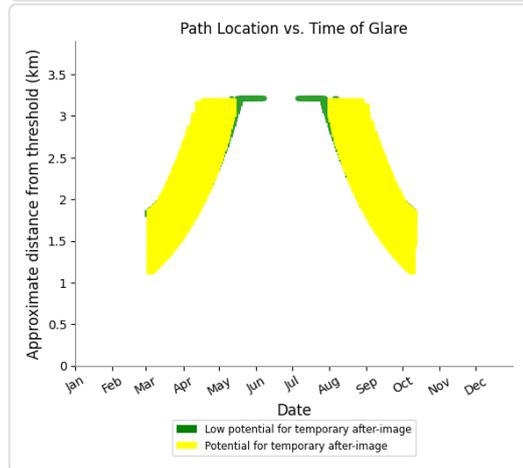
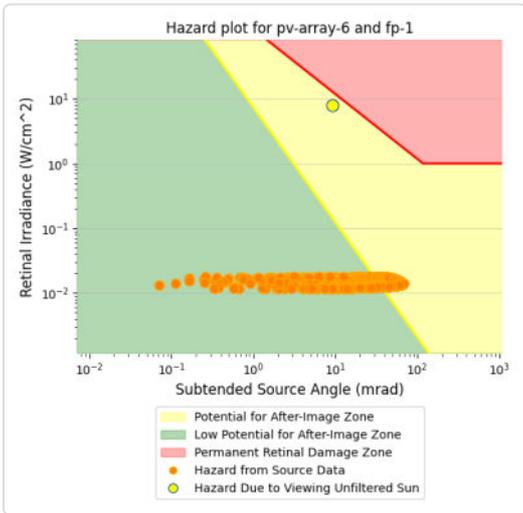
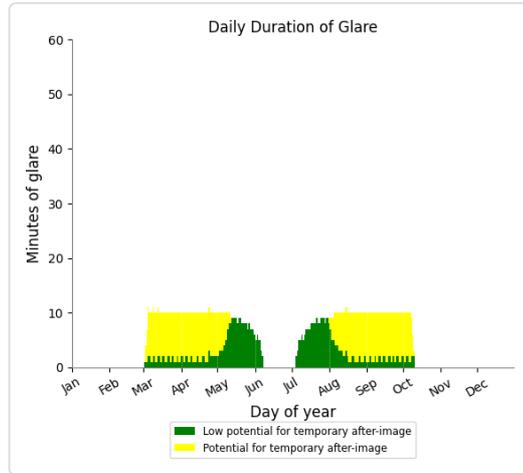
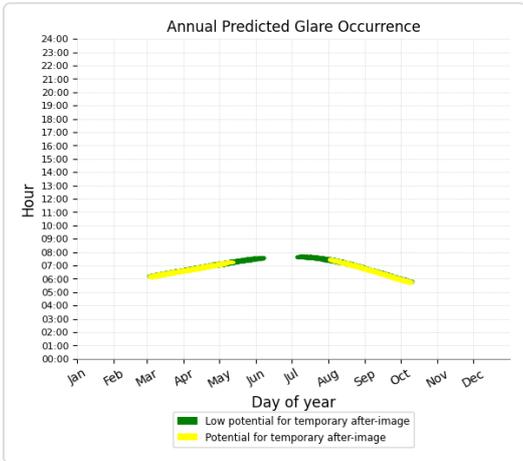
|          |     |     |
|----------|-----|-----|
| FP: FP 3 | 559 | 211 |
| FP: FP 4 | 250 | 0   |

### PV array 6 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 663 minutes of "green" glare with low potential to cause temporary after-image.
- 1,113 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 6 - Receptor (FP 2)

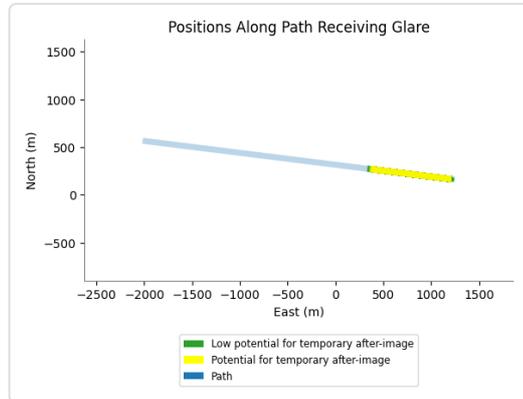
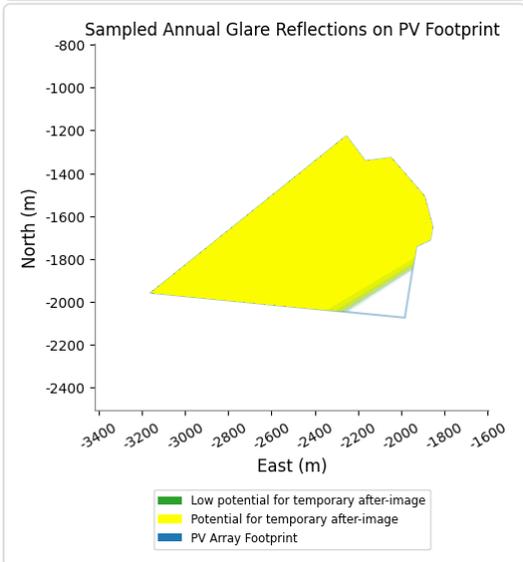
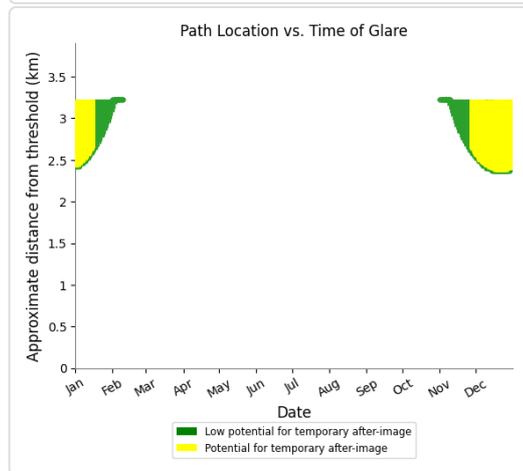
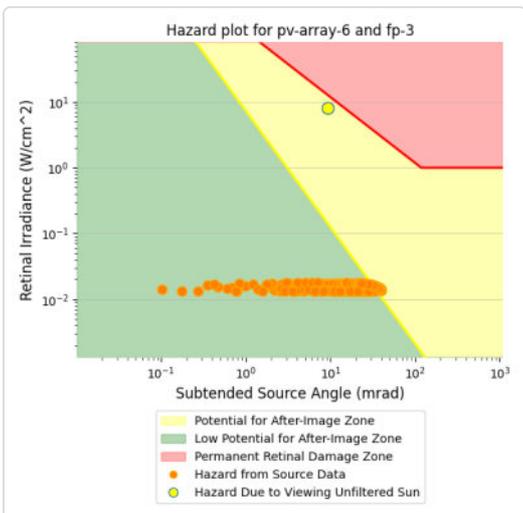
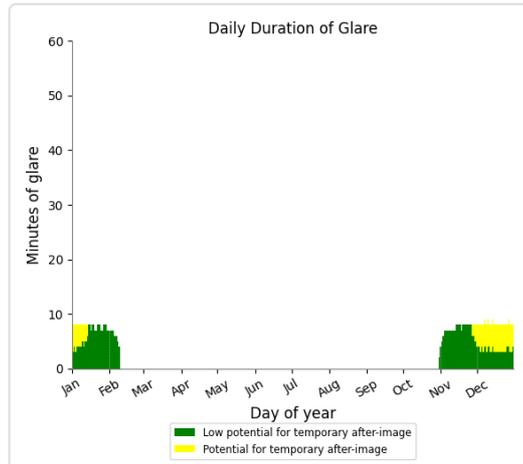
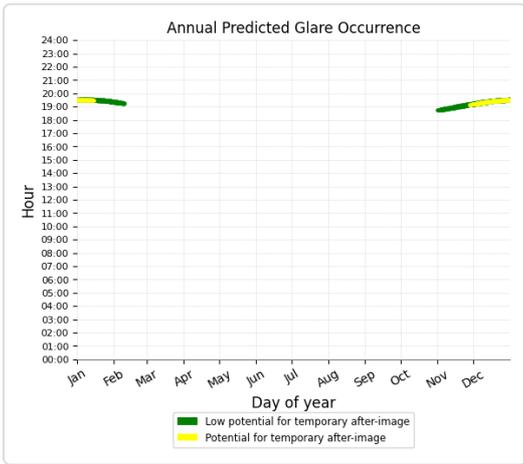
No glare found

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### PV array 6 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 559 minutes of "green" glare with low potential to cause temporary after-image.
- 211 minutes of "yellow" glare with potential to cause temporary after-image.



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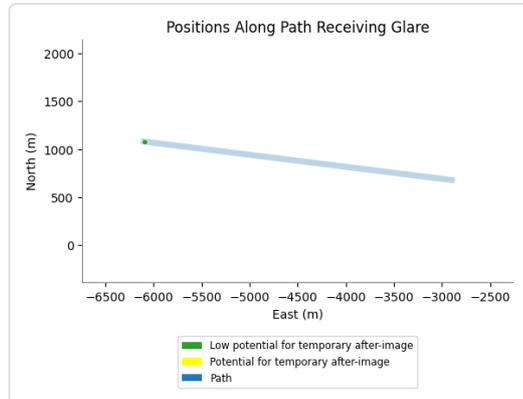
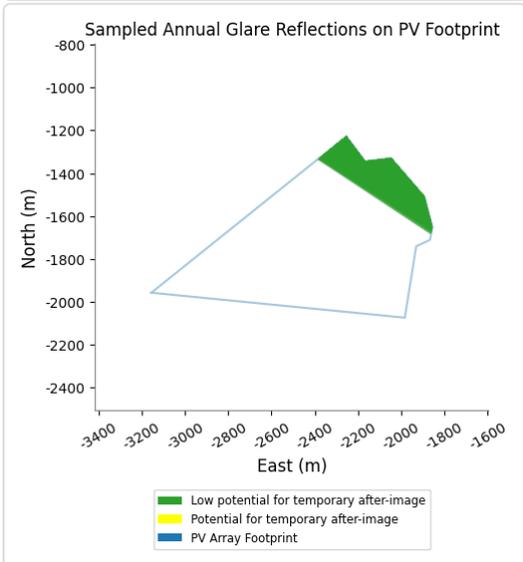
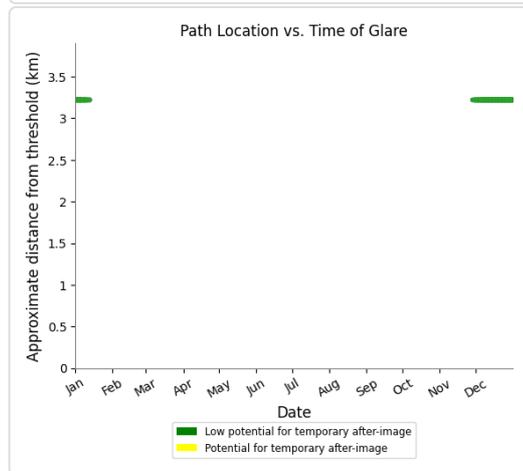
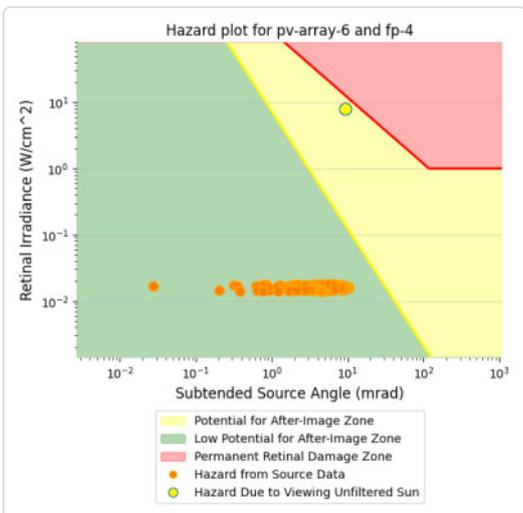
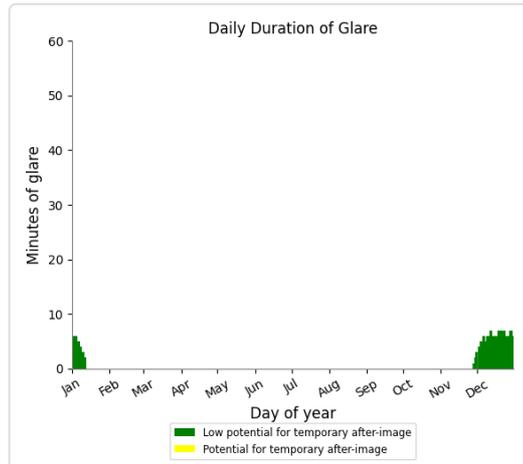
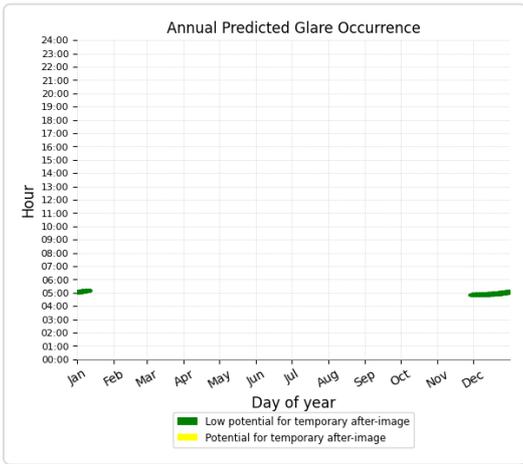
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### PV array 6 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 250 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 7 potential temporary after-image

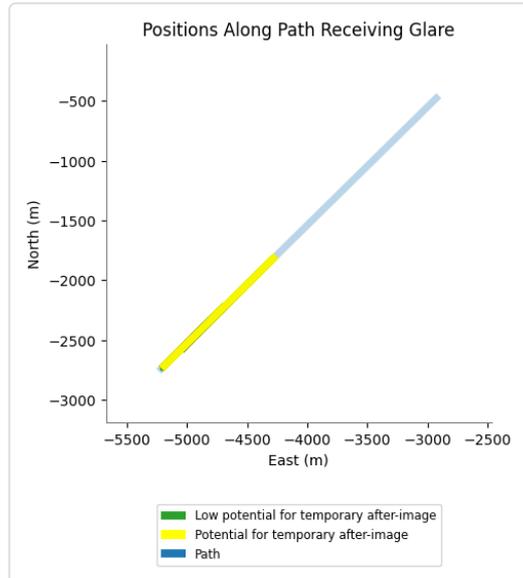
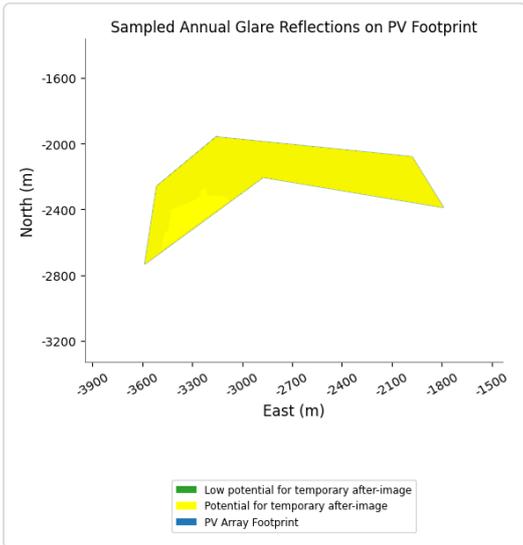
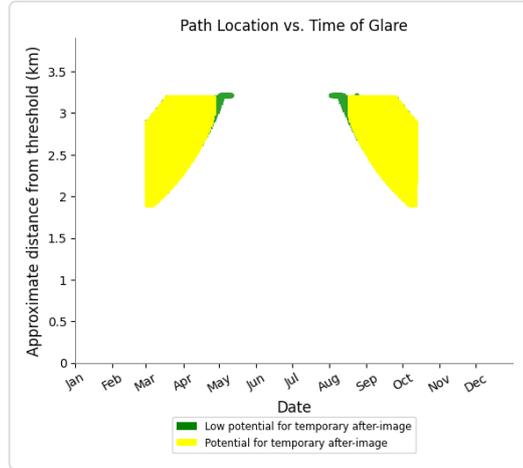
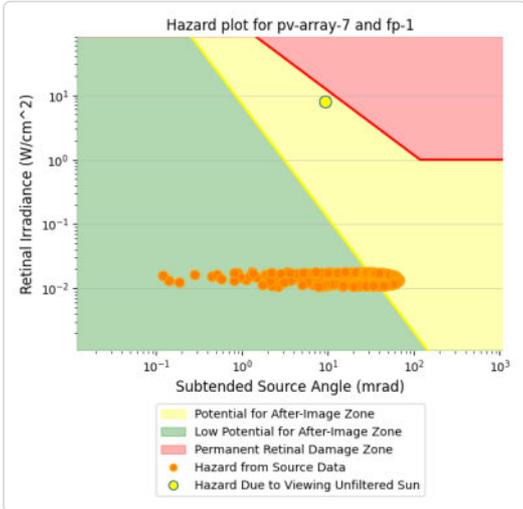
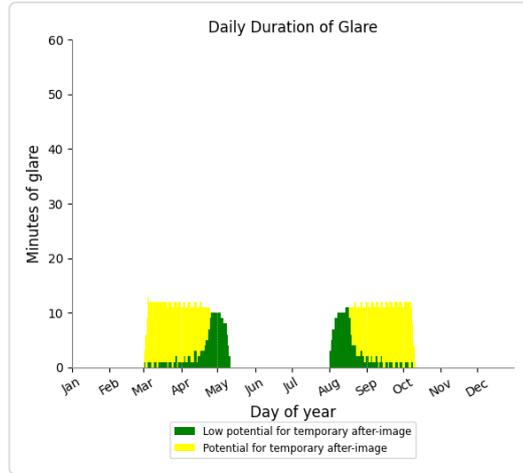
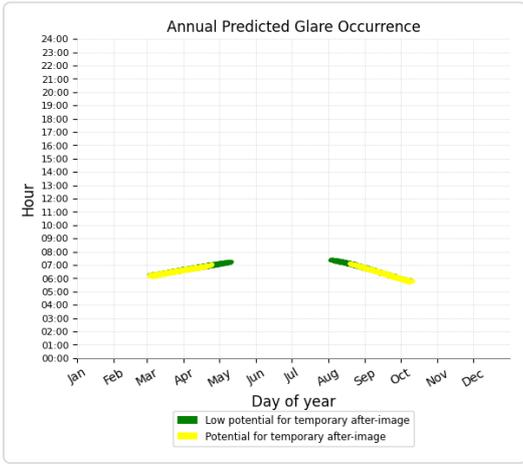
| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 445               | 1068               |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 537               | 0                  |

### PV array 7 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 445 minutes of "green" glare with low potential to cause temporary after-image.
- 1,068 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 7 - Receptor (FP 2)

No glare found

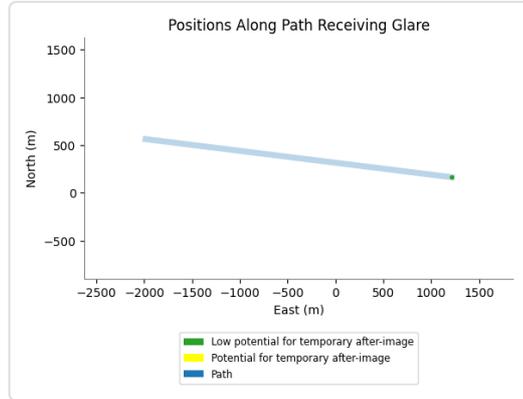
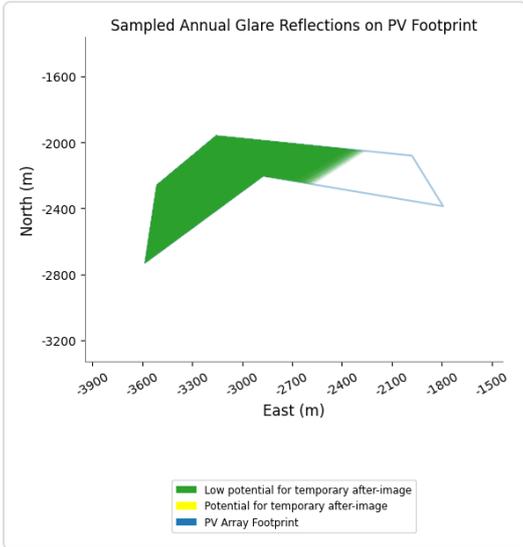
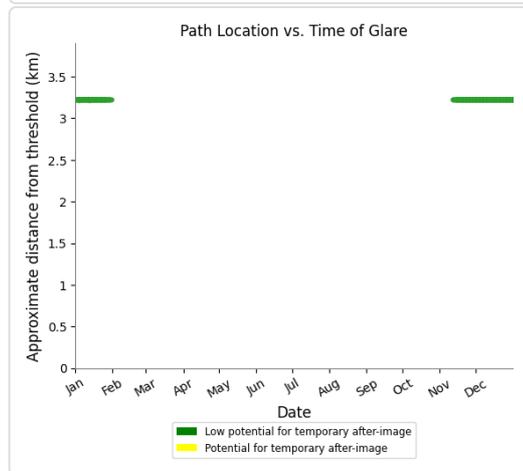
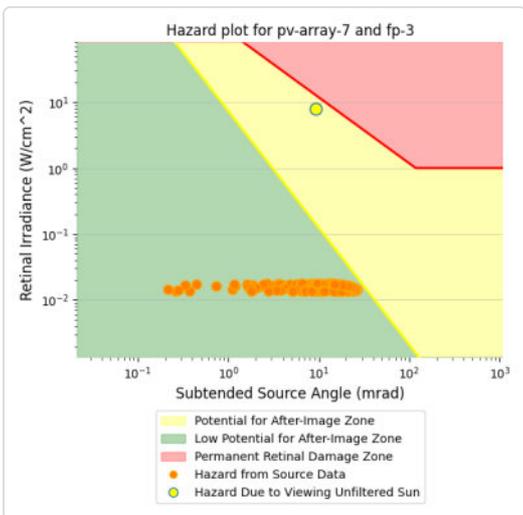
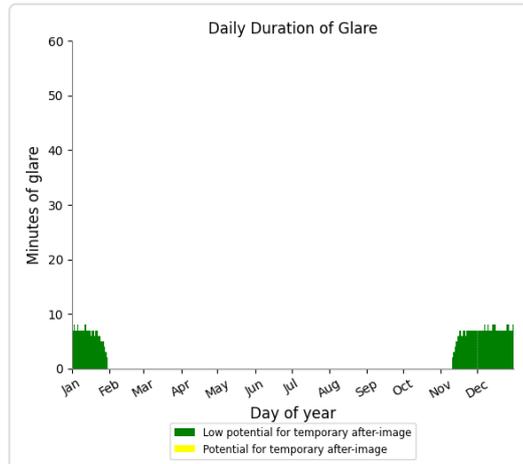
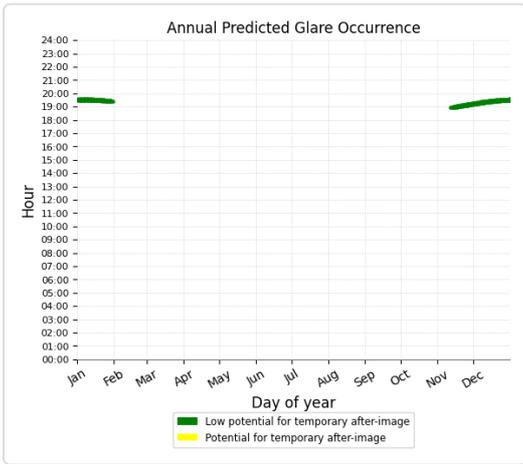
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## PV array 7 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 537 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



## PV array 7 - Receptor (FP 4)

No glare found

## PV array 8 low potential for temporary after-image

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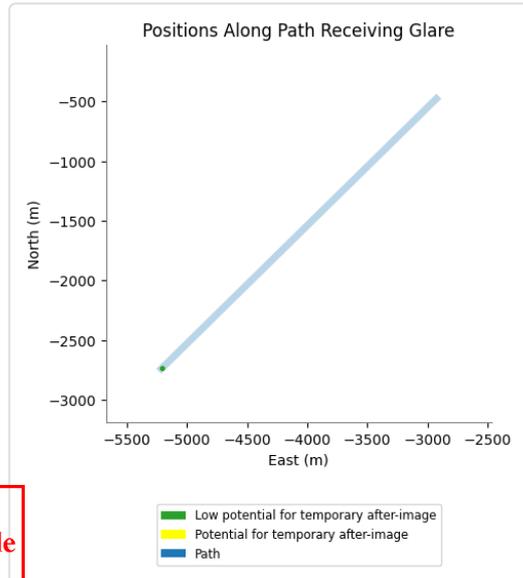
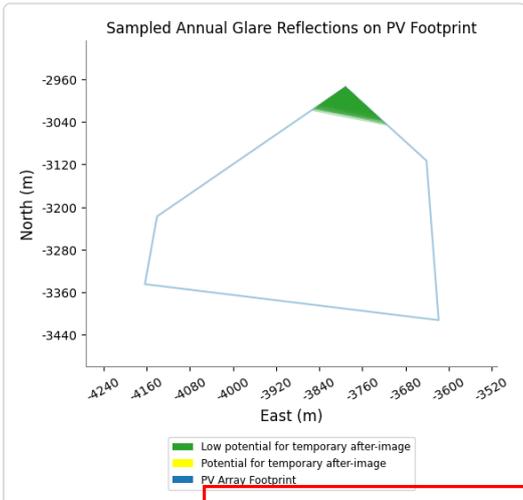
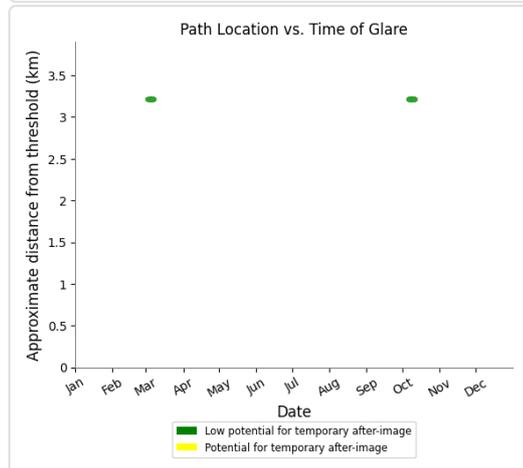
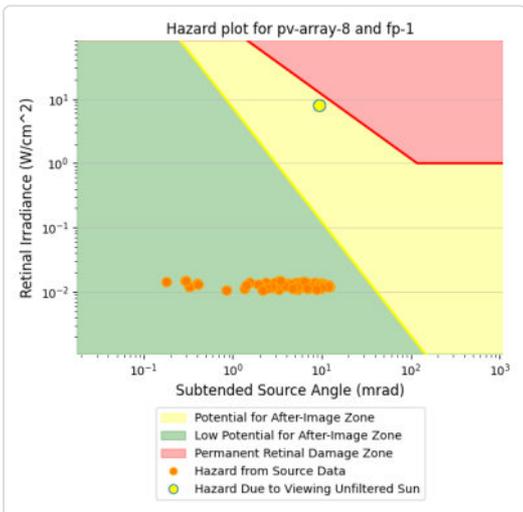
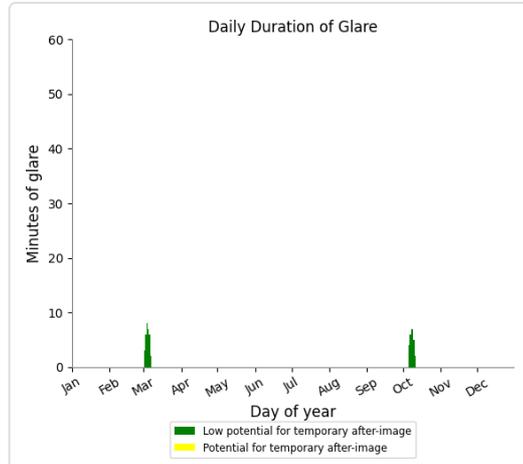
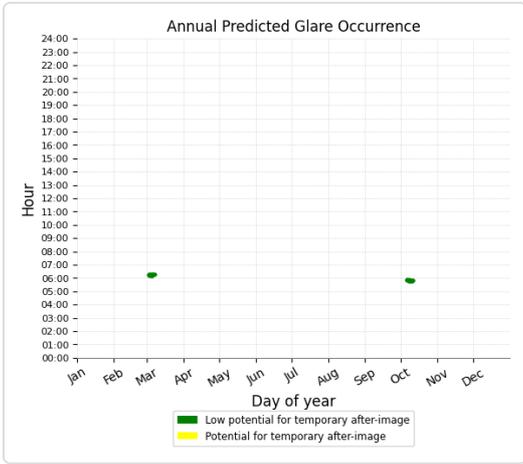
| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
|-----------|-------------------|--------------------|

|          |     |   |
|----------|-----|---|
| FP: FP 1 | 63  | 0 |
| FP: FP 2 | 0   | 0 |
| FP: FP 3 | 115 | 0 |
| FP: FP 4 | 0   | 0 |

### PV array 8 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 63 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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### PV array 8 - Receptor (FP 2)

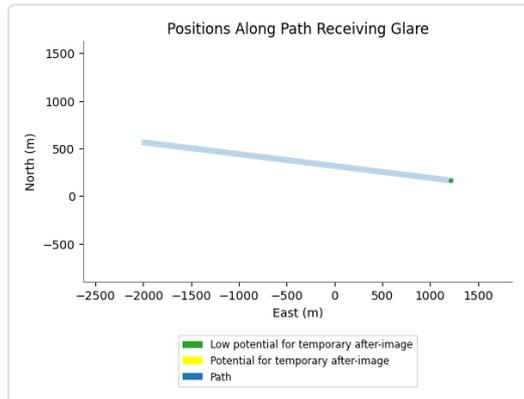
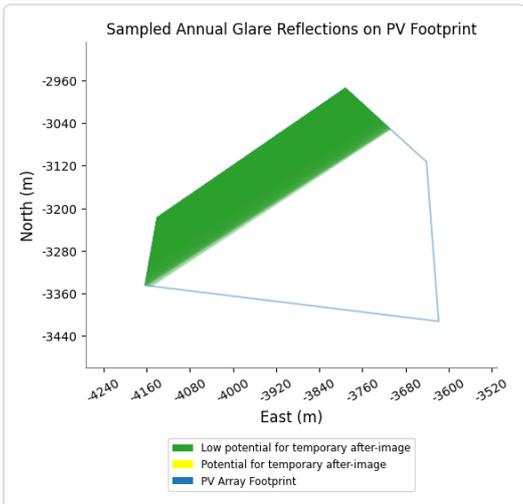
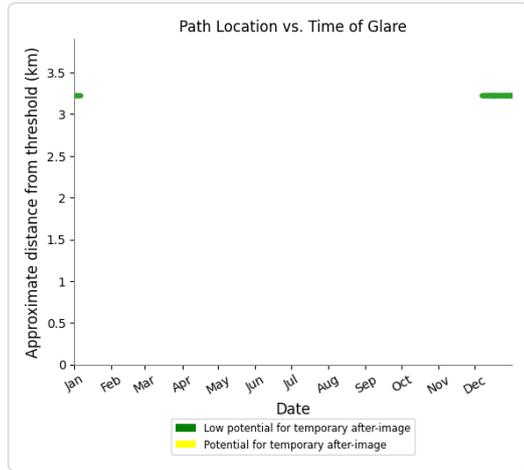
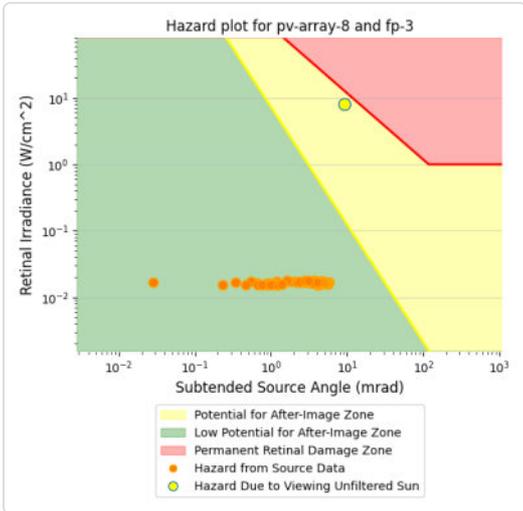
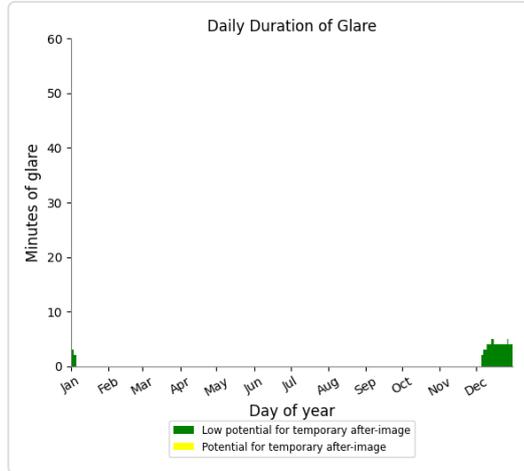
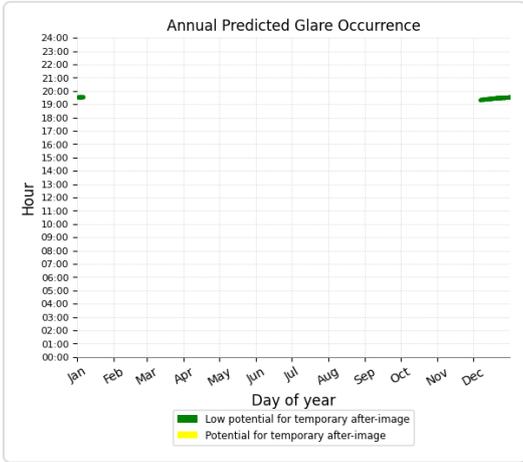
No glare found

# ADVERTISED PLAN

### PV array 8 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 115 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 8 - Receptor (FP 4)

No glare found

### PV array 9 potential temporary after-image

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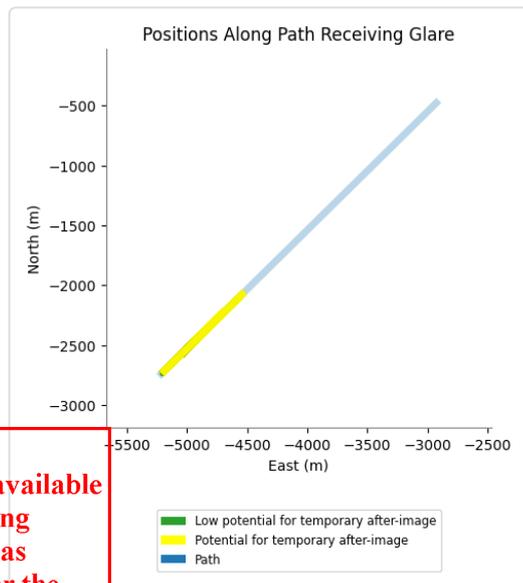
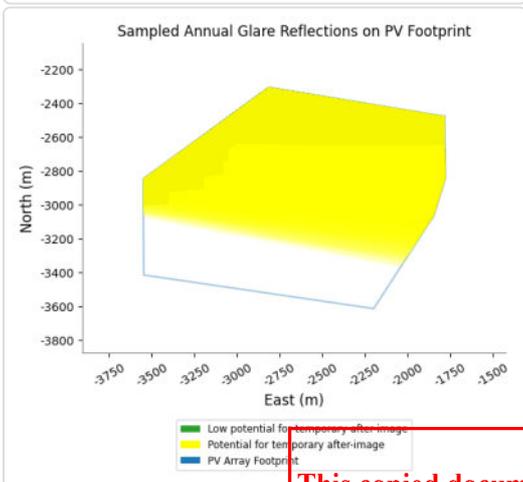
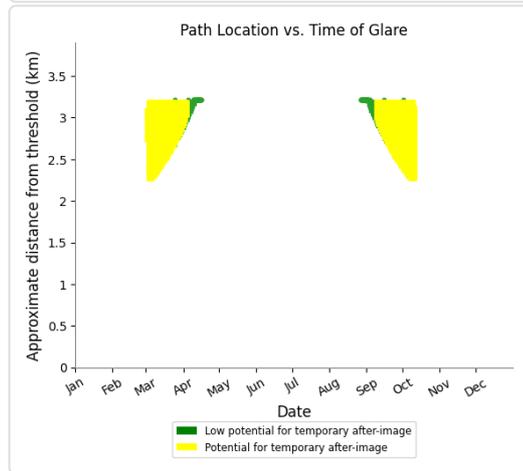
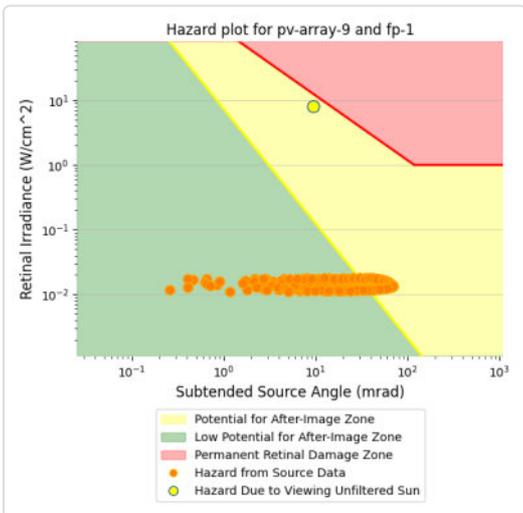
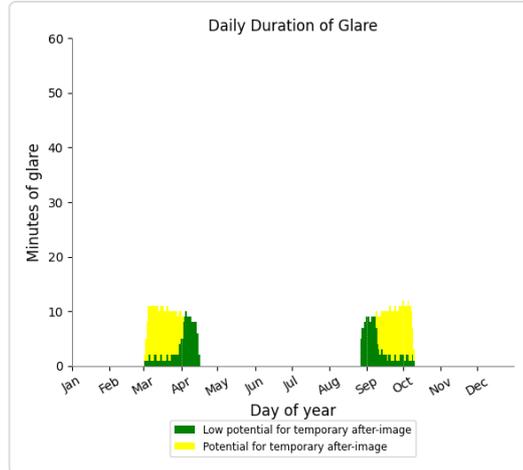
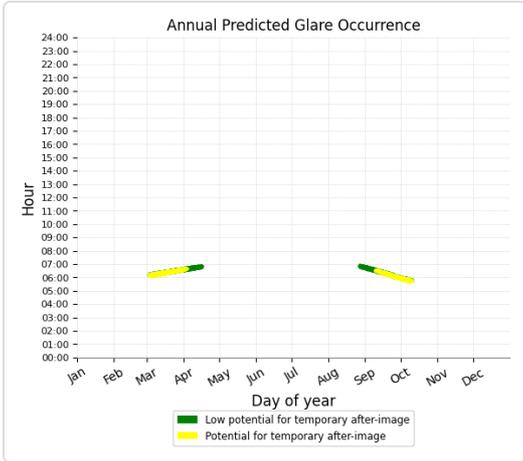
| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 333               | 521                |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 184               | 0                  |
| FP: FP 4  | 0                 | 0                  |

**PV array 9 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 333 minutes of "green" glare with low potential to cause temporary after-image.
- 521 minutes of "yellow" glare with potential to cause temporary after-image.

**ADVERTISED PLAN**



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### PV array 9 - Receptor (FP 2)

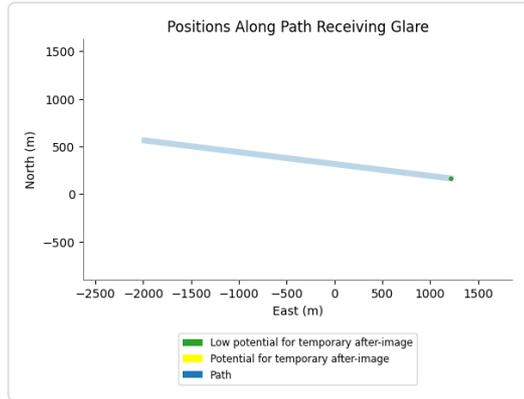
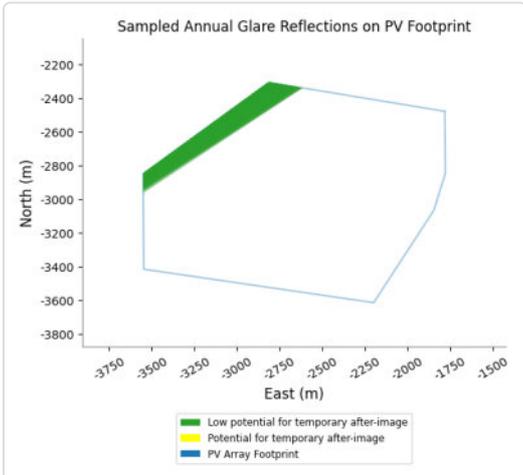
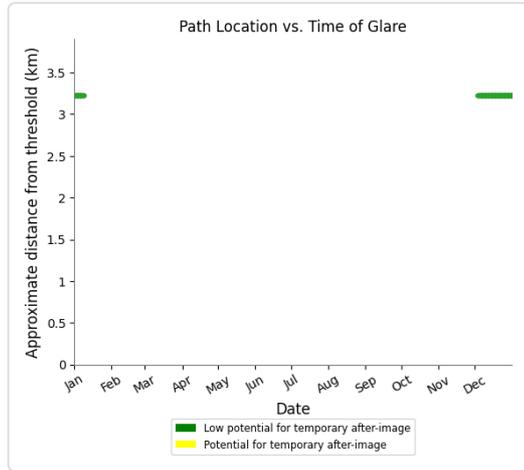
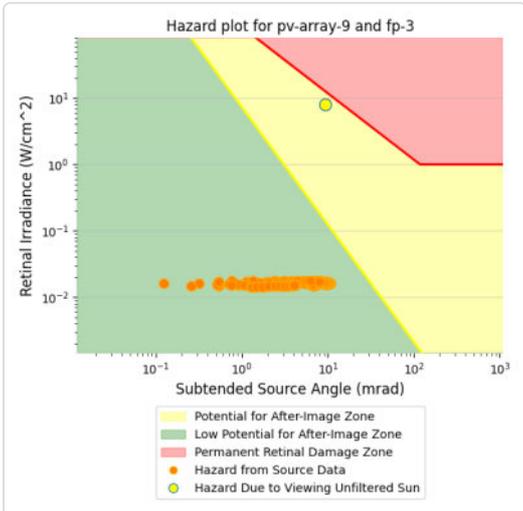
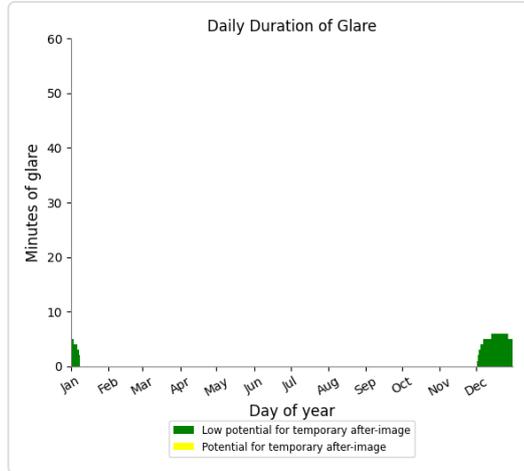
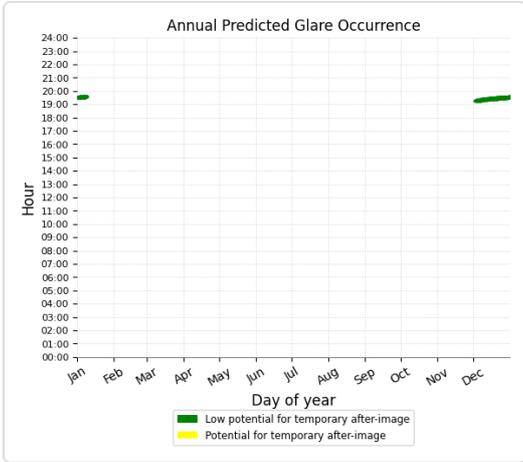
No glare found

# ADVERTISED PLAN

### PV array 9 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 184 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 9 - Receptor (FP 4)

No glare found

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## Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- 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.
- 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.
- 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.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. 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** for detailed assumptions and limitations not listed here.

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ForgeSolar

# Hazelwood North Solar Farm

## Hazelwood 1\_Min

**Created** Sept. 29, 2022  
**Updated** Sept. 29, 2022  
**Time-step** 1 minute  
**Timezone offset** UTC10  
**Site ID** 76763.13552

**Project type** Advanced  
**Project status:** active  
**Category** 100 MW to 1 GW



### Misc. Analysis Settings

**DNI:** varies (1,000.0 W/m<sup>2</sup> peak)  
**Ocular transmission coefficient:** 0.5  
**Pupil diameter:** 0.002 m  
**Eye focal length:** 0.017 m  
**Sun subtended angle:** 9.3 mrad

**Analysis Methodology:** Version 2  
**Enhanced subtended angle calculation:** On

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

| PV Name     | Tilt        | Orientation | "Green" Glare | "Yellow" Glare | Energy Produced |
|-------------|-------------|-------------|---------------|----------------|-----------------|
|             | deg         | deg         | min           | min            | kWh             |
| PV array 1  | SA tracking | SA tracking | 2,426         | 1,881          | -               |
| PV array 10 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 11 | SA tracking | SA tracking | 28            | 0              | -               |
| PV array 12 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 13 | SA tracking | SA tracking | 430           | 0              | -               |
| PV array 14 | SA tracking | SA tracking | 358           | 17             | -               |
| PV array 15 | SA tracking | SA tracking | 173           | 0              | -               |
| PV array 16 | SA tracking | SA tracking | 0             | 0              | -               |
| PV array 2  | SA tracking | SA tracking | 2,552         | 1,403          | -               |
| PV array 3  | SA tracking | SA tracking | 2,499         | 180            | -               |
| PV array 4  | SA tracking | SA tracking | 1,755         | 2,590          | -               |
| PV array 5  | SA tracking | SA tracking | 1,049         | 35             | -               |
| PV array 6  | SA tracking | SA tracking | 1,459         | 1,342          | -               |
| PV array 7  | SA tracking | SA tracking | 1,057         | 1,093          | -               |
| PV array 8  | SA tracking | SA tracking | 160           | 0              | -               |
| PV array 9  | SA tracking | SA tracking | 496           | 506            | -               |

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## Component Data

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### PV Array(s)

**Total PV footprint area:** 8,125,053 m<sup>2</sup>

**Name:** PV array 1  
**Description:** Ground Minimum 66.2  
**Footprint area:** 143,281 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.211219 | 146.498454 | 66.20            | 3.90                | 70.10           |
| 2      | -38.210848 | 146.492961 | 66.20            | 3.90                | 70.10           |
| 3      | -38.212736 | 146.489785 | 66.20            | 3.90                | 70.10           |
| 4      | -38.213377 | 146.497939 | 66.20            | 3.90                | 70.10           |



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**Name:** PV array 10  
**Description:** Ground Minimum 83.72  
**Footprint area:** 353,819 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.243180 | 146.468384 | 83.72            | 3.90                | 87.62           |
| 2      | -38.249651 | 146.466882 | 83.72            | 3.90                | 87.62           |
| 3      | -38.250460 | 146.474478 | 83.72            | 3.90                | 87.62           |
| 4      | -38.247730 | 146.474907 | 83.72            | 3.90                | 87.62           |
| 5      | -38.247528 | 146.473191 | 83.72            | 3.90                | 87.62           |
| 6      | -38.248505 | 146.473105 | 83.72            | 3.90                | 87.62           |
| 7      | -38.248235 | 146.471302 | 83.72            | 3.90                | 87.62           |
| 8      | -38.246988 | 146.471517 | 83.72            | 3.90                | 87.62           |
| 9      | -38.245842 | 146.472676 | 83.72            | 3.90                | 87.62           |
| 10     | -38.243820 | 146.473105 | 83.72            | 3.90                | 87.62           |



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**Name:** PV array 11  
**Description:** Ground Minimum 79\_886  
**Footprint area:** 336,525 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.241393 | 146.477396 | 79.89            | 3.90                | 83.79           |
| 2      | -38.241259 | 146.476495 | 79.89            | 3.90                | 83.79           |
| 3      | -38.244461 | 146.473877 | 79.89            | 3.90                | 83.79           |
| 4      | -38.245438 | 146.473877 | 79.89            | 3.90                | 83.79           |
| 5      | -38.245842 | 146.474092 | 79.89            | 3.90                | 83.79           |
| 6      | -38.247730 | 146.475079 | 79.89            | 3.90                | 83.79           |
| 7      | -38.250527 | 146.474521 | 79.89            | 3.90                | 83.79           |
| 8      | -38.251269 | 146.480014 | 79.89            | 3.90                | 83.79           |
| 9      | -38.247932 | 146.478555 | 79.89            | 3.90                | 83.79           |
| 10     | -38.246146 | 146.479413 | 79.89            | 3.90                | 83.79           |
| 11     | -38.244528 | 146.477053 | 79.89            | 3.90                | 83.79           |
| 12     | -38.242742 | 146.477353 | 79.89            | 3.90                | 83.79           |

**Name:** PV array 12  
**Description:** Ground Minimum 93\_361  
**Footprint area:** 309,978 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.44  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.249853 | 146.468127 | 93.36            | 3.90                | 97.26           |
| 2      | -38.252414 | 146.467783 | 93.36            | 3.90                | 97.26           |
| 3      | -38.253965 | 146.479585 | 93.36            | 3.90                | 97.26           |
| 4      | -38.251269 | 146.480100 | 93.36            | 3.90                | 97.26           |

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**Name:** PV array 13  
**Description:** Ground Minimum 75\_613  
**Footprint area:** 197,878 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.233873 | 146.481715 | 75.61            | 3.90                | 79.51           |
| 2      | -38.233738 | 146.479483 | 75.61            | 3.90                | 79.51           |
| 3      | -38.234817 | 146.479312 | 75.61            | 3.90                | 79.51           |
| 4      | -38.236840 | 146.479784 | 75.61            | 3.90                | 79.51           |
| 5      | -38.237952 | 146.479440 | 75.61            | 3.90                | 79.51           |
| 6      | -38.238693 | 146.479655 | 75.61            | 3.90                | 79.51           |
| 7      | -38.239502 | 146.485406 | 75.61            | 3.90                | 79.51           |
| 8      | -38.238795 | 146.485792 | 75.61            | 3.90                | 79.51           |
| 9      | -38.237042 | 146.483346 | 75.61            | 3.90                | 79.51           |

**ADVERTISED PLAN**

**Name:** PV array 14  
**Description:** Ground Minimum 80\_498  
**Footprint area:** 460,155 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.233941 | 146.483947 | 80.50            | 3.90                | 84.40           |
| 2      | -38.235222 | 146.493645 | 80.50            | 3.90                | 84.40           |
| 3      | -38.240750 | 146.492444 | 80.50            | 3.90                | 84.40           |
| 4      | -38.239570 | 146.485449 | 80.50            | 3.90                | 84.40           |
| 5      | -38.238727 | 146.485749 | 80.50            | 3.90                | 84.40           |
| 6      | -38.236873 | 146.484333 | 80.50            | 3.90                | 84.40           |
| 7      | -38.235525 | 146.483861 | 80.50            | 3.90                | 84.40           |
| 8      | -38.234547 | 146.483560 | 80.50            | 3.90                | 84.40           |



**Name:** PV array 15  
**Description:** Ground Minimum 80\_637  
**Footprint area:** 631,951 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.238716 | 146.479651 | 80.64            | 3.90                | 84.54           |
| 2      | -38.239541 | 146.480252 | 80.64            | 3.90                | 84.54           |
| 3      | -38.240637 | 146.479287 | 80.64            | 3.90                | 84.54           |
| 4      | -38.244412 | 146.478750 | 80.64            | 3.90                | 84.54           |
| 5      | -38.245204 | 146.491238 | 80.64            | 3.90                | 84.54           |
| 6      | -38.240738 | 146.492397 | 80.64            | 3.90                | 84.54           |



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**Name:** PV array 16  
**Description:** Ground Minimum 84\_965  
**Footprint area:** 664,063 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.245259 | 146.491299 | 84.97            | 3.90                | 88.87           |
| 2      | -38.244467 | 146.478767 | 84.96            | 3.90                | 88.86           |
| 3      | -38.245765 | 146.480698 | 84.97            | 3.90                | 88.87           |
| 4      | -38.246624 | 146.480677 | 84.97            | 3.90                | 88.87           |
| 5      | -38.247652 | 146.479905 | 84.97            | 3.90                | 88.87           |
| 6      | -38.251949 | 146.481879 | 84.97            | 3.90                | 88.87           |
| 7      | -38.252017 | 146.486857 | 84.97            | 3.90                | 88.87           |
| 8      | -38.250433 | 146.490161 | 84.97            | 3.90                | 88.87           |



ADVERTISED PLAN

**Name:** PV array 2  
**Description:** Ground Minimum 66\_379  
**Footprint area:** 277,400 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.213410 | 146.497896 | 66.38            | 3.90                | 70.28           |
| 2      | -38.212736 | 146.489613 | 66.38            | 3.90                | 70.28           |
| 3      | -38.216951 | 146.490686 | 66.38            | 3.90                | 70.28           |
| 4      | -38.216816 | 146.497424 | 66.38            | 3.90                | 70.28           |

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**Name:** PV array 3  
**Description:** Ground Minimum 72\_933  
**Footprint area:** 233,123 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.216816 | 146.497510 | 72.93            | 3.90                | 76.83           |
| 2      | -38.220558 | 146.496608 | 72.93            | 3.90                | 76.83           |
| 3      | -38.220862 | 146.490858 | 72.93            | 3.90                | 76.83           |
| 4      | -38.216951 | 146.490686 | 72.93            | 3.90                | 76.83           |

## ADVERTISED PLAN

**Name:** PV array 4  
**Description:** Ground Minimum 59\_527  
**Footprint area:** 1,289,642 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad



| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.213511 | 146.485665 | 59.53            | 3.90                | 63.43           |
| 2      | -38.216243 | 146.486867 | 59.53            | 3.90                | 63.43           |
| 3      | -38.217962 | 146.488283 | 59.53            | 3.90                | 63.43           |
| 4      | -38.219277 | 146.488111 | 59.53            | 3.90                | 63.43           |
| 5      | -38.220120 | 146.488626 | 59.53            | 3.90                | 63.43           |
| 6      | -38.221738 | 146.488712 | 59.53            | 3.90                | 63.43           |
| 7      | -38.222581 | 146.489570 | 59.53            | 3.90                | 63.43           |
| 8      | -38.222682 | 146.490600 | 59.53            | 3.90                | 63.43           |
| 9      | -38.223559 | 146.490815 | 59.53            | 3.90                | 63.43           |
| 10     | -38.225144 | 146.489656 | 59.53            | 3.90                | 63.43           |
| 11     | -38.227268 | 146.489012 | 59.53            | 3.90                | 63.43           |
| 12     | -38.228211 | 146.490171 | 59.53            | 3.90                | 63.43           |
| 13     | -38.226863 | 146.479056 | 59.53            | 3.90                | 63.43           |
| 14     | -38.224301 | 146.478455 | 59.53            | 3.90                | 63.43           |
| 15     | -38.222750 | 146.477339 | 59.53            | 3.90                | 63.43           |
| 16     | -38.222143 | 146.475666 | 59.53            | 3.90                | 63.43           |
| 17     | -38.219716 | 146.475966 | 59.53            | 3.90                | 63.43           |

**Name:** PV array 5  
**Description:** Ground Minimum 75\_153  
**Footprint area:** 201,836 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.227335 | 146.481931 | 75.15            | 3.90                | 79.05           |
| 2      | -38.232594 | 146.480773 | 75.15            | 3.90                | 79.05           |
| 3      | -38.232358 | 146.478756 | 75.15            | 3.90                | 79.05           |
| 4      | -38.230605 | 146.477168 | 75.15            | 3.90                | 79.05           |
| 5      | -38.229391 | 146.477039 | 75.15            | 3.90                | 79.05           |
| 6      | -38.227470 | 146.47726  | 75.15            | 3.90                | 79.05           |
| 7      | -38.226762 | 146.478241 | 75.15            | 3.90                | 79.05           |



## ADVERTISED PLAN

**Name:** PV array 6  
**Description:** Ground Minimum 63\_018  
**Footprint area:** 606,569 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.43  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.228854 | 146.462419 | 63.02            | 3.90                | 66.92           |
| 2      | -38.222280 | 146.472719 | 63.02            | 3.90                | 66.92           |
| 3      | -38.223325 | 146.473706 | 63.02            | 3.90                | 66.92           |
| 4      | -38.223190 | 146.475079 | 63.02            | 3.90                | 66.92           |
| 5      | -38.224808 | 146.476838 | 63.02            | 3.90                | 66.92           |
| 6      | -38.226089 | 146.477268 | 63.02            | 3.90                | 66.92           |
| 7      | -38.226629 | 146.477139 | 63.02            | 3.90                | 66.92           |
| 8      | -38.226898 | 146.476409 | 63.02            | 3.90                | 66.92           |
| 9      | -38.229899 | 146.475808 | 63.02            | 3.90                | 66.92           |



**Name:** PV array 7  
**Description:** Ground Minimum 66\_215  
**Footprint area:** 509,279 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.45  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.228887 | 146.462419 | 66.22            | 3.90                | 70.12           |
| 2      | -38.231584 | 146.458342 | 66.22            | 3.90                | 70.12           |
| 3      | -38.235832 | 146.457527 | 66.22            | 3.90                | 70.12           |
| 4      | -38.231079 | 146.465638 | 66.22            | 3.90                | 70.12           |
| 5      | -38.232730 | 146.477997 | 66.22            | 3.90                | 70.12           |
| 6      | -38.229966 | 146.475851 | 66.22            | 3.90                | 70.12           |



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**Name:** PV array 8  
**Description:** Ground Minimum 72\_306  
**Footprint area:** 153,894 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.4  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.238023 | 146.455166 | 72.31            | 3.90                | 76.21           |
| 2      | -38.240214 | 146.451175 | 72.31            | 3.90                | 76.21           |
| 3      | -38.241360 | 146.450918 | 72.31            | 3.90                | 76.21           |
| 4      | -38.241966 | 146.457140 | 72.31            | 3.90                | 76.21           |
| 5      | -38.239270 | 146.456883 | 72.31            | 3.90                | 76.21           |



**Name:** PV array 9  
**Description:** Ground Minimum 70\_084  
**Footprint area:** 1,755,658 m<sup>2</sup>  
**Axis tracking:** Single-axis rotation  
**Backtracking:** Shade-slope  
**Tracking axis orientation:** 0.0 deg  
**Maximum tracking angle:** 50.0 deg  
**Resting angle:** 0.0 deg  
**Ground Coverage Ratio:** 0.42  
**Rated power:** -  
**Panel material:** Smooth glass with AR coating  
**Vary reflectivity with sun position?** Yes  
**Correlate slope error with surface type?** Yes  
**Slope error:** 8.43 mrad

| Vertex | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------|------------|------------|------------------|---------------------|-----------------|
|        | deg        | deg        | m                | m                   | m               |
| 1      | -38.233539 | 146.478126 | 70.08            | 3.90                | 73.98           |
| 2      | -38.231989 | 146.466324 | 70.08            | 3.90                | 73.98           |
| 3      | -38.236877 | 146.457913 | 70.08            | 3.90                | 73.98           |
| 4      | -38.242000 | 146.457956 | 70.08            | 3.90                | 73.98           |
| 5      | -38.243787 | 146.473362 | 70.08            | 3.90                | 73.98           |
| 6      | -38.238832 | 146.477396 | 70.08            | 3.90                | 73.98           |
| 7      | -38.236843 | 146.478169 | 70.08            | 3.90                | 73.98           |



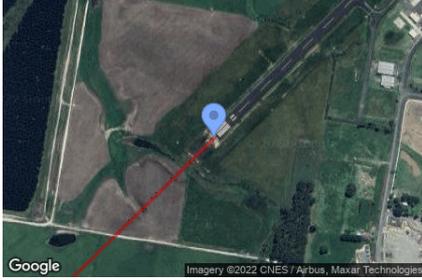
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### 2-Mile Flight Path Receptor(s)

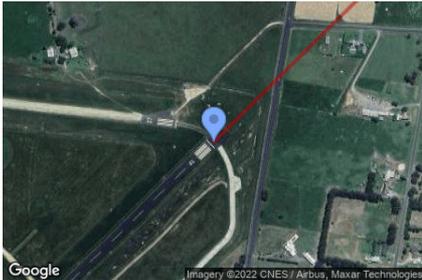
**Name:** FP 1  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 45.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.215525      | 146.465053       | 51.19                    | 15.24                       | 66.43                   |
| 2-mile<br>point | -38.235919      | 146.438938       | 66.15                    | 168.97                      | 235.11                  |



**Name:** FP 2  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 225.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

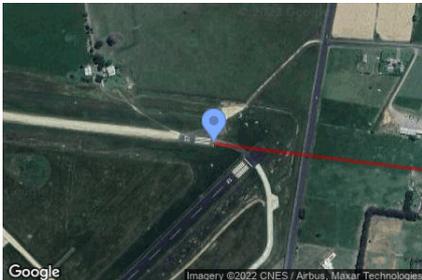
| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.206436      | 146.476628       | 57.79                    | 15.24                       | 73.03                   |
| 2-mile<br>point | -38.186038      | 146.502735       | 52.47                    | 189.25                      | 241.72                  |



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**Name:** FP 3  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 277.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

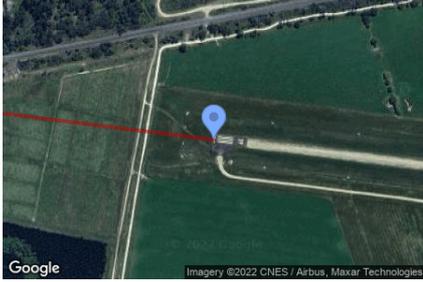
| Point           | Latitude<br>deg | Longitude<br>deg | Ground<br>elevation<br>m | Height above<br>ground<br>m | Total<br>elevation<br>m |
|-----------------|-----------------|------------------|--------------------------|-----------------------------|-------------------------|
| Threshold       | -38.206142      | 146.475786       | 55.28                    | 15.24                       | 70.52                   |
| 2-mile<br>point | -38.209736      | 146.512338       | 69.94                    | 169.27                      | 239.20                  |



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**Name:** FP 4  
**Description:**  
**Threshold height :** 15 m  
**Direction:** 97.1 deg  
**Glide slope:** 3.0 deg  
**Pilot view restricted?** Yes  
**Vertical view restriction:** 30.0 deg  
**Azimuthal view restriction:** 50.0 deg

| Point        | Latitude   | Longitude  | Ground elevation | Height above ground | Total elevation |
|--------------|------------|------------|------------------|---------------------|-----------------|
|              | deg        | deg        | m                | m                   | m               |
| Threshold    | -38.205111 | 146.465369 | 50.98            | 15.24               | 66.22           |
| 2-mile point | -38.201512 | 146.428819 | 94.82            | 140.09              | 234.91          |



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# Summary of PV Glare Analysis

*PV configuration and total predicted glare*

| PV Name     | Tilt<br>deg | Orientation<br>deg | "Green" Glare<br>min | "Yellow" Glare<br>min | Energy Produced<br>kWh | Data File |
|-------------|-------------|--------------------|----------------------|-----------------------|------------------------|-----------|
| PV array 1  | SA tracking | SA tracking        | 2,426                | 1,881                 | -                      | -         |
| PV array 10 | SA tracking | SA tracking        | 0                    | 0                     | -                      | -         |
| PV array 11 | SA tracking | SA tracking        | 28                   | 0                     | -                      | -         |
| PV array 12 | SA tracking | SA tracking        | 0                    | 0                     | -                      | -         |
| PV array 13 | SA tracking | SA tracking        | 430                  | 0                     | -                      | -         |
| PV array 14 | SA tracking | SA tracking        | 358                  | 17                    | -                      | -         |
| PV array 15 | SA tracking | SA tracking        | 173                  | 0                     | -                      | -         |
| PV array 16 | SA tracking | SA tracking        | 0                    | 0                     | -                      | -         |
| PV array 2  | SA tracking | SA tracking        | 2,552                | 1,403                 | -                      | -         |
| PV array 3  | SA tracking | SA tracking        | 2,499                | 180                   | -                      | -         |
| PV array 4  | SA tracking | SA tracking        | 1,755                | 2,590                 | -                      | -         |
| PV array 5  | SA tracking | SA tracking        | 1,049                | 35                    | -                      | -         |
| PV array 6  | SA tracking | SA tracking        | 1,459                | 1,342                 | -                      | -         |
| PV array 7  | SA tracking | SA tracking        | 1,057                | 1,093                 | -                      | -         |
| PV array 8  | SA tracking | SA tracking        | 160                  | 0                     | -                      | -         |
| PV array 9  | SA tracking | SA tracking        | 496                  | 506                   | -                      | -         |

## Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

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| PV                   | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| pv-array-1 (green)   | 187 | 315 | 187 | 117 | 207 | 200 | 215 | 163 | 58  | 380 | 205 | 192 |
| pv-array-1 (yellow)  | 450 | 295 | 27  | 0   | 0   | 0   | 0   | 0   | 0   | 216 | 410 | 483 |
| pv-array-11 (green)  | 0   | 0   | 13  | 0   | 0   | 0   | 0   | 0   | 0   | 15  | 0   | 0   |
| pv-array-11 (yellow) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-13 (green)  | 0   | 0   | 200 | 15  | 0   | 0   | 0   | 0   | 155 | 60  | 0   | 0   |
| pv-array-13 (yellow) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-14 (green)  | 0   | 0   | 173 | 7   | 0   | 0   | 0   | 0   | 133 | 45  | 0   | 0   |
| pv-array-14 (yellow) | 0   | 0   | 9   | 0   | 0   | 0   | 0   | 0   | 0   | 8   | 0   | 0   |
| pv-array-15 (green)  | 0   | 0   | 87  | 0   | 0   | 0   | 0   | 0   | 28  | 58  | 0   | 0   |
| pv-array-15 (yellow) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-2 (green)   | 251 | 345 | 108 | 149 | 219 | 200 | 221 | 183 | 92  | 321 | 264 | 199 |
| pv-array-2 (yellow)  | 379 | 171 | 0   | 10  | 0   | 0   | 0   | 4   | 4   | 80  | 347 | 408 |
| pv-array-3 (green)   | 508 | 167 | 110 | 179 | 163 | 0   | 82  | 199 | 148 | 98  | 443 | 402 |
| pv-array-3 (yellow)  | 21  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 159 |
| pv-array-4 (green)   | 150 | 351 | 56  | 10  | 124 | 230 | 202 | 18  | 13  | 315 | 207 | 79  |
| pv-array-4 (yellow)  | 459 | 101 | 180 | 220 | 138 | 0   | 53  | 227 | 201 | 84  | 367 | 560 |
| pv-array-5 (green)   | 26  | 0   | 177 | 215 | 0   | 0   | 0   | 139 | 214 | 41  | 0   | 237 |
| pv-array-5 (yellow)  | 0   | 0   | 18  | 0   | 0   | 0   | 0   | 0   | 3   | 14  | 0   | 0   |
| pv-array-6 (green)   | 239 | 54  | 45  | 51  | 208 | 32  | 188 | 87  | 42  | 17  | 207 | 289 |
| pv-array-6 (yellow)  | 55  | 0   | 249 | 254 | 61  | 0   | 0   | 220 | 265 | 76  | 14  | 148 |
| pv-array-7 (green)   | 197 | 0   | 36  | 136 | 83  | 0   | 0   | 194 | 41  | 9   | 125 | 236 |
| pv-array-7 (yellow)  | 0   | 0   | 327 | 218 | 0   | 0   | 0   | 110 | 330 | 108 | 0   | 0   |
| pv-array-8 (green)   | 13  | 0   | 28  | 0   | 0   | 0   | 0   | 0   | 0   | 25  | 0   | 94  |
| pv-array-8 (yellow)  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| pv-array-9 (green)   | 31  | 0   | 47  | 113 | 0   | 0   | 0   | 32  | 114 | 12  | 0   | 147 |
| pv-array-9 (yellow)  | 0   | 0   | 241 | 12  | 0   | 0   | 0   | 0   | 170 | 83  | 0   | 0   |

## PV & Receptor Analysis Results

Results for each PV array and receptor

### PV array 1 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 923               | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 1141              | 1881               |
| FP: FP 4  | 362               | 0                  |

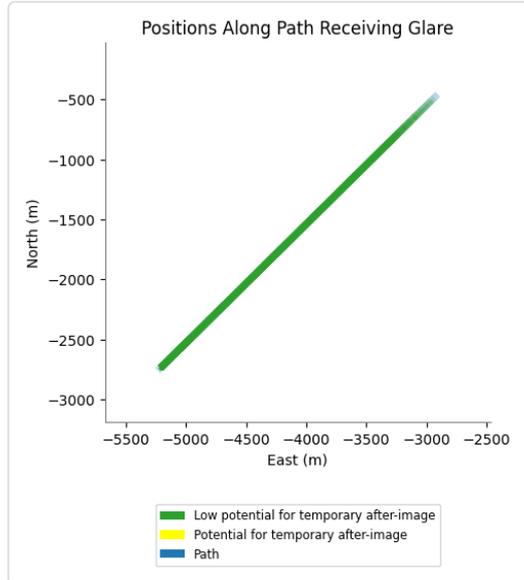
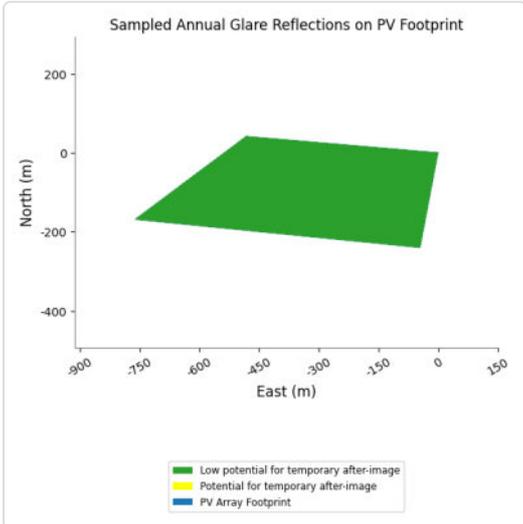
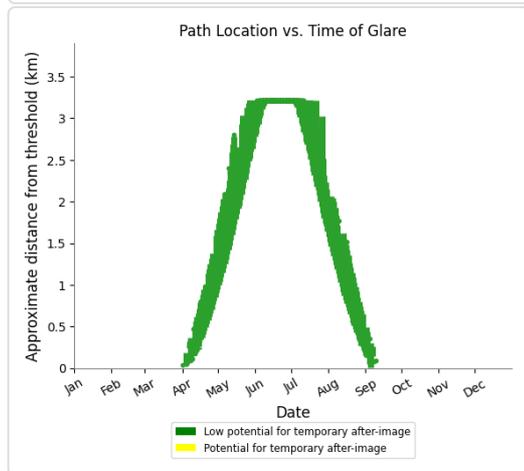
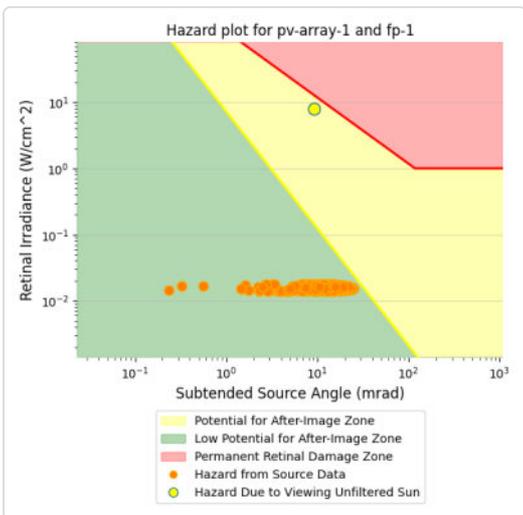
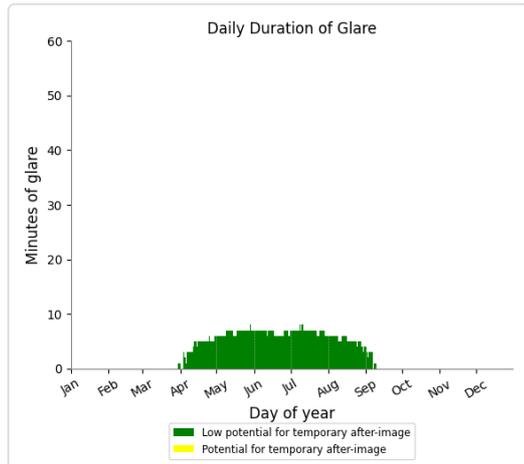
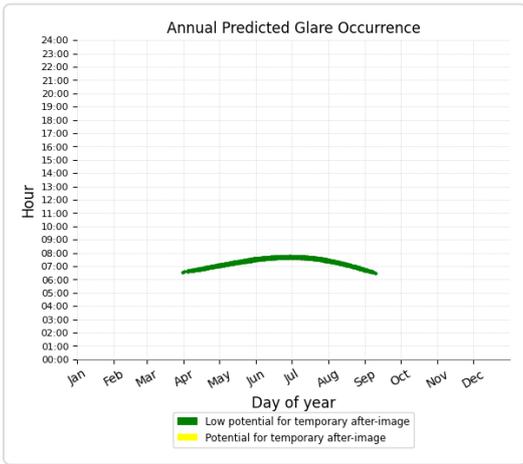
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### PV array 1 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 923 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 1 - Receptor (FP 2)

No glare found

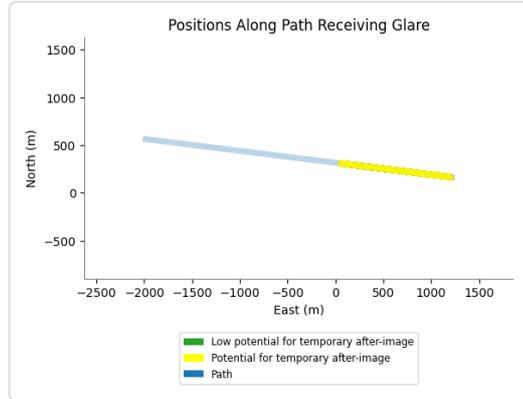
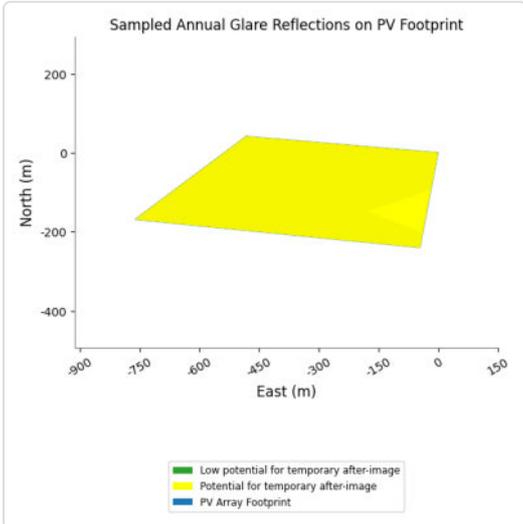
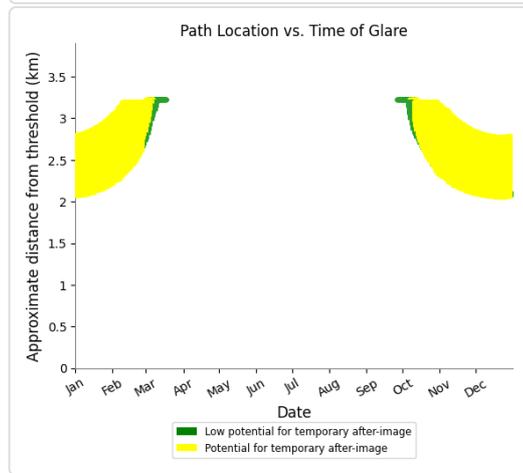
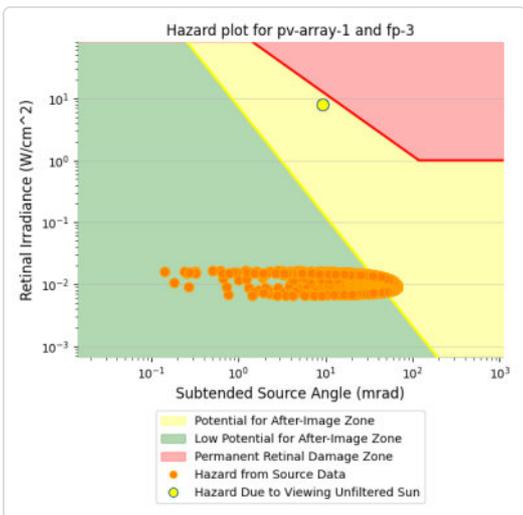
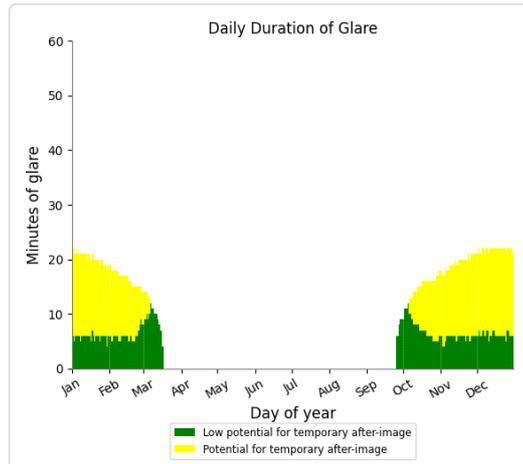
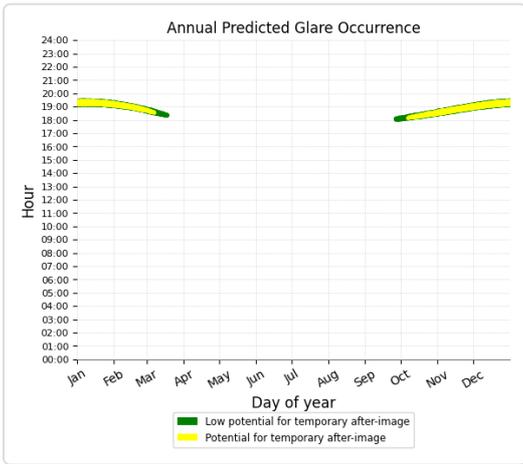
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### PV array 1 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 1,141 minutes of "green" glare with low potential to cause temporary after-image.
- 1,881 minutes of "yellow" glare with potential to cause temporary after-image.



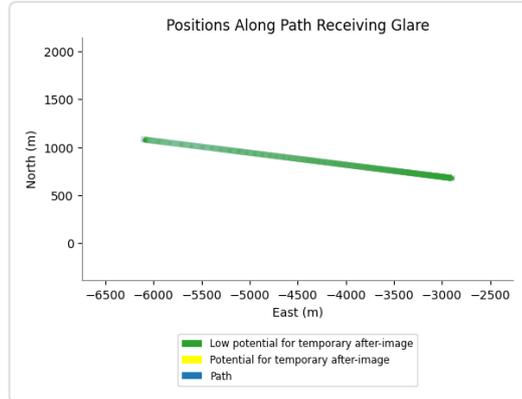
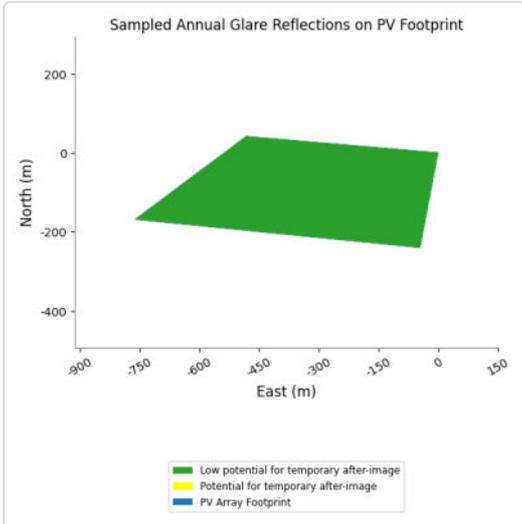
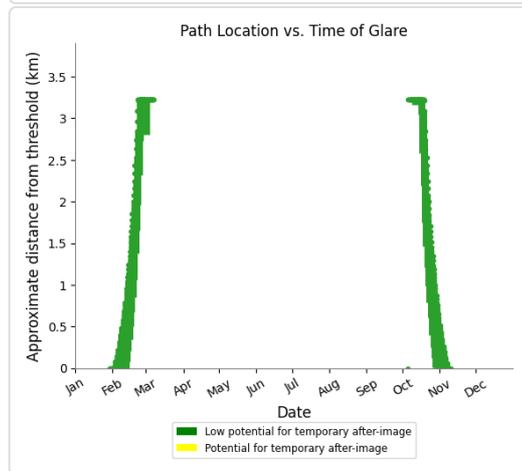
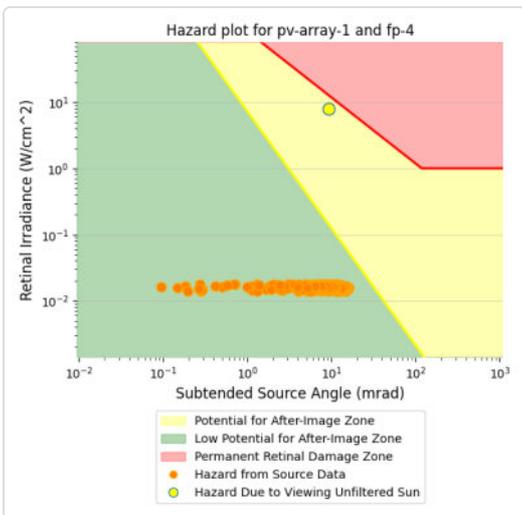
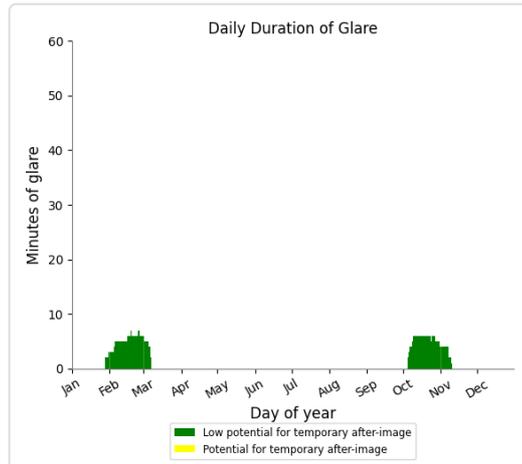
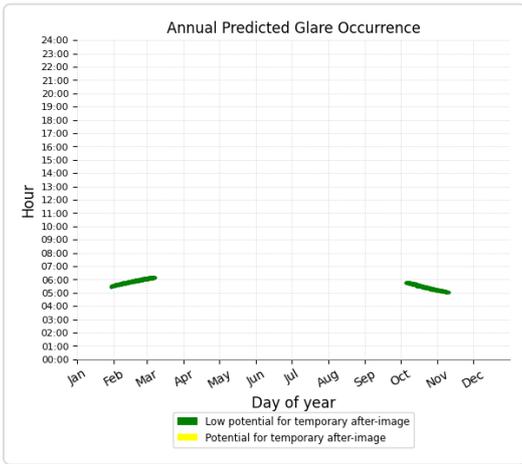
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### PV array 1 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 362 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



PV array 10 no glare found

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| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

No glare found

**PV array 11** low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 28                | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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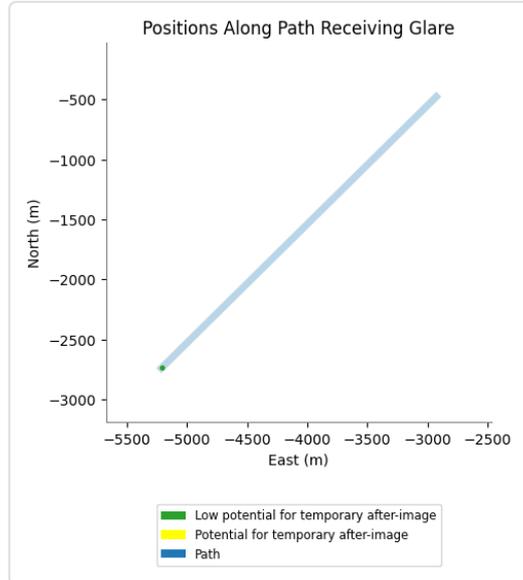
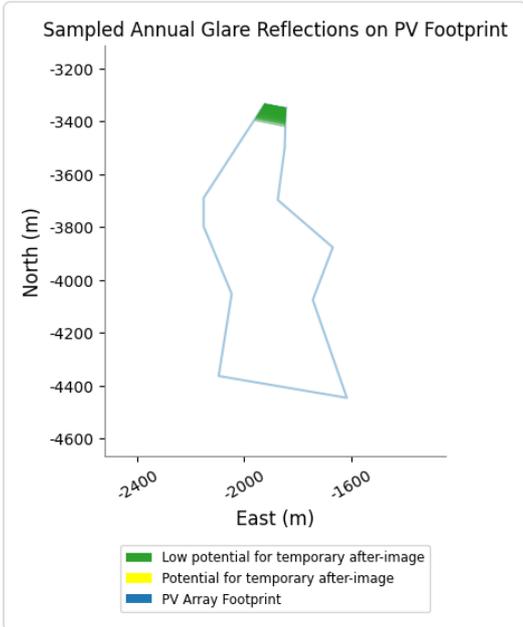
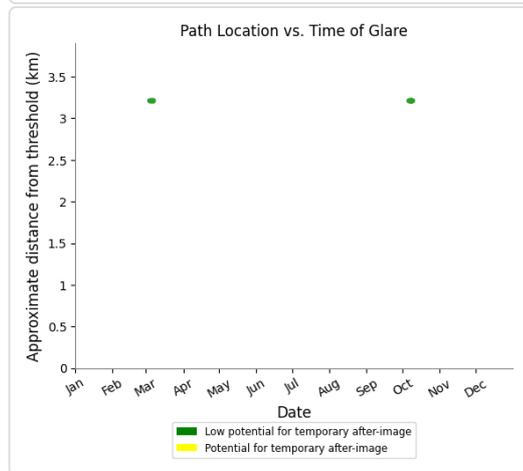
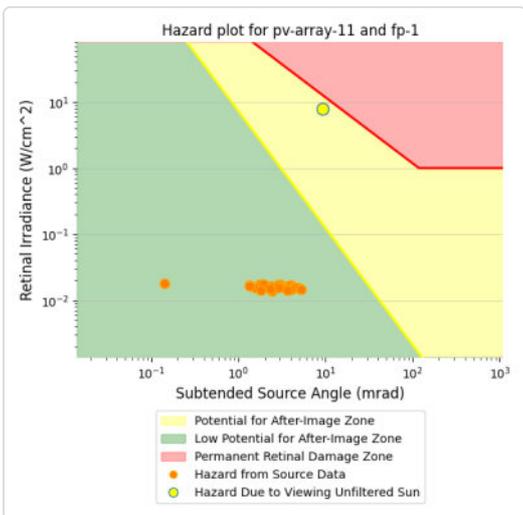
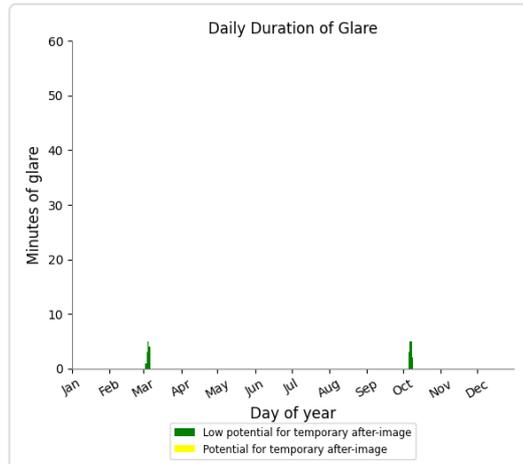
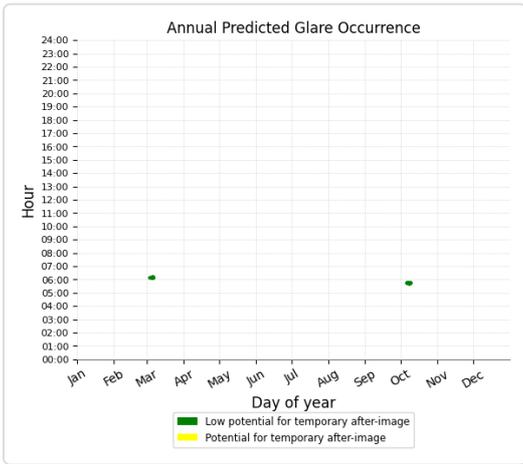
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**PV array 11 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 28 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 11 - Receptor (FP 2)**

No glare found

**PV array 11 - Receptor (FP 3)**

No glare found

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**PV array 11 - Receptor (FP 4)**

*No glare found*

**PV array 12** no glare found

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

*No glare found*

**PV array 13** low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 430               | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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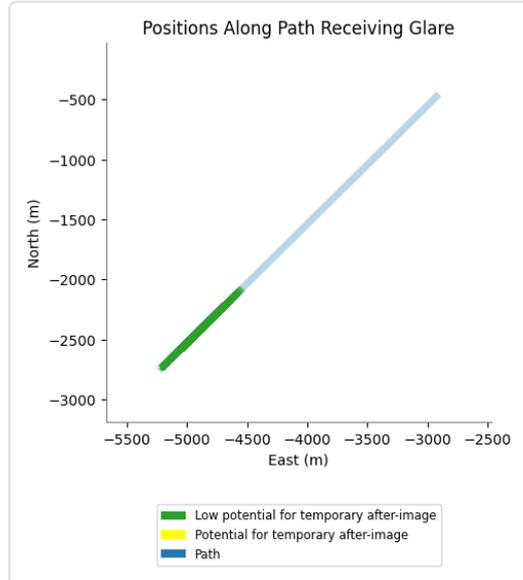
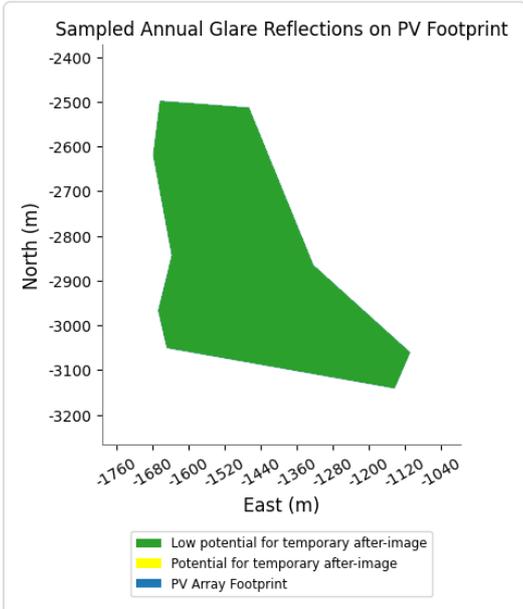
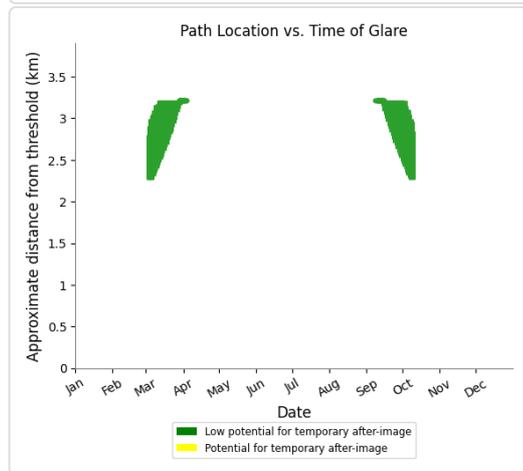
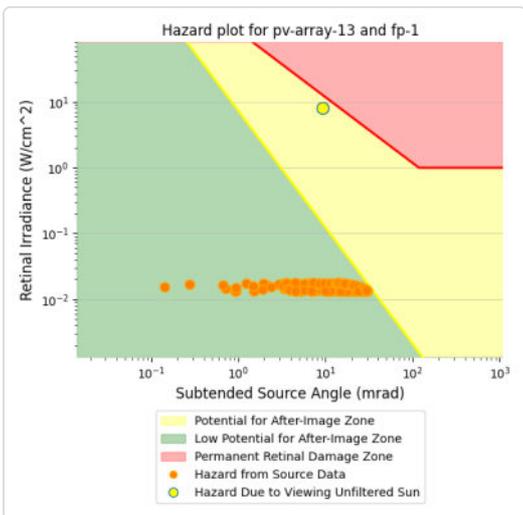
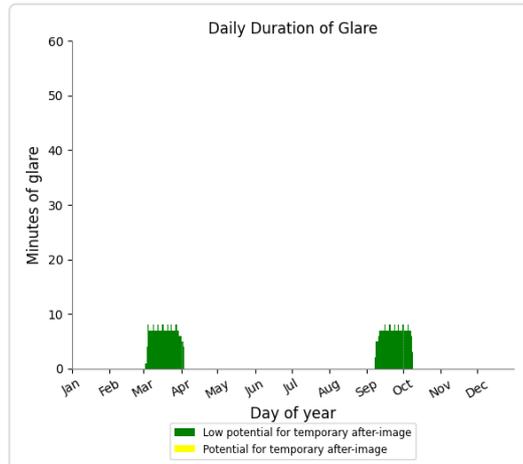
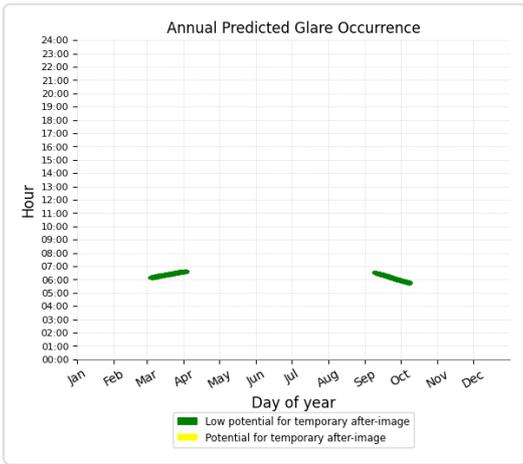
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**PV array 13 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 430 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 13 - Receptor (FP 2)**

No glare found

**PV array 13 - Receptor (FP 3)**

No glare found

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**PV array 13 - Receptor (FP 4)***No glare found***PV array 14** potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 358               | 17                 |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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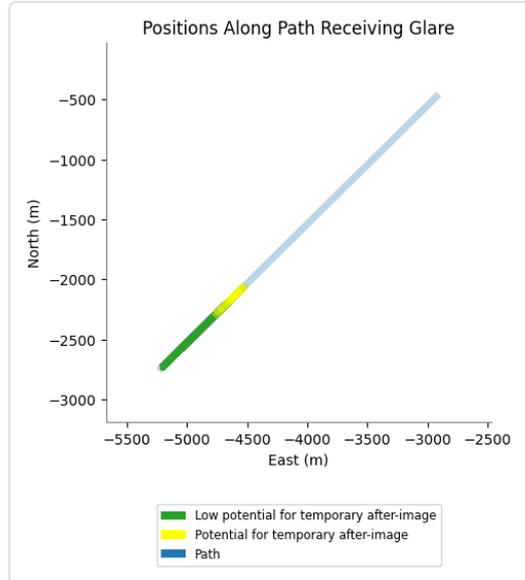
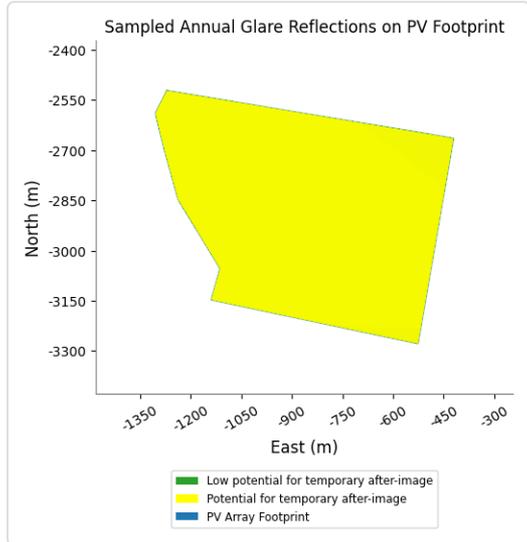
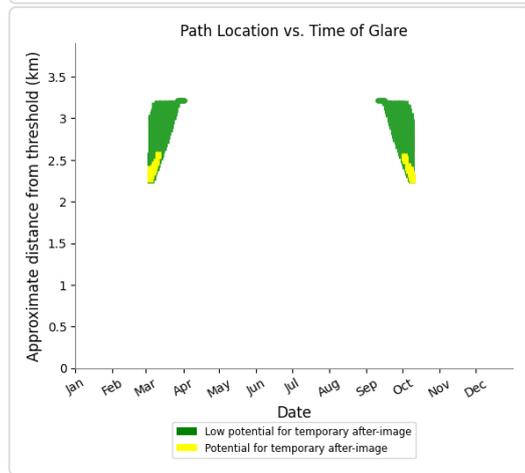
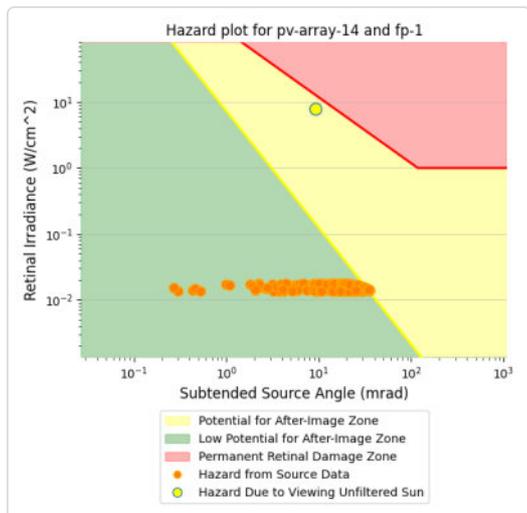
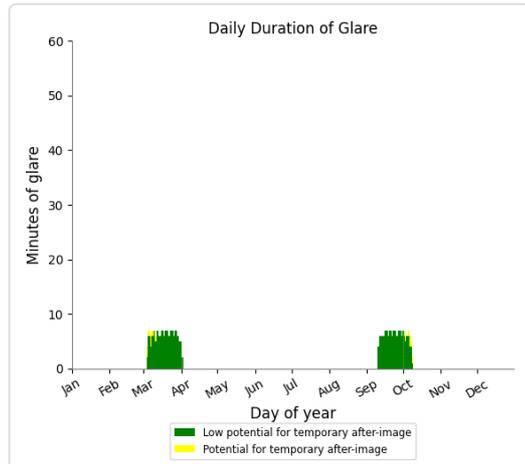
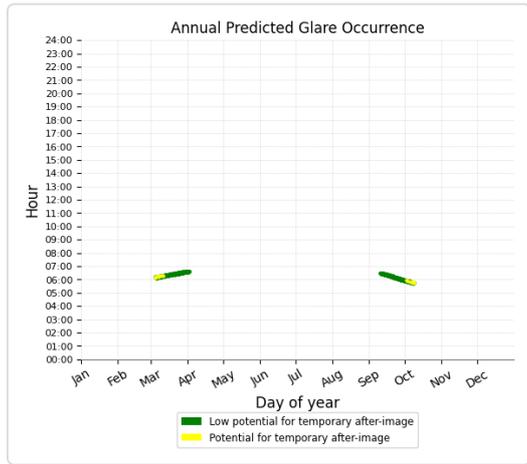
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**PV array 14 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 358 minutes of "green" glare with low potential to cause temporary after-image.
- 17 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 14 - Receptor (FP 2)**

No glare found

**PV array 14 - Receptor (FP 3)**

No glare found

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### PV array 14 - Receptor (FP 4)

*No glare found*

### PV array 15 low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 173               | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

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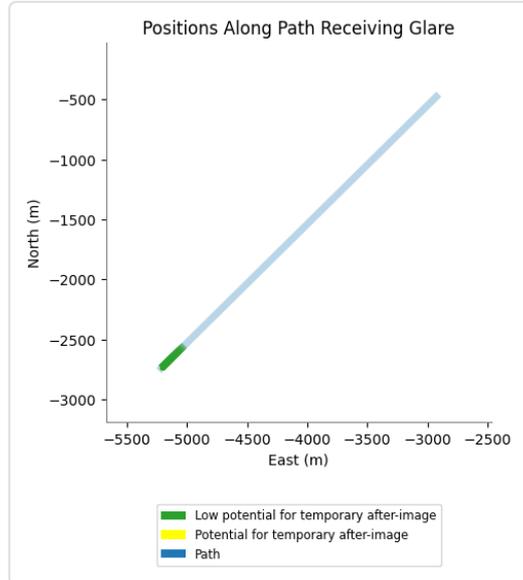
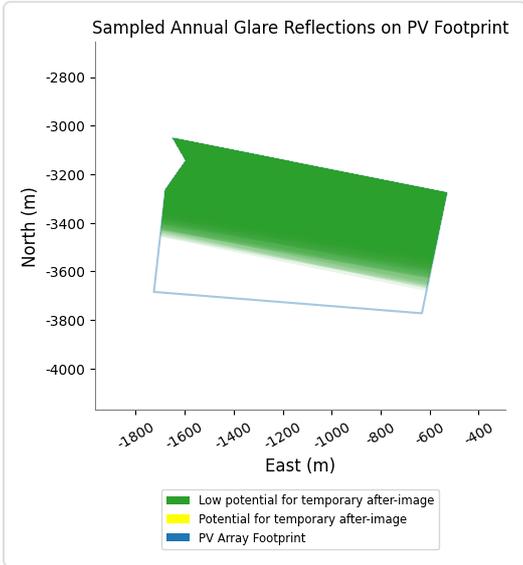
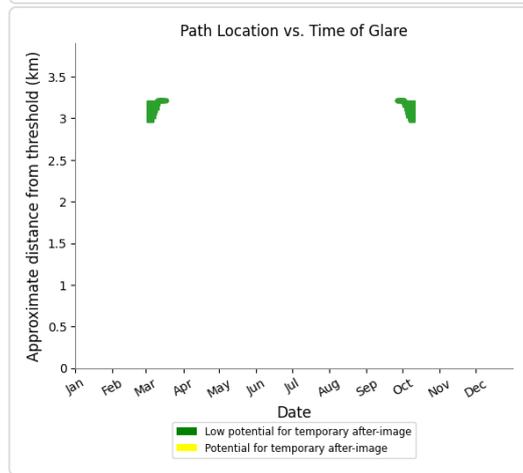
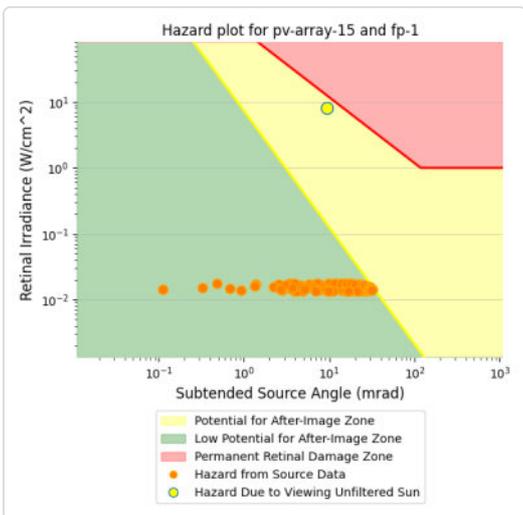
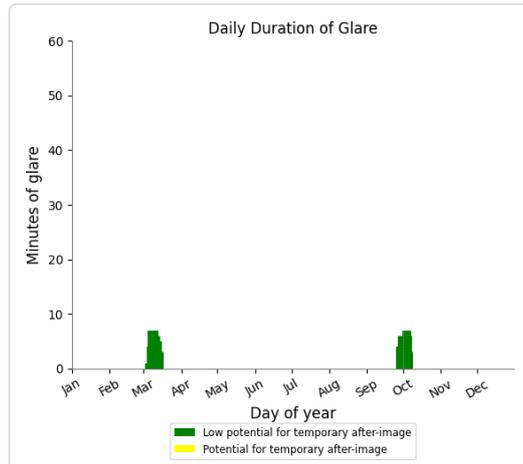
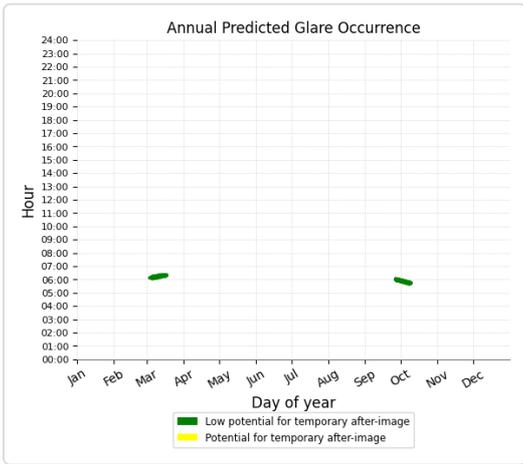
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**PV array 15 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 173 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 15 - Receptor (FP 2)**

No glare found

**PV array 15 - Receptor (FP 3)**

No glare found

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### PV array 15 - Receptor (FP 4)

No glare found

### PV array 16 no glare found

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 0                 | 0                  |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 0                 | 0                  |
| FP: FP 4  | 0                 | 0                  |

No glare found

### PV array 2 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 1111              | 18                 |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 752               | 1385               |
| FP: FP 4  | 689               | 0                  |

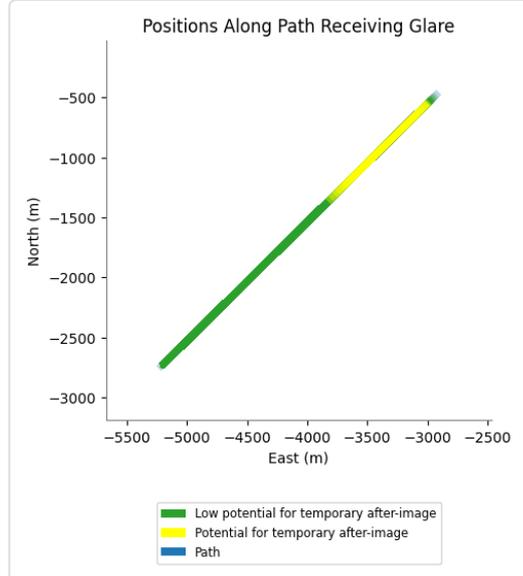
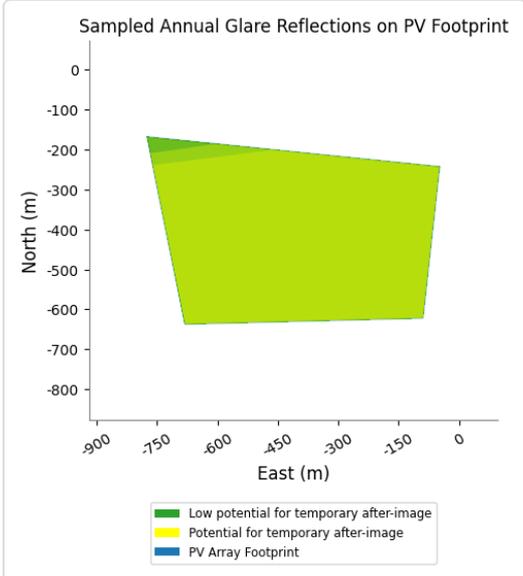
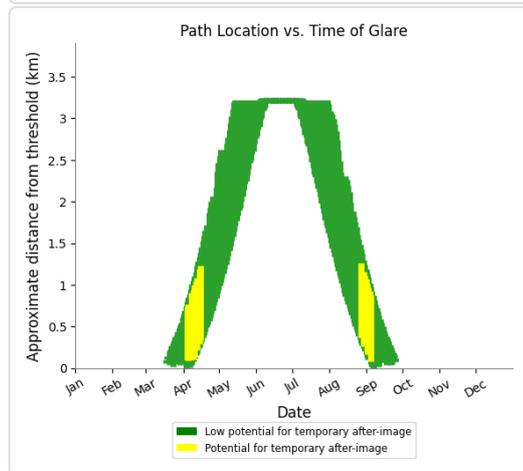
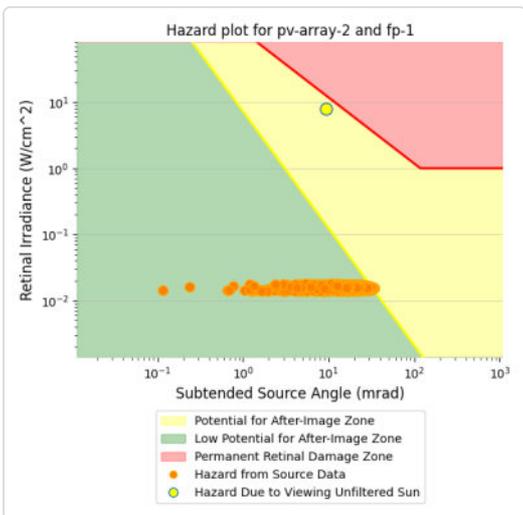
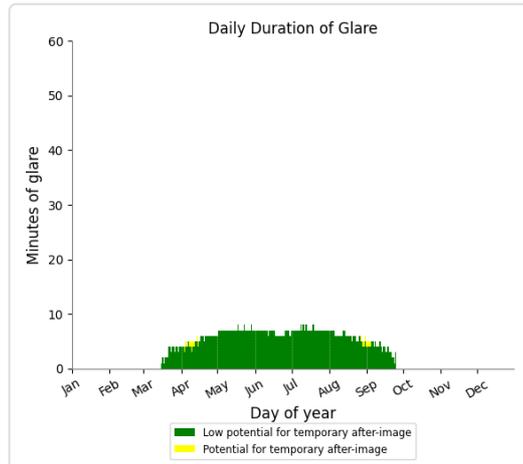
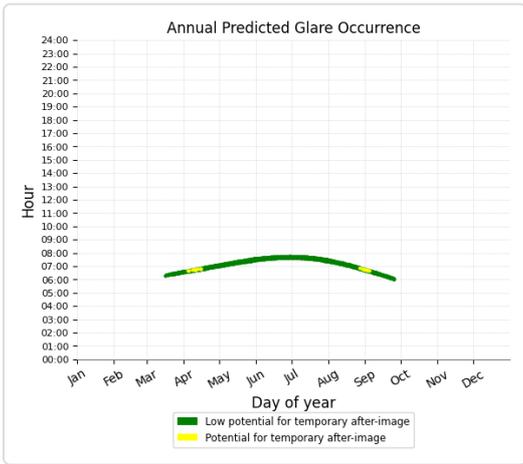
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### PV array 2 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 1,111 minutes of "green" glare with low potential to cause temporary after-image.
- 18 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 2 - Receptor (FP 2)

No glare found

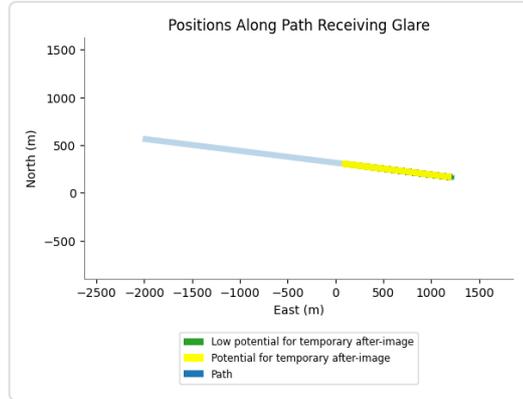
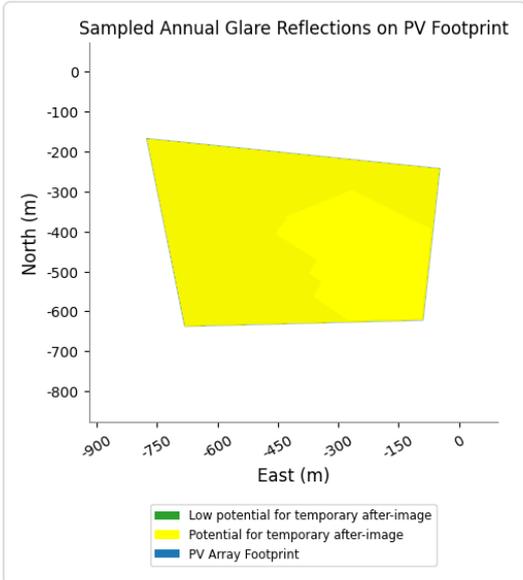
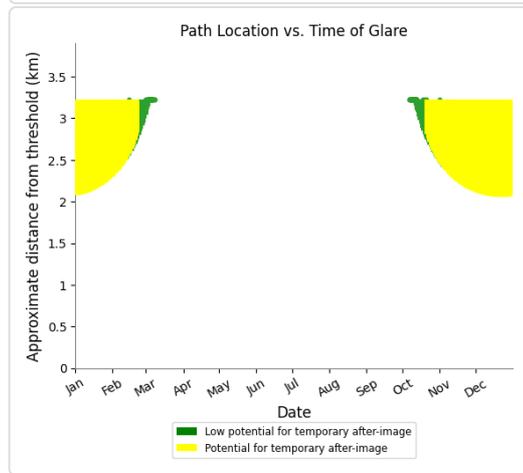
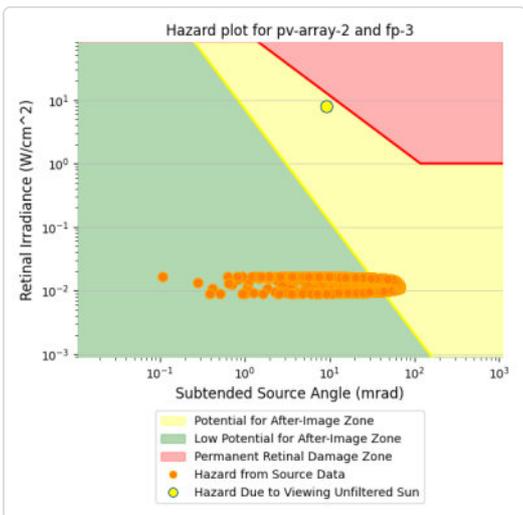
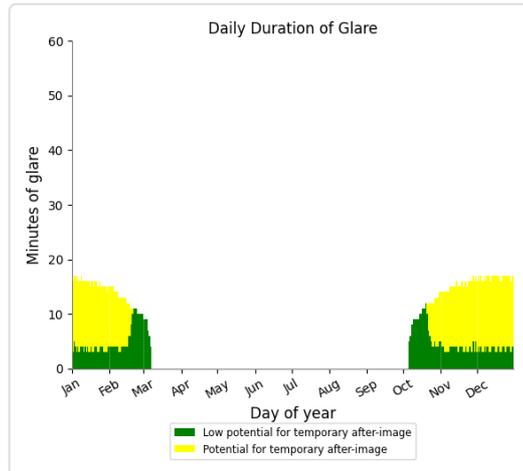
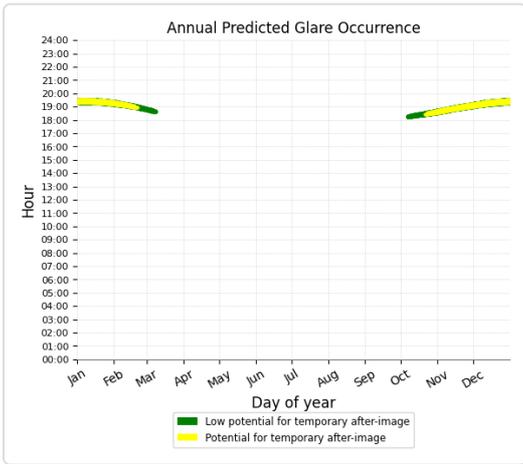
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### PV array 2 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 752 minutes of "green" glare with low potential to cause temporary after-image.
- 1,385 minutes of "yellow" glare with potential to cause temporary after-image.



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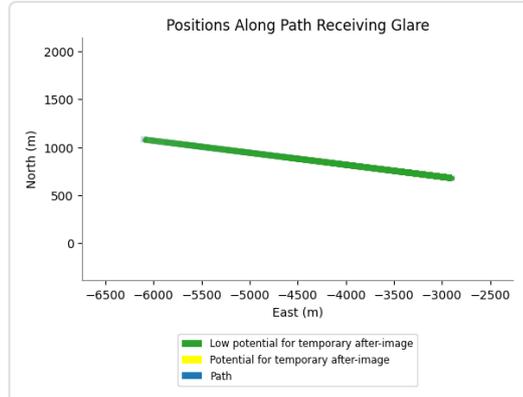
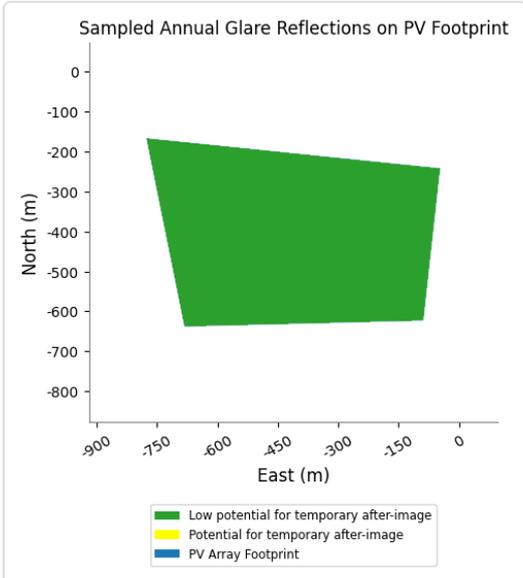
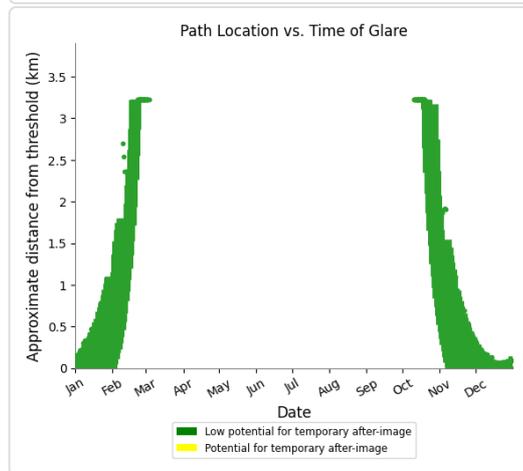
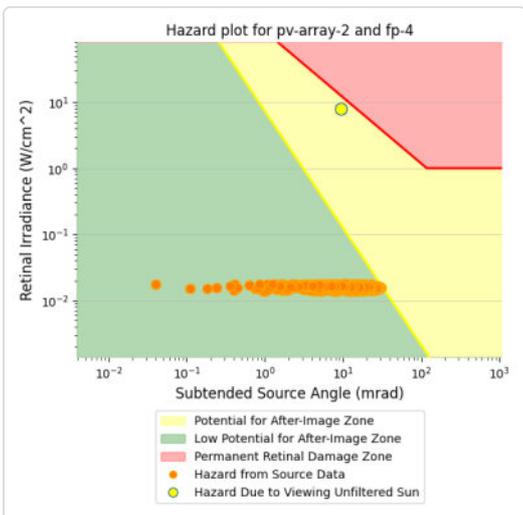
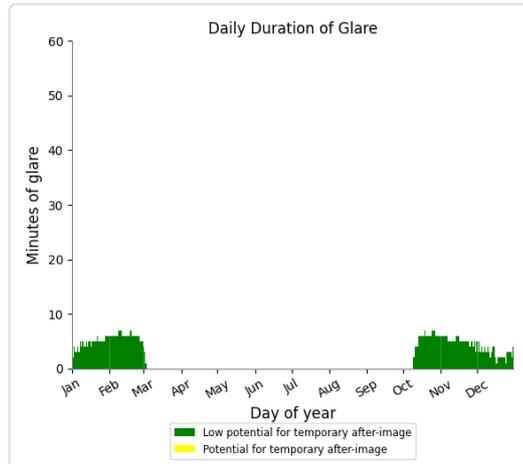
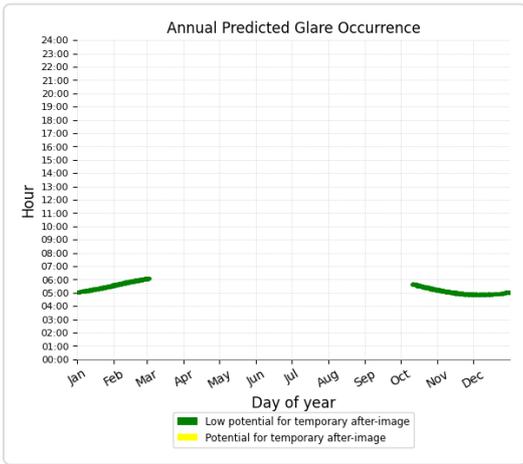
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### PV array 2 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 689 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 3 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 903               | 0                  |
| FP: FP 2  | 0                 | 0                  |

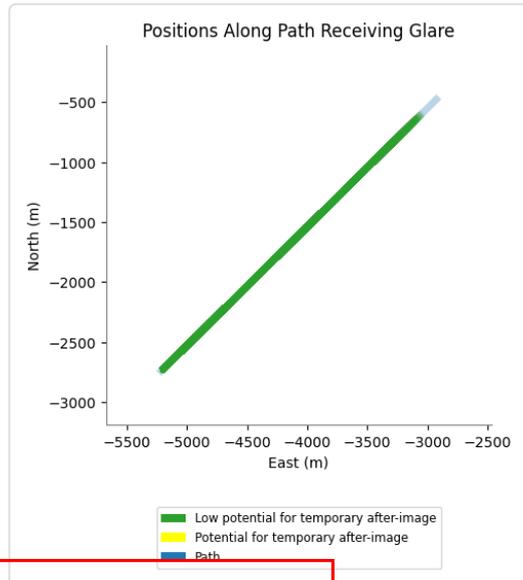
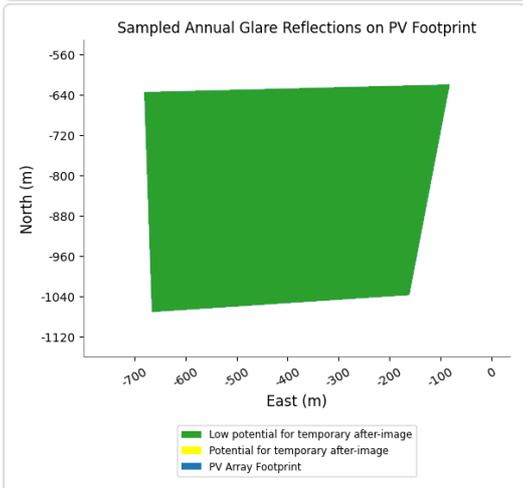
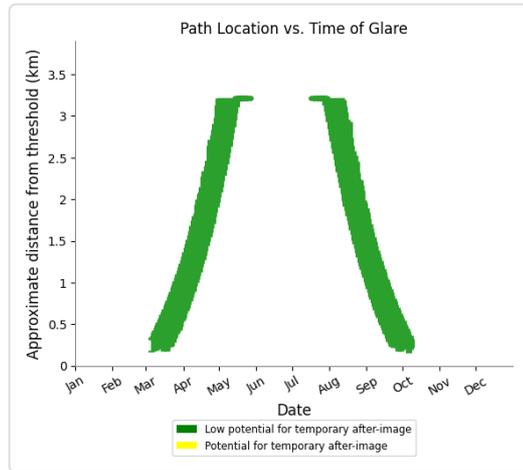
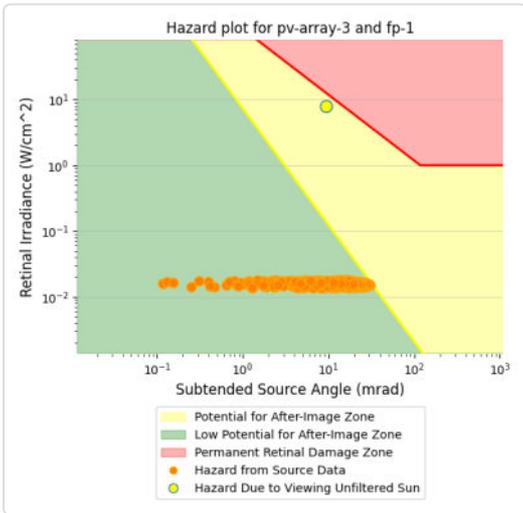
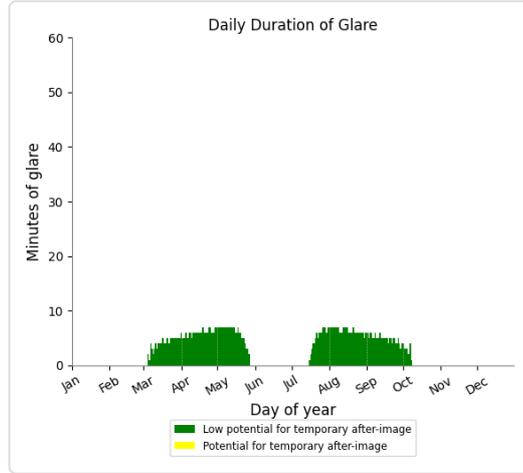
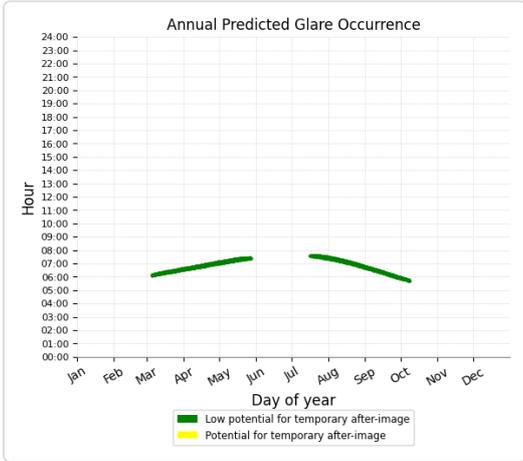
|          |     |     |
|----------|-----|-----|
| FP: FP 3 | 864 | 180 |
| FP: FP 4 | 732 | 0   |

### PV array 3 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 903 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 3 - Receptor (FP 2)

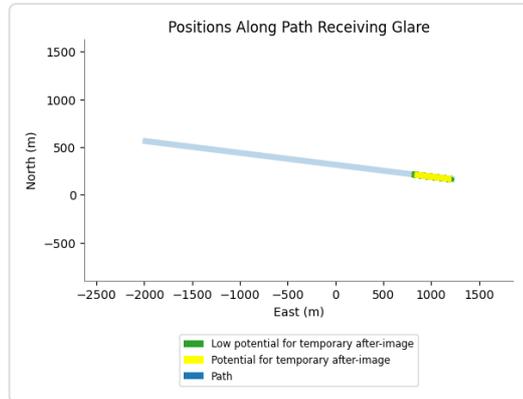
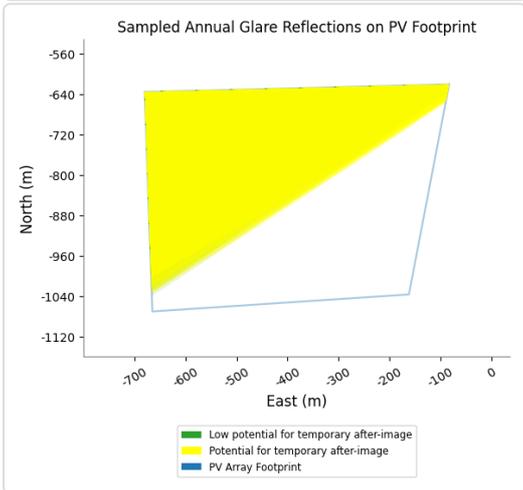
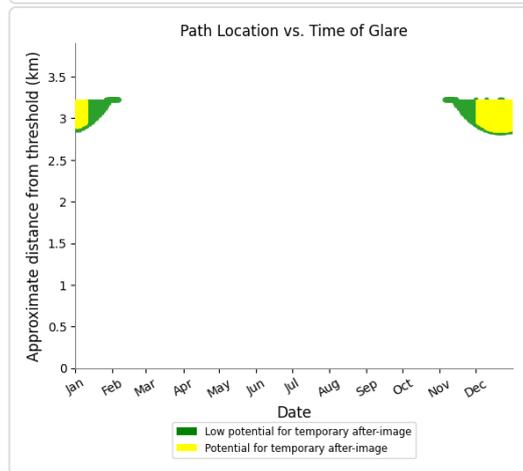
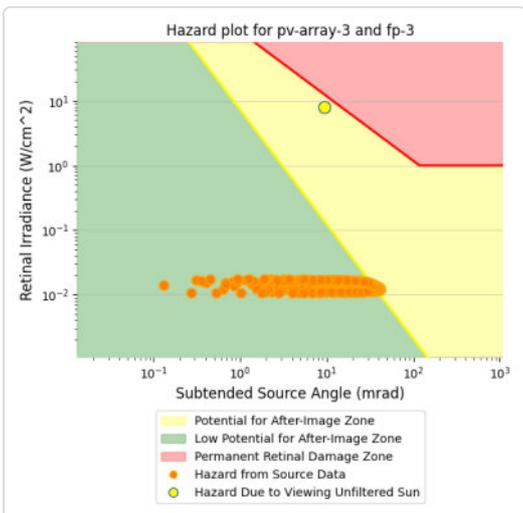
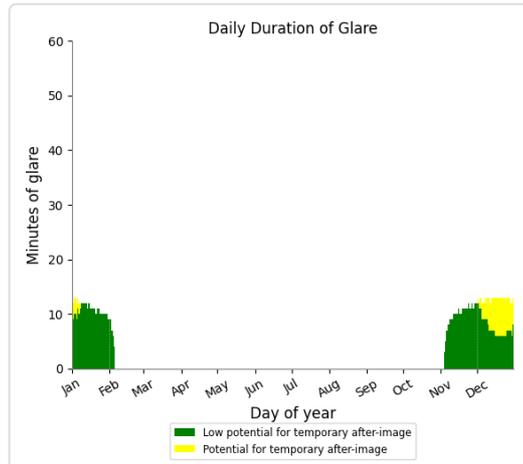
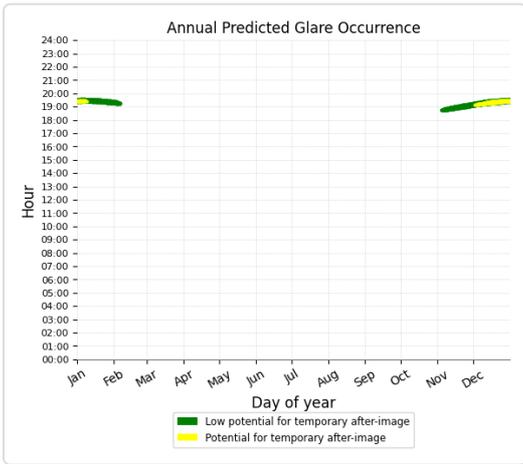
No glare found

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### PV array 3 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 864 minutes of "green" glare with low potential to cause temporary after-image.
- 180 minutes of "yellow" glare with potential to cause temporary after-image.



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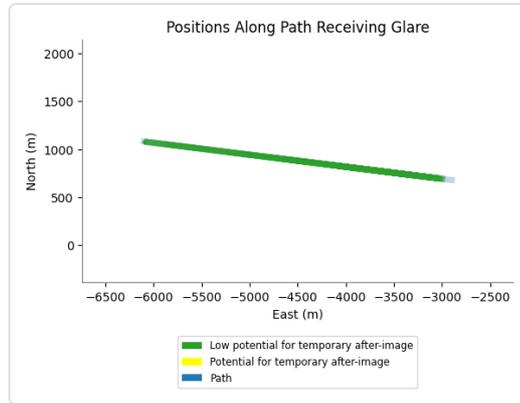
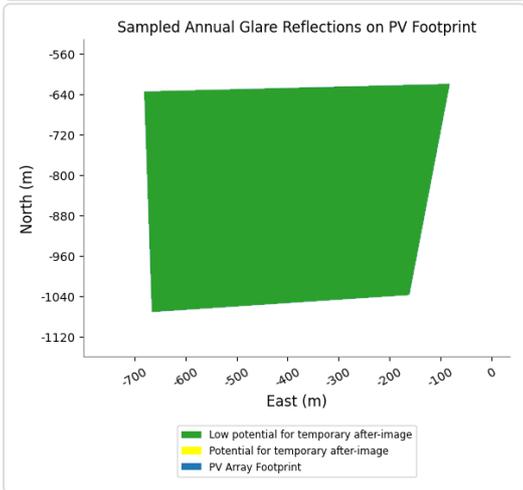
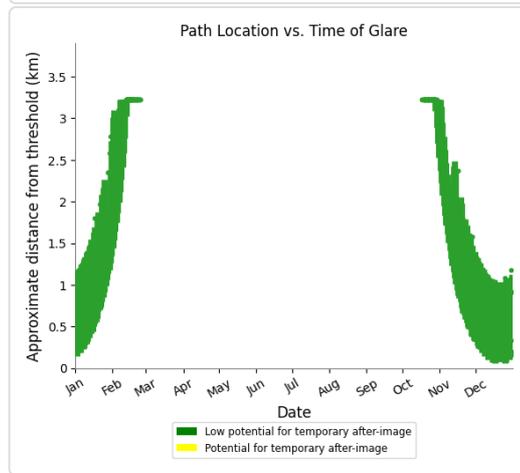
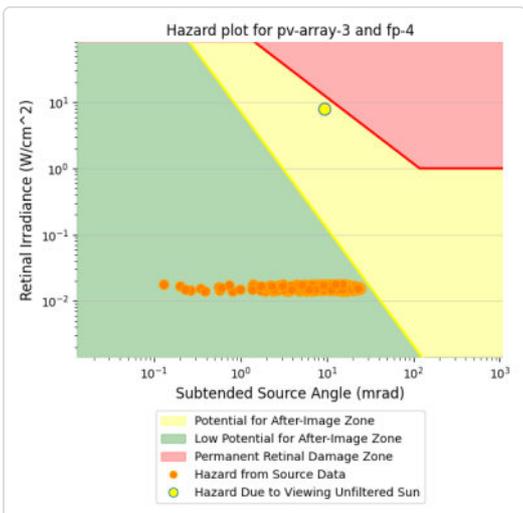
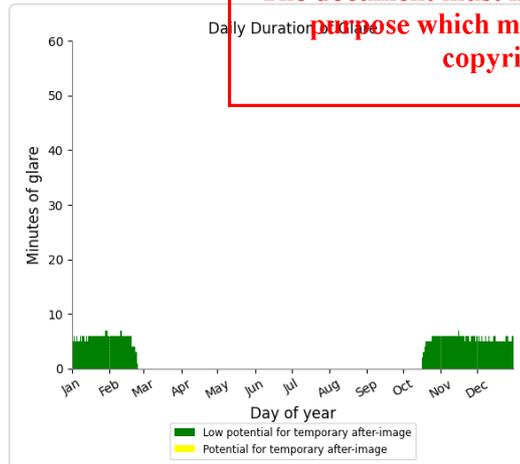
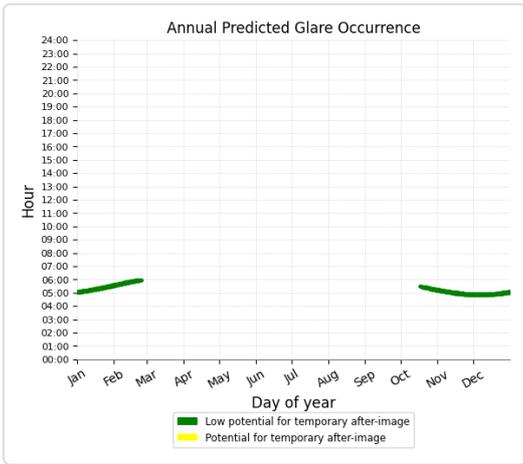
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### PV array 3 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 732 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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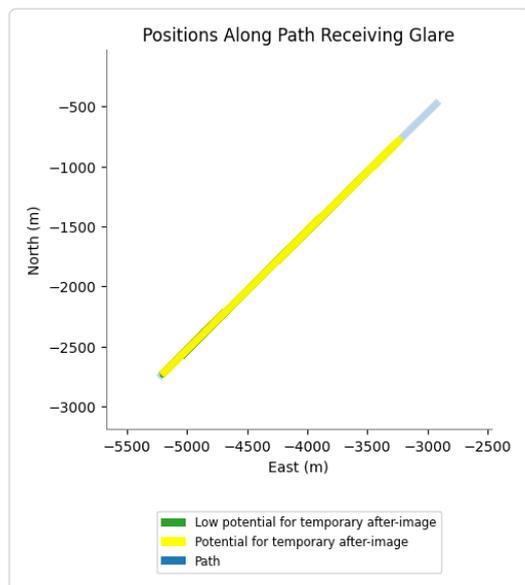
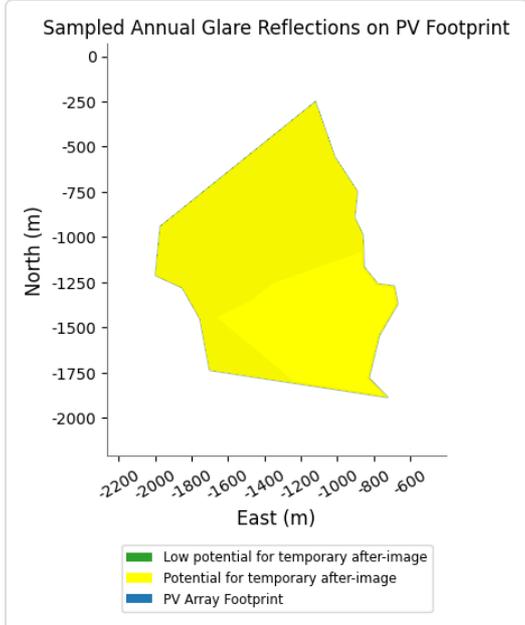
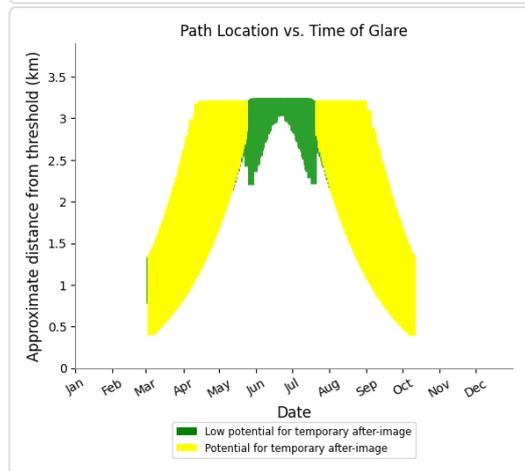
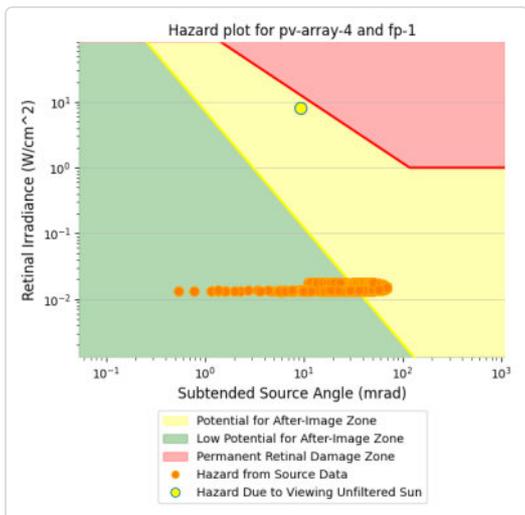
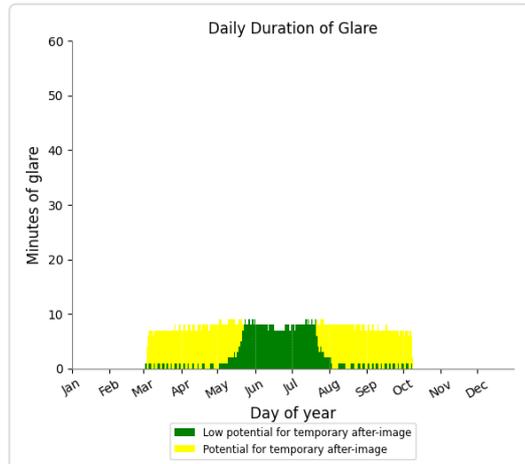
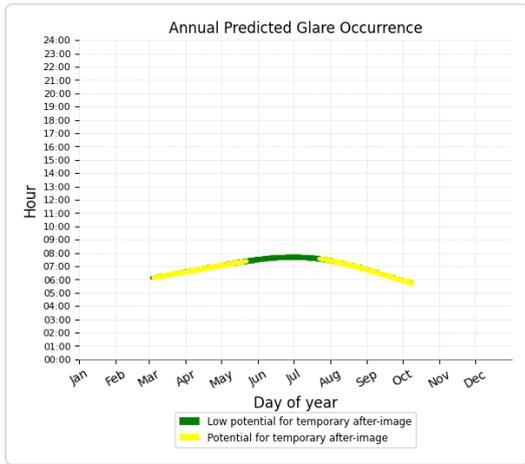
### PV array 4 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 615               | 1070               |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 595               | 1105               |
| FP: FP 4  | 545               | 415                |

### PV array 4 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 615 minutes of "green" glare with low potential to cause temporary after-image.
- 1,070 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 4 - Receptor (FP 2)

No glare found

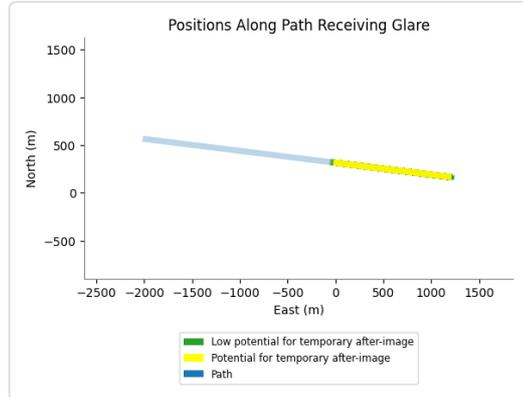
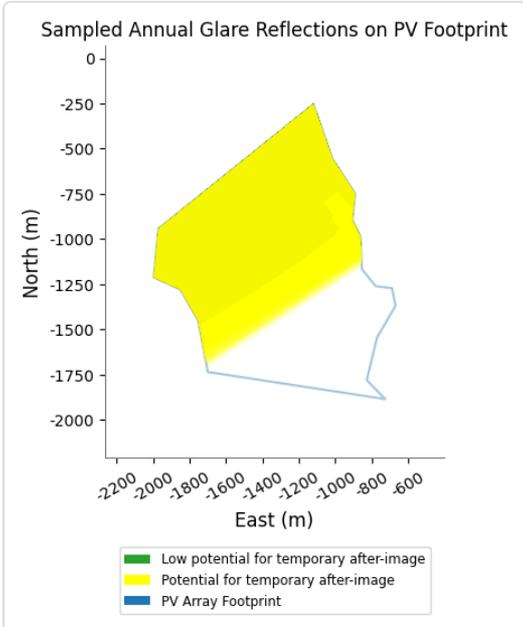
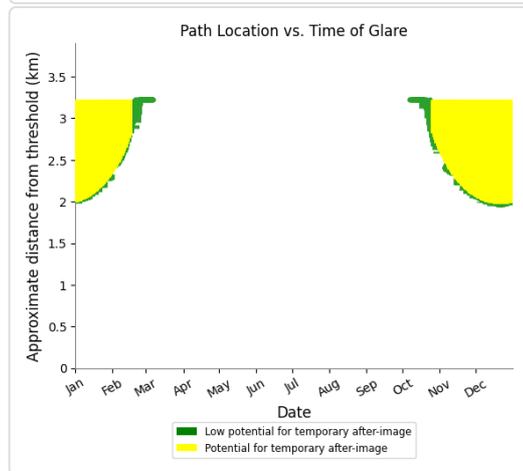
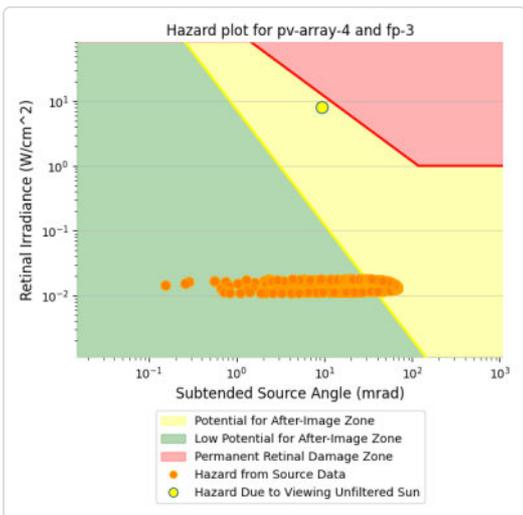
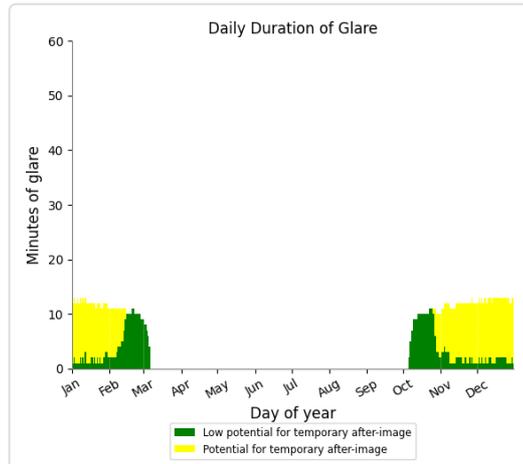
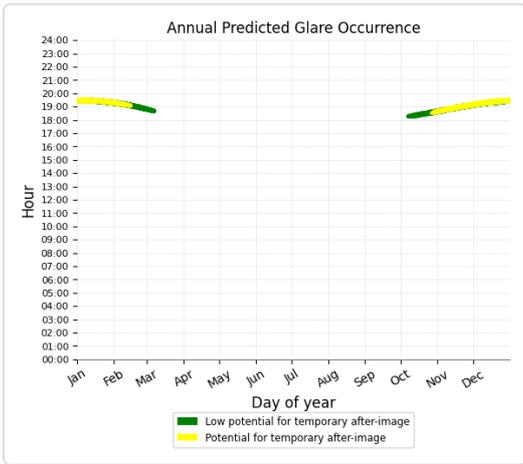
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### PV array 4 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 595 minutes of "green" glare with low potential to cause temporary after-image.
- 1,105 minutes of "yellow" glare with potential to cause temporary after-image.



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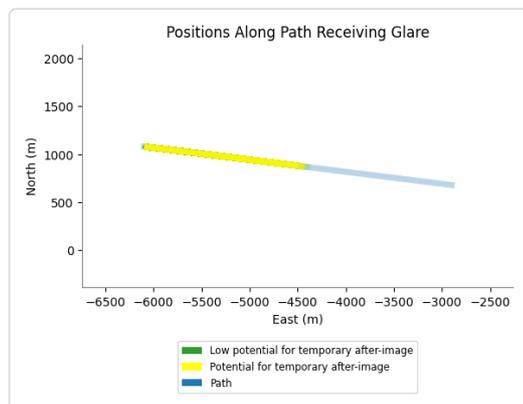
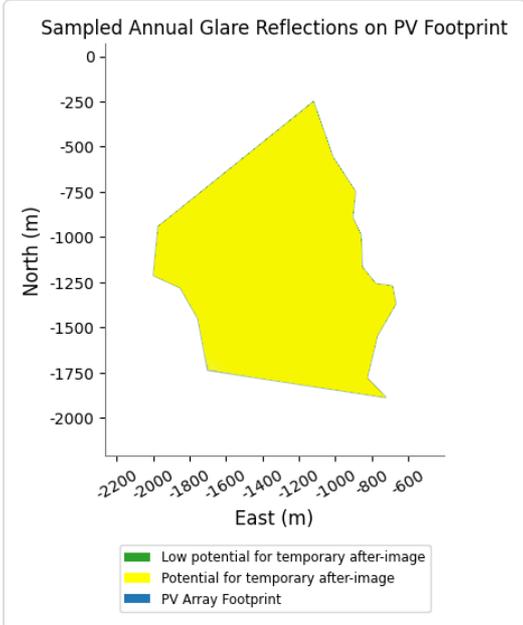
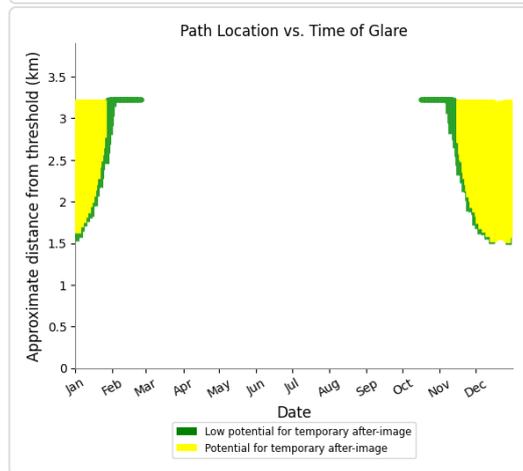
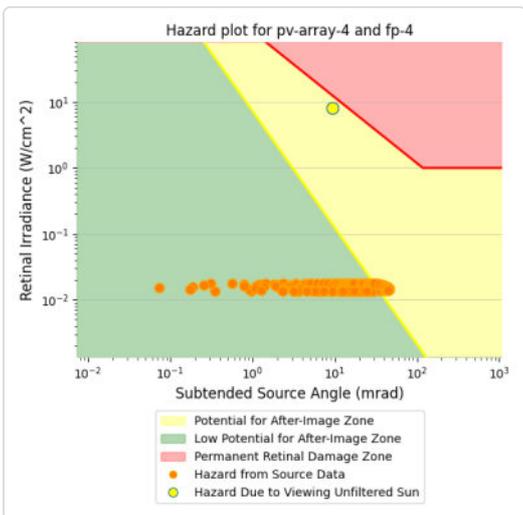
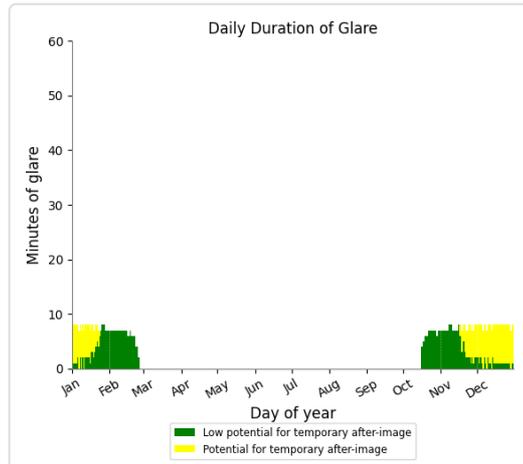
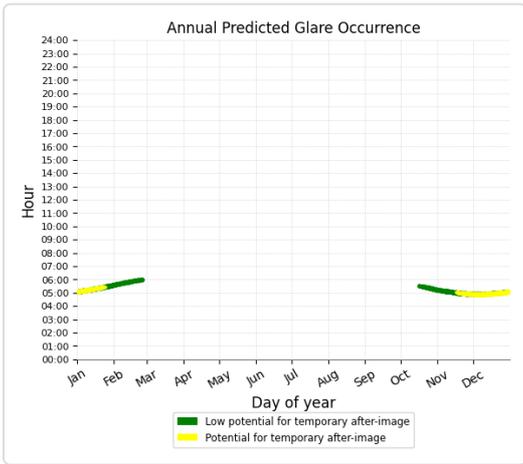
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**PV array 4 - Receptor (FP 4)**

PV array is expected to produce the following glare for observers on this flight path:

- 545 minutes of "green" glare with low potential to cause temporary after-image.
- 415 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 5 potential temporary after-image**

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 786               | 35                 |

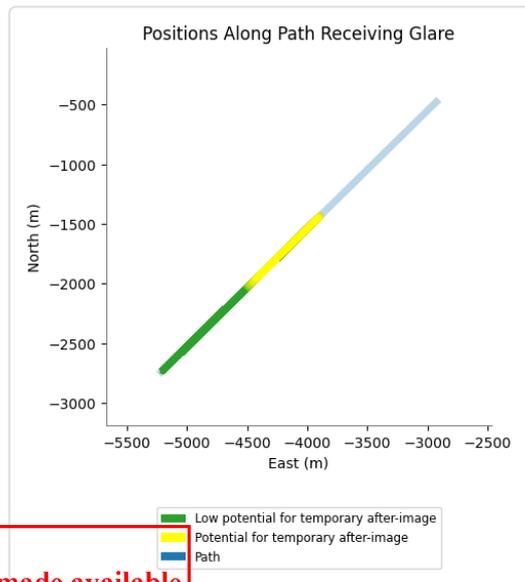
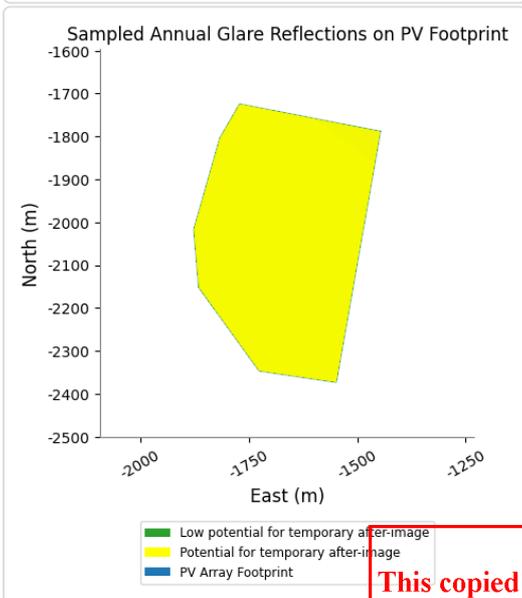
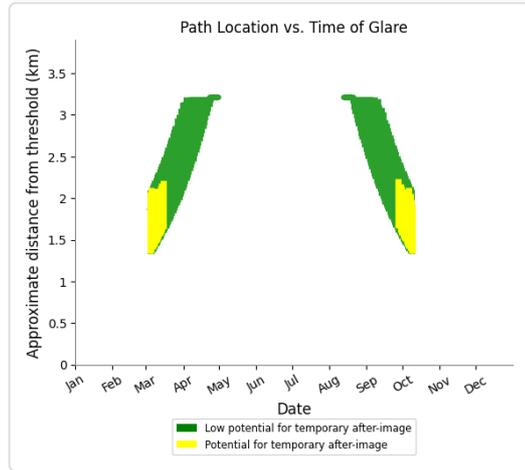
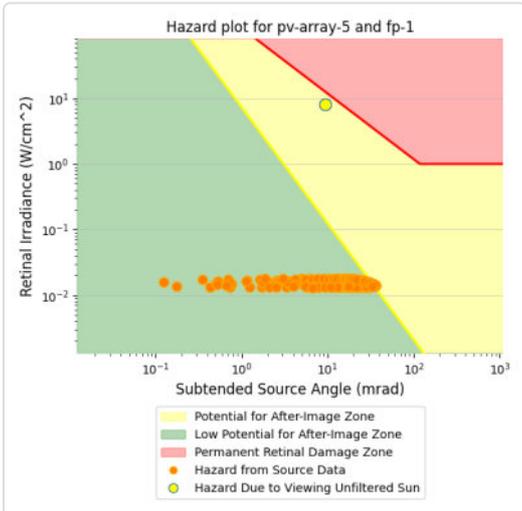
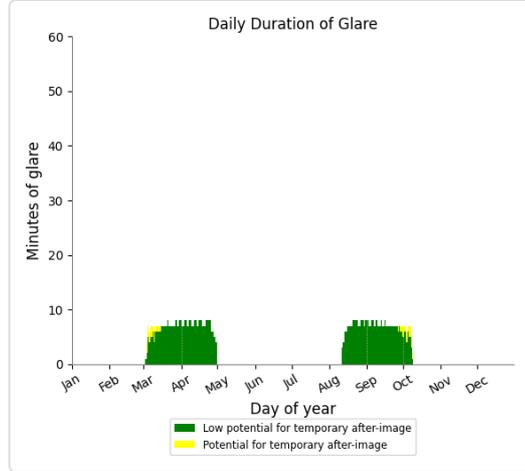
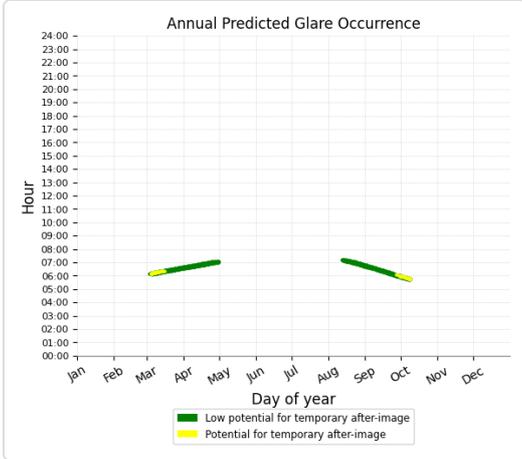
|          |     |   |
|----------|-----|---|
| FP: FP 2 | 0   | 0 |
| FP: FP 3 | 106 | 0 |
| FP: FP 4 | 157 | 0 |

### PV array 5 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 786 minutes of "green" glare with low potential to cause temporary after-image.
- 35 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 5 - Receptor (FP 2)

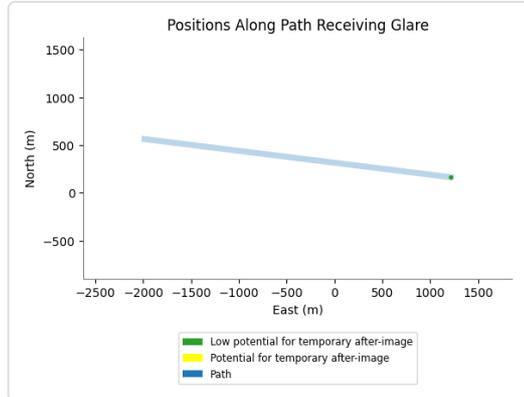
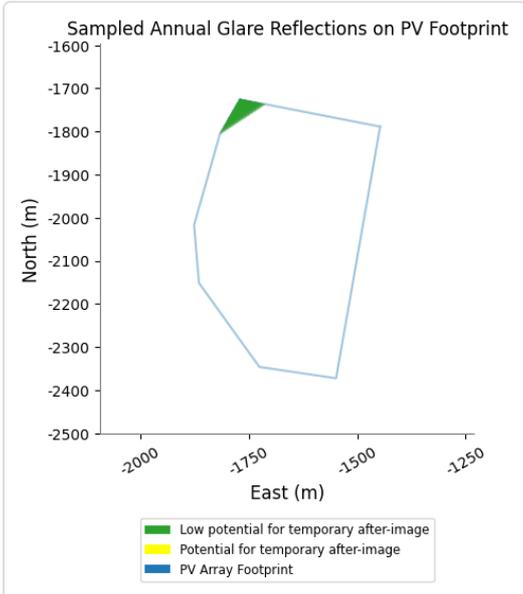
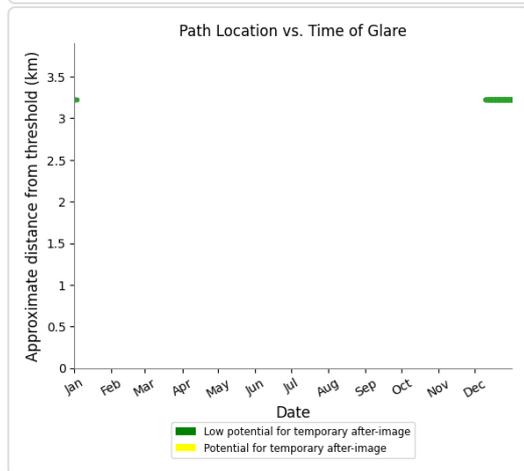
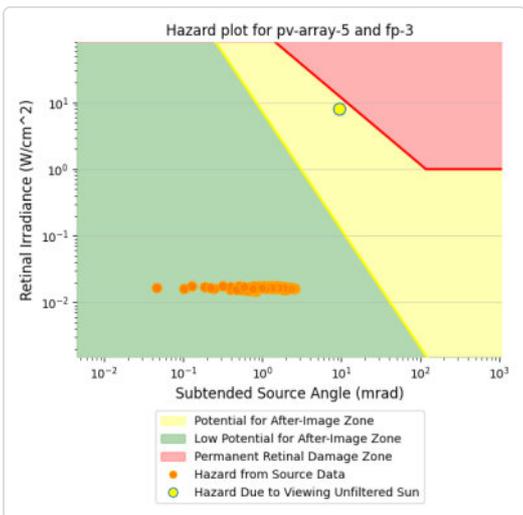
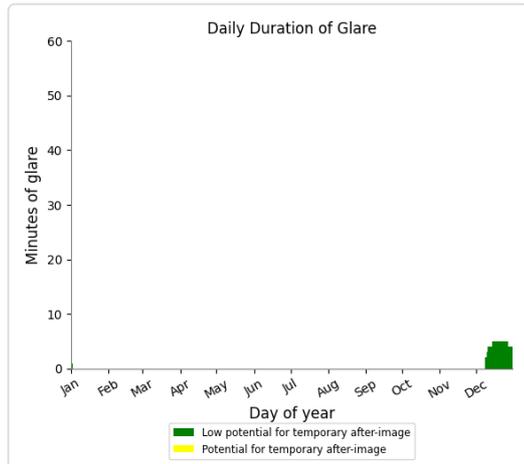
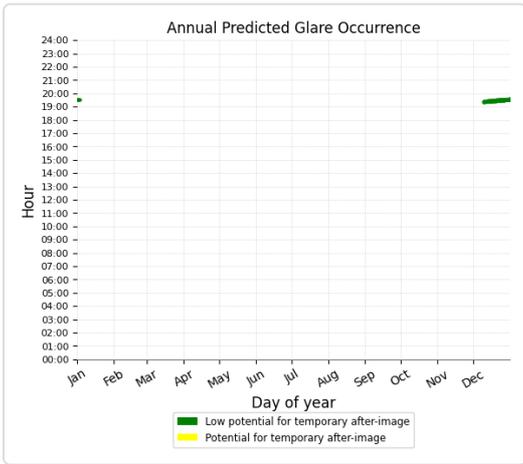
No glare found

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### PV array 5 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 106 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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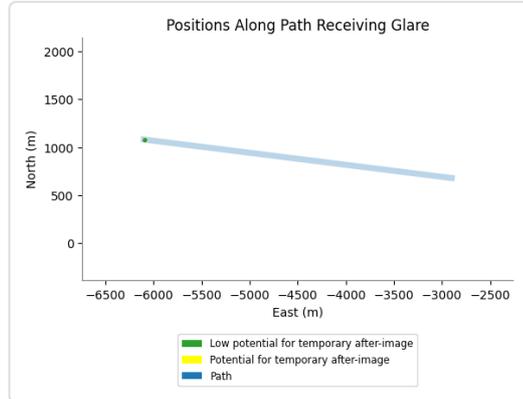
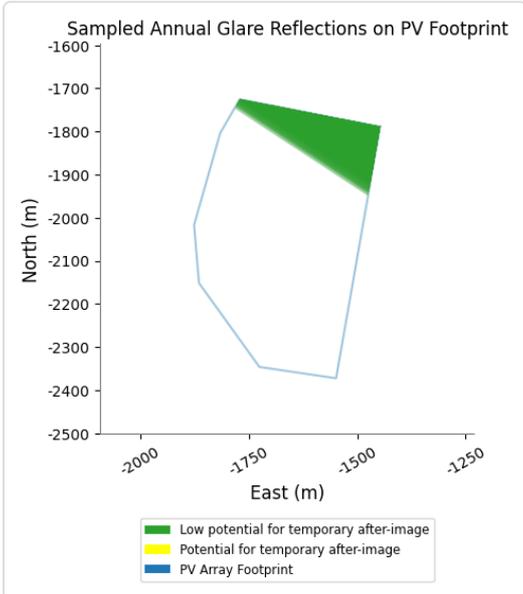
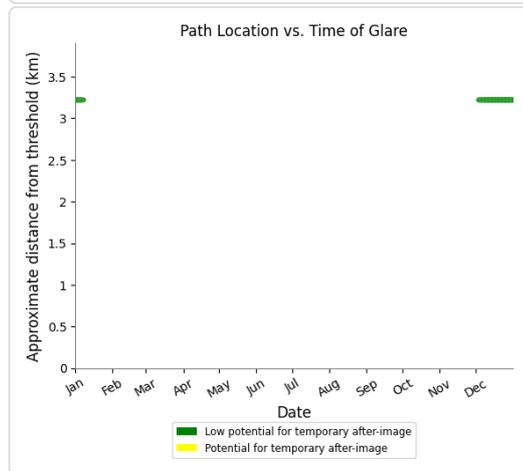
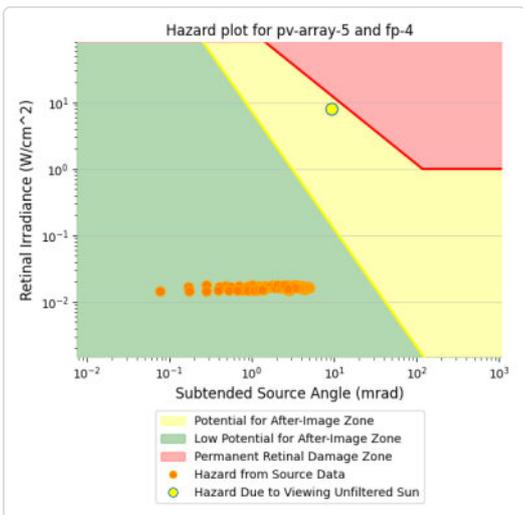
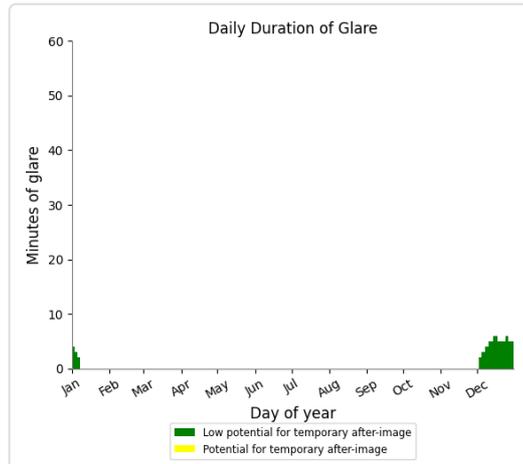
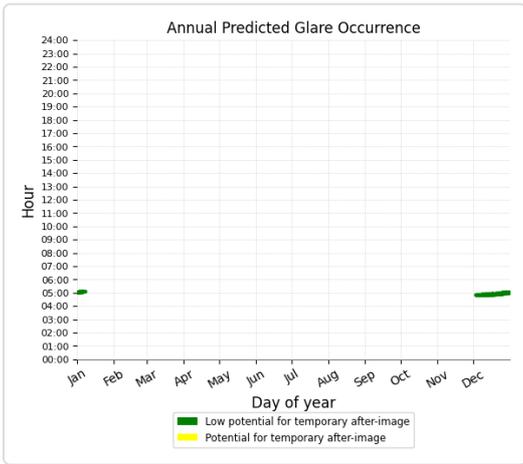
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### PV array 5 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 157 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 6 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 668               | 1125               |
| FP: FP 2  | 0                 | 0                  |

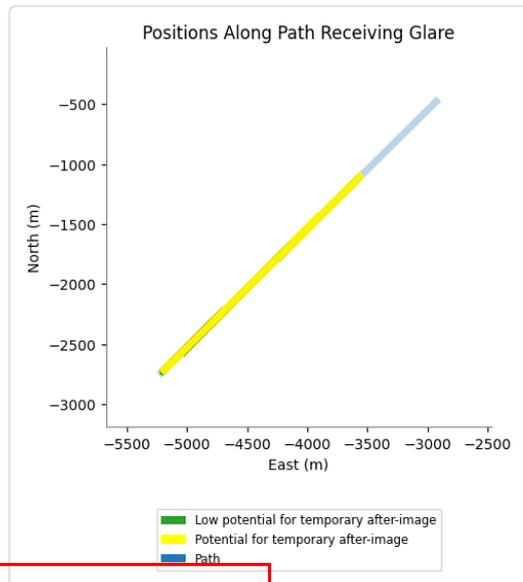
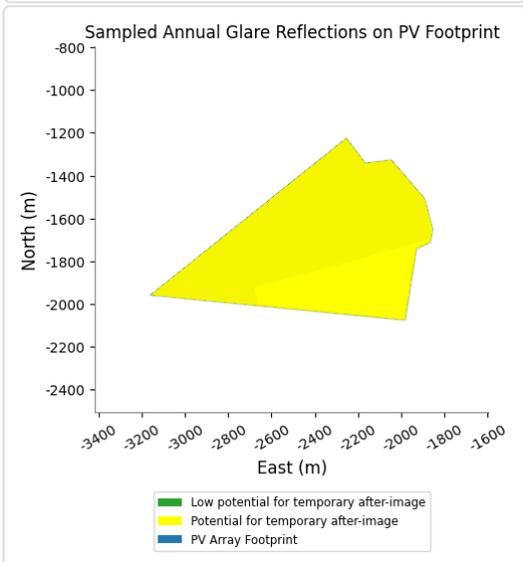
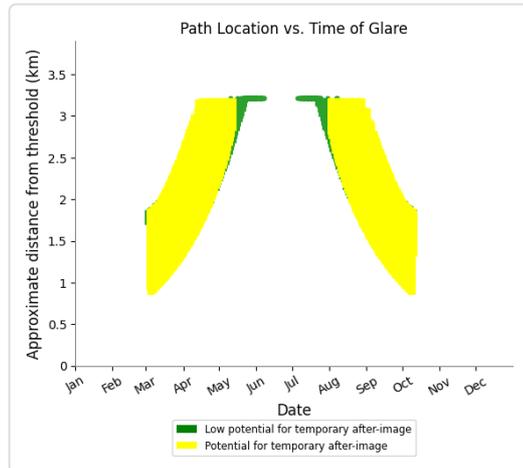
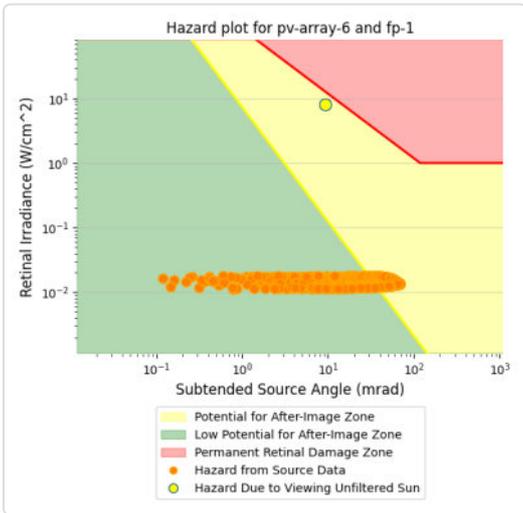
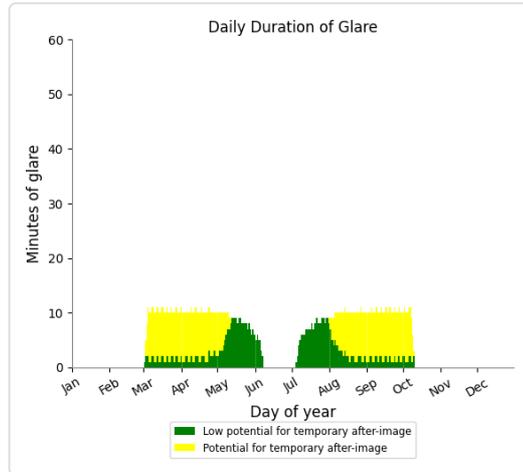
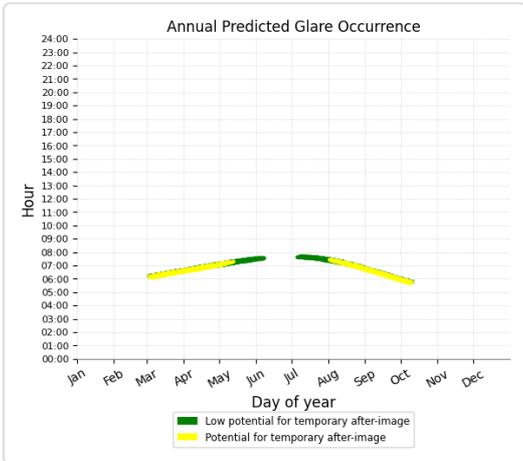
|          |     |     |
|----------|-----|-----|
| FP: FP 3 | 541 | 217 |
| FP: FP 4 | 250 | 0   |

**PV array 6 - Receptor (FP 1)**

PV array is expected to produce the following glare for observers on this flight path:

- 668 minutes of "green" glare with low potential to cause temporary after-image.
- 1,125 minutes of "yellow" glare with potential to cause temporary after-image.

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**PV array 6 - Receptor (FP 2)**

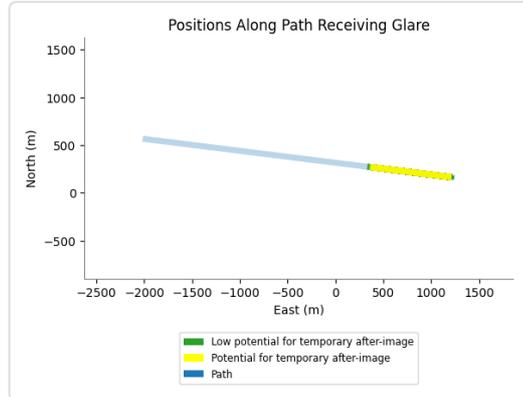
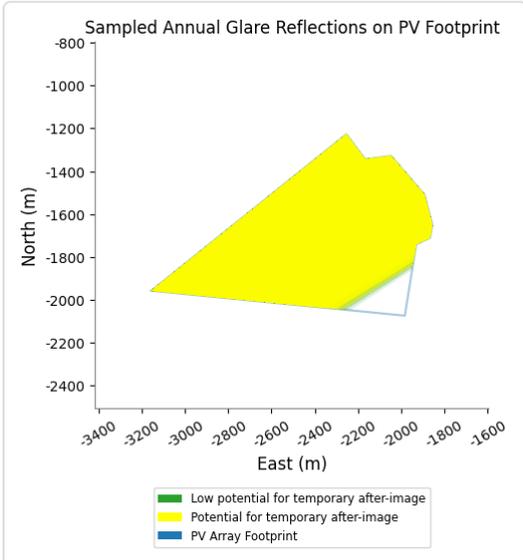
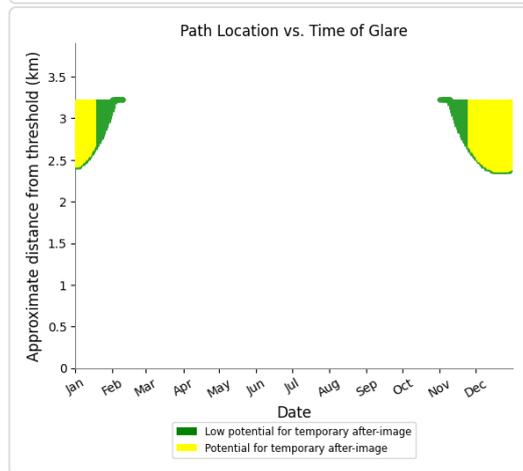
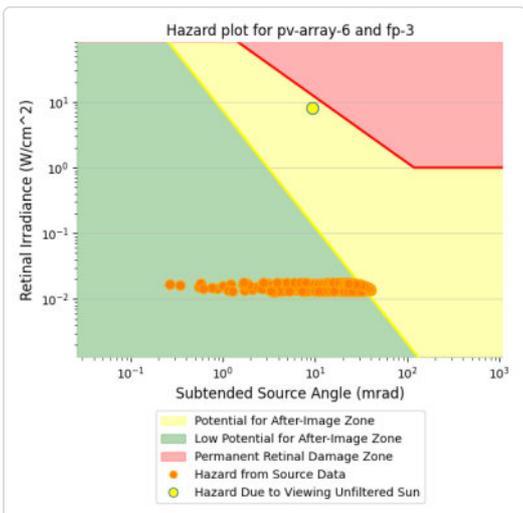
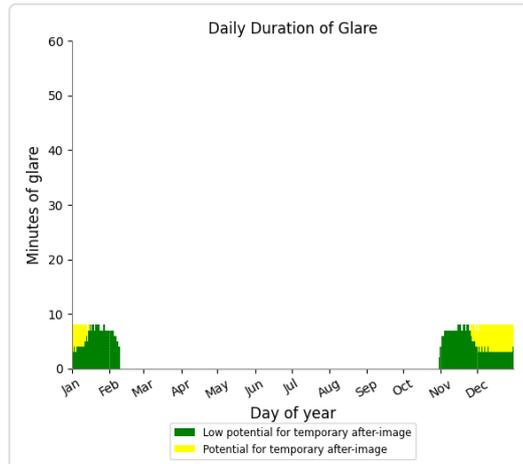
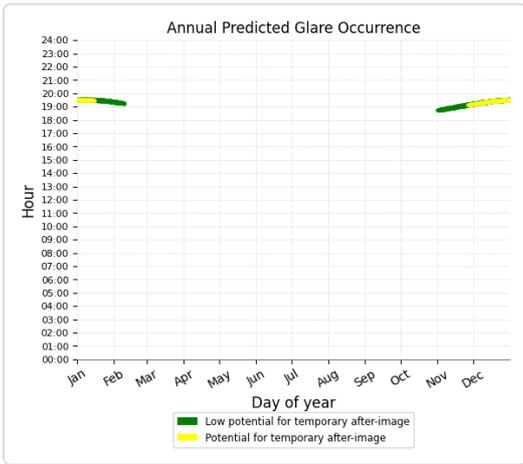
No glare found

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### PV array 6 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 541 minutes of "green" glare with low potential to cause temporary after-image.
- 217 minutes of "yellow" glare with potential to cause temporary after-image.



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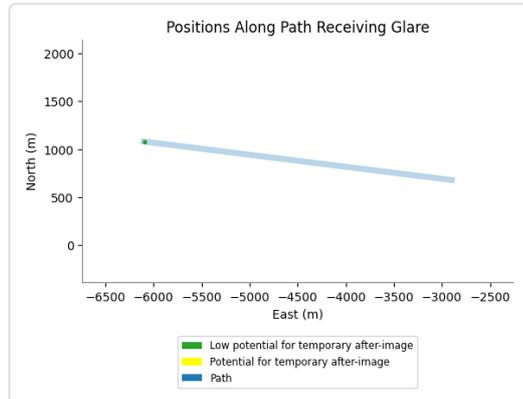
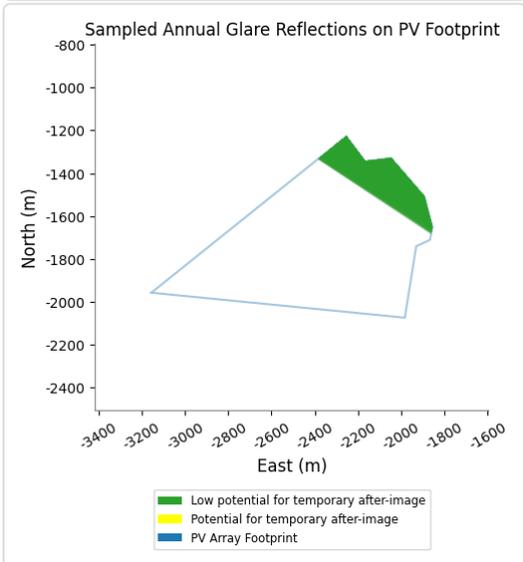
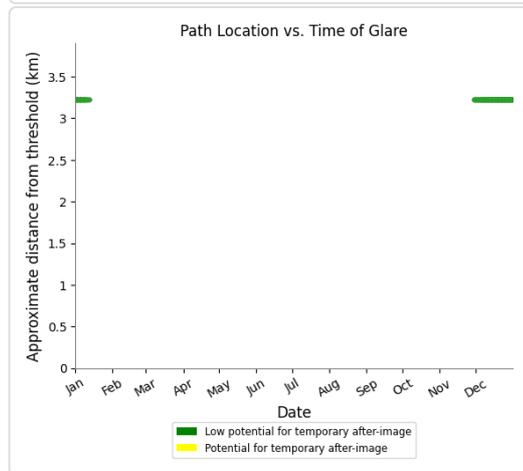
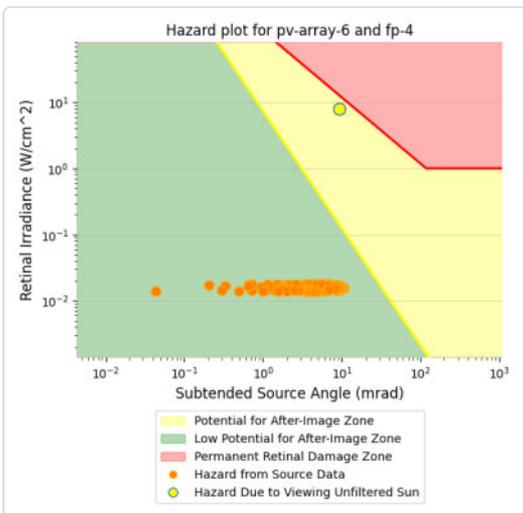
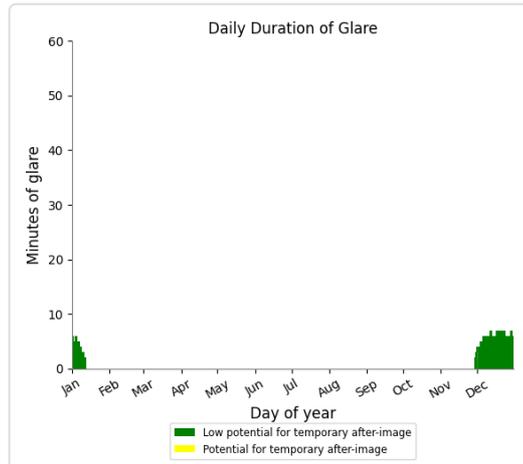
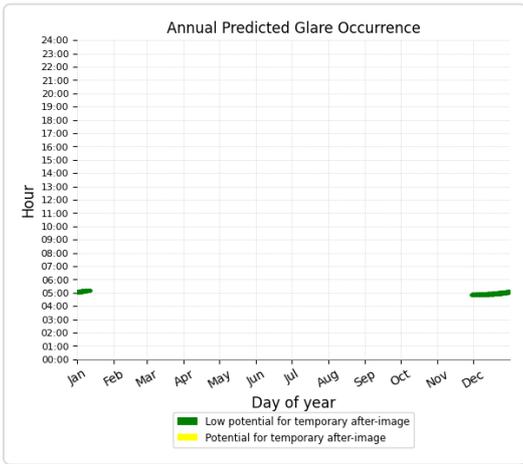
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## PV array 6 - Receptor (FP 4)

PV array is expected to produce the following glare for observers on this flight path:

- 250 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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## PV array 7 potential temporary after-image

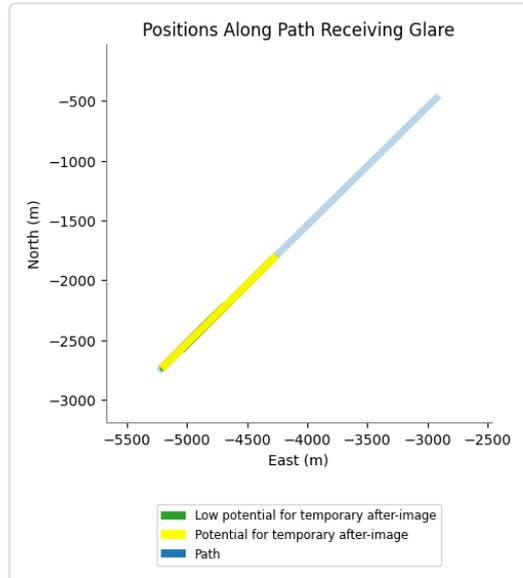
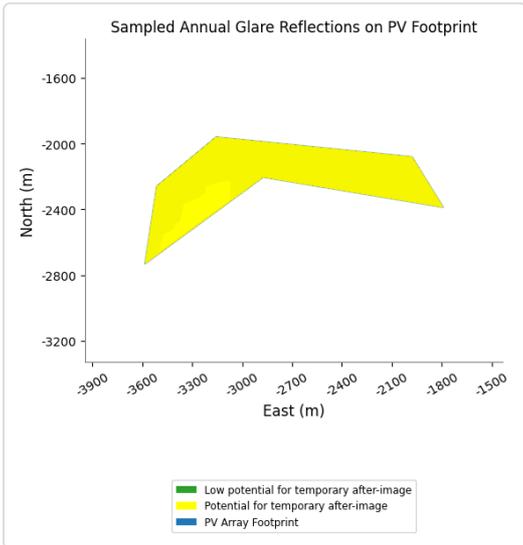
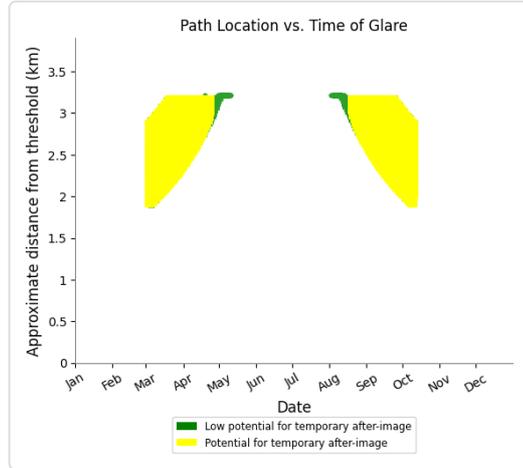
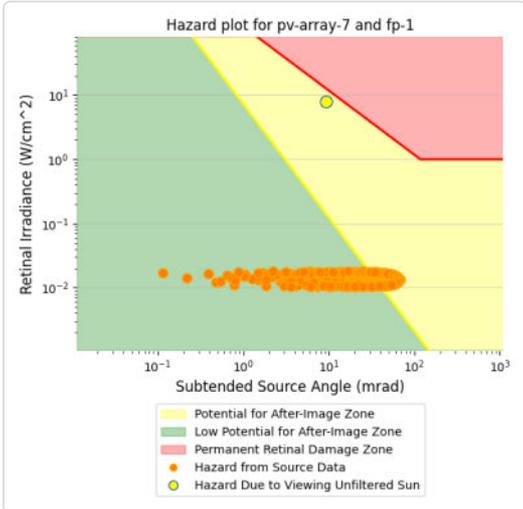
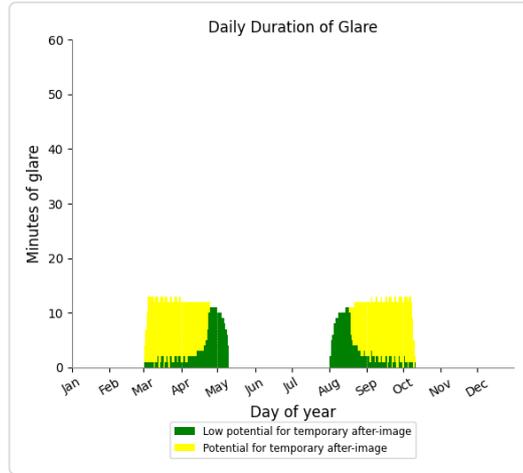
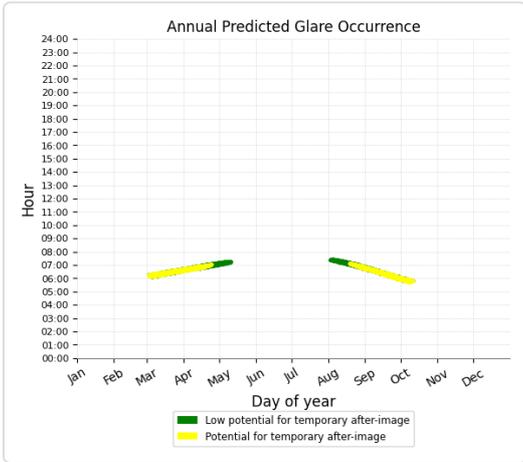
| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 499               | 1093               |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 558               | 0                  |

### PV array 7 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 499 minutes of "green" glare with low potential to cause temporary after-image.
- 1,093 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 7 - Receptor (FP 2)

No glare found

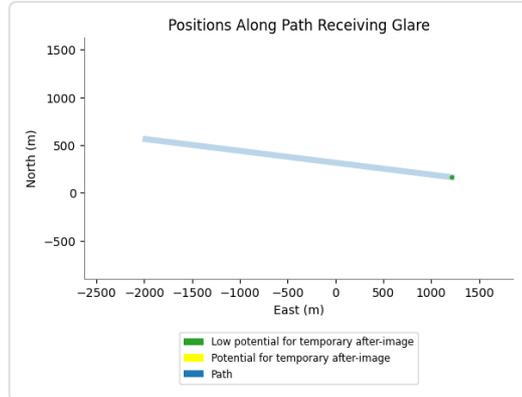
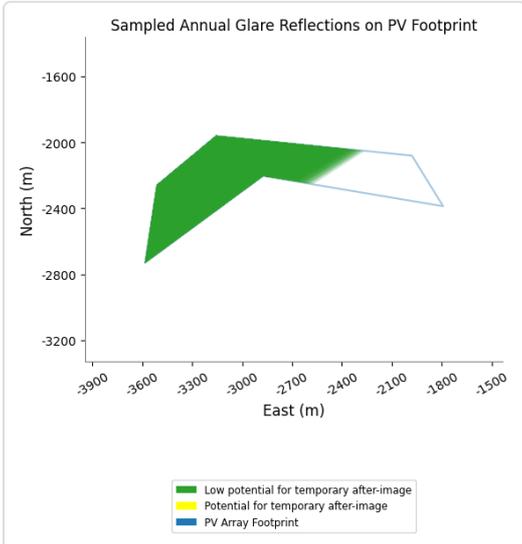
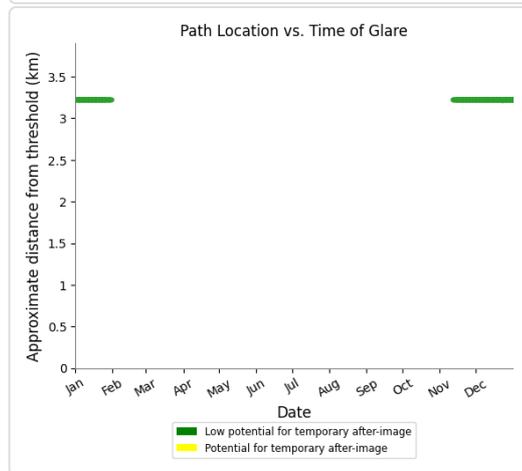
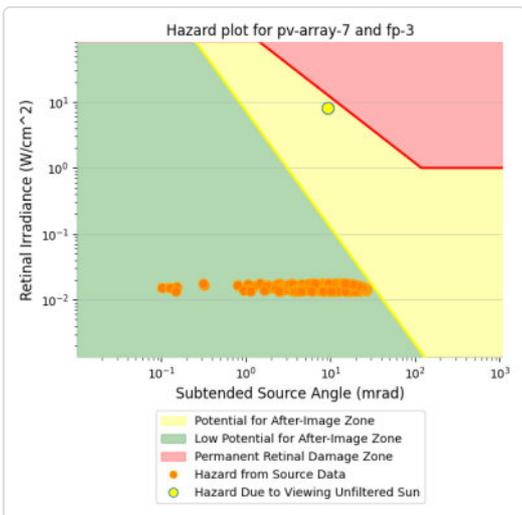
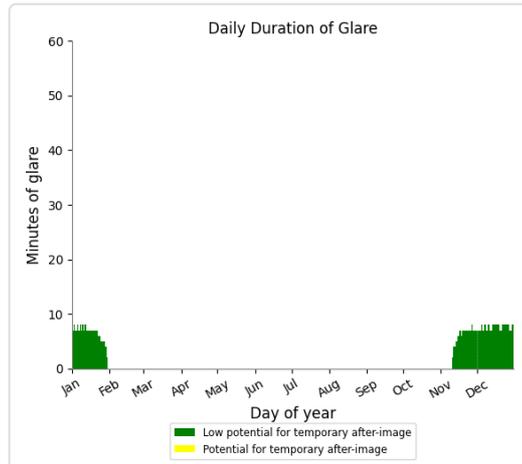
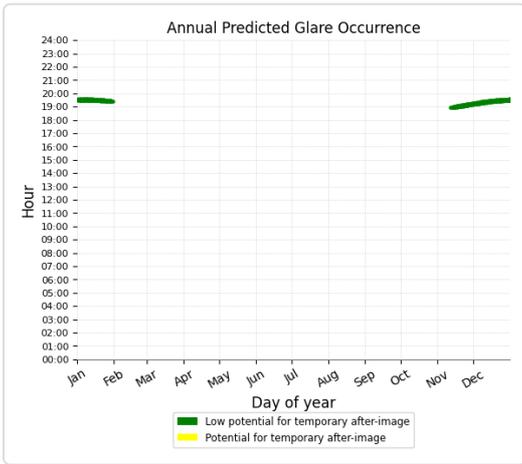
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## PV array 7 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 558 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



## PV array 7 - Receptor (FP 4)

No glare found

## PV array 8 low potential for temporary after-image

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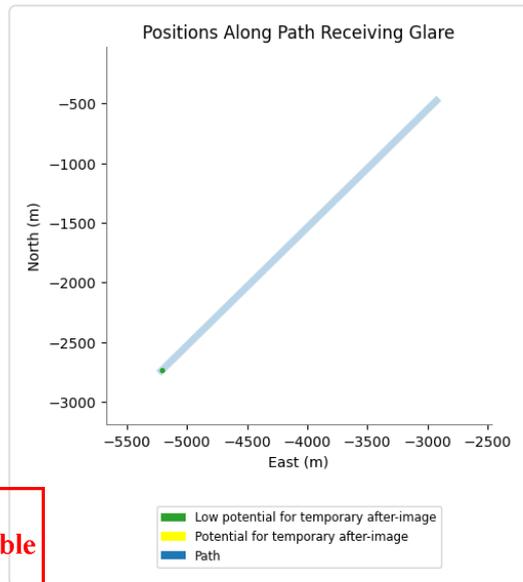
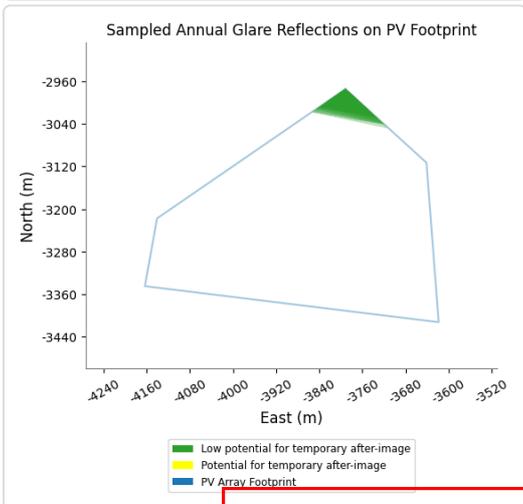
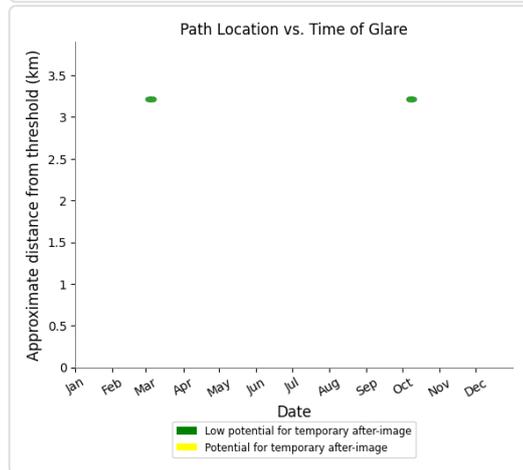
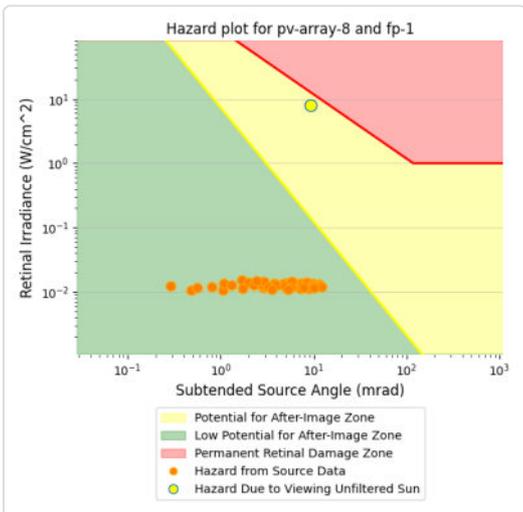
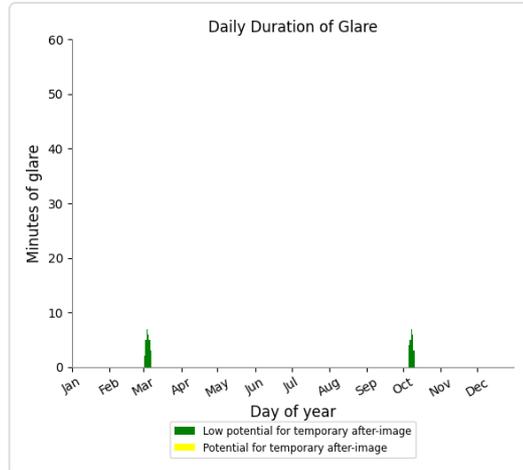
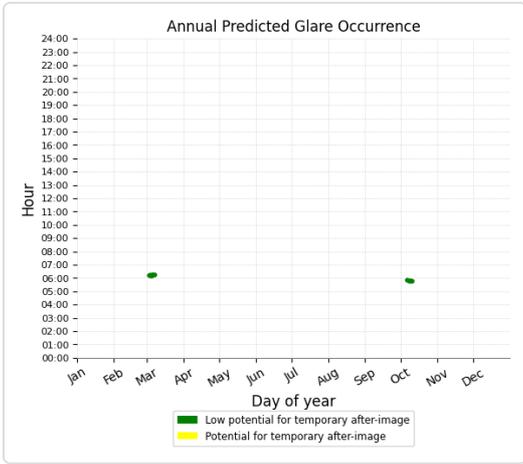
| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
|-----------|-------------------|--------------------|

|          |     |   |
|----------|-----|---|
| FP: FP 1 | 53  | 0 |
| FP: FP 2 | 0   | 0 |
| FP: FP 3 | 107 | 0 |
| FP: FP 4 | 0   | 0 |

### PV array 8 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 53 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



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### PV array 8 - Receptor (FP 2)

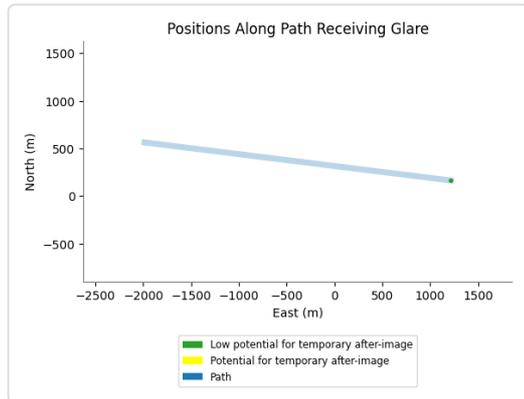
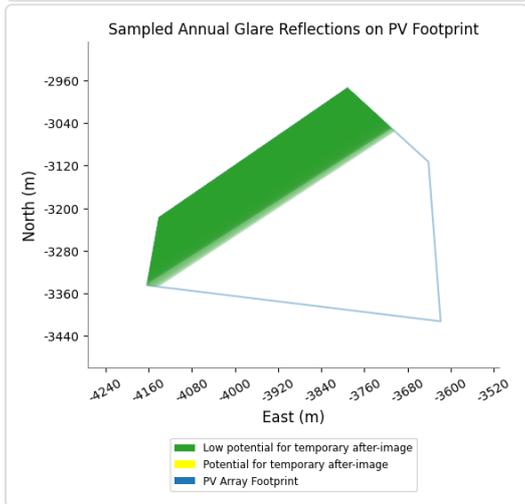
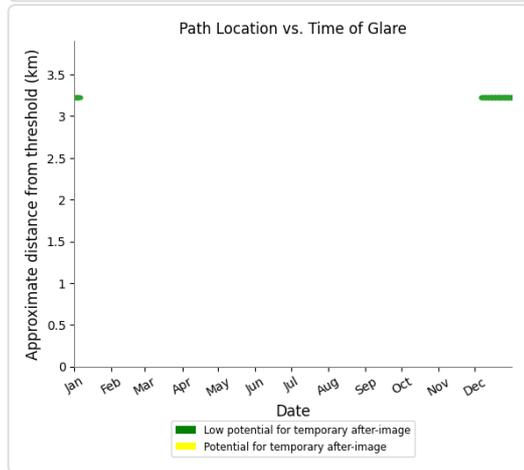
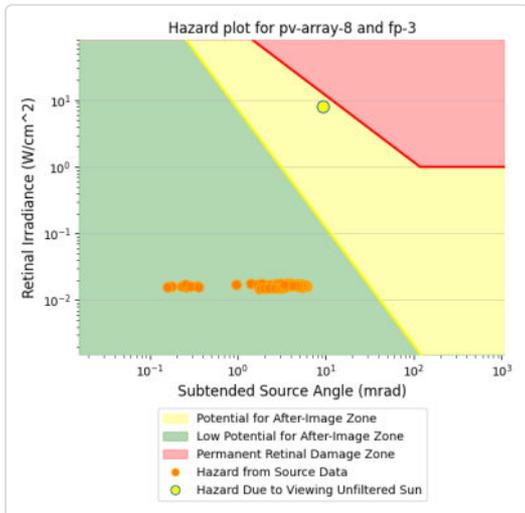
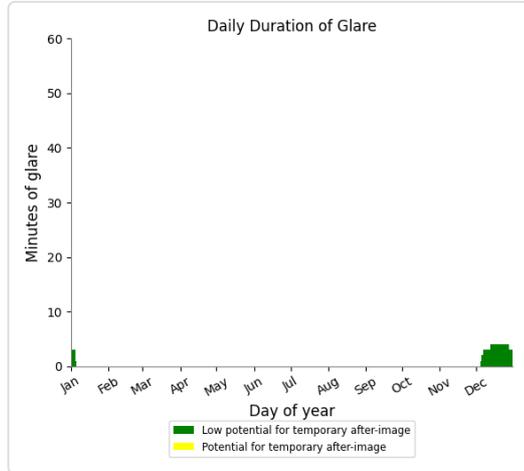
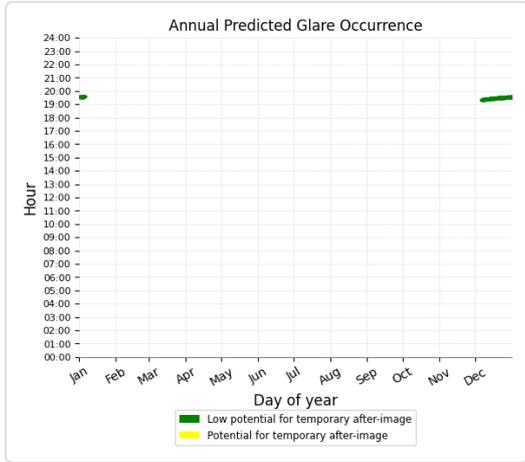
No glare found

### PV array 8 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 107 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

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### PV array 8 - Receptor (FP 4)

No glare found

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### PV array 9 potential temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|-----------|-------------------|--------------------|
| FP: FP 1  | 318               | 506                |
| FP: FP 2  | 0                 | 0                  |
| FP: FP 3  | 178               | 0                  |
| FP: FP 4  | 0                 | 0                  |

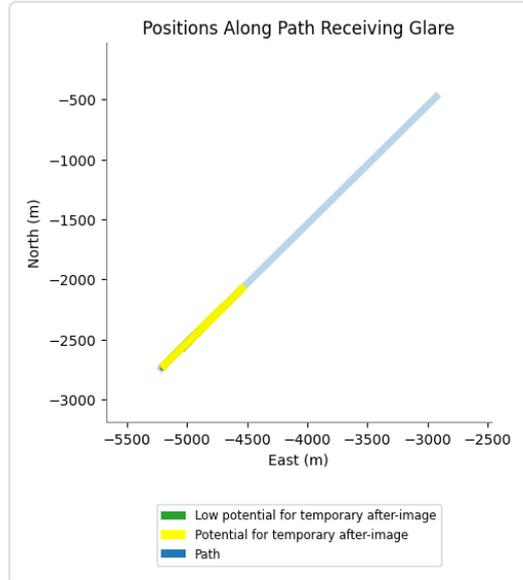
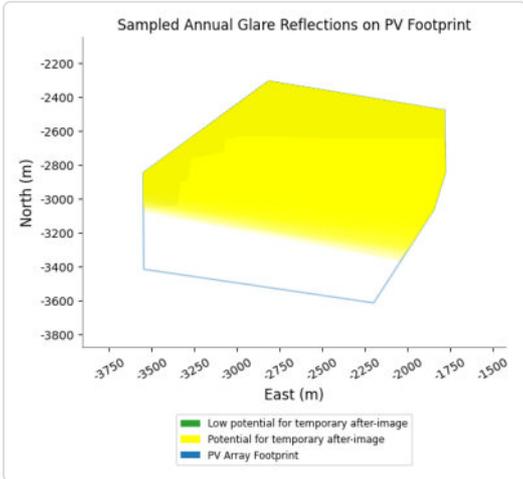
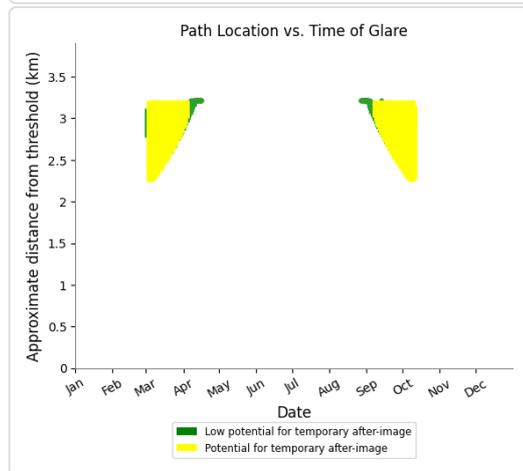
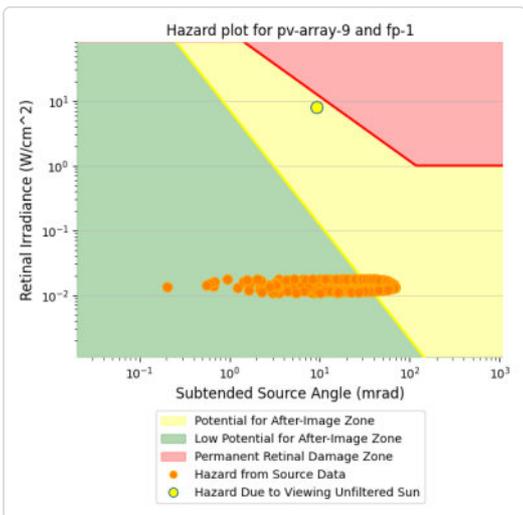
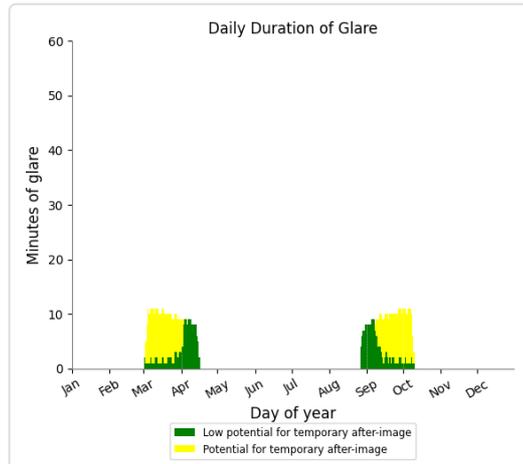
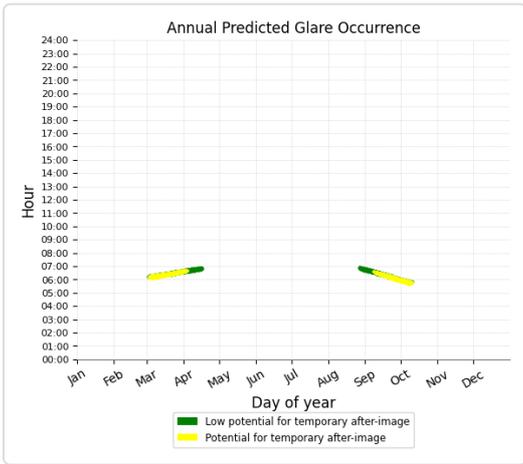
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### PV array 9 - Receptor (FP 1)

PV array is expected to produce the following glare for observers on this flight path:

- 318 minutes of "green" glare with low potential to cause temporary after-image.
- 506 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 9 - Receptor (FP 2)

No glare found

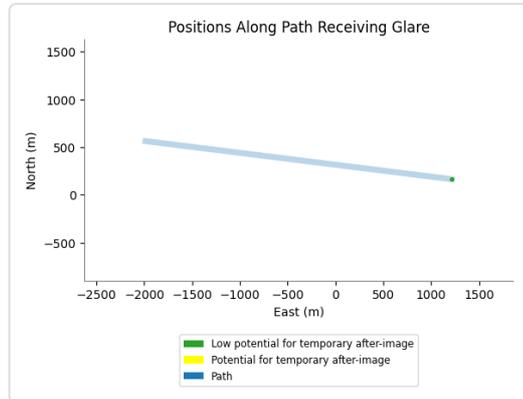
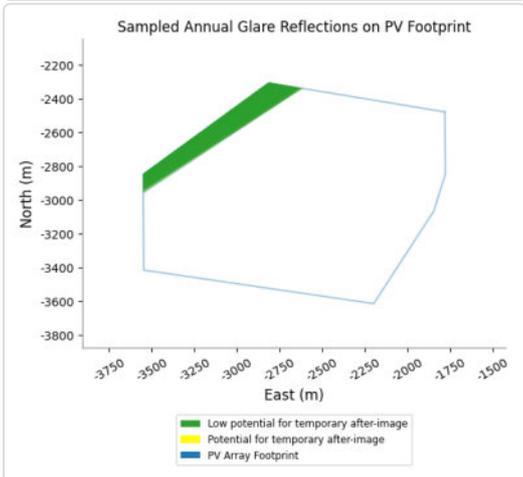
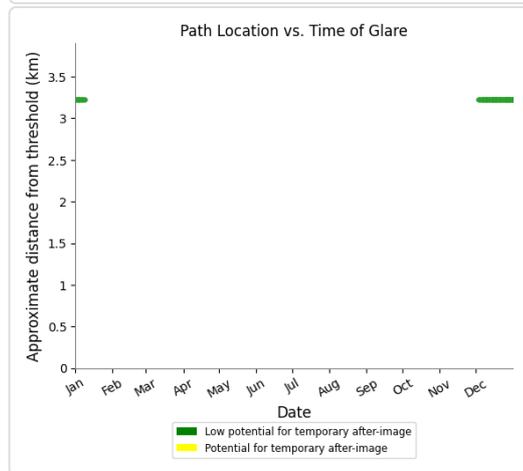
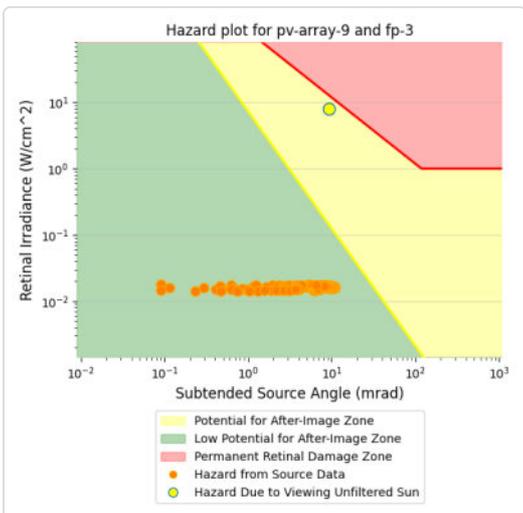
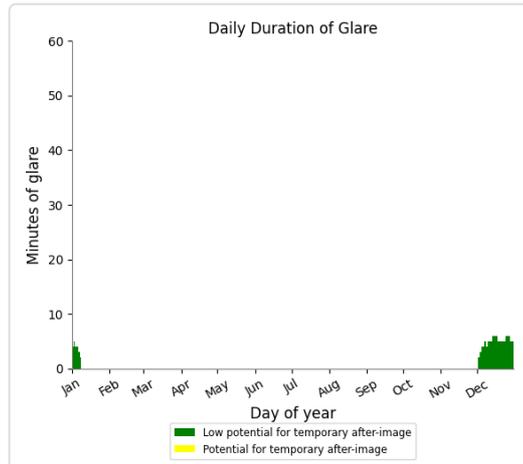
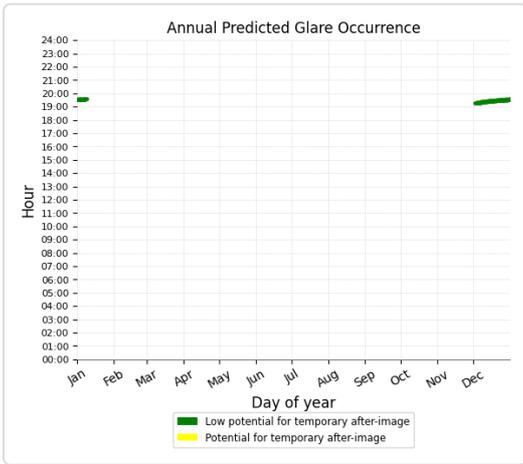
# ADVERTISED PLAN

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### PV array 9 - Receptor (FP 3)

PV array is expected to produce the following glare for observers on this flight path:

- 178 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



### PV array 9 - Receptor (FP 4)

No glare found

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### Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.

- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- 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.
- 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.
- 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.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. 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** for detailed assumptions and limitations not listed here.

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