

FORGESOLAR GLARE ANALYSIS

Project: **West Springfield**

Site configuration: **West Springfield Solar**

Client: Trio Power

Created 21 Mar, 2025

Updated 21 Mar, 2025

Time-step 1 minute

Timezone offset UTC0

Minimum sun altitude 0.0 deg

DNI peaks at 1,000.0 W/m²

Category 10 MW to 100 MW

Site ID 144769.24445

Ocular transmission coefficient 0.5

Pupil diameter 0.002 m

Eye focal length 0.017 m

Sun subtended angle 9.3 mrad

PV analysis methodology V2

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

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	20.0	180.0	0	0.0	0	0.0	-
PV array 10	20.0	180.0	14,828	247.1	3,523	58.7	-
PV array 11	20.0	180.0	1,549	25.8	1,577	26.3	-
PV array 2	20.0	180.0	1,048	17.5	2,747	45.8	-
PV array 3	20.0	180.0	845	14.1	788	13.1	-
PV array 4	20.0	180.0	1,734	28.9	3,383	56.4	-
PV array 5	20.0	180.0	1,256	20.9	1,113	18.6	-
PV array 6	20.0	180.0	0	0.0	0	0.0	-
PV array 7	20.0	180.0	2,001	33.4	378	6.3	-
PV array 8	20.0	180.0	839	14.0	301	5.0	-
PV array 9	20.0	180.0	1,669	27.8	464	7.7	-

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

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 2	0	0.0	0	0.0
Route 3	6,202	103.4	2,049	34.1
Trainline	5,506	91.8	6,610	110.2
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	475	7.9	0	0.0
OP 6	791	13.2	0	0.0
OP 7	904	15.1	0	0.0
OP 8	1,132	18.9	61	1.0
OP 9	793	13.2	553	9.2
OP 10	1,049	17.5	552	9.2
OP 11	1,423	23.7	208	3.5
OP 12	1,254	20.9	131	2.2
OP 13	902	15.0	503	8.4
OP 14	1,279	21.3	117	1.9
OP 15	1,286	21.4	131	2.2
OP 16	1,459	24.3	160	2.7
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	1,314	21.9	3,199	53.3
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

Component Data

PV Arrays

Name: PV array 1

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.292294	-3.095691	49.94	2.67	52.61
2	56.292985	-3.093690	48.90	2.67	51.57
3	56.292815	-3.091995	46.68	2.67	49.35
4	56.291041	-3.090814	49.05	2.67	51.72
5	56.290210	-3.093523	46.76	2.67	49.43
6	56.291520	-3.094832	46.64	2.67	49.31
7	56.291830	-3.095380	47.89	2.67	50.56

Name: PV array 10

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.296144	-3.077400	51.94	2.67	54.61
2	56.296531	-3.075598	49.80	2.67	52.47
3	56.294358	-3.072959	43.34	2.67	46.00
4	56.293253	-3.076934	42.99	2.67	45.66

Name: PV array 11

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.293087	-3.076644	42.75	2.67	45.42
2	56.292723	-3.076075	42.19	2.67	44.86
3	56.292968	-3.075292	41.88	2.67	44.55
4	56.291556	-3.073565	39.77	2.67	42.44
5	56.292694	-3.070604	38.25	2.67	40.92
6	56.294188	-3.072771	42.74	2.67	45.41

Name: PV array 2

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.289154	-3.093368	46.97	2.67	49.64
2	56.290160	-3.090836	46.65	2.67	49.32
3	56.287823	-3.087134	38.96	2.67	41.63
4	56.287180	-3.088733	40.79	2.67	43.46
5	56.287927	-3.091056	42.52	2.67	45.19
6	56.288749	-3.092214	42.58	2.67	45.25
7	56.288636	-3.092804	43.82	2.67	46.49

Name: PV array 3

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.290262	-3.090508	46.86	2.67	49.52
2	56.290827	-3.088963	47.84	2.67	50.51
3	56.290762	-3.088035	46.01	2.67	48.68
4	56.291208	-3.086662	45.34	2.67	48.00
5	56.290119	-3.085294	42.74	2.67	45.41
6	56.289467	-3.086431	41.90	2.67	44.57
7	56.289380	-3.086549	41.70	2.67	44.37
8	56.289246	-3.086523	41.32	2.67	43.99
9	56.289088	-3.086426	40.73	2.67	43.40
10	56.288520	-3.085713	37.18	2.67	39.85
11	56.287933	-3.086882	38.59	2.67	41.26

Name: PV array 4

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.285537	-3.091583	44.17	2.67	46.84
2	56.286315	-3.089802	41.73	2.67	44.40
3	56.285928	-3.088144	38.43	2.67	41.10
4	56.285374	-3.091524	43.36	2.67	46.03

Name: PV array 5

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.287038	-3.088177	39.43	2.67	42.10
2	56.288423	-3.084979	36.00	2.67	38.67
3	56.288226	-3.084346	35.97	2.67	38.64
4	56.288402	-3.083831	35.94	2.67	38.60
5	56.287887	-3.082544	35.31	2.67	37.98
6	56.286535	-3.086642	37.25	2.67	39.91
7	56.286734	-3.087533	38.27	2.67	40.94

Name: PV array 6

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.286854	-3.084164	37.46	2.67	40.12
2	56.287077	-3.083569	37.00	2.67	39.67
3	56.287407	-3.081922	35.52	2.67	38.19
4	56.286535	-3.080988	37.99	2.67	40.66
5	56.286306	-3.081149	38.27	2.67	40.94
6	56.286094	-3.082340	39.87	2.67	42.54
7	56.286332	-3.083080	39.18	2.67	41.84
8	56.286693	-3.084185	37.75	2.67	40.42

Name: PV array 7

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

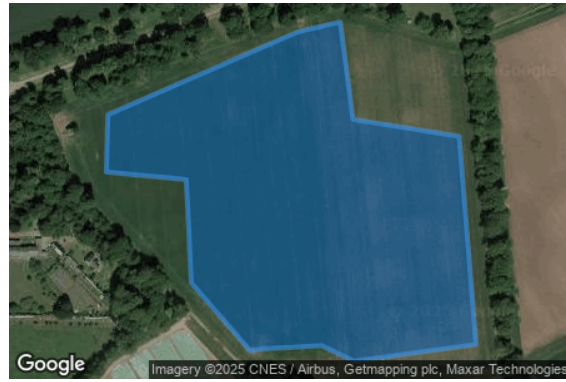
Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.295459	-3.084139	47.29	2.67	49.96
2	56.296248	-3.080866	52.48	2.67	55.15
3	56.296340	-3.080148	53.64	2.67	56.31
4	56.295415	-3.079928	48.93	2.67	51.60
5	56.295254	-3.078104	50.80	2.67	53.47
6	56.293277	-3.077814	43.09	2.67	45.76
7	56.293117	-3.079906	43.09	2.67	45.76
8	56.293265	-3.080464	43.02	2.67	45.69
9	56.293236	-3.081462	43.07	2.67	45.74
10	56.293218	-3.081698	43.26	2.67	45.93
11	56.293861	-3.082706	46.53	2.67	49.20
12	56.294843	-3.082792	45.30	2.67	47.97
13	56.294915	-3.084166	46.79	2.67	49.46

Name: PV array 8

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.292408	-3.084627	46.08	2.67	48.75
2	56.292956	-3.083865	46.67	2.67	49.34
3	56.293277	-3.082824	47.03	2.67	49.70
4	56.290896	-3.078758	44.00	2.67	46.67
5	56.290026	-3.082191	44.23	2.67	46.90

Name: PV array 9

Axis tracking: Fixed (no rotation)

Tilt: 20.0°

Orientation: 180.0°

Rated power: -

Panel material: Smooth glass without AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.292685	-3.079969	43.45	2.67	46.12
2	56.292780	-3.077598	41.61	2.67	44.27
3	56.289999	-3.077061	45.98	2.67	48.65
4	56.288374	-3.080924	40.14	2.67	42.80
5	56.289535	-3.082458	42.21	2.67	44.88
6	56.290869	-3.077823	44.00	2.67	46.67
7	56.292047	-3.079776	43.25	2.67	45.92

Route Receptors

Name: Route 2

Path type: Two-way

Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.275103	-3.084865	36.81	1.50	38.31
2	56.275365	-3.085069	36.96	1.50	38.46
3	56.275753	-3.085562	37.34	1.50	38.84
4	56.281153	-3.091961	43.63	1.50	45.13
5	56.281290	-3.092090	43.43	1.50	44.93
6	56.284722	-3.091913	41.48	1.50	42.98
7	56.285196	-3.091934	42.09	1.50	43.59
8	56.288025	-3.093223	43.32	1.50	44.82
9	56.289664	-3.094337	46.30	1.50	47.80
10	56.290036	-3.094756	46.24	1.50	47.74
11	56.292848	-3.098275	49.37	1.50	50.87
12	56.293362	-3.098776	47.91	1.50	49.41
13	56.293496	-3.098766	47.50	1.50	49.00
14	56.294013	-3.097610	48.25	1.50	49.75
15	56.294280	-3.097296	48.23	1.50	49.73
16	56.294902	-3.096834	47.57	1.50	49.07
17	56.295533	-3.096609	45.85	1.50	47.35
18	56.296152	-3.096684	45.24	1.50	46.74
19	56.296712	-3.096920	45.14	1.50	46.64
20	56.297819	-3.097113	44.52	1.50	46.02

Name: Route 3
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.302354	-3.075096	73.00	1.50	74.50
2	56.301729	-3.074345	67.80	1.50	69.30
3	56.300556	-3.073240	64.90	1.50	66.40
4	56.299927	-3.072635	62.75	1.50	64.25
5	56.299018	-3.071715	57.56	1.50	59.06
6	56.297971	-3.070106	51.86	1.50	53.36
7	56.295215	-3.065779	44.43	1.50	45.93
8	56.294057	-3.064080	39.33	1.50	40.83
9	56.292580	-3.062556	40.99	1.50	42.49
10	56.291073	-3.061032	40.76	1.50	42.26
11	56.290516	-3.060496	39.19	1.50	40.69
12	56.290248	-3.060313	38.56	1.50	40.06
13	56.290111	-3.060281	38.35	1.50	39.85
14	56.289941	-3.060308	38.15	1.50	39.65
15	56.288841	-3.061484	38.17	1.50	39.67
16	56.288204	-3.062407	39.56	1.50	41.06
17	56.287992	-3.062982	39.58	1.50	41.08
18	56.287727	-3.064151	39.47	1.50	40.97
19	56.287665	-3.064451	39.79	1.50	41.29
20	56.287400	-3.065009	39.86	1.50	41.36
21	56.287215	-3.065582	40.00	1.50	41.50
22	56.287010	-3.066752	40.18	1.50	41.68

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



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)	Height above ground (m)	Total elevation (m)
1	56.281901	-3.111164	46.79	1.50	48.29
2	56.282646	-3.105789	44.62	1.50	46.12
3	56.284581	-3.092023	41.56	1.50	43.06
4	56.286210	-3.080505	38.17	1.50	39.67
5	56.286857	-3.075888	42.73	1.50	44.23
6	56.287069	-3.074387	42.37	1.50	43.87
7	56.287338	-3.072912	41.53	1.50	43.03
8	56.287618	-3.071630	42.79	1.50	44.29
9	56.287858	-3.070624	42.05	1.50	43.55
10	56.288499	-3.068441	41.00	1.50	42.50
11	56.290853	-3.062674	42.00	1.50	43.50
12	56.293510	-3.056348	38.18	1.50	39.68

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (m)	Height (m)
OP 1	1	56.296984	-3.069934	49.84	4.50
OP 2	2	56.296841	-3.069754	49.43	4.50
OP 3	3	56.296695	-3.069556	49.02	4.50
OP 4	4	56.296578	-3.069250	48.67	4.50
OP 5	5	56.296142	-3.068684	47.39	4.50
OP 6	6	56.295802	-3.068058	46.40	4.50
OP 7	7	56.295645	-3.067406	45.94	4.50
OP 8	8	56.295287	-3.067095	44.91	4.50
OP 9	9	56.294040	-3.068591	40.41	4.50
OP 10	10	56.294198	-3.068221	41.11	4.50
OP 11	11	56.294716	-3.066929	42.86	4.50
OP 12	12	56.294906	-3.066671	43.31	4.50
OP 13	13	56.293954	-3.067583	40.02	4.50
OP 14	14	56.294066	-3.063873	39.36	4.50
OP 15	15	56.294294	-3.064957	40.00	4.50
OP 16	16	56.294403	-3.065590	40.91	4.50
OP 17	17	56.295476	-3.086764	44.34	4.50
OP 18	18	56.295330	-3.087360	43.68	4.50
OP 19	19	56.295763	-3.086791	43.89	4.50
OP 20	20	56.295809	-3.086582	44.13	4.50
OP 21	21	56.294052	-3.084390	47.84	4.50
OP 22	22	56.294143	-3.085632	47.72	4.50
OP 23	23	56.287218	-3.093084	43.60	4.50
OP 24	24	56.286800	-3.093005	43.96	4.50
OP 25	25	56.288018	-3.093507	43.21	2.00
OP 26	26	56.288971	-3.084313	37.51	4.50
OP 27	27	56.280972	-3.092032	43.90	4.50
OP 28	28	56.281489	-3.092971	43.14	4.50
OP 29	29	56.280872	-3.092555	44.04	4.50
OP 30	30	56.280196	-3.086673	41.30	4.50

Obstruction Components

Name: Obstruction 1

Top height: 3.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.296213	-3.077414	52.04
2	56.296173	-3.077387	51.96
3	56.296574	-3.075556	49.84
4	56.292658	-3.070444	38.39
5	56.292696	-3.070326	38.50
6	56.296632	-3.075534	49.92
7	56.296213	-3.077414	52.04

Name: Obstruction 10

Top height: 3.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.286715	-3.084447	37.54
2	56.286006	-3.082393	40.11
3	56.286321	-3.080640	38.11
4	56.286346	-3.080655	38.07
5	56.286041	-3.082389	40.03
6	56.286738	-3.084425	37.49
7	56.286715	-3.084447	37.54

Name: Obstruction 2

Top height: 10.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.287742	-3.093045	43.03
2	56.287811	-3.091152	42.87
3	56.286936	-3.088749	40.43
4	56.285599	-3.092032	44.21
5	56.287742	-3.093045	43.03

Name: Obstruction 3

Top height: 10.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.288012	-3.081152	38.53
2	56.290680	-3.075101	42.19
3	56.289084	-3.072698	43.87
4	56.288286	-3.074479	44.54
5	56.287417	-3.073406	41.99
6	56.286272	-3.080345	38.03
7	56.288012	-3.081152	38.53

Name: Obstruction 4

Top height: 10.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.296515	-3.079366	55.42
2	56.295515	-3.085267	46.68
3	56.293550	-3.082627	46.30
4	56.291943	-3.086855	49.16
5	56.293270	-3.092487	48.72
6	56.293979	-3.093346	46.78
7	56.294812	-3.086983	46.10
8	56.295705	-3.085497	46.08
9	56.296973	-3.079666	57.31
10	56.296515	-3.079366	55.42

Name: Obstruction 5

Top height: 10.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.289503	-3.093147	47.12
2	56.292272	-3.096430	50.62
3	56.293260	-3.093362	50.03
4	56.293933	-3.093490	47.50
5	56.292385	-3.097557	49.25
6	56.289860	-3.094327	46.55
7	56.289217	-3.093930	46.26
8	56.289503	-3.093147	47.12

Name: Obstruction 6

Top height: 10.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.294111	-3.097192	49.45
2	56.293772	-3.095325	52.14
3	56.294516	-3.094102	45.96
4	56.297791	-3.096140	47.84
5	56.297791	-3.096956	45.18
6	56.296779	-3.096848	45.56
7	56.296225	-3.096612	45.40
8	56.295564	-3.096484	45.92
9	56.295064	-3.096666	47.28
10	56.294111	-3.097192	49.45

Name: Obstruction 7

Top height: 10.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.287775	-3.081671	35.06
2	56.288591	-3.083511	36.46
3	56.289600	-3.084461	41.31
4	56.291491	-3.086311	46.60
5	56.291711	-3.085378	46.20
6	56.288805	-3.083307	37.36
7	56.287924	-3.081526	36.37
8	56.287775	-3.081671	35.06

Name: Obstruction 8

Top height: 7.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.289696	-3.084833	41.59
2	56.289294	-3.085122	38.93
3	56.288782	-3.084650	36.95
4	56.288666	-3.085074	36.63
5	56.289330	-3.085911	40.74
6	56.289916	-3.084860	42.57
7	56.289696	-3.084833	41.59

Name: Obstruction 9

Top height: 3.0 m



Vertex	Latitude (°)	Longitude (°)	Ground elevation (m)
1	56.285267	-3.091808	42.61
2	56.285219	-3.091779	42.36
3	56.285926	-3.087742	38.00
4	56.285947	-3.087790	38.00
5	56.285267	-3.091808	42.61

Glare Analysis Results

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

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	20.0	180.0	0	0.0	0	0.0	-
PV array 10	20.0	180.0	14,828	247.1	3,523	58.7	-
PV array 11	20.0	180.0	1,549	25.8	1,577	26.3	-
PV array 2	20.0	180.0	1,048	17.5	2,747	45.8	-
PV array 3	20.0	180.0	845	14.1	788	13.1	-
PV array 4	20.0	180.0	1,734	28.9	3,383	56.4	-
PV array 5	20.0	180.0	1,256	20.9	1,113	18.6	-
PV array 6	20.0	180.0	0	0.0	0	0.0	-
PV array 7	20.0	180.0	2,001	33.4	378	6.3	-
PV array 8	20.0	180.0	839	14.0	301	5.0	-
PV array 9	20.0	180.0	1,669	27.8	464	7.7	-

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

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 2	0	0.0	0	0.0
Route 3	6,202	103.4	2,049	34.1
Trainline	5,506	91.8	6,610	110.2
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	475	7.9	0	0.0
OP 6	791	13.2	0	0.0
OP 7	904	15.1	0	0.0
OP 8	1,132	18.9	61	1.0
OP 9	793	13.2	553	9.2
OP 10	1,049	17.5	552	9.2
OP 11	1,423	23.7	208	3.5
OP 12	1,254	20.9	131	2.2
OP 13	902	15.0	503	8.4
OP 14	1,279	21.3	117	1.9
OP 15	1,286	21.4	131	2.2
OP 16	1,459	24.3	160	2.7
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	1,314	21.9	3,199	53.3
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV: PV array 1 no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 2	0	0.0	0	0.0
Route 3	0	0.0	0	0.0
Trainline	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 1 and Route: Route 2

No glare found

PV array 1 and Route: Route 3

No glare found

PV array 1 and Route: Trainline

No glare found

PV array 1 and OP 1

No glare found

PV array 1 and OP 2

No glare found

PV array 1 and OP 3

No glare found

PV array 1 and OP 4

No glare found

PV array 1 and OP 5

No glare found

PV array 1 and OP 6

No glare found

PV array 1 and OP 7

No glare found

PV array 1 and OP 8

No glare found

PV array 1 and OP 9

No glare found

PV array 1 and OP 10

No glare found

PV array 1 and OP 11

No glare found

PV array 1 and OP 12

No glare found

PV array 1 and OP 13

No glare found

PV array 1 and OP 14

No glare found

PV array 1 and OP 15

No glare found

PV array 1 and OP 16

No glare found

PV array 1 and OP 17

No glare found

PV array 1 and OP 18

No glare found

PV array 1 and OP 19

No glare found

PV array 1 and OP 20

No glare found

PV array 1 and OP 21

No glare found

PV array 1 and OP 22

No glare found

PV array 1 and OP 23

No glare found

PV array 1 and OP 24

No glare found

PV array 1 and OP 25

No glare found

PV array 1 and OP 26

No glare found

PV array 1 and OP 27

No glare found

PV array 1 and OP 28

No glare found

PV array 1 and OP 29

No glare found

PV array 1 and OP 30

No glare found

PV: PV array 10 potential temporary after-image

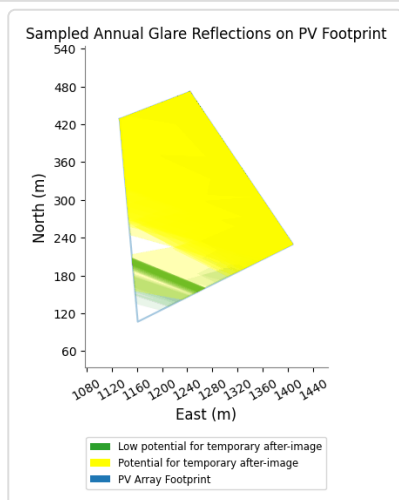
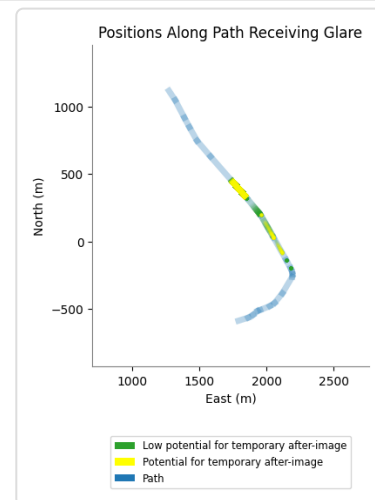
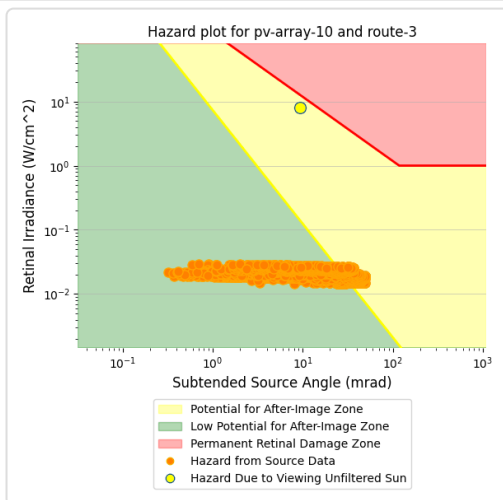
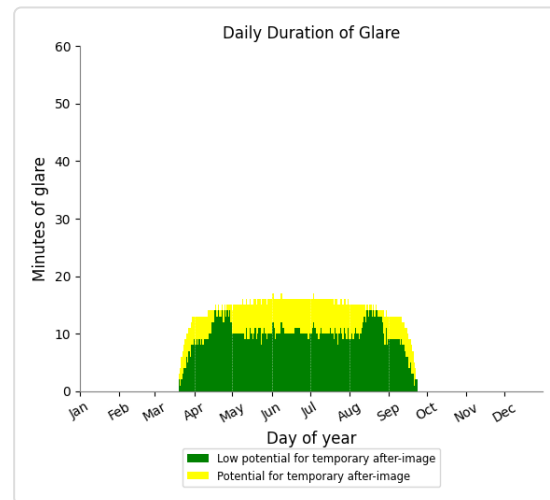
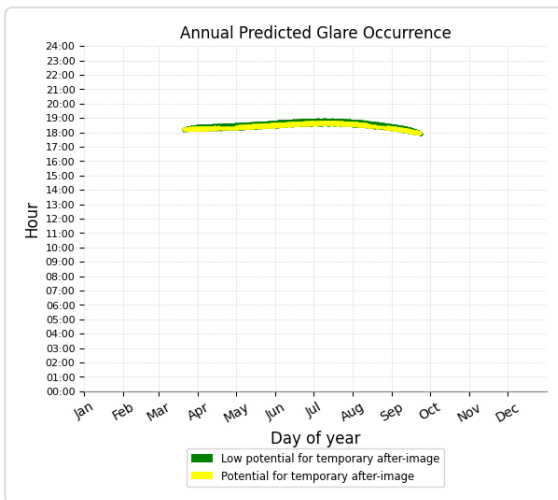
Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 3	1,833	30.6	834	13.9
Trainline	548	9.1	273	4.5
Route 2	0	0.0	0	0.0
OP 8	1,092	18.2	61	1.0
OP 9	769	12.8	553	9.2
OP 10	986	16.4	552	9.2
OP 11	1,371	22.9	208	3.5
OP 12	1,209	20.1	131	2.2
OP 13	881	14.7	503	8.4
OP 14	1,279	21.3	117	1.9
OP 15	1,286	21.4	131	2.2
OP 16	1,426	23.8	160	2.7
OP 5	475	7.9	0	0.0
OP 6	791	13.2	0	0.0
OP 7	882	14.7	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 10 and Route: Route 3

Yellow glare: 834 min.

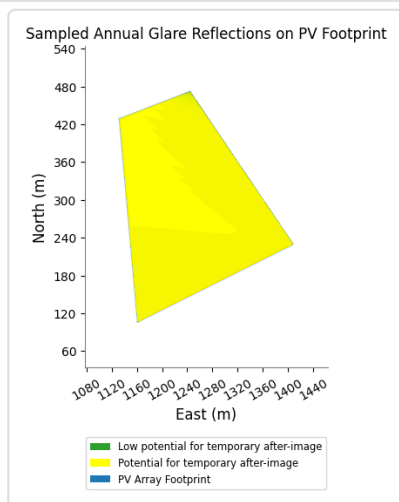
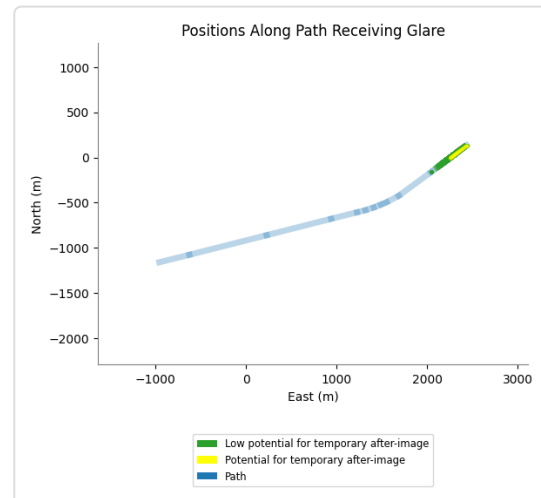
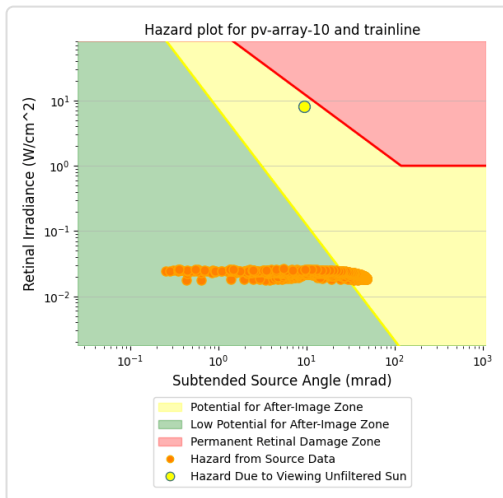
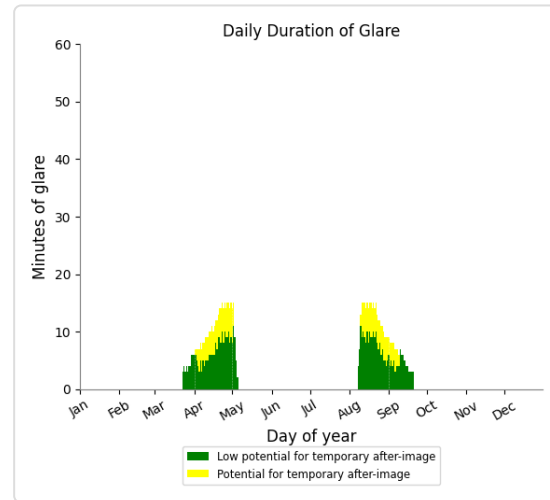
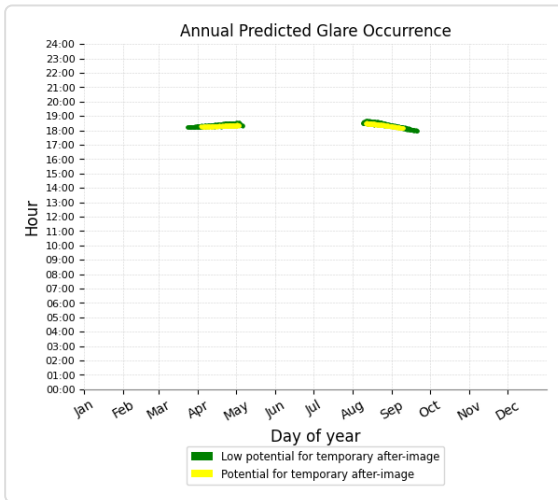
Green glare: 1,833 min.



PV array 10 and Route: Trainline

Yellow glare: 273 min.

Green glare: 548 min.



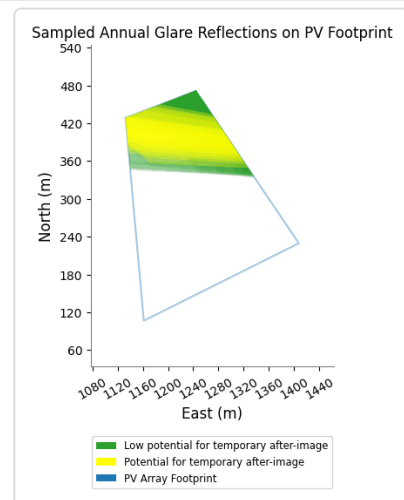
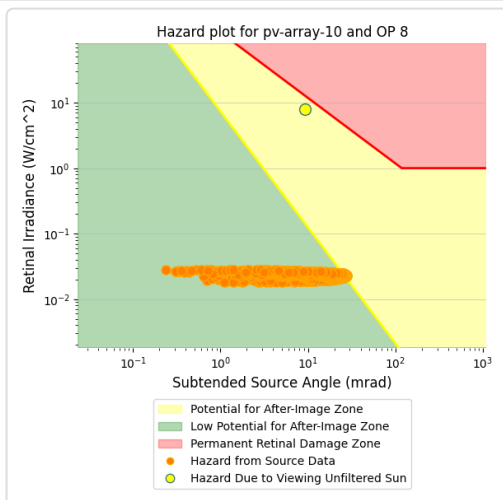
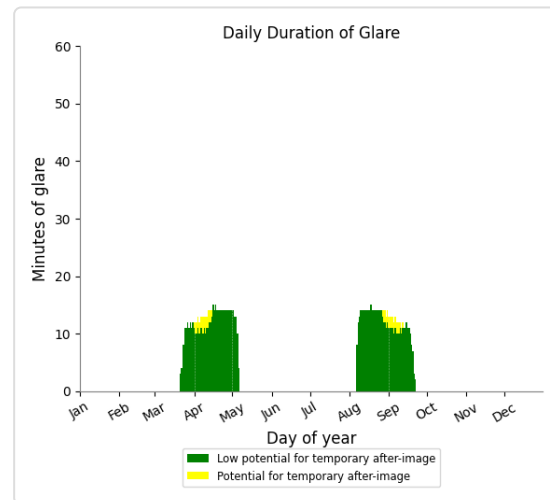
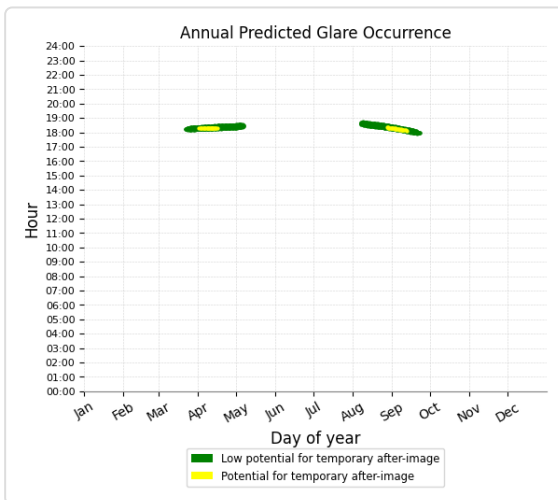
PV array 10 and Route: Route 2

No glare found

PV array 10 and OP 8

Yellow glare: 61 min.

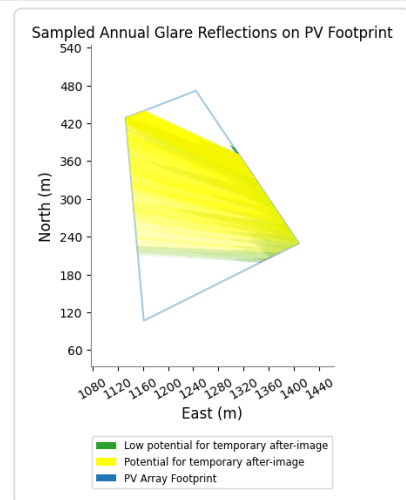
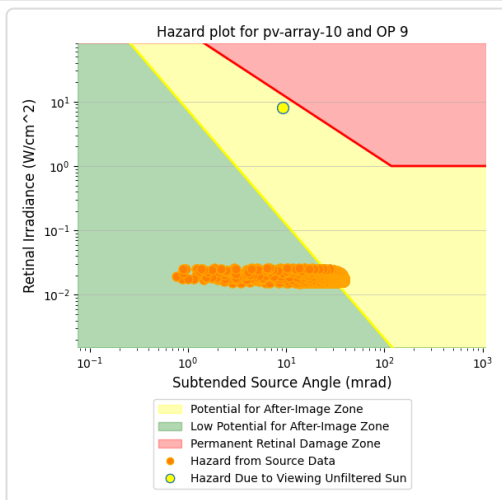
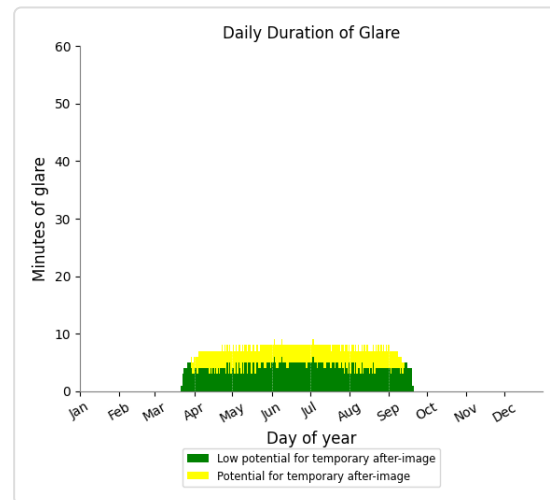
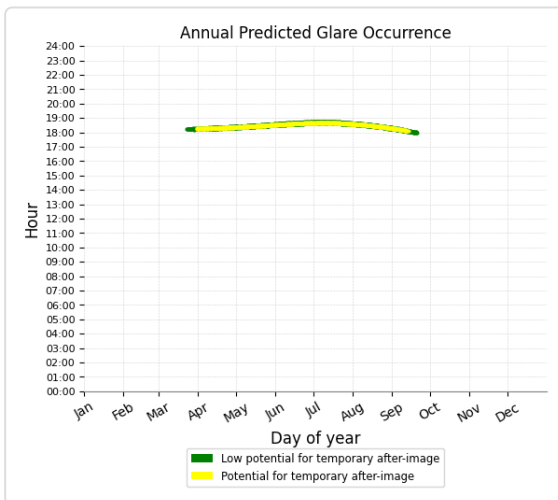
Green glare: 1,092 min.



PV array 10 and OP 9

Yellow glare: 553 min.

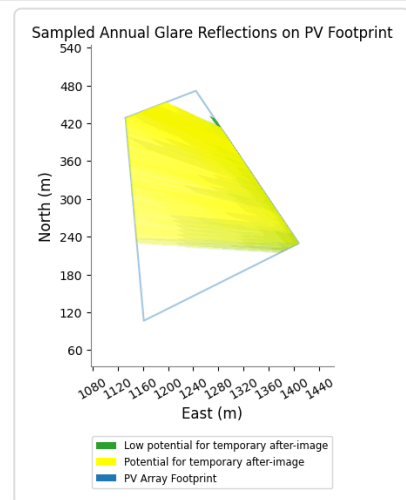
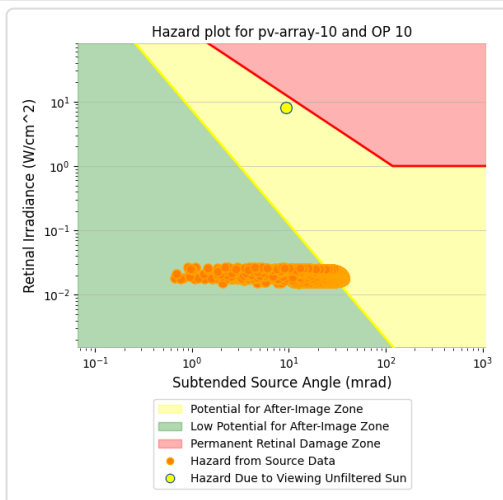
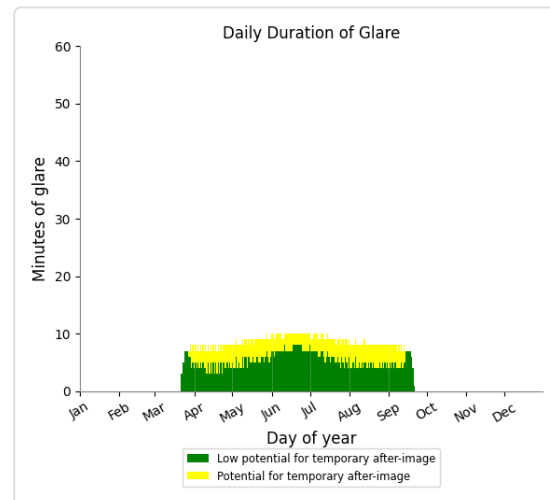
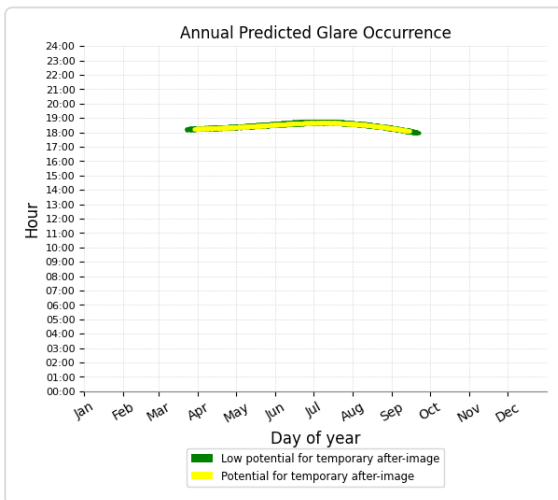
Green glare: 769 min.



PV array 10 and OP 10

Yellow glare: 552 min.

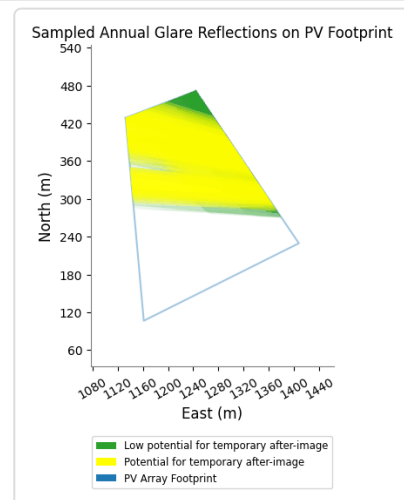
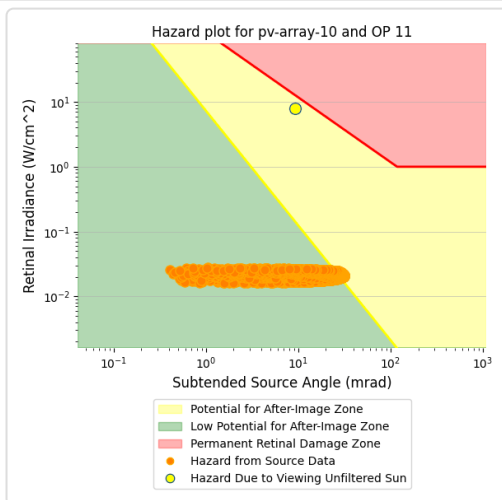
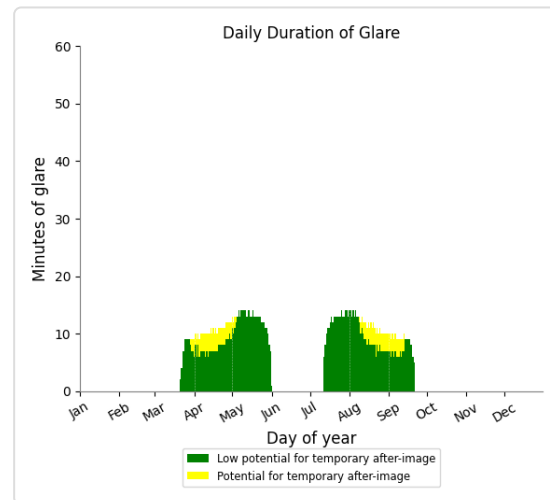
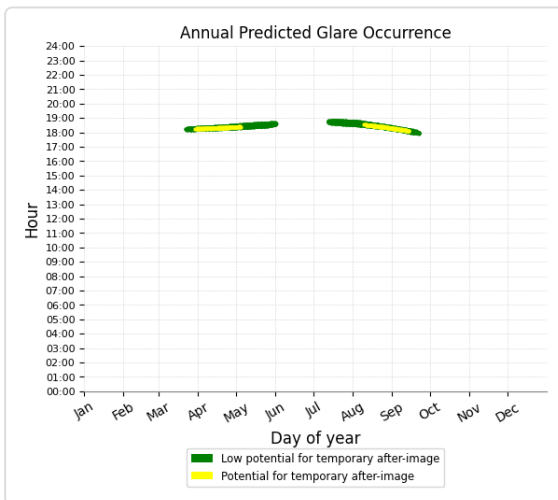
Green glare: 986 min.



PV array 10 and OP 11

Yellow glare: 208 min.

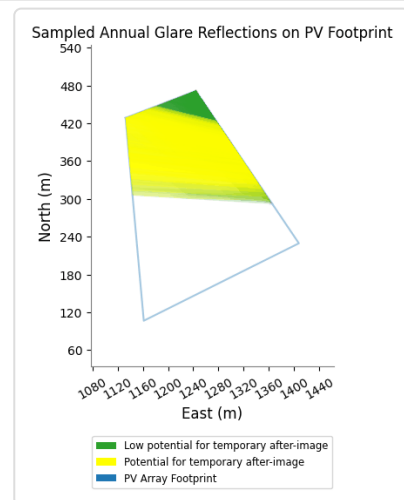
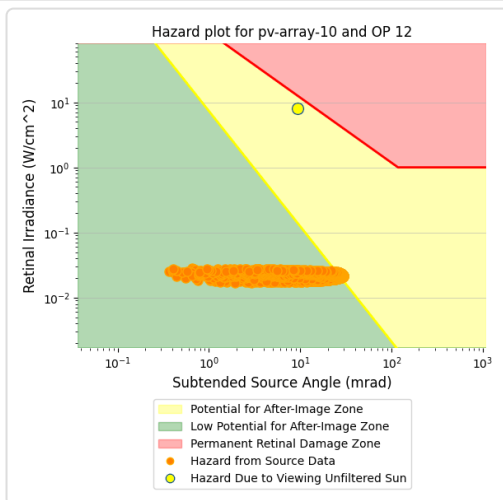
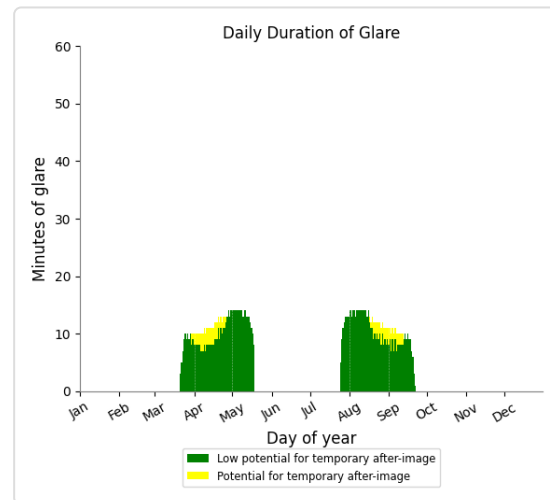
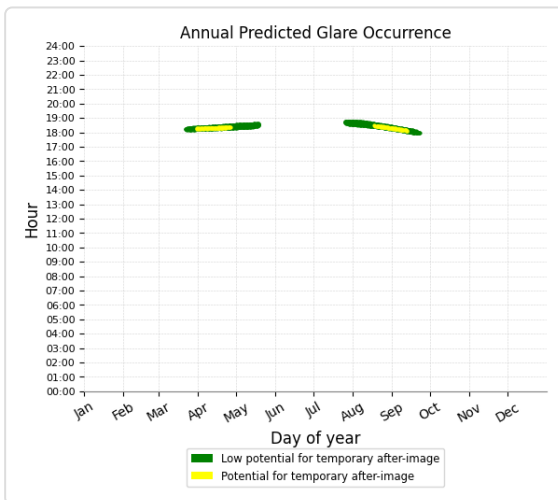
Green glare: 1,371 min.



PV array 10 and OP 12

Yellow glare: 131 min.

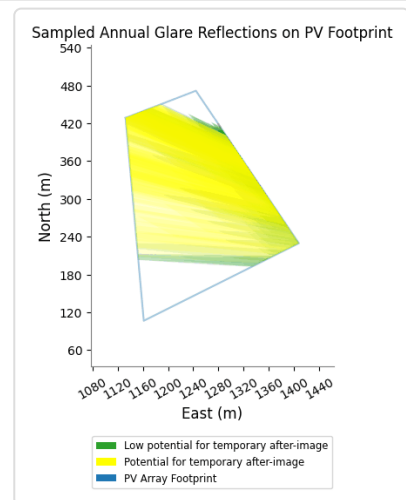
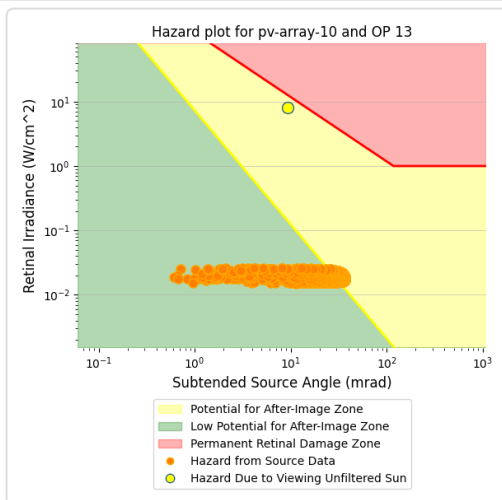
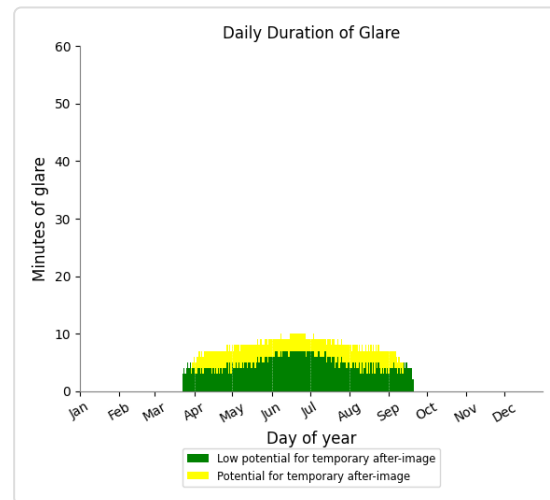
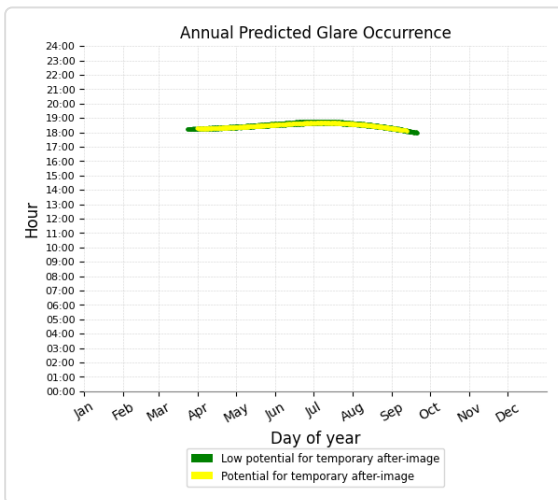
Green glare: 1,209 min.



PV array 10 and OP 13

Yellow glare: 503 min.

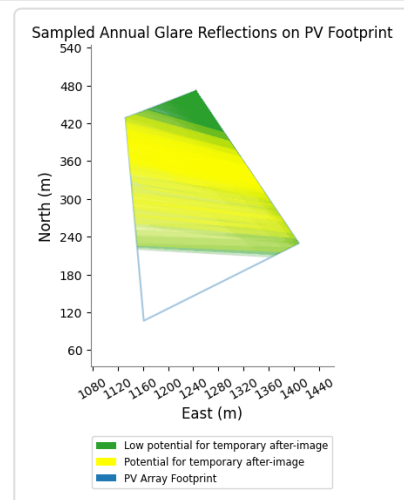
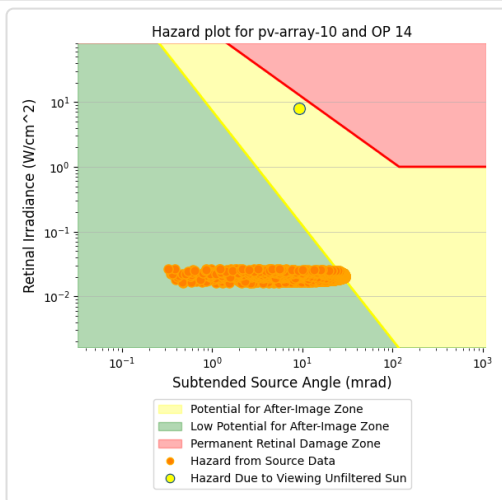
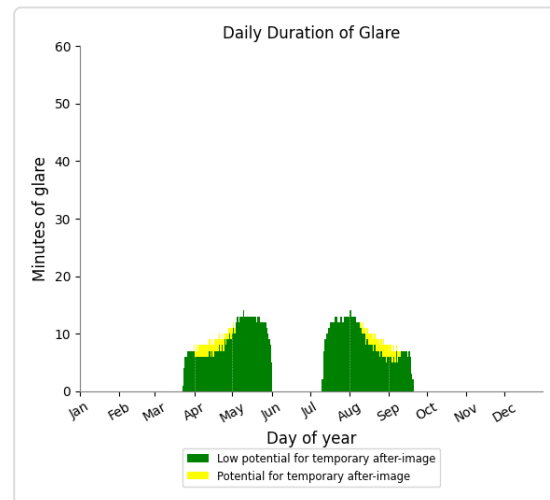
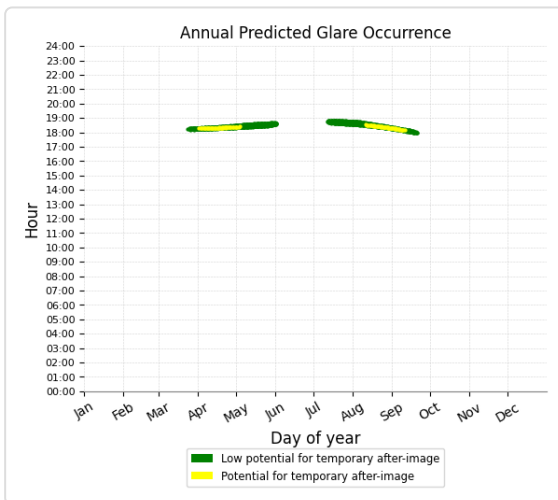
Green glare: 881 min.



PV array 10 and OP 14

Yellow glare: 117 min.

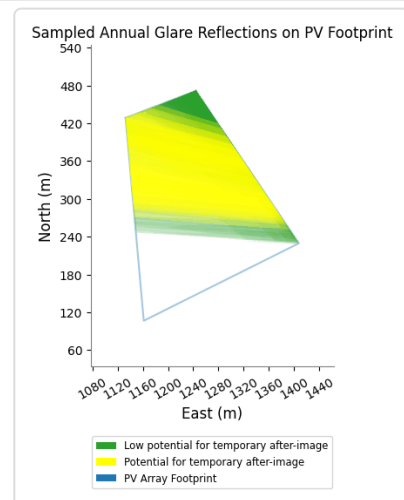
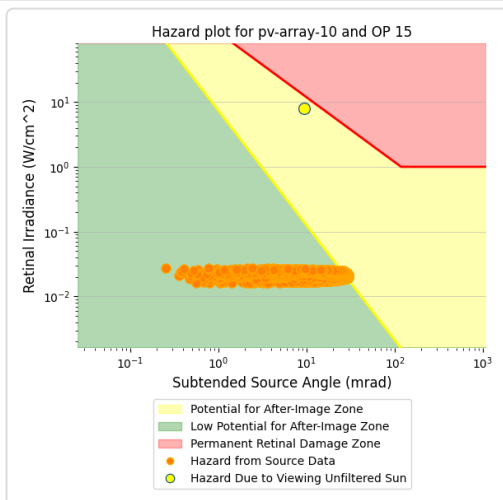
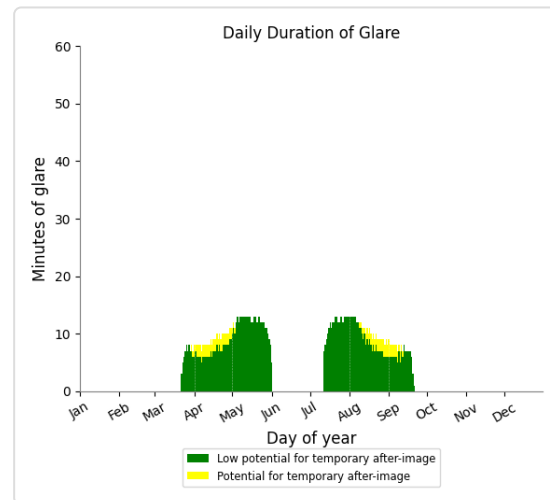
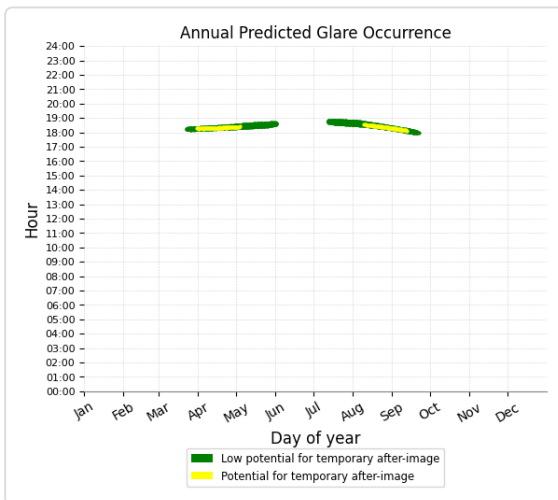
Green glare: 1,279 min.



PV array 10 and OP 15

Yellow glare: 131 min.

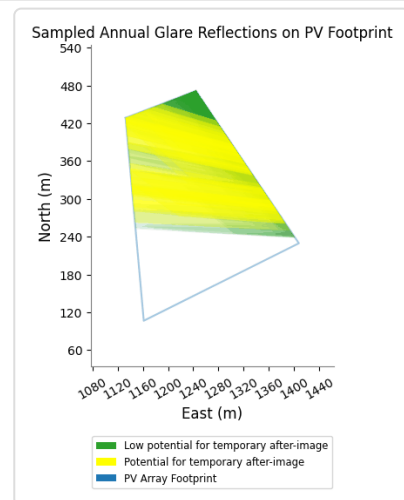
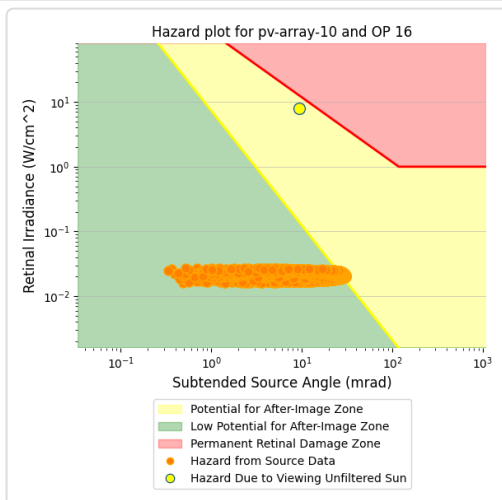
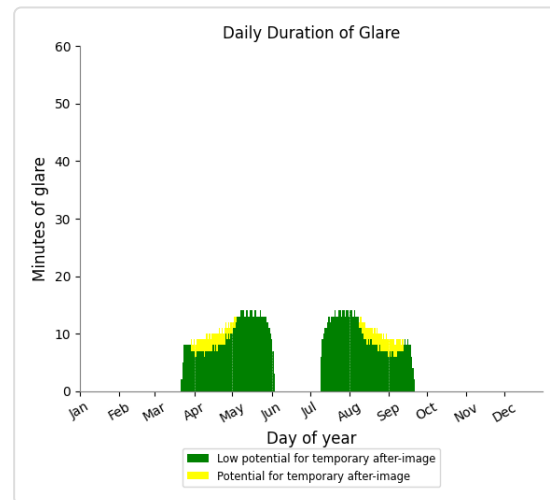
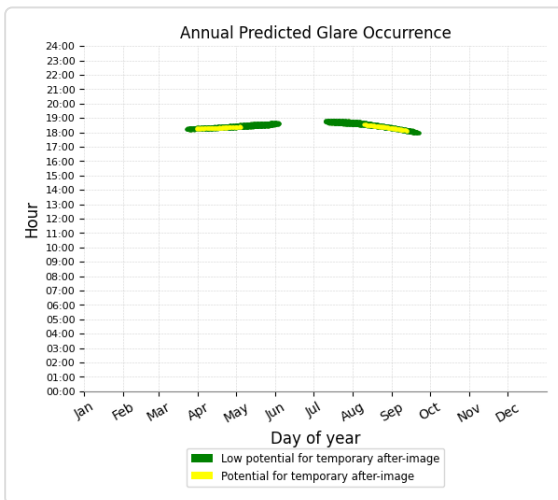
Green glare: 1,286 min.



PV array 10 and OP 16

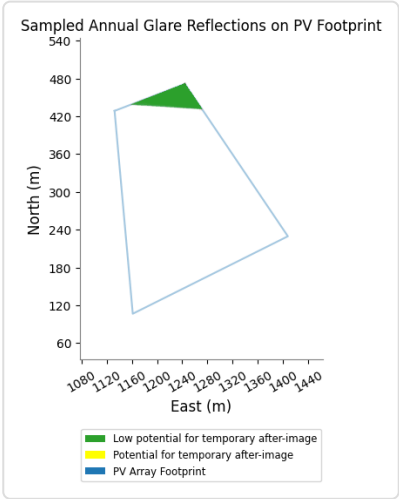
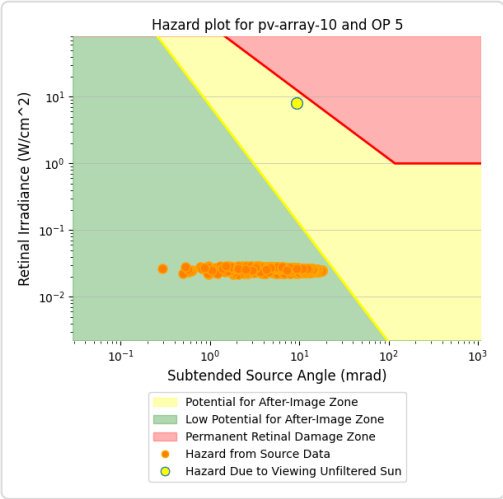
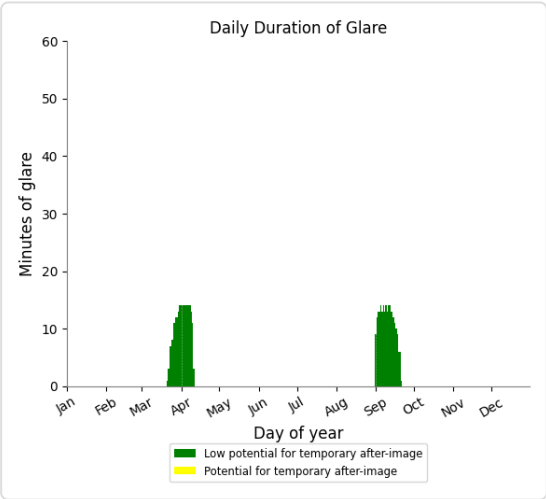
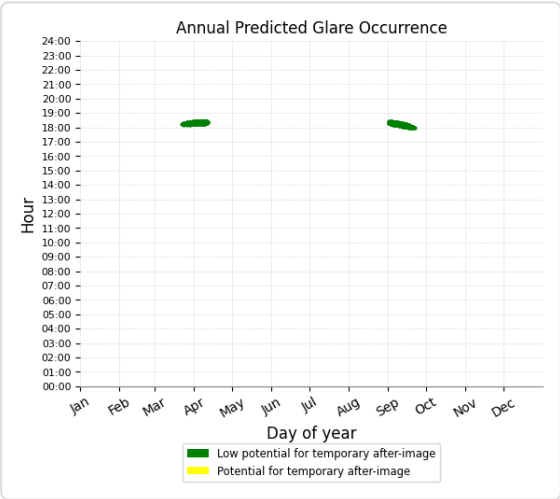
Yellow glare: 160 min.

Green glare: 1,426 min.



PV array 10 and OP 5

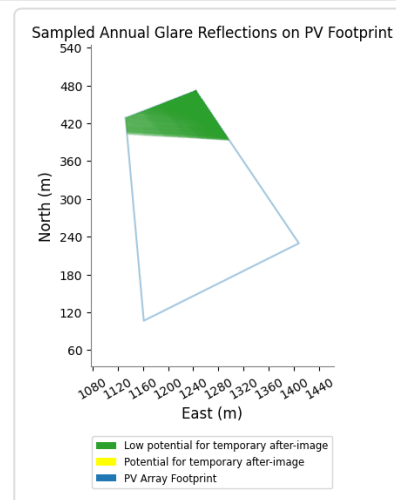
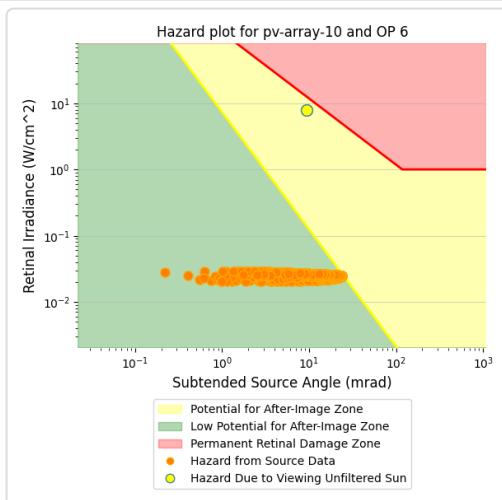
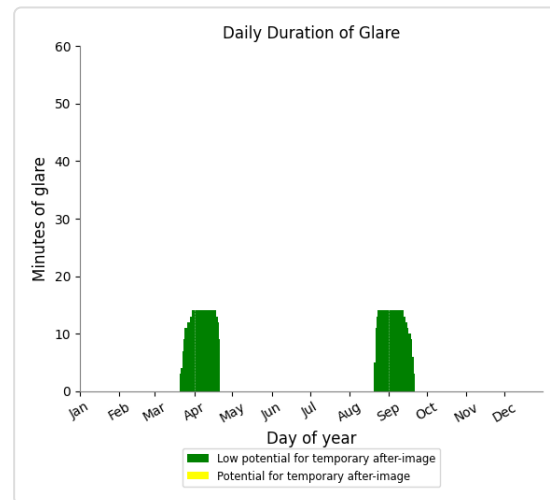
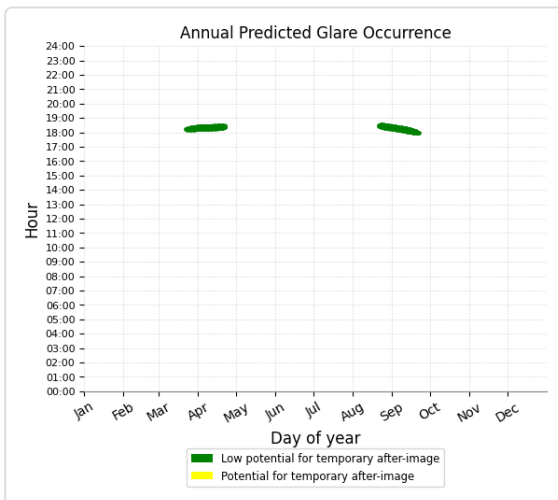
Yellow glare: none
Green glare: 475 min.



PV array 10 and OP 6

Yellow glare: none

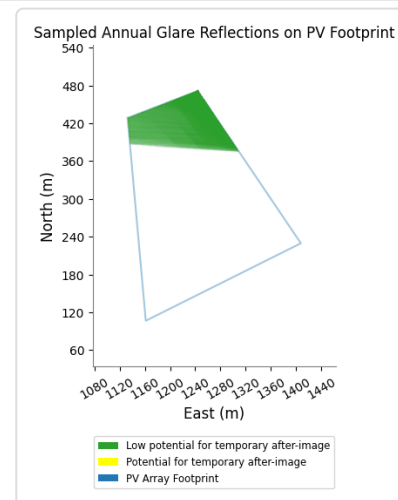
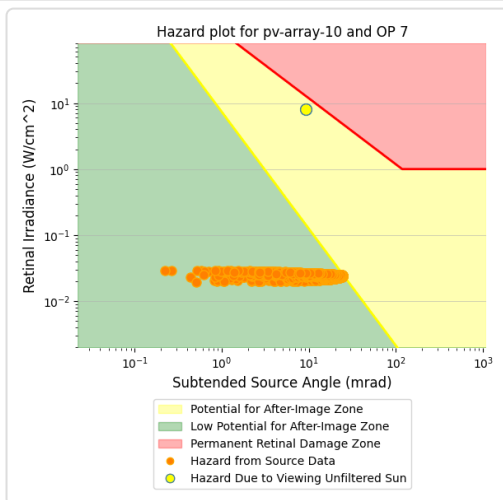
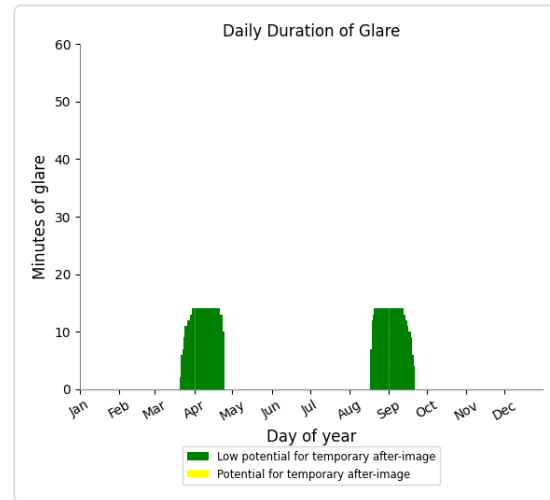
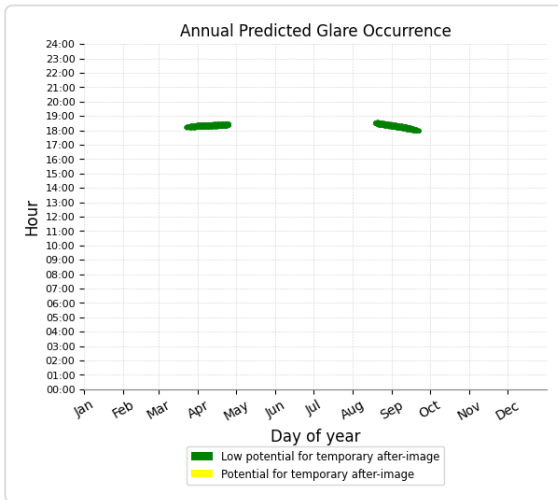
Green glare: 791 min.



PV array 10 and OP 7

Yellow glare: none

Green glare: 882 min.



PV array 10 and OP 1

No glare found

PV array 10 and OP 2

No glare found

PV array 10 and OP 3

No glare found

PV array 10 and OP 4

No glare found

PV array 10 and OP 17

No glare found

PV array 10 and OP 18

No glare found

PV array 10 and OP 19

No glare found

PV array 10 and OP 20

No glare found

PV array 10 and OP 21

No glare found

PV array 10 and OP 22

No glare found

PV array 10 and OP 23

No glare found

PV array 10 and OP 24

No glare found

PV array 10 and OP 25

No glare found

PV array 10 and OP 26

No glare found

PV array 10 and OP 27

No glare found

PV array 10 and OP 28

No glare found

PV array 10 and OP 29

No glare found

PV array 10 and OP 30

No glare found

PV: PV array 11 potential temporary after-image

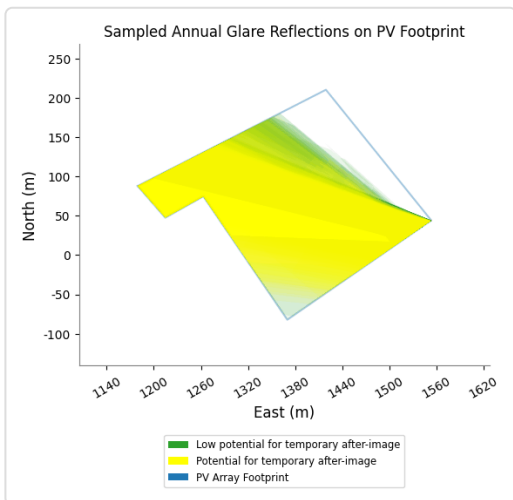
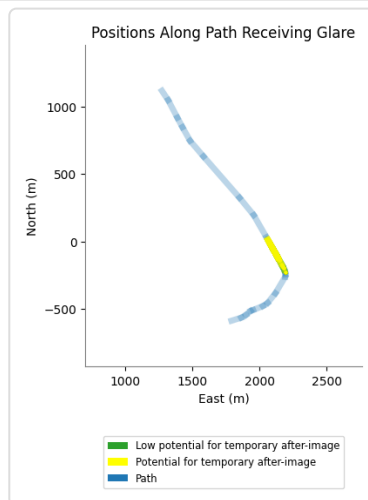
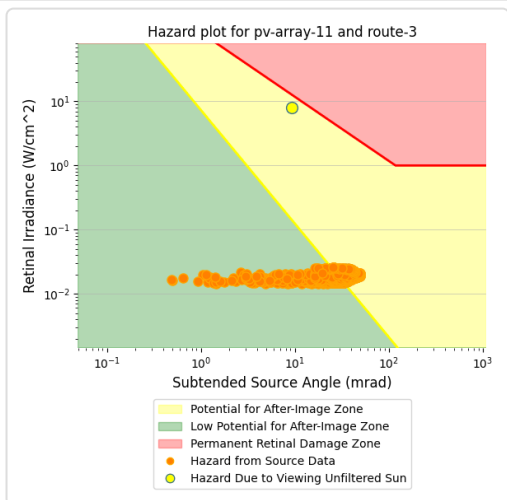
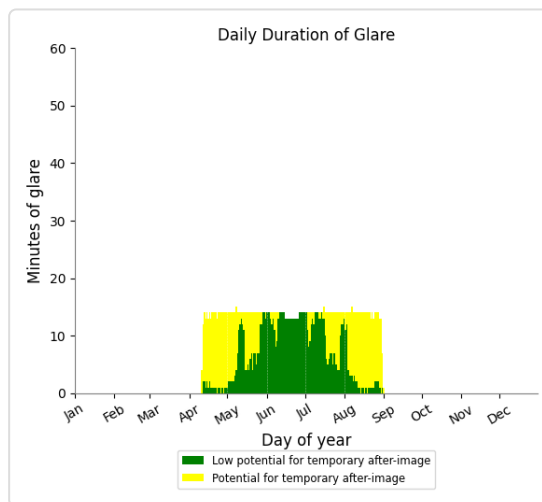
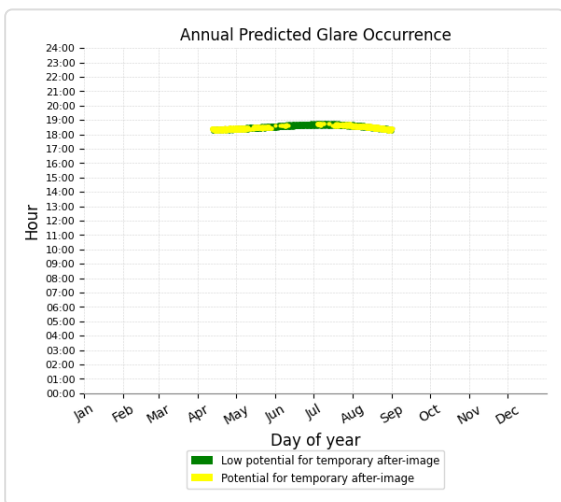
Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 3	1,010	16.8	958	16.0
Trainline	539	9.0	619	10.3
Route 2	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 11 and Route: Route 3

Yellow glare: 958 min.

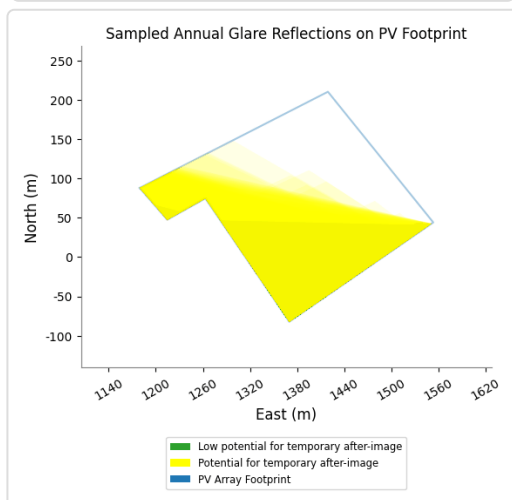
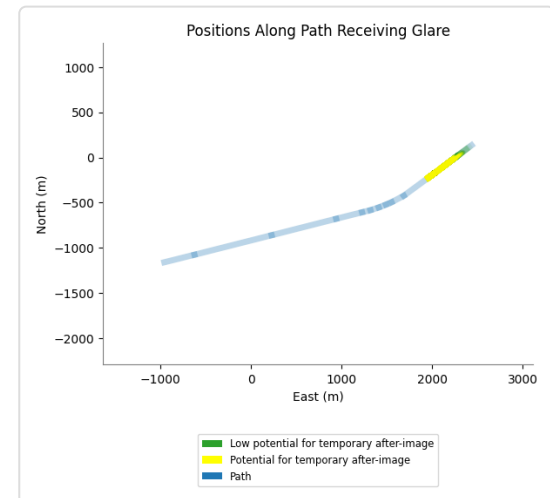
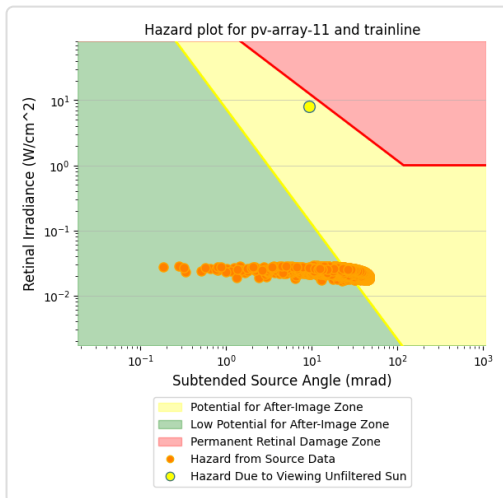
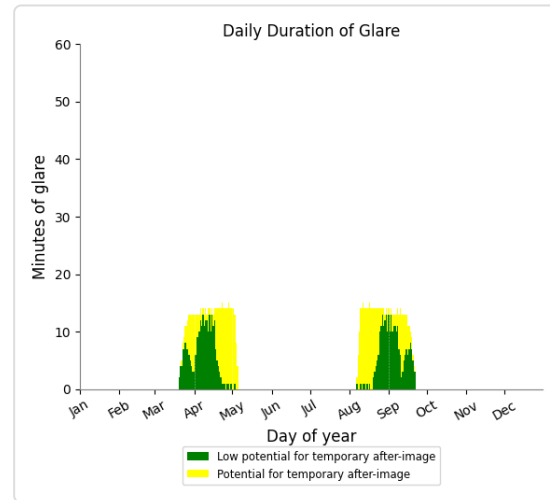
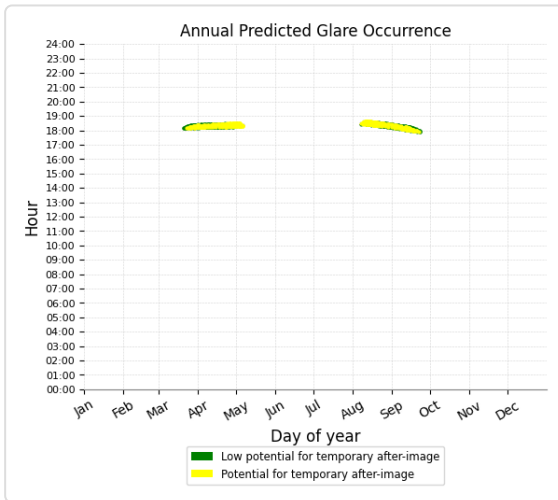
Green glare: 1,010 min.



PV array 11 and Route: Trainline

Yellow glare: 619 min.

Green glare: 539 min.



PV array 11 and Route: Route 2

No glare found

PV array 11 and OP 1

No glare found

PV array 11 and OP 2

No glare found

PV array 11 and OP 3

No glare found

PV array 11 and OP 4

No glare found

PV array 11 and OP 5

No glare found

PV array 11 and OP 6

No glare found

PV array 11 and OP 7

No glare found

PV array 11 and OP 8

No glare found

PV array 11 and OP 9

No glare found

PV array 11 and OP 10

No glare found

PV array 11 and OP 11

No glare found

PV array 11 and OP 12

No glare found

PV array 11 and OP 13

No glare found

PV array 11 and OP 14

No glare found

PV array 11 and OP 15

No glare found

PV array 11 and OP 16

No glare found

PV array 11 and OP 17

No glare found

PV array 11 and OP 18

No glare found

PV array 11 and OP 19

No glare found

PV array 11 and OP 20

No glare found

PV array 11 and OP 21

No glare found

PV array 11 and OP 22

No glare found

PV array 11 and OP 23

No glare found

PV array 11 and OP 24

No glare found

PV array 11 and OP 25

No glare found

PV array 11 and OP 26

No glare found

PV array 11 and OP 27

No glare found

PV array 11 and OP 28

No glare found

PV array 11 and OP 29

No glare found

PV array 11 and OP 30

No glare found

PV: PV array 2 potential temporary after-image

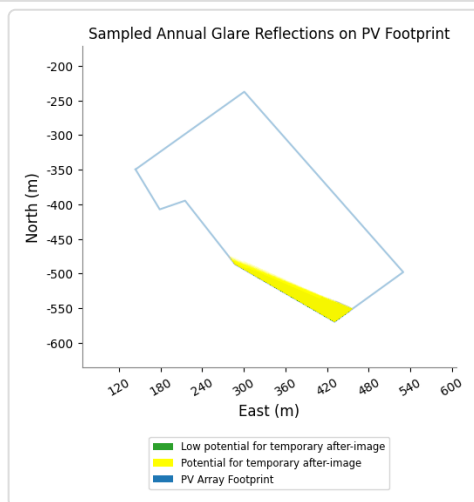
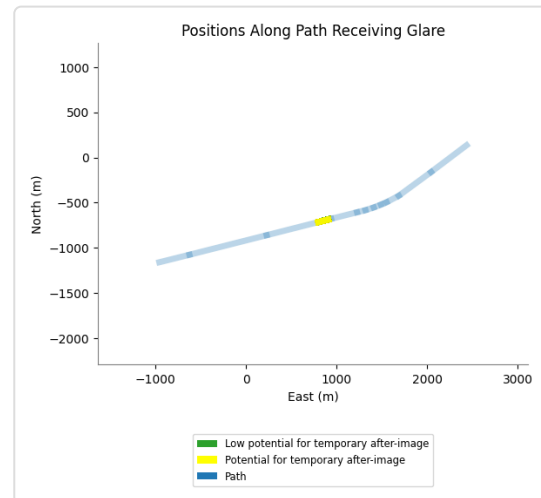
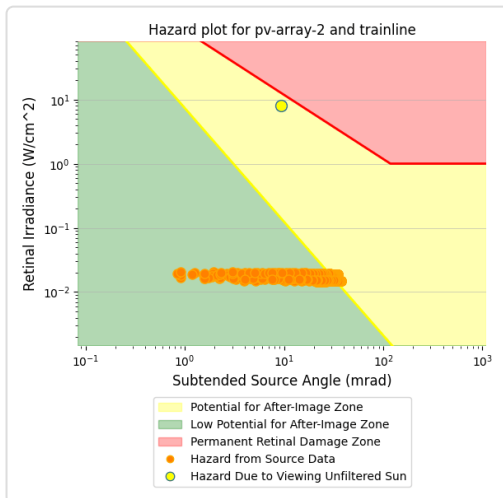
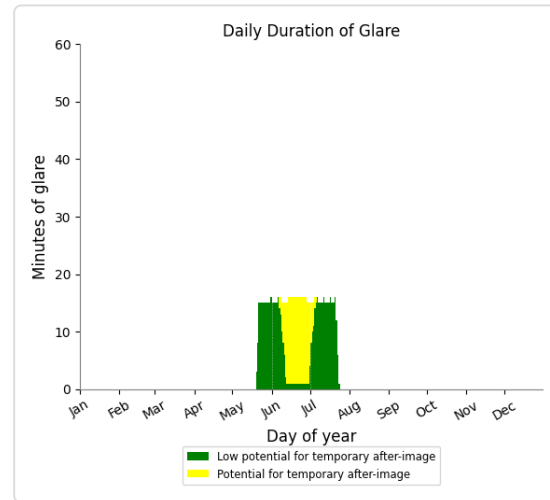
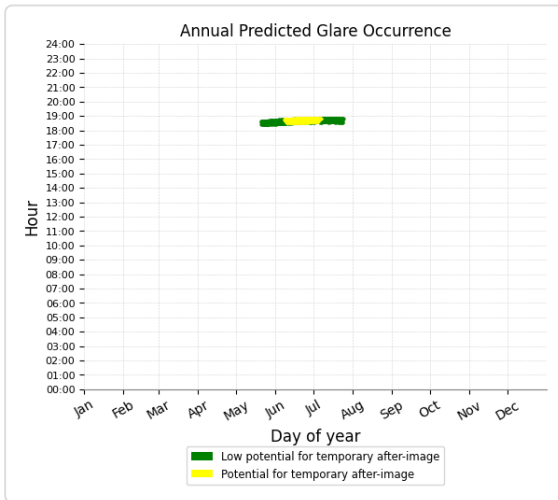
Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Trainline	635	10.6	336	5.6
Route 2	0	0.0	0	0.0
Route 3	0	0.0	0	0.0
OP 25	413	6.9	2,411	40.2
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 2 and Route: Trainline

Yellow glare: 336 min.

Green glare: 635 min.



PV array 2 and Route: Route 2

No glare found

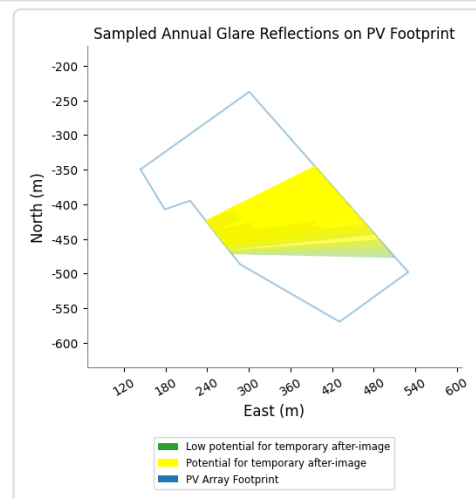
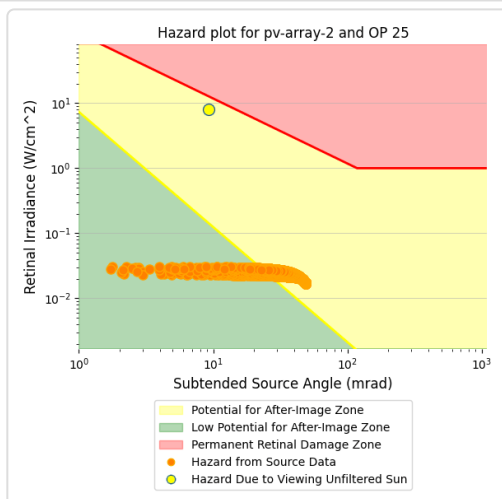
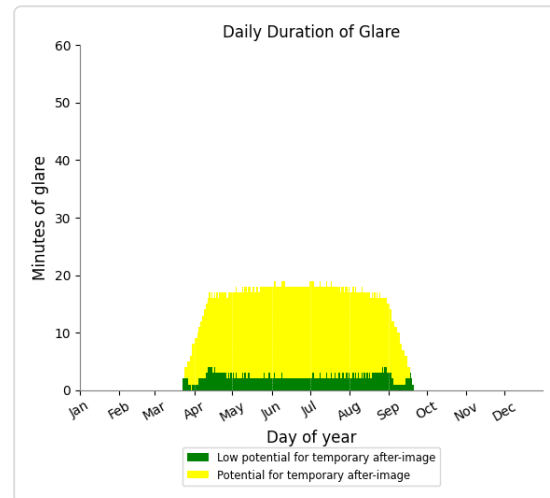
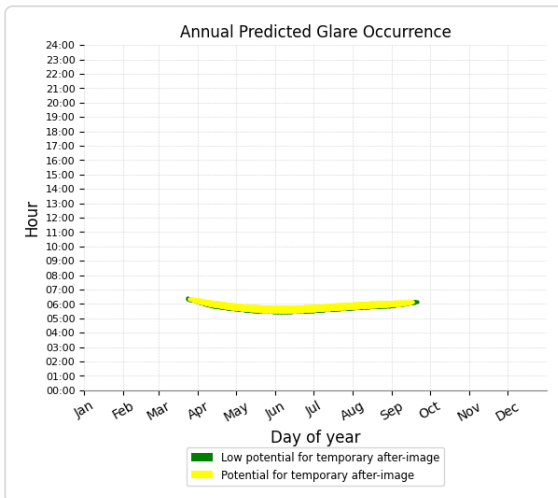
PV array 2 and Route: Route 3

No glare found

PV array 2 and OP 25

Yellow glare: 2,411 min.

Green glare: 413 min.



PV array 2 and OP 1

No glare found

PV array 2 and OP 2

No glare found

PV array 2 and OP 3

No glare found

PV array 2 and OP 4

No glare found

PV array 2 and OP 5

No glare found

PV array 2 and OP 6

No glare found

PV array 2 and OP 7

No glare found

PV array 2 and OP 8

No glare found

PV array 2 and OP 9

No glare found

PV array 2 and OP 10

No glare found

PV array 2 and OP 11

No glare found

PV array 2 and OP 12

No glare found

PV array 2 and OP 13

No glare found

PV array 2 and OP 14

No glare found

PV array 2 and OP 15

No glare found

PV array 2 and OP 16

No glare found

PV array 2 and OP 17

No glare found

PV array 2 and OP 18

No glare found

PV array 2 and OP 19

No glare found

PV array 2 and OP 20

No glare found

PV array 2 and OP 21

No glare found

PV array 2 and OP 22

No glare found

PV array 2 and OP 23

No glare found

PV array 2 and OP 24

No glare found

PV array 2 and OP 26

No glare found

PV array 2 and OP 27

No glare found

PV array 2 and OP 28

No glare found

PV array 2 and OP 29

No glare found

PV array 2 and OP 30

No glare found

PV: PV array 3 potential temporary after-image

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 2	0	0.0	0	0.0
Route 3	0	0.0	0	0.0
Trainline	0	0.0	0	0.0
OP 25	845	14.1	788	13.1
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 3 and Route: Route 2

No glare found

PV array 3 and Route: Route 3

No glare found

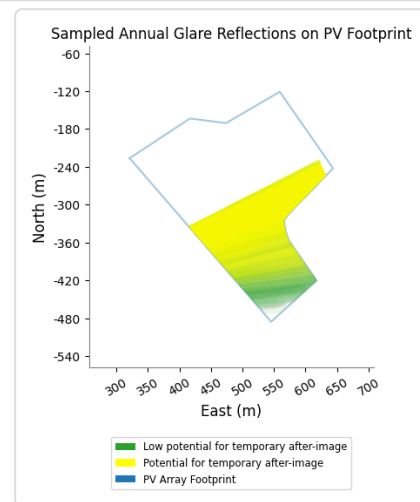
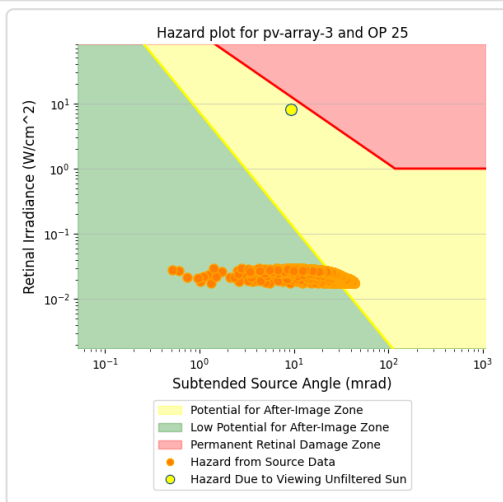
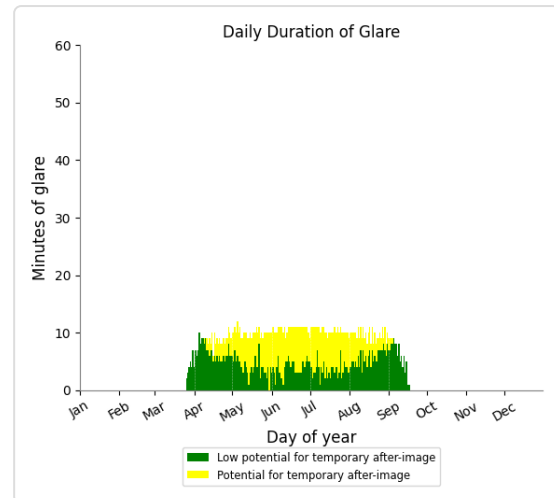
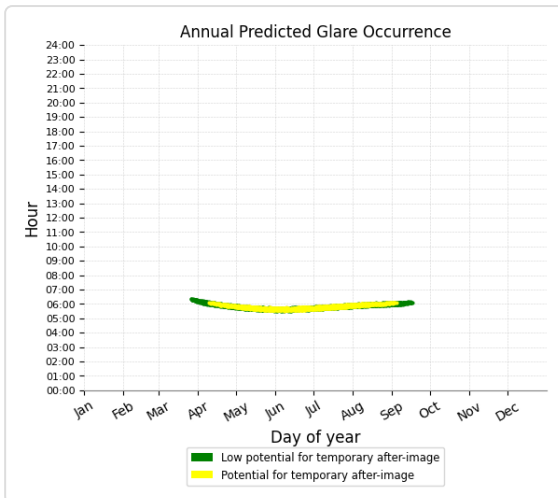
PV array 3 and Route: Trainline

No glare found

PV array 3 and OP 25

Yellow glare: 788 min.

Green glare: 845 min.



PV array 3 and OP 1

No glare found

PV array 3 and OP 2

No glare found

PV array 3 and OP 3

No glare found

PV array 3 and OP 4

No glare found

PV array 3 and OP 5

No glare found

PV array 3 and OP 6

No glare found

PV array 3 and OP 7

No glare found

PV array 3 and OP 8

No glare found

PV array 3 and OP 9

No glare found

PV array 3 and OP 10

No glare found

PV array 3 and OP 11

No glare found

PV array 3 and OP 12

No glare found

PV array 3 and OP 13

No glare found

PV array 3 and OP 14

No glare found

PV array 3 and OP 15

No glare found

PV array 3 and OP 16

No glare found

PV array 3 and OP 17

No glare found

PV array 3 and OP 18

No glare found

PV array 3 and OP 19

No glare found

PV array 3 and OP 20

No glare found

PV array 3 and OP 21

No glare found

PV array 3 and OP 22

No glare found

PV array 3 and OP 23

No glare found

PV array 3 and OP 24

No glare found

PV array 3 and OP 26

No glare found

PV array 3 and OP 27

No glare found

PV array 3 and OP 28

No glare found

PV array 3 and OP 29

No glare found

PV array 3 and OP 30

No glare found

PV: PV array 4 potential temporary after-image

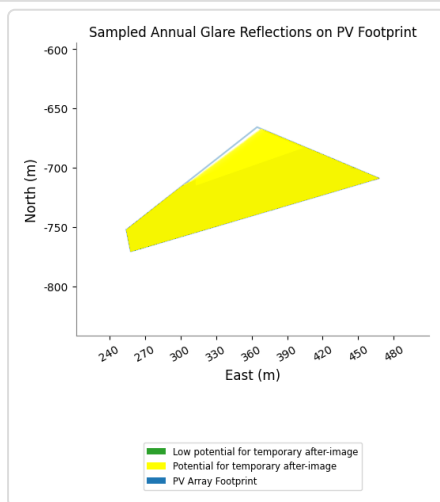
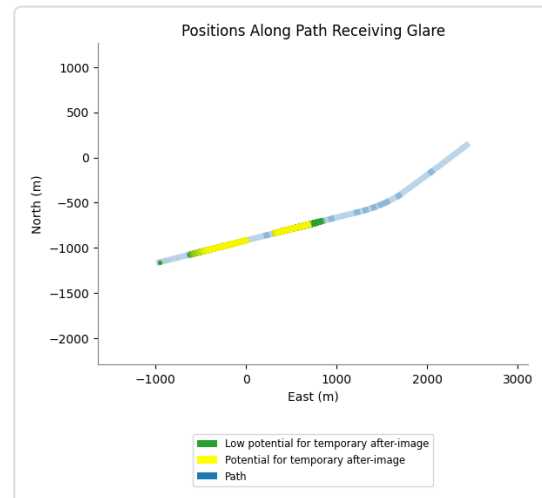
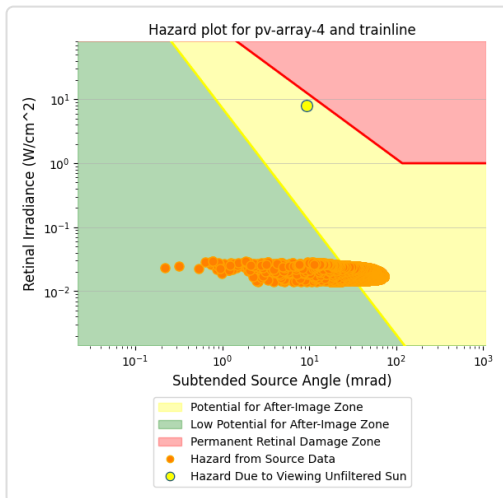
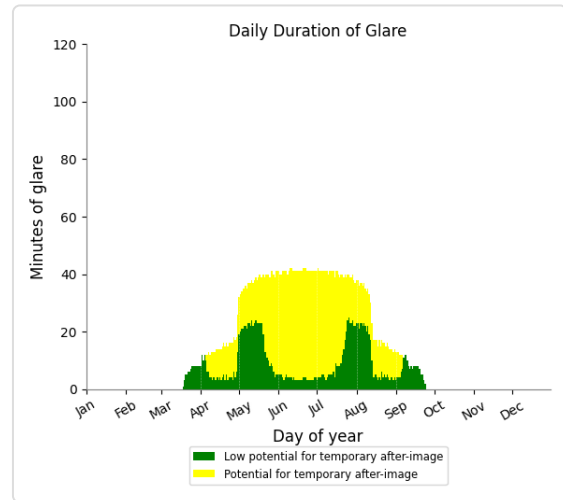
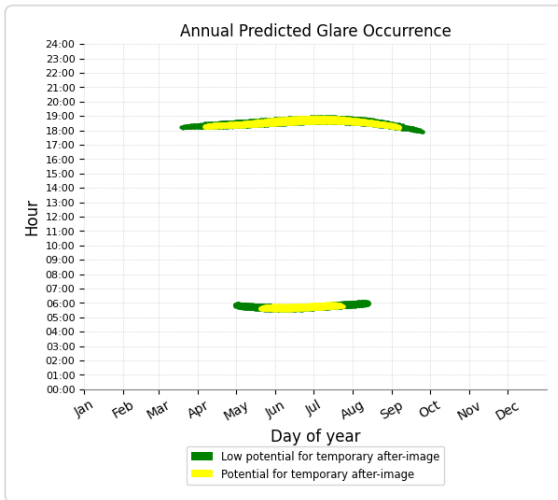
Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Trainline	1,734	28.9	3,383	56.4
Route 2	0	0.0	0	0.0
Route 3	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 4 and Route: Trainline

Yellow glare: 3,383 min.

Green glare: 1,734 min.



PV array 4 and Route: Route 2

No glare found

PV array 4 and Route: Route 3

No glare found

PV array 4 and OP 1

No glare found

PV array 4 and OP 2

No glare found

PV array 4 and OP 3

No glare found

PV array 4 and OP 4

No glare found

PV array 4 and OP 5

No glare found

PV array 4 and OP 6

No glare found

PV array 4 and OP 7

No glare found

PV array 4 and OP 8

No glare found

PV array 4 and OP 9

No glare found

PV array 4 and OP 10

No glare found

PV array 4 and OP 11

No glare found

PV array 4 and OP 12

No glare found

PV array 4 and OP 13

No glare found

PV array 4 and OP 14

No glare found

PV array 4 and OP 15

No glare found

PV array 4 and OP 16

No glare found

PV array 4 and OP 17

No glare found

PV array 4 and OP 18

No glare found

PV array 4 and OP 19

No glare found

PV array 4 and OP 20

No glare found

PV array 4 and OP 21

No glare found

PV array 4 and OP 22

No glare found

PV array 4 and OP 23

No glare found

PV array 4 and OP 24

No glare found

PV array 4 and OP 25

No glare found

PV array 4 and OP 26

No glare found

PV array 4 and OP 27

No glare found

PV array 4 and OP 28

No glare found

PV array 4 and OP 29

No glare found

PV array 4 and OP 30

No glare found

PV: PV array 5 potential temporary after-image

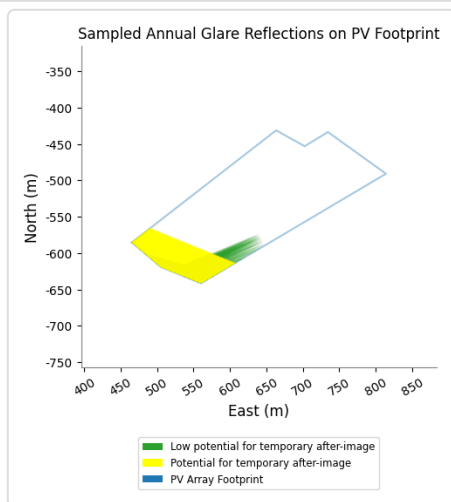
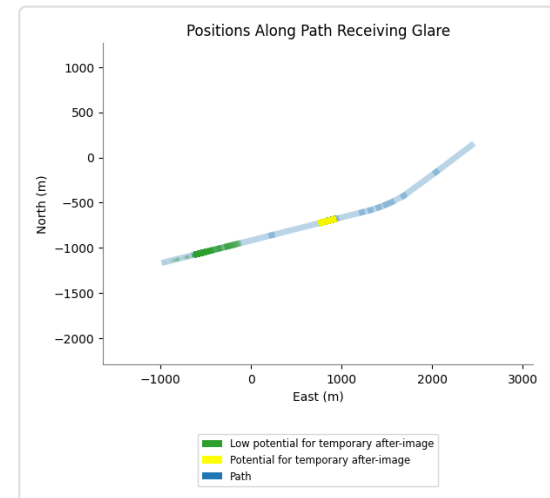
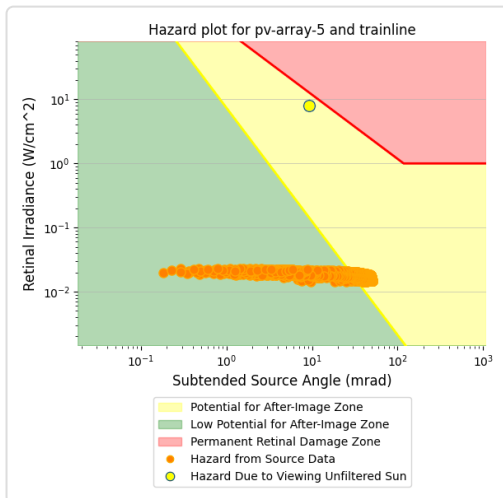
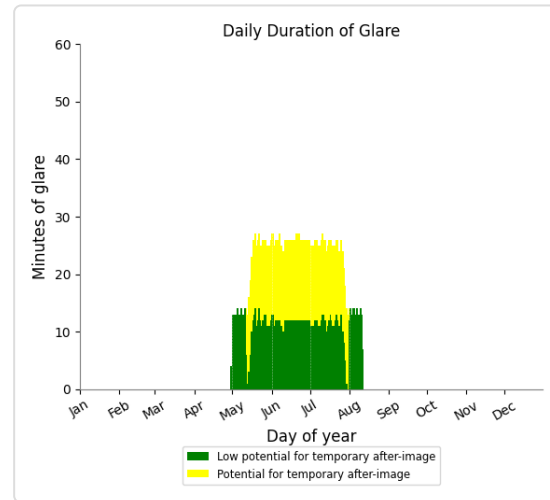
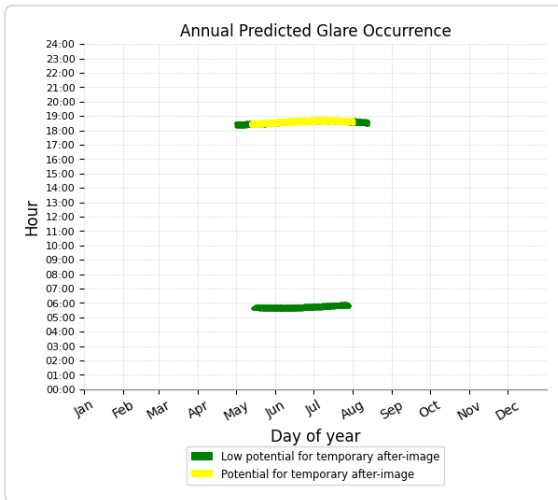
Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Trainline	1,200	20.0	1,113	18.6
Route 2	0	0.0	0	0.0
Route 3	0	0.0	0	0.0
OP 25	56	0.9	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 5 and Route: Trainline

Yellow glare: 1,113 min.

Green glare: 1,200 min.



PV array 5 and Route: Route 2

No glare found

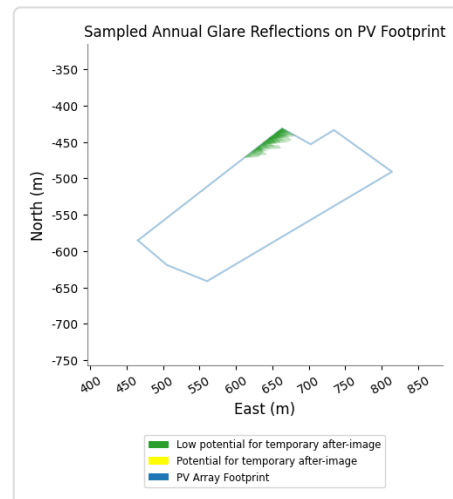
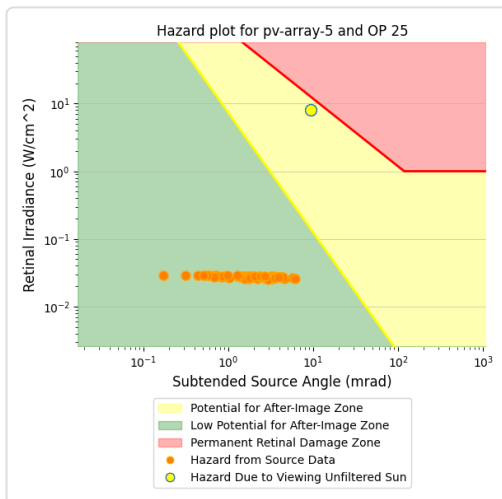
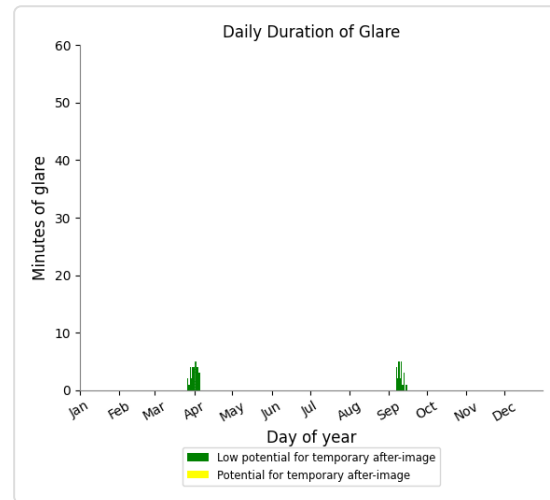
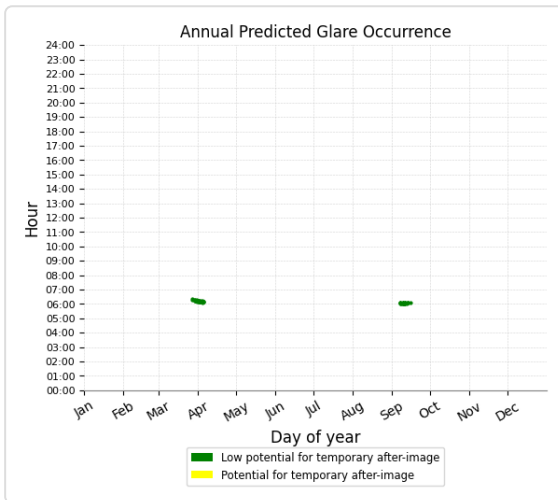
PV array 5 and Route: Route 3

No glare found

PV array 5 and OP 25

Yellow glare: none

Green glare: 56 min.



PV array 5 and OP 1

No glare found

PV array 5 and OP 2

No glare found

PV array 5 and OP 3

No glare found

PV array 5 and OP 4

No glare found

PV array 5 and OP 5

No glare found

PV array 5 and OP 6

No glare found

PV array 5 and OP 7

No glare found

PV array 5 and OP 8

No glare found

PV array 5 and OP 9

No glare found

PV array 5 and OP 10

No glare found

PV array 5 and OP 11

No glare found

PV array 5 and OP 12

No glare found

PV array 5 and OP 13

No glare found

PV array 5 and OP 14

No glare found

PV array 5 and OP 15

No glare found

PV array 5 and OP 16

No glare found

PV array 5 and OP 17

No glare found

PV array 5 and OP 18

No glare found

PV array 5 and OP 19

No glare found

PV array 5 and OP 20

No glare found

PV array 5 and OP 21

No glare found

PV array 5 and OP 22

No glare found

PV array 5 and OP 23

No glare found

PV array 5 and OP 24

No glare found

PV array 5 and OP 26

No glare found

PV array 5 and OP 27

No glare found

PV array 5 and OP 28

No glare found

PV array 5 and OP 29

No glare found

PV array 5 and OP 30

No glare found

PV: PV array 6 no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 2	0	0.0	0	0.0
Route 3	0	0.0	0	0.0
Trainline	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 6 and Route: Route 2

No glare found

PV array 6 and Route: Route 3

No glare found

PV array 6 and Route: Trainline

No glare found

PV array 6 and OP 1

No glare found

PV array 6 and OP 2

No glare found

PV array 6 and OP 3

No glare found

PV array 6 and OP 4

No glare found

PV array 6 and OP 5

No glare found

PV array 6 and OP 6

No glare found

PV array 6 and OP 7

No glare found

PV array 6 and OP 8

No glare found

PV array 6 and OP 9

No glare found

PV array 6 and OP 10

No glare found

PV array 6 and OP 11

No glare found

PV array 6 and OP 12

No glare found

PV array 6 and OP 13

No glare found

PV array 6 and OP 14

No glare found

PV array 6 and OP 15

No glare found

PV array 6 and OP 16

No glare found

PV array 6 and OP 17

No glare found

PV array 6 and OP 18

No glare found

PV array 6 and OP 19

No glare found

PV array 6 and OP 20

No glare found

PV array 6 and OP 21

No glare found

PV array 6 and OP 22

No glare found

PV array 6 and OP 23

No glare found

PV array 6 and OP 24

No glare found

PV array 6 and OP 25

No glare found

PV array 6 and OP 26

No glare found

PV array 6 and OP 27

No glare found

PV array 6 and OP 28

No glare found

PV array 6 and OP 29

No glare found

PV array 6 and OP 30

No glare found

PV: PV array 7 potential temporary after-image

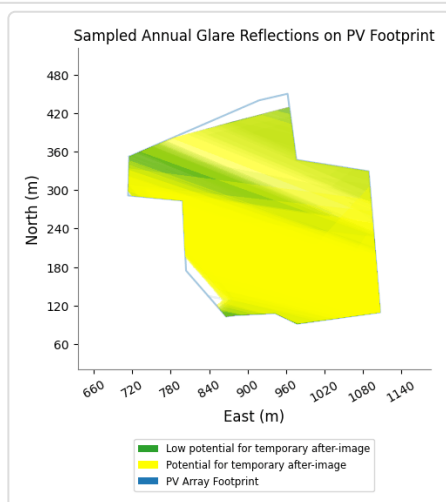
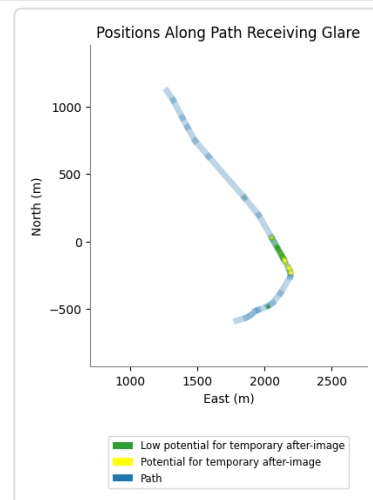
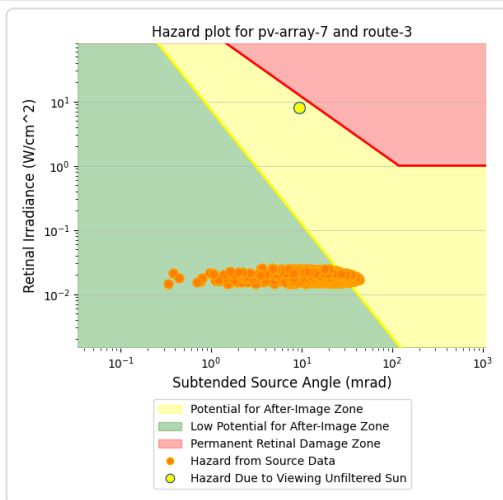
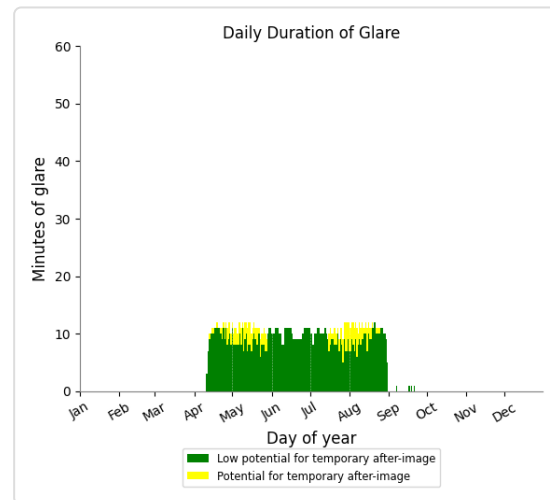
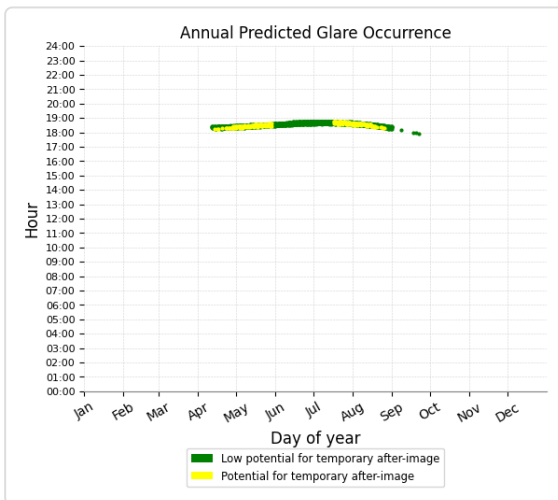
Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 3	1,319	22.0	197	3.3
Trainline	382	6.4	181	3.0
Route 2	0	0.0	0	0.0
OP 7	22	0.4	0	0.0
OP 8	40	0.7	0	0.0
OP 9	24	0.4	0	0.0
OP 10	63	1.1	0	0.0
OP 11	52	0.9	0	0.0
OP 12	45	0.8	0	0.0
OP 13	21	0.3	0	0.0
OP 16	33	0.6	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 7 and Route: Route 3

Yellow glare: 197 min.

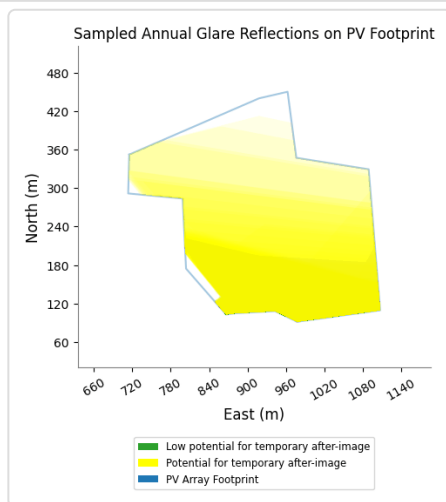
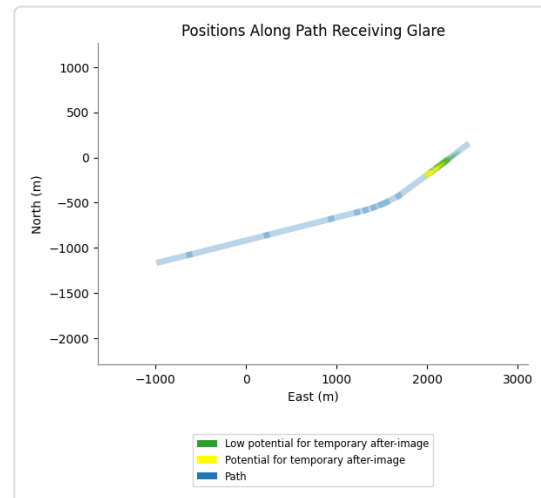
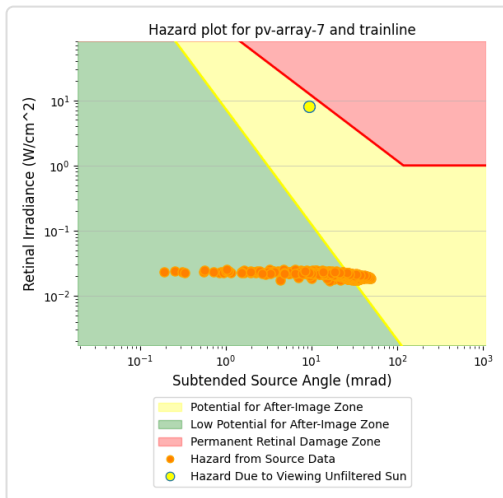
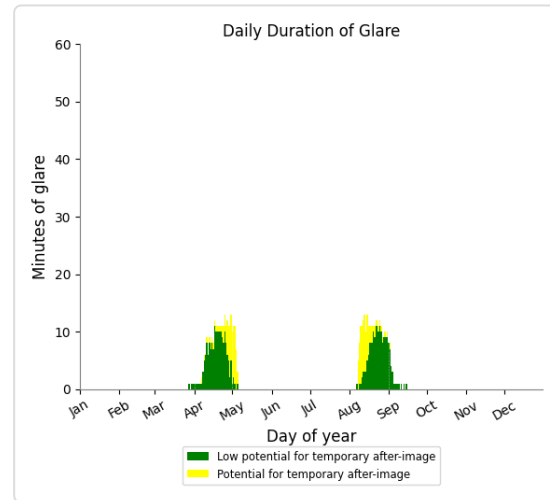
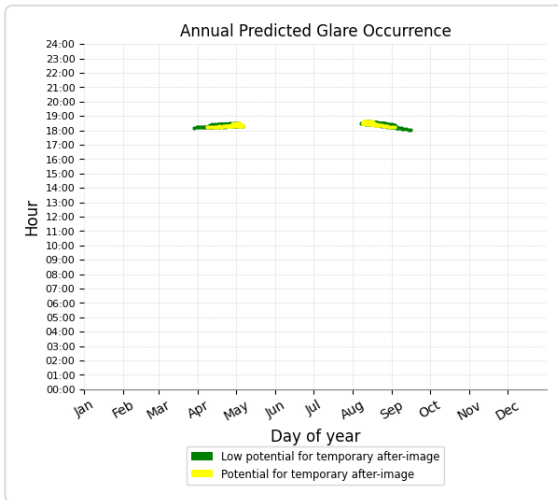
Green glare: 1,319 min.



PV array 7 and Route: Trainline

Yellow glare: 181 min.

Green glare: 382 min.



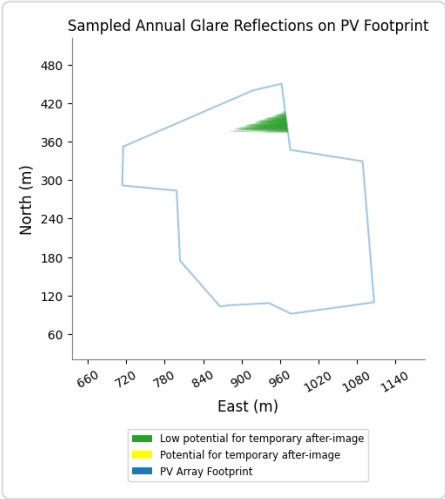
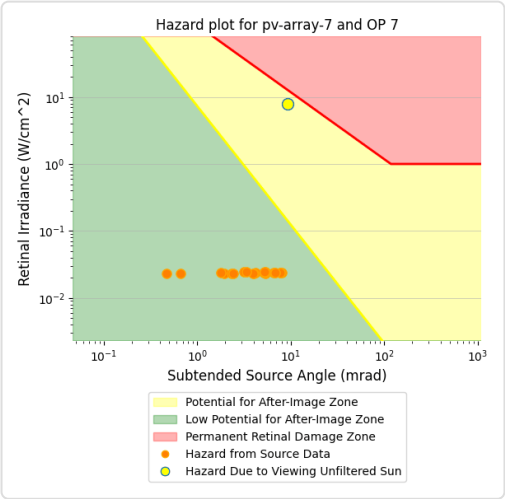
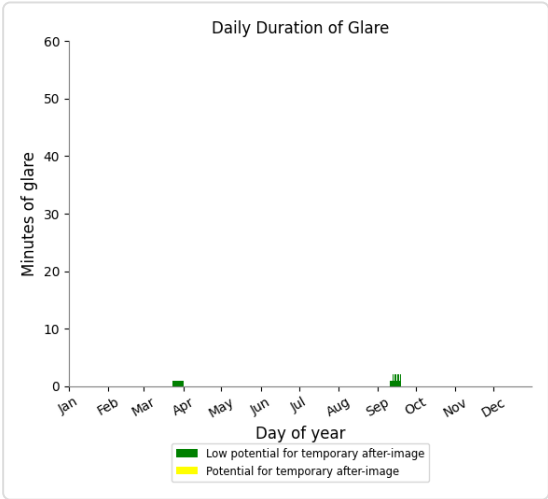
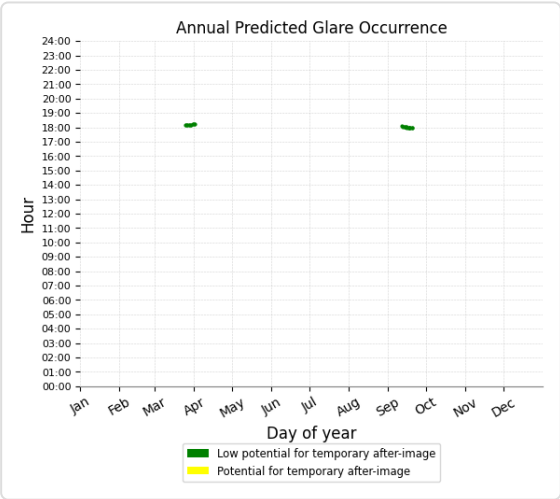
PV array 7 and Route: Route 2

No glare found

PV array 7 and OP 7

Yellow glare: none

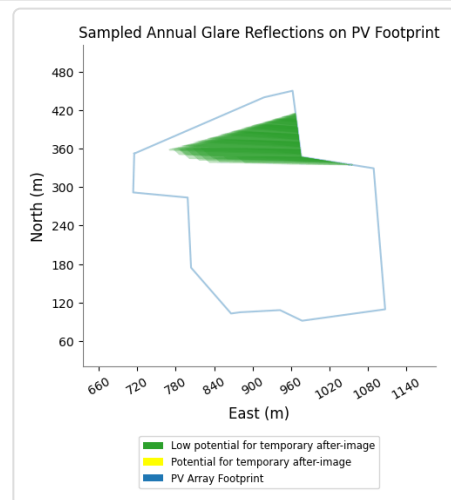
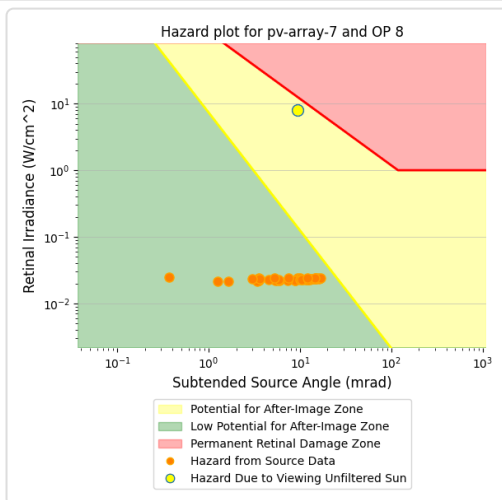
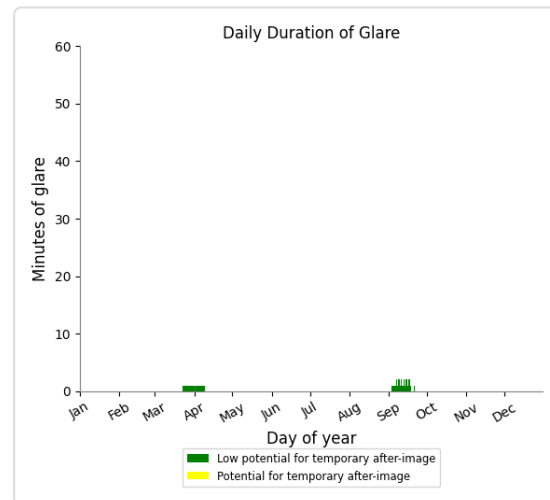
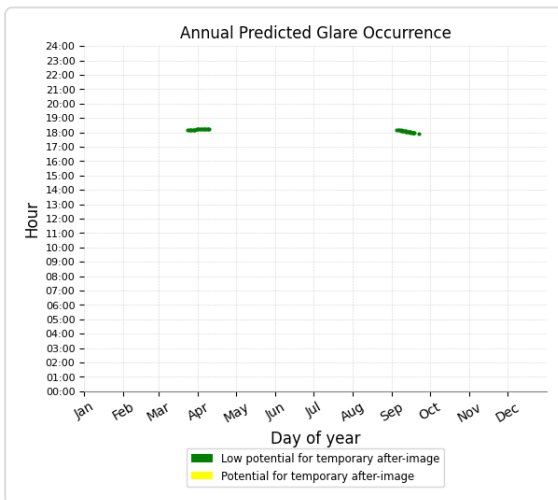
Green glare: 22 min.



PV array 7 and OP 8

Yellow glare: none

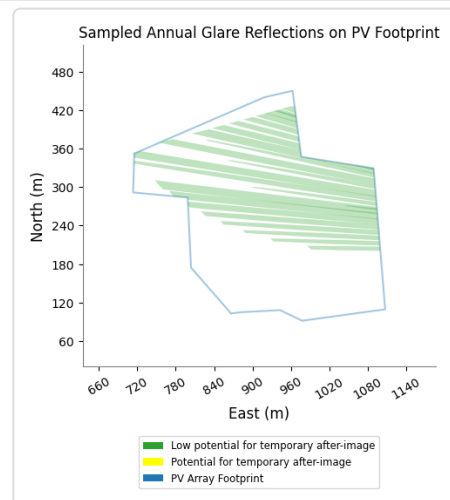
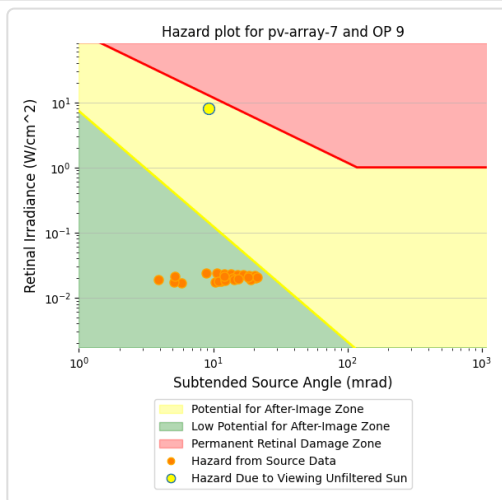
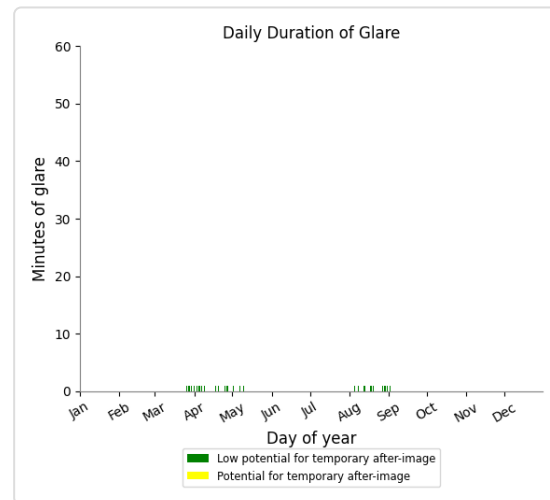
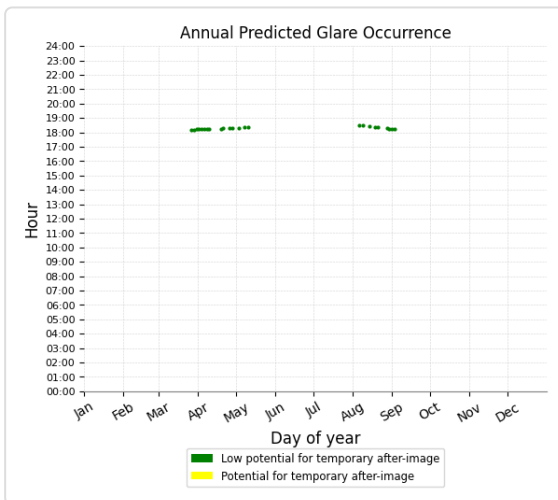
Green glare: 40 min.



PV array 7 and OP 9

Yellow glare: none

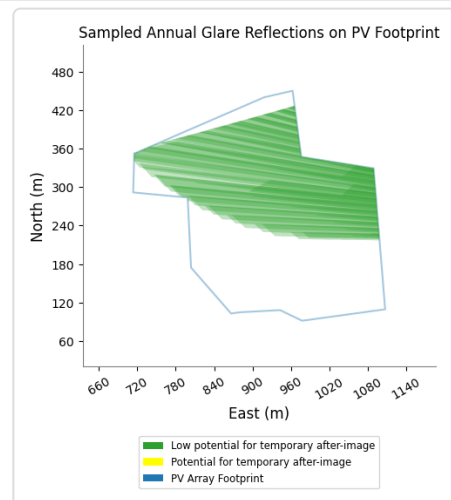
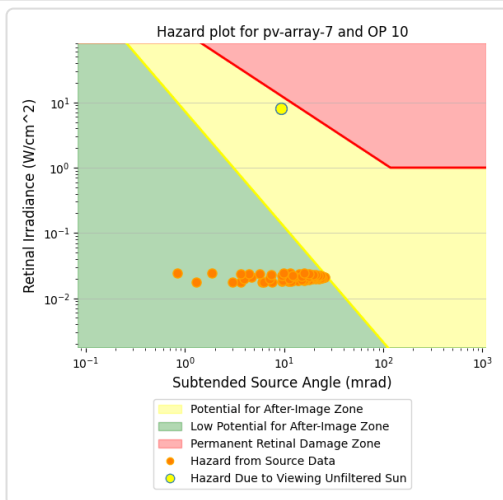
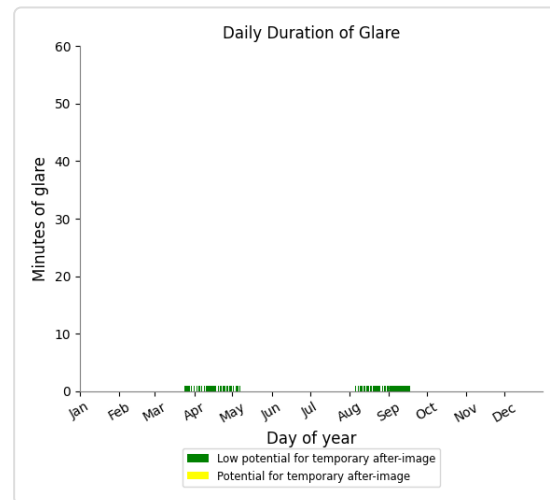
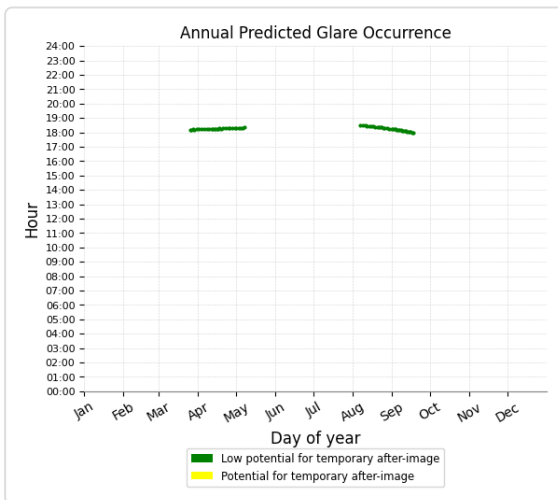
Green glare: 24 min.



PV array 7 and OP 10

Yellow glare: none

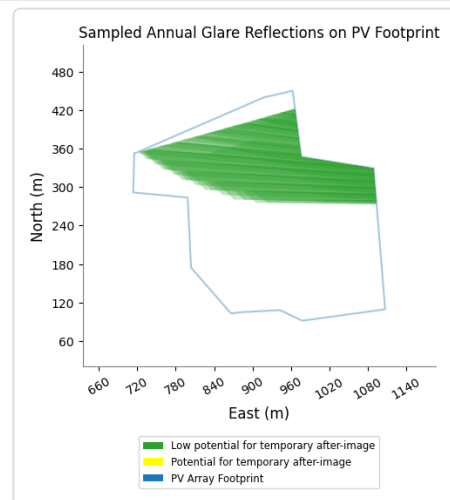
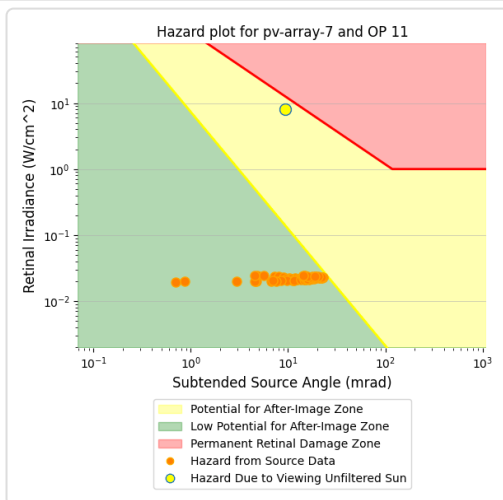
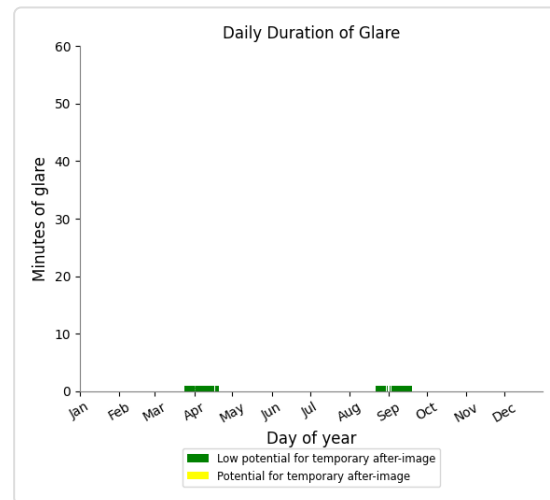
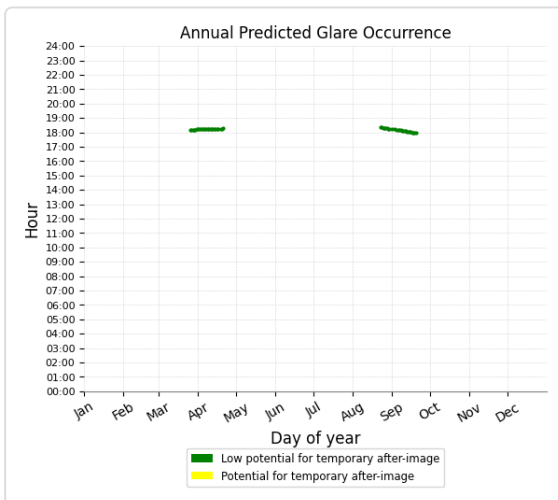
Green glare: 63 min.



PV array 7 and OP 11

Yellow glare: none

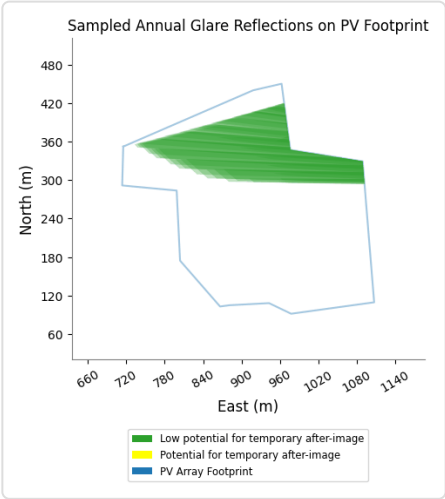
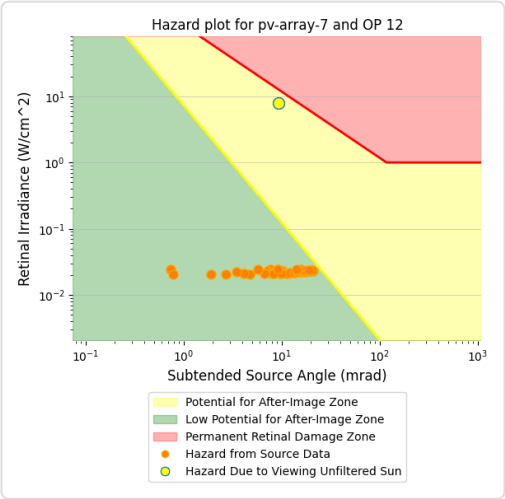
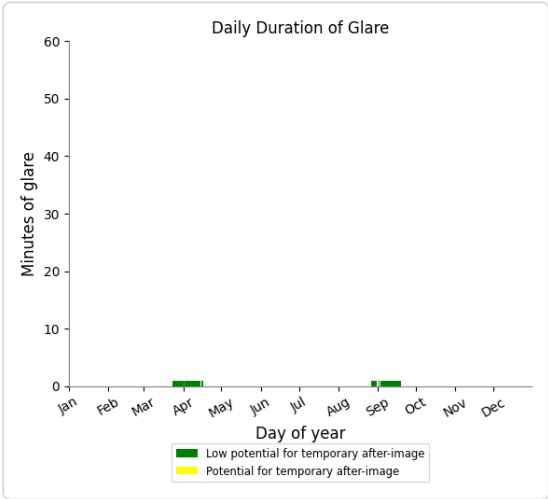
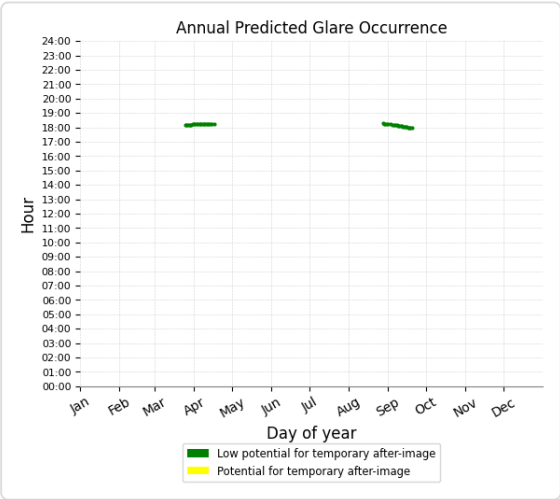
Green glare: 52 min.



PV array 7 and OP 12

Yellow glare: none

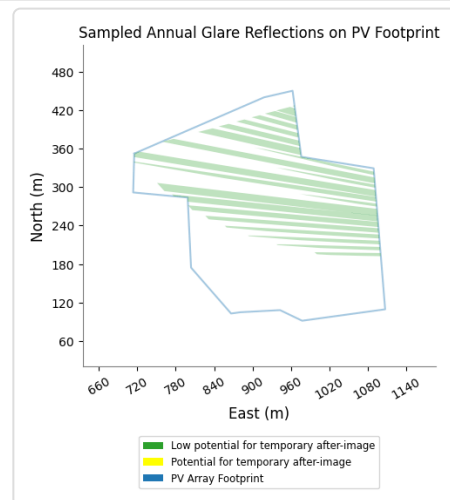
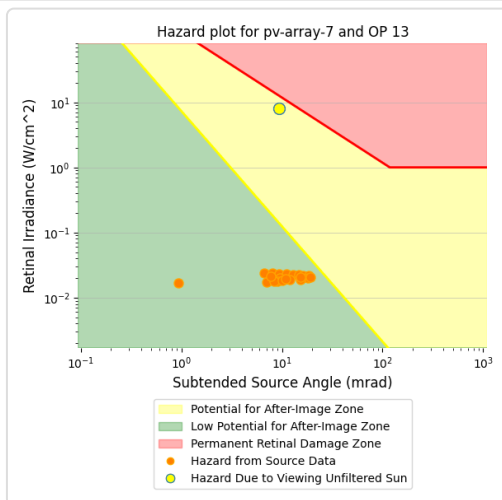
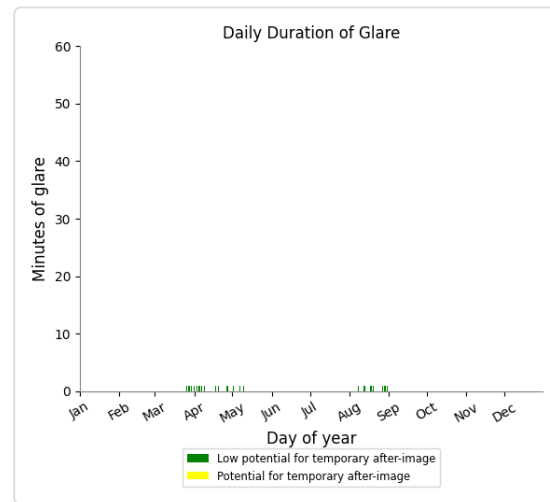
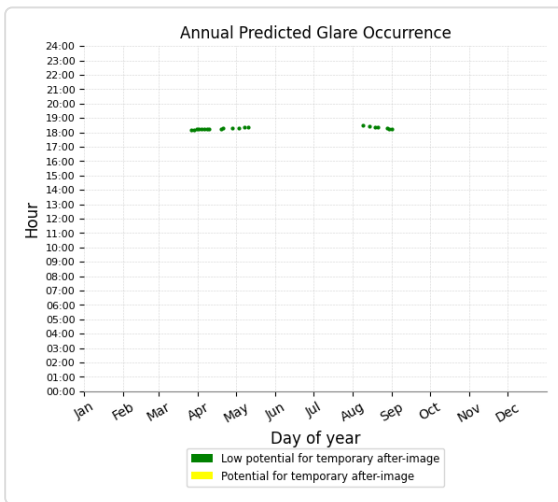
Green glare: 45 min.



PV array 7 and OP 13

Yellow glare: none

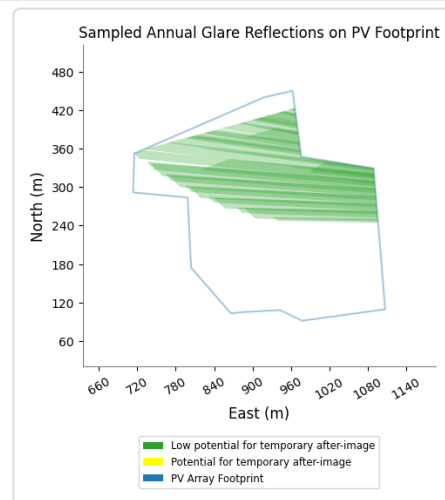
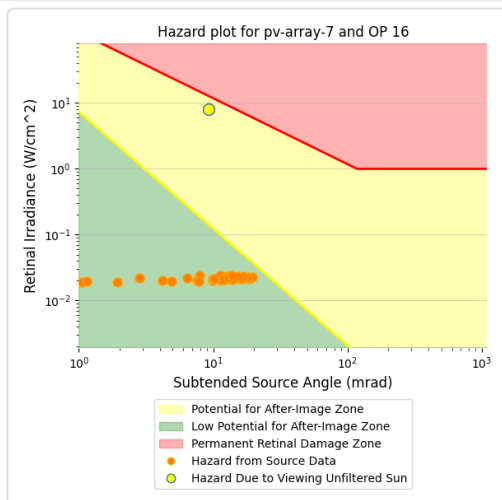
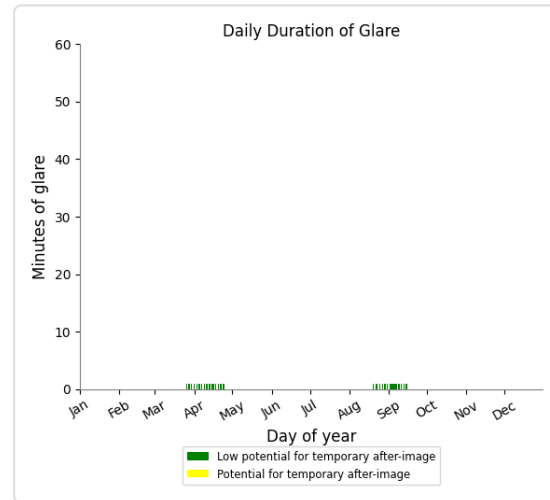
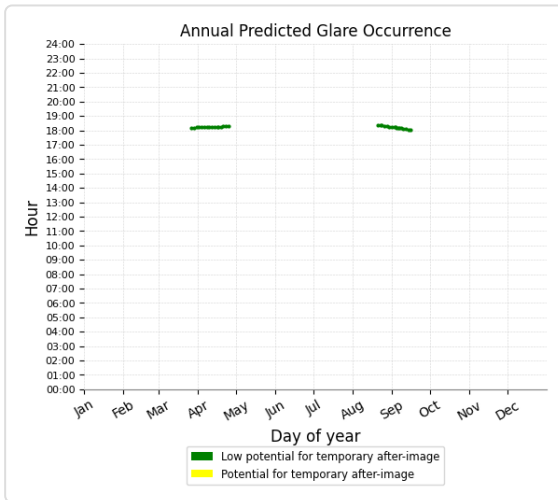
Green glare: 21 min.



PV array 7 and OP 16

Yellow glare: none

Green glare: 33 min.



PV array 7 and OP 1

No glare found

PV array 7 and OP 2

No glare found

PV array 7 and OP 3

No glare found

PV array 7 and OP 4

No glare found

PV array 7 and OP 5

No glare found

PV array 7 and OP 6

No glare found

PV array 7 and OP 14

No glare found

PV array 7 and OP 15

No glare found

PV array 7 and OP 17

No glare found

PV array 7 and OP 18

No glare found

PV array 7 and OP 19

No glare found

PV array 7 and OP 20

No glare found

PV array 7 and OP 21

No glare found

PV array 7 and OP 22

No glare found

PV array 7 and OP 23

No glare found

PV array 7 and OP 24

No glare found

PV array 7 and OP 25

No glare found

PV array 7 and OP 26

No glare found

PV array 7 and OP 27

No glare found

PV array 7 and OP 28

No glare found

PV array 7 and OP 29

No glare found

PV array 7 and OP 30

No glare found

PV: PV array 8 potential temporary after-image

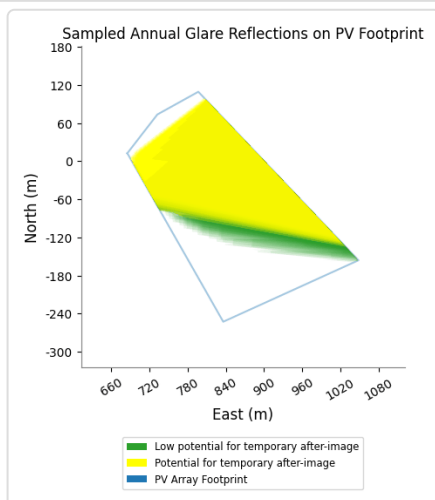
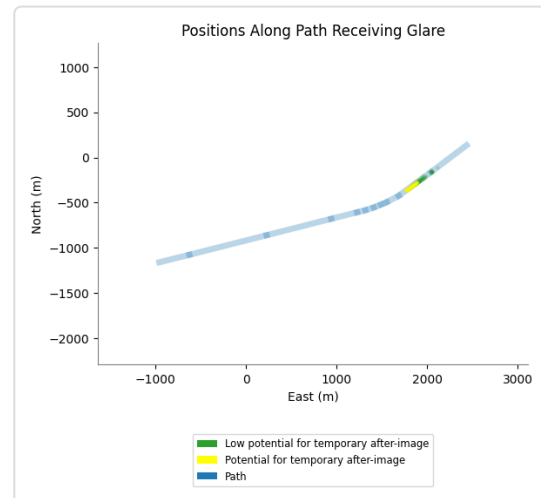
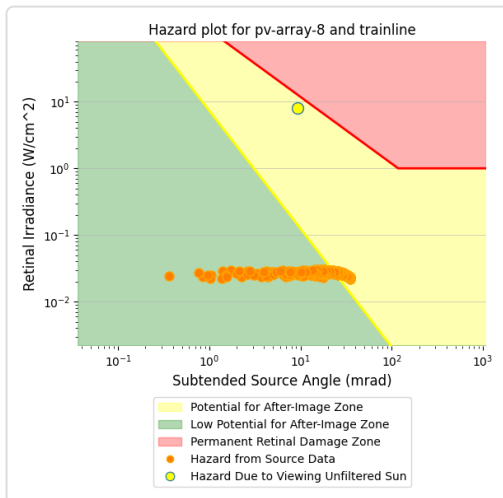
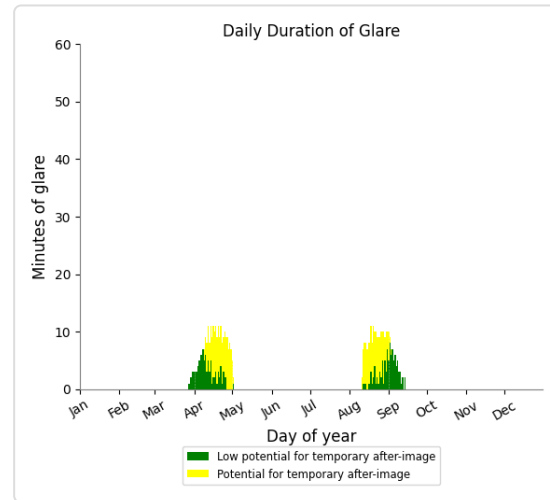
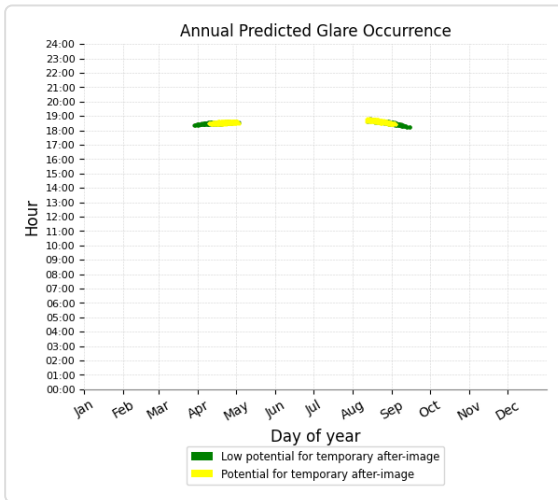
Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Trainline	201	3.4	301	5.0
Route 3	638	10.6	0	0.0
Route 2	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 8 and Route: Trainline

Yellow glare: 301 min.

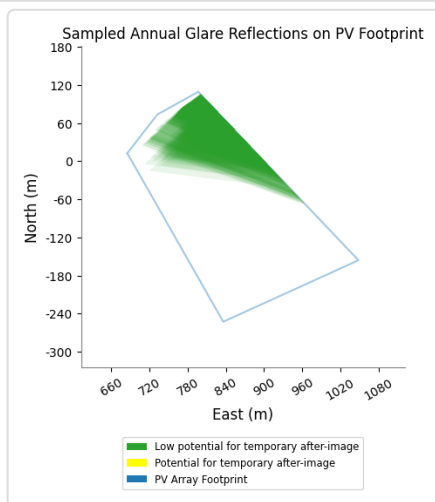
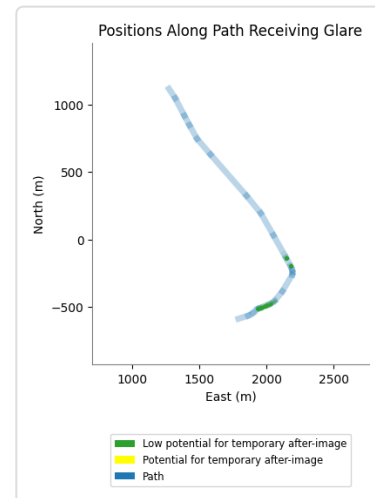
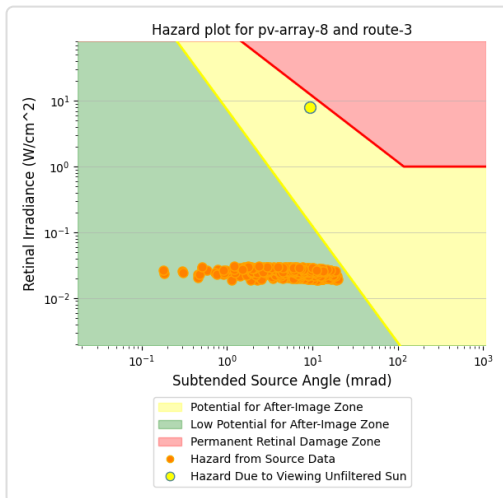
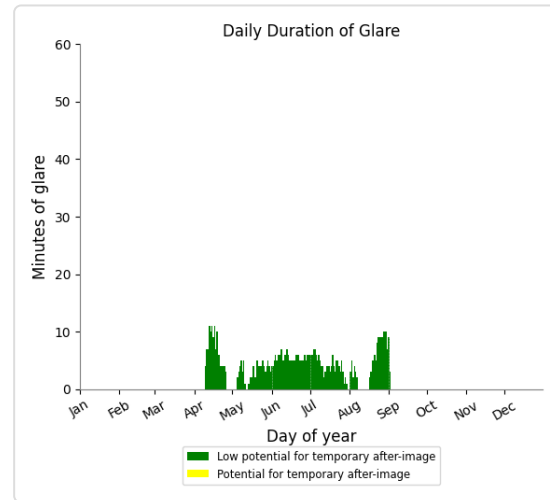
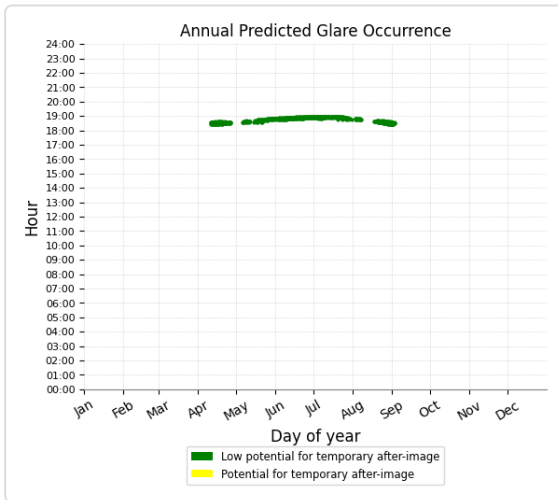
Green glare: 201 min.



PV array 8 and Route: Route 3

Yellow glare: none

Green glare: 638 min.



PV array 8 and Route: Route 2

No glare found

PV array 8 and OP 1

No glare found

PV array 8 and OP 2

No glare found

PV array 8 and OP 3

No glare found

PV array 8 and OP 4

No glare found

PV array 8 and OP 5

No glare found

PV array 8 and OP 6

No glare found

PV array 8 and OP 7

No glare found

PV array 8 and OP 8

No glare found

PV array 8 and OP 9

No glare found

PV array 8 and OP 10

No glare found

PV array 8 and OP 11

No glare found

PV array 8 and OP 12

No glare found

PV array 8 and OP 13

No glare found

PV array 8 and OP 14

No glare found

PV array 8 and OP 15

No glare found

PV array 8 and OP 16

No glare found

PV array 8 and OP 17

No glare found

PV array 8 and OP 18

No glare found

PV array 8 and OP 19

No glare found

PV array 8 and OP 20

No glare found

PV array 8 and OP 21

No glare found

PV array 8 and OP 22

No glare found

PV array 8 and OP 23

No glare found

PV array 8 and OP 24

No glare found

PV array 8 and OP 25

No glare found

PV array 8 and OP 26

No glare found

PV array 8 and OP 27

No glare found

PV array 8 and OP 28

No glare found

PV array 8 and OP 29

No glare found

PV array 8 and OP 30

No glare found

PV: PV array 9 potential temporary after-image

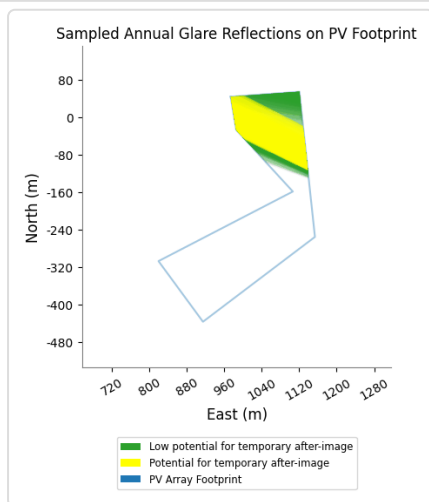
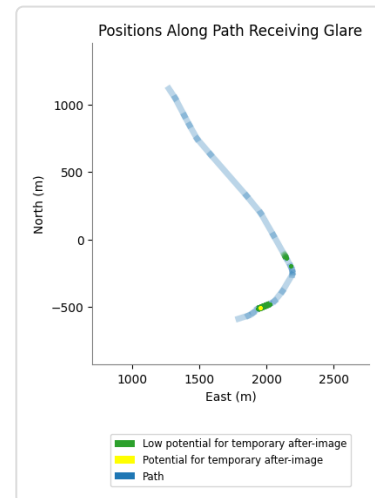
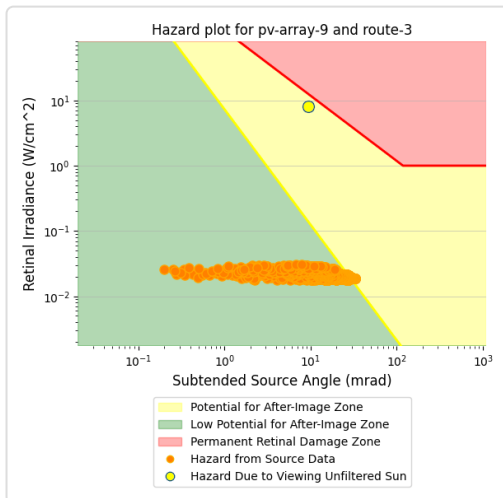
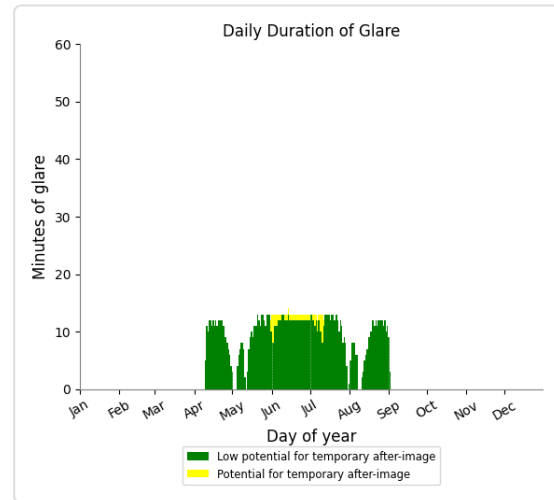
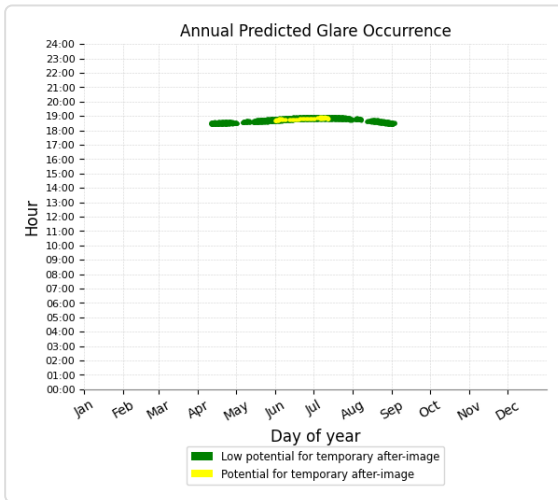
Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 3	1,402	23.4	60	1.0
Trainline	267	4.5	404	6.7
Route 2	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 22	0	0.0	0	0.0
OP 23	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0
OP 28	0	0.0	0	0.0
OP 29	0	0.0	0	0.0
OP 30	0	0.0	0	0.0

PV array 9 and Route: Route 3

Yellow glare: 60 min.

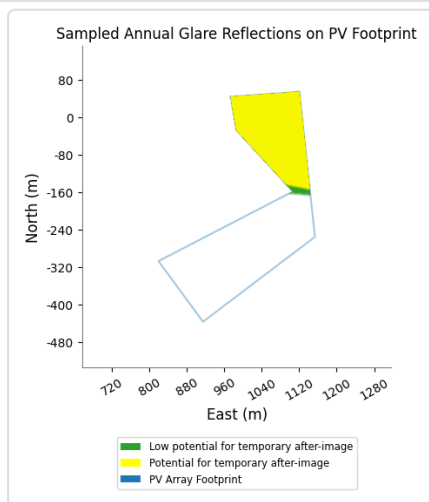
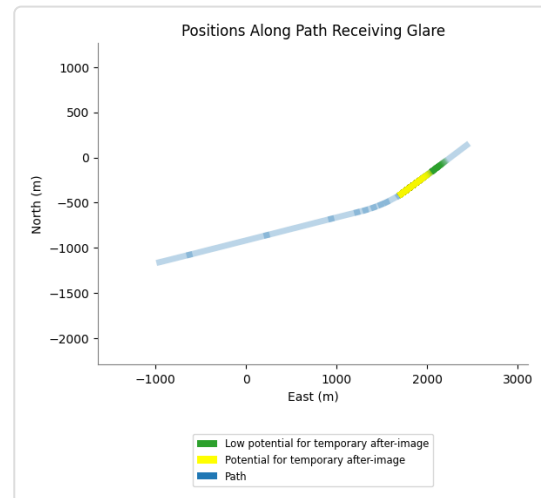
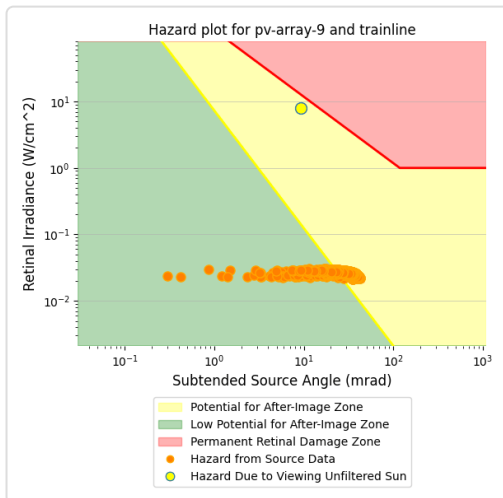
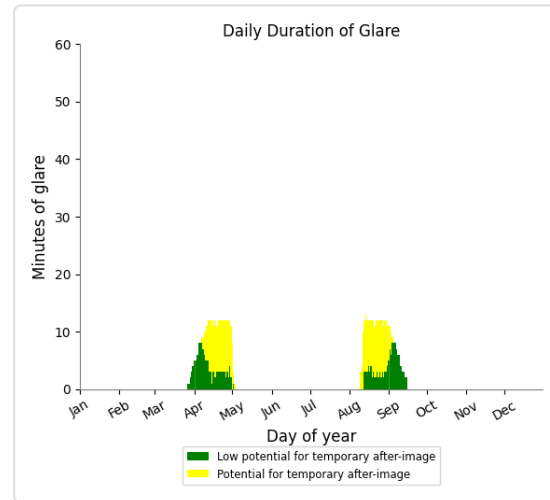
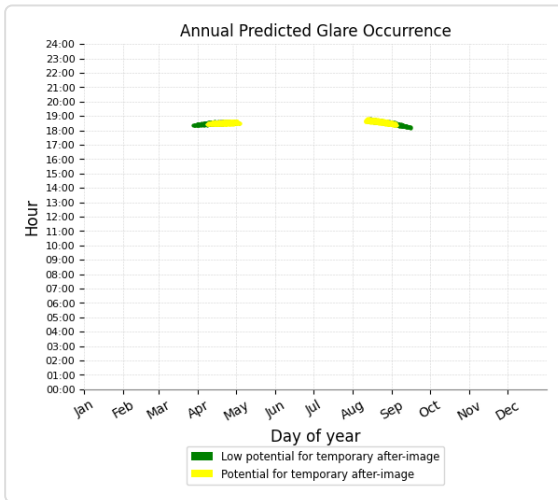
Green glare: 1,402 min.



PV array 9 and Route: Trainline

Yellow glare: 404 min.

Green glare: 267 min.



PV array 9 and Route: Route 2

No glare found

PV array 9 and OP 1

No glare found

PV array 9 and OP 2

No glare found

PV array 9 and OP 3

No glare found

PV array 9 and OP 4

No glare found

PV array 9 and OP 5

No glare found

PV array 9 and OP 6

No glare found

PV array 9 and OP 7

No glare found

PV array 9 and OP 8

No glare found

PV array 9 and OP 9

No glare found

PV array 9 and OP 10

No glare found

PV array 9 and OP 11

No glare found

PV array 9 and OP 12

No glare found

PV array 9 and OP 13

No glare found

PV array 9 and OP 14

No glare found

PV array 9 and OP 15

No glare found

PV array 9 and OP 16

No glare found

PV array 9 and OP 17

No glare found

PV array 9 and OP 18

No glare found

PV array 9 and OP 19

No glare found

PV array 9 and OP 20

No glare found

PV array 9 and OP 21

No glare found

PV array 9 and OP 22

No glare found

PV array 9 and OP 23

No glare found

PV array 9 and OP 24

No glare found

PV array 9 and OP 25

No glare found

PV array 9 and OP 26

No glare found

PV array 9 and OP 27

No glare found

PV array 9 and OP 28

No glare found

PV array 9 and OP 29

No glare found

PV array 9 and OP 30

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

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

The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.

Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.

Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.

The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.

The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)

The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.

The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.

The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.

Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.

Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.

Refer to the Help page at www.forgesolar.com/help/ for assumptions and limitations not listed here.

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

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

