

APPENDIX C

RESULTS FOR NORTHWEST-FACING PV ARRAYS

Glare Analysis Results

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

PV Array	Tilt °	Orient °	Annual Green Glare		Annual Yellow Glare		Energy kWh	Peak Luminance
			min	hr	min	hr		cd/m ²
PV array 10	10.0	283.0	28,949	482.5	0	0.0	-	21,200
PV array 8	10.0	283.0	30,251	504.2	0	0.0	-	33,533
PV array 9	10.0	283.0	29,149	485.8	0	0.0	-	31,311

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
1000Ft- GA_5L23R_05L- L_23R-R	0	0.0	0	0.0
1000Ft- GA_5L23R_05L- R_23R-L	18,990	316.5	0	0.0
1000Ft- GA_5R23L_05R- L_23L-R	0	0.0	0	0.0
1000Ft- GA_5R23L_05R- R_23L-L	7,762	129.4	0	0.0
1500Ft- CA_5L23R_05L- L_23R-R	0	0.0	0	0.0
1500Ft- CA_5L23R_05L- R_23R-L	18,653	310.9	0	0.0
Approach_05L	0	0.0	0	0.0
Approach_05R	0	0.0	0	0.0
Approach_23L	0	0.0	0	0.0
Approach_23R	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0
OP 2	1,282	21.4	0	0.0
OP 3	1,344	22.4	0	0.0
OP 4	1,543	25.7	0	0.0
OP 5	2,193	36.5	0	0.0
OP 6	4,121	68.7	0	0.0
OP 7	3,214	53.6	0	0.0
OP 8	1,436	23.9	0	0.0
OP 9	1,400	23.3	0	0.0

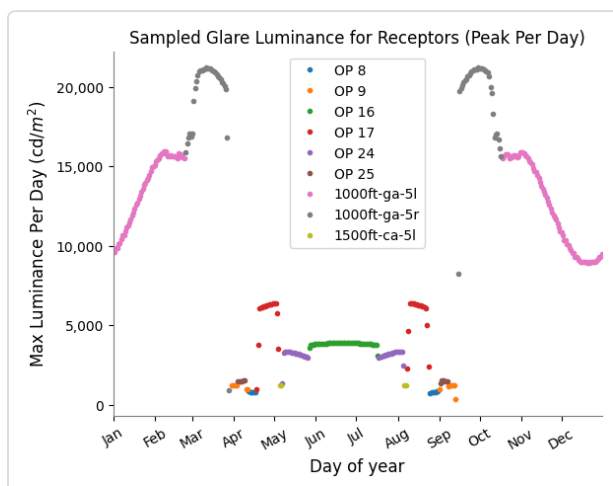
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 10	1,395	23.2	0	0.0
OP 11	1,561	26.0	0	0.0
OP 12	1,950	32.5	0	0.0
OP 13	1,920	32.0	0	0.0
OP 14	3,891	64.8	0	0.0
OP 15	4,143	69.0	0	0.0
OP 16	3,257	54.3	0	0.0
OP 17	2,163	36.0	0	0.0
OP 18	1,481	24.7	0	0.0
OP 19	791	13.2	0	0.0
OP 20	0	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	2,856	47.6	0	0.0
OP 25	174	2.9	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
OP 31	0	0.0	0	0.0
OP 32	0	0.0	0	0.0
OP 33	0	0.0	0	0.0
OP 34	0	0.0	0	0.0
OP 35	0	0.0	0	0.0
OP 36	0	0.0	0	0.0
OP 37	0	0.0	0	0.0
OP 38	829	13.8	0	0.0
OP 39	0	0.0	0	0.0
OP 40	0	0.0	0	0.0

PV: PV array 10 low potential for temporary after-image

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare		Peak Luminance
	min	hr	min	hr	cd/m ²
1000Ft-GA_5L23R_05L-R_23R-L	6,296	104.9	0	0.0	15,962
1000Ft-GA_5R23L_05R-R_23L-L	2,510	41.8	0	0.0	21,200
1500Ft-CA_5L23R_05L-R_23R-L	6,100	101.7	0	0.0	1,994
1000Ft-GA_5L23R_05L-L_23R-R	0	0.0	0	0.0	0
1000Ft-GA_5R23L_05R-L_23L-R	0	0.0	0	0.0	0
1500Ft-CA_5L23R_05L-L_23R-R	0	0.0	0	0.0	0
Approach_05L	0	0.0	0	0.0	0
Approach_05R	0	0.0	0	0.0	0
Approach_23L	0	0.0	0	0.0	0
Approach_23R	0	0.0	0	0.0	0
OP 2	421	7.0	0	0.0	739
OP 3	439	7.3	0	0.0	1,053
OP 4	500	8.3	0	0.0	1,485
OP 5	709	11.8	0	0.0	1,823
OP 6	1,339	22.3	0	0.0	1,491
OP 7	1,025	17.1	0	0.0	893
OP 8	468	7.8	0	0.0	857
OP 9	453	7.5	0	0.0	1,251
OP 10	449	7.5	0	0.0	1,814
OP 11	500	8.3	0	0.0	2,642
OP 12	625	10.4	0	0.0	2,395
OP 13	655	10.9	0	0.0	1,226
OP 14	1,177	19.6	0	0.0	931
OP 15	1,391	23.2	0	0.0	1,290
OP 16	1,224	20.4	0	0.0	3,890
OP 17	653	10.9	0	0.0	6,394
OP 18	469	7.8	0	0.0	3,288
OP 19	281	4.7	0	0.0	1,531
OP 24	927	15.4	0	0.0	3,363
OP 25	70	1.2	0	0.0	1,506
OP 38	268	4.5	0	0.0	2,412
1-ATCT	0	0.0	0	0.0	0
OP 20	0	0.0	0	0.0	0
OP 21	0	0.0	0	0.0	0
OP 22	0	0.0	0	0.0	0
OP 23	0	0.0	0	0.0	0

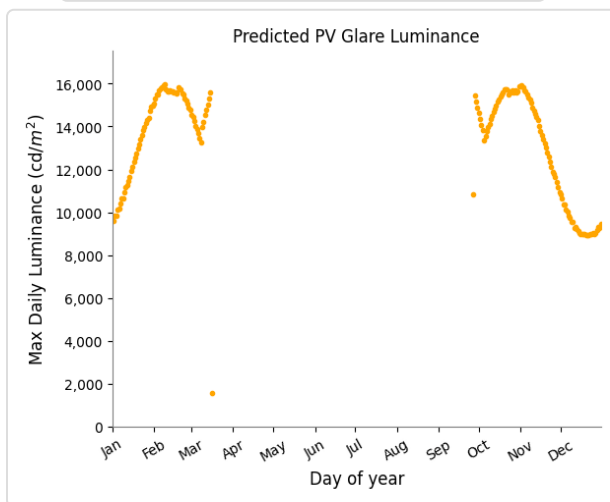
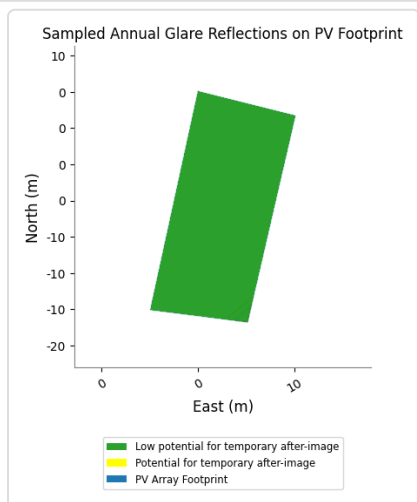
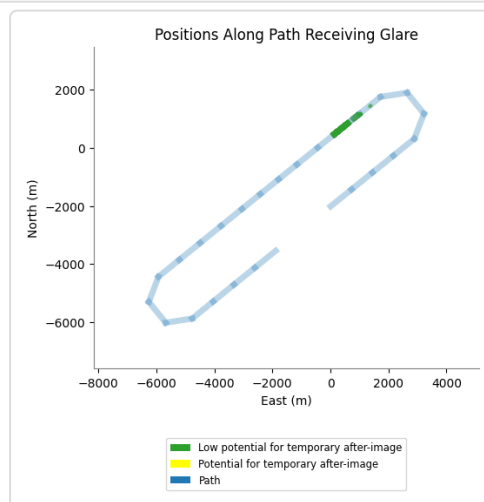
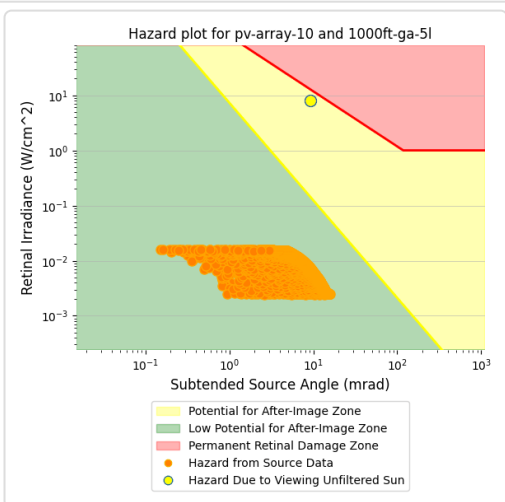
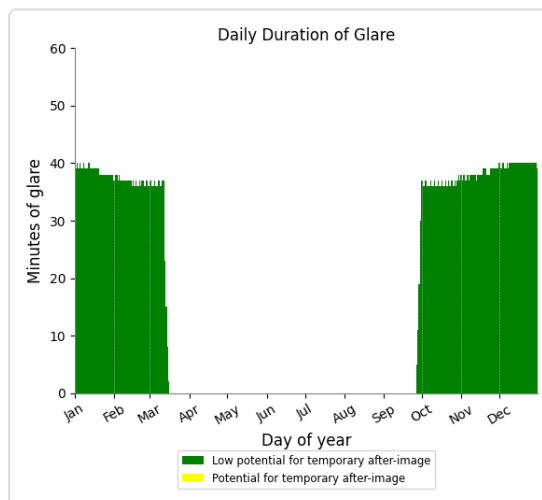
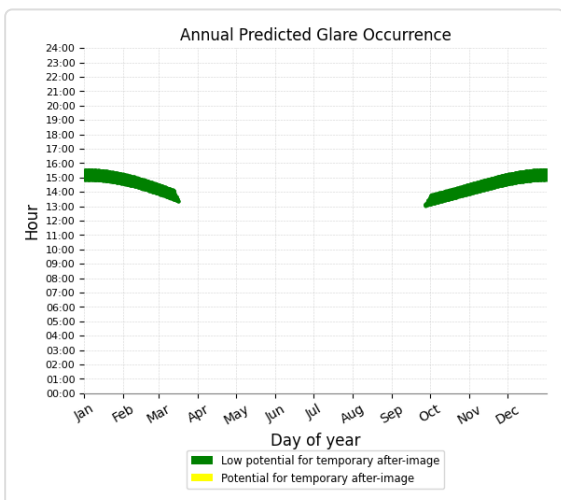
Receptor	Annual Green Glare		Annual Yellow Glare		Peak Luminance
	min	hr	min	hr	cd/m ²
OP 26	0	0.0	0	0.0	0
OP 27	0	0.0	0	0.0	0
OP 28	0	0.0	0	0.0	0
OP 29	0	0.0	0	0.0	0
OP 30	0	0.0	0	0.0	0
OP 31	0	0.0	0	0.0	0
OP 32	0	0.0	0	0.0	0
OP 33	0	0.0	0	0.0	0
OP 34	0	0.0	0	0.0	0
OP 35	0	0.0	0	0.0	0
OP 36	0	0.0	0	0.0	0
OP 37	0	0.0	0	0.0	0
OP 39	0	0.0	0	0.0	0
OP 40	0	0.0	0	0.0	0



PV array 10 and Route: 1000Ft-GA_5L23R_05L-R_23R-L

Yellow glare: none

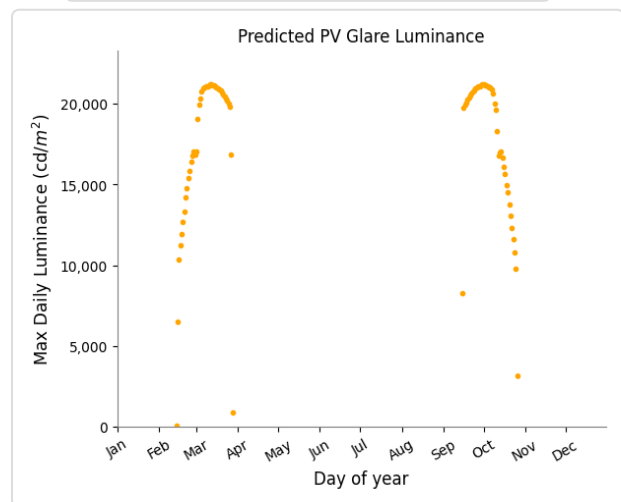
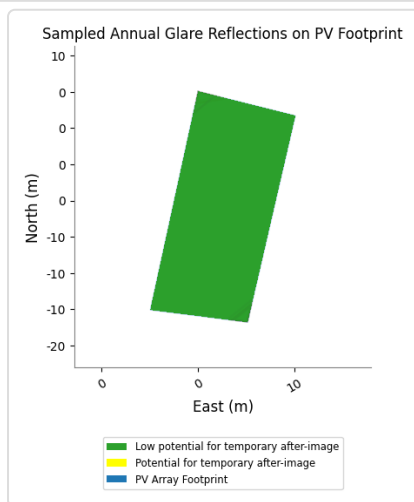
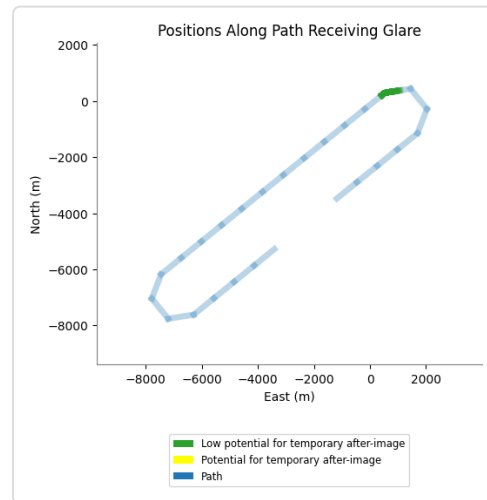
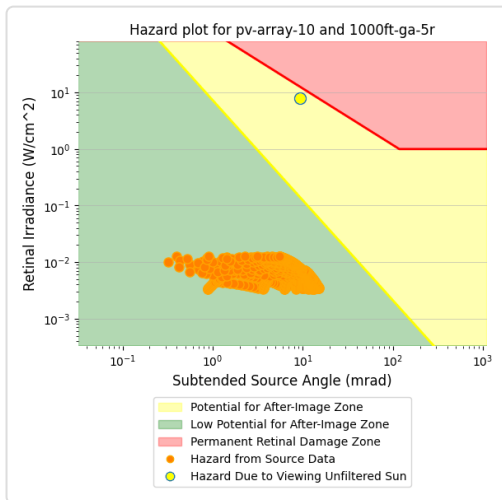
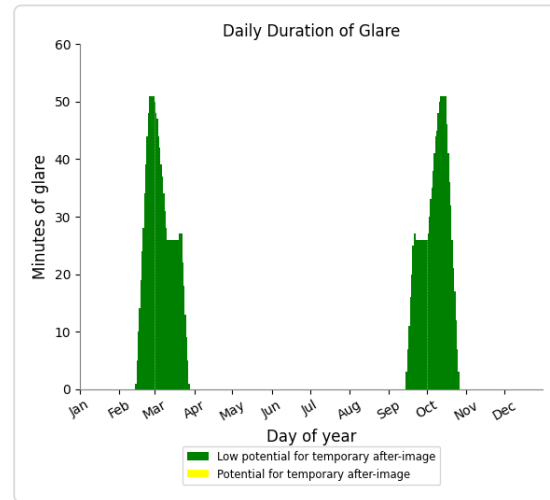
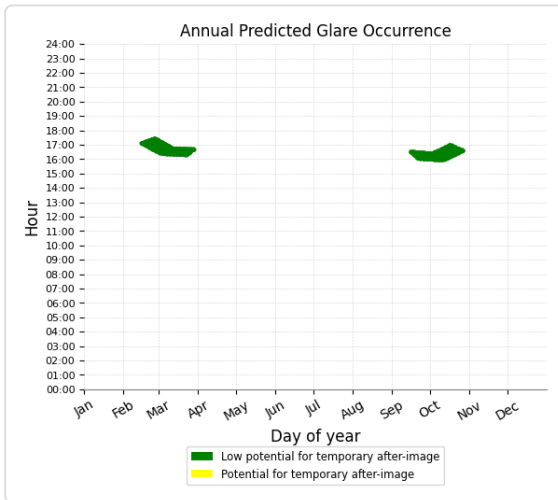
Green glare: 6,296 min.



PV array 10 and Route: 1000Ft-GA_5R23L_05R-R_23L-L

Yellow glare: none

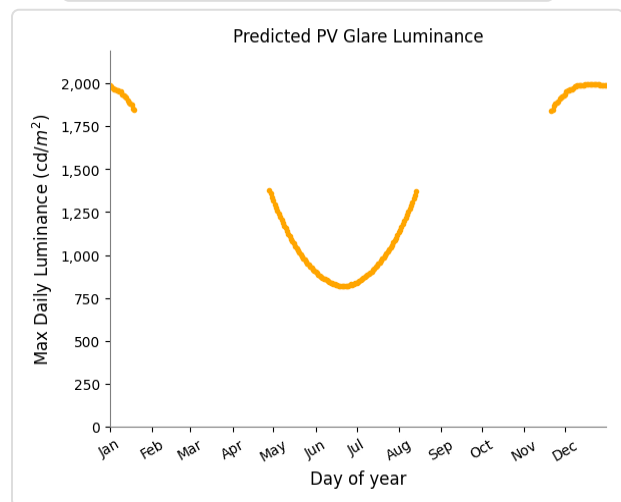
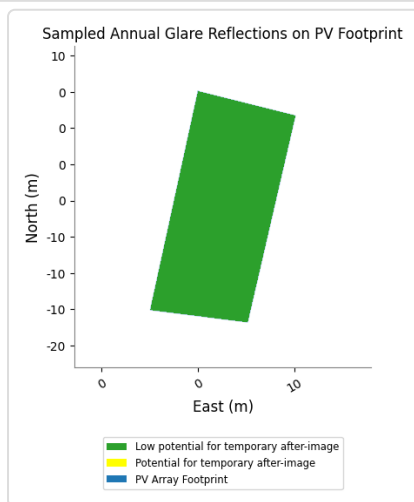
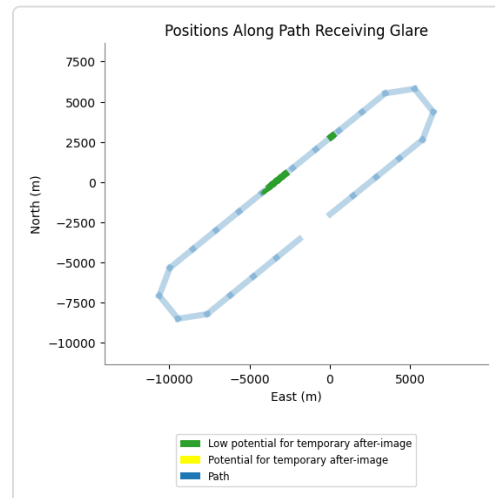
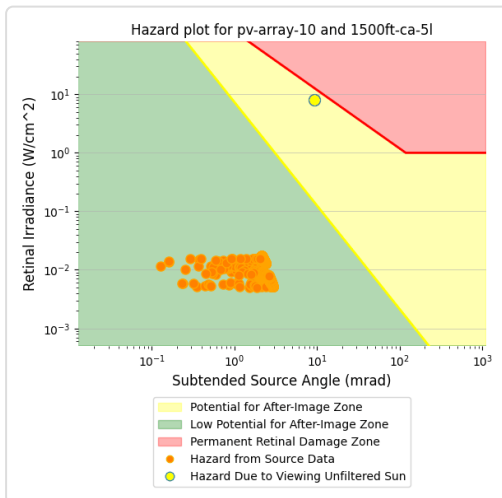
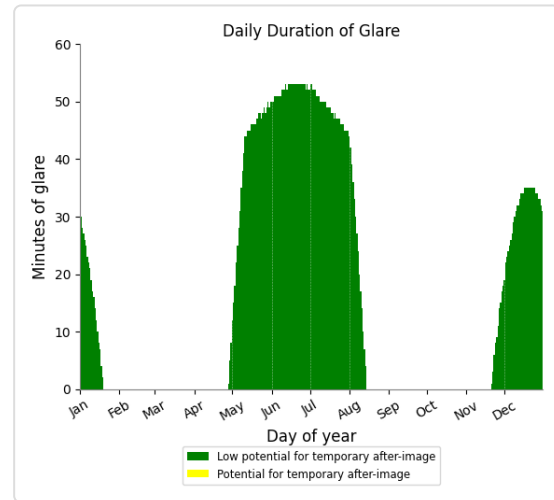
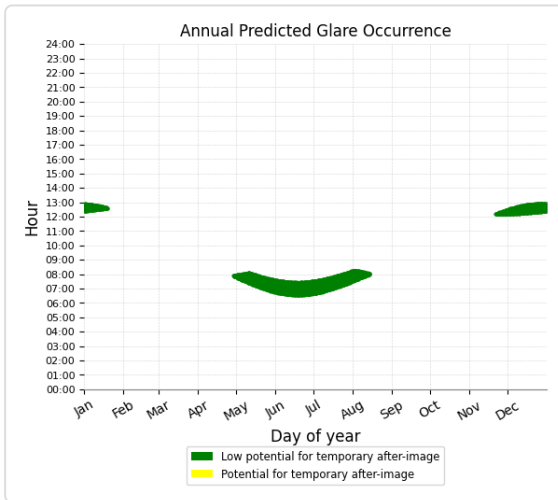
Green glare: 2,510 min.



PV array 10 and Route: 1500Ft-CA_5L23R_05L-R_23R-L

Yellow glare: none

Green glare: 6,100 min.



PV array 10 and Route: 1000Ft-GA_5L23R_05L-L_23R-R

No glare found

PV array 10 and Route: 1000Ft-GA_5R23L_05R-L_23L-R

No glare found

PV array 10 and Route: 1500Ft-CA_5L23R_05L-L_23R-R

No glare found

PV array 10 and Route: Approach_05L

No glare found

PV array 10 and Route: Approach_05R

No glare found

PV array 10 and Route: Approach_23L

No glare found

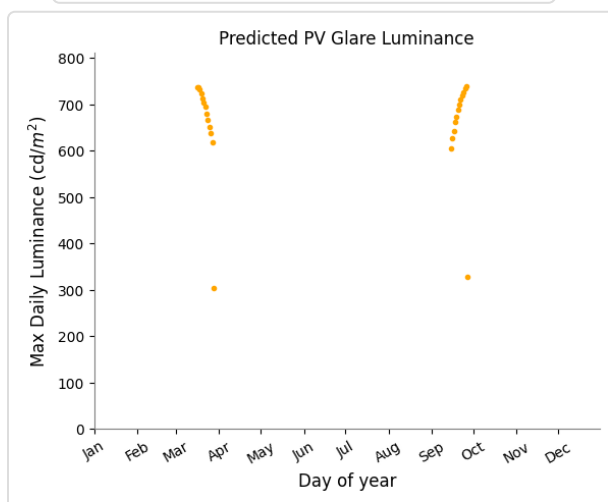
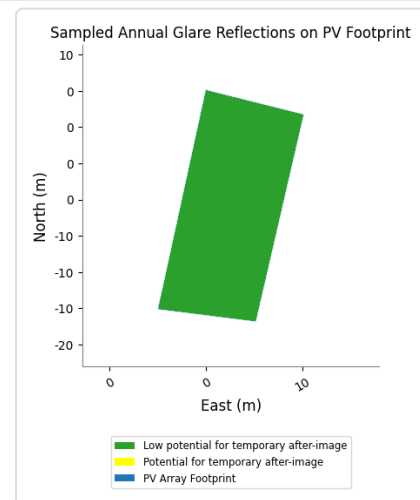
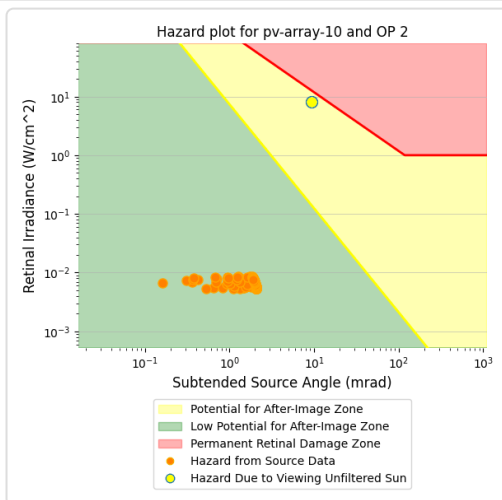
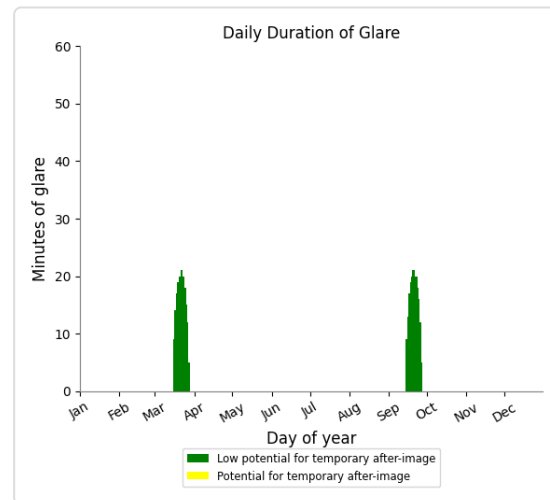
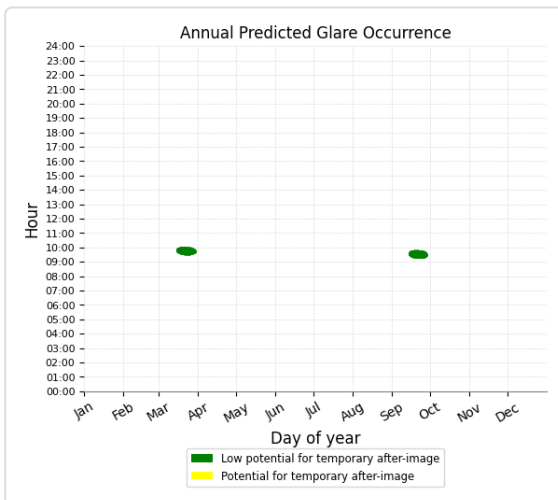
PV array 10 and Route: Approach_23R

No glare found

PV array 10 and OP 2

Yellow glare: none

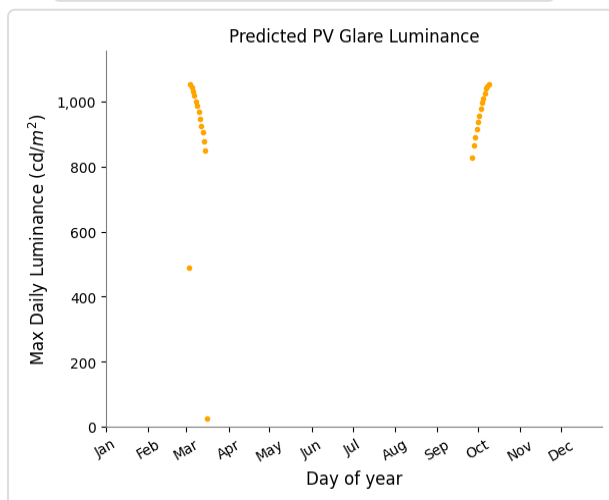
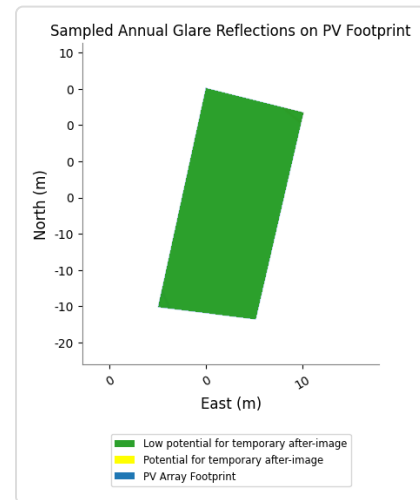
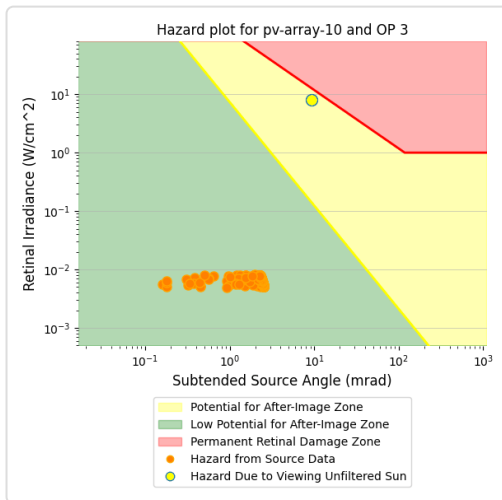
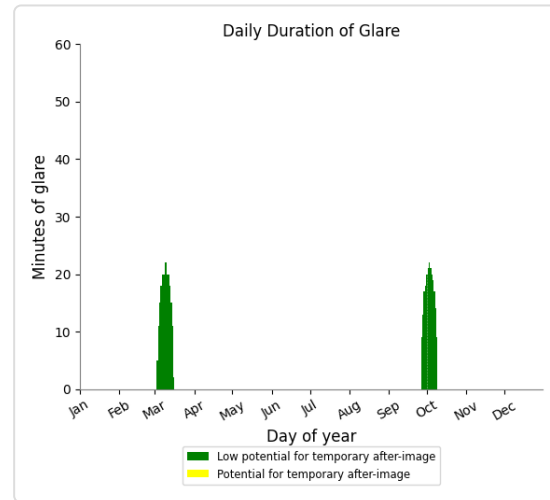
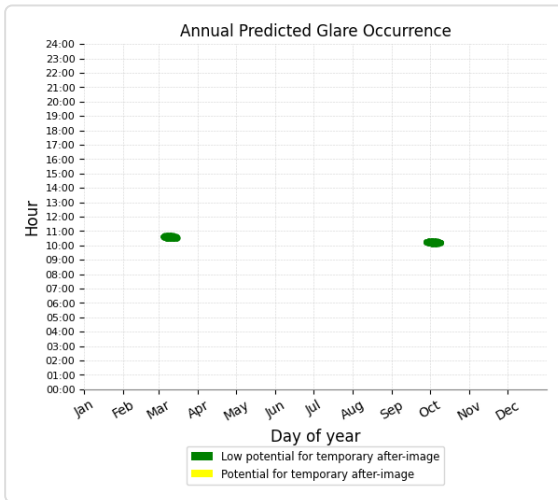
Green glare: 421 min.



PV array 10 and OP 3

Yellow glare: none

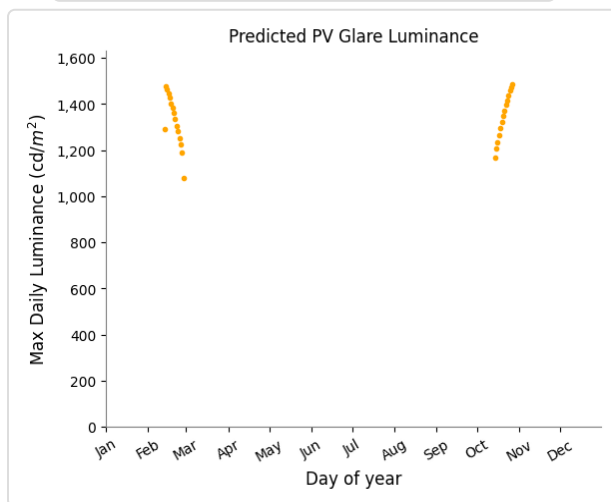
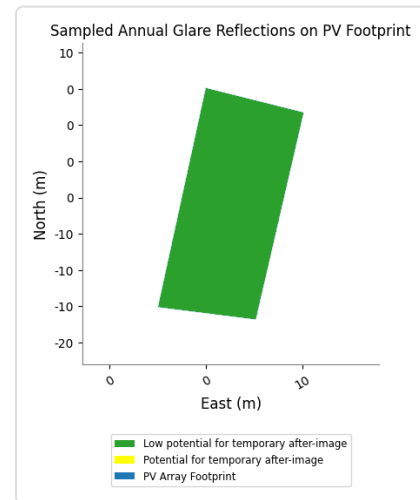
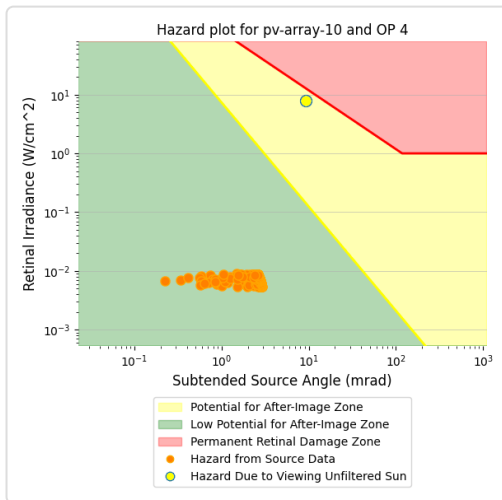
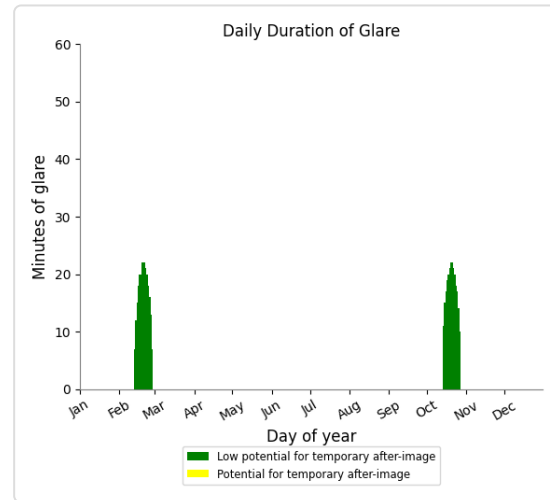
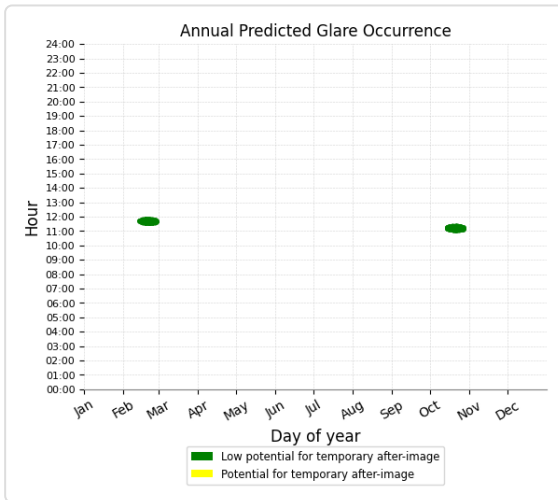
Green glare: 439 min.



PV array 10 and OP 4

Yellow glare: none

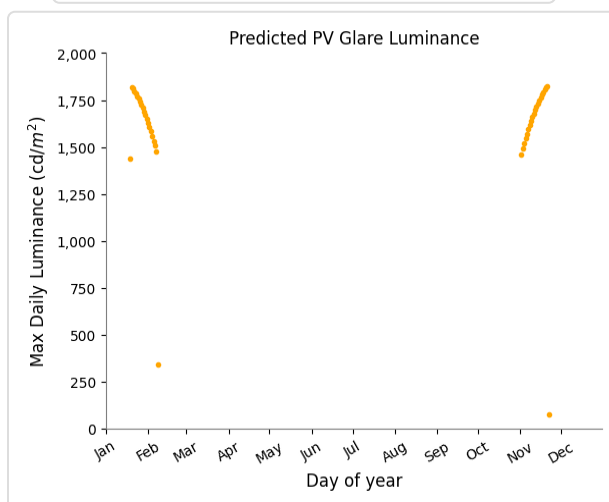
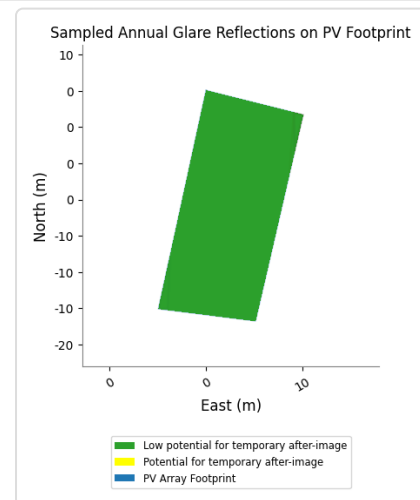
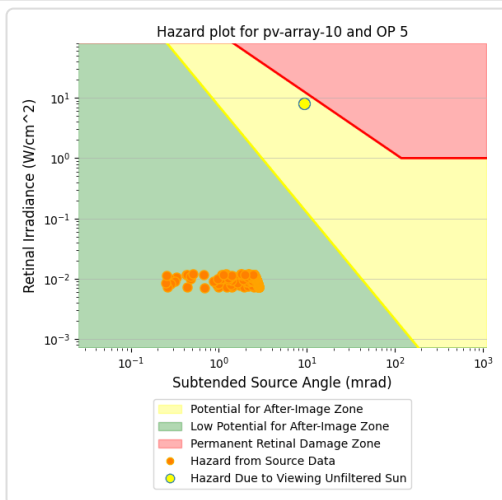
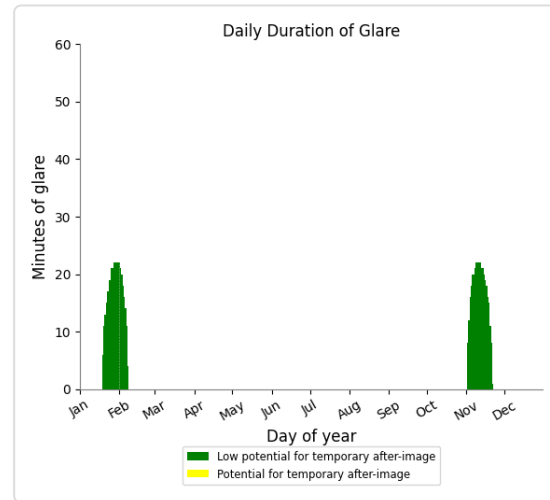
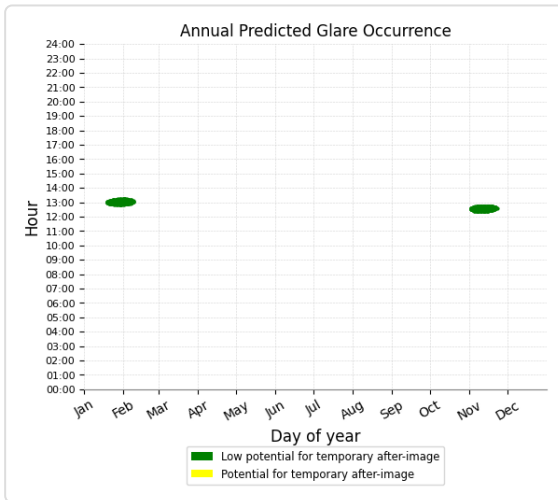
Green glare: 500 min.



PV array 10 and OP 5

Yellow glare: none

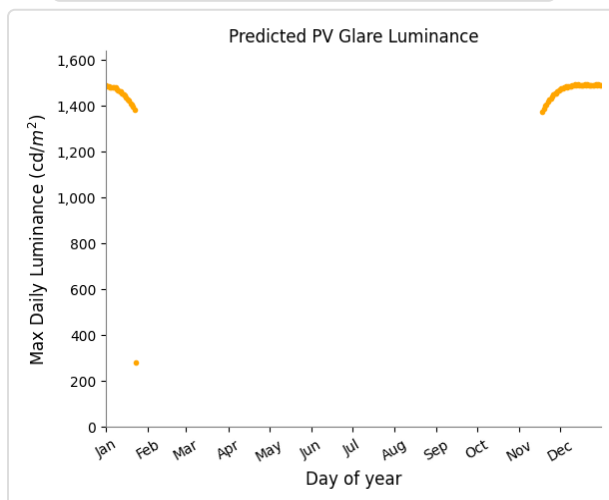
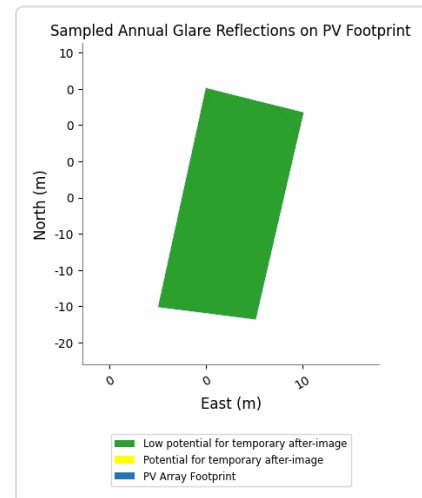
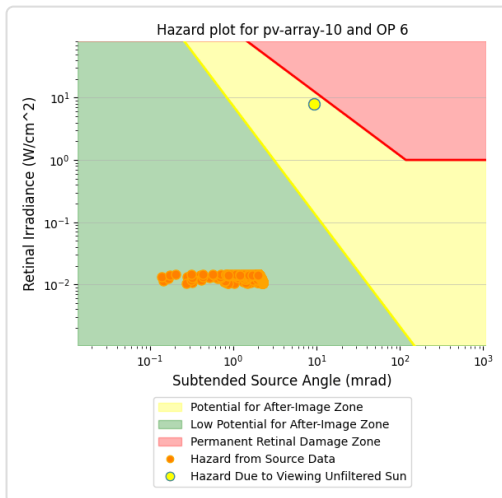
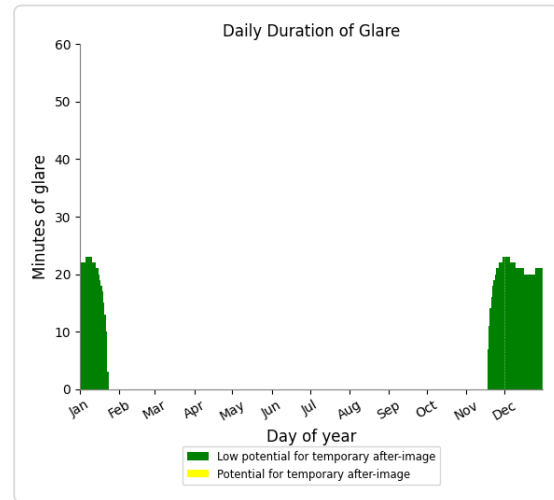
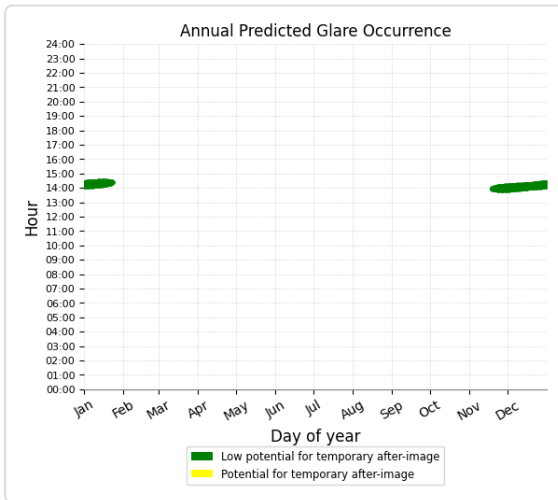
Green glare: 709 min.



PV array 10 and OP 6

Yellow glare: none

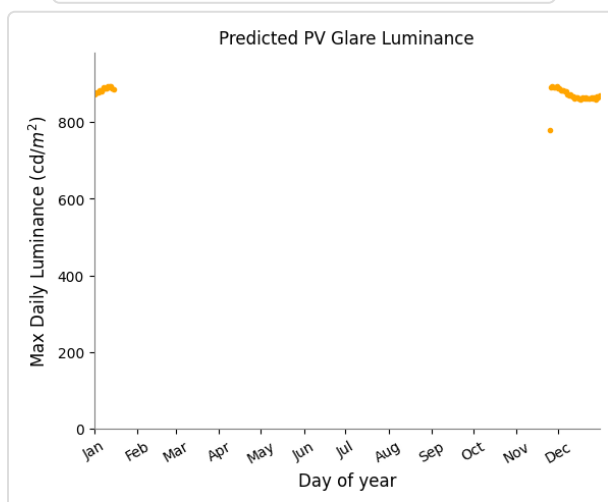
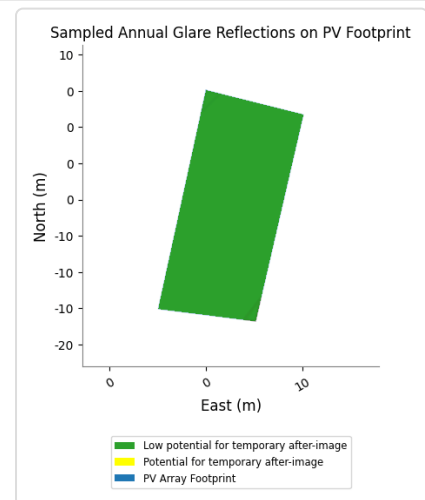
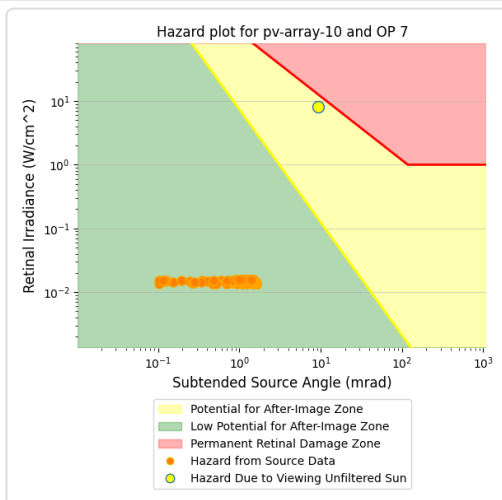
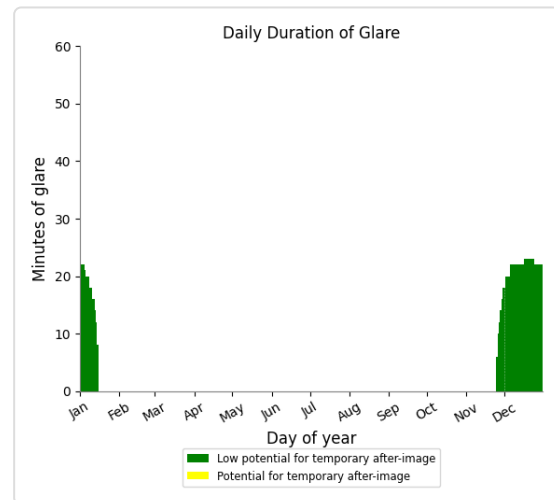
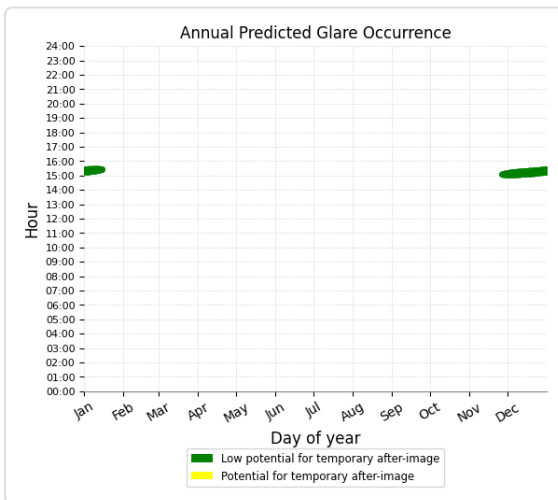
Green glare: 1,339 min.



PV array 10 and OP 7

Yellow glare: none

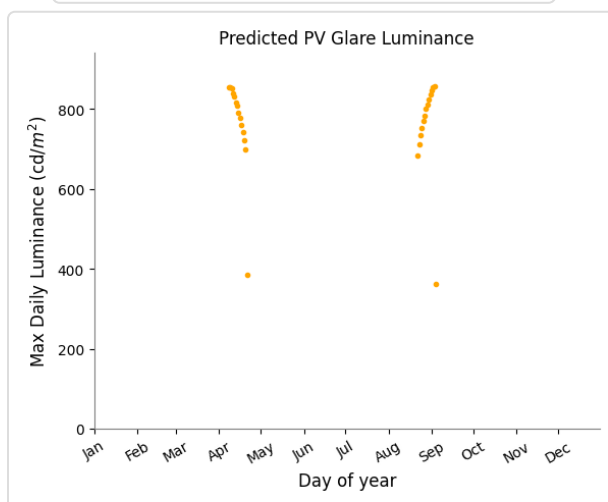
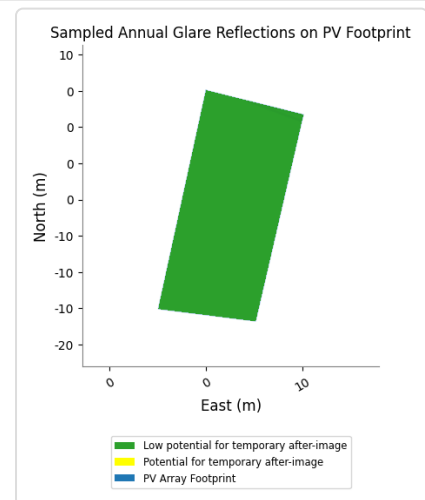
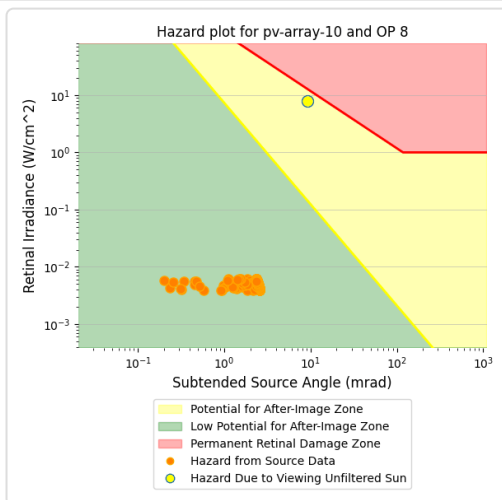
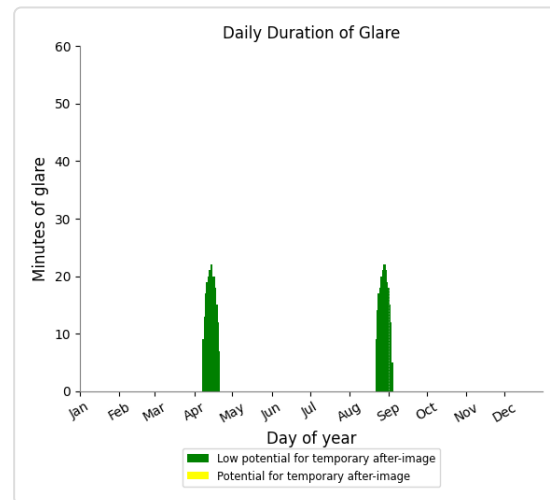
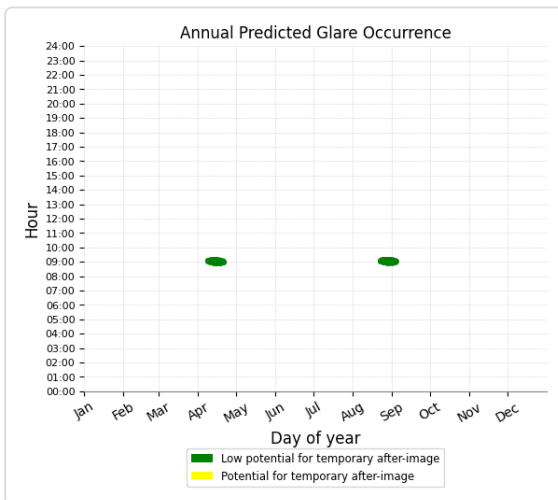
Green glare: 1,025 min.



PV array 10 and OP 8

Yellow glare: none

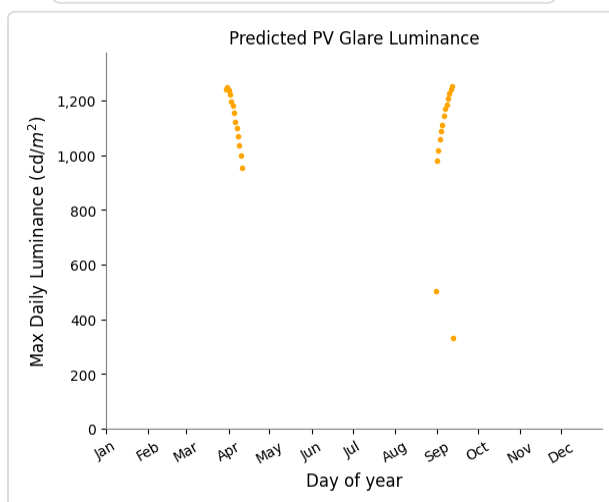
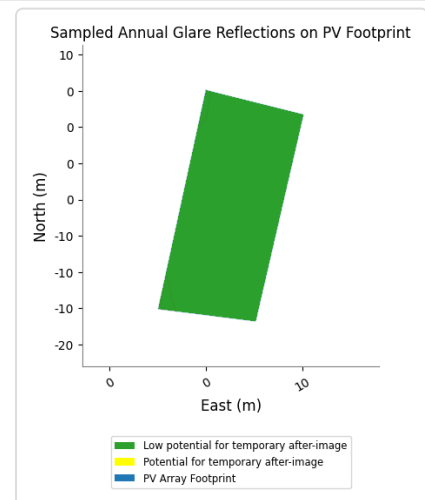
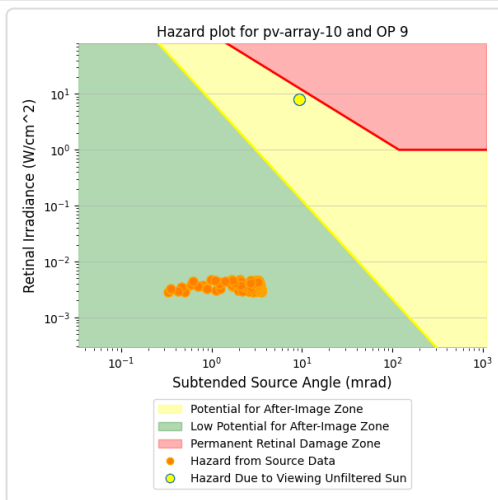
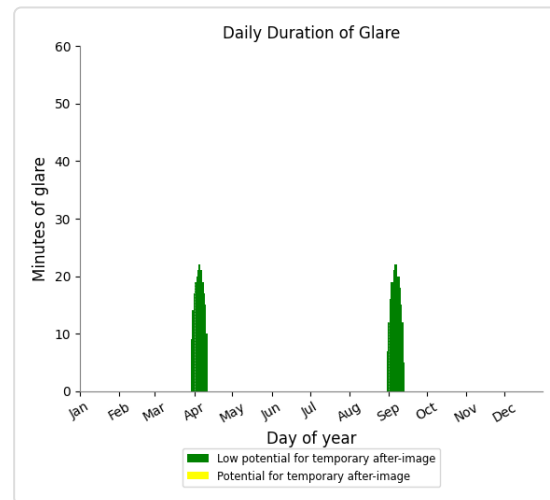
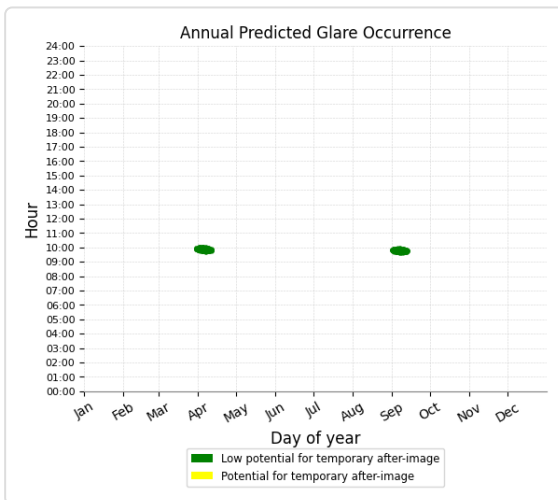
Green glare: 468 min.



PV array 10 and OP 9

Yellow glare: none

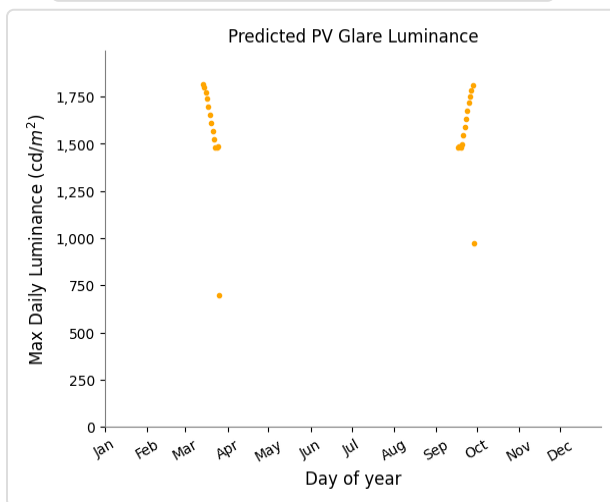
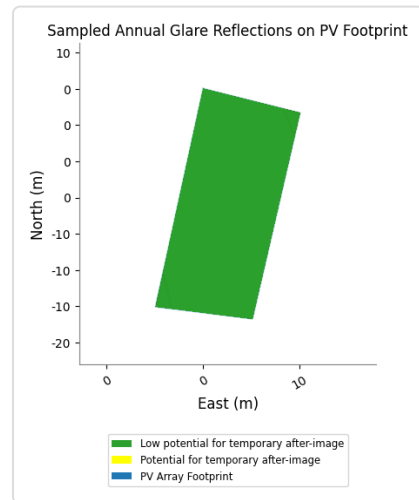
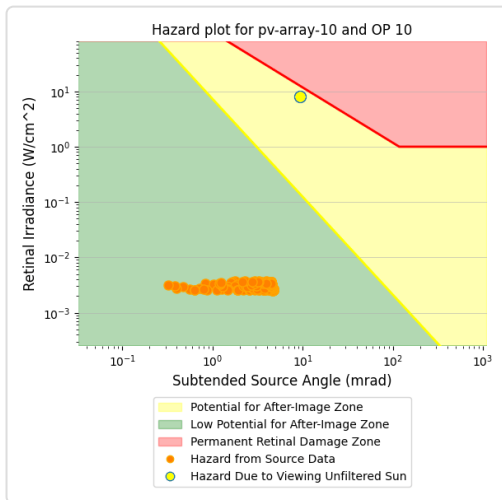
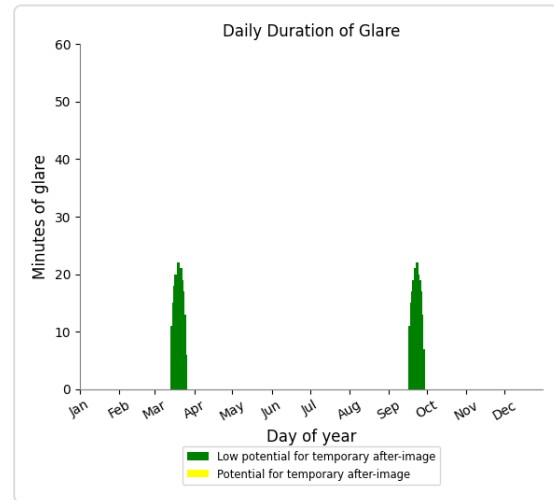
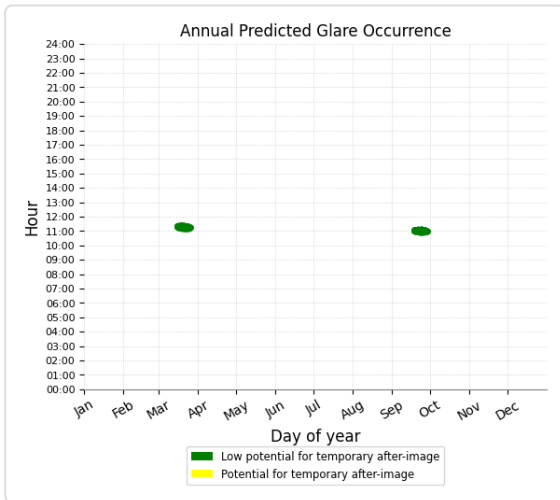
Green glare: 453 min.



PV array 10 and OP 10

Yellow glare: none

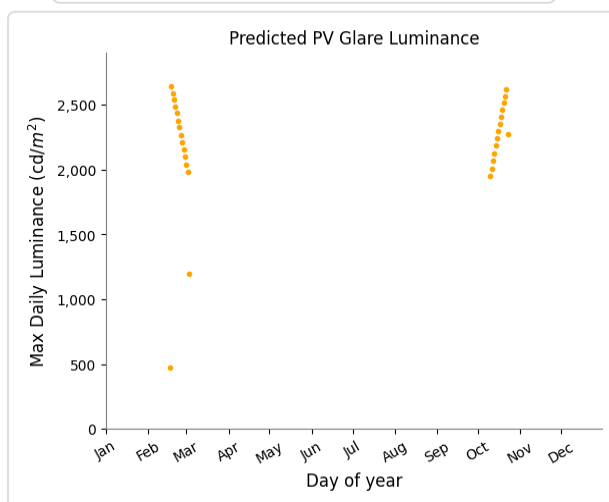
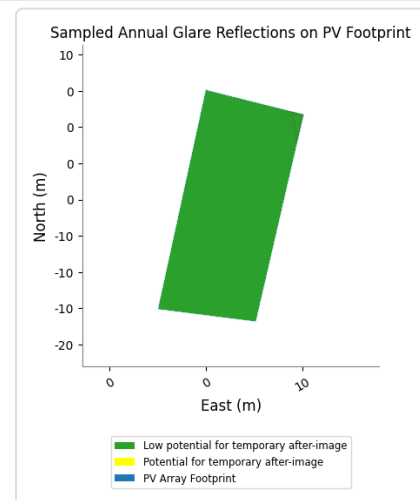
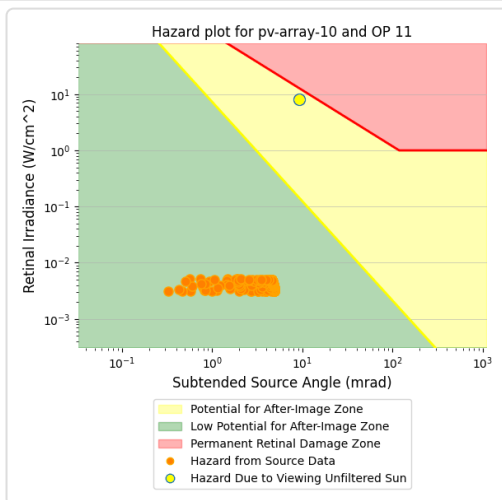
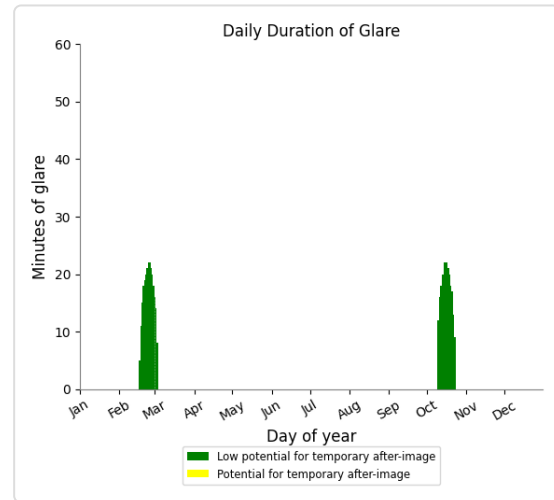
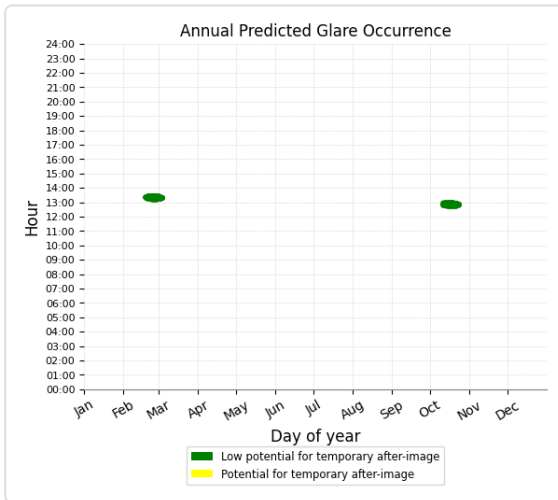
Green glare: 449 min.



PV array 10 and OP 11

Yellow glare: none

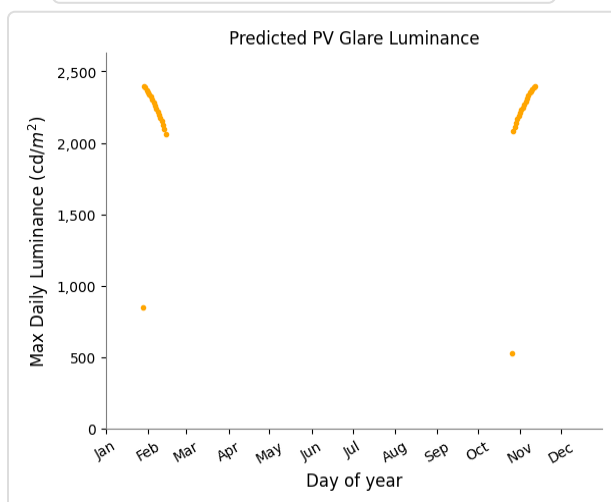
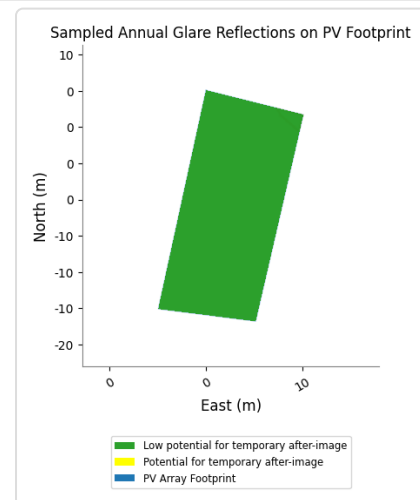
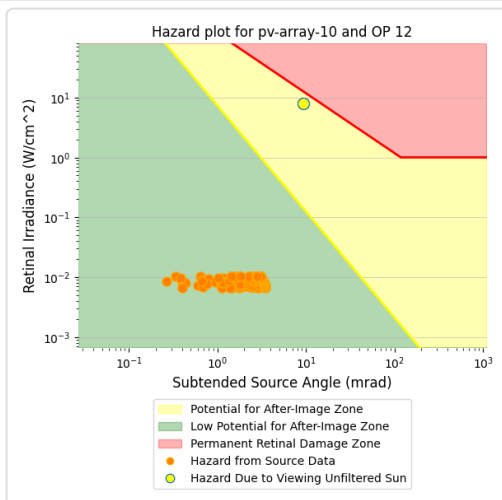
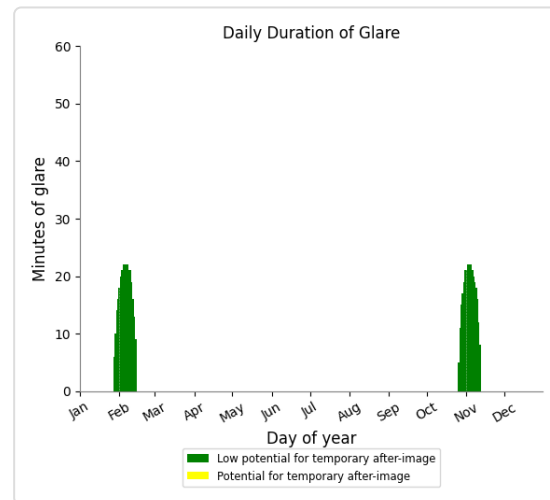
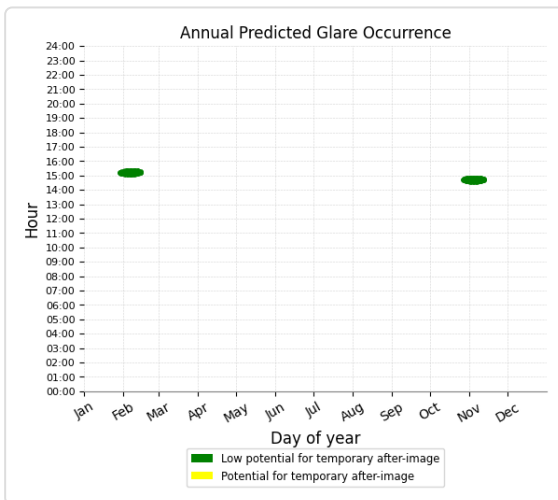
Green glare: 500 min.



PV array 10 and OP 12

Yellow glare: none

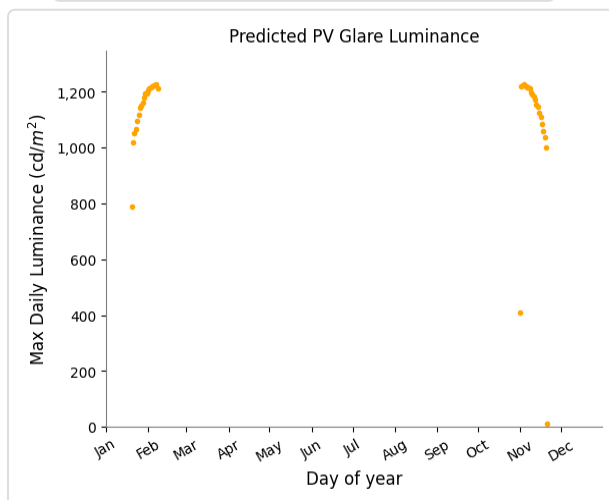
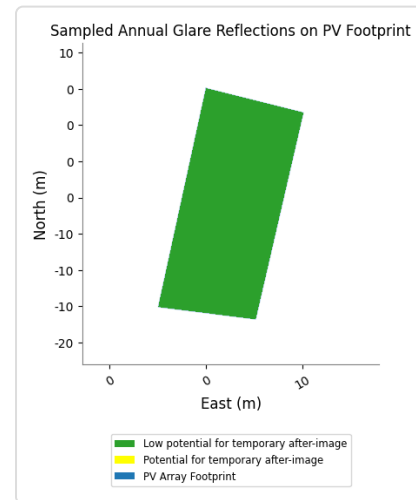
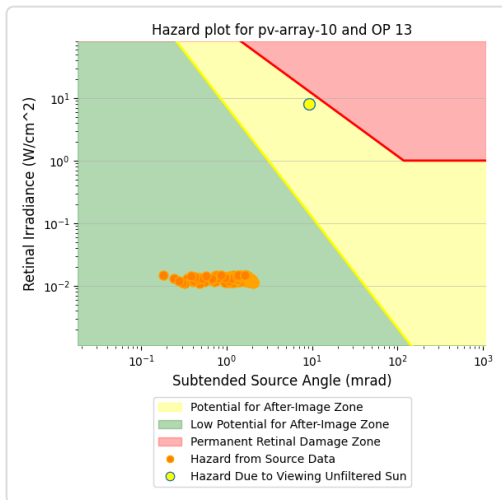
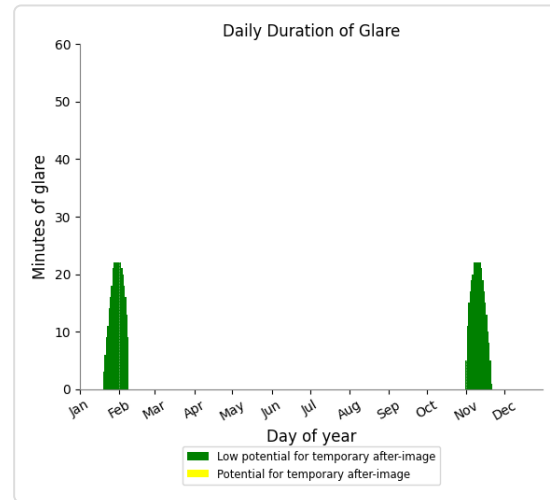
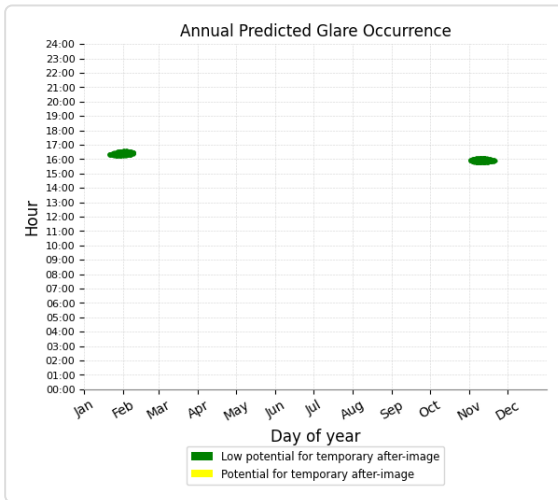
Green glare: 625 min.



PV array 10 and OP 13

Yellow glare: none

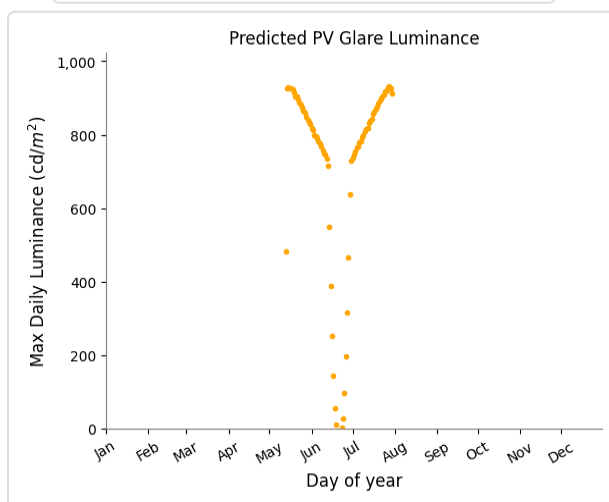
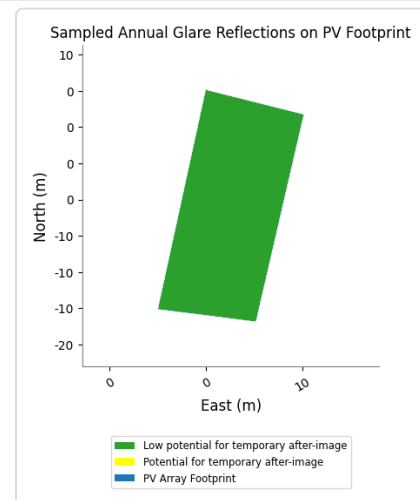
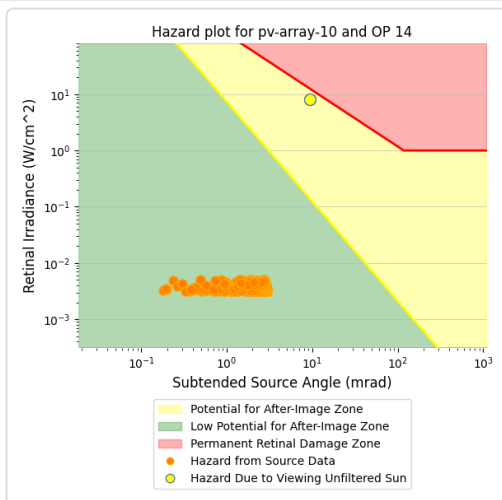
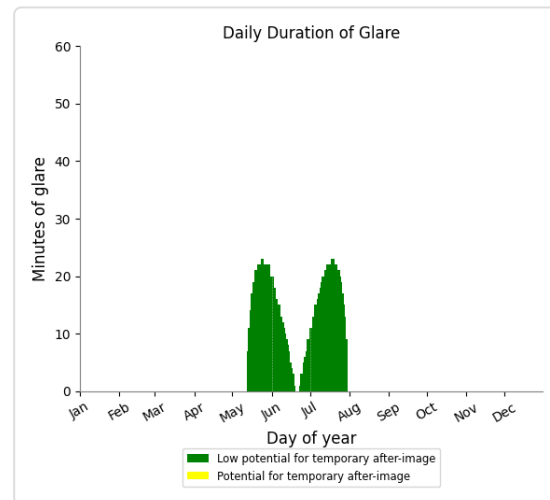
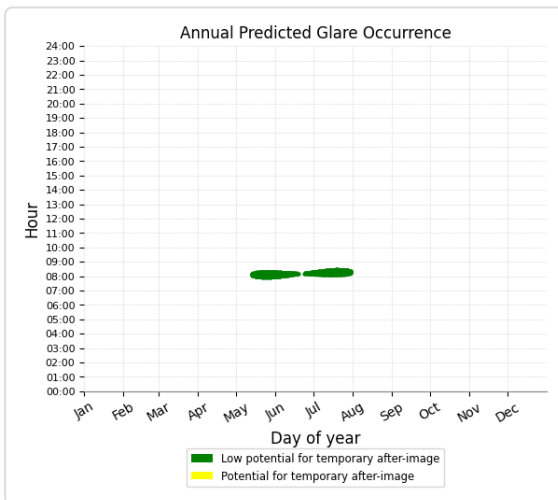
Green glare: 655 min.



PV array 10 and OP 14

Yellow glare: none

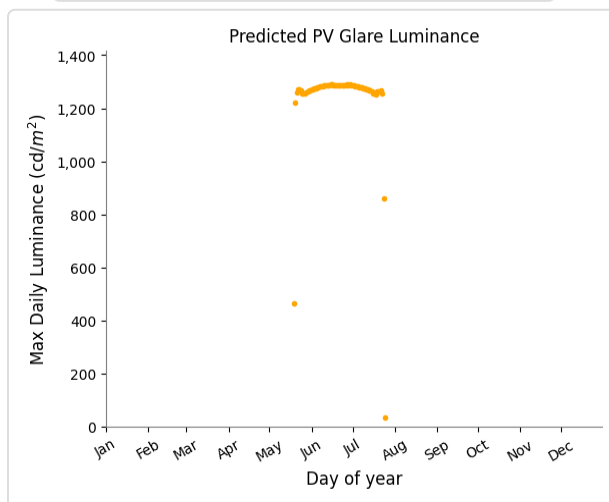
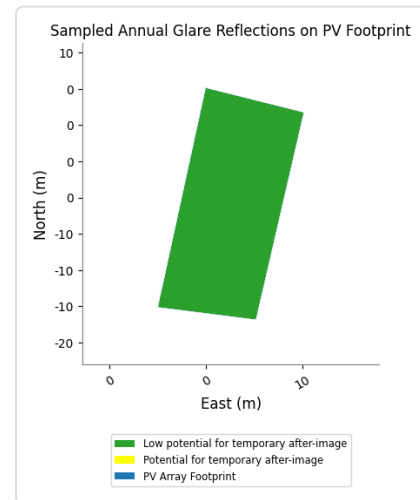
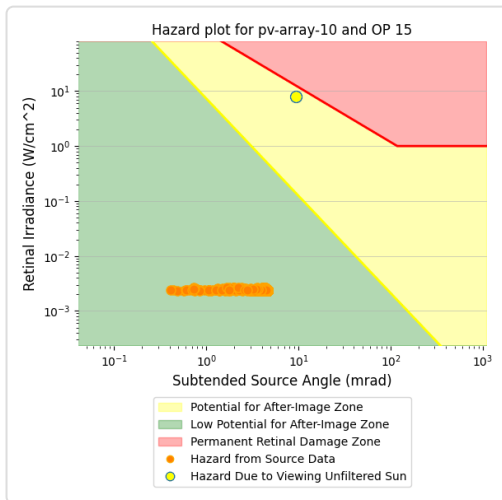
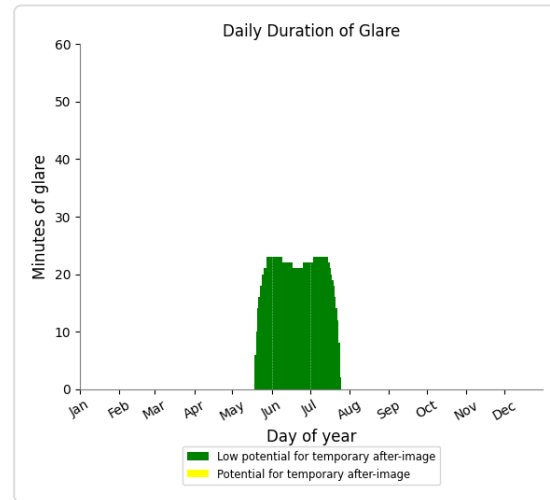
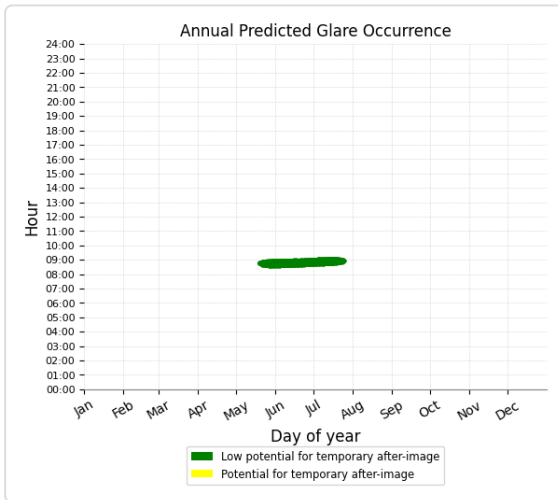
Green glare: 1,177 min.



PV array 10 and OP 15

Yellow glare: none

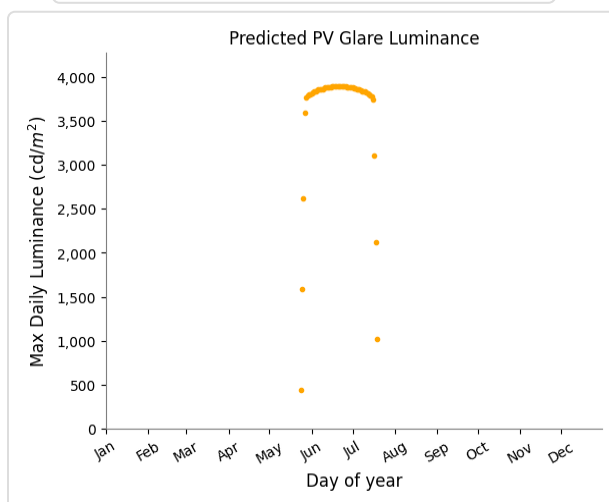
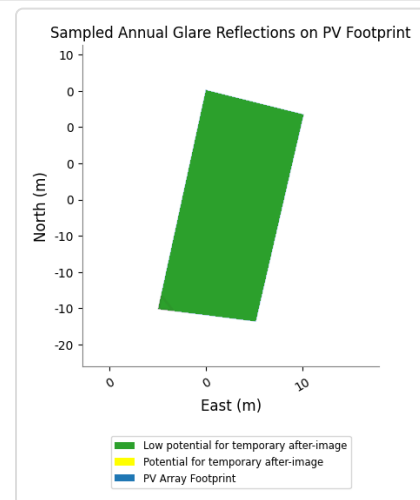
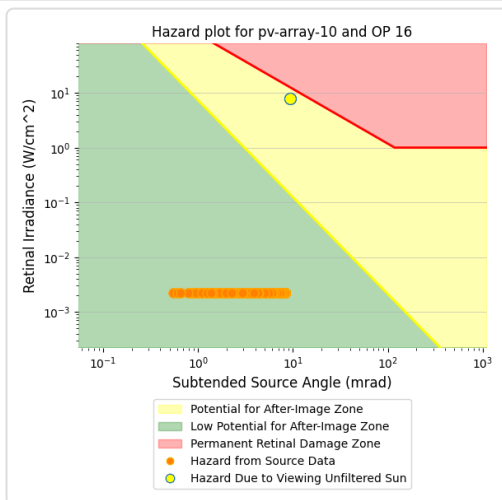
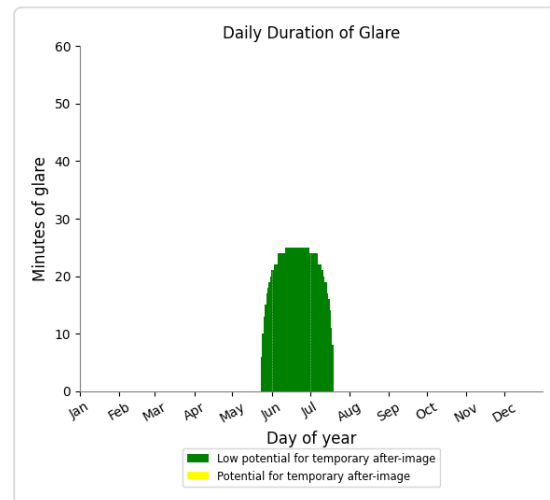
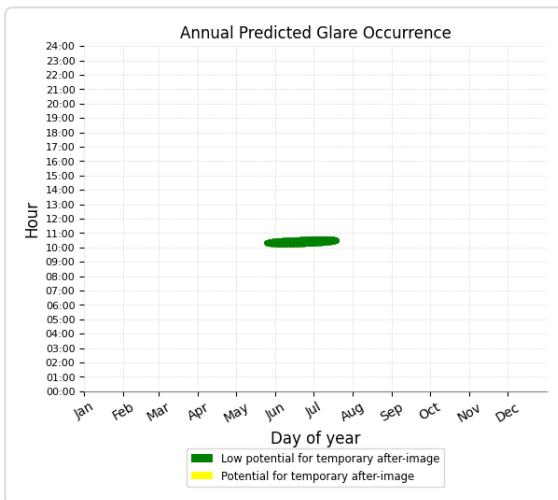
Green glare: 1,391 min.



PV array 10 and OP 16

Yellow glare: none

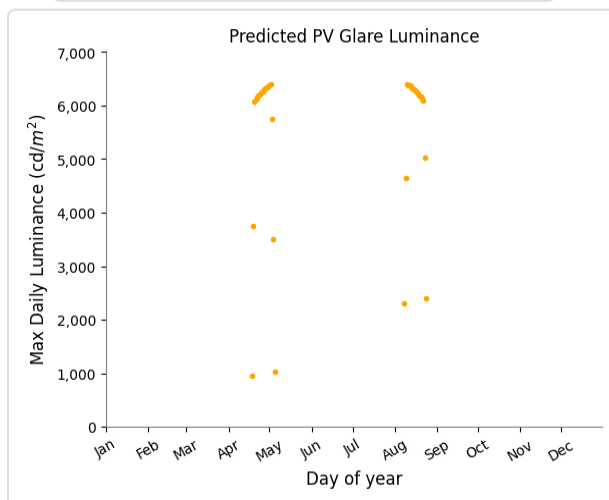
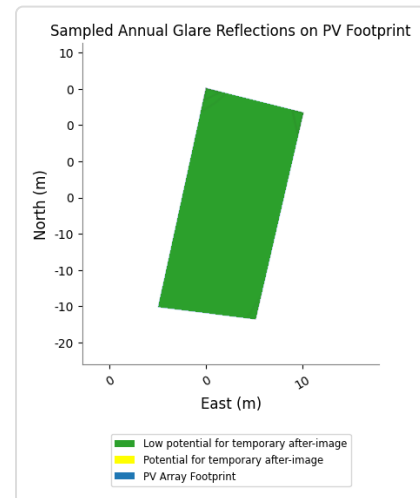
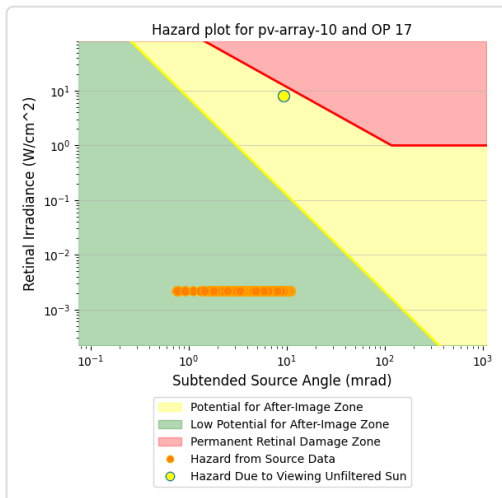
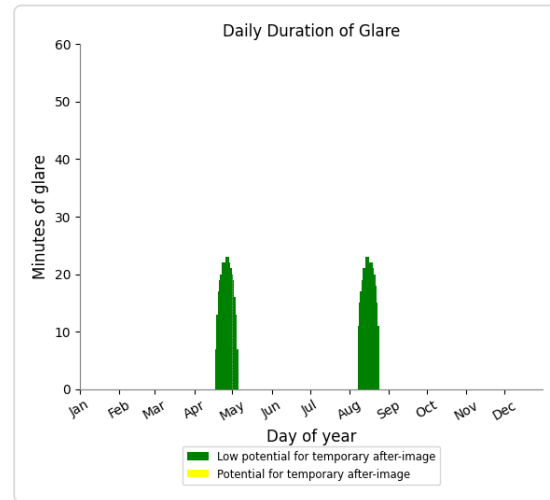
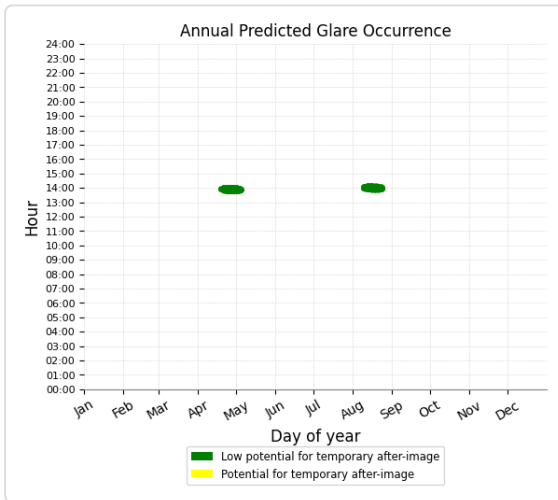
Green glare: 1,224 min.



PV array 10 and OP 17

Yellow glare: none

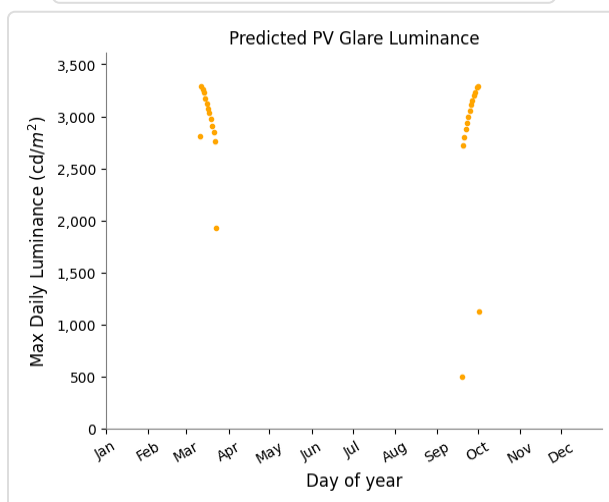
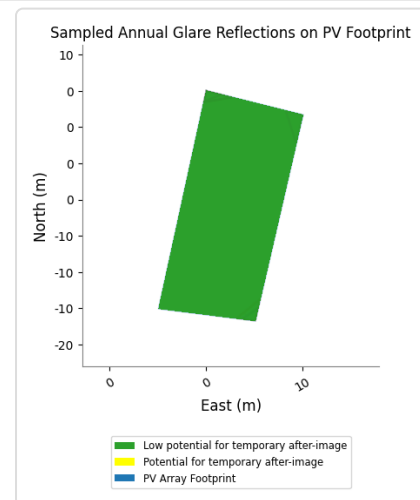
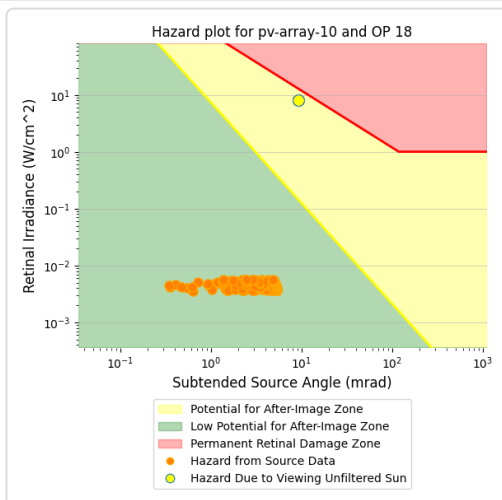
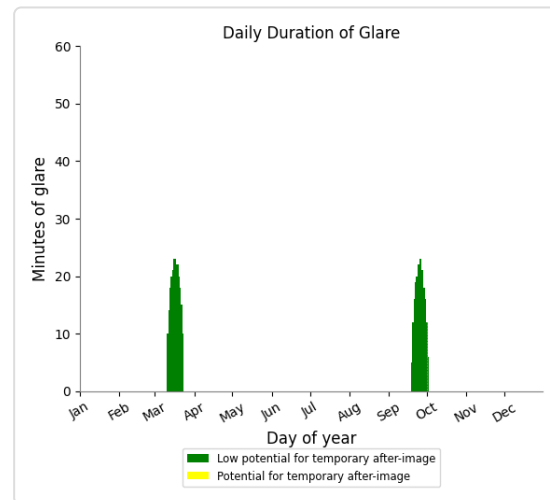
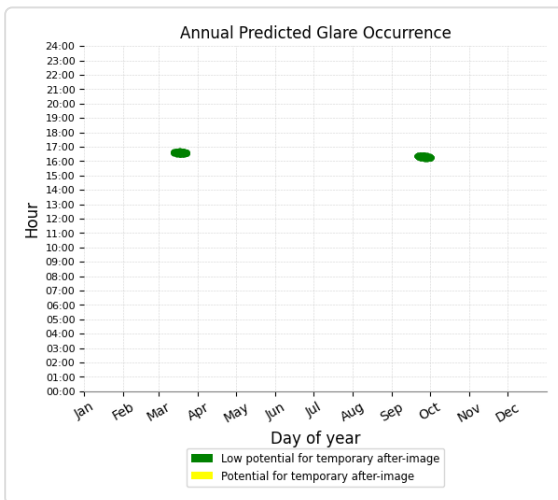
Green glare: 653 min.



PV array 10 and OP 18

Yellow glare: none

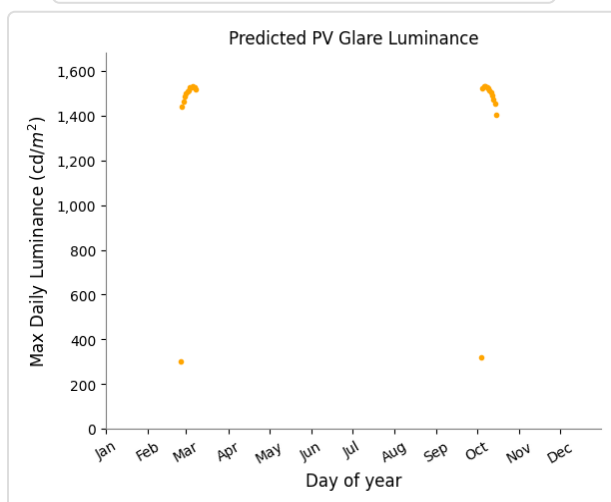
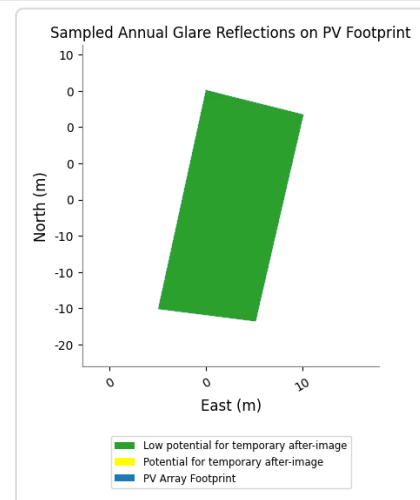
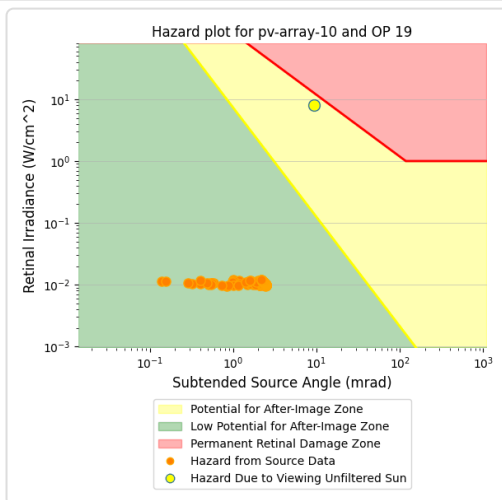
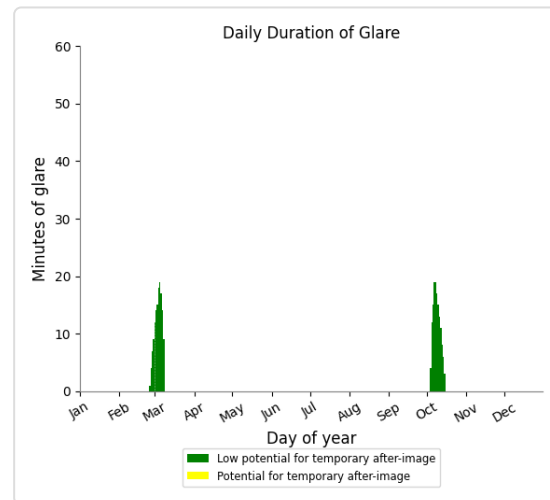
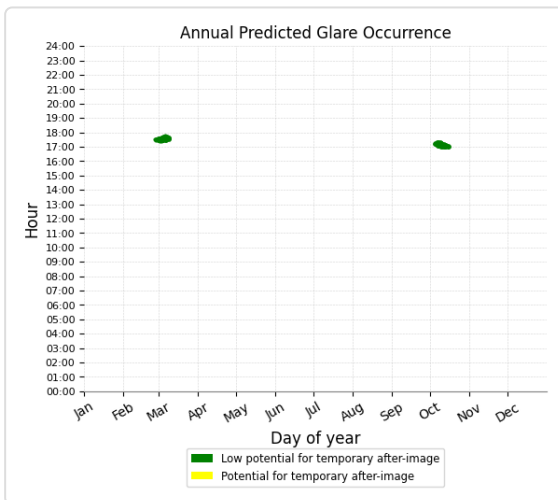
Green glare: 469 min.



PV array 10 and OP 19

Yellow glare: none

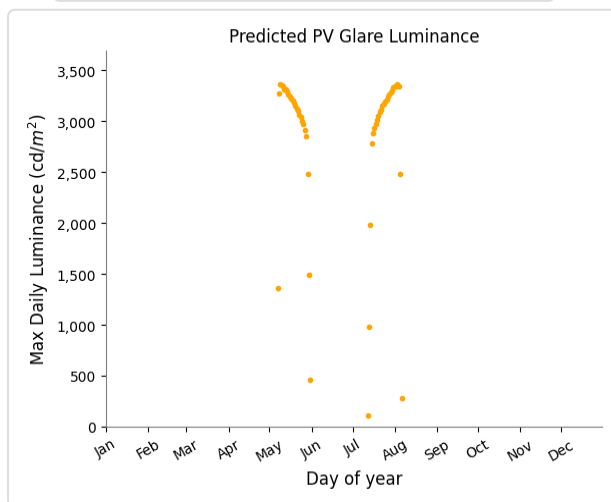
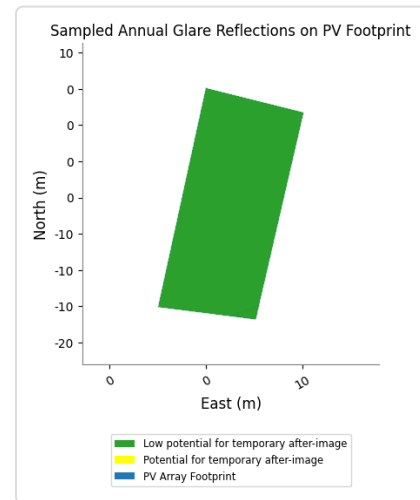
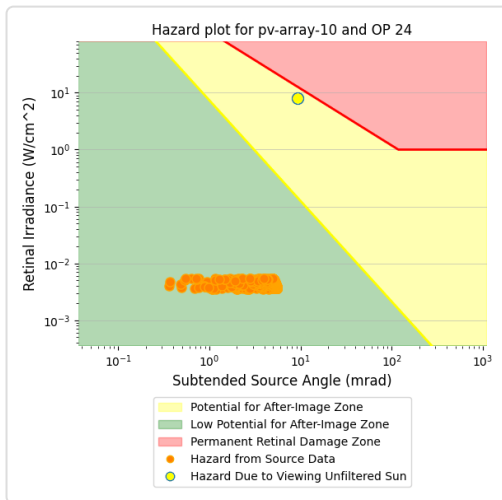
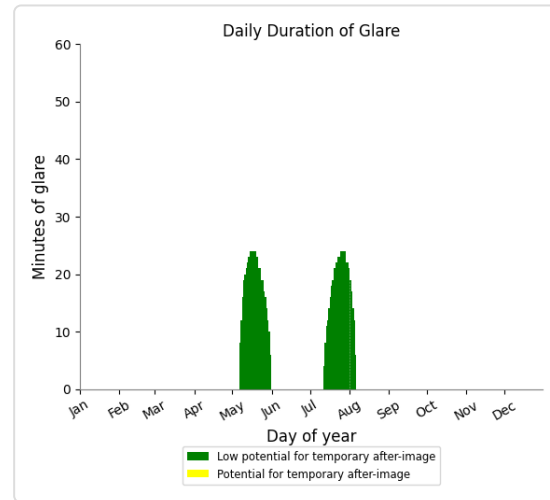
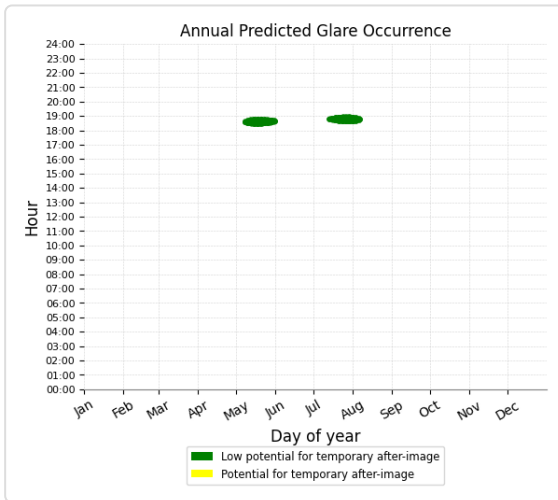
Green glare: 281 min.



PV array 10 and OP 24

Yellow glare: none

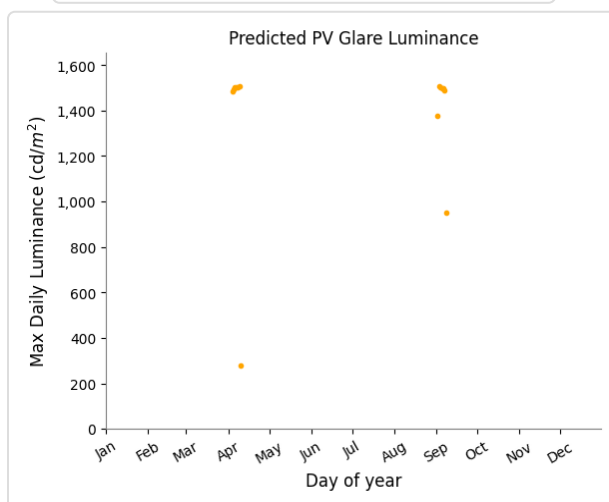
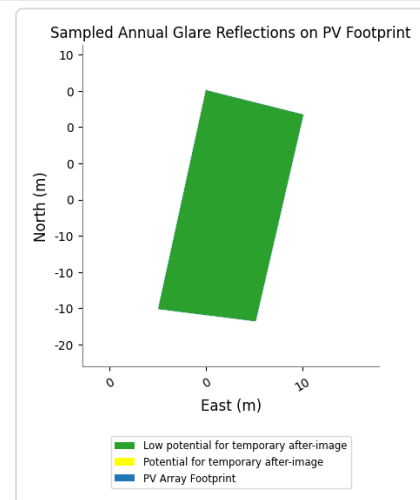
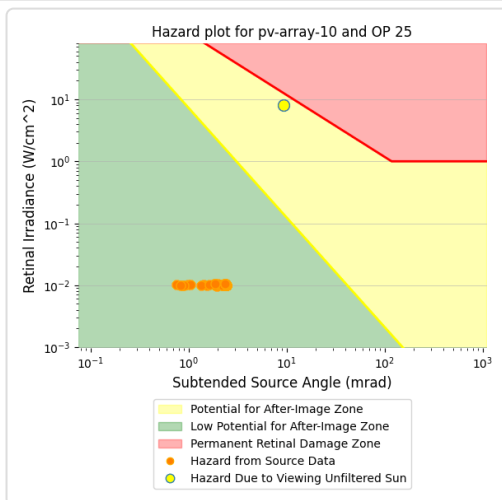
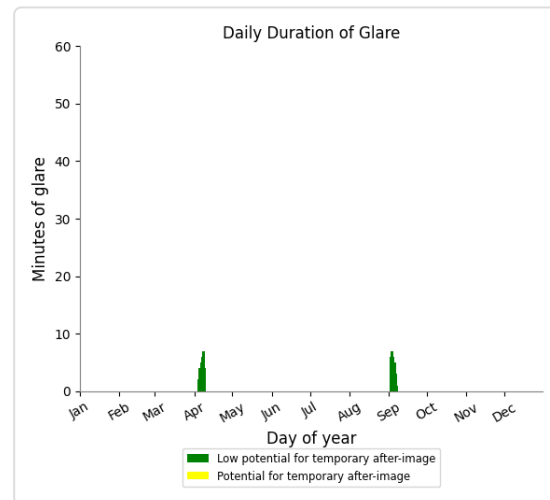
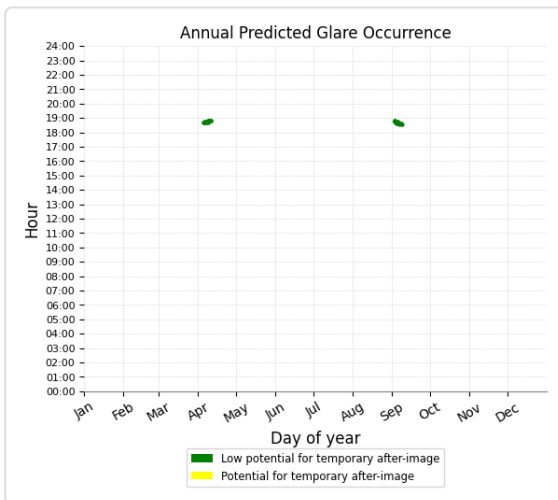
Green glare: 927 min.



PV array 10 and OP 25

Yellow glare: none

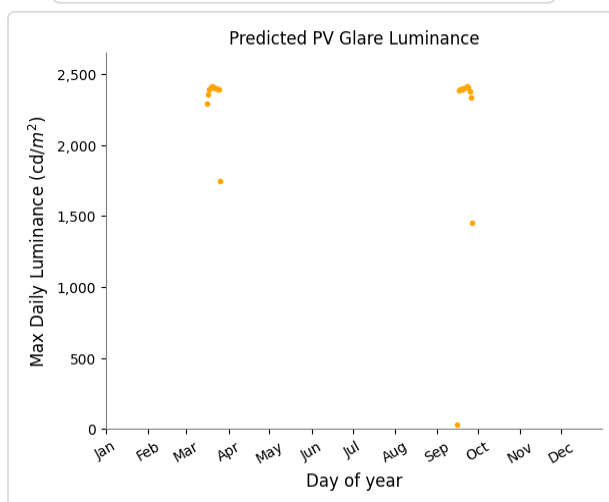
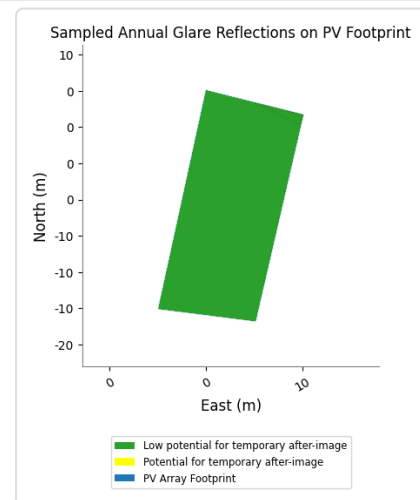
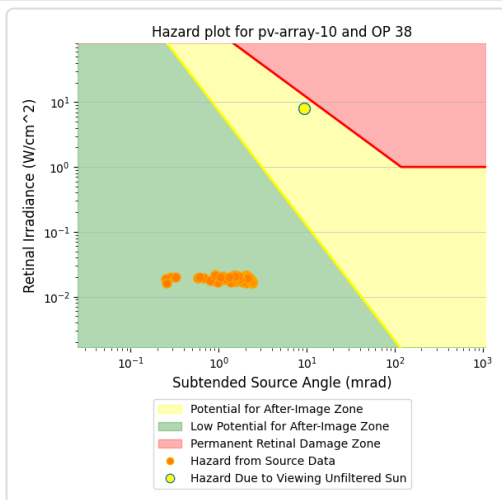
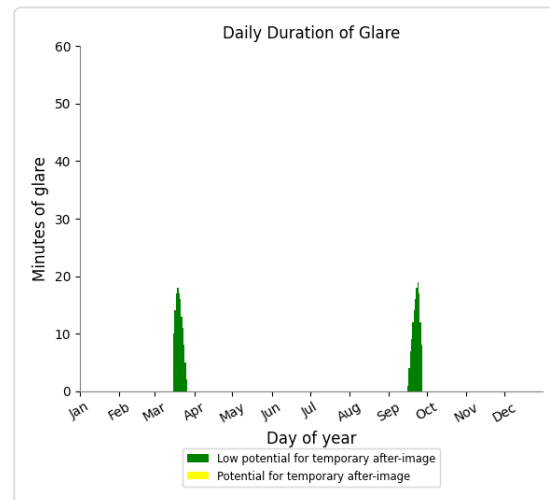
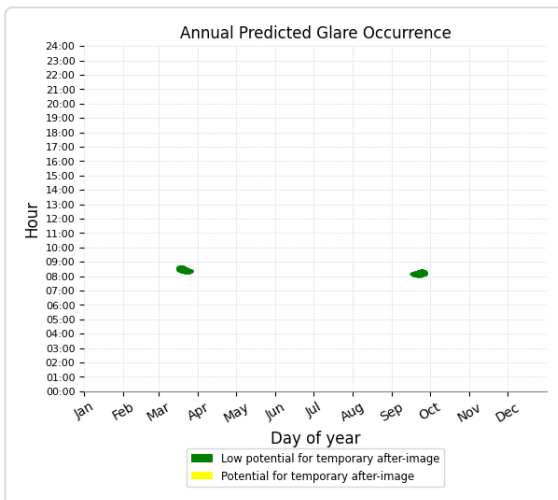
Green glare: 70 min.



PV array 10 and OP 38

Yellow glare: none

Green glare: 268 min.



PV array 10 and 1-ATCT

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 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 array 10 and OP 31

No glare found

PV array 10 and OP 32

No glare found

PV array 10 and OP 33

No glare found

PV array 10 and OP 34

No glare found

PV array 10 and OP 35

No glare found

PV array 10 and OP 36

No glare found

PV array 10 and OP 37

No glare found

PV array 10 and OP 39

No glare found

PV array 10 and OP 40

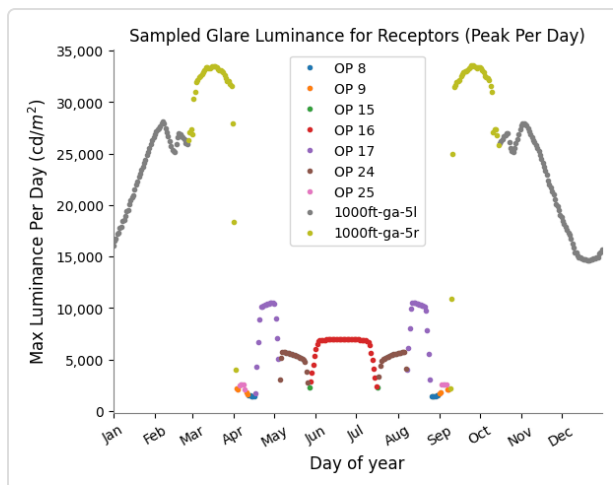
No glare found

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

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare		Peak Luminance
	min	hr	min	hr	cd/m ²
1000Ft-GA_5L23R_05L-R_23R-L	6,409	106.8	0	0.0	28,139
1000Ft-GA_5R23L_05R-R_23L-L	2,779	46.3	0	0.0	33,533
1500Ft-CA_5L23R_05L-R_23R-L	6,309	105.2	0	0.0	3,711
1000Ft-GA_5L23R_05L-L_23R-R	0	0.0	0	0.0	0
1000Ft-GA_5R23L_05R-L_23L-R	0	0.0	0	0.0	0
1500Ft-CA_5L23R_05L-L_23R-R	0	0.0	0	0.0	0
Approach_05L	0	0.0	0	0.0	0
Approach_05R	0	0.0	0	0.0	0
Approach_23L	0	0.0	0	0.0	0
Approach_23R	0	0.0	0	0.0	0
OP 2	441	7.3	0	0.0	1,343
OP 3	459	7.7	0	0.0	1,910
OP 4	523	8.7	0	0.0	2,683
OP 5	737	12.3	0	0.0	3,269
OP 6	1,368	22.8	0	0.0	2,636
OP 7	1,083	18.1	0	0.0	1,566
OP 8	503	8.4	0	0.0	1,553
OP 9	490	8.2	0	0.0	2,242
OP 10	483	8.1	0	0.0	3,202
OP 11	524	8.7	0	0.0	4,647
OP 12	663	11.1	0	0.0	4,172
OP 13	631	10.5	0	0.0	2,131
OP 14	1,408	23.5	0	0.0	1,678
OP 15	1,437	23.9	0	0.0	2,349
OP 16	1,143	19.1	0	0.0	6,993
OP 17	756	12.6	0	0.0	10,518
OP 18	523	8.7	0	0.0	5,669
OP 19	254	4.2	0	0.0	2,636
OP 24	983	16.4	0	0.0	5,737
OP 25	46	0.8	0	0.0	2,575
OP 38	299	5.0	0	0.0	4,468
1-ATCT	0	0.0	0	0.0	0
OP 20	0	0.0	0	0.0	0
OP 21	0	0.0	0	0.0	0
OP 22	0	0.0	0	0.0	0
OP 23	0	0.0	0	0.0	0
OP 26	0	0.0	0	0.0	0
OP 27	0	0.0	0	0.0	0

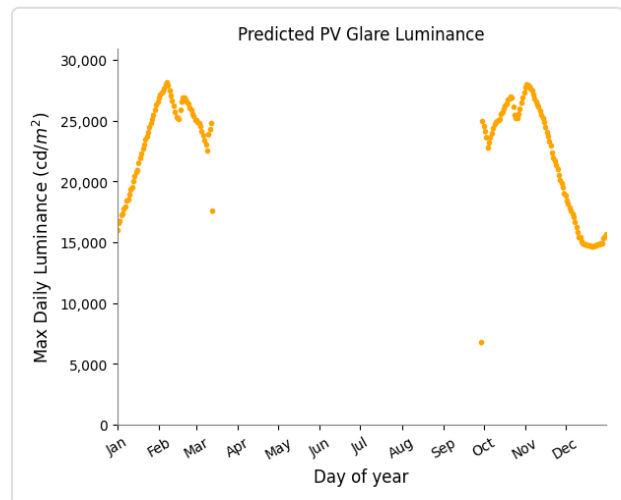
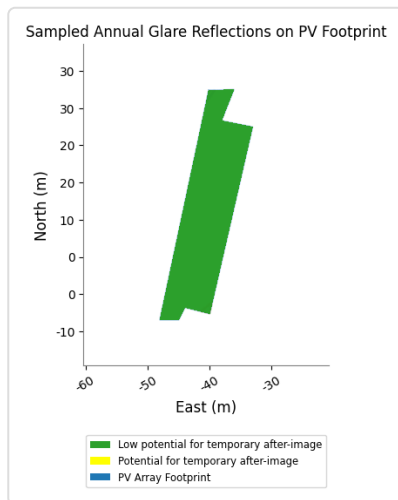
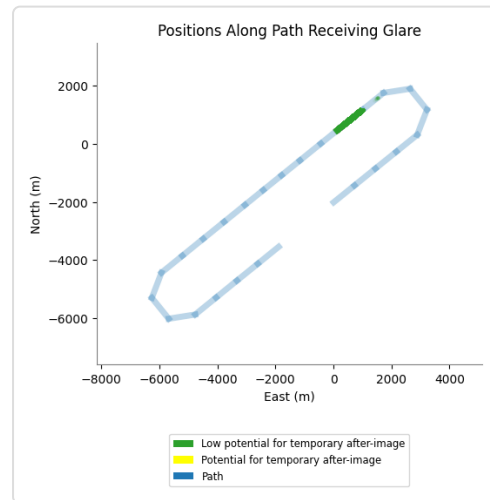
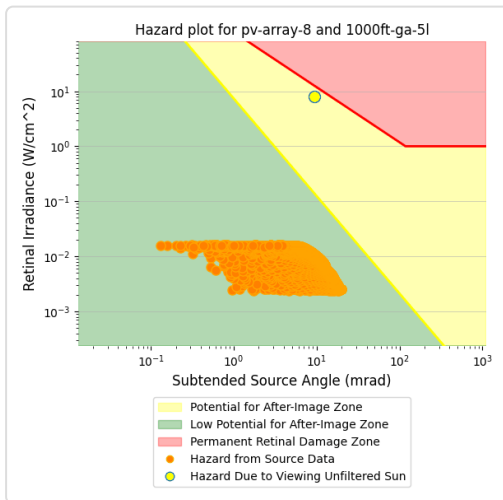
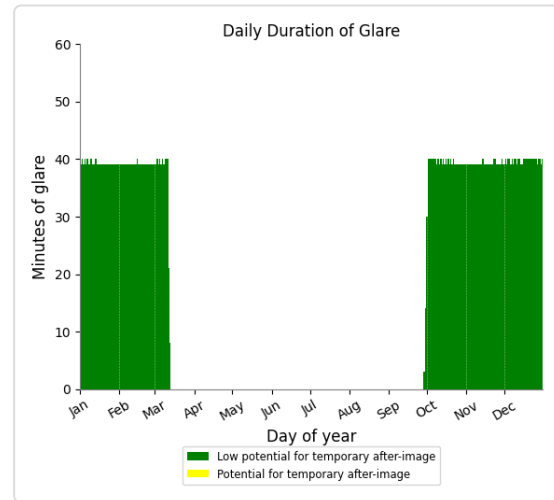
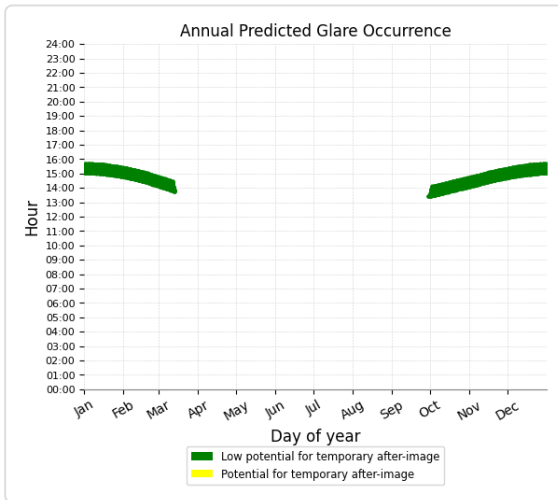
Receptor	Annual Green Glare		Annual Yellow Glare		Peak Luminance
	min	hr	min	hr	cd/m ²
OP 28	0	0.0	0	0.0	0
OP 29	0	0.0	0	0.0	0
OP 30	0	0.0	0	0.0	0
OP 31	0	0.0	0	0.0	0
OP 32	0	0.0	0	0.0	0
OP 33	0	0.0	0	0.0	0
OP 34	0	0.0	0	0.0	0
OP 35	0	0.0	0	0.0	0
OP 36	0	0.0	0	0.0	0
OP 37	0	0.0	0	0.0	0
OP 39	0	0.0	0	0.0	0
OP 40	0	0.0	0	0.0	0



PV array 8 and Route: 1000ft-GA_5L23R_05L-R_23R-L

Yellow glare: none

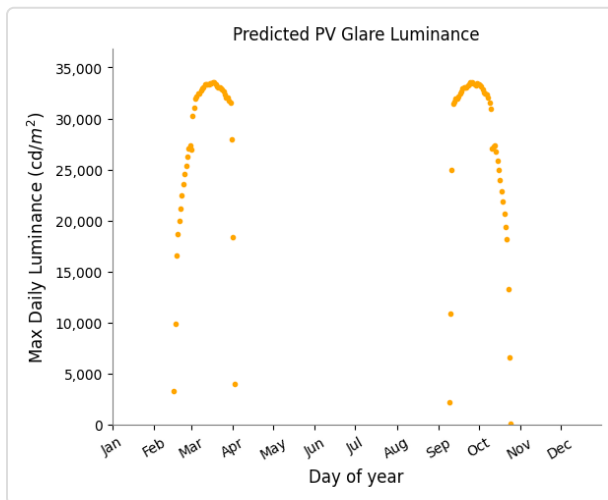
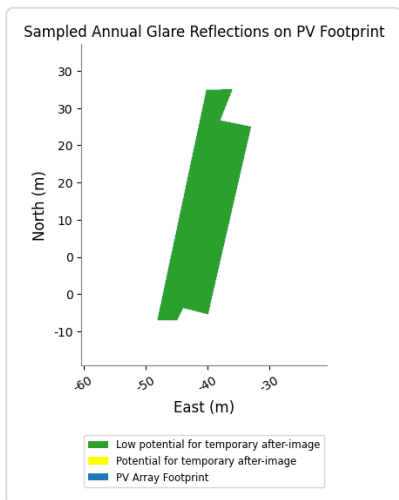
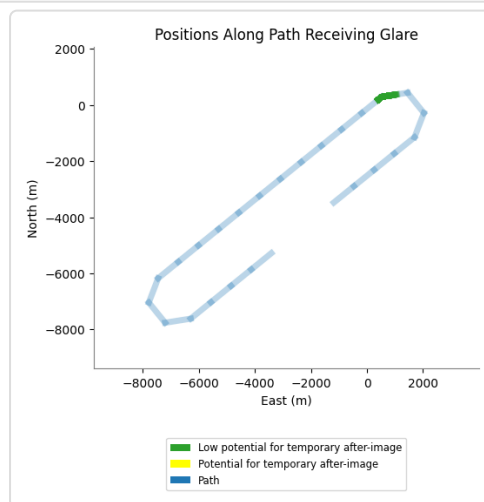
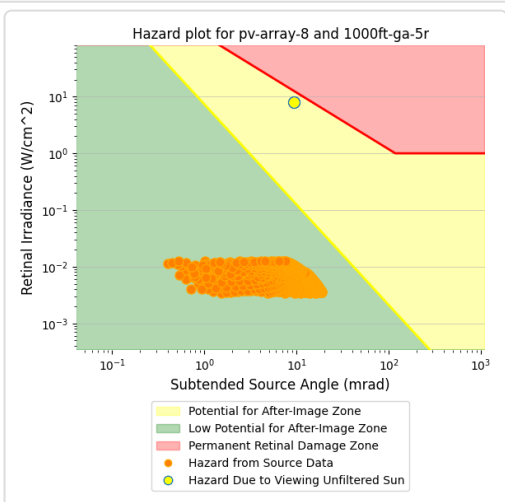
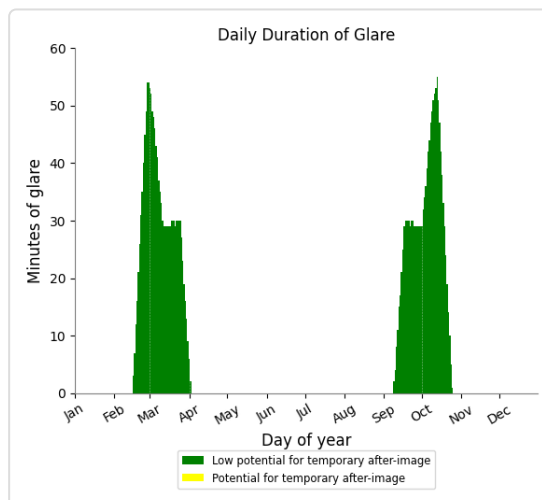
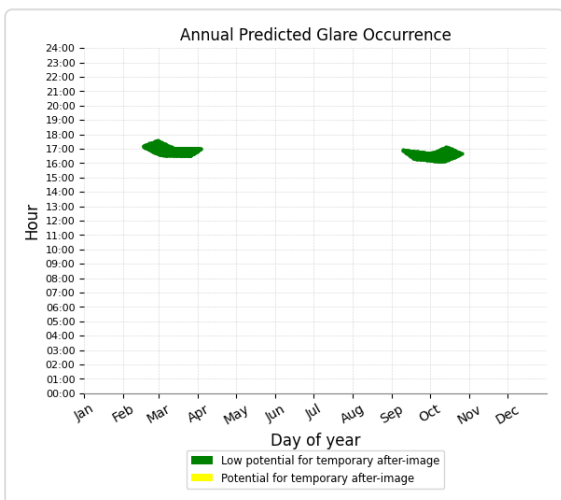
Green glare: 6,409 min.



PV array 8 and Route: 1000Ft-GA_5R23L_05R-R_23L-L

Yellow glare: none

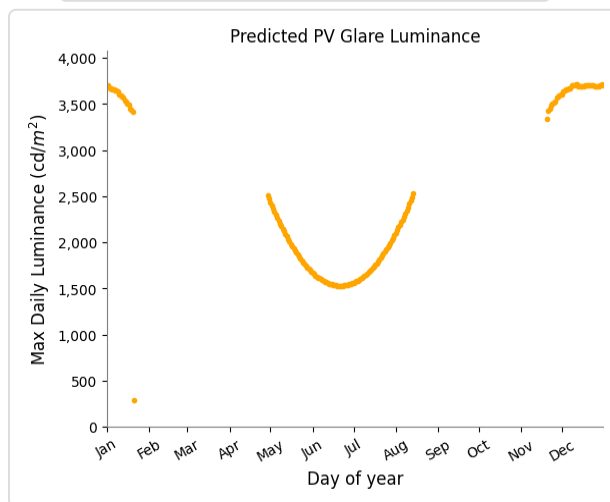
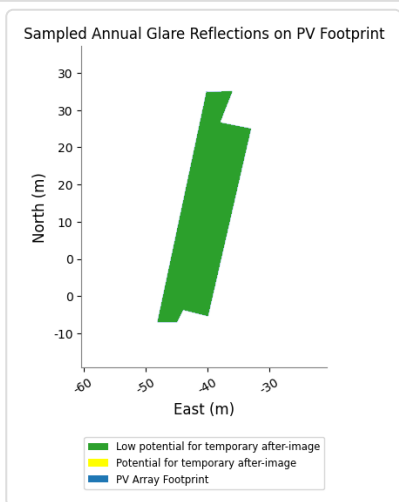
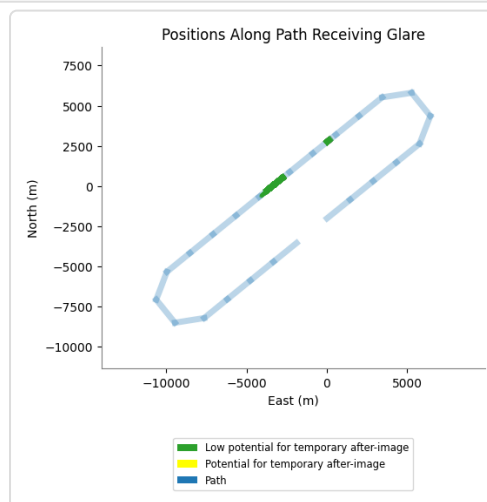
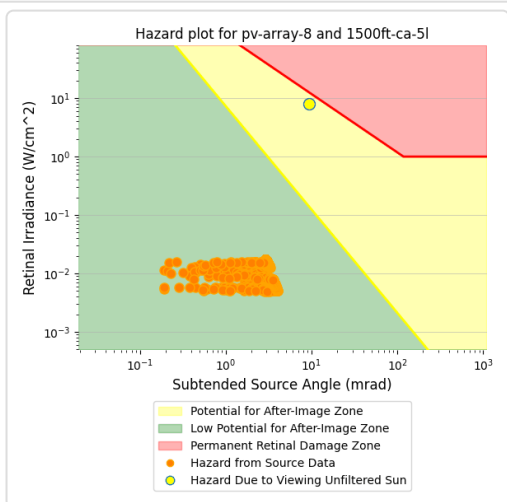
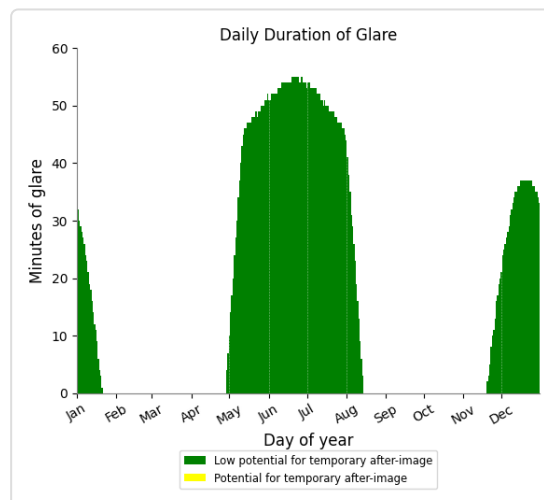
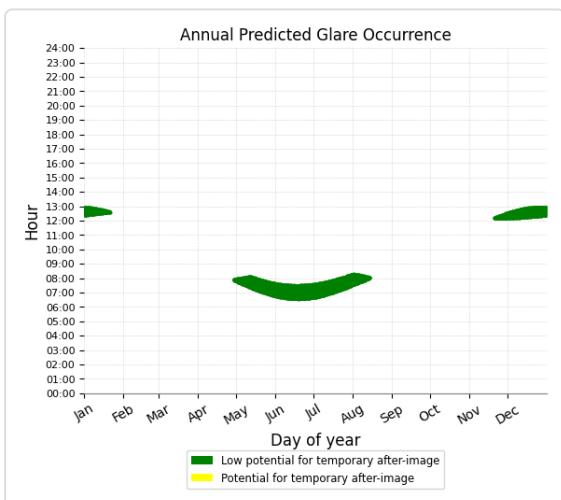
Green glare: 2,779 min.



PV array 8 and Route: 1500Ft-CA_5L23R_05L-R_23R-L

Yellow glare: none

Green glare: 6,309 min.



PV array 8 and Route: 1000Ft-GA_5L23R_05L-L_23R-R

No glare found

PV array 8 and Route: 1000Ft-GA_5R23L_05R-L_23L-R

No glare found

PV array 8 and Route: 1500Ft-CA_5L23R_05L-L_23R-R

No glare found

PV array 8 and Route: Approach_05L

No glare found

PV array 8 and Route: Approach_05R

No glare found

PV array 8 and Route: Approach_23L

No glare found

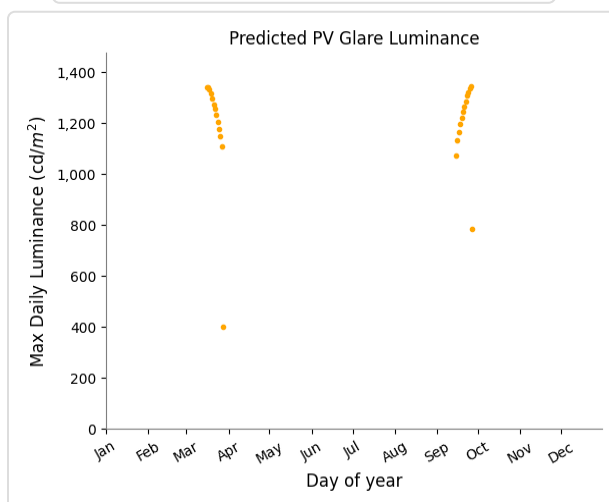
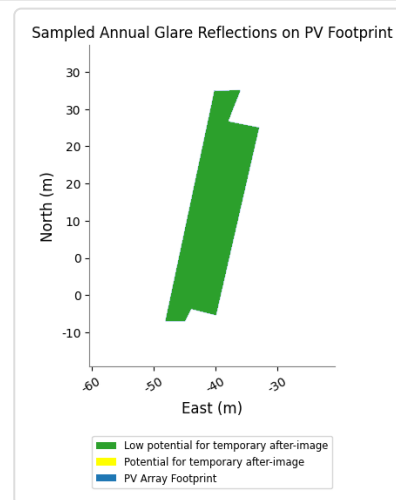
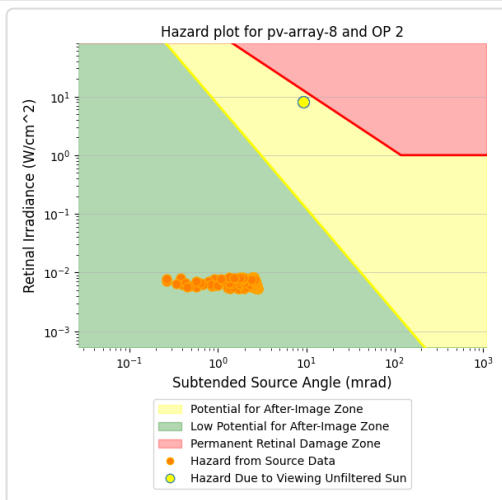
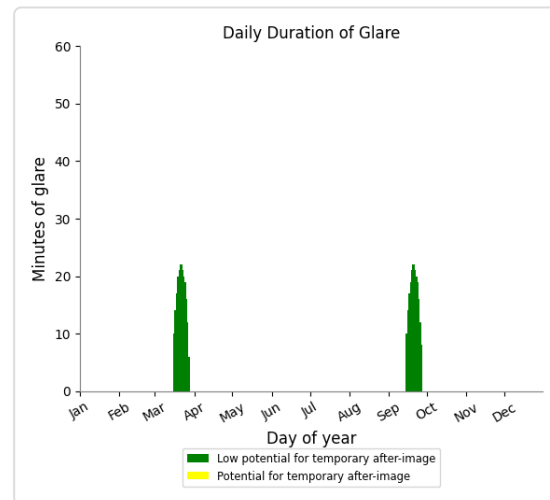
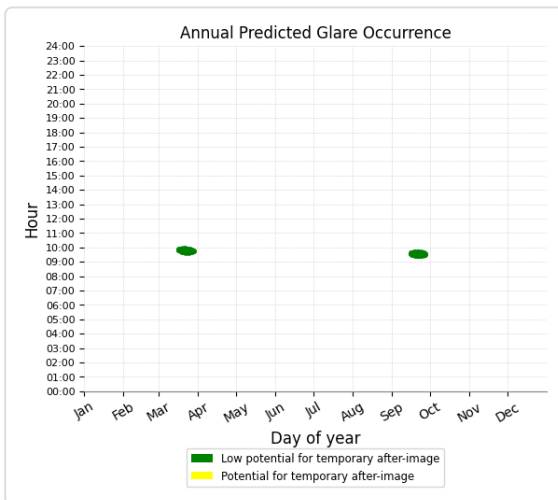
PV array 8 and Route: Approach_23R

No glare found

PV array 8 and OP 2

Yellow glare: none

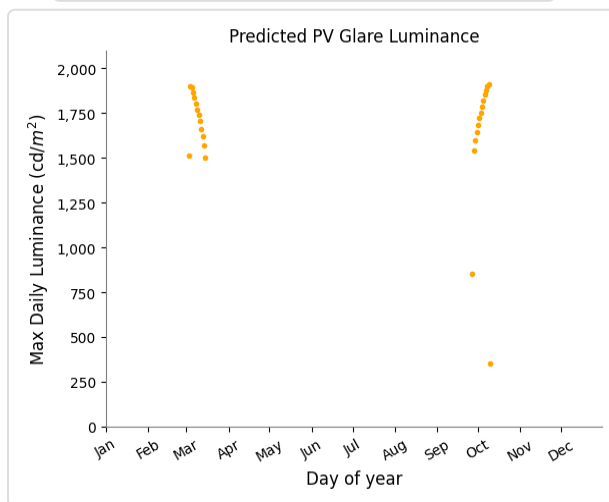
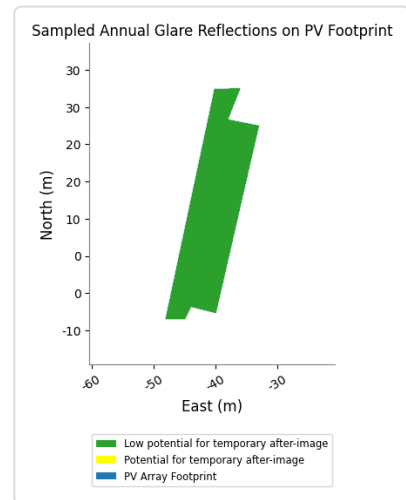
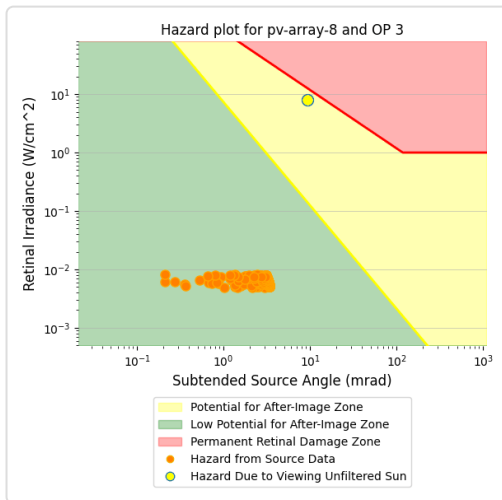
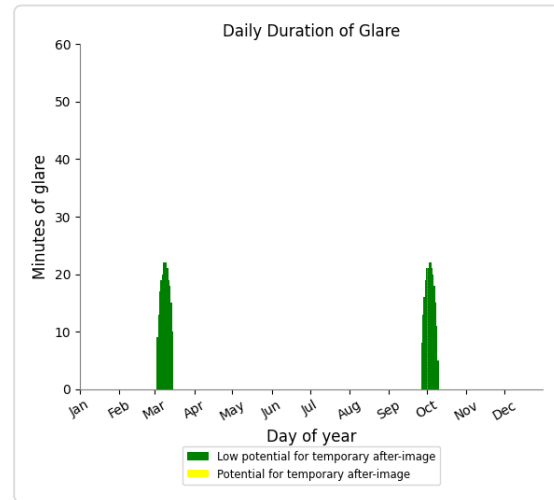
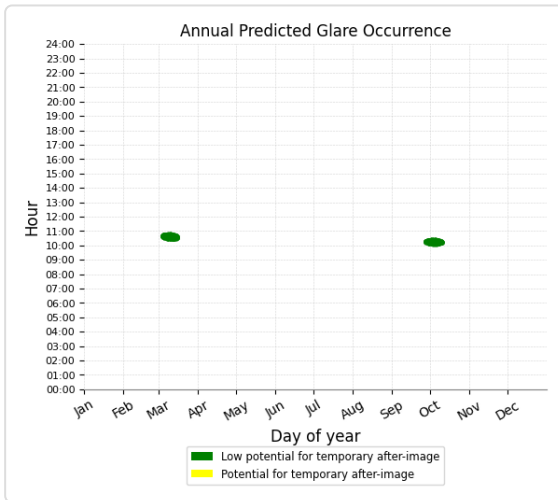
Green glare: 441 min.



PV array 8 and OP 3

Yellow glare: none

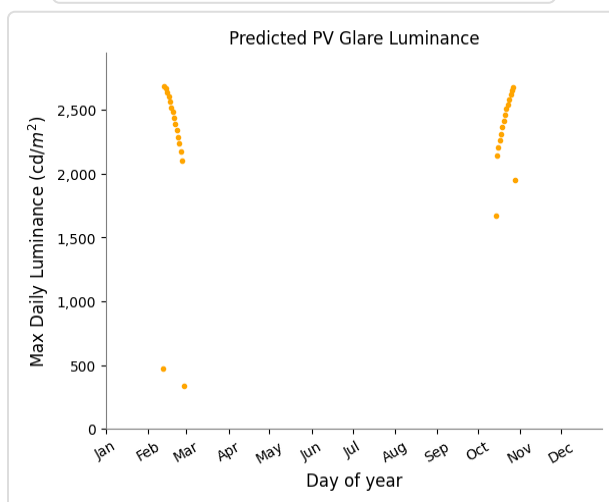
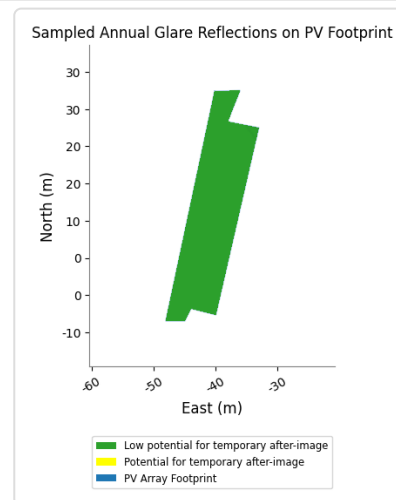
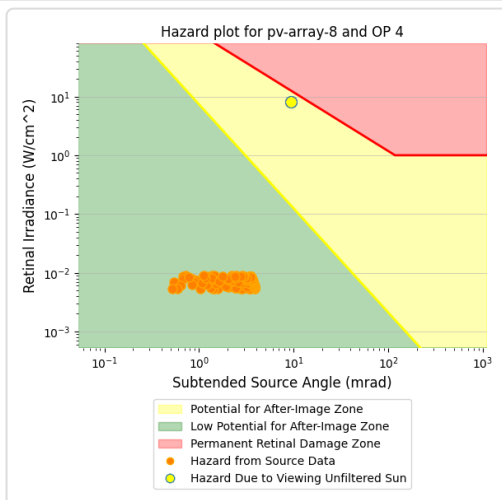
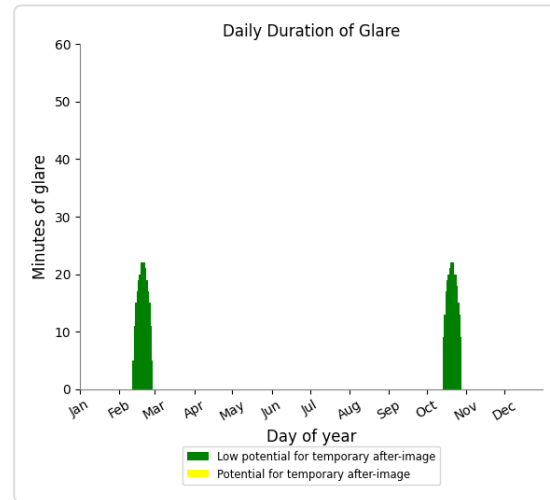
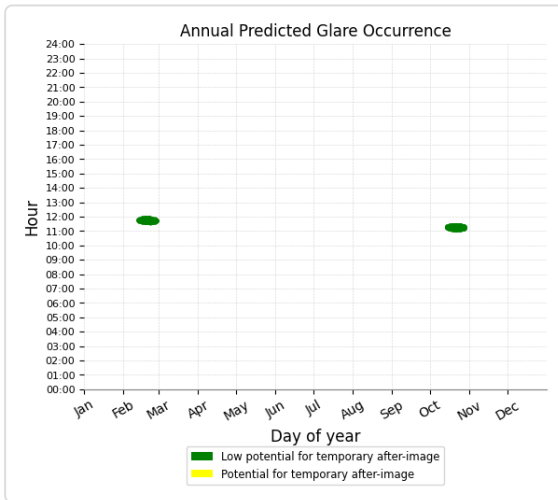
Green glare: 459 min.



PV array 8 and OP 4

Yellow glare: none

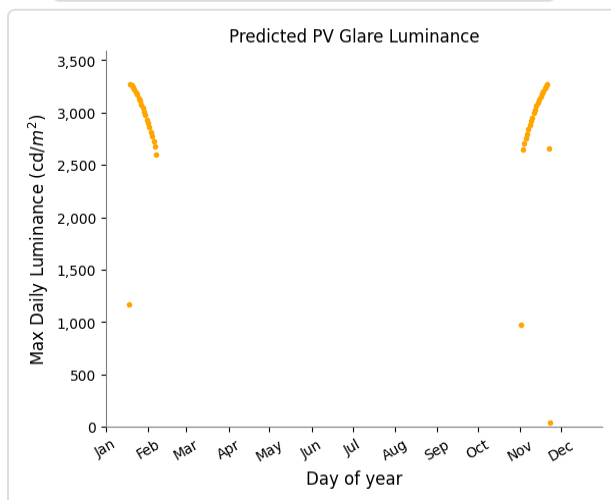
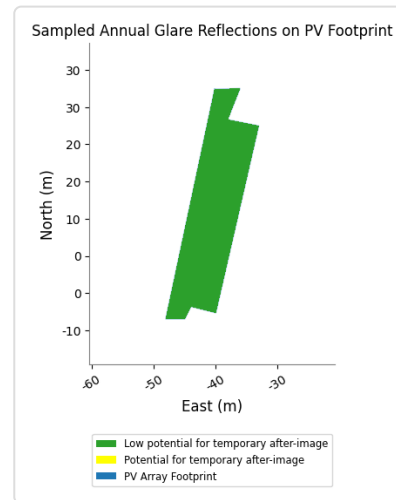
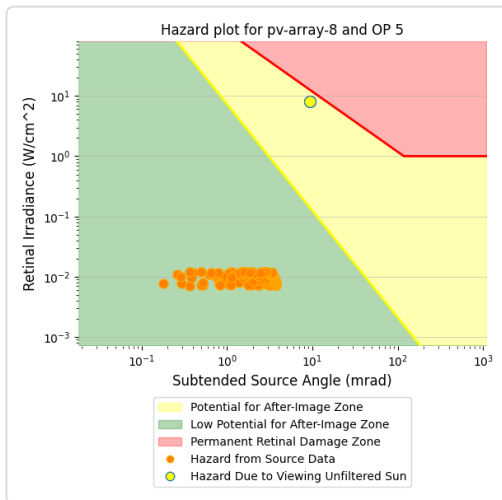
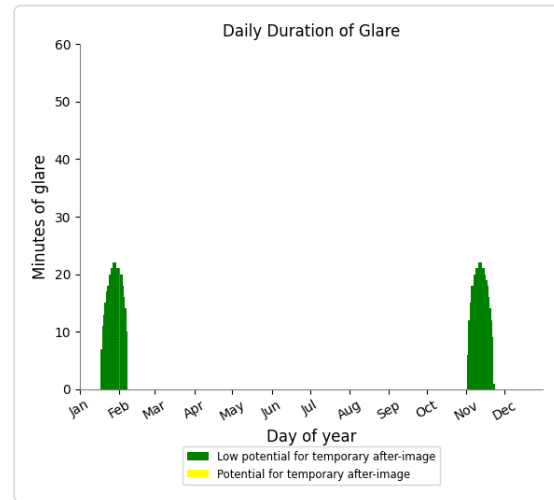
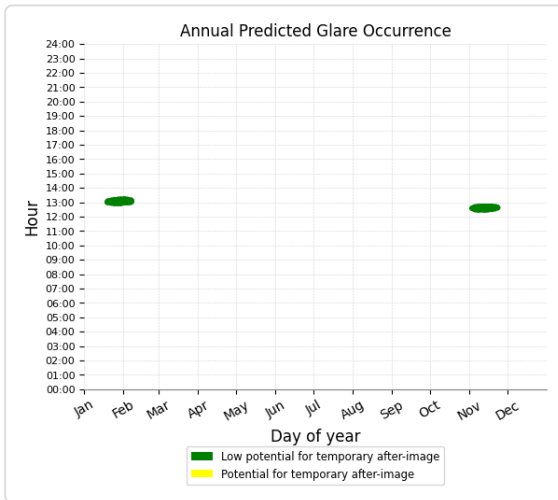
Green glare: 523 min.



PV array 8 and OP 5

Yellow glare: none

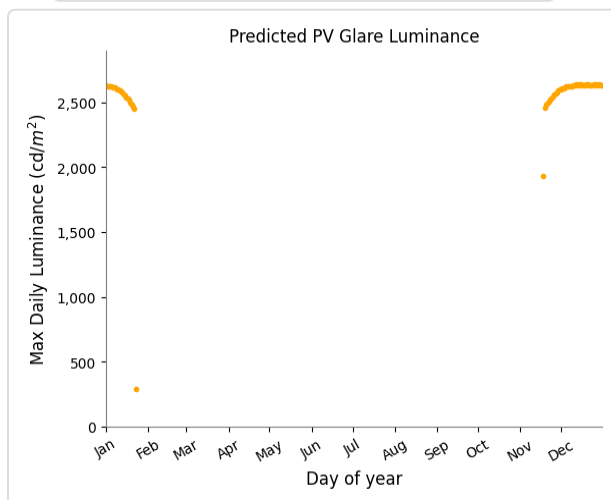
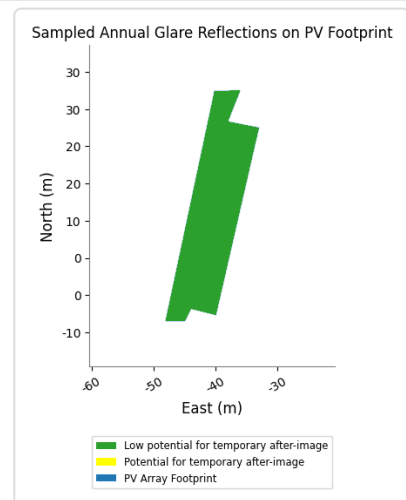
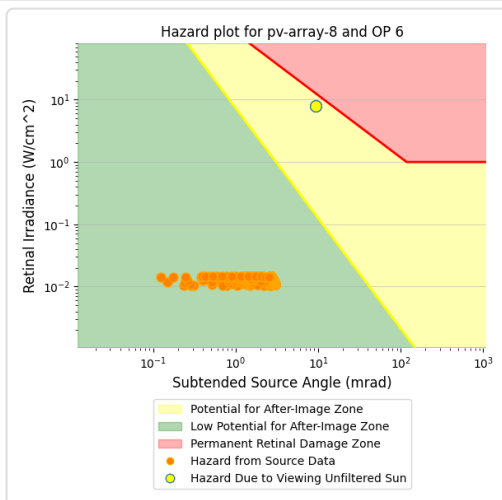
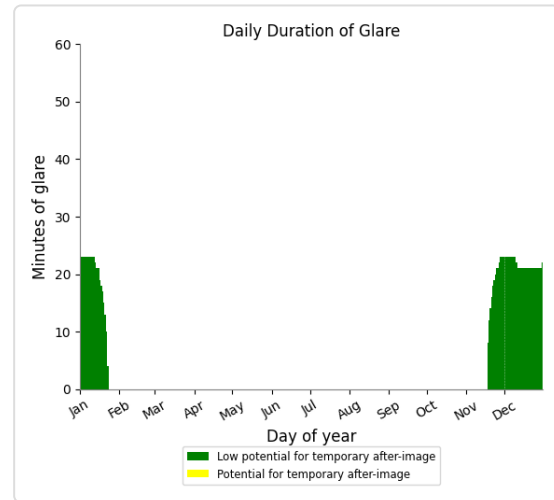
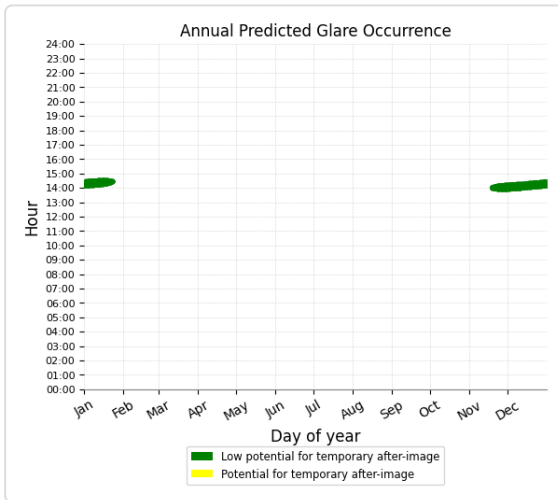
Green glare: 737 min.



PV array 8 and OP 6

Yellow glare: none

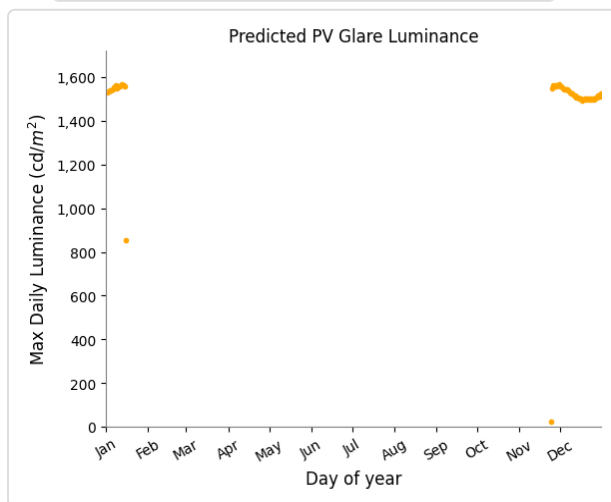
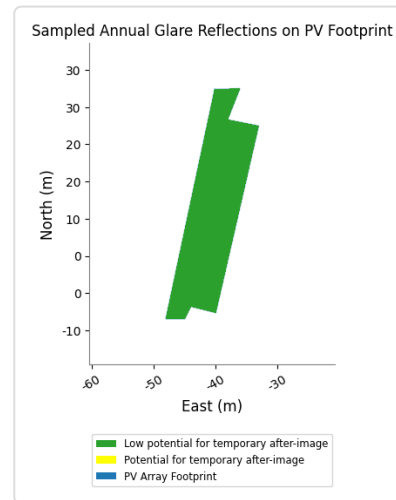
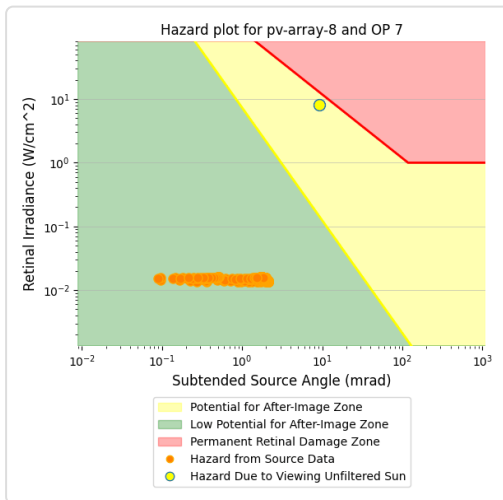
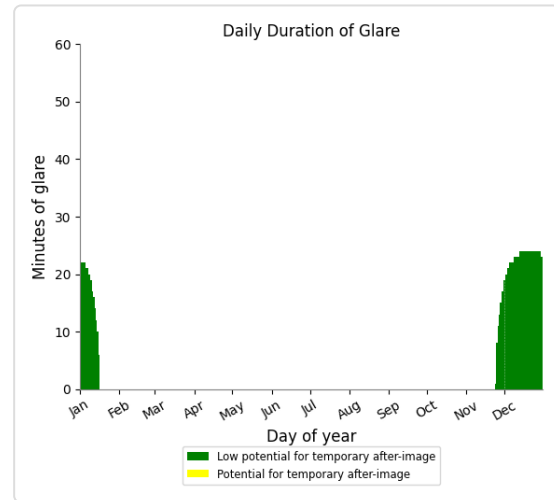
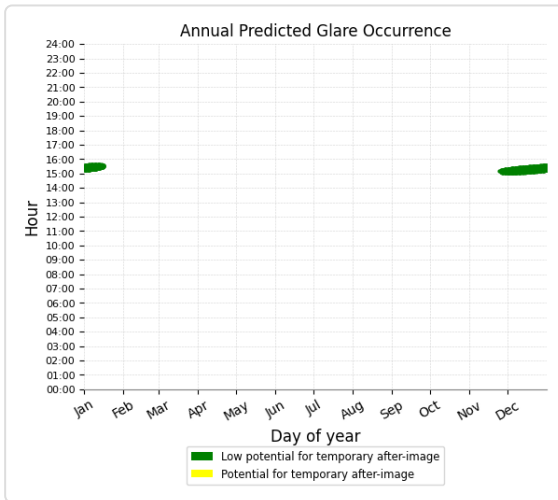
Green glare: 1,368 min.



PV array 8 and OP 7

Yellow glare: none

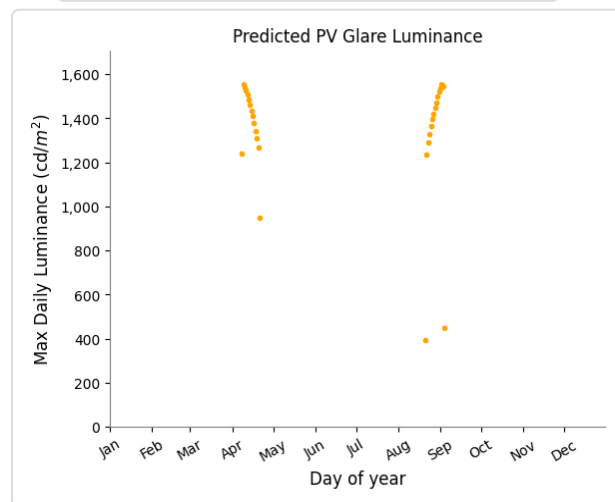
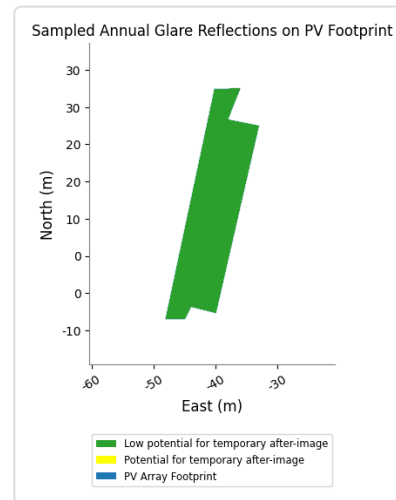
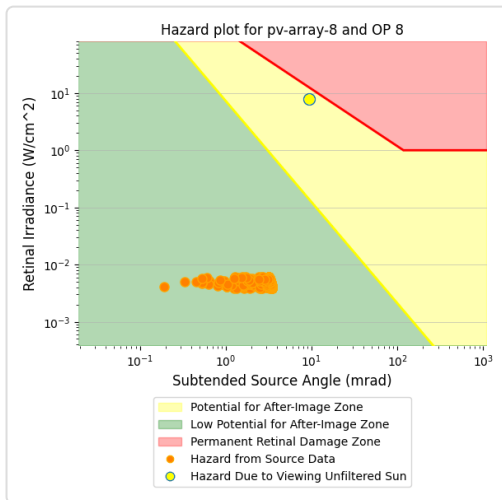
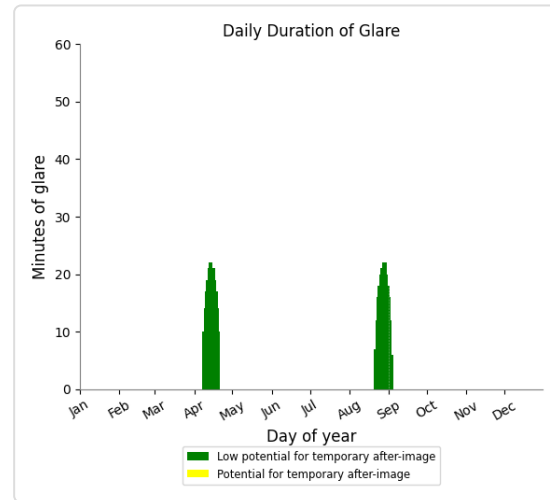
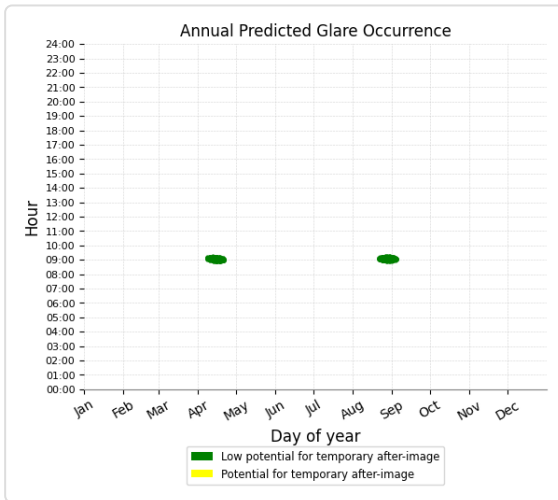
Green glare: 1,083 min.



PV array 8 and OP 8

Yellow glare: none

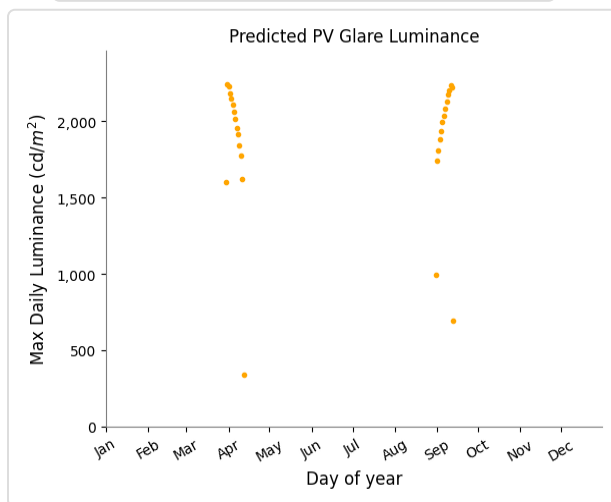
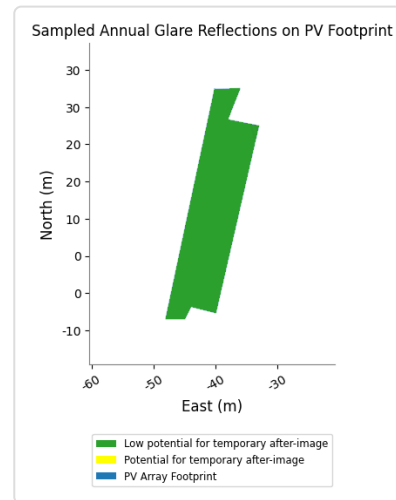
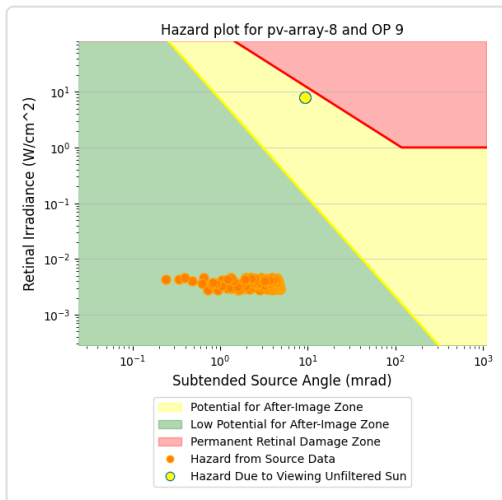
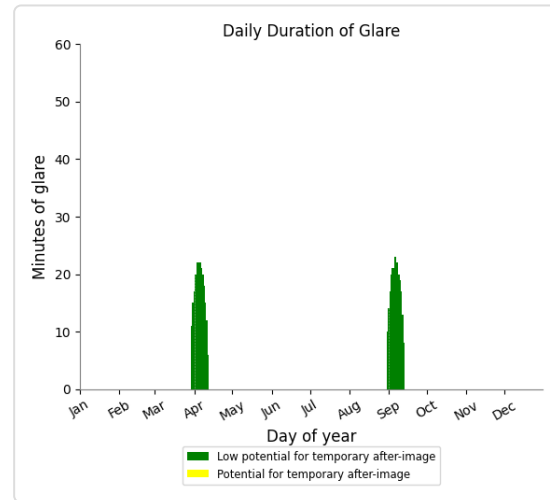
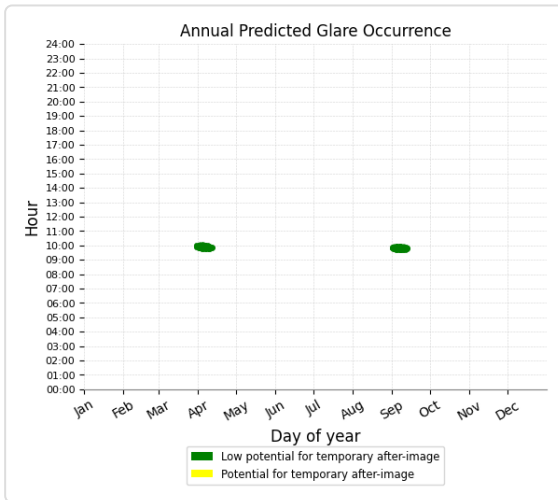
Green glare: 503 min.



PV array 8 and OP 9

Yellow glare: none

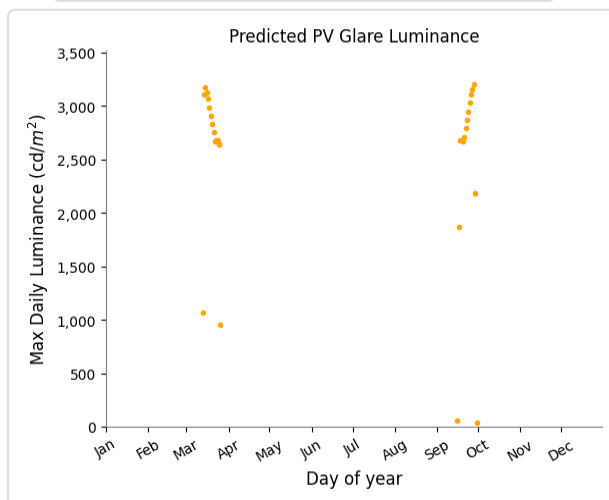
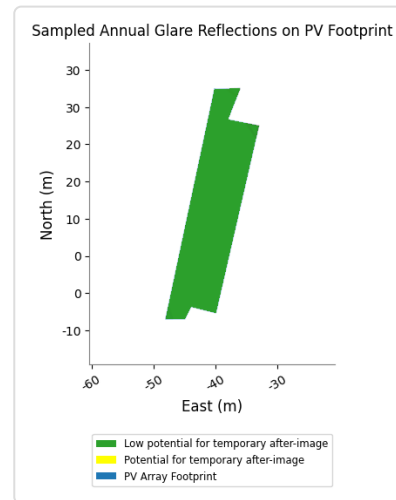
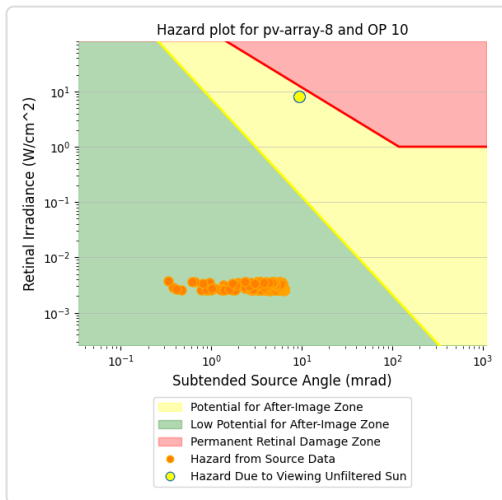
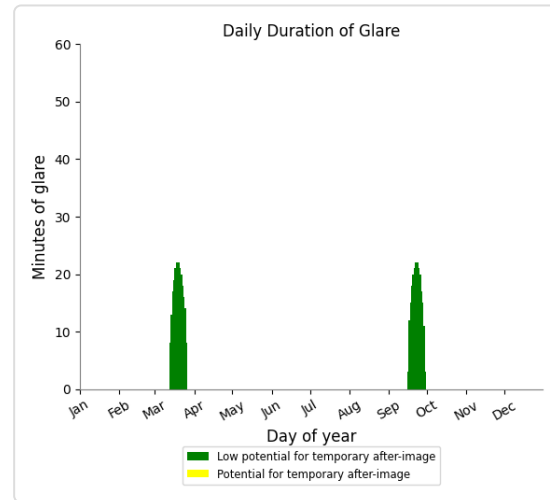
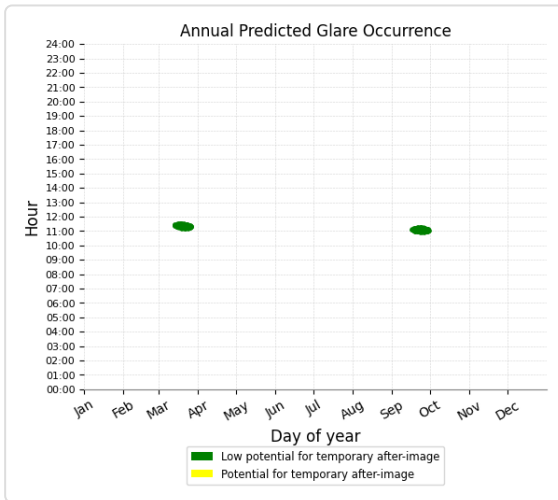
Green glare: 490 min.



PV array 8 and OP 10

Yellow glare: none

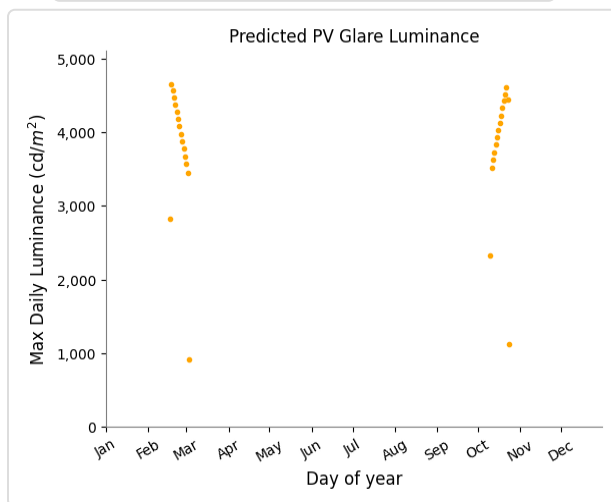
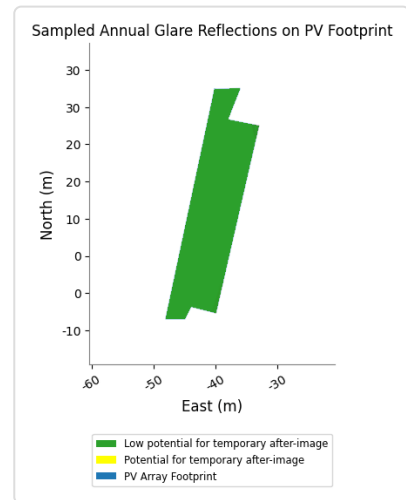
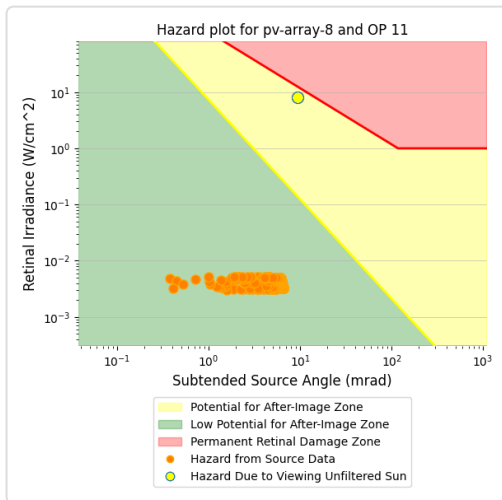
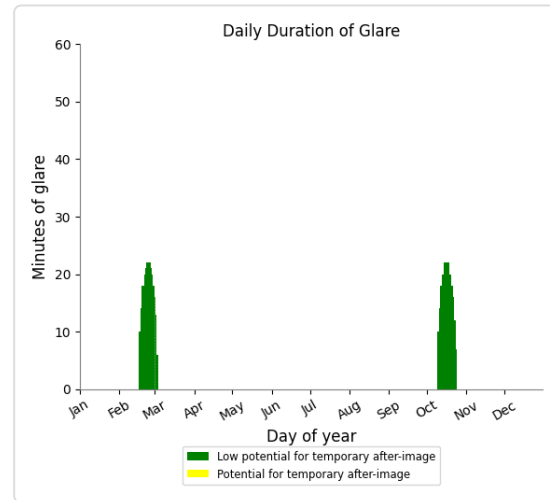
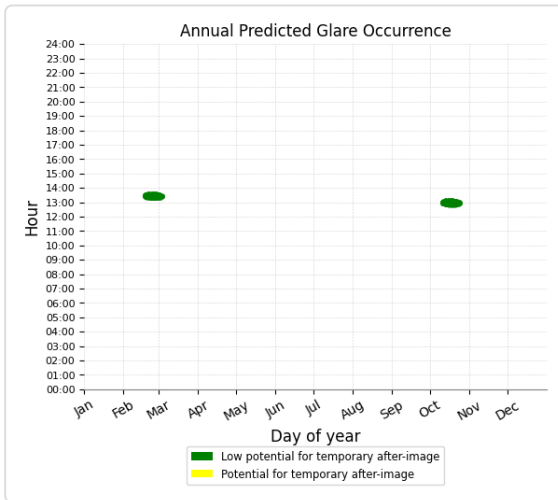
Green glare: 483 min.



PV array 8 and OP 11

Yellow glare: none

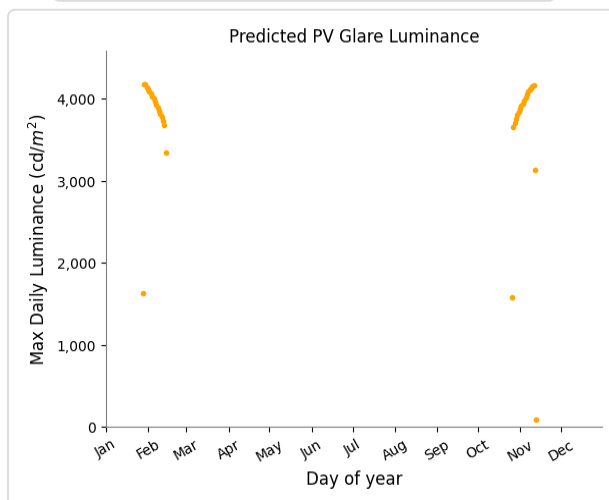
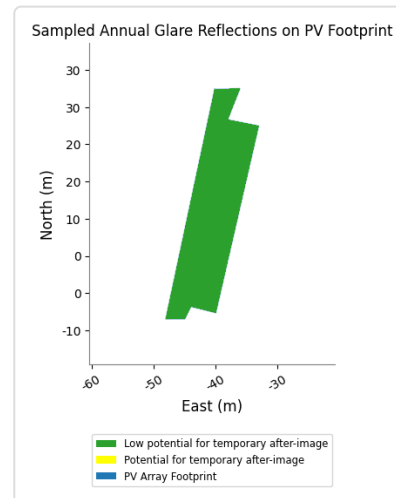
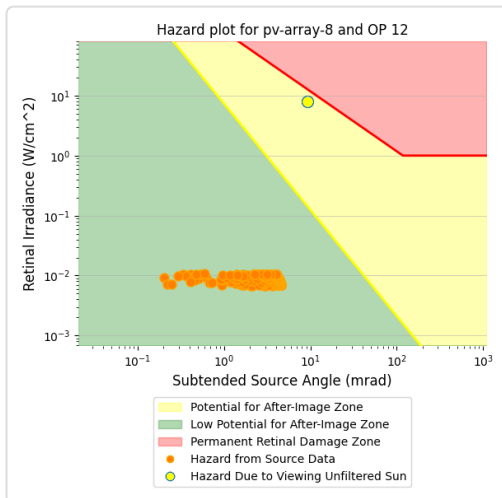
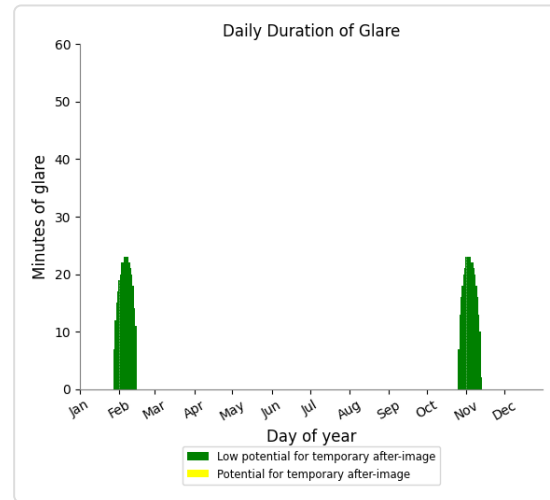
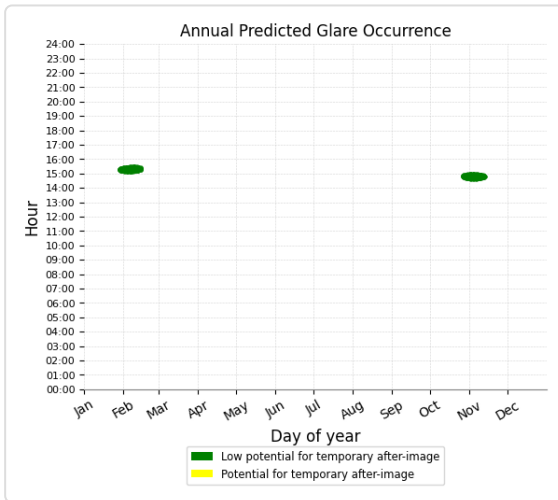
Green glare: 524 min.



PV array 8 and OP 12

Yellow glare: none

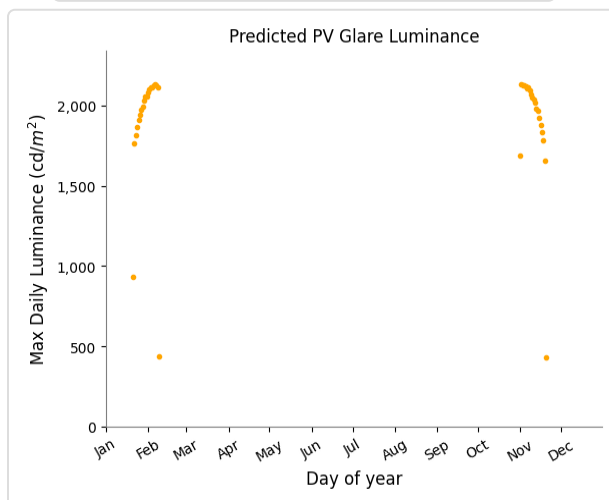
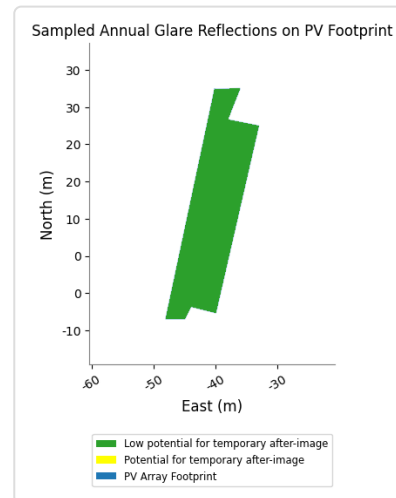
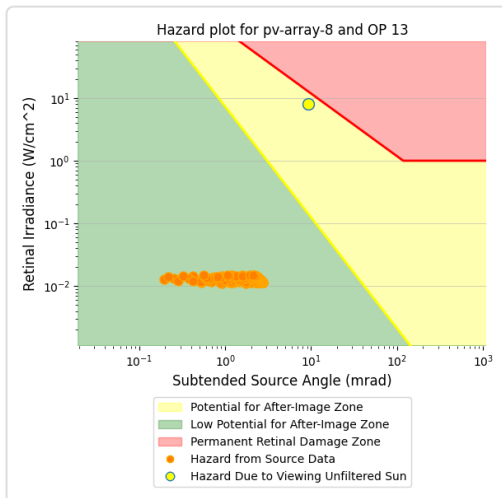
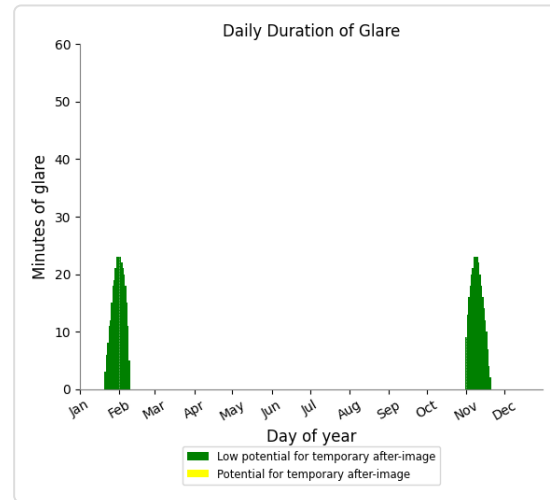
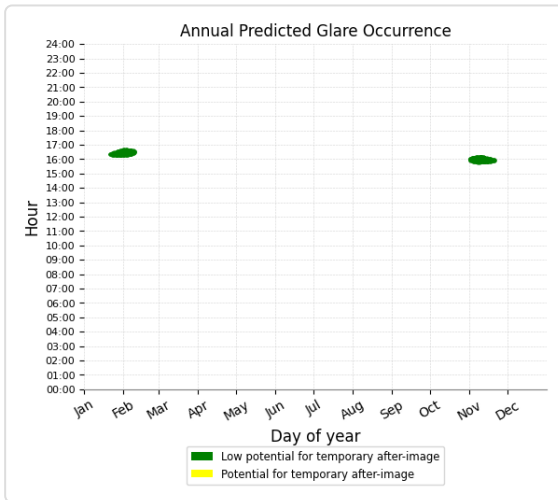
Green glare: 663 min.



PV array 8 and OP 13

Yellow glare: none

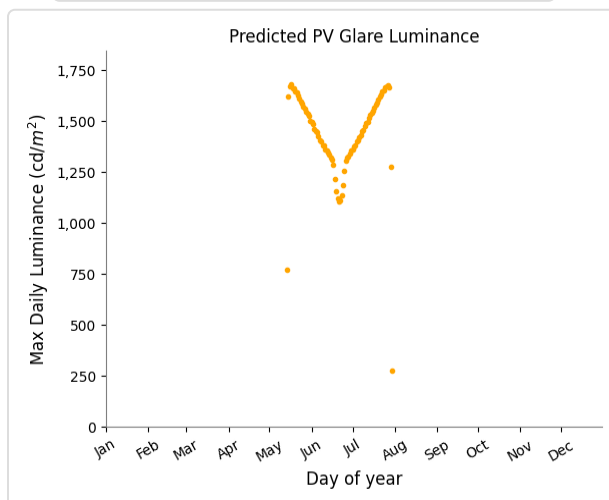
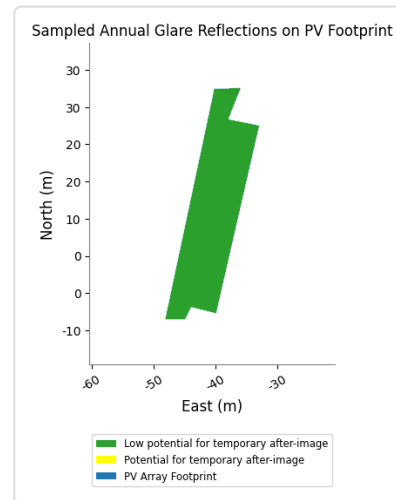
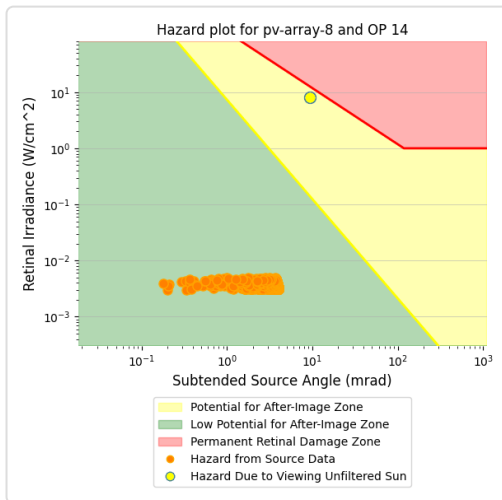
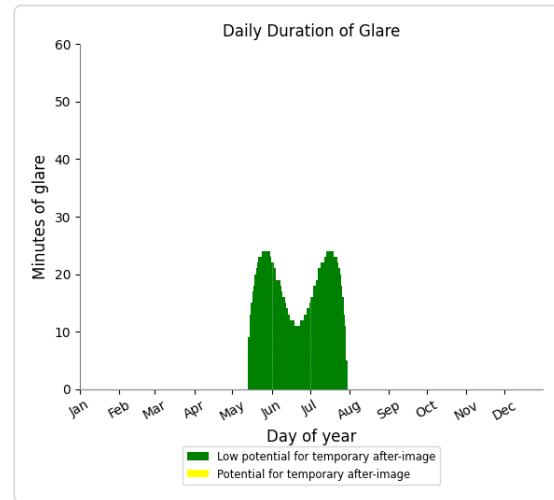
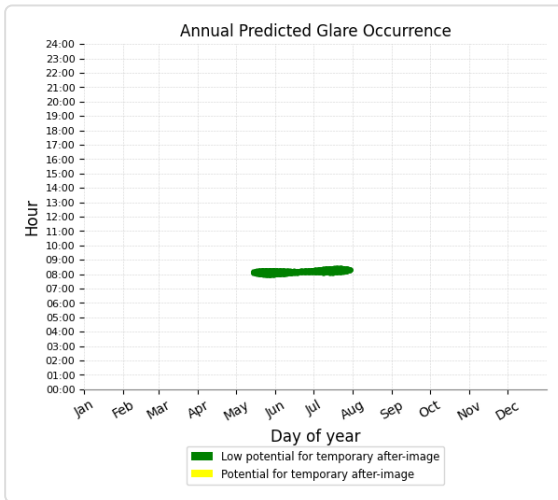
Green glare: 631 min.



PV array 8 and OP 14

Yellow glare: none

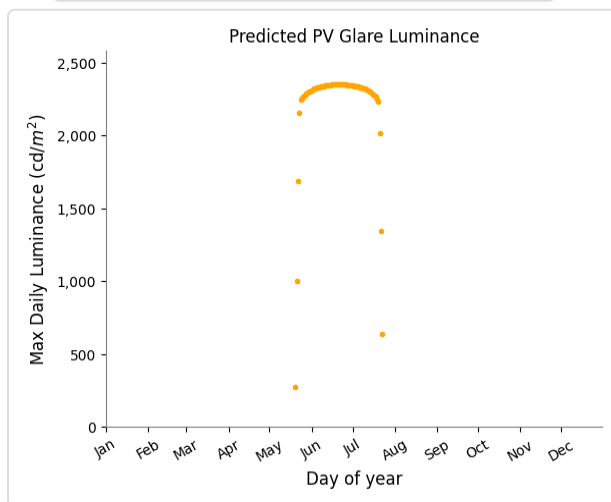
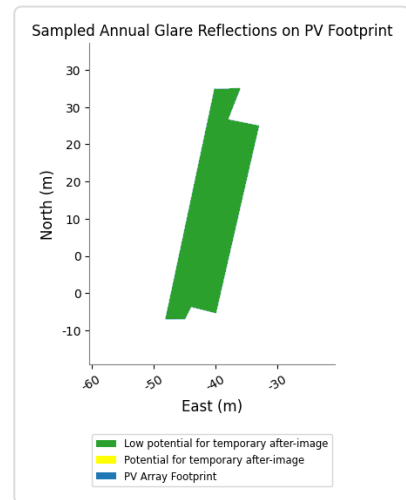
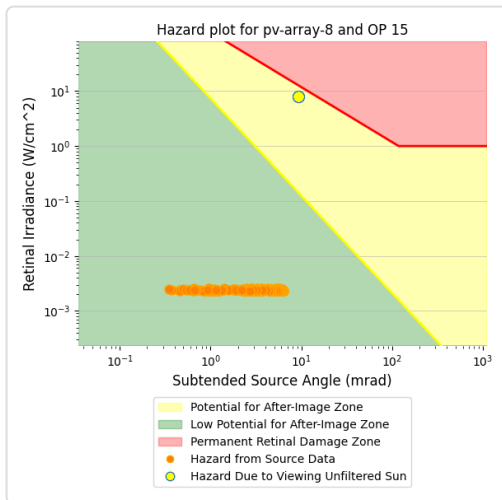
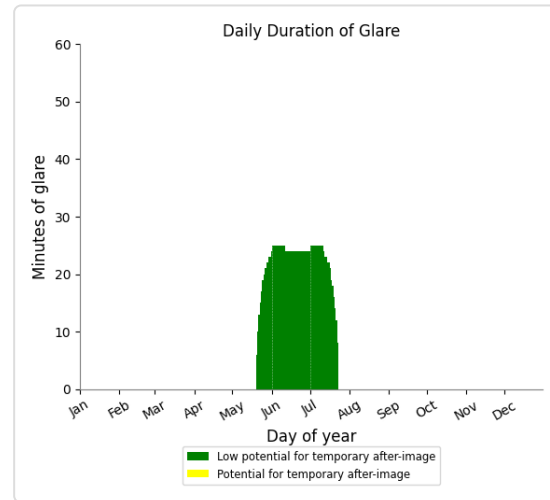
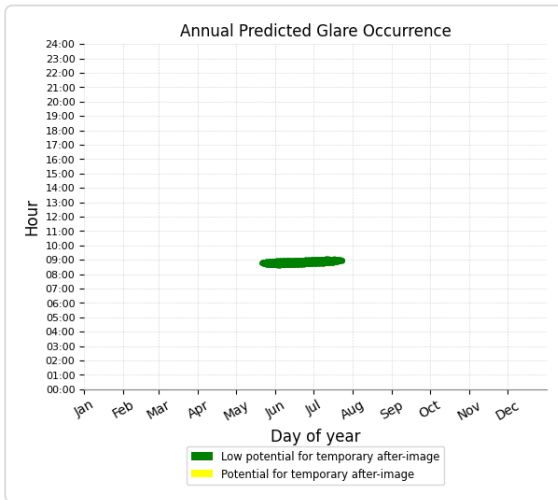
Green glare: 1,408 min.



PV array 8 and OP 15

Yellow glare: none

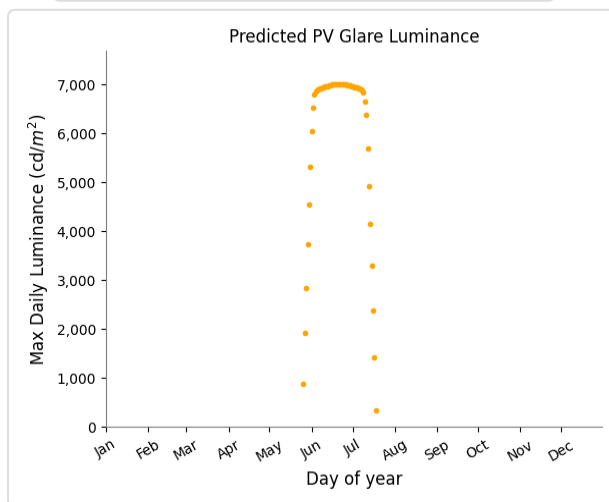
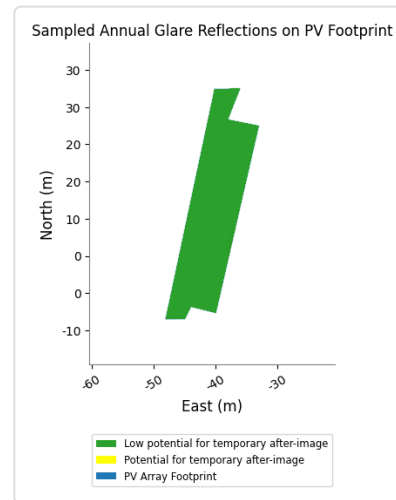
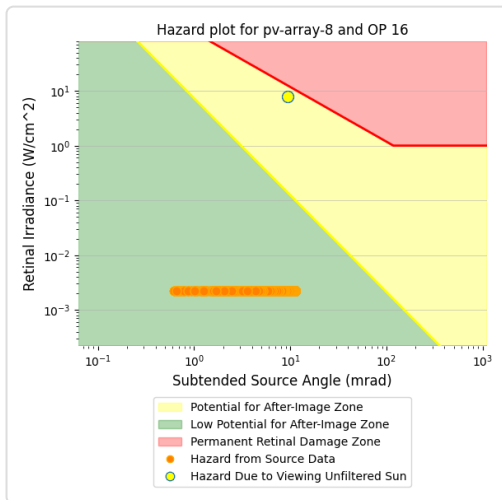
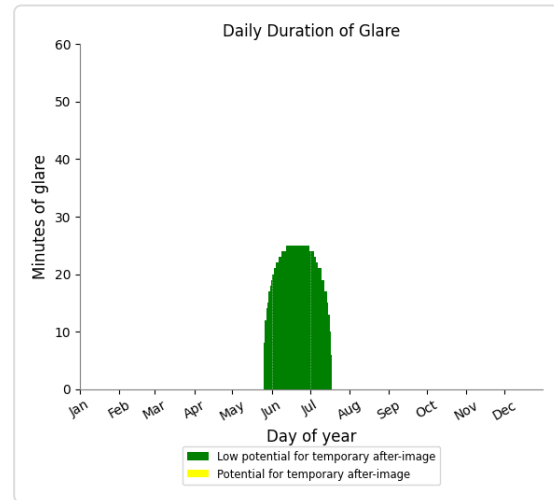
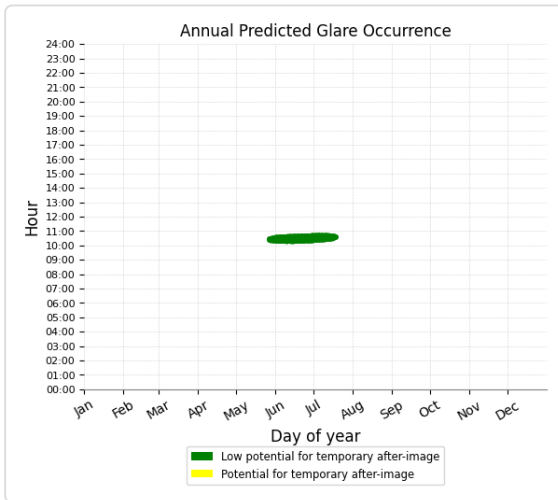
Green glare: 1,437 min.



PV array 8 and OP 16

Yellow glare: none

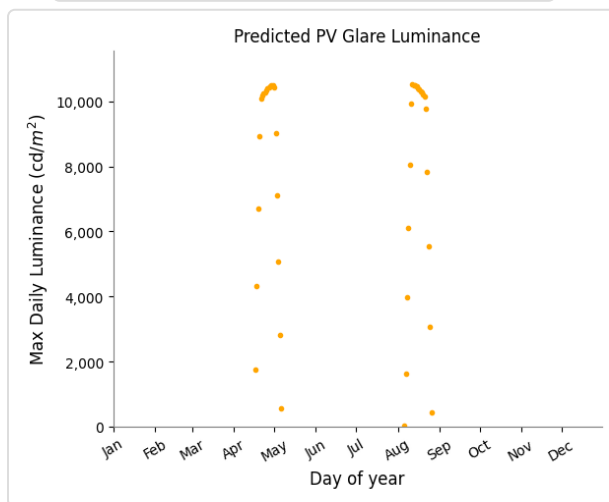
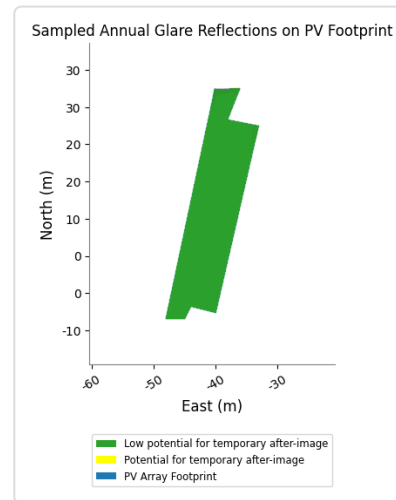
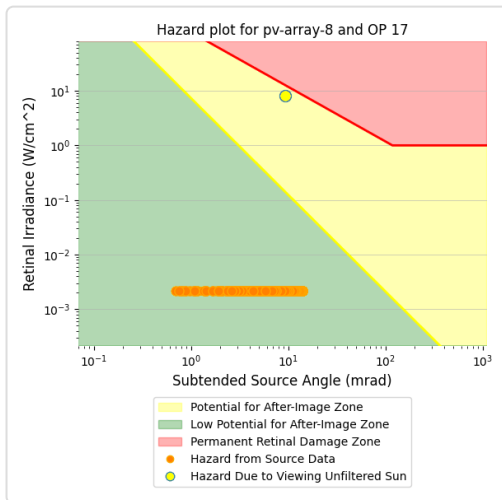
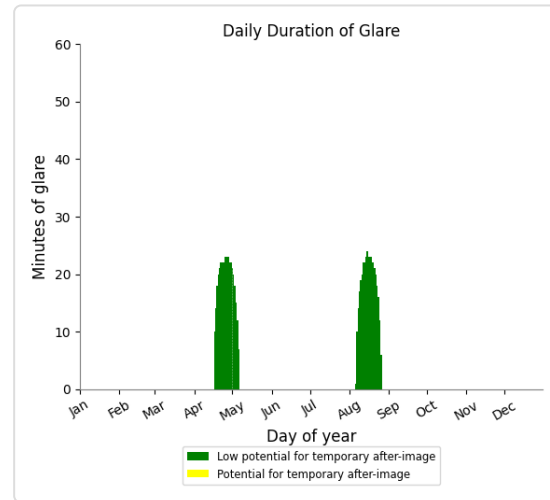
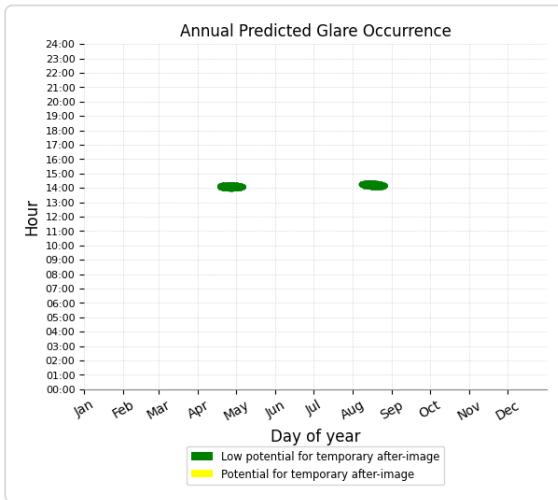
Green glare: 1,143 min.



PV array 8 and OP 17

Yellow glare: none

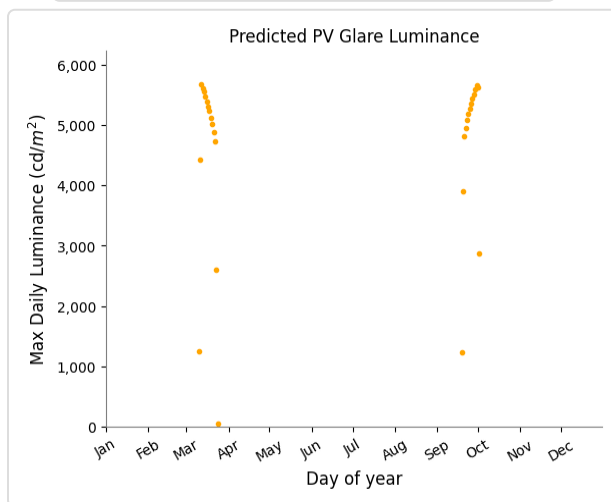
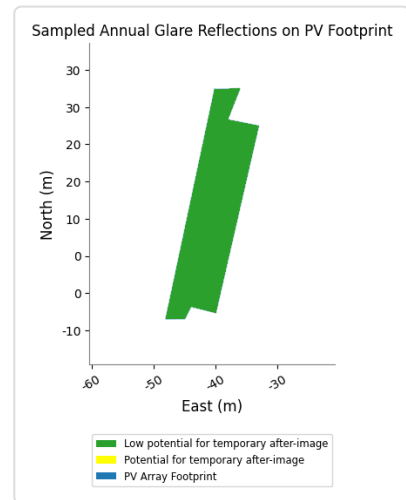
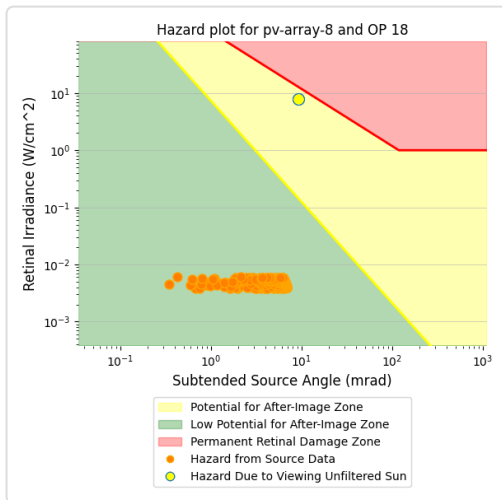
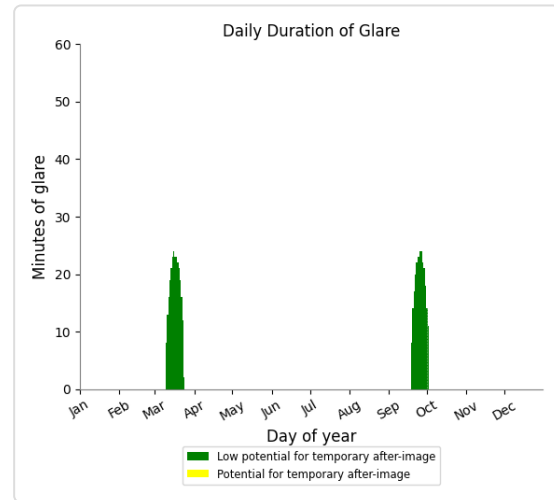
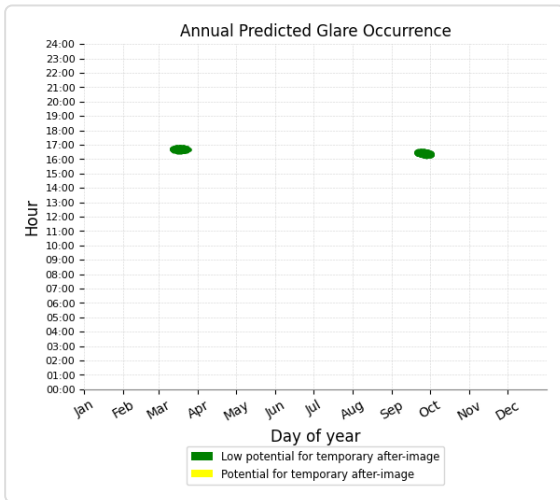
Green glare: 756 min.



PV array 8 and OP 18

Yellow glare: none

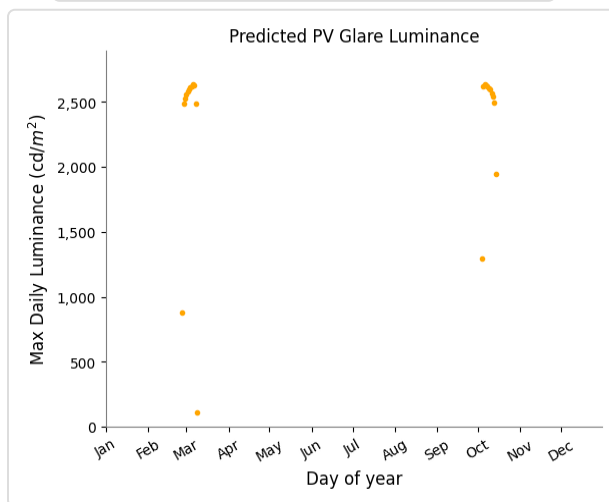
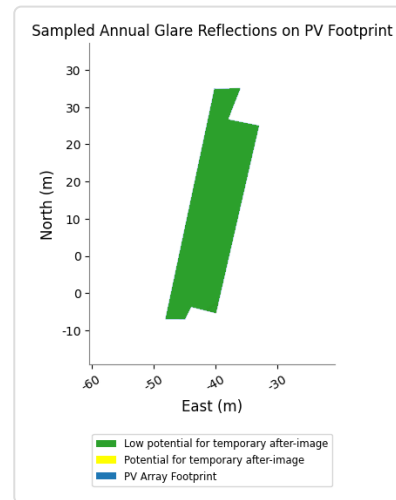
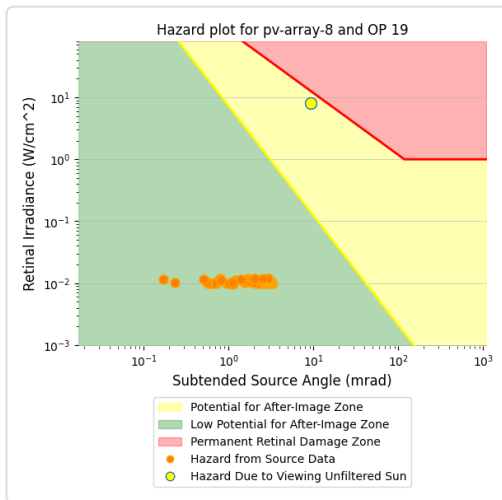
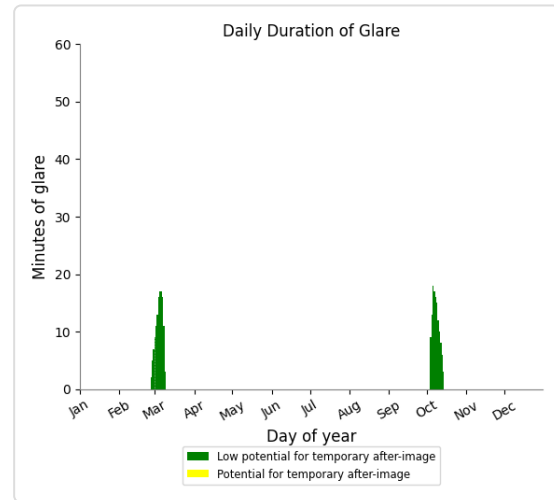
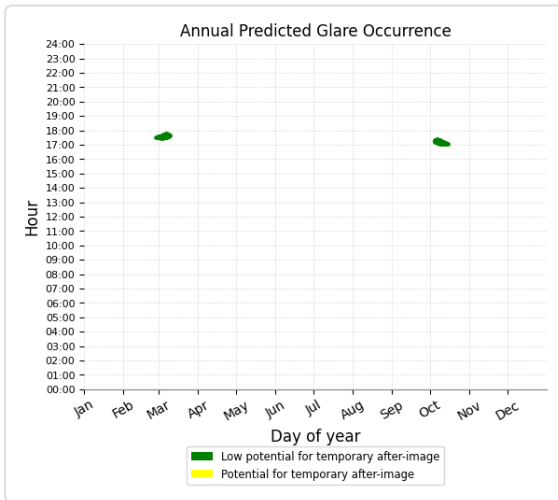
Green glare: 523 min.



PV array 8 and OP 19

Yellow glare: none

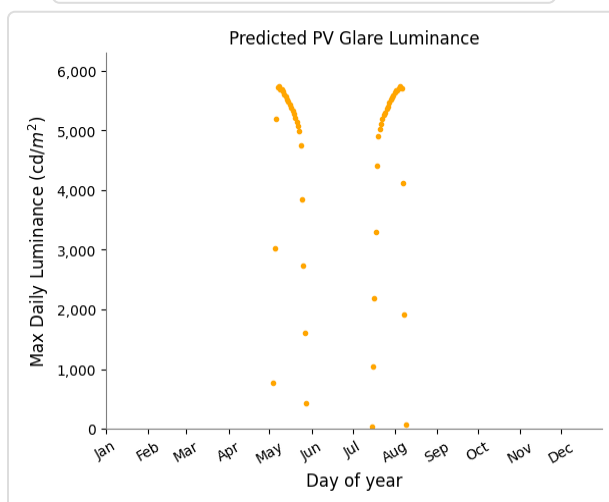
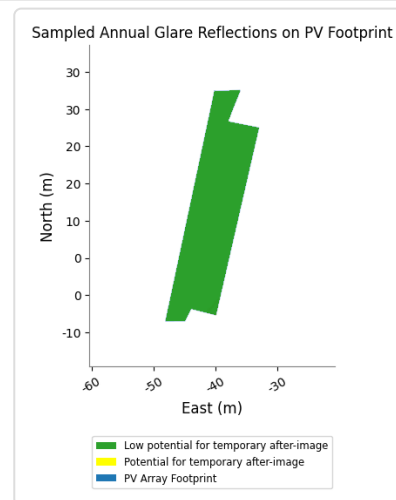
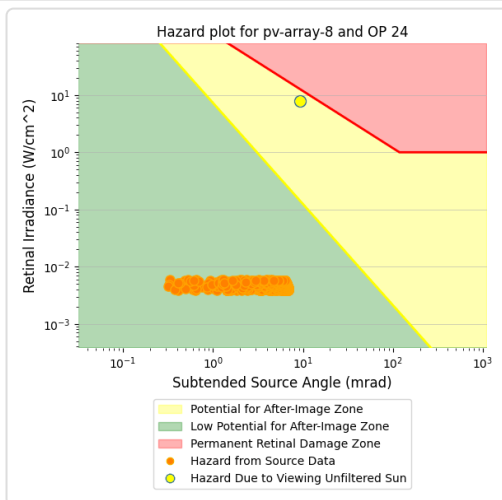
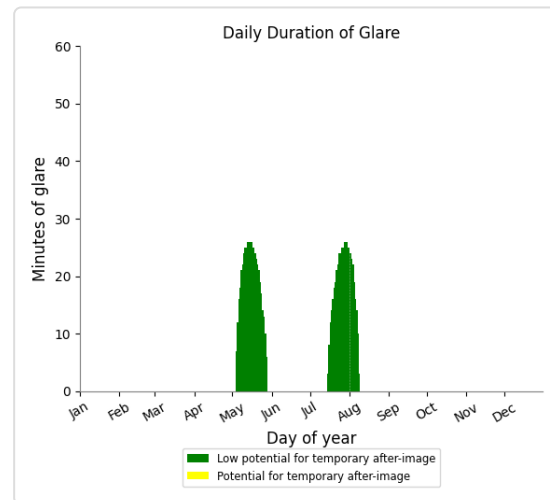
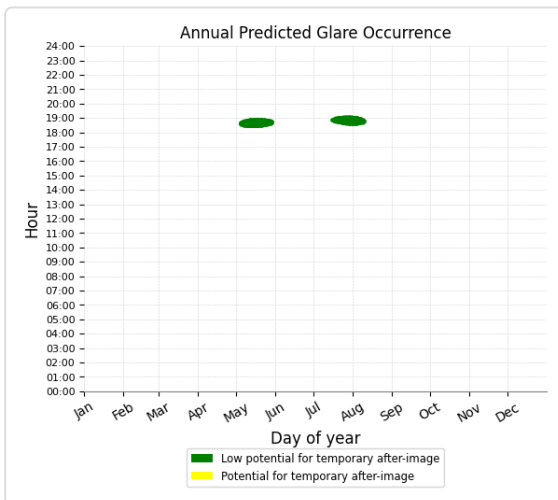
Green glare: 254 min.



PV array 8 and OP 24

Yellow glare: none

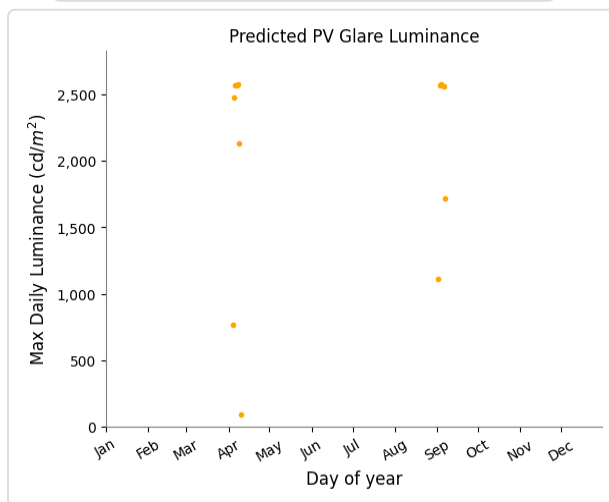
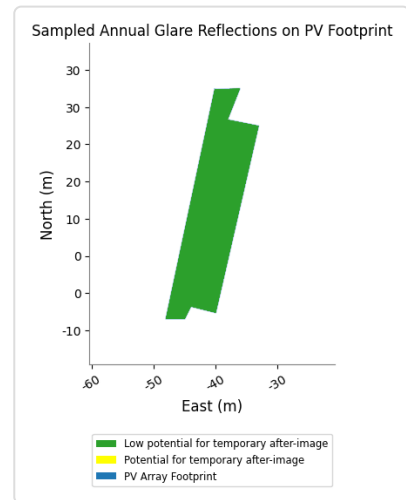
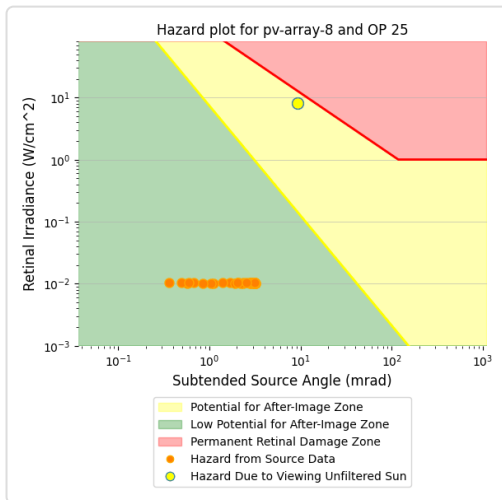
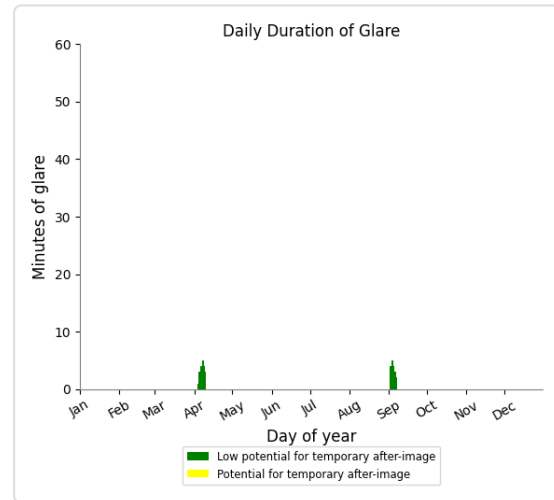
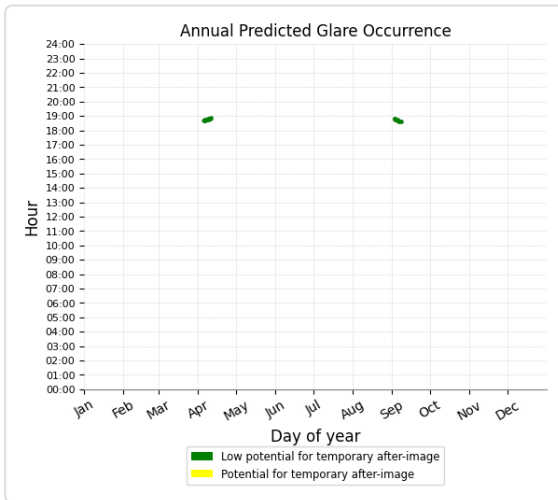
Green glare: 983 min.



PV array 8 and OP 25

Yellow glare: none

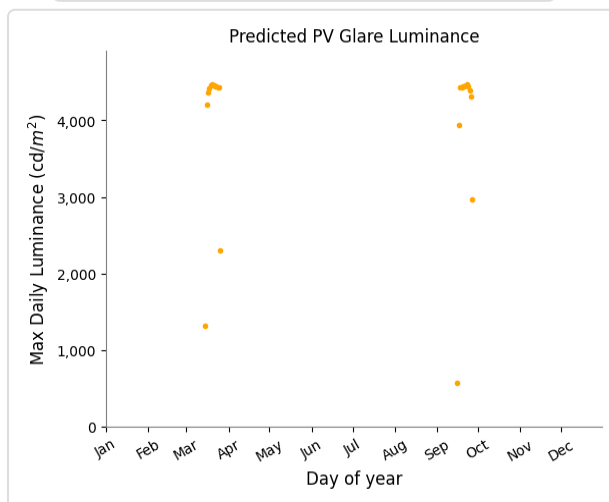
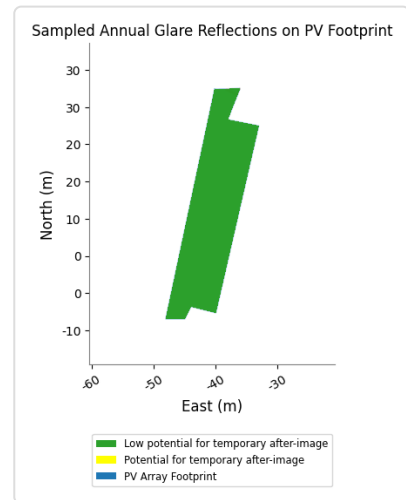
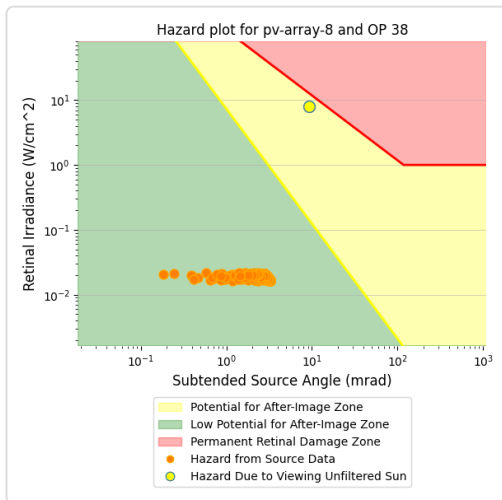
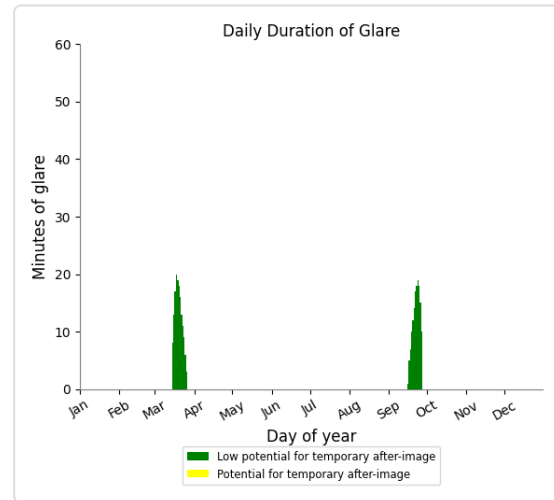
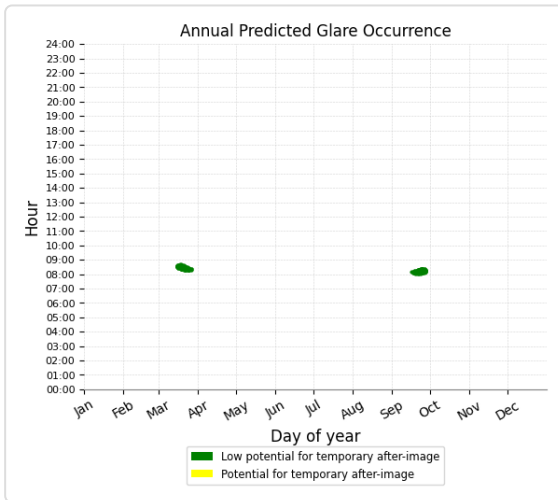
Green glare: 46 min.



PV array 8 and OP 38

Yellow glare: none

Green glare: 299 min.



PV array 8 and 1-ATCT

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 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 array 8 and OP 31

No glare found

PV array 8 and OP 32

No glare found

PV array 8 and OP 33

No glare found

PV array 8 and OP 34

No glare found

PV array 8 and OP 35

No glare found

PV array 8 and OP 36

No glare found

PV array 8 and OP 37

No glare found

PV array 8 and OP 39

No glare found

PV array 8 and OP 40

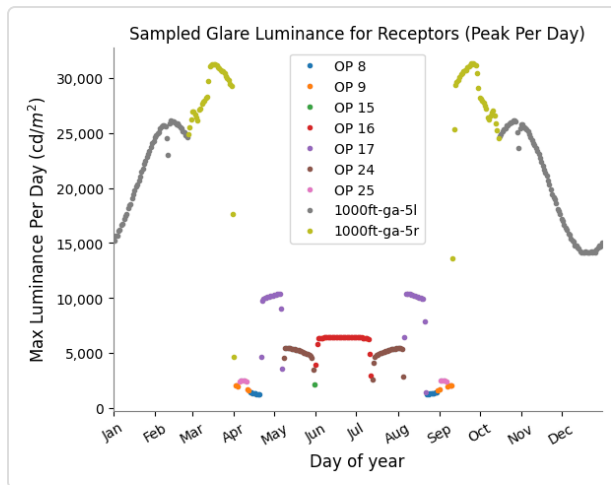
No glare found

PV: PV array 9 low potential for temporary after-image

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare		Peak Luminance
	min	hr	min	hr	cd/m ²
1000Ft-GA_5L23R_05L-R_23R-L	6,285	104.8	0	0.0	26,122
1000Ft-GA_5R23L_05R-R_23L-L	2,473	41.2	0	0.0	31,311
1500Ft-CA_5L23R_05L-R_23R-L	6,244	104.1	0	0.0	3,456
1000Ft-GA_5L23R_05L-L_23R-R	0	0.0	0	0.0	0
1000Ft-GA_5R23L_05R-L_23L-R	0	0.0	0	0.0	0
1500Ft-CA_5L23R_05L-L_23R-R	0	0.0	0	0.0	0
Approach_05L	0	0.0	0	0.0	0
Approach_05R	0	0.0	0	0.0	0
Approach_23L	0	0.0	0	0.0	0
Approach_23R	0	0.0	0	0.0	0
OP 2	420	7.0	0	0.0	1,259
OP 3	446	7.4	0	0.0	1,792
OP 4	520	8.7	0	0.0	2,525
OP 5	747	12.4	0	0.0	3,097
OP 6	1,414	23.6	0	0.0	2,518
OP 7	1,106	18.4	0	0.0	1,501
OP 8	465	7.8	0	0.0	1,449
OP 9	457	7.6	0	0.0	2,097
OP 10	463	7.7	0	0.0	3,010
OP 11	537	8.9	0	0.0	4,407
OP 12	662	11.0	0	0.0	4,007
OP 13	634	10.6	0	0.0	2,046
OP 14	1,306	21.8	0	0.0	1,570
OP 15	1,315	21.9	0	0.0	2,173
OP 16	890	14.8	0	0.0	6,473
OP 17	754	12.6	0	0.0	10,387
OP 18	489	8.2	0	0.0	5,410
OP 19	256	4.3	0	0.0	2,534
OP 24	946	15.8	0	0.0	5,462
OP 25	58	1.0	0	0.0	2,474
OP 38	262	4.4	0	0.0	4,143
1-ATCT	0	0.0	0	0.0	0
OP 20	0	0.0	0	0.0	0
OP 21	0	0.0	0	0.0	0
OP 22	0	0.0	0	0.0	0
OP 23	0	0.0	0	0.0	0
OP 26	0	0.0	0	0.0	0
OP 27	0	0.0	0	0.0	0

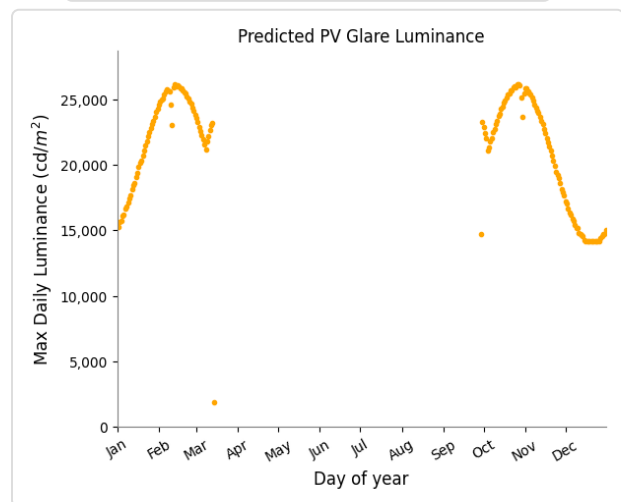
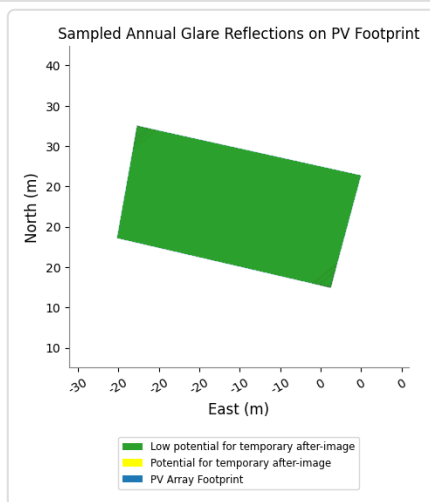
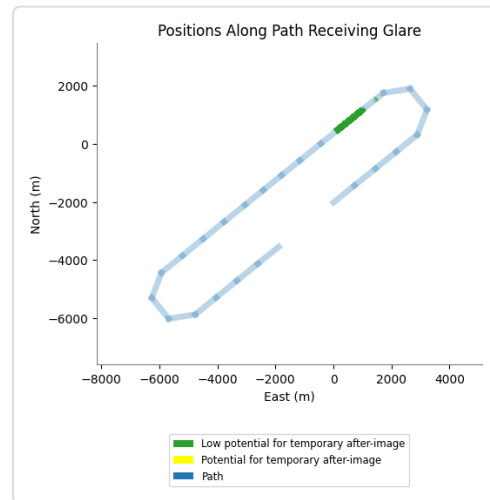
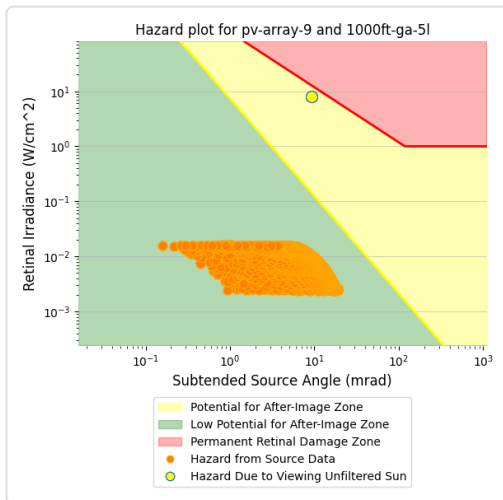
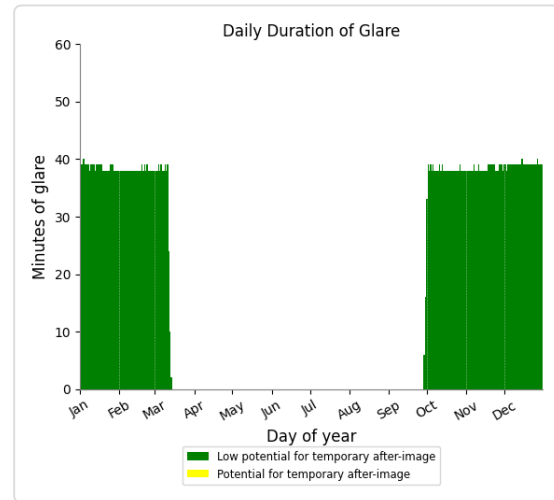
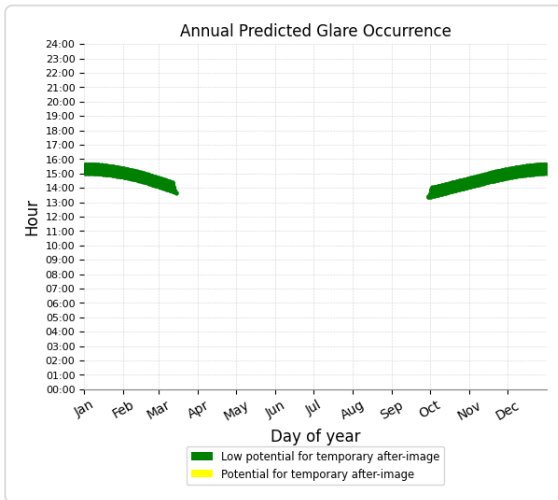
Receptor	Annual Green Glare		Annual Yellow Glare		Peak Luminance
	min	hr	min	hr	cd/m ²
OP 28	0	0.0	0	0.0	0
OP 29	0	0.0	0	0.0	0
OP 30	0	0.0	0	0.0	0
OP 31	0	0.0	0	0.0	0
OP 32	0	0.0	0	0.0	0
OP 33	0	0.0	0	0.0	0
OP 34	0	0.0	0	0.0	0
OP 35	0	0.0	0	0.0	0
OP 36	0	0.0	0	0.0	0
OP 37	0	0.0	0	0.0	0
OP 39	0	0.0	0	0.0	0
OP 40	0	0.0	0	0.0	0



PV array 9 and Route: 1000Ft-GA_5L23R_05L-R_23R-L

Yellow glare: none

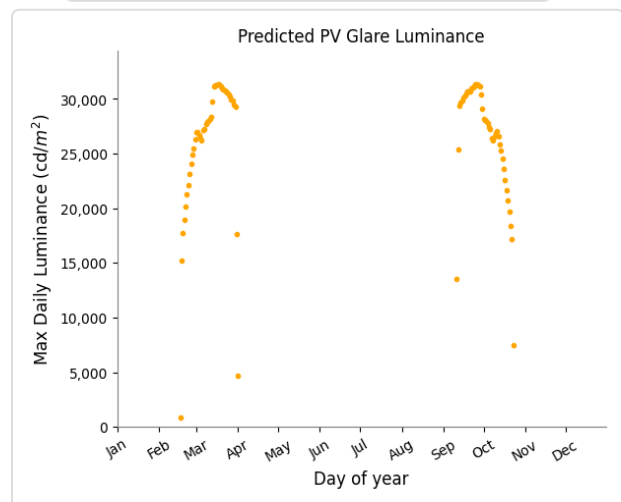
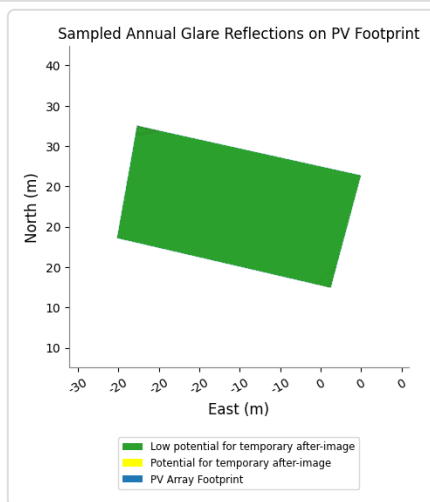
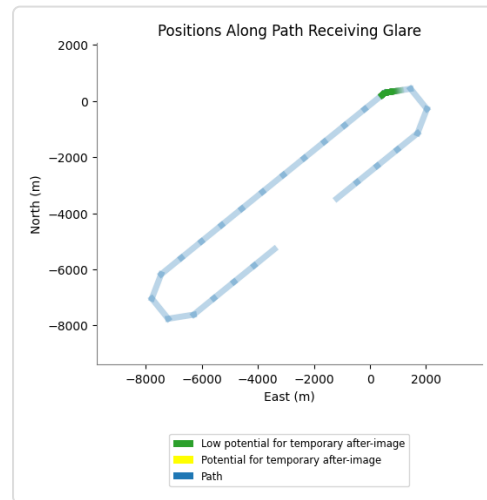
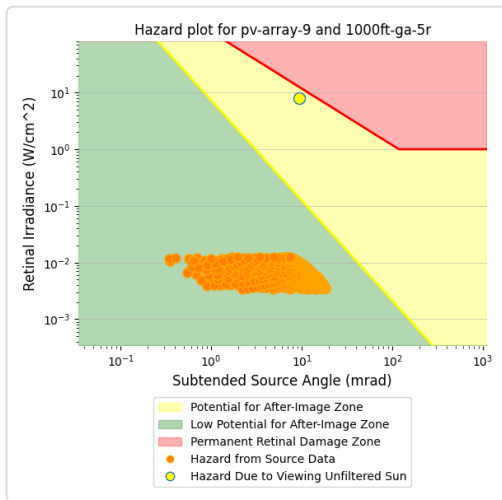
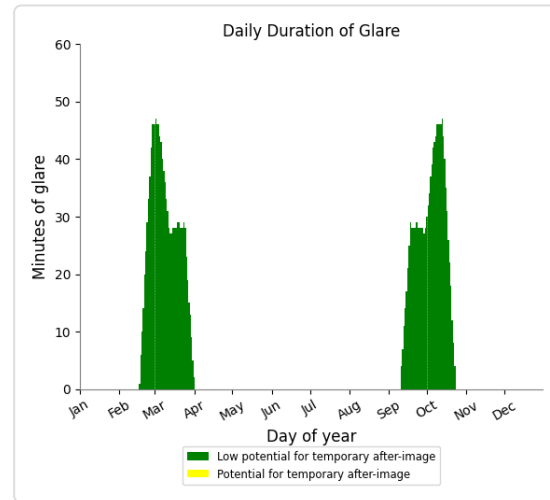
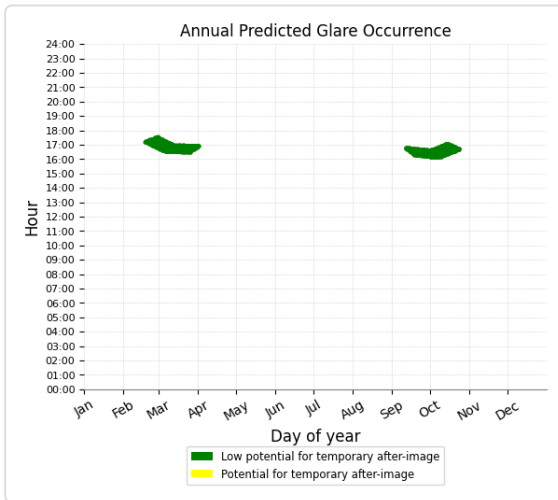
Green glare: 6,285 min.



PV array 9 and Route: 1000Ft-GA_5R23L_05R-R_23L-L

Yellow glare: none

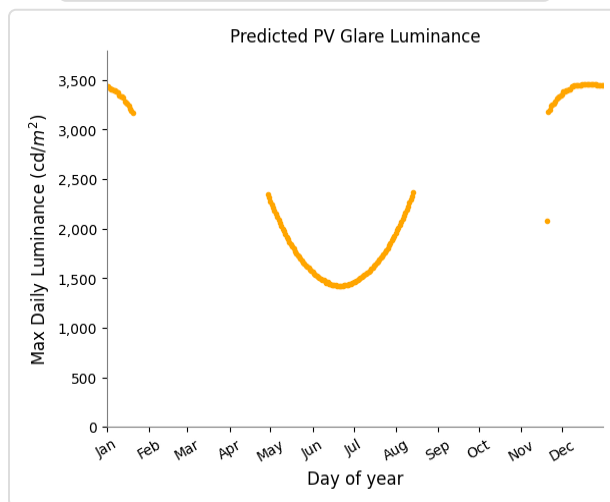
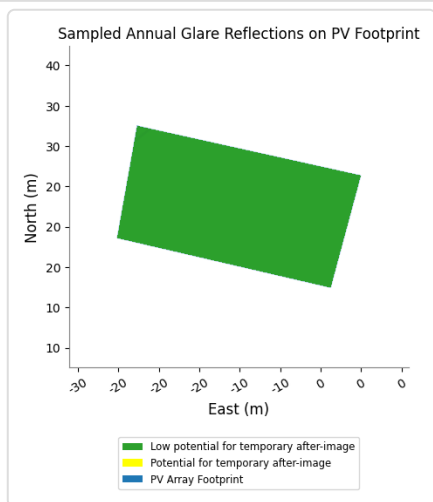
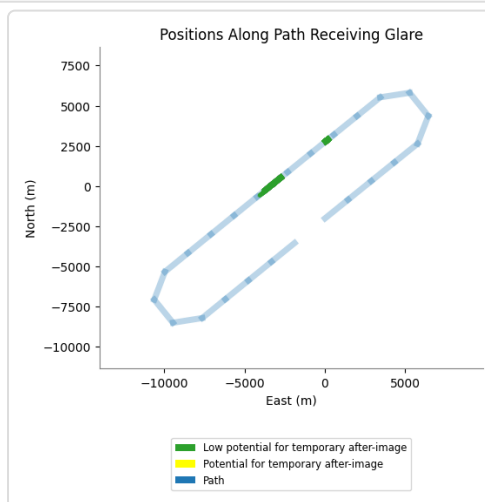
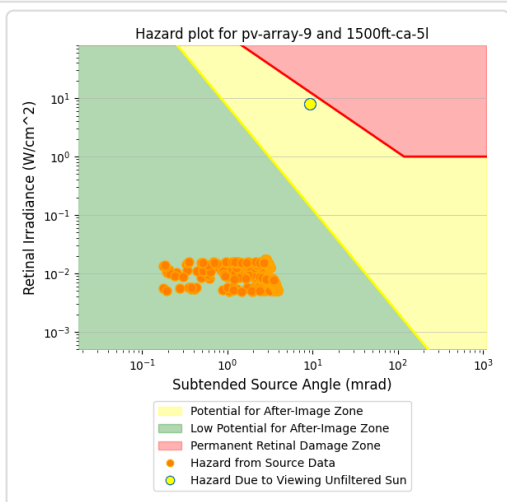
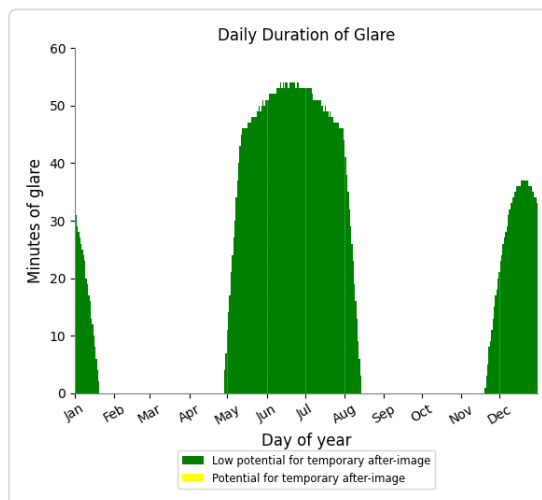
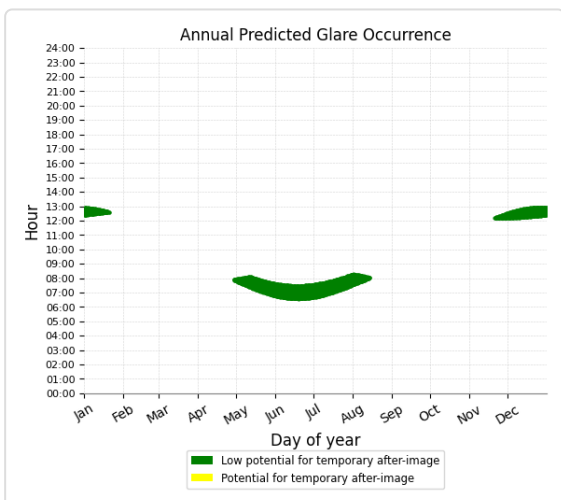
Green glare: 2,473 min.



PV array 9 and Route: 1500Ft-CA_5L23R_05L-R_23R-L

Yellow glare: none

Green glare: 6,244 min.



PV array 9 and Route: 1000Ft-GA_5L23R_05L-L_23R-R

No glare found

PV array 9 and Route: 1000Ft-GA_5R23L_05R-L_23L-R

No glare found

PV array 9 and Route: 1500Ft-CA_5L23R_05L-L_23R-R

No glare found

PV array 9 and Route: Approach_05L

No glare found

PV array 9 and Route: Approach_05R

No glare found

PV array 9 and Route: Approach_23L

No glare found

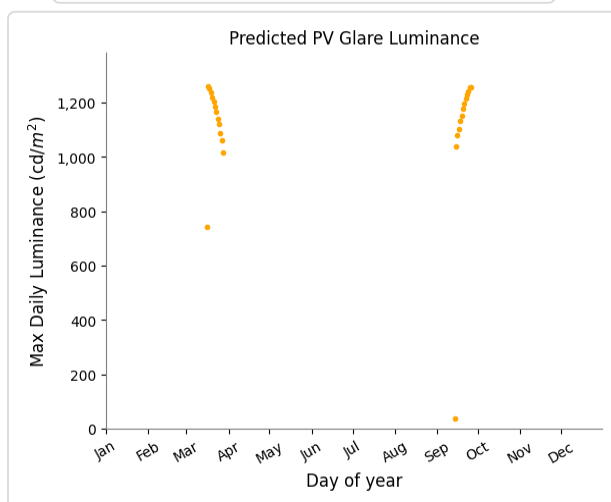
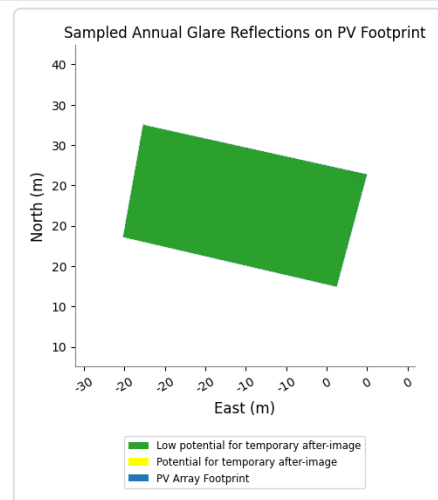
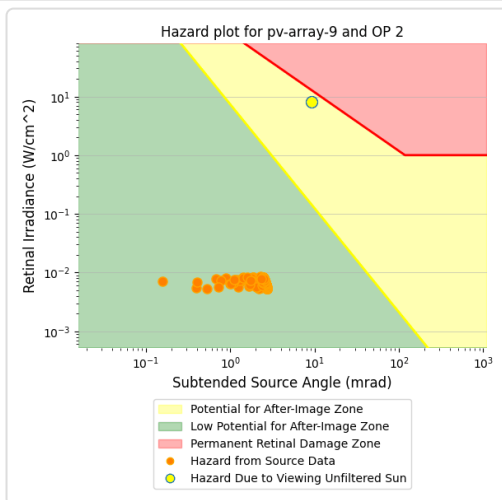
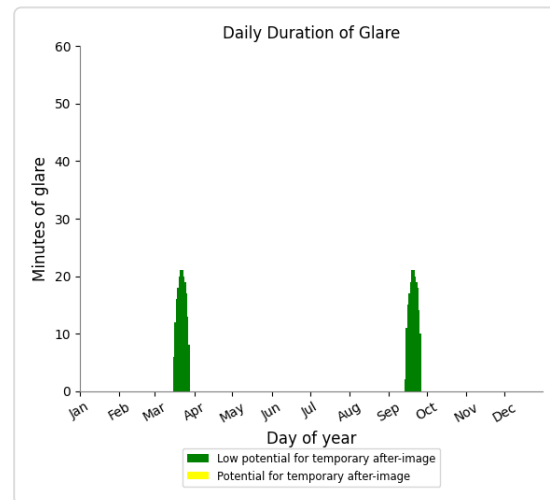
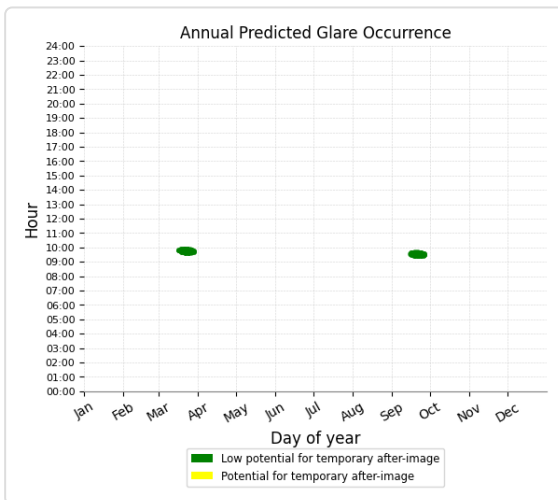
PV array 9 and Route: Approach_23R

No glare found

PV array 9 and OP 2

Yellow glare: none

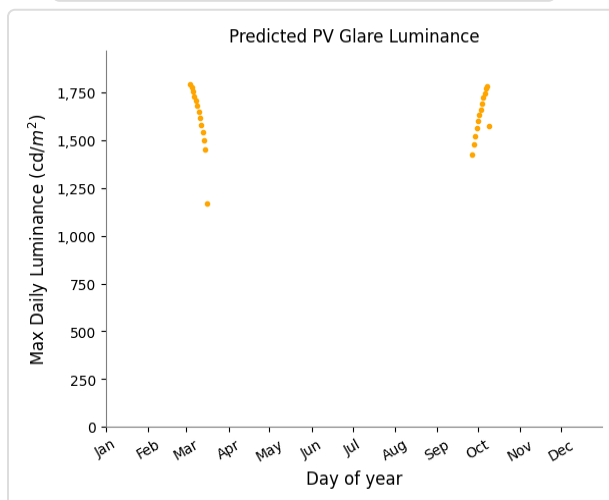
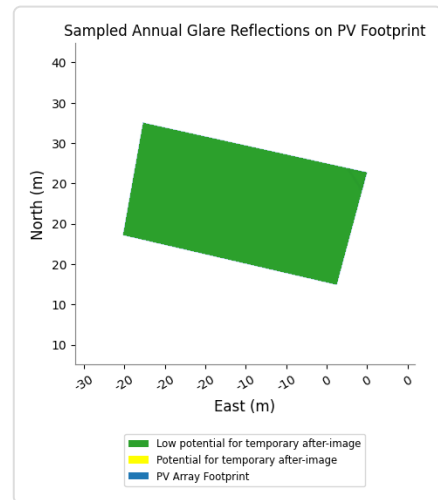
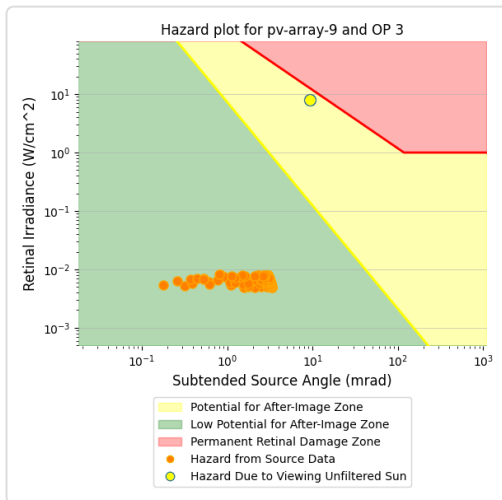
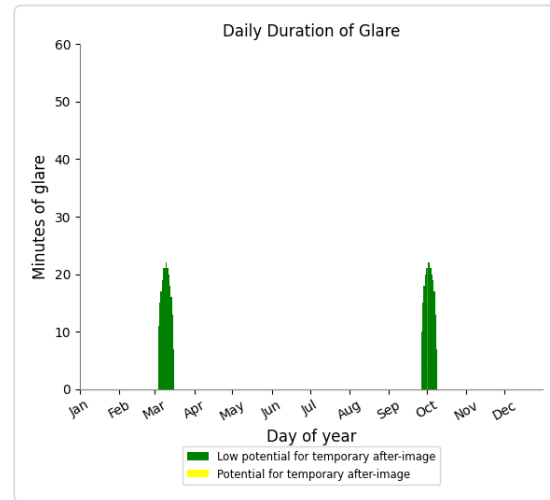
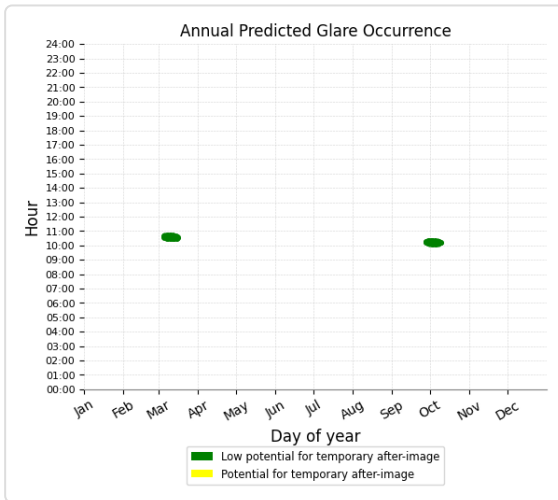
Green glare: 420 min.



PV array 9 and OP 3

Yellow glare: none

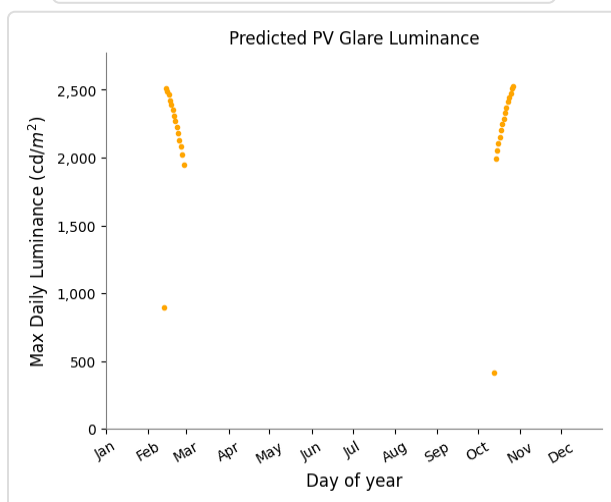
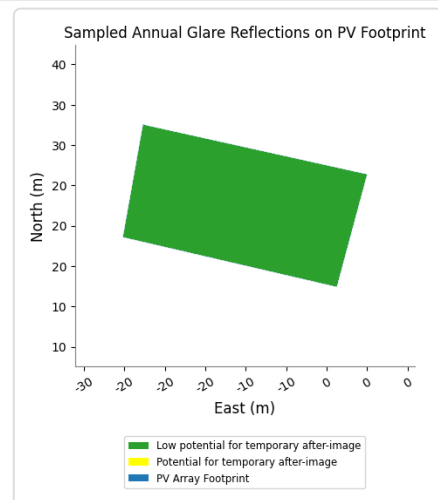
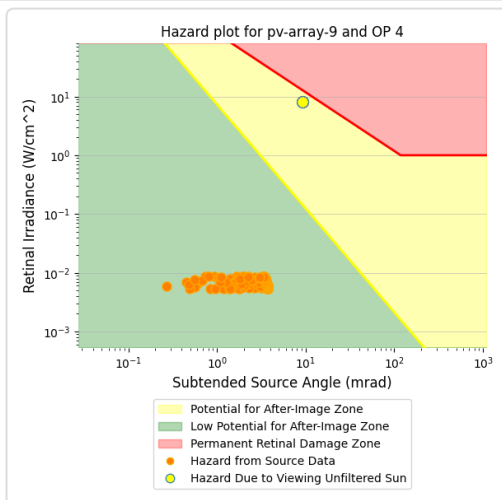
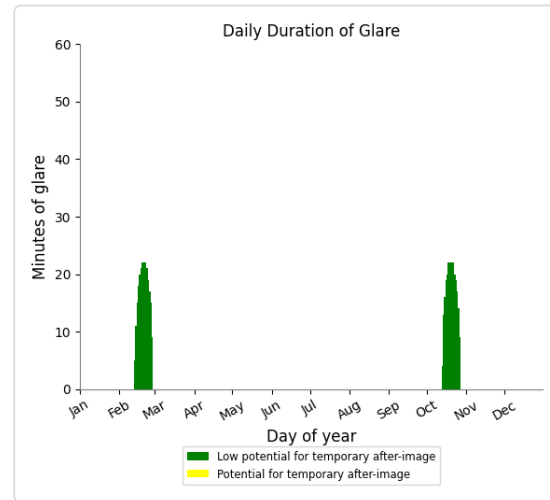
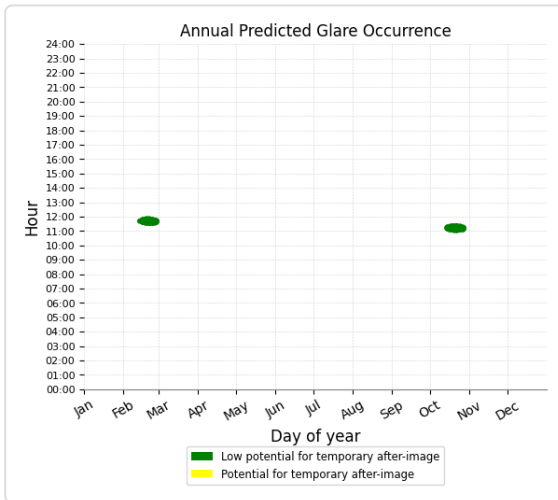
Green glare: 446 min.



PV array 9 and OP 4

Yellow glare: none

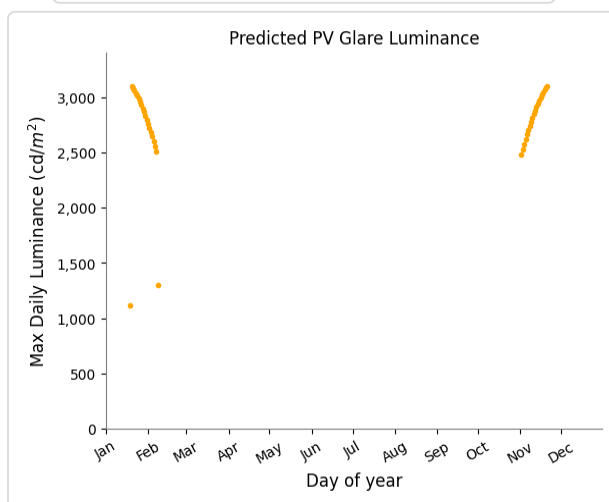
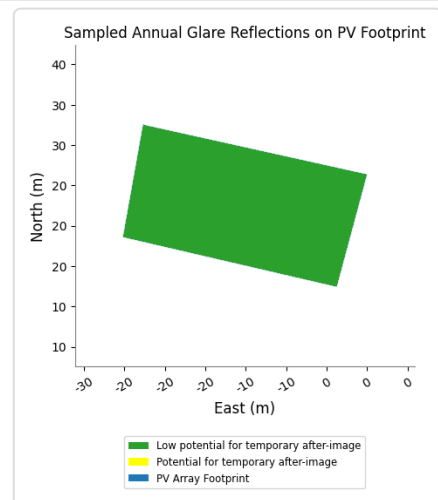
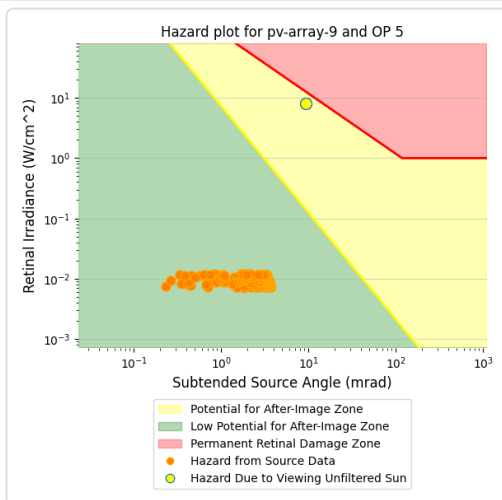
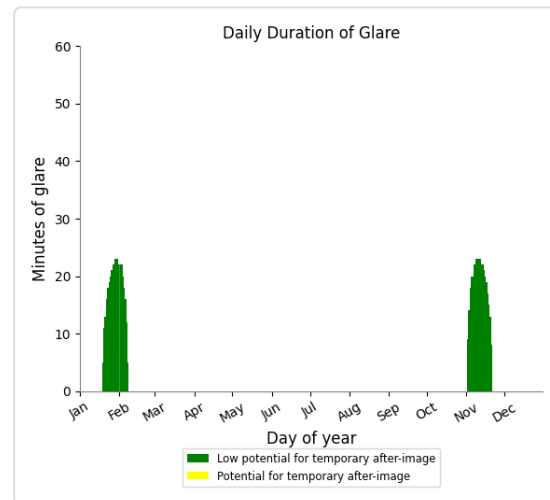
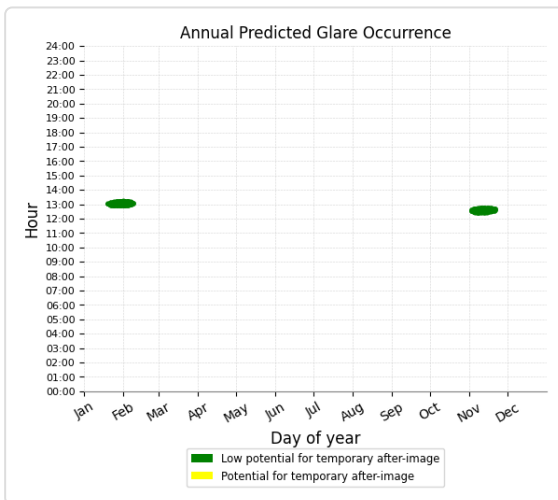
Green glare: 520 min.



PV array 9 and OP 5

Yellow glare: none

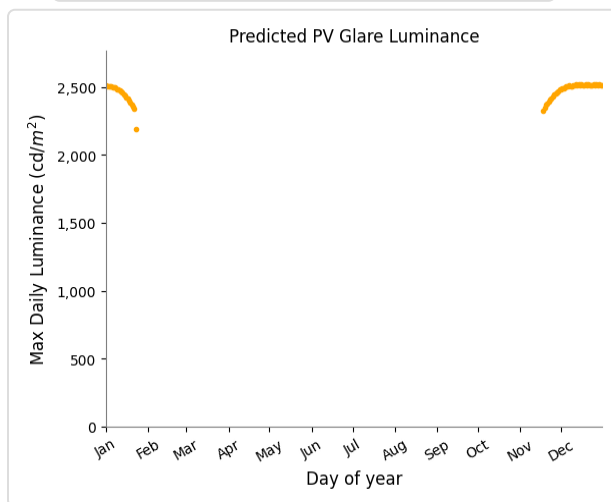
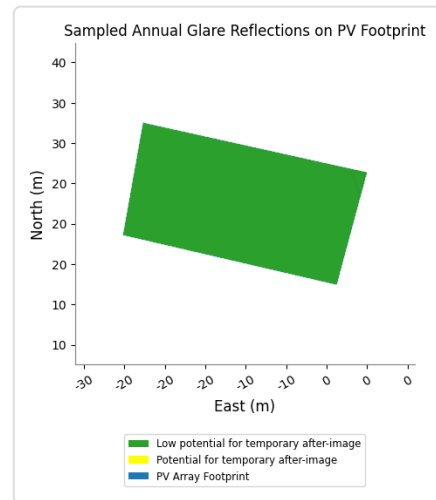
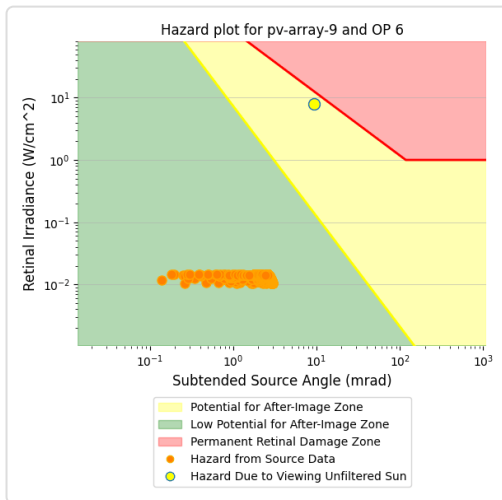
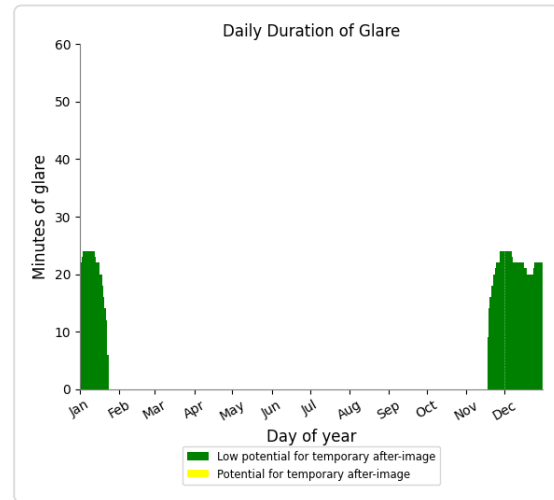
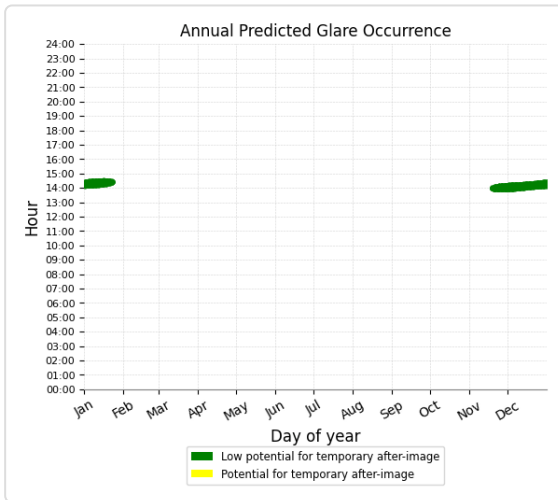
Green glare: 747 min.



PV array 9 and OP 6

Yellow glare: none

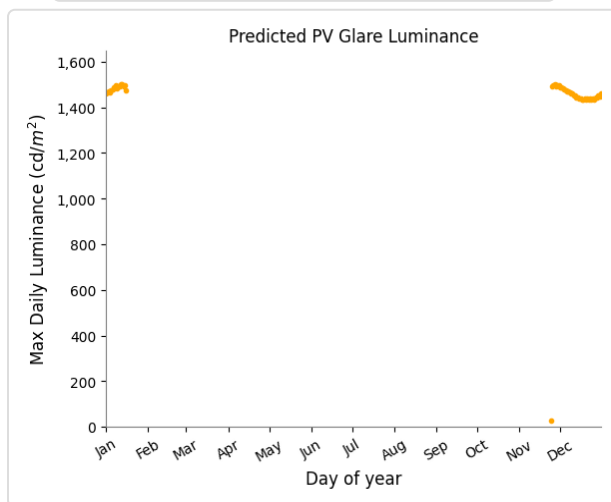
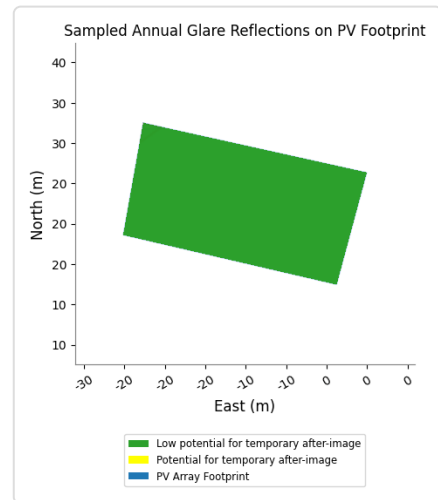
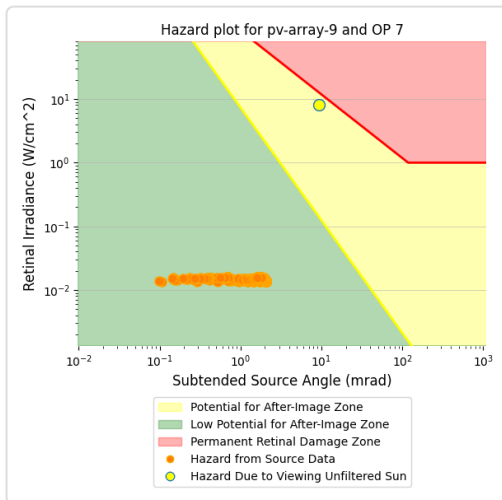
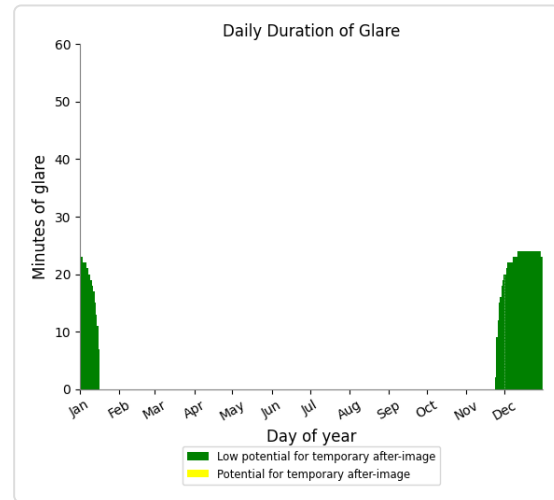
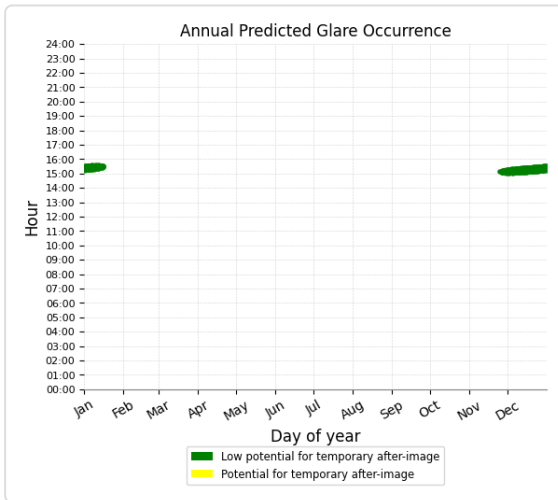
Green glare: 1,414 min.



PV array 9 and OP 7

Yellow glare: none

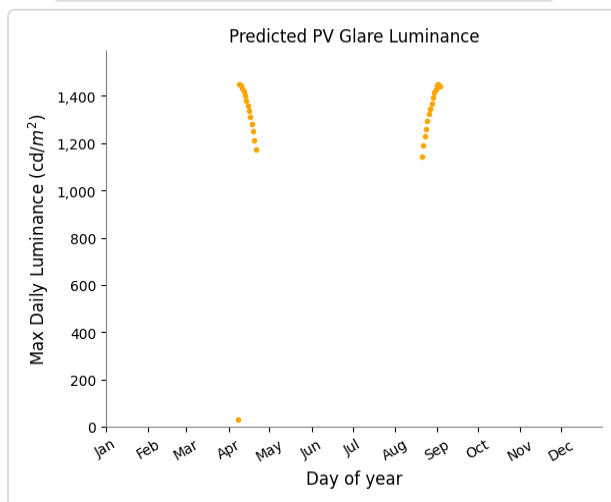
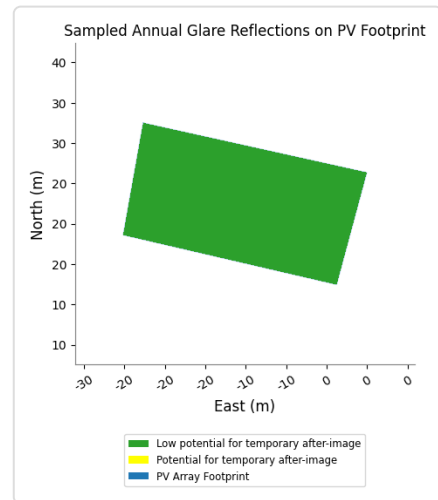
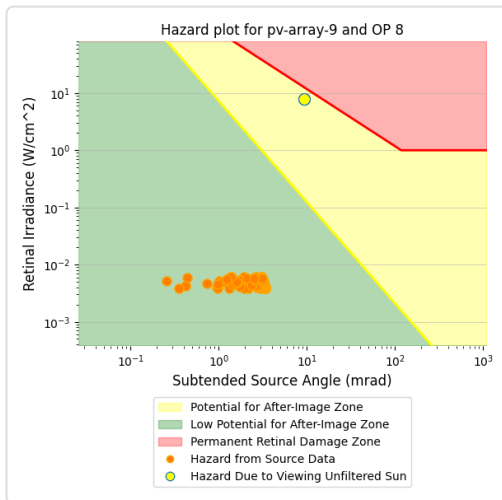
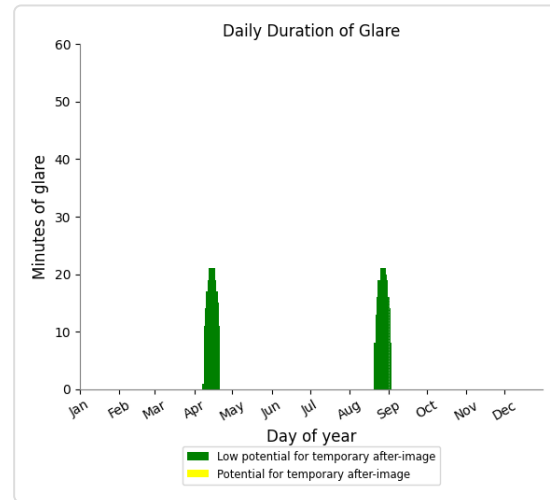
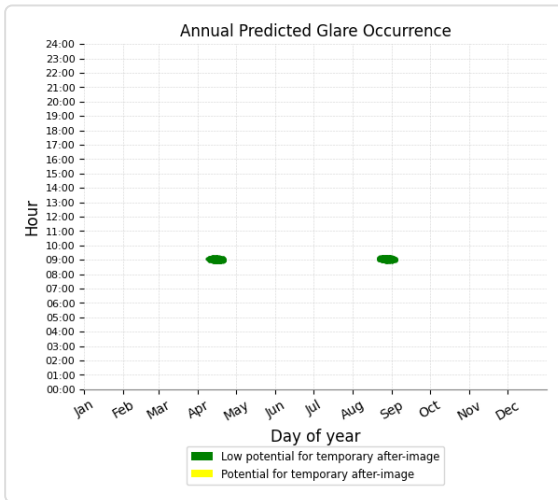
Green glare: 1,106 min.



PV array 9 and OP 8

Yellow glare: none

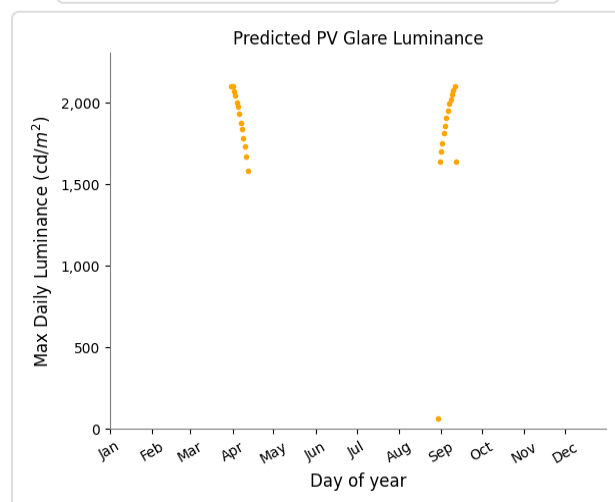
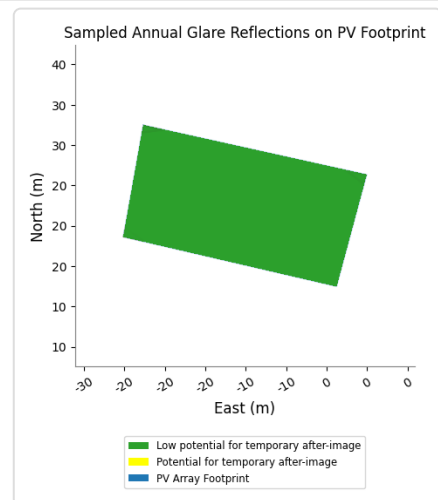
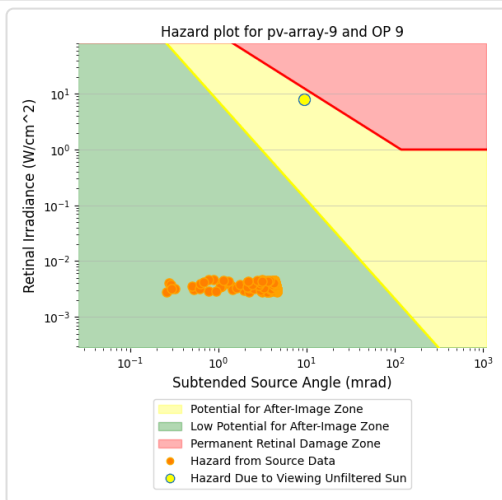
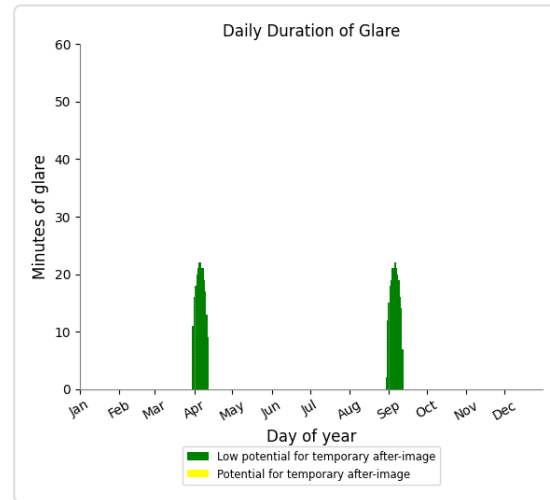
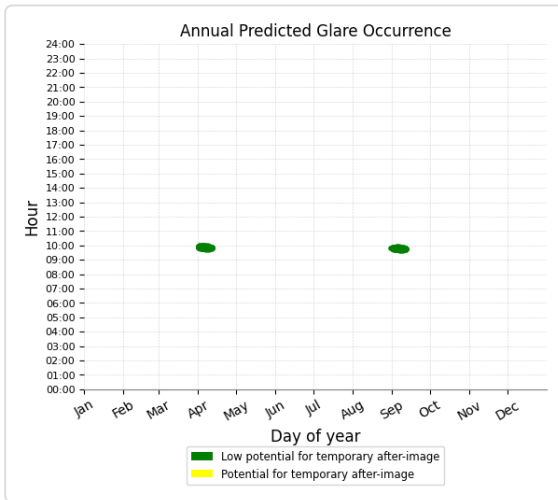
Green glare: 465 min.



PV array 9 and OP 9

Yellow glare: none

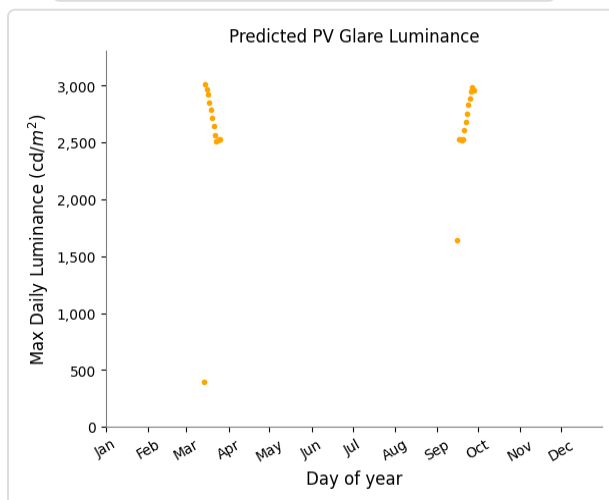
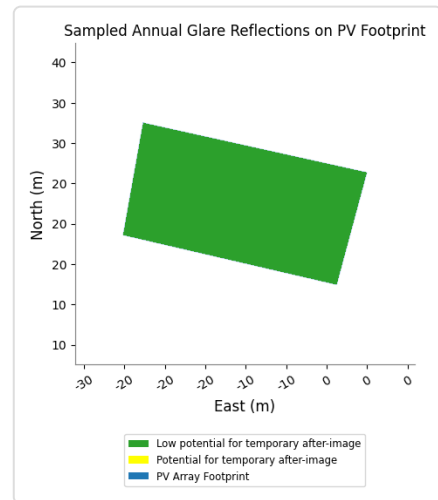
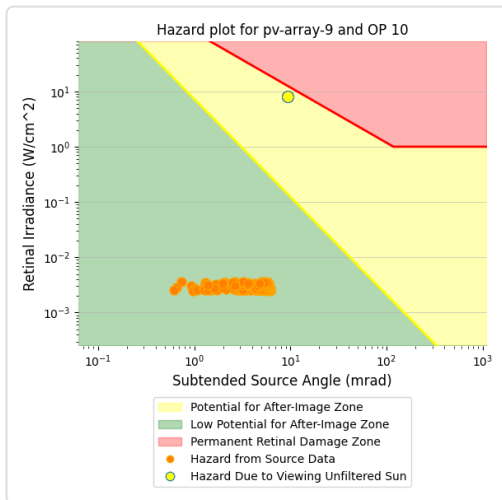
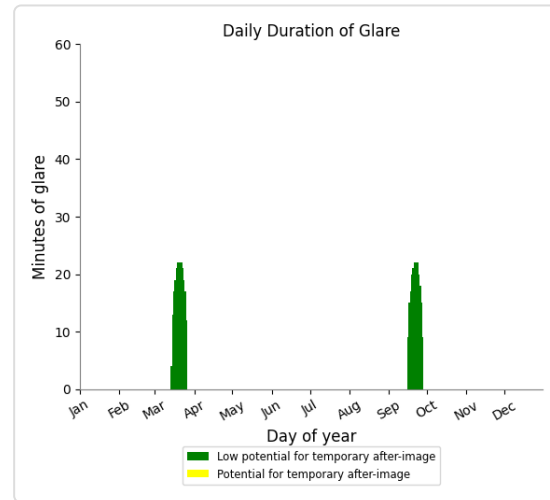
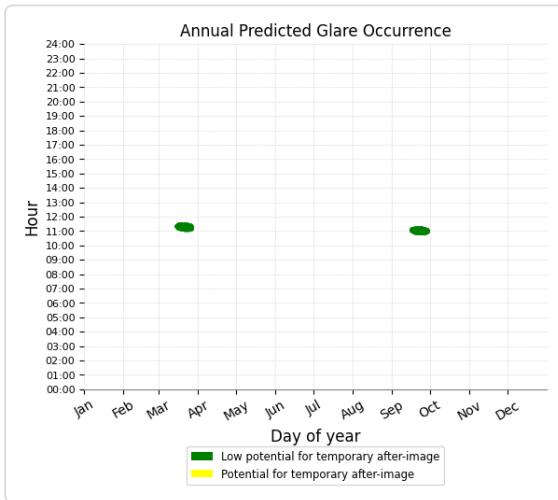
Green glare: 457 min.



PV array 9 and OP 10

Yellow glare: none

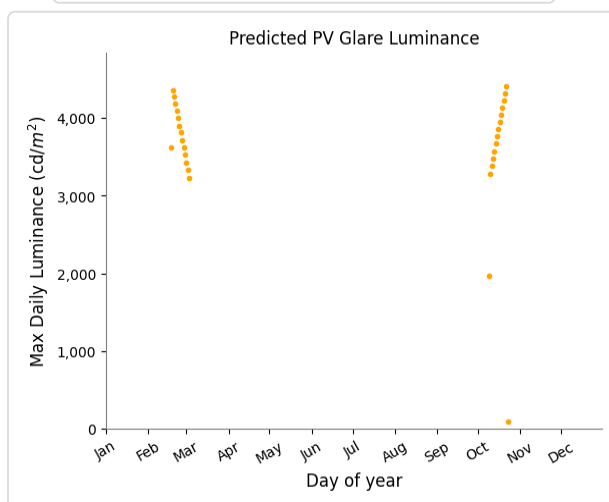
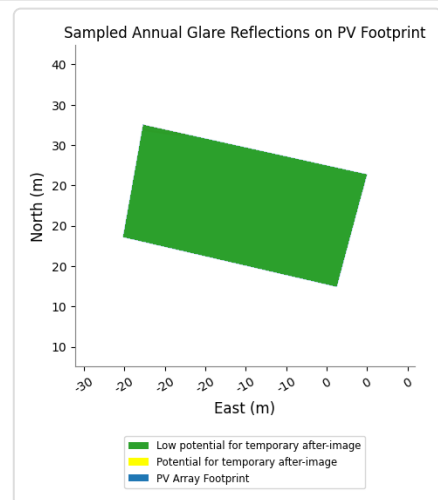
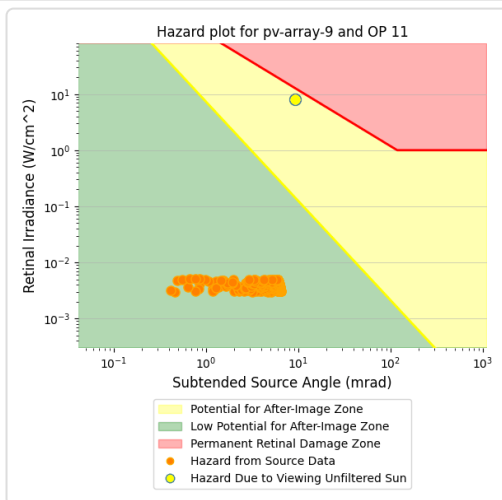
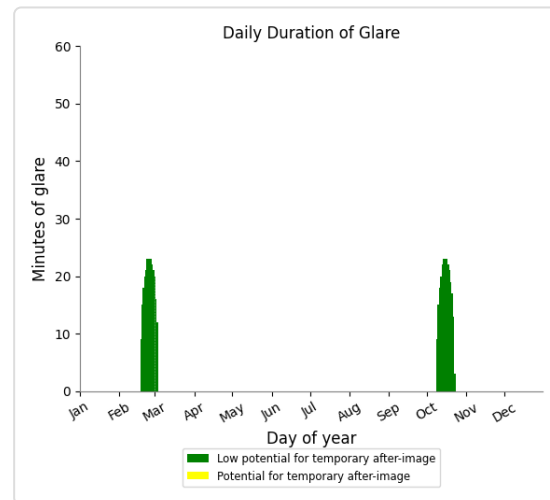
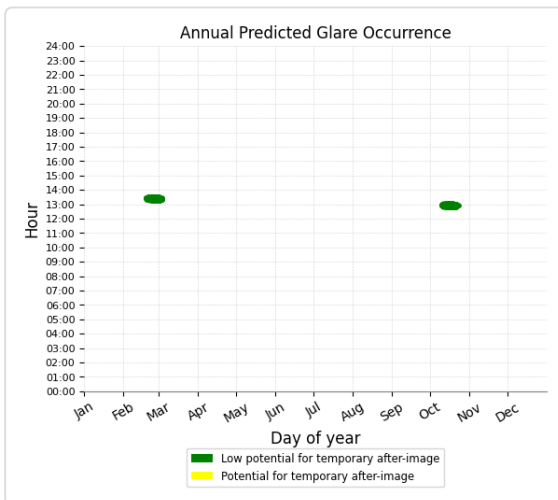
Green glare: 463 min.



PV array 9 and OP 11

Yellow glare: none

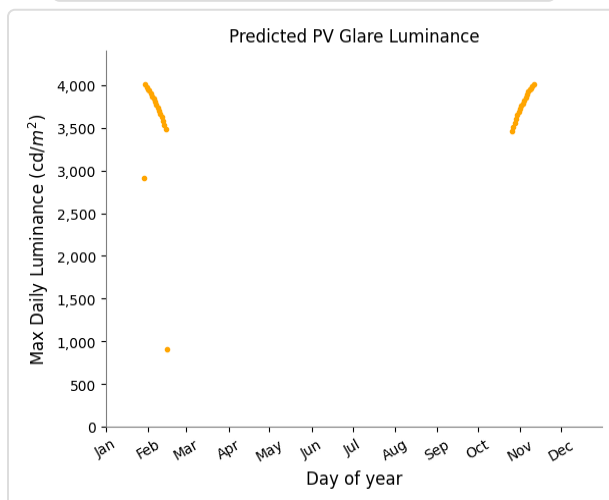
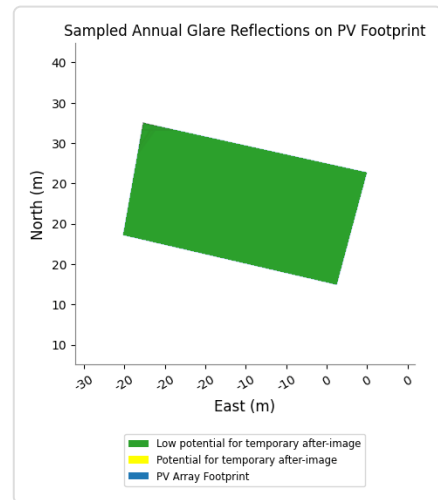
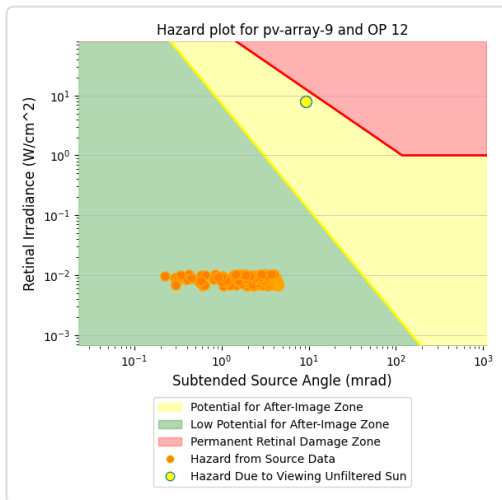
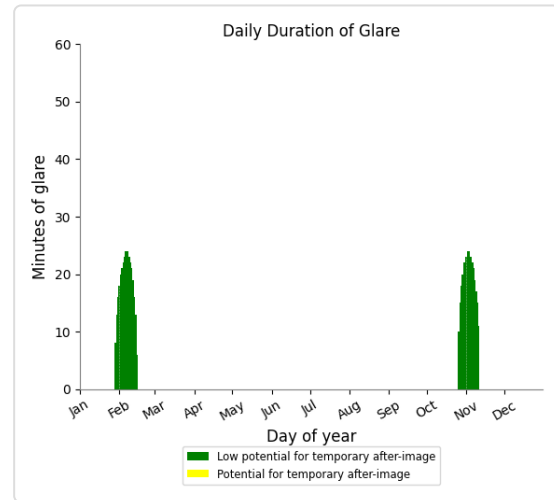
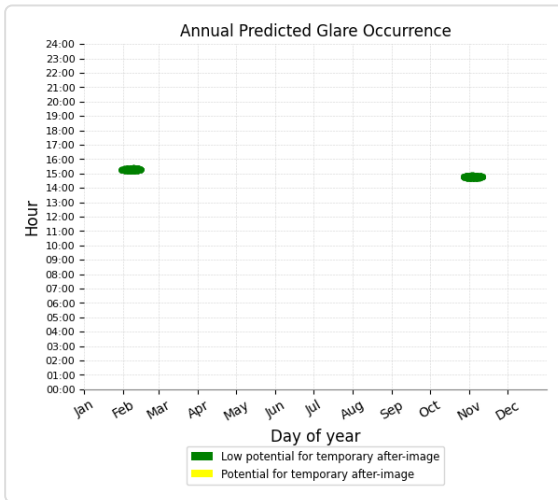
Green glare: 537 min.



PV array 9 and OP 12

Yellow glare: none

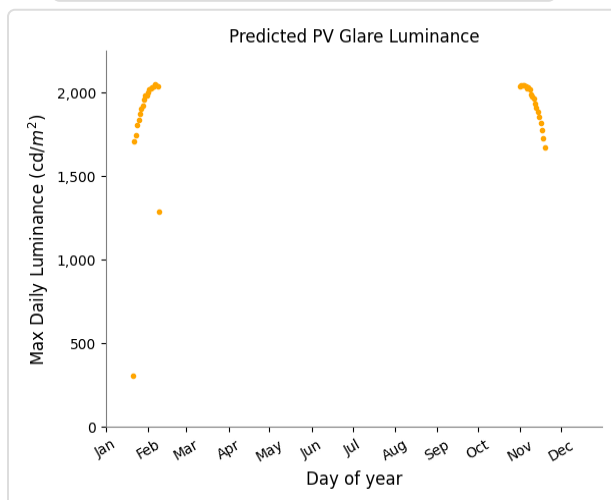
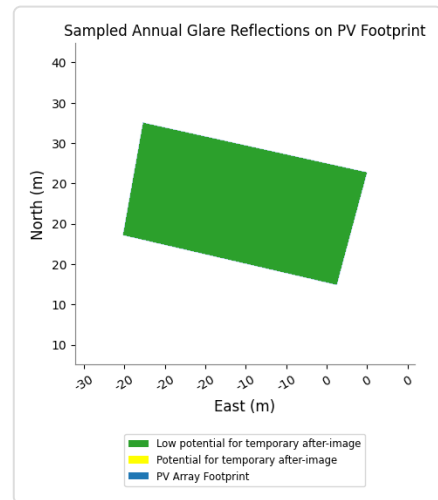
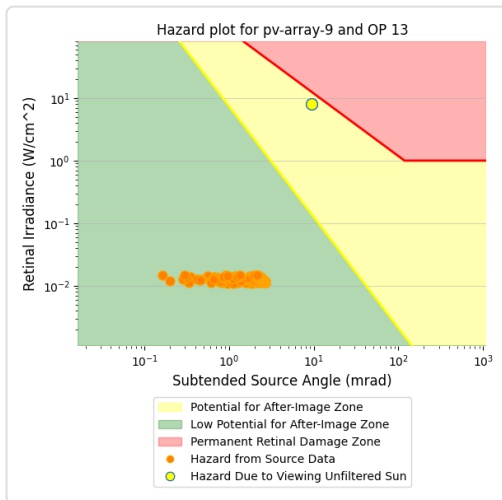
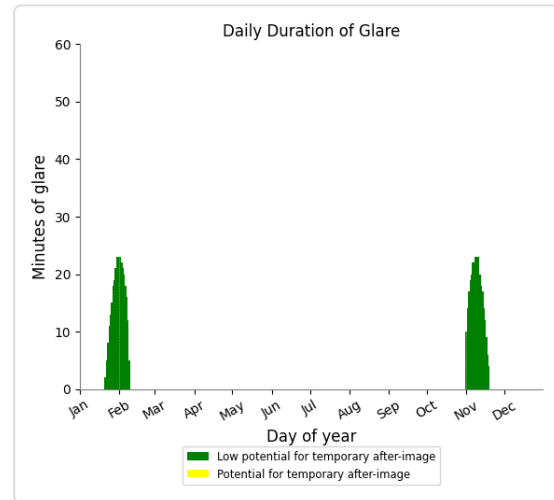
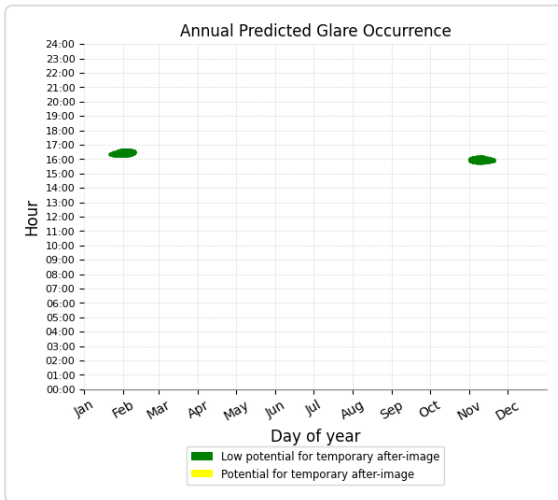
Green glare: 662 min.



PV array 9 and OP 13

Yellow glare: none

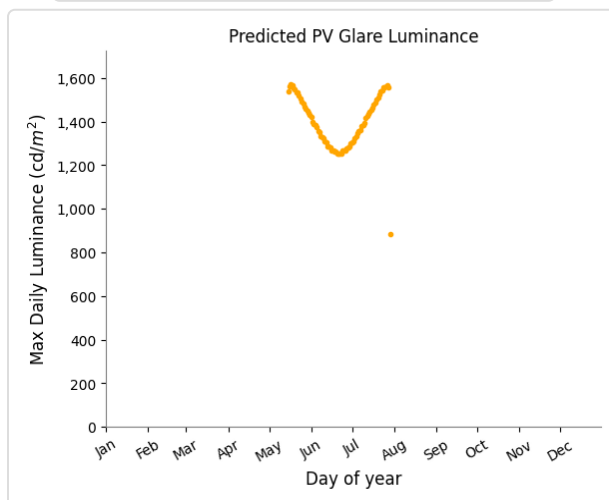
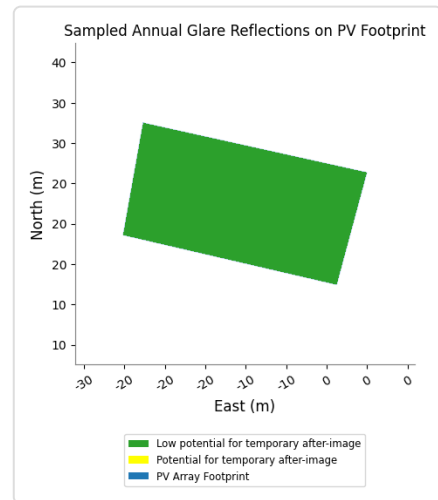
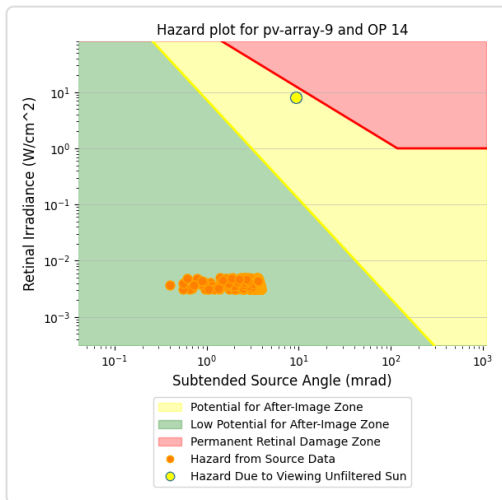
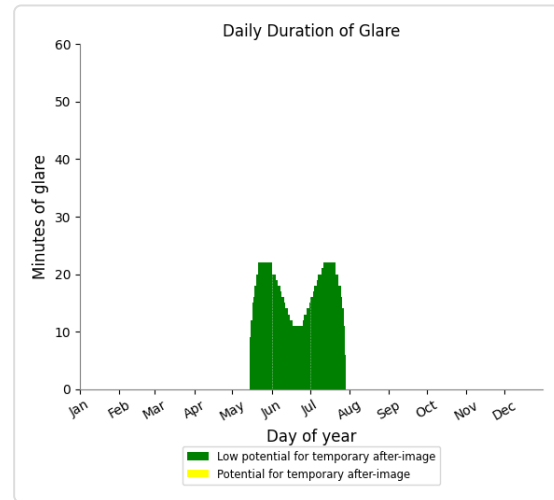
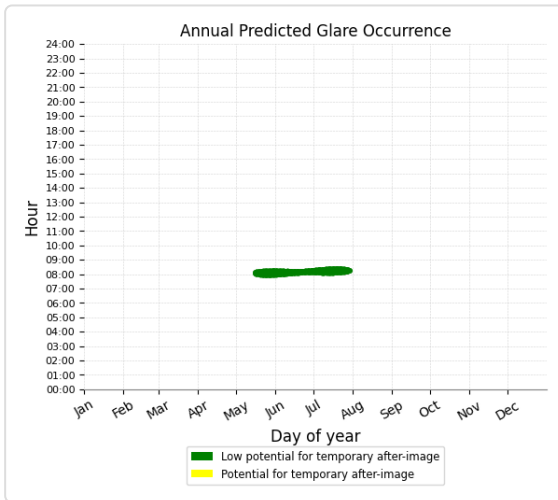
Green glare: 634 min.



PV array 9 and OP 14

Yellow glare: none

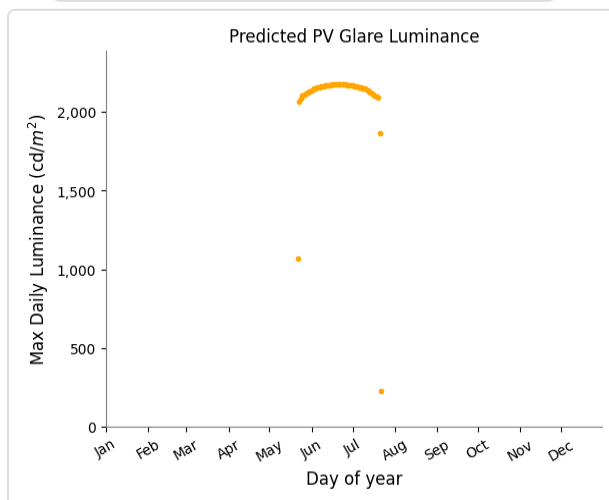
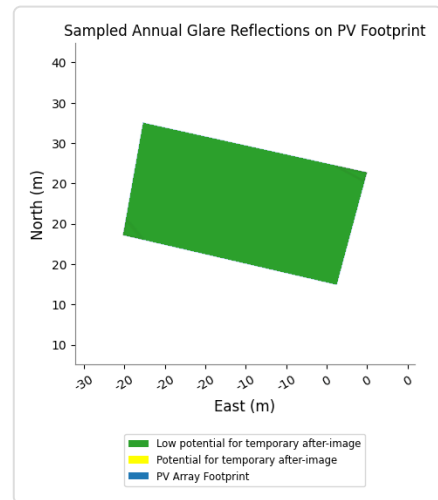
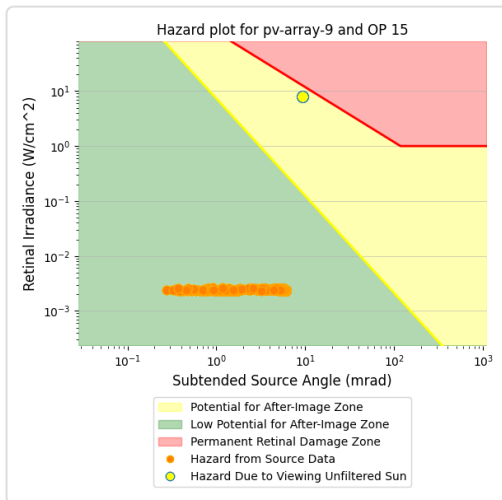
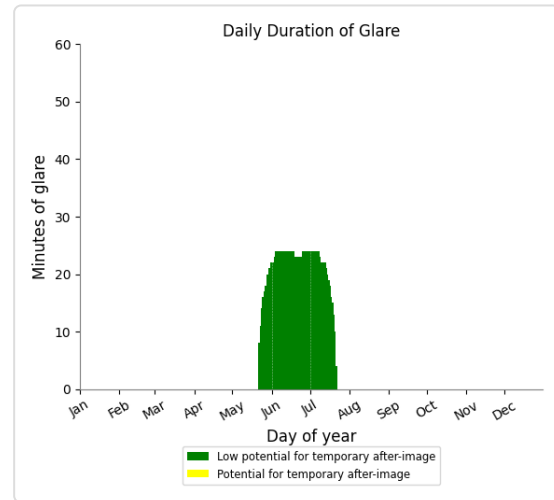
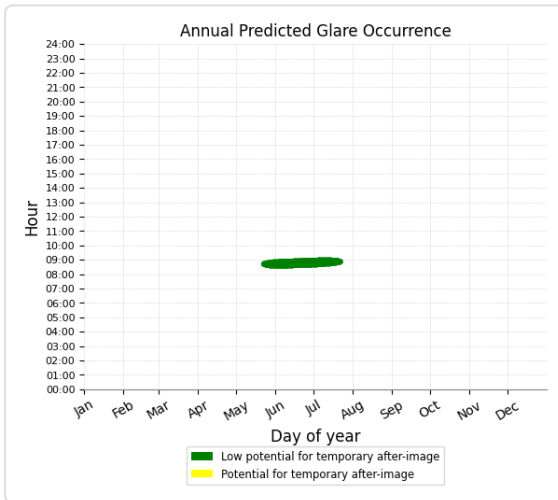
Green glare: 1,306 min.



PV array 9 and OP 15

Yellow glare: none

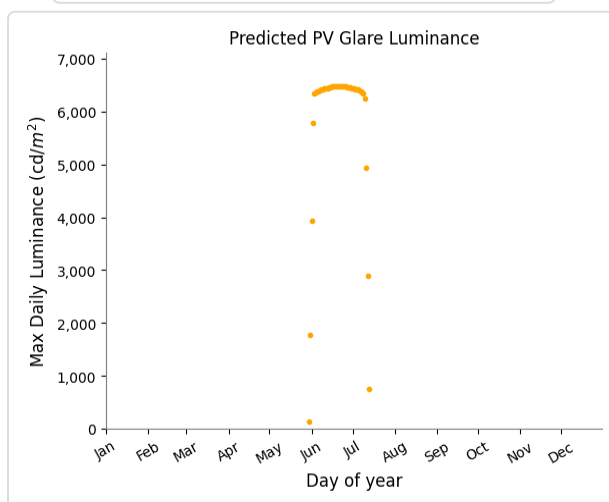
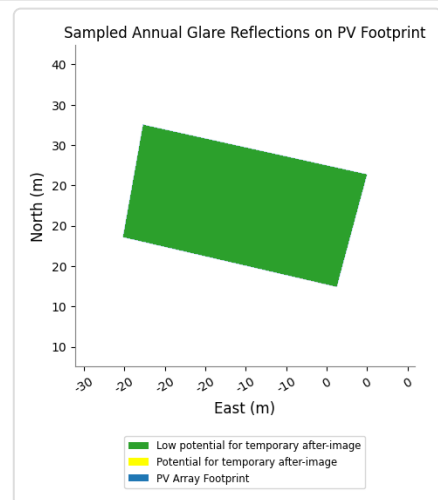
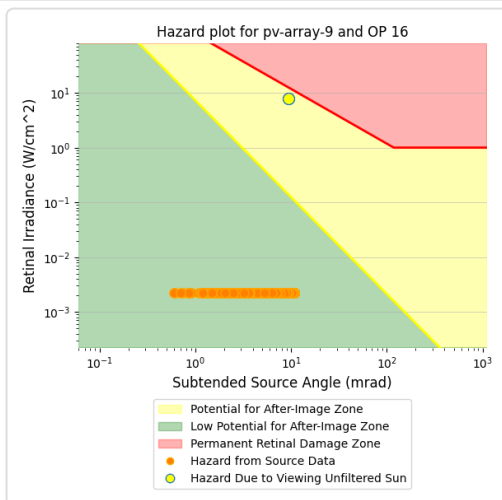
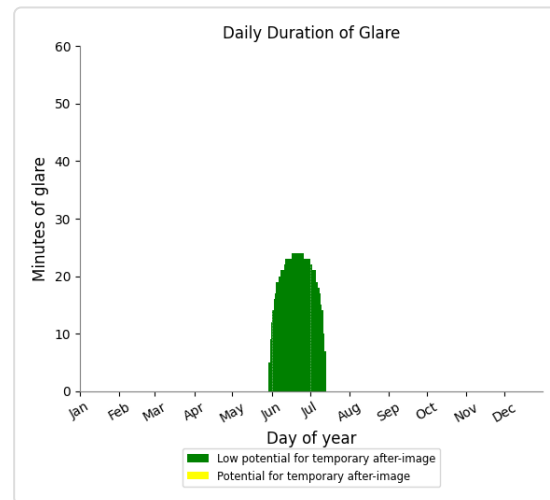
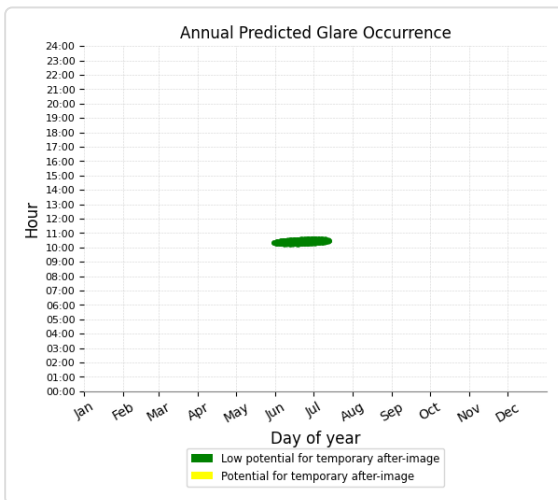
Green glare: 1,315 min.



PV array 9 and OP 16

Yellow glare: none

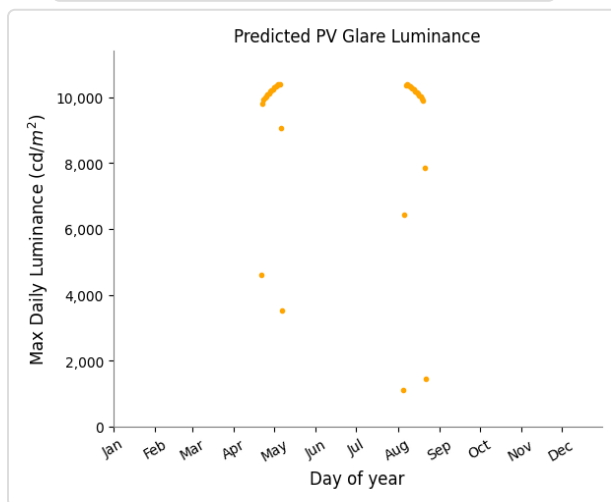
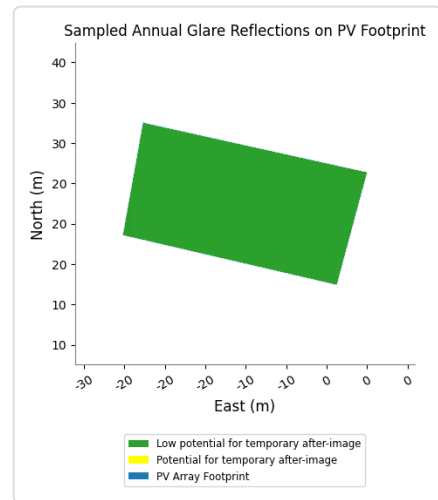
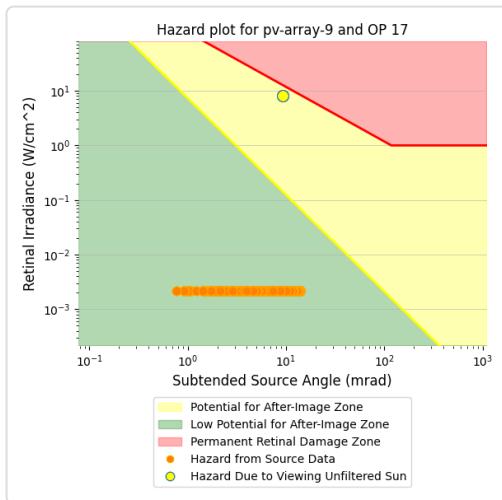
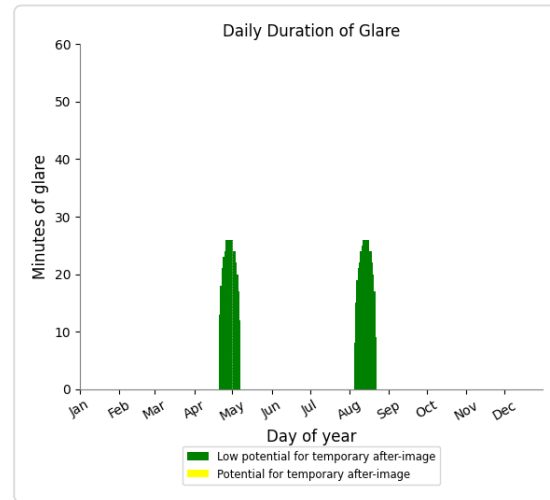
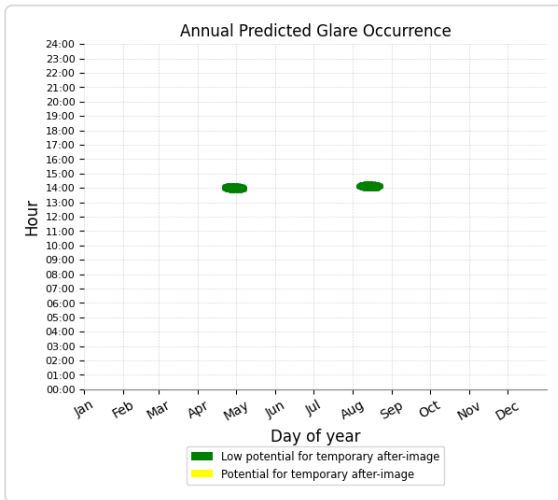
Green glare: 890 min.



PV array 9 and OP 17

Yellow glare: none

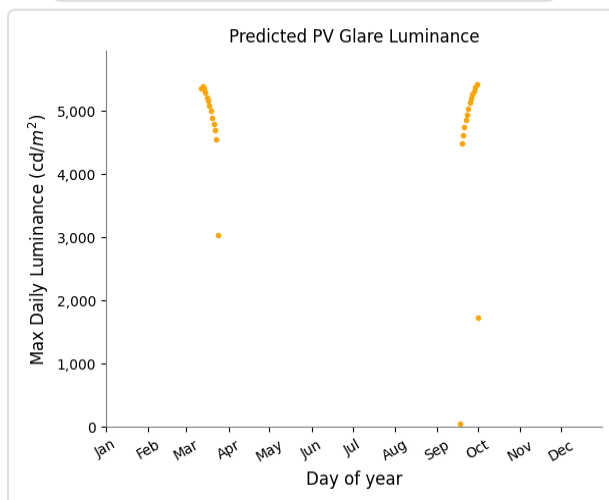
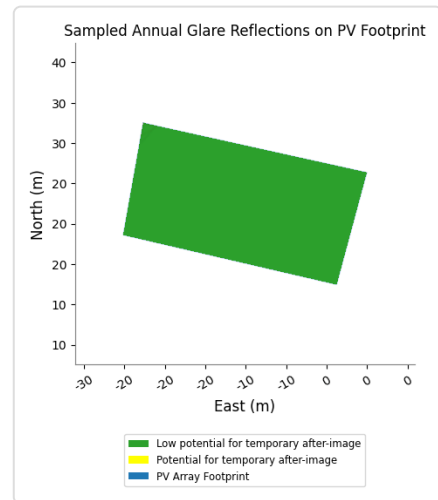
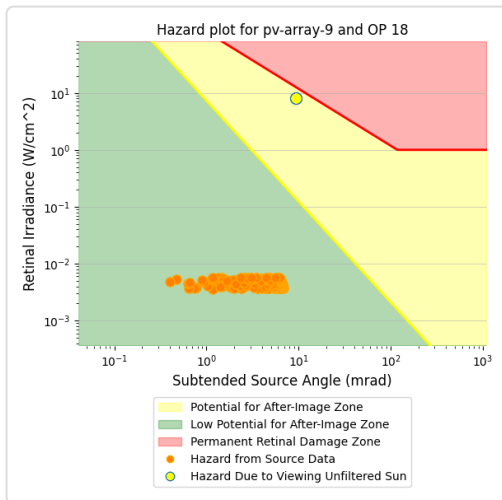
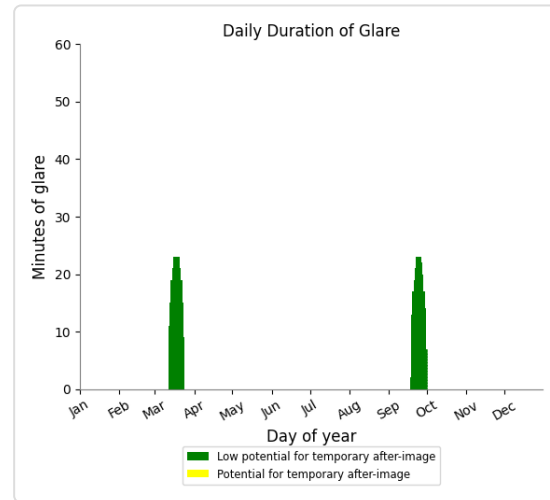
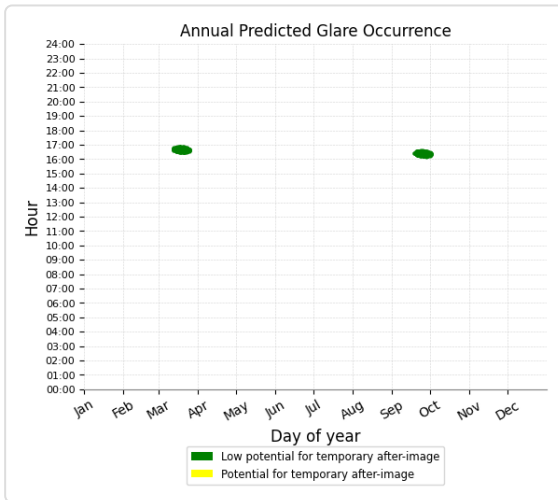
Green glare: 754 min.



PV array 9 and OP 18

Yellow glare: none

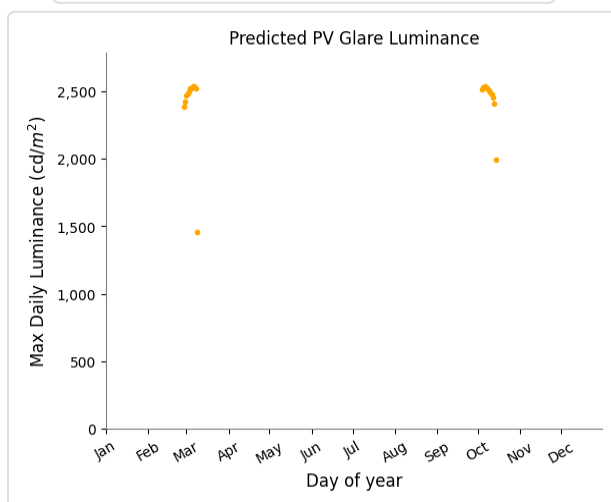
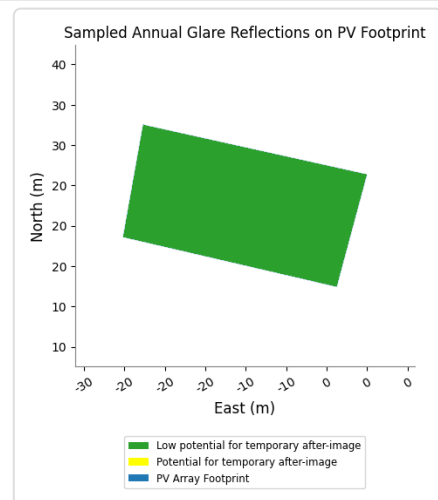
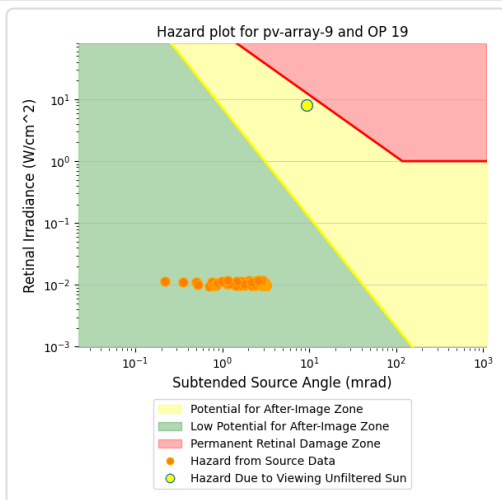
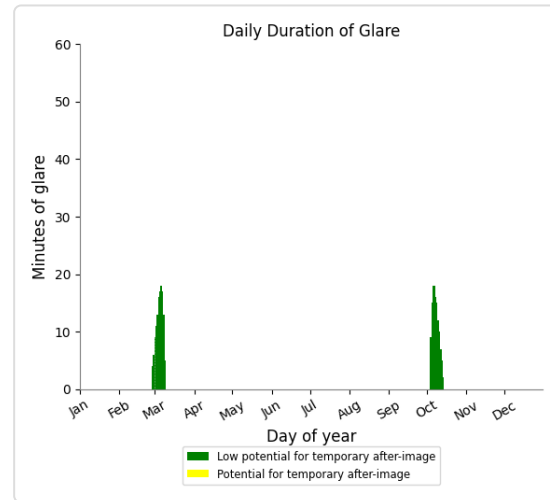
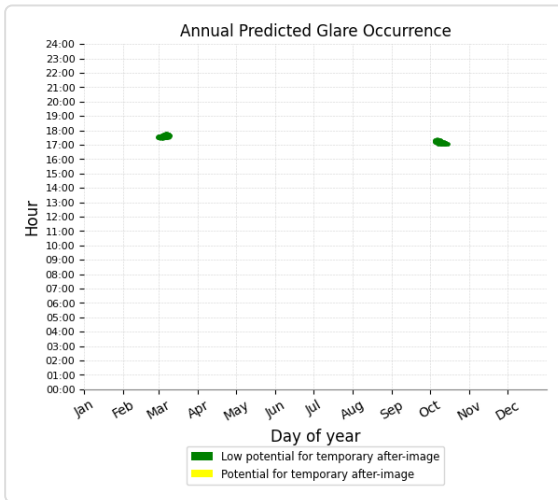
Green glare: 489 min.



PV array 9 and OP 19

Yellow glare: none

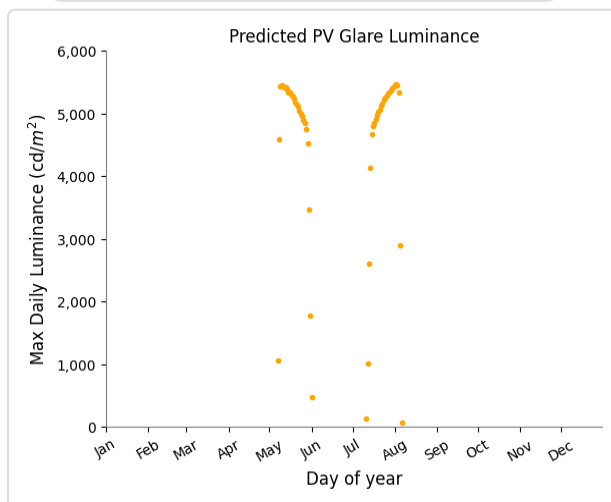
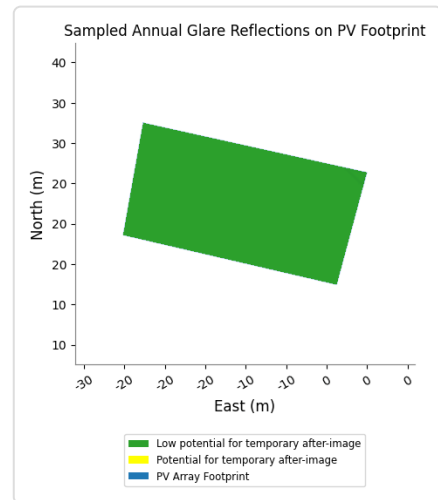
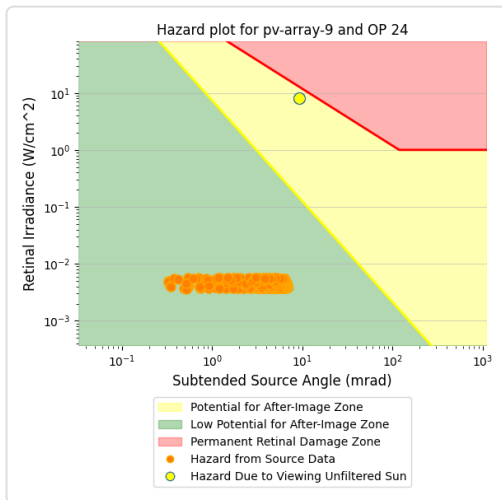
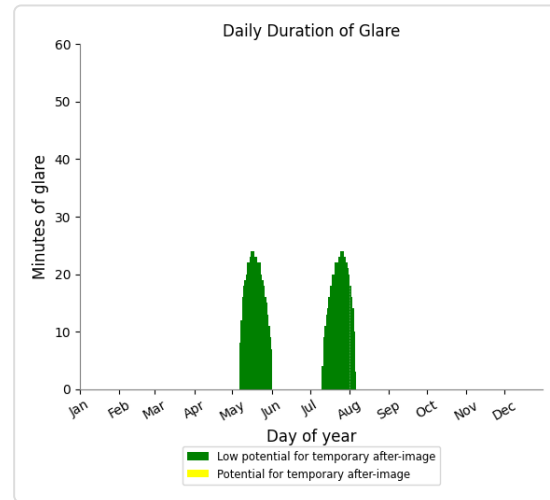
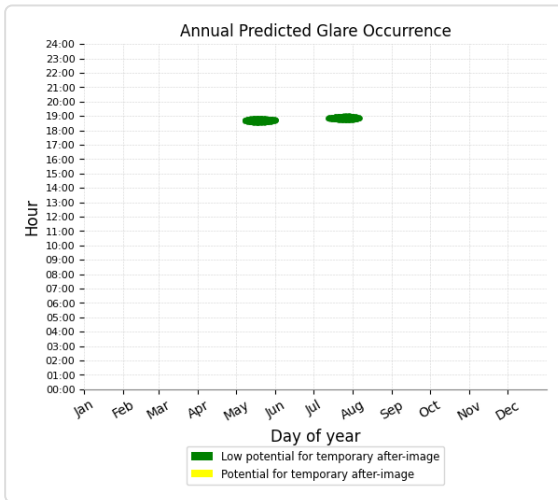
Green glare: 256 min.



PV array 9 and OP 24

Yellow glare: none

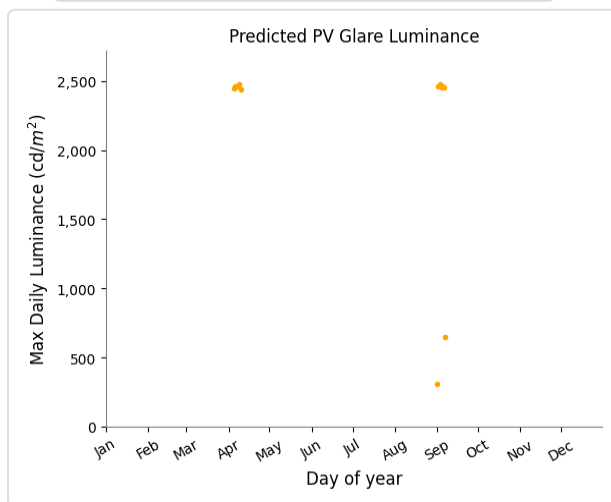
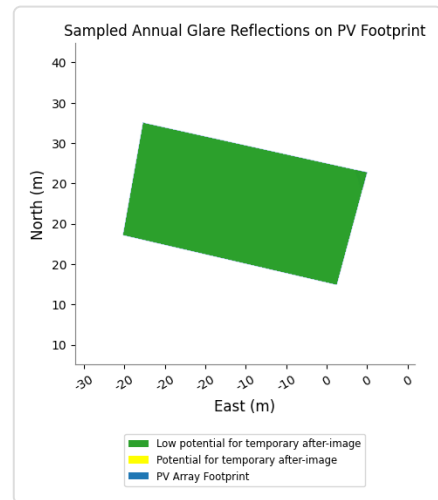
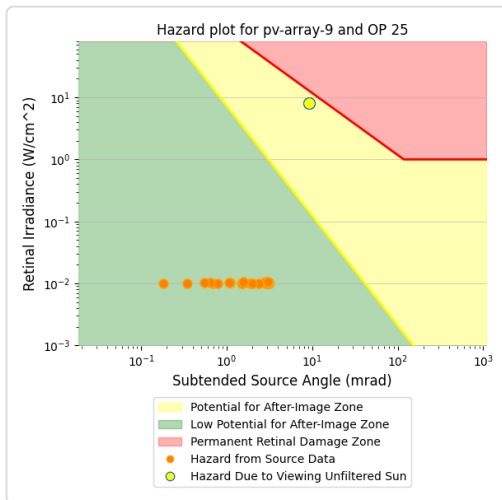
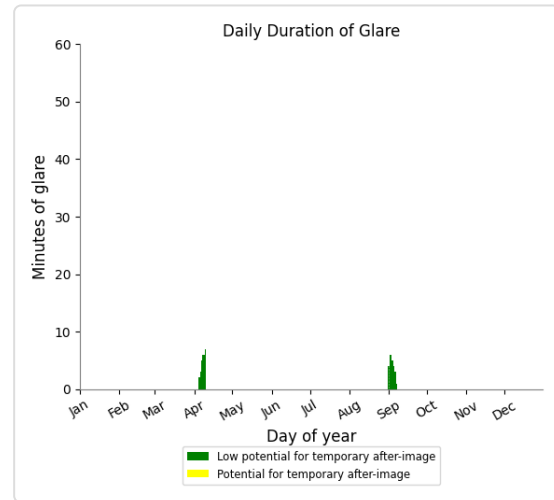
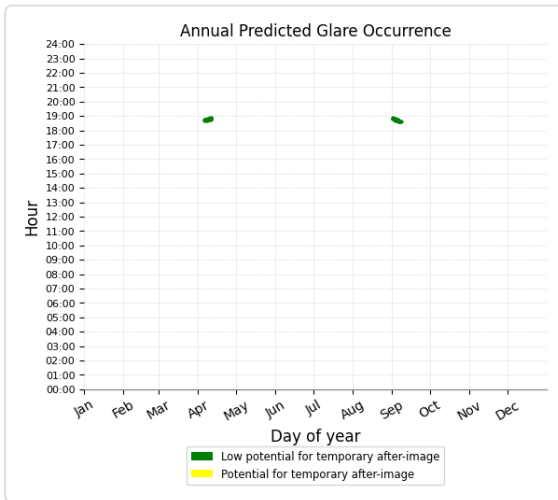
Green glare: 946 min.



PV array 9 and OP 25

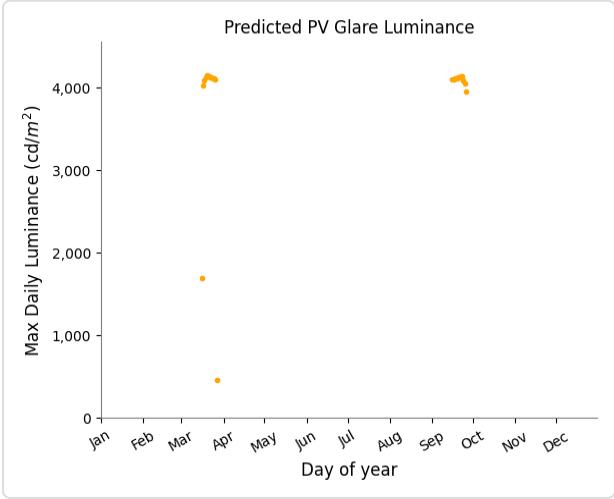
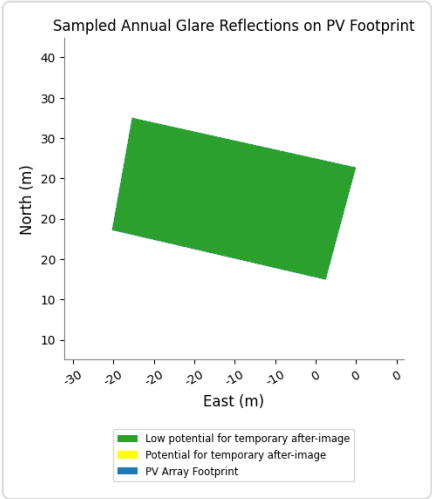
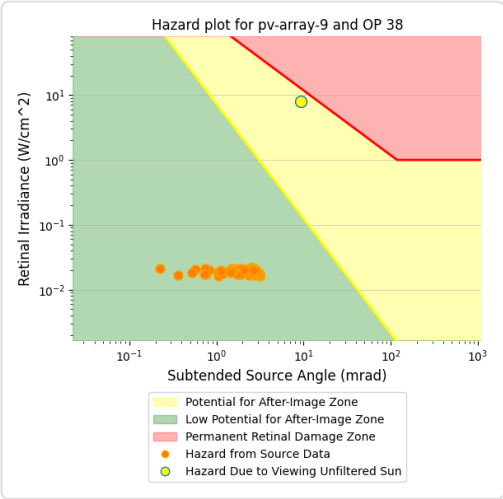
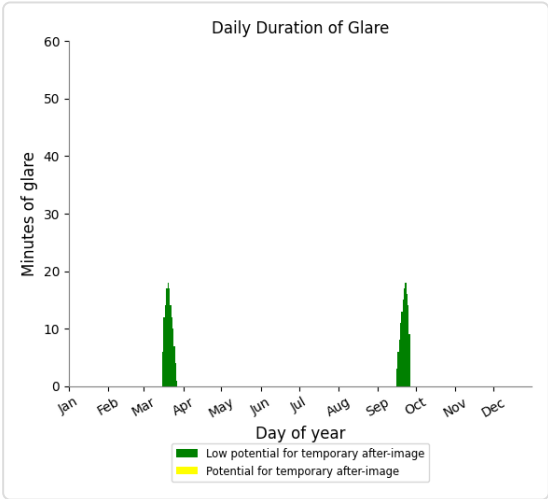
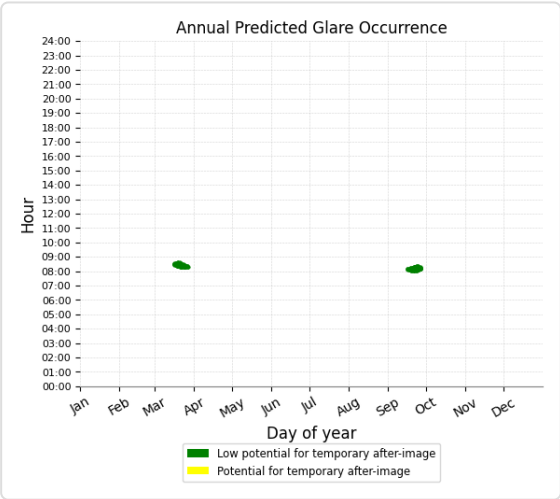
Yellow glare: none

Green glare: 58 min.



PV array 9 and OP 38

Yellow glare: none
Green glare: 262 min.



PV array 9 and 1-ATCT

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 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

PV array 9 and OP 31

No glare found

PV array 9 and OP 32

No glare found

PV array 9 and OP 33

No glare found

PV array 9 and OP 34

No glare found

PV array 9 and OP 35

No glare found

PV array 9 and OP 36

No glare found

PV array 9 and OP 37

No glare found

PV array 9 and OP 39

No glare found

PV array 9 and OP 40

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

© Sims Industries d/b/a ForgeSolar, All Rights Reserved.