Space Weather Highlights
05 May - 11 May 2025

SWPC PRF 2593
12 May 2025

Solar activity reached moderate levels in the final minutes of 11 May following an M-class event that peaked after the turn of the UT day. Solar activty was low the remainder of the time (05-10 May) leading up to that event. Region 4079 (N08, L=240, class/area=Ekc/1250 on 06 May) was responsible for what ended up being an M1.9 flare that peaked at 12/0001 UTC. This region was also responsible for 54 C-class events during the week, most of which were sub C5 level. Region 4082 (S11, L=180, class/area=Dac/140 on 06 May) contributed a pair of C7.0 flares at 08/1141 and 08/1500 UTC respectively, as well as several other low level C-class flares. No significant Earth-directed CMEs were noted during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 06-09 May, and moderate levels on 10-11 May.

Geomagnetic field activity was at quiet to unsettled levels on 07 May, quiet to active levels on 06 and 08-10 May, and active to minor storm levels on 05 and 11 May. The increased activity was likely associated with negative polarity CH HSS influence.

Space Weather Outlook
12 May - 07 June 2025

Solar activity is expected to be predominently low through the outlook period, with varying chances for M-class flare activity.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate levels from 06-28 May and again on 06-07 Jun. High levels are expected from 29 May to 05 Jun as CH HSS influences increase during this time.

Geomagnetic field activity is anticipated to reach minor storm levels on 28 May - 01 Jun under negative polarity CH HSS influences. Active levels are likely on 13 May, and again on 02 Jun and 06 Jun. Mostly unsettled levels are likely on 12, 14, and 18-21 May, as well as 02 and 05 Jun. Quiet levels are expected on 15-17, and 22-26 May.

Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
05 May	159	108	1420	B9.0	5	0	0	3	0	0	0	0
06 May	156	90	1540	B7.6	14	0	0	6	0	0	0	0
07 May	154	84	1480	B7.8	15	0	0	13	0	0	0	0
08 May	149	84	1440	C1.0	9	0	0	6	1	0	0	0
09 May	136	77	1340	B6.9	7	0	0	3	0	0	0	0
10 May	134	70	820	B6.8	7	0	0	0	0	0	0	0
11 May	126	77	250	B7.5	16	1	0	1	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ^{2} -day -sr)		Electron Fluence (electrons/cm^2 -day -sr)
	>1 MeV	>10 MeV	>2MeV
05 May	5.5e+06	1.9e+04	4.3e+08
06 May	1.8e+06	2.3e+04	5.4e+08
07 May	9.4e+05	2.0e+04	5.6e+08
08 May	4.5e+05	1.7e+04	5.1e+08
09 May	2.0e+06	1.6e+04	2.4e+08
10 May	3.8e+05	1.5e+04	3.0e+07
11 May	3.7e+05	1.5e+04	2.4e+07

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
05 May	23	3-4-4-4-4-4-3-3	62	4-5-7-6-6-6-3-4	29	3-5-4-4-4-5-4-4
06 May	15	3-3-3-3-3-3-3-3	20	3-3-5-4-3-3-2-3	15	4-2-3-3-2-3-3-4
07 May	8	2-3-2-2-2-1-2-2	16	3-2-4-5-3-2-1-1	9	2-3-3-3-2-1-2-2
08 May	11	1-3-3-1-3-2-1-4	30	2-3-4-2-6-6-2-3	12	2-3-3-2-2-2-1-4
09 May	11	2-2-1-2-3-3-2-4	24	3-3-2-3-5-5-4-3	15	3-2-2-2-2-3-4-4
10 May	14	5-4-2-2-2-2-1-2	17	4-4-2-3-5-2-1-1	12	4-4-2-2-2-1-1-2
11 May	14	2-3-2-2-3-2-4-4	16	2-3-4-3-4-3-2-3	9	2-3-3-2-3-1-5-4

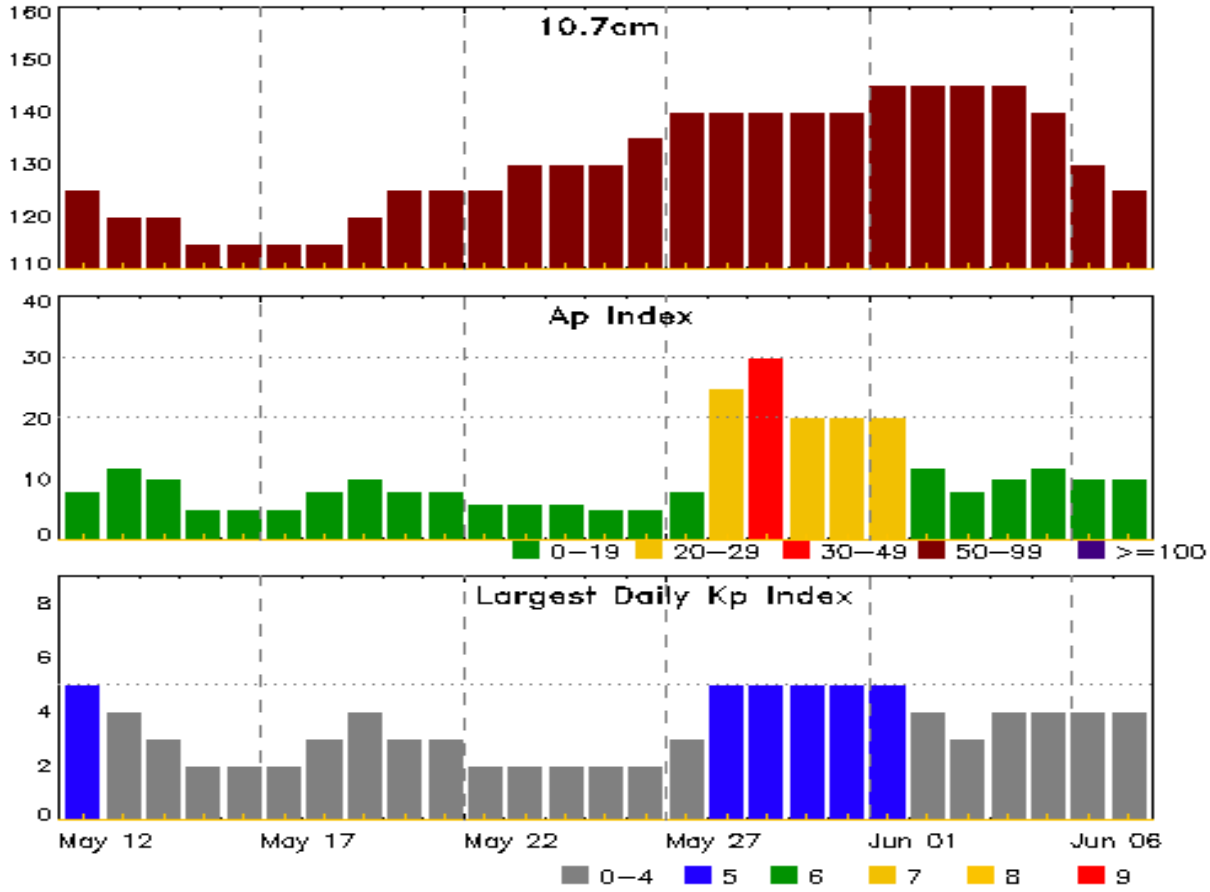
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
05 May 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/1330
05 May 0555	EXTENDED WARNING: Geomagnetic K = 5	04/2010 - 05/1500
05 May 0555	EXTENDED WARNING: Geomagnetic K = 4	01/0343 - 05/2100
05 May 0600	ALERT: Geomagnetic K = 5	
05 May 1430	EXTENDED WARNING: Geomagnetic K = 4	01/0343 - 06/0900
05 May 1438	EXTENDED WARNING: Geomagnetic K = 5	04/2010 - 05/2359
05 May 1803	ALERT: Geomagnetic K = 5	
05 May 1806	WATCH: Geomagnetic Storm Category G1 predicted	
05 May 2348	EXTENDED WARNING: Geomagnetic K = 5	04/2010 - 06/0900
06 May 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/1330
06 May 0855	EXTENDED WARNING: Geomagnetic K = 4	01/0343 - 06/1500
06 May 1452	EXTENDED WARNING: Geomagnetic K = 4	01/0343 - 06/2359
06 May 2346	EXTENDED WARNING: Geomagnetic K = 4	01/0343 - 07/1200
07 May 0459	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/1330
07 May 1147	WATCH: Geomagnetic Storm Category G1 predicted	
08 May 0459	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/1330
08 May 2224	WARNING: Geomagnetic K = 4	08/2224 - 09/0600
08 May 2234	ALERT: Geomagnetic K = 4	
09 May 0642	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/1330
09 May 1956	WARNING: Geomagnetic K = 4	09/1953 - 10/1200
09 May 1957	ALERT: Geomagnetic K = 4	
09 May 2348	WARNING: Geomagnetic K = 5	09/2348 - 10/0600
10 May 0559	EXTENDED WARNING: Geomagnetic K = 5	09/2348 - 10/1200
10 May 0606	EXTENDED WARNING: Geomagnetic K = 4	09/1953 - 10/1800
10 May 1026	CANCELLATION: Geomagnetic K = 5	

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
11 May 0420	WARNING: Geomagnetic K = 4	11/0420 - 1500
11 May 1455	EXTENDED WARNING: Geomagnetic K = 4	11/0420 - 12/1800
11 May 2024	ALERT: Geomagnetic K = 4	
11 May 2100	ALERT: Geomagnetic K = 5	
11 May 2102	WARNING: Geomagnetic K = 5	11/2100 - 12/0600

Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
12 May	125	8	5	26 May	135	5	2
13	120	12	4	27	140	8	3
14	120	10	3	28	140	25	5
15	115	5	2	29	140	30	5
16	115	5	2	30	140	20	5
17	115	5	2	31	140	20	5
18	115	8	3	01 Jun	145	20	5
19	120	10	4	02	145	12	4
20	125	8	3	03	145	8	3
21	125	8	3	04	145	10	4
22	125	6	2	05	140	12	4
23	130	6	2	06	130	10	4
24	130	6	2	07	125	10	4
25	130	5	2				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
11 May		2355	0001	0006		M1.9	0.009		4079			

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
05 May	0820	0826	0835	C1.4			4081
05 May	0930	U0931	1015		SF	N08E02	4079
05 May	B1145	U1204	A1207		SF	N07E24	4081
05 May	B1146	U1146	A1205		SF	N09W02	4079
05 May	1449	1457	1505	C2.1			4082
05 May	1720	1725	1728	C1.7			4082
05 May	1733	1751	1756	C2.1			4081
05 May	1827	1839	1847	C2.3			4082
06 May	0559	0611	0622	C1.7	SF	N09W14	4079
06 May	1045	1051	1056	C1.8			4079
06 May	1146	1152	1158	C1.7			4079
06 May	1606	1614	1618	C1.1			4079
06 May	1612	1620	1652	C2.3	SF	N08W21	4079
06 May	1702	1707	1711	C4.5	SN	N04W22	4079
06 May	1742	1750	1755	C1.6	SF	N08W21	4079
06 May	1804	1805	1807		SF	N08W19	4079
06 May	1809	1814	1818	C1.6	SF	N08W19	4079
06 May	1915	1922	1925	C1.4			4079
06 May	1925	1931	1934	C1.8			4079
06 May	2021	2025	2028	C1.4			4079
06 May	2028	2032	2034	C2.1			4079
06 May	2318	2329	2333	C1.3			4079
06 May	2347	2357	0001	C3.0	SF	N09W25	4079
07 May	0147	0150	0155	C1.6	SF	N05W27	4079
07 May	0210	0211	0219		SF	N08W27	4079
07 May	0212	0216	0219	C1.5			4079
07 May	0244	0252	0259	C4.0	SF	N08W27	4079
07 May	0500	0510	0514	C2.9	SF	N05W28	4079
07 May	0541	0543	0545		SF	N08W27	4079
07 May	0647	0653	0656	C1.2			4079

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
07 May	0657	0658	0702		SF	N07W28	4079
07 May	0710	0714	0725	C1.2	SF	N06W29	4079
07 May	0951	1001	1010	C1.7	SF	N05W33	4079
07 May	1021	1027	1031	C1.1			4079
07 May	1200	1208	1215	C1.7			
07 May	1223	1228	1233	C2.4			
07 May	1623	1631	1638	C1.4			4079
07 May	1742	1751	1757	C2.7			
07 May	1851	1851	1852		SF	S11E26	4082
07 May	1855	1904	1908	C3.2	SF	N12W33	4079
07 May	1953	2009	2029	C1.6	SF	S11E26	4082
07 May	2320	2326	2331	C1.9	SF	N07W09	4081
08 May	0156	0203	0212	C3.3	SF	N09W38	4079
08 May	0257	0304	0307		SF	S12E20	4082
08 May	0326	0333	0337	C3.9			4079
08 May	0636	0643	0647	C2.2			4079
08 May	0654	0717	0735	C3.6			4079
08 May	0935	0942	0944	C1.5			4082
08 May	1016	1024	1027	C1.6			4079
08 May	1128	1141	1147	C7.0			4082
08 May	1348	1356	1359	C6.4	SF	S13E16	4082
08 May	1454	1500	1523	C7.0	1N	S12E11	4082
08 May	B1627	U1651	A1707		SF	N08W48	4079
08 May	2122	2123	A2124		SF	N11W52	4079
08 May	2220	2220	2229		SF	S11E10	4082
09 May	0252	0304	0313	C1.9	SF	N09W52	4079
09 May	0313	0320	0322	C2.2			4079
09 May	0422	0430	0432	C1.8	SF	N05W61	4079
09 May	0613	0619	0623	C1.0			4082
09 May	0709	0716	0718	C1.4			4079
09 May	0814	0828	0841	C1.6			4079
09 May	1114	1121	1125	C4.9			4079
09 May	1441	1447	1505		SF	N10W57	4079
09 May	2230	2238	2243	B8.9			4079
09 May	2257	2300	2303	B9.3			4079
10 May	0055	0103	0106	C3.1			4079
10 May	0342	0352	0358	C1.9			4079
10 May	0727	0734	0738	C1.0			4079

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
10 May	1048	1108	1112	C1.0			4079
10 May	1112	1236	1249	C2.4			4079
10 May	1249	1255	1259	C2.4			4079
10 May	1616	1621	1626	C5.5			4079
11 May	0002	0009	0013	C1.2			4079
11 May	0049	0054	0057	C1.0			4079
11 May	0117	0121	0129	C1.2			4079
11 May	0408	0418	0424	C1.6			4079
11 May	0730	0739	0746	C2.1			4079
11 May	0843	0850	0854	C1.3			4079
11 May	1052	1059	1102	C1.3			4079
11 May	1102	1115	1120	C3.2			4079
11 May	1125	1130	1135	C2.6			4079
11 May	1412	1419	1426	C1.3			
11 May	1452	1501	1510	C3.8	SF	N02E16	4085
11 May	1607	1617	1621	C2.6			4079
11 May	1816	1820	1824	C1.3			4079
11 May	2020	2028	2031	C1.1			4079
11 May	2129	2152	2205	C2.3			
11 May	2334	2344	2348	C5.1			
11 May	2355	0001	0006	M1.9			4079

Region Summary

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 4072													
23 Apr	S18E62	324	80	2	Hsx	1	A								
24 Apr	S18E52	322	50	2	Hsx	1	A								
25 Apr	S18E38	323	60	2	Hsx	1	A								
26 Apr	S19E25	323	50	1	Hsx	4	A	1							
27 Apr	S19E11	324	50	2	Hsx	4	A								
28 Apr	S19W05	326	70	3	Dai	9	B								
29 Apr	S18W18	326	60	4	Dai	5	B								
30 Apr	S18W31	326	20	3	Cai	7	B								
01 May	S19W43	325	10	2	Bxo	3	B								
02 May	S19W57	326	plage												
03 May	S19W71	326	plage												
04 May	S19W85	327	plage												
								1	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 326

		Region 4075													
25 Apr	S11E48	313	10	3	Bxo	4	B								
26 Apr	S11E34	314	plage												
27 Apr	S11E20	315	plage												
28 Apr	S11E06	316	plage								1				
29 Apr	S11W08	316	plage					1			1				
30 Apr	S11W22	317	plage												
01 May	S11W36	318	plage												
02 May	S11W50	319	plage												
03 May	S11W64	319	plage												
04 May	S11W78	320	plage												
								1	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 316

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 4076													
25 Apr	N06E59	302	80	2	Hsx	1	A								
26 Apr	N05E45	303	60	1	Hsx	1	A								
27 Apr	N05E30	305	80	2	Hsx	1	A								
28 Apr	N06E16	305	90	2	Hsx	1	A								
29 Apr	N06E04	304	80	2	Hsx	1	A								
30 Apr	N06W09	304	70	2	Hsx	1	A								
01 May	N05W23	305	70	2	Hsx	1	A								
02 May	N06W36	305	80	2	Hsx	1	A								
03 May	N06W49	304	70	2	Hsx	1	A								
04 May	N07W63	305	50	1	Hsx	1	A								
05 May	N07W77	306	60	1	Hsx	1	A								
06 May	N08W91	305	60	1	Hsx	1	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 304

		Region 4077													
25 Apr	S17E62	299	50	6	Dao	4	B	2							
26 Apr	S17E47	301	20	3	Cao	4	B								
27 Apr	S16E32	303	20	3	Hrx	4	A								
28 Apr	S17E18	303	20	4	Cro	3	B				1				
29 Apr	S17E04	304	10	1	Axx	1	A				3				
30 Apr	S17W10	305	plage												
01 May	S17W24	306	plage												
02 May	S17W38	307	plage												
03 May	S17W52	307	plage												
04 May	S17W66	308	plage												
05 May	S17W80	309	plage												
								2	0	0	4	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 304

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 4079												
28 Apr	N08E76	245	250	4	Hkx	2	A	3							
29 Apr	N08E67	241	560	14	Ehi	5	BG	7	1		2	1			
30 Apr	N08E54	241	1040	14	Ekc	13	BG	4	1		2		1		
01 May	N08E41	241	1200	14	Ekc	14	BGD	5			5				
02 May	N07E27	242	1210	12	Ekc	17	BG	8			2				
03 May	N08E15	240	1200	12	Ekc	32	BG	10			11				
04 May	N08E01	241	1200	13	Ekc	30	BG	1							
05 May	N08W12	241	1230	14	Ekc	34	BGD				2				
06 May	N08W26	240	1250	13	Ekc	32	BG	14			6				
07 May	N08W38	241	1220	13	Ekc	35	BG	10			10				
08 May	N09W52	241	1160	12	Ekc	18	BG	5			3				
09 May	N08W67	243	1100	9	Dkc	16	BG	6			3				
10 May	N08W81	244	640	7	Cki	8	BG	7							
11 May	N08W94	244	140	6	Cso	3	B	12	1						
								92	3	0	46	1	1	0	0

Still on Disk.
Absolute heliographic longitude: 241

			Region 4080												
03 May	S12W76	331	10	3	Bxo	3	B								
04 May	S12W89	331	10	2	Bxo	2	B								
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 331

			Region 4081												
03 May	N07E44	211	20	1	Hrx	1	A				1				
04 May	N08E30	212	30	4	Dao	4	B	1			1				
05 May	N08E16	213	50	5	Dai	10	B	2			1				
06 May	N08E04	210	90	6	Dai	9	B								
07 May	N07W09	211	130	6	Dai	11	B	1			1				
08 May	N08W23	212	150	7	Dai	13	B								
09 May	N07W37	213	130	7	Dai	13	B								
10 May	N07W50	213	50	6	Cao	5	B								
11 May	N07W64	214	20	4	Cso	2	B								
								4	0	0	4	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 210

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 4082												
04 May	S11E65	177	60	5	Dao	5	B	5			1				
05 May	S11E49	180	70	8	Dai	12	BG	3							
06 May	S11E34	180	140	8	Dac	8	BG								
07 May	S11E21	181	130	8	Dai	8	BG	1			2				
08 May	S10E07	182	90	8	Dso	10	BG	4			3	1			
09 May	S10W07	183	50	8	Cso	5	B	1							
10 May	S10W21	184	70	2	Hsx	1	A								
11 May	S10W34	186	30	2	Hsx	1	A								
								14	0	0	6	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 182

			Region 4083												
05 May	N18W25	254	10	1	Axx	1	A								
06 May	N18W39	255	plage												
07 May	N18W53	256	plage												
08 May	N18W67	256	plage												
09 May	N18W81	257	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 254

			Region 4084												
08 May	S20E60	129	40	3	Cso	3	B								
09 May	S21E48	128	60	4	Cso	3	B								
10 May	S21E34	129	50	2	Hsx	1	A								
11 May	S21E21	129	20	2	Cso	2	B								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 129

			Region 4085												
10 May	N02E24	139	10	3	Bxo	5	B								
11 May	N02E11	139	30	5	Dso	6	B	1			1				
								1	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 139

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 4086													
11 May	N08W57	207	10	1	Cso	3	B	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 207

Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

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https://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecast -- Current
ftp://ftp.swpc.noaa.gov/pub/warehouse -- Online archive from 1997
https://www.ngdc.noaa.gov/stp/satellite/goes-r.html -- NCEI GOES data textarchive
https://www.swpc.noaa.gov/products/solar-cycle-progression -- Solar Cycle Progression web site
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