Space Weather Highlights
08 August - 14 August 2022

SWPC PRF 2450
15 August 2022

Solar activity was very low with B-class flare activity on 08-10 Aug. Solar activity increased to low levels with C-class flare activity observed on 11-14 Aug. Regions 3076 (N15, L=61, class/area=Dao/170 on 13 Aug) and 3079 (S11, L=77, class/area=Cai/130 on 14 Aug) were responsible for the majority of C-class flare activity throughout the period. At 14/1235 UTC, a long-duration C2 flare and filament eruption were observed from Region 3076. Associated Type-II radio emissions estimated a shock velocity of 629 km/s. The associated CME was first seen in LASCO C2 imagery beginning at 14/1248 UTC and is expected to impact Earth on 17 Aug.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit persisted at high levels throughout the period.

Geomagnetic field activity reached G1 (Minor) storm levels on 08 Aug, and active levels on 09 and 11 Aug, due to positive polarity CH HSS influences. Quiet to unsettled conditions prevailed on 10 and 12-14 Aug.

Space Weather Outlook
15 August - 10 September 2022

Solar activity is expected to be predominately low with C-class flare activity and a chance for isolated M-class flare activity throughout the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 15, 18-24 Aug, and 04-10 Sep. Normal to moderate flux levels are expected throughout the remainder of the outlook period.

Geomagnetic field activity is likely to reach G1 (Minor) geomagnetic storm levels on 17-18 Aug due to a combination of negative polarity CH HSS influences and the anticipated arrival of the 14 Aug CME. Active conditions are predicted on 19-20 Aug due to continued negative polarity CH HSS influences. Active conditions are likely on 27 Aug due to negative polarity CH HSS influence. G1-G2 (Minor-Moderate) geomagentic storms are possible on 03-04 Aug, with G1 storms possible on 05 Aug, due to positive polarity CH HSS effects.

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
08 August	113	63	520	B4.2	0	0	0	1	0	0	0	0
09 August	109	58	390	B3.5	0	0	0	0	0	0	0	0
10 August	108	60	390	B2.5	0	0	0	0	0	0	0	0
11 August	115	58	440	B2.8	3	0	0	1	0	0	0	0
12 August	120	97	540	B3.2	6	0	0	11	0	0	0	0
13 August	124	116	790	B5.5	17	0	0	8	0	0	0	0
14 August	126	104	670	B4.3	11	0	0	10	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
08 August	1.7e+05	3.0e+04	4.6e+07
09 August	8.1e+04	3.0e+04	2.1e+08
10 August	7.8e+04	2.9e+04	3.2e+08
11 August	1.5e+05	2.9e+04	4.4e+08
12 August	3.7e+04	3.0e+04	2.1e+08
13 August	3.8e+04	3.0e+04	2.5e+08
14 August	3.7e+04	3.0e+04	1.2e+08

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
08 August	21	4-4-4-4-3-3-3-3	48	5-5-6-6-5-5-3-3	31	5-5-5-4-3-3-4-4
09 August	15	2-4-3-3-3-3-3-2	45	3-4-6-6-6-5-3-3	19	3-4-3-4-4-4-3-2
10 August	10	2-3-1-2-3-2-3-2	23	3-3-2-5-5-3-4-2	11	2-3-2-2-3-3-3-3
11 August	12	2-2-3-3-3-3-2-3	57	2-3-3-7-7-6-5-2	16	2-2-2-3-3-4-4-3
12 August	6	2-1-2-2-2-2-1-1	18	2-1-3-6-4-2-0-1	7	3-1-2-3-2-1-1-1
13 August	10	2-2-3-3-3-2-2-2	18	1-2-2-4-4-5-3-2	10	2-2-3-3-3-2-2-2
14 August	9	3-3-2-3-2-2-2-0	6	3-3-2-1-1-0-1-0	15	3-2-2-2-2-1-1-1

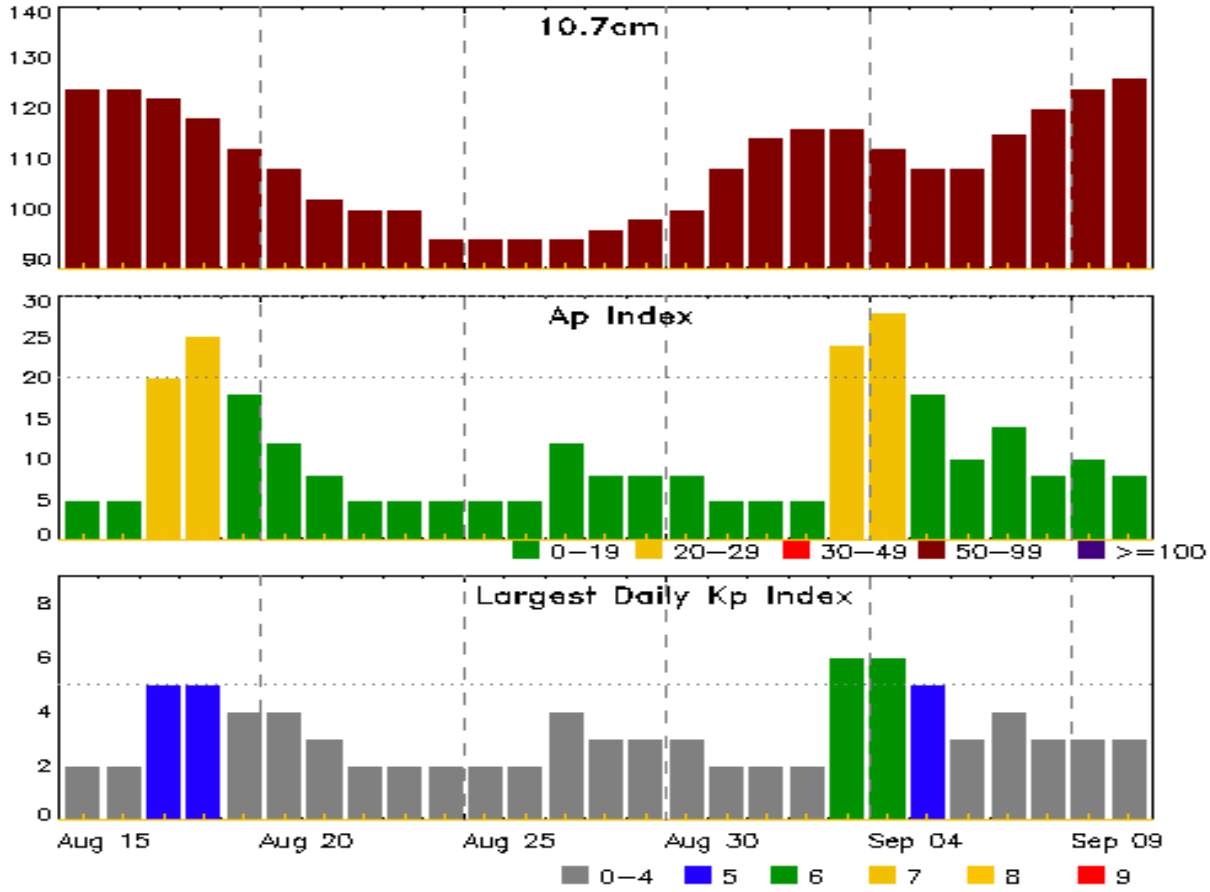
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
08 Aug 0000	ALERT: Geomagnetic K = 6	07/2359
08 Aug 0135	ALERT: Geomagnetic K = 5	08/0133
08 Aug 0607	ALERT: Geomagnetic K = 5	08/0559
08 Aug 0830	ALERT: Geomagnetic K = 5	08/0828
08 Aug 0839	EXTENDED WARNING: Geomagnetic K = 4	07/0752 - 08/1800
08 Aug 0839	EXTENDED WARNING: Geomagnetic K = 5	07/1428 - 08/1500
08 Aug 1711	ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1645
08 Aug 1740	EXTENDED WARNING: Geomagnetic K = 4	07/0752 - 09/0600
09 Aug 0400	EXTENDED WARNING: Geomagnetic K = 4	07/0752 - 09/1500
09 Aug 0401	WARNING: Geomagnetic K = 5	09/0400 - 1200
09 Aug 0822	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1645
09 Aug 1405	EXTENDED WARNING: Geomagnetic K = 4	07/0752 - 09/2359
10 Aug 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1645
10 Aug 0507	WARNING: Geomagnetic K = 4	10/0506 - 1200
10 Aug 1954	WARNING: Geomagnetic K = 4	10/1952 - 11/0300
11 Aug 0459	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1645
11 Aug 1139	WARNING: Geomagnetic K = 4	11/1139 - 1800
11 Aug 1607	ALERT: Geomagnetic K = 4	11/1605
11 Aug 1720	EXTENDED WARNING: Geomagnetic K = 4	11/1139 - 0300
11 Aug 1720	WARNING: Geomagnetic K = 5	11/1720 - 2359
11 Aug 1740	EXTENDED WARNING: Geomagnetic K = 4	11/1139 - 12/0300
12 Aug 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1645
13 Aug 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1645
14 Aug 0536	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1645
14 Aug 1237	ALERT: Type II Radio Emission	14/1204

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
14 Aug 1804	WATCH: Geomagnetic Storm Category G1 predicted	
14 Aug 1953	ALERT: Type II Radio Emission	14/1914

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
15 Aug	124	5	2	29 Aug	98	8	3
16	124	5	2	30	100	8	3
17	122	20	5	31	108	5	2
18	118	25	5	01 Sep	114	5	2
19	112	18	4	02	116	5	2
20	108	12	4	03	116	24	6
21	102	8	3	04	112	28	6
22	100	5	2	05	108	18	5
23	100	5	2	06	108	10	3
24	94	5	2	07	115	14	4
25	94	5	2	08	120	8	3
26	94	5	2	09	124	10	3
27	94	12	4	10	126	8	3
28	96	8	3				

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

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
08 Aug	1352	1359	1404	B7.9	SF	S15E40	3074
08 Aug	2153	2200	2205	B6.8			3074
09 Aug	1519	1522	1527	B6.1			3072
09 Aug	2138	2149	2156	B5.1			3072
09 Aug	2316	2324	2333	B6.4			3072
10 Aug	0052	0102	0111	B9.0			3076
10 Aug	0111	0115	0120	B8.1			3073
10 Aug	0529	0538	0544	B6.3			3072
11 Aug	0035	0051	0114	B6.3			
11 Aug	0559	0617	0630	C1.1	SF	S17W30	3077
11 Aug	0630	0658	0719	C1.2			3077
11 Aug	1609	1613	1616	B4.9			
11 Aug	1616	1624	1628	C1.1			3076
12 Aug	0018	0030	0038	B7.0	SF	S12W11	3074
12 Aug	0452	0458	0505	C1.1	SF	N14E12	3076
12 Aug	0505	0510	0515	C1.1			3076
12 Aug	0811	0816	0821	B9.8	SF	S16W42	3077
12 Aug	1007	1020	1028	C2.1			3077
12 Aug	1226	1236	1247	B6.8			3078
12 Aug	1540	1541	1552		SF	N19E07	3076
12 Aug	1621	1632	1644	C1.2	SF	S09W07	3079
12 Aug	1803	1817	1827	B9.3	SF	S09W07	3079
12 Aug	1911	1917	1936	B6.1	SF	S10W07	3079
12 Aug	2029	2030	2030		SF	S09W10	3079
12 Aug	2246	2302	2311	B7.3			3076
12 Aug	2311	2321	2329	C1.2			3076
12 Aug	2329	2334	2340	C1.3			3079
12 Aug	2344	2355	2350		SF	S10W10	3079
12 Aug	2345	2346	2350		SF	N12E59	3079
12 Aug	2353	2357	2359		SF	S10W10	3079
13 Aug	0011	0011	0015		SF	S10W10	3079

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
13 Aug	0036	0043	0048	C1.2	SF	S12W14	3079
13 Aug	0058	0106	0112	B9.4			3079
13 Aug	0119	0128	0132	C1.1			3079
13 Aug	0132	0137	0142	C1.5			3079
13 Aug	0234	0301	0312	C2.0			3079
13 Aug	0420	0426	0430	C1.2			3079
13 Aug	0448	0512	0528	C3.2			3079
13 Aug	0714	0731	0747	C6.8			3079
13 Aug	0825	0837	0843	C2.8			3079
13 Aug	1008	1018	1024	C1.4			3079
13 Aug	1037	1044	1048	B9.3			3079
13 Aug	1230	1300	1309	C6.7			3079
13 Aug	1333	1338	1342	C1.4			3079
13 Aug	1455	1503	1526	C1.2	SF	S12W20	3079
13 Aug	1512	1515	1519	C1.4			3079
13 Aug	1644	1646	1649		SF	S12W21	3079
13 Aug	1812	1819	1823	C2.1	SF	S13W22	3079
13 Aug	1915	1918	1929		SF	N10E49	3081
13 Aug	2016	2025	2029	C1.0	SF	S12W22	3079
13 Aug	2137	2145	2149	B8.7			3079
13 Aug	2220	2228	2233	B8.1			3079
13 Aug	2243	2255	2259	C1.2			3078
13 Aug	2259	2307	2315	C4.4			3079
13 Aug	2316	2316	2335		SF	N10E49	3081
14 Aug	0320	0340	0415	C1.1	SF	S26E18	3078
14 Aug	0443	0447	0451	C1.0			3081
14 Aug	0617	0629	0635	C1.0	SF	S26E18	3078
14 Aug	0820	0831	0836	C1.2			3079
14 Aug	1150	1235	1336	C2.4			3076
14 Aug	1355	1400	1404	C5.3	SF	S11W33	3079
14 Aug	1408	1409	1413		SF	N11E38	3081
14 Aug	1450	1457	1501	C1.2	SF	N12E38	3081
14 Aug	1549	1555	1601	C1.0			
14 Aug	1803	1810	1814	C1.1	SF	S24E11	3078
14 Aug	1830	1830	1834		SF	S23E10	3078
14 Aug	1853	1857	1859		SF	N12E38	3081
14 Aug	1906	1912	1922	C1.0	SF	S25E11	3078
14 Aug	2137	2154	2226	C1.3	SF	S12W42	3079

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 3068													
28 Jul	S16E58	205	40	4	Dao	4	B								
29 Jul	S15E45	205	100	8	Dao	8	B	1			9				
30 Jul	S15E30	207	100	10	Dao	6	B								
31 Jul	S15E16	208	110	11	Eso	7	B								
01 Aug	S15E02	208	120	11	Esi	9	BG				1				
02 Aug	S15W12	208	140	12	Esi	10	BG				4				
03 Aug	S15W24	207	180	12	Esi	16	BG	2				1			
04 Aug	S15W39	210	160	11	Esi	15	BG								
05 Aug	S15W52	210	210	8	Dso	7	B	3			2				
06 Aug	S15W66	210	190	8	Cao	7	B								
07 Aug	S15W83	214	90	3	Hax	3	A	1							
								7	0	0	16	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 208

		Region 3070													
01 Aug	N15E50	160	0	3	Bxo	3	B								
02 Aug	N15E36	161	plage												
03 Aug	N15E22	162	plage												
04 Aug	N15E08	163	plage								1				
05 Aug	N15W06	164	plage												
06 Aug	N15W20	164	plage												
07 Aug	N15W34	165	plage												
08 Aug	N15W48	166	plage												
09 Aug	N15W62	167	plage												
10 Aug	N15W76	167	plage												
11 Aug	N15W90	168	plage												
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 164

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 3071												
02 Aug	S16E68	129	140	3	Hsx	1	A								
03 Aug	S19E58	126	120	2	Hsx	1	A								
04 Aug	S19E43	128	120	2	Hsx	1	A								
05 Aug	S19E30	128	120	2	Hsx	2	A								
06 Aug	S19E17	127	110	2	Hsx	1	A								
07 Aug	S19E04	127	100	2	Hsx	1	A								
08 Aug	S21W07	125	110	3	Hsx	2	A								
09 Aug	S18W24	127	110	3	Hsx	1	A								
10 Aug	S13W36	127	70	1	Hsx	1	A								
11 Aug	S17W50	128	70	2	Hsx	1	A								
12 Aug	S18W62	127	110	2	Hsx	1	A								
13 Aug	S18W76	127	120	1	Hsx	1	A								
14 Aug	S18W90	128	120	1	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 127

			Region 3072												
04 Aug	S23W26	197	20	4	Cro	6	B								
05 Aug	S23W40	198	20	5	Bxo	6	B								
06 Aug	S23W53	197	40	5	Cao	4	B				3				
07 Aug	S23W67	198	30	5	Cso	4	B	1							
08 Aug	S24W78	196	plage												
								1	0	0	3	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 197

			Region 3073												
05 Aug	S35W45	203	40	4	Cao	3	B	1							
06 Aug	S34W57	201	40	5	Cao	4	B								
07 Aug	S34W71	202	40	5	Cao	4	B								
08 Aug	S34W76	199	70	3	Hsx	1	A								
09 Aug	S34W90	196	plage												
								1	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 203

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 3074												
05 Aug	S18E68	90	120	2	Hsx	1	A								
06 Aug	S17E54	90	120	2	Hsx	3	A								
07 Aug	S16E40	91	120	2	Hsx	1	A								
08 Aug	S16E26	92	150	6	Hsx	4	A				1				
09 Aug	S17E13	90	130	2	Hsx	1	A								
10 Aug	S16E01	89	100	3	Hsx	1	A								
11 Aug	S17W13	90	130	2	Hsx	1	A								
12 Aug	S17W25	90	130	2	Hsx	1	A				1				
13 Aug	S18W37	88	100	2	Hsx	1	A								
14 Aug	S16W52	90	110	2	Hsx	1	A								
								0	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 89

			Region 3075												
07 Aug	N21E54	77	20	5	Cro	3	B								
08 Aug	N22E38	80	10	5	Bxo	5	B								
09 Aug	N18E26	77	10	2	Axx	1	A								
10 Aug	N18E12	79	plage												
11 Aug	N18W02	80	plage												
12 Aug	N18W16	81	plage												
13 Aug	N18W30	81	plage												
14 Aug	N18W44	82	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 80

			Region 3076												
07 Aug	N16E69	62	110	2	Hsx	1	A								
08 Aug	N16E61	59	180	2	Hsx	1	A								
09 Aug	N13E43	60	130	2	Hsx	1	A								
10 Aug	N14E29	62	120	2	Hsx	1	A								
11 Aug	N13E16	61	120	2	Cao	1	B	1							
12 Aug	N16E04	61	170	4	Dao	8	B	3			2				
13 Aug	N15W10	61	170	5	Dao	10	B								
14 Aug	N16W23	61	90	5	Cai	9	B	1							
								5	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 61

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 3077												
09 Aug	S17W09	112	10	4	Cro	4	B								
10 Aug	S15W23	114	50	4	Cso	6	B								
11 Aug	S17W37	114	40	4	Cao	4	B	2			1				
12 Aug	S18W48	113	20	4	Bxo	4	B	1			1				
13 Aug	S18W60	111	10	1	Axx	2	A								
14 Aug	S18W74	112	plage												
								3	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 112

			Region 3078												
10 Aug	S22E58	33	50	1	Hax	1	A								
11 Aug	S27E45	33	80	1	Hsx	1	A								
12 Aug	S25E32	33	30	1	Cao	3	B								
13 Aug	S25E20	31	20	3	Hax	2	A	1							
14 Aug	S25E06	32	60	3	Cao	5	B	4			5				
								5	0	0	5	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 32

			Region 3079												
12 Aug	S11W13	78	70	4	Dro	8	B	2			7				
13 Aug	S11W25	76	120	6	Dao	9	B	16			6				
14 Aug	S11W39	77	130	8	Cai	15	B	3			2				
								21	0	0	15	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 78

			Region 3080												
12 Aug	N21W37	102	10	3	Bxo	2	B								
13 Aug	N20W52	103	10	1	Axx	2	A								
14 Aug	N20W66	104	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 102

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 3081													
13 Aug	N10E44	7	240	4	Dai	9	B				2				
14 Aug	N10E31	7	160	7	Dai	13	B	2			3				
								2	0	0	5	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 7

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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