

Solar activity was at low levels on 15-19 Jun with a total of 19 C-class flares, moderate levels on 20-21 Jun with three M-class (M5 or below) flares, and high levels on 22 Jun with an isolated M6.8 flare. Three out of the four M-class flares originated from Region 4473 (S08, L=133, class/area=Eko/270 on 20 Jun). These included: an M1.0 at 20/1500 UTC, an M2.6 at 21/0246 UTC, and the M6.8/2b flare at 21/1929 UTC (the largest of the period). Region 4472 (S14, L=149, class/area=Dao/100 on 20 Jun) added the remaining M-flare, an M1.3 at 20/0151 UTC.

Notable activity included a small filament eruption, a pair of type-II radio sweeps, and a couple of CMEs. The filament eruption was centered near S20E20 and began after 19/0300 UTC. A faint, slow-moving CME signature appeared in STEREO-A COR2 imagery but was not apparent in other available coronagraph imagery. Analysis and modeling of the event indicated most of the ejecta will likely miss behind Earth's orbit, with a slight possibility of a portion grazing Earth by mid to late on 23 Jun. Additional CMEs were observed early in the period, but none appeared to have an Earth-directed component. The aforementioned radio sweeps were relatively slow moving. The first was at 20/0407 UTC, with an estimated velocity of 300 km/s, likely associated with a C1.4 flare that occurred at 20/0307 UTC from Region 4470 (N06, L=188, class/area=Dao/90 on 19 Jun). The second was at 21/1932 UTC, with an estimated velocity of 380 km/s, likely associated with the M6.8/2b flare. A CME associated with the C1.4 flare was analyzed and determined to not have an Earth-directed component. A CME was also likely associated with the M6.8 flare, but analysis was pending as of this writing.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 15,16, and 18 Jun, with a peak flux of 2,043 pfu at 16/1525 UTC. Flux levels were at low to moderate levels on 17 and 19-21 Jun.

Geomagnetic field activity was at quiet to unsettled levels throughout the period (15-21 Jun) under near-background conditions.

Space Weather Outlook **22 June - 18 July 2026**

Solar activity is expected to continue at predominately low levels on 22 Jun- 24 Jun, with an increasing chance for M-class (R1-R2/Minor-Moderate) flares due primarily to the flare potential of Region 4473 (S08, L=133, class/area=Eko/270 on 20 Jun). Additional chances for M- and X-class flares are likely after 30 Jun with the anticipated return of Region 4463 (N16, L=339, class/area=Hsx/70 on 10 Jun).

<div> Chances for an S1 or greater proton event increase after 24 Jun as additional magnetically complex active regions are anticipated to return to the visible disk.</div> The greater than 2



MeV electron flux at geosynchronous orbit is expected to be at moderate levels on 22 Jun-03 Jul, 08-09 Jul, and 13-18 Jul. High levels are likely on 05-07 Jul and 10-13 Jul with elevated wind speeds associated with coronal hole high speed streams.

Geomagnetic field activity is expected to be quiet to unsettled levels on 22-24 Jun, 27 Jun - 02 Jul, 04-07 Jul, 09-18 Jul. Isolated active periods are possible on 25-26 Jun, 03 Jul, and 15 Jul in response to recurrent, weak CH HSS influence.



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
15 June	117	78	330	B5.5	5	0	0	0	0	0	0	0
16 June	113	76	260	B4.8	2	0	0	1	0	0	0	0
17 June	111	50	180	B4.0	3	0	0	3	0	0	0	0
18 June	111	46	190	B3.9	3	0	0	3	0	0	0	0
19 June	111	55	280	B4.5	1	0	0	0	1	0	0	0
20 June	113	73	530	B5.0	5	2	0	4	0	0	0	0
21 June	128	53	280	B5.8	4	2	0	3	0	1	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	
15 June	4.6e+05	1.7e+04	6.4e+07	
16 June	7.8e+05	1.7e+04	8.1e+07	
17 June	5.0e+05	1.7e+04	3.7e+07	
18 June	5.5e+05	1.7e+04	5.2e+07	
19 June	2.7e+05	1.7e+04	2.3e+07	
20 June	3.2e+05	1.7e+04	2.6e+07	
21 June	3.4e+05	1.7e+04	2.8e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
15 June	6	2-1-1-2-2-2-2-2	2	2-1-0-1-0-0-1-1	6	2-2-1-2-1-1-2-2
16 June	6	2-1-1-2-2-2-2-1	5	2-1-1-2-2-2-1-0	6	2-1-1-1-2-2-2-1
17 June	7	2-1-3-2-2-2-1-2	15	1-2-2-5-5-1-0-1	6	2-1-2-2-2-1-0-1
18 June	7	2-2-1-2-3-2-1-2	5	2-1-1-2-1-2-1-2	6	2-2-1-1-1-1-1-3
19 June	9	2-2-1-3-3-2-2-2	10	3-3-1-4-1-1-1-2	7	3-2-1-2-2-1-1-2
20 June	8	3-2-2-2-2-2-2-1	10	2-3-2-2-4-1-2-1	7	3-2-2-2-2-2-2-2
21 June	7	1-2-1-1-3-1-3-1	3	2-2-1-0-0-1-1-1	5	1-2-1-1-1-1-1-1

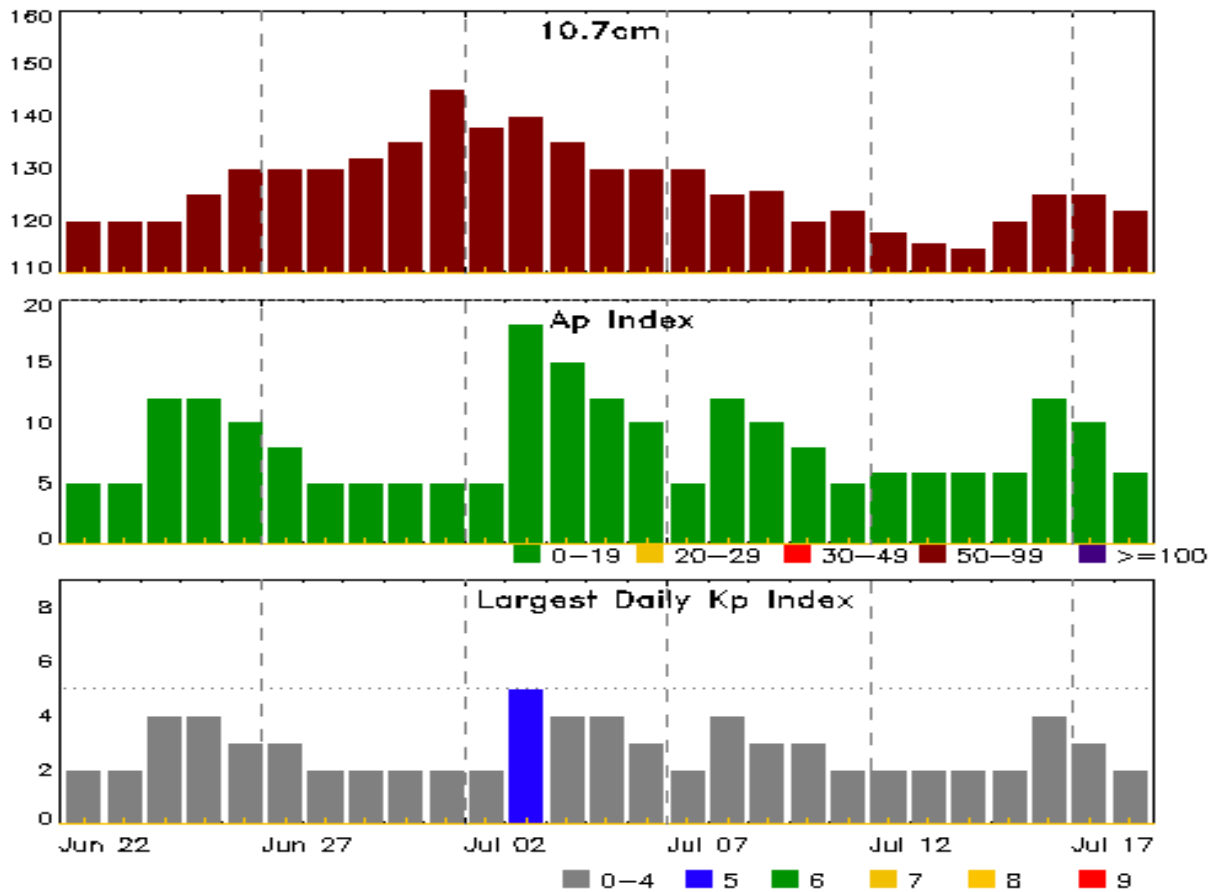


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
15 Jun 1235	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	13/1332
16 Jun 1124	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	13/1332
18 Jun 1507	ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	18/1507
20 Jun 0403	ALERT: Type II Radio Emission	20/0300
20 Jun 0403	ALERT: Type II Radio Emission	20/0300
20 Jun 0403	ALERT: Type II Radio Emission	20/0300
20 Jun 0406	CANCELLATION: Type II Radio Emission	
20 Jun 0407	ALERT: Type II Radio Emission	20/0407
21 Jun 1930	ALERT: X-ray Flux exceeded M5	21/1927
21 Jun 1948	SUMMARY: X-ray Event exceeded M5	21/1917 - 22/1935
21 Jun 1951	ALERT: Type II Radio Emission	21/1932



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
22 Jun	120	5	2	06 Jul	130	10	3
23	120	5	2	07	130	5	2
24	120	12	4	08	125	12	4
25	125	12	4	09	126	10	3
26	130	10	3	10	120	8	3
27	130	8	3	11	122	5	2
28	130	5	2	12	118	6	2
29	132	5	2	13	116	6	2
30	135	5	2	14	115	6	2
01 Jul	145	5	2	15	120	6	2
02	138	5	2	16	125	12	4
03	140	18	5	17	125	10	3
04	135	15	4	18	122	6	2
05	130	12	4				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV
20 Jun	0126	0151	0204	M1.3	0.015				4472			
20 Jun	1450	1500	1505	M1.0	0.004				4473			
21 Jun	0225	0246	0258	M2.6	0.024				4473			
21 Jun	1917	1929	1935	M6.8	0.034		2B	S07E55	4473		1	

Flare List

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
15 Jun	0150	0214	0221	C1.7			4464
15 Jun	0731	0738	0747	B9.9			
15 Jun	0948	0956	1000	C1.7			
15 Jun	1144	1152	1155	C1.4			
15 Jun	1312	1315	1317	C1.8			4465
15 Jun	1846	1851	1853	C1.8			
15 Jun	2017	2026	2029	B7.3			
15 Jun	2029	2038	2040	B9.4			4470
16 Jun	0043	0048	0050	C1.5			4470
16 Jun	0503	0509	0518	B7.0			4470
16 Jun	1529	1532	1534	C1.0			4464
16 Jun	1747	1753	1800	B8.4			4464
16 Jun	2110	2118	2120	B8.6			4464
16 Jun	2245	2252	2257	B6.7	SF	N17E42	
16 Jun	2351	2356	2358	B7.6			4465
17 Jun	0006	0013	0019	B8.2	SF	N07W34	4465
17 Jun	0515	0520	0522	C1.1			4465
17 Jun	0616	0625	0629	B8.2			4464
17 Jun	0850	0856	0858	B6.8			4464
17 Jun	1030	1034	1037	B5.6			4464
17 Jun	1207	1228	1236	C1.2	SF	N07W48	4465
17 Jun	1457	1506	1510	C2.5			4464
17 Jun	1642	1646	1709	B5.8			4464
17 Jun	1659	1704	1706	B4.9			
17 Jun	1757	1757	1759		SF	N07W45	4465
17 Jun	1820	1828	1835	B6.0			
17 Jun	1835	1838	1841	B5.7			



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
18 Jun	0324	0332	0342	B6.0			
18 Jun	0537	0545	0550	B5.7			
18 Jun	0738	0746	0752	C1.0	SF	N08E53	4470
18 Jun	1113	1123	1130	B8.0			
18 Jun	1142	1150	1202	C1.8	SF	N08E51	4470
18 Jun	1315	1325	1330	B8.8	SF	N06W57	4465
18 Jun	1448	1455	1502	B8.1			
18 Jun	1906	1915	1920	B6.5			
18 Jun	1943	1951	1956	B7.0			4465
18 Jun	2149	2204	2218	C1.2			4472
19 Jun	0007	0011	0015	B5.5			4472
19 Jun	0143	0151	0158	B7.4			4465
19 Jun	0708	0717	0730	B8.4			
19 Jun	0934	0947	1006	B7.1			
19 Jun	1458	1505	1508	B9.3			4465
19 Jun	1926	1938	1945	C4.2	1F	N07E31	4470
19 Jun	2309	2318	2327	B7.4			4472
20 Jun	0116	0122	0126	B8.7			4470
20 Jun	0126	0151	0204	M1.3			4472
20 Jun	0259	0307	0312	C1.4			4470
20 Jun	0748	0749	0757		SF	N06E23	4470
20 Jun	1025	1032	1039	B7.1			4472
20 Jun	1039	1047	1057	B7.7			4472
20 Jun	1115	1127	1133	C1.9			
20 Jun	1206	1220	1225	C1.9			
20 Jun	1450	1500	1505	M1.0			4473
20 Jun	1752	1753	1757		SF	S08E72	
20 Jun	1842	1842	1846		SF	S08E72	
20 Jun	2122	2145	2205	C4.8	SF	S07E68	4473
20 Jun	2301	2306	2312	C1.3			4473
21 Jun	0101	0106	0114	C1.1			4473
21 Jun	0225	0246	0258	M2.6			4473
21 Jun	0831	0838	0841	C1.1			4473
21 Jun	0917	0925	0932	B8.8			4473
21 Jun	1007	1018	1029	B8.5			4473
21 Jun	1044	1049	1051	B7.5			4473
21 Jun	1140	1153	1202	B8.7			4473
21 Jun	1655	1655	1706		SF	S06E56	4473



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
21 Jun	1709	1709	1719		SF	N03W58	4468
21 Jun	1807	1818	1821	C2.6	SF	S10E70	4473
21 Jun	1917	1929	1935	M6.8	2B	S07E55	4473
21 Jun	2230	2234	2242	C2.6			4473



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 4462															
02 Jun	N17E75	6	70	5	Dao	6	B								
03 Jun	N17E60	7	60	6	Dao	6	B								
04 Jun	N17E47	8	40	7	Dao	12	B								
05 Jun	N17E32	9	70	7	Dai	8	B	2			1				
06 Jun	N16E19	9	90	8	Dai	16	B								
07 Jun	N15E05	10	70	8	Dsi	10	B	2			2				
08 Jun	N15W07	9	60	9	Dsi	10	B	1			1				
09 Jun	N16W21	9	70	8	Dsi	10	B								
10 Jun	N16W35	10	40	8	Dsi	10	B								
11 Jun	N15W50	12	20	7	Dro	5	B								
12 Jun	N16W65	13	10	2	Axx	42	A								
13 Jun	N16W76	11	plage												
14 Jun	N16W90	12	plage												
								5	0	0	4	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 10

Region 4463															
05 Jun	N16E63	338	50	2	Hsx	1	A								
06 Jun	N17E51	337	40	2	Hsx	1	A								
07 Jun	N17E37	338	40	2	Hsx	1	A								
08 Jun	N17E24	338	40	2	Hsx	1	A								
09 Jun	N16E10	338	70	1	Hsx	1	A								
10 Jun	N16W04	339	70	1	Hsx	1	A								
11 Jun	N17W15	337	60	3	Hsx	2	A								
12 Jun	N17W29	337	30	1	Hsx	1	A								
13 Jun	N17W41	336	50	3	Hax	1	A								
14 Jun	N17W55	337	30	2	Hsx	1	A								
15 Jun	N17W68	337	30	2	Hsx	1	A								
16 Jun	N17W81	337	20	1	Hrx	1	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 339



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
Region 4464															
06 Jun	S12E52	336	50	5	Dao	4	B								
07 Jun	S12E38	337	60	6	Dai	5	B	2				3			
08 Jun	S12E24	338	80	6	Dac	9	BG	1							
09 Jun	S12E11	337	250	11	Ehi	15	B	3				1			
10 Jun	S12W03	338	180	9	Dsi	15	B								
11 Jun	S12W16	338	120	10	Dsi	8	B								
12 Jun	S13W29	338	180	10	Dao	8	B								
13 Jun	S13W44	339	180	10	Dao	8	B	1							
14 Jun	S14W56	338	120	9	Dao	5	B	1				1			
15 Jun	S14W70	339	100	6	Hsx	2	A	1							
16 Jun	S14W86	342	60	2	Hsx	1	A	1							
								10	0	0	5	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 338

Region 4465															
08 Jun	N11E70	292	70	6	Dao	4	B	3			1				
09 Jun	N09E54	294	220	6	Dsi	6	BG	11			4				
10 Jun	N09E40	295	240	6	Dsi	10	BG	3							
11 Jun	N09E30	292	255	9	Dhi	10	BG	5			1	1			
12 Jun	N09E14	294	190	9	Cao	10	B	1							
13 Jun	N08E04	291	120	4	Cao	2	B								
14 Jun	N08W11	293	150	9	Cai	10	B				1				
15 Jun	N08W24	293	180	10	Dai	19	BG	1							
16 Jun	N07W35	291	120	5	Dai	10	B								
17 Jun	N07W49	290	90	5	Cso	8	B	2			3				
18 Jun	N07W62	291	90	4	Cso	5	B				1				
19 Jun	N07W76	292	90	3	Cso	4	B								
20 Jun	N08W90	293	60	3	Cso	2	B								
								26	0	0	11	1	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 291



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 4466															
09 Jun	N06W16	4	10	1	Bxo	2	B	2			1				
10 Jun	N06W31	6	15	4	Dao	4	B				1				
11 Jun	N06W47	9	30	3	Cro	6	B								
12 Jun	N06W59	8	20	2	Cro	2	B	1			2				
13 Jun	N06W74	9	plage												
14 Jun	N06W89	11	plage					1							
								4	0	0	4	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 4

Region 4467

10 Jun	S08W09	344	plage												
11 Jun	S08W23	345	plage												
12 Jun	S08W37	346	plage												
13 Jun	S08W51	346	plage												
14 Jun	S08W65	347	plage												
15 Jun	S08W79	348	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 344

Region 4468

14 Jun	N10E39	243	20	3	Cro	5	B								
15 Jun	N11E25	244	10	4	Bxo	3	B								
16 Jun	N11E11	245	plage												
17 Jun	N11W03	246	plage												
18 Jun	N11W17	246	plage												
19 Jun	N11W31	247	plage												
20 Jun	N11W45	248	plage												
21 Jun	N11W58	248	plage								1				
								0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 246



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio Lon	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
								C	M	X	S	1	2	3	4

Region 4469

15 Jun	S16E20	249	10	5	Bxo	3	B								
16 Jun	S16E08	248	20	5	Bxi	10	B								
17 Jun	S16W06	248	10	4	Bxo	4	B								
18 Jun	S16W22	251	plage												
19 Jun	S16W36	252	plage												
20 Jun	S16W50	253	plage												
21 Jun	S16W64	254	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 248

Region 4470

16 Jun	N07E68	188	40	6	Dro	4	B	1							
17 Jun	N07E54	187	80	8	Dao	8	B								
18 Jun	N07E40	186	70	8	Dao	6	B	2			2				
19 Jun	N06E28	188	90	8	Dao	5	B	1				1			
20 Jun	N08E14	189	90	8	Dao	4	B	1			1				
21 Jun	N07E02	188	20	7	Dro	5	B								
								5	0	0	3	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 188

Region 4471

18 Jun	N18E11	218	30	3	Dao	5	B								
19 Jun	N18W02	218	20	4	Cro	4	B								
20 Jun	N19W17	220	10	1	Axx	1	A								
21 Jun	N17W30	219	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 218

Region 4472

18 Jun	S13E82	148	plage					1							
19 Jun	S13E68	148	80	3	Hax	2	A								
20 Jun	S14E54	149	100	4	Dao	7	B		1						
21 Jun	S14E42	148	60	3	Dao	6	B								
								1	1	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 148



Region Summary - continued

Location		Sunspot Characteristics						Flares							
Date	Lat CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
		Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		<i>Region 4473</i>													
20 Jun	S08E69	133	270	11	Eko	9	B	2	1		1				
21 Jun	S08E56	134	200	11	Eai	12	BG	4	2		2		1		
								6	3	0	3	0	1	0	0

Still on Disk.

Absolute heliographic longitude: 134

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

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce
NOAA / National Weather Service
Space Weather Prediction Center
325 Broadway, Boulder CO 80305

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

The Weekly has been published continuously since 1951 and is available online since 1997.

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