

Space Weather Highlights
30 December - 05 January 2025

SWPC PRF 2575
06 January 2025

Solar activity reached R1 (Minor) levels on 30 Dec - 05 Jan, R2 (Moderate) levels on 30 Dec and 03-04 Jan and R3 (Strong) levels on 30 Dec and 03-04 Jan. During this highlight period, a total of 41 C-class, 34 M-class and 5 X-class flares were observed. Region 3936 (N14, L=144, class/area Ekc/400 on 26 Dec) contributed the first X-class (R3-Strong) flare with an X1.5/2n at 30 Dec/0414 UTC. Shortly after, Region 3932 (S17, L=155, class/area Fkc/480 on 23 Dec) contributed an X1.1/1n flare at 30 Dec/0431 UTC. This event also had a 430 sfu Tenflare associated with it. R1 (Minor) flares were observed on 31 Dec and 01-02 Jan from Regions 3932, 3936 and 3939 (S17, L=084, class/area Dac/130 on 31 Dec).

Activity picked up on 03 Jan with R1 (Minor), R2 (Moderate) and R3 (Strong) flare activity observed from new Region 3947 (N10, L=342, class/area Dkc/310 on 04 Jan). The largest event observed during this time was an X1.8 flare at 04/1248 UTC. Associated with this flare was a Type II Sweep with an estimated velocity of 314 km/s. On 04 Jan/1915 UTC, Region 3939 produced a long-duration C7.6 flare with a western CME modelled as a possible glancing blow hit at Earth on 06 Jan. R1 (Minor) activity predominated on 05 Jan from Region 3947.

A 10 MeV proton event was observed at geosynchronous orbit beginning at 04/2235 UTC, peaked at 20 pfu at 05/0055 UTC and ended at 05/0940 UTC. This event was associated with the long-duration C7.6 flare observed on 04 Jan.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels. However, the greater than 2 MeV electron flux briefly reached high levels of 1,070 pfu at 05/1950 UTC, but was not sustained long enough to warrant a SWPC electron flux alert.

Geomagnetic field activity was at mostly quiet levels on 30 Dec. 31 Dec - 02 Jan saw increased activity levels due to effects from an Earth-bound, 29 Dec CME. Active levels were observed during the last half of 31 Dec and early on 01 Jan. Levels increased to G1 (Minor), G2 (Moderate), G3 (Strong) and G4 (Severe) throughout 01 Jan. Activity levels decreased to unsettled to G1 (Minor) levels on 02 Jan as CME effects lessened. Quiet to unsettled levels were observed on 03 Jan. On 04 Jan, CME effects from a filament liftoff observed early on 01 Jan, coupled with positive polarity CH HSS influence, were observed. Unsettled to G1 (Minor) levels were observed. Unsettled to active levels were observed on 05 Jan due to positive polarity CH HSS effects.

Solar wind began the period at about 325 km/s, increased to 500 km/s on 01-02 Jan, decreased to about 400 km/s late on 03 Jan, increased again to about 680 km/s on 05 Jan and ended the period near 500 km/s. Bt values peaked late on 31 Dec to 27 nT while Bz values reached -22 nT midday on 01 Jan.



Space Weather Outlook

06 January - 01 February 2025

Solar activity is expected to be at low to moderate R1-R2 (Minor-Moderate) levels, with a chance for isolated R3 (Strong) levels due to potential flare activity from numerous active regions.

There is a chance for a greater than 10 MeV proton event reaching the S1 (Minor) level during the outlook period.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels.

Geomagnetic field activity is expected to reach R1 (Minor) levels on 06 Jan due to likely CME effects. Unsettled to active levels are likely on 07-08 Jan, 11-12 Jan, 16-20 Jan and 31 Jan-01 Feb due to CH HSS effects. Mostly quiet conditions are likely on 09-10 Jan, 13-15 Jan and 21-30 Jan.

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					
30 December	224	172	1090	C3.7	7	13	2	24	7	1	0	0
31 December	218	162	1040	C3.1	6	4	0	13	0	0	0	0
01 January	219	163	1200	C3.4	10	4	0	6	1	0	0	0
02 January	212	173	1270	C2.7	3	1	0	6	1	0	0	0
03 January	200	190	1370	C1.9	6	3	2	3	3	0	0	0
04 January	209	193	1245	C2.7	9	3	1	7	2	0	0	0
05 January	169	178	830	C1.8	5	4	0	9	0	2	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day -sr)		>2MeV	Electron Fluence (electrons/cm ² -day -sr)	
	>1 MeV	>10 MeV		>2MeV	
30 December	2.4e+06	2.4e+04			3.2e+06
31 December	2.7e+07	2.4e+04			4.7e+06
01 January	6.3e+06	1.6e+04			1.1e+06
02 January	7.6e+05	1.3e+04			4.8e+06
03 January	2.0e+05	1.3e+04			2.8e+06
04 January	5.6e+05	1.4e+05			3.0e+06
05 January	9.0e+06	8.8e+05			1.9e+07

Daily Geomagnetic Data

Date	Middle Latitude		High Latitude		Estimated	
	A	K-indices	A	K-indices	A	K-indices
30 December	7	1-1-2-1-2-3-2-2	9	0-0-4-2-4-1-1-1	7	1-2-3-2-2-2-2-2
31 December	10	0-1-2-1-2-4-3-3	15	0-0-5-3-1-4-3-3	14	0-1-2-1-1-4-4-4
01 January	48	3-4-4-5-6-6-6-4	113	2-6-5-7-8-8-7-2	86	4-5-5-6-7-8-7-4
02 January	14	3-3-2-4-3-3-2-2	51	3-1-4-7-6-6-5-3	22	4-3-3-5-4-4-3-3
03 January	7	2-3-3-1-1-2-1-1	3	1-1-2-2-0-1-1-0	9	3-3-3-2-1-1-1-2
04 January	21	2-4-4-4-4-4-3-2	62	1-5-7-6-5-6-6-3	32	3-5-5-4-3-5-5-4
05 January	12	2-2-3-3-3-3-3-2	34	3-2-3-5-6-5-5-2	22	4-3-3-4-3-4-4-3



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
30 Dec 0416	ALERT: X-ray Flux exceeded M5	30/0410
30 Dec 0429	SUMMARY: 10cm Radio Burst	30/0408 - 0415
30 Dec 0448	SUMMARY: 10cm Radio Burst	30/0429 - 0431
30 Dec 0452	SUMMARY: X-ray Event exceeded X1	30/0401 - 0428
30 Dec 0512	SUMMARY: X-ray Event exceeded X1	30/0429 - 0434
30 Dec 1655	ALERT: X-ray Flux exceeded M5	30/1654
30 Dec 1727	SUMMARY: X-ray Event exceeded M5	30/1645 - 1701
31 Dec 1608	WARNING: Geomagnetic Sudden Impulse expected	31/1650 - 1720
31 Dec 1614	WARNING: Geomagnetic K = 5	31/1615 - 2359
31 Dec 1614	WARNING: Geomagnetic K = 4	31/1615 - 01/0600
31 Dec 1656	ALERT: Geomagnetic K = 4	
31 Dec 1713	SUMMARY: Geomagnetic Sudden Impulse	31/1555
31 Dec 1746	SUMMARY: Geomagnetic Sudden Impulse	31/1621
31 Dec 2306	EXTENDED WARNING: Geomagnetic K = 5	31/1615 - 01/0600
01 Jan 0458	ALERT: Geomagnetic K = 5	
01 Jan 0554	EXTENDED WARNING: Geomagnetic K = 5	31/1615 - 01/1500
01 Jan 0554	EXTENDED WARNING: Geomagnetic K = 4	31/1615 - 01/1800
01 Jan 0853	ALERT: Geomagnetic K = 5	
01 Jan 0946	ALERT: Geomagnetic K = 5	
01 Jan 0950	WARNING: Geomagnetic K = 6	01/0950 - 1500
01 Jan 1044	ALERT: Geomagnetic K = 6	
01 Jan 1124	WARNING: Geomagnetic K>= 7	01/1124 - 1500
01 Jan 1252	ALERT: Geomagnetic K = 5	
01 Jan 1305	ALERT: Geomagnetic K = 6	
01 Jan 1337	EXTENDED WARNING: Geomagnetic K = 5	31/1615 - 01/2359
01 Jan 1337	EXTENDED WARNING: Geomagnetic K>= 7	01/1124 - 2100
01 Jan 1337	EXTENDED WARNING: Geomagnetic K = 6	01/0950 - 2100
01 Jan 1410	ALERT: Geomagnetic K = 7	
01 Jan 1418	EXTENDED WARNING: Geomagnetic K = 4	31/1615 - 01/2359

Alerts and Warnings Issued

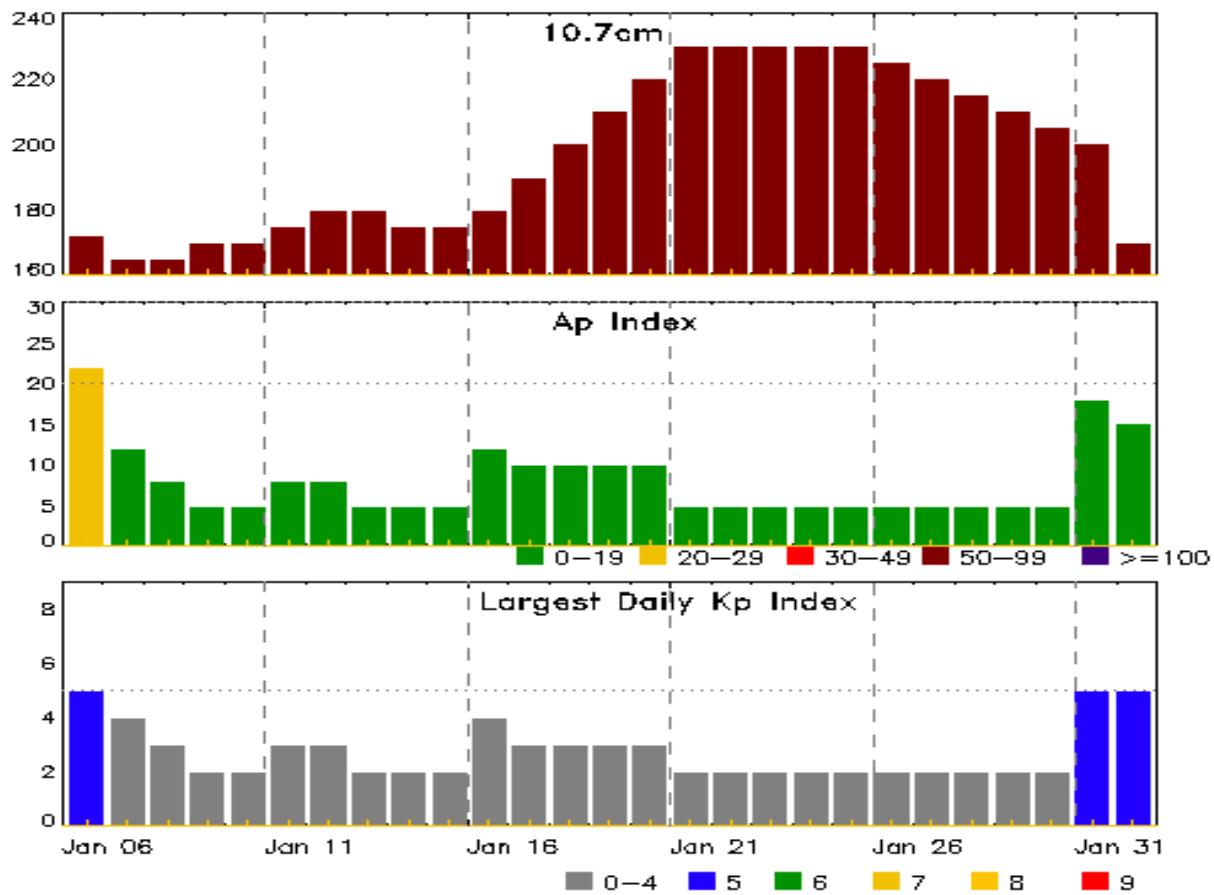
Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
01 Jan 1546	ALERT: Geomagnetic K = 5	
01 Jan 1630	ALERT: Geomagnetic K = 6	
01 Jan 1743	ALERT: Geomagnetic K = 7	
01 Jan 1747	ALERT: Geomagnetic K = 8	
01 Jan 1802	EXTENDED WARNING: Geomagnetic K = 5	31/1615 - 02/0600
01 Jan 1802	EXTENDED WARNING: Geomagnetic K = 4	31/1615 - 02/1200
01 Jan 1802	EXTENDED WARNING: Geomagnetic K>= 7	01/1124 - 02/0600
01 Jan 1802	EXTENDED WARNING: Geomagnetic K = 6	01/0950 - 02/0600
01 Jan 1811	ALERT: Geomagnetic K = 5	
01 Jan 1828	ALERT: Geomagnetic K = 6	
01 Jan 2110	ALERT: Geomagnetic K = 7	
02 Jan 1020	WARNING: Geomagnetic K = 5	02/1020 - 1800
02 Jan 1025	ALERT: Geomagnetic K = 5	
02 Jan 1025	EXTENDED WARNING: Geomagnetic K = 4	31/1615 - 02/2100
02 Jan 2035	EXTENDED WARNING: Geomagnetic K = 4	31/1615 - 03/0300
02 Jan 2235	WATCH: Geomagnetic Storm Category G1 predicted	
03 Jan 0224	EXTENDED WARNING: Geomagnetic K = 4	31/1615 - 03/1200
03 Jan 1139	ALERT: X-ray Flux exceeded M5	03/1136
03 Jan 1200	SUMMARY: X-ray Event exceeded X1	03/1129 - 1149
03 Jan 2241	ALERT: X-ray Flux exceeded M5	03/2241
03 Jan 2305	SUMMARY: X-ray Event exceeded X1	03/2232 - 2251
03 Jan 2321	ALERT: Type II Radio Emission	03/2244
03 Jan 2357	ALERT: X-ray Flux exceeded M5	03/2356
04 Jan 0017	SUMMARY: X-ray Event exceeded M5	03/2350 - 04/0005
04 Jan 0244	WARNING: Geomagnetic K = 4	04/0244 - 2359
04 Jan 0309	WARNING: Geomagnetic Sudden Impulse expected	04/0300 - 0400
04 Jan 0514	ALERT: Geomagnetic K = 4	
04 Jan 0515	ALERT: X-ray Flux exceeded M5	04/0514
04 Jan 0523	WARNING: Geomagnetic K = 5	04/0525 - 1500



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
04 Jan 0534	SUMMARY: X-ray Event exceeded M5	04/0458 - 0527
04 Jan 0550	ALERT: Geomagnetic K = 5	
04 Jan 0754	ALERT: Geomagnetic K = 5	
04 Jan 0818	WARNING: Geomagnetic K = 6	04/0818 - 1200
04 Jan 1245	ALERT: X-ray Flux exceeded M5	04/1243
04 Jan 1301	SUMMARY: X-ray Event exceeded X1	04/1234 - 1256
04 Jan 1331	ALERT: Type II Radio Emission	04/1252
04 Jan 1422	EXTENDED WARNING: Geomagnetic K = 5	04/0525 - 2359
04 Jan 1704	ALERT: Type IV Radio Emission	04/1444
04 Jan 1807	ALERT: Geomagnetic K = 5	
04 Jan 1947	ALERT: Geomagnetic K = 5	
04 Jan 2143	WARNING: Proton 10MeV Integral Flux > 10pfu	04/2140 - 05/1200
04 Jan 2213	EXTENDED WARNING: Geomagnetic K = 4	04/0244 - 05/1200
04 Jan 2213	EXTENDED WARNING: Geomagnetic K = 5	04/0525 - 05/1200
04 Jan 2252	ALERT: Proton Event 10MeV Integral Flux >= 10pfu	04/2235
05 Jan 1148	EXTENDED WARNING: Geomagnetic K = 4	04/0244 - 05/2359
05 Jan 1155	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	04/2140 - 05/2359
05 Jan 1738	WATCH: Geomagnetic Storm Category G1 predicted	
05 Jan 2222	SUMMARY: Proton Event 10MeV Integral Flux >= 10pfu	04/2235 - 05/0940

Twenty-seven Day Outlook



Date	Radio Flux	Planetary	Largest	Date	Radio Flux	Planetary	Largest
	10.7cm	A Index	Kp Index		10.7cm	A Index	Kp Index
06 Jan	172	22	5	20 Jan	220	10	3
07	165	12	4	21	230	5	2
08	165	8	3	22	230	5	2
09	170	5	2	23	230	5	2
10	170	5	2	24	230	5	2
11	175	8	3	25	230	5	2
12	180	8	3	26	225	5	2
13	180	5	2	27	220	5	2
14	175	5	2	28	215	5	2
15	175	5	2	29	210	5	2
16	180	12	4	30	205	5	2
17	190	10	3	31	200	18	5
18	200	10	3	01 Feb	170	15	5
19	210	10	3				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat	CMD #	Radio Flux 245	2695	II	IV
30 Dec	0033	0047	0058	M1.7	0.003	SF	S17E19		3939			
30 Dec	0250	0300	0308	M1.7	0.012	SF	S05E25		3940			
30 Dec	0401	0414	0428	X1.5	0.140	2N	N10W45		3936		1000	
30 Dec	0429	0431	0434	X1.1	0.037	1N	S19W50		3932		430	
30 Dec	0613	0625	0640	M3.5	0.041	SF	N11W47		3936		100	
30 Dec	0834	0840	0844	M1.4	0.004	SF	S09W55		3933			
30 Dec	0844	0850	0856	M1.7	0.012				3933	150		
30 Dec	1000	1011	1018	M1.7	0.013	SF	S16E12		3939			
30 Dec	1434	1446	1453	M3.5	0.021	1N	N11W51		3936			
30 Dec	1645	1654	1701	M5.0	0.019	1N	N13W51		3936			
30 Dec	1714	1730	1736	M1.2	0.003	1N	N13W55		3936			
30 Dec	1736	1742	1748	M1.6	0.004				3936			
30 Dec	1814	1824	1827	M1.6	0.006	SF	S11W62		3936	280		
30 Dec	1827	1833	1843	M1.7	0.017				3936			
30 Dec	2235	2241	2248	M1.0	0.007	1N	S16E06		3939			
31 Dec	0450	0500	0506	M1.0	0.007	SF	S19W63		3932			
31 Dec	2109	2151	2202	M2.1	0.046				3936			
31 Dec	2202	2219	2238	M2.7	0.055				3936			
31 Dec	2246	2250	2255	M2.9	0.014				3938			
01 Jan	0435	0445	0502	M1.1	0.015				3936			
01 Jan	1512	1524	1543	M1.0	0.014				3936			
01 Jan	1805	1817	1828	M1.2	0.014	SF	N15W83		3936			
01 Jan	2132	2141	2146	M1.1	0.008				3936			
02 Jan	1718	1740	1759	M1.1	0.018	1N	S09W29		3939			
03 Jan	1129	1139	1149	X1.2	0.081				3947			
03 Jan	2154	2212	2227	M2.3	0.029	1N	N11E57		3947			
03 Jan	2232	2241	2251	X1.1	0.072	1N	N10E61		3947		2	
03 Jan	2314	2324	2333	M1.9	0.006	SF	N10E56		3947			
03 Jan	2350	2356	0005	M5.8	0.040	1N	N10E56		3947			
04 Jan	0034	0036	0041	M1.5	0.006	1N	N10E56		3947			
04 Jan	0458	0518	0527	M7.6	0.054	1N	N10E56		3947			
04 Jan	1234	1248	1256	X1.8	0.110				3947	400	100	2
04 Jan	2308	2326	2336	M2.1	0.020	SF	N11E45		3947			
05 Jan	0214	0239	0256	M4.1	0.058	SF	N11E44		3947			
05 Jan	0704	0718	0741	M2.1	0.033	SN	N12E40		3947			
05 Jan	0909	0936	0951	M4.1	0.052	2N	N11E40		3947			
05 Jan	1520	1537	1543	M2.4	0.015				3947			



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
30 Dec	0033	0047	0058	M1.7	SF	S17E19	3939
30 Dec	0208	0212	0217	C7.3			3939
30 Dec	0250	0300	0308	M1.7	SF	S05E25	3940
30 Dec	0401	0414	0428	X1.5	2N	N10W45	3936
30 Dec	0428	0429	0437	X1.1	1N	S19W50	3932
30 Dec	0604	0604	0606		SF	S09W82	3933
30 Dec	0613	0625	0640	M3.5	SF	N11W47	3936
30 Dec	0618	0624	0652		1N	S17E16	3939
30 Dec	B0643	U0645	0714		SF	N09W44	3936
30 Dec	0743	0745	0800		SF	N18W06	3938
30 Dec	0808	0810	0811		SF	N10W48	3936
30 Dec	0822	0823	0830		SF	N10W49	3936
30 Dec	0834	0840	0844	M1.4	SF	S09W55	3933
30 Dec	0844	0850	0856	M1.7			3933
30 Dec	0947	U1021	1115		SF	S17E11	3939
30 Dec	1000	1011	1018	M1.7	SF	S16E12	3939
30 Dec	1025	1026	1032		SF	N11W48	3936
30 Dec	1053	U1053	1113		SF	N18W09	3938
30 Dec	1353	1402	1407	C6.0	SF	N11W51	3936
30 Dec	1411	1412	1419		SF	N11W51	3936
30 Dec	1430	1444	1459	M3.5	1N	N11W51	3936
30 Dec	1445	1453	1455		SF	N18W11	3938
30 Dec	1458	1500	1528		1F	N13W51	3936
30 Dec	1529	1552	1617		SF	N13W51	3936
30 Dec	1544	1546	1612		SF	N20W11	3938
30 Dec	1645	1654	1701	M5.0	1N	N13W51	3936
30 Dec	1714	1730	1736		1N	N13W55	3936
30 Dec	1734	1739	1745		SF	S06E17	3941
30 Dec	1736	1742	1748	M1.6			3936
30 Dec	1814	1824	1827	M1.6	SF	S11W62	3936
30 Dec	1827	1833	1843	M1.7			3936
30 Dec	1956	2003	2007	C5.9			3936
30 Dec	2021	2029	2033	C5.5			3936
30 Dec	2127	2134	2138	C6.5			3936
30 Dec	2148	2200	2202	C6.1			3936
30 Dec	2202	2207	2228		SF	S06E16	3941
30 Dec	2219	2225	2229	C7.6			3936
30 Dec	2235	2241	2248	M1.0	1N	S16E06	3939



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
30 Dec	B2241	U2241	2251		SF	S05E15	3940
30 Dec	2249	2254	2309		SF	N12W56	3936
30 Dec	2302	2303	2307		SF	S15E05	3939
31 Dec	0005	0015	0027	C7.2	SF	N12W56	3936
31 Dec	0052	0054	0057		SF	N12W56	3936
31 Dec	0101	0101	0103		SF	N11W59	3936
31 Dec	0104	0105	0106		SF	N11W59	3936
31 Dec	0116	0116	0118		SF	S17E05	3939
31 Dec	0117	0121	0124		SF	N11W59	3936
31 Dec	0126	0126	0129		SF	N11W59	3936
31 Dec	0135	0135	0139		SF	N11W59	3936
31 Dec	0243	0250	0255	C5.0			3932
31 Dec	0248	0248	0252		SF	N11W57	3936
31 Dec	0355	0408	0429	C4.7			3938
31 Dec	0450	0500	0506		M1.0	S19W63	3932
31 Dec	0800	0803	0826		SF	N18W22	3938
31 Dec	0901	0925	0943	C7.5	SF	N12W61	3936
31 Dec	1013	1017	1019		SF	S19E01	3939
31 Dec	1444	1452	1507	C5.0			3945
31 Dec	1617	1631	1641		C5.7		
31 Dec	2109	2151	2202	M2.1			3936
31 Dec	2202	2219	2238		M2.7		3936
31 Dec	2246	2250	2255	M2.9			3938
01 Jan	B0017	U0017	0031		1F	S15W06	3939
01 Jan	0340	0351	0403	C8.1			3936
01 Jan	0435	0445	0502		M1.1		3936
01 Jan	0600	0600	0602		SF	N11W57	3936
01 Jan	1007	1020	1034	C7.1			
01 Jan	1145	1155	1211		C5.8		3936
01 Jan	1325	1334	1349	C5.6	SF	S18E56	3943
01 Jan	1349	1353	1403		SF	S08E64	3945
01 Jan	1403	1409	1414	C5.5			3936
01 Jan	1414	1419	1425		C5.7		
01 Jan	1512	1524	1543	M1.0			3936
01 Jan	1805	1817	1828		M1.2	SF N15W83	3936
01 Jan	1853	1854	1859		SF	S09E62	3945
01 Jan	1937	1948	1958	C7.9			3936
01 Jan	1939	1940	1942		SF	N15W40	3938



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
01 Jan	2112	2119	2132	C7.2			3936
01 Jan	2132	2141	2146	M1.1			3936
01 Jan	2218	2238	2255	C7.6			3936
02 Jan	0124	0124	0125		SF	S10E59	3945
02 Jan	0302	0302	0304		SF	N11E85	
02 Jan	0324	0325	0326		SF	S17W15	3939
02 Jan	0529	0538	0546	C5.2			3947
02 Jan	0531	0531	0533		SF	S17W20	3939
02 Jan	0535	0537	0540		SF	N11E85	
02 Jan	0608	0617	0643	C7.5			3947
02 Jan	1000	1001	1002		SF	N11E80	3947
02 Jan	1207	1219	1233	C6.6			3947
02 Jan	1717	1800	1859	M1.1	1N	S09W29	3939
03 Jan	0052	0100	0107	C4.2			
03 Jan	0117	0124	0131	C3.5			3947
03 Jan	0336	0341	0345	C2.9			
03 Jan	0751	0823	0845	C4.9			3947
03 Jan	1129	1139	1149	X1.2			3947
03 Jan	1545	1550	1559	C5.1			3947
03 Jan	2018	2039	2112	C9.7			3947
03 Jan	2026	2120	2138		SF	N11E59	3947
03 Jan	2028	2028	2032		SF	S14W68	3939
03 Jan	2154	2212	2227	M2.3	1N	N11E57	3947
03 Jan	2231	2239	2300	X1.1	1N	N10E61	3947
03 Jan	2314	2324	2333	M1.9	SF	N10E56	3947
03 Jan	B2337	2354	A2359	M5.8	1N	N10E56	3947
04 Jan	B0000	2354	0033	M1.5	1N	N10E56	3947
04 Jan	0121	0123	0128		SF	N10E56	3947
04 Jan	0221	0228	0234	C3.4	SF	N10E56	3947
04 Jan	0245	0248	0252	C4.1			3947
04 Jan	0254	0255	0258		SF	N10E56	3947
04 Jan	0306	0314	0326	C3.7			3947
04 Jan	0346	0352	0358	C5.9	SN	S16E16	3943
04 Jan	0458	0518	0527	M7.6	1N	N10E56	3947
04 Jan	0830	0852	0906	C9.1	SF	N10E56	3947
04 Jan	1122	1132	1143	C7.1			3941
04 Jan	1234	1248	1256	X1.8			3947
04 Jan	1411	1509	1634	C9.3			3939



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
04 Jan	1827	1915	2038	C7.6			3939
04 Jan	1939	2036	2038		SF	N12E45	3947
04 Jan	2134	2142	2152	C5.8			3943
04 Jan	2308	2326	2336	M2.1	SF	N11E45	3947
05 Jan	0000	0003	0007		SF	N10E48	3947
05 Jan	0214	0239	0256	M4.1	SF	N11E44	3947
05 Jan	0420	0421	0426		SF	N11E42	3947
05 Jan	0530	0533	0537	C5.6	SF	N11E41	3947
05 Jan	0649	0658	0702	C7.1	2N	N12E42	3947
05 Jan	0704	0718	0741	M2.1	SN	N12E40	3947
05 Jan	0909	0936	0951	M4.1	2N	N11E40	3947
05 Jan	1009	1013	1016		SF	N11E39	3947
05 Jan	1443	1444	1453		SF	S18E04	3943
05 Jan	1520	1537	1543	M2.4			3947
05 Jan	1758	1807	1810	C4.8	SF	N12E37	3947
05 Jan	1810	1817	1821	C5.0			3941
05 Jan	2054	2057	2101	C4.3			3943
05 Jan	2339	2340	2346		SF	N10E30	3947



Region Summary

Date	Lat	CMD	Location		Sunspot Characteristics				Flares								
			Helio	Lon	Area 10^6	Extent hemi.	Spot Class	Spot Count	Mag Class	X-ray	Optical						
										C	M	X	S	1	2	3	4
Region 3636																	
11 Apr	S21E72		252		30	2	Hsx	2	A	3							
12 Apr	S21E58		252		50	3	Hsx	2	A				4				
13 Apr	S21E46		251		100	5	Cso	5	B								
14 Apr	S21E33		251		80	3	Cso	4	B	1			1				
15 Apr	S18E20		251		90	4	Cso	3	B				1				
16 Apr	S20E08		250		90	4	Cso	3	B								
17 Apr	S20W05		249		70	3	Cso	4	B								
18 Apr	S21W18		249		60	3	Cao	4	B								
19 Apr	S21W31		249		30	3	Cao	3	B								
20 Apr	S21W44		249		20	23	Cro	3	B	1			1				
21 Apr	S21W58		250		10	1	Axx	1	A								
22 Apr	S21W70		248		10	1	Axx	1	A	1			1				
23 Apr	S21W84		249	plage						1			1				
										7	0	0	9	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 249

Region 3927

17 Dec	S08E89	173	plage							1						
18 Dec	S08E69	179	150	10	Dai	3	B	5								
19 Dec	S10E57	178	140	9	Dai	7	BG	4		2						
20 Dec	S11E44	178	280	13	Eki	10	BG									
21 Dec	S08E25	183	100	2	Hsx	1	A	2								
22 Dec	S08E11	184	90	2	Hsx	1	A	1								
23 Dec	S08W03	185	90	2	Hsx	1	A									
24 Dec	S08W16	185	90	2	Hax	1	A									
25 Dec	S08W30	185	60	2	Hax	2	A									
26 Dec	S08W43	186	40	2	Hax	1	A									
27 Dec	S08W58	187	5	1	Axx	1	A									
28 Dec	S08W71	187	5	1	Axx	1	A			1						
29 Dec	S08W85	188	plage							13	0	0	3	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 185



Region Summary - continued

Date	Lat	CMD	Location		Sunspot Characteristics					Flares							
			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 3928																	
19 Dec	S14E60		175		80		5	Dao	4	B	3	2					
20 Dec	S17E49		173		150		10	Dai	6	BG	4	1				1	
21 Dec	S14E34		174		220		9	Dai	12	B	1					1	
22 Dec	S13E20		175		260		9	Dki	18	BG	2					1	
23 Dec	S14E06		176		260		9	Dko	18	BG		1				1	
24 Dec	S14W07		176		280		9	Dkc	20	BG		1					
25 Dec	S14W22		177		280		9	Dkc	26	BG							
26 Dec	S14W35		178		200		13	Eac	16	BG							
27 Dec	S14W50		179		120		9	Dai	17	BG	1	1				2	
28 Dec	S15W61		177		100		6	Dao	6	B							
29 Dec	S14W75		178		10		1	Hrx	1	A						1	
30 Dec	S14W89		179		plage												
											12	5	0	7	0	0	
																0	

Crossed West Limb.

Absolute heliographic longitude: 176

Region 3929

20 Dec	N17E31		191		20		2	Hsx	1	A	1					
21 Dec	N17E18		190		10		1	Axx	1	A						
22 Dec	N17E04		191		10		1	Axx	1	A						
23 Dec	N15W10		192		20		4	Bxo	4	B						
24 Dec	N15W24		193		10		4	Bxo	2	B						
25 Dec	N15W38		194		plage											
26 Dec	N15W52		195		plage											
27 Dec	N18W67		196		10		4	Bxo	2	B						1
28 Dec	N17W80		196		30		4	Cao	3	B	1			10	1	
29 Dec	N18W93		196		30		4	Cao	3	B		1		1		
											2	1	0	12	1	0
															0	0

Crossed West Limb.

Absolute heliographic longitude: 191

Region Summary - continued

Date	Lat	CMD	Location		Sunspot Characteristics					Flares				
			Helio	Lon	Area 10^6 hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray	Optical			
										C	M	X	S	1
										1	2	3	4	
Region 3932														
20 Dec	S18E62		160	180	7	Dai	8	B	2				1	
21 Dec	S17E54		154	310	13	Ekc	12	B	4	1			1	
22 Dec	S17E42		153	480	12	Ekc	17	BG	2	2			4	1
23 Dec	S17E27		155	480	19	Fkc	25	BGD	1	1			2	
24 Dec	S18E13		156	380	17	Fkc	30	BG	2	5			3	2
25 Dec	S18E01		154	380	17	Fkc	34	BG			1			
26 Dec	S17W08		151	280	12	Ekc	21	BGD						
27 Dec	S17W23		152	120	6	Dac	24	BGD	2				2	
28 Dec	S17W37		153	140	7	Dac	13	BG		2			1	2
29 Dec	S17W50		153	40	8	Dai	13	BG		1			2	
30 Dec	S16W62		152	40	7	Cao	4	B			1		1	
31 Dec	S15W76		153	10	2	Axx	2	A	1	1			1	
01 Jan	S15W90		154	plage						14	14	1	17	6
										0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 154

Region 3933

21 Dec	S08E34		174	200	10	Dao	7	B				1	1	
22 Dec	S07E21		174	260	9	Dko	9	B						
23 Dec	S08E07		175	300	16	Fki	18	BD						
24 Dec	S08W06		175	350	14	Ekc	18	BGD	3			6		
25 Dec	S08W21		176	350	14	Ekc	18	BGD				1		
26 Dec	S08W34		177	300	13	Eko	12	BG				1		
27 Dec	S07W48		177	200	10	Dac	16	BG	1			2		
28 Dec	S08W61		177	140	11	Eai	9	B	3	1		6		
29 Dec	S08W75		178	180	15	Eai	8	BG		2		3		
30 Dec	S08W87		177	180	11	Eao	5	BG		3		2		
									7	6	0	22	1	0
									0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 175



Region Summary - continued

Date	Lat	CMD	Location		Sunspot Characteristics					Flares										
			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 3934																				
21 Dec	N12E60		148		60		9	Dro	4	B										
22 Dec	N13E47		148		150		17	Fao	8	B				1						
23 Dec	N12E30		152		40		7	Cso	4	B										
24 Dec	N13E13		156		40		1	Cso	2	B										
25 Dec	N13W01		156		40		1	Hax	1	A										
26 Dec	N13W15		158		20		1	Hax	1	A										
27 Dec	N13W30		159		plage							1								
28 Dec	N13W44		160		plage									1						
29 Dec	N13W58		161		plage							1	1		4	2				
30 Dec	N13W72		162		plage															
31 Dec	N13W86		163		plage								2	1	0	6	2	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 156

Region 3935

22 Dec	S18E67		128		140		3	Hsx	1	A									
23 Dec	S18E57		124		150		5	Cso	2	B									
24 Dec	S18E43		126		150		4	Cso	2	B									
25 Dec	S18E29		126		150		3	Cso	2	B									
26 Dec	S18E15		128		150		4	Cao	2	B									
27 Dec	S18E01		128		60		2	Hsx	1	A									
28 Dec	S19W12		128		80		2	Hsx	1	A									
29 Dec	S19W24		127		60		2	Hsx	1	A									
30 Dec	S19W38		127		70		3	Hsx	1	A									
31 Dec	S19W51		128		70		2	Hax	1	A									
01 Jan	S19W64		129		50		2	Hsx	1	A									
02 Jan	S19W78		128		50		2	Hsx	1	A									
03 Jan	S18W91		128		60		1	Hsx	1	A				0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 128

Region Summary - continued

Date	Lat	CMD	Location		Sunspot Characteristics					Flares						
			Helio	Lon	Area 10^6 hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
										C	M	X	S	1	2	3
Region 3936																
23 Dec	N13E41		142		260	8	Dko	9	B							
24 Dec	N13E27		142		350	10	Dkc	9	B							1
25 Dec	N13E12		143		350	9	Dkc	9	B		4					4
26 Dec	N14W01		144		400	12	Ekc	23	B							
27 Dec	N14W16		145		330	11	Ekc	25	BD							5
28 Dec	N13W29		145		350	11	Ekc	30	BD							8
29 Dec	N13W41		144		380	15	Ekc	20	BGD		10	1	10	1		
30 Dec	N12W55		144		400	15	Ekc	22	BGD	6	7	1	10	4	1	
31 Dec	N13W69		146		360	16	Fkc	20	BGD	2	2					9
01 Jan	N13W84		148		340	13	Ekc	8	BD	6	4					2
										18	23	2	49	5	1	0
																0

Crossed West Limb.

Absolute heliographic longitude: 144

Region 3937

23 Dec	S11E66		116		40	2	Hrx	1	A							
24 Dec	S12E52		117		40	1	Hsx	1	A							
25 Dec	S12E38		117		40	1	Hsx	1	A							
26 Dec	S12E25		118		40	2	Hsx	1	A							
27 Dec	S13E10		119		20	1	Hsx	1	A							
28 Dec	S12W01		117		30	1	Hsx	1	A							
29 Dec	S12W14		117		20	1	Hsx	1	A							
30 Dec	S12W27		117		20	1	Hsx	1	A							
31 Dec	S12W41		118		20	1	Hsx	1	A							
01 Jan	S12W54		118		10	1	Axx	1	A							
02 Jan	S12W68		118		plage					0	0	0	0	0	0	0
03 Jan	S12W82		119		plage											0

Crossed West Limb.

Absolute heliographic longitude: 117



Region Summary - continued

Date	Lat	CMD	Location		Sunspot Characteristics					Flares							
			Helio	Lon	Area 10^{-6}	Extent hemi.	Spot Class	Spot Count	Mag Class	X-ray			Optical				
										C	M	X	S	1	2	3	4
Region 3938																	
24 Dec	N20E66		103	180	9	Dsi	7	BG				1					
25 Dec	N20E53		102	180	8	Dsi	12	BG		2	2				2		
26 Dec	N21E40		103	210	12	Eac	22	BGD		3	1		3	1	1		
27 Dec	N19E25		104	150	7	Dac	21	BG		4	1		4	1	1		
28 Dec	N19E12		104	210	9	Dai	20	BG						5			
29 Dec	N20W01		104	170	8	Dai	21	BG			1			7			
30 Dec	N20W14		104	150	10	Dao	12	BG						4			
31 Dec	N19W28		105	140	9	Dai	14	BG		1	1			1			
01 Jan	N19W40		104	120	9	Cai	9	BG						1			
02 Jan	N19W55		105	80	10	Dao	13	B									
03 Jan	N19W69		106	50	8	Hax	3	A									
04 Jan	N19W83		107	50	8	Hax	3	A									
										10	7	0	27	2	2	0	0

Crossed West Limb.

Absolute heliographic longitude: 104

Region 3939

25 Dec	S17E74		82	30	3	Cso	2	B								
26 Dec	S17E60		83	40	4	Hsx	1	A								
27 Dec	S17E45		84	80	2	Hsx	2	A	1							
28 Dec	S17E34		82	110	5	Dso	6	B	1				1			
29 Dec	S17E20		83	120	7	Dso	14	B		4		5	1			
30 Dec	S17E06		84	110	7	Dac	12	B	1	2		4	2			
31 Dec	S17W07		84	130	7	Dac	14	BD				2				
01 Jan	S17W20		84	130	7	Cai	9	BG					1			
02 Jan	S17W33		83	130	5	Cso	10	B	1		2	1				
03 Jan	S17W47		84	120	5	Cso	8	B				1				
04 Jan	S17W61		85	90	2	Hsx		A	2							
05 Jan	S17W74		85	80	2	Hsx	2	A		5	7	0	15	5	0	0

Still on Disk.

Absolute heliographic longitude: 84



Region Summary - continued

Date	Lat	CMD	Location		Sunspot Characteristics					Flares											
			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 3940																					
27 Dec	S05E38		91		5		1	Axx	1	A					1						
28 Dec	S06E38		78		10		1	Axx	1	A					1						
29 Dec	S06E24		80		plage							2			3						
30 Dec	S06E10		80		plage							1			2						
31 Dec	S06W04		81		plage																
01 Jan	S06W18		82		plage																
02 Jan	S06W33		83		plage																
03 Jan	S06W47		84		plage																
04 Jan	S06W62		86		plage																
05 Jan	S06W76		87		plage								0	3	0	7	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 81

Region 3941

27 Dec	S05E50		79		20		2	Hax	2	A										
28 Dec	S06E37		79		20		5	Bxo	2	B										
29 Dec	S06E26		77		70		9	Dai	16	BG										
30 Dec	S06E14		76		70		11	Eac	13	BD			2							
31 Dec	S06W00		77		80		11	Cai	10	B										
01 Jan	S06W13		77		80		13	Cai	10	B										
02 Jan	S06W26		76		80		11	Cso	7	B										
03 Jan	S05W40		77		80		11	Cso	6	B										
04 Jan	S04W53		77		90		10	Dso	3	B	1									
05 Jan	S06W67		78		50		10	Dso	2	B	1		2	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 77



Region Summary - continued

Date	Lat	CMD	Location		Sunspot Characteristics				Flares							
			Helio	Lon	Area 10^{-6} hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
										C	M	X	S	1	2	3
Region 3942																
29 Dec	S13E54		49		10		1	Axx	1	A						
30 Dec	S13E40		50		10		1	Axx	1	A						
31 Dec	S13E26		51		plage											
01 Jan	S13E12		52		plage											
02 Jan	S13W02		52		plage											
03 Jan	S13W16		53		plage											
04 Jan	S13W30		54		plage											
05 Jan	S13W44		55		plage											
										0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 52

Region 3943

30 Dec	S15E73		17		40		3	Hax	1	A						
31 Dec	S15E62		15		90		8	Dao	6	B						
01 Jan	S15E48		16		90		7	Cao	6	B	1				1	
02 Jan	S16E35		15		130		7	Dao	7	B						
03 Jan	S15E21		16		130		8	Dao	13	BG						
04 Jan	S17E08		16		80		11	Eso	14	BG	2				1	
05 Jan	S16W06		16		60		7	Hsx	5	A	1				1	
											4	0	0	3	0	0

Still on Disk.

Absolute heliographic longitude: 16

Region 3944

31 Dec	S14E33		44		140		7	Dao	4	BG						
01 Jan	S14E19		45		170		8	Dai	9	B						
02 Jan	S14E06		44		220		8	Dai	12	B						
03 Jan	S13W08		45		200		8	Dao	14	B						
04 Jan	S13W22		46		140		7	Dao	13	B						
05 Jan	S14W35		46		100		7	Dao	12	B						0
											0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 44



Region Summary - continued

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

Region 3945

01 Jan	S10E60	4	170	11	Eai	6	B	1		2				
02 Jan	S09E46	4	310	12	Eki	12	BG			1				
03 Jan	S10E33	4	350	9	Dki	15	BG							
04 Jan	S10E19	5	160	9	Dai	16	BG							
05 Jan	S09E05	6	80	8	Cai	12	B			2	0	0	3	0
										0	0	0	0	0
										0	0	0	0	0
										0	0	0	0	0
										0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 6

Region 3946

01 Jan	S12W40	103	40	2	Dao	4	B							
02 Jan	S12W53	103	160	3	Dao	6	B							
03 Jan	S11W67	104	120	5	Dao	4	B							
04 Jan	S10W81	105	120	5	Dao	4	B							
05 Jan	S10W95	106	120	5	Dao	4	B			0	0	0	0	0
										0	0	0	0	0
										0	0	0	0	0
										0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 103

Region 3947

02 Jan	N10E71	339	100	5	Dao	4	BG	3		1				
03 Jan	N11E57	340	240	5	Dac	8	BD	4	3	2	2	3		
04 Jan	N10E42	342	310	6	Dkc	10	BGD	4	3	1	6	2		
05 Jan	N11E29	342	230	11	Eac	12	BGD	2	4	8		2		
								13	10	3	17	5	2	0
								0	0	0	0	0	0	0
								0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 342

Region 3948

02 Jan	N23E36	14	10	1	Axx	1	A							
03 Jan	N16E33	4	10	2	Bxo	2	B							
04 Jan	N16E19	5	5	1	Axx	1	A							
05 Jan	N16E05	6	10	2	Bxo	1	B			0	0	0	0	0
								0	0	0	0	0	0	0
								0	0	0	0	0	0	0
								0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 6



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares							
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical			
			Lon	10^6 hemi.	(helio)	Class	Count		C	M	X	S	1	2	3
Region 3949															
03 Jan	S09W23		60	10	3	Bxo	6	B							
04 Jan	S08W37		61	40	4	Cso	5	B							
05 Jan	S07W51		62	30	4	Cro	2	B		1		1	0	0	0
												0	0	0	0

Still on Disk.

Absolute heliographic longitude: 60

Region 3950

04 Jan	S18E64		320	100	2	Hsx	1	A							
05 Jan	S18E49		322	40	1	Hsx	1	A				0	0	0	0

Still on Disk.

Absolute heliographic longitude: 322

Region 3951

04 Jan	S14E25		359	50	1	Hsx	1	A							
05 Jan	S13E11		360	20	1	Hrx	2	A				0	0	0	0

Still on Disk.

Absolute heliographic longitude: 360

Region 3952

04 Jan	N19W01		25	10	3	Bxo	2	B							
05 Jan	N18W15		26	10	4	Axx	3	A				0	0	0	0

Still on Disk.

Absolute heliographic longitude: 25

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.

<https://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecast> --

Current

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<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
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