Space Weather Highlights **SWPC PRF 2472**
09 January - 15 January 2023 **16 January 2023**

Solar activity ranged from moderate to high levels during a very active week of solar flaring. Region 3184 (S13, L=180, class/area, Ekc/730 on 11 Jan) produced the largest event of the reporting period with an X1.9/3b flare (R3-Strong) at 09/1850 UTC. Region 3184 also produced multiple M-class flares: an M1.1/Sf at 09/0102 UTC; an M1.0/Sf at 10/0216 UTC; an M1.0 at 10/1108 UTC; an M1.2 at 10/1748 UTC; and an M5.6/1b at 11/0156 UTC with an associated Tenflare and Type II radio sweep (628 km/s) at 11/0153 UTC. The next largest event was an X1.0/2b flare (R3-Strong) from Region 3186 (N25, L=170, class/area, Eki/500 on 13 Jan) with an associated Tenflare, at 10/2247 UTC. Region 3186 produced: an M5.1/Sf at 10/0016 UTC; an M1.3 at 10/1728 UTC; an M2.4/1f at 11/0059 UTC; an M3.1/Sn at 11/0833 UTC; an M1.1 at 12/0618 UTC; an M1.5 at 12/0646 UTC; and an M1.4/1n at 13/0259 UTC. Not to be left out of the solar flare activity was Region 3181 (S17, L=280, class/area, Ekc/700 on 10 Jan) providing: an M2.1/1n at 09/0901 UTC; an M1.0 at 09/1322 UTC; an M2.6/2n at 10/0241 UTC; an M1.3/Sf at 11/0609 UTC; an M1.2/Sf at 12/1128 UTC; and an M3.9/Sn at 13/1015 UTC with an associated Type II radio sweep (381 km/s) at 13/1020 UTC. Region 3182 (S17, L=226, class/area, Ekc/950 on 09 Jan) contributed: an M1.0 at 12/1457 UTC; an M1.2 at 12/1913 UTC; an M3.5 at 14/2021 UTC; and an M4.6 at 14/2100 UTC. Region 3191 (N12, L=127, class/area, Dac/170 on 15 Jan) produced an M1.3/Sf at 14/0209 UTC and an M6.0/Sf at 15/0342 UTC, with an associated Type II radio sweep (223 km/s) at 15/0310 UTC. Region 3190 (S12, L=122, class/area, Eko/520 on 15 Jan) contributed an M4.8/2b at 15/1430 UTC. There were a total of 2 X-flares and 23 M-flares during the peroiod. Suprisingly there were only two Earth-directed CMEs observed from this flury of activity. The first CME was associated with the M5.6/1b flare at 11/0156 UTC, from Region 3184 and the second CME was associated with the M4.6 flare at 14/2100 UTC, from Region 3182.

No reportable proton events were observed at geosynchronous orbit, however, 10MeV proton flux became enhanced, reaching a peak flux of 4.51 pfu at 13/0340 UTC. This enhancement followed an observed CME in LASCO/C2 imagery with a source from around the west limb.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels throughout the reporting period.

Geomagnetic field activity was at quiet to G1 (Minor) geomagnetic storm levels. G1 conditions were observed on 15 Jan in response to the 11 Jan CME mentioned above. Total field strength increased to a peak of 14 nT and Bz dropped as low as -10 nT, with several hours of sustained, negative Bz. Solar wind speed during the transient rose to 524 km/sec. Active conditions were observed on 13-14 Jan in response to negative-polarity CH HSS influence. During the remainder of the period, quiet to unsettled levels were observed.

Space Weather Outlook
16 January - 11 February 2023

Solar activity is likely to remain at moderate to high levels throughout the outlook period due to numerous existing and returning M and X-class flare producing regions.

There is a slight chance for proton events at geosynchronous orbit during the outlook period due to the magnetic complexity and flare history of the abundant sunspot groups.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 20-30 Jan in response to recurrent CH HSS influence. The remainder of the outlook period is expected to be at moderate levels.

Geomagnetic field activity is expected to range from quiet to G1 (Minor) geomagnetic storm conditions. G1 conditions are anticipated on 26 Jan; active conditions are likely on 19 Jan and 09 Feb; unsettled conditions are likely on 16, 18, 20-22, 25, 27-28 Jan and 01-02, 07-08 and 10 Feb. Increased geomagnetic activity is in response to multiple, recurrent CH HSSs. The remainder of the outlook period is expected to be mostly quiet.

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
09 January	191	142	2290	C2.2	13	3	1	14	3	0	1	0
10 January	193	201	2180	C2.1	15	6	1	21	0	2	0	0
11 January	195	183	2060	C2.1	5	4	0	16	2	0	0	0
12 January	212	151	1430	C3.3	11	3	0	19	2	0	0	0
13 January	209	181	1650	C2.6	7	2	0	20	3	0	0	0
14 January	228	170	1750	C3.1	5	3	0	15	2	0	0	0
15 January	234	177	1820	C3.3	3	2	0	16	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
09 January	1.4e+05	2.6e+04	3.9e+06
10 January	3.5e+06	3.0e+04	6.4e+06
11 January	2.4e+06	2.5e+04	2.6e+06
12 January	8.9e+05	2.5e+04	2.7e+06
13 January	4.8e+06	8.8e+04	5.2e+06
14 January	2.0e+05	2.4e+04	3.3e+06
15 January	3.8e+05	2.5e+04	6.8e+06

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
09 January	7	1-1-1-1-2-2-4-1	3	0-0-0-3-1-2-0-0	5	2-1-1-1-1-2-2-1
10 January	6	1-0-1-0-3-3-2-1	8	0-0-0-0-4-4-1-1	7	1-1-1-1-2-3-2-2
11 January	8	1-2-2-2-2-3-0-2	8	2-1-2-3-3-2-2-1	9	2-3-2-2-2-2-2-3
12 January	8	3-1-2-1-2-3-2-2	7	1-1-3-3-2-1-2-1	9	3-2-3-2-2-2-2-2
13 January	10	2-1-2-2-2-3-2-4	18	1-1-4-5-4-1-3-3	12	3-2-2-2-2-2-3-4
14 January	9	3-3-2-1-2-2-1-3	6	3-3-2-1-0-0-1-2	11	4-4-2-1-1-1-2-3
15 January	17	4-3-3-3-3-3-3-3	53	3-3-6-7-5-4-5-5	48	5-4-4-4-4-3-4-5

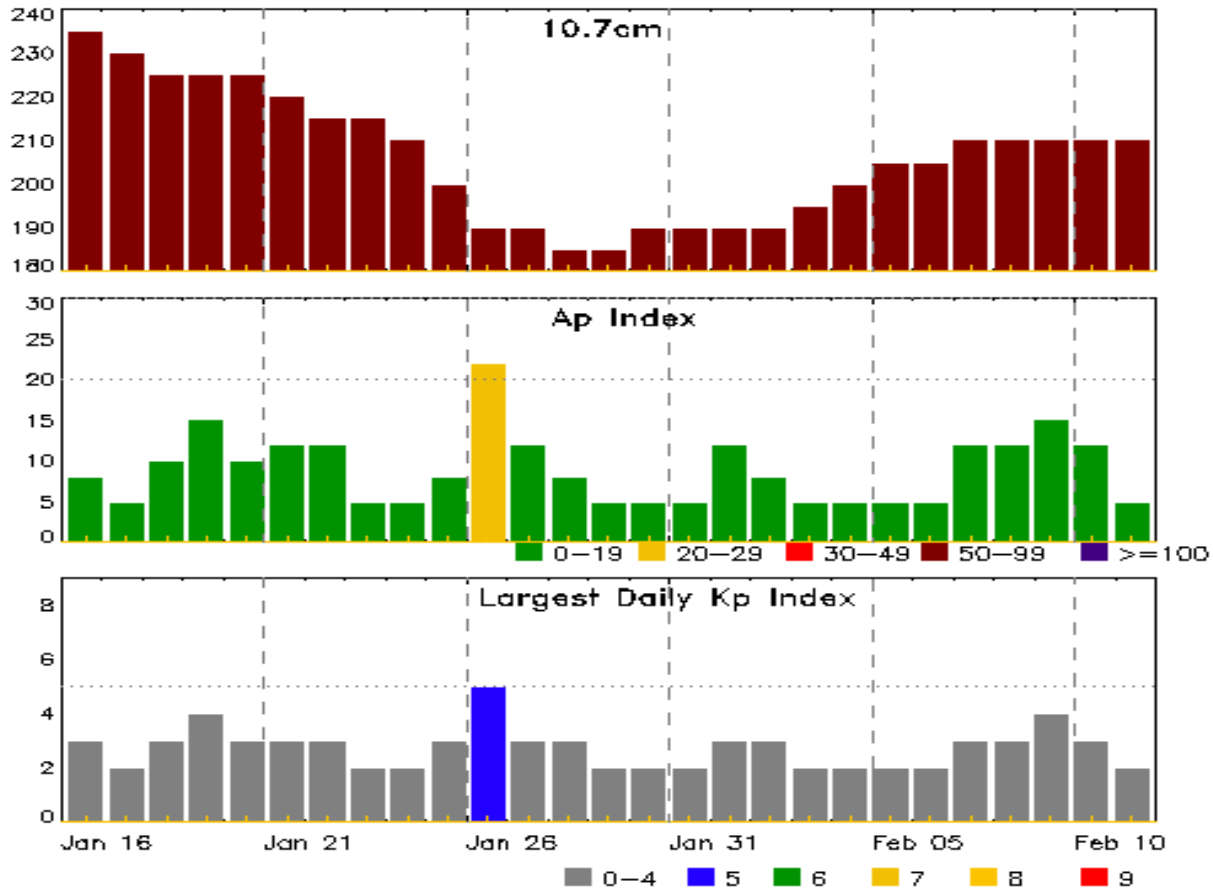
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
09 Jan 1850	ALERT: X-ray Flux exceeded M5	09/1847
09 Jan 1909	SUMMARY: 10cm Radio Burst	09/1846 - 1850
09 Jan 1917	SUMMARY: X-ray Event exceeded X1	09/1837 - 1857
10 Jan 0040	SUMMARY: X-ray Event exceeded M5	10/0009 - 0022
10 Jan 0040	ALERT: X-ray Flux exceeded M5	10/0016
10 Jan 2249	ALERT: X-ray Flux exceeded M5	10/2246
10 Jan 2300	SUMMARY: X-ray Event exceeded X1	10/2239 - 2252
10 Jan 2306	SUMMARY: X-ray Event exceeded M5	10/2239 - 2251
10 Jan 2307	SUMMARY: 10cm Radio Burst	10/2246 - 2247
11 Jan 0125	ALERT: Type IV Radio Emission	11/0059
11 Jan 0157	ALERT: X-ray Flux exceeded M5	11/0155
11 Jan 0205	SUMMARY: X-ray Event exceeded M5	11/0149 - 0201
11 Jan 0211	SUMMARY: 10cm Radio Burst	11/0153 - 0154
11 Jan 0236	ALERT: Type II Radio Emission	11/0153
11 Jan 0237	CANCELLATION: X-ray Event exceeded M5	
11 Jan 0239	SUMMARY: X-ray Event exceeded M5	11/0149 - 0201
11 Jan 0429	ALERT: Type IV Radio Emission	11/0336
11 Jan 2129	ALERT: Type II Radio Emission	11/2057
13 Jan 1056	ALERT: Type II Radio Emission	13/1020
13 Jan 1459	ALERT: Type II Radio Emission	13/1410
13 Jan 1936	WARNING: Geomagnetic K = 4	13/1936 - 14/0600
13 Jan 2226	ALERT: Geomagnetic K = 4	13/2220
14 Jan 0527	EXTENDED WARNING: Geomagnetic K = 4	13/1936 - 14/2100
14 Jan 1332	ALERT: Type II Radio Emission	14/1246
14 Jan 2058	EXTENDED WARNING: Geomagnetic K = 4	13/1936 - 15/0600
15 Jan 0254	WARNING: Geomagnetic K = 5	15/0255 - 0900
15 Jan 0254	EXTENDED WARNING: Geomagnetic K = 4	13/1936 - 15/1200
15 Jan 0257	ALERT: Geomagnetic K = 5	15/0257

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
15 Jan 0334	ALERT: X-ray Flux exceeded M5	15/0332
15 Jan 0349	ALERT: Type II Radio Emission	15/0137
15 Jan 0349	ALERT: Type II Radio Emission	15/0310
15 Jan 0351	ALERT: Type II Radio Emission	14/2314
15 Jan 0855	EXTENDED WARNING: Geomagnetic K = 5	15/0255 - 1800
15 Jan 1007	SUMMARY: X-ray Event exceeded M5	15/0308 - 0408
15 Jan 1014	EXTENDED WARNING: Geomagnetic K = 4	13/1936 - 15/1800
15 Jan 1756	EXTENDED WARNING: Geomagnetic K = 4	13/1936 - 16/0600
15 Jan 2259	EXTENDED WARNING: Geomagnetic K = 4	13/1936 - 16/1200
15 Jan 2259	WARNING: Geomagnetic K = 5	15/2300 - 16/0600
15 Jan 2306	ALERT: Geomagnetic K = 5	15/2306

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
16 Jan	235	8	3	30 Jan	190	5	2
17	230	5	2	31	190	5	2
18	225	10	3	01 Feb	190	12	3
19	225	15	4	02	190	8	3
20	225	10	3	03	195	5	2
21	220	12	3	04	200	5	2
22	215	12	3	05	205	5	2
23	215	5	2	06	205	5	2
24	210	5	2	07	210	12	3
25	200	8	3	08	210	12	3
26	190	22	5	09	210	15	4
27	190	12	3	10	210	12	3
28	185	8	3	11	210	5	2
29	185	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
09 Jan	0051	0102	0119	M1.1	0.016			3184				
09 Jan	0845	0901	0916	M2.1	0.024	1N	S16W26	3181				
09 Jan	1315	1322	1331	M1.0	0.006			3181				
09 Jan	1837	1850	1857	X1.9	0.097	3B	S14E72	3184		230		
10 Jan	0009	0016	0022	M5.1	0.022	SF	N25E80	3186				
10 Jan	0208	0216	0224	M1.0	0.007	SF	S16E75	3184				
10 Jan	0233	0241	0254	M2.6	0.025	2N	S16W26	3181				
10 Jan	1059	1108	1112	M1.0	0.005			3184				
10 Jan	1717	1728	1734	M1.3	0.009			3186				
10 Jan	1744	1748	1752	M1.2	0.004			3184				
10 Jan	2239	2247	2252	X1.0	0.028	2B	N25E66	3186	120	320		
11 Jan	0039	0059	0110	M2.4	0.023	1F	N25E66	3186		100		2
11 Jan	0149	0156	0201	M5.6	0.021	1B	S16E75	3184	24000	290	1	
11 Jan	0531	0609	0629	M1.3	0.031	SF	S16W26	3181				
11 Jan	0825	0833	0837	M3.1	0.006	SN	N25E66	3186				
12 Jan	0553	0618	0633	M1.1	0.014			3186				
12 Jan	0633	0646	0702	M1.5	0.024			3186				
12 Jan	1108	1128	1146	M1.2	0.022	SF	S14W69	3181				
12 Jan	1439	1457	1510	M1.0	0.014			3182				
12 Jan	1903	1913	1924	M1.0	0.011			3182				
13 Jan	0253	0259	0303	M1.4	0.007	1N	N27E41	3186	400			
13 Jan	1005	1015	1019	M3.9	0.013	SN	S19W84	3181	1300		2	
14 Jan	0129	0209	0230	M1.3	0.043	SF	N18E75	3192				
14 Jan	2006	2021	2028	M3.5	0.030			3182		100		
14 Jan	2037	2100	2119	M4.6	0.090			3182				
15 Jan	0308	0342	0408	M6.0	0.140	SF	S23E32	3188	720		1	
15 Jan	1416	1431	1451	M4.8	0.060	2B	S15E54	3190				

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
09 Jan	0028	0043	0051	C5.1	SF	S21E39	3182
09 Jan	0051	0102	0119	M1.1			3184
09 Jan	0052	0057	0110		SF	S16E82	3184
09 Jan	0154	0200	0202	C4.3	1N	S16E82	3184
09 Jan	0202	0207	0211	C5.7			3184
09 Jan	0340	0340	0344		SF	N19E12	
09 Jan	0404	0408	0422		SF	S16E82	3184
09 Jan	0446	0451	0455	C4.8	SF	S16E82	
09 Jan	0545	0553	0600	C3.0			3184
09 Jan	0657	0705	0715	C2.9	SF	S16E82	3184
09 Jan	0845	0901	0916	M2.1	1N	S16W26	3181
09 Jan	0851	0851	0856		SF	S16E21	3182
09 Jan	0857	0901	0903		SF	S16E75	3184
09 Jan	1315	1322	1331	M1.0			3181
09 Jan	1448	1505	1514	C7.8	1F	S15E74	3184
09 Jan	1543	1546	1556	C5.1			3184
09 Jan	1629	1645	1736	C4.6	SN	S16W29	3181
09 Jan	1829	1829	1835		SF	S14E15	3182
09 Jan	1837	1850	1857	X1.9	3B	S14E72	3184
09 Jan	2035	2052	2117	C5.9	SF	N24E79	
09 Jan	2202	2208	2223	C4.1	SN	N24E80	
09 Jan	2227	2234	2241	C4.3			
09 Jan	2244	2258	2322	C6.7	SF	S17E23	3182
09 Jan	2305	2315	2319		SF	N25E80	3182
10 Jan	0000	0050	0121		SN	S16W26	3181
10 Jan	0009	0016	0022	M5.1	SF	N25E80	3186
10 Jan	0047	0051	0110	C6.3	SF	N25E80	3181
10 Jan	0208	0216	0224	M1.0	SF	S16E75	3184
10 Jan	0233	0241	0254	M2.6	2N	S16W26	3181
10 Jan	0302	0302	0304		SF	S16E75	3184
10 Jan	0337	0343	0349	C5.4	SF	N25E77	3186
10 Jan	0424	0428	0430		SF	S18W59	3183
10 Jan	0442	0442	0457		SF	N25E77	3186
10 Jan	0500	0506	0508		SF	N25E77	3186
10 Jan	0512	0517	0525	C2.5	SF	N25E77	3186
10 Jan	0532	0533	0535		SF	N25E77	3186
10 Jan	0541	0544	0547		SF	S16W26	3181
10 Jan	0554	0558	0604	C3.8	SF	S16E75	3184

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
10 Jan	0643	0644	0649		SF	S16E21	3182
10 Jan	0647	0648	0653		SF	S16W26	3181
10 Jan	0710	0711	0727		SF	N25E77	3186
10 Jan	0804	0816	0822	C5.3	SF	N25E77	3186
10 Jan	0814	0815	0819		SF	S16W26	3181
10 Jan	0854	0906	0921	C8.8			3186
10 Jan	0918	0919	0921		SF	S16E75	3184
10 Jan	0929	0935	0940		SF	N25E77	3186
10 Jan	1059	1108	1112	M1.0			3184
10 Jan	1210	1217	1221	C8.5			
10 Jan	1241	1245	1249	C5.3			3185
10 Jan	1258	1302	1317	C5.1			
10 Jan	1349	1359	1405	C6.8			3186
10 Jan	1444	1447	1453	C8.7			3184
10 Jan	1602	1613	1626	C7.3			3186
10 Jan	1717	1728	1734	M1.3			3186
10 Jan	1744	1748	1752	M1.2			3184
10 Jan	1931	1938	1943	C3.3			3182
10 Jan	2009	2018	2026	C2.8			3184
10 Jan	2239	2247	2252	X1.0	2B	N25E66	3186
10 Jan	2304	2305	2311		SF	S16E75	3184
10 Jan	2345	2357	0007	C5.2	SF	N25E66	3186
11 Jan	0039	0059	0110	M2.4			3186
11 Jan	0042	0043	0046		SF	S16E75	3184
11 Jan	0049	0102	0155		1F	N25E66	3186
11 Jan	0051	0051	0104		SF	S16E21	3182
11 Jan	0111	0121	0152	M5.6	1B	S16E75	3184
11 Jan	0229	0230	0237		SF	N25E66	3186
11 Jan	0302	0303	0311		SF	N24W11	3185
11 Jan	0313	0350	0359	C6.8	SF	S16E21	3182
11 Jan	0418	0429	0433		SF	N24W11	3185
11 Jan	0444	0446	0453		SF	N25E66	3186
11 Jan	0512	0518	0525	C3.8	SF	N25E66	3186
11 Jan	0526	0601	0605	M1.3	SF	S16W26	3181
11 Jan	0718	0832	0848		1N	S25E66	3184
11 Jan	0744	0745	0748		SF	S18W73	3183
11 Jan	0825	0833	0837	M3.1	SN	N25E66	3186
11 Jan	0846	0847	0854		SF	N24W11	3185

Flare List

Date	Time			X-ray	Optical		
	Begin	Max	End	Class	Imp/ Brtns	Location Lat CMD	Rgn #
11 Jan	1019	1023	1029		SF	N25E66	3186
11 Jan	1032	1040	1047	C3.3			3182
11 Jan	1526	1531	1535	C4.6			3181
11 Jan	1618	1618	1624		SF	N25E56	3186
11 Jan	B1817	1817	1828		SF	S14W01	3182
11 Jan	1910	1910	1914		SF	S12W60	3181
11 Jan	2047	2100	2110	C8.0	1N	S14E48	3184
11 Jan	2241	2253	2349		SF	N25E54	3186
11 Jan	2351	2351	A2359		SF	N25E54	3186
12 Jan	B0000	0002	0005		SF	N25E54	3186
12 Jan	0006	0012	0020		SF	N25E54	3186
12 Jan	0053	0101	0102		SF	N25E54	3186
12 Jan	0112	0135	0150		SF	S17W59	3181
12 Jan	0155	0157	0205		SF	N27E52	3186
12 Jan	0211	0258	0319		SF	N27E52	3186
12 Jan	0335	0342	0346	C7.2	SF	S17W59	3181
12 Jan	0346	0346	0354		SF	N27E52	3186
12 Jan	0421	0421	0426		SF	N27E52	3186
12 Jan	0455	0510	0528		SF	N27E52	3186
12 Jan	0551	0606	0757		SF	N27E52	3186
12 Jan	0553	0618	0633	M1.5			3186
12 Jan	0746	0753	0758	C6.8	SF	S16E75	3184
12 Jan	0806	0810	0816	C5.9	SF	S16E75	3184
12 Jan	1000	1006	1011	C6.4	SF	N27E52	3186
12 Jan	1108	1128	1146	M1.2	SF	S14W69	3181
12 Jan	B1132	U1133	A1151		SF	N23E46	3186
12 Jan	B1155	U1224	1236		SF	N23E46	3186
12 Jan	B1201	U1205	1212		SF	S17W08	3182
12 Jan	B1240	U1241	A1307		SF	S17W11	3182
12 Jan	1311	U1314	1505		SF	N24E45	3186
12 Jan	1344	1351	1358	C4.8	SF	S14W71	3181
12 Jan	1410	U1455	A1523		1N	S17W12	3182
12 Jan	1435	1639	1819		SF	N25E39	3186
12 Jan	1439	1457	1510	M1.0			3182
12 Jan	1516	1553	1617	C5.1	1F	S18W10	3182
12 Jan	1823	1826	1845	C5.7	2N	S18W14	3182
12 Jan	1848	2103	2148		1F	N25E39	3186
12 Jan	1903	1913	1924	M1.0			3182

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
12 Jan	2024	2032	2038	C7.3			3186
12 Jan	2050	2103	2113	C8.5			3186
12 Jan	2214	2224	2233	C6.7			
12 Jan	2233	2242	2246	C5.7			
12 Jan	2324	2325	2327		SF	N20W15	
13 Jan	0200	0201	0216		SF	S16E75	3184
13 Jan	0210	0215	0226		SF	N27E41	3186
13 Jan	0213	0215	0240		SF	S16E21	3182
13 Jan	0239	0243	0250		SF	S16E75	3184
13 Jan	0249	0259	0326		1N	N27E41	3186
13 Jan	0249	0249	0254		SF	N20W17	3184
13 Jan	0253	0259	0303	M1.4			3186
13 Jan	0704	U0717	0734		SF	S11E31	3184
13 Jan	0735	0739	0753		SF	S16E21	3182
13 Jan	0802	0810	0814	C6.5	SF	N24E32	3186
13 Jan	0903	0914	0925	C4.5	SF	S18W22	3182
13 Jan	B0914	U0936	A1034		SF	S19W21	3182
13 Jan	1005	1015	1019	M3.9	SN	S19W84	3181
13 Jan	B1219	U1223	A1227		SF	S16E73	
13 Jan	B1410	U1412	1417		SF	N12E69	
13 Jan	1455	1508	1526	C8.4	SF	N11E75	3192
13 Jan	1558	1600	1615		SF	S17W27	3182
13 Jan	1623	1629	1636		SF	S17W27	3182
13 Jan	1647	1659	1848	C9.0	1N	S17W27	3182
13 Jan	1726	1735	1739	C6.1			3191
13 Jan	1741	1749	1802		SF	N22E25	3186
13 Jan	1902	1905	1910		SF	S25E52	3188
13 Jan	1948	1952	1959		SF	S24E51	3188
13 Jan	2041	2051	2058	C5.0			3192
13 Jan	2125	2135	2156	C5.9	1N	S10E26	3184
13 Jan	2148	2149	2157		SF	S15W31	3182
14 Jan	0129	0209	0230	M1.3	SF	N18E75	3192
14 Jan	0518	0532	0555		SF	S16E21	3182
14 Jan	0623	0635	0659		SF	N12E68	3191
14 Jan	0706	0712	0714		SF	N12E68	3191
14 Jan	0724	0802	0847		SF	N11E62	3191
14 Jan	0725	0742	0754		SF	S23E42	3188
14 Jan	0736	0743	0751		SF	S10E18	3184

Flare List

Date	Time			X-ray	Optical		
	Begin	Max	End	Class	Imp/ Brtns	Location Lat CMD	Rgn #
14 Jan	0804	0813	0906		1F	S10E17	3184
14 Jan	0851	0854	0900		SF	S19W21	3182
14 Jan	0943	0944	0949		SF	S14W41	3182
14 Jan	1002	1002	1006		SF	S15W40	3182
14 Jan	1005	1006	1009		SF	N21E73	3192
14 Jan	1009	U1012	A1022		SF	S15W41	3182
14 Jan	1057	1106	1113	C7.0			3182
14 Jan	1343	1350	1355	C5.0			3182
14 Jan	1434	1439	1445	C5.7	1F	S16W38	3182
14 Jan	1529	1533	1538	C5.5			3182
14 Jan	1626	1632	1638		SF	S15W41	3182
14 Jan	1642	1647	1656		SF	N13E58	3191
14 Jan	1801	1816	1835		SF	S18W39	3182
14 Jan	1926	1927	1929	C7.4			3182
14 Jan	2006	2021	2028	M3.5			3182
14 Jan	2037	2100	2119	M4.6			3182
15 Jan	0205	0206	0212		SF	S16E21	3182
15 Jan	0258	0318	0331	M6.0	SF	S23E32	3191
15 Jan	0311	0321	0441		SF	N12E54	3191
15 Jan	0435	0441	0500		SF	S14E61	3190
15 Jan	0600	0604	0628		SF	S14E61	3190
15 Jan	0723	0727	0738		SF	S15W41	3182
15 Jan	0804	0805	0828		SF	S16E21	3182
15 Jan	0805	U0806	0823		SF	S20W48	3182
15 Jan	0843	0846	0858		SF	N13E47	3191
15 Jan	0932	0938	0939		SF	N12E70	
15 Jan	1004	1009	1015		SF	N12E54	3191
15 Jan	1040	1059	1114		SF	N14E61	3191
15 Jan	1207	1211	1216	C8.3	SN	N12E43	3191
15 Jan	1241	1251	1308		SF	S13E54	3190
15 Jan	1416	1431	1451	M4.8	2B	S15E54	3190
15 Jan	1456	1503	1506		SF	S14W59	3182
15 Jan	1929	1934	1939	C4.1			3182
15 Jan	2120	2126	2130	C4.8			3190
15 Jan	2307	2307	2311		SF	S14E48	3190

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 3177												
28 Dec	S18E71	333	90	8	Hax	3	A	1							
29 Dec	S18E58	336	120	6	Dso	3	B								
30 Dec	S17E44	334	170	7	Dao	5	B								
31 Dec	S18E31	334	310	8	Dac	6	B	1			3				
01 Jan	S18E17	335	220	8	Dac	9	B	1			1				
02 Jan	S18E04	335	200	7	Cai	7	B								
03 Jan	S18W09	333	190	9	Cai	11	B	1							
04 Jan	S19W23	335	100	8	Csi	13	B	1			3		1		
05 Jan	S18W36	334	90	7	Cao	10	B	1							
06 Jan	S17W48	333	50	6	Cao	5	B								
07 Jan	S18W61	334	20	5	Axx	3	A								
08 Jan	S18W72	332	10	1	Axx	1	A								
								6	0	0	7	0	1	0	0

Died on Disk.
Absolute heliographic longitude: 335

			Region 3180												
29 Dec	N19E82	310	plage						2						
30 Dec	N19E68	310	120	7	Dao	3	B	7			1				
31 Dec	N19E56	309	210	6	Dao	6	B	4			5				
01 Jan	N19E43	309	220	6	Dso	5	B	4			4				
02 Jan	N19E30	309	230	7	Dsi	6	B	8			7				
03 Jan	N18E17	307	240	9	Dsi	12	BG				1				
04 Jan	N19E03	308	240	9	Dsi	11	BG				1				
05 Jan	N19W10	308	180	8	Cso	11	B				2				
06 Jan	N18W23	308	120	8	Cso	5	B								
07 Jan	N18W37	310	100	7	Cso	3	B								
08 Jan	N18W50	310	90	7	Cso	3	B				1				
09 Jan	N18W63	310	100	6	Hsx	3	A								
10 Jan	N17W78	311	50	1	Hsx	1	A								
								23	2	0	22	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 308

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 3181												
01 Jan	S19E71	281	30	2	Hax	1	A								
02 Jan	S19E58	281	50	2	Hax	1	A								
03 Jan	S19E44	280	100	2	Hsx	2	A								
04 Jan	S19E30	283	70	2	Cso	6	B								
05 Jan	S18E18	280	80	4	Dao	12	B	1			3				
06 Jan	S20E06	279	110	9	Dai	13	B				1				
07 Jan	S21W07	280	380	9	Dki	16	BD	1			1				
08 Jan	S20W20	280	410	11	Eki	19	BD				1				
09 Jan	S19W33	279	700	12	Ekc	35	BGD	3	2		1	1			
10 Jan	S17W47	280	700	13	Ekc	44	BG	1	1		5		1		
11 Jan	S18W61	281	450	15	Ekc	38	BG	1	1		1				
12 Jan	S19W74	281	240	15	Eai	15	BG	2	1		3				
13 Jan	S21W87	281	90	11	Eai	10	BG		1		1				
								9	6	0	17	1	1	0	0

Crossed West Limb.
Absolute heliographic longitude: 279

			Region 3182												
04 Jan	S18E86	226	plage					1							
05 Jan	S17E72	226	280	1	Dki	4	B	4							
06 Jan	S16E59	226	450	10	Dki	9	BG	3		1	5		1		
07 Jan	S17E46	227	510	12	Eki	23	BGD	12	1		5	1			
08 Jan	S17E32	228	880	15	Eki	23	BGD	8			11	1			
09 Jan	S17E20	226	950	15	Ekc	30	BGD	1			5				
10 Jan	S16E06	227	750	17	Fkc	51	BGD	1			1				
11 Jan	S17W08	228	650	14	Ehi	49	BG	2			3				
12 Jan	S18W20	227	510	14	Eki	35	BG	2	2		1	1			
13 Jan	S18W34	228	300	11	Eki	20	BG	2			7	1			
14 Jan	S18W48	229	190	7	Dai	15	BG	5	2		7	1			
15 Jan	S17W60	227	140	7	Dai	14	BD	1			5				
								42	5	1	50	5	1	0	0

Still on Disk.
Absolute heliographic longitude: 227

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 3183												
05 Jan	S17W08	307	30	3	Cro	5	B	1			1				
06 Jan	S17W22	308	160	7	Dsi	8	B	5			11				
07 Jan	S17W36	309	200	9	Dso	9	BD								
08 Jan	S17W49	309	180	10	Dao	8	B				3				
09 Jan	S17W62	309	110	10	Cso	6	B								
10 Jan	S16W77	310	100	10	Hax	2	A				1				
11 Jan	S16W91	311	50	1	Hsx	2	A				1				
								6	0	0	17	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 307

			Region 3184												
08 Jan	S13E81	179	240	3	Hax	3	A	5	4		7				
09 Jan	S14E67	179	400	5	Hkx	4	A	5	1	1	4	2		1	
10 Jan	S13E53	180	440	14	Eki	8	BD	3	3		5				
11 Jan	S13E40	180	730	12	Ekc	13	BGD	1	1		1	1			
12 Jan	S13E26	181	240	15	Cso	10	B	2			2				
13 Jan	S12E13	181	300	15	Eho	15	BG	2			4	1			
14 Jan	S12W00	181	260	14	Eho	13	BG				1	1			
15 Jan	S12W11	178	260	16	Fho	7	B								
								18	9	1	24	5	0	1	0

Still on Disk.
Absolute heliographic longitude: 181

			Region 3185												
09 Jan	N20W00	246	30	3	Cro	4	B								
10 Jan	N20W13	246	30	3	Cro	8	B	1							
11 Jan	N20W27	247	30	6	Dro	12	B				3				
12 Jan	N20W41	248	100	8	Dao	9	B								
13 Jan	N19W55	249	60	8	Cao	6	B								
14 Jan	N19W69	250	30	4	Cao	6	B								
15 Jan	N19W83	250	plage												
								1	0	0	3	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 246

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 3186												
10 Jan	N25E65	168	100	2	Dso	5	BD	7	2	1	8		1		
11 Jan	N24E51	169	150	9	Dai	9	BD	1	2		7	1			
12 Jan	N24E38	169	320	13	Ekc	19	BG	3			12	1			
13 Jan	N25E24	170	500	13	Eki	18	BGD	1	1		3	1			
14 Jan	N25E10	171	410	12	Eki	12	BGD								
15 Jan	N25W03	170	450	11	Eko	10	BGD								
								12	5	1	30	3	1	0	0

Still on Disk.
Absolute heliographic longitude: 170

			Region 3187												
10 Jan	N13E18	215	10	1	Axx	2	A								
11 Jan	N13E03	217	plage												
12 Jan	N16W11	216	plage												
13 Jan	N16W24	218	plage												
14 Jan	N16W38	219	plage												
15 Jan	N16W52	219	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 217

			Region 3188												
12 Jan	S23E58	149	20	6	Dro	3	B								
13 Jan	S23E45	149	20	6	Dro	4	B				2				
14 Jan	S23E33	148	30	5	Dri	5	B				1				
15 Jan	S24E21	146	30	5	Dri	8	B				1				
								0	0	0	4	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 146

			Region 3189												
13 Jan	N23W31	225	10	5	Bxo	2	B								
14 Jan	N23W45	226	10	1	Axx	1	A								
15 Jan	N23W59	226	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 225

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 3190												
13 Jan	S13E70	124	180	6	Hsx	1	A								
14 Jan	S12E58	123	510	11	Eko	11	B								
15 Jan	S12E45	122	520	11	Eko	11	B	1	1		4		1		
								1	1	0	4	0	1	0	0
Still on Disk. Absolute heliographic longitude: 122															
			Region 3191												
13 Jan	N12E71	123	90	4	Cso	3	B	1							
14 Jan	N11E55	126	150	7	Dai	9	B		1		4				
15 Jan	N12E40	127	170	9	Dac	11	BG	1	1		5				
								2	2	0	9	0	0	0	0
Still on Disk. Absolute heliographic longitude: 127															
			Region 3192												
13 Jan	N19E75	119	100	4	Dso	2	B	1			1				
14 Jan	N19E61	120	160	8	Dsi	8	B				2				
15 Jan	N19E49	118	210	10	Dac	13	BG								
								1	0	0	3	0	0	0	0
Still on Disk. Absolute heliographic longitude: 118															
			Region 3193												
15 Jan	S22W31	198	20	4	Cro	6	B								
								0	0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 198															
			Region 3194												
15 Jan	S22E37	130	20	4	Cro	7	B								
								0	0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 130															

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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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