Space Weather Highlights **SWPC PRF 2470**
26 December - 01 January 2023 **02 January 2023**

Solar activity was at low to moderate levels. Moderate levels were observed on 27 Dec, 29 Dec, and 30 Dec. The largest flare was an M3/2n (R1-Minor) from Region 3176 (N20, L=008, class/area=Eko/430 on 31 Dec). Other significant regions that produced low-level M-flare activity were Region 3169 (N22, L=117, class/area=Fkc/490 on 27 Dec) and Region 3180 (N19, L=309, class/area=Dso/220 on 01 Jan). Associated with flare M-flare activity on 30 Dec from Region 3176 was an EIT wave, visible in SUVI 195 imagery around 30/1528 UTC, and a CME signature in subsequent STEREO-A COR2 coronagraph imagery around 30/1653 UTC. Analysis and modeling of the event suggested onset on 04 Jan. No other CMEs were determined to be Earth-directed from available coronagraph imagery. The other remaining 11 numbered active regions observed during the reporting were either quiet or only produced C-class activity.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels from 26 Dec - 01 Jan. The highest flux observed was 3,680 pfu at 30/1510 UTC.

Geomagnetic field activity was ranged from quiet to G1 (Minor) geomagnetic storm levels. The arrival of a CME that left the Sun on 24 Dec combined with positive polarity CH HSS influence caused G1 conditions on 26-27 Dec. Solar wind speeds during that time ranged between 500-600 km/s. Quiet to unsettled conditions were observed on 28 Dec and through most of 29 Dec. At the end of 29 Dec, a CIR ahead of another positive polarity CH HSS cause conditions to against increase to G1 conditions on 30 Dec. Under the influence of the coronal hole, wind speeds increased to between 500-600 km/s through the remainder of the reporting period. As total magnetic field strength dropped from a peak of 12 nT on 30 Dec to between 4-7 nt over 31 Dec - 01 Jan, geomagnetic conditions responded with quiet to active conditions.

Space Weather Outlook
02 January - 28 January 2023

Solar activity is expected to be at low levels, with a chance for M-class flares, through the outlook period due to multiple M-class flare (R1-Minor) producing regions both on the visible disk and regions on the farside that are due to rotate back onto the disk.

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 02-03 Jan, 05-09 Jan, and 20-28 Jan. The remainder of the outlook period is likely to be at normal to moderate levels.

Geomagnetic field activity is expected to range from quiet to G1 (Minor) geomagnetic storm conditions. G1 conditions are likely on 04-05 Jan due to combined effects of a CME that left the

Sun on 30 Dec and coronal hole effects. G1 conditions are again likely on 19-20 Jan and 26 Jan due to multiple, recurrent CH HSSs. Active conditions are likely on 02 Jan, 06 Jan, 18 Jan, and 27 Jan; unsettled conditions are likely on 07 Jan, 14 Jan, 17 Jan, 21 Jan, 25 Jan, and 28 Jan. All active and unsettled conditions are in response to anticipated effects from multiple, recurrent coronal holes. The remainder of the outlook period is likely to be at mostly quiet levels.

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
26 December	151	96	590	C1.4	17	0	0	4	1	0	0	0
27 December	159	89	1110	C1.3	13	3	0	13	1	1	0	0
28 December	160	88	750	C1.2	6	0	0	4	1	0	0	0
29 December	163	113	710	C1.2	4	2	0	4	0	0	0	0
30 December	162	121	860	C1.3	14	2	0	12	2	1	0	0
31 December	165	82	1320	C1.1	10	0	0	12	0	0	0	0
01 January	153	94	1220	B8.9	9	0	0	12	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
26 December	1.0e+06	3.1e+04	7.0e+07
27 December	7.3e+05	3.0e+04	3.5e+07
28 December	7.6e+04	2.9e+04	5.7e+07
29 December	1.0e+05	3.0e+04	8.2e+07
30 December	3.1e+05	2.9e+04	7.4e+07
31 December	6.8e+04	3.0e+04	6.4e+07
01 January	6.1e+04	3.1e+04	1.1e+08

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
26 December	19	1-3-3-4-5-4-2-2	52	2-1-4-7-7-6-3-2	22	3-2-3-4-5-5-2-2
27 December	16	4-3-3-4-3-3-2-1	54	3-5-6-5-6-7-3-2	25	4-4-5-4-4-4-3-2
28 December	4	2-1-2-1-2-2-0-0	3	2-2-1-1-1-0-0-1	5	3-2-2-1-1-1-1-1
29 December	8	0-1-2-1-3-3-2-3	22	0-0-2-2-6-5-3-3	11	1-1-2-2-3-3-3-4
30 December	22	4-4-3-3-4-4-4-2	55	3-3-5-6-7-6-5-3	31	5-4-4-4-5-5-4-3
31 December	10	2-3-2-1-2-2-3-3	35	2-5-4-4-6-5-4-3	16	3-3-3-2-3-2-3-4
01 January	9	2-2-2-3-2-2-2-3	19	2-2-3-5-3-3-3-4	9	2-3-2-3-2-3-3-4

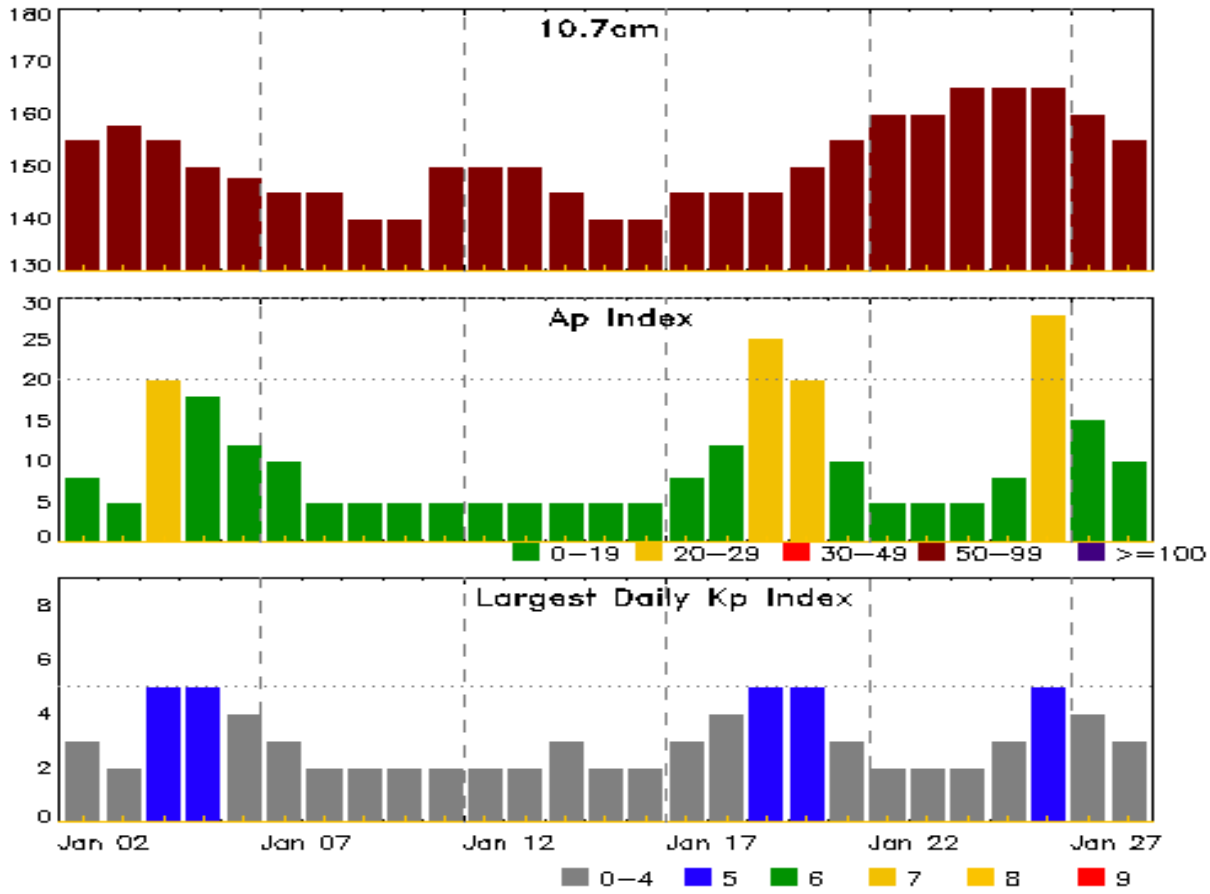
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
26 Dec 0459	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	24/1415
26 Dec 1043	WARNING: Geomagnetic K = 4	26/1042 - 1500
26 Dec 1123	ALERT: Geomagnetic K = 4	26/1120
26 Dec 1411	EXTENDED WARNING: Geomagnetic K = 4	26/1042 - 27/0300
26 Dec 1454	WARNING: Geomagnetic K = 5	26/1454 - 2100
26 Dec 1456	ALERT: Geomagnetic K = 5	26/1455
26 Dec 1653	ALERT: Geomagnetic K = 5	26/1650
27 Dec 0129	EXTENDED WARNING: Geomagnetic K = 4	26/1042 - 27/1200
27 Dec 0539	WARNING: Geomagnetic K = 5	27/0538 - 1200
27 Dec 0859	ALERT: Geomagnetic K = 5	27/0859
27 Dec 1138	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	24/1415
27 Dec 1156	EXTENDED WARNING: Geomagnetic K = 4	26/1042 - 27/2100
27 Dec 1156	EXTENDED WARNING: Geomagnetic K = 5	27/0538 - 1800
28 Dec 1452	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	24/1415
29 Dec 1127	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	24/1415
29 Dec 2244	WARNING: Geomagnetic K = 4	29/2244 - 30/0600
29 Dec 2354	ALERT: Geomagnetic K = 4	29/2354
30 Dec 0057	WARNING: Geomagnetic K = 5	30/0055 - 0600
30 Dec 0058	EXTENDED WARNING: Geomagnetic K = 4	29/2244 - 30/0900
30 Dec 0123	ALERT: Geomagnetic K = 5	30/0122
30 Dec 0555	EXTENDED WARNING: Geomagnetic K = 4	29/2244 - 30/1500
30 Dec 0555	EXTENDED WARNING: Geomagnetic K = 5	30/0055 - 1200
30 Dec 0703	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	24/1415
30 Dec 1311	EXTENDED WARNING: Geomagnetic K = 4	29/2244 - 30/2359
30 Dec 1311	WARNING: Geomagnetic K = 5	30/1309 - 1800
30 Dec 1336	ALERT: Geomagnetic K = 5	30/1336

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
30 Dec 1757	EXTENDED WARNING: Geomagnetic K = 5	30/1309 - 31/0300
30 Dec 1757	EXTENDED WARNING: Geomagnetic K = 4	29/2244 - 31/0900
30 Dec 1806	ALERT: Geomagnetic K = 5	30/1759
31 Dec 1352	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	24/1415
31 Dec 2040	WARNING: Geomagnetic K = 4	31/2040 - 01/0600
31 Dec 2205	ALERT: Geomagnetic K = 4	31/2205
01 Jan 0558	EXTENDED WARNING: Geomagnetic K = 4	31/2040 - 01/1200
01 Jan 0856	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	24/1415
01 Jan 2132	WARNING: Geomagnetic K = 4	01/2131 - 2359
01 Jan 2144	ALERT: Geomagnetic K = 4	01/2144
01 Jan 2354	EXTENDED WARNING: Geomagnetic K = 4	01/2131 - 02/0900

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
02 Jan	155	8	3	16 Jan	140	5	2
03	158	5	2	17	145	8	3
04	155	20	5	18	145	12	4
05	150	18	5	19	145	25	5
06	148	12	4	20	150	20	5
07	145	10	3	21	155	10	3
08	145	5	2	22	160	5	2
09	140	5	2	23	160	5	2
10	140	5	2	24	165	5	2
11	150	5	2	25	165	8	3
12	150	5	2	26	165	28	5
13	150	5	2	27	160	15	4
14	145	5	3	28	155	10	3
15	140	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
27 Dec	0046	0054	0100	M2.0	0.012				3176				
27 Dec	0802	0815	0835	M1.0	0.016	2N	N19	E60	3176				
27 Dec	1615	1626	1634	M1.2	0.007	1B	N20	W49	3169				
29 Dec	0632	0727	0808	M1.2	0.044				3180				
29 Dec	1826	1833	1843	M2.4	0.023				3180				
30 Dec	1524	1528	1532	M1.4	0.004	1B	N20	E09	3176	51000			
30 Dec	1926	1938	1947	M3.7	0.023	2N	N20	E09	3176				

Flare List

	Time			Optical			
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
26 Dec	0052	0052	0059		SF	N18W20	3169
26 Dec	0138	0140	0144	C2.4			3169
26 Dec	0525	0527	0531	C2.4			3169
26 Dec	0612	0622	0633	C2.5	SF	N18W20	3169
26 Dec	0804	0814	0820	C2.8			3176
26 Dec	0854	0902	0915	C2.3			3169
26 Dec	0953	1002	1006	C2.8			
26 Dec	1010	1010	1013		SF	N23W36	3169
26 Dec	B1018	U1223	A1236	C1.7	SF	N20E70	3176
26 Dec	1222	1231	1235	C3.6			
26 Dec	1341	1348	1352	C3.3			3176
26 Dec	1445	1950	2034		1N	N20E67	3176
26 Dec	1538	1544	1548	C2.7			
26 Dec	1651	1658	1702	C4.4	SF	N23W39	3169
26 Dec	1746	1754	1801	C2.6			3176
26 Dec	1942	1951	1957	C6.0			3176
26 Dec	2047	2101	2120	C4.0			3176
26 Dec	2142	2148	2152	C4.1			3176
26 Dec	2216	2227	2233	C3.3			3176
26 Dec	2313	2323	2338	C4.3			3176
27 Dec	0032	0044	0046	C6.4			3176
27 Dec	0046	0054	0100	M2.0			3176
27 Dec	0223	0224	0226		SF	N22W43	3169
27 Dec	0239	0247	0254	C4.8			3176

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
27 Dec	0315	0320	0326	C6.2	SF	N23W43	3169
27 Dec	0347	0353	0355		SF	N23W43	3169
27 Dec	0419	0428	0442	C3.3			
27 Dec	0442	0445	0449	C3.1	SF	N23W43	3169
27 Dec	0518	0525	0530	C2.5			
27 Dec	0624	0625	0626		SF	N23W43	3169
27 Dec	0706	0712	0725	C4.5			
27 Dec	0753	0814	1236		2N	N19E60	3176
27 Dec	0800	0917	1000		SF	N22W46	3169
27 Dec	0802	0815	0835	M1.0			3176
27 Dec	0911	0921	0933	C4.2	SF	N23W43	3169
27 Dec	1137	1208	1221		SF	N21W48	3169
27 Dec	1245	1256	1301	C3.3			
27 Dec	1325	1328	1334		SF	N20W48	3169
27 Dec	1337	1338	1345		SF	N20W48	3169
27 Dec	1609	1623	1709	M1.2	1B	N20W49	3169
27 Dec	1623	1626	1631		SN	N18E55	3176
27 Dec	1712	1730	1756	C4.7	SF	N19W50	3169
27 Dec	1758	1759	1804		SF	N18E55	3176
27 Dec	1934	1959	2007	C3.0			
27 Dec	2034	2037	2042	C3.9			
27 Dec	2144	2148	2152	C2.7			3176
28 Dec	0211	0237	0241	C5.0			
28 Dec	0414	0418	0420		SF	S35W13	3172
28 Dec	0414	0417	0420		SF	S19E31	3175
28 Dec	0414	0416	0420		1F	N23W43	3169
28 Dec	0414	0418	0421		SF	N23W38	3171
28 Dec	0415	0418	0419		SF	N25E13	3173
28 Dec	0844	0851	0857	C1.7			
28 Dec	1409	1416	1421	C1.8			3169
28 Dec	1440	1443	1448	C1.6			3169
28 Dec	1649	1657	1704	C2.2			3169
28 Dec	2005	2011	2015	C2.1			3177
29 Dec	0632	0727	0808	M1.2			3180
29 Dec	1027	1037	1048	C2.6			
29 Dec	1103	1114	1131	C3.9			
29 Dec	1403	1411	1421	C2.8			3172
29 Dec	B1435	1442	1516		SF	S35W29	3172

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
29 Dec	1826	1833	1843	M2.4			3180
29 Dec	2107	2121	2131	C2.8	SF	S35W31	3172
29 Dec	2238	2257	2342		SF	S35W34	3172
29 Dec	2310	2311	2316		SF	N18E63	3176
30 Dec	0000	0000	0003		SF	N14E19	3176
30 Dec	0013	0023	0034	C2.1			3180
30 Dec	0034	0039	0043	C2.2			3178
30 Dec	0040	0050	0055		SF	N12W11	3179
30 Dec	0350	0351	0355		SF	N15E79	
30 Dec	0401	0411	0424	C1.9	1F	N15E79	3180
30 Dec	0452	0501	0508	C2.3			3180
30 Dec	0508	0513	0518	C2.7			3169
30 Dec	0508	0525	0534		SF	N14E19	3176
30 Dec	0725	0736	0742	C3.9			3169
30 Dec	0742	0752	0758	C5.5			3180
30 Dec	0845	0846	0853		SF	N19E22	3176
30 Dec	0901	0908	0913	C5.3			3169
30 Dec	0903	0905	0911		SF	N21W85	3171
30 Dec	0904	0905	0910		SF	N23W64	3171
30 Dec	0909	0909	0914		SF	N13W15	3179
30 Dec	0915	U0918	A0929		SF	N19E21	3176
30 Dec	1103	1114	1123	C9.6			3180
30 Dec	1344	1353	1359	C3.1			3176
30 Dec	1400	1407	1415	C4.5			3180
30 Dec	1515	1518	1701		SF	N14W21	3179
30 Dec	1524	1528	1532	M1.4	1B	N20E09	3176
30 Dec	1638	1652	1712	C3.1	SF	N18E78	3180
30 Dec	1743	1744	1856		SF	N14W23	3179
30 Dec	1906	1910	1914	C4.0			3176
30 Dec	1926	1938	1947	M3.7	2N	N20E09	3176
30 Dec	2130	2135	2143	C2.6			
31 Dec	0128	0133	0137	C1.7	SF	N18E02	3176
31 Dec	0227	0248	0306	C7.9	SF	N20E70	3180
31 Dec	0434	0439	0441		SF	N18E08	3176
31 Dec	0745	0748	0757		SF	N22E02	3176
31 Dec	0934	0942	0954		SF	N23E63	3180
31 Dec	1051	1053	1116		SF	N22E62	3180
31 Dec	1107	1127	1147		SF	N20E05	3176

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
31 Dec	1124	1134	1142	C4.9	SF	N22E61	3180
31 Dec	1252	1252	1259		SF	S19E41	3177
31 Dec	1300	1301	1302		SF	S19E41	3177
31 Dec	1303	1305	1310		SF	S19E41	3177
31 Dec	1616	1628	1653	C2.2			3176
31 Dec	1717	1725	1735	C2.0			3171
31 Dec	1743	1749	1753	C2.0			3180
31 Dec	2052	2055	2059	C3.5			3177
31 Dec	2117	2132	2138	C2.4			3179
31 Dec	2137	2148	2202	C9.1	SF	N21E58	3180
31 Dec	2347	2355	0003	C1.6	SF	N18E08	3176
01 Jan	0031	0035	0041	C1.6	SF	N19W02	3176
01 Jan	0042	0044	0045		SF	N19W02	3176
01 Jan	0104	0106	0108		SF	N13W38	3179
01 Jan	0204	0228	0241	C3.7	SF	N19W02	3176
01 Jan	0255	0300	0305		SF	N19W02	3176
01 Jan	0656	0702	0706	C1.7	SF	N22E54	3180
01 Jan	0735	0744	0750	C1.9	SF	N21E52	3180
01 Jan	1208	1211	1215		SF	N21E51	3180
01 Jan	1244	1245	1301		SF	N21E51	3180
01 Jan	1416	1430	1435	C1.7	SF	S16E25	3177
01 Jan	1743	1752	1809	C1.8			3180
01 Jan	1931	1935	1943	C1.1			3180
01 Jan	2209	2216	2226	C1.1			
01 Jan	2252	2316	2326	C3.1	SF	N21W23	3176

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 3168												
14 Dec	S16E68	161	90	2	Cso	1	B	1			1				
15 Dec	S15E53	162	70	4	Hsx	3	A				1				
16 Dec	S16E41	160	plage	1		1					1				
17 Dec	S16E28	161	50	1	Hsx	1	A								
18 Dec	S16E16	160	50	2	Hsx	1	A								
19 Dec	S16E04	159	50	2	Hsx	1	A								
20 Dec	S15W10	160	60	2	Hsx	1	A								
21 Dec	S16W24	160	60	2	Hsx	1	A								
22 Dec	S14W40	162	50	6	Hsx	1	A								
23 Dec	S16W53	163	50	3	Hsx	1	A								
24 Dec	S15W66	161	70	1	Hsx	1	A								
25 Dec	S16W78	161	60	1	Hsx	1	A								
								1	0	0	3	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 159

			Region 3169												
17 Dec	N20E69	120	160	3	Dso	2	B	3	1			1			
18 Dec	N21E61	115	240	14	Dso	7	B	6			2				
19 Dec	N21E48	115	200	15	Eac	11	B	5							
20 Dec	N21E36	114	220	15	Esc	14	BG	7	1		5				
21 Dec	N19E19	116	290	10	Dho	15	B	4			3	3			
22 Dec	N20E04	118	230	11	Eso	14	B	3			6				
23 Dec	N19W09	119	260	12	Eho	9	B	2			1				
24 Dec	N20W21	119	260	16	Fsi	25	BG	7			11				
25 Dec	N21W32	116	200	23	Fac	30	BG	4			4				
26 Dec	N21W45	115	350	19	Fkc	19	BG	5			3				
27 Dec	N22W60	117	490	19	Fkc	17	BG	4	1		11	1			
28 Dec	N22W69	114	230	20	Fac	8	B	3				1			
29 Dec	N23W84	115	40	10	Hax	1	A								
								53	3	0	46	6	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 118

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 3170												
17 Dec	S18E72	117	20	1	Hrx	1	A	1							
18 Dec	S19E64	112	40	8	Cso	6	B	1							
19 Dec	S19E51	112	30	7	Cro	7	B								
20 Dec	S20E37	113	30	7	Cro	5	B	1				1			
21 Dec	S19E25	110	30	5	Bxo	11	B	1							
22 Dec	S18E09	113	10	3	Bxo	4	B	3			1				
23 Dec	N01W03	113	10	4	Bxo	3	B	2			3				
24 Dec	S19W16	114	plage												
25 Dec	S19W30	114	plage					1				1			
26 Dec	S19W44	115	plage												
27 Dec	S19W58	116	plage												
28 Dec	S19W72	117	plage												
29 Dec	S19W86	117	plage												
								10	0	0	4	2	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 113

			Region 3171												
19 Dec	N25E65	98	30	7	Cao	5	B	1			1				
20 Dec	N24E52	98	80	12	Cao	12	B				3				
21 Dec	N23E36	100	150	9	Cao	9	B								
22 Dec	N24E27	95	110	8	Cao	12	B	1							
23 Dec	N24E12	98	250	8	Dko	7	B	2			4				
24 Dec	N23W01	99	140	5	Cko	6	B								
25 Dec	N23W14	98	120	5	Cao	8	B	2			1				
26 Dec	N23W26	96	100	7	Cao	5	B								
27 Dec	N23W39	96	120	7	Cao	5	B								
28 Dec	N24W51	96	80	3	Hax	3	A				1				
29 Dec	N23W65	97	40	2	Hsx	2	A								
30 Dec	N23W79	98	30	2	Hax	2	A				2				
								6	0	0	12	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 99

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 3172													
21 Dec	S35E61	75	20	1	Hsx	1	A								
22 Dec	S34E49	74	30	5	Cso	2	B								
23 Dec	S34E36	74	20	4	Cro	3	B				1				
24 Dec	S34E24	74	30	3	Hsx	2	A								
25 Dec	S36E16	67	40	10	Cro	4	B								
26 Dec	S36E04	65	10	6	Bxo	4	B								
27 Dec	S36W04	61	plage												
28 Dec	S36W18	63	plage								1				
29 Dec	S36W34	66	10	5	Bxo	4	B	2			3				
30 Dec	S35W50	68	10	1	Axx	1	A								
31 Dec	S35W64	69	plage												
01 Jan	S35W78	70	plage												
								2	0	0	5	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 65

		Region 3173													
22 Dec	N26E74	50	30	2	Hrx	1	A								
23 Dec	N25E63	47	50	2	Cao	4	B								
24 Dec	N25E50	48	80	2	Hsx	1	A								
25 Dec	N25E37	46	50	2	Hsx	2	A								
26 Dec	N25E22	47	50	2	Hsx	1	A								
27 Dec	N25E10	46	90	4	Hsx	1	A								
28 Dec	N24W03	47	40	2	Hsx	2	A				1				
29 Dec	N25W16	46	30	2	Hsx	3	A								
30 Dec	N25W29	47	20	3	Hsx	3	A								
31 Dec	N24W42	47	20	1	Hrx	1	A								
01 Jan	N24W56	48	10	1	Hrx	1	A								
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 47

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 3174												
22 Dec	N22E38	84	10	2	Bxo	4	B	1							
23 Dec	N23E25	85	10	2	Axx	3	A								
24 Dec	N23E11	86	plage												
25 Dec	N23W03	87	plage												
26 Dec	N23W17	88	plage												
27 Dec	N23W31	89	plage												
28 Dec	N23W45	90	plage												
29 Dec	N23W59	90	plage												
30 Dec	N23W73	91	plage												
								1	0	0	0	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 87

			Region 3175												
25 Dec	S20E56	27	40	4	Cro	2	B								
26 Dec	S21E41	28	10	4	Bxo	4	B								
27 Dec	S20E29	28	10	5	Axx	4	A								
28 Dec	S22E17	27	10	4	Bxo	2	B				1				
29 Dec	S20E03	28	plage												
30 Dec	S20W11	29	plage												
31 Dec	S20W25	30	plage												
01 Jan	S20W39	31	plage												
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 28

			Region 3176												
26 Dec	N19E61	8	70	2	Dai	3	B	9			1	1			
27 Dec	N19E50	6	400	7	Dki	12	B	3	2		2		1		
28 Dec	N19E38	6	300	11	Eki	10	B								
29 Dec	N19E24	9	380	11	Eki	14	B				1				
30 Dec	N20E10	8	420	13	Eki	14	BG	2	2		4	1	1		
31 Dec	N20W03	8	430	13	Eko	12	BG	3			4				
01 Jan	N20W15	7	380	13	Eko	10	B	3			6				
								20	4	0	18	2	2	0	0

Still on Disk.
Absolute heliographic longitude: 8

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 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				
								3	0	0	4	0	0	0	0
Still on Disk. Absolute heliographic longitude: 335															
			Region 3178												
29 Dec	S03W70	100	60	4	Cso	2	B								
30 Dec	S03W84	102	20	3	Cro	2	B	1							
								1	0	0	0	0	0	0	0
Crossed West Limb. Absolute heliographic longitude: 100															
			Region 3179												
29 Dec	N13W11	42	30	3	Cao	4	B								
30 Dec	N13W24	42	70	6	Dao	11	B				4				
31 Dec	N14W37	42	350	8	Dki	7	B	1							
01 Jan	N14W51	43	360	9	Dki	8	B				1				
								1	0	0	5	0	0	0	0
Still on Disk. Absolute heliographic longitude: 42															
			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				
								15	2	0	10	0	0	0	0
Still on Disk. Absolute heliographic longitude: 309															
			Region 3181												
01 Jan	S19E71	281	30	2	Hax	1	A								
								0	0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 281															

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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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