Space Weather Highlights **SWPC PRF 2478**
20 February - 26 February 2023 **27 February 2023**

Solar activity reached high levels this week. A total of nine R1 (Minor) events and two R2 (Moderate) events were observed this period. Region 3229 (N26, L=34, class/area=Ekc/310 on 20 Feb) produced two significant flares which were followed by proton flux enhancements and subsequent Earth-directed CMEs. The first event was a long-duration M3/2b flare at 24/2030 UTC with Type-II (1,204 km/s) and Type-IV radio emissions. Shortly following the flare, the greater than 10 MeV proton flux became enhanced, reaching a peak flux of 3 pfu observed at 24/2355 UTC, but did not exceed the event threshold. The associated CME arrived at Earth beginning at around 26/1845 UTC. The second flare of note from Region 3229 was a long-duration M6/3n flare at 25/1944 UTC with Type-II (528 km/s) radio emissions observed. Shortly following this second flare, the greater than 10 MeV proton flux exceeded the S1 (Minor) solar radiation storm threshold at 25/2110 UTC, and reached a peak flux of 58 pfu at 26/0440 UTC. The partial-halo CME from the M6 flare was determined to have an Earth-directed component, and is expected to arrive late on 27/early on 28 Feb.

The greater than 10 MeV proton flux became slightly enhanced late on 24/early on 25 Feb following an M3 flare at 24/2030 UTC from Region 3229. A peak flux of 3 pfu was observed at 24/2355 UTC before flux values slowly decreased to around 1 pfu. An additional enhancement of the greater than 10 MeV proton flux was observed shortly following an M6 flare at 25/1944 UTC from Region 3229. This second proton enhancement exceeded the S1 (Minor) solar radiation storm threshold at 25/2110 UTC, and a peak flux of 58 pfu was observed at 26/0440 UTC. Proton flux values began decreasing over the latter half of 26 Feb, but remained near the 10 pfu event threshold.

The greater than 2 MeV electron flux at geosynchronous orbit was normal to moderate throughout the week.

Geomagnetic field activity was quiet to unsettled on 20 Feb, and quiet to active on 21 Feb, in response to positive polarity CH HSS influence. Quiet conditions prevailed on 22 Feb. G1 (Minor) storm conditions were observed on 23 Feb due to the passage of a CME. Quiet to unsettled levels were observed over 24-25 Feb, with negative polarity CH HSS influences observed on 25 Feb. G2 (Moderate) storm conditions were observed late on 26 Feb due to a combination of negative polarity CH HSS influences as well as the arrival of the 24 Feb CME. An interplanetary shock (34 nT as measured by Fredericksburg magnetometer) associated with the arrival of the 24 Feb CME was observed at 26/1845 UTC in solar wind data. Following the shock, total magnetic field strength values increased to 21 nT and the Bz component reached -18 nT, solar wind speeds increased to a peak of 756 km/s, and solar wind density increased to 32 ppcm.

Space Weather Outlook
27 February - 25 March 2023

Solar activity is expected to be elevated throughout the outlook period. A number of regions with a history of producing M-class and X-class flares are expected to return and transit the solar disk over the course of the next 27 days.

The greater than 10 MeV proton event that began at 25/2110 UTC decreased below event threshold at around 27/0000 UTC, but the S1 (Minor) solar radiation warning remains in effect as flux values remain elevated. The anticipated arrival of the 25 Feb CME late on 27 Feb is likely to cause an additional proton flux enhancement as particles are accelerated ahead of the CME. No other proton events are expected during the outlook period, barring additional significant flare activity.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be normal to moderate on 27-28 Feb, and 14-25 Mar. High flux levels are likely on 01-13 Mar following enhanced solar wind conditions and elevated geomagnetic field activity.

Geomagnetic field activity is likely to reach G3 (Strong) storm levels on 27 Feb, and G2 (Moderate) storm levels on 28 Feb, due to a combination of negative polarity CH HSS influence and the anticipated arrival of the 25 Feb CME. G1 (Minor) storms are likely on 06 Mar due to recurrent negative polarity CH HSS influence. Active conditions are likely on 01, 05, 07, 15, and 25 Mar due to multiple, recurrent CH HSSs. Quiet and quiet to unsettled conditions are expected to prevail throughout the remainder of the outlook period.

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
20 February	160	135	1100	C1.3	14	1	0	13	1	0	0	0
21 February	161	106	760	C1.3	9	2	0	17	0	0	0	0
22 February	152	100	750	C1.2	10	2	0	6	0	0	0	0
23 February	148	108	890	C1.3	11	2	0	13	0	0	0	0
24 February	164	130	980	C1.1	6	2	0	8	1	1	0	0
25 February	152	129	980	C1.0	5	2	0	0	0	0	1	0
26 February	159	120	930	C1.6	6	0	0	0	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
20 February	1.1e+06	2.5e+04	7.7e+06
21 February	3.5e+06	2.4e+04	4.0e+06
22 February	1.5e+06	2.2e+04	3.5e+06
23 February	8.5e+05	2.1e+04	1.1e+07
24 February	2.2e+05	3.4e+04	1.6e+07
25 February	1.0e+07	4.5e+05	2.1e+07
26 February	1.7e+08	2.8e+06	2.2e+06

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
20 February	6	1-0-2-2-3-2-2-1	5	0-0-2-1-2-2-2-2	8	1-1-2-3-2-2-3-2
21 February	15	3-3-3-4-4-2-2-1	34	1-2-4-7-6-2-1-1	17	3-3-3-4-4-2-2-2
22 February	4	1-0-1-1-2-2-2-1	8	1-0-0-3-3-2-2-3	6	2-1-1-2-2-2-2-2
23 February	16	4-3-2-3-3-3-3-3	30	3-3-4-5-5-5-4-3	22	5-4-3-3-3-4-4-4
24 February	4	2-1-2-1-2-0-1-1	3	2-1-2-2-1-0-0-0	6	3-1-2-1-2-0-1-1
25 February	9	0-1-2-2-3-2-3-3	22	0-0-2-5-2-5-5-3	10	1-1-2-2-2-3-3-3
26 February	18	3-2-3-3-3-1-4-5	27	3-3-5-5-4-2-4-4	18	3-3-3-4-3-1-5-6

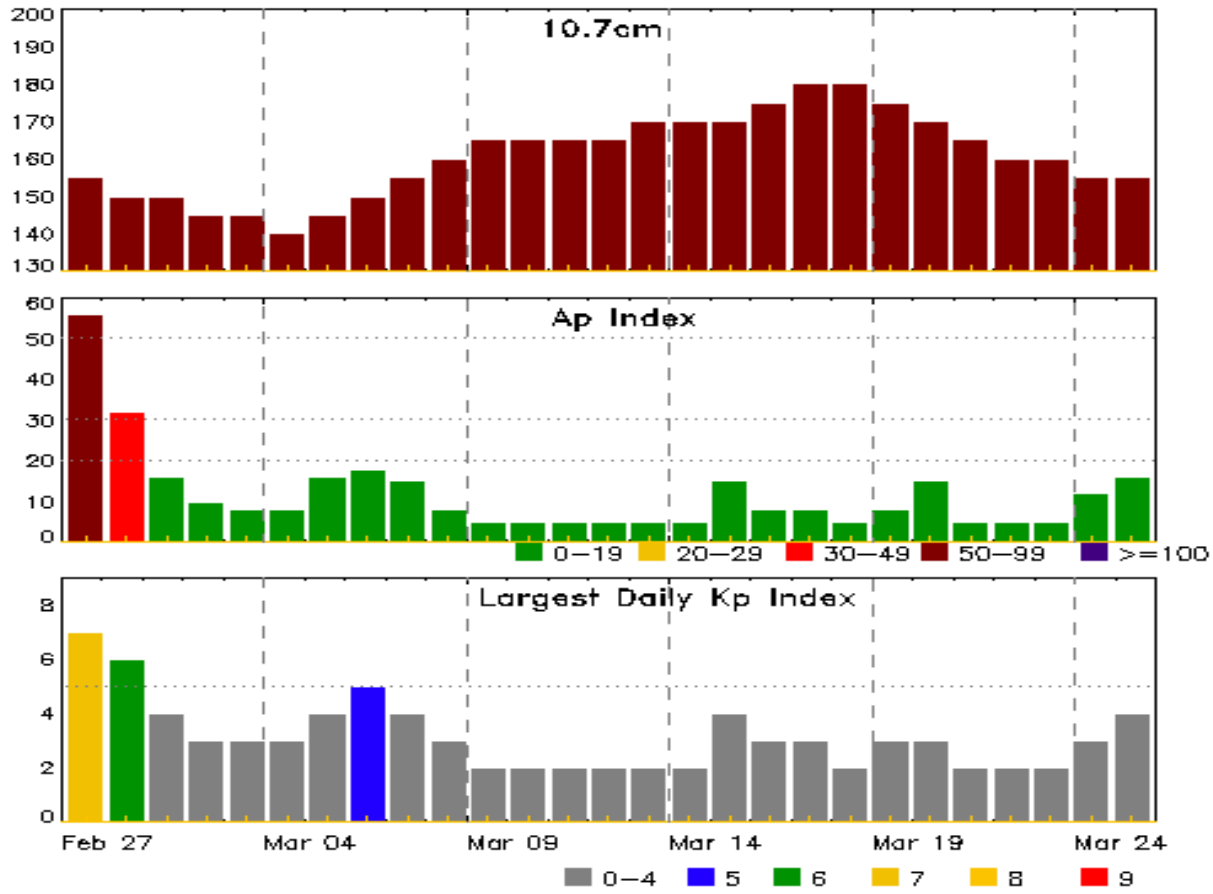
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
20 Feb 1004	WARNING: Geomagnetic Sudden Impulse expected	20/1035 - 1105
20 Feb 1031	WARNING: Geomagnetic K = 4	20/1035 - 1800
20 Feb 1059	SUMMARY: Geomagnetic Sudden Impulse	20/1039
21 Feb 0247	WARNING: Geomagnetic K = 4	21/0248 - 1500
21 Feb 1010	WARNING: Geomagnetic K = 5	21/1010 - 1500
21 Feb 1013	EXTENDED WARNING: Geomagnetic K = 4	21/0248 - 1800
21 Feb 1031	ALERT: Geomagnetic K = 4	21/1028
21 Feb 1452	EXTENDED WARNING: Geomagnetic K = 5	21/1010 - 2100
21 Feb 1459	EXTENDED WARNING: Geomagnetic K = 4	21/0248 - 22/0300
21 Feb 2018	ALERT: X-ray Flux exceeded M5	21/2016
21 Feb 2044	SUMMARY: X-ray Event exceeded M5	21/1957 - 2030
21 Feb 2052	ALERT: Type II Radio Emission	21/2019
23 Feb 0146	WARNING: Geomagnetic K = 4	23/0145 - 1500
23 Feb 0236	ALERT: Geomagnetic K = 4	23/0233
23 Feb 0245	WARNING: Geomagnetic K = 5	23/0245 - 0900
23 Feb 0304	ALERT: Geomagnetic K = 5	23/0259
23 Feb 1246	EXTENDED WARNING: Geomagnetic K = 4	23/0145 - 1800
23 Feb 1743	EXTENDED WARNING: Geomagnetic K = 4	23/0145 - 24/0300
24 Feb 0255	EXTENDED WARNING: Geomagnetic K = 4	23/0145 - 24/1500
24 Feb 2039	SUMMARY: 10cm Radio Burst	24/2018 - 2026
24 Feb 2039	ALERT: Type II Radio Emission	24/2020
24 Feb 2041	ALERT: Type IV Radio Emission	24/2028
25 Feb 0512	ALERT: Type II Radio Emission	25/0436
25 Feb 0625	ALERT: Type IV Radio Emission	25/0550
25 Feb 1904	WATCH: Geomagnetic Storm Category G2 predicted	
25 Feb 1934	ALERT: X-ray Flux exceeded M5	25/1933
25 Feb 1949	ALERT: Type II Radio Emission	25/1923
25 Feb 2004	SUMMARY: 10cm Radio Burst	25/1923 - 1945
25 Feb 2108	WARNING: Proton 10MeV Integral Flux > 10pfu	25/2110 - 26/0200

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
25 Feb 2117	ALERT: Proton Event 10MeV Integral Flux >= 10pfu	25/2110
25 Feb 2221	SUMMARY: X-ray Event exceeded M5	25/1840 - 2027
25 Feb 2223	WARNING: Geomagnetic K = 4	25/2225 - 26/0900
26 Feb 0103	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	25/2110 - 26/1500
26 Feb 0841	EXTENDED WARNING: Geomagnetic K = 4	25/2225 - 27/1500
26 Feb 1202	ALERT: Geomagnetic K = 4	26/1159
26 Feb 1444	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	25/2110 - 27/1500
26 Feb 1636	WATCH: Geomagnetic Storm Category G3 predicted	
26 Feb 1914	WARNING: Geomagnetic Sudden Impulse expected	26/1915 - 2015
26 Feb 1933	SUMMARY: Geomagnetic Sudden Impulse	26/1925
26 Feb 1936	WARNING: Geomagnetic K = 5	26/1935 - 27/1500
26 Feb 2055	ALERT: Geomagnetic K = 5	26/2055
26 Feb 2145	ALERT: Geomagnetic K = 5	26/2145
26 Feb 2233	WARNING: Geomagnetic K = 6	26/2232 - 27/0900
26 Feb 2345	ALERT: Geomagnetic K = 6	26/2340

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
27 Feb	155	56	7	13 Mar	170	5	2
28	150	32	6	14	170	5	2
01 Mar	150	16	4	15	170	15	4
02	145	10	3	16	175	8	3
03	145	8	3	17	180	8	3
04	140	8	3	18	180	5	2
05	145	16	4	19	175	8	3
06	150	18	5	20	170	15	3
07	155	15	4	21	165	5	2
08	160	8	3	22	160	5	2
09	165	5	2	23	160	5	2
10	165	5	2	24	155	12	3
11	165	5	2	25	155	16	4
12	165	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
20 Feb	1447	1458	1503	M4.4	0.016	SF	N25E75	3234				
21 Feb	1114	1123	1131	M4.7	0.038	SF	N14W70	3226				
21 Feb	1957	2017	2030	M5.0	0.053			3234		30	32	2
22 Feb	0451	0512	0540	M1.4	0.029			3234			120	
22 Feb	1336	1350	1358	M2.6	0.017	SF	N27E57	3234				
23 Feb	0611	0614	0618	M1.5	0.004			3235	5300			
23 Feb	0832	0848	0851	M1.0	0.009			3234				
24 Feb	1711	1715	1720	M1.1	0.004			3235				
24 Feb	2003	2030	2129	M3.7	0.100	2B	N28W28	3229				2
25 Feb	1534	1540	1546	M1.0	0.004			3236				
25 Feb	1840	1944	2027	M6.3	0.200	3N	N26W43	3229				

Flare List

	Time			Optical			
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
20 Feb	0119	0125	0134	C2.8			3231
20 Feb	0155	0159	0204		SF	N25E32	3229
20 Feb	0208	0216	0220	C2.8			3226
20 Feb	0223	0230	0232		SF	N20W39	3231
20 Feb	0412	0418	0426	C2.1	SF	N11W65	
20 Feb	0439	0451	0503	C3.3	1F	N20W42	3231
20 Feb	0518	0541	0547		SF	N25E29	3229
20 Feb	0558	0608	0616	C5.5			3231
20 Feb	0641	0647	0650	C4.4			3234
20 Feb	0646	0707	0736		SF	N19W61	3221
20 Feb	0650	0702	0713	C7.1			3226
20 Feb	0714	0720	0721		SF	N20W42	3231
20 Feb	B0724	U0724	0742		SF	N15W61	3221
20 Feb	0734	0735	0737		SF	N21W43	3231
20 Feb	0830	U0830	0839		SF	N21W43	3231
20 Feb	0856	0857	0908		SF	N25E29	3229
20 Feb	B0915	U0923	A0939		SF	N25E28	3229
20 Feb	B1005	U1029	1036		SF	N25E27	3229
20 Feb	1025	1037	1045	C2.5			3226
20 Feb	1447	1458	1503	M4.4	SF	N25E75	3234

Flare List

Date	Time			X-ray	Optical		
	Begin	Max	End	Class	Imp/ Brtns	Location Lat CMD	Rgn #
20 Feb	1622	1626	1631	C3.1			3229
20 Feb	1737	1743	1747	C5.4			3229
20 Feb	1905	1912	1918	C2.8			3229
20 Feb	2158	2203	2207	C1.9			3229
20 Feb	2214	2223	2232	C2.8			3234
20 Feb	2319	2327	2336	C2.1			3234
21 Feb	0050	0050	0053		SF	N24E20	3229
21 Feb	0136	0138	0143		SF	N22E64	3234
21 Feb	0157	0158	0205		SF	N19W52	3231
21 Feb	0340	0402	0416	C9.1			
21 Feb	0435	0444	0452	C9.6	SF	N13W64	3226
21 Feb	0525	0526	0528		SF	N20W53	3231
21 Feb	0628	0629	0650		SF	N20W53	3231
21 Feb	0718	0718	0722		SF	N24E17	3229
21 Feb	0759	0800	0807		SF	N21W52	3231
21 Feb	0834	0835	0837		SF	N24E17	3229
21 Feb	1105	1107	1127	M4.7	SF	N14W70	3234
21 Feb	1132	U1138	1141		SF	N21W57	3231
21 Feb	1203	1221	1236	C6.1	SN	N29E13	3229
21 Feb	1334	1335	1337		SF	N23W56	3231
21 Feb	1419	1425	1429		SF	N22W61	3231
21 Feb	1420	1427	1432	C2.6	SF	N14W72	3226
21 Feb	1457	1459	1511		SF	N21W61	3231
21 Feb	B1536	U1536	1542		SF	N21W61	3231
21 Feb	1826	1838	1847	C4.0			3234
21 Feb	1923	1936	1950	C6.3			3234
21 Feb	1957	2017	2030	M5.0			3234
21 Feb	2101	2107	2118	C7.3			3234
21 Feb	2143	2151	2159	C8.3			3231
21 Feb	2353	2359	0006	C4.6			3234
22 Feb	0010	0018	0024	C7.1			3234
22 Feb	0113	0115	0127	C2.1			3226
22 Feb	0237	0248	0252	C7.1	SF	N26E60	3234
22 Feb	0351	0357	0405	C2.9	SF	N26E60	3234
22 Feb	0451	0512	0540	M1.4			3234
22 Feb	B0707	U0719	0734		SF	N27E57	3234
22 Feb	0735	U0753	0836	C2.6	SF	N27E57	3234
22 Feb	1022	1027	1042	C3.2			3230

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
22 Feb	1226	1237	1246	C3.0			3234
22 Feb	1246	1254	1300	C3.2			3234
22 Feb	1336	1350	1358	M2.6	SF	N27E57	3234
22 Feb	B1433	U1433	A1441		SF	N21W61	3231
22 Feb	1646	1654	1709	C2.6			3234
22 Feb	2252	2301	2309	C2.8			3234
23 Feb	0043	0050	0055	C2.3			
23 Feb	0213	0221	0228	C1.9			
23 Feb	0400	0412	0424	C7.8			3234
23 Feb	0516	0529	0545	C4.2			3230
23 Feb	0600	0606	0611	C3.2			3230
23 Feb	0611	0614	0618	M1.5			3235
23 Feb	0637	0637	0641		SF	N26E45	3234
23 Feb	0758	0812	0819	C7.2			3234
23 Feb	0810	0811	0817		SF	N19E19	3234
23 Feb	0810	0849	0942		SF	N26E45	3235
23 Feb	0832	0848	0851	M1.0			3234
23 Feb	B1201	U1224	A1342		SF	N25E39	3234
23 Feb	B1215	U1224	A1241		SF	S27E27	3235
23 Feb	1219	1229	1242	C6.6	SF	N20E17	3235
23 Feb	1424	1434	1446	C4.3	SF	N24E39	3234
23 Feb	1504	1513	1518	C7.5	SF	N20E17	3235
23 Feb	1541	1544	1548		SF	S24E16	3230
23 Feb	1710	1714	1717		SF	S26E25	3236
23 Feb	1752	1819	1826	C8.9	SF	N25E41	3234
23 Feb	1808	1821	1825		SF	N20E15	3235
23 Feb	2223	2223	2225		SF	N27E36	3234
23 Feb	2307	2313	2317	C6.2	SN	N19E11	3235
23 Feb	2349	2349	2352		SF	N19E11	3235
24 Feb	0000	0004	0010		SF	N22E23	3234
24 Feb	0246	0259	0315	C1.7			3235
24 Feb	0554	0612	0621	C8.6	1F	S24E07	3230
24 Feb	0654	0709	0726	C6.8			3235
24 Feb	0840	0841	0933		SF	S26E19	3236
24 Feb	0907	0908	0923		SF	N24E29	3234
24 Feb	0935	0941	0949	C2.1	SF	N23E28	3234
24 Feb	1119	1128	1147	C1.9	SF	N23E28	3234
24 Feb	1258	1309	1322	C2.9	SF	S27E14	3236

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
24 Feb	1448	1453	1511		SF	S24E02	3230
24 Feb	1555	1603	1624		SF	S20E01	3230
24 Feb	1711	1715	1720	M1.1			3235
24 Feb	2003	2030	2129	M3.7	2B	N28W28	3229
25 Feb	0300	0309	0317	C2.1			3234
25 Feb	0412	0422	0432	C8.1			3229
25 Feb	0707	0715	0721	C2.5			3229
25 Feb	1142	1148	1200	C2.1			3236
25 Feb	1502	1509	1513	C2.2			3236
25 Feb	1534	1540	1546	M1.0			3236
25 Feb	1840	1944	2027	M6.3	3N	N26W43	3229
26 Feb	1151	1200	1212	C5.5			3235
26 Feb	1910	1923	1931	C2.8			3234
26 Feb	2045	2053	2057	C1.9			
26 Feb	2057	2106	2112	C2.0			3234
26 Feb	2113	2118	2122	C2.5			3234
26 Feb	2239	2243	2248	C1.8			3234

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 3217												
08 Feb	S09E72	140	280	4	Dko	9	B	1	1			1			
09 Feb	S10E63	135	260	10	Dkc	9	B	1	4		4				
10 Feb	S11E49	136	380	9	Dki	11	BGD	3			7	1			
11 Feb	S09E36	135	380	11	Eki	14	BGD	2	2	1	6		1		
12 Feb	S12E22	137	400	10	Dki	19	BG	3	3		1	2			
13 Feb	S10E08	138	250	5	Dho	7	B	1			3				
14 Feb	S10W06	139	250	5	Hhx	4	A								
15 Feb	S09W21	139	250	6	Hhx	4	A	1			1				
16 Feb	S10W34	140	170	9	Hsx	3	A				1				
17 Feb	S11W47	140	150	6	Cso	3	B								
18 Feb	S11W60	140	140	5	Hsx	1	A								
19 Feb	S12W72	139	130	2	Hsx	1	A								
20 Feb	S12W85	138	130	2	Hsx	2	A								
								12	10	1	23	4	1	0	0

Crossed West Limb.
Absolute heliographic longitude: 139

			Region 3219												
09 Feb	S17E54	144	10	3	Bxo	5	B								
10 Feb	S07E42	143	30	5	Cro	6	B	1			1				
11 Feb	S07E29	143	30	3	Cro	4	B				1				
12 Feb	S07E13	146	20	1	Hrx	3	A								
13 Feb	S07W01	146	10	3	Axx	2	A								
14 Feb	S06W13	146	5	1	Axx	1	A								
15 Feb	S06W27	146	5	1	Axx	1	A								
16 Feb	S06W41	147	10	2	Axx	3	A								
17 Feb	S06W55	148	plage												
18 Feb	S06W70	150	plage												
19 Feb	S06W85	152	plage												
								1	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 146

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 3220												
09 Feb	S15E77	121	80	6	Dso	2	B								
10 Feb	S15E64	121	130	6	Cso	3	B		1		1	1			
11 Feb	S14E51	121	150	4	Hsx	2	A		1		3	1			
12 Feb	S15E37	122	150	4	Cso	2	B								
13 Feb	S14E23	123	150	4	Hhx	1	A	1			1				
14 Feb	S14E10	123	140	4	Hsx	3	A								
15 Feb	S14W04	123	130	3	Hsx	2	A	2			2				
16 Feb	S14W16	122	150	4	Hsx	2	A								
17 Feb	S14W29	122	140	2	Hsx	1	A								
18 Feb	S14W42	122	120	2	Hsx	1	A								
19 Feb	S14W55	122	120	2	Hsx	1	A								
20 Feb	S13W69	122	120	2	Hsx	1	A								
21 Feb	S12W83	122	100	2	Hsx	1	A								
22 Feb	S13W96	123	30	1	Hrx	1	A								
								3	2	0	7	2	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 123

			Region 3221												
09 Feb	N14E75	123	80	8	Hax	2	A								
10 Feb	N16E62	123	100	5	Hax	2	A								
11 Feb	N16E48	124	50	3	Hax	2	A				2	1			
12 Feb	N15E34	125	40	3	Hax	3	A				1				
13 Feb	N14E21	125	50	5	Cho	4	B								
14 Feb	N16E08	125	10	5	Axx	3	A								
15 Feb	N19W06	125	10	7	Bxo	3	B								
16 Feb	N19W19	122	plage												
17 Feb	N19W33	125	plage												
18 Feb	N19W47	127	plage								3				
19 Feb	N19W61	128	plage								1				
20 Feb	N19W75	128	plage								2				
21 Feb	N19W89	129	plage												
								0	0	0	9	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 125

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 3223												
11 Feb	N19E31	141	10	4	Bxo	3	B								
12 Feb	N17E16	143	plage												
13 Feb	N17E02	144	plage												
14 Feb	N17W12	145	plage												
15 Feb	N17W27	146	plage												
16 Feb	N17W41	147	plage												
17 Feb	N17W55	148	plage												
18 Feb	N17W69	149	plage												
19 Feb	N17W83	150	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 144

			Region 3224												
11 Feb	N23E50	122	10	5	Cro	2	B								
12 Feb	N22E35	124	10	1	Bxo	3	B				1				
13 Feb	N51E21	125	10	5	Axx	3	A								
14 Feb	N23E08	125	10	5	Bxo	5	B				2				
15 Feb	N22W07	126	10	4	Bxo	4	B								
16 Feb	N22W20	123	plage												
17 Feb	N22W34	126	plage												
18 Feb	N22W48	128	plage												
19 Feb	N22W62	129	plage												
20 Feb	N22W76	129	plage												
21 Feb	N22W90	130	plage												
								0	0	0	3	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 126

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 3225												
12 Feb	S22E06	153	20	3	Cro	3	B								
13 Feb	S21W08	154	30	5	Cro	6	B								
14 Feb	S20W21	154	30	6	Cri	11	B								
15 Feb	S20W34	153	30	6	Cro	5	B								
16 Feb	S21W47	153	10	5	Bxo	3	B								
17 Feb	S21W59	152	70	6	Dao	3	B				7				
18 Feb	S21W71	151	80	5	Dao	4	B				12				
19 Feb	S21W85	152	90	7	Dao	4	B				3				
								0	0	0	22	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 153

			Region 3226												
13 Feb	N11E33	113	60	6	Dai	9	BG	5	2		5				
14 Feb	N10E20	113	480	9	Dki	26	BG	4	1		10	1			
15 Feb	N11E06	113	420	10	Dki	13	BD	4			10				
16 Feb	N10W06	112	410	10	Dki	17	B	1			1				
17 Feb	N10W19	112	390	11	Ehi	12	B	1			2				
18 Feb	N10W33	113	330	9	Dko	14	B	4			5	1			
19 Feb	N10W47	114	320	10	Dki	14	B	4			6				
20 Feb	N10W60	114	280	10	Cko	8	B	3							
21 Feb	N11W74	116	210	3	Hax	2	A	2			3				
22 Feb	N12W90	117	80	1	Hsx	1	A	1							
								30	3	0	42	2	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 113

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 3227												
13 Feb	S03E42	104	0	3	Bxo	3	B								
14 Feb	S03E29	104	10	3	Bxo	3	B								
15 Feb	S03E14	105	5	3	Axx	1	A								
16 Feb	S03W01	107	plage												
17 Feb	S03W15	108	plage												
18 Feb	S03W30	110	plage												
19 Feb	S03W45	112	plage												
20 Feb	S03W60	113	plage												
21 Feb	S03W75	115	plage												
22 Feb	S03W90	117	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 107

			Region 3228												
13 Feb	S25E14	132	10	3	Bxo	3	B								
14 Feb	S24W00	133	10	2	Axx	2	A								
15 Feb	S24W14	133	plage												
16 Feb	S24W28	134	plage												
17 Feb	S24W42	135	plage												
18 Feb	S24W56	136	plage												
19 Feb	S24W70	137	plage												
20 Feb	S24W84	137	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 133

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 3229												
16 Feb	N30E70	36	240	6	Dao	2	B	2	1		1				
17 Feb	N25E58	35	400	7	Dko	6	B	5		1	2		1		
18 Feb	N26E45	35	280	7	Dki	14	BD				5				
19 Feb	N26E32	35	300	11	Eki	16	BD	2			1				
20 Feb	N26E19	34	310	12	Ekc	16	BD	4			5				
21 Feb	N25E07	31	240	12	Esi	18	BG	1			4				
22 Feb	N25W06	30	200	14	Esi	17	B								
23 Feb	N25W18	32	140	14	Eso	12	B								
24 Feb	N25W32	33	150	14	Eso	12	B		1				1		
25 Feb	N25W46	34	150	14	Eso	12	B	2	1					1	
26 Feb	N25W60	34	130	12	Eso	7	B								
								16	3	1	18	0	2	1	0

Still on Disk.
Absolute heliographic longitude: 30

			Region 3230												
18 Feb	S23E71	9	90	3	Cao	4	B								
19 Feb	S23E57	10	90	2	Hax	3	A	1							
20 Feb	S23E44	9	110	2	Hsx	3	A								
21 Feb	S23E30	9	100	4	Dso	3	B								
22 Feb	S22E18	9	120	4	Dso	7	B	1							
23 Feb	S22E06	8	120	5	Cso	11	B	2			1				
24 Feb	S22W08	9	120	5	Cso	11	B	1			2	1			
25 Feb	S22W22	10	120	5	Cso	11	B								
26 Feb	S22W36	10	110	5	Cso	10	B								
								5	0	0	3	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 8

			Region 3231												
19 Feb	N21W38	103	30	5	Cro	3	B								
20 Feb	N21W52	105	50	6	Dso	8	B	3			4	1			
21 Feb	N20W65	104	30	9	Dro	7	B	1			9				
22 Feb	N20W78	107	20	6	Cro	2	B				1				
								4	0	0	14	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 103

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 3232												
20 Feb	N10W79	131	10	1	Hrx	1	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 131

			Region 3233												
20 Feb	N14W01	53	10	1	Axx	1	A								
21 Feb	N14W14	53	0		Axx	1	A								
22 Feb	N14W28	55	plage												
23 Feb	N14W42	56	plage												
24 Feb	N14W56	57	plage												
25 Feb	N14W70	58	plage												
26 Feb	N14W84	58	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 53

			Region 3234												
20 Feb	N24E76	337	80	10	Dai	5	B	3	1						
21 Feb	N24E60	340	80	10	Dao	4	B	4	2		1				
22 Feb	N25E47	337	300	11	Ekc	12	BG	8	2		5				
23 Feb	N25E33	340	580	15	Ekc	25	BD	5	1		5				
24 Feb	N25E19	342	580	15	Ekc	25	BD	2			4				
25 Feb	N25E05	343	580	15	Ekc	25	BD	1							
26 Feb	N25W09	343	580	15	Ekc	25	BD	4							
								27	6	0	15	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 343

			Region 3235												
23 Feb	N19E08	5	40	4	Dao	6	B	2	1		6				
24 Feb	N19W06	7	40	4	Dao	6	B	2	1						
25 Feb	N19W20	8	40	4	Dao	6	B								
26 Feb	N19W34	8	30	4	Cao	5	B	1							
								5	2	0	6	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 7

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 3236													
23 Feb	S28E19	354	10	3	Cro	4	B				1				
24 Feb	S28E05	356	80	6	Dai	14	B	1			2				
25 Feb	S28W09	357	80	6	Dai	14	B	2	1						
26 Feb	S28W23	357	70	6	Dai	11	B								
								3	1	0	3	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 356

		Region 3237													
24 Feb	S12E23	338	10	3	Bxo	2	B								
25 Feb	S12E09	339	10	1	Axx	1	A								
26 Feb	S12W05	339	10	3	Bxo	2	B								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 339

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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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