

Solar activity reached moderate levels with two M-class flares observed during the week. An M3/Sn was observed on 20 Feb at 0756 UTC from Region 1976 (S15, L=320, class/area=Cho/270 on 18 February). A Type II radio sweep (estimated shock velocity 915 km/s), a Tenflare (420 sfu), and an asymmetric full-halo coronal mass ejection (CME) were observed with this event. Most of the ejecta with this coronal mass ejection (CME) appeared to be directed westward with a minor Earthward component. On the same day, Region 1982 (S10, L=207, class/area=Ekc/570) produced a C3/Sf flare at 20/0335 UTC associated with a Type II radio sweep (estimated shock velocity 1432 km/s), a Type IV radio sweep, and an asymmetric full-halo CME with most of the ejected directed eastward with a minor Earthward component. Region 1982 was the largest region on the disk during the week, the most magnetically complex (beta-gamma), and the most productive. It was responsible for 11 C-class events and 30 optical flares.

Old Region 1967 (S12, L=12) was responsible for a C7 flare at 22/1550 UTC and was at least partially responsible for a long-duration M1 flare at 23/0610 UTC. During the M-flare, GOES-15 SXI imagery suggested that old Regions 1967 and 1977 (S10, L=294) flared simultaneously. Subsequent SOHO LASCO C2 coronagraph imagery showed coronal mass ejections (CMEs) from both region locations with the larger of the two coming from behind the west limb. Throughout the week, old Region 1967 was the source of many CMEs while behind the east limb.

In addition to the CMEs associated with the flares, a 45-degree filament erupted from the southeast quadrant during 18/0015 - 0158 UTC associated with an Earth-directed, asymmetric, full-halo coronal mass ejection (CME). Analysis of coronagraph imagery suggested the ejecta was moving at 695 km/s, with most directed southward.

The greater than 10 MeV proton flux at geosynchronous orbit reached the S1 (Minor) threshold at 20/0850 UTC, reached a peak of 22 pfu at 20/0925 UTC, and dropped below the S1 event threshold at 20/1125 UTC as a result of the M3/Sn flare at 20/0756 UTC from Region 1976.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 20/0906 UTC and again on 21/1700 UTC. High levels were subsequently observed again on the 22nd and 23rd. Peak flux during the week was 2780 pfu observed on 23/1455 UTC.

Geomagnetic field activity reached major storm levels as successive coronal mass ejections battered the magnetosphere during the past week and produced the most extended period of planetary major storm conditions since June 29, 2013. ACE data indicated the arrival of a CME at approximately 19/0309 UTC, likely associated with a faint full-halo CME on Feb 16. Wind speed jumped from about 380 to 500 km/s with the arrival and remained elevated for the rest of the period (peak 546 km/s at 19/1747 UTC). IMF Bt (total field intensity) increased from 8 to 15 nT with the CME arrival and remained enhanced for the rest of the day (peak 18 nT at 19/0658 UTC), with a gradual decrease after approximately 19/1500 UTC. The Bz component of the IMF



was southward at around -8 nT prior to the arrival, then became further southward following the arrival (maximum reading of -15 nT at 19/0358 UTC). IMF Bz remained southward until approximately 19/0830 UTC, then became variable until approximately 19/1300 UTC, followed by mostly northward Bz conditions. IMF Phi data indicated a variable solar-sector orientation during the period. EPAM data showed a gradual increase during the latter half of the day, likely indicating the approach of the CME observed on Feb 18. In response to the arrival of the CME, the magnetic field reached major storm conditions during 19/0300 - 1500 UTC, with severe storm levels detected at high latitudes. Activity decreased to quiet to unsettled levels after 19/1500 UTC.

A second shock arrived at approximately 20/0251 UTC, most likely associated with the filament eruption on 18 Feb. Solar wind speed at the ACE spacecraft jumped from about 500 to 640 km/s and was accompanied by a 6 nT increase in IMF Bt, and a southward turn of the Bz component of the IMF (minimum -14 nT at 20/0507 UTC). Wind speed peaked at 743 km/s at 20/0440 UTC with this CME passage, followed by a gradual decrease to about 500 km/s by the end of the period. A geomagnetic sudden impulse was observed at 20/0329 UTC (31 nT, Boulder USGS magnetometer) associated with the CMEs arrival at Earth. Major storm levels prevailed from 03-12Z, followed by a minor storm period. Severe storm conditions were recorded at some high-latitude stations.

Finally, the 20 Feb CME likely arrived around 23/0230 UTC. Solar wind speed was initially steady in the 420 - 440 km/s range and increased to around 520 km/s during transient passage. Total field strength values were steady near 5 nT and began a slow rise to 11 nT during CME passage while the Bz component remained predominately north throughout the period. The phi angle began the period in a negative (toward) sector and underwent minor rotation and variability to a positive (away) sector during transient passage. The CME arrival produced unsettled to active geomagnetic conditions with minor to major storm conditions for half the day at high latitudes.

Space Weather Outlook

24 February - 22 March 2014

Solar activity is expected to be at low to moderate levels, with high levels of activity likely through 16 March, with the return of Old Regions 1967 (S13, L=112) at the beginning of the period, and 1974 (S12, L=354) after 03 March. STEREO EUVI imagery suggests these regions have maintained their levels of activity.

No proton events are expected at geosynchronous orbit, however, the threat will increase during the transit of Old Region 1974, particularly after 09 March.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels for most of the forecast period. High flux levels are anticipated on 09-10 March in response to a coronal hole high speed stream.

Geomagnetic field activity is expected to be at quiet to unsettled levels in the absence of any transient activity. There is a chance for active conditions 28 Feb-01 March in response to a



positive polarity coronal hole high speed stream. A slight chance of active levels exists on 09 March in response to another high speed stream.



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
17 February	152	101	1090	B7.8	7	0	0	11	1	0	0	0
18 February	151	134	1300	B9.4	5	0	0	18	0	0	0	0
19 February	158	123	940	B8.1	7	0	0	2	1	0	0	0
20 February	156	140	880	B7.5	2	1	0	7	0	0	0	0
21 February	157	152	870	B8.0	3	0	0	1	0	0	0	0
22 February	163	179	1020	B7.8	3	0	0	4	0	0	0	0
23 February	172	185	1110	B9.9	2	1	0	1	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	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
	17 February	1.3e+05	1.0e+04	2.5e+03		2.0e+05
18 February	1.6e+06	2.5e+04	2.5e+03		4.7e+05	
19 February	1.7e+07	9.0e+04	2.6e+03		1.0e+06	
20 February	3.0e+07	3.3e+05	4.8e+03		2.1e+06	
21 February	1.7e+06	2.2e+04	2.2e+03		4.1e+07	
22 February	4.7e+05	1.2e+04	2.3e+03		5.8e+07	
23 February	5.4e+05	1.0e+04	2.5e+03		5.1e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	17 February	4	1-0-1-1-1-1-2-2	2	1-1-1-1-0-0-0-1	5
18 February	6	1-0-1-1-2-2-2-3	8	1-0-2-1-3-3-3-2	7	1-0-2-2-1-2-3-3
19 February	30	4-5-5-5-5-2-2-2	57	3-6-5-7-7-3-2-2	47	5-6-6-5-6-3-2-3
20 February	27	1-5-5-5-5-2-2-2	59	1-5-5-8-6-4-3-2	39	2-6-6-6-5-3-3-3
21 February	9	2-2-2-3-2-2-2-3	19	2-1-4-5-4-4-2-1	12	3-3-3-3-2-3-2-3
22 February	11	4-3-2-3-2-2-2-1	19	4-2-3-5-4-3-2-1	14	4-3-2-3-2-3-2-2
23 February	12	2-2-3-2-3-3-3-3	32	1-2-2-5-5-5-6-3	17	2-2-3-3-3-4-4-4



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
17 Feb 0548	ALERT: Type II Radio Emission	17/0454
18 Feb 2108	WARNING: Geomagnetic K = 4	18/2110 - 19/0700
19 Feb 0059	ALERT: Geomagnetic K = 4	19/0054
19 Feb 0129	WARNING: Geomagnetic K = 5	19/0130 - 0700
19 Feb 0156	ALERT: Geomagnetic K = 5	19/0155
19 Feb 0325	WARNING: Geomagnetic Sudden Impulse expected	19/0350 - 0420
19 Feb 0330	WARNING: Geomagnetic K = 6	19/0330 - 0700
19 Feb 0456	ALERT: Geomagnetic K = 6	19/0455
19 Feb 0651	EXTENDED WARNING: Geomagnetic K = 4	18/2110 - 19/1900
19 Feb 0651	EXTENDED WARNING: Geomagnetic K = 5	19/0130 - 1400
19 Feb 0651	EXTENDED WARNING: Geomagnetic K = 6	19/0330 - 1400
19 Feb 0805	ALERT: Geomagnetic K = 6	19/0805
19 Feb 1320	EXTENDED WARNING: Geomagnetic K = 5	19/0130 - 1800
19 Feb 1345	ALERT: Geomagnetic K = 6	19/1338
19 Feb 1346	EXTENDED WARNING: Geomagnetic K = 6	19/0330 - 1800
20 Feb 0317	WARNING: Geomagnetic Sudden Impulse expected	20/0320 - 0350
20 Feb 0325	WARNING: Geomagnetic K = 4	20/0325 - 1400
20 Feb 0335	ALERT: Geomagnetic K = 4	20/0333
20 Feb 0339	SUMMARY: Geomagnetic Sudden Impulse	20/0329
20 Feb 0357	WARNING: Geomagnetic K = 5	20/0355 - 1000
20 Feb 0406	ALERT: Type II Radio Emission	20/0322
20 Feb 0406	ALERT: Type IV Radio Emission	20/0328
20 Feb 0439	ALERT: Geomagnetic K = 5	20/0438
20 Feb 0519	WARNING: Geomagnetic K = 6	20/0520 - 1000
20 Feb 0528	ALERT: Geomagnetic K = 6	20/0528
20 Feb 0728	ALERT: Geomagnetic K = 6	20/0727
20 Feb 0755	ALERT: Type II Radio Emission	20/0745
20 Feb 0756	SUMMARY: 10cm Radio Burst	20/0730 - 0730
20 Feb 0855	WARNING: Proton 10MeV Integral Flux > 10pfu	20/0855 - 21/0855

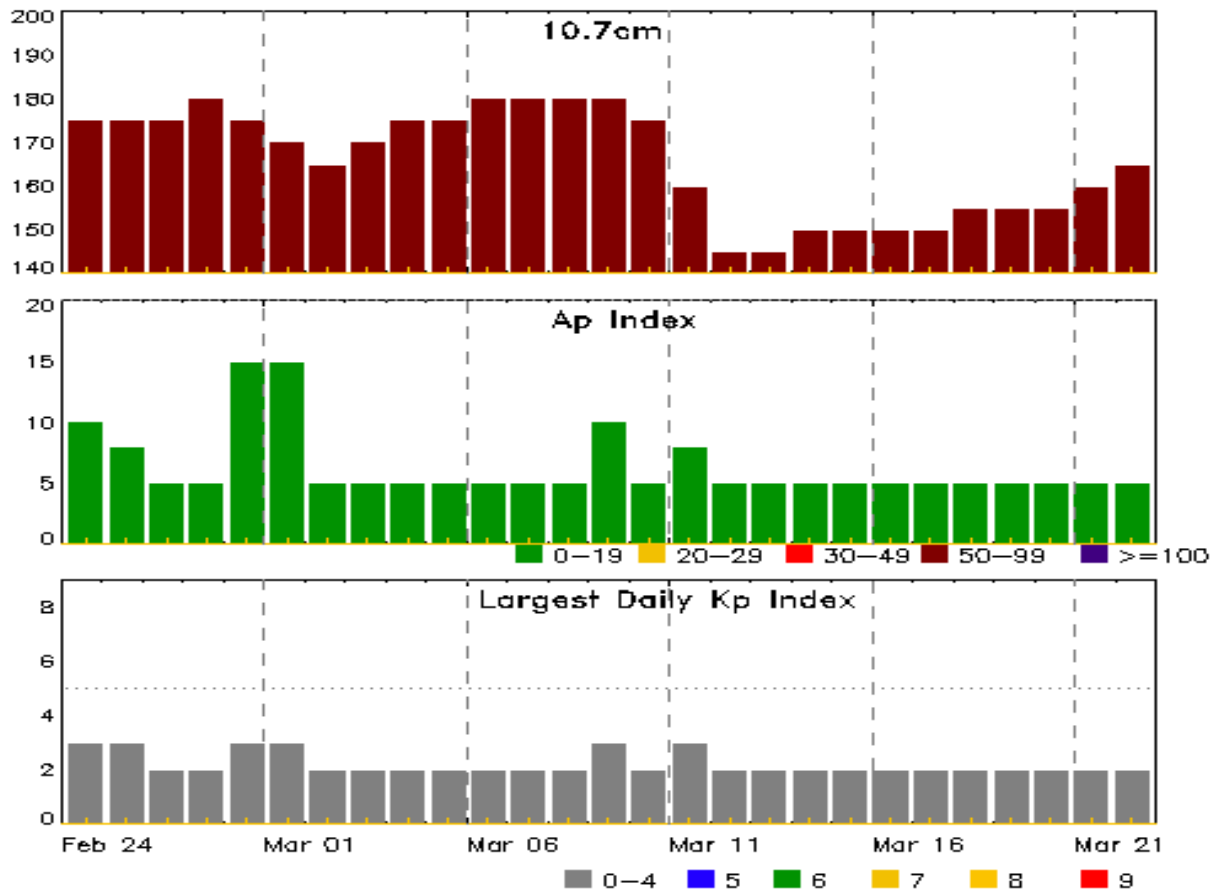


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
20 Feb 0906	ALERT: Proton Event 10MeV Integral Flux \geq 10pfu	20/0855
20 Feb 0952	EXTENDED WARNING: Geomagnetic K = 5	20/0355 - 1400
20 Feb 1046	WARNING: Geomagnetic K = 6	20/1045 - 1400
20 Feb 1119	ALERT: Geomagnetic K = 6	20/1119
20 Feb 1356	EXTENDED WARNING: Geomagnetic K = 4	20/0325 - 21/1400
20 Feb 1356	EXTENDED WARNING: Geomagnetic K = 6	20/1045 - 2000
20 Feb 1356	EXTENDED WARNING: Geomagnetic K = 5	20/0355 - 21/0100
20 Feb 1443	SUMMARY: 10cm Radio Burst	20/0741 - 0756
20 Feb 1637	WATCH: Geomagnetic Storm Category G1 predicted	
21 Feb 0437	SUMMARY: Proton Event 10MeV Integral Flux \geq 10pfu	20/0850 - 1125
21 Feb 1716	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/1700
21 Feb 2108	WATCH: Geomagnetic Storm Category G1 predicted	
22 Feb 0157	WARNING: Geomagnetic K = 4	22/0157 - 1300
22 Feb 0208	ALERT: Geomagnetic K = 4	22/0208
22 Feb 1319	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/1700
23 Feb 0711	WARNING: Geomagnetic K = 4	23/0711 - 1300
23 Feb 1047	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/1700
23 Feb 1556	WARNING: Geomagnetic K = 4	23/1555 - 24/0100
23 Feb 1800	ALERT: Geomagnetic K = 4	23/1759



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
24 Feb	175	10	3	10 Mar	175	5	2
25	175	8	3	11	160	8	3
26	175	5	2	12	145	5	2
27	180	5	2	13	145	5	2
28	175	15	3	14	150	5	2
01 Mar	170	15	3	15	150	5	2
02	165	5	2	16	150	5	2
03	170	5	2	17	150	5	2
04	175	5	2	18	155	5	2
05	175	5	2	19	155	5	2
06	180	5	2	20	155	5	2
07	180	5	2	21	160	5	2
08	180	5	2	22	165	5	2
09	180	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	Rgn #	245	2695	Intensity II	IV
20 Feb	0726	0756	0825	M3.0	0.063	SN	S15W73	1976	250	420	2	
23 Feb	0550	0610	0636	M1.1	0.022							

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
17 Feb	0251	0304	0321	C6.6		S14W05	1977
17 Feb	0803	0810	0818	C2.0			1982
17 Feb	0851	0900	0909	C1.3			1982
17 Feb	0929	0944	0953	C1.7			1982
17 Feb	B0959	U1002	A1011		SF	S07E74	1982
17 Feb	B1025	U1025	A1029		SF	S04E68	1981
17 Feb	B1031	U1037	A1053		SF	S10E79	1982
17 Feb	B1035	U1059	A1114		SF	S04E68	1981
17 Feb	B1122	U1125	A1130		SF	S08E79	1982
17 Feb	B1152	U1153	A1158		SF	S08E79	1982
17 Feb	B1333	1334	1336		SF	S09E77	1982
17 Feb	1355	1404	1413		SF	S12W14	1977
17 Feb	1409	1411	1416		SF	S04E68	1981
17 Feb	B1504	U1504	1507		SF	S09E76	1982
17 Feb	1527	1531	1533	C2.4			1977
17 Feb	1553	1554	1602		SF	S12W12	1977
17 Feb	2010	2014	2020	C1.6			1980
17 Feb	2107	2112	2120	C1.8			1977
18 Feb	0127	0133	0140	C4.7	SF	S16W42	1976
18 Feb	0518	0522	0524		SF	S11E71	1982
18 Feb	0619	0623	0627	C1.9	SF	S17W44	1976
18 Feb	0949	0959	1011	C3.3	SF	S14E65	1982
18 Feb	B1243	1247	1253		SF	S10E68	1982
18 Feb	B1258	U1259	A1314		SF	S09E65	1982
18 Feb	1318	1325	1333	C1.7	SF	S10E65	1982
18 Feb	B1404	1407	1410		SF	S11E63	1982
18 Feb	1453	1454	1459		SF	S11E63	1982
18 Feb	1544	1545	1548		SF	S11E63	1982
18 Feb	1649	1651	1659		SF	S15W49	1976



Flare List

Date	Time			Optical			Rgn #
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	
18 Feb	1743	1748	1758		SF	S11E63	1982
18 Feb	1804	1806	1810		SF	S11E63	1982
18 Feb	1812	1813	1815		SF	S11E63	1982
18 Feb	1817	1838	1854		SF	S11E63	1982
18 Feb	2029	2033	2038	C1.8	SF	S11E63	1982
18 Feb	2117	2117	2126		SF	S11E63	1982
18 Feb	2239	2240	2254		SF	S11E63	1982
19 Feb	0031	0035	0038	C1.2	SF	S13W59	1976
19 Feb	0156	0201	0204	C3.0	1F	S12E59	1982
19 Feb	0239	0244	0254	C2.2			1976
19 Feb	0720	0726	0734	C2.0	SF	S12E56	1982
19 Feb	1011	1025	1031	C2.5			
19 Feb	2220	2224	2228	C1.4			1976
19 Feb	2348	0004	0016	C4.6	SF	S12E40	1982
20 Feb	0315	0335	0357	C3.3	SF	S14E38	1982
20 Feb	0438	0442	0453		SF	S11W73	1976
20 Feb	0454	0458	0501		SF	S12W72	1976
20 Feb	0608	0612	0619		SF	S11E46	1982
20 Feb	0716	0718	0722		SF	S11E44	1982
20 Feb	0726	0756	0825	M3.0	SN	S15W73	1976
20 Feb	2201	2234	2241	C1.6			1976
21 Feb	0604	0608	0613	C1.5			
21 Feb	0934	0951	0954		SF	S06E28	1982
21 Feb	1101	1117	1136	C1.9			1976
21 Feb	1320	1324	1327	C1.8			
22 Feb	0237	0249	0255	C1.8			1976
22 Feb	0810	0811	0843		SF	S06E13	1982
22 Feb	0910	0918	0932	C1.7	SF	S08E12	1982
22 Feb	1153	U1155	A1156		SF	S00E70	1987
22 Feb	B1420	U1425	1443		SF	S01E68	1987
22 Feb	1507	1550	1613	C7.7			
23 Feb	0412	0412	0415		SF	N13E36	1986
23 Feb	0550	0610	0636	M1.1			
23 Feb	1026	1031	1037	C2.4			1989
23 Feb	1143	1214	1227	C3.3			



Region Summary

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Helio Lon	Area 10 ⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
Region 1973																		
05 Feb	N06E63	12	30	2	Cro	2	B											
06 Feb	N06E51	10	30	4	Cro	6	B											
07 Feb	N05E37	11	60	8	Dso	11	B						2					
08 Feb	N05E24	12	100	6	Dso	9	B						1					
09 Feb	N06E10	13	130	8	Dso	13	B											
10 Feb	N03W03	12	100	6	Cao	12	B	1										
11 Feb	N04W18	13	50	7	Cao	13	B											
12 Feb	N04W32	15	40	4	Cso	7	B	1										
13 Feb	N16W43	12	30	6	Cso	4	B											
14 Feb	N06W57	14	20	1	Hax	1	A											
15 Feb	N06W72	16	10	1	Axx	1	A	3					1					
16 Feb	N06W87	18	10	1	Axx	2	A	2										
								7	0	0	4	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 12

Region 1974																		
05 Feb	S11E76	359	40	5	Hsx	1	A											
06 Feb	S12E62	358	170	8	Dso	13	B											
07 Feb	S13E51	357	210	15	Esc	26	BG											
08 Feb	S13E37	359	200	12	Esi	33	BG											
09 Feb	S12E23	360	220	15	Esi	34	BG	1										
10 Feb	S13E12	356	220	17	Fsi	25	BG	2				4						
11 Feb	S12E01	354	320	16	Fsc	42	BGD	2	2			6	3	1				
12 Feb	S12W12	354	460	16	Fkc	65	BGD	4	3			11	1	2				
13 Feb	S07W25	353	780	17	Fkc	47	BGD	8	5			15	4	1				
14 Feb	S12W37	354	990	16	Fkc	89	BGD	10	4			16	2	1				
15 Feb	S12W52	356	760	16	Fkc	47	BGD	3				4						
16 Feb	S12W66	357	760	16	Fkc	47	BGD	3				4						
17 Feb	S13W80	357	590	16	Fkc	11	BGD											
18 Feb	S12W89	354	480	12	Ekc	10	BG											
								33	14	0	60	10	5	0	0			

Crossed West Limb.

Absolute heliographic longitude: 354



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Helio Lon	Area 10 ⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
Region 1976																		
08 Feb	S15E78	318	80	8	Dao	3	B	1										
09 Feb	S15E63	320	240	13	Eac	9	BG											
10 Feb	S14E53	315	390	14	Eki	11	BG											
11 Feb	S15E40	315	310	15	Eki	10	BG											
12 Feb	S14E27	315	340	14	Eko	13	BG											
13 Feb	S15E13	315	370	16	Fki	15	BG											
14 Feb	S15W03	320	210	5	Dso	5	B											
15 Feb	S15W17	321	230	5	Dso	6	B											
16 Feb	S15W29	320	230	5	Cso	6	B											
17 Feb	S14W44	320	220	3	Hsx	1	A											
18 Feb	S15W56	320	270	3	Cho	3	B	2				3						
19 Feb	S14W69	320	180	4	Hax	5	A	3				1						
20 Feb	S14W82	320	130	4	Hax	3	A	1	1			3						
21 Feb	S13W94	319	60	2	Hax	1	A	1										
								8	1	0	7	0	0	0	0	0		

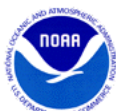
Crossed West Limb.

Absolute heliographic longitude: 320

Region 1977																		
10 Feb	S11E77	291	80	5	Hsx	1	A											
11 Feb	S11E65	290	270	12	Eao	4	B											
12 Feb	S09E52	289	290	14	Eko	9	B											
13 Feb	S09E38	290	460	14	Ekc	16	BG	1				1						
14 Feb	S10E26	291	410	14	Ekc	21	BG					2						
15 Feb	S10E12	292	320	11	Ekc	30	BG					1						
16 Feb	S10W02	293	320	11	Ekc	30	BG	4	1			5						
17 Feb	S10W16	293	120	13	Eac	22	BG	3				2	1					
18 Feb	S11W30	293	110	13	Eai	25	B											
19 Feb	S10W41	291	90	12	Cai	18	B											
20 Feb	S10W57	294	40	4	Cai	7	B											
21 Feb	S09W71	296	20	5	Cro	5	B											
22 Feb	S08W85	297	10	1	Axx	1	A											
								8	1	0	11	1	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 293



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
									C	M	X	S	1	2	3	4		
Region 1980																		
14 Feb	S14E06	311	115	6	Dao	4	B											
15 Feb	S14W06	310	90	3	Hsx	1	A											
16 Feb	S14W20	311	90	3	Hax	2	A											
17 Feb	S13W33	310	30	1	Hax	1	A	1										
18 Feb	S13W46	309	10	1	Hrx	1	A											
19 Feb	S13W60	311	plage															
20 Feb	S13W74	312	plage															
21 Feb	S13W88	313	plage															
									1	0	0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 311

Region 1981																		
17 Feb	S06E59	217	50	3	Dao	2	B					3						
18 Feb	S06E45	218	110	7	Dso	5	B											
19 Feb	S07E33	217	140	8	Dai	13	B											
20 Feb	S07E20	217	190	9	Dsi	20	B											
21 Feb	S07E06	219	190	10	Dai	19	B											
22 Feb	S07W07	219	240	11	Eai	17	B											
23 Feb	S07W21	219	220	12	Eai	27	B											
									0	0	0	3	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 219

Region 1982																		
17 Feb	S11E70	206	80	6	Dai	4	B	3				6						
18 Feb	S11E57	206	280	6	Dki	7	BG	3				15						
19 Feb	S11E44	205	500	8	Dki	20	BG	3				1	1					
20 Feb	S11E32	205	490	9	Dkc	35	BG	1				4						
21 Feb	S10E19	206	520	10	Dkc	38	BG					1						
22 Feb	S10E05	207	560	10	Dkc	57	BG	1				2						
23 Feb	S10W09	207	570	12	Ekc	69	BG											
									11	0	0	29	1	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 207



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
Region 1983																		
18 Feb	S12E39	224	10		Axx	1	A											
19 Feb	S13E26	224	plage															
20 Feb	S14E13	224	plage															
21 Feb	S14W00	225	plage															
22 Feb	S14W17	229	10	3	Bxo	3	B											
23 Feb	S14W31	229	10	1	Axx	2	A											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 225

Region 1984																		
18 Feb	S17E47	217	30	4	Cso	2	B											
19 Feb	S16E32	218	20	4	Cro	4	B											
20 Feb	S16E19	218	10	2	Bxo	2	B											
21 Feb	S16E04	221	10	3	Bxo	2	B											
22 Feb	S16W09	221	plage															
23 Feb	S16W23	221	plage															
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 221

Region 1985																		
19 Feb	N07W46	297	10	4	Bxo	3	B											
20 Feb	N06W57	295	10	1	Axx	1	A											
21 Feb	N08W71	296	10	2	Bxo	2	B											
22 Feb	N07W86	298	10	5	Bxo	2	B											
								0	0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 297

Region 1986																		
20 Feb	N13E58	179	10	6	Bxo	2	B											
21 Feb	N14E48	177	30	12	Cao	4	B											
22 Feb	N13E34	178	30	14	Cri	8	B											
23 Feb	N13E21	177	40	12	Cao	13	B					1						
								0	0	0	1	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 177



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
									C	M	X	S	1	2	3	4		
<i>Region 1987</i>																		
21 Feb	S03E71	154	30	1	Hax	1	A											
22 Feb	S02E61	151	150	7	Dao	8	BG					2						
23 Feb	S02E48	150	240	9	Dao	13	BG											
								0	0	0	2	0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 150																		
<i>Region 1988</i>																		
22 Feb	S10E35	177	10	3	Bxo	3	B											
23 Feb	S10E21	177	plage															
								0	0	0	0	0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 177																		
<i>Region 1989</i>																		
23 Feb	N09E62	136	30	2	Hax	1	A	1										
								1	0	0	0	0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 136																		

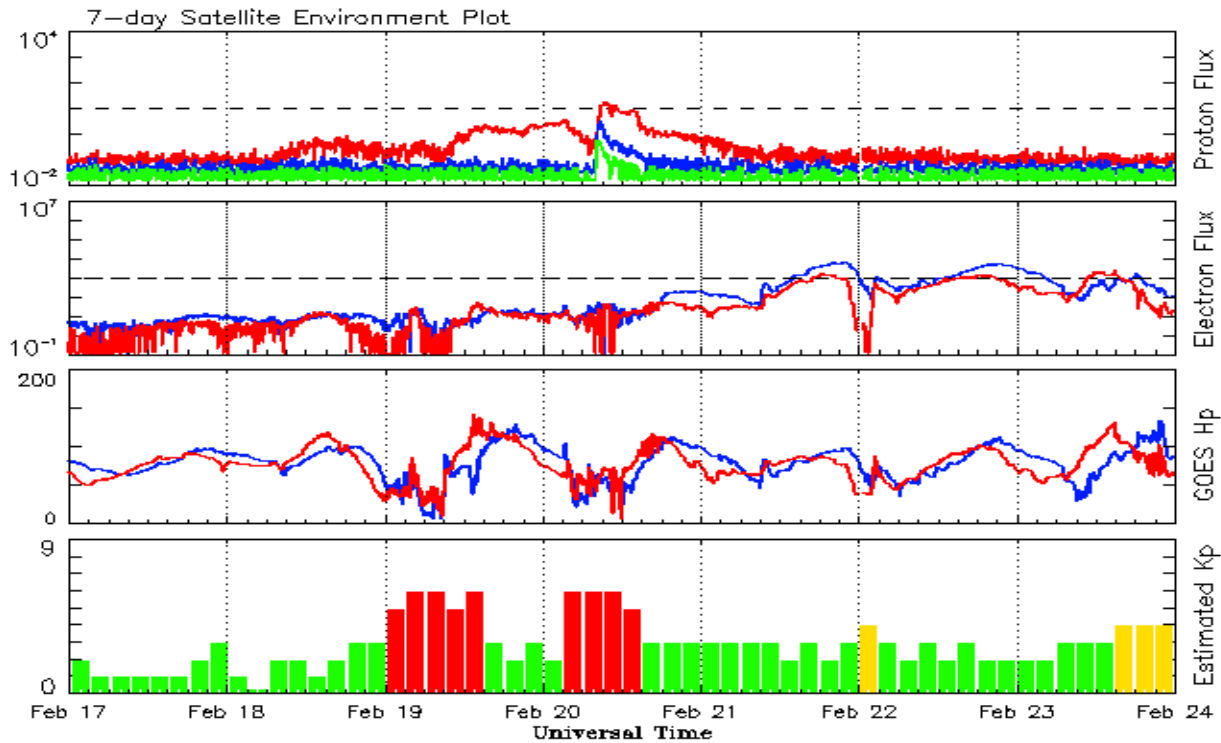


Recent Solar Indices (preliminary)
Observed monthly mean values

Month	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
2012									
February	50.1	32.9	0.66	94.2	66.9	106.7	126.7	7	8.4
March	77.9	64.3	0.82	94.1	66.8	115.1	126.8	14	8.1
April	84.4	55.2	0.65	91.3	64.6	113.1	125.8	9	8.0
May	99.5	69.0	0.69	87.7	61.7	121.5	123.8	8	8.2
June	88.6	64.5	0.73	83.9	58.9	120.5	121.1	10	8.3
July	99.6	66.5	0.67	82.4	57.8	135.6	119.5	13	8.3
August	85.8	63.0	0.74	83.1	58.2	115.7	119.2	7	8.1
September	84.0	61.4	0.73	83.7	58.1	123.2	118.9	8	7.8
October	73.5	53.3	0.73	85.0	58.6	123.3	119.2	9	7.4
November	89.2	61.8	0.69	87.3	59.7	120.9	120.1	6	7.3
December	60.4	40.8	0.68	88.0	59.6	108.4	120.1	3	7.5
2013									
January	99.8	62.9	0.63	87.1	58.7	127.1	118.9	4	7.5
February	60.0	38.1	0.63	86.7	58.4	104.4	118.0	5	7.4
March	81.0	57.9	0.71	85.7	57.6	111.2	117.1	9	7.4
April	112.8	72.4	0.64	86.7	57.9	125.0	116.6	5	7.2
May	125.5	78.7	0.63	90.5	59.9	131.3	118.1	10	7.0
June	80.1	52.5	0.66	94.4	62.6	110.2	120.9	13	7.1
July	86.1	57.0	0.66	97.9	65.5	115.6	123.9	9	7.3
August	90.2	66.0	0.73			114.7		9	
September	55.0	37.0	0.67			102.7		5	
October	127.1	85.6	0.67			132.3		7	
November	125.7	77.6	0.62			148.4		5	
December	118.2	90.3	0.76			147.7		5	
2014									
January	125.9	82.0	0.65			158.6		6	

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 17 February 2014*

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

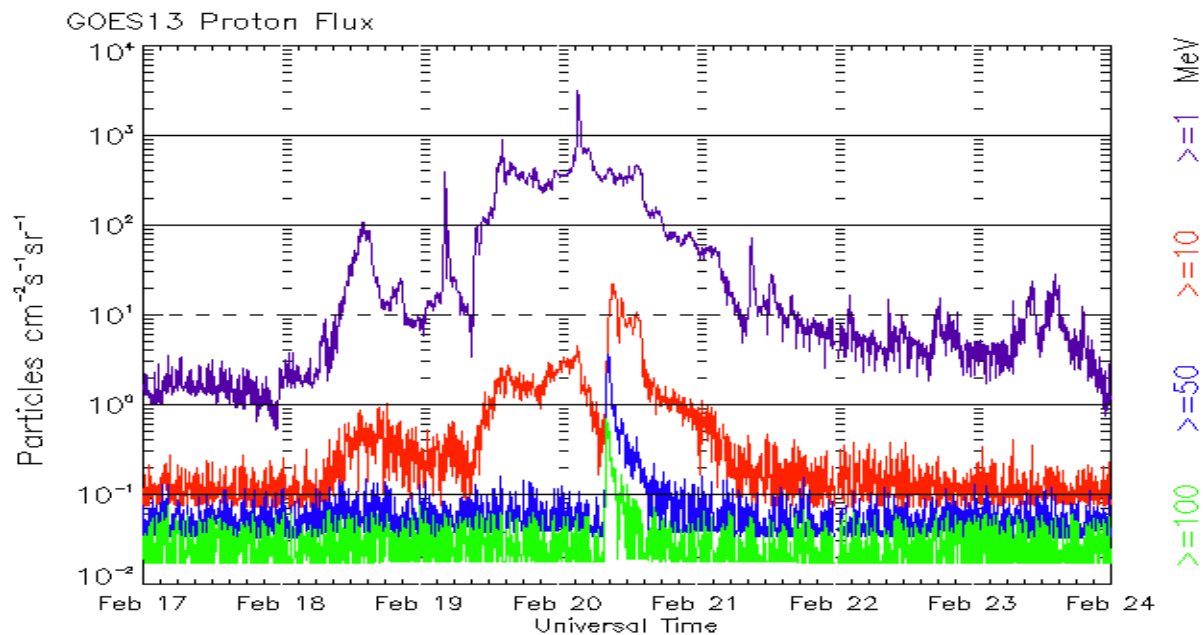
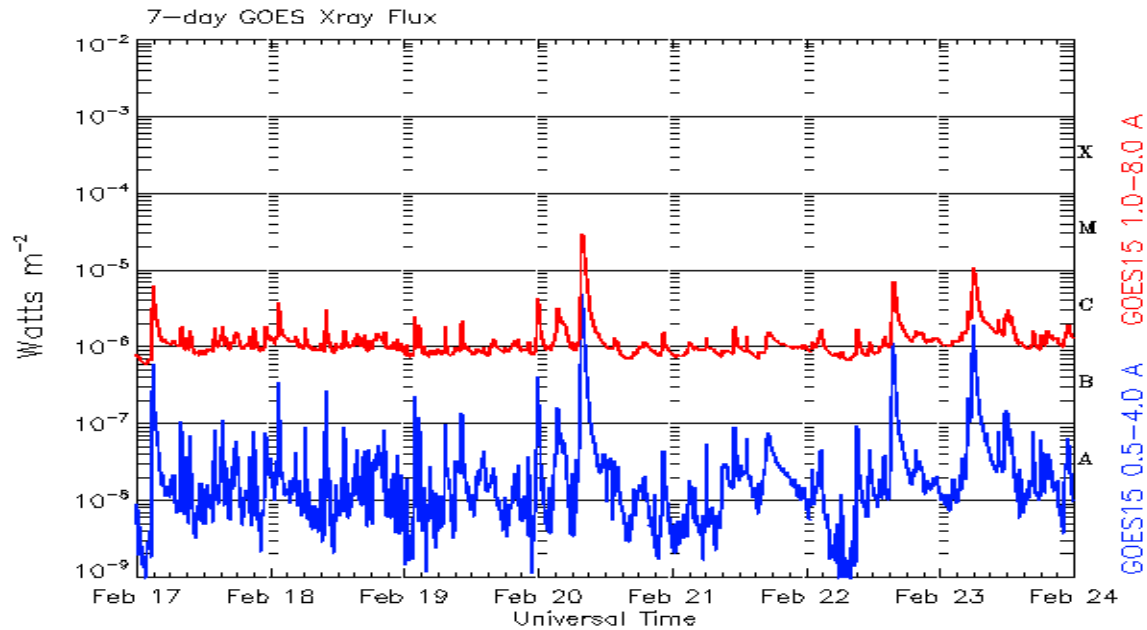
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.

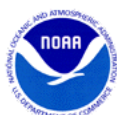




*Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 17 February 2014*

The x-ray plots contains five-minute averages x-ray flux (Watt/m²) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm² -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.



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.

<http://spaceweather.gov/weekly/> -- Current and previous year

<http://spaceweather.gov/ftpmenu/warehouse.html> -- Online archive from 1997

<http://spaceweather.gov/ftpmenu/> -- Some content as ascii text

<http://spaceweather.gov/SolarCycle/> -- Solar Cycle Progression web site

<http://spaceweather.gov/contacts.html> -- Contact and Copyright information

http://spaceweather.gov/weekly/Usr_guide.pdf -- User Guide

