

An X4/2b x-ray flare on 25/0049 UTC from Region 1990 (S15, L=108, class/area=Hkx/250 on 24 Feb) brought solar activity to high levels and affected the character of the space weather environment for the remainder of the week. This event was associated with Type II (est. shock speed 1972 km/s) and Type IV radio sweeps, as well as a fast-moving, asymmetric-halo coronal mass ejection (CME) that was first seen in Lasco C3 imagery at 25/0130 UTC. Although not aimed directly at Earth, the glancing blow from this CME brought major geomagnetic storm conditions on 27 February described below. Region 1990 was also responsible for two other M1 flares the day prior at 24/1117 UTC (with an Sf optical flare) and 24/1205 UTC. M1 flares were also attributed to Region 1982 (S10, L=106, class/area Ekx/450 on 24 Feb) at 26/1501 UTC (M1/1n) and 01 Mar at 1333 UTC (M1); Region 1992 (S24, L=93, class/area=Eki/370 on 02 Mar) at 28/0048 UTC (M1/Sn); and Region 1986 (N14, L-176, class/area=Cro/40 on 25 Feb) at 02/2319 UTC (M1/Sf).

The greater than 10 MeV proton flux at geosynchronous orbit was elevated following the flare on 25 February. By 25/1355 UTC flux had exceeded the 10 pfu threshold. It stayed above 10pfu throughout the remainder of the week. On 27 Feb, the flux was further enhancement as the shock from the 25 Feb CME described above arrived. 10 MeV flux briefly crossed S2 (Moderate) levels by 28/0835 UTC, reached a peak value of 103 pfu at 28/0845 UTC, and began a very gradual decline afterwards. The greater than 100 MeV proton flux at geosynchronous orbit was also enhanced following the X4/2b flare, but only reached a peak of 0.9 pfu at 25/1945 UTC.

The greater than 2 MeV electron flux at geosynchronous orbit was at low to moderate levels all week.

For the second time during the month of February, the geomagnetic field reached major storm levels. At 27/1609 UTC, the shock from the 25 Feb CME described earlier arrived at the ACE spacecraft. Solar wind speed jumped from pre-shock values near 350 km/s to a maximum of 519 km/s by 27/1936 UTC before beginning to decline.. Bz plummeted to -18 nT by 27/1804 UTC while total field reached 22 nT around the same time. Bz remained mostly negative until about 28/0200 UTC. A geomagnetic sudden impulse was subsequently observed at the Hartland magnetometer (22 nT) at 27/1653 UTC. Geomagnetic conditions were initially at active levels for the 27/1500-1800 UTC period, but increased to major storm levels for the 27/1800-2100 UTC period. Minor storm (G1-Minor) levels were observed during the 27/2100-2400 UTC period. Unsettled to active levels persisted through the 28th before returning to mostly quiet levels. Data from the GOES 13 and 15 magnetometers suggested a magnetopause crossing around 27/1700 and 2000 UTC, respectively. The geomagnetic storm was also associated with an ionospheric storm-enhanced-density episode over western North America and the east Pacific. Aurora was reported as far south as East Anglia in the United Kingdom. Relatively nominal solar wind conditions returned by late on the 28th after which the geomagnetic field settled down to quiet to occasionally unsettled levels.



Space Weather Outlook
03 March - 29 March 2014

Solar activity is expected to be low to moderate levels with high levels possible throughout the forecast period.

There is a chance for a proton event at geosynchronous orbit throughout the forecast period.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels with a chance for high levels on 09-10 and 13-15 March in response to effects from a coronal hole high speed stream.

Geomagnetic field activity is expected to be at mostly quiet or unsettled levels in the absence of any transient features. There is a chance for active levels on 09-10 March in response to a negative polarity coronal hole 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
24 February	171	205	1250	B9.1	5	2	0	4	0	0	0	0
25 February	174	157	910	C1.0	4	0	1	11	1	1	0	0
26 February	178	197	1060	B9.5	3	1	0	11	1	0	0	0
27 February	176	227	1170	B9.8	12	0	0	15	0	0	0	0
28 February	171	279	1220	B9.7	6	1	0	9	0	1	0	0
01 March	165	177	1060	B9.7	3	1	0	6	0	0	0	0
02 March	161	170	960	B8.3	7	1	0	14	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
	24 February	1.1e+05	1.0e+04	2.4e+03		4.9e+06
25 February	1.2e+06	6.9e+05	4.7e+04		6.4e+06	
26 February	3.7e+06	1.7e+06	4.2e+04		1.4e+07	
27 February	2.2e+07	2.7e+06	2.0e+04		1.0e+07	
28 February	9.4e+07	6.4e+06	7.9e+03		1.4e+07	
01 March	7.0e+07	4.1e+06	2.2e+03		1.1e+07	
02 March	2.6e+07	1.5e+06	2.5e+03		7.2e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	24 February	5	1-1-2-2-2-2-2-0	8	1-2-2-4-2-2-1-0	7
25 February	3	1-0-0-0-2-2-1-2	4	1-0-0-2-3-1-0-1	4	2-0-1-1-1-1-1-2
26 February	3	2-0-0-1-2-2-1-0	0	1-0-0-0-0-0-0-0	4	2-0-1-1-0-1-1-1
27 February	15	1-1-0-0-3-4-5-4	24	0-0-0-2-4-6-5-4	24	1-1-1-1-3-4-6-5
28 February	10	3-2-3-3-2-3-1-1	0	3-2-4-6-1-0-0-0	13	4-3-4-3-2-3-1-1
01 March	6	2-1-2-1-2-2-2-2	3	0-0-0-0-0-0-1-1	7	2-2-2-2-2-1-2-3
02 March	3	2-1-0-1-2-1-1-0	2	2-1-0-0-1-0-0-0	5	3-2-1-1-1-0-1-1



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
24 Feb 1512	ALERT: Type IV Radio Emission	24/1254
25 Feb 0046	ALERT: X-ray Flux exceeded M5	25/0044
25 Feb 0129	SUMMARY: 10cm Radio Burst	25/0042 - 0107
25 Feb 0130	ALERT: Type II Radio Emission	25/0045
25 Feb 0144	ALERT: Type IV Radio Emission	25/0045
25 Feb 0304	SUMMARY: X-ray Event exceeded X1	25/0039 - 0103
25 Feb 0629	WARNING: Proton 10MeV Integral Flux > 10pfu	25/0830 - 2030
25 Feb 1257	WARNING: Proton 100MeV Integral Flux > 1pfu	25/1315 - 26/0115
25 Feb 1403	ALERT: Proton Event 10MeV Integral Flux >= 10pfu	25/1355
25 Feb 2026	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	25/0830 - 26/2030
26 Feb 0111	EXTENDED WARNING: Proton 100MeV Integral Flux > 1pfu	25/1315 - 26/2030
26 Feb 1419	WATCH: Geomagnetic Storm Category G1 predicted	
26 Feb 1631	CANCELLATION: Proton 100MeV Integral Flux > 1pfu	
26 Feb 2026	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	25/0830 - 27/1500
27 Feb 1455	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	25/0830 - 01/1500
27 Feb 1625	WARNING: Geomagnetic Sudden Impulse expected	27/1645 - 1745
27 Feb 1627	WARNING: Geomagnetic K = 4	27/1645 - 2300
27 Feb 1701	SUMMARY: Geomagnetic Sudden Impulse	27/1653
27 Feb 1723	ALERT: Geomagnetic K = 4	27/1719
27 Feb 1806	WARNING: Geomagnetic K = 5	27/1805 - 2200
27 Feb 1917	WATCH: Geomagnetic Storm Category G1 predicted	
27 Feb 1930	ALERT: Geomagnetic K = 5	27/1928
27 Feb 2000	WARNING: Geomagnetic K = 6	27/1959 - 2300
27 Feb 2001	ALERT: Geomagnetic K = 6	27/1955
27 Feb 2033	EXTENDED WARNING: Geomagnetic K = 4	27/1645 - 28/0900
27 Feb 2034	EXTENDED WARNING: Geomagnetic K = 5	27/1805 - 28/0600

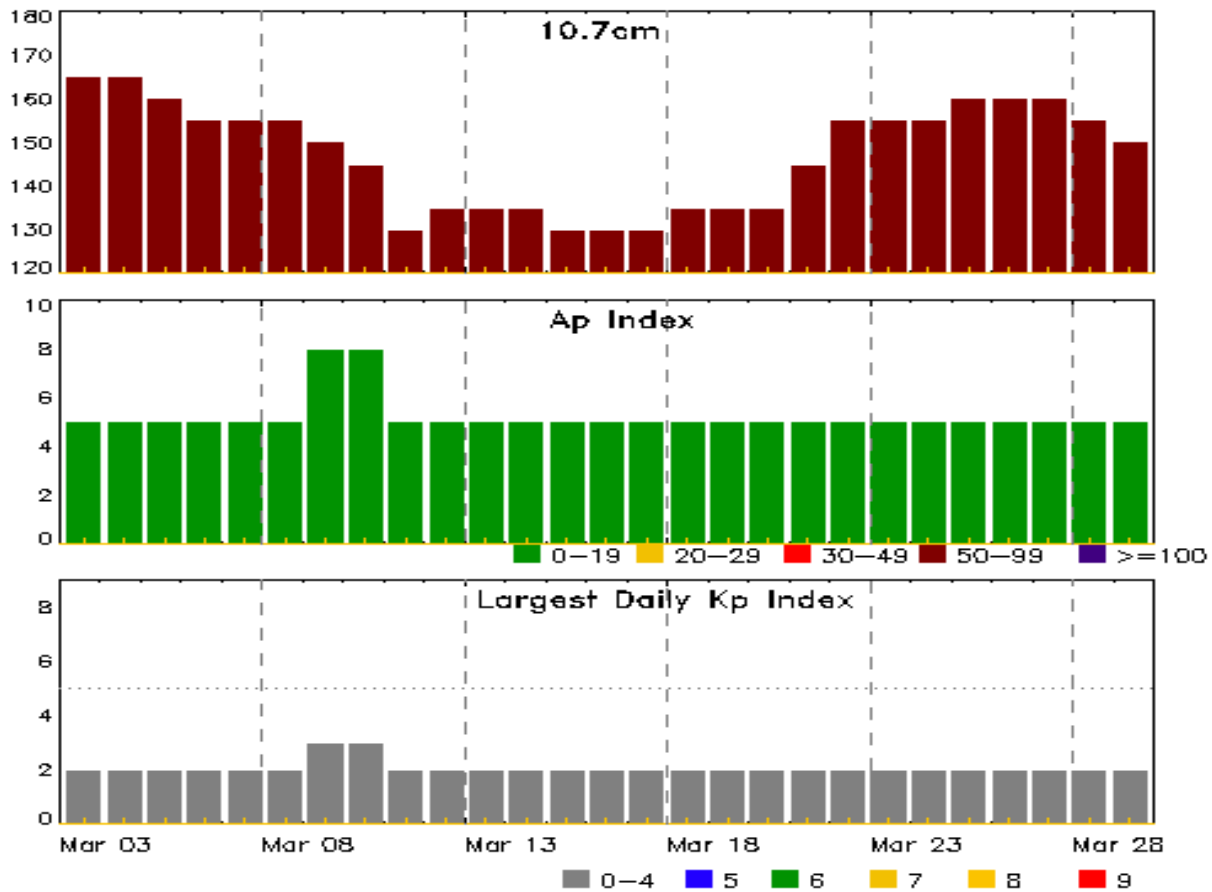


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
27 Feb 2257	EXTENDED WARNING: Geomagnetic K = 6	27/1959 - 28/0100
28 Feb 0837	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	25/0830 - 01/1500
28 Feb 0848	ALERT: Proton Event 10MeV Integral Flux >= 100pfu	28/0835
28 Feb 0849	EXTENDED WARNING: Geomagnetic K = 4	27/1645 - 28/1600
28 Feb 1807	CANCELLATION: Geomagnetic Storm Category G1 predicted	
01 Mar 1153	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	25/0830 - 02/1500
01 Mar 1247	SUMMARY: Proton Event 10MeV Integral Flux >= 100pfu	28/0835 - 0930
02 Mar 0245	WARNING: Geomagnetic K = 4	02/0245 - 1300
02 Mar 1456	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	25/0830 - 03/0400



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
03 Mar	165	5	2	17 Mar	130	5	2
04	165	5	2	18	135	5	2
05	160	5	2	19	135	5	2
06	155	5	2	20	135	5	2
07	155	5	2	21	145	5	2
08	155	5	2	22	155	5	2
09	150	8	3	23	155	5	2
10	145	8	3	24	155	5	2
11	130	5	2	25	160	5	2
12	135	5	2	26	160	5	2
13	135	5	2	27	160	5	2
14	135	5	2	28	155	5	2
15	130	5	2	29	150	5	2
16	130	5	2				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
			Max						245	2695	II	IV
24 Feb	1103	1117	1142	M1.2	0.019	SF	N00E00	1990				
24 Feb	1200	1205	1210	M1.3	0.005			1990	930			
25 Feb	0039	0049	0103	X4.9	0.430	2B	S12E82	1990	1e+05	3700	3	2
26 Feb	1452	1501	1510	M1.1	0.007	1N	S13W44	1982				
28 Feb	0044	0048	0050	M1.1	0.002	SN	S24E53	1991				
01 Mar	1318	1333	1340	M1.1	0.011			1982				
02 Mar	2311	2319	2326	M1.1	0.006	SF	N15W74	1986				

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
24 Feb	0305	0313	0330	C1.5			1982
24 Feb	0342	0400	0416	C2.4			1990
24 Feb	0422	0430	0434	C2.3			1982
24 Feb	0744	0744	0806		SF	S11W11	1982
24 Feb	1016	U1026	1035		SF	S12W12	1982
24 Feb	1103	1117	1142	M1.2	SF	N00E00	1990
24 Feb	1200	1205	1210	M1.3			1990
24 Feb	1444	1449	1457	C5.0	SF	S11E63	1982
24 Feb	2131	2137	2145	C5.1			1990
25 Feb	0039	0049	0103	X4.9	2B	S12E82	1990
25 Feb	0127	0128	0130		SF	S09W28	1982
25 Feb	0232	0234	0236		SF	S13E82	1990
25 Feb	0427	0432	0436	C5.0	SF	N08E51	1989
25 Feb	0616	0620	0628	C4.5	SF	N12E08	1986
25 Feb	1204	1204	1210		SF	S08W38	1981
25 Feb	1252	1253	1254		SF	S23E88	
25 Feb	1357	U1404	1413		SF	S24E81	
25 Feb	1417	U1420	1423		SF	N13E04	1986
25 Feb	1431	U1433	1442		SF	N08E44	1989
25 Feb	1504	1510	1518	C5.7			1986
25 Feb	1505	1505	1509		SF	S23E85	1990
25 Feb	1506	1509	1540		1N	N13E03	1986
25 Feb	2331	2334	2337	C2.2	SF	S19W50	1984
26 Feb	0000	0003	0004		SF	S25E83	



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
26 Feb	0052	0053	0056		SF	S24E80		
26 Feb	0339	0339	0348	C3.0	SF	S11W38		1982
26 Feb	0350	0355	0401		SF	S13W39		1982
26 Feb	1050	1054	1058	C1.9				1984
26 Feb	B1129	U1133	A1136		SF	S13W43		1982
26 Feb	1249	1253	1255	C1.5				
26 Feb	1446	1446	1451		SF	S13W43		1982
26 Feb	B1447	U1518	A1538		SF	N12W10		1986
26 Feb	B1452	U1501	A1528	M1.1	1N	S13W44		1982
26 Feb	B1459	U1501	A1511		SF	S21E70		1991
26 Feb	1625	1626	1631		SF	S26E72		1991
26 Feb	1637	1638	1641		SF	S26E72		1991
26 Feb	2242	2244	2249		SF	S24E68		1991
27 Feb	0023	0053	0111	C2.0	SF	N13W15		1986
27 Feb	0237	0241	0247	C1.5	SF	S24E66		1991
27 Feb	0551	0557	0559	C2.3				1991
27 Feb	0603	0610	0617		SF	S24E65		1991
27 Feb	0652	0652	0659		SF	S23E63		1991
27 Feb	0718	0721	0724	C2.0	SF	S22E61		1991
27 Feb	0812	0815	0818	C1.4				
27 Feb	0834	0838	0840	C2.1	SF	S22E61		1991
27 Feb	0900	0956	1000	C3.1	SF	S12E45		1990
27 Feb	1041	1045	1048	C5.7				1991
27 Feb	1224	1230	1232	C6.8				1991
27 Feb	B1338	U1339	A1342		SF	N04E27		
27 Feb	1433	1434	1436		SF	S23E58		1991
27 Feb	1441	1443	1444		SF	S23E58		1991
27 Feb	1536	1539	1541	C1.8	SF	S23E57		1991
27 Feb	1555	1556	1558		SF	S23E57		1991
27 Feb	1714	1718	1726	C1.5				1984
27 Feb	2030	2030	2038		SF	S10W36		1988
27 Feb	2133	2212	2237	C4.2	SF	S11E63		1982
27 Feb	2147	2149	2154		SF	S23E57		1991
28 Feb	0044	0048	0050	M1.1	SN	S24E53		1991
28 Feb	0226	0230	0233	C2.6				1982
28 Feb	0357	0402	0404	C2.2				1987
28 Feb	0732	U0736	0743		SF	S22E48		1991
28 Feb	0744	0745	0749		SF	S11E33		1990



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
28 Feb	0753	0756	0757		SF	N17E40		1993
28 Feb	0820	0822	0851		SF	S21E05		1992
28 Feb	0932	1006	1033	C8.1	2F	S12W69		1982
28 Feb	B1039	U1040	A1050		SF	N17E38		1993
28 Feb	1240	1312	1338	C2.4	SF	S12W68		1982
28 Feb	1708	1712	1715	C2.7				1993
28 Feb	2038	2039	2042		SF	N16E34		1993
28 Feb	2228	2233	2238	C2.2	SF	N16E32		1993
01 Mar	0055	0059	0102	C4.3	SF	N16E34		1993
01 Mar	0226	0232	0233		SF	S22W06		1992
01 Mar	0339	0340	0343		SF	N16E28		1993
01 Mar	0433	0436	0438	C1.9				1991
01 Mar	1318	1333	1340	M1.1				1982
01 Mar	1540	1600	1609	C3.1				1987
01 Mar	1549	1550	1553		SF	S06W23		1994
01 Mar	1557	1602	1609		SF	S02W22		1987
01 Mar	1558	1600	1608		SF	S11E17		1990
02 Mar	0003	0012	0019	C8.7	SF	N15E17		1982
02 Mar	0034	0034	0041		SF	N16E17		1993
02 Mar	0156	0159	0203	C2.1				1982
02 Mar	0327	0353	0418	C3.7				1982
02 Mar	B0822	U0824	A0826		SF	S25E25		1991
02 Mar	0910	0911	0914		SF	S25E21		1991
02 Mar	B1122	U1123	A1131		SF	N16E12		1993
02 Mar	1155	1205	1214	C2.4	SF	S25E23		1991
02 Mar	1245	1253	1313	C2.5	SF	S11E33		1990
02 Mar	1321	1328	1332		SF	S25E24		1991
02 Mar	1459	1502	1517		SF	N06W23		1989
02 Mar	1547	1645	1700	C2.5	SF	S02W22		1987
02 Mar	1754	1754	1755		SF	S23E57		1991
02 Mar	1808	1814	1821	C1.7				1986
02 Mar	2024	2026	2045		SF	N10W23		1989
02 Mar	2112	2113	2124		SF	N07W29		1989
02 Mar	2311	2319	2326	M1.1	SF	N15W74		1986



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 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										
24 Feb	S07W34	218	200	13	Eai	34	B										
25 Feb	S08W47	219	110	13	Eai	14	B					1					
26 Feb	S07W61	219	100	14	Eai	13	B										
27 Feb	S07W74	220	40	13	Eao	7	B										
28 Feb	S06W80	220	20	8	Cao	5	B										
								0	0	0	4	0	0	0	0	0	

Crossed West Limb.
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	2									
24 Feb	S10W22	206	450	13	Ekc	68	BG	3				3					
25 Feb	S10W36	207	330	13	Esc	43	BG					1					
26 Feb	S09W50	208	320	14	Esc	33	BG	1	1			4	1				
27 Feb	S10W63	209	170	14	Eac	32	BG	1				1					
28 Feb	S11W76	207	160	15	Eac	20	BG	3				1		1			
01 Mar	S11W86	205	50	5	Cao	3	B			1							
								21	2	0	39	2	1	0	0		

Crossed West Limb.
Absolute heliographic longitude: 207



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 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											
24 Feb	S13W45	229	plage															
25 Feb	S13W59	231	plage															
26 Feb	S13W73	232	plage															
27 Feb	S13W87	233	plage															
									0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
 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															
24 Feb	S16W37	222	plage															
25 Feb	S18W49	221	20	2	Hrx	2	A	1			1							
26 Feb	S18W62	220	60	5	Cao	8	B	1										
27 Feb	S16W74	220	80	7	Dao	9	B	1										
28 Feb	S16W91	221	30	4	Cao	5	B											
									3	0	0	1	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 221



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 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						
24 Feb	N13E07	176	30	13	Cro	19	B											
25 Feb	N14W05	176	40	13	Cro	10	B	2				2	1					
26 Feb	N13W18	176	10	13	Bxo	13	B					1						
27 Feb	N13W30	176	30	5	Cro	11	B	1				1						
28 Feb	N14W41	174	10	5	Bxo	8	B											
01 Mar	N14W55	174	plage															
02 Mar	N14W69	175	plage					1	1			1						
								4	1	0		6	1	0	0	0		

Still on Disk.

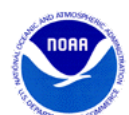
Absolute heliographic longitude: 176

Region 1987

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	1										
24 Feb	S02E36	147	230	10	Dai	15	BG											
25 Feb	S01E23	148	170	9	Dai	9	BG											
26 Feb	S01E09	148	190	10	Dai	14	B											
27 Feb	S03W04	150	180	10	Dsi	16	BG											
28 Feb	S02W17	148	150	11	Esi	29	B	1										
01 Mar	S02W29	148	160	11	Esi	16	B	1				1						
02 Mar	S02W44	150	110	7	Esi	9	B	1				1						
								4	0	0		4	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 150



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

Region 1988

22 Feb	S10E35	177	10	3	Bxo	3	B											
23 Feb	S10E21	177	plage															
24 Feb	S10E07	178	plage															
25 Feb	S10W07	179	plage															
26 Feb	S10W21	180	plage															
27 Feb	S10W37	183	60	5	Dao	10	B					1						
28 Feb	S10W51	182	170	7	Dao	13	B											
01 Mar	S10W64	183	120	10	Dao	7	B											
02 Mar	S11W79	185	80	12	Dao	4	B											
										0	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 178

Region 1989

23 Feb	N09E62	136	30	2	Hax	1	A	1										
24 Feb	N08E47	137	90	11	Cao	7	B											
25 Feb	N08E38	134	60	3	Cao	7	B	1				2						
26 Feb	N09E26	132	30	1	Dao	2	B											
27 Feb	N09E14	132	20	3	Hrx	3	A											
28 Feb	N08E01	130	10	7	Bxo	5	B											
01 Mar	N07W13	132	10	6	Bxo	7	B											
02 Mar	N08W26	132	10	4	Bxo	3	B					3						
								2	0	0	5	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 130

Region 1990

24 Feb	S15E77	108	250	3	Hkx	2	A	2	2									
25 Feb	S12E64	107	180	3	Hkx	2	A			1	2		1					
26 Feb	S12E50	108	210	3	Dkc	3	BD											
27 Feb	S14E38	108	250	6	Dkc	7	BD	1				1						
28 Feb	S14E24	107	250	3	Dkc	4	BD					1						
01 Mar	S14E11	108	210	6	Dac	9	BD					1						
02 Mar	S13W04	110	190	6	Dac	5	BD	1				1						
								4	2	1	6	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 110



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 1991																					
26 Feb	S25E65	93	120	7	Dso	4	B						4								
27 Feb	S25E52	94	280	9	Dko	11	B	7					10								
28 Feb	S25E38	93	320	11	Eko	18	BG		1				2								
01 Mar	S25E26	93	290	11	Eko	10	BG	1													
02 Mar	S24E13	93	370	12	Eki	13	BG	1					5								
								9	1	0		21	0	0	0	0	0				

Still on Disk.
Absolute heliographic longitude: 93

Region 1992																						
26 Feb	S19E20	137	10	2	Cro	3	B															
27 Feb	S20E07	139	30	4	Dao	4	B															
28 Feb	S20W06	137	30	5	Cao	7	B						1									
01 Mar	S19W19	138	20	2	Hsx	1	A						1									
02 Mar	S19W35	141	10	1	Hrx	1	A															
								0	0	0		2	0	0	0	0	0					

Still on Disk.
Absolute heliographic longitude: 137

Region 1993																						
26 Feb	N16E57	101	10	5	Bxo	4	B															
27 Feb	N16E45	101	30	6	Cro	7	B															
28 Feb	N16E31	100	30	8	Dri	17	B	2					4									
01 Mar	N16E16	103	110	8	Dai	13	B	1					2									
02 Mar	N16E04	102	80	7	Dai	15	B						2									
								3	0	0		8	0	0	0	0						

Still on Disk.
Absolute heliographic longitude: 102

Region 1994																						
28 Feb	S06W15	146	20	7	Dri	9	B															
01 Mar	S07W31	150	30	3	Hax	3	A						1									
02 Mar	S07W47	153	30	2	Hax	2	A															
								0	0	0		1	0	0	0	0						

Still on Disk.
Absolute heliographic longitude: 146



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

Region 1995

28 Feb	S18E19	112	20	5	Cao	9	B										
01 Mar	S17E06	113	60	8	Cao	8	B										
02 Mar	S17W08	114	40	6	Dai	12	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 113

Region 1996

02 Mar	N13E55	51	40	4	Cao	6	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 51

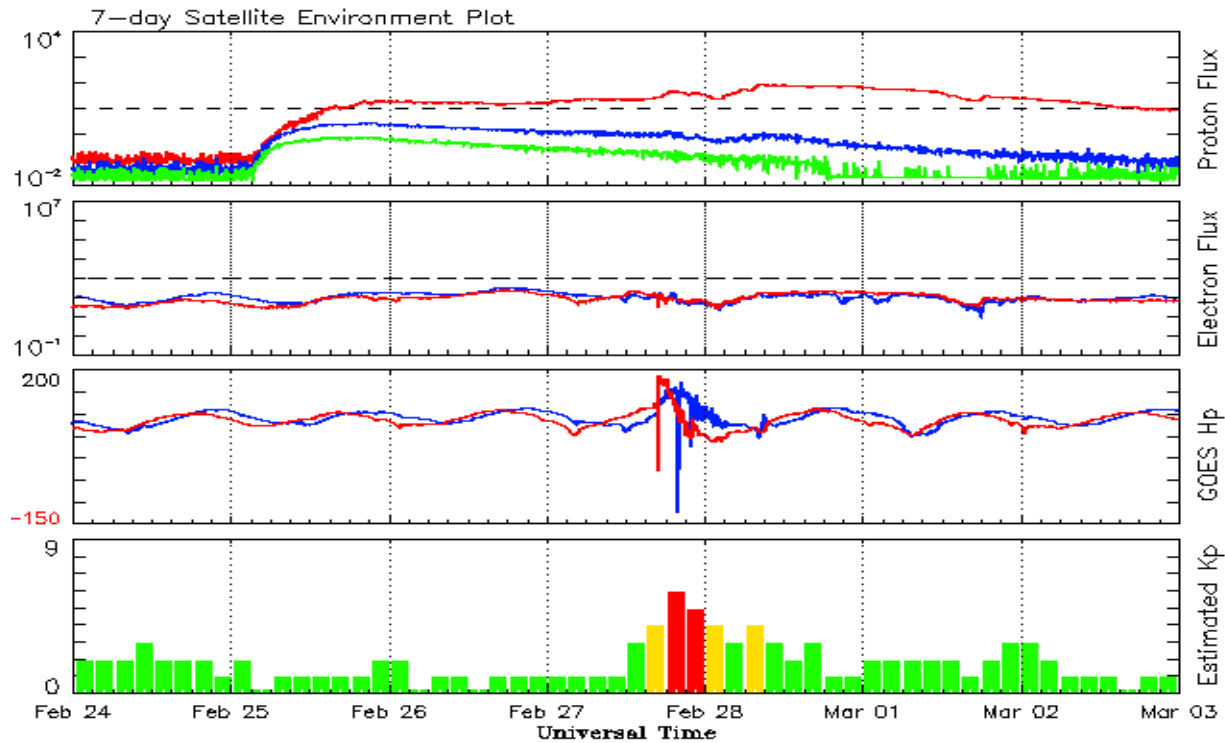


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	103.7	69.0	114.7	127.9	9	7.6
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	
February	174.6	102.8	0.59			170.3		12	

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 24 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.

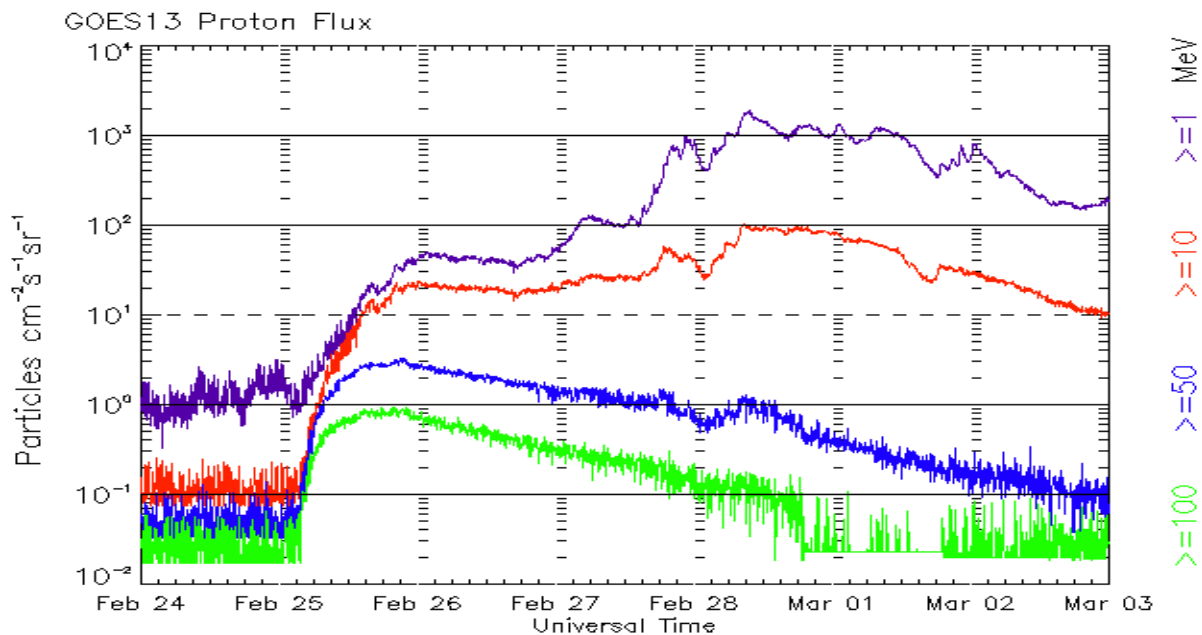
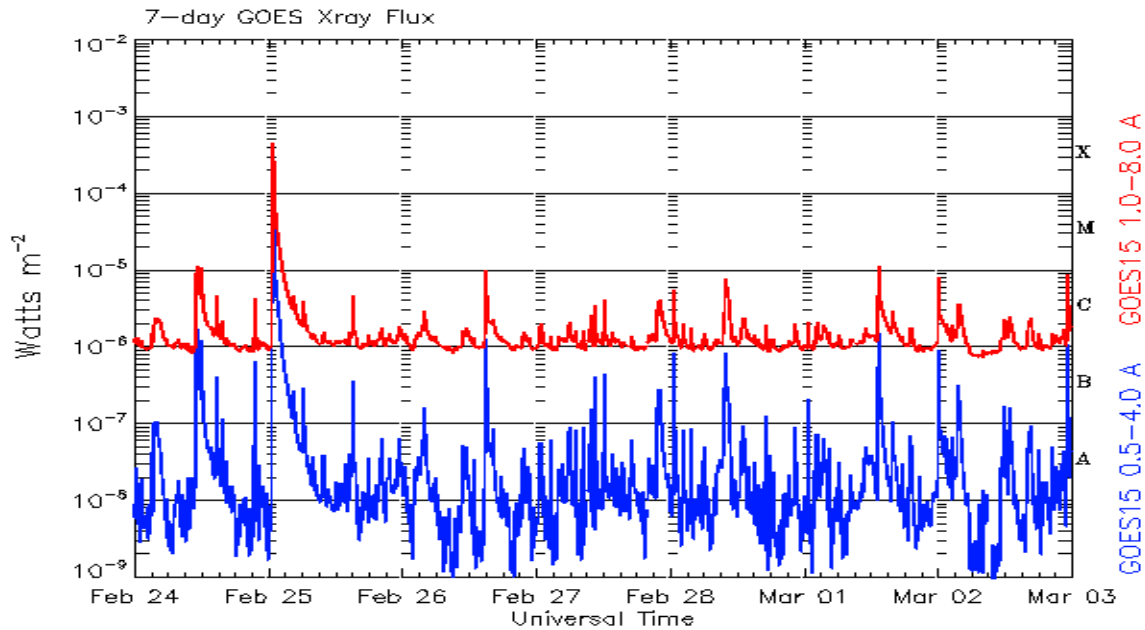
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 24 February 2014*

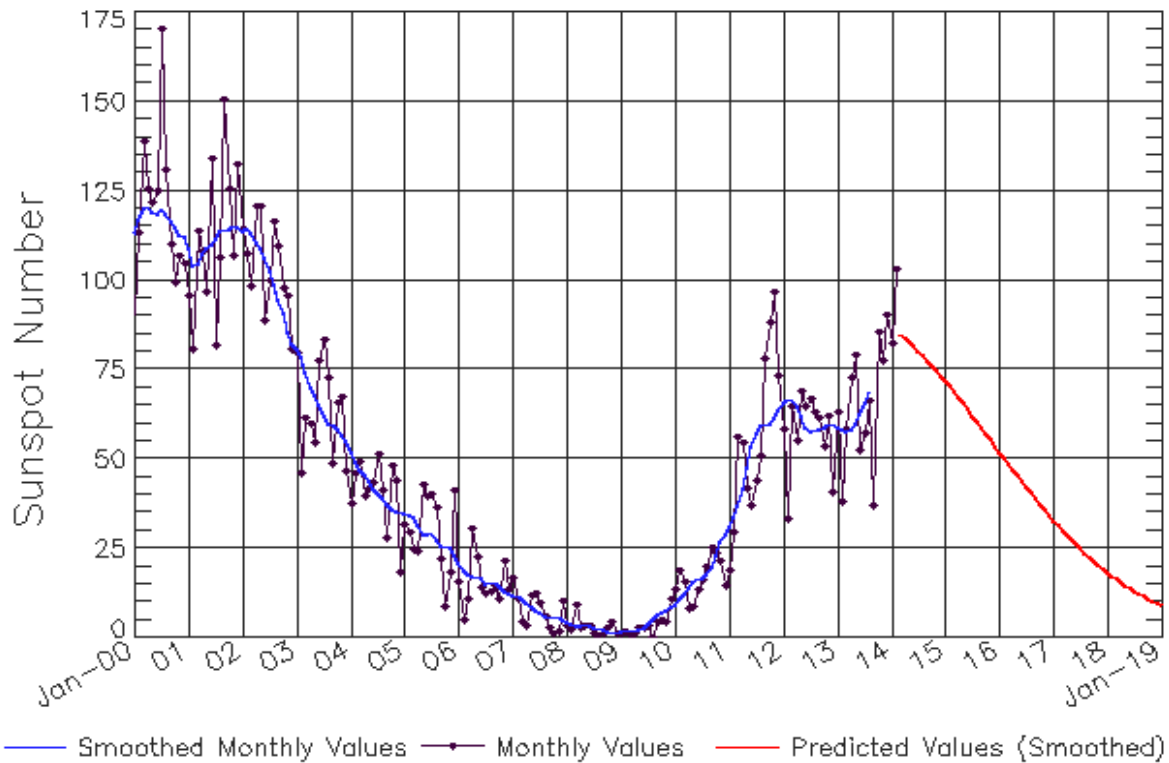
The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/ cm^2 -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.



ISES Solar Cycle Sunspot Number Progression

Observed data through Feb 2014



Updated 2014 Mar 3

NOAA/SWPC Boulder, CO USA

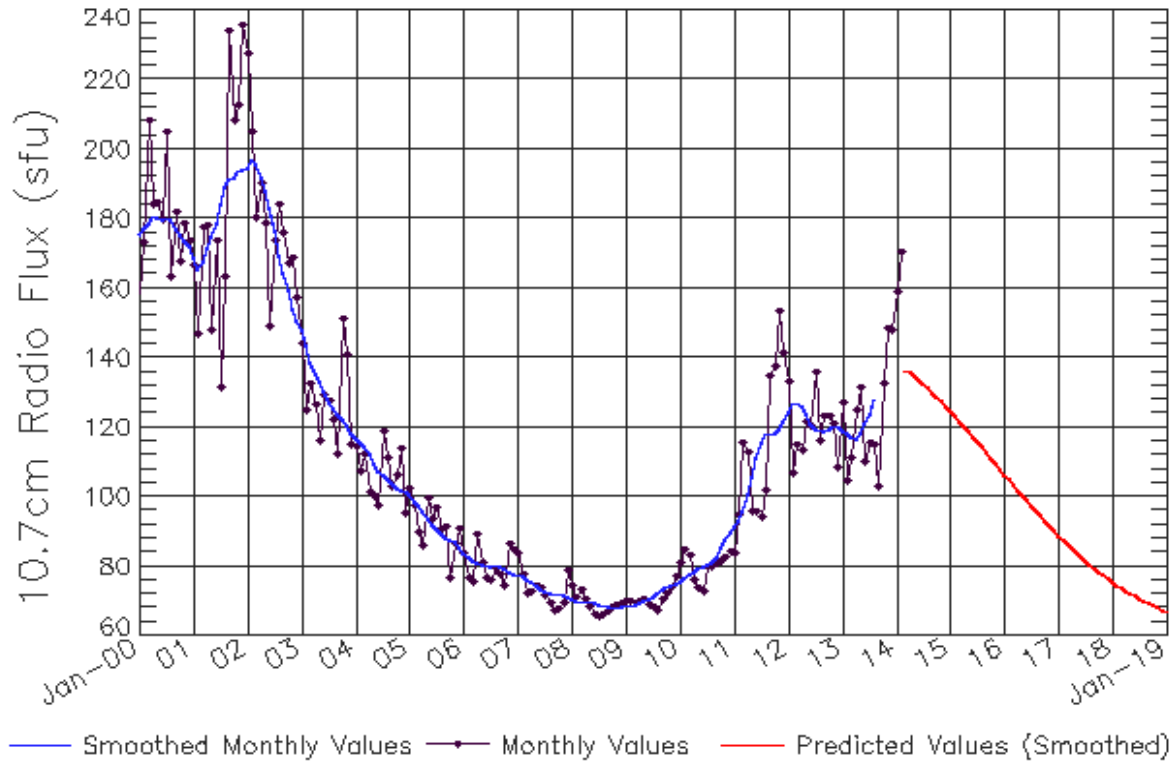
Smoothed Sunspot Number Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	9 (***)	11 (***)	12 (***)	14 (***)	16 (***)	16 (***)	17 (***)	17 (***)	20 (***)	23 (***)	27 (***)	29 (***)
2011	31 (***)	33 (***)	37 (***)	42 (***)	48 (***)	53 (***)	57 (***)	59 (***)	60 (***)	60 (***)	61 (***)	63 (***)
2012	66 (***)	67 (***)	67 (***)	65 (***)	62 (***)	59 (***)	58 (***)	58 (***)	58 (***)	59 (***)	60 (***)	60 (***)
2013	59 (***)	58 (***)	58 (***)	58 (***)	60 (***)	63 (***)	66 (***)	69 (***)	73 (1)	74 (2)	75 (3)	76 (5)
2014	79 (5)	80 (6)	82 (7)	84 (7)	83 (8)	82 (9)	81 (9)	79 (10)	78 (10)	76 (10)	75 (10)	73 (10)
2015	72 (10)	70 (10)	69 (10)	67 (10)	65 (10)	64 (10)	62 (10)	60 (10)	59 (10)	57 (10)	55 (10)	54 (10)
2016	52 (10)	50 (10)	49 (10)	47 (10)	45 (10)	44 (10)	42 (10)	40 (10)	39 (10)	37 (10)	36 (10)	34 (10)
2017	33 (10)	31 (10)	30 (10)	29 (10)	27 (10)	26 (10)	25 (10)	24 (10)	23 (10)	21 (10)	20 (10)	19 (10)
2018	18 (10)	17 (10)	16 (10)	15 (10)	15 (10)	14 (10)	13 (10)	12 (10)	12 (10)	11 (10)	10 (10)	10 (10)
2019	9 (10)	8 (10)	8 (10)	7 (10)	7 (10)	6 (10)	6 (10)	6 (10)	5 (10)	5 (10)	4 (10)	4 (10)



ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Feb 2014



Updated 2014 Mar 3

NOAA/SWPC Boulder, CO USA

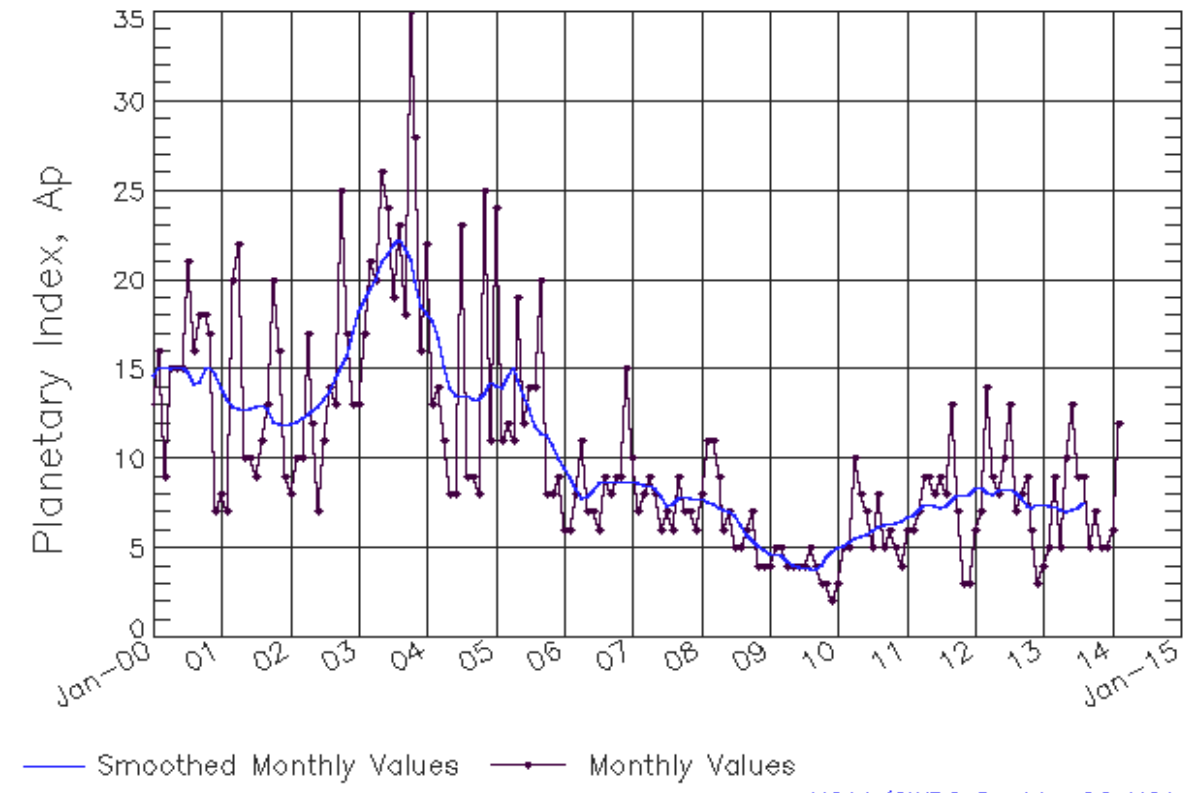
Smoothed F10.7cm Radio Flux Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	76 (**)	77 (**)	78 (**)	78 (**)	79 (**)	80 (**)	80 (**)	81 (**)	82 (**)	85 (**)	88 (**)	90 (**)
2011	91 (**)	93 (**)	96 (**)	100 (**)	106 (**)	111 (**)	115 (**)	118 (**)	118 (**)	118 (**)	120 (**)	122 (**)
2012	124 (**)	127 (**)	127 (**)	126 (**)	124 (**)	121 (**)	120 (**)	119 (**)	119 (**)	119 (**)	120 (**)	120 (**)
2013	119 (**)	118 (**)	117 (**)	117 (**)	118 (**)	121 (**)	124 (**)	128 (**)	132 (1)	133 (1)	134 (2)	135 (3)
2014	137 (4)	138 (4)	140 (5)	141 (6)	140 (7)	138 (8)	136 (8)	132 (9)	130 (9)	129 (9)	127 (9)	126 (9)
2015	125 (9)	123 (9)	122 (9)	120 (9)	119 (9)	117 (9)	116 (9)	114 (9)	113 (9)	111 (9)	110 (9)	108 (9)
2016	106 (9)	105 (9)	103 (9)	102 (9)	100 (9)	99 (9)	97 (9)	96 (9)	94 (9)	93 (9)	92 (9)	90 (9)
2017	89 (9)	88 (9)	86 (9)	85 (9)	84 (9)	83 (9)	82 (9)	80 (9)	79 (9)	78 (9)	77 (9)	76 (9)
2018	75 (9)	75 (9)	74 (9)	73 (9)	72 (9)	71 (9)	71 (9)	70 (9)	69 (9)	69 (9)	68 (9)	67 (9)
2019	67 (9)	66 (9)	66 (9)	65 (9)	65 (9)	65 (9)	64 (9)	64 (9)	63 (9)	63 (9)	63 (9)	63 (9)



ISES Solar Cycle Ap Progression

Observed data through Feb 2014



Updated 2014 Mar 3

NOAA/SWPC Boulder, CO USA

Solar Cycle Comparison charts are temporarily unavailable.



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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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<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

