

Solar activity was at very low to low levels. A few weak C-class flares were observed from Region 2294 (S14, L=023, class/area Dai/090 on 28 Feb). Weak to mid-level flares were observed from Region 2290 (N20, L=055, class/area Dai/070 on 24 Feb) including a C5/Sf flare at 28/0939 UTC and a C6.8 flare at 01/1613 UTC. Numerous CMEs were observed during the period including a pair of back-sided full-halo CMEs observed early and late on 28 Feb. None of the CMEs were determined to be Earth-directed.

No proton events were observed at geosynchronous orbit. However, slight enhancements above background were observed on 23 Feb and 27-28 Feb due to back-sided activity.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels on 23-24 Feb and again on 01 Mar. Moderate levels were observed on 25-28 Feb with a peak flux of 367 pfu observed at 27/1650 UTC.

Geomagnetic field activity was at quiet to minor storm levels on 23-24 Feb due to effects from a positive polarity, trans-equatorial coronal hole high speed stream (CH HSS). Quiet to unsettled levels predominated on 25 Feb through midday on 28 Feb. Activity increased to quiet to minor storm levels midday on 28 Feb through 01 Mar due to a co-rotating interaction region (CIR) in advance of a recurrent negative polarity CH HSS.

Measurements from the ACE satellite indicated high speed winds near 550 km/s early on 24 Feb. IMF Bt peaked at 15 nT midday on 23 Feb while the Bz component varied between +14 to -13 nT on 23-24 Feb. Phi angle was in a predominately positive (away) sector through early on 27 Feb.

Wind parameters decayed to nominal conditions through midday on 28 Feb when CIR effects were observed through the end of the period. Wind speeds increased to near 600 km/s early on 01 Mar. IMF Bt increased to a peak of 14 nT by 28/2000 UTC while the Bz component rotated between +8 nT to -10 nT from late on the 28th through early on the 1st. Phi angle was in a mostly negative (towards) sector, with some positive rotation, from early on 27 Feb through the end of the period.

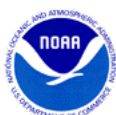
Space Weather Outlook

02 March - 28 March 2015

Solar activity is expected to be at very low to low levels on 02-04 Mar and 19-28 Mar. From 05-18 Mar, R1 (minor) activity is possible due to the return of old Region 2282 (N11, L=191), an M-class producer on its previous transit.

No proton events are expected at geosynchronous orbit in the absence of any significant solar activity.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to



high levels on 02-04 Mar and normal to moderate levels from 05-28 Mar.

Geomagnetic field activity is expected to be at predominately quiet to unsettled levels throughout the outlook period. Unsettled to active conditions are expected on 02-04 Mar, 07-08 Mar, 14 Mar, 16-18 Mar, 22-24 Mar and 27-28 Mar with minor storm (G1-minor) activity possible on 02 Mar and 28 Mar due to numerous recurrent coronal hole high speed streams.



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
23 February	117	44	80	B3.3	1	0	0	1	0	0	0	0
24 February	114	63	120	B2.8	1	0	0	1	0	0	0	0
25 February	111	64	100	B2.8	0	0	0	0	0	0	0	0
26 February	111	39	70	B2.5	0	0	0	0	0	0	0	0
27 February	118	58	200	B3.3	1	0	0	3	0	0	0	0
28 February	123	70	220	B4.4	7	0	0	7	0	0	0	0
01 March	128	66	210	B6.2	3	0	0	10	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
	23 February	5.7e+05	1.8e+04	2.5e+03		2.9e+05
24 February	5.5e+05	1.2e+04	2.4e+03		5.2e+05	
25 February	4.8e+05	1.3e+04	2.6e+03		3.8e+06	
26 February	5.4e+05	1.4e+04	2.6e+03		9.6e+06	
27 February	1.7e+06	2.2e+04	2.6e+03		1.3e+07	
28 February	1.7e+06	2.4e+04	2.6e+03		3.8e+06	
01 March	1.9e+05	1.1e+04	2.5e+03		1.4e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	23 February	14	3-2-2-3-3-4-2-3	25	2-1-4-5-5-5-3-2	17
24 February	21	5-4-4-4-2-3-2-2	41	5-5-6-6-5-3-2-1	25	5-5-4-4-3-2-2-3
25 February	7	2-1-3-2-3-2-1-0	20	0-0-3-6-5-2-2-0	9	1-1-3-2-3-2-1-1
26 February	5	2-1-2-1-1-2-1-1	8	1-0-4-3-3-1-0-0	5	2-1-2-2-1-0-1-1
27 February	2	0-0-0-0-1-2-1-1	1	0-0-0-0-1-1-0-1	4	1-0-1-1-1-1-1-2
28 February	11	1-2-3-1-2-4-2-3	18	1-1-3-4-3-5-3-3	13	1-3-3-2-2-4-3-3
01 March	23	5-4-5-4-3-2-2-2	36	4-5-5-7-2-1-2-2	28	5-5-5-4-2-2-2-3

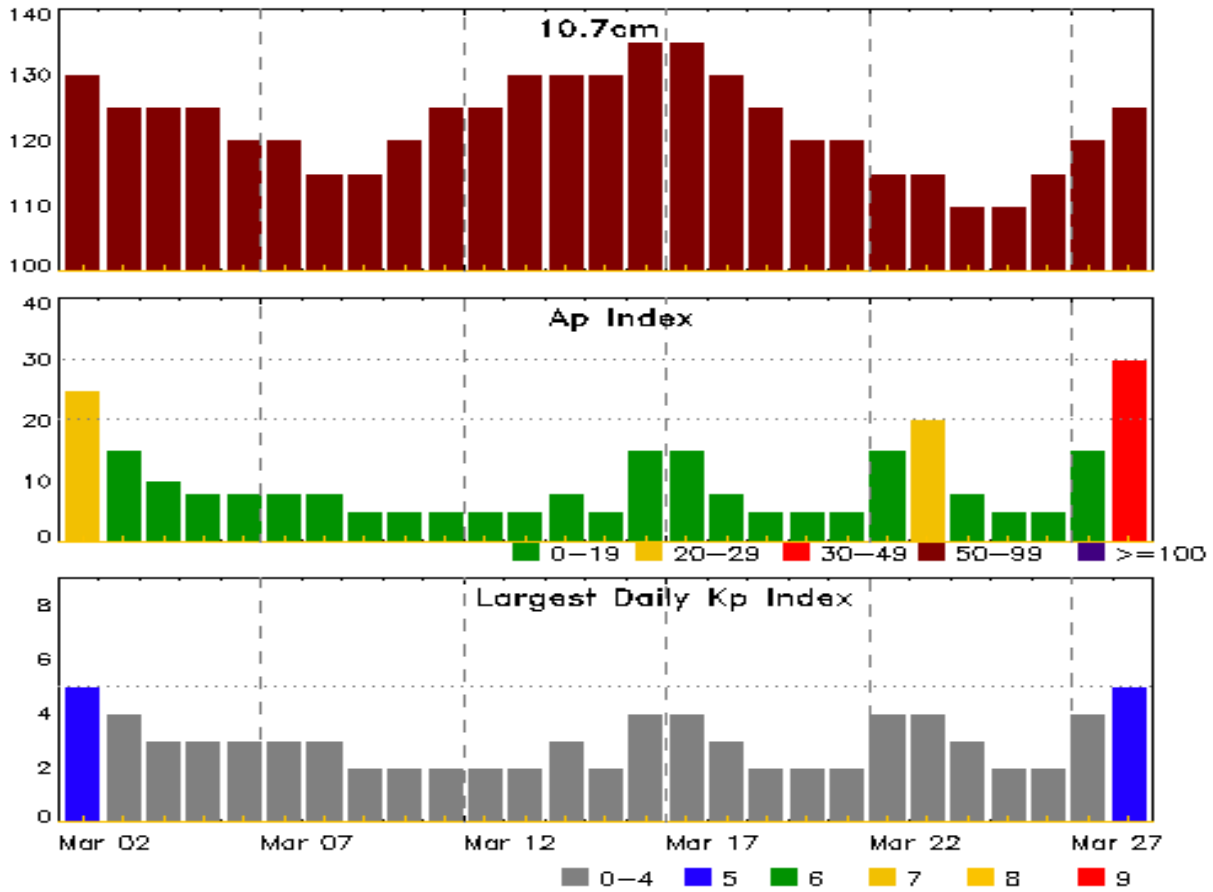


Alerts and Warnings Issued

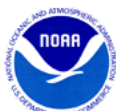
Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
23 Feb 0106	WARNING: Geomagnetic K = 4	23/0105 - 24/0400
23 Feb 1738	ALERT: Geomagnetic K = 4	23/1738
24 Feb 0228	WARNING: Geomagnetic K = 5	24/0228 - 0700
24 Feb 0231	ALERT: Geomagnetic K = 5	24/0231
24 Feb 0259	WARNING: Geomagnetic K = 6	24/0258 - 0700
24 Feb 0355	EXTENDED WARNING: Geomagnetic K = 4	23/0105 - 24/1600
24 Feb 0652	EXTENDED WARNING: Geomagnetic K = 5	24/0228 - 1400
24 Feb 2224	WARNING: Geomagnetic K = 4	24/2223 - 25/0400
25 Feb 0806	WARNING: Geomagnetic K = 4	25/0805 - 2200
25 Feb 1956	WATCH: Geomagnetic Storm Category G1 predicted	
26 Feb 0801	WATCH: Geomagnetic Storm Category G1 predicted	
26 Feb 2053	WATCH: Geomagnetic Storm Category G1 predicted	
27 Feb 2124	WATCH: Geomagnetic Storm Category G1 predicted	
28 Feb 1655	WARNING: Geomagnetic K = 4	28/1655 - 01/1400
28 Feb 1757	ALERT: Geomagnetic K = 4	28/1756
01 Mar 0131	WARNING: Geomagnetic K = 5	01/0130 - 1400
01 Mar 0145	ALERT: Geomagnetic K = 5	01/0145
01 Mar 0755	WARNING: Geomagnetic K = 6	01/0755 - 1300
01 Mar 1130	CANCELLATION: Geomagnetic K = 6	
01 Mar 1319	EXTENDED WARNING: Geomagnetic K = 4	28/1655 - 02/1400



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 Mar	130	25	5	16 Mar	135	15	4
03	125	15	4	17	135	15	4
04	125	10	3	18	130	8	3
05	125	8	3	19	125	5	2
06	120	8	3	20	120	5	2
07	120	8	3	21	120	5	2
08	115	8	3	22	115	15	4
09	115	5	2	23	115	20	4
10	120	5	2	24	110	8	3
11	125	5	2	25	110	5	2
12	125	5	2	26	115	5	2
13	130	5	2	27	120	15	4
14	130	8	3	28	125	30	5
15	130	5	2				



Energetic Events

Date	Time			X-ray	Optical Information			Peak		Sweep Freq		
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
23 Feb	0010	0026	0042	C1.1			2288
23 Feb	0307	0315	0323	B7.2	SF	S09E63	2292
23 Feb	0929	0939	0947	B4.8			2292
23 Feb	1157	1202	1206	B5.2			2292
24 Feb	0836	U0836	A0841		SF	S07E05	2289
24 Feb	0954	1057	1153	C1.4			
24 Feb	2219	2223	2227	B7.1			
26 Feb	1747	1757	1805	B4.1			2293
26 Feb	2230	2237	2245	B4.2			2293
27 Feb	0902	0954	1003	B9.6	SF	S14W06	2294
27 Feb	2304	2305	2306		SF	N06E30	2293
27 Feb	2305	2309	2312	C1.0	SF	N20W52	2290
28 Feb	0521	0528	0540	C2.5	SF	S13W15	2294
28 Feb	0733	0747	0755	C1.1	SF	S14W18	2294
28 Feb	0804	0808	0811	C1.0	SF	N21E73	2290
28 Feb	0858	0939	1007	C5.6	SF	S13W17	2294
28 Feb	0936	0938	0945		SF	N19W59	2290
28 Feb	1335	1340	1346	C2.2			2290
28 Feb	2112	2142	2201	B9.7			2293
28 Feb	2115	2119	2121		SF	N19W65	2290
28 Feb	2139	2142	2148		SF	N06E16	2293
28 Feb	2232	2237	2244	C1.4			2290
28 Feb	2300	2305	2310	C1.5			2290
01 Mar	0158	0159	0211	C1.0	SF	N19W66	2290
01 Mar	0449	0449	0451		SF	N19W68	2290
01 Mar	0453	0453	0503		SF	N19W68	2290
01 Mar	0504	0513	0521	C3.7	SF	N20W66	2290
01 Mar	0724	0725	0730		SF	N19W71	2290
01 Mar	0855	0956	1021	B7.4			2290
01 Mar	B0957	U0959	A1001		SF	N18W72	2290
01 Mar	1255	1257	1302		SF	N18W74	2290



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
01 Mar	1314	1314	1321		SF	N05E09	2293
01 Mar	1533	1613	1631	C6.8	SF	N20W74	2290
01 Mar	1711	1713	1716		SF	N20W74	2290



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 2284																		
13 Feb	N14E56	137	30	4	Cro	3	B											
14 Feb	N13E43	136	20	6	Cro	5	B											
15 Feb	N14E29	137	10	6	Bxo	2	B											
16 Feb	N15E16	137	0	1	Axx	1	A											
17 Feb	N14E04	136	0	1	Axx	1	A											
18 Feb	N14W09	136	0	1	Axx	1	A											
19 Feb	N14W23	137	plage															
20 Feb	N14W37	137	plage									2						
21 Feb	N14W51	138	plage															
22 Feb	N14W65	139	plage															
23 Feb	N14W79	140	plage															
								0	0	0	2	0	0	0	0	0		

Crossed West Limb.
 Absolute heliographic longitude: 136

Region 2287																		
18 Feb	N14E21	106	30	4	Dro	6	B					3						
19 Feb	N14E08	104	50	6	Dsi	10	B					1						
20 Feb	N14W04	104	30	8	Cri	5	B											
21 Feb	N14W18	105	30	7	Dro	5	B											
22 Feb	N15W33	107	20	4	Cro	3	B											
23 Feb	N14W46	107	30	5	Cro	4	B											
24 Feb	N14W59	106	30	7	Cro	6	B											
25 Feb	N14W72	107	10	7	Axx	5	A											
26 Feb	N14W86	107	plage															
								0	0	0	4	0	0	0	0	0		

Crossed West Limb.
 Absolute heliographic longitude: 104



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 2289																	
18 Feb	S07E69		58	10	Axx	1	A					1	1				
19 Feb	S07E55		57	10	1 Axx	1	A										
20 Feb	S07E43		57	10	1 Axx	1	A										
21 Feb	S07E29		58	10	1 Axx	1	A										
22 Feb	S07E17		57	10	1 Axx	1	A										
23 Feb	S09E05		56	plage													
24 Feb	S09W10		57	10	6 Bxo	4	B					1					
25 Feb	S10W23		58	10	2 Axx	2	A										
26 Feb	S10W37		58	10	2 Axx	2	A										
27 Feb	S10W51		59	plage													
28 Feb	S10W65		60	plage													
01 Mar	S10W79		61	plage													
										0	0	0	2	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 56

Region 2290

18 Feb	N19E70		57	10	1 Axx	1	A										
19 Feb	N19E54		58	30	5 Dro	7	B					3					
20 Feb	N19E43		57	20	4 Dri	3	B										
21 Feb	N19E31		56	30	7 Cro	3	B										
22 Feb	N20E18		56	30	7 Dro	3	B										
23 Feb	N20E05		56	40	6 Dao	8	B										
24 Feb	N20W08		55	70	7 Dai	11	B										
25 Feb	N19W22		57	70	8 Dao	15	B										
26 Feb	N19W36		57	50	8 Cao	5	B										
27 Feb	N19W50		58	30	8 Cro	3	B	1				1					
28 Feb	N22W63		58	40	8 Cao	3	B	4				3					
01 Mar	N20W83		65	40	4 Hsx	2	A	3				9					
								8	0	0	16	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 56



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 2291																							
22 Feb	N13W02		76	10	3	Axx	2	A															
23 Feb	N13W16		77	plage																			
24 Feb	N13W30		77	plage																			
25 Feb	N13W44		79	plage																			
26 Feb	N13W58		79	plage																			
27 Feb	N13W72		80	plage																			
28 Feb	N13W86		81	plage																			
													0	0	0	0	0	0	0	0	0		

Crossed West Limb.
Absolute heliographic longitude: 76

Region 2292																							
23 Feb	S09E50		11	10	2	Bxo	2	B															
24 Feb	S09E38		9	10	2	Bxo	2	B															
25 Feb	S08E25		10	10	1	Axx	2	A															
26 Feb	S08E11		10	plage																			
27 Feb	S08W03		11	plage																			
28 Feb	S09W16		11	10	1	Axx	1	A															
01 Mar	S09W31		13	30	5	Dai	5	B															
													0	0	0	0	0	0	0	0	0		

Still on Disk.
Absolute heliographic longitude: 11

Region 2293																							
26 Feb	N06E42		339	10	2	Axx	2	A															
27 Feb	N06E29		339	90	7	Dac	10	BD					1										
28 Feb	N06E15		340	80	7	Dac	16	BG					1										
01 Mar	N06E02		340	80	9	Dac	15	BG					1										
													0	0	0	3	0	0	0	0	0		

Still on Disk.
Absolute heliographic longitude: 340

Region 2294																							
27 Feb	S14W14		22	80	9	Dai	15	BG					1										
28 Feb	S14W28		23	90	6	Dai	10	BG	3				3										
01 Mar	S14W43		25	60	6	Bxo	4	B															
													3	0	0	4	0	0	0	0	0		

Still on Disk.
Absolute heliographic longitude: 22

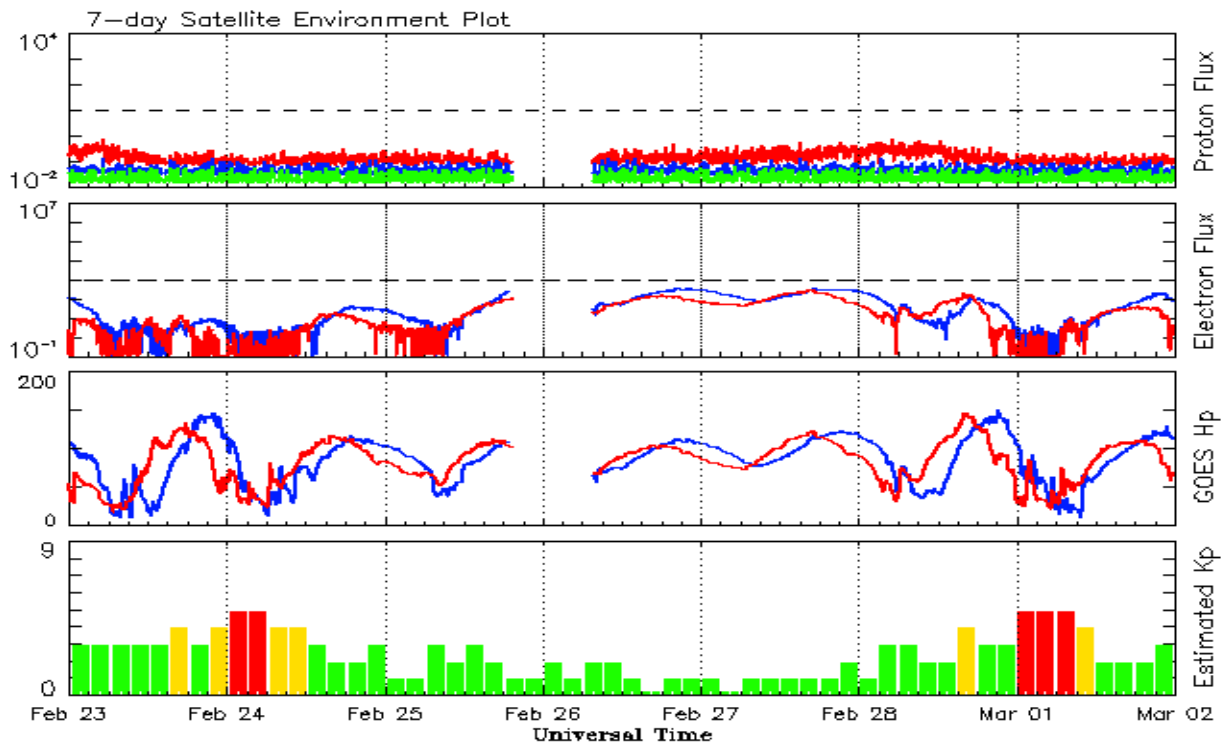


**Recent Solar Indices (preliminary)
Observed monthly mean values**

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
2013									
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	68.9	114.7	127.9	9	7.6
September	55.0	37.0	0.67	111.0	73.0	102.7	132.3	5	7.8
October	127.1	85.6	0.67	114.3	74.9	132.3	134.7	7	7.8
November	125.7	77.6	0.62	114.6	75.3	148.4	135.4	5	7.9
December	118.2	90.3	0.76	115.4	75.9	147.7	135.9	5	7.5
2014									
January	125.9	81.8	0.65	117.7	77.3	158.6	137.3	6	7.1
February	174.6	102.3	0.59	119.5	78.3	170.3	138.6	12	6.9
March	141.1	91.9	0.65	123.2	80.8	149.9	140.8	6	7.2
April	130.5	84.7	0.65	124.8	81.9	144.3	143.5	9	7.5
May	116.8	75.2	0.64	122.3	80.5	130.0	144.7	7	7.9
June	107.7	71.0	0.66	121.4	79.7	122.2	145.5	7	8.4
July	113.6	72.4	0.64	120.4	78.6	137.3	145.2	5	8.8
August	106.2	74.6	0.70	115.1	75.6	124.7	142.8	9	8.9
September	127.4	87.6	0.69			146.1		11	
October	92.0	60.6	0.66			153.7		10	
November	101.8	70.1	0.69			155.3		10	
December	120.0	78.0	0.65			158.7		12	
2015									
January	101.2	67.0	0.66			141.7		10	
February	70.6	44.8	0.63			128.8		10	

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 23 February 2015*

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.

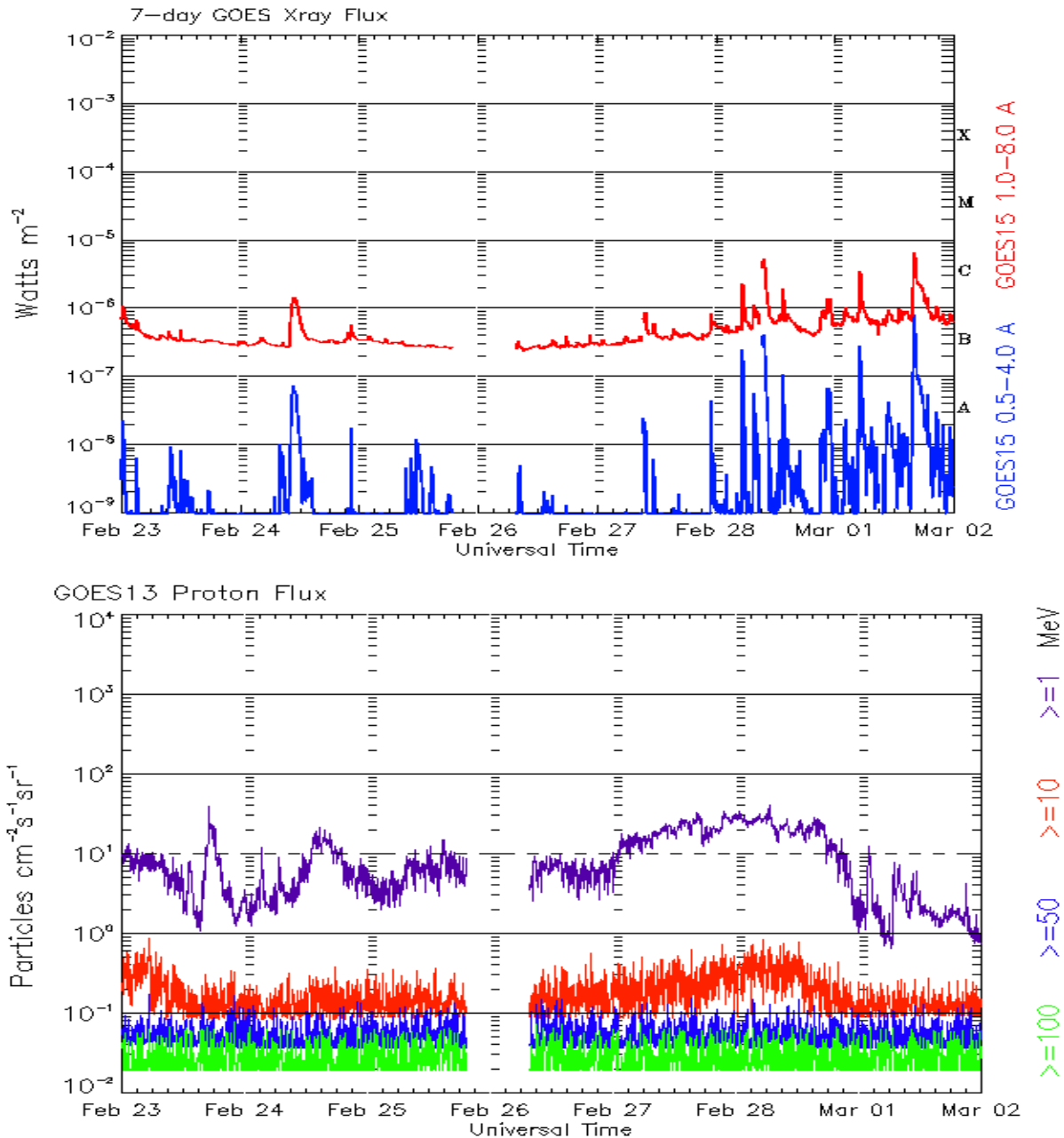
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

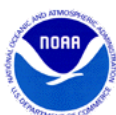




*Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 23 February 2015*

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)

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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

The Weekly has been published continuously since 1951 and is available online since 1997.

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