

Space Weather Highlights
13 February - 19 February 2012

SWPC PRF 1903
21 February 2012

Solar activity was very low to low all week. The largest flare of the entire period was a C1 on 19 February at 0851 UTC from Region 1422 (N15, L=177, class/area = Dai/60 on 19 February). B-class flares dominated the rest of the summary period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels during the summary period.

Geomagnetic activity began on 13 February with quiet to unsettled conditions at mid latitudes and active to minor storm levels at high latitudes, associated with a small coronal hole high speed stream (CH HSS). 14 February saw a brief return to quiet conditions. The respite was short-lived, however, when a slow CME observed on 10 February finally arrived at Earth on 15 February. Active to minor storm levels were observed at mid latitudes throughout the day, while high latitude activity peaked at major storm levels. The remainder of the week was quiet until late on 18 February when a co-rotating interaction region preceded a geoeffective CH HSS. Unsettled to active conditions with isolated minor storm periods were observed during 19 February due to CH HSS effects.

Space Weather Outlook
22 February - 19 March 2012

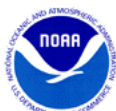
Solar activity is expected to be at low levels throughout the forecast period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels to begin the period due to effects from a recurrent CH HSS. Normal to moderate levels are expected to prevail from 23 February - 19 March.

Geomagnetic field activity is expected to be mostly quiet on 22 February. Quiet to unsettled conditions are expected on 23 - 25 February due to the onset of a recurrent CH HSS. A return to mostly quiet levels is expected on 26 February through 01 March. A CH HSS is expected to become geoeffective on 02 - 03 March, thus increasing activity to quiet to unsettled levels. Predominately quiet conditions are expected from 04 - 06 March before another CH HSS provides unsettled conditions on 07 March. Conditions are expected to return to mostly quiet levels from 08 March - 10 March, before another recurrent CH HSS is expected to become geoeffective on 11 March, with unsettled conditions expected for the day. A return to mostly quiet conditions is forecast from 12 - 16 March, before another CH HSS is expected to produce quiet to unsettled conditions with a chance for isolated active to minor storm levels at high latitudes for the remainder of the period.

**** Attention **** Beginning Monday, March 12, 2012, the Weekly bulletin will now be issued and available on the SWPC web page every Monday morning by 1500 UTC.



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
13 February	108	59	450	B2.0	0	0	0	0	0	0	0	0
14 February	107	64	420	B1.7	0	0	0	0	0	0	0	0
15 February	105	40	310	B1.6	0	0	0	0	0	0	0	0
16 February	103	41	300	B1.6	0	0	0	0	0	0	0	0
17 February	104	53	250	B1.7	0	0	0	0	0	0	0	0
18 February	104	63	260	B1.8	0	0	0	0	0	0	0	0
19 February	105	69	180	B2.0	1	0	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
	13 February	2.9e+05	1.2e+04	3.0e+03		4.4e+06
14 February	2.2e+05	1.2e+04	2.9e+03		1.8e+06	
15 February	1.7e+05	1.2e+04	2.7e+03		3.4e+06	
16 February	1.8e+05	1.2e+04	3.2e+03		1.3e+07	
17 February	9.7e+04	1.3e+04	3.0e+03		2.7e+07	
18 February	1.2e+05	1.2e+04	3.1e+03		3.8e+07	
19 February	1.0e+05	1.2e+04	2.9e+03		1.6e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	13 February	7	1-1-3-2-2-2-2-1	19	0-1-3-4-5-5-2-0	8
14 February	8	2-2-2-1-2-2-2-3	12	2-1-3-3-3-4-2-2	10	2-2-2-1-2-2-2-4
15 February	18	2-5-4-3-3-2-2-3	46	2-5-6-6-5-5-4-4	22	2-5-4-3-3-2-3-4
16 February	4	2-0-1-1-2-1-1-1	5	2-1-1-3-3-0-0-0	4	2-0-1-1-2-1-1-0
17 February	2	0-1-2-1-1-1-0-0	1	0-0-1-2-0-0-0-0	2	0-1-2-1-0-0-0-0
18 February	3	0-0-0-0-2-1-2-2	1	0-0-0-1-0-0-1-1	4	0-0-0-1-0-1-1-3
19 February	11	3-4-3-1-2-1-2-2	23	3-5-5-4-4-2-2-2	16	4-5-3-2-1-2-2-2

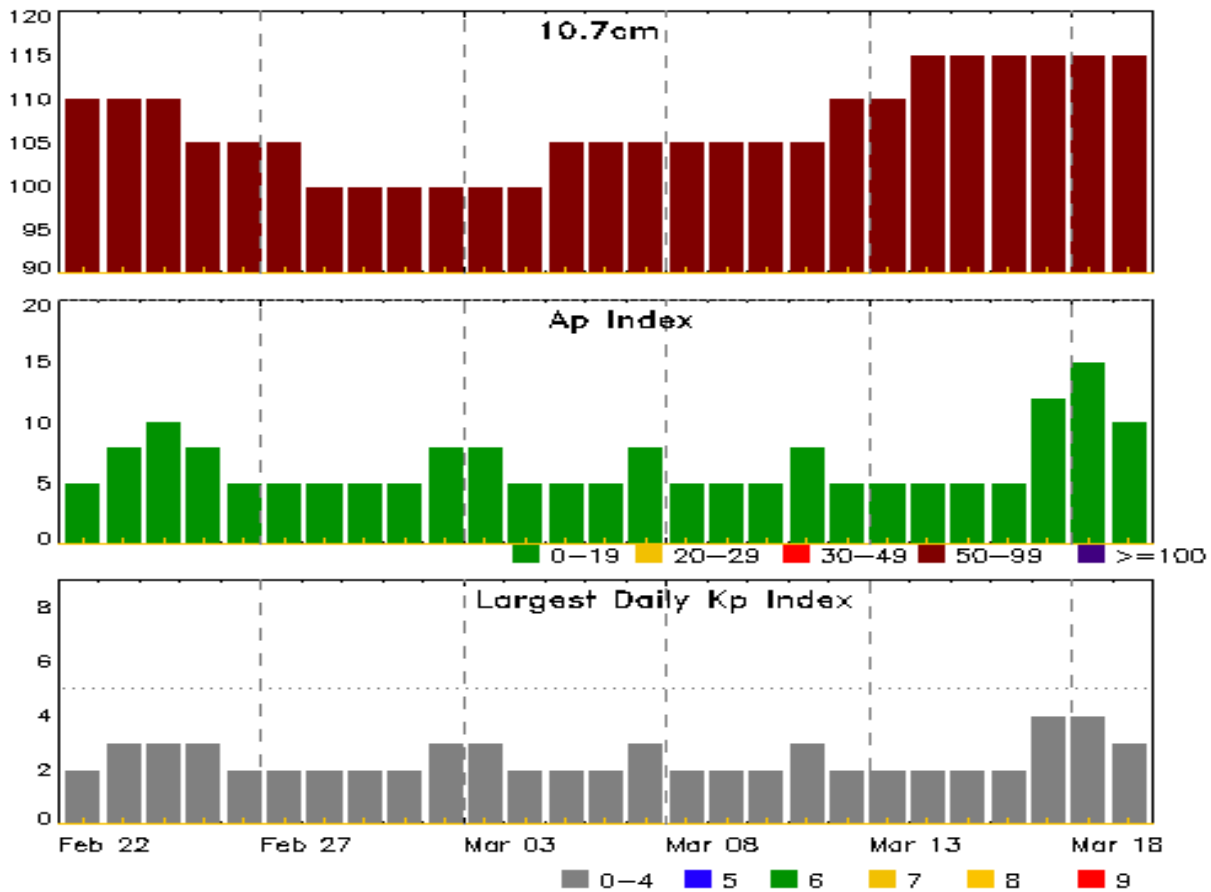


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
14 Feb 2133	WARNING: Geomagnetic K = 4	14/2145 - 15/0300
15 Feb 0001	ALERT: Geomagnetic K = 4	14/2358
15 Feb 0409	WARNING: Geomagnetic K = 4	15/0410 - 1200
15 Feb 0417	ALERT: Geomagnetic K = 4	15/0412
15 Feb 0503	WARNING: Geomagnetic K = 5	15/0500 - 0900
15 Feb 0503	ALERT: Geomagnetic K = 5	15/0503
15 Feb 0854	EXTENDED WARNING: Geomagnetic K = 5	15/0500 - 1500
15 Feb 0856	EXTENDED WARNING: Geomagnetic K = 4	15/0410 - 1800
15 Feb 1717	EXTENDED WARNING: Geomagnetic K = 4	15/0410 - 16/0000
15 Feb 2201	ALERT: Geomagnetic K = 4	15/2159
15 Feb 2205	WARNING: Geomagnetic K = 5	15/2205 - 16/0600
15 Feb 2217	EXTENDED WARNING: Geomagnetic K = 4	15/0410 - 16/0900
16 Feb 0349	CANCELLATION: Geomagnetic K = 5	
16 Feb 0356	CANCELLATION: Geomagnetic K = 4	
19 Feb 0042	WARNING: Geomagnetic K = 4	19/0041 - 1241
19 Feb 0150	ALERT: Geomagnetic K = 4	19/0147
19 Feb 0424	WARNING: Geomagnetic K = 5	19/0425 - 0900
19 Feb 0601	ALERT: Geomagnetic K = 5	19/0600



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
22 Feb	110	5	2	07 Mar	105	8	3
23	110	8	3	08	105	5	2
24	110	10	3	09	105	5	2
25	105	8	3	10	105	5	2
26	105	5	2	11	105	8	3
27	105	5	2	12	110	5	2
28	100	5	2	13	110	5	2
29	100	5	2	14	115	5	2
01 Mar	100	5	2	15	115	5	2
02	100	8	3	16	115	5	2
03	100	8	3	17	115	12	4
04	100	5	2	18	115	15	4
05	105	5	2	19	115	10	3
06	105	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 245	Radio Flux 2695	Intensity II

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD	Rgn #	
13 Feb	0018	0022	0026	B3.7				
14 Feb	1017	1023	1027	B2.8				1416
14 Feb	1131	1143	1151	B3.3				1419
14 Feb	1853	1857	1900	B3.5				1417
14 Feb	2307	2324	2337	B5.4				1417
15 Feb	0740	0745	0751	B4.0				
18 Feb	1312	1316	1321	B3.7				
19 Feb	0841	0851	0900	C1.0	SF	N15E11		1422
19 Feb	1818	1821	1828	B3.1				1422
19 Feb	1856	1900	1902	B3.6				1422
19 Feb	1946	1949	1955	B3.7				1422



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 1416																						
09 Feb	S16E24	287	90	7	Dai	8	B															
10 Feb	S17E10	288	100	7	Dsi	17	BG						4									
11 Feb	S19W02	287	400	9	Dhi	27	BG	1														
12 Feb	S19W15	287	380	11	Eki	16	B															
13 Feb	S18W29	287	270	11	Eko	11	B															
14 Feb	S21W38	284	250	12	Eko	15	B															
15 Feb	S19W55	287	190	12	Eso	7	B															
16 Feb	S18W68	287	160	12	Eso	7	B															
17 Feb	S17W84	290	110	2	Hsx	1	A															
								1	0	0	0	4	0	0	0	0	0	0				

Crossed West Limb.

Absolute heliographic longitude: 287

Region 1417

10 Feb	N18E59	239	10	1	Bxo	2	B															
11 Feb	N16E44	241	20	4	Cro	3	B															
12 Feb	N18E32	240	30	4	Cso	5	B															
13 Feb	N18E18	240	plage																			
14 Feb	N18E04	241	plage																			
15 Feb	N18W10	242	plage																			
16 Feb	N18W24	243	plage																			
17 Feb	N18W38	244	plage																			
18 Feb	N18W52	244	plage																			
19 Feb	N18W66	245	plage																			
								0	0	0	0	0	0	0	0	0	0	0				

Still on Disk.

Absolute heliographic longitude: 241



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 1418																		
12 Feb	S24E13	259	10	3	Bxo	4	B											
13 Feb	S24W01	259	10	5	Bxo	5	B											
14 Feb	S24W13	257	10	5	Bxo	6	B											
15 Feb	S24W27	259	plage															
16 Feb	S24W41	260	plage															
17 Feb	S23W55	261	10	3	Bxo	5	B											
18 Feb	S23W69	261	30	5	Cro	5	B											
19 Feb	S23W84	263	20		Cso	3	B											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 259

Region 1419																		
12 Feb	N28E69	203	80	4	Cso	4	B	3			1							
13 Feb	N26E59	200	60	3	Cso	2	B											
14 Feb	N31E44	200	70	3	Dsi	2	B											
15 Feb	N29E29	203	50	3	Dso	2	B											
16 Feb	N28E19	200	60	4	Cso	3	B											
17 Feb	N28E06	200	40	4	Cso	6	B											
18 Feb	N29W05	197	30	3	Cso	4	B											
19 Feb	N29W18	197	20	2	Cso	3	B											
								7	0	0	1	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 197

Region 1420																		
12 Feb	N13E69	203	50	4	Hsx	1	A											
13 Feb	N09E64	200	110	3	Hsx	1	A											
14 Feb	N13E48	197	90	2	Hsx	1	A											
15 Feb	N11E36	195	70	1	Hsx	1	A											
16 Feb	N10E23	196	80	2	Hsx	1	A											
17 Feb	N11E10	196	90	2	Hsx	1	A											
18 Feb	N11W04	196	80	2	Hsx	1	A											
19 Feb	N11W16	195	70	2	Hsx	1	A											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 196



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 1421

18 Feb	N17E59	133	10	1	Axx	2	A										
19 Feb	N18E46	133	10	1	Axx	2	A										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 133

Region 1422

19 Feb	N15E02	177	60	6	Dai	10	B	1				1					
								1	0	0	1	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 177

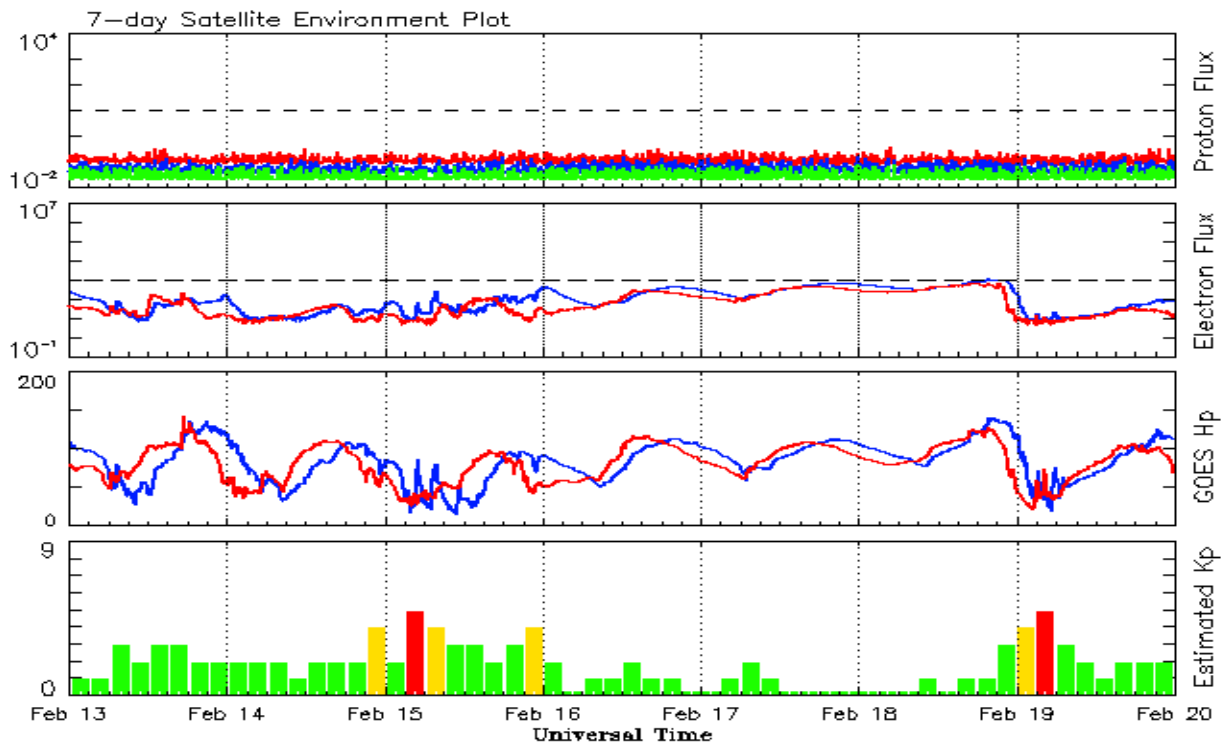


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2010									
February	31.0	18.8	0.60	16.7	10.6	84.7	76.5	5	5.1
March	24.7	15.4	0.62	19.1	12.3	83.3	77.5	5	5.3
April	11.2	8.0	0.71	21.4	14.0	75.9	78.3	10	5.5
May	19.9	8.7	0.44	23.8	15.5	73.8	79.0	8	5.7
June	17.9	13.6	0.75	25.2	16.4	72.6	79.7	7	5.8
July	23.1	16.1	0.70	25.9	16.7	79.9	80.1	5	6.0
August	28.2	19.6	0.70	27.3	17.4	79.7	80.7	8	6.2
September	35.6	25.2	0.71	30.6	19.6	81.1	82.4	5	6.3
October	35.0	23.5	0.67	35.9	23.2	81.6	85.3	6	6.4
November	36.1	21.5	0.60	40.5	26.5	82.5	87.7	5	6.4
December	22.0	14.4	0.66	43.8	28.8	84.3	89.6	4	6.5
2011									
January	32.1	18.8	0.59	47.2	30.9	83.7	91.2	6	6.7
February	53.2	29.6	0.55	50.6	33.4	94.5	92.7	6	6.8
March	81.0	55.8	0.69	55.2	36.9	115.3	95.8	7	7.2
April	81.7	54.4	0.67	61.5	41.8	112.6	100.4	9	7.5
May	61.4	41.5	0.68	69.0	47.6	95.9	105.6	9	7.5
June	55.5	37.0	0.67	76.5	53.2	95.8	110.9	8	7.4
July	67.0	43.8	0.66	82.5	57.2	94.2	115.4	9	7.3
August	66.1	50.6	0.77			101.7		8	
September	106.4	78.0	0.73			134.5		13	
October	116.8	88.0	0.75			137.2		7	
November	133.1	96.7	0.73			153.1		3	
December	106.3	29.6	0.28		33.4	141.2		3	
2012									
January	91.3	58.3	0.64			133.1		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 13 February 2012*

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.

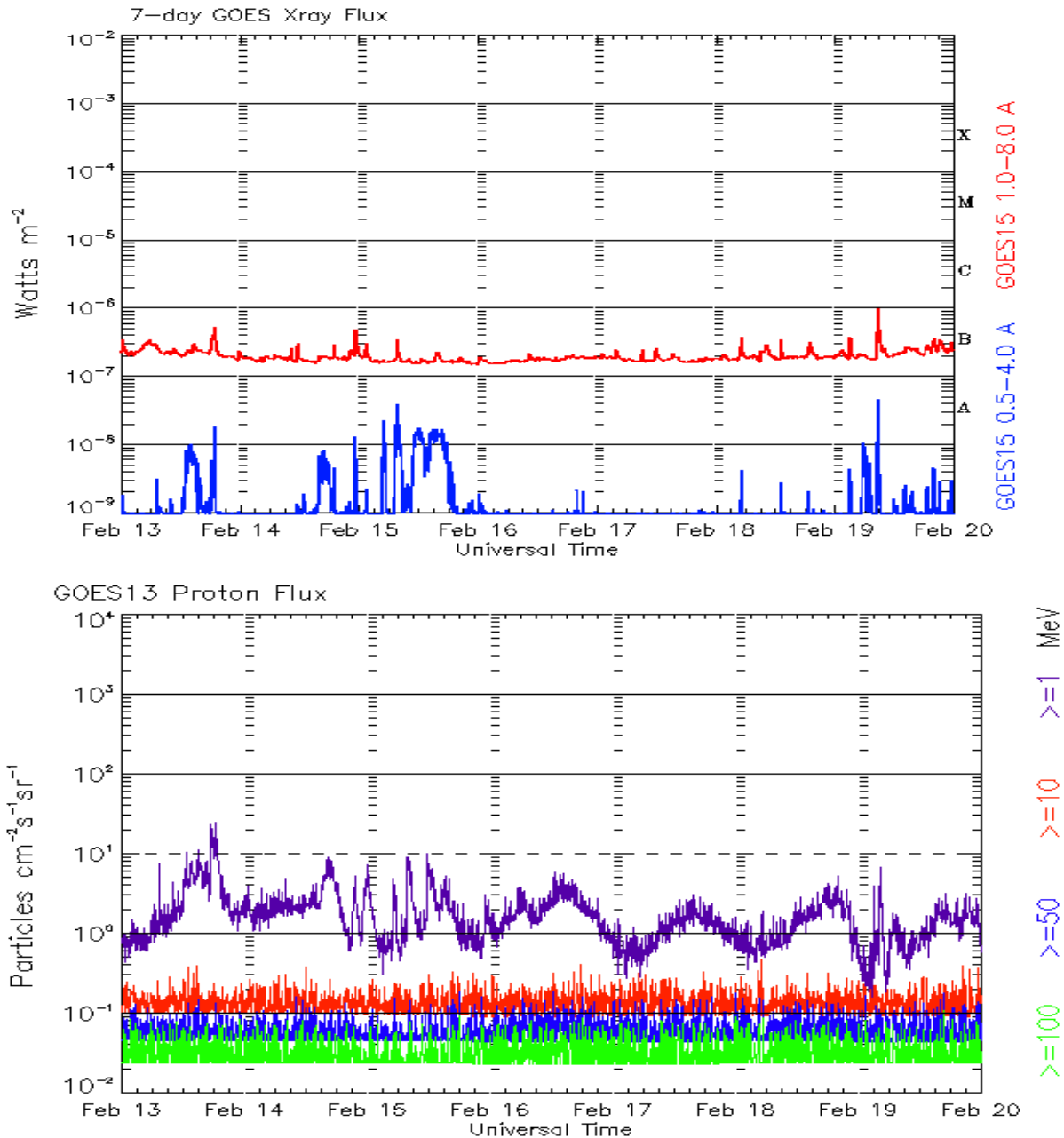
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 13 February 2012*

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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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.

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