

Space Weather Highlights
04 February – 10 February 2008

SEC PRF 1693
12 February 2008

Solar activity was very low. No flares were detected. Region 982 (S09, L = 248, class/area Bxo/060 on 30 January) decayed to plage early in the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels during 4 - 9 February.

The geomagnetic field was mostly quiet during 04 - 09 February. Activity increased to minor storm levels on 10 February with major to severe storm levels detected at high latitudes. ACE solar wind measurements indicated a solar sector boundary crossing on 08 February (negative (toward) to positive (away) polarity) associated with minor changes in velocity, proton density, and the interplanetary magnetic field (IMF). A co-rotating interaction region (CIR) was detected during 09 - 10 February, in advance of a recurrent coronal hole high-speed stream. The CIR was associated with increased proton densities (peak 27 p/cc at 10/0506 UTC) and significant changes in the IMF including increased Bt (peak 17 nT at 10/0600 UTC) and intermittent periods of southward Bz (minimum -15 nT at 10/1020 UTC). The high-speed stream commenced early on 10 February and reached a peak velocity of 742 km/sec near the close of the period.

Space Weather Outlook
13 February – 10 March 2008

Solar activity is expected to be very low.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels during 13 - 24 February and 29 February - 10 March.

The geomagnetic field is expected to be unsettled to active on 13 February due a recurrent coronal hole high-speed stream. Quiet to unsettled conditions are expected during 14 - 15 February as the high-speed stream gradually subsides. Mostly quiet conditions are forecast for 16 - 27 February. Activity is expected to increase to active levels during 28 - 29 February due to another recurrent coronal hole high-speed stream. Quiet to unsettled levels are expected during 01 - 07 March as the high-speed stream subsides. Activity is expected to increase to active levels during 08 - 09 March with minor to major storm periods possible at high latitudes due to a recurrent coronal hole high-speed stream. Unsettled conditions are expected on the last day of the period as the high-speed stream begins to subside.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
04 February	71	14	10	<A1.0	0	0	0	0	0	0	0	0
05 February	71	0	0	<A1.0	0	0	0	0	0	0	0	0
06 February	72	0	0	<A1.0	0	0	0	0	0	0	0	0
07 February	71	0	0	<A1.0	0	0	0	0	0	0	0	0
08 February	71	0	0	<A1.0	0	0	0	0	0	0	0	0
09 February	72	0	0	<A1.0	0	0	0	0	0	0	0	0
10 February	73	0	0	<A1.0	0	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	>100 MeV	>.6 MeV	>2MeV	>4 MeV
	04 February	1.1E+6	1.6E+4	3.7E+3		6.5E+8
05 February	8.7E+5	1.6E+4	3.7E+3		9.7E+8	
06 February	1.0E+6	1.6E+4	3.9E+3		9.1E+8	
07 February	1.3E+6	1.7E+4	3.7E+3		7.6E+7	
08 February	9.8E+5	1.7E+4	3.7E+3		7.3E+7	
09 February	1.9E+6	1.6E+4	3.7E+3		8.1E+7	
10 February	2.6E+6	1.6E+4	3.5E+3		5.0E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	04 February	6	3-2-1-2-2-1-1-1	10	3-2-2-4-2-2-1-1	6
05 February	2	2-1-0-0-1-0-1-0	3	1-1-0-0-2-2-0-1	3	2-1-0-0-1-1-1-1
06 February	2	0-0-1-0-1-1-1-1	3	0-0-0-0-1-2-2-1	4	0-0-0-0-1-1-3-2
07 February	6	3-2-0-0-1-2-1-3	5	2-2-0-0-0-3-1-2	5	2-2-0-0-0-2-0-2
08 February	3	1-1-1-0-1-0-1-2	2	2-0-1-1-0-0-1-1	4	2-0-1-1-1-0-1-2
09 February	2	0-0-0-0-1-1-1-1	5	0-0-0-1-4-2-1-1	2	1-0-0-0-2-0-1-1
10 February	13	1-2-3-3-3-3-3-3	42	0-2-3-5-7-6-4-3	18	0-2-3-2-4-5-3-3

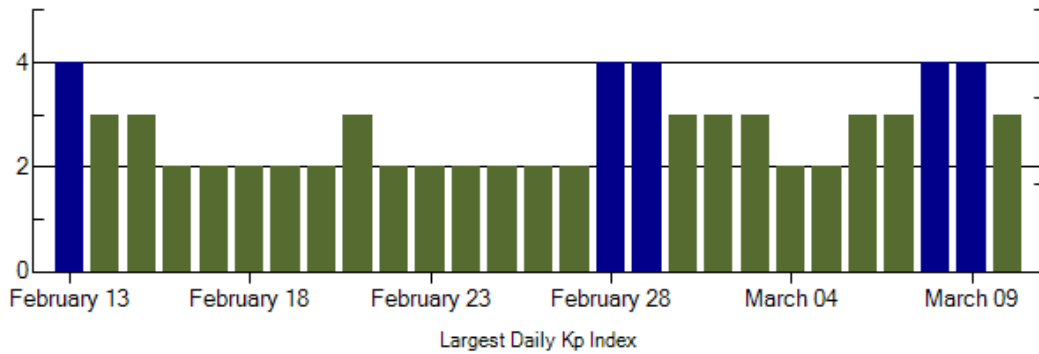
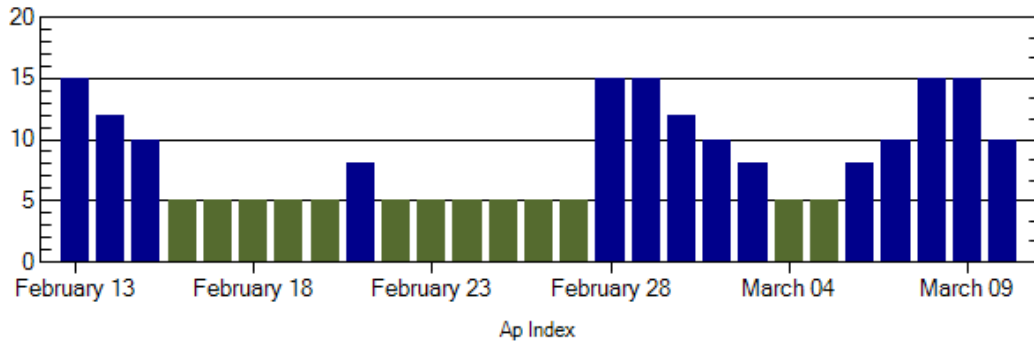
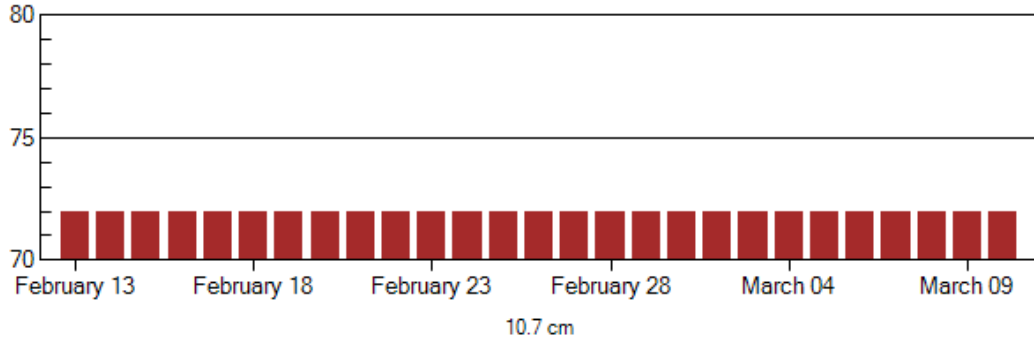


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UTC</u>
04 Feb 0521	ALERT: Electron 2MeV Integral Flux >1000pfu	04 Feb 0500
05 Feb 0526	ALERT: Electron 2MeV Integral Flux >1000pfu	05 Feb 0500
06 Feb 0614	ALERT: Electron 2MeV Integral Flux >1000pfu	06 Feb 0500
07 Feb 1443	ALERT: Electron 2MeV Integral Flux >1000pfu	07 Feb 1420
08 Feb 1312	ALERT: Electron 2MeV Integral Flux >1000pfu	08 Feb 1255
09 Feb 1232	ALERT: Electron 2MeV Integral Flux >1000pfu	09 Feb 1210
10 Feb 1227	WARNING: Geomagnetic K=4	10 Feb 1228 - 1600
10 Feb 1229	ALERT: Geomagnetic K=4	10 Feb 1229
10 Feb 1233	WARNING: Geomagnetic K=5	10 Feb 1233 - 1600
10 Feb 1239	ALERT: Geomagnetic K=5	10 Feb 1238
10 Feb 1556	EXTENDED WARNING: Geomagnetic K=4	10 Feb 1228 - 11/1600



Twenty-seven Day Outlook



Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index
13 Feb	72	15	4	27 Feb	72	5	2
14	72	12	3	28	72	15	4
15	72	10	3	29	72	15	4
16	72	5	2	01 Mar	72	12	3
17	72	5	2	02	72	10	3
18	72	5	2	03	72	8	3
19	72	5	2	04	72	5	2
20	72	5	2	05	72	5	2
21	72	8	3	06	72	8	3
22	72	5	2	07	71	10	3
23	72	5	2	08	72	15	4
24	72	5	2	09	72	15	4
25	72	5	2	10	72	10	3
26	72	5	2				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Max	Class	Integ	Imp/	Location	Rgn	Radio Flux		Intensity
						Brtns	Lat CMD	#	245	2695	II
<i>No Events Observed</i>											

Flare List

Date	Time			Optical	Imp / Brtns	Location	Rgn
	Begin	Max	End	Class.		Lat CMD	
04 February	No Flares Observed						
05 February	No Flares Observed						
06 February	No Flares Observed						
07 February	No Flares Observed						
08 February	No Flares Observed						
09 February	No Flares Observed						
10 February	No Flares Observed						

Region Summary

Date	Location		Sunspot Characteristics					Flares				
	(° Lat ° CMD)	Lon	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical	
								C	M	X	S	1

Region 982

29 Jan	S09E53	246	0020	04	Bxo	003	B								
30 Jan	S09E40	246	0060	05	Bxo	004	B								
31 Jan	S08E25	248	0050	05	Dso	005	B								
01 Feb	S10E14	245	0030	07	Cro	009	B								
02 Feb	S08W02	248	0020	04	Bxo	006	B								
03 Feb	S08W16	249	0010	02	Bxo	004	B								
04 Feb	S09W27	247	0010	04	Bxo	004	B								
05 Feb	S09W41	248													
06 Feb	S09W54	248													
07 Feb	S09W67	248													
08 Feb	S09W80	248													
09 Feb	S09W93	248													

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 248

Recent Solar Indices (preliminary)



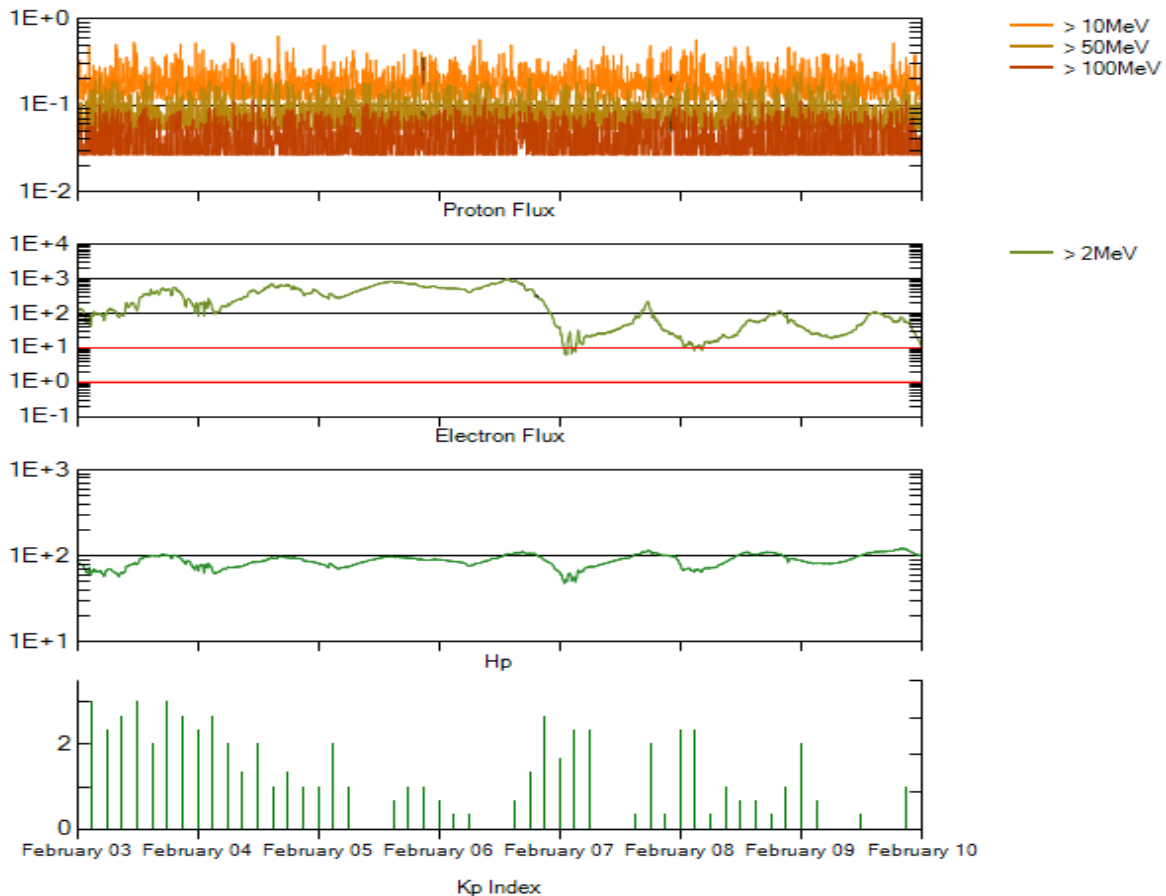
Of the observed monthly mean values

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SEC	Ratio RI	Ratio RI/SEC	Smooth values SEC	Smooth values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2006									
February	5.3	4.7	0.89	33.4	18.7	76.6	82.6	6	9.2
March	21.3	10.8	0.51	31.0	17.4	75.5	81.6	8	8.4
April	55.2	30.2	0.55	30.6	17.1	89.0	80.9	11	7.9
May	39.6	22.2	0.56	30.7	17.3	81.0	80.8	8	7.9
June	37.7	13.9	0.37	28.9	16.3	80.1	80.6	9	8.3
July	22.6	12.2	0.54	27.2	15.3	75.8	80.3	7	8.7
August	22.8	12.9	0.57	27.6	15.6	79.0	80.3	9	8.7
September	25.2	14.5	0.58	27.7	15.6	77.8	80.2	8	8.7
October	15.7	10.4	0.66	25.2	14.2	74.3	79.4	8	8.6
November	31.5	21.5	0.68	22.3	12.7	86.4	78.5	9	8.5
December	22.2	13.6	0.61	20.7	12.1	84.3	77.9	15	8.5
2007									
January	26.6	16.9	0.64	19.7	12.0	83.5	77.5	6	8.4
February	17.2	10.6	0.62	18.9	11.6	77.8	76.9	6	8.4
March	9.7	4.8	0.49	17.5	10.8	72.3	76.0	8	8.4
April	6.9	3.7	0.54	16.0	9.9	72.4	75.2	9	8.5
May	19.4	11.7	0.60	14.2	8.7	74.5	74.2	9	8.4
June	20.0	12.0	0.60	12.8	7.7	73.7	73.2	7	7.8
July	15.6	10.0	0.64	11.6	7.0	71.6	72.5	8	7.4
August	9.9	6.2	0.63			69.2		7	
September	4.8	2.4	0.50			67.1		9	
October	1.3	0.9	0.70			65.5		9	
November	2.5	1.7	0.68			69.7		5	
December	16.2	10.1	0.62			78.6		4	
2008									
January	5.1	3.4	0.67			72.1		6	

NOTE: All smoothed values after September 2002 and monthly values after March 2003 are preliminary estimates. The lowest smoothed sunspot index number for Cycle 22, RI = 8.0, occurred in May 1996. The highest smoothed sunspot number for Cycle 23, RI= 120.8, occurred April 2000.

*After June 1991, the 10.7 cm radio flux data source is Penticton, B.C. Canada. Prior to that, it was Ottawa.





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 03 February 2008*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-11 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

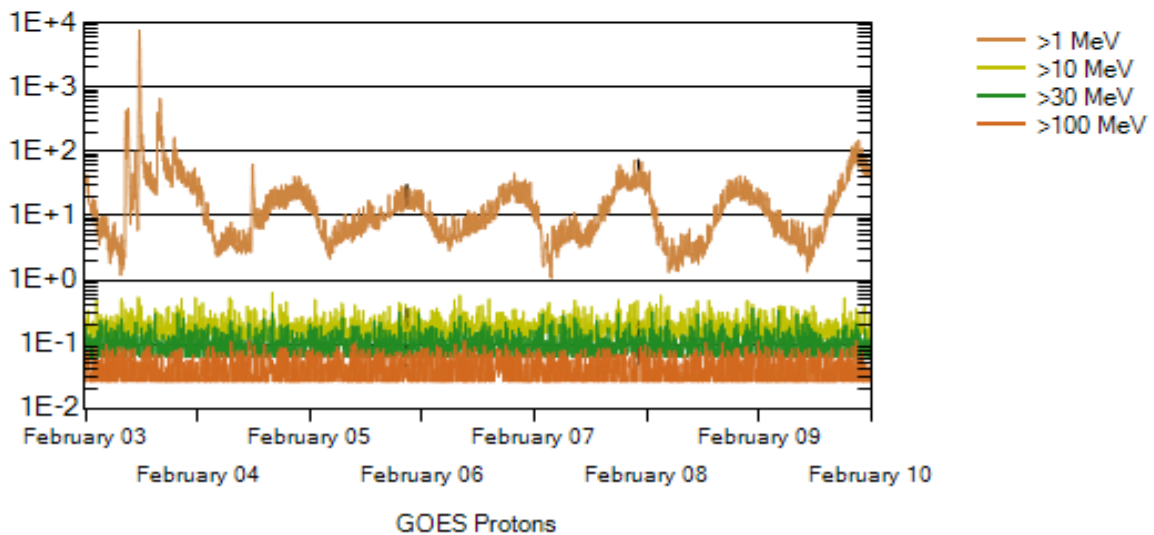
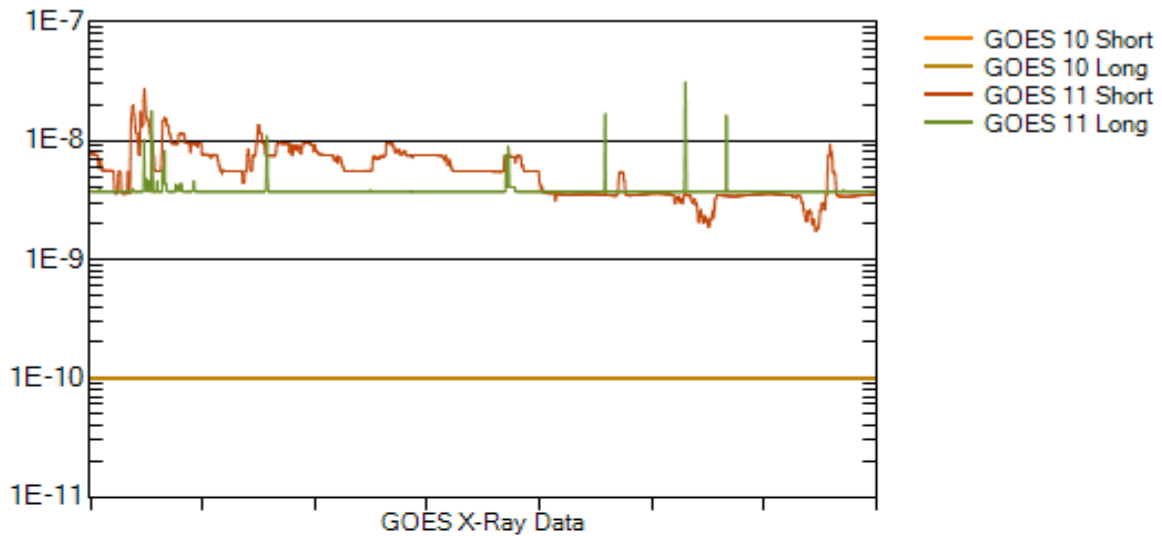
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

Hp plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

Kp plot contains the estimated planetary 3-hour K-index (derived by the Air Force Weather Agency) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and Hartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC), British Geological Survey (BGS) and the US Geological Survey. These may differ from the final Kp values derived from a more extensive network of magnetometers.

The data included here are those now available in real time at the SEC 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

X-ray plot contains five-minute averaged x-ray flux (watts/m^2) as measured by GOES 10 (W060) and GOES 11 (W135) in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux ($\text{protons/cm}^2\text{-sec-sr}$) as measured by GOES-11 (W135) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu ($\text{protons/cm}^2\text{-sec-sr}$) at greater than 10 MeV.

