

Solar activity was very low. No significant flare activity was observed. The visible disk was spotless during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels.

Geomagnetic field activity was at mostly quiet levels during the period. Isolated active to major storm periods were observed at high latitudes midday on 26 January. This activity was due to a sustained period of southward IMF Bz in association with a recurrent coronal hole high speed stream. A weak, 9 nT sudden impulse was detected at Boulder at 30/2156 UTC. During the summary period, ACE solar wind velocities ranged from a low of 327 km/sec at 26/1311 UTC to a high of 527 km/sec at 31/2334 UTC. The Bz component of the IMF ranged primarily between -5 nT to +6 nT for the majority of the period. However, at the beginning of the period, Bz varied between -10 nT to +8 nT.

Space Weather Outlook

04 February - 02 March 2009

Solar activity is expected to be at very low levels.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal levels.

The geomagnetic field is expected to be at quiet levels 04 - 14 February. Activity is expected to increase to quiet to unsettled levels on 15 February, with isolated active levels due to a recurrent coronal hole high-speed stream (CH HSS). Activity is expected to decrease to quiet levels during 16-21 February as the HSS subsides. Activity is expected to increase to quiet to unsettled levels with isolated active levels on 22 February due to another CH HSS. Activity is expected to decrease to mostly quiet levels from 23 February - 02 March.



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	
26 January	70	0	0	<A1.0	0	0	0	0	0	0	0	0	0
27 January	70	0	0	<A1.0	0	0	0	0	0	0	0	0	0
28 January	70	0	0	<A1.0	0	0	0	0	0	0	0	0	0
29 January	69	0	0	<A1.0	0	0	0	0	0	0	0	0	0
30 January	69	0	0	<A1.0	0	0	0	0	0	0	0	0	0
31 January	69	0	0	<A1.0	0	0	0	0	0	0	0	0	0
01 February	70	0	0	<A1.0	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
	26 January	1.7E+6	1.9E+4	4.2E+3		1.2E+5
27 January	4.7E+5	1.8E+4	4.0E+3		1.7E+5	
28 January	4.7E+5	2.0E+4	4.4E+3		3.7E+5	
29 January	4.7E+5	2.0E+4	4.2E+3		2.3E+5	
30 January	7.3E+5	1.9E+4	4.4E+3		1.8E+5	
31 January	7.1E+5	1.9E+4	4.2E+3		1.1E+5	
01 February	5.7E+5	1.9E+4	4.4E+3		1.0E+5	

Daily Geomagnetic Data

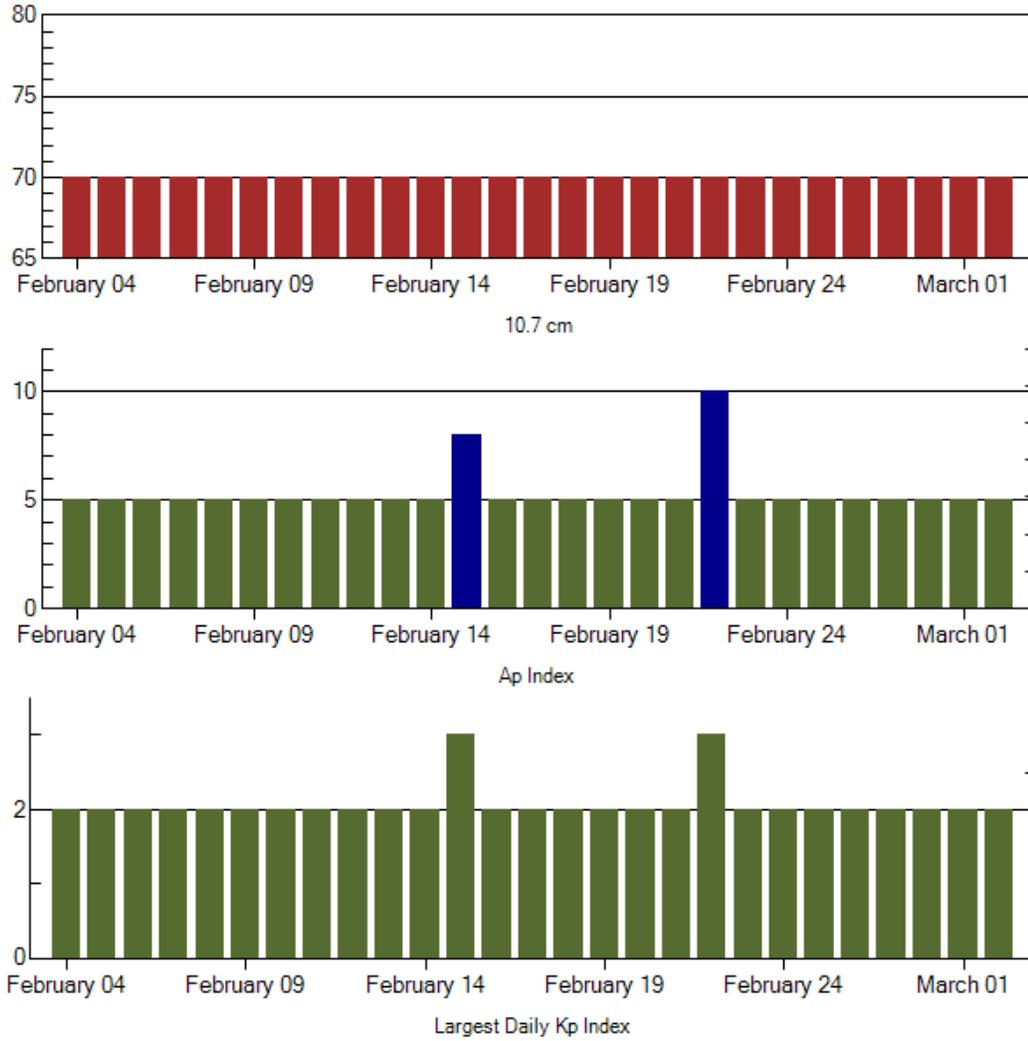
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	26 January	9	3-2-2-2-3-2-2-1	22	1-0-2-4-6-5-2-0	10
27 January	2	0-1-0-0-1-2-1-1	2	0-1-0-0-1-1-1-1	4	0-1-0-0-1-1-2-2
28 January	1	0-0-0-2-0-0-1-0	0	0-0-0-1-0-0-0-0	2	0-0-0-1-1-1-0-1
29 January	3	0-2-2-1-1-0-0-0	3	0-0-2-3-0-0-0-0	4	0-2-2-1-1-1-0-1
30 January	3	0-1-1-2-0-0-1-2	1	0-0-0-1-0-0-0-1	4	0-1-0-1-1-1-1-2
31 January	4	1-1-2-1-2-1-1-1	9	1-0-3-3-4-2-1-1	7	1-1-2-2-2-2-1-2
01 February	1	0-2-1-0-0-0-0-0	1	0-1-0-1-0-0-0-0	3	1-2-0-1-1-1-0-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
26 Jan 0147	ALERT: Geomagnetic K = 4	26 Jan 0145
30 Jan 2200	SUMMARY: Geomagnetic Sudden Impulse	30 Jan 2156



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
04 Feb	70	5	2	18 Feb	70	5	2
05	70	5	2	19	70	5	2
06	70	5	2	20	70	5	2
07	70	5	2	21	70	5	2
08	70	5	2	22	70	10	3
09	70	5	2	23	70	5	2
10	70	5	2	24	70	5	2
11	70	5	2	25	70	5	2
12	70	5	2	26	70	5	2
13	70	5	2	27	70	5	2
14	70	5	2	28	70	5	2
15	70	8	3	01 Mar	70	5	2
16	70	5	2	02	70	5	2
17	70	5	2				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	½		Integ		Imp/	Location		Radio Flux		Intensity		
	Begin	Max	Max	Class	Flux	Brtns	Lat	CMD	#	245	2695	II

No Events Observed

Flare List

Date	Time			X-ray	Imp /	Optical		Rgn			
	Begin	Max	End	Class.	Brtns	Location					
	Lat		CMD								
26 Jan	No Flares Observed										
27 Jan	No Flares Observed										
28 Jan	No Flares Observed										
29 Jan	No Flares Observed										
30 Jan	No Flares Observed										
31 Jan	No Flares Observed										
01 Feb	No Flares Observed										

Region Summary

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

No active regions.



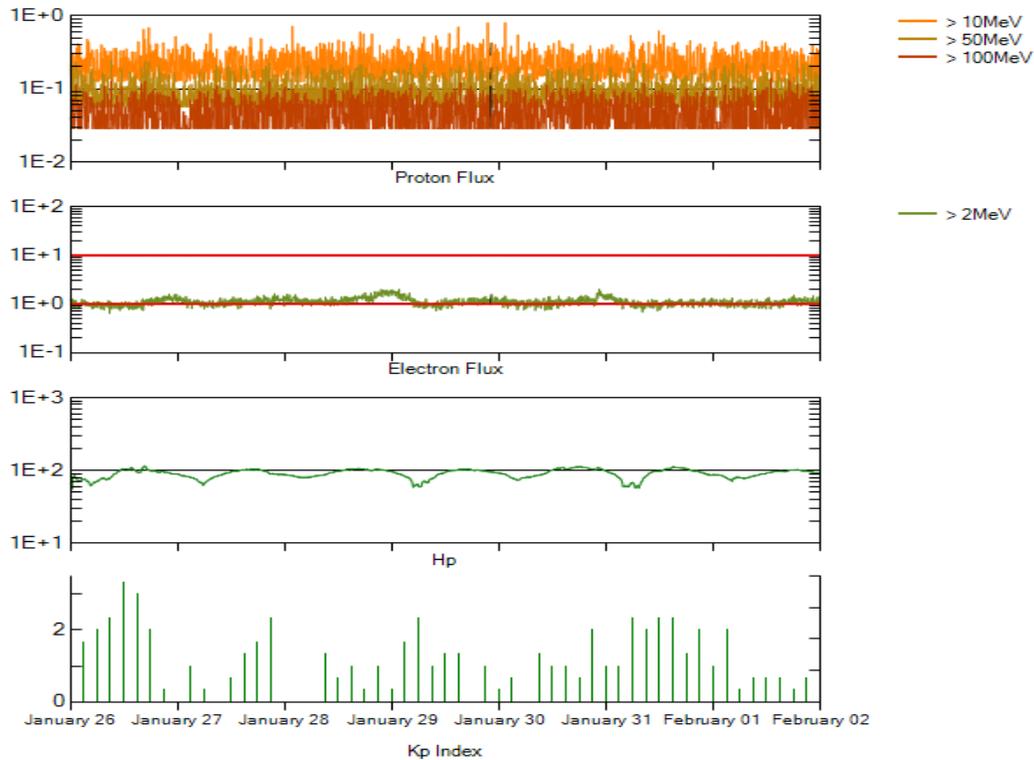
Recent Solar Indices (preliminary)
Of the observed monthly mean values

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed SEC	values RI	Ratio RI/SEC	Smooth SEC	values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
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	10.2	6.1	69.2	71.8	7	7.6
September	4.8	2.4	0.50	9.9	5.9	67.1	71.5	9	7.8
October	1.3	0.9	0.70	10.0	6.1	65.5	71.5	9	7.9
November	2.5	1.7	0.68	9.4	5.7	69.7	71.1	5	7.8
December	16.2	10.1	0.62	8.1	5.0	78.6	70.5	4	7.8
2008									
January	5.1	3.4	0.67	6.9	4.2	72.1	70.0	6	7.7
February	3.8	2.1	0.55	5.9	3.6	71.2	69.6	9	7.6
March	15.9	9.3	0.58	5.3	3.3	72.9	69.5	10	7.4
April	4.9	2.9	0.59	5.3	3.3	70.3	69.6	9	7.1
May	5.7	2.9	0.51	5.7	3.5	68.4	69.7	6	6.9
June	4.2	3.1	0.74	5.2	3.2	65.9	69.2	7	6.8
July	1.0	0.5	0.50			65.8		6	
August	0.0	0.5	**			66.4		5	
September	1.5	1.1	0.73			67.1		5	
October	5.2	2.9	0.56			68.3		6	
November	6.8	4.1	0.60			68.6		3	
December	1.3	0.8	0.62			69.2		2	

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.

**SEC sunspot number was less than RI value, so a ratio could not be done.





Weekly Geosynchronous Satellite Environment Summary
Week Beginning 26 January 2009

GOES-11 designated Primary Electron Satellite and GOES-10 Secondary: December 1, 2008 the GOES-12 Electron sensor began experiencing periods of noise and sensor is unreliable.

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.

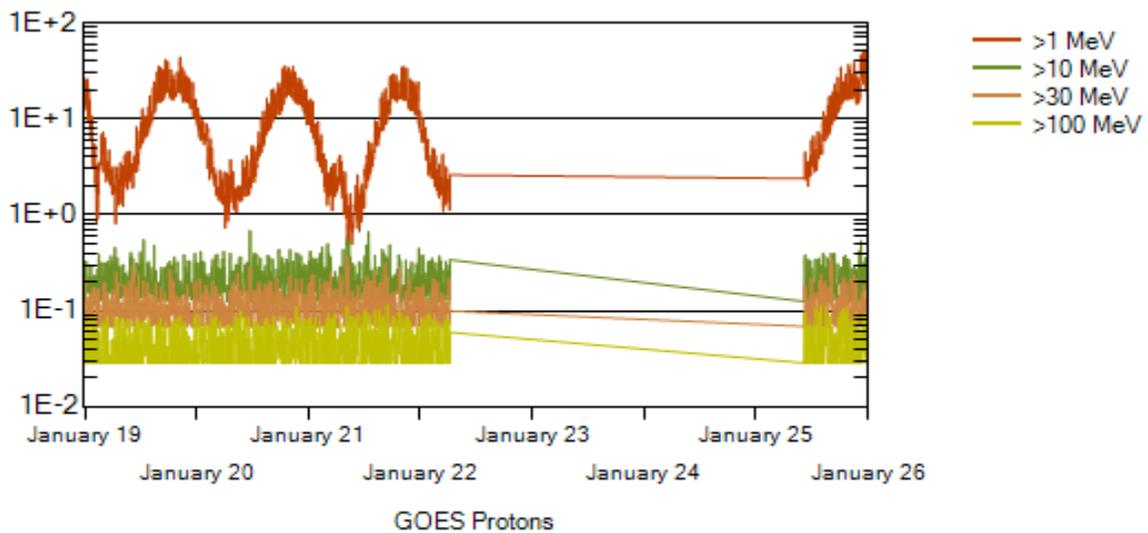
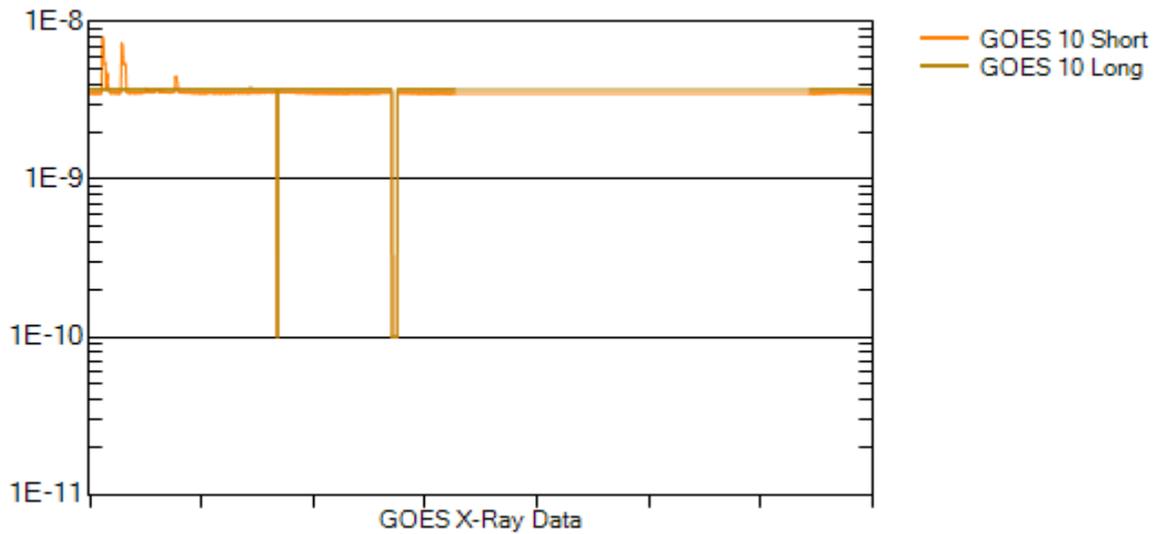
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-11 (W135).

Hp plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-11. 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 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

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.



Sudden Storm Commencements and Impulses



Space Environment Center

December 2008
(Month 147)



Comparison of Cycles at current month in cycle

