

Solar activity was very low through the period. No flares were observed. The visible disk was spotless.

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 on 24 November. On 25 and 26 November, activity increased to quiet to active levels, with isolated minor storm periods at high latitudes observed on the 25th. This period of activity was due to a recurrent coronal hole that rotated into a geoeffective position. By early on 27 November, activity decayed to quiet levels and remained so through the balance of the summary period. The period began with ACE solar wind velocities at about 270 km/s. These velocities persisted through late on 24 November when wind speed jumped abruptly to about 600 km/s by midday on the 25th. During this timeframe, the Bz component of the IMF varied from a high of +18 nT (25/0543Z) to a low of -15 nT (25/0406Z) with a Bt max of 24 nT (25/0342Z), all associated with the onset of the coronal high speed stream. Wind speeds reached a maximum of 658 km/s by late on 26 November and gradually decayed to, and ended the period at about 360 km/s.

Space Weather Outlook **03 - 29 December 2008**

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 reach high levels during 03 December and 06 - 12 December.

Geomagnetic field activity is expected to be at mostly quiet levels on 03 December. Activity is expected to increase to unsettled to active levels during 04 - 06 December due to a recurrent CH HSS. Activity is expected to decrease to quiet levels during 07 - 21 December. Activity is expected to increase to unsettled levels on 22 - 24 December due to another recurrent CH HSS. Activity is expected to decrease to quiet levels during 25 - 29 December 2008.



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
24 November	68	0	0	<A1.0	0	0	0	0	0	0	0	0
25 November	68	0	0	<A1.0	0	0	0	0	0	0	0	0
26 November	68	0	0	<A1.0	0	0	0	0	0	0	0	0
27 November	68	0	0	<A1.0	0	0	0	0	0	0	0	0
28 November	67	0	0	<A1.0	0	0	0	0	0	0	0	0
29 November	68	0	0	<A1.0	0	0	0	0	0	0	0	0
30 November	68	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
	24 November	7.8E+5	1.9E+4	4.3E+3		1.8E+6
25 November	1.2E+6	1.9E+4	4.2E+3		4.0E+5	
26 November	1.0E+6	1.8E+4	4.0E+3		4.2E+5	
27 November	4.7E+5	1.7E+4	3.9E+3		2.1E+6	
28 November	7.4E+5	1.8E+4	4.0E+3		7.4E+6	
29 November	6.3E+5	1.9E+4	4.1E+3		3.7E+6	
30 November	9.2E+5	1.9E+4	4.3E+3		3.9E+6	

Daily Geomagnetic Data

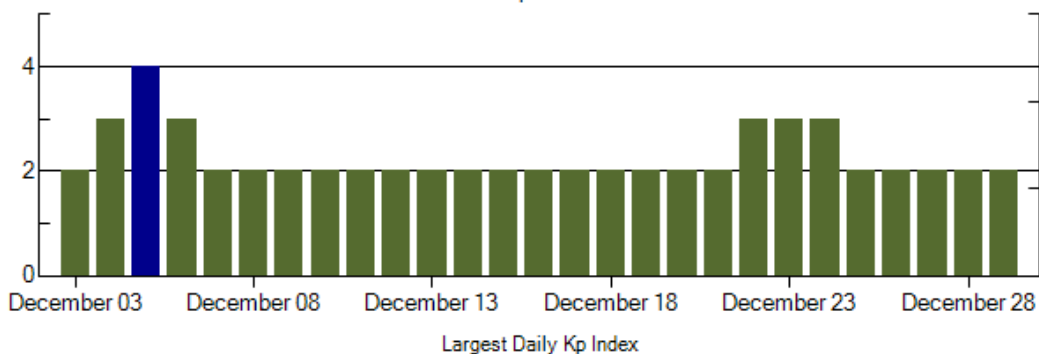
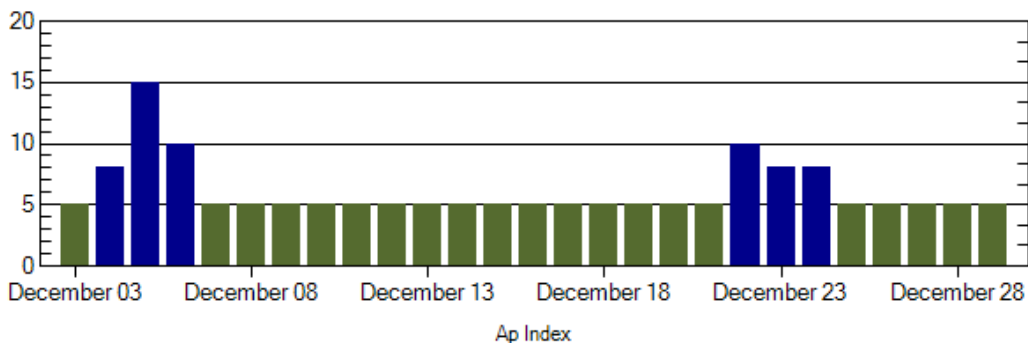
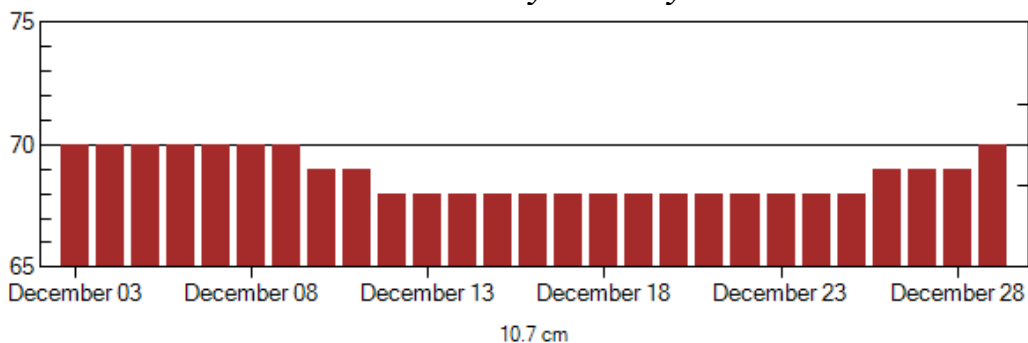
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	24 November	2	0-0-0-0-0-0-0-3	0	0-0-0-0-0-0-0-0	0
25 November	11	3-3-3-2-3-2-2-2	17	1-3-5-2-5-2-1-1	10	3-3-3-2-3-2-2-2
26 November	11	4-4-2-1-1-1-2-2	11	2-3-4-3-1-2-1-2	8	2-3-2-1-1-1-1-2
27 November	5	2-1-1-1-1-1-2-2	6	2-1-2-2-2-1-2-2	7	3-2-1-1-2-0-2-2
28 November	3	0-2-1-0-0-1-0-2	1	0-1-0-0-0-0-1-1	4	1-2-0-0-0-0-1-2
29 November	2	0-1-1-1-0-1-0-0	1	0-0-1-2-0-0-0-0	2	0-0-1-1-1-0-0-1
30 November	1	0-0-0-0-1-1-1-0	0	0-0-0-0-0-0-0-0	1	1-0-0-0-0-0-0-0

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
25 Nov 0007	SUMMARY: Geomagnetic Sudden Impulse	24 Nov 2350
25 Nov 0649	WARNING: Geomagnetic K= 4	25 Nov 0650 - 1600
26 Nov 0403	WARNING: Geomagnetic K= 4	26 Nov 0403 - 1600
26 Nov 0421	ALERT: Geomagnetic K= 4	26 Nov 0420



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
03 Dec	70	5	2	17 Dec	68	5	2
04	70	8	3	18	68	5	2
05	70	15	4	19	68	5	2
06	70	10	3	20	68	5	2
07	70	5	2	21	68	5	2
08	70	5	2	22	68	10	3
09	70	5	2	23	68	8	3
10	69	5	2	24	68	8	3
11	69	5	2	25	68	5	2
12	68	5	2	26	69	5	2
13	68	5	2	27	69	5	2
14	68	5	2	28	69	5	2
15	68	5	2	29	70	5	2
16	68	5	2				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray	Imp /	Optical	Rgn
	Begin	Max	End	Class.	Brtns	Location Lat CMD	
24 Nov	No Flares Observed						
25 Nov	No Flares Observed						
26 Nov	No Flares Observed						
27 Nov	No Flares Observed						
28 Nov	No Flares Observed						
29 Nov	No Flares Observed						
30 Nov	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 Regions Reported



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

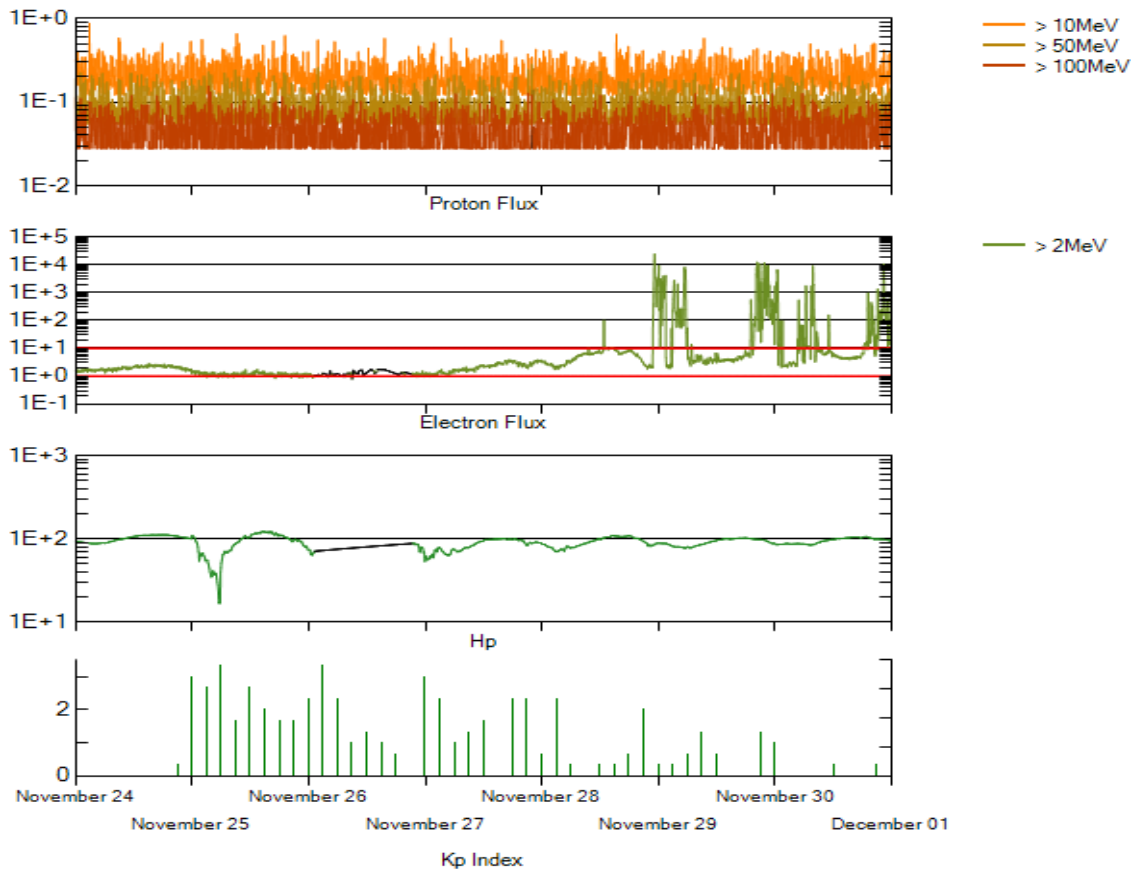
Month	Sunspot Numbers			Smooth values		Radio Flux		Geomagnetic	
	Observed SEC	values RI	Ratio RI/SEC	SEC	RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2006									
November	31.5	21.5	0.68	22.3	12.7	86.4	78.5	9	8.5
December	22.2	13.6	0.61	20.7	12.1	84.3	77.9	15	8.5
2007									
January	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	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			68.4		6	
June	4.2	3.1	0.74			65.9		7	
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	

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 24 November 2008*

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-12 (W075).

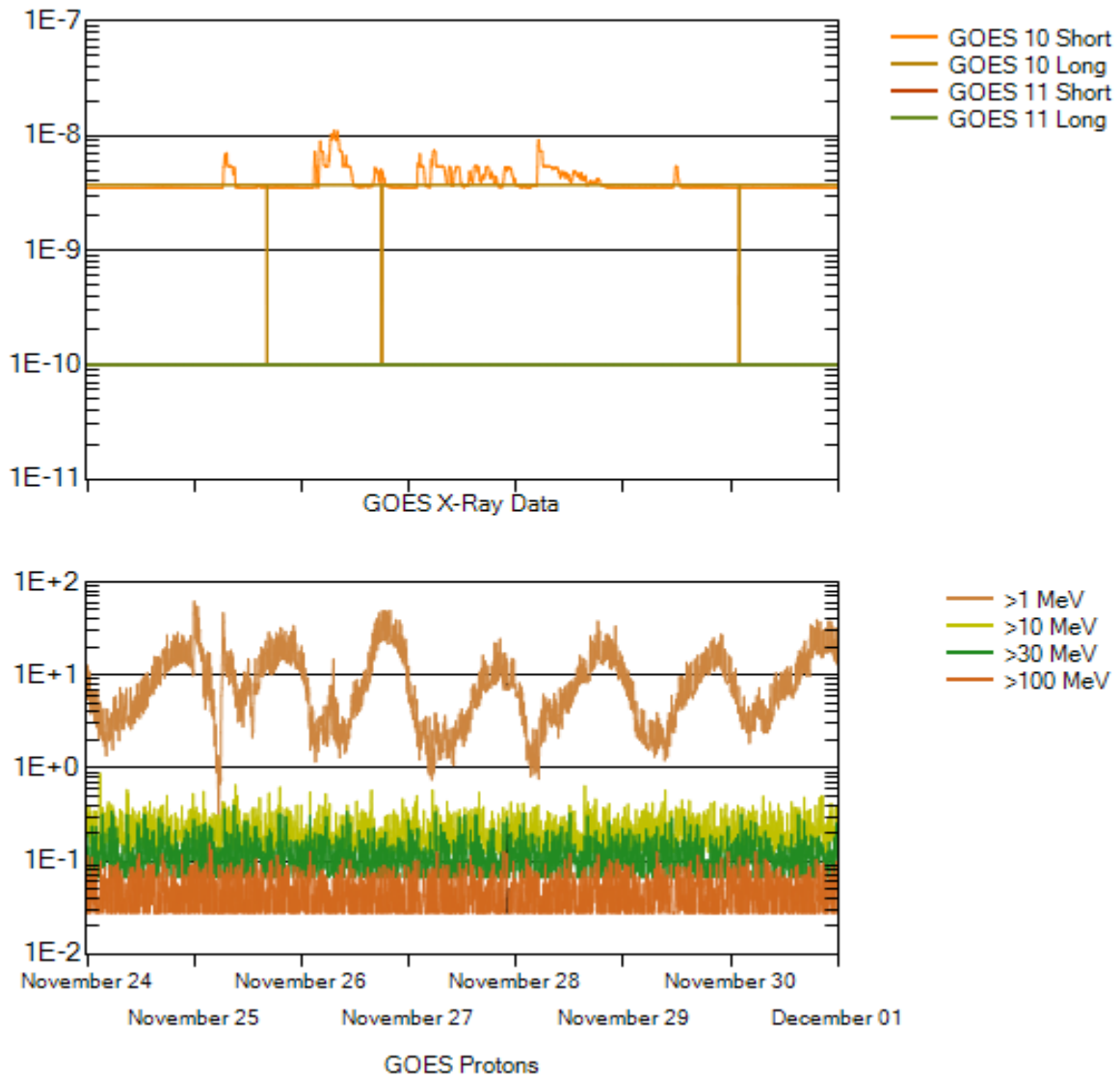
Hp plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

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.





Geomagnetic Activity (Ap)

October 2008
(Month 145)

Comparison of Cycles at current month in cycle

