

Space Weather Highlights
03 - 09 November 2008

SWPC PRF 1732
11 November 2008

Solar activity was very low to low through the period. New-cycle polarity Region 1007 (N35, L = 252, class/area Dso/080 on 03 November) produced isolated low-level C-class flares on 03 and 04 November.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit increased to high levels on 06 and 09 November.

Geomagnetic field activity was at quiet levels during 03 - 06 November. Activity increased to unsettled to active levels from early on 07 November to midday on 09 November. During this same period, high latitudes observed active to minor storm levels with an isolated major storm period midday on 08 November. Activity decreased to quiet levels midday on 9 November through the end of the summary period. ACE solar wind measurements indicated a recurrent coronal hole high-speed stream (CH HSS) commenced on 07 November. Solar wind velocities increased from a low of 279 km/sec at 06/1704 UTC to a high of 601 km/sec at 08/2003 UTC. Velocities began to gradually decrease early on 09 November as the HSS subsided. Interplanetary magnetic field changes associated with the onset of the CH HSS included increased Bt (peak 12 nT at 07/2007 UTC) and intermittent periods of southward Bz (minimum -10 nT at 07/2057 UTC).

Space Weather Outlook
12 - November - 08 December 2008

Solar activity is expected to be at very low levels. However, there will be a slight chance for low activity (isolated low-level C-class flares) during 20 November - 03 December with the return of (old) Region 1007 (N35, L=252) to the visible disk.

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 12 - 15 November, 26 November - 03 December, and again during 06 - 08 December.

Geomagnetic field activity is expected to be at quiet levels during 12 - 23 November. Activity is expected to increase to mostly unsettled levels during 24 - 28 November due to a recurrent CH HSS. Quiet levels are expected during 29 November - 02 December followed by an increase to unsettled to isolated active levels during 03 - 06 December due to another recurrent CH HSS. Activity is expected to be mostly quiet during 07 - 08 December as the HSS subsides.



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
03 November	70	18	80	<A1.0	1	0	0	1	0	0	0	0
04 November	68	14	60	<A1.0	1	0	0	1	0	0	0	0
05 November	68	11	30	<A1.0	0	0	0	0	0	0	0	0
06 November	69	11	30	<A1.0	0	0	0	0	0	0	0	0
07 November	68	0	0	<A1.0	0	0	0	0	0	0	0	0
08 November	68	0	0	<A1.0	0	0	0	0	0	0	0	0
09 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
03 November	1.5E+6	1.8E+4	3.8E+3		9.4E+7	
04 November	1.6E+6	1.9E+4	4.4E+3		9.1E+7	
05 November	1.8E+6	1.9E+4	4.3E+3		1.1E+8	
06 November	3.2E+6	1.9E+4	4.4E+3		1.3E+8	
07 November	1.9E+6	1.8E+4	4.0E+3		3.0E+6	
08 November	3.7E+6	1.8E+4	4.0E+3		1.1E+7	
09 November	1.2E+6	1.9E+4	4.2E+3		7.0E+7	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	03 November	1	0-0-0-0-1-1-1-0	0	0-0-0-0-0-0-0-1	1
04 November	1	1-0-0-0-0-1-1-0	0	0-0-0-0-0-0-1-0	1	1-0-0-0-0-0-0-0
05 November	0	0-0-0-0-1-0-0-0	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0
06 November	0	0-0-0-0-0-1-0-0	0	0-0-0-0-0-0-0-0	1	0-0-0-0-0-1-0-1
07 November	7	0-2-2-2-2-1-2-3	13	0-0-3-5-2-1-1-4	8	0-1-2-2-2-1-2-4
08 November	11	4-3-3-2-2-2-2-1	30	4-3-5-6-5-3-2-1	14	4-3-3-4-3-1-1-1
09 November	10	4-3-3-2-1-1-1-2	15	2-4-3-5-2-2-1-2	12	4-3-3-2-1-1-2-2

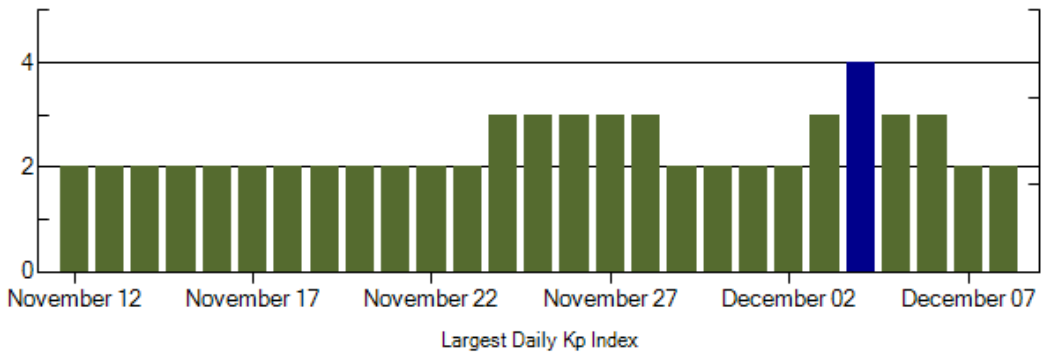
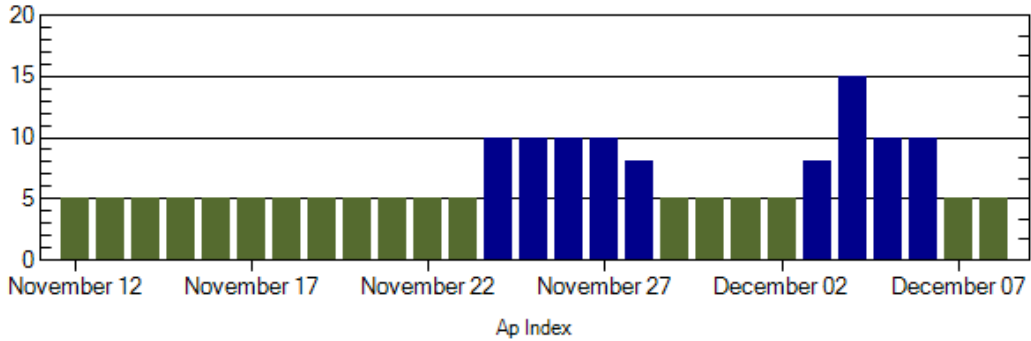
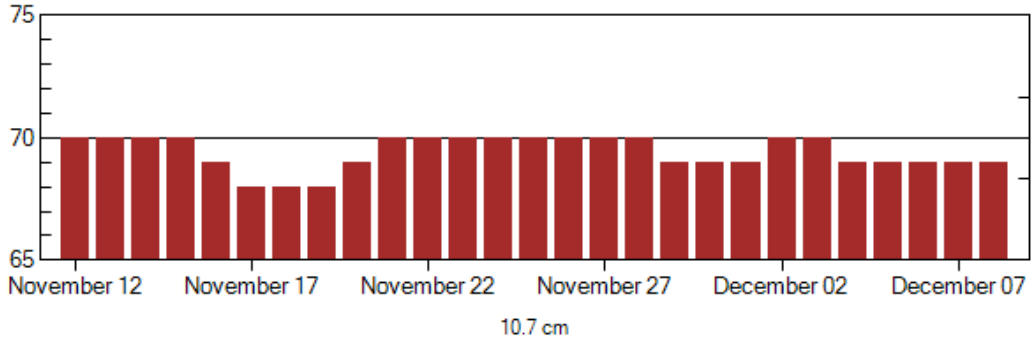


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
03 Nov 1004	ALERT: Electron 2MeV >1000pfu	03 Nov 0940
04 Nov 1007	ALERT: Electron 2MeV >1000pfu	04 Nov 0945
04 Nov 2141	WATCH: Geomagnetic A=20	07 Nov
05 Nov 0742	ALERT: Electron 2MeV >1000pfu	03 Nov 0940
06 Nov 0540	ALERT: Electron 2MeV >1000pfu	06 Nov 0510
07 Nov 2029	WARNING: Geomagnetic K=4	07 Nov 2100 - 2359
07 Nov 2229	ALERT: Geomagnetic K=4	07 Nov 2229
08 Nov 0253	WARNING: Geomagnetic K=4	08 Nov 0253 -1600
08 Nov 0256	ALERT: Geomagnetic K=4	08 Nov 0255
09 Nov 0032	ALERT: Geomagnetic K=4	09 Nov 0030
09 Nov 0600	WARNING: Geomagnetic K=4	09 Nov 0600 - 1200
09 Nov 0601	ALERT: Geomagnetic K=4	09 Nov 0601
09 Nov 1118	ALERT: Electron 2MeV > 1000pfu	09 Nov 1100



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
12 Nov	70	5	2	26	70	10	3
13	70	5	2	27	70	10	3
14	70	5	2	28	70	8	3
15	70	5	2	29	69	5	2
16	69	5	2	30	69	5	2
17	68	5	2	01 Dec	69	5	2
18	68	5	2	02	70	5	2
19	68	5	2	03	70	8	3
20	69	5	2	04	69	15	4
21	70	5	2	05	69	10	3
22	70	5	2	06	69	10	3
23	70	5	2	07	69	5	2
24	70	10	3	08	69	5	2
25	70	10	3				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Location	Lat CMD	
03 November	1042	1046	1048	B2.9				
	1115	1119	1122	C1.6				
	2248	2249	2302	B2.4	Sf	N37W42	1007	
04 November	0326	0329	0332	C1.0	Sf	N35W38	1007	
	0537	0541	0544	B1.0				
05 November	1252	1256	1303	B3.4				
	2344	2346	2349	A8.4				
06 November	No Flares Observed							
07 November	No Flares Observed							
08 November	No Flares Observed							
09 November	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	1	2	3

Region 1007

30 Oct	N35E15	252	0020	04	Bxo	003	B											
31 Oct	N34E04	250	0030	04	Bxo	006	B											
01 Nov	N35W10	251	0020	07	Bxo	006	B											
02 Nov	N35W25	253	0060	07	Bxi	007	B											2
03 Nov	N35W38	252	0080	08	Dso	008	B											1
04 Nov	N36W52	253	0060	12	Cso	004	B	1										1
05 Nov	N35W72	260	0030	01	Hsx	001	A											
06 Nov	N35W84	259	0030	01	Hsx	001	A											
								1	0	0	4	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 250



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

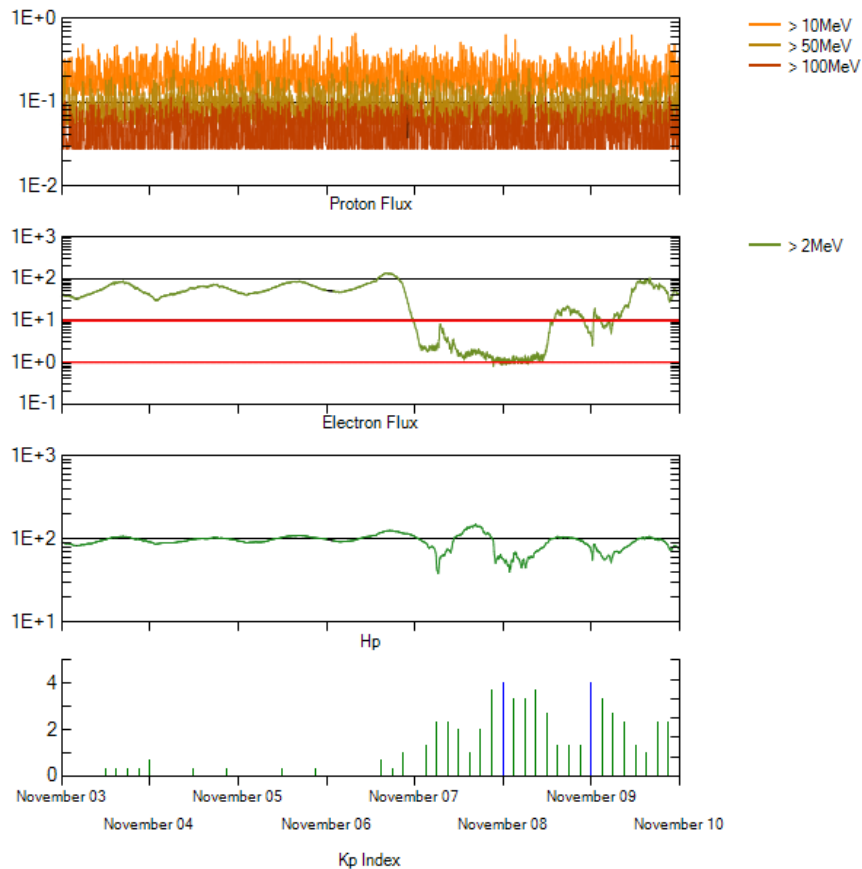
Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SEC	Ratio RI	Ratio RI/SEC	Smooth values SEC	Smooth values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2006									
November	31.5	21.5	0.68	22.3	12.7	86.4	78.5	9	8.5
December	22.2	13.6	0.61	20.7	12.1	84.3	77.9	15	8.5
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 03 November 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.

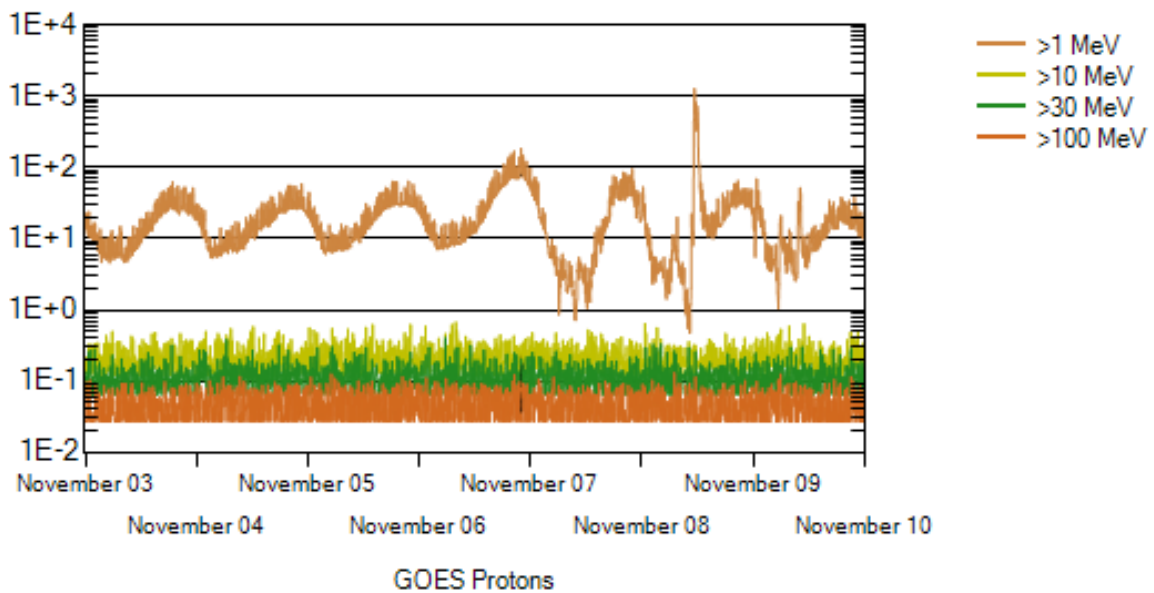
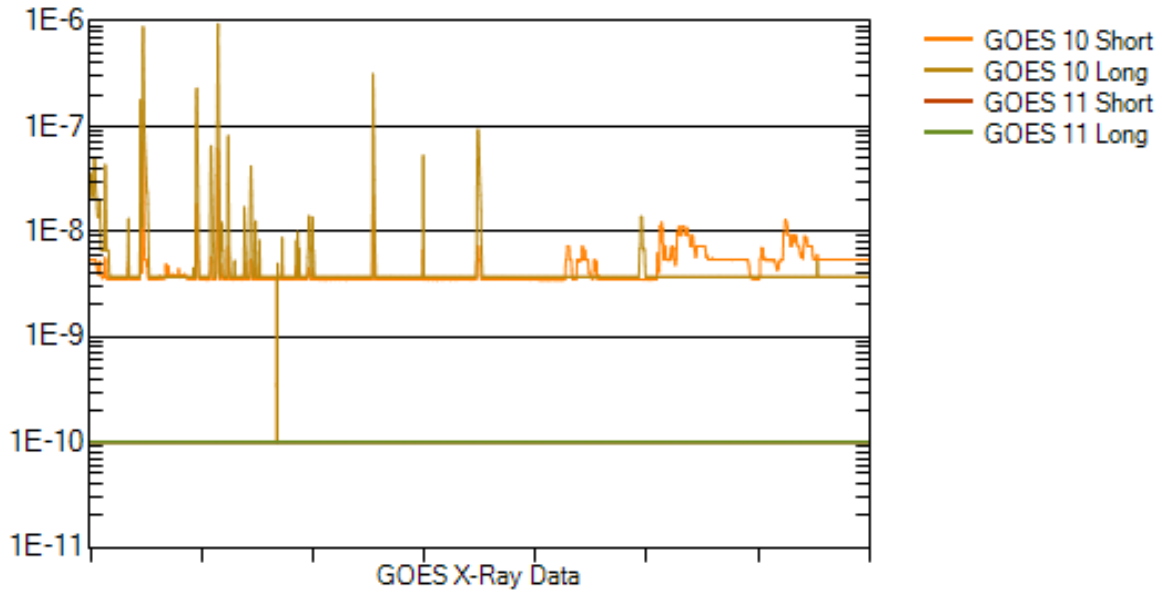
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

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.

