

Space Weather Highlights
20 October - 26 October 2008

SWPC PRF 1730
28 October 2008

Solar activity was very low. 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 quiet levels during 20 - 21 October. Activity increased to unsettled levels on 22 October. Activity returned to quiet levels during 23 - 26 October. ACE solar wind measurements indicated minor variations during the period. Velocities ranged from approximately 290 - 450 km/sec. IMF Bt ranged from 01 - 10 nT. IMF Bz ranged from +09 to -07 nT. The increase to unsettled levels observed on 22 October was associated with increased velocities coupled with intermittent periods of southward IMF Bz.

Space Weather Outlook
29 October - 24 November 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 30 October - 06 November and 08 - 15 November.

Geomagnetic field activity is expected to be at unsettled to active levels during 29 - 31 October with a chance for minor storm conditions on 30 October due to a recurrent coronal hole high-speed stream. Activity is expected to decrease to mostly quiet levels during 01 - 06 November as the high-speed stream subsides. Activity is expected to increase to minor storm levels with a chance for major storm conditions on 07 November due to a recurrent coronal hole high-speed stream. Activity is expected to decrease to unsettled to active levels during 08 - 09 November as the high-speed stream subsides. Activity is expected to decrease to quiet levels during 10 - 23 November. Activity is expected to increase to unsettled levels on 24 November.



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
20 October	69	0	0	<A1.0	0	0	0	0	0	0	0	0
21 October	69	0	0	<A1.0	0	0	0	0	0	0	0	0
22 October	68	0	0	<A1.0	0	0	0	0	0	0	0	0
23 October	67	0	0	<A1.0	0	0	0	0	0	0	0	0
24 October	68	0	0	<A1.0	0	0	0	0	0	0	0	0
25 October	68	0	0	<A1.0	0	0	0	0	0	0	0	0
26 October	67	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
	20 October	8.1E+5	1.9E+4	4.1E+3		6.7E+6
21 October	6.4E+5	1.8E+4	4.1E+3		8.4E+6	
22 October	8.1E+5	1.9E+4	4.1E+3		1.1E+7	
23 October	6.9E+5	1.8E+4	4.2E+3		4.0E+6	
24 October	6.5E+5	1.9E+4	4.0E+3		4.7E+6	
25 October	8.9E+5	2.0E+4	4.5E+3		7.3E+6	
26 October	5.7E+5	1.9E+4	4.3E+3		3.1E+6	

Daily Geomagnetic Data

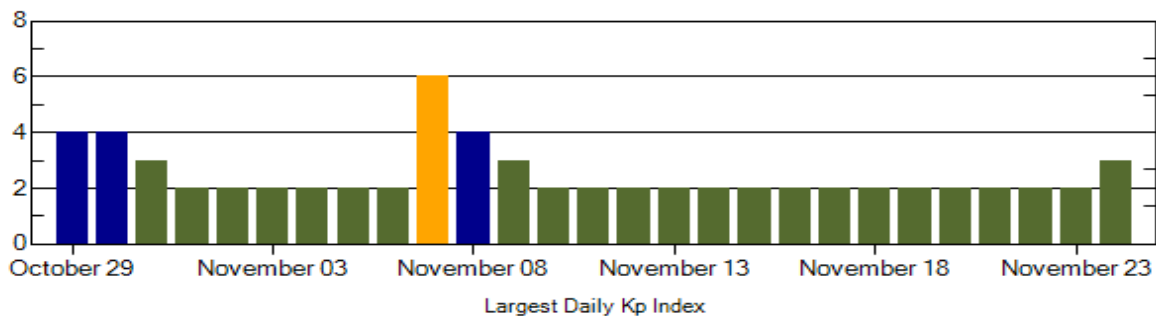
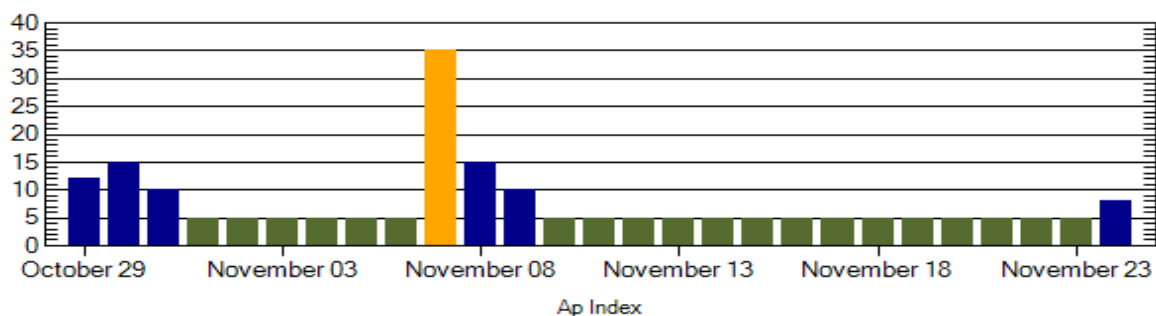
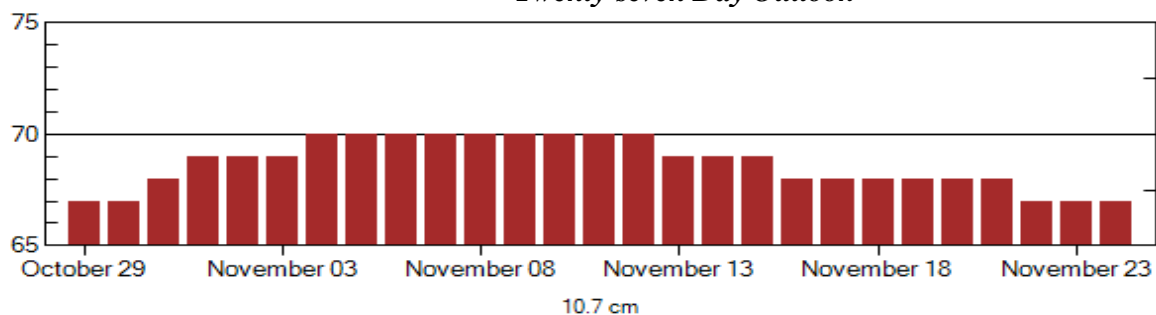
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	20 October	2	1-0-0-0-1-1-1-1	1	1-0-0-0-0-1-0-1	2
21 October	3	1-1-0-1-1-1-1-1	3	2-1-1-2-1-0-0-0	3	1-2-0-1-1-1-0-1
22 October	5	0-0-0-1-1-2-3-3	5	0-0-0-0-2-3-3-1	5	0-0-0-0-1-2-3-3
23 October	3	1-1-2-1-0-1-1-0	0	0-0-0-0-0-0-0-0	3	1-1-2-0-0-1-0-0
24 October	0	0-1-0-0-0-0-0-0	0	0-1-0-0-0-0-0-0	2	0-0-0-0-1-1-0-1
25 October	1	0-0-0-0-1-1-0-0	0	0-0-0-0-0-0-0-0	1	0-0-0-0-1-0-0-1
26 October	3	1-2-1-0-2-1-0-1	3	0-0-0-2-2-2-0-1	4	0-2-1-1-1-1-0-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
No Alerts Issued		



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
29 Oct	67	12	4	12 Nov	70	5	2
30	67	15	4	13	69	5	2
31	68	10	3	14	69	5	2
01 Nov	69	5	2	15	69	5	2
02	69	5	2	16	68	5	2
03	69	5	2	17	68	5	2
04	70	5	2	18	68	5	2
05	70	5	2	19	68	5	2
06	70	5	2	20	68	5	2
07	70	35	6	21	68	5	2
08	70	15	4	22	67	5	2
09	70	10	3	23	67	5	2
10	70	5	2	24	67	8	3
11	70	5	2				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq
	Begin	Max	Class	Flux	Imp/	Location	Rgn	Radio Flux		Intensity
					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	
20 Oct	<i>No Flares Observed</i>						
21 Oct	<i>No Flares Observed</i>						
22 Oct	<i>No Flares Observed</i>						
23 Oct	<i>No Flares Observed</i>						
24 Oct	<i>No Flares Observed</i>						
25 Oct	<i>No Flares Observed</i>						
26 Oct	<i>No Flares Observed</i>						

Region Summary

Date	Location		Sunspot Characteristics				Flares							
	(° Lat ° CMD)	Helio	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		Lon						C	M	X	S	1	2	3

Region 1005

11 Oct	N26E42	116	0040	03	Bxi	006	B										
12 Oct	N27E28	117	0070	06	Cro	006	B										
13 Oct	N26E13	119	0040	06	Cso	005	B										
14 Oct	N27W02	120	0020	03	Cso	004	B										
15 Oct	N26W15	121	0030	04	Cro	003	B										
16 Oct	N26W29	121	0030	03	Bxo	003	B										
17 Oct	N26W42	121															
18 Oct	N26W55	121															
19 Oct	N26W68	121															
20 Oct	N26W81	121															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 120

Recent Solar Indices (preliminary)



Of the observed monthly mean values

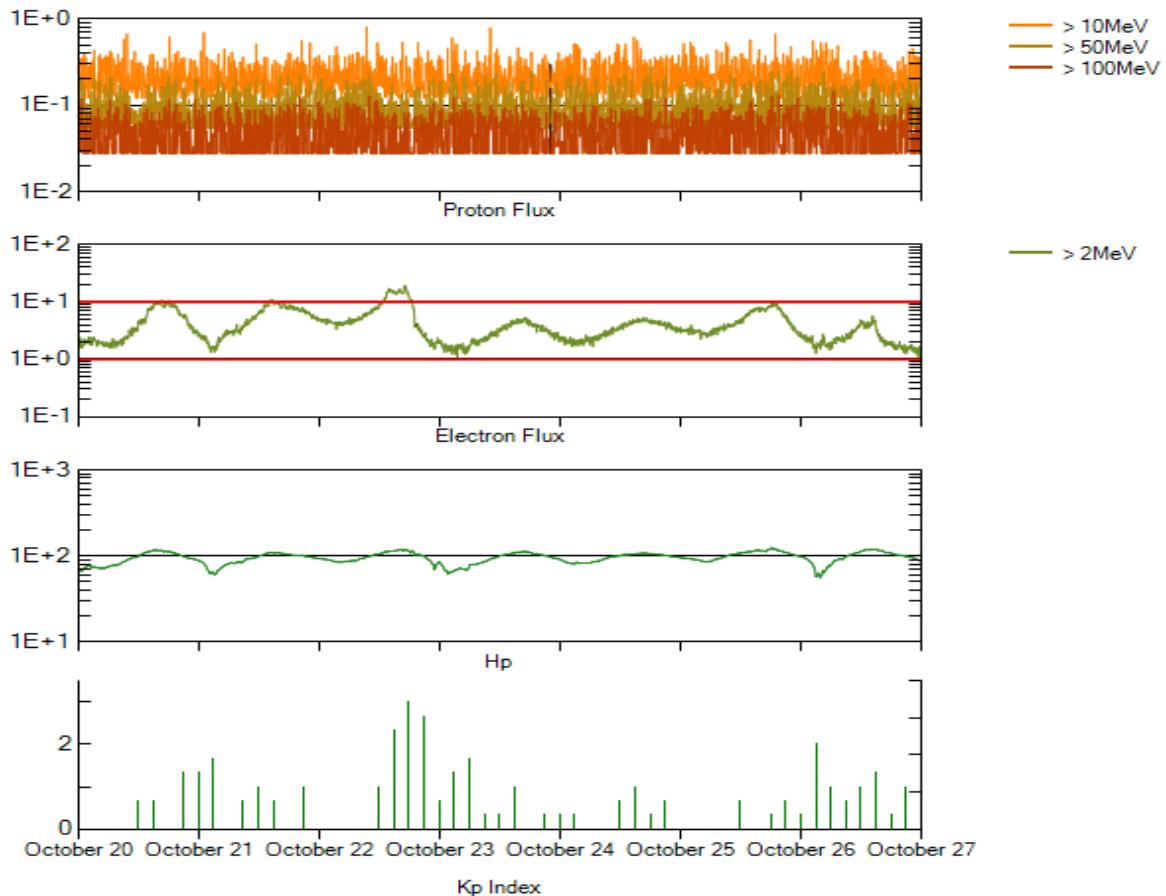
Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SEC	Ratio RI	Ratio RI/SEC	Smooth values SEC	Smooth values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2006									
November	31.5	21.5	0.68	22.3	12.7	86.4	78.5	9	8.5
December	22.2	13.6	0.61	20.7	12.1	84.3	77.9	15	8.5
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			70.3		9	
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	

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 20 October 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.

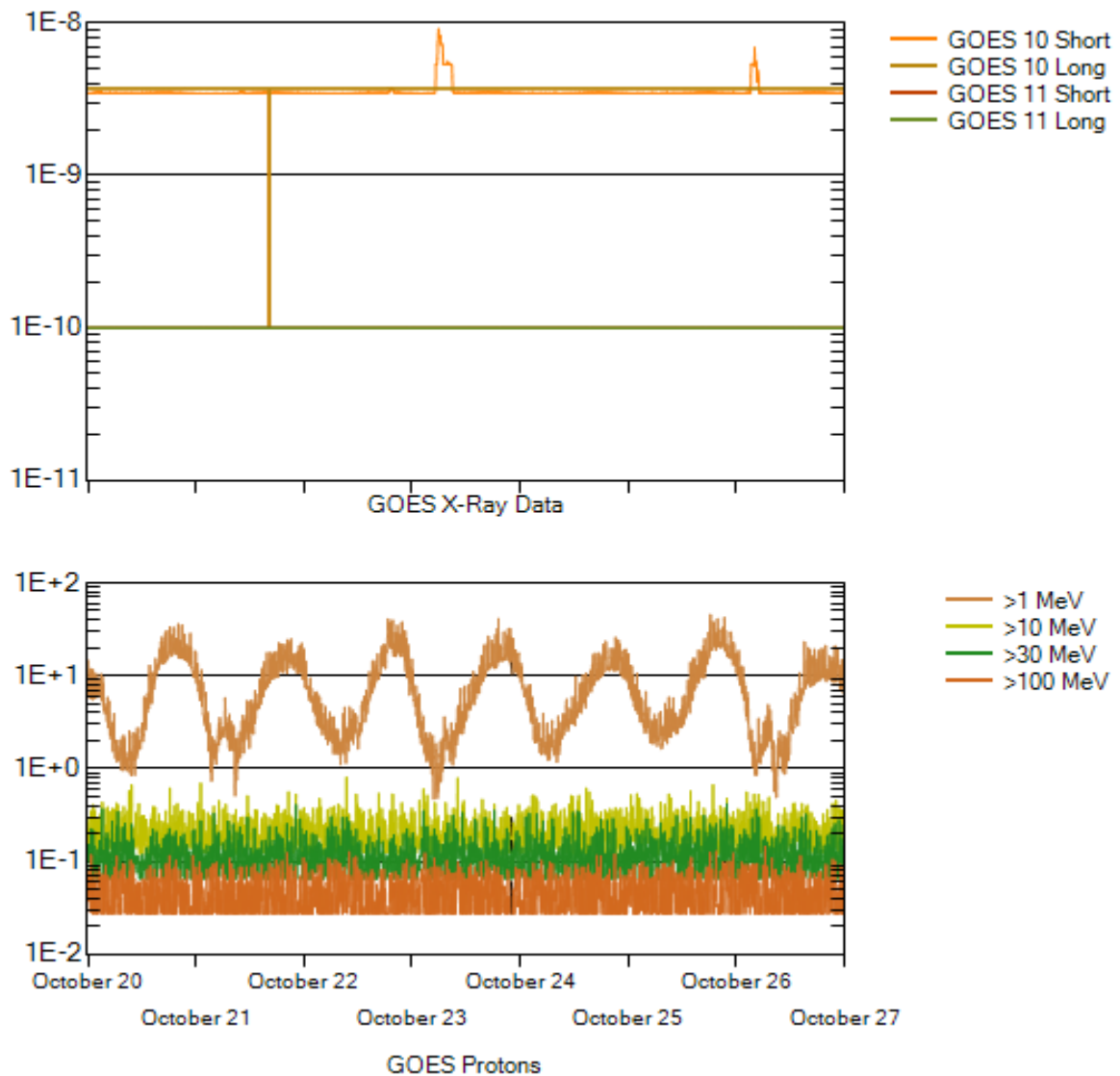
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

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.

