

Space Weather Highlights
13 October - 19 October 2008

SWPC PRF 1729
21 October 2008

Solar activity was very low. Region 1005 (N27, L = 117, class/area, Cro/070 on 12 October) was quiet and stable. Region 1006 (S26, L = 157, class/area, Axx/030 on 17 October) formed on the disk on 16 October and decayed to spotless plage by 18 October. Both Regions 1005 and 1006 exhibited new-cycle magnetic configuration.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels during 13 - 19 October.

Geomagnetic field activity was at predominately quiet to unsettled levels on 13 - 16 October. Active to isolated minor storm conditions were observed at high latitudes on 13 - 15 October. Mostly quiet conditions prevailed from 17 - 19 October. ACE solar wind observations indicated that a recurrent coronal hole high-speed stream disturbed the field during 13 - 16 October, with initial solar wind velocities at about 550 km/s. Speeds steadily decayed throughout the next seven days and ended the summary period near 300 km/s.

Space Weather Outlook
15 October - 10 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 22 - 28 October, 30 October - 06 November, and 08 - 15 November.

Geomagnetic field activity is expected to be at quiet levels during 22 - 27 October. Activity is expected to increase to unsettled to active levels during 28 - 31 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 periods on 07 November due to a recurrent coronal hole high-speed stream. Activity is expected to decrease to unsettled to active levels on 08 - 09 November as the high-speed stream subsides. From 10 - 17 November, activity levels are expected to mostly quiet.



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	
13 October	71	15	40	<A1.0	0	0	0	0	0	0	0	0	0
14 October	70	14	20	<A1.0	0	0	0	0	0	0	0	0	0
15 October	71	13	30	<A1.0	0	0	0	0	0	0	0	0	0
16 October	72	24	50	<A1.0	0	0	0	0	0	0	0	0	0
17 October	70	11	30	<A1.0	0	0	0	0	0	0	0	0	0
18 October	69	0	0	<A1.0	0	0	0	0	0	0	0	0	0
19 October	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
	13 October	1.3E+6	1.8E+4	4.0E+3		4.5E+8
14 October	1.1E+6	1.9E+4	4.1E+3		6.8E+8	
15 October	6.3E+5	1.9E+4	4.2E+3		1.9E+8	
16 October	5.8E+5	1.9E+4	4.1E+3		1.6E+8	
17 October	9.3E+5	1.9E+4	4.4E+3		1.9E+8	
18 October	1.6E+6	1.8E+4	4.4E+3		1.7E+8	
19 October	1.2E+6	2.0E+4	4.2E+3		8.0E+7	

Daily Geomagnetic Data

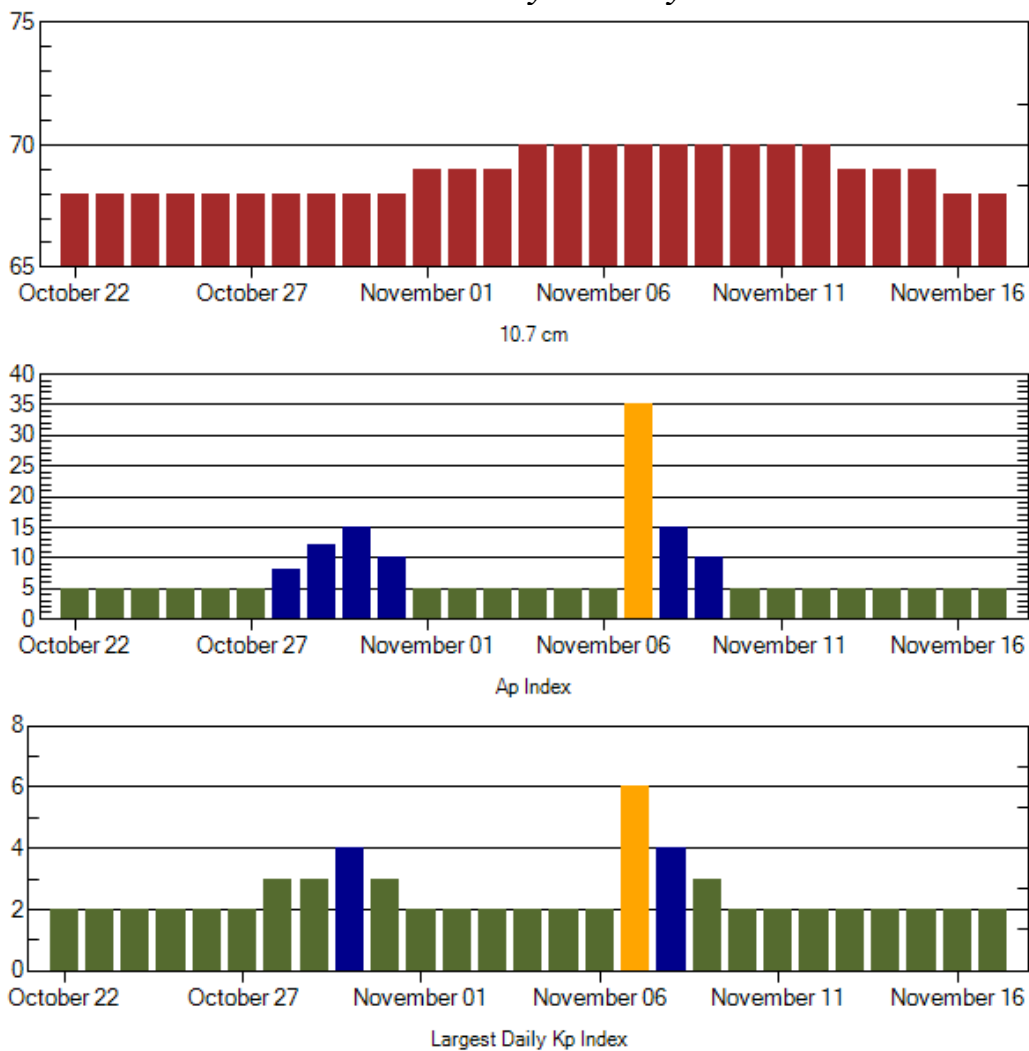
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	13 October	7	2-3-2-2-1-1-2-2	16	2-2-5-5-2-1-1-1	9
14 October	3	0-0-1-2-2-1-1-1	7	0-0-3-4-2-1-1-0	4	1-0-1-2-2-1-1-1
15 October	7	2-3-3-1-1-2-1-1	15	1-3-4-4-4-2-0-1	8	2-3-3-2-1-2-1-2
16 October	5	1-1-1-3-1-1-1-1	5	0-0-3-3-1-1-0-0	4	2-1-1-2-1-0-0-1
17 October	1	0-1-0-0-1-0-0-0	1	0-0-0-1-2-0-0-0	2	0-1-0-0-2-1-0-0
18 October	1	0-0-0-0-1-0-1-0	0	0-0-0-0-0-0-0-0	1	0-0-0-0-0-0-0-1
19 October	5	1-1-0-2-2-1-2-2	6	0-0-1-3-3-2-2-1	6	1-1-0-1-2-2-3-2

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
13 Oct 0509	ALERT: Electron 2MeV Integral Flux ≥1000pfu	13 Oct 0500
14 Oct 0500	ALERT: Electron 2MeV Integral Flux ≥1000pfu	14 Oct 0500
15 Oct 0543	ALERT: Electron 2MeV Integral Flux ≥1000pfu	15 Oct 0530
16 Oct 0800	ALERT: Electron 2MeV Integral Flux ≥1000pfu	16 Oct 0740
17 Oct 0608	ALERT: Electron 2MeV Integral Flux ≥1000pfu	17 Oct 0550
19 Oct 1016	ALERT: Electron 2MeV Integral Flux ≥1000pfu	19 Oct 0955



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
22 Oct	68	5	2	05 Nov	70	5	2
23	68	5	2	06	70	5	2
24	68	5	2	07	70	35	6
25	68	5	2	08	70	15	4
26	68	5	2	09	70	10	3
27	68	5	2	10	70	5	2
28	68	8	3	11	70	5	2
29	68	12	3	12	70	5	2
30	68	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				



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	

13 Oct *No Flares Observed*
 14 Oct *No Flares Observed*
 15 Oct *No Flares Observed*
 16 Oct *No Flares Observed*
 17 Oct *No Flares Observed*
 18 October 1155 1200 1204 A9.3
 19 Oct *No Flares Observed*

Region Summary

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

Region 1003

04 Oct S23E28 222 0010 01 Axx 002 A
 05 Oct S23E15 222
 06 Oct S23E02 222
 07 Oct S23W11 222
 08 Oct S23W24 222
 09 Oct S23W37 222
 10 Oct S23W50 222
 11 Oct S23W63 222
 12 Oct S23W76 222
 13 Oct S23W89 222

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 222

Region 1004

10 Oct S08W17 188 0010 01 Axx 002 A
 11 Oct S08W30 188
 12 Oct S08W43 188
 13 Oct S08W56 188
 14 Oct S08W69 188
 15 Oct S08W82 188

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 188



Region Summary - continued.

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	4									
<i>Region 1005</i>																								
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	0000	00		000																		
18 Oct	N26W55	121																						
19 Oct	N26W68	121																						
								0	0	0	0	0	0	0	0	0	0	0						
Still on Disk.																								
Absolute heliographic longitude: 120																								
<i>Region 1006</i>																								
16 Oct	S27W63	155	0020	01	Axx	001	A																	
17 Oct	S26W78	157	0030	01	Axx	001	A																	
								0	0	0	0	0	0	0	0	0	0	0						
Crossed West Limb.																								
Absolute heliographic longitude: 155																								



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

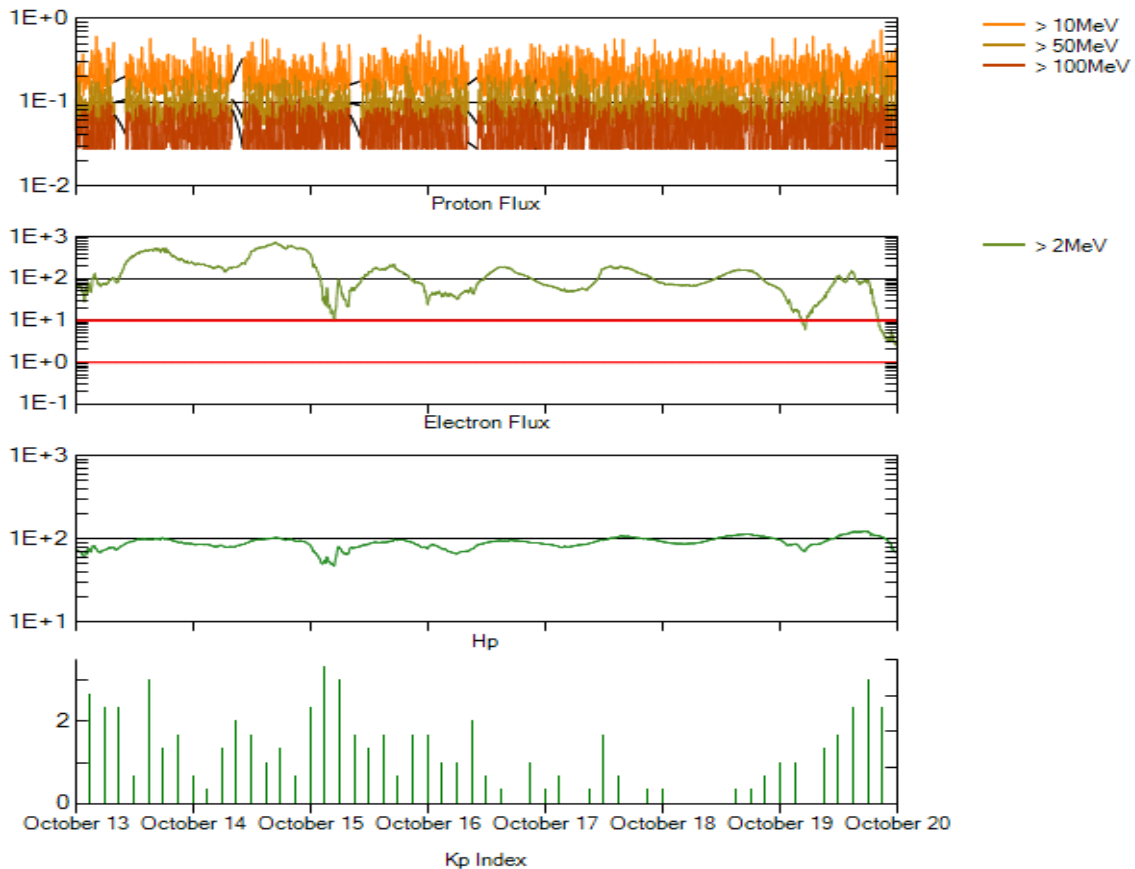
Month	Sunspot Numbers			Smooth values		Radio Flux		Geomagnetic	
	Observed SEC	values RI	Ratio RI/SEC	SEC	RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2006									
October	15.7	10.4	0.66	25.2	14.2	74.3	79.4	8	8.6
November	31.5	21.5	0.68	22.3	12.7	86.4	78.5	9	8.5
December	22.2	13.6	0.61	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	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 13 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.

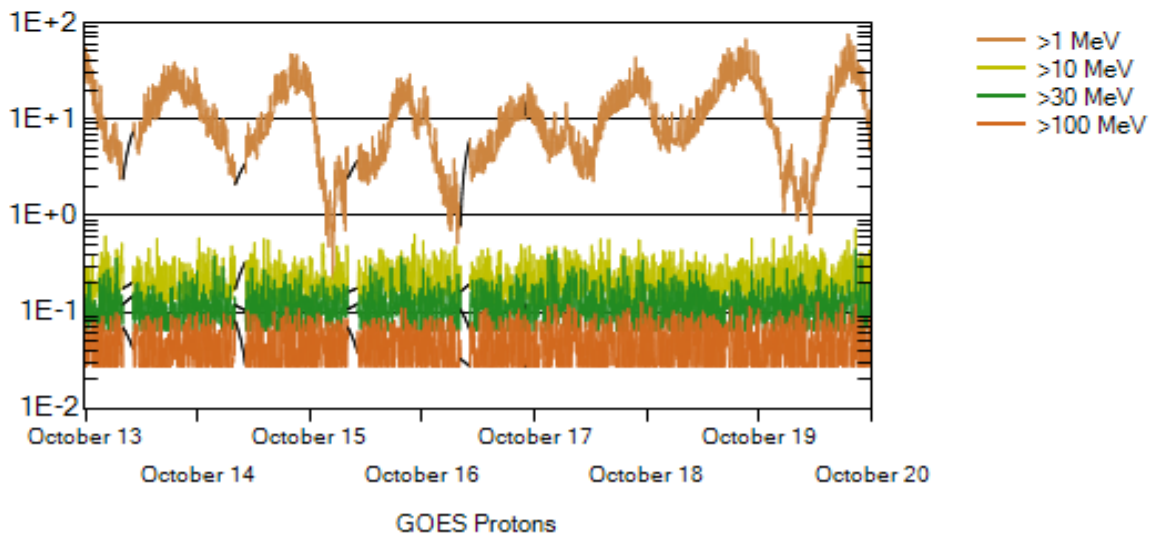
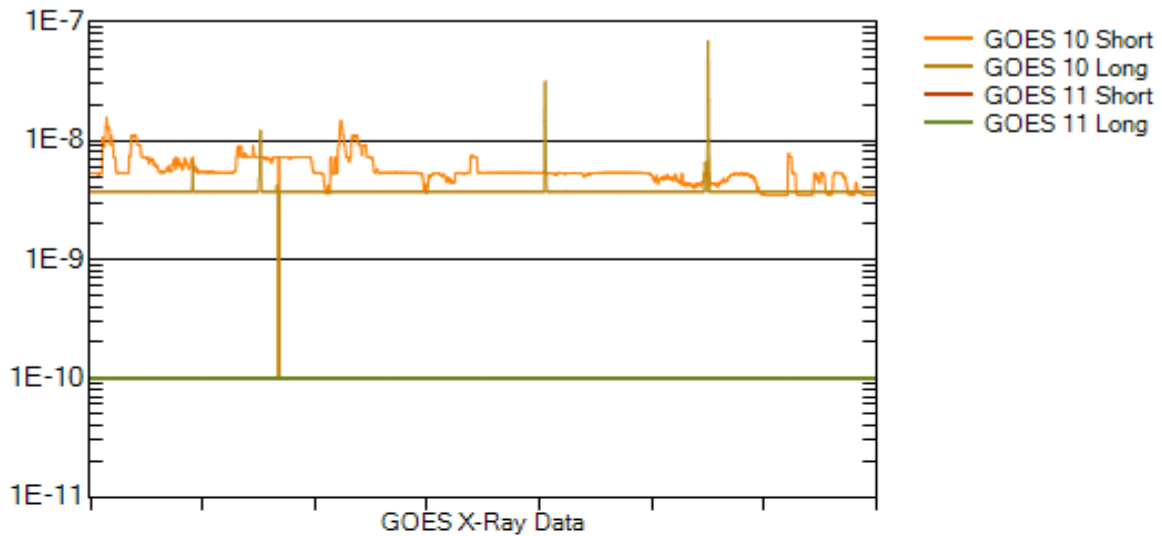
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

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/m²) 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 (protons/cm²-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 (protons/cm²-sec-sr) at greater than 10 MeV.

