

Space Weather Highlights
02 November – 08 November 2009

SWO PRF 1784
03 November 2009

Solar activity was very low. Region 1030 (N25, L=046, class/area Cro/050 on 05 November) emerged on the disk on 05 November. Region 1030 gradually decayed to spotless plage late on 07 November.

No proton events were observed at geosynchronous orbit.

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

The geomagnetic field was at quiet levels through most of the period. On 08 November, a weak recurrent coronal hole high-speed stream (CH-HSS) was observed from the ACE spacecraft. Quiet to isolated unsettled levels were observed between 08/0900-2100 UTC, with isolated active levels at high latitudes between 08/1200-1800 UTC. Velocities increased from 247 km/s at 07/1331 UTC to a high of 461 km/s at 08/2145 UTC. Interplanetary magnetic field activity associated with the weak CH HSS included an increase in Bt (maximum of 11 nT at 08/0957 UTC) and southward Bz (minimum of -9 nT at 08/1821Z).

Space Weather Outlook
11 November 2009 – 07 December 2009

Solar activity is expected to be very low to low. There may be a small increase in background levels from 15-27 November due to the return of Region 1029.

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 through the period.

The geomagnetic field is expected to be at quiet levels during 11-17 November. Quiet to unsettled periods, with isolated active levels, are expected on 18-20 November, due to possible effects from a recurrent CH-HSS. Activity is expected to decrease to quiet levels on 21 November for the remainder of the period.



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
02 November	71	0	0	<A1.0	0	0	0	0	0	0	0	0
03 November	72	0	0	<A1.0	0	0	0	0	0	0	0	0
04 November	71	0	0	<A1.0	0	0	0	0	0	0	0	0
05 November	71	15	50	<A1.0	0	0	0	0	0	0	0	0
06 November	71	16	10	<A1.0	0	0	0	0	0	0	0	0
07 November	71	11	10	<A1.0	0	0	0	0	0	0	0	0
08 November	71	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
	02 November	8.3e+05	2.0e+04	4.5e+03		1.2e+06
03 November	6.2e+05	2.0e+04	4.3e+03		5.7e+05	
04 November	1.1e+06	1.9e+04	4.6e+03		1.0e+06	
05 November	1.1e+06	1.9e+04	4.2e+03		1.1e+06	
06 November	8.9e+05	2.0e+04	4.4e+03		8.7e+05	
07 November	9.7e+05	2.0e+04	4.4e+03		1.1e+06	
08 November	8.0e+05	2.0e+04	4.4e+03		3.5e+05	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	02 November	2	1-1-2-1-0-1-0-0	1	0-0-2-1-0-0-0-0	2
03 November	1	0-0-0-0-1-1-1-0	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0
04 November	1	0-0-0-0-1-0-1-0	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0
05 November	0	0-0-1-0-0-0-0-0	0	0-0-1-0-0-0-0-0	1	0-0-1-0-0-0-0-0
06 November	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0
07 November	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0	1	0-0-0-0-0-1-0-1
08 November	4	0-1-1-2-2-2-1-1	11	1-0-0-3-4-4-2-2	6	0-1-1-1-2-2-3-2

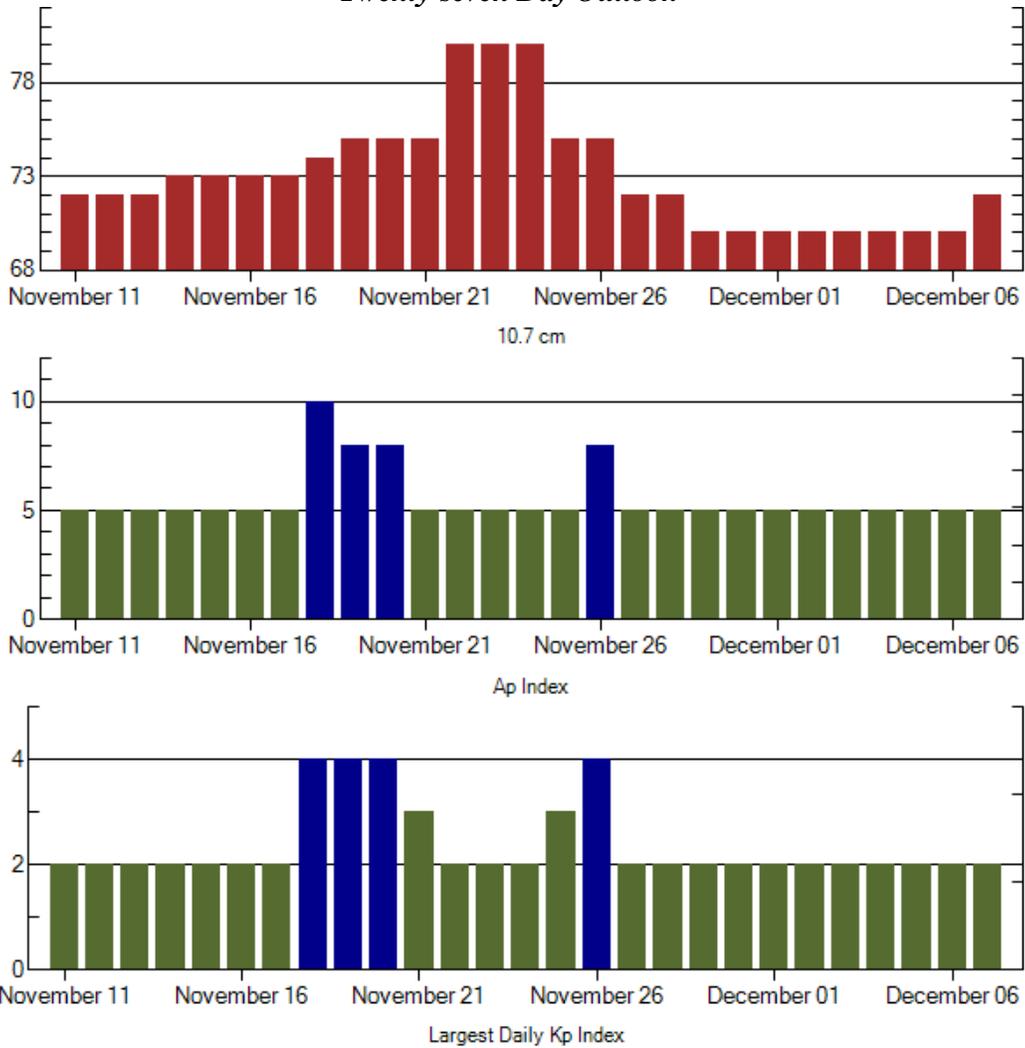
Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
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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
11 Nov	72	5	2	25 Nov	75	5	3
12	72	5	2	26	75	8	4
13	72	5	2	27	72	5	2
14	73	5	2	28	72	5	2
15	73	5	2	29	70	5	2
16	73	5	2	30	70	5	2
17	73	5	2	01 Dec	70	5	2
18	74	10	4	02	70	5	2
19	75	8	4	03	70	5	2
20	75	8	4	04	70	5	2
21	75	5	3	05	70	5	2
22	80	5	2	06	70	5	2
23	80	5	2	07	72	5	2
24	80	5	2				



Energetic Events

Date	Time		X-ray	Optical Information			Peak		Sweep Freq	
	$\frac{1}{2}$		Integ	Imp/	Location	Rgn	Radio Flux		Intensity	
	Begin	Max	Class	Flux	Brtns	Lat CMD	#	245	2695	II
<i>No Events Observed</i>										

Flare List

Date	Time			X-ray	Imp /	Optical	Rgn
	Begin	Max	End	Class.	Brtns	Location Lat CMD	
02 November	No Flares Observed						
03 November	No Flares Observed						
04 November	No Flares Observed						
05 November	No Flares Observed						
06 November	No Flares Observed						
07 November	No Flares Observed						
08 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	4				
<i>Region 1030</i>																			
05 Nov	N25E04	46	50	6	CRO	5	B												
06 Nov	N24W07	44	10	5	BXO	6	B												
07 Nov	N25W25	48	10	1	AXX	1	A												
08 Nov	N25W38	48																	

Still on Disk.

Absolute heliographic longitude: 46



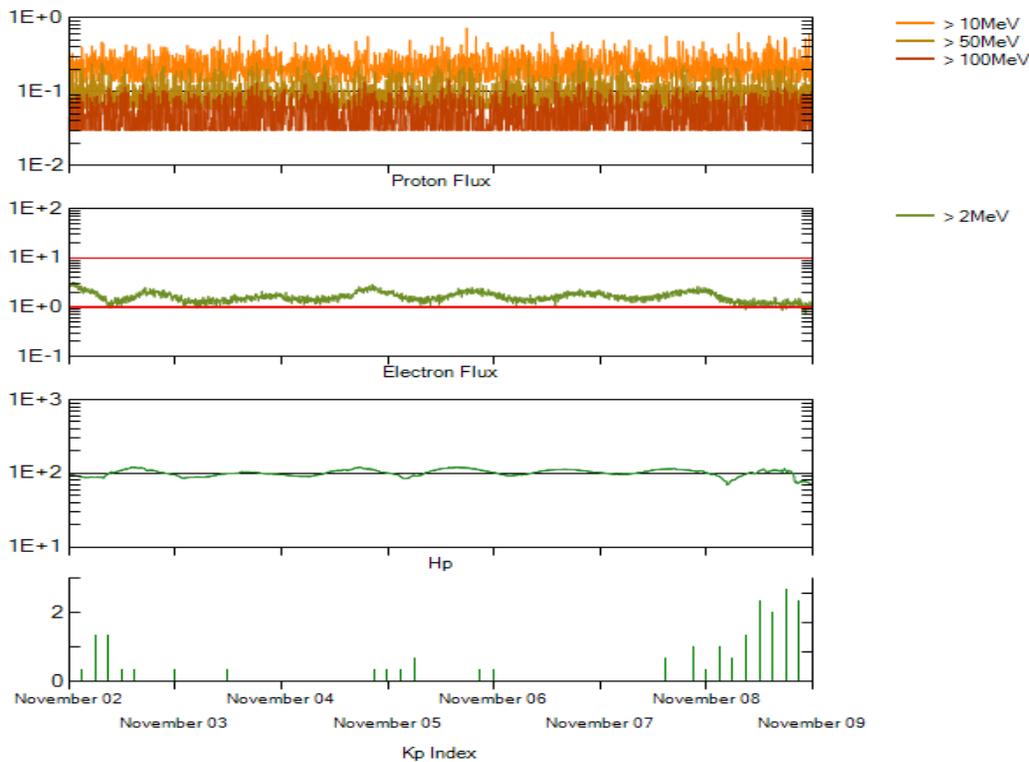
Recent Solar Indices (preliminary)
Of the observed monthly mean values

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
November	2.5	1.7	0.68	9.4	5.7	69.6	71.4	7	7.8
December	16.2	10.1	0.62	8.1	4.9	78.5	70.8	6	7.8
2008									
January	5.1	3.3	0.65	6.9	4.2	74.3	70.3	8	7.8
February	3.8	2.1	0.55	5.9	3.6	71.1	69.9	11	7.6
March	15.9	9.3	0.58	5.3	3.3	72.9	69.8	11	7.5
April	4.9	2.9	0.59	5.3	3.4	70.2	69.8	9	7.3
May	5.7	3.2	0.56	5.7	3.5	68.4	69.8	6	7.2
June	4.2	3.4	0.81	5.2	3.3	65.9	69.4	7	7.0
July	1.0	0.8	0.80	4.5	2.8	65.7	68.8	5	6.8
August	0.0	0.5	**	4.4	2.7	66.3	68.6	5	6.3
September	1.5	1.1	0.73	3.7	2.3	67.1	68.4	6	5.8
October	5.2	2.9	0.56	2.9	1.9	68.3	68.2	7	5.4
November	6.8	4.1	0.60	2.7	1.8	68.6	68.3	4	5.1
December	1.3	0.8	0.62	2.7	1.7	69.2	68.5	4	4.9
2009									
January	2.8	1.3	0.46	3.0	1.8	69.8	68.7	4	4.7
February	2.5	1.4	0.56	3.1	1.9	70.0	68.8	5	4.7
March	0.7	0.7	1.00	3.4	2.0	69.2	69.0	5	4.6
April	1.2	1.2	1.00			69.7		4	
May	3.9	2.9	0.74			70.5		4	
June	6.6	2.6	0.39			68.6		4	
July	5.0	3.5	0.70			68.2		4	
August	0.3	0.0	0.00			67.4		5	
September	6.6	4.2	0.64			70.5		4	
October	7.0	4.6	0.66			72.4		3	

NOTE: Values are final except for the most recent 6 months which are considered preliminary. Cycle 23 started in May 1996 with an RI=8.0. Cycle 23 maximum was April 2000 with an RI=120.8.

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





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 02 November 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.

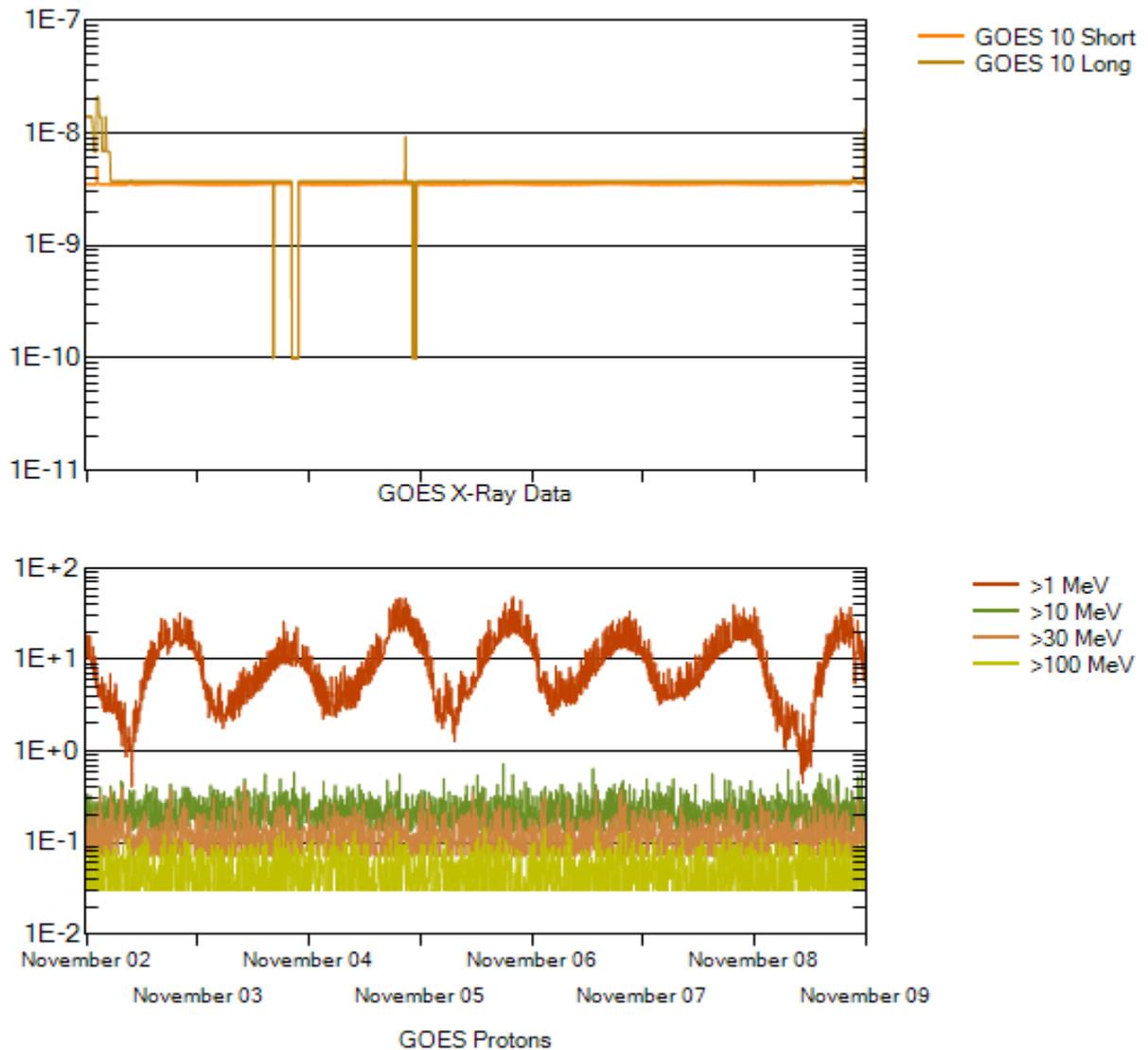
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-11.

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 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.

