

Space Weather Highlights
10 August – 16 August 2009

SWO PRF 1772
18 August 2009

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 during the period.

Geomagnetic field activity was at predominantly quiet levels during the period. Isolated periods of unsettled to active levels were observed at high latitudes on 12-13 August. Solar wind velocities at ACE ranged from 398 to 264 km/s during the period. Interplanetary magnetic field activity showed intermittent periods of southward Bz (maximum of -5 nT at 12/1151 UTC).

Space Weather Outlook
19 August – 14 September 2009

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 be at high levels during 22-23 August. Normal to moderate flux levels are expected during the rest of the period.

Geomagnetic field activity is expected to be at unsettled to active levels, with a slight chance for minor storm levels on 19 August due to a recurrent coronal hole high-speed stream (CH HSS). Quiet to unsettled levels are expected on 20 August as the CH effects continue. Activity is expected to decrease to predominantly quiet levels during 21 August – 14 September, with isolated unsettled periods on 02 September and 09 – 10 September due to recurrent effects.



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
10 August	67	0	0	<A1.0	0	0	0	0	0	0	0	0
11 August	67	0	0	<A1.0	0	0	0	0	0	0	0	0
12 August	67	0	0	<A1.0	0	0	0	0	0	0	0	0
13 August	67	0	0	<A1.0	0	0	0	0	0	0	0	0
14 August	68	0	0	<A1.0	0	0	0	0	0	0	0	0
15 August	68	0	0	<A1.0	0	0	0	0	0	0	0	0
16 August	69	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
	10 August	3.5e+06	1.8e+04	4.0e+03		2.5e+06
11 August	3.1e+06	2.0e+04	4.4e+03		2.4e+06	
12 August	2.1e+06	2.0e+04	4.4e+03		1.5e+06	
13 August	1.2e+06	2.0e+04	4.3e+03		1.4e+06	
14 August	1.0e+06	2.0e+04	4.2e+03		1.8e+06	
15 August	1.1e+06	1.9e+04	4.3e+03		1.8e+06	
16 August	1.3e+06	2.2e+04	5.0e+03		1.9e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	10 August	3	2-0-0-1-1-1-1-1	1	1-0-0-0-0-1-0-0	4
11 August	2	1-1-0-0-0-0-1-1	3	1-1-1-1-0-1-1-1	4	1-1-0-0-0-1-2-2
12 August	2	0-1-1-1-2-0-0-1	7	0-1-2-3-4-0-0-1	5	2-1-1-1-2-2-1-1
13 August	3	1-1-1-1-1-0-1-1	4	1-0-1-3-2-0-0-0	5	2-2-1-1-2-2-1-1
14 August	2	0-1-1-1-1-0-1-0	1	1-0-1-1-0-0-0-0	4	1-2-1-1-1-1-1-1
15 August	1	0-0-2-0-1-0-0-0	1	0-0-2-0-0-0-0-0	3	1-0-1-0-1-2-1-1
16 August	0	0-0-0-0-1-0-0-0	0	0-0-0-0-0-0-1-1	3	1-0-0-0-1-1-1-2

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
<i>No Alerts Issued</i>		



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
<i>No Events Observed</i>										

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Lat	CMD	
10 August	No Flares Observed							
11 August	No Flares Observed							
12 August	No Flares Observed							
13 August	No Flares Observed							
14 August	No Flares Observed							
15 August	No Flares Observed							
16 August	No Flares Observed							

Region Summary

Date	Location		Sunspot Characteristics					Flares			
	° Lat	° CMD	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray		Optical	
								C	M	X	S
<i>No Active Regions</i>											



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

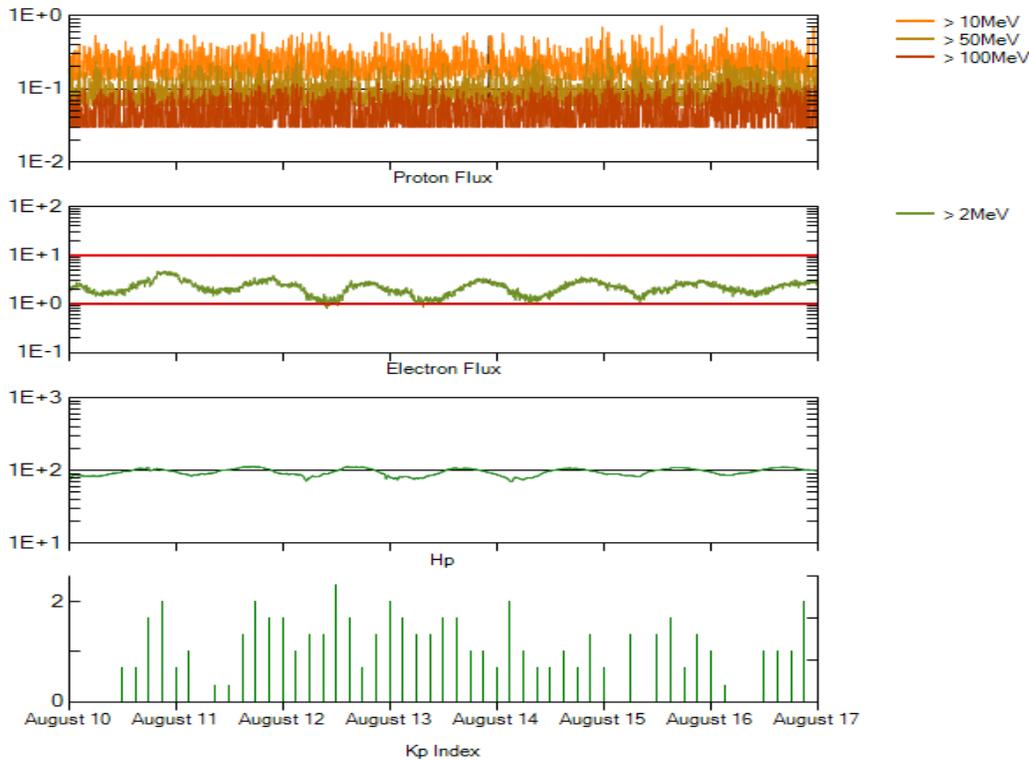
Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SEC	Ratio RI	Ratio RI/SEC	Smooth values SEC	Smooth values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
August	9.9	6.0	0.63	10.2	6.0	69.2	71.8	7	7.6
September	4.8	2.4	0.50	9.9	5.9	67.1	71.5	9	7.8
October	1.3	0.9	0.70	10.0	6.0	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	4.9	78.6	70.5	4	7.8
2008									
January	5.1	3.3	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	3.4	70.3	69.6	9	7.1
May	5.7	3.2	0.51	5.7	3.5	68.4	69.7	6	6.9
June	4.2	3.4	0.74	5.2	3.3	65.9	69.2	7	6.8
July	1.0	0.8	0.50	4.5	2.8	65.8	68.8	6	6.6
August	0.0	0.5	**	4.4	2.7	66.4	68.6	5	6.2
September	1.5	1.1	0.73	3.7	2.3	67.1	68.4	5	5.8
October	5.2	2.9	0.56	2.9	1.9	68.3	68.2	6	5.4
November	6.8	4.1	0.60	2.7	1.8	68.6	68.3	3	5.1
December	1.3	0.8	0.62	2.7	1.7	69.2	68.5	2	4.9
2009									
January	2.8	1.3	0.54	3.0	1.8	69.8	68.7	3	4.8
February	2.5	1.4	0.56			70.0		4	
March	0.7	0.7	1.00			69.2		4	
April	1.2	1.2	1.00			69.7		4	
May	3.9	2.9	0.74			70.6		4	
June	6.6	2.6	0.39			68.6		5	
July	5.0	3.5	0.70			68.3		5	

NOTE: All values are preliminary estimates except for RI Sunspot Numbers which are final values when available.

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 10 August 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.

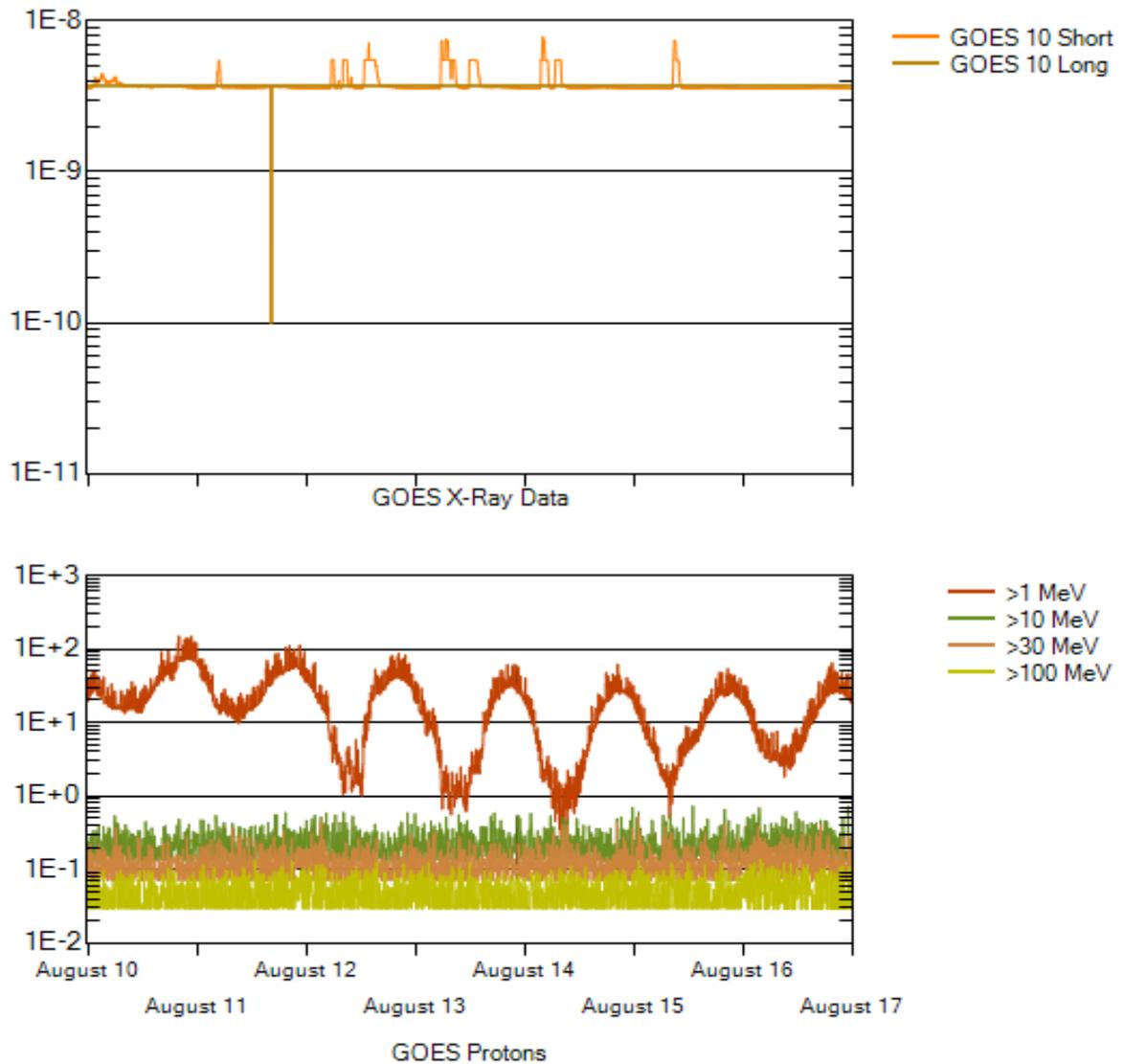
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-11.

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/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 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.

