

Space Weather Highlights
01 June - 07 June 2009

SWO PRF 1762
09 June 2009

Solar activity was very low. Isolated low-level B-class flares were observed during the period. The likely source for the flares was Region 1019 (N28, L=297, class/area Cro/080 on 01 June). Region 1019 began to gradually decay on 03 June and was downgraded to a spotless plage region on 06 June.

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 at all latitudes during the period.

Space Weather Outlook
10 June – 06 July 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 normal flux levels.

Geomagnetic field activity is expected to be at quiet conditions, with isolated unsettled levels possible on 10 June. Predominantly quiet conditions are expected during 11 – 29 June. Activity is expected to increase to quiet to unsettled levels on 30 June – 1 July. Predominantly quiet conditions are expected on 02 – 06 July.

Notice: On May 8, 2009 the Solar Cycle 24 Prediction Panel released a consensus decision on the prediction of the next solar cycle (Cycle 24). See <http://www.swpc.noaa.gov/SolarCycle/> for more details.



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	
01 June	73	23	80	A1.3	0	0	0	0	0	0	0	0	0
02 June	72	19	60	<A1.0	0	0	0	0	0	0	0	0	0
03 June	73	17	10	<A1.0	0	0	0	0	0	0	0	0	0
04 June	71	17	20	<A1.0	0	0	0	0	0	0	0	0	0
05 June	70	13	10	<A1.0	0	0	0	0	0	0	0	0	0
06 June	69	0	0	<A1.0	0	0	0	0	0	0	0	0	0
07 June	69	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
	01 June	4.7e+05	2.0e+04	4.6e+03		9.9e+04
02 June	5.9e+05	2.0e+04	4.8e+03		1.1e+05	
03 June	8.2e+05	2.0e+04	4.3e+03		1.3e+05	
04 June	4.9e+05	1.9e+04	4.1e+03		6.3e+04	
05 June	6.0e+05	2.0e+04	4.3e+03		5.3e+04	
06 June	4.5e+05	2.1e+04	4.5e+03		4.7e+04	
07 June	5.4e+05	2.0e+04	4.4e+03		5.1e+04	

Daily Geomagnetic Data

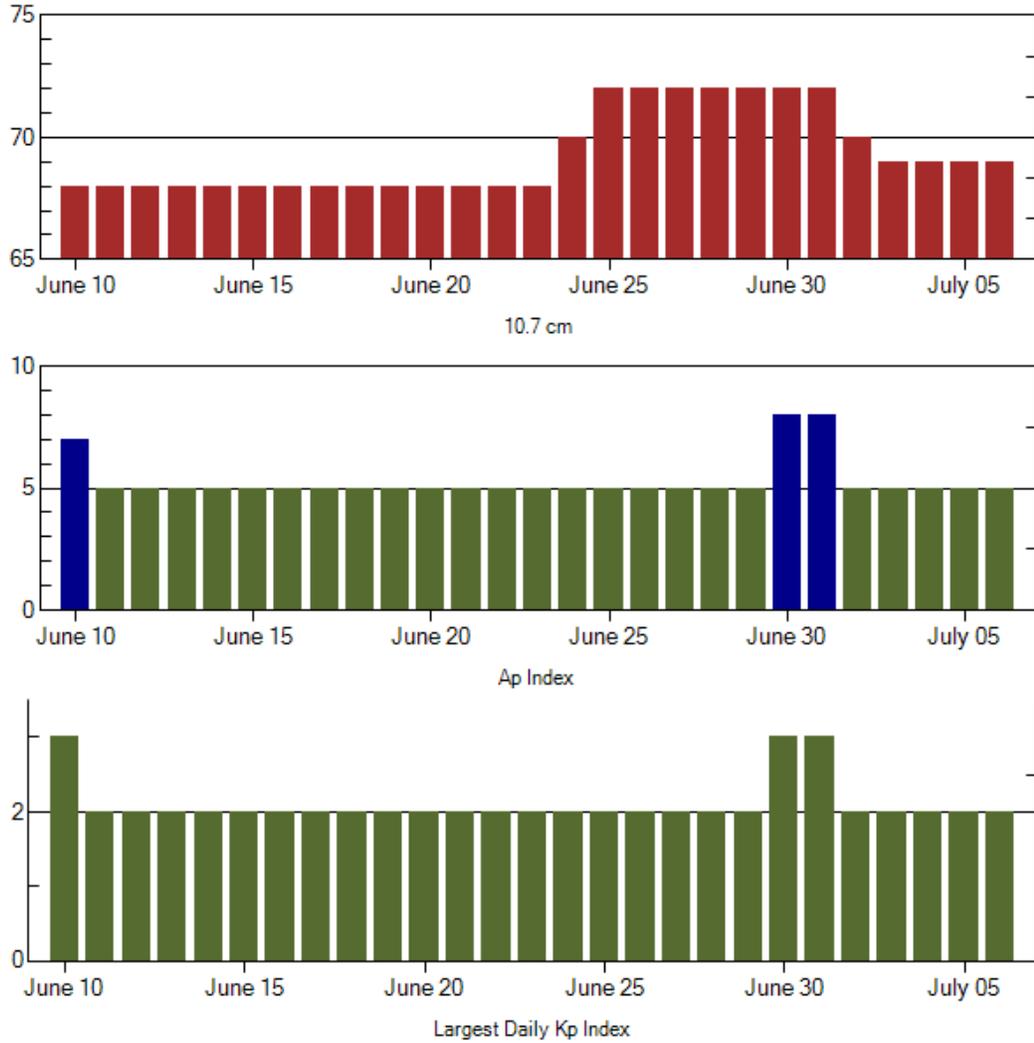
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	01 June	2	0-0-1-0-1-1-1-0	0	0-0-1-0-0-0-0-0	3
02 June	2	0-0-1-1-0-0-1-1	1	0-0-0-0-0-1-1-0	2	1-0-0-1-1-0-0-1
03 June	4	0-0-1-0-2-3-2-1	3	0-0-0-0-2-2-1-1	4	1-0-0-1-0-2-2-2
04 June	5	3-2-1-1-1-1-1-1	3	2-2-1-1-0-0-1-1	6	1-3-2-1-2-2-1-2
05 June	5	1-2-2-2-2-0-1-1	6	1-2-3-3-2-0-0-1	6	1-2-2-2-2-2-1-1
06 June	2	0-2-1-0-0-1-1-1	2	0-2-2-0-1-0-0-0	5	1-2-1-0-1-1-2-1
07 June	3	0-0-1-1-2-2-1-1	1	0-0-1-0-1-0-1-0	6	1-0-1-1-2-3-2-2

Alerts and Warnings Issued

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



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
10 Jun	68	7	3	24 Jun	70	5	2
11	68	5	2	25	72	5	2
12	68	5	2	26	72	5	2
13	68	5	2	27	72	5	2
14	68	5	2	28	72	5	2
15	68	5	2	29	72	5	2
16	68	5	2	30	72	8	3
17	68	5	2	01 Jul	72	8	3
18	68	5	2	02	70	5	2
19	68	5	2	03	69	5	2
20	68	5	2	04	69	5	2
21	68	5	2	05	69	5	2
22	68	5	2	06	69	5	2
23	68	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	
01 June	0804	0807	0815	B1.1			
02 June	0630	0639	0647	B1.1			
03 June	0005	0008	0011	B1.0			
	0740	0744	0751	B1.3			
	1831	1837	1840	B1.5			
04 June	No Flares Observed						
05 June	No Flares Observed						
06 June	0317	0323	0333	B2.6			
07 June	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 1019

31 May	N27E41	298	0030	04	BXO	005	B											
01 Jun	N28E29	297	0080	06	CRO	013	B											
02 Jun	N28E15	298	0060	06	BXO	009	B											
03 Jun	N26E03	296	0010	07	BXO	007	B											
04 Jun	N24W10	296	0020	06	BXO	007	B											
05 Jun	N24W23	296	0010	03	BXO	003	B											
06 Jun	N24W36	295	0000	00		000												
07 Jun	N24W49	295	0000	00		000												

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 296



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

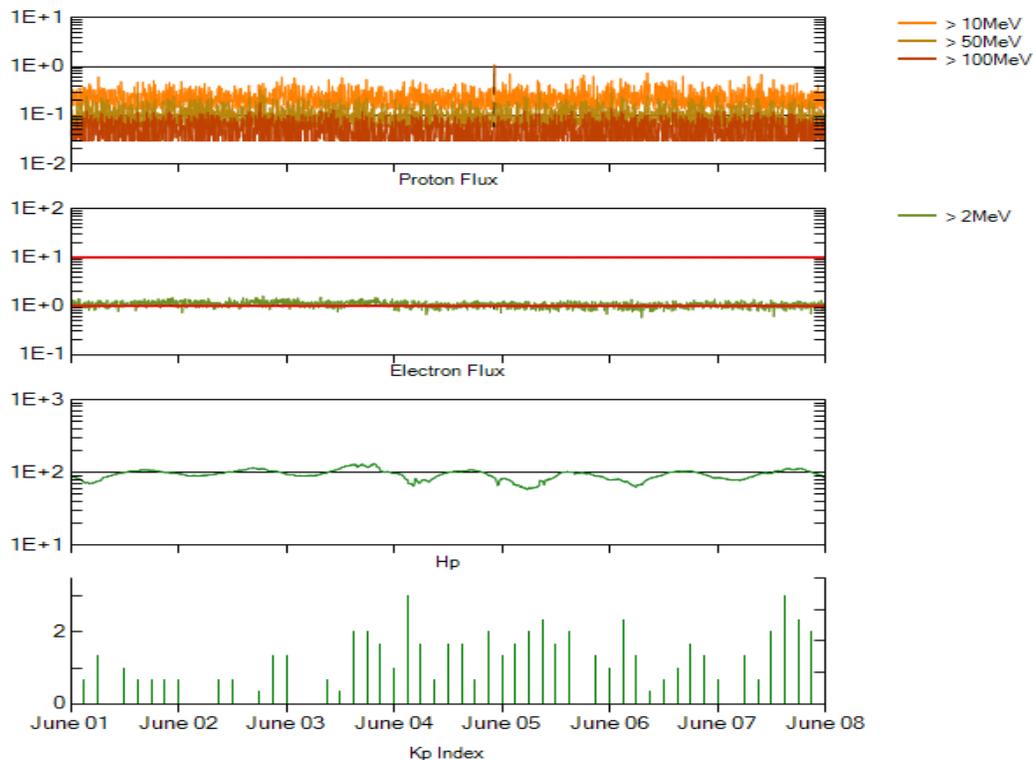
Month	Sunspot Numbers			Smooth values		Radio Flux		Geomagnetic	
	Observed SEC	values RI	Ratio RI/SEC	SEC	RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2007									
June	20.0	12.0	0.60	12.8	7.7	73.7	73.2	7	7.8
July	15.6	10.0	0.64	11.6	7.0	71.6	72.5	8	7.4
August	9.9	6.2	0.63	10.2	6.1	69.2	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	5.7	3.5	68.4	69.7	6	6.9
June	4.2	3.1	0.74	5.2	3.2	65.9	69.2	7	6.8
July	1.0	0.5	0.50	4.5	2.7	65.8	68.8	6	6.6
August	0.0	0.5	**	4.4	2.6	66.4	68.6	5	6.2
September	1.5	1.1	0.73	3.7	2.2	67.1	68.4	5	5.8
October	5.2	2.9	0.56	2.9	1.8	68.3	68.2	6	5.4
November	6.8	4.1	0.60	2.7	1.7	68.6	68.3	3	5.1
December	1.3	0.8	0.62			69.2		2	
2009									
January	2.8	1.5	0.54			69.8		3	
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	

NOTE: All smoothed and monthly values are preliminary estimates.

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 1 June 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.

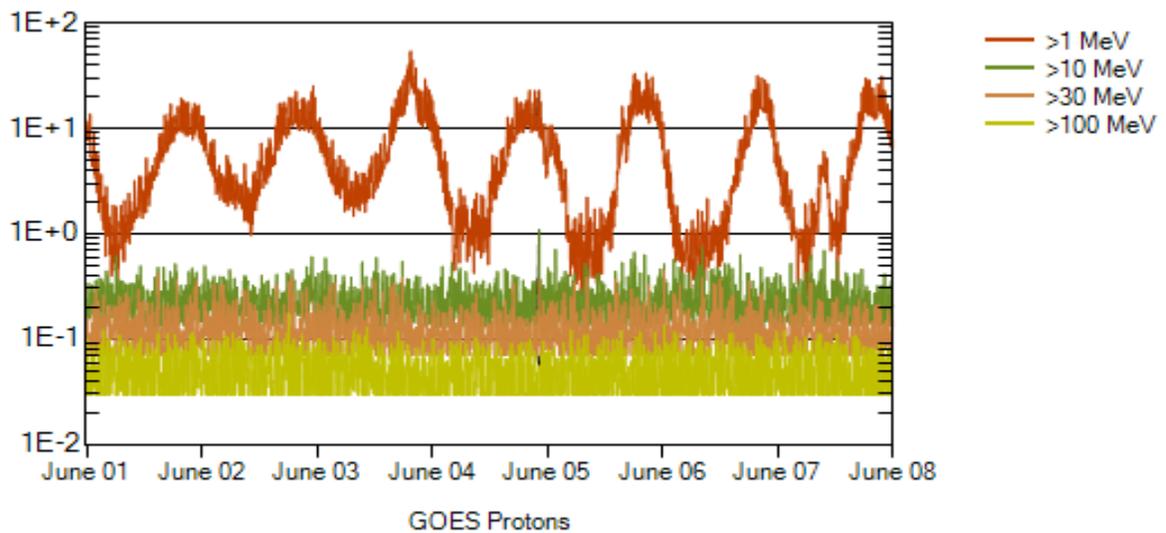
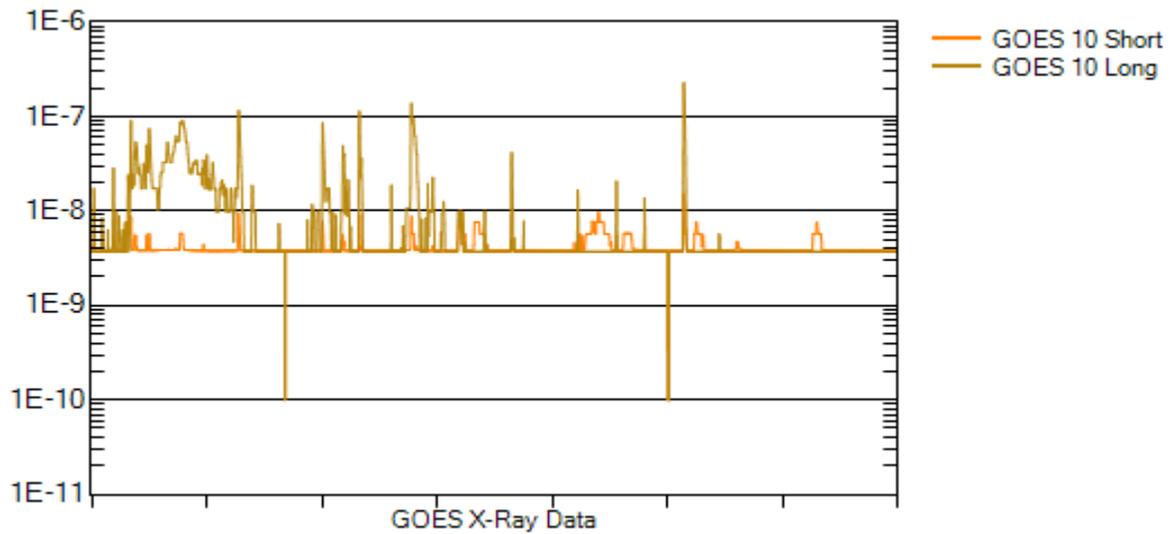
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-11 (W135).

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 (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.

