

Space Weather Highlights
08 June - 14 June 2009

SWO PRF 1763
16 June 2009

Solar activity was very low. No flares were detected. New-cycle polarity Region 1020 (N24, L=223, class/area Bxo/020 on 09 June) was numbered on 09 June. Region 1020 was inactive and decayed to plage on 13 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 quiet levels at all latitudes during most of the period. ACE solar wind measurements indicated minor changes during the period. Solar wind velocities ranged from 255 to 387 km/sec during the period.

Space Weather Outlook
17 June – 13 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 levels during most of the period. However, there will be a chance for unsettled conditions during 30 June – 01 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	
08 June	69	12	20	<A1.0	0	0	0	0	0	0	0	0	0
09 June	69	12	20	<A1.0	0	0	0	0	0	0	0	0	0
10 June	69	0	0	<A1.0	0	0	0	0	0	0	0	0	0
11 June	69	0	0	<A1.0	0	0	0	0	0	0	0	0	0
12 June	69	12	10	<A1.0	0	0	0	0	0	0	0	0	0
13 June	68	0	0	<A1.0	0	0	0	0	0	0	0	0	0
14 June	68	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
	08 June	3.7e+05	1.9e+04	4.2e+03		5.0e+04
09 June	5.8e+05	1.9e+04	4.4e+03		4.7e+04	
10 June	5.6e+05	1.9e+04	4.3e+03		5.6e+04	
11 June	6.3e+05	2.0e+04	4.6e+03		4.1e+04	
12 June	6.7e+05	1.9e+04	4.6e+03		5.4e+04	
13 June	7.1e+05	1.9e+04	4.5e+03		5.1e+04	
14 June	7.1e+05	2.0e+04	4.3e+03		4.5e+04	

Daily Geomagnetic Data

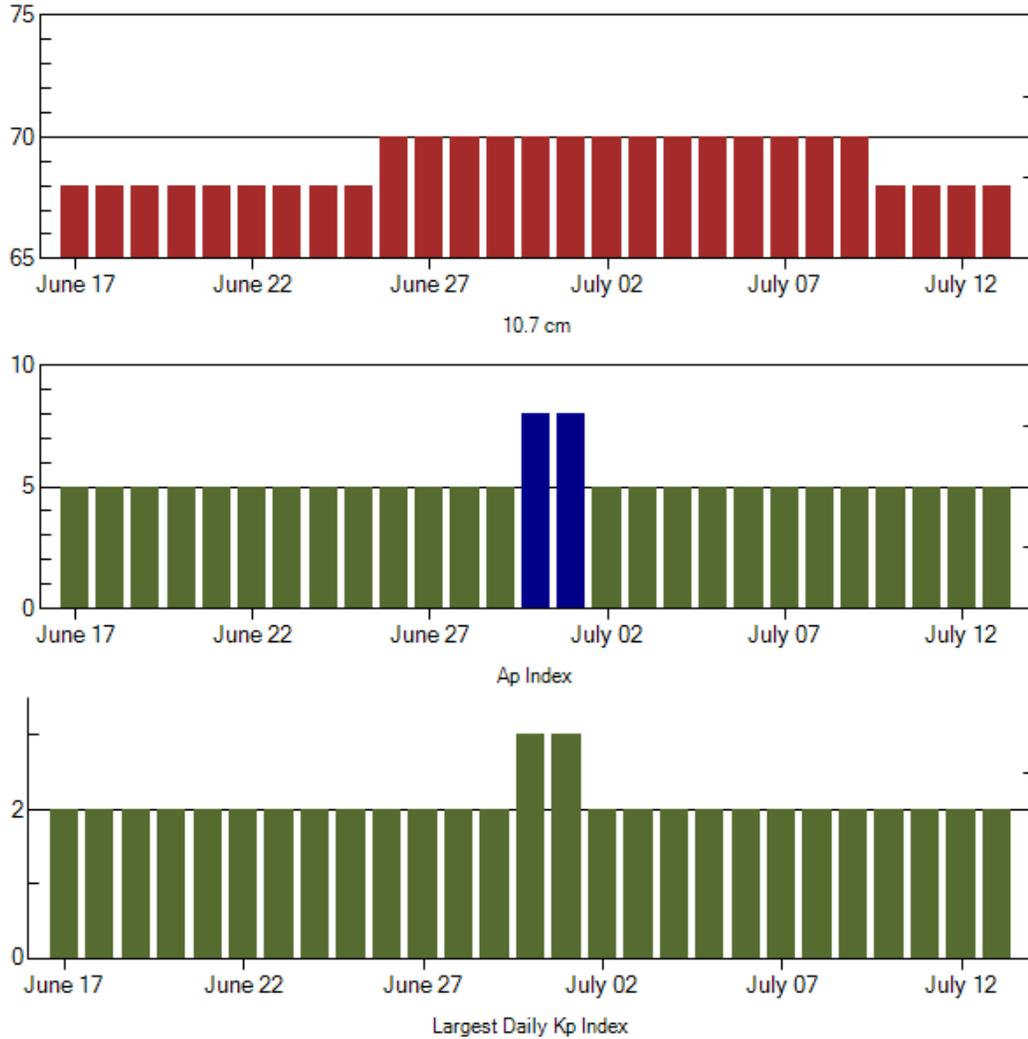
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	08 June	2	2-1-0-1-0-1-0-0	2	1-1-1-1-0-0-0-0	4
09 June	2	0-0-0-1-1-1-0-1	1	0-0-0-0-1-1-0-0	3	1-0-0-1-1-1-2-2
10 June	2	1-1-2-0-1-0-1-0	3	1-1-2-0-0-0-0-2	5	1-1-2-0-2-1-2-1
11 June	2	0-1-0-2-0-0-1-0	0	1-0-0-0-0-0-0-0	3	1-1-0-0-1-1-1-1
12 June	1	0-0-0-0-1-1-1-0	0	0-0-0-0-0-0-0-0	2	0-0-0-0-1-1-1-1
13 June	3	0-0-2-0-1-1-1-2	1	0-0-1-0-0-0-0-1	4	1-0-1-0-1-1-2-2
14 June	4	2-0-0-0-2-0-2-2	3	2-0-0-2-1-1-1-1	6	3-0-0-1-1-1-2-2

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
17 Jun	68	5	2	01 Jul	70	8	3
18	68	5	2	02	70	5	2
19	68	5	2	03	70	5	2
20	68	5	2	04	70	5	2
21	68	5	2	05	70	5	2
22	68	5	2	06	70	5	2
23	68	5	2	07	70	5	2
24	68	5	2	08	70	5	2
25	68	5	2	09	70	5	2
26	70	5	2	10	68	5	2
27	70	5	2	11	68	5	2
28	70	5	2	12	68	5	2
29	70	5	2	13	68	5	2
30	70	8	3				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Max	Class	Flux	Imp/ Brtns	Location Lat CMD	#	Radio Flux		Intensity
									245	2695	II
<i>No Events Observed</i>											

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn
	Begin	Max	End			Location Lat CMD	
08 June	No Flares Observed						
09 June	No Flares Observed						
10 June	No Flares Observed						
11 June	No Flares Observed						
12 June	No Flares Observed						
13 June	No Flares Observed						
14 June	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

Region 1019

31 May	N27E41	298	30	4	BXO	5	B											
01 Jun	N28E29	297	80	6	CRO	13	B											
02 Jun	N28E15	298	60	6	BXO	9	B											
03 Jun	N26E03	296	10	7	BXO	7	B											
04 Jun	N24W10	296	20	6	BXO	7	B											
05 Jun	N24W23	296	10	3	BXO	3	B											
06 Jun	N24W36	295																
07 Jun	N24W49	295																
08 Jun	N24W62	295																
09 Jun	N24W75	295																
10 Jun	N24W88	295																
																		0

Crossed West Limb.

Absolute heliographic longitude: 296

Region 1020

08 Jun	N22E07	225	20	3	BXO	2	B											
09 Jun	N24W05	223	20	3	BXO	2	B											
10 Jun	N24W18	223																
11 Jun	N24W31	224																
12 Jun	N25W46	226	10	2	HRX	2	A											
13 Jun	N25W59	226																
14 Jun	N25W72	226																
																		0

Still on Disk.

Absolute heliographic longitude: 223



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

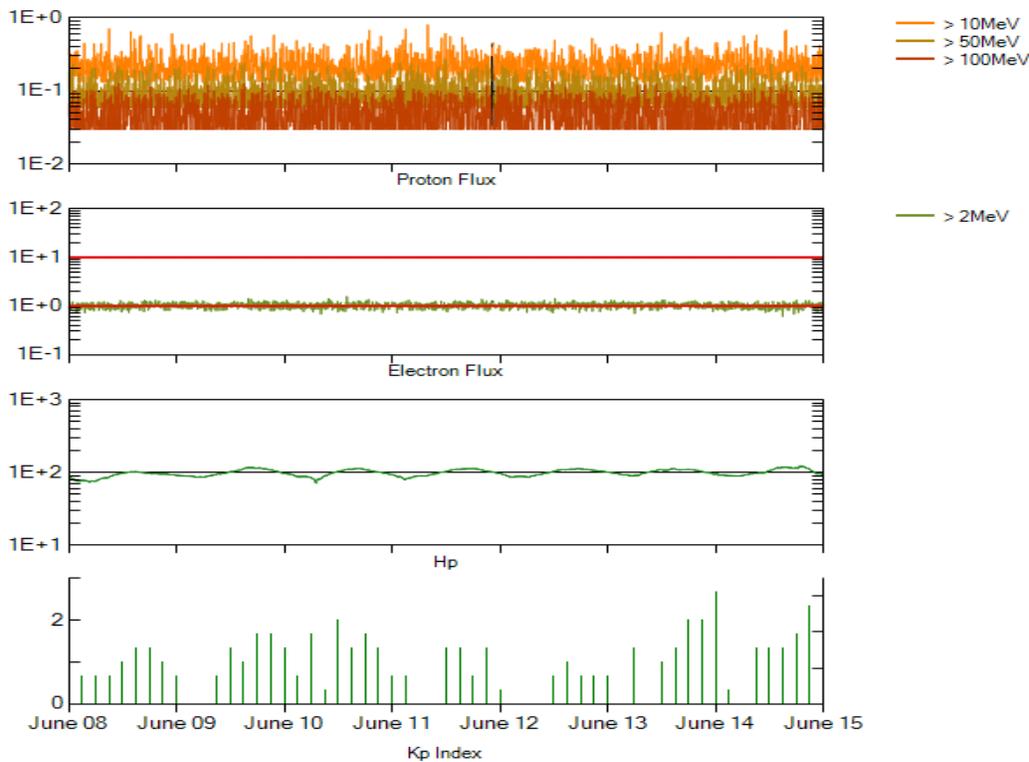
Month	Sunspot Numbers			Smooth values		Radio Flux		Geomagnetic	
	Observed SEC	values RI	Ratio RI/SEC	SEC	RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2007									
June	20.0	12.0	0.60	12.8	7.7	73.7	73.2	7	7.8
July	15.6	10.0	0.64	11.6	7.0	71.6	72.5	8	7.4
August	9.9	6.2	0.63	10.2	6.1	69.2	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 8 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.

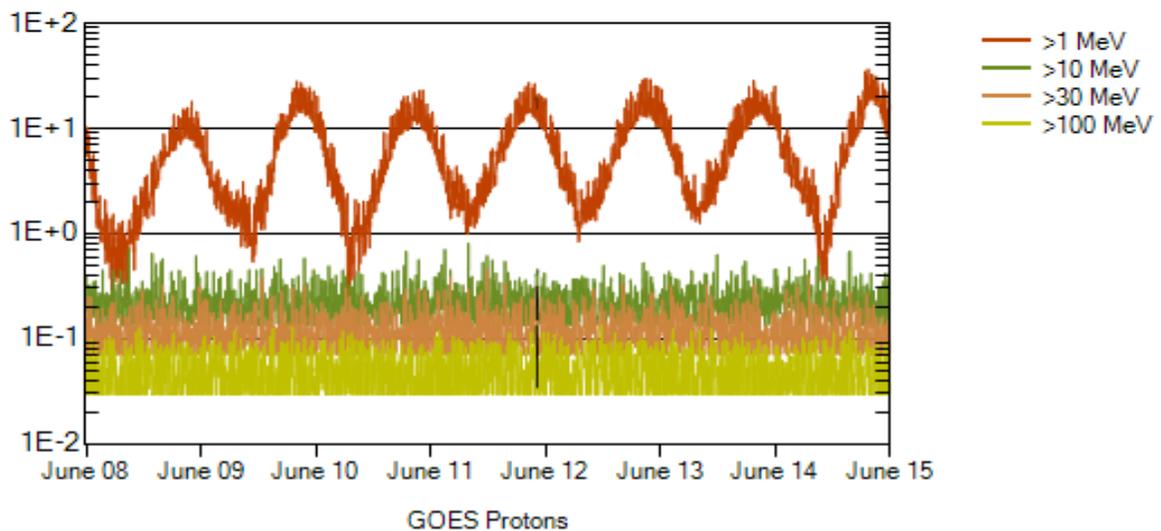
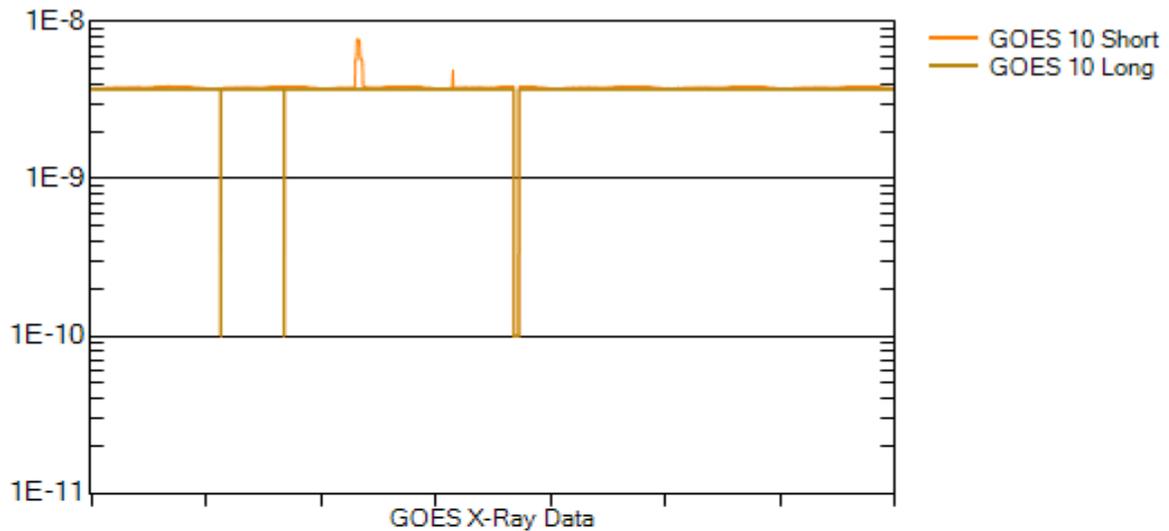
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-11 (W135).

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.

