

**Space Weather Highlights**  
**07 – 13 July 2008**

**SEC PRF 1715**  
**15 July 2008**

Solar activity was very low. No flares were detected. The visible disk was spotless.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux was at high levels on 13 July.

Geomagnetic field activity began the period at mostly quiet levels. Late on 11 July the geomagnetic field became active due to a co-rotating interaction region (CIR), ahead of a coronal hole high speed stream. Wind speed values increased from roughly 350 km/s on 07 July to values of over 500 km/s and interplanetary magnetic field Bz component varied between +/- 12 nT with the arrival of the CIR. As the coronal hole high speed stream became geoeffective on 12 July, wind speeds continued to increase to a maximum of around 730 km/s by the end of the summary period. The geomagnetic field was at quiet to minor storm levels on 12 July and then settled to quiet to active conditions on 13 July as the wind speed values leveled off.

**Space Weather Outlook**  
**16 July – 11 August 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 on 16 July, 19 - 21 July, and again on 09 - 11 August.

Geomagnetic field activity is expected to be at quiet to unsettled levels 16 - 18 July due to the current coronal hole high speed stream. On 19 - 21 July expect mostly quiet conditions as the high speed stream rotates out of a geoeffective position. A recurrent coronal hole high speed stream is expected to be geoeffective on 22 - 26 July, increasing activity levels to quiet to unsettled conditions with isolated active periods possible on 23 July. On 27 July to 06 August expect predominately quiet conditions as the Earth moves out of the influence of the coronal hole high speed stream. Another recurrent coronal hole high speed stream is expected to become geoeffective on 07 - 11 August. The geomagnetic field is expected to be at quiet to unsettled levels during this timeframe with minor storm conditions possible on 08 August and active conditions likely on 09 August.



### Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 <sup>-6</sup> hemi.)	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
07 July	66	0	0	<A1.0	0	0	0	0	0	0	0	0
08 July	66	0	0	<A1.0	0	0	0	0	0	0	0	0
09 July	66	0	0	<A1.0	0	0	0	0	0	0	0	0
10 July	65	0	0	<A1.0	0	0	0	0	0	0	0	0
11 July	66	0	0	<A1.0	0	0	0	0	0	0	0	0
12 July	65	0	0	<A1.0	0	0	0	0	0	0	0	0
13 July	65	0	0	<A1.0	0	0	0	0	0	0	0	0

### Daily Particle Data

Date	Proton Fluence (protons/cm <sup>2</sup> -day-sr)			Electron Fluence (electrons/cm <sup>2</sup> -day-sr)		
	>1 MeV	>10 MeV	>100 MeV	>.6 MeV	>2MeV	>4 MeV
07 July	8.2E+5	1.8E+4	4.2E+3		4.8E+6	
08 July	1.1E+6	1.9E+4	4.3E+3		5.4E+6	
09 July	1.2E+6	1.8E+4	4.6E+3		5.9E+6	
10 July	9.8E+5	1.8E+4	4.3E+3		4.7E+6	
11 July	1.6E+6	1.9E+4	4.3E+3		2.0E+6	
12 July	2.2E+6	1.7E+4	3.9E+3		4.3E+6	
13 July	2.2E+6	1.6E+4	3.5E+3		7.8E+7	

### Daily Geomagnetic Data

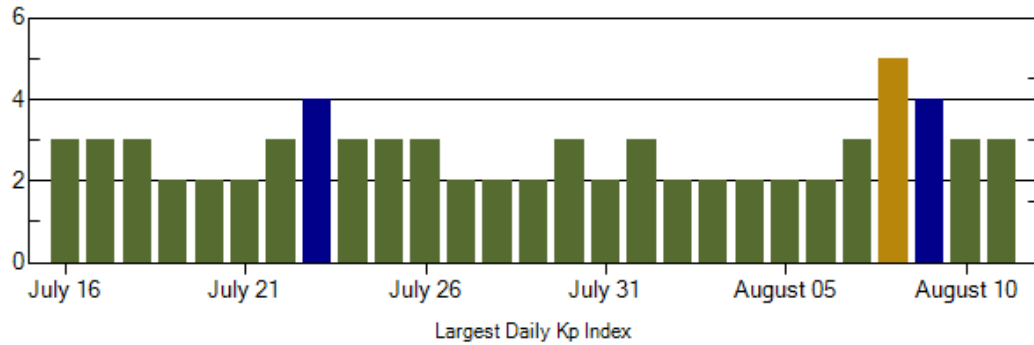
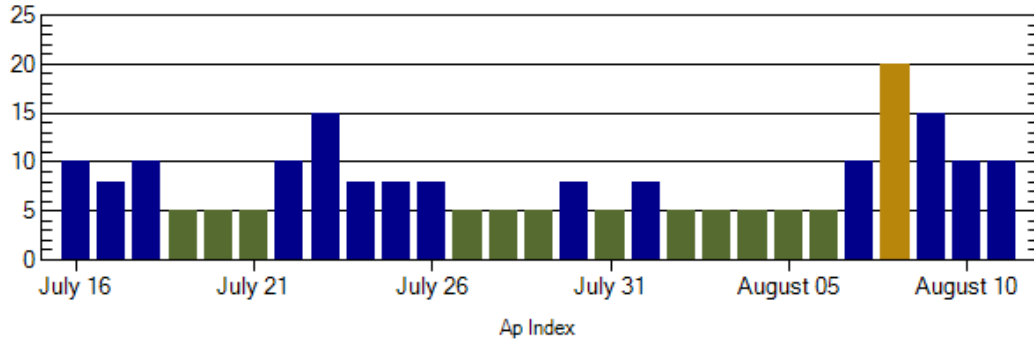
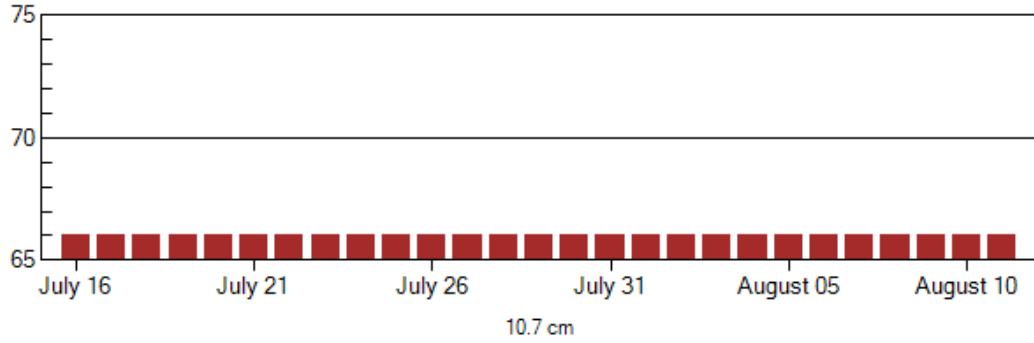
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	07 July	2	1-1-0-0-1-1-0-0	1	0-1-1-0-0-0-0-0	3
08 July	1	0-0-0-0-0-1-1-1	1	0-0-0-0-0-0-1-1	2	1-0-0-0-0-1-1-2
09 July	3	0-1-0-1-1-1-2-1	2	1-1-0-1-1-0-1-1	4	1-1-0-1-1-0-1-2
10 July	2	1-0-0-1-1-1-0-1	2	1-0-0-2-2-0-0-0	4	1-0-0-1-1-2-1-2
11 July	6	1-0-2-1-2-2-2-3	9	1-1-1-4-3-1-2-2	7	1-1-1-1-2-1-2-3
12 July	16	3-4-3-4-3-2-3-2	29	3-3-6-5-5-3-1-2	21	3-5-5-4-3-3-2-2
13 July	10	2-2-3-2-2-1-3-3	*	3-*-5-6-5-3-3-2	14	2-2-3-3-3-3-3-3

### Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
11 Jul 2333	WARNING: Geomagnetic K = 4	11 Jul 2345 – 12/1600
12 Jul 0003	ALERT: Geomagnetic K = 4	12 Jul 0000
12 Jul 0316	WARNING: Geomagnetic K = 5	12 Jul 0330 – 1600
12 Jul 0328	ALERT: Geomagnetic K = 5	12 Jul 0326
12 Jul 1422	EXTENDED WARNING: Geomagnetic K = 4	11 Jul 2345 – 12/2359
13 Jul 1156	ALERT: Electron 2MeV Integral Flux ≥1000pfu	13 Jul 1135
13 Jul 2000	WARNING: Geomagnetic K = 4	13 Jul 2000
13 Jul 2002	ALERT: Geomagnetic K = 4	13 Jul 2001



### 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
16 July	66	10	3	30 July	66	8	3
17	66	8	3	31	66	5	2
18	66	10	3	01 August	66	8	3
19	66	5	2	02	66	5	2
20	66	5	2	03	66	5	2
21	66	5	2	04	66	5	2
22	66	10	3	05	66	5	2
23	66	15	4	06	66	5	2
24	66	8	3	07	66	10	3
25	66	8	3	08	66	20	5
26	66	8	3	09	66	15	4
27	66	5	2	10	66	10	3
28	66	5	2	11	66	10	3
29	66	5	2				



***Energetic Events***

Date	Time		X-ray		Optical Information			Peak		Sweep Freq
	Begin	Max	Max	Integ	Imp/	Location	Rgn	Radio Flux		Intensity
					Brtns	Lat CMD	#	245	2695	II

***No Events Observed***

***Flare List***

Date	Time			Optical	Imp / Brtns	Location	Rgn
	Begin	Max	End	X-ray Class.		Lat CMD	
07 Jul	<b><i>No Flares Observed</i></b>						
08 Jul	<b><i>No Flares Observed</i></b>						
09 Jul	<b><i>No Flares Observed</i></b>						
10 Jul	<b><i>No Flares Observed</i></b>						
11 Jul	<b><i>No Flares Observed</i></b>						
12 Jul	<b><i>No Flares Observed</i></b>						
13 Jul	<b><i>No Flares Observed</i></b>						

***Region Summary***

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

***No Regions Reported***



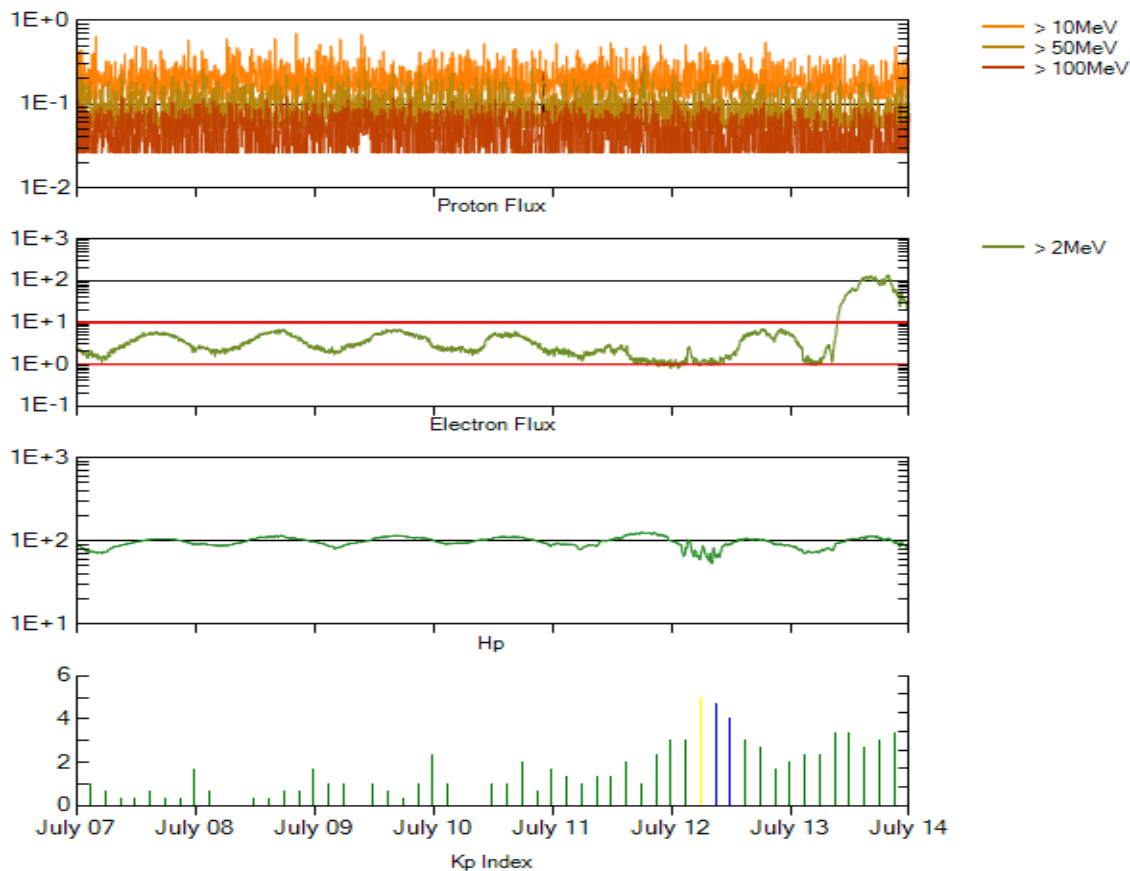
**Recent Solar Indices (preliminary)**  
**Of the observed monthly mean values**

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
<b>2006</b>									
July	22.6	12.2	0.54	27.2	15.3	75.8	80.3	7	8.7
August	22.8	12.9	0.57	27.6	15.6	79.0	80.3	9	8.7
September	25.2	14.5	0.58	27.7	15.6	77.8	80.2	8	8.7
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
<b>2007</b>									
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
<b>2008</b>									
January	5.1	3.4	0.67			72.1		6	
February	3.8	2.1	0.55			71.2		9	
March	15.9	9.3	0.58			72.9		10	
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	

**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.





*Weekly Geosynchronous Satellite Environment Summary  
Week Beginning 07 July 2008*

Protons plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by GOES-11 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

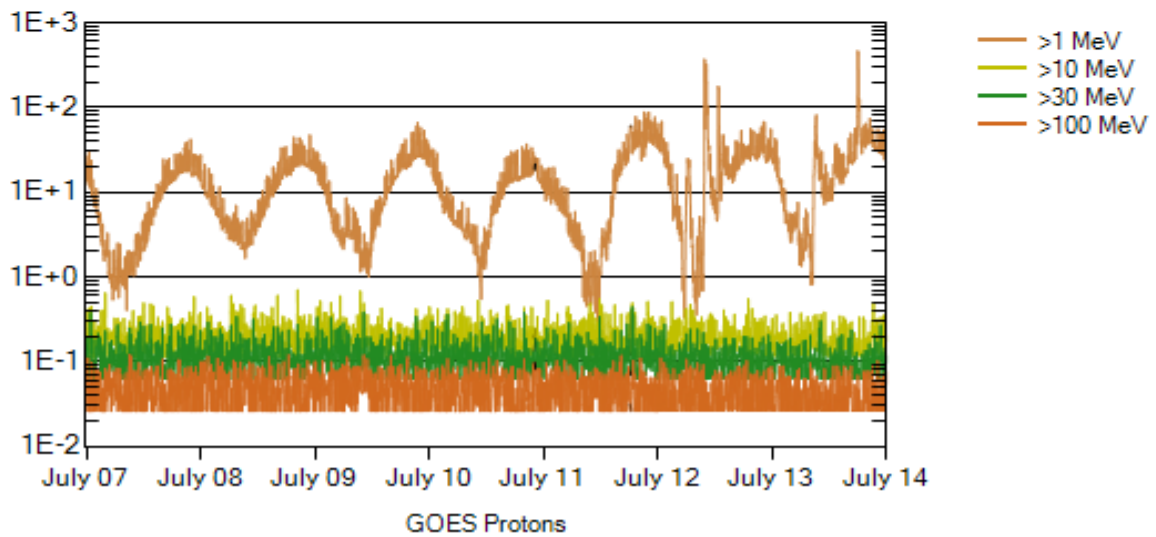
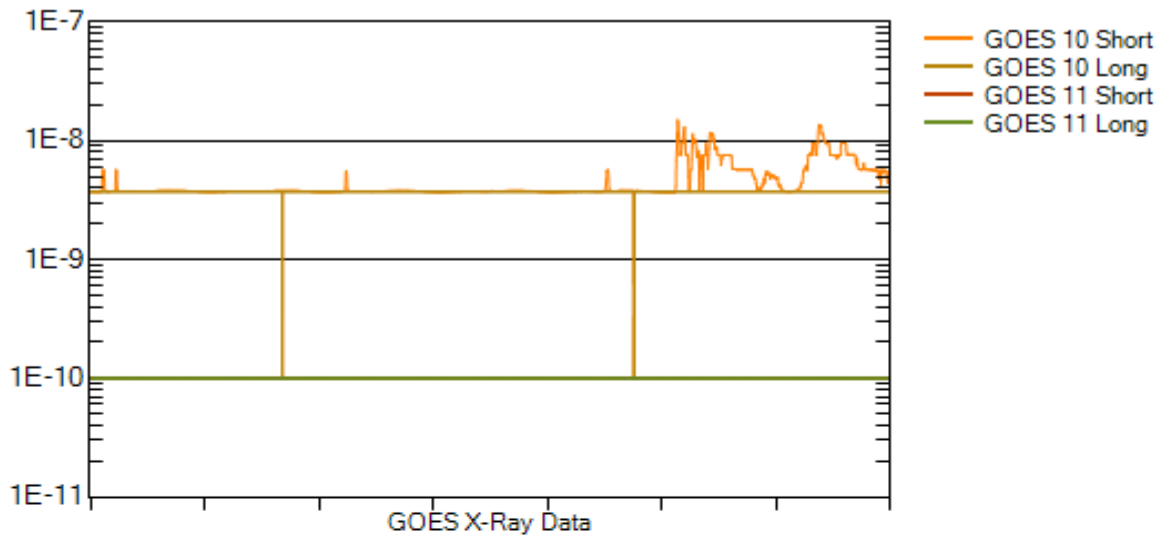
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

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 ( $\text{watts/m}^2$ ) 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.

