

Space Weather Highlights
14 – 20 July 2008

SEC PRF 1716
22 July 2008

Solar activity was very low. No flares were detected. Region 1000 (S12, L = 179, class/area Bxo/020 on 19 July) was the only spot group on the disk during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux was at high levels during 14 - 20 July.

Geomagnetic field activity was at quiet to unsettled levels during 14 - 16 July, though active to minor storm conditions were observed at high latitudes on 14 July. Activity decreased to quiet levels for the rest of the period. ACE solar wind data indicated Earth was under the influence of a waning recurrent coronal hole high-speed stream. Solar wind velocities gradually decreased from a high of 740 km/sec on 14 July to a low of 278 km/sec near the close of the period. Minor changes were noted in the interplanetary magnetic field during the period with Bz readings in the + 4 nT range and Bt in the 1 - 4 nT range.

Space Weather Outlook
23 July – 18 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 during 24 - 26 July and 09 - 17 August.

Geomagnetic field activity is expected to be at unsettled to active levels during 23 July with minor storm periods at high latitudes due to a recurrent coronal hole high speed stream. Activity is expected to decrease to quiet to unsettled levels on 24 July as coronal hole effects subside. Activity is expected to be at mostly quiet levels during 25 July - 06 August. Activity is expected to increase to unsettled levels on 07 August. A further increase to active levels is expected during 08 - 09 August with minor storm levels at high latitudes due to a recurrent coronal hole high-speed stream. Activity is expected to decrease to unsettled levels during 10 - 13 August as coronal hole effects subside. Quiet conditions are expected during 14 - 17 August. Activity is expected to increase to unsettled levels on the last day 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
14 July	66	0	0	<A1.0	0	0	0	0	0	0	0	0
15 July	66	0	0	<A1.0	0	0	0	0	0	0	0	0
16 July	65	0	0	<A1.0	0	0	0	0	0	0	0	0
17 July	65	0	0	<A1.0	0	0	0	0	0	0	0	0
18 July	65	11	10	<A1.0	0	0	0	0	0	0	0	0
19 July	66	12	20	<A1.0	0	0	0	0	0	0	0	0
20 July	66	11	10	<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
14 July	2.1E+6	1.7E+4	3.6E+3		3.2E+8	
15 July	3.3E+6	1.6E+4	3.6E+3		4.4E+8	
16 July	3.2E+6	1.7E+4	3.7E+3		4.5E+8	
17 July	2.5E+6	1.7E+4	3.8E+3		4.2E+8	
18 July	2.2E+6	1.7E+4	3.9E+3		4.2E+8	
19 July	2.5E+6	1.8E+4	3.9E+3		4.5E+8	
20 July	3.3E+6	1.7E+4	4.1E+3		3.9E+8	

Daily Geomagnetic Data

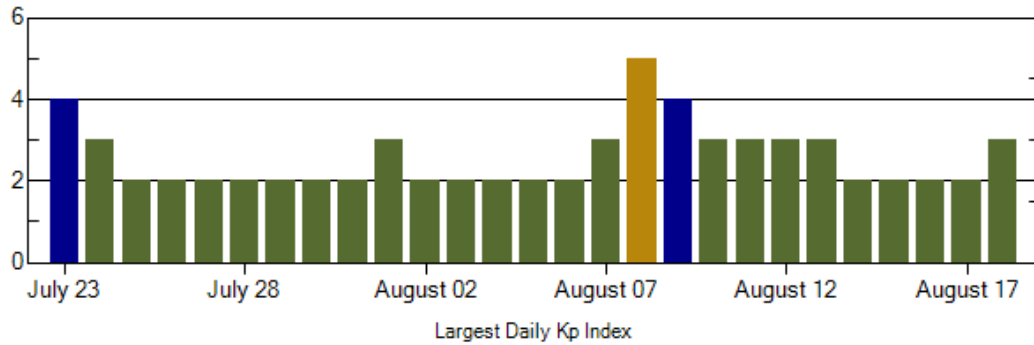
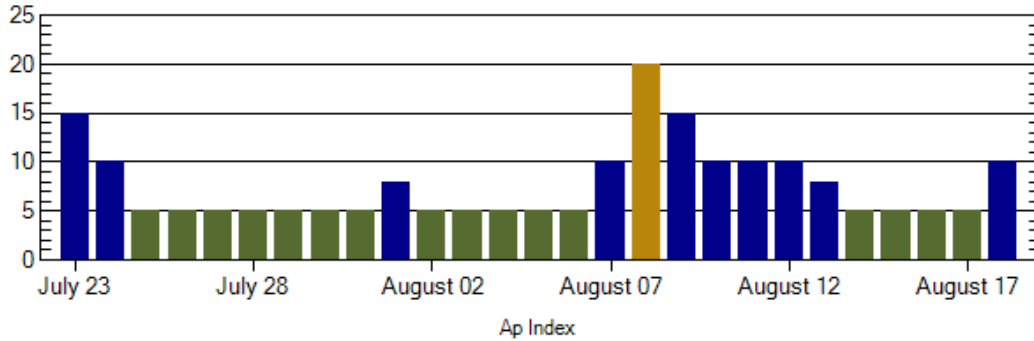
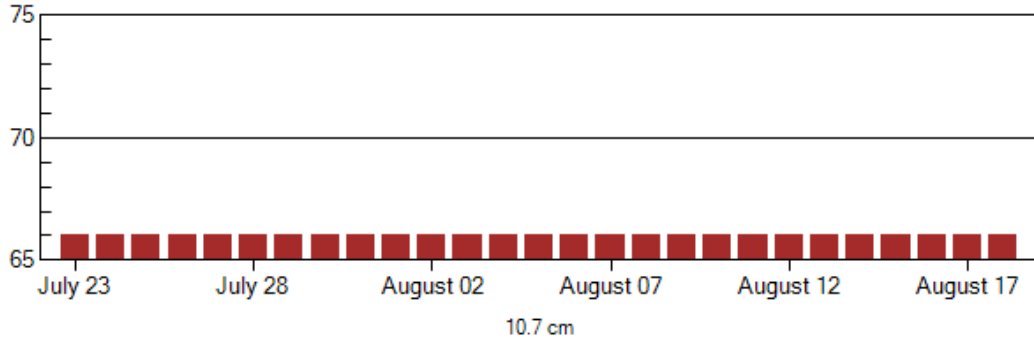
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	14 July	9	2-2-3-2-2-2-2-3	*	2-2-5-5-3-4-*-*	10
15 July	7	3-1-2-1-1-1-2-2	8	3-2-2-3-2-1-1-2	7	3-2-2-2-1-2-2-2
16 July	4	1-2-1-1-1-1-1-1	5	2-2-2-1-1-1-1-0	7	2-3-2-1-2-2-2-2
17 July	3	2-1-1-0-0-1-1-0	*	*-*-1-1-1-1-2-0	5	2-2-1-1-1-1-2-1
18 July	5	0-2-2-1-1-2-1-0	5	1-1-2-2-3-0-0-0	5	2-2-2-1-2-1-1-1
19 July	1	0-0-0-0-1-1-0-1	0	0-0-0-0-0-0-0-0	3	1-0-0-0-1-2-1-2
20 July	2	1-0-0-0-1-0-1-1	1	1-1-0-0-0-0-1-0	3	1-0-0-0-0-1-1-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
14 Jul 0914	ALERT: Electron 2MeV Integral Flux ≥1000pfu	14 Jul 0855
15 Jul 0510	ALERT: Electron 2MeV Integral Flux ≥1000pfu	15 Jul 0500
16 Jul 0508	ALERT: Electron 2MeV Integral Flux ≥1000pfu	16 Jul 0500
17 Jul 0511	ALERT: Electron 2MeV Integral Flux ≥1000pfu	17 Jul 0500
18 Jul 0505	ALERT: Electron 2MeV Integral Flux ≥1000pfu	18 Jul 0500
19 Jul 0512	ALERT: Electron 2MeV Integral Flux ≥1000pfu	19 Jul 0500
20 Jul 0510	ALERT: Electron 2MeV Integral Flux ≥1000pfu	20 Jul 0500



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
23 July	66	15	4	06 August	66	5	2
24	66	10	3	07	66	10	3
25	66	5	2	08	66	20	5
26	66	5	2	09	66	15	4
27	66	5	2	10	66	10	3
28	66	5	2	11	66	10	3
29	66	5	2	12	66	10	3
30	66	5	2	13	66	8	3
31	66	5	2	14	66	5	2
01 August	66	8	3	15	66	5	2
02	66	5	2	16	66	5	2
03	66	5	2	17	66	5	2
04	66	5	2	18	66	10	3
05	66	5	2				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	1/2		Integ		Imp/	Location		Radio Flux		Intensity		
	Begin	Max	Max	Class	Flux	Brtns	Lat	CMD	#	245	2695	II

No Events Observed

Flare List

Date	Time			Optical X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
14 Jul	<i>No Flares Observed</i>						
15 Jul	<i>No Flares Observed</i>						
16 Jul	<i>No Flares Observed</i>						
17 Jul	<i>No Flares Observed</i>						
18 Jul	<i>No Flares Observed</i>						
19 Jul	<i>No Flares Observed</i>						
20 Jul	<i>No Flares Observed</i>						

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 1000

18 Jul	S13E24	177	0010	01	Hrx	001	A											
19 Jul	S12E10	178	0020	02	Bxo	002	B											
20 Jul	S12W05	179	0010	01	Axx	001	A											

Still on Disk.

Absolute heliographic longitude: 179



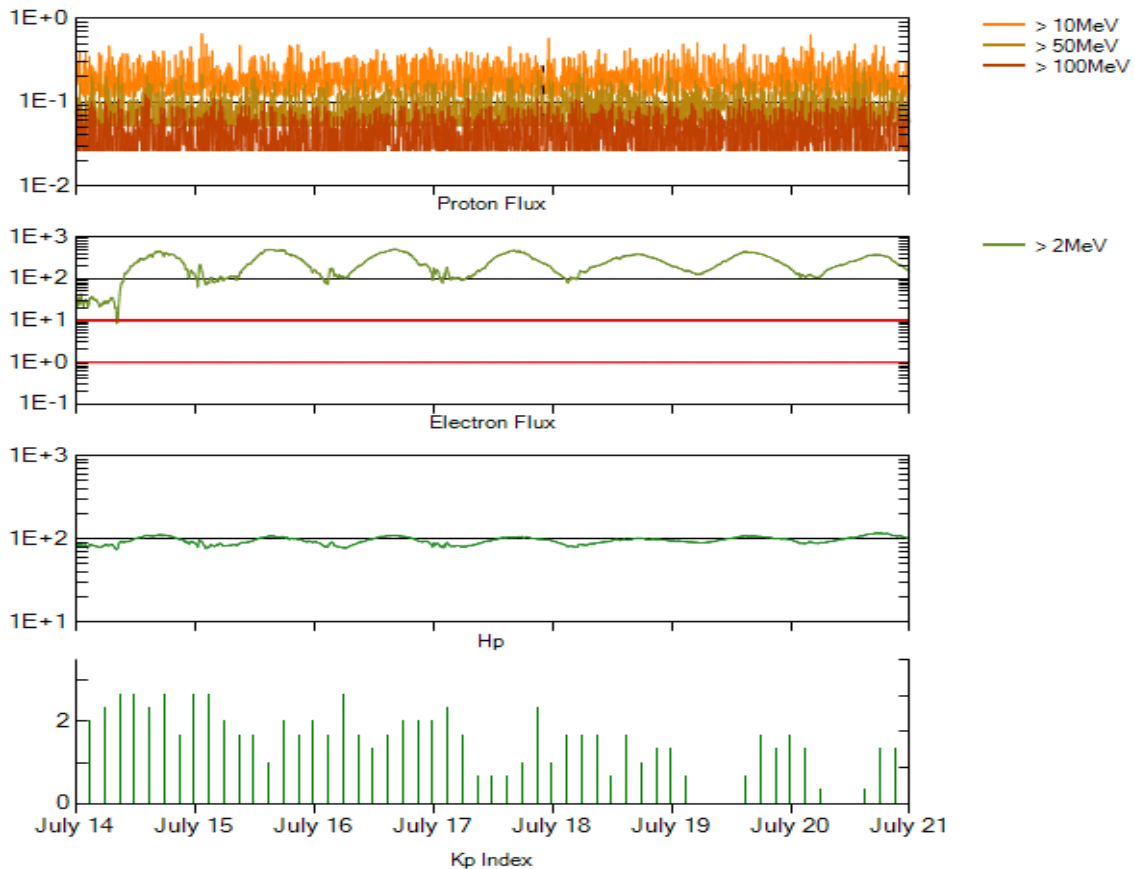
Recent Solar Indices (preliminary)
Of the observed monthly mean values

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed SEC	values RI	Ratio RI/SEC	Smooth SEC	values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2006									
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
2007									
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
2008									
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 14 July 2008*

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.

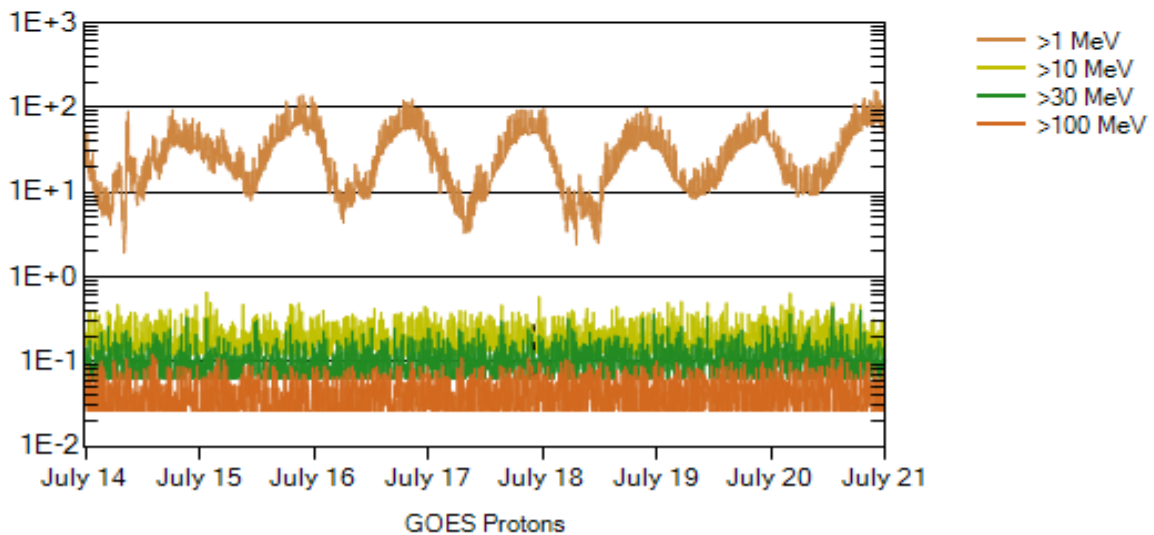
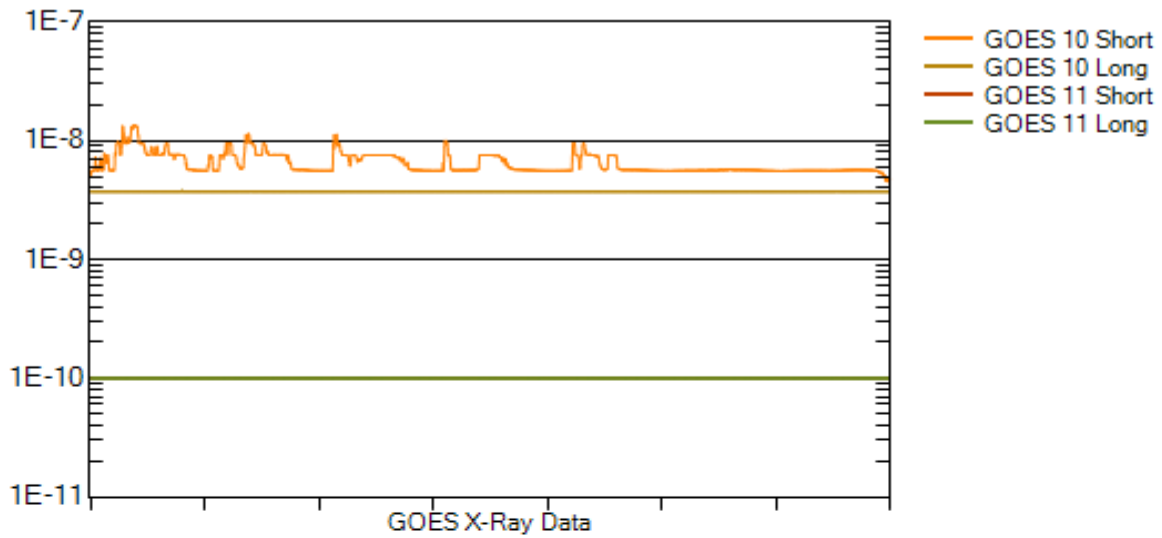
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

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 (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.

