Space Weather Highlights **SEC PRF 1668**
13 August – 19 August 2007 **21 August 2007**

Solar activity was very low with no flare activity observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels during 13 – 14 August.

Geomagnetic field activity ranged from quiet to unsettled levels during most of the period. ACE solar wind data indicated a recurrent coronal hole wind stream occurred during 15 – 17 August, but had little effect on the geomagnetic field. A co-rotating interaction region (CIR) preceded the onset of the stream and was associated with a solar sector boundary shift (away (+) to toward (-)) as well as a short-lived density increase (peak 46.3 p/cc at 15/0046 UTC). The CIR was also associated with increased IMF Bt (peak 9.6 nT at 15/0220 UTC) and increased IMF Bz variability (minimum -6.3 nT at 15/0155 UTC). The recurrent wind stream commenced early on 15 August and eventually reached a peak of 486.4 km/sec at 15/1017 UTC, then gradually decreased during the remainder of the summary period.

Space Weather Outlook
22 August – 17 September 2007

Solar activity is expected to be at very low levels.

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 28 August – 10 September.

Quiet to unsettled conditions are expected during 22 – 24 August. A recurrent high-speed stream is expected to disturb the field during 25 – 28 August with unsettled to active conditions expected. Activity is expected to decrease to quiet to unsettled levels during 29 August – 02 September. Activity is expected to increase to unsettled to minor storm levels on 03 September due to a recurrent coronal hole high-speed stream. Activity is expected to decrease to quiet to unsettled levels during 04 – 05 September. Unsettled to active conditions are expected during 06 – 07 September as another recurrent high-speed stream disturbs the field. Activity is expected to decrease to quiet to unsettled levels for the rest 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 C	M	X	Optical S	1	2	3	4
13 August	68	13	20	<A1.0	0	0	0	0	0	0	0	0
14 August	69	14	20	<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	67	0	0	<A1.0	0	0	0	0	0	0	0	0
17 August	68	0	0	<A1.0	0	0	0	0	0	0	0	0
18 August	68	0	0	<A1.0	0	0	0	0	0	0	0	0
19 August	68	0	0	<A1.0	0	0	0	0	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm^2-day-sr) >1 MeV	>10 MeV	>100 MeV	Electron Fluence (electrons/cm^2-day-sr) >.6 MeV	>2MeV	>4 MeV
13 August	3.1E+6	1.7E+4	4.0E+3		1.0E+8	
14 August	4.5E+6	1.8E+4	4.0E+3		1.1E+8	
15 August	2.0E+6	1.8E+4	4.1E+3		2.8E+7	
16 August	8.6E+5	1.8E+4	3.9E+3		1.9E+7	
17 August	7.9E+5	1.8E+4	4.2E+3		1.7E+7	
18 August	7.6E+5	1.8E+4	4.2E+3		2.2E+7	
19 August	7.4E+5	1.8E+4	4.2E+3		2.6E+7	

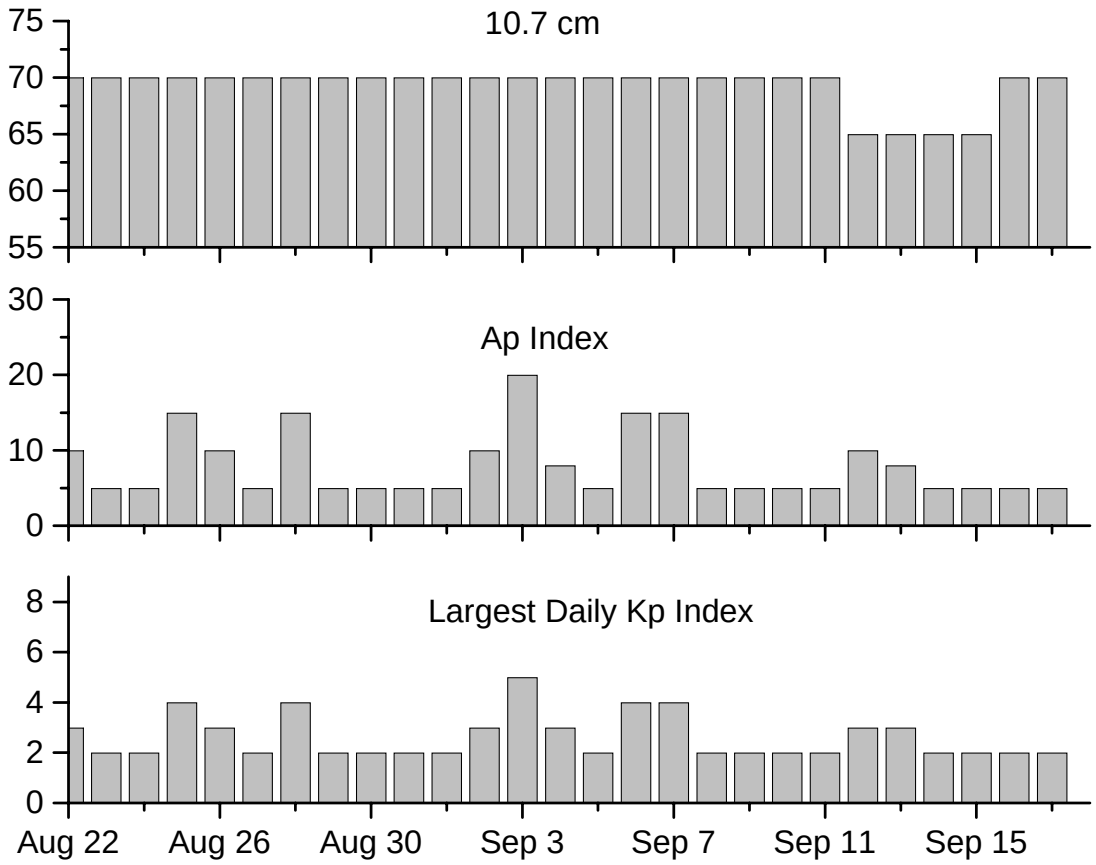
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	K-indices	High Latitude College A	K-indices	Estimated Planetary A	K-indices
13 August	2	1-1-0-0-0-1-0-1	2	1-1-0-0-0-0-0-2	3	1-1-0-0-1-1-0-2
14 August	3	1-0-1-0-1-0-1-3	2	1-0-1-0-1-1-1-1	6	1-1-1-1-1-2-1-3
15 August	6	2-2-1-1-2-2-2-2	9	2-2-1-4-3-2-1-1	8	3-3-1-1-2-2-2-2
16 August	6	2-1-2-3-1-1-2-1	6	2-2-3-3-0-0-1-0	7	2-2-2-3-1-1-1-2
17 August	2	1-1-0-0-1-1-1-1	2	2-1-0-0-0-0-1-1	5	2-1-0-0-1-1-2-2
18 August	1	2-0-0-0-0-0-0-0	0	1-0-0-0-0-0-0-0	4	2-0-0-0-1-1-1-2
19 August	2	0-0-0-1-2-1-0-0	2	0-0-0-0-2-1-0-1	3	0-0-0-1-2-2-0-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
13 Aug 0937	ALERT: Electron 2MeV Integral Flux ≥1000pfu	13 Aug 0920
14 Aug 1048	ALERT: Electron 2MeV Integral Flux ≥1000pfu	14 Aug 1025

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
22 Aug	70	10	3	05 Sep	70	5	2
23	70	5	2	06	70	15	4
24	70	5	2	07	70	15	4
25	70	15	4	08	70	5	2
26	70	10	3	09	70	5	2
27	70	5	2	10	70	5	2
28	70	15	4	11	70	5	2
29	70	5	2	12	65	10	3
30	70	5	2	13	65	8	3
31	70	5	2	14	65	5	2
01 Sep	70	5	2	15	65	5	2
02	70	10	3	16	70	5	2
03	70	20	5	17	70	5	2
04	70	8	3				

Energetc Events

Date	Time Begin	Time Max	Time ½ Max	X-ray Class	X-ray Integ Flux	Optical Information Imp/ Brtns	Optical Information Location Lat CMD	Optical Information Rgn #	Peak Radio Flux 245	Peak Radio Flux 2695	Sweep Freq Intensity II	Sweep Freq Intensity IV
No Events Observed												

Flare List

Date	Time Begin	Time Max	Time End	Optical X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn
13 August	***No Flares Observed***						
14 August	1744	1747	1749	B1.4			
15 August	***No Flares Observed***						
16 August	***No Flares Observed***						
17 August	2306	2312	2321	B1.2			
18 August	1121	1136	1147	B3.3			
	2234	2238	2244	B1.0			
19 August	***No Flares Observed***						

Region Summary

Date	Location (° Lat ° CMD)	Location Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
	Region 966														
03 Aug	S04E74	066	0010	01	Hsx	001	A								
04 Aug	S05E62	064	0030	02	Hsx	001	A								
05 Aug	S07E46	067	0010	02	Axx	001	A								
06 Aug	S06E34	065	0030	04	Dso	006	B	2			4	1			
07 Aug	S06E21	065	0020	02	Hsx	003	A								
08 Aug	S06E07	066	0040	03	Dso	004	B								
09 Aug	S06W07	067	0040	03	Cso	004	B								
10 Aug	S06W20	067	0030	03	Cro	004	B								
11 Aug	S08W33	066	0020	03	Bxo	003	B								
12 Aug	S06W47	067	0010	01	Axx	001	A								
13 Aug	S06W60	067													
14 Aug	S06W73	067													
15 Aug	S06W86	067													
								2	0	0	4	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 066

Region Summary – continued.

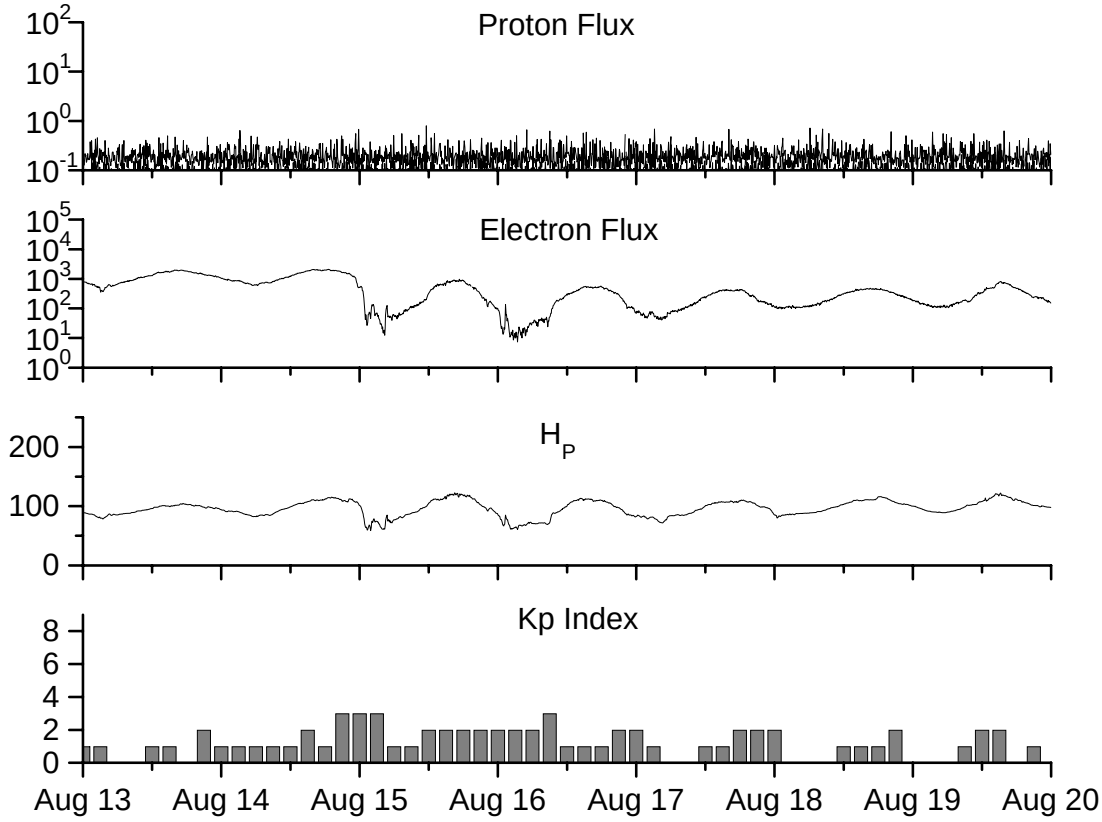
Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
	Region 968														
13 Aug	N03W19	026	0020	04	Bxo	003	B								
14 Aug	N05W28	022	0020	04	Bxo	004	B								
15 Aug	N05W41	022													
16 Aug	N05W54	022													
17 Aug	N05W67	022													
18 Aug	N05W80	022													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 026

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

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
Month	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
				2005					
August	65.6	36.4	0.55	45.4	27.5	90.7	89.3	16	12.2
September	39.2	22.1	0.56	42.9	25.9	90.8	87.8	21	11.8
October	13.0	8.5	0.65	42.6	25.5	76.7	87.4	7	11.6
November	32.2	18.0	0.56	42.1	24.9	86.3	86.7	8	11.1
December	62.6	41.2	0.66	40.1	23.0	90.8	85.4	7	10.4
				2006					
January	28.0	15.4	0.55	37.2	20.8	83.8	84.0	6	9.9
February	5.3	4.7	0.89	33.4	18.7	76.6	82.6	6	9.2
March	21.3	10.8	0.51	31.0	17.4	75.5	81.6	8	8.4
April	55.2	30.2	0.55	30.6	17.1	89.0	80.9	11	7.9
May	39.6	22.2	0.56	30.7	17.3	81.0	80.8	8	7.9
June	37.7	13.9	0.37	28.9	16.3	80.1	80.6	9	8.3
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			77.8		6	
March	9.7	4.8	0.49			72.3		7	
April	6.9	3.7	0.54			72.4		9	
May	19.4	11.7	0.60			74.5		8	
June	20.0	12.0	0.60			73.7		7	
July	15.6	10.0	0.64			71.6		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 13 August 2007

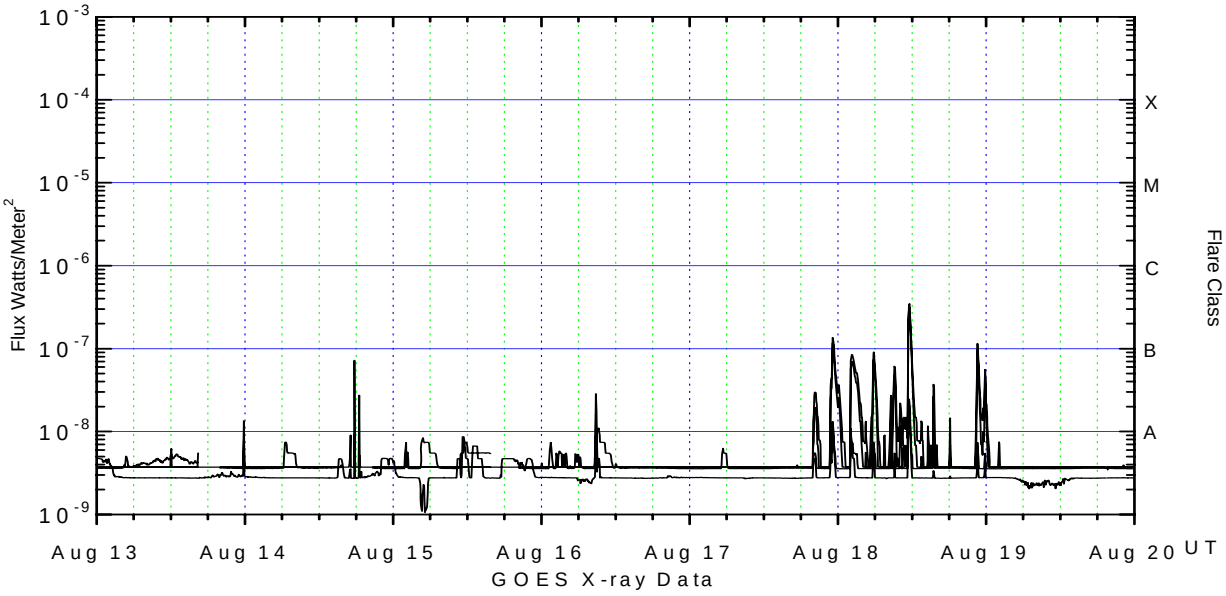
Protons plot contains the five-minute averaged integral proton flux (protons/cm^2 –sec –sr) as measured by GOES-11 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

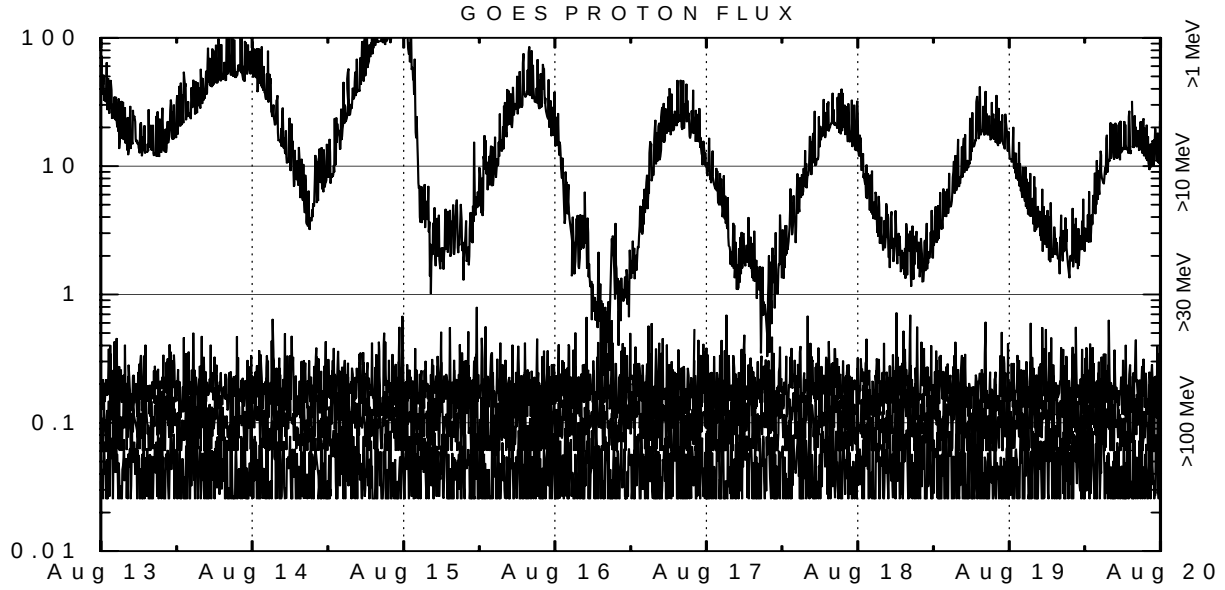
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm^2 –sec –sr) with energies greater than 2 MeV at GOES-12 (W075).

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 (protons/cm^2 –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 (protons/cm^2-sec-sr) at greater than 10 MeV.