

Space Weather Highlights
07 – 13 August 2006

SEC PRF 1615
15 August 2006

Solar activity was at very low to low levels. Since rotating onto the disk on 09 August, new Region 904 (S13, L=120, class/area, Eki/750 on 12 August) produced five C-class flares. The largest of these was a C4.2/sf at 10/1808 UTC. The region developed into a complex beta-gamma magnetic configuration within a short time after rotating onto the disk. By 13 August, magnetic complexity weakened slightly due to the consolidation of the two leader spots; however, the trailing spot exhibited small areas of mixed polarity allowing for a beta-gamma magnetic classification.

No greater than 10 MeV proton events were observed.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 08 – 13 August.

The geomagnetic field was at quiet to severe storm levels. Solar wind speed ranged from a high of about 650 km/s late on 07 August to a low of 310 km/s late on 13 August. Other than a 12-hour period beginning at 07/0000 UTC, the Bz component of the IMF did not vary much beyond +/- 3 nT for the entire period. As a result, the geomagnetic field was mostly quiet to unsettled for most of the period. Early on 07 August, wind speed and temperature began a slow increase, all due to a solar sector boundary crossing in advance of a recurrent coronal hole wind stream. Solar wind speed at ACE increased to a maximum of 650 km/s late on 07 August before beginning a slow decline. The IMF Bz fluctuated between +11 and - 15 nT, and as a result, minor to severe storm conditions were observed from 07/0900 – 07/1800 UTC at high latitudes while active to minor storm conditions were observed at middle latitudes. On 08 August, active to major storm periods were observed at high latitudes with quiet to active conditions at middle latitudes. After mid-day on 09 August, conditions decreased to quiet to unsettled and remained so until the end of the summary period.

Space Weather Outlook
16 August – 11 September 2006

Solar activity is expected to be at very low to low levels with a slight chance of isolated M-flares from Region 904 until it rotates off the visible disk on 21 August.

No greater than 10 MeV proton events are expected.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 04 – 11 September.

The geomagnetic field is expected to be mostly quiet to unsettled for the majority of the forecast period. Recurrent coronal hole high speed wind streams are expected to rotate into geoeffective positions on 24 August, 28 August, and again on 03 – 04 September. Active to minor storm periods are possible on 24 August. Unsettled to active periods are possible on 28 August. Active to major storm conditions are possible on 03 -04 September.



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	
07 August	70	0	0	<A1.0	0	0	0	0	0	0	0	0	0
08 August	71	12	40	A2.8	0	0	0	0	0	0	0	0	0
09 August	74	25	110	A7.6	0	0	0	0	0	0	0	0	0
10 August	80	37	310	B1.6	1	0	0	7	0	0	0	0	0
11 August	84	39	650	B2.4	4	0	0	1	0	0	0	0	0
12 August	85	27	750	A7.8	0	0	0	0	0	0	0	0	0
13 August	86	26	680	B1.2	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
	07 August	1.2E+6	1.7E+4	3.5E+3		3.8E+6
08 August	8.6E+5	1.6E+4	3.3E+3		1.8E+8	
09 August	8.2E+5	1.6E+4	3.4E+3		3.6E+8	
10 August	8.4E+5	1.6E+4	3.7E+3		4.9E+8	
11 August	5.1E+5	1.6E+4	3.6E+3		2.8E+8	
12 August	5.6E+5	1.6E+4	3.7E+3		3.6E+8	
13 August	6.9E+5	1.6E+4	3.8E+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
	07 August	19	3-3-5-4-3-2-3-2	52	3-4-6-7-6-5-3-2	32
08 August	10	2-3-4-2-2-1-2-1	36	4-3-6-6-5-4-2-1	12	2-3-4-3-3-2-2-1
09 August	9	2-3-1-3-3-1-1-2	14	2-2-1-5-4-2-1-2	9	2-3-1-3-2-1-1-3
10 August	4	1-1-0-0-1-1-1-2	2	1-1-0-0-1-0-1-2	5	1-1-0-0-1-2-0-3
11 August	3	1-1-1-1-1-2-0-1	8	2-2-1-3-3-2-1-1	6	2-1-2-1-2-2-2-2
12 August	4	2-2-1-1-1-1-1-1	10	2-2-3-3-3-3-0-1	8	2-3-2-2-1-2-1-1
13 August	2	2-0-0-0-1-1-1-0	0	0-0-0-1-0-0-0-0	2	0-0-0-0-1-1-1-1

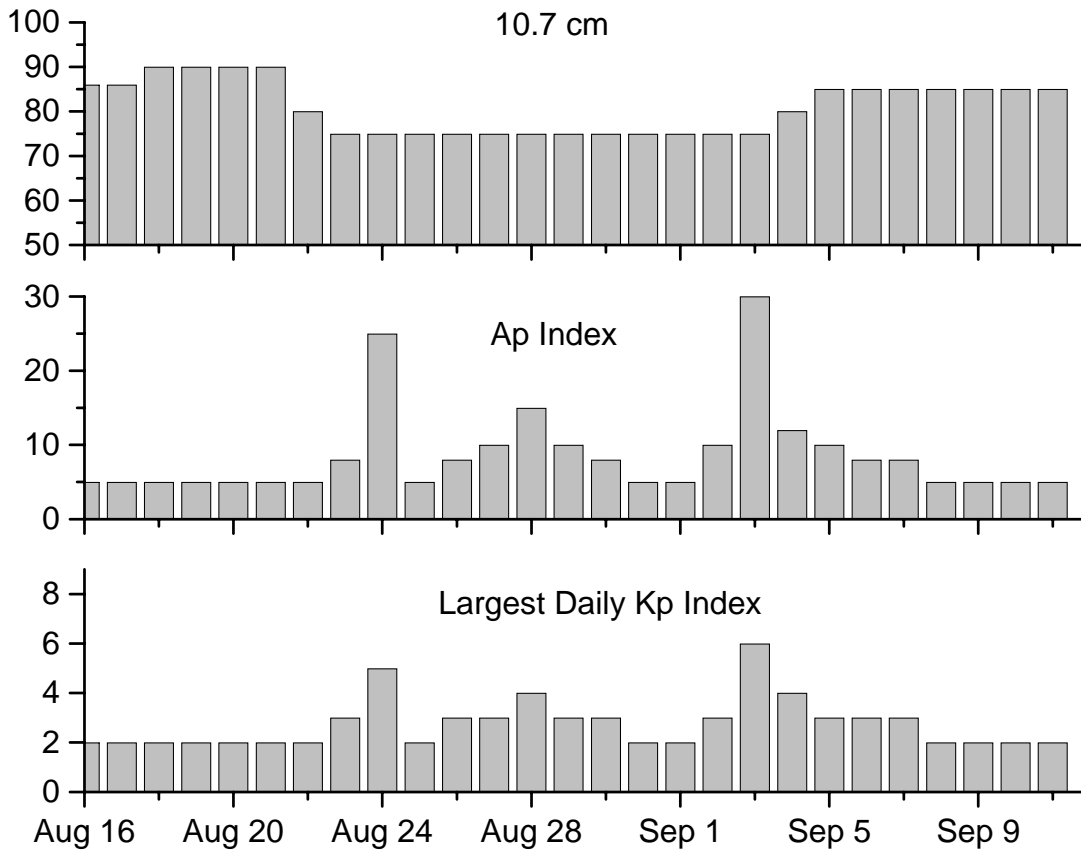


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UTC</u>
07 Aug 0042	WARNING: Geomagnetic K=4	07 Aug 0042 - 1600
07 Aug 0454	ALERT: Geomagnetic K=4	07 Aug 0450
07 Aug 0608	WARNING: Geomagnetic K=5	07 0607 – 1600
07 Aug 0615	ALERT: Geomagnetic K=5	07 Aug 0614
07 Aug 0629	WARNING: Geomagnetic K=6	07 Aug 0630 0930
07 Aug 0715	ALERT: Geomagnetic K=6	07 Aug 0714
07 Aug 1135	WARNING: Geomagnetic K=6	07 Aug 1135 - 1500
07 Aug 1137	ALERT: Geomagnetic K=6	07 Aug 1136
07 Aug 1518	EXTENDED WARNING: Geomagnetic K=4	07 Aug 0042 – 2359
07 Aug 2337	EXTENDED WARNING: Geomagnetic K=4	07 Aug 0042 – 08 Aug 1600
08 Aug 1216	ALERT: Electron 2MeV Integral Flux >1000pfu	08 Aug 1155
08 Aug 1555	EXTENDED WARNING: Geomagnetic K=4	07 Aug 0042 – 08 Aug 2359
09 Aug 0502	ALERT: Electron 2MeV Integral Flux >1000pfu	09 Aug 0500
09 Aug 1039	ALERT: Geomagnetic K=4	09 Aug 1039
10 Aug 0503	ALERT: Electron 2MeV Integral Flux >1000pfu	10 Aug 0500
11 Aug 0548	ALERT: Electron 2MeV Integral Flux >1000pfu	11 Aug 0500
12 Aug 0509	ALERT: Electron 2MeV Integral Flux >1000pfu	12 Aug 0500
13 Aug 0507	ALERT: Electron 2MeV Integral Flux > 1000pfu	13 Aug 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
16 Aug	86	5	2	30 Aug	75	8	3
17	86	5	2	31	75	5	2
18	90	5	2	01 Sept	75	5	2
19	90	5	2	02	75	10	3
20	90	5	2	03	75	30	6
21	90	5	2	04	80	12	4
22	80	5	2	05	85	10	3
23	75	8	3	06	85	8	3
24	75	25	5	07	85	8	3
25	75	5	2	08	85	5	2
26	75	8	3	09	85	5	2
27	75	10	3	10	85	5	2
28	75	15	4	11	85	5	2
29	75	10	3				



Energetic Events

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

Flare List

Date	Time			Optical	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End	X-ray Class.			
07 August	2356	2359	0005	A6.3			
08 August	No Flares Observed						
09 August	0126	0130	0135	B1.1			
	0307	0312	0316	B1.8			903
	0407	0411	0413	B1.3			
	0817	0822	0825	B1.6			
	0927	0942	1003	B5.1			903
10 August	1207	1237	1300	B1.1			
	0019	0024	0029	B2.9			
	0040	0043	0045	B3.1			904
	0253	0257	0303	B5.2			904
	0554	0559	0603	B7.0			904
	0903	0907	0910	B9.2			904
	0927	0931	0934	B5.7			904
	1000	1004	1009	B5.2			904
	1150	1158	1204	B6.2			904
	1328	1333	1336	B9.3			904
	1357	1358	1402		Sf	S12E69	904
	1501	1506	1509	B4.1			904
	1531	1533	1541	B4.8	Sf	S14E67	904
	1607	1627	1632		Sf	S14E67	904
	1805	1808	1814	C4.2	Sf	S14E66	904
	1852	1901	1910	B7.6	Sf	S14E65	904
	1958	1958	2007		Sf	S12E68	904
	2022	2024	2027		Sf	S12E68	904
	2352	2355	0001	B5.4			904
11 August	0021	0041	0044	C2.8			904
	0804	0805	0807	C2.1	Sf	S14E58	904
	0939	0942	0944	C1.3			904
	1203	1244	1316	C1.1			904
	1627	1630	1634	B4.9			904
	1650	1654	1656	B5.9			904
	1813	1816	1819	B2.5			904
2130	2136	2143	B4.2			904	



Flare List-Continued

Date	Time			Optical	Imp / Brtns	Location	Rgn
	Begin	Max	End	X-ray Class.		Lat CMD	
12 August	0411	0426	0433	B2.4			
	1017	1021	1026	B1.7			904
	1354	1432	1448	B1.3			
12 August	1856	1900	1902	B1.8			904
13 August	0433	0437	0440	B3.4			904
	0442	0445	0447	B7.5			904
	0618	0622	0624	B5.1			904
	0847	0853	0856	B7.8			904
	1349	1353	1355	B4.3			904
	1528	1531	1533	B2.4			904
	1909	1912	1914	B1.5			

Region Summary

Date	Location		Sunspot Characteristics											
	Helio		Flares				X-ray				Optical			
	(° Lat ° CMD)	Lon	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	C	M	X	S	1	2	3

Region 903

08 Aug S09E56	154	0040	04	Cro	002	B									
09 Aug S09E43	154	0030	05	Bxo	004	B									
10 Aug S09E29	155	0010	06	Bxo	006	B									
11 Aug S12E14	157	0010	02	Bxo	003	B									
12 Aug S12E01	157	0000	00		000										
13 Aug S12W12	157	0000	00		000										
											0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 157

Region 904

09 Aug S14E76	121	0080	03	Hax	001	A									
10 Aug S13E63	121	0300	10	Ekc	011	Bg	1				7				
11 Aug S13E51	120	0640	13	Ekc	016	Bg	4				1				
12 Aug S13E38	120	0750	14	Eki	017	Bg									
13 Aug S13E25	119	0680	15	Eko	016	Bg									
											5	0	0	8	0

Still on Disk.

Absolute heliographic longitude: 119

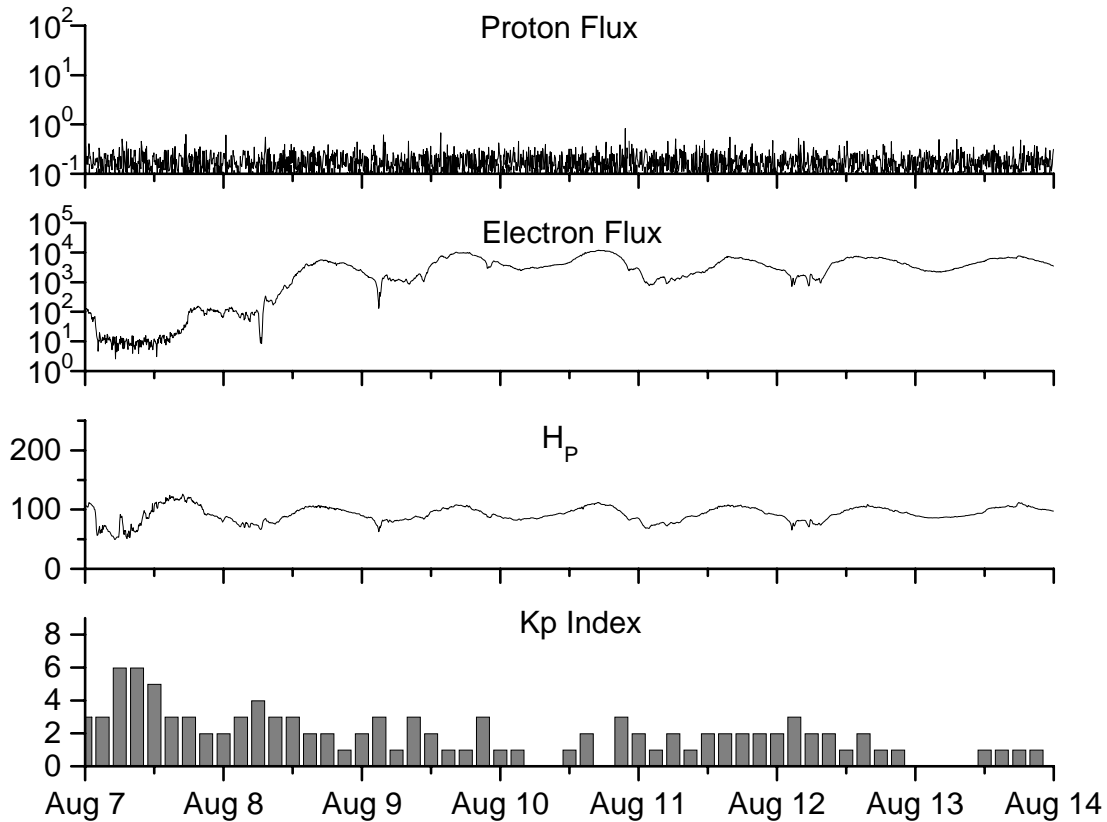


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
2004									
July	87.8	51.0	0.58	68.3	40.2	118.5	105.9	23	13.8
August	69.5	40.9	0.59	66.6	39.3	110.1	105.0	11	13.8
September	50.0	27.7	0.55	63.7	37.6	103.1	103.7	10	13.6
October	77.9	48.4	0.62	61.3	35.9	105.7	102.1	9	13.5
November	70.5	43.7	0.62	60.0	35.4	113.2	101.5	26	14.1
December	34.7	17.9	0.52	58.8	35.3	94.6	101.3	11	14.8
2005									
January	52.0	31.3	0.60	57.3	34.7	102.4	100.3	22	14.7
February	45.4	29.1	0.64	56.4	34.0	97.3	98.5	11	14.6
March	41.0	24.8	0.60	55.8	33.6	90.0	97.2	12	15.3
April	41.5	24.4	0.59	52.6	31.7	85.9	95.5	12	15.7
May	65.4	42.6	0.65	48.3	29.0	99.5	93.2	20	14.8
June	59.8	39.6	0.66	47.9	28.9	93.7	91.9	13	13.9
July	71.0	39.9	0.56	48.1	29.2	96.6	90.9	16	13.1
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			83.8		6	
February	5.3	4.7	0.89			76.6		6	
March	21.3	10.8	0.51			75.5		8	
April	55.2	30.2	0.55			89.0		11	
May	39.6	22.2	0.56			81.0		8	
June	37.7	13.9	0.37			80.1		8	

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 August 2006*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-11 (W086) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

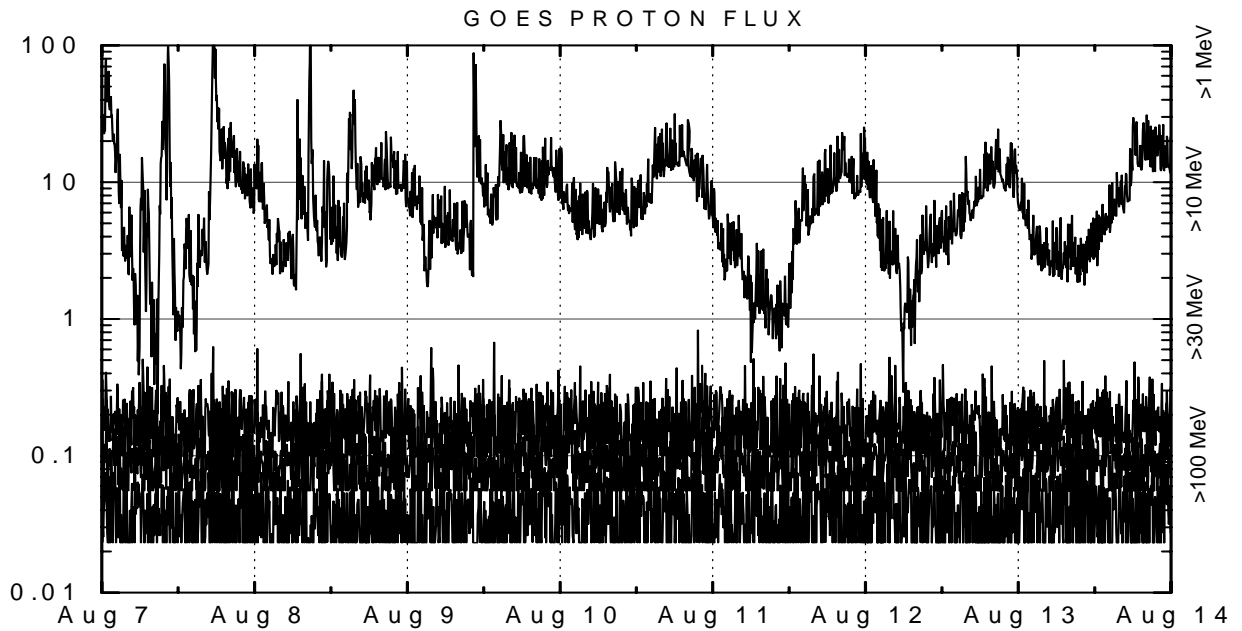
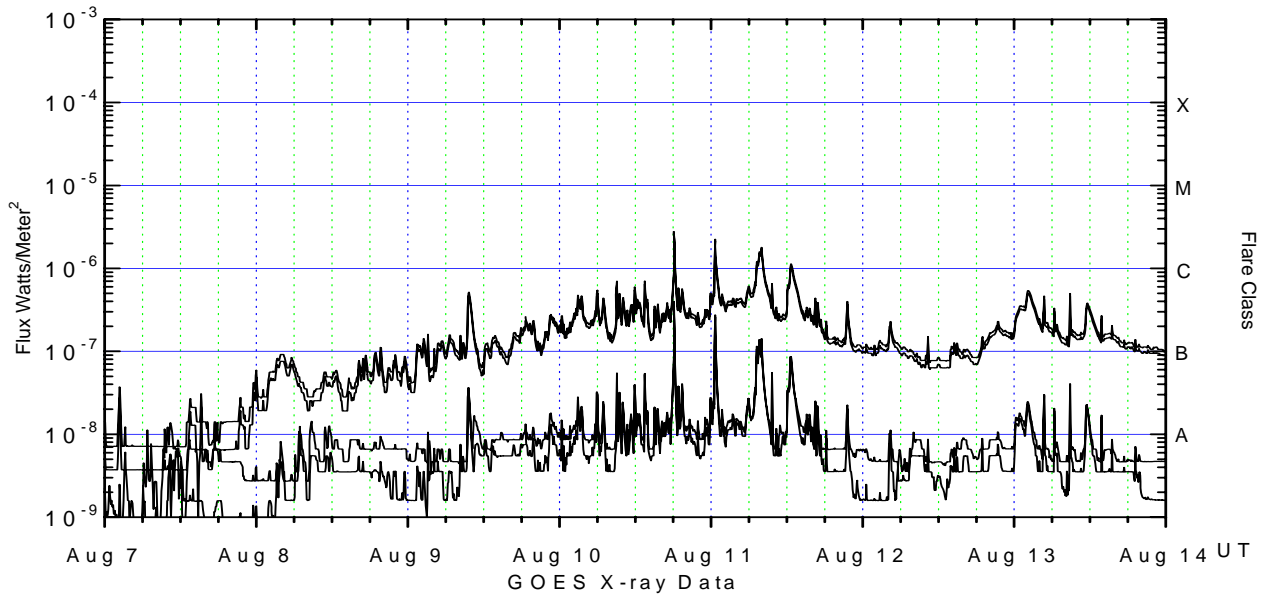
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

H_p 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.

K_p 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 K_p 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 K_p 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/m²) as measured by GOES 12 (W75) and GOES 10 (W128) 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/cm²-sec-sr) as measured by GOES-11 (W086) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm²-sec-sr) at greater than 10 MeV.

