

**Space Weather Highlights**  
**06 – 12 August 2007**

**SEC PRF 1667**  
**14 August 2007**

Solar activity was very low to low. Region 966 (S06, L = 067, class/area Dso/040 on 09 August) produced isolated B- and C-class flares on 06 August during a period of modest growth. Activity decreased to very low levels during the rest of the period 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 07 - 12 August.

Geomagnetic field activity ranged from quiet to major storm levels during 06 – 07 August. Activity decreased to quiet to unsettled levels during 08 – 09 August. Activity increased to quiet to active levels during 10 – 12 August with minor storm periods observed at some high latitude stations. ACE solar wind data indicated the 06 – 07 August activity was due to a recurrent coronal hole high-speed stream. The high-speed stream commenced on 06 August and eventually reached a peak velocity of 661 km/sec at 07/1320 UTC. The density increase associated with the onset of the high-speed stream reached a peak of 28 p/cc at 06/1343 UTC while IMF Bt increased to a maximum of 19 nT at 06/3332 UTC and IMF Bz decreased to a minimum of -14 nT at 06/2308 UTC. ACE data indicated the 10 – 12 August disturbance was also due to a recurrent high-speed stream. This stream commenced on 10 August and reached a peak velocity of 593 km/sec at 10/2129 UTC. The density increase associated with the onset of the high-speed stream reached a peak of 24 p/cc at 10/1248 UTC while IMF Bt increased to a maximum of 16 nT at 10/1345 UTC and IMF Bz decreased to a minimum of -11 nT at 10/1339 UTC.

**Space Weather Outlook**  
**15 Aug – 10 Sept 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 18 - 19 August and 28 August – 10 September.

The geomagnetic field is expected to be at quiet levels on 15 August. A recurrent coronal hole high-speed stream is expected to disturb the field during 16 – 17 August with unsettled to active levels expected. Quiet to unsettled conditions are expected during 18 – 24 August. Another 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 levels for the rest of the period.



### 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
06 August	70	16	30	<A1.0	2	0	0	4	1	0	0	0
07 August	69	13	20	<A1.0	0	0	0	0	0	0	0	0
08 August	69	25	90	<A1.0	0	0	0	0	0	0	0	0
09 August	67	14	40	<A1.0	0	0	0	0	0	0	0	0
10 August	68	14	30	<A1.0	0	0	0	0	0	0	0	0
11 August	68	13	20	<A1.0	0	0	0	0	0	0	0	0
12 August	68	11	10	<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
06 August	1.7E+6	1.8E+4	3.9E+3		4.3E+7	
07 August	1.5E+6	1.7E+4	3.9E+3		3.1E+7	
08 August	8.3E+5	1.7E+4	3.8E+3		2.9E+8	
09 August	1.2E+6	1.7E+4	3.8E+3		4.1E+8	
10 August	8.9E+5	1.8E+4	4.0E+3		6.6E+7	
11 August	8.5E+5	1.8E+4	3.9E+3		2.6E+7	
12 August	1.9E+6	1.7E+4	3.9E+3		7.5E+7	

### Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
06 August	8	0-0-2-2-1-2-3-4	12	0-0-3-2-3-3-3-4	12	1-0-2-2-1-2-4-5
07 August	23	6-3-4-3-2-2-3-3	34	4-3-6-6-4-4-2-2	23	6-4-4-3-3-3-2-3
08 August	5	2-2-3-0-1-1-1-1	7	2-2-4-2-1-1-1-0	6	2-3-2-1-1-1-0-1
09 August	2	1-0-1-1-0-1-1-1	5	1-1-2-3-1-0-1-1	4	1-0-2-2-1-0-1-1
10 August	10	1-0-2-2-4-3-3-2	20	0-1-3-4-5-5-3-2	13	1-1-2-2-4-4-4-3
11 August	7	3-2-2-1-1-2-2-2	21	3-3-5-4-4-4-2-1	12	3-3-3-2-2-3-3-2
12 August	5	2-1-1-3-1-1-1-0	13	2-2-2-5-4-1-1-0	6	2-1-1-3-2-1-1-1

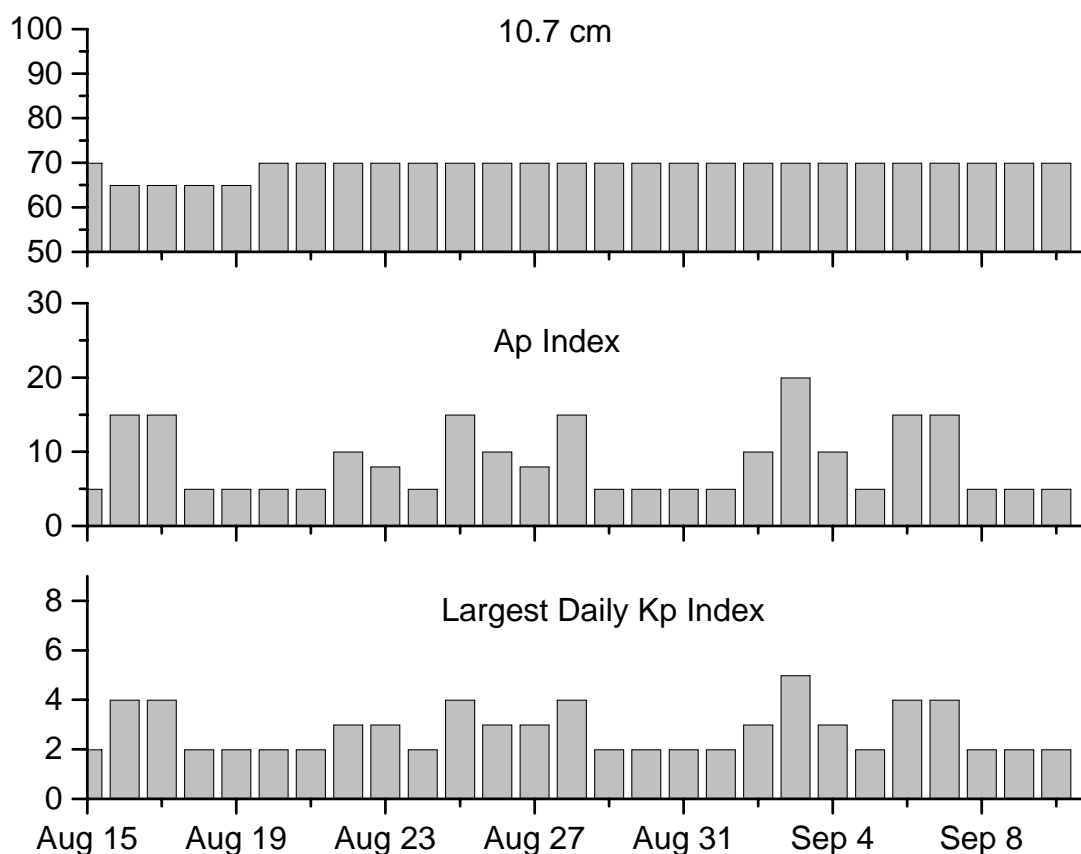


### *Alerts and Warnings Issued*

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
06 Aug 0945	ALERT: Type II Radio Emission	06/0916
06 Aug 1711	WARNING: Geomagnetic K=4	06/1711 -17/1600
06 Aug 2044	ALERT: Geomagnetic K=4	06/2044
06 Aug 2219	WARNING: Geomagnetic K=5	06/2220 - 07/0600
06 Aug 2305	ALERT: Geomagnetic K=5	06/2304
07 Aug 0226	ALERT: Geomagnetic K=6	07/0225
07 Aug 1453	EXTENDED WARNING: Geomagnetic K=4	06/1711 - 08/1600
07 Aug 1801	ALERT: Electron 2MeV Integral Flux >1000pfu	07/1745
08 Aug 0547	ALERT: Electron 2MeV Integral Flux >1000pfu	08/0525
09 Aug 0516	ALERT: Electron 2MeV Integral Flux >1000pfu	09/0500
10 Aug 0536	ALERT: Electron 2MeV Integral Flux >1000pfu	10/0500
10 Aug 0706	ALERT: Electron 2MeV Integral Flux >1000pfu	10/0536
10 Aug 1304	WARNING: Geomagnetic K=4	10/1310 - 1600
10 Aug 1422	ALERT: Geomagnetic K=4	10/1421
10 Aug 1556	EXTENDED WARNING: Geomagnetic K=4	10/1310 - 11/0600
11 Aug 0415	EXTENDED WARNING: Geomagnetic K=4	10/1310 - 11/1600
11 Aug 1836	ALERT: Electron 2MeV Integral Flux >1000pfu	11/1820
12 Aug 1256	ALERT: Electron 2MeV Integral Flux >1000pfu	12/1240



## 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
15 Aug	70	5	2	29 Aug	70	5	2
16	65	15	4	30	70	5	2
17	65	15	4	31	70	5	2
18	65	5	2	01 Sep	70	5	2
19	65	5	2	02	70	10	3
20	70	5	2	03	70	20	5
21	70	5	2	04	70	10	3
22	70	10	3	05	70	5	2
23	70	8	3	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	8	3	10	70	5	2
28	70	15	4				



### ***Energetic Events***

Date	Energetic Events											Sweep Freq	
	Time			X-ray		Optical Information			Peak		Intensity		
	½			Integ	Imp/	Location	Rgn	Radio Flux					
	Begin	Max	Max	Class	Flux	Brtns	Lat	CMD	#	245			2695
												II	IV

**No Events Observed**

### ***Flare List***

Date	Time			Optical X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
06 August	0106	0154	0217	B4.2	Sn	S07E44	966
	0304	0304	0331		1f	S08E45	966
	0419	0422	0441		Sf	S08E44	966
	0910	0910	0923	C1.5	Sf	S05E41	966
	1527	1531	1554	C1.1	Sf	S08E38	966
	2240	2248	2255	B1.3			
07 August	<b>No Flares Observed</b>						
08 August	1226	1230	1236	B1.4			
09 August	<b>No Flares Observed</b>						
10 August	<b>No Flares Observed</b>						
11 August	<b>No Flares Observed</b>						
12 August	<b>No Flares Observed</b>						



### Region Summary

Location			Sunspot Characteristics												
Date	( ° Lat ° CMD)	Helio	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Flares			X-ray				Optical			
		Lon			Spot Class	Spot Count	Mag Class	C	M	X	S	1	2	3	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									
							2	0	0	4	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 066

#### Region 967

08 Aug N05W75	148	0050	01	Axx	001	A									
09 Aug N05W88	148														
							0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 148

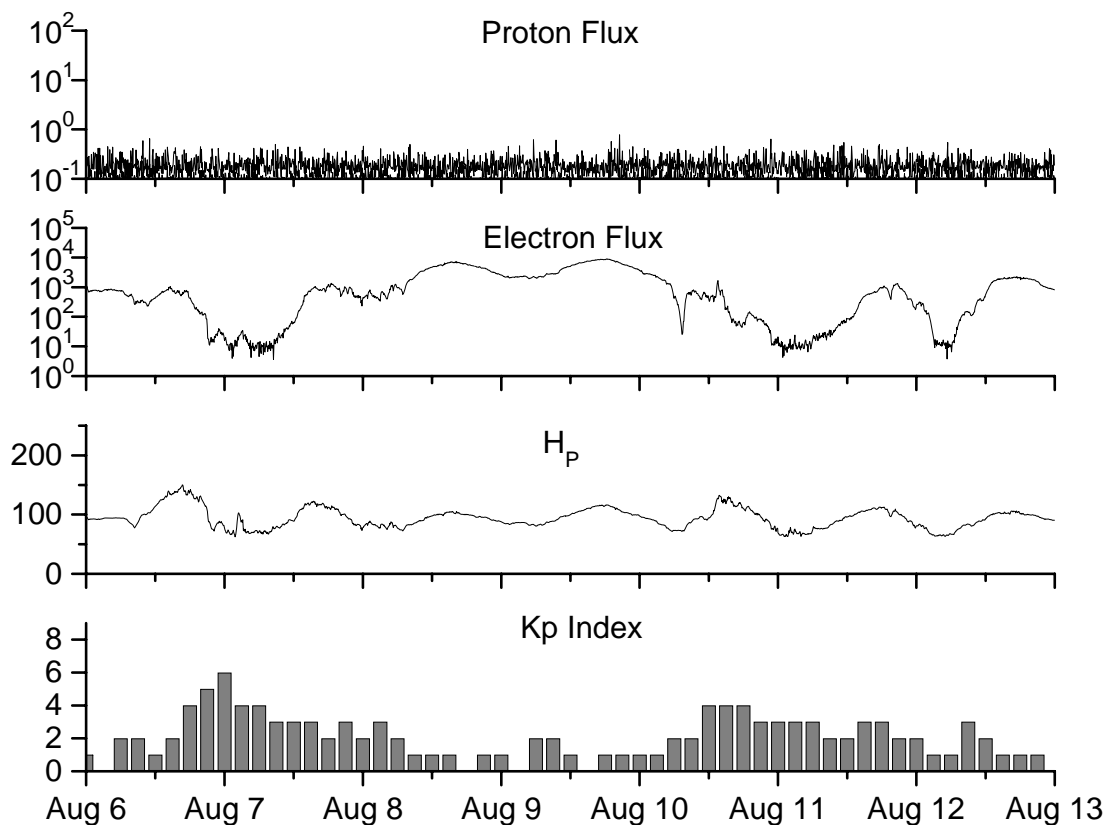


**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

Month	by the observed monthly mean values					Radio Flux		Geomagnetic	
	Sunspot Numbers		Ratio	Smooth values		*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
	Observed values SEC	RI		SEC	RI				
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			84.3		15	
2007									
January	26.6	16.9	0.64			83.5		6	
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 06 August 2007*

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).

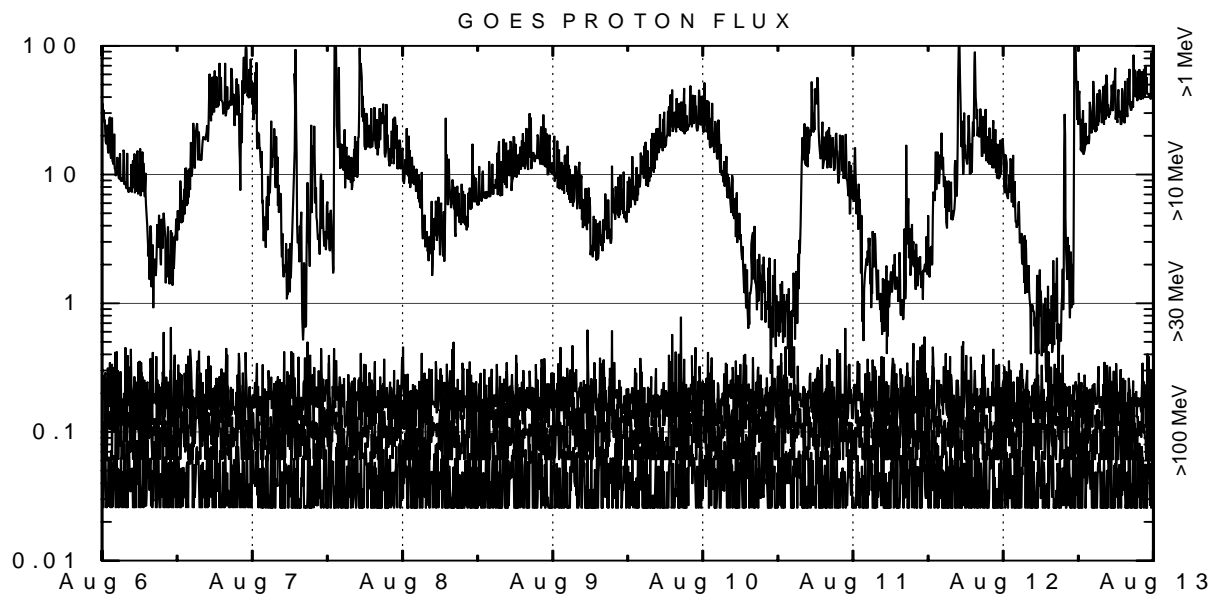
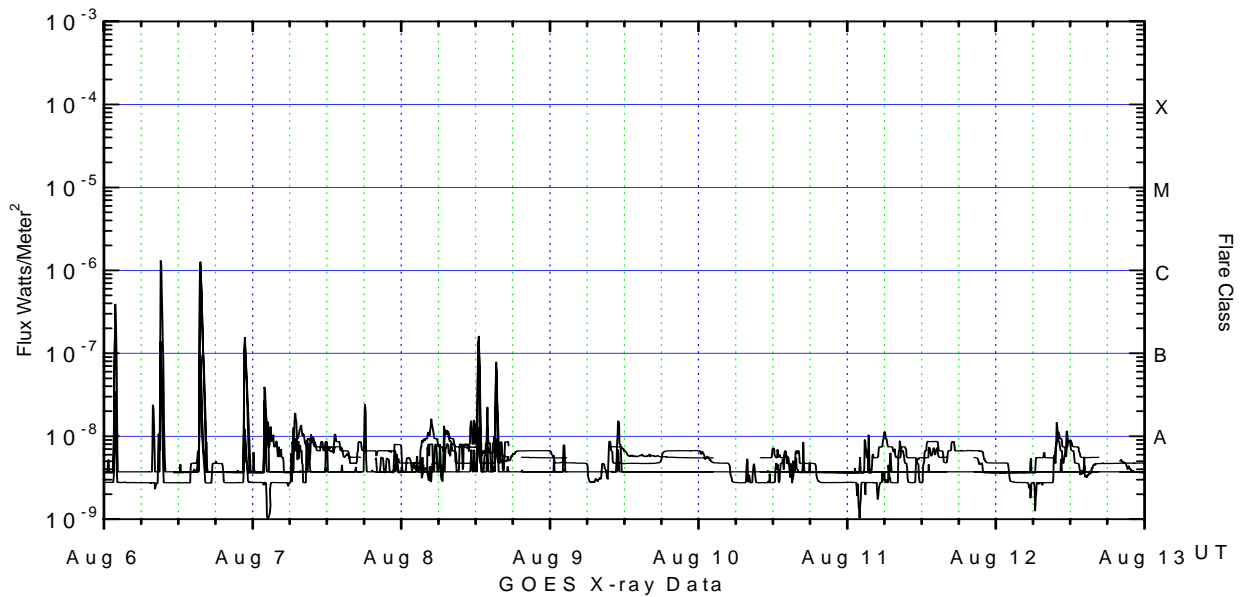
H<sub>p</sub> plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

K<sub>p</sub> 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<sub>p</sub> 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<sub>p</sub> 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.

