

Space Weather Highlights
02 October – 08 October 2006

SEC PRF 1623
10 October 2006

Solar activity was at very low levels. Only a few minor B-class flares were observed during the period.

No greater than 10 MeV proton events were observed.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 02 – 07 October.

The geomagnetic field ranged from quiet to unsettled levels at all latitudes. High latitudes observed isolated intervals of active to minor storm levels midday on 02 and 08 October. Solar wind speed ranged from a low of about 300 km/s early on 07 October to a high of about 500 km/s late on 07 October. The period began under the waning influence of a high speed coronal hole wind stream. Wind speed was elevated, but decaying, at near 500 km/s, and the IMF Bz was weak, not varying much beyond +/-3 nT. These conditions persisted until midday on 07 October. By midday on 07 October, temperature, density, and wind speed increased, all indicative of a co-rotating interaction region in advance of a weak coronal hole wind stream. By late on 07 October, wind speed increased to near 550 km/s, while the IMF Bz fluctuated between +/- 8 nT. The period ended with wind speed decaying to near 425 km/s, while the IMF Bz was weak, not varying much beyond +/- 3 nT.

Space Weather Outlook
11 October – 06 November 2006

Solar activity is expected to be at very low levels.

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 15 – 20 October, 22 - 26 October, and 28 October – 03 November. 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 14 – 15 October, 21 October, and 28 October. Unsettled to minor storm periods are possible on those dates.



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	
02 October	78	36	100	A2.7	0	0	0	0	0	0	0	0	0
03 October	77	23	60	A2.1	0	0	0	0	0	0	0	0	0
04 October	77	23	50	A1.4	0	0	0	0	0	0	0	0	0
05 October	77	27	60	A1.3	0	0	0	1	0	0	0	0	0
06 October	76	23	40	<A1.0	0	0	0	0	0	0	0	0	0
07 October	77	24	50	<A1.0	0	0	0	0	0	0	0	0	0
08 October	75	22	30	<A1.0	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
	02 October	1.0E+6	1.5E+4	3.3E+3		1.7E+8
03 October	1.2E+6	1.6E+4	3.7E+3		3.5E+8	
04 October	8.2E+5	1.6E+4	3.7E+3		4.8E+8	
05 October	7.9E+5	1.7E+4	3.9E+3		4.2E+8	
06 October	1.2E+6	1.7E+4	3.7E+3		1.9E+8	
07 October	1.2E+6	1.7E+4	3.8E+3		1.0E+8	
08 October	6.1E+5	1.7E+4	3.7E+3		6.0E+6	

Daily Geomagnetic Data

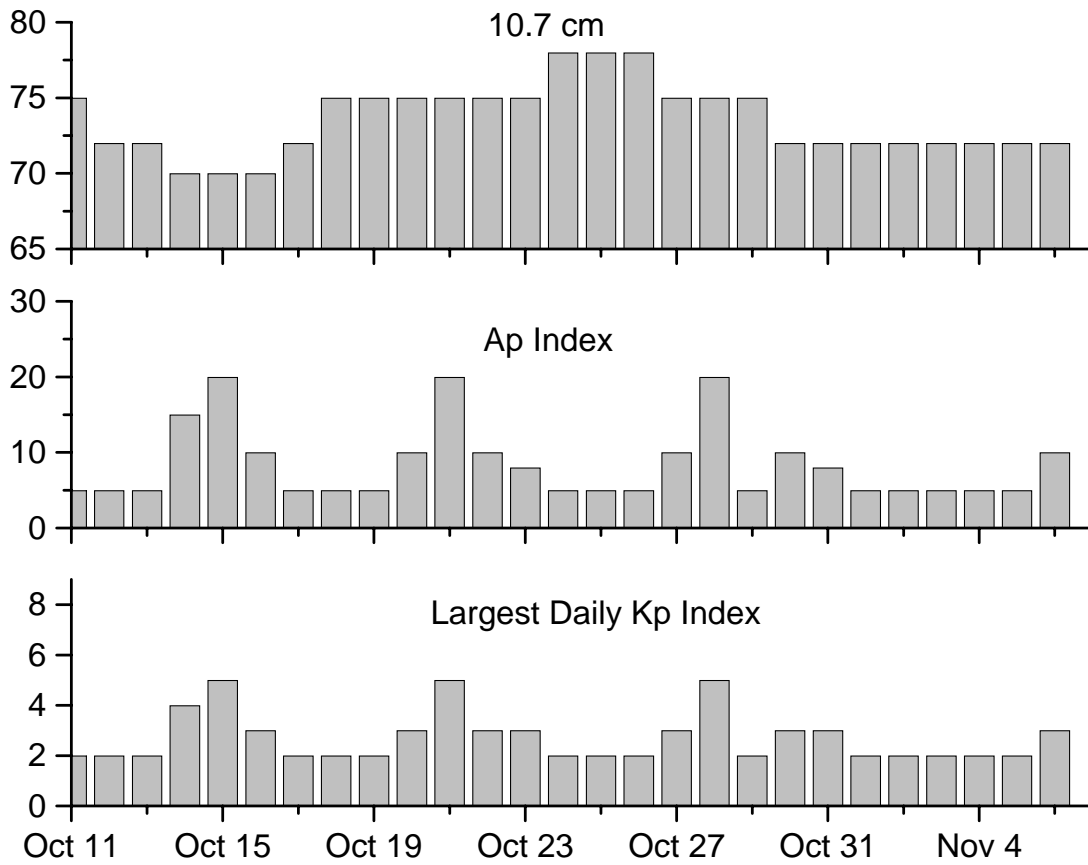
Date	Middle Latitude		High Latitude		Estimated	
	Fredericksburg		College		Planetary	
	A	K-indices	A	K-indices	A	K-indices
02 October	6	2-2-3-1-2-1-1-1	13	2-2-4-4-3-2-2-1	7	2-2-2-2-2-2-1-2
03 October	6	1-3-1-1-2-2-1-1	9	2-1-1-4-3-3-1-0	5	1-2-1-1-2-2-1-2
04 October	2	0-2-1-0-1-1-1-0	2	0-1-1-0-1-2-0-1	3	1-2-1-0-0-1-1-1
05 October	2	0-0-1-1-1-1-2-0	2	0-0-1-1-1-0-1-0	3	1-0-1-0-1-1-1-1
06 October	2	0-0-2-1-0-0-1-0	3	0-0-1-3-1-0-0-0	3	0-0-2-1-1-1-0-1
07 October	7	0-2-1-0-2-2-3-3	4	0-0-1-1-2-2-2-2	9	0-1-1-0-1-3-3-4
08 October	6	3-1-1-2-2-2-1-1	11	3-0-1-5-3-2-1-0	7	3-0-0-2-2-2-1-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
02 Oct 1032	ALERT: Electron 2MeV Integral Flux ≥1000pfu	02 Oct 1010
03 Oct 0502	ALERT: Electron 2MeV Integral Flux ≥1000pfu	03 Oct 0500
04 Oct 0506	ALERT: Electron 2MeV Integral Flux ≥1000pfu	04 Oct 0500
05 Oct 0520	ALERT: Electron 2MeV Integral Flux ≥1000pfu	05 Oct 0500
06 Oct 0504	ALERT: Electron 2MeV Integral Flux ≥1000pfu	06 Oct 0500
07 Oct 0955	ALERT: Electron 2MeV Integral Flux ≥1000pfu	07 Oct 0940



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
11 Oct	75	5	2	25 Oct	78	5	2
12	72	5	2	26	78	5	2
13	72	5	2	27	75	10	3
14	70	15	4	28	75	20	5
15	70	20	5	29	75	5	2
16	70	10	3	30	72	10	3
17	72	5	2	31	72	8	3
18	75	5	2	01 Nov	72	5	2
19	75	5	2	02	72	5	2
20	75	10	3	03	72	5	2
21	75	20	5	04	72	5	2
22	75	10	3	05	72	5	2
23	75	8	3	06	72	10	3
24	78	5	2				



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	II

No Events Observed

Flare List

Date	Time			Optical	Imp/ Brtns	Location Lat CMD	Rgn
	Begin	Max	End	X-ray Class.			
02 October	1811	1815	1820	B1.1			
	2057	2102	2108	B1.1			
03 October	<i>No Flares Observed</i>						
04 October	0648	0654	0720	A8.0			
	1752	1755	1757	B1.2			
05 October	2049	2052	2105	B2.6	Sf	S17W22	913
06 October	<i>No Flares Observed</i>						
07 October	0218	0222	0228	B1.0			
	0558	0601	0605	B1.0			
	0820	0823	0825	B1.0			
	1032	1035	1038	B1.3			
08 October	<i>No Flares Observed</i>						

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 911

26 Sep	N07E72	212	0030	01	Bxo	003	B								
27 Sep	N07E59	212	0020	01	Axx	001	A								
28 Sep	N07E43	215													
29 Sep	N07E30	215													
30 Sep	N07E17	215													
01 Oct	N07E04	215													
02 Oct	N07W09	215													

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 215



Region Summary – continued

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

Region 912

28 Sep	N06E65	193	0040	05	Bxo	003	B										
29 Sep	N03E52	193	0020	01	Axx	001	A										
30 Sep	N03E39	193															
01 Oct	N03E26	193															
02 Oct	N03E13	193															
03 Oct	N03E00	193															
04 Oct	N03W13	193															
05 Oct	N03W26	193															
06 Oct	N03W39	193															
07 Oct	N03W52	193															
08 Oct	N03W65	193															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 193

Region 913

28 Sep	S18E68	190	0060	03	Hsx	002	A										
29 Sep	S18E55	190	0070	03	Hsx	002	A										
30 Sep	S18E42	190	0060	03	Cso	003	Bg										
01 Oct	S19E27	191	0040	02	Cso	002	Bg										
02 Oct	S19E14	191	0050	03	Hsx	003	A										
03 Oct	S19E01	191	0050	02	Hax	002	A										
04 Oct	S19W12	191	0040	02	Hsx	002	A										
05 Oct	S20W23	189	0050	06	Cso	006	B					1					
06 Oct	S21W37	189	0030	02	Hsx	002	A										
07 Oct	S19W51	189	0030	04	Cso	003	B										
08 Oct	S20W64	189	0020	01	Hsx	001	A										

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 191



Region Summary – continued

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

Region 914

28 Sep	S07E75	183	0020	02	Axx	001	A										
29 Sep	S07E62	183	0050	03	Hrx	002	A										
30 Sep	S07E49	183	0030	01	Hsx	001	A										
01 Oct	S10E36	182	0030	01	Hsx	001	A										
02 Oct	S10E22	183	0020	01	Hsx	001	A										
03 Oct	S09E09	183	0010	01	Axx	001	A										
04 Oct	S09W04	183	0010	01	Hrx	001	A										
05 Oct	S10W18	184	0010	01	Hrx	001	A										
06 Oct	S12W31	183	0010	00	Axx	001	A										
07 Oct	S11W46	184	0020	01	Hrx	001	A										
08 Oct	S12W58	183	0010	01	Axx	001	A										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 183

Region 915

29 Sep	S06W46	291	0040	05	Cso	006	B										
30 Sep	S06W59	291	0090	06	Dso	004	B					1					
01 Oct	S05W72	290	0060	06	Dso	002	B										
02 Oct	S06W86	291	0030	04	Bxo	002	B										

0 0 0 1 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 291

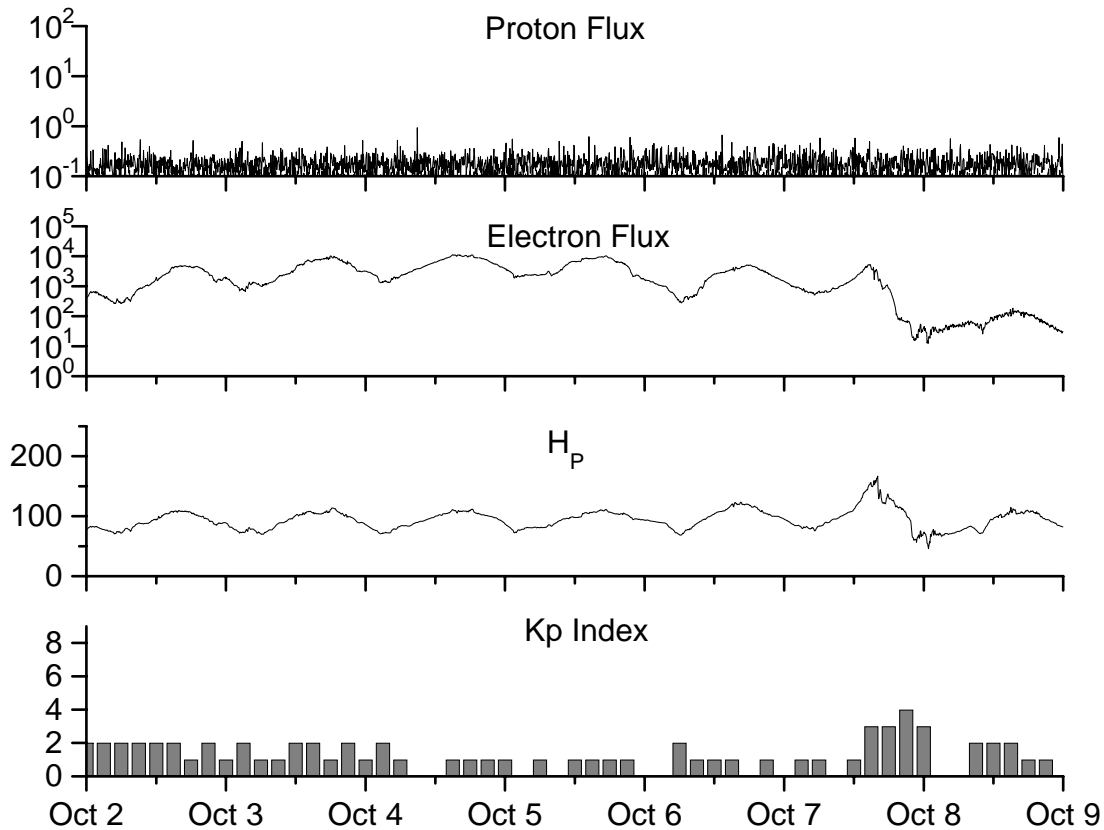


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
2004									
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	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			89.0		11	
May	39.6	22.2	0.56			81.0		8	
June	37.7	13.9	0.37			80.1		8	
July	22.6	12.2	0.54			75.8		7	
August	22.8	12.9	0.57			79.0		9	
September	25.2	14.5	0.58			77.8		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 02 October 2006*

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.

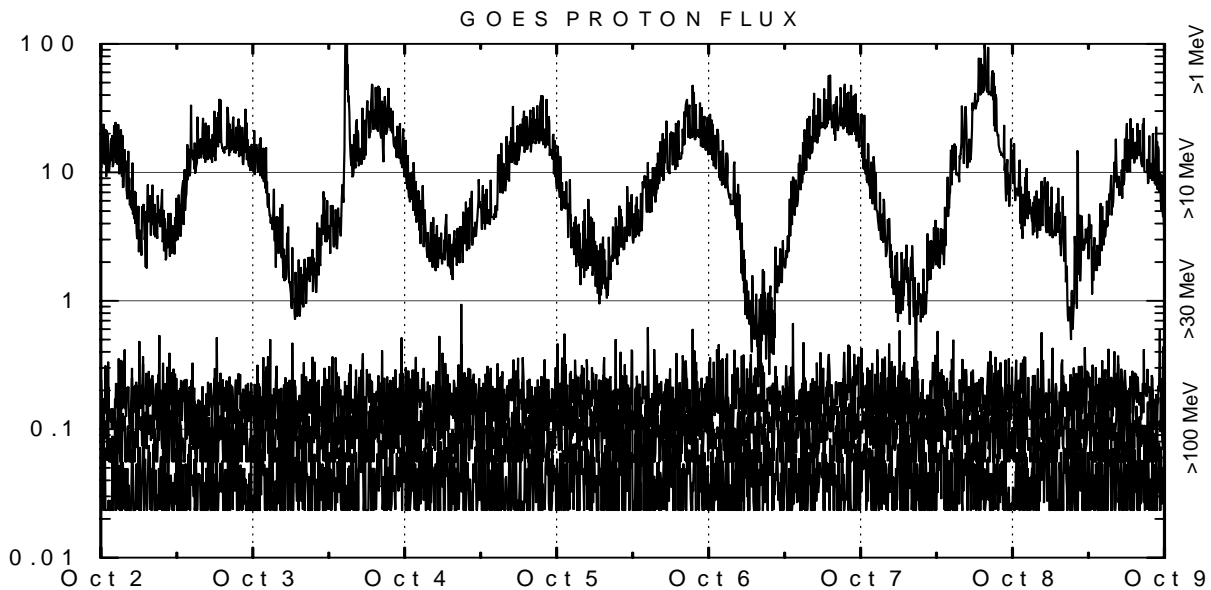
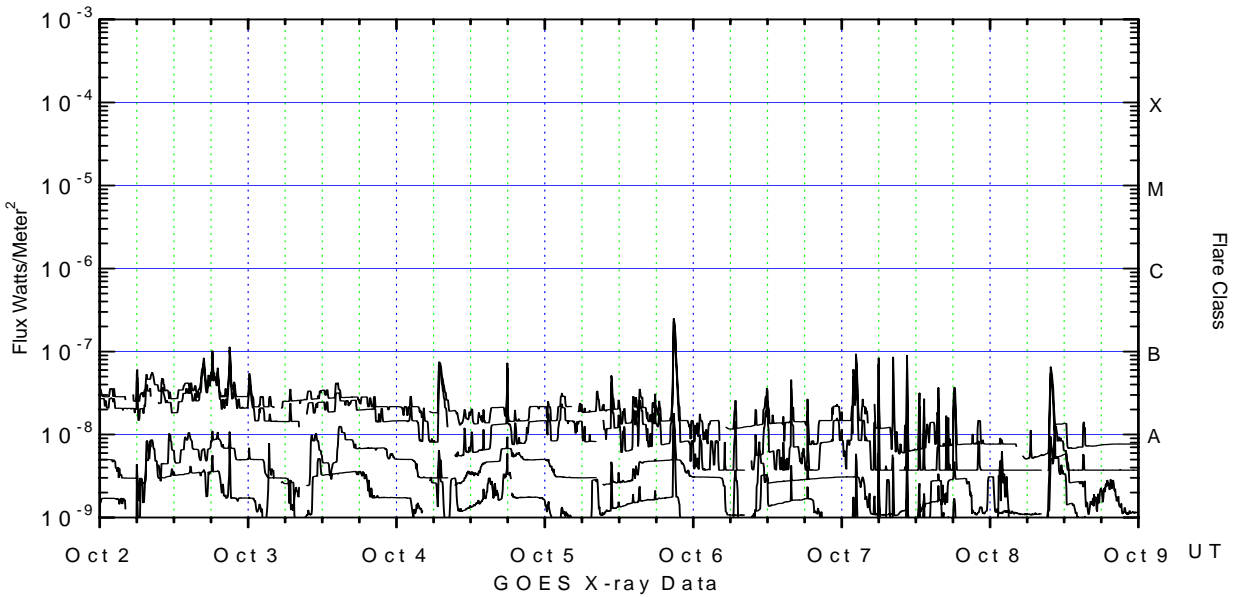
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

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 (W075) 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/cm²-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/cm²-sec-sr) at greater than 10 MeV.

