

Space Weather Highlights
01 – 07 May 2006

SEC PRF 1601
09 May 2006

Solar activity was at very low to low levels. The most significant event of the period was observed from Region 875 (S10, L=115, class/area, Dki/480 on 25 April). At 01/1535 UTC, a long duration C1.0/sf was observed with an associated slow Earth-directed CME observed on LASCO imagery. Region 875 quietly rotated around the west limb on 05 May. Other activity included a filament eruption at S33W07 on 04/0131 UTC. LASCO imagery observed a very faint, partial halo CME associated with this eruption. No other activity of note to report.

No greater than 10 MeV proton events were observed this period.

No greater than 2 MeV electron events were observed this period.

The geomagnetic field ranged from quiet to major storm levels. Solar wind speed ranged from a low of about 275 km/s late on 02 May to a high of near 675 km/s midday on 07 May. The Bz component of the IMF began the period weak, not varying much beyond +/- 3 nT. This Bz orientation persisted through late on 03 May and as a result, the geomagnetic field was very quiet at all latitudes. By late on 03 May, a weak transient was evident in the solar wind field, possibly associated with the faint CME observed on 01 May. By midday on 04 May, the IMF Bz had rotated through +/- 12 nT while wind speed gradually increased to about 350 km/s. The southward Bz increased geomagnetic activity to quiet to unsettled levels at middle latitudes, while unsettled to major storm periods were observed at high latitudes. By early on 05 May, and for the next 24 hours, the IMF Bz relaxed somewhat, not varying much beyond +/- 5 nT while wind speed remained slow at about 350 km/s. During this 24-hour interval, the geomagnetic field was quiet to active with an isolated period of minor storm levels observed at high latitudes. By early on 06 May, and for the next 24 hours, the IMF Bz fluctuated between +14 to -15 nT and solar wind speed increased rapidly to near 600 km/s as a coronal hole high speed stream rotated into a geoeffective position. As a result, the geomagnetic field responded with unsettled to active conditions at middle latitudes, while active to major storm levels were observed at high latitudes. By 07 May, the IMF Bz relaxed, not varying much beyond +/- 3 nT, while wind velocity remained high at near 675 km/s. During this period, the geomagnetic field was at unsettled to minor storm conditions at middle latitudes, while high latitudes observed minor to major storm levels.

Space Weather Outlook
10 May – 05 June 2006

Solar activity is expected to be at very low to 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 10 – 18 May and again on 04 – 05 June.

Coronal hole high speed wind streams are expected on 10 - 13 May, 19 May, and again on 01 – 04 June. During these periods, active to minor storm conditions are expected with isolated major storm levels possible on 11 May. Otherwise, quiet to unsettled levels will persist.



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
01 May	93	51	290	B1.0	1	0	0	3	0	0	0	0
02 May	89	58	290	A9.1	0	0	0	0	0	0	0	0
03 May	89	52	340	A9.6	0	0	0	0	0	0	0	0
04 May	92	50	350	B1.1	1	0	0	0	0	0	0	0
05 May	87	61	210	B1.0	0	0	0	0	0	0	0	0
06 May	87	69	160	A9.6	0	0	0	0	0	0	0	0
07 May	86	64	160	A7.4	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
	01 May	1.9E+5	1.8E+4	4.0E+3		4.2E+6
02 May	2.1E+5	1.8E+4	4.3E+3		4.4E+6	
03 May	2.5E+5	1.8E+4	4.1E+3		2.6E+6	
04 May	2.4E+5	1.6E+4	3.6E+3		1.3E+6	
05 May	1.6E+5	1.6E+4	3.6E+3		8.6E+5	
06 May	3.5E+5	1.6E+4	3.3E+3		1.3E+6	
07 May	3.0E+6	1.6E+4	3.5E+3		1.1E+7	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	01 May	2	0-0-1-1-0-2-0-0	1	0-0-2-1-0-0-0-0	2
02 May	4	1-1-1-0-2-1-2-1	2	1-0-1-0-0-1-1-0	4	1-0-1-0-0-1-2-1
03 May	2	2-0-0-0-0-0-1-2	2	2-0-0-0-0-0-1-1	3	1-0-0-0-0-1-1-2
04 May	10	1-1-2-3-3-2-3-3	21	0-1-3-3-6-5-2-1	14	1-1-3-2-5-3-3-3
05 May	8	3-2-3-3-2-0-1-1	21	3-4-5-4-4-3-1-1	13	4-3-4-3-2-2-0-1
06 May	14	2-3-2-2-3-3-4-3	29	1-2-3-3-6-6-3-3	24	2-3-2-2-4-5-5-4
07 May	17	3-4-5-3-3-1-2-2	34	3-4-6-6-5-2-2-2	19	3-4-5-4-3-2-2-3

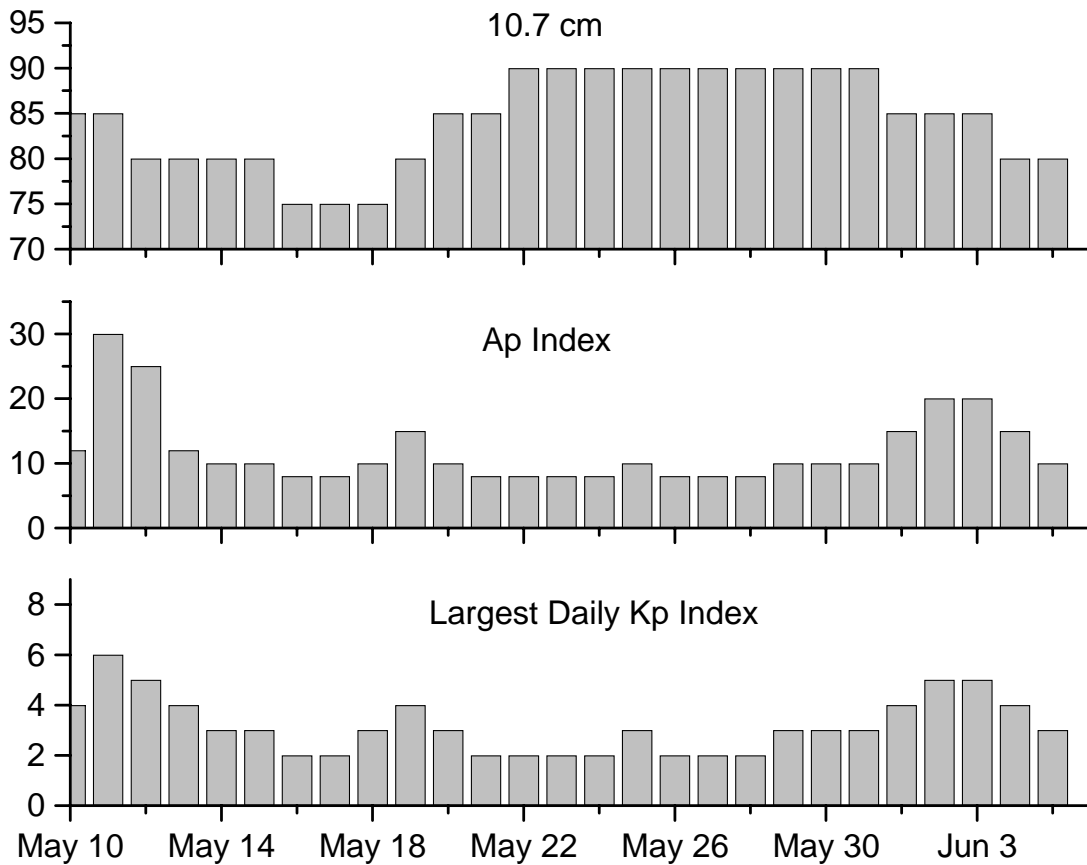


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UTC</u>
01 May 0628	ALERT: Type II Radio Emission	01 May 0158
04 May 0006	WATCH: Geomagnetic A-index ≥ 20	06 May
04 May 1217	WARNING: Geomagnetic K-index = 4	04 May 1218 – 1500
04 May 1222	ALERT: Geomagnetic K= 4	04 May 1221
04 May 1548	WARNING: Geomagnetic K-index = 4	04 May 1548 – 1800
05 May 0213	ALERT: Geomagnetic K-index = 4	05 May 0211
05 May 0843	WARNING: Geomagnetic K-index = 5	05 May 0842 – 2359
05 May 0844	ALERT: Geomagnetic K-index = 5	05 May 0844
06 May 1558	WARNING: Geomagnetic K-index = 4	06 May 1555 – 2359
06 May 1559	ALERT: Geomagnetic K-index = 4	06 May 1554
06 May 2135	WARNING: Geomagnetic K-index = 5	06 May 2140 – 07/1600
06 May 2339	ALERT: Geomagnetic K-index = 5	06 May 2337



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
10 May	85	12	4	24 May	90	8	2
11	85	30	6	25	90	10	3
12	80	25	5	26	90	8	2
13	80	12	4	27	90	8	2
14	80	10	3	28	90	8	2
15	80	10	3	29	90	10	3
16	75	8	2	30	90	10	3
17	75	8	2	31	90	10	3
18	75	10	3	01 June	85	15	4
19	80	15	4	02	85	20	5
20	85	10	3	03	85	20	5
21	85	8	2	04	80	15	4
22	90	8	2	05	80	10	3
23	90	8	2				



Energetic Events

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

No Events Observed

Flare List

Date	Time			Optical	Imp / Brtns	Location	Rgn
	Begin	Max	End	X-ray Class.		Lat CMD	
01 May	0049	0052	0056	B2.3			875
	0156	0159	0203	B9.3	Sf	S11W02	876
	1532	1543	1547	C1.0	Sf	S17W29	875
	1552	1555	1603		Sf	S11W30	875
	2039	2043	2049	B2.1			875
02 May	1134	1237	1319	B2.9			875
03 May	0030	0035	0041	B2.4			877
04 May	0117	0124	0133	B2.2			
	1014	1038	1048	B5.9			
	1734	1745	1815	C1.1			881
05 May	0909	0913	0917	B1.6			880
	1642	1645	1647	B1.8			875
	2012	2016	2023	B2.3			875
06 May	0011	0019	0032	B5.6			877
	0441	0454	0506	B8.7			877
	0550	0553	0555	B2.7			875
	0738	0742	0745	B3.1			881
	0808	0821	0839	B6.3			877
07 May	1421	1428	1438	B1.6			
	1553	1600	1623	B1.9			



Region Summary

Location		Sunspot Characteristics													
Date	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	4
<i>Region 875</i>															
23 Apr	S11E71	116	0270	11	Cao	003	B								
24 Apr	S10E62	112	0430	10	Dkc	016	Bg	1			2				
25 Apr	S10E46	115	0480	08	Dki	009	Bgd	1							
26 Apr	S10E34	114	0470	08	Dki	021	Bg	6	1		3	1			
27 Apr	S11E20	114	0310	07	Cai	021	Bg		1			1			
28 Apr	S11E06	115	0380	08	Dac	023	Bg	1			1				
29 Apr	S09W07	115	0280	08	Dkc	031	Bg	1			1				
30 Apr	S08W21	116	0340	11	Eki	020	Bg								
01 May	S11W33	115	0150	06	Dko	009	Bg	1			2				
02 May	S12W47	115	0140	04	Dao	007	B								
03 May	S12W60	115	0180	03	Dao	003	B								
04 May	S13W72	113	0160	03	Dho	002	B								
05 May	S13W85	113	0070	03	Cso	003	B								
								11	2	0	9	2	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 115

<i>Region 876</i>															
24 Apr	S14E80	094	0150	01	Hax	002	A								
25 Apr	S16E69	092	0180	09	Dao	004	B								
26 Apr	S16E57	091	0290	11	Dko	007	Bg								
27 Apr	S16E54	080	0230	10	Dso	011	Bg								
28 Apr	S15E30	091	0200	11	Eai	013	B								
29 Apr	S14E18	090	0110	11	Eai	013	B								
30 Apr	S11E08	087	0070	10	Cao	009	Bg	1			1				
01 May	S15W07	089	0070	09	Cso	009	B				1				
02 May	S18W16	084	0040	04	Cso	005	B								
03 May	S17W29	084	0020	03	Bxo	002	B								
04 May	S17W42	084													
05 May	S17W55	084													
06 May	S17W68	084													
07 May	S17W81	084													
								1	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 089



Region Summary-Continued

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

Region 877

26 Apr	S07E52	096	0040	01	Hrx	002	A												
27 Apr	S07E40	094	0010	01	Axx	001	A												
28 Apr	S05E24	097	0010	01	Axx	002	A												
29 Apr	S05E11	097																	
30 Apr	S05W02	097																	
01 May	S05W15	097																	
02 May	S05W28	097																	
03 May	S05W41	097																	
04 May	S05W54	097																	
05 May	S05W67	097																	
06 May	S05W80	097																	
07 May	S05W93	097																	

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 097

Region 878

30 Apr	N14E60	035	0060	02	Bxo	003	B												
01 May	N14E46	036	0070	02	Cso	003	B												
02 May	N13E31	037	0060	03	Cso	002	B												
03 May	N14E18	037	0040	02	Hsx	001	A												
04 May	N14E05	036	0040	02	Hsx	001	A												
05 May	N14W09	037	0020	01	Hsx	002	A												
06 May	N14W22	037	0010	04	Cso	003	B												
07 May	N12W35	036	0010	01	Axx	001	A												

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 036

Region 879

02 May	N16E07	061	0050	04	Dao	004	B												
03 May	N17W05	060	0100	05	Dso	006	B												
04 May	N16W18	059	0070	06	Chi	006	B												
05 May	N16W31	059	0020	04	Cso	003	B												
06 May	N16W47	062	0010	01	Axx	001	A												
07 May	N15W60	062	0000	00		000													

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 060



Region Summary-Continued

Date	Location		Sunspot Characteristics					X-ray			Optical													
	(° Lat ° CMD)	Helio Lon	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	C	M	X	S													
												1	2	3	4									
<i>Region 880</i>																								
04 May	S08E63	338	0080	03	Hhx	001	A																	
05 May	S08E50	338	0100	04	Cso	002	B																	
06 May	S08E37	338	0050	03	Cso	003	B																	
07 May	S09E22	339	0050	01	Hsx	002	A																	
Still on Disk.													0	0	0	0	0	0	0	0	0	0	0	0
Absolute heliographic longitude: 339																								
<i>Region 881</i>																								
05 May	S12E75	313	0000	01	Axx	001	A																	
06 May	S12E68	307	0070	08	Dao	007	B																	
07 May	S10E50	311	0050	05	Cso	005	B																	
Still on Disk.													0	0	0	0	0	0	0	0	0	0	0	0
Absolute heliographic longitude: 311																								
<i>Region 882</i>																								
06 May	S12W19	034	0020	03	Dao	005	B																	
07 May	S12W32	033	0030	04	Cro	005	B																	
Still on Disk.													0	0	0	0	0	0	0	0	0	0	0	0
Absolute heliographic longitude: 034																								
<i>Region 883</i>																								
07 May	S04E56	305	0020	01	Axx	001	A																	
Still on Disk.													0	0	0	0	0	0	0	0	0	0	0	0
Absolute heliographic longitude: 305																								

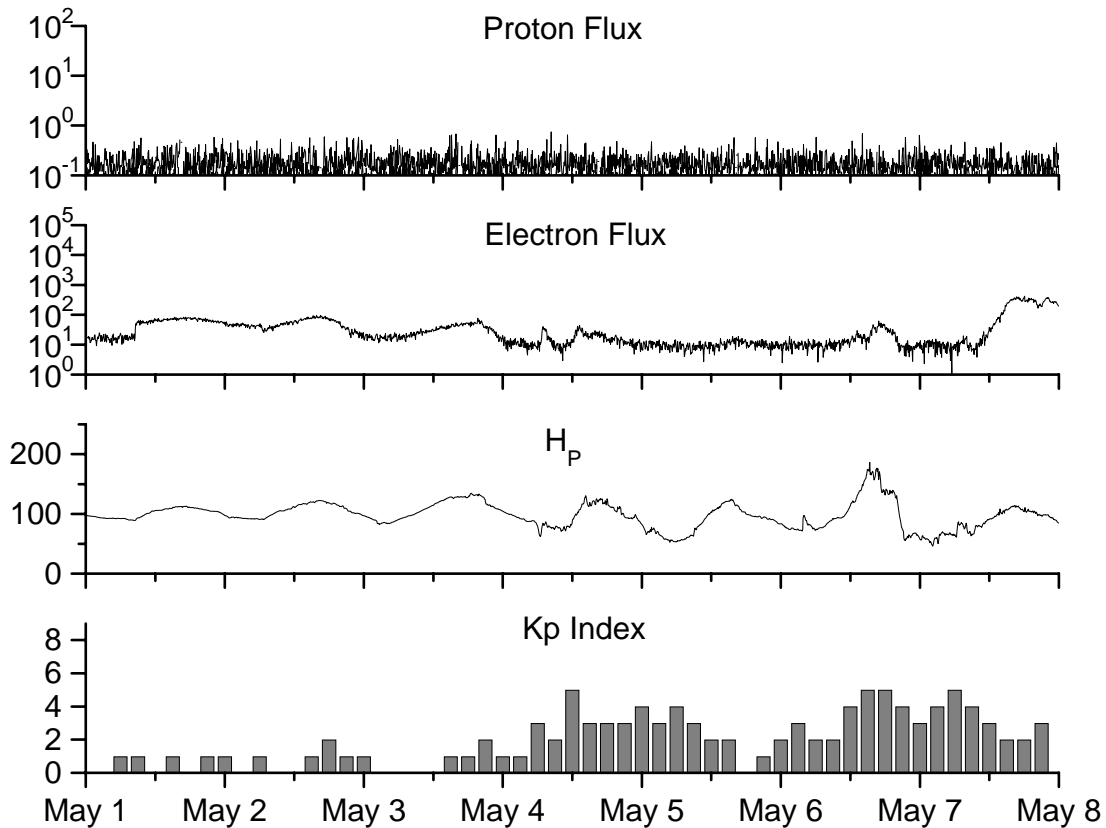


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
April	59.3	39.3	0.66	77.9	45.6	101.2	112.3	11	15.5
May	77.3	41.5	0.54	74.1	43.9	99.8	109.2	8	14.3
June	78.9	43.2	0.55	70.4	41.7	97.4	107.2	8	14.0
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	42.9	25.9	96.6	87.8	16	11.8
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			90.8		21	
October	13.0	8.5	0.65			76.7		7	
November	32.2	18.0	0.56			86.3		8	
December	62.6	41.2	0.66			90.8		7	
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	

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 01 May 2006*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-11 (W103) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

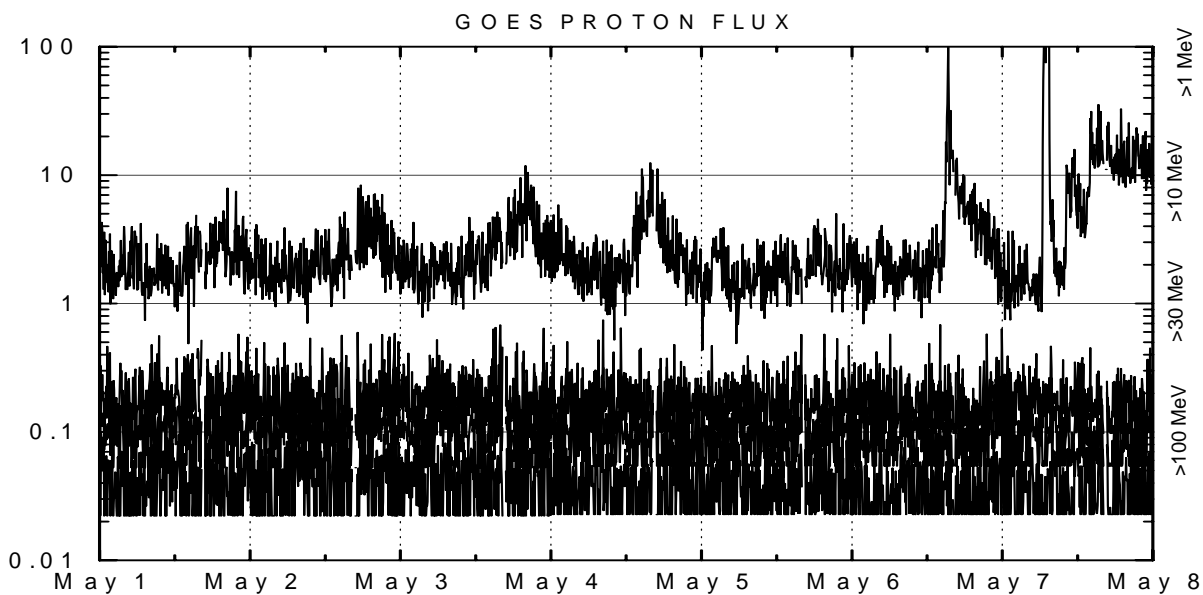
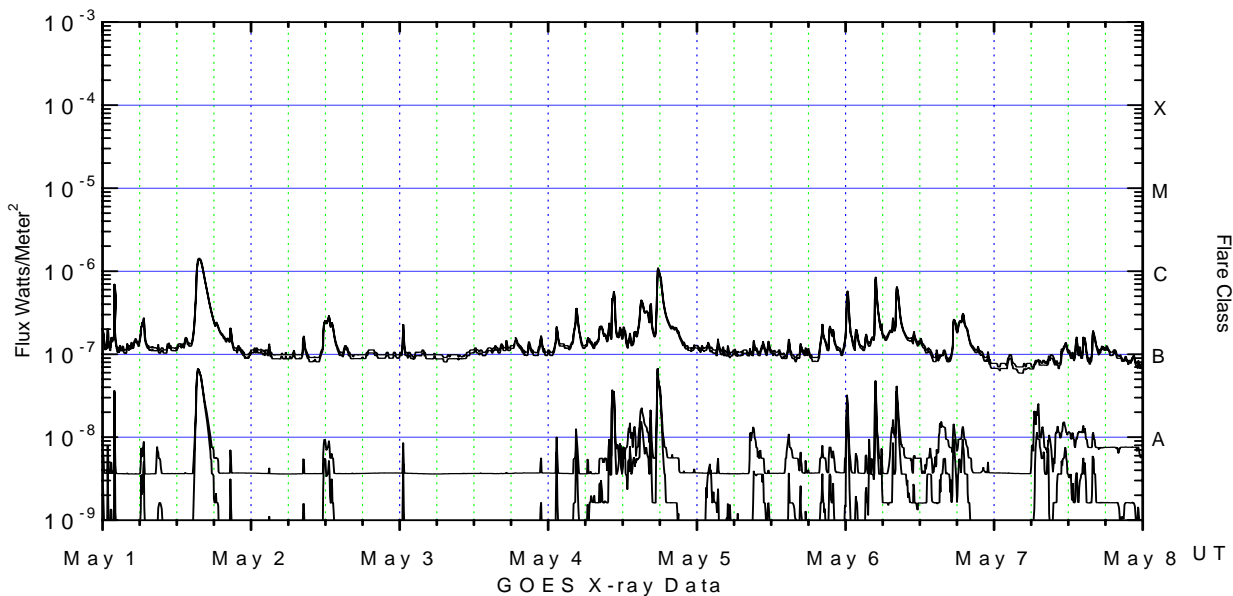
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W75).

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 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/m²) as measured by GOES 12 (W75) and GOES 10 (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 (W103) 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.

