

Space Weather Highlights
23 - 29 January 2006

SEC PRF 1587
31 January 2006

Solar activity was very low to low. Region 848 (S19, L=320, class/area, Eac/320 on 24 January) produced all of the summary period's activity. From 23 – 24 January, the region produced multiple B and C-class flares. From 24 January through 28 January, Region 848 gradually decayed in both size and complexity, and quietly rotated around the west limb on 28 January.

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

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels 27 – 29 January.

The geomagnetic field was at quiet to active levels at middle latitudes, while high latitudes observed quiet to major storm levels. Solar wind speed ranged from a low of about 400 km/s early on 23 January to a high of near 700 km/s early on 27 January. The Bz component of the IMF was generally weak, not varying much beyond +/- 5 nT for the majority of the period. Exceptions to this were a couple of 12-hour periods midday on 23 January and again midday on 26 January when the IMF Bz fluctuated between +/- 10 nT as recurrent coronal hole wind streams became geoeffective. On 23 and 26 January, the geomagnetic field responded with quiet to active levels at middle latitudes, while high latitudes experienced unsettled to major storm levels. Otherwise, the field was at quiet to unsettled levels.

Space Weather Outlook
01 February - 27 February 2006

Solar activity is expected to be at very low to low levels during the forecast period.

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 25 January – 01 February and again on 23 – 27 February.

The geomagnetic field is expected to range from quiet to minor storm levels. Active to minor storm periods are possible on 22 - 23 February due to effects from a recurrent coronal hole wind stream. Otherwise, quiet to unsettled conditions are expected.



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	
23 January	92	73	270	A6.2	1	0	0	0	0	0	0	0	0
24 January	93	62	340	B1.0	1	0	0	1	0	0	0	0	0
25 January	89	42	210	A8.2	0	0	0	0	0	0	0	0	0
26 January	87	24	130	A7.4	0	0	0	0	0	0	0	0	0
27 January	84	29	110	A6.5	0	0	0	0	0	0	0	0	0
28 January	80	11	30	A6.6	0	0	0	0	0	0	0	0	0
29 January	80	0	0	A4.6	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
	23 January	5.3E+5	1.6E+4	3.5E+3	9.8E+5	
24 January	2.1E+6	1.5E+4	3.3E+3	7.7E+6		
25 January	2.1E+6	1.4E+4	3.3E+3	6.4E+6		
26 January	2.3E+6	1.4E+4	3.2E+3	4.2E+6		
27 January	3.0E+6	1.4E+4	3.2E+3	1.6E+8		
28 January	1.8E+6	1.4E+4	3.3E+3	3.2E+8		
29 January	2.3E+6	1.4E+4	3.4E+3	4.1E+8		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	23 January	13	1-3-3-4-3-2-2-3	27	4-3-3-6-5-3-2-2	15
24 January	6	2-3-2-1-0-0-3-1	19	5-3-5-3-1-2-3-1	7	3-4-2-0-1-0-1-1
25 January	8	2-0-0-2-1-1-4-3	5	0-0-0-3-0-1-2-3	7	1-1-0-1-1-1-3-3
26 January	15	3-2-1-2-2-4-4-4	36	3-3-4-5-5-6-4-4	29	4-4-2-3-3-6-5-4
27 January	7	3-1-2-2-2-2-2-2	13	3-2-2-4-3-3-2-2	8	3-1-2-2-2-2-2-2
28 January	4	2-1-2-1-1-0-2-1	7	1-1-2-3-3-0-1-1	6	2-1-2-2-1-1-2-2
29 January	1	0-1-0-0-0-0-0-0	2	1-1-1-1-0-0-0-1	3	1-1-1-0-1-1-0-0

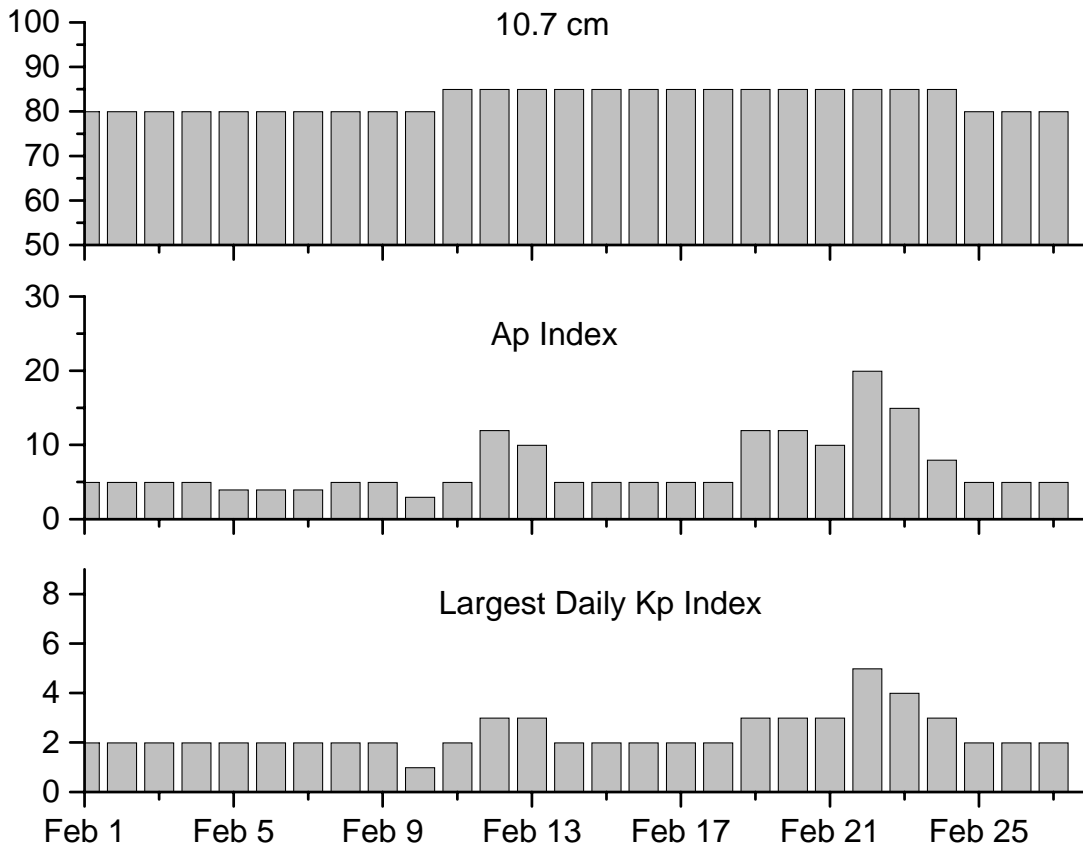


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UTC</u>
23 Jan 0324	WARNING: Geomagnetic K= 4	23 Jan 0330 -1600
23 Jan 0448	ALERT: Geomagnetic K=4	23 Jan 0445
23 Jan 0933	WARNING: Geomagnetic K=5	23 Jan 0930 -1600
23 Jan 1038	ALERT: Geomagnetic K=5	23 Jan 1036
24 Jan 0530	ALERT: Geomagnetic K= 4	24 Jan 0525
24 Jan 0543	WARNING: Geomagnetic K=4	24 Jan 0545 -1600
26 Jan 0116	ALERT: Geomagnetic K=4	26 Jan 0114
26 Jan 0518	ALERT: Geomagnetic K= 4	26 Jan 0515
26 Jan 1718	WARNING: Geomagnetic K= 4	26 Jan 1718 -2359
26 Jan 1720	ALERT: Geomagnetic K=4	26 Jan 1719
26 Jan 1736	ALERT: Geomagnetic K=5	26 Jan 1735
26 Jan 2353	EXTENDED WARNING: Geomagnetic K=4	26 Jan 1718 -27 Jan 1600
27 Jan 0926	ALERT: Electron 2MeV Integral Flux >1000pfu	27 Jan 0905
28 Jan 0622	ALERT: Electron 2MeV Integral Flux > 1000pfu	28 Jan 0500
29 Jan 0456	ALERT: Electron 2MeV Integral Flux >1000pfu	29 Jan 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
01 Feb	80	5	2	15 Feb	85	5	2
02	80	5	2	16	85	5	2
03	80	5	2	17	85	5	2
04	80	5	2	18	85	5	2
05	80	4	2	19	85	12	3
06	80	4	2	20	85	12	3
07	80	4	2	21	85	10	3
08	80	5	2	22	85	20	5
09	80	5	2	23	85	15	4
10	80	3	1	24	85	8	3
11	85	5	2	25	80	5	2
12	85	12	3	26	80	5	2
13	85	10	3	27	80	5	2
14	85	5	2				



Energetic Events

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

No Events Observed

Flare List

Date	Time			Optical	Imp/ Brtns	Location Lat CMD	Rgn
	Begin	Max	End	X-ray Class.			
23 January	0024	0028	0031	B1.4			848
	0032	0035	0037	B2.1			848
	0139	0142	0144	B1.1			848
	0153	0202	0205	B2.6			848
	0539	0542	0544	B1.1			848
	0853	0856	0858	B1.1			848
	1421	1425	1427	B1.2			848
	1509	1513	1516	B1.0			848
	1544	1547	1549	B1.9			848
	1651	1654	1656	B1.1			848
	1808	1815	1835	B1.7			848
	1846	1850	1853	B2.2			848
	1855	1859	1902	B3.0			848
24 January	2203	2217	2233	C3.0			848
	0048	0051	0053	B2.4			848
	0410	0413	0416	B3.8			848
	0520	0524	0527	B3.3			848
	0640	0644	0648	B1.8			848
	0702	0706	0709	B3.0			848
	0718	0718	0723	C1.0	Sf	S19W30	848
	1029	1034	1040	B1.9			848
	1533	1548	1557	B3.3			848
	1717	1721	1724	B1.8			848
	1856	1900	1921	B3.4			848
	2105	2108	2112	B1.2			848
	2153	2156	2158	B1.0			848
2234	2238	2240	B2.1			848	
25 January	0420	0427	0450	B1.9			848
	0637	0644	0649	B2.6			848
	0753	0758	0805	B2.8			848
	1252	1313	1322	B1.3			848
	1411	1418	1424	B8.8			848
	1646	1650	1656	B1.4			848
26 January	2342	2349	2357	B7.1			848
	0124	0128	0132	B3.8			848
	0603	0624	0635	B4.4			848



Flare List- Continued

Date	Time			Optical	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End	X-ray Class.			
27 January	0006	0011	0021	B1.8			848
	0213	0217	0221	B1.7			848
	1317	1333	1339	B5.6			848
	2134	2137	2139	B1.5			848
28 January	0922	0927	0930	B2.1			848
	1019	1045	1132	B3.4			848
	1545	1550	1554	B2.2			848
29 January	0155	0201	0207	B1.2			851
	0211	0217	0228	B1.2			
	1323	1335	1341	B1.6			851

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 848

18 Jan	S18E37	322	0060	06	Dai	009	B								
19 Jan	S19E24	321	0140	08	Dao	015	B								
20 Jan	S20E10	322	0160	09	Dao	012	B								
21 Jan	S19W02	321	0200	11	Eki	018	B								
22 Jan	S19W15	321	0250	12	Eac	039	Bgd	5			2				
23 Jan	S19W28	321	0230	11	Eac	036	Bg	1							
24 Jan	S19W41	320	0320	12	Eac	028	Bg	1			1				
25 Jan	S18W52	318	0200	12	Esi	021	B								
26 Jan	S20W66	319	0130	12	Eac	014	B								
27 Jan	S20W78	318	0090	11	Eao	007	B								
28 Jan	S24W88	315	0030	01	Hax	001	A								
								7	0	0	3	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 321



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 849

22 Jan	S07E44	262	0010	01	Hsx	001	A										
23 Jan	S07E31	223	0010	01	Hsx	001	A										
24 Jan	S07E16	263	0010	01	Hsx	002	A										
25 Jan	S08E03	263															
26 Jan	S08W10	263															
27 Jan	S08W23	263															
28 Jan	S08W36	263															
29 Jan	S08W49	263															

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Still on Disk.

Absolute heliographic longitude: 263

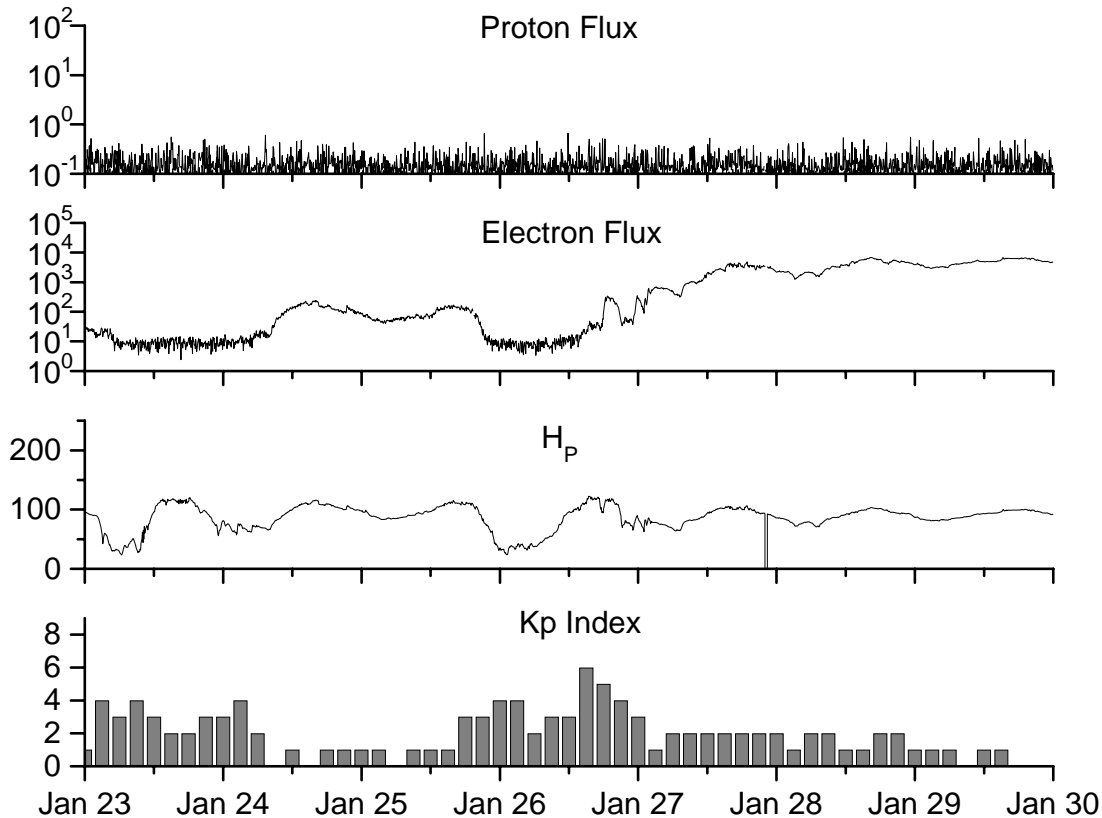


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
January	62.3	37.7	0.61	87.9	52.0	114.1	116.3	22	18.1
February	75.6	45.8	0.61	84.2	49.4	107.0	115.5	13	17.7
March	81.0	49.1	0.61	80.9	47.2	112.2	114.6	14	16.9
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			96.6		16	
August	65.6	36.4	0.55			90.7		16	
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	

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 23 January 2006*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-11 (W107) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

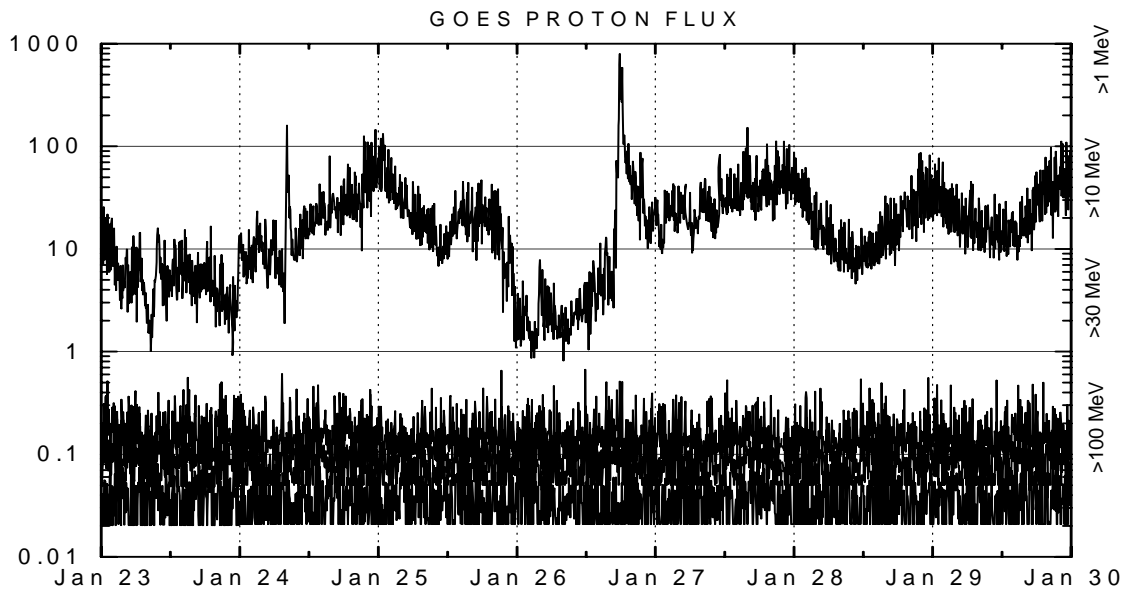
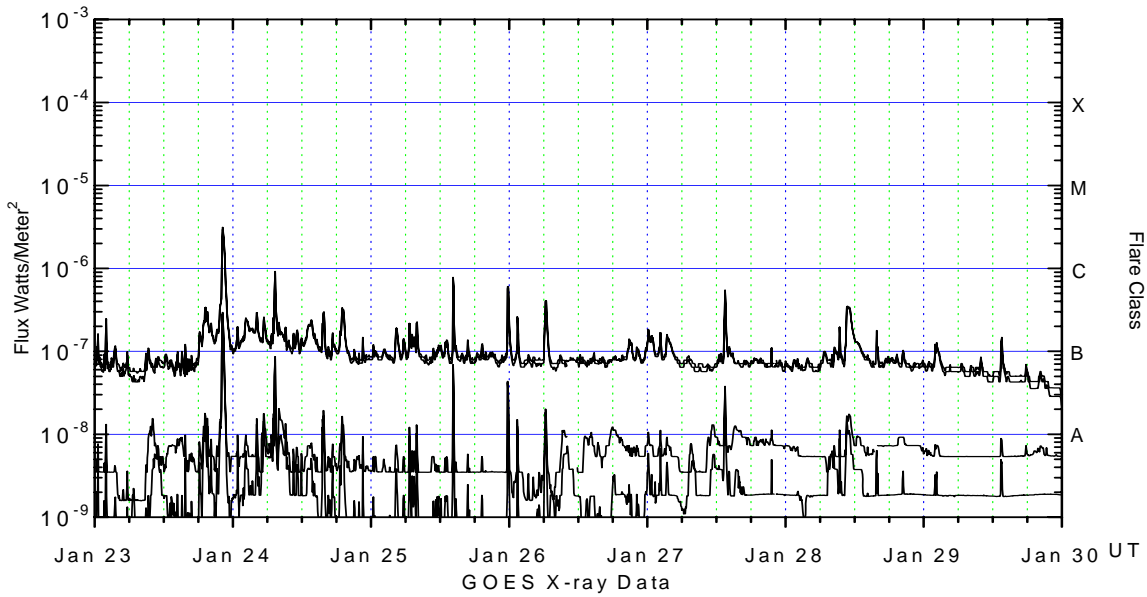
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W75).

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 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 (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 (W107) 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.

