

Solar activity ranged from very low to low. Late on 28 February, a series of complex eruptions were observed in LASCO imagery. These were likely back-sided events as there was no apparent front-side source for the CME activity. Region 741 (N12, L=193, class/area, Cao/110 on 05 March produced the only activity of significance, a C1.1 flare at 05/2207 UTC. This region is most likely the return of old Region 720, which produced significant activity on its initial rotation. All other regions on the disk were magnetically simple and stable.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft during most of the summary period. The period began with solar wind speed near 450 km/s while the Bz component of the IMF fluctuated between +/- 7 nT as a small, southern coronal hole wind stream was in a geoeffective position. Wind speed steadily increased for the next 48 hours and peaked near 680 km/s by early on 02 March. Thereafter, and through early on 06 March, wind speed decayed, and the IMF Bz relaxed, not varying much beyond +/- 3 nT as effects from the coronal hole subsided. By early on 05 March, the IMF Bz began to oscillate through +/- 6 nT while temperature and density increased, all indicative of a co-rotating interactive region (CIR) and a high speed coronal hole wind stream. By early on the 06th, wind speed gradually increased to near 480 km/s as a large, northern coronal hole high speed stream rotated into a geoeffective position. Wind speed remained steady at 480 km/s for about two hours, then began a steady increase. The period ended with the solar wind speed near 700 km/s. The Bz component of the IMF increased its variability fluctuating between +/- 10 nT. For the balance of the summary period, the geomagnetic field remained under the influence of the high speed stream.

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 from 02 –06 March.

During the summary period, the geomagnetic field ranged from quiet to minor storm levels at lower latitudes with minor to severe storming periods observed at the higher latitudes. The period began on 28 February with quiet to active conditions, while periods of minor storming was observed at the higher latitudes due to the effects of a geoeffective coronal hole high speed wind stream. These conditions persisted through most of 02 March. From 03 – 05 March, the field was quiet to unsettled with some active conditions at high latitudes. By 06 March, the large, northern coronal hole high speed stream rotated into a geoeffective position. Unsettled to minor storming was observed at middle latitudes, while minor to severe storming occurred at the higher latitudes. These conditions persisted for the remainder of the summary period.

Space Weather Outlook **09 March - 04 April 2005**

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

A greater than 10 MeV proton event is not expected.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 09 – 12 March, 17 – 19 March, and 03 – 04 April.

The geomagnetic field is expected to range from quiet to minor storm levels. Coronal hole high speed wind streams are expected to produce unsettled to active levels with occasional minor storm periods on 09 – 10 March, 16 – 17 March, and again on 02 – 04 April. Otherwise, expect quiet to unsettled conditions.



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	
28 February	75	11	0	A1.5	0	0	0	0	0	0	0	0	0
01 March	74	11	10	A2.1	0	0	0	0	0	0	0	0	0
02 March	75	11	20	A2.0	0	0	0	0	0	0	0	0	0
03 March	77	24	20	A4.1	0	0	0	0	0	0	0	0	0
04 March	79	13	110	A4.5	0	0	0	0	0	0	0	0	0
05 March	81	22	110	A4.7	1	0	0	1	1	0	0	0	0
06 March	84	22	80	A6.4	0	0	0	3	1	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day-sr)			Electron Fluence (electrons/cm ² -day-sr)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
	28 February	4.0E+5	1.3E+4	3.1E+3		8.7E+6
01 March	1.3E+6	1.4E+4	3.1E+3		2.9E+7	
02 March	1.7E+6	1.4E+4	3.2E+3		8.6E+7	
03 March	6.2E+5	1.4E+4	3.4E+3		8.2E+7	
04 March	8.1E+5	1.4E+4	3.4E+3		1.2E+8	
05 March	6.0E+5	1.4E+4	3.6E+3		1.7E+7	
06 March	6.4E+5	1.3E+4	3.1E+3		1.7E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	28 February	8	1-2-3-2-2-2-1-3	15	1-1-4-5-3-2-2-2	12
01 March	10	2-2-3-3-2-2-2-3	16	2-1-3-6-2-1-2-2	11	2-1-3-3-2-2-2-4
02 March	8	2-3-2-2-2-3-1-0	21	2-3-5-5-4-4-0-1	12	3-3-3-3-3-3-1-1
03 March	2	1-1-1-0-1-1-1-0	3	1-1-1-0-2-1-1-1	4	1-1-0-1-1-2-2-1
04 March	1	0-0-0-0-0-0-1-1	0	1-0-0-0-0-0-0-0	3	1-0-0-0-1-1-1-0
05 March	8	2-3-2-1-1-1-2-3	19	1-4-4-3-4-4-2-3	10	1-3-2-2-2-2-3-3
06 March	17	4-2-3-3-3-3-3-4	60	3-3-5-7-5-7-5-4	36	5-3-5-4-3-5-4-5

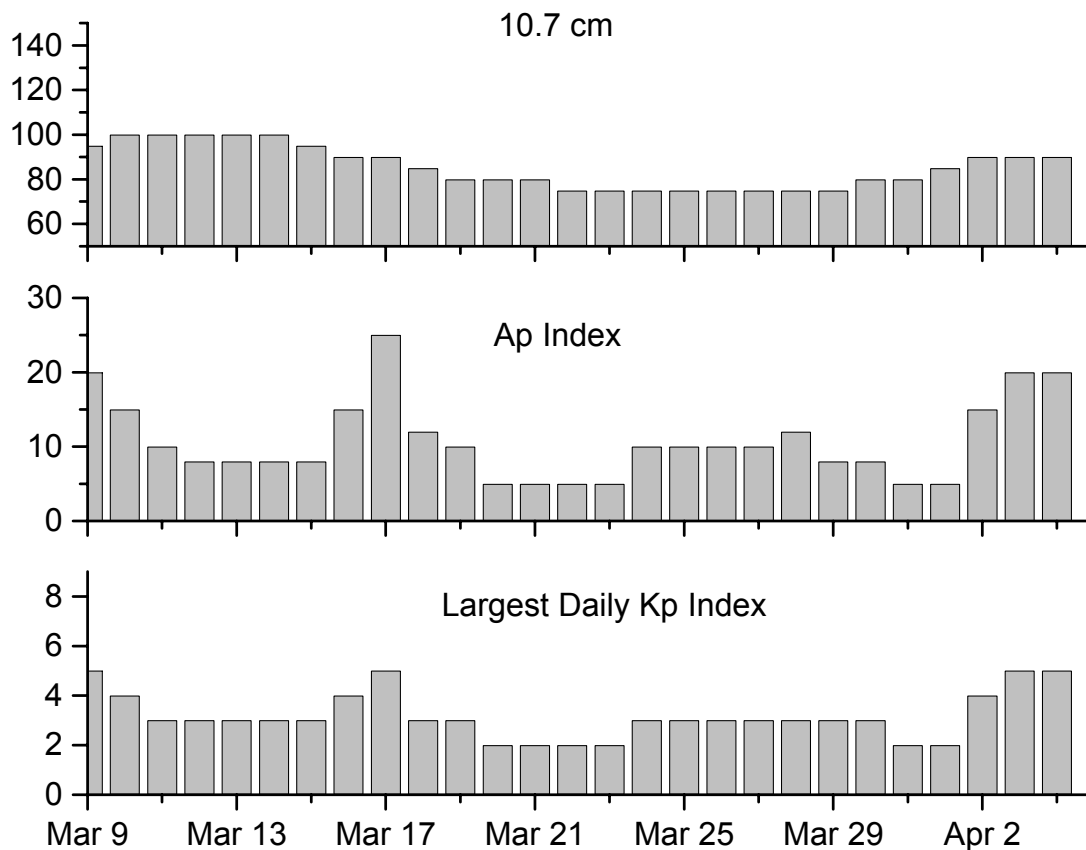


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UTC</u>
28 Feb 2341	WARNING: Geomagnetic K= 4	28 Feb 2345 – 01 Mar 1600
02 Mar 1252	ALERT: Electron 2MeV Integral Flux > 1000pfu	02 Mar 1230
03 Mar 1302	ALERT: Electron 2MeV Integral Flux > 1000pfu	03 Mar 1245
04 Mar 0901	ALERT: Electron 2MeV Integral Flux > 1000pfu	04 Mar 0840
05 Mar 2135	WATCH: Geomagnetic A \geq 20	07 Mar
06 Mar 0129	WARNING: Geomagnetic K= 4	06 Mar 0129 - 1600
06 Mar 0132	ALERT: Geomagnetic K= 4	06 Mar 0132
06 Mar 0800	WARNING: Geomagnetic K= 5	06 Mar 0755 - 1600
06 Mar 1139	ALERT: Geomagnetic K= 5	06 Mar 1139
06 Mar 1522	EXTENDED WARNING: Geomagnetic K= 5	06 Mar 0755 - 2359
06 Mar 2252	EXTENDED WARNING: Geomagnetic K= 5	06 Mar 0755 - 07 Mar 1600



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
09 Mar	95	20	5	23 Mar	75	5	2
10	100	15	4	24	75	5	2
11	100	10	3	25	75	10	3
12	100	8	3	26	75	10	3
13	100	8	3	27	75	10	3
14	100	8	3	28	75	12	3
15	95	8	3	29	75	8	3
16 Mar	90	15	4	30	80	8	3
17	90	25	5	31	80	5	2
18	85	12	3	01 Apr	85	5	2
19	80	10	3	02	90	15	4
20	80	5	2	03	90	20	5
21	80	5	2	04	90	20	5
22	75	5	2				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
28 February	No Flares Observed						
01 March	No Flares Observed						
02 March	No Flares Observed						
03 March	1439	1504	1536	B6.8			741
04 March	1305	1316	1321	B2.8			741
05 March	1025	1029	1048	B2.0			741
	1652	1655	1658	B1.9			741
	1957	2007	2010	C1.1			741
	B2140	2144	2147		Sf	N11E59	
	B2154	2326	A0000		1f	N16E63	
06 March	0112	0122	0130	B2.7	Sf	N12E59	741
	B0141	0147	0149		1f	N16E61	
	0630	0635	0639	B1.0			741
	B0729	0740	A0740		Sf	N16E58	
	0840	0846	0852	B1.7			741
	1717	1720	1722	B1.1			
	1820	1825	1827	B3.4			
	B2134	2248	0023	B1.1	Sf	N16E48	



Region Summary

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

Region 739

26 Feb	S04E52	291	0030	05	Bxo	004	B										
27 Feb	S04E38	292	0020	01	Axx	002	A										
28 Feb	S04E21	295	0000	01	Axx	001	A										
01 Mar	S03E10	293	0010	01	Axx	001	A										
02 Mar	S03W03	293															
03 Mar	S03W16	293	0010	03	Bxo	002	B										
04 Mar	S03W29	293															
05 Mar	S03W42	293															
06 Mar	S03W55	293															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 293

Region 740

02 Mar	S07W24	314	0020	01	Hsx	001	A										
03 Mar	S07W37	314	0010	01	Axx	002	A										
04 Mar	S07W50	314															
05 Mar	S07W63	314															
06 Mar	S07W76	314															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 314

Region 741

04 Mar	N12E70	194	0110	05	Cao	003	B										
05 Mar	N12E57	193	0110	08	Cao	012	B	1									
06 Mar	N12E44	193	0080	07	Dao	012	B				1						

1 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 193

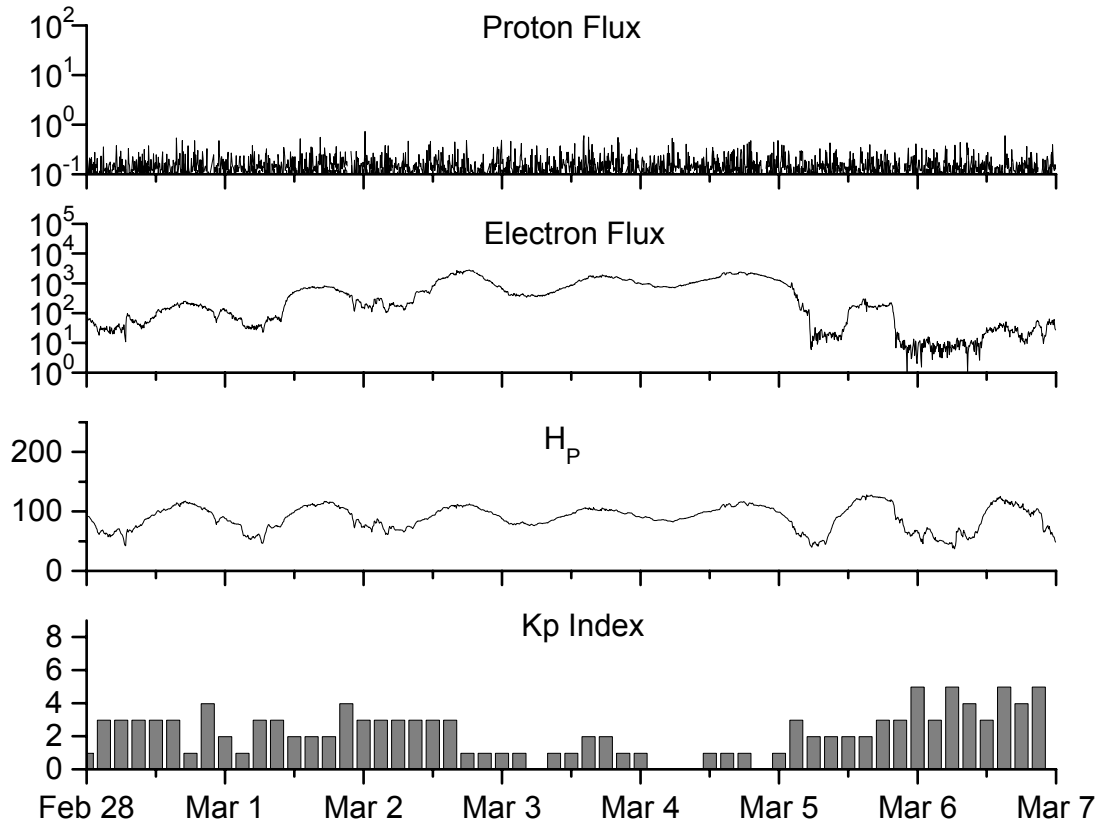


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SWO	Ratio RI	Ratio RI/SWO	Smooth values SWO	Smooth values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2003									
February	87.0	46.0	0.53	136.4	78.5	124.5	144.7	17	18.9
March	119.7	61.1	0.51	128.1	74.2	132.2	139.5	21	19.4
April	119.7	60.0	0.50	121.5	70.3	126.3	135.0	20	20.1
May	89.6	55.2	0.62	118.3	67.8	129.3	133.1	26	21.0
June	118.4	77.4	0.65	113.6	65.2	129.4	130.2	24	21.5
July	132.8	85.0	0.64	106.9	62.0	127.8	127.2	19	22.0
August	114.3	72.7	0.64	102.8	60.3	122.1	125.2	23	22.2
September	82.6	48.8	0.59	100.7	59.8	112.3	123.7	18	21.8
October	118.9	65.5	0.55	96.6	58.4	153.1	121.8	35	21.1
November	118.9	67.3	0.57	93.6	57.0	153.1	120.1	28	20.0
December	75.4	46.5	0.62	91.4	55.0	115.1	118.0	16	18.6
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			110.1		11	
September	50.0	27.7	0.55			103.1		10	
October	77.9	48.4	0.62			105.7		9	
November	70.5	43.7	0.62			113.2		26	
December	34.7	17.9	0.52			94.6		11	
2005									
January	52.0	31.3	0.60			102.4		22	

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 28 February 2005*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W110) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

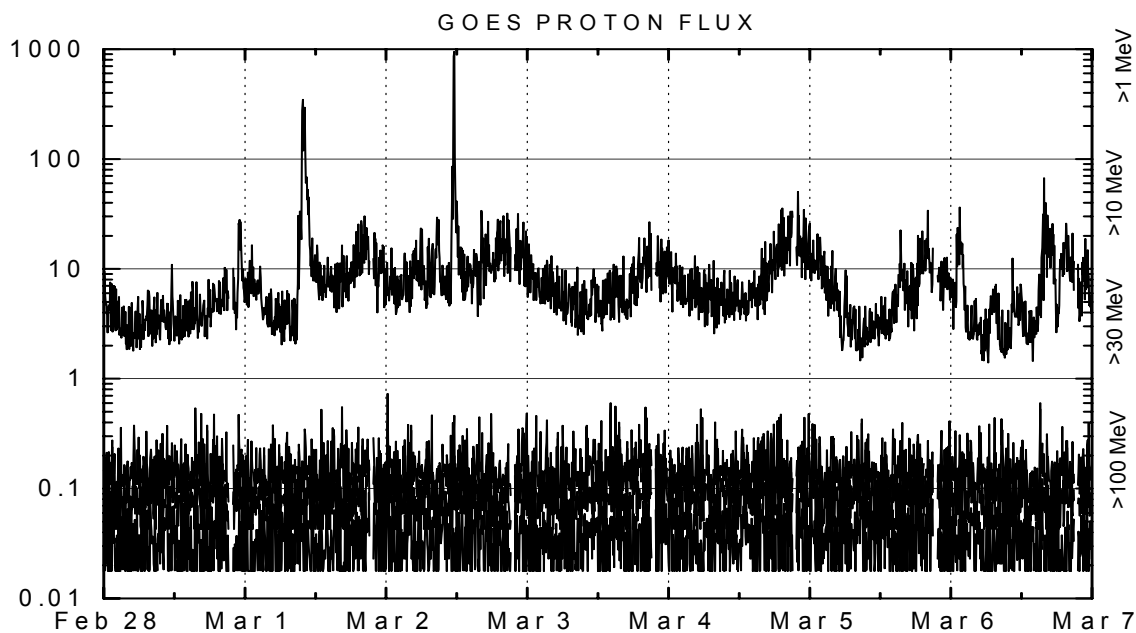
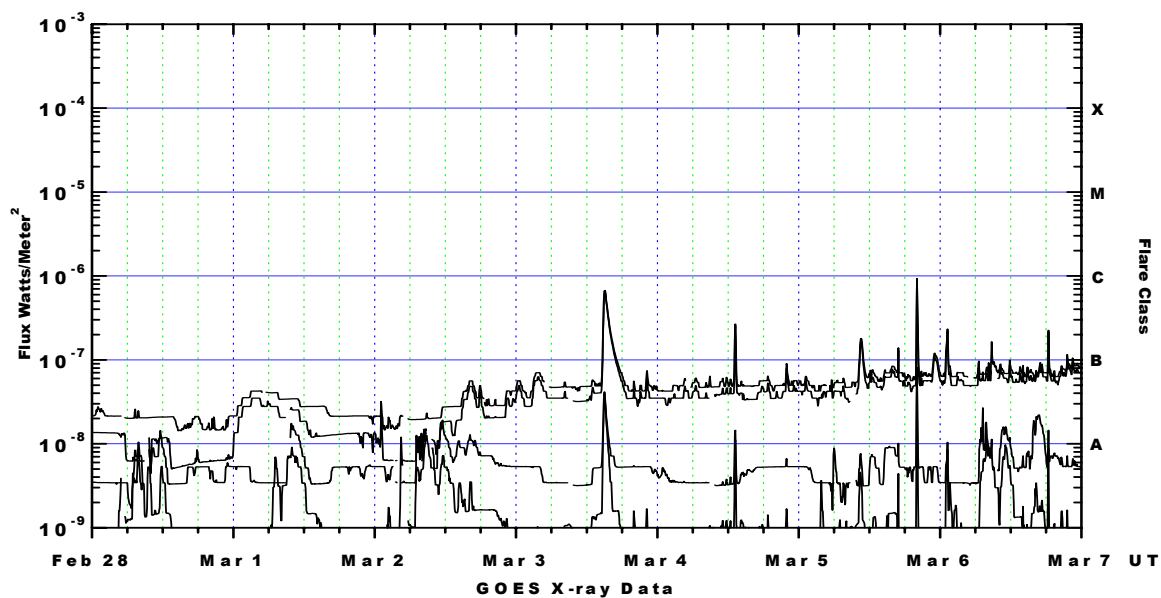
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-12 (W75).

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 SWO 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 (W76) 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 (W110) 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.

