

Space Weather Highlights
07 - 13 November 2005

SWO PRF 1576
15 November 2005

Solar activity was at very low to moderate levels. New Region 822 (S06, L=082, class/area, Cao/120 on 13 November) produced the majority of this period's activity. Late on 12 November and early on 13 November, this region produced two high level C-class flares. At 13/1451 UTC, Region 822 produced an impulsive M2.5 X-ray event; the first significant activity in almost two months. At the time of writing, Region 822 was rotating onto the disk where a detailed magnetic analysis was difficult. Other activity included a filament eruption near the central meridian late on 08 November. The remainder of the disk and limb was quiet and stable.

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 on 07 – 11 November.

The geomagnetic field, at middle latitudes, ranged from quiet to unsettled levels with an isolated active period early on 13 November. At high latitudes, the field was generally quiet to unsettled through early on 12 November. Thereafter, the field was generally at active to major storm levels. Solar wind speed ranged from a high of near 700 km/s early on 07 November to a low of about 340 km/s late on 10 November. The period began with wind speed elevated at near 700 km/s, but decaying, and the Bz component of the IMF not varying much beyond +/- 3 nT. These conditions persisted through late on 10 November. Early on 11 November, a weak shock was detected in the ACE SWEPAM data as wind speed slowly elevated to near 400 km/s, and the IMF Bz fluctuated weakly to +/- 7 nT. This shock was believed to be associated with the filament eruption late on 08 November. The period ended with wind speed near 400 km/s and the IMF Bz not varying much beyond +/- 5 nT.

Space Weather Outlook
16 November - 12 December 2005

Solar activity is expected to be at low to moderate levels through 25 November when Region 822 is due to rotate around the west limb. Thereafter, very low to low activity is expected.

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 16 – 17 November, 01 – 08 December, and 12 December.

The geomagnetic field is expected to range from quiet to minor storm levels. Unsettled to active levels are possible on 21 November, while unsettled to minor storm levels are possible on 30 November – 01 December due to recurrent coronal hole high speed wind streams. 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	
07 November	79	31	180	A5.2	0	0	0	0	0	0	0	0	0
08 November	79	38	120	A4.9	0	0	0	0	0	0	0	0	0
09 November	78	13	30	A4.1	1	0	0	0	0	0	0	0	0
10 November	78	0	0	A3.1	0	0	0	0	0	0	0	0	0
11 November	79	0	0	A2.1	0	0	0	0	0	0	0	0	0
12 November	83	11	120	B1.2	2	0	0	0	0	0	0	0	0
13 November	88	16	120	B2.4	6	1	0	3	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
	07 November	1.1E+6	1.5E+4	3.3E+3		1.8E+8
08 November	1.1E+6	1.5E+4	3.3E+3		2.4E+8	
09 November	1.4E+6	1.5E+4	3.6E+3		3.8E+8	
10 November	1.4E+6	1.5E+4	3.5E+3		3.4E+8	
11 November	1.1E+6	1.6E+4	3.5E+3		1.1E+8	
12 November	8.1E+5	1.6E+4	3.8E+3		2.6E+7	
13 November	3.8E+5	1.6E+4	3.7E+3		1.2E+7	

Daily Geomagnetic Data

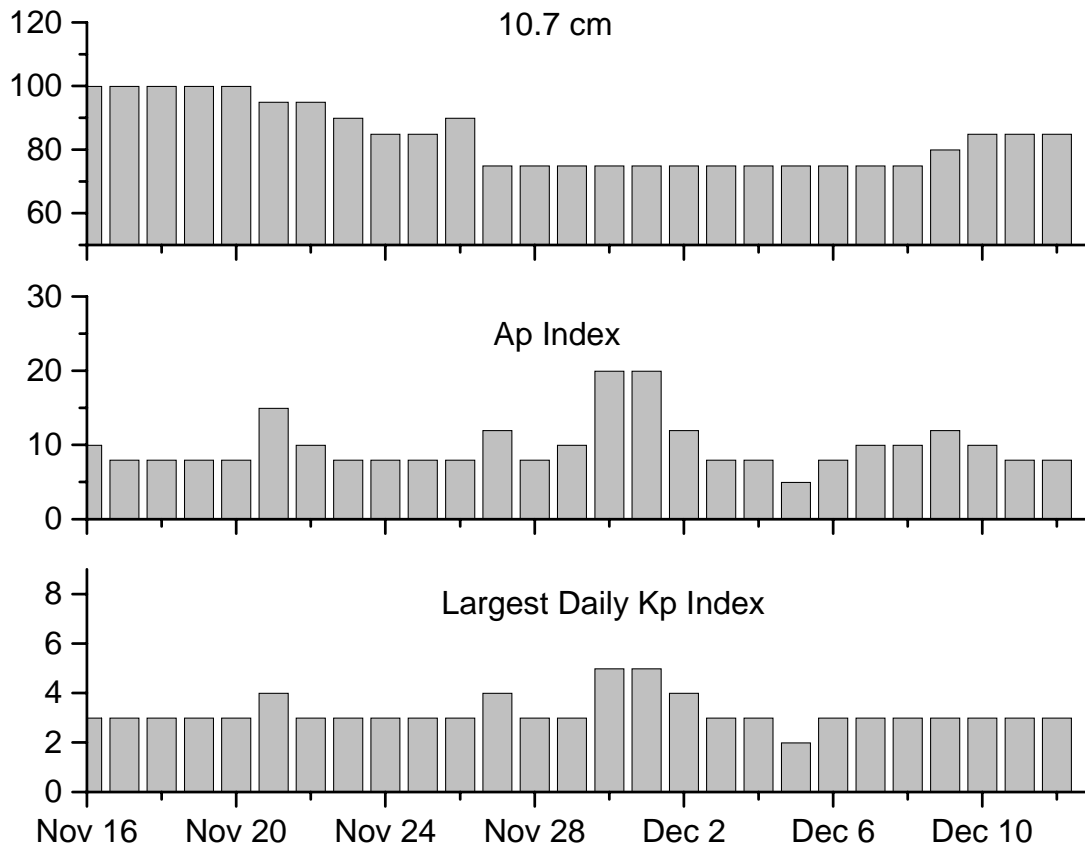
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	07 November	6	3-1-3-2-1-1-1-0	7	3-1-3-2-2-1-2-0	6
08 November	2	1-0-1-0-1-1-0-1	3	2-0-2-1-0-1-0-1	3	1-0-1-1-1-1-0-1
09 November	1	2-0-0-0-0-0-1-0	1	1-0-1-1-0-0-0-0	3	2-0-0-0-0-1-0-1
10 November	1	0-0-1-0-0-0-0-1	2	0-0-1-1-0-0-0-2	2	0-0-1-0-0-0-1-1
11 November	3	1-2-0-1-1-1-1-1	4	0-1-0-3-2-2-1-0	5	1-2-1-1-2-2-1-1
12 November	7	2-3-2-2-2-2-1-1	33	1-5-4-5-6-5-2-1	10	2-3-2-2-3-3-2-1
13 November	12	3-4-3-2-2-2-1-3	37	1-2-3-6-6-6-4-2	14	3-4-3-3-3-3-2-3

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
07 Nov 0848	ALERT: Electron 2MeV Integral Flux > 1000pfu	07 Nov 0820
08 Nov 0515	ALERT: Electron 2MeV Integral Flux > 1000pfu	08 Nov 0500
09 Nov 0515	ALERT: Electron 2MeV Integral Flux > 1000pfu	09 Nov 0500
10 Nov 0515	ALERT: Electron 2MeV Integral Flux > 1000pfu	10 Nov 0500
11 Nov 1002	ALERT: Electron 2MeV Integral Flux > 1000pfu	11 Nov 0940
13 Nov 0418	WARNING: Geomagnetic K = 4	13 Nov 0418 - 1500
13 Nov 0420	ALERT: Geomagnetic K = 4	13 Nov 0420



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
16 Nov	100	10	3	30	75	20	5
17	100	8	3	01 Dec	75	20	5
18	100	8	3	02	75	12	4
19	100	8	3	03	75	8	3
20	100	8	3	04	75	8	3
21	95	15	4	05	75	5	2
22	95	10	3	06	75	8	3
23 Nov	90	8	3	07	75	10	3
24	85	8	3	08	75	10	3
25	85	8	3	09	80	12	3
26	90	8	3	10	85	10	3
27	75	12	4	11	85	8	3
28	75	8	3	12	85	8	3
29	75	10	3				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	½ Max	Class	Flux	Imp/ Brtns	Location		Radio Flux		Intensity	
							Lat	CMD	245	2695	II	IV
13 Nov	1429	1451	1456	M2.5	.016							

Flare List

Date	Time			Optical X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn	
	Begin	Max	End					
07 November	0232	0235	0239	B1.0			820	
	0356	0400	0410	B1.0			820	
	0740	0805	0821	B2.2			820	
	1648	1655	1707	B1.6				
	1934	1938	1940	B1.6			819	
	2052	2059	2107	B4.3			820	
	2229	2234	2237	B3.4			819	
08 November	0225	0237	0254	B2.4			820	
09 November	0200	0205	0209	B2.5			820	
	0241	0301	0306	C1.2			820	
10 November	No Flares Observed							
11 November	No Flares Observed							
12 November	0311	0317	0342	B3.4				
	0414	0424	0439	B3.3			822	
	0736	0739	0741	B3.2			822	
	0941	1006	1018	B9.9			822	
	1332	1340	1349	B5.0			822	
	1418	1458	1603	C2.5			822	
	1817	1828	1837	B3.8			822	
	1843	1846	1850	B4.6			822	
	1917	1921	1923	B5.6			822	
	1925	1933	1937	C9.5			822	
	1958	2003	2007	B6.9			822	
	13 November	0013	0036	0045	C9.5			822
		0205	0225	0240	B7.6			822
		0309	0406	0413	C1.9			822
0520		0522	0523	C6.7	Sf	S09E77	822	
0602		0603	0607	C2.7	Sf	S09E82	822	
0717		0717	0722		Sf	S09E82	822	
1241		1249	1257	C2.7			822	
1414		1417	1419	B3.8				
1429		1451	1456	M2.5			822	
1923		1926	1928	B3.9				
2001		2009	2020	B7.4			822	
2119	2158	2216	C2.8			822		



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	4									
<i>Region 819</i>																								
31 Oct	S09E26	293	0020	03	Cso	003	B																	
01 Nov	S09E12	294	0030	04	Cso	006	B																	
02 Nov	S09W01	294	0030	06	Bxo	007	B																	
03 Nov	S09W14	294	0010	01	Axx	001	A						1											
04 Nov	S07W28	294	0010	01	Axx	001	A																	
05 Nov	S07W41	294																						
06 Nov	S11W57	297	0000	01	Axx	001	A																	
07 Nov	S12W72	299	0120	05	Cao	003	B																	
08 Nov	S09W86	300	0030	04	Bxo	002	B																	
									0	0	0	1	0	0	0	0	0	0						
Crossed West Limb.																								
Absolute heliographic longitude: 294																								
<i>Region 820</i>																								
05 Nov	S16W27	280	0050	04	Dao	008	B																	
06 Nov	S17W41	281	0070	09	Dao	013	B						1											
07 Nov	S16W54	281	0060	06	Cao	008	B																	
08 Nov	S17W69	283	0080	07	Cao	004	B																	
09 Nov	S16W81	281	0030	05	Bxo	003	B																	
10 Nov	S16W94	281																						
									1	0	0	0	0	0	0	0	0	0						
Crossed West Limb.																								
Absolute heliographic longitude:280																								
<i>Region 821</i>																								
08 Nov	S14W19	233	0010	02	Axx	002	A																	
09 Nov	S13W32	233																						
10 Nov	S13W45	233																						
11 Nov	S13W58	233																						
									0	0	0	0	0	0	0	0	0	0						
Still on Disk.																								
Absolute heliographic longitude:233																								
<i>Region 822</i>																								
12 Nov	S04E81	080	0120	02	Hsx	001	A		2															
13 Nov	S06E66	082	0120	08	Cao	006	B		6	1		3												
									8	1	0	3	0	0	0	0	0	0						
Still on Disk.																								
Absolute heliographic longitude:82																								

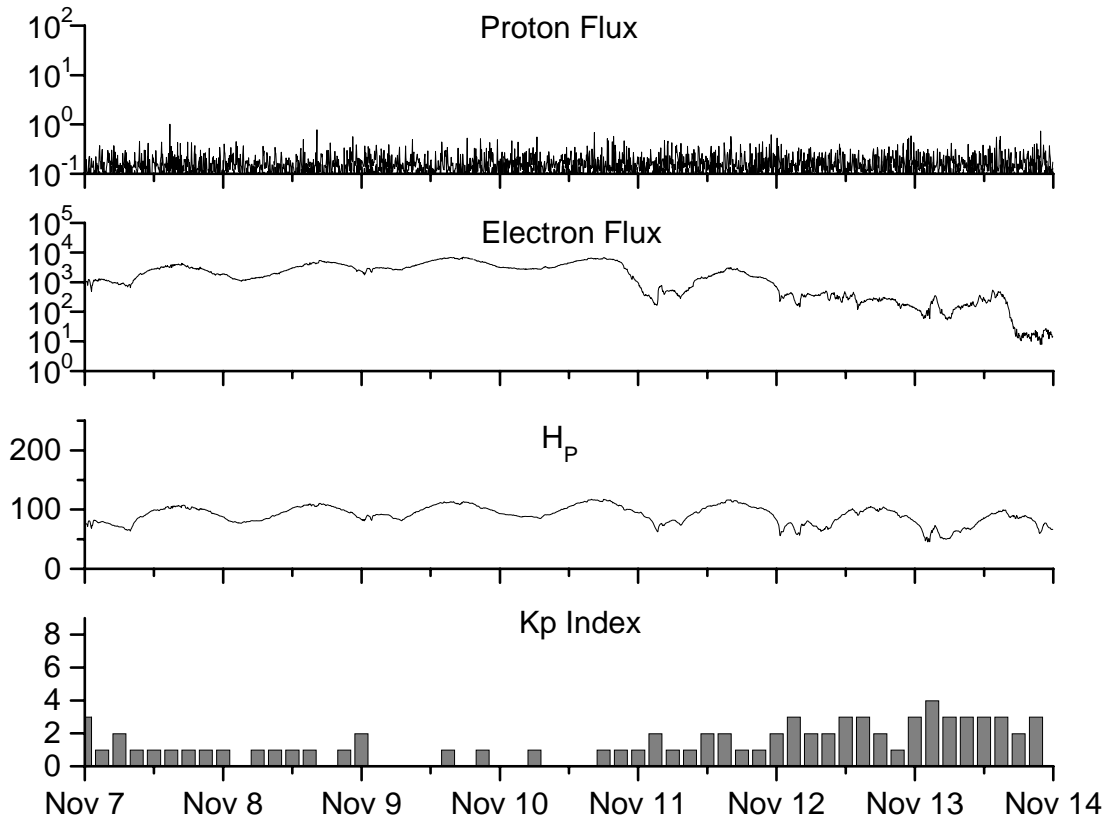


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
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	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			99.5		20	
June	59.8	39.6	0.66			93.7		13	
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	

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 07 November 2005

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-11 (W112) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

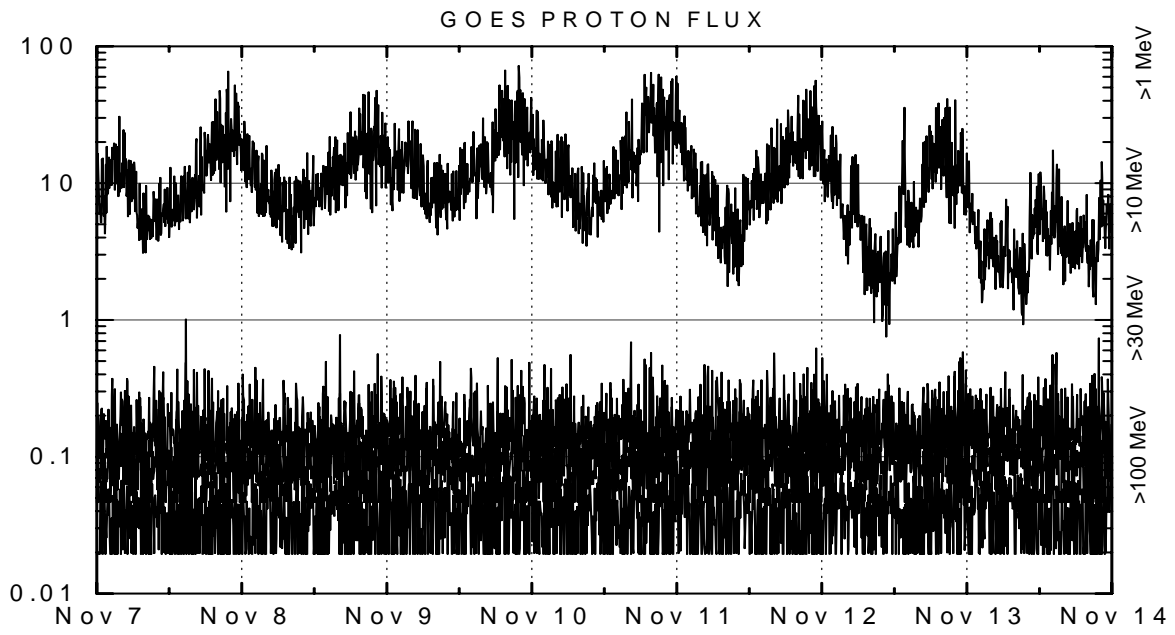
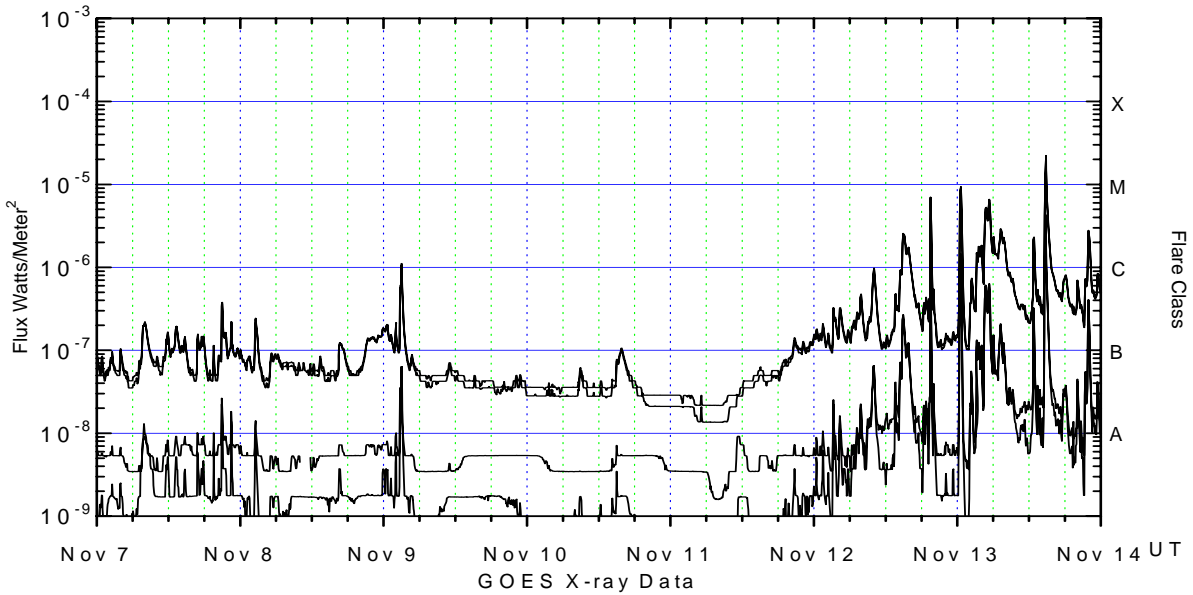
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W76).

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 (W112) 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.

