

Space Weather Highlights
04 October – 10 October 2004

SWO PRF 1519
12 October 2004

Solar activity was very low to low this period. Region 679 (S10, L=004), a spotless plage region, produced three low-level C-class flares early in the summary period. Region 680 (N15, L=124, class/area, Dao/080 on 08 Oct) accounted for the remainder the period's activity producing four low-level C-class flares before rotating around the west limb on 09 October. The summary period ended with the disk spotless.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft during most of the summary period. A sector boundary crossing on 03 October was followed by elevated solar wind plasma and IMF Bz oscillating between +6 and -8 nT through 04 October. Solar wind conditions returned to quiet levels by 05 October and persisted through early 08 October. Solar wind speed gradually rose from a low of 275 km/s to near 425 km/s by the end of the summary period.

There were no greater than 10 MeV proton events at geo-synchronous orbit during the summary period.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels the entire summary period.

The geomagnetic field was mostly quiet to unsettled with some isolated periods of active conditions observed at high latitudes.

Space Weather Outlook
13 October – 08 November 2004

Solar activity is expected to be very low to low.

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 13 – 17 October.

The geomagnetic field is expected to range from mostly quiet to unsettled. From 13 – 15 October, a recurrent high speed coronal hole wind stream is expected to produce occasional active to minor storm periods.



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
04 October	91	41	140	A5.7	1	0	0	0	0	0	0	0
05 October	91	40	120	A6.8	1	0	0	0	0	0	0	0
06 October	92	39	130	A6.8	1	0	0	0	0	0	0	0
07 October	94	38	140	A6.4	0	0	0	0	0	0	0	0
08 October	91	28	100	B1.1	0	0	0	0	0	0	0	0
09 October	88	24	110	B1.3	3	0	0	0	0	0	0	0
10 October	89	0	0	B1.7	1	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)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
	04 October	1.5E+5	1.5E+4	3.6E+3		3.1E+6
05 October	1.5E+5	1.5E+4	3.7E+3		6.6E+6	
06 October	1.0E+5	1.5E+4	3.8E+3		1.1E+7	
07 October	1.4E+5	1.5E+4	3.9E+3		2.4E+7	
08 October	2.3E+5	1.6E+4	4.1E+3		7.6E+6	
09 October	4.0E+5	1.5E+4	4.1E+3		1.8E+6	
10 October	2.9E+5	1.4E+4	3.8E+3		1.7E+6	

Daily Geomagnetic Data

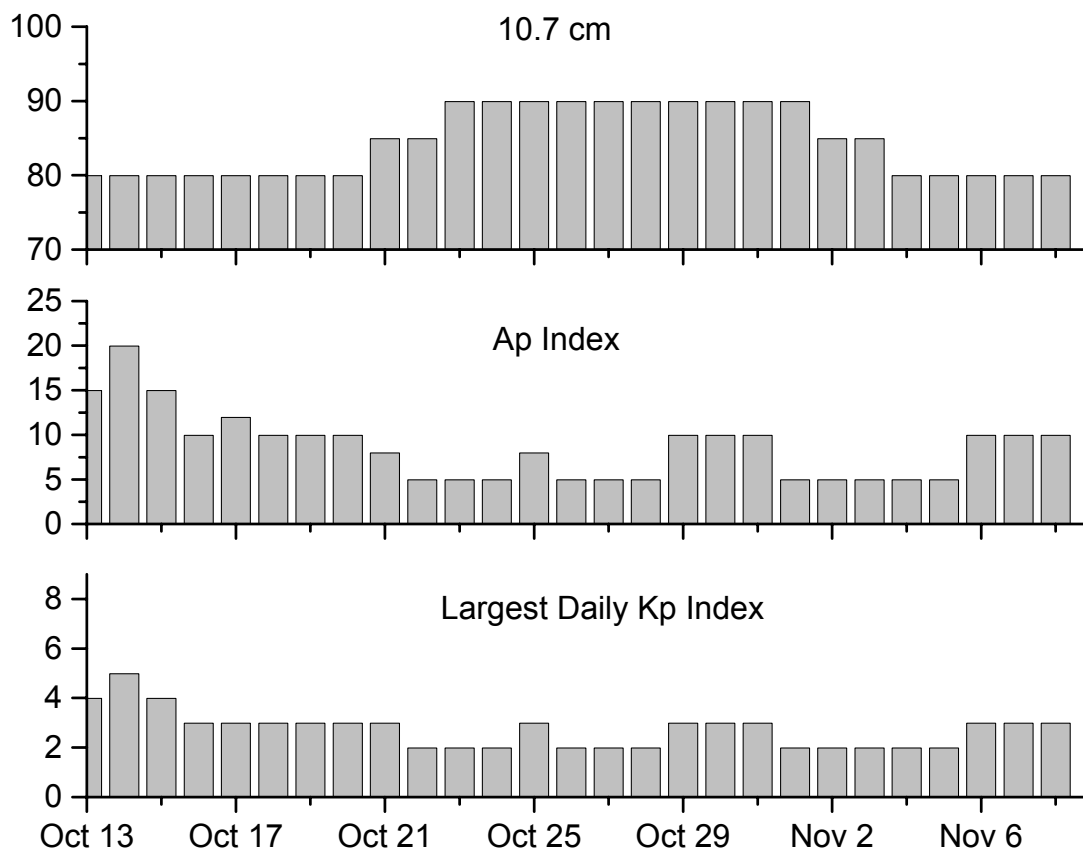
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	04 October	8	3-3-1-1-2-1-2-2	12	2-3-2-2-4-4-1-1	10
05 October	3	2-2-1-0-1-0-0-1	4	2-2-3-1-0-0-0-1	5	2-2-2-0-1-2-2-2
06 October	2	0-2-2-1-0-0-0-0	6	0-0-2-4-2-1-0-0	5	1-2-2-2-2-2-2-2
07 October	4	0-1-0-0-0-3-3-0	2	0-0-1-1-2-0-0-0	4	1-2-1-1-2-2-2-2
08 October	4	0-2-1-0-2-2-1-2	6	0-0-1-0-2-4-1-2	7	1-3-2-1-2-2-1-3
09 October	3	2-1-1-0-1-1-1-1	4	3-1-0-2-0-1-1-1	6	3-1-0-1-1-2-2-2
10 October	5	2-1-1-2-2-1-1-1	5	1-1-1-3-2-0-1-1	8	3-3-0-3-2-2-2-2

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
No Alerts Issued		



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
13 Oct	80	15	4	27 Oct	90	5	2
14	80	20	5	28	90	5	2
15	80	15	4	29	90	10	3
16	80	10	3	30	90	10	3
17	80	12	3	31	90	10	3
18	80	10	3	01 Nov	90	5	2
19	80	10	3	02	85	5	2
20	80	10	3	03	85	5	2
21	85	8	3	04	80	5	2
22	85	5	2	05	80	5	2
23	90	5	2	06	80	10	3
24	90	5	2	07	80	10	3
25	90	8	3	08	80	10	3
26	90	5	2				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
04 October	0039	0045	0049	B1.2			676
	1303	1325	1341	C2.6			
	1633	1637	1644	B1.3			
	2156	2202	2204	B3.6			
05 October	0045	0056	0107	C1.4			
	1730	1734	1739	B1.0			
	2200	2204	2207	B1.5			
	2306	2317	2327	B9.0			
06 October	0242	0249	0258	B2.3			
	1819	1834	1849	C2.5			
07 October	0730	0734	0739	B1.3			678
	0944	0949	0954	B1.9			675
	2136	2143	2146	B2.1			678
	2213	2216	2218	B1.7			
08 October	0135	0138	0140	B1.4			
	0849	0852	0854	B2.9			678
	1832	1840	1854	B3.1			
09 October	2053	2057	2100	B2.4			678
	0054	0058	0103	B2.4			678
	0126	0135	0139	B2.0			
	0421	0431	0439	C1.2			
	0911	0916	0924	B3.1			680
	1002	1009	1012	B2.7			680
	1047	1052	1059	B8.2			680
	1345	1349	1352	B4.4			680
	1441	1449	1504	B5.4			680
	1546	1555	1603	B8.0			680
	1616	1619	1625	B4.9			680
	1658	1705	1708	B5.0			680
	1741	1756	1805	B4.3			
	1907	1913	1917	C1.1			680
	2011	2014	2018	B2.7			
	2032	2044	2055	C1.2			680
2137	2143	2147	B6.4			680	
10 October	0321	0328	0334	C2.0			680
	0452	0459	0515	B3.7			
	0621	0627	0633	B5.7			
	0641	0649	0656	B8.7			680
	1329	1406	1525	B4.9			

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 675</i>																		
25 Sep	S08E75	137	0120	02	Hax	001	A											
26 Sep	S08E61	138	0090	03	Hsx	001	A											
27 Sep	S08E48	138	0110	03	Hsx	001	A											
28 Sep	S08E35	138	0100	02	Hax	001	A											
29 Sep	S08E22	137	0090	03	Hax	001	A											
30 Sep	S08E08	138	0100	03	Hsx	001	A											
01 Oct	S09W06	139	0090	03	Hsx	002	A											
02 Oct	S09W19	139	0090	03	Hsx	002	A											
03 Oct	S09W33	140	0070	03	Hsx	002	A											
04 Oct	S10W46	139	0070	03	Hsx	002	A											
05 Oct	S11W59	139	0070	02	Hsx	001	A											
06 Oct	S10W76	143	0060	02	Hsx	001	A											
07 Oct	S10W89	143	0060	02	Hsx	001	A											

0 0 0 0 0 0 0 0 0

Crossed West Limb.
 Absolute heliographic longitude:139

<i>Region 676</i>																		
28 Sep	S11E76	097	0060	02	Hax	001	A											
29 Sep	S11E64	095	0060	02	Hax	001	A											
30 Sep	S12E52	094	0060	02	Hax	001	A											
01 Oct	S12E38	095	0050	02	Hsx	001	A											
02 Oct	S12E25	095	0040	02	Hsx	001	A											
03 Oct	S12E11	096	0040	04	Cso	005	B											
04 Oct	S11W02	095	0050	04	Dso	007	B											
05 Oct	S12W15	095	0040	05	Cso	008	B											
06 Oct	S13W28	095	0030	03	Cso	004	B											
07 Oct	S13W41	095	0020	01	Hsx	001	A											
08 Oct	S13W54	095	0020	03	Bxo	003	B											
09 Oct	S13W67	095	0020	01	Axx	001	A											
10 Oct	S13W80	095																

0 0 0 0 0 0 0 0 0

Still on Disk.
 Absolute heliographic longitude:095



Region Summary - continued.

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 677

30 Sep	N02E09	137	0030	05	Cso	004	B										
01 Oct	N01W06	139	0010	03	Bxo	004	B										
02 Oct	N02W21	141	0010	01	Axx	002	A										
03 Oct	N02W34	141															
04 Oct	N02W47	141															
05 Oct	N02W60	140															
06 Oct	N02W73	140															
07 Oct	N02W86	140															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude:139

Region 678

03 Oct	N12W29	136	0020	04	Dso	002	B										
04 Oct	N12W42	135	0020	04	Dso	002	B										
05 Oct	N13W58	138	0010	01	Axx	001	A										
06 Oct	N12W62	129	0040	04	Cso	004	B										
07 Oct	N12W75	129	0060	05	Dro	006	B										
08 Oct	N15W83	124															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude:136

Region 679

06 Oct	S10E63	004															
07 Oct	S10E50	004															
08 Oct	S10E37	004															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude:004

Region 680

08 Oct	N15W83	124	0080	04	Dao	005	B										
09 Oct	N15W93	121	0090	05	Cso	003	B	2									

2 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude:124

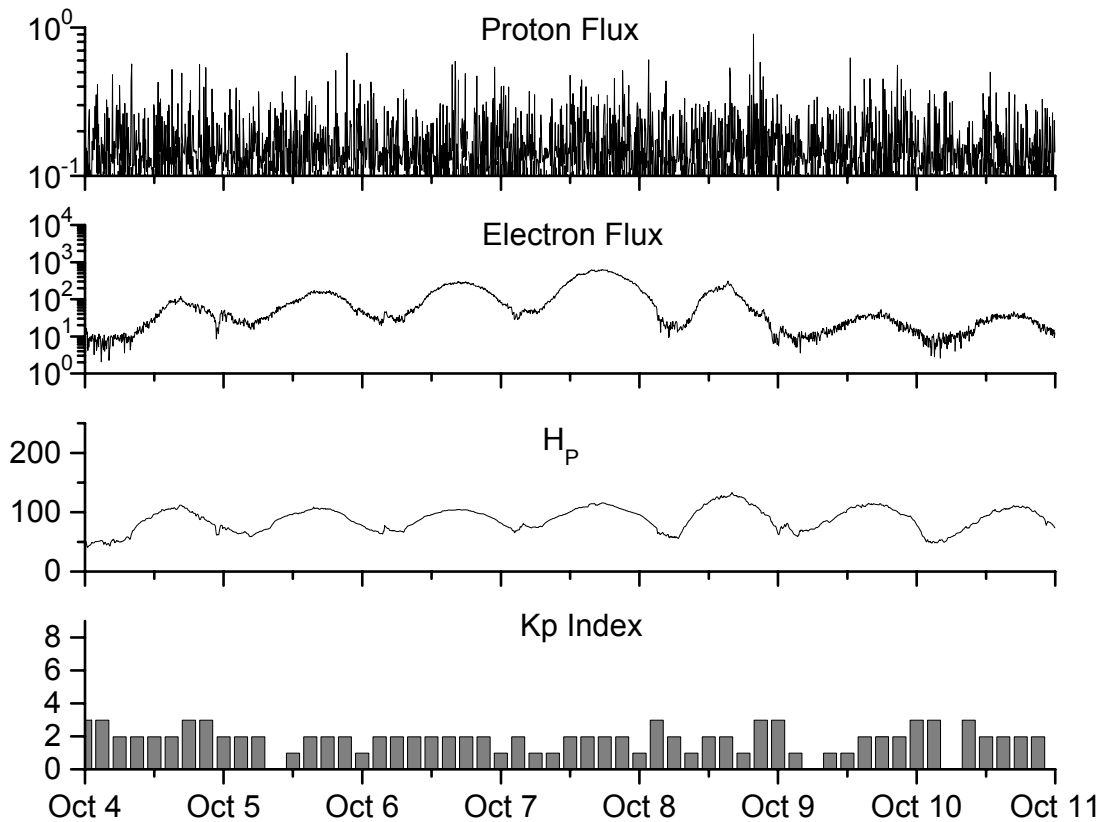


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed SWO	values RI	Ratio RI/SWO	Smooth SWO	values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2002									
October	153.9	97.5	0.63	158.8	90.5	167.0	159.4	23	15.6
November	159.8	95.5	0.60	150.9	85.2	168.7	154.8	16	16.3
December	147.9	80.8	0.55	144.6	82.1	158.6	150.9	13	17.0
2003									
January	149.3	79.7	0.53	141.7	81.0	144.0	149.2	13	18.2
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	65.6	0.55	96.6	58.4	153.1	121.8	35	21.1
November	118.9	67.2	0.57	93.6	57.0	153.1	120.1	28	20.0
December	75.4	47.0	0.62	91.4	55.0	115.1	118.0	16	18.6
2004									
January	62.3	37.2	0.60	87.9	52.0	114.1	116.3	22	18.1
February	75.6	46.0	0.61	84.2	49.4	107.0	115.5	13	17.7
March	81.0	48.9	0.60	80.9	47.2	112.2	114.6	14	16.9
April	59.3	39.3	0.66			101.2		11	
May	77.3	41.5	0.54			99.8		8	
June	78.9	43.2	0.55			97.4		8	
July	87.8	51.0	0.58			118.5		23	
August	69.5	40.9	0.59			110.1		10	
September	50.0	27.7	0.55			103.1		10	

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 04 October 2004*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W100) 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 (W74).

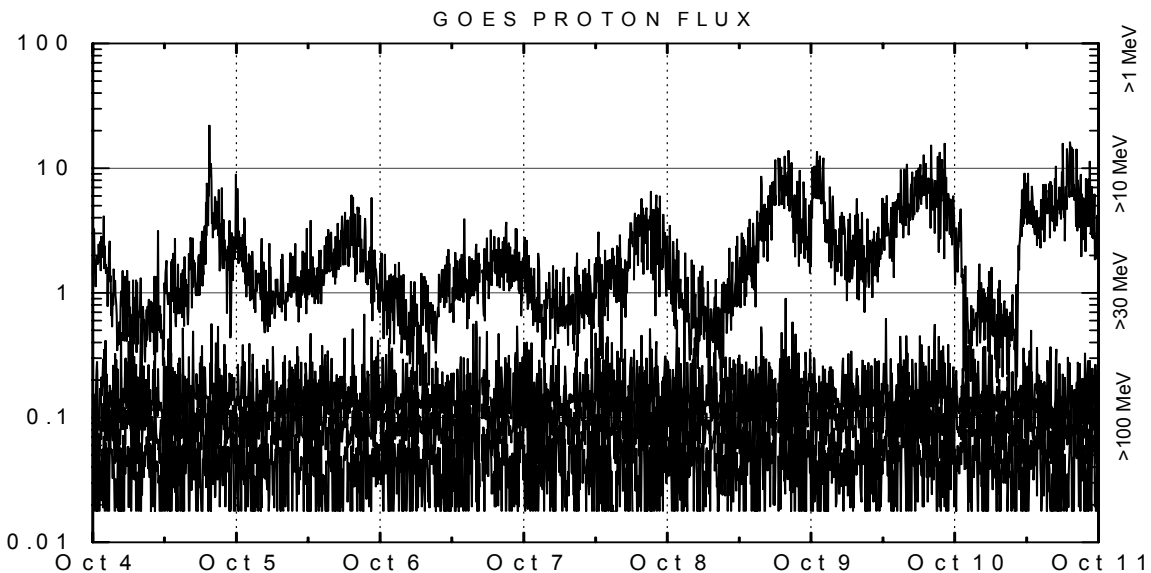
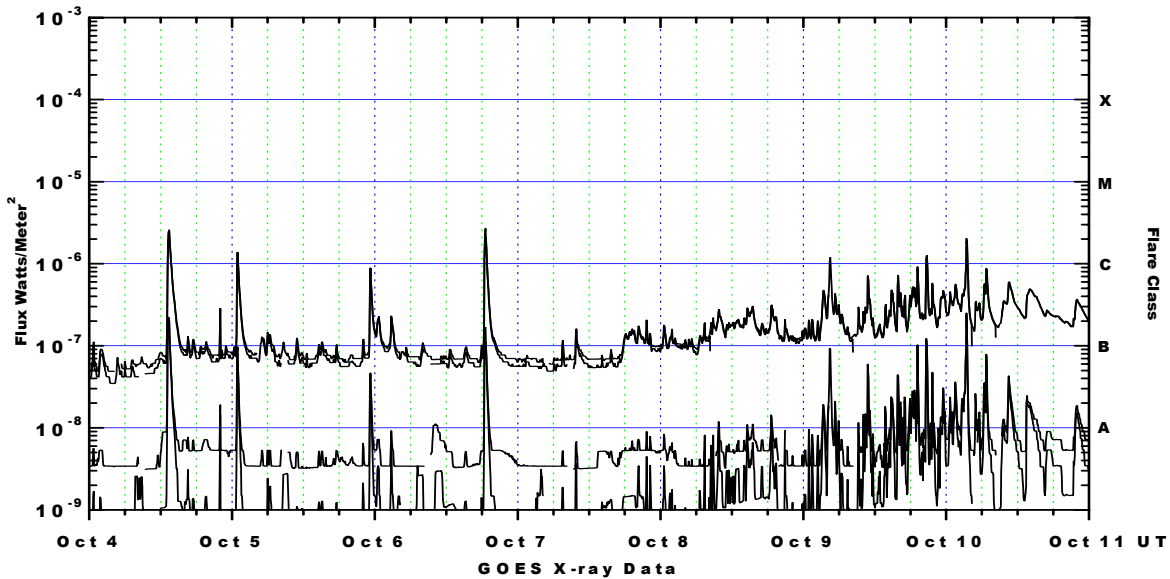
H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

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_p 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 (W136) 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 (W100) 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.

