

**Space Weather Highlights
04 - 10 October 1999**

Solar activity was low. Isolated B- and C-class subflares occurred each day. The disk was populated by numerous small, simply-structured sunspot groups during most of the period. However, Region 8728 (N22, L=318, class/area Dho/340 on 10 October) rotated into view on 08 October, then grew steadily through the rest of the period to become a group of moderate size and magnetic complexity.

Real-time solar wind data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. Velocity increases were noted on 05 October (440 to 600 km/sec) and again on 10 October (420 to 680 km/sec). IMF Bz became more variable on 05 and 10 October as well, with southerly deflections to minus 12 nT and minus 14 nT (GSM), respectively. The velocity and IMF Bz variations appeared to be due to coronal hole effects. Phi data indicated that we shifted from a toward (negative polarity) to an away (positive polarity) solar sector on 10 October.

No proton events were detected at geosynchronous orbit during the period.

The greater than 2 MeV electron flux was at normal to moderate levels during most of the period.

The geomagnetic field was at mostly quiet to unsettled levels through 09 October, although brief active periods occurred during 04 - 05 October. The field became disturbed on 10 October with active to minor storm levels detected at middle latitudes and active to severe storm levels at high latitudes. This activity appeared to be coronal hole-related.

**Space Weather Outlook
13 October - 08 November 1999**

Solar activity is expected to be predominately low. However, Region 8728 may produce isolated M-class flares before it departs the disk on 21 October.

No significant proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous altitude is expected to be at moderate to high levels during 13 - 18 and 25 - 29 October, and 07 - 08 November. Otherwise, fluxes are expected to be in the normal to moderate range.

The geomagnetic field is expected to at active to minor storm levels during 13 - 16 and 24 - 27 October, and 06 - 08 November due to coronal hole effects.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No. (10 ⁶ hemi.)	Sunspot Area	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	
04 October	144	148	520	B4.2	2	0	0	5	0	0	0	0
05 October	146	160	700	B4.9	2	0	0	3	0	0	0	0
06 October	134	176	630	B4.1	4	0	0	5	0	0	0	0
07 October	129	184	560	B5.7	4	0	0	3	0	0	0	0
08 October	151	170	560	C1.0	5	0	0	6	1	0	0	0
09 October	153	235	590	B7.9	2	0	0	8	0	0	0	0
10 October	161	195	760	B5.8	4	0	0	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
04 October	1.0E+5	1.3E+4	2.9E+3		1.4E+7	
05 October	4.0E+5	1.3E+4	3.1E+3		1.3E+7	
06 October	2.8E+5	1.4E+4	2.9E+3		9.9E+6	
07 October	2.1E+5	1.3E+4	3.0E+3		1.9E+7	
08 October	1.3E+5	1.4E+4	3.1E+3		7.2E+6	
09 October	5.1E+5	1.3E+4	3.0E+3		1.2E+7	
10 October	3.6E+5	1.3E+4	3.0E+3		2.5E+6	

Daily Geomagnetic Data

Date	Middle Latitude		High Latitude		Estimated	
	Fredericksburg		College		Planetary	
	A	K-indices	A	K-indices	A	K-indices
04 October	9	1-2-2-2-2-2-2-4	*	2-3-4-*. *-4-4-3	15	1-3-3-3-3-3-3-3
05 October	11	2-2-2-2-3-2-2-4	19	3-3-3-3-5-4-2-2	16	3-3-3-3-4-3-3-3
06 October	4	0-1-2-2-2-1-1-1	10	0-1-2-5-3-1-1-1	6	1-1-3-3-2-2-2-1
07 October	5	2-2-2-1-1-0-1-2	6	3-0-2-3-1-0-1-1	6	2-2-2-1-2-2-2-1
08 October	8	1-4-1-2-3-0-1-1	14	1-1-1-4-4-0-0-5	8	2-3-2-3-3-1-1-1
09 October	4	0-1-1-0-1-2-2-2	4	0-0-2-2-1-1-2-1	6	0-1-2-1-2-2-3-3
10 October	18	2-3-3-4-4-4-3-2	52	1-4-6-5-6-7-4-2	28	3-4-5-5-5-5-4-3

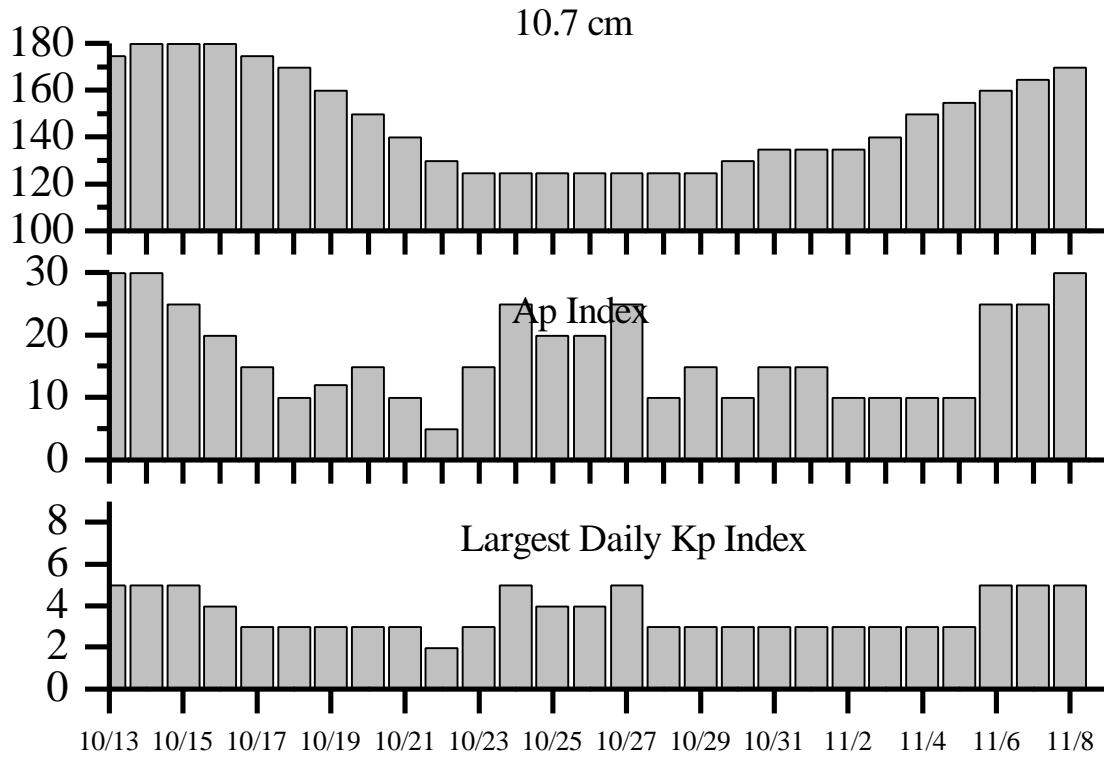


Alerts and Warnings Issued

Date and Time of Issue (UT)	Type of Alert or Warning	Date and Time of Event (UT)
04 Oct 1202	K= 4 Observed	04 Oct 09 - 12
04 Oct 1208	CONTINUED >2MeV Electron Event =1000pfu	28 Sep 1335
04 Oct 1350	K= 4 Warning	04/1400 – 06/1500 Oct
06 Oct 0036	1 –245 MHz Radio Burst	05 Oct
07 Oct 2004	A = 20 Watch	10 Oct
08 Oct 1952	A = 20 Watch	11 Oct
09 Oct 1903	A = 20 Watch	12 Oct
10 Oct 901	K= 4 Observed	10 Oct 06 - 09
10 Oct 901	K= 4 Warning	10 Oct 09 -15
10 Oct 1426	K= 4 Warning	10/15 - 11/1500 Oct
10 Oct 1708	K= 5 Warning	10/17 - 11/1500 Oct
10 Oct 1800	A = 20 Observed	10 Oct 1800
10 Oct 1800	K= 5 Observed	10 Oct 15 - 18



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	175	30	5	27 Oct	125	25	5
14	180	30	5	28	125	10	3
15	180	25	5	29	125	15	3
16	180	20	4	30	130	10	3
17	175	15	3	31	135	15	3
18	170	10	3	01 Nov	135	15	3
19	160	12	3	02	135	10	3
20	150	15	3	03	140	10	3
21	140	10	3	04	150	10	3
22	130	5	2	05	155	10	3
23	125	15	3	06	160	25	5
24	125	25	5	07	165	25	5
25	125	20	4	08	170	30	5
26	125	20	4				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn #
	Begin	Max	End			Lat	CMD	
04 October	0633	0637	0645	B8.5				
	B0735	U0735	A0751	C5.0	SF	N13E61	8720	
	1243	1243	1252	B7.5	SF	N14E62	8720	
	1351	1351	1356		SF	S17E50	8721	
	1438	1443	1448		SF	N21E51	8716	
	1508	1510	1516		SF	S17E49	8721	
05 October	2123	2128	2151	C1.6				
	0313	0318	0327	C1.4				
	0543	0553	0610	C2.8	SF	N14E54	8720	
	0858	0859	0901		SF	N21E42	8716	
06 October	1902	1904	1911		SF	N23E36	8716	
	0442	0448	0456	C1.2	SF	N13E42	8720	
	1129	1129	1135	C1.2	SF	S20E25	8721	
	1155	1156	1201		SF	S21E23	8721	
	1302	1306	1337	C2.3	SF	N13E34	8720	
07 October	1539	1541	1606	C1.5	SF	N13E35	8720	
	0426	0429	0453	C2.9	SF	N14E28	8720	
	0521	0521	0532	C2.2	SF	N17E17	8716	
	1330	1343	1350	C3.9				
08 October	2350	2353	2359	C2.8	SF	N14E17	8720	
	0331	0343	0352	C1.7				
	0829	0833	0837	B8.7				
	1017	U1024	1039	C1.7	SF	N13E09	8720	
	1242	1252	1409	C6.4	1N	N14E09	8720	
	1329	1332	1344		SF	N03E22	8716	
	1539	1539	1546		SF	N13E07	8720	
	1758	1758	1801		SF	N13E05	8720	
	1950	1959	2005	C1.8				
	2039	2041	2045		SF	N22E77	8728	
09 October	2059	2101	2114	C1.5	SF	N13E04	8720	
	0426	0434	0441	C2.2				
	1128	1131	1139		SF	N13W07	8720	
	1237	1239	1242		SF	N16W01	8720	
	1250	1251	1322	C2.0	SF	N13W04	8720	
	1325	1327	1335		SF	N13W08	8720	
	1337	1337	1341		SF	N19E70	8728	
	1654	1654	1700		SF	N24E70	8728	



Flare List-continued

Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn #
	Begin	Max	End			Location Lat CMD	
09 October	1844	1847	1851		SF	N24E66	8728
	2316	2317	2323		SF	N20W62	8724
10 October	0133	0143	0201	C1.3			
	1350	1354	1405	C2.0	SF	N20E55	8728
	1709	1714	1723	C1.1			
	2159	2207	2218	C2.0			

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 8710

26 Sep	N20E76	117	0030	01	HSX	001	A											
27 Sep	N19E64	116	0040	02	HSX	001	A											
28 Sep	N19E51	115	0030	04	CSO	003	B											
29 Sep	N19E38	115	0020	01	HSX	001	A											1
30 Sep	N21E25	115	0020	01	HSX	001	A											
01 Oct	N21E13	114	0010	01	HSX	001	A											
02 Oct	N21E00	114	0010	01	AXX	001	A											
03 Oct	N22W13	114	0000	00	AXX	001	A											
04 Oct	N24W28	115	0000	00	AXX	001	A											
05 Oct	N24W41	115																
06 Oct	N24W54	115																
07 Oct	N24W67	115																
08 Oct	N24W80	115																

0 0 0 1 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 114



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 8713

29 Sep	S13E62	091	0000	01	AXX	002	A											
30 Sep	S12E45	095	0020	01	HSX	002	A											
01 Oct	S13E34	093	0010	01	HSX	001	A											
02 Oct	S12E19	095	0020	01	HRX	001	A											
03 Oct	S12E06	095	0000	00	AXX	001	A											
04 Oct	S14W09	097	0000	04	BXO	004	B											
05 Oct	S16W25	099	0000	00		000												
06 Oct	S16W38	099	0000	00		000												
07 Oct	S14W45	093	0000	02	BXO	002	B											
08 Oct	S14W58	093	0000	00		000												
09 Oct	S12W70	091	0010	04	BXO	003	B											
10 Oct	S12W87	095	0020	02	CSO	002	B											

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 095

Region 8714

29 Sep	N11E72	081	0000	00	AXX	001	A											
30 Sep	N12E56	084	0020	01	HSX	001	A											1
01 Oct	N13E44	083	0020	03	CSO	002	B											
02 Oct	N14E30	084	0020	01	HSX	001	A											
03 Oct	N14E17	084	0020	02	HSX	002	A											
04 Oct	N13E04	083	0010	01	HSX	001	A											
05 Oct	N14W09	083	0010	02	BXO	002	B											
06 Oct	N14W22	083	0010	03	BXO	002	B											
07 Oct	N13W36	084	0010	02	BXO	002	B											
08 Oct	N14W43	078	0000	00	AXX	002	A											
09 Oct	N18W56	077	0000	00	AXX	001	A											
10 Oct	N16W71	079	0020	05	CSO	002	B											

0 0 0 1 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 083



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 8715

30 Sep	N11E42	098	0000	02	AXX	002	B											
01 Oct	N11E29	098	0000	00		000												
02 Oct	N11E16	098	0000	00		000												
03 Oct	N11E03	098	0000	00		000												
04 Oct	N11W10	098	0000	00		000												
05 Oct	N12W20	094	0000	02	BXO	002	B											
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 098

Region 8716

02 Oct	N21E70	044	0160	12	CSO	004	B	1		1								
03 Oct	N20E60	041	0200	07	CSO	005	B	2		5								
04 Oct	N19E46	041	0240	08	CSO	006	B			1								
05 Oct	N20E32	042	0230	07	CSO	005	B			2								
06 Oct	N21E17	044	0200	06	CSO	009	B											
07 Oct	N21E05	043	0190	03	HSX	002	A	1		1								
08 Oct	N22W09	044	0200	05	CSO	003	B			1								
09 Oct	N22W20	041	0170	10	CAO	011	B											
10 Oct	N21W34	042	0160	09	CAO	007	B											
																		4 0 0 11 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 43

Region 8717

03 Oct	S26W59	160	0010	05	BXO	002	B											
04 Oct	S26W72	160	0000	00		000												
05 Oct	S26W85	160	0000	00		000												
																		0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 160

Region 8718

03 Oct	S27E02	099	0010	04	BXO	003	B											
04 Oct	S27W10	097	0010	05	BXO	004	B											
05 Oct	S27W21	095	0040	06	DSO	007	B											
06 Oct	S27W36	097	0040	06	DAO	005	B											
07 Oct	S28W50	098	0030	08	CSO	004	B											
08 Oct	S27W66	101	0030	01	AXX	001	A											
09 Oct	S26W81	102	0020	01	AXX	002	A											
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 099



Region Summary-continued

Date	Location		Sunspot Characteristics				Flares										
	(° Lat ° CMD)	Helio Lon	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
								C	M	X	S	1	2	3	4		
<i>Region 8719</i>																	
03 Oct	S20E50	051	0060	05	CSO	003	B					1					
04 Oct	S22E38	049	0090	09	DSO	008	B										
05 Oct	S22E26	048	0100	08	DSO	008	BG										
06 Oct	S22E12	049	0090	08	CSO	005	B										
07 Oct	S22W02	050	0080	08	CSO	003	B										
08 Oct	S22W18	053	0070	02	HAX	002	A										
09 Oct	S22W32	053	0070	02	HSX	002	A										
10 Oct	S21W44	052	0050	02	HSX	001	A										
								0	0	0	1	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 050

<i>Region 8720</i>																	
03 Oct	N14E65	036	0020	04	BXO	004	B	1				4					
04 Oct	N13E52	035	0030	09	CSO	004	B	1				2					
05 Oct	N13E42	032	0060	04	CSO	004	B	1				1					
06 Oct	N13E28	033	0070	05	DSO	015	B	3				3					
07 Oct	N13E14	034	0050	07	DAO	016	B	2				2					
08 Oct	N13E01	034	0050	07	DSO	016	B	3				4	1				
09 Oct	N14W11	032	0030	12	BXO	020	B	1				4					
10 Oct	N14W27	035	0020	06	BXO	008	B										
								12	0	0	20	1	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 034

<i>Region 8721</i>																	
03 Oct	S17E56	045	0050	12	CSO	006	B					2					
04 Oct	S19E46	041	0100	12	EAO	012	B					2					
05 Oct	S18E34	040	0110	12	EAO	007	B										
06 Oct	S19E20	041	0060	06	DAO	007	B	1				2					
07 Oct	S19E05	043	0070	08	DSO	006	B										
08 Oct	S17W12	047	0040	03	CAO	003	B										
09 Oct	S17W24	045	0030	05	CSO	007	B										
10 Oct	S17W37	045	0010	01	HRX	002	A										
								1	0	0	6	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 043



Region Summary-continued

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

Region 8722

04 Oct	N13E21	066	0010	03	BXO	007	B											
05 Oct	N14E08	066	0050	05	DAO	011	B											
06 Oct	N14W06	067	0060	06	DAO	016	B											
07 Oct	N14W20	068	0040	07	DRO	008	B											
08 Oct	N15W33	068	0020	08	DSO	004	B											
09 Oct	N15W44	065	0000	00	AXX	001	A											
10 Oct	N15W57	065	0000	00		000												

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 067

Region 8723

04 Oct	N19E77	010	0030	01	HSX	001	A											
05 Oct	N20E67	007	0040	02	HAX	001	A											
06 Oct	N19E51	010	0020	02	HSX	001	A											
07 Oct	N20E39	009	0020	06	CSO	003	B											
08 Oct	N20E27	008	0020	01	HSX	001	A											
09 Oct	N20E14	007	0010	03	BXO	007	B											
10 Oct	N20E01	007	0010	02	BXO	003	B											

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 007

Region 8724

05 Oct	N19W11	085	0010	03	CSO	002	B											
06 Oct	N19W24	085	0010	04	BXO	004	B											
07 Oct	N18W38	086	0010	05	BXO	004	B											
08 Oct	N19W50	085	0010	04	BXO	002	B											
09 Oct	N22W62	083	0000	05	BXO	003	B											
10 Oct	N20W80	088	0020	05	BXO	003	B											

1

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 085



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 8725

05 Oct	S24E67	007	0050	02	HAX	001	A											
06 Oct	S24E53	008	0060	01	HSX	001	A											
07 Oct	S25E41	007	0040	02	HSX	001	A											
08 Oct	S25E28	007	0040	01	HSX	001	A											
09 Oct	S25E14	007	0040	02	HSX	002	A											
10 Oct	S25E02	006	0030	05	CSO	003	B											

Still on Disk.

Absolute heliographic longitude: 006

Region 8726

06 Oct	S20E28	033	0010	01	HSX	001	A											
07 Oct	S21E14	034	0010	01	HSX	001	A											
08 Oct	S22E01	034	0010	01	AXX	001	A											
09 Oct	S19W18	039	0010	07	BXO	005	B											
10 Oct	S19W31	039	0000	00		000												

Still on Disk.

Absolute heliographic longitude: 034

Region 8727

07 Oct	N18E53	355	0010	02	BXO	002	B											
08 Oct	N18E40	355	0040	02	CSO	003	B											
09 Oct	N18E25	356	0010	02	HSX	003	A											
10 Oct	N18E12	356	0010	03	BXO	003	B											

Still on Disk.

Absolute heliographic longitude: 356

Region 8728

08 Oct	N22E74	321	0030	02	HSX	001	A					1						
09 Oct	N21E62	319	0150	08	CAO	010	B					3						
10 Oct	N22E50	318	0340	10	DHO	013	B	1				1						
								1	0	0	5	0	0	0	0			

Still on Disk.

Absolute heliographic longitude: 318

Region 8729

09 Oct	N11E67	314	0040	10	CRO	008	B											
10 Oct	N12E58	310	0060	19	BXO	014	B											

Still on Disk.

Absolute heliographic longitude: 310



Region Summary-continued

Location		Sunspot Characteristics					Flares							
Date	(° Lat ° CMD)	Helio Lon	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
							C	M	X	S	1	2	3	4
<i>Region 8730</i>														
10 Oct	S11E06	002	0010	03	BXO	004	B							
								0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 002

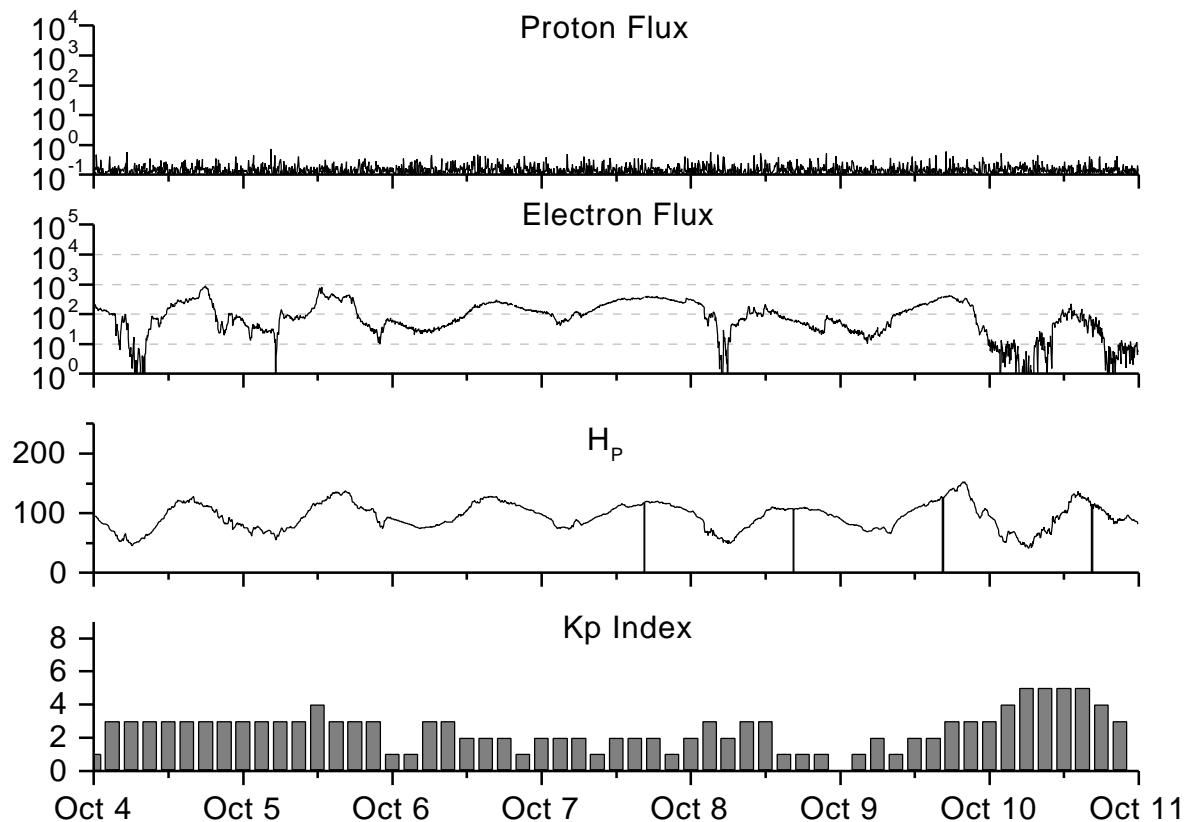


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers				Radio Flux		Geomagnetic		
	Observed values SWO	RI	Ratio RI/SWO	Smooth values SWO	RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
1997									
October	33.6	22.8	0.68	45.4	31.8	84.9	88.6	11	08.6
November	53.5	39.0	0.73	49.3	35.0	99.5	91.3	11	09.0
December	57.9	41.2	0.71	54.2	39.0	98.8	94.2	05	09.5
1998									
January	51.8	31.9	0.62	60.6	43.7	93.4	97.5	08	09.9
February	54.4	40.3	0.74	67.4	48.8	93.4	101.7	08	10.5
March	81.8	54.8	0.67	73.3	53.4	109.1	105.8	13	11.1
April	73.6	53.4	0.73	77.7	56.5	108.3	109.1	10	11.3
May	74.3	56.3	0.76	81.4	59.3	106.7	112.4	18	11.6
June	93.6	70.7	0.76	85.9	62.4	108.4	116.2	10	11.9
July	98.3	66.2	0.67	90.3	65.4	114.0	120.3	11	12.2
August	118.6	91.7	0.77	93.7	67.8	136.0	124.1	18	12.4
September	119.0	92.9	0.78	96.1	69.4	138.4	126.8	13	12.5
October	77.0	55.5	0.72	97.7	70.5	117.3	127.9	13	12.5
November	99.5	74.0	0.74	101.3	73.0	140.2	130.0	16	12.3
December	120.8	81.9	0.69	108.8	77.9	150.1	134.3	08	11.9
1999									
January	94.3	62.4	0.66	116.5	82.6	142.6	139.0	10	11.7
February	93.4	66.3	0.71	120.2	84.6	142.0	142.6	12	11.6
March	100.5	68.8	0.68	120.5	83.8	126.3	144.0	14	11.6
April	092.9	063.9	0.69			117.2		12	
May	140.5	106.3	0.76			148.6		08	
June	208.3	137.4	0.66			169.8		07	
July	169.2	113.5	0.67			165.6		10	
August	136.1	93.7	0.69			170.8		15	
September	107.4	70.9	0.66			135.7		18	

NOTE: All smoothed values after January 1998 and monthly values after September 1998 are preliminary estimates. The lowest smoothed sunspot indices number for Cycle 22, RI = 8.0, occurred in May 1996. The highest smoothed sunspot number for Cycle 22, RI= 158.5, occurred July 1989. * 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 1999*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

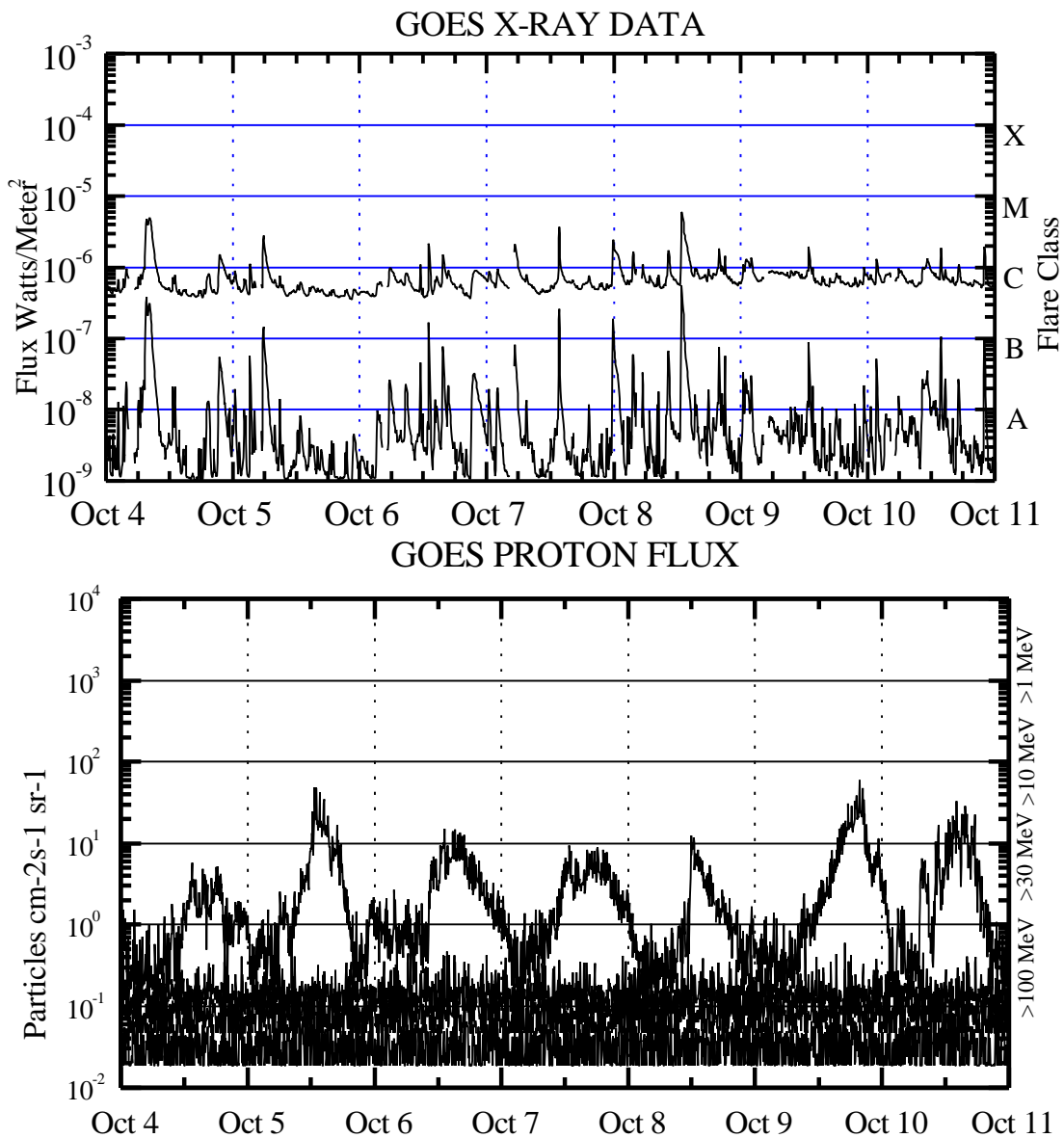
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-8.

H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-8. 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 USAF 55th Space Weather Squadron) 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 Heartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC) 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 8 and 10 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-8 (W75) 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.

