

**Space Weather Highlights
11 - 17 October 1999**

Solar activity ranged from low to high levels. Activity was at low levels through 13 October due to occasional C-class subflares, mostly from Region 8731 (N12, L=292, class/area Fkc/1220 on 17 October). Activity rose to high levels on 14 October due to an impulsive X1/1N flare at 14/0900UT from Region 8731 with associated Types II and IV radio sweeps, and a 1000 SFU Tenflare. This flare occurred during a period of rapid growth within Region 8731 which included the development of a magnetic delta configuration near region center. Activity dropped to low levels on 15 October as the region stabilized as a large F-type spot group with a compact spot distribution and a complex magnetic structure. Region 8751 remained large and complex for the remainder of the period, but produced only occasional c-class subflares.

Real-time solar wind data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. Coronal hole effects were in progress as the period began. Solar wind velocities increased through 15 October with peaks to 800 km/sec, then gradually decreased during the remaining days. Densities were low, as is typical of coronal hole windstreams, and varied from 01 to 06 p/cc. Phi data indicated an away (positive polarity) sector during the entire period.

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

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

The geomagnetic field was disturbed during the entire period due to the effects of a coronal hole windstream (as described above). Middle latitudes experienced unsettled to minor storm levels during the disturbance while high latitudes saw unsettled to major storm levels.

**Space Weather Outlook
20 October -15 November 1999**

Solar activity is expected to be at low to moderate levels until Region 8731 departs the west limb on 24 October. Mostly low activity is anticipated during 25 October - 05 November. There will be an increased chance for moderate-level activity beginning 06 November due the return of (old) Region 8731.

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 through 29 October and again during 07 - 15 November. Fluxes are expected to be in the normal to moderate range during the intervening days.

The geomagnetic field is expected to be disturbed during 23 - 25 October and 06 - 13 November due to recurrent coronal hole effects. Unsettled to major storm levels are expected during these disturbances with the major storm periods limited to high latitudes. Quiet to unsettled levels are expected during the rest of the period.



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	
11 October	167	163	1070	B5.1	3	0	0	3	0	0	0	0
12 October	184	191	1310	B7.9	3	0	0	10	0	0	0	0
13 October	191	210	1740	B7.8	6	0	0	15	0	0	0	0
14 October	200	206	1390	B7.3	6	0	1	15	1	0	0	0
15 October	198	130	1370	C2.1	13	0	0	13	1	0	0	0
16 October	189	189	1530	C1.0	7	0	0	4	0	0	0	0
17 October	178	169	1730	B7.3	9	0	0	3	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
11 October	8.4E+5	1.3E+4	3.0E+3		4.3E+7	
12 October	2.2E+6	1.3E+4	2.8E+3		3.5E+7	
13 October	9.0E+5	1.3E+4	2.6E+3		6.8E+7	
14 October	1.1E+6	1.2E+4	2.5E+3		9.0E+7	
15 October	1.2E+6	1.3E+4	2.2E+3		1.2E+8	
16 October	1.5E+6	1.2E+4	2.2E+3		1.9E+8	
17 October	1.4E+6	1.2E+4	2.2E+3		1.4E+8	

Daily Geomagnetic Data

Date	Middle Latitude		High Latitude		Estimated	
	Fredericksburg		College		Planetary	
	A	K-indices	A	K-indices	A	K-indices
11 October	18	4-2-3-3-3-4-2-4	46	4-2-6-6-5-6-3-4	23	4-2-4-4-4-4-3-4
12 October	21	5-4-2-4-3-3-3-3	61	4-4-6-6-6-7-4-4	34	4-5-4-6-5-4-4-4
13 October	21	5-3-5-3-3-2-3-2	35	4-2-6-5-5-4-4-3	26	4-3-5-4-4-3-3-3
14 October	17	3-4-3-2-4-3-3-3	41	3-3-4-6-6-6-3-3	24	3-4-4-4-4-5-3-4
15 October	17	4-4-3-3-3-3-3-2	52	4-6-6-5-6-6-3-2	24	4-4-5-4-4-4-3-3
16 October	17	4-4-2-3-3-3-3-3	38	3-4-4-6-6-5-3-3	21	4-4-3-3-4-4-3-3
17 October	16	3-3-4-4-3-2-1-1	58	3-4-6-7-7-5-2-2	26	4-3-5-5-5-3-1-2



Alerts and Warnings Issued

Date and Time of Issue (UT)	Type of Alert or Warning	Date and Time of Event (UT)
11 Oct 1201	CONTINUED A = 20 Observed	10 Oct 1800
11 Oct 1640	>2MeV Electron Event = 1000pfu	11 Oct 1625
11 Oct 1735	A = 20 Watch	13 Oct
11 Oct 2102	A = 20 Watch	14 Oct
12 Oct 0000	K= 4 Observed	11 Oct 21- 24
12 Oct 0000	K= 4 Warning valid	12 Oct 00- 15
12 Oct 0300	K= 5 Observed	12 Oct 00- 03
12 Oct 0300	K= 5 Warning	12 Oct 03- 15
12 Oct 1200	CONTINUED A = 20 Observed	10 Oct 1800
12 Oct 1200	CONTINUED >2MeV Electron Event = 1000pfu	11 Oct 1625
12 Oct 2114	A = 20 Watch	15 Oct
12 Oct 2131	Type II Radio Emission	12 Oct 1321
13 Oct 0225	1-245 MHz Bursts	12 Oct
13 Oct 0300	K= 4 Observed	13 Oct 00- 03
13 Oct 0300	K = 4 Warning valid	13/0300- 14/1500 Oct
13 Oct 0900	K= 5 Observed	13 Oct 06-09
13 Oct 0900	K= 5 Warning valid	13 Oct 09- 15
13 Oct 1200	CONTINUED A = 20 Observed	10 Oct 1800
13 Oct 1200	CONTINUED >2MeV Electron Event =1000pfu	11 Oct 1625
14 Oct 0103	7-245 MHz Bursts	13 Oct
14 Oct 0103	1- 245 MHz Noise Storms	13 Oct
14 Oct 0919	X-Ray event X1/1N/N11E32	14 Oct 0854
14 Oct 0935	10cm Radio Burst 1000 s.f.u.	14 Oct 0857
14 Oct 1000	Type II Radio Emission	14 Oct 0908
14 Oct 1022	Type IV Radio Emission	14 Oct 0857
14 Oct 1157	CONTINUED >2MeV Electron Event =1000pfu	11 Oct 1625
14 Oct 1158	CONTINUED A = 20 Observed	10 Oct 1800
15 Oct 0155	K = 5 Warning	15 Oct 0130 - 1800
15 Oct 0300	K = 5 Observed	15 Oct 00-03
15 Oct 1210	CONTINUED A = 20	10 Oct 18:00
15 Oct 1212	CONTINUED >2MeV Electron Event =1000pfu	11 Oct 1625
15 Oct 1608	K= 4 Warning	15/1600 – 16/1500 Oct
16 Oct 0116	A = 20 Watch	16 Oct
16 Oct 0605	K= 5 Observed	16 Oct 03- 06
16 Oct 0605	K= 5 Warning	16 Oct 06 - 15
16 Oct 1203	CONTINUED A = 20 Observed	10 Oct 1800
16 Oct 1240	CONTINUED >2MeV Electron Event = 1000pfu	11 Oct 1625
16 Oct 1802	K= 4 Observed	16 Oct 15- 18

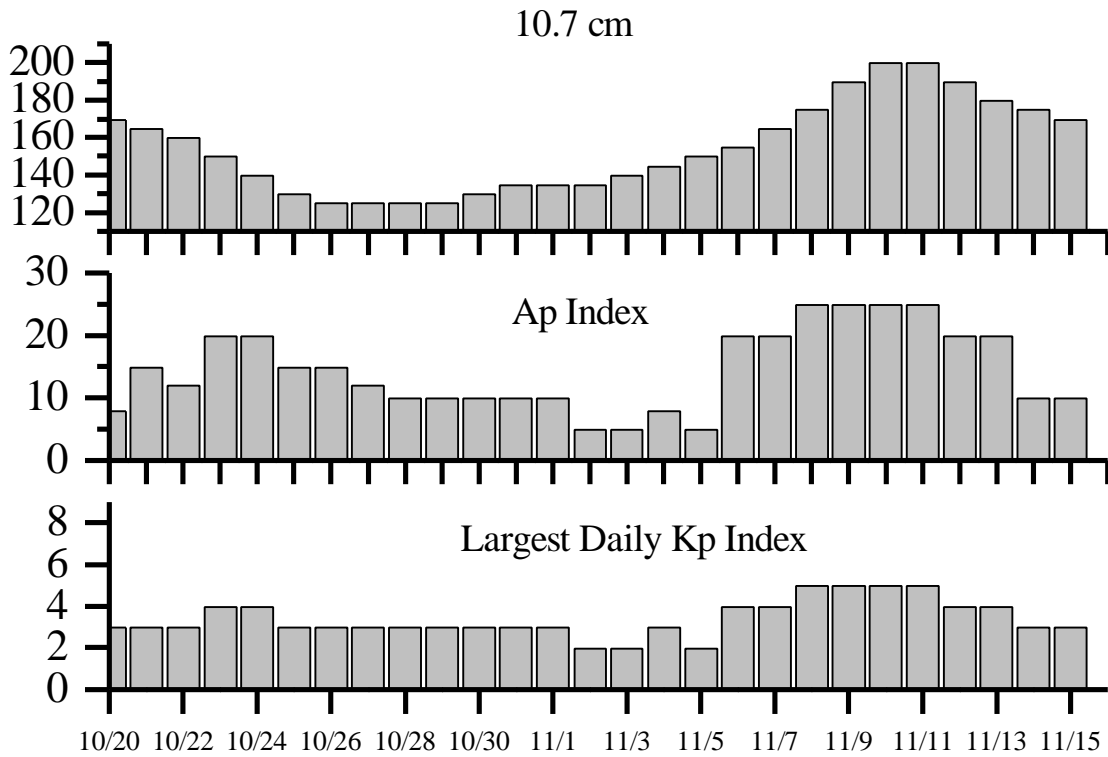


Alerts and Warnings Issued – continued.

<u>Date and Time of Issue (UT)</u>	<u>Type of Alert or Warning</u>	<u>Date and Time of Event (UT)</u>
17 Oct 0032	4 - 245 MHz Bursts	16 Oct
17 Oct 0032	1-245 MHz Noise Storms	16 Oct
17 Oct 0906	K= 4 Observed	17 Oct 06- 09
17 Oct 0906	K-Index of 4 Warning	17 Oct 09 - 15
17 Oct 1200	K= 5 Observed	17 Oct 09 -12
17 Oct 1203	CONTINUED >2MeV Electron Event = 1000pfu	11 Oct 1625
17 Oct 1204	CONTINUED A = 20 Observed	10 Oct 1800
17 Oct 1500	K = 5 Observed	17 Oct 12 - 15
17 Oct 1801	K= 4 Observed	17 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
20 Oct	170	8	3	03 Oct	140	5	2
21	165	15	3	04	145	8	3
22	160	12	3	05	150	5	2
23	150	20	4	06	155	20	4
24	140	20	4	07	165	20	4
25	130	15	3	08	175	25	5
26	125	15	3	09	190	25	5
27	125	12	3	10	200	25	5
28	125	10	3	11	200	25	5
29	125	10	3	12	190	20	4
30	130	10	3	13	180	20	4
31	135	10	3	14	175	10	3
01 Nov	135	10	3	15	170	10	3
02	135	5	2				



Energetic Events

Date	Time (UT)			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
14 Oct	0854	0900	0903	X1.8	.041	1N	N11E32	8731	200	1000		3

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
11 October	0102	0110	0116	C1.2			
	0248	0249	0253		SF	N23E47	8728
	0341	0345	0355	C1.0			
	1156	1158	1209		SF	N11E76	8731
12 October	B2033	U2037	A2047	C1.9	SF	N21E37	8728
	0545	0556	0608		SF	N11E62	8731
	0845	0846	0859	C1.8	SF	N10E57	8731
	1158	1210	1223	C1.8			
	1310	1337	1414	C2.9			
	1507	1508	1513		SF	N10E54	8731
	1657	1658	1706		SF	N17W56	8716
	1708	1710	1713		SF	N10E53	8731
	1709	1710	1717		SF	N22E48	8732
	B1806	1821	1906		SF	N16W58	8716
	2024	2026	2029		SF	N14E52	8731
	2236	2241	2323		SF	N12E51	8731
	2241	2242	2256		SF	N18W09	8727
	13 October	0450	0453	0456	C1.1		
0705		0720	0735	C1.6	SF	N20E39	8732
0914		0914	0923		SF	N11E46	8731
1126		1129	1134	C1.4	SF	N13E46	8731
1338		1341	1356	C2.8	SF	N18E35	8732
1429		1430	1441	C1.7	SF	N14E42	8731
1700		1701	1714		SF	N19E34	8732
1716		1723	1748		SF	N19E33	8732
1738		1739	1744		SF	N18E10	8728
1812		1836	1837		SF	N20E32	8732
1824		1833	1837		SF	N13E38	8731
1839		1840	1845		SF	N20E32	8732
2041		2044	2057		SF	N17E24	8729
2201		2201	2207		SF	N14E40	8731
2228		2237	2240		SF	N16E38	8731
2317	2323	2330	C1.6	SF	N10E12	8729	



Flare List-continued

Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn #	
	Begin	Max	End			Location Lat CMD		
14 October	0234	0235	0245	C5.7	SF	N14E42	8731	
	0245	0246	0249		SF	N14E42	8731	
	0300	0305	0308		SF	N12E37	8731	
	0316	0323	0332	C4.2	SF	N12E39	8731	
	0659	0702	0705	C1.6				
	0748	U0752	A0820	C2.9	SF	N15E40	8731	
	B0831	U0837	A0849		SF	N15E35	8731	
	0858	0859	0925	X1.8	1N	N11E32	8731	
	1026	1028	1034		SF	N10E30	8731	
	1316	1317	1319		SF	N10E29	8731	
	1501	1503	1512		SF	N11E02	8729	
	1509	1510	1515		SF	N13E30	8731	
	1738	1751	1800	C6.5				
	2146	2146	2149		SF	N20E18	8732	
	2210	2214	2216		SF	N15E26	8731	
	2225	2234	2240	C2.7	SF	S13E25	8731	
	2301	2304	2312		SF	N11E23	8731	
	2334	2342	2344		SF	N20E15	8732	
	15 October	0021	0034	0050	C3.2			
		0104	0113	0129	C7.4	SF		8731
0132		0132	0138		SF		8731	
0212		0215	0221		SF		8731	
0224		0227	0235	C3.1				
0403		0404	0409	C2.2	SF		8731	
0717		0720	0724	C1.2				
0934		0937	0943		SF	N12E19	8731	
1220		1225	1244	C3.7	SF	N12E17	8731	
1335		1339	1342	C1.6				
1459		1503	1526	C5.5	1F	N16E18	8731	
1554		1607	1622	C2.4	SF	N13E08	8731	
1658		1700	1711		SF	N13E15	8731	
1805		1806	1809		SF	N22W12	8728	
2136		2139	2202	C3.0	SF	N14E12	8731	
2144		2148	2151	C2.7				
2228		2231	2240	C2.5	SF	N14E13	8731	
2231		2232	2234		SF	N24W19	8728	
2253		2257	2325		SF	N14E12	8731	
2353		2357	0002	C2.2				
16 October	0302	0304	0312	C2.9	SF	N11E08	8731	
	0345	0352	0357	C2.1				



Flare List-continued

Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn #
	Begin	Max	End			Location Lat CMD	
16 October	0501	0502	0510	C2.3	SF	N21W24	8728
	0637	0638	0646		SF	N14E02	8731
	A1058	A1058	A1107	C3.7	SF	N22W25	8728
	1940	1945	1949	C3.1			
	2046	2050	2054	C1.4			
	2232	2237	2241	C1.9			
17 October	0025	0029	0031	C3.8			
	0100	0104	0107	C1.8			
	0212	0228	0237	C2.8			
	0255	0300	0304	C2.3			
	0734	0744	0811	C1.3	SF	N10W12	8731
	0758	0801	0804	C1.5			
	0957	1000	1002	C1.5			
	B1211	U1211	1217		SF	N18W18	8732
	B1458	1459	1505		SF	N20W34	8728
	1832	1842	1847	C3.6			
2322	2325	2336	C1.2				

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

Region 8714

29 Sep	N11E72	081	0000	00	AXX	001	A											
30 Sep	N12E56	084	0020	01	HSX	001	A											
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											
11 Oct	N14W83	078	0030	01	HSX	002	A											
12 Oct	N15W98	080	0000	01	AXX	001	A											

0 0 0 1 0 0 0 0

Crossed West Limb.

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	4								
<i>Region 8716</i>																							
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																
11 Oct	N23W47	042	0180	07	CKO	006	B																
12 Oct	N23W62	044	0150	06	CSO	004	B					2											
13 Oct	N22W74	043	0140	02	HAX	002	A																
14 Oct	N22W83	038	0100	11	CSO	003	B																
								4	0	0	13	0	0	0	0	0	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 043

Region 8719

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														
11 Oct	S21W57	052	0080	03	CSO	003	B														
12 Oct	S20W70	052	0060	02	HSX	001	A														
13 Oct	S20W84	053	0060	02	HAX	001	A														
								0	0	0	1	0	0	0	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 050



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	4				
<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												
11 Oct	N13W38	033	0010	07	BXO	004	B												
12 Oct	N12W50	032	0010	00	AXX	002	A												
13 Oct	N12W63	032																	
14 Oct	N17W78	033	0010	04	BXO	002	B												
15 Oct	N17W91	033																	

12 0 0 20 1 0 0 0

Crossed West Limb.

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												
11 Oct	S16W50	045	0010	01	HRX	001	A												
12 Oct	S15W64	046	0000	00	AXX	001	A												
13 Oct	S15W77	046																	
14 Oct	S15W90	046																	

1 0 0 6 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 043



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 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																
11 Oct	N15W70	065																
12 Oct	N15W83	065																

0 0 0 0 0 0 0 0

Crossed West Limb.

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											
11 Oct	N20W12	007																
12 Oct	N20W25	007																
13 Oct	N20W38	007																
14 Oct	N20W51	007																
15 Oct	N20W64	007																

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 007



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										
11 Oct	S24W13	008	0030	01	HAX	001	A										
12 Oct	S24W27	009	0030	02	HSX	001	A										
13 Oct	S25W39	008	0010	01	HSX	001	A										
14 Oct	S23W53	008	0010	00	AXX	001	A										
15 Oct	S23W66	008															
16 Oct	S23W79	008															

0 0 0 0 0 0 0 0

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															
11 Oct	S19W44	039															
12 Oct	S19W57	039															
13 Oct	S19W70	039															
14 Oct	S19W83	039															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 034



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 8727</i>																				
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													
11 Oct	N18E01	354	0020	06	CAO	004	B													
12 Oct	N19W10	352	0030	06	DSO	004	B						1							
13 Oct	N21W24	353	0040	11	BXO	009	B													
14 Oct	N20W37	352	0030	07	DAO	007	B													
15 Oct	N20W52	354	0010	00	AXX	001	A													
16 Oct	N20W65	354																		
17 Oct	N20W78	354																		
													0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 354

<i>Region 8728</i>																				
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								
11 Oct	N22E38	317	0560	13	EKI	022	BG	1				2								
12 Oct	N22E25	317	0560	12	EKI	019	B													
13 Oct	N23E15	314	0520	16	FKO	026	B					1								
14 Oct	N22E00	315	0330	13	EKO	021	B													
15 Oct	N22W13	315	0310	13	EAO	020	B					2								
16 Oct	N23W26	315	0290	14	EAO	029	B	2				2								
17 Oct	N23W40	316	0220	12	EAO	010	B					1								
													4	0	0	13	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 315

<i>Region 8729</i>																				
09 Oct	N11E67	314	0040	10	CRO	008	B													
10 Oct	N12E58	310	0060	19	BXO	014	B													
11 Oct	N12E44	311	0030	14	BXO	014	B													
12 Oct	N12E30	312	0090	16	FAO	016	B													
13 Oct	N11E17	312	0110	16	CRO	030	B	1				2								
14 Oct	N12E03	312	0030	14	CAO	015	B					1								
15 Oct	N12W12	314	0020	10	CAO	008	B													
16 Oct	N13W25	314	0020	09	BXO	009	B													
17 Oct	N14W41	317	0010	06	BXO	003	B													
													1	0	0	3	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 312



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	4			
<i>Region 8730</i>																		
10 Oct	S11E06	002	0010	03	BXO	004	B											
11 Oct	S11W07	002																
12 Oct	S11W20	002																
13 Oct	S11W33	002																
14 Oct	S11W46	002																
15 Oct	S11W59	002																
16 Oct	S11W72	002																
17 Oct	S11W85	002																
								0	0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 002

<i>Region 8731</i>																		
11 Oct	N10E62	293	0120	11	EAO	006	B					1						
12 Oct	N11E51	291	0340	14	EKO	014	B	1				6						
13 Oct	N11E37	292	0620	12	EKO	038	BG	2				6						
14 Oct	N12E24	291	0790	14	EKC	045	BGD	4		1	12	1						
15 Oct	N12E10	292	0850	16	FKC	027	BG	7				11	1					
16 Oct	N12W03	292	1000	17	FKC	062	BGD	1				2						
17 Oct	N13W19	295	1220	19	FKC	054	BGD	1				1						
								16	0	1	39	2	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 292

<i>Region 8732</i>																		
12 Oct	N20E43	299	0030	05	BXO	005	B					1						
13 Oct	N19E28	301	0230	08	DSO	010	B	2				6						
14 Oct	N20E16	299	0090	09	DAO	021	B					2						
15 Oct	N20E01	301	0170	12	ESO	012	B											
16 Oct	N20W12	301	0210	13	EAO	019	B											
17 Oct	N21W25	301	0220	15	EAO	023	B					1						
								2	0	0	10	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 301



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	4		
<i>Region 8733</i>																	
12 Oct	N25E00	342	0010	03	BXO	003	B										
13 Oct	N24W13	342	0010	04	BXO	003	B										
14 Oct	N26W24	339	0000	00	AXX	001	A										
15 Oct	N26W37	339															
16 Oct	N26W50	339															
17 Oct	N26W63	339															
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 342																	
<i>Region 8734</i>																	
15 Oct	N17E21	281	0010	05	CRO	002	B										
16 Oct	N17E08	281	0000	01	AXX	001	A										
17 Oct	N17W09	285	0010	02	HSX	002	A										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 281																	
<i>Region 8735</i>																	
16 Oct	N18E40	249	0010	05	BXO	009	B										
17 Oct	N18E22	254	0040	05	DSO	006	B										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 254																	
<i>Region 8736</i>																	
17 Oct	S20E35	241	0010	00	HRX	001	A										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 241																	

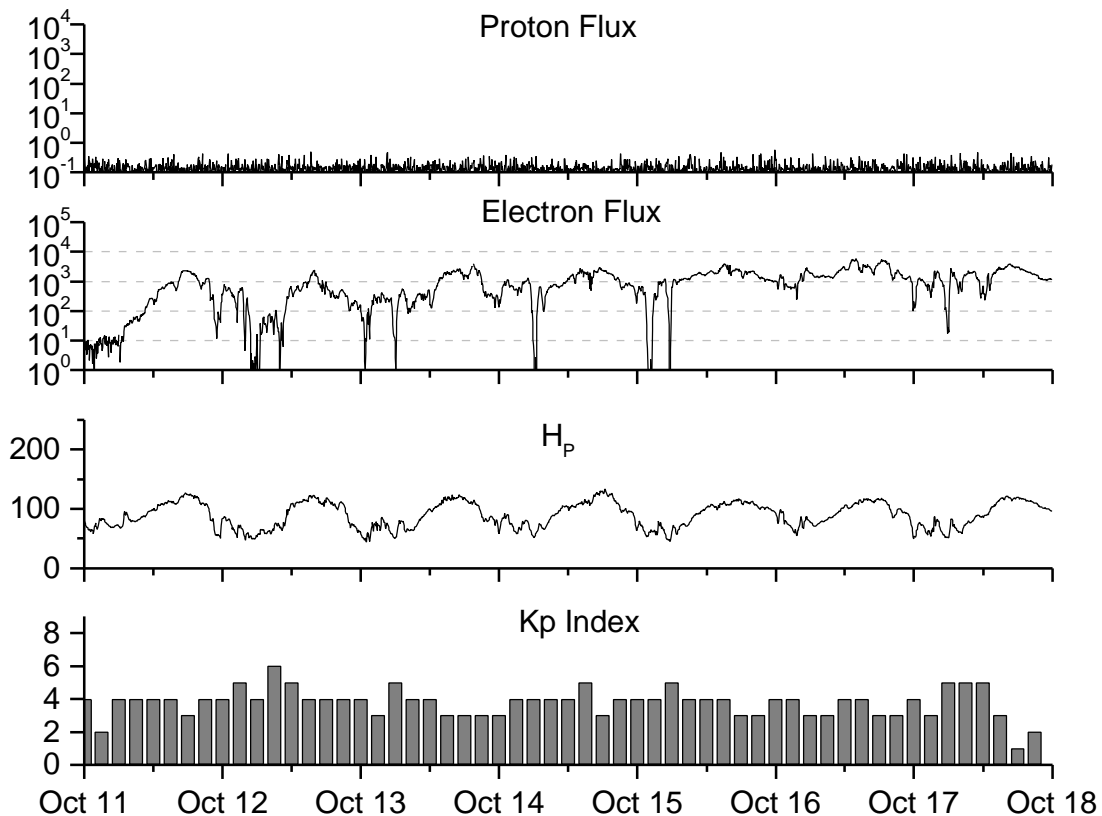


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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 11 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.

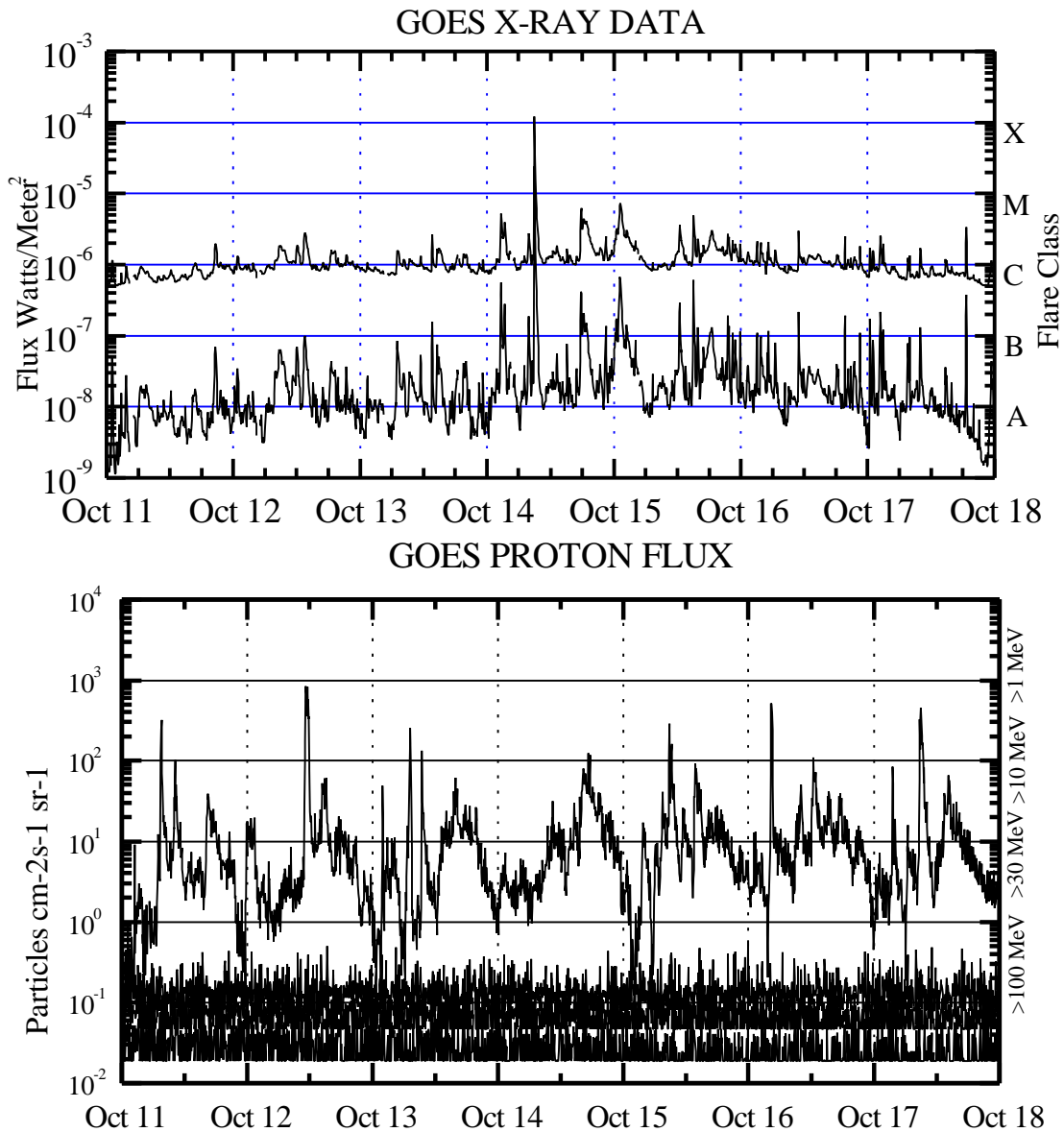
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm² -sec -sr) with energies greater than 2 MeV at GOES-8.

Hp plot contains the five minute averaged magnetic field Hp - component in nanoteslas (nT) as measured by GOES-8. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

Kp 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 Hartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC), the British Geological Survey and the US Geological Survey. These may differ from the final Kp values derived from a more extensive network of magnetometers. The official Kp values are available at http://www.gfzpotdam.de/pb2/pb23/niemegk/kp_index/

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 Kp are "global " parameters that are applicable to a first order approximation over large areas. Hparallel 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.

