Space Weather Highlights **SWO PRF 1312**
16 – 22 October 2000 **24 October 2000**

Solar activity varied from low to moderate levels. The period began with activity at moderate levels due to a long-duration M2 X-ray flare at 16/0728 UTC with associated Type II and IV radio sweeps. This flare likely originated from old Region 9182 (N02, L = 246, class/area Dai/360 on 11 October), which was a day and a half beyond the west limb at the time of the flare. There was also a halo CME associated with this flare, but it was not Earth-directed. Activity decreased to low levels during 17 - 20 October with isolated B- and C-class subflares. Activity rose to moderate levels on 21 October with an M3/1n flare from Region 9201 (N17, L = 054, class/area Eai/250 on 22 October), which was in a gradual growth phase at the time of the flare. Activity returned to low levels on the last day of the period.

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. A negative polarity coronal hole signature was observed during 16 - 17 October. Peak wind velocities of 630 Km/sec occurred on 16 October, then gradually declined to nominal velocities by 18 October. IMF Bz fluctuated around zero in the plus 07 to minus 06 nT (GSM) range through 18 October. Another coronal hole signature began on October 22 as velocities increased from 380 to 630 km/sec and densities became low. IMF Bz fluctuated between plus 10 and minus 11 nT as coronal hole effects began. Phi readings indicated that this was a positive polarity hole.

A greater than 10 MeV proton event at geosynchronous orbit was associated with the long-duration M2 flare at 16/0728 UTC. The event began at 16/1125 UTC, reached a maximum of 15.1 pfu at 16/1840 UTC, and ended at 17/0210 UTC. The greater than 100 MeV proton flux was enhanced on 16 October following the flare.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels during 18 - 22 October.

The geomagnetic field was at mostly quiet to unsettled levels during 16 - 21 October. Activity increased to unsettled to active levels during the latter half of 22 October with storm periods detected at high latitudes.

Space Weather Outlook
25 October - 20 November 2000

Solar activity is expected to be at low to moderate levels. Isolated M-class flares may occur sometime during the period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit may reach moderate to high levels beginning 14 November. Otherwise, normal to moderate fluxes are expected.

Geomagnetic field activity may reach active levels during 18 - 19 November due to coronal hole effects. Otherwise, quiet to unsettled levels are expected, barring an Earth-directed CME.

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
16 October	161	109	480	C1.5	4	1	0	4	0	0	0	0
17 October	154	130	540	B8.8	5	0	0	6	0	0	0	0
18 October	151	128	480	B8.2	4	0	0	3	0	0	0	0
19 October	158	128	380	B6.8	2	0	0	2	1	0	0	0
20 October	161	144	630	B5.5	4	0	0	4	0	0	0	0
21 October	158	166	530	B5.3	5	1	0	6	1	0	0	0
22 October	160	117	480	B5.1	4	0	0	4	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
16 October	2.2E+6	6.2E+5	7.4E+3		9.7E+6	
17 October	4.7E+6	4.9E+5	3.7E+3		2.9E+7	
18 October	2.2E+6	1.4E+5	2.7E+3		4.8E+7	
19 October	1.1E+6	5.2E+4	2.7E+3		4.2E+7	
20 October	4.2E+5	2.0E+4	2.5E+3		4.2E+7	
21 October	5.0E+5	1.4E+4	2.8E+3		7.6E+7	
22 October	5.6E+5	1.1E+4	2.5E+3		3.7E+7	

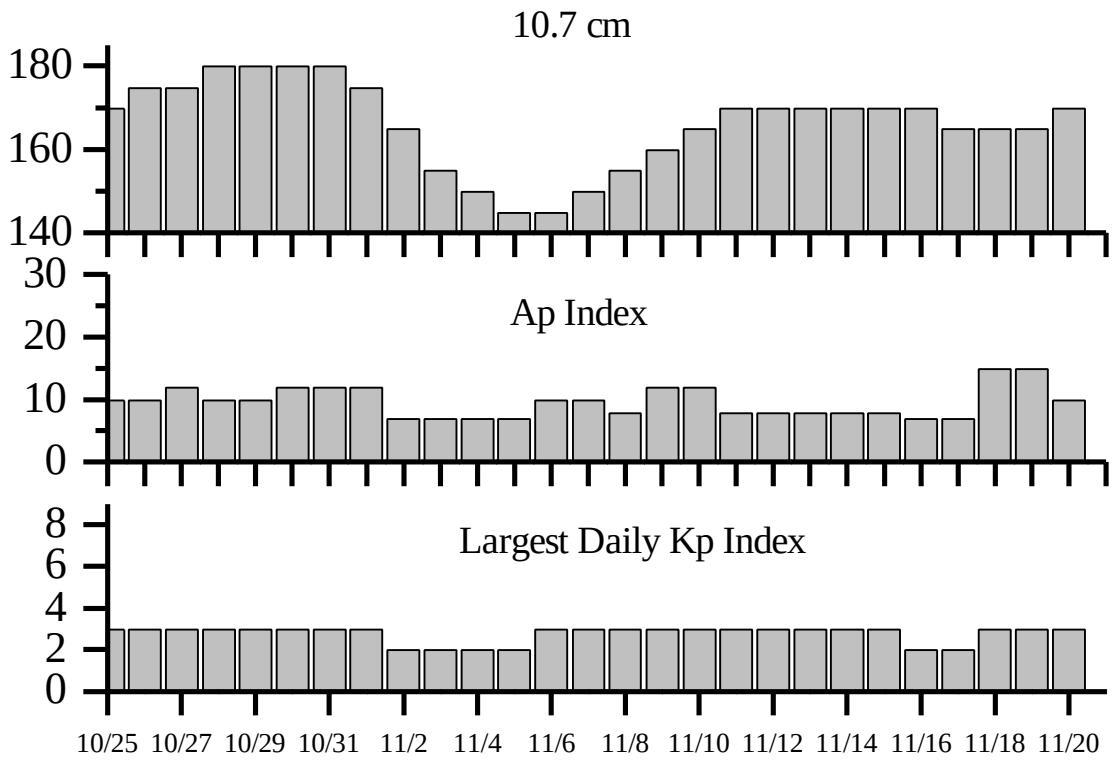
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
16 October	11	4-2-1-2-2-3-3-2	*	*-*-*-*-*-*-*-2-2	8	4-2-1-1-2-2-2-2
17 October	8	3-2-1-2-3-1-2-2	8	3-2-1-3-2-2-2-2	9	3-3-1-3-2-2-3-2
18 October	6	2-2-1-2-2-1-1-2	11	2-2-1-4-4-2-2-1	8	2-2-1-3-3-2-2-2
19 October	9	3-2-3-1-3-1-1-2	10	1-2-4-3-3-2-1-1	9	3-3-3-2-3-2-2-2
20 October	2	1-1-0-1-0-0-1-0	*	0-0-0-*-*-0-1-0	4	1-1-0-1-2-2-1-2
21 October	5	1-0-0-1-3-3-1-0	3	0-0-0-0-3-1-1-0	4	1-0-0-1-2-2-2-1
22 October	7	0-0-1-2-3-3-2-2	35	0-0-0-4-6-6-6-3	13	1-1-1-3-4-4-4-3

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
16 Oct 0104	1 – 245 MHz Radio Burst	15 Oct
16 Oct 0124	K= 4 Warning	16 Oct 0130 - 1200
16 Oct 0300	K= 4 Observed	16 Oct 0000 - 0300
16 Oct 0736	Type II Radio Emission	16 Oct 0658
16 Oct 0737	Type IV Radio Emission	16 Oct 0704
16 Oct 0938	Proton Event >10MeV ≥10pfu Warning	16 Oct 0940 to 2100
16 Oct 1142	Protons Event >10 MeV ≥10pfu	16 Oct 1125
16 Oct 1156	EXTENDED K-Index of 4 Warning	16 Oct 0130 to 2100
17 Oct 0100	CONTINUED Protons Event >10 MeV ≥10pfu	16 Oct 1125
17 Oct 0723	ENDED Protons Event >10 MeV ≥10pfu	16 Oct 1125
18 Oct 1453	Electron Event >2MeV ≥1000pfu	18 Oct 1435
19 Oct 0100	CONTINUED Electron Event >2MeV ≥1000pfu	18 Oct 1435
20 Oct 0100	CONTINUED Electron Event >2MeV ≥1000pfu	18 Oct 1435
21 Oct 0100	CONTINUED Electron Event >2MeV ≥1000pfu	18 Oct 1435
22 Oct 0022	1 – 245 MHz Radio Burst	21 Oct
22 Oct 0100	CONTINUED Electron Event >2MeV ≥1000pfu	18 Oct 1435
22 Oct 1749	K= 4 Warning	22/1748 – 23/1500 Oct
22 Oct 1803	K= 4 Observed	22 Oct 1500 - 1800

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
25 Oct	170	10	3	08 Nov	155	10	3
26	175	10	3	09	160	8	3
27	175	12	3	10	165	12	3
28	180	10	3	11	170	8	3
29	180	10	3	12	170	8	3
30	180	12	3	13	170	8	3
31	180	12	3	14	170	8	3
01 Nov	175	12	3	15	170	8	3
02	165	7	2	16	170	7	2
03	155	7	2	17	165	7	2
04	150	7	2	18	165	15	3
05	145	7	2	19	165	15	3
06	145	10	3	20	170	10	3
07	150	10	3				

Energetic Events

Date	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
16 Oct	0640	0728	0911	M2.5	.160					30	2	1
21 Oct	1813	1831	1846	M3.0	.036	1N	N17E23	9201		100		

Flare List

Date	Time			X-ray	Optical		
	Begin	Max	End	Class.	Imp / Brtns	Location Lat CMD	Rgn
16 October	0532	0549	0623	C7.0			
	0640	0728	0911	M2.5			
	1710	1711	1717	C1.9	SF	N09E52	9199
	2020	2020	2026		SF	N04W73	9193
	2039	2048	2110	C1.5			
	2105	2107	2110		SF	N04W73	9193
	2154	2200	2202	C1.6			
	2321	U2322	2328		SF	S32E46	9198
17 October	0050	0052	0055		SF	N06W75	9193
	0153	0201	0224	C3.0	SF	N06W75	9193
	0236	0238	0246		SF	N06W78	9193
	1001	1020	1032	C1.0			
	1114	1122	1128	C1.1			
	1717	1718	1732	B9.7	SF	N05W82	9193
	1750	1753	1801	C2.2	SF	S21E47	9200
	1816	1823	1830		SF	S18E55	9200
	2140	2205	2257	C4.2			
18 October	0654	0655	0700	B8.0	SF	S33E25	9198
	1009	1023	1032	C1.2			
	1042	1047	1054	C1.2			
	1124	1131	1144	C1.1			
	2026	2028	2032	B8.8	SF	N06E29	9199
	2250	2250	2259	C1.4	SF	N07E27	9199
19 October	0036	0038	0124	C3.5	1F	S11W19	9194
	0106	0111	0122		SF	N07E25	9199
	0634	0727	0826	C1.6			
	0759	0802	0819		SF	N16E49	9201
	1009	1019	1025	B9.8			
20 October	0055	0113	A0115	C1.1	SF	N07E08	9199
	0639	0704	0722	B9.8			
	1012	1015	1020	B7.3			
	1356	1359	1408	C1.2	SF	N07E03	9199
	1704	1710	1718	B9.9			

Flare List – continued.

Date	Time Begin	Time Max	Time End	X-ray	Optical Imp / Class.	Optical Location Brtns	Rgn Lat CMD
20 October	1809	1812	1822	C1.0	SF	N09W03	9199
	1912	1933	1942	C1.6			
	2019	2019	2022		SF	N09W04	9199
21 October	0000	0001	0007		SF	N09W06	9199
	0124	0129	0134	C1.0			
	0307	0309	0312		SF	N09W08	9199
	0521	0526	0535	C1.6	SF	N09W09	9199
	0656	0707	0714	C2.4	SF	N19E29	9201
	B0956	U0957	1012	C5.6	SF	N08W09	9199
	1402	1406	1410	C2.3	SF	N16E16	9201
	1816	1825	1915	M3.0	1N	N17E23	9201
22 October	0228	0232	0235	C3.6	SF	N18W29	9203
	0318	0319	0322		SF	N07W17	9199
	0447	0450	0456	C1.8	SF	N07W19	9199
	1059	1104	1109	B8.1			
	1307	1317	1327	C1.1			
	1701	1704	1710	B8.4			
	1715	1723	1727	B9.6			
	B2108	U2109	A2131	C1.8	SF	N16E05	9201

Region Summary

Date	Location (° Lat ° CMD)	Helio Lon	Area (10^{-6} hemi)	Extent (helio)	Sunspot Characteristics: Spot Class	Spot Count	Mag Class	Flares: X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
					Region 9188										
08 Oct	S12E32	212	0010	01	CSO	002	B								
09 Oct	S12E16	215	0000	02	BXO	003	B								
10 Oct	S12E03	215	0010	04	BXO	006	B								
11 Oct	S11W08	213	0020	05	BXO	006	B								
12 Oct	S10W22	213	0020	05	DSO	005	B								
13 Oct	S10W34	212	0010	06	DSO	005	B								
14 Oct	S07W48	213	0010	02	CSO	003	B								
15 Oct	S07W61	213													
16 Oct	S07W74	213													
17 Oct	S07W87	213													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 215

					Region 9189										
08 Oct	N19E54	190	0030	02	CSO	005	B				1				
09 Oct	N14E44	187	0030	04	CRO	007	B								
10 Oct	N13E30	188	0020	04	BXO	006	B								
11 Oct	N14E18	187	0020	05	CRO	006	B								
12 Oct	N13E06	185	0020	03	DSO	004	B								
13 Oct	N14W06	184	0010	02	BXO	003	B								
14 Oct	N14W19	184													
15 Oct	N14W32	184													
16 Oct	N14W45	184													
17 Oct	N14W58	184													
18 Oct	N14W71	184													
19 Oct	N14W84	184													
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 185

Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
		Region 9190													
08 Oct	S20E74	170	0060	03	DSO	002	B								
09 Oct	S18E59	172	0110	05	DSO	003	B								
10 Oct	S17E47	171	0110	04	DSO	003	B								
11 Oct	S17E35	170	0070	05	DAI	008	B				1				
12 Oct	S18E20	171	0080	07	DAO	012	B								
13 Oct	S17E11	167	0100	11	EAO	016	BG								
14 Oct	S17W04	169	0080	10	DAO	017	B								
15 Oct	S17W19	171	0070	06	CSO	008	B								
16 Oct	S15W34	173	0050	03	CAO	005	B								
17 Oct	S14W48	173	0050	02	HAX	003	A								
18 Oct	S14W60	172	0030	03	CSO	005	B								
19 Oct	S14W73	172	0010	01	HSX	002	A								
20 Oct	S14W86	172													
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 169

		Region 9191													
10 Oct	N16E66	152	0000	00	AXX	001	A								
11 Oct	N17E53	152	0010	05	BXO	002	B								
12 Oct	N18E42	149	0010	01	AXX	001	A								
13 Oct	N18E29	149	0010	01	AXX	001	A								
14 Oct	N18E16	149													
15 Oct	N18E03	149													
16 Oct	N18W10	149													
17 Oct	N18W23	149													
18 Oct	N18W36	149													
19 Oct	N18W49	149													
20 Oct	N18W62	149													
21 Oct	N18W75	149													
22 Oct	N18W88	149													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 149

Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9192												
11 Oct	S14E02	203	0030	04	CRO	007	B								
12 Oct	S13W12	203	0050	06	DAO	009	B								
13 Oct	S13W25	203	0040	07	DSO	008	B								
14 Oct	S13W38	203	0020	07	CRO	009	B				2				
15 Oct	S13W51	203	0020	06	BXO	006	B								
16 Oct	S13W66	205	0010	05	BXO	003	B								
17 Oct	S11W78	203	0000	00	AXX	001	A								
18 Oct	S11W91	203													
								0	0	0	2	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		203													
			Region 9193												
11 Oct	N10W04	209	0010	04	CSO	003	B								
12 Oct	N08W18	209	0030	05	DAO	009	B								
13 Oct	N05W32	210	0070	06	DAO	008	B								
14 Oct	N05W46	211	0140	09	DSO	012	B				1				
15 Oct	N05W61	213	0150	09	DSO	007	B								
16 Oct	N06W74	213	0130	09	DAO	007	B				2				
17 Oct	N05W86	211	0110	10	DAO	005	B	1			4				
								1	0	0	7	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		209													
			Region 9194												
12 Oct	S13E60	131	0050	06	DSO	003	B								
13 Oct	S12E50	128	0060	04	DSO	004	B								
14 Oct	S12E36	129	0060	04	DAO	008	B	3			5				
15 Oct	S12E23	129	0120	06	DAI	013	B								
16 Oct	S11E09	130	0080	06	DAI	012	BG								
17 Oct	S11W04	129	0080	08	DSO	019	B								
18 Oct	S10W16	128	0030	04	DAO	007	B								
19 Oct	S11W28	127	0020	03	DSO	004	B	1				1			
20 Oct	S11W43	129													
21 Oct	S11W56	129													
22 Oct	S11W69	129													
								4	0	0	5	1	0	0	0
Still on Disk.															
Absolute heliographic longitude:		129													

Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 9197												
12 Oct	N26E70	121	0020	03	CSO	004	B				1				
13 Oct	N26E57	121													
14 Oct	N25E42	123						1			1				
15 Oct	N25E29	123													
16 Oct	N25E16	123													
17 Oct	N25E03	123													
18 Oct	N25W10	123													
19 Oct	N25W23	123													
20 Oct	N25W36	123													
21 Oct	N25W49	123													
22 Oct	N25W62	123													
								1	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 123

			Region 9198												
14 Oct	S30E65	100	0030	04	BXO	003	B	2			4				
15 Oct	S31E54	098	0080	10	CSO	004	B	2			7				
16 Oct	S31E39	100	0070	08	DSO	008	B				1				
17 Oct	S31E26	099	0100	09	DAO	009	B								
18 Oct	S30E13	099	0110	08	DSO	008	B				1				
19 Oct	S30W01	100	0090	07	CAO	006	B								
20 Oct	S30W11	097	0150	08	DAO	011	B								
21 Oct	S29W24	097	0120	08	DAO	011	B								
22 Oct	S29W37	097	0160	07	DSI	011	B								
								4	0	0	13	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 100

			Region 9199												
15 Oct	N12E68	084	0040	01	HSX	001	A								
16 Oct	N12E54	085	0030	01	HSX	001	A	1			1				
17 Oct	N12E41	084	0020	01	HSX	001	A								
18 Oct	N12E24	088	0050	11	ESO	010	B	1			2				
19 Oct	N08E09	090	0070	12	ESO	015	B				1				
20 Oct	N08W04	090	0140	12	ESI	021	BG	3			4				
21 Oct	N10W17	090	0090	16	FAO	018	B	2			4				
22 Oct	N09W31	091	0040	10	DAO	009	B	1			2				
								8	0	0	14	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 090

Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 9200												
16 Oct	S16E58	081	0110	04	DSO	003	B								
17 Oct	S18E46	079	0100	06	DSO	007	B	1			2				
18 Oct	S17E32	080	0110	04	DAO	010	B								
19 Oct	S16E20	079	0040	04	DAO	011	B								
20 Oct	S16E08	078	0040	03	BXO	007	B								
21 Oct	S17W08	081	0010	06	BXO	012	B								
22 Oct	S15W20	080	0010	03	HSX	003	A								
								1	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 078

			Region 9201												
17 Oct	N16E69	056	0080	08	CSO	005	B								
18 Oct	N17E57	055	0110	08	DAI	012	B								
19 Oct	N16E45	054	0120	07	DAO	016	B				1				
20 Oct	N17E32	054	0220	09	DKI	022	B								
21 Oct	N16E19	054	0250	10	DAI	034	BG	2	1		2	1			
22 Oct	N17E06	054	0250	11	EAI	031	B	1			1				
								3	1	0	4	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 054

			Region 9202												
18 Oct	N14E26	086	0040	05	CSO	006	B								
19 Oct	N14E13	086	0030	06	DAO	004	B								
20 Oct	N11E05	081	0030	05	AXX	005	A								
21 Oct	N07W10	083	0010	03	AXX	003	A								
22 Oct	N10W24	084	0010	01	AXX	002	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 081

			Region 9203												
20 Oct	N15W15	101	0030	04	CSO	004	B								
21 Oct	N15W29	102	0020	01	HSX	002	A								
22 Oct	N13W43	103	0010	01	HSX	001	A	1			1				
								1	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 101

Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9204												
20 Oct	N09E15	071	0020	03	AXX	004	A								
21 Oct	N10E01	072	0020	04	AXX	005	A								
22 Oct	N10W12	072													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 072

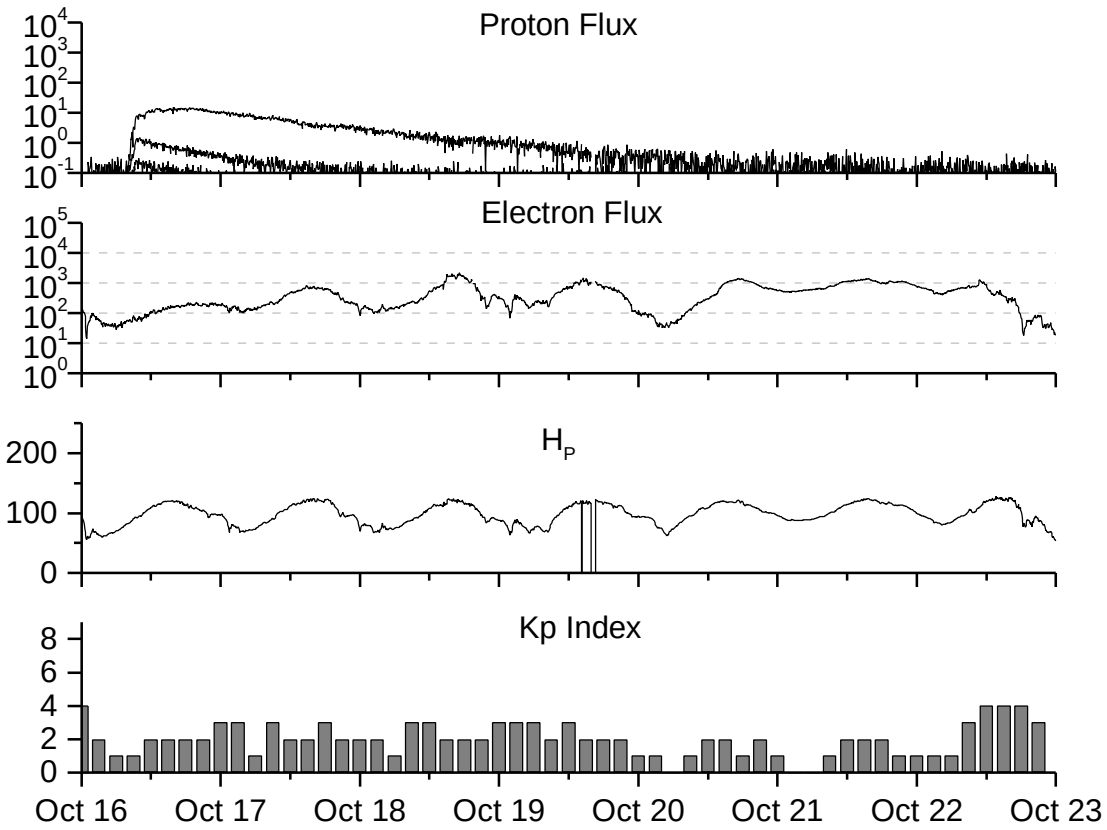
			Region 9205												
21 Oct	N36W20	093	0010	01	HRX	001	A								
22 Oct	N36W33	093													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 093

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

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
Month	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
					1998				
October	77.0	55.5	0.72	97.7	70.5	117.3	127.9	13	12.8
November	99.5	74.0	0.74	101.3	73.0	140.2	130.0	16	12.4
December	120.8	81.9	0.68	108.8	77.9	150.1	134.3	08	11.9
					1999				
January	94.3	62.0	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	11.7
April	92.9	63.7	0.69	123.8	85.5	117.2	145.8	12	12.2
May	140.5	106.4	0.76	131.7	90.5	148.6	149.9	08	12.4
June	208.3	137.7	0.66	136.0	93.1	169.8	152.9	07	12.4
July	169.2	113.5	0.67	138.0	94.4	165.6	154.4	10	12.6
August	136.1	93.7	0.69	142.8	97.5	170.8	156.3	15	12.9
September	107.4	71.5	0.66	150.0	102.3	135.7	161.0	19	12.8
October	167.7	116.7	0.69	158.5	107.7	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.9	191.5	171.5	14	13.2
December	123.5	86.4	0.70	165.9	110.9	169.8	173.4	10	13.9
					2000				
January	140.8	90.2	0.64	168.0	112.7	158.1	175.2	13	14.7
February	161.9	112.3	0.69	172.1	116.6	173.2	176.3	15	15.3
March	203.6	138.2	0.68	175.4	119.7	208.2	177.9	09	15.3
April	193.4	125.3	0.65			184.2		15	
May	188.8	120.8	0.64			184.5		16	
June	190.3	124.9	0.66			178.8		16	
July	236.7	169.1	0.71			200.0		21	
August	166.6	130.5	0.78			163.1		18	
September	157.9	109.9	0.70			182.1		16	

NOTE: All smoothed values after June 1999 and monthly values after December 1999 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 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 16 October 2000

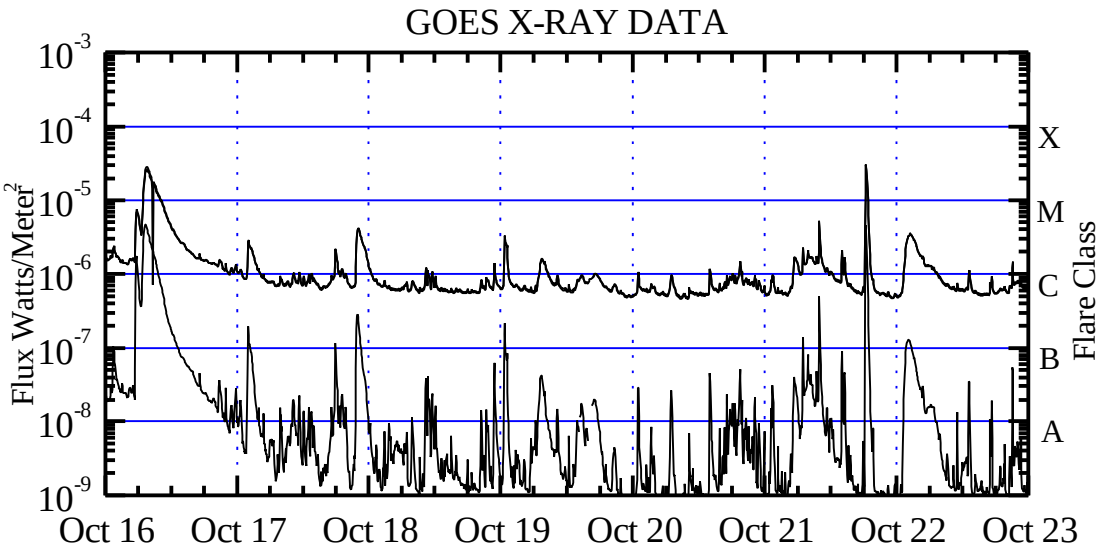
Protons plot contains the five-minute averaged integral proton flux (protons/cm^2 –sec –sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

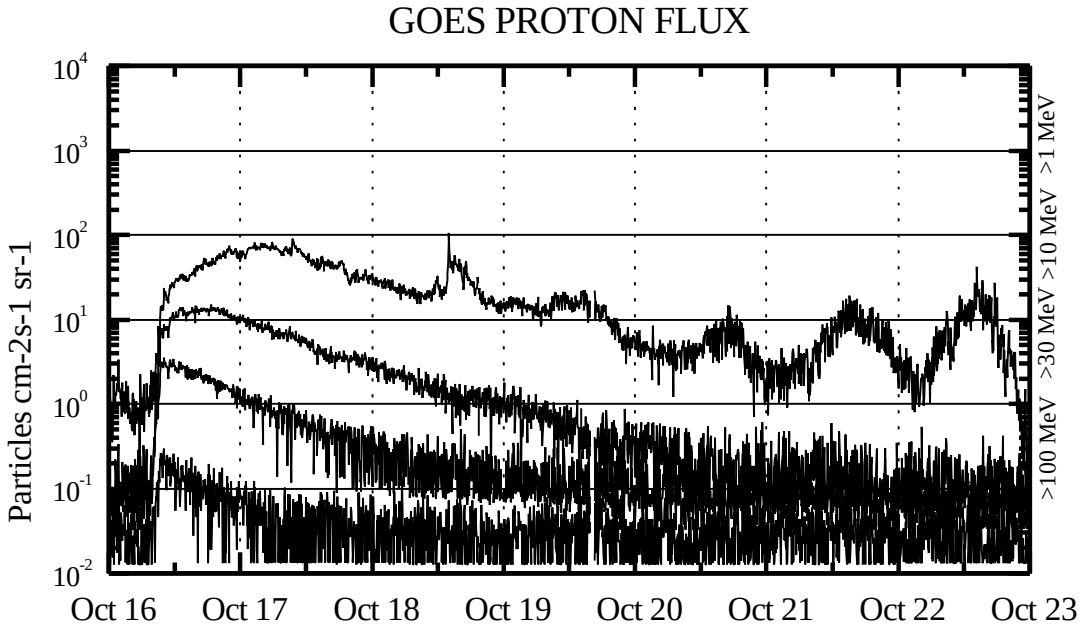
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm^2 –sec –sr) with energies greater than 2 MeV at GOES-8.

Hp 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.

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 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 Kp 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 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.





W*eekly GOES Satellite X-ray and Proton Plots*

X-ray plot contains five-minute averaged x-ray flux (watts/m$^{2)}$ 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/cm^2 –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/cm^2-sec-sr) at greater than 10 MeV.