

Space Weather Highlights 06 - 12 November 2000

**SWO PRF 1315
14 November 2000**

Solar activity reached high levels during the period. The week began with activity at low levels due to isolated C-class subflares. Activity increased to moderate levels on 07 November due to an M1/1f flare at 07/1207 UTC from Region 9213 (N02, L = 270, class/area Hax/250 on 04 November). Activity increased to high levels on 08 November due to a long-duration M7 X-ray flare at 08/2328 UTC near the northwest limb. Regions 9212 (N10, L = 268, class/area Eso/170 on 03 November), 9213, and 9218 (N20, L = 248, class/area Eao/270 on 04 November) each produced optical flares during the M7 (the largest of which was a 3f flare from Region 9213) making a single-point source determination difficult. A Type IV radio sweep, 710 sfu Tenflare, halo CME, and a proton event were associated with the M7. Activity decreased to moderate levels on 09 November with optically uncorrelated M1 X-ray flares at 09/0314 UTC and 09/0610 UTC, and an M1/Sf flare at 09/1613 UTC from Region 9221 (S12, L = 175, class/area Dao/120 on 06 November). Activity decreased to low levels during 10 - 12 November due to isolated to occasional C-class subflares.

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. However, velocity, temperature, and density readings were not available during 09 - 10 November due to sensor contamination associated with the proton event discussed below. CME passages occurred on 06 and 10 November. The first passed the spacecraft at 06/0915 UTC accompanied by a velocity increase to 650 km/sec and a period of sustained southward IMF Bz with deflections to minus 18 nT (GSM). The second CME-induced shock passed the spacecraft at 10/0604 UTC associated with a relatively brief southward turning of IMF Bz with deflections to minus 12 nT, a velocity jump to 770 km/sec and increased densities (velocity and density readings were available from the CELIAS/MTOF proton monitor on the SOHO spacecraft). A high-speed, low-density coronal hole wind stream was evident during 11 - 12 November with peak velocities of 990 km/sec noted on 11 November.

Greater than 100 MeV and greater than 10 MeV proton events at geosynchronous orbit were associated with the M7 flare of 08 November. The greater than 100 MeV event began at 08/2355 UTC, reached a maximum of 347 pfu at 09/0350 UTC, and ended at 11/0240 UTC. The greater than 10 MeV event began at 08/2350 UTC, reached a maximum of 13,300 pfu at 09/1600 UTC, and ended at 13/0745 UTC. A polar cap absorption event was associated with the solar proton event. The estimated maximum absorption reading was 33 dB at 09/1640 UTC.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 09 and 12 November. A CME-related geomagnetic disturbance occurred during 06 - 07 November with active to major storm levels at middle latitudes and severe storm levels at high latitudes. Another CME-related disturbance occurred on 10 November following a sudden impulse at 10/0629 UTC (67 nT, as measured by the Boulder USGS magnetometer). Active to major storm levels were observed during this disturbance. A coronal hole-related disturbance occurred on 12 November with active to minor storm levels at middle latitudes and major storm periods at high latitudes.

Space Weather Outlook 15 November - 11 December 2000

Solar activity is expected to be at low to moderate levels. Chances for M-class activity are expected to increase beginning around 23 November with the return of previously active heliolongitudes.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit may reach moderate to high levels during 10 - 11 December. Otherwise, normal to moderate fluxes are expected.

Geomagnetic field activity is expected to be at quiet to unsettled levels during most of the period, barring an Earth-directed CME. However, active to minor storm periods will be possible during 08 - 09 December due to coronal hole effects.



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
06 November	178	158	860	B8.0	1	0	0	2	0	0	0	0
07 November	180	120	740	B8.9	7	1	0	5	1	0	0	0
08 November	173	171	910	C1.1	8	3	0	6	1	0	1	0
09 November	166	149	730	M1.1	1	3	0	3	1	0	0	0
10 November	153	141	720	C1.3	5	0	0	0	0	0	0	0
11 November	150	128	550	B6.1	2	0	0	1	0	0	0	0
12 November	147	112	490	B4.9	2	0	0	0	1	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
06 November	1.3E+6	1.0E+4	2.3E+3		7.1E+6	
07 November	1.8E+5	8.5E+3	1.8E+3		6.8E+6	
08 November	7.2E+5	3.6E+4	3.2E+3		5.8E+6	
09 November	1.3E+9	7.5E+8	1.3E+7		4.9E+7	
10 November	8.9E+8	9.8E+7	4.2E+5		2.7E+7	
11 November	7.4E+7	7.0E+6	3.1E+4		9.4E+6	
12 November	1.5E+7	1.5E+6	9.0E+3		2.4E+8	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	06 November	28	3-3-3-5-4-4-5-4	102	3-4-5-7-8-8-6-4	42
07 November	29	5-5-5-4-3-2-4-3	40	3-5-6-5-5-4-5-1	39	5-5-6-6-4-4-4-2
08 November	14	1-3-4-4-3-3-1-2	*	*_*_*_*_*_*_*_*_*	15	2-3-4-4-3-3-1-3
09 November	10	3-1-1-1-3-3-2-3	21	2-2-1-3-5-5-4-3	11	3-1-1-1-3-3-3-3
10 November	29	4-3-5-6-5-3-3-2	37	3-4-5-6-4-5-5-3	41	4-3-6-6-6-4-3-3
11 November	11	2-3-2-2-2-3-3-3	32	3-3-2-6-5-5-4-3	12	2-3-2-3-3-3-3-3
12 November	20	3-5-4-4-3-3-2-2	44	3-4-6-6-5-6-3-2	21	3-5-4-4-3-4-2-2



Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
06 Nov 0011	1 – 245 MHz Burst	05 Nov
06 Nov 1102	K = 4 Warning	06 Nov 1105 - 1500
06 Nov 1206	K = 4 Observed	06 Nov 09 - 12
06 Nov 1410	K = 5 Warning	06 Nov 1415 - 2100
06 Nov 1421	K >= 6 Warning	06 Nov 1420 - 2100
06 Nov 1501	K = 6 Observed	06 Nov 1200 - 1500
06 Nov 1503	A >=20 Observed	06 Nov 1500
06 Nov 1604	A >=30 Warning	06 /1610 - 7 /1500 Nov
06 Nov 1952	EXTENDED K= 5 Warning	06/1415 - 07/1500 Nov
06 Nov 2101	A >=30 Observed	06 Nov 2100
07 Nov 0030	1 – 245 MHz Burst	06 Nov
07 Nov 0105	K >= 6 Warning	07 Nov 0130 - 1500
07 Nov 1304	EXTENDED A >=30 Warning	06/1610 - 08/0300 Nov
07 Nov 1422	EXTENDED K = 5 Warning	06/1415 - 07/2100 Nov
07 Nov 2123	K = 4 Warning	07/2130 - 08/1500 Nov
08 Nov 0302	ENDED A >=30 Observed	06 Nov 2100
08 Nov 0900	K = 4 Observed	08 Nov 0600 - 0900
08 Nov 1200	ENDED A >=20	06 Nov 1500
08 Nov 2353	Proton Event >10MeV >=10pfu Warning	09 Nov 0000 - 1200
08 Nov 2356	Proton event >100 MeV >1pfu Warning	09 Nov 0000 - 1200
09 Nov 0013	X-Ray event M7/3F/N10W77	08 Nov 2304
09 Nov 0023	Proton event >100 MeV >1pfu	08 Nov 2350
09 Nov 0024	Protons Event >10 MeV >=10pfu	08 Nov 2350
09 Nov 0055	10cm Radio Burst 710 F.U.	08 Nov 2258
09 Nov 0935	CONTINUED Proton Event >10MeV >=10pfu Warning	09 Nov 00 -12
09 Nov 0938	CONTINUED Proton event >100 MeV >1pfu Warning	09 Nov 00 - 12
09 Nov 1801	K = 4 Observed	09 Nov 1500 - 1800
09 Nov 2155	A >=30 Watch	11 Nov
09 Nov 2156	A >=20 Watch	12 Nov
10 Nov 0019	CONTINUED Protons Event >10 MeV >=10pfu	08 Nov 2350
10 Nov 0036	CONTINUED Proton event >100 MeV >1pfu	08 Nov 2350
10 Nov 0300	K= 4 Observed	10 Nov 00 - 03
10 Nov 0634	K = 5 Warning	10 Nov 0645 - 1800
10 Nov 0646	Sudden Impulse observed at Boulder	10 Nov 0629
10 Nov 0857	K = 5 Observed	10 Nov 06 - 09
10 Nov 0858	A >=20 Observed	10 Nov 0900
10 Nov 1322	Type II Radio Emission	09 Nov 2123
10 Nov 1324	Type II Radio Emission	09 Nov 2256
11 Nov 0032	CONTINUED Proton event >100 MeV >1pfu	08 Nov 2350
11 Nov 0034	CONTINUED Protons Event >10 MeV >=10pfu	08 Nov 2350
11 Nov 0044	1 – 245 MHz Burst	10 Nov
11 Nov 0646	ENDED Proton event >100 MeV >1pfu	08 Nov 2350
11 Nov 0901	ENDED A >=20 Observed	10 Nov 0900
11 Nov 1205	CANCELLED Proton event >100 MeV >1pfu Warning	09 Nov 00 - 12

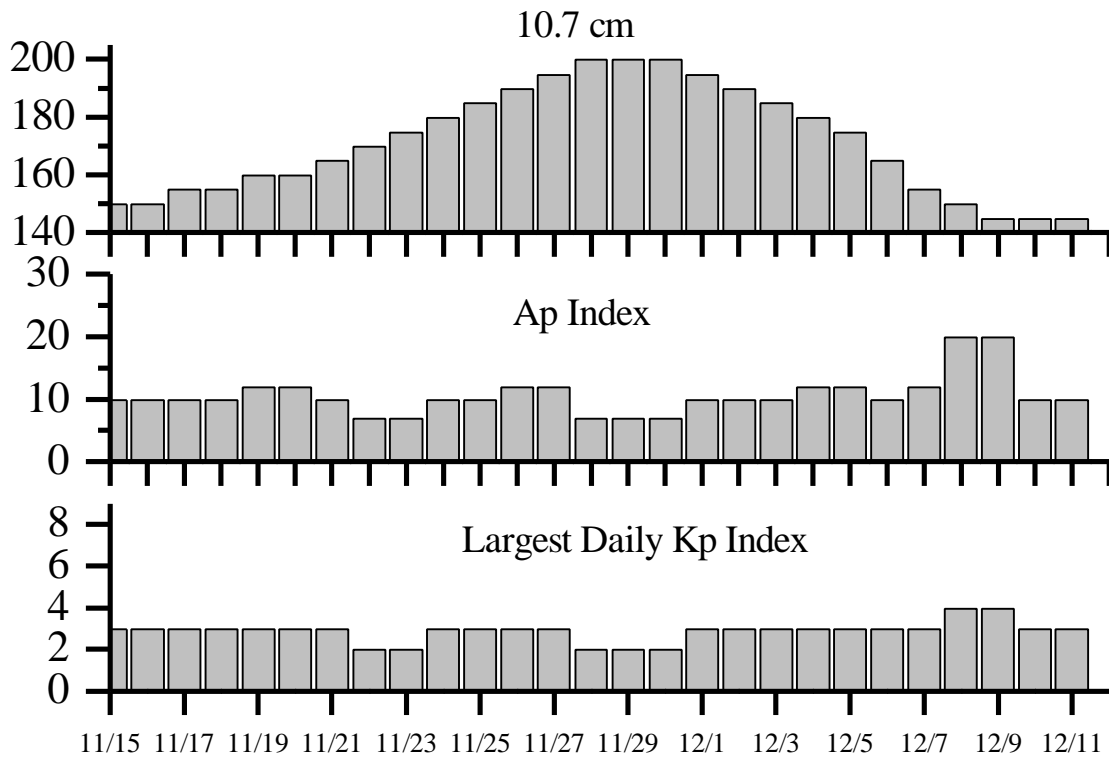


Alerts and Warnings Issued – continued.

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
12 Nov 0013	1 – 245 MHz Burst	11 Nov
12 Nov 0046	CONTINUED Protons Event >10 MeV >=10pfu	08 Nov 2350
12 Nov 0444	Electron Event >2MeV >=1000pfu	12 Nov 0425
12 Nov 601	K = 5 Observed	12 Nov 03 - 06
12 Nov 754	K = 4 Warning	12 Nov 08 - 15
12 Nov 1159	A >= 20 Observed	12 Nov 1200



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
15 Nov	150	10	3	29 Nov	200	7	2
16	150	10	3	30	200	7	2
17	155	10	3	01 Dec	195	10	3
18	155	10	3	02	190	10	3
19	160	12	3	03	185	10	3
20	160	12	3	04	180	12	3
21	165	10	3	05	175	12	3
22	170	7	2	06	165	10	3
23	175	7	2	07	155	12	3
24	180	10	3	08	150	20	4
25	185	10	3	09	145	20	4
26	190	12	3	10	145	10	3
27	195	12	3	11	145	10	3
28	200	7	2				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV
07 Nov	1155	1207	1220	M1.6	.016	1F	N06W54	9213	89			
08 Nov	0948	0958	1005	M1.5	.011			9226				
08 Nov	1622	1636	1646	M2.9	.029	SF	N11W79	9226				
08 Nov	2242	2328	0005	M7.4	.210	3F	N10W77	9213	40	710	1	
09 Nov	0303	0314	0339	M1.2	.019							
09 Nov	0601	0610	0621	M1.2	.012							
09 Nov	1545	1613	1620	M1.0	.012	SF	S11E10	9221				

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location Lat CMD	Rgn
	Begin	Max	End				
06 November	0934	0935	0946	C2.1	SF	S28W59	9210
	1629	1629	1643				
07 November	0009	0010	0016	C1.5	SF	S28W67	9210
	0151	0156	0200	C3.6			
	0341	0342	0347	C3.4	SF	N01W40	9213
	1048	1053	1057	C4.2			
	1159	1203	1249	M1.6	1F	N06W54	9213
	1626	1629	1636	C2.2	SF	N14W78	
	1859	1903	1906	C1.5			
08 November	2034	2034	2048		SF	S18W15	9225
	2235	2256	2348	C4.1	SF	N12W80	
	0025	0030	0036	C2.6	SF	N13W81	9226
	0256	0259	0305	C1.8			
	0623	0628	0631	C5.2			
	0749	0755	0802	C4.0			
	0948	0958	1005	M1.5			9226
	1136	1142	1145	C5.7	SF	N13W89	9226
	1243	1243	1247		SF	N13W91	9226
	1635	1639	1651	M2.9	SF	N11W79	9226
	1653	1653	1656		SF	S13E55	9227
	1810	1816	1820	C6.8			9226
	1945	1953	2012	C6.1			9226
	2146	2148	2158	C6.2	SF	N05W75	9213
	2259	2310	0031		1N	N10W75	9212
	2300	2329	A2334	M7.4	3F	N10W77	9213
	09 November	0303	0314	0339	M1.2		
0601		0610	0621	M1.2			
1547		1555	1710	M1.0	SF	S11E10	9221
1922		1923	1930		SF	N21W67	9218
1957		1957	2005		SF	N21W68	9218
2116	2122	2150	C6.4	1F	S19W43	9225	



Flare List – continued.

Date	Time			X-ray	Optical		Rgn Lat CMD
	Begin	Max	End		Imp / Class.	Location Brtns	
10 November	0405	0415	0445		C2.0		
	0456	0501	0509	C2.8			
	1218	1225	1234	C2.4			
	1634	1639	1645	C1.7			
11 November	0003	0005	0014	C2.3	SF	N19W84	9218
	0736	0742	0749	C2.9			9218
	1436	1448	1506	C1.2			
12 November	1407	1413	1513	C4.4	1F	S14E04	9227
	1635	1640	1644	C1.4			

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 9209</i>																
25 Oct	S25E71	309	0130	03	DAO	003	B	1			3					
26 Oct	S24E59	308	0180	07	DSO	007	B	2			2	1				
27 Oct	S24E48	306	0240	08	DAI	016	B									
28 Oct	S24E34	306	0200	09	DSI	020	B									
29 Oct	S24E21	306	0270	09	DAI	023	BG		1		1		1			
30 Oct	S23E07	307	0200	07	DAI	030	B	1				1				
31 Oct	S22W06	307	0200	08	DAI	016	B	3			2	1				
01 Nov	S23W19	307	0160	07	DAO	015	B									
02 Nov	S23W31	305	0140	07	DSO	013	B									
03 Nov	S22W43	304	0150	09	DAO	015	B	1			2					
04 Nov	S22W55	303	0200	10	DSO	017	B									
05 Nov	S22W69	304	0150	10	CAO	010	B	1			1					
06 Nov	S22W82	304	0110	10	DSO	007	B									
								9	1	0	11	3	1	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 307



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 9210</i>																		
26 Oct	S30E74	293	0070	02	HSX	001	A											
27 Oct	S30E59	295	0110	06	DSO	006	B											
28 Oct	S30E49	291	0100	07	DSI	004	B											
29 Oct	S29E35	292	0090	05	CAO	008	B											2
30 Oct	S29E21	293	0040	06	DSO	010	B											1
31 Oct	S28E08	293	0040	05	CSO	011	B											
01 Nov	S28W05	293	0020	04	CRO	008	B											
02 Nov	S27W17	291	0030	07	CSO	009	B											
03 Nov	S27W30	291	0020	04	CSO	012	B	1										1
04 Nov	S28W41	289	0040	03	DSO	007	B											
05 Nov	S26W54	289	0030	01	CSO	003	B											
06 Nov	S26W66	288	0020	02	CSO	003	B	1										2
07 Nov	S26W80	288						1										1
08 Nov	S26W93	288																
								3	0	0	0	7	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 293

<i>Region 9212</i>																		
28 Oct	N06E76	264	0200	07	DAO	003	B	1										1
29 Oct	N08E61	266	0270	06	DAO	007	B	2										2
30 Oct	N07E46	268	0180	08	DAI	016	B											
31 Oct	N10E34	267	0110	06	DAO	011	B											
01 Nov	N10E22	266	0120	11	EAO	018	B											1
02 Nov	N09E06	268	0090	11	CAO	026	B	1										1
03 Nov	N09W08	269	0170	13	ESO	020	B	1										2
04 Nov	N09W20	268	0040	06	DSO	016	B	1										1
05 Nov	N10W34	269	0020	06	BXO	009	B											
06 Nov	N10W47	269																
07 Nov	N10W60	268																
08 Nov	N10W73	268																1
09 Nov	N10W86	268																
								6	0	0	0	8	1	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 268



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 9213</i>																	
28 Oct	N00E71	269	0190	03	HSX	002	A	1			1						
29 Oct	N02E57	270	0210	03	HSX	004	A										
30 Oct	N00E43	271	0230	03	DAO	011	B										
31 Oct	N02E30	271	0200	03	CAO	007	B					1					
01 Nov	N02E17	271	0210	05	CAO	011	B										
02 Nov	N03E04	270	0220	07	CAO	009	B					1					
03 Nov	N03W09	270	0190	04	HAX	007	A	1				3					
04 Nov	N03W24	272	0250	03	HAX	003	A										
05 Nov	N03W37	272	0110	03	HAX	004	A					1					
06 Nov	N03W50	272	0100	03	HAX	005	A										
07 Nov	N02W64	272	0120	04	CAO	005	B	1	1		1	1					
08 Nov	N04W78	272	0080	04	CAO	004	B	1	1		1					1	
09 Nov	N04W92	273	0060	02	HSX	001	A										
								4	2	0	9	1	0	1	0		

Crossed West Limb.

Absolute heliographic longitude: 270

Region 9214

28 Oct	S13E70	270	0050	06	CSO	005	B					3					
29 Oct	S11E55	272	0190	09	DSO	006	B	1			1	1					
30 Oct	S13E40	274	0170	10	DSO	010	B										
31 Oct	S11E27	274	0100	11	EAO	014	B										
01 Nov	S09E14	274	0170	12	EAO	015	B										
02 Nov	S12E01	273	0160	13	ESO	017	B					1					
03 Nov	S12W12	273	0120	14	ESO	014	B					1					
04 Nov	S11W25	273	0090	13	CSO	006	B										
05 Nov	S09W45	280	0070	03	CSO	003	B										
06 Nov	S09W58	280	0070	03	CSO	003	B										
07 Nov	S09W71	279	0080	02	CSO	003	B										
08 Nov	S08W84	278	0060	02	HSX	001	A										
								1	0	0	6	1	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 273



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 9218</i>																	
01 Nov	N18E39	249	0070	06	DSO	012	B	3			5						
02 Nov	N19E26	248	0250	10	DAI	016	B	1			1						
03 Nov	N19E12	249	0270	10	DAO	012	B										
04 Nov	N20E00	248	0270	13	EAO	010	B										
05 Nov	N20W14	249	0250	14	ESO	016	B	1				1					
06 Nov	N20W27	249	0210	14	EAO	017	B										
07 Nov	N20W42	250	0150	15	EAO	006	B										
08 Nov	N20W60	254	0130	02	HSX	002	A		1			1					
09 Nov	N20W72	253	0140	03	HAX	001	A					2					
10 Nov	N21W83	251	0090	02	HAX	001	A	1									
								6	1	0	8	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 248

Region 9219

01 Nov	N06E66	222	0110	02	HSX	001	A										
02 Nov	N06E53	221	0120	02	HSX	001	A										
03 Nov	N06E39	222	0140	03	HSX	001	A										
04 Nov	N06E26	222	0130	02	HSX	001	A										
05 Nov	N06E12	223	0110	02	HSX	001	A										
06 Nov	N06W02	224	0120	02	HSX	002	A										
07 Nov	N07W15	223	0150	03	HSX	002	A										
08 Nov	N05W28	222	0160	03	HSX	001	A										
09 Nov	N06W42	223	0110	02	HSX	001	A										
10 Nov	N07W56	224	0130	02	HSX	001	A										
11 Nov	N06W68	223	0110	03	HSX	001	A										
12 Nov	N06W81	223	0090	02	HSX	001	A										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 224



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 9220

01 Nov N08E75	213	0010	01	AXX	001	A												
02 Nov N09E62	212	0010	01	AXX	002	A												
03 Nov N09E46	215	0000	00	AXX	001	A												
04 Nov N06E37	211	0030	08	CRO	007	B												
05 Nov N07E23	212	0020	08	CRO	006	B												
06 Nov N08E08	213	0010	09	BXO	004	B												
07 Nov N08W05	214	0000	00		000													
08 Nov N12W15	209	0040	05	DAO	007	B												
09 Nov N15W29	210	0050	06	DAO	012	B												
10 Nov N12W44	212	0020	08	CRO	009	B												
11 Nov N12W58	213	0010	02	BXO	002	B												
12 Nov N12W73	215	0000	00	AXX	001	A												
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 214

Region 9221

04 Nov S16E75	173	0060	09	DSO	002	B												
05 Nov S15E58	177	0120	05	DSO	003	B												
06 Nov S14E46	176	0120	06	DAO	011	B												
07 Nov S12E32	176	0110	07	DAO	007	B												
08 Nov S12E20	174	0090	08	DAO	011	B												
09 Nov S14E06	175	0080	05	CAO	008	B			1		1							
10 Nov S12W08	176	0090	04	CAO	006	B												
11 Nov S12W20	175	0080	06	CAO	008	B												
12 Nov S12W35	177	0070	04	CAO	005	B												
																		0 1 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 175

Region 9222

05 Nov N17W35	270	0060	06	DAO	007	B												
06 Nov N17W48	270	0040	07	DSO	004	B												
07 Nov N16W62	270	0050	08	CSO	002	B												
08 Nov N16W77	271	0050	01	HAX	001	A												
09 Nov N16W92	273	0030	01	HRX	001	A												
																		0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 270



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 9227</i>																	
08 Nov	S13E52	142	0100	08	DAO	007	B					1					
09 Nov	S13E38	143	0120	10	DAO	016	B										
10 Nov	S13E24	144	0180	12	EAO	010	B										
11 Nov	S12E12	143	0130	13	EAO	012	B										
12 Nov	S11W02	144	0180	12	EAO	015	B	1					1				
								1	0	0	1	1	0	0	0		
Still on Disk.																	
Absolute heliographic longitude: 144																	
<i>Region 9228</i>																	
09 Nov	N20E29	152	0010	04	BXO	004	B										
10 Nov	N20E18	150	0000	01	AXX	002	A										
11 Nov	N20E03	152	0010	01	AXX	001	A										
12 Nov	N20W16	158	0000	00	AXX	001	A										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 152																	
<i>Region 9229</i>																	
10 Nov	N04E70	098	0080	02	HAX	002	A										
11 Nov	N05E58	097	0080	02	HSX	002	A										
12 Nov	N06E45	097	0060	02	HAX	003	A										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 097																	
<i>Region 9230</i>																	
10 Nov	N05W39	207	0010	04	BXO	003	B										
11 Nov	N07W52	207	0010	03	BXO	004	B										
12 Nov	N07W65	207															
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 207																	

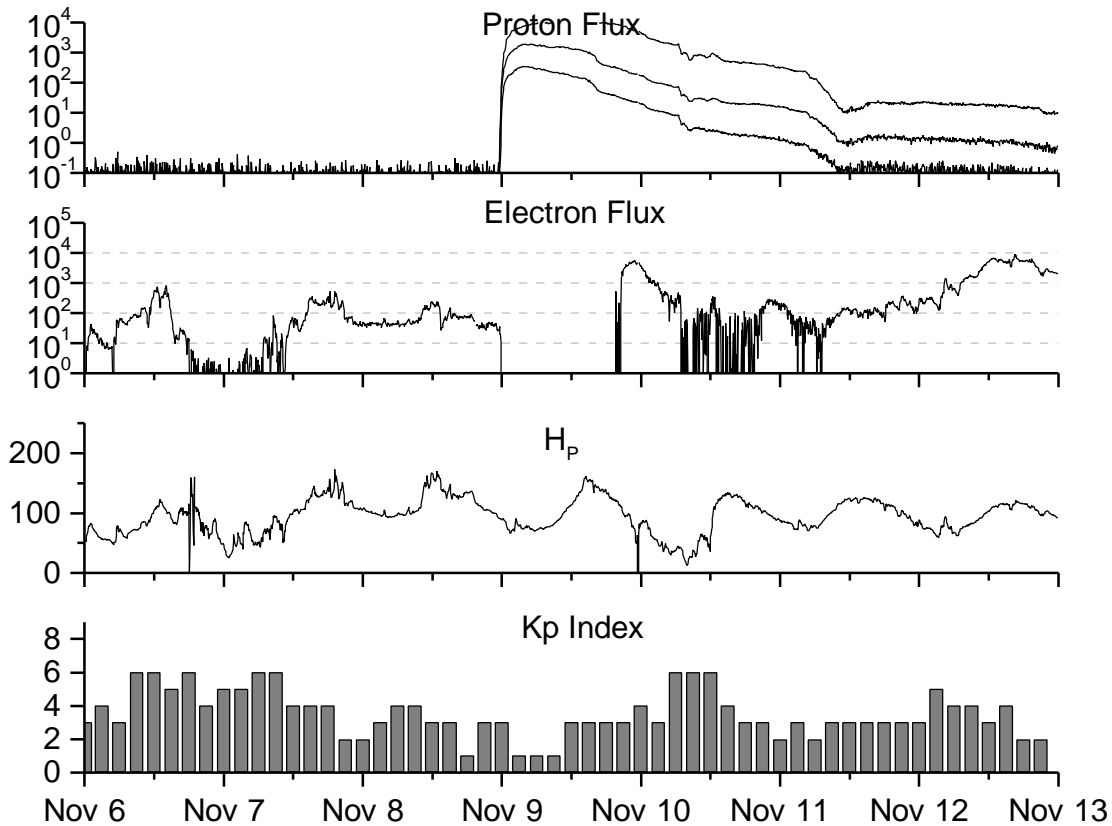


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
1998									
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	94.3	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	0.67	150.0	102.3	135.7	161.0	19	12.8
October	167.7	116.7	0.70	158.5	107.8	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.9	191.5	171.5	14	13.1
December	123.5	86.4	0.69	165.9	111.0	169.8	173.4	10	13.8
2000									
January	140.8	90.1	0.64	168.0	112.8	158.1	175.5	13	14.5
February	161.9	112.9	0.70	172.1	116.6	173.2	176.8	15	15.1
March	203.6	138.5	0.68	175.4	119.8	208.2	178.4	09	15.1
April	193.4	125.3	0.65	176.3	120.7	184.2	180.5	15	14.9
May	188.8	120.8	0.64			184.5		15	
June	190.3	124.9	0.66			179.8		15	
July	236.7	169.1	0.71			204.7		21	
August	166.6	130.5	0.78			163.1		18	
September	157.9	109.9	0.70			182.1		16	
October	138.9	100.1	0.72			167.8		16	

NOTE: All smoothed values after September 1999 and monthly values after March 2000 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 06 November 2000

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.

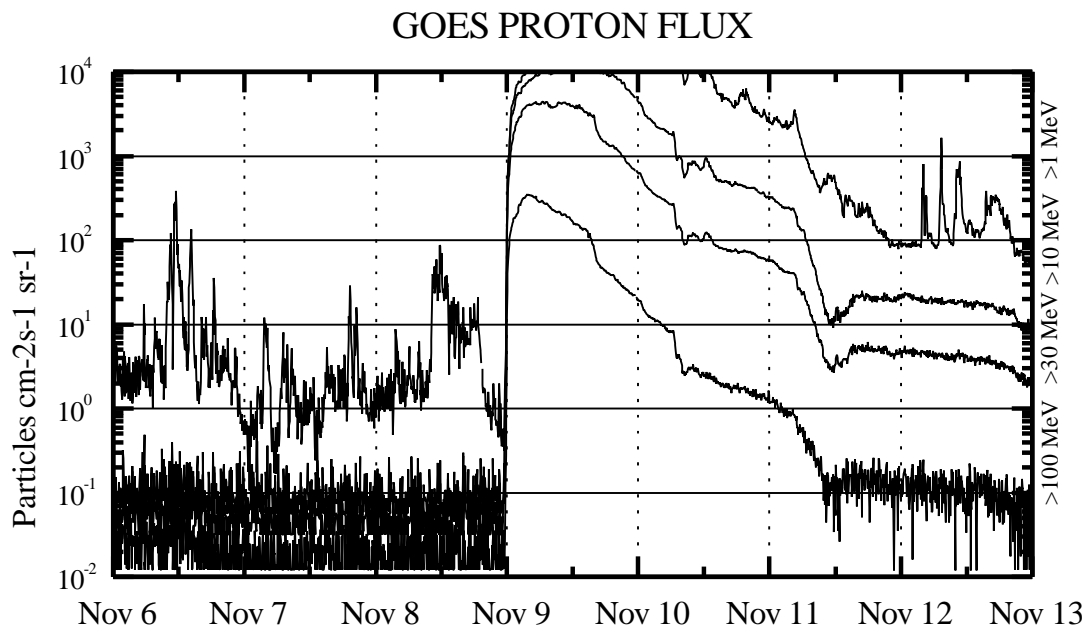
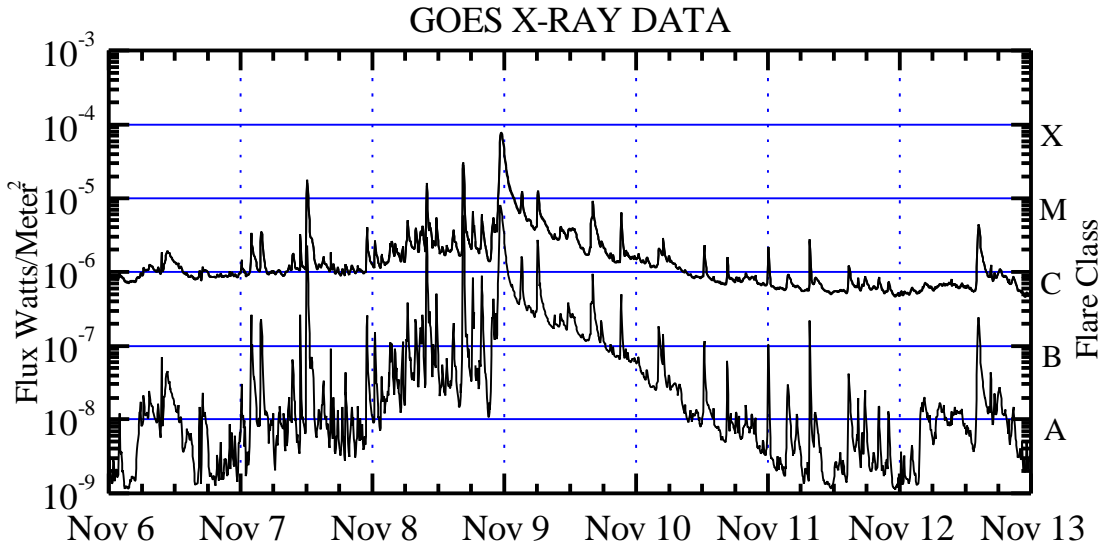
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm² -sec -sr) with energies greater than 2 MeV at GOES-8.

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_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 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.

