

Space Weather Highlights
11 - 17 November 2002

SWO PRF 1420
19 November 2002

Solar activity was at low to moderate levels. Moderate activity was observed for most of the summary period. The largest events were two M2.9/1n flares, the first one occurred on 11 November and the second one occurred on 12 November. For flare times and magnitudes please refer to the Optical Flare and Energetic Flare lists. Both M-flares were from Region 180 (S10, L=308, class/area Fkc/630 on 09 November), which was in a gradual decay phase at the beginning of the period and rotated beyond the west limb on 13 November. Region 180 also produced an M1 with an associated Type II radio sweep (900 km/s) on 11 November. Region 191 (S18, L=202, class/area Fki/650 on 16 November) steadily grew during the summary period and developed a beta-gamma-delta magnetic configuration on 14 November. Early on 14 November, Region 191 produced a long duration M1 with parallel ribbons. Late in the period Region 198 (S18, L=106, class/area Fko/590 on 17 November) rotated onto the visible disk exhibiting rapid growth and produced an M2 flare on 17 November.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the summary period. Solar wind was elevated on 11 and 13 November, with peak values near 700 km/s, due to a coronal hole. Bz from the coronal hole has been, on average, slightly positive. On 17 November, a transient anomaly was observed at the L1 position by the ACE spacecraft, with a rapid rise in low energy EPAM protons and a corresponding positive Bz near 8 nT.

The greater than 10 MeV proton event, at geo-synchronous orbit, that began at 09/1920 UTC ended during the period at 11/0525 UTC. No other proton events occurred during the summary period

The greater than 2 MeV electron flux at geo-synchronous orbit reached moderate levels during the summary period.

The geomagnetic field was quiet to active during the summary period. Isolated active conditions were observed on 11-13 November due to a coronal hole.

Space Weather Outlook
20 November - 16 December 2002

Solar activity is expected to be low to moderate. Region 198 is expected to present M-class potential until it rotates beyond the west limb on 29 November. Region 191 is due to return to visible disk on 04 December and is expected to present M-class potential through the rest of the period.

There is a slight chance of a greater than 10 MeV proton event during the forecast period.

The greater than 2 MeV electron flux at geo-synchronous orbit is expected to reach event threshold on 22-27 November and again on 02-07 December due to coronal hole effects.

The geomagnetic field is expected to be at quiet to active levels with isolated minor storm conditions possible. Active to minor storm conditions are possible on 20-23 November and again on 29 November - 02 December due to a recurring coronal holes.



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
11 November	185	197	1340	C1.4	4	2	0	9	3	0	0	0
12 November	178	155	1250	B8.3	4	1	0	7	1	1	0	0
13 November	182	182	1190	C1.1	4	1	0	5	0	0	0	0
14 November	184	185	1290	C1.1	8	1	0	7	1	0	0	0
15 November	198	185	1640	C1.2	7	1	0	13	1	0	0	0
16 November	199	162	2130	C1.0	5	0	0	20	0	0	0	0
17 November	185	139	2360	C1.0	7	1	0	14	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 November	1.7E+7	4.9E+5	2.6E+3		5.1E+6
12 November	2.7E+6	6.5E+4	2.2E+3		6.2E+6	
13 November	4.7E+5	1.7E+4	2.2E+3		4.5E+6	
14 November	5.1E+5	1.3E+4	2.5E+3		2.0E+7	
15 November	2.5E+5	1.2E+4	2.6E+3		1.0E+7	
16 November	7.6E+4	1.2E+4	2.8E+3		7.3E+6	
17 November	2.6E+5	1.1E+4	2.4E+3		6.8E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	11 November	10	2-2-3-3-3-2-2-2	15	1-1-3-4-5-3-1-1	12
12 November	9	1-2-2-2-3-2-2-3	23	1-2-3-5-6-2-2-3	14	2-2-3-3-4-3-3-4
13 November	16	4-3-5-2-3-1-1-2	16	3-3-2-3-5-3-2-1	12	4-3-2-2-3-3-3-2
14 November	5	2-1-1-1-2-2-2-1	5	2-2-0-0-3-2-2-0	9	3-2-2-2-3-3-2-3
15 November	8	2-1-3-3-2-1-2-2	11	1-1-3-4-3-2-2-2	11	3-2-3-3-3-3-3-3
16 November	3	1-1-0-0-1-1-1-2	4	2-1-0-1-2-1-1-2	8	3-2-1-2-3-3-2-3
17 November	5	3-2-1-0-1-2-0-1	4	3-2-1-0-0-1-1-1	8	3-2-1-1-3-3-2-2

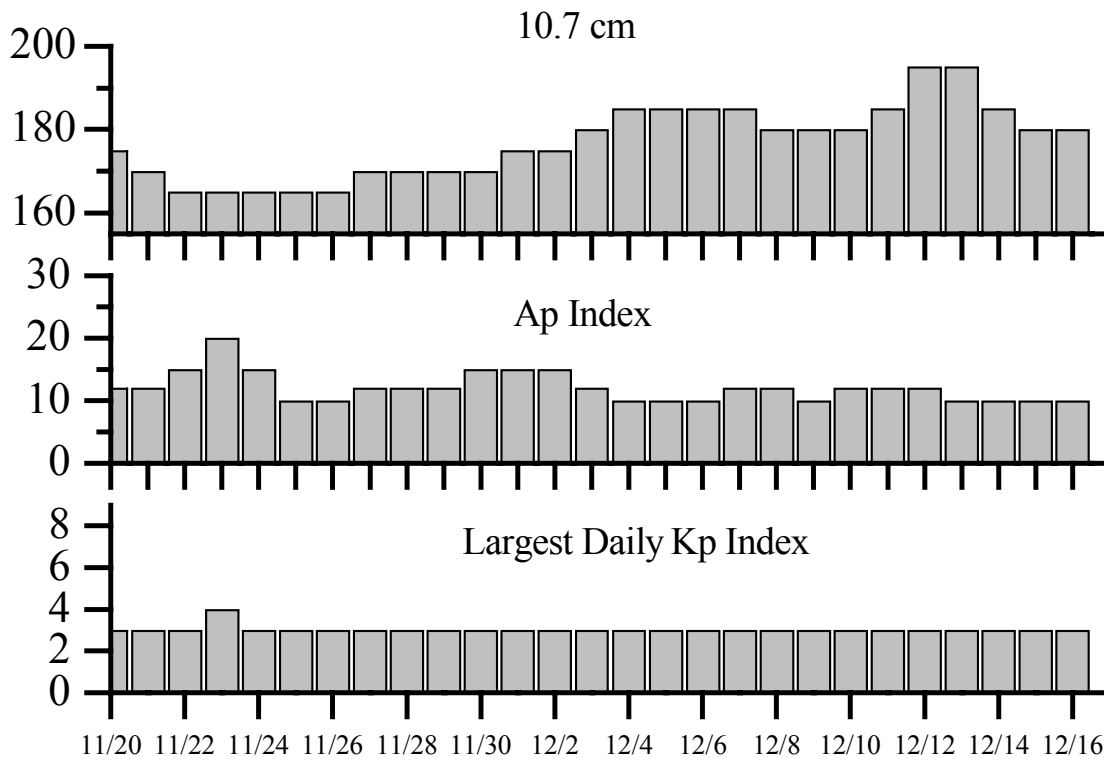


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
11 Nov 0017	1 - 245 MHz Radio Burst	10 Nov
11 Nov 0309	CONTINUED ALERT: Proton Event 10MeV Integral Flux >10pfu	09 Nov 1920
11 Nov 1251	SUMMARY: Geomagnetic Sudden Impulse	11 Nov 1230
11 Nov 1432	WARNING: Geomagnetic K= 4	11 Nov 1435 - 2359
11 Nov 1506	CANCEL WARNING: Proton 10MeV Integral Flux > 10pfu	09 Nov 1831
11 Nov 1509	SUMMARY: Proton Event 10MeV Integral Flux > 10pfu	10 Nov 0540
11 Nov 1635	ALERT: Type II Radio Emission	11 Nov 1605
11 Nov 1638	SUMMARY: 10cm Radio Burst	11 Nov 1605
11 Nov 1933	CANCEL WARNING: Geomagnetic K= 4	11 Nov 1432
12 Nov 0424	ALERT: Type II Radio Emission	12 Nov 0356
12 Nov 2056	WATCH: Geomagnetic A \geq 20	13 Nov
12 Nov 2215	ALERT: Type II Radio Emission	12 Nov 1900
13 Nov 0020	2 - 245 MHz Radio Bursts	12 Nov
14 Nov 0218	1 - 245 MHz Radio Burst	13 Nov
14 Nov 2155	WATCH: Geomagnetic A \geq 20	16 Nov
15 Nov 0123	2 - 245 MHz Radio Bursts	14 Nov
16 Nov 0031	1 - 245 MHz Radio Burst	15 Nov
17 Nov 0023	1 - 245 MHz Radio Noise Storm	16 Nov



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 Nov	175	12	3	04 Dec	185	10	3
21	175	12	3	05	185	10	3
22	165	15	3	06	185	10	3
23	165	20	4	07	185	12	3
24	165	15	3	08	180	12	3
25	165	10	3	09	180	10	3
26	165	10	3	10	180	12	3
27	170	12	3	11	185	12	3
28	170	12	3	12	195	10	3
29	170	12	3	13	195	10	3
30	170	15	3	14	185	10	3
01 Dec	175	15	3	15	180	10	3
02	180	12	3	16	180	10	3
03	180	12	3				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½	Class	Integ Flux	Imp/ Brtns	Location		Rgn #	Radio Flux		Intensity	
			Max				Lat	CMD		245	2695	II	IV
11 Nov	0725	0733	0739	M2.9	.014	1n	S12W53	180	27	190			
11 Nov	1511	1620	1645	M1.8	.072	1n	S13W60	180	51	230	3		
12 Nov	1841	1856	1903	M2.9	.020	1n	S11W76	180	200	33	1		
13 Nov	2303	0017	0052	M1.0	.048								
14 Nov	2221	2226	2230	M1.0	.004								
15 Nov	0106	0124	0134	M2.4	.028								
17 Nov	1439	1454	1459	M2.0	.011	Sf	S18E62	198		80			

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
11 November	0037	0037	0043		Sf	S12W49	180
	0117	0123	0140	C4.9			
	0235	0236	0238		Sf	S10W51	180
	0344	0355	0411		Sf	S11W52	180
	0648	0651	0700		Sf	S11W54	180
	0729	0731	0807	M2.9	1n	S12W53	180
	1135	1142	1157		Sf	S12W56	180
	1236	1250	1353	C7.1	1f	S12W57	180
	1411	1416	1418		Sf	S12W59	180
	1437	1519	1739	M1.8	1n	S13W60	180
	1437	1439	1457	C6.5	Sf	S07W59	180
	1732	1732	1740		Sf	S14W28	185
	2241	2325	0043	C7.4	Sf	S23E34	191
	12 November	0028	0030	0051	C4.8	Sf	S10W66
0211		0212	0233		Sf	S11W67	180
0352		0403	0419	C3.5			
0746		0752	0800	C5.3	Sf	S12W66	180
1130		1130	1135		Sf	S14W67	180
1132		1136	1142		Sf	S17E33	191
1523		1524	1529		Sf	S23W09	190
1732		1737	1740		Sf	S11W74	180
1756	1818	1839	C9.9	2n	S11W75	180	
1844	1855	1934	M2.9	1n	S11W76	180	
13 November	0341	0511	0552	C3.2			
	0627	0627	0630		Sf	N07W66	188
	1002	1006	1013	C1.9			
	1438	1442	1511	C3.0	Sf	S19E14	191
	1728	1730	1827	C1.9	Sf	S20E15	191
	1828	1837	1840		Sf	S18E14	191
	1844	1847	1850		Sf	S18E14	191
2303	0017	0052	M1.0				



Flare List - continued.

Date	Time			X-ray Class.	Optical		Rgn	
	Begin	Max	End		Imp / Brtns	Location Lat CMD		
14 November	1017	1021	1024	C2.6				
	1029	1034	1039	C2.1				
	1107	1111	1115	C5.5				
	1333	1336	1339		Sf	S13E66	195	
	1341	1345	1404	C8.1	1n	S13E68	195	
	1520	1522	1524	C1.8	Sf	S13W66	182	
	1600	1602	1609		Sf	S13E68195		
	1713	1716	1721	C2.2				
	1844	1845	1850		Sf	S13E67	195	
	2007	2009	2011	C4.7	Sf	N10W33	192	
	2221	2226	2230	M1.0				
	2255	2257	2308		Sf	S15E62	195	
	2315	2316	2321	C1.9	Sf	N12W34	192	
	15 November	0106	0124	0134	M2.4			
0226		0229	0240	C5.8	Sf	N12W36	192	
0545		0548	0552	C8.9	Sf	N13W36	192	
0556		0558	0601		Sf	S18W05	191	
0656		0701	0704		Sf	N13W37	192	
0720		0728	0734		Sf	N12W37	192	
0828		0833	0914	C3.3	Sf	S14E58	195	
B1133		1155	1211	C6.2	1f	N11W40	192	
1225		1226	1235		Sf	S11E58	195	
1345		1347	1357	C3.2	Sf	N11W41	192	
1438		1441	1443	C1.9				
1700		1702	1711		Sf	N12W44	192	
1803		1804	1808		Sf	N11W46	192	
1833		1833	1840		Sf	N11W43	192	
1943		1944	1947		Sf	S14E51	195	
2235		2235	2240		Sf	N13W45	192	
2255		2306	2321	C6.4				
16 November		0258	0259	0306		Sf	S16E51	195
		0404	0411	0414		Sf	S16E47	195
	0623	0624	0632	C1.5	Sf	S15E45	195	
	0634	0635	0644	C1.9	Sf	S19W18	191	
	0645	0647	0653		Sf	S16E45	195	
	0741	0811	0824		Sf	N12W53	192	
	0851	0852	0856		Sf	N12W53	192	
	0926	0926	0930		Sf	S18E67	198	
	0934	0937	0942		Sf	N12W53	192	
	1007	1012	1039	C1.8				
	B1100	U1102	A1113	C5.4	Sf	N13W50	192	
	1226	1227	1232		Sf	S15E73	198	



Flare List - continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
16 November	1358	1359	1415	C8.6	Sf	S20W21	191
	1421	1421	1428		Sf	S19W22	191
	1422	1426	1435		Sf	S14E42	195
	1515	1515	1521		Sf	S13E42	195
	1536	1541	1546		Sf	S13E41	195
	1609	1612	1623		Sf	S14E40	195
	1617	1640	1649		Sf	N13W56	192
	1638	1640	1645		Sf	N15W55	192
	1951	1952	2002		Sf	S14E39	195
17 November	0104	0105	0122	C2.2	Sf	N16W60	192
	0251	0258	0305	C1.7			
	0504	0543	0552	C5.0			
	0714	0719	0725		Sf	N15W63	192
	0928	0957	1005	C4.2			
	1116	1119	1122	C1.8			
	1229	1234	1239	C7.0			
	1435	1452	1516	M2.0	Sf	S18E62	198
	1442	1444	1447		Sf	N15W67	192
	1508	1508	1512		Sf	S19W35	191
	1528	1529	1541		Sf	S17W38	191
	1529	1529	1541		Sf	S18E65	198
	1603	1608	1610		Sf	S18W38	191
	1609	1611	1613		Sf	N11W70	192
	1635	1635	1639		Sf	S17W39	191
	1720	1721	1724		Sf	S21W37	191
1729	1729	1734		Sf	N12W70	192	
2134	2136	2143	C7.9	Sf	S16E59	198	
2143	2145	2205		Sf	N10W73	192	



Region Summary

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

Region 177

30 Oct	N16E69	329	0060	02	Hsx	001	A											2
31 Oct	N16E57	328	0160	10	Dao	008	B	1										1
01 Nov	N15E43	329	0310	10	Dki	015	Bg	1										1
02 Nov	N16E31	328	0370	11	Eki	018	Bg	1										1
03 Nov	N16E18	328	0360	10	Dki	023	Bg	2	1									2 1
04 Nov	N16E05	328	0340	08	Dki	014	Bg	1										2
05 Nov	N16W09	328	0390	08	Dki	017	Bg	7										7
06 Nov	N17W22	328	0300	09	Dki	027	Bg	1										3
07 Nov	N18W36	329	0210	07	Dao	014	B	1										1
08 Nov	N18W50	330	0220	05	Dso	008	B											
09 Nov	N18W63	330	0160	04	Dao	005	B											
10 Nov	N17W76	329	0100	04	Dao	006	B											
11 Nov	N18W90	330	0090	04	Hsx	001	A											
								15	1	0	20	1	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 328

Region 180

01 Nov	S11E70	302	0090	03	Hsx	001	A											
02 Nov	S10E57	302	0170	05	Dso	003	B	2										1 1
03 Nov	S10E43	303	0150	08	Dao	012	Bg	2										5
04 Nov	S10E30	303	0400	13	Eki	024	Bg	2										10
05 Nov	S10E17	303	0530	15	Eki	045	Bgd	3										6
06 Nov	S10W01	307	0560	16	Fkc	053	Bgd	4										8
07 Nov	S10W14	307	0590	18	Fkc	066	Bgd	1										7
08 Nov	S10W28	308	0600	17	Fkc	058	Bgd	5										8 1
09 Nov	S10W41	308	0630	18	Fkc	038	Bgd	2	1									8 1
10 Nov	S11W55	308	0460	18	Fki	037	Bgd	2	1									4 1
11 Nov	S11W69	309	0450	16	Fki	023	Bg	2	2									7 3
12 Nov	S11W82	309	0280	14	Eai	008	Bg	3	1									5 1 1
13 Nov	S11W94	308	0090	05	Dao	003	B											
								28	5	0	69	6	3	0	0			

Crossed West Limb.

Absolute heliographic longitude: 307



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 182</i>																		
02 Nov	S17E68	291	0080	07	Dso	002	B											
03 Nov	S17E56	290	0130	07	Dso	003	B											
04 Nov	S17E43	290	0110	05	Dso	002	B											
05 Nov	S17E29	290	0110	06	Dao	004	B											
06 Nov	S18E16	290	0100	05	Cso	005	B											
07 Nov	S18E02	291	0070	02	Hsx	001	A											
08 Nov	S18W11	291	0070	01	Hsx	001	A											
09 Nov	S18W24	291	0060	02	Hsx	001	A											
10 Nov	S19W37	290	0050	02	Hsx	001	A											
11 Nov	S19W50	290	0060	02	Hsx	001	A											
12 Nov	S18W65	292	0070	02	Hax	001	A											
13 Nov	S18W76	290	0050	02	Hsx	001	A											
14 Nov	S18W90	291	0050	02	Hsx	001	A	1				1						
								1	0	0	0	1	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 291

<i>Region 184</i>																		
03 Nov	S06E51	295	0010	01	Axx	001	A											
04 Nov	S06E38	295																
05 Nov	S06E25	295																
06 Nov	S06E12	295																
07 Nov	S06W01	295																
08 Nov	S05W15	295	0010	02	Axx	003	A											
09 Nov	S05W28	295																
10 Nov	S05W41	295																
11 Nov	S05W54	295																
								0	0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 295



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 189

06 Nov	N12E56	250	0010	01	Axx	001	A												
07 Nov	N14E43	250	0020	03	Bxo	002	B												
08 Nov	N13E32	248	0030	08	Cso	004	B												
09 Nov	N12E21	246	0030	07	Dso	004	B												
10 Nov	N12E09	244	0030	09	Cso	008	B												
11 Nov	N15W04	244	0020	05	Bxo	005	B												
12 Nov	N15W17	244																	
13 Nov	N17W34	248	0010	01	Hrx	001	A												
14 Nov	N17W47	248																	
15 Nov	N17W60	248																	
16 Nov	N17W73	248																	
17 Nov	N17W86	248																	

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 244

Region 190

07 Nov	S22E54	239	0030	04	Bxo	007	B												
08 Nov	S22E42	238	0040	06	Cao	004	B												
09 Nov	S22E28	239	0040	06	Dao	004	B												
10 Nov	S20E14	239	0030	06	Cso	006	B												
11 Nov	S22E00	240	0020	01	Hsx	001	A												
12 Nov	S21W14	241	0020	01	Hsx	002	A												
13 Nov	S21W27	241	0020	01	Hsx	001	A												
14 Nov	S22W40	241	0020	01	Hsx	001	A												
15 Nov	S22W55	242	0010	05	Bxo	002	B												
16 Nov	S22W68	242																	
17 Nov	S22W81	242																	

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 240



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 191

08 Nov	S17E74	206	0060	02	Hsx	001	A											
09 Nov	S17E63	204	0310	13	Eai	011	B	1				4						
10 Nov	S18E51	202	0590	14	Ekc	035	B	1				4						
11 Nov	S18E39	201	0550	17	Fac	052	Bg	1				1						
12 Nov	S18E25	202	0630	16	Fkc	062	Bg					1						
13 Nov	S18E12	202	0800	16	Fkc	063	Bg	2				4						
14 Nov	S18W01	202	0630	16	Fkc	062	Bgd											
15 Nov	S18W16	203	0580	16	Fkc	048	Bgd					1						
16 Nov	S18W28	202	0650	17	Fki	050	Bgd	2				3						
17 Nov	S18W41	202	0580	20	Fki	041	Bg					5						
								7	0	0	0	23	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 202

Region 192

11 Nov	N13E08	232	0010	04	Bxo	004	B											
12 Nov	N14W07	234	0010	03	Bxo	002	B											
13 Nov	N14W22	236	0010	01	Axx	002	A											
14 Nov	N13W34	235	0070	06	Dsi	014	B	2				2						
15 Nov	N13W47	234	0350	09	Dai	022	Bg	4				9	1					
16 Nov	N12W61	235	0480	12	Eai	018	B	1				6						
17 Nov	N12W74	235	0550	14	Eho	015	B	1				6						
								8	0	0	0	23	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 234

Region 193

12 Nov	S02E21	206	0010	01	Hsx	001	A											
13 Nov	S03E07	207	0010	00	Hsx	001	A											
14 Nov	S03W06	207																
15 Nov	S03W19	207																
16 Nov	S02W32	206	0000	00	Axx	001	A											
17 Nov	S02W45	206																
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 207



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 194

13 Nov	S16E43	171	0010	01	Axx	002	A										
14 Nov	S16E28	173	0030	04	Cso	005	B										
15 Nov	S16E15	172	0020	04	Cso	004	B										
16 Nov	S16E02	172	0020	03	Cso	004	B										
17 Nov	S17W12	173	0020	03	Cso	003	B										
										0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 172

Region 195

13 Nov	S15E78	136	0120	02	Hax	001	A										
14 Nov	S16E65	136	0130	02	Hsx	001	A	1			4	1					
15 Nov	S15E53	134	0190	10	Dao	010	Bgd	1			3						
16 Nov	S16E41	133	0310	12	Eao	010	Bg	1			9						
17 Nov	S17E28	133	0340	12	Eho	008	B										
								3	0	0	16	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 133

Region 196

14 Nov	S19W46	247	0040	04	Cro	005	B										
15 Nov	S19W69	246	0020	06	Bxo	002	B										
16 Nov	S18W70	244															
17 Nov	S18W83	244															
										0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 247

Region 197

14 Nov	N25E73	128	0250	03	Hhx	001	A										
15 Nov	N25E58	129	0270	03	Hhx	001	A										
16 Nov	N25E46	128	0290	03	Hhx	001	A										
17 Nov	N24E33	128	0280	04	Hhx	001	A										
										0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 128

Region 198

15 Nov	S16E78	109	0090	03	Dso	003	B										
16 Nov	S17E66	108	0380	09	Dho	008	B				2						
17 Nov	S18E55	106	0590	17	Fko	011	B	1	1		3						
								1	1	0	5	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 106

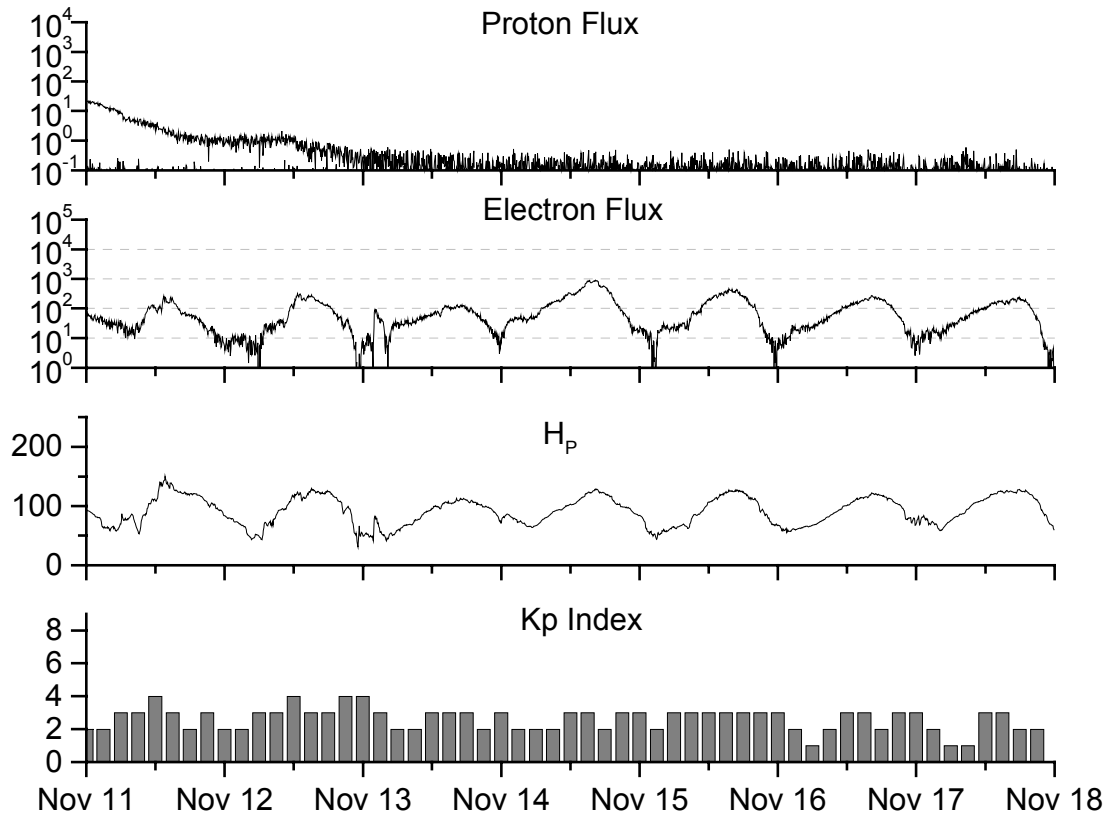


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
2000									
November	149.9	106.5	0.71	162.7	112.7	178.8	173.9	17	14.6
December	146.4	104.5	0.71	160.8	112.1	173.6	172.1	08	14.4
2001									
January	142.7	95.1	0.67	156.3	108.8	166.7	168.8	08	13.8
February	131.0	80.1	0.61	151.4	104.2	147.3	165.8	06	13.3
March	166.7	114.2	0.69	154.0	104.9	177.7	167.9	17	12.9
April	163.6	108.2	0.66	159.4	107.7	178.3	171.7	18	12.7
May	135.1	97.3	0.72	163.1	108.8	148.7	174.8	12	12.5
June	196.7	134.0	0.68	167.2	109.9	173.7	178.8	12	12.4
July	124.6	82.2	0.66	172.1	111.8	131.3	183.9	11	12.4
August	159.4	106.8	0.67	176.7	113.8	163.2	188.8	13	12.5
September	229.1	150.7	0.66	178.8	114.3	233.3	191.3	12	12.3
October	197.4	125.6	0.64	179.5	114.1	208.2	191.9	18	11.9
November	178.6	106.5	0.60	183.7	115.6	212.5	193.6	14	11.9
December	217.5	131.8	0.61	184.5	114.7	236.6	193.8	08	12.0
2002									
January	189.0	113.9	0.60	184.8	113.5	226.4	194.6	07	12.0
February	194.5	108.0	0.56	188.6	114.7	205.1	197.2	09	12.2
March	153.1	98.1	0.64	188.9	113.3	179.5	195.7	10	12.4
April	194.9	120.4	0.62	186.2	110.4	189.7	191.5	15	12.7
May	204.1	120.8	0.59			178.4		15	
June	146.0	88.5	0.61			148.8		11	
July	183.5	99.9	0.54			174.5		13	
August	191.0	116.4	0.61			184.0		16	
September	206.4	109.3	0.53			175.9		14	
October	153.9	97.5	0.63			165.1		23	

NOTE: All smoothed values after June 1999 and monthly values after December 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 11 November 2002

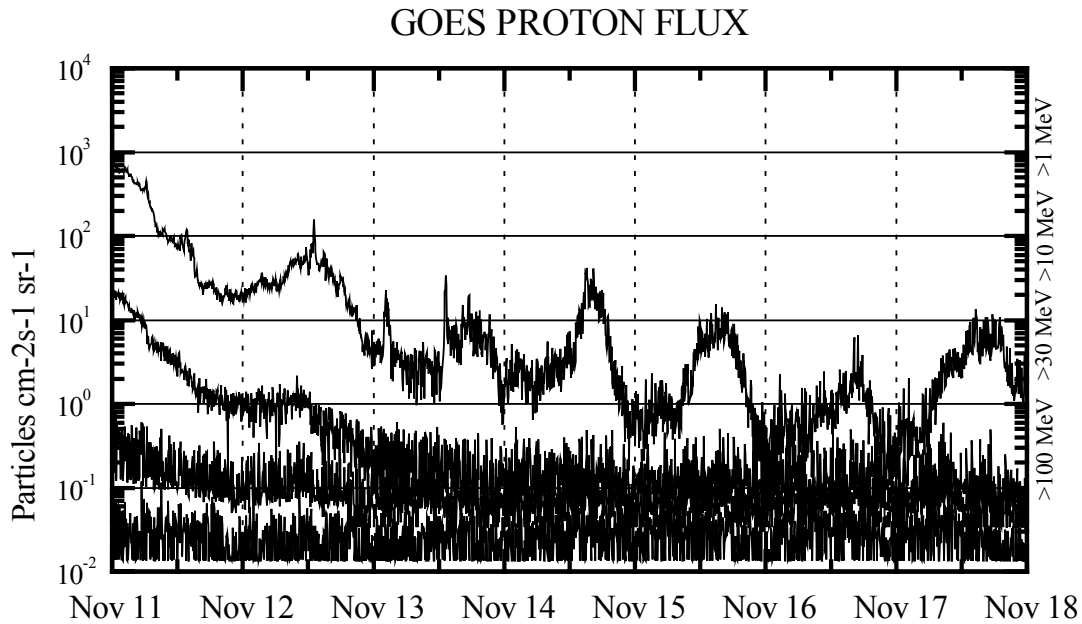
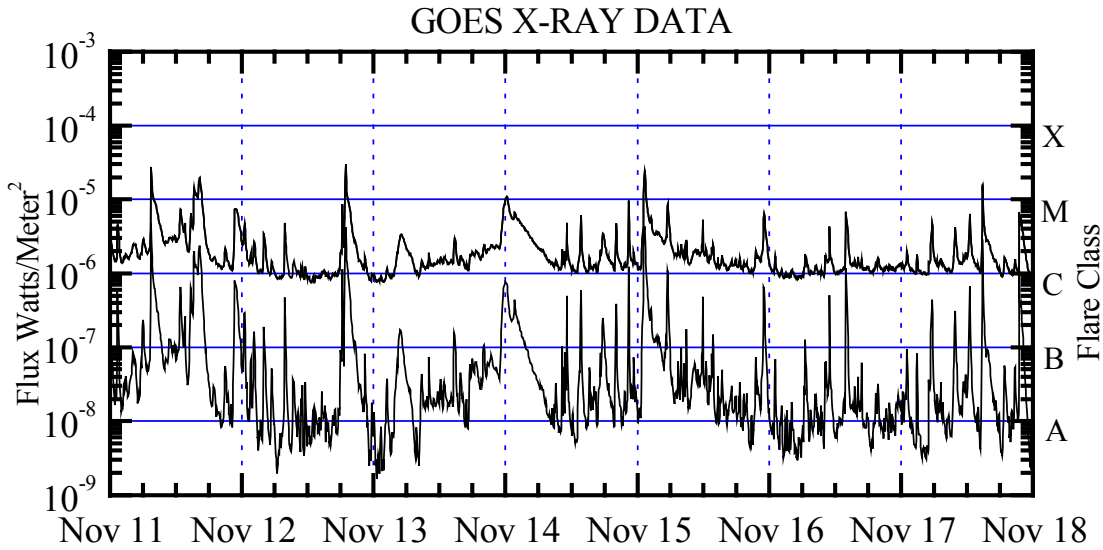
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 Air Force Weather Agency) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and 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.

