

Solar activity ranged from low to moderate levels. Activity was at moderate levels on 12 - 14, and 17 November due to isolated low level M-class flares. Conditions were at low levels during the other days of the period. Region 9690 (S18, L=027, class/area, Fki/1240 on 12 November) was the most active region during most of this period producing isolated M-class flares and numerous C-class flares (for flare details, please refer to the Energetic Events and Optical Flares lists). Region 9690 showed steady signs of decay during the period and exited the visible disk on 17 November. Region 9704 (S18, L=269, class/area, Dki/570 on 18 November) produced the most interesting event of the period, an M2/1n flare on 17 November at 0525 UTC, with accompanying Type II and IV radio sweeps, and an earth-directed coronal mass ejection (CME). By 18 November, this region developed into a moderately sized sunspot region with a beta-gamma-delta magnetic configuration. It continued to produce continuous C-class subflares.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. There were no significant disturbances during the period.

There were no proton events during the period. The greater than 10 MeV proton event that began on 04 November ended on 10 November at 0725 UTC. This greater than 10 MeV proton event reached a maximum flux of 31,700 pfu on 06/0215 UTC and ended on 10/0715 UTC. The greater than 10 MeV event was the largest event recorded in Solar Cycle 23.

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

The geomagnetic field was at mostly quiet to unsettled conditions during the period. A small sudden impulse (SI) of 6 nT was observed on the USGS boulder magnetometer on 15/1509 UTC. Isolated active conditions occurred during the remainder of 15 November. A single, isolated active period was observed on 17 November.

Space Weather Outlook **21 November - 17 December 2001**

Solar activity is expected to range from low to moderate levels throughout the period. A chance of an isolated major flare is also possible during the forecast period. Region 9704 has the potential for major flare activity until it rotates beyond the west limb about 25-26 November. SOHO/SWAN far side solar imagery indicates that Region 9684 (N06, L=136, class/area Ekc/550 on 04 November) may be retaining some of its complexity and is due to return on about 21 November.

Proton levels are expected to be normal throughout the period barring a major proton producing flare.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels during most of the period.

The geomagnetic field is expected to be at quiet to active levels. Active conditions are expected 19 -20 November due to a CME shock passage. This event is believed to be associated with the M2/1n CME event on 17 November. Predominately quiet to unsettled conditions are expected for the rest to the period, 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
12 November	227	252	2390	C1.2	8	1	0	8	1	0	0	0
13 November	232	234	2140	C1.5	6	1	0	10	0	0	0	0
14 November	217	222	1510	C1.0	9	1	0	11	2	0	0	0
15 November	207	219	1660	C1.5	4	0	0	6	0	0	0	0
16 November	202	200	1580	B9.1	6	0	0	0	1	0	0	0
17 November	199	157	1350	B9.8	2	1	0	6	1	0	0	0
18 November	188	181	1370	B9.9	3	0	0	6	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
	12 November	2.0E+6	1.3E+5	2.7E+3		1.8E+7
13 November	1.9E+6	6.7E+4	2.7E+3		2.2E+7	
14 November	1.2E+6	3.1E+4	2.4E+3		6.5E+6	
15 November	3.2E+6	2.4E+4	2.6E+3		1.3E+7	
16 November	2.4E+5	2.3E+4	2.5E+3		4.4E+5	
17 November	6.9E+5	5.9E+4	2.7E+3		1.0E+6	
18 November	2.2E+6	2.3E+5	3.1E+3		2.6E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	12 November	1	1-0-0-0-2-0-0-0	*	*-*-*-*-*-*-*	2
13 November	4	1-2-1-1-2-2-1-1	*	*-*-*-*-*0-1-0	3	1-0-0-0-1-2-2-2
14 November	3	1-1-1-0-2-1-1-0	0	0-0-1-0-0-0-0-0	3	0-0-1-0-1-1-2-1
15 November	5	0-0-0-0-1-3-3-2	12	0-0-0-3-1-4-5-1	7	0-0-0-1-1-4-4-2
16 November	4	1-2-2-2-2-1-0-0	11	1-1-2-3-4-4-1-0	8	2-2-3-2-3-3-1-1
17 November	9	1-1-1-2-2-2-4-3	*	0-1-3-4-5-3-3-*	11	2-3-3-3-4-3-3-3
18 November	8	1-2-2-1-3-3-2-2	12	1-1-2-3-4-4-2-1	7	2-2-2-2-2-3-2-2

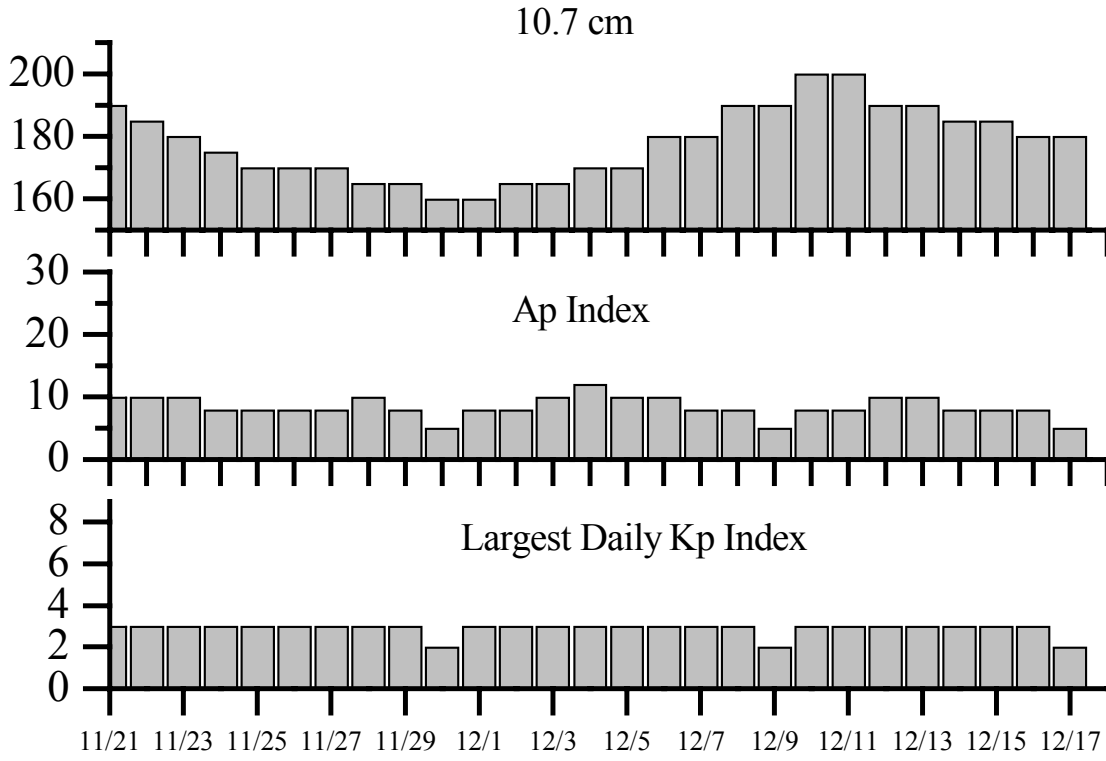


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UT</u>
12 Nov 0032	1 - 245 MHz Radio Bursts	11 Nov
12 Nov 0032	1 - 245 MHz Radio Noise Storms	11 Nov
13 Nov 0006	1 - 245 MHz Radio Noise Storms	12 Nov
15 Nov 0022	1 - 245 MHz Radio Bursts	14 Nov
15 Nov 0022	1 - 245 MHz Radio Noise Storms	14 Nov
15 Nov 1519	Sudden Impulse observed at Boulder	15 Nov 1509
15 Nov 1745	K= 4 Warning	15 Nov 1745 - 2359
15 Nov 1801	K= 4 Observed	15 Nov 1500 - 1800
16 Nov 0028	1 - 245 MHz Radio Bursts	15 Nov
17 Nov 0005	2 - 245 MHz Radio Bursts	16 Nov
17 Nov 0005	1 - 245 MHz Radio Noise Storms	16 Nov
17 Nov 0513	Type II Radio Emission	17 Nov 0450
17 Nov 0529	Type II Radio Emission	17 Nov 0500
17 Nov 0555	Type IV Radio Emission	17 Nov 0455
17 Nov 1501	K= 4 Observed	17 Nov 1200 - 1500



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
21 Nov	190	10	3	05 Nov	170	10	3
22	185	10	3	06	180	10	3
23	180	10	3	07	180	8	3
24	175	8	3	08	190	8	3
25	170	8	3	09	190	5	2
26	170	8	3	10	200	8	3
27	170	8	3	11	200	8	3
28	165	10	3	12	190	10	3
29	165	8	3	13	190	10	3
30	160	5	2	14	185	8	3
01 Dec	160	8	3	15	185	8	3
02	165	8	3	16	180	8	3
03	165	10	3	17	180	5	3
04	170	12	3				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp/Location		Rgn #	Radio Flux		Intensity	
						Brtns	Lat CMD		245	2695	II	IV
12 Nov	0752	0757	0801	M1.6	.005	1B	N07W74	9692				
13 Nov	0622	0626	0628	M1.5	.003	SN	S17W24	9690	180			
14 Nov	2143	2211	2234	M1.9	.030	1F	S19W49	9690	1700	71		
17 Nov	0449	0525	0611	M2.8	.100	1N	S13E42	9704	200	150	1	2

Flare List

Date	Time			X-ray Class.	Optical Imp/ Brtns	Optical Location Lat CMD	Rgn
	Begin	Max	End				
12 November	0112	0115	0119		SF	N08W62	9692
	0206	0207	0212	C5.4	SF	S17W04	9690
	0250	0304	0324	C4.8	SF	N07W73	9692
	0347	0355	0400		SF	N13E71	9697
	0736	0736	0740	C2.3	SF	S17W07	9690
	0755	0756	0816	M1.6	1B	N07W74	9692
	0833	0938	1009	C7.0			
	1355	1400	1410		SF	S16W16	9690
	1932	1947	1958	C2.5			
	2042	2042	2045	C2.4	SF	S16W16	9690
	2154	2155	2157	C2.0	SF	S16W16	9690
	2315	2319	2322	C5.2			
13 November	0259	0300	0303		SF	S18W65	9687
	0403	0404	0406		SF	S16W23	9690
	0432	0435	0437	C3.2			
	0625	0626	0638	M1.5	SN	S17W24	9690
	0713	0714	0722		SF	S17W22	9690
	B0923	U0925	A1005	C6.9	SF	S20W25	9690
	1014	1027	1035	C3.7			
	1146	1148	1159	C3.6	SF	S17W24	9690
	1655	1705	1719	C2.0			
	1840	1841	A1930	C7.2	SF	S20W36	9690
1842	1843	1847		SF	S19W33	9690	
1849	1849	1852		SF	S19W33	9690	
2106	2106	2109		SF	S20W33	9690	
14 November	0035	0038	0041	C1.5			
	0054	U0058	0110	C2.1	1F	N13E46	9697
	0659	0700	0704	C2.5	SF	S16W35	9690
	0721	0721	0729	C3.0	SF	S18W40	9690
	0922	0922	0930	C5.8	SF	S18W39	9690
	1352	1356	1408	C3.0	SF	S17W37	9690
	1516	1516	1524		SF	N07E39	9697
	1649	1651	1656		SF	S18W42	9690
	1700	1704	A1751	C2.2	SF	S19W49	9690
	1736	1802	1828	C5.4			
1811	1815	1829		SF	S21E70		



Flare List - continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
14 November	2055	2056	2100		SF	S14E65	9704
	2201	2207	2244	M1.9	1F	S19W49	9690
	2245	2245	2250		SF	S22W55	9690
	2357	0005	0016	C4.8	SF	N22E15	9703
15 November	0115	0117	0136	C2.6	SF	S16W46	9690
	0625	0626	0634		SF	N22E11	9703
	B0718	0718	A0727		SF	S19W53	9690
	0739	0740	0745		SF	S18W54	9690
	1124	1124	1130	C1.7	SF	S15E65	9704
	1720	1722	1743	C1.7	SF	S17W53	9690
	2054	2103	2117	C2.5			
16 November	0208	0214	0221	C1.8			
	0931	0949	1021	C2.6			
	1329	1338	1353	C1.5			
	1843	1849	1856	C1.6			
	2029	2036	2049	C1.8			
	2142	2143	2209	C3.1	1F	N16E09	9697
17 November	0400	0403	0410	C1.4			
	0448	0505	0938	M2.8	1N	S13E42	9704
	1227	1236	1244		SF	S14E33	9704
	1535	1535	1554	C1.9	SF	N15W01	9697
	1632	1639	1655		SF	S15E34	9704
	1807	1809	1813		SF	S14E32	9704
	2254	2255	2305		SF	N14W02	9697
	2327	2328	2345		SF	S16E28	9704
18 November	0045	0046	0050	C1.5	SF	S16E29	9704
	0219	0219	0226		SF	S16E27	9704
	0604	0607	0616		SF	N13W07	9697
	0703	0705	0712		SF	S18E25	9704
	0837	0839	0857		SF	N11W09	9697
	0917	0918	0929	C7.4	SN	S22E25	9704
	0937	1001	1025	C5.3			



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	4		
<i>Region 9687</i>																	
01 Nov	S19E71	078	0220	12	EAO	010	B		3		4						
02 Nov	S19E61	075	0360	20	FAI	017	B	4	1		5						
03 Nov	S19E49	074	0310	23	FAI	023	BG	4			1						
04 Nov	S20E35	075	0390	21	FAC	039	BG	3			6						
05 Nov	S20E20	077	0340	20	FAC	031	BG	1	1		3						
06 Nov	S20E08	075	0320	22	FAC	040	BGD	1	2		4	1					
07 Nov	S20W02	072	0330	27	FKI	035	BGD				2						
08 Nov	S19W18	075	0220	24	FAI	030	BGD	4	1		5	1					
09 Nov	S20W31	075	0240	25	FAO	027	BG		1		1						
10 Nov	S21W44	075	0210	26	FAO	031	B										
11 Nov	S20W53	071	0020	17	BXO	006	B	1			1						
12 Nov	S20W71	075	0030	24	BXO	009	B										
13 Nov	S20W85	076	0070	04	CAO	002	B				1						
								18	9	0	33	2	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 072

<i>Region 9688</i>																	
03 Nov	N25E70	053	0040	02	HSX	001	A										
04 Nov	N26E64	046	0110	15	EAO	005	B										
05 Nov	N26E51	046	0080	16	FAO	004	B										
06 Nov	N26E38	045	0050	16	FSO	007	B										
07 Nov	N26E26	044	0060	14	ESO	008	B		1		1						
08 Nov	N26E07	050	0020	01	HRX	001	A										
09 Nov	N25W08	052	0010	01	HRX	001	A										
10 Nov	N24W19	050	0010	03	DSO	005	B										
11 Nov	N25W32	050	0010	02	HRX	002	A										
12 Nov	N26W45	049	0010	01	AXX	001	A										
13 Nov	N26W58	049	0010	01	AXX	001	A										
14 Nov	N26W71	049															
15 Nov	N26W84	049															
								0	1	0	1	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 050



Region Summary - continued.

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	4			
<i>Region 9689</i>																		
04 Nov	S28E15	095	0050	05	DAO	008	B											
05 Nov	S28E02	095	0130	07	DAO	008	B						2					
06 Nov	S27W11	094	0160	07	DAI	016	B											
07 Nov	S27W23	093	0160	09	DSO	015	B											
08 Nov	S26W38	095	0110	08	DSO	003	B											
09 Nov	S28W52	096	0060	08	CSO	002	B		1					1				
10 Nov	S25W63	094	0080	12	ESO	006	B											
11 Nov	S26W76	094	0070	07	CAO	003	B											
12 Nov	S26W89	094																
									0	1	0	2	0	1	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 095

<i>Region 9690</i>																			
05 Nov	S18E71	026	0600	07	DKO	006	B	1				1							
06 Nov	S18E58	025	0750	16	FKI	025	BG	13	2			5							
07 Nov	S17E45	025	0850	19	FKC	037	BG	3	5			17	2						
08 Nov	S18E31	026	1060	19	FKC	054	BGD	7	2			11		1					
09 Nov	S18E16	028	1410	23	FKC	039	BGD	1	4			6	3						
10 Nov	S18E04	027	1420	22	FKC	074	BGD	4	2			5	1						
11 Nov	S18W09	027	1240	23	FKI	062	BGD	6	1			7	1						
12 Nov	S18W22	026	1180	21	FKC	082	BGD	4				5							
13 Nov	S18W34	025	1150	21	FKC	064	BG	3	1			9							
14 Nov	S17W48	026	0780	23	FKI	050	BG	5	1			7	1						
15 Nov	S17W60	025	0730	22	FKI	029	BG	2				4							
16 Nov	S17W75	027	0510	10	DKO	013	BG												
17 Nov	S18W80	018	0170	03	HAX	003	A												
18 Nov	S17W92	017	0100	02	HAX	001	A												
												49	18	0	77	8	1	0	0

Still on Disk.

Absolute heliographic longitude: 027



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 9691

07 Nov	N07E64	006	0070	02	HAX	001	A											
08 Nov	N07E49	008	0090	02	HSX	001	A											
09 Nov	N07E36	008	0100	02	HSX	001	A											
10 Nov	N07E24	007	0110	02	HSX	001	A											
11 Nov	N08E10	008	0100	02	HSX	001	A											
12 Nov	N08W04	008	0100	02	HSX	001	A											
13 Nov	N08W17	008	0090	02	HSX	001	A											
14 Nov	N09W30	008	0060	01	HSX	001	A											
15 Nov	N09W43	008	0070	04	CSO	003	B											
16 Nov	N09W56	008	0050	02	CSO	003	B											
17 Nov	N09W70	008	0070	02	HSX	001	A											
18 Nov	N08W84	009	0050	01	HSX	001	A											

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 008

Region 9692

07 Nov	N07W10	080	0060	04	CSO	008	B	1	1									
08 Nov	N07W25	082	0120	07	DAO	018	B	1		2								
09 Nov	N06W39	083	0670	10	DAO	011	B											
10 Nov	N06W51	082	0740	11	EKI	023	BG											
11 Nov	N07W65	083	0670	11	EKO	013	B			2								
12 Nov	N07W78	082	0530	12	EKI	009	BG	1	1	2	1							
13 Nov	N09W84	075	0230	05	HKX	001	A											

2 2 0 7 1 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 080

Region 9693

07 Nov	N11E03	067	0050	04	CAO	008	B											
08 Nov	N12W12	069	0050	04	DAO	004	B											
09 Nov	N11W27	071	0020	01	HSX	002	A											
10 Nov	N10W40	071	0000	00	AXX	001	A											
11 Nov	N11W54	072	0000	00	AXX	001	A											
12 Nov	N12W67	071	0000	00	AXX	001	A											
13 Nov	N12W80	071																

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 067



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 9694

07 Nov	N14E79	351	0050	02	HSX	001	A										
08 Nov	N14E65	352	0100	02	HSX	001	A										
09 Nov	N13E51	353	0070	02	HSX	001	A										
10 Nov	N13E39	352	0080	02	HSX	001	A										
11 Nov	N13E27	351	0070	03	HSX	003	A										
12 Nov	N13E13	351	0070	02	HSX	001	A										
13 Nov	N14E00	351	0070	02	CSO	002	B										
14 Nov	N14W10	348	0050	01	HSX	001	A										
15 Nov	N14W27	352	0050	02	HSX	001	A										
16 Nov	N14W40	352	0050	05	CSO	003	B										
17 Nov	N14W54	352	0040	01	HSX	001	A										
18 Nov	N13W67	352	0030	02	HSX	001	A										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 351

Region 9695

10 Nov	N11E68	323	0080	03	CSO	002	B										
11 Nov	N11E57	321	0090	02	CAO	002	B										
12 Nov	N10E44	320	0120	04	CAO	005	B										
13 Nov	N11E31	320	0100	04	CAO	004	B										
14 Nov	N11E17	321	0080	02	HSX	002	A										
15 Nov	N11E05	320	0050	02	HSX	003	A										
16 Nov	N12W09	321	0090	03	HSX	002	A										
17 Nov	N12W23	321	0070	02	HSX	001	A										
18 Nov	N11W36	321	0060	02	HSX	001	A										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 320



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 9696

10 Nov	S05E68	323	0060	06	DSO	003	B											
11 Nov	S02E57	321	0070	05	DAO	007	B											
12 Nov	S05E44	320	0050	05	DSO	011	B											
13 Nov	S06E31	320	0050	07	DAO	013	B											
14 Nov	S04E16	322	0010	08	CRO	009	B											
15 Nov	S04E04	321	0020	07	CRO	008	B											
16 Nov	S04W09	321	0010	04	BXO	005	B											
17 Nov	S04W22	321																
18 Nov	S04W35	321																

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 321

Region 9697

11 Nov	N11E76	302	0120	03	HAX	001	A											
12 Nov	N10E61	303	0200	03	HAX	002	A					1						
13 Nov	N11E47	304	0210	03	CSO	003	B											
14 Nov	N12E34	304	0220	07	DHO	014	B	1				1	1					
15 Nov	N13E20	305	0330	10	DKI	022	BG											
16 Nov	N13E07	305	0290	11	EKI	024	BG	1						1				
17 Nov	N13W06	304	0340	09	DKO	019	BG	1						2				
18 Nov	N12W19	304	0330	07	DKI	017	BG							2				

3 0 0 6 2 0 0 0

Still on Disk.

Absolute heliographic longitude: 304

Region 9698

12 Nov	S24E64	071	0050	04	CAO	005	B											
13 Nov	S24E49	302	0070	04	DSO	003	B											
14 Nov	S24E35	303	0090	03	DSO	002	B											
15 Nov	S23E23	302	0090	04	DAO	005	B											
16 Nov	S23E08	304	0100	04	DAO	004	B											
17 Nov	S23W03	301	0130	05	DSO	009	B											
18 Nov	S26W16	301	0110	04	DAO	004	B											

0 0 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

Region 9699

12 Nov	S08W67	300	0050	04	CAO	005	B										
13 Nov	S09W81	072	0070	05	DSO	003	B										
14 Nov	S09W94	072															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 300

Region 9700

13 Nov	S25W08	359	0000	01	AXX	002	A										
14 Nov	S24W22	360	0010	01	AXX	001	A										
15 Nov	S24W35	360	0010	02	BXO	003	B										
16 Nov	S24W48	360															
17 Nov	S24W61	360															
18 Nov	S24W74	360															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 359

Region 9701

13 Nov	S33W03	354	0020	03	DSO	005	B										
14 Nov	S33W15	353															
15 Nov	S33W28	353															
16 Nov	S33W41	353															
17 Nov	S33W54	353															
18 Nov	S33W67	353															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 354

Region 9702

14 Nov	N22W07	345	0010	03	BXO	002	B										
15 Nov	N26W19	344	0010	01	AXX	002	A										
16 Nov	N26W32	344															
17 Nov	N26W45	344															
18 Nov	N26W58	344															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 345



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 9703

14 Nov	N22E12	326	0010	01	AXX	002	A	1				1					
15 Nov	N23W01	326	0020	04	BXO	005	B					1					
16 Nov	N23W15	327	0020	05	BXO	004	B										
17 Nov	N23W28	327															
18 Nov	N23W41	327															
									1	0	0	2	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 326

Region 9704

14 Nov	S18E70	268	0150	02	HAX	003	A					1					
15 Nov	S18E56	269	0270	05	CKO	006	B	1				1					
16 Nov	S18E41	271	0430	07	CKO	014	B										
17 Nov	S18E28	270	0500	09	DKI	024	B		1		4	1					
18 Nov	S18E16	269	0570	08	DKI	027	BGD	2			4						
								3	1	0	10	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 269

Region 9705

14 Nov	N14E49	289	0030	07	DRO	002	B										
15 Nov	N12E38	287	0010	01	AXX	001	A										
16 Nov	N12E25	287															
17 Nov	N12E12	287															
18 Nov	N12W05	290	0020	03	BXO	006	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 290

Region 9706

14 Nov	N15E65	273	0010	03	CRO	003	B										
15 Nov	N15E52	273	0000	00	AXX	001	A										
16 Nov	N15E39	273															
17 Nov	N15E26	273															
18 Nov	N15E13	273															
									0	0	0	0	0	0	0	0	0

Still on Disk.

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

Region 9707

16 Nov	N14W24	336	0010	02	AXX	002	A										
17 Nov	N14W37	336															
18 Nov	N14W50	336															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 336

Region 9708

16 Nov	N01E05	307	0010	02	AXX	003	A										
17 Nov	N04W12	310	0010	02	AXX	003	A										
18 Nov	N03W25	310	0030	04	DSO	006	B										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 307

Region 9709

16 Nov	N20E39	273	0010	03	BXO	003	B										
17 Nov	N21E25	273	0020	05	BXO	006	B										
18 Nov	N20E11	274	0020	04	BXO	003	B										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 274

Region 9710

18 Nov	S10E46	239	0050	02	CAO	004	B										
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0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 239

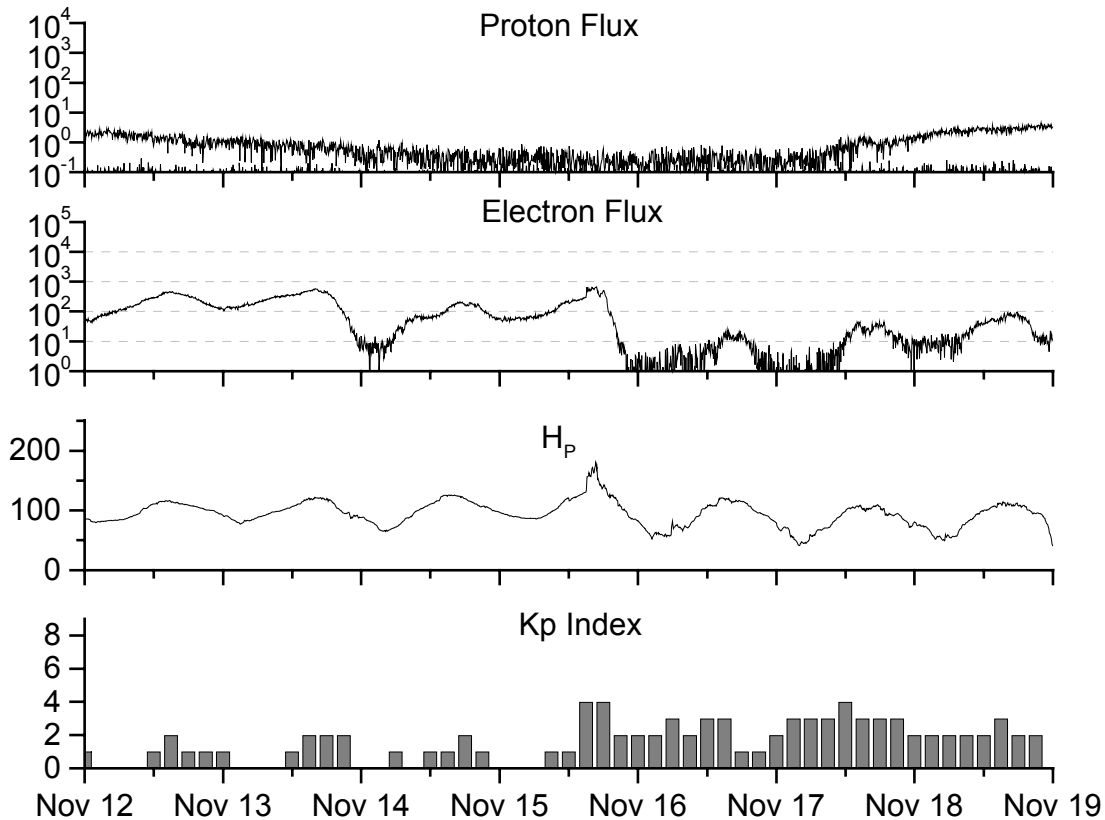


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
1999									
November	199.3	133.2	0.67	164.7	110.0	191.5	171.5	14	13.1
December	123.5	86.4	0.69	165.9	111.1	169.8	173.4	10	13.8
2000									
January	140.8	90.1	0.64	168.0	112.9	158.1	175.5	13	14.5
February	161.9	112.9	0.70	172.1	116.7	173.2	176.8	15	15.0
March	203.6	138.5	0.68	175.4	119.9	208.2	178.4	09	15.0
April	193.4	125.5	0.65	176.3	120.8	184.2	180.5	15	15.0
May	188.8	121.6	0.64	173.1	119.0	184.5	180.0	15	15.0
June	190.3	124.9	0.66	172.0	118.7	179.8	179.7	15	15.1
July	236.7	169.1	0.71	173.0	119.7	204.7	180.2	21	14.8
August	166.6	130.5	0.78	171.8	118.6	163.1	179.5	16	14.2
September	157.9	109.9	0.70	169.0	116.2	182.1	177.1	18	14.2
October	138.9	100.1	0.72	166.2	114.4	167.7	175.6	18	14.6
November	149.9	106.5	0.71	162.7	112.7	178.8	173.6	17	14.6
December	146.4	104.5	0.71	160.8	112.1	173.6	172.0	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			148.7		12	
June	196.7	134.0	0.68			173.7		12	
July	124.6	82.2	0.66			131.3		11	
August	159.4	106.8	0.67			163.2		13	
September	229.1	150.7	0.66			233.3		12	
October	197.4	125.6	0.64			208.2		18	

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 12 November 2001

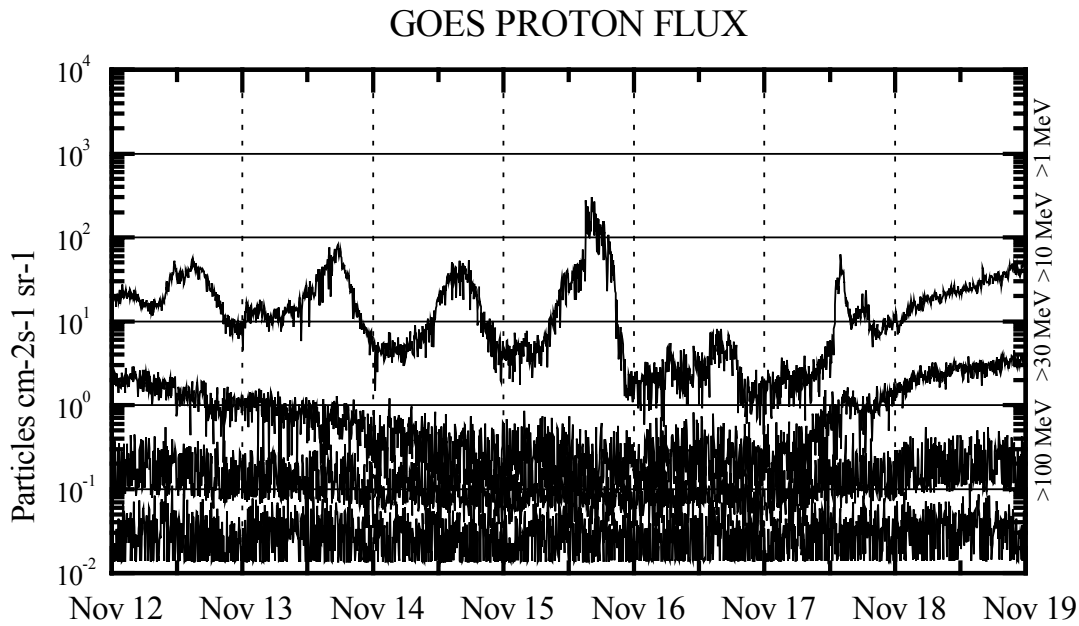
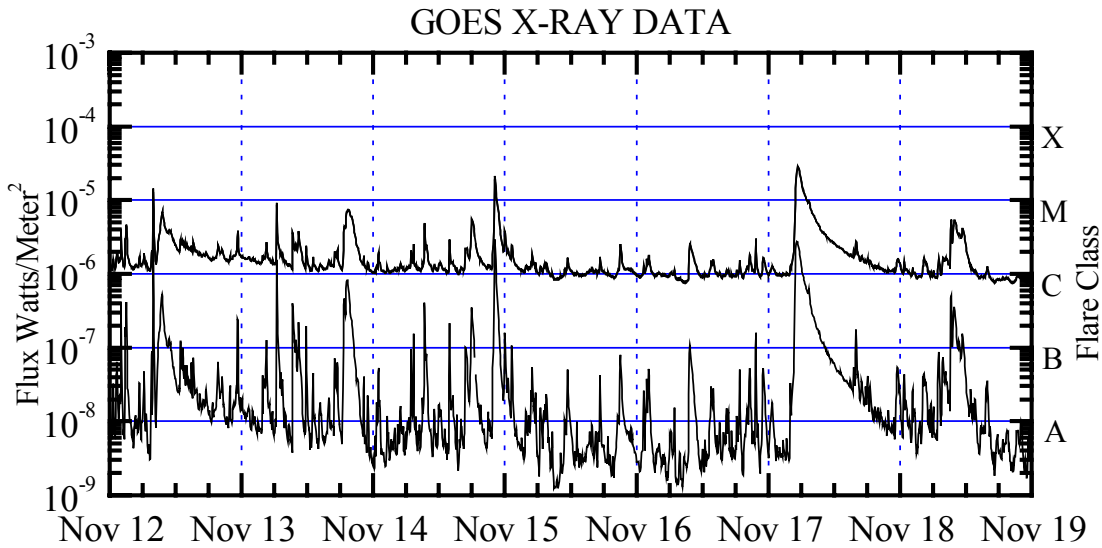
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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/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 ($\text{protons/cm}^2\text{-sec-sr}$) as measured by GOES-8 (W75) for each of the energy thresholds: >1 , >10 , >30 and >100 MeV. P10 event threshold is 10 pfu ($\text{protons/cm}^2\text{-sec-sr}$) at greater than 10 MeV.

