

Solar activity ranged from moderate to high levels. Activity was at high levels on 07 - 08 November and at moderate levels during the remainder of the period. Region 9690 (S18, L=027, class/area, Fkc/1420 on 10 November) was the most active region this period producing sixteen M-class flares and numerous C-class flares (for details, please refer to the Energetic Events and Optical Flares lists). Region 9690 appeared on the east limb on 05 November and continued to grow in size and complexity throughout the period. By 08 November this region developed a beta-gamma-delta magnetic configuration. Region 9684 (N06, L=136, class/area, Ekc/550 on 04 November) began the period as a moderately sized, magnetically complex, beta-gamma-delta region and entered a gradual decay phase early in the period. This region continued to decay until it rotated beyond the west limb on 08 November. Region 9687 (S19, L=75, class/area Fac/390 on 04 November) continued to grow early in the period and developed a magnetic complexity of beta-gamma-delta on 06 November. Region 9687 produced an M9/1n flare at 08/0704 UTC with an associated Tenflare of 460 sfu and Type II radio burst (velocity 818 km/sec). After the M9 event, Region 9687 entered a gradual decay phase and at the close of the summary period maintains a simple beta configuration with six spots. Region 9692 (N07, L=080, class/area Eki/740 on 10 November) developed near center disc on 07 November and grew to a moderately sized, magnetically beta-gamma region. However, this region has shown little activity at the close of the period and is due to rotate beyond the west limb on 14 November.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft in the later half of the summary period. A very strong shock passed ACE at 06/0125 UTC associated with the X1/3b flare and earth-directed CME on 04/1620 UTC. As the shock reached ACE a significant southward Bz deflection of -68 nT was measured. Bz remained south for about 2 hours then turned northward for the next 10 hours. The ACE/SWEPAM instrument was unreliable from the beginning of the period until 07 November due to the effects associated with the solar energetic particle event mentioned below.

As the summary period began a greater than 10 MeV proton event and a greater than 100 MeV proton flux event at geosynchronous orbit were in effect. The greater than 100 MeV proton event reached a maximum flux of 253 pfu on 06/0220 UTC and ended on 06/2315 UTC. The 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. These proton events from the X1/3b flare on 04 November contaminated SOHO/LASCO imagery and the ACE/SWEPAM instrument in the first half of the period.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels during the period. Data late on 04 November until late on 06 November were unreliable due to the effects associated with the solar energetic particle event mentioned above. Greater than 2 MeV electron levels were elevated to moderate levels from late on 06 November until late on 10 November when they dropped back below 100 pfu to normal



The geomagnetic field was at quiet to severe storm levels during the period. An Earth directed CME from the X1/3b flare on 04/1620 UTC impacted the geomagnetic field early on 06 November. The shock arrived at Earth on 06/0150 UTC with a 90nT sudden impulse measured at the Boulder magnetometer. Severe storm conditions occurred on 06 November from 00-09 UTC and 15-18 UTC. Early on 07 November the geomagnetic field was at minor storm levels then quickly decreased to quiet to unsettled levels throughout the day. From 08-11 November the geomagnetic field was quiet to unsettled.

**Space Weather Outlook**  
**14 November - 10 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 9690 has the potential for major flare activity until it rotates beyond the west limb about 18 November. Region 9678 (N07, L=221, area/class 680/Ekc on 26 October) is due to return about 16 November. SOHO/SWAN far side solar imagery indicates that Region 9684 (N06, L=136, class/area Ekc/550 on 04 November) maybe retaining some of its complexity and is due to return on about 21 November.

Proton levels are expected to be a normal levels 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. On 14-17 November active levels are possible due to coronal hole effects. 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 <sup>-6</sup> hemi.)	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
05 November	235	159	2320	C3.3	7	4	0	9	1	0	0	0
06 November	230	189	1990	C2.7	14	4	0	9	1	0	0	0
07 November	269	230	1940	C1.7	7	5	0	27	2	0	0	0
08 November	248	216	2000	C2.4	14	4	0	22	1	1	0	0
09 November	271	175	2630	C2.2	7	6	0	7	3	1	0	0
10 November	246	258	2840	C2.0	7	2	0	5	1	0	0	0
11 November	234	222	2510	C2.8	11	1	0	11	1	0	0	0

### Daily Particle Data

Date	Proton Fluence (protons/cm <sup>2</sup> -day-sr)			Electron Fluence (electrons/cm <sup>2</sup> -day-sr)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
	05 November	9.3E+8	5.3E+8	3.6E+6		1.2E+4
06 November	2.4E+9	6.2E+8	3.3E+6		3.9E+6	
07 November	1.4E+8	2.6E+7	2.7E+4		1.1E+7	
08 November	4.0E+7	6.7E+6	4.6E+3		4.3E+7	
09 November	1.3E+7	1.3E+6	3.3E+3		4.7E+7	
10 November	8.7E+6	6.5E+5	3.0E+3		3.2E+7	
11 November	5.1E+6	2.9E+5	2.8E+3		1.0E+7	

### Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	05 November	12	0-0-1-2-4-3-4-3	11	0-0-0-2-3-4-4-3	13
06 November	60	7-7-5-3-4-5-4-4	101	8-7-6-6-6-6-6-4	112	8-8-7-5-6-7-5-5
07 November	11	4-3-1-2-2-1-2-3	26	5-5-1-5-4-3-3-1	15	5-4-1-3-2-2-2-3
08 November	3	2-1-2-1-0-1-1-0	10	2-2-4-4-1-1-1-1	5	2-1-2-2-1-2-2-1
09 November	2	1-1-0-1-1-1-1-0	2	1-0-0-1-0-1-1-2	4	1-0-0-0-1-2-2-2
10 November	5	1-1-0-2-2-2-2-2	*	1-0-0-*. *-*. *-*	6	1-1-0-0-2-2-3-3
11 November	5	2-2-1-2-2-1-1-1	*	*. *-*. *-*. *-*	4	2-1-0-2-1-2-2-1



### *Alerts and Warnings Issued*

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
05 Nov 0100	CONTINUED Protons Event >10 MeV $\geq$ 10pfu	04 Nov 1705
05 Nov 0100	CONTINUED Proton event >100 MeV >1pfu	04 Nov 1650
05 Nov 0106	2 - 245 MHz Radio Bursts	04 Nov
05 Nov 1458	K= 4 Observed	05 Nov 1200 -1500
05 Nov 1654	CONTINUED Proton Event >10MeV $\geq$ 10pfu Warning	04/1700 - 07/1700 Nov
05 Nov 1656	CONTINUED Proton event >100 MeV >1pfu Warning	04/2126 - 06/1700 Nov
05 Nov 1807	K= 4 Observed	05 Nov 1500 - 1800
05 Nov 2012	K= 5 Warning	05 Nov 2010 - 2359
05 Nov 2112	K= 4 Observed	05 Nov 1800 - 2100
05 Nov 2226	A $\geq$ 30 Watch	07 Nov
05 Nov 2337	EXTENDED K= 5 Warning	06 Nov 2010 - 2359
06 Nov 0049	2 - 245 MHz Radio Bursts	05 Nov
06 Nov 0100	CONTINUED Proton event >100 MeV >1pfu	04 Nov 1650
06 Nov 0100	CONTINUED Protons Event >10 MeV $\geq$ 10pfu	04 Nov 1705
06 Nov 0156	Sudden Impulse observed at Boulder	06 Nov 0150
06 Nov 0210	K $\geq$ 6 Warning	06 Nov 0215 - 1500
06 Nov 0300	K $\geq$ 7 Observed	06 Nov 0000 - 0300
06 Nov 0310	A $\geq$ 30 Observed	06 Nov 0300
06 Nov 0406	A $\geq$ 50 Warning	06 Nov 0500 - 1800
06 Nov 0600	K $\geq$ 7 Observed	06 Nov 0300 - 0600
06 Nov 1148	A $\geq$ 50 Observed	06 Nov 0900
06 Nov 1433	EXTENDED K $\geq$ 6 Warning	06 Nov 0215 to 2359
06 Nov 1551	Type II Radio Emission	06 Nov 0304
06 Nov 1650	CONTINUED Proton event >100 MeV >1pfu Warning	04/2126 - 07/1200 Nov
06 Nov 1746	EXTENDED A $\geq$ 50 Warning	06/0500 - 07/0600 Nov
06 Nov 1805	K $\geq$ 7 Observed	06 Nov 1500 - 1800
07 Nov 0023	8 - 245 MHz Radio Bursts	06 Nov
07 Nov 0100	CONTINUED Protons Event >10 MeV $\geq$ 10pfu	04 Nov 1705
07 Nov 0100	CONTINUED Proton event >100 MeV >1pfu	04 Nov 1650
07 Nov 0044	K= 4 Warning	07 Nov 0050 - 1800
07 Nov 0049	A $\geq$ 30 Warning	07 Nov 0055 - 1800
07 Nov 0300	K= 4 Observed	07 Nov 0000 - 0300
07 Nov 0600	ENDED A $\geq$ 50 Observed	07 Nov 0600
07 Nov 1547	ENDED Proton event >100 MeV >1pfu	06 Nov 2315
07 Nov 1647	CONTINUED Proton Event >10MeV $\geq$ 10pfu Warning	04/1700 - 09/0000 Nov
07 Nov 1807	ENDED A $\geq$ 30 Observed	06 Nov 0300
07 Nov 2044	X-Ray event M5.7/1N S17E44	07 Nov 2001
08 Nov 0005	6 - 245 MHz Radio Bursts	07 Nov
08 Nov 0100	CONTINUED Protons Event >10 MeV $\geq$ 10pfu	04 Nov 1705
08 Nov 712	X-Ray event M9.1/1F/S19W11	08 Nov 0704
08 Nov 723	10cm Radio Burst 460 F.U.	08 Nov 0702
08 Nov 724	Type II Radio Emission	08 Nov 0702
08 Nov 1248	Type II Radio Emission	08 Nov 1026
08 Nov 1723	10cm Radio Burst 280 F.U.	08 Nov 1711



08 Nov 1934

Type II Radio Emission

08 Nov 1909

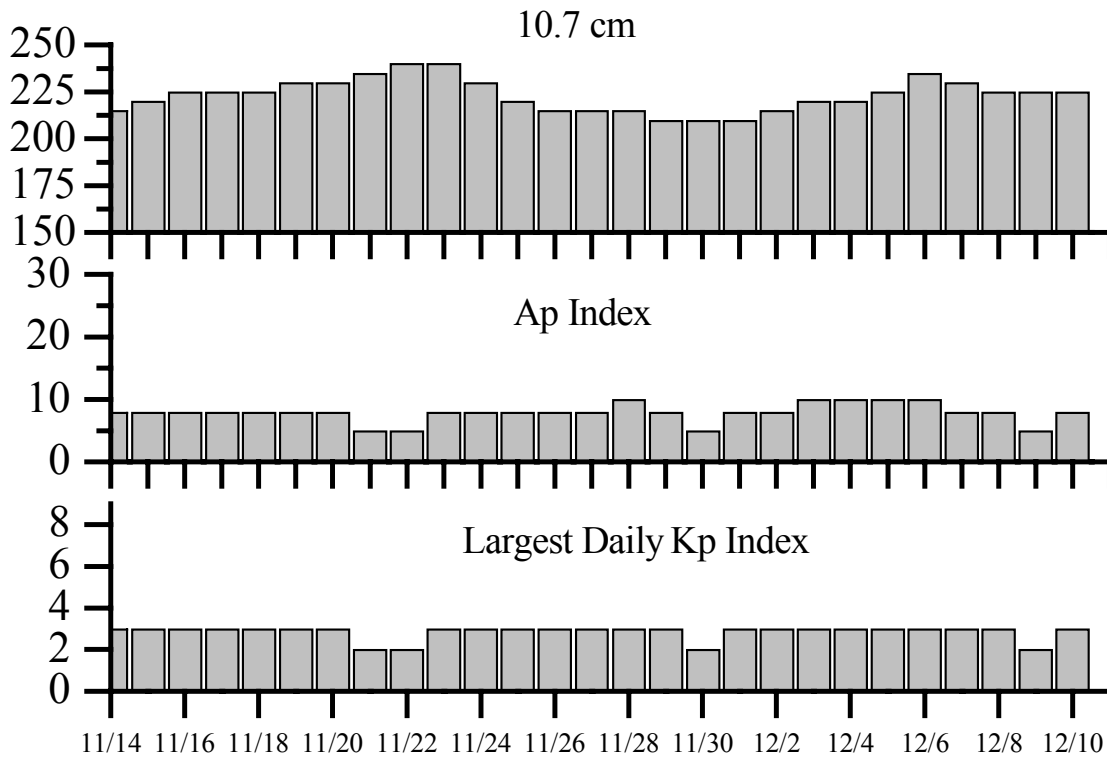
*Alerts and Warnings Issued - continued.*

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<u>Date &amp; Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date &amp; Time of Event UT</u>
08 Nov 2348	CONTINUED Proton Event $>10\text{MeV} \geq 10\text{pfu}$ Warning	04/1700 - 09/0900 Nov
09 Nov 0009	Type IV Radio Emission	08 Nov 1919
09 Nov 0019	4 - 245 MHz Radio Bursts	08 Nov
09 Nov 0100	CONTINUED Protons Event $>10 \text{ MeV} \geq 10\text{pfu}$	04 Nov 1705
09 Nov 0859	CONTINUED Proton Event $>10\text{MeV} \geq 10\text{pfu}$ Warning	04/1700 - 09/1500 Nov
09 Nov 1941	Type II Radio Emission	09 Nov 1837
09 Nov 2320	Type IV Radio Emission	09 Nov 1832
10 Nov 0100	CONTINUED Protons Event $>10 \text{ MeV} \geq 10\text{pfu}$	04 Nov 1705
10 Nov 1410	ENDED Protons Event $>10 \text{ MeV} \geq 10\text{pfu}$	10 Nov 1408

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**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
14 Nov	215	8	3	28 Nov	215	10	3
15	220	8	3	29	210	8	3
16	225	8	3	30	210	5	3
17	225	8	3	01 Dec	210	8	3
18	225	8	3	02	215	8	3
19	230	8	3	03	220	10	3
20	230	5	3	04	220	10	3
21	235	5	3	05	225	10	3
22	240	8	3	06	235	10	3
23	240	8	3	07	230	8	3
24	230	8	3	08	225	8	3
25	220	8	3	09	225	5	2
26	215	8	3	10	225	8	3
27	215	8	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
05 Nov	0247	0250	0253	M1.7	.004	SF	S20E34	9687		29		
05 Nov	0845	0854	0902	M1.2	.011							
05 Nov	0907	0915	0922	M2.1	.016	1N	N02W37	9684	60			
05 Nov	1509	1537	1619	M1.2	.036							
06 Nov	0256	0300	0303	M2.0	.006	1B	S19E10	9687		160	1	
06 Nov	0620	0625	0629	M1.2	.004			9690				
06 Nov	1345	1351	1405	M1.2	.012	SF	S17E05	9687		91		
06 Nov	1507	1549	1708	M1.1	.068	SF	S18E64	9690				
07 Nov	0139	0146	0152	M1.1	.006	SF	S18E54	9690				
07 Nov	0437	0444	0450	M1.4	.010	1N	S19E50	9690	550			
07 Nov	0927	0933	0939	M2.0	.009	SF	S18E58	9690				
07 Nov	1930	2001	2026	M5.7	.120	1N	S17E44	9690	72	62		
07 Nov	2231	2237	2249	M1.0	.009	SF	S18E41	9690				
08 Nov	0659	0704	0706	M9.1	.017	1N	S19W19	9687	200	460	3	
08 Nov	1213	1229	1252	M1.3	.023	SF	S17E36	9690				
08 Nov	1356	1409	1420	M1.4	.014							
08 Nov	1459	1535	1600	M4.2	.100	2F	S17E36	9690	340	39		
09 Nov	0119	0133	0149	M1.6	.022	1F	S19E27	9690	56			
09 Nov	0520	0539	0548	M3.1	.031	1F	S18E25	9690				
09 Nov	0623	0629	0632	M1.0	.004	SF	S17E24	9690				
09 Nov	0841	0856	0908	M3.3	.029	1N	S18E26	9690		22		
09 Nov	0916	0943	1001	M3.0	.067					26		
09 Nov	1823	1841	1924	M1.9	.047	SF	S21W42	9687		88	1	1
10 Nov	0042	0050	0058	M1.0	.007	SF	S17E22	9690				
10 Nov	1947	2000	2009	M2.3	.018	1F	S18E05	9690	350			
11 Nov	1054	1103	1107	M1.4	.006	SF	S17E05	9690				

### *Flare List*

Date	Time			X-ray Class.	Optical Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
05 November	0042	0042	0046		SF	N09W64	9682
	0249	0249	0318	M1.7	SF	S20E34	9687
	0717	0718	0721		SF	S27E12	9689
	0845	0854	0902	M1.2			
	0909	0914	0944	M2.1	1N	N02W37	9684
	1101	1101	1105	C4.8	SF	N12W71	9682
	1130	1144	1203	C7.3			9684
	1301	1309	1315	C5.0			9684
	1429	1433	1439		SF	N08W38	9684
	1509	1537	1619	M1.2			
	B1627	U1628	A1716		SF	S19E24	9687
	1803	1803	A1824	C8.9	SF	S19E68	9690
	1852	1857	1906		SF	S26E06	9689
	2103	2107	2111	C8.9			9690
	2258	2303	2309	C4.89			9690
	2326	2328	2345	C4.5	SF	S21E21	9687



*Flare List - continued.*

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
06 November	0032	0043	0055	C9.5			9690
	0128	0132	0134	C5.6			9690
	0258	0259	0313	M2.0	1B	S19E10	9687
	0301	0301	0304		SF	S19E65	9690
	0406	0410	0414	C5.2			9690
	0504	0509	0513	C6.6			9690
	0620	0625	0629	M1.2			9690
	0643	0656	0702		SF	S18E08	9687
	0651	0651	0656		SF	S19E62	9690
	0707	0707	0716		SF	S19E08	9687
	0744	0747	0759	C9.1	SF	S19E07	9687
	0803	0808	0815	C6.4			9690
	0831	0831	0834	C9.8	SF	S19E62	9690
	0925	0929	0932	C9.0			9690
	1010	1021	1051	C4.6			9690
	1158	1227	1303	C5.9			9690
	1354	1358	1410	M1.2	SF	S17E05	9687
	1453	1455	1459		SF	S17E56	9690
	1519	1533	1541	M1.1	SF	S18E64	9690
	1825	1828	1831	C6.6			9690
	2100	2110	2122	C8.2			9690
	2244	2248	2252	C3.6			9690
	2340	2344	2349	C3.9			9690
07 November	0018	0023	0028	C5.6			
	0112	0114	0118		SF	N10W55	9684
	0142	0143	0150	M1.1	SF	S18E54	9690
	0246	0259	0309	C7.5	SF	S19E53	9690
	0429	0446	0455	M1.4	1N	S19E50	9690
	0438	0438	0441		SF	N09W57	9684
	0455	0455	0459		SF	S19E55	9690
	0612	0613	0617		SF	S19E52	9690
	0631	0632	0639		SF	N13W86	9682
	0640	0643	0651		SF	N14W86	9682
	0640	0641	0647		SF	S19W04	9687
	0650	0652	0701		SF	S19W06	9687
	0725	0732	0741		SF	N05W21	9685
	0931	0935	0946	M2.0	SF	S18E58	9690
	1032	1038	1056	C4.1			
	1144	1147	1151	C5.0			
	B1201	1203	A1212		SF	S19E47	9690
1309	1325	1330	C6.7				
1504	1504	1512		SF	S18E48	9690	





*Flare List - continued.*

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
07 November	1529	1530	1547		SF	N07W03	9690
	1530	1530	1539	C4.4	SF	S17E52	9690
	1629	1630	1636		SF	S18E44	9690
	1651	1653	1702		SF	S18E43	9690
	1811	1811	1817	C5.1	SF	S18E52	9690
	1933	1934	2121	M5.7	1N	S17E44	9690
	2006	2006	2012		SF	N27E27	9688
	2123	2125	2129		SF	N06W24	9685
	2143	2145	2150		SF	S18E46	9690
	2153	2155	2159		SF	S17E40	9690
	2202	2204	2214		SF	S18E48	9690
	2233	2235	2306	M1.0	SF	S18E41	9690
	2246	2246	2257		SF	N07W10	9692
	2329	2330	2333		SF	S18E37	9690
	08 November	0007	0007	0012		SF	S20W06
0015		0016	0020		SF	S19E37	9690
0023		0023	0033	C7.7	SF	S19E40	9690
0133		0133	0136		SF	S19E38	9690
0201		0201	0204		SF	N07W11	9692
0207		0208	0213	C4.8	SF	S20W08	9687
0236		0239	0240		SF	N06W31	9685
0318		0320	0324	C4.8	SF	S18E39	9690
0351		0402	0503	C9.2	SF	S17E38	9690
0526		0527	0533	C4.9	SF	S20W10	9687
0600		0602	0623		SF	N06W33	9685
0625		0627	0635		SF	N06W32	9685
B0704		U0704	0727	M9.1	1N	S19W19	9687
0750		0751	0754	C6.1	SF	S18E33	9690
1000		1000	1004		SF	S18E41	9690
1006		U1010	1018	C5.0	SF	S16E32	9690
1018		1018	1025	C7.7	SF	S20W19	9687
1036		1043	1050	C9.1			
B1213		U1225	1319	M1.3	SF	S17E36	9690
1356		1409	1420	M1.4			
1501		1534	1625	M4.2	2F	S17E36	9690
1902		1903	1914	C8.8	SN	S19W25	9687
1906		1908	1910		SF	N07W78	9684
1934	1937	1944	C5.4	SF	N08W22	9692	
2026	2034	2042	C3.2	SF	S18E37	9690	
2113	2151	A2300	C5.2	SF	S17E31	9690	
2309	2313	2318	C7.0				
09 November	0115	0127	0209	M1.6	1F	S19E27	9690

*Flare List - continued.*



Date	Time			X-ray Class.	Optical		Rgn	
	Begin	Max	End		Imp / Brtns	Location Lat CMD		
09 November	0314	0325	0337	C4.5				
	0348	0348	0401	C4.7	SF	S19E24	9690	
	0521	0539	0604	M3.1	1F	S18E25	9690	
	0626	0628	0632	M1.0	SF	S17E24	9690	
	0705	0713	0717	C4.9				
	0737	0741	0743	C4.8				
	0744	0745	0749		SF	S16E23	9690	
	0804	0812	0820		SF	S18E25	9690	
	0833	U0855	1038	M3.3	1N	S18E26	9690	
	0916	0943	1001	M3.0				
09 November	1039	U1049	1055		SF	S19E23	9690	
	1242	1243	1247		SF	S19E17	9690	
	1400	1414	1424	C6.9				
	1554	1600	1616	C3.7				
	1747	1751	1753	C3.4				
	1845	1902	1943		2F	S27W47	9689	
	1845	1846	1856	M1.9	SF	S21W42	9687	
	10 November	0046	U0048	0107	M1.0	SF	S17E22	9690
		0636	0643	0716	C4.6	SF	S20E08	9690
		0918	0919	0932	C4.93	SF	S18E14	9690
1054		1107	1110	C3.0				
B1319		U1319	A1332	C4.0	SF	S19E07	9690	
1807		1816	1822	C4.2				
B2011		U2013	A2044	M2.3	1F	S18E05	9690	
2137		2147	2200	C2.4				
2358		0000	0005	C5.6	SF	S17E09	9690	
11 November		0032	0033	0041	C5.2	SF	N15W65	9686
	0054	0124	0143	C5.3				
	0326	0350	0354	C4.2				
	0559	0600	0605	C6.1	SF	S19W02	9690	
	0607	0615	0658		SF	S18W02	9690	
	0815	0816	0826		SF	N05W58	9692	
	1025	1026	1030		SF	N06W59	9692	
	1057	U1058	A1116	M1.4	SF	S17E05	9690	
	1237	1312	1344	C3.2	SF	S18W03	9690	
	1407	1408	1412	C3.1	SF	S20W45	9687	
	1524	1540	1608	C6.0	1F	S18W03	9690	
	1722	1722	1725	C1.7	SF	S19W08	9690	
	1742	1756	1816	C6.9	SF	S18W08	9690	
	1857	1902	1930	C3.5	SF	S19W08	9690	
	2255	2306	2313	C2.5				



### Region Summary

Date	Location		Sunspot Characteristics				Flares											
	Helio		Area (10 <sup>-6</sup> 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 9682</i>																		
25 Oct	N09E70	172	0400	07	DKO	004	B											
26 Oct	N11E59	169	0710	09	DKI	011	B	1				5						
27 Oct	N12E45	170	0990	11	EKI	028	BGD	2				4						
28 Oct	N12E32	170	0830	17	FKC	032	BG	5	3			6	3					
29 Oct	N12E18	171	0910	14	EKC	042	BGD	9	3			11	4					
30 Oct	N12E04	172	1130	14	EKC	059	BGD	8	1			10	3					
31 Oct	N11W10	173	1210	14	EKC	061	BGD	1	1			4	1					
01 Nov	N11W22	171	0980	13	EKC	045	BGD		1			8	1					
02 Nov	N12W37	173	1130	14	EKC	050	BGD	1				3						
03 Nov	N12W50	173	0790	13	EKC	039	BGD	2				7						
04 Nov	N12W64	174	0660	13	EKI	022	BG	1				1	1					
05 Nov	N13W75	172	0600	16	FKI	008	BG	1				2						
06 Nov	N13W87	170	0270	10	CKO	005	B											
								31	9	0	61	1	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 172

<i>Region 9684</i>																		
27 Oct	N05E78	137	0140	03	HHX	001	A											
28 Oct	N06E69	133	0510	09	DKI	010	B					1						
29 Oct	N06E54	135	0510	08	DKI	014	B											
30 Oct	N05E41	135	0470	09	DKO	020	B	1				1						
31 Oct	N06E29	134	0470	12	EKI	027	BG											
01 Nov	N06E14	135	0440	11	EKI	018	B	1				2						
02 Nov	N06E00	136	0430	11	EKI	020	BG	1				2						
03 Nov	N05W15	138	0440	09	DKI	027	BG	5				7						
04 Nov	N05W28	138	0550	12	EKC	033	BGD				1	5			1			
05 Nov	N07W40	137	0490	11	EKC	020	BGD	2	1			1	1					
06 Nov	N06W56	139	0360	08	DKI	014	BGD											
07 Nov	N06W68	138	0230	07	DAO	010	BG					2						
08 Nov	N06W82	139	0190	04	CAO	003	BG	1				1						
								11	1	1	22	1	0	1	0			

Crossed West Limb.

Absolute heliographic longitude: 136



**Region Summary - continued.**

Date	Location		Sunspot Characteristics				Flares											
	( ° Lat ° CMD)	Helio	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
		Lon						C	M	X	S	1	2	3	4			
<i>Region 9685</i>																		
31 Oct	N05E68	095	0030	07	CSO	005	B											
01 Nov	N06E55	094	0070	08	DSO	010	B					1						
02 Nov	N05E41	095	0100	09	DSO	012	B											
03 Nov	N05E27	096	0090	10	DSO	011	B											
04 Nov	N04E14	096	0060	10	DSO	019	B											
05 Nov	N05W01	098	0080	07	DAI	012	BG											
06 Nov	N05W17	100	0080	05	DAO	012	B											
07 Nov	N06W29	099	0080	08	DSO	007	B					2						
08 Nov	N05W46	103	0040	01	HSX	001	A					3						
09 Nov	N05W61	105	0050	02	HSX	001	A											
10 Nov	N04W74	105	0050	01	HSX	001	A											
11 Nov	N03W87	105	0050	02	HAX	001	A											
											0	0	0	6	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 098

<i>Region 9686</i>																		
31 Oct	N16E68	095	0050	02	HSX	001	A											
01 Nov	N15E54	095	0030	05	CRO	002	B											
02 Nov	N15E39	097	0020	01	HSX	001	A											
03 Nov	N15E26	097	0010	01	AXX	001	A											
04 Nov	N15E13	097																
05 Nov	N15E00	097																
06 Nov	N15W13	097																
07 Nov	N15W26	097																
08 Nov	N15W39	097																
09 Nov	N15W52	097																
10 Nov	N15W65	097																
11 Nov	N15W78	097									1		1					
											1	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 097



**Region Summary - continued.**

Date	Location		Sunspot Characteristics					Flares															
	( ° Lat ° CMD)	Helio	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical												
		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											
								18	9	0	32	2	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 072

*Region 9688*

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														
								0	1	0	1	0	0	0	0	0					

Still on Disk.

Absolute heliographic longitude: 050

*Region 9689*

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														
								0	1	0	2	0	1	0	0						

Still on Disk.

Absolute heliographic longitude: 095



**Region Summary - continued.**

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

*Region 9690*

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					
								35	16	0	52	7	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 027

*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										
								0	0	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						
								1	1	0	5	0	0	0	0	0	0

Still on Disk.

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										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 067



**Region Summary - continued.**

Date	Location		Sunspot Characteristics				Flares										
	( ° Lat ° CMD)	Helio	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
		Lon						C	M	X	S	1	2	3	4		
<i>Region 9694</i>																	
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										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 351																	
<i>Region 9695</i>																	
10 Nov	N11E68	323	0080	03	CSO	002	B										
11 Nov	N11E57	321	0090	02	CAO	002	B										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 321																	
<i>Region 9696</i>																	
10 Nov	S05E68	323	0060	06	DSO	003	B										
11 Nov	S02E57	321	0070	05	DAO	007	B										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 321																	
<i>Region 9697</i>																	
11 Nov	N11E76	302	0120	03	HAX	001	A										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 302																	



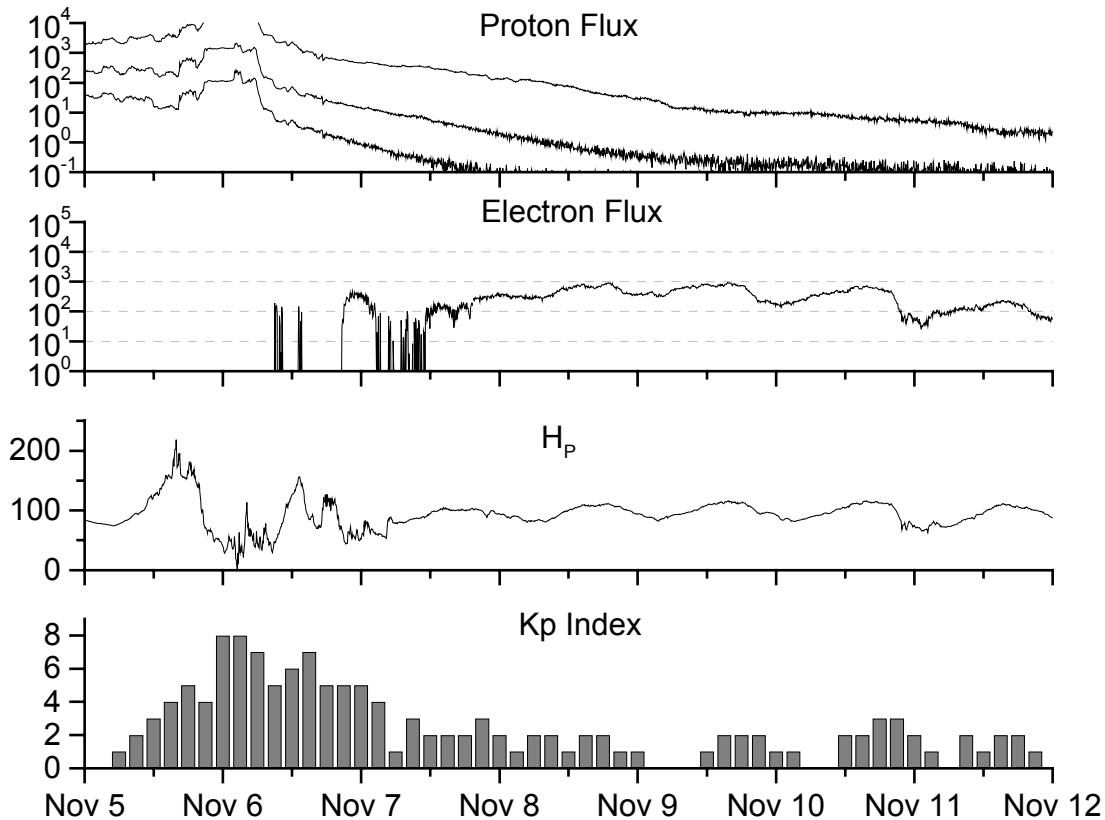
**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

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
<b>1999</b>									
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
<b>2000</b>									
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
<b>2001</b>									
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 05 November 2001*

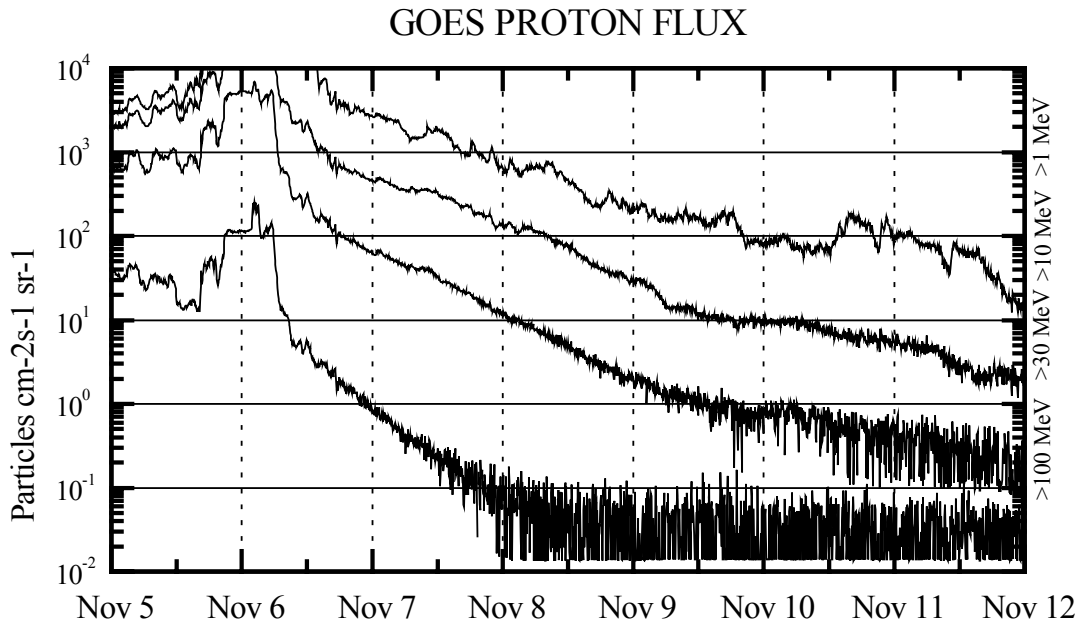
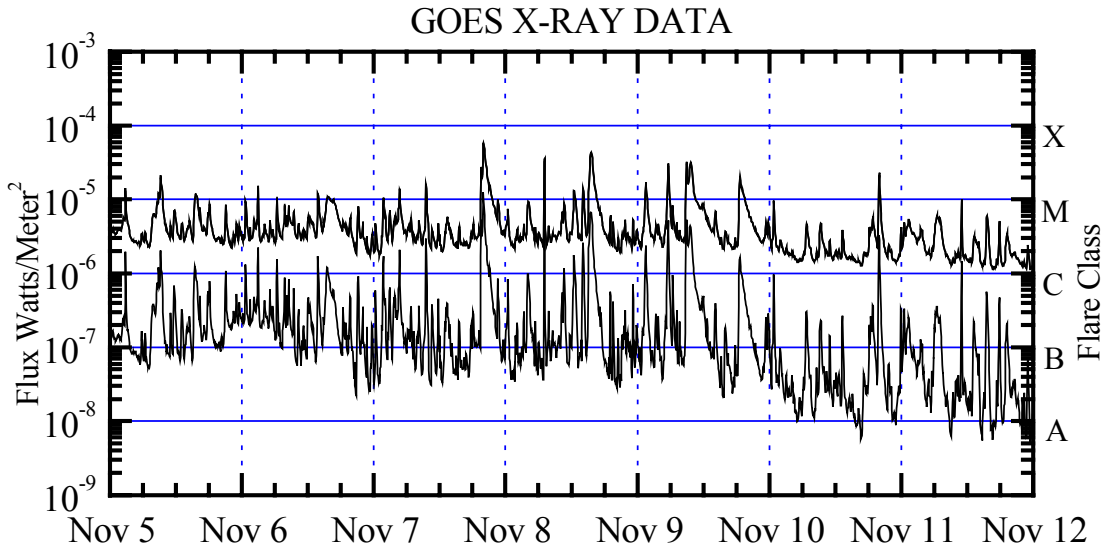
*Protons* plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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

*H<sub>p</sub>* 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<sub>p</sub>* 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<sub>p</sub> 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<sub>p</sub> are "global" parameters that are applicable to a first order approximation over large areas. H<sub>parallel</sub> 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<sup>2</sup>) 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<sup>2</sup>-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<sup>2</sup>-sec-sr) at greater than 10 MeV.

