

**Space Weather Highlights**  
**17 September - 23 September 2001**

**SWO PRF 1360**  
**25 September 2001**

Solar activity reached high levels for the third consecutive week. The period began with activity at high levels due to an M8/1n flare at 17/1550 UTC from Region 9608 (S27, L = 109, Fkc/1110 on 10 September). Region 9608 was large, magnetically complex, and in a gradual decay phase at the time of the flare. This region also produced isolated low-level M-class flares until it rotated out of view on 18 September. Activity varied from low to moderate levels during the rest of the period due to isolated C- and M-class flares from a number of active regions (for flare specifics, please refer to the Energetic Events and Optical Flares lists). Active regions of note included Region 9628 (S18, L = 293, class/area Fkc/800 on 20 September) and Region 9632 (S18, L = 273, class/area Dki/780 on 23 September). Both regions were large and magnetically complex with magnetic delta configurations within their trailer spots. Both regions produced isolated C- and M-class flares during the period. Region 9628 appeared to be the return of old 9591, which had a history of major flare production. (Note: Regions 9628 and 9632 each produced a major flare after the close of the highlights period. Details will be provided in next week's issue.)

Solar Wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. A weak coronal transient passed the spacecraft beginning around midday on 18 September. This brief passage was characterized by relatively modest increases in total IMF field intensity and density and a southward turn of IMF Bz during 18/1600 - 1800 UTC with maximum deflections to minus 12 nT (GSM). IMF Bz turned mostly southward during 22/0800 - 1800 UTC with maximum deflections to minus 07 nT. A CME-related shock passed ACE on 23 September at approximately 0800 UTC. The passage was associated with abrupt increases in density and total IMF field intensity, along with a more gradual increase in velocities which (briefly) peaked near 620 km/sec. In addition, IMF Bz turned southward during 23/1300 - 1900 UTC with maximum deflections to minus 11nT observed around 23/1700 UTC.

There were no proton events during the period. (Note: a proton event began on 24 September following a major flare from Region 9632. Details will be provided in next week's issue.)

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

The geomagnetic field was largely undisturbed during 17 - 21 September, the exception being a brief active period on 18 September associated with the weak coronal transient mentioned above. Active to minor storm periods occurred on 22 September associated with the sustained period of southward IMF Bz described above. The most significant disturbance of the period occurred on 23 September due to the CME passage described above. Active to minor storm conditions occurred globally during this disturbance with major to severe storm periods at high latitudes.

**Space Weather Outlook**  
**26 September – 22 October 2001**

Solar activity is expected to be at low to high levels. Isolated M-class flares are expected. There will be a fair chance for isolated major flare activity during the period.

A proton event began on 24 September and was in progress at the time of this report. This proton event is expected to continue for the next few days. There will be a chance for another proton flare during the period.



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

A major geomagnetic storm is expected during 25 - 26 September in the wake of an X-class flare and accompanying halo CME on 24 September. Active to severe storm levels will be possible during this storm, which is expected to begin early on 26 September. Active periods will be possible during 12 October due to coronal hole effects. Quiet to unsettled conditions are expected during the remainder of the period.



### 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
17 September	199	159	1290	C2.0	11	4	0	9	3	2	0	0
18 September	204	215	1340	C1.7	12	4	0	6	1	0	0	0
19 September	199	224	1380	C1.5	5	0	0	12	0	0	0	0
20 September	227	276	2160	C1.8	9	1	0	9	0	0	0	0
21 September	239	258	2260	C1.5	6	0	0	17	0	0	0	0
22 September	255	293	2520	C1.6	9	0	0	25	1	0	0	0
23 September	259	275	2820	C2.2	7	1	0	16	0	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
	17 September	1.8E+5	1.4E+4	2.3E+3	4.0E+6	
18 September	2.4E+5	1.6E+4	2.5E+3	4.8E+6		
19 September	1.8E+5	1.8E+4	2.5E+3	6.3E+5		
20 September	1.4E+5	1.5E+4	2.3E+3	4.4E+5		
21 September	1.6E+5	1.3E+4	2.3E+3	5.6E+5		
22 September	8.6E+4	1.2E+4	2.4E+3	1.4E+5		
23 September	3.3E+5	1.1E+4	2.2E+3	1.3E+5		

### Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	17 September	6	1-2-3-1-1-2-1-1	16	2-2-3-5-4-1-3-1	10
18 September	7	2-1-0-0-1-2-4-2	7	2-2-0-0-1-2-4-1	8	2-2-1-1-2-2-4-2
19 September	8	3-3-2-1-2-1-3-1	7	3-3-2-2-1-1-2-0	8	3-3-2-2-2-2-3-1
20 September	7	1-1-2-2-1-2-3-3	3	1-0-0-3-1-0-0-1	5	1-1-1-2-2-2-2-2
21 September	3	2-0-0-1-1-1-1-2	1	1-0-0-0-0-0-0-1	5	1-0-0-2-2-2-2-2
22 September	6	2-1-2-2-3-2-0-0	17	2-0-3-5-5-3-0-0	10	2-1-3-4-4-3-2-1
23 September	18	0-3-4-3-4-4-3-3	51	0-3-7-4-6-6-5-3	27	0-3-5-4-5-5-5-4

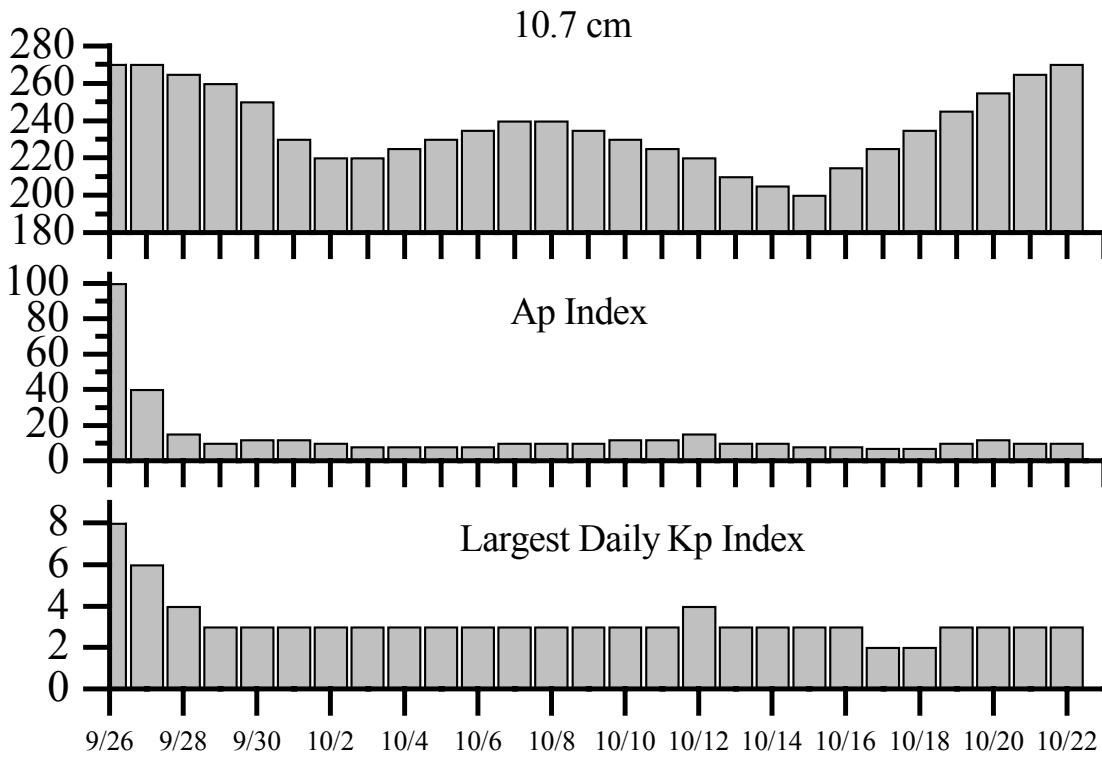


*Alerts and Warnings Issued*

<u>Date &amp; Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date &amp; Time of Event UT</u>
17 Sep 0018	4 – 245 MHz Radio Bursts	16 Sep
17 Sep 0920	Type II Radio Emission	17 Sep 0828
17 Sep 1058	10cm Radio Burst 460 F.U.	17 Sep 0819
17 Sep 1615	X-Ray event M8.1/1N/S31W73	17 Sep 1550
17 Sep 1631	10cm Radio Burst 380 F.U.	17 Sep 1549
17 Sep 1641	CANCELLED A $\geq$ 20 Watch	18 Sep
17 Sep 2144	Type II Radio Emission	17 Sep 2106
18 Sep 0018	10cm Radio Burst 230 F.U.	18 Sep 0006
18 Sep 0027	6 – 245 MHz Radio Bursts	17 Sep
18 Sep 0245	Sudden Impulse observed at Boulder	18 Sep 0203
18 Sep 2103	K = 4 Observed	18 Sep 1800 – 2100
19 Sep 0032	4 – 245 MHz Radio Bursts	18 Sep
19 Sep 0713	Type II Radio Emission	19 Sep 0700
20 Sep 0014	6 – 245 MHz Radio Bursts	19 Sep
20 Sep 0015	Type II Radio Emission	19 Sep 2351
20 Sep 0546	Type II Radio Emission	20 Sep 0507
20 Sep 2017	Type IV Radio Emission	20 Sep 1835
21 Sep 0030	3 – 245 MHz Radio Bursts	20 Sep
21 Sep 0030	245 MHz Noise Storm	20 Sep
22 Sep 0507	5 – 245 MHz Radio Bursts	21 Sep
22 Sep 0507	245 MHz Noise Storm	21 Sep
22 Sep 1147	K = 4 Warning	22 Sep 1150 – 1500
22 Sep 1151	Type II Radio Emission	22 Sep 0921
22 Sep 1203	K = 4 Observed	22 Sep 0900 – 1200
22 Sep 1455	EXTENDED K = 4 Warning	22 Sep 1150 – 2359
23 Sep 0015	5 – 245 MHz Radio Bursts	22 Sep
23 Sep 0015	245 MHz Noise Storm	22 Sep
23 Sep 0733	K = 4 Warning	23 Sep 0735 – 1500
23 Sep 0858	K = 4 Observed	23 Sep 0600 – 0900
23 Sep 1613	K = 4 Warning	23/1612 – 24 Sep 1500
23 Sep 1630	K = 5 Warning	23/1629 – 24 Sep 1500
23 Sep 1801	K = 5 Observed	23 Sep 1500 – 1800



### Twenty-seven Day Outlook



Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index
26 Sep	270	100	8	10 Oct	230	12	3
27	270	40	6	11	225	12	3
28	265	15	4	12	220	15	4
29	260	10	3	13	210	10	3
30	250	12	3	14	205	10	3
01 Oct	230	12	3	15	200	8	3
02	220	10	3	16	215	8	3
03	220	8	3	17	225	7	2
04	225	8	3	18	235	7	2
05	230	8	3	19	245	10	3
06	235	8	3	20	255	12	3
07	240	10	3	21	265	10	3
08	240	10	3	22	270	10	3
09	235	10	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
17 Sep	0818	0825	0834	M1.5	.010	2N	S14E04	9616	910	460	3	
17 Sep	1544	1550	1554	M8.1	.023	1N	S32W73	9608	380			
17 Sep	2101	2108	2111	M1.0	.004	1N	S11W06	9616	1200	110	2	
17 Sep	2132	2146	2155	M1.0	.011	2N	S31W73	9608				
18 Sep	0002	0008	0015	M1.4	.007	SF	S32W78	9608	38	230		
18 Sep	1531	1538	1543	M1.3	.007	1F	N15E49	9620	480	99		
18 Sep	1549	1552	1554	M1.0	.003					32		
18 Sep	1702	1707	1709	M1.4	.003	SF	S18E85	9628	95			
20 Sep	1812	1817	1821	M1.5	.005	SN	N09W11	9631	100	98		
23 Sep	1131	1137	1143	M1.1	.005	SN	S18E40	9632				

### *Flare List*

Date	Time			X-ray Class.	Optical Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
17 September	0204	0207	0210	C3.9			
	0429	0502	0523	C4.9			
	0542	0546	0549	C4.4			
	0652	0652	0700	C3.6	SF	S30W73	9608
	0821	0824	0859	M1.5	2N	S14E04	9616
	0929	0931	0942	C7.0	SF	N15E65	9621
	1111	1116	1121	C3.7			
	1243	1253	1259	C3.6			
	1429	1439	1450	C3.3			
	1514	1516	1519		SF	S14E02	9616
	1539	1542	1548		SF	S13E04	9616
	1548	1549	1648	M8.1	1N	S32W73	9608
	1725	1726	1732		SF	S14E00	9616
	1906	1910	1917	C4.8			
	1938	1942	1946	C3.3			
	1939	1945	2004		SF	S14W02	9616
	1950	1958	2016	C3.3	1F	S31W73	9608
	2021	2021	2025		SF	S31W72	9608
	2035	2037	2043		SF	S14W03	9616
	2051	2102	2108		SF	S31W73	9608
2104	2105	2117	M1.0	1N	S11W06	9616	
2129	2138	2151	M1.0	2N	S31W73	9608	
18 September	0004	0005	0011	M1.4	SF	S32W78	9608
	0035	0038	0047		SF	S15W07	9616
	0135	0138	0142	C2.5			
	0148	0153	0159	C8.2			
	0210	0225	0235	C6.8			
	0354	0354	0359		SF	S30W04	
	0429	0439	0451	C7.5	SF	N14E55	9621



*Flare List- continued*

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
18 September	0613	0618	0623	C6.4			
	0625	0628	0631	C7.3			
	0744	0749	0757		SF	S15W10	9616
	1438	1441	1445	C6.9			
	1533	1536	1602	M1.3	1F	N15E49	9620
	1549	1552	1554	M1.0			
	1706	1706	1713	M1.4	SF	S18E85	9628
	1719	1723	1727	C6.4			
	1842	1845	1848	C3.7			
	1920	1925	1929	C4.1			
	1953	1957	2000	C5.6			
	2044	2048	2051	C4.9			
	19 September	0310	0311	0315		SF	S09W22
0352		0353	0356	C3.3	SF	S19E73	9628
0517		0519	0528		SF	S11W14	9616
0659		0721	0757	C7.2			
0810		0811	0819	C6.0	SF	N17E44	9621
1157		1157	1208		SF	N15E38	9621
1309		1311	1313		SF	S19E66	9628
1506		1607	1727	C6.7			
1540		1541	1544		SF	S14W29	9616
1641		1644	1650		SF	N12E32	9620
1847		1852	1859	C7.5	SF	S19E65	9628
2052		2054	2101		SF	N11E33	9620
2302		2317	2333		SF	N12E28	9620
2336		2340	0015		SF	N25E24	9626
20 September	0133	0133	0136		SF	S18E82	
	0224	0232	0236	C3.4			
	0506	0507	0522	C7.8	SF	S17E57	9628
	0958	1031	1053	C2.5			
	1150	1152	1155	C2.9	SF	S20E56	9628
	1254	1303	1317	C2.4			
	1438	1439	1502	C3.4	SF	N08W10	
	1550	1558	1604	C2.2			
	1815	1818	1830	M1.5	SN	N09W11	9631
	1850	1850	1857	C3.8	SF	S17E54	9628
	2210	2210	2217	C2.7	SF	N09W14	9631
	2218	2218	2222		SF	N08W14	9631
	2351	2356	0018		SF	N24E11	9626
21 September	0124	0127	0138	C2.5	SF	N10E14	9620
	0450	0454	0517	C4.1	SF	N10E12	9620
	0640	0641	0646	C3.1	SF	S19E63	9632
	0659	0703	0718	C7.7	SF	N07W21	9631



*Flare List- continued*

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
21 September	1127	1131	1230		SF	S20E43	9628
	1142	1146	1156		SF	N25E08	9626
	1217	1224	1230		SF	S19E62	9632
	1526	1531	1548		SF	N08W23	9631
	1644	1645	1650	C3.6	SF	S17E58	9632
	1943	1944	1951		SF	N08W27	9631
	1945	1949	2003		SF	N13W16	9622
	2010	2011	2028	C3.8	SF	N08W26	9631
	2024	2026	2032		SF	N17E15	9621
	2109	2110	2114		SF	S11W58	9616
	2129	2134	2204		SF	N13W17	9622
	2229	2230	2244		SF	N08W28	9631
	2325	2325	2333		SF	N13W18	9622
	22 September	0033	0037	0046	C3.1		
0444		0454	0509	C3.4			
0543		0546	0551	C4.9	SF	S09W65	9616
0641		0643	0649	C8.1	SF	S20E48	9632
0643		0645	0656		SF	N14W24	9622
0836		0837	0841		SF	N15E06	9621
0842		0844	0850		SF	S11W55	9616
0920		0924	0938		SF	N24W07	9626
0923		0924	0934		SF	N13W26	9622
1050		1054	1102	C3.9	SF	S18E46	9632
1214		1214	1224		SF	N08W37	9631
1222		1224	1229	C2.5	SF	S16E51	9632
1355		1356	1412		SF	S18E48	9632
1407		1408	1410		SF	S18E49	9632
1455		1457	1500		SF	S17E28	9628
1501		1507	1546	C5.0	SF	S17E51	9632
1554		1554	1600		SF	N13W27	9622
1706		1707	1713		SF	N01E18	9627
1717		1718	1723		SF	N13W33	9622
1808		1811	1817	C5.4	SF	S16E26	9628
1816		1825	1838		SF	S18E47	9632
1919		1921	1929		SF	S20E44	9632
2000		2008	2016		1F	S17E25	9628
2008		2012	2031		SF	N11W32	9622
2028		2030	2035		SF	S17E26	9628
2127		2127	2130		SF	S18E25	9628
22 September	2203	2205	2229	C3.7	SF	N12W32	9622
	2321	2321	2331		SF	S15E21	9628
23 September	0003	0006	0013		SF	S15E20	9628





**Flare List- continued**

Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn
	Begin	Max	End			Location Lat CMD	
23 September	0104	0107	0109	C4.4	SF	N14W36	9622
	0158	0159	0203		SF	N12W35	9622
	0250	0301	0313		SF	N13W31	9622
	0716	0718	0721		SF	N14W39	9622
	0959	0959	1012	C3.2	SF	S15E13	9628
	1126	1136	1157	M1.1	SN	S18E40	9632
	1359	1359	1405	C3.4	SF	S16E36	9632
	1418	1422	A1517	C6.5	SF	S16E36	9632
	1541	1542	1549	C2.5	SF	S21E20	9628
	1645	1648	1654	C2.0			
	1704	1705	1713		SF	S15E10	9628
	1838	1840	1845		SF	S21E19	9628
	2044	2047	2053		SF	N09W43	9622
	2208	2209	2225		SF	S21E18	9628
	2323	2325	2340	C3.3	SF	S16E30	9632
	2354	2354	2359		SF	S20E16	9628

**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 9608</i>																							
05 Sep	S24E70	112	0320	15	EAO	006	B			1		5											
06 Sep	S26E56	113	0720	22	FKI	018	BG					4											
07 Sep	S26E45	111	0850	24	FKI	035	BG					5											
08 Sep	S26E33	109	0940	26	FKC	047	BG	1	1			7											
09 Sep	S27E18	111	1050	27	FKC	060	BG	6	5			9				3							
10 Sep	S27E07	109	1110	26	FKC	052	BGD	5				7	2										
11 Sep	S27W07	110	1030	27	FKI	044	BGD	2				7											
12 Sep	S26W18	108	1000	30	FKC	048	BGD	1				6											
13 Sep	S25W33	109	0960	29	FKI	034	BG	1				7											
14 Sep	S28W44	107	1020	32	FKC	034	BG	2				5											
15 Sep	S28W54	104	0620	24	FKI	020	BG	1	1			3	1										
16 Sep	S29W64	101	0550	17	FKI	015	BG	5	1			8		1									
17 Sep	S30W75	099	0420	15	EKI	010	BG	2	2			3	2	1									
18 Sep	S30W84	094	0180	05	HSX	001	A			1		1											
								26	12	0	77	5	5	0	0								

Crossed West Limb.

Absolute heliographic longitude: 109



**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 9610</i>																								
06 Sep	S10E71	098	0070	02	HAX	001	A	1				5												
07 Sep	S13E60	096	0280	13	EKO	011	B	1				2												
08 Sep	S14E48	094	0330	13	EAO	014	B																	
09 Sep	S14E34	095	0410	12	EAO	026	B																	
10 Sep	S13E22	094	0540	12	EKI	028	B	1				4												
11 Sep	S14E08	095	0540	14	EKI	037	BG	1				7												
12 Sep	S13W05	095	0580	14	EKC	060	BG					1												
13 Sep	S13W18	094	0510	15	EAC	049	BG	3				4												
14 Sep	S14W31	094	0400	15	EAC	048	BG	1				2												
15 Sep	S13W46	096	0430	13	EKI	024	BG																	
16 Sep	S12W59	096	0240	11	EAO	014	B					1												
17 Sep	S12W75	099	0150	05	DAO	006	B																	
18 Sep	S12W91	101	0110	07	CAO	005	B																	
										8	0	0	26	0	0	0	0	0						

Crossed West Limb.

Absolute heliographic longitude: 95

<i>Region 9616</i>																							
11 Sep	S12E80	023	0040	02	HAX	001	A			1		1											
12 Sep	S11E69	021	0260	13	EAO	009	B																
13 Sep	S10E55	021	0320	19	FAO	016	BG	1				1											
14 Sep	S10E44	019	0360	16	FSO	021	BG	2	1			4											
15 Sep	S12E30	020	0320	16	FAI	026	BG	1	1			1	1										
16 Sep	S12E16	021	0280	17	FHI	029	BG	4				2	3										
17 Sep	S12E03	021	0270	17	FKI	025	BG			2		5	1	1									
18 Sep	S13W11	021	0230	17	FAI	031	BG					2											
19 Sep	S13W24	021	0190	18	FAI	020	BG					3											
20 Sep	S12W37	021	0180	19	FAO	018	BG																
21 Sep	S12W51	022	0120	18	FAO	011	BG					1											
22 Sep	S12W64	022	0160	19	FSO	009	BG	1				2											
23 Sep	S12W77	022	0130	20	FSO	005	B																
										9	5	0	22	5	1	0	0						

Still on Disk.

Absolute heliographic longitude: 21



**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 9617*

12 Sep	N10E71	019	0180	05	DAO	005	B												
13 Sep	N11E56	020	0120	05	CAO	006	B												
14 Sep	N11E43	020	0070	04	DAO	006	B												
15 Sep	N08E30	020	0060	05	DSO	007	B												
16 Sep	N13E17	020	0040	04	CSO	004	B												
17 Sep	N08E04	020	0020	06	CSO	004	B												
18 Sep	N08W10	020	0020	05	CRO	005	B												
19 Sep	N10W21	018	0020	12	BXO	011	B												
20 Sep	N10W34	018																	
21 Sep	N10W47	018																	
22 Sep	N10W60	018																	
23 Sep	N10W73	018																	

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 20

*Region 9618*

13 Sep	S21W26	102	0030	08	DSO	006	B												
14 Sep	S22W40	103	0030	07	DSO	007	B												
15 Sep	S20W53	103	0060	05	DRO	006	B												
16 Sep	S21W68	105	0020	09	BXO	004	B												
17 Sep	S21W81	105																	

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 102

*Region 9619*

13 Sep	N17E21	055	0020	04	BXO	004	B												
14 Sep	N16E08	055	0020	05	CAO	006	B												
15 Sep	N16W06	056	0040	07	DSO	008	B												
16 Sep	N17W18	055	0030	08	CSO	007	B	1			4								
17 Sep	N15W29	053	0020	06	CSO	002	B												
18 Sep	N16W42	052	0020	05	CSO	004	B												
19 Sep	N16W55	052	0030	07	DSO	005	B												
20 Sep	N17W67	051	0020	02	BXO	003	B												
21 Sep	N17W80	051																	

1 0 0 4 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 56



**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

*Region 9620*

16 Sep	N12E70	327	0130	02	HSX 003	A	1			1							
17 Sep	N13E57	327	0180	03	HAX 002	A											
18 Sep	N12E44	326	0200	03	HAX 003	B		1				1					
19 Sep	N12E30	327	0210	05	CAO 006	B						3					
20 Sep	N12E17	327	0210	05	DAO 009	BG											
21 Sep	N11E04	327	0140	06	DKO 010	B	2					2					
22 Sep	N12W10	328	0110	04	DAO 006	B											
23 Sep	N12W23	328	0100	04	CAO 005	B											
							3	1	0	6	1	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 327

*Region 9621*

16 Sep	N16E76	321	0120	02	HSX 001	A											
17 Sep	N16E62	322	0130	03	CAO 003	B	1				1						
18 Sep	N14E49	321	0190	03	HSX 007	A	1				1						
19 Sep	N14E36	321	0200	07	DAO 008	B	1				2						
20 Sep	N15E22	322	0180	10	DAO 010	B											
21 Sep	N14E07	324	0150	04	DAO 006	B						1					
22 Sep	N15W04	322	0180	06	CAO 009	B						1					
23 Sep	N14W18	323	0220	05	CKO 009	B											
							3	0	0	6	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 322

*Region 9622*

17 Sep	N12E34	350	0040	07	DSO 005	B											
18 Sep	N12E20	350	0020	05	DSO 004	B											
19 Sep	N13E08	349	0030	05	CSO 005	B											
20 Sep	N13W05	349	0060	05	DAO 014	B											
21 Sep	N12W18	349	0080	06	DAO 017	B						3					
22 Sep	N12W32	350	0300	09	DKI 027	B	1				6						
23 Sep	N13W45	350	0330	10	DKI 023	BG	1				5						
							2	0	0	14	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 349



**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 9623*

17 Sep	N21E46	338	0020	01	HSX	001	A											
18 Sep	N21E32	338	0010	01	HSX	001	A											
19 Sep	N22E18	339	0000	01	AXX	001	A											
20 Sep	N21E04	340	0000	01	AXX	001	A											
21 Sep	N21W09	340																
22 Sep	N21W22	340																
23 Sep	N21W35	340																
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 340

*Region 9624*

17 Sep	N03E70	314	0040	02	HSX	001	A											
18 Sep	N04E56	314	0100	02	HSX	001	A											
19 Sep	N03E42	315	0120	03	HSX	001	A											
20 Sep	N03E29	316	0100	02	HSX	001	A											
21 Sep	N03E14	317	0090	02	HSX	002	A											
22 Sep	N02E00	318	0100	02	HSX	001	A											
23 Sep	N02W13	318	0110	02	HSX	001	A											
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 318

*Region 9625*

18 Sep	S30W12	022	0030	04	CSO	005	B											
19 Sep	S30W24	021	0020	05	CRO	004	B											
20 Sep	S28W36	020	0010	02	BXO	002	B											
21 Sep	S30W51	022	0000	00	AXX	001	A											
22 Sep	S30W64	022																
23 Sep	S30W77	022																
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 22



**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 9626*

18 Sep	N25E47	323	0010	01	HSX	001	A										
19 Sep	N26E25	332	0030	04	CRO	006	B										1
20 Sep	N26E14	330	0040	05	BXO	007	B										1
21 Sep	N25W01	332	0030	04	CSO	007	B										1
22 Sep	N25W14	332	0010	04	BXO	004	B										1
23 Sep	N25W27	332															
																	0 0 0 4 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 332

*Region 9627*

18 Sep	N05E73	297	0060	02	HAX	001	A										
19 Sep	N04E58	299	0050	02	HAX	002	A										
20 Sep	N04E43	300	0040	02	CSO	003	B										
21 Sep	N03E30	301	0050	02	CAO	003	B										
22 Sep	N02E17	301	0050	03	CSO	005	B										1
23 Sep	N01E03	302	0050	04	DSO	006	B										
																	0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 302

*Region 9628*

18 Sep	S17E79	291	0160	07	DAO	006	B		1		1						
19 Sep	S18E64	293	0410	15	FKC	016	B	2									3
20 Sep	S18E51	293	0800	17	FKC	033	BG	3									3
21 Sep	S18E38	293	0790	16	FKC	044	BG										1
22 Sep	S17E25	293	0630	17	FAC	058	BG	1				5	1				
23 Sep	S18E12	293	0720	19	FAC	058	BGD	2				7					
								8	1	0	20	1	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 293

*Region 9629*

19 Sep	N26E38	319	0070	07	CAO	009	B										
20 Sep	N26E23	321	0060	04	DSO	007	B										
21 Sep	N26E11	320	0050	06	DAO	009	B										
22 Sep	N26W02	320	0040	06	DSO	010	B										
23 Sep	N25W15	320	0040	06	DAO	008	B										
																	0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 320



**Region Summary - continued.**

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

*Region 9630*

20 Sep	N27W36	020	0010	03	CSO	003	B											
21 Sep	N27W49	020																
22 Sep	N27W62	020																
23 Sep	N27W75	020																
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 20

*Region 9631*

20 Sep	N08W15	359	0060	04	DAO	009	B	1	1		3							
21 Sep	N09W24	355	0120	07	DAC	015	B	2			5							
22 Sep	N08W43	001	0050	06	DAO	009	B				1							
23 Sep	N07W57	002	0010	06	BXO	005	B											
								3	1	0	9	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 359

*Region 9632*

20 Sep	S18E76	268	0390	12	EKO	006	B											
21 Sep	S17E56	275	0640	09	DKI	013	B	2			3							
22 Sep	S18E45	273	0710	09	DKO	020	BG	4			8							
23 Sep	S18E32	273	0780	08	DKI	017	BGD	3	1		4							
								9	1	0	15	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 273

*Region 9633*

22 Sep	N23E75	243	0090	03	HSX	001	A											
23 Sep	N23E62	243	0090	02	HSX	001	A											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 243

*Region 9634*

22 Sep	N12E76	242	0090	04	DAO	004	B											
23 Sep	N12E68	237	0230	16	FAO	004	B											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 237



***Region Summary - continued.***

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

*Region 9635*

23 Sep N22E13    292   0010    03 BXO   003    B  
0   0   0   0   0   0   0   0

Still on Disk.

Absolute heliographic longitude: 292



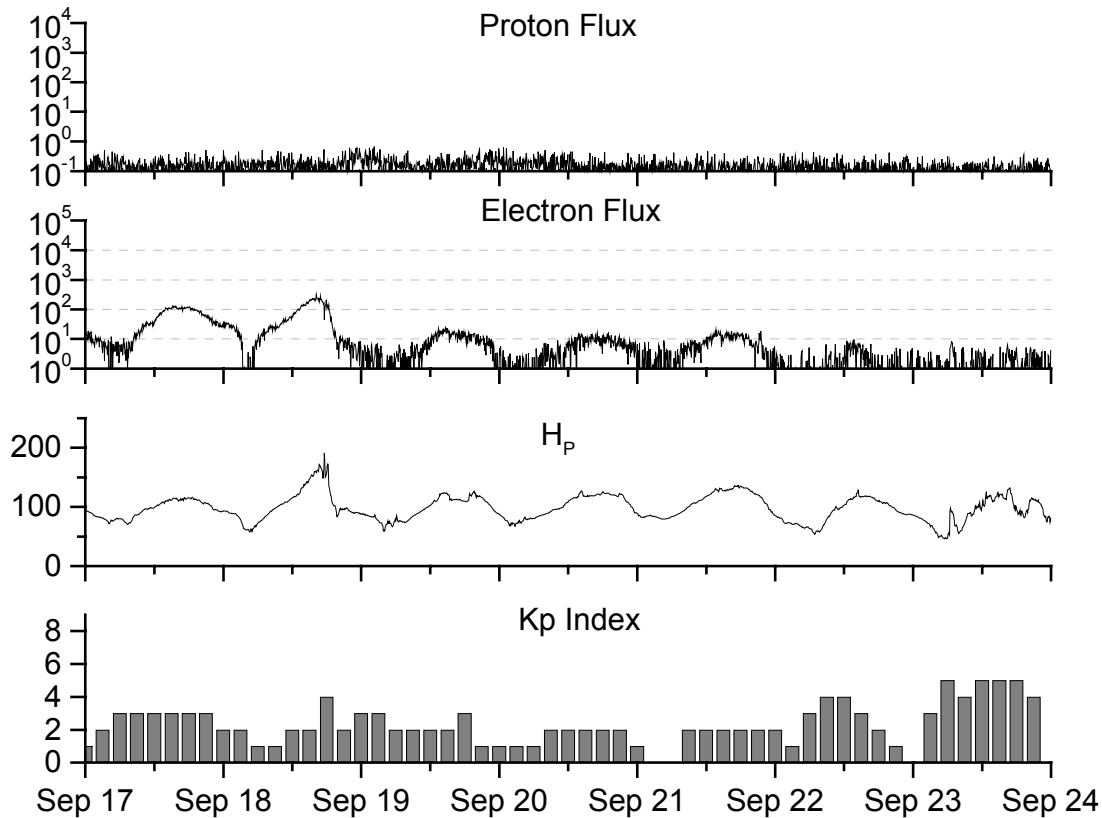


**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

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>									
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	110.0	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			177.7		17	
April	163.6	108.2	0.66			178.3		18	
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	

**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 17 September 2001*

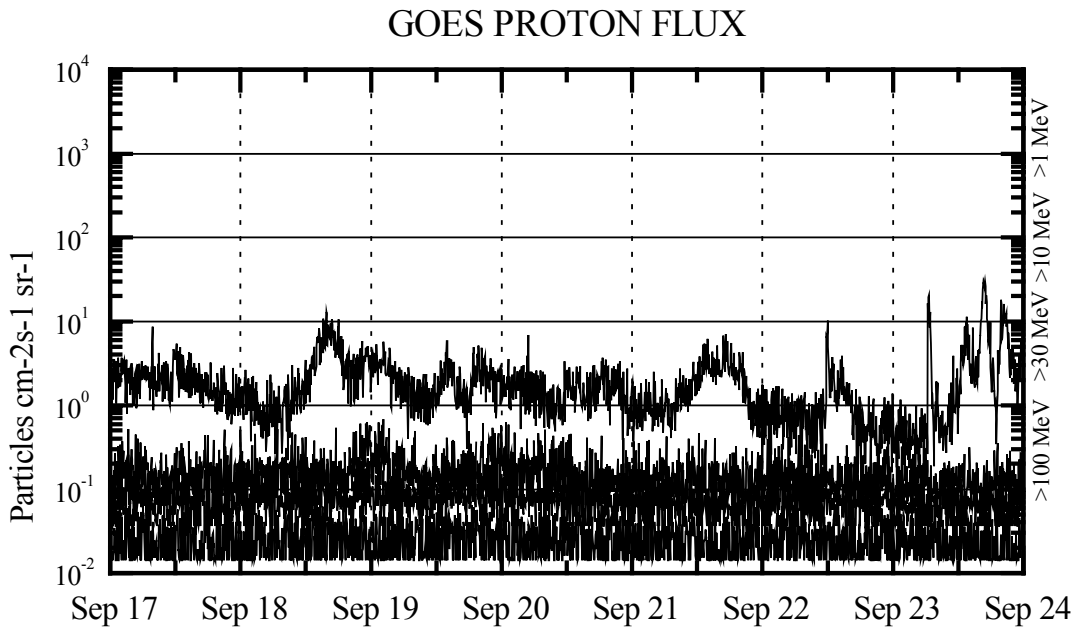
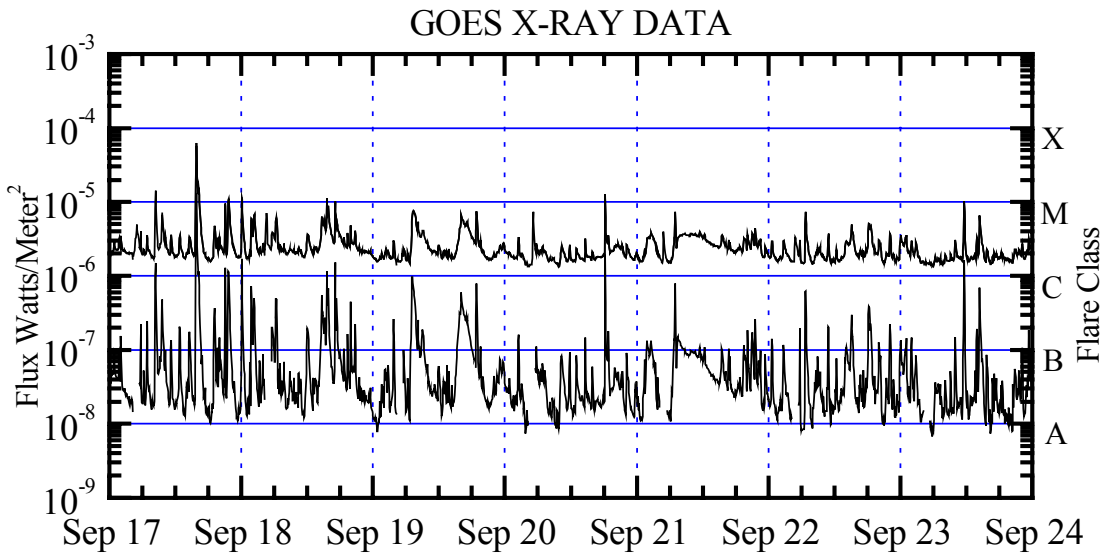
*Protons* plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec-sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

*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>p</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.

