

**Space Weather Highlights**  
**27 August - 02 September 2001**

**SWO PRF 1356**  
**04 September 2001**

Solar activity was at moderate levels during most of the period. Region 9591 (S19, L = 295, class/area Fki/740 on 25 August) produced isolated C- and M-class flares (for flare times and magnitudes, please refer to the Energetic Events listing). Region 9591 was large and magnetically complex with magnetic delta structures observed within its interior and trailer spots as the period began. The interior delta dissipated during 27 August as the region began to gradually decay, but the trailer delta persisted through the rest of the period. Region 9599 (S18, L = 238, class/area Dai/220 on 30 August) produced an isolated low-level M-class flare on 30 August during a relatively brief period of growth, which included the formation of a weak delta magnetic structure within its interior spots. The delta structure dissipated on 31 August as Region 9599 began to gradually decay. Region 9601 (N14, L = 213, class/area Fai/760 on 31 August) also produced isolated C- and M-class flares (Note: Regions 9600 and 9601 were combined on 30 August and designated as Region 9601). Region 9601 was large with a moderate degree of magnetic complexity through most of the period. It entered a brief growth phase on 01 September and developed a delta magnetic structure in its trailer spots. Region 9601 lost its delta structure on the following day as it began to gradually decay.

Solar Wind data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. A coronal mass ejection (CME) passed the spacecraft at approximately 27/1920 UTC and was likely associated with the X5/3b flare observed on 25 August. The passage was accompanied by abrupt increases in temperature, density, and velocity (peak to around 600 km/sec late on 25 August). IMF Bz turned mostly northward following the shock. Another possible transient signature was observed on 30 August, characterized by abrupt, but relatively minor increases in temperature, total IMF field intensity, density, and velocity (peaks to 520 km/sec). A possible high-speed stream began late on 02 September and was in progress as the period ended.

There were no proton events detected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels through 30 August, then decreased to normal levels for the rest of the period.

The geomagnetic field was disturbed on 27 August following a sudden impulse at 27/1952 UTC (37 nT, as measured by the Boulder USGS magnetometer). Active periods occurred during this disturbance. A few active periods also occurred during 30 - 31 August, possibly due to a CME passage. Quiet to unsettled levels prevailed during the remainder of the period.

**Space Weather Outlook**  
**05 September – 01 October 2001**

Solar activity is expected to be at low to moderate levels. Isolated M-class flares are possible. There will be a chance for a major flare until Region 9601 departs the west limb on 10 September.

There will be a chance for a solar proton event from Region 9601 until it departs the west limb.

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

Active geomagnetic field conditions will be possible around 18 and 30 September due to coronal hole effects. Otherwise, quiet to unsettled levels are expected.



### 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
27 August	192	182	1670	C1.4	11	1	0	16	0	0	0	0
28 August	199	189	1540	C2.5	16	3	0	24	1	0	0	0
29 August	197	136	1710	C1.4	11	2	0	8	5	1	0	0
30 August	199	138	1740	C1.2	9	2	0	11	1	1	0	0
31 August	189	142	1680	B8.7	4	2	0	6	2	1	0	0
01 September	184	153	1480	B7.5	5	0	0	4	0	0	0	0
02 September	183	141	1360	B7.4	11	3	0	12	1	1	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
27 August	4.3E+6	5.8E+4	2.2E+3	3.7E+6		
28 August	1.7E+7	3.3E+4	1.9E+3	1.5E+6		
29 August	4.1E+6	2.0E+4	1.7E+3	5.0E+6		
30 August	1.4E+6	1.6E+4	1.8E+3	4.0E+6		
31 August	2.9E+5	1.1E+4	1.8E+3	7.8E+5		
01 September	1.5E+5	1.1E+4	1.9E+3	1.3E+6		
02 September	2.0E+5	1.1E+4	1.8E+3	2.9E+6		

### Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	27 August	14	2-4-1-1-2-3-4-4	*	2-5-1-3-4-*-*-*	12
28 August	6	3-2-2-1-1-1-2-1	16	4-3-3-3-5-1-1-0	15	4-3-3-3-3-4-3-2
29 August	5	1-2-3-2-1-1-1-0	16	2-2-2-5-5-1-1-1	9	2-2-3-3-2-3-2-2
30 August	8	1-2-2-2-2-3-2-2	*	1-1-4-*-*-*-*-1	13	2-2-3-3-3-4-3-2
31 August	11	3-3-2-3-2-3-1-2	22	1-2-4-6-5-2-1-1	16	3-3-4-4-3-4-3-3
01 September	4	2-2-2-1-1-1-0-0	5	2-2-1-3-1-1-0-0	8	2-1-2-2-3-3-3-2
02 September	2	0-0-0-1-2-1-1-1	5	0-0-0-2-2-3-1-2	7	1-0-0-2-3-3-3-3

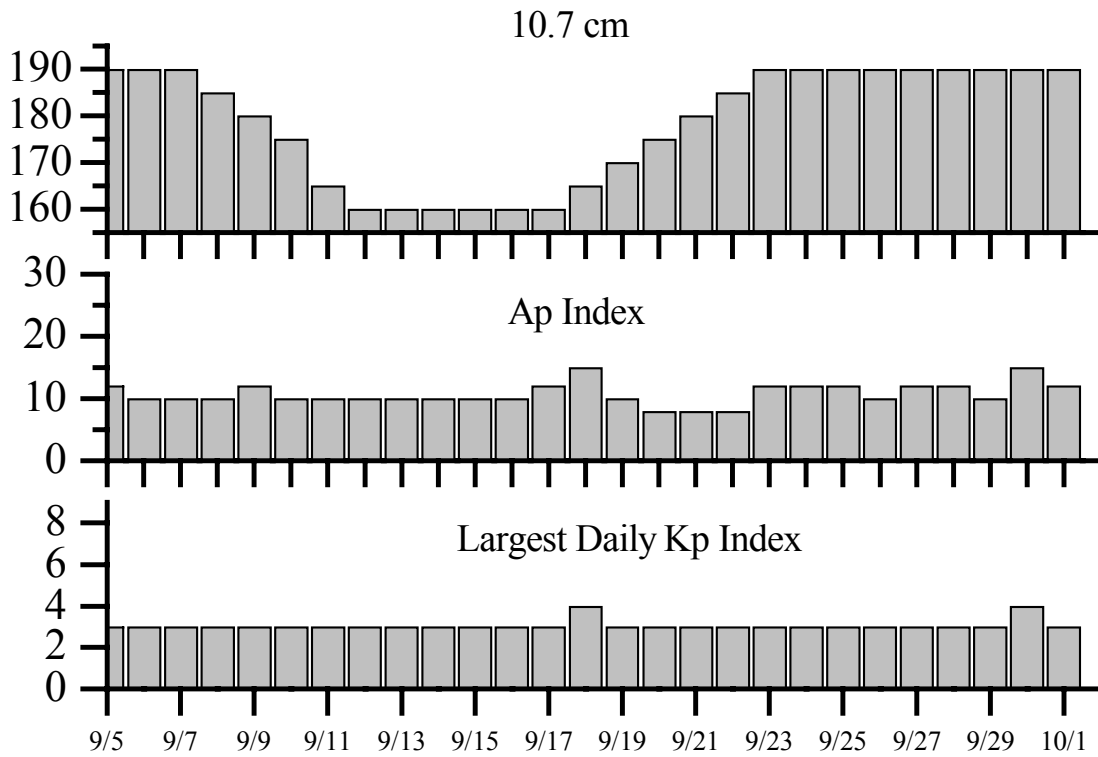


### *Alerts and Warnings Issued*

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
27 Aug 0000	K = 4 Observed	26 Aug 2100 – 0000
27 Aug 1933	K = 4 Warning	27/1935 – 28 Aug 2100
27 Aug 2013	Sudden Impulse observed at Boulder	27 Aug 1952
27 Aug 2104	K = 4 Observed	27 Aug 1800 – 2100
28 Aug 1630	Type II Radio Emission	28 Aug 1602
28 Aug 1650	CANCELLED K = 4 Warning	27/1935 – 28 Aug 2100
28 Aug 1750	Type IV Radio Emission	28 Aug 1620
29 Aug 0009	2 – 245 MHz Radio Bursts	28 Aug
30 Aug 0156	Type II Radio Emission	30 Aug 0140
30 Aug 1434	Sudden Impulse observed at Boulder	30 Aug 1413
30 Aug 1501	K = 4 Observed	30 Aug 1200 – 1500
30 Aug 1802	K = 4 Observed	30 Aug 1500 – 1800
30 Aug 2126	Type II Radio Emission	30 Aug 2035
31 Aug 0031	6 – 245 MHz Radio Bursts	30 Aug
31 Aug 1201	K = 4 Observed	31 Aug 0900 – 1200
31 Aug 1259	10cm Radio Burst 270 F.U.	31 Aug 1035
31 Aug 1352	Type II Radio Emission	31 Aug 1040
31 Aug 1802	K = 4 Observed	31 Aug 1500 – 1800
31 Aug 2255	Type II Radio Emission	31 Aug 2243
31 Aug 2256	10cm Radio Burst 540 F.U.	31 Aug 2240
01 Sep 0007	7 – 245 MHz Radio Bursts	31 Aug
01 Sep 0052	K = 4 Warning	01 Sep 0055 – 2359
01 Sep 1501	K = 4 Observed	01 Sep 1200 – 1500
01 Sep 2146	EXTENDED K = 4 Warning	01/0055 – 02 Sep 2359
02 Sep 0028	9 – 245 MHz Radio Bursts	01 Sep
02 Sep 0028	245 MHz Noise Storm	01 Sep
02 Sep 2335	EXTENDED K = 4 Warning	01/0055 – 03 Sep 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
05 Sep	190	12	3	19 Sep	170	10	3
06	190	10	3	20	175	8	3
07	190	10	3	21	180	8	3
08	185	10	3	22	185	8	3
09	180	12	3	23	190	12	3
10	175	10	3	24	190	12	3
11	165	10	3	25	190	12	3
12	160	10	3	26	190	10	3
13	160	10	3	27	190	12	3
14	160	10	3	28	190	12	3
15	160	10	3	29	190	10	3
16	160	10	3	30	190	15	4
17	160	12	3	01 Oct	190	12	3
18	165	15	4				



### *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
27 Aug	0631	0638	0656	M1.9	.020			9601				
28 Aug	0002	0012	0023	M1.0	.010	1N	S13E06	9591	150	99		
28 Aug	0743	0840	0853	M1.2	.028	SF	N12E80	9601				
28 Aug	1556	1611	1626	M1.1	.018	SF	N15E65	9600	89	41	3	1
29 Aug	0503	0523	0534	M1.6	.017	1F	N16E64	9600		21		
29 Aug	1242	1253	1307	M1.2	.015	1F	N18E65	9600		26		
30 Aug	1745	1757	1811	M1.5	.017	2N	S21W28	9591		37		
30 Aug	2034	2038	2041	M3.0	.008	1N	N15E44	9601	270000	1000	3	
31 Aug	1035	1042	1045	M1.6	.006	SN	N15E37	9601	5400	270	2	
31 Aug	2227	2242	2245	M2.9	.009	2N	N14E25	9601	120	540	2	
02 Sep	0554	0602	0612	M1.3	.009	1F	S17W66	9591				
02 Sep	0616	0624	0635	M1.1	.012	SF	N16E18	9601	82			
02 Sep	1341	1348	1354	M3.0	.013	2N	S21W65	9591		140		

### *Flare List*

Date	Time			X-ray Class.	Optical Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
27 August	0009	U0014	0116	C4.1	SF	S17E19	9591
	0403	0404	0406	C3.0	SF	S17E18	9591
	0535	0542	0550	C3.2	SF	S19E12	9591
	0631	0638	0656	M1.9			9601
	1026	1030	1038	C2.0			
	1141	1141	1152		SF	S15E14	9591
	1247	1250	1253		SF	N11W63	9585
	1341	1347	1402	C4.6	SF	S17E07	9591
	1402	1404	1411		SF	S23W07	9590
	1413	1417	1423	C3.3	SF	S19E14	9591
	1430	1433	1436	C2.1			9591
	1528	1534	1555	C3.9	SF	S19E14	9591
	1653	1653	1659		SF	S20E11	9591
	1737	1737	1740	C5.0	SF	S18E05	9591
	1845	1845	1851		SF	S18E63	9599
	1936	1936	1947		SF	S22E10	9591
	2016	2017	2019		SF	N13W84	9585
	2127	2131	2136	C2.2			
	2238	2243	2325	C6.6	SN	S21E08	9591
	2355	2356	2359		SF	S12W74	9587
28 August	0002	U0014	0042	M1.0	1N	S13E06	9591
	0201	0201	0205	C6.1	SF	N16E78	9600
	0331	0333	0336	C4.0	SF	S10W81	9587
	0651	0657	A0714	C4.2	SF	N13E76	9600
	0840	0840	0842	M1.2	SF	N12E80	9601
	0923	0929	0938	C9.0			
	1008	1014	1040	C6.3	SF	S20E02	9591



*Flare List- continued*

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
28 August	1041	1044	1053		SF	S20E02	9591
	1147	1147	1152	C5.1	SF	N15E78	9600
	1224	1225	1235	C5.5	SF	S12W88	9587
	1337	1338	1351	C9.4	SF	S13W85	9587
	1434	1438	1443	C4.4			
	1458	1458	1503		SF	N10E79	9601
	1535	1538	1553	C5.7	SF	N16E66	9600
	1536	1536	1540		SF	N13E69	9601
	1540	1541	1545		SF	N13E66	9601
	1544	1612	1657		SN	N14E69	9600
	1548	1551	1553		SF	N13E66	9601
	1558	1609	A1645	M1.1	SF	N15E65	9600
	1601	1609	1614		SF	N13E68	9601
	1650	1653	1658		SF	N10E76	9601
	1755	1802	1806	C2.2			
	1828	1832	1838	C2.4	SF	N10E76	9601
	1922	1932	1954		SF	N10E70	9601
	1927	1927	1933	C6.1	SF	N16E78	9600
	2003	2005	2029	C6.5	SF	N15E66	9600
	2023	2024	2028		SF	N11E71	9601
	2102	2103	2110	C2.6	SF	N12E74	9601
	2230	2236	2247	C2.5			
	29 August	0221	0231	0238	C3.1		
0507		U0519	A0552		2F	N12E69	9601
0508		U0520	A0551	M1.6	1F	N16E64	9600
0550		0550	0559		SF	N16E20	9597
0713		0719	0724	C6.7			
0908		0917	0931	C6.5			
1026		1027	1037		SF	N17E16	9597
1030		1035	1042		SF	S17W25	9591
1113		1114	1132	C6.2	1F	S16W18	9591
1244		1248	1317	M1.2	1F	N18E65	9600
1248		1248	1320		SF	N15E64	9601
1440		1440	1450	C7.4	SF	N16E66	9601
1658		1704	1708	C2.1			
1824		U1839	1929	C3.3	1F	N18E58	9600
2013		2017	2039		SN	N15E59	9601
2013		2017	2041	C9.6	1N	N16E56	9600
2056		2100	2112	C3.4	SF	S17E39	9599
2341		2342	2349	C1.3	SF	S21W18	9591
2355		0005	0027	C1.9			
30 August		0058	0059	0102	C3.3	SF	N12E59



*Flare List- continued*

Date	Time			X-ray Class.	Optical		Rgn	
	Begin	Max	End		Imp / Brtns	Location Lat CMD		
30 August	0136	0139	0150	C5.4	SF	N12E52	9601	
	0337	0342	0345	C2.0				
	0418	0419	0424	C1.5	SF	S19W27	9591	
	0506	0554	0620	C1.3				
	0644	0644	0648	C6.0	SF	S20W28	9591	
	0817	0828	0847	C2.3				
	1413	1429	1452	C1.8				
	1621	1622	1623		SF	N15E49	9600	
	1727	1734	1741	C3.7				
	1729	1750	1859	M1.5	2N	S21W28	9591	
	1751	1756	1838		SF	S18E26	9599	
	1900	1901	1909		SF	S18W28	9591	
	1922	1926	1927		SF	N16E43	9600	
	1927	1928	1932		SF	S29W53	9590	
	2022	2023	2026		SF	N17E45	9601	
	2032	2038	2106	M3.0	1N	N15E44	9601	
	2304	2312	2319		SF	S18E22	9599	
	31 August	0849	0856	0917		SF	S21W35	9591
		1038	1041	1047	M1.6	SN	N15E37	9601
		1127	1140	1208	C4.8	1F	N17E31	9601
1136		1137	1143		SF	S15E18	9599	
1448		1451	1458		SF	N19E33	9601	
1507		1508	1522	C1.7	SF	N13E30	9601	
1529		1531	1552	C2.0	SF	N13E29	9601	
2122		2126	2156	C8.6	1N	N16E37	9601	
2228		2243	0018	M2.9	2N	N14E25	9601	
01 September		0831	0833	0838	C1.9	SF	N13E30	9601
	1255	1255	1306	C1.6	SF	N17E27	9601	
	1336	1336	1350	C1.5	SF	N16E26	9601	
	2048	2049	2054	C2.7	SF	S19W54	9591	
	2306	2320	2336	C4.5				
02 September	0308	0314	0318	C4.5				
	0405	0408	0411	C1.3				
	0420	0421	0424	C4.9	SF	N14E14	9601	
	0439	0439	0442		SF	N10E14	9601	
	0504	0505	0510	C2.7	SF	S17W65	9591	
	0542	0546	0550	C2.1				
	0554	0601	0614	M1.3	1F	S17W66	9591	
	0615	0617	0654	M1.1	SF	N16E18	9601	
	0912	0917	0921	C8.4				
	1144	1145	1147	C4.7	SF	S17W71	9591	
	1219	1220	1224		SF	N11E11	9601	
	1242	1242	1247		SF	S18W74	9591	



**Flare List- continued**

Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn
	Begin	Max	End			Location Lat CMD	
02 September	1250	1251	1254		SF	S18W74	9591
	1311	1315	1326	C3.3	SF	N16E10	9601
	1345	1346	1430	M3.0	2N	S21W65	9591
	1513	1517	1540	C3.6	SF	N12E11	9601
	1151	1152	1152		SF	S17W71	9591
	1641	1644	1647	C6.4	SF	S17W75	9591
	1902	1906	1915	C2.0			

**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
<i>Region 9580</i>													
14 Aug	N24E73	039	0090	02	HSX	001	A						
15 Aug	N25E61	038	0140	03	HAX	001	A						
16 Aug	N25E48	038	0080	02	HSX	001	A						
17 Aug	N24E35	037	0090	02	HAX	001	A						
18 Aug	N25E22	037	0100	02	HSX	001	A						
19 Aug	N26E09	037	0090	02	HAX	001	A						
20 Aug	N25W05	038	0100	03	HSX	001	A						
21 Aug	N25W17	037	0090	03	HSX	001	A						
22 Aug	N24W30	036	0090	02	HSX	001	A						
23 Aug	N24W43	036	0110	02	HSX	002	A						
24 Aug	N25W54	034	0090	06	CSO	002	B						
25 Aug	N24W68	035	0090	02	HSX	001	A						
26 Aug	N23W82	036	0080	02	HSX	001	A						
27 Aug	N23W94	035	0080	02	HSX	001	A						

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 038





**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 9582</i>															
15 Aug	N32E73	026	0040	03	CAO	003	B								
16 Aug	N32E59	027	0030	02	AXX	002	A								
17 Aug	N30E45	027	0020	03	BXO	003	B								
18 Aug	N28E33	026	0070	07	DAO	008	B	5			5				
19 Aug	N28E20	026	0110	08	DAO	011	B								
20 Aug	N28E05	028	0130	10	DSO	022	B	2			2	1			
21 Aug	N28W07	027	0130	10	DAO	025	B								
22 Aug	N27W20	026	0120	10	DSO	022	B				1				
23 Aug	N28W33	026	0050	09	CSO	014	B								
24 Aug	N27W48	028	0040	06	CSO	004	B								
25 Aug	N27W61	028													
26 Aug	N27W74	028													
27 Aug	N27W87	028													
								7	0	0	8	1	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 028

<i>Region 9584</i>															
16 Aug	S11E60	026	0020	06	BXO	002	B								
17 Aug	S13E47	025	0040	04	CAO	005	B								
18 Aug	S13E36	023	0040	06	DAO	006	B								
19 Aug	S12E20	026	0030	03	CAO	003	B								
20 Aug	S12E05	028	0010	01	HSX	002	A								
21 Aug	S12W08	028	0010	01	AXX	002	A								
22 Aug	S12W24	030	0000	01	AXX	001	A								
23 Aug	S12W37	030													
24 Aug	S12W50	030													
25 Aug	S12W63	030													
26 Aug	S12W76	030													
27 Aug	S12W89	030													
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 028



**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 9585</i>																							
16 Aug	N15E74	012	0030	03	BXO	002	B																
17 Aug	N15E63	009	0060	08	CSO	007	B														4		
18 Aug	N15E50	009	0230	09	DAI	018	BG	1													1		
19 Aug	N15E37	009	0270	09	DAI	022	BG																
20 Aug	N15E22	011	0250	10	DAO	022	B	1													3		
21 Aug	N15E11	009	0270	10	DAO	027	B	1													2		
22 Aug	N14W04	010	0290	12	EKO	035	B																
23 Aug	N14W16	009	0240	09	DAO	038	B																
24 Aug	N13W29	009	0180	11	EAO	025	B		1												1		
25 Aug	N13W44	011	0110	11	EAI	017	B																
26 Aug	N12W58	012	0050	05	DAO	007	B																
27 Aug	N13W71	012	0050	06	DSO	005	B														2		
28 Aug	N12W85	012	0030	02	CSO	002	B																
																						3 1 0 13 0 0 0 0	

Crossed West Limb.

Absolute heliographic longitude: 010

<i>Region 9587</i>																							
17 Aug	S11E56	016	0020	01	HRX	001	A																
18 Aug	S11E43	016	0020	01	HSX	001	A																
19 Aug	S11E28	018	0020	01	HSX	001	A																
20 Aug	S11E15	018	0010	01	HRX	001	A															1	
21 Aug	S10E02	018	0010	03	BXO	002	B																
22 Aug	S10W14	020	0000	01	AXX	001	A																
23 Aug	S10W27	020																					
24 Aug	S11W35	015	0010	01	AXX	002	A																
25 Aug	S10W50	017	0060	04	DSO	007	B	1														5	
26 Aug	S10W64	018	0210	07	DAO	012	B	1														1	
27 Aug	S09W78	019	0280	09	DAO	007	B															1	
28 Aug	S10W90	017	0100	08	DAO	006	B	3														3	
																							5 0 0 11 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 018



**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	4							
<i>Region 9590</i>																						
20 Aug	S28E80	313	0150	02	HSX	001	A															
21 Aug	S28E64	316	0210	04	HAX	001	A															
22 Aug	S28E50	316	0210	04	HAX	002	A															
23 Aug	S28E37	316	0190	03	HAX	004	A															
24 Aug	S28E25	315	0210	03	HSX	002	A													1		
25 Aug	S29E12	315	0180	03	HAX	003	A													1		
26 Aug	S29W02	316	0180	03	HAX	003	A															
27 Aug	S29W14	315	0160	03	HSX	004	A													1		
28 Aug	S26W31	318	0150	03	HSX	003	A															
29 Aug	S27W42	316	0150	03	HAX	002	A															
30 Aug	S30W56	316	0130	03	HAX	002	A													1		
31 Aug	S29W68	316	0150	04	HAX	002	A															
01 Sep	S29W80	315	0050	02	HAX	001	A															
02 Sep	S29W93	315																				
																					0 0 0 4 0 0 0 0	

Still on Disk.

Absolute heliographic longitude: 316

<i>Region 9591</i>																						
21 Aug	S18E71	309	0060	06	HAX	001	A															
22 Aug	S17E63	303	0280	16	FKO	008	B	7				8	1									
23 Aug	S17E53	300	0730	25	FKI	028	BGD	4				4	1									
24 Aug	S18E42	298	0650	26	FKI	032	BGD	3	3			6	1									
25 Aug	S19E32	295	0740	32	FKI	032	BGD	11	2	1	21			1								
26 Aug	S19E18	296	0740	28	FKI	043	BGD	6				14										
27 Aug	S18E06	295	0720	24	FKI	040	BGD	9				11										
28 Aug	S19W06	293	0620	26	FKI	041	BGD	1	1		2	1										
29 Aug	S18W22	296	0570	21	FKI	026	BGD	2				2										
30 Aug	S20W33	294	0490	15	FKI	025	BGD	2	1		3			1								
31 Aug	S20W39	287	0400	28	FKO	017	BGD					1										
01 Sep	S20W46	281	0370	29	FKO	019	BGD	1				1										
02 Sep	S18W65	286	0340	15	EKO	015	BGD	3	2		7	1	1									
								49	9	1	80	5	2	1	0							

Still on Disk.

Absolute heliographic longitude: 295



**Region Summary - continued.**

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

*Region 9593*

23 Aug	N00E01	352	0010	02	BXO	002	B
24 Aug	N00W12	352	0000	00	AXX	001	A
25 Aug	N00W25	352					
26 Aug	N00W38	352					
27 Aug	N00W51	352					
28 Aug	N00W64	352					

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 352

*Region 9594*

24 Aug	N37E05	335	0010	04	BXO	003	B
25 Aug	N37W10	337	0000	00	AXX	001	A
26 Aug	N37W23	337					
27 Aug	N37W36	337					
28 Aug	N37W49	337					
29 Aug	N37W62	337					
30 Aug	N37W75	337					
31 Aug	N37W88	337					

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 335

*Region 9595*

24 Aug	N16E27	313	0010	01	AXX	001	A
25 Aug	N16E14	313					
26 Aug	N16E01	313					
27 Aug	N16W12	313					
28 Aug	N15W31	318	0010	01	AXX	002	B
29 Aug	N15W44	318					
30 Aug	N15W57	318					
31 Aug	N17W70	318	0030	03	CRO	003	B
01 Sep	N17W83	318					

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 313



**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 9596*

25 Aug	N23E79	248	0120	02	HAX	001	A											
26 Aug	N22E67	247	0130	02	HSX	001	A											
27 Aug	N22E54	247	0170	02	HSX	002	A											
28 Aug	N22E40	247	0160	03	HAX	001	A											
29 Aug	N21E28	246	0190	06	CAO	002	B											
30 Aug	N22E14	247	0190	03	HSX	001	A											
31 Aug	N22E01	247	0150	03	HSX	001	A											
01 Sep	N21W12	247	0190	03	HSX	001	A											
02 Sep	N22W23	244	0160	03	HSX	001	A											

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 247

*Region 9597*

26 Aug	N17E48	266	0010	03	BXO	002	B											
27 Aug	N16E35	266	0050	04	DAO	008	B											
28 Aug	N17E22	265	0040	06	DAO	009	B											
29 Aug	N17E09	265	0020	06	BXO	009	B											
30 Aug	N19W02	263	0010	03	BXO	003	B											
31 Aug	N19W15	263																
01 Sep	N19W28	263																
02 Sep	N19W41	263																

0 0 0 2 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 263

*Region 9598*

27 Aug	S16W75	016	0030	01	AXX	001	A											
28 Aug	S17W88	025	0030	01	HAX	001	A											

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 016



**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 9599*

27 Aug	S18E65	236	0010	05	BXO	002	B					1					
28 Aug	S17E51	236	0080	06	DAO	003	B										
29 Aug	S19E36	238	0110	08	DAO	010	B	1				1					
30 Aug	S18E24	237	0220	10	DAI	019	BG		1			2					
31 Aug	S18E11	237	0190	10	DAO	014	B					1					
01 Sep	S18W03	238	0150	10	DAO	012	B										
02 Sep	S18W14	235	0100	09	DAO	007	B										
									1	1	0	5	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 238

*Region 9600*

27 Aug	N16E81	220	0060	04	HSX	001	A										
28 Aug	N16E68	219	0170	06	DAO	004	B	6	1			8					
29 Aug	N14E56	218	0280	13	EAO	009	BG	2	2			4					
								8	3	0	8	4	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 216

*Region 9601*

27 Aug	N10E85	216	0060	02	HAX	001	A			1							
28 Aug	N12E73	214	0150	08	DAO	007	B	2	1			11	1				
29 Aug	N09E58	216	0390	10	DAO	008	BG	1				3		1			
30 Aug	N14E49	216	0700	19	FKI	028	BGD	2	1			3	1				
31 Aug	N14E32	216	0760	19	FKC	045	BG	4	2			4	2	1			
01 Sep	N14E18	217	0710	19	FKI	058	BGD	3				3					
02 Sep	N14E08	213	0700	15	EKC	051	G	3	1			6					
								15	6	0	30	4	2	0	0		

Still on Disk.

Absolute heliographic longitude: 213

*Region 9602*

01 Sep	S08E30	205	0010	04	BXO	002	B										
02 Sep	S08E18	203	0020	04	BXO	006	B										
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 203



***Region Summary - continued.***

Date	Location		Sunspot Characteristics				Flares							
	( ° Lat ° CMD)	Helio Lon	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
							C	M	X	S	1	2	3	4

*Region 9603*

02 Sep	S08E64	157	0040	02	HSX	001	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 157



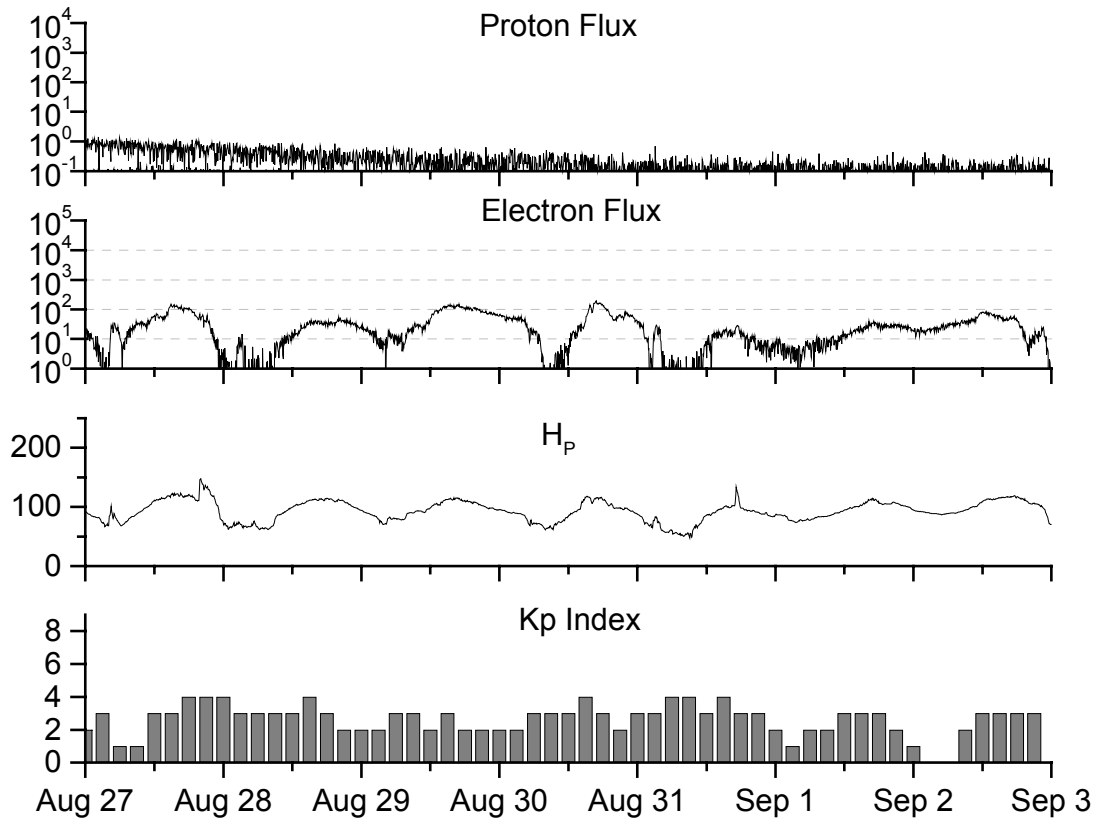
**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

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>									
August	136.1	93.7	0.69	142.8	97.5	170.8	156.3	15	12.9
September	107.4	71.5	0.67	150.0	102.3	135.7	161.0	19	12.8
October	167.7	116.7	0.70	158.5	107.8	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.0	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			147.3		06	
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	

**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 27 August 2001*

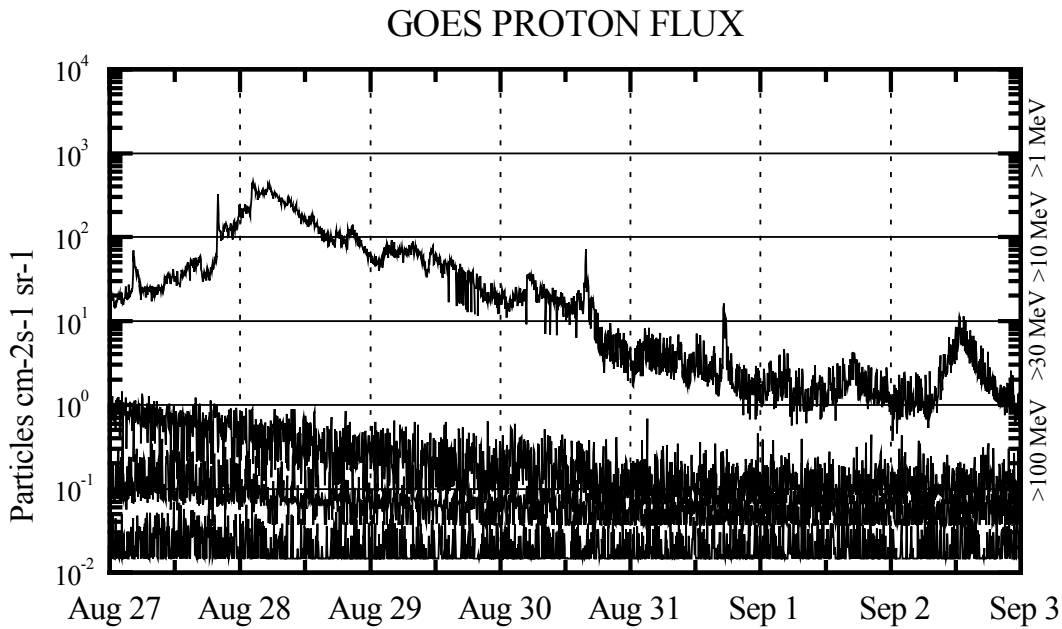
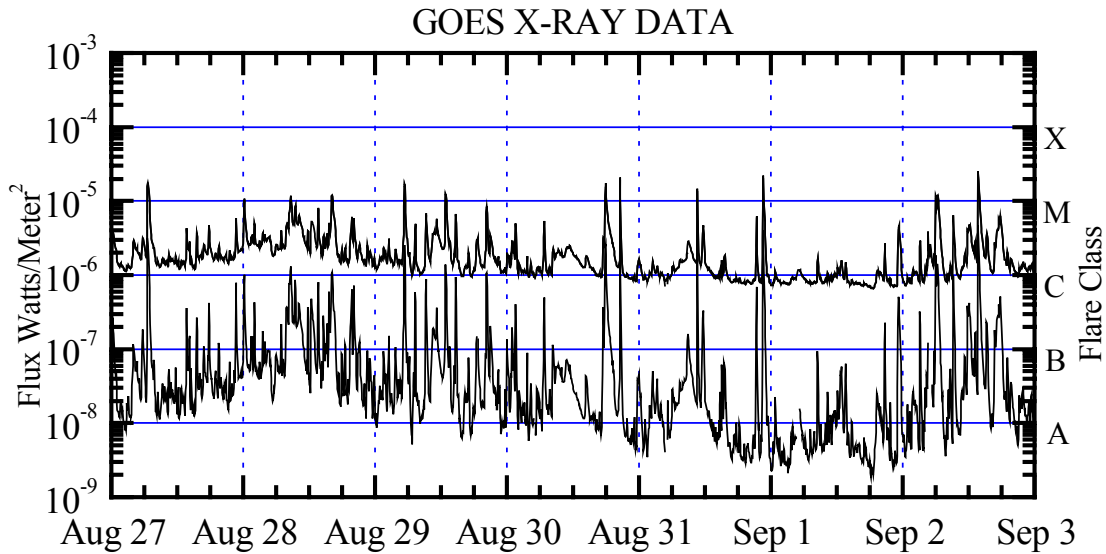
*Protons* plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

*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.



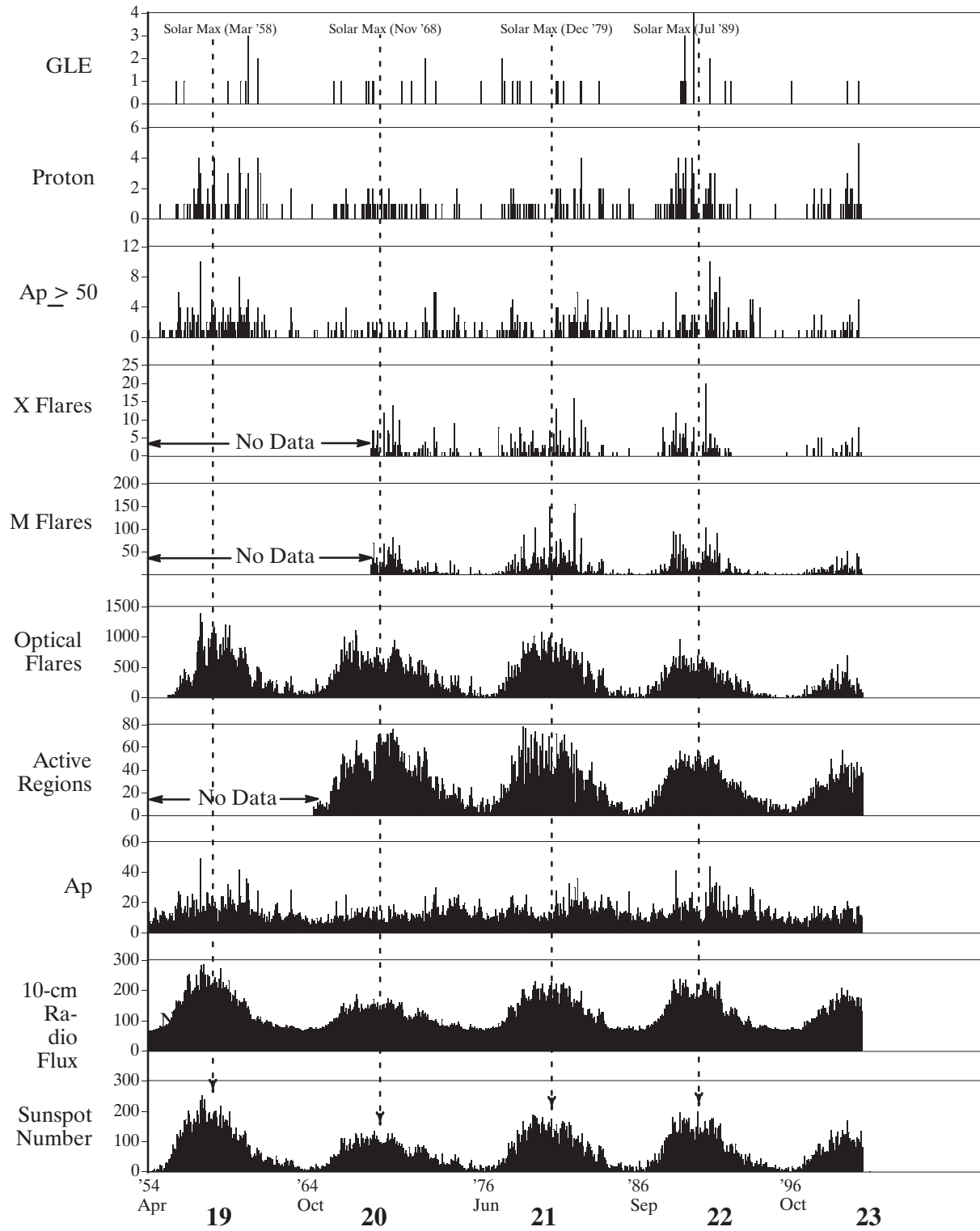


Space  
Environment  
Center

# Solar-Terrestrial Indices

## Monthly Values

July 2001 Month 58



Solar Cycle

N. Cohen