

Solar activity ranged from low to high. The period began with activity at low levels due to isolated C-class subflares, mostly from Region 9373 (S07, L = 329, class/area Fai/270 on 19 March), which was in a growth phase at the time. A faint full-halo CME was observed early on 19 March, associated with a filament disappearance near center disk. Activity increased to high levels on 20 March due to five low-level M-class flares from a few developing regions including 9373, 9384 (N11, L = 334, class/area Dao/120 on 16 March), and 9390 (N15, L = 185, class/area Fao/300 on 22 March)(please refer to the Energetic Events list for flare times). Activity decreased to moderate levels on 21 March with an isolated M1/Sn from Region 9373 as it approached the west limb. An increasing trend commenced on 22 March as Region 9393 (N20, L = 152, class/area Ekc/1100 on 26 March) began rotating into view. This very large (its dominant spot mass spans about five degrees), magnetically complex region may have been the source for an M1 X-ray flare at 22/0821 UTC associated with Types II and IV radio sweeps. This region showed significant growth during the last few days of the period and displayed increased potential for major flare activity. Region 9390 also produced an isolated M-class flare on 22 March while in a slow growth phase. Activity decreased to low levels on 23 March with occasional C-class subflares. Activity returned to moderate levels during 24 - 25 March with isolated, low-level M-class flares from developing Regions 9393, 9390, 9376 (S13, L = 301, class/area Cro/020 on 16 March), and 9401 (N22, L = 136, class/area Dao/150 on 25 March). A faint full-halo CME occurred late on 25 March, associated with a long-duration C9/1f parallel-ribbon flare from Region 9402 (N17, L = 175, class/area Bxo/010 on 25 March).

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. A CME signature was observed during 19 – 20 March beginning with a shock front passage at ACE at 19/1020 UTC. This CME's most notable characteristic was a strong, sustained southward turning of IMF Bz late on 19 March continuing through 20 March with maximum southerly deflections to minus 20 nT (GSM) detected at approximately 20/1400 UTC. A second CME shock front passed ACE at 22/1240 UTC. No significant disturbances were observed in the solar wind flow during the rest of the period.

No proton events were observed. However, a greater than 10 MeV proton flux enhancement at geosynchronous orbit began late on 25 March.

The greater than 2 MeV electron flux at geosynchronous orbit briefly reached high levels on 22 March, but was otherwise at normal to moderate levels.

A major geomagnetic storm occurred during 19 - 20 March due to a CME passage at Earth. Active to major storm levels occurred during this storm with isolated severe storm levels detected at high latitudes. Activity decreased to mostly quiet to unsettled levels on 21 March as storm effects subsided. Field activity was at mostly quiet levels on 22 March until a sudden commencement occurred at 22/1340 UTC (12 nT, Boulder USGS magnetometer) due to another CME passage. Unsettled to minor storm levels occurred during 22 - 23 March as a result of this passage. Quiet to unsettled conditions prevailed during 24 – 25 March.



Space Weather Outlook
28 March – 23 April 2001

Activity is expected to be at low to moderate levels during the period with isolated M-class flares likely. Region 9393 may produce major flare activity before it crosses the west limb on 05 April.

There will be an increased chance for a proton event until Region 9393 crosses the west limb on 05 April.

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 likely to be disturbed during 28 March due to an expected CME passage. Active to major storm periods will be possible during this disturbance. Quiet to unsettled conditions are expected during the rest of the period, barring another 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
19 March	147	85	420	B5.2	3	0	0	4	0	0	0	0
20 March	153	98	540	B8.2	5	5	0	7	1	0	0	0
21 March	159	136	940	B9.6	7	1	0	4	0	0	0	0
22 March	183	129	770	C1.6	4	3	0	3	0	0	0	0
23 March	180	145	1210	C1.6	7	0	0	11	0	0	0	0
24 March	219	204	1760	B9.4	8	3	0	28	1	1	0	0
25 March	217	276	1870	C2.6	5	2	0	13	2	1	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	>4Me
19 March	2.5E+5	1.1E+4	2.5E+3		2.2E+5	
20 March	7.7E+5	1.1E+4	2.3E+3		3.4E+6	
21 March	1.3E+5	1.0E+4	2.3E+3		1.4E+7	
22 March	1.6E+6	1.1E+4	2.4E+3		3.1E+7	
23 March	1.6E+5	1.0E+4	2.4E+3		4.2E+6	
24 March	1.0E+5	1.1E+4	2.4E+3		3.0E+6	
25 March	8.4E+4	1.1E+4	2.5E+3		3.4E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	19 March	19	2-2-1-2-4-4-5-4	46	0-2-3-3-6-7-6-4	22
20 March	27	4-4-4-5-4-4-3-3	105	4-5-7-7-7-8-6-4	66	5-5-6-6-7-6-4-3
21 March	7	3-3-3-1-1-1-1-1	*	2-1-3-*. *- *-0-1	19	4-3-3-1-2-2-2-2
22 March	9	1-1-1-0-3-4-2-3	8	1-1-0-0-2-4-3-2	10	1-0-1-1-3-4-2-3
23 March	17	2-4-3-4-3-3-3-3	31	2-3-4-5-5-6-3-2	21	3-4-4-4-3-4-3-3
24 March	6	1-3-2-1-2-2-2-0	25	2-3-5-5-5-4-2-0	13	1-3-4-3-3-3-3-2
25 March	5	0-2-2-2-2-1-1-1	7	0-1-3-4-2-0-1-0	8	1-2-3-3-2-2-3-2



Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
19 Mar 0008	2 – 245 MHz Radio Bursts	18 Mar
19 Mar 1309	Stratwrm Alert Exists Monday	
19 Mar 1338	K= 4 Warning	19/1340 – 20/0300 Mar
19 Mar 1453	K= 4 Observed	19 Mar 1200 – 1500
19 Mar 1650	K= 5 Warning	19/1650 – 20/0300 Mar
19 Mar 1803	K= 5 Observed	19 Mar 1500 – 1800
20 Mar 0023	2 – 245 MHz Radio Bursts	19 Mar
20 Mar 0226	EXTENDED K= 4 Warning	19/1340 – 20/1500 Mar
20 Mar 0253	Type II Radio Emission	20 Mar 0240
20 Mar 0300	A \geq 20 Observed	20 Mar 0300
20 Mar 0555	K= 5 Warning	20 Mar 0559 – 1500
20 Mar 0603	K= 5 Observed	20 Mar 0300 – 0600
20 Mar 0625	A \geq 30 Warning	20 Mar 0630 – 2100
20 Mar 0743	K \geq 6 Warning	20 Mar 0750 – 1500
20 Mar 0900	K= 6 Observed	20 Mar 0600 – 0900
20 Mar 0900	A \geq 30 Observed	20 Mar 0900
20 Mar 1322	A \geq 50 Warning	20/1340 – 21/0300 Mar
20 Mar 1425	EXTENDED K \geq 6 Warning	20/0750 – 21/0300 Mar
20 Mar 1500	A \geq 50 Observed	20 Mar 1500
20 Mar 2132	A \geq 20 Watch	22 Mar
21 Mar 0023	Type II Radio Emission	20 Mar 2108
21 Mar 0102	EXTENDED A \geq 30 Warning	20/0630 – 21/1500 Mar
21 Mar 0600	ENDED A \geq 50 Observed	20 Mar 1500
21 Mar 1200	ENDED A \geq 30 Observed	20 Mar 0900
21 Mar 1500	ENDED A \geq 20 Observed	20 Mar 0300
22 Mar 0051	2 – 245 MHz Radio Bursts	21 Mar
22 Mar 0051	245 MHz Noise Storm	21 Mar
22 Mar 0908	Type II Radio Emission	22 Mar 0822
22 Mar 0912	Type IV Radio Emission	22 Mar 0830
22 Mar 1404	Sudden Impulse observed at Boulder	22 Mar 1340
22 Mar 1412	Electron Event $>2\text{MeV}$ @ $\geq 1000\text{pfu}$	22 Mar 1355
22 Mar 1418	K= 4 Warning	22/1430 – 23/0000 Mar
22 Mar 1802	K= 5 Observed	22 Mar 1500 – 1800
23 Mar 0121	3 – 245 MHz Radio Bursts	22 Mar
23 Mar 0600	K= 4 Observed	23 Mar 0300 – 0600
23 Mar 0820	K= 4 Warning	23 Mar 0830 – 1500
23 Mar 0900	K= 4 Observed	23 Mar 0600 – 0900
23 Mar 0900	A \geq 20 Observed	23 Mar 0900
23 Mar 1451	EXTENDED K= 4 Warning	23/0830 – 24/0000 Mar
24 Mar 0009	245 MHz Radio Burst	23 Mar
24 Mar 0009	245 MHz Noise Storm	23 Mar
24 Mar 0213	Type II Radio Emission	24 Mar 0139
24 Mar 0258	ENDED A \geq 20 Observed	23 Mar 0900
24 Mar 0553	K= 4 Warning	24 Mar 0555 – 1500

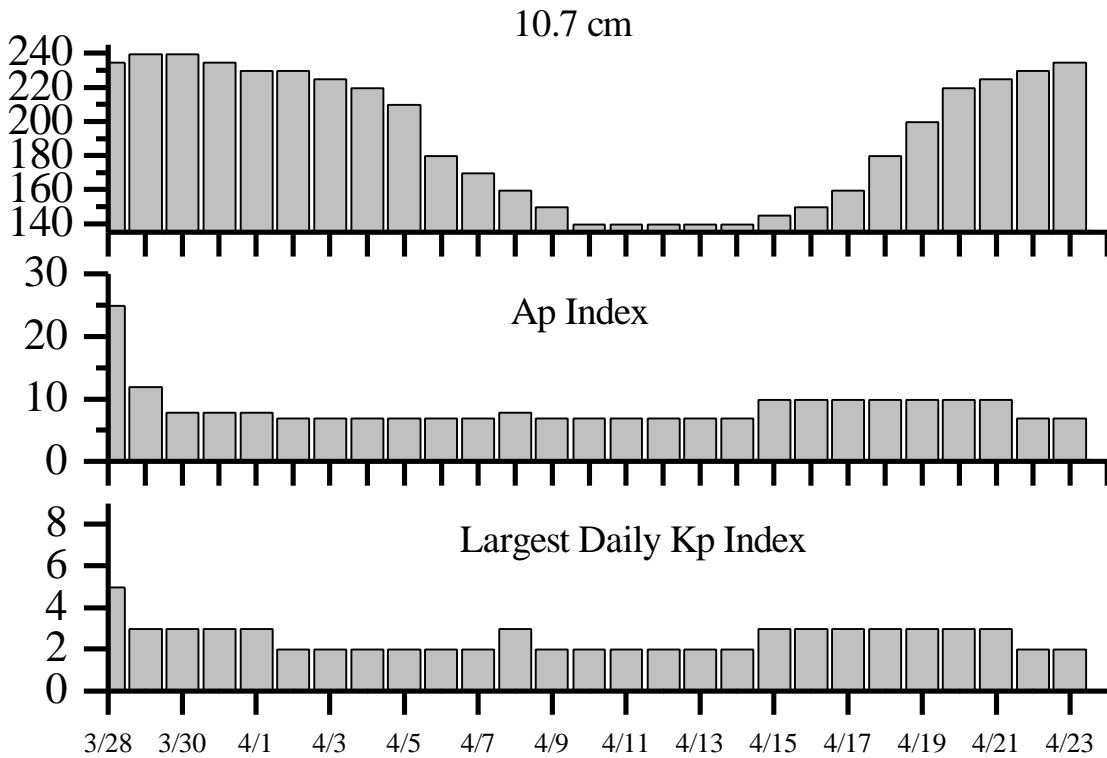


Alerts and Warnings Issued – continued.

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
24 Mar 0558	K= 4 Observed	24 Mar 0300 – 0600
25 Mar 0028	10 – 245 MHz Radio Bursts	24 Mar
25 Mar 0028	245 MHz Noise Storm	24 Mar
25 Mar 1204	K= 4 Observed	25 Mar 0900 – 1200
25 Mar 1206	K= 4 Warning	25 Mar 1215 – 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
28 Mar	235	25	5	11 Apr	140	7	2
29	240	12	3	12	140	7	2
30	240	8	3	13	140	7	2
31	235	8	3	14	140	7	2
01 Apr	230	8	3	15	145	10	3
02	230	7	2	16	150	10	3
03	225	7	2	17	160	10	3
04	220	7	2	18	180	10	3
05	210	7	2	19	200	10	3
06	180	7	2	20	220	10	3
07	170	7	2	21	225	10	3
08	160	8	3	22	230	7	2
09	150	7	2	23	235	7	2
10	140	7	2				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location		Radio Flux		Intensity	
							Lat	CMD	245	2695	II	IV
20 Mar	0206	0218	0225	M1.1	.006	SF	S05W54	9373				3
20 Mar	0320	0333	0337	M1.2	.005	SF	N07W70	9384	27			
20 Mar	1419	1424	1438	M1.1	.008	SF	N14E76	9390				
20 Mar	1457	1507	1514	M1.6	.011	1F	S05W61	9373	30			
20 Mar	2056	2104	2112	M1.5	.009			9373				1
21 Mar	0228	0237	0242	M1.8	.009	SN	S05W65	9373	87	39		
22 Mar	0508	0515	0526	M1.0	.008							
22 Mar	0709	0821	0825	M1.6	.022							
22 Mar	1312	1319	1334	M1.0	.011	SF	N13E49	9390	38	47		
24 Mar	0133	0138	0142	M1.2	.004	SF	S14W82	9376	510	140		2
24 Mar	1935	1955	2047	M1.7	.048	2N	N15E22	9390	2300	71		
24 Mar	2304	2318	2330	M1.1	.013	1F	N19E60	9393	270			
25 Mar	0412	0424	0431	M2.5	.018	2N	N17E51	9393		160		
25 Mar	1033	1116	1120	M2.6	.032	1N	N21E59	9401	470	25		

Flare List

Date	Time			X-ray Class.	Optical Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
19 March	0833	0834	0838		SF	S03W44	9373
	0916	0917	0925		SF	N17W51	9384
	1842	1843	1853	C3.4	SF	S04W47	9373
	2033	2038	2044	C1.3			
	2323	2326	2329	C3.2	SF	S04W49	9373
20 March	0215	0218	0245	M1.1	SF	S05W54	9373
	0232	0240	0254		SF	S16W36	9376
	0322	0329	0337	M1.2	SF	N07W70	9384
	0530	0539	0546	C2.4			
	0550	0554	0601	C1.9			
	0656	0658	0704		SF	S05W57	9373
	0707	0708	0722		SF	S05W58	9373
	B0750	0759	0803		SF	S05W58	9373
	0938	1000	1055	C2.1			
	1220	1224	1243	C1.7			
	1422	1426	1445	M1.1	SF	N14E76	9390
	1500	1513	1536	M1.6	1F	S05W61	9373
2056	2104	2112	M1.5			9373	
2246	2254	2302	C8.8			9390	
21 March	0106	0112	0130	C1.5			
	0237	0239	0257	M1.8	SN	S05W65	9373
	0721	0721	0726	C5.6	SF	S14E77	9389
	0841	0912	0930		SF	N15E65	9390
	1022	1027	1031	C2.3			
	1045	1048	1055	C1.9			
	1125	1126	1134	C9.8	SF	S05W70	9373



Flare List – continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
21 March	1300	1305	1317	C1.7			
	2005	2012	2015	C2.1			
22 March	0152	0204	0223	C6.4			
	0508	0515	0526	M1.0			
	0709	0821	0825	M1.6			
	1045	1046	1048		SF	N13E52	9390
	1055	U1056	1059		SF	N13E54	9390
	B1316	U1317	A1351	M1.0	SF	N13E49	9390
	1619	1627	1701	C7.8			
	1815	1834	1843	C5.3			
23 March	2253	2300	2307	C5.7			
	0147	0147	0150		SF	N07E21	9387
	0301	0302	0306	C2.3	SF	S11W73	9376
	0350	0358	0415	C2.8	SF	N17E43	9390
	0457	0458	0503		SF	S11W74	9376
	0540	0544	0550	C2.5	SF	S11E56	9389
	1425	1431	1441		SF	S12E78	
	1450	1455	1503		SF	S12E78	
	1523	1523	1538	C3.4	SF	S12E79	
	1717	1720	1728		SF	N14E27	9390
	1840	1859	1919	C1.9			
	2035	2040	2050		SF	S12E74	
	2040	2044	2059	C2.1	SF	N13E32	9390
	2135	2141	2146	C2.7			
	24 March	0100	0100	0103		SF	N16E65
0136		0137	0144	M1.2	SF	S14W82	9376
0224		0230	0233	C2.1			
0345		0351	0403	C2.0			
0723		0724	0750		SF	S11E39	9389
0737		0739	0751		SF	N20E61	9393
0741		0746	0812		SF	N14E25	9390
0811		0814	0834	C4.6	SF	S11E37	9389
0850		0850	0854		SF	N13E22	9390
0902		0907	0923	C4.0	SF	N20E65	9393
0936		0936	0952		SF	S14E36	9389
1147		1151	1156	C2.2			
1317		1323	1330	C2.2			
1412		1414	1418		SF	N16E60	9393
1422		1423	1438	C5.8	SF	N16E59	9393
1441		1442	1451		SF	N15E58	9393
1525		1526	1531		SF	N16E58	9393
1640		1645	1649		SF	N16E58	9393



Flare List – continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
24 March	1710	1711	1721		SF	N16E58	9393
	1728	1730	1744	C3.7	SF	N20E68	
	1853	1857	1901		SF	S10E76	9397
	1937	1952	2147	M1.7	2N	N15E22	9390
	2032	2032	2036		SF	S11E75	9397
	2040	2047	2050		SF	S11E75	9397
	2042	2046	2058		SF	N19E58	9393
	2103	2105	2108		SF	S11E74	9397
	2205	2206	2209		SF	S10E73	9397
	2245	2245	2250		SF	N20E66	
	2255	2256	2259		SF	N20E66	
	2258	2258	2302		SF	S11E75	9397
	2300	2315	2341	M1.1	1F	N19E60	9393
	2312	2320	2326		SF	S11E73	9397
	2322	2328	2347		SF	N19E57	9393
	2353	2354	0015		SF	N23E61	
	25 March	0134	0136	0150		SF	S09E72
0202		0202	0210		SF	S10E73	9397
0246		0254	0301		SF	N14E18	9390
0415		0424	0457	M2.5	2N	N17E51	9393
0533		0534	0545	C3.4	SF	N15E14	9390
0657		0700	0717		SF	N20E48	9393
0745		0745	0755		SF	N15E13	9390
0855		0901	0905		SF	N22E59	9401
0926		0933	1001		SF	N23E59	9401
B1037		U1115	1134	M2.6	1N	N21E59	9401
1438		1446	1512		SF	N14E08	9390
1546		1550	1607		SF	N13E08	9390
1626		1632	1742	C9.0	1F	N16E25	9402
2012		2016	2025	C9.4	SF	N19E57	9401
2050	2052	2106	C4.1	SF	N15E07	9390	
2225	2230	2239	C3.5	SF	N16E39	9393	



Region Summary

Date	Location		Sunspot Characteristics				Flares											
	(° Lat ° CMD)	Helio	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
		Lon						C	M	X	S	1	2	3	4			
<i>Region 9373</i>																		
09 Mar	S07E71	331	0050	05	CAO	003	B											
10 Mar	S07E61	328	0190	08	DAO	009	B	2				2						
11 Mar	S08E48	328	0230	10	DAI	019	B											
12 Mar	S08E34	329	0320	12	EAI	032	B	2				2						
13 Mar	S07E20	329	0190	13	EAI	037	B					1						
14 Mar	S08E07	329	0190	15	EAI	057	BG					1						
15 Mar	S07W06	329	0240	17	FSI	053	BG	1				7						
16 Mar	S07W20	330	0240	17	FAI	032	BG	2				4						
17 Mar	S07W34	331	0230	17	FAO	022	BG	1				1						
18 Mar	S07W43	326	0220	24	FAO	027	BG	4				9						
19 Mar	S07W58	328	0270	21	FAI	021	BG	2				3						
20 Mar	S07W71	328	0270	22	FAO	023	BG		3			4	1					
21 Mar	S06W81	325	0180	15	EAO	010	BG	1	1			2						
22 Mar	S05W92	323	0060	09	HSX	004	A											
								15	4	0	36	1	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 329

<i>Region 9374</i>																		
10 Mar	S19E50	339	0010	00	HRX	001	A											
11 Mar	S18E38	338	0000	01	AXX	001	A											
12 Mar	S18E28	335	0000	01	AXX	001	A											
13 Mar	S18E15	335																
14 Mar	S17E03	333	0000	01	AXX	002	A											
15 Mar	S17W10	333																
16 Mar	S17W23	333																
17 Mar	S17W36	333																
18 Mar	S17W49	333																
19 Mar	S17W62	333																
20 Mar	S17W75	333																
21 Mar	S17W88	333																
								0	0	0	0	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 333



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 9380

12 Mar	S09E66	297	0010	01	HSX	001	A										
13 Mar	S10E53	296	0010	01	HSX	001	A										
14 Mar	S09E40	296	0010	01	AXX	001	A										
15 Mar	S09E27	296															
16 Mar	S09E14	296															
17 Mar	S09E01	296															
18 Mar	S08W10	293	0000	00	AXX	001	A										
19 Mar	S12W29	299	0010	07	DSO	002	B										
20 Mar	S12W42	299															
21 Mar	S08W51	295	0010	01	HSX	002	A										
22 Mar	S08W64	295															
23 Mar	S08W77	295															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 296

Region 9381

13 Mar	S19E37	312	0020	04	CSO	003	B										
14 Mar	S17E24	312	0020	02	CRO	003	B										
15 Mar	S17E09	314	0020	02	AXX	002	A										
16 Mar	S17W04	314															
17 Mar	S17W17	314															
18 Mar	S17W30	314															
19 Mar	S17W43	314															
20 Mar	S17W56	314															
21 Mar	S17W69	314															
22 Mar	S17W82	314															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 314



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 9384

14 Mar	N10E02	334	0010	03	CSO	005	B										
15 Mar	N10W11	334	0040	04	DSO	008	B	1				2					
16 Mar	N11W23	333	0120	06	DAO	007	B	1				1					
17 Mar	N12W35	332	0100	09	DAO	009	B					1					
18 Mar	N11W49	332	0060	10	DRO	010	B	1				1					
19 Mar	N13W62	332	0100	17	FAO	008	B					1					
20 Mar	N14W74	331	0080	16	FSO	004	B		1			1					
21 Mar	N18W81	325	0000	00	AXX	001	A										
22 Mar	N18W94	325															
								3	1	0	7	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 334

Region 9385

17 Mar	S13E42	255	0030	05	DRO	004	B										
18 Mar	S11E27	256	0000	00	AXX	001	A										
19 Mar	S11E14	256															
20 Mar	S11E01	256															
21 Mar	S11W12	256															
22 Mar	S11W25	256															
23 Mar	S12W39	256	0000	01	AXX	001	A										
24 Mar	S12W52	256															
25 Mar	S12W65	256															
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 256

Region 9386

18 Mar	N03W11	294	0000	00	AXX	002	B										
19 Mar	N04W27	297	0010	01	HSX	001	A										
20 Mar	N03W38	297															
21 Mar	N03W51	297															
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 211



Region Summary- continued.

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

Region 9387

19 Mar	N09E59	211	0030	02	CSO	003	B											
20 Mar	N10E47	210	0090	06	DAO	005	B											
21 Mar	N09E34	210	0110	08	DAO	013	B											
22 Mar	N08E21	210	0140	09	CAO	018	B											
23 Mar	N09E07	210	0140	09	DSO	011	B						1					
24 Mar	N08W07	211	0150	09	DSO	011	B											
25 Mar	N08W23	214	0110	05	CSO	007	B											
										0	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 210

Region 9388

20 Mar	N14W49	306	0030	03	DAO	003	B											
21 Mar	N14W62	306	0170	01	HSX	002	A											
22 Mar	N14W75	306	0030	03	CRO	004	B											
										0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 306

Region 9389

20 Mar	S12E75	182	0030	01	HAX	001	A											
21 Mar	S13E66	178	0110	13	EAO	003	B	1				1						
22 Mar	S13E54	177	0180	14	EAO	008	B											
23 Mar	S13E39	178	0130	15	EAO	011	B	1				1						
24 Mar	S13E26	178	0150	18	FAO	013	B	1				3						
25 Mar	S12E13	178	0100	20	FAI	025	B											
										3	0	0	5	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 178

Region 9390

20 Mar	N14E73	184	0040	08	CAO	002	B	1	1			1						
21 Mar	N14E60	184	0280	15	EAO	009	B						1					
22 Mar	N15E46	185	0300	17	FAO	016	B			1			3					
23 Mar	N16E34	183	0130	17	FAI	017	B	2					3					
24 Mar	N15E19	185	0100	17	FAI	019	B			1			2		1			
25 Mar	N14E06	185	0080	13	ESI	025	B	2					6					
										5	3	0	16	0	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 185



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 9391

21 Mar	S04W15	259	0010	01	HSX	002	A											
22 Mar	S04W28	259																
23 Mar	S04W41	259																
24 Mar	S04W54	259																
25 Mar	S04W67	259																
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 259

Region 9392

21 Mar	N20W17	261	0070	04	DAO	004	B												
22 Mar	N19W29	260	0030	06	DAO	007	B												
23 Mar	N20W45	262	0040	09	DSO	008	B												
24 Mar	N18W58	262	0040	08	DSO	006	B												
25 Mar	N18W68	259	0040	06	CSO	004	B												
																			0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 261

Region 9393

23 Mar	N20E65	152	0700	09	DKO	003	B											
24 Mar	N20E54	150	0820	14	EKC	012	BGD	2	1		11	1						
25 Mar	N20E39	152	1040	11	EKC	021	BG	1	1		2		1					
								3	2	0	13	1	1	0	0			

Still on Disk.

Absolute heliographic longitude: 152

Region 9394

23 Mar	N10E61	156	0010	01	AXX	001	A												
24 Mar	N09E48	156	0010	01	HSX	001	A												
25 Mar	N09E35	156	0000	00	AXX	001	A												
																			0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 156



Region Summary- continued.

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

Region 9395

23 Mar	S12E72	145	0030	01	HSX	001	A										
24 Mar	S12E63	141	0150	01	HSX	001	A										
25 Mar	S12E49	142	0050	07	CAO	003	B										

Still on Disk.
Absolute heliographic longitude: 142

Region 9396

24 Mar	S06W04	208	0020	03	BXO	005	B										
25 Mar	S06W17	208	0040	05	CSO	015	B										

Still on Disk.
Absolute heliographic longitude: 208

Region 9397

24 Mar	S09E76	128	0290	07	DSO	003	B				7						
25 Mar	S12E61	130	0190	10	DAO	009	B				2						

Still on Disk.
Absolute heliographic longitude: 130

Region 9398

24 Mar	N21E02	202	0010	03	BXO	006	B										
25 Mar	N20W10	201	0030	05	CSO	007	B										

Still on Disk.
Absolute heliographic longitude: 202

Region 9399

24 Mar	S29E03	201	0010	04	BXO	005	B										
25 Mar	S30W09	200	0030	05	DSO	007	B										

Still on Disk.
Absolute heliographic longitude: 201

Region 9400

24 Mar	N09E35	169	0010	02	HRX	002	A										
25 Mar	N11E20	171	0000	00	AXX	001	A										

Still on Disk.
Absolute heliographic longitude: 171



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 9401

25 Mar	N22E55	136	0150	07	DAO	008	B	1	1		3	1				
								1	1	0	3	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 136

Region 9402

25 Mar	N17E16	175	0010	04	BXO	003	B	1				1				
								1	0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 175

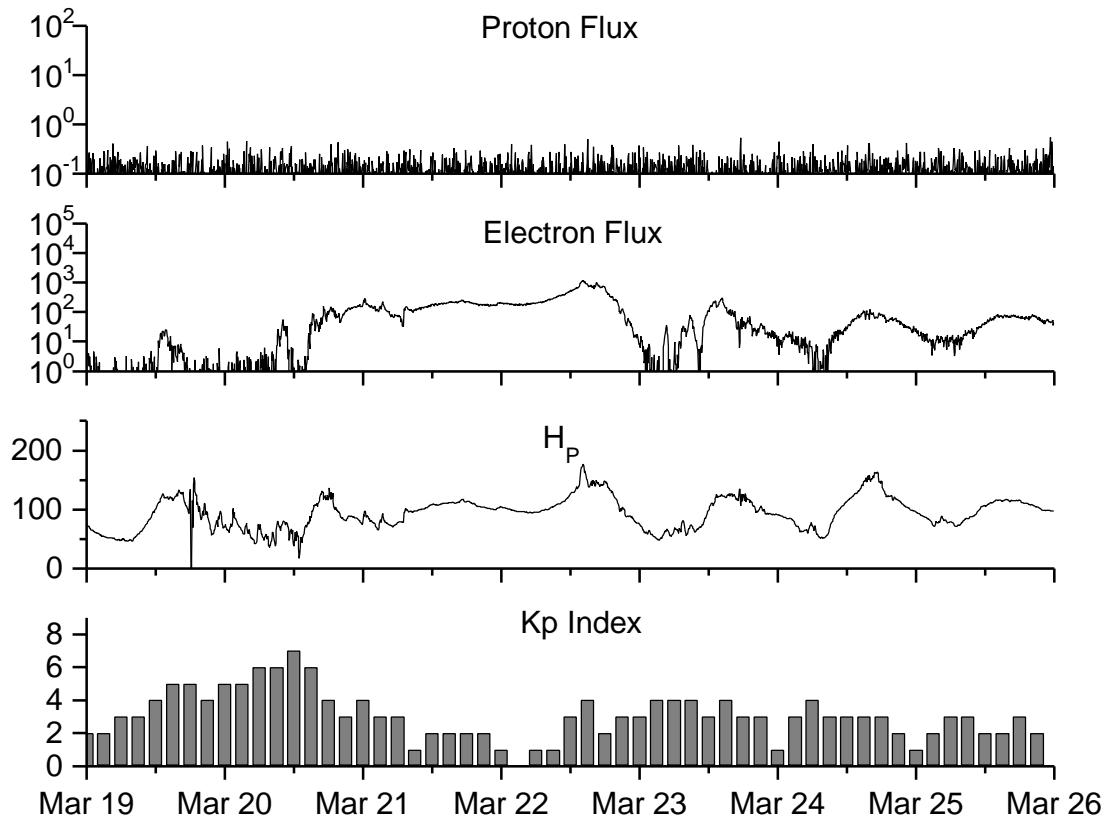


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
March	100.5	68.8	0.68	120.5	83.8	126.3	144.0	14	11.7
April	92.9	63.7	0.69	123.8	85.5	117.2	145.8	12	12.2
May	140.5	106.4	0.76	131.7	90.5	148.6	149.9	08	12.4
June	208.3	137.7	0.66	136.0	93.1	169.8	152.9	07	12.4
July	169.2	113.5	0.67	138.0	94.3	165.6	154.4	10	12.6
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
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			182.1		18	
October	138.9	100.1	0.72			167.7		18	
November	149.9	106.5	0.71			178.8		17	
December	146.4	104.5	0.71			173.6		08	
2001									
January	142.7	95.1	0.67			166.7		08	
February	131.0	80.1	0.61			147.3		06	

NOTE: All smoothed values after December 1999 and monthly values after June 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 19 March 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.

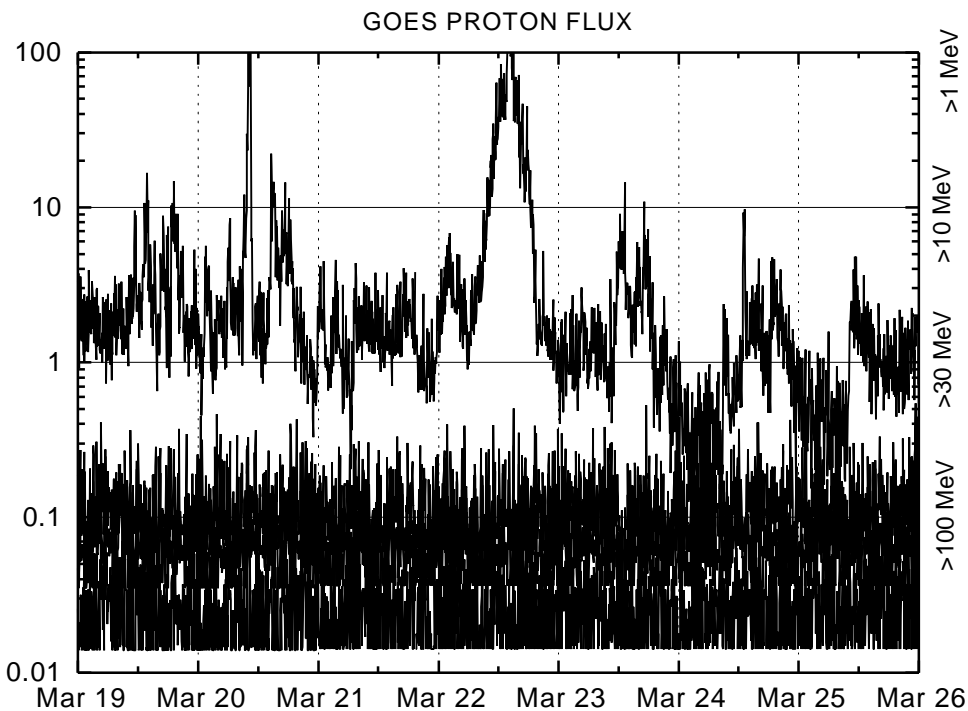
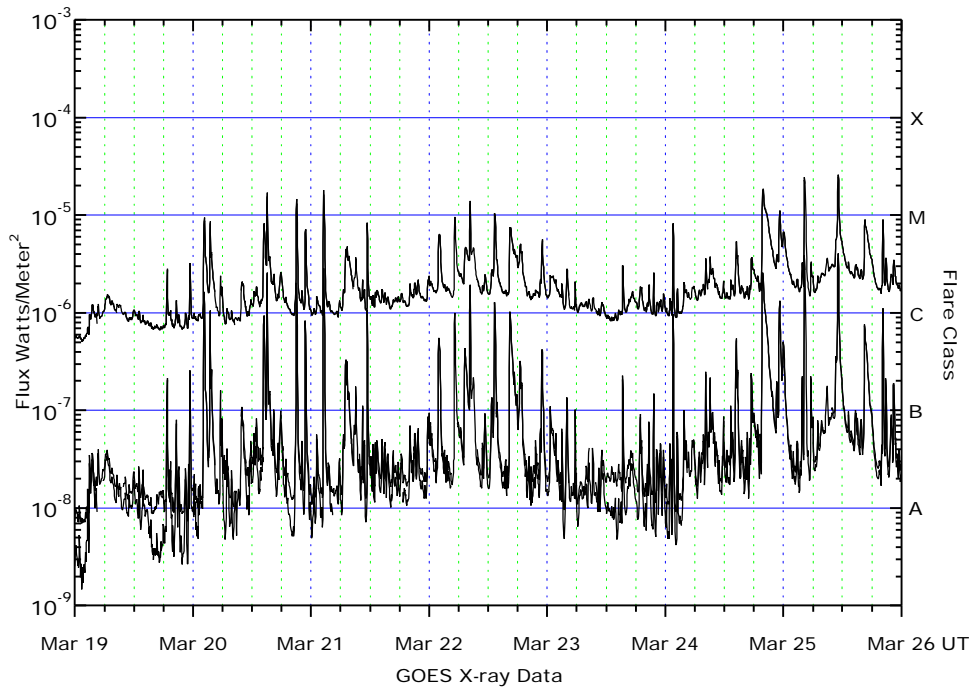
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-8.

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 USAF 55th Space Weather Squadron) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and Heartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC) and the US Geological Survey. These may differ from the final K_p values derived from a more extensive network of magnetometers.

The data included here are those now available in real time at the SWO and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and K_p are " global " parameters that are applicable to a first order approximation over large areas. H_p is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





Weekly GOES Satellite X-ray and Proton Plots

X-ray plot contains five-minute averaged x-ray flux (watts/m²) as measured by GOES 8 and 10 in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-8 (W75) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm²-sec-sr) at greater than 10 MeV.

