Space Weather Highlights **SWO PRF 1333**
12 - 18 March 2001 **20 March 2001**

Solar activity decreased to mostly low levels following last week's brief period of major flare activity from Region 9368 (N25, L = 086, class/area Eki/610 on 08 March). This region was decaying as it quietly crossed the west limb on 12 March. There were two sunspot groups of note during the period: Region 9373 (S07, L = 329, class/area Eai/320 on 12 March) and Region 9384 (N11, L = 334, class/area Dao/120 on 16 March). Region 9373 produced C-class flares during the period as it displayed alternate periods of growth and decay. Region 9373 was of moderate size and magnetic complexity at the close of the period. Region 9384 produced C-class subflares as well, mostly during 15 - 16 March as it grew. Region 9384 stabilized on 17 March as a moderate-sized group with a minor degree of magnetic complexity. A full-halo CME occurred on 15 March following a filament eruption near center disk.

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. However, interplanetary magnetic field data was unavailable on 16 March. A coronal transient was observed during 12 – 13 March. Transient effects were minor with small increases in solar wind velocity and density, along with a fairly brief southward turning of IMF Bz (maximum deflections to minus 10 nT (GSM). Nominal solar wind conditions occurred during the remainder of the period.

No proton events occurred.

The greater than 2 MeV electron flux at geosynchronous orbit was at mostly normal levels.

The geomagnetic field was disturbed on 12 March as a coronal transient passed Earth. Unsettled to active levels occurred during the disturbance. Quiet to unsettled conditions prevailed for the remainder of the period. Note: at issue time, a major geomagnetic storm was in progress. Details will be provided in next week's issue.

Space Weather Outlook
21 March - 16 April 2001

Activity is expected to be at mostly low to moderate levels during the period. Best chance for isolated M-class flares will be during 21 – 22 March and again during the latter half of the forecast period. There will also be a slight chance for a major flare during these periods.

There will be a slight chance for a proton event 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.

The Geomagnetic field is expected to be disturbed during 21 – 23 March. Active to minor storm conditions will be possible during the disturbance. Quiet to unsettled levels are expected for the rest of the period, barring an Earth-directed CME.

Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background	Flares: X-ray Flux C	M	X	Flares: Optical S	1	2	3	4
12 March	158	174	680	B6.1	6	0	0	7	0	0	0	0
13 March	147	110	280	B5.1	2	0	0	1	0	0	0	0
14 March	142	159	270	B3.9	0	0	0	1	0	0	0	0
15 March	136	126	390	B3.2	3	0	0	9	0	0	0	0
16 March	140	86	410	B5.4	5	0	0	5	0	0	0	0
17 March	134	90	430	B2.7	2	0	0	2	0	0	0	0
18 March	140	91	280	B2.8	6	0	0	10	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm^2-day-sr) >1MeV	>10MeV	>100MeV	Electron Fluence (electrons/cm^2-day-sr) >.6MeV	>2MeV	>4Me
12 March	1.2E+5	1.2E+4	2.7E+3		4.2E+6	
13 March	7.9E+4	1.2E+4	2.7E+3		1.6E+6	
14 March	5.1E+4	1.2E+4	2.7E+3		1.1E+6	
15 March	4.1E+4	1.2E+4	2.7E+3		2.3E+6	
16 March	5.5E+4	1.1E+4	2.7E+3		3.7E+6	
17 March	8.2E+4	1.1E+4	2.7E+3		1.8E+6	
18 March	2.5E+5	1.2E+4	2.8E+3		6.5E+5	

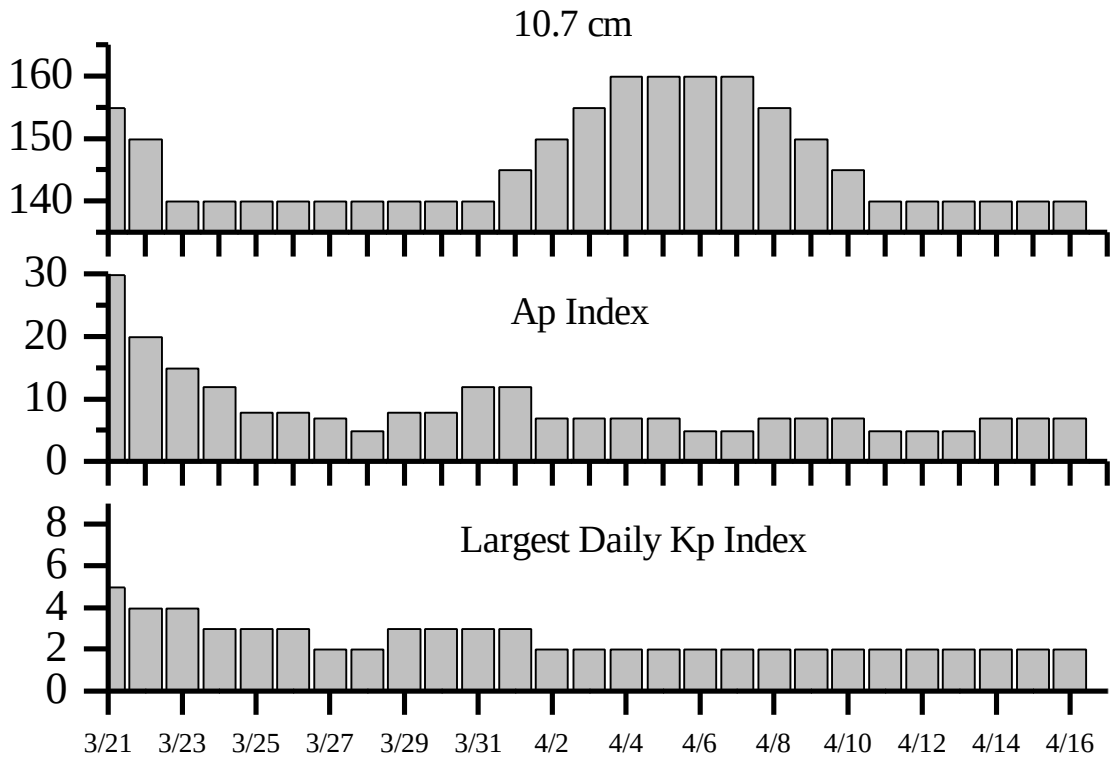
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	K-indices	High Latitude College A	K-indices	Estimated Planetary A	K-indices
12 March	8	0-0-1-2-3-2-3-3	11	0-0-2-4-4-2-2-3	10	1-0-2-3-3-3-3-3
13 March	6	2-2-2-3-0-1-1-1	*	*-*-2-*-3-1-0-1	7	2-2-2-3-2-2-2-2
14 March	8	3-2-3-2-2-1-1-2	8	1-1-3-4-3-0-1-0	7	2-2-3-3-2-1-2-1
15 March	2	0-0-1-0-2-0-1-1	2	0-0-1-1-0-0-0-0	3	0-0-2-1-1-1-2-1
16 March	1	0-0-0-0-2-0-0-1	3	0-0-0-3-0-1-1-0	2	0-0-0-0-1-2-2-1
17 March	2	0-0-0-0-2-1-1-1	2	0-0-0-0-1-1-2-1	4	0-0-0-0-2-3-2-1
18 March	5	2-2-2-1-2-0-0-2	8	1-2-2-4-3-1-0-1	7	3-3-2-2-1-2-2-2

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
12 Mar 1107	Stratwarm Alert Exists Monday	
12 Mar 1806	K = 4 Observed	12 Mar 1500 - 1800
12 Mar 1811	K = 4 Warning	12/1815 - 13 Mar 1500
13 Mar 0628	CANCELLED K = 4 Warning	12/1815 - 13 Mar 1500
13 Mar 1121	Stratwarm Alert Exists Tuesday	
14 Mar 1148	Stratwarm Alert Exists Wednesday	
15 Mar 0057	3 – 245 MHz Bursts	14 Mar
15 Mar 1218	Stratwarm Alert Exists Thursday	
16 Mar 0142	2 – 245 MHz Bursts	15 Mar
16 Mar 1439	Stratwarm Alert Exists Friday	
17 Mar 1200	Stratwarm Alert Exists Saturday	
18 Mar 0034	245 MHz Burst	17 Mar
18 Mar 1107	Type II Radio Emission	18 Mar 0852
18 Mar 1249	Stratwarm Alert Exists Sunday	

Twenty-seven Day Outlook



Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index
21 Mar	155	30	5	04 Apr	160	7	2
22	150	20	4	05	160	7	2
23	140	15	4	06	160	5	2
24	140	12	3	07	160	5	2
25	140	8	3	08	155	7	2
26	140	8	3	09	150	7	2
27	140	7	2	10	145	7	2
28	140	5	2	11	140	5	2
29	140	8	3	12	140	5	2
30	140	8	3	13	140	5	2
31	140	12	3	14	140	7	2
01 Apr	145	12	3	15	140	7	2
02	150	7	2	16	140	7	2
03	155	7	2				

Energetic Events

Date	Time			X-ray		Optical Information				Peak Radio Flux		Sweep Freq Intensity	
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat	CMD	Rgn #	245	2695	II	IV
No Energetic Events observed													

Flare List

Date	Time			X-ray	Optical		Rgn
	Begin	Max	End	Class.	Imp / Brtns	Location Lat CMD	
12 March	0015	0017	0025	C2.0	SF	S08E49	9373
	0223	0224	0229	C1.1	SF	S08E48	9373
	0236	0236	0239	C3.1	SF	S12E81	9376
	0516	0523	0529	C2.1			
	0644	0644	0648	B9.7	SF	S15E71	9376
	1417	1423	1435	B7.5			
	1634	1636	1646	C4.7	SF	S14E64	9376
	1729	1738	1753		SF	S14E65	9376
	1850	1856	1918	C3.2	SF	S18E64	9376
13 March	0546	0600	0610	B7.9			
	0821	0830	0846	C1.5			
	0913	0922	0935	C1.6			
	1132	1132	1138	B7.3	SF	S08E30	9373
14 March	0901	0906	0910	B5.6			
	1202	1211	1222	B9.4			
	1310	1316	1319	B5.3			
	1501	1510	1519	B4.1			
	1603	1603	1610	B5.2	SF	S08E12	9373
15 March	0408	0414	0416	B5.3			
	1431	1434	1447		SF	N10W05	9384
	1434	1438	1443		SF	S08W04	9373
	1446	1447	1448		SF	S09W01	9373
	1454	1455	1457	B8.0	SF	S09W01	9373
	1711	1711	1714	B7.3	SF	S09W06	9373
	1805	1808	1811	B6.4			
	1934	1935	1942	B7.4	SF	S08W07	9373
	2117	2117	2125	C1.5	SF	S09W10	9373
	2155	2155	2203	C1.9	SF	N11W09	9384
	2215	2217	2225	C2.1	SF	S09W08	9373
16 March	0633	0640	0647	C1.3			
	0950	0955	1000	B5.8			
	1036	1042	1059	C5.4	SN	S06W15	9373
	1504	1508	1513	C1.2	SF	S07W15	9373
	1550	1554	1609	C1.7	SF	N09W20	9384
	1924	1924	1929		SF	S07W20	9373
	1950	1950	2003	B8.5	SF	S07W18	9373
	2042	2048	2053	C2.4			

Flare List – continued.

Date	Begin	Time Max	Time End	Class.	X-ray Brtns	Optical Imp / Lat CMD	Optical Location	Rgn
16 March		2305	2314	2323	B6.6			
17 March		0245	0248	0251	B4.1			
		0331	0532	0627	C2.0			
		0913	0914	0918	B8.8	SF	N10W24	9384
		1407	1412	1417	B5.2			
		1717	1719	1742	C3.9	SF	S08W37	9373
18 March		0421	0426	0434	B5.8			
		0520	0522	0542	C1.9	SF	S04W28	9373
		0742	0748	0800	C3.4	SF	S09W41	9373
		0850	0851	0855	C3.1	SF	S05W27	9373
		B1104	U1106	1137	C1.8	SF	S08W44	9373
		1220	1226	1228	C2.1			
		1244	1246	1249		SF	S05W32	9373
		1304	1308	1317	B9.1			
		1345	1347	1349		SF	S03W31	9373
		1355	1355	1359		SF	S03W34	9373
		1411	1415	1421	B8.3	SF	S05W31	9373
		1423	1428	1432		SF	S05W33	9373
		1730	1734	1742	C1.9	SF	N09W48	9384

Region Summary

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9366												
02 Mar	S23E38	095	0040	06	DRO	007	B								
03 Mar	S25E25	095	0090	08	DAO	016	B					1			
04 Mar	S24E12	095	0090	10	DAI	023	B	1				1			
05 Mar	S25E00	094	0070	12	EAO	016	B								
06 Mar	S25W14	095	0060	10	DAO	009	B								
07 Mar	S24W28	095	0030	10	CRO	004	B								
08 Mar	S25W41	095	0010	11	BXO	004	B								
09 Mar	S24W48	090	0010	03	CSO	002	B								
10 Mar	S24W61	090													
11 Mar	S24W74	090													
12 Mar	S24W87	090													
								1	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 094

Region Summary- continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9367												
02 Mar	N12E48	085	0020	01	HRX	001	A								
03 Mar	N10E36	084	0020	01	CSO	002	B				1				
04 Mar	N10E22	085	0010	02	HSX	001	A								
05 Mar	N10E09	085	0010	01	HSX	001	A								
06 Mar	N09W05	086	0010	01	HRX	001	A								
07 Mar	N09W19	086	0000	00	AXX	001	A								
08 Mar	N09W32	086													
09 Mar	N09W45	086													
10 Mar	N09W58	086													
11 Mar	N09W71	086													
12 Mar	N09W84	086													
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 086

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9368												
02 Mar	N27E48	085	0010	00	HSX	001	A								
03 Mar	N26E35	085	0060	06	DAI	012	B								
04 Mar	N25E20	087	0150	09	DAI	016	B								
05 Mar	N26E08	086	0220	11	EAO	022	B								
06 Mar	N25W08	088	0420	12	EAI	023	B	5			5				
07 Mar	N25W20	087	0580	13	EAI	018	B	1			2				
08 Mar	N26W33	087	0610	15	EKI	021	BG		1			1			
09 Mar	N26W44	086	0370	12	EKI	021	BG	1	1			2			
10 Mar	N24W59	088	0340	13	EHO	016	BG		1		2	1			
11 Mar	N25W73	089	0210	12	CAO	007	B				2				
12 Mar	N24W84	087	0080	11	CAO	002	B								
								7	3	0	11	4	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 086

Region Summary- continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9370												
03 Mar	N09E51	069	0010	06	BXO	003	B								
04 Mar	N10E42	065	0000	00	AXX	001	A								
05 Mar	N09E28	066	0010	03	BXO	005	B								
06 Mar	N10E14	067	0060	06	DAO	011	B								
07 Mar	N09E00	067	0160	07	DAO	010	B	1			1				
08 Mar	N10W12	066	0160	10	DAO	013	B	1			1				
09 Mar	N11W24	066	0200	11	EAO	020	B	1			1				
10 Mar	N10W38	067	0150	11	EAI	031	B								
11 Mar	N10W51	067	0150	10	DAO	020	B								
12 Mar	N10W65	068	0130	11	EAO	013	B								
13 Mar	N11W82	071	0040	08	DAO	004	B								
								3	0	0	3	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude: 067															
			Region 9372												
09 Mar	S37W50	092	0070	08	CSO	006	B	2			4				
10 Mar	S36W64	093	0100	08	DAO	010	B	5			11				
11 Mar	S36W76	092	0110	10	DAO	007	B								
12 Mar	S35W88	091	0040	06	CSO	004	B								
								7	0	0	15	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude: 092															
			Region 9373												
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				
								12	0	0	27	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 329															

Region Summary- continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9374												
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													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 333

			Region 9375												
10 Mar	S16W46	075	0030	03	DSO	004	B								
11 Mar	S16W58	074	0010	03	BXO	003	B								
12 Mar	S16W71	074	0020	01	HSX	001	A								
13 Mar	S16W84	074													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 075

			Region 9376												
11 Mar	S13E72	304	0030	01	HRX	001	A				2				
12 Mar	S15E57	306	0040	09	CRO	004	B	3			5				
13 Mar	S13E46	303	0010	04	BXO	003	B								
14 Mar	S14E34	302	0010	03	BXO	004	B								
15 Mar	S14E21	302	0010	05	BXO	007	B								
16 Mar	S14E09	301	0020	04	CRO	003	B								
17 Mar	S13W04	301	0020	03	CRO	004	B								
18 Mar	S13W17	301													
								3	0	0	7	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 301

Region Summary- continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9377												
11 Mar	S18E01	015	0000	00	AXX	001	A								
12 Mar	S18W13	016	0000	00	AXX	001	A								
13 Mar	S18W26	016													
14 Mar	S18W39	016													
15 Mar	S18W52	016													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		015													
			Region 9378												
12 Mar	N24W32	035	0020	03	BXO	004	B								
13 Mar	N31W57	046													
14 Mar	N31W70	046													
15 Mar	N31W83	046													
								0	0	0	0	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		035													
			Region 9379												
12 Mar	N31E39	324	0020	01	HSX	001	A								
13 Mar	N31E27	322	0010	01	AXX	002	A								
14 Mar	N31E14	322													
15 Mar	N31E01	322													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		322													
			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								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		296													

Region Summary- continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			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													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 314															
			Region 9382												
14 Mar	N09W74	050	0010	03	CSO	002	B								
15 Mar	N09W87	050													
								0	0	0	0	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude: 50															
			Region 9383												
14 Mar	S09W44	020	0020	03	CSO	005	B								
15 Mar	S10W58	021	0080	05	DAO	006	B								
16 Mar	S10W70	020	0030	05	CSO	004	B								
17 Mar	S10W82	019	0050	02	HSX	001	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 020															
			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				
								3	0	0	5	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 334															

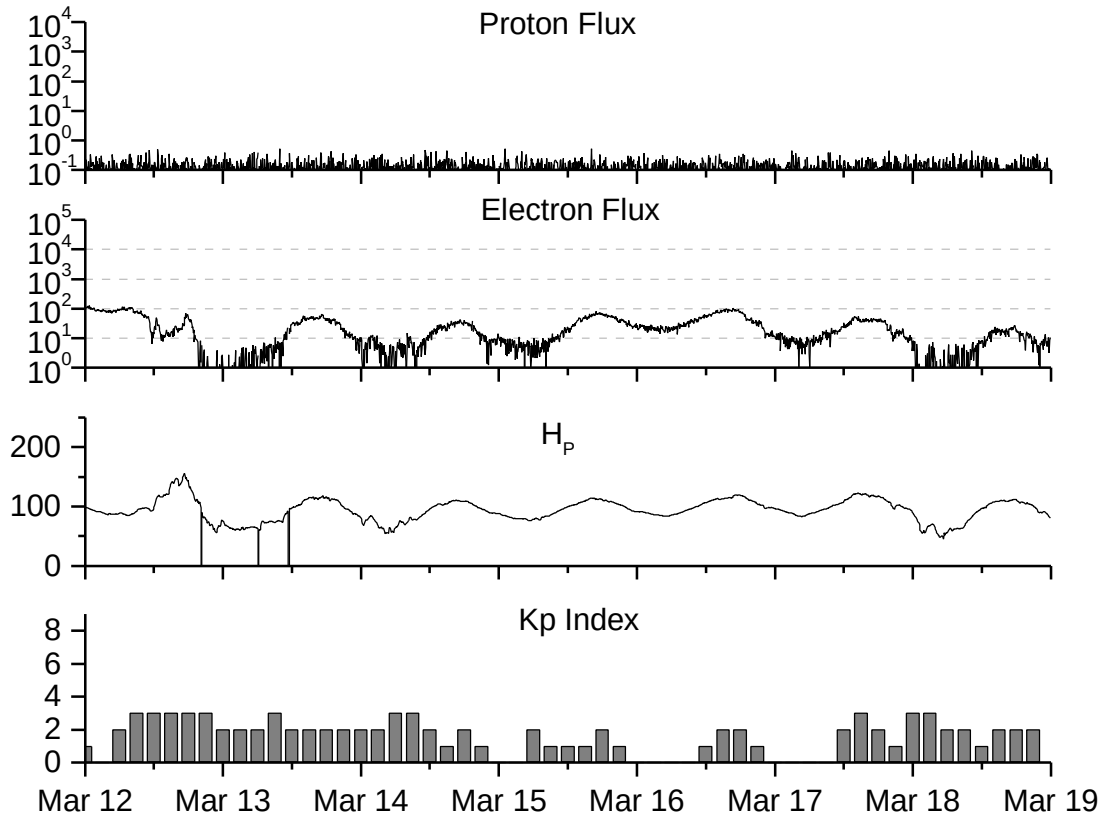
Region Summary- continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9385												
17 Mar	S13E42	255	0030	05	DRO	004	B								
18 Mar	S11E27	256	0000	00	AXX	001	A								
								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								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		294													

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

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
Month	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	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 12 March 2001

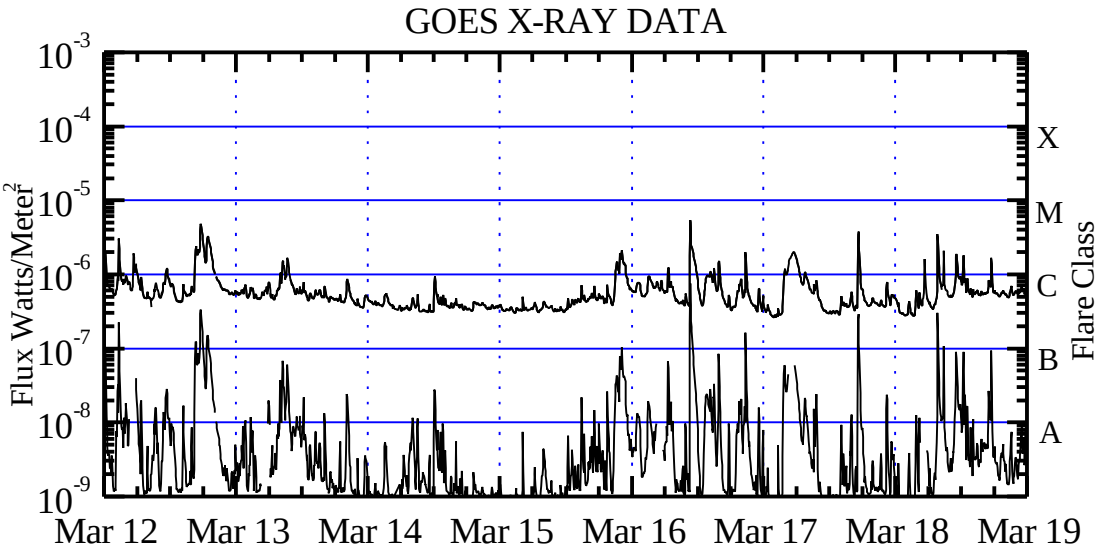
Protons plot contains the five-minute averaged integral proton flux (protons/cm^2–sec –sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

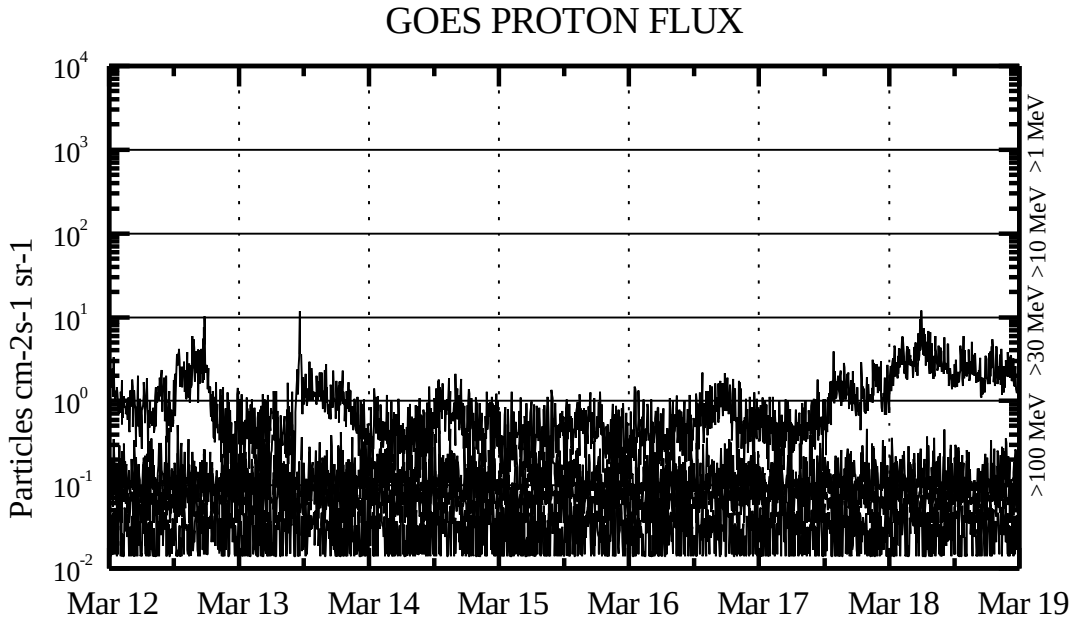
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm^2 –sec –sr) with energies greater than 2 MeV at GOES-8.

Hp 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.

Kp 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 Kp 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 Kp are " global " parameters that are applicable to a first order approximation over large areas. Hparallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





W*eekly GOES Satellite X-ray and Proton Plots*

X-ray plot contains five-minute averaged x-ray flux (watts/m$^{2)}$ as measured by GOES 8 and 10 in two wavelength bands, .05 -. 4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm^2 –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^2-sec-sr) at greater than 10 MeV.