

Space Weather Highlights
11 - 17 March 2002

SWO PRF 1385
19 March 2002

Solar activity ranged from low to high levels. Activity was low on 11 March with isolated, optically uncorrelated C-class X-ray flares. Activity increased to moderate levels on 12 March due to a M1 X-ray flare at 12/2313 UTC associated with a Type II radio sweep, apparently from a source beyond the east limb. A long-duration C-class X-ray flare associated with a Type IV radio sweep occurred earlier on 12 March, also from a source beyond the east limb. Activity remained moderate on 13 March as Region 9871 (S20, L = 138, class/area Eso/330 on 17 March) produced an M1/Sf flare at 13/2335 UTC accompanied by a Type II radio sweep. Region 9871 was a moderate-sized sunspot group with minor magnetic complexity. It showed gradual growth during the latter half of the period. Activity rose to high levels on 14 March by virtue of an M5/2b flare at 14/0150 UTC associated with a Type IV radio sweep from Region 9866 (S10, L = 191, class/area Eki/900 on 12 March). Region 9866 was the largest and most complex of the visible regions during the period. It gradually increased in size and magnetic complexity through 14 March, having developed a strong, persistent delta magnetic configuration within its trailer spots. The region began to gradually decay on 15 March, but remained magnetically complex. Activity decreased to moderate levels on 15 March due to a long-duration M2/1f flare at 15/2310 UTC from Region 9866. Activity decreased to low levels on 16 March with C-class subflares from Regions 9866 and 9871. Activity returned to moderate levels on the final day of the period with an M4/Sf flare at 17/1931 UTC from Region 9871.

Solar wind data were available from NASA Advanced Composition Explorer (ACE) spacecraft for most of the summary period. There were no significant disturbances observed in the solar wind flow.

A greater than 10 MeV proton event began at geo-synchronous orbit at 17/0820 UTC following flare activity in Region 9866. The event peaked at 13 pfu at 17/0850 UTC, then ended at 17/1230 UTC.

The greater than 2 MeV electron fluxes at geo-synchronous orbit ranged from normal to moderate levels.

Geomagnetic field activity was at quiet to unsettled levels.

Space Weather Outlook
20 March - 15 April 2002

Solar activity is expected to be at low to moderate levels. Isolated, low-level M-class flares are likely during the period. There is a slight chance for an isolated major flare during the period.

The greater than 2 MeV electron flux at geo-synchronous orbit is expected to be at normal to moderate levels during most of the period. However, high flux levels will be possible during 04 – 05 April.

There will be a slight chance for an isolated proton flare during the period.

Active to minor storm conditions are expected during 20 March. Unsettled to active conditions are expected during 21 – 22 March and again during 02 – 03 April. Quiet to unsettled conditions are expected during the rest of the period.



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	
11 March	182	153	1360	C8.1	3	0	0	0	0	0	0	0	0
12 March	178	139	1270	C2.5	6	1	0	3	1	0	0	0	0
13 March	184	154	1340	B8.0	3	1	0	3	0	0	0	0	0
14 March	181	162	1350	C2.1	2	1	0	3	1	1	0	0	0
15 March	176	134	1140	B4.7	0	1	0	3	1	0	0	0	0
16 March	185	124	1020	C8.0	5	0	0	4	0	0	0	0	0
17 March	184	124	1120	B7.0	9	2	0	7	0	0	0	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		>4MeV				
11 March	182	153	1360	C8.1	3	0	0	0	0	0	0	0
12 March	178	139	1270	C2.5	6	1	0	3	1	0	0	0
13 March	184	154	1340	B8.0	3	1	0	3	0	0	0	0
14 March	181	162	1350	C2.1	2	1	0	3	1	1	0	0
15 March	176	134	1140	B4.7	0	1	0	3	1	0	0	0
16 March	185	124	1020	C8.0	5	0	0	4	0	0	0	0
17 March	184	124	1120	B7.0	9	2	0	7	0	0	0	0

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	11 March	8	2-4-1-2-2-1-2-1	10	3-2-1-3-4-1-2-1	9
12 March	8	2-2-3-2-2-2-2-2	18	2-0-3-5-5-3-2-1	10	2-1-2-3-3-3-3-3
13 March	6	2-0-2-1-3-2-1-1	*	1-1-2-3-2-*-0-0	5	2-1-2-2-2-2-2-1
14 March	2	1-0-0-0-2-1-0-0	1	1-0-0-0-1-0-0-0	4	1-0-0-1-1-2-2-1
15 March	3	0-1-1-0-2-1-1-2	2	0-0-0-0-0-1-2-1	6	1-0-1-1-2-3-3-2
16 March	5	1-1-1-0-3-3-1-0	8	1-0-0-0-4-4-1-0	5	1-0-0-1-2-3-2-1
17 March	2	0-0-0-0-0-1-2-1	0	0-0-0-0-0-0-0-0	4	1-0-0-1-2-2-2-1

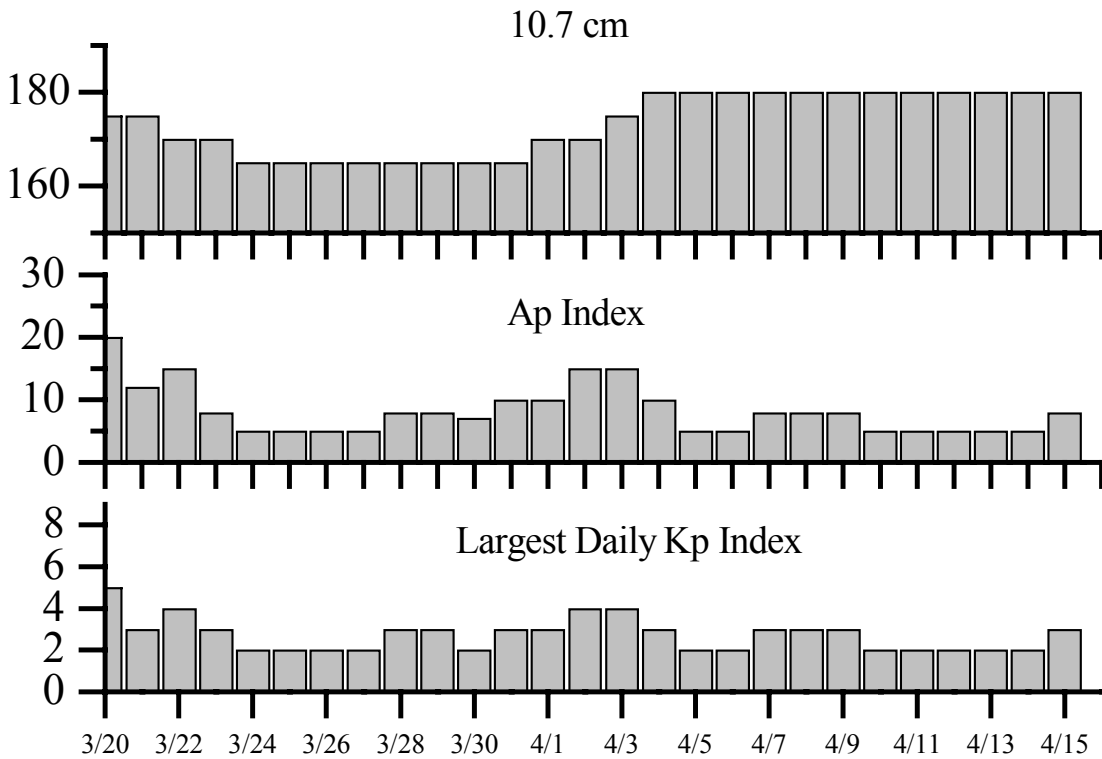


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
11 Mar 0018	4 - 245 MHz Radio Bursts	10 Mar
11 Mar 0018	1 - 245 MHz Radio Noise Storm	10 Mar
12 Mar 0011	5 - 245 MHz Radio Bursts	11 Mar
12 Mar 2348	ALERT: Type II Radio Emission	12 Mar 2318
13 Mar 0011	4 - 245 MHz Radio Bursts	12 Mar
13 Mar 0011	2 - 245 MHz Radio Noise Storms	12 Mar
13 Mar 2336	ALERT: Type II Radio Emission	13 Mar 2324
13 Mar 2348	ALERT: Type IV Radio Emission	13 Mar 2334
14 Mar 0011	3 - 245 MHz Radio Bursts	13 Mar
14 Mar 0148	ALERT: X-Ray Flux exceeded M5	14 Mar 0147
14 Mar 0206	SUMMARY: X-ray Event M5.7	14 Mar 0150
14 Mar 0242	ALERT: Type IV Radio Emission	14 Mar 0142
14 Mar 0621	ALERT: Type IV Radio Emission	14 Mar 0544
15 Mar 0013	1 - 245 MHz Radio Burst	14 Mar
15 Mar 1535	SUMMARY: 10cm Radio Burst	14 Mar 0141
15 Mar 2301	Type IV Radio Emission	15 Mar 2213
15 Mar 2311	SUMMARY: 10cm Radio Burst	15 Mar 2220
16 Mar 0046	1 - 245 MHz Radio Burst	15 Mar
17 Mar 0056	WATCH: $A \geq 20$	18 Mar
17 Mar 0057	WATCH: Geomagnetic $A \geq 20$	19 Mar
17 Mar 0749	WARNING: Proton 10MeV ≥ 10 pfu Onset expected	17/0900 - 18/1500 Mar
17 Mar 0838	ALERT: Proton Event 10MeV ≥ 10 pfu	17 Mar 0820
17 Mar 1953	SUMMARY: 10cm Radio Burst	17 Mar 1927
17 Mar 2015	WATCH: $A \geq 30$	18 Mar



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
20 Mar	175	20	5	03 Apr	175	15	4
21	175	12	3	04	180	10	3
22	170	15	4	05	180	5	2
23	170	8	3	06	180	5	2
24	165	5	2	07	180	8	3
25	165	5	2	08	180	8	3
26	165	5	2	09	180	8	3
27 Mar	165	5	2	10	180	5	2
28	165	8	3	11	180	5	2
29	165	8	3	12	180	5	2
30	165	7	2	13	180	5	2
31	165	10	3	14	180	5	2
01 Apr	170	10	3	15	180	8	3
02	170	15	4				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	½	Class	Integ Flux	Imp/Location		Rgn #	Radio Flux		Intensity	
			Max			Brtns	Lat		CMD	245	2695	II
12 Mar	2301	2313	2324	M1.5	.012	Sf	S22E93	9871				1
13 Mar	2302	2335	0000	M1.0	.023	Sf	S22E75	9871				2 1
14 Mar	0138	0150	0202	M5.7	.053	2b	S12E23	9866		1100		1
15 Mar	2209	2310	0042	M2.2	.130	1f	S08W03	9866	500	190		1
17 Mar	1011	1019	1024	M1.3	.006					85		
17 Mar	1924	1931	1934	M4.0	.011	Sf	S22E16	9871	270	240		

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Location	Lat CMD	
11 March	1617	1637	1642	C1.3				
	1828	1850	1859	C1.6				
	2248	0109	0404	C3.0				
12 March	0224	0236	0245	C3.9				
	0834	0837	0855	C5.3	1f	S13E41	9866	
	1149	1152	1155	C1.1				
	1315	1316	1320	C2.0	Sf	S11E46	9866	
	1632	1635	1637	C2.1				
	1907	1909	1915	C2.2	Sf	S12E38	9866	
	2305	2305	2311	M1.5	Sf	S22E93	9871	
13 March	0550	0550	0602	C1.0	Sf	S12E31	9866	
	1021	1025	1029	C1.6				
	2207	2209	2217	C7.8	Sf	S10W67	9859	
	2302	2318	0003	M1.0	Sf	S22E75	9871	
14 March	0137	0144	0242	M5.7	2b	S12E23	9866	
	0732	0733	0738		Sf	N20W03	9868	
	0748	0753	0758		Sf	N20W03	9868	
	1638	1641	1643	B8.4				
	1646	1648	1710	C4.9	1f	S23E57	9871	
	2135	2135	2139	B8.7	Sf	N19W16	9864	
	2337	2344	0000	C1.0				
15 March	0420	0429	0449	B8.2				
	0704	U0705	A0722		Sf	S22E54	9871	
	B0723	U0724	A0740		Sf	S10W03	9866	
	0857	0901	0912		Sf	S06W05	9866	
	2220	2238	0041	M2.2	1f	S08W03	9866	
16 March	B0054	U0054	0138		Sf	S10W12	9866	
	0122	0126	0142		Sf	N19W32	9864	
	1038	1042	1047	C1.4				
	1127	1127	1132	C2.9	Sf	S20E33	9871	
	1316	1320	1326	C1.8				



Flare List - continued.

Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn			
	Begin	Max	End			Location Lat CMD				
16 March	1449	1454	1508	C2.3	Sf	N18W37	9864			
	2311	2320	2325	C3.0						
17 March	0221	0223	0225	C1.3	Sf	S17E02				
	0347	0352	0400	C1.9						
	0455	0456	0504	C3.1				Sf	S20E24	9871
	0535	0542	0550	C1.5						
	1011	1019	1024	M1.3						
	1121	1125	1127	C1.2						
	1438	1439	1443	C1.3				Sf	S09W27	9866
	1536	1537	1557	C1.8				Sf	S09W27	9866
	1704	1705	1712	C4.5				Sf	S22E20	9871
	1713	1713	1717	C1.1				Sf	N17E53	
B1938	U1938	1948	M4.0	Sf	S22E16	9871				
2256	2259	2304	B9.6							

Region Summary

Date	Location		Sunspot Characteristics				Flares									
	Helio		Area (10 ⁻⁶ 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 9851</i>																
01 Mar	S07E56	313	0050	06	Dso	005	B	2			2					
02 Mar	S05E42	314	0040	08	Dso	008	B									
03 Mar	S06E29	314	0040	08	Cao	007	B									
04 Mar	S06E16	314	0070	10	Dai	014	B									
05 Mar	S06E02	314	0070	10	Dai	019	B									
06 Mar	S02W11	314	0120	13	Eai	021	B									
07 Mar	S02W24	314	0130	13	Esi	025	B									
08 Mar	S02W37	314	0090	10	Dao	013	B									
09 Mar	S04W52	316	0060	08	Dso	009	B									
10 Mar	S06W67	318	0060	07	Dao	004	B									
11 Mar	S06W84	321	0040	01	Hsx	001	A									
								2	0	0	2	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 9853

02 Mar	S24E69	287	0010	01	Hrx	001	A												
03 Mar	S23E54	289	0050	02	Hax	003	A												
04 Mar	S23E42	288	0080	07	Dao	007	B												
05 Mar	S23E28	288	0080	07	Dao	010	B												
06 Mar	S23E15	288	0070	07	Dao	010	B												
07 Mar	S23E02	288	0070	07	Dao	009	B												
08 Mar	S23W11	288	0040	08	Cao	008	B												
09 Mar	S22W26	290	0020	04	Cso	003	B												
10 Mar	S24W39	290	0020	03	Cro	002	B												
11 Mar	S24W52	290																	
12 Mar	S24W65	290																	
13 Mar	S24W78	290																	

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 288

Region 9856

03 Mar	S06E74	269	0110	02	Hax	001	A												
04 Mar	S08E61	269	0220	06	Cso	003	B												
05 Mar	S06E48	268	0180	10	Cao	005	B												
06 Mar	S05E35	268	0210	03	Hkx	001	A												
07 Mar	S05E22	268	0200	03	Cso	002	B												
08 Mar	S05E07	268	0150	04	Cso	002	B												
09 Mar	S03W06	270	0160	03	Hsx	002	A												
10 Mar	S03W18	269	0150	06	Cso	005	B												
11 Mar	S03W32	269	0160	03	Hsx	002	A												
12 Mar	S03W45	269	0150	03	Hsx	001	A												
13 Mar	S03W59	270	0150	02	Hax	002	A												
14 Mar	S04W72	270	0100	02	Hax	003	A												
15 Mar	S04W85	270	0050	01	Hsx	001	A												

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 270



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 9858

04 Mar S30E05	325	0030	03	Dao	003	B												
05 Mar S30W08	324	0020	03	Dso	003	B												
06 Mar S29W21	324	0010	01	Axx	001	A												
07 Mar S29W34	324																	
08 Mar S29W47	324																	
09 Mar S29W60	324																	
10 Mar S29W73	324																	
11 Mar S29W86	324																	

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 325

Region 9859

04 Mar S10E47	283	0030	02	Cso	002	B												
05 Mar S10E34	282	0030	08	Cro	004	B												
06 Mar S10E21	282	0030	08	Dso	009	B												
07 Mar S10E08	282	0030	06	Cso	008	B												
08 Mar S10W05	282	0070	09	Cso	013	B	1				2							
09 Mar S10W20	284	0030	06	Dso	009	B												
10 Mar S11W33	284	0030	06	Cro	007	B												
11 Mar S11W46	283	0020	06	Cro	004	B												
12 Mar S11W56	280	0010	01	Hrx	001	A												
13 Mar S11W66	277	0010	01	Hrx	001	A	1				1							
14 Mar S11W79	277	0010	01	Axx	002	A												

2 0 0 3 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 282



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 9860

05 Mar S06E61	255	0020	02	Axx	002	A												
06 Mar S06E48	255	0010	01	Axx	002	A												
07 Mar S06E35	255																	
08 Mar S06E22	255																	
09 Mar S06E09	255																	
10 Mar S06W04	255																	
11 Mar S06W17	255																	
12 Mar S06W30	255																	
13 Mar S06W43	255																	
14 Mar S06W55	253	0010	01	Axx	001	A												
15 Mar S07W68	253	0020	03	Cso	004	B												
16 Mar S07W81	253																	

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 255

Region 9861

05 Mar N07E66	250	0030	01	Hsx	001	A												
06 Mar N08E53	250	0010	01	Axx	001	A												
07 Mar N08E40	250	0010	01	Hsx	001	A												
08 Mar N08E27	250																	
09 Mar N08E14	250																	
10 Mar N08E01	250																	
11 Mar N08W12	250																	
12 Mar N08W25	250																	
13 Mar N08W38	250																	
14 Mar N08W51	250																	
15 Mar N08W64	250																	
16 Mar N08W77	250																	
17 Mar N08W90	250																	

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 250



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	4			
<i>Region 9864</i>																		
07 Mar	N18E69	221	0050	02	Hsx	001	A											
08 Mar	N18E56	221	0080	02	Hsx	001	A											
09 Mar	N19E43	221	0070	04	Cso	005	B	3				2	1					
10 Mar	N20E29	222	0090	05	Cao	006	B					1						
11 Mar	N19E14	223	0050	05	Cso	004	B											
12 Mar	N18E03	221	0040	06	Dso	003	B											
13 Mar	N19W09	220	0060	06	Cso	006	B											
14 Mar	N18W20	218	0050	07	Cso	005	B					1						
15 Mar	N18W35	220	0040	04	Cso	003	B											
16 Mar	N19W47	218	0050	04	Dso	003	B	1				2						
17 Mar	N17W62	220	0050	06	Cso	003	B											
								4	0	0	0	6	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 221

<i>Region 9865</i>																		
08 Mar	N14E72	205	0010	01	Axx	001	A											
09 Mar	N14E58	206	0000	00	Axx	001	A											
10 Mar	N15E43	208	0020	01	Hrx	001	A											
11 Mar	N15E30	207	0020	01	Hrx	001	A											
12 Mar	N14E18	206	0000	00	Axx	001	A											
13 Mar	N13E02	209	0000	00	Axx	001	A											
14 Mar	N13W11	209																
15 Mar	N13W24	209																
16 Mar	N13W37	209																
17 Mar	N13W50	209																
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 209



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	4
<i>Region 9866</i>														
08 Mar	S10E80	197	0120	02	Hsx	001	A							
09 Mar	S10E73	191	0560	15	Eko	008	Bg	1	2		2	2		
10 Mar	S09E61	190	0840	14	Eki	019	Bg	2			2			
11 Mar	S08E47	190	0870	15	Eki	023	Bgd							
12 Mar	S10E35	189	0900	15	Eki	027	Bgd	3			2	1		
13 Mar	S11E20	191	0820	15	Eki	037	Bd	1			1			
14 Mar	S10E07	191	0820	14	Eki	036	Bd		1				1	
15 Mar	S09W06	191	0690	13	Eki	026	Bd		1		2	1		
16 Mar	S09W19	190	0540	15	Eki	035	Bgd				1			
17 Mar	S09W33	191	0470	14	Eai	024	Bgd	2			2			
								9	4	0	12	4	1	0 0

Still on Disk.

Absolute heliographic longitude: 191

<i>Region 9867</i>														
11 Mar	S30E16	221	0010	01	Bxo	003	B							
12 Mar	S31E04	220	0000	01	Axx	001	A							
13 Mar	S31W09	220												
14 Mar	S31W22	220												
15 Mar	S31W35	220												
16 Mar	S31W48	220												
17 Mar	S31W61	220												
								0	0	0	0	0	0	0 0

Still on Disk.

Absolute heliographic longitude: 220

<i>Region 9868</i>														
11 Mar	N19E32	205	0060	06	Dao	011	B							
12 Mar	N19E20	204	0040	07	Dso	008	B							
13 Mar	N19E07	204	0020	06	Cso	007	B							
14 Mar	N19W06	204	0020	06	Cso	011	B				2			
15 Mar	N20W18	203	0020	04	Cso	004	B							
16 Mar	N20W32	203	0010	03	Cso	004	B							
17 Mar	N20W45	203												
								0	0	0	2	0	0	0 0

Still on Disk.

Absolute heliographic longitude: 204



Region Summary - continued.

Location		Sunspot Characteristics					Flares								
Date	(° 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	4

Region 9869

11 Mar	N24E42	195	0000	01	Axx	001	A									
12 Mar	N24E29	195	0010	01	Axx	001	A									
13 Mar	N21E14	197	0010	01	Hsx	002	A									
14 Mar	N23E00	198	0010	01	Axx	001	A									
15 Mar	N23W13	198														
16 Mar	N23W26	198														
17 Mar	N23W39	198														

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 198

Region 9870

11 Mar	S17E62	175	0130	08	Dso	003	B									
12 Mar	S18E51	173	0120	13	Eso	006	B									
13 Mar	S20E37	174	0120	12	Eao	004	B									
14 Mar	S20E24	174	0120	10	Cao	006	B									
15 Mar	S19E06	179	0090	03	Cso	004	B									
16 Mar	S20W07	178	0100	02	Hsx	002	A									
17 Mar	S20W20	178	0120	02	Hax	001	A									

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 179

Region 9871

13 Mar	S21E70	141	0150	08	Dao	004	B			1		1				
14 Mar	S20E58	140	0210	13	Eao	007	B	1					1			
15 Mar	S20E44	141	0200	14	Eso	006	B					1				
16 Mar	S21E31	140	0280	13	Eao	013	B	1				1				
17 Mar	S18E20	138	0330	13	Eso	015	B	2	1			3				

4 2 0 6 1 0 0 0

Still on Disk.

Absolute heliographic longitude: 138



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	4

Region 9872

15 Mar	S31E09	176	0030	06	Dao	006	B								
16 Mar	S31W05	176	0040	07	Dso	007	B								
17 Mar	S32W18	176	0030	08	Dso	004	B								

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 176

Region 9873

17 Mar	S17W09	167	0120	07	Dao	017	B								
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0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 167

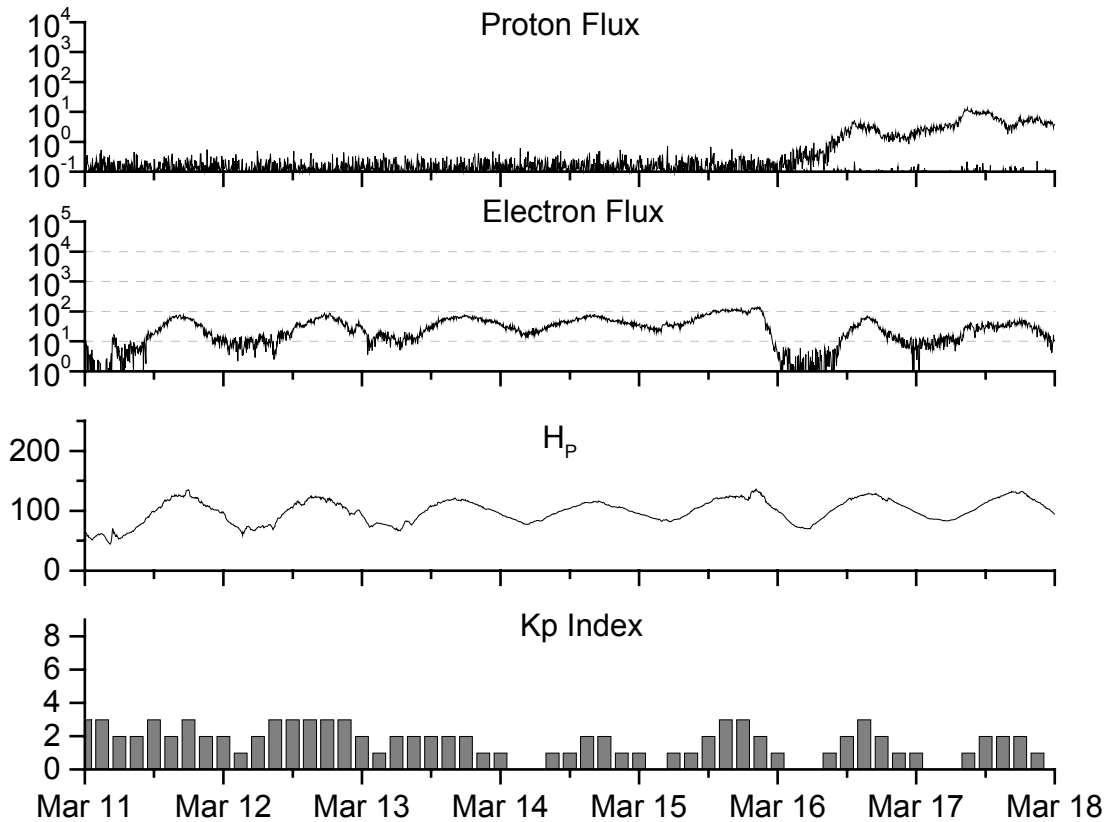


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
2000									
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
2001									
January	142.7	95.1	0.67	156.3	108.8	166.7	168.8	08	13.8
February	131.0	80.1	0.61	151.4	104.2	147.3	165.8	06	13.3
March	166.7	114.2	0.69	154.0	104.9	177.7	167.9	17	12.9
April	163.6	108.2	0.66	159.4	107.7	178.3	171.7	18	12.7
May	135.1	97.3	0.72	163.1	108.8	148.7	174.8	12	12.5
June	196.7	134.0	0.68	167.2	109.9	173.7	178.8	12	12.4
July	124.6	82.2	0.66	172.1	111.8	131.3	183.9	11	12.4
August	159.4	106.8	0.67	176.7	113.8	163.2	188.8	13	12.5
September	229.1	150.7	0.66			233.3		12	
October	197.4	125.6	0.64			208.2		18	
November	178.6	106.5	0.60			212.5		14	
December	217.5	131.8	0.61			236.6		08	
2002									
January	189.0	113.9	0.60			226.4		07	
February	194.5	108.0	0.56			205.1		09	

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 11 March 2002

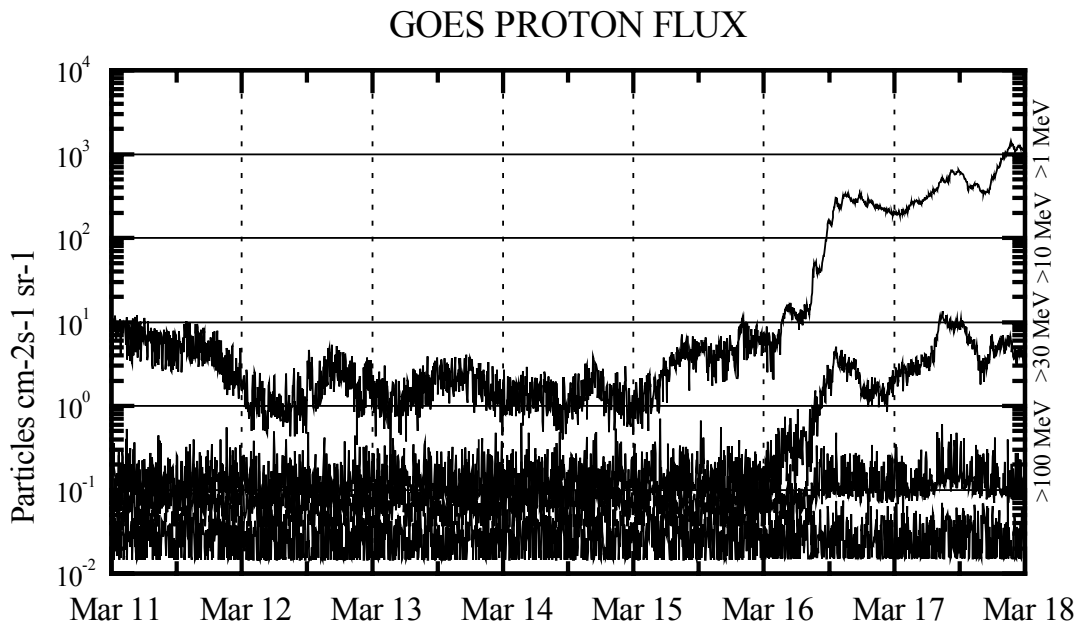
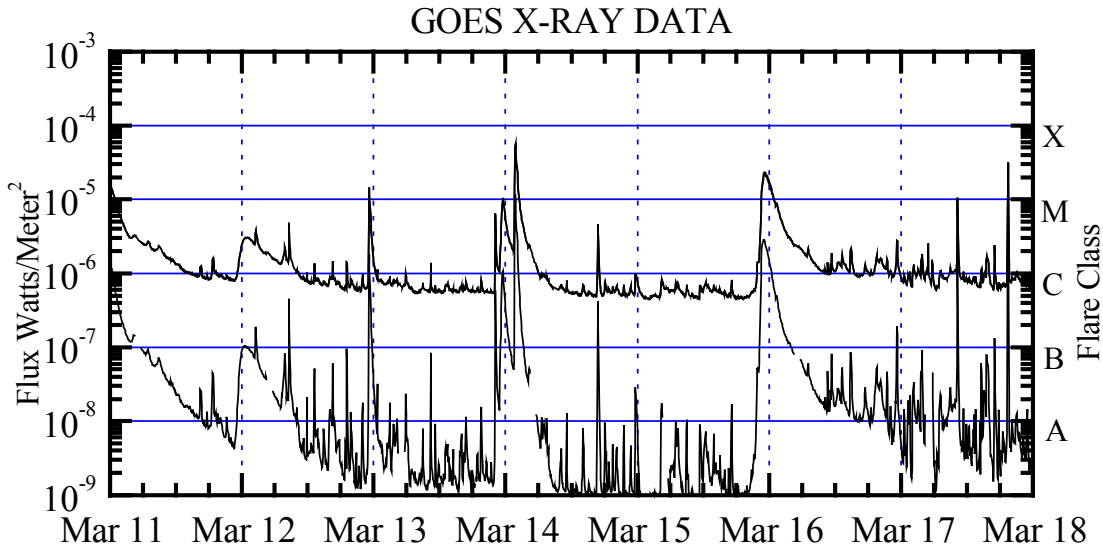
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 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_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.




Solar Radio Flux (10.7 cm)



Space Environment Center

February 2002
(Month 65)

 Preliminary data

