

## **Space Weather Highlights**

### **03 - 09 March 2003**

**SWO PRF 1436**  
**11 March 2003**

Solar activity was at very low to low levels. The period began with low level activity on 03 March, due to a long duration C2.4 flare at 2105 UTC from a spotless plage field near S27E72. A partial halo CME associated with this long duration event was observed in LASCO imagery. Region 296 (N11, L=179, class/area Dki/650 on 04 March) was the largest and most complex region during the period and the source of minor C-class activity early in the period. This region grew to a moderate size spot group and on 03 March developed a beta-gamma magnetic configuration. On 05 March, Region 296 entered a gradual decay phase. Activity was at very low levels on 04 – 07 March. Late in the period, Region 306 (N05, L= 76, class/area Dko/540 on 09 March) rotated onto the visible disk and produce low level activity on 08 March. This region exhibited steady growth through the end of the period and developed a beta magnetic configuration. Region 304 (S11, L-168, class/area Dao/070 on 09 March) was the source of low level activity on 09 March with four C-class flares. For flare times and magnitudes please refer to the Energetic Event and Flare lists.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the summary period. The period began with a recurrent coronal hole early on 03 March and into 04 March. Solar wind velocity increased to near 550 km/s with peak values near 650 km/s. The Bz component of the interplanetary magnetic field exhibited southern oscillations near minus 15 nT. Solar wind velocity decreased to 450 km/s on 05 March when a second high speed stream increased velocity back to near 550 km/s. For the remainder of the period, 06 – 09 March solar wind velocity was in gradual decline and ended the period near 400 km/s. Bz remained in an oscillating pattern between plus and minus 8 nT.

There were no greater than 10 MeV proton events at geo-synchronous orbit during the summary period.

The greater than 2 MeV electron flux at geo-synchronous orbit reached high levels on 03 and 05 – 08 March.

The geomagnetic field was at quiet to minor storm levels. Late on 03 March, a recurrent coronal hole in the northwest quadrant rotated into a geo-effective position resulting in active to minor storm levels on 03 – 04 March. A second high speed stream occurred late on 05 March and resulted in unsettled to active conditions on 05 – 06 March with one period of minor storm conditions. Activity on 07 – 09 March was mostly quiet to unsettled with two separate periods of isolated active conditions due to negative fluctuations in Bz.

## **Space Weather Outlook**

### **12 March - 07 April 2003**

Solar activity is expected to be at low levels with a slight chance of moderate activity. Regions 296 and 306 have the potential for isolated M-class activity during the period. On 20 – 26 March activity is expected to be at very low to low levels as both Region 296 and Region 306 are transiting the backside of the sun.

No greater than 10 MeV proton events are expected during the forecast period.

The greater than 2 MeV electron flux may reach high levels on 19 – 24 March, 27 – 28 March and again on 04 – 06 April due to returning coronal holes.

The geomagnetic field is expected to be at quiet to major storm levels. A large southern coronal hole is expected to return to a geo-effective position on 15 – 21 March and is expected to produce unsettled to isolated minor storm conditions. Two smaller but more intense coronal holes are due on 25 – 27 March and 30 – 31 March and are expected to produce active to isolated major storm levels. A weak but persistent coronal hole is expected on 01 – 04 April with unsettled to isolated active conditions.



### *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	
03 March	149	136	900	B3.7	1	0	0	0	0	0	0	0	0
04 March	146	160	950	B3.7	0	0	0	0	0	0	0	0	0
05 March	149	138	790	B3.4	0	0	0	2	0	0	0	0	0
06 March	150	132	660	B4.1	0	0	0	0	0	0	0	0	0
07 March	150	191	960	B3.8	0	0	0	0	0	0	0	0	0
08 March	148	203	1220	B3.7	2	0	0	2	0	0	0	0	0
09 March	153	224	1410	B3.8	5	0	0	6	0	0	0	0	0

### *Daily Particle Data*

Date	Proton Fluence (protons/cm <sup>2</sup> -day-sr)			Electron Fluence (electrons/cm <sup>2</sup> -day-sr)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
03 March	3.4E+5	1.2E+4	2.9E+3		2.4E+7	
04 March	4.3E+5	1.2E+4	2.7E+3		1.4E+7	
05 March	2.3E+5	1.2E+4	2.8E+3		3.6E+7	
06 March	4.0E+5	1.2E+4	2.8E+3		5.2E+7	
07 March	1.8E+5	1.2E+4	3.0E+3		6.8E+7	
08 March	2.1E+5	1.3E+4	3.0E+3		9.9E+7	
09 March	1.5E+5	1.2E+4	2.6E+3		3.3E+7	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	03 March	11	3-1-1-2-3-3-3-3	26	3-2-3-3-3-6-5-3	15
04 March	15	3-3-3-3-3-3-3-3	44	3-3-5-6-6-6-3-3	26	4-4-5-4-5-4-3-3
05 March	12	2-2-2-3-3-3-3-3	27	2-2-3-6-5-4-3-3	16	3-2-3-4-4-3-3-3
06 March	15	4-2-4-2-3-3-2-3	59	4-3-4-7-7-6-4-3	25	4-4-4-4-5-3-3-3
07 March	18	2-2-3-3-2-1-2-2	14	2-3-3-4-3-2-2-3	14	3-3-3-4-2-2-3-3
08 March	7	1-0-1-2-2-3-3-1	16	1-1-2-2-4-5-4-1	9	1-1-2-1-3-3-3-2
09 March	8	2-2-3-1-2-1-2-3	11	2-3-3-1-3-3-2-2	11	2-4-3-1-2-2-3-3

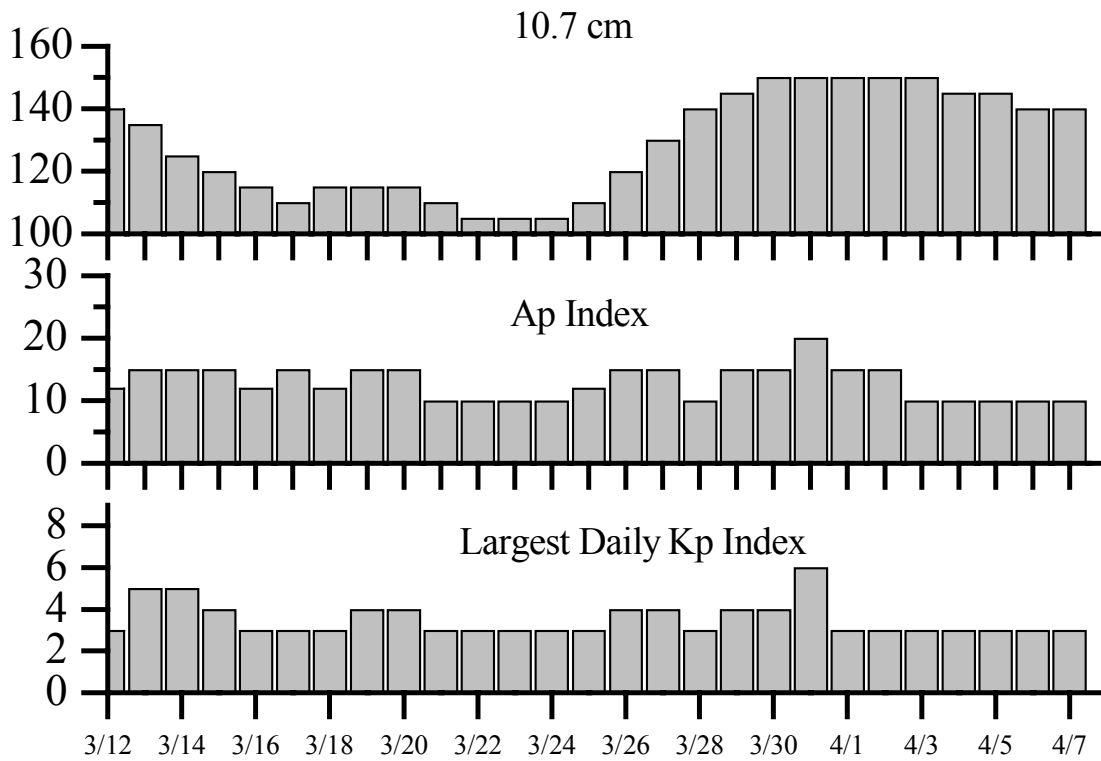


### *Alerts and Warnings Issued*

<u>Date &amp; Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date &amp; Time of Event UT</u>
03 Mar 0014	3 - 245 MHz Bursts	02 Mar
03 Mar 0014	3 - 245 MHz Noise Storms	02 Mar
03 Mar 1610	ALERT: Electron 2MeV Integral Flux > 1000pfu	03 Mar 1550
03 Mar 1646	WARNING: Geomagnetic K= 4	03 Mar 1647 - 04 Mar 1500
03 Mar 1648	ALERT: Geomagnetic K= 4	03 Mar 1648
04 Mar 1448	WARNING: Geomagnetic K= 5	04 Mar 1450 - 2359
05 Mar 0016	3 - 245 MHz Bursts	04 Mar
05 Mar 0016	1 - 245 MHz Noise Storm	04 Mar
05 Mar 0009	WARNING: Geomagnetic K= 4	05 Mar 0015 - 1500
05 Mar 1527	ALERT: Electron 2MeV Integral Flux > 1000pfu	05 Mar 1505
05 Mar 1535	ALERT: Geomagnetic K-index of 4	05 Mar 1534
06 Mar 0023	4 - 245 MHz Bursts	05 Mar
06 Mar 0023	1 - 245 MHz Noise Storm	05 Mar
06 Mar 0223	WARNING: Geomagnetic K= 4	06 Mar 0225 - 1500
06 Mar 0227	ALERT: Geomagnetic K= 4	06 Mar 0227
06 Mar 1312	ALERT: Electron 2MeV Integral Flux > 1000pfu	06 Mar 1250
06 Mar 1504	WARNING: Geomagnetic K= 4	06 Mar 1504 - 2359
07 Mar 0030	WARNING: Geomagnetic K= 4	07 Mar 0031 - 1500
07 Mar 0447	ALERT: Geomagnetic K= 4	07 Mar 0436
07 Mar 1213	ALERT: Electron 2MeV Integral Flux > 1000pfu	07 Mar 1125
08 Mar 0015	5 - 245 MHz Radio Bursts	07 Mar
08 Mar 1004	ALERT: Electron 2MeV Integral Flux > 1000pfu	08 Mar 0945
08 Mar 1727	WARNING: Geomagnetic K= 4	09 Mar 1727 - 08 Mar 2359
08 Mar 1734	ALERT: Geomagnetic K= 4	09 Mar 1733
09 Mar 0043	245 MHz Radio Burst	08 Mar
09 Mar 0518	ALERT: Geomagnetic K= 4	09 Mar 0516
09 Mar 0746	WARNING: Geomagnetic K= 4	09 Mar 0746 - 1500
09 Mar 0757	ALERT: Geomagnetic K= 4	09 Mar 0757



### 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
12 Mar	140	12	3	26 Mar	120	15	4
13	135	15	5	27	130	15	4
14	125	15	5	28	140	10	3
15	120	15	4	29	145	15	4
16	115	12	3	30	150	15	4
17	110	15	3	31	150	20	6
18	115	12	3	01 Apr	150	15	3
19	115	15	4	02	150	15	3
20	115	15	4	03	150	10	3
21	110	10	3	04	145	10	3
22	105	10	3	05	145	10	3
23	105	10	3	06	140	10	3
24	105	10	3	07	140	10	3
25	110	12	3				



***Energetic Events***

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV

**No Events Observed**

***Flare List***

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
03 March	1253	1257	1259	B5.3			294
	1731	1741	1747	B6.9			
	1822	1830	1835	B9.5			296
	2002	2105	2144	C2.4			
04 March	0748	0802	0809	B6.4			
	0844	0856	0908	B6.7			
	1824	1831	1835	B6.6			
	1842	1848	1853	B5.0			
05 March	0259	0259	0319	B6.5	Sf	N15E21	296
	0445	0446	0452	B7.0	Sf	N18E57	302
	1333	1339	1348	B9.8			301
	1533	1537	1542	B6.8			296
06 March	1231	1234	1238	B7.9			
07 March	1516	1521	1526	B9.5			301
	1915	1918	1920	B5.6			308
08 March	0111	0116	0123	C1.0			301
	0843	0846	0848	B5.9			297
	0938	0939	0945	C2.6	Sf	N06E69	306
	1153	1156	1159	B6.9			297
	1456	1503	1507	B6.4			308
	1654	1700	1704	B6.1			
	2321	2322	2328	B7.3	Sf	S14W28	304
09 March	0005	0007	0014	C2.6	Sf	S15W31	304
	0015	0015	0019		Sf	N03E59	306
	0205	0207	0212	B7.8	Sf	N06E64	306
	0344	0344	0348	B6.4	Sf	N03E61	306
	0531	0536	0542	B8.3			
	B0646	0646	0654	C4.4	Sf	S18W38	304
	1510	1520	1528	C1.6			304
	1752	1753	1757	C2.0	Sf	S16W46	310
2053	2101	2103	C1.2			304	
2242	2250	2254	B6.7			297	



### Region Summary

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 292

25 Feb	S08W14	298	0030	04	Dao	007	B										
26 Feb	S08W28	298	0030	06	Cso	007	B										
27 Feb	S07W42	299	0020	04	Cso	003	B										
28 Feb	S07W58	302	0010	01	Axx	001	A										
01 Mar	S07W71	302									2						
02 Mar	S09W80	297	0100	07	Dso	004	B	4				3					
03 Mar	S09W92	297	0080	04	Dao	005	B										
								6	0	0	0	3	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 298

#### Region 293

27 Feb	S21E26	231	0010	03	Bxo	003	B										
28 Feb	S19E19	223	0020	04	Dso	003	B	1				1					
01 Mar	S17E02	229	0010	03	Bxo	003	B										
02 Mar	S17W11	229															
03 Mar	S17W24	229															
05 Mar	S20W50	228															
06 Mar	S20W63	228															
07 Mar	S20W76	228															
08 Mar	S20W89	228															
								1	0	0	0	1	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 229

#### Region 294

27 Feb	S08E42	215	0040	04	Cao	006	B										
28 Feb	S07E29	215	0070	05	Dso	006	B										
01 Mar	S07E15	216	0030	05	Bxo	006	B										
02 Mar	S07E00	218	0030	01	Hsx	001	A										
03 Mar	S07W13	218	0030	05	Bxo	012	B										
04 Mar	S08W26	217	0020	05	Dso	006	B										
05 Mar	S08W39	217															
06 Mar	S10W54	219	0020	01	Axx	001	A										
07 Mar	S10W69	221															
08 Mar	S10W82	221															
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 218



**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 295*

27 Feb	S19E65	192	0070	06	Cao	003	B								
28 Feb	S17E55	189	0090	05	Cso	004	B								
01 Mar	S17E41	190	0070	02	Hsx	001	A								
02 Mar	S18E27	192	0070	02	Hsx	001	A								
03 Mar	S18E14	192	0050	05	Cso	006	B								
04 Mar	S18E01	190	0060	03	Cao	007	B								
05 Mar	S18W12	190	0090	03	Dao	006	B								
06 Mar	S18W25	190	0040	02	Dao	004	B								
07 Mar	S17W38	190	0020	03	Cso	003	B								
08 Mar	S17W51	190	0010	03	Bxo	002	B								
09 Mar	S17W63	190													

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 190

*Region 296*

28 Feb	N12E73	171	0270	04	Dho	002	B								1
01 Mar	N12E62	169	0640	10	Dko	008	B	3							2
02 Mar	N11E48	169	0590	11	Eho	007	B	1							2
03 Mar	N11E35	170	0600	09	Dki	020	Bg								
04 Mar	N11E21	170	0650	10	Dki	023	Bg								
05 Mar	N11E08	170	0560	09	Dki	022	Bg								1
06 Mar	N12W05	170	0470	07	Dki	014	Bg								
07 Mar	N13W18	170	0440	08	Dko	017	Bg								
08 Mar	N13W31	170	0440	07	Dko	014	Bg								
09 Mar	N12W45	170	0440	09	Dko	011	Bg								

4 0 0 6 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 170

*Region 297*

01 Mar	S15E67	165	0100	08	Bxo	005	B								
02 Mar	S16E56	162	0050	05	Dso	004	B								
03 Mar	S16E43	162	0040	05	Dao	004	B								
04 Mar	S16E28	163	0050	05	Dso	004	B								
05 Mar	S15E13	165	0030	04	Dso	005	B								
06 Mar	S15E00	165	0030	07	Dao	006	B								
07 Mar	S14W12	164	0030	07	Cso	005	B								
08 Mar	S14W25	164	0020	05	Bxo	008	B								
09 Mar	S13W39	164	0020	08	Cao	006	B								

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 165



**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 298*

03 Mar	S08E18	187	0020	03	Dso	005	B										
04 Mar	S09E04	187	0030	04	Dso	007	B										
05 Mar	S08W08	186	0020	06	Dro	005	B										
06 Mar	S08W21	186															
07 Mar	S08W34	186															
08 Mar	S08W47	186															
09 Mar	S08W60	186															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 187

*Region 299*

03 Mar	N12E47	158	0070	05	Cao	003	B										
04 Mar	N12E34	157	0040	05	Cso	004	B										
05 Mar	N12E20	158	0020	05	Cro	007	B										
06 Mar	N13E06	159	0030	09	Cro	015	B										
07 Mar	N14W08	160	0030	06	Dso	014	B										
08 Mar	N14W21	160	0030	06	Bxo	013	B										
09 Mar	N14W35	160	0030	05	Cro	007	B										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 159

*Region 300*

03 Mar	N16E66	139	0010	01	Axx	001	A										
04 Mar	N16E53	138	0030	01	Hsx	001	A										
05 Mar	N16E38	140	0010	01	Hrx	001	A										
06 Mar	N17E25	140	0010	01	Axx	002	A										
07 Mar	N16E14	138	0010	07	Bxo	003	B										
08 Mar	N16E01	138															
09 Mar	N16W12	138															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 138





**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 301*

04 Mar	N21E36	155	0030	05	Cro	004	B											
05 Mar	N22E22	156	0040	06	Dao	009	B											
06 Mar	N22E08	157	0040	07	Dao	008	B											
07 Mar	N22W05	157	0050	08	Dao	012	B											
08 Mar	N22W18	157	0050	08	Dao	010	B	1										
09 Mar	N22W32	157	0030	05	Cso	005	B											
									1	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 157

*Region 302*

04 Mar	N19E62	129	0020	01	Hsx	001	A											
05 Mar	N19E50	128	0020	04	Cro	003	B				1							
06 Mar	N20E35	130	0020	02	Cro	002	B											
07 Mar	N20E23	129	0020	04	Cao	005	B											
08 Mar	N20E10	129	0020	05	Bxo	005	B											
09 Mar	N20W04	129	0010	03	Bxo	002	B											
										0	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 129

*Region 303*

07 Mar	S18W47	199	0010	05	Cso	003	B											
08 Mar	S18W60	199	0010	04	Bxo	002	B											
09 Mar	S16W67	193																
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 199

*Region 304*

07 Mar	S13W16	168	0040	08	Dso	012	B											
08 Mar	S13W29	168	0050	06	Dao	011	B				1							
09 Mar	S11W43	168	0070	07	Dao	019	B	4			2							
								4	0	0	3	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 168

*Region 305*

07 Mar	S22E27	125	0030	03	Dso	006	B											
08 Mar	S22E14	125	0050	06	Dso	013	B											
09 Mar	S22E00	125	0090	07	Dao	017	B											
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 125



**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 306*

07 Mar	N05E76	076	0280	04	Hhx	001	A											
08 Mar	N05E63	076	0470	04	Hhx	001	A	1				1						
09 Mar	N05E47	076	0540	06	Dko	007	B					3						
								1	0	0	0	4	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 076

*Region 307*

08 Mar	S26W02	141	0010	03	Bxo	003	B											
09 Mar	S26W16	141	0010	02	Axx	002	A											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 141

*Region 308*

08 Mar	N08E75	064	0060	02	Hax	001	A											
09 Mar	N08E61	064	0080	03	Cao	003	B											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 064

*Region 309*

09 Mar	N05W77	202	0040	05	Dso	005	B											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 202

*Region 310*

09 Mar	S16W49	174	0030	05	Cso	006	B	1				1						
								1	0	0	0	1	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 174

*Region 311*

09 Mar	S16E45	080	0020	04	Cso	004	B											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 080

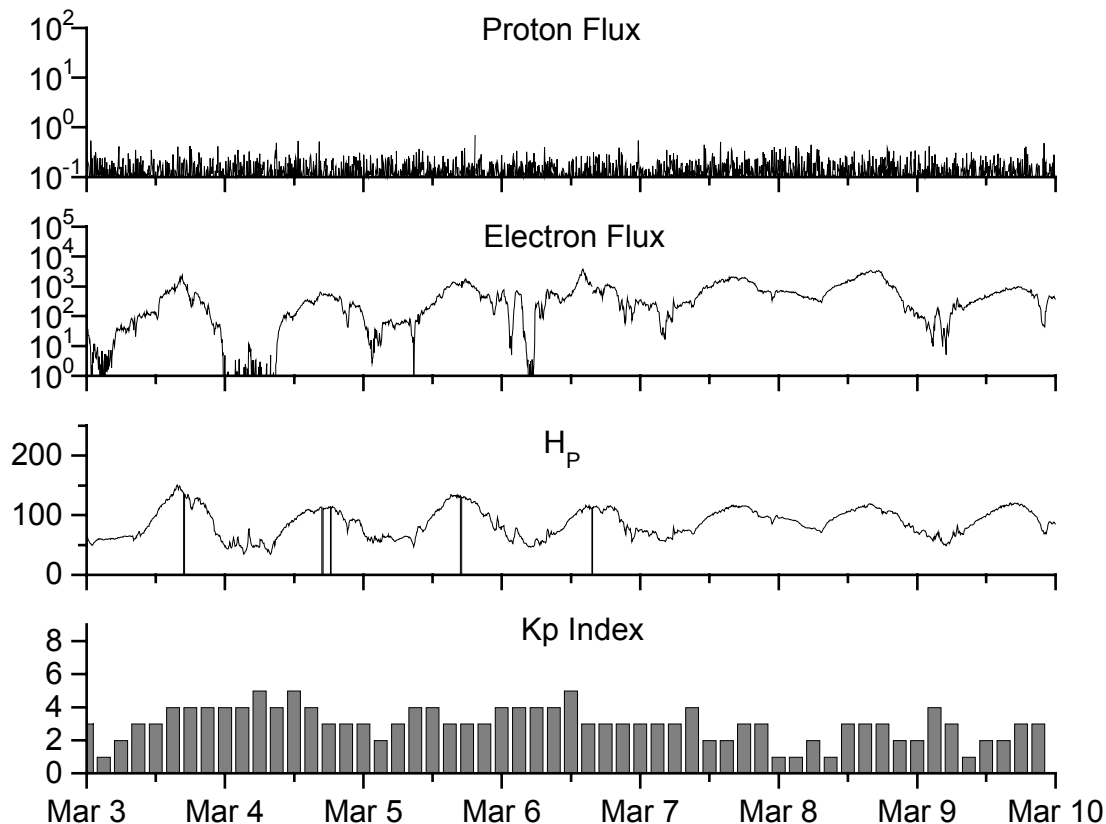


**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

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>2001</b>									
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	178.1	171.7	18	12.7
May	135.1	97.3	0.72	163.1	108.8	147.9	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	163.1	188.8	13	12.5
September	229.1	150.7	0.66	178.8	114.3	233.8	191.3	13	12.8
October	197.4	125.6	0.64	179.5	114.1	208.1	191.9	20	12.0
November	178.6	106.5	0.60	183.7	115.6	212.7	193.7	16	12.0
December	217.5	132.2	0.61	184.5	114.6	235.6	193.9	09	12.2
<b>2002</b>									
January	189.0	114.1	0.60	184.8	113.5	227.3	194.6	08	12.4
February	194.5	107.4	0.55	188.6	114.7	205.0	197.2	10	12.8
March	153.1	98.4	0.64	188.9	113.4	180.3	195.7	10	13.0
April	194.9	120.7	0.62	186.2	110.5	189.8	191.5	15	13.2
May	204.1	120.8	0.59	183.6	108.9	178.4	188.0	15	13.3
June	146.0	88.3	0.61	179.9	106.3	148.7	183.0	11	13.5
July	183.5	99.9	0.54	175.4	102.7	173.5	176.3	13	13.9
August	191.0	116.4	0.61	169.3	98.7	183.9	169.5	16	14.3
September	206.4	109.6	0.53			175.8		14	
October	153.9	97.5	0.63			167.0		23	
November	159.8	95.5	0.60			168.7		16	
December	147.9	80.8	0.55			158.6		13	
<b>2003</b>									
January	149.3	79.5	0.53			144.6		13	
February	87.9	46.2	0.53			124.6		15	

**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 03March 2003*

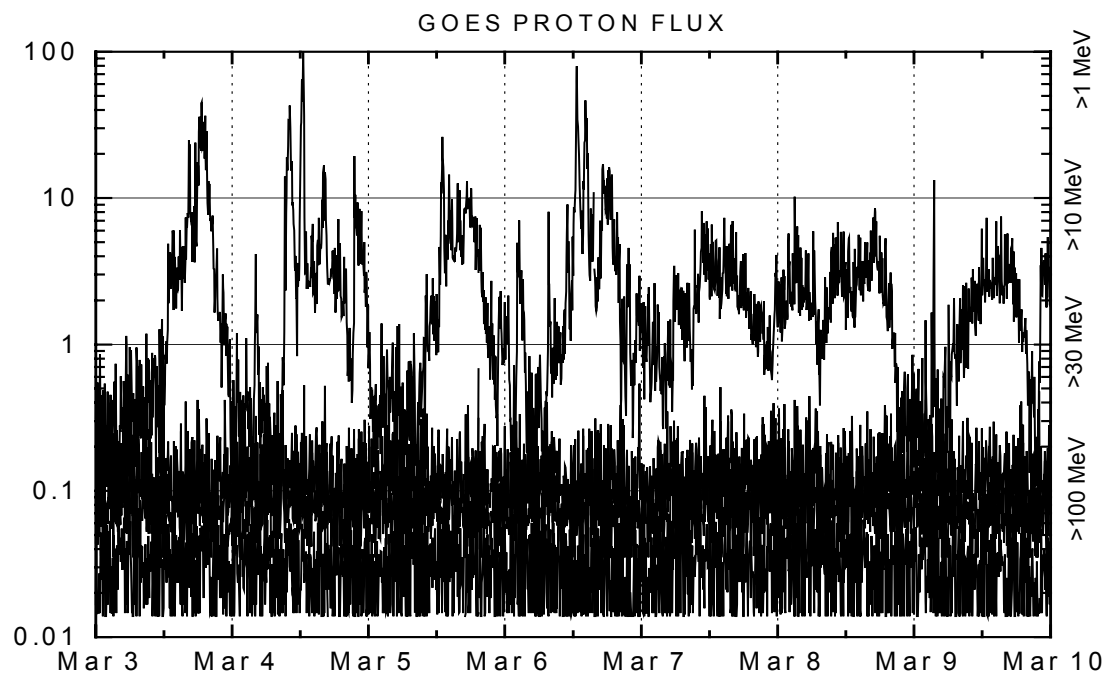
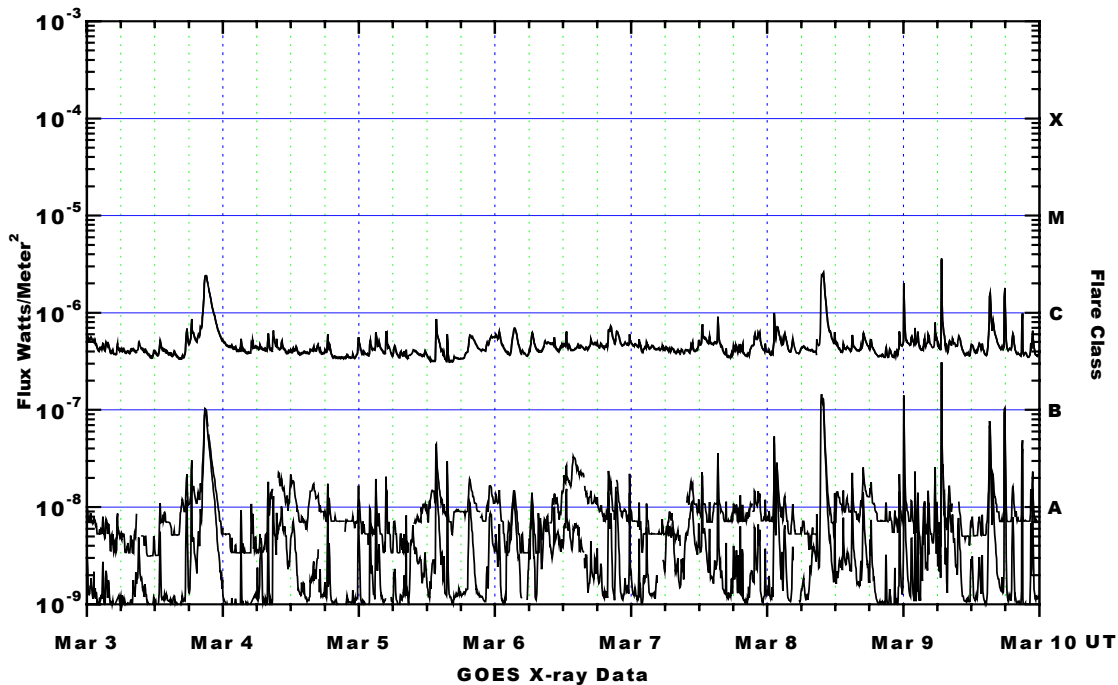
*Protons* plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec-sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

*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



# Solar Radio Flux (10.7 cm)



Space Environment Center

February 2003  
(Month 77)

Preliminary data

