

Space Weather Highlights 05 - 11 May 2003

SWO PRF 1445
13 May 2003

Solar activity was at very low to low levels. Activity was at low levels for the first five days of the period, 05 – 09 May. The largest event during this time was a C5 flare at N17 from a region on the east limb at 2049 UTC on 07 May. The majority of activity during the period came from Region 349 (S15, L=154, class/area/mag. Ekc/1030/Bg on 04 May). This region was the largest spot group on the disk and produced at least 12 C-class flares. Region 348 (S34, L=149, class/area/mag. Fki/560/Bg on 06 May) contributed to activity levels on 06 – 08 May with minor C-class flares. Region 345 (S17, L=167, class/area/mag. Dao/130/Bg on 02 May), 349 and 348 rotated beyond the west limb on 06 May, 07 May, and 08 May respectively. A ten-degree disappearing solar filament was observed on 07 May near S10W18 at 1342 UTC and an eleven-degree filament near S34W14 disappeared at 2145 UTC. A faint narrow CME was associated with the ten-degree DSF. Activity on the 10 – 11 May was at very low levels.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the summary period. Solar wind velocity started to rise on 05 May with the onset of a large southern coronal hole high speed flow, reaching 650 km/s by the end of the day. Solar wind velocity continued a gradual increase on 06 – 08 May with peak velocities near 750 km/s. On 09 May, solar wind velocity increased again for a six-hour period with peak velocities near 900 km/s then began a gradual decrease. Velocity continued to decrease on 10 May and ended the day at 550 km/s. A second large southern coronal hole high speed flow rotated into a favorable position on 11 May and solar wind began a gradual rise closing the period near 700 km/s. The Bz component of the interplanetary magnetic field was on average slightly southward for most of the period.

Transient flow signatures were observed on 09 – 10 May and coronal hole high speed flow signatures were observed for the rest of the period.

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 everyday of the period, 05 – 11 May.

The geomagnetic field was at quiet to major storm levels. Activity on 05 – 06 May was at quiet to active conditions with one period of isolated minor storming on 06 May. Activity on 07 – 09 May was predominantly at unsettled to minor storm levels with one period of isolated major storming on 07 May. Unsettled to major storm levels were observed on 10 – 11 May due to the six-hour period of high solar wind speed on 10 May and Bz southward fluctuations near -10 nT as mentioned above.

Space Weather Outlook 14 May - 09 June 2003

Solar activity is expected to range from low to moderate activity. Activity is expected to be at very low levels early in the period until Regions 345/349 return on 19 May. These regions are expected to present isolated M-class potential until they rotate beyond the west limb around 02 June.

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

The greater than 2 MeV electron flux is expected to reach high levels every day of the period.

The geomagnetic field is expected to range from quiet to isolated major storm levels. On 14 – 15 May, isolated major storm levels are possible with the return of a large coronal hole high speed flow. A negative polarity coronal hole is due to return to a geo-effective position on 27 – 30 May with major storming possible. On 02 June, a large positive polarity coronal hole is due to return and could produce unsettled to major storming for the remainder 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
05 May	129	144	1400	B5.2	4	0	0	3	0	0	0	0
06 May	122	117	1480	B5.5	7	0	0	1	0	0	0	0
07 May	110	109	1160	B6.1	9	0	0	2	0	0	0	0
08 May	101	33	300	B5.4	3	0	0	0	0	0	0	0
09 May	97	23	320	B2.7	1	0	0	0	0	0	0	0
10 May	93	22	180	B1.1	0	0	0	0	0	0	0	0
11 May	92	47	250	A7.7	0	0	0	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
05 May	8.5E+6	1.1E+4	3.8E+3		4.8E+8	
06 May	4.2E+6	1.0E+4	3.6E+3		1.1E+8	
07 May	8.3E+6	1.0E+4	3.7E+3		4.5E+8	
08 May	9.3E+6	1.0E+4	3.7E+3		1.0E+9	
09 May	2.0E+6	1.0E+4	3.5E+3		3.2E+8	
10 May	2.2E+6	1.1E+4	3.8E+3		6.8E+7	
11 May	2.7E+6	1.2E+4	4.0E+3		1.1E+8	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	05 May	11	1-2-2-2-2-4-3-3	13	1-2-1-3-3-4-3-3	12
06 May	15	3-2-2-2-4-3-3-4	40	3-3-2-6-6-6-4-3	23	4-3-3-4-5-4-4-4
07 May	24	5-4-5-3-3-3-3-2	61	4-5-7-7-5-5-4-2	36	5-5-6-5-4-4-3-3
08 May	22	4-4-3-3-4-4-4-3	50	4-4-5-7-5-5-5-3	30	5-5-4-5-4-4-5-3
09 May	20	4-4-4-3-4-3-2-3	46	3-4-5-7-6-5-2-2	29	4-4-5-5-5-3-3-3
10 May	32	6-6-4-4-2-2-3-3	*	5-6-6-6-1-*-*-*	43	6-6-6-5-2-3-3-3
11 May	22	4-2-5-4-4-3-2-3	37	4-2-5-6-6-4-3-3	31	5-3-6-5-5-3-3-3

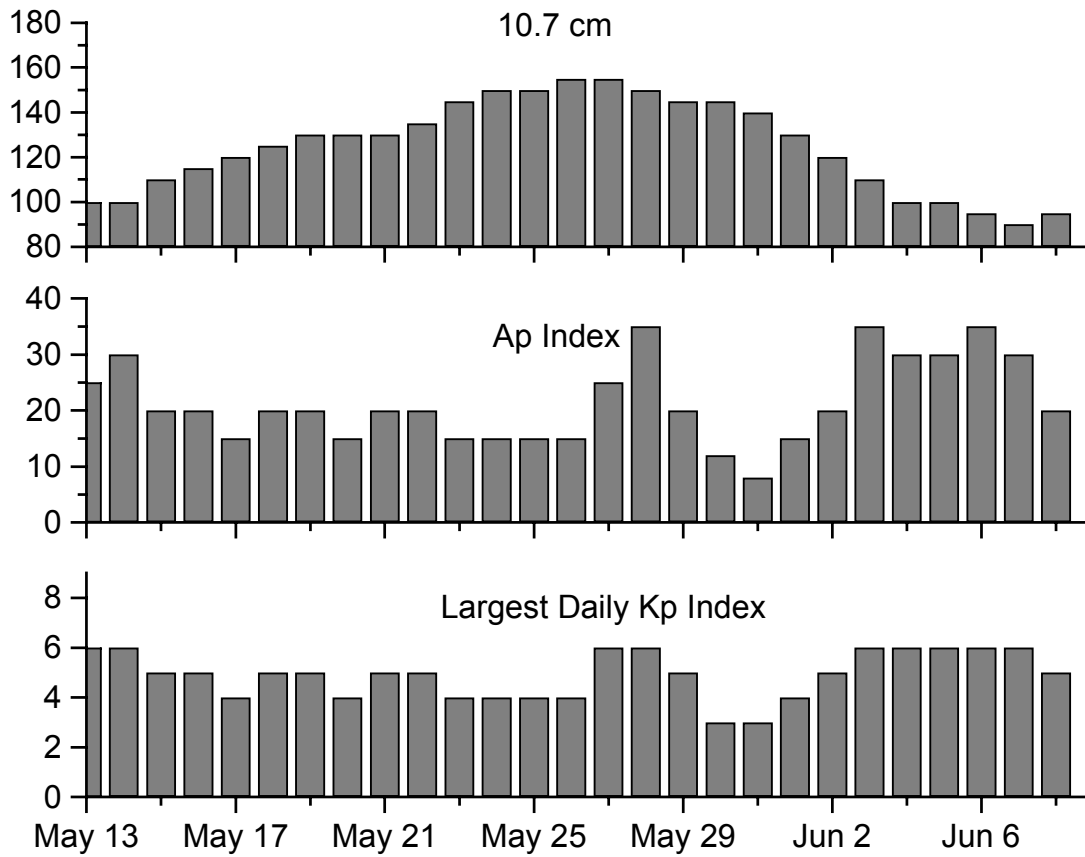


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UT</u>
05 May 0105	1 - 245 MHz Radio Burst	04 May
05 May 0105	1 - 245 MHz Radio Noise Storm	04 May
05 May 1042	ALERT: Electron 2MeV Integral Flux > 1000pfu	05 May 0900
05 May 1434	WARNING: Geomagnetic K= 4	05 May 1500 - 2359
05 May 1606	ALERT: Geomagnetic K= 4	25 May 1603
05 May 1934	WATCH: Geomagnetic A \geq 20	06 May
05 May 2201	WATCH: Geomagnetic A \geq 20	07 May
05 May 2316	WARNING: Geomagnetic K = 5	05 May 2330 - 06 May 1500
06 May 1143	ALERT: Geomagnetic K = 4	06 May 1143
06 May 1343	ALERT: Geomagnetic K = 5	06 May 1343
06 May 1444	WARNING: Geomagnetic K = 4	06 May 1459 - 07 May 1500
06 May 1453	EXTENDED WARNING: Geomagnetic K = 5	05 May 2330 - 06 May 2359
06 May 1550	ALERT: Electron 2MeV Integral Flux > 1000pfu	06 May 1530
06 May 2348	EXTENDED WARNING: Geomagnetic K = 5	05 May 2330 - 07 May 1500
07 May 0012	4 - 245 MHz Radio Bursts	06 May
07 May 0012	1 - 245 MHz Radio Noise Storm	06 May
07 May 0719	WARNING: Geomagnetic K= 6	07 May 0720 - 1500
07 May 0730	ALERT: Geomagnetic K= 6	07 May 0723
07 May 1113	ALERT: Electron 2MeV Integral Flux > 1000pfu	07 May 1035
07 May 1448	EXTENDED WARNING: Geomagnetic K= 4	06 May 1459 - 07May 2359
07 May 1958	WARNING: Geomagnetic K= 5	07 May 2000 - 08 May 0600
08 May 0112	7 - 245 MHz Radio Bursts	07 May
08 May 0112	1 - 245 MHz Radio Noise Storm	07 May
08 May 0139	ALERT: Geomagnetic K = 5	08 May 0138
08 May 0445	EXTENDED WARNING: Geomagnetic K = 5	07 May 2000 - 08 May 1500
08 May 0932	ALERT: Electron 2MeV Integral Flux > 1000pfu	08 May 0900
08 May 1506	WARNING: Geomagnetic K= 4	08 May 1510 - 2359
08 May 1752	ALERT: Geomagnetic K =4	08 May 1749
08 May 1949	WARNING: Geomagnetic K = 5 expected	08 May 1950 - 09 May 1500
08 May 1952	ALERT: Geomagnetic K = 5	08 May 1951
08 May 2049	WATCH: Geomagnetic A \geq 20	09 May
09 May 0314	2 - 245 MHz Radio Bursts	08 May
09 May 0953	ALERT: Electron 2MeV Integral Flux exceeded 1000pfu	09 May 0920
09 May 1451	WARNING: Geomagnetic K = 4 expected	09 May 1455 - 2359
09 May 2014	WATCH: Geomagnetic A \geq 20 or greater predicted	12 May
09 May 2255	EXTENDED WARNING: Geomagnetic K = 4	09 May 1455 - 10 May 1500
10 May 0037	WARNING: Geomagnetic K = 5	10 May 0040 - 1500
10 May 0114	ALERT: Geomagnetic K = 5	10 May 0112
10 May 0420	ALERT: Geomagnetic K = 6	10 May 0415
10 May 0428	WARNING: Geomagnetic K = 6	10 May 0428 - 1500
10 May 1502	EXTENDED WARNING: Geomagnetic K = 5	10 May 0040 - 2359
10 May 1912	ALERT: Electron 2MeV Integral Flux > 1000pfu	10 May 1845
10 May 2131	WATCH: Geomagnetic A \geq 20	13 May
10 May 2354	EXTENDED WARNING: Geomagnetic K = 5	10 May 0040 - 11 May 1500
11 May 1454	EXTENDED WARNING: Geomagnetic K = 5	10 May 0040 - 11 May 2359
11 May 1607	ALERT: Electron 2MeV Integral Flux > 1000pfu	11 May 1545
11 May 2134	WATCH: Geomagnetic A \geq 30	12 May
11 May 2142	WATCH: Geomagnetic A \geq 30	13 May
11 May 2353	WARNING: Geomagnetic K = 6	11 May 2355 - 12 May 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
14 May	100	30	6	28 May	150	35	6
15	110	20	5	29	145	20	5
16	115	20	5	30	145	12	3
17	120	15	4	31	140	8	3
18	125	20	5	01 Jun	130	15	4
19	130	20	5	02	120	20	5
20	130	15	4	03	110	35	6
21	130	20	5	04	100	30	6
22	135	20	5	05	100	30	6
23	145	15	4	06	95	35	6
24	150	15	4	07	90	30	6
25	150	15	4	08	95	20	5
26	155	15	4	09	95	20	5
27	155	25	6				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	1/2 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.	Imp / Brtns	Optical Location Lat CMD	Rgn			
	Begin	Max	End							
05 May	0628	0629	0633	C2.0	Sf	S14W49	349			
	1258	1319	1332				348			
	1654	1658	1716				C1.3	349		
	2008	2009	2012				C1.6	Sf	S14W58	349
	2223	2230	2243				C1.1	349		
06 May	0015	0016	0020	C3.2	Sf	S32W53	348			
	0137	0148	0236				349			
	0906	1020	1043				C5.7	349		
	1344	1410	1430				C3.7	349		
	1724	1729	1734				C1.3	349		
	1913	1925	1950				C2.8	349		
	2018	2047	2057				C2.0	348		
	2104	2114	2124				C2.6	348		
	07 May	0549	0612				0626	C3.2	Sf	S33W78
0706		0707	0712	C4.2	348					
1017		1027	1036	C2.2						
1051		1054	1057	C2.3						
1306		1312	1316	C1.8	349					
1551		1554	1556	C1.2						
1558		1559	1603		Sf	S37W72	348			
2026		2032	2036	C2.0	348					
2044		2049	2058	C5.9						
2133		2141	2149	C1.7	349					
08 May	0540	0547	0615	C2.3			348			
	0854	0858	0901				C1.2	348		
	1141	1146	1148				C1.9	349		
	2137	2144	2151				B6.8	348		
09 May	0035	0048	0059	C3.8			349			
	0729	0733	0742				B5.4	348		
	1518	1610	1651				B6.6	354		
10 May	0540	0544	0550	B1.9			349			
	0647	0653	0658				B2.3			
	0944	0947	0952				B2.3			
11 May	1351	1354	1358	B1.2						



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 345</i>																		
24 Apr	S17E74	166	0030	05	Cso	004	B											
25 Apr	S17E61	166	0170	06	Dao	008	B											
26 Apr	S17E48	166	0170	07	Dao	006	B											
27 Apr	S17E34	166	0190	05	Dao	006	B											
28 Apr	S17E21	166	0210	05	Dao	013	B											
29 Apr	S16E08	166	0190	05	Dao	015	B	1										
30 Apr	S17W06	167	0110	05	Dao	009	B	1										
01 May	S17W19	167	0120	04	Dao	007	B											
02 May	S17W34	167	0130	08	Dao	012	Bg	1	1			4						
03 May	S17W46	166	0110	05	Dao	006	B	1				1						
04 May	S17W60	167	0100	04	Dao	004	B											
05 May	S17W72	166	0060	03	Dao	003	B											
06 May	S17W86	167	0030	02	Hsx	001	A											
								4	1	0	5	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 167

<i>Region 346</i>																		
24 Apr	N16E74	166	0050	02	Hsx	001	A											
25 Apr	N16E61	166	0060	02	Hsx	001	A		1			1						
26 Apr	N16E48	166	0060	04	Cso	003	B											
27 Apr	N16E35	165	0060	02	Hsx	001	A											
28 Apr	N16E23	165	0090	02	Hsx	002	A											
29 Apr	N16E12	162	0090	04	Cso	004	B											
30 Apr	N16W02	163	0060	02	Hsx	001	A											
01 May	N15W15	163	0060	02	Hsx	001	A											
02 May	N15W28	161	0070	02	Hsx	001	A											
03 May	N14W40	160	0070	01	Hsx	001	A											
04 May	N14W54	161	0070	02	Hsx	001	A											
05 May	N14W67	161	0060	01	Hsx	001	A											
06 May	N14W77	158	0050	02	Hsx	001	A											
07 May	N13W90	157	0060	02	Hsx	001	A											
								0	1	0	1	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 163



Region Summary - continued.

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 348</i>																		
26 Apr	S36E58	156	0020	06	Bxo	004	B											
27 Apr	S36E44	156	0030	06	Cso	007	B											
28 Apr	S36E31	156	0030	07	Dso	009	B											
29 Apr	S35E19	155	0050	09	Dso	010	B											
30 Apr	S36E11	150	0020	04	Cso	005	B											
01 May	S34W01	149	0010	01	Axx	002	A											
02 May	S35W13	146	0010	02	Axx	004	A											
03 May	S35W27	147	0040	09	Cro	010	B					1						
04 May	S35W44	151	0250	16	Fki	023	Bg					5						
05 May	S35W55	149	0330	17	Fai	027	Bg					1						
06 May	S34W68	149	0560	19	Fki	018	Bg	2				1						
07 May	S34W80	147	0420	19	Fai	015	Bg	2				2						
08 May	S36W90	143	0080	03	Hsx	001	A	2										
								6	0	0	10	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 149

<i>Region 349</i>																		
26 Apr	S14E60	154	0030	01	Hrx	002	A											
27 Apr	S14E46	154	0150	06	Dao	015	B					2						
28 Apr	S14E33	154	0390	09	Dki	029	Bg											
29 Apr	S13E20	154	0510	10	Dkc	044	Bg	8				4						
30 Apr	S13E07	154	0740	12	Eki	045	Bg	1										
01 May	S14W06	154	1020	12	Ekc	051	Bg	9				7						
02 May	S13W21	154	1010	14	Ekc	057	Bg											
03 May	S14W34	154	0820	14	Ekc	052	Bg											
04 May	S15W47	154	1030	15	Ekc	054	Bg	4				1						
05 May	S14W60	154	0730	16	Fkc	040	Bg	4				2						
06 May	S15W71	152	0610	16	Fkc	024	Bg	5										
07 May	S14W86	153	0450	13	Eki	014	Bg	3										
								34	0	0	16	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 154



Region Summary - continued.

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

Region 351

30 Apr	N06E76	085	0090	03	Hkx	001	A											
01 May	N08E65	083	0150	03	Hax	001	A											
02 May	N08E51	082	0180	04	Hsx	001	A											
03 May	N08E38	082	0240	03	Hax	001	A											
04 May	N08E25	082	0220	04	Hhx	001	A											
05 May	N08E12	082	0180	03	Hsx	001	A											
06 May	N08W02	083	0190	03	Hax	001	A											
07 May	N08W15	082	0200	03	Hsx	001	A											
08 May	N08W27	080	0200	03	Hsx	001	A											
09 May	N10W41	081	0210	03	Hsx	001	A											
10 May	N09W55	082	0150	02	Hsx	001	A											
11 May	N09W67	081	0150	02	Hsx	001	A											

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 083

Region 352

01 May	S24E43	105	0020	04	Bxo	003	B											
02 May	S25E30	103	0020	05	Bxo	004	B											
03 May	S25E17	103																
04 May	S25E04	103																
05 May	S25W09	103																
06 May	S25W22	103																
07 May	S25W35	103																
08 May	S25W48	103																
09 May	S25W61	103																
10 May	S25W74	103																
11 May	S25W87	103																

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 103



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 353

04 May	S16E33	074	0020	02	Axx	002	A											
05 May	S16E20	074																
06 May	S16E07	074																
07 May	S16W09	076	0010	04	Bxo	006	B											
08 May	S16W22	076																
09 May	S16W35	076																
10 May	S16W48	076																
11 May	S16W61	076																

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 074

Region 354

04 May	N19E58	049	0040	01	Hsx	001	A											
05 May	N19E47	047	0020	01	Hsx	001	A											
06 May	N19E33	048	0030	01	Hsx	001	A											
07 May	N19E21	046	0010	01	Axx	001	A											
08 May	N19E07	046	0020	01	Hsx	001	A											
09 May	N19W06	046																
10 May	N19W19	046																
11 May	N17W32	046	0000	00	Axx	001	A											

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 046

Region 355

05 May	N12E45	049	0020	01	Hsx	001	A											
06 May	N12E31	050	0010	01	Hsx	001	A											
07 May	N13E17	050	0010	01	Hrx	001	A											
08 May	N13E04	050																
09 May	N13W09	050																
10 May	N13W22	050																
11 May	N13W35	050																

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 050



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 356

09 May	N15E63	337	0110	06	Dso	002	B										
10 May	N15E47	340	0030	01	Hsx	001	A										
11 May	N16E36	338	0060	05	Cso	002	B										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 338

Region 357

11 May	S16E70	304	0040	09	Cso	003	B										
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0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 304

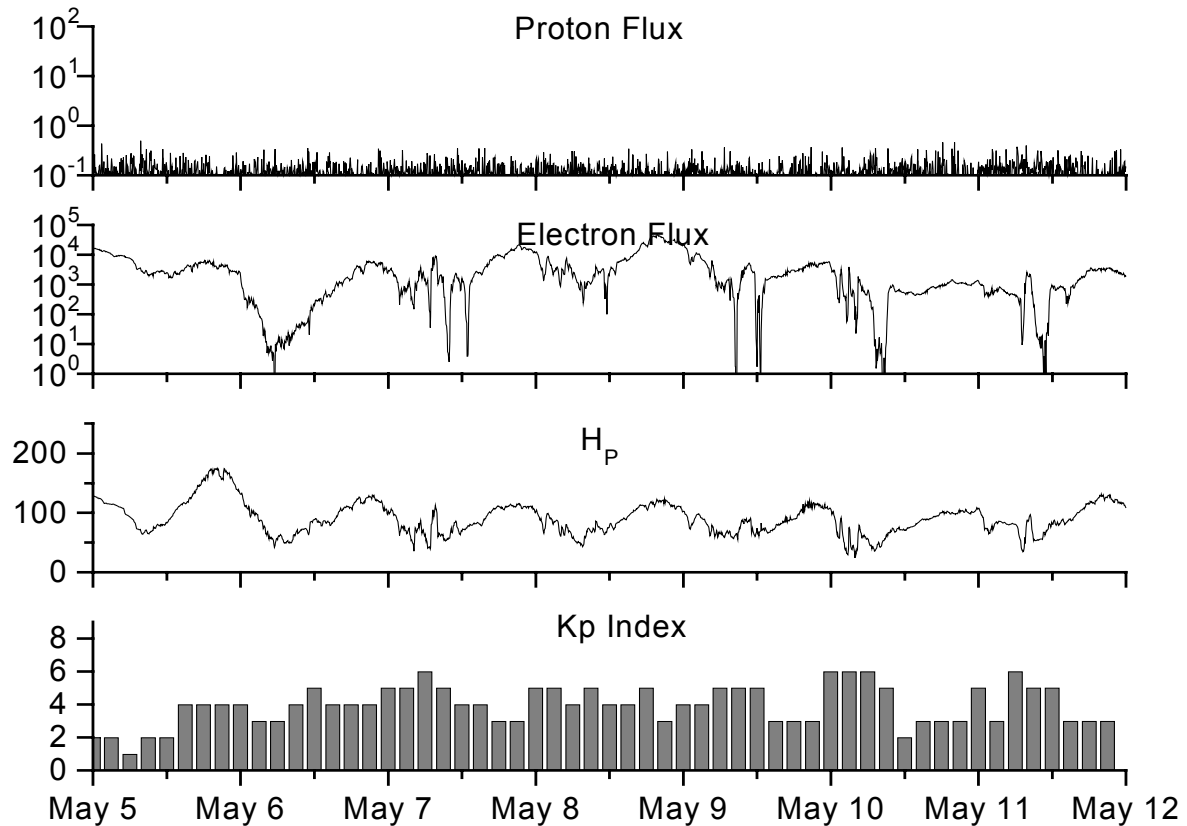


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
2001									
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
2002									
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	0.60	179.9	106.3	148.7	183.0	11	13.5
July	183.5	99.9	0.54	175.4	102.7	173.5	173.5	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	163.4	94.6	175.8	164.2	14	14.9
October	153.9	97.5	0.63	158.7	90.5	167.0	159.5	23	15.5
November	159.8	95.5	0.60			168.7		16	
December	147.9	80.8	0.55			158.6		13	
2003									
January	149.3	79.5	0.53			144.6		13	
February	87.9	46.2	0.53			124.6		15	
March	119.7	61.5	0.51			132.3		19	
April	114.3	60.0	0.52			126.5		20	

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 05 May 2003

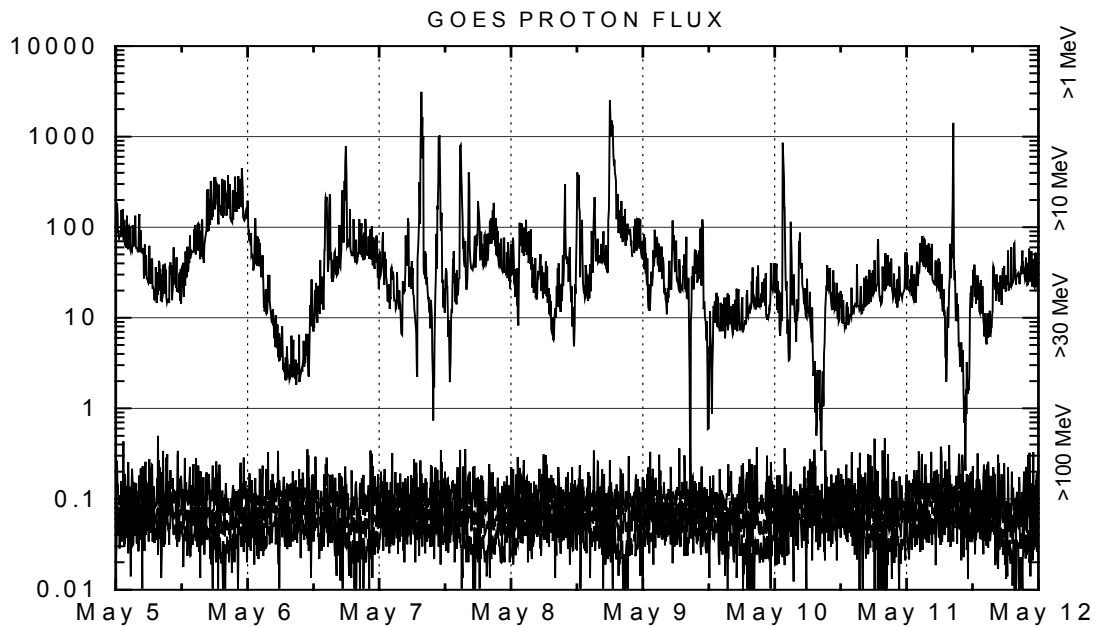
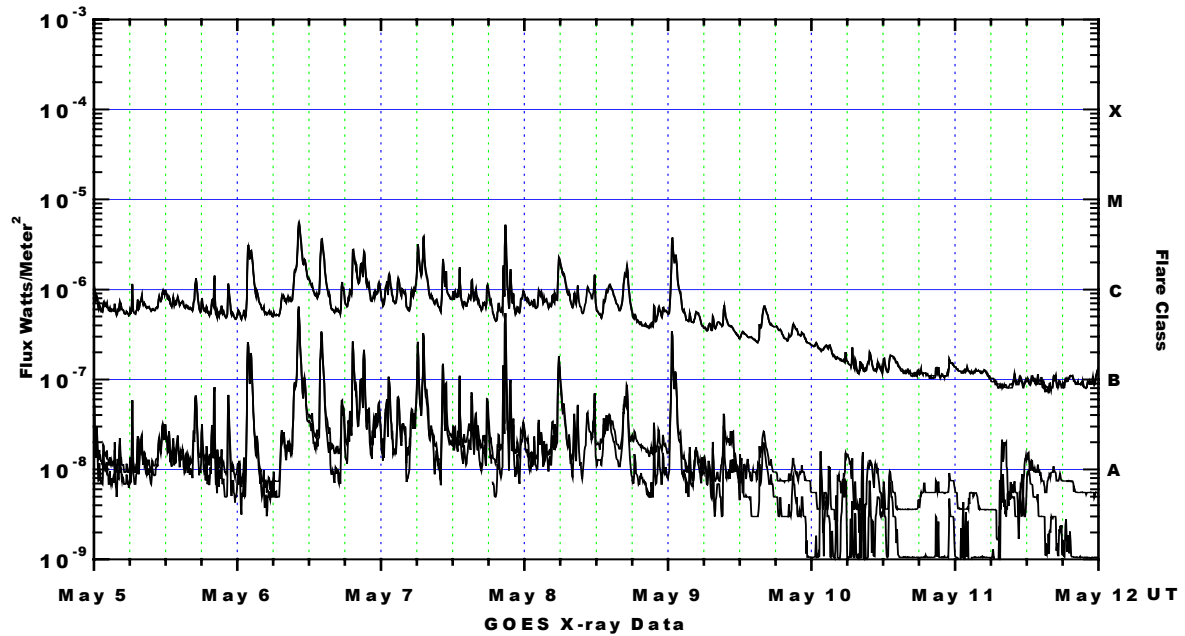
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-10 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-10.

H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-10. 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_{parallel} 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 10 and 12 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-10 (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.



Cosmic-Ray Ground-Level Events



Space Environment Center

April 2003
(Month 79)

Preliminary data

Comparison of Cycles at current month in cycle

