

Space Weather Highlights
29 March – 04 April 2004

SWO PRF 1492
06 April 2004

Solar activity ranged from very low to low this summary period. Region 582 (N14, L=055, class/area, Eki/300 on 30 March) produced the majority of the period's activity; 24 low to moderate level C-class flares. The largest flare from Region 582 was recorded at 29/2324 UTC, a C8.2/Sf with moderate radio emission. A more significant event was observed from this region at 31/1151 UTC, a C3.4 long duration X-ray event with a full-halo CME on LASCO imagery. Since 30 March, this region decayed in area coverage, spot count, and magnetic complexity and ended the period as a simple alpha spot. New Region 588 (S16, L=313, class/area, Cso/120 on 04 April) exhibited slow, steady growth since rotating onto the disk on 01 April. This region is the return of old Region 570 and appears to be oriented in a north-south configuration with mixed polarity.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft during most of the summary period. The period began with solar wind velocities near 625 km/s and trending downward, bottoming out at about 375 km/s early on 03 April. By 03/0849 UTC, a weak shock was observed at ACE, which increased the wind speed to about 425 km/s. The shock was in response to the 31 March long duration flare from Region 582 and subsequent full-halo CME. By 04 April, speeds peaked at 550 km/s and by the end of the summary period, decayed down to 425 km/s. During this period of wind stream intensification, the Bz component of the interplanetary magnetic field (IMF) turned southward on 03 April, to -10 nT but rotated northward to near +15 nT by midday on the 4th. Otherwise, fluctuations in the IMF were weak, not varying much beyond +/- 5 nT.

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

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels the entire summary period.

The geomagnetic field ranged from quiet to major storm levels. Active to minor storm levels were observed midday on 03 April through early on 04 April as a result of the full-halo CME from 31 March. Isolated major conditions were observed early on 04 April. Otherwise, the field was at quiet to unsettled levels.

Space Weather Outlook
07 April - 03 May 2004

Solar activity levels are expected to range from low to moderate throughout the forecast period. Isolated moderate activity is possible from new Region 588 until its departure on 13 April. Activity should be mostly very low to low levels from 13 to 25 April. Solar activity is expected to increase to low to moderate levels after Region 588 returns on 26 April.

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

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels from 07 - 11, 18 - 20, 24 - 26 April, and 03 May due to recurrent coronal hole high-speed streams.

The geomagnetic field is expected to range from quiet to minor storm levels. From 07 - 09 April, active to minor storm conditions are possible due to the influence of a recurrent coronal hole that will be in a geoeffective position. Unsettled to active conditions are expected on 17 - 18 April, and again from 23 - 25 April, due to a weak coronal hole high-speed stream. Active to minor storm levels are possible from 02 May through to the end of the forecast period due to a large, recurrent coronal hole.



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
29 March	129	169	750	B3.4	8	0	0	6	0	0	0	0
30 March	127	121	540	B3.1	12	0	0	9	0	0	0	0
31 March	121	95	560	B3.2	6	0	0	5	1	0	0	0
01 April	113	100	540	B2.1	1	0	0	0	0	0	0	0
02 April	108	99	470	B1.7	0	0	0	0	0	0	0	0
03 April	107	68	440	B1.5	0	0	0	0	0	0	0	0
04 April	109	69	490	B1.5	1	0	0	1	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
	29 March	1.2E+6	1.2E+4	2.6E+3		3.6E+8
30 March	2.5E+6	1.3E+4	2.7E+3		3.1E+8	
31 March	1.7E+6	1.3E+4	2.6E+3		2.7E+8	
01 April	1.2E+6	1.4E+4	2.8E+3		2.2E+8	
02 April	1.4E+6	1.3E+4	2.8E+3		2.5E+8	
03 April	8.6E+5	1.2E+4	2.5E+3		4.1E+7	
04 April	9.4E+5	1.2E+4	2.3E+3		8.3E+5	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	29 March	9	1-3-2-2-3-2-2-2	23	2-2-3-4-5-5-2-4	12
30 March	11	2-2-3-3-3-3-2-1	28	2-2-4-6-6-3-1-1	12	1-2-4-4-4-3-2-1
31 March	7	1-2-3-1-2-2-2-2	14	1-1-4-3-4-3-3-1	7	1-2-3-1-3-2-3-2
01 April	2	0-0-1-0-1-0-2-1	3	1-0-0-1-2-1-1-1	3	0-0-1-1-2-1-2-1
02 April	3	1-0-1-0-0-0-1-3	1	1-0-1-1-0-0-0-0	3	1-0-0-1-1-2-1-1
03 April	21	2-3-2-2-4-4-4-5	56	2-3-4-4-6-7-7-3	23	2-3-4-3-4-4-5-5
04 April	12	5-1-2-1-2-2-2-3	8	4-2-1-1-2-2-1-2	12	5-3-2-1-2-2-1-3

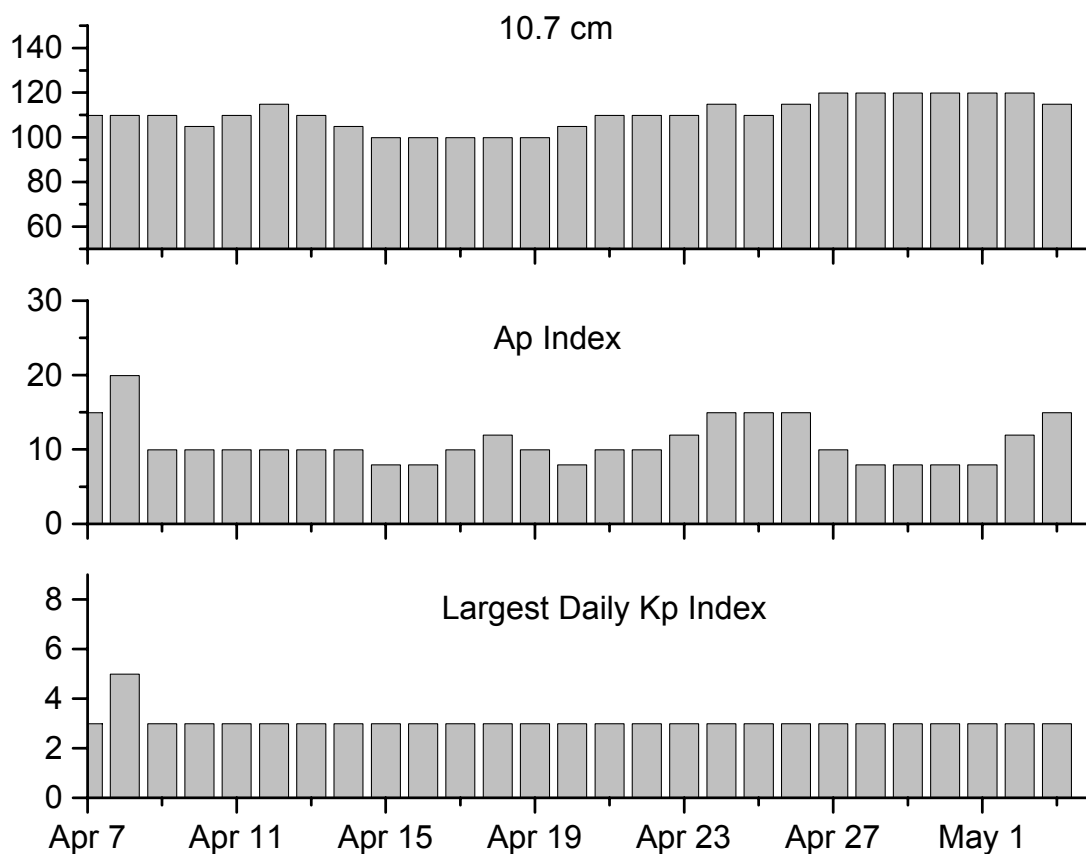


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
29 Mar 0331	WARNING: Geomagnetic K = 4	29 Mar 0332 - 1500
29 Mar 0340	ALERT: Geomagnetic K = 4	29 Mar 0335
29 Mar 0516	ALERT: Electron 2MeV Integral Flux > 1000pfu	29 Mar 0500
29 Mar 2102	SUMMARY: 10cm Radio Burst	29 Mar 1548
30 Mar 0010	17 – 245 MHz Radio Bursts	29 Mar
30 Mar 0010	1 – 245 MHz Radio Noise Storm	29 Mar
30 Mar 0652	ALERT: Electron 2MeV Integral Flux > 1000pfu	30 Mar 0635
30 Mar 0733	WARNING: Geomagnetic K = 4	30 Mar 0733 - 1500
30 Mar 0740	ALERT: Geomagnetic K = 4	30 Mar 0740
31 Mar 0012	24 – 245 MHz Radio Bursts	30 Mar
31 Mar 0012	1 – 245 MHz Radio Noise Storm	30 Mar
31 Mar 0517	ALERT: Electron 2MeV Integral Flux > 1000pfu	31 Mar 0500
01 Apr 0019	5 – 245 MHz Radio Bursts	31 Mar
01 Apr 0019	1 – 245 MHz Radio Noise Storm	31 Mar
01 Apr 0822	ALERT: Electron 2MeV Integral Flux > 1000pfu	01Apr 0800
02 Apr 0210	2 – 245 MHz Radio Bursts	01 Apr
02 Apr 0519	ALERT: Electron 2MeV Integral Flux > 1000pfu	02 Apr 0500
03 Apr 0044	2 – 245 MHz Bursts	02 Apr
03 Apr 1424	ALERT: Geomagnetic K = 4	03 Apr 1418
03 Apr 1426	WARNING: Geomagnetic K = 4	03 Apr 1426 - 2359
03 Apr 1430	SUMMARY: Geomagnetic Sudden Impulse	03 Apr 1414
03 Apr 1443	ALERT: Electron 2MeV Integral Flux > 1000pfu	03 Apr 1425
03 Apr 1703	WARNING: Geomagnetic K = 5	03 Apr 1703 - 2359
03 Apr 1742	ALERT: Geomagnetic K = 5	03 Apr 1741
03 Apr 2354	EXTENDED WARNING: Geomagnetic K = 4	03 Apr 1426 – 04 Apr 1600
04 Apr 0135	WARNING: Geomagnetic K = 5	04 Apr 0135 - 1600
04 Apr 0138	ALERT: Geomagnetic K = 5	04 Apr 0138
04 Apr 0147	WARNING: Geomagnetic K = 6	04 Apr 0140 - 1600
04 Apr 0150	ALERT: Geomagnetic K = 6	04 Apr 0150
04 Apr 0608	WATCH: Geomagnetic A ≥ 20	06 Apr
04 Apr 2111	WATCH: Geomagnetic A ≥ 20	05 Apr



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
07 Apr	110	15	3	21 Apr	110	10	3
08	110	20	5	22	110	10	3
09	110	10	3	23	110	12	3
10	105	10	3	24	115	15	3
11	110	10	3	25	110	15	3
12	115	10	3	26	115	15	3
13	110	10	3	27	120	10	3
14	105	10	3	28	120	8	3
15	100	8	3	29	120	8	3
16	100	8	3	30	120	8	3
17	100	10	3	01 May	120	8	3
18	100	12	3	02	120	12	3
19	100	10	3	03	115	15	3
20	105	8	3				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location Lat CMD	Rgn	
	Begin	Max	End					
29 March	0308	0312	0315	B6.0			582	
	0419	0419	0426		Sf	N15E25	582	
	0430	0431	0440	B6.9	Sf	N16E25	582	
	0457	0501	0504	B6.7				
	0755	0758	0801	B5.0			587	
	0945	0948	0953	B6.1			587	
	1249	1303	1307	C2.7			582	
	1550	1556	1601	C5.5	Sf	N16E17	582	
	1729	1735	1741	C1.5			582	
	1843	1844	1850	C3.4	Sf	N16E16	582	
	1958	1959	2012	C4.5	Sf	N15E16	582	
	2023	2036	2043	C1.1			582	
	2059	2102	2104	C1.4			582	
	2225	2230	2232	B9.7			582	
	2322	2325	2332	C8.2	Sf	N15E13	582	
	30 March	0153	0156	0203	C5.7	Sf	N14E12	582
		0249	0250	0304	C1.8	Sf	N12E11	582
0310		0310	0315	C1.5	Sf	N13E11	582	
0345		0345	0350		Sf	N15E12	582	
0507		0525	0533	C2.2	Sf	N13E13	582	
0520		0525	0528	C3.3				
0539		0542	0544	C1.3	Sf	N12E09	582	
0941		0951	0954	C5.9				
1011		1016	1022	B9.4				
1037		1041	1043	B6.8				
1230		1238	1244	C1.0				
1254		1300	1303	C4.7				
1344		1349	1356	B9.2			582	
1757		1759	1802	C1.4	Sf	N16E02	582	
1906		1915	1925	B6.0			577	
2136		2136	2141	C1.1	Sf	N16E00	582	
2217		2222	2226	B6.4			582	
2258	2309	2334	C2.0	Sf	S05E02	581		
31 March	0013	0016	0030	C3.8	1f	N12W01	582	
	0038	0042	0053		Sf	N09E01	582	
	0452	0456	0500	B4.9				
	0601	0604	0617	C2.2	Sf	N16W02	582	



Flare List – continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
31 March	0937	0939	A0944	C3.7	Sf	N11W07	582
	1036	1151	1245	C3.4			582
	1509	1511	1521	C2.8	Sf	N12W11	582
	2005	2006	2016	C7.4	Sf	N16W10	582
01 April	0338	0341	0343	B6.6			582
	0527	0535	0540	B5.5			
	1204	1208	1211	B4.1			582
	1612	1616	1618	B3.6			
	1704	1711	1724	C1.4			582
	2108	2120	2145	B6.6			582
	2258	2303	2308	B4.2			581
	02 April	0239	0243	0247	B3.7		
0649		0654	0656	B4.6			587
1610		1614	1619	B2.9			582
2131		2137	2144	B3.5			582
03 April	1026	1034	1043	B4.6			588
	1747	1808	1823	B7.2			587
	2053	2057	2102	B3.8			
	2325	2330	2336	B4.9			
04 April	0203	0207	0212	B2.7			
	0231	0236	0242	B3.2			
	0411	0417	0423	B5.0			
	0623	0627	0633	B3.1			
	0641	0646	0650	B3.5			
	1602	1626	1639	C3.0			588
	1838	1842	1844	B6.1			
	2345	2359	0029	B7.9	Sf	S18E33	588
2356	0000	0004	B5.1				



Region Summary

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 577

17 Mar S01E77	153	0060	02	Hsx	001	A									
18 Mar N00E09	208	0040	02	Hax	001	A									
19 Mar S01E52	152	0070	02	Hsx	001	A									
20 Mar S01E39	152	0070	02	Hsx	001	A									
21 Mar N00E27	151	0040	02	Hsx	001	A									
22 Mar N00E13	152	0040	02	Hsx	001	A									
23 Mar N00W01	152	0050	03	Cso	004	B									
24 Mar S01W14	152	0060	04	Cso	004	B	2			1					
25 Mar N00W25	150	0050	04	Cso	005	B	1								
26 Mar N00W38	150	0060	06	Cso	006	B									
27 Mar S02W54	153	0020	01	Hsx	001	A									
28 Mar S03W68	153	0020	02	Hax	001	A									
29 Mar S03W81	153	0020	01	Hrx	001	A									
							3	0	0	1	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude:152

Region 578

18 Mar N15E76	141	0060	02	Hax	002	A	6	1		3	1				
19 Mar N15E60	144	0080	09	Dao	011	B	9			2					
20 Mar N15E47	144	0160	10	Dsc	016	B	2			1					
21 Mar N15E34	144	0180	12	Eao	014	B	3			3					
22 Mar N16E20	145	0120	12	Eao	021	B									
23 Mar N15E05	146	0190	16	Fsc	031	Bg	1			1					
24 Mar N15W07	145	0190	15	Eao	027	B									
25 Mar N15W21	146	0180	15	Eao	024	B									
26 Mar N15W34	146	0150	14	Eao	018	Bg									
27 Mar N15W47	146	0060	13	Eao	009	B									
28 Mar N14W57	142	0020	01	Hsx	002	A									
29 Mar N13W69	141	0010	03	Bxo	003	B									
30 Mar N13W82	141														
31 Mar N13W95	141														
							21	1	0	10	1	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude:146



Region Summary - continued.

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

Region 579

22 Mar S11E48	117	0020	01	Axx	001	A									
23 Mar S13E35	116	0010	02	Bxo	002	B									
24 Mar S13E22	116														
25 Mar S13E07	118	0000	01	Axx	001	A									
26 Mar S13W06	118														
27 Mar S13W19	118														
28 Mar S13W32	118														
29 Mar S13W45	118														
30 Mar S13W58	118														
31 Mar S13W71	118														
01 Apr S13W84	118														

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude:118

Region 580

24 Mar S07W07	145	0010	01	Axx	003	A									
25 Mar S06W21	146	0010	01	Hsx	002	A									
26 Mar S06W34	146														
27 Mar S06W47	146														
28 Mar S06W60	146														
29 Mar S06W73	146														
30 Mar S06W86	146														

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude:145



Region Summary - continued.

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

Region 585

27 Mar	S15E50	049	0050	07	Dso	005	B											
28 Mar	S14E40	045	0050	05	Dai	007	B	1			1							
29 Mar	S14E25	047	0050	05	Dro	019	B											
30 Mar	S15E12	047	0010	01	Axx	002	A											
31 Mar	S15W01	047	0010	03	Bxo	003	B											
01 Apr	S15W14	047	0000	01	Axx	001	A											
02 Apr	S15W27	047	0010	01	Axx	001	A											
03 Apr	S15W40	047																
04 Apr	S15W53	047																
											1	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude:047

Region 587

28 Mar	S13E73	012	0110	08	Dai	004	B											
29 Mar	S12E63	009	0080	11	Cao	018	B											
30 Mar	S13E50	009	0120	11	Eao	018	B											
31 Mar	S13E37	009	0200	11	Eao	022	B											
01 Apr	S13E24	009	0170	09	Cao	023	B											
02 Apr	S13E11	009	0160	11	Eao	030	B											
03 Apr	S13W03	009	0130	11	Eao	016	B											
04 Apr	S14W17	010	0150	07	Dao	016	B											
											0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude:009

Region 588

01 Apr	S12E74	319	0060	01	Hsx	001	A									
02 Apr	S12E64	316	0060	02	Hsx	001	A									
03 Apr	S12E51	316	0070	03	Dso	004	B									
04 Apr	S16E40	313	0120	08	Cso	011	B	1			1					
								1	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude:313

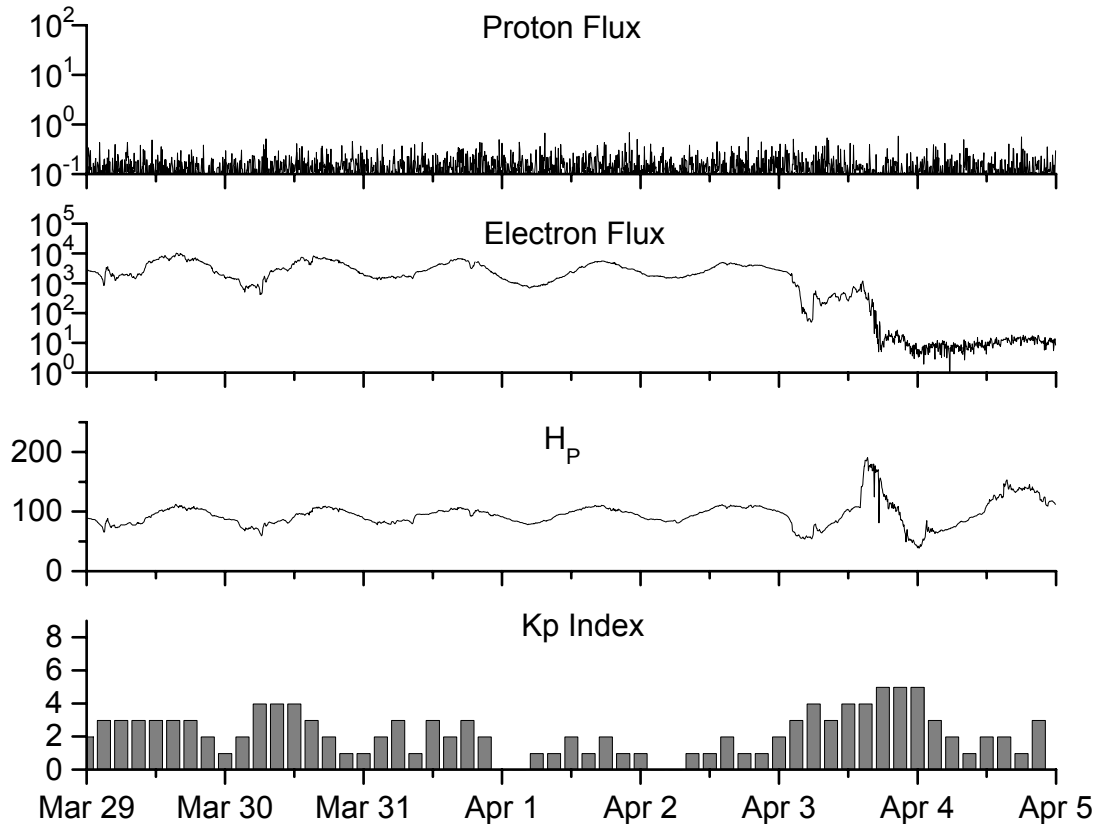


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
2002									
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	99.6	0.54	175.4	102.7	173.5	176.3	11	13.7
August	191.0	116.4	0.61	169.2	98.7	183.9	169.5	16	14.2
September	206.4	109.6	0.53	163.4	94.6	175.8	164.1	14	15.0
October	153.9	97.5	0.63	158.8	90.5	167.0	159.4	23	15.6
November	159.8	95.5	0.60	150.9	85.2	168.7	154.8	16	16.3
December	147.9	80.8	0.55	144.6	82.1	158.6	150.9	13	17.0
2003									
January	149.3	79.7	0.53	141.7	81.0	144.0	149.2	13	18.2
February	87.0	46.0	0.53	136.4	78.5	124.5	144.7	17	18.9
March	119.7	61.1	0.51	128.1	74.2	132.2	139.5	21	19.4
April	119.7	60.0	0.50	121.5	70.3	126.3	136.3	20	20.0
May	89.6	55.2	0.62	118.3	67.8	129.3	135.0	26	21.0
June	118.4	77.4	0.65	113.6	65.2	129.4	132.6	24	21.8
July	132.8	85.0	0.64	106.9	62.0	127.8	129.5	20	22.3
August	114.3	72.7	0.64	102.8	60.3	122.1	127.5	23	22.4
September	82.6	48.8	0.59	100.7	59.8	112.3	126.0	19	21.9
October	118.9	65.6	0.55			153.1		32	
November	118.9	67.2	0.57			153.1		31	
December	75.4	47.0	0.62			115.1		18	
2004									
January	62.3	37.2	0.60			114.1		20	
February	75.6	46.0	0.61			107.0		13	
March	81.0	48.9	0.60			112.2		12	

NOTE: All smoothed values after September 2002 and monthly values after March 2003 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 23, RI= 120.8, occurred April 2000. *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 29 March 2004

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by

GOES-11 (W99) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

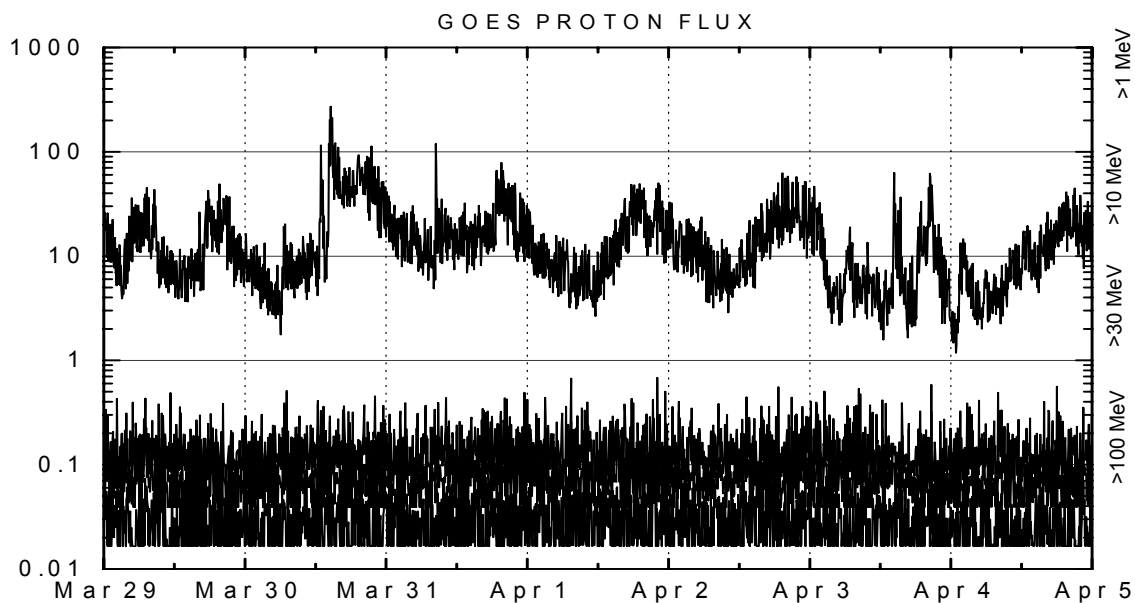
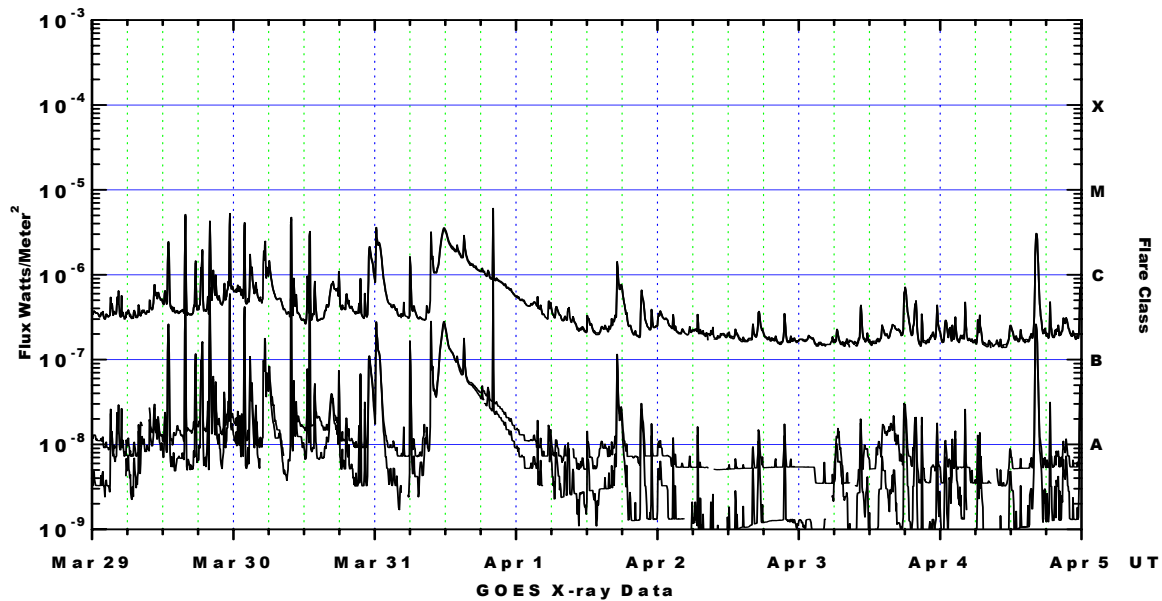
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W75).

H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. 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

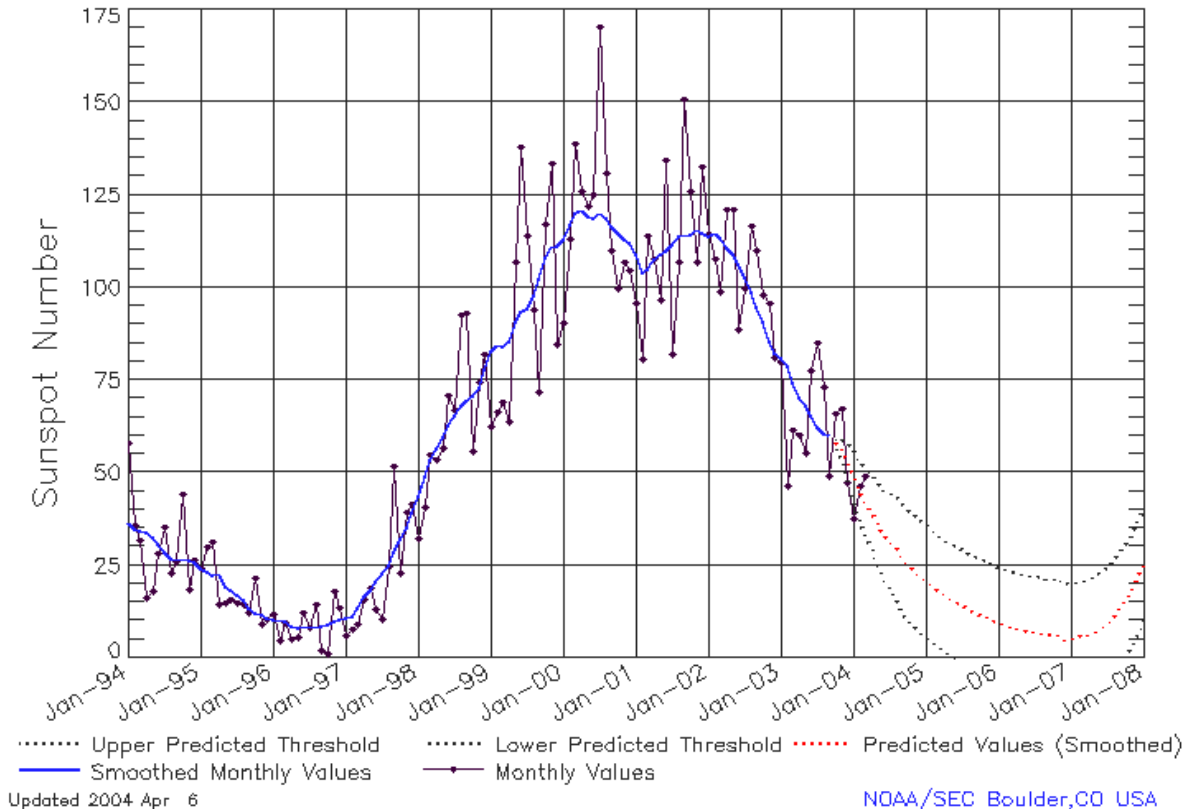
X-ray plot contains five-minute averaged x-ray flux (watts/m²) as measured by GOES 12 (W75) and GOES 10 (W135) in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W99) 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.



ISES Solar Cycle Sunspot Number Progression

Data Through 31 Mar 04



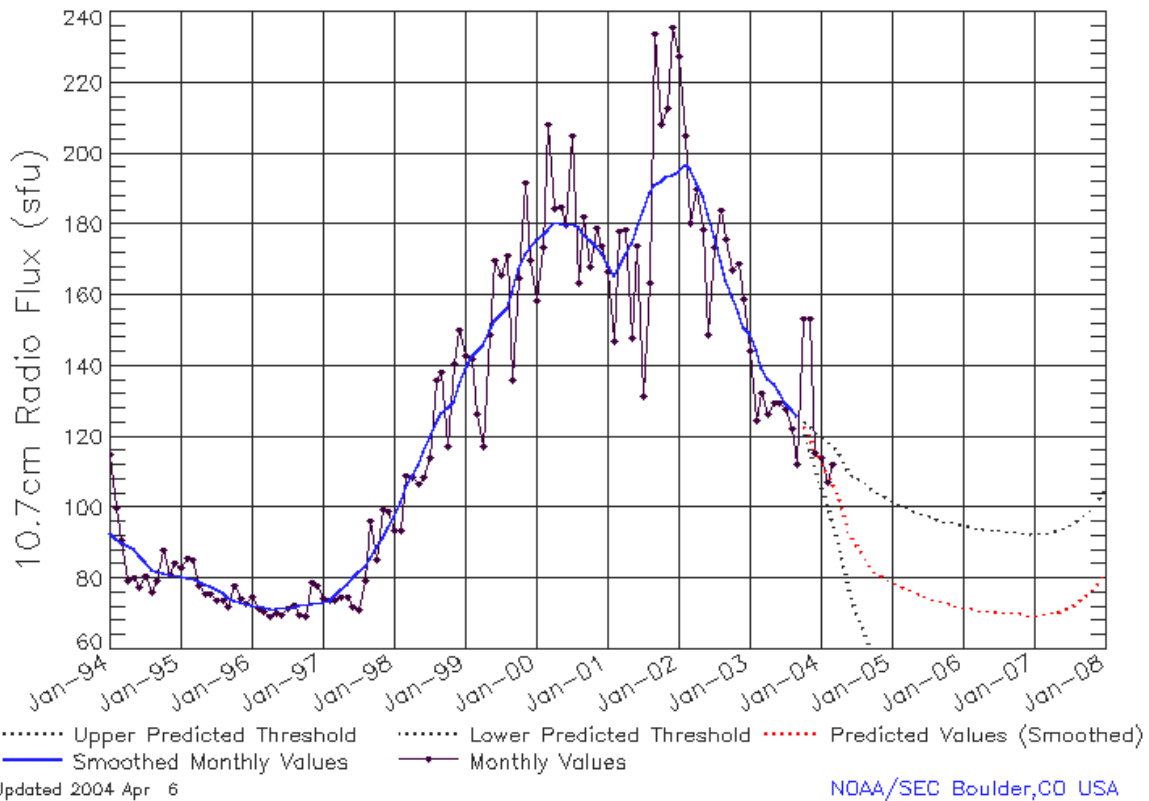
SEC Prediction of Smoothed Sunspot Number

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	44 (***)	49 (***)	53 (***)	57 (***)	59 (***)	63 (***)	66 (***)	68 (***)	70 (***)	71 (***)	73 (***)	78 (***)
1999	83 (***)	85 (***)	84 (***)	86 (***)	91 (***)	93 (***)	94 (***)	97 (***)	102 (***)	108 (***)	111 (***)	111 (***)
2000	113 (***)	117 (***)	120 (***)	121 (***)	119 (***)	119 (***)	120 (***)	119 (***)	116 (***)	114 (***)	113 (***)	112 (***)
2001	109 (***)	104 (***)	105 (***)	108 (***)	109 (***)	110 (***)	112 (***)	114 (***)	114 (***)	114 (***)	116 (***)	115 (***)
2002	114 (***)	115 (***)	113 (***)	110 (***)	109 (***)	106 (***)	103 (***)	99 (***)	95 (***)	91 (***)	85 (***)	82 (***)
2003	81 (***)	79 (***)	74 (***)	70 (***)	68 (***)	65 (***)	62 (***)	60 (***)	60 (***)	58 (1)	56 (3)	53 (5)
2004	49 (7)	45 (8)	42 (9)	40 (10)	36 (11)	33 (12)	32 (13)	30 (14)	27 (15)	25 (15)	24 (15)	22 (15)
2005	21 (15)	20 (15)	18 (15)	17 (15)	16 (15)	15 (15)	14 (15)	13 (15)	12 (15)	12 (15)	11 (15)	10 (15)
2006	10 (15)	9 (15)	8 (15)	8 (15)	8 (15)	7 (15)	7 (15)	7 (15)	7 (15)	6 (15)	6 (15)	5 (15)
2007	5 (15)	6 (15)	6 (15)	6 (15)	7 (15)	8 (15)	10 (15)	11 (15)	13 (15)	16 (15)	18 (15)	21 (15)



ISES Solar Cycle F10.7cm Radio Flux Progression

Data Through 31 Mar 04



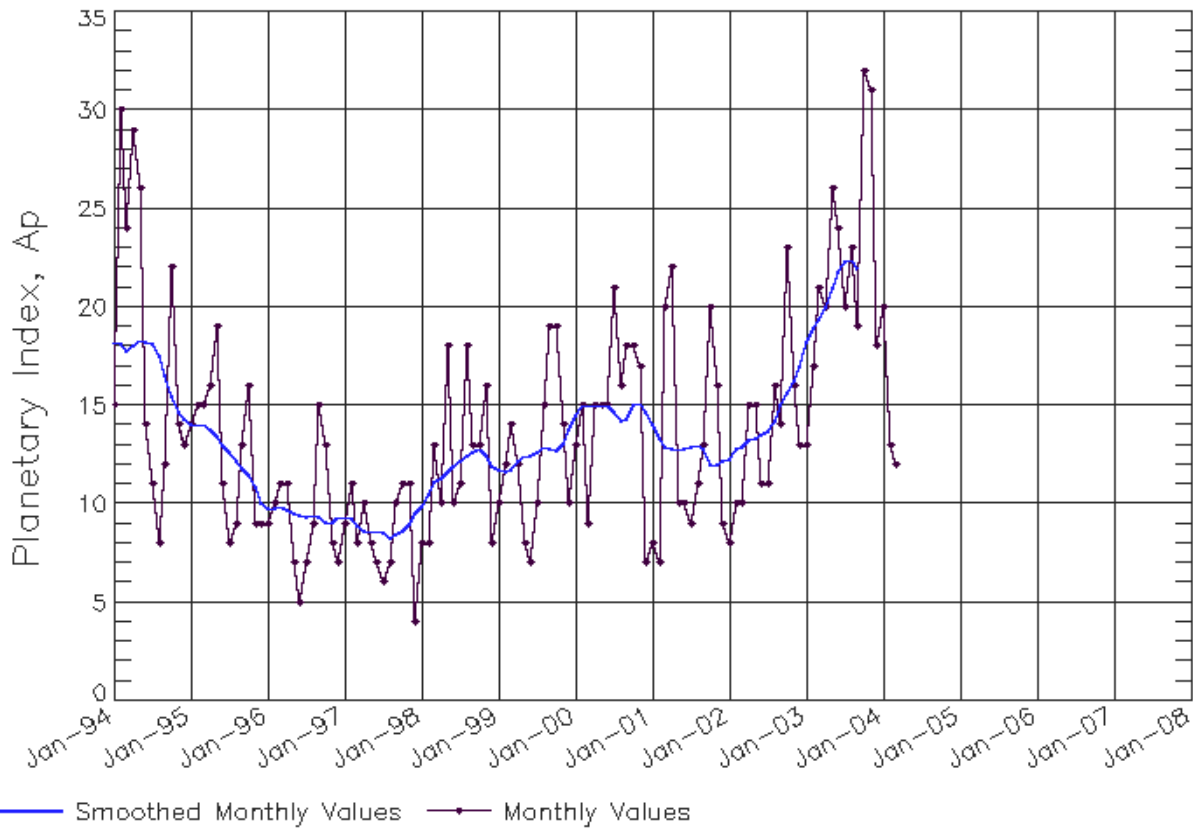
SEC Prediction of Smoothed F10.7cm Radio Flux

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	98	102	106	109	112	116	120	124	127	128	130	134
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1999	139	143	144	146	150	153	154	156	161	167	172	173
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2000	175	176	178	181	180	180	180	180	177	176	174	172
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2001	169	166	168	172	175	179	184	189	191	192	194	194
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2002	195	197	196	192	188	183	176	170	164	159	155	151
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2003	149	145	140	136	135	133	130	128	126	124	120	117
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)	(5)
2004	113	110	107	103	97	93	90	87	84	82	81	80
	(7)	(9)	(11)	(12)	(13)	(15)	(17)	(19)	(21)	(22)	(23)	(23)
2005	79	78	78	77	76	75	75	74	74	73	73	73
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2006	72	72	71	71	71	71	71	71	70	70	70	70
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2007	70	70	70	70	71	71	72	73	74	76	77	79
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)



ISES Solar Cycle Ap Progression

Data Through 31 Mar 04



Updated 2004 Apr 6

NOAA/SEC Boulder, CO USA

