

**Space Weather Highlights**  
**01 - 07 September 2003**

**SWO PRF 1462**  
**09 September 2003**

Solar activity ranged from very low to low levels. Activity was very low on 01 – 03 September and again on 06 September while low levels were observed on 04, 05, and 07 September. The largest flare of the period was a C5/Sf flare and filament eruption on 07 September at 1407 UTC from Region 450 (S16, L=301, class/area Fso/120 on 03 September). LASCO imagery indicates the CME associated with this flare was off to the southwest. All of the sunspot regions on the visible disk during the summary period were relatively small and magnetically simple. The only region to reach a white light area of 200 millionths was region 453 (S23, L=323, class/area Dso/200 on 06 September).

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the summary period. On 01 September, a co-rotating interaction region (CIR) was observed with solar wind speeds increasing to 550 km/s. The coronal hole high speed flow that followed increased wind speeds to 700 km/s by 04 September. Late on 04 September, wind speeds began a gradual decline and by 06 September were down to 575 km/s. By 07 September, wind speeds were back down to 400 km/s. The Bz component of the interplanetary magnetic field reached –10 nT during the CIR but remained above –5 nT during the majority of the coronal hole high speed flow.

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

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 02 September and again on 05 – 07 September.

Geomagnetic activity ranged from quiet to active levels. On 01 September, the co-rotating interaction region produced quiet to active conditions. The coronal hole high speed flow that followed produced mostly unsettled to active conditions on 02 – 05 September. The period ended with quiet to unsettled activity on 06 – 07 September.

**Space Weather Outlook**  
**10 September - 06 October 2003**

Solar activity is expected to range from very low to low levels during the period.

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

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 10 – 11 September, 20 – 23 September and again on 02 – 05 October.

The geomagnetic field is expected to range from quiet to major storm levels during the period. Minor storm levels are possible on 10 September due to effects from the CME on 07 September. A large coronal hole high speed flow is expected to return on 17 – 20 September with major storm levels possible. Another coronal hole is due to return on 01 – 03 October and is expected to produce mostly active conditions with isolated minor storm levels possible.



### *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
01 September	108	59	220	B2.2	0	0	0	0	0	0	0	0
02 September	106	90	280	B2.1	0	0	0	0	0	0	0	0
03 September	111	74	320	B3.0	0	0	0	1	0	0	0	0
04 September	112	79	260	B3.2	1	0	0	0	0	0	0	0
05 September	108	57	290	B3.1	1	0	0	0	0	0	0	0
06 September	105	60	290	B2.1	0	0	0	0	0	0	0	0
07 September	108	54	210	B2.2	1	0	0	1	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
01 September	4.3E+5	1.1E+4	2.5E+3		3.0E+7	
02 September	1.3E+6	1.2E+4	2.6E+3		5.4E+7	
03 September	4.0E+5	1.1E+4	2.7E+3		1.9E+7	
04 September	6.1E+5	1.2E+4	2.5E+3		1.1E+7	
05 September	1.2E+6	1.1E+4	2.5E+3		1.2E+8	
06 September	1.0E+6	1.1E+4	2.5E+3		3.0E+8	
07 September	9.2E+5	1.1E+4	2.6E+3		3.6E+8	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	01 September	11	2-4-4-1-1-2-2-2	12	2-4-3-2-1-2-3-3	14
02 September	12	3-1-2-3-4-2-2-3	18	2-2-1-3-6-3-2-2	12	3-2-1-2-4-3-3-3
03 September	14	3-3-2-2-3-2-3-4	16	3-3-3-5-3-2-2-2	17	3-3-3-4-3-3-3-4
04 September	15	4-3-3-3-3-2-3-3	32	3-3-5-6-4-4-3-4	19	3-3-4-4-3-3-3-4
05 September	9	3-3-2-2-2-2-2-1	22	3-3-3-5-5-4-2-1	16	3-4-3-4-4-3-3-2
06 September	7	2-2-1-2-2-1-3-1	10	2-2-2-4-3-1-2-2	12	3-2-3-3-3-3-3-2
07 September	3	2-2-0-0-1-1-1-1	2	2-1-0-1-0-1-0-0	10	3-3-1-2-3-3-3-3

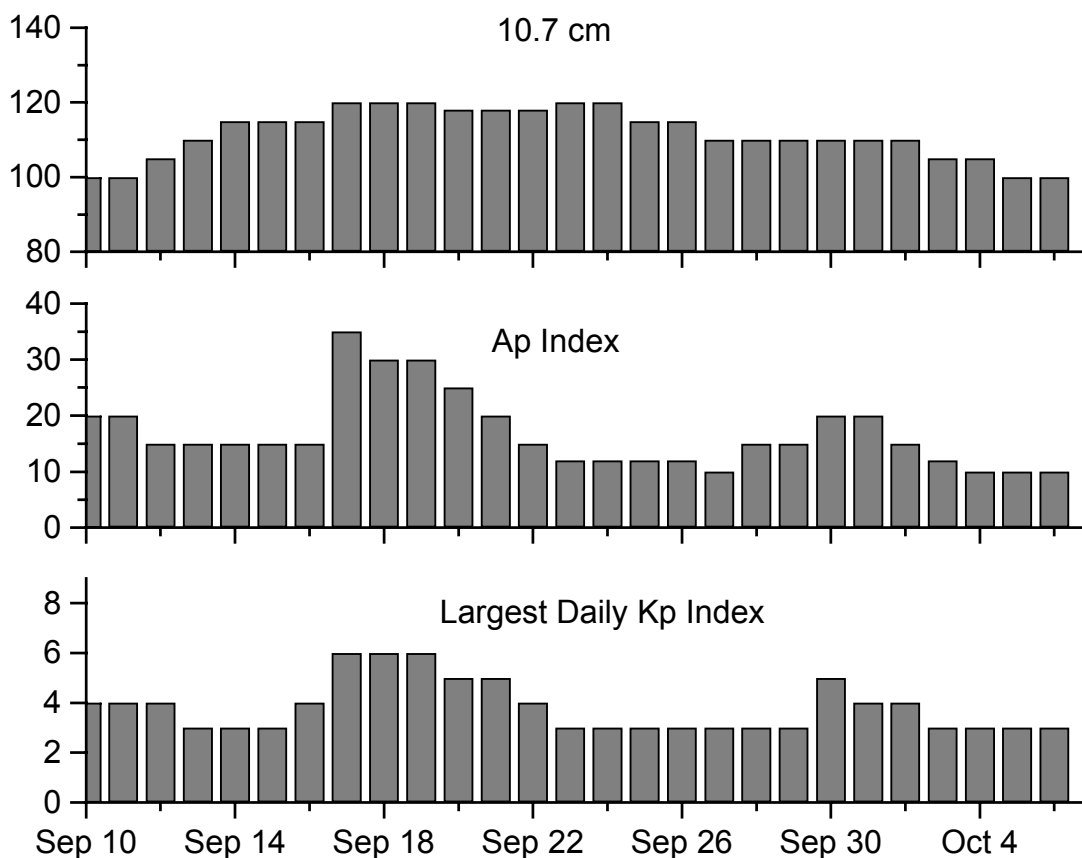


### *Alerts and Warnings Issued*

<u>Date &amp; Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date &amp; Time of Event UT</u>
01 Sep 0519	ALERT: Geomagnetic K= 4	01 Sep 0516
01 Sep 0547	WARNING: Geomagnetic K=4	01 Sep 0550 - 1500
01 Sep 0651	ALERT: Geomagnetic K= 4	01 Sep 0651
01 Sep 0653	WARNING: Geomagnetic K= 5	01 Sep 0656 -1500
02 Sep 1321	ALERT: Electron 2MeV Integral Flux > 1000pfu	02 Sep 1300
02 Sep 1401	WARNING: Geomagnetic K= 4	02 Sep 1402 - 2359
02 Sep 1403	ALERT: Geomagnetic K= 4	02 Sep 1402
03 Sep 0102	WARNING: Geomagnetic K= 4	03 Sep 0103 - 1500
03 Sep 0109	ALERT: Geomagnetic K= 4	03 Sep 0107
04 Sep 0019	WARNING: Geomagnetic K= 4	04 Sep 0020 - 1500
04 Sep 0506	ALERT: Geomagnetic K= 4	04 Sep 0506
04 Sep 1452	EXTENDED WARNING: Geomagnetic K= 4	04 Sep 0020 -05 Sep 1500
05 Sep 0005	2 - 245 MHz Radio Bursts	03 Sep
05 Sep 1301	ALERT: Electron 2MeV Integral Flux > 1000pfu	05 Sep 1235
06 Sep 0034	2 - 245 MHz Radio Bursts	05 Sep
06 Sep 0751	ALERT: Electron 2MeV Integral Flux > 1000pfu	06 Sep 0730
06 Sep 1746	ALERT: Geomagnetic K= 4	06 Sep 1745
07 Sep 0531	ALERT: Electron 2MeV Integral Flux > 1000pfu	07 Sep 0500
07 Sep 2141	WATCH: Geomagnetic A $\geq$ 20	10 Sep



### 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
10 Sep	100	20	4	24 Sep	120	12	3
11	100	20	4	25	115	12	3
12	105	15	4	26	115	12	3
13	110	15	3	27	110	10	3
14	115	15	3	28	110	15	3
15	115	15	3	29	110	15	3
16	115	15	4	30	110	20	5
17	120	35	6	01 Oct	110	20	4
18	120	30	6	02	110	15	4
19	120	30	6	03	105	12	3
20	118	25	5	04	105	10	3
21	118	20	5	05	100	10	3
22	118	15	4	06	100	10	3
23	120	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.	Imp / Brtns	Optical Location Lat CMD	Rgn
	Begin	Max	End				
01 September	1407	1411	1416	B4.1			444
02 September	No Flares Observed						
03 September	0113	0115	0117		Sf	S06W58	442
	0836	0843	0901	B5.6			
	0945	0950	0953	B8.2			
	1936	1945	1952	B5.9			
	2010	2014	2016	B7.2			
04 September	1425	1449	1519	C1.4			452
05 September	0045	0048	0050	B6.1			
	0632	0635	0702	B7.4			
	1248	1301	1312	C1.2			
	1522	1526	1529	B6.6			
	1555	1558	1601	B5.3			
06 September	0507	0511	0515	B5.2			
	0544	0551	0559	B7.9			
07 September	0417	0421	0428	B4.7			450
	1403	1404	1433	C5.3	Sf	S16W69	450

### *Region Summary*

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	4			
<i>Region 442</i>																		
22 Aug	S12E65	027	0110	10	Dao	003	B											
23 Aug	S12E54	025	0160	08	Dso	004	B											
24 Aug	S12E43	022	0130	09	Dao	006	B											
25 Aug	S13E30	022	0120	08	Dao	004	B	1					1					
26 Aug	S13E16	023	0110	08	Dso	004	B											
27 Aug	S13E04	022	0090	09	Cso	005	B	1										
28 Aug	S13W06	019	0080	07	Cso	003	B											
29 Aug	S13W19	019	0090	03	Hsx	001	A											
30 Aug	S12W35	021	0080	05	Cso	002	B	1				1						
31 Aug	S13W47	020	0070	02	Cso	002	B	1				1						
01 Sep	S13W61	021	0080	03	Cso	004	B											
02 Sep	S13W74	021	0110	02	Hsx	001	A											
03 Sep	S12W86	020	0110	03	Hsx	001	A						1					
								4	0	0	3	1	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 022



***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	4		
<i>Region 444</i>																	
23 Aug	N09E60	019	0040	02	Hsx	003	B										
24 Aug	N09E44	021	0010	01	Axx	002	A										
25 Aug	N12E39	019	0020	03	Cso	005	B										
26 Aug	N10E22	017	0010	03	Bxo	002	B										
27 Aug	N10E08	018	0030	05	Cso	006	B	1									
28 Aug	N09W06	019	0060	06	Dso	010	B										
29 Aug	N09W20	020	0020	08	Dso	005	B										
30 Aug	N09W33	019	0040	09	Dso	006	B	1				1					
31 Aug	N08W47	020	0050	11	Cso	010	B										
01 Sep	N08W60	020															
02 Sep	N11W74	021	0020	02	Cso	002	B										
03 Sep	N11W87	021															
									2	0	0	1	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 019

<i>Region 445</i>																	
25 Aug	N04E38	014	0030	04	Dso	004	B										
26 Aug	N03E24	015	0080	05	Dao	012	B										
27 Aug	N03E10	016	0110	07	Dao	012	B										
28 Aug	N03W04	017	0060	08	Dao	011	B	1				2					
29 Aug	N03W19	019	0070	08	Dao	006	B										
30 Aug	N03W32	018	0040	08	Dso	004	B										
31 Aug	N04W47	020	0030	06	Cso	004	B										
01 Sep	N04W62	022															
02 Sep	N04W75	022															
03 Sep	N04W88	022															
									1	0	0	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 017



**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

*Region 446*

27 Aug	S22E36	350	0020	03	Cro	002	B										
28 Aug	S23E23	350	0020	02	Cro	002	B										
29 Aug	S23E10	350															
30 Aug	S23W03	350															
31 Aug	S23W16	350															
01 Sep	S23W29	350															
02 Sep	S23W42	350															
03 Sep	S23W55	350															
04 Sep	S23W68	350															
05 Sep	S23W81	350															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 350

*Region 447*

28 Aug	N16W05	018	0020	04	Cso	005	B										
29 Aug	N15W21	021	0010	04	Cso	004	B										
30 Aug	N15W37	023	0010	01	Hrx	002	A										
31 Aug	N14W50	023	0010	00	Axx	001	A										
01 Sep	N14W63	023															
02 Sep	N14W76	023															
03 Sep	N14W89	023															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 018

*Region 448*

28 Aug	N19E34	339	0050	05	Cso	007	B										
29 Aug	N19E18	342	0080	05	Dao	008	B										
30 Aug	N20E06	340	0090	07	Dso	009	B										
31 Aug	N20W07	340	0070	06	Dao	010	B										
01 Sep	N20W20	340	0040	05	Dao	010	B										
02 Sep	N19W34	341	0030	05	Cso	014	B										
03 Sep	N19W48	342	0020	04	Cro	003	B										
04 Sep	N19W61	341	0010	05	Bxo	003	B										
05 Sep	N19W74	341															
06 Sep	N19W87	341															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 340



**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 449*

28 Aug	S16E69	304	0080	04	Dao	003	B	1									
29 Aug	S15E53	307	0140	05	Dso	003	B										
30 Aug	S15E39	307	0130	04	Dao	004	B										
31 Aug	S16E27	306	0120	04	Dao	003	B										
01 Sep	S16E13	307	0080	03	Dso	004	B										
02 Sep	S16E00	307	0070	04	Dso	004	B										
									1	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 307

*Region 450*

29 Aug	S18E66	294	0060	02	Hsx	001	A	1									
30 Aug	S18E52	294	0070	02	Hsx	001	A										
31 Aug	S18E39	294	0040	02	Hsx	001	A										
01 Sep	S17E27	293	0020	01	Hsx	001	A										
02 Sep	S18E14	293	0040	04	Dso	007	B										
03 Sep	S16W07	301	0120	16	Fso	013	B										
04 Sep	S17W20	300	0070	15	Eso	009	B										
05 Sep	S17W35	302	0040	11	Cso	006	B										
06 Sep	S17W52	306	0030	08	Dso	004	B										
07 Sep	S17W63	304	0030	04	Bxo	004	B	1			1						
								2	0	0	1	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 301

*Region 452*

29 Aug	S09E05	355	0010	01	Axx	001	A										
30 Aug	S06W05	351	0000	01	Axx	001	A										
31 Aug	S06W18	351	0000	00		000											
01 Sep	S06W31	351	0000	00		000											
02 Sep	S07W54	351	0010	02	Bxo	002	B										
03 Sep	S07W71	005	0020	02	Axx	002	A										
04 Sep	S08W84	004	0060	01	Hax	001	A	1									
								1	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 355





***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 453*

04 Sep	S23W44	324	0090	06	Dso	010	B										
05 Sep	S23W56	323	0190	08	Dao	014	B										
06 Sep	S23W69	323	0200	10	Dso	010	B										
07 Sep	S24W78	319	0140	08	Dho	003	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 324

*Region 454*

04 Sep	S10E22	258	0030	04	Cso	006	B										
05 Sep	S10E09	258	0060	05	Dao	007	B										
06 Sep	S10W04	258	0050	06	Dso	005	B										
07 Sep	S10W18	259	0020	06	Dro	005	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 258

*Region 455*

06 Sep	S16E32	222	0010	01	Hsx	001	A										
07 Sep	S20E24	217	0020	02	Cso	002	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 217

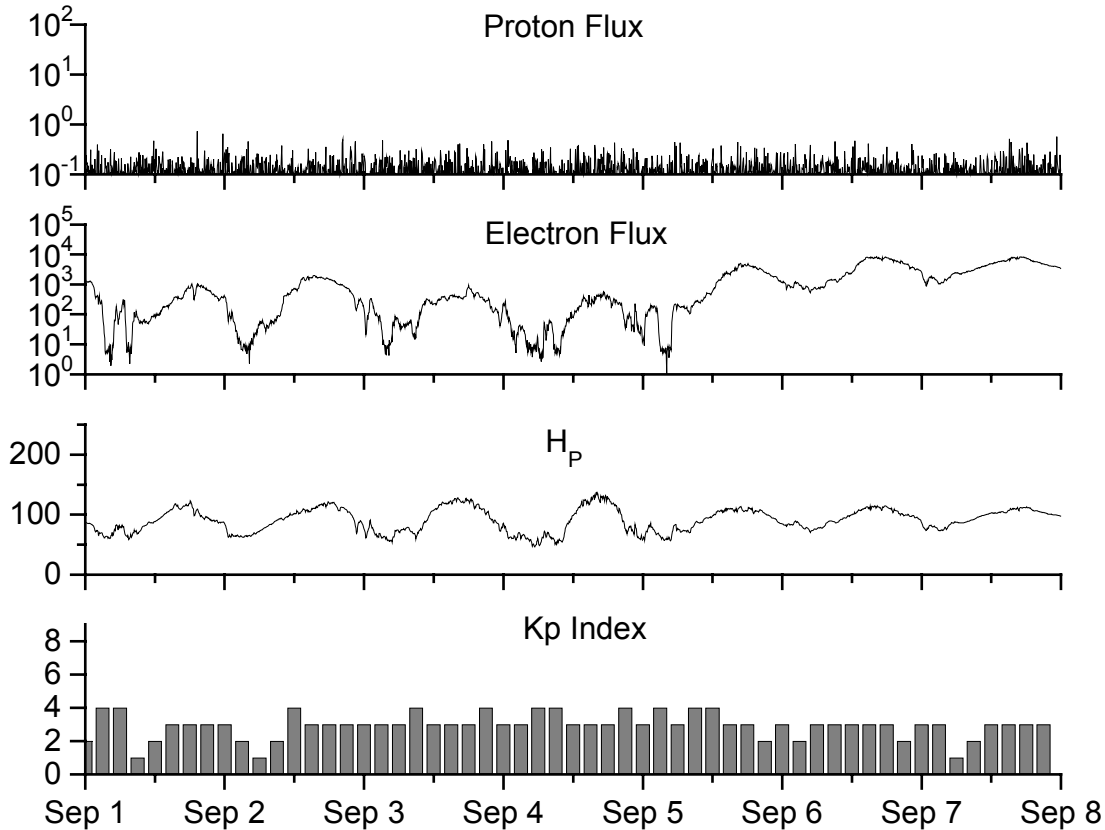


**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SWO	Ratio RI	Ratio RI/SWO	Smooth values SWO	Smooth RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
<b>2001</b>									
August	159.4	106.4	0.67	176.7	113.6	163.1	188.8	11	13.0
September	229.1	150.7	0.66	178.8	114.1	233.8	191.3	13	12.8
October	197.3	125.5	0.64	179.5	114.0	208.1	191.9	20	12.0
November	178.6	106.5	0.60	183.7	115.5	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	0.60	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	150.5	85.3	168.7	154.3	16	16.1
December	147.9	80.8	0.55	144.6	82.1	158.6	150.9	13	17.0
<b>2003</b>									
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			124.5		17	
March	119.7	61.1	0.51			132.5		21	
April	119.7	60.0	0.50			126.3		20	
May	89.6	55.2	0.62			129.3		26	
June	118.4	77.4	0.65			129.4		24	
July	132.8	85.0	0.64			127.8		20	

**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 01 September 2003*

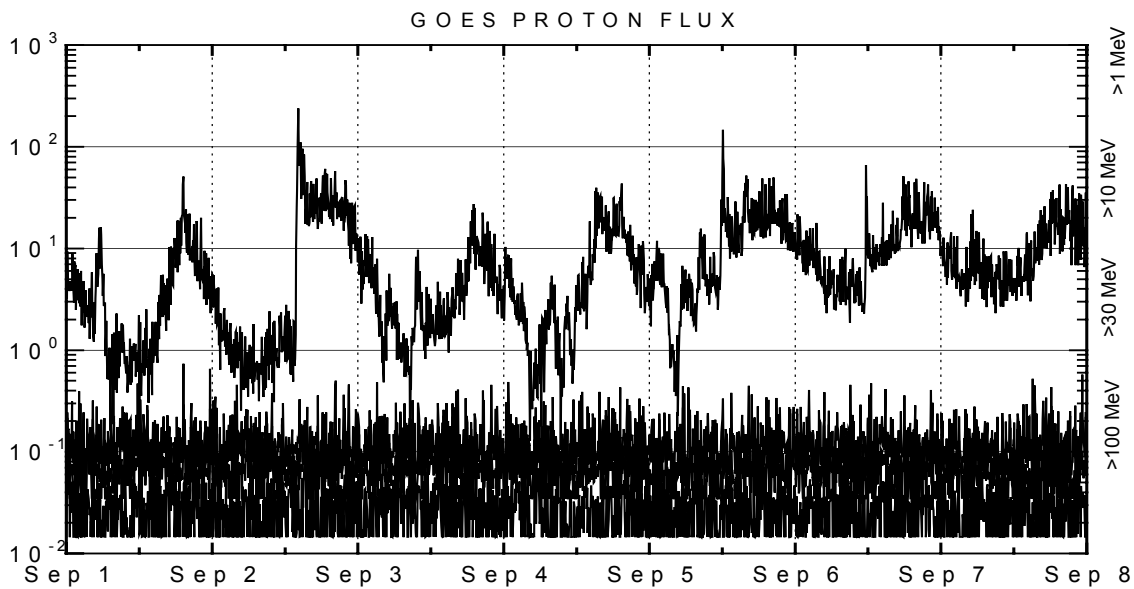
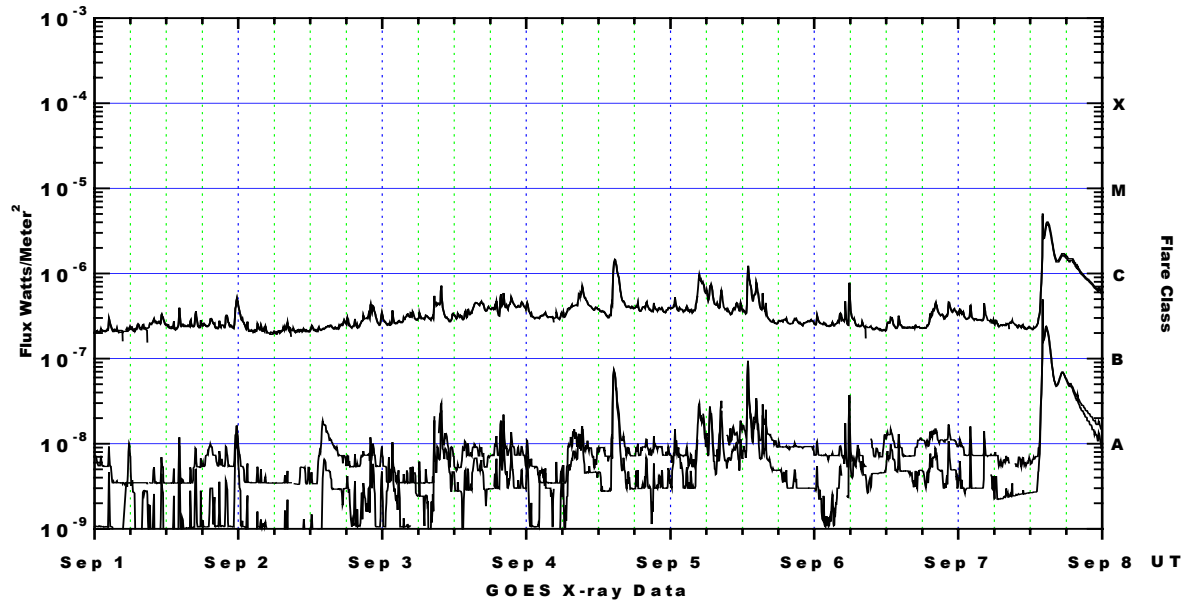
*Protons* plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by GOES-11 (W113) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

*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-12.

*H<sub>p</sub>* 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<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>parallel</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*

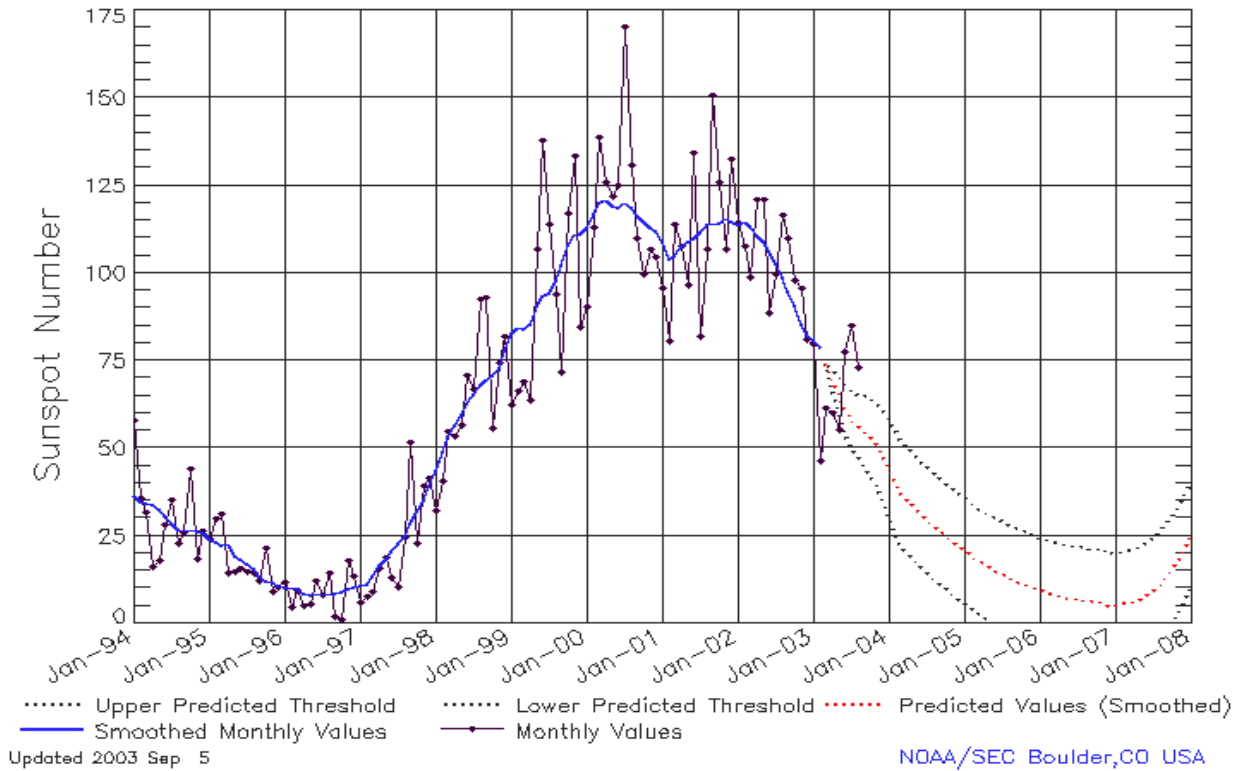
X-ray plot contains five-minute averaged x-ray flux (watts/m<sup>2</sup>) as measured by GOES 12 and 10 in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec-sr) as measured by GOES-11 (W113) 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.



## ISES Solar Cycle Sunspot Number Progression

Data Through 31 Aug 03



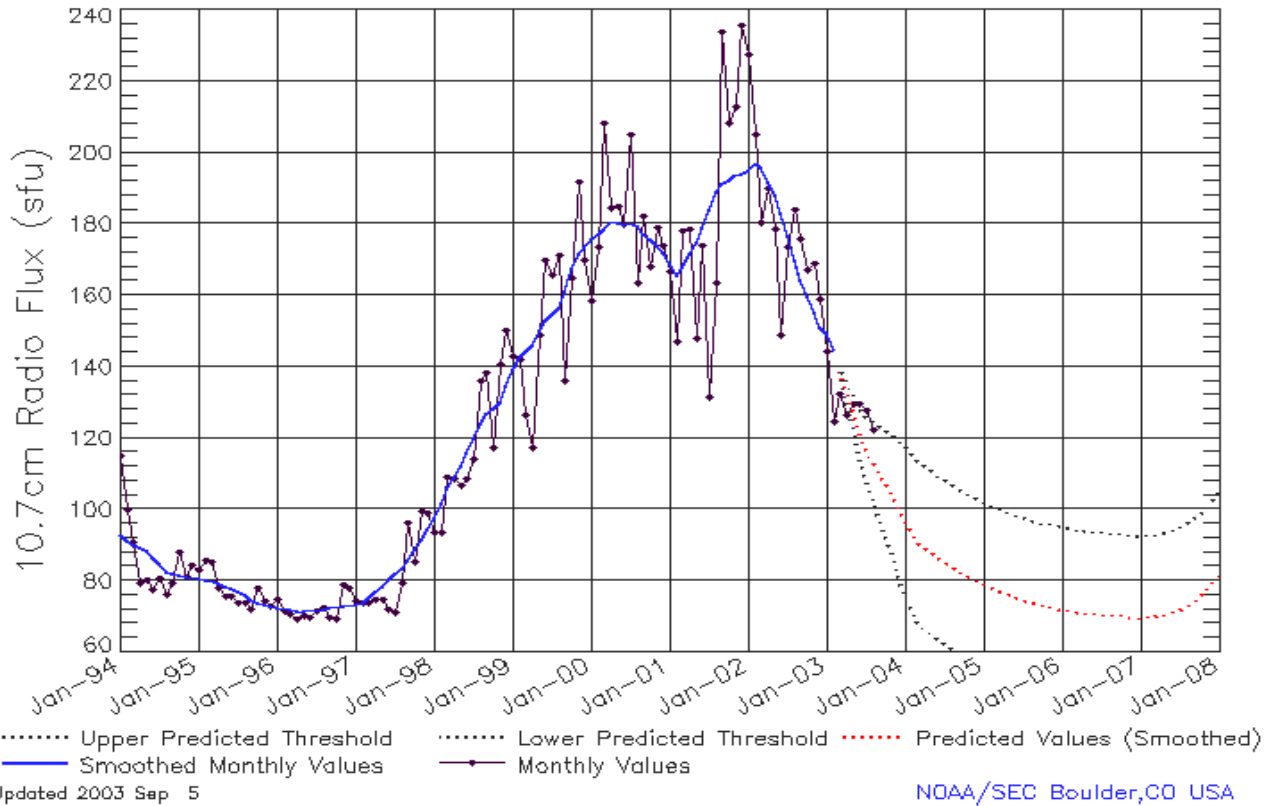
### SEC Prediction of Smoothed Sunspot Number

	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	<b>74</b>	<b>70</b>	<b>65</b>	<b>62</b>	<b>58</b>	<b>57</b>	<b>55</b>	<b>53</b>	<b>51</b>	<b>48</b>
	(***)	(***)	(1)	(3)	(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2004	<b>44</b>	<b>40</b>	<b>37</b>	<b>35</b>	<b>33</b>	<b>31</b>	<b>30</b>	<b>28</b>	<b>27</b>	<b>25</b>	<b>24</b>	<b>22</b>
	(14)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2005	<b>21</b>	<b>20</b>	<b>18</b>	<b>17</b>	<b>16</b>	<b>15</b>	<b>14</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>11</b>	<b>10</b>
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2006	<b>10</b>	<b>9</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>6</b>	<b>5</b>
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2007	<b>5</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>10</b>	<b>11</b>	<b>13</b>	<b>16</b>	<b>18</b>	<b>21</b>
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)



## ISES Solar Cycle F10.7cm Radio Flux Progression

Data Through 31 Aug 03



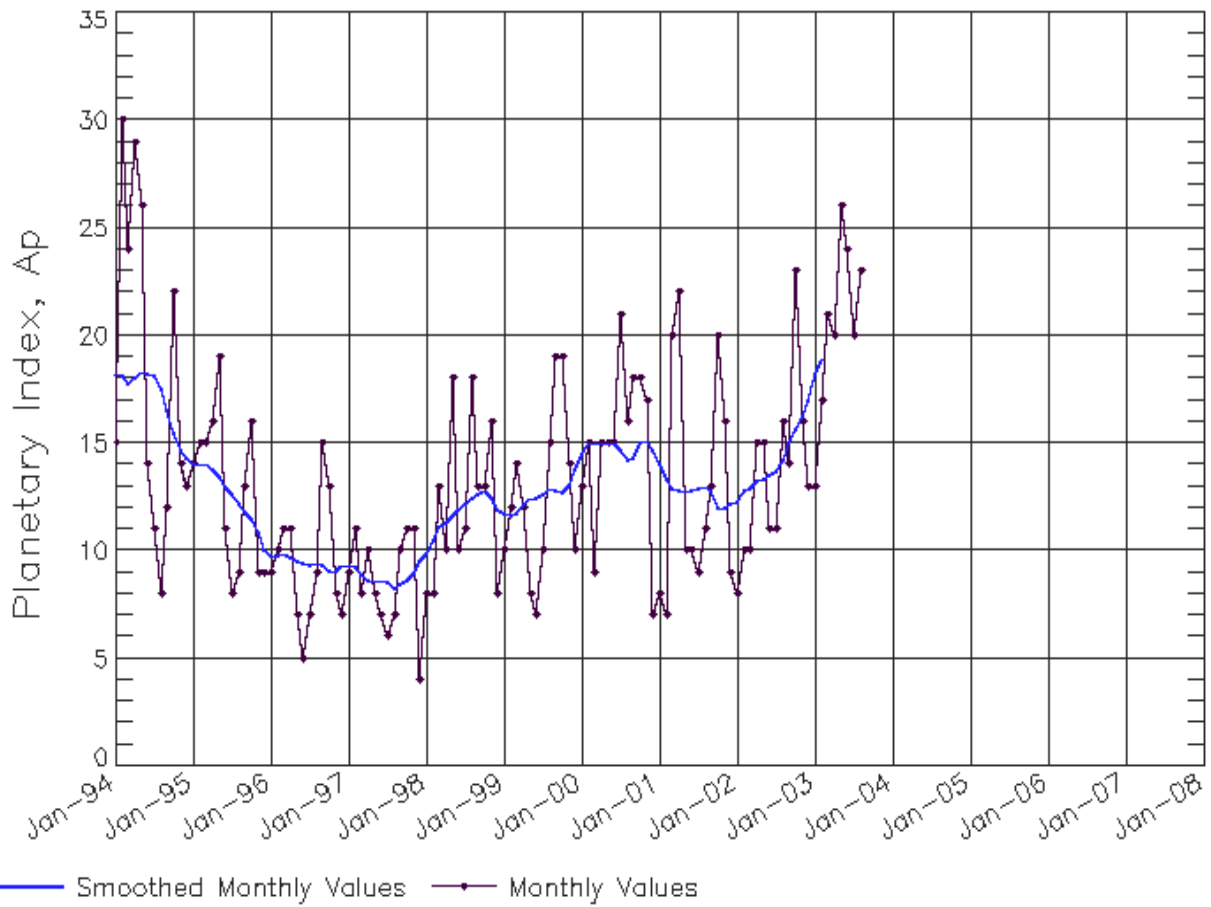
### SEC Prediction of Smoothed F10.7cm Radio Flux

	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 (***)	<b>139</b> (1)	<b>133</b> (3)	<b>127</b> (5)	<b>122</b> (7)	<b>117</b> (9)	<b>113</b> (11)	<b>110</b> (13)	<b>107</b> (15)	<b>104</b> (17)	<b>100</b> (19)
2004	<b>97</b> (21)	<b>93</b> (22)	<b>91</b> (23)	<b>89</b> (23)	<b>88</b> (23)	<b>87</b> (23)	<b>85</b> (23)	<b>84</b> (23)	<b>83</b> (23)	<b>82</b> (23)	<b>81</b> (23)	<b>80</b> (23)
2005	<b>79</b> (23)	<b>78</b> (23)	<b>78</b> (23)	<b>77</b> (23)	<b>76</b> (23)	<b>75</b> (23)	<b>75</b> (23)	<b>74</b> (23)	<b>74</b> (23)	<b>73</b> (23)	<b>73</b> (23)	<b>73</b> (23)
2006	<b>72</b> (23)	<b>72</b> (23)	<b>71</b> (23)	<b>71</b> (23)	<b>71</b> (23)	<b>71</b> (23)	<b>71</b> (23)	<b>71</b> (23)	<b>70</b> (23)	<b>70</b> (23)	<b>70</b> (23)	<b>70</b> (23)
2007	<b>70</b> (23)	<b>70</b> (23)	<b>70</b> (23)	<b>70</b> (23)	<b>71</b> (23)	<b>71</b> (23)	<b>72</b> (23)	<b>73</b> (23)	<b>74</b> (23)	<b>76</b> (23)	<b>77</b> (23)	<b>79</b> (23)



# ISES Solar Cycle Ap Progression

Data Through 31 Aug 03



Updated 2003 Sep 5

NOAA/SEC Boulder, CO USA

