

Solar activity levels ranged from very low to moderate. The period started with low activity on 30 August as Region 663 (N04, L=269, class/area, Dao/140 on 30 August) produced a few low-level C-class flares. Activity levels rose to moderate on 31 August when at 0538 UTC, Region 663 produced an M1.4 x-ray flare with an associated Type II radio sweep, just before it rotated around the west limb. The remainder of the period (01 – 05 September) had very low activity levels. New Region 667 (S10, L=093, class/area, Hkx/340 on 04 September) was the return of old Region 656, which produced several M and X-class flares on its previous rotation. Since rotating onto the disk on 01 September, Region 667 has consisted of a few small spots with a simple magnetic structure.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft during most of the summary period. The period began with wind speed near 400 km/s. At 30/0523 UTC, a small shock was observed at ACE, most likely due to the partial halo CME from an eruptive prominence on the southwest limb observed early on 27 August. The IMF Bz turned strongly southward with values near -10 nT and remained so through midday on 31 August. Thereafter, the IMF Bz did not vary much beyond +/- 5 nT and remained weak through late on 05 September. Early on 31 August, wind speed began a gradual upward trend and peaked near 550 km/s early on 01 September. By late on 05 September, speed had decayed to near 300 km/s. At approximately 05/1700 UTC, a weak shock was felt at ACE that increased wind speed slightly to about 375 km/s. The north/south component of the IMF fluctuated between -10 and +8 nT and remained so for the rest of the summary period. These signatures were suggestive of a co-rotating interactive region followed by a weak coronal hole wind stream.

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 on 02 – 04 September.

The geomagnetic field was at quiet to major storm levels. The period began with quiet to unsettled levels but quickly rose to minor storm conditions by 30/0600 UTC as effects of the partial halo CME from 27 August impacted the geomagnetic field. Active to minor storm levels, with one isolated major storm period early on 31 August, persisted through late on the 31st. Thereafter, and through the end of the summary period the field was quiet to unsettled. Some isolated active periods at high latitudes were observed midday on 05 September due to weak coronal hole wind stream flow.

Space Weather Outlook **08 September - 04 October 2004**

Solar activity levels are expected to be predominately very low to low, but isolated moderate activity may occur after the return of old Region 661 (N06, L=348) on 09 September.

No greater than 10 MeV proton events are expected.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 08 September, 14 – 19 September, and on 04 October.

The geomagnetic field is expected to range from mostly quiet to unsettled levels. From 14 – 18 September and on 03 October, levels are expected to increase to unsettled to active due to recurrent coronal hole wind streams.



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
30 August	90	30	140	B1.3	3	0	0	0	0	0	0	0
31 August	88	11	50	B2.0	0	1	0	0	0	0	0	0
01 September	90	12	180	B1.9	0	0	0	0	0	0	0	0
02 September	94	25	260	B1.9	0	0	0	0	0	0	0	0
03 September	97	25	270	B1.5	0	0	0	0	0	0	0	0
04 September	99	28	390	B1.5	0	0	0	0	0	0	0	0
05 September	103	59	340	B1.7	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
	30 August	1.6E+6	1.4E+4	3.0E+3		4.2E+6
31 August	3.3E+5	1.4E+4	2.9E+3		4.4E+6	
01 September	2.2E+5	1.3E+4	2.9E+3		2.4E+7	
02 September	3.1E+5	1.3E+4	3.1E+3		1.1E+8	
03 September	6.3E+5	1.5E+4	3.0E+3		1.8E+8	
04 September	1.2E+6	1.4E+4	3.1E+3		1.8E+8	
05 September	3.6E+5	1.4E+4	3.2E+3		2.2E+7	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	30 August	27	3-2-4-4-3-3-4-6	63	3-2-5-7-6-7-5-4	34
31 August	14	4-4-3-3-2-2-2-2	39	4-5-6-6-4-4-3-2	28	6-4-5-4-3-3-4-3
01 September	5	3-1-1-1-1-1-1-1	8	2-2-2-3-3-2-1-1	9	3-1-2-2-2-3-3-3
02 September	8	2-2-3-3-1-1-1-2	7	2-1-3-3-1-2-1-1	9	2-2-3-3-2-2-2-3
03 September	1	2-1-0-0-0-0-0-0	2	2-1-1-0-0-0-1-0	3	2-1-1-0-1-2-1-1
04 September	2	0-0-0-1-1-0-1-1	0	1-0-0-0-0-0-0-0	4	1-1-0-1-2-1-2-1
05 September	5	1-0-2-1-1-2-3-1	14	0-1-3-4-4-4-2-1	7	1-1-2-2-2-3-3-2

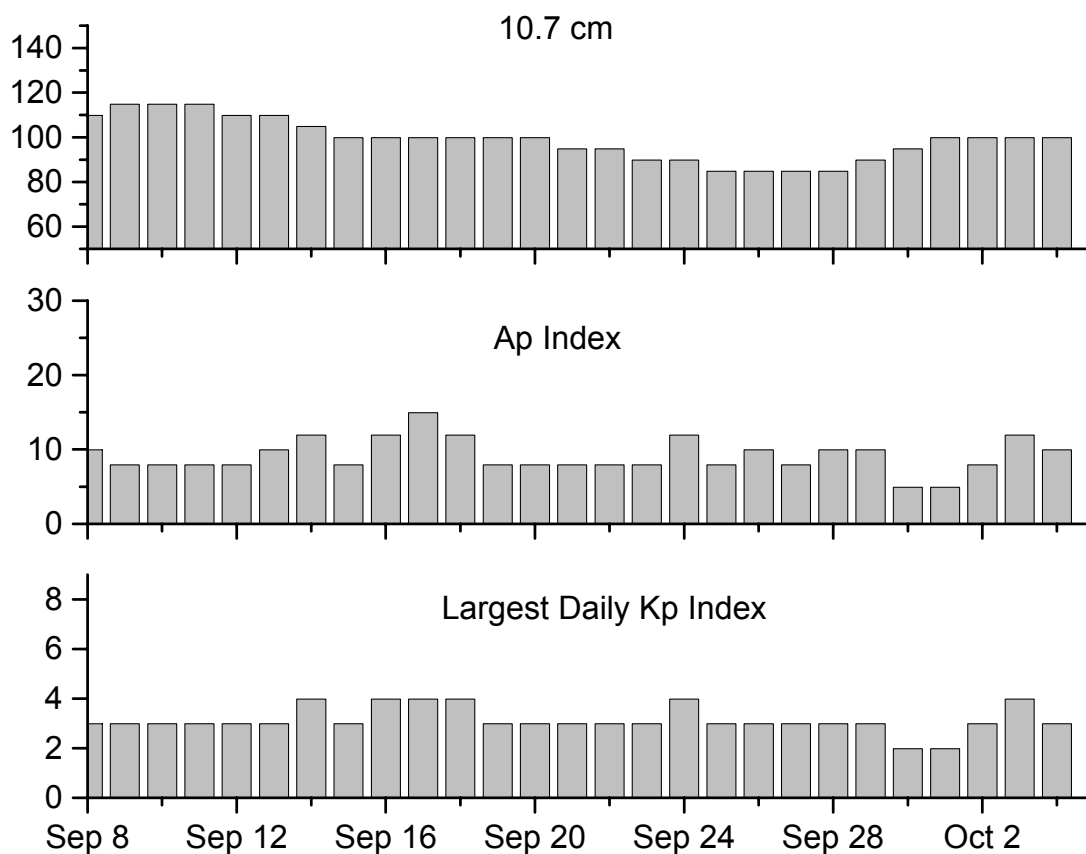


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UT</u>
30 Aug 0441	ALERT: Type II Radio Emission	30 Aug 0318
30 Aug 0837	WARNING: Geomagnetic K= 4	30 Aug 0840 - 1140
30 Aug 0841	ALERT: Geomagnetic K= 4	30 Aug 0840
30 Aug 1321	ALERT: Geomagnetic K= 4	30 Aug 1320
30 Aug 1457	WARNING: Geomagnetic K= 4	30 Aug 1457 - 2359
30 Aug 1828	WARNING: Geomagnetic K= 5	30 Aug 1900 - 2359
30 Aug 2240	ALERT: Geomagnetic K= 5	30 Aug 2239
30 Aug 2355	EXTENDED WARNING: Geomagnetic K= 4	30 Aug 1457 – 31 Aug 1500
31 Aug 0012	1 – 245 MHz Radio Burst	30 Aug
31 Aug 0105	ALERT: Geomagnetic K= 5	31 Aug 0059
31 Aug 0240	WARNING: Geomagnetic K= 5	31 Aug 0240 -1500
31 Aug 0247	ALERT: Geomagnetic K= 6	31 Aug 0241
31 Aug 0629	ALERT: Type II Radio Emission	31 Aug 0540
31 Aug 1617	WARNING: Geomagnetic K= 4	31 Aug 1630 - 2100
31 Aug 1744	ALERT: Geomagnetic K= 4	31 Aug 1741
02 Sep 1105	ALERT: Electron 2MeV Integral Flux > 1000pfu	02 Sep 1045
03 Sep 0519	ALERT: Electron 2MeV Integral Flux > 1000pfu	03 Sep 0500
04 Sep 0030	1 – 245 MHz Radio Burst	03 Sep
04 Sep 0515	ALERT: Electron 2MeV Integral Flux >1000pfu	04 Sep 0500



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
08 Sep	110	10	3	22 Sep	95	8	3
09	115	8	3	23	90	8	3
10	115	8	3	24	90	12	4
11	115	8	3	25	85	8	3
12	110	8	3	26	85	10	3
13	110	10	3	27	85	8	3
14	105	12	4	28	85	10	3
15	100	8	3	29	85	10	3
16	100	12	4	30	90	5	3
17	100	15	4	01 Oct	100	5	3
18	100	12	4	02	100	8	3
19	100	8	3	03	100	12	4
20	100	8	3	04	100	10	3
21	95	8	3				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Max	Class	Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV
31 Aug	0524	0538	0547	M1.4	.011			663				2

Flare List

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
30 August	0304	0311	0318	C2.4			663
	0954	1000	1010	B2.6			663
	1400	1403	1405	B2.5			663
	1449	1452	1454	B2.5			663
	1458	1502	1504	B4.8			663
	1541	1544	1547	B2.6			
	1806	1818	1829	C1.0			663
31 August	2045	2125	2147	C1.4			
	0040	0046	0052	B9.3			663
	0524	0538	0547	M1.4			663
01 September	1407	1415	1420	B5.5			663
	1803	1806	1809	B3.4			
02 September	0232	0256	0343	B6.0			
	1356	1401	1405	B5.7			
	1825	1843	1901	B6.4			
03 September	No Flares Observed						
04 September	No Flares Observed						
05 September	No Flares Observed						



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

Region 663

19 Aug N08E75	266	0110	04	Hax	002	A												
20 Aug N10E67	261	0230	10	Dao	007	B												
21 Aug N11E52	263	0200	13	Eao	009	B												
22 Aug N11E39	262	0180	12	Eso	014	B												
23 Aug N11E26	262	0150	13	Eso	017	Bg												
24 Aug N10E12	263	0100	11	Cso	005	B												
25 Aug N10W01	263	0140	11	Eso	016	B												
26 Aug N10W14	263	0120	12	Cao	016	B	1				1							
27 Aug N10W27	263	0080	12	Eao	012	B												
28 Aug N10W41	263	0080	12	Eso	007	B												
29 Aug N07W58	268	0040	06	Cao	004	B												
30 Aug N04W73	269	0140	06	Dao	009	B	2											
31 Aug N03W88	271	0050	03	Hax	001	A				1								
							3	1	0	1	0	0	0	0	0			

Crossed West Limb.

Absolute heliographic longitude:263

Region 664

20 Aug S11E40	288	0030	06	Dao	009	B												
21 Aug S10E25	290	0090	09	Dac	019	B												
22 Aug S10E12	289	0100	10	Dao	022	B												
23 Aug S11W03	291	0120	12	Eso	017	B												
24 Aug S11W16	291	0140	12	Eso	017	B												
25 Aug S11W29	291	0110	12	Eso	011	B												
26 Aug S11W42	291	0120	09	Dao	008	B												
27 Aug S11W58	293	0090	02	Hsx	001	A												
28 Aug S11W73	295	0090	02	Hsx	001	A												
29 Aug S11W85	302	0060	03	Hsx	001	A												
30 Aug S11W98	302																	
							0	0	0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude:291



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 666</i>																
29 Aug	N16E31	178	0000	01	Axx	001	A									
30 Aug	N17E17	179	0000	01	Axx	001	A									
31 Aug	N17E04	179														
01 Sep	N17W09	179														
02 Sep	N16W22	177	0010	01	Axx	002	A									
03 Sep	N16W35	177														
04 Sep	N16W48	177														
05 Sep	N16W61	177														
								0	0	0	0	0	0	0	0	0
Still on Disk.																
Absolute heliographic longitude:179																
<i>Region 667</i>																
01 Sep	S09E76	093	0180	04	Hax	002	A									
02 Sep	S10E62	093	0250	04	Hkx	003	A									
03 Sep	S11E48	094	0250	04	Hhx	001	A									
04 Sep	S10E36	093	0340	04	Hkx	002	A									
05 Sep	S11E23	093	0250	05	Hkx	004	A									
								0	0	0	0	0	0	0	0	0
Still on Disk.																
Absolute heliographic longitude:093																
<i>Region 668</i>																
03 Sep	S11W34	176	0020	03	Cso	004	B									
04 Sep	S10W49	178	0050	04	Cao	006	B									
05 Sep	S11W64	179	0050	05	Cao	006	B									
								0	0	0	0	0	0	0	0	0
Still on Disk.																
Absolute heliographic longitude:176																
<i>Region 669</i>																
05 Sep	S06E35	081	0030	03	Bxo	007	B									
								0	0	0	0	0	0	0	0	0
Still on Disk.																
Absolute heliographic longitude:081																
<i>Region 670</i>																
05 Sep	S14E34	082	0010	02	Axx	002	A									
								0	0	0	0	0	0	0	0	0
Still on Disk.																
Absolute heliographic longitude:082																

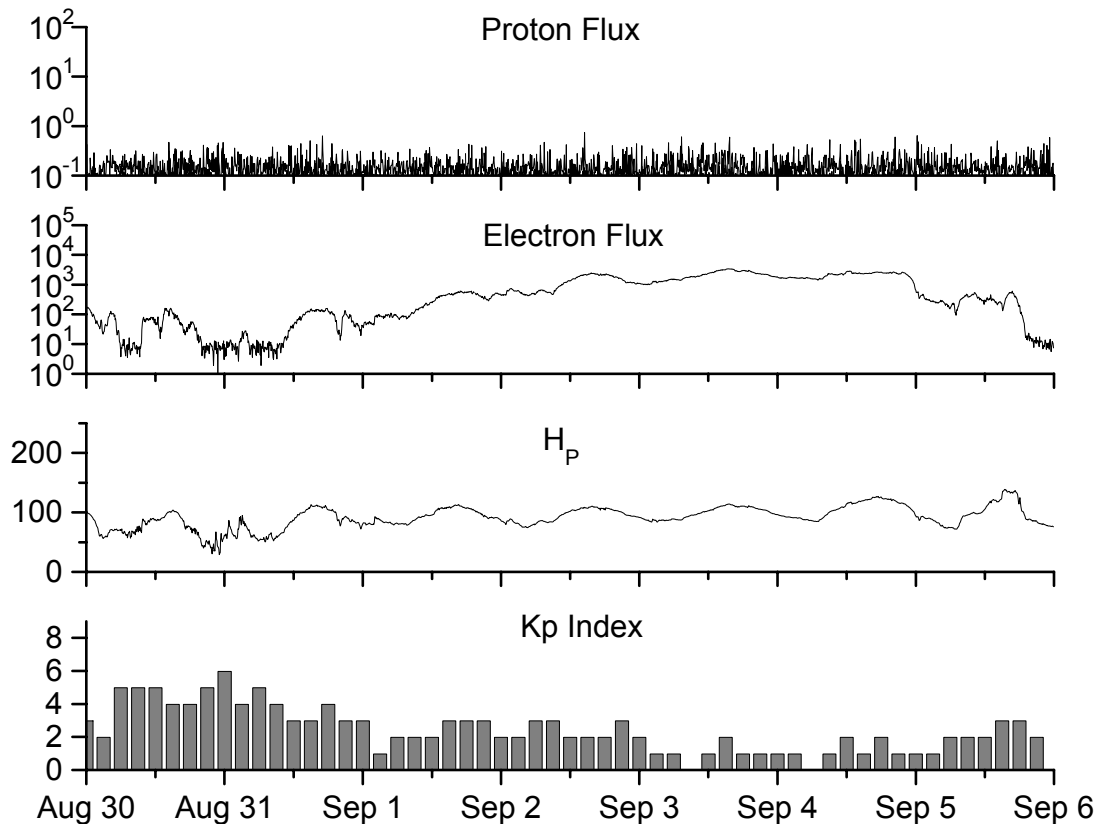


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
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	135.0	20	20.1
May	89.6	55.2	0.62	118.3	67.8	129.3	133.1	26	21.0
June	118.4	77.4	0.65	113.6	65.2	129.4	130.2	24	21.5
July	132.8	85.0	0.64	106.9	62.0	127.8	127.2	19	22.0
August	114.3	72.7	0.64	102.8	60.3	122.1	125.2	23	22.2
September	82.6	48.8	0.59	100.7	59.8	112.3	123.7	18	21.8
October	118.9	65.6	0.55	96.6	58.4	153.1	121.8	35	21.1
November	118.9	67.2	0.57	93.6	57.0	153.1	120.1	28	20.0
December	75.4	47.0	0.62	91.4	55.0	115.1	118.0	16	18.6
2004									
January	62.3	37.2	0.60	87.9	52.0	114.1	116.3	22	18.1
February	75.6	46.0	0.61	84.2	49.4	107.0	115.5	13	17.7
March	81.0	48.9	0.60			112.2		14	
April	59.3	39.3	0.66			101.2		11	
May	77.3	41.5	0.54			99.8		8	
June	78.9	43.2	0.55			97.4		8	
July	87.8	51.0	0.58			118.5		23	
August	69.5	40.9	0.59			110.1		10	

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 30 August 2004*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-11 (W98) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

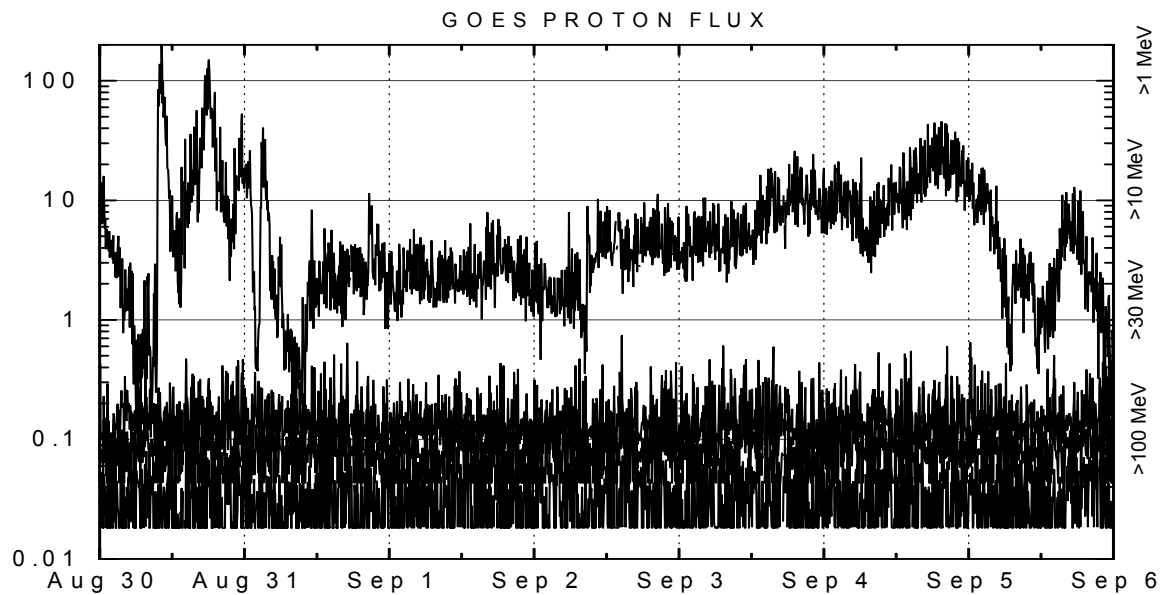
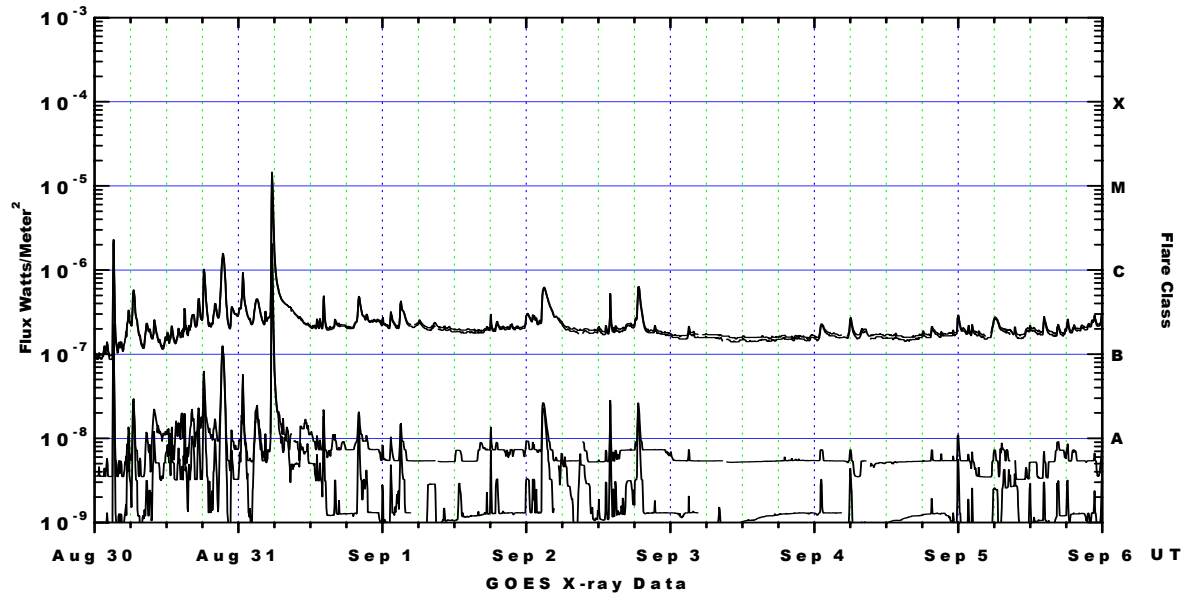
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W75).

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 Hartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC), British Geological Survey (BGS) 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

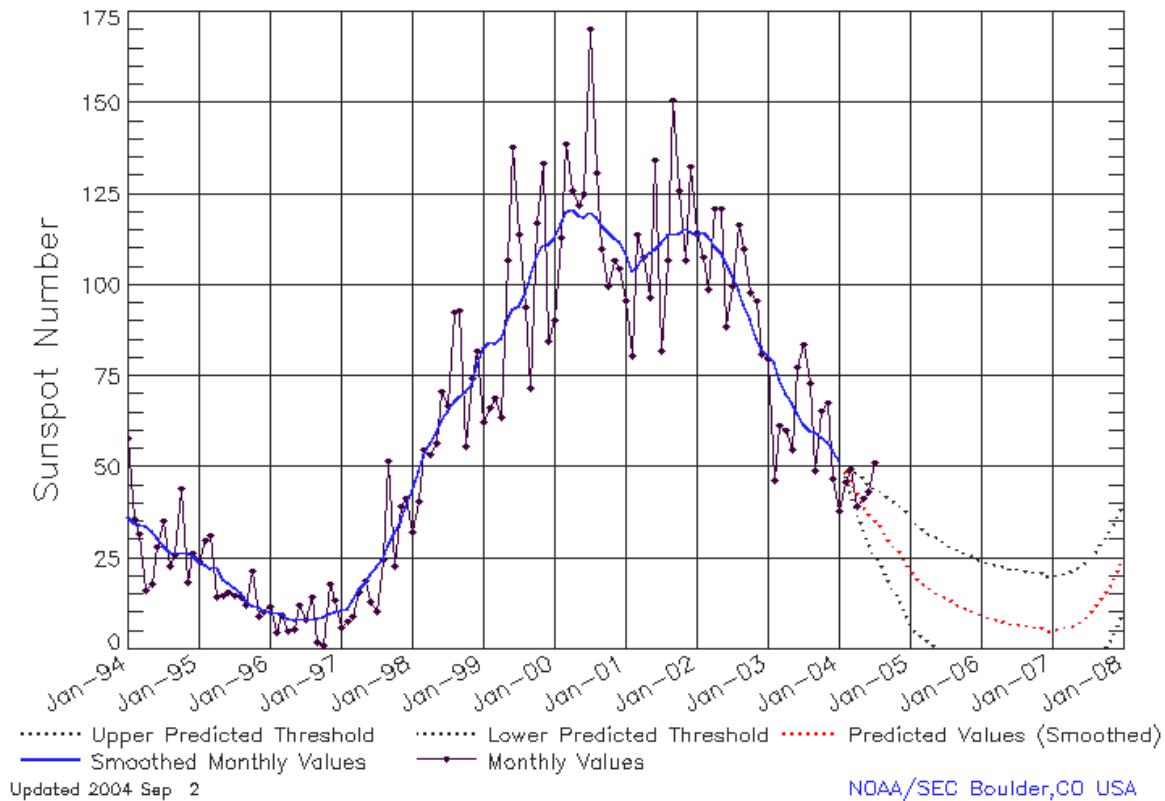
X-ray plot contains five-minute averaged x-ray flux (watts/m²) as measured by GOES 12 (W75) and GOES 10 (W135) in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W98) 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 Aug 04



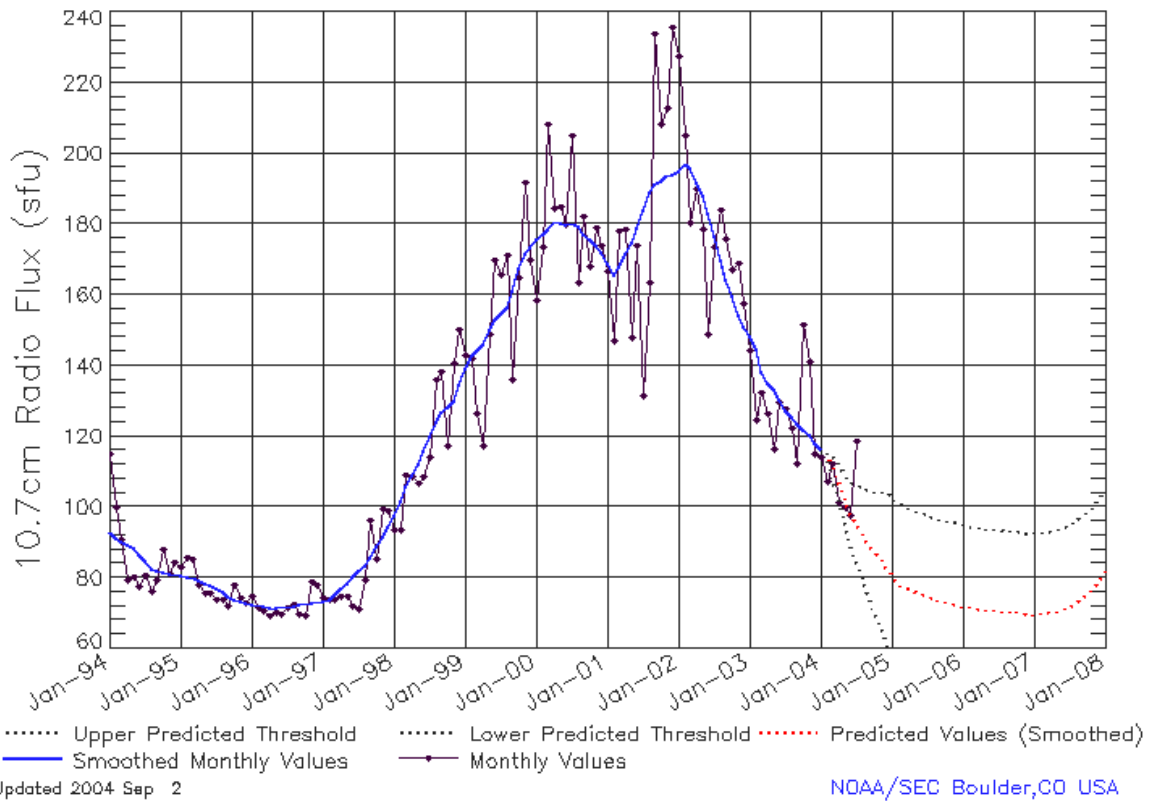
SEC Prediction of Smoothed Sunspot Number

	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	98	102	108	111	111
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2000	113	117	120	121	119	119	120	119	116	115	113	112
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2001	109	104	105	108	109	110	112	114	114	114	116	115
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2002	114	115	113	111	109	106	103	99	95	91	85	82
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2003	81	79	74	70	68	65	62	60	60	58	57	55
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2004	52	49	47	45	41	38	37	35	32	30	28	26
	(***)	(***)	(1)	(3)	(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2005	23	21	18	17	16	15	14	13	12	12	11	10
	(14)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2006	10	9	8	8	8	7	7	7	7	6	6	5
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2007	5	6	6	6	7	8	10	11	13	16	18	21
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)



ISES Solar Cycle F10.7cm Radio Flux Progression

Data Through 31 Aug 04



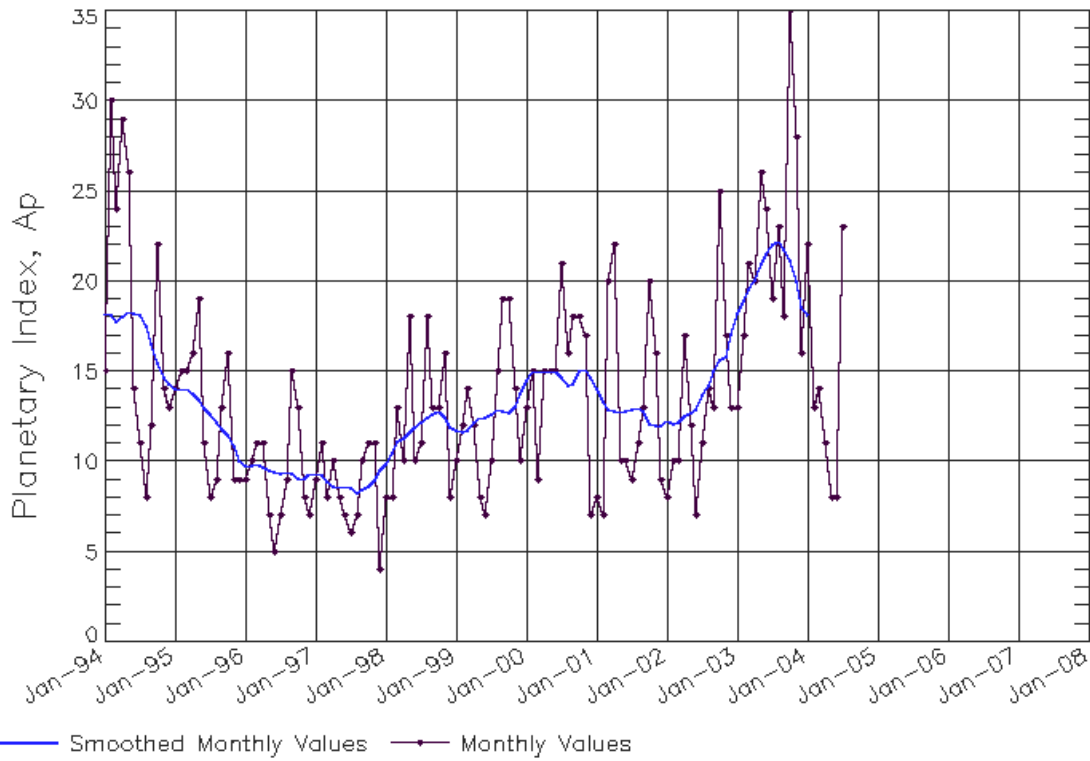
SEC Prediction of Smoothed F10.7cm Radio Flux

	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	176	177	178	181	180	180	180	179	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	154	151
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
2003	148	145	138	135	133	130	127	125	124	122	120	118
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
2004	116	116	114	110	104	100	97	95	92	90	88	86
	(**)	(**)	(1)	(3)	(5)	(7)	(9)	(11)	(13)	(15)	(17)	(19)
2005	83	80	78	77	76	75	75	74	74	73	73	73
	(21)	(22)	(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 Aug 04



Updated 2004 Sep 2

NOAA/SEC Boulder, CO USA

