

**Space Weather Highlights**  
**03 September – 09 September 2007**

**SEC PRF 1671**  
**11 September 2007**

Solar activity was very low. Isolated B-class flares were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels during 03 – 06 September and 08 – 09 September.

The geomagnetic field was quiet to unsettled during 03 – 04 September. Activity increased to quiet to active levels during 05 – 07 September. Activity decreased to quiet levels during 08 – 09 September. ACE real-time solar wind data indicated two recurrent coronal hole high-speed wind streams affected the field during the period. The first began on 01 September, then subsided on 05 September. Peak velocity associated with this stream was 682 km/sec at 02/2141 UTC, while peak Bt was 10.5 nT at 01/2354 UTC and minimum Bz was -8.9 nT at 02/0001 UTC. The second high-speed stream began on 06 September, then subsided on 09 September. Peak velocity associated with this stream was 579 km/sec at 07/0049 UTC, while peak Bt was 9.7 nT at 06/2115 UTC and minimum Bz was -8.5 nT at 06/2102 UTC.

**Space Weather Outlook**  
**12 September – 08 October 2007**

Solar activity is expected to be very low.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels during 24 September – 08 October.

Geomagnetic field activity is expected to be at quiet to unsettled levels during 12 – 28 September. Activity is expected to increase to unsettled to minor storm levels during 29 – 30 September due to a recurrent coronal hole high-speed stream. Activity is expected to decrease to quiet to unsettled levels during 01 – 02 October as the stream subsides. Activity is expected to increase to unsettled to active levels on 03 October due to another recurrent coronal hole high-speed stream. Activity is expected to decrease to quiet to unsettled levels during the rest of the period.



### *Daily Solar Data*

Date	Radio	Sun	Sunspot	X-ray	Flares							
	Flux	spot	Area	Background	X-ray Flux			Optical				
	10.7 cm	No.	(10 <sup>-6</sup> hemi.)		C	M	X	S	1	2	3	4
03 September	68	15	30	<A1.0	0	0	0	0	0	0	0	0
04 September	68	14	20	<A1.0	0	0	0	0	0	0	0	0
05 September	68	15	30	<A1.0	0	0	0	0	0	0	0	0
06 September	67	12	10	<A1.0	0	0	0	0	0	0	0	0
07 September	67	0	0	<A1.0	0	0	0	0	0	0	0	0
08 September	67	0	0	<A1.0	0	0	0	0	0	0	0	0
09 September	67	0	0	<A1.0	0	0	0	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)		
	>1 MeV	>10 MeV	>100 MeV	>.6 MeV	>2MeV	>4 MeV
03 September	1.4E+6	1.6E+4	3.6E+3		7.5E+8	
04 September	1.1E+6	1.6E+4	3.7E+3		9.6E+8	
05 September	1.7E+6	1.6E+4	3.7E+3		5.3E+8	
06 September	1.3E+6	1.8E+4	3.8E+3		4.9E+8	
07 September	1.1E+6	1.8E+4	3.9E+3		2.7E+7	
08 September	9.3E+5	1.7E+4	3.9E+3		9.6E+7	
09 September	1.0E+6	1.9E+4	4.1E+3		1.5E+8	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
03 September	8	2-3-2-2-2-1-2	15	2-3-3-4-4-3-1-2	12	3-3-2-3-3-2-2-3
04 September	4	1-1-2-2-0-1-1-2	6	2-1-2-3-2-0-1-2	6	2-2-2-1-1-2-2-1
05 September	10	2-3-4-2-2-1-2-2	22	2-3-5-5-5-2-1-1	12	2-4-4-2-3-1-2-2
06 September	8	3-2-1-2-1-1-2-3	19	2-1-1-5-2-5-4-2	13	3-2-1-2-2-2-3-4
07 September	10	4-4-1-1-1-2-1-2	16	4-4-2-4-4-2-1-1	12	4-4-1-1-2-2-1-2
08 September	3	1-1-2-1-1-1-1-0	8	1-2-3-4-1-2-1-0	6	2-2-2-2-1-2-2-1
09 September	2	0-0-0-1-1-1-0-1	2	0-0-0-2-1-0-0-1	2	0-0-0-0-1-0-1-1

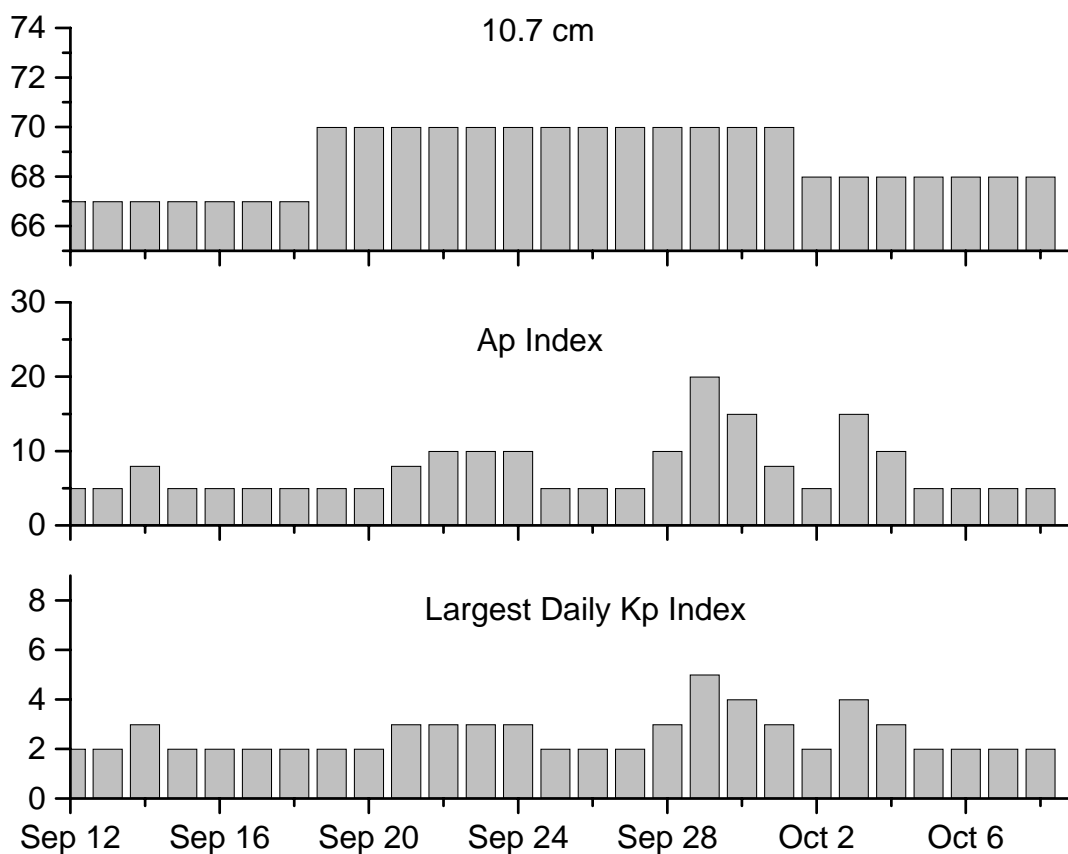


### *Alerts and Warnings Issued*

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
03 Sep 0502	ALERT: Electron 2MeV Integral Flux $\geq 1000$ pfu	03 Sep 0500
04 Sep 0503	ALERT: Electron 2MeV Integral Flux $\geq 1000$ pfu	04 Sep 0500
05 Sep 0502	ALERT: Geomagnetic K = 4	05 Sep 0500
05 Sep 0525	ALERT: Electron 2MeV Integral Flux $\geq 1000$ pfu	05 Sep 0500
05 Sep 0759	ALERT: Geomagnetic K = 4	05 Sep 0758
06 Sep 0531	ALERT: Electron 2MeV Integral Flux $\geq 1000$ pfu	06 Sep 0500
06 Sep 2238	ALERT: Geomagnetic K = 4	06 Sep 2237
07 Sep 0030	WARNING: Geomagnetic K = 4	07 Sep 0100 – 1600
07 Sep 0119	ALERT: Geomagnetic K = 4	07 Sep 0118
07 Sep 0123	WARNING: Geomagnetic K = 5	07 Sep 0125 – 1600
07 Sep 0127	ALERT: Geomagnetic K = 5	07 Sep 0126
08 Sep 1121	ALERT: Electron 2MeV Integral Flux $\geq 1000$ pfu	08 Sep 1105
09 Sep 0501	ALERT: Electron 2MeV Integral Flux $> 1000$ pfu	09 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
12 Sep	67	5	2	26 Sep	70	5	2
13	67	5	2	27	70	5	2
14	67	8	3	28	70	10	3
15	67	5	2	29	70	20	5
16	67	5	2	30	70	15	4
17	67	5	2	01 Oct	70	8	3
18	67	5	2	02	68	5	2
19	70	5	2	03	68	15	4
20	70	5	2	04	68	10	3
21	70	8	3	05	68	5	2
22	70	10	3	06	68	5	2
23	70	10	3	07	68	5	2
24	70	10	3	08	68	5	2
25	70	5	2				



### ***Energetic Events***

Energetic Events													
Date	Time			X-ray		Optical Information				Peak		Sweep Freq	
	$\frac{1}{2}$			Integ		Imp/	Location		Rgn	Radio Flux		Intensity	
	Begin	Max	Max	Class	Flux	Brtns	Lat	CMD	#	245	2695	II	IV
No Events Observed													

***No Events Observed***

### ***Flare List***

Date	Time			Optical	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End	X-ray Class.			

03 September	0103	0106	0109	B1.1			
04 September	0003	0009	0025	B2.0			
05 September	<i><b>No Flares Observed</b></i>						
06 September	<i><b>No Flares Observed</b></i>						
07 September	<i><b>No Flares Observed</b></i>						
08 September	0013	0019	0024	B3.0			
09 September	<i><b>No Flares Observed</b></i>						

### ***Region Summary***

Location			Sunspot Characteristics												
			Flares												
Date	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><b>Region</b></i>	<i><b>970</b></i>														
01 Sep S06W07	124		0050	06	Cso	005	B								
02 Sep S07W21	124		0030	04	Cso	004	B								
03 Sep S07W34	124		0030	06	Bxo	005	B								
04 Sep S07W44	121		0020	04	Bxo	004	B								
05 Sep S09W63	127		0030	05	Bxo	005	B								
06 Sep S07W75	126		0010	05	Bxo	002	B								
07 Sep S07W88	126														

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 124

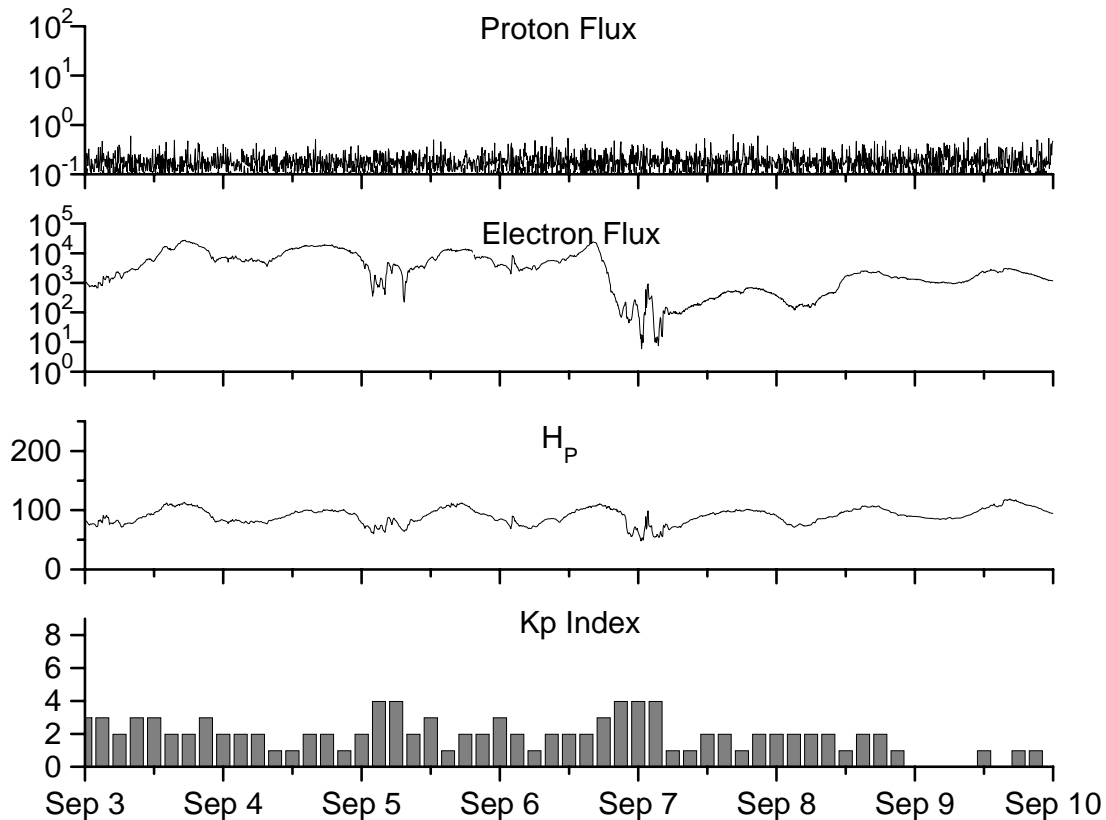


**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values	Ratio	Smooth values	*Penticton	Smooth	Planetary	Smooth		
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
2005									
September	39.2	22.1	0.56	42.9	25.9	90.8	87.8	21	11.8
October	13.0	8.5	0.65	42.6	25.5	76.7	87.4	7	11.6
November	32.2	18.0	0.56	42.1	24.9	86.3	86.7	8	11.1
December	62.6	41.2	0.66	40.1	23.0	90.8	85.4	7	10.4
2006									
January	28.0	15.4	0.55	37.2	20.8	83.8	84.0	6	9.9
February	5.3	4.7	0.89	33.4	18.7	76.6	82.6	6	9.2
March	21.3	10.8	0.51	31.0	17.4	75.5	81.6	8	8.4
April	55.2	30.2	0.55	30.6	17.1	89.0	80.9	11	7.9
May	39.6	22.2	0.56	30.7	17.3	81.0	80.8	8	7.9
June	37.7	13.9	0.37	28.9	16.3	80.1	80.6	9	8.3
July	22.6	12.2	0.54	27.2	15.3	75.8	80.3	7	8.7
August	22.8	12.9	0.57	27.6	15.6	79.0	80.3	9	8.7
September	25.2	14.5	0.58	27.7	15.6	77.8	80.2	8	8.7
October	15.7	10.4	0.66	25.2	14.2	74.3	79.4	8	8.6
November	31.5	21.5	0.68	22.3	12.7	86.4	78.5	9	8.5
December	22.2	13.6	0.61	20.7	12.1	84.3	77.9	15	8.5
2007									
January	26.6	16.9	0.64	19.7	12.0	83.5	77.5	6	8.4
February	17.2	10.6	0.62	18.9	11.6	77.8	76.9	6	8.4
March	9.7	4.8	0.49			72.3		7	
April	6.9	3.7	0.54			72.4		9	
May	19.4	11.7	0.60			74.5		8	
June	20.0	12.0	0.60			73.7		7	
July	15.6	10.0	0.64			71.6		7	
August	9.9	6.2	0.63			69.2		6	

**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 03 September 2007*

Protons plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec-sr) as measured by GOES-11 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

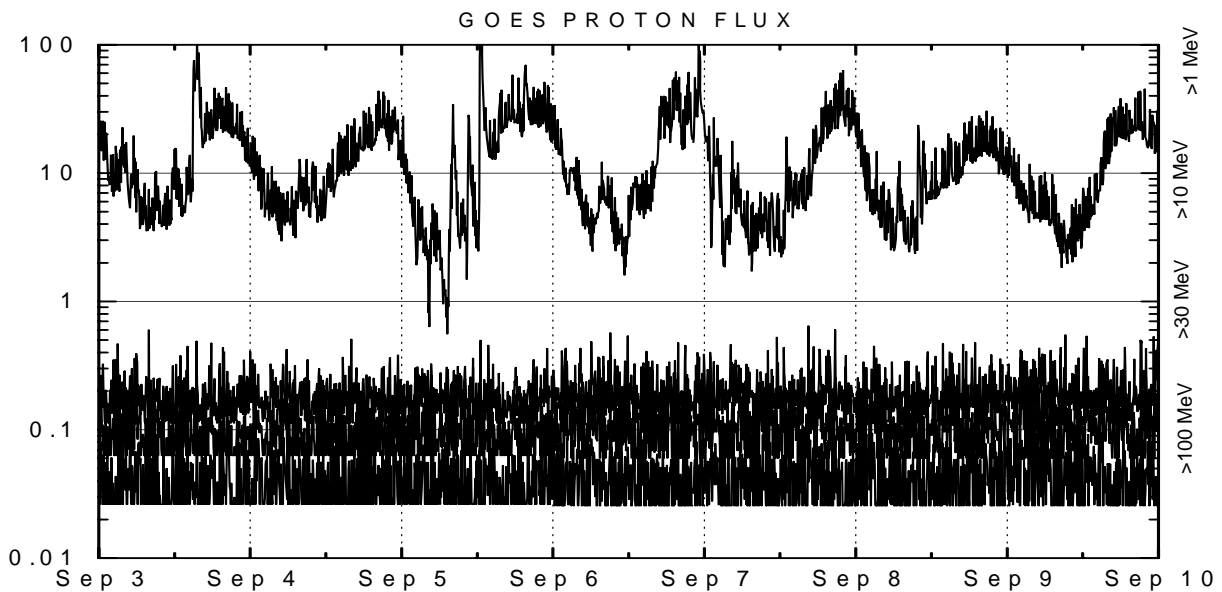
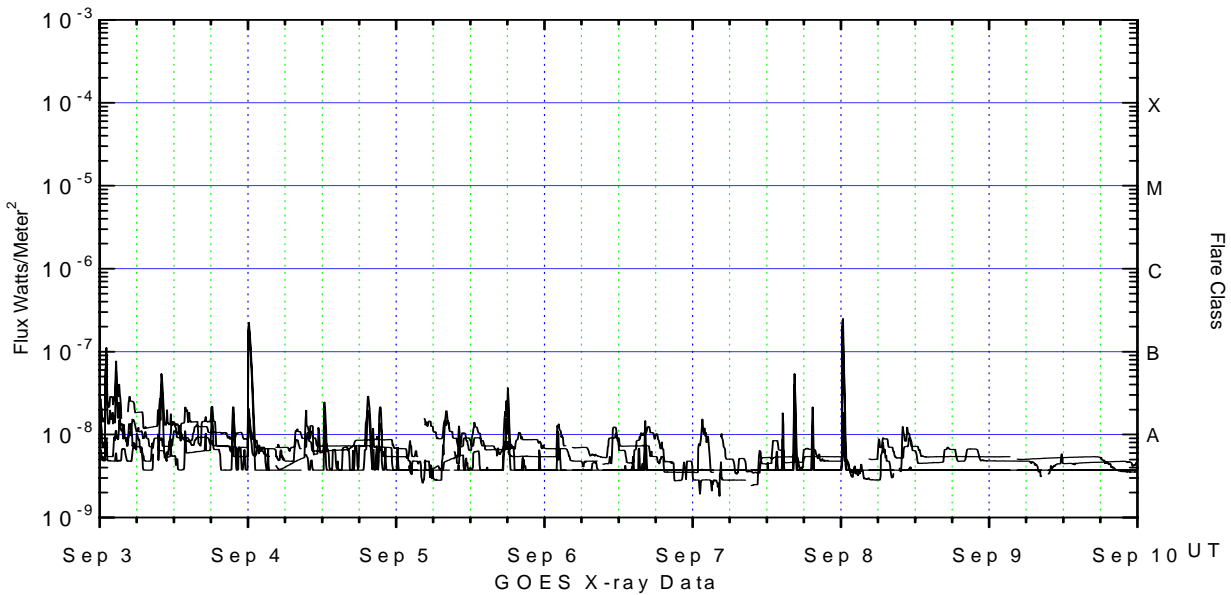
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec-sr) with energies greater than 2 MeV at GOES-12 (W075).

$H_P$  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.

Kp 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 Kp values derived from a more extensive network of magnetometers.

The data included here are those now available in real time at the SEC 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 Kp 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/m<sup>2</sup>) as measured by GOES 10 (W060) and GOES 11 (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.

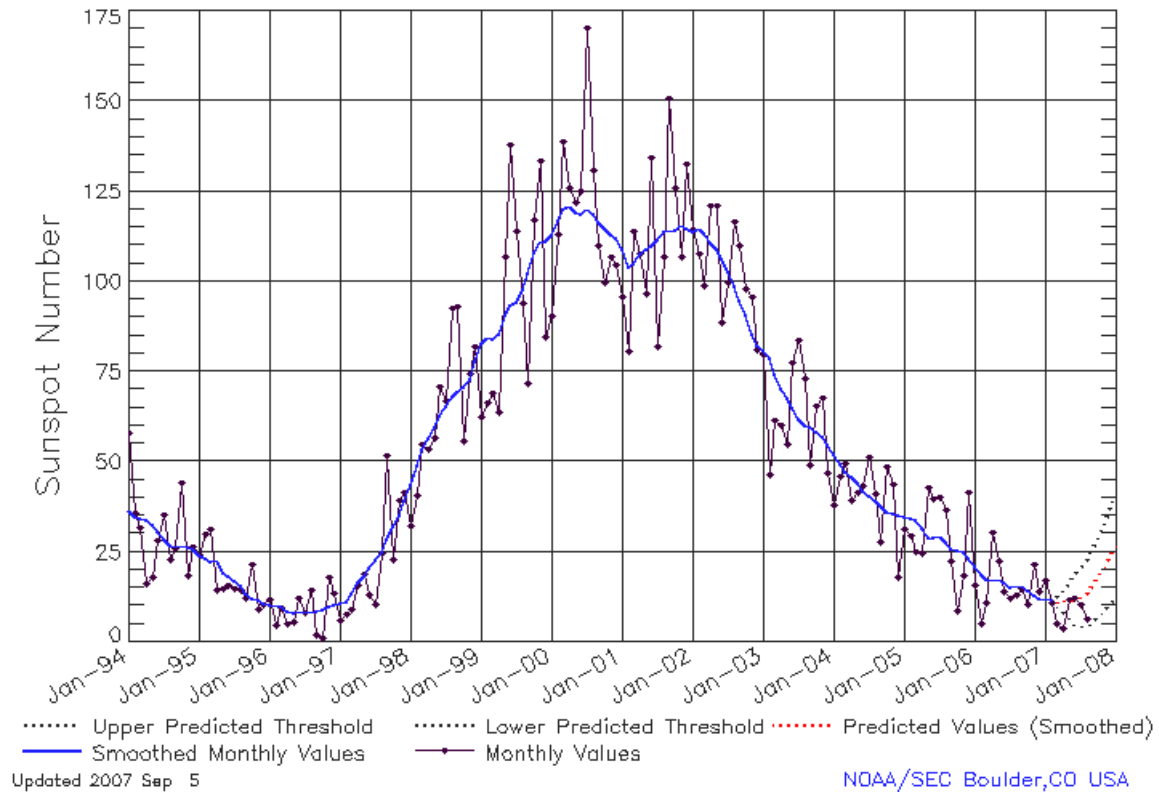
Proton plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec-sr) as measured by GOES-11 (W135) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm<sup>2</sup>-sec-sr) at greater than 10 MeV.





# ISES Solar Cycle Sunspot Number Progression

Data Through 31 Aug 07



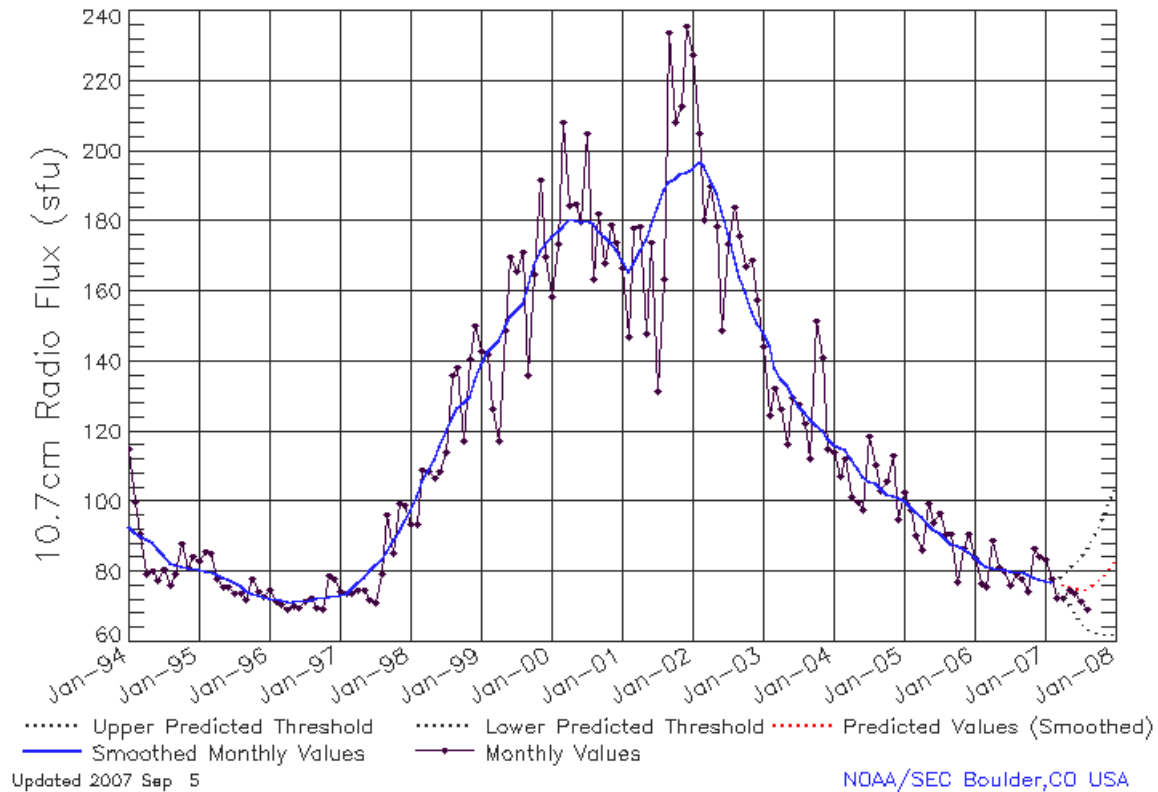
## SEC Prediction of Smoothed Sunspot Number

	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	46	44	42	40	39	38	36	35	35
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
2005	35	34	34	32	29	29	29	28	26	26	25	23
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
2006	21	19	17	17	17	16	15	16	16	14	13	12
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
2007	12	12	<b>11</b>	<b>11</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>14</b>	<b>15</b>	<b>18</b>	<b>21</b>	<b>23</b>
	(**)	(**)	(1)	(3)	(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)



# ISES Solar Cycle F10.7cm Radio Flux Progression

Data Through 31 Aug 07



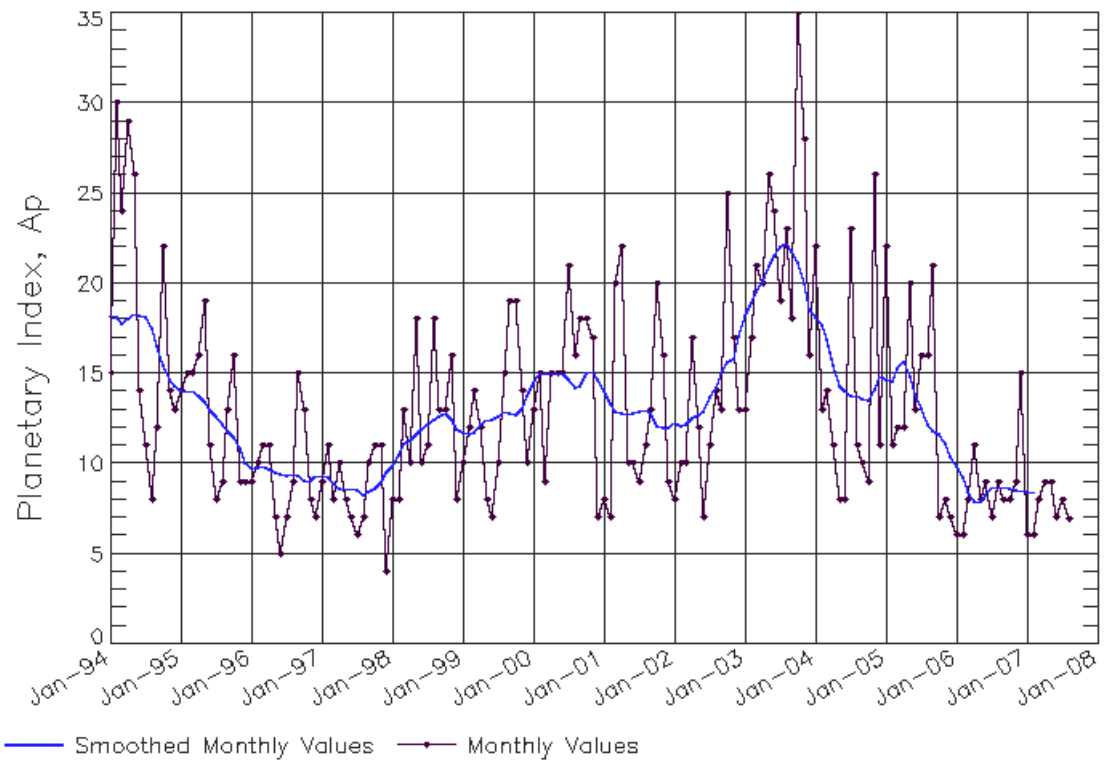
## SEC Prediction of Smoothed F10.7cm Radio Flux

	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	115	112	109	107	106	105	104	102	102	101
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2005	100	99	97	96	93	92	91	89	88	87	87	85
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2006	84	83	82	81	81	81	80	80	80	79	79	78
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2007	78	77	<b>76</b>	<b>76</b>	<b>76</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>76</b>	<b>78</b>	<b>79</b>	<b>81</b>
	(***)	(***)	(1)	(3)	(5)	(7)	(9)	(13)	(13)	(14)	(14)	(13)



# ISES Solar Cycle Ap Progression

Data Through 31 Aug 07



Updated 2007 Sep 5

[NOAA/SEC Boulder, CO USA](#)






Space  
Environment  
Center

# Solar Terrestrial Indices

Cycle 23 Monthly Values

August 2007

Month 131

 Preliminary data

