

Space Weather Highlights
03 – 09 March 2008

SEC PRF 1697
11 March 2008

Solar activity was very low, no flares were observed during the period. Region 984 (S08, L=251, class/area Bxo/030 on 06 March) was numbered on 05 March. The region rotated beyond the west limb on 07 March.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 03 – 08 March.

The geomagnetic field was at mostly quiet levels from 03 – 08 March. Activity levels increased to quiet to minor storm levels midday on 08 March due to a recurrent coronal hole high speed stream that rotated into a geoeffective position. Solar wind speed measurements at the ACE spacecraft began the period at about 600 km/s and declined until late on 07 March when speed reached a minimum of approximately 300 km/s. Solar wind speed began increasing late on 07 March and reached a maximum of approximately 700 km/s at 2023 UTC on 09 March. By the end of the summary period solar wind speed was below 650 km/s

Space Weather Outlook
12 March – 07 April 2008

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 on all days of the forecast period except 26 March and 05 April.

The geomagnetic field is expected to be at quiet to active levels on 12 – 19 March as the coronal hole high speed stream continues to be geoeffective. On 20 – 24 March expect mostly quiet levels. On 25 – 29 March activity levels should increase to unsettled to major storm levels as the next coronal hole rotate into a geoeffective position. From 30 March – 07 April activity levels should decline to mostly quiet to unsettled levels as effects from the coronal hole high speed stream subsides.



Daily Solar Data

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
03 March	68	0	0	<A1.0	0	0	0	0	0	0	0	0
04 March	68	0	0	<A1.0	0	0	0	0	0	0	0	0
05 March	69	13	20	<A1.0	0	0	0	0	0	0	0	0
06 March	70	12	30	<A1.0	0	0	0	0	0	0	0	0
07 March	71	0	0	<A1.0	0	0	0	0	0	0	0	0
08 March	70	0	0	<A1.0	0	0	0	0	0	0	0	0
09 March	70	0	0	<A1.0	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)		
	>1 MeV	>10 MeV	>100 MeV	>.6 MeV	>2MeV	>4 MeV
03 March	1.5E+6	1.7E+4	3.9E+3		1.9E+9	
04 March	1.9E+6	1.8E+4	4.1E+3		2.0E+9	
05 March	3.0E+6	1.8E+4	3.8E+3		3.6E+8	
06 March	2.5E+6	1.8E+4	3.9E+3		5.1E+7	
07 March	2.4E+6	1.8E+4	3.9E+3		8.4E+7	
08 March	2.0E+6	1.8E+4	3.7E+3		3.8E+7	
09 March	1.2E+6	1.7E+4	3.4E+3		1.8E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
03 March	4	2-2-1-1-1-1-0	7	2-2-1-4-1-2-1-0	5	3-2-1-2-1-1-1-0
04 March	3	1-2-2-0-1-0-0-0	4	0-1-3-2-2-0-0-0	4	1-2-2-1-1-1-0-1
05 March	7	1-2-2-2-3-2-1-1	19	1-1-3-5-5-4-1-1	8	1-1-2-3-3-2-1-2
06 March	2	0-0-0-0-1-2-0-1	1	1-0-0-0-1-1-0-0	2	0-0-0-0-1-2-0-1
07 March	1	1-0-1-0-1-0-0-0	1	0-0-1-1-0-0-0-0	3	1-1-1-0-1-1-1-1
08 March	6	0-0-1-1-3-2-3-1	22	0-0-0-3-6-4-5-1	11	0-0-1-1-4-4-3-1
09 March	14	3-4-3-3-2-2-2-3	41	3-5-6-6-5-4-3-3	25	4-5-5-3-3-2-2-4

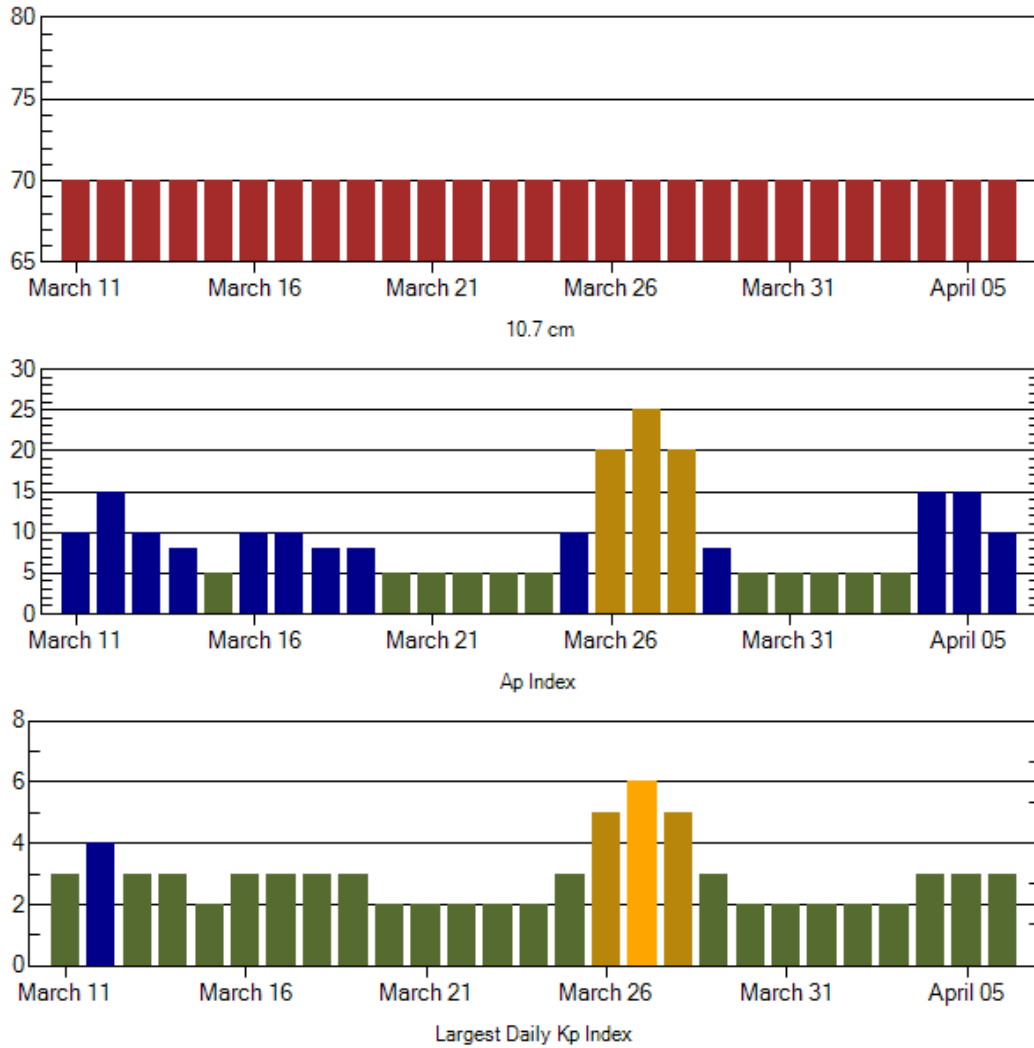


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
03 Mar 0501	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	03 Mar 0500
04 Mar 0503	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	04 Mar 0500
05 Mar 0525	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	05 Mar 0500
06 Mar 1600	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	06 Mar 1540
07 Mar 1152	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	07 Mar 1135
07 Mar 2155	WATCH: Geomagnetic A ≥ 20	09 Mar
08 Mar 1216	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	08 Mar 1200
08 Mar 1255	WARNING: Geomagnetic K = 4	08 Mar 1300 – 1600
08 Mar 1309	ALERT: Geomagnetic K = 4	08 Mar 1308
08 Mar 1745	WARNING: Geomagnetic K = 4	08 Mar 1746 – 10/1600
08 Mar 1753	ALERT: Geomagnetic K = 4	08 Mar 1752
09 Mar 0247	WARNING: Geomagnetic K = 5	09 Mar 0250 – 1600
09 Mar 0711	ALERT: Geomagnetic K = 5	09 Mar 0710



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 Mar	70	15	4	26 Mar	70	20	5
13	70	10	3	27	70	25	6
14	70	8	3	28	70	20	5
15	70	5	2	29	70	8	3
16	70	10	3	30	70	5	2
17	70	10	3	31	70	5	2
18	70	8	3	01 Apr	70	5	2
19	70	8	3	02	70	5	2
20	70	5	2	03	70	5	2
21	70	5	2	04	70	15	3
22	70	5	2	05	70	15	3
23	70	5	2	06	70	10	2
24	70	5	2	07	70	10	2
25	70	10	3				



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
	<i>No Events Observed</i>										

Flare List

Date	Time			Optical	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End	X-ray Class.			
03 March	<i>No Flares Observed</i>						
04 March	<i>No Flares Observed</i>						
05 March	<i>No Flares Observed</i>						
06 March	<i>No Flares Observed</i>						
07 March	<i>No Flares Observed</i>						
08 March	<i>No Flares Observed</i>						
09 March	<i>No Flares Observed</i>						

Region Summary

Location			Sunspot Characteristics													
			Flares													
Date	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			
Region 984																
05 Mar	S05W69	253	0020	03	Bxo	003	B									
06 Mar	S08W80	251	0030	01	Bxo	002	B									
07 Mar	S08W93	251														
									0	0	0	0	0	0	0	0

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 253



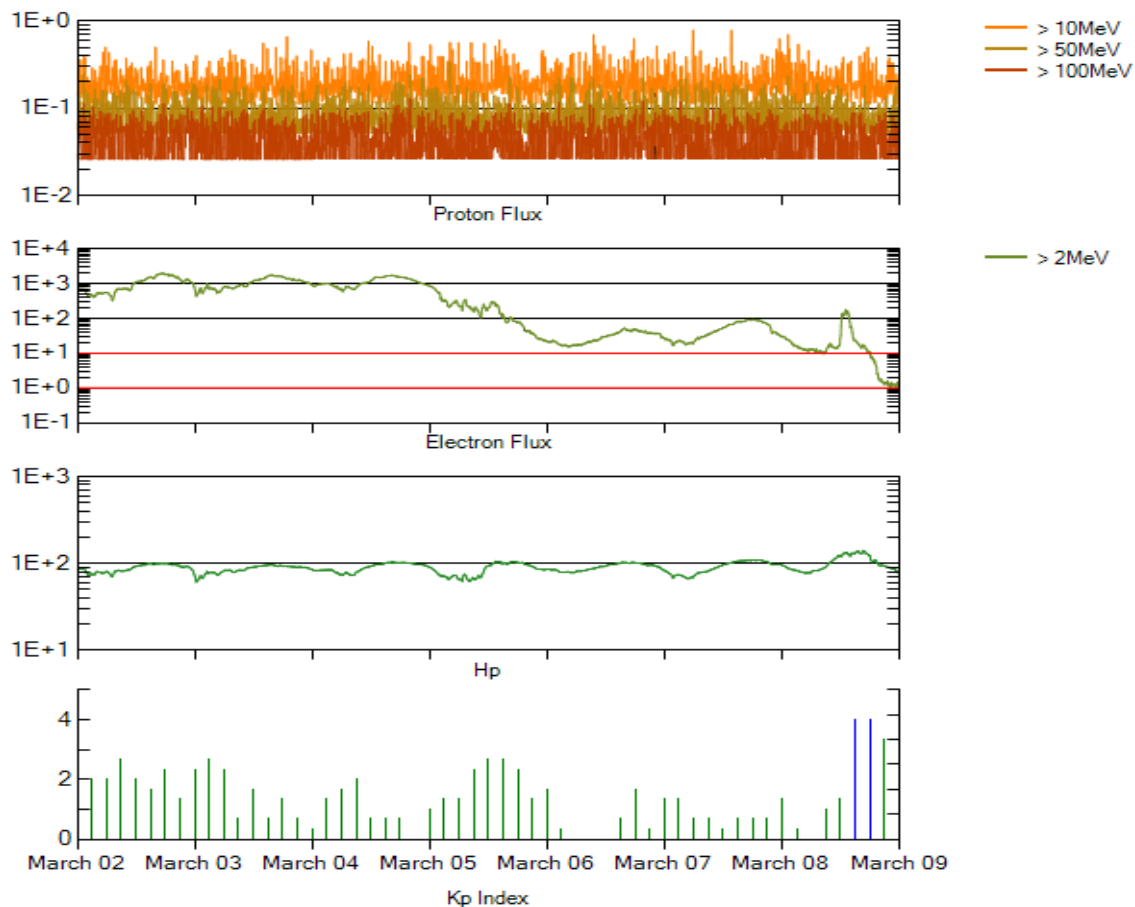
Recent Solar Indices (preliminary)
Of the observed monthly mean values

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
2006									
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	17.5	10.8	72.3	76.0	8	8.4
April	6.9	3.7	0.54	16.0	9.9	72.4	75.2	9	8.5
May	19.4	11.7	0.60	14.2	8.7	74.5	74.2	9	8.4
June	20.0	12.0	0.60	12.8	7.7	73.7	73.2	7	7.8
July	15.6	10.0	0.64	11.6	7.0	71.6	72.5	8	7.4
August	9.9	6.2	0.63	10.2	6.1	69.2	71.8	7	7.6
September	4.8	2.4	0.50			67.1		9	
October	1.3	0.9	0.70			65.5		9	
November	2.5	1.7	0.68			69.7		5	
December	16.2	10.1	0.62			78.6		4	
2008									
January	5.1	3.4	0.67			72.1		6	
February	3.8	2.1	0.55			71.2		9	

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 March 2008

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-11 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

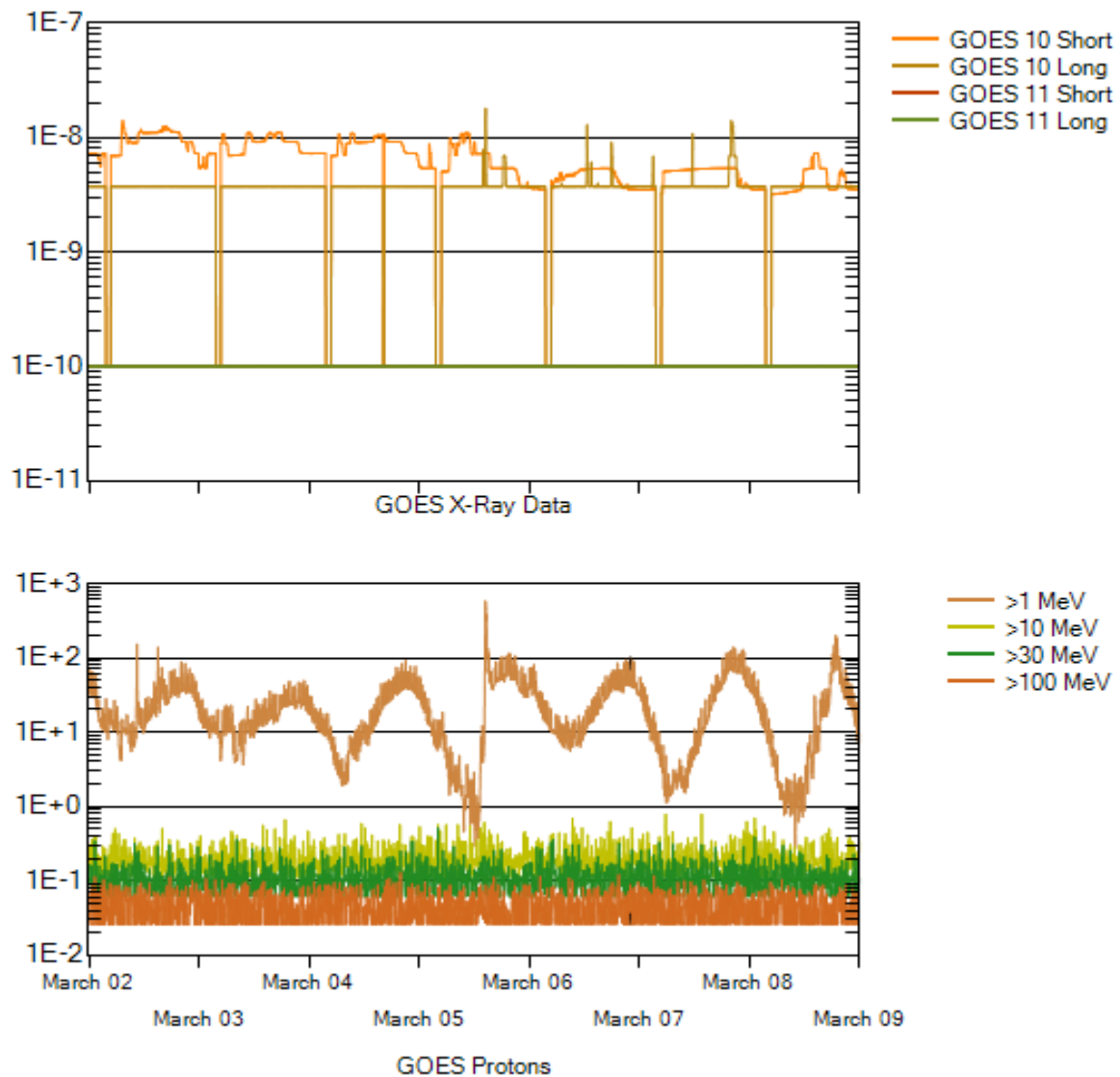
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12 (W075).

Hp 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

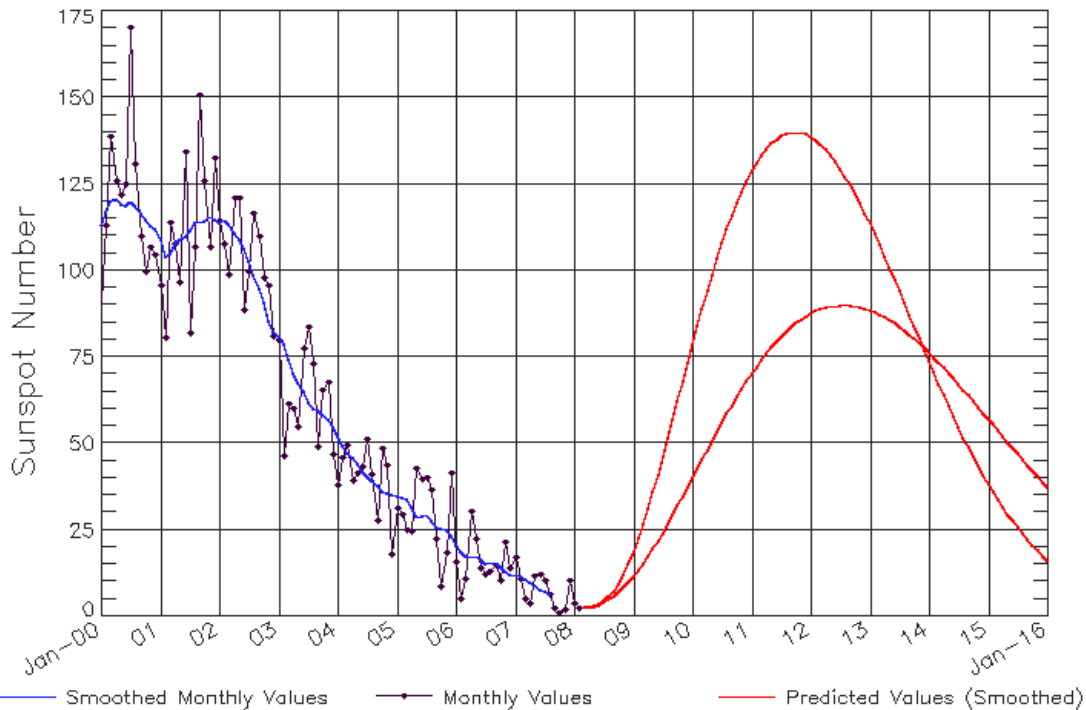
X-ray plot contains five-minute averaged x-ray flux (watts/m^2) as measured by GOES 10 (W060) and GOES 11 (W135) in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

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



ISES Solar Cycle Sunspot Number Progression

Data Through 29 Feb 08



Updated 2008 Mar 1

NOAA/SWPC Boulder, CO USA

SEC Prediction of Smoothed Sunspot Number

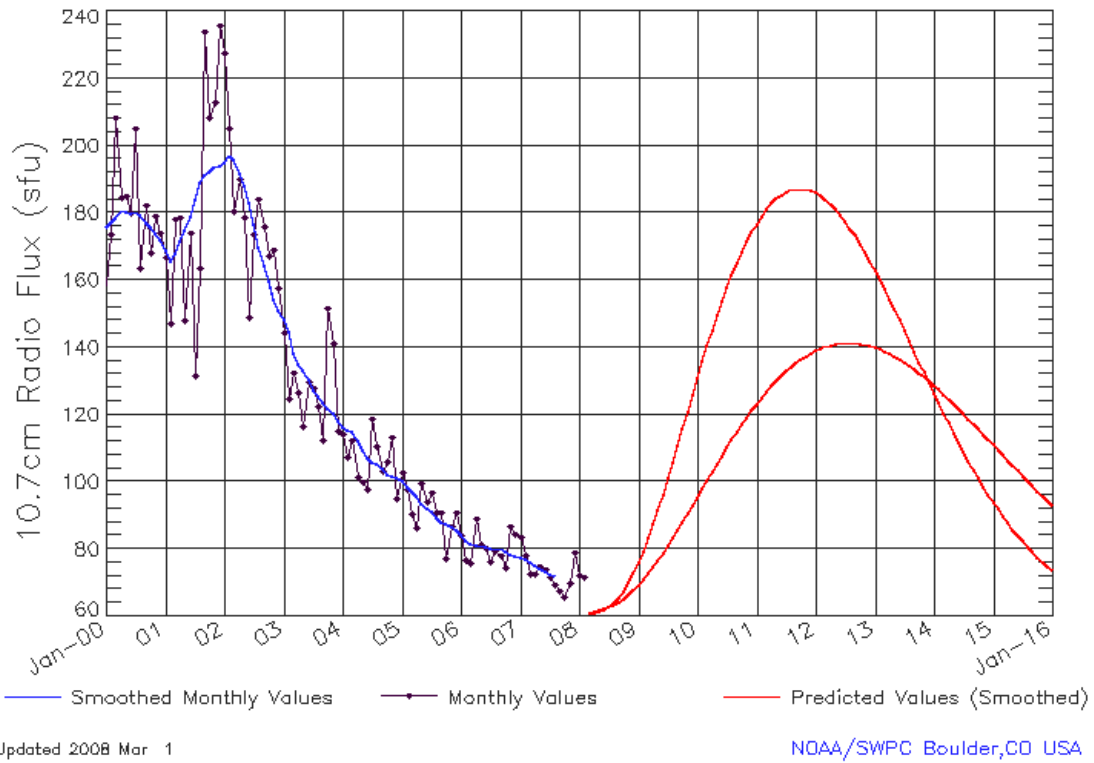
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo
2006	21	19	17	17	17	16	15	16	16	14	13	12
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2007	12	12	11	10	9	8	7	6	6/4	8/2	10/0	11/0
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)	(5)	(7)
2008	11/0	12/0	13/0	15/0	17/0	18/0	20/0	23/0	22/0	24/0	27/0	30/0
	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(15)	(15)	(15)	(15)
2009	33/3	37/7	41/11	46/16	51/21	56/26	61/31	66/36	71/41	77/47	82/52	88/58
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2010	93/63	98/68	104/74	109/79	113/83	118/88	122/92	126/96	130/100	134/104	137/107	140/110
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2011	143/113	146/116	148/118	150/120	151/121	152/122	153/123	154/124	154/124	154/124	154/124	154/124
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2012	153/123	152/122	151/121	149/119	148/118	146/116	144/114	142/112	139/109	137/107	134/104	131/101
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2013	128/98	125/95	122/92	119/89	115/85	112/82	109/79	105/75	102/72	98/68	95/65	92/62
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2014	88/58	85/55	82/52	78/48	75/45	72/42	69/39	66/36	63/33	61/31	58/28	55/25
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2015	53/23	51/21	48/18	46/16	44/14	42/12	40/10	38/8	37/7	35/5	33/3	32/2
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)

Note: Hi is for the larger solar cycle prediction, Lo is for the smaller solar cycle prediction



ISES Solar Cycle F10.7cm Radio Flux Progression

Data Through 29 Feb 08



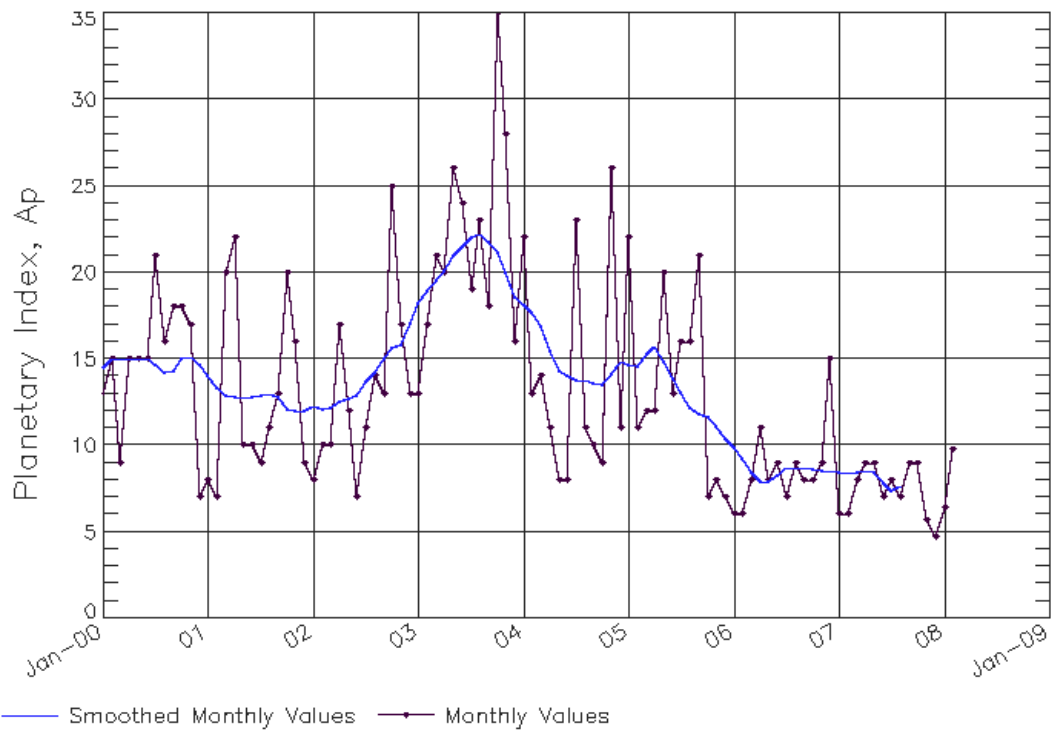
SEC Prediction of Smoothed F10.7cm Radio Flux

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo	Hi/Lo
2006	84	83	82	81	81	81	80	80	80	79	79	78
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2007	78	77	76	75	74	73	73	72	72/70	73/67	74/64	75/61
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)	(5)	(7)
2008	76/60	77/60	79/60	81/60	83/60	85/60	87/60	88/60	88/60	90/60	92/60	95/60
	(9)	(11)	(13)	(15)	(17)	(19)	(21)	(22)	(23)	(23)	(23)	(23)
2009	98/60	102/60	106/60	110/64	114/68	119/73	124/78	128/82	133/87	138/92	143/97	148/102
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2010	153/107	158/112	163/117	168/122	172/126	176/130	180/134	184/138	188/142	191/145	194/148	197/151
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2011	199/153	202/156	204/158	205/159	207/161	208/162	209/163	209/163	210//164	210/164	210/164	209/163
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2012	208/162	208/162	206/160	205/159	204/158	202/156	200/154	198/152	196/150	193/147	191/145	188/142
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2013	185/139	183/137	180/134	177/131	174/128	171/125	168/122	164/1128	161/115	158/112	155/109	152/106
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2014	149/103	146/100	143/97	140/94	137/91	134/88	131/85	129/83	126/80	124/78	121/75	119/73
	(23)	(23)	(23)	(24)	(25)	(26)	(27)	(27)	(28)	(29)	(29)	(30)
2015	116/70	114/68	112/66	110/64	108/62	106/60	105/60	103/60	102/60	100/60	99/60	97/60
	(30)	(31)	(31)	(32)	(32)	(32)	(32)	(33)	(33)	(33)	(33)	(33)



ISES Solar Cycle Ap Progression

Data Through 29 Feb 08



Updated 2008 Mar 1

NOAA/SWPC Boulder, CO USA



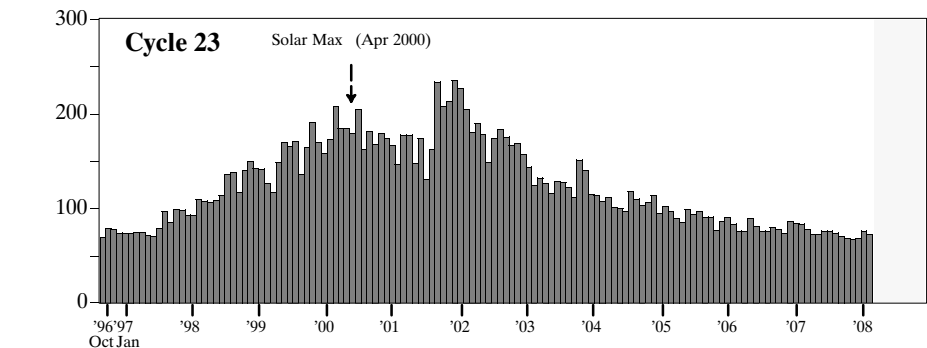
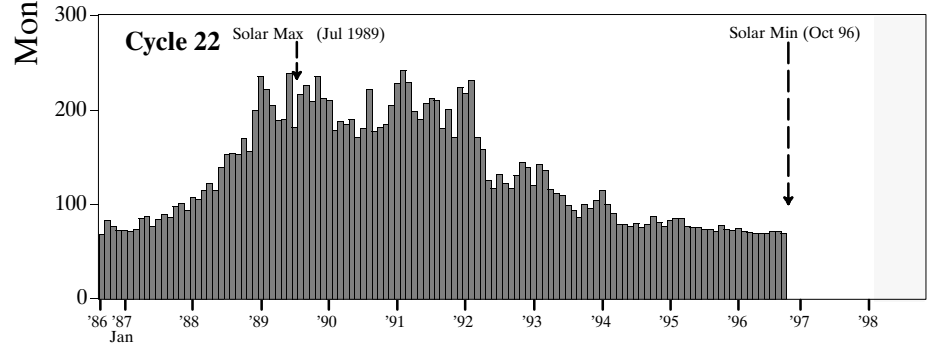
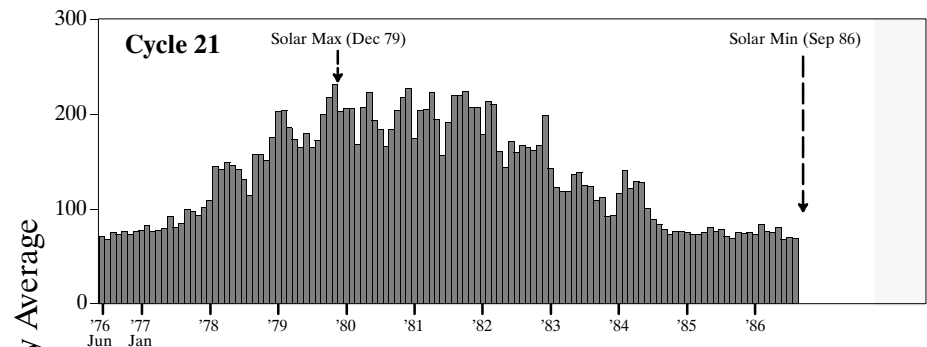
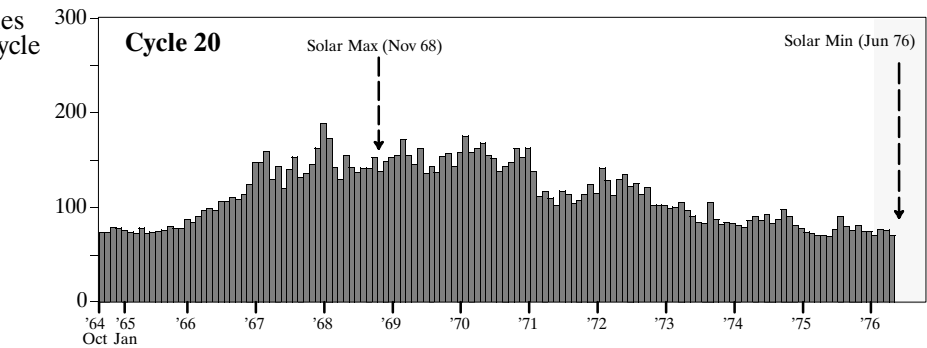
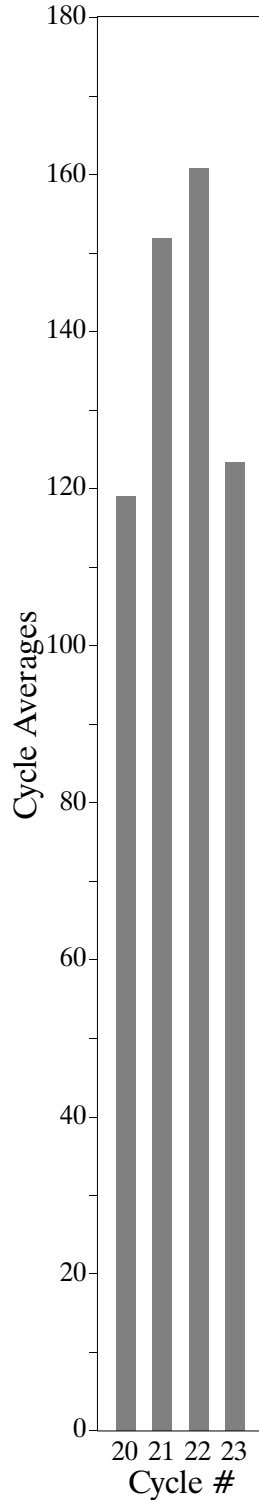


Space
Environment
Center

Solar Radio Flux (10.7 cm)

January 2008
(Month 136)

Comparison of Cycles
at current month in cycle



N.Cohen