

Space Weather Highlights
02 April – 08 April 2007

SEC PRF 1649
10 April 2007

Solar activity was very low. No flares were observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels during 02 – 08 April.

The geomagnetic field was at quiet to minor storm levels on 02 April with major storm periods at high latitudes due to a recurrent coronal hole high-speed stream. ACE solar wind data indicated a peak velocity of 664 km/sec at 02/1912 UTC while IMF Bz reached a minimum of -6.9 nT at 02/1032 UTC and IMF Bt peaked at 7.7 nT at 02/1023 UTC. Activity decreased to quiet to active levels during 02 – 04 April as the high-speed stream gradually subsided. Activity decreased to quiet levels for the rest of the period.

Space Weather Outlook
11 April – 07 May 2007

Solar activity is expected to continue at very low levels.

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 11 – 18 April, and again during 29 April – 07 May.

Geomagnetic field activity is expected to be at quiet to unsettled levels through 19 April. A recurrent coronal hole high-speed stream is expected to disturb the field during 20 – 21 April with unsettled to minor storm levels expected. Quiet to unsettled conditions are expected during 22 – 27 April. Another round of coronal hole effects is expected during 28 – 29 April with unsettled to major storm conditions expected. Mostly quiet conditions are expected for the balance of the period.



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
02 April	71	12	20	<A1.0	0	0	0	0	0	0	0	0
03 April	71	23	20	<A1.0	0	0	0	0	0	0	0	0
04 April	71	0	0	<A1.0	0	0	0	0	0	0	0	0
05 April	71	0	0	<A1.0	0	0	0	0	0	0	0	0
06 April	71	0	0	<A1.0	0	0	0	0	0	0	0	0
07 April	71	0	0	<A1.0	0	0	0	0	0	0	0	0
08 April	71	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
02 April	4.1E+6	1.6E+4	3.4E+3		1.9E+8	
03 April	1.9E+6	1.5E+4	3.6E+3		6.6E+8	
04 April	1.1E+6	1.6E+4	3.8E+3		6.2E+8	
05 April	1.4E+6	1.6E+4	3.9E+3		9.6E+8	
06 April	1.3E+6	1.6E+4	3.8E+3		1.2E+9	
07 April	1.3E+6	1.7E+4	4.2E+3		1.2E+9	
08 April	3.0E+6	1.7E+4	4.0E+3		1.2E+9	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
02 April	16	3-4-3-2-2-4-3-3	39	3-5-6-6-5-3-3-2	24	4-5-5-3-2-2-3-3
03 April	10	3-3-2-2-2-3-1-2	16	3-2-4-4-1-4-3-2	11	2-4-2-2-1-3-3-2
04 April	6	2-3-2-1-2-0-2-1	13	3-3-3-4-3-2-1-1	8	3-3-2-2-1-1-1-2
05 April	3	1-1-1-0-1-1-1-1	4	1-1-2-0-1-2-0-2	4	1-1-2-1-1-1-0-2
06 April	2	1-2-1-0-0-1-1-0	3	1-1-3-1-0-0-0-0	4	1-2-1-1-0-1-1-1
07 April	2	2-1-0-0-1-1-0-0	2	2-1-0-0-1-0-0-0	3	3-1-0-0-0-0-0-1
08 April	2	0-0-0-1-1-1-0-2	2	0-0-0-1-0-0-0-1	3	0-0-0-0-0-0-0-3

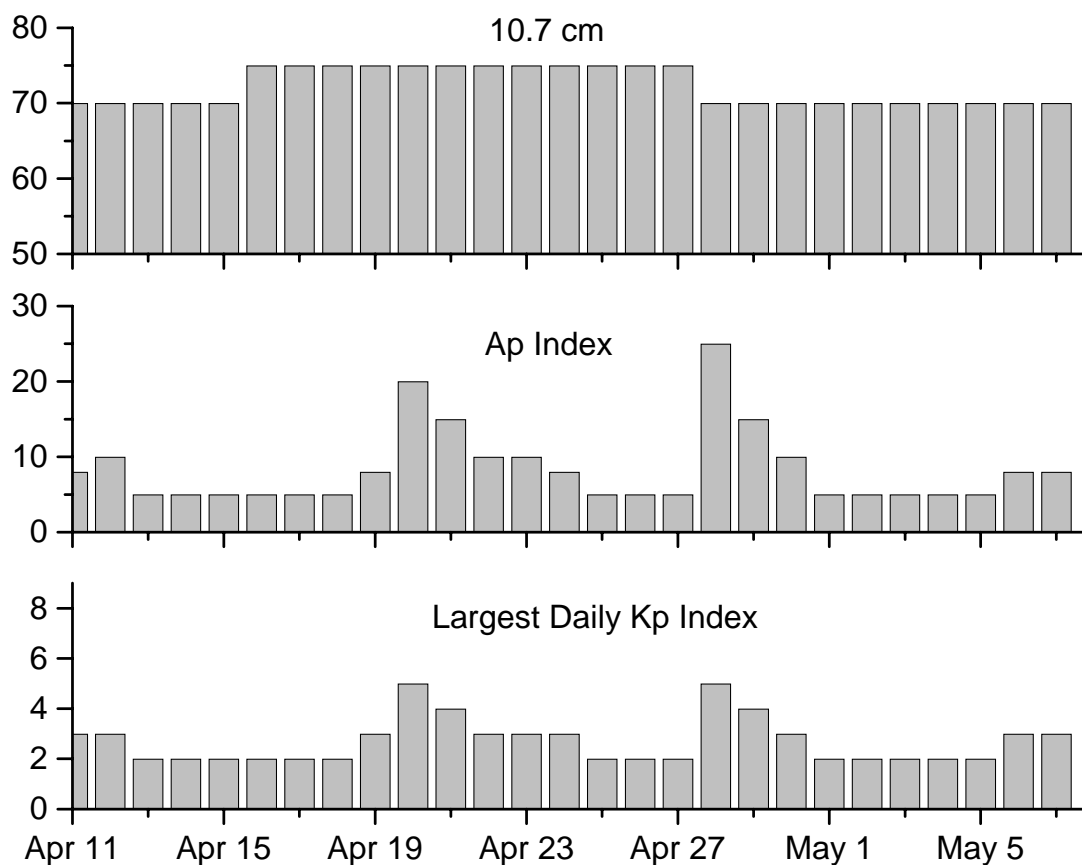


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
02 Apr 0220	ALERT: Geomagnetic K = 4	02 Apr 0218
02 Apr 0339	ALERT: Geomagnetic K = 5	02 Apr 0337
02 Apr 0620	WARNING: Geomagnetic K = 5	02 Apr 0620 – 0900
02 Apr 0626	WARNING: Geomagnetic K = 6	02 Apr 0627 – 0600
02 Apr 0636	ALERT: Geomagnetic K = 5	02 Apr 0632
02 Apr 0855	EXTENDED WARNING: Geomagnetic K = 5	02 Apr 0620 – 1200
02 Apr 1202	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	02 Apr 1140
02 Apr 2159	WARNING: Geomagnetic K = 4	02 Apr 2200 – 03/1600
03 Apr 0340	ALERT: Geomagnetic K = 4	03 Apr 0337
03 Apr 0500	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	03 Apr 0500
03 Apr 1656	WARNING: Geomagnetic K = 4	03 Apr 1657 – 2359
03 Apr 2350	EXTENDED WARNING: Geomagnetic K = 4	03 Apr 1657 – 04/1600
04 Apr 0530	ALERT: Geomagnetic K = 4	04 Apr 0530
04 Apr 0532	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	04 Apr 0515
05 Apr 0507	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	05 Apr 0500
06 Apr 0505	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	06 Apr 0500
07 Apr 0503	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	07 Apr 0500
08 Apr 0500	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	08 Apr 0500
08 Apr 2352	WARNING: Geomagnetic K = 4	08 Apr 2350 – 09/1600



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
11 Apr	70	8	3	25 Apr	75	5	2
12	70	10	3	26	75	5	2
13	70	5	2	27	75	5	2
14	70	5	2	28	70	25	5
15	70	5	2	29	70	15	4
16	75	5	2	30	70	10	3
17	75	5	2	01 May	70	5	2
18	75	5	2	02	70	5	2
19	75	8	3	03	70	5	2
20	75	20	5	04	70	5	2
21	75	15	4	05	70	5	2
22	75	10	3	06	70	8	3
23	75	10	3	07	70	8	3
24	75	8	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

No Events Observed

Flare List

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

02 April **No Flares Observed**

03 April **No Flares Observed**

04 April **No Flares Observed**

05 April **No Flares Observed**

06 April **No Flares Observed**

07 April **No Flares Observed**

08 April **No Flares Observed**

Region Summary

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

Region 949

28 Mar N07E62	331	0070	03	Hax	002	A												
29 Mar N06E48	331	0040	04	Cso	004	B												
30 Mar N07E34	332	0010	03	Bxo	003	B												
31 Mar N06E21	332	0020	05	Cso	005	B								1				
01 Apr N08E08	332	0050	04	Cro	003	B												
02 Apr N07W05	332	0020	03	Axx	002	A												
03 Apr N08W19	332	0010	01	Axx	001	A												
04 Apr N08W32	332																	
05 Apr N08W45	332																	
06 Apr N08W58	332																	
07 Apr N08W71	332																	
08 Apr N08W84	332																	

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 332

Region 950

03 Apr S12W32	345	0010	02	Bxo	002	B												
04 Apr S12W45	345																	
05 Apr S12W58	345																	
06 Apr S12W71	345																	
07 Apr S12W84	345																	

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 345

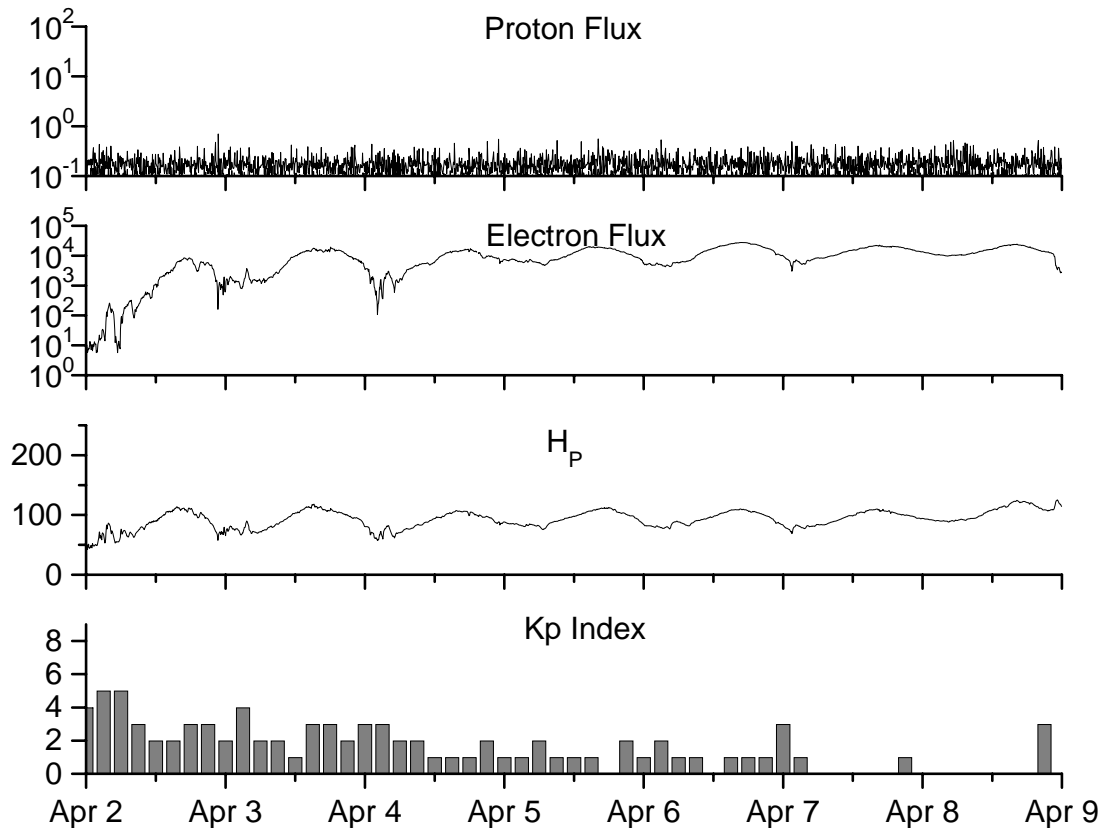


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
April	41.5	24.4	0.59	52.6	31.7	85.9	95.5	12	15.7
May	65.4	42.6	0.65	48.3	29.0	99.5	93.2	20	14.8
June	59.8	39.6	0.66	47.9	28.9	93.7	91.9	13	13.9
July	71.0	39.9	0.56	48.1	29.2	96.6	90.9	16	13.1
August	65.6	36.4	0.55	45.4	27.5	90.7	89.3	16	12.2
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			74.3		8	
November	31.5	21.5	0.68			86.4		9	
December	22.2	13.6	0.61			84.3		15	
2007									
January	26.6	16.9	0.64			83.5		6	
February	17.2	10.6	0.62			77.8		6	
March	9.7	4.8	0.49			72.3		7	

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 02 April 2007

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.

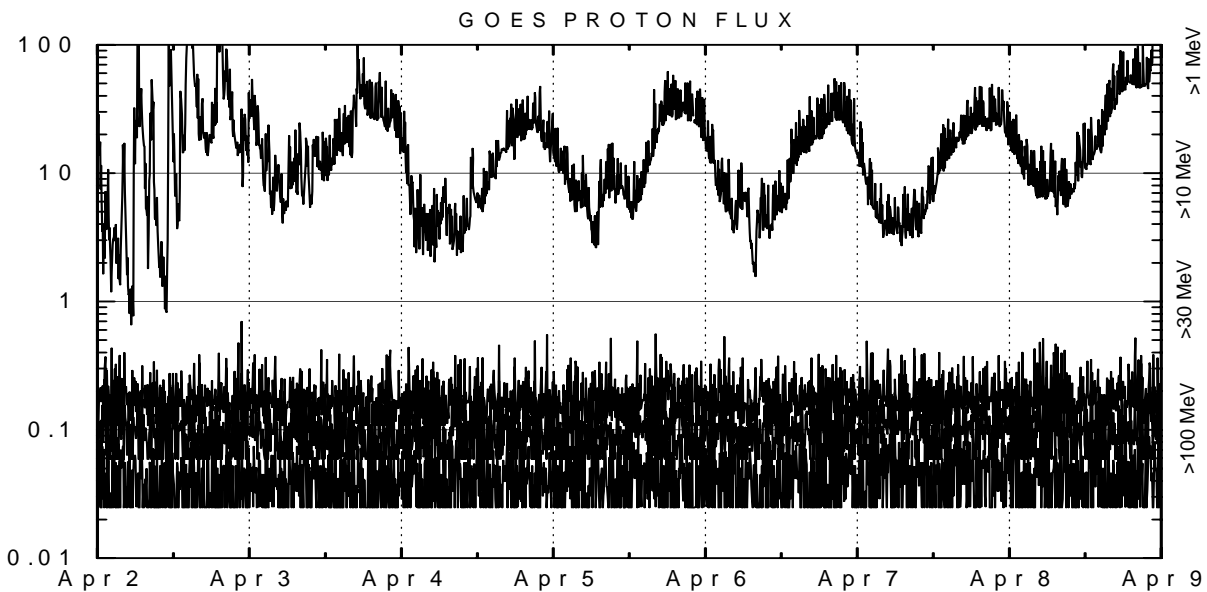
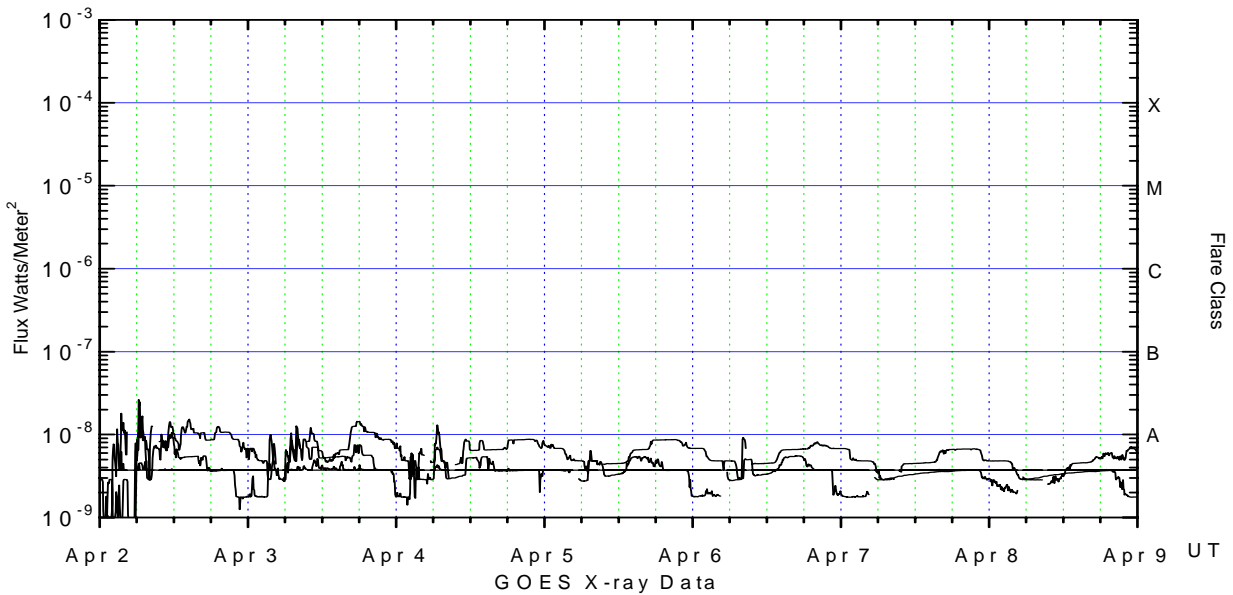
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-12 (W075).

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 Meenook, 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 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 K_p 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/m²) as measured by GOES 12 (W075) 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/cm²-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/cm²-sec-sr) at greater than 10 MeV.

