

Space Weather Highlights
19 February – 25 February 2007

SEC PRF 1643
27 February 2007

Solar activity was low on 19 February by virtue of a C1/SF flare at 19/0010 UTC from Region 943 (S12, L = 156, class/area Cao/050 on 19 February). A weak Type II radio sweep (estimated shock velocity 500 km/sec) occurred at 19/0018 UTC, but could not be definitively associated with the C1 flare. Activity decreased to very low levels for the rest of the period with no flares observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels during 19 - 23 February.

The geomagnetic field was quiet at all latitudes during the summary period.

Space Weather Outlook
28 February – 26 March 2007

Solar activity is expected to be 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 01 – 03 and 14 – 23 March.

The geomagnetic field is expected to be at quiet to active levels on 28 February due to a recurrent coronal hole high-speed stream. Mostly quiet conditions are expected during 01 – 11 March. Field activity is expected to increase to unsettled to minor storm levels during 12 – 13 March due to a recurrent coronal hole high-speed stream. Quiet to unsettled conditions are expected for the remainder 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
19 February	75	26	110	<A1.0	1	0	0	1	0	0	0	0
20 February	75	27	80	<A1.0	0	0	0	0	0	0	0	0
21 February	75	14	50	<A1.0	0	0	0	0	0	0	0	0
22 February	76	25	140	<A1.0	0	0	0	0	0	0	0	0
23 February	75	22	120	<A1.0	0	0	0	0	0	0	0	0
24 February	76	11	90	<A1.0	0	0	0	0	0	0	0	0
25 February	77	12	110	<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
19 February	2.6E+6	1.7E+4	3.7E+3		3.0E+8	
20 February	2.5E+6	1.7E+4	3.9E+3		1.8E+8	
21 February	2.5E+6	1.7E+4	3.9E+3		1.3E+8	
22 February	2.5E+6	1.7E+4	3.9E+3		1.2E+8	
23 February	2.4E+6	1.7E+4	4.1E+3		4.4E+7	
24 February	2.4E+6	1.8E+4	4.1E+3		2.5E+7	
25 February	2.8E+6	1.8E+4	4.0E+3		2.2E+7	

Daily Geomagnetic Data

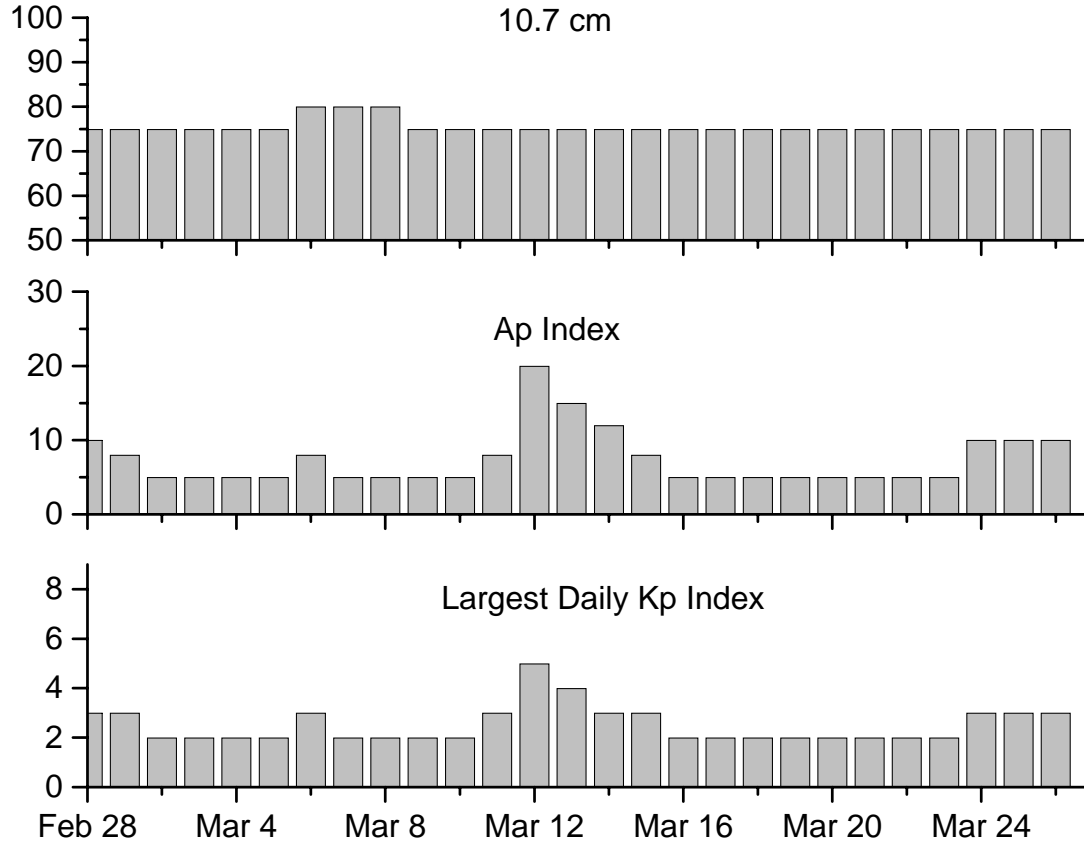
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
19 February	2	0-0-0-0-2-1-1-1	3	0-2-1-1-2-2-0-0	3	0-0-0-0-2-2-1-1
20 February	1	0-1-0-0-1-0-0-1	1	0-0-0-1-0-0-0-1	2	0-0-0-0-1-1-0-1
21 February	1	0-1-0-0-1-0-0-0	0	0-0-0-0-0-0-0-0	1	0-1-0-0-0-0-0-0
22 February	2	0-0-0-0-1-1-1-1	0	0-0-0-0-0-0-0-0	2	0-0-0-0-1-1-0-1
23 February	2	1-0-1-0-1-1-1-0	0	0-0-0-0-1-0-0-0	2	1-1-0-0-1-1-0-1
24 February	2	0-0-1-0-2-1-0-1	0	0-0-0-0-0-0-0-0	1	1-0-0-0-0-0-0-1
25 February	4	1-1-1-0-2-2-2-1	1	0-0-0-0-1-1-1-0	3	1-1-0-0-0-1-2-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
19 Feb 0501	ALERT: Electron 2MeV Integral Flux >1000pfu	19 Feb 0500
19 Feb 1419	ALERT: Type II Radio Emission	19 Feb 0018
20 Feb 0503	ALERT: Electron 2MeV Integral Flux >1000pfu	20 Feb 0500
21 Feb 0722	ALERT: Electron 2MeV Integral Flux >1000pfu	21 Feb 0720
22 Feb 0702	ALERT: Electron 2MeV Integral Flux >1000pfu	22 Feb 0635
23 Feb 1331	ALERT: Electron 2MeV Integral Flux >1000pfu	23 Feb 1315



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
28 Feb	75	10	3	14 Mar	75	12	3
01 Mar	75	8	3	15	75	8	3
02	75	5	2	16	75	5	2
03	75	5	2	17	75	5	2
04	75	5	2	18	75	5	2
05	75	5	2	19	75	5	2
06	80	8	3	20	75	5	2
07	80	5	2	21	75	5	2
08	80	5	2	22	75	5	2
09	75	5	2	23	75	5	2
10	75	5	2	24	75	10	3
11	75	8	3	25	75	10	3
12	75	20	5	26	75	10	3
13	75	15	4				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq	
	$\frac{1}{2}$		Integ		Imp/	Location		Radio Flux		Intensity	
	Begin	Max	Max	Class	Flux	Brtns	Lat CMD	#	245	2695	II IV

No Events Observed

Flare List

Date	Time			Optical X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
19 February	0008	0009	0014	C1.1	Sf	S12E16	943
20 February	No Flares Observed						
21 February	No Flares Observed						
22 February	No Flares Observed						
23 February	No Flares Observed						
24 February	No Flares Observed						
25 February	No Flares Observed						

Region Summary

Region Summary															
Location			Sunspot Characteristics												
			Flares												
								X-ray				Optical			
Date	(° Lat ° CMD)	Helio Lon	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	C	M	X	S	1	2	3	4

Region 942

16 Feb	S13E69	131	0060	03	Cao	002	B								
17 Feb	S11E55	132	0020	01	Hsx	001	A								
18 Feb	S12E41	133	0040	03	Cso	002	B								
19 Feb	S12E28	132	0060	02	Cso	003	B								
20 Feb	S11E15	132	0040	02	Bxo	004	B								
21 Feb	S11E05	129	0050	09	Dso	004	B								
22 Feb	S10W09	130	0020	08	Bxo	004	B								
23 Feb	S11W26	133	0010	01	Axx	001	A								
24 Feb	S11W39	133													
25 Feb	S11W52	133													

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 129



Region Summary-Continued

Region Summary, Continued																
Location			Sunspot Characteristics													
			Flares													
Helio			Area	Extent	Spot	Spot	Mag	X-ray			Optical					
Date	(° Lat ° CMD)	Lon	(10 ⁻⁶ hemi)	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4	

Region 943

19 Feb S12E04	156	0050	03	Cao	003	B
20 Feb S12W10	157	0040	03	Bxo	003	B
21 Feb S12W23	157					
22 Feb S12W36	157					
23 Feb S12W49	157					
24 Feb S12W62	157					
25 Feb S12W75	157					

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 156

Region 944

22 Feb S10E75	046	0120	03	Hsx	001	A
23 Feb S03E61	046	0110	03	Hsx	001	A
24 Feb S07E49	044	0090	03	Hsx	001	A
25 Feb S08E37	043	0110	03	Hsx	002	A

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Still on Disk.

Absolute heliographic longitude: 043

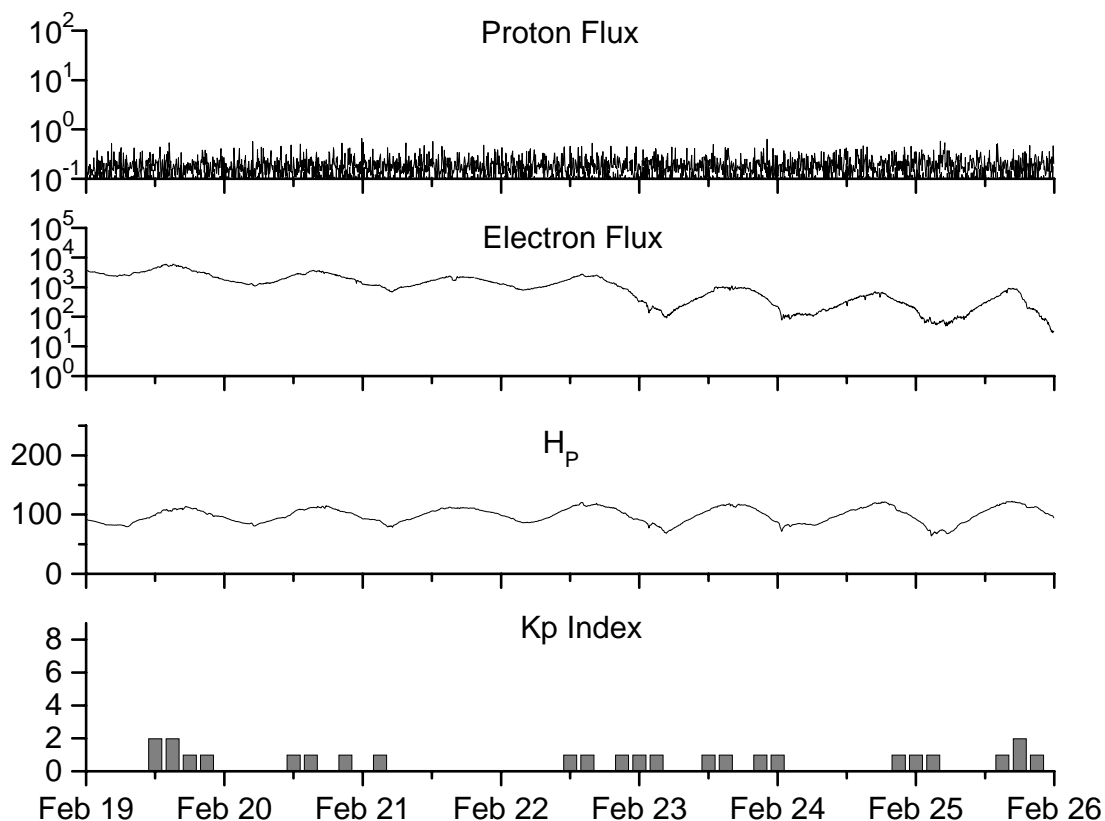


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
February	45.4	29.1	0.64	56.4	34.0	97.3	98.5	11	14.6
March	41.0	24.8	0.60	55.8	33.6	90.0	97.2	12	15.3
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			79.0		9	
September	25.2	14.5	0.58			77.8		8	
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		5	

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 19 February 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.

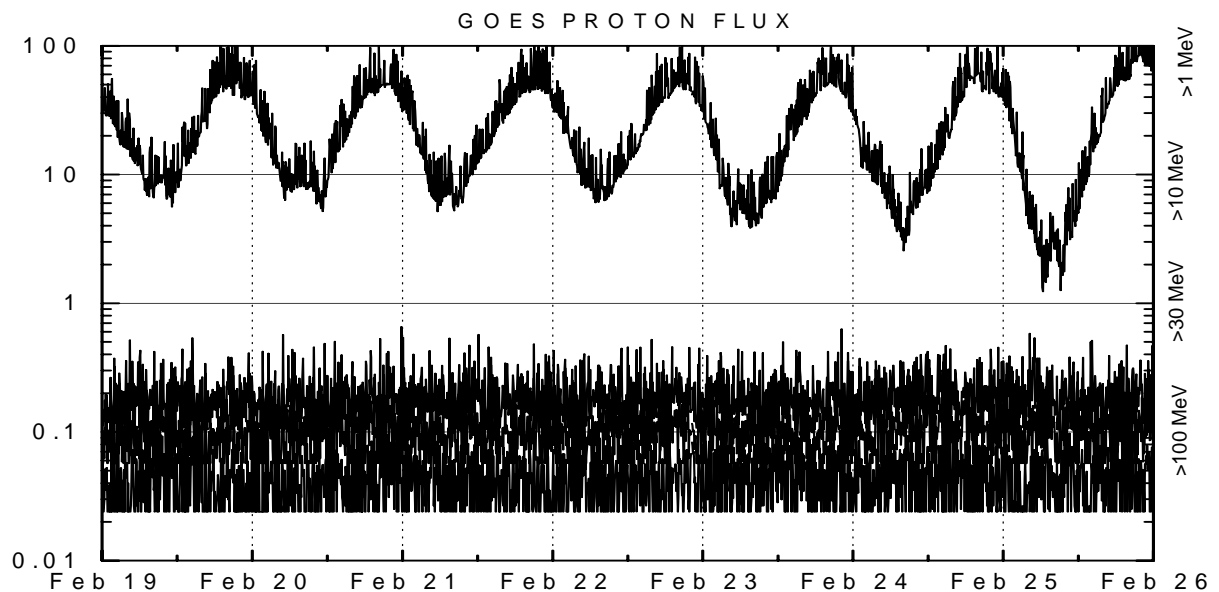
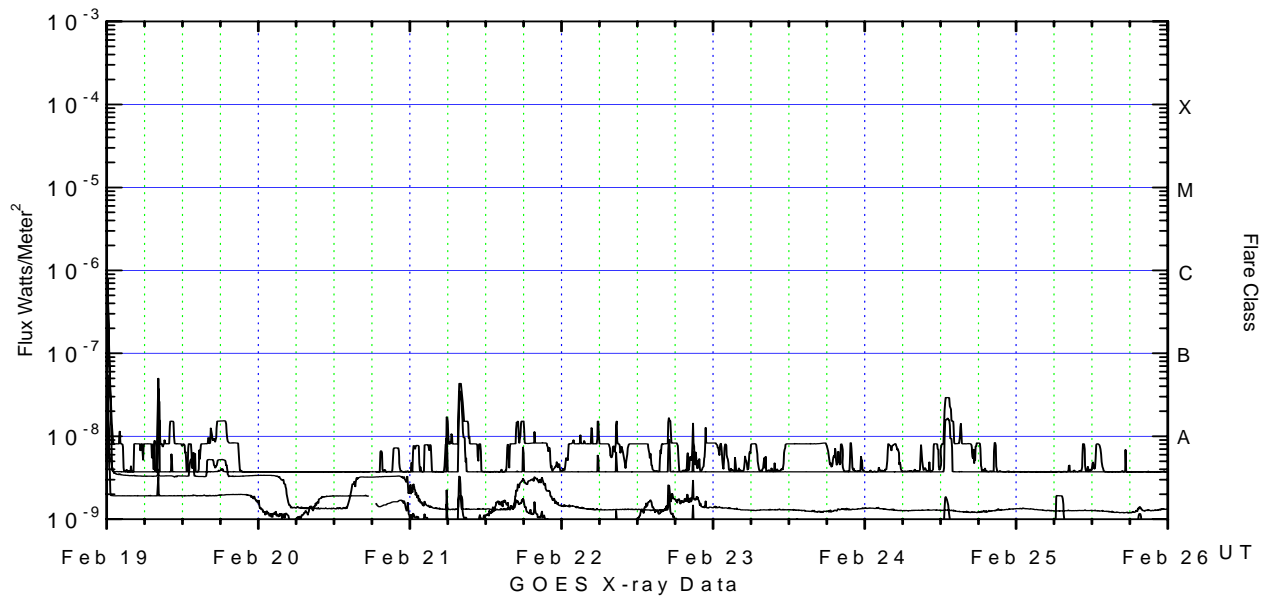
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-12 (W075).

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 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 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.

