

Space Weather Highlights
08 – 14 January 2007

SEC PRF 1637
16 January 2007

Solar activity was very low to low. Region 933 (S03, L=030, class/area, Dhi/310 on 02 January) produced isolated C-class flares during 10 – 12 January. The largest of these C-class flares was a C1.7/sf on 10/0951 UTC.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels 08 – 10 January.

Geomagnetic field activity was at quiet levels at middle latitudes, while mostly quiet to unsettled levels were observed at high latitudes with a brief period of active conditions observed midday on the 10th. ACE wind velocities varied from a low of about 300 km/s late on 08 January to a high of near 500 km/s late on 11 January. The Bz component of the IMF generally did not vary much beyond +/- 7 nT for the entire period.

Space Weather Outlook
17 January – 12 February 2007

Solar activity is expected to be at very low to low levels through the entire forecast period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels 17 – 28 January, 30 January – 06 February, and 10 – 11 February.

The geomagnetic field is expected to be at quiet to minor storm levels. Unsettled to active levels are expected 17 – 19 January and again on 10 – 12 February, while active to minor storm levels are expected 29 – 31 January. These increased levels are due to recurrent coronal hole high-speed solar wind streams. Quiet to unsettled conditions are expected for the rest 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
08 January	88	52	510	A3.2	0	0	0	0	0	0	0	0
09 January	92	41	580	A5.9	0	0	0	0	0	0	0	0
10 January	86	39	480	A5.1	1	0	0	2	0	0	0	0
11 January	84	45	290	A6.3	1	0	0	0	0	0	0	0
12 January	84	33	310	A6.3	1	0	0	1	0	0	0	0
13 January	81	36	320	A6.1	0	0	0	0	0	0	0	0
14 January	82	27	180	A4.6	0	0	0	2	2	1	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
08 January	2.5E+6	1.7E+4	4.7E+3		2.8E+8	
09 January	2.5E+6	1.7E+4	3.9E+3		2.4E+8	
10 January	2.3E+6	1.7E+4	3.9E+3		7.9E+7	
11 January	1.5E+6	1.7E+4	3.8E+3		3.3E+7	
12 January	9.5E+5	1.7E+4	4.2E+3		3.6E+7	
13 January	1.3E+6	1.9E+4	4.3E+3		4.0E+7	
14 January	2.9E+6	1.8E+4	4.1E+3		5.4E+7	

Daily Geomagnetic Data

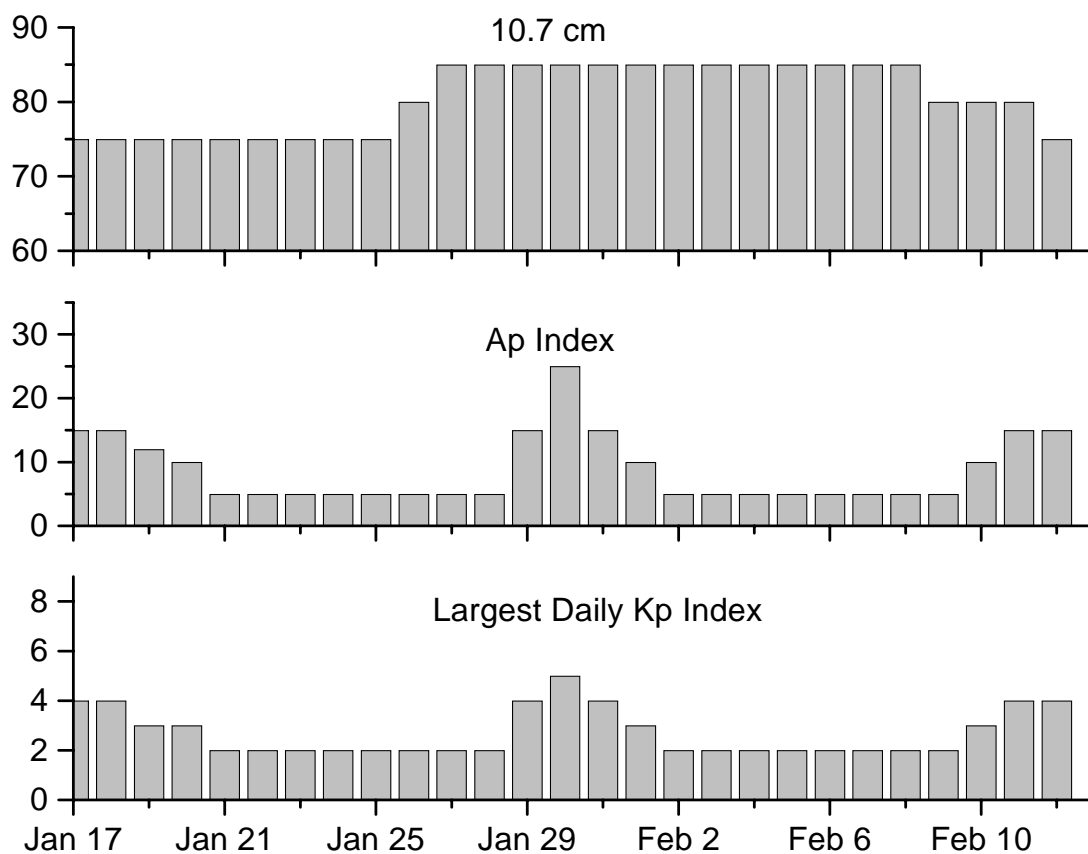
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
08 January	2	0-1-0-0-1-1-1-0	1	0-0-0-0-2-0-0-0	4	0-2-0-0-1-1-2-1
09 January	3	0-1-1-1-1-1-1-1	3	0-0-1-2-1-1-1-0	4	1-0-1-1-2-2-2-1
10 January	4	0-2-1-2-1-2-1-1	10	0-1-1-3-4-4-1-1	7	1-2-2-2-2-3-1-1
11 January	4	1-2-2-1-2-1-1-1	5	0-1-2-2-3-2-1-1	6	1-2-2-1-2-2-1-1
12 January	2	2-0-1-0-1-0-0-0	2	2-1-1-0-0-0-0-0	3	3-0-0-0-0-0-0-1
13 January	0	0-0-0-0-0-0-1-0	0	0-0-0-0-0-0-0-0	1	0-0-0-0-0-0-0-0
14 January	2	0-0-0-0-2-0-1-1	0	0-0-0-0-0-0-0-0	2	0-0-0-0-1-1-1-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
08 Jan 0504	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	08 Jan 0500
09 Jan 0501	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	09 Jan 0500
10 Jan 1035	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	10 Jan 1020
14 Jan 1513	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	14 Jan 1445



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
17 Jan	75	15	4	31 Jan	85	15	4
18	75	15	4	01 Feb	85	10	3
19	75	12	3	02	85	5	2
20	75	10	3	03	85	5	2
21	75	5	2	04	85	5	2
22	75	5	2	05	85	5	2
23	75	5	2	06	85	5	2
24	75	5	2	07	85	5	2
25	75	5	2	08	85	5	2
26	80	5	2	09	80	5	2
27	85	5	2	10	80	10	3
28	85	5	2	11	80	15	4
29	85	15	4	12	75	15	4
30	85	25	5				



Energetic Events

Energy Level 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

No Events Observed

Flare List

Date	Time			Optical X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
08 January	1216	1219	1222	B1.6			
	1225	1228	1230	B1.5			
	1835	1840	1842	B1.4			
09 January	0719	0723	0728	B1.2			
	0832	0846	0859	B2.5			
	1054	1057	1102	B1.0			
	1152	1156	1200	B1.2			
	1301	1308	1314	B1.2			
	1447	1454	1500	B1.4			
	2149	2204	2213	B2.6			933
10 January	0834	0840	0842	B1.8			933
	0901	0905	0907	B1.3			933
	0924	0931	0933	C1.7	Sf	S04W59	933
	1010	1013	1016		Sf	S05W61	933
	1053	1056	1058	B3.9			933
	2159	2210	2215	B1.4			933
	2322	2326	2330	B1.1			
11 January	0056	0104	0112	C1.0			933
	0603	0607	0609	B1.7			933
	2338	2342	2348	B1.1			
12 January	0130	0131	0140	C1.5	Sf	S01W90	933
	1919	1937	1945	B3.1			933
13 January	0619	0626	0635	B4.8			933
	0842	0846	0853	B1.3			
	1050	1053	1056	B1.1			
	1250	1253	1258	B1.2			
	1359	1403	1405	B1.1			
	1508	1513	1515	B2.6			
	1633	1637	1641	B1.1			938
14 January	2339	2347	2355	B2.9			938
	0012	0019	0025	B1.7			938
	0901	0905	0908	B1.7			938
	1002	1004	1011	B3.2	Sf	N04E60	938
	1630	1634	1637	B1.0			
	1849	1859	1906	B3.2			938
	2144	2151	2200	B1.4			938



Flare List – continued.

Date	Time			Optical	Imp /	Location	Rgn Brtns
	Begin	Max	End	X-ray Class.			
	Lat CMD						
14 January	2233	2242	2247	B1.9			938
	2258	2302	2304		Sf	N04E53	938
	2313	2316	2317	B3.8	1f	N04E53	938
	2342	2343	2350		2f	N02E49	938
	2352	2354	2359		1f	N02E49	938

Region Summary

Location			Sunspot Characteristics					Region Summary							
Date	(° Lat ° CMD)	Helio Lon	Flares					X-ray			Optical				
			Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	C	M	X	S	1	2	3	4
Region 933															
30 Dec	S04E78	033	0060	01	Axx	001	A								
31 Dec	S03E66	032	0210	09	Cao	004	B	1			1				
01 Jan	S05E52	032	0220	08	Dso	006	B								
02 Jan	S03E41	030	0310	09	Dhi	007	B								
03 Jan	S04E27	031	0310	09	Cho	005	B								
04 Jan	S04E13	032	0220	06	Dao	004	B								
05 Jan	S03E00	033	0250	10	Dao	011	B								
06 Jan	S04W14	033	0170	09	Cao	002	B								
07 Jan	S05W27	033	0180	04	Hkx	002	A								
08 Jan	S05W44	037	0230	07	Cki	008	B								
09 Jan	S06W56	036	0310	05	Dhi	005	B								
10 Jan	S04W70	037	0230	05	Cao	005	B	1			2				
11 Jan	S05W84	038	0100	06	Hhx	002	A	1							
12 Jan	S06W90	034	0110	04	Hax	001	A	1			1				
								4	0	0	4	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 033



Region Summary – continued.

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

Region 934

31 Dec	N04E64	034	0050	03	Cro	004	B									
01 Jan	N03E51	033	0040	02	Hax	002	A									
02 Jan	N05E37	034	0050	02	Hsx	004	A									
03 Jan	N04E24	034	0020	01	Hrx	002	A									
04 Jan	N04E11	034	0030	01	Hsx	001	A									
05 Jan	N04W02	035	0020	01	Hrx	001	A									
06 Jan	N03W14	033	0010	01	Hrx	002	A									
07 Jan	N04W28	034	0010	01	Axx	001	A									
08 Jan	N04W41	034														
09 Jan	N04W54	034														
10 Jan	N04W67	034														
11 Jan	N04W80	034														

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 035

Region 935

03 Jan	S06E51	007	0240	03	Hhx	001	A									
04 Jan	S06E37	008	0270	04	Hhx	001	A									
05 Jan	S05E24	009	0240	03	Hax	001	A									
06 Jan	S06E10	009	0220	04	Hax	001	A									
07 Jan	S07W02	008	0250	03	Cho	002	B									
08 Jan	S07W16	009	0250	03	Hkx	001	A									
09 Jan	S08W28	008	0250	03	Hhx	001	A									
10 Jan	S07W41	008	0230	03	Hhx	001	A									
11 Jan	S08W54	008	0160	04	Hhx	001	A									
12 Jan	S08W67	007	0190	04	Hsx	001	A									
13 Jan	S08W81	008	0190	03	Hax	001	A									
14 Jan	S08W94	008	0060	01	Hax	001	A									

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 008



Region Summary – continued.

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

Region 936

06 Jan	N10E41	338	0020	01	Hrx	002	A								
07 Jan	N09E28	338	0010	01	Axx	001	A								
08 Jan	N10E15	338	0010	01	Axx	001	A								
09 Jan	N10E02	338													
10 Jan	N10W11	338													
11 Jan	N14W04	318	0010	01	Axx	001	A								
12 Jan	N14W17	318													
13 Jan	N14W30	318													
14 Jan	N14W43	318													

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 338

Region 937

08 Jan	S14E07	346	0020	04	Cso	002	B								
09 Jan	S12W06	346	0020	05	Bxo	005	B								
10 Jan	S14W21	348	0020	03	Cso	003	B								
11 Jan	S14W36	350	0020	01	Hsx	001	A								
12 Jan	S14W49	349	0010	01	Hsx	001	A								
13 Jan	S14W62	349	0020	01	Axx	001	A								
14 Jan	S14W75	349													

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 346

Region 938

13 Jan	N02E61	226	0110	05	Dso	004	B								
14 Jan	N02E48	226	0120	05	Dso	006	B								

2 2 1
0 0 0 2 2 1 0 0

Still on Disk.

Absolute heliographic longitude: 226

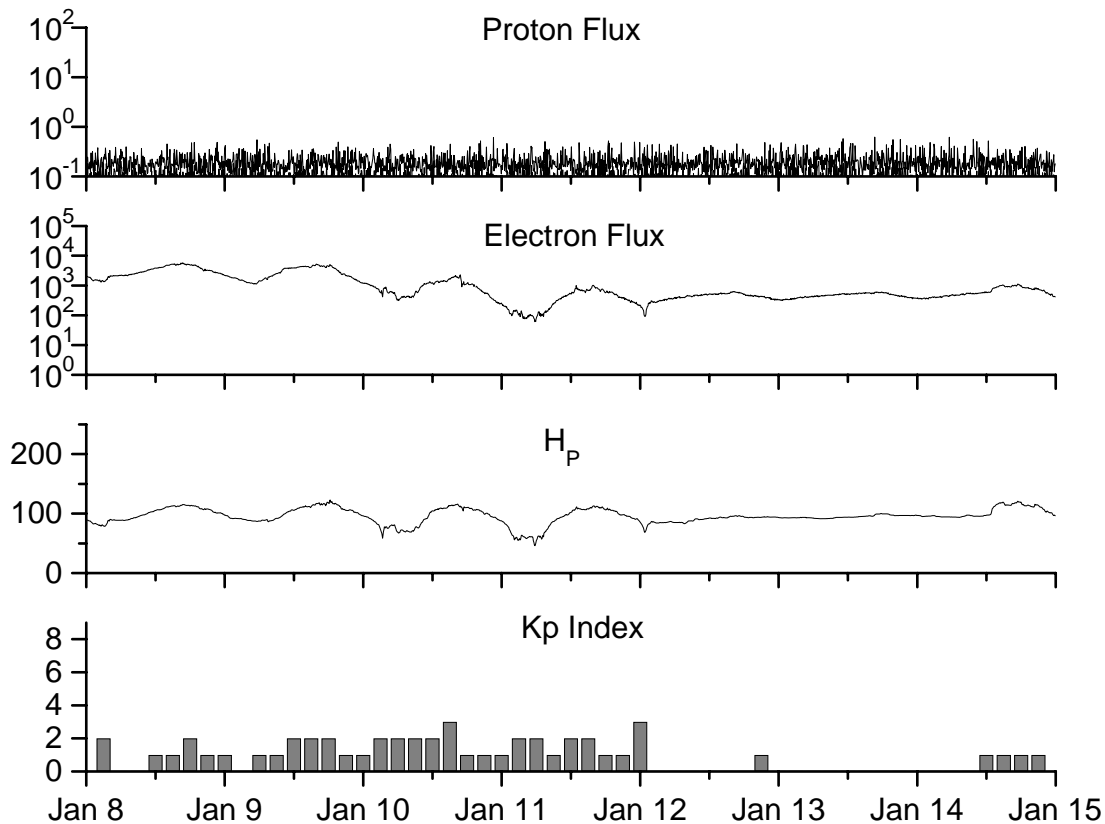


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	by the observed monthly mean values					Radio Flux		Geomagnetic	
	Sunspot Numbers		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
	Observed values	SEC		RI	SEC	RI	10.7 cm	Value	Ap
2005									
January	52.0	31.3	0.60	57.3	34.7	102.4	100.3	22	14.7
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	8	8.3
July	22.6	12.2	0.54			75.8		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		7	
November	31.5	21.5	0.68			86.4		8	
December	22.2	13.6	0.61			84.3		14	

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 08 January 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.

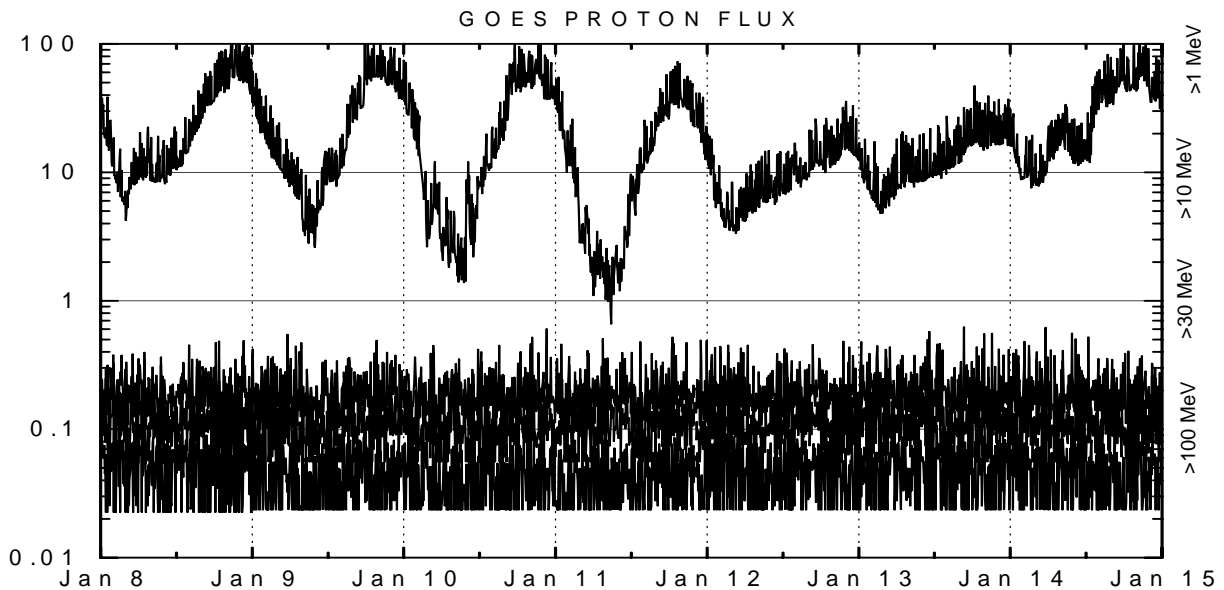
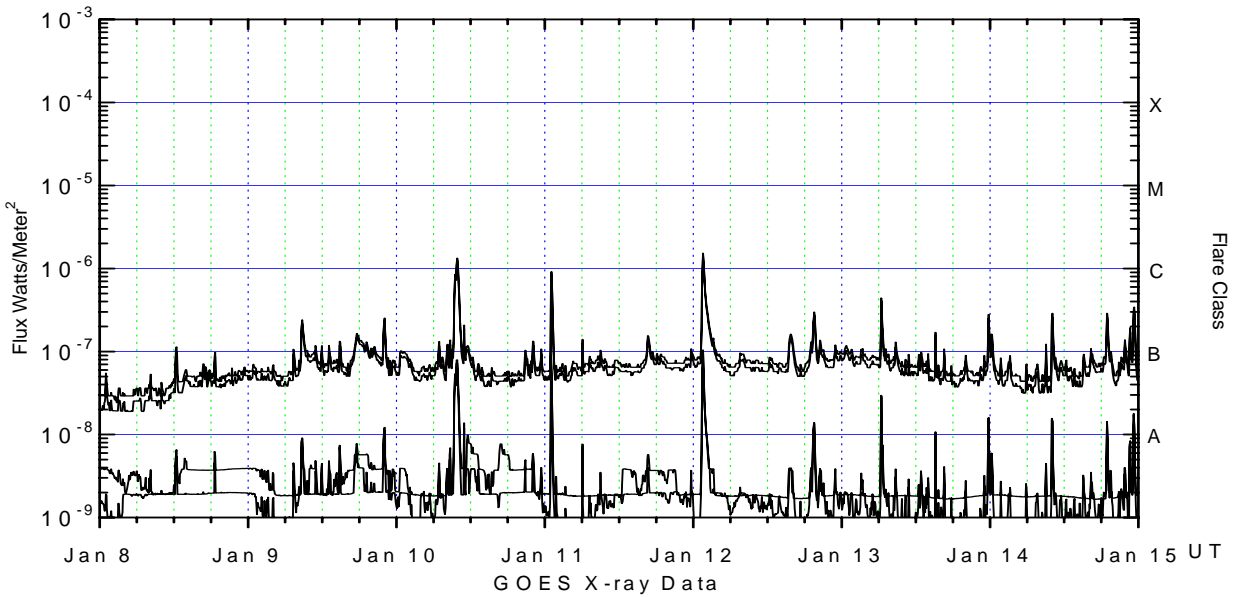
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²–sec –sr) with energies greater than 2 MeV at GOES-12 (W075).

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.

