

Solar activity was at very low levels from 10-13 January. Rgn 1140 (N34, L=189, class/area Hsx/210 on 04 January) was responsible for the majority of the activity during this period, producing numerous B-class events. Activity increased to low levels during 14 - 15 January. Three C1 flares were observed from behind the NE limb during this 2-day period, all associated with returning Region 1138 (N13, L=324). Also associated with this recent activity were 4 CMEs, all of which were directed well away from Earth. Late in the period, old Region 1138 finally rotated onto the disk and was numbered 1147 (N24, L=339, class/area Cso/150 on 16 January).

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels from 10 – 13 and 16 January and at moderate levels 14 - 16 January.

Geomagnetic field activity ranged from quiet to active levels during the period. Quiet to active conditions prevailed 10 - 11 January due to a recurrent coronal hole high speed stream (CH HSS). Activity decreased to mostly quiet levels from 12 - 13 January. From 14 - 15 January, a second CH HSS became geoeffective and increased activity to quiet to active levels. During the summary period, solar wind velocities ranged from a low of about 450 km/s late on 13 January to a high of near 600 km/s late on 09 January. The Bz component of the interplanetary magnetic field generally varied between +/- 5 nT through the period.

Space Weather Outlook **19 January – 14 February 2011**

Solar activity is expected to be at very low levels with a chance for low levels during the forecast period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be below threshold at the beginning of the forecast period. High levels are expected on 04-09 February. Flux is then expected to decrease below threshold through 14 February.

Geomagnetic field activity is expected to be at quiet to unsettled levels during 19-20 January due to a recurrent CH HSS. Recurrent coronal hole high speed streams are also expected on 02-04 February and on 09-10 February, bringing predominantly unsettled conditions during those time frames. Mostly quiet levels are expected otherwise.



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
10 January	83	35	140	A7.2	0	0	0	0	0	0	0	0
11 January	83	26	130	A6.5	0	0	0	0	0	0	0	0
12 January	80	23	80	A6.8	0	0	0	0	0	0	0	0
13 January	80	14	10	A7.3	0	0	0	0	0	0	0	0
14 January	79	11	0	A9.3	2	0	0	0	0	0	0	0
15 January	80	11	120	B1.0	1	0	0	0	0	0	0	0
16 January	80	15	120	A7.3	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
	10 January	4.8e+05	1.4e+04	3.5e+03		8.0e+07
11 January	3.8e+05	1.4e+04	3.4e+03		1.1e+08	
12 January	9.1e+05	1.4e+04	3.3e+03		1.4e+08	
13 January	7.9e+05	1.4e+04	3.4e+03		8.2e+07	
14 January	3.8e+05	1.3e+04	3.1e+03		1.9e+07	
15 January	2.7e+05	1.4e+04	3.3e+03		3.2e+07	
16 January	6.8e+05	1.4e+04	3.5e+03		4.6e+07	

Daily Geomagnetic Data

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

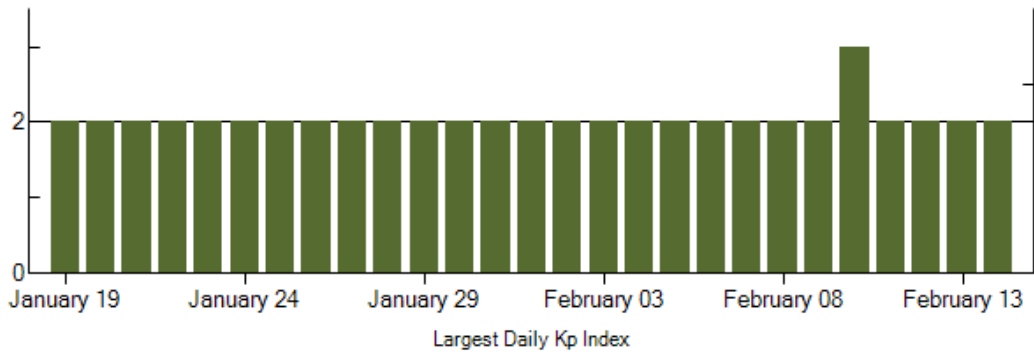
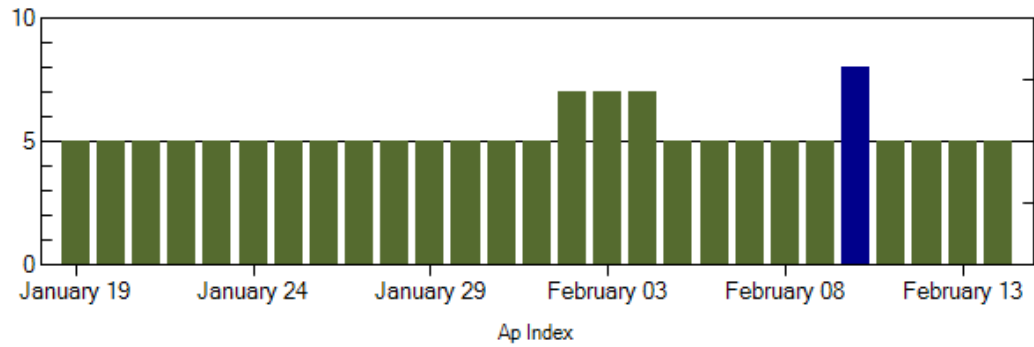
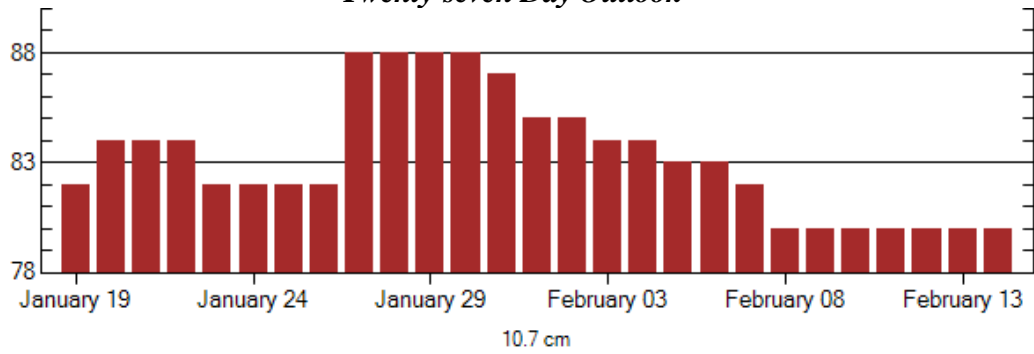


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UTC</u>
10 Jan 1221	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08 Jan 1505
11 Jan 0853	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08 Jan 1505
12 Jan 1033	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08 Jan 1505
13 Jan 0941	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08 Jan 1505
16 Jan 1341	ALERT: Electron 2MeV Integral Flux >= 1000pfu	16 Jan 1340



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
19 Jan	82	5	2	02 Feb	85	7	2
20	84	5	2	03	84	7	2
21	84	5	2	04	84	7	2
22	84	5	2	05	83	5	2
23	82	5	2	06	83	5	2
24	82	5	2	07	82	5	2
25	82	5	2	08	80	5	2
26	82	5	2	09	80	5	2
27	88	5	2	10	80	8	3
28	88	5	2	11	80	5	2
29	88	5	2	12	80	5	2
30	88	5	2	13	80	5	2
31	87	5	2	14	80	5	2
01 Feb	85	5	2				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Max	Class	Flux	Imp/	Location	Rgn	Radio Flux		Intensity
						Brtns	Lat CMD	#	245	2695	II

No Events Observed

Flare List

Date	Time			X-ray Class.	Imp/ Brtns	Optical		Rgn
	Begin	Max	End			Location	Lat CMD	
10 January	0845	0849	0852	B2.0				1145
	0858	0904	0906	B2.5				
	1000	1028	1039	B4.6				1140
	1343	1347	1349	B2.3				1140
	1916	1921	1927	B1.7				1140
	2042	2106	2112	B2.5				1140
11 January	0606	0615	0622	B1.4				1146
	1115	1121	1128	B1.4				
	1743	1750	1809	B3.1				1142
12 January	1846	1852	1901	B1.6				1142
	0039	0042	0044	B1.1				1145
	0323	0327	0331	B1.0				1145
	2119	2141	2205	B1.6				1140
13 January	2340	2355	0014	B2.2				1140
	0748	0752	0757	B1.4				
	0909	0919	0926	B3.7				1140
	0949	1142	1213	B2.8				
	1253	1307	1315	B2.2				1140
	1436	1502	1514	B1.9				1140
14 January	2347	0006	0022	B2.3				
	0128	0330	0438	C1.6				
	1252	1307	1325	C1.0				
	1541	1551	1557	B2.2				
	1703	1709	1717	B2.2				
	1818	1824	1827	B1.8				
	2237	2258	2318	B1.8				



Flare List - continued

Date	Time			X-ray Class.	Imp/ Brtns	Optical		Rgn
	Begin	Max	End			Location Lat CMD		
15 January	0004	0014	0031	B2.7				
	0557	0601	0605	B2.3				
	0612	0616	0618	B2.6				
	0637	0641	0644	B4.1				
	0802	0806	0809	B3.0				
	0936	0939	0942	B3.7				
	1025	1028	1032	B2.8				
	1222	1225	1229	B2.2				
	1328	1336	1339	B2.3				
	1413	1419	1423	C1.1				
	2109	2115	2120	B2.7				1147
	2232	2238	2245	B3.3				1147
	2343	2348	2352	B5.7				1147
16 January	1237	1241	1244	B1.5				1147
	1541	1544	1546	B2.4				1147
	1841	1845	1851	B1.6				1147
	1039	1048	1111	B1.4				1147

Region Summary

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

Region 1140

31 Dec	N32E67	188	180	3	HSX	1	A											
01 Jan	N32E52	190	200	4	HSX	1	A							1				
02 Jan	N32E40	189	160	3	HSX	1	A											
03 Jan	N32E25	190	180	2	HSX	1	A											
04 Jan	N34E14	189	210	4	HSX	1	A											
05 Jan	N34E01	188	190	6	CSO	3	B											
06 Jan	N33W11	188	180	3	HSX	1	A											
07 Jan	N33W24	187	140	2	CSO	3	B											
08 Jan	N33W36	186	160	2	CSO	4	B											
09 Jan	N32W49	185	130	2	HSX	1	A											
10 Jan	N32W61	184	130	4	HSX	1	A											
11 Jan	N33W74	185	120	5	CSO	3	B											
12 Jan	N32W87	183	70	3	HSX	1	A											
														0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 188



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares								
	° Lat ° CMD)	Helio	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical					
		Lon						C	M	X	S	1	2	3	4	
<i>Region 1142</i>																
01 Jan	S14E33	208	40	6	DSO	5	B									
02 Jan	S12E21	207	90	8	DSO	3	B									
03 Jan	S13E07	208	120	10	DSI	13	B	1			1					
04 Jan	S12W05	208	90	8	DSI	17	B									
05 Jan	S13W18	208	40	8	CAO	14	B									
06 Jan	S14W32	208	50	8	CSO	7	B									
07 Jan	S14W45	208		1	AXX	2	A									
08 Jan	S15W56	205	10	2	BXO	3	B									
09 Jan	S17W75	212	10	6	BXO	4	B									
10 Jan	S17W88	212														
								1	0	0	1	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 208

<i>Region 1143</i>																
07 Jan	S22E16	147	20	4	DSO	4	B									
08 Jan	S23E02	146	10	6	BXO	4	B									
09 Jan	S23W11	146														
10 Jan	S23W24	146														
11 Jan	S23W37	146														
12 Jan	S23W50	146														
13 Jan	S23W63	146														
14 Jan	S23W76	146														
15 Jan	S23W89	146														
								0	0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 146

<i>Region 1144</i>																
09 Jan	S16W36	173		2	AXX	1	A									
10 Jan	S16W49	173														
11 Jan	S16W62	173														
12 Jan	S16W75	173														
13 Jan	S16W88	173														
								0	0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 173



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares										
	° Lat ° CMD)	Helio	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
		Lon						C	M	X	S	1	2	3	4		
<i>Region 1145</i>																	
09 Jan	N15E39	97	10	4	BXO	4	B										
10 Jan	N16E27	98	10	5	BXO	3	B										
11 Jan	N16E14	98															
12 Jan	N16E01	98															
13 Jan	N16W12	98															
14 Jan	N16W25	100		1	AXX	1	A										
15 Jan	N16W43	100															
16 Jan	N16W56	100															
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 98

<i>Region 1146</i>																	
10 Jan	N23E46	77		1	AXX	1	A										
11 Jan	N23E33	76	10	2	BXO	3	B										
12 Jan	N24E19	78	10	2	BXO	2	B										
13 Jan	N23E06	76	10	3	BXO	4	B										
14 Jan	N23W06	76															
15 Jan	N23W19	76															
16 Jan	N23W32	76															
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 76

<i>Region 1147</i>																	
15 Jan	N24E80	344	120	1	HRX	1	A										
16 Jan	N27E65	339	120	6	DSO	5	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 339

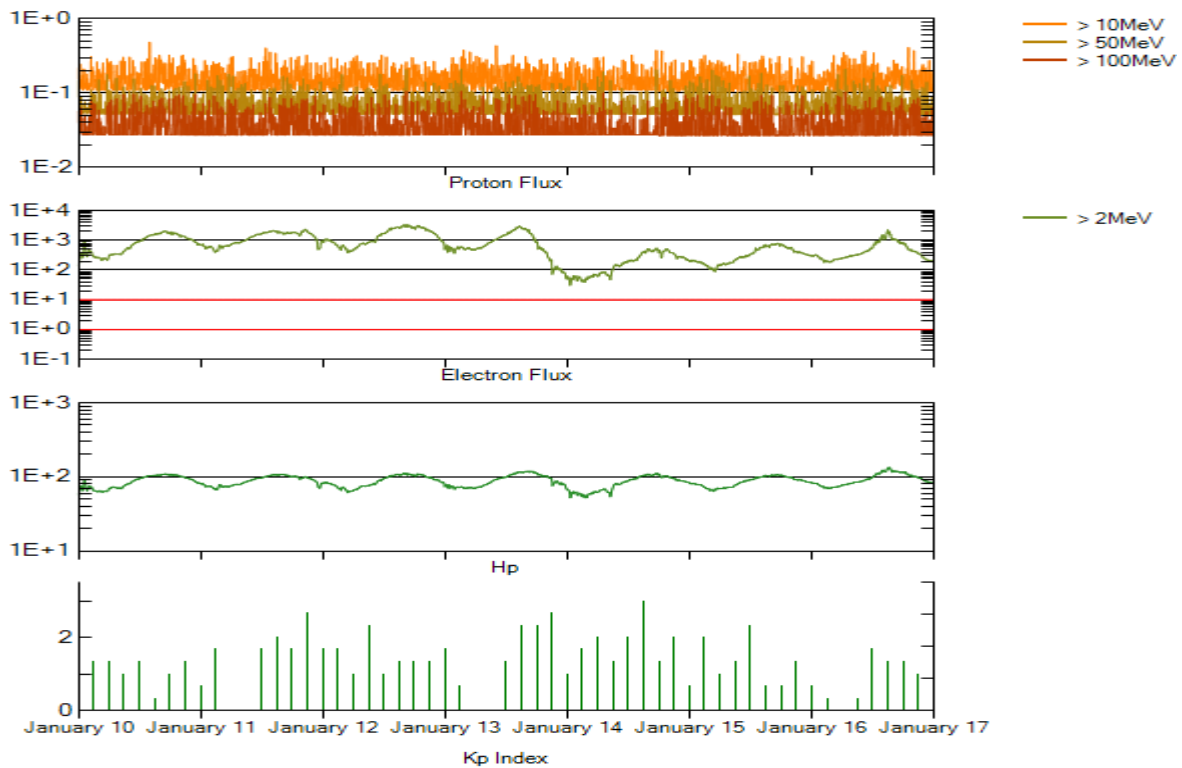


Recent Solar Indices (preliminary)
Of the observed monthly mean values

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed SEC	values RI	Ratio RI/SEC	Smooth SEC	values RI	Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2009									
January	2.8	1.3	0.46	3.0	1.8	69.8	68.7	4	4.7
February	2.5	1.4	0.56	3.1	1.9	70.0	68.8	5	4.7
March	0.7	0.7	1.00	3.4	2.0	69.2	69.0	5	4.6
April	1.2	0.8	1.00	3.7	2.2	69.7	69.3	4	4.3
May	3.9	2.9	0.74	3.8	2.3	70.5	69.7	4	4.1
June	6.6	2.9	0.39	4.4	2.7	68.6	70.2	4	4.0
July	5.0	3.2	0.70	5.8	3.6	68.2	71.0	4	3.9
August	0.3	0.0	0.00	7.7	4.8	67.4	72.1	5	3.8
September	6.6	4.3	0.64	9.9	6.2	70.5	73.3	4	3.8
October	7.0	4.8	0.66	11.3	7.1	72.3	74.1	3	4.1
November	7.7	4.1	0.55	12.4	7.6	73.6	74.5	3	4.5
December	15.7	10.8	0.68	13.6	8.3	76.8	74.9	2	4.8
2010									
January	21.3	13.2	0.62	14.8	9.3	81.1	75.5	3	5.0
February	31.0	18.8	0.60	16.7	10.6	84.7	76.5	5	5.1
March	24.7	15.4	0.62	19.1	12.3	83.3	77.5	5	5.3
April	11.2	8.0	0.71	21.4	14.0	75.9	78.3	10	5.5
May	19.9	8.7	0.44	23.8	15.5	73.8	79.0	8	5.7
June	17.9	13.6	0.75	25.2	16.4	72.6	79.7	7	5.8
July	23.1	16.1	0.70			79.9		5	
August	28.2	19.6	0.70			79.7		8	
September	35.6	25.2	0.71			81.1		5	
October	35.0	23.5	0.67			81.6		6	
November	36.1	21.6	0.60			82.5		5	
December	22.0	14.5	0.66			84.3		3	

NOTE: Values are final except for the most recent 6 months which are considered preliminary. Cycle 23 started in May 1996 with an RI=8.0. Cycle 23 maximum was April 2000 with an RI=120.8. Solar minimum for cycle 23 was December 2008.





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 10 January 2011*

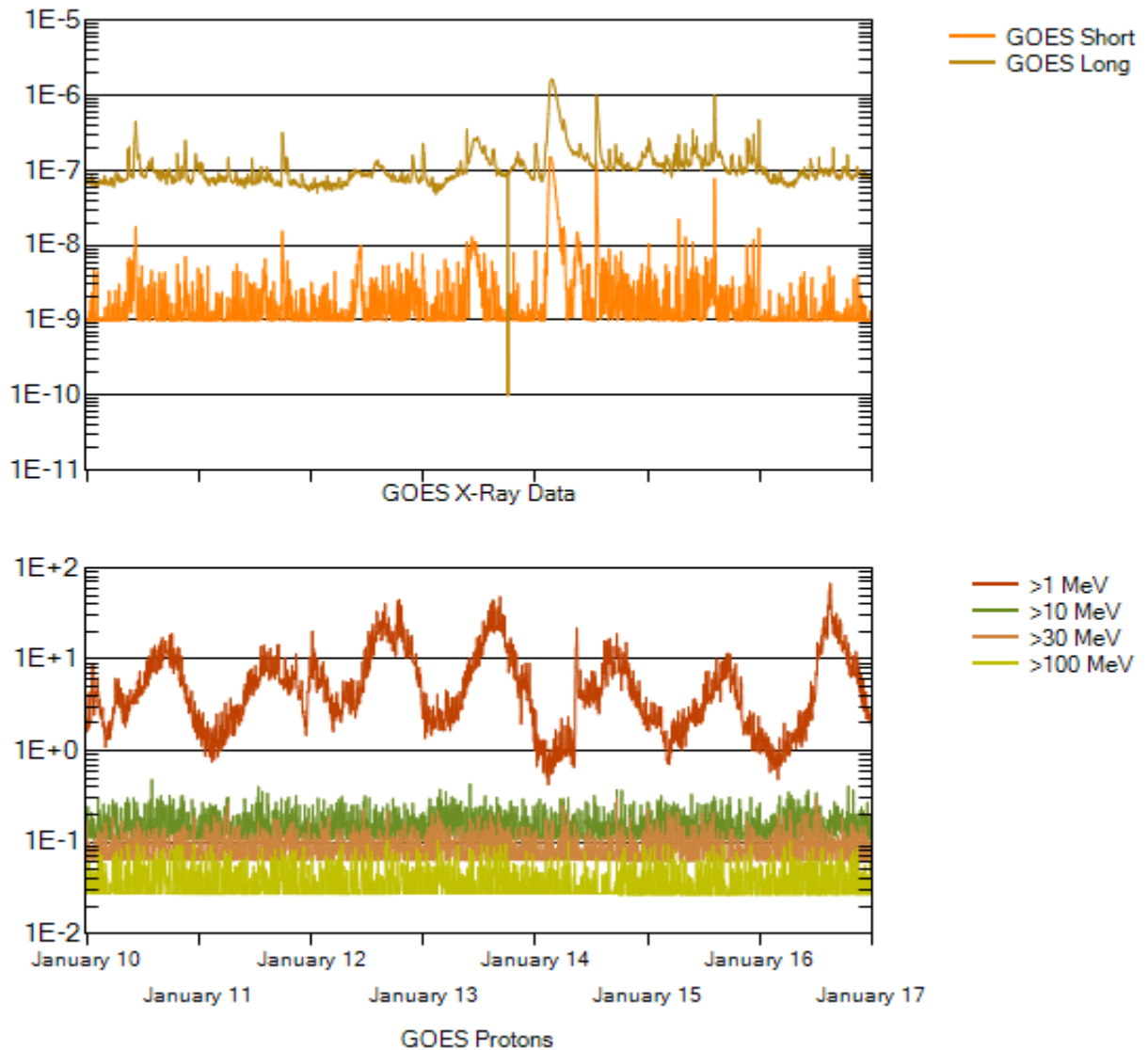
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-13 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV. The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-13.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as measured by GOES-13. The Hp 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 SWPC 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
Week Beginning 10 January 2011

The x-ray plot contains five-minute averaged x-ray flux (Watts/m²) as measured by GOES 14 (W105) in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-13 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.

