

Space Weather Highlights
12 – 18 November 2007

SEC PRF 1681
13 November 2007

Solar activity was very low. Only minor flare activity was observed. New Region 974 (N13, L=201, class/area, Dao/040 on 17 November) formed on the disk on the 16th, but decayed to plage by 18 November.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels throughout the period.

The geomagnetic field was quiet during most of the period. However, ACE solar wind measurements indicated a recurrent co-rotating interaction region (CIR) and coronal hole wind stream commenced on 13 November. Interplanetary Magnetic Field changes associated with the CIR included increased Bt (peak 15.4 nT at 13/0156 UTC) and variable Bz (range +9.3 nT to -11.8 nT). Velocities gradually increased to a peak of about 690 km/sec at 14/1051 UTC, then gradually decreased during the remainder of the period. ACE proton densities associated with the CIR increased to a peak of 23.1 p/cc at 13/0224 UTC.

Space Weather Outlook
21 November – 17 December 2007

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 during 21 November - 01 December and again on 16 December.

Activity is expected to be at unsettled to minor storm levels during 21 - 22 November as a recurrent coronal hole high-speed stream disturbs the field. Activity is expected to decrease to quiet to unsettled levels during 23 - 26 November as coronal hole effects subside. Activity is expected to decrease to mostly quiet levels 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
12 November	70	0	0	<A1.0	0	0	0	0	0	0	0	0
13 November	70	0	0	<A1.0	0	0	0	1	0	0	0	0
14 November	70	0	0	<A1.0	0	0	0	0	0	0	0	0
15 November	69	0	0	<A1.0	0	0	0	0	0	0	0	0
16 November	71	13	20	<A1.0	0	0	0	0	0	0	0	0
17 November	70	13	40	<A1.0	0	0	0	1	0	0	0	0
18 November	69	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
12 November	1.8E+6	1.8E+4	4.1E+3		2.0E+7	
13 November	1.2E+6	1.8E+4	4.0E+3		2.9E+6	
14 November	2.2E+6	1.7E+4	3.8E+3		6.1E+6	
15 November	1.1E+6	1.7E+4	3.7E+3		9.4E+6	
16 November	1.0E+6	1.7E+4	3.8E+3		2.0E+7	
17 November	1.0E+6	1.8E+4	3.7E+3		2.7E+7	
18 November	1.2E+6	1.8E+4	3.8E+3		3.3E+7	

Daily Geomagnetic Data

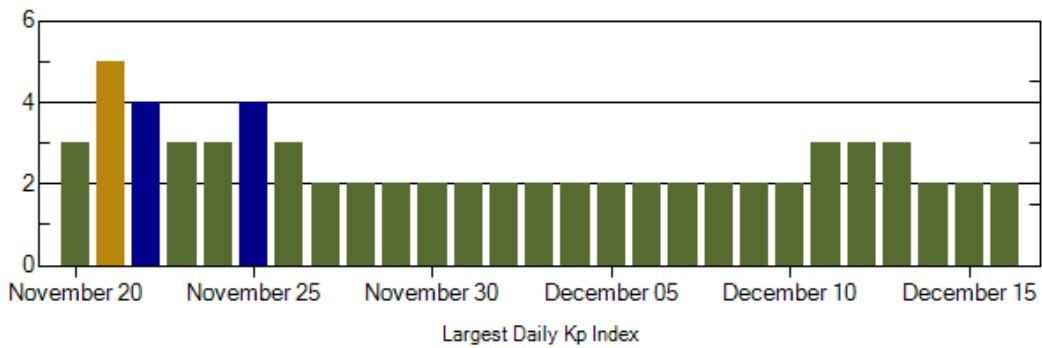
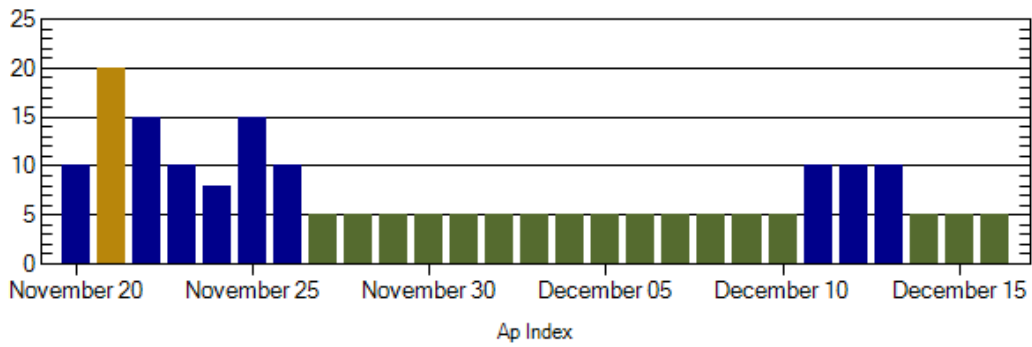
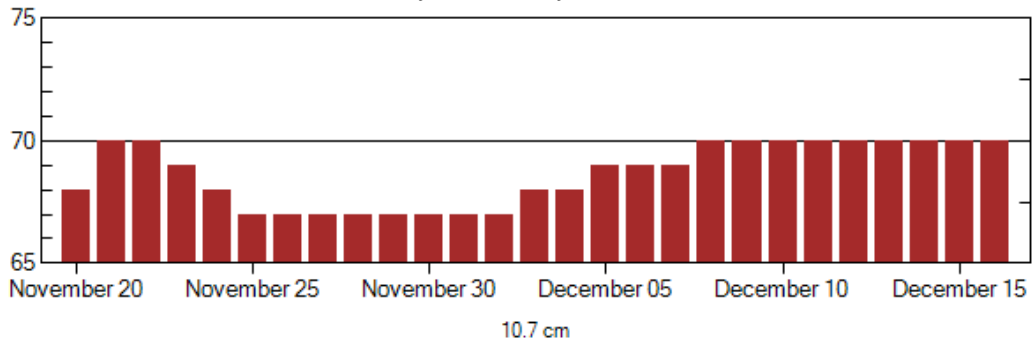
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
12 November	2	0-0-0-0-0-1-1-2	0	0-0-0-0-0-0-0-1	2	1-0-0-0-0-1-1-2
13 November	7	2-2-2-2-3-1-1-2	10	2-2-1-3-4-1-2-2	8	3-3-1-2-2-1-2-3
14 November	9	3-3-1-2-2-3-2-1	17	2-2-3-4-5-4-1-1	9	3-3-1-2-2-3-1-1
15 November	5	1-1-1-1-2-2-2-2	4	1-0-0-1-2-2-1-2	5	1-1-0-0-1-2-2-2
16 November	5	1-0-1-2-1-1-2-3	6	1-1-1-2-3-2-1-2	6	1-0-1-2-2-1-1-3
17 November	5	3-2-2-0-1-1-1-0	6	3-2-3-0-1-1-1-0	5	3-2-2-0-1-1-1-1
18 November	1	0-1-0-0-1-1-0-0	0	0-0-0-0-0-0-0-0	2	1-2-0-0-0-0-0-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
No Alerts Issued		



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
21 Nov	70	20	5	05 Dec	69	5	2
22	70	15	4	06	69	5	2
23	69	10	3	07	70	5	2
24	68	8	3	08	70	5	2
25	67	15	4	09	70	5	2
26	67	10	3	10	70	5	2
27	67	5	2	11	70	10	3
28	67	5	2	12	70	10	3
29	67	5	2	13	70	10	3
30	67	5	2	14	70	5	2
01 Dec	67	5	2	15	70	5	2
02	67	5	2	16	70	5	2
03	68	5	2	17	70	10	3
04	68	5	2				



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.			

12 November	No Flares Observed						
13 November	0343	0344	0349		Sf	S07W69	
14 November	No Flares Observed						
15 November	No Flares Observed						
16 November	No Flares Observed						
17 November	0430	0431	0436	B1.0	Sf	N12W12	974
18 November	No Flares Observed						

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 974

16 Nov	N12W04	200	0020	02	Bxo	003	B						
17 Nov	N13W21	201	0040	03	Dao	003	Bg				1		
18 Nov	N13W34	201											

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 200



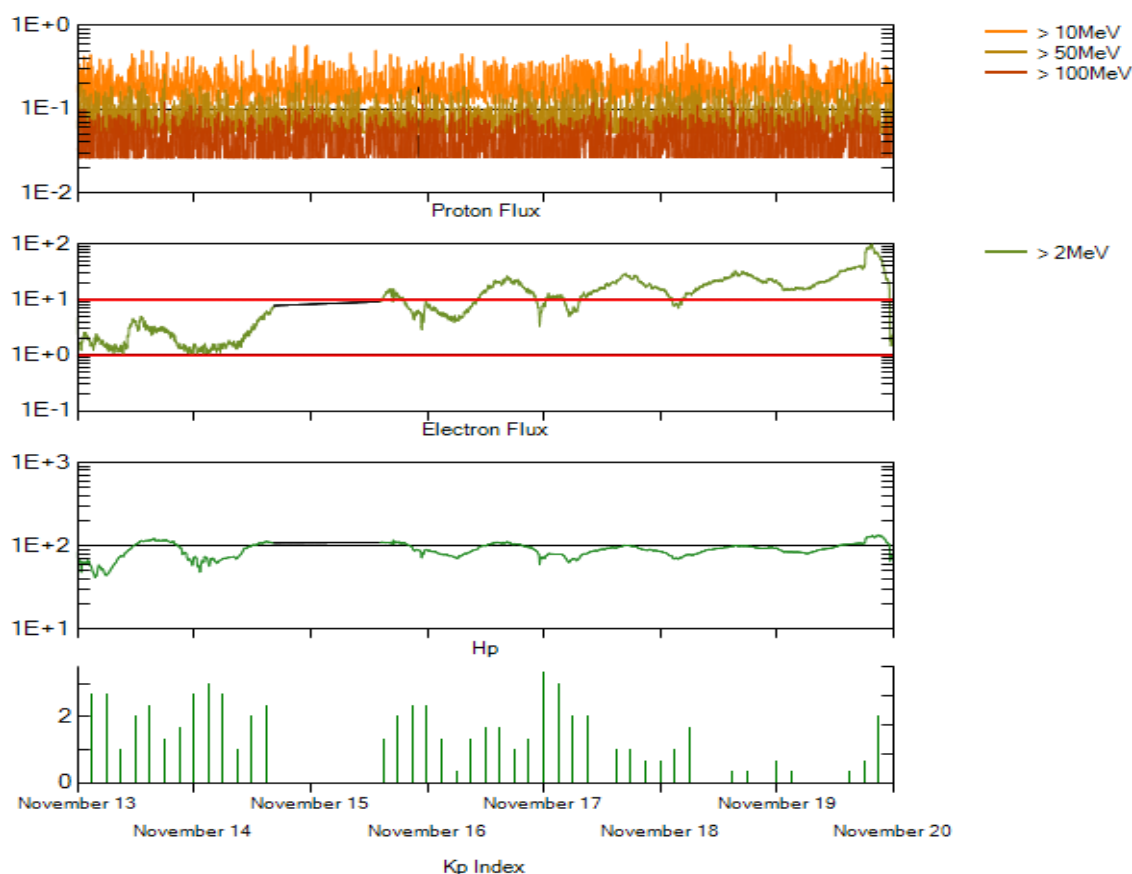
Recent Solar Indices (preliminary)
Of the observed monthly mean values

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SEC	values RI	Ratio RI/SEC	Smooth values SEC	values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2005									
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	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			74.5		9	
June	20.0	12.0	0.60			73.7		7	
July	15.6	10.0	0.64			71.6		8	
August	9.9	6.2	0.63			69.2		7	
September	4.8	2.4	0.50			67.1		8	
October	1.3	0.9	0.70			65.5		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 12 November 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.

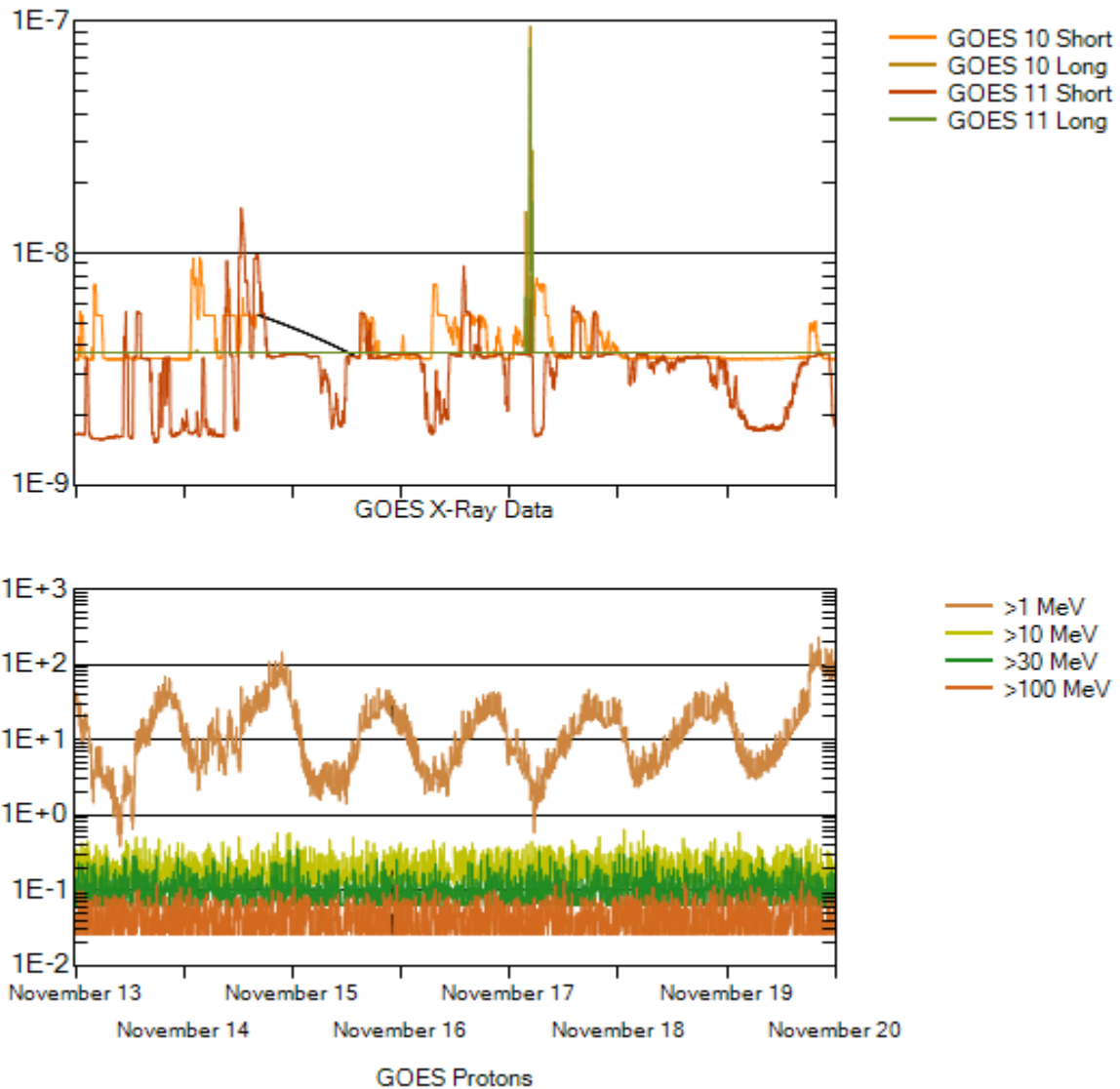
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²–sec –sr) with energies greater than 2 MeV at GOES-12 (W075).

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 Meadok, 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.

