

Solar activity was at very low to low levels during the period. Activity was low during 18-20 October. Region 1112 (S20, L=208, class/area Eai/180 on 18 October) was responsible for seven C-class flares, the largest was a C2.5 x-ray event on 18/1643 UTC. This region rotated off the disk on 21 October. Activity decreased to very low levels during 21-22 October. Occasional low-level B-class flares occurred from Region 1112, Region 1115 (S29, L=125, class/area Cso/190 on 19 October), and Region 1117 (N22, L=060, class/area Dso/210 on 24 October).

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit began the week at normal background levels. An increase to moderate to high levels began mid-day on 24 October and continued at high levels through the remainder of the interval.

The geomagnetic field ranged from quiet to severe storm levels during the period. Geomagnetic activity was at predominantly quiet levels during 18 – 19 October due to a weak coronal hole high-speed stream (CHHSS). Predominantly quiet levels were observed from 19/2100-22/2100 UTC, with a single period of active conditions at high latitudes between 20/1200-1500 UTC. A disappearing filament was observed at approximately 2300 UTC on 20 October (S24W63). On 22 October, observations from the ACE spacecraft indicated the arrival of a recurrent CHHSS with solar wind velocities increasing from 349-545 km/s, following a rise in solar wind density with the IMF Bt intensity peak at 10.7 nT at 22/1948 UTC and the Bz component of the IMF reaching a maximum deflection of -8.3 nT at 22/2006 UTC. Activity increased to predominantly unsettled to active levels on 23 October, with major to severe storm periods at high latitudes from 23/0900-1500 UTC. The solar wind velocities observed at the ACE spacecraft were approximately 650 km/s during this period. Mostly unsettled to active conditions were observed from 23/2100 to 24/2100 as the effects of the CHHSS continued.

Space Weather Outlook

27 October – 22 November 2010

Solar activity is expected to be at predominantly very low to low levels. The possibility for intervals of low level activity depends on the emergence of new sunspot groups. Recurrence would suggest possible increases for 05-15 November (return of old Region 1112) and 14-16 November (return of old Region 1117).

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate levels through 28 October and then return to normal levels for the rest of the period as the effects from the CHHSS subside and the solar wind velocities decrease.



The geomagnetic field is expected to be at mostly quiet to unsettled levels at all latitudes through 27 October as the effects of the CHHSS wane. Quiet conditions are then expected to prevail until 01 November. Quiet to unsettled conditions are expected on 02 November when another CHHSS moves into a geoeffective position. Mostly quiet levels are expected from 03 – 17 November. Predominantly unsettled to active conditions with periods of minor to major storming at high latitudes are expected for the remainder of the forecast period due to a recurrent CHHSS.



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
18 October	91	69	460	B1.1	3	0	0	0	0	0	0 0
19 October	87	65	430	B1.3	2	0	0	2	0	0	0 0
20 October	84	61	300	A9.8	1	0	0	2	0	0	0 0
21 October	84	34	300	A5.8	0	0	0	0	0	0	0 0
22 October	82	34	270	A7.1	0	0	0	0	0	0	0 0
23 October	84	43	360	A6.7	0	0	0	1	0	0	0 0
24 October	82	57	420	A8.5	0	0	0	1	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
18 October	1.4e+05	1.4e+04	3.3e+03		8.9e+06	
19 October	7.8e+04	1.4e+04	3.5e+03		2.4e+06	
20 October	5.6e+04	1.5e+04	3.5e+03		2.8e+06	
21 October	6.6e+04	1.4e+04	3.6e+03		3.8e+06	
22 October	3.6e+05	1.4e+04	3.6e+03		5.1e+06	
23 October	1.5e+06	1.3e+04	3.1e+03		5.5e+06	
24 October	1.9e+06	1.3e+04	3.2e+03		9.9e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
18 October	3	2-0-0-1-0-0-1-2	4	1-0-1-3-1-0-1-2	5	2-0-0-1-1-1-2-3
19 October	7	2-2-2-1-2-1-3-1	7	2-3-3-3-1-0-0-1	5	2-2-2-1-1-0-0-2
20 October	3	2-0-0-1-2-0-1-0	5	1-1-0-1-4-0-0-0	4	2-0-0-1-2-0-1-1
21 October	1	1-0-0-0-1-1-0-0	2	1-0-0-0-2-1-0-0	3	1-0-0-0-2-1-1-1
22 October	4	0-1-2-1-1-1-2-2	5	0-0-3-2-2-1-1-1	6	0-1-2-1-1-2-2-3
23 October	16	4-2-3-3-3-3-2-4	40	2-3-4-6-7-4-2-3	23	3-2-4-4-5-4-2-4
24 October	10	3-3-2-2-2-2-3-1	24	3-4-3-5-5-3-3-2	14	3-4-2-3-3-2-4-1

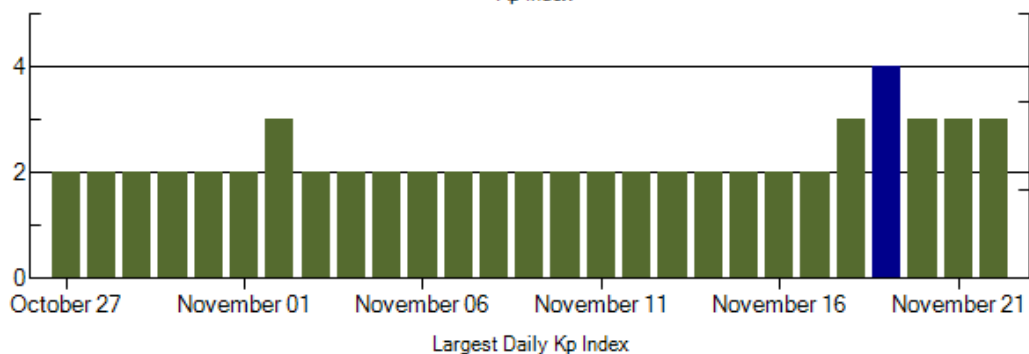
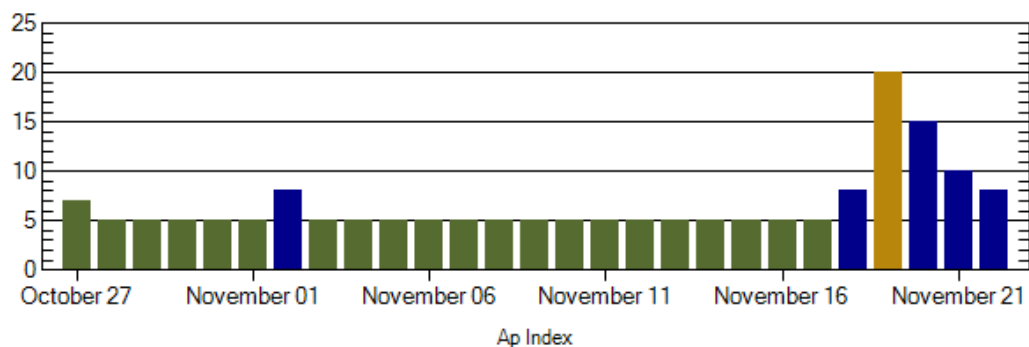
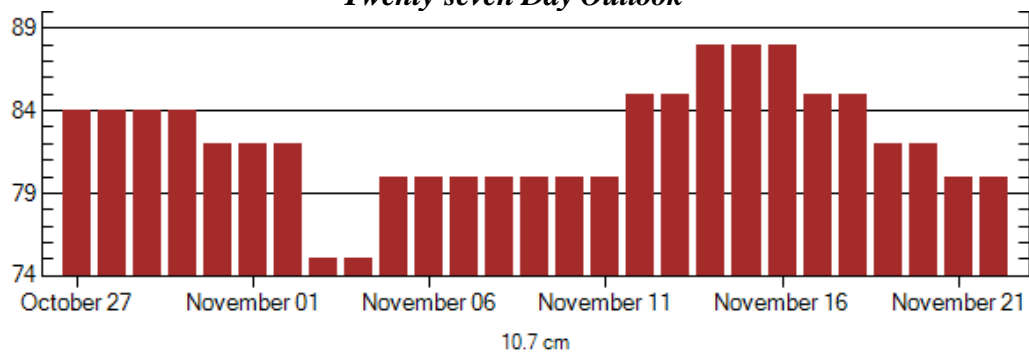


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
22 Oct 2027	WARNING: Geomagnetic K = 4	22 Oct 2120 - 23/0300
22 Oct 2326	ALERT: Geomagnetic K = 4	22 Oct 2324
23 Oct 0246	EXTENDED WARNING: Geomagnetic K = 4	22 Oct 2120 - 23/1200
23 Oct 1125	EXTENDED WARNING: Geomagnetic K = 4	22 Oct 2120 - 23/1600
23 Oct 1354	WARNING: Geomagnetic K = 5	23 Oct 1430 - 2100
23 Oct 1555	EXTENDED WARNING: Geomagnetic K = 4	22 Oct 2120 - 24/0600
24 Oct 0556	EXTENDED WARNING: Geomagnetic K = 4	22 Oct 2120 - 24/1200
24 Oct 1353	ALERT: Electron 2MeV Integral Flux >= 1000pfu	24 Oct 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
27 Oct	84	7	2	10 Nov	80	5	2
28	84	5	2	11	80	5	2
29	84	5	2	12	85	5	2
30	84	5	2	13	85	5	2
31	82	5	2	14	88	5	2
01 Nov	82	5	2	15	88	5	2
02	82	8	3	16	88	5	2
03	75	5	2	17	85	5	2
04	75	5	2	18	85	8	3
05	80	5	2	19	82	20	4
06	80	5	2	20	82	15	3
07	80	5	2	21	80	10	3
08	80	5	2	22	80	8	3
09	80	5	2				



Energetic Events

Energy 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			X-ray	Imp /	Optical		Rgn
	Begin	Max	End			Location	Lat CMD	
18 October	0542	0551	0605	B4.4				1112
	1125	1140	1152	C1.2				1112
	1302	1311	1320	B4.5				1112
	1526	1643	1716	C2.5				1112
	2125	2139	2147	C1.2				
19 October	0237	0244	0304	B7.3				1112
	0350	0351	0355		SF	N17E57		
	0648	0650	0703	C1.3	SF	S20W57		1112
	1240	1243	1245	B2.6				1115
	1319	1324	1329	B5.1				1113
	0924	1014	1051	C1.1				1112
	1441	1451	1509	B5.8				1112
	1557	1604	1608	B3.2				1112
	1820	1826	1834	B2.2				1112
	2258	2305	2310	B2.9				1112
	0009	0012	0016	B1.6				1112
	0100	0100	0113	B3.3	SF	S19W66		1112
20 October	1150	1152	1156	C1.5	SF	S18W70		1112
	1709	1738	1747	B2.1				1112
	2112	2115	2117	B1.2				
	0523	0527	0531	B1.6				1117
	0834	0852	0857	B2.3				1117
	0846	0852	0857	B2.3				1117
	1900	1911	1929	B3.1				
21 October	1728	1740	1748	B2.0				1112
	2035	2040	2044	B1.7				
	2308	2317	2340	B2.6				
	0754	0759	0807	B1.4				1117
	1330	1333	1335	B1.0				
	2123	2131	2136	B1.6				1115
	2241	2249	2255	B1.8				1115



Flare List-Continued

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
23 October	0020	0023	0027	B1.0			
	1314	1318	1321	B1.4			1117
	1733	1733	1749	B3.6	SF	S30W32	1115
	1941	2011	2035	B4.7			1117
24 October	0922	0926	0935	B2.4			1117
	1046	1051	1105	B2.5			1117
	1144	1202	1210	B4.1			1117
	1217	1220	1223	B4.0			1117
	1254	1305	1325	B3.3			1117
	1400	1403	1408	B3.8	SF	N22E18	1117
	1427	1430	1433	B1.9			1117
	1639	1645	1647	B1.4			
	1725	1729	1732	B1.9			1117
	1937	1940	1943	B1.4			1117
	2140	2146	2153	B3.0			1117

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	4
Region 1112															
09 Oct	S18E65	204	40	1	HRX	2	A								
10 Oct	S18E54	202	50	2	HRX	3	A					3			
11 Oct	S19E40	202	30	1	HRX	1	A								
12 Oct	S19E26	203	20	1	HSX	1	A								
13 Oct	S17E14	202	10	3	CRO	3	B								
14 Oct	S18E00	202	20	2	CRO	2	B					1			
15 Oct	S19W15	203	70	9	DRO	7	B								
16 Oct	S18W28	205	120	7	DSI	16	BG		1				1		
17 Oct	S20W44	208	180	12	EAI	16	BG	2				3			
18 Oct	S19W58	208	140	11	EAI	11	BG	2							
19 Oct	S20W70	208	60	11	CSO	8	BG	2				1			
20 Oct	S20W84	208	10	1	HSX	2	A	1				2			
								7	1	0	10	1	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 202



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 1113</i>															
13 Oct	N17E76	141	120	1	HAX	1	A								
14 Oct	N17E63	141	100	2	HSX	1	A								
15 Oct	N17E50	140	130	3	HSX	1	A								
16 Oct	N17E36	141	130	3	HSX	1	A								
17 Oct	N18E23	141	160	2	HSX	2	A								
18 Oct	N18E10	141	150	4	CSO	5	B								
19 Oct	N17W03	141	130	3	HSX	2	A								
20 Oct	N16W17	141	110	4	CSO	3	B								
21 Oct	N16W31	142	80	2	HAX	2	A								
22 Oct	N16W40	140	90	2	HSX	2	A								
23 Oct	N16W55	140	100	2	HSX	2	A								
24 Oct	N16W69	141	80	2	HSX	1	A								

Region 1113

13 Oct	N17E76	141	120	1	HAX	1	A								
14 Oct	N17E63	141	100	2	HSX	1	A								
15 Oct	N17E50	140	130	3	HSX	1	A								
16 Oct	N17E36	141	130	3	HSX	1	A								
17 Oct	N18E23	141	160	2	HSX	2	A								
18 Oct	N18E10	141	150	4	CSO	5	B								
19 Oct	N17W03	141	130	3	HSX	2	A								
20 Oct	N16W17	141	110	4	CSO	3	B								
21 Oct	N16W31	142	80	2	HAX	2	A								
22 Oct	N16W40	140	90	2	HSX	2	A								
23 Oct	N16W55	140	100	2	HSX	2	A								
24 Oct	N16W69	141	80	2	HSX	1	A								

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 141

Region 1114

14 Oct	S22W41	244			AXX	1	A								
15 Oct	S21W55	244	10	2	BXO	2	B								
16 Oct	S21W68	244													
17 Oct	S21W81	244													

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 244

Region 1115

15 Oct	S28E63	130	170	4	HSX	1	A								
16 Oct	S28E50	127	170	4	HSX	1	A								
17 Oct	S28E37	127	140	3	HSX	1	A								
18 Oct	S28E25	126	160	2	HSX	1	A								
19 Oct	S29E13	125	190	5	CSO	3	B								
20 Oct	S31W01	125	110	4	CSO	2	B								
21 Oct	S29W13	124	140	3	HSX	1	A								
22 Oct	S30W22	116	110	2	HSX	1	A								
23 Oct	S29W36	121	140	3	HSX	1	A				1				
24 Oct	S30W51	122	120	3	HSX	1	A								

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 125



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

Region 1116

17 Oct	N22W14	178	20	2	BXO	2	B								
18 Oct	N22W28	179		1	AXX	1	A								
19 Oct	N22W41	179													
20 Oct	N22W54	179													
21 Oct	N22W67	178													
								0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 178

Region 1117

19 Oct	N25E74	63	50	5	HSX	1	A								
20 Oct	N24E60	64	70	2	HSX	2	A								
21 Oct	N23E48	63	80	2	HSX	1	A								
22 Oct	N23E36	63	70	2	HSX	1	A								
23 Oct	N22E28	57	120	8	CSO	10	B								
24 Oct	N22E12	60	210	9	DSO	13	B				1				
								0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 60

Region 1118

18 Oct	N17E77	74	10	1	AXX	1	A								
19 Oct	N16E61	76		1	AXX	1	A								
20 Oct	N14E47	77		1	AXX	2	A								
21 Oct	N14E34	77													
23 Oct	N14E08	78													
24 Oct	N14W05	78													
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 78

Region 1119

24 Oct	N22W25	97	10	3	BXO	2	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 97

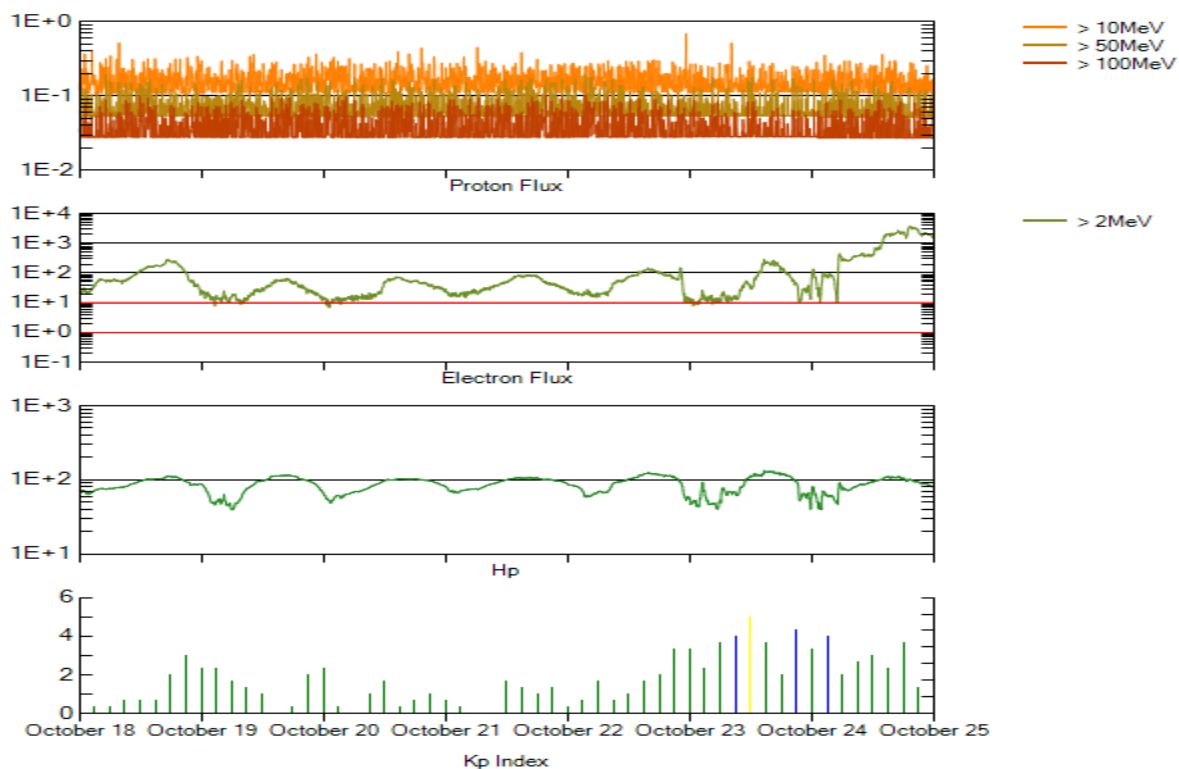


Recent Solar Indices (preliminary)
Of the observed monthly mean values

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
2008									
October	5.2	2.9	0.56	2.9	1.8	68.3	68.2	7	5.4
November	6.8	4.1	0.60	2.7	1.7	68.6	68.3	4	5.1
December	1.3	0.8	0.62	2.7	1.7	69.2	68.5	4	4.9
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	7.9	0.71			75.9		10	
May	19.9	8.8	0.44			73.8		8	
June	17.9	13.5	0.75			72.6		7	
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	

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, marking the start of Cycle 24, was December 2008.





Weekly Geosynchronous Satellite Environment Summary
Week Beginning 18 October 2010

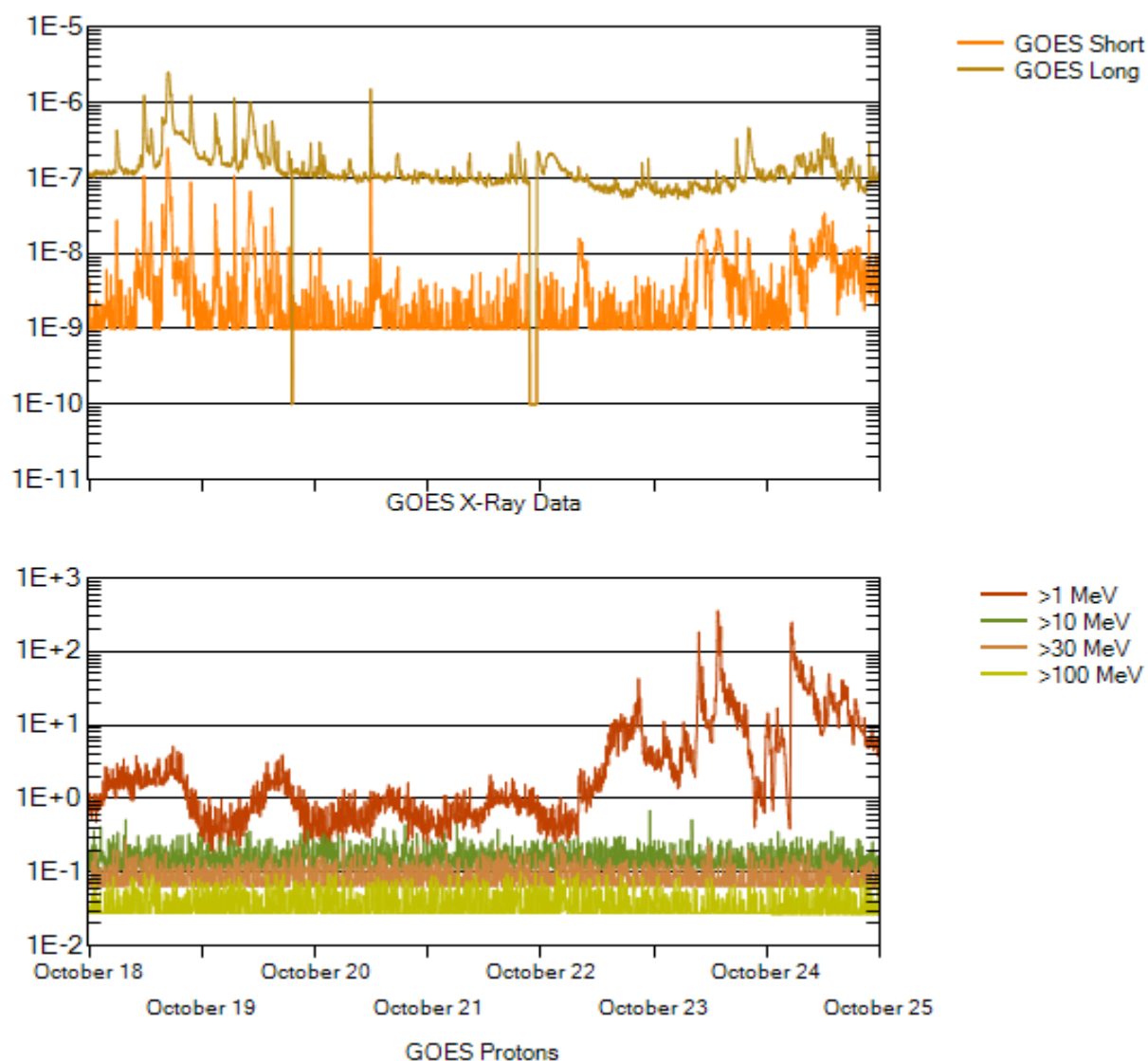
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²–sec–sr) as measured by GOES-13 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV. The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²–sec–sr) with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

The x-ray plot contains five-minute averaged x-ray flux (Watts/m^2) 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 ($\text{protons/cm}^2\text{-sec-sr}$) as measured by GOES-13 for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu ($\text{protons/cm}^2\text{-sec-sr}$) at greater than 10 MeV.

