

Solar activity was at very low to low levels during the period. Low levels occurred during 20 – 21 September while very low activity was observed during the remainder of the period. New Region 1109 (N22, L=067, class/area, Ehi/280 on 25 September) rotated onto the disk on 20 September and was responsible for 4 C-class events, the largest a C2.1 x-ray event at 20/1945 UTC. The region grew steadily in area, spot count and magnetic complexity through the summary period. Since the 20th, only B-class activity was observed from Region 1109. Region 1108 (S30, L=136, class/area, Fko/380 on 20 September) decayed to a large H-type spot on 22 September, and was stable during the summary period. New Region 1110 (N19, L=085, class/area, Axx/10 on 26 September) emerged late in the forecast period and produced only low level B-class activity.

No proton events were observed at geosynchronous orbit.

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

Geomagnetic field activity was at mostly quiet levels during 20 - 23 September. Activity increased to quiet to unsettled levels, with high latitude active levels, beginning early on 24 September and lasting to the end of the period. The increase in activity was associated with a recurrent coronal hole high-speed stream (CH HSS). Early on 23 September, density, temperature and velocity, as measured on the ACE spacecraft, all increased. These increases were associated with a co-rotating interaction region (CIR) in advance of a recurrent CH HSS. The interplanetary magnetic field (IMF) Bt intensity peaked at 13 nT at 23/1143 UTC, with periods of southward IMF Bz (maximum deflection of -8 nT at 24/0455 UTC) and increased velocities (from 285 km/s at 22/2150 UTC to 659 km/s at 25/0254 UTC). Activity decreased to predominantly quiet levels by midday on 25 September. Activity increased to quiet to unsettled levels on 26 September with isolated active periods observed at high latitudes.



Space Weather Outlook

29 September – 25 October 2010

Solar activity is expected to be at very low to low levels during the period. Low activity is expected during 29 September - 05 October with C-class flares likely from Region 1109. Activity is expected to decrease to very low levels during 05 - 25 October.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels during the period.

Geomagnetic field activity is expected to be at quiet levels on 27 September. Activity is expected to increase to quiet to unsettled levels on 28 - 29 September as a recurrent CH HSS affects the field. Activity is expected to decrease to mostly quiet levels on 30 September - 02 October. Activity is expected to increase to quiet to unsettled levels on 03 - 05 October as another recurrent CH HSS affects the field. Quiet levels are expected during 06 - 10 October. Activity is expected to increase to unsettled levels during 11 - 14 October due to recurrent solar sector boundary and CH HSS effects. Activity is expected to decrease to quiet levels during 15 - 20 October. Activity is expected to increase to quiet to unsettled levels on 21 - 22 October as another recurrent CH HSS begins to disturb the field. Mostly quiet levels are expected for the remainder of the forecast period.



Daily Solar Data

Date	Radio	Sun	Sunspot	X-ray	Flares								
	Flux	spot	Area	Background	X-ray Flux			Optical					
	10.7 cm	No.	(10 ⁻⁶ hemi.)		C	M	X	S	1	2	3	4	
20 September	83	38	400	B1.5	3	0	0	0	0	0	0	0	0
21 September	85	37	302	B2.0	1	0	0	1	0	0	0	0	0
22 September	85	26	540	B1.5	0	0	0	0	0	0	0	0	0
23 September	84	34	470	B1.5	0	0	0	2	0	0	0	0	0
24 September	83	34	560	B1.3	0	0	0	0	0	0	0	0	0
25 September	83	40	490	B1.3	0	0	0	0	0	0	0	0	0
26 September	84	57	590	B1.2	0	0	0	3	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
20 September	3.2e+05	1.4e+04	3.6e+03		4.3e+06	
21 September	1.9e+05	1.4e+04	3.5e+03		1.4e+06	
22 September	2.2e+05	1.4e+04	3.3e+03		1.4e+06	
23 September	4.1e+05	1.3e+04	3.3e+03		1.3e+06	
24 September	5.5e+05	1.4e+04	3.3e+03		2.8e+06	
25 September	1.6e+05	1.4e+04	3.1e+03		1.5e+07	
26 September	2.8e+05	1.4e+04	3.6e+03		2.3e+07	

Daily Geomagnetic Data

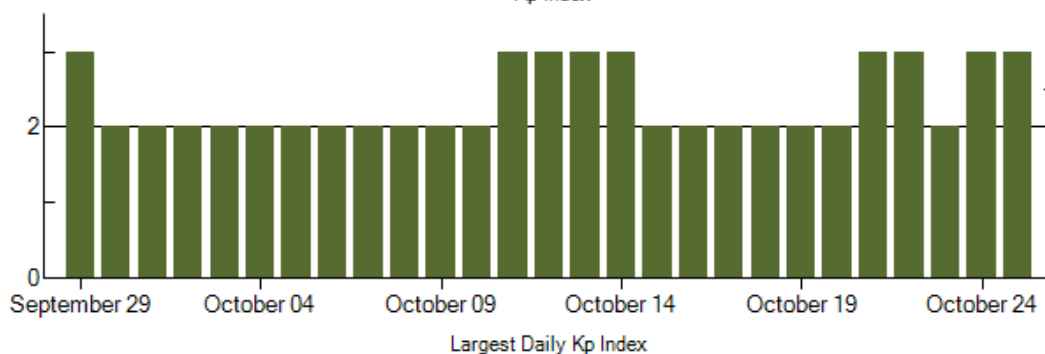
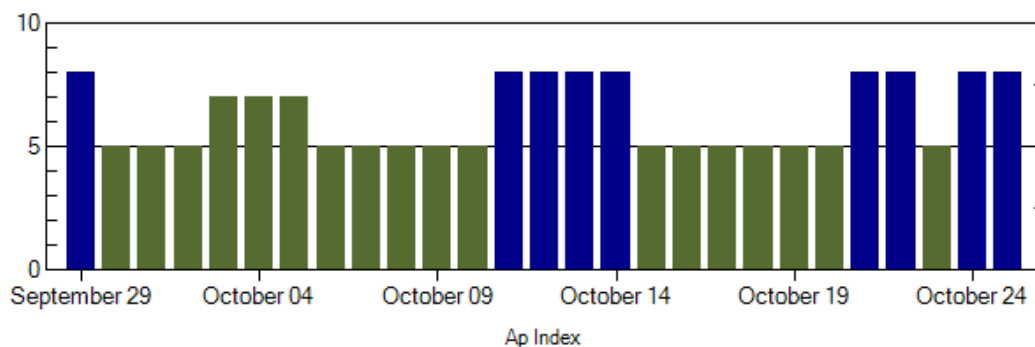
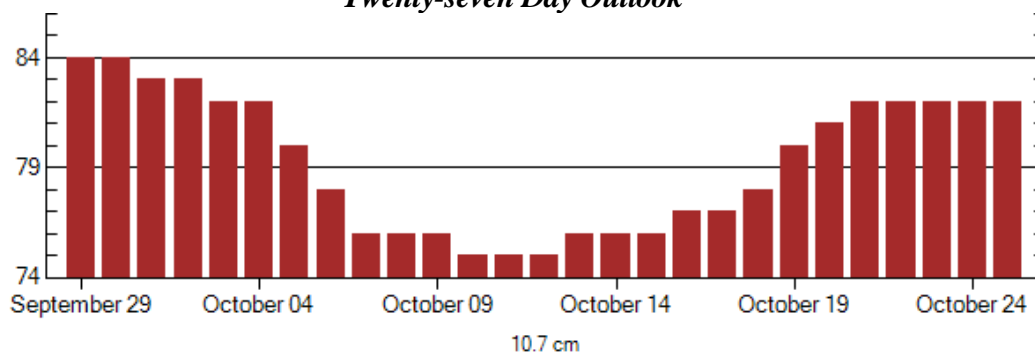
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
20 September	3	0-2-0-0-1-1-2-0	1	0-0-0-1-0-0-1-0	4	0-2-0-1-0-1-2-1
21 September	5	1-2-2-1-1-0-3-0	5	1-1-2-4-0-0-0-1	6	2-2-2-1-1-1-2-1
22 September	1	1-0-0-0-0-1-0-1	0	0-0-0-0-0-0-0-0	2	1-0-0-0-0-0-1-2
23 September	6	1-2-2-2-2-1-2-1	3	1-0-1-2-1-1-1-1	5	2-1-1-1-1-1-1-1
24 September	9	1-2-3-1-2-3-2-3	17	1-2-4-4-4-4-2-2	13	1-3-3-3-3-3-2-3
25 September	5	2-3-2-1-2-1-0-0	8	3-2-3-3-1-1-0-1	7	3-3-2-1-1-1-1-1
26 September	8	2-1-1-1-3-2-3-2	8	0-0-2-0-4-4-1-1	6	1-1-2-1-2-2-2-2

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
21 Sep 0316	WARNING: Geomagnetic K = 4	21 Sep 0345 - 0900
24 Sep 1641	WARNING: Geomagnetic K = 4	24 Sep 1645 - 25/1600



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
29 Sep	84	8	3	13 Oct	76	8	3
30	84	5	2	14	76	8	3
01 Oct	83	5	2	15	76	5	2
02	83	5	2	16	77	5	2
03	82	7	2	17	77	5	2
04	82	7	2	18	78	5	2
05	80	7	3	19	80	5	2
06	78	5	2	20	81	5	2
07	76	5	2	21	82	8	3
08	76	5	2	22	82	8	3
09	76	5	2	23	82	5	2
10	75	5	2	24	82	8	3
11	75	8	3	25	82	8	3



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	Brtns	Lat CMD	#	245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location		Rgn
	Begin	Max	End			Lat	CMD	
20 September	1811	1814	1816	B3.7				1109
	1934	1945	1949	C2.1				1109
	2059	2103	2105	C1.2				1109
	2219	2225	2227	C1.0				1109
	2338	2343	2345	B8.2				1109
21 September	0738	0753	0809	C1.4				1109
	0853	U0857	0857		SF	N20E74		
	0557	0608	0700	B9.0				1109
	1755	1801	1810	B4.4				1109
22 September	0350	0353	0357	B2.7				1109
	0426	0509	0537	B8.5				1109
	1434	1442	1456	B2.7				1106
23 September	0459	0459	0505	B2.6	SF	N19E66		1109
	0610	0610	0613		SF	N19E65		1109
24 September	0120	0125	0131	B2.9				1109
	0953	0955	0958	B2.1				1109
	0952	0955	0958	B1.9				1109
25 September	0138	0223	0243	B4.0				1109
	0938	0951	1004	B2.8				1109
	1702	1716	1733	B2.5				
26 September	0245	0249	0251	B2.0				1109
	0343	0347	0350	B2.2				1109
	0444	0449	0454	B3.0				1109
	0538	0542	0545	B2.5				1109
	0617	0619	0622		SF	N21E23		1109
	0631	0636	0640	B1.9				1109
	0700	0704	0712	B2.6				
	0924	0925	0933	B5.3	SF	N21E22		1109
	1242	1253	1300	B7.3				1109
	1415	1418	1428	B3.3	SF	N21E3		1110
	1800	1810	1821	B2.8				1109
	1845	1848	1851	B2.2				1109
	2023	2026	2033	B1.9				1109
	2041	2045	2050	B2.5				1109
	2124	2132	2142	B3.3				1109



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
<i>Region 1106</i>															
10 Sep	S18E72	220	50	1	HRX	1	A								
11 Sep	S18E64	215	50	1	HSX	1	A								
12 Sep	S19E57	209	80	14	CSO	5	B								
13 Sep	S19E44	209	100	15	CSO	7	B								
14 Sep	S19E30	209	110	17	FAO	14	B								
15 Sep	S20E18	208	90	16	FAO	10	B								
16 Sep	S20E05	208	110	18	FSO	21	B								
17 Sep	S20W08	208	80	17	FSI	16	B								
18 Sep	S20W21	207	100	18	FSO	14	B								
19 Sep	S20W34	207	90	18	FSO	17	B								
20 Sep	S21W53	213	20	6	BXO	7	B								
21 Sep	S22W69	217	2	1	AXX	1	A								
22 Sep	S22W82	217													

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 208

<i>Region 1107</i>															
12 Sep	N33E62	204	10	1	AXX	1	A								
13 Sep	N33E49	204													
14 Sep	N33E36	204													
15 Sep	N33E23	204									1				
16 Sep	N33E10	204													
17 Sep	N33W03	204													
18 Sep	N33W16	202													
19 Sep	N33W29	202													
20 Sep	N33W42	202													
21 Sep	N33W55	202													
22 Sep	N33W68	202													
23 Sep	N33W81	202													

0 0 0 1 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 204



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 1108</i>																
16 Sep	S28E69	144	290	9	CKO	5	B									
17 Sep	S28E59	141	280	13	EHO	5	B	1				1				
18 Sep	S28E49	138	370	14	ESO	8	B									
19 Sep	S30E36	137	420	18	FHO	13	B									
20 Sep	S30E24	136	380	18	FKO	11	B									
21 Sep	S30E14	133	270	16	FHO	5	B									
22 Sep	S30W09	142	340	4	HHX	2	A									
23 Sep	S30W22	142	260	4	HKX	2	A									
24 Sep	S30W34	141	280	4	HKX	2	A									
25 Sep	S31W46	140	210	4	HHX	2	A									
26 Sep	S31W58	140	220	3	HSX	2	A									
								1	0	0		1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 142

<i>Region 1109</i>															
20 Sep	N19E89	72						3							
21 Sep	N19E75	72	30	1	HRX	1	A	1							
22 Sep	N22E67	67	200	10	DKO	4	B								
23 Sep	N22E54	67	210	9	DSO	12	B				2				
24 Sep	N22E41	66	280	13	EHO	12	B								
25 Sep	N22E27	67	280	14	EH1	18	BG								
26 Sep	N21E14	66	360	14	ESI	22	B				2				
								4	0	0	4	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 66

<i>Region 1110</i>															
26 Sep	N19W05	85	10	2	AXX	3	A				1				
								0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 85



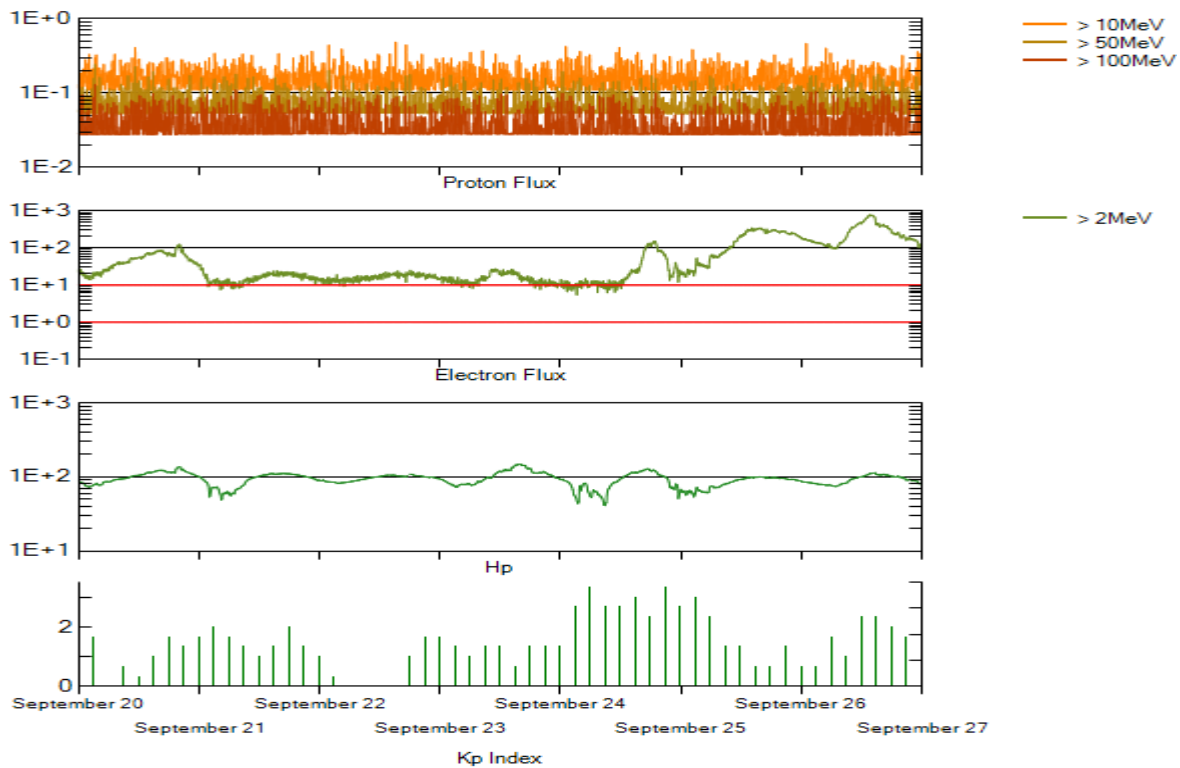
Recent Solar Indices (preliminary)
Of the observed monthly mean values

Month	by the observed monthly mean values					Radio Flux		Geomagnetic	
	Sunspot Numbers		Ratio RI/SEC	Smooth values		*Penticton	Smooth	Planetary	Smooth
	Observed values SEC	RI		SEC	RI	10.7 cm	Value	Ap	Value
2008									
September	1.5	1.1	0.73	3.7	2.3	67.1	68.4	6	5.8
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			83.3		5	
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	

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.

** SWPC sunspot number was zero, so a ratio could not be computed.





Weekly Geosynchronous Satellite Environment Summary
Week Beginning 20 September 2010

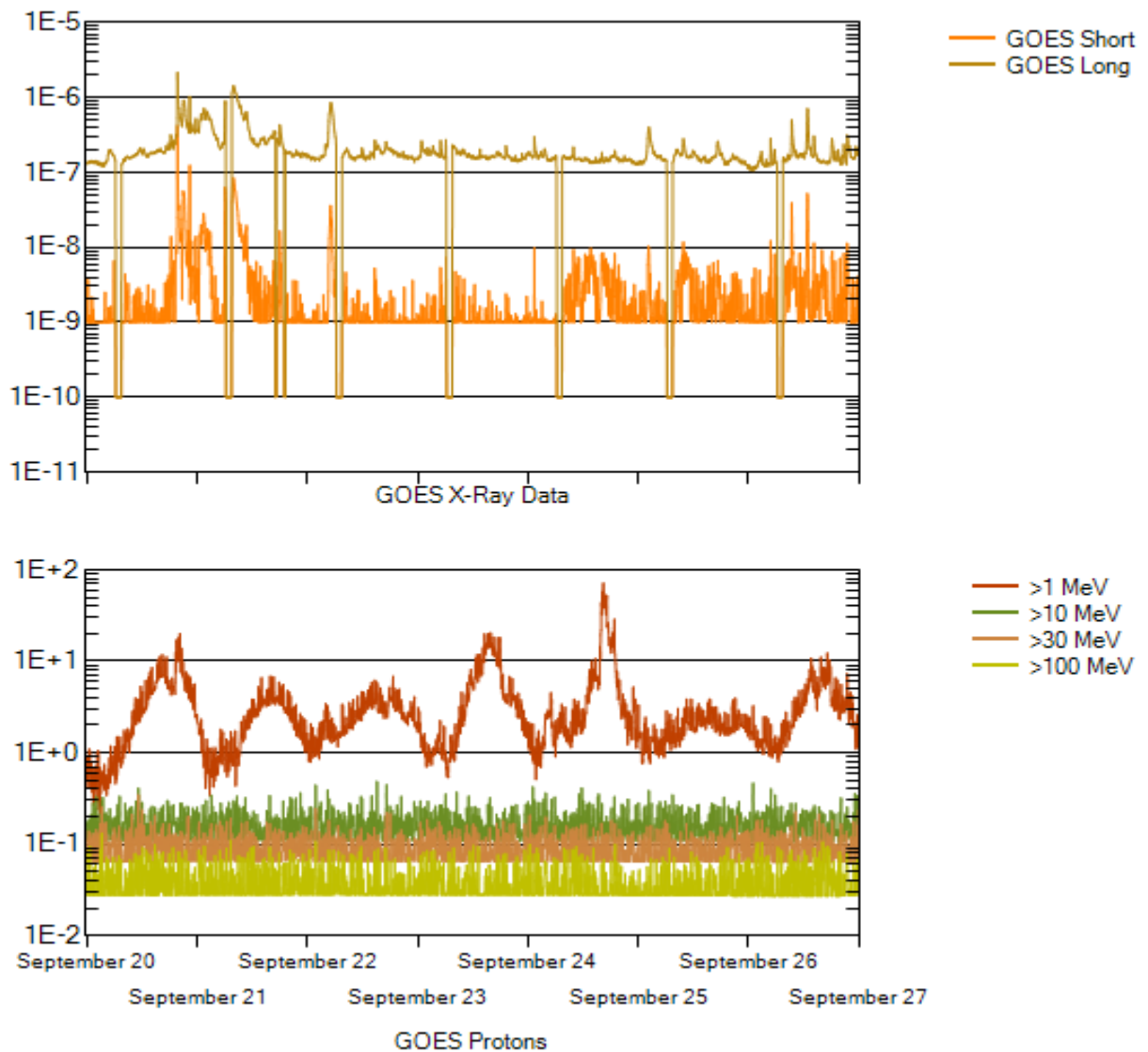
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²–sec–sr) as measured by GOES-13 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV. The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²–sec–sr) with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

