

Space Weather Highlights
15 August - 21 August 2011

SWPC PRF 1877
23 August 2011

Solar activity was at very low to low levels. Activity was at low levels on 15 August, with several C-class flares from Region 1271 (N16, L=059, class/area Ehc/290 on 18 August). Activity decreased to very low levels on 16 August. Activity increased to low levels on 17-18 August, with several C-class flares from both Region 1271 and Region 1272 (S21, L=054, class/area Dao/090 on 21 August). No flares were observed on 19 August. Activity increased to low levels during 20-21 August. The largest of these was a C3 flare from Region 1271.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels during 15-16 August. Fluxes increased to normal to high levels on 17-18 August. Fluxes decreased to moderate levels during 19-20 August. Fluxes ranged from normal to moderate on 21 August.

Geomagnetic field activity was at predominantly quiet to unsettled levels with an isolated period of active to minor storm levels on 15 August due to a coronal hole high-speed stream (CH HSS). Activity decreased to quiet to unsettled levels, with isolated active levels during 16-17 August as the CH HSS subsided. Activity decreased to quiet levels during 18-19 August. Activity increased to quiet to unsettled levels during 20-21 August due to a CH HSS.

Space Weather Outlook
24 August - 19 September 2011

Solar activity is expected to be at very low to low with a chance for moderate levels during 24 August to 06 September until old Region 1263 (N18, L=315) departs. Activity is expected to decrease to very low to low levels for the rest of the period.

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 through 03 September. Fluxes are expected to increase to moderate to high levels during 04-09 September. Fluxes are expected to decrease to normal to moderate levels during 10-12 September. Fluxes are expected to increase to moderate to high levels during 13-14 September. Fluxes are expected to decrease to normal to moderate levels during 15-19 September.

Geomagnetic field activity is expected to be at quiet levels during 24-26 August. Activity is expected to be at quiet to unsettled levels on 27-28 August due to a weak recurrent CH HSS. Activity is expected to decrease to quiet levels during 29 August - 02 September. Activity is expected to increase during 03-05 September due to a recurrent CH HSS. Predominantly quiet levels are expected during 06-10 September. Activity is expected to increase to quiet to active levels during 11-12 September due to a recurrent CH HSS. Predominantly quiet levels are expected for the rest of the period.



Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
15 August	90	13	120	B2.6	3	0	0	0	0	0	0	0
16 August	93	26	250	B2.0	0	0	0	0	0	0	0	0
17 August	98	44	310	B2.3	4	0	0	6	0	0	0	0
18 August	98	53	360	B1.9	3	0	0	7	0	0	0	0
19 August	98	46	280	B1.6	0	0	0	0	0	0	0	0
20 August	101	59	340	B2.3	1	0	0	4	0	0	0	0
21 August	101	66	390	B2.0	2	0	0	8	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	>0.6 MeV	>2MeV	>4 MeV
	15 August	2.9e+05	1.3e+04	3.0e+03		1.0e+07
16 August	2.4e+05	1.2e+04	2.9e+03		2.0e+07	
17 August	2.6e+05	1.3e+04	3.0e+03		4.4e+07	
18 August	3.4e+05	1.3e+04	3.1e+03		4.4e+07	
19 August	3.7e+05	1.2e+04	3.2e+03		4.0e+07	
20 August	4.9e+05	1.3e+04	3.1e+03		3.4e+07	
21 August	4.4e+05	1.3e+04	3.3e+03		2.0e+07	

Daily Geomagnetic Data

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

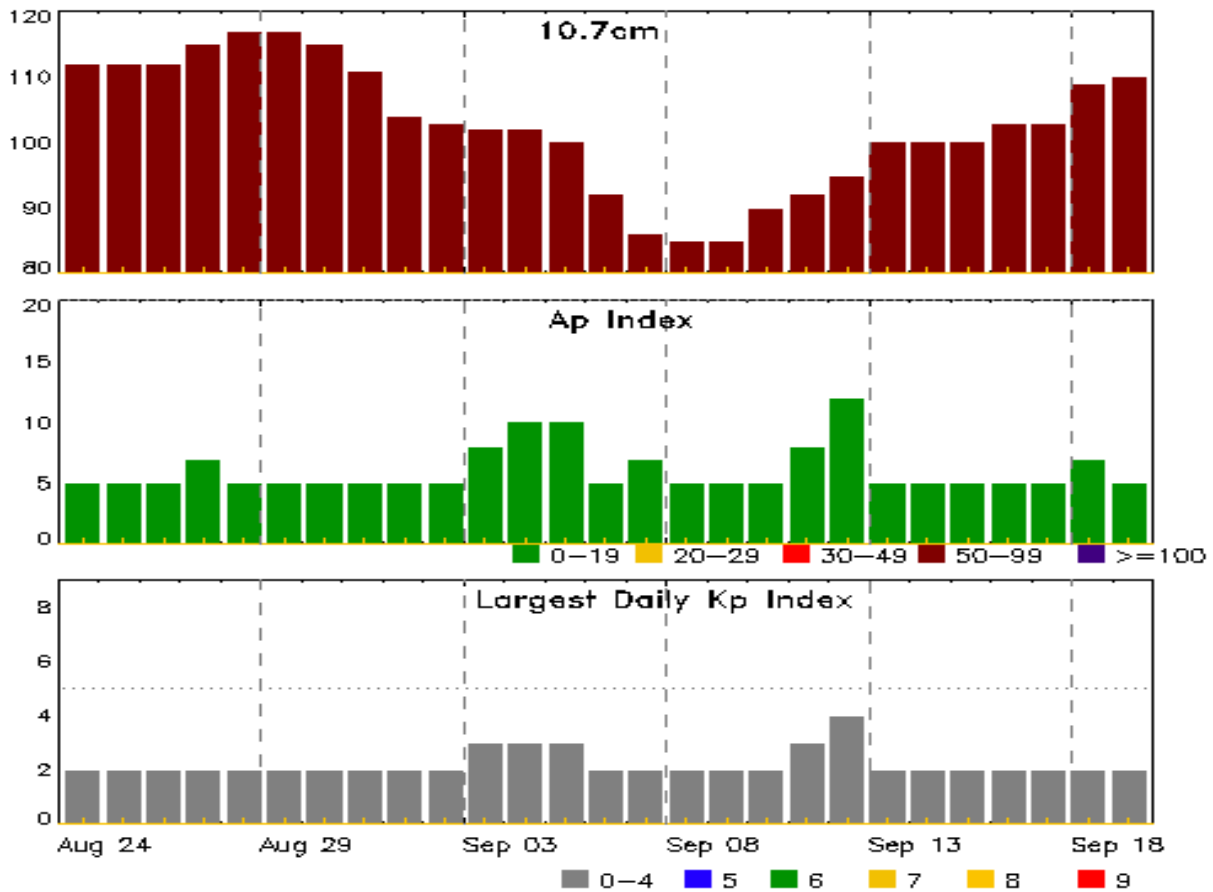


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
15 Aug 0006	WARNING: Geomagnetic K = 4	15/0010 - 1600
15 Aug 0131	ALERT: Geomagnetic K = 4	15/0130
15 Aug 0138	WARNING: Geomagnetic K = 5	15/0137 - 0900
15 Aug 0207	ALERT: Geomagnetic K = 5	15/0205
16 Aug 0833	WARNING: Geomagnetic K = 4	16/0835 - 1500
17 Aug 1325	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/1310
18 Aug 1445	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/1310



Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
24 Aug	112	5	2	07 Sep	86	7	2
25	112	5	2	08	85	5	2
26	112	5	2	09	85	5	2
27	115	7	2	10	90	5	2
28	117	5	2	11	92	8	3
29	117	5	2	12	95	12	4
30	115	5	2	13	100	5	2
31	111	5	2	14	100	5	2
01 Sep	104	5	2	15	100	5	2
02	103	5	2	16	103	5	2
03	102	8	3	17	103	5	2
04	102	10	3	18	109	7	2
05	100	10	3	19	110	5	2
06	92	5	2				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
15 Aug	0257	0309	0316	B5.4			
15 Aug	0442	0454	0520	C1.4			1271
15 Aug	1110	1120	1133	C3.4			1272
15 Aug	1353	1412	1419	B8.6			1271
15 Aug	1938	1943	1948	B7.7			
15 Aug	2313	2316	2320	B4.1			1271
15 Aug	2354	0025	0059	C1.3			1271
16 Aug	1104	1110	1114	B6.4			1272
16 Aug	1539	1542	1548	B4.2			1271
16 Aug	1724	1728	1734	B3.8			1272
17 Aug	0006	0011	0020	B3.8			1271
17 Aug	0144	0254	0344	C1.9			1272
17 Aug	0148	0156	0208		SF	S21E70	1272
17 Aug	0419	0429	0507	C2.3	SF	S21E64	1272
17 Aug	0547	0550	0555		SF	S18E09	
17 Aug	0752	0757	0800	B8.3	SF	S20E70	1272
17 Aug	1019	1042	1108	C3.4			1271
17 Aug	1505	1512	1521	B6.6	SF	S21E58	1272
17 Aug	1536	1541	1545	B6.8			
17 Aug	1616	1631	1645	C2.6	SF	S19E63	1272
17 Aug	1831	1834	1838	B3.7			
17 Aug	1854	1858	1904	B5.8			1271
18 Aug	0023	0030	0036	C1.6			1271
18 Aug	0345	0402	0415	B5.7			
18 Aug	0640	0644	0651	C1.2	SF	S19E55	1272
18 Aug	0740	0740	0750		SF	S19E55	1272
18 Aug	0740	0745	0751		SF	N18E51	1271
18 Aug	1127	1132	1139	B5.2			
18 Aug	1241	1311	1319	B9.7			1272
18 Aug	1413	1425	1438		SF	N18E47	1271
18 Aug	1459	1515	1531	C1.1	SF	N18E45	1271
18 Aug	1541	1543	1558		SF	N18E45	1271



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
18 Aug	1623	1623	1722		SF	N15E44		1271
20 Aug	0429	0432	0435	B5.5	SF	S22E29		1272
20 Aug	0752	0758	0805	B3.9				1271
20 Aug	0921	0924	0926	B7.4				1271
20 Aug	1157	1201	1203	B5.7				
20 Aug	1225	1236	1250	B8.4				1272
20 Aug	1805	1808	1811	B3.9	SF	N16E15		1271
20 Aug	1839	1844	1848	B7.1				
20 Aug	2011	2016	2018	B8.5	SF	N16E12		1271
20 Aug	2254	2258	2300	C2.9	SF	N16E10		1271
21 Aug	0048	0051	0057	B4.3				
21 Aug	0229	0233	0237	B3.7				1272
21 Aug	1211	1220	1230	B6.1				
21 Aug	1311	1315	1322		SF	S21E13		1272
21 Aug	1442	1448	1454	B6.1	SF	S20E13		1272
21 Aug	1547	1550	1553	B4.5	SF	S20E10		1272
21 Aug	1610	1616	1627	B5.9	SF	S20E12		1272
21 Aug	1712	1729	1745		SF	S20E10		1272
21 Aug	1815	1840	1846	C1.5				1272
21 Aug	1819	1821	1834		SF	S20E10		1272
21 Aug	1835	1838	1849		SF	S19E08		1272
21 Aug	2017	2020	2027	B3.5				1274
21 Aug	2038	2041	2048	B6.3	SF	S20E09		1272
21 Aug	2215	2221	2228	B4.7				1272
21 Aug	2310	2316	2326	C1.2				1272



Region Summary

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

Region 1269

11 Aug	S22E17	173	20	2	Dro	2	B										
12 Aug	S22E03	174	10	4	Bxo	3	B										
13 Aug	S21W09	173	10	1	Axx	2	A										
14 Aug	S21W23	174	plage														
15 Aug	S21W37	175	plage														
16 Aug	S21W51	176	plage														
17 Aug	S21W65	177	plage														
18 Aug	S21W79	177	plage														
								0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 174

Region 1270

11 Aug	N23E54	135	20	3	Dso	2	B										
12 Aug	N23E41	136	10	4	Bxo	2	B										
13 Aug	N23E29	135	10	5	Bxo	2	B										
14 Aug	N23E15	136	plage														
15 Aug	N23E01	137	plage														
16 Aug	N23W13	138	plage														
17 Aug	N23W27	139	plage														
18 Aug	N23W41	139	plage														
19 Aug	N23W55	140	plage														
20 Aug	N23W69	141	plage														
21 Aug	N23W83	142	plage														
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 137

Region 1271

15 Aug	N17E74	64	120	6	Dso	3	B	2									
16 Aug	N15E63	62	240	7	Dsi	4	B										
17 Aug	N16E50	62	240	11	Esi	9	BGD	1									
18 Aug	N16E38	59	290	11	Ehc	16	B	2			5						
19 Aug	N16E25	59	240	11	Esi	12	BG										
20 Aug	N16E10	61	260	10	Dho	22	B	1			3						
21 Aug	N16W01	59	240	12	Eao	15	B										
								6	0	0	8	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 59



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
									C	M	X	S	1	2	3	4		
Region 1272																		
16 Aug	S19E67		57	10	2	Cro	2	B										
17 Aug	S19E55		56	60	7	Cso	2	B	3				5					
18 Aug	S22E41		56	60	4	Cso	3	B	1				2					
19 Aug	S21E27		57	30	2	Hax	2	A										
20 Aug	S22E15		56	50	7	Cao	5	B					1					
21 Aug	S21E03		54	90	6	Dao	8	B	2				8					
									7	0	0		16	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 54

Region 1273

17 Aug	S18W03		114	10	5	Bxo	3	B										
18 Aug	S18W09		112	10	4	Bxo	4	B										
19 Aug	S18W28		113	10	1	Axx	2	A										
20 Aug	S18W42		114	plage														
21 Aug	S18W56		115	plage														
									0	0	0		0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 114

Region 1274

20 Aug	N19E70		2	30	3	Hrx	2	A										
21 Aug	N18E57		1	30	2	Cro	2	B										
									0	0	0		0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 1

Region 1275

21 Aug	N06E68		350	30	3	Cro	1	B										
									0	0	0		0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 350

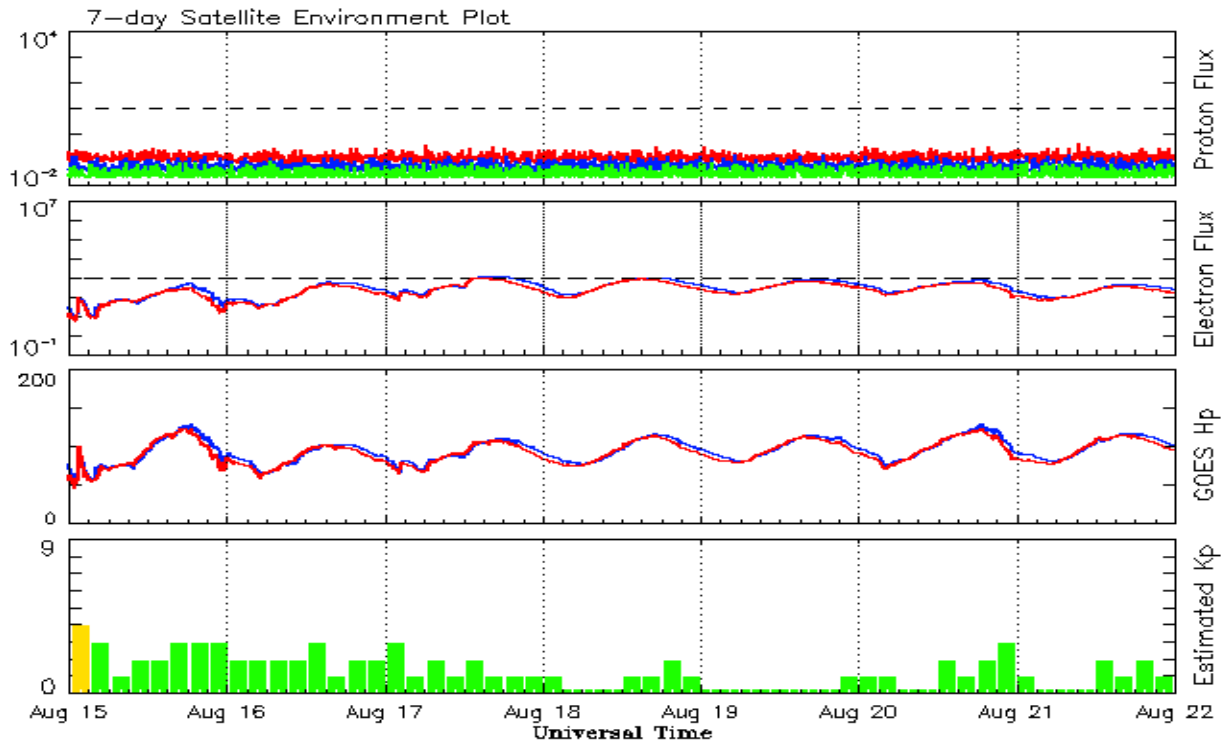


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2009									
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	25.9	16.7	79.9	80.1	5	6.0
August	28.2	19.6	0.70	27.3	17.4	79.7	80.7	8	6.2
September	35.6	25.2	0.71	30.6	19.6	81.1	82.4	5	6.3
October	35.0	23.5	0.67	35.9	23.2	81.6	85.3	6	6.4
November	36.1	21.5	0.60	40.5	26.5	82.5	87.7	5	6.4
December	22.0	14.4	0.66	43.8	28.8	84.3	89.6	4	6.5
2011									
January	32.1	18.8	0.59	47.2	31.0	83.7	91.2	6	6.7
February	53.2	29.6	0.55			94.5		6	
March	81.0	55.8	0.69			115.3		7	
April	81.7	54.4	0.67			112.6		9	
May	61.4	41.6	0.68			95.9		9	
June	55.5	37.0	0.67			95.8		8	
July	67.0	43.9	0.66			94.2		9	

Note: Values are final except for the most recent 6 months which are considered preliminary.
Cycle 24 started in Dec 2008 with an RI=1.7.





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 15 August 2011*

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

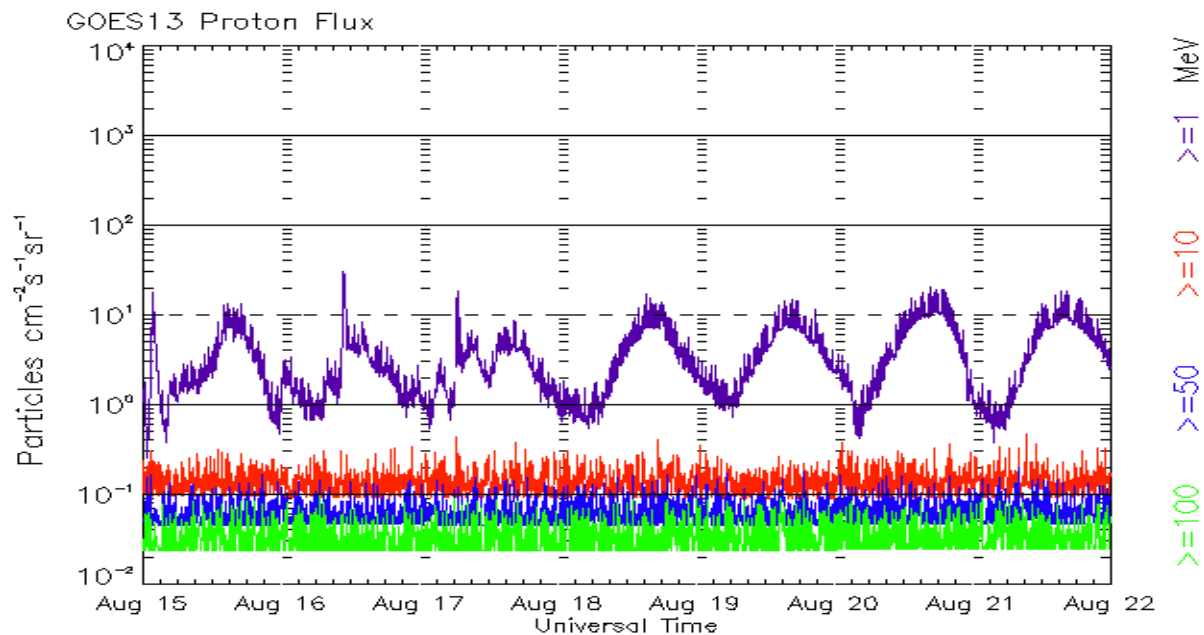
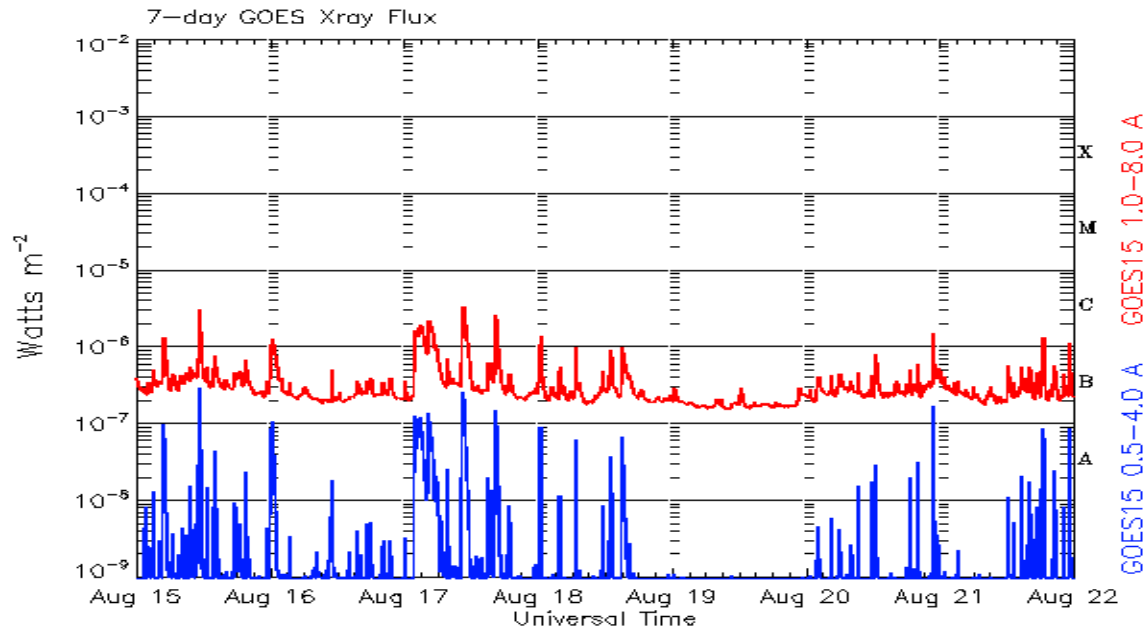
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. 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 15 August 2011*

The x-ray plots contains five-minute averages x-ray flux (Watt/ m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, 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 intergral flux units (pfu = protons/ cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1 , >10 , >30 , and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.



Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

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