

Space Weather Highlights
20 August - 26 August 2012

SWPC PRF 1930
27 August 2012

Solar activity was very low until 25 and 26 August. The largest flare of the reporting period was a C1/Sf at 25/0236 UTC from Region 1554 (N16, L=215, class/area Dsi/170 on 25 August). No coronal mass ejections observed during the reporting period were Earth-directed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels from 21 - 24 August. Moderate levels were observed 20 August and again from 25 - 26 August.

Geomagnetic field activity was mostly quiet to unsettled with an isolated active period mid-day on 26 August. At the beginning of the period, solar wind speed, measured at the ACE spacecraft, indicated the presence of a coronal hole high speed stream (CH HSS). Solar wind decreased steadily from approximately 600 km/s to 400 km/s by early on 22 August. Quiet to unsettled conditions were observed on 20 - 21 August. By mid-day on 24 August, the phi angle changed from a positive to negative orientation indicating a solar sector boundary crossing. Solar wind speed began to increase early on 25 August from approximately 400 km/s to 610 km/s as another CH HSS moved into geoeffective position. Solar wind speed increased once more mid-day on 26 August and ended the period around 700 km/s. Conditions were quiet on 22 August. Conditions remained at quiet to unsettled levels from 23 August until mid-day on 26 August as an isolated active period was observed.

Space Weather Outlook
27 August - 22 September 2012

Solar activity is expected to be at very low to low levels with a slight chance for M-class activity through 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 at high levels on 29 - 30 August, 09 - 10 September, 16 - 17 September, and again on 22 September due to effects from coronal hole high speed streams.

Geomagnetic field activity is expected to be mostly quiet to unsettled until 15 September as a recurrent coronal hole high speed stream moves into a geoeffective position. Unsettled to active conditions are expected on 15 - 16 September. Conditions are expected to be mostly quiet to unsettled again from 17 September through 21 September. Another recurrent coronal hole high speed stream is expected to become geoeffective on 22 September causing unsettled to active conditions.



Daily Solar Data

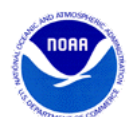
Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
20 August	96	52	90	B1.9	0	0	0	1	0	0	0	0
21 August	94	64	140	B1.6	0	0	0	0	0	0	0	0
22 August	95	65	110	B1.4	0	0	0	1	0	0	0	0
23 August	97	49	230	B1.4	0	0	0	0	0	0	0	0
24 August	104	69	200	B1.6	0	0	0	1	0	0	0	0
25 August	106	70	520	B2.0	1	0	0	1	0	0	0	0
26 August	113	78	590	B2.7	1	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	>0.6 MeV	>2MeV	>4 MeV
	20 August	7.9e+05	1.3e+04	2.4e+03		1.9e+07
21 August	5.6e+05	1.2e+04	2.7e+03		7.1e+07	
22 August	3.4e+05	1.1e+04	2.8e+03		1.1e+08	
23 August	1.8e+05	1.1e+04	2.8e+03		3.2e+07	
24 August	3.0e+05	1.1e+04	2.7e+03		6.9e+07	
25 August	1.7e+05	1.1e+04	2.7e+03		5.4e+06	
26 August	2.4e+05	1.1e+04	2.7e+03		1.6e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	20 August	11	3-3-3-2-3-2-2-2	27	3-4-4-5-6-3-1-1	12
21 August	7	2-1-1-2-2-3-2-2	13	2-1-1-5-4-2-1-2	7	2-1-1-2-2-2-1-3
22 August	6	1-2-1-2-3-1-1-1	8	2-1-2-2-4-1-1-1	6	1-2-2-1-2-1-1-2
23 August	11	3-2-3-3-3-2-2-1	27	2-4-5-5-5-4-2-1	10	3-2-3-2-3-2-3-1
24 August	9	2-3-1-3-3-2-2-1	16	2-1-4-4-5-1-2-1	9	2-3-2-2-2-2-2-2
25 August	10	2-2-3-3-3-2-2-2	20	2-3-6-4-3-2-2-1	10	2-2-3-2-2-2-2-3
26 August	10	1-2-2-3-3-2-3-2	16	1-2-1-3-6-2-2-2	11	1-2-2-2-4-3-3-2

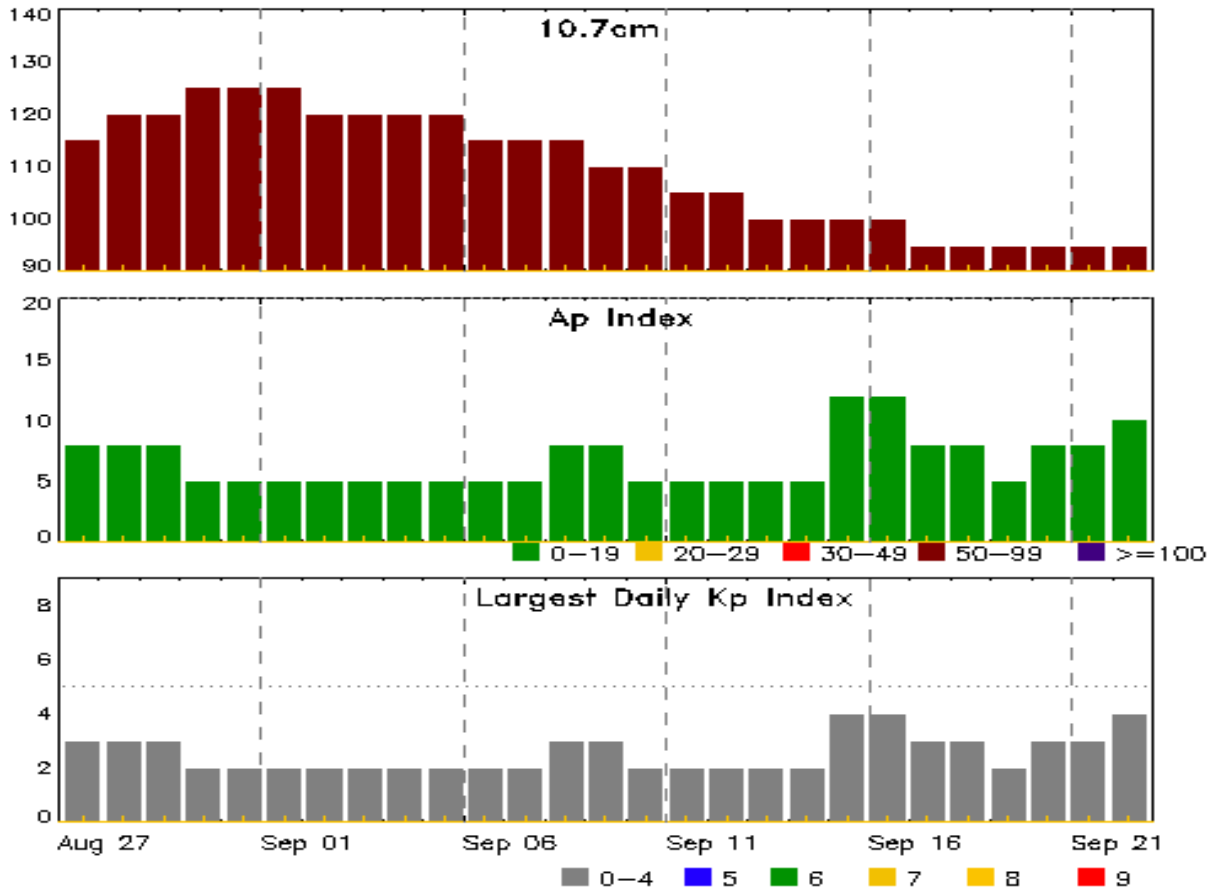


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
20 Aug 0004	ALERT: Geomagnetic K = 4	19/2359
20 Aug 0554	EXTENDED WARNING: Geomagnetic K = 4	19/2223 - 20/1900
21 Aug 1310	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/1255
22 Aug 1046	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/1255
23 Aug 1506	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/1255
24 Aug 1245	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/1255
26 Aug 1154	WARNING: Geomagnetic K = 4	26/1158 - 1800
26 Aug 1506	ALERT: Geomagnetic K = 4	26/1500
26 Aug 1752	EXTENDED WARNING: Geomagnetic K = 4	26/1158 - 27/0001
26 Aug 2358	EXTENDED WARNING: Geomagnetic K = 4	26/1158 - 27/0900



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
27 Aug	115	8	3	10 Sep	110	5	2
28	120	8	3	11	105	5	2
29	120	8	3	12	105	5	2
30	125	5	2	13	100	5	2
31	125	5	2	14	100	5	2
01 Sep	125	5	2	15	100	12	4
02	120	5	2	16	100	12	4
03	120	5	2	17	95	8	3
04	120	5	2	18	95	8	3
05	120	5	2	19	95	5	2
06	115	5	2	20	95	8	3
07	115	5	2	21	95	8	3
08	115	8	3	22	95	10	4
09	110	8	3				



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 245	Radio Flux 2695	Intensity II

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical Location Lat CMD	Optical Rgn #
	Begin	Max	End				
20 Aug	0310	0328	0344	B4.6			1548
20 Aug	0618	0643	0713	B6.7	SF	N20E62	1548
20 Aug	0859	0903	0906	B5.4			
21 Aug	0258	0307	0316	B3.7			
21 Aug	0836	0845	0855	B4.9			
21 Aug	0953	1000	1006	B3.4			
21 Aug	1446	1454	1508	B3.6			
22 Aug	0022	0056	0112	B3.4			1558
22 Aug	0132	0145	0156	B3.3			1552
22 Aug	1559	1604	1613	B3.8			
22 Aug	1650	1658	1708	B6.9	SF	N20E29	1548
22 Aug	1904	1907	1910	B3.6			
22 Aug	2000	2003	2007	B3.1			
22 Aug	2106	2112	2116	B2.5			
23 Aug	0309	0315	0320	B3.1			
23 Aug	0424	0430	0433	B2.4			
23 Aug	0518	0536	0543	B2.8			1548
24 Aug	1824	1824	1835		SF	N16E17	1554
25 Aug	0224	0236	0255	C1.7	SF	N16E12	1554
26 Aug	0100	0106	0110	B5.1			1554
26 Aug	0239	0241	0243		SF	N07E68	1555
26 Aug	1712	1817	1914	C1.0			



Region Summary

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 1543																			
07 Aug	N21E70		23	140	8	Cso	4	B											
08 Aug	N21E58		22	230	9	Dao	4	B											
09 Aug	N21E45		22	260	8	Dho	6	BG											
10 Aug	N21E33		20	250	10	Dho	4	B					1						
11 Aug	N20E20		20	250	10	Dho	9	B					1						
12 Aug	N20E07		19	230	9	Dso	5	BG											
13 Aug	N20W05		19	250	10	Dko	12	BG	2				1						
14 Aug	N22W19		20	300	7	Cko	9	BG	2				3						
15 Aug	N21W34		21	300	4	Cho	9	BG					3						
16 Aug	N22W48		22	360	3	Hhx	2	A	1				1	1					
17 Aug	N24W59		20	320	6	Cko	5	B	2				1						
18 Aug	N24W73		21	320	6	Cko	5	B											
19 Aug	N23W86		20	180	6	Dso	3	B											
									7	0	0	11	1	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 19

Region 1546																			
16 Aug	N16E69		265	50	1	Hsx	1	A											
17 Aug	N16E56		264	50	3	Hsx	1	A											
18 Aug	N16E42		266	50	3	Hsx	1	A											
19 Aug	N16E28		266	50	2	Hsx	1	A											
20 Aug	N17E16		265	40	2	Hsx	2	A											
21 Aug	N16E05		263	40	2	Hsx	1	A											
22 Aug	N16W08		263	20	1	Hrx	1	A											
23 Aug	N16W21		263	20	1	Hsx	1	A											
24 Aug	N16W35		263	10	1	Axx	1	A											
25 Aug	N17W47		261	10	1	Axx	1	A											
26 Aug	N17W59		260	10	1	Axx	1	A											
									0	0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 263



Region Summary - continued

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 1547

17 Aug	N05E21	298	30	5	Cso	6	B										
18 Aug	N06E09	298	10	3	Cro	2	B										
19 Aug	N06W04	298	20	4	Cso	3	B										
20 Aug	N05W17	298	10	4	Bxo	5	B										
21 Aug	N05W30	298	plage														
22 Aug	N05W43	298	plage														
23 Aug	N05W56	298	plage														
24 Aug	N05W71	299	plage														
25 Aug	N05W86	301	plage														
										0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 298

Region 1548

18 Aug	N20E47	234	120	5	Cao	8	B	10	5		23	1					
19 Aug	N18E57	236	plage	10		9		2			10						
20 Aug	N20E47	234	30	2	Cso	3	B				1						
21 Aug	N18E32	236	40	8	Cso	2	B										
22 Aug	N18E18	237	40	10	Cso	6	B				1						
23 Aug	N18E04	238	30	10	Cso	6	B										
24 Aug	N18W09	236	20	3	Cso	5	B										
25 Aug	N18W23	238	plage														
26 Aug	N18W37	239	plage														
										12	7	0	35	1	0	0	0

Still on Disk.
 Absolute heliographic longitude: 238

Region 1549

19 Aug	S16W30	323	20	4	Cso	3	B										
20 Aug	S18W44	325	10	2	Bxo	2	B										
21 Aug	S18W58	326	plage														
22 Aug	S18W72	327	plage														
23 Aug	S18W85	327	plage														
										0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 323



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

Region 1550

21 Aug	S11W81	349	10	4	Bxo	2	B										
22 Aug	S11W94	349	10	4	Bxo	2	B										
								0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 349

Region 1551

21 Aug	N13W14	282	10	7	Bxo	8	B										
22 Aug	N12W28	283	10	6	Bxo	5	B										
23 Aug	N13W41	283	plage														
24 Aug	N13W54	283	plage														
25 Aug	N13W68	283	plage														
26 Aug	N13W82	284	plage														
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 282

Region 1552

21 Aug	S18E54	214	40	1	Hsx	1	A										
22 Aug	S18E41	214	30	2	Hsx	1	A										
23 Aug	S18E27	215	30	2	Hsx	1	A										
24 Aug	S17E18	212	20	1	Hsx	1	A										
25 Aug	S17E05	209	30	1	Hsx	1	A										
26 Aug	S17W07	209	20	3	Hsx	3	A										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 209

Region 1553

23 Aug	S23E50	192	150	2	Hsx	1	A										
24 Aug	S22E46	182	90	2	Hsx	1	A										
25 Aug	S21E33	181	150	3	Cso	3	B										
26 Aug	S21E18	183	110	5	Cso	6	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 183



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

Region 1554

24 Aug	N16E12	215	60	5	Dai	11	B					1					
25 Aug	N16W00	215	170	6	Dsi	9	B	1				1					
26 Aug	N16W15	216	140	8	Dao	11	B										
								1	0	0		2	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 215

Region 1555

25 Aug	N09E69	145	160	6	Dao	6	B										
26 Aug	N08E56	146	310	7	Dko	7	B					1					
								0	0	0		1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 146

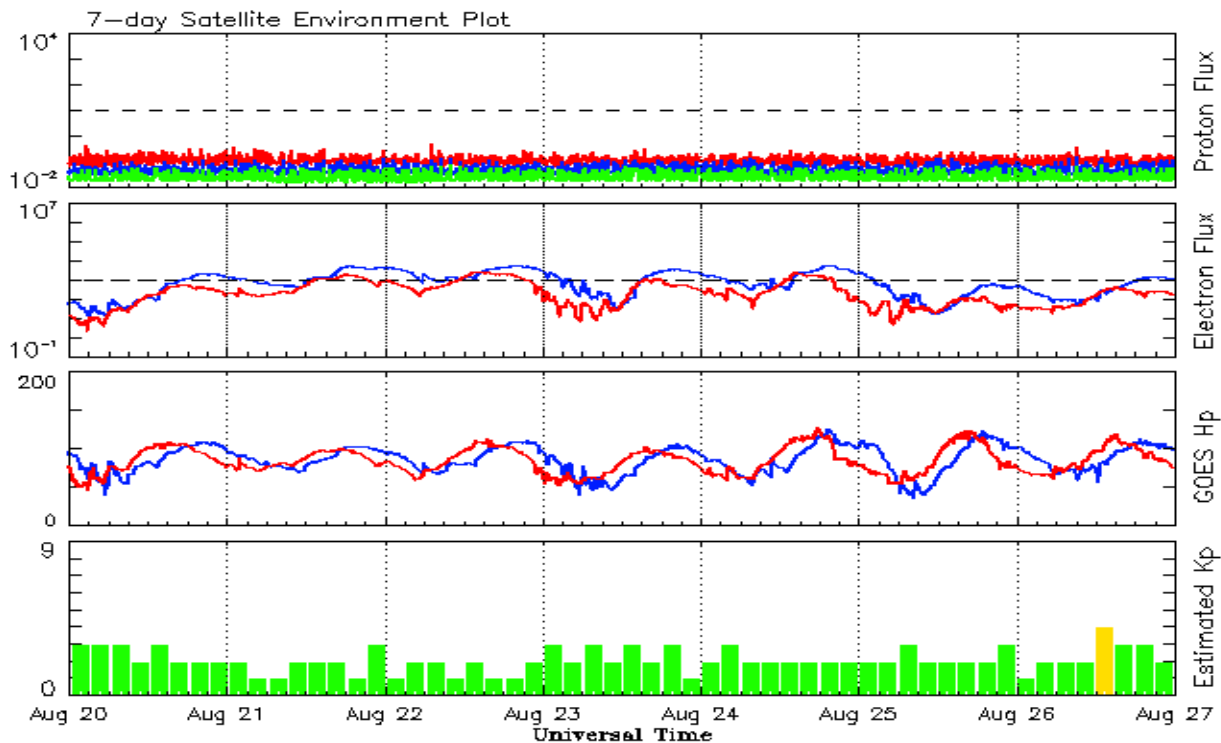


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2010									
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	30.9	83.7	91.2	6	6.7
February	53.2	29.6	0.55	50.6	33.4	94.5	92.7	6	6.8
March	81.0	55.8	0.69	55.2	36.9	115.3	95.8	7	7.2
April	81.7	54.4	0.67	61.5	41.8	112.6	100.4	9	7.5
May	61.4	41.5	0.68	69.0	47.6	95.9	105.6	9	7.5
June	55.5	37.0	0.67	76.5	53.2	95.8	110.9	8	7.4
July	67.0	43.8	0.66	82.5	57.2	94.2	115.4	9	7.3
August	66.1	50.6	0.77	84.9	59.0	101.7	117.9	8	7.4
September	106.4	78.0	0.73	84.6	59.5	134.5	118.4	13	7.7
October	116.8	88.0	0.75	84.6	59.9	137.2	118.4	7	8.0
November	133.1	96.7	0.73	86.3	61.1	153.1	119.5	3	8.0
December	106.3	73.0	0.69	89.2	63.4	141.2	121.6	3	8.0
2012									
January	91.3	58.3	0.64	92.0	65.5	133.1	124.4	6	8.3
February	50.1	32.9	0.66			106.7		7	
March	77.9	64.3	0.82			115.1		14	
April	84.4	55.2	0.65			113.1		9	
May	99.5	69.0	0.69			121.5		8	
June	88.6	64.5	0.73			120.5		10	
July	99.6	66.5	0.67			135.6		13	

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 20 August 2012*

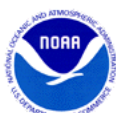
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

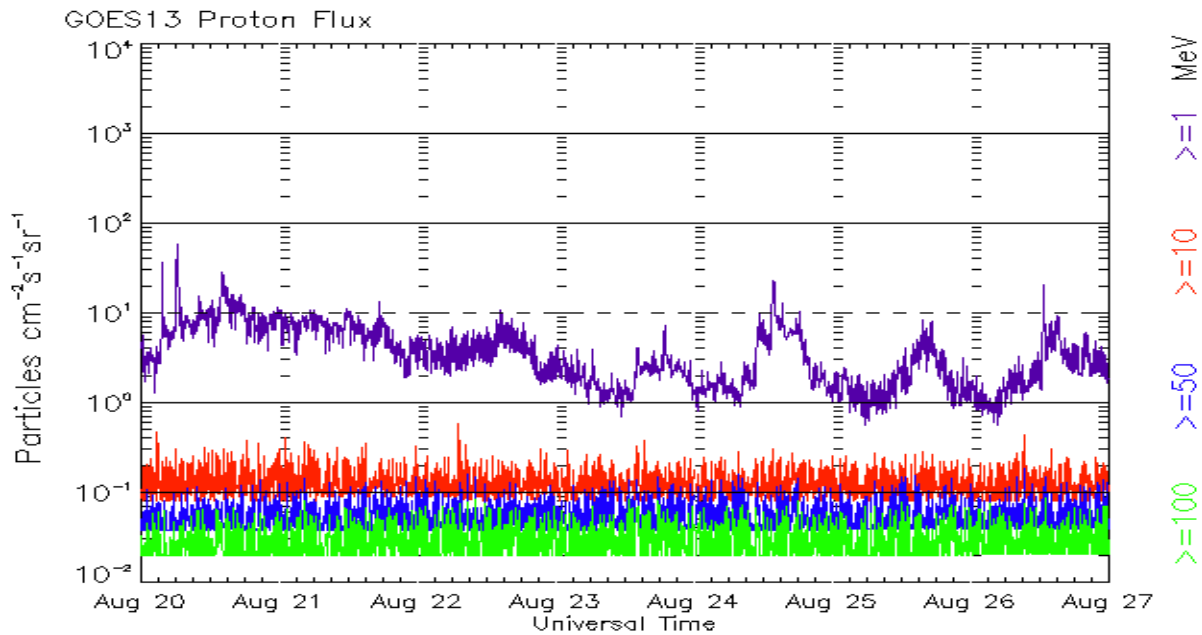
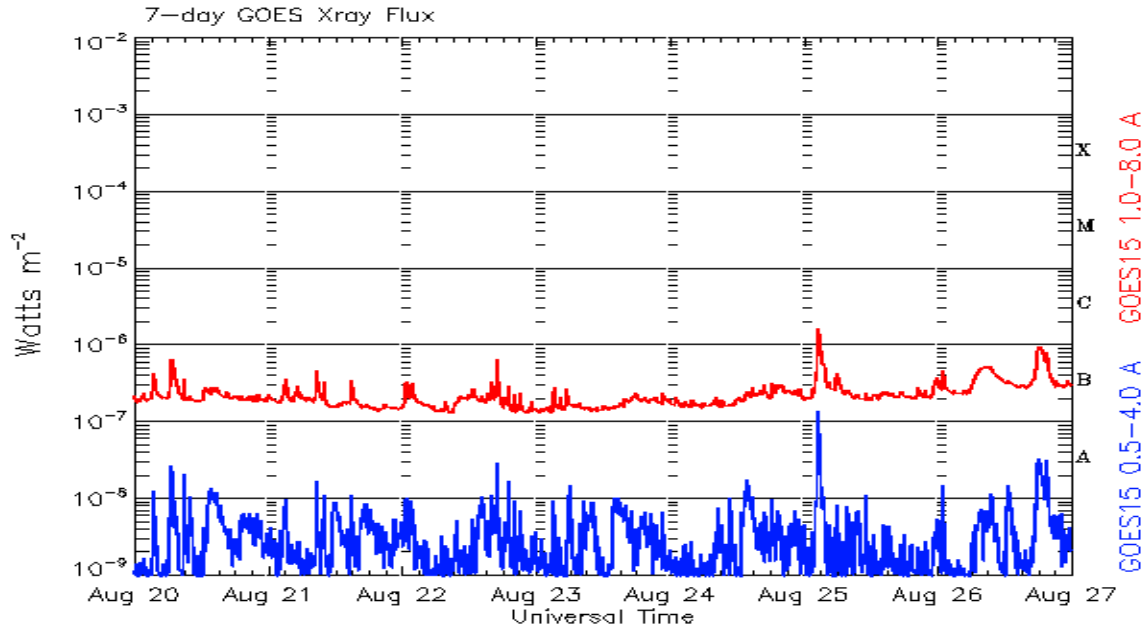
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

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 20 August 2012*

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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