

**Space Weather Highlights**  
**10 August - 16 August 2015**

**SWPC PRF 2085**  
**17 August 2015**

Solar activity was at very low to low levels this period. Region 2396 (S17, L=038, Ekc/840; 09 Aug) and Region 2401 (S11, L=270, Dai/070; 16 Aug) produced weak C-class flares on 11 Aug, 14 Aug, and 15 Aug. Solar activity was very low for all other days.

On 12 Aug, a 13 degree long filament centered near S29W29 produced a partial-halo coronal mass ejection (CME) signature visible on SOHO/LASCO C2 imagery. This CME was determined to be Earth-directed. On 14 Aug, two filaments disappeared. The first was 16 degrees long centered near S12W41 and the second was a 17 degree long filament centered near S39W30. Both filaments produced CMEs observed off the SW limb observed in SOHO/LASCO C2 imagery. Model output suggests the possibility of a glancing blow as they pass Earth on 18 Aug.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reach high levels on 10 - 12 Aug, then decreased to moderate levels on 13 - 15 Aug, before returning to high levels on 16 Aug. A peak flux of 4100 was observed on 11 Aug.

Geomagnetic field activity was at quiet to unsettled levels from 10 - 14 Aug, with an isolated period of active conditions early on 13 Aug. On 15 Aug, activity reached G3 (strong) levels with the arrival of the 12 Aug CME. A shock was observed at the ACE spacecraft on 15/0745 UTC with a subsequent sudden impulse of 36 nT at NGK at 15/0908 UTC. G2 (moderate) and G1 (minor) conditions were observed through 16 Aug as the CME effects transitioned into a positive polarity coronal hole high speed stream (CH HSS).

**Space Weather Outlook**  
**17 August - 12 September 2015**

Solar activity is expected to be at low levels throughout the outlook period with a chance for C-class flare activity.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels through period. Moderate levels are expected from 17-23 Aug , 27-29 Aug, 02-05 Sep, and 09-11 Sep. High levels are expected from 25-26 Aug, 30 Aug - 01 Sep, 06-08 Sep, and 12 Sep.

Geomagnetic field activity is expected to be at G1 (Minor) geomagnetic storm levels on 17 Aug due to a positive polarity coronal hole high speed stream (CH HSS). Active levels are expected on 23 Aug, 27 Aug, and 02-04 Sep from the influence of recurrent CH HSSs. Field activity is expected to be at quiet to unsettled levels throughout the remainder of the outlook period.



### *Daily Solar Data*

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 <sup>-6</sup> hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
10 August	106	67	790	B2.4	0	0	0	2	0	0	0	0
11 August	103	87	770	B2.2	1	0	0	3	0	0	0	0
12 August	99	68	590	B2.3	0	0	0	0	0	0	0	0
13 August	95	51	290	B2.1	0	0	0	4	0	0	0	0
14 August	93	46	160	B2.4	4	0	0	4	0	0	0	0
15 August	89	33	60	B1.7	1	0	0	3	0	0	0	0
16 August	86	32	80	B1.3	0	0	0	1	0	0	0	0

### *Daily Particle Data*

Date	Proton Fluence (protons/cm <sup>2</sup> -day -sr)			Electron Fluence (electrons/cm <sup>2</sup> -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
	10 August	1.3e+05	1.1e+04	2.7e+03		4.1e+07
11 August	1.4e+05	1.1e+04	2.6e+03		1.1e+08	
12 August	1.7e+05	1.1e+04	2.6e+03		7.0e+07	
13 August	1.7e+05	1.2e+04	2.7e+03		7.9e+06	
14 August	1.0e+05	1.1e+04	2.7e+03		1.0e+07	
15 August	2.2e+05	1.0e+04	2.4e+03		1.5e+06	
16 August	3.0e+05	1.1e+04	2.6e+03		2.8e+07	

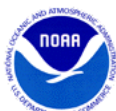
### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	10 August	13	3-4-4-3-2-1-2-1	16	3-3-4-4-4-2-2-1	9
11 August	8	2-2-2-3-2-2-1-2	12	2-3-2-4-4-2-1-1	8	3-2-2-2-2-1-1-2
12 August	12	2-3-3-2-3-3-2-3	17	3-3-3-0-4-5-2-2	12	2-3-3-1-2-3-3-3
13 August	14	3-4-3-1-3-1-2-4	19	3-4-3-5-4-3-1-1	11	3-4-3-2-2-1-1-1
14 August	4	1-0-0-2-2-1-2-1	1	0-0-0-0-1-0-1-1	4	1-1-1-1-1-1-1-1
15 August	24	2-2-4-5-5-3-3-4	44	2-2-3-7-6-5-4-4	44	3-2-3-7-6-4-3-5
16 August	27	4-4-6-3-3-2-4-3	43	4-5-7-4-4-5-3-3	36	5-5-6-4-3-3-4-4



### *Alerts and Warnings Issued*

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
10 Aug 1033	CANCELLATION: Geomagnetic Storm Category G1 predicted	
10 Aug 1429	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	09/1340
11 Aug 0340	WARNING: Geomagnetic K = 4	11/0340 - 0700
11 Aug 1211	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	09/1340
12 Aug 1327	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	09/1340
12 Aug 2207	WARNING: Geomagnetic K = 4	12/2207 - 13/0100
13 Aug 0405	WARNING: Geomagnetic K = 4	13/0405 - 0800
13 Aug 0428	ALERT: Geomagnetic K = 4	13/0417
13 Aug 0756	EXTENDED WARNING: Geomagnetic K = 4	13/0405 - 1100
13 Aug 1810	WATCH: Geomagnetic Storm Category G1 predicted	
15 Aug 0756	WARNING: Geomagnetic Sudden Impulse expected	15/0755 - 0855
15 Aug 0838	WARNING: Geomagnetic K = 4	15/0837 - 1300
15 Aug 0908	SUMMARY: Geomagnetic Sudden Impulse	15/0745
15 Aug 1030	WARNING: Geomagnetic K = 5	15/1030 - 1600
15 Aug 1031	EXTENDED WARNING: Geomagnetic K = 4	15/0837 - 1700
15 Aug 1106	ALERT: Geomagnetic K = 4	15/1058
15 Aug 1129	WARNING: Geomagnetic K = 6	15/1130 - 1500
15 Aug 1129	ALERT: Geomagnetic K = 5	15/1125
15 Aug 1138	ALERT: Geomagnetic K = 6	15/1132
15 Aug 1144	WARNING: Geomagnetic K $\geq$ 7	15/1145 - 1400
15 Aug 1147	ALERT: Geomagnetic K = 7	15/1143
15 Aug 1231	ALERT: Geomagnetic K = 5	15/1228
15 Aug 1317	ALERT: Geomagnetic K = 6	15/1316
15 Aug 1458	EXTENDED WARNING: Geomagnetic K = 5	15/1030 - 16/0600
15 Aug 1458	EXTENDED WARNING: Geomagnetic K = 4	15/0837 - 16/0900
15 Aug 1458	EXTENDED WARNING: Geomagnetic K = 6	15/1130 - 1800
15 Aug 2359	ALERT: Geomagnetic K = 5	15/2350

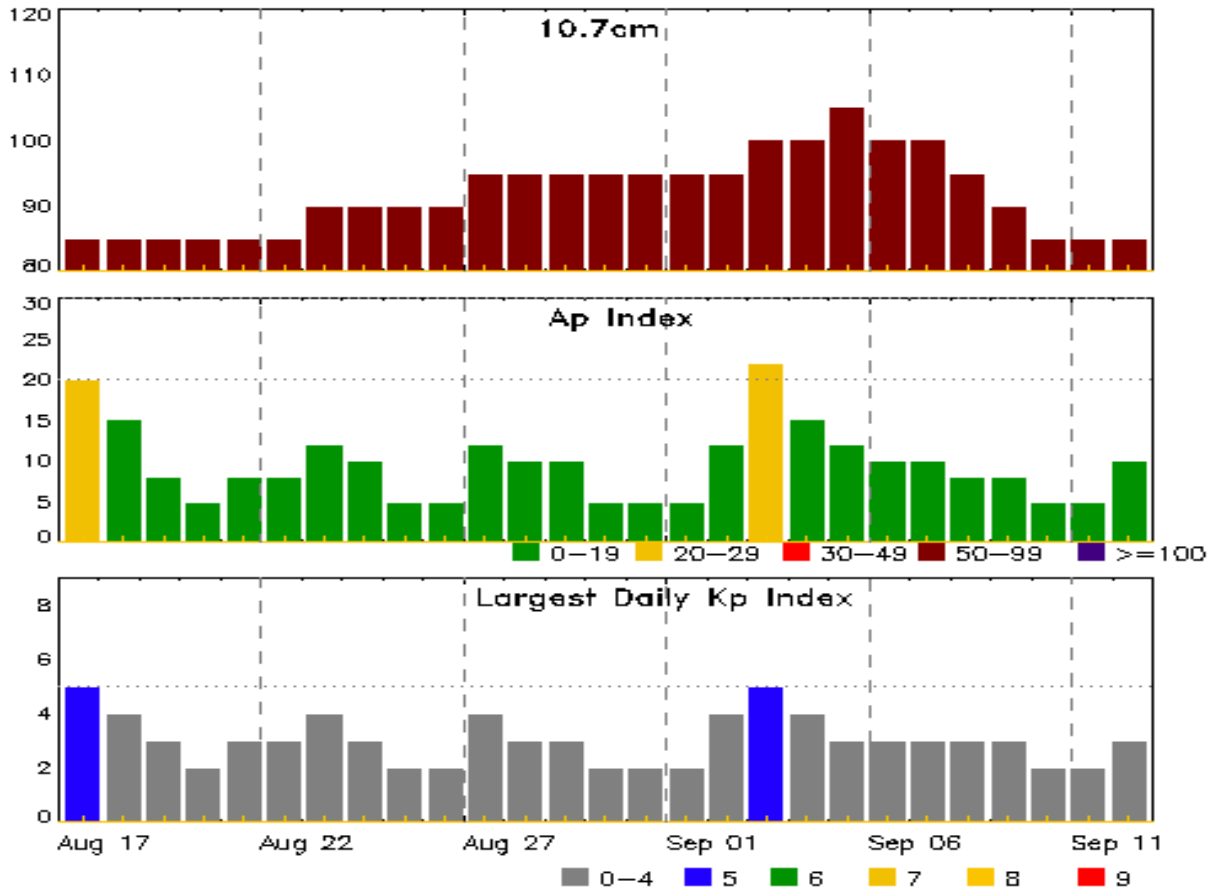


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
16 Aug 0235	ALERT: Geomagnetic K = 5	16/0224
16 Aug 0528	EXTENDED WARNING: Geomagnetic K = 4	15/0837 - 16/1800
16 Aug 0529	EXTENDED WARNING: Geomagnetic K = 5	15/1030 - 16/1700
16 Aug 0544	ALERT: Geomagnetic K = 5	16/0538
16 Aug 0749	WARNING: Geomagnetic K = 6	16/0750 - 1400
16 Aug 0753	ALERT: Geomagnetic K = 5	16/0744
16 Aug 0802	ALERT: Geomagnetic K = 6	16/0759
16 Aug 1639	WATCH: Geomagnetic Storm Category G1 predicted	
16 Aug 1720	EXTENDED WARNING: Geomagnetic K = 4	15/0837 - 17/0800
16 Aug 1815	ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	16/1800



## 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
17 Aug	85	20	5	31 Aug	95	5	2
18	85	15	4	01 Sep	95	5	2
19	85	8	3	02	95	12	4
20	85	5	2	03	100	22	5
21	85	8	3	04	100	15	4
22	85	8	3	05	105	12	3
23	90	12	4	06	100	10	3
24	90	10	3	07	100	10	3
25	90	5	2	08	95	8	3
26	90	5	2	09	90	8	3
27	95	12	4	10	85	5	2
28	95	10	3	11	85	5	2
29	95	10	3	12	85	10	3
30	95	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				
10 Aug	0604	0610	0612	B8.2	SF	S21W31	2396
10 Aug	0907	0911	0913	B7.6	SF	S18W37	2396
11 Aug	0138	0142	0144	B3.2			2396
11 Aug	1017	1026	1030	B4.9			2396
11 Aug	1042	1047	1051	B4.9			2396
11 Aug	1447	1454	1504	B6.6			2396
11 Aug	1511	1515	1518	C1.0			2396
11 Aug	1656	1700	1709	B4.8	SF	N17E42	2400
11 Aug	1710	1713	1715		SF	S19W46	2396
11 Aug	1717	1717	1719		SF	N17E42	2400
11 Aug	2116	2123	2137	B4.9			
12 Aug	1026	1029	1033	B6.7			2394
12 Aug	1426	1526	1647	B7.0			
13 Aug	0200	0204	0207	B3.3			2396
13 Aug	0834	0838	0851	B3.6			
13 Aug	1030	1045	1100	B5.8	SF	N18E17	2400
13 Aug	1339	1353	1357	B2.9	SF	S12E58	2401
13 Aug	1724	1727	1732	B4.1	SF	S11E56	2401
13 Aug	1751	1803	1810	B4.3			2401
13 Aug	B2143	2143	2150		SF	S12E54	2401
14 Aug	0026	0033	0037	C1.1			2401
14 Aug	0051	0104	0110	C1.1			2401
14 Aug	0155	0200	0204	C1.9			2401
14 Aug	0300	0304	0308	C1.6	SF	S11E50	2401
14 Aug	0530	0538	0540	B4.4			
14 Aug	0647	0655	0658		SF	S12E49	2401
14 Aug	0732	0735	0737	B5.2	SF	S11E47	2401
14 Aug	0949	0951	0954		SF	S13E46	2401
15 Aug	0425	0430	0435	B5.5	SF	S13E38	2401
15 Aug	0507	0510	0512	B4.3	SF	S12E36	2401
15 Aug	1202	U1231	A1259	C1.6	SF	S08E33	2401



## *Flare List*

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
16 Aug	0630	0642	0651	B2.8	SF	S10E22	2401
16 Aug	2259	2305	2308	B3.9			



## Region Summary

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
<b>Region 2393</b>																		
30 Jul	N16E45	101	10	5	Dao	8	B											
31 Jul	N17E34	99	90	7	Dao	6	B											
01 Aug	N17E22	98	50	6	Cao	7	B					1						
02 Aug	N18E08	99	30	4	Cro	5	B											
03 Aug	N18W06	99	20	2	Hax	2	A											
04 Aug	N18W20	100	20	1	Hsx	1	A					1						
05 Aug	N18W33	100	20	1	Hsx	1	A											
06 Aug	N18W46	100	20	1	Hax	1	A											
07 Aug	N19W60	100	10	1	Hrx	1	A											
08 Aug	N19W72	99	10	1	Hrx	1	A											
09 Aug	N19W84	98	0	1	Axx	1	A											
								0	0	0	2	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 99

<b>Region 2394</b>																		
30 Jul	N12E65	81	120	1	Hsx	1	A											
31 Jul	N12E54	79	120	2	Hax	2	A											
01 Aug	N12E41	79	140	3	Hsx	4	A					1						
02 Aug	N12E28	79	140	2	Hax	3	A											
03 Aug	N12E14	78	120	3	Cao	4	B											
04 Aug	N11E01	78	130	4	Dai	8	BG											
05 Aug	N11W12	79	120	7	Cao	12	BG					1						
06 Aug	N11W25	79	100	4	Cao	7	B											
07 Aug	N11W38	78	80	5	Cao	8	B	1				2						
08 Aug	N12W52	79	80	4	Cso	4	B					1						
09 Aug	N12W64	78	50	3	Cso	2	B											
10 Aug	N12W77	77	40	2	Hsx	1	A											
11 Aug	N12W90	77	30	2	Hsx	1	A											
								1	0	0	5	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 78





### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares									
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
			Lon	10 <sup>6</sup> hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
<b>Region 2395</b>																
03 Aug	N11E63		30	30	2	Hsx	1	A								
04 Aug	N12E51		29	30	1	Hsx	1	A								
05 Aug	N12E37		30	30	1	Hsx	1	A								
06 Aug	N12E25		29	20	1	Hax	1	A								
07 Aug	N12E12		28	10	1	Hrx	1	A								
08 Aug	N12W01		28	0	1	Axx	1	A								
09 Aug	N12W15		29	plage												
10 Aug	N12W29		29	plage												
11 Aug	N12W42		29	plage												
12 Aug	N12W56		30	plage												
13 Aug	N12W70		31	plage												
14 Aug	N12W84		32	plage												
										0	0	0	0	0	0	0

Crossed West Limb.  
 Absolute heliographic longitude: 28

<b>Region 2396</b>																	
03 Aug	S16E56		37	10	2	Hax	4	A									
04 Aug	S18E42		37	80	8	Dai	7	B					1				
05 Aug	S17E28		39	260	8	Dkc	20	BG					9				
06 Aug	S17E15		39	550	11	Ekc	20	BG	3				9				
07 Aug	S17E02		38	710	11	Ekc	23	BG	10				13				
08 Aug	S17W11		38	800	11	Ekc	23	B	4				3				
09 Aug	S17W24		38	840	12	Ekc	43	B	1				1				
10 Aug	S18W38		38	740	14	Ekc	35	B					2				
11 Aug	S18W51		38	710	14	Ekc	28	B	1				1				
12 Aug	S18W65		39	560	14	Ekc	23	B									
13 Aug	S18W79		40	230	14	Eac	9	B									
14 Aug	S18W91		39	40	4	Cao	3	B									
										19	0	0	39	0	0	0	0

Crossed West Limb.  
 Absolute heliographic longitude: 38





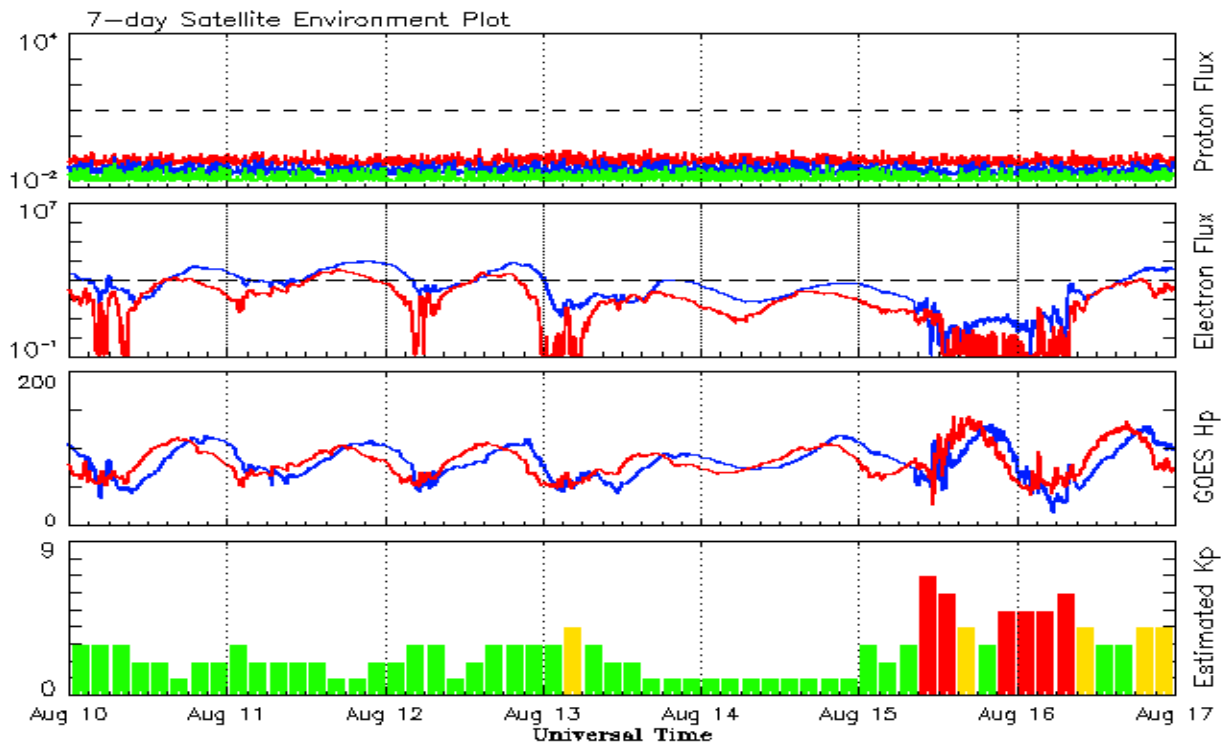


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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
<b>2013</b>									
August	90.2	66.0	0.73	103.7	68.9	114.7	127.9	9	7.6
September	55.0	37.0	0.67	111.0	73.0	102.7	132.3	5	7.8
October	127.1	85.6	0.67	114.3	74.9	132.3	134.7	7	7.8
November	125.7	77.6	0.62	114.6	75.3	148.4	135.4	5	7.9
December	118.2	90.3	0.76	115.4	75.9	147.7	135.9	5	7.5
<b>2014</b>									
January	125.9	81.8	0.65	117.7	77.3	158.6	137.3	6	7.1
February	174.6	102.3	0.59	119.5	78.3	170.3	138.6	12	6.9
March	141.1	91.9	0.65	123.2	80.8	149.9	140.8	6	7.2
April	130.5	84.7	0.65	124.8	81.9	144.3	143.5	9	7.5
May	116.8	75.2	0.64	122.3	80.5	130.0	144.7	7	7.9
June	107.7	71.0	0.66	121.4	79.7	122.2	145.5	7	8.4
July	113.6	72.4	0.64	120.4	78.5	137.3	145.2	5	8.8
August	106.2	74.6	0.70	115.1	75.5	124.7	142.8	9	8.9
September	127.4	87.6	0.69	107.4	70.8	146.1	140.1	11	9.3
October	92.0	60.6	0.66	101.7	67.3	153.7	138.4	10	9.9
November	101.8	70.2	0.69	97.9	65.4	155.3	137.4	10	10.1
December	120.0	76.7	0.65	95.2	56.0	158.7	137.0	12	10.5
<b>2015</b>									
January	101.2	67.0	0.66	92.1	53.9	141.7	135.8	10	11.0
February	70.6	44.8	0.63			128.8		10	
March	61.7	38.4	0.62			126.0		17	
April	72.5	54.4	0.75			129.2		12	
May	83.0	58.8	0.71			120.1		9	
June	77.3	41.0	0.53			123.2		14	
July	68.4	39.8	0.58			107.0		10	

**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 10 August 2015*

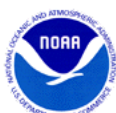
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

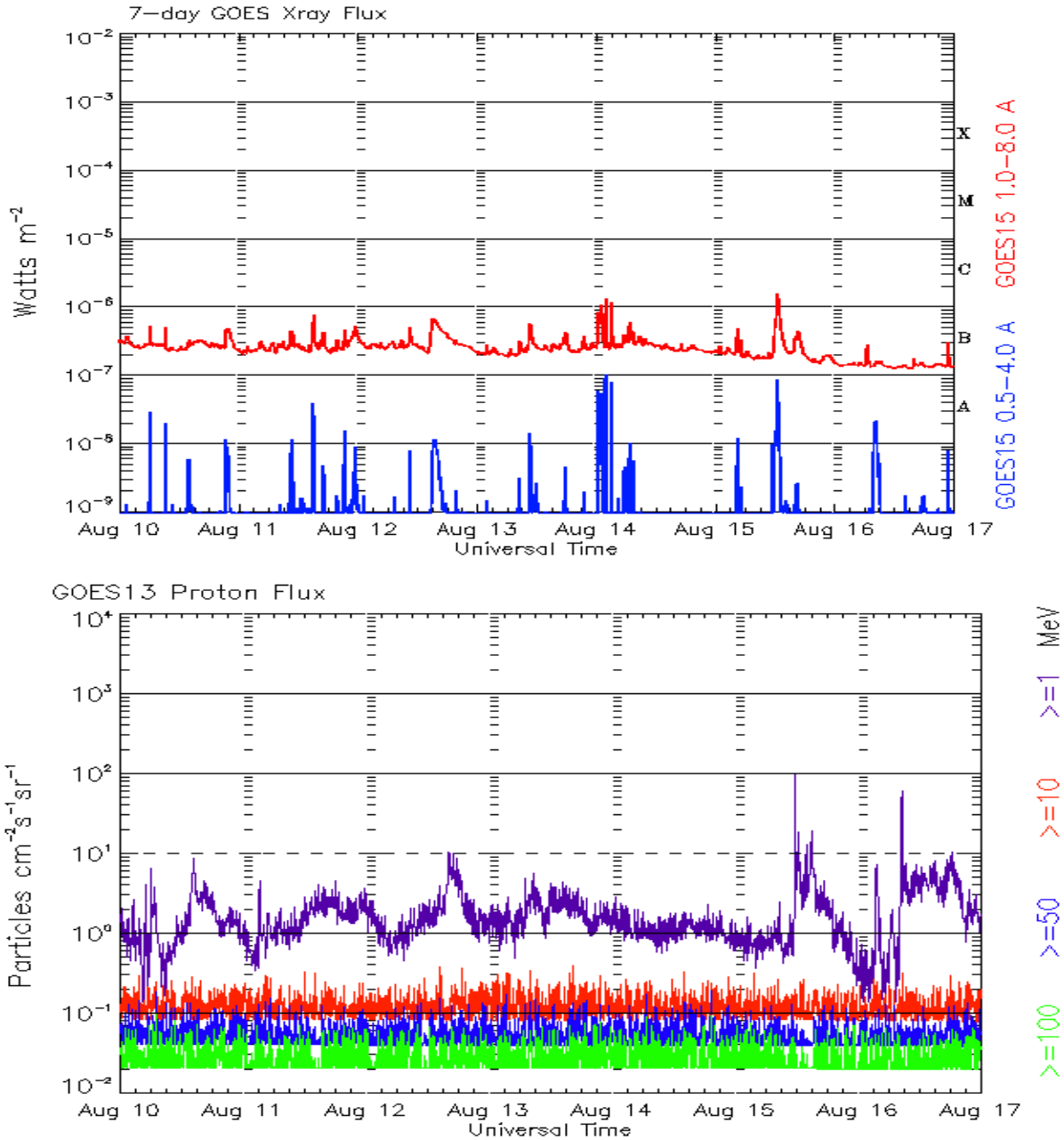
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 10 August 2015*

The x-ray plots contains five-minute averages x-ray flux (Watt/m<sup>2</sup>) 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<sup>2</sup> -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)***

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce  
NOAA / National Weather Service  
Space Weather Prediction Center  
325 Broadway, Boulder CO 80305

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

The Weekly has been published continuously since 1951 and is available online since 1997.

<http://spaceweather.gov/weekly/> -- Current and previous year

<http://spaceweather.gov/ftpmenu/warehouse.html> -- Online archive from 1997

<http://spaceweather.gov/ftpmenu/> -- Some content as ascii text

<http://spaceweather.gov/SolarCycle/> -- Solar Cycle Progression web site

<http://spaceweather.gov/contacts.html> -- Contact and Copyright information

[http://spaceweather.gov/weekly/Usr\\_guide.pdf](http://spaceweather.gov/weekly/Usr_guide.pdf) -- User Guide

