

Solar activity was at very low to low levels with C-class activity observed on 08, 09, 11 and 14 Aug. Region 2574 (N05, L=173, class/area Dho/290 on 09 Aug) was the most active region recording six C-class flares. The largest of these was a C8/Sf observed at 09/0042 UTC. Regions 2571 (N13, L=268, class/area Dac/200 on 08 Aug) and 2572 (N13, L=320, class/area Dao/110 on 07 Aug) each produced weak C-class flares on 08 Aug. The period ended with a C1 flare observed at 14/1936 UTC from an unnumbered region on the NE limb. A few CMEs were observed during the period, but none had an Earth-directed component.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels throughout the summary period. A maximum of 12,032 pfu was observed at 13/1745 UTC.

Geomagnetic field activity was at quiet to active levels on 08 Aug through early on 12 Aug due to effects from a positive polarity CH HSS. Quiet levels were observed for the remainder of the period. Solar wind speeds reached a maximum speed of about 675 km/s at 10/0830 UTC. Bt ranged between 3-8 nT while the Bz component varied between +7 to -5 nT early in the period. The phi angle was in a predominately positive sector throughout the period.

### **Space Weather Outlook** **15 August - 10 September 2016**

Solar activity is expected to be very low with a chance for C-class activity through the outlook 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 15, 19-23, 26-28, 31 Aug and 01-10 Sep. Normal to moderate levels are expected for the remainder of the outlook period.

Geomagnetic field activity is expected to be at G1 (Minor) storm levels on 16 and 30-31 Aug due to recurrent CH HSS activity. Unsettled to active levels are expected on 15, 17-19, 24-25 Aug and 01-08 Sep, all due to recurrent CH HSS activity. Mostly quiet conditions are expected for 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		
08 August	96	91	490	B4.3	6	0	0	17	1	0	0	0	
09 August	92	72	580	B2.1	2	0	0	4	0	0	0	0	
10 August	95	69	550	B1.6	0	0	0	1	0	0	0	0	
11 August	95	82	520	B1.4	1	0	0	2	0	0	0	0	
12 August	95	86	590	B1.5	0	0	0	4	0	0	0	0	
13 August	91	73	480	B1.2	0	0	0	0	0	0	0	0	
14 August	87	61	440	B1.0	1	0	0	3	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
	08 August	8.4e+05	1.3e+04	3.0e+03	2.3e+08	
09 August	6.6e+05	1.3e+04	3.0e+03	1.2e+08		
10 August	2.2e+06	1.2e+04	3.0e+03	2.2e+08		
11 August	1.1e+06	1.3e+04	3.0e+03	2.7e+08		
12 August	9.1e+05	1.3e+04	3.1e+03	2.4e+08		
13 August	5.5e+05	1.3e+04	3.2e+03	4.9e+08		
14 August	8.3e+05	1.3e+04	3.6e+03	4.3e+08		

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	08 August	9	3-2-1-2-3-3-2-1	25	3-3-3-3-5-6-2-1	12
09 August	15	2-3-2-4-4-3-2-3	31	2-3-2-6-5-6-2-2	14	2-3-2-3-4-3-2-3
10 August	14	3-3-3-3-2-3-3-3	47	3-3-7-7-3-4-3-2	16	3-3-4-4-2-3-3-3
11 August	8	1-1-1-2-2-2-3-3	13	2-1-2-4-2-4-3-2	9	2-1-2-2-1-3-3-3
12 August	11	4-4-2-2-2-2-0-1	22	4-5-3-3-5-3-2-1	11	4-4-2-2-2-2-1-1
13 August	5	1-2-1-1-2-1-2-1	9	2-2-3-3-3-2-1-0	5	2-2-1-1-1-1-2-1
14 August	4	1-1-1-1-2-1-2-0	6	1-0-1-2-4-1-1-0	6	2-1-1-1-2-0-1-1

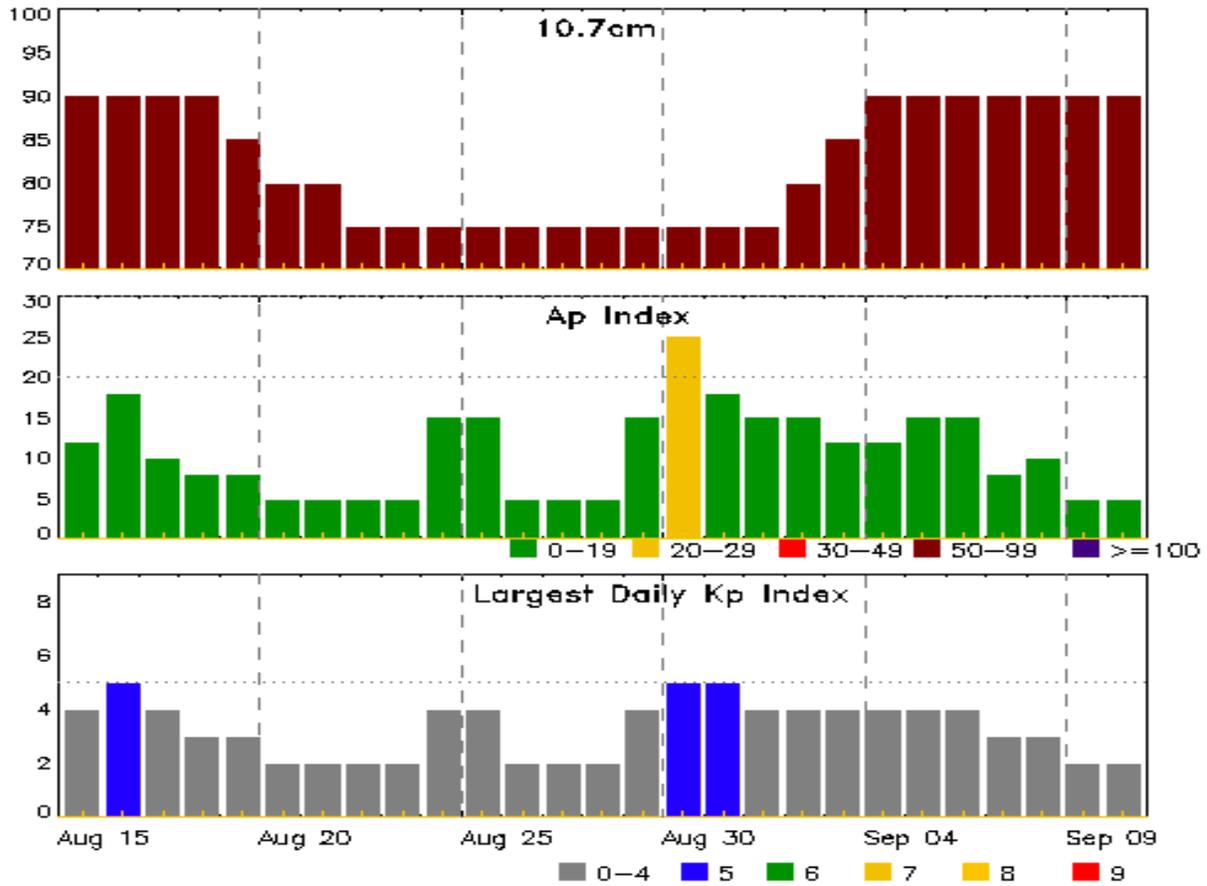


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
08 Aug 0131	WARNING: Geomagnetic K = 4	08/0130 - 2359
08 Aug 0306	ALERT: Geomagnetic K = 4	08/0259
08 Aug 1006	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	04/1315
09 Aug 0504	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	04/1315
09 Aug 0904	WARNING: Geomagnetic K = 4	09/0905 - 1600
09 Aug 1404	ALERT: Geomagnetic K = 4	09/1403
09 Aug 1530	EXTENDED WARNING: Geomagnetic K = 4	09/0905 - 1900
09 Aug 2226	WARNING: Geomagnetic K = 4	09/2230 - 10/0859
10 Aug 0848	EXTENDED WARNING: Geomagnetic K = 4	09/2230 - 10/1600
10 Aug 0850	ALERT: Geomagnetic K = 4	10/0848
10 Aug 1016	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	04/1315
10 Aug 2017	WARNING: Geomagnetic K = 4	10/2020 - 11/0600
11 Aug 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	04/1315
12 Aug 0238	WARNING: Geomagnetic K = 4	12/0238 - 1300
12 Aug 0245	ALERT: Geomagnetic K = 4	12/0245
12 Aug 0551	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	04/1315
13 Aug 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	04/1315
13 Aug 2030	WATCH: Geomagnetic Storm Category G1 predicted	
14 Aug 0501	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	04/1315



## 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
15 Aug	90	12	4	29 Aug	75	15	4
16	90	18	5	30	75	25	5
17	90	10	4	31	75	18	5
18	90	8	3	01 Sep	75	15	4
19	85	8	3	02	80	15	4
20	80	5	2	03	85	12	4
21	80	5	2	04	90	12	4
22	75	5	2	05	90	15	4
23	75	5	2	06	90	15	4
24	75	15	4	07	90	8	3
25	75	15	4	08	90	10	3
26	75	5	2	09	90	5	2
27	75	5	2	10	90	5	2
28	75	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 245	Radio Flux 2695	Intensity II

**No Events Observed**

### *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
08 Aug	0119	0123	0129	B7.8			2571
08 Aug	0235	0301	0317	C3.3			
08 Aug	0314	0315	0318		SF	N09E75	2574
08 Aug	0729	0729	0750	C1.6	SF	N10E77	2574
08 Aug	0836	0844	0901	C2.8	SF	N14W76	2572
08 Aug	0905	0921	0927	C3.1	SF	N06E73	2574
08 Aug	1001	1047	1108	C5.6	1N	N08E72	2574
08 Aug	1109	1233	1359		SF	N09E69	2574
08 Aug	1325	1333	1337		SF	N04E71	2574
08 Aug	1339	U1341	1359		SF	N05E70	2574
08 Aug	1400	1400	1403		SF	N09E69	2574
08 Aug	1411	1412	1413		SF	N09E71	2574
08 Aug	1414	1417	1438		SF	N09E69	2574
08 Aug	1453	1513	1618	B9.8			2574
08 Aug	1456	1456	1500		SF	N15W81	2572
08 Aug	1522	1532	1542		SF	N09E69	2574
08 Aug	1544	1611	1639		SF	N08E68	2574
08 Aug	1731	1736	1741		SF	N05E68	2574
08 Aug	1913	1914	1921		SF	N05E68	2574
08 Aug	2013	2018	2046	C1.7	SF	N14W30	2571
08 Aug	2053	2054	2107		SF	N04E67	2574
09 Aug	0034	0042	0052	C8.9	SF	N03E67	2574
09 Aug	0155	0158	0209	B7.5			
09 Aug	0739	0742	0745	B3.5			
09 Aug	0847	0855	0900	C2.5	SF	N04E59	2574
09 Aug	1439	1454	1501	B4.3	SF	N07E57	2574
09 Aug	1627	1631	1635	B3.5	SF	N10W39	2571
09 Aug	2232	2237	2243	B8.7			2574
10 Aug	0149	0212	0222	B5.7			2574
10 Aug	0938	0941	0943	B3.0			2574
10 Aug	1121	1125	1127	B4.7	SF	N11E45	2574



## *Flare List*

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
10 Aug	1431	1451	1518	B8.4			
10 Aug	2211	2214	2216	B2.4			
11 Aug	0834	0838	0842	B5.6			2574
11 Aug	1324	1327	1329	B3.0			2574
11 Aug	1632	1644	1703	C2.4	SF	N04E30	2574
11 Aug	1924	1929	1934	B4.0	SF	N08E31	2574
12 Aug	0412	0421	0426	B4.5	SF	N10E21	2574
12 Aug	0650	0658	0702	B7.0	SF	N07E25	2574
12 Aug	1011	1016	1022	B4.5	SF	N12E22	2574
12 Aug	1153	1222	1241	B4.8			2574
12 Aug	1623	1627	1638	B4.3	SF	N13E18	2574
13 Aug	0609	0615	0627	B2.5			2574
13 Aug	1936	1941	1944	B2.9			2574
14 Aug	0434	0446	0454	B2.5	SF	N06E29	
14 Aug	1806	1811	1814	B2.7			
14 Aug	1929	1936	1939	C1.1	SF	N08E80	
14 Aug	1958	1958	A1958		SF	N08E79	
14 Aug	2000	2003	2006	B1.9			
14 Aug	2311	2317	2324	B3.7			



## Region Summary

Date	Location		Sunspot Characteristics				Flares										
	Lat CMD	Lon	Helio 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 2570</b>																	
28 Jul	N11E66	316	10	2	Bxo	3	B										
29 Jul	N10E52	317	10	5	Bxo	3	B										
30 Jul	N11E40	315	10	4	Bxo	3	B										
31 Jul	N10E24	318	10	1	Axx	2	A										
01 Aug	N10E13	314	10	2	Axx	3	A										
02 Aug	N10W01	316	10	1	Axx	1	A										
03 Aug	N10W15	318	plage														
04 Aug	N10W29	318	plage														
05 Aug	N10W43	319	plage														
06 Aug	N10W57	320	plage														
07 Aug	N10W71	321	plage														
08 Aug	N10W85	321	plage														
								0	0	0	0	0	0	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 316

<b>Region 2571</b>																	
05 Aug	N13E09	266	20	4	Dro	7	B										
06 Aug	N12W04	266	40	5	Dao	8	B										
07 Aug	N12W19	267	150	8	Dai	12	BG	2				4					
08 Aug	N13W32	268	200	7	Dac	16	BG	1				1					
09 Aug	N13W46	268	110	6	Dac	8	BG					1					
10 Aug	N12W60	270	70	7	Cao	5	B										
11 Aug	N12W75	272	20	1	Hrx	2	A										
12 Aug	N12W89	273	20	1	Hrx	3	A										
								3	0	0	6	0	0	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 266

<b>Region 2572</b>																	
05 Aug	N13W46	321	60	5	Dao	9	B	1				4					
06 Aug	N13W59	320	80	8	Dao	5	B										
07 Aug	N13W72	320	110	9	Dao	7	B	2				3					
08 Aug	N15W85	321	110	6	Cso	5	B	1				2					
								4	0	0	9	0	0	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 321



### *Region Summary - continued*

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

#### ***Region 2573***

07 Aug	N04E71	177	60	5	Dso	2	B										
08 Aug	N04E62	173	90	7	Cso	5	B										
								0	0	0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 173

#### ***Region 2574***

07 Aug	N08E72	177	60	4	Dso	2	B										
08 Aug	N14E65	170	20	3	Bxo	2	B	3			14	1					
09 Aug	N05E49	173	290	9	Dho	6	B	2			3						
10 Aug	N05E35	175	240	12	Cao	6	B				1						
11 Aug	N04E21	176	240	7	Cao	7	B	1			2						
12 Aug	N04E07	177	200	5	Cao	4	B				4						
13 Aug	N05W04	174	160	5	Cao	6	B										
14 Aug	N05W17	174	170	7	Cso	7	B										
								6	0	0	24	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 174

#### ***Region 2575***

08 Aug	N16E66	170	30	5	Cso	2	B										
09 Aug	N16E52	170	50	6	Cso	2	B										
10 Aug	N15E37	173	10	1	Hrx	1	A										
11 Aug	N14E22	175	10	1	Hrx	2	A										
12 Aug	N14E08	176	10	2	Axx	2	A										
13 Aug	N14W04	174	10	1	Axx	2	A										
14 Aug	N14W18	175	plage														
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 174



### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares										
	Lat CMD	Lon	Helio 10 <sup>-6</sup> hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical					
									C	M	X	S	1	2	3	4	
<b>Region 2576</b>																	
08 Aug	S11E74	162	40	1	Hsx	1	A										
09 Aug	S11E60	163	40	1	Hsx	1	A										
10 Aug	S15E50	160	140	5	Hsx	2	A										
11 Aug	S13E35	162	140	3	Hsx	2	A										
12 Aug	S13E21	162	140	3	Hsx	2	A										
13 Aug	S12E10	160	130	3	Hsx	2	A										
14 Aug	S12W03	160	100	3	Hsx	2	A										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 160

<b>Region 2577</b>																	
11 Aug	N03E33	164	20	4	Cro	4	B										
12 Aug	N03E19	164	130	5	Dso	10	B										
13 Aug	N04E07	165	90	5	Dao	8	B										
14 Aug	N04W07	164	80	5	Dao	7	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 165

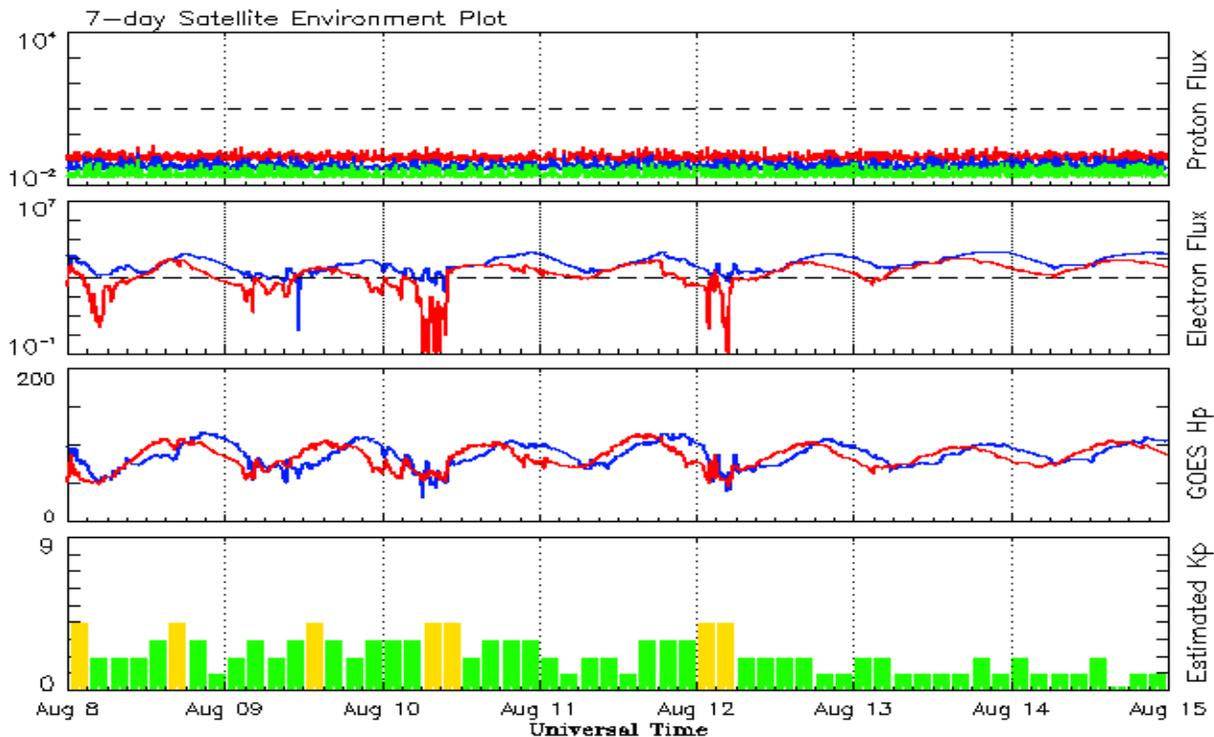


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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>2014</b>									
August	106.2	64.1	0.70	115.1	65.0	124.7	142.8	9	8.9
September	127.4	78.0	0.69	107.4	61.1	146.1	140.1	11	9.3
October	92.0	54.0	0.66	101.7	58.4	153.7	138.4	10	9.9
November	101.8	62.2	0.69	97.9	56.8	155.3	137.4	10	10.1
December	120.0	67.7	0.65	95.2	55.3	158.7	137.0	12	10.5
<b>2015</b>									
January	101.2	55.8	0.66	92.1	53.6	141.7	135.8	10	11.0
February	70.6	40.0	0.63	88.3	51.7	128.8	133.8	10	11.5
March	61.7	32.7	0.62	84.2	49.3	126.0	131.2	17	12.0
April	72.5	45.2	0.75	80.5	47.3	129.2	127.3	12	12.4
May	83.0	53.3	0.71	77.5	45.7	120.1	123.3	9	12.7
June	77.3	39.9	0.53	73.1	43.3	123.2	119.5	14	13.0
July	68.4	39.5	0.58	68.2	41.0	107.0	116.0	10	13.1
August	61.6	38.6	0.63	65.5	39.8	106.2	113.3	16	13.1
September	72.5	47.2	0.65	64.0	39.5	102.1	110.8	16	12.8
October	59.5	38.2	0.62	61.8	38.6	104.1	107.9	15	12.5
November	61.8	37.3	0.61	59.0	36.8	109.6	105.3	13	12.5
December	54.1	34.8	0.64	55.1	34.7	112.8	102.5	15	12.5
<b>2016</b>									
January	50.4	34.2	0.67	51.4	32.7	103.5	99.9	10	12.3
February	56.0	33.8	0.61			103.5		10	
March	40.9	32.5	0.80			91.6		11	
April	39.2	22.8	0.58			93.4		10	
May	48.9	31.3	0.64			93.1		12	
June	19.3	12.5	0.65			81.9		9	
July	36.8	19.5	0.53			85.9		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 08 August 2016*

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.

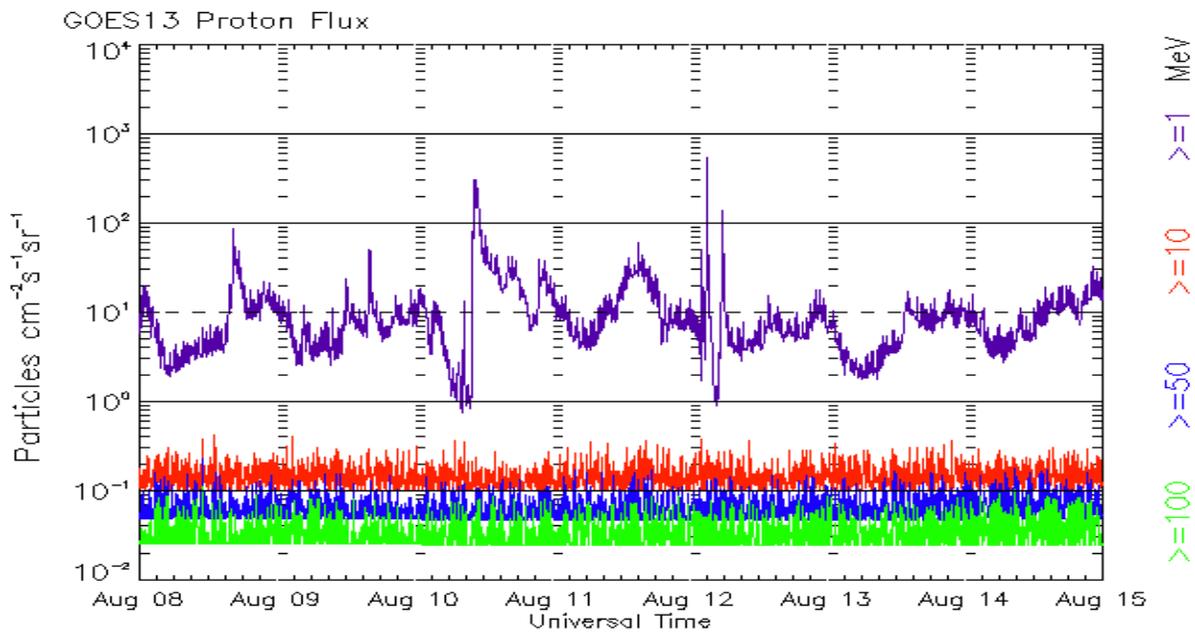
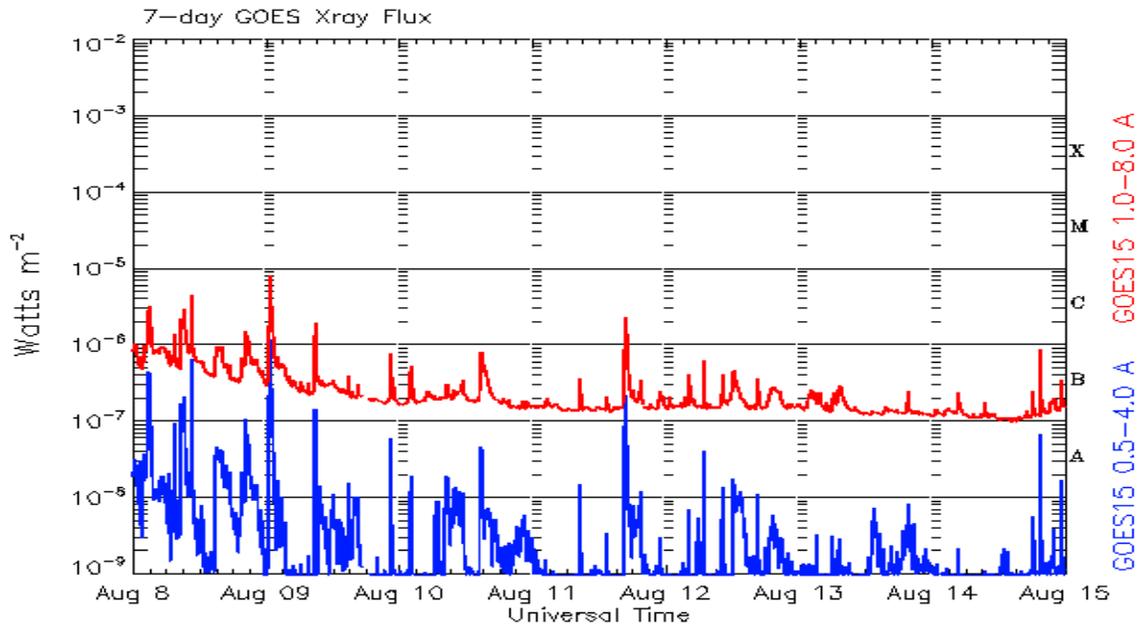
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 08 August 2016*

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

