

Solar activity was at very low levels on 21 - 23 July with several B-class events observed. Activity increased to low levels on 24 - 27 July with a few weak C-class events recorded. Region 2121 (N07, L=317, class/area Cao/210 on 24 Jul) produced a C2/1f flare at 24/0151 UTC. At 25/0702 UTC, this same region produced a C2/1n flare with an associated Type II radio sweep with an estimated shock velocity of 1090 km/s.

26 July saw a C1 x-ray event from Region 2125 (S13, L=266, class/area Cao/040 on 27 Jul) at 0504 UTC. This was followed by a trio of C1 events from Region 2123 (S14, L=323, class/area Dao/040 on 24 Jul) at 1143 UTC, 1210 UTC and 1320 UTC. The period ended on 27 July with a C2/Sf flare at 0551 UTC from Region 2125 followed by a C1 event from Region 2127 (S08, L=248, class/area Dao/080 on 27 Jul).

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels.

Geomagnetic field activity was at predominately quiet levels with isolated unsettled periods observed late on 23 July and again early on 25 July. Sustained southward Bz, associated with a solar sector boundary crossing, was responsible for the unsettled periods late on the 23rd while a weak positive polarity coronal hole high speed influenced the magnetic field early on the 25th.

Solar wind parameters reflected the quiet to isolated unsettled conditions during the summary period. Solar wind speeds ranged from a low of about 270 km/s early in the period, peaking at near 425 km/s midday on 26 July and finishing the period at about 350 km/s. The interplanetary magnetic field Bt ranged from 2 to 8 nT while the Bz component varied between +/- 7 nT. The phi component began the period in a positive (away) orientation, switched to a more negative (towards) sector midday on 21 July and remained so through about 23/1600 UTC when the phi angle became variable through 24/1145 UTC. For the balance of the period, phi settled into a more positive orientation.

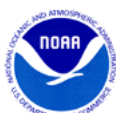
### **Space Weather Outlook** **28 July - 23 August 2014**

Solar activity is expected to be at predominately low levels through the outlook period with a chance for moderate level activity (R1 radio blackouts) from 28 July - 09 August due to the presence of several complex regions on the disk.

No proton events are expected at geosynchronous orbit.

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

Geomagnetic field activity is expected to be at mostly quiet levels for the majority of the outlook



period in the absence of transient features. Unsettled to active conditions are possible associated with high speed solar wind streams on 28 - 29 July, 05 - 06 August, 10 August and 22 August.



### *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
21 July	90	16	70	B2.1	0	0	0	0	0	0	0	0
22 July	93	40	180	B1.8	0	0	0	0	0	0	0	0
23 July	99	55	180	B2.0	0	0	0	7	0	0	0	0
24 July	104	55	280	B2.5	1	0	0	3	1	0	0	0
25 July	107	65	220	B2.8	1	0	0	2	1	0	0	0
26 July	117	76	240	B4.2	4	0	0	6	0	0	0	0
27 July	121	110	380	B4.3	2	0	0	6	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
	21 July	1.2e+05	1.0e+04	2.6e+03		2.0e+05
22 July	6.5e+04	1.0e+04	2.6e+03		3.2e+04	
23 July	9.8e+04	1.1e+04	2.6e+03		7.5e+04	
24 July	7.7e+04	1.0e+04	2.5e+03		4.0e+04	
25 July	6.9e+04	1.0e+04	2.6e+03		3.3e+04	
26 July	3.5e+04	1.0e+04	2.6e+03		2.7e+04	
27 July	5.2e+04	1.0e+04	2.5e+03		3.2e+04	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	21 July	5	1-0-1-1-2-2-2-2	3	1-0-0-2-2-1-1-1	5
22 July	6	2-1-1-1-3-2-2-1	3	2-0-0-0-2-2-0-0	5	2-1-1-1-2-1-1-2
23 July	7	0-1-1-1-3-1-3-3	2	0-1-0-0-0-0-2-1	6	1-1-1-1-1-1-3-3
24 July	6	1-2-1-2-3-1-2-1	2	0-2-1-1-1-0-1-0	5	1-2-1-2-2-1-1-1
25 July	9	3-2-3-1-3-2-2-1	5	2-2-3-2-1-0-0-0	6	3-2-2-2-1-1-1-1
26 July	9	2-2-2-3-3-2-2-1	11	1-2-4-4-2-1-2-1	7	2-2-2-2-2-2-2-1
27 July	6	1-1-1-2-3-2-1-1	4	2-2-2-1-0-0-1-1	5	2-1-2-2-1-1-1-2

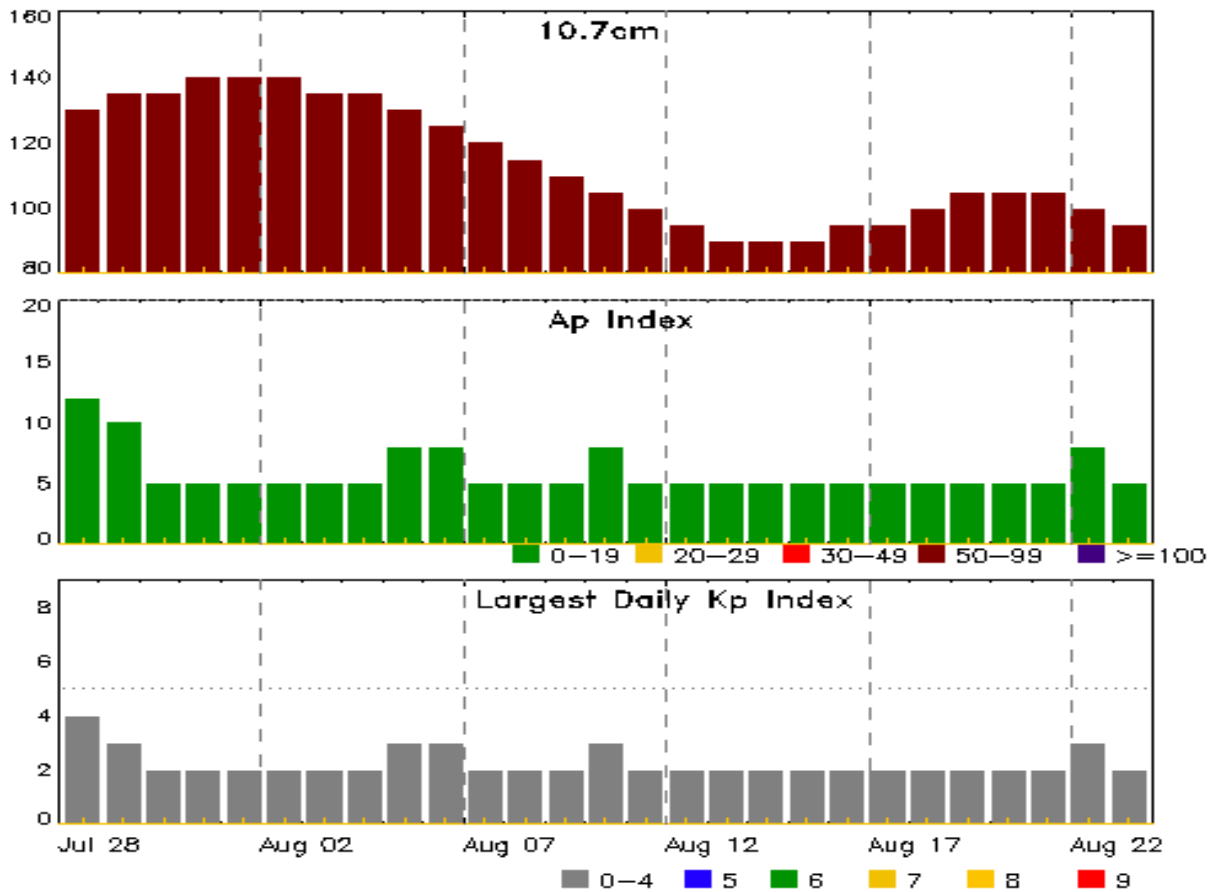


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
25 Jul 0836	ALERT: Type II Radio Emission	25/0712



## 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
28 Jul	130	12	4	11 Aug	100	5	2
29	135	10	3	12	95	5	2
30	135	5	2	13	90	5	2
31	140	5	2	14	90	5	2
01 Aug	140	5	2	15	90	5	2
02	140	5	2	16	95	5	2
03	135	5	2	17	95	5	2
04	135	5	2	18	100	5	2
05	130	8	3	19	105	5	2
06	125	8	3	20	105	5	2
07	120	5	2	21	105	5	2
08	115	5	2	22	100	8	3
09	110	5	2	23	95	5	2
10	105	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		Intensity	
									245	2695	II	IV

**No Events Observed**

## *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
21 Jul	1517	1521	1618	B3.9			2121
21 Jul	1841	1848	1851	B5.9			2121
22 Jul	2314	2318	2324	B2.8			
23 Jul	0248	0252	0256	B3.5	SF	N06E75	2121
23 Jul	0529	0542	0559	B5.7	SF	N10E69	2121
23 Jul	0553	0558	0603		SF	N07E70	2121
23 Jul	0728	0742	0751	B5.5	SF	S21W46	2119
23 Jul	0801	0807	0817		SF	N07E69	2121
23 Jul	0819	0821	0825		SF	N07E69	2121
23 Jul	0838	0839	0840		SF	N07E66	2121
24 Jul	0140	0151	0201	C2.1	1F	N10E62	2121
24 Jul	0910	0913	0917		SF	N08E56	2121
24 Jul	1127	1132	1139	B3.7	SF	S11E48	2123
24 Jul	1324	1329	1335		SF	N11E46	2121
24 Jul	2151	2202	2208	B7.2			2121
24 Jul	2236	2248	2302	B6.0			2121
25 Jul	0657	0702	0707	C2.2	1N	N09E35	2121
25 Jul	0725	0729	0734		SF	N10E36	2121
25 Jul	1111	1115	1150		SF	N12E42	2121
25 Jul	1918	1923	1926	B9.1			2122
25 Jul	2020	2023	2028	B5.4			
25 Jul	2206	2217	2230	B8.8			
25 Jul	2351	2355	2359	B7.9			
26 Jul	0500	0504	0508	C1.0			2125
26 Jul	0824	0827	0829	B6.3	SF	S11E85	2125
26 Jul	1136	1143	1146	C1.0	SF	S09E25	2123
26 Jul	1157	1206	A1213	C1.1	SF	S09E25	2123
26 Jul	1316	1320	1324	C1.8			2123
26 Jul	1401	1405	1412		SF	S09E23	2123
26 Jul	1507	1511	1514	B8.9	SF	S08E23	2123
26 Jul	1634	1635	1640		SF	S08E22	2123



## *Flare List*

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
27 Jul	0301	0302	0307		SF	S12E74	2125
27 Jul	0430	0431	0441		SF	S12E72	2125
27 Jul	0510	0512	0520		SF	S12E72	2125
27 Jul	0546	0551	0554	C2.5	SF	S12E71	2125
27 Jul	0802	0805	0819		SF	S12E71	2125
27 Jul	B0932	U0932	A0956		SF	N15E18	2121
27 Jul	1356	1418	1426	C1.2			2127
27 Jul	2125	2131	2140	B7.9			



## Region Summary

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 2118

18 Jul	N07W31	114	20	3	Bxo	4	B										
19 Jul	N06W44	113	10	2	Hrx	2	A										
20 Jul	N07W56	112	plage														
21 Jul	N07W71	114	plage														
22 Jul	N07W86	116	plage														
								0	0	0	0	0	0	0	0	0	

Crossed West Limb.  
Absolute heliographic longitude: 114

### Region 2119

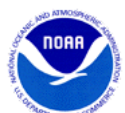
18 Jul	S23E16	67	10	3	Bxo	2	B										
19 Jul	S21W00	69	20	3	Cro	5	B										
20 Jul	S22W13	69	40	6	Dao	7	B										
21 Jul	S21W24	66	70	6	Cao	6	B										
22 Jul	S21W37	66	60	6	Dso	5	B										
23 Jul	S20W53	69	20	3	Cso	3	B				1						
24 Jul	S21W67	69	10		Hrx	1	A										
25 Jul	S21W82	72	10	1	Axx	1	A										
								0	0	0	1	0	0	0	0	0	

Crossed West Limb.  
Absolute heliographic longitude: 69

### Region 2120

20 Jul	N17W30	86	plage														
21 Jul	N17W44	87	plage														
22 Jul	N17W58	88	plage														
23 Jul	N17W72	88	plage														
24 Jul	N17W86	89	plage														
								0	0	0	0	0	0	0	0	0	

Crossed West Limb.  
Absolute heliographic longitude: 86





### *Region Summary - continued*

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 2121</b>																		
22 Jul	N07E66	322	90	4	Dsi	2	B											
23 Jul	N06E57	319	120	9	Dai	5	B					6						
24 Jul	N07E45	317	210	15	Cao	9	B	1				2	1					
25 Jul	N08E30	320	160	16	Cai	18	BG	1				2	1					
26 Jul	N08E17	320	150	14	Cai	11	BG											
27 Jul	N08E04	319	130	15	Cao	12	B					1						
								2	0	0		11	2	0	0	0	0	

Still on Disk.  
Absolute heliographic longitude: 319

<b>Region 2122</b>																		
22 Jul	S12E49	339	30	3	Cao	3	B											
23 Jul	S15E34	341	20	3	Cro	5	B											
24 Jul	S13E23	338	20	3	Cro	3	B											
25 Jul	S13E09	341	10	1	Axx	2	A											
26 Jul	S13W05	342	plage															
27 Jul	S13W19	342	plage															
								0	0	0		0	0	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 342

<b>Region 2123</b>																		
23 Jul	S13E51	324	20	3	Cro	2	B											
24 Jul	S14E39	323	40	4	Dao	2	B					1						
25 Jul	S15E24	326	40	6	Dso	4	B											
26 Jul	S15E13	324	30	7	Dso	3	B	3				5						
27 Jul	S14W00	323	40	6	Cao	9	B											
								3	0	0		6	0	0	0	0	0	

Still on Disk.  
Absolute heliographic longitude: 323

<b>Region 2124</b>																		
26 Jul	S21E64	273	10	1	Axx	1	A											
27 Jul	S22E49	274	10	1	Axx	1	A											
								0	0	0		0	0	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 274



**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 2125**

26 Jul	S12E69	268	20	6	Cro	3	B	1				1					
27 Jul	S13E57	266	40	4	Cao	4	B	1				5					
								2	0	0		6	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 266

**Region 2126**

26 Jul	S10E16	321	30	3	Cro	8	B										
27 Jul	S10E03	320	50	8	Dao	10	B										
								0	0	0		0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 320

**Region 2127**

27 Jul	S08E75	248	80	5	Dao	3	B	1									
								1	0	0		0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 248

**Region 2128**

27 Jul	S21E75	248	30	3	Hrx	1	A										
								0	0	0		0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 248

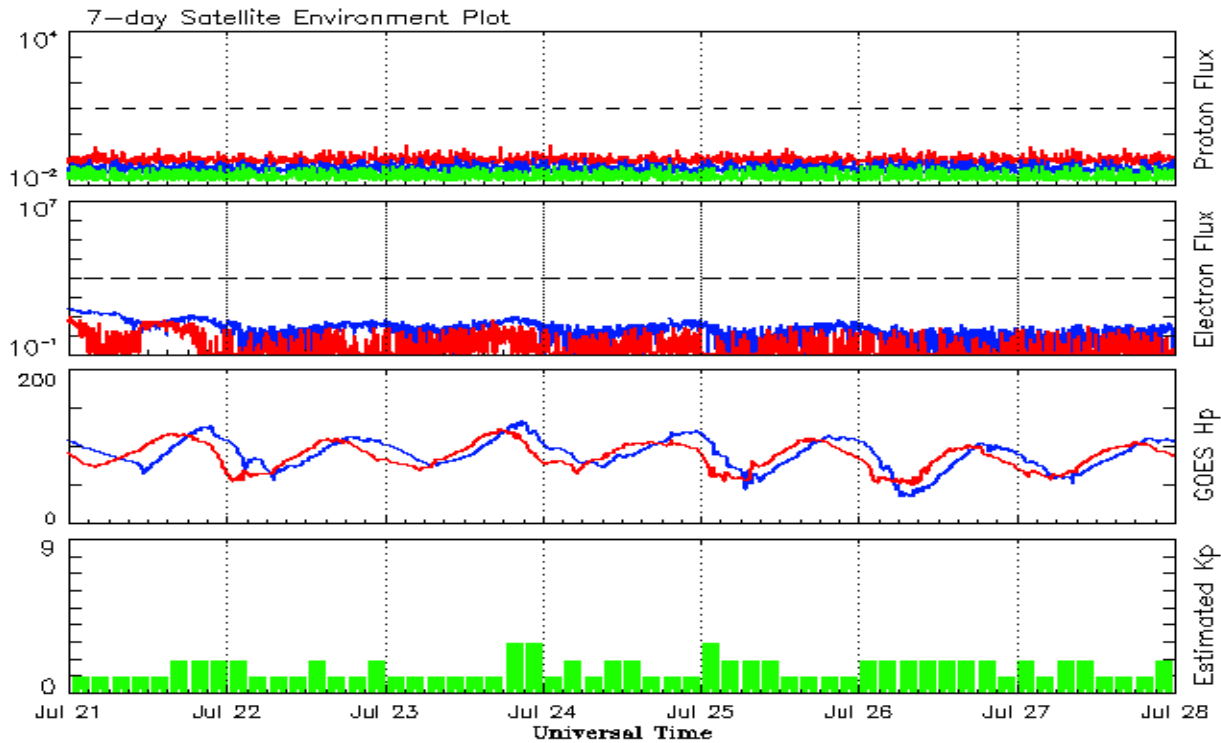


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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>2012</b>									
July	99.6	66.5	0.67	82.4	57.8	135.6	119.5	13	8.3
August	85.8	63.0	0.74	83.1	58.2	115.7	119.2	7	8.1
September	84.0	61.4	0.73	83.7	58.1	123.2	118.9	8	7.8
October	73.5	53.3	0.73	85.0	58.6	123.3	119.2	9	7.4
November	89.2	61.8	0.69	87.3	59.7	120.9	120.1	6	7.3
December	60.4	40.8	0.68	88.0	59.6	108.4	120.1	3	7.5
<b>2013</b>									
January	99.8	62.9	0.63	87.1	58.7	127.1	118.9	4	7.5
February	60.0	38.1	0.63	86.7	58.4	104.4	118.0	5	7.4
March	81.0	57.9	0.71	85.7	57.6	111.2	117.1	9	7.4
April	112.8	72.4	0.64	86.7	57.9	125.0	116.6	5	7.2
May	125.5	78.7	0.63	90.5	59.9	131.3	118.1	10	7.0
June	80.1	52.5	0.66	94.4	62.6	110.2	120.9	13	7.1
July	86.1	57.0	0.66	97.9	65.5	115.6	123.9	9	7.3
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			158.6		6	
February	174.6	102.3	0.59			170.3		12	
March	141.1	91.9	0.65			149.9		6	
April	130.5	84.7	0.65			144.3		9	
May	116.8	75.2	0.64			130.0		7	
June	107.7	71.0	0.66			122.2		7	

**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 21 July 2014*

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.

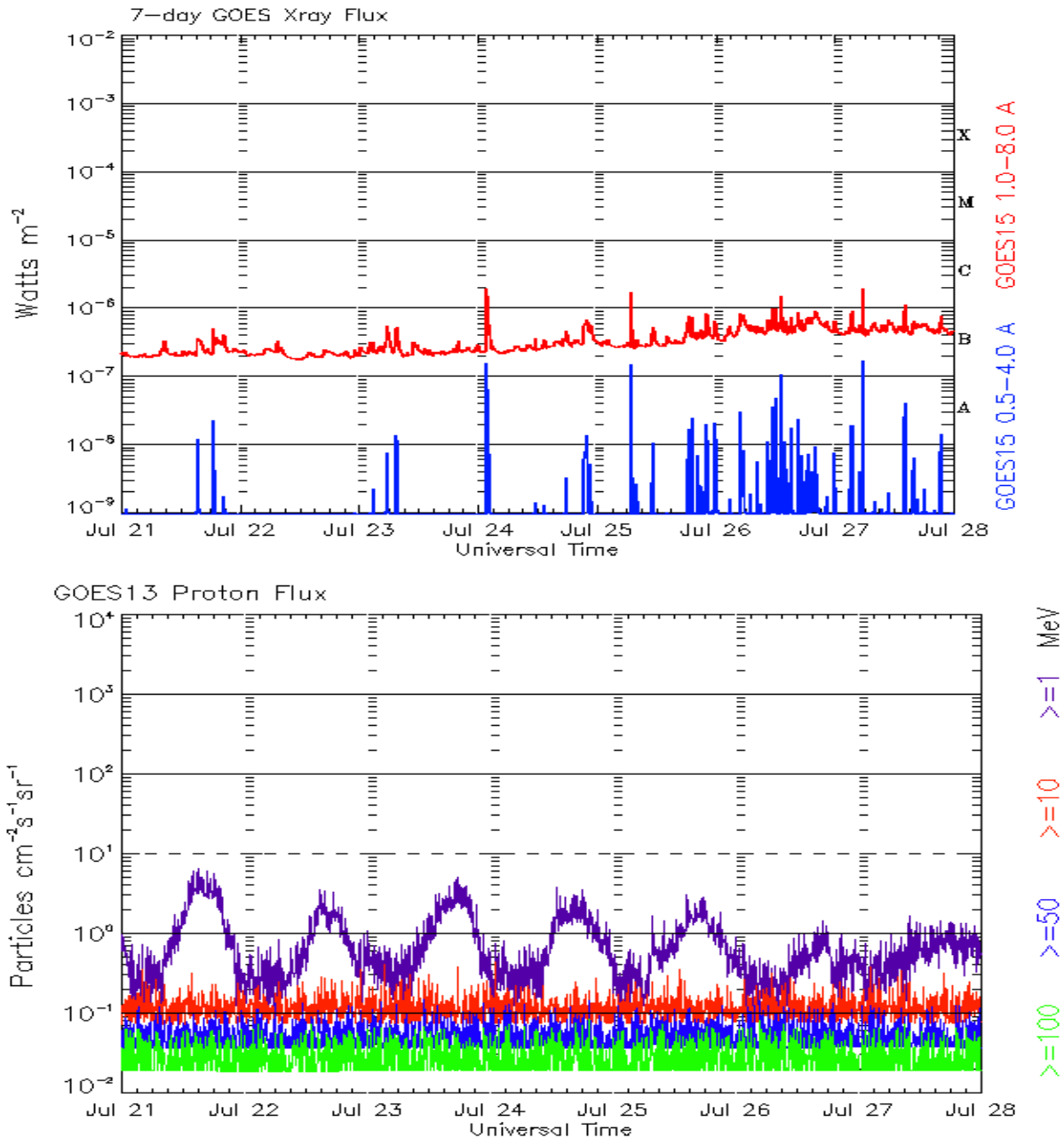
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 21 July 2014*

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

