

Solar activity began the period at very low levels on 13 Jul but increased to low levels on 14 Jul with C1 flares from Region 2381 (N14, L=074, class/area Eko/550 on 08 Jul) and 2387 (N17, L=271, class/area Dai/120 on 18 Jul) at 14/0925 UTC and 14/1210 UTC respectively. Very low levels were observed on 15-17 Jul. Ground observatories reported a 22 degree filament eruption, centered near N39E36 at 16/1453-1643 UTC. The associated CME was not geoeffective. Region 2388 (N08, L=024, class/area Cao/020 on 16 Jul) produced a C1 flare at 18/1442 UTC and was accompanied by a Type II radio sweep (est speed 418 km/s). A CME was later observed in SOHO/LASCO C2 coronagraph imagery erupting from the west limb at 18/1512 UTC with an estimated plane of sky speed of 337 km/s. This event is not expected to be geoeffective. A long duration event (LDE) C2 flare was observed at 19/1040 UTC. The LDE was associated with a 23 degree long filament eruption located in the SW quadrant centered near S32W52. CME analysis, and subsequent WSA-Enlil model output, revealed a possible weak glancing blow from the northern flank of the SW-directed CME expected to arrive at Earth early on 23 Jul.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 13 Jul. High levels were reached from 14-19 Jul due to effects from a coronal hole high speed stream.

Geomagnetic field activity reached minor storm levels on 13 Jul due to effects from a positive polarity coronal hole high speed stream. Mostly quiet conditions with isolated unsettled periods were observed from 14-16 Jul as coronal hole effects subsided. Quiet conditions were observed for the remainder of the period.

Space Weather Outlook **20 July - 15 August 2015**

Solar activity is expected to be very low to low from 20-27 Jul. Moderate levels are likely from 28 Jul through 10 Aug due to the return of old Region 2381 followed by a return to very low to low levels for the remainder of the period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to remain at high levels from 20-22 Jul before an anticipated glancing blow from the 19 Jul CME is expected to redistribute. Normal to moderate levels are expected from 23-26 Jul followed by a return to high levels from 27-30 Jul following elevated wind speeds from a combination of the CME and a positive polarity coronal hole high speed stream (CH HSS). High flux levels are expected from 03-05 Aug and 10-15 Aug following recurrent negative and positive polarity high speed streams respectively.

Geomagnetic field activity is expected to be at quiet to active levels on 20 Jul due to influence



from a positive polarity CH HSS followed by quiet conditions from 21-22 Jul as effects subside. Unsettled to active conditions are expected from 23-24 Jul due to a possible glancing blow from the 19 Jul CME followed in close succession by a recurrent positive polarity HSS. Quiet conditions are expected to prevail from 25-30 Jul. Unsettled to active conditions are expected from 31 Jul-02 Aug due to a recurrent negative polarity CH HSS, with minor storms likely on 01 Aug when the HSS is at its peak strength. Mostly quiet conditions are expected to return from 03-05 Aug. Minor storm conditions are likely from 06-07 Aug due to another recurrent positive polarity HSS, followed by a steady decrease to active and then unsettled conditions from 08-10 Aug as effects wane. Mostly quiet conditions are expected for the remainder of the forecast 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
13 July	110	44	590	B3.5	0	0	0	2	0	0	0	0
14 July	105	39	530	B3.1	2	0	0	2	0	0	0	0
15 July	101	39	280	B2.5	0	0	0	0	0	0	0	0
16 July	100	55	210	B2.1	0	0	0	0	0	0	0	0
17 July	97	40	190	B2.2	0	0	0	2	0	0	0	0
18 July	96	52	310	B2.0	1	0	0	1	0	0	0	0
19 July	99	46	220	B3.0	1	0	0	0	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
	13 July	1.2e+06	1.1e+04	2.3e+03		8.6e+06
14 July	1.2e+06	1.1e+04	2.6e+03		5.5e+07	
15 July	3.2e+05	1.1e+04	2.8e+03		1.5e+08	
16 July	2.3e+05	1.1e+04	2.7e+03		1.6e+08	
17 July	1.4e+05	1.1e+04	2.6e+03		2.8e+08	
18 July	1.4e+05	1.1e+04	2.7e+03		3.1e+08	
19 July	2.8e+05	1.1e+04	2.8e+03		4.0e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	13 July	22	2-4-4-5-3-3-4-2	45	3-6-6-5-5-5-4-3	32
14 July	8	3-2-1-2-2-2-2-2	7	3-2-2-1-1-1-2-2	7	3-2-1-1-1-1-2-2
15 July	6	1-2-1-2-2-2-2-2	5	0-2-1-1-2-2-1-2	7	1-2-1-2-2-2-2-3
16 July	15	3-2-2-3-3-2-5-2	15	3-3-3-5-2-2-2-1	8	3-2-2-2-2-2-2-1
17 July	7	2-2-2-1-3-2-1-1	7	2-2-1-3-3-2-0-0	5	2-1-2-1-2-1-1-0
18 July	4	0-1-0-2-2-2-1-1	2	0-1-0-1-1-0-1-0	4	0-1-1-2-1-1-1-1
19 July	3	1-0-0-2-1-2-2-0	1	0-0-1-2-0-0-0-0	3	0-1-1-2-1-1-1-0

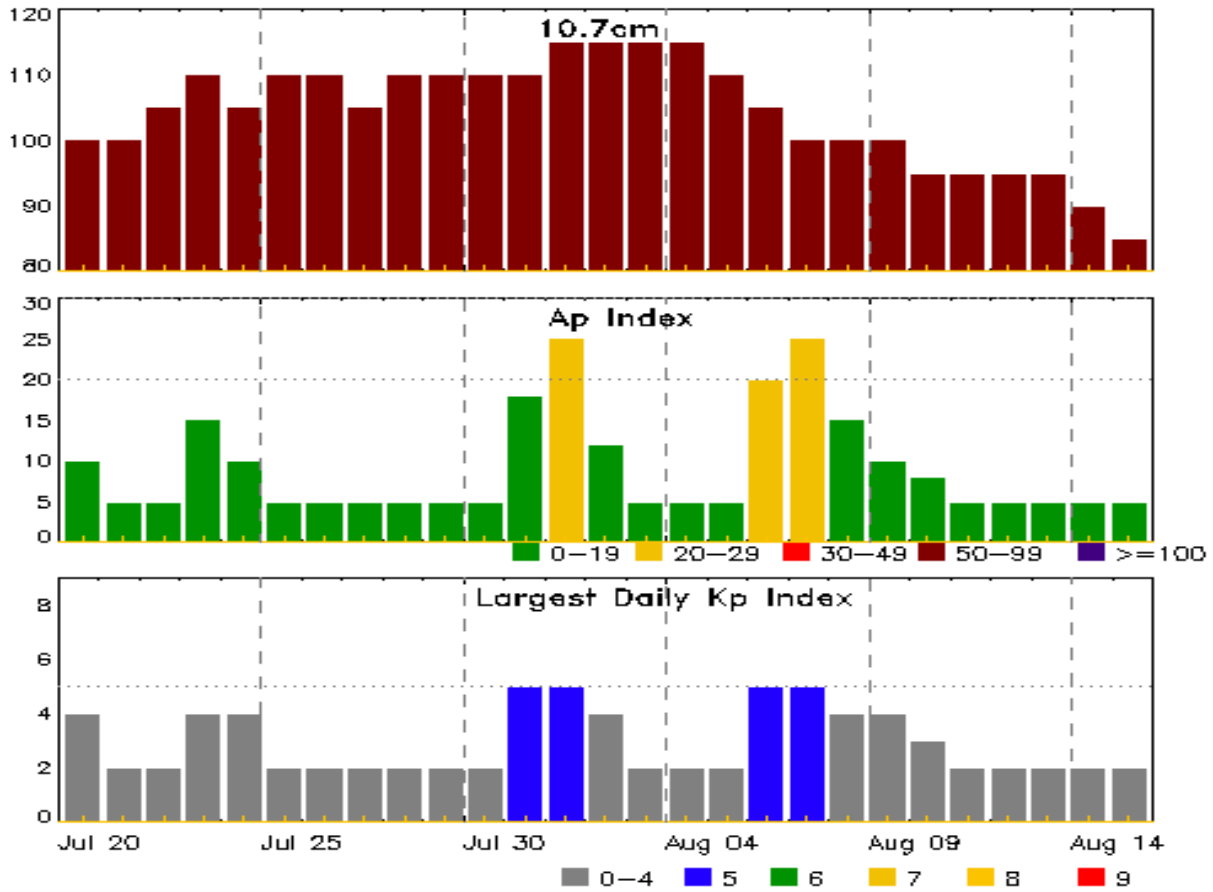


Alerts and Warnings Issued

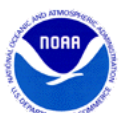
Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
13 Jul 0400	WARNING: Geomagnetic K = 4	13/0400 - 0900
13 Jul 0419	ALERT: Geomagnetic K = 4	13/0419
13 Jul 0421	WARNING: Geomagnetic K = 5	13/0422 - 0800
13 Jul 0521	ALERT: Geomagnetic K = 5	13/0520
13 Jul 0730	EXTENDED WARNING: Geomagnetic K = 5	13/0422 - 1300
13 Jul 0730	EXTENDED WARNING: Geomagnetic K = 4	13/0400 - 1800
13 Jul 0741	ALERT: Geomagnetic K = 5	13/0741
13 Jul 1044	ALERT: Geomagnetic K = 5	13/1044
13 Jul 1710	WARNING: Geomagnetic K = 5	13/1710 - 2200
13 Jul 1756	EXTENDED WARNING: Geomagnetic K = 4	13/0400 - 2300
13 Jul 1948	ALERT: Geomagnetic K = 5	13/1948
13 Jul 1955	WARNING: Geomagnetic K = 6	13/1955 - 2300
13 Jul 2114	EXTENDED WARNING: Geomagnetic K = 4	13/0400 - 14/0600
13 Jul 2114	EXTENDED WARNING: Geomagnetic K = 5	13/1710 - 14/0600
13 Jul 2114	WATCH: Geomagnetic Storm Category G1 predicted	
14 Jul 0555	EXTENDED WARNING: Geomagnetic K = 4	13/0400 - 14/1100
14 Jul 1213	CANCELLATION: Geomagnetic Storm Category G1 predicted	
14 Jul 1330	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	14/1315
15 Jul 0715	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	14/1315
16 Jul 1059	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	14/1315
17 Jul 0718	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	14/1315
18 Jul 0507	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	14/1315
18 Jul 1529	ALERT: Type II Radio Emission	18/1450
19 Jul 0508	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	14/1315



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
20 Jul	100	10	4	03 Aug	115	5	2
21	100	5	2	04	115	5	2
22	105	5	2	05	110	5	2
23	110	15	4	06	105	20	5
24	105	10	4	07	100	25	5
25	110	5	2	08	100	15	4
26	110	5	2	09	100	10	4
27	105	5	2	10	95	8	3
28	110	5	2	11	95	5	2
29	110	5	2	12	95	5	2
30	110	5	2	13	95	5	2
31	110	18	5	14	90	5	2
01 Aug	115	25	5	15	85	5	2
02	115	12	4				



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		Rgn #
	Begin	Max	End			Location Lat CMD	Rgn #	
13 Jul	0922	0934	0947		SF	N00E49		
13 Jul	0955	1003	1009		SF	S00E49		
13 Jul	2345	2348	2350	B6.3				2386
14 Jul	0347	0354	0357	B6.2				
14 Jul	0447	0552	0919	B9.0				
14 Jul	0510	0512	0516		SF	N16W57		2381
14 Jul	0920	0922	0930	C1.0	SF	N15W59		2381
14 Jul	1203	1210	1228	C1.2				2387
14 Jul	1544	1600	1612	B8.1				2387
14 Jul	1723	1727	1734	B7.1				2387
16 Jul	2100	2111	2120	B5.8				2387
17 Jul	0450	0450	0503		SF	S18W38		2384
17 Jul	1553	1559	1605	B5.1	SF	N19E54		2387
18 Jul	0841	0843	0850		SF	N20E42		2387
18 Jul	1428	1442	1452	C1.8				2388
19 Jul	0922	1040	1302	C2.1				



Region Summary

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Helio Lon	Area 10 ⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
Region 2378																		
02 Jul	S15E64	92	40	5	Cso	4	B											
03 Jul	S17E56	87	80	4	Dso	5	B	5	1			13	1					
04 Jul	S16E44	86	90	4	Cso	4	B	1				1						
05 Jul	S17E32	85	70	5	Cso	6	B					2						
06 Jul	S17E18	86	60	2	Hax	3	A											
07 Jul	S17E03	86	50	2	Hsx	3	A											
08 Jul	S16W09	86	50	3	Hsx	4	A											
09 Jul	S10W23	87	20	1	Hsx	2	A											
10 Jul	S15W33	84	10	7	Bxo	3	B											
11 Jul	S16W49	87	10	1	Axx	1	A											
12 Jul	S16W63	87	plage															
13 Jul	S16W77	88	plage															
								6	1	0	16	1	0	0	0	0		

Died on Disk.

Absolute heliographic longitude: 86

Region 2379																		
03 Jul	S15E45	98	10	4	Bxo	5	B											
04 Jul	S14E33	97	20	5	Cro	5	B											
05 Jul	S15E21	96	30	6	Dro	7	B											
06 Jul	S15E07	97	30	6	Dro	7	B											
07 Jul	S13W07	97	20	9	Cro	7	B											
08 Jul	S11W24	100	10	2	Axx	4	A											
09 Jul	S09W39	103	10	2	Bxo	3	B					1						
10 Jul	S11W52	103	10	2	Axx	4	A											
11 Jul	S11W66	104	plage															
12 Jul	S11W80	104	plage															
								0	0	0	1	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 97



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 2381																		
04 Jul	N16E57		73	30	4	Cro	4	B										
05 Jul	N15E44		73	100	7	Dao	10	B				6						
06 Jul	N14E31		72	350	11	Ekc	14	BG	9	2		19		1				
07 Jul	N14E17		73	450	12	Ekc	25	BG	6			13	1					
08 Jul	N14E03		74	550	14	Eko	28	B				1						
09 Jul	N14W11		74	500	15	Eko	19	B	1			1						
10 Jul	N15W24		75	400	16	Fko	15	B										
11 Jul	N15W37		75	380	16	Fko	11	B										
12 Jul	N15W51		75	360	16	Fko	5	B										
13 Jul	N15W65		76	360	16	Fko	5	B										
14 Jul	N15W79		77	320	16	Fko	5	B	1			2						
15 Jul	N12W92		77	90	14	Eso	2	B										
									17	2	0	42	1	1	0	0		

Crossed West Limb.

Absolute heliographic longitude: 74

Region 2383

07 Jul	S06E04		85	20	3	Dro	3	B										
08 Jul	S07W10		87	10	5	Bxo	9	B				1						
09 Jul	S06W24		87	50	5	Dso	10	B										
10 Jul	S06W37		88	10	6	Bxo	3	B										
11 Jul	S06W52		90	10	6	Bxo	2	B										
12 Jul	S06W67		91	plage														
13 Jul	S06W82		93	plage														
									0	0	0	1	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 85



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 2384																		
08 Jul	S18E62		15	120	2	Hsx	2	A										
09 Jul	S17E47		17	140	2	Hsx	1	A					1					
10 Jul	S18E36		15	180	2	Cso	4	B					1					
11 Jul	S18E23		15	180	3	Cao	5	B										
12 Jul	S18E09		15	170	3	Cao	7	B										
13 Jul	S18W05		16	170	3	Cso	8	B										
14 Jul	S18W18		16	150	3	Cso	3	B										
15 Jul	S18W29		14	120	4	Cso	5	B										
16 Jul	S18W43		14	90	4	Hsx	4	A										
17 Jul	S17W57		15	80	2	Hsx	1	A					1					
18 Jul	S17W69		14	90	2	Hsx	1	A										
19 Jul	S17W80		12	60	2	Hsx	1	A										
									0	0	0	3	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 16

Region 2385																		
10 Jul	N07W53		104	30	3	Dri	13	B	1				7					
11 Jul	N08W68		106	110	7	Dao	11	B	1				8					
12 Jul	N08W82		106	100	8	Dao	6	B										
13 Jul	N08W96		107	plage														
									2	0	0	15	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 104

Region 2386																		
12 Jul	N11E71		312	120	4	Hsx	1	A										
13 Jul	N11E57		314	60	2	Hsx	1	A										
14 Jul	N11E43		315	60	2	Hsx	1	A										
15 Jul	N11E30		315	70	4	Hsx	2	A										
16 Jul	N11E18		313	70	4	Hsx	2	A										
17 Jul	N11E04		314	70	2	Hsx	2	A										
18 Jul	N11W07		312	90	2	Hsx	2	A										
19 Jul	N11W20		312	60	4	Hax	4	A										
									0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 314



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares										
	Lat CMD	Helio Lon	Area 10 ⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
								C	M	X	S	1	2	3	4		
Region 2387																	
14 Jul	N17E90	270	plage					1									
16 Jul	N17E61	270	30	6	Cai	5	B										
17 Jul	N17E47	271	40	7	Dac	7	B				1						
18 Jul	N17E34	271	120	10	Dai	7	B				1						
19 Jul	N17E18	274	100	9	Dai	11	B										
								1	0	0	2	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 274

Region 2388																	
16 Jul	N08W53	24	20	7	Cao	4	B										
17 Jul	N08W67	25	plage														
18 Jul	N14W81	26	10	4	Bxo	2	B	1									
								1	0	0	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 24

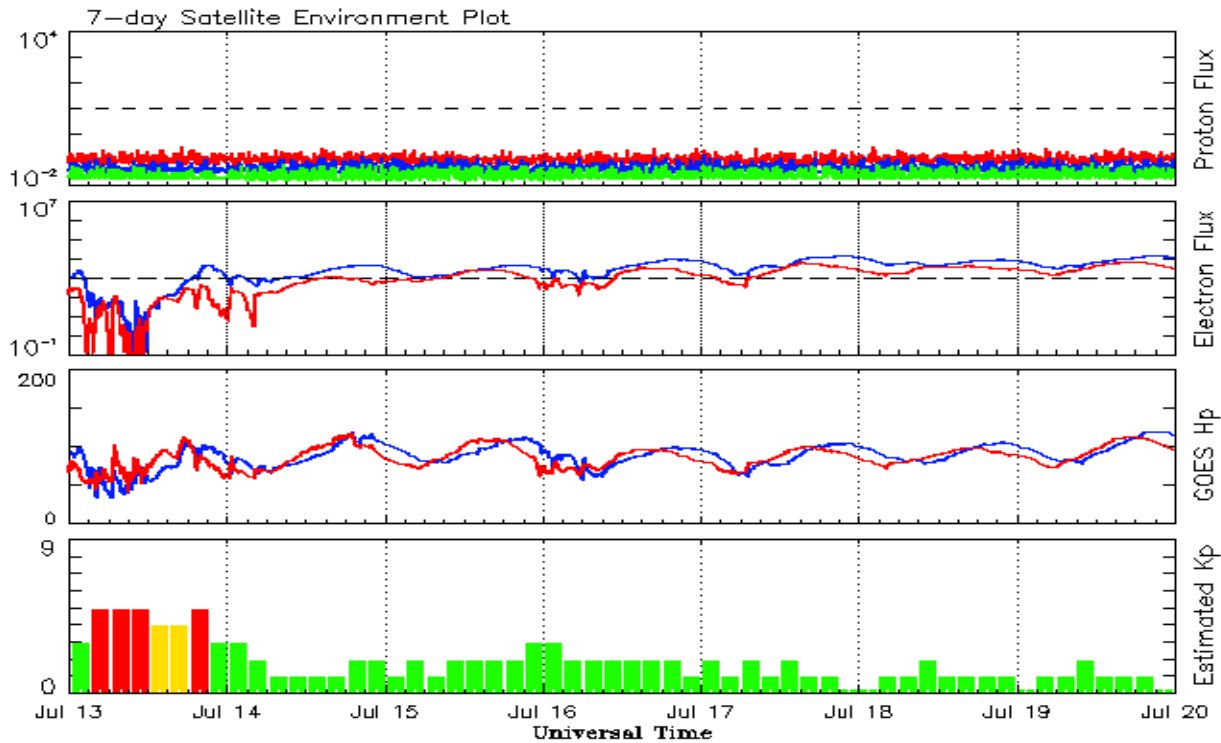


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2013									
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
2014									
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
2015									
January	101.2	67.0	0.66			141.7		10	
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	

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 13 July 2015*

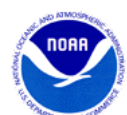
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

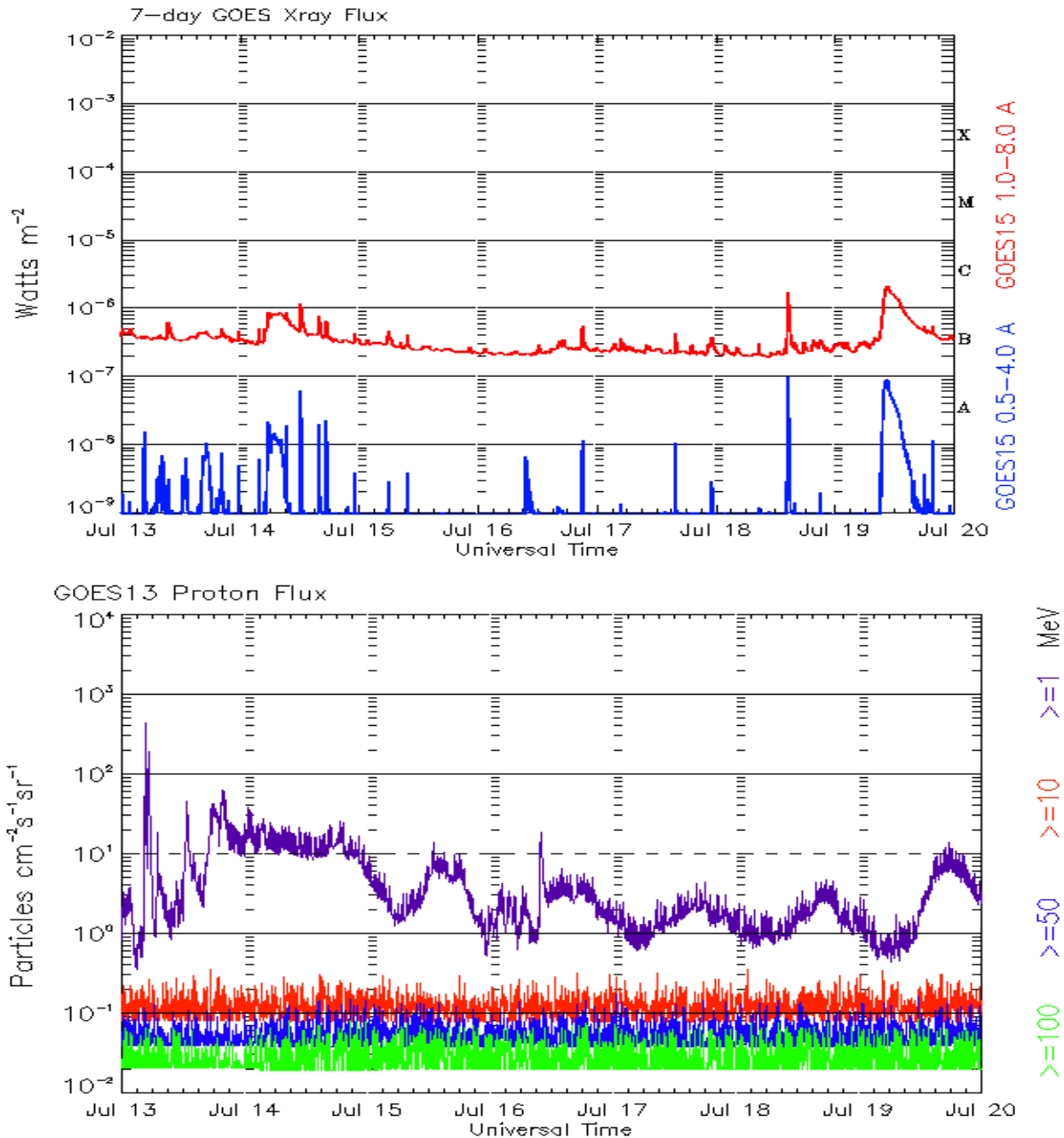
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

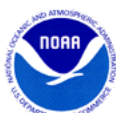




*Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 13 July 2015*

The x-ray plots contains five-minute averages x-ray flux (Watt/m²) 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/cm² -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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