

Solar activity reached low levels this period. Region 2389 (S11, L=164, class/area=Dai/80 on 25 Jul) produced three low-level C-class flares throughout the period which were the largest observed events. Region 2389 produced a C1 flare at 24/0315 UTC, a C2/Sf flare at 24/1444 UTC, and a C1 flare at 26/1234 UTC but none of these events resulted in coronal mass ejections (CMEs) that were Earth-directed. Region 2390 (S15, L=198, class/area=Dac/130 on 26 Jul) underwent moderate penumbral development and increased in magnetic complexity late in the period, but remained largely unproductive. No Earth-directed CMEs were detected in SOHO/LASCO coronagraph imagery throughout the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 20, 26 Jul with moderate levels observed on 21-22, and 24-25 Jul. The electron flux decreased to normal levels on 23 Jul in response to enhanced geomagnetic field activity attributed to a combination of CME and coronal hole high speed stream (CH HSS) influence.

Geomagnetic field activity reached active to G1 (Minor) geomagnetic storm levels on 23 Jul due to a combination of the arrival of the 19 Jul CME (filament eruption) and the onset of a weak positive polarity CH HSS. Active conditions were observed at 23/0300-0600 UTC and 23/1800-2100 UTC and G1 storm conditions were observed at 23/0600-0900 UTC. The geomagnetic field was at quiet or quiet to unsettled levels for the remainder of the period under an ambient solar wind environment followed by weak CH HSS influence.

Space Weather Outlook **27 July - 22 August 2015**

Solar activity is expected to be at very low to low levels throughout the period with a slight chance of M-class (R1-R2/Minor-Moderate) flare activity between 28 Jul-10 Aug due to the return of Region 2381 (N14, L=074) which produced two M-class flares last rotation.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels on 29 Jul, 01, 07, and 17 Aug with high levels expected throughout the remainder of the period.

Geomagnetic field activity is likely to reach G1 (Minor) geomagnetic storm levels on 07 Aug with active levels expected on 29 Jul, 02, 08-09, and 19 Aug, all in response to the influence of recurrent CH HSS. Quiet to unsettled geomagnetic field activity is expected throughout the remainder of the period under an ambient solar wind environment.



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 July	93	39	160	B2.2	0	0	0	0	0	0	0	0
21 July	91	37	150	B1.7	0	0	0	0	0	0	0	0
22 July	89	35	90	B1.5	0	0	0	1	0	0	0	0
23 July	89	27	40	B1.7	0	0	0	1	0	0	0	0
24 July	92	54	70	B2.2	3	0	0	10	1	0	0	0
25 July	94	41	130	B2.2	0	0	0	1	0	0	0	0
26 July	97	38	190	B2.3	1	0	0	6	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 July	4.6e+05	1.1e+04	2.8e+03		8.2e+07
21 July	4.0e+05	1.1e+04	2.6e+03		3.3e+06	
22 July	1.7e+05	1.1e+04	2.8e+03		2.9e+06	
23 July	1.6e+05	1.1e+04	2.7e+03		1.5e+06	
24 July	1.6e+05	1.1e+04	2.8e+03		6.2e+06	
25 July	1.3e+05	1.1e+04	2.7e+03		3.1e+07	
26 July	2.7e+05	1.1e+04	2.6e+03		3.5e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	20 July	7	1-1-1-3-2-2-2-2	7	0-1-1-4-3-0-1-1	5
21 July	12	3-3-2-3-2-2-3-3	19	3-3-4-5-4-2-2-2	10	3-3-3-3-2-2-2-3
22 July	9	1-1-1-3-3-3-2-2	7	1-1-0-4-2-2-2-1	8	1-1-1-2-2-3-2-2
23 July	21	3-4-5-3-3-3-3-3	33	3-4-7-4-3-3-3-2	23	3-4-5-3-3-3-4-3
24 July	6	2-1-2-1-2-2-2-1	12	3-1-1-1-5-3-2-1	7	2-2-2-1-2-2-2-2
25 July	9	2-1-2-2-3-2-2-3	12	3-2-3-3-4-1-2-2	9	3-2-3-3-2-1-2-3
26 July	9	3-2-1-3-2-2-2-2	9	2-1-1-4-2-3-2-1	8	3-2-1-3-1-2-2-2

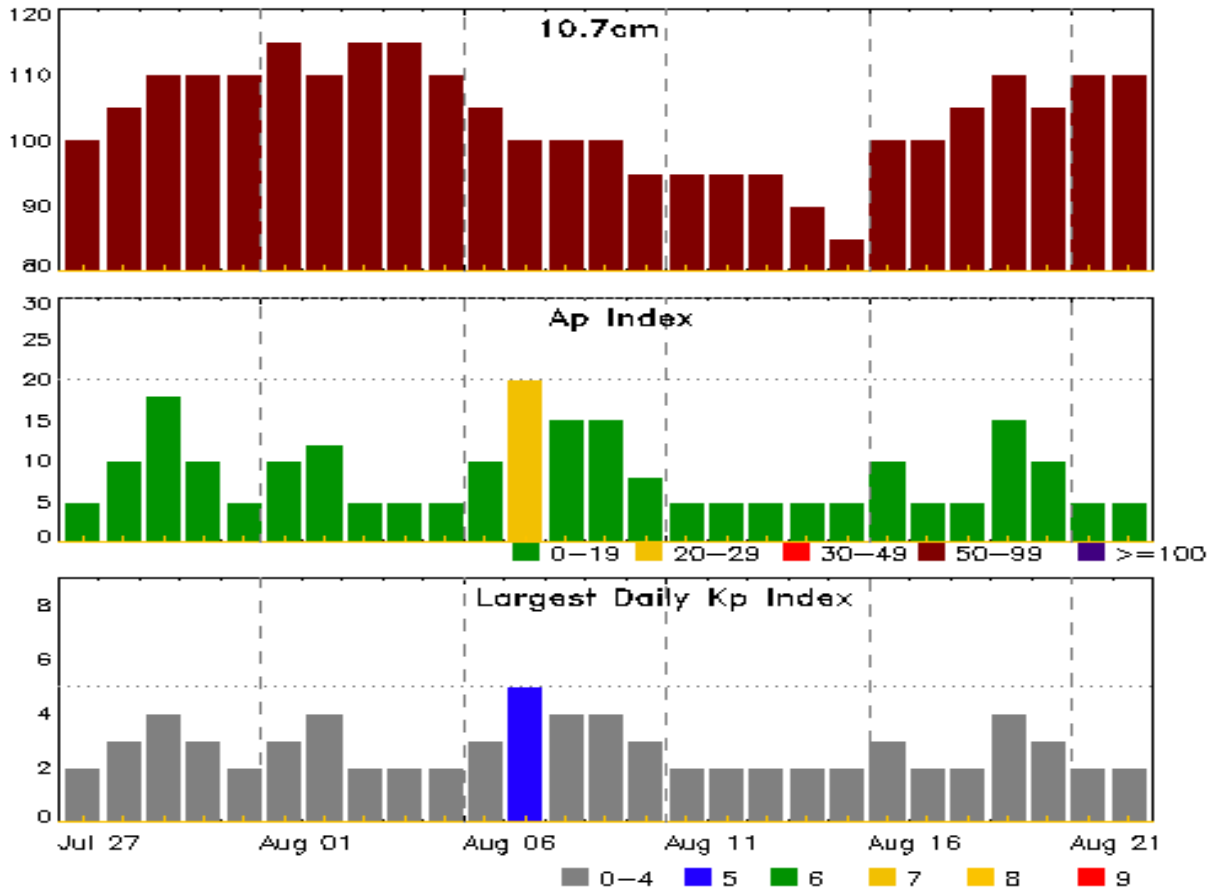


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
20 Jul 0501	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	14/1315
23 Jul 0158	WARNING: Geomagnetic K = 4	23/0200 - 0900
23 Jul 0451	ALERT: Geomagnetic K = 4	23/0451
23 Jul 0603	EXTENDED WARNING: Geomagnetic K = 4	23/0200 - 1600
23 Jul 0603	WARNING: Geomagnetic K = 5	23/0600 - 1300
23 Jul 0801	ALERT: Geomagnetic K = 5	23/0800
23 Jul 2010	WARNING: Geomagnetic K = 4	23/2009 - 24/0700
23 Jul 2103	ALERT: Geomagnetic K = 4	23/2059
26 Jul 1850	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1835



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 Jul	100	5	2	10 Aug	95	8	3
28	105	10	3	11	95	5	2
29	110	18	4	12	95	5	2
30	110	10	3	13	95	5	2
31	110	5	2	14	90	5	2
01 Aug	115	10	3	15	85	5	2
02	110	12	4	16	100	10	3
03	115	5	2	17	100	5	2
04	115	5	2	18	105	5	2
05	110	5	2	19	110	15	4
06	105	10	3	20	105	10	3
07	100	20	5	21	110	5	2
08	100	15	4	22	110	5	2
09	100	15	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		Intensity	
									245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
20 Jul	0432	0452	0505	B6.4			2388
21 Jul	0523	0547	0620	B5.3			2384
21 Jul	1216	1220	1225	B2.9			2387
22 Jul	0354	0357	0401	B2.4			2386
22 Jul	B1011	U1011	A1013		SF	N15W13	2387
23 Jul	2242	2244	2248		SF	S13E86	
24 Jul	0102	0103	0105		SF	S13E81	
24 Jul	0307	0312	0315	C1.0			2389
24 Jul	0342	0348	0351	B4.0			
24 Jul	0502	0517	0538	B4.9			2389
24 Jul	0638	0638	0643		SF	S08E72	2389
24 Jul	0805	0823	0847	B5.2			2389
24 Jul	0947	0952	0956	B4.6			2389
24 Jul	1243	1251	1302		SF	S12E68	2389
24 Jul	1310	1312	1317		SF	S12E68	2389
24 Jul	1325	1330	1343		SF	S12E70	2389
24 Jul	1412	1419	1422		SF	S14E70	2389
24 Jul	1435	1444	1449	C2.0	SF	S14E70	2389
24 Jul	1736	1737	1741		SF	S14E67	2389
24 Jul	1749	1755	1800	C2.6	1F	S14E67	2389
24 Jul	2045	2049	2057	B4.6			2389
24 Jul	2307	2307	2310		SF	S12E63	2389
24 Jul	2326	2338	2351	B6.9	SF	S11E62	2389
25 Jul	0110	0110	0120		SF	S12E62	2389
26 Jul	0550	0553	0602		SF	S09E47	2389
26 Jul	0920	0923	0926	B4.0	SF	S10E44	2389
26 Jul	1020	1024	1026	B5.8	SF	S10E44	2389
26 Jul	1134	1137	1139	B6.1			2389
26 Jul	1228	1234	1236	C1.1			2389
26 Jul	1459	U1459	A1501		SF	S10E42	2389
26 Jul	B1526	1531	1532		SF	S10E42	2389



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
26 Jul	1615	1615	1618		SF	S13E40	2389



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 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	0	

Crossed West Limb.
Absolute heliographic longitude: 16

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															
20 Jul	N11W34		312	40	2	Hsx	1	A															
21 Jul	N10W48		313	40	2	Hsx	1	A															
22 Jul	N10W61		313	30	2	Hsx	1	A															
23 Jul	N09W74		313	20	1	Hax	1	A															
24 Jul	N09W87		313	20	2	Hax	1	A															
													0	0	0	0	0	0	0	0	0	0	

Crossed West Limb.
Absolute heliographic longitude: 314



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	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									
20 Jul	N17E04	274	120	10	Dai	18	B									
21 Jul	N16W10	275	110	10	Dai	16	B									
22 Jul	N17W24	276	60	9	Csi	14	B					1				
23 Jul	N16W35	274	20	10	Cro	6	B									
24 Jul	N17W48	274	10	8	Bxo	5	B									
25 Jul	N17W62	274	plage													
26 Jul	N17W76	275	plage													
									1	0	0	3	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 274

Region 2389																
24 Jul	S11E62	164	30	5	Cai	6	B	3				9	1			
25 Jul	S11E48	164	80	8	Dai	11	BG					1				
26 Jul	S11E35	164	60	7	Cai	8	BG	1				6				
								4	0	0	16	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 164

Region 2390																
24 Jul	S15E28	198	10	3	Bxo	2	B									
25 Jul	S15E13	199	50	6	Dai	10	B									
26 Jul	S15E01	198	130	7	Dac	10	BG									
								0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 198

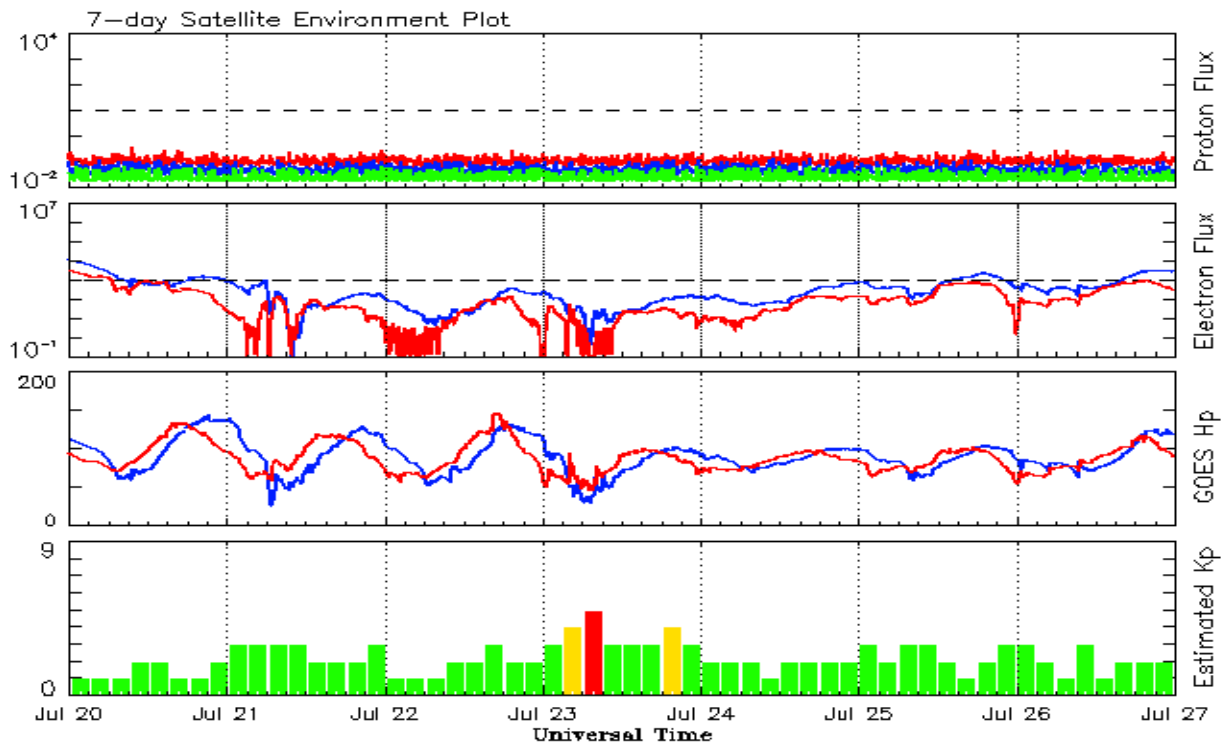


Recent Solar Indices (preliminary)
Observed monthly mean values

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 20 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.

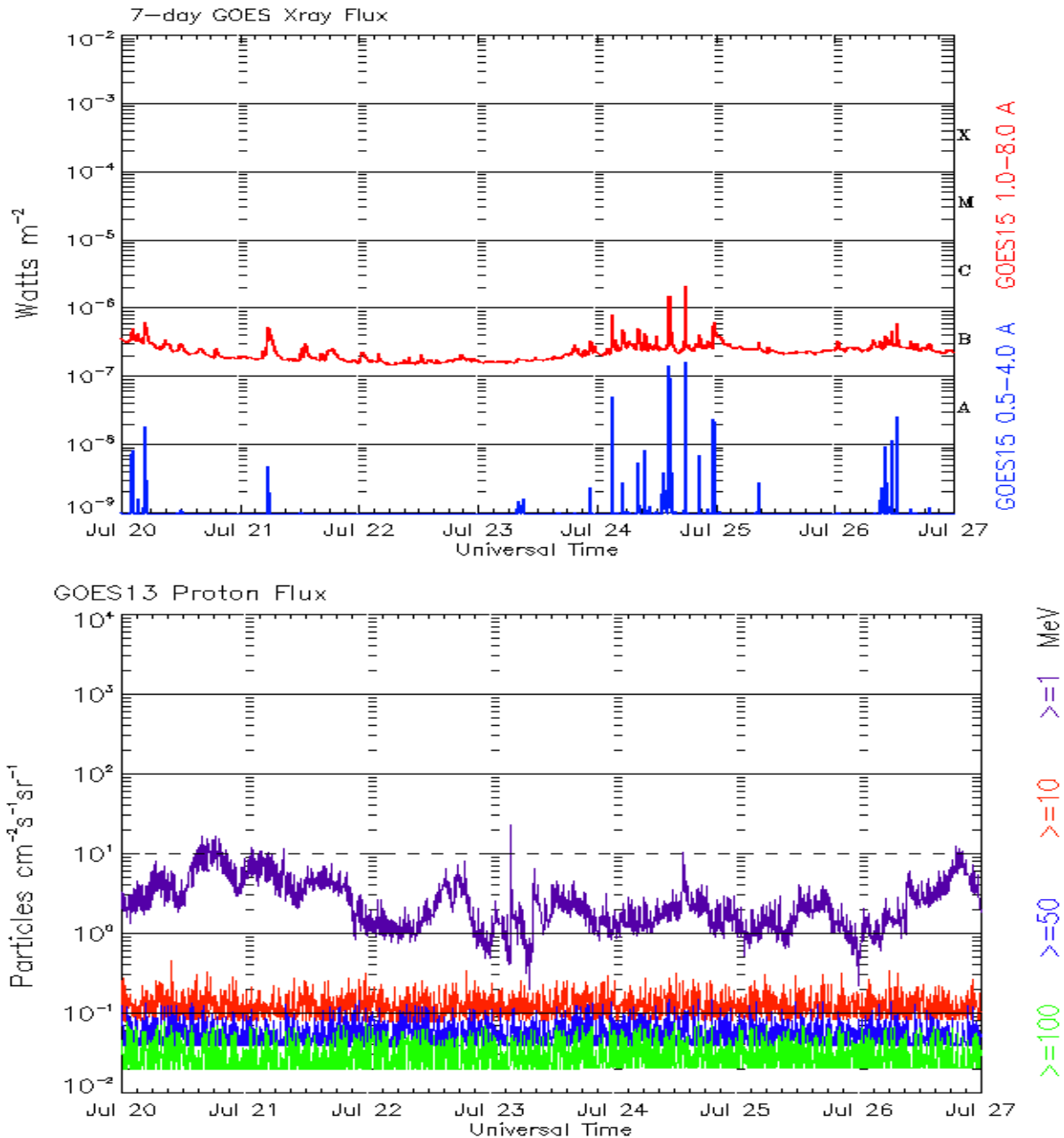
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 20 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

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

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