

Solar activity was low on 18-20 and 22 July with multiple C-class flares from Regions 2565 (N04,L=175, class/area Dho/320 on 16 July) and 2567 (N05, L=166, class/area Dki/380 on 21 July). The largest flare during that period was a C4.6 from Region 2567 at 20/2215 UTC. Moderate solar levels were observed on 21 and 24 July with four M-class flares observed from Region 2567. The largest flare during that period was an M2.0 observed at 24/0620 UTC. Activity reached high levels on 23 July with three M-class flares from Region 2567. The first was an M5.0, which peaked at 23/0211 UTC. The second was an M7.6/2b flare with an associated 310 sfu Tenflare. The final was an M5.5/3b, which peaked 15 minutes later at 23/0531 UTC had accompanying Type II (729 km/s shock velocity) and Type IV radio emissions, as well as a 900 sfu Tenflare. Two CMEs were observed in coronagraph imagery lifting off the west limb at 23/0524 UTC and 23/0548 UTC. Both CMEs were determined to not have an Earth-directed component.

No proton events were observed at geosynchronous orbit. However, a slight enhancement to near 1 pfu was observed at 23/0725 UTC due to the flare activity from early on 23 July.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 18-19 July, normal levels from 20-23 July, and moderate levels on 24 July.

Geomagnetic field activity reached minor storm levels on 19-20 and 24 July due to the shock arrival of two CMEs. The first shock arrival was likely associated with flare activity on 16 July and was observed at the ACE spacecraft at 19/2310 UTC with a speed of approximately 450 km/s. The Bt component increased from near 5 nT to 17 nT and Bz reached a maximum southward deviation of -12 nT. Minor storm levels were observed from 19/2355 until 20/0600 UTC. The second shock enhancement was observed near 24/1450 UTC and likely associated with flare activity on 20 July. Wind speeds increased from near 400 km/s to 470 km/s accompanied by a Bt enhancement from 5 nT to 13 nT and southward deflection of Bz to -9 nT for nearly three hours. Minor storm conditions were observed with this event during the 24/1800-2100 UTC synoptic period. Geomagnetic field activity was quiet on 18, 21-23 July with a nominal solar wind.

Space Weather Outlook **25 July - 20 August 2016**

Solar activity is expected to be very low to low for the first half of the period with a chance for M-class flares from 05-19 August due to the return of old Region 2567.

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 for the majority of the period with high levels from 05-15 August due to



recurrent CH HSS events.

Geomagnetic field activity is expected to reach active levels on 25-27 July due to lingering CME effects and the arrival of a positive polarity CH HSS. Active to minor storm levels are expected on 29 July, 03-05, 08, and 10 August due to recurrent CH HSS activity. Mostly quiet to unsettled conditions are expected for the remainder of the 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
18 July	107	68	660	B2.4	1	0	0	4	0	0	0	0
19 July	101	58	720	B2.6	2	0	0	9	1	0	0	0
20 July	108	56	850	B2.8	7	0	0	10	0	0	0	0
21 July	100	49	640	B4.1	9	2	0	8	1	0	0	0
22 July	90	36	580	B2.5	3	0	0	4	0	0	0	0
23 July	86	34	460	B4.0	6	3	0	12	0	0	1	0
24 July	82	16	150	B3.5	9	2	0	2	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
	18 July	3.0e+05	1.3e+04	3.3e+03	2.9e+08	
19 July	5.7e+05	1.3e+04	3.2e+03	3.4e+08		
20 July	3.5e+05	1.2e+04	2.9e+03	9.7e+05		
21 July	1.9e+05	1.3e+04	3.0e+03	4.0e+05		
22 July	2.2e+05	1.3e+04	3.1e+03	5.1e+05		
23 July	3.9e+05	1.8e+04	3.6e+03	2.6e+06		
24 July	3.5e+05	1.4e+04	3.3e+03	3.6e+06		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	18 July	4	1-1-2-1-1-2-1-1	3	1-2-2-2-0-0-0-0	4
19 July	11	1-1-0-2-3-2-2-5	4	0-1-0-0-1-2-0-3	10	1-1-0-1-1-1-1-5
20 July	19	4-4-3-3-4-3-3-2	23	5-5-5-3-3-2-1-0	23	5-5-4-2-3-2-3-1
21 July	6	1-0-1-2-3-2-1-2	3	1-0-1-1-0-2-1-2	5	1-1-1-1-1-2-1-2
22 July	8	1-2-2-2-3-2-2-2	15	1-2-2-4-4-4-3-1	8	1-2-2-2-2-2-2-2
23 July	10	1-3-3-2-3-2-2-2	12	0-4-4-3-2-0-1-1	8	2-3-3-2-2-1-1-2
24 July	12	2-1-2-2-3-3-3-4	14	2-1-1-1-1-4-5-3	7	2-1-1-2-2-3-5-4



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
18 Jul 0812	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	09/1400
18 Jul 0902	ALERT: Type IV Radio Emission	18/0825
19 Jul 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	09/1400
19 Jul 2318	WARNING: Geomagnetic Sudden Impulse expected	19/2345 - 20/0045
19 Jul 2320	WARNING: Geomagnetic K = 4	19/2320 - 20/0900
19 Jul 2357	WARNING: Geomagnetic K = 5	20/0000 - 0300
19 Jul 2358	ALERT: Geomagnetic K = 5	19/2359
20 Jul 0019	SUMMARY: Geomagnetic Sudden Impulse	19/2355
20 Jul 0030	WARNING: Geomagnetic K = 6	20/0030 - 0600
20 Jul 0030	EXTENDED WARNING: Geomagnetic K = 5	20/0000 - 0600
20 Jul 0038	ALERT: Geomagnetic K = 4	19/2358
20 Jul 0120	ALERT: Geomagnetic K = 5	20/0120
20 Jul 0455	EXTENDED WARNING: Geomagnetic K = 5	20/0000 - 1300
20 Jul 0455	EXTENDED WARNING: Geomagnetic K = 4	19/2320 - 20/1800
20 Jul 0455	ALERT: Geomagnetic K = 5	20/0455
20 Jul 0528	EXTENDED WARNING: Geomagnetic K = 6	20/0030 - 1200
20 Jul 1755	EXTENDED WARNING: Geomagnetic K = 4	19/2320 - 21/0600
20 Jul 2301	ALERT: Type IV Radio Emission	20/2217
20 Jul 2309	SUMMARY: 10cm Radio Burst	20/2207 - 2207
20 Jul 2354	ALERT: Type II Radio Emission	20/2307
23 Jul 0213	ALERT: X-ray Flux exceeded M5	23/0211
23 Jul 0247	SUMMARY: X-ray Event exceeded M5	23/0146 - 0223
23 Jul 0515	ALERT: X-ray Flux exceeded M5	23/0514
23 Jul 0530	SUMMARY: X-ray Event exceeded M5	23/0500 - 0524
23 Jul 0533	ALERT: X-ray Flux exceeded M5	23/0531
23 Jul 0538	SUMMARY: 10cm Radio Burst	23/0510 - 0515
23 Jul 0552	ALERT: Type IV Radio Emission	23/0529
23 Jul 0552	SUMMARY: 10cm Radio Burst	23/0527 - 0530

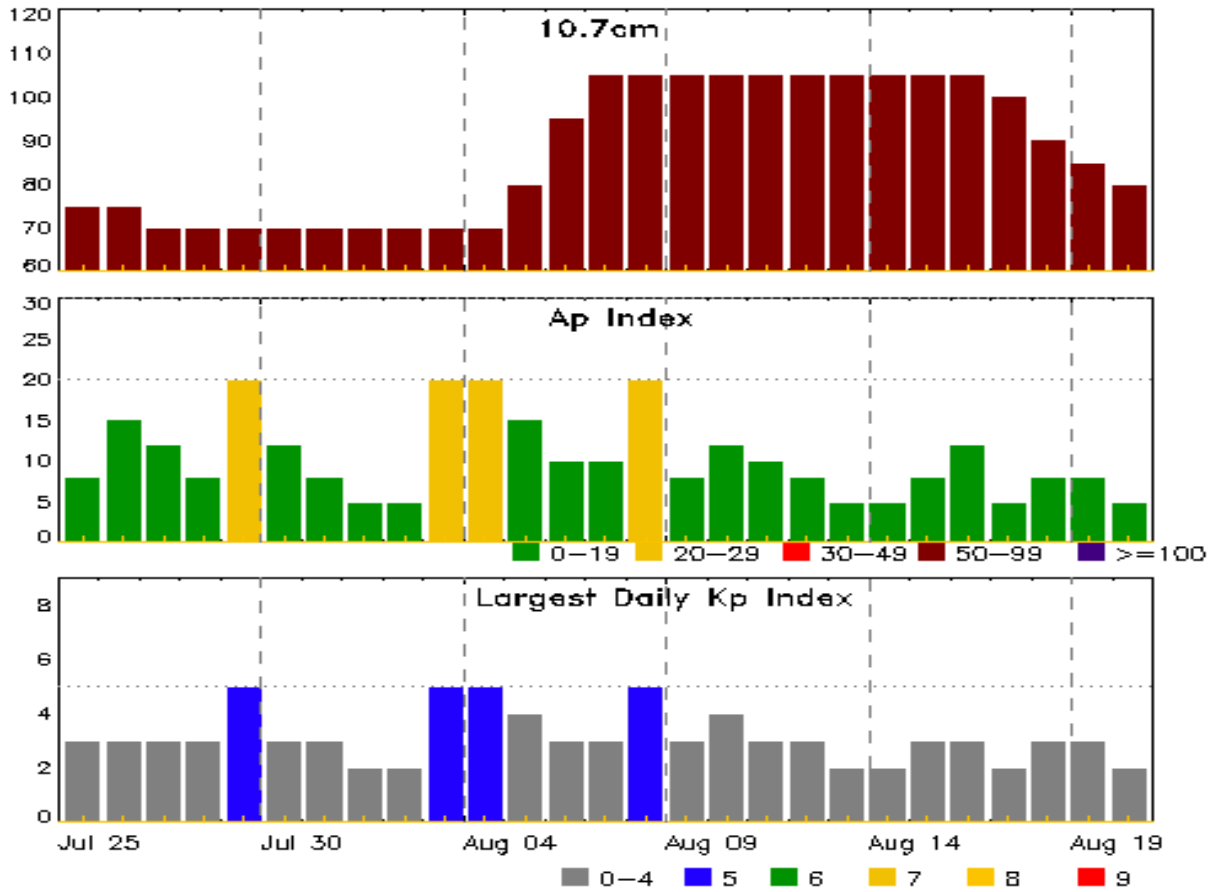


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
23 Jul 0552	ALERT: Type II Radio Emission	23/0529
23 Jul 0554	SUMMARY: X-ray Event exceeded M5	23/0527 - 0533
24 Jul 1546	WARNING: Geomagnetic K = 4	24/1545 - 2359
24 Jul 1908	ALERT: Geomagnetic K = 4	24/1907
24 Jul 1931	WARNING: Geomagnetic K = 5	24/1931 - 2359
24 Jul 2053	ALERT: Geomagnetic K = 5	24/2051
24 Jul 2339	EXTENDED WARNING: Geomagnetic K = 4	24/1545 - 25/0800



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
25 Jul	75	8	3	08 Aug	105	20	5
26	75	15	3	09	105	8	3
27	70	12	3	10	105	12	4
28	70	8	3	11	105	10	3
29	70	20	5	12	105	8	3
30	70	12	3	13	105	5	2
31	70	8	3	14	105	5	2
01 Aug	70	5	2	15	105	8	3
02	70	5	2	16	105	12	3
03	70	20	5	17	100	5	2
04	70	20	5	18	90	8	3
05	80	15	4	19	85	8	3
06	95	10	3	20	80	5	2
07	105	10	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 245	Radio Flux 2695	Intensity II	Intensity IV
21 Jul	0042	0046	0050	M1.2	0.004			2567	100			
21 Jul	0134	0149	0204	M1.0	0.012			2567				
23 Jul	0146	0211	0223	M5.0	0.054			2567	140			
23 Jul	0500	0516	0524	M7.6	0.046			2567	660	310		
23 Jul	0527	0531	0533	M5.5	0.011	3B	N02W74	2567	1400	900	1	2
24 Jul	0609	0620	0632	M2.0	0.017	SF	N03W84	2567				
24 Jul	1730	1743	1812	M1.9	0.036			2567				

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD	Rgn #	
18 Jul	0425	0433	0627		SF	N06W06	2565	
18 Jul	B0753	U0826	0930	C4.4	SN	N06W07	2565	
18 Jul	0928	0931	0947		SF	N18E38	2569	
18 Jul	1834	1839	1845	B5.6	SF	N08W14	2565	
19 Jul	0013	0022	0034	C1.0	SF	N07W18	2565	
19 Jul	0533	0533	0549		SF	N05W20	2565	
19 Jul	1000	1153	1234	C2.2			2565	
19 Jul	1045	1045	1048		SF	N19E24	2569	
19 Jul	1103	1151	1237		SF	N03W23	2565	
19 Jul	1302	1302	1306		SF	N06W24	2565	
19 Jul	1326	1404	1435		SF	N07W25	2565	
19 Jul	1752	1752	1811		1F	N06W27	2565	
19 Jul	1802	1802	1803		SF	N04E28	2567	
19 Jul	1816	1817	1823		SF	N04W33	2565	
19 Jul	2010	2014	2039		SF	N05W27	2565	
20 Jul	0120	0127	0142	C1.3	SF	N07W32	2567	
20 Jul	0240	0249	0259	C1.6	SF	N01W30	2567	
20 Jul	0308	0317	0326	C4.2	SF	N01W30	2567	
20 Jul	0332	0335	0338	C2.5	SF	N07W18	2565	
20 Jul	0813	0820	0834	B6.6	SF	N01W34	2567	
20 Jul	1343	1345	1348		SF	N16E07	2569	
20 Jul	1432	1442	1451	B6.6	SF	N07W36	2567	
20 Jul	1933	1937	1947	B7.5	SF	N05W40	2567	
20 Jul	1956	2000	2005		SF	N03W39	2567	



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
20 Jul	2203	2217	2254	C4.6	SF	N05W41		2567
20 Jul	2330	2335	2339	C3.6				2567
20 Jul	2345	2351	2354	C3.4				2567
21 Jul	0019	0037	0041	C3.7				2567
21 Jul	0042	0046	0050	M1.2				2567
21 Jul	0134	0149	0204	M1.0				2567
21 Jul	0409	0413	0416	C1.6				2567
21 Jul	0901	0908	0909	B6.6	SF	N03W47		2567
21 Jul	0940	0944	0948	C1.0	SF	N00W47		2567
21 Jul	1106	1119	1122	C7.2	1N	N00W48		2567
21 Jul	1247	1255	1303	C9.1	SN	N01W49		2567
21 Jul	1318	1319	1327		SF	N02W50		2567
21 Jul	1330	1334	1337	C2.2	SF	N03W50		2567
21 Jul	1405	1408	1410	B6.4	SF	N07W49		2567
21 Jul	1412	1415	1419	B6.0				2567
21 Jul	1538	1542	1547	C1.2	SF	N03W51		2567
21 Jul	1602	1607	1613	B7.2				2567
21 Jul	1700	1704	1716	C1.2	SF	N05W53		2567
21 Jul	1736	1741	1744	B9.7				2567
21 Jul	1827	1831	1834	B7.3				2567
21 Jul	1852	1857	1859	B6.5				2567
21 Jul	2015	2020	2024	B8.6				2567
21 Jul	2037	2040	2044	B4.6				2567
21 Jul	2135	2138	2143	B5.9				2567
21 Jul	2234	2246	2258	C3.6				2567
22 Jul	0634	0651	0658	C6.6	SF	N01W59		2567
22 Jul	0723	0726	0731	C1.2	SF	N00W61		2567
22 Jul	0830	0834	0838	B6.8				2567
22 Jul	1114	1131	1145	B9.1	SF	N05W61		2567
22 Jul	2009	2020	2031	C2.4	SF	N07W68		2567
22 Jul	2226	2230	2234	B5.6				2567
22 Jul	2309	2315	2327	B7.6				2567
23 Jul	0146	0211	0223	M5.0				2567
23 Jul	0338	0342	0345	C1.4				2567
23 Jul	0500	0516	0524	M7.6				2567
23 Jul	0509	0531	0633	M5.5	3B	N02W74		2567
23 Jul	0904	0911	0916	C1.0				2567
23 Jul	1020	1032	1035	C1.1				2567



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical	
	Begin	Max	End			Location Lat CMD	Rgn #
23 Jul	1108	1108	1113		SF	N02W74	2567
23 Jul	1210	1212	1219		SF	N01W74	2567
23 Jul	1230	1231	1237		SF	N04W77	2567
23 Jul	1238	1240	1247		SF	N01W74	2567
23 Jul	1248	1257	1305	C1.8	SF	N06W77	2567
23 Jul	1304	1308	1319		SF	N02W79	2565
23 Jul	1323	1328	1336		SF	N04W79	2567
23 Jul	1430	1430	1433		SF	N04W79	2567
23 Jul	1512	1512	1514		SF	N03W80	2565
23 Jul	1530	1534	1539		SF	N06W81	2567
23 Jul	1554	1555	1558		SF	N04W83	2567
23 Jul	1738	1755	1804	C2.4			2567
23 Jul	2012	2013	2015		SF	N05W80	2567
23 Jul	2153	2200	2204	B6.2			2567
23 Jul	2306	2311	2314	B7.8			2567
23 Jul	2330	2336	2345	C1.3			2567
23 Jul	2355	2358	0001	B8.5			2567
24 Jul	0050	0055	0059	C1.2			2567
24 Jul	0108	0113	0117	C1.9			2567
24 Jul	0348	0352	0356	B6.6			2567
24 Jul	0450	0501	0522	C1.5			2567
24 Jul	0609	0620	0632	M2.0	SF	N03W84	2567
24 Jul	0756	0804	0810	C1.5			2567
24 Jul	1028	1032	1035	C1.0	SF	N03E84	2567
24 Jul	1135	1141	1148	B9.2			2567
24 Jul	1156	1202	1210	B9.6			2567
24 Jul	1218	1228	1236	C1.5			2567
24 Jul	1256	1303	1313	C2.5			2567
24 Jul	1315	1323	1330	C3.5			2567
24 Jul	1334	1404	1411	C6.9			2567
24 Jul	1730	1743	1812	M1.9			2567
24 Jul	2254	2258	2303	B4.8			2567



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 2562																			
07 Jul	S05E74	225	30	1	Cao	1	B												
08 Jul	S06E59	227	50	5	Cao	5	B												
09 Jul	S06E46	227	60	6	Cai	8	B												
10 Jul	S05E33	227	50	3	Cao	5	B												
11 Jul	S06E19	226	30	4	Cri	7	B												
12 Jul	S06E05	229	50	4	Hax	8	A					1							
13 Jul	S06W09	229	30	4	Hrx	5	A					2							
14 Jul	S06W20	227	10	4	Axx	4	A												
15 Jul	S06W35	229	10	3	Axx	3	A												
16 Jul	S06W48	229	plage																
17 Jul	S06W61	228	plage																
18 Jul	S06W74	228	plage																
19 Jul	S06W89	230	plage																
												0	0	0	3	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 229

Region 2563																			
08 Jul	N19E56	230	10	4	Bxo	4	B					2							
09 Jul	N19E42	231	20	5	Cro	6	B												
10 Jul	N19E32	228	20	8	Bxo	4	B												
11 Jul	N19E19	227	20	8	Bxo	6	B												
12 Jul	N19E05	229	20	8	Bxo	6	B												
13 Jul	N19W09	228	10	6	Bxo	2	B												
14 Jul	N20W18	225	10	1	Axx	2	A												
15 Jul	N20W32	226	plage																
16 Jul	N20W46	227	plage																
17 Jul	N20W60	227	plage																
18 Jul	N20W74	228	plage																
19 Jul	N20W88	229	plage																
												0	0	0	2	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 229



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical												
								C	M	X	S	1	2	3	4								
Region 2564																							
08 Jul	N10E79	207	40	1	Hsx	1	A	1															
09 Jul	N09E63	210	80	5	Cao	6	B	1				9											
10 Jul	N09E51	209	120	8	Dai	7	BG	1				2		1									
11 Jul	N09E38	207	70	9	Dao	8	B					1											
12 Jul	N09E24	210	60	3	Hax	8	A																
13 Jul	N09E10	210	30	3	Cro	6	B																
14 Jul	N09W04	211	10	5	Axx	5	A																
15 Jul	N09W18	212	plage																				
16 Jul	N09W32	213	plage									1											
17 Jul	N09W46	213	plage																				
18 Jul	N09W60	214	plage																				
19 Jul	N09W74	215	plage																				
20 Jul	N09W88	216	plage																				
								3	0	0	13	0	1	0	0								

Crossed West Limb.
 Absolute heliographic longitude: 211

Region 2565																							
11 Jul	N04E71	175	120	5	Hsx	1	A																
12 Jul	N04E58	174	170	3	Hkx	1	A					3											
13 Jul	N04E44	176	170	4	Hax	1	A					1											
14 Jul	N04E33	174	220	5	Cao	3	B																
15 Jul	N05E18	176	290	4	Cho	4	B					1											
16 Jul	N04E06	175	320	6	Dho	5	B					1											
17 Jul	N05W08	175	350	6	Cko	6	B	3				3											
18 Jul	N05W21	175	300	5	Cko	6	B	1				3											
19 Jul	N06W35	176	300	5	Cko	8	B	2				7	1										
20 Jul	N04W48	176	310	5	Cko	8	B	1				1											
21 Jul	N03W62	176	250	7	Hkx	5	A																
22 Jul	N04W75	176	250	4	Hkx	4	A																
23 Jul	N03W90	178	250	3	Hkx	4	A					2											
								7	0	0	22	1	0	0	0								

Crossed West Limb.
 Absolute heliographic longitude: 175



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 2566																		
15 Jul	N10E15	179	0			Axx	1	A										
16 Jul	N10E01	180	plage															
17 Jul	N10W13	180	plage															
18 Jul	N10W25	179	0			Axx	1	A										
19 Jul	N11W37	178	plage															
20 Jul	N11W51	179	plage															
21 Jul	N11W65	179	plage															
22 Jul	N11W79	180	plage															
									0	0	0	0	0	0	0	0	0	

Crossed West Limb.
Absolute heliographic longitude: 180

Region 2567																		
15 Jul	N05E28	166	190	6	Dac	13	BGD	1				8						
16 Jul	N04E15	166	200	8	Dsc	10	BG	11				12						
17 Jul	N05E02	165	330	8	Dhi	14	BG	1				2						
18 Jul	N05W11	165	330	8	Dki	15	B											
19 Jul	N05W24	165	390	7	Dki	14	BG					1						
20 Jul	N05W37	165	510	7	Dki	16	B	6				8						
21 Jul	N05W52	166	380	9	Dki	12	BG	8	2			8	1					
22 Jul	N06W66	167	330	8	Dko	12	B	3				4						
23 Jul	N05W80	168	210	8	Dao	10	B	6	3			10					1	
24 Jul	N05W92	167	150	6	Dao	6	B	9	2			2						
									45	7	0	55	1	0	1	0		

Still on Disk.
Absolute heliographic longitude: 165



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

Region 2568

15 Jul	S15E39	155	20	3	Dro	2	B										
16 Jul	S16E24	157	10	3	Bxo	2	B										
17 Jul	S13E10	157	0		Axx	1	A										
18 Jul	S13W04	158	plage														
19 Jul	S13W18	159	plage														
20 Jul	S13W32	160	plage														
21 Jul	S13W46	160	plage														
22 Jul	S13W60	161	plage														
23 Jul	S13W74	162	plage														
24 Jul	S13W88	163	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 158

Region 2569

18 Jul	N17E28	126	30	5	Dao	6	B					1					
19 Jul	N15E15	126	30	6	Cso	6	B					1					
20 Jul	N15W00	127	30	3	Hrx	2	A					1					
21 Jul	N16W15	129	10	3	Axx	2	A										
22 Jul	N16W29	130	plage														
23 Jul	N16W43	131	plage														
24 Jul	N16W57	132	plage														
									0	0	0	3	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 127

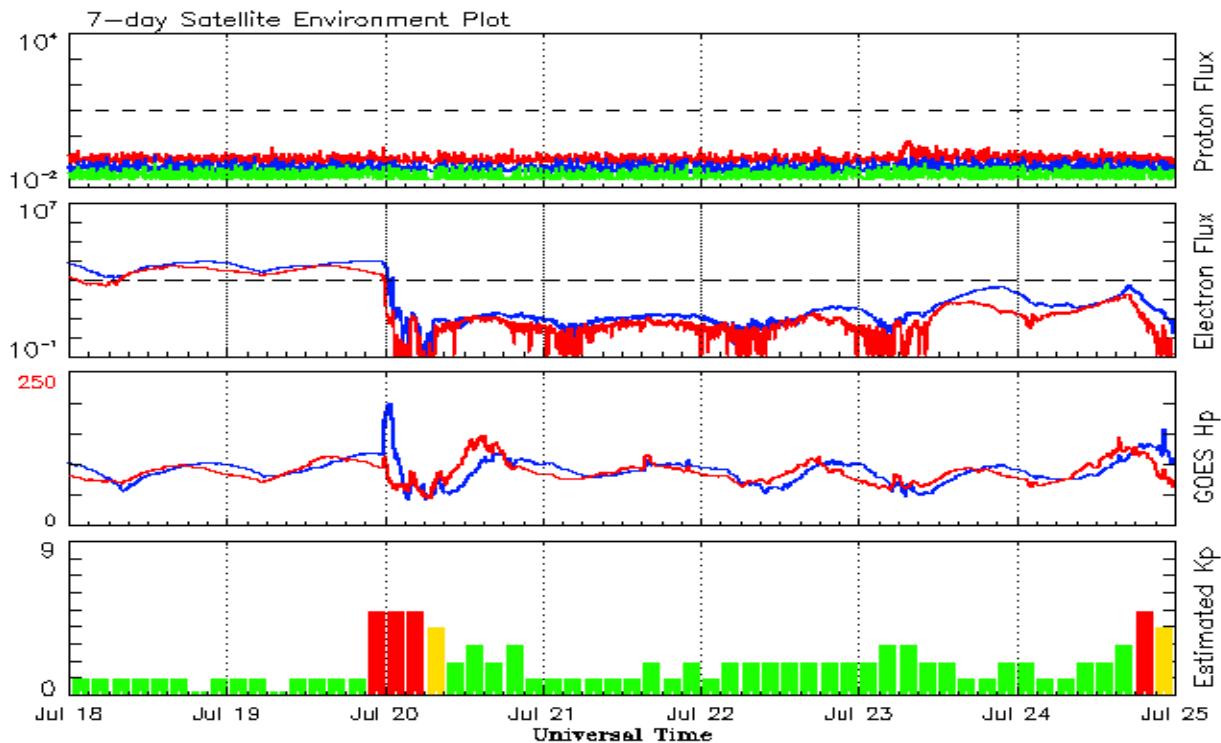


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2014									
July	113.6	60.1	0.64	120.4	67.6	137.3	145.2	5	8.8
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
2015									
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
2016									
January	50.4	34.2	0.67			103.5		10	
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	

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 18 July 2016*

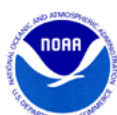
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

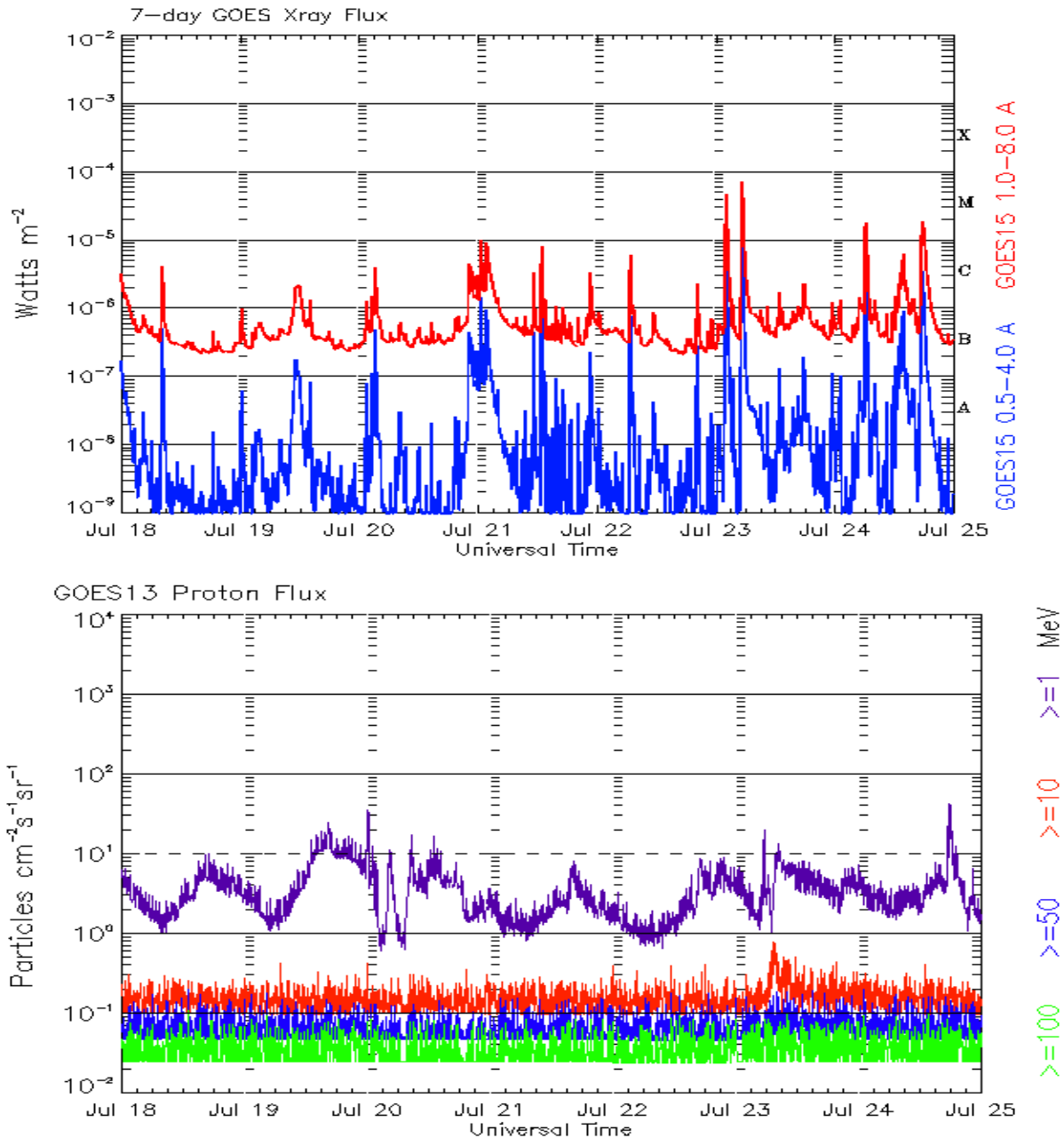
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 18 July 2016*

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.



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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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