

Solar activity was at low to R1 (Minor) levels this period. A total of 54 C-class and 6 R1 (Minor) events were observed. The largest, and most complex spot group, was Region 4493 (N06, L=158, class/area Eki/440 on 23 Jul). This region produced a total of 42 C-class and 5 M-class events, the largest an M3.6 at 22/0635 UTC. A 200 sfu 10 cm Burst was associated with this event. Region 4494 (S04, L=088, class/area Dac/120 on 26 Jul) produced the other R1 (Minor) event, an M3.2 at 26/1528 UTC. Associated with this event was a Type II Sweep with an estimated shock velocity of 1,057 km/s. No other significant activity was observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 20 and 26 Jul with the high value of 1,300 pfu observed at 20/1645 UTC.

Geomagnetic field activity was at quiet to G1 (Minor) levels. Quiet levels were observed on 20 Jul. Levels increased to unsettled to active on 21 Jul to early on 24 Jul, with isolated G1 (Minor) levels observed late on 23 Jul. This activity was due to effects from a negative polarity CH HSS. Quiet conditions were observed most of 24 Jul and 25-26 Jul.

Space Weather Outlook **27 July - 22 August 2026**

Solar activity is expected to be at mostly low levels with a chance for moderate R1 (Minor) levels throughout the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 27 Jul, 02-03 Aug, 06-09 Aug, 12-16 Aug, and 22 Aug. The remainder of the outlook period is expected to be at normal to moderate levels.

Geomagnetic field activity is expected to be at unsettled to active levels on 27-28 Jul due to potential weak CME effects. Unsettled to active levels are expected on 29-31 Jul, 04-07 Aug, 11-12 Aug, and 17-20 Aug with isolated G1 (Minor) levels possible on 19 Aug. This level of activity is due to recurrent CH HSS effects. Mostly quiet levels are expected for the remainder of the outlook 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
20 July	137	74	480	C1.0	8	3	0	6	0	0	0	0
21 July	149	88	660	C1.1	17	1	0	12	1	0	0	0
22 July	150	63	820	C1.0	7	1	0	10	0	0	0	0
23 July	148	88	880	B8.2	9	0	0	3	1	0	0	0
24 July	150	101	920	B8.9	6	0	0	2	0	0	0	0
25 July	145	86	810	B8.3	4	0	0	5	0	0	0	0
26 July	148	99	860	B9.5	8	1	0	4	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	>2MeV	
20 July	2.6e+05	1.8e+04	5.9e+07	
21 July	2.1e+05	1.9e+04	1.4e+07	
22 July	8.0e+04	1.9e+04	1.2e+07	
23 July	8.7e+05	1.9e+04	1.5e+07	
24 July	1.4e+05	1.9e+04	4.6e+07	
25 July	1.9e+05	1.9e+04	6.0e+07	
26 July	1.6e+05	1.9e+04	5.6e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
20 July	4	1-0-1-1-2-2-2-1	2	1-1-1-1-1-0-0-0	4	1-1-1-1-1-1-1-1
21 July	14	2-2-3-3-3-4-2-3	23	2-3-4-5-4-5-2-2	14	2-3-3-4-3-3-3-3
22 July	11	2-3-2-3-3-3-2-2	26	2-3-3-6-5-4-2-2	12	2-3-2-3-3-3-2-3
23 July	15	2-2-3-3-3-4-3-3	28	2-3-4-5-3-6-3-3	22	2-2-3-3-3-5-5-3
24 July	9	3-3-1-2-3-2-2-1	6	4-3-1-1-0-0-0-1	9	4-3-2-2-1-1-1-1
25 July	6	1-0-1-3-2-2-1-2	6	1-1-1-3-2-2-1-1	5	1-1-1-2-1-2-2-2
26 July	8	2-2-1-3-3-1-2-1	7	2-3-2-3-1-1-0-1	6	2-2-2-2-2-1-1-1

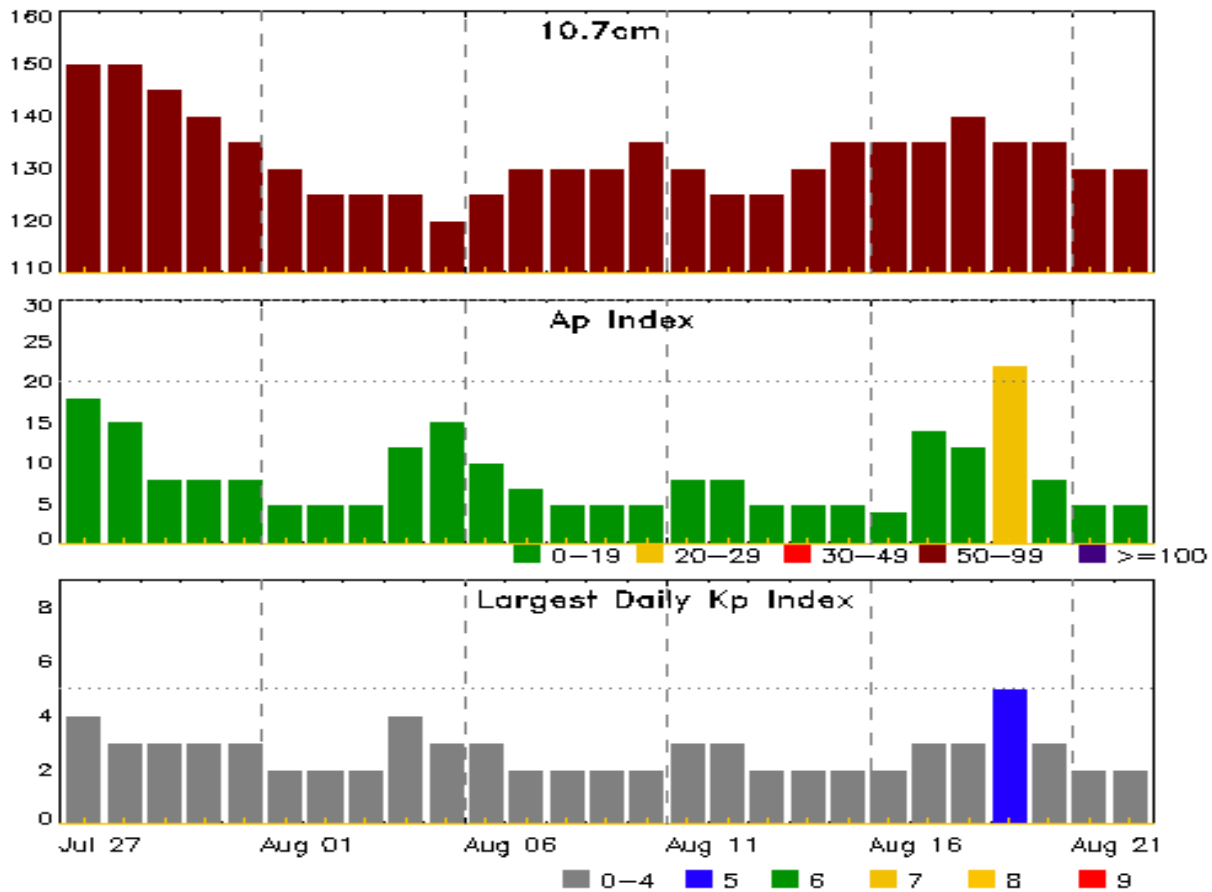


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
20 Jul 1442	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	17/1750
21 Jul 0911	WARNING: Geomagnetic K = 4	21/0910 - 1800
21 Jul 1201	ALERT: Geomagnetic K = 4	21/1159
21 Jul 1709	EXTENDED WARNING: Geomagnetic K = 4	21/0910 - 22/0600
22 Jul 0652	SUMMARY: 10cm Radio Burst	22/0632 - 0634
22 Jul 1456	WARNING: Geomagnetic K = 4	22/1454 - 2359
22 Jul 1750	SUMMARY: 10cm Radio Burst	22/1552 - 1552
22 Jul 1925	WATCH: Geomagnetic Storm Category G1 predicted	
23 Jul 1435	WARNING: Geomagnetic K = 4	23/1432 - 24/0900
23 Jul 1559	ALERT: Geomagnetic K = 4	23/1547
23 Jul 1620	WARNING: Geomagnetic K = 5	23/1619 - 2359
23 Jul 1621	ALERT: Geomagnetic K = 5	23/1621
23 Jul 1640	WARNING: Geomagnetic K = 6	23/1639 - 2359
23 Jul 2015	ALERT: Geomagnetic K = 5	23/2007
23 Jul 2347	EXTENDED WARNING: Geomagnetic K = 5	23/1619 - 24/0600
24 Jul 0856	EXTENDED WARNING: Geomagnetic K = 4	23/1432 - 24/1500
26 Jul 1535	ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	26/1534
26 Jul 1546	ALERT: Type II Radio Emission	26/1529



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	150	18	4	10 Aug	135	5	2
28	150	15	3	11	130	8	3
29	145	8	3	12	125	8	3
30	140	8	3	13	125	5	2
31	135	8	3	14	130	5	2
01 Aug	130	5	2	15	135	5	2
02	125	5	2	16	135	4	2
03	125	5	2	17	135	14	3
04	125	12	4	18	140	12	3
05	120	15	3	19	135	22	5
06	125	10	3	20	135	8	3
07	130	7	2	21	130	5	2
08	130	5	2	22	130	5	2
09	130	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		Intensity	
									245	2695	II	IV
20 Jul	1429	1436	1440	M2.5	0.008			4493	240			
20 Jul	1908	1920	1926	M1.1	0.006			4493	160			
20 Jul	2215	2225	2231	M3.4	0.017			4493				
21 Jul	1716	1727	1730	M1.9	0.009			4493				
22 Jul	0627	0635	0637	M3.6	0.009			4493		200		
26 Jul	1517	1528	1532	M3.2	0.012			4494	1300	110	2	

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
20 Jul	0739	0746	0755	C2.1	SF	N05E16		4493
20 Jul	0813	0840	0856	C1.7	SF	N04E18		4493
20 Jul	B1025	1025	1030		SF	N04E18		4493
20 Jul	1208	1215	1218	C1.6				4492
20 Jul	1220	1240	1256	C2.9				4493
20 Jul	1233	1234	1235		SF	N17E68		4492
20 Jul	1239	1240	1243		SF	N05E15		4493
20 Jul	1244	1247	1247		SF	N05E15		4493
20 Jul	1429	1436	1440	M2.5				4493
20 Jul	1516	1520	1525	C7.1				4493
20 Jul	1712	1717	1728	C3.2				4493
20 Jul	1908	1920	1926	M1.1				4493
20 Jul	2131	2141	2157	C2.9				4493
20 Jul	2215	2225	2231	M3.4				4493
20 Jul	2317	2324	2333	C7.6				4493
21 Jul	0015	0020	0025	C2.4				4493
21 Jul	0038	0051	0101	C6.5	SF	N04E08		4493
21 Jul	0120	0129	0148	C2.6				4493
21 Jul	0148	0158	0200	C2.5				4493
21 Jul	0347	0405	0413	C4.3	SF	N05E06		4493
21 Jul	0427	0428	0431		SF	N05E06		4493
21 Jul	B0539	U0614	A0723		SF	N06E05		4493
21 Jul	0933	0935	0940		SF	S07W34		4489
21 Jul	0935	0956	1005	C7.7	1N	N06E07		4493
21 Jul	1056	1100	1104		SF	N06E02		4493



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
21 Jul	1136	1142	1152	C4.0	SF	N06E01	4493
21 Jul	1328	1328	1331		SF	N06E05	4493
21 Jul	1344	1344	1347		SF	N06E01	4493
21 Jul	1349	1414	1420	C5.1	SF	N06E01	4493
21 Jul	1422	1433	1509	C3.1	SF	N06W01	4493
21 Jul	1443	1457	1509	C3.4			4493
21 Jul	1529	1533	1548		SF	N06W01	4493
21 Jul	1605	1608	1610	C5.1			4493
21 Jul	1702	1707	1714	C3.3			4493
21 Jul	1716	1727	1730	M1.9			4493
21 Jul	1916	1924	1926	C2.9			4493
21 Jul	2027	2033	2039	C3.1			4493
21 Jul	2203	2212	2220	C1.5			4493
21 Jul	2231	2240	2245	C2.0			4493
21 Jul	2251	2255	2259	C2.4			4493
22 Jul	0002	0011	0015	C2.4			4493
22 Jul	0102	0106	0108	C2.6	SF	N06W06	4493
22 Jul	0314	0323	0332	C1.4			4493
22 Jul	0332	0338	0345	C6.8	SN	N06W03	4493
22 Jul	0356	0358	0402		SF	N07W04	4493
22 Jul	0627	0635	0637	M3.6			4493
22 Jul	0747	0747	0749		SF	N06W05	4493
22 Jul	B0846	U0905	A0921		SF	N06W10	4493
22 Jul	1209	1218	1222	C3.0	SF	N06W10	4493
22 Jul	1304	1309	1314		SF	N06W10	4493
22 Jul	1504	1507	1510		SF	N05W12	4493
22 Jul	1546	1553	1556	C3.4	SF	N06W11	4493
22 Jul	1611	1615	1617		SF	N05W13	4493
22 Jul	1842	1851	1854	C5.4			4493
23 Jul	0136	0141	0147	C1.2			4493
23 Jul	0249	0253	0257	C1.7			4493
23 Jul	0303	0312	0314	C1.5			4493
23 Jul	0314	0318	0324	C2.0			4493
23 Jul	0324	0327	0329	C5.3	SF	N07W17	4493
23 Jul	0638	0644	0647	C1.3	SF	S06E49	4494
23 Jul	0957	1002	1007	C1.3			
23 Jul	1311	1314	1316		SF	S03E45	4494
23 Jul	1431	1512	1527	C2.8			



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
23 Jul	1645	1652	1655	C1.9	1N	N07W24	4493
24 Jul	0005	0009	0012	C1.5			4494
24 Jul	0358	0405	0408	C1.8	SF	S03E36	4494
24 Jul	0414	0427	0436	C2.4			
24 Jul	0639	0647	0700	C1.8	SF	N07W34	4493
24 Jul	2052	2105	2113	C2.6			4494
24 Jul	2146	2203	2218	C3.0			4493
25 Jul	0130	0141	0146	C1.8			4494
25 Jul	0344	0351	0410	C2.0	SF	N07W48	4493
25 Jul	0359	0359	0410		SF	N06W51	4493
25 Jul	0536	0544	0550	C1.9	SF	N06W51	4493
25 Jul	1702	1709	1709		SF	N06E52	4496
25 Jul	1710	1711	1717		SF	N06E52	4496
25 Jul	2123	2136	2145	C1.6			4493
26 Jul	0300	0310	0314	C1.5			4496
26 Jul	0314	0323	0328	C1.5			4496
26 Jul	0518	0525	0528	C2.0			4496
26 Jul	0725	0731	0733	C4.2	SF	S03W02	4495
26 Jul	0738	0739	0741		SF	S06E06	4494
26 Jul	0942	0948	0951		SF	S03W03	4495
26 Jul	1005	1014	1018	C1.9	SF	S03W03	4495
26 Jul	1348	1357	1404	C1.6			4495
26 Jul	1404	1409	1411	C1.4			4494
26 Jul	1517	1528	1532	M3.2			4494
26 Jul	1957	2011	2026	C1.6			

Region Summary

	Location		Sunspot Characteristics					Flares								
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical					
Date	Lat	CMD	Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 4489																
13 Jul	S07E65	193	80	3	Hsx	1	A	1								
14 Jul	S07E53	192	120	3	Hsx	2	A									
15 Jul	S07E39	190	160	6	Hsx	3	A	2				2				
16 Jul	S07E27	192	170	3	Hax	1	A									
17 Jul	S07E13	192	170	4	Cso	4	B									
18 Jul	S07W01	193	170	3	Hax	2	A	1				1				
19 Jul	S07W12	191	170	3	Cso	10	B									
20 Jul	S07W26	192	120	5	Cso	7	B									
21 Jul	S07W41	193	60	3	Cao	6	B					1				
22 Jul	S07W54	193	40	2	Hsx	2	A									
23 Jul	S07W67	193	50	2	Hsx	2	A									
24 Jul	S07W81	194	60	2	Hsx	2	A									
25 Jul	S08W92	191	30	5	Hsx	2	A									
									4	0	0	4	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 193

Region 4490

16 Jul	N15E17	202	10	3	Bxo	4	B								
17 Jul	N15E03	202	plage												
18 Jul	N15W11	203	plage												
19 Jul	N15W25	204	plage												
20 Jul	N15W39	205	plage												
21 Jul	N15W54	206	plage												
22 Jul	N15W68	207	plage												
23 Jul	N15W82	208	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 202



Region Summary - continued

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
Region 4491															
15 Jul	S11E79	154	plage					1							
16 Jul	S11E63	156	10	2	Axx	1	A								
17 Jul	S11E50	155	20	2	Hrx	2	A								
18 Jul	S11E36	156	10	1	Hrx	2	A								
19 Jul	S11E21	158	10	1	Axx	1	A								
20 Jul	S11E08	157	10	3	Bxo	4	B								
21 Jul	S11W06	158	plage												
22 Jul	S11W20	159	plage												
23 Jul	S11W34	160	plage												
24 Jul	S12W48	161	plage												
25 Jul	S12W62	162	plage												
26 Jul	S12W76	162	plage												
									1	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 158

Region 4492															
18 Jul	N15E87	106	plage								1				
19 Jul	N15E73	106	230	6	Hax	3	A								
20 Jul	N15E60	106	230	5	Dao	5	BG	1			1				
21 Jul	N16E45	107	250	5	Hhx	9	A								
22 Jul	N15E32	107	300	5	Hhx	4	A								
23 Jul	N16E20	106	310	5	Hhx	9	A								
24 Jul	N15E06	107	290	5	Hhx	9	A								
25 Jul	N16W08	108	250	6	Dko	6	B								
26 Jul	N16W21	107	310	6	Cko	6	B								
									2	0	0	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 107



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 4493															
20 Jul	N05E09	156	120	9	Dac	18	BGD	7	3		5				
21 Jul	N05W05	157	300	10	Dkc	30	BGD	17	1		11	1			
22 Jul	N05W19	158	430	12	Eki	13	BG	7	1		10				
23 Jul	N06W32	158	440	13	Eki	19	BGD	6			1	1			
24 Jul	N05W46	159	420	13	Eki	15	BG	2			1				
25 Jul	N05W59	159	380	12	Ehi	12	BG	3			3				
26 Jul	N05W73	159	320	11	Ehi	8	BG								
								42	5	0	31	2	0	0	0

Still on Disk.

Absolute heliographic longitude: 157

Region 4494															
21 Jul	S04E65	87	50	6	Cso	3	B								
22 Jul	S04E52	87	50	3	Hsx	4	A								
23 Jul	S04E40	86	70	5	Cao	5	BD	1			2				
24 Jul	S04E27	86	110	5	Cao	7	BD	3			1				
25 Jul	S04E12	88	80	4	Dao	7	BD	1							
26 Jul	S04W02	88	120	5	Dac	9	BD	1	1		1				
								6	1	0	4	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 88

Region 4495															
23 Jul	S02E28	98	10	2	Axx	3	A								
24 Jul	S03E14	99	10	2	Axx	2	A								
25 Jul	S02W00	99	plage												
26 Jul	S02W13	98	10	6	Dao	4	B	3			3				
								3	0	0	3	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 99

Region 4496															
24 Jul	N05E59	54	30	5	Cso	6	B								
25 Jul	N05E46	54	70	7	Dao	9	B				2				
26 Jul	N05E33	52	90	9	Dao	10	B	3							
								3	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 52



Region Summary - continued

Location		Sunspot Characteristics						Flares							
Date	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
		<i>Region 4497</i>													
26 Jul	S20W20	106	10	2	Bxo	2	B	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 106



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.

<https://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecast> --

Current

<ftp://ftp.swpc.noaa.gov/pub/warehouse> -- Online archive from 1997

<https://www.ngdc.noaa.gov/stp/satellite/goes-r.html> -- NCEI GOES data
textarchive

<https://www.swpc.noaa.gov/products/solar-cycle-progression> -- Solar Cycle
Progression web site

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