

Solar activity was at very low to low levels over the period. Very low levels were observed on 12-15 and 17-18 Jul while low levels occurred on 16 Jul due to a pair of C1 flares at 16/0727 UTC and 16/0837 UTC from Region 2843 (S17, L=271, class/area Bxo/030 on 16 Jul). No Earth-directed CMEs were observed.

Other activity of note included two backside halo CMEs beginning at 15/2136 UTC and at 17/0524 UTC in SOHO/LASCO C2 imagery. The first was a full-halo and the second was a partial-halo just beyond the east limb with a visible EIT wave propagating to the front-side in SDO/AIA 193 imagery. It is not known what region was responsible for those CMEs, however old Regions 2835 (S18, L=053) and 2840 (N27, L=035) were near center disk during the halo CME. Both regions were approaching the eastern limb on 17 Jul when the partial-halo CME occurred.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was normal to moderate levels with a peak flux of 386 pfu observed at 17/1825 UTC.

Geomagnetic field activity ranged from quiet to active levels. The period began with solar wind speed ranging from 295-365 km/s and total field between 2 and 10 nT. By 14/1000 UTC, a rise in total field to near 12 nT occurred followed by an increase in solar wind speed to near 480 km/s as a negative polarity CH HSS became geoeffective. Solar wind speed slowly returned to nominal levels by late on 16 Jul. The geomagnetic field responded with quiet to active levels on 14 Jul and quiet to unsettled levels on 12 and 15 Jul.

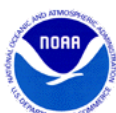
Space Weather Outlook **19 July - 14 August 2021**

Solar activity is expected to be at very low to low levels with a slight chance for M-class flare (R1-R2, Minor-Moderate) activity on 20 Jul-03 Aug with the return of old Regions 2835 and 2840.

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.

Geomagnetic field activity is expected to be at unsettled levels on 21-22 Jul, 02 Aug, 10-11 Aug with active levels on 10 Aug due to CH HSS activity.



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
12 July	72	22	70	A2.3	0	0	0	0	0	0	0	0
13 July	72	11	50	A1.8	0	0	0	0	0	0	0	0
14 July	72	23	70	A1.7	0	0	0	0	0	0	0	0
15 July	74	22	30	A4.3	0	0	0	0	0	0	0	0
16 July	75	35	70	A7.9	2	0	0	2	0	0	0	0
17 July	77	53	90	A5.3	0	0	0	1	0	0	0	0
18 July	80	42	80	B1.1	0	0	0	1	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
	12 July	1.2e+05	4.4e+04
13 July	5.5e+04	4.5e+04	1.3e+06
14 July	1.4e+05	5.0e+04	1.2e+06
15 July	8.1e+04	4.5e+04	1.6e+06
16 July	6.3e+04	5.0e+04	5.6e+06
17 July	7.9e+04	4.9e+04	8.1e+06
18 July	6.3e+04	4.7e+04	6.1e+06

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	12 July	7	1-0-1-1-2-2-3-3	5	1-1-2-2-1-2-1-2	7
13 July	7	3-1-1-2-2-2-2-1	3	2-2-0-0-0-0-1-1	5	2-1-1-1-1-1-1-1
14 July	10	0-1-2-2-3-3-3-3	15	0-1-1-3-4-5-3-2	14	1-1-1-2-3-4-4-3
15 July	12	2-3-3-2-3-3-3-2	15	2-4-3-4-4-2-1-1	10	2-3-2-2-2-2-3-3
16 July	5	2-1-1-1-2-1-2-1	3	2-1-0-0-1-1-1-1	4	2-1-1-0-1-1-2-1
17 July	4	2-1-1-1-1-2-1-0	2	1-1-1-1-0-1-0-0	4	2-1-1-1-1-2-1-1
18 July	5	1-0-1-2-2-2-1-2	1	1-0-0-0-1-0-0-1	4	1-1-1-1-1-1-0-2

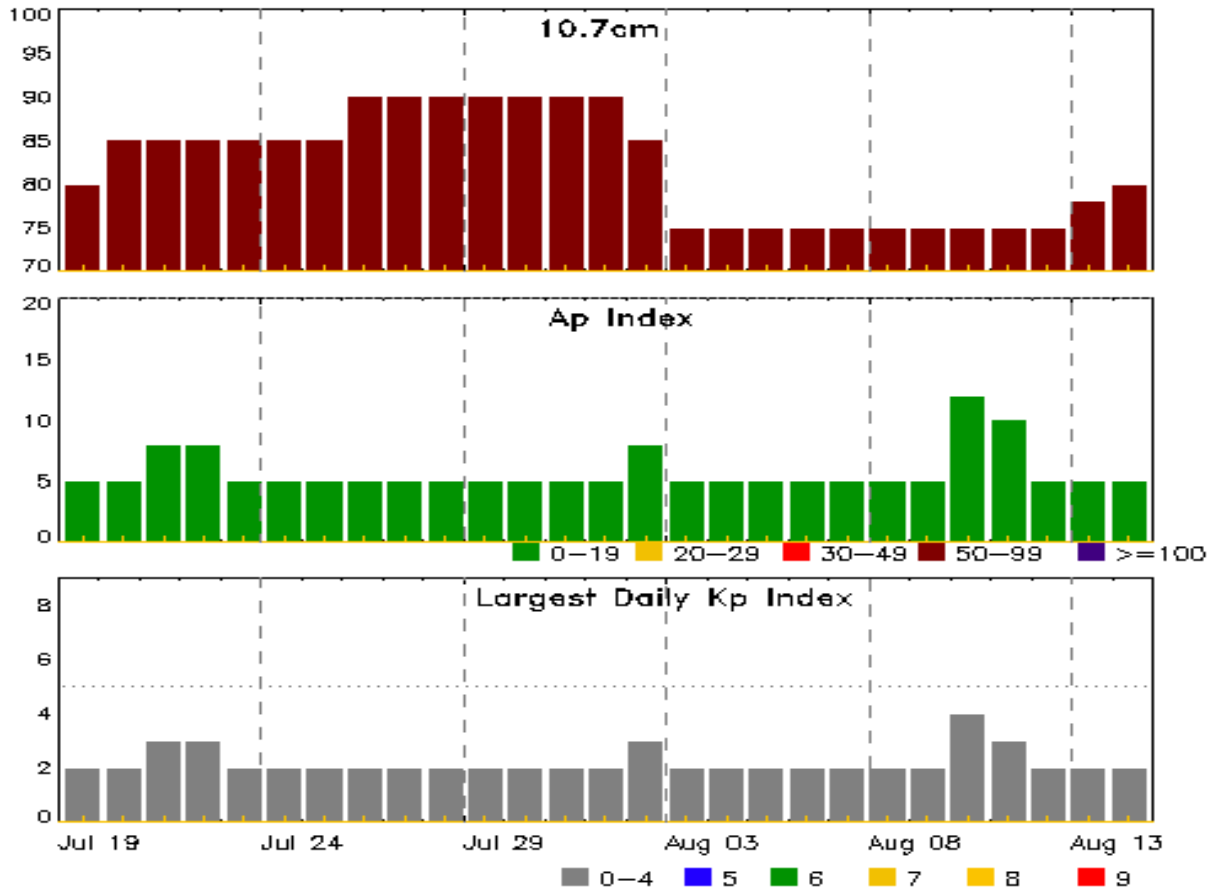


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
14 Jul 1639	WARNING: Geomagnetic K = 4	14/1639 - 15/0300
14 Jul 1641	ALERT: Geomagnetic K = 4	14/1631
17 Jul 0608	ALERT: Type II Radio Emission	17/0510



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
19 Jul	80	5	2	02 Aug	85	8	3
20	85	5	2	03	75	5	2
21	85	8	3	04	75	5	2
22	85	8	3	05	75	5	2
23	85	5	2	06	75	5	2
24	85	5	2	07	75	5	2
25	85	5	2	08	75	5	2
26	90	5	2	09	75	5	2
27	90	5	2	10	75	12	4
28	90	5	2	11	75	10	3
29	90	5	2	12	75	5	2
30	90	5	2	13	78	5	2
31	90	5	2	14	80	5	2
01 Aug	90	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

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
12 Jul	1529	1538	1543	B1.2			2842
13 Jul	1828	1835	1839	B2.0			2843
14 Jul	1939	1949	1959	B1.7			
14 Jul	2120	2131	2154	B2.1			
15 Jul	0116	0127	0138	B1.2			
15 Jul	0723	0735	0744	B1.2			
15 Jul	0814	0821	0826	B1.1			
15 Jul	1844	1856	1900	B5.3			2843
15 Jul	2006	2010	2014	B1.3			2843
15 Jul	2101	2110	2114	B2.0			2843
15 Jul	2114	2119	2124	B4.9			
15 Jul	2308	2317	2318	B4.7			2843
15 Jul	2318	2323	2327	B6.7			2843
16 Jul	0015	0018	0025	B1.2			2843
16 Jul	0051	0102	0112	B2.1			2843
16 Jul	0122	0127	0131	B2.7			2843
16 Jul	0158	0210	0221	B5.8			2843
16 Jul	0314	0320	0325	B2.3			2843
16 Jul	0339	0348	0352	B2.0			2843
16 Jul	0352	0357	0402	B2.3			2843
16 Jul	0434	0442	0449	B4.0			2843
16 Jul	0449	0500	0505	B5.0			2843
16 Jul	0549	0602	0611	B7.8			2843
16 Jul	0647	0653	0657	B2.7			2843
16 Jul	0714	0727	0736	C1.1			2843
16 Jul	0827	0837	0845	C1.7	SF	S17W64	2843
16 Jul	1030	1041	1051	B1.8			2843
16 Jul	1122	1132	1134	B2.6			2843
16 Jul	1134	1140	1146	B8.1			
16 Jul	1254	1259	1305	B4.1			2844
16 Jul	1419	1430	1444	B3.4	SF	S16W70	2843



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
16 Jul	1551	1600	1609	B1.4			2843
16 Jul	1609	1614	1619	B1.9			2843
16 Jul	1623	1626	1631	B1.9			2844
16 Jul	1708	1718	1727	B2.1			2843
16 Jul	1822	1827	1832	B1.4			2844
16 Jul	2040	2045	2049	B1.5			2844
17 Jul	0301	0317	0330	B7.8	SF	N26W03	2842
17 Jul	0547	0555	0603	B1.4			2842
17 Jul	0801	0809	0816	B1.1			2842
17 Jul	1603	1608	1612	B1.3			2845
17 Jul	1612	1616	1620	B4.4			2845
17 Jul	1639	1649	1701	B1.3			2842
17 Jul	1705	1714	1719	B4.7			2845
17 Jul	1741	1743	1747	B2.2			2845
17 Jul	1830	1836	1840	B1.9			2845
17 Jul	1901	1907	1911	B1.6			2845
17 Jul	2139	2147	2155	B2.0			2843
17 Jul	2327	2346	0004	B2.6			2843
18 Jul	0143	0147	0151	B2.6			2845
18 Jul	0158	0209	0223	B3.4			2843
18 Jul	0253	0301	0305	B3.4			2843
18 Jul	0335	0353	0405	B2.5			2843
18 Jul	0405	0412	0417	B2.8			2843
18 Jul	0624	0628	0636		SF	S17W09	2845
18 Jul	0656	0709	0721	B9.7			2843
18 Jul	1014	1023	1030	B1.6			
18 Jul	1643	1650	1654	B2.2			
18 Jul	1654	1659	1703	B2.2			
18 Jul	1932	1942	1952	B3.8			



Region Summary

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 2839																							
04 Jul	N19E37	321	30	5	Cro	4	B	1				3											
05 Jul	N19E23	321	50	5	Cao	5	B					1											
06 Jul	N19E10	322	20	6	Cro	6	B																
07 Jul	N19W03	322	10	6	Axx	1	A																
08 Jul	N19W14	319	10	1	Axx	1	A																
09 Jul	N19W28	320	10	1	Axx	1	A																
10 Jul	N19W41	320	plage																				
11 Jul	N19W54	320	plage																				
12 Jul	N19W68	321	plage																				
13 Jul	N19W82	321	plage																				
								1	0	0	0	4	0	0	0	0	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 322

Region 2841																							
09 Jul	S18E61	231	20	3	Bxo	2	B																
10 Jul	S18E45	234	20	2	Bxo	3	B																
11 Jul	S18E30	236	10	3	Bxo	2	B					1											
12 Jul	S18E15	236	10		Axx	1	A																
13 Jul	S18E03	236	plage																				
14 Jul	S18W11	237	plage																				
15 Jul	S18W25	238	plage																				
16 Jul	S18W39	239	plage																				
17 Jul	S18W53	239	plage																				
18 Jul	S18W67	240	plage																				
								0	0	0	0	1	0	0	0	0	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 236



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 2842

10 Jul	N24E79	200	60	2	Hsx	1	A										
11 Jul	N24E64	202	60	2	Hsx	1	A										
12 Jul	N24E51	201	60	1	Hsx	1	A										
13 Jul	N23E37	201	50	1	Hsx	1	A										
14 Jul	N24E25	201	60	1	Hsx	1	A										
15 Jul	N24E13	200	30	1	Hsx	1	A										
16 Jul	N25W00	199	20	1	Hsx	1	A										
17 Jul	N26W15	201	40	3	Cso	5	B					1					
18 Jul	N26W27	200	40	4	Dso	5	B										
									0	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 199

Region 2843

14 Jul	S17W44	270	10	4	Axx	2	A										
15 Jul	S17W56	269	0		Axx	1	A										
16 Jul	S17W72	271	30	7	Bxo	3	B	2				2					
17 Jul	S18W86	272	10	1	Axx	1	A										
									2	0	0	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 270

Region 2844

16 Jul	S43E59	140	20	1	Axx	1	A										
17 Jul	S43E49	137	10	1	Axx	1	A										
18 Jul	S43E35	138	10	1	Axx	1	A										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 138

Region 2845

17 Jul	S15W06	192	30	4	Bxi	6	B										
18 Jul	S15W18	191	30	5	Cso	6	B					1					
									0	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 192



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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