Space Weather Highlights
17 July - 23 July 2023

SWPC PRF 2499
24 July 2023

Solar activity reached high levels on 18 Jul due to an M5 flare (R2-Moderate) at 18/0006 UTC from Region 3363 (S22, L=345, class/area=Dko/700 on 17 Jul); the largest event of the period. In addition to the M5 flare on 18 Jul, five R1-Minor events were registered. Minor levels of solar activity were observed on 17, 19 and 22 Jul with R1-Minor events observed from Regions 3363, 3372 (N23, L=270, class/area=Fho/700 on 17 Jul), and 3373 (N08, L=248, class/area=Ekc/550 on 21 Jul). Low levels were observed on 20-21 and 23 Jul.

Following the long-duration M5 flare at 18/0006 UTC from Region 3363, the greater than 10 MeV proton flux increased sharply and exceeded 10 pfu (S1-Minor) at 18/0115 UTC. S2 (Moderate) storm levels were reached beginning at 18/0200 UTC, and a peak of 620 pfu was observed at 18/0615 UTC. The 10 MeV proton flux levels gradually decreased, but persisted above the S1 (Minor) threshold on 19 Jul, and decreased below event threshold at 20/0610 UTC.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 19-20 Jul, with normal to moderate levels observed throughout the remainder of the period.

Geomagnetic field activity reached G1 (Minor) storm levels late 17 Jul through early 18 Jul due to the passage of a CME that began on 16 Jul. Active levels were observed on 20 Jul following the passage of a CME from 17 Jul, and again on 21 Jul due to the passage of a CME from 18 Jul. Quiet or quiet and unsettled conditions were observed throughout the remainder of the week.

Space Weather Outlook
24 July - 19 August 2023

Solar activity is expected to be low with a chance for M-class flare activity throughout the outlook period.

No proton events are expected at geosynchronous orbit, barring significant flare activity.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 31 Jul-02 Aug, with normal to moderate levels expected to persist throughout the remainder of the period.

Geomagnetic field activity is expected to reach active levels on 24 Jul due to negative polarity CH HSS influences, and again on 27-28 Jul due to the anticipated arrival of a CME from 22 Jul and positive CH HSS influences. Quiet and quiet to unsettled levels are expected to persist throughout 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
17 July	180	149	1980	C1.5	18	2	0	19	0	0	0	0
18 July	219	142	1850	C2.1	9	5	0	14	0	0	0	0
19 July	189	141	1660	C1.5	15	2	0	8	0	0	0	0
20 July	184	131	1570	C1.1	5	0	0	8	0	0	0	0
21 July	173	121	1500	C1.0	2	0	0	11	0	0	0	0
22 July	174	103	1320	C1.2	3	2	0	8	2	1	0	0
23 July	173	117	1300	C1.4	5	0	0	15	2	1	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
17 July	1.2e+06	5.1e+04	1.2e+06
18 July	1.3e+08	1.7e+07	2.6e+07
19 July	4.4e+07	3.0e+06	5.5e+07
20 July	3.6e+07	5.5e+05	5.6e+07
21 July	1.3e+07	8.4e+04	6.6e+06
22 July	8.7e+05	2.6e+04	2.6e+06
23 July	3.5e+05	2.5e+04	4.2e+06

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
17 July	19	4-1-3-4-3-2-4-4	27	3-2-5-5-4-2-3-5	24	3-2-4-4-3-2-5-5
18 July	16	4-3-3-3-4-2-3-2	15	4-3-3-4-3-1-3-1	16	5-3-2-2-3-1-4-3
19 July	7	1-1-1-2-3-2-3-1	4	1-1-1-0-3-1-1-0	5	1-1-1-2-2-1-1-1
20 July	10	1-1-1-2-3-4-3-2	6	1-1-1-1-2-3-2-2	10	1-1-1-1-2-4-4-2
21 July	11	3-3-2-2-2-2-3-3	12	2-3-2-4-2-2-2-3	13	3-3-2-2-1-2-3-4
22 July	9	4-2-2-2-2-1-2-1	15	3-3-2-5-4-1-1-1	9	3-3-2-2-2-1-1-2
23 July	5	1-0-2-2-0-2-2-2	5	1-1-2-1-0-2-2-2	3	1-1-2-2-1-2-2-2

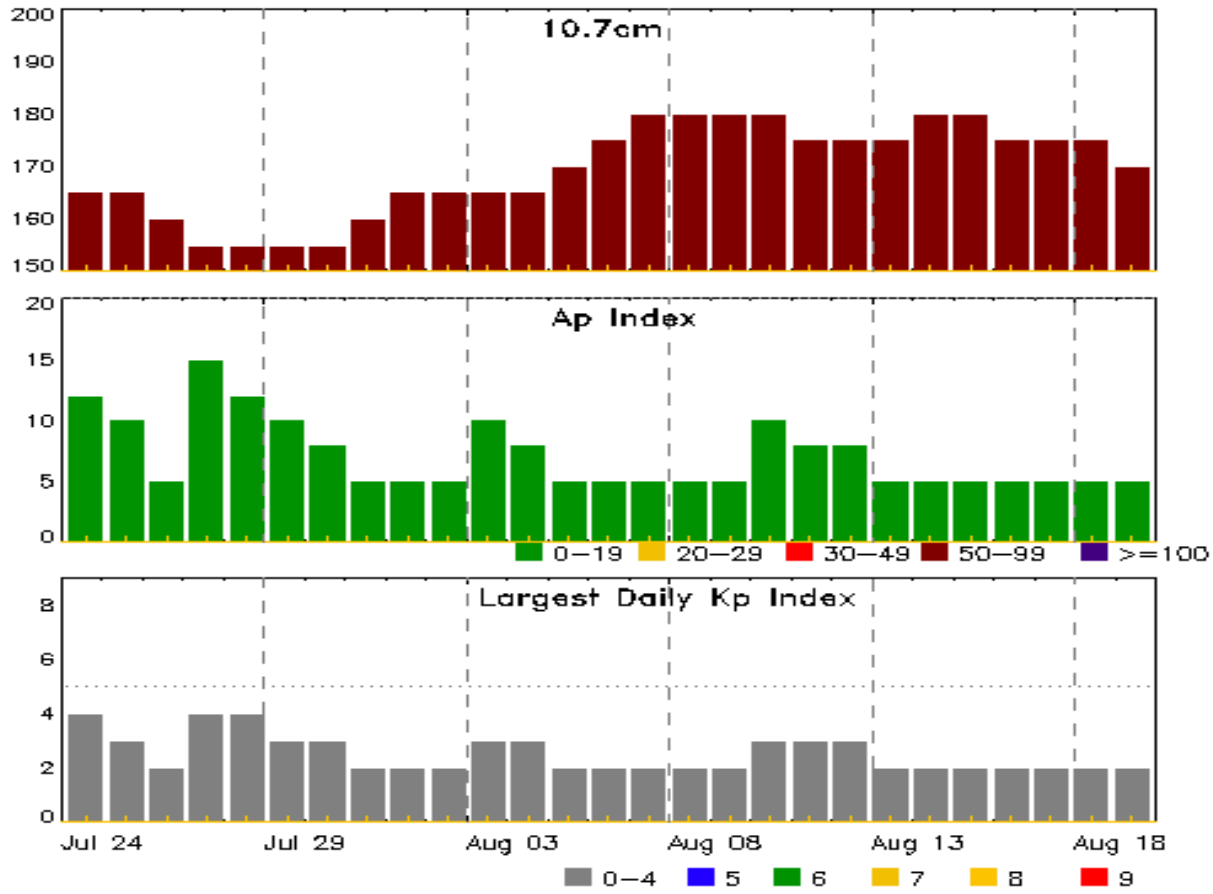
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
17 Jul 0002	ALERT: Geomagnetic K = 5	16/2359
17 Jul 0855	EXTENDED WARNING: Geomagnetic K = 4	16/1900 - 18/1500
17 Jul 0856	EXTENDED WARNING: Geomagnetic K = 5	16/2310 - 17/1500
17 Jul 1931	WARNING: Geomagnetic K = 5	17/1930 - 18/0300
17 Jul 2050	ALERT: Geomagnetic K = 5	17/2049
17 Jul 2339	ALERT: X-ray Flux exceeded M5	17/2334
17 Jul 2359	ALERT: Geomagnetic K = 5	17/2358
18 Jul 0024	SUMMARY: 10cm Radio Burst	17/2327 - 18/0003
18 Jul 0039	SUMMARY: X-ray Event exceeded M5	17/2320 - 18/0023
18 Jul 0103	WARNING: Proton 10MeV Integral Flux > 10pfu	18/0100 - 1500
18 Jul 0129	ALERT: Proton Event 10MeV Integral Flux >= 10pfu	18/0015
18 Jul 0135	ALERT: Proton Event 10MeV Integral Flux >= 10pfu	18/0115
18 Jul 0135	CANCELLATION: Proton Event 10MeV Integral Flux >= 10pfu	
18 Jul 0207	ALERT: Proton Event 10MeV Integral Flux >= 100pfu	18/0200
18 Jul 0212	EXTENDED WARNING: Geomagnetic K = 5	17/1930 - 18/1200
18 Jul 0212	ALERT: Geomagnetic K = 5	18/0200
18 Jul 1429	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	18/0100 - 19/0600
18 Jul 1458	EXTENDED WARNING: Geomagnetic K = 4	16/1900 - 18/2100
18 Jul 1756	ALERT: Type II Radio Emission	18/1726
18 Jul 1758	ALERT: Type IV Radio Emission	18/1739
18 Jul 1947	WATCH: Geomagnetic Storm Category G1 predicted	
18 Jul 2034	EXTENDED WARNING: Geomagnetic K = 4	16/1900 - 19/0300
19 Jul 0551	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	18/0100 - 20/1200
19 Jul 0906	SUMMARY: Proton Event 10MeV Integral Flux >= 100pfu	18/0200 - 1445
19 Jul 1800	ALERT: Type II Radio Emission	19/1714
19 Jul 2342	ALERT: Type II Radio Emission	19/2313
20 Jul 0721	WATCH: Geomagnetic Storm Category G1 predicted	

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
20 Jul 1130	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	18/0100 - 20/2359
20 Jul 1620	WARNING: Geomagnetic Sudden Impulse expected	20/1650 - 1725
20 Jul 1632	WARNING: Geomagnetic K = 4	20/1645 - 21/0300
20 Jul 1653	ALERT: Electron 2MeV Integral Flux >= 1000pfu	20/1635
20 Jul 1705	SUMMARY: Geomagnetic Sudden Impulse	20/1651
20 Jul 1708	ALERT: Geomagnetic K = 4	20/1708
20 Jul 1710	WARNING: Geomagnetic K = 5	20/1710 - 2359
20 Jul 1846	SUMMARY: Proton Event 10MeV Integral Flux >= 10pfu	18/0115 - 20/0610
20 Jul 1855	CANCELLATION: Proton 10MeV Integral Flux > 10pfu	
21 Jul 0243	EXTENDED WARNING: Geomagnetic K = 4	20/1645 - 21/2359
21 Jul 2221	WARNING: Geomagnetic K = 5	21/2220 - 22/0600
21 Jul 2222	EXTENDED WARNING: Geomagnetic K = 4	20/1645 - 22/1200
23 Jul 2012	ALERT: Type IV Radio Emission	23/1424

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
24 Jul	165	12	4	07 Aug	180	5	2
25	165	10	3	08	180	5	2
26	160	5	2	09	180	5	2
27	155	15	4	10	180	10	3
28	155	12	4	11	175	8	3
29	155	10	3	12	175	8	3
30	155	8	3	13	175	5	2
31	160	5	2	14	180	5	2
01 Aug	165	5	2	15	180	5	2
02	165	5	2	16	175	5	2
03	165	10	3	17	175	5	2
04	165	8	3	18	175	5	2
05	170	5	2	19	170	5	2
06	175	5	2				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
17 Jul	2241	2254	2306	M2.7	0.028				3363	100		
17 Jul	2337	0006	0023	M5.7	0.150				3363	340	190	
18 Jul	0645	0656	0702	M1.5	0.010							
18 Jul	1932	1948	2000	M1.3	0.020							
18 Jul	2000	2005	2011	M1.4	0.007							
18 Jul	2016	2027	2035	M2.1	0.021							
18 Jul	2016	2027	1019	M2.1	0.001	SF	N20W12		3372			
19 Jul	1049	1057	1102	M1.4	0.007	SF	S20W88		3363			
19 Jul	1704	1725	1743	M3.8	0.052				3363			1
22 Jul	0312	0337	0355	M3.1	0.043	2N	N21W55		3372			
22 Jul	0412	0416	0424	M1.0	0.007	1F	N08W25		3373			

Flare List

	Time			Optical			
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
17 Jul	0003	0007	0022	C2.5			3363
17 Jul	0130	0130	0134		SF	N24E57	
17 Jul	0135	0142	0150	C2.7			
17 Jul	0206	0214	0220	C2.2			3363
17 Jul	0315	0323	0331	C2.2			
17 Jul	0335	0340	0346	C4.4	SF	S20W62	3363
17 Jul	0427	0434	0438	C2.8	SF	N08E43	3373
17 Jul	0454	0456	0509		SF	N27E55	
17 Jul	0512	0516	0521	C3.9	SF	N28E16	3372
17 Jul	0555	0604	0610	C3.7	SF	N08E43	3373
17 Jul	0645	0655	0709	C4.3	SF	N09E38	3373
17 Jul	0812	0818	0822	C3.7			3373
17 Jul	0917	0927	0936	C4.2	SF	S25W70	3363
17 Jul	1027	1027	1040		SF	N09E37	3373
17 Jul	1116	1117	1142		SF	N26E12	3372
17 Jul	1241	1243	1245		SF	S25W67	3363
17 Jul	B1332	1332	1333		SF	S10E85	3377
17 Jul	1355	1400	1702		SF	S09E79	3377
17 Jul	1453	1453	1458		SF	S24W68	3363
17 Jul	1506	1516	1523	C6.6	SF	N27E12	3372

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
17 Jul	1547	1548	1550		SF	S19W66	3363
17 Jul	1610	1614	1616		SF	S25W66	3363
17 Jul	1725	1733	1747	C2.5	SF	N06E32	3373
17 Jul	1818	1829	1838	C3.2			3377
17 Jul	1847	1854	1858	C2.9			
17 Jul	1953	2001	2007	C3.3	SF	N07E30	3373
17 Jul	2204	2211	2216	C5.9			
17 Jul	2223	2232	2240	C7.4			3363
17 Jul	2241	2254	2306	M2.7			3363
17 Jul	2337	0006	0023	M5.7			3363
18 Jul	0444	0446	0456		SF	N04E25	3373
18 Jul	0602	0602	0620	C8.3	SF	N26E40	3376
18 Jul	0645	0656	0702	M1.5			
18 Jul	0657	0658	0701		SF	N24E42	3376
18 Jul	0749	0750	0752		SF	S26W75	3363
18 Jul	0757	0802	0817		SF	N25W01	3372
18 Jul	0900	0906	0910	C4.8	SF	N08E28	3373
18 Jul	1036	1046	1057	C3.2	SF	N08E23	3373
18 Jul	1235	1236	1238		SF	N07E20	3373
18 Jul	1239	1249	1256	C5.2			3363
18 Jul	1340	1342	1347		SF	N26E37	3376
18 Jul	1351	1358	1401		SF	N25W03	3372
18 Jul	1407	1408	1412		SF	S26W75	3363
18 Jul	1445	1446	1450		SF	N05E14	3373
18 Jul	1517	1525	1534	C5.3	SF	S26E34	
18 Jul	1720	1729	1734	C5.0	SF	N26E01	3372
18 Jul	1825	1833	1844	C6.3			
18 Jul	1916	1925	1932	C6.0	SF	N07E18	3373
18 Jul	1932	1948	2000	M1.3			
18 Jul	2000	2005	2011	M1.4			
18 Jul	2016	2017	2022	M2.1	SF	N20W12	3372
18 Jul	2016	2027	2035	M2.1			
18 Jul	2029	2035	2113		SN	N27E34	3376
18 Jul	2236	2244	2249	C8.5			3363
19 Jul	0600	0608	0613	C2.4			
19 Jul	0651	0658	0702	C2.4	SN	N24W06	3372
19 Jul	0700	0702	0708		SF	N22E22	3376
19 Jul	0708	0716	0723	C2.9			

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
19 Jul	0800	0802	0805		SF	N24W06	3372
19 Jul	0815	0824	0830	C3.1			3363
19 Jul	0830	0837	0843	C3.4			
19 Jul	0838	0839	0841		SF	S20W87	3363
19 Jul	1019	1029	1034	C3.6	SF	S20W88	3363
19 Jul	1049	1057	1102	M1.4	SF	S20W88	3363
19 Jul	1306	1314	1319	C2.7			3363
19 Jul	1341	1348	1356	C3.0			3363
19 Jul	1459	1507	1514	C2.8			3363
19 Jul	1539	1545	1558	C2.4			3363
19 Jul	1638	1645	1647	C2.4			3363
19 Jul	1704	1725	1743	M3.8			3363
19 Jul	1854	1904	1911	C3.2			3363
19 Jul	2138	2146	2156	C2.6	SF	N24E18	3376
19 Jul	2256	2317	2337	C2.9			3376
19 Jul	2337	2343	2347	C2.5			
19 Jul	2343	2343	2348		SF	N24E16	3376
20 Jul	0557	0604	0608	C2.2			3377
20 Jul	0831	0838	0842	C1.7	SF	N09W03	3373
20 Jul	1117	1117	1120		SF	N04W10	3373
20 Jul	1539	1548	1551		SF	N05W13	3373
20 Jul	1940	1949	1954	C9.7			3373
20 Jul	1944	1950	2010		SF	N23E07	3376
20 Jul	1953	1954	2001		SN	S11E40	3377
20 Jul	2027	2027	2130		SF	N08W12	3373
20 Jul	2030	2033	2134		SF	N23E06	3376
20 Jul	2130	2135	2141	C1.9	SF	N25W31	3372
20 Jul	2344	2351	0001	C2.2			3379
21 Jul	0419	0420	0422		SF	N21W41	3372
21 Jul	0554	0604	0624		SF	N23W33	3372
21 Jul	0625	0632	0638		SF	N23W33	3372
21 Jul	0639	0650	0709		SF	N23W33	3372
21 Jul	0710	0719	0723		SF	N26W36	3372
21 Jul	0812	0812	0820		SF	N05W18	3373
21 Jul	0945	0952	0957	C1.5	SF	N05W18	3373
21 Jul	1044	1054	1103	C2.1	SF	N05W19	3373
21 Jul	1927	1928	1937		SF	N07W24	3373
21 Jul	2107	2112	2120		SF	N18E07	

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
21 Jul	2251	2253	2258		SF	N05W28	3373
22 Jul	0312	0337	0355	M3.1	2N	N21W55	3372
22 Jul	0412	0416	0424	M1.0	1F	N08W25	3373
22 Jul	0514	0517	0537		SF	N21W55	3372
22 Jul	0629	0630	0638		SF	N25W48	3372
22 Jul	0639	0640	0648		SF	S10E18	3377
22 Jul	0716	0721	0722		SF	N21W55	3372
22 Jul	0727	0736	0743		SF	N25W48	3372
22 Jul	0902	0906	A0929		SF	N25W48	3372
22 Jul	0952	0953	0955		SF	N25W48	3372
22 Jul	1050	1101	1108	C7.1	1N	N25W52	3372
22 Jul	1333	1339	1351	C2.6			3372
22 Jul	2318	2324	2336	C3.1	SF	N05W43	3373
23 Jul	0257	0258	0302		SF	N08W40	3373
23 Jul	0442	0454	0500	C9.9	1N	N08W40	3373
23 Jul	0516	U0556	0619		SF	N07W42	3373
23 Jul	0650	0650	0708		SF	N09W44	3373
23 Jul	0724	0728	0733		SF	N08W40	3373
23 Jul	0929	0929	0933		SF	N10W44	3373
23 Jul	1020	1040	1055		SF	N11W45	3373
23 Jul	1207	1212	1216	C2.4	SF	N18E31	3379
23 Jul	1412	1444	1447	C5.2	2F	N27W25	3376
23 Jul	1447	1457	1515	C7.4	1F	N23W71	3372
23 Jul	1511	1512	1516		SF	S10E75	3380
23 Jul	1753	1800	1806	C2.3			3380
23 Jul	1909	1910	1913		SF	N06W57	3373
23 Jul	2154	2157	2159		SF	N21W35	3376
23 Jul	2206	2208	2213		SF	N21W35	3376
23 Jul	2223	2223	2226		SF	N21W35	3376
23 Jul	2224	2224	2226		SF	N04W57	3373
23 Jul	2228	2228	2236		SF	N04W57	3373
23 Jul	2256	2258	2309		SF	N21W37	3376

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 3362												
05 Jul	S10E60	9	70	2	Hsx	1	A								
06 Jul	S10E47	10	40	2	Hsx	1	A								
07 Jul	S09E33	11	50	2	Hsx	1	A								
08 Jul	S09E19	11	50	2	Hsx	2	A								
09 Jul	S09E06	11	50	2	Hsx	2	A								
10 Jul	S09W06	10	40	2	Hsx	2	A								
11 Jul	S08W20	11	30	1	Hsx	1	A								
12 Jul	S08W34	11	20	1	Hrx	1	A								
13 Jul	S08W45	9	20	1	Hrx	1	A								
14 Jul	S08W59	10	10	1	Axx	1	A								
15 Jul	S08W73	11	plage												
16 Jul	S08W87	12	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 11

			Region 3363												
06 Jul	S21E68	349	390	5	Hhx	1	A								
07 Jul	S21E56	348	320	5	Hkx	2	A				1				
08 Jul	S21E43	347	320	8	Cko	2	B	1							
09 Jul	S21E30	347	320	6	Hkx	2	A				2				
10 Jul	S21E17	347	500	7	Cko	7	B	1			4				
11 Jul	S21E05	346	780	7	Cko	21	B	1			7				
12 Jul	S21W09	346	850	7	Dko	24	BD	1			2				
13 Jul	S23W20	343	800	8	Dko	20	BD				1		1		
14 Jul	S22W34	345	780	8	Dko	16	BD	3	1		10				
15 Jul	S22W47	346	720	8	Dko	11	BD	2	1		7		1		
16 Jul	S22W59	344	720	10	Dko	9	BD	9	1		9	1	1		
17 Jul	S22W74	345	700	9	Dko	10	BD	5	2		6				
18 Jul	S21W86	343	380	7	Hkx	3	A	2			1				
								25	5	0	50	1	3	0	0

Crossed West Limb.
Absolute heliographic longitude: 346

Region Summary - continued

	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 3364												
06 Jul	N23E57	360	20	2	Cro	7	B								
07 Jul	N24E43	1	20	3	Cro	3	B								
08 Jul	N24E29	1	10	1	Axx	1	A	1							
09 Jul	N24E15	2	10	1	Axx	1	A								
10 Jul	N24E01	3	10	1	Axx	1	A								
11 Jul	N25W12	3	10		Axx	1	A								
12 Jul	N25W26	3	10	3	Bxo	5	B								
13 Jul	N25W39	2	0		Axx	1	A								
14 Jul	N25W52	3	plage												
15 Jul	N25W65	4	plage												
16 Jul	N25W79	4	plage												
								1	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 3

			Region 3370												
10 Jul	S15E61	303	30	7	Dso	4	B								
11 Jul	S14E47	304	50	7	Dao	8	B				1				
12 Jul	S15E33	304	30	8	Dro	8	B								
13 Jul	S15E21	302	20	8	Cro	5	B								
14 Jul	S15E08	303	10	5	Bxo	4	B	2			1				
15 Jul	S15W06	304	plage												
16 Jul	S15W20	305	plage												
17 Jul	S15W34	305	plage												
18 Jul	S15W48	306	plage												
19 Jul	S15W62	307	plage												
20 Jul	S15W76	308	plage												
21 Jul	S15W90	308	plage												
								2	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 304

Region Summary - continued

	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 3371												
11 Jul	S15E59	292	20	1	Hax	1	A								
12 Jul	S15E48	289	30	1	Hax	2	A								
13 Jul	S15E34	290	30	2	Hax	2	A								
14 Jul	S15E20	291	30	2	Hax	2	A								
15 Jul	S15E07	291	20	1	Hax	1	A								
16 Jul	S15W07	292	20	1	Hrx	1	A								
17 Jul	S15W19	290	20	1	Hrx	1	A								
18 Jul	S15W33	291	0		Axx	1	A								
19 Jul	S15W39	288	plage												
20 Jul	S15W53	285	plage												
21 Jul	S15W67	285	plage												
22 Jul	S15W81	286	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 291

			Region 3372												
11 Jul	N22E75	276	270	2	Hkx	3	A		3		3				
12 Jul	N24E65	272	650	14	Eki	13	B	3	2		8	1			
13 Jul	N24E53	271	650	15	Eko	16	B	11	1		8	3			
14 Jul	N24E39	272	770	15	Eko	11	BD	3			4	1			
15 Jul	N24E26	272	660	17	Fko	13	BGD	2	2		3	1			
16 Jul	N23E13	272	700	16	Fko	18	BGD	3	2		5	1			
17 Jul	N23E01	270	700	16	Fho	21	BD	2			3				
18 Jul	N23W12	270	560	17	Fho	20	BG	1	1		3				
19 Jul	N24W24	269	500	17	Fho	15	B	1			2				
20 Jul	N23W37	269	380	16	Fko	13	BG	1			1				
21 Jul	N23W51	269	340	15	Eko	9	B				5				
22 Jul	N25W64	269	280	14	Eko	7	B	2	1		6	1	1		
23 Jul	N24W78	270	260	13	Cko	4	B	1				1			
								30	12	0	51	9	1	0	0

Still on Disk.
Absolute heliographic longitude: 270

Region Summary - continued

	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 3373												
14 Jul	N08E66	245	120	7	Dao	6	B								
15 Jul	N07E52	246	180	9	Dso	6	B	1			5				
16 Jul	N07E39	246	240	10	Dai	20	B	2			1				
17 Jul	N07E25	246	450	11	Ekc	20	BD	6			6				
18 Jul	N07E13	244	500	12	Ekc	18	BG	3			6				
19 Jul	N08W02	246	550	14	Ekc	24	BG								
20 Jul	N08W15	247	520	14	Ekc	21	BG	2			4				
21 Jul	N08W30	248	550	14	Ekc	22	BGD	2			5				
22 Jul	N08W43	248	480	15	Ekc	20	B	1	1		1	1			
23 Jul	N09W57	249	400	15	Ekc	23	B	1			9	1			
								18	1	0	37	2	0	0	0

Still on Disk.
Absolute heliographic longitude: 246

			Region 3374												
14 Jul	S09E69	242	30	1	Hsx	1	A								
15 Jul	S08E55	243	30	1	Hsx	1	A								
16 Jul	S08E41	244	20	1	Hsx	1	A	1							
17 Jul	S16E27	244	30	1	Hrx	1	A								
18 Jul	S08E15	243	20	1	Hrx	2	A								
19 Jul	S07E01	244	10	1	Hrx	1	A								
20 Jul	S08W12	244	10	1	Axx	1	A								
21 Jul	S08W26	244	plage												
22 Jul	S08W40	245	plage												
23 Jul	S08W53	245	plage												
								1	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 244

			Region 3375												
17 Jul	N12W53	324	20	3	Cro	4	B								
18 Jul	N12W65	322	0		Axx	1	A								
19 Jul	N13W80	324	0	1	Axx	1	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 324

Region Summary - continued

	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 3376												
17 Jul	N24E43	228	30	5	Dro	11	B								
18 Jul	N23E29	228	180	7	Dso	15	BG	1			4				
19 Jul	N25E16	229	150	7	Dso	7	B	2			3				
20 Jul	N25E03	229	130	6	Dso	8	B				2				
21 Jul	N25W11	229	100	6	Cso	9	B								
22 Jul	N23W26	231	60	3	Hsx	1	A								
23 Jul	N23W39	231	60	2	Hsx	1	A	1			4		1		
								4	0	0	13	0	1	0	0

Still on Disk.
Absolute heliographic longitude: 229

			Region 3377												
17 Jul	S09E71	200	30	2	Dso	1	B	1			2				
18 Jul	S09E60	198	210	6	Dso	2	B								
19 Jul	S09E47	198	240	6	Dso	4	B								
20 Jul	S09E34	198	240	7	Dso	5	B	1			1				
21 Jul	S09E20	198	210	7	Dso	5	B								
22 Jul	S08E07	198	200	7	Dao	4	B				1				
23 Jul	S09W06	198	200	7	Dso	3	B								
								2	0	0	4	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 198

			Region 3378												
19 Jul	S26E13	232	30	7	Dro	6	B								
20 Jul	S26W01	233	30	7	Cro	7	B								
21 Jul	S26W14	232	30	8	Cro	8	B								
22 Jul	S26W27	232	40	8	Cso	4	B								
23 Jul	S26W42	234	40	2	Hax	2	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 233

Region Summary - continued

	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 3379													
19 Jul	N16E70	175	180	10	Dso	3	B								
20 Jul	N16E63	169	260	16	Fho	6	B	1							
21 Jul	N16E48	170	270	17	Fho	8	B								
22 Jul	N16E35	170	260	17	Fho	7	B								
23 Jul	N16E23	169	280	17	Fho	10	BG	1			1				
								2	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 169

		Region 3380													
23 Jul	S11E69	123	60	3	Cso	4	B	1			1				
								1	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 123

Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce
NOAA / National Weather Service
Space Weather Prediction Center
325 Broadway, Boulder CO 80305

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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