Space Weather Highlights
30 June - 06 July 2025

SWPC PRF 2601
07 July 2025

Solar activity was at low levels through the period. The largest events were a pair of C2.5 flares from Regions 4126 (N07, L=264, class/area Dro/030 on 01 Jul) and 4130 (S11, L=140, class/area Dai/040 on 06 Jul) at 02/1835 UTC and 04/0747 UTC, respectively. No regions exhibited delta configurations, with Region 4129 (N02, L=171, class/area Dso/060 on 04 Jul) being the only one to carry a beta-gamma characteristic. The remaining regions were simple alpha or beta spots. There were several filament and prominence events that produced CMEs during the period, but analysis deemed none appeared to be Earth-directed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 30 Jun-03 Jul, with a peak flux of 8,730 pfu at 30/1625 UTC, and moderate levels on 04-06 Jul.

Geomagnetic field activity was at quiet levels on 02 July, quiet to unsettled levels on 30 Jun-01 Jul, reached active levels on 03-05 Jul, and G1 (Minor) storm levels on 06 Jul, all likely associated with negative polarity CH HSS influence. Total field reached a peak of 14 nT at 03/0900 UTC, Bz saw a maximum southward deflection to -13 nT at 03/1220 UTC, and wind speeds observed a maximum of 579 km/s 01/0402 UTC.

Space Weather Outlook
07 July - 02 August 2025

Solar activity is expected to be at low levels from 07-11 July, with several regions expected to rotate off the disk and no major groups expected to return. After 12 July, several returning regions could prompt conditions to increase to moderate levels through 25 Jul, then be hit or miss for the remainder of the period as several regions rotate off the disk and others rotate on.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be high levels from 20-29 Jul under recurrent CH HSS influence. Moderate levels are expected from 07-19 Jul and again from 30 Jul-02 Aug.

Geomagnetic field activity is expected to be at G1-G2 (Minor-Moderate) storm levels early on 07 Jul as possible transient effects co-mingle with lingering CH HSS influence. Quiet to unsettled conditions are then expected to return from 08-21 Jul, with isolated active periods possible on 15-16 Jul, under positive polarity CH HSS influence. From 22-27 Jul, a shift to negative polarity CH HSS inluence is likely to bring unsettled to active conditions, with isolated periods of G1 (Minor) storm conditions on 23 Jul. Mostly quiet levels are then expected from 28-31 Jul before another negative polarity CH moves into a geoeffective position on 01 Aug, bringing in unsettled to active levels through 02 Aug.

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
30 June	128	158	330	B6.8	7	0	0	1	0	0	0	0
01 July	126	144	300	B6.2	1	0	0	3	0	0	0	0
02 July	130	148	315	B7.4	5	0	0	4	0	0	0	0
03 July	125	118	300	B6.8	5	0	0	0	0	0	0	0
04 July	119	87	360	B5.6	3	0	0	3	0	0	0	0
05 July	117	82	220	B4.6	2	0	0	3	0	0	0	0
06 July	118	81	230	B5.8	3	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	>2MeV
30 June	9.5e+05	1.9e+04	2.3e+08
01 July	2.7e+05	1.6e+04	1.2e+08
02 July	1.3e+06	1.6e+04	1.6e+08
03 July	3.8e+06	1.7e+04	2.7e+07
04 July	4.9e+07	1.8e+04	1.6e+07
05 July	1.5e+06	1.6e+04	1.4e+07
06 July	1.2e+05	1.6e+04	1.2e+07

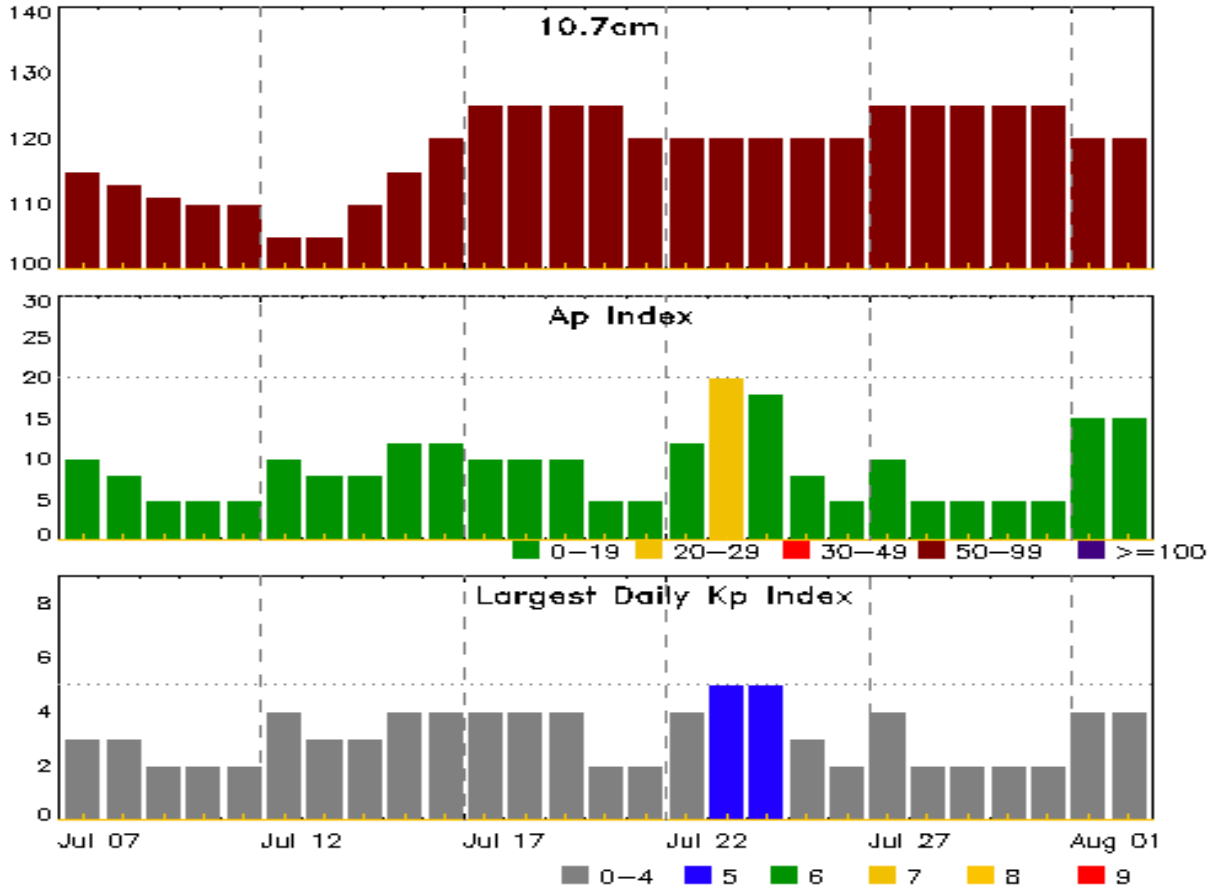
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
30 June	11	2-3-2-4-2-2-2-2	27	4-3-3-6-2-5-3-2	11	2-2-2-3-2-3-3-3
01 July	7	3-2-1-2-1-2-2-2	9	4-3-2-2-2-1-1-1	7	3-2-2-1-1-1-1-2
02 July	8	1-2-3-1-3-2-2-2	11	0-1-3-4-4-2-2-1	7	1-2-2-2-2-2-2-2
03 July	16	2-3-3-3-4-2-3-4	21	2-4-3-2-5-5-2-2	16	3-3-3-3-4-2-3-4
04 July	11	2-2-3-2-2-1-3-4	16	3-4-5-2-2-2-2-2	10	3-2-3-2-1-1-3-4
05 July	20	3-4-3-3-4-3-3-4	29	3-4-3-6-5-3-3-3	19	3-3-3-4-4-3-3-3
06 July	20	3-4-3-4-3-2-2-5	37	5-5-4-6-5-2-2-4	32	4-5-3-4-3-2-3-5

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
30 Jun 0010	WATCH: Geomagnetic Storm Category G1 predicted	
30 Jun 0515	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	27/1310
30 Jun 1856	WATCH: Geomagnetic Storm Category G1 predicted	
01 Jul 0112	WARNING: Geomagnetic K = 4	01/0112 - 0900
01 Jul 0748	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	27/1310
02 Jul 0528	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	27/1310
03 Jul 1417	WARNING: Geomagnetic K = 4	03/1415 - 04/0900
03 Jul 1432	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	27/1310
03 Jul 1444	ALERT: Geomagnetic K = 4	
04 Jul 2249	WARNING: Geomagnetic K = 4	04/2248 - 05/0600
04 Jul 2353	ALERT: Geomagnetic K = 4	
05 Jul 0516	EXTENDED WARNING: Geomagnetic K = 4	04/2248 - 05/1500
05 Jul 1419	EXTENDED WARNING: Geomagnetic K = 4	04/2248 - 05/2359
05 Jul 2302	EXTENDED WARNING: Geomagnetic K = 4	04/2248 - 06/0600
06 Jul 0422	WARNING: Geomagnetic K = 5	06/0420 - 1200
06 Jul 0423	EXTENDED WARNING: Geomagnetic K = 4	04/2248 - 06/1500
06 Jul 0539	ALERT: Geomagnetic K = 5	
06 Jul 1428	EXTENDED WARNING: Geomagnetic K = 4	04/2248 - 06/2359
06 Jul 2321	WARNING: Geomagnetic K = 5	06/2320 - 07/0600
06 Jul 2341	EXTENDED WARNING: Geomagnetic K = 4	04/2248 - 07/1200
06 Jul 2353	ALERT: Geomagnetic K = 5	

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
07 Jul	115	10	3	21 Jul	120	5	2
08	113	8	3	22	120	12	4
09	111	5	2	23	120	20	5
10	110	5	2	24	120	18	5
11	110	5	2	25	120	8	3
12	105	10	4	26	120	5	2
13	105	8	3	27	125	10	4
14	110	8	3	28	125	5	2
15	115	12	4	29	125	5	2
16	120	12	4	30	125	5	2
17	125	10	4	31	125	5	2
18	125	10	4	01 Aug	120	15	4
19	125	10	4	02	120	15	4
20	125	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

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
30 Jun	0348	0356	0401	C1.0			4128
30 Jun	0624	0633	0640	C1.2	SF	N16E02	4122
30 Jun	1320	1327	1334	C1.4			4130
30 Jun	1439	1450	1455	B9.6			4130
30 Jun	1513	1520	1526	C1.0			4130
30 Jun	1759	1805	1816	C1.1			4130
30 Jun	1825	1834	1840	C1.9			4130
30 Jun	2357	0002	0005	C1.1			4129
01 Jul	0203	0212	0220	B8.9			4130
01 Jul	0358	0401	0405	B8.7			4123
01 Jul	0444	0444	0444		SF	N07W59	4126
01 Jul	0524	0531	0534	C1.0	SF	S28W26	4123
01 Jul	0533	0534	0540		SF	N08W59	4126
02 Jul	1122	1129	1134	C1.1	SF	S20E57	4132
02 Jul	1154	1156	1202		SF	N22E23	4125
02 Jul	1602	1612	1621	C1.7			4126
02 Jul	1621	1624	1627	C1.9			4126
02 Jul	1725	1732	1736	C1.8	SF	N05W80	4126
02 Jul	1832	1835	1837	C2.5	SF	N07W79	4126
03 Jul	0120	0130	0200	C1.2			4126
03 Jul	0144	0148	0150	C1.0			4126
03 Jul	0209	0218	0226	C1.3			4122
03 Jul	0226	0247	0255	C1.6			4126
03 Jul	0808	0815	0821	C2.0			4126
04 Jul	0218	0228	0238	B9.4			4129
04 Jul	0353	0400	0409	C1.3			4130
04 Jul	0720	0744	0759		SF	S10E27	4130
04 Jul	0738	0747	0755	C2.5	SF	S11E27	4130
04 Jul	1125	1133	1138	C1.0			4129
04 Jul	1516	1518	1522		SF	S08E22	4130
05 Jul	1210	1218	1228	C1.5	SF	S11E11	4130

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
05 Jul	1327	1342	1352	C1.3	SF	S11E09	4130
05 Jul	1525	1526	1528		SF	S11E11	4130
05 Jul	2119	2125	2134	B7.0			4127
06 Jul	0122	0129	0132	C1.3	SF	S19W53	4127
06 Jul	0702	0709	0715		SF	S20W53	4127
06 Jul	0847	0847	0854		SF	S20W54	4124
06 Jul	1041	1053	1106	C1.4	SF	S17W02	4134
06 Jul	1047	1047	1059		SF	S13W04	4130
06 Jul	1229	1230	1233		SF	S21W56	4127
06 Jul	1855	1857	1859	C1.2			4127

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 4117												
17 Jun	S16E77	303	plage						1						
18 Jun	S16E63	303	70	10	Dai	9	B	7			5				
19 Jun	S14E50	303	210	8	Dai	9	BG	4			6				
20 Jun	S14E38	302	80	8	Dai	6	B		1			1			
21 Jun	S15E23	304	200	8	Dai	7	B								
22 Jun	S15E11	303	190	8	Dsi	11	B	1			1				
23 Jun	S13W03	304	200	8	Dsi	13	B								
24 Jun	S14W17	304	150	8	Dso	6	B	3			2				
25 Jun	S14W31	304	160	9	Dso	5	B				1				
26 Jun	S14W45	306	130	6	Cso	6	B	1			2				
27 Jun	S14W60	308	100	7	Dso	4	B								
28 Jun	S14W72	306	90	8	Cso	2	B								
29 Jun	S14W86	307	60	2	Hsx	1	A								
								16	2	0	17	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 304

			Region 4118												
19 Jun	S14E62	292	50	1	Dao	3	B								
20 Jun	S13E50	290	20	2	Hsx	2	A								
21 Jun	S14E36	291	60	2	Cao	3	B								
22 Jun	S13E22	292	120	5	Dai	12	B	2							
23 Jun	S12E08	293	120	7	Dai	11	BG	3			1				
24 Jun	S12W07	294	80	7	Cai	10	B	2							
25 Jun	S12W20	294	70	7	Cai	9	B								
26 Jun	S13W33	294	40	5	Cai	7	B								
27 Jun	S13W45	293	10	3	Bxo	4	B								
28 Jun	S13W60	294	plage												
29 Jun	S13W74	295	10	5	Bxo	5	B								
30 Jun	S13W88	296	10	5	Bxo	5	B								
								7	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 294

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 4119												
23 Jun	S26W03	304	10	4	Bxo	3	B								
24 Jun	S25W16	303	5	1	Axx	2	A								
25 Jun	S25W30	304	plage												
26 Jun	S25W44	305	plage												
27 Jun	S25W58	306	plage												
28 Jun	S25W72	307	plage												
29 Jun	S25W86	307	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 304

			Region 4120												
23 Jun	N06E04	297	10	3	Bxo	3	B								
24 Jun	N06W10	297	10	4	Bxo	5	B								
25 Jun	N06W24	297	60	6	Dai	12	BG	2			3				
26 Jun	N07W37	298	90	7	Dai	14	BG	1							
27 Jun	N07W50	298	50	6	Dao	4	B	1							
28 Jun	N06W64	298	50	3	Dso	3	B								
29 Jun	N05W79	300	50	5	Cso	2	B								
30 Jun	N06W93	301	50	5	Cso	2	B								
								4	0	0	3	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 297

			Region 4121												
23 Jun	S12E25	276	10	3	Bxo	3	B								
24 Jun	S12E11	276	30	4	Dro	3	B								
25 Jun	S12W03	277	20	5	Dro	3	B								
26 Jun	S12W17	278	30	6	Dro	3	B								
27 Jun	S12W30	278	10	5	Cro	2	B								
28 Jun	S12W46	280	10	1	Axx	1	A								
29 Jun	S11W59	280	10	1	Hsx	1	A								
30 Jun	S11W73	281	plage												
01 Jul	S11W87	282	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 277

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 4122													
25 Jun	N13E55	219	10	5	Bxi	11	B	1							
26 Jun	N13E41	220	50	6	Dai	11	B	1			4				
27 Jun	N13E28	220	100	6	Dai	11	B	2			3				
28 Jun	N13E15	219	140	8	Dai	10	B								
29 Jun	N13E03	218	100	8	Dso	10	B								
30 Jun	N12W11	219	80	9	Dso	11	B	1			1				
01 Jul	N13W25	220	80	9	Cso	7	B								
02 Jul	N12W40	221	70	3	Hsx	2	A								
03 Jul	N12W54	222	70	3	Hsx	2	A	1							
04 Jul	N12W67	222	100	2	Hsx	1	A								
05 Jul	N11W80	222	60	2	Hsx	1	A								
06 Jul	N12W93	222	50	1	Hsx	1	A								
								6	0	0	8	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 218

		Region 4123													
27 Jun	S25E21	227	10	2	Axx	2	A								
28 Jun	S25E07	227	10	1	Axx	1	A								
29 Jun	S28W09	230	20	4	Cro	5	B								
30 Jun	S28W23	231	30	5	Dro	5	B								
01 Jul	S28W37	232	30	5	Dro	4	B	1			1				
02 Jul	S28W52	233	30	4	Cso	4	B								
03 Jul	S28W66	234	30	2	Cro	2	B								
04 Jul	S28W77	232	20	1	Hsx	1	A								
								1	0	0	1	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 227

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 4124												
27 Jun	S14E51	197	10	4	Bxo	3	B								
28 Jun	S15E37	197	10	4	Bxo	2	B								
29 Jun	S16E23	198	20	1	Hsx	1	A								
30 Jun	S14E10	198	10	3	Bxo	2	B								
01 Jul	S14W06	201	10	3	Axx	2	A								
02 Jul	S14W20	201	10	1	Axx	1	A								
03 Jul	S14W34	202	plage												
04 Jul	S14W48	203	plage												
05 Jul	S14W62	204	plage												
06 Jul	S14W76	205	plage								1				
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 201

			Region 4125												
27 Jun	N21E76	172	50	2	Hsx	1	A								
28 Jun	N21E61	173	50	4	Hsx	1	A								
29 Jun	N21E46	175	40	2	Hsx	1	A								
30 Jun	N21E32	176	40	2	Hsx	1	A								
01 Jul	N21E18	177	40	2	Hsx	1	A								
02 Jul	N21E06	175	40	2	Hsx	1	A				1				
03 Jul	N21W08	176	40	2	Hsx	1	A								
04 Jul	N22W19	174	70	2	Hsx	1	A								
05 Jul	N22W32	174	40	2	Hsx	1	A								
06 Jul	N22W45	174	30	1	Hsx	1	A								
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 175

			Region 4126												
28 Jun	N07W27	261	20	3	Cro	3	B	2				1			
29 Jun	N07W42	263	10	3	Cso	3	B								
30 Jun	N08W56	264	5	1	Axx	1	A								
01 Jul	N07W69	264	30	4	Dro	5	B				2				
02 Jul	N07W84	265	30	4	Dro	5	B	4			2				
								6	0	0	4	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 261

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 4127												
29 Jun	S18E34	187	30	4	Cro	7	B								
30 Jun	S18E20	188	30	5	Cro	7	B								
01 Jul	S18E05	190	20	7	Bxi	7	B								
02 Jul	S18W09	190	40	6	Dai	10	B								
03 Jul	S19W22	190	80	9	Dac	16	B								
04 Jul	S19W33	188	100	7	Dao	10	B								
05 Jul	S19W47	189	50	8	Cso	6	B								
06 Jul	S19W59	188	50	8	Dai	5	B	2			3				
								2	0	0	3	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 190

			Region 4128												
29 Jun	S05E40	181	30	5	Dao	5	B								
30 Jun	S04E26	182	40	6	Dao	5	B	1							
01 Jul	S04E12	183	40	7	Dao	4	B								
02 Jul	S05W02	183	30	8	Cao	3	B								
03 Jul	S06W14	183	30	8	Cro	3	B								
04 Jul	S05W26	183	plage												
05 Jul	S05W41	183	plage												
06 Jul	S05W56	185	plage												
								1	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 183

			Region 4129												
30 Jun	N02E38	170	30	6	Cri	8	BG	1							
01 Jul	N02E24	171	10	4	Cri	9	BG								
02 Jul	N02E09	172	30	5	Cri	7	B								
03 Jul	N02W04	171	30	7	Cri	10	B								
04 Jul	N02W16	171	60	6	Dso	11	B	1							
05 Jul	N03W29	171	50	5	Dao	7	B								
06 Jul	N02W43	172	30	6	Dao	4	B								
								2	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 171

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 4130												
30 Jun	S12E68	140	5	1	Axx	1	A	4							
01 Jul	S12E54	141	plage												
02 Jul	S12E39	142	plage												
03 Jul	S12E25	143	plage												
04 Jul	S10E20	140	10	3	Bxo	3	B	2			3				
05 Jul	S11E03	139	10	4	Cro	4	B	2			3				
06 Jul	S11W11	140	40	3	Dai	5	B				1				
								8	0	0	7	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 139

			Region 4131												
01 Jul	N08W15	210	20	5	Dro	3	B								
02 Jul	N08W30	211	20	5	Cro	2	B								
03 Jul	N08W44	212	10	1	Axx	1	A								
04 Jul	N08W58	213	plage												
05 Jul	N08W72	214	plage												
06 Jul	N08W86	215	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 210

			Region 4132												
01 Jul	S18E57	138	20	2	Hrx	2	A								
02 Jul	S17E42	139	10	2	Axx	2	A	1			1				
03 Jul	S17E28	140	10	2	Bxo	3	B								
04 Jul	S18E17	138	plage												
05 Jul	S18E03	139	10	2	Bxo	3	B								
06 Jul	S17W07	139	plage												
								1	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 139

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 4133													
02 Jul	S17W79	260	5	1	Axx	1	A								
03 Jul	S17W93	261	plage												
04 Jul	S17W99	262	plage												
05 Jul	S17W99	262	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 260

		Region 4134													
06 Jul	S23W15	144	30	4	Dao	5	B	1			1				
								1	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 144

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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