

Solar activity reached moderate levels on 16 May due to four M-class flares. The largest were an M1.9/2N (R1-Minor) at 16/1612UTC from Region 4436 (N18, L=330, class/area=Dao/200 on 11 May) and a second M1.9 flare (R1-Moderate) at 16/1742UTC from Region 4435 (N22, L=040, class/area=Dao/070 on 15 May). The 1612UTC M1.9 was associated with a Type IV radio sweep, two 10.7 cm radio bursts, and a filament eruption that was centered at approximately N21W07, which lead to a complex CME signature in coronagraph imagery. The first front was first seen in LASCO C2 imagery at 16/1636UTC, and the second front became visible at approximately 16/1700 UTC. Analysis and modeling of the event suggests potential for a glancing blow at Earth by mid UTC-day on 18 May, with the bulk of the material passing northward of Earth's orbit.

The other two M-flares, an M1.4 at 17/0339UTC and an M1.3 at 16/1629, were also from Regions 4435 and 4436, with the M1.3 following on the heels of the 16/1612UTC M1.9. The other 11 numbered active regions on this visible disk were either quiet or only produced C-class activity during the past week. 3 Type II radio sweeps and an additional 10.7cm radio burst were observed during the summary period, but they were not associated with any Earth-directed activity

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels for the majority of the summary period, before increasing to high levels at 16/1740UTC. During the summary period, the maximum value reached was 6,120 pfu at 17/1740UTC.

Geomagnetic field activity reached G1-G2 (Minor-Moderate) geomagnetic storming levels on 15-16 May due to a negative polarity coronal hole high speed stream becoming geoeffective late on 15 May. Total magnetic field strength, Bt, increased all throughout 15 May, from approximately 3 nT to a peak of 17 nT at 15/1555UTC. The north-south component, Bz, rotated between +/- 11 nT, with maximum southward deflections of approximately -13 nT. The interplanetary magnetic field had returned to background levels by the end of 16 May. A smaller positive polarity coronal hole high speed stream became geoeffective on 13 May with a max Bt of 13 nT and maximum Bz southward deflection of -9 nT; however this only produced unsettled geomagnetic conditions and no NOAA Geomagnetic Storming thresholds were reached.

Space Weather Outlook

18 May - 13 June 2026

Solar activity is expected to be at low to moderate levels throughout the outlook period, with M-class activity (R1-R2, Minor-Moderate) ranging from a chance to likely and X-class activity (R3, Strong) ranging from a slight chance to a chance, due to the flare potential of several active regions currently on the visible disk and those both expected to return and indicated by Solar

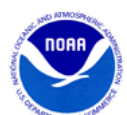


Orbiter magnetic imagery.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 18 May and 21-23 May due to influence from the current negative polarity coronal hole high speed stream and an anticipated solar sector boundary cross on 21 May. The remaining days of the outlook period are likely to be at normal to moderate levels.

Geomagnetic field activity is expected to reach G1 (Minor) geomagnetic storming levels over 18-19 May due to potential influences from the CME that left the Sun on 16 May arriving in the near-Earth environment in the midst of the current high speed stream. The remainder of the outlook period is anticipated to be at largely quiet to unsettled levels.



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
11 May	116	79	1030	B5.6	4	0	0	3	0	0	0	0
12 May	111	58	900	B5.8	9	0	0	5	0	0	0	0
13 May	103	56	290	B5.1	6	0	0	1	0	0	0	0
14 May	106	60	290	B6.0	15	0	0	7	0	0	0	0
15 May	101	46	310	B3.9	7	0	0	5	0	0	0	0
16 May	109	83	280	B4.1	6	3	0	4	0	1	0	0
17 May	104	86	250	B4.7	6	1	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	>2MeV	
	11 May	7.9e+05	1.8e+04	1.7e+07
12 May	8.0e+05	1.9e+04	1.7e+07	
13 May	2.1e+06	1.8e+04	1.7e+07	
14 May	5.0e+05	1.9e+04	1.2e+07	
15 May	3.3e+06	1.8e+04	1.2e+07	
16 May	5.3e+06	1.8e+04	4.5e+07	
17 May	4.4e+06	2.1e+04	2.9e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	11 May	4	1-1-1-1-2-1-1-1	4	2-2-1-1-1-2-1-0	5
12 May	2	0-0-1-1-1-1-1-1	2	0-1-1-0-1-0-1-0	4	1-1-1-0-1-1-1-1
13 May	9	0-1-2-2-3-2-3-3	9	0-2-0-2-3-4-2-2	10	1-2-2-2-3-3-3-3
14 May	5	2-2-2-1-2-1-1-1	5	3-2-1-0-1-1-1-1	5	3-2-2-1-1-1-1-1
15 May	22	2-2-3-3-4-4-4-5	36	2-2-3-4-6-6-4-5	35	2-2-3-3-5-5-4-6
16 May	19	4-4-4-3-3-3-3-2	60	5-6-7-6-4-6-3-2	34	6-5-5-4-2-5-4-3
17 May	7	2-2-2-2-2-2-2-2	17	2-3-2-5-4-3-2-2	7	2-2-2-2-2-2-2-2

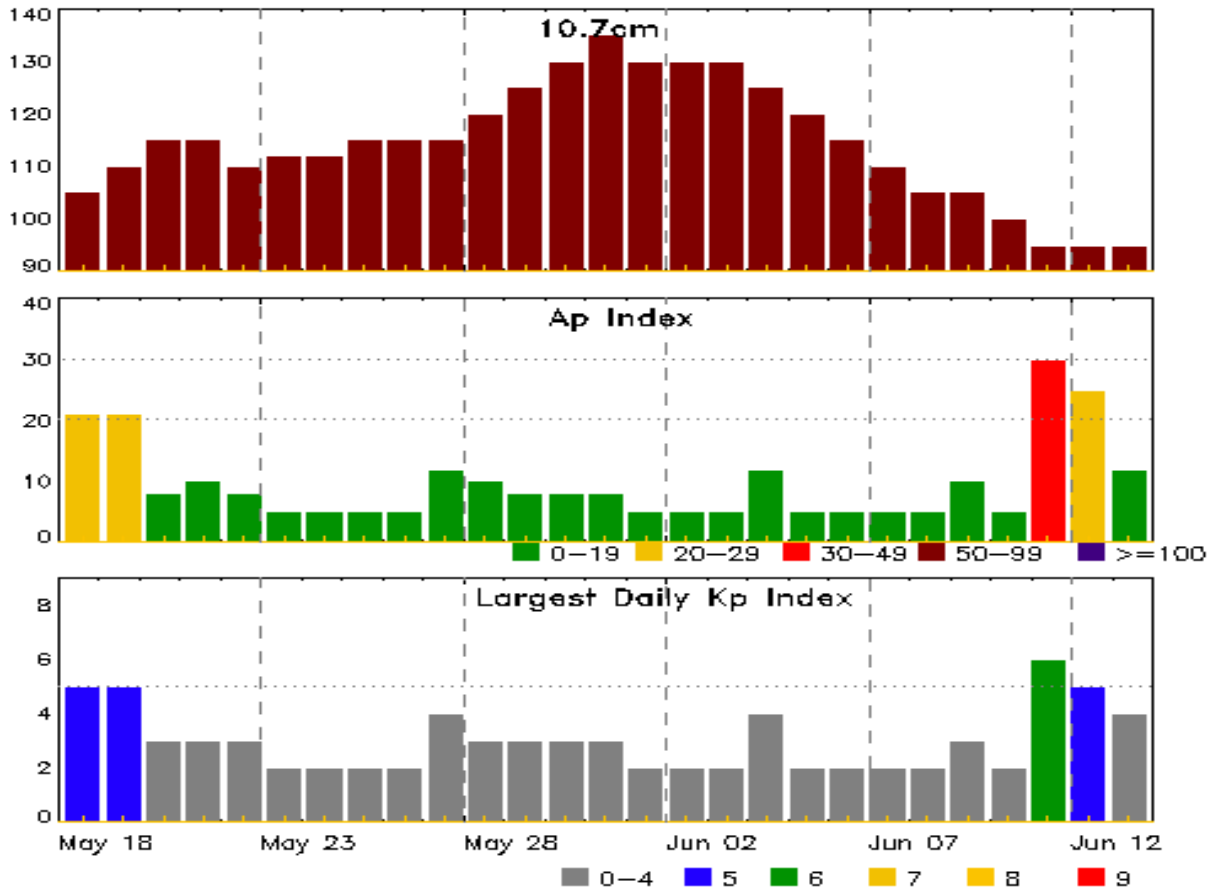


Alerts and Warnings Issued

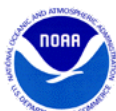
Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
12 May 1326	WATCH: Geomagnetic Storm Category G1 predicted	
13 May 0907	WATCH: Geomagnetic Storm Category G2 predicted	
13 May 2027	WARNING: Geomagnetic K = 4	13/2026 - 14/0600
14 May 0853	WATCH: Geomagnetic Storm Category G2 predicted	
15 May 1158	WARNING: Geomagnetic K = 4	15/1157 - 16/0000
15 May 1225	ALERT: Type II Radio Emission	15/1225
15 May 1300	ALERT: Geomagnetic K = 4	15/1300
15 May 1307	WARNING: Geomagnetic K = 5	15/1305 - 2359
15 May 1327	ALERT: Geomagnetic K = 5	15/1326
15 May 1345	ALERT: Type II Radio Emission	15/1344
15 May 1450	WARNING: Geomagnetic K = 6	15/1449 - 2100
15 May 1607	ALERT: Geomagnetic K = 5	15/1606
15 May 1718	ALERT: Type II Radio Emission	15/1616
15 May 2202	WARNING: Geomagnetic K = 6	15/2201 - 16/0300
15 May 2215	ALERT: Geomagnetic K = 6	15/2215
16 May 0556	ALERT: Geomagnetic K = 5	16/0554
16 May 0859	ALERT: Geomagnetic K = 5	16/0859
16 May 1631	SUMMARY: 10cm Radio Burst	16/1606 - 17/1610
16 May 1637	SUMMARY: 10cm Radio Burst	16/1606 - 1610
16 May 1658	ALERT: Type IV Radio Emission	16/1605
16 May 1753	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	16/1740
16 May 1804	ALERT: Geomagnetic K = 5	16/1759
16 May 2134	WATCH: Geomagnetic Storm Category G1 predicted	
17 May 1612	WATCH: Geomagnetic Storm Category G1 predicted	
17 May 2116	SUMMARY: 10cm Radio Burst	17/2050 - 2051



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
18 May	105	21	5	01 Jun	130	5	2
19	110	21	5	02	130	5	2
20	115	8	3	03	130	5	2
21	115	10	3	04	125	12	4
22	110	8	3	05	120	5	2
23	112	5	2	06	115	5	2
24	112	5	2	07	110	5	2
25	115	5	2	08	105	5	2
26	115	5	2	09	105	10	3
27	115	12	4	10	100	5	2
28	120	10	3	11	95	30	6
29	125	8	3	12	95	25	5
30	130	8	3	13	95	12	4
31	135	8	3				



Energetic Events

Date	Time			X-ray	Optical Information				Peak		Sweep Freq	
	Begin	Max	Half	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
			Max						245	2695	II	IV
16 May	1550	1612	1622	M1.9	0.020	2N	N20W16	4436	500	170	2	
16 May	1622	1629	1634	M1.3	0.011			4436				
16 May	1739	1742	1744	M1.9	0.005			4435				
17 May	0329	0339	0342	M1.4	0.005			4435				

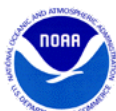
Flare List

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
11 May	0045	0052	0058	C1.0			4432
11 May	0621	0628	0632	B7.1			4436
11 May	0821	0832	0841	C1.4			4432
11 May	0946	0957	1013	B9.3			4431
11 May	1149	1154	1159	C1.2			4432
11 May	1246	1252	1258	B9.0			4432
11 May	1258	1303	1305	B8.7			4432
11 May	1405	1415	1417	C1.8	SF	N10W72	4432
11 May	1809	1822	1819		SF	S14W31	4433
11 May	1840	1841	1844		SF	N18W67	4432
12 May	0048	0101	0132	C1.3			4432
12 May	0644	0654	0704	C1.0			4432
12 May	0926	0935	0943	C1.1			4432
12 May	1038	1049	1100	C1.4			4432
12 May	1231	1236	1239	B9.4			4432
12 May	1240	1249	1252	C2.0	SF	N20E33	4436
12 May	1453	1458	1500	C1.3			4432
12 May	1711	1717	1719	C1.5	SN	N20E29	4436
12 May	1731	1800	1810		SF	N15E29	4436
12 May	2142	2148	2151	C1.1	SF	S18W48	4433
12 May	2211	2217	2223	C1.0	SF	N17E30	4436
13 May	0143	0154	0201	C2.1			4432
13 May	0631	0640	0645	C2.3			4436
13 May	1028	1036	1039	C1.5			4433
13 May	1706	1714	1719	C2.0	SF	N14E23	4436
13 May	1800	1805	1809	C1.4			4436
13 May	1935	1948	1959	C1.4			4432



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
14 May	0205	0212	0215	C1.6			4432
14 May	0327	0341	0349	C2.6			4435
14 May	B0515	U0526	0545	C1.9	SF	N21W56	4435
14 May	0556	0604	0608	C1.6			4435
14 May	0631	0642	0649	C5.5	SF	N21W57	4435
14 May	0848	0855	0858	C1.2	SF	N22W59	4435
14 May	0909	0920	0932	C2.5			4435
14 May	1046	1056	1106	C2.5	SF	N22W60	4435
14 May	1126	1136	1145	C3.8	SF	N21W61	4435
14 May	1353	1401	1404	B9.0			
14 May	1424	1433	1438	C1.3	SF	N20W62	4435
14 May	1553	1559	1601	B7.7			
14 May	1718	1739	1821	C4.4			
14 May	1821	1840	1908	C5.1	SF	N17E08	4436
14 May	2155	2203	2211	C1.0			4438
14 May	2214	2220	2228	C1.5			4438
14 May	2316	2321	2326	C1.2			4438
15 May	0148	0152	0155	C1.0			4438
15 May	0252	0309	0330	C3.3			4436
15 May	0838	0840	0841		SF	N24W72	4435
15 May	0932	0936	0939	B9.4			
15 May	1107	1111	1116	B6.5			
15 May	1143	1150	1154	C4.3	SF	N23W74	4435
15 May	1310	1313	1317	C6.7	SF	N24W75	4435
15 May	1340	1350	1356	C1.1			
15 May	1605	1614	1618	C9.5	SF	N23W76	4435
15 May	1732	1740	1745	B8.2			4435
15 May	1802	1804	1823		SF	N16W06	4436
15 May	1957	2006	2012	B8.8			
15 May	2241	2250	2255	C1.0			4435
16 May	0229	0233	0235	B5.0			
16 May	1419	1439	1456	C1.1	SF	N16W06	4436
16 May	1508	1512	1516	C3.4			4435
16 May	1514	1515	1517		SF	N18W17	4436
16 May	1550	1612	1622	M1.9	2N	N20W16	4436
16 May	1622	1629	1634	M1.3			4436
16 May	1626	1635	1640		SF	N21W67	4438
16 May	1733	1734	1741		SF	N21W67	4438



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
16 May	1739	1742	1744	M1.9			4435
16 May	1902	1907	1911	C2.5			4435
16 May	1957	2003	2009	C3.5			4435
16 May	2222	2226	2230	C1.4			4439
16 May	2313	2330	2338	C5.8			4435
17 May	0329	0339	0342	M1.4			4435
17 May	0436	0444	0452	C1.0			
17 May	0521	0532	0537	C2.0			
17 May	0745	0757	0809	B9.0			
17 May	0810	0818	0821	B7.1			
17 May	1123	1132	1140	C1.1	SF	N22W28	4436
17 May	1201	1207	1210	C1.0			4439
17 May	1225	1238	1257	C1.1			4438
17 May	1450	1455	1459		SF	N22W28	4436
17 May	1807	1816	1822	B8.0			
17 May	2042	2053	2105	C9.7			4436



Region Summary

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 4409																	
30 Mar	N02E54		153	10	2	Bxo	2	B									
31 Mar	N02E39		154	20	4	Dro	4	B									
01 Apr	N02E24		156	30	4	Dri	8	B	7								
02 Apr	N02E13		155	40	9	Dai	15	BG	6			4					
03 Apr	N02W01		155	140	11	Eai	16	BG	12	1		11	1				
04 Apr	N02W15		156	170	11	Eai	26	BG	13	4		6	1				
05 Apr	N02W28		156	170	11	Eac	26	B	12			1					
06 Apr	N02W43		157	190	11	Eai	25	B	1								
07 Apr	N02W57		158	190	12	Eai	15	BG	5			1					
08 Apr	N01W71		159	180	11	Esi	20	BD	1								
09 Apr	N01W85		160	170	11	Esi	20	BD	4	1		1					
									61	6	0	24	2	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 155

Region 4431

01 May	S16E53		91	130	8	Dao	8	B	2								
02 May	S16E38		93	170	10	Dso	9	B	1								
03 May	S16E24		94	170	10	Dso	7	B									
04 May	S16E12		93	110	11	Eso	5	B									
05 May	S16W01		92	100	11	Eso	5	B	1								
06 May	S16W15		93	140	11	Cao	7	B	1			1					
07 May	S16W30		95	150	10	Cao	4	B	1			1					
08 May	S16W48		100	120	2	Hsx	1	A	1			2					
09 May	S16W61		100	100	2	Hsx	1	A				1					
10 May	S16W76		101	90	2	Hsx	1	A									
11 May	S16W90		102	60	2	Hsx	1	A									
									7	0	0	5	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 92



Region Summary - continued

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 4432																		
01 May	N11E68	76	20	3	Bxo	2	B											
02 May	N12E55	76	10	5	Bxo	2	B											
03 May	N12E40	78	10	3	Bxo	3	B											
04 May	N13E27	78	10	5	Cai	6	B											
05 May	N13E12	79	40	7	Cai	8	B	1										
06 May	N13W01	78	30	8	Cri	8	B											
07 May	N14W14	79	50	7	Cai	10	B					2						
08 May	N14W29	81	140	9	Dai	18	B	10				5	4	1				
09 May	N14W42	81	200	9	Dai	22	B	15				8						
10 May	N14W56	81	430	12	Ekc	28	BG	10				6						
11 May	N14W70	82	680	12	Eki	17	BG	4				2						
12 May	N14W84	83	650	12	Eko	10	BG	4										
								44	0	0	23	4	1	0	0			

Crossed West Limb.
 Absolute heliographic longitude: 78

Region 4433																		
03 May	S16E68	50	110	8	Dso	5	B											
04 May	S16E57	47	90	9	Dso	8	B											
05 May	S16E43	48	120	9	Dso	4	B	1										
06 May	S16E30	48	120	8	Dso	6	B											
07 May	S17E16	49	170	8	Cao	4	B	2				1	1					
08 May	S16E03	49	150	8	Cao	4	B											
09 May	S17W10	49	110	3	Cao	4	B											
10 May	S17W25	50	50	5	Cao	5	B											
11 May	S17W39	51	50	4	Cao	5	B					1						
12 May	S17W53	52	40	3	Hax	3	A	1				1						
13 May	S16W67	53	30	1	Hrx	1	A	1										
14 May	S17W80	53	10	1	Axx	1	A											
								5	0	0	3	1	0	0	0	0		

Crossed West Limb.
 Absolute heliographic longitude: 49



Region Summary - continued

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

Region 4434

04 May	N12E50	54	10	1	Axx	1	A										
05 May	N12E36	55	10	1	Axx	1	A										
06 May	N12E22	55	plage														
07 May	N12E08	57	plage														
08 May	N14W04	56	10	1	Axx	1	A										
09 May	N14W18	56	plage														
10 May	N14W32	57	plage														
11 May	N14W46	58	plage														
12 May	N14W60	59	plage														
13 May	N14W74	60	plage														
14 May	N14W88	60	plage														
										0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 56

Region 4435

04 May	N23E64	41	30	2	Hsx	1	A	1									
05 May	N23E51	41	40	2	Hsx	1	A										
06 May	N23E38	41	40	2	Hsx	1	A										
07 May	N23E24	41	60	2	Hsx	1	A										
08 May	N23E11	41	60	2	Hsx	1	A										
09 May	N23W01	40	50	2	Hsx	1	A										
10 May	N23W15	40	40	2	Hsx	1	A										
11 May	N23W29	41	40	2	Hsx	1	A										
12 May	N23W42	41	40	2	Hsx	1	A										
13 May	N23W55	41	50	3	Cso	3	B										
14 May	N22W66	38	50	4	Dri	7	BG	9				6					
15 May	N22W81	40	70	5	Dao	5	B	4				4					
16 May	N22W95	41	70	5	Dao	5	B	4	1								
								18	1	0	10	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 40



Region Summary - continued

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 4436																		
09 May	N18E69	330	200	5	Dso	3	B											
10 May	N19E55	330	200	6	Dao	4	B	2	1			1		1				
11 May	N19E41	330	200	8	Dao	5	BG											
12 May	N18E27	332	170	5	Cao	4	B	3				4						
13 May	N18E13	333	200	5	Dai	9	B	3				1						
14 May	N18E02	331	180	4	Cao	7	B	1				1						
15 May	N19W13	332	180	4	Cao	7	B	1				1						
16 May	N19W26	332	70	4	Hsx	6	A	1	2			2		1				
17 May	N18W40	332	80	3	Hsx	4	A	2				2						
								13	3	0	12	0	2	0	0			

Still on Disk.

Absolute heliographic longitude: 331

Region 4437

13 May	N15W82	68	plage															
								0	0	0	0	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 68

Region 4438

13 May	N19W30	16	10	3	Bxo	3	B											
14 May	N20W44	16	50	6	Dao	5	B	3										
15 May	N20W57	16	60	5	Dao	4	B	1										
16 May	N20W70	16	60	8	Dao	5	B					2						
17 May	N20W85	17	10	10	Dao	2	B	1										
								5	0	0	2	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 16

Region 4439

16 May	N06E68	238	50	2	Dao	2	B	1										
17 May	N06E52	240	50	2	Dao	2	B	1										
								2	0	0	0	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 240



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 4440

16 May	N17E71	235	20	2	Cao	2	B										
17 May	N17E54	238	30	2	Hax	1	A										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 238

Region 4441

16 May	N08E28	278	10	3	Dro	3	B										
17 May	N18E13	279	50	4	Dao	3	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 279

Region 4442

17 May	S16E44	249	20	3	Cro	2	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 249

Region 4443

17 May	S15E60	233	10	2	Bxo	2	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 233



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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