

Space Weather Highlights
10 May - 16 May 2021

SWPC PRF 2385
17 May 2021

Solar activity was very low on 10-11, 13-16 May. Low levels were observed on 12 May due to an isolated C1/Sf flare from Region 2822 at 12/0935 UTC. Region 2822 (N18, L=335, class/area=Dao/190 on 12 May) was the most complex and active region this period, and was the source of an Earth-directed CME observed on 09 May, which arrived at Earth on 12 May. Coronal dimming in the vicinity of Region 2822 on 13 May was associated with another Earth-directed CME which is anticipated to arrive at Earth on 18 May. Region 2823 (S22, L=329, class/area=Cso/40 on 12 May) was quiet throughout the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was normal to moderate throughout the period.

Geomagnetic field activity reach G3 (strong) geomagnetic storm levels between 1200-1800 UTC on 12 May due to effects from the 09 May CME. Quiet to unsettled conditions were observed on 15 May, and quiet conditions were observed throughout the remainder of the week.

Space Weather Outlook
17 May - 12 June 2021

Solar activity is expected to be very low-to-low 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 19-24 May. Normal to moderate flux levels are expected to persist throughout the remainder of the period.

Geomagnetic field activity is expected to reach active levels on 17 May due to negative polarity CH HSS influence. Active conditions to G1 (Minor) storm levels are expected on 18 May due to continued CH HSS influence and the effects of the 13 May CME. Active conditions are expected on 19 May due to diminishing CH HSS influence and CME effects. Predominately quiet and unsettled conditions are expected to prevail 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
10 May	77	36	170	A5.2	0	0	0	1	0	0	0	0
11 May	76	31	230	A4.6	0	0	0	0	0	0	0	0
12 May	75	31	230	A3.6	1	0	0	2	0	0	0	0
13 May	75	24	110	A3.2	0	0	0	2	0	0	0	0
14 May	71	24	70	A2.7	0	0	0	1	0	0	0	0
15 May	73	24	60	A2.5	0	0	0	0	0	0	0	0
16 May	73	11	50	A4.1	0	0	0	0	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
	10 May	1.9e+05	4.3e+04
11 May	8.4e+04	4.3e+04	2.2e+06
12 May	9.7e+05	4.3e+04	2.3e+06
13 May	5.0e+04	4.2e+04	1.5e+06
14 May	5.1e+04	4.2e+04	2.2e+06
15 May	5.6e+04	4.3e+04	1.8e+06
16 May	6.3e+04	4.3e+04	1.9e+06

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	10 May	8	2-2-2-2-3-1-2-2	6	1-3-1-2-1-1-2-1	6
11 May	4	2-1-1-1-2-1-1-0	1	2-1-0-0-0-0-0-0	3	2-1-1-1-1-1-0-0
12 May	25	1-0-4-4-6-5-2-2	47	1-0-5-4-7-7-2-2	41	1-1-4-4-7-7-3-3
13 May	7	2-2-2-2-2-2-2-2	6	3-3-1-1-1-1-1-1	7	2-2-2-2-2-1-2-2
14 May	4	0-1-1-1-1-2-1-2	3	1-1-1-1-0-1-1-2	4	0-1-1-1-1-1-2-2
15 May	8	3-2-3-2-2-2-1-1	0	3-1-4-3-0-0-0-0	8	3-1-3-2-1-1-1-1
16 May	4	1-0-1-2-2-1-2-0	6	0-0-0-4-3-0-1-0	4	1-0-1-2-2-1-2-1

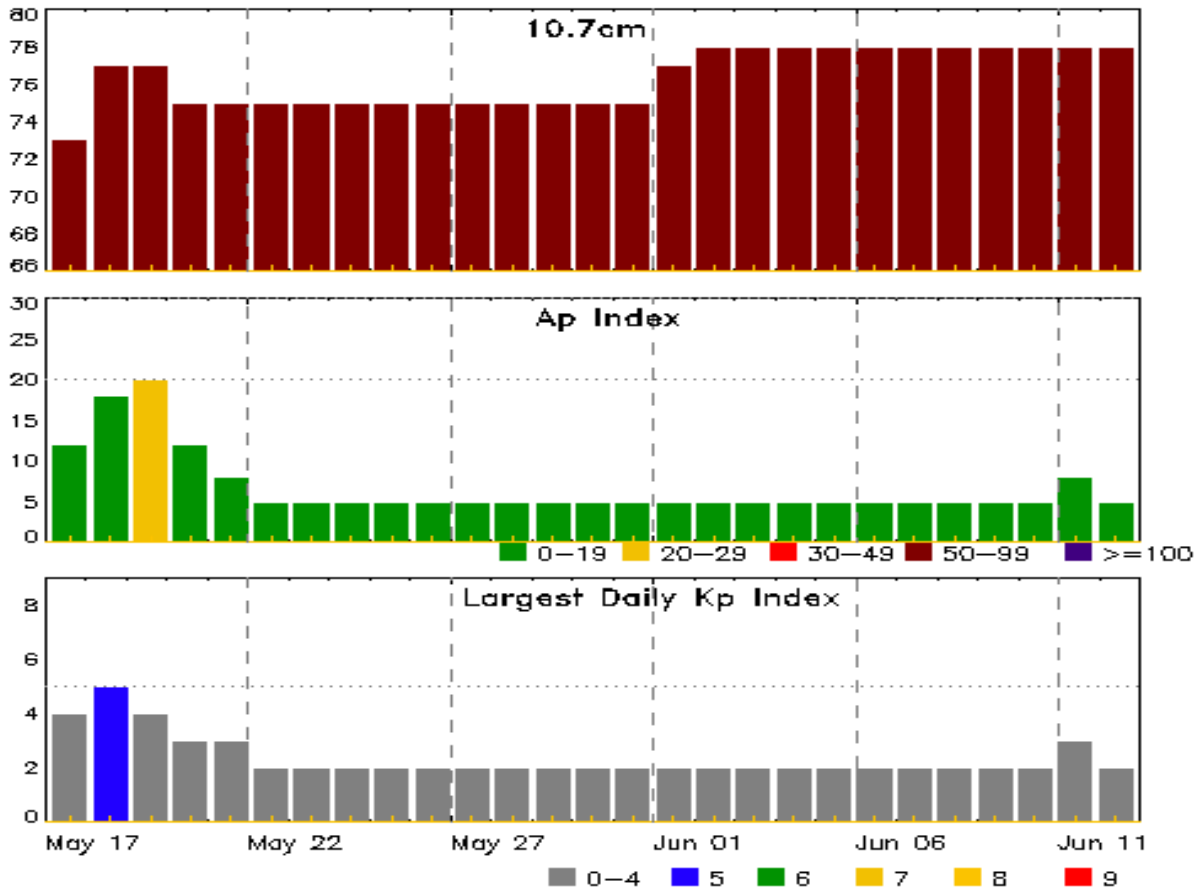


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
12 May 0556	WARNING: Geomagnetic Sudden Impulse expected	12/0554 - 0700
12 May 0558	WARNING: Geomagnetic K = 4	12/0600 - 1230
12 May 0646	WARNING: Geomagnetic K = 5	12/0700 - 1300
12 May 0654	SUMMARY: Geomagnetic Sudden Impulse	12/0643
12 May 0711	ALERT: Geomagnetic K = 4	12/0711
12 May 1123	EXTENDED WARNING: Geomagnetic K = 4	12/0600 - 1800
12 May 1228	WARNING: Geomagnetic K = 6	12/1225 - 1800
12 May 1230	ALERT: Geomagnetic K = 5	12/1230
12 May 1232	ALERT: Geomagnetic K = 6	12/1232
12 May 1249	WARNING: Geomagnetic K \geq 7	12/1250 - 1800
12 May 1252	EXTENDED WARNING: Geomagnetic K = 5	12/0700 - 1800
12 May 1259	ALERT: Geomagnetic K = 7	12/1258
12 May 1529	ALERT: Geomagnetic K = 5	12/1528
12 May 1542	ALERT: Geomagnetic K = 6	12/1542
12 May 1759	EXTENDED WARNING: Geomagnetic K = 4	12/0600 - 13/0600
12 May 1759	EXTENDED WARNING: Geomagnetic K = 6	12/1225 - 2359
12 May 1759	EXTENDED WARNING: Geomagnetic K = 5	12/0700 - 13/0600
12 May 1759	EXTENDED WARNING: Geomagnetic K \geq 7	12/1250 - 2359
12 May 1759	ALERT: Geomagnetic K = 7	12/1759
13 May 0531	EXTENDED WARNING: Geomagnetic K = 4	12/0600 - 13/1500
16 May 0037	WATCH: Geomagnetic Storm Category G1 predicted	



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
17 May	73	12	4	31 May	75	5	2
18	77	18	5	01 Jun	77	5	2
19	77	20	4	02	78	5	2
20	75	12	3	03	78	5	2
21	75	8	3	04	78	5	2
22	75	5	2	05	78	5	2
23	75	5	2	06	78	5	2
24	75	5	2	07	78	5	2
25	75	5	2	08	78	5	2
26	75	5	2	09	78	5	2
27	75	5	2	10	78	5	2
28	75	5	2	11	78	8	3
29	75	5	2	12	78	5	2
30	75	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 245	Radio Flux 2695	Intensity II

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
10 May	0736	0744	0750	B1.0			
10 May	1048	1057	1101	B1.9			
10 May	1344	1352	1356	B1.9	SF	S23E45	2823
10 May	1716	1724	1728	B1.3			
10 May	2249	2255	2259	B1.0			
10 May	2346	2355	0009	B1.0			2282
11 May	0310	0328	0355	B2.5			2822
11 May	0517	0526	0534	B1.5			2822
11 May	0621	0639	0642	B2.1			2822
11 May	0824	0840	0903	B3.4			2822
12 May	0503	0512	0528	B1.3			
12 May	0534	0547	0559	B3.1	SF	N18E20	2822
12 May	0915	0935	0947	C1.5	SF	N17E20	2822
12 May	2122	2129	2133	B1.2			2822
13 May	0136	0147	0155	B2.5	SF	N16E02	2822
13 May	0233	0244	0251	B3.5	SF	N16E02	2822
13 May	1112	1116	1131	B1.8			2822
13 May	1807	1815	1822	B1.3			2822
14 May	0038	0104	0131	B4.9	SF	S22W04	2823
14 May	1651	1701	1709	B1.2			



Region Summary

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical												
								C	M	X	S	1	2	3	4								
Region 2822																							
07 May	N18E70	335	130	4	Cso	5	B		1			1											
08 May	N18E57	336	180	5	Csi	7	B	2				4											
09 May	N18E45	335	180	4	Dsi	8	BG	3				4											
10 May	N18E33	333	130	5	Dao	10	BG																
11 May	N18E18	335	190	4	Dao	9	BD																
12 May	N18E05	335	190	4	Dao	9	BD	1				2											
13 May	N18W10	335	100	3	Dao	3	BD					2											
14 May	N17W22	335	60	3	Cao	3	B																
15 May	N16W35	334	50	4	Cao	3	B																
16 May	N17W49	335	50	2	Hsx	1	A																
								6	1	0	12	1	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 335

Region 2823

10 May	S21E39	326	40	3	Cao	6	B					1								
11 May	S22E24	329	40	5	Cso	2	B													
12 May	S22E11	329	40	5	Cso	2	B													
13 May	S22W00	326	10	1	Hrx	1	A													
14 May	S23W14	327	10	1	Axx	1	A					1								
15 May	S23W25	325	10	1	Axx	1	A													
16 May	S23W39	326	plage																	
								0	0	0	2	0	0	0	0	0				

Still on Disk.

Absolute heliographic longitude: 326



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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