

Space Weather Highlights
12 April - 18 April 2021

SWPC PRF 2381
19 April 2021

Solar activity was very low throughout the period with B-class flare activity observed from Rgn 2814 (S22, L=008, class/area Cro/090 on 14 Apr), Rgn 2815 (S21, L=344, class/area Bxo/010 on 16 Apr) and Rgn 2816 (S24, L=264, class/area Cao/080 on 16 Apr). The largest event of the period was a B9 x-ray event observed at 17/1717 UTC from a region beyond the ESE limb. Associated with this event was a Type II radio signature with an estimated shock velocity of 382 km/s and a slow-moving, non-Earth directed CME off the E limb.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 12-16 Apr. High levels were observed on 17-18 Apr with a maximum flux reading of 14,078 pfu at 18/1905 UTC.

Geomagnetic field activity was at mostly quiet levels on 12-14 Apr with an isolated active period observed late on the 14th. Unsettled to G1 (minor) geomagnetic storm levels were reached early on 15 Apr due to possible effects from the 10 Apr CME. Mostly unsettled to active levels were observed on 16-18 Apr, with G1 (Minor) storm levels observed on 16 and 17 Apr. This activity was all due to recurrent, negative polarity CH HSS influence. During this activity, wind speeds reached 600 km/s, total field reached maximums of 13 nT and the Bz component reached -10 nT at times.

Space Weather Outlook
19 April - 15 May 2021

Solar activity is expected to be at very low levels during 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 Apr and 13-15 May due to high speed solar winds. Normal to moderate levels are anticipated for 25-30 Apr and 01-12 May.

Geomagnetic field activity is expected to be at unsettled to active levels on 19-20 Apr, 23-24 Apr, 27-28 Apr, 04 May, 08 May and 11-15 May, with G1 (Minor) geomagnetic storm levels likely on 13-14 May. This activity is all due to recurrent CH HSS influence. Mostly quiet levels are expected for 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
12 April	83	16	10	A2.7	0	0	0	2	0	0	0	0
13 April	73	16	30	A2.5	0	0	0	0	0	0	0	0
14 April	74	17	90	A3.7	0	0	0	0	0	0	0	0
15 April	72	22	50	A4.7	0	0	0	0	0	0	0	0
16 April	77	44	110	A4.8	0	0	0	0	0	0	0	0
17 April	75	28	30	A4.4	0	0	0	0	0	0	0	0
18 April	78	15	50	A7.4	0	0	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	
	12 April	7.3e+04	4.3e+04	1.3e+06
13 April	6.2e+04	4.3e+04	1.2e+06	
14 April	7.2e+04	4.3e+04	1.1e+06	
15 April	7.3e+04	4.2e+04	1.3e+06	
16 April	3.5e+05	4.3e+04	1.2e+06	
17 April	2.5e+05	4.2e+04	3.0e+07	
18 April	5.0e+05	4.2e+04	3.5e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	12 April	4	1-0-1-2-2-2-1-0	5	1-1-2-3-1-1-1-0	5
13 April	5	0-1-1-2-2-2-2-2	6	0-1-1-4-2-1-1-1	5	0-2-1-2-2-2-1-2
14 April	7	1-1-1-2-2-2-2-3	2	1-1-0-1-1-0-1-1	7	1-1-1-2-1-1-2-4
15 April	11	3-3-4-1-3-1-1-2	10	2-3-5-0-1-1-0-1	13	3-3-5-1-2-2-1-2
16 April	15	2-3-3-2-3-3-4-3	31	2-2-4-4-6-4-5-4	19	2-3-3-3-3-3-5-4
17 April	20	3-4-5-3-3-2-2-4	57	5-4-6-7-6-5-3-3	29	5-5-5-4-4-3-3-4
18 April	13	3-3-3-3-2-2-3-3	36	3-3-5-7-5-2-2-2	22	4-4-3-3-2-2-3-4

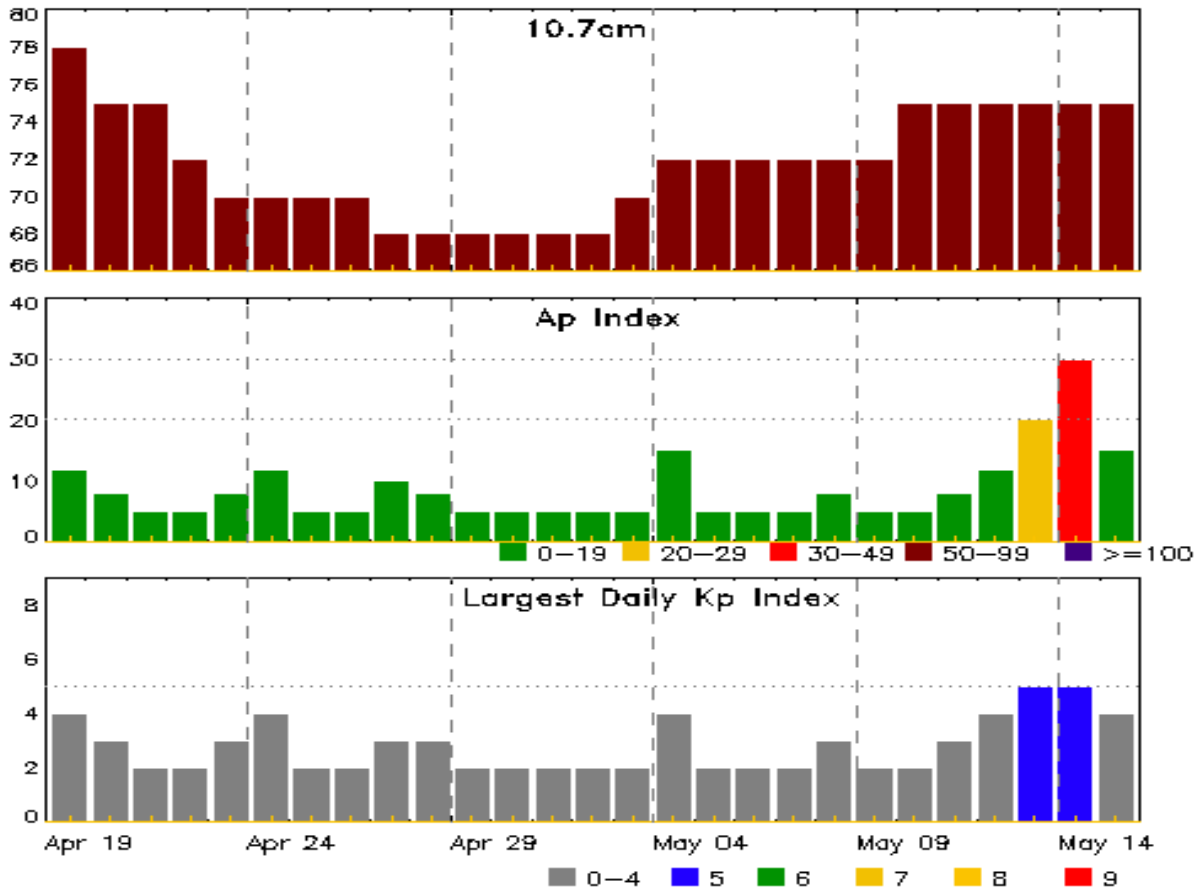


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
14 Apr 1940	WATCH: Geomagnetic Storm Category G1 predicted	
14 Apr 2343	WARNING: Geomagnetic K = 4	14/2342 - 15/0600
14 Apr 2358	ALERT: Geomagnetic K = 4	14/2358
15 Apr 0548	EXTENDED WARNING: Geomagnetic K = 4	14/2342 - 15/1200
15 Apr 0712	WARNING: Geomagnetic K = 5	15/0712 - 1200
15 Apr 0901	ALERT: Geomagnetic K = 5	15/0859
16 Apr 1334	WARNING: Geomagnetic K = 4	16/1335 - 2100
16 Apr 1840	ALERT: Geomagnetic K = 4	16/1838
16 Apr 1923	EXTENDED WARNING: Geomagnetic K = 4	16/1335 - 17/0900
16 Apr 1923	WARNING: Geomagnetic K = 5	16/1925 - 17/0600
16 Apr 2027	ALERT: Geomagnetic K = 5	16/2025
17 Apr 0202	ALERT: Geomagnetic K = 5	17/0200
17 Apr 0533	EXTENDED WARNING: Geomagnetic K = 5	16/1925 - 17/1200
17 Apr 0533	EXTENDED WARNING: Geomagnetic K = 4	16/1335 - 17/1800
17 Apr 0601	ALERT: Geomagnetic K = 5	17/0559
17 Apr 0753	ALERT: Geomagnetic K = 5	17/0746
17 Apr 0813	WARNING: Geomagnetic K = 6	17/0812 - 1200
17 Apr 1726	ALERT: Type II Radio Emission	17/1626
17 Apr 1731	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/1715
17 Apr 2333	WARNING: Geomagnetic K = 4	17/2330 - 18/0900
17 Apr 2344	ALERT: Geomagnetic K = 4	17/2344
18 Apr 0504	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/1715
18 Apr 0710	EXTENDED WARNING: Geomagnetic K = 4	17/2330 - 18/1800
18 Apr 2242	WARNING: Geomagnetic K = 4	18/2240 - 19/0600



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 Apr	78	12	4	03 May	70	5	2
20	75	8	3	04	72	15	4
21	75	5	2	05	72	5	2
22	72	5	2	06	72	5	2
23	70	8	3	07	72	5	2
24	70	12	4	08	72	8	3
25	70	5	2	09	72	5	2
26	70	5	2	10	75	5	2
27	68	10	3	11	75	8	3
28	68	8	3	12	75	12	4
29	68	5	2	13	75	20	5
30	68	5	2	14	75	30	5
01 May	68	5	2	15	75	15	4
02	68	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 Apr	1943	1953	1956	B2.5			2814
12 Apr	1956	2004	2015	B8.4	SF	S21E13	2814
12 Apr	2238	2249	2257	B2.0	SF	S21E11	2814
12 Apr	2257	2300	2304	B1.9			2814
13 Apr	0106	0118	0122	B5.9			2814
13 Apr	0139	0152	0158	B5.6			2814
13 Apr	1238	1247	1251	B2.7			2814
14 Apr	0357	0408	0415	B1.3			
14 Apr	0458	0506	0512	B1.5			
14 Apr	0652	0658	0710	B2.3			
15 Apr	0002	0010	0014	B1.7			
15 Apr	1051	1058	1104	B1.0			
15 Apr	1523	1530	1539	B1.4			
16 Apr	0205	0215	0221	B1.2			
16 Apr	1039	1047	1052	B1.6			2816
16 Apr	1717	1725	1731	B1.6			2814
16 Apr	1738	1745	1751	B1.2			2814
16 Apr	1757	1810	1815	B3.4			2814
16 Apr	1932	1940	1946	B1.3			2815
16 Apr	2105	2109	2114	B1.1			2816
17 Apr	1552	1608	1616	B1.3			
17 Apr	1621	1717	1825	B9.7			
17 Apr	2323	2335	2344	B1.2			2816
17 Apr	2349	0000	0004	B4.1			2814
18 Apr	0812	0816	0821	B1.5	SF	S25E49	2816
18 Apr	0923	0933	0938	B2.3			
18 Apr	1002	1007	1011	B1.2			
18 Apr	1105	1112	1120	B1.4			
18 Apr	1225	1237	1253	B3.8			
18 Apr	1429	1435	1440	B1.2			
18 Apr	1850	1852	1954		SF	S25E41	2816



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
18 Apr	2049	2053	2058	B1.7			2016



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 2814																
12 Apr	S22E09		7	10	5	Bxo	6	B					2			
13 Apr	S22W05		8	30	6	Bxo	6	B								
14 Apr	S22W18		8	90	6	Cro	7	B								
15 Apr	S22W31		7	50	6	Dro	12	B								
16 Apr	S22W44		7	20	5	Bxo	8	B								
17 Apr	S22W59		9	10	4	Bxo	4	B								
18 Apr	S22W73		10	plage												
									0	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 8

Region 2815																
16 Apr	S21W21		344	10	4	Bxo	3	B								
17 Apr	S21W35		345	plage												
18 Apr	S21W49		346	plage												
									0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 344

Region 2816																
16 Apr	S24E59		264	80	5	Cao	3	B								
17 Apr	S24E46		264	20	7	Cao	4	B								
18 Apr	S25E34		263	50	7	Cao	5	B				2				
									0	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 263



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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