

Space Weather Highlights
22 February - 28 February 2021

SWPC PRF 2374
01 March 2021

Solar activity reached low levels with C-class flare activity. Region 2804 (N21, L=309, class/area=Dso/190 on 27 Feb) produced the only two C-class flares observed this period. The first was a C2/Sf flare observed at 27/1800 UTC and the second was a C3/Sf flare observed at 28/0646 UTC. Both C-class flares were associated with narrow CME signatures that were directed away from the Sun-Earth line.

A CME associated with a filament eruption in the SE quadrant on 20/1200 UTC (in LASCO C2 imagery) arrived in conjunction with coronal hole/high speed stream influences, with the effects of both features observed over 24-26 Feb.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was moderate on 25 Feb, and high throughout the remainder of the period.

Geomagnetic field activity was quiet on 27 Feb and quiet to unsettled on 26 and 28 Feb. Quiet to active conditions were observed on 22-26 Feb due to a combination of negative polarity CH HSS influence and the arrival of the 20 Feb CME.

Space Weather Outlook
01 March - 27 March 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 be moderate on 10-19 Mar. High levels are expected on 01-09, and 20-27 Mar.

Geomagnetic field activity is expected to reach active levels on 02, 06, 12-13, 15, and 21-22 Mar, with G1 (Minor) geomagnetic storm conditions likely on 02 and 18-19 Mar, all due to recurrent CH HSSs. Mostly quiet and quiet to unsettled conditions are expected to prevail throughout 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
22 February	76	26	40	A2.1	0	0	0	3	0	0	0	0
23 February	78	31	100	A4.2	0	0	0	1	0	0	0	0
24 February	81	33	150	A5.3	0	0	0	2	0	0	0	0
25 February	80	31	200	A7.3	0	0	0	1	0	0	0	0
26 February	80	16	170	A5.9	0	0	0	2	0	0	0	0
27 February	79	14	190	A5.5	1	0	0	1	0	0	0	0
28 February	78	13	120	A5.2	1	0	0	1	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	
	22 February	2.0e+05	4.4e+04	3.0e+08
23 February	1.2e+05	4.3e+04	3.8e+08	
24 February	2.5e+05	4.3e+04	2.5e+08	
25 February	5.6e+04	4.3e+04	2.0e+07	
26 February	1.7e+05	4.4e+04	1.1e+08	
27 February	6.5e+04	4.5e+04	5.5e+07	
28 February	7.6e+04	4.5e+04	1.1e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	22 February	13	3-4-2-2-3-2-3-2	23	3-4-5-4-5-2-1-2	17
23 February	10	3-3-3-3-2-2-2-0	20	3-2-4-5-5-3-1-0	12	4-3-3-3-3-2-2-1
24 February	16	3-3-3-3-2-4-3-3	31	2-3-5-5-4-5-5-2	21	3-3-4-3-2-4-4-4
25 February	13	4-3-3-2-2-2-2-3	21	3-4-4-5-3-2-3-3	13	4-3-3-2-1-3-3-3
26 February	8	3-2-1-2-2-2-2-2	13	2-1-1-5-4-2-2-1	11	3-3-1-3-2-2-3-2
27 February	3	0-1-2-0-1-2-1-0	3	0-1-1-2-1-1-0-1	4	1-2-2-1-1-1-1-1
28 February	4	0-2-1-0-1-2-2-2	2	0-1-0-0-1-0-1-1	3	1-2-1-0-1-1-2-3

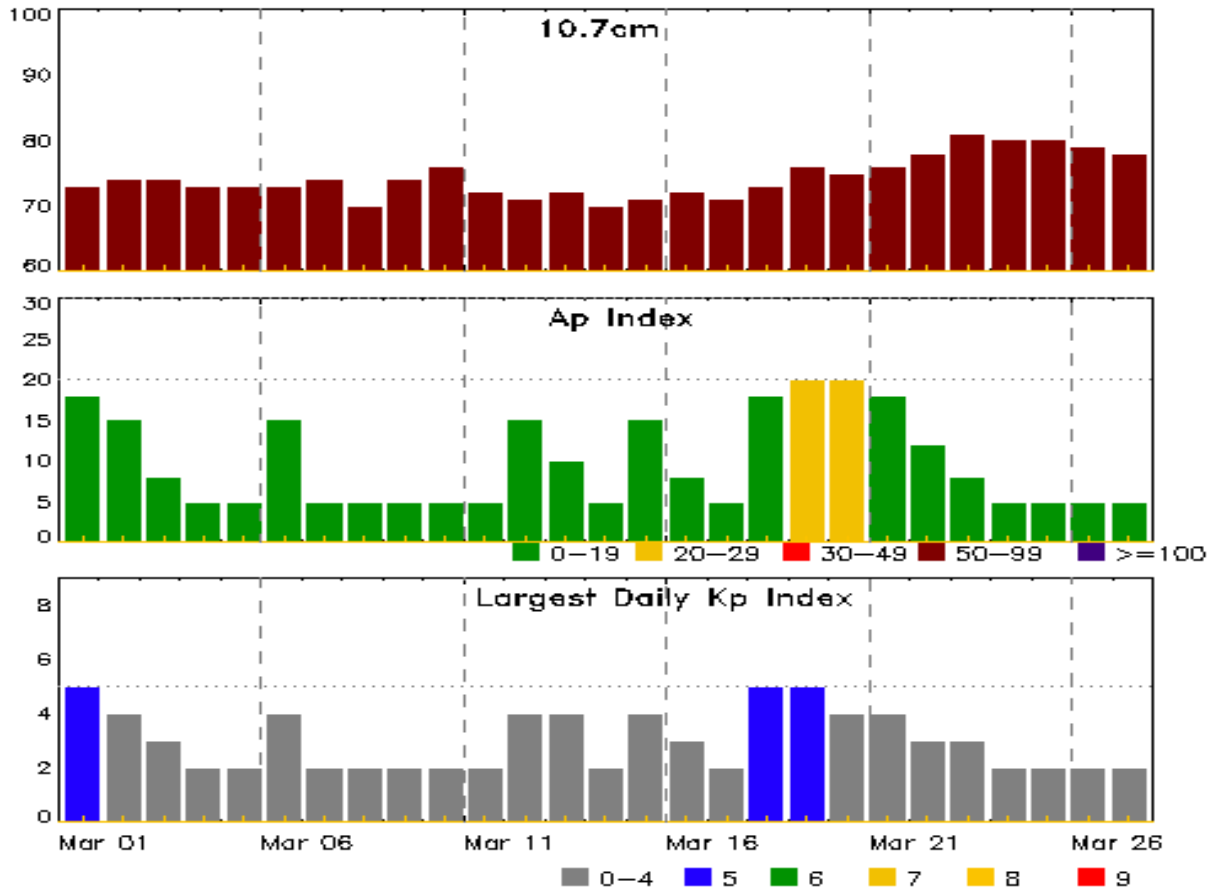


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
22 Feb 0833	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/0535
22 Feb 1141	WATCH: Geomagnetic Storm Category G1 predicted	
22 Feb 2042	WARNING: Geomagnetic K = 4	22/2042 - 23/0600
23 Feb 0231	ALERT: Geomagnetic K = 4	23/0229
23 Feb 0459	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/0535
23 Feb 0529	EXTENDED WARNING: Geomagnetic K = 4	22/2042 - 23/1500
24 Feb 0517	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	21/0535
24 Feb 0602	WARNING: Geomagnetic K = 4	24/0600 - 1200
24 Feb 0816	ALERT: Geomagnetic K = 4	24/0815
24 Feb 0830	WARNING: Geomagnetic K = 5	24/0830 - 1500
24 Feb 0830	EXTENDED WARNING: Geomagnetic K = 4	24/0600 - 1800
24 Feb 1757	EXTENDED WARNING: Geomagnetic K = 4	24/0600 - 2359
24 Feb 2015	WARNING: Geomagnetic K = 5	24/2015 - 2359
24 Feb 2343	EXTENDED WARNING: Geomagnetic K = 4	24/0600 - 25/0600
25 Feb 0535	EXTENDED WARNING: Geomagnetic K = 4	24/0600 - 25/1200
26 Feb 1247	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1230
27 Feb 1336	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1230
27 Feb 2047	WATCH: Geomagnetic Storm Category G1 predicted	
28 Feb 0701	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1230



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
01 Mar	73	18	5	15 Mar	71	15	4
02	74	15	4	16	72	8	3
03	74	8	3	17	71	5	2
04	73	5	2	18	73	18	5
05	73	5	2	19	76	20	5
06	73	15	4	20	75	20	4
07	74	5	2	21	76	18	4
08	70	5	2	22	78	12	3
09	74	5	2	23	81	8	3
10	76	5	2	24	80	5	2
11	72	5	2	25	80	5	2
12	71	15	4	26	79	5	2
13	72	10	4	27	78	5	2
14	70	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	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
22 Feb	1702	1707	1713	B4.5	SF	N19W01	2804
22 Feb	2028	2029	2036		SF	N19W03	2804
22 Feb	2119	2129	2136	B5.4	SF	N19W03	2804
22 Feb	2234	2239	2250	B1.5			2804
23 Feb	0011	0016	0023	B3.3	SF	N19W04	2804
23 Feb	0518	0534	0550	B1.8			2805
23 Feb	0701	0706	0714	B1.7			2804
23 Feb	0920	0924	0936	B1.0			2804
23 Feb	1016	1024	1030	B1.2			2804
23 Feb	1418	1427	1432	B1.9			2805
23 Feb	1448	1452	1458	B1.8			2804
23 Feb	1950	1959	2003	B1.8			2804
24 Feb	1103	1123	1132	B2.6			2804
24 Feb	1441	1447	1500	B1.6	SF	N18W27	2804
24 Feb	1500	1505	1512		SF	N18W27	2804
24 Feb	1737	1744	1749	B1.7			2804
24 Feb	1754	1801	1808	B2.3			2804
24 Feb	1931	1939	1947	B1.9			2804
24 Feb	2059	2106	2110	B1.1			2804
25 Feb	0000	0007	0015	B2.4			2804
25 Feb	0042	0052	0056	B3.4			2804
25 Feb	0308	0322	0335	B2.7			2804
25 Feb	0431	0443	0454	B1.8			2804
25 Feb	0526	0532	0536	B2.3			2804
25 Feb	0544	0552	0557	B1.3			2804
25 Feb	0628	0637	0643	B4.6	SF	N18W35	2804
25 Feb	0931	0939	0946	B1.3			2804
25 Feb	0946	0951	0958	B1.6			2804
25 Feb	1343	1347	1353	B1.1			2804
25 Feb	1401	1406	1408	B1.0			2804
25 Feb	1408	1416	1421	B3.7			2804



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
25 Feb	1547	1555	1559	B1.0			2804
26 Feb	0125	0135	0137	B1.1			2804
26 Feb	0137	0141	0147	B1.2			2804
26 Feb	0441	0447	0617	B1.2			2804
26 Feb	0617	0620	0631	B1.4			2804
26 Feb	0702	0725	0748	B9.5	SF	S21W46	2805
26 Feb	1933	1938	1942	B1.8	SF	N19W52	2804
27 Feb	0038	0046	0049	B1.0			
27 Feb	0049	0054	0058	B2.6			
27 Feb	0936	0949	0955	B2.9			
27 Feb	1051	1056	1100	B1.3			
27 Feb	1244	1251	1256	B1.4			
27 Feb	1513	1522	1528	B1.9			
27 Feb	1722	1731	1735	B1.5			
27 Feb	1751	1800	1805	C2.7	SF	N23W63	2804
28 Feb	0004	0011	0016	B1.4			
28 Feb	0640	0646	0651	C3.9	SF	N20W67	2804
28 Feb	1801	1810	1824	B1.1			2804
28 Feb	1854	1858	1906	B1.1			2804
28 Feb	2032	2039	2046	B1.1			2804
28 Feb	2110	2118	2125	B1.1			2804



Region Summary

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 2802

18 Feb	N19W38	33	15	4	Bxo	2	B										
19 Feb	N18W54	36	plage	1													
20 Feb	N18W68	37	plage														
21 Feb	N18W82	37	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 33

Region 2803

19 Feb	N21E62	280	30	1	Axx	2	A										
20 Feb	N21E49	280	10	2	Axx	2	A										
21 Feb	N20E38	277	10	1	Axx	1	A										
22 Feb	N20E25	277	plage														
23 Feb	N20E11	278	plage														
24 Feb	N20W03	279	plage														
25 Feb	N20W17	280	plage														
26 Feb	N20W31	281	plage														
27 Feb	N20W45	281	plage														
28 Feb	N20W59	282	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 279

Region 2804

22 Feb	N18W08	310	30	4	Cro	3	B										3
23 Feb	N19W20	309	50	6	Cso	5	B										1
24 Feb	N19W33	309	120	7	Dai	10	B										2
25 Feb	N18W46	309	190	10	Dsi	10	B										1
26 Feb	N18W58	307	170	8	Dsi	6	B										1
27 Feb	N21W74	309	190	8	Dso	4	B	1									1
28 Feb	N18W87	309	120	9	Dso	3	B	1									1
								2	0	0	10	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 310



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	4		
Region 2805																		
22 Feb	S23W02	304	10	3	Bxo	3	B											
23 Feb	S22W14	303	50	4	Cao	6	B											
24 Feb	S22W28	304	30	5	Cso	3	B											
25 Feb	S22W41	304	10	1	Axx	1	A											
26 Feb	S22W55	305	plage										1					
27 Feb	S22W69	305	plage															
28 Feb	S22W83	306	plage															
								0	0	0	1	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 304



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

The Weekly has been published continuously since 1951 and is available online since 1997.

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Current

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