

**Space Weather Highlights**  
**15 February - 21 February 2021**

**SWPC PRF 2373**  
**22 February 2021**

Solar activity was very low. Region 2803 (N21, Lo=280, class/area Axx/30 on 19 Feb) produced a B1 flare on 19/0901 UTC, the largest of the period. Region 2802 (N19, Lo=33, class/area Bxo/15 on 18 Feb) decayed to plage on 19 Feb.

A filament eruption was observed near mid-day on 20 Feb in the SE quadrant of the visible disk. A subsequent partial-halo CME signature followed the eruption, first observed in SOHO/LASCO C2 imagery beginning at 20/1200 UTC. Analysis and modeling of the event suggested the bulk of the plasma headed downstream of Earth; however, a glancing blow from the periphery of the CME is likely on 23-24 Feb. No other Earth-directed CMEs were identified in available coronagraph imagery.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to high levels. Normal to moderate levels were observed from 15-20 Feb. Activity from a negative polarity CH HSS increased peak electron flux to high levels on 21 Feb.

Geomagnetic field activity ranged from quiet to active levels. Active levels were reached on 16 Feb and 19-21 Feb. Unsettled levels were reached on 15 Feb and 17-18 Feb. All periods of elevated geomagnetic activity was in response to multiple, negative polarity CH HSSs.

**Space Weather Outlook**  
**22 February - 20 March 2021**

Solar activity is expected to be very 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 range from normal to high levels. High levels are expected on 22-26 Feb, 02-04 Mar and 19-20 Mar due to influence from multiple, recurrent CH HSSs. Normal to moderate levels expected for the remainder of the outlook period.

Geomagnetic field activity is expected to be at quiet to G1 (Minor) geomagnetic storm levels. G1 (Minor) storm conditions are likely on 01 Mar and 18-19 Mar due to CH HSS influence. Active conditions are likely 23-24 Feb due to anticipated onset of a CME from 20 Feb. Active conditions due to CH HSS influence are likely on 22 Feb, 02 Mar, 06 Mar, 12-13 Mar, 15 Mar and 20 Mar. Unsettled conditions are likely on 25 Feb, 03 Mar and 16 Mar. The remainder of the outlook period is expected to be at quiet levels.



### *Daily Solar Data*

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 <sup>-6</sup> hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
15 February	70	0	0	A1.3	0	0	0	0	0	0	0	0
16 February	71	0	0	A1.0	0	0	0	0	0	0	0	0
17 February	72	0	0	A2.0	0	0	0	0	0	0	0	0
18 February	71	12	15	A3.0	0	0	0	0	0	0	0	0
19 February	73	12	30	A2.5	0	0	0	0	0	0	0	0
20 February	76	12	10	A2.6	0	0	0	0	0	0	0	0
21 February	75	11	10	A0.0	0	0	0	0	0	0	0	0

### *Daily Particle Data*

Date	Proton Fluence (protons/cm <sup>2</sup> -day -sr)		Electron Fluence (electrons/cm <sup>2</sup> -day -sr)	
	>1 MeV	>10 MeV	>2MeV	
	15 February	8.1e+04	4.3e+04	3.1e+06
16 February	6.2e+05	4.3e+04	1.4e+06	
17 February	5.7e+04	4.4e+04	1.7e+06	
18 February	5.1e+04	4.4e+04	1.9e+06	
19 February	1.4e+06	4.5e+04	1.5e+06	
20 February	4.3e+05	4.4e+04	1.1e+07	
21 February	5.4e+05	4.4e+04	1.9e+08	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	15 February	3	0-0-2-0-1-1-2-2	2	0-0-2-1-0-0-1-1	5
16 February	11	1-3-3-4-2-2-2-1	45	1-3-7-7-4-4-2-1	15	2-4-4-4-2-3-2-1
17 February	6	1-2-2-2-2-2-1-2	10	1-1-2-4-4-2-1-1	8	2-3-2-2-2-2-2-2
18 February	2	2-1-1-1-1-0-0-0	5	1-1-3-3-1-0-0-0	5	3-2-1-1-1-0-0-1
19 February	13	2-1-1-1-4-3-3-4	31	0-0-3-5-5-6-4-4	17	2-1-2-2-4-4-4-4
20 February	15	2-2-3-2-3-3-4-4	40	2-3-6-6-5-5-3-4	20	3-3-4-3-3-4-4-4
21 February	18	3-3-4-4-4-2-2-3	49	3-4-6-7-6-4-3-2	22	4-4-4-4-4-2-2-3

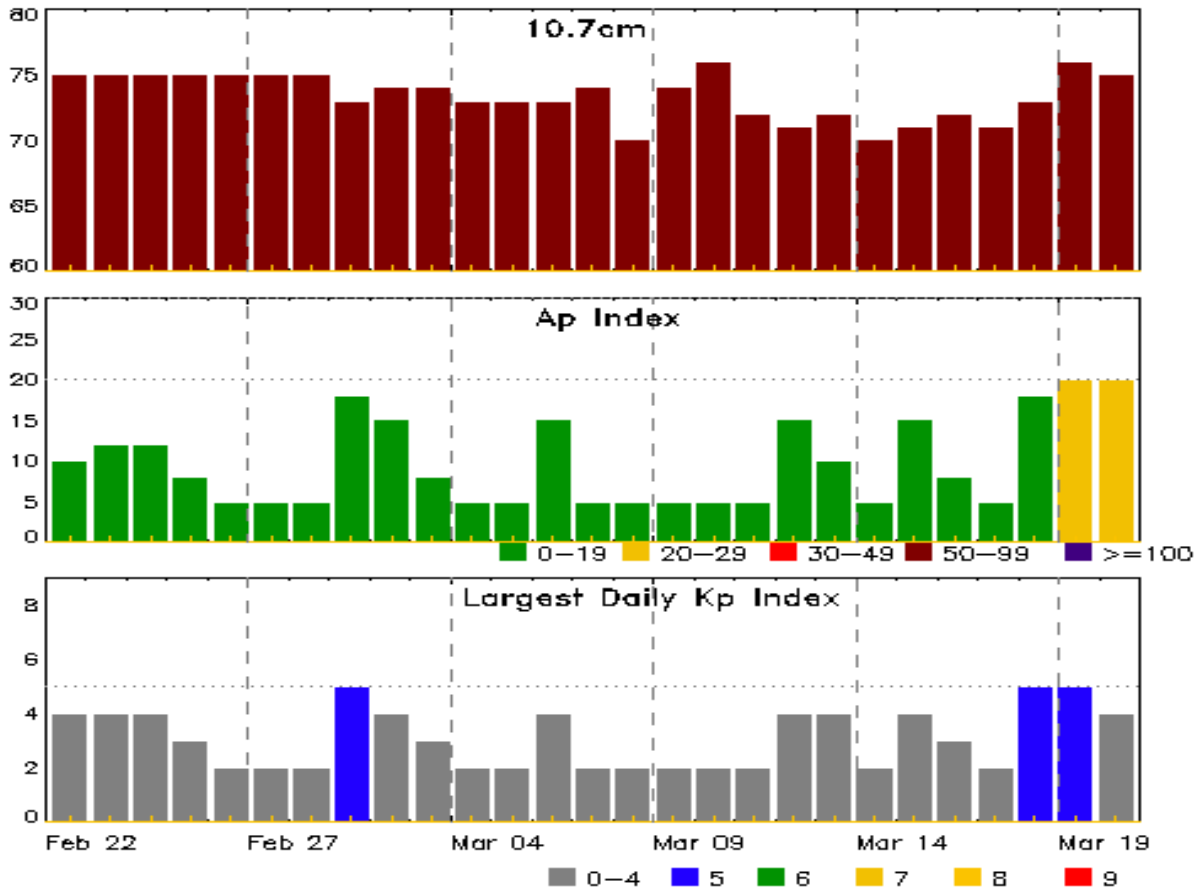


### *Alerts and Warnings Issued*

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
16 Feb 0529	WARNING: Geomagnetic K = 4	16/0528 - 1200
16 Feb 0538	ALERT: Geomagnetic K = 4	16/0536
16 Feb 1144	EXTENDED WARNING: Geomagnetic K = 4	16/0528 - 1500
18 Feb 1706	WATCH: Geomagnetic Storm Category G1 predicted	
19 Feb 1411	WARNING: Geomagnetic K = 4	19/1411 - 1800
19 Feb 1443	ALERT: Geomagnetic K = 4	19/1434
19 Feb 1755	EXTENDED WARNING: Geomagnetic K = 4	19/1411 - 2359
19 Feb 1820	WATCH: Geomagnetic Storm Category G1 predicted	
19 Feb 2017	WARNING: Geomagnetic K = 5	19/2015 - 20/0300
19 Feb 2031	CANCELLATION: Geomagnetic K = 4	
19 Feb 2034	WARNING: Geomagnetic K = 4	19/2034 - 20/0600
20 Feb 0459	EXTENDED WARNING: Geomagnetic K = 4	19/2034 - 20/1800
20 Feb 1759	EXTENDED WARNING: Geomagnetic K = 4	19/2034 - 20/2359
20 Feb 2322	EXTENDED WARNING: Geomagnetic K = 4	19/2034 - 21/1200
21 Feb 0557	ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	21/0535
21 Feb 1040	EXTENDED WARNING: Geomagnetic K = 4	19/2034 - 21/2359
21 Feb 2343	EXTENDED WARNING: Geomagnetic K = 4	19/2034 - 22/1200



## 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
22 Feb	75	10	4	08 Mar	70	5	2
23	75	12	4	09	74	5	2
24	75	12	4	10	76	5	2
25	75	8	3	11	72	5	2
26	75	5	2	12	71	15	4
27	75	5	2	13	72	10	4
28	75	5	2	14	70	5	2
01 Mar	73	18	5	15	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				



### *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	2695	Intensity II

**No Events Observed**

### *Flare List*

Date	Time			X-ray Class	Optical			Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD		
18 Feb	1145	1153	1158	B1.2			2803	
18 Feb	1325	1329	1337	B1.0			2803	
18 Feb	1956	2047	2109	B1.3			2803	
19 Feb	0853	0901	0908	B1.8			2803	
19 Feb	1440	1447	1451	B1.1			2803	
20 Feb	1147	1153	1158	B1.1			2803	



## Region Summary

Date	Location		Sunspot Characteristics				Flares								
	Lat	CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	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

Still on Disk.

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										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 277



## ***Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)***

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce  
NOAA / National Weather Service  
Space Weather Prediction Center  
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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.

<https://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecast> --

Current

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