

Space Weather Highlights
16 March - 22 March 2020

SWPC PRF 2325
23 March 2020

Solar activity was very low. The visible disk was spotless. No Earth-directed CMEs were observed during the reporting period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached moderate levels each day of the period with a peak flux of 547 pfu observed at 22/1535 UTC.

Geomagnetic field activity reached active levels on 19 Mar with unsettled levels on 16, 18-22 Mar in response to CH HSS influence. Quiet conditions were observed on 17 Mar.

Space Weather Outlook
23 March - 18 April 2020

Solar activity is expected to continue at very low levels.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach moderate levels throughout the period in response to recurrent CH HSS influence.

Geomagnetic field activity is expected to reach active levels on 27 Mar and 15 Apr, with unsettled conditions anticipated for 23, 27-29 Mar and 15-18 Apr due to CH HSS effects. Quiet conditions 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
16 March	70	0	0	A0.0	0	0	0	0	0	0	0	0
17 March	72	0	0	A0.0	0	0	0	0	0	0	0	0
18 March	72	0	0	A0.0	0	0	0	0	0	0	0	0
19 March	72	0	0	A0.0	0	0	0	0	0	0	0	0
20 March	72	0	0	A0.0	0	0	0	0	0	0	0	0
21 March	71	0	0	A0.0	0	0	0	0	0	0	0	0
22 March	70	0	0	A0.0	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
	16 March	1.8e+05	4.7e+04
17 March	1.1e+05	4.6e+04	1.1e+06
18 March	1.6e+05	4.7e+04	1.2e+06
19 March	1.2e+05	4.6e+04	2.4e+06
20 March	9.8e+04	4.7e+04	8.1e+06
21 March	6.4e+04	4.6e+04	4.8e+06
22 March	6.2e+04	4.6e+04	1.3e+07

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	16 March	3	1-1-1-1-1-1-1-1	5	0-0-1-2-4-1-1-0	7
17 March	4	1-0-2-2-1-1-1-1	8	0-0-2-4-3-2-1-1	6	2-1-2-2-1-2-1-2
18 March	4	0-1-1-0-2-2-2-2	3	1-0-0-0-2-2-2-1	6	1-1-1-1-2-2-3-2
19 March	7	3-2-2-2-2-1-1-1	17	3-2-4-4-5-2-1-1	12	4-3-3-2-3-2-1-1
20 March	5	2-1-2-0-2-1-1-2	6	1-0-2-0-2-3-2-2	7	3-1-2-0-1-2-2-3
21 March	5	1-2-2-2-2-1-1-1	15	2-3-4-4-4-2-1-1	8	2-2-3-2-2-2-1-2
22 March	7	2-2-2-1-3-2-1-2	7	1-1-1-4-2-2-1-1	12	3-2-1-2-2-2-2-2

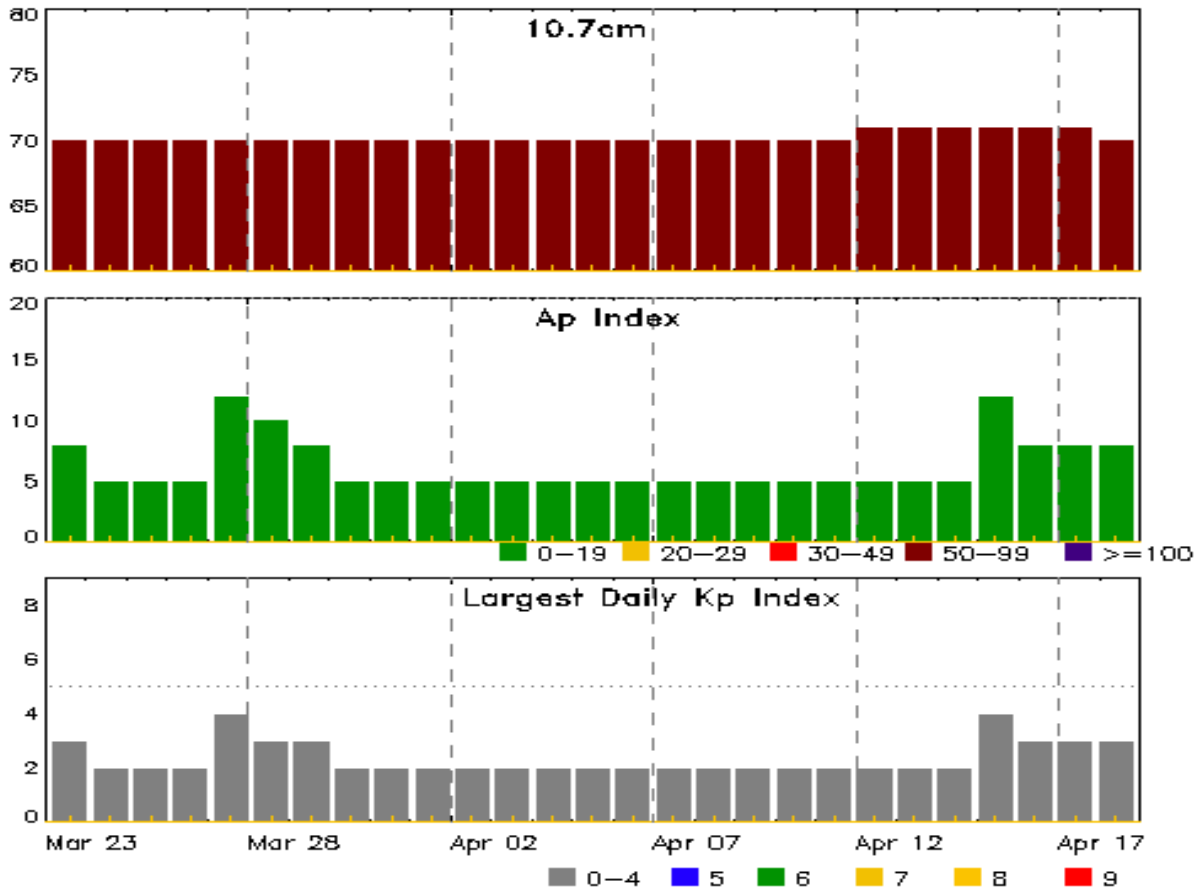


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
19 Mar 0128	WARNING: Geomagnetic K = 4	19/0127 - 0900
19 Mar 0130	ALERT: Geomagnetic K = 4	19/0130



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
23 Mar	70	8	3	06 Apr	70	5	2
24	70	5	2	07	70	5	2
25	70	5	2	08	70	5	2
26	70	5	2	09	70	5	2
27	70	12	4	10	70	5	2
28	70	10	3	11	70	5	2
29	70	8	3	12	71	5	2
30	70	5	2	13	71	5	2
31	70	5	2	14	71	5	2
01 Apr	70	5	2	15	71	12	4
02	70	5	2	16	71	8	3
03	70	5	2	17	71	8	3
04	70	5	2	18	70	8	3
05	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	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
17 Mar	1659	1701	1702	A9.0			



Region Summary

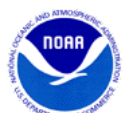
Date	Location		Sunspot Characteristics				Flares								
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
									C	M	X	S	1	2	3

Region 2758

08 Mar	S29E26	229	20	3	Cro	3	B											
09 Mar	S30E12	230	10	2	Hrx	2	A											
10 Mar	S30W01	230	plage															
11 Mar	S30W15	231	plage															
12 Mar	S30W29	232	plage															
13 Mar	S30W43	233	plage															
14 Mar	S30W57	233	plage															
15 Mar	S30W71	234	plage															
16 Mar	S30W85	235	plage															
17 Mar	S30W99	236	plage															
										0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 230



Recent Solar Indices (preliminary)
Observed monthly mean values

Month	Sunspot Numbers					Radio Flux		Geomagnetic		
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth	
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value	
2018										
March		6.0	1.5	0.25	11.5	5.9	68.4	71.9	8	8.6
April		7.0	5.3	0.76	9.6	4.7	70.0	70.6	7	8.0
May		15.0	7.9	0.53	9.2	4.5	70.9	70.2	8	7.6
June		19.7	9.4	0.48	9.1	4.3	72.5	70.0	7	7.4
July		1.3	1.0	0.77	9.4	4.2	69.7	70.0	6	7.3
August		10.0	5.2	0.53	9.0	4.0	69.1	70.0	10	7.3
September		5.7	2.0	0.35	8.7	3.9	68.3	70.1	9	7.3
October		6.9	2.9	0.42	9.2	4.1	69.5	70.3	7	7.1
November		7.3	2.9	0.48	9.5	4.0	68.9	70.4	6	7.0
December		5.6	1.9	0.34	9.3	3.6	70.0	70.3	7	6.9
2019										
January		16.0	4.6	0.29	9.0	3.2	71.6	70.0	6	6.8
February			0.5		8.7	3.0	70.6	69.8	7	6.7
March		14.8	5.6	0.39	8.3	2.8	71.5	69.7	6	6.6
April		11.5	5.5	0.48	7.9	2.6	72.4	69.6	6	6.7
May		18.1	5.9	0.34	7.4	2.3	71.3	69.6	7	6.7
June		11.6	0.7	0.06	7.3	2.2	68.1	69.6	5	6.5
July		1.6	0.5	0.31	7.0	2.1	67.1	69.7	6	6.3
August		2.5	0.3	0.16	7.0	2.1	67.0	69.8	7	6.2
September		2.6	0.7	0.27			68.1		10	
October		1.8	0.2	0.11			67.4		8	
November		1.1	0.3	0.27			70.2		4	
December		7.2	1.0	0.14			70.9		4	
2020										
January		9.2	3.8	0.41			72.3		5	
February		5.5	0.2	0.04			71.0		6	

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.



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

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Space Weather Prediction Center
325 Broadway, Boulder CO 80305

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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Current

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