

Space Weather Highlights
23 March - 29 March 2020

SWPC PRF 2326
30 March 2020

Solar activity was very low throughout the period. No active regions with sunspots were observed and no earth-directed CMEs were detected.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached moderate levels on 30 Mar-18 Apr, and 23-25 Apr.

Geomagnetic field activity was at quiet or quiet to unsettled levels throughout the period.

Space Weather Outlook
30 March - 25 April 2020

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 reach high levels on 19-22 Apr, and normal to moderate levels are expected to prevail throughout the remainder of the outlook period.

Geomagnetic field activity is expected to reach active levels on 30-31 Mar due to CH HSS influence. Generally quiet or quiet to 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
23 March	70	0	0	A0.0	0	0	0	0	0	0	0	0
24 March	71	0	0	A1.0	0	0	0	0	0	0	0	0
25 March	71	0	0	A0.0	0	0	0	0	0	0	0	0
26 March	70	0	0	A0.0	0	0	0	0	0	0	0	0
27 March	69	0	0	A0.0	0	0	0	0	0	0	0	0
28 March	69	0	0	A0.0	0	0	0	0	0	0	0	0
29 March	68	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
	23 March	9.2e+04	4.6e+04
24 March	6.8e+04	4.6e+04	5.2e+07
25 March	9.3e+04	4.6e+04	5.7e+07
26 March	1.7e+05	4.7e+04	5.3e+07
27 March	8.0e+04	4.7e+04	9.4e+06
28 March	1.4e+05	4.7e+04	1.1e+07
29 March	1.7e+05	4.6e+04	5.2e+06

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	23 March	10	3-3-1-3-3-1-2-2	16	2-2-1-6-3-2-2-1	12
24 March	4	2-1-2-1-1-1-1-0	3	2-1-1-2-1-0-0-0	4	3-2-2-1-1-0-0-0
25 March	3	2-0-0-1-2-0-1-2	2	1-0-0-1-1-0-0-1	4	2-0-0-1-1-0-0-2
26 March	5	0-1-1-1-2-2-1-3	2	0-0-0-1-2-1-1-1	5	1-1-1-1-2-2-1-3
27 March	4	2-1-1-1-1-2-1-0	3	2-1-0-2-1-1-1-0	5	2-2-1-1-1-2-2-0
28 March	4	0-1-1-2-2-1-1-2	5	0-0-1-4-2-0-0-1	5	0-1-1-2-2-0-1-2
29 March	6	1-0-2-2-3-2-1-1	18	0-0-4-5-5-3-1-1	3	1-0-2-2-3-2-1-1

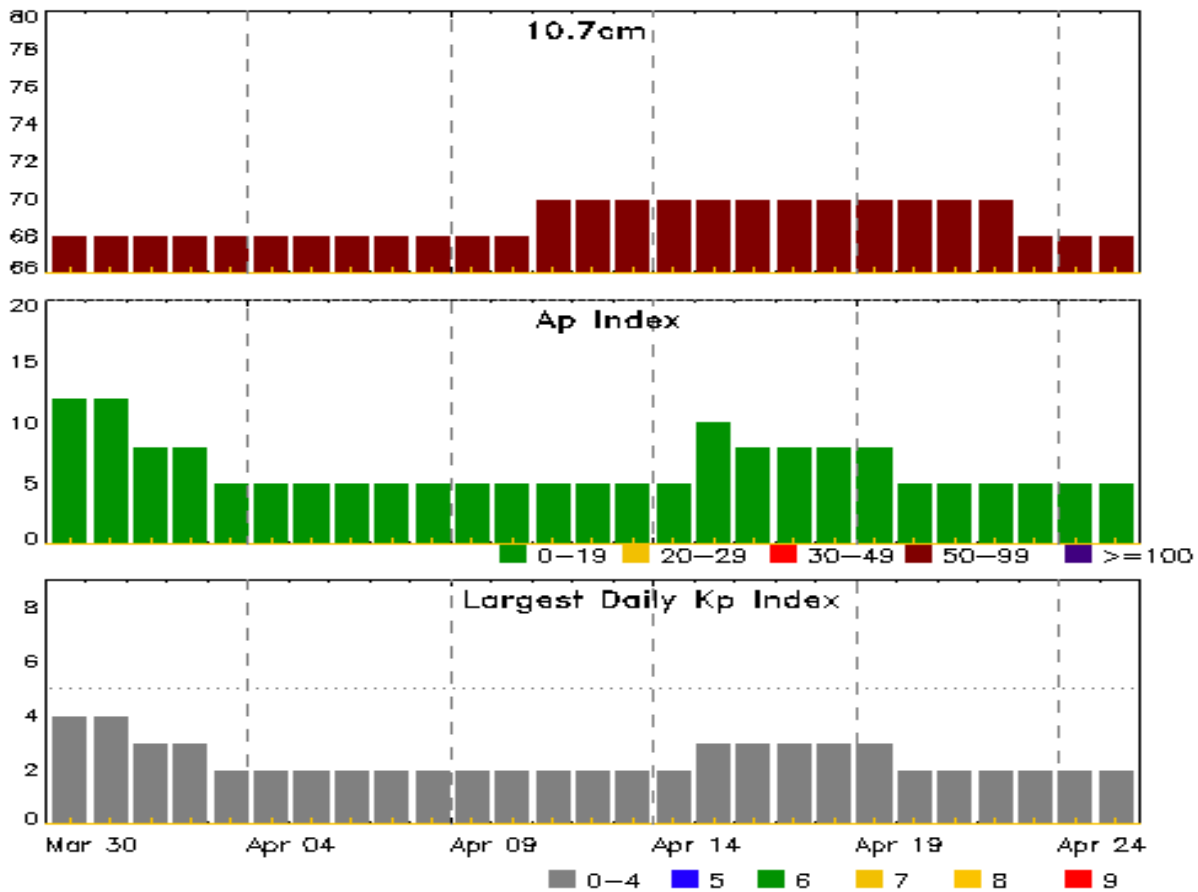


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
23 Mar 0440	WARNING: Geomagnetic K = 4	23/0439 - 1200
23 Mar 1652	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	23/1635
24 Mar 1436	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	23/1635
25 Mar 1225	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	23/1635
26 Mar 1227	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	23/1635



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
30 Mar	68	12	4	13 Apr	70	5	2
31	68	12	4	14	70	5	2
01 Apr	68	8	3	15	70	10	3
02	68	8	3	16	70	8	3
03	68	5	2	17	70	8	3
04	68	5	2	18	70	8	3
05	68	5	2	19	70	8	3
06	68	5	2	20	70	5	2
07	68	5	2	21	70	5	2
08	68	5	2	22	70	5	2
09	68	5	2	23	68	5	2
10	68	5	2	24	68	5	2
11	70	5	2	25	68	5	2
12	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 #	245	2695	II

No Events Observed

Flare List

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
23 Mar	1433	1436	1437	A2.6			



Region Summary

Location		Sunspot Characteristics					Flares							
Date	Lat CMD	Helio Lon	Area 10 ⁻⁶	Extent hemi.	Spot (helio) Class	Spot Count	Mag Class	X-ray			Optical			
							C	M	X	S	1	2	3	4

No Active Regions



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.



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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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