

Space Weather Highlights
06 January - 12 January 2020

SWPC PRF 2315
13 January 2020

Solar activity was very low. Region 2755 (S34, L=355, class/area Bxo/020 on 03 Jan) decayed to plage on 07 January and was absent of significant flare activity during the period. New Region 2756 (N22, L=017, class/area Cro/030 on 09 Jan) produced dual B1 flares at 10/1159 UTC and 10/1445 UTC before decaying to plage on 11 January. Both regions, one in the northern hemisphere and one in the southern hemisphere, presented in satellite imagery with reverse polarity magnetic field structure. No Earth-directed CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached moderate levels on 09-12 Jan due to coronal hole influence. Normal levels were observed on 06-08 Jan.

Geomagnetic field activity reached active levels on 06 and 09 Jan, unsettled levels on 08 and 10 Jan due to influence from negative polarity CH HSS activity. Quiet conditions prevailed throughout the remainder of the reporting period.

Space Weather Outlook
13 January - 08 February 2020

Solar activity is expected to remain 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 on 13-22 Jan and 05-08 Feb due to recurrent CH HSS influence. Normal levels are expected throughout the remainder of the outlook period.

Geomagnetic field activity is expected to reach active levels on 14-15 Jan and 02-04 Feb, with unsettled conditions on 13, 16 Jan and 01, 05 Feb due to recurrent CH HSS activity. Quiet conditions are expected throughout the remainder of the 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
06 January	71	11	10	A8.7	0	0	0	0	0	0	0	0
07 January	72	0	0	A8.8	0	0	0	0	0	0	0	0
08 January	74	0	0	A8.9	0	0	0	0	0	0	0	0
09 January	74	14	30	A9.2	0	0	0	0	0	0	0	0
10 January	73	11	10	A9.0	0	0	0	0	0	0	0	0
11 January	74	0	0	A8.7	0	0	0	0	0	0	0	0
12 January	72	0	0	A8.5	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	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
	06 January	5.4e+05	2.1e+04	3.7e+03	1.0e+06	
07 January	9.1e+05	2.1e+04	3.8e+03	9.8e+05		
08 January	4.6e+05	2.1e+04	4.1e+03	1.1e+06		
09 January	5.0e+05	2.2e+04	3.9e+03	5.5e+06		
10 January	3.2e+05	2.1e+04	3.8e+03	1.8e+07		
11 January	3.2e+05	2.2e+04	4.2e+03	4.4e+07		
12 January	2.2e+05	2.1e+04	4.0e+03	3.7e+07		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	06 January	9	4-3-1-1-1-2-2-1	4	2-3-1-0-0-0-1-1	9
07 January	4	1-2-0-1-1-1-1-2	2	0-0-0-0-1-1-1-1	5	1-2-1-1-1-1-2-2
08 January	4	1-0-1-1-2-2-1-1	5	1-0-1-2-2-3-0-1	6	1-1-1-1-2-3-2-2
09 January	8	2-2-3-2-2-2-2-1	32	1-2-6-6-5-4-1-2	12	3-3-4-2-2-3-2-2
10 January	6	1-1-3-2-1-2-1-1	13	0-1-3-5-3-3-2-0	7	2-1-3-2-2-2-1-1
11 January	4	1-2-3-1-1-1-0-0	7	1-2-3-3-1-3-0-0	6	2-2-2-1-1-2-1-1
12 January	2	1-1-0-1-1-1-1-0	1	0-0-1-1-0-0-0-0	5	1-2-1-1-1-0-1-0

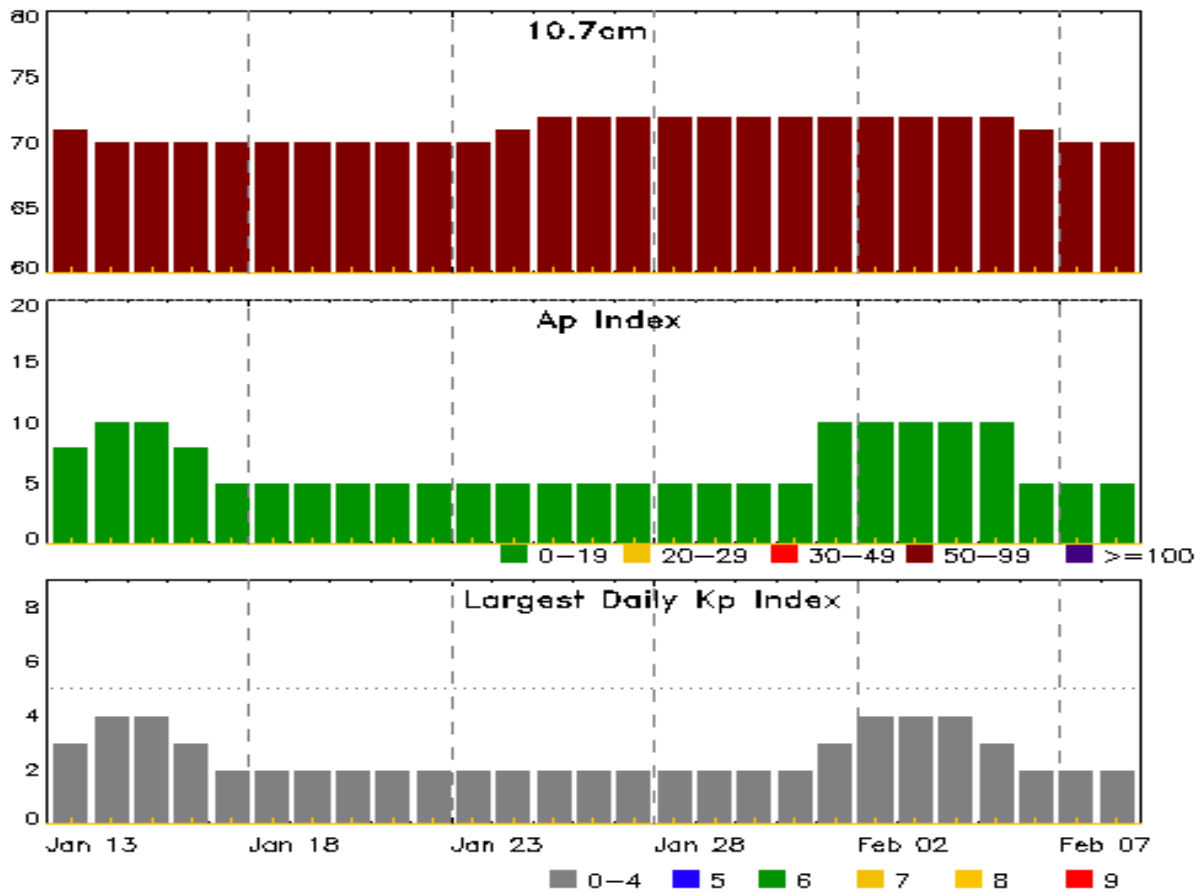


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
09 Jan 0700	WARNING: Geomagnetic K = 4	09/0700 - 1200
09 Jan 0904	ALERT: Geomagnetic K = 4	09/0855



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
13 Jan	71	8	3	27 Jan	72	5	2
14	70	10	4	28	72	5	2
15	70	10	4	29	72	5	2
16	70	8	3	30	72	5	2
17	70	5	2	31	72	5	2
18	70	5	2	01 Feb	72	10	3
19	70	5	2	02	72	10	4
20	70	5	2	03	72	10	4
21	70	5	2	04	72	10	4
22	70	5	2	05	72	10	3
23	70	5	2	06	71	5	2
24	71	5	2	07	70	5	2
25	72	5	2	08	70	5	2
26	72	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	Intensity IV

No Events Observed

Flare List

Date	Time			X-ray Class	Optical			Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #	
10 Jan	1152	1159	0124	B1.1			2756	
10 Jan	1441	1445	1451	B1.1			2756	



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 2755

02 Jan	S35E51	353	20	3	Bxo	3	B										
03 Jan	S34E36	355	20	4	Bxo	3	B										
04 Jan	S35E21	357	10		Axx	1	A										
05 Jan	S35E09	355	10		Axx	1	A										
06 Jan	S35W03	354	10		Axx	1	A										
07 Jan	S36W13	352	plage														
08 Jan	S36W27	353	plage														
09 Jan	S36W41	353	plage														
10 Jan	S36W55	354	plage														
11 Jan	S36W69	355	plage														
12 Jan	S36W83	356	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 354

Region 2756

09 Jan	N22W65	17	30	4	Cro	4	B										
10 Jan	N23W78	17	10	3	Axx	1	A										
11 Jan	N23W92	18	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 17



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										
January	7.8	4.1	0.51	15.0	8.5	70.0	74.0	6	9.3	
February	16.0	6.4	0.40	13.7	7.6	72.0	73.3	7	9.1	
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			67.1		6		
August	2.5	0.3	0.16			67.0		7		
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		

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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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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