

**Space Weather Highlights**  
**14 January - 20 January 2019**

**SWPC PRF 2264**  
**21 January 2019**

Solar activity was at very low levels under a spotless disk. No Earth-directed CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 14-15 Jan and normal levels on 16-20 Jan. A peak flux of 321 pfu was observed at 14/0005 UTC.

Geomagnetic field activity was at predominately quiet levels with isolated unsettled intervals early on 15 Jan, late on 16 Jan, early on 17 Jan and late on 19 Jan. The isolated unsettled periods were due to influence from a weak, negative polarity CH HSS. During the period, solar wind parameters were generally at nominal levels. However, a slight enhancement was observed midday 17 Jan through early 18 Jan due to negative polarity CH HSS influence. During this time frame, total field peaked at 10 nT, the Bz component reached a maximum southward extent of -8 nT and wind speeds peaked at about 515 km/s.

**Space Weather Outlook**  
**21 January - 16 February 2019**

Solar activity is expected to be at very low levels 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 at normal to moderate levels on 21-25 Jan, 28 Jan-01 Feb and 07-16 Feb. Moderate to high levels are expected on 26-27 Jan and again on 02-06 Feb due to recurrent CH HSS influence.

Geomagnetic field activity is expected to be at unsettled to active levels on 23-26 Jan, with G1 (Minor) storms conditions likely on 24 Jan, all due to influence from a recurrent, positive polarity CH HSS. Unsettled to active levels are again possible on 31 Jan-03 Feb due to influence from a recurrent, negative polarity CH HSS. The remainder of the outlook period is expected to be at predominately 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
14 January	70	0	0	A0.0	0	0	0	0	0	0	0	0	0
15 January	70	0	0	A0.0	0	0	0	0	0	0	0	0	0
16 January	70	0	0	A0.0	0	0	0	0	0	0	0	0	0
17 January	69	0	0	A0.0	0	0	0	0	0	0	0	0	0
18 January	69	0	0	A0.0	0	0	0	0	0	0	0	0	0
19 January	70	0	0	A0.0	0	0	0	0	0	0	0	0	0
20 January	69	0	0	A0.0	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	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
14 January		1.2e+06	1.7e+04	4.0e+03		9.5e+06
15 January		9.5e+05	1.7e+04	3.8e+03		5.0e+06
16 January		1.0e+06	1.7e+04	4.0e+03		1.7e+06
17 January		4.4e+05	1.7e+04	4.0e+03		4.1e+05
18 January		3.1e+05	1.7e+04	3.9e+03		5.8e+05
19 January		3.7e+05	1.7e+04	3.7e+03		9.5e+05
20 January		4.6e+05	1.8e+04	4.0e+03		9.5e+05

### ***Daily Geomagnetic Data***

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
14 January	6	2-2-2-2-1-2-1-2	5	0-0-3-2-1-1-2-1	6	2-2-2-2-1-2-1-2
15 January	4	2-0-1-1-1-2-2-1	2	0-1-0-0-2-1-1-1	5	3-1-1-1-1-1-2-1
16 January	5	1-2-2-1-0-1-2-2	2	0-0-2-0-0-0-1-2	6	1-2-2-1-0-1-2-3
17 January	5	2-1-1-2-1-2-1-2	4	2-0-0-0-1-3-1-1	7	3-2-1-1-1-2-2-2
18 January	5	2-2-1-2-2-1-1-1	6	2-0-0-4-2-1-1-0	6	2-2-1-2-2-1-1-1
19 January	2	0-1-0-2-0-0-0-2	3	0-0-1-3-0-0-1-1	4	1-1-0-2-0-0-1-3
20 January	2	2-1-0-0-1-0-1-1	3	1-1-1-2-2-1-0-0	7	2-1-1-1-1-1-1-1

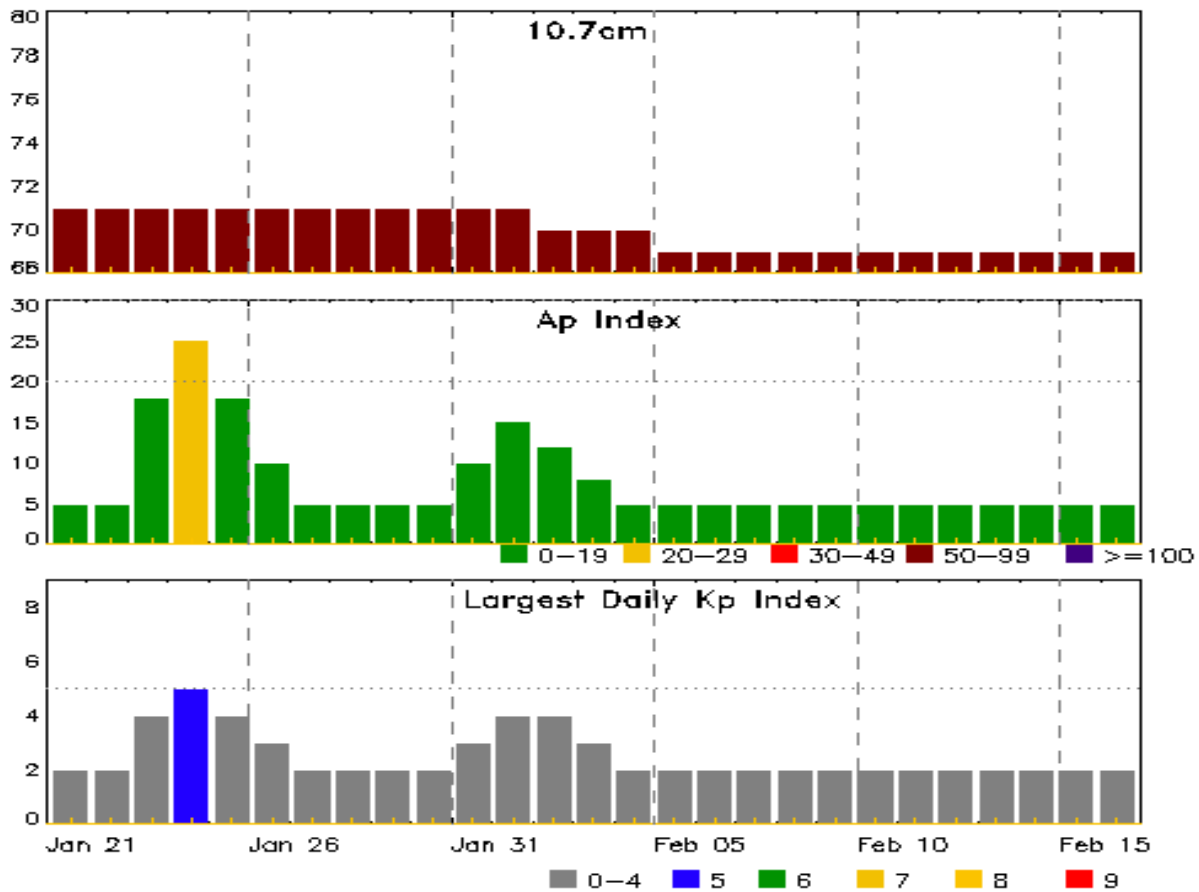


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
No Alerts or Warnings Issued		



## 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
21 Jan	71	5	2	04 Feb	70	5	2
22	71	5	2	05	69	5	2
23	71	18	4	06	69	5	2
24	71	25	5	07	69	5	2
25	71	18	4	08	69	5	2
26	71	10	3	09	69	5	2
27	71	5	2	10	69	5	2
28	71	5	2	11	69	5	2
29	71	5	2	12	69	5	2
30	71	5	2	13	69	5	2
31	71	10	3	14	69	5	2
01 Feb	71	15	4	15	69	5	2
02	70	12	4	16	69	5	2
03	70	8	3				

### ***Energetic Events***

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half	Class	Flux	Imp/	Location	Rgn	Radio Flux		Intensity	
			Max			Brtns			245	2695	II	IV

**No Events Observed**

### ***Flare List***

Date	Time			X-ray	Optical		
	Begin	Max	End		Class	Imp/ Brtns	Location Lat CMD
16 Jan	0032	0034	0035		A8.8		
19 Jan	2200	2201	2202		A1.1		



### ***Region Summary***

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

No Active Regions

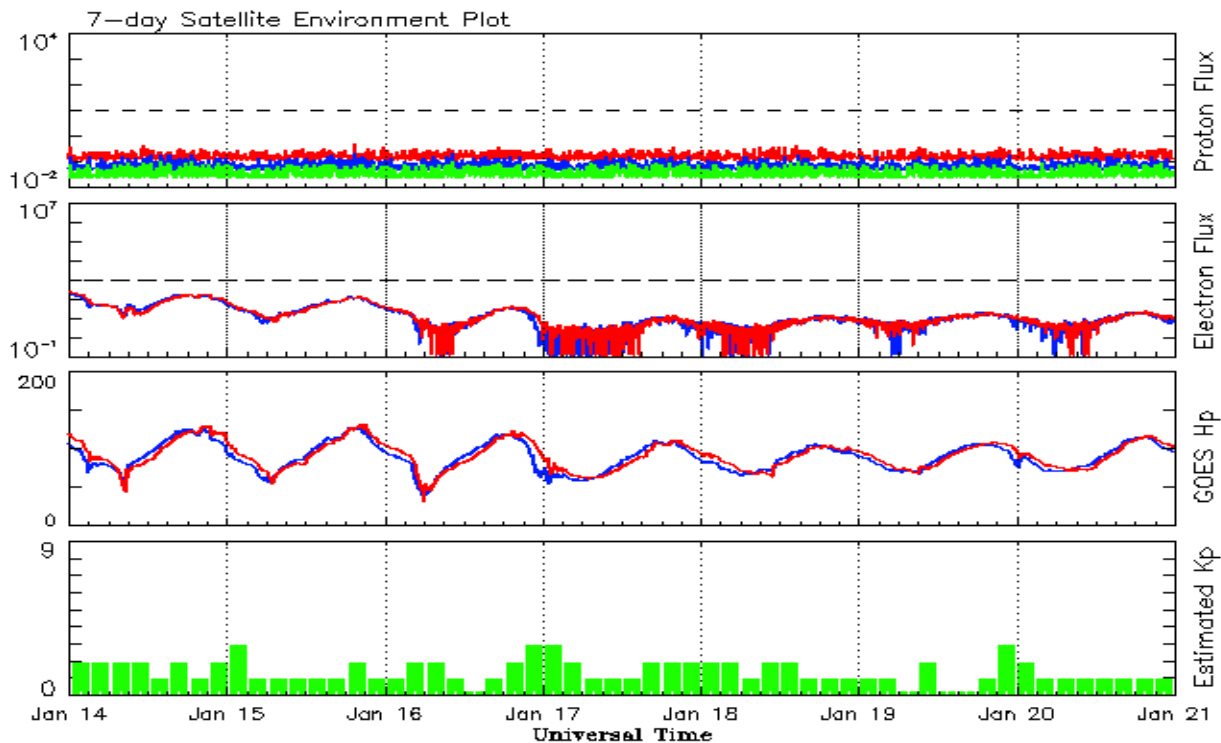


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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
<b>2017</b>									
January	28.1	15.7	0.55	27.3	16.7	77.4	79.4	10	11.3
February	22.0	15.8	0.71	25.5	15.9	76.9	78.7	10	11.3
March	25.4	10.6	0.42	24.6	15.4	74.6	78.6	15	11.5
April	30.4	19.4	0.64	24.3	14.9	80.9	78.4	13	11.5
May	18.1	11.3	0.62	23.1	14.0	73.5	77.7	9	11.3
June	18.0	11.5	0.64	22.0	13.3	74.8	77.3	7	11.3
July	18.8	10.7	0.59	20.8	12.6	77.7	76.8	9	11.0
August	25.0	19.6	0.80	19.7	11.8	77.9	76.3	12	10.7
September	42.2	26.2	0.62	18.6	11.0	92.0	75.9	19	10.3
October	16.0	7.9	0.49	16.8	10.0	76.4	75.1	11	9.8
November	7.7	3.4	0.44	15.7	9.2	72.1	74.6	11	9.5
December	7.6	4.9	0.64	15.7	9.1	71.5	74.4	8	9.4
<b>2018</b>									
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	4.4	72.5	70.0	7	7.4
July	1.3	1.0	0.77			69.7		6	
August	10.0	5.2	0.53			69.1		10	
September	5.7	2.0	0.35			68.3		9	
October	6.9	2.9	0.42			69.5		7	
November	7.3	3.5	0.48			68.9		6	
December	5.6	1.9	0.34			70.0		7	

**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.





*Weekly Geosynchronous Satellite Environment Summary  
Week Beginning 14 January 2019*

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

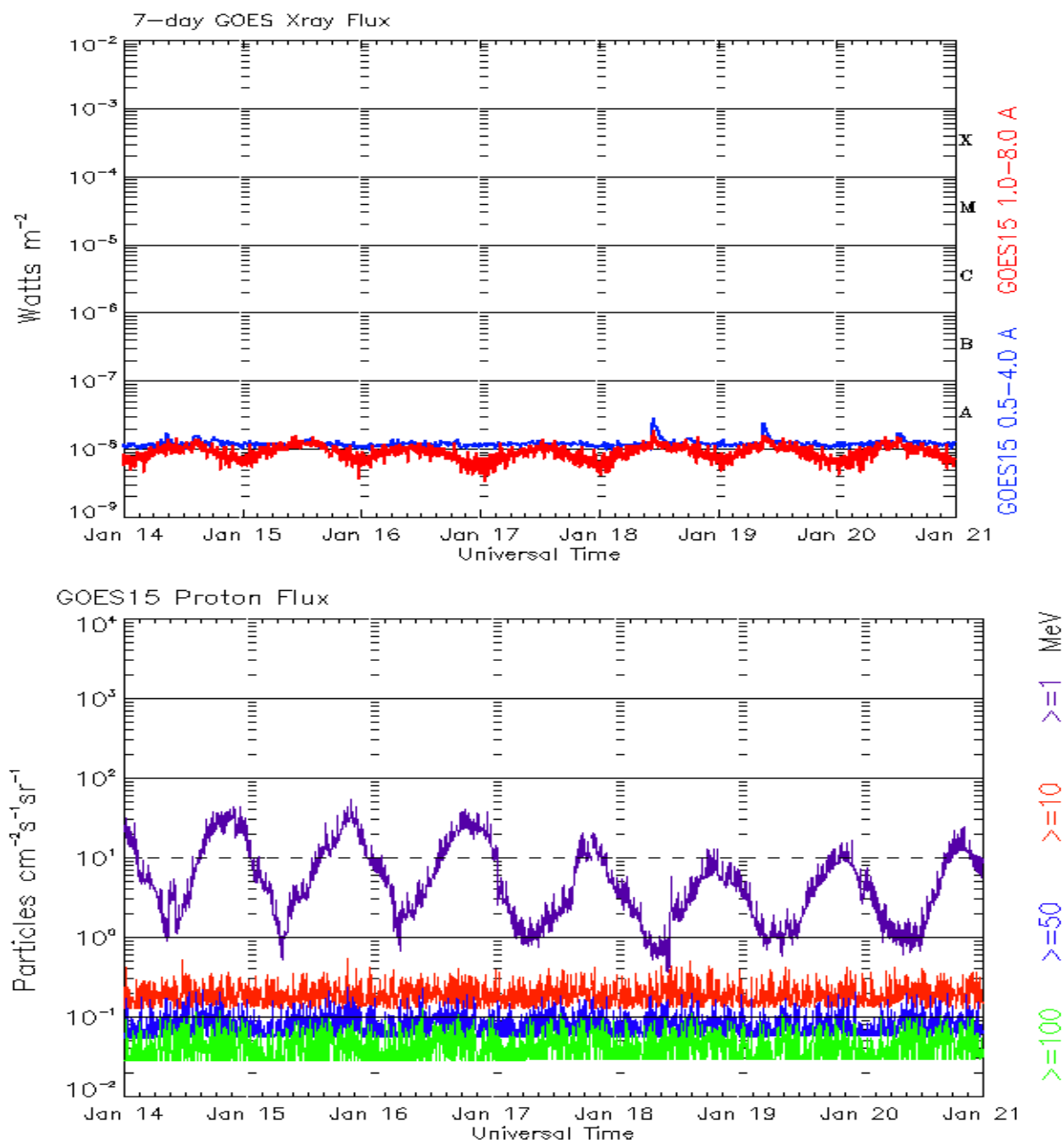
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





*Weekly GOES Satellite X-ray and Proton Plots  
Week Beginning 14 January 2019*

The x-ray plots contains five-minute averages x-ray flux (Watt/m<sup>2</sup>) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged integral flux units (pfu = protons/cm<sup>2</sup> -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.



## ***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](mailto:SWPC.Webmaster@noaa.gov)

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