

Space Weather Highlights
11 February - 17 February 2019

SWPC PRF 2268
18 February 2019

Solar activity was at very low levels. There were no numbered spot regions. No Earth-directed CMEs were observed in coronagraph imagery.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 11 and 14 Feb, with a maximum flux of 1,890 pfu at 11/1445 UTC. Normal to moderate levels were observed on the remaining days.

Geomagnetic field activity was at mostly quiet to unsettled levels. Active levels were observed on 13 Feb.

Space Weather Outlook
18 February - 16 March 2019

Solar activity is expected to be very low levels throughout the forecast period. No notable regions are due to return to the visible disk.

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 21 Feb - 10 Mar and 13 Mar. Normal to moderate levels are expected for 18-20 Feb, 11-12 Mar, and 14-16 Mar.

Geomagnetic field activity is expected to be at G1 (Minor) geomagnetic storming levels on 28 Feb - 01 Mar as the result of recurrent, negative polarity CH HSS influences. Mostly quiet to unsettled levels are expected for the rest 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
11 February	70	0	0	A0.0	0	0	0	0	0	0	0	0
12 February	70	0	0	A0.0	0	0	0	0	0	0	0	0
13 February	70	0	0	A0.0	0	0	0	0	0	0	0	0
14 February	71	0	0	A0.0	0	0	0	0	0	0	0	0
15 February	71	0	0	A0.0	0	0	0	0	0	0	0	0
16 February	71	0	0	A0.0	0	0	0	0	0	0	0	0
17 February	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	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
11 February	9.9e+05	1.6e+04	3.6e+03	7.5e+07		
12 February	5.0e+05	1.6e+04	3.7e+03	1.7e+07		
13 February	8.3e+05	1.7e+04	3.7e+03	1.3e+07		
14 February	7.8e+05	1.8e+04	3.7e+03	3.9e+07		
15 February	5.5e+05	1.7e+04	3.6e+03	4.5e+07		
16 February	8.9e+05	1.7e+04	3.7e+03	4.4e+07		
17 February	1.2e+06	1.7e+04	3.8e+03	2.8e+07		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
11 February	7	0-1-2-1-3-3-2-2	14	0-0-2-1-5-5-1-1	9	1-1-2-1-3-3-2-3
12 February	5	1-2-1-1-1-2-1-2	4	1-1-1-0-3-1-0-1	6	2-3-1-1-1-1-0-3
13 February	11	1-3-3-3-3-3-1-2	28	1-1-4-6-6-4-2-0	13	2-3-3-4-3-3-2-2
14 February	8	2-3-2-3-1-1-2-1	14	1-2-3-6-1-0-1-1	10	3-3-3-3-1-0-2-1
15 February	4	3-1-1-0-1-1-1-0	0	0-0-1-0-0-0-0-0	4	3-1-1-0-1-0-1-0
16 February	3	0-0-1-0-2-2-1-0	1	0-0-1-0-1-1-0-0	3	0-0-1-0-1-2-1-0
17 February	3	1-0-1-0-1-0-2-2	2	0-0-1-1-0-0-1-1	4	1-0-1-1-0-0-2-2

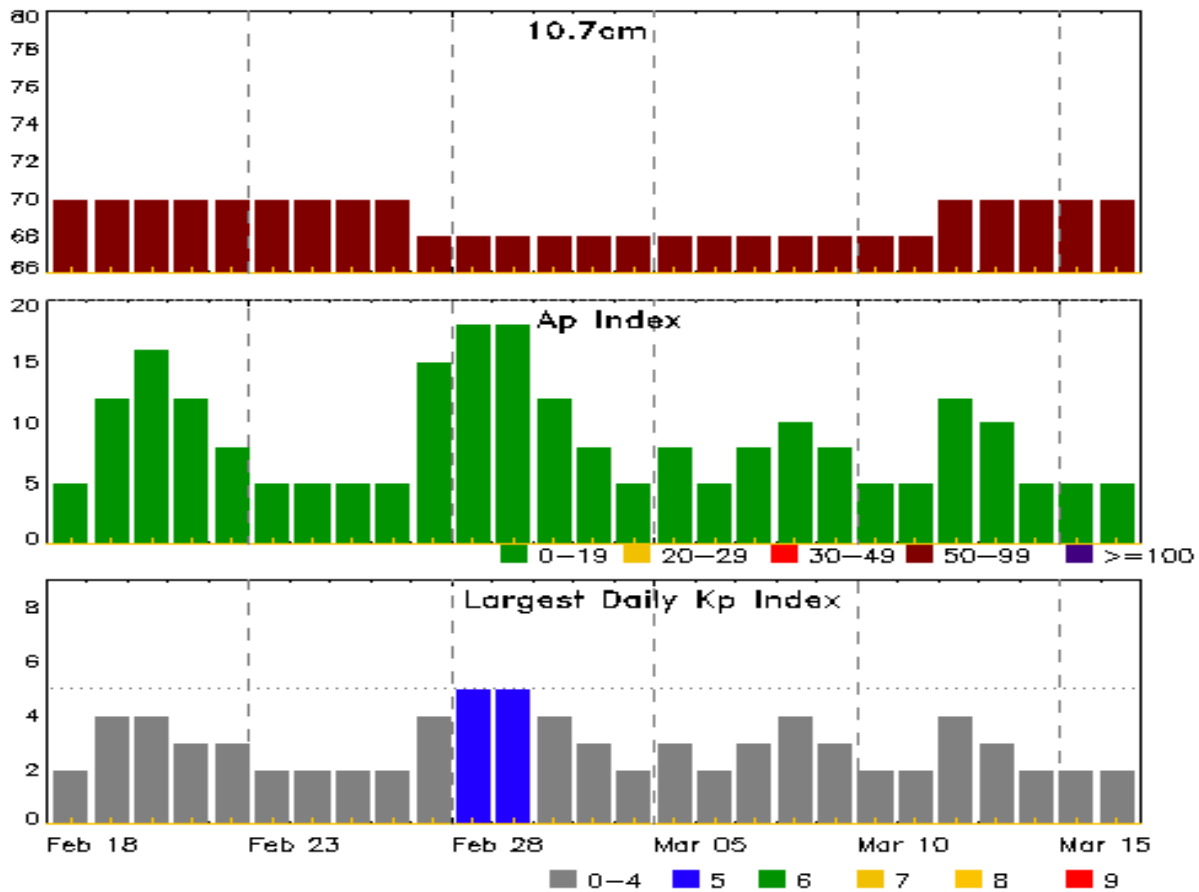


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
11 Feb 1255	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/2230
11 Feb 1608	WARNING: Geomagnetic K = 4	11/1608 - 2100
13 Feb 1031	WARNING: Geomagnetic K = 4	13/1030 - 1500
13 Feb 1201	ALERT: Geomagnetic K = 4	13/1159
14 Feb 0541	WARNING: Geomagnetic K = 4	14/0541 - 1200
14 Feb 1807	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	14/1755



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
18 Feb	70	5	2	04 Mar	68	5	2
19	70	12	4	05	68	8	3
20	70	16	4	06	68	5	2
21	70	12	3	07	68	8	3
22	70	8	3	08	68	10	4
23	70	5	2	09	68	8	3
24	70	5	2	10	68	5	2
25	70	5	2	11	68	5	2
26	70	5	2	12	70	12	4
27	68	15	4	13	70	10	3
28	68	18	5	14	70	5	2
01 Mar	68	18	5	15	70	5	2
02	68	12	4	16	70	5	2
03	68	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 Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
No Flares Observed							



Region Summary

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

No Active Regions

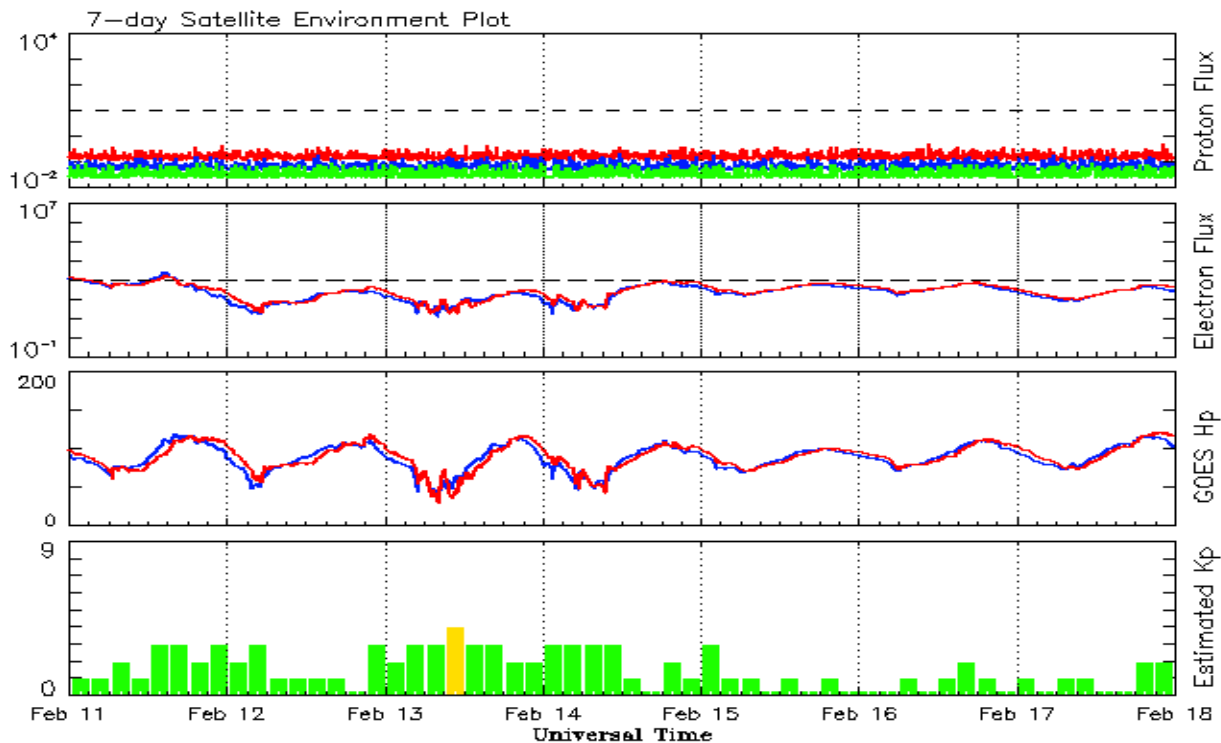


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2017									
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
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	4.4	72.5	70.0	7	7.4
July	1.3	1.0	0.77	9.4	4.3	69.7	70.0	6	7.3
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	
2019									
January	16.0	4.7	0.29			71.6		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.





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 11 February 2019*

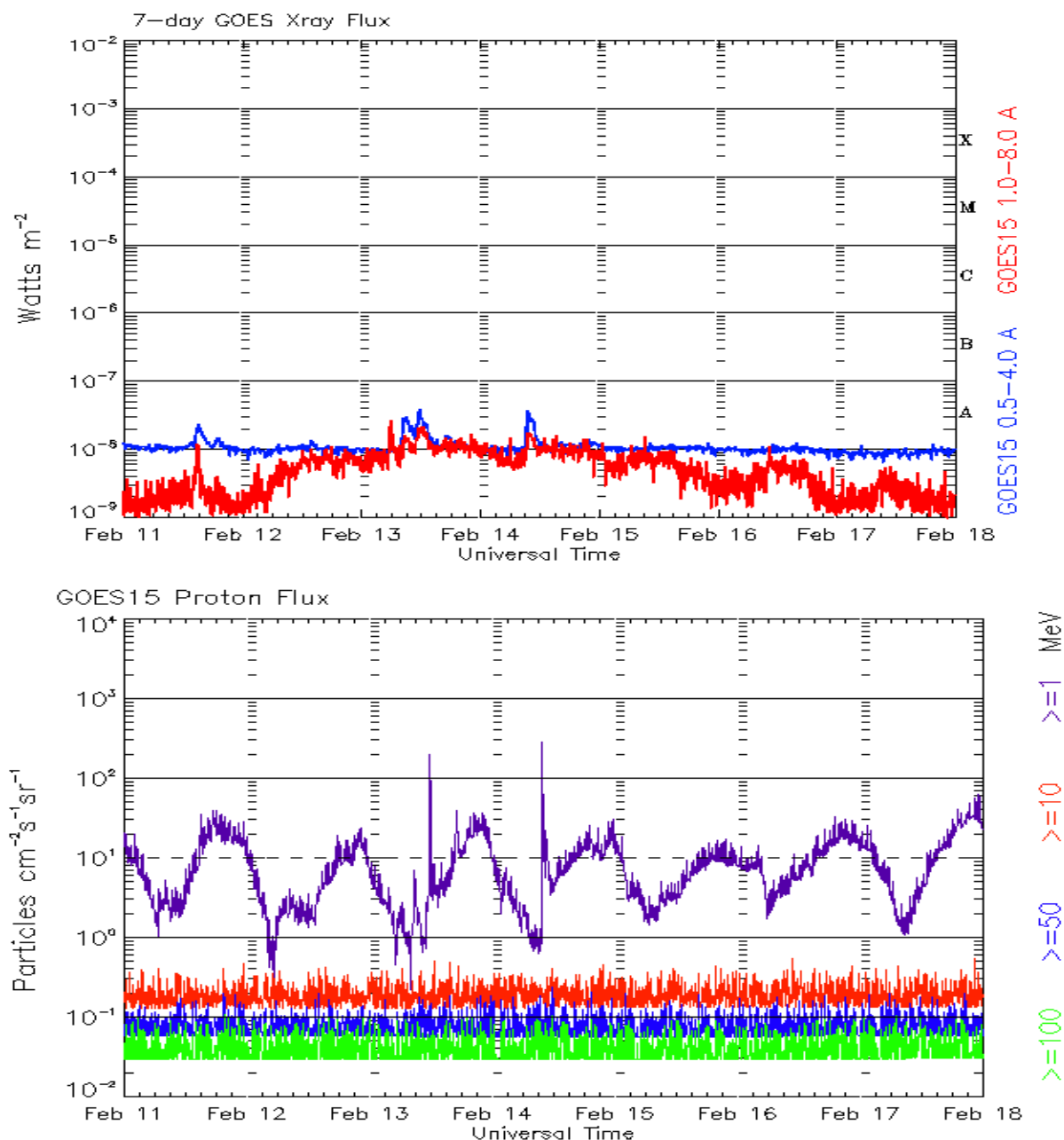
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-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 11 February 2019*

The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) 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^2 -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
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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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