

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

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit ranged from moderate to high levels with a peak flux of 8,980 pfu observed on 04 Feb. High levels were observed on 04 Feb as a result of elevated solar wind speeds. Flux levels then ranged from moderate to high levels through 07 Feb under a mostly background solar wind regime, and remained at moderate to high levels through 10 Feb while under weak CH HSS influences.

Geomagnetic field activity ranged from quiet to active levels. Unsettled periods were observed late in the day on 04 Feb into the first period of 05 Feb as solar wind speeds decreased from around 500 km/s to around 400 km/s under weakening effects from a negative polarity CH HSS. Unsettled conditions were again observed on 06 Feb as a result of minor solar wind enhancements. A SSBC on 08 Feb, and marginally elevated solar wind speeds, resulted in active levels the last period of the day. Unsettled levels were observed early on 09 Feb with the onset of an additional negative polarity CH HSS. Quiet to unsettled levels were observed on 10 Feb with ongoing CH HSS influences.

Space Weather Outlook **11 February - 09 March 2019**

Solar activity is expected to be predominantly at very low levels throughout the forecast period. However, low levels are possible with the return of old Region 2733 (N05, Lo=261) on 12 Feb. This region was very active while transiting the visible disk, and produced a C5 flare at 30/0611 UTC near the west limb, in addition to several other weaker B and C-class flares.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels. High levels are expected on 11-12 Feb and 21 Feb-09 Mar. Moderate levels are expected 13-20 Feb. All elevated levels of electron flux are anticipated due to influence from multiple, recurrent CH HSSs.

Geomagnetic field activity is expected to be mostly unsettled 11-12 Feb as a result of a recurrent, negative polarity CH HSS. G1 (Minor) geomagnetic storming can be expected with a recurrent, positive polarity CH HSS on 19-21 Feb, and also with a recurrent, negative polarity CH HSS on 27-2 Mar. Mostly quiet to unsettled conditions are anticipated with another weaker, recurrent, negative polarity CH HSS on 07-09 Mar.



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
04 February	71	0	0	A0.0	0	0	0	0	0	0	0	0
05 February	71	0	0	A0.0	0	0	0	0	0	0	0	0
06 February	70	0	0	A0.0	0	0	0	0	0	0	0	0
07 February	70	0	0	A0.0	0	0	0	0	0	0	0	0
08 February	71	0	0	A0.0	0	0	0	0	0	0	0	0
09 February	70	0	0	A0.0	0	0	0	0	0	0	0	0
10 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
04 February		1.1e+06	1.7e+04	4.0e+03	5.2e+08	
05 February		5.7e+05	1.7e+04	3.8e+03	9.9e+07	
06 February		6.0e+05	1.7e+04	3.7e+03	8.2e+07	
07 February		5.0e+05	1.7e+04	3.8e+03	1.5e+08	
08 February		6.8e+05	1.6e+04	3.7e+03	8.9e+07	
09 February		8.5e+05	1.6e+04	3.6e+03	8.5e+07	
10 February		9.1e+05	1.7e+04	3.6e+03	1.3e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
04 February	5	1-1-1-0-2-1-3-2	7	0-0-0-1-4-3-2-2	7	1-0-1-0-2-2-3-3
05 February	3	3-0-0-0-1-1-1-0	3	2-1-1-2-1-0-0-0	5	3-1-1-0-0-1-1-1
06 February	7	1-2-2-3-2-1-2-2	19	0-1-2-5-6-1-1-2	10	2-2-2-3-3-1-2-3
07 February	3	1-1-1-0-1-0-2-1	2	0-0-1-0-1-1-1-1	4	2-1-1-0-0-1-2-1
08 February	7	1-2-2-2-1-1-2-3	7	2-0-2-3-1-1-1-3	9	2-2-2-1-1-1-2-4
09 February	6	2-2-2-2-1-2-2-0	11	2-2-2-4-3-2-2-2	10	3-2-2-2-2-3-3-1
10 February	4	2-2-0-1-1-1-1-1	2	1-2-1-1-1-0-0-0	9	2-3-1-1-1-1-1-1

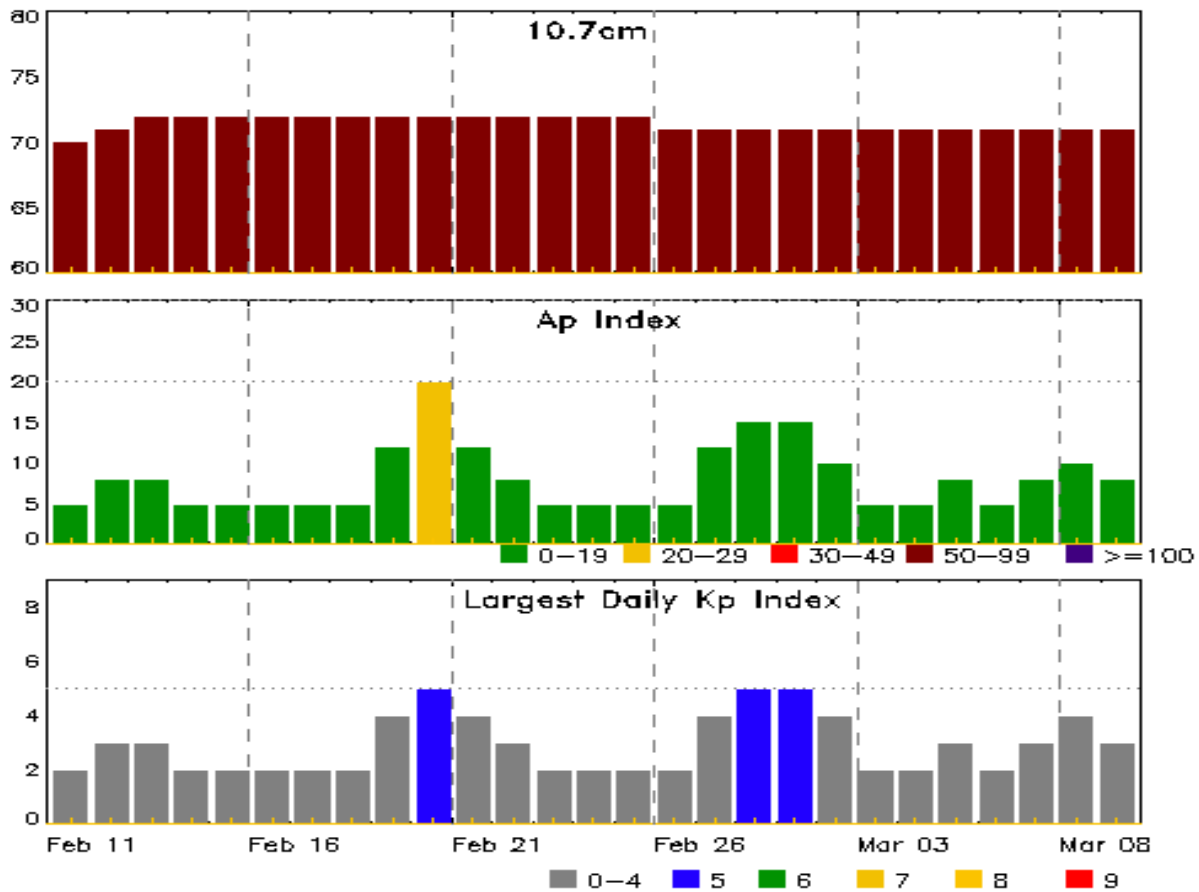


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
04 Feb 0900	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/2230
05 Feb 1433	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/2230
06 Feb 1150	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/2230
07 Feb 0958	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/2230
08 Feb 1547	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/2230
08 Feb 2203	WARNING: Geomagnetic K = 4	08/2205 - 09/1200
08 Feb 2209	ALERT: Geomagnetic K = 4	08/2209
09 Feb 1646	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/2230
09 Feb 2036	WARNING: Geomagnetic K = 4	09/2035 - 10/0600
10 Feb 0556	EXTENDED WARNING: Geomagnetic K = 4	09/2035 - 10/1200
10 Feb 1200	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/2230



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
11 Feb	70	5	2	25 Feb	72	5	2
12	71	8	3	26	71	5	2
13	72	8	3	27	71	12	4
14	72	5	2	28	71	15	5
15	72	5	2	01 Mar	71	15	5
16	72	5	2	02	71	10	4
17	72	5	2	03	71	5	2
18	72	5	2	04	71	5	2
19	72	12	4	05	71	8	3
20	72	20	5	06	71	5	2
21	72	12	4	07	71	8	3
22	72	8	3	08	71	10	4
23	72	5	2	09	71	8	3
24	72	5	2				

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			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
08 Feb	0850	0851	0852	A1.1			



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

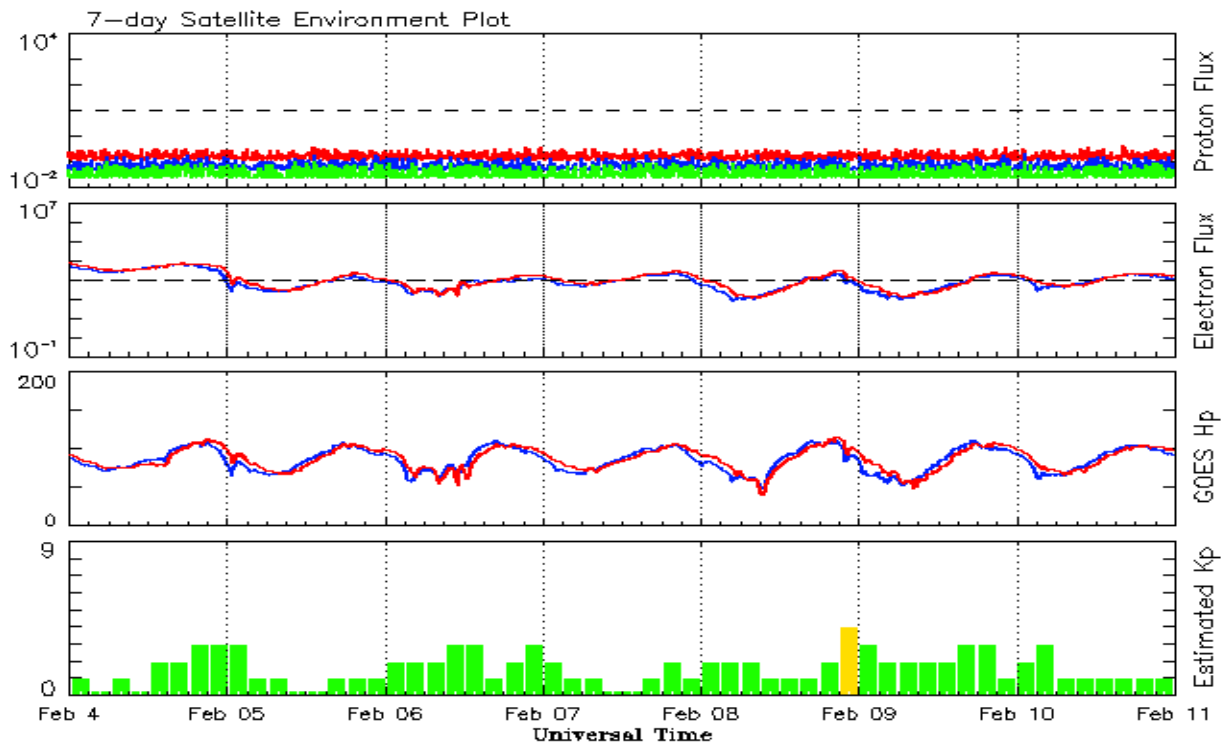


Recent Solar Indices (preliminary)
Observed monthly mean values

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 04 February 2019*

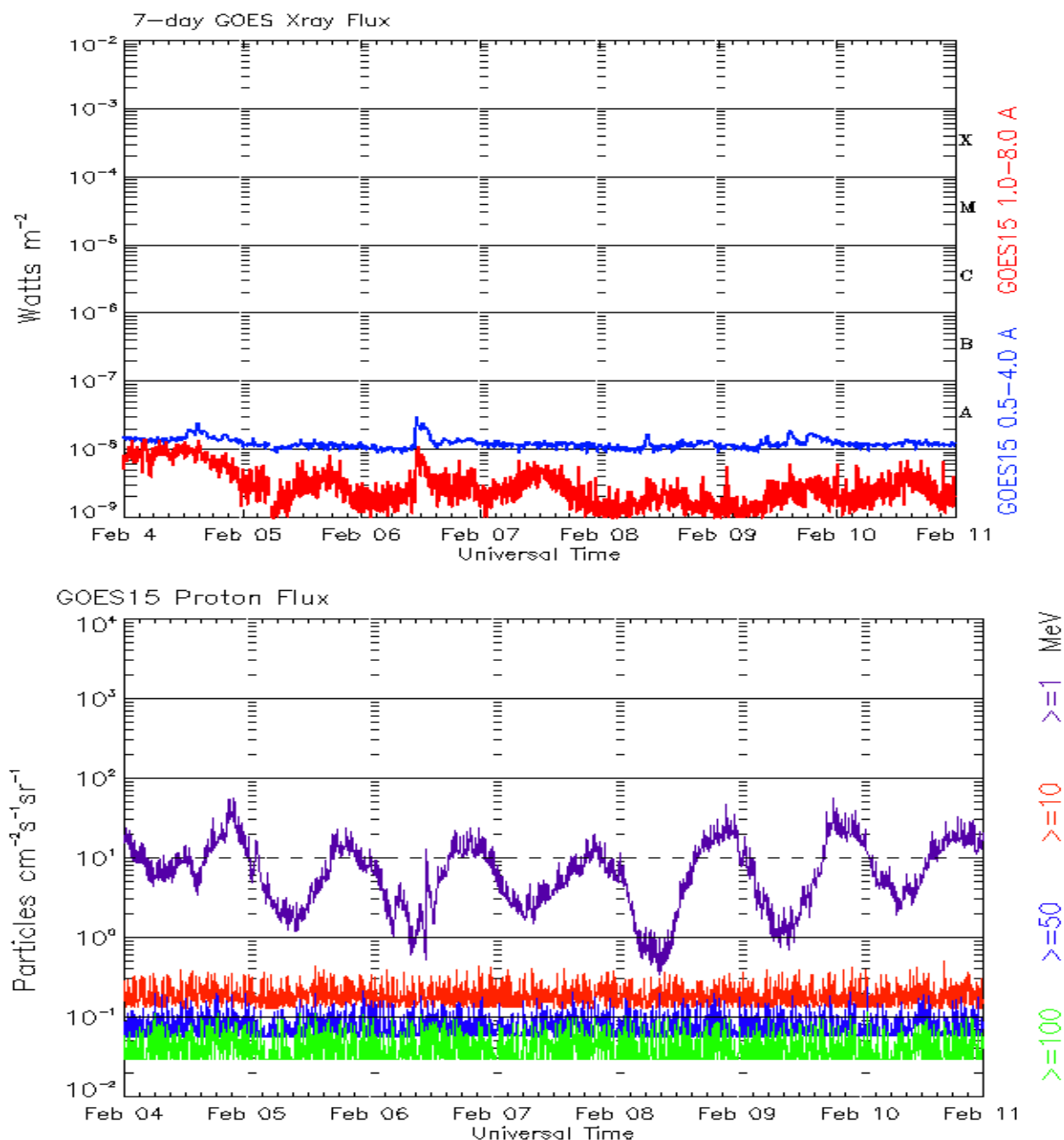
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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. Hp 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 04 February 2019*

The x-ray plots contains five-minute averages x-ray flux (Watt/m²) 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/cm² -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.



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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

The Weekly has been published continuously since 1951 and is available online since 1997.

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