Space Weather Highlights **SWPC PRF 2269**
18 February - 24 February 2019 **25 February 2019**

Solar activity was very low. A DSF centered near N19W38 was observed lifting off after 23/2332 UTC. A subsequent CME signature was first observed in LASCO C2 imagery at 24/0125 UTC. However, after forecaster analysis and WSA/Enlil modeling, the CME was determined to be off the Sun-Earth line.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached moderate levels on 18-20 Feb. Normal levels were observed during the rest of the summary period.

Geomagnetic field activity reached active levels on 21 Feb due to CH HSS influences. The remainder of the period was at mostly quiet levels.

Space Weather Outlook
25 February - 23 March 2019

Solar activity is expected to remain very low for the forecast period.

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 on 25 Feb - 10 Mar, and 13 Mar due to recurrent CH HSS activity. Normal to moderate levels are expected for the remainder of the outlook period.

Geomagnetic field activity is expected to be at G1 (Minor) storm levels on 27-28 Feb due to recurrent CH HSS activity. The remainder of the period is expected to be mostly quiet to unsettled.

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
18 February	70	0	0	A0.0	0	0	0	0	0	0	0	0		
19 February	70	0	0	A0.0	0	0	0	0	0	0	0	0		
20 February	71	0	0	A0.0	0	0	0	0	0	0	0	0		
21 February	71	0	0	A0.0	0	0	0	0	0	0	0	0		
22 February	71	0	0	A0.0	0	0	0	0	0	0	0	0		
23 February	71	0	0	A0.0	0	0	0	0	0	0	0	0		
24 February	71	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
18 February	7.0e+05	1.7e+04	3.8e+03	1.2e+07		
19 February	5.1e+05	1.7e+04	3.8e+03	1.1e+07		
20 February	1.1e+06	1.8e+04	3.9e+03	1.7e+07		
21 February	6.3e+05	1.7e+04	3.8e+03	6.3e+05		
22 February	3.0e+05	1.7e+04	3.6e+03	6.9e+05		
23 February	2.7e+05	1.7e+04	3.8e+03	1.0e+06		
24 February	2.7e+05	1.7e+04	3.7e+03	1.4e+06		

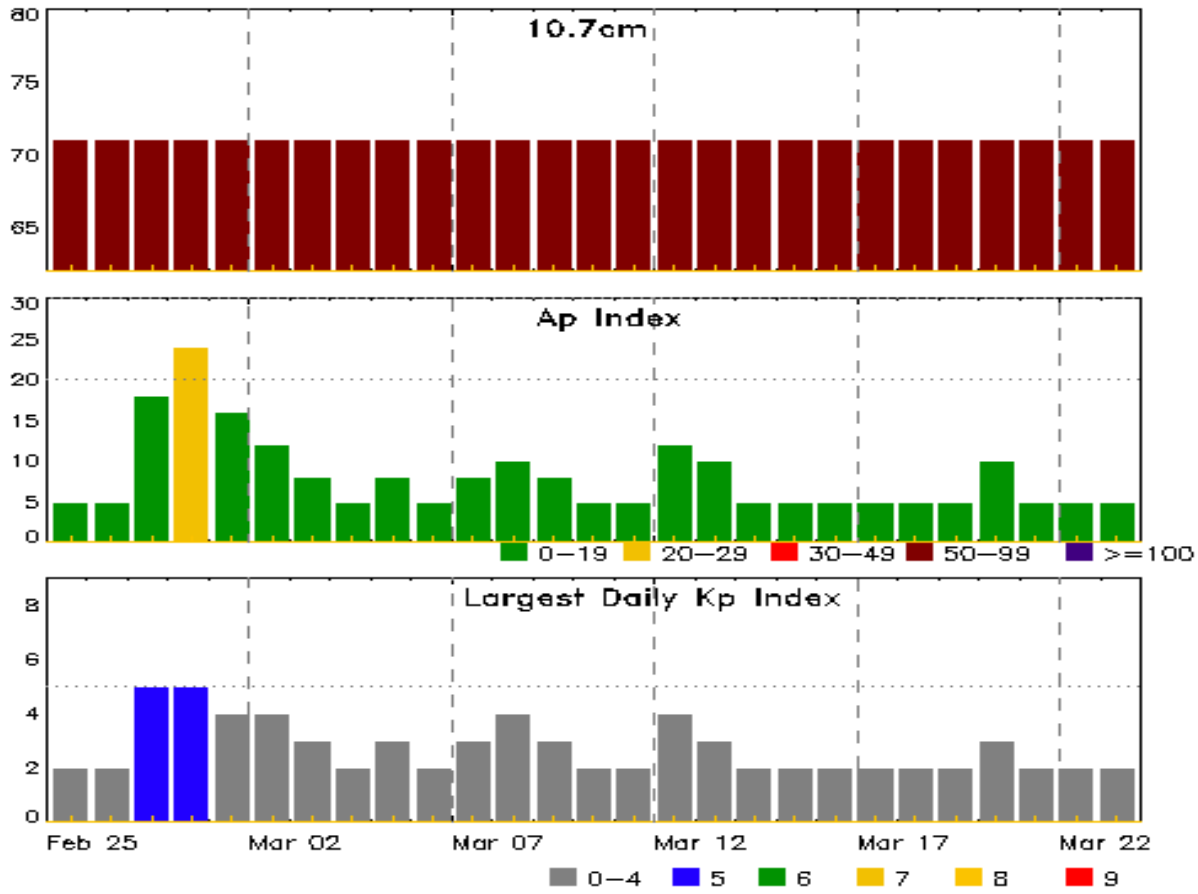
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
18 February	5	3-3-0-1-1-1-1-0	9	2-4-1-3-3-2-0-0	7	3-3-1-1-1-1-1-1
19 February	2	0-1-2-0-1-0-0-0	1	0-0-1-1-1-0-0-0	3	1-1-1-0-1-0-1-1
20 February	2	1-0-0-0-1-1-1-2	1	0-0-0-0-0-1-1-1	3	1-0-0-0-1-1-2-2
21 February	9	2-1-4-2-2-1-1-3	15	1-1-4-4-5-2-1-1	11	3-1-4-2-3-2-1-3
22 February	3	1-1-1-1-0-1-1-1	2	1-1-1-2-1-0-0-0	4	2-0-1-1-0-0-1-1
23 February	2	0-0-0-0-1-2-1-0	0	0-0-0-0-0-0-1-0	3	1-0-0-0-0-1-1-0
24 February	1	0-0-1-0-1-1-0-0	1	0-0-0-0-2-0-0-0	2	0-0-1-0-1-0-0-0

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
21 Feb 0653	WARNING: Geomagnetic K = 4	21/0652 - 1200
21 Feb 0708	ALERT: Geomagnetic K = 4	21/0708
24 Feb 1459	WATCH: Geomagnetic Storm Category G1 predicted	

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

Energetic Events

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

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
18 Feb	1600	1604	1605	A1.4			
20 Feb	0402	0424	0457	A9.7			

Region Summary

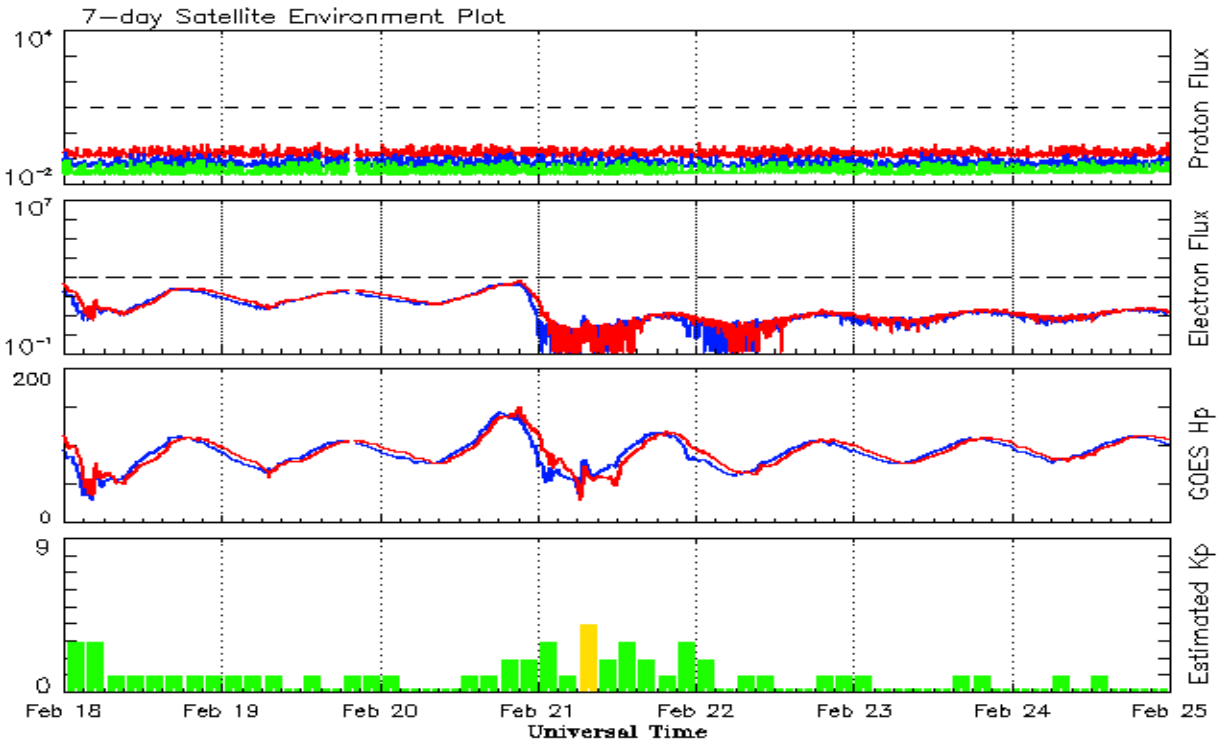
	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4

No Active Regions

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	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 18 February 2019

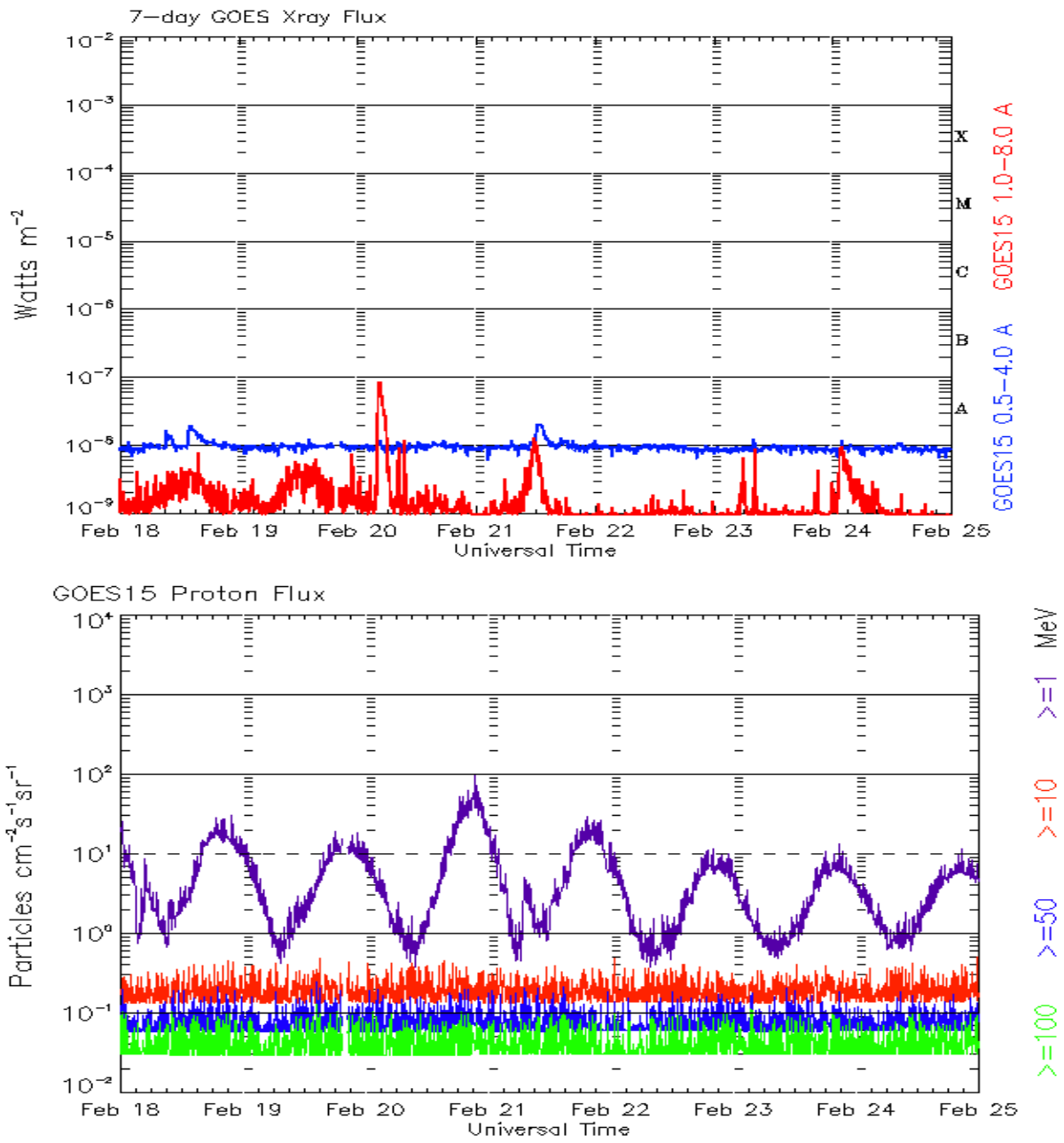
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-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 18 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 intergral 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.

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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

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

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