

Space Weather Highlights
15 January - 21 January 2018

SWPC PRF 2212
22 January 2018

Solar activity was at very low levels with a few B-class flares observed from Region 2696 (S13, L=123, class/area Cro/030 on 16 Jan). 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 15-18 Jan with a maximum flux of 273 pfu observed at 18/1925 UTC. Normal levels were observed on 19-21 Jan.

Geomagnetic field activity was at quiet to active levels on 15 Jan, quiet levels on 16-18 Jan and quiet to unsettled levels on 19-21 Jan. The field was influenced on 15 Jan by waning positive polarity CH HSS influence. On 19-21 Jan, a pair of negative polarity CH HSSs resulted in weak geomagnetic field enhancements.

Space Weather Outlook
22 January - 17 February 2018

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 reach high levels on 24-25 Jan; moderate levels on 22-23 Jan, 26-28 Jan and 11-15 Feb; and normal levels for the remainder of the outlook period.

Geomagnetic field activity is expected to be at unsettled to active levels on 22-24 Jan, 28 Jan, 04-05 Feb, 09-11 Feb and 15-17 Feb, all due to influence from recurrent CH HSSs. Mostly quiet conditions are expected for the remainder 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
15 January	70	12	20	A3.3	0	0	0	0	0	0	0	0
16 January	71	13	30	A3.5	0	0	0	0	0	0	0	0
17 January	71	12	20	A3.5	0	0	0	0	0	0	0	0
18 January	71	12	10	A3.6	0	0	0	2	0	0	0	0
19 January	71	11	10	A3.2	0	0	0	0	0	0	0	0
20 January	70	0	0	A3.1	0	0	0	0	0	0	0	0
21 January	68	0	0	A2.9	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
15 January	1.3e+06	1.6e+04	3.9e+03	3.4e+06		
16 January	6.6e+05	1.7e+04	3.8e+03	4.8e+06		
17 January	6.8e+05	1.6e+04	3.5e+03	6.5e+06		
18 January	1.2e+06	1.6e+04	3.6e+03	9.4e+06		
19 January	9.1e+05	1.6e+04	3.7e+03	9.8e+05		
20 January	4.4e+05	1.6e+04	3.4e+03	1.6e+05		
21 January	6.5e+05	1.6e+04	3.5e+03	2.1e+05		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
15 January	7	3-2-3-2-1-1-1-1	12	2-2-4-3-3-3-1-1	9	4-2-3-2-1-2-2-2
16 January	3	1-0-0-2-2-1-1-0	7	1-0-0-5-1-0-0-0	4	2-0-1-2-1-1-1-1
17 January	1	0-0-0-0-1-1-1-0	2	0-0-0-3-0-0-0-0	3	1-0-0-1-1-0-1-1
18 January	1	0-0-0-0-1-1-0-0	0	0-0-0-0-0-0-0-0	2	0-1-0-0-0-1-1-1
19 January	6	1-3-2-1-1-2-1-2	9	0-2-4-4-1-0-1-1	8	1-3-3-2-1-1-2-2
20 January	5	2-2-2-1-1-1-1-1	12	2-2-5-3-2-1-1-1	8	3-3-3-1-1-1-2-1
21 January	8	0-1-2-3-3-2-2-2	18	0-0-3-3-6-3-3-2	5	1-1-2-3-3-2-3-3

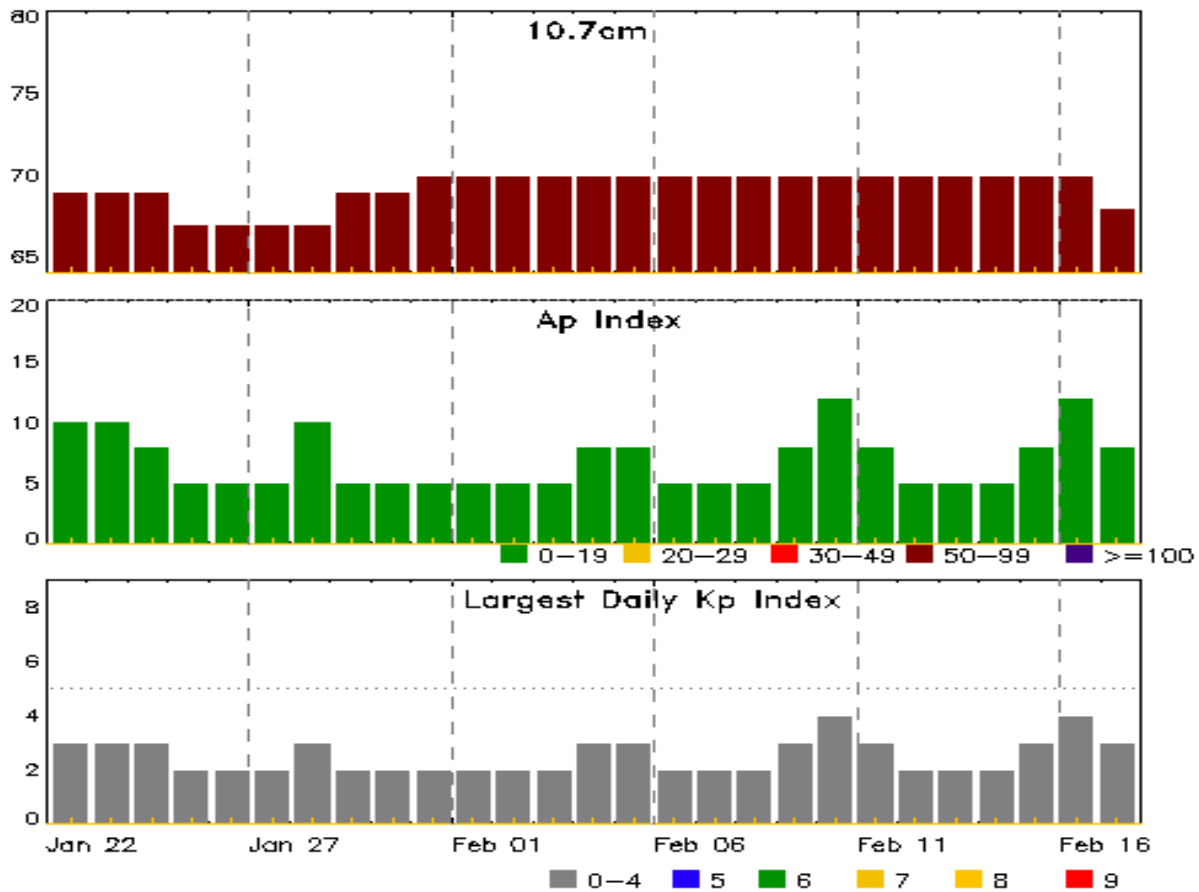


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
15 Jan 0103	WARNING: Geomagnetic K = 4	15/0105 - 0900
15 Jan 0245	ALERT: Geomagnetic K = 4	15/0245
15 Jan 0855	EXTENDED WARNING: Geomagnetic K = 4	15/0105 - 1500
20 Jan 0529	WARNING: Geomagnetic K = 4	20/0530 - 1500
21 Jan 1335	WARNING: Geomagnetic K = 4	21/1335 - 2359
21 Jan 2351	EXTENDED WARNING: Geomagnetic K = 4	21/1335 - 22/0900



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
22 Jan	69	10	3	05 Feb	70	8	3
23	69	10	3	06	70	5	2
24	69	8	3	07	70	5	2
25	67	5	2	08	70	5	2
26	67	5	2	09	70	8	3
27	67	5	2	10	70	12	4
28	67	10	3	11	70	8	3
29	69	5	2	12	70	5	2
30	69	5	2	13	70	5	2
31	70	5	2	14	70	5	2
01 Feb	70	5	2	15	70	8	3
02	70	5	2	16	70	12	4
03	70	5	2	17	68	8	3
04	70	8	3				

Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
18 Jan	0728	0735	0739	B9.7	SF	S12W05		2696
18 Jan	0808	0813	0816	B4.0	SF	S12W05		2696
18 Jan	0951	0957	1006	B1.2				2696
20 Jan	0448	0455	0500	B1.7				2696
20 Jan	1742	1752	1758	A9.1				2696



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	4

Region 2694

08 Jan	S32W03	244	10	3	Bxo	3	B								
09 Jan	S32W17	245	10	3	Axx	3	A								
10 Jan	S32W30	244	10	1	Axx	1	A								
11 Jan	S32W44	245	plage												
12 Jan	S32W58	246	plage												
13 Jan	S32W72	247	plage												
14 Jan	S32W86	248	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 244

Region 2696

15 Jan	S11E25	123	20	2	Bxo	2	B								
16 Jan	S13E12	123	30	2	Cro	3	B								
17 Jan	S13W02	124	20	2	Bxo	2	B								
18 Jan	S12W15	124	10	2	Bxo	2	B				2				
19 Jan	S12W29	124	10	1	Axx	1	A								
20 Jan	S12W42	125	plage												
21 Jan	S12W55	125	plage												
								0	0	0	2	0	0	0	0

Still on Disk.

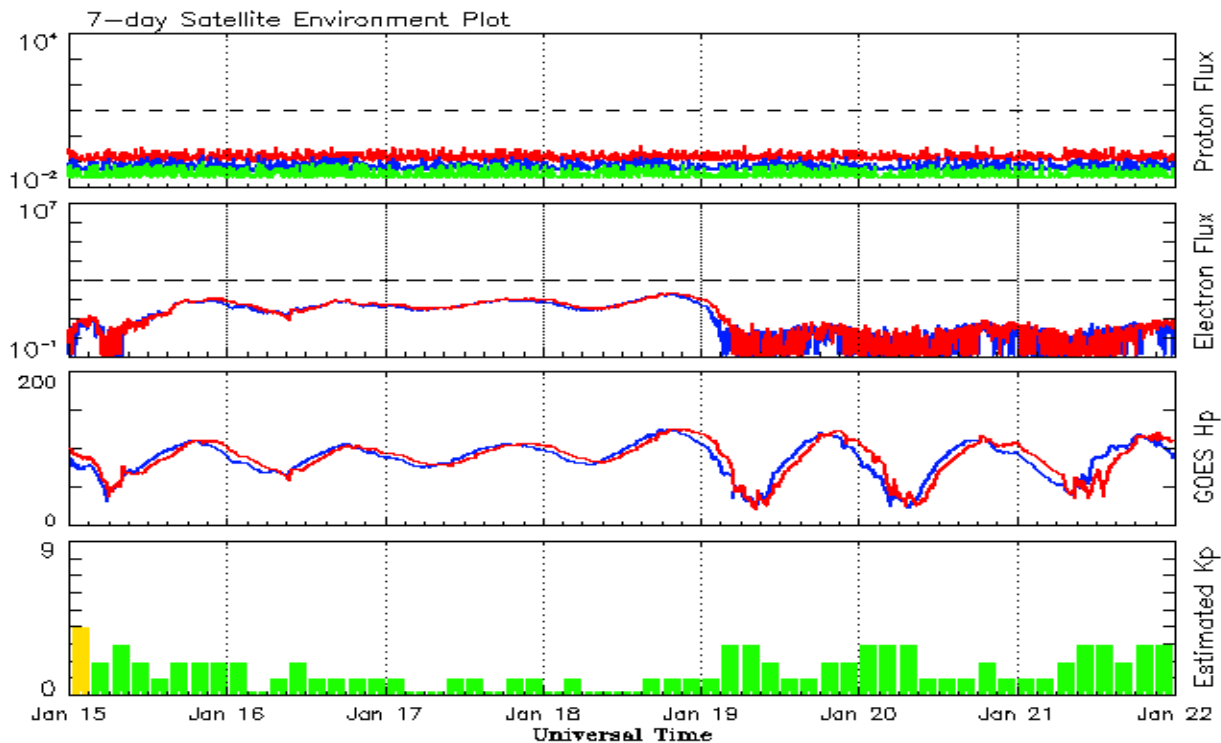
Absolute heliographic longitude: 124

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
2016									
January	50.4	34.2	0.67	51.4	32.6	103.5	99.9	10	12.3
February	56.0	33.8	0.61	49.6	31.5	103.5	98.1	10	12.0
March	40.9	32.5	0.80	47.7	30.2	91.6	96.6	11	11.8
April	39.2	22.7	0.58	45.0	28.7	93.4	95.3	10	11.8
May	48.9	30.9	0.64	42.1	26.9	93.1	93.2	12	11.7
June	19.3	12.3	0.65	39.0	24.9	81.9	90.4	9	11.4
July	36.8	19.4	0.53	36.5	23.1	85.9	87.7	10	11.2
August	50.4	30.1	0.60	34.2	21.6	85.0	85.5	10	11.2
September	37.4	26.8	0.72	32.1	19.9	87.8	83.7	16	11.3
October	30.0	20.0	0.67	31.1	18.9	86.1	82.5	16	11.6
November	22.4	12.8	0.57	29.4	17.9	78.7	81.1	10	11.6
December	17.6	11.1	0.64	28.1	17.1	75.1	80.0	10	11.4
2017									
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			77.7		9	
August	25.0	19.6	0.80			77.9		12	
September	42.2	26.2	0.62			92.0		19	
October	16.0	7.9	0.49			76.4		11	
November	7.7	3.4	0.44			72.1		11	
December	7.6	4.9	0.64			71.5		8	

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 15 January 2018*

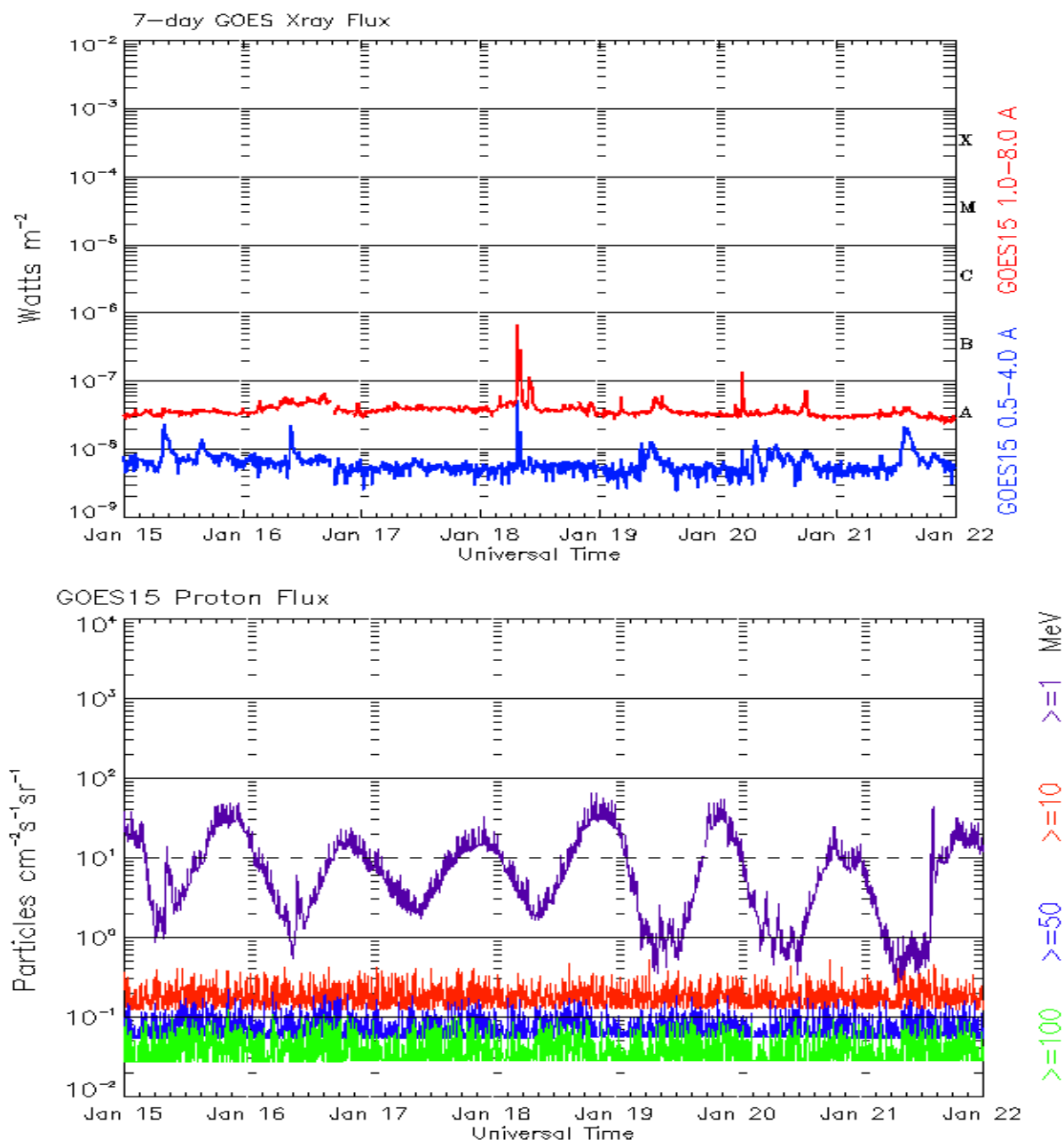
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 15 January 2018*

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 ($\text{pfu} = \text{protons/cm}^2\text{-sec -sr}$) 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)

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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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