

Space Weather Highlights
08 January - 14 January 2018

SWPC PRF 2211
15 January 2018

Solar activity was very low throughout the summary period. Regions 2694 (S32, L=244, class/area=Axx/10 on 10 Jan) and 2695 (S08, L=260, class/area=Bxo/10 on 11 Jan) briefly contained sunspots and simple magnetic signatures early this period, but both regions were generally quiet and unproductive. No Earth-directed CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit remained at normal flux levels throughout the summary period.

Geomagnetic field activity reached G1 (Minor) geomagnetic storm levels early on 14 Jan with isolated active periods observed on 08, 09 and 14 Jan due to the influences of multiple positive polarity CH HSSs. Generally quiet and quiet to unsettled geomagnetic field activity was observed throughout the remainder of the summary period.

Space Weather Outlook
15 January - 10 February 2018

Solar activity is expected to prevail 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 15-19 and 23-25 Jan and moderate levels are expected on 20-22 and 26-28 Jan. Normal flux levels are expected to prevail through the remainder of the outlook period.

Geomagnetic field activity is expected to reach G1 (Minor) geomagnetic storm levels on 19-20 Jan with active levels expected on 21 Jan due to the influence of a recurrent, negative polarity CH HSS. Generally quiet and quiet to unsettled conditions are expected throughout 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
08 January	70	13	10	A2.8	0	0	0	0	0	0	0	0
09 January	71	13	10	A3.0	0	0	0	0	0	0	0	0
10 January	70	11	10	A3.2	0	0	0	0	0	0	0	0
11 January	71	12	10	A3.1	0	0	0	0	0	0	0	0
12 January	71	0	0	A3.1	0	0	0	0	0	0	0	0
13 January	71	0	0	A3.0	0	0	0	0	0	0	0	0
14 January	71	0	0	A3.0	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
08 January		8.4e+05	1.6e+04	3.4e+03		3.5e+05
09 January		5.2e+05	1.6e+04	3.5e+03		1.5e+05
10 January		6.8e+05	1.6e+04	3.5e+03		4.4e+05
11 January		6.5e+05	1.6e+04	3.6e+03		6.8e+05
12 January		8.0e+05	1.7e+04	3.8e+03		4.8e+05
13 January		9.9e+05	1.6e+04	3.8e+03		1.2e+05
14 January		1.0e+06	1.6e+04	3.6e+03		1.5e+05

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
08 January	9	0-0-3-2-4-2-2-2	15	0-0-2-2-5-5-2-1	9	0-0-3-1-4-3-2-2
09 January	7	3-2-2-1-2-2-2-1	10	2-2-2-4-3-3-0-0	9	4-2-2-2-2-2-2-2
10 January	4	2-1-1-2-1-2-1-0	2	0-0-1-2-1-1-0-0	5	2-2-1-1-1-1-1-0
11 January	2	0-1-0-0-1-2-1-0	0	0-0-0-0-0-0-0-0	2	0-1-0-0-1-1-1-1
12 January	3	0-1-1-1-1-2-1-0	3	0-0-1-3-2-0-0-0	4	1-1-1-1-1-2-1-0
13 January	7	0-1-1-1-2-3-3-2	9	0-0-1-4-4-2-1-1	7	0-1-2-1-2-2-3-2
14 January	11	4-4-2-1-2-1-1-2	12	2-4-4-2-3-2-0-1	39	5-4-2-2-2-2-1-2

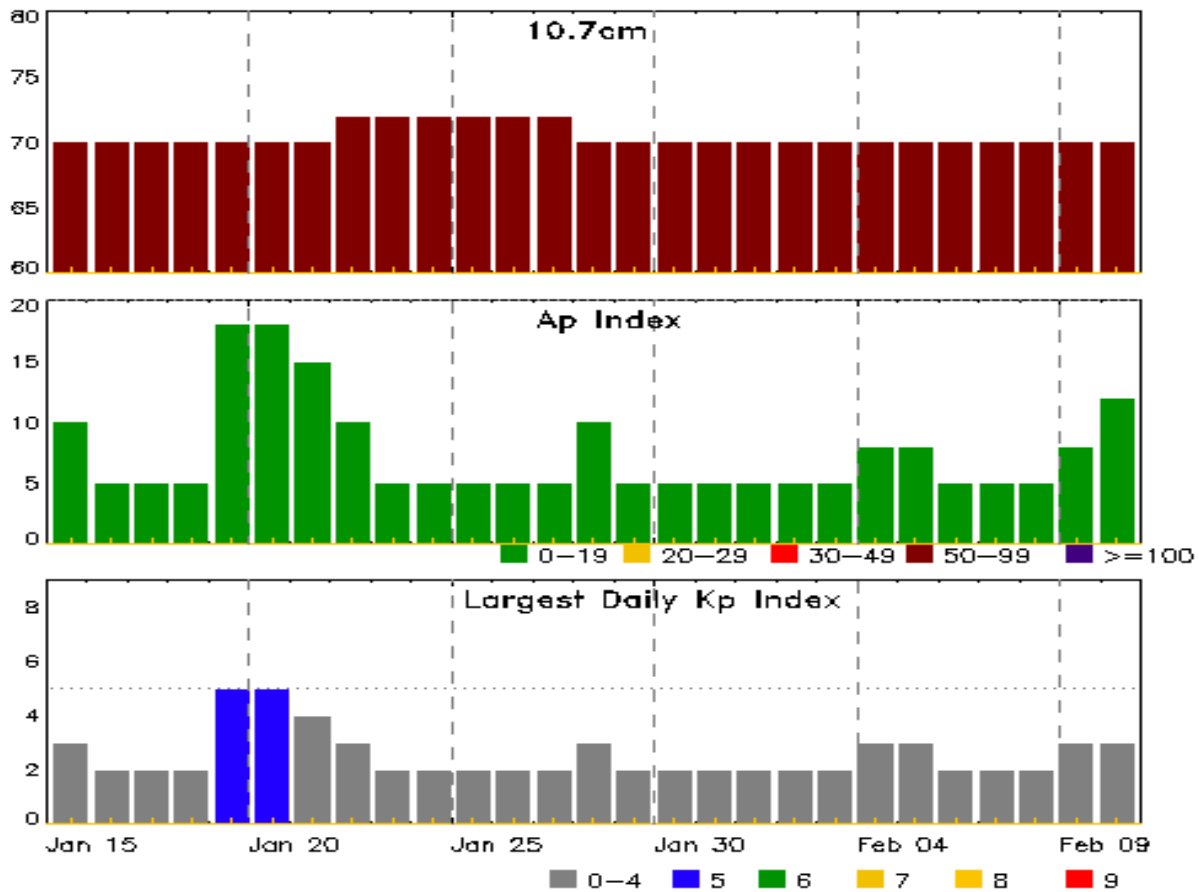


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
08 Jan 1319	WARNING: Geomagnetic K = 4	08/1318 - 1918
08 Jan 1440	ALERT: Geomagnetic K = 4	08/1431
09 Jan 0153	WARNING: Geomagnetic K = 4	09/0153 - 1500
09 Jan 0302	ALERT: Geomagnetic K = 4	09/0259
13 Jan 1815	WARNING: Geomagnetic K = 4	13/1815 - 14/1200
14 Jan 0116	ALERT: Geomagnetic K = 4	14/0115
14 Jan 0206	WARNING: Geomagnetic K = 5	14/0210 - 0900
14 Jan 0300	ALERT: Geomagnetic K = 5	14/0259



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
15 Jan	70	10	3	29 Jan	70	5	2
16	70	5	2	30	70	5	2
17	70	5	2	31	70	5	2
18	70	5	2	01 Feb	70	5	2
19	70	18	5	02	70	5	2
20	70	18	5	03	70	5	2
21	70	15	4	04	70	8	3
22	72	10	3	05	70	8	3
23	72	5	2	06	70	5	2
24	72	5	2	07	70	5	2
25	72	5	2	08	70	5	2
26	72	5	2	09	70	8	3
27	72	5	2	10	70	12	3
28	70	10	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 Rgn #
12 Jan	1308	1309	1310		B1.9		



Region Summary

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

Region 2693

04 Jan	N18W40	333	20	3	Cro	3	B								
05 Jan	N19W52	332	10	1	Axx	1	A								
06 Jan	N19W65	332	10	1	Axx	1	A								
07 Jan	N20W78	332	10	1	Axx	1	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 333

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

Still on Disk.

Absolute heliographic longitude: 244

Region 2695

11 Jan	S08W59	260	10	2	Bxo	2	B								
12 Jan	S09W73	261	plage												
13 Jan	S09W87	262	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 260

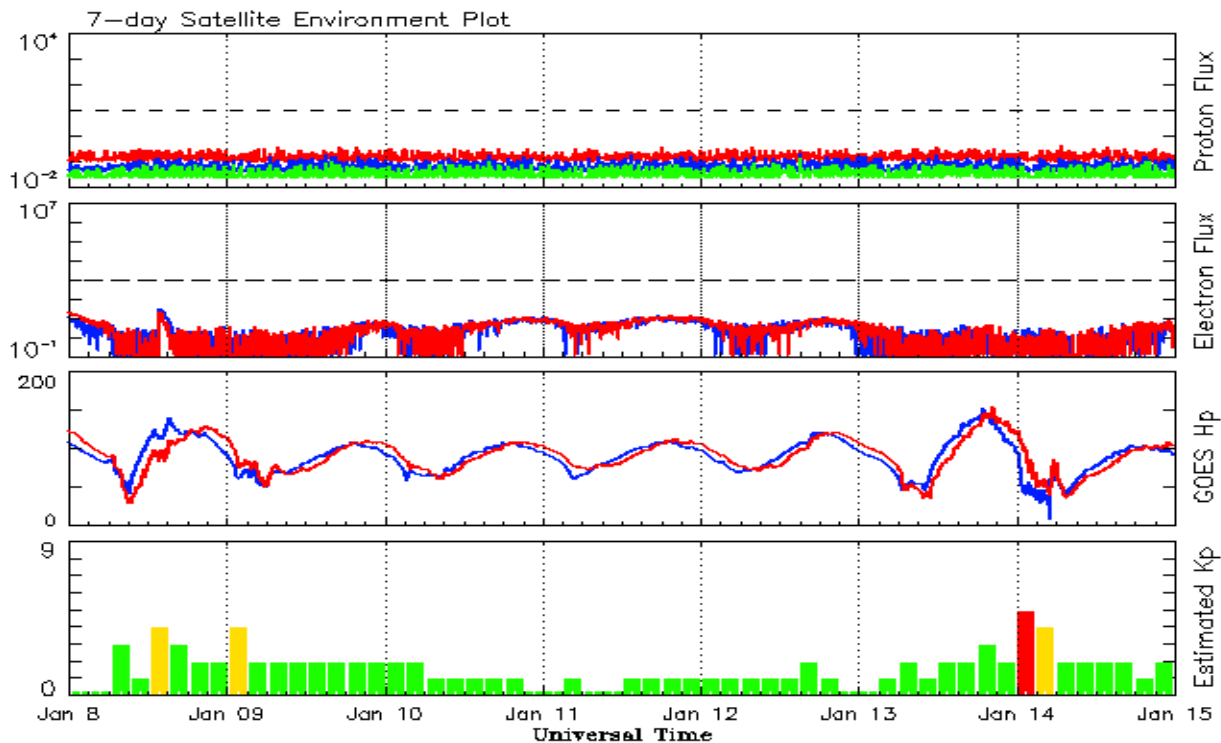


Recent Solar Indices (preliminary)
Observed monthly mean values

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 08 January 2018*

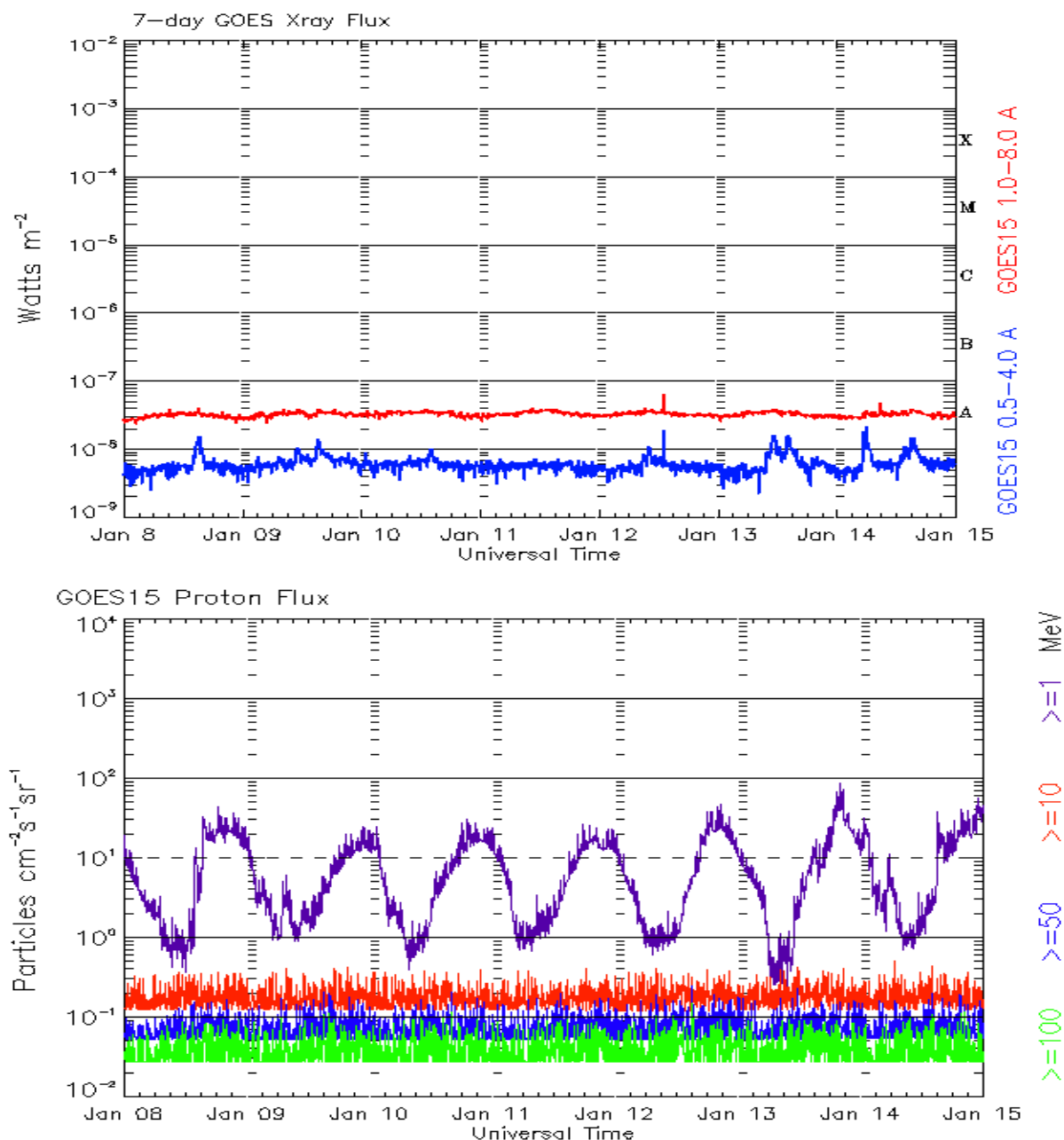
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 08 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 (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
Space Weather Prediction Center
325 Broadway, Boulder CO 80305

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.

<http://spaceweather.gov/weekly/> -- Current and previous year

<http://spaceweather.gov/ftpmenu/warehouse.html> -- Online archive from 1997

<http://spaceweather.gov/ftpmenu/> -- Some content as ascii text

<http://spaceweather.gov/SolarCycle/> -- Solar Cycle Progression web site

<http://spaceweather.gov/contacts.html> -- Contact and Copyright information

http://spaceweather.gov/weekly/Usr_guide.pdf -- User Guide

