

Space Weather Highlights
15 October - 21 October 2018

SWPC PRF 2251
22 October 2018

Solar activity was very low this period under a spotless solar disk. No Earth-directed CMEs were observed during the summary period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 16-20 Oct and was at moderate levels on 15 and 21 Oct.

Geomagnetic field activity reached unsettled levels on 15 Oct due to waning, negative polarity CH HSS influence. The geomagnetic field was quiet throughout the remainder of the period.

Space Weather Outlook
22 October - 17 November 2018

Solar activity is expected to be very low 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 22-25 Oct, 04-09 and 12-16 Nov with moderate flux levels expected throughout the remainder of the period.

Geomagnetic field activity is expected to reach G1 (Minor) geomagnetic storm levels on 03-04 Nov with active levels expected on 29 Oct and 05-06 Nov due to the influence of recurrent CH HSSs.



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 October	70	11	0	A0.0	0	0	0	0	0	0	0	0
16 October	70	11	0	A0.0	0	0	0	0	0	0	0	0
17 October	70	11	0	A0.0	0	0	0	0	0	0	0	0
18 October	70	0	0	A0.0	0	0	0	0	0	0	0	0
19 October	70	0	0	A0.0	0	0	0	0	0	0	0	0
20 October	70	0	0	A0.0	0	0	0	0	0	0	0	0
21 October	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
15 October	6.7e+05	1.6e+04	3.5e+03	1.8e+07		
16 October	4.0e+05	1.6e+04	3.5e+03	5.4e+07		
17 October	4.2e+05	1.6e+04	3.6e+03	6.5e+07		
18 October	5.4e+05	1.7e+04	3.7e+03	7.0e+07		
19 October	7.3e+05	1.6e+04	3.6e+03	7.2e+07		
20 October	9.0e+05	1.6e+04	3.7e+03	6.8e+07		
21 October	6.9e+05	1.6e+04	3.4e+03	1.1e+07		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
15 October	7	3-1-1-2-2-2-2-2	9	2-1-1-3-3-3-2-2	10	3-2-2-2-2-3-3-3
16 October	4	2-0-1-1-2-2-1-0	4	2-0-0-3-2-1-1-0	5	2-1-1-2-2-2-1-1
17 October	3	0-1-2-0-1-1-1-1	2	0-0-3-0-0-0-0-0	3	0-1-2-0-0-0-0-1
18 October	0	0-0-0-0-0-0-1-0	0	0-0-1-0-0-0-0-0	2	1-1-1-0-0-0-0-0
19 October	1	0-0-0-0-1-1-0-0	0	0-0-0-0-0-0-0-0	2	0-0-0-0-0-0-0-1
20 October	0	0-0-0-0-0-0-1-0	0	0-0-0-0-0-0-0-0	2	1-0-0-0-0-0-0-0
21 October	4	0-0-1-2-2-2-1-1	9	0-0-0-5-3-2-1-0	2	0-0-0-2-2-2-1-1

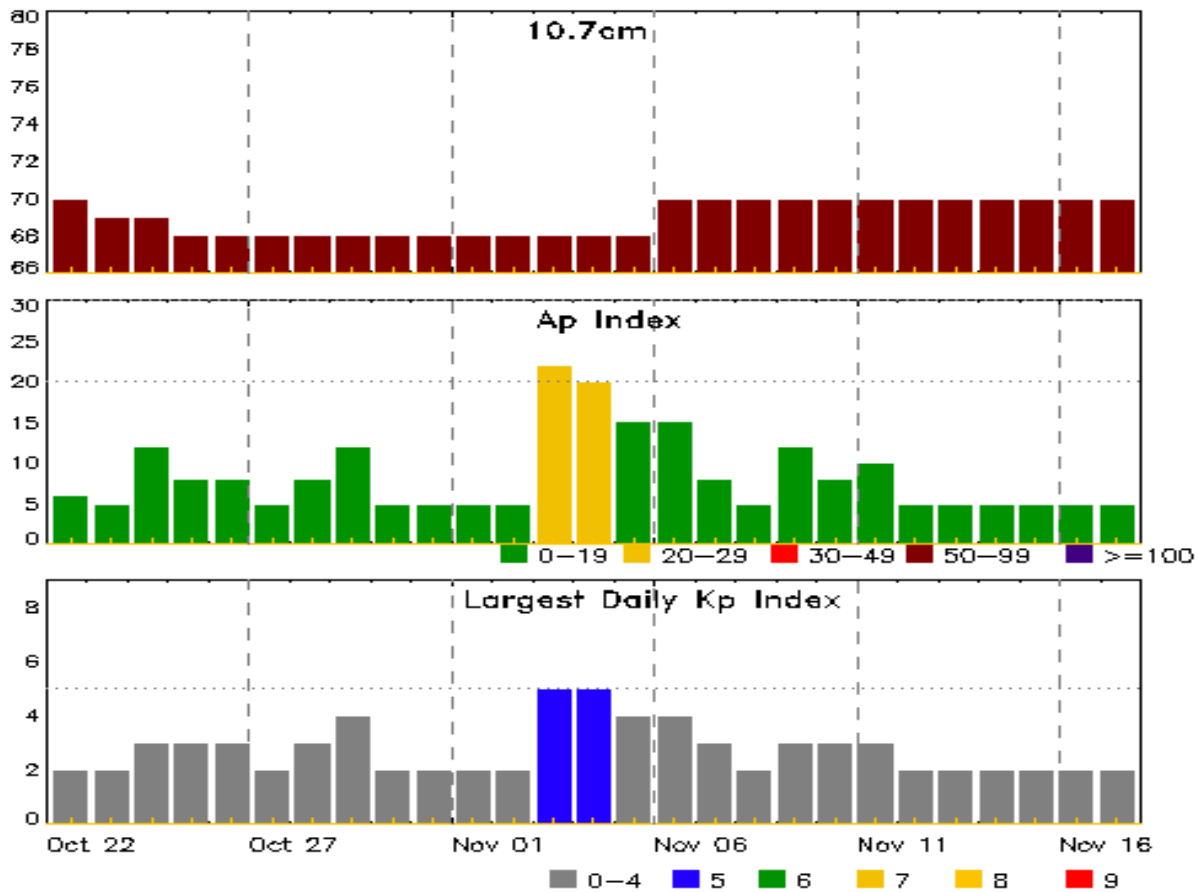


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
15 Oct 0056	WARNING: Geomagnetic K = 4	15/0055 - 0900
16 Oct 1612	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	16/1610
17 Oct 1628	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	16/1610
17 Oct 1807	WATCH: Geomagnetic Storm Category G1 predicted	
18 Oct 1637	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	16/1610
19 Oct 1647	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	16/1610
20 Oct 1716	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	16/1610



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 Oct	70	6	2	05 Nov	68	15	4
23	69	5	2	06	70	15	4
24	69	12	3	07	70	8	3
25	68	8	3	08	70	5	2
26	68	8	3	09	70	12	3
27	68	5	2	10	70	8	3
28	68	8	3	11	70	10	3
29	68	12	4	12	70	5	2
30	68	5	2	13	70	5	2
31	68	5	2	14	70	5	2
01 Nov	68	5	2	15	70	5	2
02	68	5	2	16	70	5	2
03	68	22	5	17	70	5	2
04	68	20	5				

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							

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	4	
		<i>Region 2724</i>														
12 Oct	S08E57	126	20	1	Hrx	1	A					1				
13 Oct	S08E40	130	10	2	Hsx	1	A					1				
14 Oct	S07E27	130	10	1	Axx	1	A									
15 Oct	S07E12	131	plage													
16 Oct	S07W00	128	0		Axx	1	A									
17 Oct	S07W13	130	plage													
18 Oct	S07W28	132	plage													
19 Oct	S07W41	132	plage													
20 Oct	S07W56	133	plage													
21 Oct	S07W69	133	plage													
								0	0	0	2	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 128

Region 2725															
13 Oct	S10E59	111	10	1	Axx	1	A								
14 Oct	S11E44	113	10	1	Axx	1	A								
15 Oct	S10E32	111	0	1	Axx	1	A								
16 Oct	S10E18	112	plage												
17 Oct	S11E05	112	0		Axx	1	A								
18 Oct	S11W09	113	plage												
19 Oct	S11W22	113	plage												
20 Oct	S11W36	113	plage												
21 Oct	S11W49	113	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 112

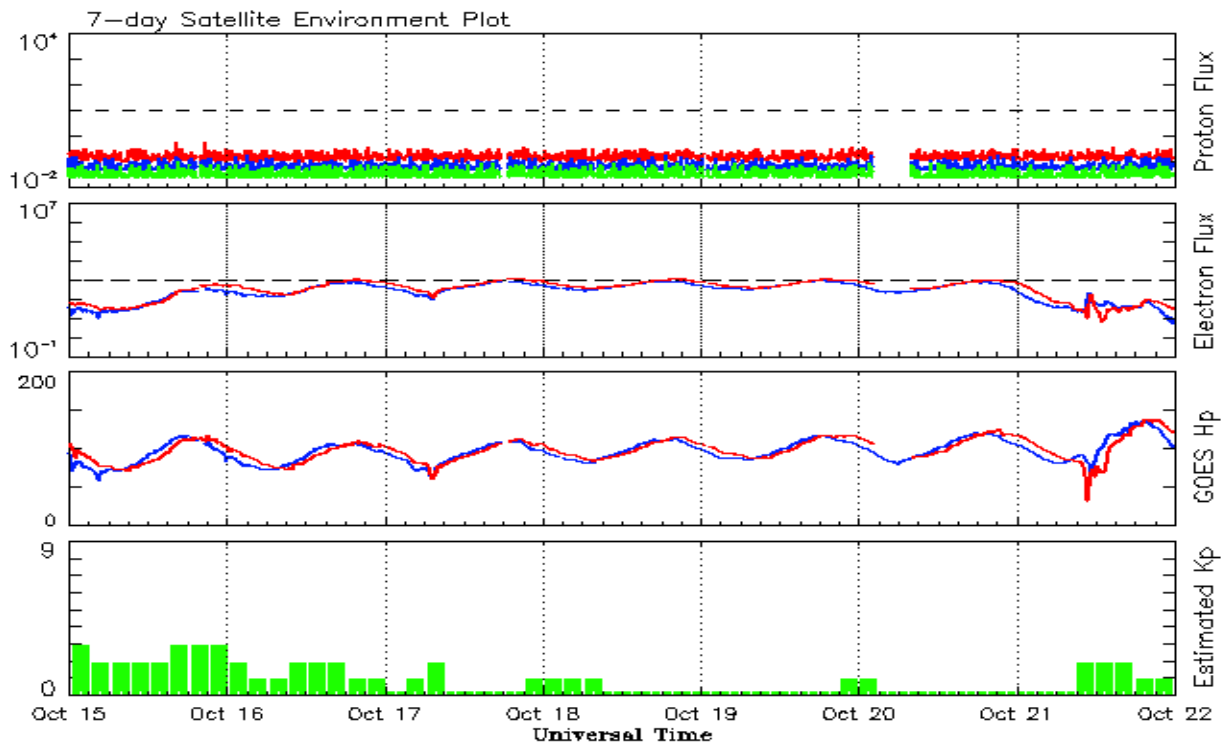


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	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			70.0		7	
May	15.0	7.9	0.53			70.9		8	
June	19.7	9.4	0.48			72.5		7	
July	1.3	1.0	0.77			69.7		6	
August	10.0	5.3	0.53			69.1		10	
September	5.7	2.0	0.35			68.3		9	

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 October 2018*

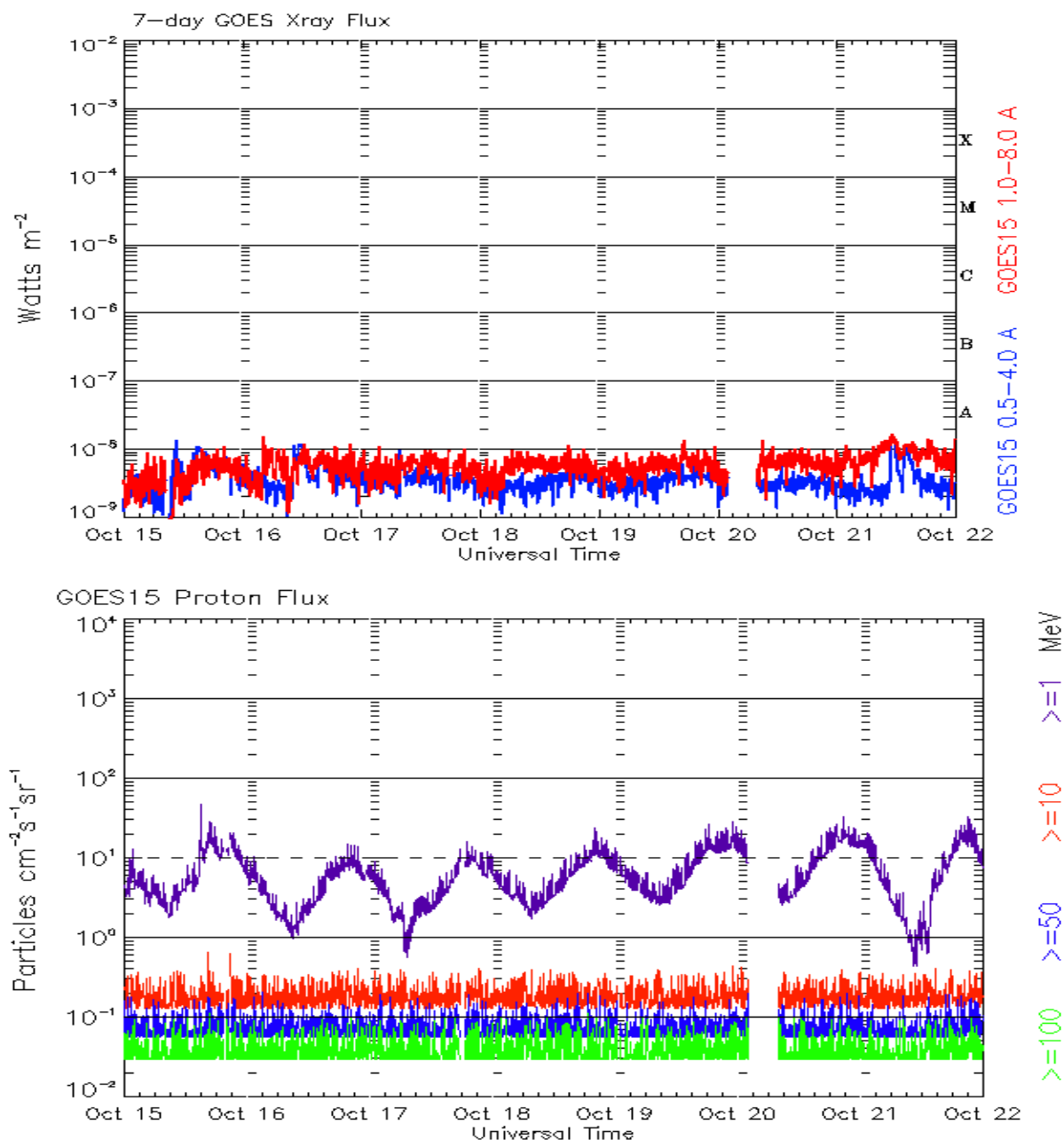
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 October 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.



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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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