

Space Weather Highlights
19 November - 25 November 2018

SWPC PRF 2256
26 November 2018

Solar activity was very low throughout the summary period. Region 2727 (N01, Lo=110, class/area C α /beta on 17 Nov), the largest region, produced no significant flare activity before it decayed to plage on 20 Nov. 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 was at normal background levels throughout the summary period.

Geomagnetic field activity ranged from quiet to unsettled. A weak, negative polarity high-speed stream produced isolated unsettled periods on 20-21 Nov. Quiet conditions were observed throughout the remainder of the summary period.

Space Weather Outlook
26 November - 22 December 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 range from normal to high levels. Moderate levels are expected on 07 Dec and 14-16 Dec; high levels are expected on 02-06 Dec and 08-13 Dec. The remainder of the forecast period is expected to be at normal levels. All enhancements in electron flux are anticipated in response to multiple, recurrent coronal hole high-speed streams.

Geomagnetic field activity is expected to range from quiet to G1 (Minor) geomagnetic storm levels. G1 (Minor) geomagnetic storm levels are expected on 02 Dec; active conditions are expected on 01 Dec and 07-08 Dec; unsettled conditions are expected on 26-27 Nov, 03-06 Dec, 09 Dec and 17-18 Dec. Quiet conditions are expected for the remainder of the outlook period. All enhancements in geomagnetic activity are expected in anticipation of multiple, recurrent, coronal hole high-speed streams.



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
19 November	71	12	10	A1.2	0	0	0	0	0	0	0	0
20 November	71	0	0	A1.1	0	0	0	0	0	0	0	0
21 November	69	0	0	A1.2	0	0	0	0	0	0	0	0
22 November	69	0	0	A1.1	0	0	0	0	0	0	0	0
23 November	69	0	0	A1.0	0	0	0	0	0	0	0	0
24 November	70	14	20	A1.0	0	0	0	0	0	0	0	0
25 November	70	15	20	A1.0	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
	19 November		8.6e+05	1.6e+04	3.7e+03	
20 November		7.0e+05	1.7e+04	3.9e+03		1.8e+06
21 November		3.4e+05	1.6e+04	3.6e+03		1.5e+06
22 November		3.4e+05	1.7e+04	3.7e+03		2.4e+06
23 November		5.0e+05	1.7e+04	3.7e+03		3.5e+06
24 November		5.2e+05	1.7e+04	3.8e+03		3.1e+06
25 November		3.5e+05	1.7e+04	3.8e+03		1.7e+06

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	19 November	2	1-1-1-0-0-0-1-1	1	0-0-1-0-0-1-0-0	4
20 November	5	2-3-1-1-1-1-1-1	5	0-3-1-3-1-0-1-0	6	2-3-1-1-0-1-1-1
21 November	3	1-2-1-1-1-1-0-1	2	0-2-1-2-0-0-0-0	5	1-3-1-1-1-0-0-1
22 November	1	1-0-0-0-1-1-0-0	1	0-0-1-1-0-0-0-0	3	1-1-1-1-1-1-1-0
23 November	1	0-1-0-1-0-0-0-0	0	0-0-0-1-0-0-0-0	3	1-1-1-1-0-0-1-1
24 November	2	0-0-1-0-1-1-1-2	1	0-0-1-0-1-1-0-0	4	1-0-1-1-1-2-1-1
25 November	3	2-1-0-1-1-1-0-1	3	0-0-0-2-3-0-0-0	5	1-1-0-1-1-1-0-1

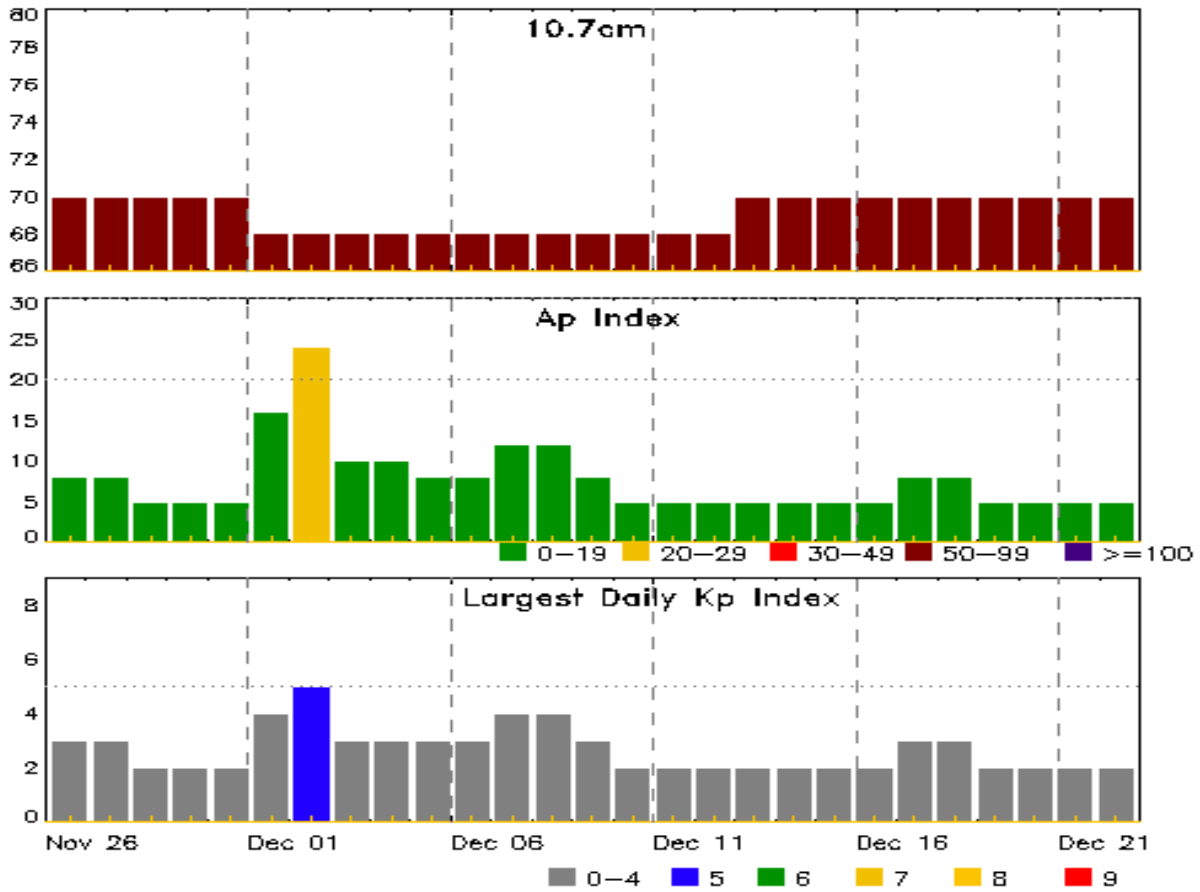


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
20 Nov 0520	WARNING: Geomagnetic K = 4	20/0521 - 1200



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
26 Nov	70	8	3	10 Dec	68	5	2
27	70	8	3	11	68	5	2
28	70	5	2	12	68	5	2
29	70	5	2	13	70	5	2
30	70	5	2	14	70	5	2
01 Dec	68	16	4	15	70	5	2
02	68	24	5	16	70	5	2
03	68	10	3	17	70	8	3
04	68	10	3	18	70	8	3
05	68	8	3	19	70	5	2
06	68	8	3	20	70	5	2
07	68	12	4	21	70	5	2
08	68	12	4	22	70	5	2
09	68	8	3				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class	Optical			Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD		
24 Nov	0210	0213	0215	B1.1				2728



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

Region 2726

12 Nov	N06W01	134	plage															
13 Nov	N05W16	137	10	1	Axx	1	A											
14 Nov	N04W32	139	10		Axx	1	A											
15 Nov	N04W45	140	plage															
16 Nov	N04W59	140	plage															
17 Nov	N04W73	141	plage															
18 Nov	N04W86	141	plage															
									0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 134

Region 2727

15 Nov	N01W17	111	20	4	Cro	3	B											
16 Nov	N01W29	110	20	4	Bxo	4	B											
17 Nov	N01W42	110	60	4	Cao	3	B											
18 Nov	N01W57	112	60	5	Cao	4	B											
19 Nov	N01W71	113	10	1	Axx	2	A											
20 Nov	N01W86	115	plage															
									0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 111

Region 2728

24 Nov	N06W03	339	20	3	Bxo	4	B											
25 Nov	N06W17	340	20	5	Bxo	5	B											
									0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 339

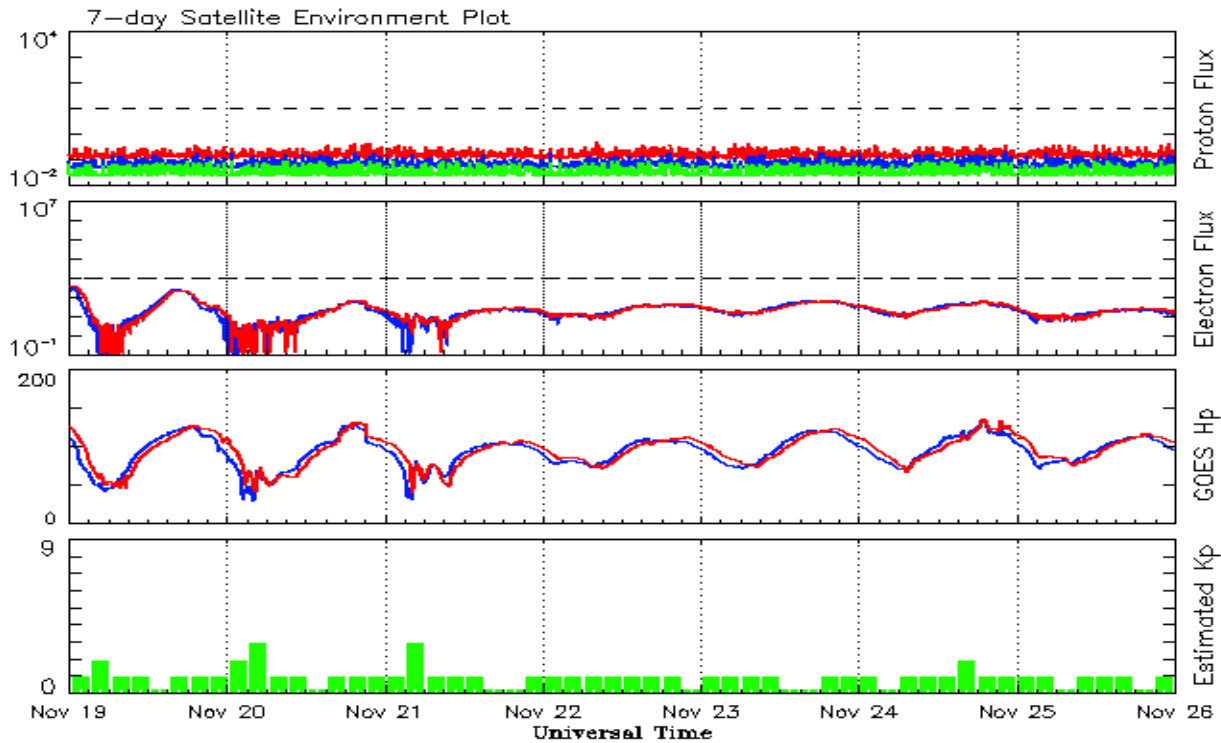


Recent Solar Indices (preliminary)
Observed monthly mean values

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										
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	9.6	4.7	70.0	70.6	7	8.0	
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		
October	6.9	2.9	0.42			69.5		7		

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 19 November 2018*

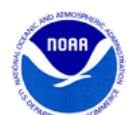
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

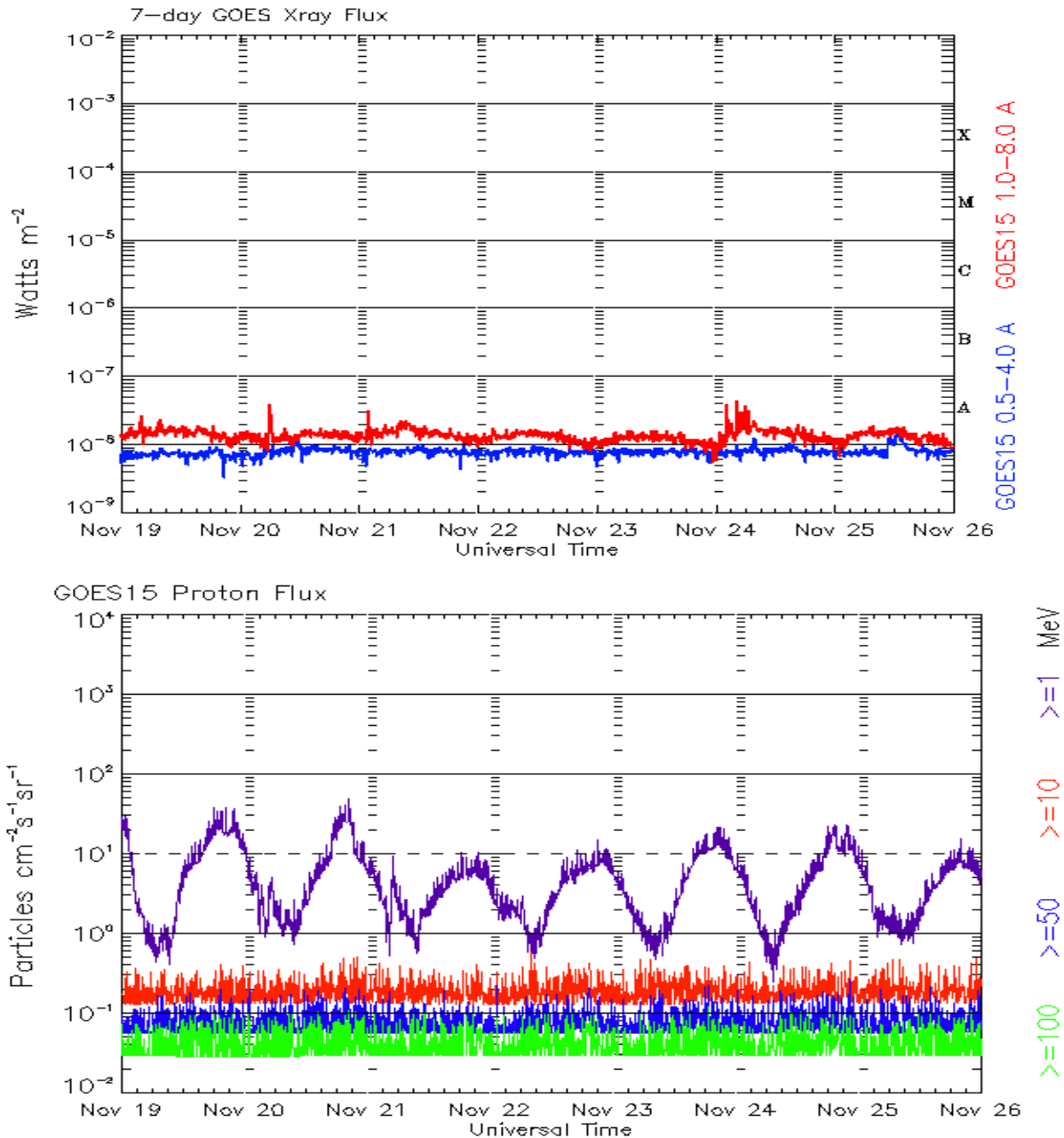
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 19 November 2018*

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 intergral 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

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