

Solar activity was at very low levels. No spots were observed on the visible disk. 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 moderate to high levels throughout the summary period due to influence from multiple CH HSSs. A maximum flux of 8,450 pfu was observed at 09/1745 UTC.

Geomagnetic field activity ranged from quiet to active levels. An isolated period of active was observed on 09 Sep in response to a positive polarity CH HSS increasing solar wind speeds to ~525 km/s. Isolated unsettled conditions, associated with further enhancements from multiple positive polarity CH HSSs, were observed on 12-15 Sep. Quiet conditions were observed over the remainder of the summary period.

Space Weather Outlook **16 September - 12 October 2019**

Solar activity is expected to be at very low levels over 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 16-19 Sep and 27 Sep - 12 Oct. Moderate levels are expected from 20-26 Sep. All enhancements in electron flux are due to elevated wind speeds from multiple, recurrent, CH HSSs.

Geomagnetic field activity is expected to range from quiet to G2 (Moderate) storm levels. G2 conditions are likely on 27-28 Sep; G1 (Minor) conditions are likely on 29 Sep; active conditions are likely on 30 Sep and 02 Oct; unsettled conditions are likely on 16-18 Sep, 23 Sep, 26 Sep, 01 Oct, 03 Oct, 06 Oct, 10 Oct and 12 Oct. All enhancements in geomagnetic active are in response to the anticipated influence of multiple, recurrent CH HSSs. The remainder of the outlook period is expected to be mostly quiet under nominal solar wind conditions.



Daily Solar Data

Date	Radio	Sun	Sunspot	X-ray			Flares							
	Flux	spot	Area	Background			X-ray			Optical				
	10.7cm	No.	(10 ⁻⁶ hemi.)	Flux			C	M	X	S	1	2	3	4
09 September	69	0	0	A3.8	0	0	0	0	0	0	0	0	0	0
10 September	70	0	0	A4.0	0	0	0	0	0	0	0	0	0	0
11 September	68	0	0	A4.0	0	0	0	0	0	0	0	0	0	0
12 September	69	0	0	A3.9	0	0	0	0	0	0	0	0	0	0
13 September	68	0	0	A3.7	0	0	0	0	0	0	0	0	0	0
14 September	69	0	0	A3.5	0	0	0	0	0	0	0	0	0	0
15 September	68	0	0	A3.5	0	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
09 September		5.4e+05	2.1e+04	4.0e+03		1.8e+08
10 September		4.3e+05	2.2e+04	4.0e+03		3.1e+08
11 September		3.4e+05	2.2e+04	3.9e+03		3.4e+08
12 September		7.0e+05	2.1e+04	3.6e+03		1.5e+08
13 September		4.8e+05	2.1e+04	3.7e+03		9.6e+07
14 September		6.0e+05	2.1e+04	4.0e+03		1.6e+08
15 September		8.3e+05	2.1e+04	3.8e+03		1.0e+08

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
09 September	11	3-1-3-3-3-1-2	26	3-2-5-6-4-4-0-1	14	3-2-3-4-3-3-0-3
10 September	4	1-1-1-2-2-1-1-0	9	1-1-0-3-5-0-0-0	4	2-2-1-2-2-0-0-0
11 September	4	1-1-2-2-1-1-1-1	12	0-1-5-4-2-2-1-0	5	1-1-2-2-1-1-1-1
12 September	7	1-1-2-3-2-2-2-2	13	1-0-4-5-3-2-1-0	7	1-1-2-3-2-2-2-1
13 September	8	2-3-3-2-2-1-2-1	7	2-2-3-3-2-1-1-0	8	2-3-3-1-2-1-2-1
14 September	7	1-2-2-2-2-1-2-3	3	0-1-2-2-0-0-1-1	6	1-2-2-2-1-1-2-3
15 September	8	1-3-2-2-2-2-2-2	11	1-2-4-4-2-1-1-2	6	2-3-2-2-1-2-2-3

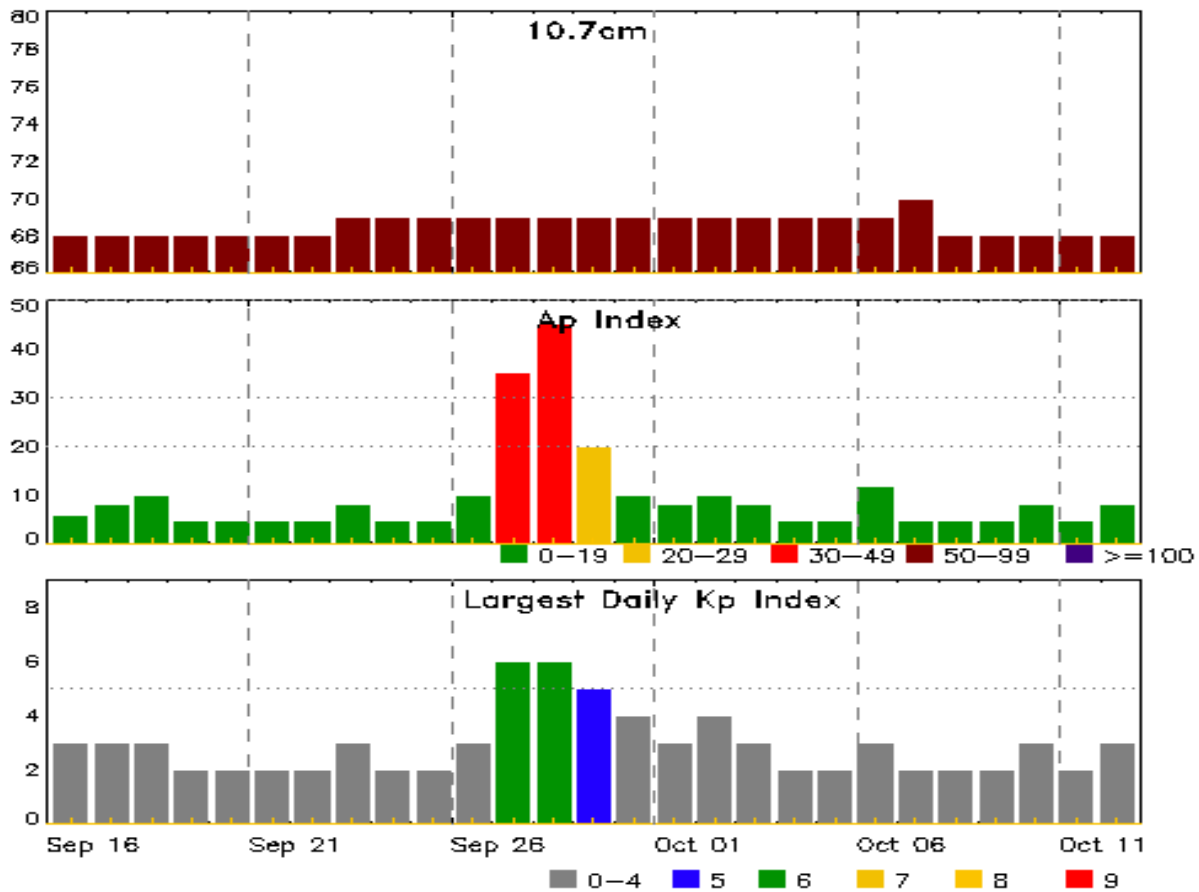


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
09 Sep 1055	WARNING: Geomagnetic K = 4	09/1055 - 1800
09 Sep 1111	ALERT: Geomagnetic K = 4	09/1112
09 Sep 1115	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1540
10 Sep 1026	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1540
11 Sep 0859	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1540
12 Sep 0859	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1540
13 Sep 1237	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1540
14 Sep 0859	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1540
15 Sep 1551	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1540



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
16 Sep	68	6	3	30 Sep	69	10	4
17	68	8	3	01 Oct	69	8	3
18	68	10	3	02	69	10	4
19	68	5	2	03	69	8	3
20	68	5	2	04	69	5	2
21	68	5	2	05	69	5	2
22	68	5	2	06	69	12	3
23	69	8	3	07	70	5	2
24	69	5	2	08	68	5	2
25	69	5	2	09	68	5	2
26	69	10	3	10	68	8	3
27	69	35	6	11	68	5	2
28	69	45	6	12	68	8	3
29	69	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							



Region Summary

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
Region 2748															
01 Sep	N14E22	205	10	3	Bxo	2	B								
02 Sep	N14E07	205	20	2	Hsx	2	A								
03 Sep	N14W06	206	plage												
04 Sep	N14W20	207	plage												
05 Sep	N14W34	208	plage												
06 Sep	N14W48	209	plage												
07 Sep	N14W62	209	plage												
08 Sep	N14W75	209	plage												
09 Sep	N14W88	209	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 206

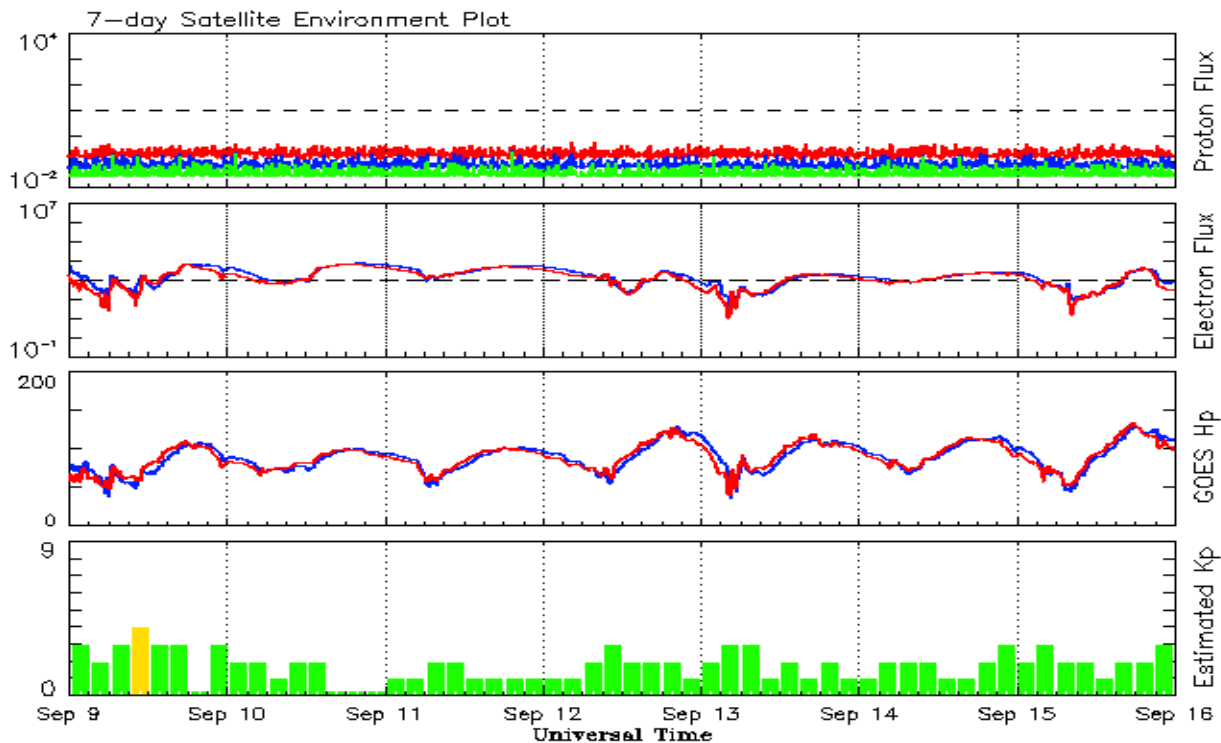


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2017									
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	4.3	72.5	70.0	7	7.4
July	1.3	1.0	0.77	9.4	4.2	69.7	70.0	6	7.3
August	10.0	5.2	0.53	9.0	4.0	69.1	70.0	10	7.3
September	5.7	2.0	0.35	8.7	3.9	68.3	70.1	9	7.3
October	6.9	2.9	0.42	9.2	4.1	69.5	70.3	7	7.1
November	7.3	2.9	0.48	9.5	4.0	68.9	70.4	6	7.0
December	5.6	1.9	0.34	9.3	3.6	70.0	70.3	7	6.9
2019									
January	16.0	4.6	0.29	9.0	3.2	71.6	70.0	6	6.8
February		0.5		8.7	3.0	70.6	69.8	7	6.7
March	14.8	5.6	0.39			71.5		6	
April	11.5	5.5	0.48			72.4		6	
May	18.1	6.1	0.34			71.3		7	
June	11.6	0.7	0.06			68.1		5	
July	1.6	0.5	0.31			67.1		6	
August	2.5	0.4	0.16			67.0		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 09 September 2019*

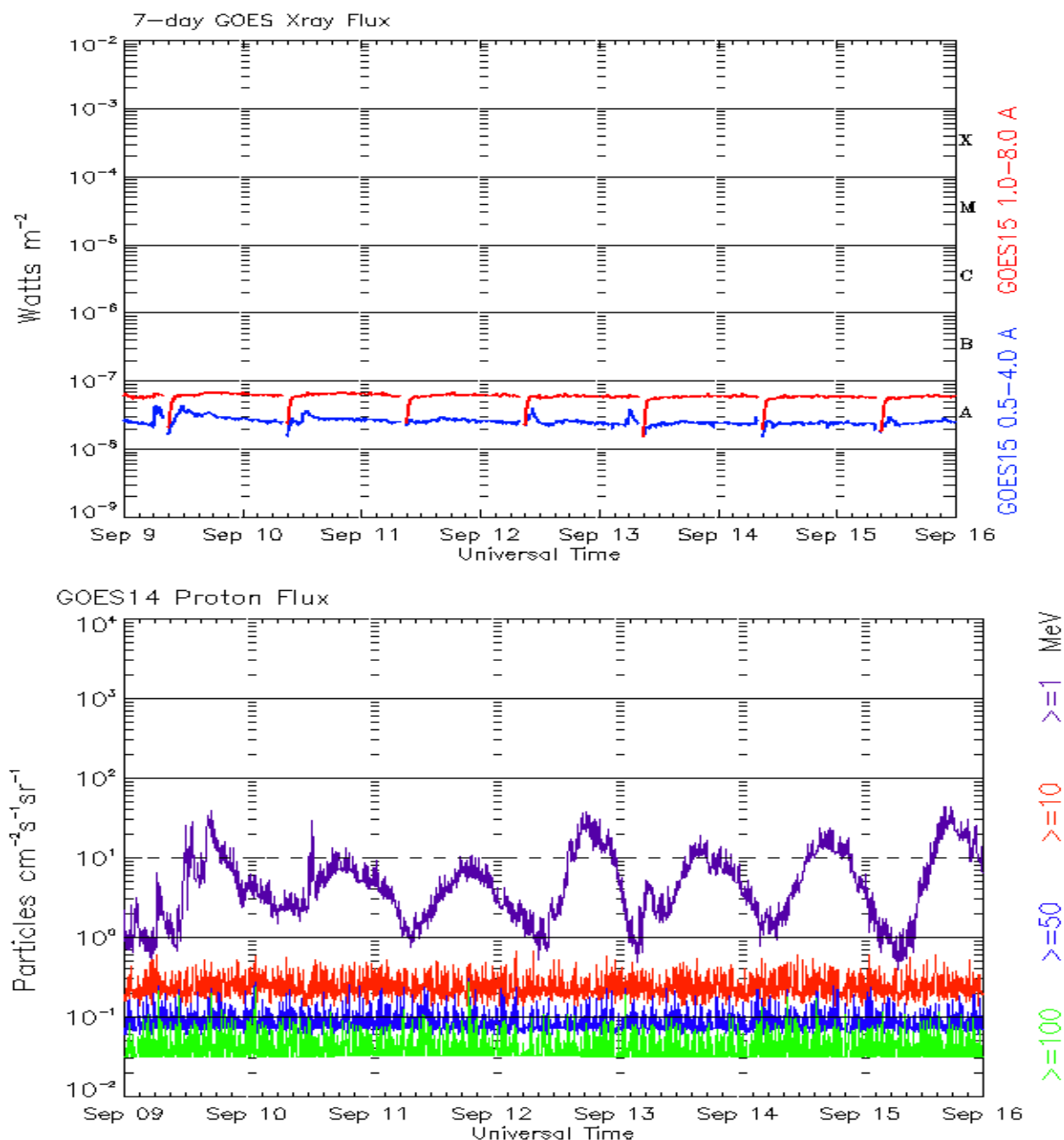
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 09 September 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 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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