

**Space Weather Highlights**  
**24 June - 30 June 2019**

**SWPC PRF 2287**  
**01 July 2019**

Solar activity was at very low levels. Regions 2742 (N04, L=092, class/area Axx/010 on 24 Jun) and 2743 (N03, L=111, class/area Axx/010 on 24 Jun) were quiet and stable. No Earth-directed CMEs were observed in available imagery.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels.

Geomagnetic field activity was at quiet levels with an isolated unsettled period observed early on 30 Jun. Solar wind parameters were at mostly nominal levels throughout the period. A peak wind speed of 418 km/s was observed at 26/1805 UTC. Bt and Bz parameters were at mostly nominal levels.

**Space Weather Outlook**  
**01 July - 27 July 2019**

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 be at normal to isolated moderate levels throughout the period.

Geomagnetic field activity is expected to reach isolated unsettled levels on 06 Jul and 10-11 Jul due to recurrent CH HSS influence. Mostly quiet conditions are expected for the remainder of the outlook period.



### *Daily Solar Data*

Date	Radio	Sun	Sunspot	X-ray		Flares							
	Flux	spot	Area	Background		X-ray			Optical				
	10.7cm	No.	(10 <sup>-6</sup> hemi.)	Flux		C	M	X	S	1	2	3	4
24 June	68	24	20	A6.7	0	0	0	0	0	0	0	0	0
25 June	68	12	10	A6.8	0	0	0	0	0	0	0	0	0
26 June	68	11	0	A6.8	0	0	0	0	0	0	0	0	0
27 June	67	11	10	A6.9	0	0	0	0	0	0	0	0	0
28 June	68	0	0	A6.9	0	0	0	0	0	0	0	0	0
29 June	68	0	0	A6.8	0	0	0	0	0	0	0	0	0
30 June	67	0	0	A6.9	0	0	0	0	0	0	0	0	0

### *Daily Particle Data*

Date	Proton Fluence (protons/cm <sup>2</sup> -day -sr)			Electron Fluence (electrons/cm <sup>2</sup> -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
24 June	2.9e+05	2.0e+04	4.0e+03		3.7e+05	
25 June	4.1e+05	2.1e+04	4.0e+03		4.3e+05	
26 June	3.6e+05	2.0e+04	3.8e+03		1.9e+06	
27 June	4.8e+05	1.9e+04	4.0e+03		2.0e+06	
28 June	3.4e+05	2.0e+04	3.8e+03		2.0e+06	
29 June	4.1e+05	2.0e+04	3.8e+03		2.1e+06	
30 June	7.2e+05	2.0e+04	3.8e+03		2.1e+06	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
24 June	5	2-2-0-1-2-1-2-1	4	2-2-0-1-2-0-1-1	5	2-2-1-1-2-1-2-1
25 June	5	1-0-1-2-2-1-2-2	2	1-1-1-1-1-0-0-0	4	1-0-1-1-1-0-1-1
26 June	5	2-2-2-2-1-2-1-0	6	1-1-3-4-1-0-0-0	6	2-2-2-2-1-1-0-1
27 June	4	1-1-0-1-1-2-2-1	1	1-1-0-0-1-0-0-0	4	1-1-0-1-1-1-1-1
28 June	5	2-2-1-1-2-1-1-1	1	2-1-0-0-0-0-0-0	4	2-2-1-1-1-1-1-1
29 June	3	0-0-1-1-1-2-1-1	2	0-1-1-0-0-0-1-1	3	1-1-1-0-1-1-1-1
30 June	3	2-0-0-1-2-0-0-1	1	1-0-0-0-1-0-0-1	12	3-1-0-1-1-1-0-1

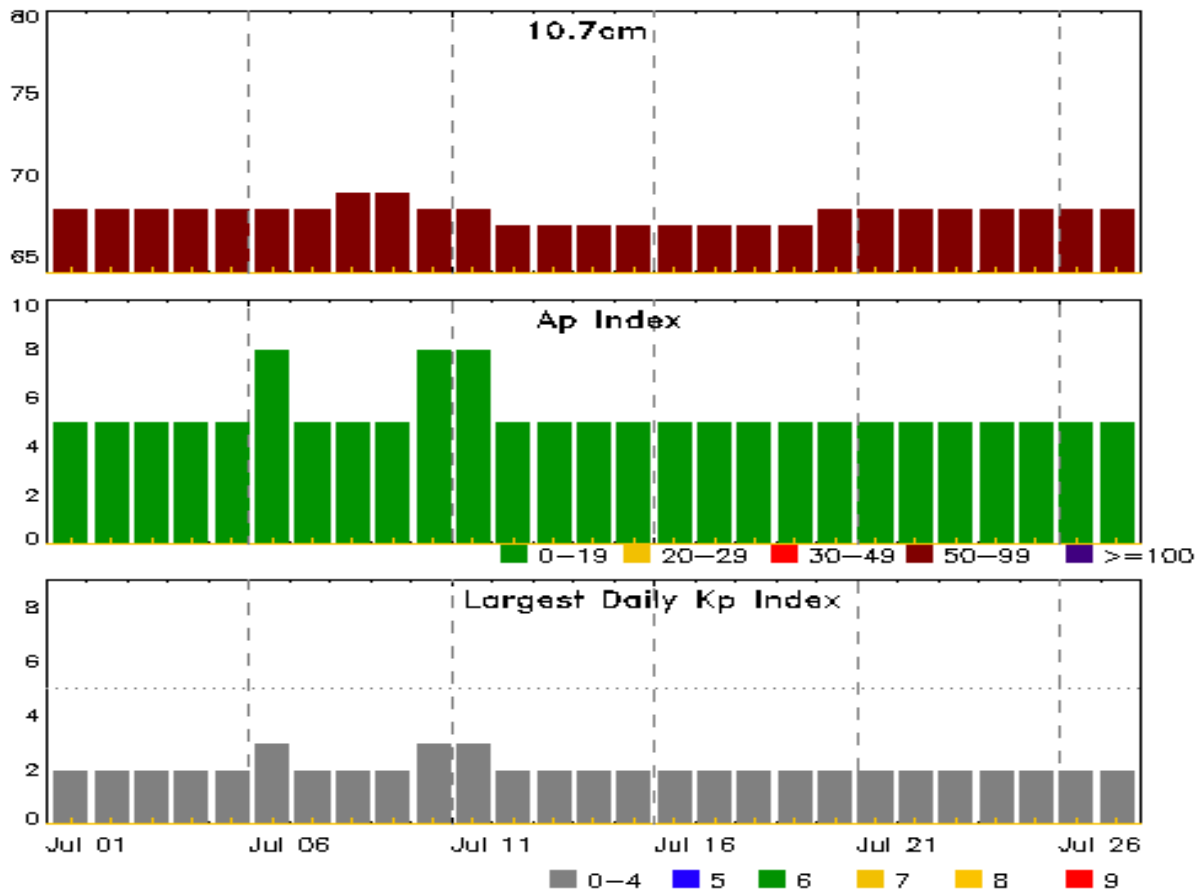


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
No Alerts or Warnings Issued		



## 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
01 Jul	68	5	2	15 Jul	67	5	2
02	68	5	2	16	67	5	2
03	68	5	2	17	67	5	2
04	68	5	2	18	67	5	2
05	68	5	2	19	67	5	2
06	68	8	3	20	68	5	2
07	68	5	2	21	68	5	2
08	69	5	2	22	68	5	2
09	69	5	2	23	68	5	2
10	68	8	3	24	68	5	2
11	68	8	3	25	68	5	2
12	67	5	2	26	68	5	2
13	67	5	2	27	68	5	2
14	67	5	2				

### ***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***

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

### ***Region 2742***

24 Jun	N04W33	92	10	1	Axx	1	A								
25 Jun	N04W46	92	plage												
26 Jun	N04W60	93	plage												
								0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 92

### ***Region 2743***

24 Jun	N03W52	111	10	2	Axx	3	A								
25 Jun	N03W67	113	10	1	Axx	2	A								
26 Jun	N03W81	114	0		Axx	1	A								
27 Jun	N03W96	115	10	1	Axx	1	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 111

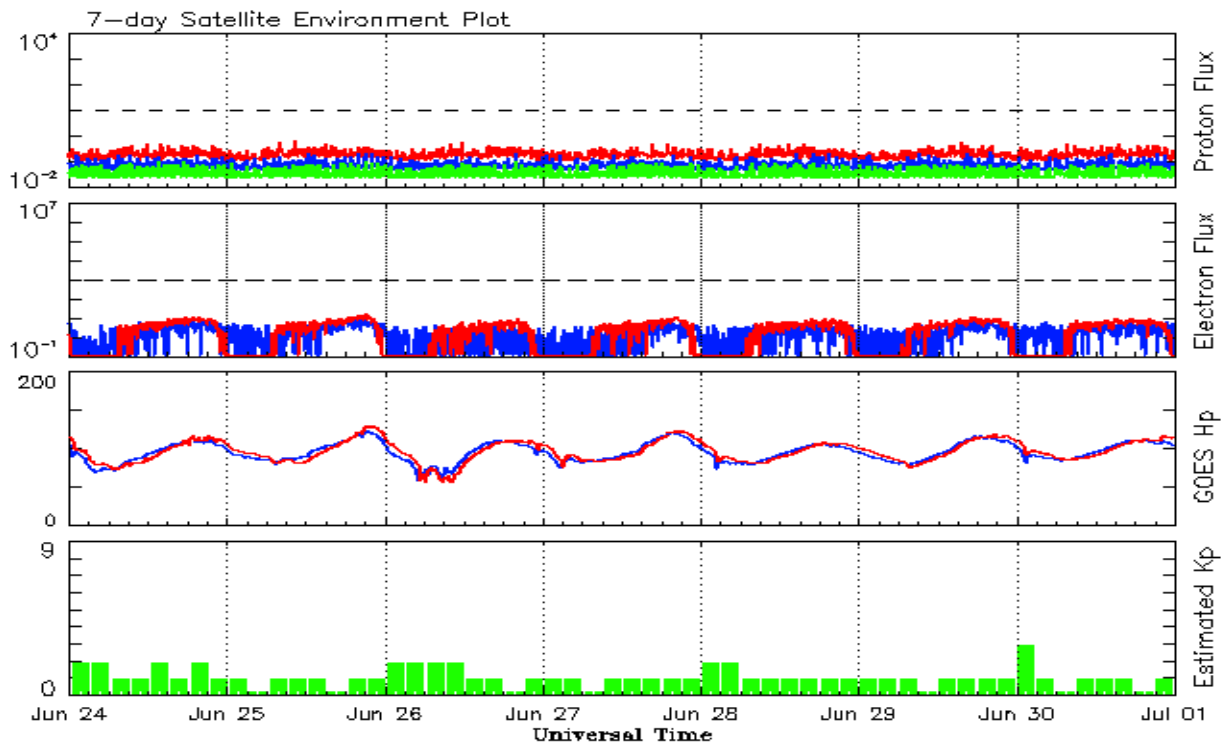


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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
<b>2017</b>									
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
<b>2018</b>									
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	4.3	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	4.0	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		70.0	70.3	7	6.9
<b>2019</b>									
January	16.0	4.7	0.29			71.6		6	
February		0.5				70.6		7	
March	14.8	5.7	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					68.1		5	

**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 24 June 2019*

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-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.

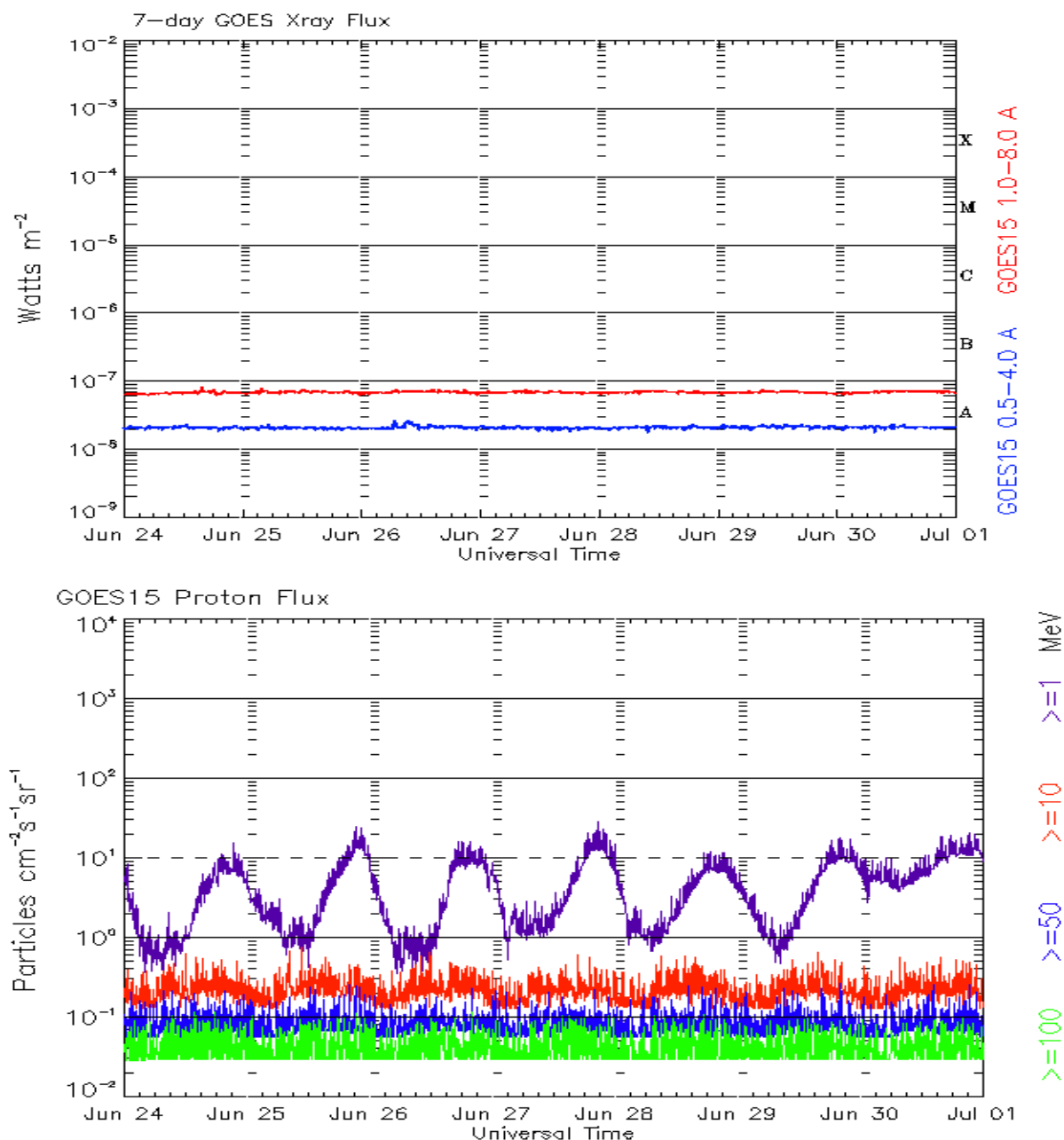
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 24 June 2019*

The x-ray plots contains five-minute averages x-ray flux ( $\text{Watt/m}^2$ ) 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)***

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce  
NOAA / National Weather Service  
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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](mailto:SWPC.Webmaster@noaa.gov)

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