

Space Weather Highlights
14 May - 20 May 2018

SWPC PRF 2229
21 May 2018

Solar activity was very low throughout the period and no events were reported. No Earth-directed CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 14-17 May with moderate levels observed on 18-20 May.

Geomagnetic field activity was quiet to unsettled on 17 May due to the influence of a negative polarity coronal hole/high speed stream. Quiet conditions were observed throughout the remainder of the period.

Space Weather Outlook
21 May - 16 June 2018

Solar activity is expected to be very low throughout the period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach very high levels on 05-07 Jun with high levels expected on 02-04 and 08-13 Jun. Moderate flux levels are expected for the remainder of the outlook period.

Geomagnetic field activity is expected to reach G2 (Moderate) geomagnetic storm levels on 02 Jun and G1 (Minor) storm levels are expected on 01 Jun due to the influence of a recurrent, negative polarity coronal hole/high speed stream. Active conditions are expected on 23 May and 03-05 Jun.



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
14 May	70	0	0	A1.8	0	0	0	0	0	0	0	0	0
15 May	70	0	0	A1.5	0	0	0	0	0	0	0	0	0
16 May	70	0	0	A1.0	0	0	0	0	0	0	0	0	0
17 May	69	0	0	A0.0	0	0	0	0	0	0	0	0	0
18 May	69	0	0	A0.0	0	0	0	0	0	0	0	0	0
19 May	70	0	0	A0.0	0	0	0	0	0	0	0	0	0
20 May	69	0	0	A0.0	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
14 May	8.4e+05	1.8e+04	3.6e+03		5.7e+08	
15 May	9.1e+05	1.8e+04	3.4e+03		7.6e+08	
16 May	1.2e+06	1.9e+04	3.7e+03		5.0e+08	
17 May	5.1e+05	1.7e+04	3.3e+03		1.3e+08	
18 May	2.4e+05	1.8e+04	3.3e+03		2.5e+07	
19 May	3.0e+05	1.7e+04	3.5e+03		2.4e+07	
20 May	2.7e+05	1.8e+04	3.7e+03		2.8e+07	

Daily Geomagnetic Data

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

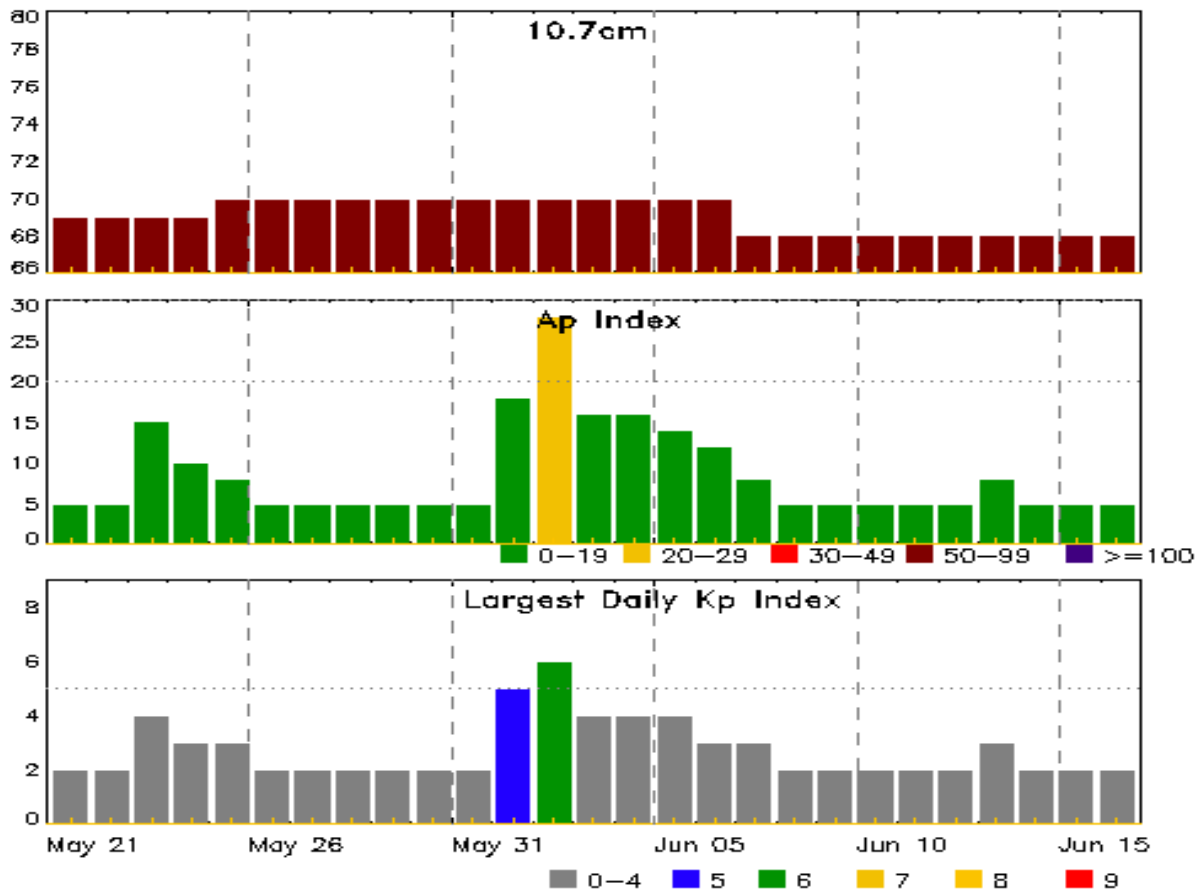


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
14 May 0900	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400
14 May 1928	WATCH: Geomagnetic Storm Category G1 predicted	
15 May 0859	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400
16 May 0859	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400
17 May 1315	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400



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
21 May	69	5	2	04 Jun	70	16	4
22	69	5	2	05	70	14	4
23	69	15	4	06	70	12	3
24	69	10	3	07	68	8	3
25	70	8	3	08	68	5	2
26	70	5	2	09	68	5	2
27	70	5	2	10	68	5	2
28	70	5	2	11	68	5	2
29	70	5	2	12	68	5	2
30	70	5	2	13	68	8	3
31	70	5	2	14	68	5	2
01 Jun	70	18	5	15	68	5	2
02	70	28	6	16	68	5	2
03	70	16	4				

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 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 2708

04 May	S09E53	204	30	3	Cro	3	B								
05 May	S08E39	99	10	5	Bxo	4	B								
06 May	S10E26	99	10	5	Bxo	4	B								
07 May	S11E12	100	10	4	Bxo	4	B								
08 May	S09W01	100	10	3	Bxo	3	B								
09 May	S10W13	98	10	2	Axx	1	A								
10 May	S10W27	99	plage												
11 May	S10W41	100	plage												
12 May	S10W55	101	plage												
13 May	S10W69	101	plage												
14 May	S10W83	102	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 100

Region 2709

08 May	N05E65	34	10	2	Axx	2	A								
09 May	N05E52	33	10	1	Axx	1	A								
10 May	N05E38	34	10	1	Axx	1	A								
11 May	N05E24	35	10	1	Axx	1	A								
12 May	N06E11	35	10	2	Axx	2	A								
13 May	N04W02	34	10	1	Axx	1	A								
14 May	N04W17	36	plage												
15 May	N04W32	38	plage												
16 May	N04W47	40	plage												
17 May	N04W62	42	plage												
18 May	N04W77	43	plage												
19 May	N04W92	45	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 34

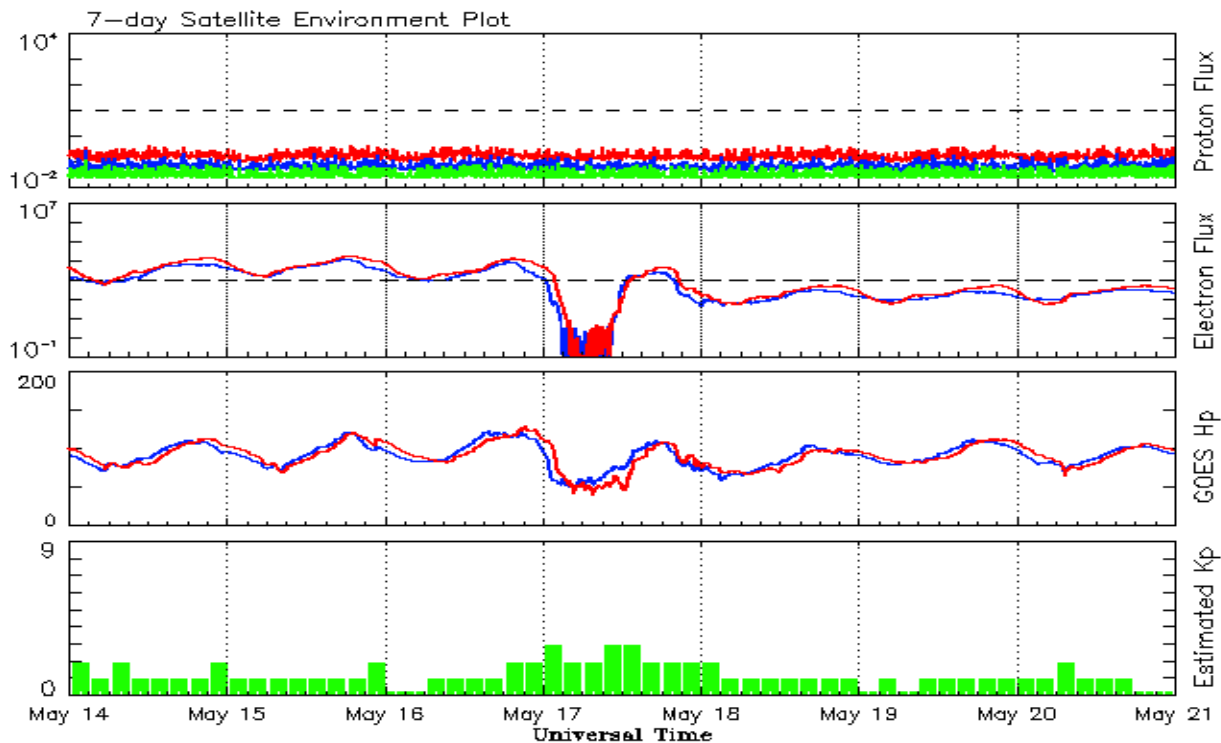


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	20.8	12.6	77.7	76.8	9	11.0
August	25.0	19.6	0.80	19.7	11.7	77.9	76.3	12	10.7
September	42.2	26.2	0.62	18.6	10.9	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			72.1		11	
December	7.6	4.9	0.64			71.5		8	
2018									
January	7.8	4.0	0.51			70.0		6	
February	16.0	6.4	0.40			72.0		7	
March	6.0	1.5	0.25			68.4		8	
April	7.0	5.3	0.76			70.0		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 14 May 2018*

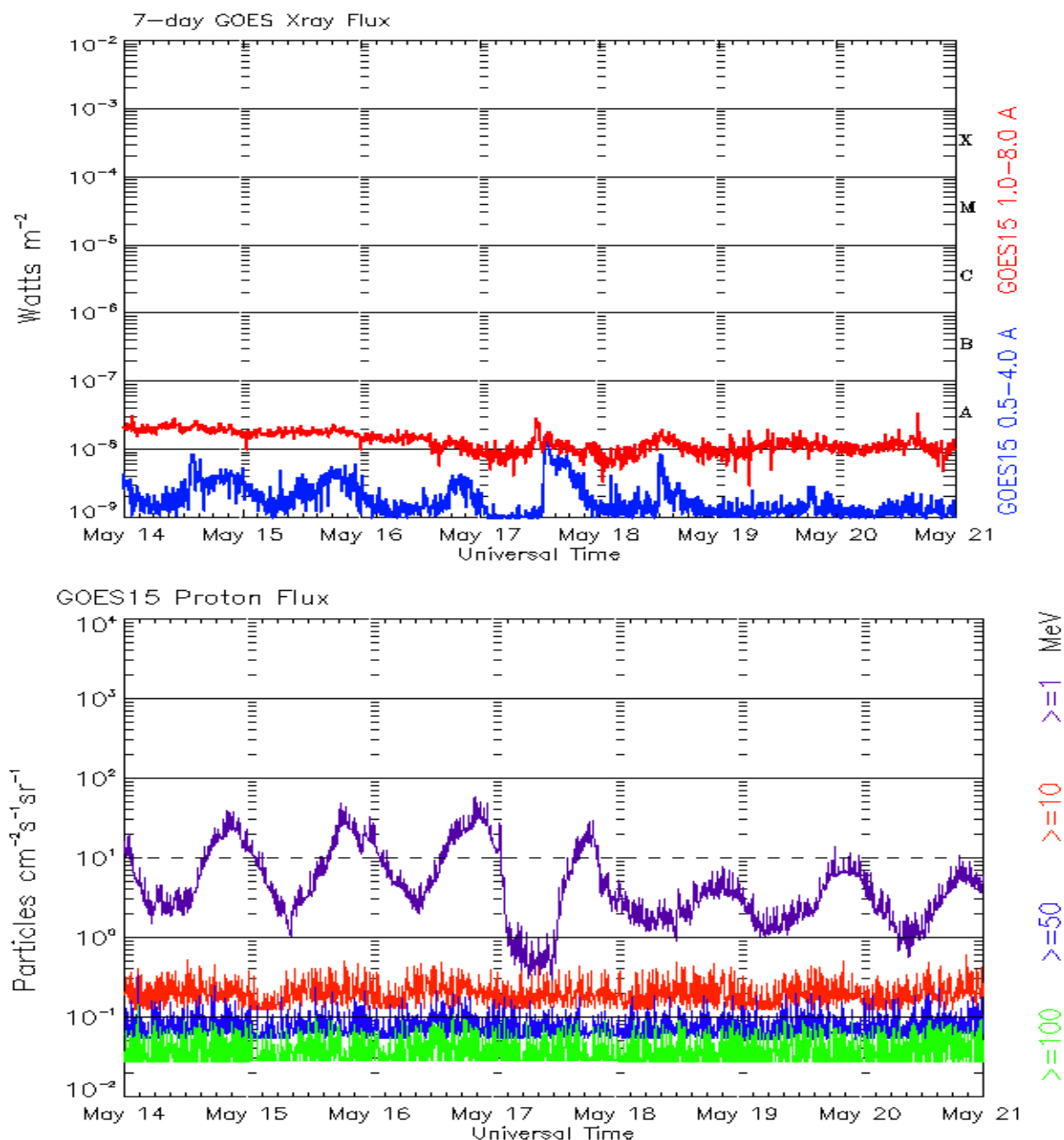
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 14 May 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 integral 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.



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

