

Solar activity was very low throughout the reporting period. No spotted regions were observed on the solar 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 at moderate levels on 22-23 Apr and decreased to normal levels for the remainder of the reporting period.

Geomagnetic field activity ranged from quiet to unsettled. A solar sector boundary crossing was observed late on 23 Apr which caused several periods of unsettled early into 24 Apr. No other significant signatures were observed in the solar wind data. Quiet conditions were observed for the remainder of the reporting period.

Space Weather Outlook
29 April - 25 May 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 range from normal to high levels. High levels are expected on 02-12 May; moderate levels are expected on 29 Apr-01 May and 13-23 May. The remainder of the outlook period is expected to be at normal levels.

Geomagnetic field activity is expected to range from quiet to active levels. Active levels are expected on 01-02 May and 07 May; unsettled levels are expected on 30 Apr, 03 May, 05-06 May, 08-10 May and 19 May. The remainder of the outlook period is expected to be at quiet levels. All enhancements in geomagnetic activity are due to the anticipation of multiple, recurrent CH HSSs.



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
22 April	69	0	0	A6.6	0	0	0	0	0	0	0	0	0
23 April	69	0	0	A6.0	0	0	0	0	0	0	0	0	0
24 April	69	0	0	A5.9	0	0	0	0	0	0	0	0	0
25 April	68	0	0	A5.9	0	0	0	0	0	0	0	0	0
26 April	67	0	0	*	0	0	0	0	0	0	0	0	0
27 April	67	0	0	A5.9	0	0	0	0	0	0	0	0	0
28 April	68	0	0	A6.0	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
22 April	7.1e+05	1.8e+04	3.7e+03		8.0e+06	
23 April	8.5e+05	2.0e+04	3.9e+03		7.7e+06	
24 April	4.1e+05	1.8e+04	3.7e+03		3.2e+06	
25 April	6.1e+05	1.8e+04	3.7e+03		3.4e+06	
26 April	5.3e+05	1.9e+04	3.8e+03		4.0e+06	
27 April	6.1e+05	1.9e+04	3.6e+03		2.0e+06	
28 April	5.5e+05	1.9e+04	3.8e+03		2.8e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
22 April	4	0-1-2-2-2-1-1-1	2	0-0-2-0-0-1-1-0	4	1-1-1-1-1-1-1-1
23 April	8	1-2-1-1-2-2-3-3	4	0-0-0-2-2-2-2-2	8	1-1-0-1-1-2-3-3
24 April	6	3-1-0-2-2-2-1-2	10	2-1-0-4-4-3-1-0	7	3-1-0-2-2-2-1-2
25 April	4	1-2-2-1-1-0-1-1	9	1-2-2-4-4-1-0-0	5	1-2-2-2-2-0-1-0
26 April	2	0-0-0-1-2-1-1-1	3	0-0-0-2-2-2-1-1	4	1-0-1-1-1-1-1-2
27 April	5	1-0-2-2-2-1-2-2	8	1-0-3-4-3-0-0-1	6	1-0-2-2-2-1-2-2
28 April	4	1-1-1-1-1-1-2-1	6	1-1-3-2-1-2-1-1	4	1-1-2-1-1-1-2-2

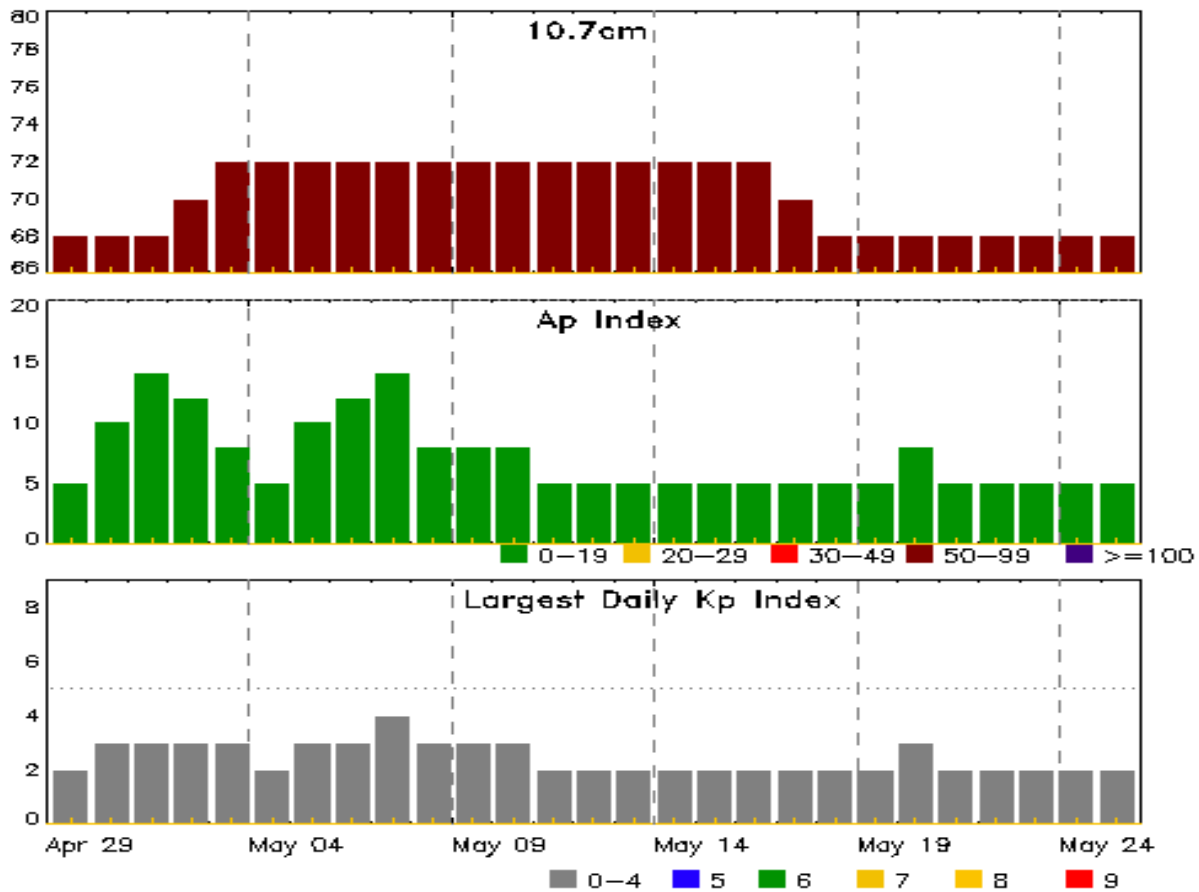


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
22 Apr 0424	ALERT: Type II Radio Emission	22/0255
23 Apr 2037	WARNING: Geomagnetic K = 4	23/2040 - 24/0600



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
29 Apr	68	5	2	13 May	72	5	2
30	68	10	3	14	72	5	2
01 May	68	14	3	15	72	5	2
02	70	12	3	16	72	5	2
03	72	8	3	17	70	5	2
04	72	5	2	18	68	5	2
05	72	10	3	19	68	5	2
06	72	12	3	20	68	8	3
07	72	14	4	21	68	5	2
08	72	8	3	22	68	5	2
09	72	8	3	23	68	5	2
10	72	8	3	24	68	5	2
11	72	5	2	25	68	5	2
12	72	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							

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

Region 2739

17 Apr	N05W17	256	10	3	Bxo	3	B								
18 Apr	N05W33	258	20	2	Cro	2	B								
19 Apr	N05W48	260	20	4	Bxo	2	B								
20 Apr	N06W67	266	10	1	Axx	1	A								
21 Apr	N06W80	266	plage												
22 Apr	N06W94	266	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 256

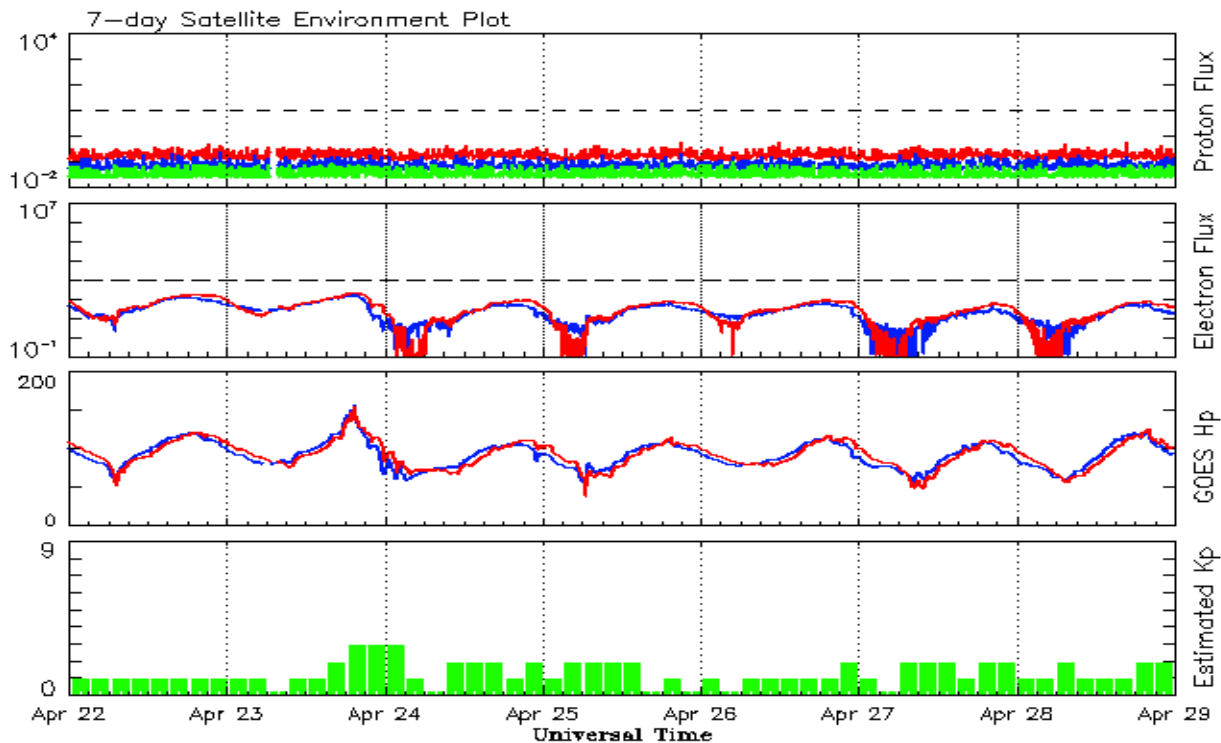


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	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			69.5		7	
November	7.3	2.9	0.48			68.9		6	
December	5.6	1.9	0.34			70.0		7	
2019									
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	

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 22 April 2019*

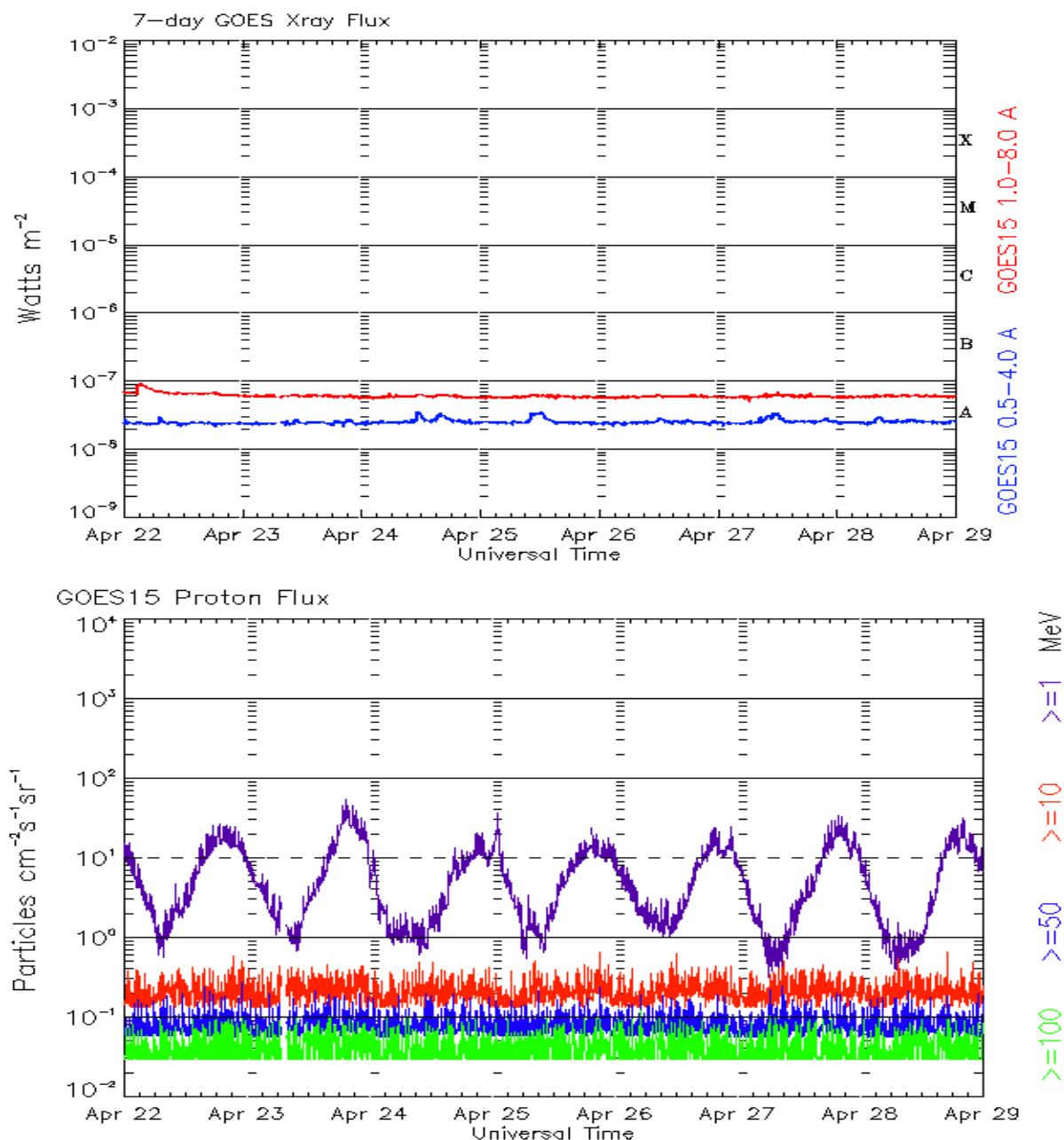
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 22 April 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.



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
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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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