

Space Weather Highlights
19 June - 25 June 2017

SWPC PRF 2182
26 June 2017

Solar activity was very low throughout the period with only isolated low and mid-level B-class flare activity observed. Regions 2663 (N12, L=095, class/area=Dso/100 on 17 Jun) and 2664 (N18, L=314, class/area=Cso/90 on 25 Jun) each produced B-class flare activity throughout the week while Region 2662 (N12, L=050, class/area=Hsx/170 on 13 Jun) was quiet. No Earth-directed CMEs were observed this period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 19-21 Jun with moderate levels observed on 22-25 Jun.

Geomagnetic field activity was generally quiet and quiet to unsettled throughout the week with isolated active conditions observed on 25 Jun due to the influence of a positive, north polar-connected CH HSS.

Space Weather Outlook
26 June - 22 July 2017

Solar activity is expected to be very low, with a slight chance for C-class flare activity, 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 reach high levels on 30 Jun-03 Jul, and 16-18 Jul. Normal and normal to moderate flux levels are expected to prevail throughout the remainder of the outlook period.

Geomagnetic field activity is expected to be at quiet and quiet to unsettled levels through most of the outlook period; however, G1 (Minor) geomagnetic storm conditions are likely on 13 Jul with active conditions likely on 14 Jul due to the anticipated influence of a recurrent, negative polarity CH HSS.



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
19 June	74	26	140	A5.8	0	0	0	0	0	0	0	0
20 June	74	34	170	A6.4	0	0	0	0	0	0	0	0
21 June	74	35	120	A5.9	0	0	0	0	0	0	0	0
22 June	74	23	80	A5.2	0	0	0	0	0	0	0	0
23 June	74	22	90	A5.1	0	0	0	0	0	0	0	0
24 June	74	28	80	A4.5	0	0	0	0	0	0	0	0
25 June	74	20	90	A4.6	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 June	4.1e+05	1.6e+04	3.5e+03	1.0e+08	
20 June	5.1e+05	1.8e+04	3.7e+03	1.2e+08		
21 June	5.3e+05	1.8e+04	3.7e+03	1.3e+08		
22 June	2.4e+05	1.7e+04	3.7e+03	6.6e+06		
23 June	1.6e+07	1.5e+04	3.7e+03	1.9e+07		
24 June	2.0e+07	1.5e+04	3.5e+03	1.1e+07		
25 June	1.7e+07	1.6e+04	3.3e+03	2.2e+06		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	19 June	7	2-3-2-2-2-1-1-1	12	2-2-2-5-4-1-0-0	5
20 June	3	0-1-0-1-2-2-1-0	1	0-1-1-1-0-0-0-0	3	1-1-1-1-1-1-0-0
21 June	3	0-0-0-1-2-1-2-2	1	0-0-0-0-0-0-1-1	4	1-1-1-1-1-1-2-2
22 June	8	3-2-1-1-2-1-3-2	5	2-3-2-1-0-1-1-0	6	3-2-1-1-1-1-3-2
23 June	6	1-1-1-1-3-2-2-2	7	2-1-0-4-1-0-2-2	5	1-1-1-2-1-1-2-2
24 June	8	2-1-2-2-2-2-2-3	11	1-2-3-4-2-3-2-1	9	2-1-2-3-2-2-3-3
25 June	11	2-2-4-2-2-2-3-2	24	3-4-6-4-4-2-1-1	9	2-2-4-3-2-2-2-2

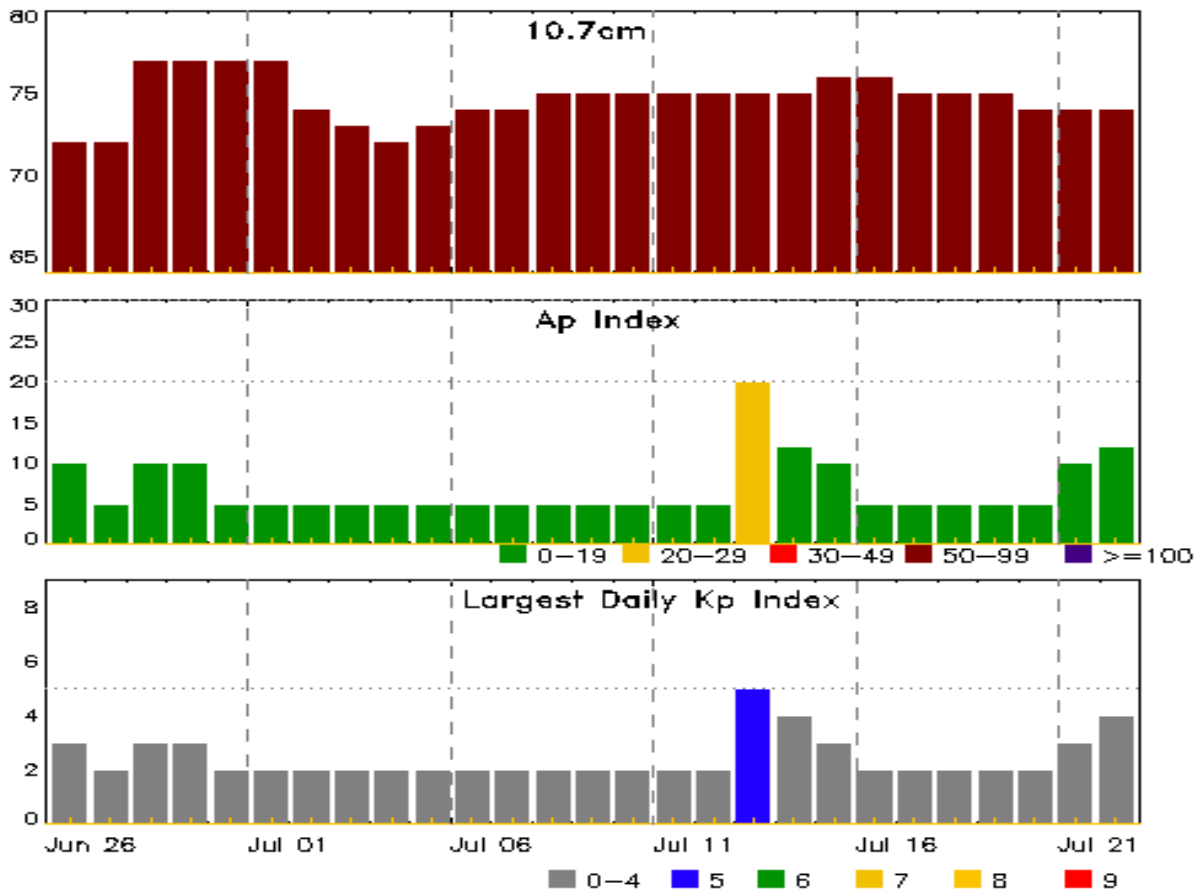


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
19 Jun 1140	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	19/1125
20 Jun 0836	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	19/1125
21 Jun 0652	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	19/1125
25 Jun 0808	WARNING: Geomagnetic K = 4	25/0808 - 1500
25 Jun 0813	ALERT: Geomagnetic K = 4	25/0813



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 Jun	72	10	3	10 Jul	75	5	2
27	72	5	2	11	75	5	2
28	77	10	3	12	75	5	2
29	77	10	3	13	75	20	5
30	77	5	2	14	75	12	4
01 Jul	77	5	2	15	76	10	3
02	74	5	2	16	76	5	2
03	73	5	2	17	75	5	2
04	72	5	2	18	75	5	2
05	73	5	2	19	75	5	2
06	74	5	2	20	74	5	2
07	74	5	2	21	74	10	3
08	75	5	2	22	74	12	4
09	75	5	2				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class	Optical			Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD		
19 Jun	0424	0429	0436	B3.0			2664	
19 Jun	1303	1306	1309	B1.0			2663	
19 Jun	1558	1605	1609	B5.0			2664	
20 Jun	0532	0540	0550	B1.4			2663	
20 Jun	0601	0718	0848	B1.5			2664	
22 Jun	0036	0049	0102	B1.5			2664	



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 2644																							
26 Mar	N12E30		54	50	6	Dao	10	B	1				4										
27 Mar	N13E17		54	150	8	Dai	15	BG					6										
28 Mar	N12E04		54	240	10	Dsi	12	B	1				4										
29 Mar	N12W09		53	220	11	Eso	10	B					1										
30 Mar	N12W23		54	190	12	Eso	3	B															
31 Mar	N12W37		55	190	11	Eao	4	B					1										
01 Apr	N12W52		57	200	12	Eao	8	B	1	1			2	1									
02 Apr	N12W65		57	450	17	Fkc	19	BG	4	4			17						1				
03 Apr	N13W79		57	520	18	Fkc	12	BGD	7	2			24						1				
04 Apr	N13W92		57	150	13	Eao	7	B	6				4										
									20	7	0		63	1	2	0	0						

Crossed West Limb.

Absolute heliographic longitude: 54

Region 2662

13 Jun	N12E70		50	170	2	Hsx	1	A														
14 Jun	N12E55		51	160	2	Hsx	1	A														
15 Jun	N12E42		50	100	2	Hsx	1	A														
16 Jun	N12E28		51	50	1	Hsx	1	A														
17 Jun	N11E15		52	70	2	Hsx	1	A														
18 Jun	N12E02		52	80	2	Hsx	1	A														
19 Jun	N12W12		52	80	1	Hsx	2	A														
20 Jun	N12W25		51	50	2	Hsx	2	A														
21 Jun	N13W38		51	40	3	Hsx	3	A														
22 Jun	N13W51		51	30	1	Hsx	2	A														
23 Jun	N13W65		52	20	1	Hrx	1	A														
24 Jun	N13W77		51	10	1	Axx	1	A														
									0	0	0		0	0	0	0	0	0	0			

Died on Disk.

Absolute heliographic longitude: 52



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
Region 2663																							
15 Jun	N14W00	92	50	7	Dso	7	BG						1										
16 Jun	N13W14	93	90	8	Dso	7	B																
17 Jun	N12W28	95	100	9	Dso	7	B																
18 Jun	N12W41	95	80	9	Dso	6	B						1										
19 Jun	N13W55	95	60	10	Cso	4	B																
20 Jun	N14W72	98	40	2	Hsx	1	A																
21 Jun	N14W85	98	30	1	Hsx	1	A																
										0	0	0	2	0	0	0	0	0					

Crossed West Limb.

Absolute heliographic longitude: 92

Region 2664																							
20 Jun	N18E72	314	80	2	Cso	1	B																
21 Jun	N17E60	314	50	2	Hsx	1	A																
22 Jun	N17E47	312	50	1	Hsx	1	A																
23 Jun	N18E35	312	70	2	Hsx	1	A																
24 Jun	N18E21	313	70	5	Cso	7	B																
25 Jun	N18E07	314	90	7	Cso	10	B																
										0	0	0	0	0	0	0	0	0					

Still on Disk.

Absolute heliographic longitude: 314

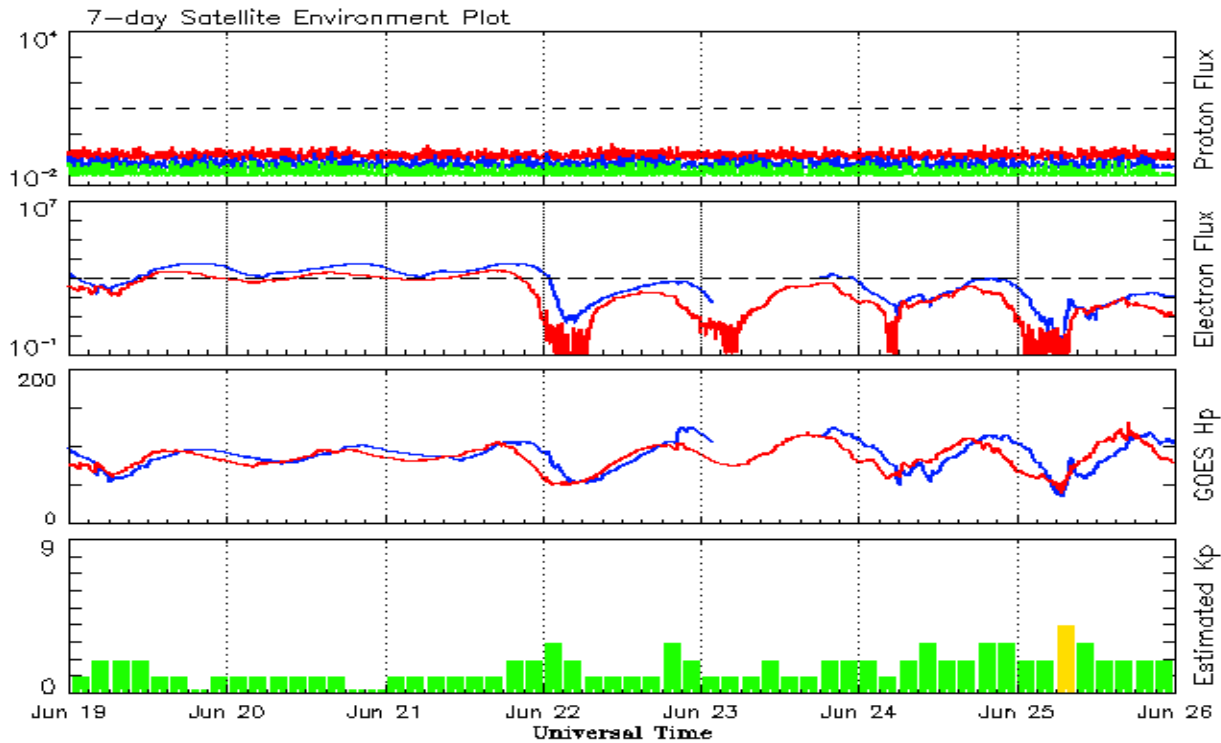


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2015									
June	77.3	39.9	0.53	73.1	43.3	123.2	119.5	14	13.0
July	68.4	39.5	0.58	68.2	41.0	107.0	116.0	10	13.1
August	61.6	38.6	0.63	65.5	39.8	106.2	113.3	16	13.1
September	72.5	47.2	0.65	64.0	39.5	102.1	110.8	16	12.8
October	59.5	38.2	0.62	61.8	38.6	104.1	107.9	15	12.5
November	61.8	37.3	0.61	59.0	36.7	109.6	105.3	13	12.5
December	54.1	34.8	0.64	55.1	34.7	112.8	102.5	15	12.5
2016									
January	50.4	34.2	0.67	51.4	32.6	103.5	99.9	10	12.3
February	56.0	33.8	0.61	49.6	31.5	103.5	98.1	10	12.0
March	40.9	32.5	0.80	47.7	30.2	91.6	96.6	11	11.8
April	39.2	22.7	0.58	45.0	28.7	93.4	95.3	10	11.8
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	18.8	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			75.1		10	
2017									
January	28.1	15.5	0.55			77.4		10	
February	22.0	15.7	0.71			76.9		10	
March	25.4	10.6	0.42			74.6		15	
April	30.4	19.6	0.64			80.9		13	
May	18.1	11.3	0.62			73.5		9	

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 June 2017*

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.

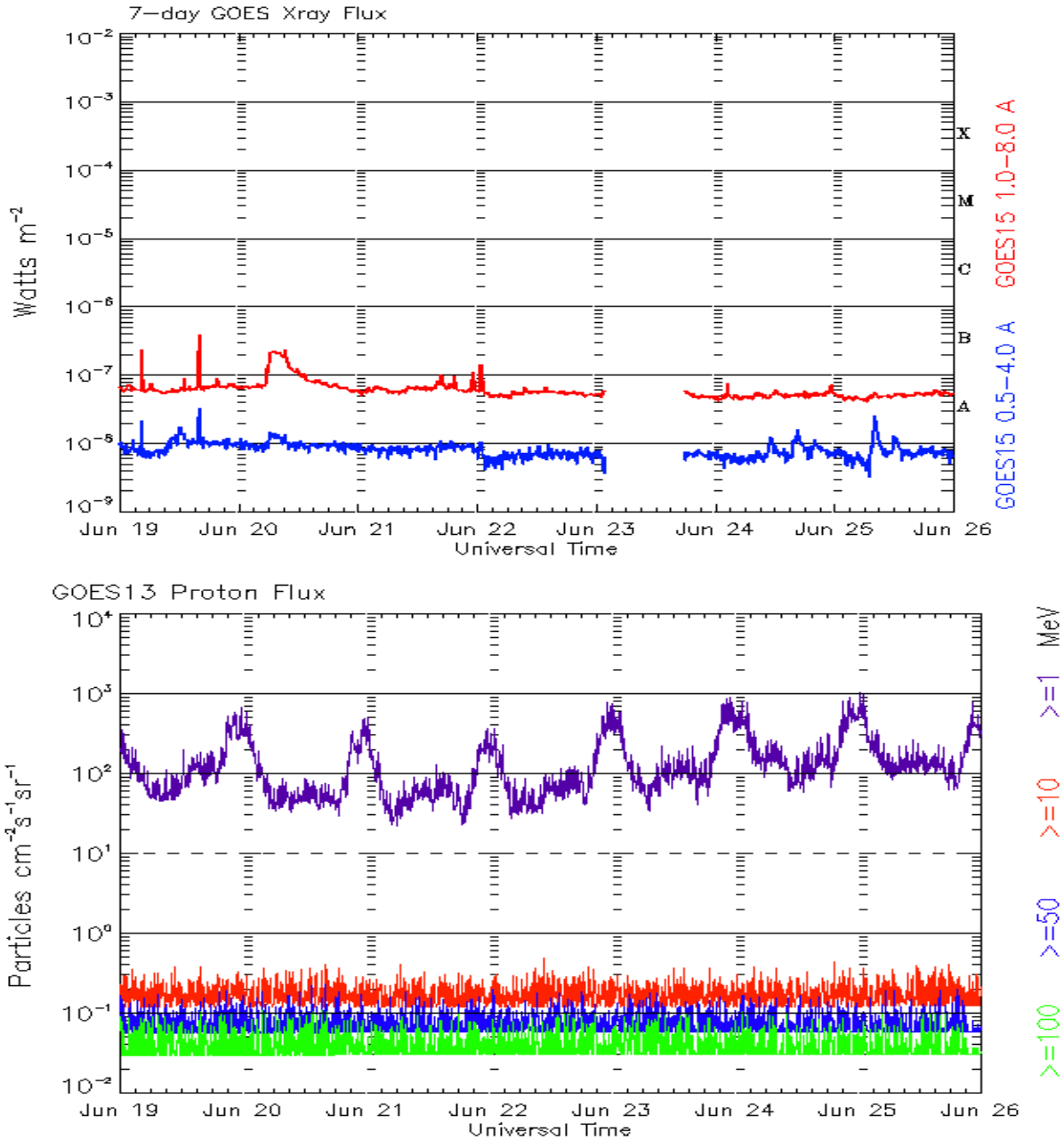
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 June 2017*

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.



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

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