

Space Weather Highlights
05 June - 11 June 2017

SWPC PRF 2180
12 June 2017

Solar activity was at very low levels on 06, 08-11 June. Low levels were reached on 05 and 07 June due to flare activity from Region 2661 (N06, L=211, class/area Dao/200 on 02 June). The largest flare of the period was a C2/Sf at 05/0531 UTC. No Earth-directed CMEs were observed in available satellite imagery.

No proton events were observed at geosynchronous orbit.

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

Geomagnetic field activity ranged from quiet to G1 (Minor) storm levels. Quiet to unsettled conditions were observed during the first six days of the reporting period (05-10 June) under a nominal solar wind regime. During this timeframe, solar wind speeds decreased from approximately 400 km/s to near 275 km/s. Total field values (Bt) ranged between 1 and 7 nT while the Bz did not drop lower than -5 nT. Phi angle was variable. At approximately 11/1330 UTC a solar wind enhancement occurred, indicated by an increase in wind speed to near 430 km/s, an enhanced total field of 14 nT, and a low Bz value of -12 nT. Phi angle remained in a positive orientation shortly after the enhancement indicating a SSBC and the arrival of a recurrent, positive-polarity CH HSS. The geomagnetic field responded to this enhancement with unsettled to active levels and an isolated period of G1 (Minor) storm conditions.

Space Weather Outlook
12 June - 08 July 2017

Solar activity is expected to be at very low to low levels throughout the forecast 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 moderate levels with high levels likely on 16-26 June due to recurrent CH HSS influence.

Geomagnetic field activity is expected to be mostly quiet with unsettled to active levels expected on 12-19 June and G1 (Minor) geomagnetic storm levels likely on 16 June due to recurrent CH HSS effects.



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
05 June	79	22	170	A9.0	2	0	0	19	0	0	0	0
06 June	75	18	130	A9.2	0	0	0	1	0	0	0	0
07 June	76	13	40	A8.1	2	0	0	1	0	0	0	0
08 June	74	12	10	A6.0	0	0	0	1	0	0	0	0
09 June	74	0	0	A5.8	0	0	0	0	0	0	0	0
10 June	75	0	0	A6.6	0	0	0	0	0	0	0	0
11 June	74	0	0	A6.6	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
	05 June	1.7e+06	1.7e+04	3.6e+03	1.6e+07	
06 June	1.4e+06	1.7e+04	3.6e+03	1.0e+07		
07 June	1.1e+06	1.8e+04	3.7e+03	1.6e+07		
08 June	1.1e+06	1.7e+04	3.6e+03	1.6e+07		
09 June	1.2e+06	1.6e+04	3.5e+03	1.6e+07		
10 June	1.2e+06	1.8e+04	3.8e+03	1.0e+07		
11 June	8.8e+05	1.7e+04	3.8e+03	3.9e+06		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	05 June	5	0-1-1-1-3-1-2-1	3	0-1-0-1-2-2-1-1	5
06 June	5	2-3-1-1-1-1-1-1	5	2-2-1-0-3-1-0-1	5	2-2-1-1-2-1-1-1
07 June	5	1-2-2-1-1-2-1-2	5	2-2-2-2-1-1-0-1	5	1-2-2-1-1-1-0-2
08 June	5	1-0-0-1-2-2-3-1	1	1-1-0-0-0-0-0-1	4	1-0-1-1-2-1-1-1
09 June	6	2-1-0-2-3-2-2-0	1	1-1-0-1-0-0-0-0	5	3-1-1-1-1-1-1-1
10 June	5	1-1-1-1-2-2-2-1	2	1-1-1-1-0-0-0-0	4	1-1-1-1-1-1-1-1
11 June	14	1-2-3-2-3-4-4-2	9	1-2-2-1-2-4-3-1	4	1-2-3-2-3-5-4-3

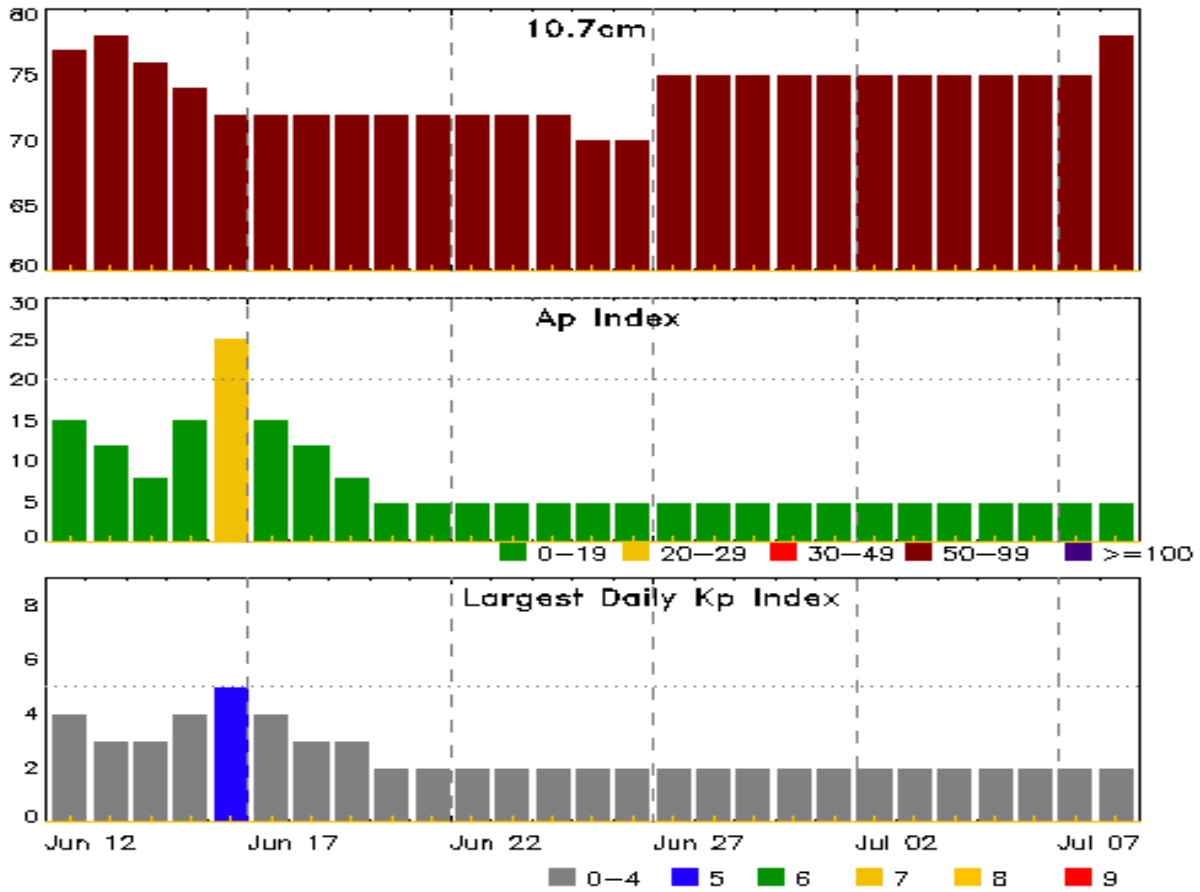


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
11 Jun 1434	WARNING: Geomagnetic K = 4	11/1434 - 2100
11 Jun 1652	ALERT: Geomagnetic K = 4	11/1650
11 Jun 1735	WARNING: Geomagnetic K = 5	11/1733 - 2100
11 Jun 1801	ALERT: Geomagnetic K = 5	11/1759
11 Jun 2027	EXTENDED WARNING: Geomagnetic K = 4	11/1434 - 12/0600



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
12 Jun	77	15	4	26 Jun	70	5	2
13	78	12	3	27	75	5	2
14	76	8	3	28	75	5	2
15	74	15	4	29	75	5	2
16	72	25	5	30	75	5	2
17	72	15	4	01 Jul	75	5	2
18	72	12	3	02	75	5	2
19	72	8	3	03	75	5	2
20	72	5	2	04	75	5	2
21	72	5	2	05	75	5	2
22	72	5	2	06	75	5	2
23	72	5	2	07	75	5	2
24	72	5	2	08	78	5	2
25	70	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		Intensity	
									245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
05 Jun	0514	0531	0541	C2.7	SF	N06E30	2661
05 Jun	0545	0545	0547		SF	N05E31	2661
05 Jun	0640	0717	0747	B8.1	SF	N16W74	2661
05 Jun	0753	0759	0805	B5.9	SF	N16W74	2661
05 Jun	0826	0834	0836		SF	N16W74	
05 Jun	0837	0840	0903		SF	N16W74	
05 Jun	0904	0907	0909		SF	N16W74	
05 Jun	0911	0912	0915		SF	N16W75	
05 Jun	0916	1048	1109	C1.2	SF	N16W75	
05 Jun	1118	1137	1145	B3.6	SF	N16W75	
05 Jun	1149	1149	1149		SF	N16W75	
05 Jun	1221	1223	1224		SF	N16W80	
05 Jun	1225	1225	1227		SF	N16W80	
05 Jun	1234	1234	1242		SF	N16W80	
05 Jun	1246	1255	1306	B3.3	SF	N16W80	
05 Jun	1426	1426	1433	B1.6	SF	N20W77	
05 Jun	1600	1610	1615	B5.8	SF	N06E18	2661
05 Jun	1611	1624	1629		SF	N18W80	
05 Jun	1838	1844	1850	B3.0			2661
05 Jun	1914	1922	1926	B9.4	SF	N06E16	2661
06 Jun	0103	0106	0116	B1.2			
06 Jun	0312	0315	0318	B1.0			
06 Jun	0511	0514	0516	B1.0			2661
06 Jun	0927	0931	0934	B1.6			2661
06 Jun	1111	1124	1129	B1.8			
06 Jun	1155	1158	1200	B1.8			
06 Jun	1234	1237	1239	B1.8			
06 Jun	1305	1308	1310	B1.6			
06 Jun	1318	1322	1325	B1.3			
06 Jun	1509	1514	1519	B4.1			
06 Jun	1553	1554	1604		SF	N04E05	2661



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
06 Jun	2027	2047	2059	B5.9			2661
07 Jun	0212	0333	0356	C1.3			2661
07 Jun	0840	0847	0857	B2.4			
07 Jun	1003	1022	1050	C1.2			
07 Jun	1214	1218	1234	B1.6			2661
07 Jun	1622	1658	1724	B4.4	SF	N06W05	2661
08 Jun	0338	0350	0409	B2.9	SF	N04W15	2661
09 Jun	1152	1253	1319	B4.1			2661
10 Jun	1018	1023	1029	B1.7			2661
11 Jun	0107	0144	0223	B1.5			2661



Region Summary

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							
<i>Region 2661</i>																							
31 May	N06E79	213	30	4	Hrx	1	A	3				3											
01 Jun	N05E64	214	60	4	Cai	8	B	6				8											
02 Jun	N06E54	211	200	10	Dao	9	B	3				10											
03 Jun	N06E39	213	180	12	Eao	12	BG	3				1											
04 Jun	N06E26	213	130	12	Eao	13	B																
05 Jun	N06E13	211	170	12	Eao	12	BD	1				4											
06 Jun	N06W01	213	130	12	Cao	8	B					1											
07 Jun	N07W11	210	40	4	Hax	3	A	1				1											
08 Jun	N07W22	207	10	2	Axx	2	A					1											
09 Jun	N07W37	210	plage																				
10 Jun	N07W52	212	plage																				
11 Jun	N07W67	213	plage																				
								17	0	0	29	0	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 213

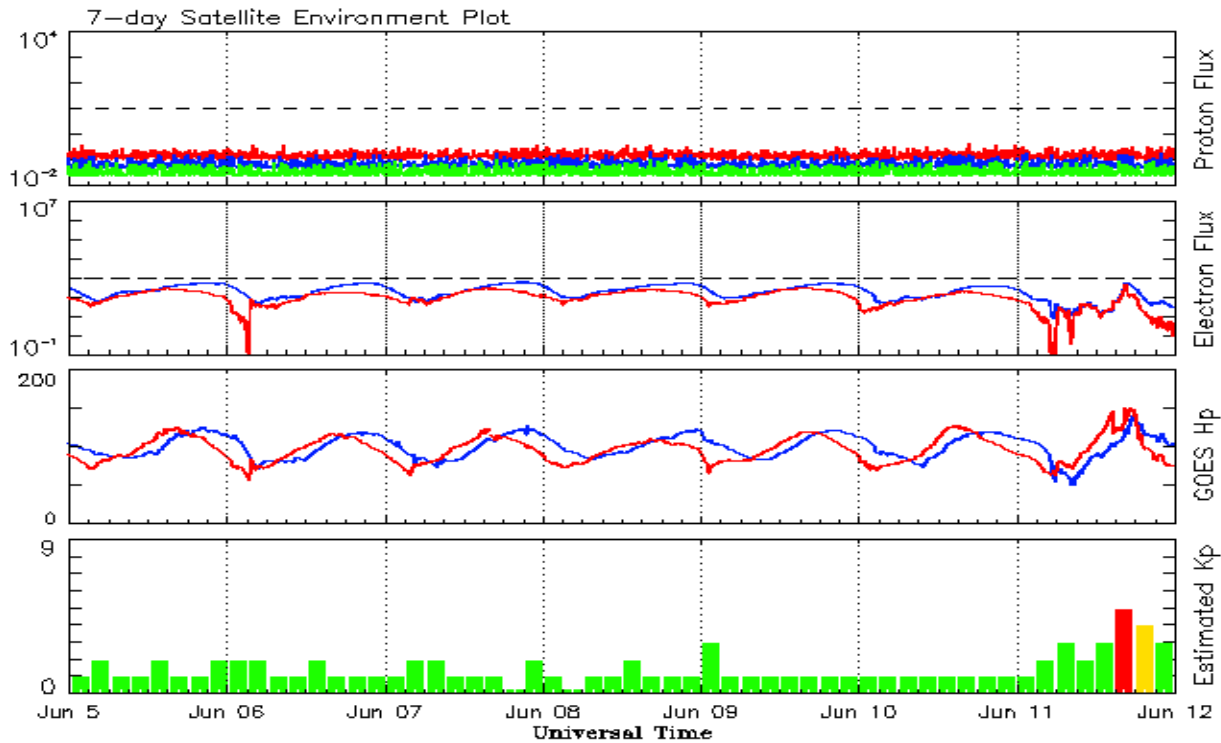


Recent Solar Indices (preliminary)
Observed monthly mean values

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 05 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.

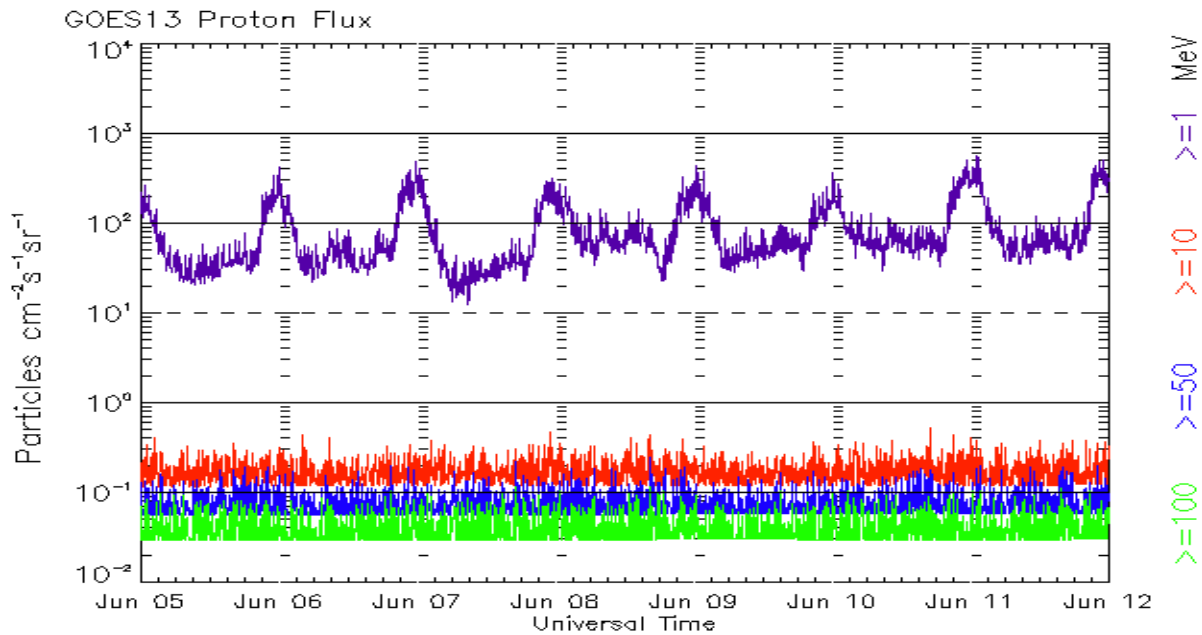
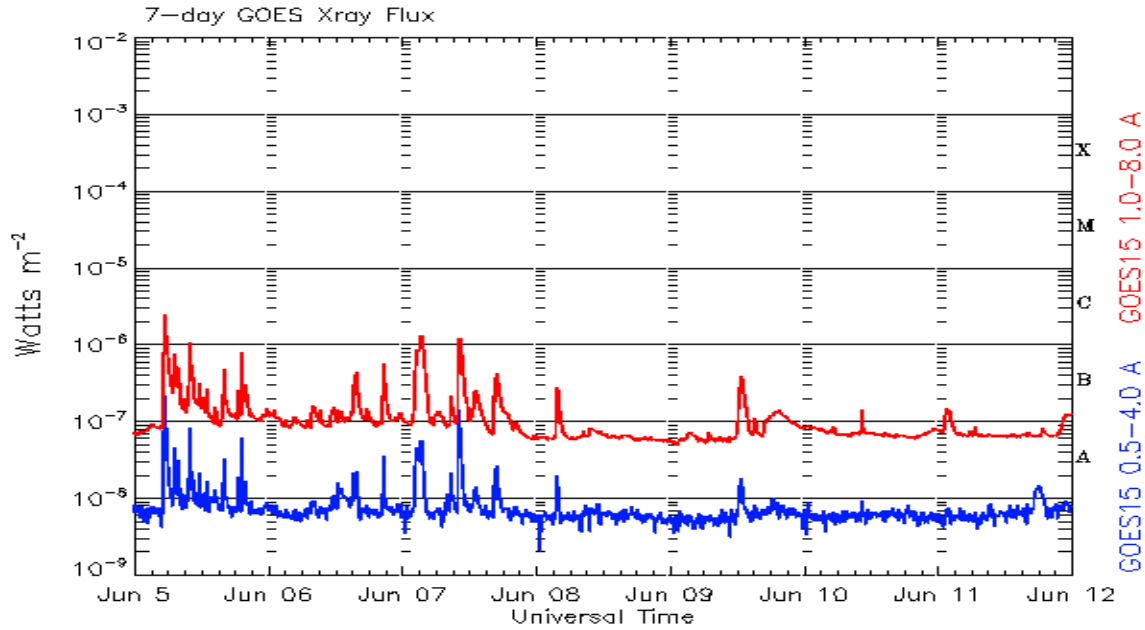
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 05 June 2017*

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 intergral 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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