

Solar activity was at very low levels from 06-08 June and again on 10 June. Low levels were reached on 09 June and again from 11-12 June due to C-class flare activity from Region 2552 (N15, L=359, class/area Dao/150 on 11 June). The largest flare of the period was a C6 at 11/2228 UTC. Region 2552 grew rapidly since its emergence on 07 June to a compact beta-delta magnetic class, but appeared to be in decay by 11 Jun as it neared the NW limb. No Earth-directed coronal mass ejections were observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 06 June and again from 11-12 June. High levels were reached from 07-10 June with a peak flux of 1,590 pfu observed at 10/1520 UTC.

Geomagnetic field activity ranged from quiet to G2-Moderate geomagnetic storm levels during the period. The period began with solar wind speeds near 650 km/s and total field values near 7 nT while the Bz component fluctuated between +/- 6 nT under the slowly waning influence of a negative polarity coronal hole high speed stream (CH HSS). As a result, mostly active levels and an isolated G2-Moderate storm period were observed during the first half of the UTC day on 06 June. Solar wind speeds continued to decrease to nominal levels by 10 June. Quiet to unsettled conditions were observed on 07 June with quiet conditions on 08-09 June. By midday on 10 June, a solar sector boundary crossing was observed into a positive (away) sector followed by an increase in total field to 14 nT by late on 10 June. A lesser rise in solar wind speed to near 540 km/s was observed as a positive polarity CH HSS moved into a geoeffective position. Solar wind speeds continued to be elevated in the 450 km/s to 550 km/s range for the rest of the period with total field ranging between 7-10 nT. The geomagnetic field responded with quiet to active periods on 10-11 June and quiet to unsettled levels on 12 June.

Space Weather Outlook **13 June - 09 July 2016**

Solar activity is expected to be at very low to low levels for 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 high levels on 17-18 June, 26 June-01 July and 04-07 July in response to CH HSS activity.

The geomagnetic field is expected to be at unsettled to active levels on 13, 15-17, 22-24, 26-27 June and from 02-03, 07-09 July with G1-Minor storming likely on 02-03 July due to recurrent CH HSS activity.



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
06 June	79	0	0	A9.9	0	0	0	0	0	0	0	0
07 June	79	12	10	B1.1	0	0	0	0	0	0	0	0
08 June	80	15	20	B1.3	0	0	0	0	0	0	0	0
09 June	85	22	140	B1.2	2	0	0	4	0	0	0	0
10 June	85	28	180	B1.5	0	0	0	1	0	0	0	0
11 June	88	40	440	B1.7	1	0	0	2	0	0	0	0
12 June	94	39	500	B1.7	1	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
	06 June	7.2e+05	1.3e+04	3.1e+03	1.8e+07	
07 June	2.1e+05	1.4e+04	3.3e+03	4.8e+07		
08 June	2.1e+05	1.3e+04	3.3e+03	4.0e+07		
09 June	2.2e+05	1.4e+04	3.3e+03	7.6e+07		
10 June	3.8e+05	1.3e+04	3.4e+03	7.1e+07		
11 June	1.1e+05	1.3e+04	3.2e+03	5.3e+06		
12 June	2.2e+05	1.3e+04	3.1e+03	1.2e+07		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	06 June	21	4-5-3-4-4-2-2-2	48	3-6-5-7-5-4-3-2	26
07 June	10	1-1-1-3-3-2-3-3	13	2-2-1-4-4-2-2-3	9	2-1-1-3-2-2-3-3
08 June	6	2-2-1-2-2-2-1-1	9	2-3-2-4-2-1-0-1	6	2-2-1-2-2-2-0-1
09 June	5	2-0-1-1-2-2-2-1	3	2-1-0-1-2-0-0-0	4	2-1-0-1-1-1-1-1
10 June	9	1-1-1-2-2-2-4-3	8	1-2-1-2-3-2-3-2	9	1-1-1-1-2-2-4-3
11 June	11	3-2-2-2-3-3-2-3	11	3-2-2-3-3-3-2-2	11	3-2-2-2-2-2-2-4
12 June	9	2-2-3-2-2-2-3-2	14	2-2-3-4-4-3-2-2	7	2-2-2-2-3-2-3-2

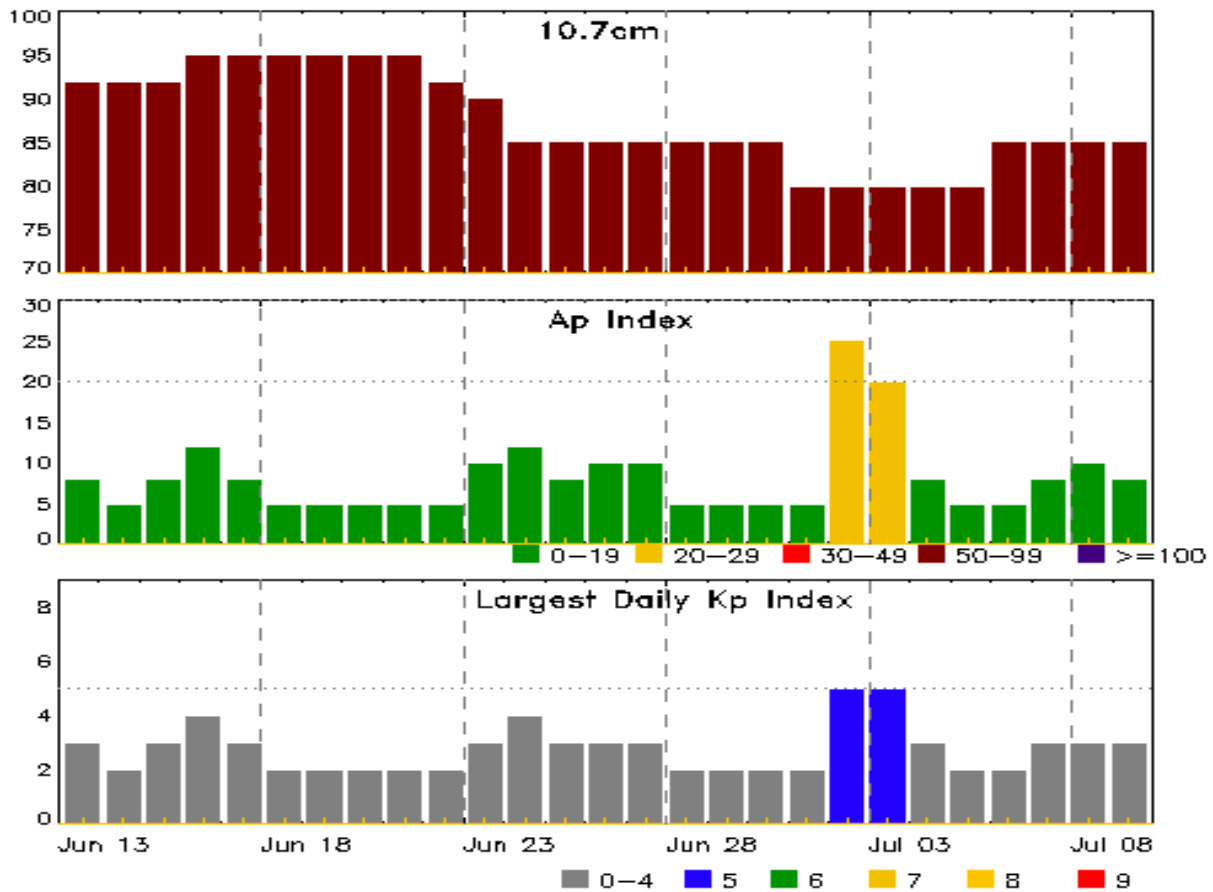


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
06 Jun 0002	ALERT: Geomagnetic K = 5	05/2358
06 Jun 0451	ALERT: Geomagnetic K = 5	06/0449
06 Jun 0519	EXTENDED WARNING: Geomagnetic K = 5	05/1251 - 06/1200
06 Jun 0519	WARNING: Geomagnetic K = 6	06/0517 - 1200
06 Jun 0522	ALERT: Geomagnetic K = 6	06/0522
06 Jun 1110	EXTENDED WARNING: Geomagnetic K = 4	05/1130 - 06/1600
06 Jun 1554	EXTENDED WARNING: Geomagnetic K = 4	05/1130 - 07/0000
06 Jun 2056	ALERT: Geomagnetic K = 4	06/2044
06 Jun 2101	CANCELLATION: Geomagnetic K = 4	
07 Jun 1313	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	07/1305
07 Jun 1923	WARNING: Geomagnetic K = 4	07/1922 - 2359
08 Jun 1317	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	07/1305
09 Jun 1226	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	07/1305
10 Jun 1252	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	07/1305
10 Jun 2041	WARNING: Geomagnetic K = 4	10/2040 - 11/1200
10 Jun 2100	WATCH: Geomagnetic Storm Category G1 predicted	
10 Jun 2107	ALERT: Geomagnetic K = 4	10/2059
11 Jun 1127	EXTENDED WARNING: Geomagnetic K = 4	10/2040 - 12/0600
12 Jun 1932	WARNING: Geomagnetic K = 4	12/1930 - 2359
12 Jun 2356	EXTENDED WARNING: Geomagnetic K = 4	12/1930 - 13/1000



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
13 Jun	92	8	3	27 Jun	85	10	3
14	92	5	2	28	85	5	2
15	92	8	3	29	85	5	2
16	95	12	4	30	85	5	2
17	95	8	3	01 Jul	80	5	2
18	95	5	2	02	80	25	5
19	95	5	2	03	80	20	5
20	95	5	2	04	80	8	3
21	95	5	2	05	80	5	2
22	92	5	2	06	85	5	2
23	90	10	3	07	85	8	3
24	85	12	4	08	85	10	3
25	85	8	3	09	85	8	3
26	85	10	3				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
07 Jun	0549	0606	0615	B1.9			
08 Jun	0404	0416	0428	B2.3			2552
09 Jun	0456	0501	0505	B2.8	SF	N14W37	2552
09 Jun	0624	0627	0630	B3.5			
09 Jun	0636	0639	0643	B2.6			
09 Jun	0733	0737	0744	B2.1			
09 Jun	1017	1025	1029	B2.7			
09 Jun	1043	1047	1051	B2.4			
09 Jun	1209	1218	1223	B9.9	SF	N14W42	2552
09 Jun	1228	1234	1237	C1.5			
09 Jun	1256	1306	1310	B5.7	SF	N14W43	2552
09 Jun	1323	1326	1332	B3.0			
09 Jun	1503	1514	1517	C1.1	SF	N14W45	2552
10 Jun	0047	0052	0055	B3.2			
10 Jun	0551	0554	0556	B2.1			2552
10 Jun	0947	0948	0955	B2.2	SF	S01E80	2553
10 Jun	2048	2104	2116	B4.9			2552
10 Jun	2202	2205	2207	B2.5			2552
11 Jun	0017	0020	0023	B2.8			2552
11 Jun	0632	0636	0639	B2.6			2552
11 Jun	0818	0823	0826	B4.6			2552
11 Jun	1323	1324	1343	B4.2	SF	N08W25	2554
11 Jun	1345	1345	1351		SF	N08W26	2554
11 Jun	1355	1359	1404	B3.5			2552
11 Jun	1513	1518	1524	B5.9			2552
11 Jun	2037	2041	2044	B4.5			2552
11 Jun	2050	2057	2102	B9.7			2552
11 Jun	2159	2228	2243	C6.5			2552
12 Jun	0151	0155	0202	B4.0			2552
12 Jun	0809	0812	0815	B2.8			2552
12 Jun	0904	0910	0918	B5.8			2554



Flare List

Date	Time			Optical			Rgn #
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	
12 Jun	2030	2040	2052	C1.8			2552



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

Region 2551

30 May	N04W44	127	10	4	Bxo	4	B										
31 May	N04W58	127	40	5	Dso	5	B										
01 Jun	N04W71	127	60	7	Cso	6	B										
02 Jun	N04W85	128	90	8	Cso	3	B										
									0	0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 127

Region 2552

07 Jun	N16W22	359	10	1	Bxo	2	B										
08 Jun	N17W35	359	20	1	Cro	5	B										
09 Jun	N15W48	358	140	4	Dac	12	BD	1			4						
10 Jun	N14W62	359	60	4	Dai	7	BD										
11 Jun	N15W75	359	150	5	Dao	5	B	1									
12 Jun	N14W91	2	80	3	Cao	2	B	1									
								3	0	0	4	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 359

Region 2553

10 Jun	S06E71	226	120	6	Hsx	1	A				1						
11 Jun	S06E56	228	270	4	Hhx	1	A										
12 Jun	S06E43	228	330	3	Hhx	1	A										
								0	0	0	1	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 228

Region 2554

11 Jun	N08W33	317	20	3	Dro	4	B				2						
12 Jun	N08W45	316	90	4	Dao	6	B										
								0	0	0	2	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 317

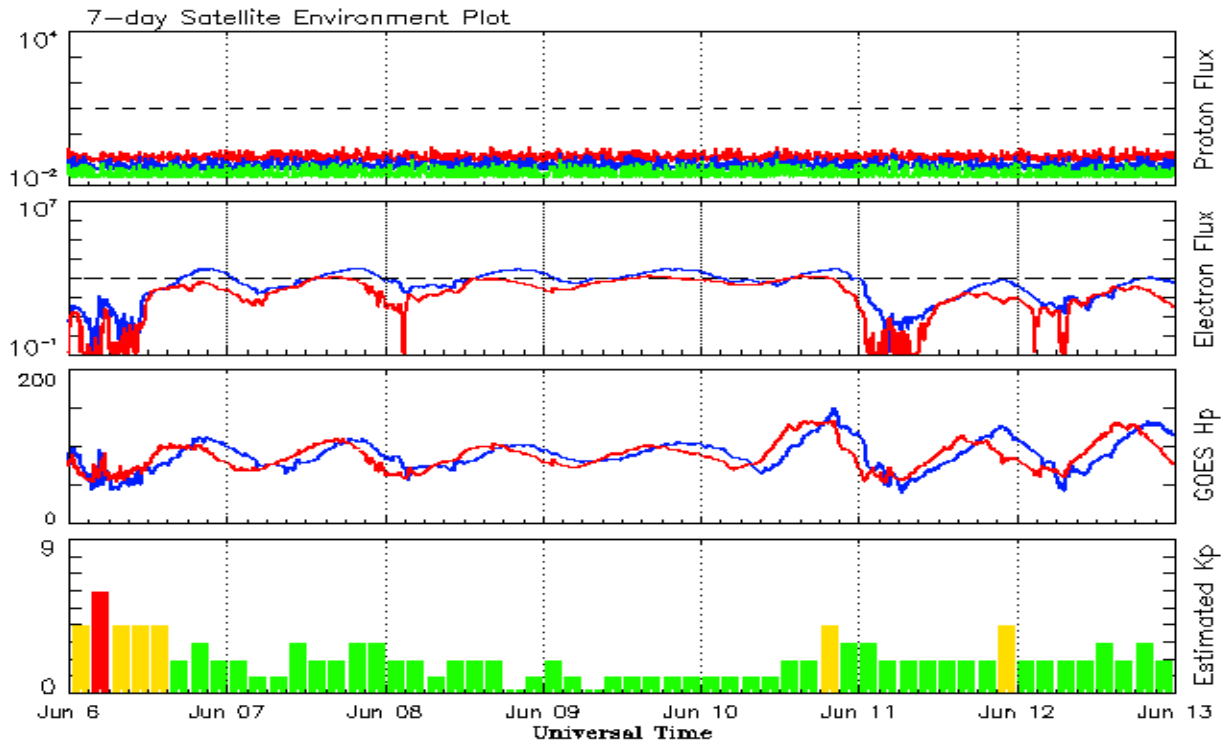


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2014									
June	107.7	61.7	0.66	121.4	68.5	122.2	145.5	7	8.4
July	113.6	60.1	0.64	120.4	67.6	137.3	145.2	5	8.8
August	106.2	64.1	0.70	115.1	65.0	124.7	142.8	9	8.9
September	127.4	78.0	0.69	107.4	61.1	146.1	140.1	11	9.3
October	92.0	54.0	0.66	101.7	58.4	153.7	138.4	10	9.9
November	101.8	62.2	0.69	97.9	56.8	155.3	137.4	10	10.1
December	120.0	67.7	0.65	95.2	55.3	158.7	137.0	12	10.5
2015									
January	101.2	55.8	0.66	92.1	53.6	141.7	135.8	10	11.0
February	70.6	40.0	0.63	88.3	51.7	128.8	133.8	10	11.5
March	61.7	32.7	0.62	84.2	49.3	126.0	131.2	17	12.0
April	72.5	45.2	0.75	80.5	47.3	129.2	127.3	12	12.4
May	83.0	53.3	0.71	77.5	45.7	120.1	123.3	9	12.7
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	39.6	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	36.8	109.6	105.3	13	12.5
December	54.1	34.8	0.64			112.8		15	
2016									
January	50.4	34.0	0.67			103.5		10	
February	56.0	34.3	0.61			103.5		10	
March	40.9	32.9	0.80			91.6		11	
April	39.2	22.8	0.58			93.4		10	
May	48.9	31.3	0.64			93.1		12	

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 06 June 2016*

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.

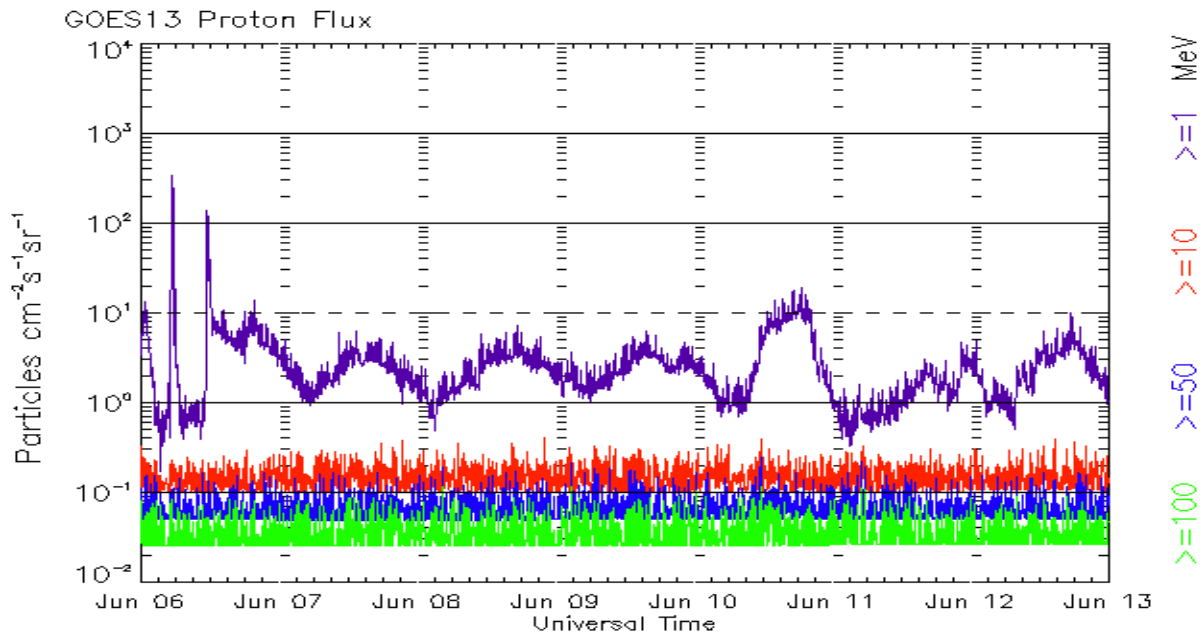
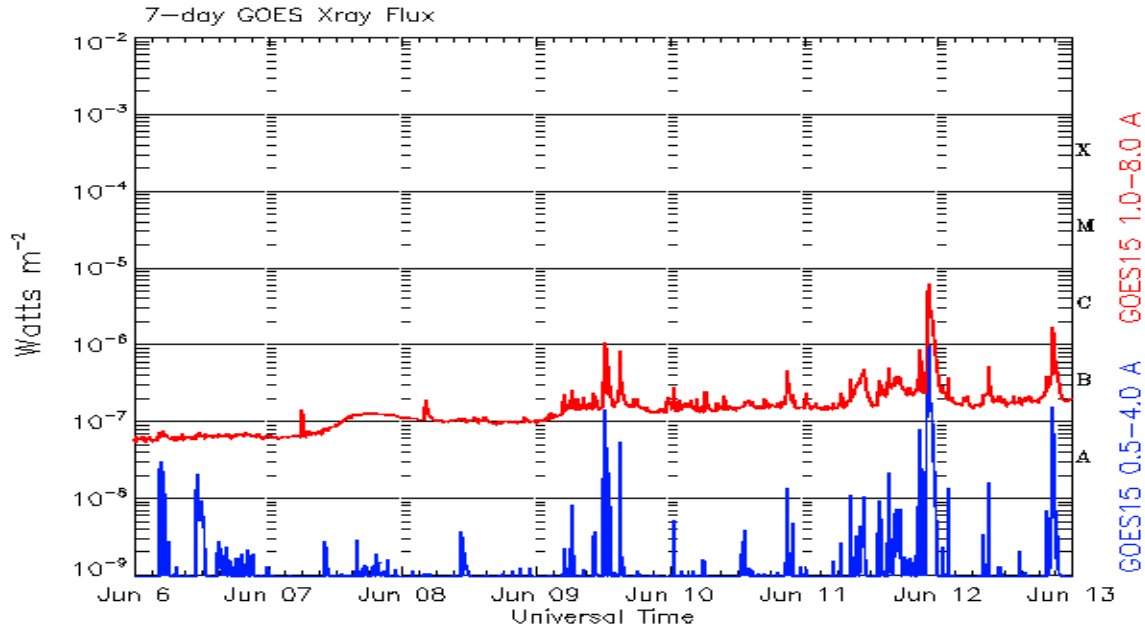
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 06 June 2016*

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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