

Solar activity was very low to high during the period. The week began at low levels. Region 1762 (S30, L=129, class/area Eko/540 on 05 June) produced a C9/Sf flare at 03/0725 UTC. Activity was very low on 04 June. Moderate levels were observed on 05 June when Region 1762 produced an M1/1f at 05/0857 UTC with an associated Type IV radio sweep and a weak CME. The majority of the ejecta was directed southwest. 06 June saw a return to very low activity. High activity was observed on 07 June when Region 1762 produced an M5 flare at 07/2249 UTC along with a 160 sfu Tenflare. An associated CME was observed but was determined to be directed west and well south of the ecliptic. Solar activity returned to low levels for the remainder of the period.

No proton events were observed at geosynchronous orbit. The GOES-13 spacecraft began experiencing data outages on 15 May and was shut down while the cause was investigated. Forecasters used GOES-15 data in the interim. The issue was resolved on 05 June and GOES-13 resumed its place as the primary particle monitor at that time.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels for the entire period with only short periods dipping below threshold. The peak flux for the week reached 31,800 pfu on 04 June and levels remained high at the time of this report.

Geomagnetic field activity was at mostly quiet levels from 03 - 06 June. Activity increased to unsettled to active levels on 06 June due to effects from a combination of multiple weak transients from 03 June and a co-rotating interaction region (CIR) ahead of a coronal hole high speed stream (CH HSS). Minor to major storm periods were observed on 07 June due to continued effects from the CIR/CH HSS. Activity returned to quiet to unsettled levels on 08 and 09 June as CH HSS stream effects began to subside.

Space Weather Outlook **10 June - 06 July 2013**

Solar activity is expected to be very low to low for the majority of the period. A chance for M-class activity exists beginning on 21 June with the return of old Region 1762.

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 through 11 June. A decrease to normal to moderate levels is expected from 12 - 19 June. A return to moderate to high levels is expected from 20 June through the end of the period due to effects from a sequence of recurrent CH HSS.

Geomagnetic field activity is expected to be quiet to unsettled on 10 June as CH HSS effects subside. Mostly quiet conditions are expected from 11 - 20 June. Unsettled to active conditions are expected on 21 - 24 June with a chance for isolated minor storm periods on 21-22 June due to



the anticipated return of a recurrent CH HSS. Mostly quiet conditions are expected on 25-27 June. A second recurrent CH HSS is expected to return on 28 June - 01 July bringing unsettled to active conditions with the possibility of minor storm levels on 28 and 29 June. Mostly quiet conditions are expected for the remainder of the period with a chance for some unsettled periods on 05 - 06 July due to weak 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	4
03 June	112	99	460	B2.7	2	0	0	2	0	0	0	0
04 June	110	59	390	B2.7	0	0	0	0	0	0	0	0
05 June	109	81	680	B2.6	0	1	0	2	1	0	0	0
06 June	109	71	510	B2.4	0	0	0	0	0	0	0	0
07 June	110	76	460	B2.5	3	1	0	1	0	0	0	0
08 June	103	27	200	B2.2	2	0	0	0	0	0	0	0
09 June	96	41	220	B1.7	1	0	0	2	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
	03 June	1.7e+06	1.0e+04	2.3e+03		3.8e+08
04 June	9.8e+05	1.1e+04	2.4e+03		1.3e+09	
05 June	3.1e+05	1.2e+04	2.4e+03		6.4e+08	
06 June	5.2e+05	1.2e+04	2.3e+03		1.4e+08	
07 June	6.1e+05	1.1e+04	2.2e+03		1.1e+08	
08 June	7.6e+05	1.1e+04	2.6e+03		1.3e+08	
09 June	1.4e+06	1.0e+04	2.5e+03		1.6e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	03 June	9	3-2-2-2-2-2-3	12	4-2-1-3-3-2-2-3	10
04 June	10	3-3-3-2-2-1-2-2	11	3-3-4-3-1-1-1-2	10	3-3-2-2-1-1-2-3
05 June	9	2-2-2-1-2-2-4-2	7	2-2-2-2-3-1-1-1	6	3-2-1-1-2-1-2-1
06 June	16	2-3-3-3-3-4-3-3	37	2-3-6-4-5-6-3-4	17	2-3-3-3-3-4-3-4
07 June	26	4-5-5-5-3-2-2-2	65	5-7-7-7-4-3-2-1	32	5-6-5-4-3-2-2-2
08 June	9	2-3-3-3-2-1-1-1	12	0-1-5-4-2-1-1-1	10	3-3-3-3-2-1-1-1
09 June	8	1-1-2-2-3-2-2-3	15	2-2-2-4-5-3-2-1	9	1-2-2-2-3-3-2-3



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
03 Jun 0012	ALERT: Type II Radio Emission	02/2350
03 Jun 0527	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	02/1445
04 Jun 0537	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	02/1445
05 Jun 0507	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	02/1445
05 Jun 0939	ALERT: Type IV Radio Emission	05/0844
06 Jun 0507	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	02/1445
06 Jun 1528	WARNING: Geomagnetic K = 4	06/1530 - 2100
06 Jun 1545	ALERT: Geomagnetic K = 4	06/1539
06 Jun 1951	WATCH: Geomagnetic Storm Category G1 predicted	
06 Jun 2034	EXTENDED WARNING: Geomagnetic K = 4	06/1530 - 07/0600
07 Jun 0147	WARNING: Geomagnetic K = 5	07/0150 - 0600
07 Jun 0223	ALERT: Geomagnetic K = 5	07/0221
07 Jun 0349	WARNING: Geomagnetic K = 6	07/0350 - 0600
07 Jun 0519	ALERT: Geomagnetic K = 6	07/0518
07 Jun 0543	EXTENDED WARNING: Geomagnetic K = 5	07/0150 - 1200
07 Jun 0543	EXTENDED WARNING: Geomagnetic K = 6	07/0350 - 0900
07 Jun 0543	EXTENDED WARNING: Geomagnetic K = 4	06/1530 - 07/1200
07 Jun 1129	EXTENDED WARNING: Geomagnetic K = 4	06/1530 - 07/1800
07 Jun 1133	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	07/1115
07 Jun 1937	CANCELLATION: Geomagnetic Storm Category G1 predicted	
07 Jun 2004	WATCH: Geomagnetic Storm Category G1 predicted	
07 Jun 2251	ALERT: X-ray Flux exceeded M5	07/2248
07 Jun 2302	SUMMARY: 10cm Radio Burst	07/2242 - 2246
07 Jun 2326	SUMMARY: X-ray Event exceeded M5	07/2211 - 2304
08 Jun 1140	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	07/1115

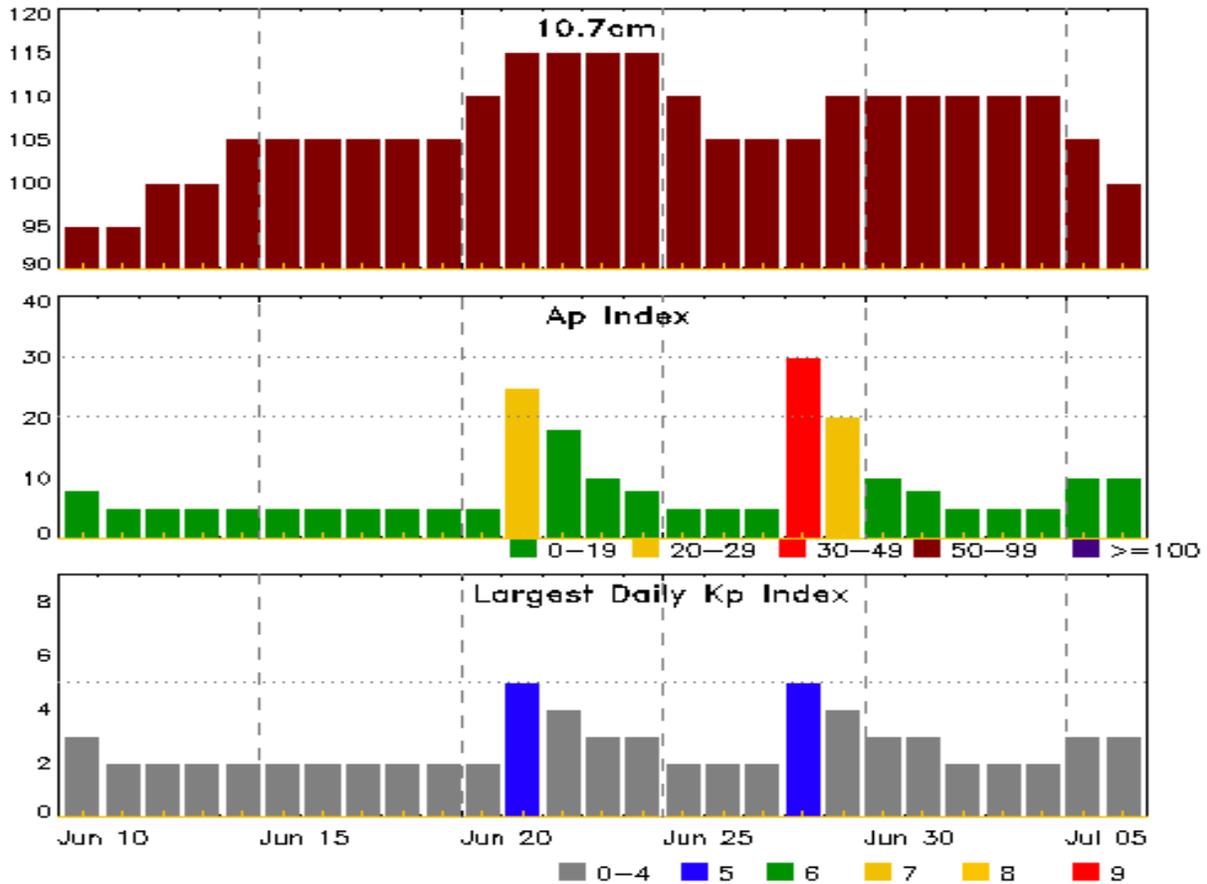


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
09 Jun 0806	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	07/1115
09 Jun 1510	CANCELLATION: Geomagnetic Storm Category G1 predicted	



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
10 Jun	95	8	3	24 Jun	115	8	3
11	95	5	2	25	110	5	2
12	100	5	2	26	105	5	2
13	100	5	2	27	105	5	2
14	105	5	2	28	105	30	5
15	105	5	2	29	110	20	4
16	105	5	2	30	110	10	3
17	105	5	2	01 Jul	110	8	3
18	105	5	2	02	110	5	2
19	105	5	2	03	110	5	2
20	110	5	2	04	110	5	2
21	115	25	5	05	105	10	3
22	115	18	4	06	100	10	3
23	115	10	3				



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	2695	Intensity II	IV
05 Jun	0814	0857	0926	M1.3	0.034	1F	S32W51	1762	460	79		1
07 Jun	2211	2249	2304	M5.9	0.068			1762		160		

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
03 Jun	0621	0625	0636	B5.1	SF	S15W02	1761
03 Jun	0703	0725	0742	C9.5	SF	S27W21	1762
03 Jun	1145	1149	1151	B4.4			
03 Jun	1647	1744	1801	C1.8			1762
03 Jun	2344	0052	0141	B8.8			1762
04 Jun	0409	0420	0423	B5.7			1761
04 Jun	0753	0832	0907	B7.0			1762
05 Jun	0814	0857	0926	M1.3	1F	S32W51	1762
05 Jun	1546	1548	1555		SF	N10E22	1765
05 Jun	2031	2031	2035		SF	N09E20	1765
06 Jun	0415	0418	0421	B4.3			1762
06 Jun	2039	2043	2049	B5.7			1762
06 Jun	2308	2311	2315	B5.6			1765
06 Jun	2319	2335	2351	B7.6			1762
07 Jun	0102	0108	0113	C1.0			1762
07 Jun	0824	0827	0833		SF	N09E01	1765
07 Jun	0927	0942	0954	C1.1			1762
07 Jun	1142	1151	1200	C3.0			1762
07 Jun	1918	1923	1927	B6.6			1762
07 Jun	2107	2111	2117	B4.2			
07 Jun	2211	2249	2304	M5.9			1762
08 Jun	0514	0518	0522	B7.2			1762
08 Jun	0739	0743	0751	B4.4			1765
08 Jun	1902	1912	1927	C1.7			1762
08 Jun	2251	2301	2311	C2.3			1762
09 Jun	0140	0149	0155	B8.0			1762
09 Jun	0156	0208	0218	C3.7			1762
09 Jun	0708	0725	0739	B5.1			1762
09 Jun	1015	1018	1020	B4.1	SF	N11W29	1765



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
09 Jun	1426	1427	1439		SF	N09W30	1765



Region Summary - continued

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 1759																	
27 May	S08E68	120	0	3	Bxo	2	B										
28 May	S07E52	121	10		Hsx	1	A										
29 May	S07E37	124	plage														
30 May	S07E22	127	plage														
31 May	S07E07	128	plage														
01 Jun	S07W08	130	plage														
02 Jun	S07W21	130	plage														
03 Jun	S07W36	132	plage														
04 Jun	S07W50	132	0	1	Axx	1	A										
05 Jun	S07W64	134	plage														
06 Jun	S07W79	135	plage														
								0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 128

Region 1760																	
29 May	N10E63	98	10	1	Axx	2	A	1				2					
30 May	N12E51	97	10	4	Bxo	4	B										
31 May	N12E38	97	20	2	Hrx	2	A		1			1					
01 Jun	N12E26	96	20	3	Cso	5	B										
02 Jun	N12E11	98	10	1	Hrx	1	A					2					
03 Jun	N12W03	99	0	1	Axx	1	A										
04 Jun	N12W17	99	plage														
05 Jun	N12W31	100	plage														
06 Jun	N12W45	101	plage														
07 Jun	N12W59	102	plage														
08 Jun	N12W73	102	plage														
09 Jun	N12W87	103	plage														
								1	1	0	5	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 99



Region Summary - continued

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 1764																	
02 Jun	N12W22	131	40	4	Dao	7	B										
03 Jun	N12W36	132	130	6	Dsi	10	B										
04 Jun	N13W49	131	100	6	Dso	5	B										
05 Jun	N12W62	130	90	5	Dao	4	B										
06 Jun	N13W76	132	100	5	Cso	3	B										
07 Jun	N14W88	131	60	1	Hsx	2	A										
								0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 131

Region 1765																	
05 Jun	N09E17	50	30	3	Cro	5	B					2					
06 Jun	N09E04	52	70	6	Csi	13	B										
07 Jun	N08W10	53	190	7	Dai	17	BG					1					
08 Jun	N08W23	51	200	8	Dai	17	BG										
09 Jun	N08W36	52	210	9	Dai	19	B					2					
								0	0	0	5	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 52

Region 1766																	
05 Jun	N18W43	111	10	3	Bxo	4	B										
06 Jun	N18W57	113	20	3	Dro	2	B										
07 Jun	N19W71	114	10	1	Axx	1	A										
08 Jun	N19W85	114	plage														
								0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 111

Region 1767																	
09 Jun	S17E42	334	10	5	Bxo	2	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 334

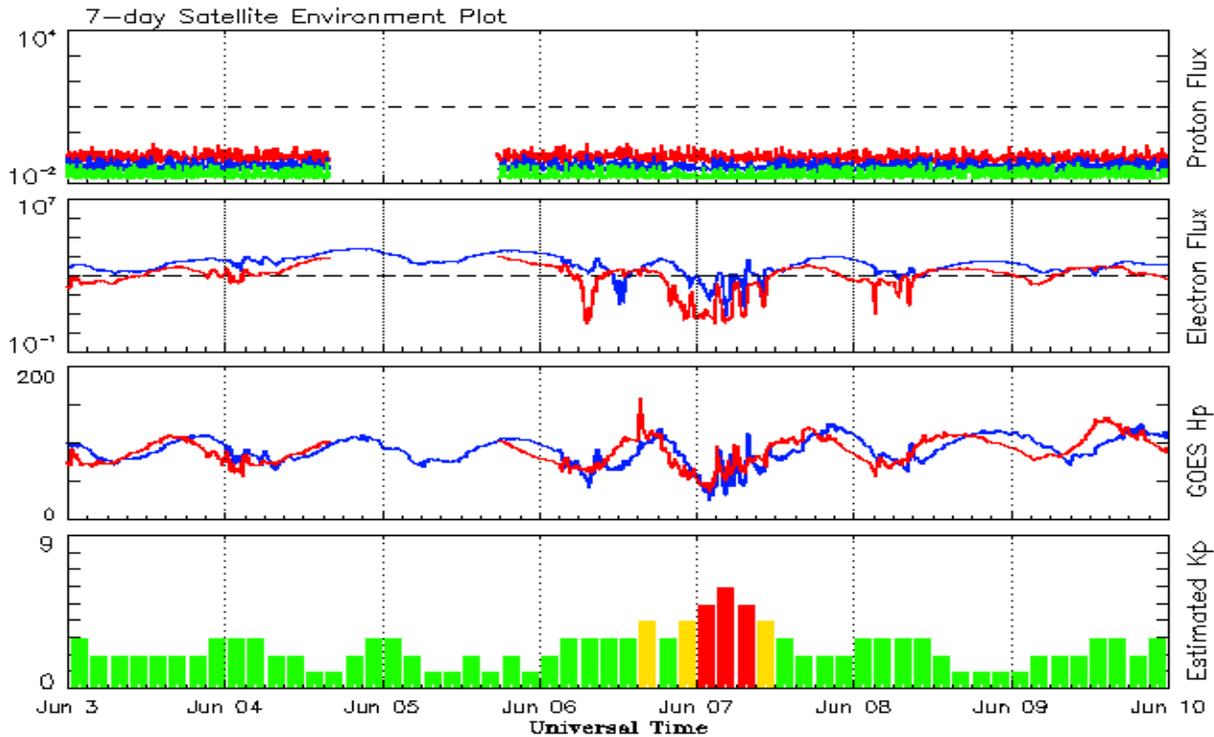


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2011									
June	55.5	37.0	0.67	76.5	53.2	95.8	110.9	8	7.4
July	67.0	43.8	0.66	82.5	57.3	94.2	115.4	9	7.3
August	66.1	50.6	0.77	84.9	59.0	101.7	117.9	8	7.4
September	106.4	78.0	0.73	84.6	59.5	134.5	118.4	13	7.7
October	116.8	88.0	0.75	84.6	59.9	137.2	118.4	7	8.0
November	133.1	96.7	0.73	86.3	61.1	153.1	119.5	3	8.0
December	106.3	73.0	0.69	89.2	63.4	141.2	121.6	3	8.0
2012									
January	91.3	58.3	0.64	92.0	65.5	133.1	124.4	6	8.3
February	50.1	32.9	0.66	94.2	66.9	106.7	126.7	7	8.4
March	77.9	64.3	0.82	94.1	66.8	115.1	126.8	14	8.1
April	84.4	55.2	0.65	91.3	64.6	113.1	125.8	9	8.0
May	99.5	69.0	0.69	87.7	61.7	121.5	123.8	8	8.2
June	88.6	64.5	0.73	83.9	58.9	120.5	121.1	10	8.3
July	99.6	66.5	0.67	82.4	57.8	135.6	119.5	13	8.3
August	85.8	63.0	0.74	83.1	58.2	115.7	119.2	7	8.1
September	84.0	61.4	0.73	83.7	58.1	123.2	118.9	8	7.8
October	73.5	53.3	0.73	85.0	58.6	123.3	119.2	9	7.4
November	89.2	61.8	0.69	87.3	59.7	120.9	120.1	6	7.3
December	60.4	40.8	0.68			108.4		3	
2013									
January	99.8	62.9	0.63			127.1		4	
February	60.0	38.0	0.63			104.4		5	
March	81.0	57.9	0.71			111.2		9	
April	112.8	72.4	0.64			125.0		5	
May	125.5	78.7	0.63			131.3		10	

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 03 June 2013*

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.

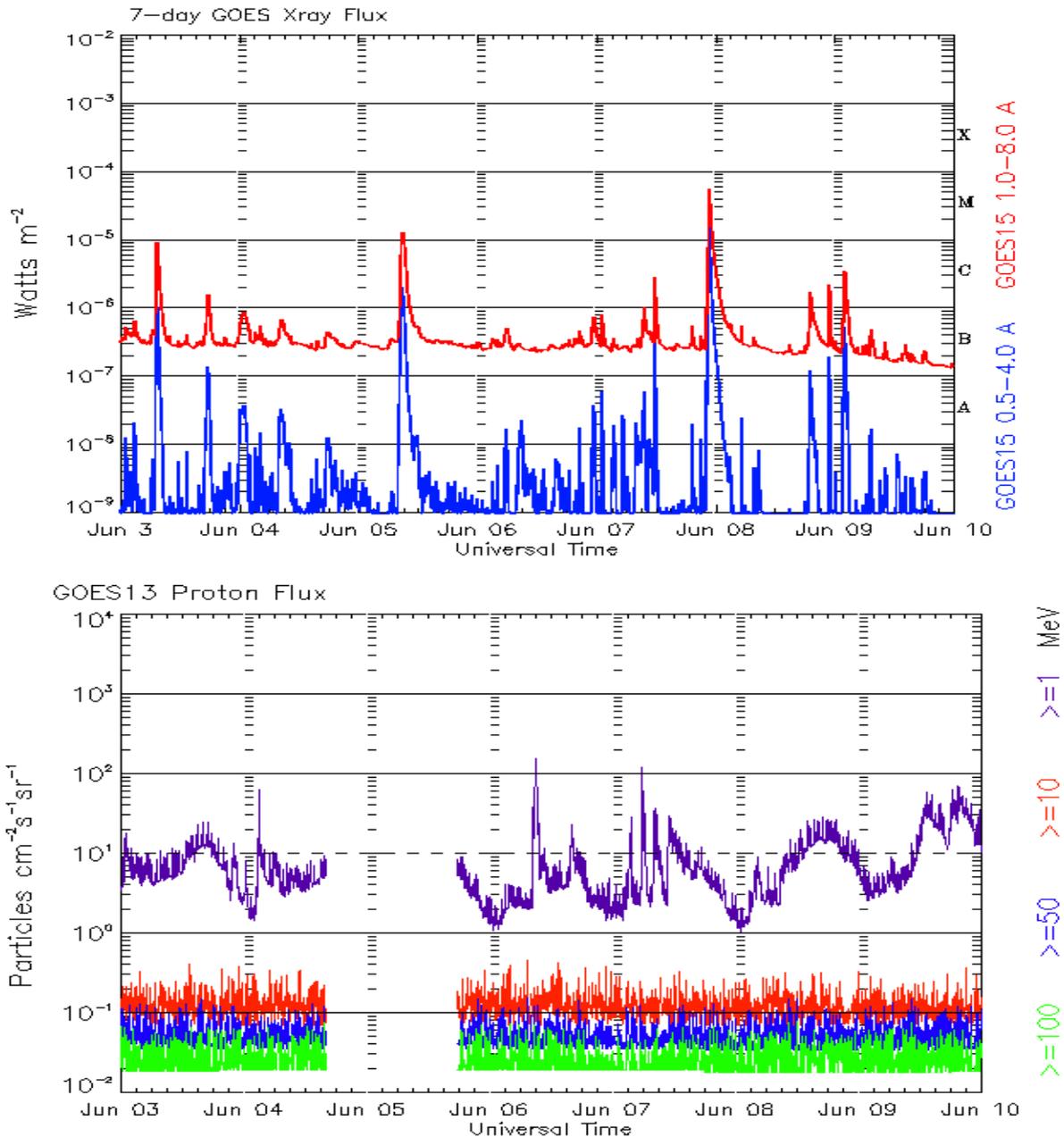
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 03 June 2013*

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
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

