

Space Weather Highlights
18 June - 24 June 2012

SWPC PRF 1921
25 June 2012

Solar activity ranged from very low to low during the period. The largest x-ray event was a C3 flare, produced by Region 1504 (S17, L=087, class/area Ekc/750 on 16 June) at 20/1628 UTC. Two new active regions were numbered during the period, Region 1510 (S16, L=019, class/area Cro/10 on 19 June) and Region 1511 (N15, L=357, class/area Cro/30 on 23 June). Neither of these new regions produced a flare event. No Earth directed CMEs 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 high levels throughout the period.

Geomagnetic field activity ranged from quiet to minor storm levels during the period. Early on 18 June, minor storm levels were observed as the result of residual effects from the 13 and 14 June CMEs. Conditions recovered to quiet levels later on the 18th and remained so for the rest of the period.

Space Weather Outlook
25 June - 21 July 2012

Solar activity is expected to begin the period at very low to low levels and remain so until around 03 July. Beginning on 04 July, a chance for M-class flares will exist when old Region 1504 (S17, L=087) is expected to return.

No proton events are expected at geosynchronous orbit, though a slight chance may exist when Region 1504 returns.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to begin the period at normal to moderate levels, and remain so through 02 July. Flux values are expected to increase to high levels on 3-8 July due to recurrent coronal hole high speed stream effects. Normal to moderate levels are expected to return from 9 July through the remainder of the period.

Geomagnetic field activity is expected to begin the period at mostly quiet levels and remain so through 28 June. On 29 June, a possible Co-rotating Interaction Region is forecast to produce mostly unsettled levels with a chance for active conditions prior to the onset of a coronal hole (CH) high speed stream. CH effects are expected to produce unsettled to active levels with a chance for minor storm periods on 30 June through 03 July. On 04-05 July, quiet to unsettled levels are expected as the CH effects wane. Mostly quiet conditions with isolated unsettled periods are forecast from 06 July through the end of the period.



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
18 June	118	66	820	B3.6	2	0	0	2	0	0	0	0
19 June	110	64	680	B3.2	3	0	0	2	0	0	0	0
20 June	104	29	520	B2.9	5	0	0	2	0	0	0	0
21 June	98	13	210	B2.1	0	0	0	0	0	0	0	0
22 June	88	13	30	B1.1	0	0	0	0	0	0	0	0
23 June	84	13	30	B1.0	1	0	0	0	0	0	0	0
24 June	85	24	30	A6.8	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
	18 June	1.8e+06	1.3e+04	2.8e+03		4.0e+07
19 June	3.2e+05	1.3e+04	3.3e+03		1.2e+08	
20 June	2.7e+05	1.2e+04	3.4e+03		2.6e+08	
21 June	3.1e+05	1.2e+04	2.9e+03		3.2e+08	
22 June	4.2e+05	1.2e+04	2.9e+03		1.9e+08	
23 June	6.0e+05	1.2e+04	2.9e+03		1.0e+08	
24 June	1.1e+06	1.2e+04	3.1e+03		1.2e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	18 June	13	3-5-2-2-2-2-1-2	28	3-5-5-5-4-4-2-1	15
19 June	5	1-1-1-1-2-2-2-1	2	0-1-2-1-0-0-0-0	3	0-1-1-1-1-1-1-1
20 June	4	1-2-1-1-2-1-2-0	2	1-2-0-0-0-1-0-0	4	2-2-1-1-1-1-1-1
21 June	3	1-0-0-1-2-1-2-1	2	1-1-0-0-0-0-1-1	3	1-1-0-0-1-1-1-1
22 June	5	1-1-1-2-2-2-1-1	8	1-1-2-3-4-2-1-0	5	1-1-1-2-2-2-1-1
23 June	4	1-0-2-1-1-1-1-2	4	1-0-2-3-1-1-1-0	4	1-1-1-1-1-2-1-1
24 June	5	1-1-1-1-2-2-2-1	2	1-1-0-0-0-1-1-1	5	2-1-1-1-1-2-1-1

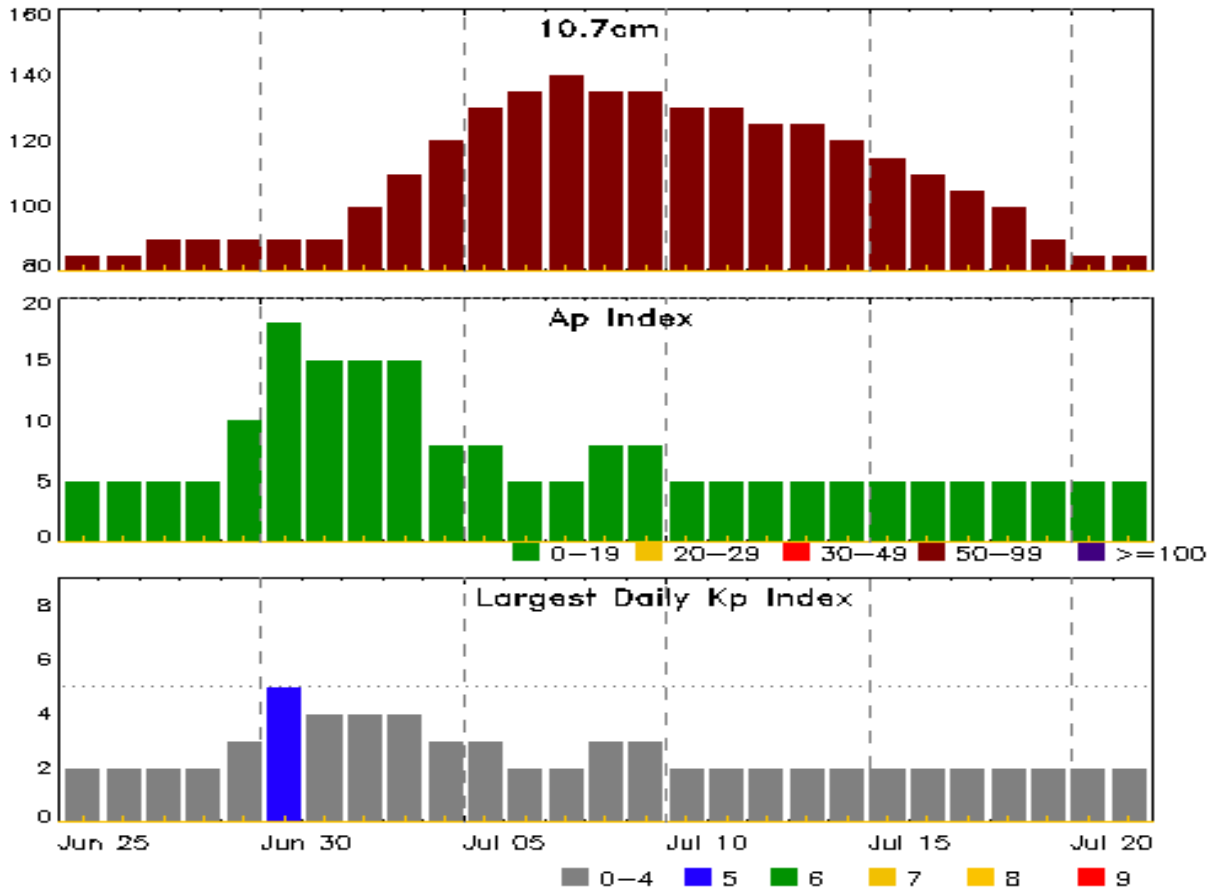


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
18 Jun 0306	WARNING: Geomagnetic K = 5	18/0315 - 0800
18 Jun 0338	ALERT: Geomagnetic K = 5	18/0336
18 Jun 1421	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	18/1405
19 Jun 0806	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	18/1405
20 Jun 0520	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	18/1405
21 Jun 0524	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	18/1405
21 Jun 1104	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	18/1405
22 Jun 0505	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	18/1405
23 Jun 1032	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	18/1405
24 Jun 1011	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	18/1405



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
25 Jun	85	5	2	09 Jul	135	8	3
26	85	5	2	10	130	5	2
27	90	5	2	11	130	5	2
28	90	5	2	12	125	5	2
29	90	10	3	13	125	5	2
30	90	18	5	14	120	5	2
01 Jul	90	15	4	15	115	5	2
02	100	15	4	16	110	5	2
03	110	15	4	17	105	5	2
04	120	8	3	18	100	5	2
05	130	8	3	19	90	5	2
06	135	5	2	20	85	5	2
07	140	5	2	21	85	5	2
08	135	8	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	Radio Flux 2695	Intensity II

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical Location Lat CMD	Optical Rgn #
	Begin	Max	End				
18 Jun	0052	0059	0104	C1.6			1504
18 Jun	0201	0205	0208	B9.9			
18 Jun	0641	0714	0801	C1.0	SF	S25W55	1508
18 Jun	2132	2136	2139	B6.5	SF	S29W68	1508
19 Jun	0053	0054	0056		SF	S30W70	1508
19 Jun	0400	0445	0523	C1.1			1504
19 Jun	0617	0617	0619		SF	S26W83	1507
19 Jun	1327	1335	1411	C1.2			1504
19 Jun	1415	1418	1428	C1.0			1504
19 Jun	1848	1852	1856	B6.4			
20 Jun	0146	0203	0223	C1.2			1504
20 Jun	0415	0421	0430	C1.0			1504
20 Jun	0549	0558	0610	C1.3			1504
20 Jun	0634	0640	0645	B6.7			1504
20 Jun	0942	0946	0948		SF	S20W73	1504
20 Jun	1059	1108	1125	C1.5			1504
20 Jun	1545	1553	1600	B7.8	SF	S20W78	1504
20 Jun	1614	1628	1637	C3.1			1504
21 Jun	1716	1814	1915	B7.0			1504
23 Jun	0702	0750	0844	C2.7			



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 1504																				
09 Jun	S17E67		86	60	10	Cao	6	B		2		1								
10 Jun	S18E51		89	120	10	Dai	7	B	4	1		3								
11 Jun	S17E40		87	80	11	Eri	15	B												
12 Jun	S17E28		86	310	11	Eki	24	B	4			1								
13 Jun	S17E14		86	560	12	Ekc	25	BGD	5	1		4	1							
14 Jun	S16E01		86	570	12	Ekc	20	BGD	5	1		5	3							
15 Jun	S16W12		86	660	12	Ekc	18	BG	4			13								
16 Jun	S17W27		87	750	12	Ekc	18	BG	2			7	1							
17 Jun	S17W39		87	740	11	Ekc	10	B	6			6								
18 Jun	S17W52		87	690	11	Ekc	7	B	1											
19 Jun	S16W65		86	620	11	Eho	6	B	3											
20 Jun	S16W77		84	510	10	Dho	6	B	5			2								
21 Jun	S15W89		83	210	10	Dso	3	B												
									39	5	0	42	5	0	0	0	0			

Crossed West Limb.

Absolute heliographic longitude: 86

Region 1505																				
09 Jun	S09E63		90	30	1	Axx	1	A				1								
10 Jun	S10E51		89	50	6	Dao	3	B												
11 Jun	S09E37		89	40	5	Cao	5	B												
12 Jun	S09E24		90	100	5	Dao	13	B												
13 Jun	S09E12		89	70	5	Dao	8	B	1			2								
14 Jun	S10W02		88	50	6	Dao	10	B	1											
15 Jun	S10W15		88	60	5	Dao	9	B				1								
16 Jun	S10W28		88	70	5	Dso	8	B												
17 Jun	S11W41		89	30	5	Dro	5	B												
18 Jun	S13W52		86	10	1	Axx	1	A												
19 Jun	S13W65		86	plage																
20 Jun	S13W79		87	plage																
									2	0	0	4	0	0	0	0	0			

Crossed West Limb.

Absolute heliographic longitude: 88



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 1506																		
10 Jun	N11E66	74	50	2	Cao	2	B											
11 Jun	N11E52	75	50	2	Cao	2	B						1					
12 Jun	N11E38	76	100	3	Hax	9	A	6					5					
13 Jun	N11E25	76	80	3	Hsx	5	A											
14 Jun	N11E11	76	70	10	Cso	7	B											
15 Jun	N11W03	76	30	2	Hrx	4	A											
16 Jun	N11W18	77	30	3	Dso	4	B											
17 Jun	N11W30	75	10	1	Axx	2	A											
18 Jun	N13W41	75	10	3	Cro	2	B											
19 Jun	N12W55	76	10	1	Axx	1	A											
20 Jun	N12W69	77	plage															
21 Jun	N12W83	78	plage															
								6	0	0	6	0	0	0	0	0		

Crossed West Limb.
Absolute heliographic longitude: 76

Region 1507																		
10 Jun	S26E29	111	60	9	Dao	5	B											
11 Jun	S26E17	110	30	9	Cao	10	B	5					5					
12 Jun	S27E02	112	100	11	Eai	22	B	1					1					
13 Jun	S25W13	114	40	7	Dai	26	B	3					2					
14 Jun	S25W24	111	80	8	Dao	15	B						2					
15 Jun	S25W37	110	120	7	Dao	12	B											
16 Jun	S26W51	111	130	6	Dso	10	B						1					
17 Jun	S27W64	112	130	8	Dai	10	B						6					
18 Jun	S25W77	112	80	8	Cso	5	B											
19 Jun	S27W88	109	10	3	Bxo	3	B						1					
								9	0	0	18	0	0	0	0	0		

Crossed West Limb.
Absolute heliographic longitude: 112



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 1508																							
13 Jun	S28W06	107	80	7	Dai	20	B	1															
14 Jun	S28W20	107	70	6	Dsi	12	B						1										
15 Jun	S28W31	105	50	5	Cao	9	B																
16 Jun	S29W44	104	70	5	Dso	9	B																
17 Jun	S29W56	104	60	3	Hsx	5	A																
18 Jun	S28W70	104	30	1	Hrx	1	A	1					2										
19 Jun	S28W81	102	30	2	Hsx	1	A						1										
								2	0	0		4	0	0	0	0							

Crossed West Limb.
 Absolute heliographic longitude: 107

Region 1509																							
15 Jun	S15W30	103	10	1	Axx	1	A																
16 Jun	S16W43	103	20	1	Hrx	1	A																
17 Jun	S17W58	105	8	3	Bxo	4	B																
18 Jun	S17W72	107	plage																				
19 Jun	S17W86	107	plage																				
								0	0	0		0	0	0	0	0							

Crossed West Limb.
 Absolute heliographic longitude: 103

Region 1510																							
19 Jun	S16E02	19	10	3	Cro	3	B																
20 Jun	S15W10	18	10	3	Bxo	3	B																
21 Jun	S15W24	19	plage																				
22 Jun	S15W38	20	plage																				
23 Jun	S15W52	20	plage																				
24 Jun	S16W67	22	10	2	Cro	2	B																
								0	0	0		0	0	0	0	0							

Still on Disk.
 Absolute heliographic longitude: 19

Region 1511																							
22 Jun	N15W17	358	30	4	Cro	3	B																
23 Jun	N15W29	357	30	4	Cro	3	B																
24 Jun	N15W44	358	20	4	Cro	2	B																
								0	0	0		0	0	0	0	0							

Still on Disk.
 Absolute heliographic longitude: 358

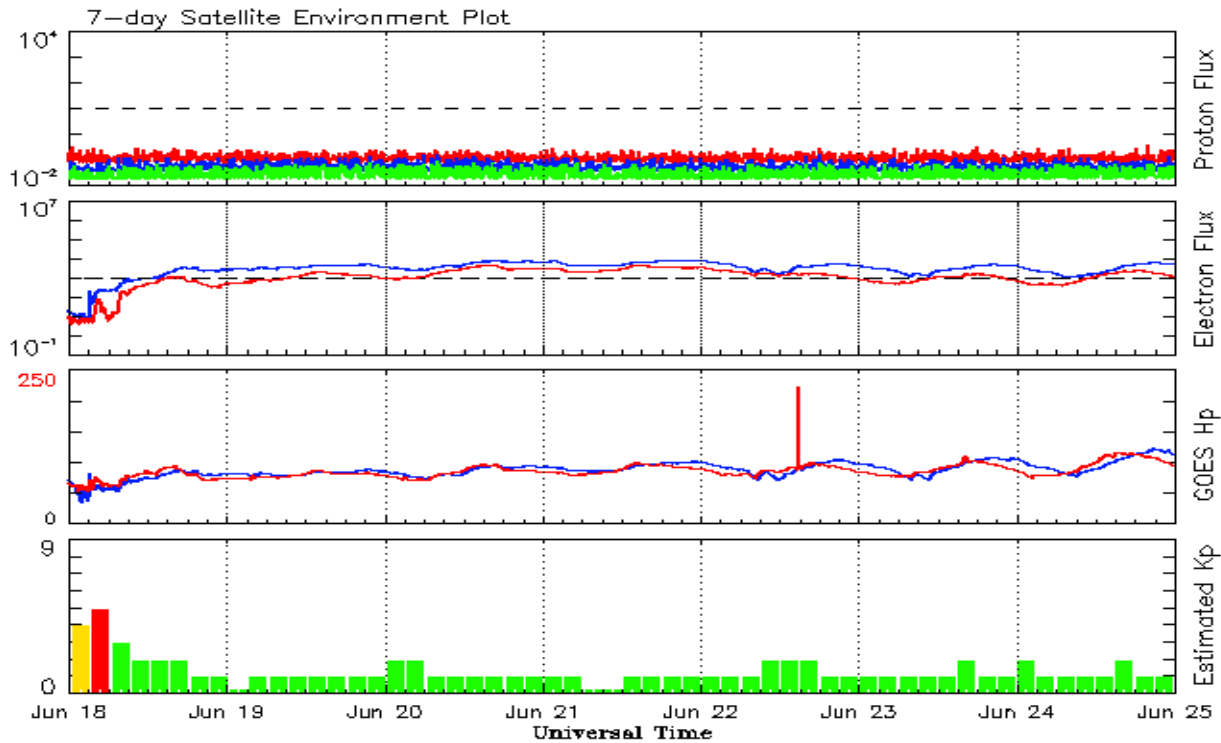


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2010									
June	17.9	13.6	0.75	25.2	16.4	72.6	79.7	7	5.8
July	23.1	16.1	0.70	25.9	16.7	79.9	80.1	5	6.0
August	28.2	19.6	0.70	27.3	17.4	79.7	80.7	8	6.2
September	35.6	25.2	0.71	30.6	19.6	81.1	82.4	5	6.3
October	35.0	23.5	0.67	35.9	23.2	81.6	85.3	6	6.4
November	36.1	21.5	0.60	40.5	26.5	82.5	87.7	5	6.4
December	22.0	14.4	0.66	43.8	28.8	84.3	89.6	4	6.5
2011									
January	32.1	18.8	0.59	47.2	30.9	83.7	91.2	6	6.7
February	53.2	29.6	0.55	50.6	33.4	94.5	92.7	6	6.8
March	81.0	55.8	0.69	55.2	36.9	115.3	95.8	7	7.2
April	81.7	54.4	0.67	61.5	41.8	112.6	100.4	9	7.5
May	61.4	41.5	0.68	69.0	47.6	95.9	105.6	9	7.5
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	57.2	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			141.2		3	
2012									
January	91.3	58.3	0.64			133.1		6	
February	50.1	33.1	0.66			106.7		7	
March	77.9	64.2	0.82			115.1		14	
April	84.4	55.2	0.65			113.1		9	
May	99.5	69.0	0.69			121.5		8	

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 18 June 2012*

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.

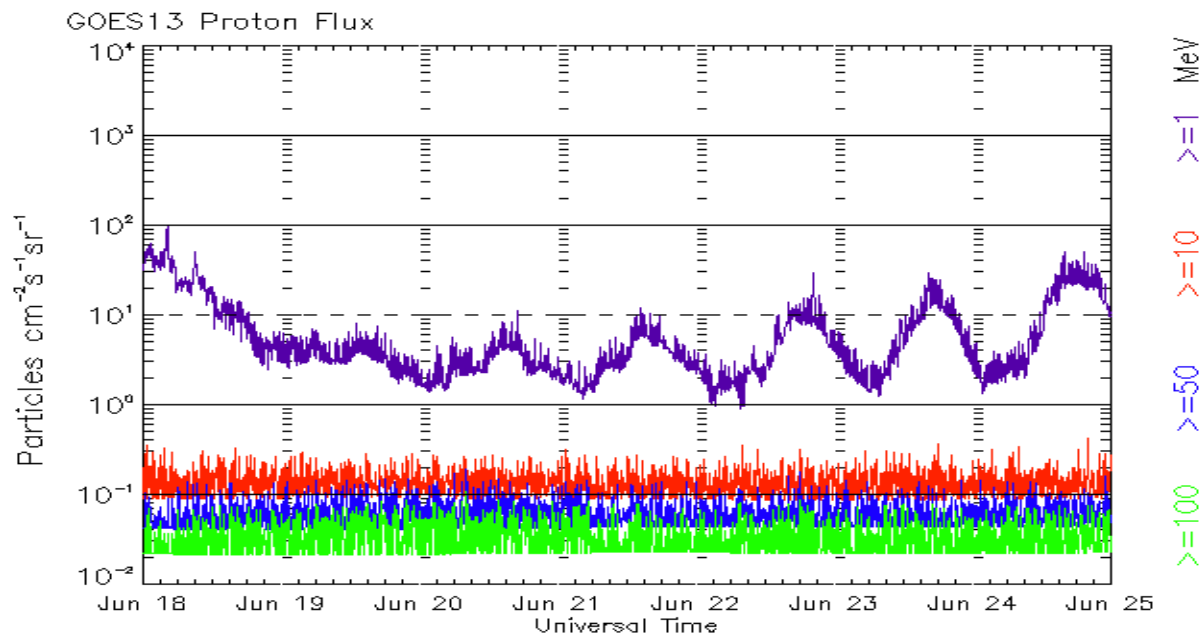
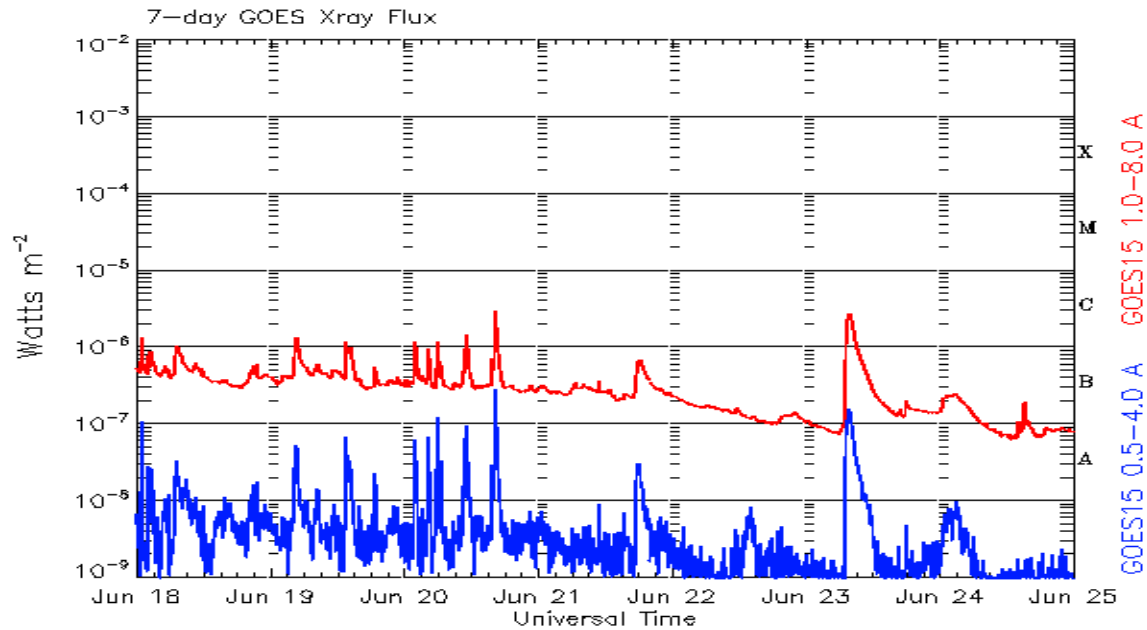
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 18 June 2012*

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.



Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

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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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