

Space Weather Highlights
25 May - 31 May 2015

SWPC PRF 2074
01 June 2015

Solar activity was at very low levels for the majority of the period with the exception of 27 May when low levels were observed. The period was dominated by only low-to-mid level B-class flares with an isolated C1 flare at 2131 UTC on 27 May. The only C-class event of the period originated from Region 2456 (S16, L=199, class/area=Cso/70 on 30 May) but no coronal mass ejection (CME) was observed with this event. Multiple prominence and filament eruptions were observed throughout the period but none resulted in Earth-directed CMEs.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was normal levels throughout the period.

Geomagnetic field activity was generally quiet throughout the period with an isolated period of unsettled activity observed between 27/1200-1500 UTC.

Space Weather Outlook
01 June - 27 June 2015

Solar activity is expected to be very low with a 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 be at moderate levels on 15-19 Jun and high levels on 10-14 Jun with normal levels expected for the remainder of the period.

Geomagnetic field activity is expected to be at active levels on 10 and 14-15 Jun with G1 (Minor) geomagnetic storms likely on 08-09 Jun, all in response to recurrent coronal hole high speed stream influence. Quiet to unsettled geomagnetic field activity is expected for the remainder 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
25 May	97	63	180	B1.7	0	0	0	0	0	0	0	0
26 May	95	46	90	B2.2	0	0	0	2	0	0	0	0
27 May	95	24	40	B2.0	1	0	0	1	0	0	0	0
28 May	93	11	60	B1.6	0	0	0	0	0	0	0	0
29 May	92	23	70	B1.5	0	0	0	0	0	0	0	0
30 May	95	27	90	B1.8	0	0	0	0	0	0	0	0
31 May	94	47	140	B2.0	0	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
	25 May	1.5e+05	1.1e+04	2.7e+03		1.7e+06
26 May	1.6e+05	1.1e+04	2.8e+03		7.8e+05	
27 May	1.6e+05	1.1e+04	2.9e+03		1.6e+05	
28 May	1.1e+05	1.1e+04	2.7e+03		2.0e+05	
29 May	1.1e+05	1.1e+04	2.6e+03		1.3e+05	
30 May	1.2e+05	1.1e+04	2.7e+03		2.2e+05	
31 May	1.7e+05	1.1e+04	2.7e+03		6.6e+05	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	25 May	3	0-0-0-1-2-1-2-1	0	1-0-0-0-0-0-0-0	4
26 May	6	2-2-2-1-2-2-2-1	6	1-2-2-3-2-2-1-0	6	2-2-2-1-1-2-2-0
27 May	6	0-1-1-1-3-2-2-2	9	0-1-1-2-4-4-0-1	6	1-1-2-1-3-2-1-2
28 May	8	3-2-1-2-2-2-2-2	10	2-3-1-3-4-1-2-1	7	2-2-1-2-2-1-1-2
29 May	5	1-1-1-2-2-1-2-2	4	0-1-1-1-1-2-2-1	7	1-2-2-2-2-2-2-2
30 May	5	1-1-2-1-3-1-1-1	3	0-1-1-1-2-0-1-1	5	1-1-2-1-2-1-1-2
31 May	6	1-1-2-1-2-2-2-2	4	1-1-1-0-1-2-1-2	5	2-1-2-1-1-2-1-2

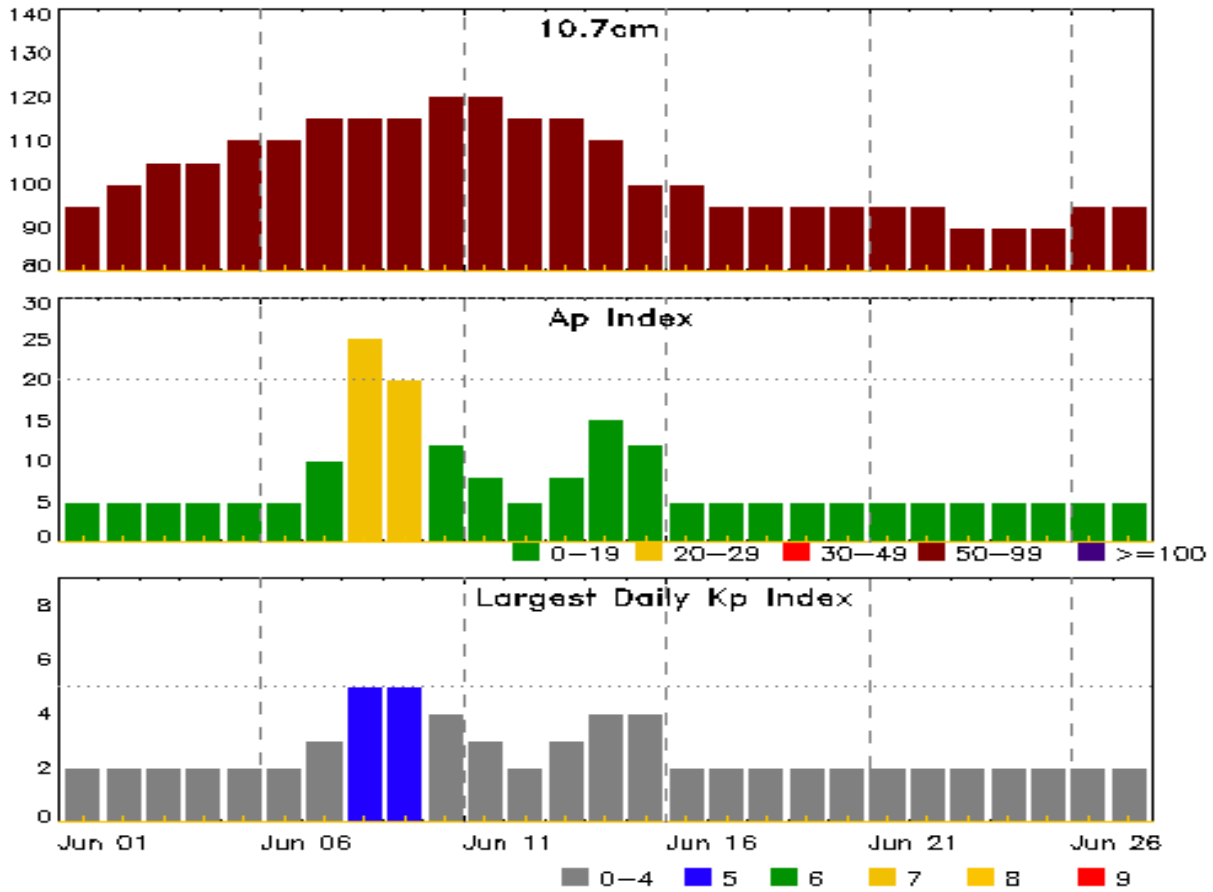


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
27 May 1339	ALERT: Type II Radio Emission	27/1234



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
01 Jun	95	5	2	15 Jun	100	12	4
02	100	5	2	16	100	5	2
03	105	5	2	17	95	5	2
04	105	5	2	18	95	5	2
05	110	5	2	19	95	5	2
06	110	5	2	20	95	5	2
07	115	10	3	21	95	5	2
08	115	25	5	22	95	5	2
09	115	20	5	23	90	5	2
10	120	12	4	24	90	5	2
11	120	8	3	25	90	5	2
12	115	5	2	26	95	5	2
13	115	8	3	27	95	5	2
14	110	15	4				



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		Rgn #
	Begin	Max	End			Location Lat CMD	Rgn #	
25 May	1933	1957	2012	B7.4				2351
26 May	0549	0554	0606		SF	N22W37		2351
26 May	0617	0617	0625		SF	N21W36		2351
26 May	1144	1149	1202	B5.2				2351
27 May	0717	0722	0729	B3.9				
27 May	1038	1042	1047	B4.0	SF	N21W52		2351
27 May	2122	2131	2137	C1.3				2356
28 May	0151	0156	0201	B3.4				2351
30 May	0544	0549	0554	B3.6				2356
30 May	0644	0657	0706	B3.6				2356
30 May	2155	2203	2212	B6.5				2358
31 May	0805	0811	0818	B3.9				
31 May	0850	0900	0906	B3.7	SF	N14E09		
31 May	0906	0906	0909		SF	N14E09		



Region Summary

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical												
								C	M	X	S	1	2	3	4								
Region 2248																							
23 Dec	S20E75		82	30	4	Hsx	1	A															
24 Dec	S20E60		84	50	1	Hsx	1	A															
25 Dec	S20E47		84	70	2	Hax	2	A	2														
26 Dec	S21E35		82	60	3	Dao	5	BG	1			3											
27 Dec	S19E22		83	160	7	Dso	18	BG	1														
28 Dec	S19E07		84	120	7	Dso	9	BG	3			2											
29 Dec	S21W06		84	100	13	Cso	14	B	2			6											
30 Dec	S14W17		81	70	8	Cso	5	B															
31 Dec	S19W29		81	60	2	Hsx	2	A															
01 Jan	S19W42		81	50	2	Hax	1	A															
02 Jan	S19W55		80	50	1	Hax	1	A	1														
03 Jan	S19W68		80	30	1	Hax	1	A															
04 Jan	S19W82		81	20	1	Hax	1	A				1											
									10	0	0	12	0	0	0	0	0						

Crossed West Limb.

Absolute heliographic longitude: 84

Region 2249

25 Dec	S12W33		164	90	6	Dao	8	BG														
26 Dec	S12W47		165	140	6	Dac	8	BG	8			8										
27 Dec	S10W61		164	210	6	Dac	12	BG	1	1		3	1	1								
28 Dec	S12W74		165	200	9	Dac	13	BG				6										
29 Dec	S11W87		165	220	10	Dai	6	BG														
									9	1	0	17	1	1	0	0						

Crossed West Limb.

Absolute heliographic longitude: 164



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 2348																	
14 May	S09E60	24	100	2	Hsx	5	A										
15 May	S10E48	24	110	3	Hsx	3	A										
16 May	S11E34	25	110	2	Hsx	1	A										
17 May	S10E21	24	100	2	Hsx	1	A										
18 May	S10E07	25	90	2	Hax	2	A										
19 May	S10W06	24	80	4	Hax	2	A										
20 May	S10W20	26	80	4	Hax	1	A										
21 May	S11W32	24	40	2	Hax	1	A										
22 May	S11W45	24	50	1	Hsx	1	A										
23 May	S12W59	25	40	2	Hsx	1	A										
24 May	S12W72	25	30	2	Hsx	1	A										
25 May	S11W84	24	30	2	Hsx	1	A										
								0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 24

Region 2349																	
18 May	S20E34	357	10	3	Bxo	2	B	2				1					
19 May	S21E18	360	10	7	Bxo	3	B					3					
20 May	S21E04	359	plage					1				1					
21 May	S21W10	359	10	4	Bxo	3	B	1				2					
22 May	S21W20	359	20	5	Bxo	5	B	1				2					
23 May	S21W36	2	40	6	Cao	5	B					2					
24 May	S21W49	2	60	5	Dao	8	B										
25 May	S20W62	2	50	6	Cao	5	B										
26 May	S19W76	2	40	3	Cso	2	B										
27 May	S19W90	3	plage														
								5	0	0	11	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 359



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares								
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
			Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 2350																
18 May	S16E23		9	10	4	Bxo	2	B								
19 May	S15E07		11	10	1	Axx	1	A								
20 May	S15W07		13	plage												
21 May	S15W21		14	plage												
22 May	S15W35		14	plage												
23 May	S15W49		15	plage												
24 May	S15W63		16	plage												
25 May	S15W77		17	plage												
									0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 11

Region 2351																
19 May	N22E49		328	10	4	Bxo	3	B	1							
20 May	N22E34		330	20	5	Cso	4	B	1			1				
21 May	N22E20		333	plage								1				
22 May	N22E05		334	10	1	Axx	1	A								
23 May	N22W09		335	plage												
24 May	N22W23		336	plage												
25 May	N22W37		337	plage												
26 May	N22W51		337	plage								2				
27 May	N22W65		338	plage								1				
28 May	N22W79		339	plage												
									2	0	0	5	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 334

Region 2352																
22 May	N05E10		328	30	6	Bxi	8	B				1				
23 May	N05W03		329	10	6	Bxo	4	B								
24 May	N05W18		331	plage												
25 May	N05W33		333	plage												
26 May	N05W48		334	plage												
27 May	N05W63		336	plage												
28 May	N05W78		338	plage												
									0	0	0	1	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 329



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares								
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
			Lon	10 ⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 2353																
22 May	N07W03	341	40	6	Cro	4	BG									
23 May	N07W18	344	50	6	Dao	7	B	3				3				
24 May	N07W31	344	60	5	Dao	9	B									
25 May	N07W45	345	70	5	Cao	4	B									
26 May	N07W59	345	30	3	Cso	2	B									
27 May	N07W74	347	30	3	Hrx	2	A									
28 May	N07W89	349	plage													
								3	0	0		3	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 341

Region 2354																
23 May	S21W15	341	10	3	Cro	2	B									
24 May	S21W30	343	0	1	Axx	1	A									
25 May	S21W43	343	0	1	Axx	1	A									
26 May	S19W56	342	10		Bxo	1	B									
27 May	S19W74	345	10	2	Axx	2	A									
28 May	S19W88	348	plage													
								0	0	0		0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 341

Region 2355																
24 May	S10E41	272	30	4	Cao	5	B									
25 May	S10E28	272	30	3	Bxo	2	B									
26 May	S09E14	271	10	2	Hax	1	A									
27 May	S09W00	273	plage													
28 May	S09W14	274	plage													
29 May	S09W28	275	plage													
30 May	S09W42	275	plage													
31 May	S09W54	274	10	1	Bxo	2	B									
								0	0	0		0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 273



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 2356																							
27 May	S15E75		199	plage								1											
28 May	S15E61		199	60	2	Hax	1	A															
29 May	S15E47		200	60	2	Hsx	1	A															
30 May	S16E34		199	70	2	Cso	3	B															
31 May	S16E20		200	60	3	Cao	3	B															
													1	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 200

Region 2357

29 May	N09E45		202	10	3	Bxo	2	B															
30 May	N09E33		200	20	3	Cro	4	B															
31 May	N09E21		199	10	1	Axx	1	A															
													0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 199

Region 2358

31 May	S03E71		149	60	2	Hsx	1	A															
													0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 149

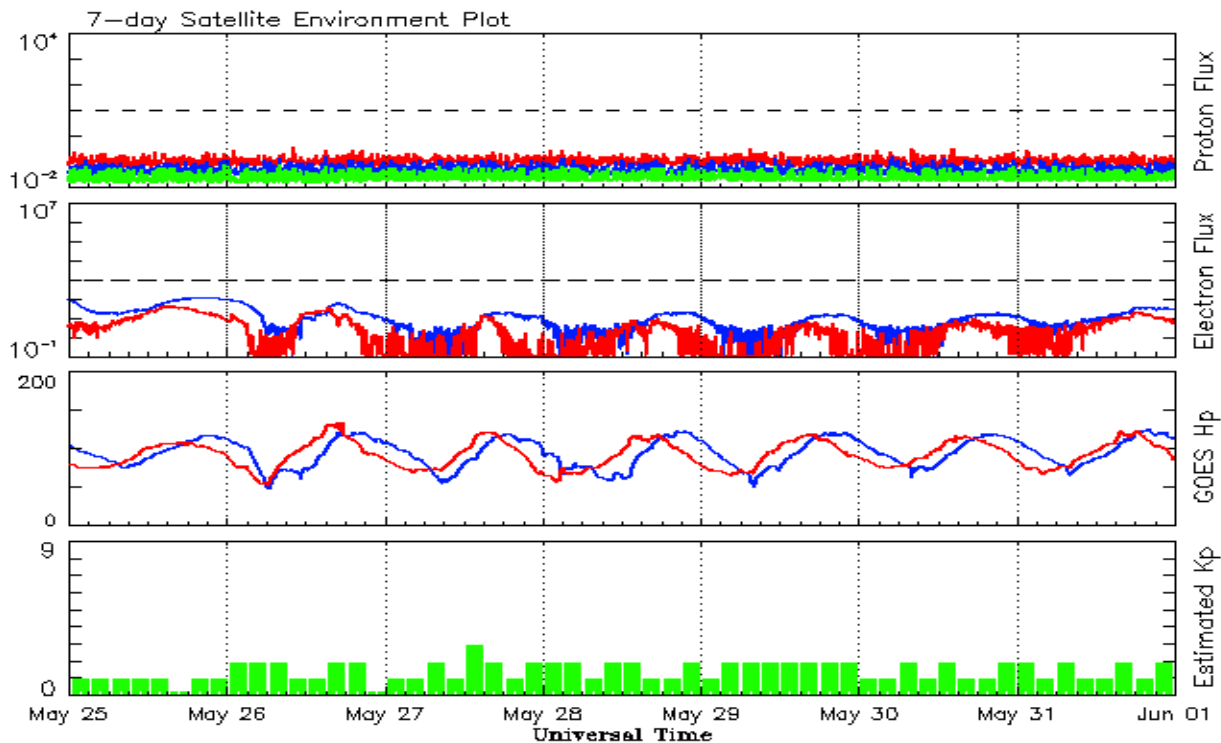


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2013									
June	80.1	52.5	0.66	94.4	62.6	110.2	120.9	13	7.1
July	86.1	57.0	0.66	97.9	65.5	115.6	123.9	9	7.3
August	90.2	66.0	0.73	103.7	68.9	114.7	127.9	9	7.6
September	55.0	37.0	0.67	111.0	73.0	102.7	132.3	5	7.8
October	127.1	85.6	0.67	114.3	74.9	132.3	134.7	7	7.8
November	125.7	77.6	0.62	114.6	75.3	148.4	135.4	5	7.9
December	118.2	90.3	0.76	115.4	75.9	147.7	135.9	5	7.5
2014									
January	125.9	81.8	0.65	117.7	77.3	158.6	137.3	6	7.1
February	174.6	102.3	0.59	119.5	78.3	170.3	138.6	12	6.9
March	141.1	91.9	0.65	123.2	80.8	149.9	140.8	6	7.2
April	130.5	84.7	0.65	124.8	81.9	144.3	143.5	9	7.5
May	116.8	75.2	0.64	122.3	80.5	130.0	144.7	7	7.9
June	107.7	71.0	0.66	121.4	79.7	122.2	145.5	7	8.4
July	113.6	72.4	0.64	120.4	78.5	137.3	145.2	5	8.8
August	106.2	74.6	0.70	115.1	75.5	124.7	142.8	9	8.9
September	127.4	87.6	0.69	107.4	70.8	146.1	140.1	11	9.3
October	92.0	60.6	0.66	101.7	67.3	153.7	138.4	10	9.9
November	101.8	70.2	0.69	97.9		155.3	137.4	10	10.1
December	120.0	76.7	0.65			158.7		12	
2015									
January	101.2	67.0	0.66			141.7		10	
February	70.6	44.8	0.63			128.8		10	
March	61.7	38.4	0.62			126.0		17	
April	72.5	54.4	0.75			129.2		12	
May	83.0					120.1		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 25 May 2015*

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.

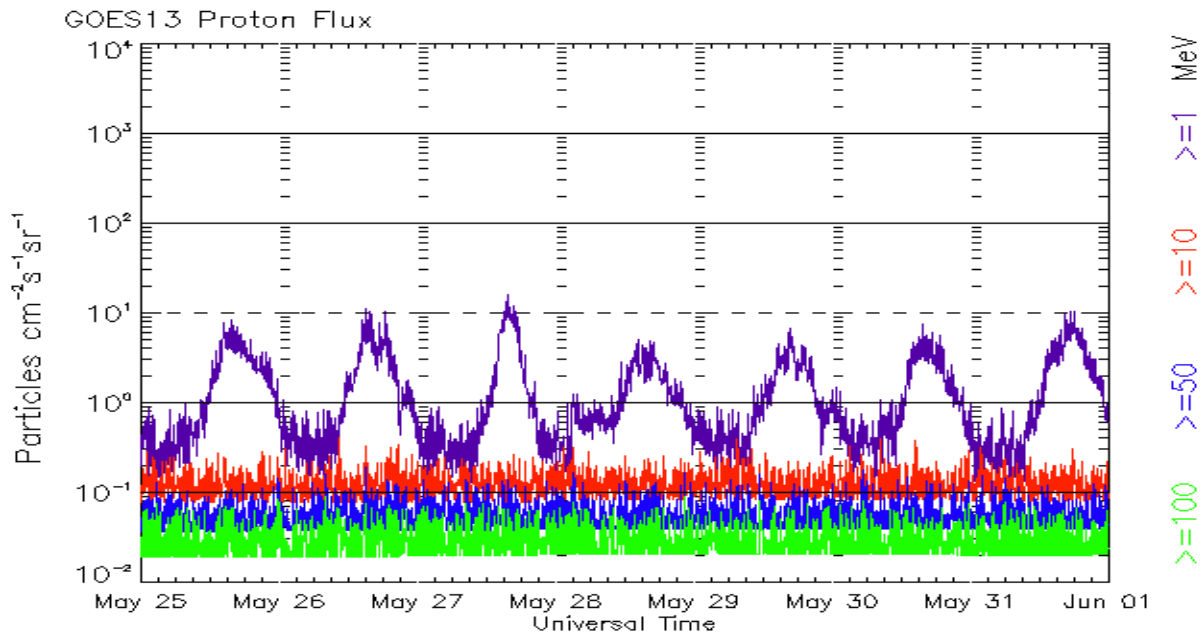
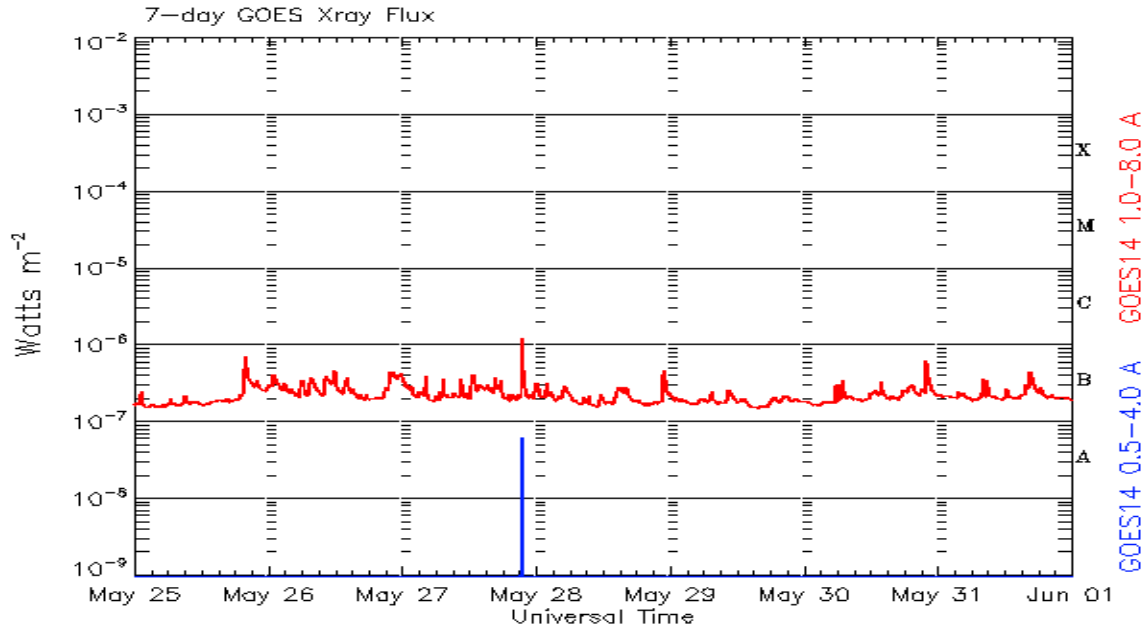
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 25 May 2015

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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<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

