

Solar activity was at low levels throughout the period. A total of three C-class flares were observed from active regions; a C1/Sf at 24/2256 UTC from Region 1846 (S17, L=056, class/area Cso/210 on 21 Sep), a C1 at 29/0127 UTC from Region 1853 (N19, L=080, class/area Cao/30 on 28 Sep), and a C1/Sf at 29/0525 UTC from Region 1850 (N09, L=036, class/area Dao/140 on 27 Sep). Region 1850 was the most magnetically complex region on the disk during the period, developing a beta-gamma magnetic configuration on 27 Sep. A filament eruption (with an approximate extent of 35 heliographic degrees) centered near N15W40, was observed on SDO/AIA imagery beginning at 29/2145 UTC, and was associated with a long-duration C1 flare. This event produced an asymmetrical partial-halo CME visible on LASCO C2/C3 coronagraph imagery. Additional imagery and analysis is required to determine when the coronal mass ejection (CME) is to arrive at Earth.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high to moderate levels on 23 Sep and early 24 Sep, and then decreased to and remained at normal levels for the remainder of the period.

Geomagnetic field activity was at quiet to unsettled levels with an isolated period of active conditions (1200 - 1500 UTC) on 24 Sep with coronal hole high speed stream (CH HSS) effects. The remainder of the period was quiet.

### **Space Weather Outlook** **30 September - 26 October 2013**

Solar activity is expected to be at very low to low levels throughout the outlook period.

NOAA Scale S1 (Minor) solar radiation storm conditions are expected on 30 Sep - 01 Oct due to particle enhancement from the 29 Sep coronal mass ejection (CME). No S1 or greater proton events are expected for the remainder of the outlook period.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels on 30 Sep - 10 Oct due to combined coronal hole high speed stream (CH HSS) and CME effects. Normal to moderate levels are expected for the remainder of the outlook period.

Geomagnetic field activity is expected to be at quiet to active levels on 30 Sep, and quiet to unsettled levels on 01 - 02 Oct with CH HSS effects. Quiet to active conditions are expected on 02 - 04 Oct with likely arrival of the 29 Sep CME associated with a filament eruption. Quiet to unsettled conditions are expected on 10 - 11 Oct, 14 - 16 Oct, and 21 Oct, all due to CH HSS effects. The remainder of the period is expected to be at quiet levels, barring any further transient activity.



### *Daily Solar Data*

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 <sup>-6</sup> hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
23 September	108	65	290	B1.9	0	0	0	2	0	0	0	0
24 September	110	56	240	B1.9	1	0	0	5	0	0	0	0
25 September	111	61	270	B2.1	0	0	0	3	0	0	0	0
26 September	110	63	340	B2.1	0	0	0	1	0	0	0	0
27 September	108	54	280	B2.2	0	0	0	1	0	0	0	0
28 September	106	58	330	B2.5	0	0	0	0	0	0	0	0
29 September	103	39	190	B3.0	3	0	0	1	0	0	0	0

### *Daily Particle Data*

Date	Proton Fluence (protons/cm <sup>2</sup> -day-sr)			Electron Fluence (electrons/cm <sup>2</sup> -day-sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
	23 September	2.6e+05	1.0e+04	2.4e+03		9.1e+07
24 September	2.1e+05	9.9e+03	2.5e+03		2.1e+06	
25 September	7.9e+04	1.0e+04	2.5e+03		6.4e+05	
26 September	9.8e+04	1.0e+04	2.4e+03		6.7e+05	
27 September	1.1e+05	1.0e+04	2.5e+03		7.1e+05	
28 September	1.0e+05	1.0e+04	2.5e+03		7.0e+05	
29 September	1.6e+05	1.0e+04	2.5e+03		7.5e+05	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	23 September	4	0-2-1-1-1-1-2-1	1	1-1-0-0-0-0-0-0	5
24 September	9	1-1-1-3-4-2-2-1	18	1-1-0-5-5-4-2-2	9	2-1-1-3-4-3-1-1
25 September	4	2-2-1-1-1-1-0-1	4	2-1-3-2-0-0-0-1	4	2-2-2-1-1-1-0-1
26 September	2	0-0-0-1-2-0-1-0	0	0-0-0-0-0-0-0-0	2	0-0-0-0-1-0-0-0
27 September	2	0-0-0-0-1-1-1-1	0	0-0-0-0-0-0-0-0	2	0-0-0-0-0-0-1-0
28 September	2	0-0-0-1-1-1-1-0	0	0-0-0-0-0-0-0-0	2	0-0-0-0-0-1-0-0
29 September	3	0-0-0-1-1-2-2-1	1	0-0-0-0-0-0-1-1	3	0-0-0-0-1-1-2-2

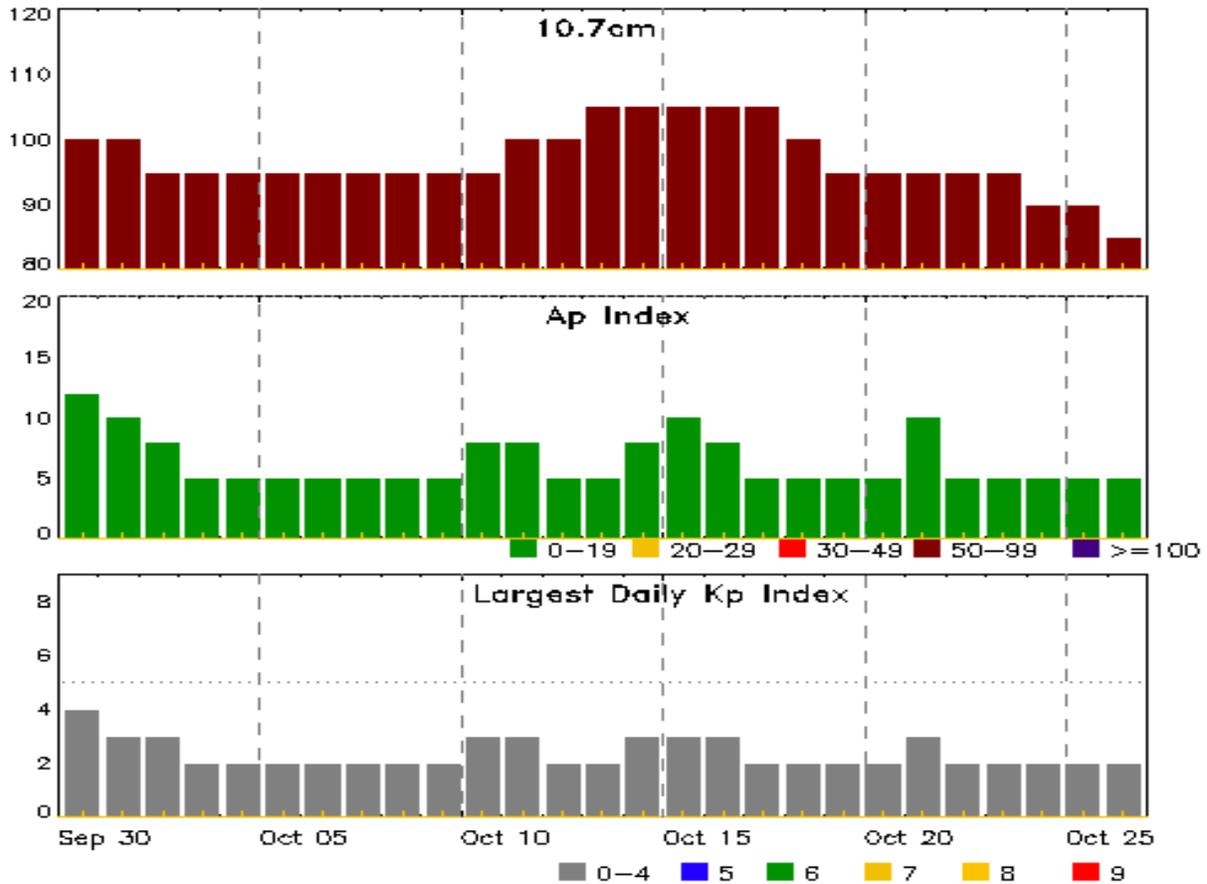


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
23 Sep 1005	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	20/1220
24 Sep 1314	WARNING: Geomagnetic K = 4	24/1313 - 1900
24 Sep 1401	ALERT: Geomagnetic K = 4	24/1358



## 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
30 Sep	100	12	4	14 Oct	105	8	3
01 Oct	100	10	3	15	105	10	3
02	95	8	3	16	105	8	3
03	95	5	2	17	105	5	2
04	95	5	2	18	100	5	2
05	95	5	2	19	95	5	2
06	95	5	2	20	95	5	2
07	95	5	2	21	95	10	3
08	95	5	2	22	95	5	2
09	95	5	2	23	95	5	2
10	95	8	3	24	90	5	2
11	100	8	3	25	90	5	2
12	100	5	2	26	85	5	2
13	105	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	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
23 Sep	0708	0714	0728	B6.0	SF	N11E34	1850
23 Sep	1932	1938	1945	B3.2	SF	N11E76	1850
23 Sep	2144	2154	2207	B4.8			1846
23 Sep	2232	2239	2245	B6.8			1850
24 Sep	0201	0209	0215	B8.1	SF	N09E23	1850
24 Sep	1706	1712	1715	B5.6	SF	N10E13	1850
24 Sep	1853	1906	1919	B9.9	SF	N11E13	1850
24 Sep	2250	2256	2303	C1.1	SF	S19W13	1846
24 Sep	2327	2329	2332	B6.6	SF	N10E10	1850
25 Sep	1041	1045	1053		SF	N12E02	1850
25 Sep	1056	1056	1102		SF	N12E01	1850
25 Sep	1223	1227	1231	B4.7	SF	N12E01	1850
25 Sep	1736	1737	1738	B6.2			
25 Sep	1933	1936	1943	B3.8			
25 Sep	2024	2027	2030	B3.9			
25 Sep	2223	2226	2229	B6.1			
25 Sep	2234	2243	2250	B7.3			1850
26 Sep	0307	0318	0326	B7.0			1850
26 Sep	1356	1416	1446	B5.4	SF	N08W12	1850
27 Sep	1128	1133	1137	B6.7			1850
27 Sep	1249	1258	1304	B4.2	SF	N08W21	1850
27 Sep	1502	1506	1509	B5.1			1850
28 Sep	1156	1205	1212	B6.0			1853
28 Sep	1740	1743	1745	B4.3			1853
29 Sep	0039	0127	0203	C1.6			1853
29 Sep	0511	0525	0542	C1.6	SF	N09W44	1850
29 Sep	2143	2339	0103	C1.2			





### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
<b>Region 1845</b>																		
17 Sep	S20E59	73	10	1	Axx	1	A											
18 Sep	S18E48	73	10	1	Axx	1	A											
19 Sep	S18E34	73	10	1	Axx	1	A						1					
20 Sep	S18E20	74	plage															
21 Sep	S18E06	75	plage															
22 Sep	S17W05	73	10	3	Bxo	3	B											
23 Sep	S17W19	74	plage															
24 Sep	S17W33	74	plage															
25 Sep	S17W47	75	plage															
26 Sep	S17W61	76	plage															
27 Sep	S17W73	79	plage															
28 Sep	S17W88	77	plage															
								0	0	0	1	0	0	0	0	0		

Crossed West Limb.  
 Absolute heliographic longitude: 73

<b>Region 1846</b>																		
17 Sep	S16E77	56	50	2	Hax	1	A											
18 Sep	S17E62	59	160	3	Hsx	1	A	1					1					
19 Sep	S16E49	57	180	6	Cso	2	B											
20 Sep	S17E36	58	160	8	Cso	4	B											
21 Sep	S17E25	56	210	9	Cso	5	B											
22 Sep	S18E10	58	140	5	Hsx	1	A											
23 Sep	S18W04	59	150	4	Hsx	1	A											
24 Sep	S18W18	59	150	4	Hsx	1	A	1					1					
25 Sep	S17W31	58	160	2	Hsx	1	A											
26 Sep	S18W44	59	130	3	Hsx	1	A											
27 Sep	S17W56	62	120	2	Hsx	1	A											
28 Sep	S17W70	59	150	2	Hsx	1	A											
29 Sep	S17W84	59	100	2	Hsx	1	A											
								2	0	0	2	0	0	0	0	0		

Still on Disk.  
 Absolute heliographic longitude: 59



### *Region Summary - continued*

Date	Location		Sunspot Characteristics					Flares									
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical					
			Lon	10 <sup>6</sup> hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4	
<b>Region 1847</b>																	
17 Sep	N11E67		66	10	1	Axx	1	A									
18 Sep	N11E55		66	10	1	Axx	1	A					1				
19 Sep	N11E41		66	plage													
20 Sep	N11E27		67	plage													
21 Sep	N11E13		68	plage													
22 Sep	N11W01		69	plage													
23 Sep	N11W15		70	plage													
24 Sep	N11W29		70	plage													
25 Sep	N11W43		71	plage													
26 Sep	N11W57		72	plage													
27 Sep	N11W67		73	plage													
28 Sep	N11W81		70	plage													
										0	0	0	1	0	0	0	0

Crossed West Limb.  
 Absolute heliographic longitude: 69

<b>Region 1848</b>																	
19 Sep	S10E36		70	10	1	Axx	1	A									
20 Sep	S11E23		71	0	1	Axx	1	A									
21 Sep	S11E09		72	plage													
22 Sep	S11W05		73	plage													
23 Sep	S11W19		74	plage													
24 Sep	S11W33		74	plage													
25 Sep	S11W47		75	plage													
26 Sep	S11W61		76	plage													
27 Sep	S11W73		79	plage													
28 Sep	S11W87		76	plage													
										0	0	0	0	0	0	0	0

Crossed West Limb.  
 Absolute heliographic longitude: 73



### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
<b>Region 1849</b>																		
19 Sep	N22E32	75	10	3	Bxo	3	B											
20 Sep	N22E18	76	10	3	Bxo	7	B											
21 Sep	N20E04	77	60	7	Dao	11	B					2						
22 Sep	N19W10	78	90	8	Dao	12	B					1						
23 Sep	N19W24	79	80	9	Dso	8	B											
24 Sep	N19W38	79	30	9	Cro	4	B											
25 Sep	N21W53	80	30	11	Eao	5	B											
26 Sep	N19W68	83	plage															
27 Sep	N19W80	86	plage															
								0	0	0	3	0	0	0	0			

Crossed West Limb.

Absolute heliographic longitude: 77

<b>Region 1850</b>																		
19 Sep	N09E75	31	10	1	Axx	1	A	2				1						
20 Sep	N08E64	28	90	8	Dao	4	B	4				2						
21 Sep	N08E52	29	90	8	Dso	6	B	2				1	1					
22 Sep	N07E38	30	50	7	Dao	5	B											
23 Sep	N08E24	31	40	8	Cso	4	B					2						
24 Sep	N08E10	31	50	12	Cso	10	B					4						
25 Sep	N08W03	30	70	9	Dao	14	B					3						
26 Sep	N10W18	33	180	7	Dao	16	B					1						
27 Sep	N09W30	36	140	8	Dao	10	BG					1						
28 Sep	N10W46	35	100	8	Dso	7	BG											
29 Sep	N10W60	35	60	8	Dso	5	BG	1				1						
								9	0	0	16	1	0	0	0			

Still on Disk.

Absolute heliographic longitude: 30



### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares								
	Lat	CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
									C	M	X	S	1	2	3

#### *Region 1851*

22 Sep	S16E69	358	30	1	Hrx	1	A										
23 Sep	S16E55	1	10	1	Axx	1	A										
24 Sep	S19E41	1	10	1	Axx	1	A										
25 Sep	S20E30	358	10	1	Axx	1	A										
26 Sep	S20E16	359	plage														
27 Sep	S20E06	360	plage														
28 Sep	S20W09	358	plage														
29 Sep	S20W23	358	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 360

#### *Region 1852*

23 Sep	S21W28	82	10	1	Axx	1	A										
24 Sep	S21W42	83	plage														
25 Sep	S21W56	84	plage														
26 Sep	S21W70	85	10	3	Bxo	3	B										
27 Sep	S20W81	87	10	2	Bxo	2	B										
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 82

#### *Region 1853*

26 Sep	N19W80	95	20	3	Cro	3	B										
27 Sep	N19W77	83	10		Hrx	1	A										
28 Sep	N19W91	80	30	3	Cao	5	B										
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

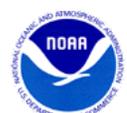
Absolute heliographic longitude: 83

#### *Region 1854*

28 Sep	N06E65	284	50	5	Dso	5	B										
29 Sep	N06E51	284	30	4	Cao	3	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 284

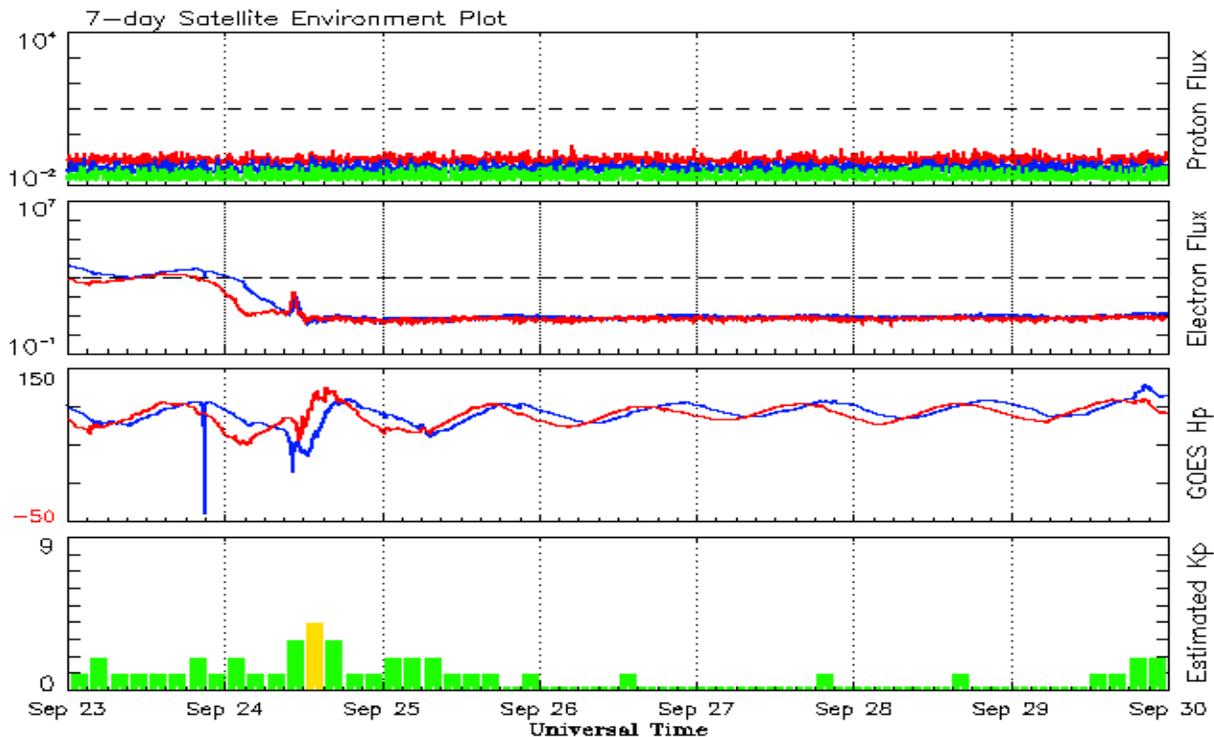


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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
<b>2011</b>									
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
<b>2012</b>									
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	88.0	59.6	108.4	120.1	3	7.5
<b>2013</b>									
January	99.8	62.9	0.63	87.1	58.7	127.1	118.9	4	7.5
February	60.0	38.1	0.63	86.7	58.4	104.4	118.0	5	7.4
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	
June	80.1	52.5	0.66			110.2		13	
July	86.1	57.0	0.66			115.6		9	
August	90.2	66.0	0.73			114.7		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 23 September 2013*

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-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.

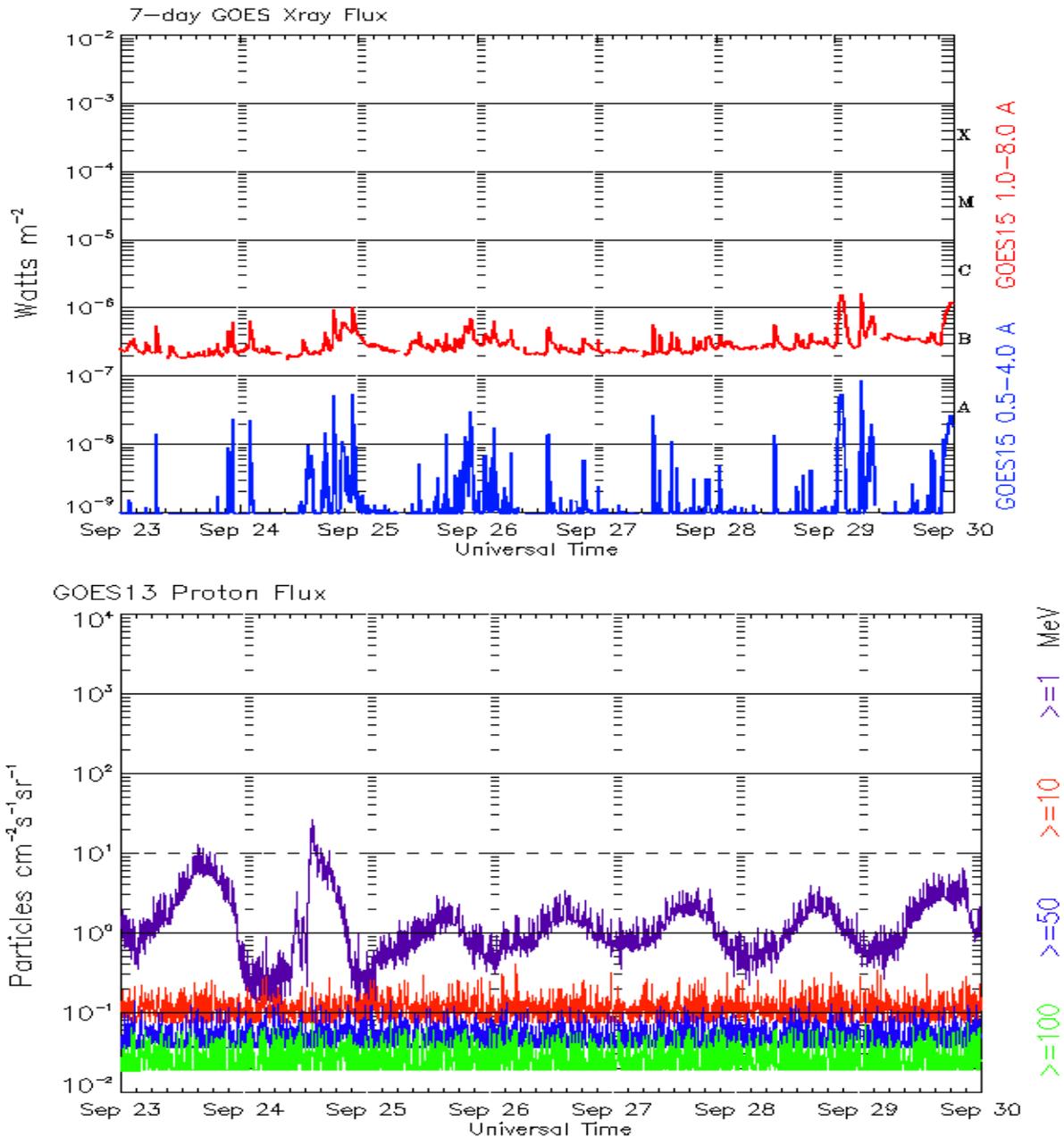
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 23 September 2013*

The x-ray plots contains five-minute averages x-ray flux (Watt/m<sup>2</sup>) 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 integral flux units (pfu = protons/cm<sup>2</sup> -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

The Weekly has been published continuously since 1951 and is available online since 1997.

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<http://spaceweather.gov/SolarCycle/> -- Solar Cycle Progression web site

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[http://spaceweather.gov/weekly/Usr\\_guide.pdf](http://spaceweather.gov/weekly/Usr_guide.pdf) -- User Guide

