

Solar activity was at very low levels with a few background flares observed from Regions 2598 (N14, L=174, class/area Dai/140 on 07 Oct), 2599 (S14, L=144, class/area Cko/460 on 05 Oct) and 2600 (N13, L=105, class/area Cso/110 on 09 Oct). On 08 Oct, between 08/1500-1700 UTC, a 10 degree long filament erupted in the NE quadrant centered near N38E40. A slow-moving, asymmetric, partial-halo CME was observed in LASCO C2 imagery, first visible at 09/0048 UTC.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels during the entire summary period. A maximum of 32,138 pfu was observed at 03/1640 UTC.

Geomagnetic field activity was highlighted by mostly unsettled to active levels on 03-05 Oct. An isolated minor storm (G1-Minor) period was observed early on 04 Oct. Mostly quiet levels were observed from 04-09 Oct with isolated unsettled and active periods were observed early on 07 and 08 Oct, respectively. The enhanced geomagnetic activity was due to high speed winds from a recurrent positive polarity coronal hole. Some further enhancement occurred early on 04 Oct due to CME effects from an eruptive filament observed early on 01 Oct.

The solar wind environment began the period at about 500 km/s, increased to near 600 km/s midday on 04 Oct and slowly decreased to end the period at about 370 km/s. Total field generally ranged from 2-6 nT with a peak of 10 nt observed midday on 04 Oct. The Bz component was mostly variable between +/- 6 nT. Phi angle was in a general positive orientation throughout the period.

Space Weather Outlook

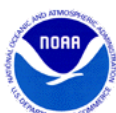
10 October - 05 November 2016

Solar activity is expected to be at very low levels 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 high levels on 10-11, 16-18, 24-26, 30-31 Oct and 01-06 Nov increasing to very high levels on 27-29 Oct. This is due to the anticipated influence of multiple, recurrent CH HSSs. Normal to moderate levels are expected for the remainder of the outlook period.

Geomagnetic field activity is expected to be at unsettled to active levels on 11-18, 23-31 Oct and 01 Nov. G1 (Minor) field activity is possible on 13-15, 17 and 23-31 Oct with G2 (Moderate) levels possible on 24-26 Oct. This activity is due to the anticipated influence of multiple, recurrent CH HSSs. Additional enhancement to the field is expected on 13-14 Oct due to CME



effects from the 08 Oct filament eruption. Generally quiet to unsettled conditions are expected for the remainder of the outlook 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
03 October	88	32	320	B1.7	0	0	0	4	0	0	0	0
04 October	93	33	480	B1.6	0	0	0	0	0	0	0	0
05 October	99	38	540	B1.8	0	0	0	3	0	0	0	0
06 October	102	55	560	B1.9	0	0	0	2	0	0	0	0
07 October	104	50	570	B1.9	0	0	0	0	0	0	0	0
08 October	104	62	600	B2.2	0	0	0	0	0	0	0	0
09 October	105	58	630	B1.9	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
	03 October	5.2e+06	1.4e+04	3.2e+03	1.1e+09	
04 October	9.2e+06	1.4e+04	3.1e+03	1.3e+08		
05 October	4.9e+06	1.4e+04	3.4e+03	1.9e+08		
06 October	3.6e+06	1.3e+04	3.4e+03	3.0e+08		
07 October	2.0e+06	1.3e+04	3.2e+03	1.8e+08		
08 October	1.3e+06	1.4e+04	3.4e+03	1.1e+08		
09 October	1.2e+06	1.4e+04	3.5e+03	1.3e+08		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	03 October	12	2-4-3-2-2-2-2-3	16	3-3-4-3-3-3-3-2	14
04 October	18	3-4-3-4-4-2-2-3	46	3-5-5-6-7-3-3-2	26	4-5-4-4-4-2-3-4
05 October	10	3-3-3-2-2-2-2-2	19	3-3-4-5-4-3-1-1	13	4-4-3-3-2-2-2-3
06 October	4	2-1-1-1-1-2-1-1	3	1-1-1-0-0-2-2-1	6	2-2-1-1-0-2-2-1
07 October	5	2-1-1-1-2-2-2-1	4	1-1-1-0-2-3-1-0	6	3-2-1-1-1-2-2-1
08 October	7	2-3-2-2-2-1-1-1	16	1-3-3-5-4-2-2-1	8	2-4-2-2-1-1-1-1
09 October	4	1-1-2-1-1-1-1-1	10	1-1-3-4-4-1-1-0	6	2-1-2-1-2-1-2-1

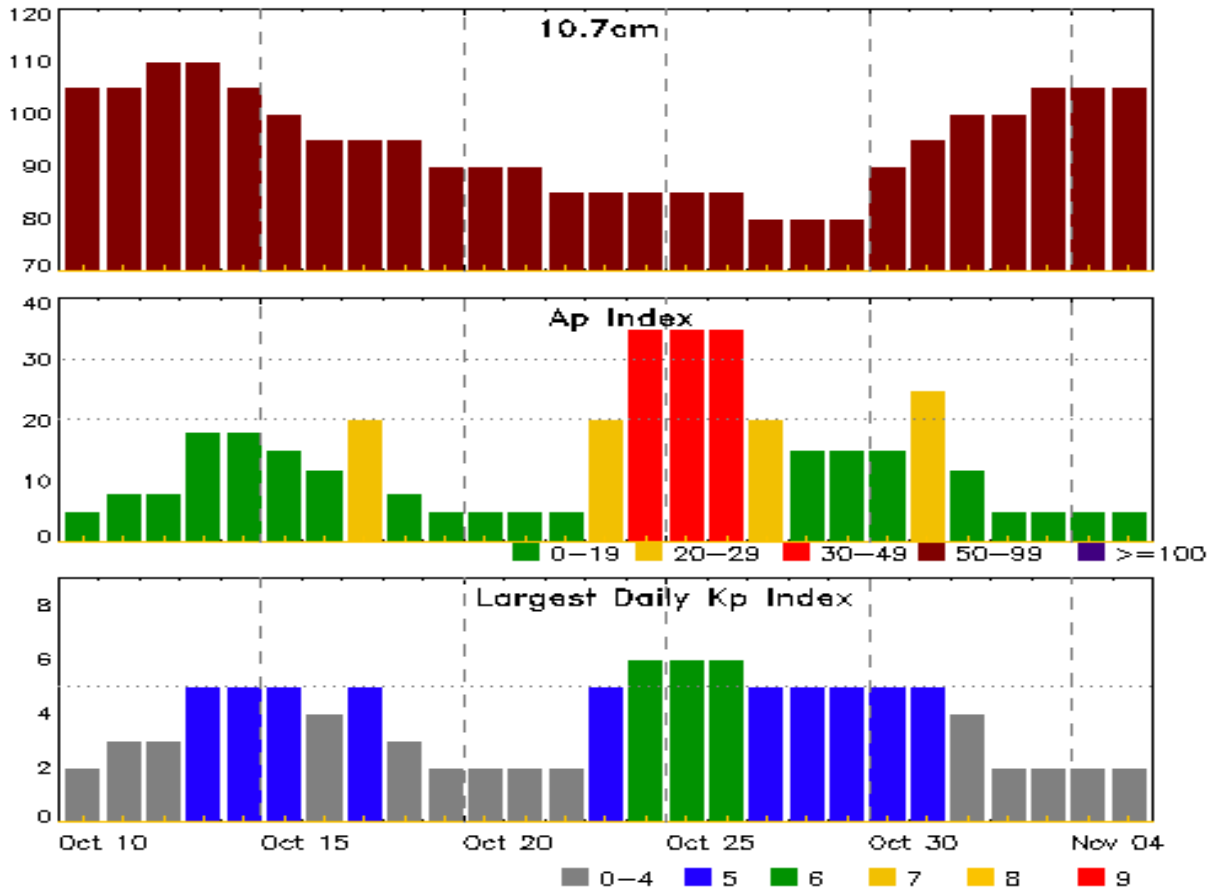


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
03 Oct 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	27/1525
03 Oct 1855	WARNING: Geomagnetic K = 4	03/1855 - 04/0300
04 Oct 0233	EXTENDED WARNING: Geomagnetic K = 4	03/1855 - 04/1200
04 Oct 0300	ALERT: Geomagnetic K = 4	04/0259
04 Oct 0434	WARNING: Geomagnetic K = 5	04/0435 - 0600
04 Oct 0450	ALERT: Geomagnetic K = 5	04/0450
04 Oct 0534	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	27/1525
04 Oct 1155	EXTENDED WARNING: Geomagnetic K = 4	03/1855 - 04/1800
04 Oct 1404	WARNING: Geomagnetic K = 5	04/1405 - 1800
04 Oct 1911	WARNING: Geomagnetic K = 4	04/1911 - 05/0300
04 Oct 2338	ALERT: Geomagnetic K = 4	04/2338
05 Oct 0235	EXTENDED WARNING: Geomagnetic K = 4	04/1911 - 05/1200
05 Oct 0953	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	27/1525
06 Oct 0640	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	27/1525
07 Oct 1111	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	27/1525
08 Oct 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	27/1525
08 Oct 0519	WARNING: Geomagnetic K = 4	08/0518 - 1000
08 Oct 0605	ALERT: Geomagnetic K = 4	08/0559
09 Oct 0641	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	27/1525



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 Oct	105	5	2	24 Oct	85	35	6
11	105	8	3	25	85	35	6
12	110	8	3	26	85	35	6
13	110	18	5	27	80	20	5
14	105	18	5	28	80	15	5
15	100	15	5	29	80	15	5
16	95	12	4	30	90	15	5
17	95	20	5	31	95	25	5
18	95	8	3	01 Nov	100	12	4
19	90	5	2	02	100	5	2
20	90	5	2	03	105	5	2
21	90	5	2	04	105	5	2
22	85	5	2	05	105	5	2
23	85	20	5				



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 #	
03 Oct	0543	0544	0546		SF	N14E54		2598
03 Oct	0554	0554	0555		SF	N13E53		2598
03 Oct	0805	0805	0807		SF	N15E49		2598
03 Oct	2253	2253	2255		SF	S11E68		2599
04 Oct	0353	0409	0424	B6.1				2598
05 Oct	0110	0114	0116	B5.6	SF	N14E33		2598
05 Oct	0759	0809	0824		SF	N13E26		2598
05 Oct	0816	0817	0825		SF	S13E60		2599
06 Oct	0944	0950	0959		SF	S12E44		2599
06 Oct	1107	1107	1113		SF	S12E44		2599
06 Oct	1134	1137	1141	B2.8				
07 Oct	0036	0040	0044	B3.5				2598
08 Oct	0215	0219	0225	B5.3				2598
09 Oct	1858	1903	1910	B5.1				2598



Region Summary

Date	Location		Sunspot Characteristics				Flares										
	Lat CMD	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 2598																	
02 Oct	N12E58	172	10	3	Bxo	3	B						4				
03 Oct	N13E44	173	120	7	Cao	10	B						3				
04 Oct	N13E30	174	80	8	Cao	8	B										
05 Oct	N13E16	174	80	7	Dai	12	B						2				
06 Oct	N13E03	174	90	7	Dsi	20	B										
07 Oct	N14W10	174	140	9	Dai	15	B										
08 Oct	N13W24	175	110	9	Dai	17	B										
09 Oct	N14W38	176	120	8	Cai	15	B										
								0	0	0	9	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 174

Region 2599																	
03 Oct	S12E71	146	200	4	Hax	2	A						1				
04 Oct	S15E59	145	400	7	Cho	5	B										
05 Oct	S14E46	144	460	12	Cko	6	B						1				
06 Oct	S15E31	146	410	3	Hkx	4	A						2				
07 Oct	S15E18	146	370	4	Hkx	4	A										
08 Oct	S15E06	145	400	8	Cko	12	B										
09 Oct	S15W10	146	400	12	Cko	10	B										
								0	0	0	4	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 145

Region 2600																	
06 Oct	N11E72	105	60	2	Hsx	1	A										
07 Oct	N11E60	104	60	2	Hsx	1	A										
08 Oct	N12E47	104	90	2	Cso	3	B										
09 Oct	N13E33	105	110	4	Cso	3	B										
								0	0	0	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 105

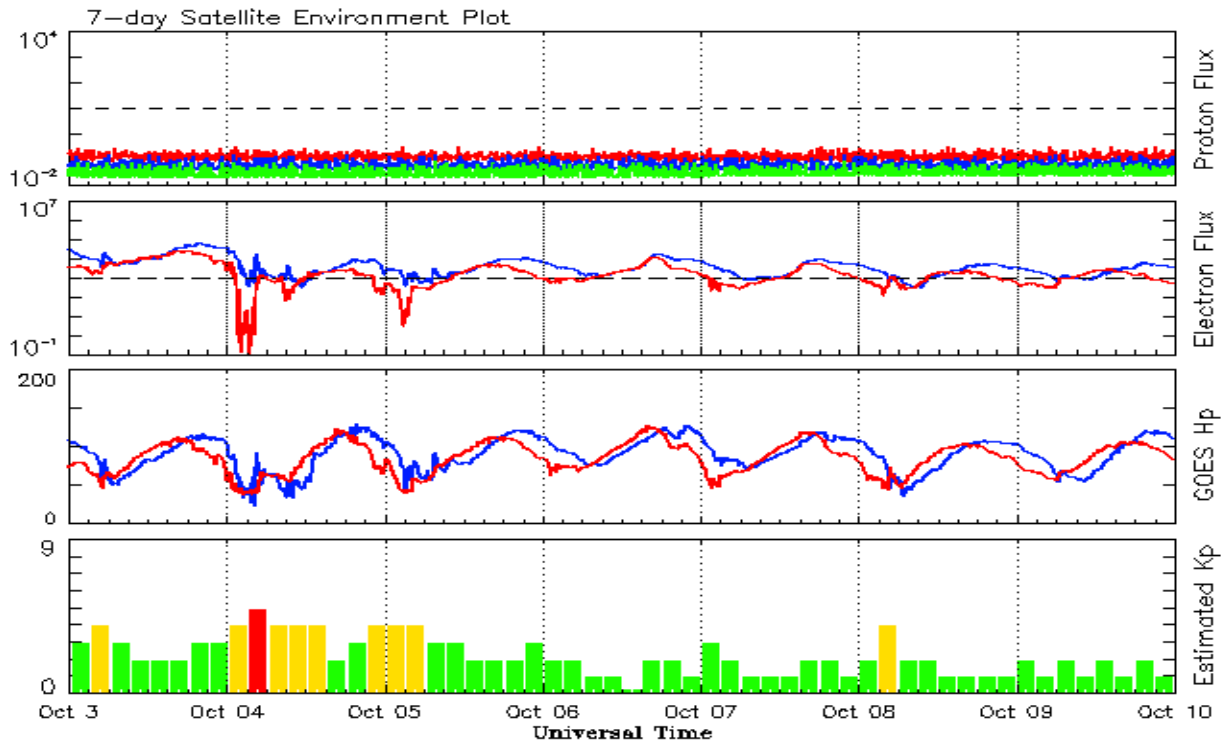


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	39.5	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	36.7	109.6	105.3	13	12.5
December	54.1	34.8	0.64	55.1	34.7	112.8	102.5	15	12.5
2016									
January	50.4	34.2	0.67	51.4	32.6	103.5	99.9	10	12.3
February	56.0	33.8	0.61	49.6	31.5	103.5	98.1	10	12.0
March	40.9	32.5	0.80	47.7	30.3	91.6	96.6	11	11.8
April	39.2	22.7	0.58			93.4		10	
May	48.9	30.9	0.64			93.1		12	
June	19.3	12.3	0.65			81.9		9	
July	36.8	19.5	0.53			85.9		10	
August	50.4	30.4	0.60			85.0		10	
September	37.4	26.8	0.72			87.8		16	

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 October 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.

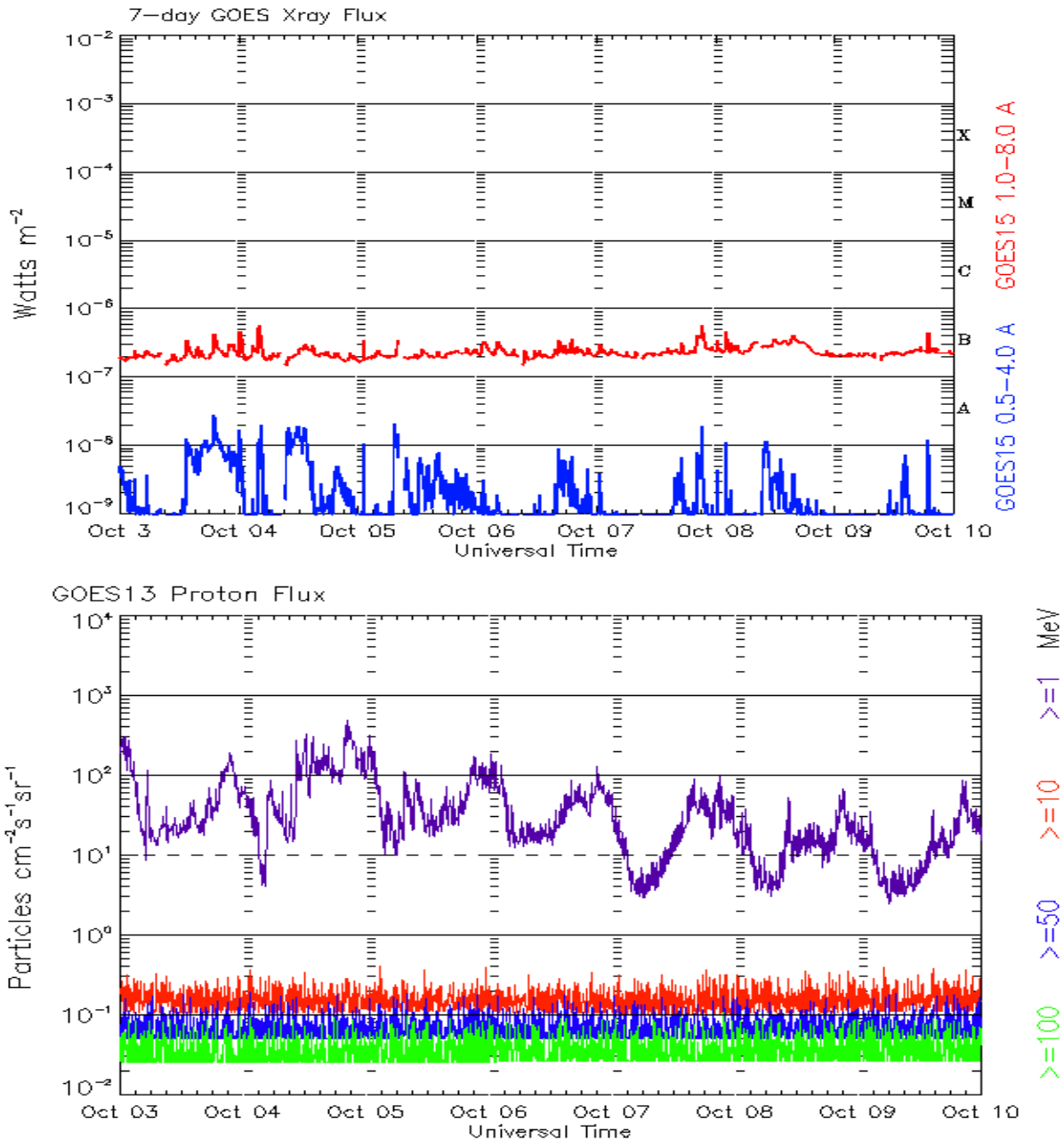
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 03 October 2016*

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.



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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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