

Solar activity was at very low levels throughout much of the period (05-10 Oct) with only B-class flare activity observed. Solar activity increased to low levels on 11 Oct due to a long-duration C3 flare at 11/2229 UTC from an unnumbered region behind the southeastern limb. The seven numbered active regions on the visible disk throughout the week were generally stable, simple, and unproductive. No Earth-directed coronal mass ejections were observed this period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached very high levels on 09, 11 Oct with high levels observed on 05-06, 08, and 10 Oct, all due to an enhanced solar wind environment and increased geomagnetic activity caused by a coronal hole high speed stream (CH HSS). Moderate flux levels were observed on 07 Oct.

Geomagnetic field activity was quiet to G1 (Minor) geomagnetic storm levels on 05 Oct and quiet to active levels on 06 Oct due to brief periods of southward Bz in addition to isolated periods of substorming. The influence of a recurrent positive polarity CH HSS caused active to G3 (Strong) geomagnetic storm levels on 07 Oct, active to G2 (Moderate) geomagnetic storm levels on 08 Oct, and unsettled to active conditions on 09 Oct. Quiet to active field conditions were observed on 10-11 Oct due to waning CH HSS effects, an enhanced solar wind environment, and localized substorming.

Space Weather Outlook

12 October - 07 November 2015

Solar activity is expected to be at low levels throughout the period with a chance for M-class flares (R1-R2 (Minor-Moderate) Radio Blackouts) for 16-29 Oct due to the return of Region 2422 (S20, L=102) which produced a total of 18 M-class flares last rotation.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be high levels on 12-15, 18-24 Oct, and 01-02, 04-07 Nov. Moderate flux levels are expected on 16-17, 25, and 27-28 Oct with normal levels expected on 26, 29-31 Oct, and 03 Nov.

Geomagnetic field activity is likely to reach G1 (Minor) geomagnetic storm levels on 12, 15-16 Oct, and 03 Nov due to the influence of multiple recurrent coronal hole high speed streams (CH HSS). Active levels are anticipated on 13-14, 17, 29 Oct, and 04-05 Nov. Quiet to unsettled 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
05 October	83	15	110	B1.1	0	0	0	0	0	0	0	0
06 October	81	24	110	B1.0	0	0	0	0	0	0	0	0
07 October	81	24	110	A9.4	0	0	0	1	0	0	0	0
08 October	80	24	40	A9.4	0	0	0	0	0	0	0	0
09 October	81	11	30	A7.5	0	0	0	1	0	0	0	0
10 October	81	22	50	A7.4	0	0	0	0	0	0	0	0
11 October	85	36	80	A9.4	1	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
	05 October	9.8e+05	1.1e+04	2.7e+03	5.6e+07	
06 October	4.7e+05	1.1e+04	2.6e+03	9.4e+07		
07 October	7.4e+05	1.1e+04	2.6e+03	4.1e+06		
08 October	1.6e+07	1.1e+04	2.8e+03	4.8e+08		
09 October	3.4e+06	1.1e+04	2.9e+03	1.7e+09		
10 October	7.0e+05	1.2e+04	2.7e+03	2.2e+09		
11 October	9.0e+05	1.1e+04	2.8e+03	2.1e+09		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	05 October	12	3-3-3-4-3-1-1-1	52	2-3-6-8-5-3-2-1	18
06 October	11	2-3-3-1-2-2-3-3	23	2-3-3-4-5-4-3-4	19	3-4-3-2-3-3-4-4
07 October	44	3-6-4-4-5-4-6-5	51	3-4-6-5-5-6-6-4	77	4-6-6-5-5-6-7-6
08 October	41	5-6-6-4-3-4-4-4	78	4-6-7-7-6-6-5-4	56	5-6-6-5-5-5-5-4
09 October	15	4-3-2-2-3-3-3-3	50	3-3-2-7-7-4-4-4	26	4-4-3-4-4-4-4-4
10 October	9	3-3-3-1-2-2-1-2	15	4-2-4-3-3-3-2-1	12	4-3-3-2-2-3-2-2
11 October	8	3-2-2-2-2-2-2-2	18	3-2-3-4-5-3-2-2	22	4-3-2-2-2-2-3-3



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
05 Oct 0555	EXTENDED WARNING: Geomagnetic K = 4	04/2148 - 05/1200
05 Oct 1005	EXTENDED WARNING: Geomagnetic K = 4	04/2148 - 05/1800
05 Oct 1007	WARNING: Geomagnetic K = 5	05/1005 - 1400
05 Oct 1013	ALERT: Geomagnetic K = 5	05/1012
05 Oct 1149	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1130
05 Oct 1940	WATCH: Geomagnetic Storm Category G1 predicted	
06 Oct 0459	WARNING: Geomagnetic K = 4	06/0500 - 1400
06 Oct 0531	ALERT: Geomagnetic K = 4	06/0530
06 Oct 1144	WATCH: Geomagnetic Storm Category G2 predicted	
06 Oct 1201	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1130
06 Oct 1355	EXTENDED WARNING: Geomagnetic K = 4	06/0500 - 1900
06 Oct 1856	EXTENDED WARNING: Geomagnetic K = 4	06/0500 - 07/0700
07 Oct 0312	WARNING: Geomagnetic K = 5	07/0330 - 1400
07 Oct 0313	EXTENDED WARNING: Geomagnetic K = 4	06/0500 - 07/2300
07 Oct 0500	ALERT: Geomagnetic K = 5	07/0455
07 Oct 0508	WARNING: Geomagnetic K = 6	07/0510 - 1000
07 Oct 0518	ALERT: Geomagnetic K = 6	07/0517
07 Oct 0815	ALERT: Geomagnetic K = 5	07/0815
07 Oct 0908	ALERT: Geomagnetic K = 6	07/0859
07 Oct 0908	EXTENDED WARNING: Geomagnetic K = 6	07/0510 - 1400
07 Oct 1108	ALERT: Geomagnetic K = 5	07/1108
07 Oct 1334	EXTENDED WARNING: Geomagnetic K = 4	06/0500 - 08/1900
07 Oct 1334	EXTENDED WARNING: Geomagnetic K = 5	07/0330 - 08/1000
07 Oct 1334	EXTENDED WARNING: Geomagnetic K = 6	07/0510 - 08/0700
07 Oct 1429	ALERT: Geomagnetic K = 5	07/1428
07 Oct 1614	ALERT: Geomagnetic K = 5	07/1614
07 Oct 1700	ALERT: Geomagnetic K = 6	07/1659
07 Oct 1843	ALERT: Geomagnetic K = 5	07/1842



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
07 Oct 1852	WARNING: Geomagnetic K \geq 7	07/1850 - 08/0700
07 Oct 1852	ALERT: Geomagnetic K = 6	07/1850
07 Oct 1909	ALERT: Geomagnetic K = 7	07/1909
07 Oct 2200	ALERT: Geomagnetic K = 5	07/2159
07 Oct 2341	ALERT: Geomagnetic K = 6	07/2338
08 Oct 0027	ALERT: Geomagnetic K = 5	08/0023
08 Oct 0527	ALERT: Geomagnetic K = 5	08/0526
08 Oct 0532	ALERT: Geomagnetic K = 6	08/0530
08 Oct 0650	EXTENDED WARNING: Geomagnetic K = 5	07/0330 - 08/1900
08 Oct 0650	EXTENDED WARNING: Geomagnetic K = 6	07/0510 - 08/1400
08 Oct 0650	EXTENDED WARNING: Geomagnetic K = 4	06/0500 - 08/2300
08 Oct 0735	ALERT: Geomagnetic K = 5	08/0735
08 Oct 0828	ALERT: Geomagnetic K = 6	08/0828
08 Oct 0956	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	08/0935
08 Oct 1141	ALERT: Geomagnetic K = 5	08/1140
08 Oct 1313	EXTENDED WARNING: Geomagnetic K = 5	07/0330 - 09/0200
08 Oct 1313	EXTENDED WARNING: Geomagnetic K = 4	06/0500 - 09/0600
08 Oct 1313	EXTENDED WARNING: Geomagnetic K = 6	07/0510 - 09/0000
08 Oct 1342	ALERT: Geomagnetic K = 5	08/1336
08 Oct 1623	ALERT: Geomagnetic K = 5	08/1619
08 Oct 1919	ALERT: Geomagnetic K = 5	08/1915
09 Oct 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	08/0935
09 Oct 0555	EXTENDED WARNING: Geomagnetic K = 4	06/0500 - 09/1800
09 Oct 1651	WARNING: Geomagnetic K = 5	09/1650 - 10/0000
09 Oct 1653	EXTENDED WARNING: Geomagnetic K = 4	06/0500 - 10/0800
09 Oct 2356	EXTENDED WARNING: Geomagnetic K = 5	09/1650 - 10/0600
10 Oct 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	08/0935
10 Oct 0747	EXTENDED WARNING: Geomagnetic K = 4	06/0500 - 10/1800

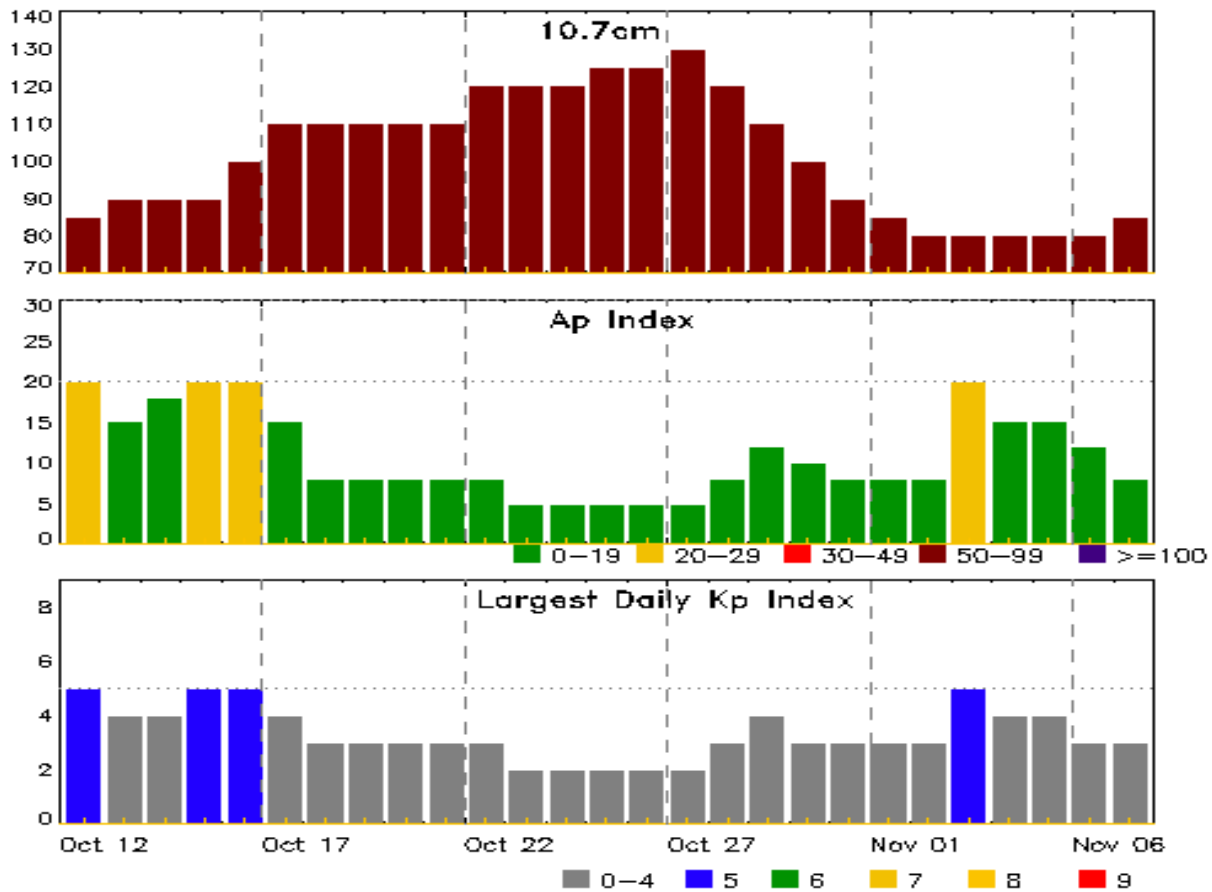


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
10 Oct 1845	WATCH: Geomagnetic Storm Category G1 predicted	
11 Oct 0054	WARNING: Geomagnetic K = 4	11/0053 - 0900
11 Oct 0230	ALERT: Geomagnetic K = 4	11/0230
11 Oct 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	08/0935



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
12 Oct	85	20	5	26 Oct	125	5	2
13	90	15	4	27	130	5	2
14	90	18	4	28	120	8	3
15	90	20	5	29	110	12	4
16	100	20	5	30	100	10	3
17	110	15	4	31	90	8	3
18	110	8	3	01 Nov	85	8	3
19	110	8	3	02	80	8	3
20	110	8	3	03	80	20	5
21	110	8	3	04	80	15	4
22	120	8	3	05	80	15	4
23	120	5	2	06	80	12	3
24	120	5	2	07	85	8	3
25	125	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 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 #	
06 Oct	0817	1114	1126	B1.7				2427
07 Oct	0521	0534	0545	B2.6				2427
07 Oct	0632	0636	0640	B1.4				2427
07 Oct	0752	0758	0805	B5.1	SF	N18W73		2427
08 Oct	0123	0127	0131	B1.7				2427
08 Oct	0607	0614	0620	B2.7				2427
09 Oct	B0825	U0826	A0831		SF	S19E30		2429
09 Oct	2134	2139	2217	B1.8				2431
10 Oct	1058	1104	1109	B1.5				2432
11 Oct	1601	1642	1737	B4.3				
11 Oct	2155	2229	2326	C3.2				



Region Summary

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

Region 2426

25 Sep	N16E48	64	10	4	Bxo	3	B										
26 Sep	N16E34	66	10	4	Cro	2	B										
27 Sep	N16E22	65	10	1	Axx	1	A					2					
28 Sep	N16E08	66	plage														
29 Sep	N16W06	66	plage														
30 Sep	N16W20	67	plage														
01 Oct	N16W34	68	plage														
02 Oct	N16W48	69	plage														
03 Oct	N16W62	70	plage														
04 Oct	N16W76	70	plage														
05 Oct	N16W90	71	plage														
										0	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 66

Region 2427

27 Sep	N18E49	37	30	4	Cro	10	B										
28 Sep	N18E35	39	60	6	Csi	9	B					8					
29 Sep	N18E23	37	140	8	Cai	22	B					7					
30 Sep	N18E09	38	180	9	Dsi	12	B					1					
01 Oct	N17W04	38	180	8	Dso	22	B										
02 Oct	N18W17	38	180	9	Cai	14	B					1					
03 Oct	N18W30	38	180	8	Dai	11	BG	2									
04 Oct	N18W44	38	150	9	Dai	8	B										
05 Oct	N18W58	39	110	9	Cao	5	B										
06 Oct	N16W72	40	100	3	Cso	2	B										
07 Oct	N16W86	41	100	2	Hsx	1	A					1					
										2	0	0	18	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 38

Region 2428

28 Sep	S05W64	138	10	3	Bxo	4	B					1					
29 Sep	S04W76	136	20	2	Cro	4	B	1				1					
30 Sep	S04W92	139	10	1	Hrx	1	A										
										1	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 138



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 2429																	
06 Oct	S17E56	272	10	2	Bxo	2	B										
07 Oct	S19E42	273	10	4	Bxo	3	B										
08 Oct	S19E32	270	10	5	Bxo	3	B										
09 Oct	S19E18	270	plage									1					
10 Oct	S19E04	271	plage														
11 Oct	S19W10	272	plage														
								0	0	0	1	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 271

Region 2430																	
08 Oct	S17E60	242	30	1	Hrx	1	A										
09 Oct	S17E47	241	30	1	Hsx	1	A										
10 Oct	S17E33	242	20	1	Hrx	1	A										
11 Oct	S17E19	243	10	1	Hrx	1	A										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 243

Region 2431																	
10 Oct	S17E75	200	30	1	Hax	1	A										
11 Oct	S18E61	201	50	1	Hax	1	A										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 201

Region 2432																	
11 Oct	S23E43	219	20	3	Cro	4	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 219

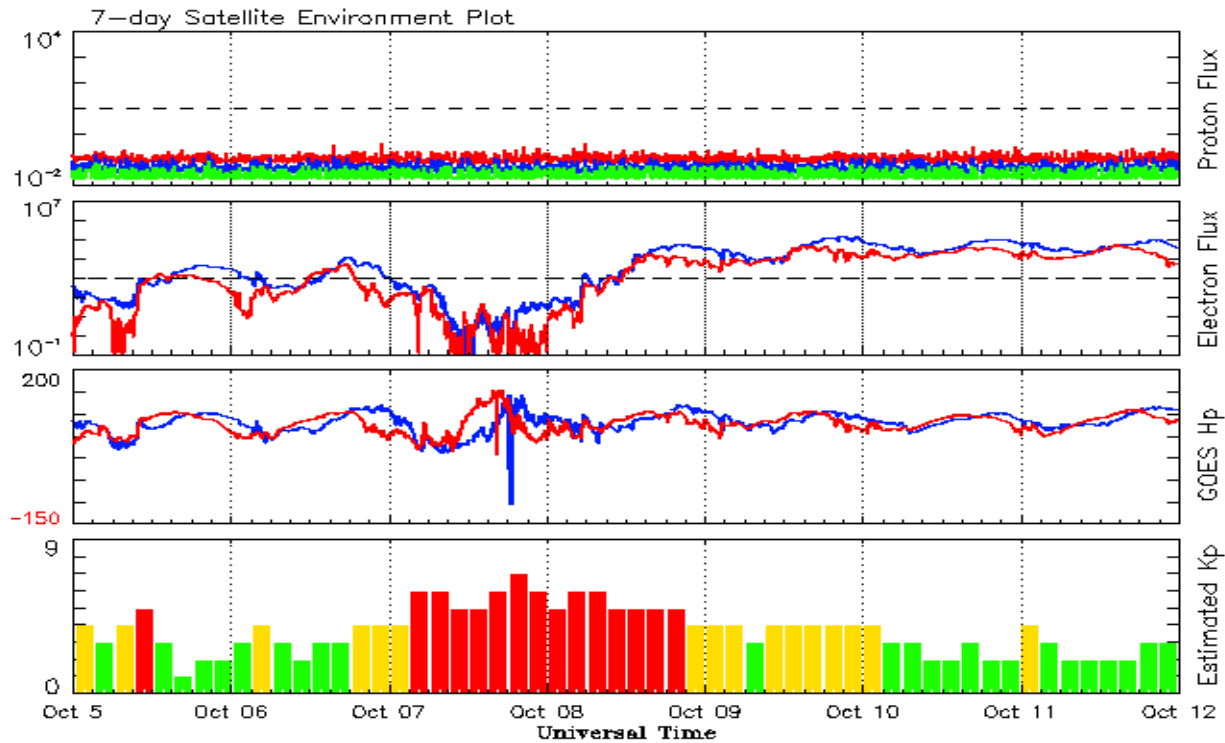


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	67.5	0.65	124.8	69.8	144.3	143.5	9	7.5
May	116.8	67.5	0.64	122.3	69.0	130.0	144.7	7	7.9
June	107.7	61.7	0.66	121.4	68.5	122.2	145.5	7	8.4
July	113.6	60.1	0.64	120.4	67.6	137.3	145.2	5	8.8
August	106.2	64.1	0.70	115.1	65.0	124.7	142.8	9	8.9
September	127.4	78.0	0.69	107.4	61.1	146.1	140.1	11	9.3
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			129.2		12	
May	83.0	53.3	0.71			120.1		9	
June	77.3	39.9	0.53			123.2		14	
July	68.4	39.8	0.58			107.0		10	
August	61.6	38.8	0.63			106.2		16	
September	72.5	46.9	0.65			102.1		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 05 October 2015*

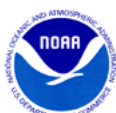
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

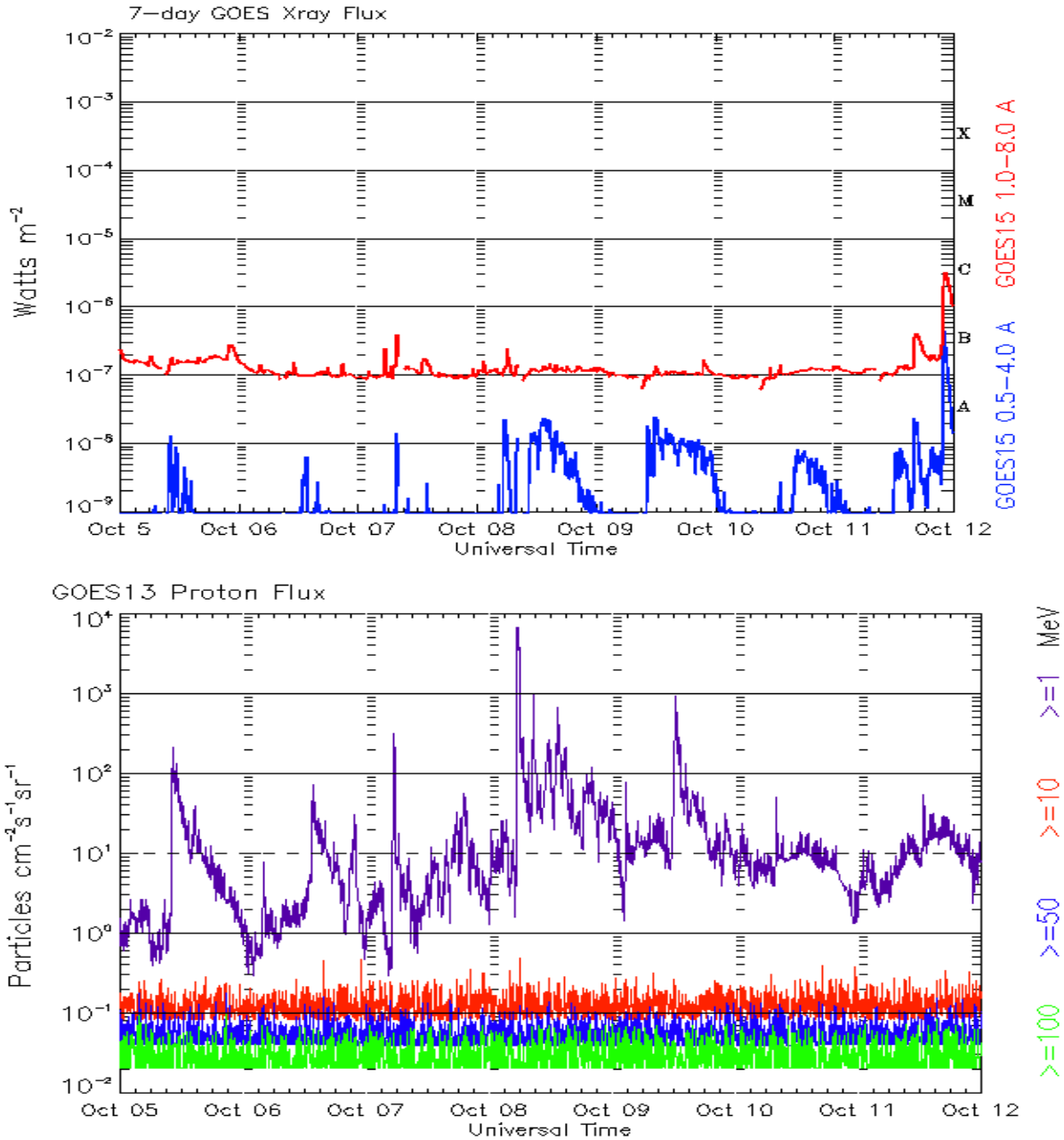
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 05 October 2015*

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)

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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

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