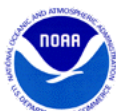


Solar activity was at low levels all week. The largest flare was a C2 from Region 1856 (N08, L=226, class/area=Dso/80 on 04 October) at 04/0322 UTC. Region 1857 (S08, L=228, class/area=Hsx/110 on 05 October) produced a C1 flare at 03/2023 UTC. These were the only two regions with C-class activity attributed to them. A long duration C1 flare was observed just beyond the northwest limb at approximately 02/1954 UTC and was associated with a coronal mass ejection (CME). Another CME was associated with a filament eruption near S13E47 at about 02/2300 UTC. This second CME was judged to be potentially geoeffective near its periphery, but a significant disturbance was not expected. A Type-II radio sweep was observed later in the week at 05/0652 UTC. It was attributed to the eruption of a large CME visible in SOHO/LASCO coronagraph imagery beginning around 05/0735 UTC emerging from beyond the east limb. Finally on 6 October at 1424 UTC, a C1 flare was observed in a filament channel in the southwest quadrant. Coronal dimming was observed in SDO/AIA 193 imagery beginning around 1357 UTC and lasting for a few hours while SOHO/LASCO imagery showed an asymmetrical halo CME associated with this event. Initial WSA-ENLIL model output indicates that this CME is to arrive at Earth between 2200 UTC on 09 October and 0300 UTC on 10 October.

The 10 MeV proton flux at geosynchronous orbit reached event levels (S2) during the week in response to the filament eruption and subsequent CME on 29 September. The proton event began when the 10 pfu threshold was crossed at 30/0505 UTC. The event peaked at 30/2005 UTC when the flux reached 182 pfu, followed by a slow decline. The event ended at 02/0510 UTC.

The greater than 2 MeV electron flux at geosynchronous orbit remained at low to moderate levels all week.

Geomagnetic field activity ranged from quiet to major, and possibly severe, storm levels. The CME spawned by a 35 degree filament eruption from N15W40 on 19/2337 UTC arrived on 02/0120 UTC. Solar wind speed at the ACE spacecraft jumped from near 400 km/s to approximately 636 km/s. Bt, which had been hovering near 5 nT rose to almost 32 nT over the next three hours. Bz plunged to almost -30 nT by 02/0425 UTC. The arrival of the CME was also reflected by jumps in temperature and density at ACE. The arrival at Earth's geomagnetic field quickly followed. A 72 nT sudden impulse was observed at the Boulder magnetometer just 38 minutes (02/0158 UTC) after the shock passed the ACE spacecraft. By 0200 UTC, the estimated planetary K-index (Kp) had reached 5, indicating minor storm levels. (G1, minor, on NOAA scales) Over the course of the next four hours, conditions would reach major storm levels, Kp=6. (G2, Moderate, on the NOAA scales) The high-latitude College, Alaska observatory reported severe storm levels (K=8). Aurora was visible throughout the nighttime sector as far south as Northern Colorado and Southern Wisconsin. Preliminary estimates from GFZ Potsdam suggest the planetary K index reached 7+. The disturbed conditions, ranging from unsettled to minor storm levels, persisted through the first synoptic period of October 3rd (00-03 UTC). The days preceding the CME and following the CME were characterized by extremely quiet conditions.



## **Space Weather Outlook**

### **07 October - 02 November 2013**

Solar activity is expected to be at low levels with a slight chance for moderate activity throughout the forecast period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels for most of the period. High levels are expected 11-14 October in response to a large recurrent coronal hole high speed stream.

Geomagnetic field activity is expected to be at unsettled levels on 09 and unsettled to active levels on 10 October with arrival of the 06 October coronal mass ejection (CME). Recurrent coronal hole high speed streams are expected to bring unsettled to active levels on 11 - 16 and 21 October. Predominately quiet conditions are expected for the remainder of the period, 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
30 September	105	42	70	B2.5	0	0	0	0	0	0	0	0
01 October	107	49	120	B3.0	0	0	0	1	0	0	0	0
02 October	108	59	270	B2.9	2	0	0	0	0	0	0	0
03 October	114	61	310	B2.9	1	0	0	3	0	0	0	0
04 October	109	84	370	B2.2	1	0	0	1	0	0	0	0
05 October	106	69	320	B2.0	0	0	0	0	0	0	0	0
06 October	107	53	200	B2.1	2	0	0	2	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
30 September	1.7e+07	5.7e+06	6.5e+03		1.3e+07	
01 October	2.4e+08	8.9e+06	2.7e+03		3.5e+07	
02 October	2.1e+08	1.2e+06	2.4e+03		4.8e+06	
03 October	9.9e+06	1.0e+05	2.4e+03		2.5e+07	
04 October	3.0e+06	4.3e+04	2.9e+03		3.2e+07	
05 October	2.8e+06	2.1e+04	2.5e+03		4.1e+07	
06 October	3.9e+06	1.8e+04	2.7e+03		5.3e+07	

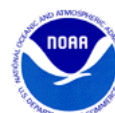
### ***Daily Geomagnetic Data***

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
30 September	3	1-1-1-1-1-1-1-0	0	1-0-0-0-0-0-0-0	3	1-1-1-0-1-1-0-0
01 October	6	0-1-1-2-3-1-2-2	2	0-0-0-0-2-0-1-1	5	0-0-1-1-2-1-2-2
02 October	29	5-5-5-3-3-3-4-3	64	6-8-5-5-5-3-3-3	39	5-6-5-3-3-3-5-4
03 October	5	3-1-0-1-1-2-2-0	9	5-2-1-1-0-2-2-0	6	4-1-0-1-1-2-2-0
04 October	2	0-0-0-1-1-1-1-0	0	0-0-0-0-0-0-0-0	2	0-0-0-0-1-1-1-0
05 October	2	0-0-0-1-2-1-1-0	0	0-0-0-0-0-0-0-0	1	0-0-0-1-1-1-0-0
06 October	3	0-0-0-2-1-2-1-1	0	0-0-0-1-0-0-0-0	2	0-0-0-1-1-1-0-1

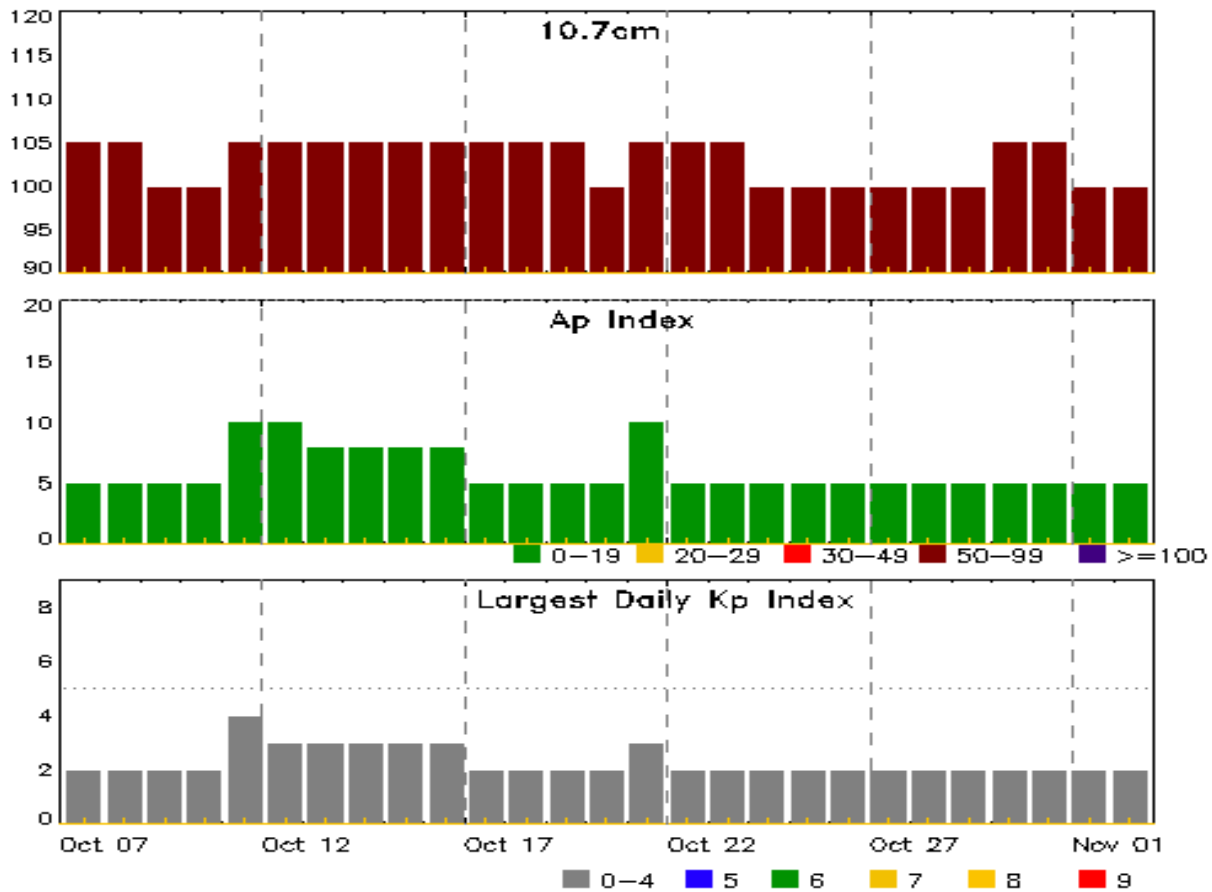


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
30 Sep 0446	WARNING: Proton 10MeV Integral Flux > 10pfu	30/0500 - 2200
30 Sep 0525	ALERT: Proton Event 10MeV Integral Flux >= 10pfu	30/0505
30 Sep 1435	ALERT: Proton Event 10MeV Integral Flux >= 100pfu	30/1420
30 Sep 1952	WATCH: Geomagnetic Storm Category G1 predicted	
30 Sep 1958	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	30/0500 - 01/2200
01 Oct 1330	WATCH: Geomagnetic Storm Category G2 predicted	
01 Oct 2123	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	30/0500 - 02/2200
02 Oct 0126	WARNING: Geomagnetic Sudden Impulse expected	02/0150 - 0250
02 Oct 0150	WARNING: Geomagnetic K = 4	02/0150 - 1600
02 Oct 0200	WARNING: Geomagnetic K = 5	02/0200 - 1300
02 Oct 0203	ALERT: Geomagnetic K = 5	02/0200
02 Oct 0212	SUMMARY: Geomagnetic Sudden Impulse	02/0158
02 Oct 0359	WARNING: Geomagnetic K = 6	02/0400 - 1300
02 Oct 0458	ALERT: Geomagnetic K = 6	02/0454
02 Oct 1222	EXTENDED WARNING: Geomagnetic K = 5	02/0200 - 1800
02 Oct 1528	EXTENDED WARNING: Geomagnetic K = 4	02/0150 - 03/0000
02 Oct 1724	WATCH: Geomagnetic Storm Category G1 predicted	
02 Oct 1753	EXTENDED WARNING: Geomagnetic K = 4	02/0150 - 03/1300
02 Oct 1754	EXTENDED WARNING: Geomagnetic K = 5	02/0200 - 03/0600
02 Oct 1921	SUMMARY: Proton Event 10MeV Integral Flux >= 100pfu	30/1420 - 01/1715
02 Oct 1923	SUMMARY: Proton Event 10MeV Integral Flux >= 10pfu	30/0505 - 02/0510
02 Oct 1943	CANCELLATION: Proton 10MeV Integral Flux > 10pfu	
03 Oct 0854	CANCELLATION: Geomagnetic Storm Category G1 predicted	
05 Oct 1103	ALERT: Type II Radio Emission	05/0652



## 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
07 Oct	105	5	2	21 Oct	105	10	3
08	105	5	2	22	105	5	2
09	100	5	2	23	105	5	2
10	100	5	2	24	100	5	2
11	105	10	4	25	100	5	2
12	105	10	3	26	100	5	2
13	105	8	3	27	100	5	2
14	105	8	3	28	100	5	2
15	105	8	3	29	100	5	2
16	105	8	3	30	105	5	2
17	105	5	2	31	105	5	2
18	105	5	2	01 Nov	100	5	2
19	105	5	2	02	100	5	2
20	100	5	2				



### ***Energetic Events***

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
			Max						245	2695	II	IV

**No Events Observed**

### ***Flare List***

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
30 Sep	1727	1730	1732	B4.8			
01 Oct	0025	0028	0032	B4.3			1850
01 Oct	1118	U1121	A1123		SF	S12E12	1855
02 Oct	0153	0156	0158	B5.9			
02 Oct	1046	1052	1101	B6.1			1857
02 Oct	1954	2151	2320	C1.5			
02 Oct	2329	0006	0041	C1.5			
03 Oct	0248	0250	0252		SF	N11W56	1858
03 Oct	1252	1252	1255		SF	S13W16	1855
03 Oct	1944	2023	2049	C1.8			1857
03 Oct	2024	2025	2028		SF	N07E64	1856
04 Oct	0317	0332	0352	C2.5	SF	N08E57	1856
04 Oct	1702	1707	1710	B4.2			
04 Oct	2059	2110	2116	B4.9			1857
05 Oct	0434	0441	0448	B5.5			1857
05 Oct	2051	2055	2059	B4.3			
06 Oct	0016	0051	0103	B8.7	SF	S08E33	1857
06 Oct	0202	0206	0209	B4.4			
06 Oct	1121	1125	1127	C1.0			1856
06 Oct	1337	1424	1456	C1.1			
06 Oct	1511	1513	1514		SF	S25E61	
06 Oct	1848	1858	1907	B7.5			
06 Oct	2157	2202	2207	B7.3			



## Region Summary

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10 <sup>-6</sup> hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 1846															
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

Crossed West Limb.

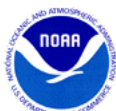
Absolute heliographic longitude: 59

### Region 1850

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				
30 Sep	N10W73	34	50	5	Cso	3	B								
01 Oct	N08W85	34	30	2	Hsx	1	A								
								9	0	0	16	1	0	0	0

Crossed West Limb.

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	4

#### *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												
30 Sep	S20W37	359	plage												
02 Oct	S20W65	1	plage												
03 Oct	S20W79	2	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 360

#### *Region 1854*

28 Sep	N06E65	284	50	5	Dso	5	B								
29 Sep	N06E51	284	30	4	Cao	3	B								
30 Sep	N05E34	287	10	1	Hrx	1	A								
01 Oct	N05E19	289	10	1	Hsx	1	A								
02 Oct	N05E04	290	20	1	Hsx	1	A								
03 Oct	N05W09	292	plage												
04 Oct	N05W24	293	plage												
05 Oct	N05W39	295	plage												
06 Oct	N05W54	297	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 290





### ***Region Summary - continued***

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10 <sup>-6</sup> hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 1855															
30 Sep	S13E16	305	10	4	Bxo	8	B								
01 Oct	S14E01	306	80	6	Dsi	17	B				1				
02 Oct	S14W11	307	130	7	Dsi	16	B								
03 Oct	S13W26	307	90	8	Dso	14	B				1				
04 Oct	S13W39	308	80	9	Dai	15	B								
05 Oct	S13W53	309	70	9	Dao	9	B								
06 Oct	S13W67	310	40	10	Cao	7	B								
								0	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 306

<b><i>Region 1856</i></b>															
02 Oct	N08E69	225	50	2	Cao	1	B								
03 Oct	N07E56	225	70	6	Dso	2	B				1				
04 Oct	N08E43	226	80	7	Dso	8	B	1			1				
05 Oct	N08E31	225	70	7	Cao	5	B								
06 Oct	N08E18	225	40	7	Cao	4	B	1							
								2	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 225

<b><i>Region 1857</i></b>															
02 Oct	S06E66	228	70	2	Hax	1	A								
03 Oct	S08E54	227	100	2	Hsx	1	A	1							
04 Oct	S07E41	228	100	3	Cao	4	B								
05 Oct	S08E28	228	110	2	Hsx	1	A								
06 Oct	S08E14	229	110	2	Hsx	1	A				1				
								1	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 229

<b><i>Region 1858</i></b>															
03 Oct	N09W67	349	50	5	Cao	4	B				1				
04 Oct	N10W80	349	80	7	Dao	3	B								
05 Oct	N12W95	351	60	8	Dao	2	B								
								0	0	0	1	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 349



### *Region Summary - continued*

	Location	Sunspot Characteristics						Flares								
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical					
Date	Lat CMD	Lon	10 <sup>-6</sup>	hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
<i>Region 1859</i>																
04 Oct	S17W08	277	30	4	Cro	4	B									
05 Oct	S15W23	279	10	2	Axx	2	A									
06 Oct	S15W37	280	10	1	Axx	1	A									
									0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 277

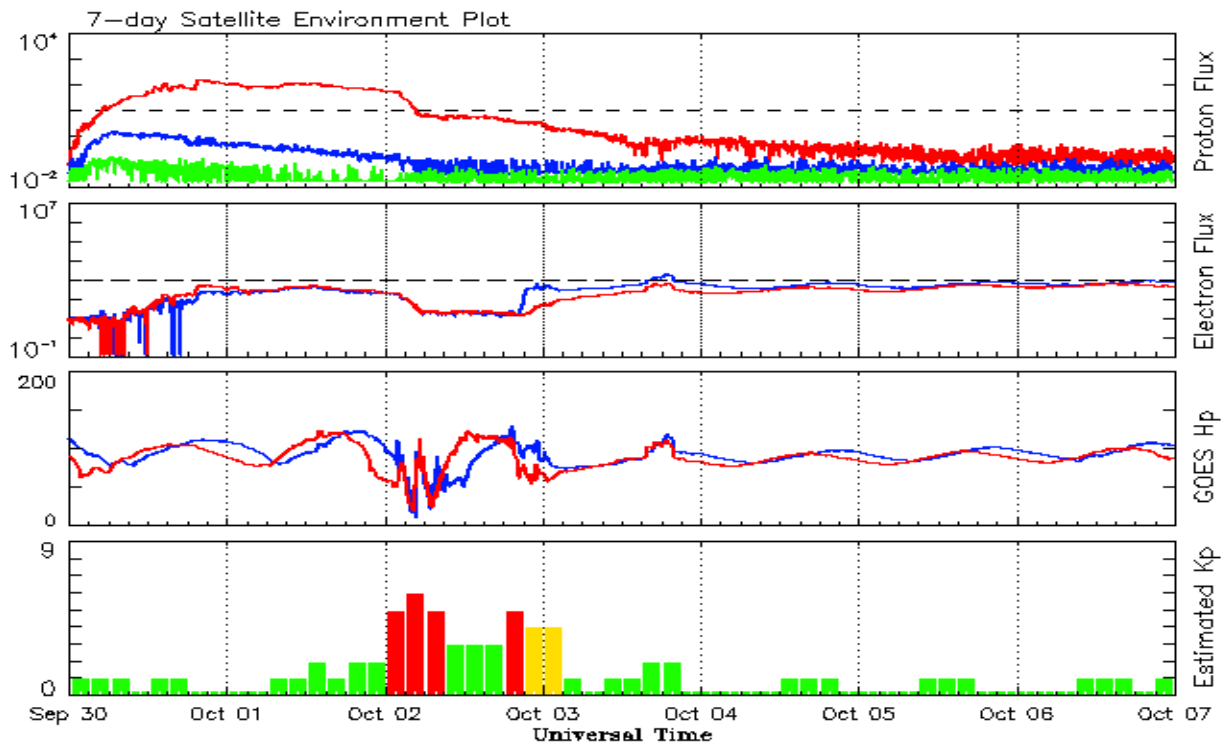


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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>									
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	85.7	57.5	111.2	117.1	9	7.4
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	
September	55.0	36.9	0.67			102.7		5	

**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 30 September 2013*

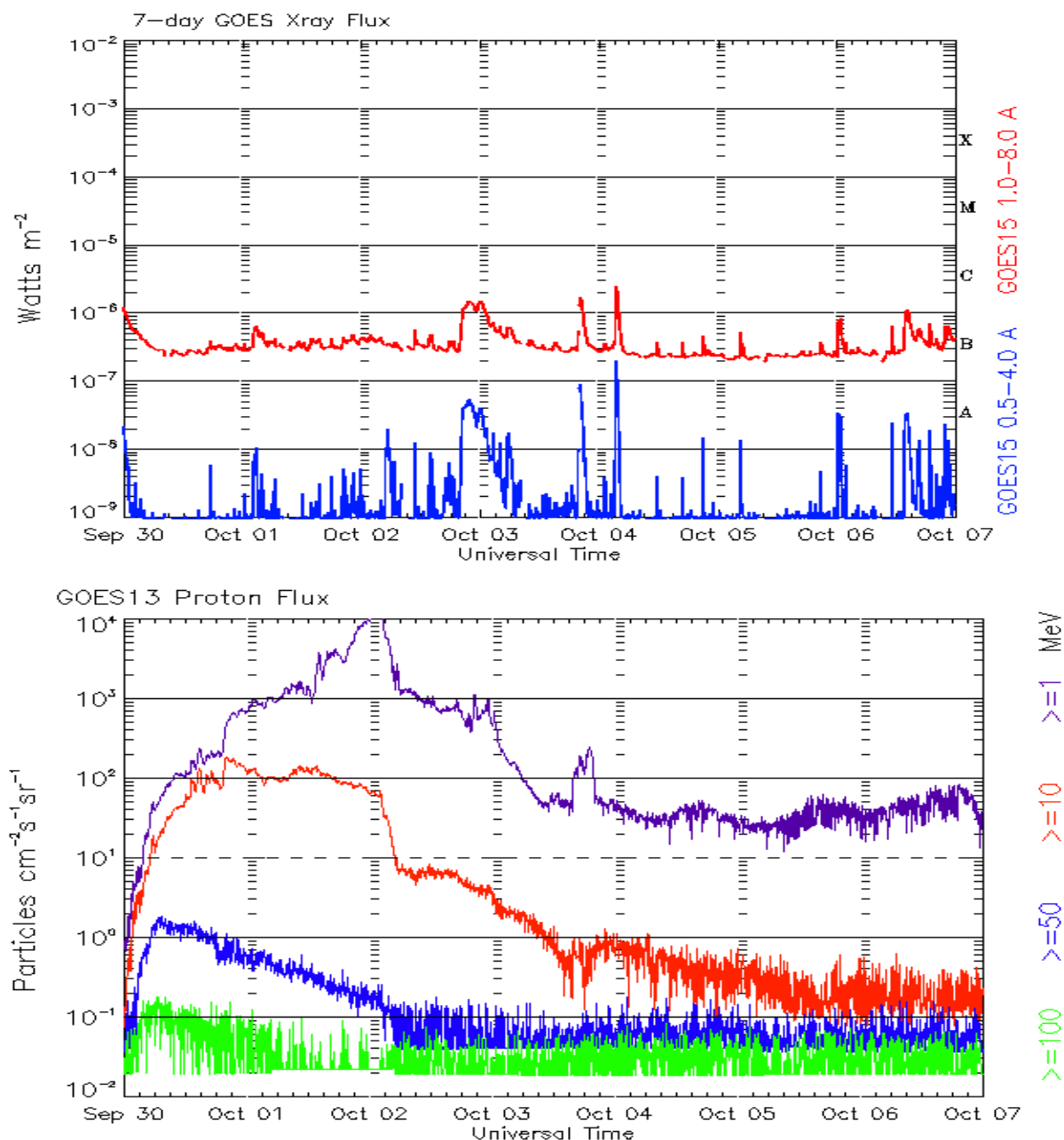
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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.

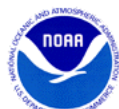
The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first 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 30 September 2013*

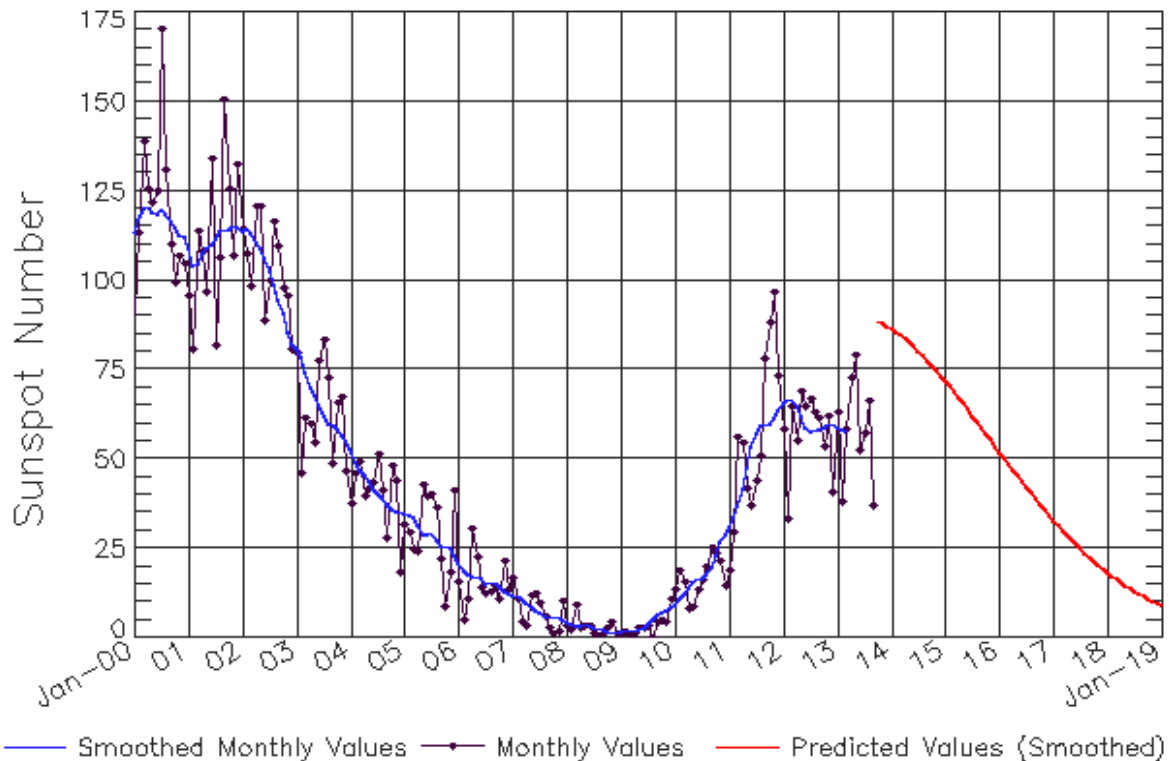
The x-ray plots contains five-minute averages x-ray flux ( $\text{Watt/m}^2$ ) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged integral flux units (pfu = protons/ $\text{cm}^2$  -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.



# ISES Solar Cycle Sunspot Number Progression

Observed data through Sep 2013



Updated 2013 Oct 7

NOAA/SWPC Boulder, CO USA

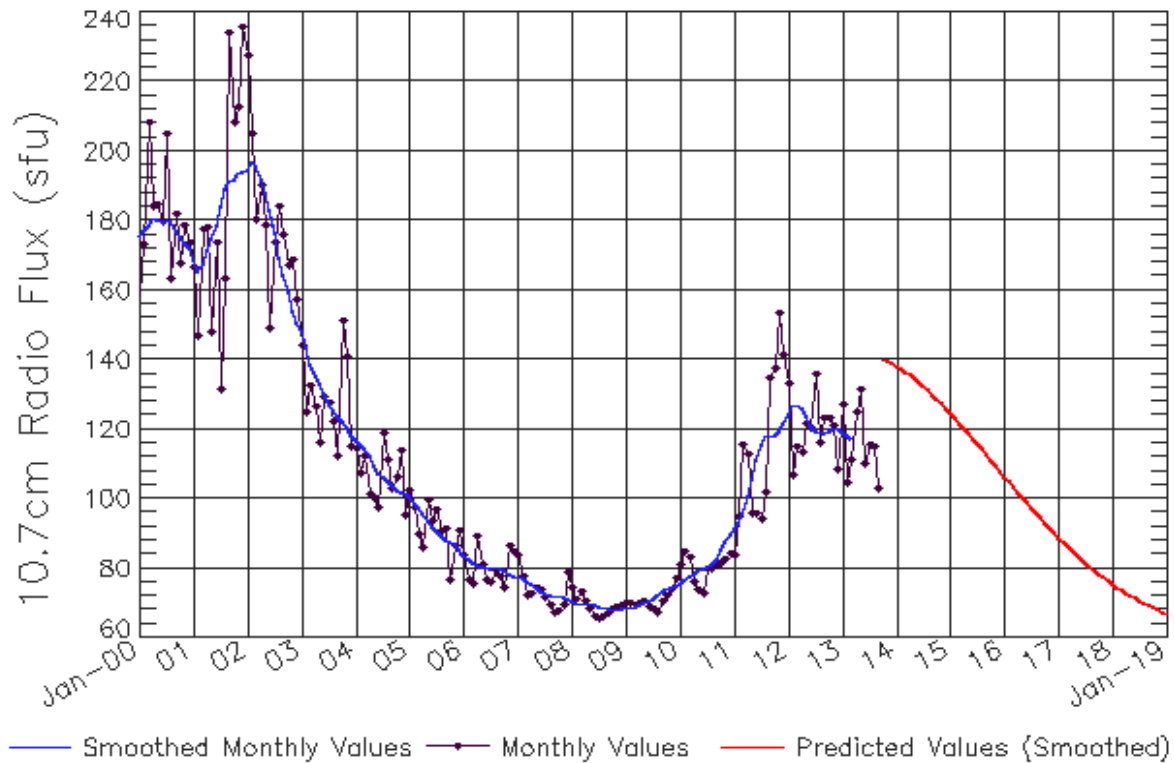
## Smoothed Sunspot Number Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	9 (***)	11 (***)	12 (***)	14 (***)	16 (***)	16 (***)	17 (***)	17 (***)	20 (***)	23 (***)	27 (***)	29 (***)
2011	31 (***)	33 (***)	37 (***)	42 (***)	48 (***)	53 (***)	57 (***)	59 (***)	60 (***)	60 (***)	61 (***)	63 (***)
2012	66 (***)	67 (***)	67 (***)	65 (***)	62 (***)	59 (***)	58 (***)	58 (***)	58 (***)	59 (***)	60 (***)	60 (***)
2013	59 (***)	58 (***)	58 (***)	58 (1)	61 (2)	64 (3)	67 (5)	69 (5)	73 (6)	74 (7)	75 (7)	76 (8)
2014	78 (9)	80 (9)	82 (10)	84 (10)	83 (10)	81 (10)	80 (10)	79 (10)	78 (10)	76 (10)	75 (10)	73 (10)
2015	72 (10)	70 (10)	69 (10)	67 (10)	65 (10)	64 (10)	62 (10)	60 (10)	59 (10)	57 (10)	55 (10)	54 (10)
2016	52 (10)	50 (10)	49 (10)	47 (10)	45 (10)	44 (10)	42 (10)	40 (10)	39 (10)	37 (10)	36 (10)	34 (10)
2017	33 (10)	31 (10)	30 (10)	29 (10)	27 (10)	26 (10)	25 (10)	24 (10)	23 (10)	21 (10)	20 (10)	19 (10)
2018	18 (10)	17 (10)	16 (10)	15 (10)	15 (10)	14 (10)	13 (10)	12 (10)	12 (10)	11 (10)	10 (10)	10 (10)
2019	9 (10)	8 (10)	8 (10)	7 (10)	7 (10)	6 (10)	6 (10)	6 (10)	5 (10)	5 (10)	4 (10)	4 (10)



# ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Sep 2013



Updated 2013 Oct 7

NOAA/SWPC Boulder, CO USA

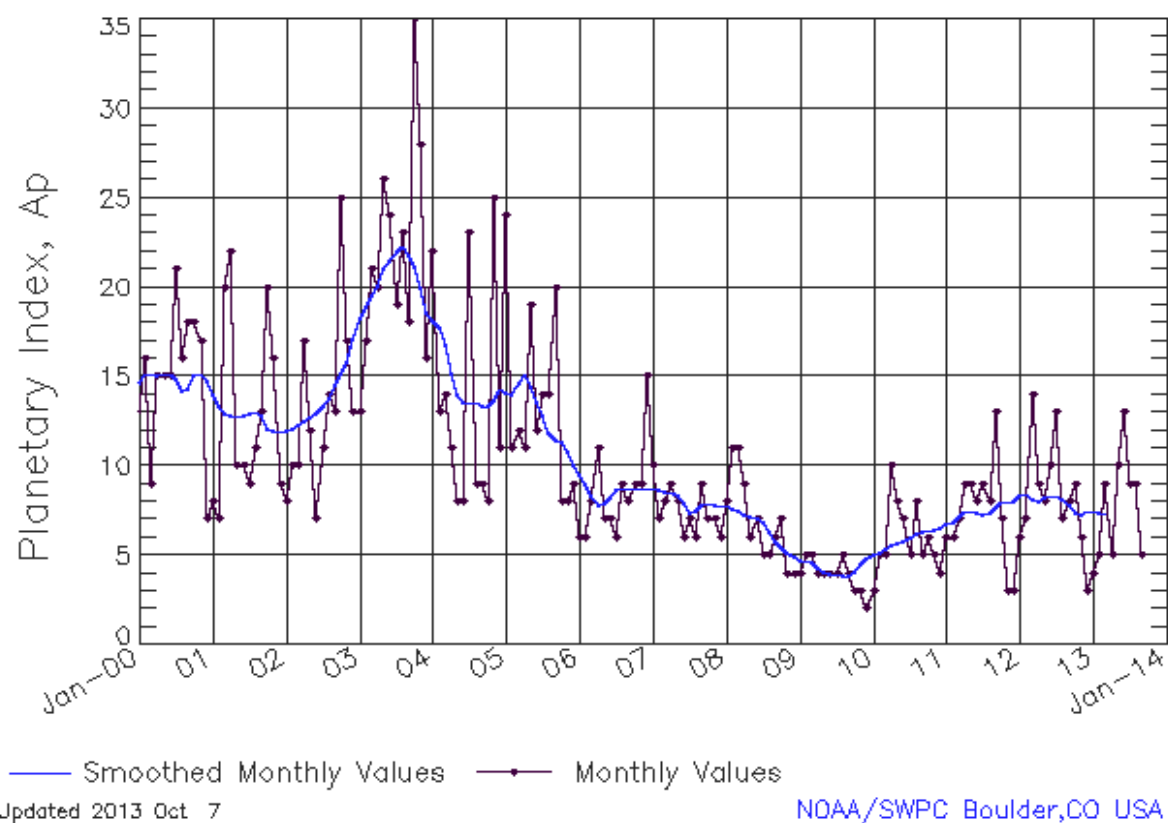
## Smoothed F10.7cm Radio Flux Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	76 (***)	77 (***)	78 (***)	78 (***)	79 (***)	80 (***)	80 (***)	81 (***)	82 (***)	85 (***)	88 (***)	90 (***)
2011	91 (***)	93 (***)	96 (***)	100 (***)	106 (***)	111 (***)	115 (***)	118 (***)	118 (***)	118 (***)	120 (***)	122 (***)
2012	124 (***)	127 (***)	127 (***)	126 (***)	124 (***)	121 (***)	120 (***)	119 (***)	119 (***)	119 (***)	120 (***)	120 (***)
2013	119 (***)	118 (***)	117 (***)	117 (1)	118 (1)	120 (2)	122 (3)	124 (4)	126 (4)	128 (5)	129 (6)	130 (7)
2014	131 (8)	133 (8)	134 (9)	136 (9)	135 (9)	134 (9)	132 (9)	131 (9)	130 (9)	129 (9)	127 (9)	126 (9)
2015	125 (9)	123 (9)	122 (9)	120 (9)	119 (9)	117 (9)	116 (9)	114 (9)	113 (9)	111 (9)	110 (9)	108 (9)
2016	106 (9)	105 (9)	103 (9)	102 (9)	100 (9)	99 (9)	97 (9)	96 (9)	94 (9)	93 (9)	92 (9)	90 (9)
2017	89 (9)	88 (9)	86 (9)	85 (9)	84 (9)	83 (9)	82 (9)	80 (9)	79 (9)	78 (9)	77 (9)	76 (9)
2018	75 (9)	75 (9)	74 (9)	73 (9)	72 (9)	71 (9)	71 (9)	70 (9)	69 (9)	69 (9)	68 (9)	67 (9)
2019	67 (9)	66 (9)	66 (9)	65 (9)	65 (9)	65 (9)	64 (9)	64 (9)	63 (9)	63 (9)	63 (9)	63 (9)



# ISES Solar Cycle Ap Progression

Observed data through Sep 2013



*Solar Cycle Comparison charts are temporarily unavailable.*



## ***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](mailto:SWPC.Webmaster@noaa.gov)

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