

**Space Weather Highlights**  
**18 November - 24 November 2013**

**SWPC PRF 1995**  
**25 November 2013**

Solar activity reached high levels during the period. The week began at low levels with C-class flares coming from Regions 1893 (S13, L=102 class/area Eki/480 on 18 Nov), 1897 (S21, L=064 class/area Ekc/610 on 13 Nov) and 1900 (S19, L=105 class/area Dac/150 on 15 Nov). On 19 November, Region 1893 produced an X1/Sf at 19/1026 UTC. An associated CME was observed, along with a Type II (est. speed 1049 km/s) radio sweep and a 530 sfu Tenflare. Low levels returned on 20 November. Moderate levels were reached on 21 and 23 November. Region 1893 produced an M1 at 21/1111 UTC and newly numbered Region 1904 (N12, L=039 class/area Dai/130 on 24 Nov) produced a pair of M1 flares at 23/0232 UTC and 23/1257 UTC. Low levels rounded out the period on 24 November. A filament eruption was observed in SDO/AIA 193 imagery at 23/2342 UTC. A subsequent CME was observed in SOHO/LASCO C2 imagery beginning at 24/0125 UTC. The CME is not expected to be geoeffective.

A greater than 10 MeV proton enhancement was observed beginning at approximately 19/1245 UTC and reached a maximum flux value of 4 pfu at 19/1825 UTC before returning to background levels by 21 November. The enhancement was likely associated with the X1/Sf flare on 19 November.

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

Geomagnetic field activity was mostly quiet with the exception of three unsettled periods observed between 23/0300 UTC and 23/1200 UTC. The increase in activity appeared to be due to a weak transient.

**Space Weather Outlook**  
**25 November - 21 December 2013**

Solar activity is expected to be at low levels with a chance for isolated M-class activity until the return of old Region 1890 (S13, L=171) on 28 November. Chances for moderate activity increase from 28 November to 16 December as a chain of regions that produced moderate to high activity during the last rotation return to the visible disk. Predominately low level activity is expected for the remainder of the 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 throughout the period.

Geomagnetic field activity is expected to be at quiet to unsettled levels from 25 - 27 November due to effects from a positive polarity coronal hole high speed stream (CH HSS). Quiet conditions are expected from 28 November - 03 December. Quiet to unsettled conditions are anticipated to return on 04 December due to a recurrent negative polarity CH HSS. Quiet to



active conditions are anticipated on 06 - 08 December due to a recurrent positive polarity HSS. Predominately quiet conditions are expected for the remainder of the period with the exception of 13 - 14 December. Quiet to unsettled conditions are expected on those two days due to a second negative polarity HSS.



### ***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
18 November	163	144	1550	B8.4	13	0	0	4	0	0	0	0
19 November	153	113	1540	B6.7	6	0	1	2	0	0	0	0
20 November	147	95	1180	B6.5	7	0	0	0	0	0	0	0
21 November	141	85	890	B6.0	3	1	0	1	0	0	0	0
22 November	143	51	740	B5.3	5	0	0	2	0	0	0	0
23 November	136	65	750	B5.0	10	2	0	2	2	0	0	0
24 November	127	69	880	B5.5	8	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
18 November	8.9e+04	1.0e+04	2.6e+03		1.9e+06	
19 November	4.0e+05	1.0e+05	3.1e+03		2.9e+06	
20 November	1.5e+06	6.0e+04	2.7e+03		3.0e+06	
21 November	3.0e+05	1.3e+04	2.5e+03		3.6e+06	
22 November	2.0e+05	1.1e+04	2.6e+03		4.8e+06	
23 November	9.1e+04	1.0e+04	2.4e+03		1.5e+06	
24 November	5.0e+04	1.1e+04	2.4e+03		8.6e+05	

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

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
18 November	2	2-0-0-0-0-1-1-1	1	0-0-1-1-1-0-0-0	3	1-0-1-1-1-1-1-1
19 November	3	0-0-0-0-1-2-2-1	1	0-0-0-0-1-1-1-0	3	0-0-0-0-1-1-2-1
20 November	3	1-1-1-1-2-1-1-0	5	0-1-1-2-4-0-0-0	4	1-1-1-1-2-0-1-0
21 November	1	0-0-0-0-1-1-0-0	0	0-0-0-0-0-0-0-0	3	0-1-0-1-0-0-1-1
22 November	2	1-1-0-0-1-1-1-1	0	0-0-0-0-0-0-0-0	3	1-1-0-0-0-0-1-2
23 November	6	1-2-3-2-2-2-1-0	11	0-1-3-5-3-2-0-0	8	1-3-3-3-2-1-1-0
24 November	2	0-0-0-1-1-1-1-0	1	0-0-0-2-0-0-0-0	2	0-0-0-1-0-0-1-0

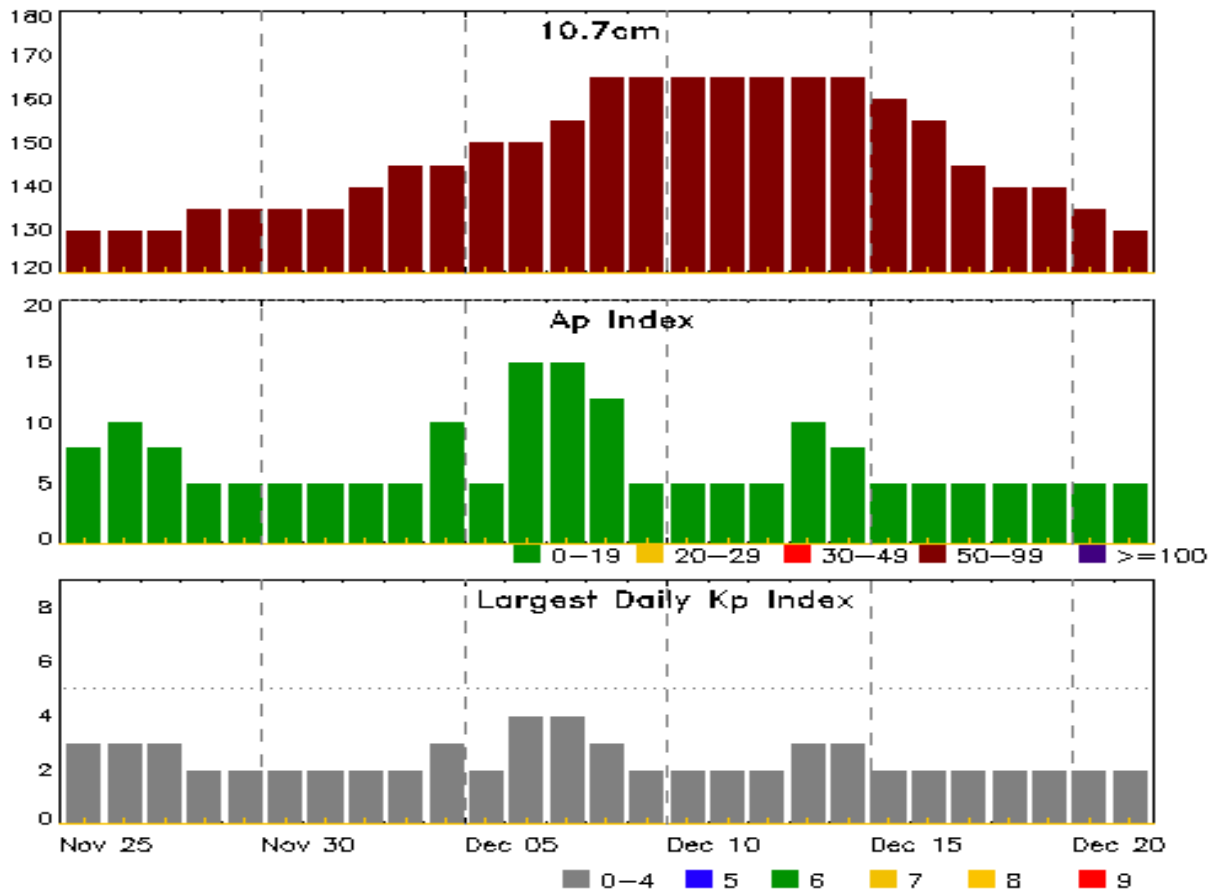


### *Alerts and Warnings Issued*

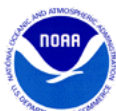
<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
19 Nov 1023	ALERT: X-ray Flux exceeded M5	19/1022
19 Nov 1042	ALERT: Type II Radio Emission	19/1024
19 Nov 1102	SUMMARY: 10cm Radio Burst	19/1020 - 1027
19 Nov 1104	SUMMARY: X-ray Event exceeded X1	19/1014 - 1034
19 Nov 1304	WARNING: Proton 10MeV Integral Flux > 10pfu	19/1305 - 20/1300
23 Nov 0831	WARNING: Geomagnetic K = 4	23/0831 - 1700



## 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
25 Nov	130	8	3	09 Dec	165	5	2
26	130	10	3	10	165	5	2
27	130	8	3	11	165	5	2
28	135	5	2	12	165	5	2
29	135	5	2	13	165	10	3
30	135	5	2	14	165	8	3
01 Dec	135	5	2	15	160	5	2
02	140	5	2	16	155	5	2
03	145	5	2	17	145	5	2
04	145	10	3	18	140	5	2
05	150	5	2	19	140	5	2
06	150	15	4	20	135	5	2
07	155	15	4	21	130	5	2
08	165	12	3				



### ***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
19 Nov	1014	1026	1034	X1.0	0.066	SF	S70W14	1893	23000	530	1	
21 Nov	1052	1111	1142	M1.2	0.025			1893				
23 Nov	0220	0232	0249	M1.1	0.014	1N	N14W56	1904				
23 Nov	1249	1257	1305	M1.0	0.007			1904				

### ***Flare List***

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location	Rgn
						Lat CMD	#
18 Nov	0038	0046	0051	C1.6	SF	S11W54	1893
18 Nov	0044	0049	0053		SF	S11W54	1893
18 Nov	0128	0139	0147	C1.4			1900
18 Nov	0211	0223	0237	C1.2			1900
18 Nov	0252	0257	0304	C1.2			1900
18 Nov	0324	0415	0444	C2.8	SF	S20W12	1897
18 Nov	0420	0421	0425		SF	S20W13	1897
18 Nov	0630	0642	0652	C1.4			1893
18 Nov	0658	0704	0713	C1.8			1897
18 Nov	0834	0838	0846	C1.8			1900
18 Nov	1200	1208	1215	C1.6			1897
18 Nov	1259	1303	1311	C1.7			
18 Nov	1332	1415	1435	C7.0			1893
18 Nov	1553	1559	1607	C2.6			
18 Nov	2102	2120	2151	C1.6			1893
19 Nov	0014	0036	0056	C1.8	SF	S16W33	1897
19 Nov	0504	0526	0537	C1.8			1900
19 Nov	1014	1026	1034	X1.0	SF	S70W14	1893
19 Nov	1648	1651	1656	C1.1			
19 Nov	1703	1706	1709	C1.3			
19 Nov	1755	1801	1805	C2.1			1893
19 Nov	1812	1815	1819	C1.6			
20 Nov	0524	0536	0611	C1.5			1897
20 Nov	1123	1129	1138	C4.6			1897
20 Nov	1238	1241	1246	C1.6			1893
20 Nov	1351	1355	1400	C1.2			1893
20 Nov	1657	1722	1740	C6.4			1897



## *Flare List*

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
20 Nov	1815	1822	1828	C2.4			
20 Nov	2154	2202	2207	C1.4			1893
21 Nov	0903	0908	0915	C1.8	SF	S19W63	1897
21 Nov	1052	1111	1142	M1.2			1893
21 Nov	2044	2051	2102	C1.1			1905
21 Nov	2143	2151	2200	C1.7			1893
22 Nov	1343	1347	1354	C1.2			1905
22 Nov	1421	1445	1515	C3.6			1905
22 Nov	1617	1622	1628	C2.5			1905
22 Nov	1815	1819	1823	C2.0			1905
22 Nov	1916	1923	1932	C1.2			1905
22 Nov	2232	2258	2314		SF	N13W52	1899
22 Nov	2328	2338	2349		SF	N14W55	1899
23 Nov	0220	0232	0249	M1.1	1N	N14W56	1904
23 Nov	0324	0339	0350	C3.1	SF	N14W59	1904
23 Nov	0437	0442	0445	C1.5			1904
23 Nov	0541	0545	0552	C2.7			1897
23 Nov	0843	0846	0848	C1.9			1905
23 Nov	1015	1030	1037	C3.9	SF	N10W61	1899
23 Nov	1205	1228	1238	C5.4	1F	N11W60	1899
23 Nov	1249	1257	1305	M1.0			1904
23 Nov	1548	1556	1604	C2.2			1905
23 Nov	1658	1729	1748	C2.4			1904
23 Nov	1748	1753	1757	C3.3			1905
23 Nov	2335	2340	2346	C1.0			1904
24 Nov	0042	0046	0055	C1.4			1904
24 Nov	0136	0231	0247	C3.2			1904
24 Nov	0702	0707	0714	C1.7			1904
24 Nov	0743	0752	0756	C4.7	SF	N11W73	1904
24 Nov	0933	0940	0947	C3.1	SF	N14W71	1904
24 Nov	1200	1208	1213	C1.3			1904
24 Nov	1303	1308	1311	C1.0			1904
24 Nov	2314	2327	2340	C1.3			

## 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 1893															
08 Nov	S12E66	102	130	2	Hsx	1	A								
09 Nov	S12E54	100	210	3	Hsx	1	A	3							
10 Nov	S12E42	99	180	4	Cso	5	B								
11 Nov	S12E28	98	170	3	Dso	4	B				1				
12 Nov	S13E15	99	240	3	Dso	8	B								
13 Nov	S12E03	98	140	4	Dso	6	B								
14 Nov	S13W10	98	240	8	Dsi	22	B								
15 Nov	S13W25	101	240	10	Dsc	24	BG				1				
16 Nov	S13W39	101	290	7	Dkc	23	BG	2			2				
17 Nov	S13W52	101	420	10	Dkc	31	BD	3			4				
18 Nov	S13W66	102	480	12	Eki	15	BD	4			2				
19 Nov	S13W77	99	430	12	Ekc	14	BD	1		1	1				
20 Nov	S13W91	100	260	7	Dkc	3	B	3							
								16	0	1	11	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 98

### Region 1895

09 Nov	S16E78	77	plage					6							
10 Nov	S15E67	74	60	5	Cao	4	B	4							
11 Nov	S15E52	75	90	3	Cao	2	B								
12 Nov	S16E37	77	90	3	Cso	7	B								
13 Nov	S15E24	77	120	3	Hsx	3	A								
14 Nov	S17E10	77	100	5	Cso	2	B								
15 Nov	S16W02	78	100	5	Hsx	3	A								
16 Nov	S16W17	79	70	2	Hax	2	A								
17 Nov	S16W30	79	80	3	Hsx	5	A								
18 Nov	S16W42	78	40	1	Hsx	1	A								
19 Nov	S17W55	78	40	1	Hsx	1	A								
20 Nov	S17W70	79	20	1	Hsx	2	A								
21 Nov	S16W79	76	50	10	Hsx	4	A								
								10	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 78





### *Region Summary - continued*

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area 10 <sup>-6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
Region 1896															
10 Nov	N13E75	66	110	2	Hsx	1	A								
11 Nov	N11E60	66	140	2	Hsx	1	A								
12 Nov	N11E46	68	190	3	Hsx	1	A								
13 Nov	N12E34	67	140	3	Hax	1	A								
14 Nov	N11E20	67	160	2	Hax	2	A								
15 Nov	N11E07	69	130	2	Hax	2	A								
16 Nov	N11W06	68	150	4	Hsx	3	A								
17 Nov	N11W19	68	150	3	Cso	6	B								
18 Nov	N10W32	67	100	2	Hsx	1	A								
19 Nov	N12W46	68	160	2	Hsx	1	A								
20 Nov	N09W59	68	90	2	Hax	1	A								
21 Nov	N12W71	66	70	4	Hsx	4	A								
22 Nov	N10W84	66	50	2	Hsx	1	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 68

<b>Region 1897</b>															
11 Nov	S18E64	63	240	10	Dai	7	B	1	1						
12 Nov	S20E51	63	600	12	Ekc	26	BG	8			7				
13 Nov	S21E37	64	610	14	Ekc	29	BG	3	1						
14 Nov	S21E26	62	310	17	Fkc	87	BG	7			3				
15 Nov	S21E12	64	360	14	Ekc	84	BGD	3			3	1			
16 Nov	S20W04	66	240	18	Fac	63	BG	3			1	1			
17 Nov	S20W15	64	240	19	Fac	94	BG	4			5				
18 Nov	S19W29	65	100	19	Fai	28	BG	3			2				
19 Nov	S18W41	63	70	18	Fso	10	BG	1			1				
20 Nov	S18W58	66	40	10	Dso	5	BG	3							
21 Nov	S18W72	68	40	10	Cso	5	B	1			1				
22 Nov	S17W84	66	30	1	Cro	1	B								
								37	2	0	23	2	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 66



### *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 1898*

11 Nov	S26E11	116	10	1	Axx	1	A								
12 Nov	S26W00	115	20	3	Cro	2	B								
13 Nov	S26W14	115	10	4	Bxo	3	B								
14 Nov	S26W25	113	10	2	Bxo	5	B								
15 Nov	S26W37	113	10	2	Bxo	4	B								
16 Nov	S26W51	113	plage												
17 Nov	S26W65	114	plage												
18 Nov	S26W79	115	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 115

#### *Region 1899*

12 Nov	N06E76	37	250	7	Hhx	1	A	1							
13 Nov	N06E62	39	360	4	Hkx	3	A	2			1				
14 Nov	N07E50	37	630	8	Dki	10	B	5			1				
15 Nov	N06E35	39	600	9	Dko	14	BG		1		5				
16 Nov	N06E23	39	510	8	Dko	11	BG								
17 Nov	N06E10	39	510	8	Cko	18	BG	1			1				
18 Nov	N04W04	39	610	7	Hkx	6	A								
19 Nov	N05W16	38	610	9	Cko	8	B								
20 Nov	N07W29	38	560	9	Dko	7	B								
21 Nov	N07W45	40	600	8	Dko	16	B								
22 Nov	N07W56	38	560	10	Dko	8	B				2				
23 Nov	N07W71	41	480	5	Hhx	2	A	2			1	1			
24 Nov	N07W84	41	560	4	Hhx	4	A								
								11	1	0	11	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 39



### *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
<i>Region 1900</i>															
14 Nov	S19W17	105	30	5	Dso	10	B	1			1				
15 Nov	S19W29	105	150	7	Dac	24	BG	2			1				
16 Nov	S19W42	104	110	9	Dac	20	BG	6	2		3	1			
17 Nov	S19W55	104	130	9	Dac	31	BG	2	1		4				
18 Nov	S21W67	102	70	5	Dai	10	B	4							
19 Nov	S21W79	101	100	9	Dai	7	B	1							
20 Nov	S23W88	98	60	4	Cso	4	B								
								16	3	0	9	1	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 105

<b>Region 1901</b>															
14 Nov	S24W43	131	10	3	Bxo	3	B								
15 Nov	S24W57	133	20	4	Cro	8	B								
16 Nov	S24W70	132	30	5	Cro	7	B								
17 Nov	S24W82	131	30	9	Cro	3	B								
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 131

<b>Region 1902</b>															
15 Nov	N19W06	80	20	3	Dso	6	B								
16 Nov	N20W20	82	50	3	Dso	4	B								
17 Nov	N20W33	82	20	3	Cso	3	B								
18 Nov	N20W47	83	10	1	Axx	1	A								
19 Nov	N20W61	84	plage												
20 Nov	N20W75	85	plage												
21 Nov	N20W89	85	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 80



### *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 1903*

17 Nov	S12E77	332	60	2	Hsx	1	A								
18 Nov	S11E63	332	140	2	Hsx	2	A								
19 Nov	S10E48	334	130	3	Hax	2	A								
20 Nov	S12E36	333	150	2	Hax	3	A								
21 Nov	S12E23	332	130	5	Cso	6	B								
22 Nov	S14E08	334	100	2	Hsx	1	A								
23 Nov	S12W05	335	130	2	Cao	3	B								
24 Nov	S12W19	336	110	2	Hax	2	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 335

#### *Region 1904*

23 Nov	N12W67	37	80	8	Dai	17	BG	4	2		1	1			
24 Nov	N12W82	39	130	10	Dai	12	BG	7			2				
								11	2	0	3	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 37

#### *Region 1905*

21 Nov	N19E0*	258	plage					1							
22 Nov	N19E85	258	plage					5							
23 Nov	N19E71	258	60	9	Dso	3	BG	3							
24 Nov	N18E57	260	80	9	Dao	11	BG								
								9	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 260

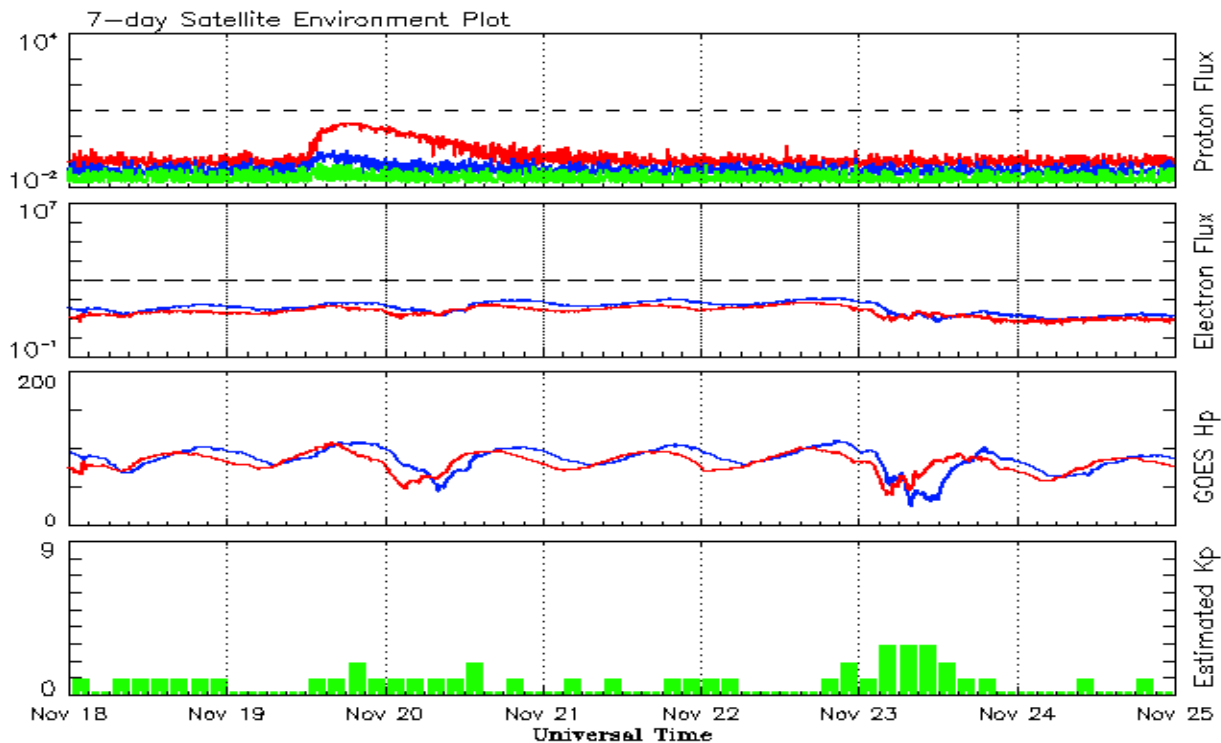


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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>									
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	86.7	57.9	125.0	116.6	5	7.2
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	
October	127.1	85.6	0.67			132.3		7	

**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 18 November 2013*

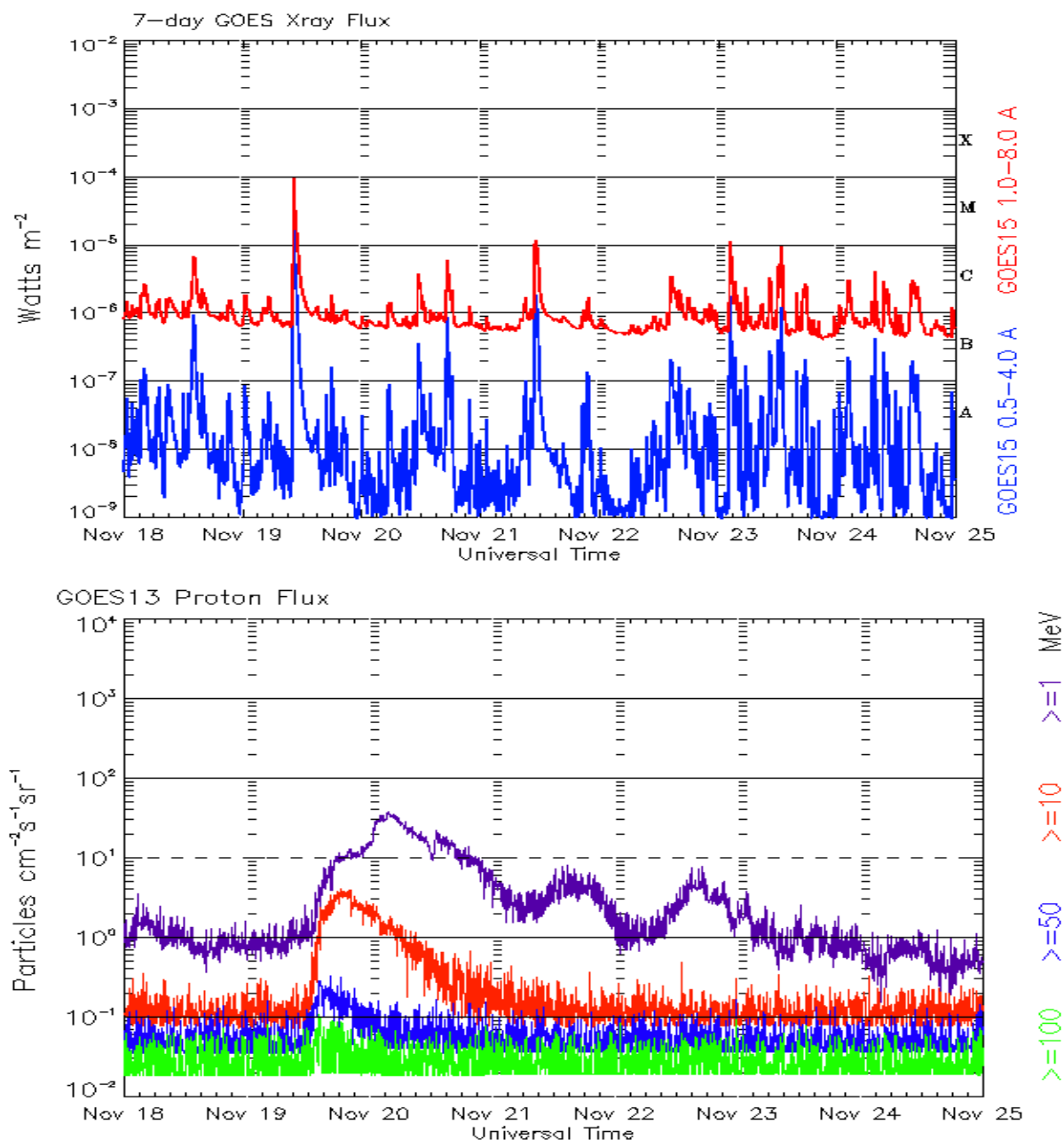
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 18 November 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

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