

Solar activity reached moderate levels during the period. Region 1928 (S17, L=008 class/area Ekc/460 on 21 Dec) started the week off with an M1/1n flare at 23/0905 UTC before rotating around the west limb on 24 December. Activity decreased to low levels from 24 - 28 Dec with the largest event coming from Region 1936 (S17, L=224 class/area Eac/170 on 29 Dec), a C9/Sn flare at 28/1802 UTC. On 28 December, around 28/1720 UTC, GOES 15 SXI and SDO/AIA imagery observed movement and enhanced brightening on the west limb. Shortly after, SOHO/LASCO C2 imagery detected a fast moving CME lifting off the west limb, first visible at 28/1800 UTC. The CME was determined too far west to be geoeffective however it was likely the cause of the greater than 10 MeV proton event to be discussed in the next section. Moderate levels were experienced on 29 December as Region 1936 produced an M3/1n at 29/0756 UTC. Two filament eruptions were observed early on 29 December near S26E42 between 29/0104 - 0225 UTC. The WSA-Enlil model suggests the ejecta will merge with a high speed stream expected to affect Earth around 02 January.

The greater than 10 MeV protons at geosynchronous orbit crossed the 10 pfu alert threshold at 28/2150 UTC, reached a peak of 29 pfu at 28/2315 UTC and the event ended at 29/0645 UTC. The enhancement was likely the result of the large CME observed around the west limb at 28/1800 UTC.

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

Geomagnetic field activity was quiet with active to minor storm periods observed at high latitudes on 25 December and an isolated active period on 29 December.

### **Space Weather Outlook** **30 December - 25 January 2014**

Solar activity is expected to be low with a chance for moderate activity through 25 January. Region 1936 is expected to rotate around the west limb on 04 January but the anticipated return of old Region 1928 keeps chances for M-class activity intact until 17 January when Region 1936 is scheduled to return and finish out the period.

A chance for a greater than 10 MeV proton event exists through 04 January. Flux levels at geosynchronous orbit are still slightly elevated and Regions 1934 and 1936 are in good position to produce further enhancement should they erupt in the next few days. Probabilities will drop significantly once these regions rotate around the west limb.

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 mostly quiet through 31 December. Quiet to



unsettled conditions with isolated active periods are expected from 01 - 04 January due to a combination of a positive polarity coronal hole high speed stream (CH HSS) and a possible weak impact from the CMEs associated with two filament eruptions observed early on 29 December. Mostly quiet conditions are expected throughout the period with possible unsettled conditions on 10 - 11 January, 14 - 17 January and 23 - 24 January when recurrent CH HSS features are expected to be geoeffective.



### *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 December	136	108	860	B5.7	13	1	0	13	1	0	0	0
24 December	128	96	670	B5.3	3	0	0	0	0	0	0	0
25 December	123	81	490	B4.2	9	0	0	2	0	0	0	0
26 December	125	96	450	B3.7	2	0	0	1	0	0	0	0
27 December	131	107	570	B3.7	7	0	0	5	0	0	0	0
28 December	135	95	570	B4.8	6	0	0	8	0	0	0	0
29 December	137	119	520	B6.3	11	1	0	11	1	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 December	1.0e+05	1.0e+04	2.5e+03		2.0e+06
24 December	1.4e+05	1.0e+04	2.3e+03		2.0e+06	
25 December	6.0e+04	1.0e+04	2.5e+03		6.8e+05	
26 December	1.1e+05	4.9e+04	2.8e+03		5.5e+05	
27 December	3.2e+05	1.3e+05	2.8e+03		6.6e+05	
28 December	6.0e+05	2.3e+05	4.7e+03		7.2e+05	
29 December	4.2e+06	7.0e+05	4.2e+03		1.5e+06	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	23 December	2	0-1-1-0-1-1-1-0	0	0-0-0-0-0-0-0-0	3
24 December	2	0-0-0-0-1-1-1-1	0	0-0-0-0-0-0-0-0	2	0-0-0-0-0-1-1-1
25 December	6	2-1-2-3-2-1-1-0	16	0-0-3-5-4-4-2-0	7	2-1-2-3-3-2-1-1
26 December	2	1-1-1-0-1-1-0-0	4	0-0-2-3-2-1-0-0	3	1-1-1-1-1-0-0-0
27 December	3	0-0-0-0-2-1-2-1	0	0-0-0-0-0-0-1-0	3	0-0-0-0-0-0-2-1
28 December	4	0-0-0-1-2-2-2-2	0	0-0-0-0-0-0-0-0	3	0-0-0-1-1-1-1-1
29 December	4	1-1-0-2-1-2-2-0	5	0-0-0-4-2-1-0-0	5	1-1-1-2-1-1-2-1



### *Alerts and Warnings Issued*

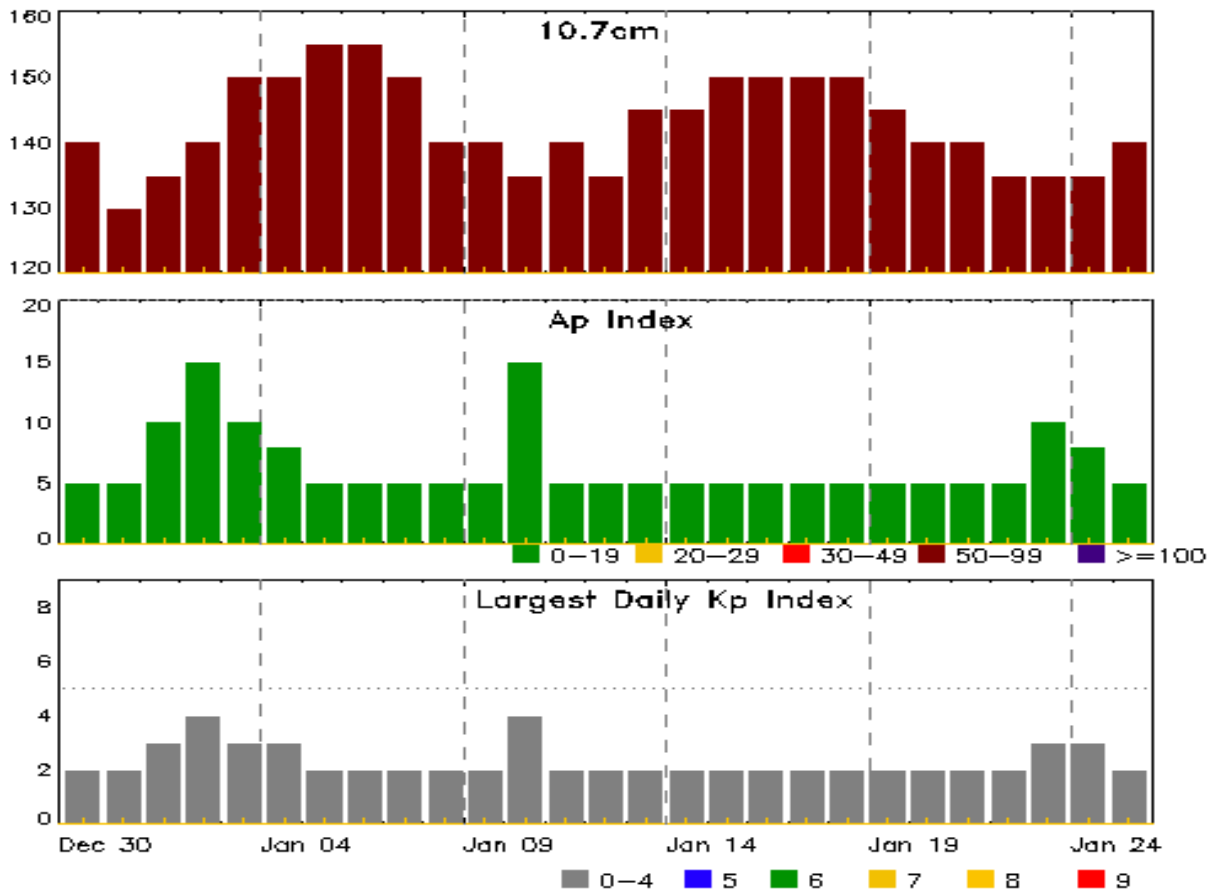
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<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
28 Dec 2118	WARNING: Proton 10MeV Integral Flux > 10pfu	28/2120 - 29/0700
28 Dec 2209	ALERT: Proton Event 10MeV Integral Flux >= 10pfu	28/2150
29 Dec 1538	SUMMARY: Proton Event 10MeV Integral Flux >= 10pfu	28/2150 - 29/0725

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## 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 Dec	140	5	2	13 Jan	145	5	2
31	130	5	2	14	145	5	2
01 Jan	135	10	3	15	150	5	2
02	140	15	4	16	150	5	2
03	150	10	3	17	150	5	2
04	150	8	3	18	150	5	2
05	155	5	2	19	145	5	2
06	155	5	2	20	140	5	2
07	150	5	2	21	140	5	2
08	140	5	2	22	135	5	2
09	140	5	2	23	135	10	3
10	135	15	4	24	135	8	3
11	140	5	2	25	140	5	2
12	135	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	Intensity IV
23 Dec	0859	0906	0909	M1.6	0.005			1928				
29 Dec	0749	0756	0800	M3.1	0.011	1N	S18E01	1936	1100	110		

### *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
23 Dec	0017	0027	0032		SF	S17W61	1928
23 Dec	0043	0045	0107		SF	S17W61	1928
23 Dec	0109	0114	0116	C2.7	SF	S17W60	1928
23 Dec	0138	0146	0155	C4.5	SF	S17W60	1928
23 Dec	0158	0202	0206	C4.4	SF	S17W62	1928
23 Dec	0314	0318	0321	C1.7			
23 Dec	0426	0429	0432	C1.7	SF	S14E35	1934
23 Dec	0551	0555	0558	C3.3	SF	S18W62	1928
23 Dec	0615	0615	0621		SF	S18W62	1928
23 Dec	0753	0758	0802	C7.9	SF	S18W65	1928
23 Dec	0841	0844	0847	C2.8			
23 Dec	0859	0906	0909	M1.6			1928
23 Dec	0903	0905	0917		1N	S21W63	1928
23 Dec	1549	1553	1556	C5.3			1928
23 Dec	1725	1728	1733	C8.4			1936
23 Dec	1739	1739	1748		SF	S18W68	1928
23 Dec	1914	1921	1927	C2.9	SF	S18W70	1928
23 Dec	1954	2001	2003	C2.3	SF	S18W69	1928
23 Dec	2101	2105	2107	C1.1	SF	S18W69	1928
24 Dec	1242	1259	1321	C1.2			1928
24 Dec	1533	1552	1559	C1.7			1928
24 Dec	1645	1655	1707	C1.5			1936
24 Dec	1903	1906	1909	B6.3			1936
24 Dec	2025	2028	2037	B7.2			1936
25 Dec	0549	0556	0559	C1.4			1928
25 Dec	0634	0639	0643	C4.7			1928
25 Dec	0706	0711	0714	C1.0			1936
25 Dec	0807	0811	0818	C1.0			1928
25 Dec	1041	1045	1047	B7.6			1928



## *Flare List*

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
25 Dec	1131	1136	1142	C1.2			1928
25 Dec	1358	1403	1413	C1.1			1928
25 Dec	1628	1635	1643	C1.7	SF	S17E52	1936
25 Dec	1729	1734	1736	C1.3	SF	S17E01	1934
25 Dec	1854	1910	1918	C1.0			
26 Dec	0653	0701	0714	C2.2	SF	S16W23	1931
26 Dec	0809	0842	0904	C1.3			1936
27 Dec	0728	0734	0743	C1.1	SF	S18E33	1936
27 Dec	0934	0938	0945	C1.7	SF	S21W16	1934
27 Dec	1110	1122	1128	C2.0			1934
27 Dec	1208	1213	1217	C4.4			1936
27 Dec	B1326	U1337	1347	C1.7	SF	S21W20	1934
27 Dec	1524	1529	1536	B7.8	SF	S19W22	1934
27 Dec	2153	2208	2232	C1.2			1936
27 Dec	2320	2336	2356	C2.3	SF	S19W26	1934
28 Dec	0703	0725	0738	C1.2			1934
28 Dec	0838	0906	0916	C1.4	SF	S17E12	1936
28 Dec	0948	0952	1009		SF	S16E16	1936
28 Dec	1100	1118	1132	C1.2			1936
28 Dec	1104	1104	1111		SF	S18E15	1936
28 Dec	1116	1116	1125		SF	S19E17	1936
28 Dec	1240	1247	1258	C3.0	SF	S17E10	1936
28 Dec	1306	1315	1331	C2.6	SF	S20W34	1934
28 Dec	1655	1655	1708		SF	S18W35	1934
28 Dec	1753	1802	1808	C9.3	SN	S18E07	1936
29 Dec	0009	0017	0021	C2.2			1936
29 Dec	0350	0352	0357		SF	S15E04	1936
29 Dec	0423	0424	0428		SF	S16E05	1936
29 Dec	0509	0512	0516	C2.8	SF	S16E04	1936
29 Dec	0548	0553	0602	C3.1	SF	S16W01	1936
29 Dec	0749	0756	0800	M3.1	1N	S18E01	1936
29 Dec	0818	0818	0827		SF	S16E01	1936
29 Dec	0830	0832	0842		SF	S16E03	1936
29 Dec	0854	0900	0904	C3.8	SF	S16E01	1936
29 Dec	1147	1151	1155	C1.8	SF	S17W03	1936
29 Dec	1310	1310	1313		SF	S17W04	1936
29 Dec	1406	1412	1421		SF	S17W04	1936
29 Dec	1439	1446	1450	C5.1			1936



## *Flare List*

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
29 Dec	1559	1602	1604	B9.9			
29 Dec	1608	1612	1616	B9.4			
29 Dec	1636	1641	1644	C1.9	SF	S17W07	1936
29 Dec	1752	1759	1804	C1.1			1936
29 Dec	1853	1857	1904	C1.1			1936
29 Dec	1924	1930	1934	C5.4			1936
29 Dec	2225	2233	2239	C4.6			





## Region Summary

Date	Location		Sunspot Characteristics				Flares										
	Lat CMD	Lon	Helio 10 <sup>-6</sup> hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical					
									C	M	X	S	1	2	3	4	
<b>Region 1921</b>																	
09 Dec	N06E75		43	120	6	Hsx	2	A	1								
10 Dec	N06E62		43	350	4	Hkx	2	A									
11 Dec	N07E50		42	350	4	Hkx	2	A									
12 Dec	N08E37		42	360	4	Hkx	2	A	1				1				
13 Dec	N07E23		44	350	5	Cko	8	B					1				
14 Dec	N07E10		43	380	6	Cko	9	B									
15 Dec	N07W03		43	400	7	Hkx	9	A									
16 Dec	N06W15		41	300	8	Cko	7	B									
17 Dec	N07W30		43	250	5	Cko	5	B									
18 Dec	N06W43		43	220	4	Dso	2	B									
19 Dec	N06W57		45	220	4	Hax	2	A	2								
20 Dec	N07W71		45	200	4	Hax	2	A									
21 Dec	N07W85		46	180	4	Hax	2	A									
22 Dec	N07W94		42	60	1	Hsx	1	A									
									4	0	0	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 43

<b>Region 1925</b>																	
13 Dec	S08E56		11	30	5	Cro	4	B									
14 Dec	S07E42		11	30	7	Cro	4	B	2				2				
15 Dec	S07E28		12	20	2	Hrx	3	A									
16 Dec	S09E16		10	10	4	Bxo	4	B									
17 Dec	S07E04		9	plage													
18 Dec	S07W09		10	plage													
19 Dec	S07W24		12	plage													
20 Dec	S07W39		13	plage													
21 Dec	S07W54		15	plage													
22 Dec	S07W69		17	plage													
23 Dec	S07W84		19	plage													
									2	0	0	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 9



**Region Summary - continued**

Date	Location		Sunspot Characteristics					Flares																
	Lat CMD	Lon	Helio 10 <sup>6</sup> hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical												
									C	M	X	S	1	2	3	4								
<b>Region 1928</b>																								
17 Dec	S15E08		4	130	6	Dao	12	BG					1											
18 Dec	S15W05		5	240	10	Dai	21	BG																
19 Dec	S16W19		7	360	12	Ekc	24	BG	2				1											
20 Dec	S17W32		6	400	15	Ekc	18	BG	4				1											
21 Dec	S17W47		8	460	15	Ekc	28	BG	6				2	1										
22 Dec	S17W61		9	380	15	Ekc	22	BG	6	5			10	1										
23 Dec	S16W74		8	330	14	Ekc	13	BG	9	1			12	1										
24 Dec	S16W87		8	130	10	Dai	8	BG	2															
									29	6	0		27	3	0	0	0	0						

Crossed West Limb.  
 Absolute heliographic longitude: 5

<b>Region 1929</b>																								
18 Dec	S11E55		305	10		Hrx	1	A																
19 Dec	S11E40		308	10	5	Bxo	2	B																
20 Dec	S12E25		309	10	6	Bxo	5	B																
21 Dec	S12E11		310	10	2	Axx	3	A																
22 Dec	S13W04		312	10	2	Bxo	2	B																
23 Dec	S12W16		310	10	3	Bxo	3	B																
24 Dec	S12W30		312	plage																				
25 Dec	S12W44		312	plage																				
26 Dec	S12W58		313	plage																				
27 Dec	S12W72		315	plage																				
28 Dec	S12W86		315	plage																				
									0	0	0		0	0	0	0	0	0						

Crossed West Limb.  
 Absolute heliographic longitude: 312



### *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 1930</b>																		
18 Dec	S09E35	325	40	3	Cai	7	B	2										
19 Dec	S11E22	326	90	5	Dai	10	B	1				1						
20 Dec	S11E08	326	90	5	Dai	12	B											
21 Dec	S11W05	326	90	6	Dai	7	B											
22 Dec	S11W19	327	60	7	Dso	5	B											
23 Dec	S10W32	326	80	5	Dao	6	B											
24 Dec	S09W46	327	70	9	Cao	5	B											
25 Dec	S09W59	327	30	8	Cao	4	B											
26 Dec	S07W77	332	10	1	Axx	1	A											
27 Dec	S08W89	332	30	1	Hsx	1	A											
								3	0	0	1	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 326

<b>Region 1931</b>																		
18 Dec	S14E76	284	100	2	Hax	1	A											
19 Dec	S15E62	286	210	3	Hax	1	A	1										
20 Dec	S15E48	286	190	3	Hax	1	A											
21 Dec	S15E36	285	220	5	Hsx	2	A											
22 Dec	S15E21	287	170	3	Hsx	1	A											
23 Dec	S14E08	286	190	2	Hax	1	A											
24 Dec	S15W04	285	210	4	Hax	1	A											
25 Dec	S16W16	284	230	9	Hax	5	A											
26 Dec	S15W29	284	170	6	Cao	3	B	1				1						
27 Dec	S15W43	286	160	6	Cao	3	B											
28 Dec	S15W58	287	140	3	Hsx	1	A											
29 Dec	S14W73	289	110	3	Hsx	1	A											
								2	0	0	1	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 285



### *Region Summary - continued*

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

#### *Region 1932*

19 Dec	N04E17	331	10	3	Axx	2	A										
20 Dec	N04E04	330	10	1	Axx	1	A										
21 Dec	N04W11	332	plage														
22 Dec	N04W26	334	plage														
23 Dec	N04W41	336	plage														
24 Dec	N04W56	338	plage														
25 Dec	N04W71	339	plage														
26 Dec	N04W86	341	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 330

#### *Region 1933*

20 Dec	S13W53	27	40	6	Cso	4	B										
21 Dec	S13W65	26	60	7	Dao	3	B										
22 Dec	S13W82	30	40	3	Hsx	1	A										
									0	0	0	0	0	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 27

#### *Region 1934*

19 Dec	S15E79	268	plage							1							
20 Dec	S15E65	269	80	3	Cao	3	B	1	1								
21 Dec	S15E53	268	140	6	Cao	5	B										
22 Dec	S15E40	268	160	8	Dac	9	BG	1	1			2					
23 Dec	S16E27	267	230	9	Dao	12	BG	1			1						
24 Dec	S16E14	267	200	10	Dao	16	BG										
25 Dec	S15E01	267	170	10	Cao	14	BG	1			1						
26 Dec	S15W12	266	150	13	Cao	15	BG										
27 Dec	S16W26	269	190	15	Esi	15	BG	4			4						
28 Dec	S18W38	267	160	13	Esi	15	BGD	2			2						
29 Dec	S18W53	269	160	12	Esc	17	BGD										
								10	3	0	8	2	0	0	0	0	

Still on Disk.  
Absolute heliographic longitude: 267



### *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 1935</b>																	
23 Dec	S05E49	244	10	1	Bxo	1	B										
24 Dec	S06E33	247	10	1	Axx	1	A										
25 Dec	S07E20	248	10	1	Axx	1	A										
26 Dec	S06E04	250	10	1	Axx	1	A										
27 Dec	S06W08	251	0	1	Axx	1	A										
28 Dec	S06W23	252	plage														
29 Dec	S06W38	254	plage														
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 250

<b>Region 1936</b>																	
23 Dec	S17E71	223	10	6	Bxo	2	B	1									
24 Dec	S16E55	225	50	11	Cao	5	B	1									
25 Dec	S17E43	224	50	13	Cao	7	BG	2			1						
26 Dec	S16E30	224	100	12	Eai	13	BG	1									
27 Dec	S16E19	224	110	11	Eai	12	BG	3			1						
28 Dec	S17E06	223	140	13	Eac	21	BG	4			6						
29 Dec	S17W08	224	170	15	Eac	30	BG	10	1		11	1					
								22	1	0	19	1	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 223

<b>Region 1937</b>																	
26 Dec	S12E60	194	10	6	Bxo	3	B										
27 Dec	S12E46	197	20	7	Bxo	4	B										
28 Dec	S12E33	196	10	6	Bxo	5	B										
29 Dec	S12E19	197	10	4	Bxo	3	B										
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 197

<b>Region 1938</b>																	
27 Dec	S12E62	181	60	4	Hax	1	A										
28 Dec	S12E50	179	120	3	Hax	3	A										
29 Dec	S13E37	179	60	2	Cao	3	B										
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 179



***Region Summary - continued***

Location		Sunspot Characteristics					Flares								
Date	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><i>Region 1939</i></b>															
29 Dec	S06W69	285	10	5	Bxo	5	B	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 285

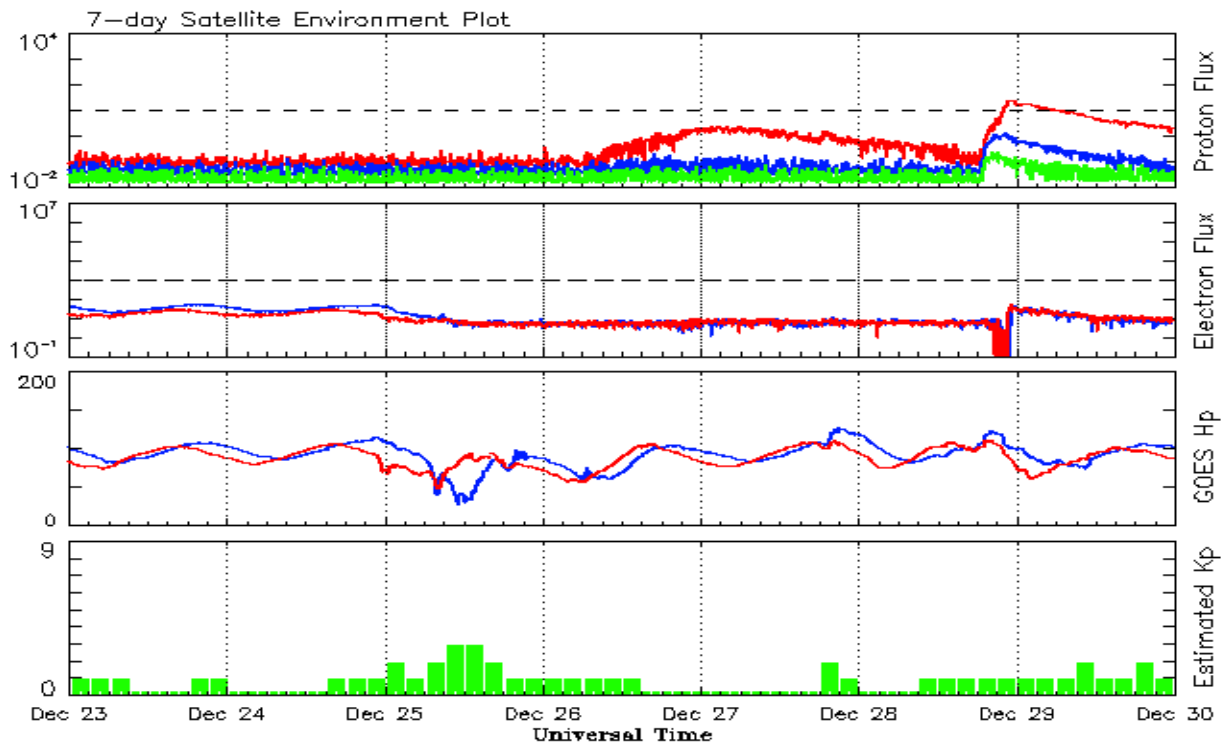


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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>									
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	90.5	59.9	131.3	118.1	10	7.0
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	
November	125.7	77.6	0.62			148.4		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 23 December 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.

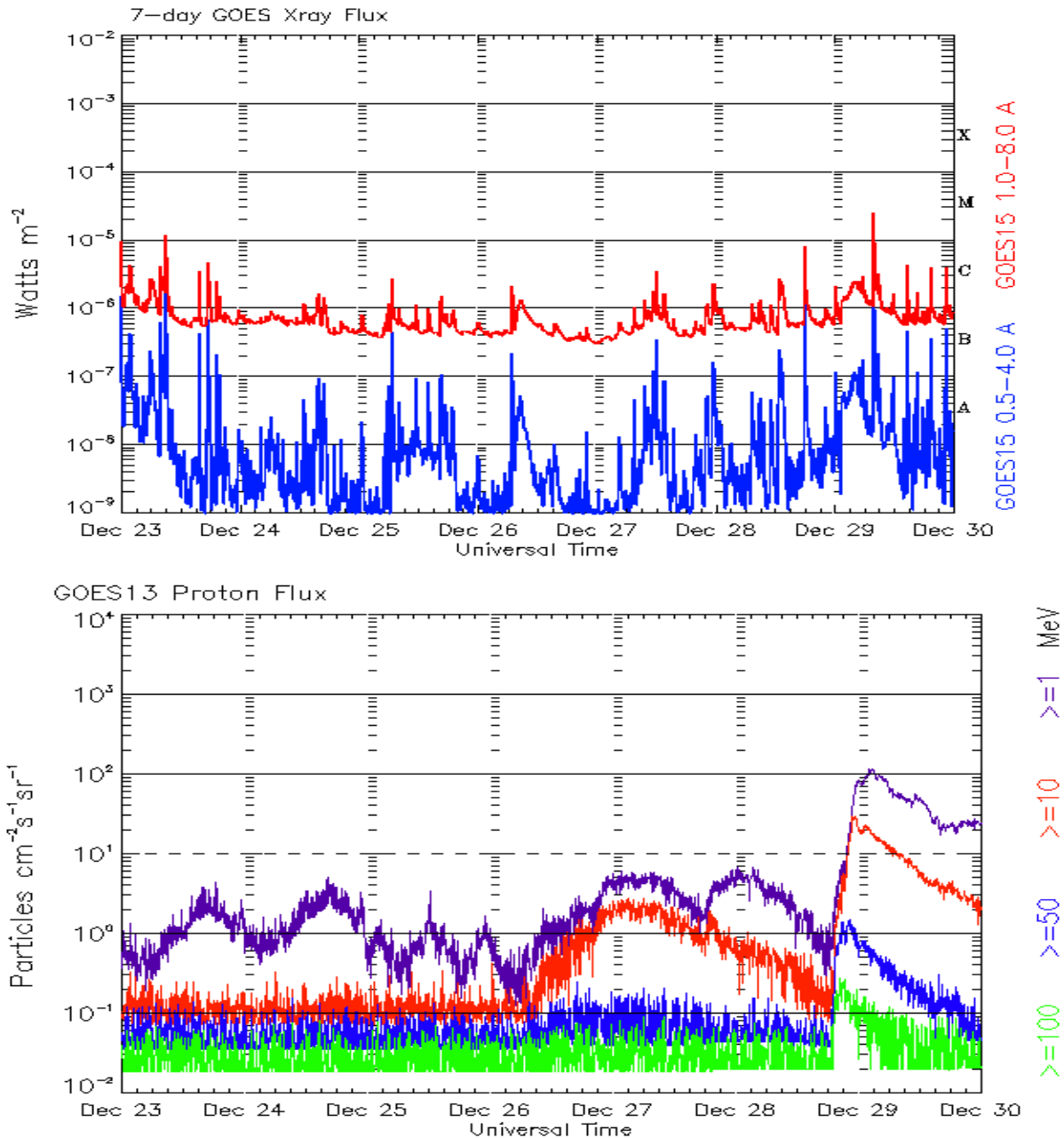
The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

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 December 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 intergral 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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