

Solar activity ranged from low to high levels during the summary period. Activity was dominated by Region 1967 (S13, L=114, class/area=Fkc/1510 on 02 Feb) with a total of 37 C-class and 20 M-class x-ray events. This active region was the return of old Region 1944 which produced a total of 44 C-class, 7 M-class and 1 X-class events during its last rotation. Region 1967 was first numbered on 27 January as it rotated onto the visible solar disk as a Dso/beta region. By 30 January, the region grew tenfold and was classified as a Fkc/beta-gamma-delta type group. The largest event of the period occurred on 30 January when Region 1967 produced an M6/2n flare at 30/1611 UTC. Accompanying this event was a 220 sfu Tenflare and a Type II radio emission (2161 km/s). An asymmetric halo coronal mass ejection (CME) was subsequently observed in SOHO/LASCO C2 coronagraph imagery which emerged from the SE limb at 30/1624 UTC. Analysis suggested the CME was moving at approximately 1400-1500 km/s and had an Earthward component. Region 1968 (N10, L=112, class/area=Ekc/300 on 02 Feb) was the second largest region on the disk during the week and was also productive. The largest flare from this group was an M2/1b flare at 02/0634 UTC.

No proton events were observed at geosynchronous orbit.

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

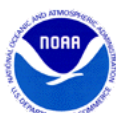
Geomagnetic field activity was at predominantly quiet levels with isolated unsettled intervals early on 30 January and again late on 01 February. Solar wind parameters, as observed at the ACE satellite, indicated nominal wind speeds at 300 - 400 km/s through a majority of the period. A brief interval of 450 - 500 km/s was observed for about 10 hours from 29/0600 - 1600 UTC. During this same time period, the interplanetary magnetic field Bz varied between +/- 7 nT while total field reached 10 nT. Otherwise, the Bz component did not vary beyond +/- 5 nT with total field ranging between 2 - 6 nT. The phi component was in a predominately positive (away) orientation through about 01/1600 UTC when the field switched to a more negative (toward) orientation. A weak discontinuity was observed at the ACE satellite near the end of the summary field which might have indicated the arrival of the 30 January CME.

## **Space Weather Outlook**

### **03 February - 01 March 2014**

Solar activity is expected to be at moderate levels with a chance for high levels through 09 February when Regions 1967 and 1968 cross the west limb. Moderate to high levels are again possible after 21 February with the anticipated return of Regions 1967 and 1968. For the remainder of the period, activity is expected to be predominately low.

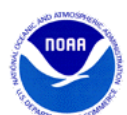
There is an increasing chance for proton events at geosynchronous orbit, particularly between 03 - 09 February as Regions 1967 and 1968 cross the central meridian and moves into a more favorable position. The threat decreases after 09 February as both regions cross the west limb. The remainder of the period should see low potential for proton events in the absence of any new



large region development.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels during the forecast period.

Geomagnetic field activity is expected to be at quiet to unsettled levels, associated with recurrent coronal hole high speed streams, on 08 - 10, 17 - 18 and 25 February. The remainder of the forecast period is expected to see mostly quiet conditions in the absence of any transient features.



### *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
27 January	144	62	490	C1.2	7	3	0	0	0	0	0	0
28 January	157	70	910	C1.4	6	7	0	6	2	0	0	0
29 January	156	96	1370	C1.0	11	0	0	7	0	0	0	0
30 January	161	112	1470	C1.2	6	3	0	5	0	1	0	0
31 January	166	87	1210	C1.0	5	1	0	2	0	0	0	0
01 February	177	147	1640	C1.4	7	2	0	7	2	0	0	0
02 February	190	163	1890	C1.8	10	7	0	32	3	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
	27 January	1.6e+05	1.0e+04	2.5e+03		1.8e+06
28 January	2.6e+05	9.8e+03	2.3e+03		1.5e+06	
29 January	1.1e+05	9.6e+03	2.3e+03		1.2e+06	
30 January	9.0e+04	1.1e+04	2.7e+03		1.4e+06	
31 January	1.3e+05	1.1e+04	3.0e+03		1.3e+06	
01 February	3.4e+05	1.1e+04	2.7e+03		1.4e+06	
02 February	3.2e+05	1.1e+04	2.5e+03		4.7e+05	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	27 January	3	0-1-1-0-2-2-0-1	1	0-0-0-0-1-1-0-0	4
28 January	3	0-0-1-1-1-2-2-1	3	0-0-1-2-0-1-2-1	5	0-0-2-1-1-2-2-2
29 January	6	1-2-2-2-2-2-2-1	10	0-1-3-4-3-3-1-0	7	2-2-2-2-2-2-2-2
30 January	4	2-3-1-0-1-1-1-0	1	1-1-1-0-0-0-0-0	5	2-3-1-0-0-0-1-1
31 January	2	0-0-0-1-1-1-1-0	0	0-0-0-1-0-0-0-0	3	0-0-1-1-1-0-1-1
01 February	2	0-0-0-1-1-1-1-2	1	0-0-0-1-0-1-0-1	5	0-0-1-1-1-1-2-3
02 February	4	1-1-1-0-2-2-2-0	1	1-1-0-0-0-0-1-0	4	1-2-1-0-1-1-2-1

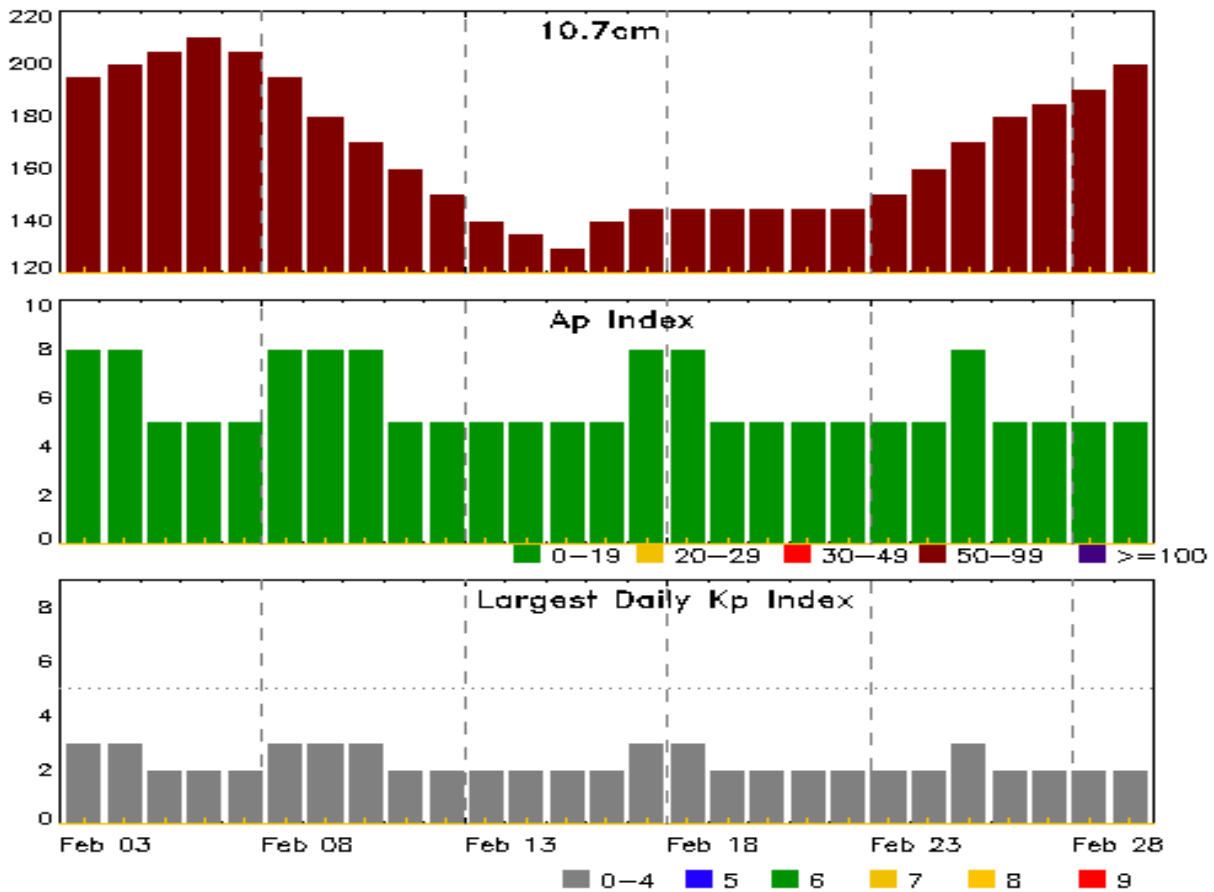


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
27 Jan 2211	ALERT: X-ray Flux exceeded M5	27/2210
27 Jan 2216	CANCELLATION: X-ray Flux exceeded M5	
28 Jan 1952	SUMMARY: 10cm Radio Burst	28/1936 - 1938
29 Jan 0446	ALERT: Type II Radio Emission	29/0424
30 Jan 1606	ALERT: X-ray Flux exceeded M5	30/1604
30 Jan 1633	SUMMARY: X-ray Event exceeded M5	30/1548 - 1628
30 Jan 1639	ALERT: Type II Radio Emission	30/1601
30 Jan 1642	SUMMARY: 10cm Radio Burst	30/1553 - 1622
31 Jan 1325	WATCH: Geomagnetic Storm Category G1 predicted	
31 Jan 1511	ALERT: Type II Radio Emission	31/0552
31 Jan 1512	ALERT: Type IV Radio Emission	31/0556
02 Feb 1825	SUMMARY: 10cm Radio Burst	02/1809 - 1810



## 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
03 Feb	195	8	3	17 Feb	145	8	3
04	200	8	3	18	145	8	3
05	205	5	2	19	145	5	2
06	210	5	2	20	145	5	2
07	205	5	2	21	145	5	2
08	195	8	3	22	145	5	2
09	180	8	3	23	150	5	2
10	170	8	3	24	160	5	2
11	160	5	2	25	170	8	3
12	150	5	2	26	180	5	2
13	140	5	2	27	185	5	2
14	135	5	2	28	190	5	2
15	130	5	2	01 Mar	200	5	2
16	140	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
27 Jan	0105	0122	0139	M1.0	0.015			1967				
27 Jan	0202	0211	0218	M1.1	0.008			1967				
27 Jan	2205	2210	2215	M4.9	0.016			1967				
28 Jan	0402	0409	0413	M1.5	0.006			1967				
28 Jan	0725	0731	0734	M3.6	0.008			1967	2000			
28 Jan	1134	1138	1141	M1.4	0.003			1967				
28 Jan	1233	1246	1250	M1.3	0.009			1967				
28 Jan	1524	1526	1528	M3.5	0.005	SF	S12E68	1967	36000	73		
28 Jan	1900	1940	1946	M4.9	0.031	1F	S14E76	1967	140	1700		
28 Jan	2204	2216	2220	M2.6	0.012	1F	S14E75	1967				
30 Jan	0633	0639	0644	M2.1	0.008	SF	S15E54	1967				
30 Jan	0754	0811	0841	M1.1	0.025	SF	S12E52	1967			69	
30 Jan	1548	1611	1628	M6.6	0.097	2N	S13E58	1967	200	220		
31 Jan	1532	1542	1553	M1.1	0.009			1968				
01 Feb	0119	0125	0138	M1.0	0.008	1F	S11E26	1967				
01 Feb	0714	0723	0736	M3.0	0.025	1B	S11E23	1967				
02 Feb	0624	0634	0637	M2.6	0.009	1B	N12E18	1968				
02 Feb	0717	0820	0829	M2.2	0.043	1N	S10E14	1967				
02 Feb	0924	0931	0936	M4.4	0.020	1B	S11E13	1967				
02 Feb	1401	1406	1409	M1.3	0.003			1967	92	71		
02 Feb	1624	1629	1636	M1.0	0.005			1968				
02 Feb	1805	1811	1818	M3.1	0.014			1967		180		
02 Feb	2124	2204	2214	M1.3	0.028			1967				



## *Flare List*

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
27 Jan	0105	0122	0139	M1.0			1967
27 Jan	0202	0211	0218	M1.1			1967
27 Jan	0409	0417	0421	C3.3			1967
27 Jan	0519	0522	0525	C2.3			1960
27 Jan	0651	0654	0658	C2.0			
27 Jan	0807	0823	0840	C6.0			1968
27 Jan	1108	1113	1119	C2.6			1968
27 Jan	1906	1927	1936	C8.0			1967
27 Jan	2015	2055	2106	C5.3			1967
27 Jan	2205	2210	2215	M4.9			1967
28 Jan	0031	0036	0039	C7.6			1967
28 Jan	0308	0312	0316	C3.3			1967
28 Jan	0402	0409	0413	M1.5			1967
28 Jan	0525	0529	0531	C9.2			1967
28 Jan	0648	0652	0655	C2.5			1967
28 Jan	0725	0731	0734	M3.6			1967
28 Jan	1134	1138	1141	M1.4			1967
28 Jan	1218	1225	1230	C8.3			1967
28 Jan	1233	1246	1250	M1.3			1967
28 Jan	1524	1526	1528	M3.5	SF	S12E68	1967
28 Jan	1623	1645	1657	C8.5	SF	N09E71	1968
28 Jan	1900	1940	1946	M4.9			1967
28 Jan	1905	1913	1915		SF	S15E63	1967
28 Jan	1936	1938	1955		1F	S14E76	1967
28 Jan	1957	2000	2001		SF	S14E76	1967
28 Jan	2041	2041	2043		SF	S14E76	1967
28 Jan	2049	2049	2054		SF	S14E76	1967
28 Jan	2204	2216	2220	M2.6	1F	S14E75	1967
29 Jan	0042	0049	0054	C4.1	SF	S14W46	
29 Jan	0256	0313	0322	C4.2	SF	N07E68	1968
29 Jan	0331	0336	0340	C4.2			
29 Jan	0406	0431	0442	C7.3			1967
29 Jan	0418	0431	0446		SF	S12E65	1967
29 Jan	0653	0719	0734	C3.5	SF	S09E66	1967
29 Jan	0857	0901	0903	C2.2	SF	S12E72	1967
29 Jan	1157	1201	1204	C2.4			1967
29 Jan	1411	1531	1636	C7.0			1967
29 Jan	1421	1445	1522		SF	S12E63	1967



## Flare List

Date	Time			Optical			Rgn #
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	
29 Jan	B1437	1437	1448		SF	S10E60	1967
29 Jan	1909	1916	1927	C2.3			
29 Jan	2019	2033	2050	C3.6			
29 Jan	2312	2316	2320	C2.0			1967
30 Jan	0003	0007	0012	C2.3			1967
30 Jan	0035	0040	0048	C1.9	SF	S15E57	1967
30 Jan	0238	0239	0242		SF	S15E56	1967
30 Jan	0440	0440	0451		SF	N08E55	1968
30 Jan	0633	0639	0644	M2.1	SF	S15E54	1967
30 Jan	0754	0811	0841	M1.1	SF	S12E52	1967
30 Jan	0958	1002	1007	C3.4			1967
30 Jan	1053	1112	1130	C4.1			1967
30 Jan	1332	1336	1341	C1.4			1967
30 Jan	1548	1611	1628	M6.6	2N	S13E58	1967
30 Jan	2245	2304	2321	C4.8			1967
31 Jan	0418	0419	0431		SF	S12E40	1967
31 Jan	0442	U0449	0633	C3.4	SF	S14E37	1967
31 Jan	0735	0744	0757	C2.3			1967
31 Jan	0928	0932	0944	C1.6			1967
31 Jan	1044	1049	1054	C2.4			1967
31 Jan	1532	1542	1553	M1.1			1968
31 Jan	2359	0018	0033	C6.3	SF	S12E27	1967
01 Feb	0119	0125	0138	M1.0	1F	S11E26	1967
01 Feb	0207	0229	0251		SF	S11E26	1967
01 Feb	0251	0253	0255		SF	S10E26	1967
01 Feb	0320	0322	0328		SF	S10E25	1967
01 Feb	0330	0347	0332		SF	S11E25	1967
01 Feb	0348	0419	0516		SF	S11E25	1967
01 Feb	0527	0547	0634	C5.5	SF	S11E24	1967
01 Feb	0645	0723	0843	M3.0	1B	S11E23	1967
01 Feb	1043	1046	1049	C3.5			1967
01 Feb	1229	1234	1238	C3.6			1967
01 Feb	1352	1356	1403	C3.9			1967
01 Feb	1558	1605	1614	C2.3			1967
01 Feb	2038	2046	2052	C3.4			1967
01 Feb	2254	2258	2303	C2.7			1968
02 Feb	0054	0056	0101		SF	S11E14	1967
02 Feb	0107	0118	0122	C6.5	SF	N11E18	1968





## *Flare List*

Date	Time			Optical			Rgn #
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	
02 Feb	0111	0112	0116		SF	S12E12	1967
02 Feb	0128	0140	0215		SF	S11E12	1967
02 Feb	0221	0221	0223		SF	S11E11	1967
02 Feb	0237	0239	0243		SF	S11E11	1967
02 Feb	0254	0256	0332		SF	S12E16	1967
02 Feb	0410	0414	0422	C3.3	SF	S11E10	1967
02 Feb	0452	0455	0457		SF	N10E16	1968
02 Feb	0458	0513	0519	C3.3	SF	N10E16	1968
02 Feb	B0559	U0604	0640		SF	S16E21	1967
02 Feb	B0600	U0600	0605	C7.5	SF	N10E14	1968
02 Feb	0624	0634	0637	M2.6	1B	N12E18	1968
02 Feb	0717	0820	0829	M2.2	1N	S10E14	1967
02 Feb	0831	0832	0844		SN	N09E13	1968
02 Feb	0852	0852	0858		SF	S11E13	1967
02 Feb	0855	0856	0909		SF	N08E12	1968
02 Feb	0910	0910	0914		SF	N08E11	1968
02 Feb	0924	0931	0936	M4.4	1B	S11E13	1967
02 Feb	0940	0946	0947		SF	N12E16	1968
02 Feb	1145	1149	1155	C9.7			1967
02 Feb	1401	1406	1409	M1.3			1967
02 Feb	1417	1421	1428	C7.8			1968
02 Feb	1525	1532	1534		SF	S13E58	1967
02 Feb	1610	1618	1623	C4.2			1968
02 Feb	1624	1629	1636	M1.0			1968
02 Feb	1653	1653	1654		SF	N09E71	1968
02 Feb	1805	1811	1818	M3.1			1967
02 Feb	1840	1840	1854		SF	S13E58	1967
02 Feb	1908	1909	1916		SF	S13E58	1967
02 Feb	1921	1922	1925		SF	N09E71	1968
02 Feb	1934	1934	1937		SF	N09E71	1968
02 Feb	1938	1939	1942		SF	N09E71	1968
02 Feb	1952	1953	1955		SF	S13E58	1967
02 Feb	2003	2007	2010	C4.5	SN	N09E71	1968
02 Feb	2018	2020	2024		SF	S13E58	1967
02 Feb	2124	2204	2214	M1.3			1967
02 Feb	2216	2218	2232	C8.4	SF	N09E71	1968
02 Feb	2248	2248	2323		SF	S13E58	1970
02 Feb	2301	2313	2321		SF	S12W00	1967



### *Flare List*

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
02 Feb	2340	2341	2349		SF	N09E03	1968
02 Feb	2349	2350	2353		SF	S13E58	1967
02 Feb	2354	2357	0000	C2.3			1968



### *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><i>Region 1950</i></b>																				
10 Jan	N16E31	26	30	4	Cao	4	B	1												
11 Jan	N16E18	27	30	6	Dro	5	B	2												
12 Jan	N17E02	28	10	2	Bxo	2	B													
13 Jan	N17W12	30	plage																	
14 Jan	N17W23	28	10	6	Bxo	5	B													
15 Jan	N16W37	28	10	7	Cro	5	B													
16 Jan	N16W51	29	10	2	Axx	2	A													
17 Jan	N16W65	31	plage																	
18 Jan	N16W79	31	plage																	
								3	0	0	0	0	0	0	0	0				

Crossed West Limb.  
Absolute heliographic longitude: 28

<b><i>Region 1955</i></b>																				
16 Jan	S14E54	283	70	2	Hsx	1	A													
17 Jan	S15E42	282	70	4	Hsx	1	A													
18 Jan	S14E36	279	60	5	Hax	3	A													
19 Jan	S14E23	276	60	6	Hax	2	A													
20 Jan	S14E09	276	40	3	Hax	1	A													
21 Jan	S14W04	277	50	2	Hax	2	A													
22 Jan	S13W17	277	40	3	Cao	2	B	1				2								
23 Jan	S14W31	278	20	2	Cao	2	B													
24 Jan	S12W45	277	20	2	Cao	4	B													
25 Jan	S13W60	280	20	1	Hax	2	A													
26 Jan	S14W72	279	20	1	Hrx	1	A													
27 Jan	S14W86	280	plage																	
								1	0	0	2	0	0	0	0	0				

Crossed West Limb.  
Absolute heliographic longitude: 277



### *Region Summary - continued*

Date	Location		Sunspot Characteristics					Flares								
	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>Region 1956</b>																
17 Jan	S15E37		289	10	1	Axx	2	A								
18 Jan	S15E22		289	plage					1			2				
19 Jan	S15E08		291	plage												
20 Jan	S15W06		292	plage												
21 Jan	S15W20		293	plage												
22 Jan	S15W34		294	plage												
23 Jan	S15W48		295	plage												
24 Jan	S15W62		295	plage												
25 Jan	S15W76		296	plage												
26 Jan	S15W90		297	plage												
									1	0	0	2	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 292

<b>Region 1957</b>																
17 Jan	N12E48		277	30	4	Cro	2	B								
18 Jan	N12E36		275	30	6	Cro	7	B								
19 Jan	N12E21		277	30	8	Cri	9	B								
20 Jan	N12E07		277	30	8	Dro	8	B								
21 Jan	N11W06		278	60	8	Dai	12	BG								
22 Jan	N11W19		278	90	7	Dai	14	BG								
23 Jan	N11W32		279	80	8	Dai	12	BG								
24 Jan	N12W46		278	170	12	Eai	26	B								
25 Jan	N11W61		281	70	8	Cao	6	BG								
26 Jan	N10W75		282	30	5	Cao	4	B								
27 Jan	N10W89		283	plage												
									0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 278



### *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 1958</b>																							
17 Jan	S07E77	249	10	2	Hax	1	A																
18 Jan	S08E63	248	30	1	Hax	1	A																
19 Jan	S08E50	248	40	2	Hax	1	A																
20 Jan	S07E36	249	50	2	Cso	1	B																
21 Jan	S08E22	249	50	3	Cso	4	B																
22 Jan	S08E09	250	30	2	Hax	2	A																
23 Jan	S08W05	252	10	2	Hrx	2	A																
24 Jan	S07W18	250	10	1	Hrx	1	A																
25 Jan	S07W31	251	10	3	Bxo	3	B																
26 Jan	S08W45	252	10	3	Bxo	2	B																
27 Jan	S08W59	253	plage																				
28 Jan	S08W73	254	plage																				
29 Jan	S08W87	255	plage																				
													0	0	0	0	0	0	0	0	0		

Crossed West Limb.  
Absolute heliographic longitude: 252

<b>Region 1959</b>																							
13 Jan	S26E0*	246	plage										3										
16 Jan	S26E93	246	plage										3										
17 Jan	S26E79	246	plage										10										
18 Jan	S25E68	243	70	2	Cao	3	B						6						1				
19 Jan	S24E58	240	110	7	Dai	4	B						2						1				
20 Jan	S24E47	238	190	11	Eai	7	BG						4						2				
21 Jan	S24E33	239	220	12	Eai	14	BG						1						1				
22 Jan	S23E20	238	120	13	Eao	11	BG																
23 Jan	S24E09	238	160	12	Cao	5	BG																
24 Jan	S23W05	238	180	11	Eao	11	B																
25 Jan	S23W20	240	170	10	Dsi	11	B																
26 Jan	S24W33	239	180	9	Dso	7	B																
27 Jan	S24W45	238	150	9	Dso	5	B																
28 Jan	S25W59	239	140	10	Cso	6	B																
29 Jan	S23W75	242	90	2	Hax	1	A																
30 Jan	S23W88	241	60	2	Hax	1	A																
													29	0	0	5	0	0	0	0	0		

Crossed West Limb.  
Absolute heliographic longitude: 238



### *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 1960</b>																							
18 Jan	S14E77	235	140	3	Hax	2	A																
19 Jan	S14E62	236	150	3	Hax	1	A																
20 Jan	S15E49	236	200	3	Hax	1	A																
21 Jan	S15E36	236	260	3	Hkx	2	A																
22 Jan	S15E22	238	270	4	Hkx	2	A																
23 Jan	S16E10	237	200	3	Hax	1	A																
24 Jan	S16W03	236	220	4	Cao	6	B	1															
25 Jan	S16W17	237	230	4	Cao	6	B																
26 Jan	S15W31	238	200	4	Cao	8	B	1															
27 Jan	S16W43	237	150	3	Cao	4	B	1															
28 Jan	S16W56	236	90	4	Dai	6	B																
29 Jan	S15W70	237	70	3	Hsx	3	A																
30 Jan	S15W82	235	50	2	Hsx	2	A																
									3	0	0	0	0	0	0	0	0	0	0	0	0	0	

Crossed West Limb.  
Absolute heliographic longitude: 236

<b>Region 1962</b>																							
20 Jan	S37E05	280	20	5	Cro	3	B																
21 Jan	S37W09	282	plage																				
22 Jan	S37W23	283	plage																				
23 Jan	S37W37	284	plage																				
24 Jan	S37W51	284	plage																				
25 Jan	S37W65	285	plage																				
26 Jan	S37W79	286	plage																				
									0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Crossed West Limb.  
Absolute heliographic longitude: 280



### *Region Summary - continued*

Date	Location		Sunspot Characteristics					Flares										
	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>Region 1963</b>																		
20 Jan	S06E71	216	plage								1			1				
21 Jan	S06E56	216	60	7	Cso	4	B											
22 Jan	S06E44	214	10	4	Bxo	3	B											
23 Jan	S06E34	213	10	3	Axx	3	A											
24 Jan	S07E18	214	10	2	Axx	8	A											
25 Jan	S07E03	217	plage															
26 Jan	S06W10	217	plage															
27 Jan	S06W25	219	plage															
28 Jan	S18W40	220	plage															
29 Jan	S18W54	222	plage															
30 Jan	S18W68	222	plage															
31 Jan	S18W82	223	plage															
											1	0	0	1	0	0	0	0

Crossed West Limb.  
 Absolute heliographic longitude: 217

<b>Region 1964</b>																		
21 Jan	S13E52	220	10	4	Bxo	2	B											
22 Jan	S13E40	219	10	2	Axx	2	A											
23 Jan	S13E26	221	plage															
24 Jan	S13E12	221	plage															
25 Jan	S13W02	222	plage															
26 Jan	S14W14	221	0	1	Axx	1	A											
27 Jan	S14W28	222	plage															
28 Jan	S09W35	219	plage															
29 Jan	S09W49	217	plage															
30 Jan	S09W63	217	plage															
31 Jan	S09W77	218	plage															
											0	0	0	0	0	0	0	0

Died on Disk.  
 Absolute heliographic longitude: 222



### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares								
	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

#### *Region 1965*

22 Jan	S15E59	199	20	2	Hrx	2	A										
23 Jan	S15E46	201	20	3	Hrx	2	A										
24 Jan	S16E31	201	10	2	Axx	2	A										
25 Jan	S15E17	203	0	1	Axx	1	A										
26 Jan	S15E03	202	10	1	Axx	1	A										
27 Jan	S14W10	203	10		Axx	1	A										
28 Jan	S14W24	205	plage														
29 Jan	S13W43	210	20	2	Cro	2	B										
30 Jan	S15W56	210	10	2	Bxo	5	B										
31 Jan	S15W70	211	plage														
01 Feb	S15W84	212	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 202

#### *Region 1966*

25 Jan	S12E27	193	20	2	Cro	3	B										
26 Jan	S12E13	194	10	3	Bxo	5	B										
27 Jan	S12W01	195	plage														
28 Jan	S12W15	196	plage														
29 Jan	S12W29	197	plage														
30 Jan	S12W43	197	plage														
31 Jan	S12W57	198	plage														
01 Feb	S12W71	199	plage														
02 Feb	S12W85	200	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 195





### *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 1967</b>																		
27 Jan	S14E76	117	120	6	Dso	1	B	3	3									
28 Jan	S12E67	113	580	15	Eki	13	BG	5	7		5	2						
29 Jan	S14E55	111	980	18	Fkc	29	BGD	6			5							
30 Jan	S14E41	112	1190	19	Fkc	42	BGD	6	3		4		1					
31 Jan	S14E29	112	1000	18	Fkc	49	BGD	5			2							
01 Feb	S13E16	112	1410	18	Fkc	86	BGD	6	2		7	2						
02 Feb	S13E01	114	1510	18	Fkc	94	BGD	2	5		16	2						
								34	20	0	39	6	1	0	0			

Still on Disk.

Absolute heliographic longitude: 114

#### **Region 1968**

27 Jan	N10E75	119	60	2	Dso	1	B	2										
28 Jan	N10E65	115	100	12	Eao	5	B	1			1							
29 Jan	N09E54	112	210	11	Eao	11	B	1			1							
30 Jan	N09E41	112	160	11	Eao	12	BG				1							
31 Jan	N10E29	112	210	11	Eai	18	BG		1									
01 Feb	N10E15	113	220	12	Eai	28	BG	1										
02 Feb	N10E03	112	300	13	Ekc	35	BG	8	2		15	1						
								13	3	0	18	1	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 112

#### **Region 1969**

01 Feb	S10W35	163	10	3	Bxo	3	B											
02 Feb	S10W49	164	plage															
								0	0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 163

#### **Region 1970**

02 Feb	S18E54	61	80	4	Dao	4	B				1							
								0	0	0	1	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 61

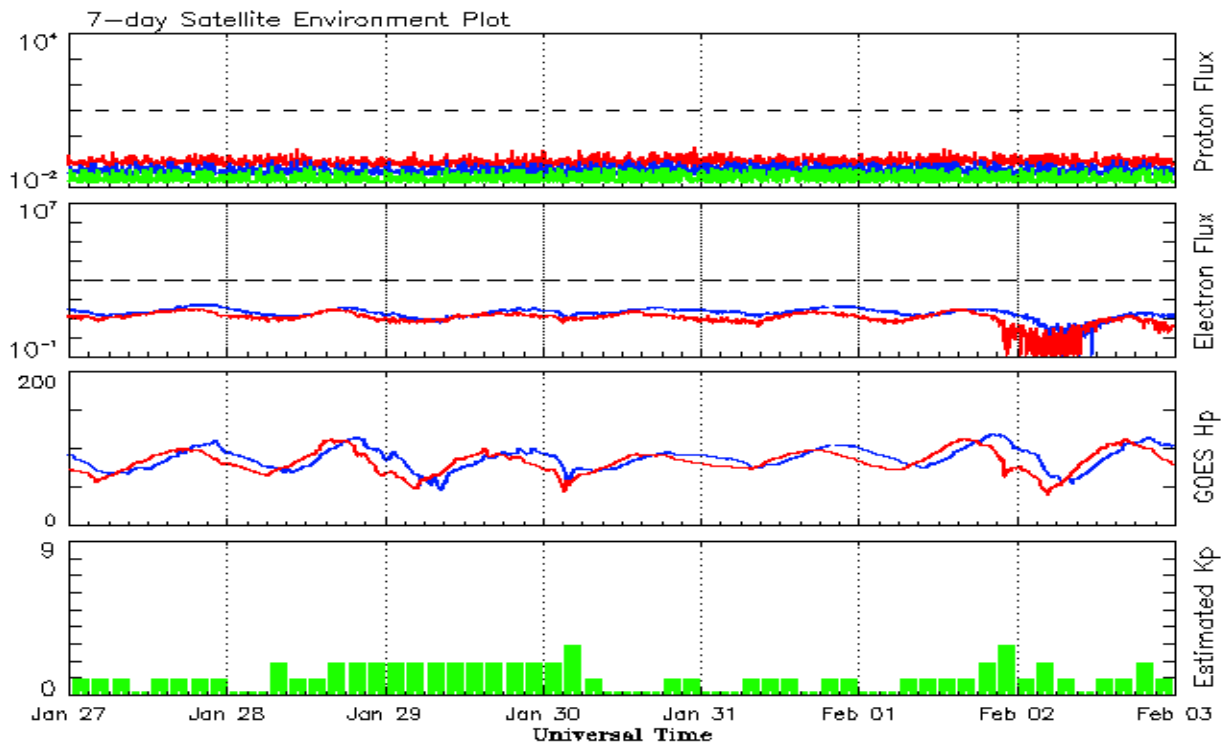


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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>2012</b>									
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	57.6	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	94.4	62.6	110.2	120.9	13	7.1
July	86.1	57.0	0.66	97.9	65.5	115.6	123.9	9	7.3
August	90.2	66.0	0.73			114.7		9	
September	55.0	37.0	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	
December	118.2	90.3	0.76			147.7		5	
<b>2014</b>									
January	125.9	82.0	0.65			158.6		6	

**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 27 January 2014*

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.

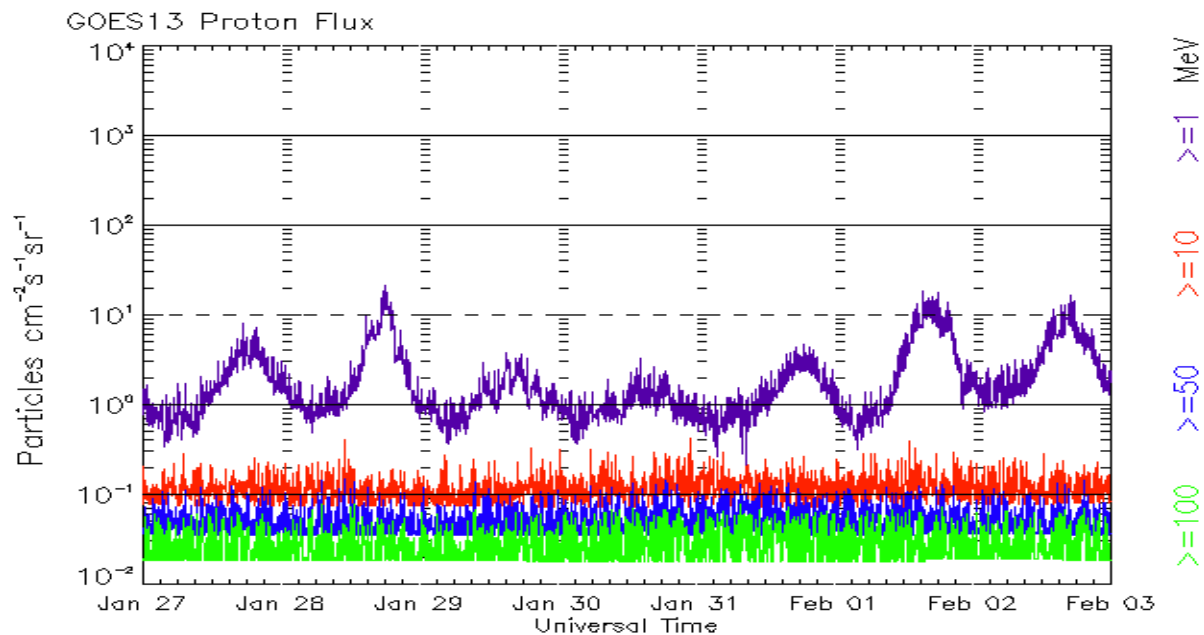
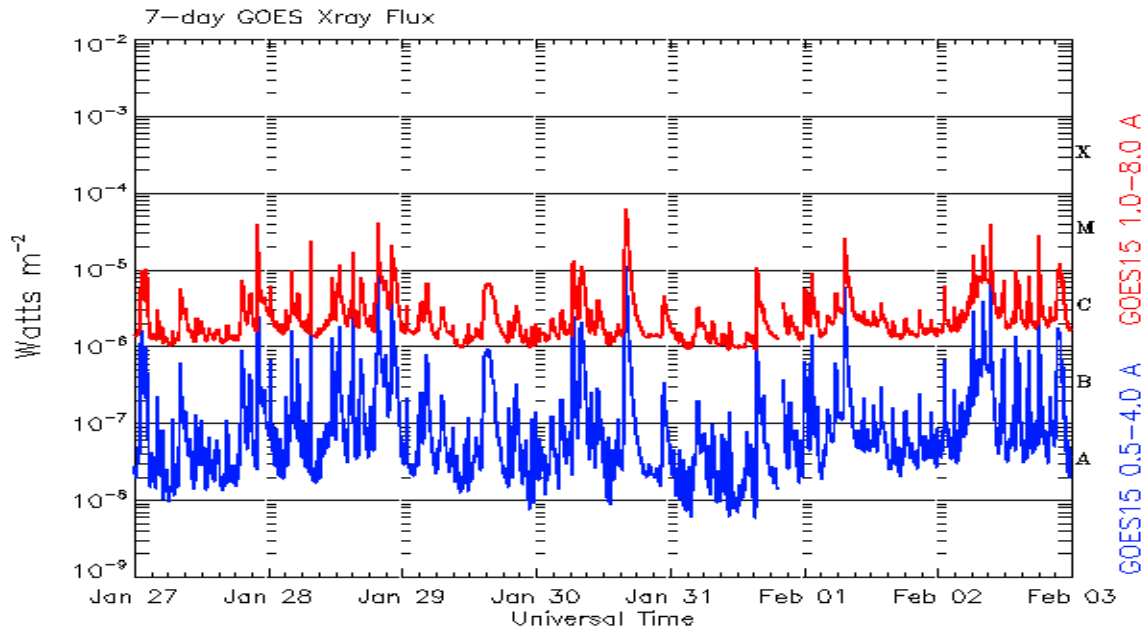
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

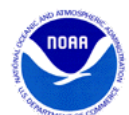




*Weekly GOES Satellite X-ray and Proton Plots  
Week Beginning 27 January 2014*

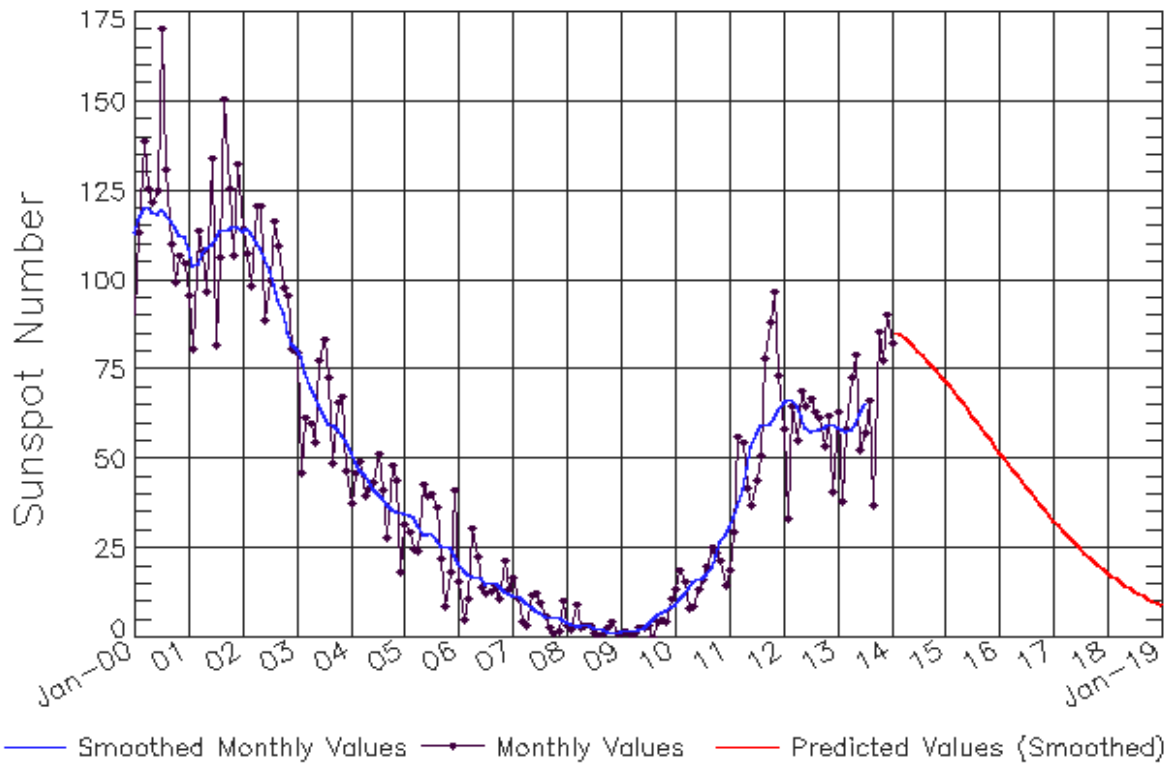
The x-ray plots contains five-minute averages x-ray flux (Watt/m<sup>2</sup>) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

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.



# ISES Solar Cycle Sunspot Number Progression

Observed data through Jan 2014



Updated 2014 Feb 3

NOAA/SWPC Boulder, CO USA

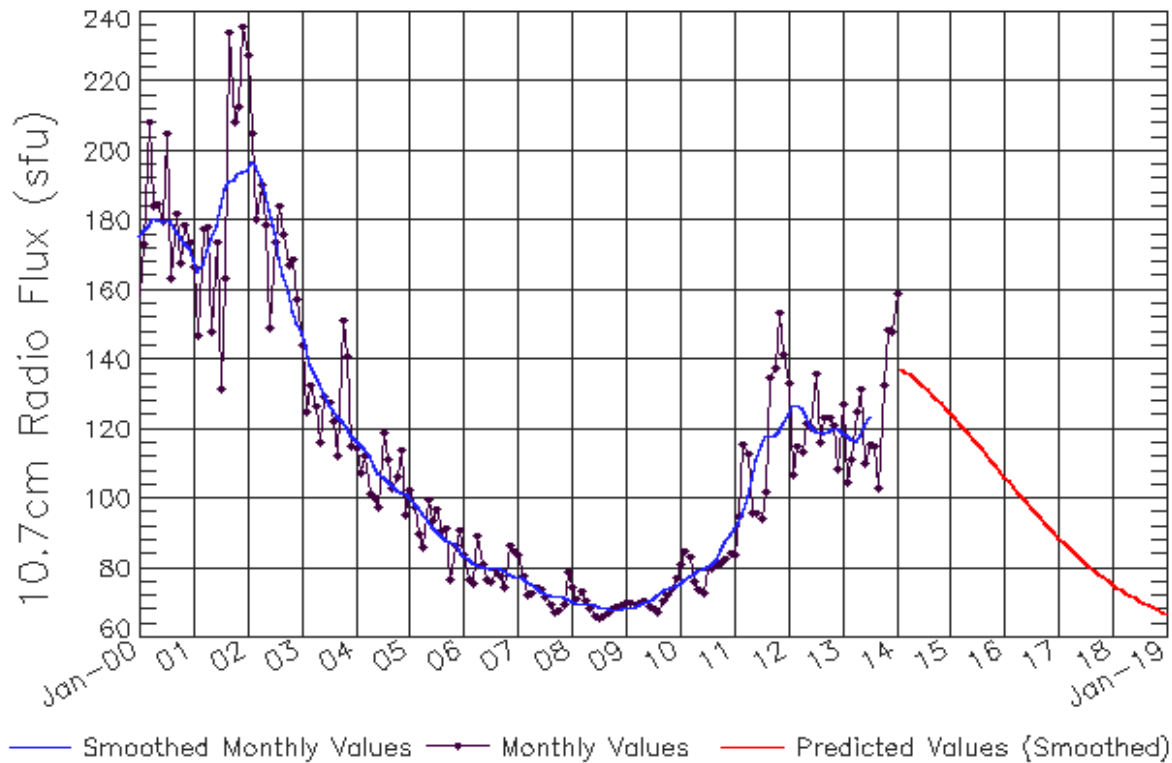
## *Smoothed Sunspot Number Prediction*

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 (***)	60 (***)	63 (***)	66 (***)	68 (1)	71 (2)	73 (3)	74 (5)	75 (5)
2014	77 (6)	79 (7)	81 (7)	82 (8)	82 (9)	81 (9)	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 Jan 2014



Updated 2014 Feb 3

NOAA/SWPC Boulder, CO USA

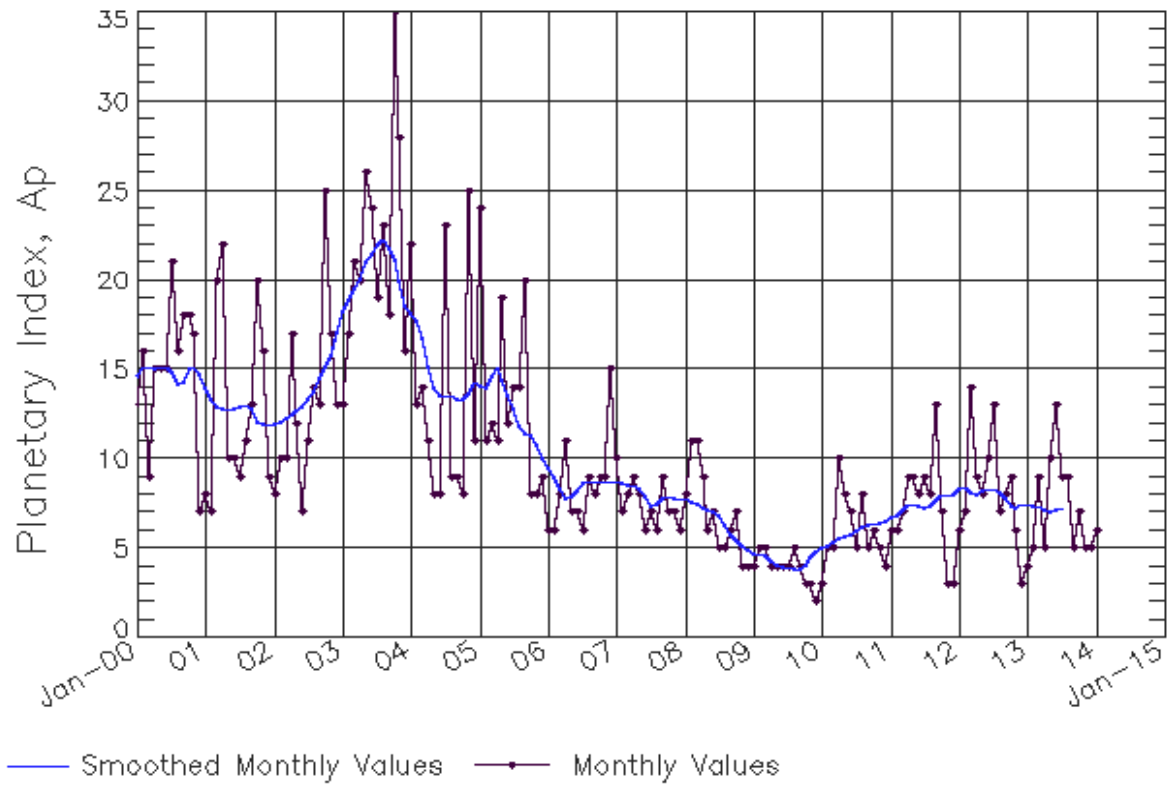
## Smoothed F10.7cm Radio Flux Prediction

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 (**)	118 (**)	121 (**)	124 (**)	127 (1)	129 (1)	131 (2)	131 (3)	132 (4)
2014	134 (4)	135 (5)	137 (6)	138 (7)	137 (8)	135 (8)	133 (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 Jan 2014



Updated 2014 Feb 3

NOAA/SWPC Boulder, CO USA

*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

The Weekly has been published continuously since 1951 and is available online since 1997.

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<http://spaceweather.gov/SolarCycle/> -- Solar Cycle Progression web site

<http://spaceweather.gov/contacts.html> -- Contact and Copyright information

[http://spaceweather.gov/weekly/Usr\\_guide.pdf](http://spaceweather.gov/weekly/Usr_guide.pdf) -- User Guide

