

Solar activity ranged from low to moderate levels. Low levels were observed on 29 December 2014 to 02 January 2015 with moderate levels observed on 03-04 January 2015. Weak C-class events (less than C5) occurred throughout the period from Regions 2248 (S19, L=083, class/area Dso/160 on 27 Dec), 2250 (N10, L=149, class/area Hrx/030 on 30 Dec), 2251 (S09, L=046, class/area Dac/210 on 30 Dec), 2253 (S07, L=003, class/area Ekc/900 on 03 Jan) and 2256 (S08, L=073, class/area Cao/040 on 03 Jan). On 03 January, Region 2253 produced an M1/1n flare at 03/0947 UTC. This region also produced an M1/2n flare at 04/1536 UTC. No Earth-directed CMEs were observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 29-30 December 2014, high levels on 31 December 2014 through 02 January 2015 and normal levels on 03-04 January 2015.

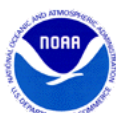
Geomagnetic field activity ranged from quiet to minor storm levels. On 29-30 December 2014, quiet to active levels, with isolated minor storm periods late on 29 December, were observed due to prolonged periods of southward interplanetary magnetic field (IMF) Bz due to effects from a negative polarity coronal hole high speed stream (CH HSS). Mostly quiet to unsettled levels were observed from 31 December 2014 through 02 January 2015 with an isolated active period recorded late on the 2nd. From 03-04 January, activity levels increased to quiet to minor storm levels due to a corotating interaction region (CIR) in advance of another negative polarity CH HSS.

Solar wind parameters confirmed the presence of a pair of CH HSSs early and late in the period. Solar wind reached a maximum speed of about 750 km/s early on 30 December before decreasing to a minimum of near 350 km/s early on 03 January. This was followed by a slow increase to near 500 km/s at 03/0900 UTC before settling in at about 425 km/s through the remainder of the period. IMF Bt varied between peaks of 15 nT at 29/1508 UTC and 13 nT at 02/2359 UTC. During the first peak, the Bz component exhibited high variability from +11 to -10 nT while varying between +10 to -9 nT during the second peak. The phi angle was in a predominately negative (towards) orientation through about 02/2200 UTC when phi exhibited variability between negative and positive (away) sectors.

Space Weather Outlook

05 January - 31 January 2015

Solar activity is expected to be low with M-class activity, and a slight chance for X-class activity, possible through 17 January due to flare activity from Region 2253 and the return of old Regions 2241 (S08, L=218) and 2242 (S18, L=240). Mostly low activity is expected from 18-22 January. From 23-31 January, activity levels are expected to increase to low with M-class activity, and a slight chance for an X-class activity, possible due to the return of old Region 2253



(S07, L=003).

No proton events are expected at geosynchronous orbit in the absence of any significant solar activity.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels through a majority of the period with normal to moderate levels expected on 18-20 January and again on 30-31 January.

Geomagnetic field activity is expected to be at quiet to unsettled levels on 05-11 January with isolated minor storm periods possible on 05 January and isolated active period possible on 08 January. Quiet to unsettled levels are expected on 21-27 Jan and 29-31 January with isolated active periods on 22, 25, 26 and 31 January. All enhanced activity levels are due to various geoeffective CH HSSs. Mostly quiet levels are expected during the remainder of the period.



Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
29 December	132	113	560	B4.8	3	0	0	27	0	0	0	0
30 December	130	102	510	B4.4	4	0	0	23	0	0	0	0
31 December	134	94	710	B5.8	6	0	0	13	3	0	0	0
01 January	138	101	870	B4.9	3	0	0	9	0	0	0	0
02 January	146	113	1250	B4.9	3	0	0	9	0	0	0	0
03 January	149	122	1300	B5.7	10	1	0	13	1	0	0	0
04 January	150	124	1220	B6.7	5	1	0	13	0	1	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day -sr)			Electron Fluence (electrons/cm ² -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
	29 December	1.8e+06	2.2e+04	2.5e+03		4.5e+06
30 December	4.3e+06	1.9e+04	2.2e+03		2.1e+07	
31 December	3.5e+06	1.9e+04	2.4e+03		6.5e+07	
01 January	7.7e+05	1.4e+04	2.4e+03		4.7e+07	
02 January	1.4e+06	1.5e+04	2.7e+03		3.2e+07	
03 January	4.6e+05	1.4e+04	2.6e+03		1.4e+06	
04 January	4.4e+05	1.2e+04	2.8e+03		8.0e+05	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	29 December	15	1-2-2-3-3-4-3-4	34	1-2-3-5-6-6-3-4	23
30 December	14	3-4-4-2-3-2-2-2	36	3-4-5-5-5-5-5-2	18	4-4-4-2-3-3-3-3
31 December	7	2-2-2-1-2-3-1-1	17	2-2-2-2-5-5-2-1	8	2-2-2-2-2-3-2-2
01 January	7	2-2-1-1-2-2-2-3	5	1-1-2-1-2-2-1-2	7	2-1-1-1-1-2-2-3
02 January	8	3-1-1-2-2-2-2-3	17	2-2-3-2-5-2-4-3	12	3-1-2-2-3-2-3-4
03 January	13	4-2-3-3-3-3-2-1	18	4-3-3-5-4-2-1-0	15	5-3-3-3-3-2-2-1
04 January	15	0-0-3-4-4-3-2-4	48	0-0-4-7-6-6-4-4	21	1-1-2-4-4-5-4-5

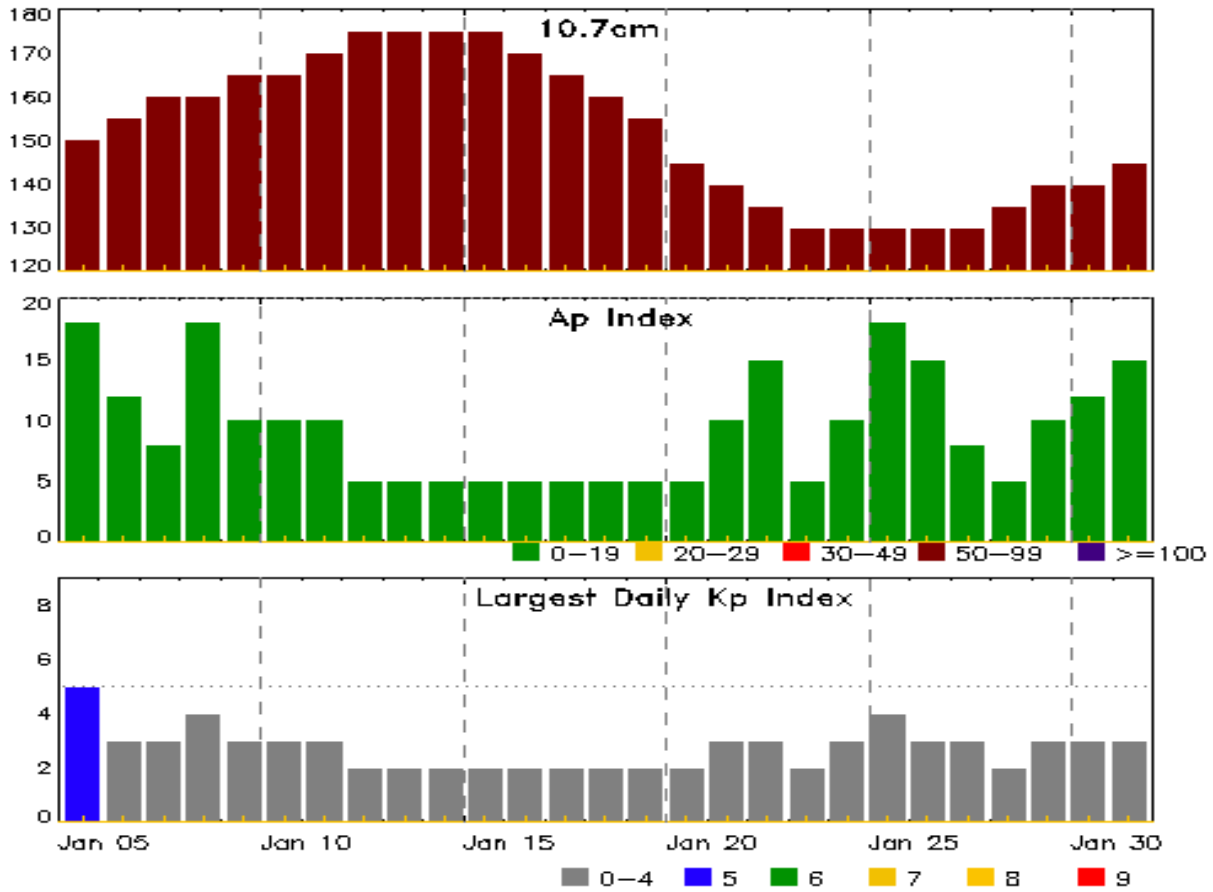


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
29 Dec 1248	EXTENDED WARNING: Geomagnetic K = 4	28/1945 - 30/0100
29 Dec 1710	WARNING: Geomagnetic K = 5	29/1710 - 2300
29 Dec 1718	ALERT: Geomagnetic K = 5	29/1718
29 Dec 2240	WATCH: Geomagnetic Storm Category G1 predicted	
29 Dec 2240	EXTENDED WARNING: Geomagnetic K = 5	29/1710 - 30/0300
29 Dec 2240	EXTENDED WARNING: Geomagnetic K = 4	28/1945 - 30/0600
30 Dec 0120	ALERT: Type IV Radio Emission	30/0052
30 Dec 0120	ALERT: Type II Radio Emission	30/0047
30 Dec 0541	EXTENDED WARNING: Geomagnetic K = 4	28/1945 - 30/2200
30 Dec 2155	EXTENDED WARNING: Geomagnetic K = 4	28/1945 - 31/0600
31 Dec 1402	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1355
01 Jan 1456	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1355
02 Jan 1251	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	31/1355
02 Jan 1826	WARNING: Geomagnetic K = 4	02/1825 - 03/1400
03 Jan 0002	ALERT: Geomagnetic K = 4	02/2359
03 Jan 0144	WARNING: Geomagnetic K = 5	03/0145 - 1400
03 Jan 0159	ALERT: Geomagnetic K = 5	03/0155
03 Jan 1225	EXTENDED WARNING: Geomagnetic K = 4	02/1825 - 04/0100
04 Jan 1106	WARNING: Geomagnetic K = 4	04/1106 - 05/0100
04 Jan 1145	ALERT: Geomagnetic K = 4	04/1144
04 Jan 1555	WARNING: Geomagnetic K = 5	04/1555 - 2300
04 Jan 1742	ALERT: Geomagnetic K = 5	04/1742
04 Jan 2257	EXTENDED WARNING: Geomagnetic K = 5	04/1555 - 05/0700



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
05 Jan	150	18	5	19 Jan	155	5	2
06	155	12	3	20	145	5	2
07	160	8	3	21	140	10	3
08	160	18	4	22	135	15	3
09	165	10	3	23	130	5	2
10	165	10	3	24	130	10	3
11	170	10	3	25	130	18	4
12	175	5	2	26	130	15	3
13	175	5	2	27	130	8	3
14	175	5	2	28	135	5	2
15	175	5	2	29	140	10	3
16	170	5	2	30	140	12	3
17	165	5	2	31	145	15	3
18	160	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
03 Jan	0940	0947	0950	M1.1	0.003	1N	S04E17	2253		57		
04 Jan	1518	1536	1553	M1.3	0.016	2N	S07E02	2253				

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
29 Dec	0040	0042	0050		SF	N06W55	2250
29 Dec	0139	0139	0155		SF	S12E48	2251
29 Dec	0242	0244	0247		SF	N06W56	2250
29 Dec	0305	0337	0341		SF	N06W56	2250
29 Dec	0330	0341	0347	C1.4	SF	S21E13	2248
29 Dec	0335	0337	0343		SF	S12E46	2251
29 Dec	0409	0412	0416		SF	N06W57	2250
29 Dec	0525	0529	0533	B8.6	SF	S20E12	2248
29 Dec	0609	0616	0620		SF	N08W59	2250
29 Dec	0630	0707	0802		SF	N08W59	2250
29 Dec	0717	0719	0723		SF	S22E13	2248
29 Dec	B0818	U0820	A0824		SF	S11E44	2251
29 Dec	0818	0822	1012		SF	N07W61	2250
29 Dec	B0839	U0841	0846		SF	N04W61	2250
29 Dec	0848	0945	0950		SF	S12E44	2251
29 Dec	0953	0954	0957		SF	N05W62	2250
29 Dec	0955	0955	0957		SF	S11E44	2251
29 Dec	0959	1004	1008		SF	S11E43	2251
29 Dec	1021	1023	1029		SF	N07W61	2250
29 Dec	1023	1025	1026		SF	S20E09	2248
29 Dec	1027	1028	1033		SF	S20E09	2248
29 Dec	1034	1039	1043	C1.4	SF	S21E10	2248
29 Dec	1046	1052	1058	C2.6	SF	N05W62	2250
29 Dec	1125	1125	1130		SF	S10E42	2251
29 Dec	2153	2154	2156		SF	S04E88	
29 Dec	2244	2245	2249		SF	S05E88	
29 Dec	2251	2251	2253		SF	S04E83	
30 Dec	0007	0008	0011		SF	N08W72	2250
30 Dec	0012	0013	0016		SF	N08W72	2250



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
30 Dec	0123	0123	0129		SF	S05E88	
30 Dec	0132	0132	0137		SF	S05E88	
30 Dec	0224	0232	0243		SF	S21W13	2247
30 Dec	0328	0328	0333		SF	N07W74	2250
30 Dec	0341	0346	0401		SF	N07W74	2250
30 Dec	0423	0426	0431		SF	S12E33	2251
30 Dec	0447	0449	0455		SF	N07W73	2250
30 Dec	0505	0510	0522		SF	N07W73	2250
30 Dec	0537	0538	0544		SF	N07W73	2250
30 Dec	0610	0646	0700	C2.6			2251
30 Dec	0613	0615	0620		SF	N06W74	2250
30 Dec	0626	0644	0714		SF	S13E29	2251
30 Dec	0704	0721	0752		SF	N06W74	2250
30 Dec	0758	0804	0820		SF	N06W74	2250
30 Dec	0821	0824	0903		SF	N06W74	2250
30 Dec	0906	0908	0912		SF	N06W74	2250
30 Dec	0941	0942	0944		SF	N06W74	2250
30 Dec	0947	0947	0953		SF	S06E79	
30 Dec	1016	1021	1024		SF	N06W74	2250
30 Dec	1800	1808	1823	C1.9	SF	N06W77	2250
30 Dec	2155	2156	2202		SF	S06E72	2253
30 Dec	2315	2319	2324	C1.1			2250
30 Dec	2354	0004	0010	C1.5	SF	S06E67	2253
31 Dec	B0000	0002	0021		SF	S06E68	2253
31 Dec	0029	0154	0304		1F	S06E64	2253
31 Dec	0150	0155	0201	C1.6	SF	S12E19	2251
31 Dec	0350	0354	0402	B9.3	SF	S06E64	2253
31 Dec	0442	0444	0444		SF	S05E63	2253
31 Dec	0448	0452	0505		SF	S05E62	2253
31 Dec	0559	0602	0604		SF	S06E60	2253
31 Dec	0609	0610	0620		SF	S06E60	2253
31 Dec	0621	0626	0628		SF	S06E60	2253
31 Dec	0629	0639	0642	C1.7	SF	S06E60	2253
31 Dec	0703	0704	0705		SF	N06W81	2250
31 Dec	0707	0751	0900		1F	S07E62	2253
31 Dec	0759	0807	0813		SF	N06W82	2250
31 Dec	0817	0818	0820		SF	N06W82	2250
31 Dec	0827	0827	0833		SF	N06W85	2250



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
31 Dec	0901	0903	1019	C1.2	1N	S06E58		2253
31 Dec	1212	1216	1218	C1.0				2251
31 Dec	1231	1235	1238	C1.4				2253
31 Dec	2302	2339	0017	C1.2				2253
01 Jan	0138	0139	0141		SF	S08E54		2253
01 Jan	0225	0227	0229		SF	S08E54		2253
01 Jan	0316	0316	0320		SF	S08E54		2253
01 Jan	0340	0341	0344		SF	S08E54		2253
01 Jan	0430	0430	0433		SF	S08E53		2253
01 Jan	0457	0507	0517	C2.1	SF	S07E50		2253
01 Jan	0722	0730	0738	C2.1	SF	S06E49		2253
01 Jan	0914	0915	0921		SF	S07E50		2253
01 Jan	1903	1905	1907	C1.8	SF	S05E38		2253
02 Jan	0433	0436	0438	B7.0				2253
02 Jan	0846	0847	0901		SF	S11W37		
02 Jan	0856	0856	0903		SF	S05E34		2253
02 Jan	0917	0920	0924		SF	S11W38		
02 Jan	0950	0953	0955	B9.3	SF	S05E33		2253
02 Jan	1122	1123	1125		SF	S06E33		2253
02 Jan	1145	1146	1151		SF	S06E33		2253
02 Jan	1202	1202	1210		SF	S05E33		2253
02 Jan	1232	1233	1234		SF	S05E33		2253
02 Jan	1405	1408	1411	B9.7				2253
02 Jan	1412	1415	1417	C1.0	SF	S04E27		2253
02 Jan	1935	1938	1939	C1.1				2248
02 Jan	1947	1948	1949	C1.2				2256
03 Jan	0012	0016	0020		SF	S05E24		2253
03 Jan	0113	0117	0121	C1.7				2253
03 Jan	0552	0557	0600	C1.1	SF	S06E20		2253
03 Jan	0601	0604	0606	C2.9				
03 Jan	0604	0617	0629	C4.6	SF	S06E20		2253
03 Jan	0643	0649	0653	C3.8	SF	S06E20		2253
03 Jan	0705	0715	0728	C2.4	SF	S05E22		2253
03 Jan	0940	0947	0950	M1.1	1N	S04E17		2253
03 Jan	1000	1001	1005		SF	S04E16		2253
03 Jan	1028	1039	1044	C1.7	SF	S05E16		2253
03 Jan	1244	1244	1246		SF	S04E14		2253
03 Jan	1337	1413	1426	C1.8	SF	S05E16		2253



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical	
	Begin	Max	End			Location Lat CMD	Rgn #
03 Jan	1458	1505	1510		SF	S05E38	2253
03 Jan	1527	1528	1531		SF	S07E13	2253
03 Jan	2126	2223	2242	C1.3	SF	S05E12	2253
03 Jan	2305	2322	2339	C1.0	SF	S05E11	2253
04 Jan	0005	0009	0012	C1.1	SF	S04E04	2253
04 Jan	0032	0053	0128	C1.5			2253
04 Jan	0329	0330	0334		SF	S21W67	2248
04 Jan	0416	0452	0520	C2.1			2253
04 Jan	0421	0423	0431		SF	S08W66	2256
04 Jan	0435	0451	0530		SF	S07E10	2253
04 Jan	0441	0441	0445		SF	S15E53	2255
04 Jan	0554	0639	0657		SF	S08W67	2256
04 Jan	0731	0732	0734		SF	S08W68	2256
04 Jan	0758	0759	0802		SF	S09W66	2256
04 Jan	0811	0813	0814		SF	S06E07	2253
04 Jan	0828	0840	0847		SF	S08W68	2256
04 Jan	B1042	U1043	1110		SF	S05E04	2253
04 Jan	1517	1531	1731	M1.3	2N	S07E02	2253
04 Jan	2121	2126	2135	C1.1	SF	S06W02	2253
04 Jan	2157	2157	2201		SF	S06W02	2253
04 Jan	2341	2345	2348	C1.9			



Region Summary

Date	Location		Sunspot Characteristics				Flares										
	Lat CMD	Helio Lon	Area 10 ⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
								C	M	X	S	1	2	3	4		
Region 2244																	
20 Dec	S05E38	159	50	3	Cao	3	B						3				
21 Dec	S04E28	156	160	8	Dao	11	B	1					1				
22 Dec	S04E14	156	190	7	Dao	7	BG						2				
23 Dec	S03W00	157	130	8	Dao	20	BG	1									
24 Dec	S02W12	156	60	9	Dao	16	B										
25 Dec	S03W26	157	40	8	Dro	8	B										
26 Dec	S04W41	159	0		Axx	1	A										
27 Dec	S04W54	159	plage														
28 Dec	S04W69	160	plage														
29 Dec	S04W84	162	plage														
								2	0	0	6	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 157

Region 2245																	
21 Dec	N08E60	124	30	3	Cao	6	B										
22 Dec	N08E47	123	30	5	Cro	5	B										
23 Dec	N09E35	122	50	7	Cao	9	B						1				
24 Dec	N10E23	121	20	5	Bxo	5	B	2					2				
25 Dec	N09E08	123	10	7	Bxo	7	B										
26 Dec	N09W06	123	0		Axx	1	A										
27 Dec	N09W20	125	plage														
28 Dec	N09W34	125	plage														
29 Dec	N09W48	126	plage														
30 Dec	N09W62	127	plage														
31 Dec	N09W76	128	plage														
01 Jan	N09W90	129	plage														
								2	0	0	3	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 123



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares									
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
			Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 2246																
21 Dec	N17E78		106	70	2	Hsx	1	A								
22 Dec	N16E62		108	90	2	Hsx	1	A								
23 Dec	N17E49		108	70	2	Hsx	1	A								
24 Dec	N18E36		108	70	1	Hsx	1	A								
25 Dec	N17E24		107	60	2	Hsx	1	A								
26 Dec	N17E10		108	60	2	Hsx	1	A								
27 Dec	N19W04		107	80	2	Hsx	2	A								
28 Dec	N18W17		108	80	2	Hsx	1	A								
29 Dec	N17W30		107	70	2	Hsx	1	A								
30 Dec	N23W43		107	60	2	Hsx	1	A								
31 Dec	N19W56		108	70	1	Hsx	1	A								
01 Jan	N19W69		108	50	2	Hsx	1	A								
02 Jan	N19W83		108	90	2	Hsx	1	A								
									0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 107

Region 2247																
23 Dec	S24E59		98	60	1	Hax	2	A								
24 Dec	S23E46		98	20	1	Hsx	1	A								
25 Dec	S24E34		97	40	2	Hax	3	A								
26 Dec	S24E21		96	10	1	Hrx	1	A								
27 Dec	S22E06		97	10	1	Hrx	2	A								
28 Dec	S24W07		98	10	3	Axx	3	A								
29 Dec	S24W21		99	10	3	Bxo	2	B								
30 Dec	S19W32		96	0	4	Axx	1	A				1				
31 Dec	S19W46		98	plage												
01 Jan	S19W60		99	plage												
02 Jan	S19W74		99	plage												
03 Jan	S19W88		100	plage												
									0	0	0	1	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 97



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares																
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
Region 2248																							
23 Dec	S20E75		82	30	4	Hsx	1	A															
24 Dec	S20E60		84	50	1	Hsx	1	A															
25 Dec	S20E47		84	70	2	Hax	2	A	2														
26 Dec	S21E35		82	60	3	Dao	5	BG	1			3											
27 Dec	S19E22		83	160	7	Dso	18	BG	1														
28 Dec	S19E07		84	120	7	Dso	9	BG	3			2											
29 Dec	S21W06		84	100	13	Cso	14	B	2			6											
30 Dec	S14W17		81	70	8	Cso	5	B															
31 Dec	S19W29		81	60	2	Hsx	2	A															
01 Jan	S19W42		81	50	2	Hax	1	A															
02 Jan	S19W55		80	50	1	Hax	1	A	1														
03 Jan	S19W68		80	30	1	Hax	1	A															
04 Jan	S19W82		81	20	1	Hax	1	A				1											
									10	0	0	12	0	0	0	0	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 84

Region 2249

25 Dec	S12W33		164	90	6	Dao	8	BG													
26 Dec	S12W47		165	140	6	Dac	8	BG	8			8									
27 Dec	S10W61		164	210	6	Dac	12	BG	1	1		3	1	1							
28 Dec	S12W74		165	200	9	Dac	13	BG				6									
29 Dec	S11W87		165	220	10	Dai	6	BG													
									9	1	0	17	1	1	0	0					

Crossed West Limb.

Absolute heliographic longitude: 164

Region 2250

26 Dec	N08W28		146	10	4	Bxo	5	B													
27 Dec	N10W41		144	20	6	Cso	5	B													
28 Dec	N08W55		146	20	7	Cao	4	B													
29 Dec	N08W68		146	20	7	Cro	5	B	1			11									
30 Dec	N10W85		149	30	2	Hrx	1	A	2			15									
									3	0	0	26	0	0	0	0					

Crossed West Limb.

Absolute heliographic longitude: 146



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
Region 2251																							
27 Dec	S11E58		47	20		Hrx	1	A															
28 Dec	S12E45		46	30	4	Cao	7	BG	1				2	1									
29 Dec	S15E32		45	50	6	Cai	14	B					7										
30 Dec	S09E18		46	210	8	Dac	17	BG	1				2										
31 Dec	S13E05		47	190	8	Dai	11	B	2				1										
01 Jan	S13W09		48	140	9	Dao	6	BG															
02 Jan	S12W21		47	160	9	Dso	5	B															
03 Jan	S13W35		47	160	9	Dao	6	B															
04 Jan	S13W48		47	100	8	Dso	5	B															
									4	0	0	12	1	0	0	0	0						

Still on Disk.

Absolute heliographic longitude: 47

Region 2252																							
27 Dec	S19E77		28	80	3	Hsx	1	A															
28 Dec	S20E62		29	60	3	Hax	1	A															
29 Dec	S22E49		29	90	3	Hax	1	A															
30 Dec	S18E37		27	90	3	Cao	3	B															
31 Dec	S20E24		28	100	3	Cao	2	B															
01 Jan	S20E11		28	90	2	Hax	2	A															
02 Jan	S20W01		26	60	1	Hax	1	A															
03 Jan	S20W15		27	60	2	Hsx	2	A															
04 Jan	S20W27		26	50	2	Hax	2	A															
									0	0	0	0	0	0	0	0	0	0	0				

Still on Disk.

Absolute heliographic longitude: 26

Region 2253																							
30 Dec	S06E63		121	50	7	Dai	4	B	1				2										
31 Dec	S06E48		4	270	11	Eac	14	BG	4				8	3									
01 Jan	S07E35		4	460	11	Ekc	16	BG	3				9										
02 Jan	S06E22		3	770	12	Ekc	22	BGD	1				7										
03 Jan	S07E09		3	900	15	Ekc	31	BGD	9	1			13	1									
04 Jan	S07W04		3	860	15	Ekc	42	BGD	4	1			6		1								
									22	2	0	45	4	1	0	0							

Still on Disk.

Absolute heliographic longitude: 3



Region Summary - continued

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

Region 2254

31 Dec	S22E09	43	20	3	Cso	4	B										
01 Jan	S22W05	44	20	4	Cro	4	B										
02 Jan	S22W21	46	10		Axx	1	A										
03 Jan	S22W35	47	10	2	Axx	2	A										
04 Jan	S22W49	48	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 44

Region 2255

01 Jan	S14E76	322	60	3	Hax	1	A										
02 Jan	S14E63	322	90	3	Hsx	1	A										
03 Jan	S15E51	321	100	3	Cao	3	B										
04 Jan	S16E38	321	160	4	Dai	9	BG				1						
									0	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 321

Region 2256

02 Jan	S08W47	72	20	2	Cro	1	B	1									
03 Jan	S08W61	73	40	6	Cao	7	B										
04 Jan	S08W74	73	30	6	Cao	5	B				5						
								1	0	0	5	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 72



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares													
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical								
									C	M	X	S	1	2	3	4				
Region 9247																				
29 Nov	N13E20	259	0			Axx	1	A												
30 Nov	N13E07	259	plage						1			2								
01 Dec	N13W06	259	plage																	
02 Dec	N14W20	259	0			Axx	1	A												
03 Dec	N14W33	259	plage																	
04 Dec	N14W46	259	plage																	
05 Dec	N14W59	259	plage																	
06 Dec	N14W72	259	plage																	
07 Dec	N14W85	259	plage																	
									1	0	0	2	0	0	0	0	0			

Crossed West Limb.

Absolute heliographic longitude: 259

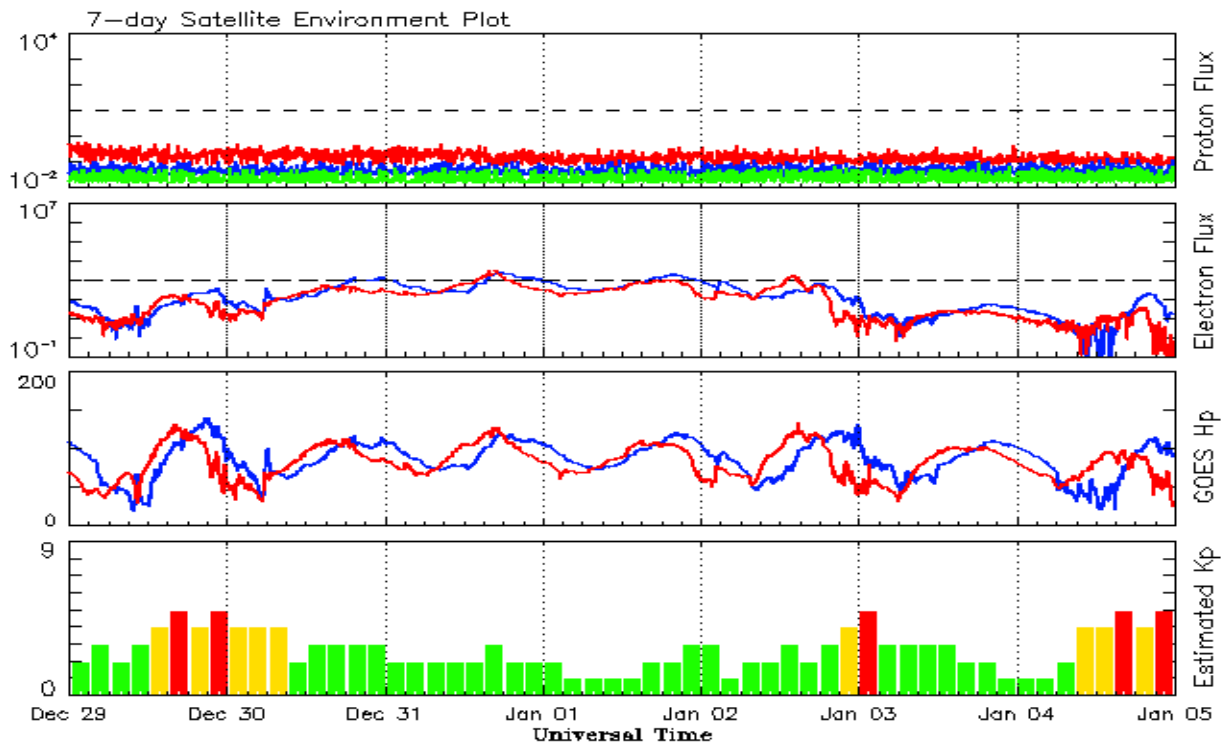


Recent Solar Indices (preliminary)
Observed monthly mean values

Month	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
2013									
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	103.7	68.9	114.7	127.9	9	7.6
September	55.0	37.0	0.67	111.0	73.0	102.7	132.3	5	7.8
October	127.1	85.6	0.67	114.3	74.9	132.3	134.7	7	7.8
November	125.7	77.6	0.62	114.6	75.3	148.4	135.4	5	7.9
December	118.2	90.3	0.76	115.4	75.9	147.7	135.9	5	7.5
2014									
January	125.9	81.8	0.65	117.7	77.3	158.6	137.3	6	7.1
February	174.6	102.3	0.59	119.5	78.3	170.3	138.6	12	6.9
March	141.1	91.9	0.65	123.2	80.8	149.9	140.8	6	7.2
April	130.5	84.7	0.65	124.8	81.9	144.3	143.5	9	7.5
May	116.8	75.2	0.64	122.3	80.5	130.0	144.7	7	7.9
June	107.7	71.0	0.66	121.4	79.7	122.2	145.5	7	8.4
July	113.6	72.4	0.64			137.3		5	
August	106.2	74.6	0.70			124.7		9	
September	127.4	87.6	0.69			146.1		11	
October	92.0	60.6	0.66			153.7		10	
November	101.8	70.1	0.69			155.3		10	
December	120.0	78.0	0.65			158.7		12	

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 29 December 2014*

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

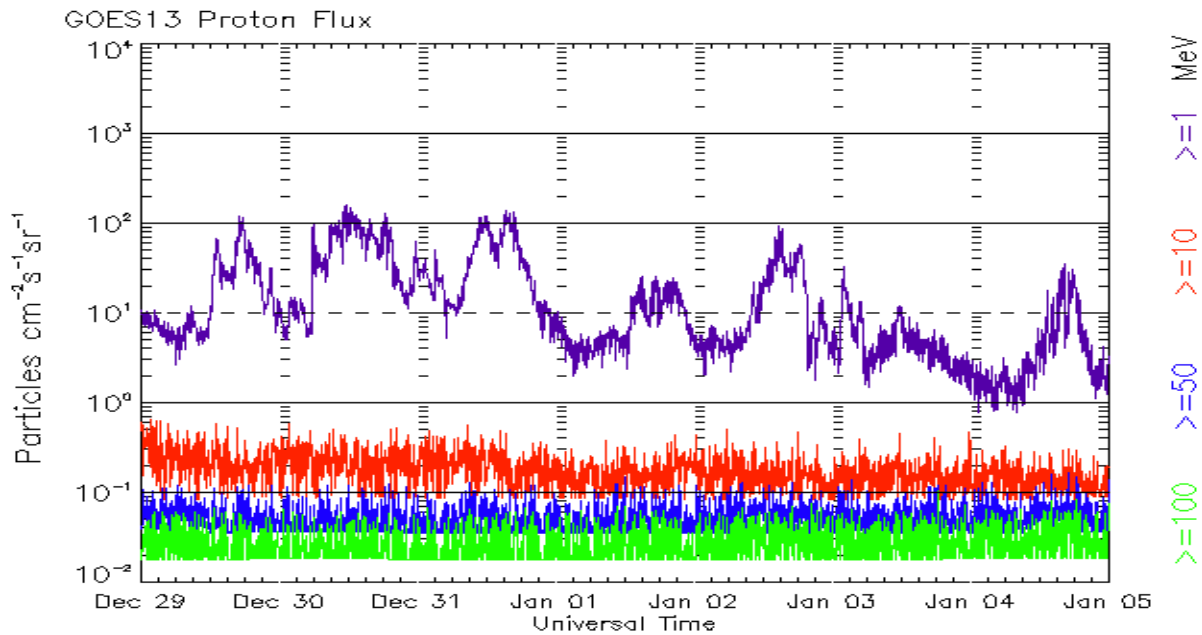
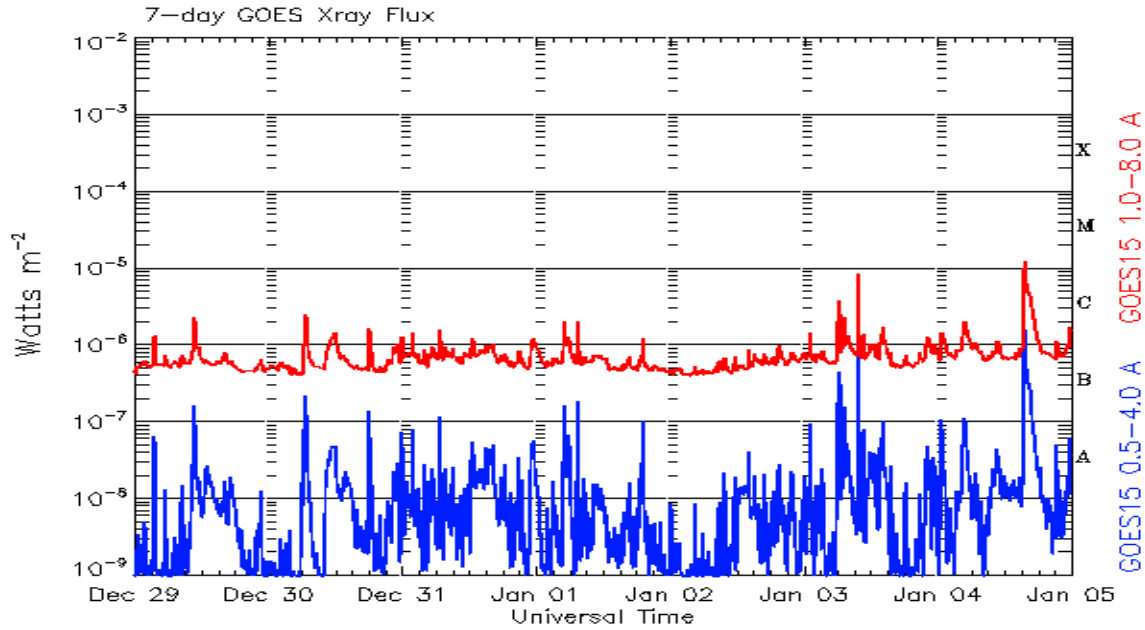
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 29 December 2014

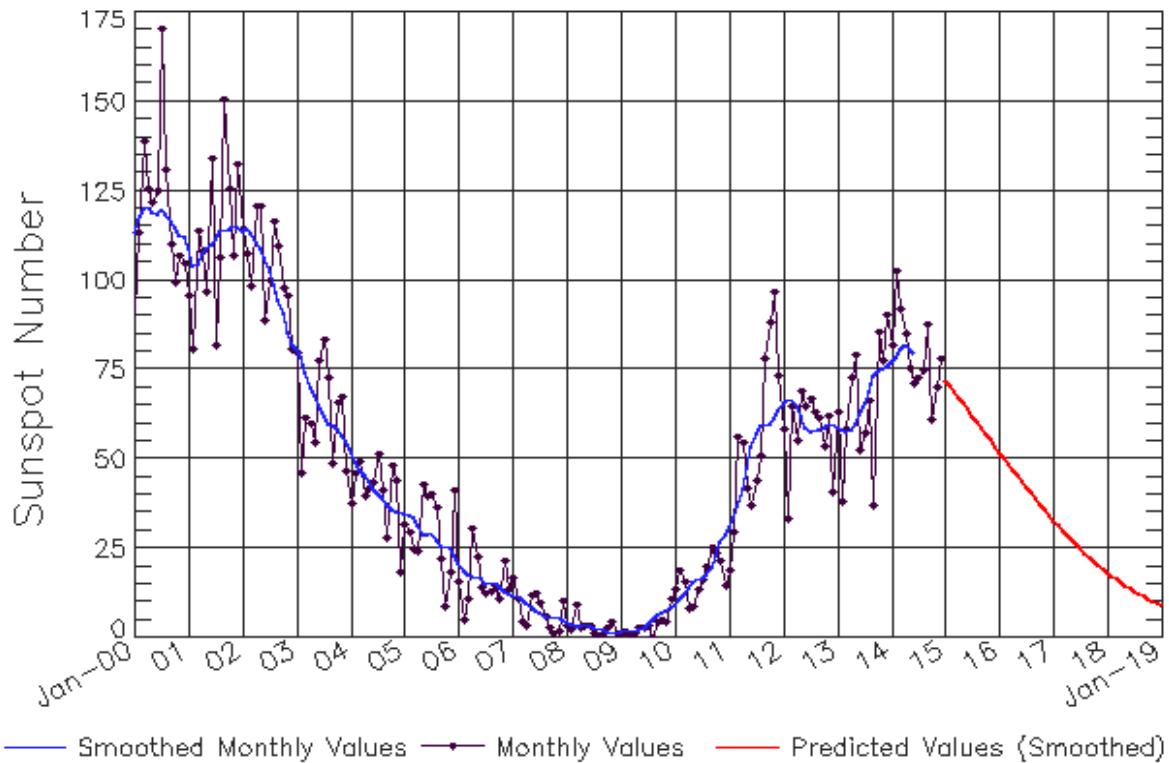
The x-ray plots contains five-minute averages x-ray flux ($Watt/m^2$) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/ 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 Dec 2014

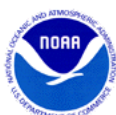


Updated 2015 Jan 5

NOAA/SWPC Boulder, CO USA

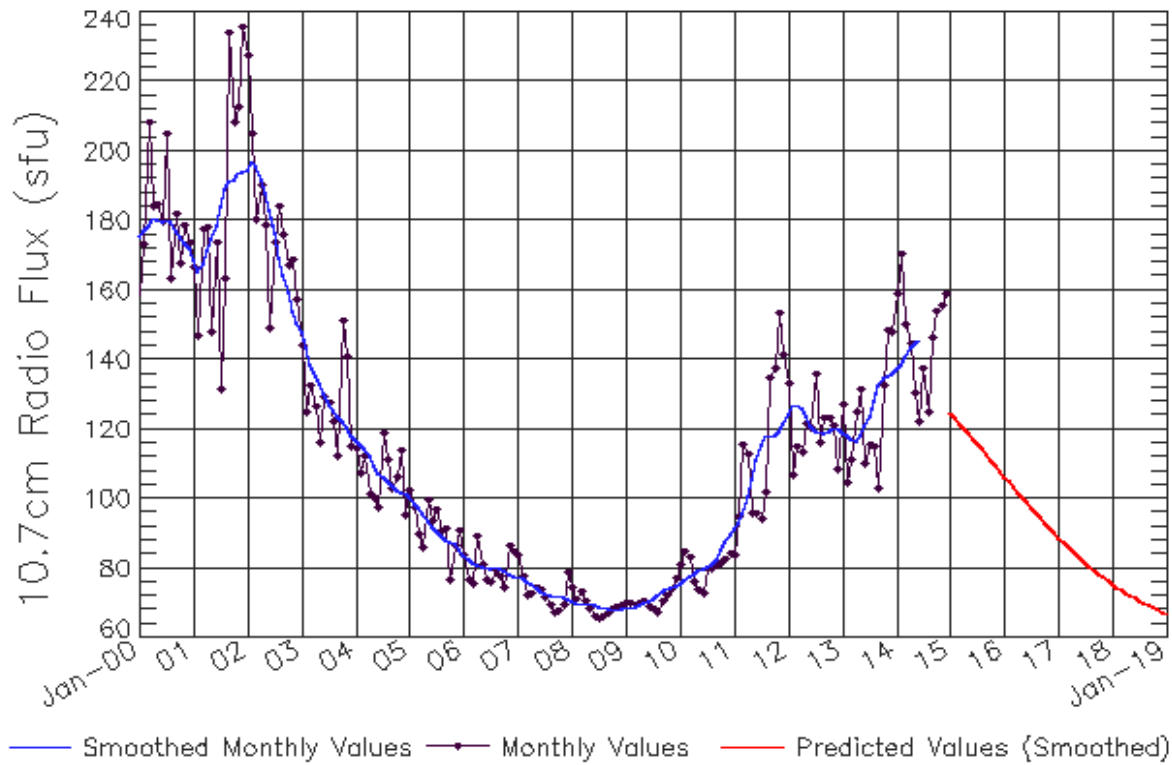
Smoothed Sunspot Number Prediction

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 (**)	69 (**)	73 (**)	75 (**)	75 (**)	76 (**)
2014	77 (**)	78 (**)	81 (**)	82 (**)	81 (**)	80 (**)	79 (1)	77 (2)	75 (3)	73 (5)	72 (5)	71 (6)
2015	70 (7)	69 (7)	68 (8)	66 (9)	66 (9)	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 Dec 2014



Updated 2015 Jan 5

NOAA/SWPC Boulder, CO USA

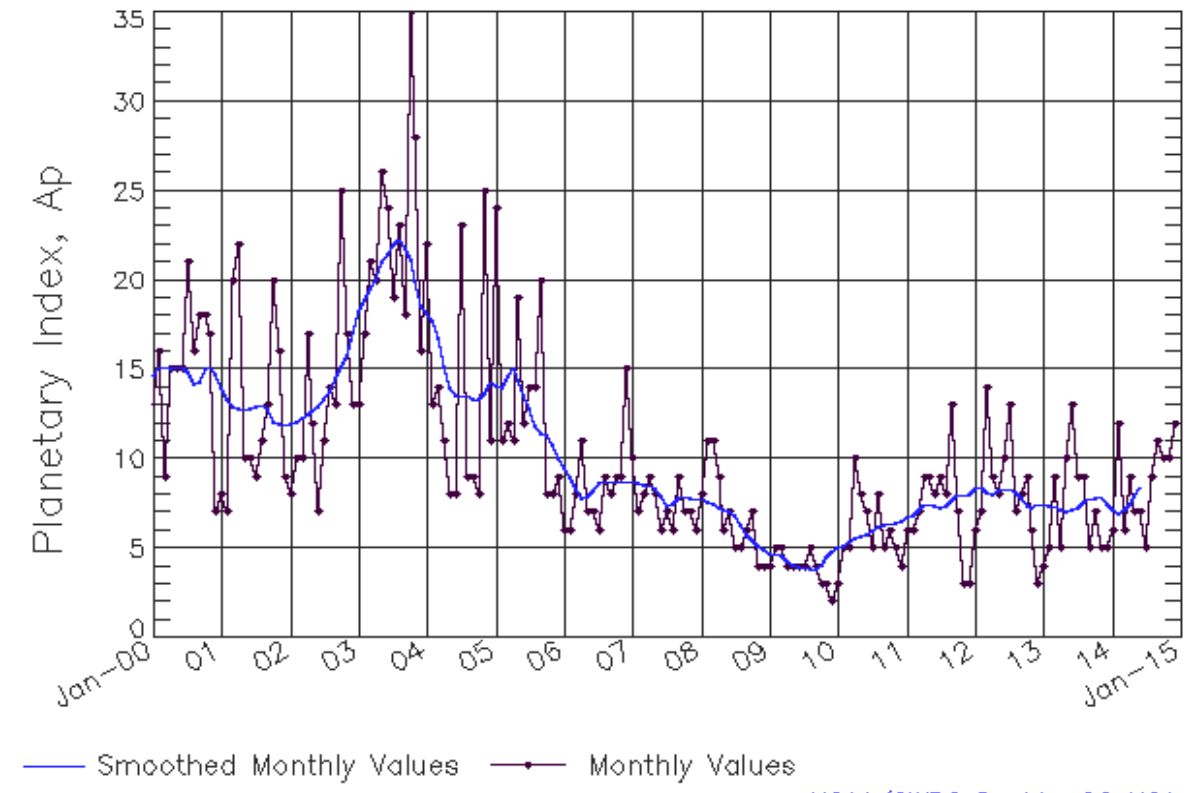
Smoothed F10.7cm Radio Flux Prediction

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 (**)	128 (**)	132 (**)	135 (**)	135 (**)	136 (**)
2014	137 (**)	139 (**)	141 (**)	144 (**)	145 (**)	146 (**)	145 (1)	141 (1)	138 (2)	136 (3)	134 (4)	134 (4)
2015	133 (5)	131 (6)	129 (7)	126 (8)	123 (8)	119 (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 Dec 2014



Updated 2015 Jan 5

NOAA/SWPC Boulder, CO USA

Solar Cycle Comparison charts are temporarily unavailable.



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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

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

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http://spaceweather.gov/weekly/Usr_guide.pdf -- User Guide

