

Solar activity ranged from very low to moderate. The summary period began on 31 December with very low levels. Low levels were observed on 01 January due to a single C1/Sf flare at 01/0906Z from Region 1640 (N28, L=323, class area Eho/360 on 06 January). A return to very low levels existed on 02 January. Low levels returned on 03 January due to a single C1 event from Region 1640. 04 January witnessed numerous C-class events, the largest a C2 long duration event (LDE) from Region 1652 (N20, L=187, class area Dao/120 on 06 January) that began at 04/2346Z, peaked at 05/0018Z and ended at 05/0119Z. Associated with this event was a 170 sfu Tenflare. Earlier on 04 January, Region 1639 (S16, L=311, class/area Dao/090 on 28 December) produced a C1 LDE that began at 04/0822Z, peaked at 04/0918 Z and ended at 04/1034Z. Associated with this event was a coronal mass ejection (CME), first observed in STEREO A COR2 imagery off the SE limb at 04/0924Z. Activity increased to moderate levels due an impulsive M1 event observed at 05/0931Z from Region 1652. A return to low levels was observed on 06 January. The largest event on the 6th was a C3 event at 06/0303Z from Region 1653 (N09, L=185, class/area Cso/030 on 06 January). By the end of the summary period, a total of 14 spotted regions populated the visible disk.

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 quiet. Solar wind speed, measured at the ACE spacecraft, ranged from a high of about 480 km/s at the beginning of the period to a low of near 275 km/s late on 05 January. The interplanetary magnetic field (IMF) Bt ranged between 1 to 9 nT while the Bz component of the IMF varied between +7 to -6 nT. Phi angle was observed to be in a positive (away) orientation for a majority of the period. Intervals of negative (towards) orientation occurred between 31/0000Z to 02/0445Z and again from about 06/1300Z through the end of the summary period.

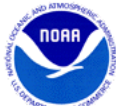
Space Weather Outlook **07 January - 02 February 2013**

Solar activity is expected to be at low levels with a chance for M-class activity through 18 January when active Regions 1650 (S29, L=194), 1652 (N20, L=187) and 1653 (N09, L=185) rotate off the disk. Very low to low levels are expected to persist through 21 January. From 22 January through the end of the outlook period, low levels are expected with a chance for M-class activity as old Region 1640 (N28, L=323) is due to return.

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 through the outlook period.

Geomagnetic field activity is expected to be at quiet to unsettled levels on 07 - 08 January due to the influence of a geoeffective CH HSS coupled with possible glancing blow effects from the 04



January CME. With the exception of 13 January, 20 - 21 January and 26 January when recurrent CH HSS are expected to become geoeffective, quiet conditions are expected to persist through the outlook 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
31 December	114	87	300	B2.9	0	0	0	0	0	0	0	0
01 January	118	99	480	B3.1	1	0	0	2	0	0	0	0
02 January	119	90	610	B2.5	0	0	0	0	0	0	0	0
03 January	129	116	640	B3.5	1	0	0	0	0	0	0	0
04 January	143	167	830	B6.3	4	0	0	1	0	0	0	0
05 January	145	181	1030	B7.9	7	1	0	3	0	0	0	0
06 January	142	186	1140	B5.8	5	0	0	0	0	0	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
31 December	9.8e+04	1.1e+04	2.7e+03		1.0e+06	
01 January	1.1e+05	1.2e+04	2.7e+03		1.2e+06	
02 January	2.0e+05	1.1e+04	2.8e+03		1.3e+06	
03 January	2.8e+05	1.1e+04	2.6e+03		9.9e+05	
04 January	2.1e+05	1.2e+04	2.8e+03		1.0e+06	
05 January	1.9e+05	1.1e+04	2.8e+03		1.0e+06	
06 January	3.9e+05	1.1e+04	2.7e+03		1.1e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
31 December	1	0-0-0-0-0-1-1-0	0	0-0-0-0-0-0-0-0	2	0-0-0-0-0-0-1-1
01 January	1	0-0-0-0-1-0-1-0	0	0-0-0-0-0-0-0-0	1	0-0-0-0-0-0-0-0
02 January	2	0-0-1-1-2-1-1-0	2	0-0-1-1-2-1-0-0	3	0-0-1-1-1-1-1-1
03 January	2	0-1-0-0-1-1-1-0	0	0-0-0-0-0-0-0-0	2	0-1-0-0-0-1-1-0
04 January	2	1-0-0-0-1-1-1-0	0	0-0-0-0-0-0-0-0	2	1-0-0-0-0-1-1-1
05 January	1	0-1-1-0-0-0-0-0	0	0-0-0-0-0-0-0-0	3	0-1-1-0-1-0-1-0
06 January	6	0-0-0-0-0-2-2-1	0	0-0-0-0-0-0-0-0	3	0-0-0-0-1-1-2-1

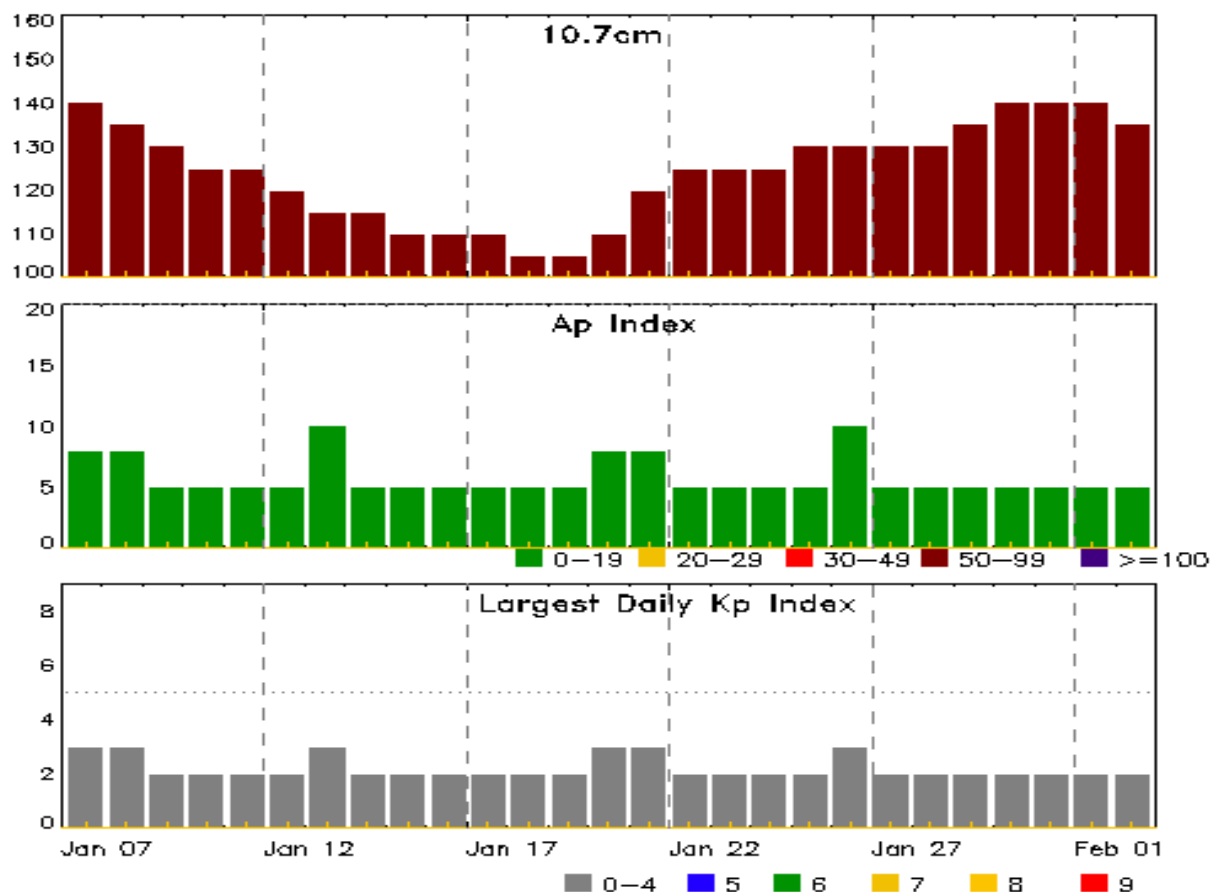


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
05 Jan 0023	SUMMARY: 10cm Radio Burst	04/2348 - 2351



Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
07 Jan	140	8	3	21 Jan	120	8	3
08	135	8	3	22	125	5	2
09	130	5	2	23	125	5	2
10	125	5	2	24	125	5	2
11	125	5	2	25	130	5	2
12	120	5	2	26	130	10	3
13	115	10	3	27	130	5	2
14	115	5	2	28	130	5	2
15	110	5	2	29	135	5	2
16	110	5	2	30	140	5	2
17	110	5	2	31	140	5	2
18	105	5	2	01 Feb	140	5	2
19	105	5	2	02	135	5	2
20	110	8	3				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
			Max						245	2695	II	IV
05 Jan	0926	0931	0934	M1.7	0.004			1652				

Flare List

Date	Time			X-ray Class	Optical			Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD		
31 Dec	1859	1903	1906	B5.5				1640
31 Dec	2212	2217	2222	B8.9				1640
01 Jan	0058	0103	0111	B7.8				
01 Jan	0847	0906	0913	C1.2	SF	N25W01		1640
01 Jan	1426	1438	1456	B5.2				
01 Jan	1553	1558	1607	B6.2				1640
01 Jan	1801	1803	1807		SF	N27W05		1640
01 Jan	2252	2258	2301	B4.7				1640
02 Jan	0921	0925	0934	B5.6				1643
02 Jan	2108	2109	2111	B4.2				
03 Jan	0408	0415	0429	B5.7				1640
03 Jan	1916	1927	1938	B7.9				1644
03 Jan	2101	2108	2117	B9.4				1640
03 Jan	2127	2138	2145	C1.7				1640
04 Jan	0045	0053	0109	C1.2				1640
04 Jan	0206	0212	0217	B8.2				1640
04 Jan	0535	0537	0540		SF	N26W39		1640
04 Jan	0822	0918	1034	C1.3				1639
04 Jan	1303	1308	1315	C1.2				1650
04 Jan	2346	0018	0119	C2.3				1652
05 Jan	0324	0328	0332	C1.5				1650
05 Jan	0350	0354	0357	C1.6	SF	S28E78		1650
05 Jan	0429	0449	0452	C2.9	SF	S28E78		1650
05 Jan	0556	0603	0610	C1.5				1652
05 Jan	0808	0811	0814	C1.4				1650
05 Jan	0926	0931	0934	M1.7				1652
05 Jan	1619	1622	1624	C1.3	SF	S13W26		1645
05 Jan	2131	2139	2149	C2.1				1653
06 Jan	0257	0303	0309	C3.0				1653
06 Jan	0915	0950	1012	C1.9				1653



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
06 Jan	1122	1127	1132	C1.2			1653
06 Jan	1244	1254	1301	C1.7			1652
06 Jan	1658	1703	1712	C1.2			1653
06 Jan	2234	2241	2250	B9.1			1653



Region Summary

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
Region 1635															
18 Dec	N10E72	65	120	9	Dso	3	B								
19 Dec	N09E58	65	110	7	Cso	5	B								
20 Dec	N09E44	66	250	12	Eki	8	B								
21 Dec	N09E35	64	250	12	Ehi	8	BG	1				5			
22 Dec	N10E22	64	200	11	Esi	18	BG	1				2			
23 Dec	N12E09	63	200	8	Dai	28	BG	1				1			
24 Dec	N11W05	63	210	7	Dac	13	B	1							
25 Dec	N11W17	63	270	9	Dac	22	BG	4				3			
26 Dec	N12W32	64	160	9	Dsc	37	BG	6				2			
27 Dec	N13W45	63	120	8	Dsi	21	B	1				3			
28 Dec	N12W57	64	50	8	Cao	7	B								
29 Dec	N13W74	67	20	1	Hrx	2	A								
30 Dec	N13W88	68	plage												
								15	0	0	16	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 63

Region 1636															
25 Dec	N13E59	347	10	4	Bxo	4	B								
26 Dec	N12E45	347	10	1	Bxo	2	B								
27 Dec	N09E30	350	10	1	Axx	1	A								
28 Dec	N09E16	351	plage												
29 Dec	N09E02	351	plage												
30 Dec	N09W11	351	plage												
31 Dec	N14W13	340	30	4	Dso	6	B								
01 Jan	N14W27	340	10	5	Bxo	3	B								
02 Jan	N14W41	340	plage												
03 Jan	N14W55	343	plage												
04 Jan	N14W69	343	plage												
05 Jan	N14W83	344	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 351



Region Summary - continued

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 1637

26 Dec	N06E47	344	10		Axx	1	A								
27 Dec	N06E34	346	10	1	Axx	1	A								
28 Dec	N06E20	347	10	1	Axx	1	A								
29 Dec	N06E07	346	0	1	Axx	1	A								
30 Dec	N06W06	346	plage												
31 Dec	N06W21	348	plage												
01 Jan	N06W35	348	plage												
02 Jan	N06W49	348	plage												
03 Jan	N06W63	351	plage												
04 Jan	N06W77	351	plage												
								0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 346

Region 1638

27 Dec	N12E67	311	80	2	Hsx	1	A								
28 Dec	N12E56	311	150	3	Hsx	1	A								
29 Dec	N12E43	310	150	3	Hsx	1	A	1			1				
30 Dec	N12E31	309	150	3	Hsx	1	A								
31 Dec	N13E17	308	90	2	Cao	3	B								
01 Jan	N13E06	308	140	4	Dao	8	B								
02 Jan	N13W07	308	110	3	Cao	4	B								
03 Jan	N13W21	309	100	3	Hsx	2	A								
04 Jan	N13W34	308	80	2	Hsx	1	A								
05 Jan	N13W48	309	40	2	Hsx	1	A								
06 Jan	N13W61	309	50	2	Hsx	1	A								
								1	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 308



Region Summary - continued

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 1639

27 Dec	S16E67	311	50	5	Dao	4	B								
28 Dec	S16E56	311	90	5	Dao	5	B								
29 Dec	S16E46	307	70	5	Cao	5	B								
30 Dec	S17E32	308	30	4	Cro	4	B								
31 Dec	S16E17	310	10	2	Cso	2	B								
01 Jan	S16E04	310	10	1	Axx	1	A								
02 Jan	S16W10	310	plage												
03 Jan	S16W24	312	plage												
04 Jan	S16W38	312	plage							1					
05 Jan	S16W52	313	plage												
06 Jan	S16W66	314	plage												
								1	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 310

Region 1640

30 Dec	N28E20	320	40	6	Dso	2	B								
31 Dec	N28E06	320	80	8	Cao	11	B								
01 Jan	N28W06	320	180	10	Dai	23	B	1			2				
02 Jan	N28W21	320	220	12	Eai	18	B								
03 Jan	N28W35	323	240	13	Eai	28	BGD	1							
04 Jan	N28W48	322	320	13	Eki	24	BGD	1			1				
05 Jan	N28W62	323	330	13	Eki	11	BGD								
06 Jan	N28W75	323	360	13	Eho	4	B								
								3	0	0	3	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 320

Region 1641

31 Dec	N05E52	274	40	5	Cso	3	B								
01 Jan	N05E39	275	50	6	Cao	3	B								
02 Jan	N05E23	278	50	6	Cso	3	B								
03 Jan	N05E07	281	50	1	Hsx	1	A								
04 Jan	N04W05	279	40	8	Cao	2	B								
05 Jan	N04W20	281	40	2	Hsx	3	A								
06 Jan	N02W33	281	30	1	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 279



Region Summary - continued

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 1642

31 Dec	S24E71	255	50	2	Hax	2	A								
01 Jan	S23E62	252	90	2	Hsx	1	A								
02 Jan	S23E48	253	140	2	Hsx	1	A								
03 Jan	S24E34	254	80	2	Hsx	1	A								
04 Jan	S24E22	252	100	2	Hsx	1	A								
05 Jan	S24E10	251	80	3	Hsx	1	A								
06 Jan	S25W04	252	90	2	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 252

Region 1643

02 Jan	S14E45	256	10	4	Bxo	2	B								
03 Jan	S14E31	257	plage												
04 Jan	S14E17	257	plage												
05 Jan	S14E03	258	plage												
06 Jan	S14W11	259	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 258

Region 1644

02 Jan	N15E66	235	80	12	Eso	2	B								
03 Jan	N14E48	240	60	1	Hsx	2	A								
04 Jan	N15E35	239	40	2	Hsx	1	A								
05 Jan	N15E20	241	50	4	Cso	4	B								
06 Jan	N15E09	239	40	4	Cso	3	B								
								0	0	0	0	0	0	0	0

Still on Disk.

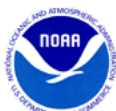
Absolute heliographic longitude: 239

Region 1645

03 Jan	S13W05	293	30	4	Dro	11	B								
04 Jan	S13W18	292	50	5	Dao	8	B								
05 Jan	S14W32	293	30	8	Cso	5	B	1			1				
06 Jan	S13W45	293	10	4	Bxo	4	B								
								1	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 293



Region Summary - continued

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 1646

03 Jan	N13E57	231	80	1	Hsx	1	A								
04 Jan	N14E45	229	30	1	Hax	1	A								
05 Jan	N14E31	230	30	2	Hsx	1	A								
06 Jan	N13E17	231	40	1	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 231

Region 1647

04 Jan	N16W55	329	30	5	Cao	4	B								
05 Jan	N15W69	330	30	6	Cao	3	B								
06 Jan	N16W81	329	20	7	Cro	3	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 329

Region 1648

04 Jan	N05E53	221	20	3	Cro	2	B								
05 Jan	N05E40	221	40	7	Cao	3	B								
06 Jan	N05E26	222	30	6	Cro	6	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 222

Region 1649

04 Jan	S14E74	200	60	2	Hsx	1	A								
05 Jan	S15E60	201	80	2	Hsx	1	A								
06 Jan	S15E46	202	70	2	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 202

Region 1650

04 Jan	S26E77	197	50	2	Hsx	1	A	1							
05 Jan	S28E63	198	190	11	Eao	5	B	4			2				
06 Jan	S29E54	194	240	14	Eao	9	B								
								5	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 194



Region Summary - continued

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 1651

04 Jan	N19E48	225	10	1	Axx	1	A								
05 Jan	N20E35	226	10	1	Axx	1	A								
06 Jan	N20E23	225	10	1	Axx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 225

Region 1652

04 Jan	N20E88	187	plage					1							
05 Jan	N20E74	187	60	3	Hsx	1	A	1	1						
06 Jan	N20E61	187	120	8	Dao	8	B	1							
								3	1	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 187

Region 1653

05 Jan	N09E78	183	20	5	Hrx	1	A	1							
06 Jan	N09E63	185	30	5	Cso	3	B	4							
								5	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 185

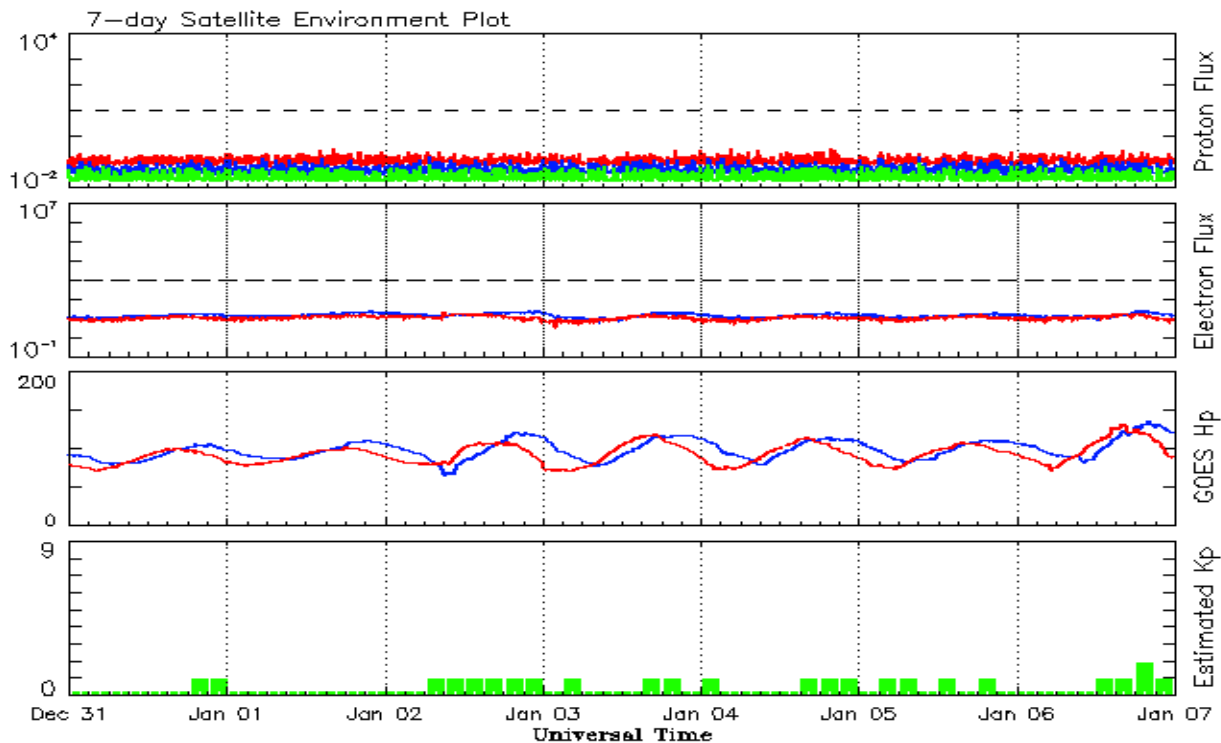


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2011									
January	32.1	18.8	0.59	47.2	30.9	83.7	91.2	6	6.7
February	53.2	29.6	0.55	50.6	33.4	94.5	92.7	6	6.8
March	81.0	55.8	0.69	55.2	36.9	115.3	95.8	7	7.2
April	81.7	54.4	0.67	61.5	41.8	112.6	100.4	9	7.5
May	61.4	41.6	0.68	69.0	47.6	95.9	105.6	9	7.5
June	55.5	37.0	0.67	76.5	53.2	95.8	110.9	8	7.4
July	67.0	43.8	0.66	82.5	57.3	94.2	115.4	9	7.3
August	66.1	50.6	0.77	84.9	59.0	101.7	117.9	8	7.4
September	106.4	78.0	0.73	84.6	59.5	134.5	118.4	13	7.7
October	116.8	88.0	0.75	84.6	59.9	137.2	118.4	7	8.0
November	133.1	96.7	0.73	86.3	61.1	153.1	119.5	3	8.0
December	106.3	73.0	0.69	89.2	63.4	141.2	121.6	3	8.0
2012									
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			135.6		13	
August	85.8	63.1	0.74			115.7		7	
September	84.0	61.5	0.73			123.2		8	
October	73.5	53.3	0.73			123.3		9	
November	89.2	61.4	0.69			120.9		6	
December	60.4	40.8	0.68			108.4		3	

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 31 December 2012*

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.

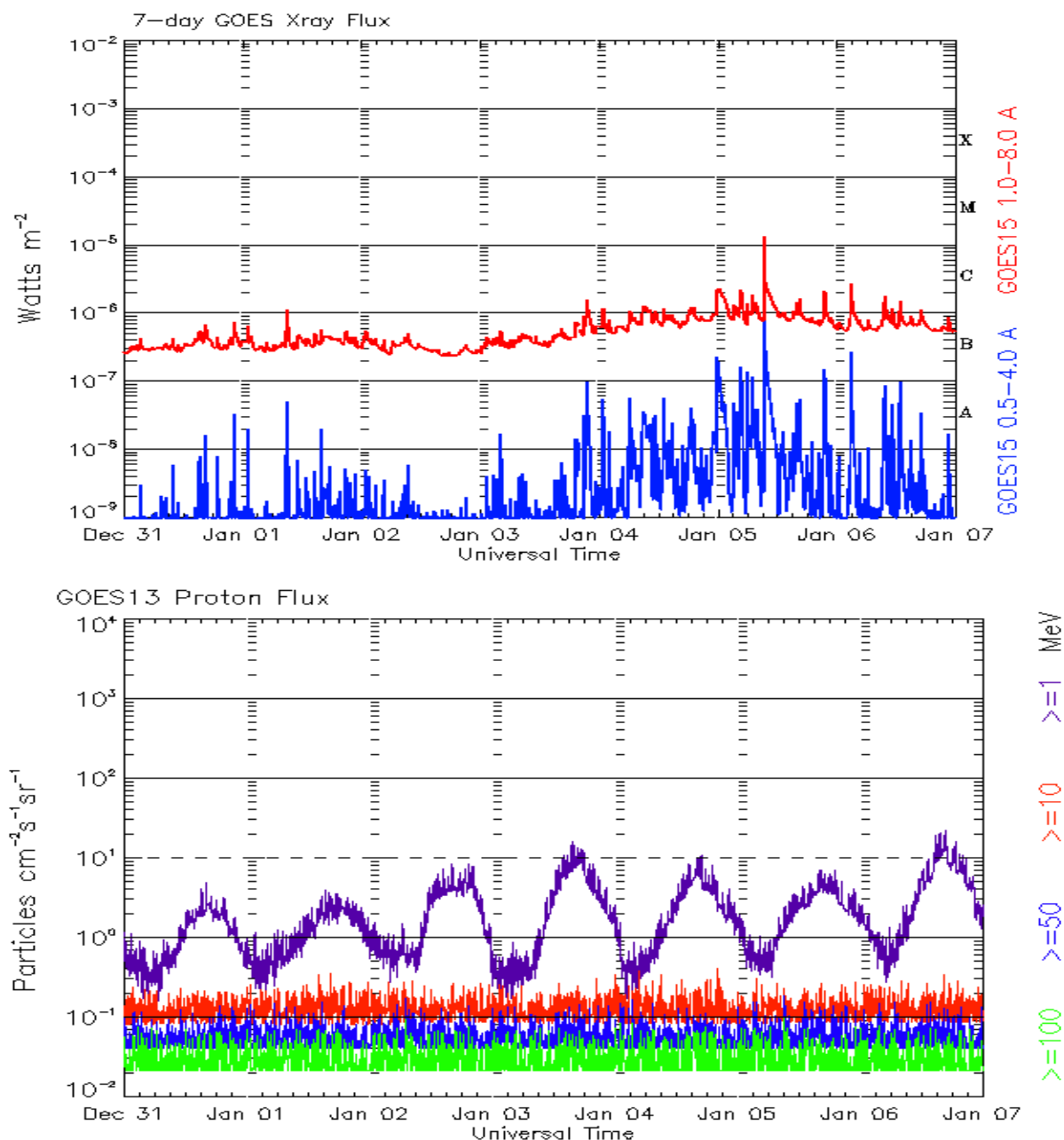
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.





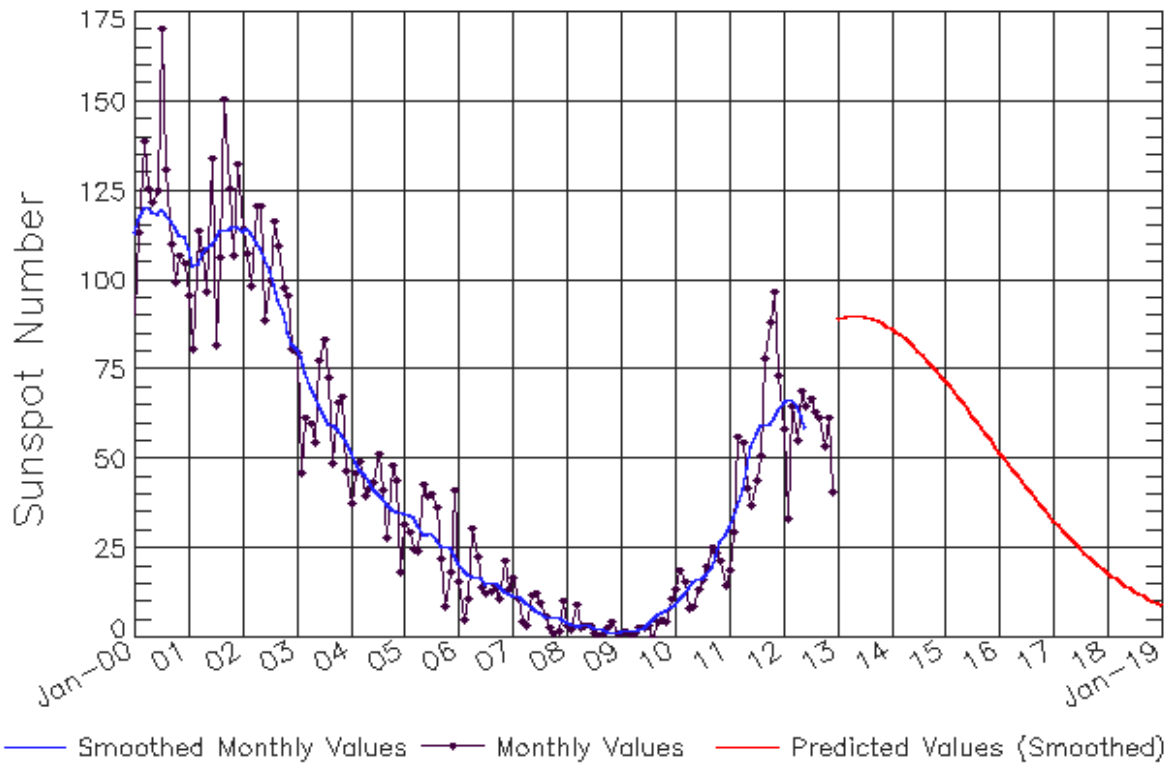
*Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 31 December 2012*

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 integral 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 2012



Updated 2013 Jan 7

NOAA/SWPC Boulder, CO USA

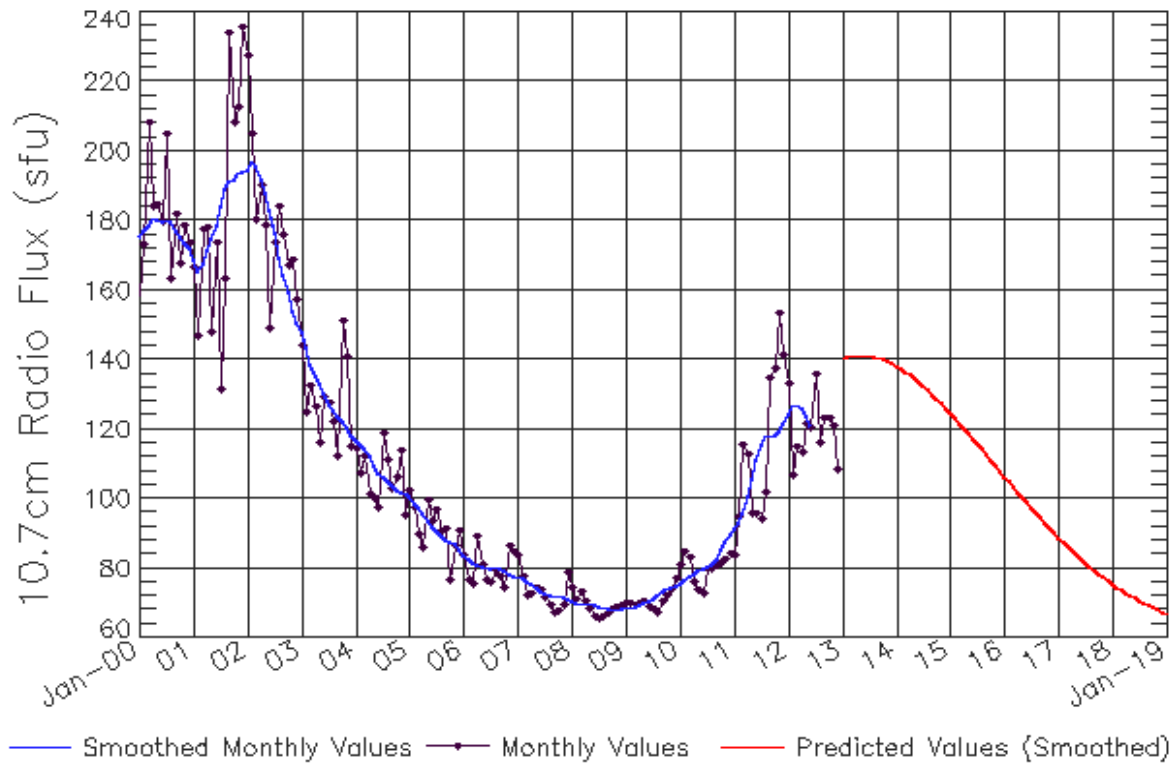
Smoothed Sunspot Number Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	9 (***)	11 (***)	12 (***)	14 (***)	16 (***)	16 (***)	17 (***)	17 (***)	20 (***)	23 (***)	27 (***)	29 (***)
2011	31 (***)	33 (***)	37 (***)	42 (***)	48 (***)	53 (***)	57 (***)	59 (***)	60 (***)	60 (***)	61 (***)	63 (***)
2012	66 (***)	67 (***)	67 (***)	65 (***)	62 (***)	59 (***)	59 (1)	63 (2)	66 (3)	68 (5)	71 (5)	73 (6)
2013	75 (7)	77 (7)	79 (8)	82 (9)	84 (9)	87 (10)	90 (10)	89 (10)	89 (10)	89 (10)	88 (10)	87 (10)
2014	86 (10)	86 (10)	85 (10)	84 (10)	83 (10)	81 (10)	80 (10)	79 (10)	78 (10)	76 (10)	75 (10)	73 (10)
2015	72 (10)	70 (10)	69 (10)	67 (10)	65 (10)	64 (10)	62 (10)	60 (10)	59 (10)	57 (10)	55 (10)	54 (10)
2016	52 (10)	50 (10)	49 (10)	47 (10)	45 (10)	44 (10)	42 (10)	40 (10)	39 (10)	37 (10)	36 (10)	34 (10)
2017	33 (10)	31 (10)	30 (10)	29 (10)	27 (10)	26 (10)	25 (10)	24 (10)	23 (10)	21 (10)	20 (10)	19 (10)
2018	18 (10)	17 (10)	16 (10)	15 (10)	15 (10)	14 (10)	13 (10)	12 (10)	12 (10)	11 (10)	10 (10)	10 (10)
2019	9 (10)	8 (10)	8 (10)	7 (10)	7 (10)	6 (10)	6 (10)	6 (10)	5 (10)	5 (10)	4 (10)	4 (10)



ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Dec 2012



Updated 2013 Jan 7

NOAA/SWPC Boulder, CO USA

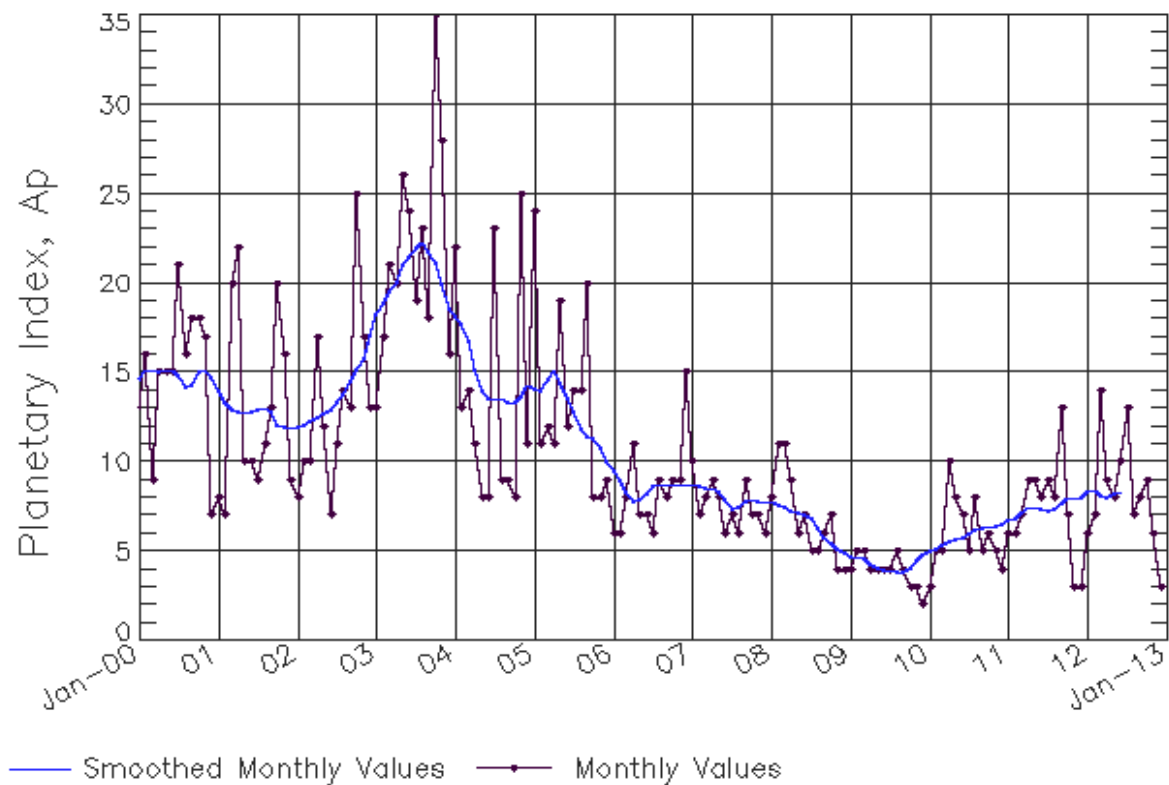
Smoothed F10.7cm Radio Flux Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	76 (***)	77 (***)	78 (***)	78 (***)	79 (***)	80 (***)	80 (***)	81 (***)	82 (***)	85 (***)	88 (***)	90 (***)
2011	91 (***)	93 (***)	96 (***)	100 (***)	106 (***)	111 (***)	115 (***)	118 (***)	118 (***)	118 (***)	120 (***)	122 (***)
2012	124 (***)	127 (***)	127 (***)	126 (***)	124 (***)	121 (***)	120 (1)	122 (1)	124 (2)	127 (3)	129 (4)	130 (4)
2013	131 (5)	133 (6)	134 (7)	136 (8)	137 (8)	139 (9)	141 (9)	141 (9)	140 (9)	140 (9)	139 (9)	139 (9)
2014	138 (9)	137 (9)	136 (9)	136 (9)	135 (9)	134 (9)	132 (9)	131 (9)	130 (9)	129 (9)	127 (9)	126 (9)
2015	125 (9)	123 (9)	122 (9)	120 (9)	119 (9)	117 (9)	116 (9)	114 (9)	113 (9)	111 (9)	110 (9)	108 (9)
2016	106 (9)	105 (9)	103 (9)	102 (9)	100 (9)	99 (9)	97 (9)	96 (9)	94 (9)	93 (9)	92 (9)	90 (9)
2017	89 (9)	88 (9)	86 (9)	85 (9)	84 (9)	83 (9)	82 (9)	80 (9)	79 (9)	78 (9)	77 (9)	76 (9)
2018	75 (9)	75 (9)	74 (9)	73 (9)	72 (9)	71 (9)	71 (9)	70 (9)	69 (9)	69 (9)	68 (9)	67 (9)
2019	67 (9)	66 (9)	66 (9)	65 (9)	65 (9)	65 (9)	64 (9)	64 (9)	63 (9)	63 (9)	63 (9)	63 (9)



ISES Solar Cycle Ap Progression

Observed data through Dec 2012



Updated 2013 Jan 7

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

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

<http://spaceweather.gov/weekly/> -- Current and previous year

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<http://spaceweather.gov/ftpmenu/> -- Some content as ascii text

<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 -- User Guide

