

Solar activity ranged from low to high levels over the period. Five M-class flares were observed on 02-03 March that were attributed to Region 2290 (N20, L=055, class/area Dai/070 on 24 February). The largest was a M8/Sb at 03/0135 UTC with associated Type II (750 km/s) and Type IV radio sweeps. Multiple coronal mass ejections associated with the M-class flaring from Region 2290 occurred, but were too far on the NW limb to be geoeffective. The region was fairly unremarkable in number of spots and spot class throughout its transit on the visible disk. By March 01, the region had an Hsx spot classification with only 40 millionths in area. Solar activity briefly decreased to low levels on 04 March. On 05 March, a new region rotated onto the SE limb which produced further M-class activity. Region 2297 (S17, L=198, class/area Dhc/260 on 08 March) was responsible for 4 M-class flares during that time including a long duration M9 flare at 07/2222 UTC with an associated 260 sfu Tenflare, Type II (704 km/s) and Type IV radio sweeps, as well as a partial-halo coronal mass ejection (CME) with an approximate plane-of-sky speed of 1,225 km/s. Due to the location of 2297 close to the east limb, no CMEs were expected to be geoeffective. By 08 March, Region 2297 appeared to be in decay and solar activity decreased to low levels once again.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate to high levels. High levels were observed from 03-05 March and again on 08 March.

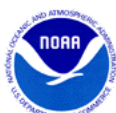
Geomagnetic field activity ranged from quiet to minor storm levels. The period began under the influence of a negative polarity coronal hole polar extension. Solar wind speeds increased to the around 650 km/s by mid-day on 02 March with total field initially reaching 15 nT. The geomagnetic field responded with quiet to minor storm conditions on 02 March. Solar wind parameters slowly diminished to around 450 - 500 km/s with total field below 10 nT through 05 March. Quiet to unsettled levels were observed on 03-04 March while quiet conditions prevailed on 05 March. From 06 March through 08 March, a slow increase in solar wind speeds occurred to around 600 km/s as a northern positive coronal hole high speed stream became geoeffective. Total field values increased to a modest 10 nT late on 06 March before decreasing to end-of-period values near 5 nT. The geomagnetic field responded with quiet to active levels from 06-08 March.

Space Weather Outlook

09 March - 04 April 2015

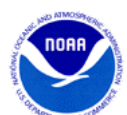
Solar activity is expected to be at low levels with a chance for further M-class flare activity from 09-28 March due to the potential for further significant flare activity from Region 2297 as well as the return of old Region 2290 on or about 15 March.

A slight chance for a greater than 10 MeV proton event exists for 09-14 March and likely increasing to a chance from 15-21 March as Region 2297 moves into a better connected location.



The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels from 09-11, 14-19, 23-25, 28-31 March and again on 04 April due to recurrent coronal hole high speed stream (CH HSS) influence.

Geomagnetic field activity is expected to be under the influence of recurrent CH HSS activity from 09-10, 13-14, 16-18, 22-24, 27-31 March and again from 02-04 April. During these time frames, mostly unsettled to active conditions are expected with the possibility of minor storm periods on 28 and 29 March.



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
02 March	130	65	170	B9.4	14	4	0	4	1	0	0	0
03 March	125	38	140	B5.2	5	1	0	4	0	0	0	0
04 March	124	43	250	B5.1	3	0	0	4	1	0	0	0
05 March	130	31	75	B6.7	4	1	0	0	0	0	0	0
06 March	127	37	50	C1.0	6	2	0	1	0	0	0	0
07 March	138	20	180	B5.9	4	1	0	2	0	0	0	0
08 March	124	23	260	B6.6	2	0	0	6	2	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
	02 March	5.5e+05	1.0e+04	2.4e+03		1.1e+07
03 March	2.7e+05	1.1e+04	2.5e+03		6.4e+07	
04 March	4.9e+05	1.1e+04	2.4e+03		3.6e+07	
05 March	2.7e+05	9.8e+03	2.4e+03		3.9e+07	
06 March	1.6e+05	1.1e+04	2.6e+03		5.7e+06	
07 March	2.9e+05	1.0e+04	2.5e+03		4.7e+06	
08 March	5.3e+05	1.1e+04	2.8e+03		3.9e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	02 March	18	4-3-4-4-3-3-3-1	60	3-5-8-6-5-4-3-1	28
03 March	10	3-3-2-2-2-2-1-3	21	1-2-3-6-5-1-1-2	11	3-3-2-2-2-1-2-3
04 March	9	1-1-1-3-3-2-2-3	12	1-1-1-5-4-1-1-1	10	2-2-2-3-3-1-2-3
05 March	5	0-0-0-1-3-2-2-2	7	0-0-0-3-4-2-2-1	6	1-1-1-2-2-2-2-2
06 March	9	1-2-4-2-2-2-2-2	17	1-3-5-4-4-2-2-1	13	2-3-4-3-2-2-3-3
07 March	17	4-4-3-3-1-0-0-3	27	3-4-5-5-2-0-0-3	20	4-4-3-3-2-4-3-4
08 March	7	2-2-2-2-3-2-1-1	24	3-1-5-5-5-4-1-1	11	3-2-3-3-4-2-2-1

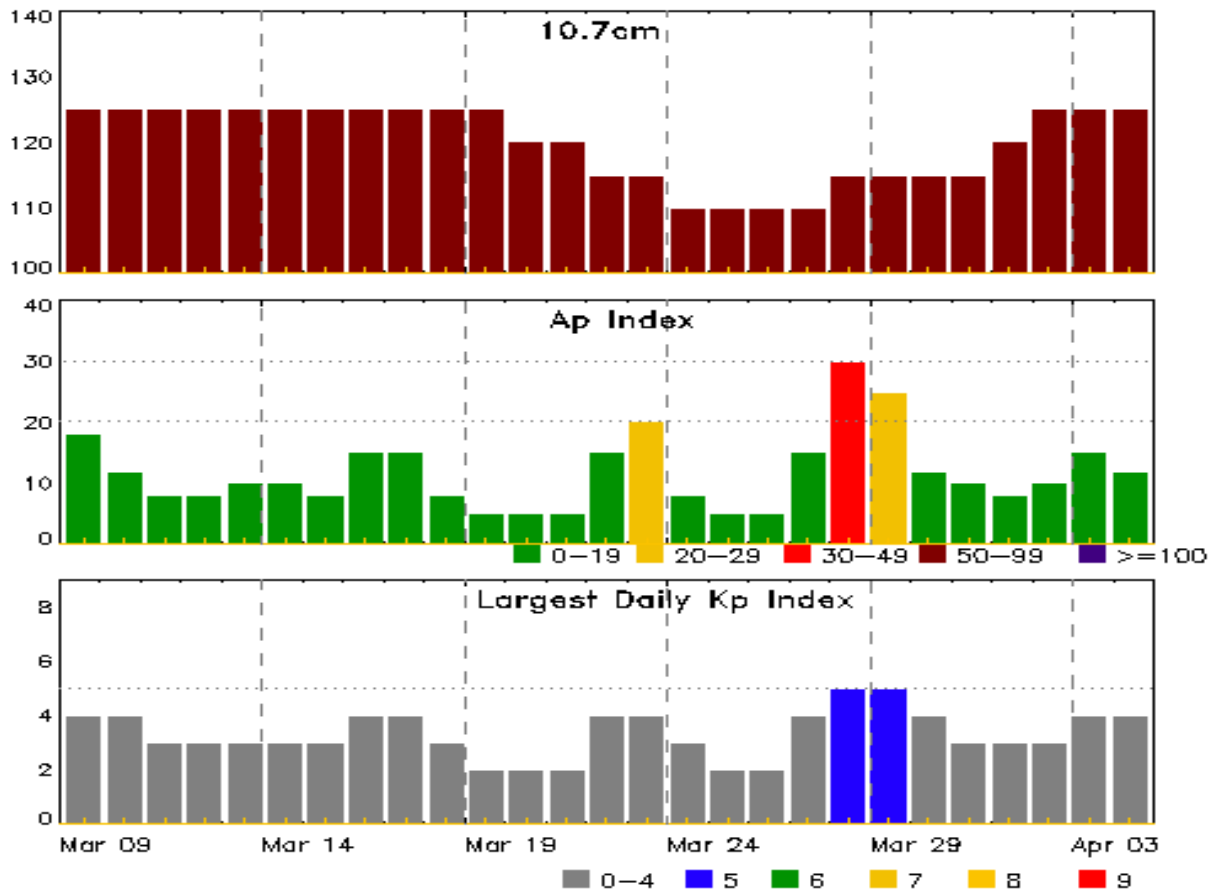


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
02 Mar 0346	WARNING: Geomagnetic K = 5	02/0345 - 1400
02 Mar 0725	ALERT: Geomagnetic K = 5	02/0724
02 Mar 1324	EXTENDED WARNING: Geomagnetic K = 5	02/0345 - 1900
02 Mar 1324	EXTENDED WARNING: Geomagnetic K = 4	28/1655 - 03/0200
03 Mar 0134	ALERT: X-ray Flux exceeded M5	03/0132
03 Mar 0158	SUMMARY: X-ray Event exceeded M5	03/0125 - 0142
03 Mar 0445	WARNING: Geomagnetic K = 4	03/0445 - 1600
03 Mar 0527	ALERT: Type IV Radio Emission	03/0134
03 Mar 0529	ALERT: Type II Radio Emission	03/0134
03 Mar 1258	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	03/1240
03 Mar 2349	WARNING: Geomagnetic K = 4	03/2347 - 04/0700
04 Mar 0140	CANCELLATION: Geomagnetic K = 4	
04 Mar 0912	WARNING: Geomagnetic K = 4	04/0911 - 1600
04 Mar 1703	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	03/1240
05 Mar 1941	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	03/1240
06 Mar 0737	WARNING: Geomagnetic K = 4	06/0736 - 1600
06 Mar 0757	ALERT: Geomagnetic K = 4	06/0750
07 Mar 0212	WARNING: Geomagnetic K = 4	07/0212 - 1400
07 Mar 0216	ALERT: Geomagnetic K = 4	07/0216
07 Mar 2204	ALERT: X-ray Flux exceeded M5	07/2203
07 Mar 2241	ALERT: Type II Radio Emission	07/2157
07 Mar 2242	ALERT: Type IV Radio Emission	07/2204
07 Mar 2301	SUMMARY: 10cm Radio Burst	07/2236 - 2246
07 Mar 2322	SUMMARY: X-ray Event exceeded M5	07/2145 - 2258
08 Mar 1415	WARNING: Geomagnetic K = 4	08/1414 - 09/0700
08 Mar 1502	ALERT: Geomagnetic K = 4	08/1500
08 Mar 1512	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	08/1455



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
09 Mar	125	18	4	23 Mar	115	20	4
10	125	12	4	24	110	8	3
11	125	8	3	25	110	5	2
12	125	8	3	26	110	5	2
13	125	10	3	27	110	15	4
14	125	10	3	28	115	30	5
15	125	8	3	29	115	25	5
16	125	15	4	30	115	12	4
17	125	15	4	31	115	10	3
18	125	8	3	01 Apr	120	8	3
19	125	5	2	02	125	10	3
20	120	5	2	03	125	15	4
21	120	5	2	04	125	12	4
22	115	15	4				



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
02 Mar	0631	0639	0644	M1.0	0.005	1F	N19W84	2290				1
02 Mar	0937	0948	0958	M1.1	0.009			2290				
02 Mar	1510	1528	1537	M3.7	0.031			2290	23	16		
02 Mar	1921	1931	1936	M4.1	0.019			2290				
03 Mar	0125	0135	0142	M8.2	0.044	SB	N21W87	2290				1 1
05 Mar	1706	1811	1826	M1.2	0.023			2297				
06 Mar	0414	0457	0527	M3.0	0.090			2297		120		
06 Mar	0655	0815	0828	M1.5	0.068			2297				
07 Mar	2145	2222	2258	M9.2	0.230			2297	200	260		1 2

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
02 Mar	0140	0147	0157	C1.1	SF	N20W82	2290
02 Mar	0222	0224	0231		SF	N20W82	2290
02 Mar	0234	0301	0307	C2.3			2290
02 Mar	0340	0343	0345	C1.3			2290
02 Mar	0513	0518	0526	C2.5			2290
02 Mar	0550	0555	0604	C2.9			
02 Mar	0631	0639	0644	M1.0	1F	N19W84	2290
02 Mar	0704	0710	0720	C3.2			2290
02 Mar	0743	0748	0754	C5.2			2290
02 Mar	0809	0812	0813		SF	N00E00	2290
02 Mar	0837	0841	0849	C3.2			
02 Mar	0912	0916	0918	C3.1	SF	N20W85	2290
02 Mar	0937	0948	0958	M1.1			2290
02 Mar	1024	1034	1058	C5.5			2290
02 Mar	1259	1307	1313	C3.4			2290
02 Mar	1407	1413	1421	C2.1			2290
02 Mar	1510	1528	1537	M3.7			2290
02 Mar	1723	1737	1751	C3.9			2290
02 Mar	1921	1931	1936	M4.1			2290
02 Mar	2259	2316	2331	C6.0			
03 Mar	0017	0027	0034	C3.5	SF	N00E00	2290
03 Mar	0125	0135	0142	M8.2	SB	N21W87	2290



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
03 Mar	0608	0608	0610	C1.9	SF	S10W46		2292
03 Mar	0744	0750	0755	C1.3				2292
03 Mar	0849	0855	0907	C1.1				2290
03 Mar	1321	1337	1359	C4.0				2290
03 Mar	B1501	U1501	A1510		SF	S11W53		2292
04 Mar	0625	0631	0645	C1.0	SF	S11W63		2292
04 Mar	0911	0912	0920		SF	N04W32		2293
04 Mar	0952	U1033	1100	C2.8	1F	S11W67		2292
04 Mar	1335	U1337	1347	C1.1	SF	N05W33		2293
04 Mar	1525	1529	1530		SF	S09W67		2292
04 Mar	1708	1713	1719	B9.5				
05 Mar	0413	0419	0426	C1.3				2297
05 Mar	0846	0947	1002	C3.5				2297
05 Mar	1706	1811	1826	M1.2				2297
05 Mar	1935	1955	2004	C4.0				2293
05 Mar	2245	2259	2306	C1.9				2297
06 Mar	0414	0457	0527	M3.0				2297
06 Mar	0655	0815	0828	M1.5				2297
06 Mar	1504	1508	1513	C2.5				2297
06 Mar	1548	1551	1557	C2.6				2297
06 Mar	1600	1606	1622	C2.7				2297
06 Mar	2106	2111	2116	C2.2				2297
06 Mar	2128	2132	2135	C1.7				2297
06 Mar	2336	2341	2346	C2.2	SF	S18E82		2297
07 Mar	B0242	0247	A0249		SF	S15E77		2297
07 Mar	0358	0402	0406	C1.0				2297
07 Mar	0632	0636	0640	C1.7	SF	S18E80		2297
07 Mar	0935	0939	0941	C1.2				2297
07 Mar	0959	1030	1114	C1.8				2297
07 Mar	2145	2222	2258	M9.2				2297
08 Mar	0555	0555	0559		SF	S18E62		2297
08 Mar	0654	0709	0716		SF	S17E63		2297
08 Mar	0726	0727	0735		SF	S18E63		2297
08 Mar	0903	0924	1012	C2.5	1F	S18E57		2297
08 Mar	1058	1058	1101		SF	S25W75		
08 Mar	1438	1445	1447	C1.1	SF	S14E59		2297
08 Mar	1615	1618	1626		SF	S13E53		2297
08 Mar	2304	2359	2359		1F	S16E58		2297



Region Summary

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 2289																							
18 Feb	S07E69		58	10		Axx	1	A					1	1									
19 Feb	S07E55		57	10	1	Axx	1	A															
20 Feb	S07E43		57	10	1	Axx	1	A															
21 Feb	S07E29		58	10	1	Axx	1	A															
22 Feb	S07E17		57	10	1	Axx	1	A															
23 Feb	S09E05		56	plage																			
24 Feb	S09W10		57	10	6	Bxo	4	B					1										
25 Feb	S10W23		58	10	2	Axx	2	A															
26 Feb	S10W37		58	10	2	Axx	2	A															
27 Feb	S10W51		59	plage																			
28 Feb	S10W65		60	plage																			
01 Mar	S10W79		61	plage																			
													0	0	0	2	1	0	0	0			

Crossed West Limb.
Absolute heliographic longitude: 56

Region 2290																							
18 Feb	N19E70		57	10	1	Axx	1	A															
19 Feb	N19E54		58	30	5	Dro	7	B					3										
20 Feb	N19E43		57	20	4	Dri	3	B															
21 Feb	N19E31		56	30	7	Cro	3	B															
22 Feb	N20E18		56	30	7	Dro	3	B															
23 Feb	N20E05		56	40	6	Dao	8	B															
24 Feb	N20W08		55	70	7	Dai	11	B															
25 Feb	N19W22		57	70	8	Dao	15	B															
26 Feb	N19W36		57	50	8	Cao	5	B															
27 Feb	N19W50		58	30	8	Cro	3	B	1				1										
28 Feb	N22W63		58	40	8	Cao	3	B	4				3										
01 Mar	N20W83		65	40	4	Hsx	2	A	3				9										
02 Mar	N22W94		63	30	6	Hsx	1	A	11	4			4	1									
									19	4	0	20	1	0	0	0	0						

Crossed West Limb.
Absolute heliographic longitude: 56



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 2292																
23 Feb	S09E50		11	10	2	Bxo	2	B								
24 Feb	S09E38		9	10	2	Bxo	2	B								
25 Feb	S08E25		10	10	1	Axx	2	A								
26 Feb	S08E11		10	plage												
27 Feb	S08W03		11	plage												
28 Feb	S09W16		11	10	1	Axx	1	A								
01 Mar	S09W31		13	30	5	Dai	5	B								
02 Mar	S08W44		12	70	6	Dai	8	B								
03 Mar	S08W59		14	90	8	Dac	11	B	2			2				
04 Mar	S08W70		12	180	8	Cai	13	B	2			2	1			
05 Mar	S08W84		13	plage												
									4	0	0	4	1	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 11

Region 2293																
26 Feb	N06E42		339	10	2	Axx	2	A								
27 Feb	N06E29		339	90	7	Dac	10	BD				1				
28 Feb	N06E15		340	80	7	Dac	16	BG				1				
01 Mar	N06E02		340	80	9	Dac	15	BG				1				
02 Mar	N06W12		340	60	10	Dai	15	B								
03 Mar	N06W26		341	50	8	Dao	7	B								
04 Mar	N05W38		340	70	10	Cao	10	B	1			2				
05 Mar	N05W53		342	65	10	Cao	9	B	1							
06 Mar	N05W68		344	10	3	Axx	4	A								
07 Mar	N05W83		346	plage												
									2	0	0	5	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 340

Region 2294																
27 Feb	S14W14		22	80	9	Dai	15	BG				1				
28 Feb	S14W28		23	90	6	Dai	10	BG	3			3				
01 Mar	S14W43		25	60	6	Bxo	4	B								
02 Mar	S14W56		24	10	1	Axx	1	A								
03 Mar	S14W70		25	plage												
04 Mar	S14W83		25	plage												
									3	0	0	4	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 22



Region Summary - continued

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

Region 2295

05 Mar	S08W53	342	10	2	Bxo	2	B										
06 Mar	S08W67	343	plage														
07 Mar	S08W81	344	plage														
								0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 342

Region 2296

06 Mar	S11E24	252	10	2	Bxo	2	B										
07 Mar	S11E10	253	plage														
08 Mar	S11W04	254	plage														
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 254

Region 2297

05 Mar	S17E95	195	plage					3	1								
06 Mar	S17E81	195	30	3	Hrx	1	A	6	2		1						
07 Mar	S17E66	197	180	9	Dsi	10	BG	4	1		2						
08 Mar	S17E52	198	260	10	Dhc	13	BGD	2			5	2					
								15	4	0	8	2	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 198

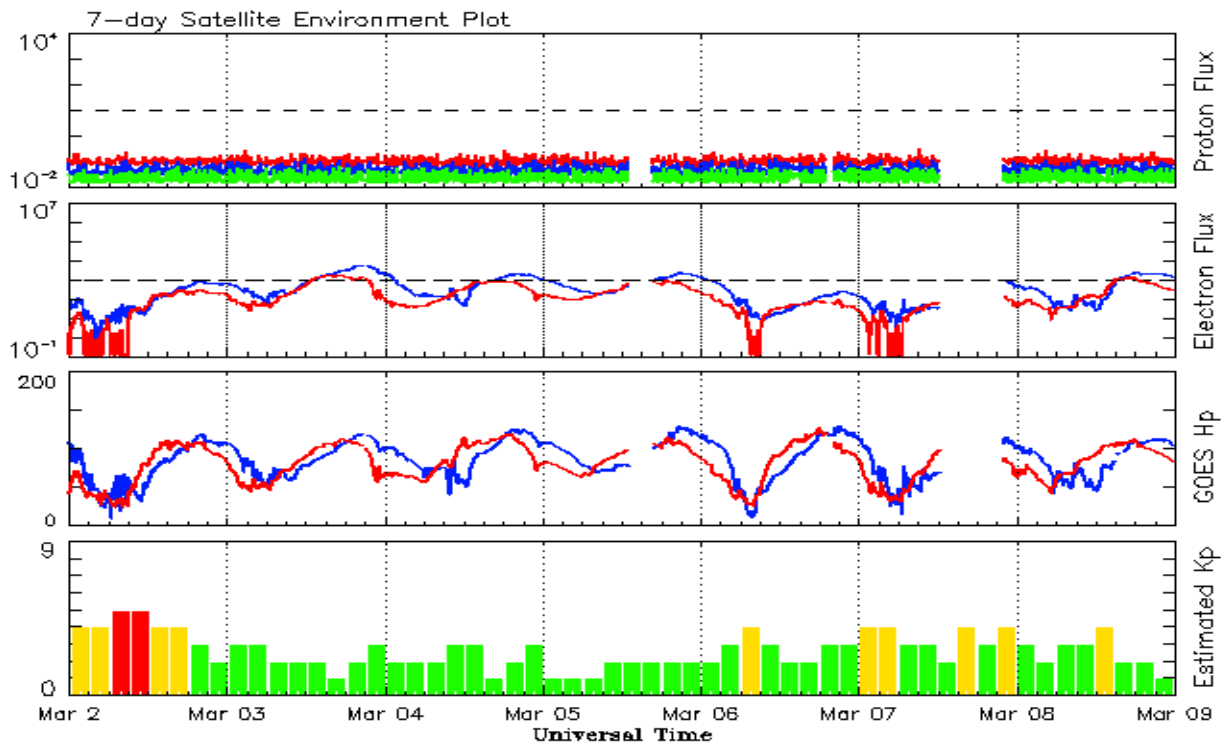


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	120.4	78.6	137.3	145.2	5	8.8
August	106.2	74.6	0.70	115.1	75.6	124.7	142.8	9	8.9
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	
2015									
January	101.2	67.0	0.66			141.7		10	
February	70.6	44.8	0.63			128.8		10	

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 02 March 2015*

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.

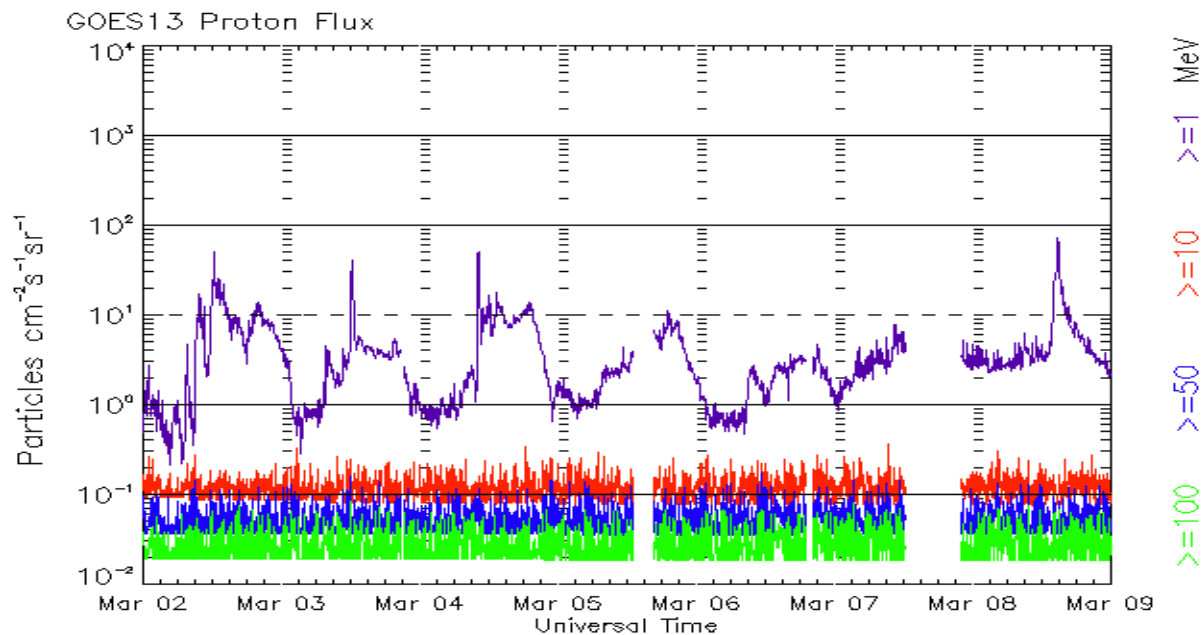
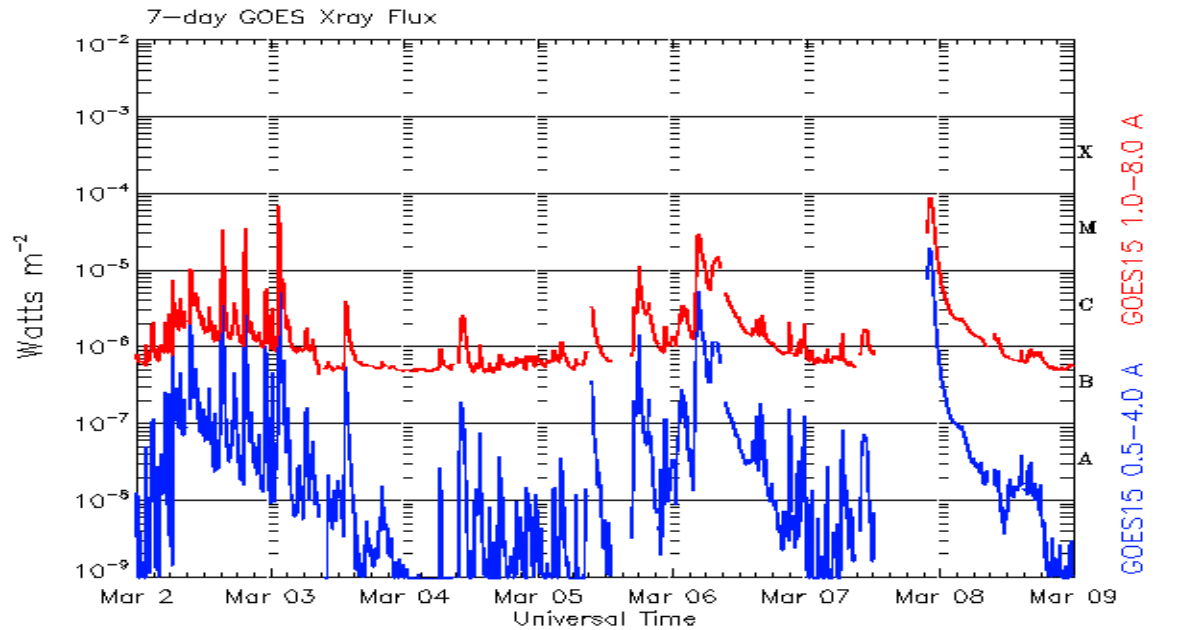
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 02 March 2015*

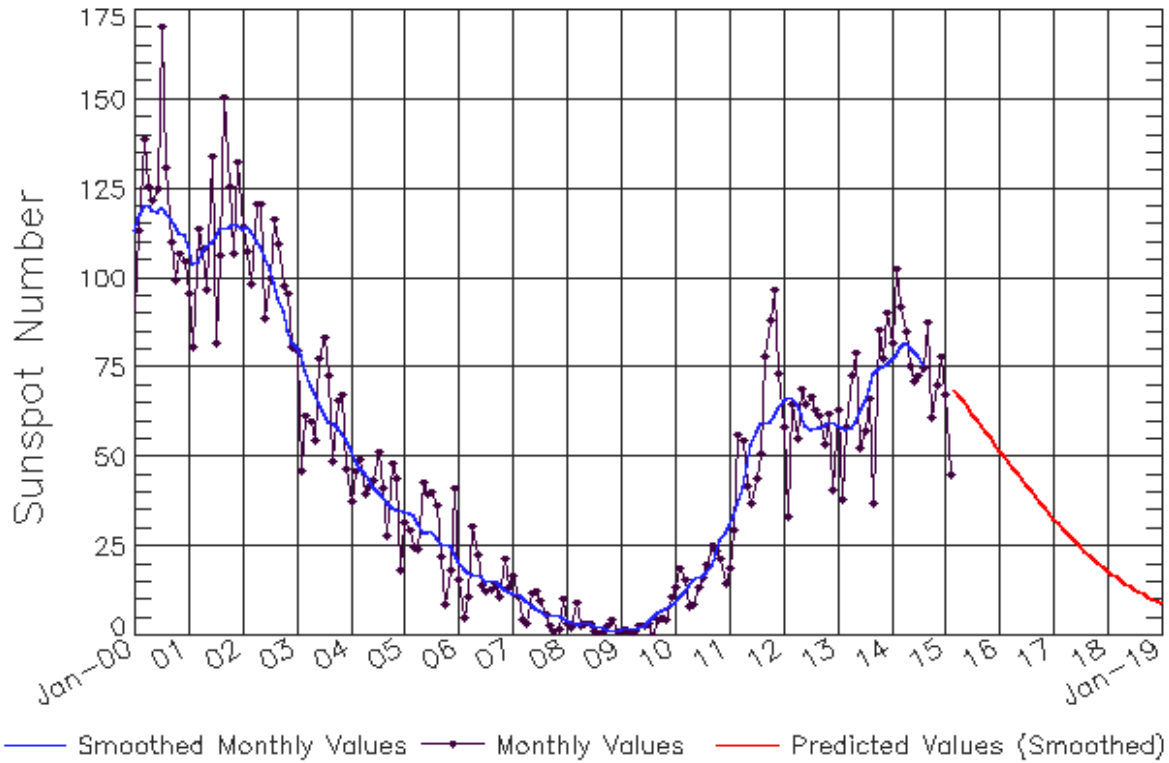
The x-ray plots contains five-minute averages x-ray flux (Watt/ m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

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 Feb 2015



Updated 2015 Mar 9

NOAA/SWPC Boulder, CO USA

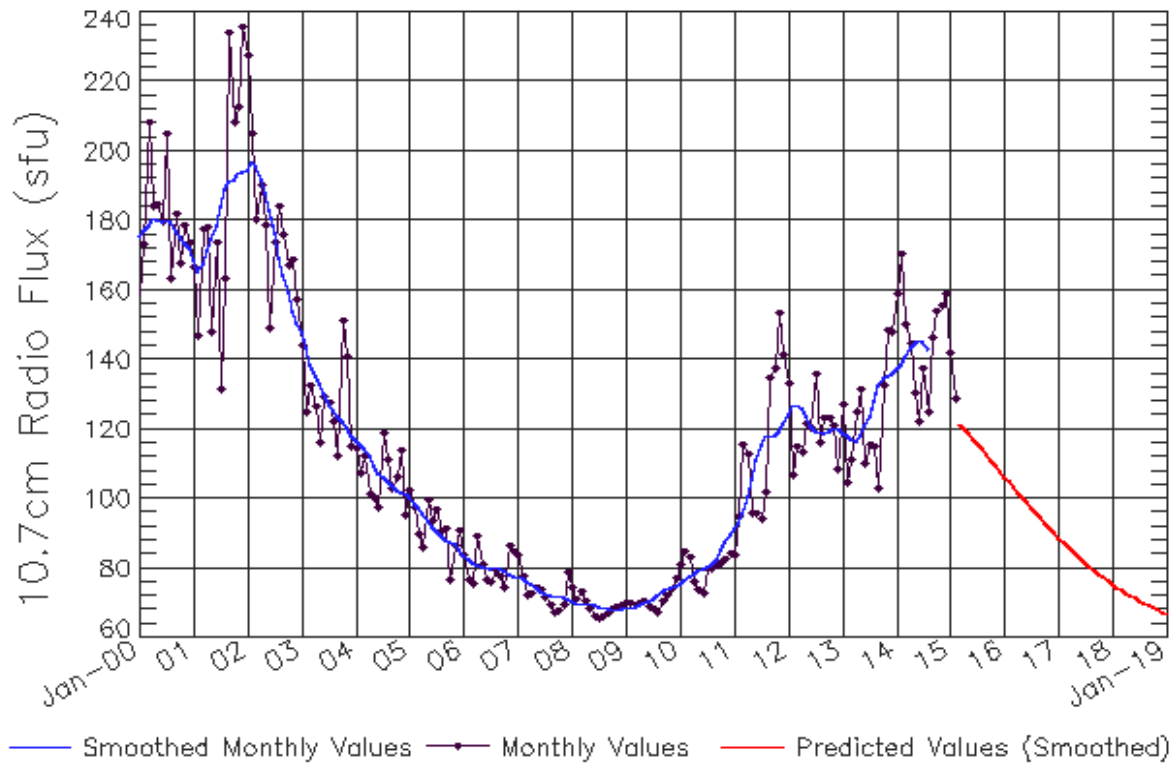
Smoothed Sunspot Number Prediction

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 (***)	76 (***)	72 (1)	71 (2)	69 (3)	69 (5)
2015	68 (5)	67 (6)	65 (7)	64 (7)	63 (8)	61 (9)	60 (9)	59 (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 Feb 2015

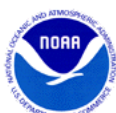


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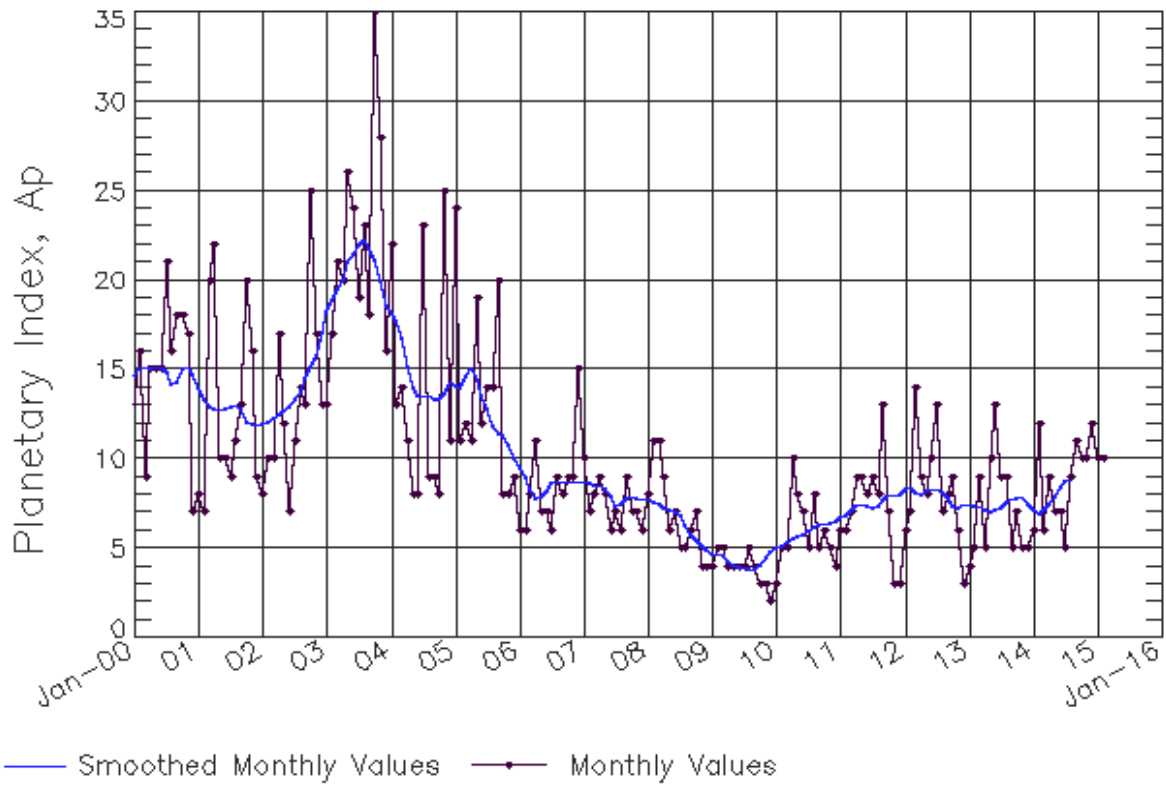
Smoothed F10.7cm Radio Flux Prediction

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 (***)	143 (***)	140 (1)	138 (1)	136 (2)	136 (3)
2015	134 (4)	133 (4)	131 (5)	128 (6)	124 (7)	120 (8)	117 (8)	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 Feb 2015



Updated 2015 Mar 9

NOAA/SWPC Boulder, CO USA

Solar Cycle Comparison charts are temporarily unavailable.



Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce
NOAA / National Weather Service
Space Weather Prediction Center
325 Broadway, Boulder CO 80305

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

<http://spaceweather.gov/ftpmenu/warehouse.html> -- Online archive from 1997

<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

