

Solar activity ranged from very low to moderate levels this period. Low levels were observed during the majority of the period with moderate levels observed on 03 July and very low levels on 05 July. The majority of the C-flare activity occurred from Regions 2373 (N16, L=141, class/area Dso/150 on 01 July), 2376 (N13, L=124, class/area Eai/150 on 01 July) and 2378 (S16, L=086, class/area Cso/090 on 04 July). Region 2378 produced the largest flare of the period, an impulsive M1/1n flare at 03/1251 UTC. New Region 2381 (N15, L=073, class/area Dao/100 on 05 July) emerged near the NE limb on 03 July and grew moderately on 05 July, however had not produced significant flare activity by the time of this report. No Earth-directed coronal mass ejections (CMEs) were noted during the period.

No proton events were observed at geosynchronous orbit, however there was an enhancement from 29-30 July as levels were decaying from the 10 MeV proton event that occurred from 26/0350 UTC through 27/0755 UTC associated with an M7/3b flare at 25/0816 UTC. Another enhancement to 5 pfu (Below S1-Minor) was observed from 01-02 July, likely due to flare/CME activity from beyond the west limb at 01/1436 UTC.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels from 29 June through 04 July reaching a maximum flux value of 9,670 pfu at 30/1725 UTC. Electron flux decreased to normal levels on 05 July in response to the arrival of a co-rotating interaction region (CIR) preceding a negative polarity coronal hole high speed stream (CH HSS).

Geomagnetic field activity was mostly quiet with solar wind parameters at nominal levels for the majority of the week. Solar wind speeds ranged from 300 km/s to 450 km/s and total field values were between 1 nT and 8 nT. By midday on 04 July, total field, density, solar wind speed and temperature all began to increase indicating the arrival of a CIR preceding the anticipated recurrent negative polarity CH HSS. Total field reached a maximum of 23 nT at 04/1901 UTC with the Bz component reaching a maximum southward deflection of -22 nT at 04/1911 UTC. Solar wind speed increased from the mid 300 km/s to 604 km/s by 04/2023 UTC before declining to just over 500 km/s by the end of the period. The geomagnetic field responded with G1 (Minor) to G2 (Moderate) storm periods late on 04 July though early on 05 July.

Space Weather Outlook **06 July - 01 August 2015**

Solar activity is expected to be at low levels with a chance for M-class (R1-R2, Minor-Moderate) flares from 06 July through 24 July with the return of old Regions 2367 (S20, L=002) and 2371 (N13, L=302). Very low to low levels are expected from 25 July through 01 August.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels from 07-08 July and again from 12-15 July in response to recurrent CH HSS activity.



Geomagnetic field activity is expected to be at active levels on 06 July as a recurrent negative polarity CH HSS persists. Unsettled to G1 (Minor) storm conditions are expected from 10-11 July due to the arrival of a recurrent positive polarity CH HSS. G1 (Minor) to G2 (Moderate) geomagnetic storm conditions are expected once again from 31 July through 01 August due to the return of the recurrent negative polarity CH HSS.



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 June	97	36	180	B4.1	6	0	0	3	1	0	0	0
30 June	101	41	270	B3.2	2	0	0	2	0	0	0	0
01 July	109	49	380	B3.6	1	0	0	1	0	0	0	0
02 July	114	73	340	B4.0	5	0	0	2	2	0	0	0
03 July	112	91	340	B3.7	7	1	0	17	1	0	0	0
04 July	117	111	390	B3.2	1	0	0	2	0	0	0	0
05 July	125	131	420	B4.4	0	0	0	9	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
	29 June	8.4e+06	2.3e+05	2.6e+03		3.7e+08
30 June	4.7e+06	5.2e+04	3.0e+03		4.6e+08	
01 July	2.4e+06	7.3e+04	3.0e+03		2.1e+08	
02 July	5.5e+06	1.3e+05	2.8e+03		2.9e+08	
03 July	4.1e+06	3.3e+04	2.7e+03		3.3e+08	
04 July	3.2e+06	1.7e+04	2.6e+03		5.8e+07	
05 July	2.2e+05	1.1e+04	2.5e+03		7.5e+05	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	29 June	6	1-2-2-3-2-1-1-1	9	1-2-3-3-3-2-1-1	6
30 June	8	1-3-2-1-3-1-2-2	5	2-3-2-0-0-1-1-1	6	1-2-2-1-1-1-2-3
01 July	6	1-0-1-2-2-2-2-3	3	1-1-1-1-1-2-1-0	5	2-1-1-2-2-2-1-1
02 July	4	0-0-1-2-3-1-1-1	1	0-1-1-0-0-0-0-0	3	1-1-1-1-1-0-0-1
03 July	2	0-0-0-1-2-1-1-1	0	0-0-0-1-0-0-0-0	3	0-1-1-1-1-0-0-1
04 July	21	2-2-2-2-4-3-5-5	13	1-2-0-0-4-3-4-4	19	1-2-1-1-3-3-5-5
05 July	16	4-4-2-3-3-2-3-3	31	5-6-3-5-4-2-3-2	25	6-5-3-3-3-2-3-3

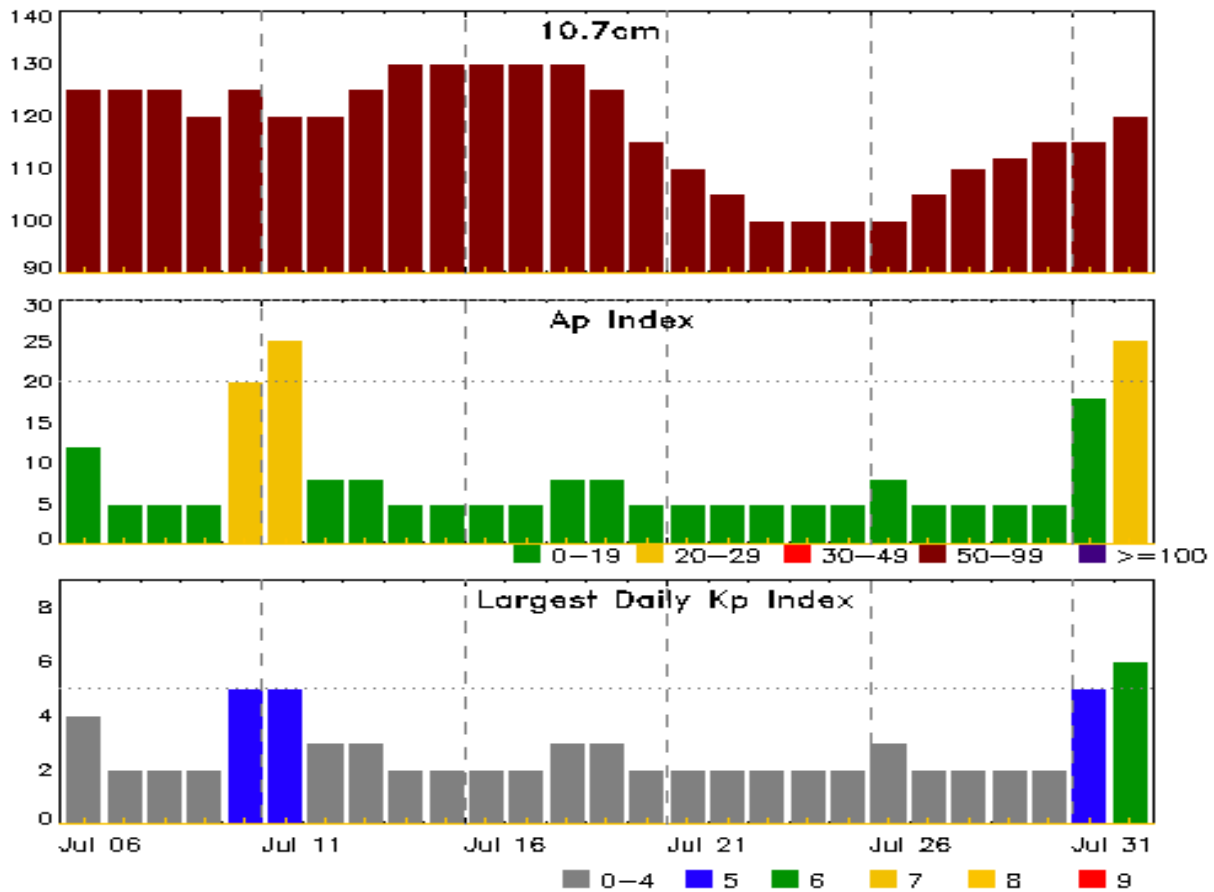


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
29 Jun 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1005
30 Jun 0501	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1005
01 Jul 0821	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1005
02 Jul 0502	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1005
02 Jul 2004	WATCH: Geomagnetic Storm Category G1 predicted	
03 Jul 0503	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1005
04 Jul 1156	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	26/1005
04 Jul 1417	WARNING: Geomagnetic K = 4	04/1420 - 05/1500
04 Jul 1935	WARNING: Geomagnetic K = 5	04/1935 - 05/0700
04 Jul 1936	ALERT: Geomagnetic K = 5	04/1935
04 Jul 1937	ALERT: Geomagnetic K = 4	04/1935
04 Jul 2051	WARNING: Geomagnetic K = 6	04/2050 - 05/0100
04 Jul 2318	ALERT: Geomagnetic K = 5	04/2317
05 Jul 0018	EXTENDED WARNING: Geomagnetic K = 6	04/2050 - 05/0700
05 Jul 0113	ALERT: Geomagnetic K = 5	05/0112
05 Jul 0248	ALERT: Geomagnetic K = 6	05/0247
05 Jul 0434	ALERT: Geomagnetic K = 5	05/0433
05 Jul 0618	EXTENDED WARNING: Geomagnetic K = 5	04/1935 - 05/1300



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
06 Jul	125	12	4	20 Jul	115	5	2
07	125	5	2	21	110	5	2
08	125	5	2	22	105	5	2
09	120	5	2	23	100	5	2
10	125	20	5	24	100	5	2
11	120	25	5	25	100	5	2
12	120	8	3	26	100	8	3
13	125	8	3	27	105	5	2
14	130	5	2	28	110	5	2
15	130	5	2	29	112	5	2
16	130	5	2	30	115	5	2
17	130	5	2	31	115	18	5
18	130	8	3	01 Aug	120	25	6
19	125	8	3				



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 Jul	1247	1251	1253	M1.5	0.002	1N	S15E68	2378				

Flare List

Date	Time			X-ray Class	Optical			Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #	
29 Jun	0027	0036	0042	C2.2				2371
29 Jun	0129	0153	0203	C1.2				2373
29 Jun	0523	0525	0528		SF	N08W03		2374
29 Jun	0733	0738	0743	B9.6				
29 Jun	0959	1008	1019	C1.5	SF	N18E64		2373
29 Jun	1342	1348	1353	C1.1				2376
29 Jun	1443	1455	1505	C2.3	SF	N16E77		2373
29 Jun	1758	1807	1814	C2.4	1F	N14E63		2373
30 Jun	0211	0215	0218	B6.6				2373
30 Jun	0522	0528	0534	B7.5	SF	N18E57		2373
30 Jun	1222	1243	1259	C1.4	SF	N17E70		2376
30 Jun	2148	2211	2224	C1.0				2376
01 Jul	0051	0052	0055		SF	N13E40		2373
01 Jul	0540	0613	0629	B8.8				2376
01 Jul	2242	2251	2301	C1.4				2376
02 Jul	0113	0143	0205	C1.0				2376
02 Jul	0555	0618	0633	C1.4	SF	N16E31		2373
02 Jul	1352	1356	1407	C1.1	1F	N14E19		2373
02 Jul	1523	1530	1539	C3.7	1N	N15E40		2376
02 Jul	1756	1926	2026	C1.2	SF	N09E30		2376
03 Jul	0254	0305	0309	C5.6	SF	S16E75		2378
03 Jul	0311	0312	0328		SF	N15E36		2376
03 Jul	0352	0358	0402	C1.4	SF	N18E18		2373
03 Jul	0452	0459	0504	C1.2	SF	N15E11		2373
03 Jul	0549	0555	0602	C2.0	SF	S16E70		2378
03 Jul	0745	0746	0750		SF	S17E68		2378
03 Jul	0849	0849	0852		SF	S16E70		2378
03 Jul	0910	0919	0924	C3.4	SF	S14E69		2378
03 Jul	1114	1124	1132	C1.7	SF	S15E69		2378
03 Jul	1156	1159	1207	B7.6	SF	S13E70		2378



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
03 Jul	1247	1251	1253	M1.5	1N	S15E68		2378
03 Jul	1307	1310	1316		SF	S15E68		2378
03 Jul	1459	1503	1515		SF	N17E11		2373
03 Jul	1636	1654	1710		SF	S15E65		2378
03 Jul	1814	1820	1827	B8.0				2378
03 Jul	1856	1857	1900		SF	S17E61		2378
03 Jul	1909	1923	1928		SF	S17E61		2378
03 Jul	1938	1939	1947		SF	S16E60		2378
03 Jul	2020	2020	2028		SF	S16E60		2378
03 Jul	2044	2051	2057	C1.3				2378
04 Jul	0001	0008	0017	C1.0				2378
04 Jul	1501	1505	1508	B5.5	SF	N14E09		2376
04 Jul	2033	2045	2055	B6.4	SF	S19E50		2378
05 Jul	0633	0638	0644	B5.1	SF	S14E46		2378
05 Jul	0652	0700	0708	B6.7	SF	S17E45		2378
05 Jul	0852	0915	0939	B7.4	SF	N17E56		2381
05 Jul	0929	0930	0939		SF	N17E56		2381
05 Jul	1000	1007	1016		SF	N17E55		2381
05 Jul	1228	1230	1231		SF	N17E53		2381
05 Jul	1300	1304	1308		SF	N13W02		2376
05 Jul	1306	1320	1335	B9.4				2377
05 Jul	1356	1515	1531		SF	N16E52		2381
05 Jul	1534	1544	1633		SF	N16E52		2381



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 2371																							
16 Jun	N11E66	301	190	6	Dso	3	B	6				13											
17 Jun	N12E53	302	520	12	Ekc	16	BG	2				8											
18 Jun	N12E39	303	810	12	Ekc	26	BGD	5	1			9	3										
19 Jun	N13E27	301	1020	14	Ekc	31	BGD	8				13											
20 Jun	N13E14	302	1120	15	Ekc	35	BGD	2	1			6	1										
21 Jun	N13W00	302	1180	16	Fkc	42	BGD	1	2			5	2										
22 Jun	N13W13	302	1070	17	Fkc	34	BGD	3	1			9		1									
23 Jun	N12W28	303	950	17	Fkc	34	BGD	2				5											
24 Jun	N11W40	302	740	16	Fkc	29	BG	4				4	1										
25 Jun	N12W53	301	580	16	Fkc	23	BG	1	1			3							1				
26 Jun	N13W64	300	550	16	Fkc	18	BG	3				10											
27 Jun	N12W79	302	430	15	Ekc	15	BG	1															
28 Jun	N13W92	302	130	5	Cao	3	B	1				3											
								39	6	0		88	7	1	1	0							

Crossed West Limb.

Absolute heliographic longitude: 302

Region 2373

28 Jun	N15E67	143	80	5	Dso	3	B														
29 Jun	N15E55	141	120	20	Fso	4	B	3				2	1								
30 Jun	N15E41	142	100	10	Cao	5	B					1									
01 Jul	N16E29	141	150	9	Dso	8	B					1									
02 Jul	N16E15	141	130	8	Cso	6	B	2				1	1								
03 Jul	N16W00	143	110	8	Cso	7	B	2				3									
04 Jul	N16W14	144	100	8	Cso	8	B														
05 Jul	N16W27	144	70	5	Cso	5	B														
								7	0	0		8	2	0	0	0					

Still on Disk.

Absolute heliographic longitude: 143



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 2374																							
28 Jun	N08W01	211	10	3	Bxo	3	B																
29 Jun	N09W16	212	10	1	Axx	1	A						1										
30 Jun	N10W29	212	plage																				
01 Jul	N10W43	213	plage																				
02 Jul	N10W57	213	plage																				
03 Jul	N10W71	214	plage																				
04 Jul	N10W85	215	plage																				
													0	0	0	1	0	0	0	0	0		

Crossed West Limb.
Absolute heliographic longitude: 211

Region 2375																							
29 Jun	S12E69	127	50	2	Hsx	1	A																
30 Jun	S10E56	127	70	2	Hax	1	A																
01 Jul	S09E44	126	80	2	Hsx	1	A																
02 Jul	S10E30	126	40	2	Hsx	1	A																
03 Jul	S10E17	126	30	2	Hsx	1	A																
04 Jul	S10E04	126	40	2	Hsx	1	A																
05 Jul	S11W09	126	60	2	Hsx	1	A																
													0	0	0	0	0	0	0	0	0		

Still on Disk.
Absolute heliographic longitude: 126

Region 2376																							
28 Jun	N13E86	126	plage										1										
29 Jun	N13E71	126	plage										2										
30 Jun	N13E57	126	100	12	Eao	5	BG						2		1								
01 Jul	N13E46	124	150	14	Eai	10	BG						1										
02 Jul	N13E32	124	120	14	Eao	11	B						3		1	1							
03 Jul	N12E16	127	100	13	Eao	12	B								1								
04 Jul	N12E02	128	90	9	Dao	7	B								1								
05 Jul	N12W10	127	60	10	Dao	8	B								1								
													9	0	0	5	1	0	0	0	0		

Still on Disk.
Absolute heliographic longitude: 128



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 2377

02 Jul	S11W36	192	10	2	Hrx	1	A										
03 Jul	S10W52	195	10	1	Axx	1	A										
04 Jul	S10W65	195	10	1	Axx	1	A										
05 Jul	S10W79	196	10	1	Axx	1	A										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 192

Region 2378

02 Jul	S15E64	92	40	5	Cso	4	B										
03 Jul	S17E56	87	80	4	Dso	5	B	5	1		13	1					
04 Jul	S16E44	86	90	4	Cso	4	B	1			1						
05 Jul	S17E32	85	70	5	Cso	6	B				2						
								6	1	0	16	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 85

Region 2379

03 Jul	S15E45	98	10	4	Bxo	5	B										
04 Jul	S14E33	97	20	5	Cro	5	B										
05 Jul	S15E21	96	30	6	Dro	7	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 96

Region 2380

04 Jul	N08W29	159	10	2	Hrx	1	A										
05 Jul	N09W42	159	10	1	Axx	1	A										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 159

Region 2381

04 Jul	N16E57	73	30	4	Cro	4	B										
05 Jul	N15E44	73	100	7	Dao	10	B				6						
								0	0	0	6	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 73



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares									
	Lat CMD	Lon	Heli 10 ⁻⁶	Area hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
									C	M	X	S	1	2	3	4
Region 2382																
05 Jul	S05E02	115	10	1	Bxo	2	B	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 115

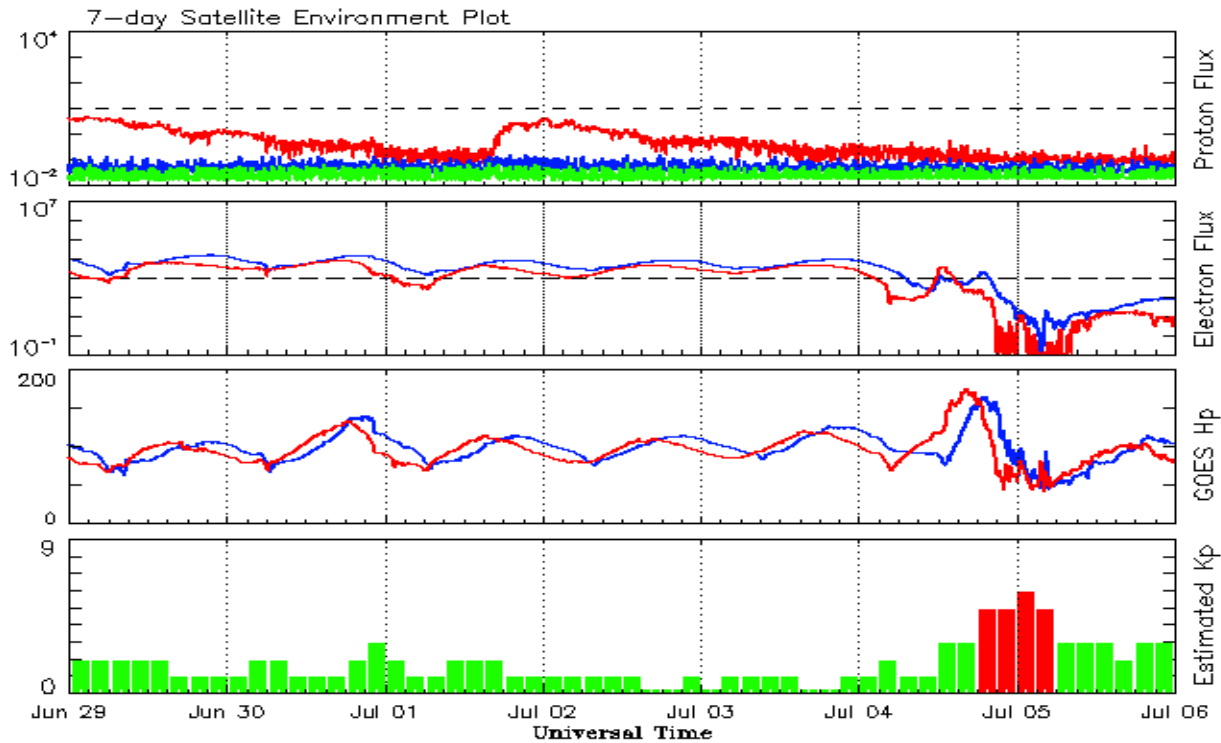


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	78.5	137.3	145.2	5	8.8
August	106.2	74.6	0.70	115.1	75.5	124.7	142.8	9	8.9
September	127.4	87.6	0.69	107.4	70.8	146.1	140.1	11	9.3
October	92.0	60.6	0.66	101.7	67.3	153.7	138.4	10	9.9
November	101.8	70.2	0.69	97.9	65.4	155.3	137.4	10	10.1
December	120.0	76.7	0.65	95.2		158.7	137.0	12	10.5
2015									
January	101.2	67.0	0.66			141.7		10	
February	70.6	44.8	0.63			128.8		10	
March	61.7	38.4	0.62			126.0		17	
April	72.5	54.4	0.75			129.2		12	
May	83.0	58.8	0.71			120.1		9	
June	77.3	41.0	0.53		56.0	123.2		14	

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 June 2015*

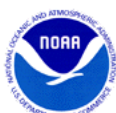
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

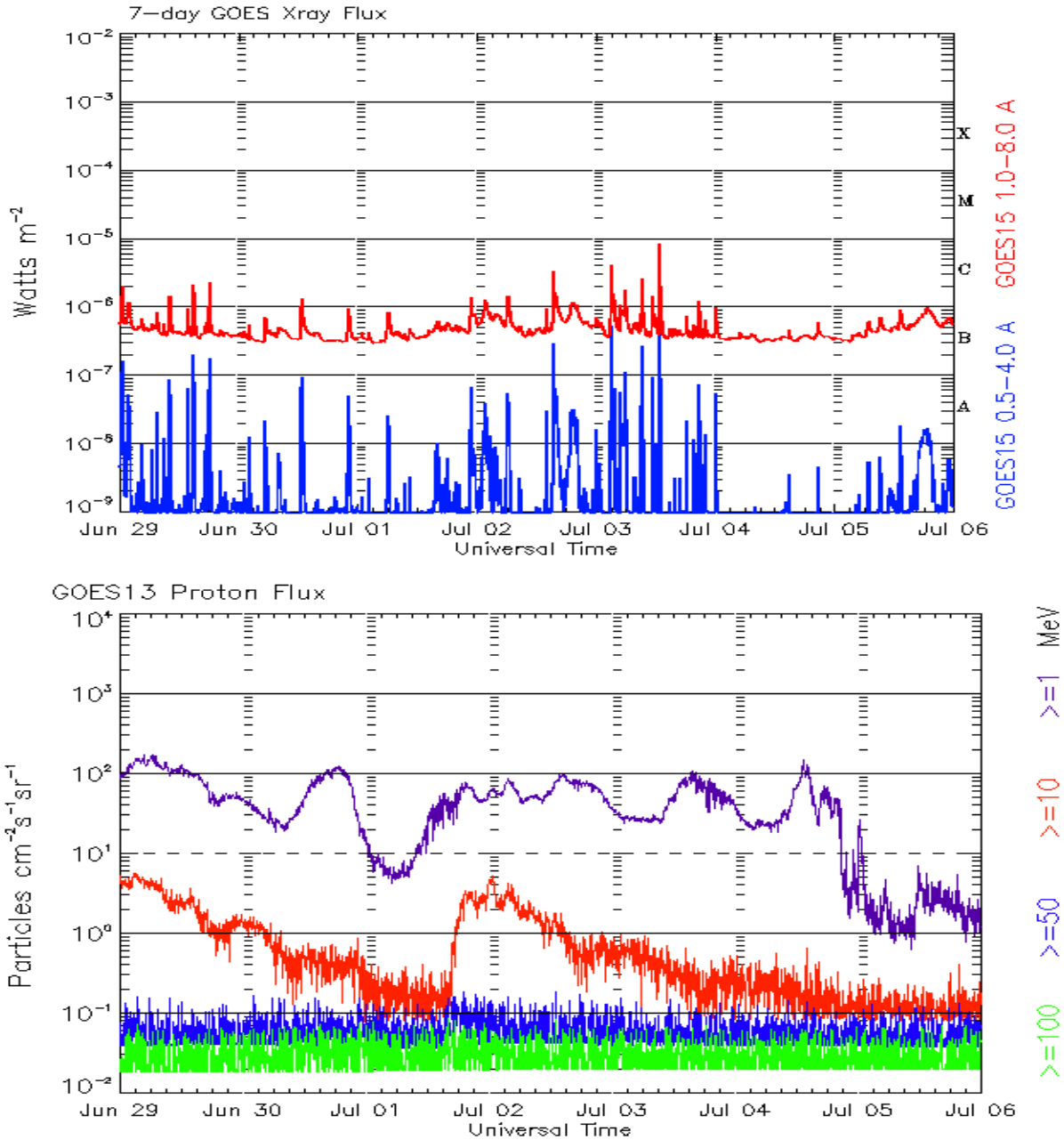
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 29 June 2015*

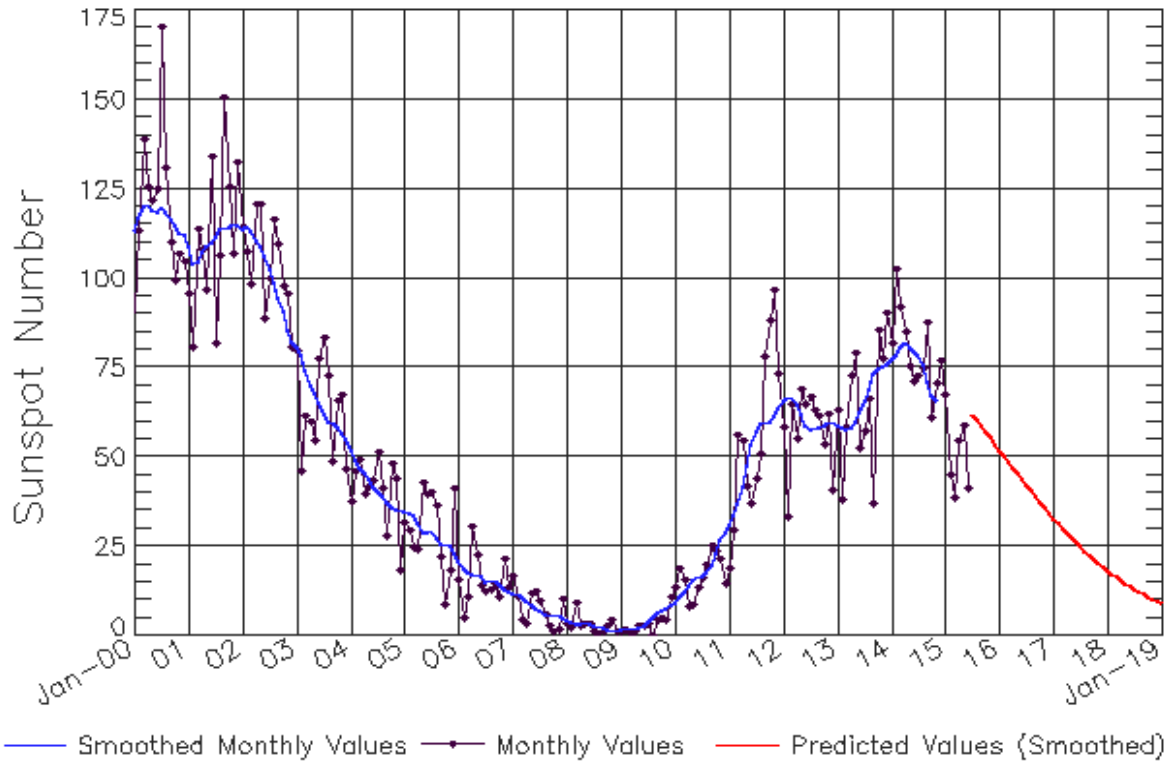
The x-ray plots contains five-minute averages x-ray flux (Watt/m²) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm² -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 Jun 2015

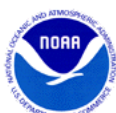


Updated 2015 Jul 6

NOAA/SWPC Boulder, CO USA

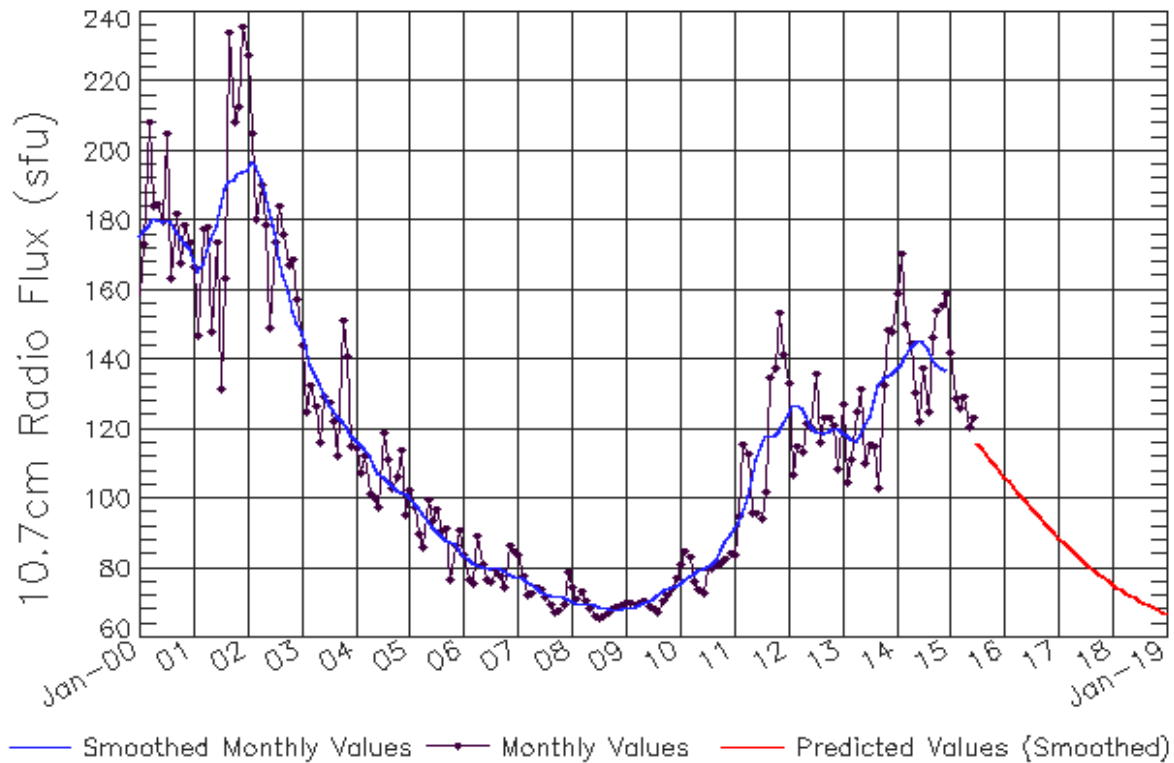
Smoothed Sunspot Number Prediction

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 (***)	71 (***)	67 (***)	65 (***)	64 (1)
2015	62 (2)	61 (3)	59 (5)	58 (5)	57 (6)	55 (7)	54 (7)	53 (8)	54 (9)	54 (9)	53 (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 Jun 2015



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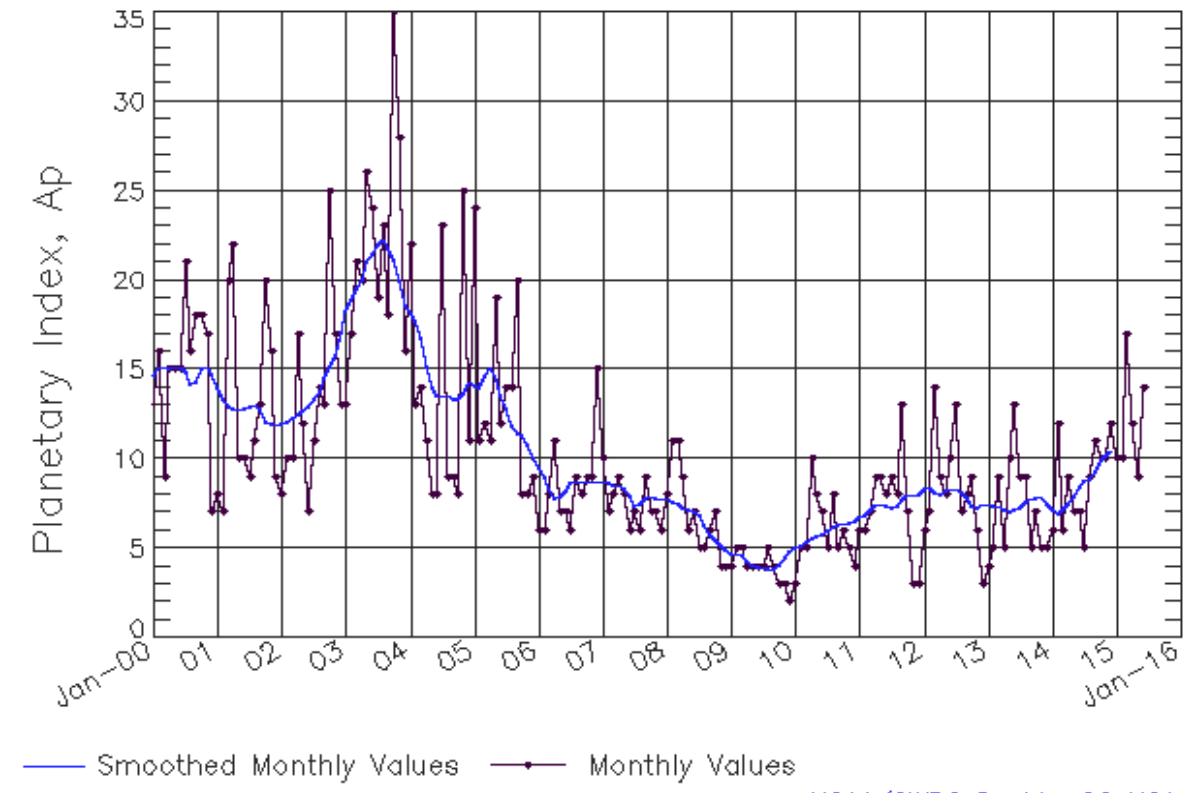
Smoothed F10.7cm Radio Flux Prediction

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 (***)	138 (***)	137 (***)	137 (***)
2015	136 (1)	135 (1)	133 (2)	130 (3)	126 (4)	122 (4)	119 (5)	116 (6)	114 (7)	112 (8)	110 (8)	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 Jun 2015



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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

<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

