

Solar activity was at very low to low levels over the period. An isolated C2 flare was observed at 31/0522 UTC from Region 2403 (S15, L=193, class/area Fki/1190 on 25 Aug) and a C1 flare occurred at 03/1137 UTC from Region 2407 (N16, L=145, class/area Cso/050 on 01 Sep). No further notable flaring occurred during the period. On 04 September, an approximate 15 degree filament eruption, centered near S17E10, was observed lifting off in SDO/AIA 304 imagery between 04/1709-1854 UTC. A partial-halo coronal mass ejection (CME) was observed in SOHO/LASCO C2 imagery beginning at 04/1948 UTC with most of the ejecta directed off the SE limb. WSA/ENLIL analysis of the CME determined that an Earth-directed component was not likely.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels from 31 August through 02 September and again from 05-06 September reaching a maximum flux value over the period of 3,188 pfu at 05/1840 UTC. Moderate levels occurred on 03-04 September.

Geomagnetic field activity began the period at quiet levels under a nominal solar wind regime. At 02/1522 UTC, a solar sector boundary crossing was observed in ACE solar wind data accompanied by a slow increase in solar wind speed. By late on 03 September, total field increased to around 12-14 nT with the Bz component deflecting southward to -10 nT. Quiet to unsettled levels were observed on 02-03 September. By 04 September, solar wind increased to around 450-550 km/s range as a co-rotating interaction region (CIR) followed by a positive polarity coronal hole high speed stream (CH HSS) became geoeffective. Solar wind speeds remained in the 400-500 km/s range through the rest of the period. The geomagnetic field responded with active to minor storm (G1-Minor) levels through midday on 04 September followed by quiet to active levels on 05-06 September.

Space Weather Outlook **07 September - 03 October 2015**

Solar activity is expected to be at very low to low levels with M-class flares (R1-R2, Minor-Moderate) likely from 11-24 September with the return of old Region 2403 (S15, L=192).

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 with high levels likely from 13-18 September, 20-21 September, 26-28 September and again from 02-03 October due to CH HSS effects.

Geomagnetic field activity is expected to be at unsettled levels from 07-08, 11-16, 18-20, 24-25, and 30 September-03 October. Active periods are expected on 07, 12, 19, 24 September-03 October with minor storm periods (G1-Minor) possible on 19 September and 01 October, all due



to recurrent CH HSS effects.



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 August	91	50	40	B2.8	1	0	0	1	0	0	0	0
01 September	89	49	90	B2.1	0	0	0	4	0	0	0	0
02 September	88	41	70	B1.8	0	0	0	1	0	0	0	0
03 September	87	27	40	B1.7	1	0	0	0	0	0	0	0
04 September	90	36	60	B1.2	0	0	0	1	0	0	0	0
05 September	85	24	50	B1.0	0	0	0	0	0	0	0	0
06 September	86	38	70	B1.0	0	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 August	1.3e+05	1.1e+04	2.7e+03		1.5e+08
01 September	2.8e+05	1.1e+04	2.7e+03		1.5e+08	
02 September	5.5e+05	1.1e+04	2.6e+03		7.9e+07	
03 September	1.1e+05	1.1e+04	2.7e+03		1.2e+07	
04 September	1.6e+05	1.2e+04	2.8e+03		8.2e+06	
05 September	2.5e+05	1.2e+04	2.8e+03		7.7e+07	
06 September	1.7e+05	1.1e+04	2.6e+03		5.2e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	31 August	5	1-1-1-2-2-1-2-2	2	2-1-0-0-0-1-1-1	6
01 September	7	2-2-1-2-2-2-2-2	5	1-1-1-2-3-1-1-1	6	2-2-1-2-2-1-1-2
02 September	10	3-2-1-2-3-3-2-2	3	2-1-0-0-1-2-1-1	7	2-2-1-1-2-2-3-2
03 September	9	2-3-2-2-2-2-2-3	8	1-3-2-2-3-2-1-1	9	2-3-2-2-2-2-2-3
04 September	18	5-3-4-3-3-2-2-2	44	4-5-6-6-6-3-3-2	20	5-4-4-4-3-2-2-3
05 September	10	1-3-3-2-2-2-3-2	20	2-2-4-5-4-4-2-2	13	2-3-3-2-2-3-4-2
06 September	12	3-3-2-3-3-2-3-2	27	2-3-4-5-6-3-3-2	14	3-3-3-3-3-2-4-2

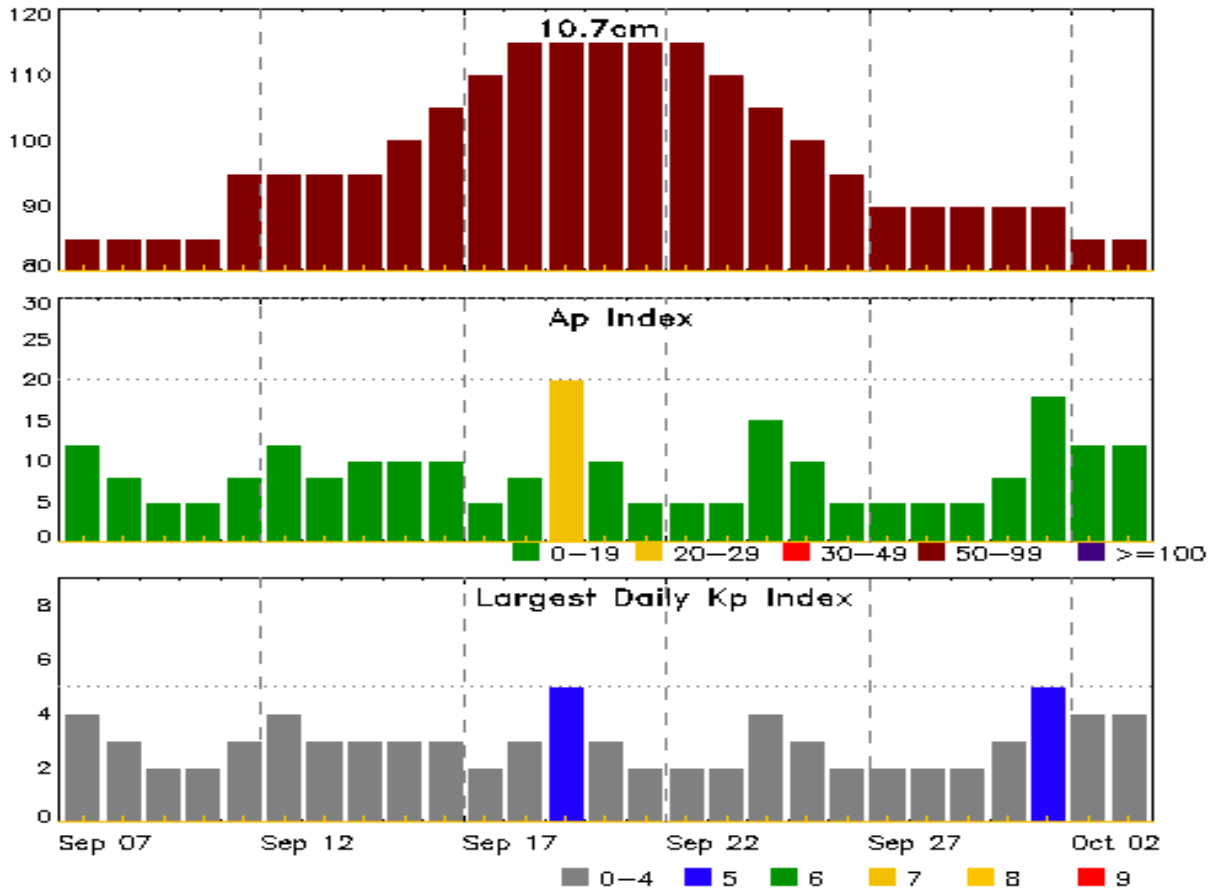


Alerts and Warnings Issued

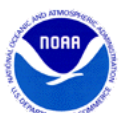
Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
31 Aug 0621	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	30/1245
01 Sep 0542	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	30/1245
02 Sep 1216	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	30/1245
04 Sep 0000	WARNING: Geomagnetic K = 4	04/0005 - 1400
04 Sep 0150	ALERT: Geomagnetic K = 4	04/0150
04 Sep 0152	WARNING: Geomagnetic K = 5	04/0151 - 0700
04 Sep 0239	ALERT: Geomagnetic K = 5	04/0238
05 Sep 0736	WARNING: Geomagnetic K = 4	05/0735 - 1300
05 Sep 1340	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1315
05 Sep 1754	WARNING: Geomagnetic K = 4	05/1753 - 2300
05 Sep 1933	ALERT: Geomagnetic K = 4	05/1932
05 Sep 2259	EXTENDED WARNING: Geomagnetic K = 4	05/1753 - 06/0700
06 Sep 1249	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1315
06 Sep 1906	WARNING: Geomagnetic K = 4	06/1905 - 2300
06 Sep 1917	ALERT: Geomagnetic K = 4	06/1916
06 Sep 2255	EXTENDED WARNING: Geomagnetic K = 4	06/1905 - 07/1100



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 Sep	85	12	4	21 Sep	115	5	2
08	85	8	3	22	115	5	2
09	85	5	2	23	110	5	2
10	85	5	2	24	105	15	4
11	95	8	3	25	100	10	3
12	95	12	4	26	95	5	2
13	95	8	3	27	90	5	2
14	95	10	3	28	90	5	2
15	100	10	3	29	90	5	2
16	105	10	3	30	90	8	3
17	110	5	2	01 Oct	90	18	5
18	115	8	3	02	85	12	4
19	115	20	5	03	85	12	4
20	115	10	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

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD	Rgn #	
31 Aug	0455	0522	0601	C2.2				2403
31 Aug	1427	1438	1447	B4.5	SF	S21E01		2405
01 Sep	0712	0716	0718		SF	N15W65		2407
01 Sep	1239	1241	1241		SF	N06E60		2409
01 Sep	1245	1250	1253		SF	N06E60		2409
01 Sep	1411	1413	1418		SF	N06E60		2409
02 Sep	0610	0610	0614		SF	N13W75		2407
02 Sep	0750	0755	0800	B5.0				2407
03 Sep	0209	0213	0217	B2.9				
03 Sep	0302	0308	0312	B3.0				
03 Sep	0700	0703	0708	B3.1				2407
03 Sep	0938	0943	0951	B3.0				2407
03 Sep	1128	1137	1148	C1.7				2407
03 Sep	2248	2253	2258	B2.8				
04 Sep	0513	0518	0526	B4.4	SF	N06E28		2409
05 Sep	0211	0215	0220	B3.0				2410
05 Sep	1006	1010	1013	B2.2				2409



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 2403																							
18 Aug	S12E64		191	60	8	Cso	3	B					1										
19 Aug	S12E50		192	90	8	Dac	8	B					5										
20 Aug	S13E37		192	330	8	Dkc	29	BG	6				16						1				
21 Aug	S14E23		192	350	10	Dkc	43	BG	3	3			19	2					1				
22 Aug	S14E09		193	400	13	Ekc	49	BGD	12	2			8	4									
23 Aug	S15W04		193	760	15	Ekc	66	BGD	5				10	1									
24 Aug	S15W18		194	930	16	Fkc	47	BGD	15	2			18	2									
25 Aug	S15W31		193	1190	17	Fki	40	BGD	11				22										
26 Aug	S16W44		193	1100	17	Fkc	35	BGD	7				11						1				
27 Aug	S15W57		193	890	17	Fkc	25	BGD	6	1			9	1									
28 Aug	S15W69		192	840	17	Fkc	27	BGD	15	2			9	2									
29 Aug	S15W82		192	520	18	Fkc	16	BGD	3														
30 Aug	S15W89		195	80	4	Dao	2	B	1	1													
									84	11	0	128	12	3	0	0							

Crossed West Limb.

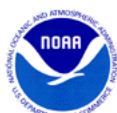
Absolute heliographic longitude: 193

Region 2405

27 Aug	S21E45		91	10	1	Axx	1	A													
28 Aug	S23E35		88	10	3	Bxo	5	B	2				1								
29 Aug	S19E21		89	20	5	Cro	3	B	1				1								
30 Aug	S20E09		87	10	5	Bxo	3	B	1				1								
31 Aug	S21W03		86	0		Axx	1	A					1								
01 Sep	S21W17		87	plage																	
02 Sep	S21W31		88	plage																	
03 Sep	S21W45		89	plage																	
04 Sep	S21W59		89	plage																	
05 Sep	S21W73		90	plage																	
06 Sep	S21W87		91	plage																	
									4	0	0	4	0	0	0	0	0				

Still on Disk.

Absolute heliographic longitude: 86



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 2406																	
29 Aug	N03E34	76	10	1	Axx	1	A										
30 Aug	N03E22	73	10	2	Axx	2	A										
31 Aug	N03E09	74	20	5	Cro	3	B										
01 Sep	N03W05	75	10	4	Bxo	9	B										
02 Sep	N03W18	75	10	1	Axx	2	A										
03 Sep	N03W33	77	plage														
04 Sep	N03W48	78	plage														
05 Sep	N03W63	80	plage														
06 Sep	N03W76	80	plage														
								0	0	0	0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 75																	
Region 2407																	
30 Aug	N15W48	144	30	3	Cro	3	B										
31 Aug	N15W62	145	20	6	Cro	5	B										
01 Sep	N16W75	145	50	7	Cso	5	B					1					
02 Sep	N17W87	144	30	6	Cso	3	B					1					
								0	0	0	2	0	0	0	0	0	0
Crossed West Limb. Absolute heliographic longitude: 144																	
Region 2408																	
31 Aug	S12W77	160	0		Axx	1	A										
								0	0	0	0	0	0	0	0	0	0
Died on Disk. Absolute heliographic longitude: 160																	
Region 2409																	
01 Sep	N05E54	16	30	4	Dro	5	B					3					
02 Sep	N04E39	17	30	4	Dro	6	B										
03 Sep	N03E26	18	30	4	Cro	5	B										
04 Sep	N06E11	19	30	4	Cro	2	B					1					
05 Sep	N06W02	19	10	2	Bxo	3	B										
06 Sep	N04W14	18	20	3	Cro	3	B										
								0	0	0	4	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 19



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 2410

03 Sep	S19E23	21	10	2	Bxo	2	B										
04 Sep	S19E09	21	20	2	Cro	3	B										
05 Sep	S19W05	22	plage														
06 Sep	S19W18	22	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 22

Region 2411

04 Sep	N14E64	326	10	2	Hsx	1	A										
05 Sep	N13E50	327	40	1	Hsx	1	A										
06 Sep	N14E38	326	30	3	Cso	2	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 326

Region 2412

06 Sep	S08E58	306	20	3	Cro	3	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 306

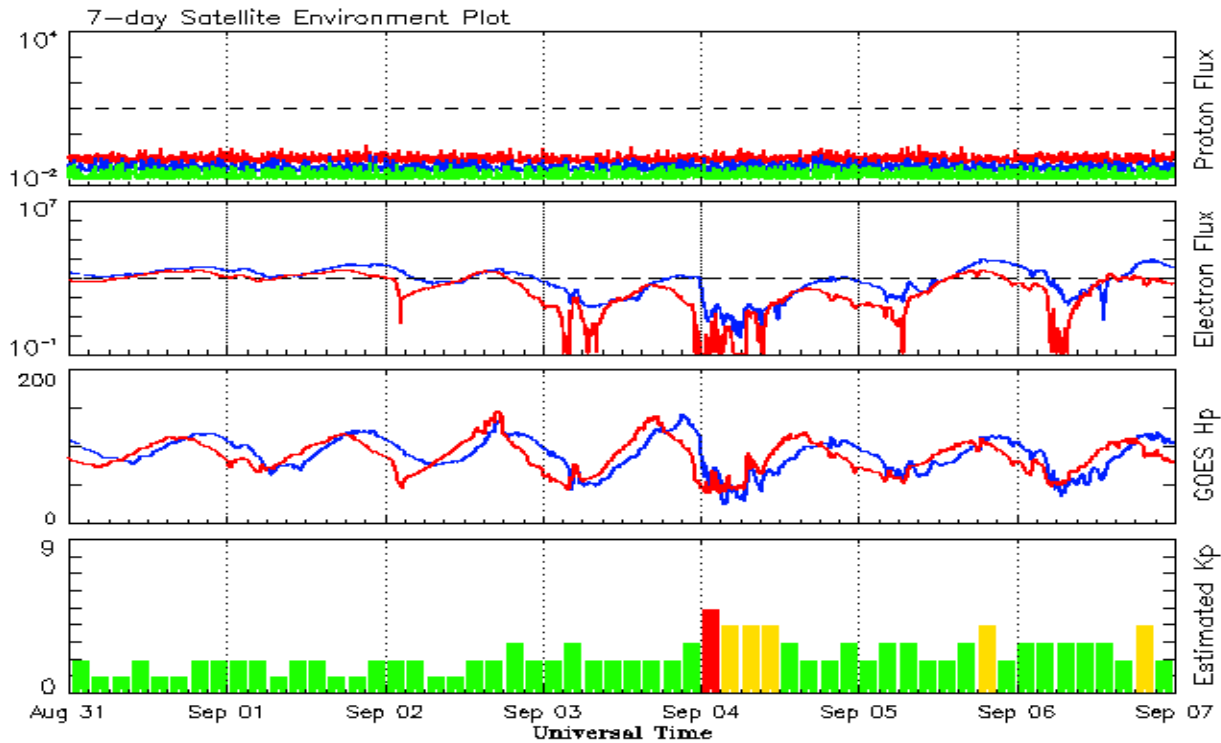


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	56.0	158.7	137.0	12	10.5
2015									
January	101.2	67.0	0.66	92.1	53.9	141.7	135.8	10	11.0
February	70.6	44.8	0.63	88.3	52.0	128.8	133.8	10	11.5
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			123.2		14	
July	68.4	39.8	0.58			107.0		10	
August	61.6	38.8	0.63			106.2		16	

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 August 2015*

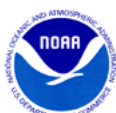
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

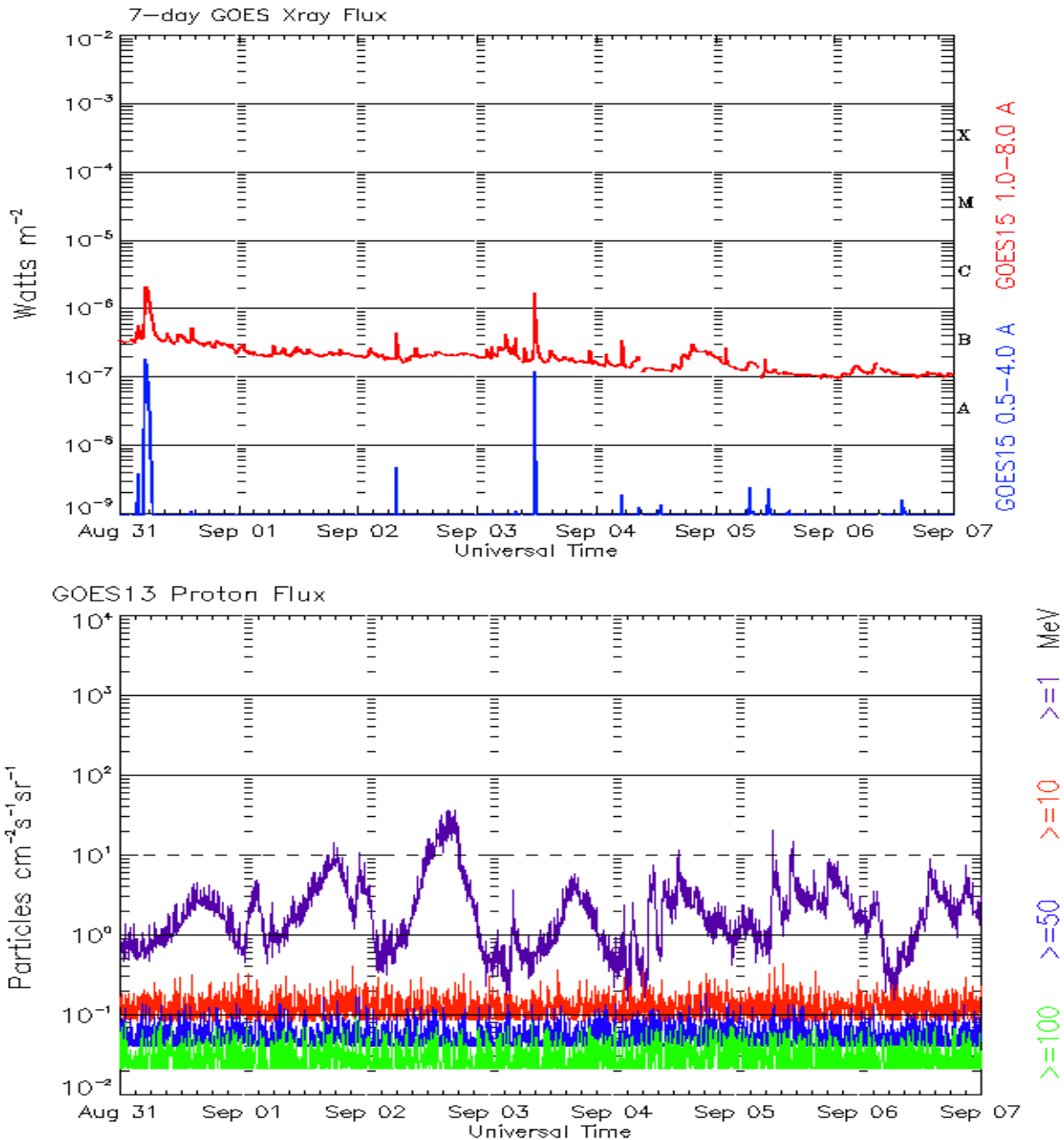
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 31 August 2015*

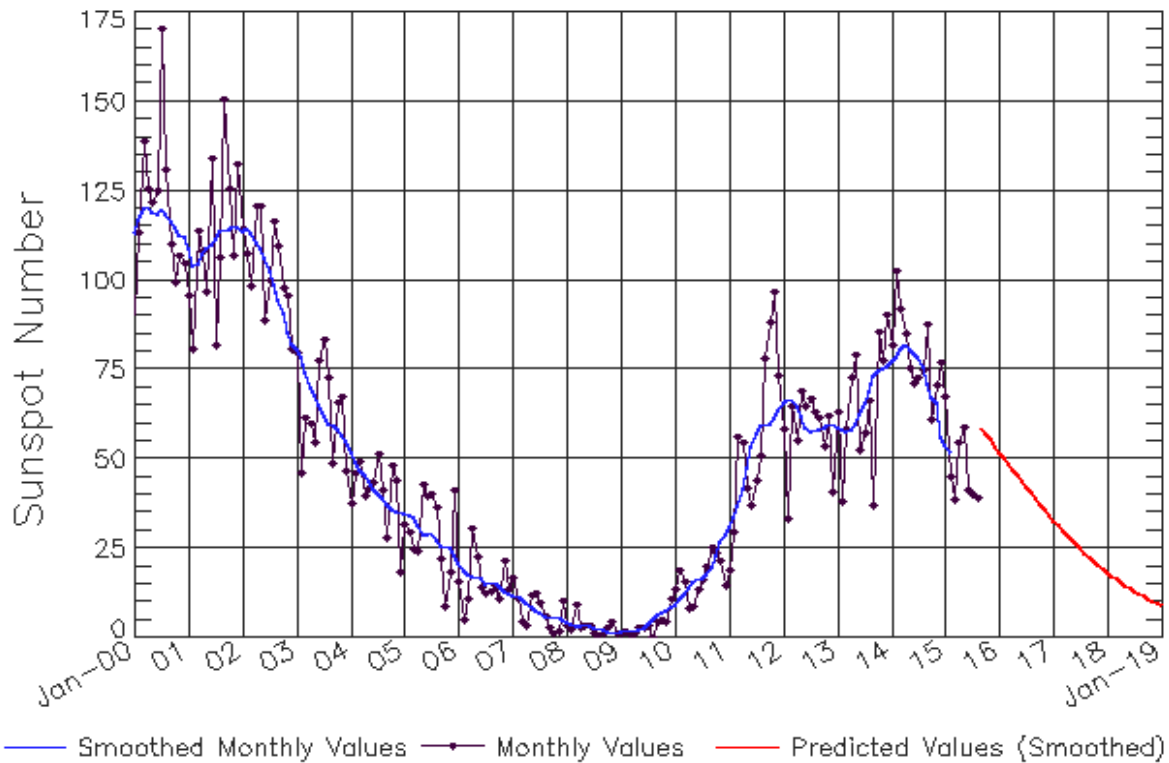
The x-ray plots contains five-minute averages x-ray flux (Watt/m²) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

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 Aug 2015



Updated 2015 Sep 8

NOAA/SWPC Boulder, CO USA

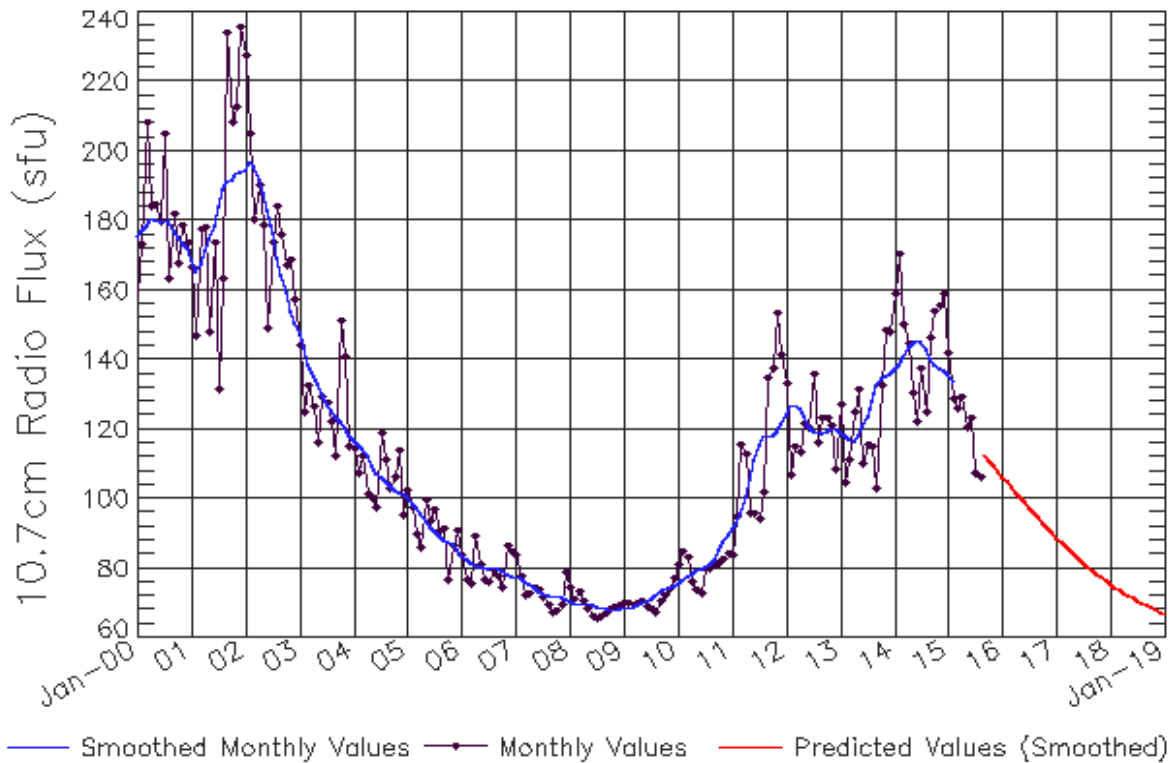
Smoothed Sunspot Number Prediction

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 (***)	56 (***)
2015	54 (***)	52 (***)	55 (1)	54 (2)	53 (3)	52 (5)	50 (5)	50 (6)	50 (7)	50 (7)	50 (8)	49 (9)
2016	49 (9)	49 (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 Aug 2015



Updated 2015 Sep 8

NOAA/SWPC Boulder, CO USA

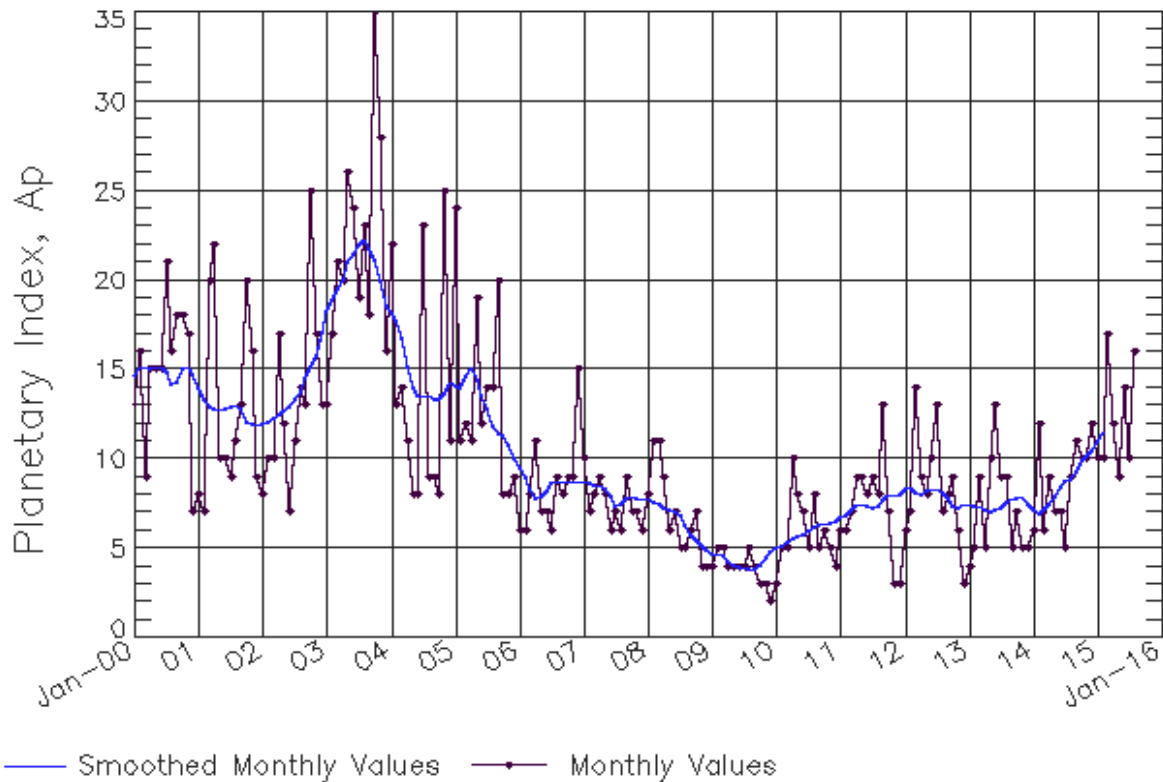
Smoothed F10.7cm Radio Flux Prediction

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 (**)	143 (**)	140 (**)	138 (**)	137 (**)	137 (**)
2015	136 (**)	134 (**)	132 (1)	128 (1)	125 (2)	121 (3)	117 (4)	115 (4)	113 (5)	111 (6)	109 (7)	107 (8)
2016	105 (8)	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 Aug 2015



Updated 2015 Sep 8

[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

