

Solar activity was dominated by B-class flare activity (very low levels) throughout the majority of the summary period, however, Region 2390 (S17, L=199, class/area=Dai/170 on 27 Jul) produced a single C1 flare (low levels) at 01/2005 UTC, which was the largest event of the period. No Earth-directed coronal mass ejections (CMEs) were observed during the summary period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels on 31 Aug with moderate levels observed throughout the remainder of the summary period.

Geomagnetic field activity reached active levels on 27, 30-31 Jul and 02 Aug in response to an enhanced solar wind environment caused by the influence of multiple weak coronal hole high speed streams (CH HSSs). Geomagnetic field activity remained at quiet to unsettled levels throughout the remainder of the summary period.

Space Weather Outlook
03 August - 29 August 2015

Solar activity is expected to be at very low (B-class flare activity) to low levels (C-class flare activity) throughout the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate levels on 07-08, 17-21, 23, and 26-29 Aug in response to enhanced geomagnetic field activity cause by the influence of multiple recurrent coronal hole high speed streams (CH HSSs). High electron flux levels are expected for the remainder of the outlook period.

Geomagnetic field activity is expected to reach G1 (Minor) geomagnetic storm levels on 28 Aug with active levels expected on 06-07, 17, 20, 26-27, and 29 Aug, all due to the influence of multiple recurrent CH HSSs. The geomagnetic field is expected to be at quiet to unsettled levels throughout the remainder of 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
27 July	100	53	240	B2.2	0	0	0	2	0	0	0	0
28 July	101	56	210	B2.3	0	0	0	0	0	0	0	0
29 July	101	66	200	B2.2	0	0	0	0	0	0	0	0
30 July	102	83	270	B2.0	0	0	0	0	0	0	0	0
31 July	101	71	360	B2.3	0	0	0	0	0	0	0	0
01 August	103	70	290	B2.4	1	0	0	3	0	0	0	0
02 August	102	51	230	B2.4	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
	27 July	1.6e+05	1.1e+04	2.6e+03		6.7e+06
28 July	2.9e+05	1.1e+04	2.6e+03		1.3e+07	
29 July	2.7e+05	1.1e+04	2.6e+03		2.1e+07	
30 July	3.4e+05	1.1e+04	2.7e+03		1.8e+07	
31 July	8.1e+04	1.1e+04	2.7e+03		2.4e+05	
01 August	4.2e+05	1.1e+04	2.7e+03		4.4e+06	
02 August	2.5e+05	1.1e+04	2.8e+03		2.4e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	27 July	13	2-2-3-3-2-2-3-4	30	2-2-5-6-5-3-4-2	11
28 July	9	2-3-2-2-3-2-2-1	18	2-3-3-5-5-2-1-1	9	2-3-2-2-3-2-2-2
29 July	7	2-2-1-2-2-2-3-0	10	2-2-1-4-4-1-1-1	5	2-2-1-1-2-1-2-1
30 July	12	1-2-2-1-3-3-4-3	9	2-2-1-1-3-3-3-2	12	2-2-1-1-2-3-4-4
31 July	16	3-3-2-3-4-3-3-3	15	2-2-2-2-5-3-3-3	14	3-3-2-2-3-4-3-3
01 August	9	3-2-2-3-2-2-2-2	9	3-2-1-2-2-3-2-2	10	3-2-2-2-1-3-2-3
02 August	13	4-3-3-2-3-2-2-2	13	3-2-3-1-5-2-1-1	11	4-2-3-1-3-2-2-2

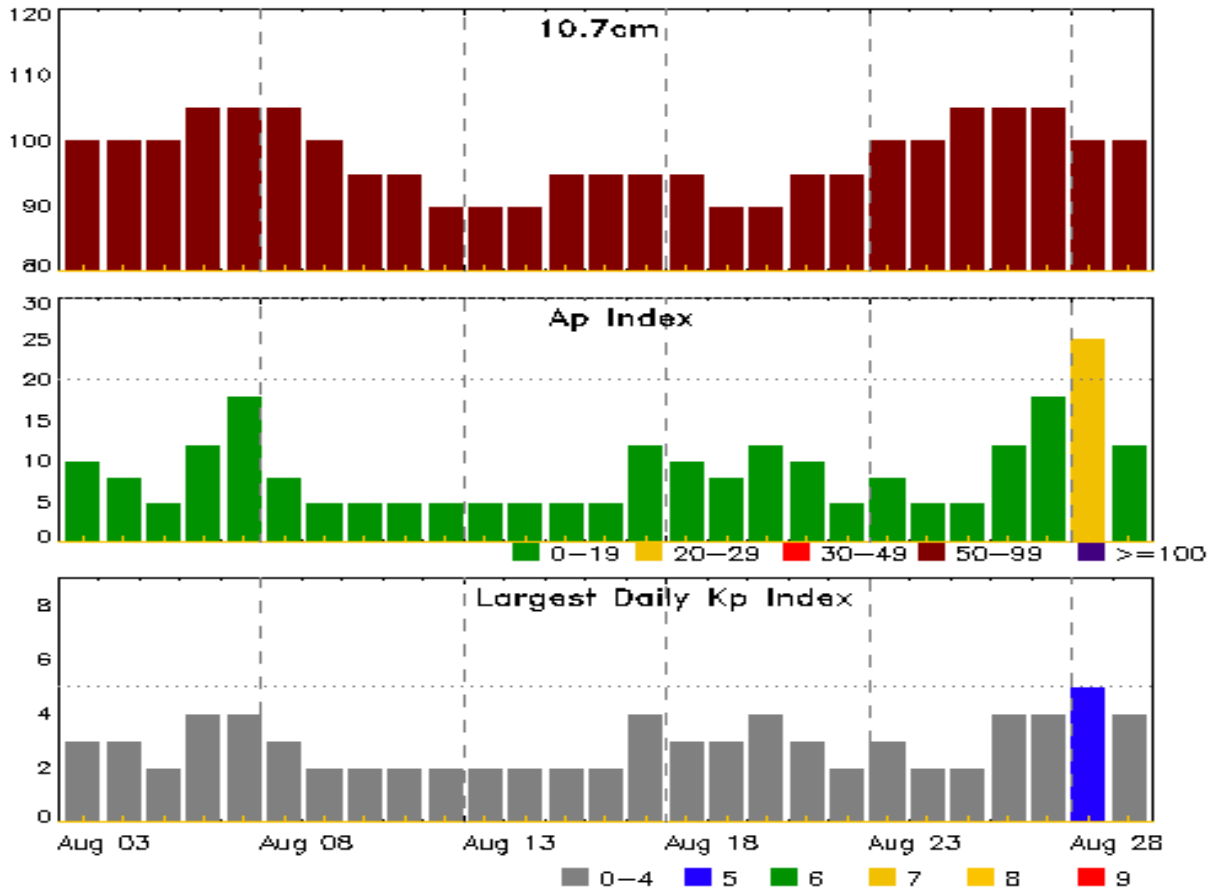


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
27 Jul 1147	WARNING: Geomagnetic K = 4	27/1147 - 1800
27 Jul 1201	ALERT: Geomagnetic K = 4	27/1159
29 Jul 1522	WATCH: Geomagnetic Storm Category G1 predicted	
30 Jul 2007	WARNING: Geomagnetic K = 4	30/2006 - 31/0900
30 Jul 2021	ALERT: Geomagnetic K = 4	30/2019
30 Jul 2022	WARNING: Geomagnetic K = 5	30/2020 - 31/0600
31 Jul 0855	EXTENDED WARNING: Geomagnetic K = 4	30/2006 - 31/1900
31 Jul 1828	EXTENDED WARNING: Geomagnetic K = 4	30/2006 - 01/0600
01 Aug 1555	CANCELLATION: Geomagnetic Storm Category G1 predicted	
02 Aug 0227	WARNING: Geomagnetic K = 4	02/0226 - 1300
02 Aug 0301	ALERT: Geomagnetic K = 4	02/0300



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
03 Aug	100	10	3	17 Aug	95	12	4
04	100	8	3	18	95	10	3
05	100	5	2	19	90	8	3
06	105	12	4	20	90	12	4
07	105	18	4	21	95	10	3
08	105	8	3	22	95	5	2
09	100	5	2	23	100	8	3
10	95	5	2	24	100	5	2
11	95	5	2	25	105	5	2
12	90	5	2	26	105	12	4
13	90	5	2	27	105	18	4
14	90	5	2	28	100	25	5
15	95	5	2	29	100	12	4
16	95	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		Intensity	
									245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
27 Jul	0340	0343	0345	B3.7			2390
27 Jul	0538	0538	0541		SF	S15W00	2390
27 Jul	0633	0634	0636		SF	S15W01	2390
27 Jul	1235	1239	1243	B3.9			2390
28 Jul	0038	0042	0047	B4.3			2390
30 Jul	2328	2346	2353	B5.7			2393
31 Jul	0355	0402	0408	B5.9			2390
01 Aug	0114	0131	0137	B8.0	SF	N16E36	2393
01 Aug	1704	1710	1716	B4.5	SF	S13W74	2390
01 Aug	1747	1751	1756	B8.0	SF	N17E55	2394
01 Aug	1959	2005	2010	C1.5			2390
01 Aug	2100	2103	2109	B4.3			2394
02 Aug	0213	0221	0228	B7.5			2390
02 Aug	0254	0258	0304	B6.1			2390
02 Aug	0319	0326	0335	B6.7			2390
02 Aug	1000	1003	1005	B3.9			2390
02 Aug	1012	1019	1034	B7.4			2390
02 Aug	1155	1159	1203	B4.0			
02 Aug	2120	2243	2334	B7.9			



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 2387																							
14 Jul	N17E90	270	plage								1												
16 Jul	N17E61	270	30	6	Cai	5	B																
17 Jul	N17E47	271	40	7	Dac	7	B						1										
18 Jul	N17E34	271	120	10	Dai	7	B						1										
19 Jul	N17E18	274	100	9	Dai	11	B																
20 Jul	N17E04	274	120	10	Dai	18	B																
21 Jul	N16W10	275	110	10	Dai	16	B																
22 Jul	N17W24	276	60	9	Csi	14	B						1										
23 Jul	N16W35	274	20	10	Cro	6	B																
24 Jul	N17W48	274	10	8	Bxo	5	B																
25 Jul	N17W62	274	plage																				
26 Jul	N17W76	275	plage																				
27 Jul	N17W90	276	plage																				
											1	0	0	3	0	0	0	0	0				

Crossed West Limb.
 Absolute heliographic longitude: 274

Region 2389																							
24 Jul	S11E62	164	30	5	Cai	6	B	3				9	1										
25 Jul	S11E48	164	80	8	Dai	11	BG					1											
26 Jul	S11E35	164	60	7	Cai	8	BG	1				6											
27 Jul	S12E23	163	30	6	Cro	7	B																
28 Jul	S12E09	164	10	7	Bxo	8	B																
29 Jul	S11W07	166	10	6	Bxo	6	B																
30 Jul	S12W20	166	10	7	Axx	1	A																
31 Jul	S12W35	168	plage																				
01 Aug	S12W49	169	plage																				
02 Aug	S12W63	170	plage																				
											4	0	0	16	1	0	0	0	0				

Still on Disk.
 Absolute heliographic longitude: 166



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 2390																		
24 Jul	S15E28	198	10	3	Bxo	2	B											
25 Jul	S15E13	199	50	6	Dai	10	B											
26 Jul	S15E01	198	130	7	Dac	10	BG											
27 Jul	S17W13	199	170	8	Dai	15	BG					2						
28 Jul	S15W26	199	150	8	Dai	17	BG											
29 Jul	S15W39	198	110	8	Dai	18	B											
30 Jul	S15W53	199	70	10	Dso	10	B											
31 Jul	S15W66	199	100	10	Dai	11	BG											
01 Aug	S14W79	199	80	8	Cao	5	B	1				1						
02 Aug	S15W91	198	50	3	Cso	2	B											
								1	0	0		3	0	0	0	0	0	0

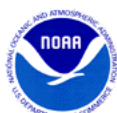
Still on Disk.
Absolute heliographic longitude: 198

Region 2391																		
27 Jul	N05E71	115	40	2	Hsx	1	A											
28 Jul	N07E56	117	50	2	Hsx	1	A											
29 Jul	N06E44	115	60	2	Hsx	1	A											
30 Jul	N06E31	115	60	2	Hax	2	A											
31 Jul	N07E17	116	50	2	Hax	1	A											
01 Aug	N06E03	117	20	1	Hax	3	A											
02 Aug	N07W10	117	10	1	Axx	1	A											
								0	0	0		0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 117

Region 2392																		
29 Jul	S05E50	109	20	1	Hrx	1	A											
30 Jul	S05E37	109	0	1	Axx	1	A											
31 Jul	S04E23	110	0		Axx	1	A											
01 Aug	S05E08	112	0		Axx	1	A											
02 Aug	S05W07	114	plage															
								0	0	0		0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 114



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 2393																		
30 Jul	N16E45		101	10	5	Dao	8	B										
31 Jul	N17E34		99	90	7	Dao	6	B										
01 Aug	N17E22		98	50	6	Cao	7	B				1						
02 Aug	N18E08		99	30	4	Cro	5	B										
									0	0	0	1	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 99

Region 2394																		
30 Jul	N12E65		81	120	1	Hsx	1	A										
31 Jul	N12E54		79	120	2	Hax	2	A										
01 Aug	N12E41		79	140	3	Hsx	4	A				1						
02 Aug	N12E28		79	140	2	Hax	3	A										
									0	0	0	1	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 79

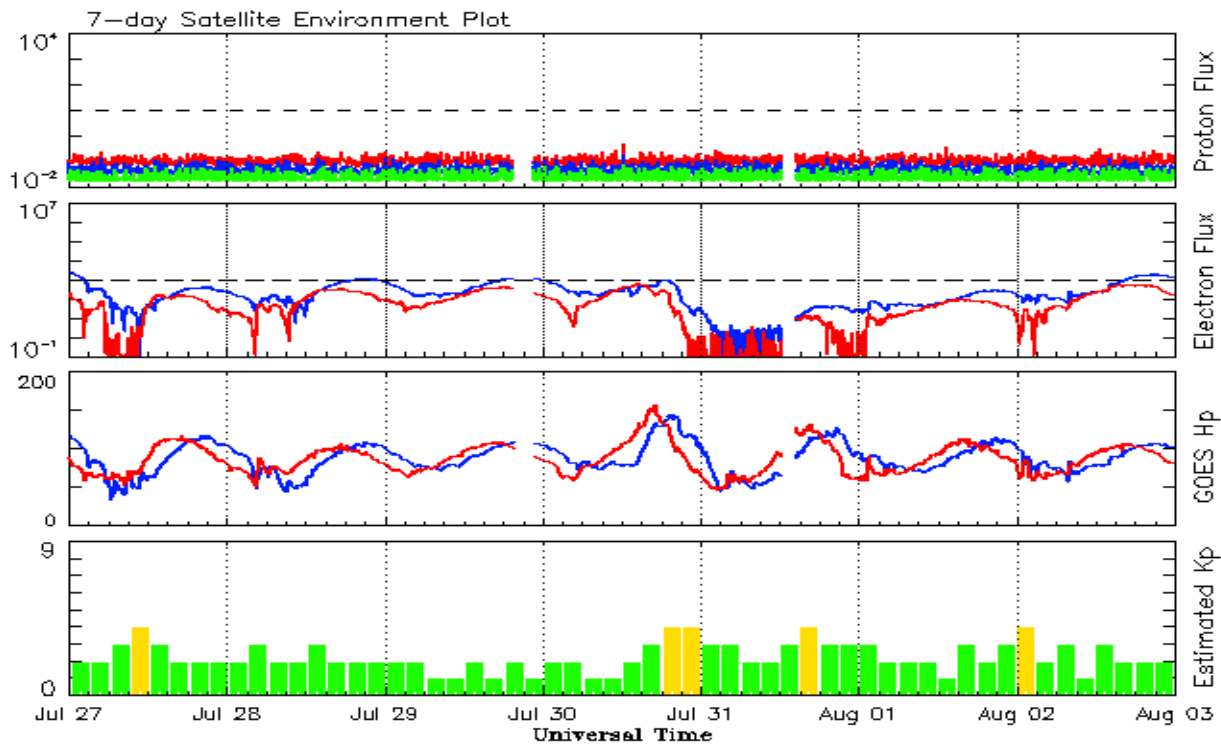


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
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	56.0	158.7	137.0	12	10.5
2015									
January	101.2	67.0	0.66	92.1		141.7	135.8	10	11.0
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			123.2		14	
July	68.4					107.0		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 27 July 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.

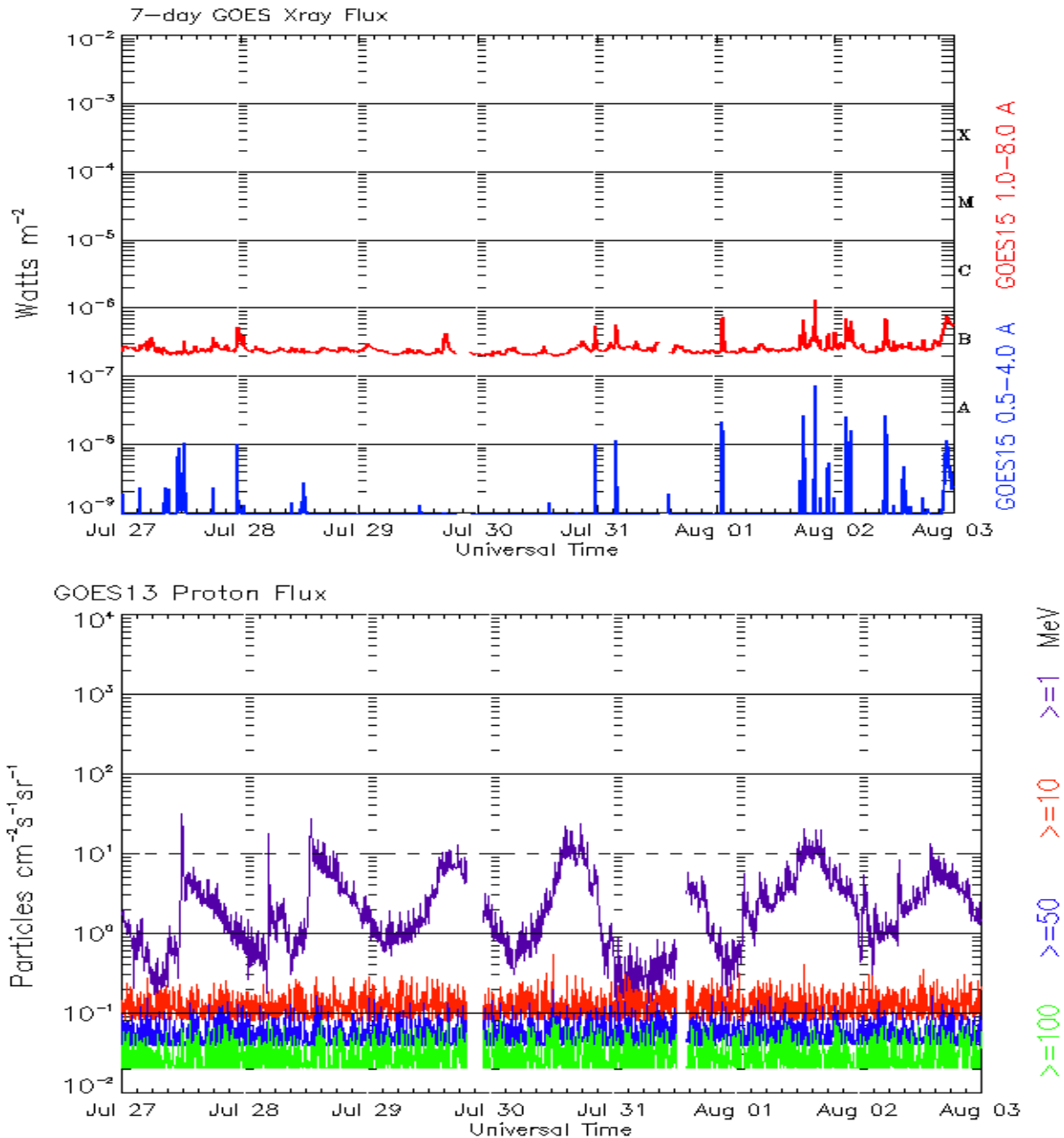
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

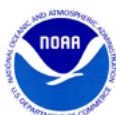




*Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 27 July 2015*

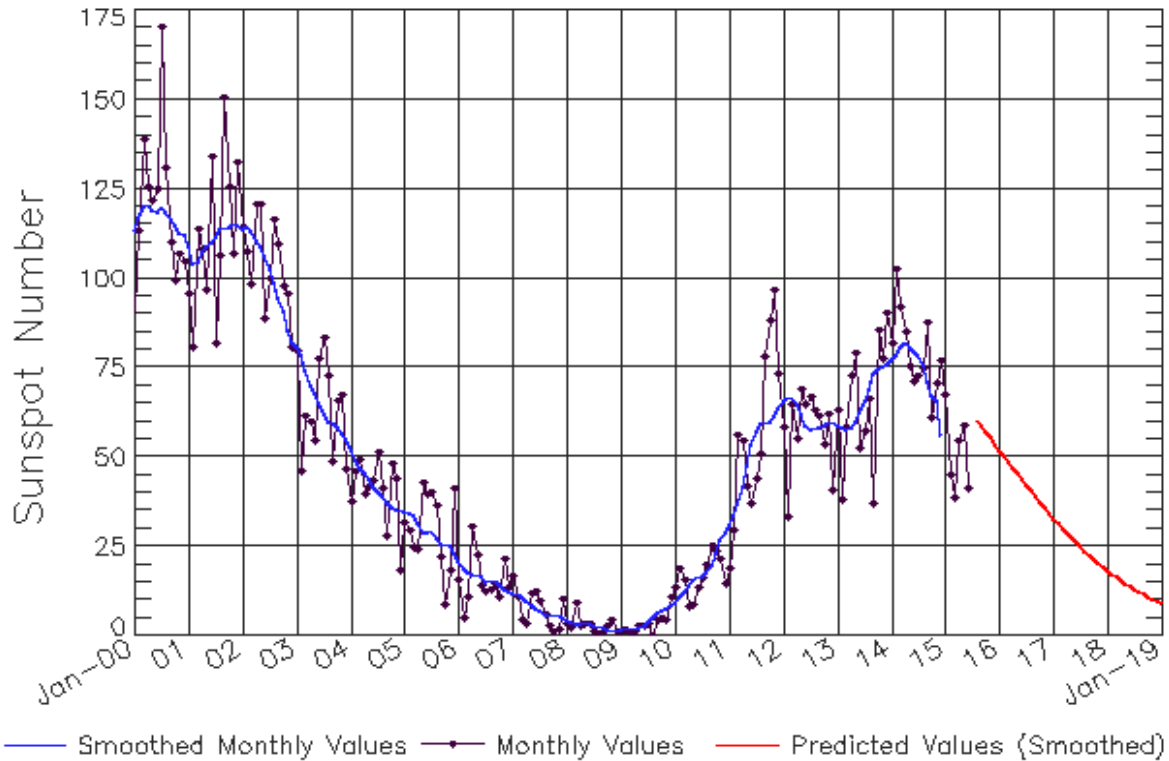
The x-ray plots contains five-minute averages x-ray flux (Watt/m²) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

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 Jul 2015



Updated 2015 Aug 3

NOAA/SWPC Boulder, CO USA

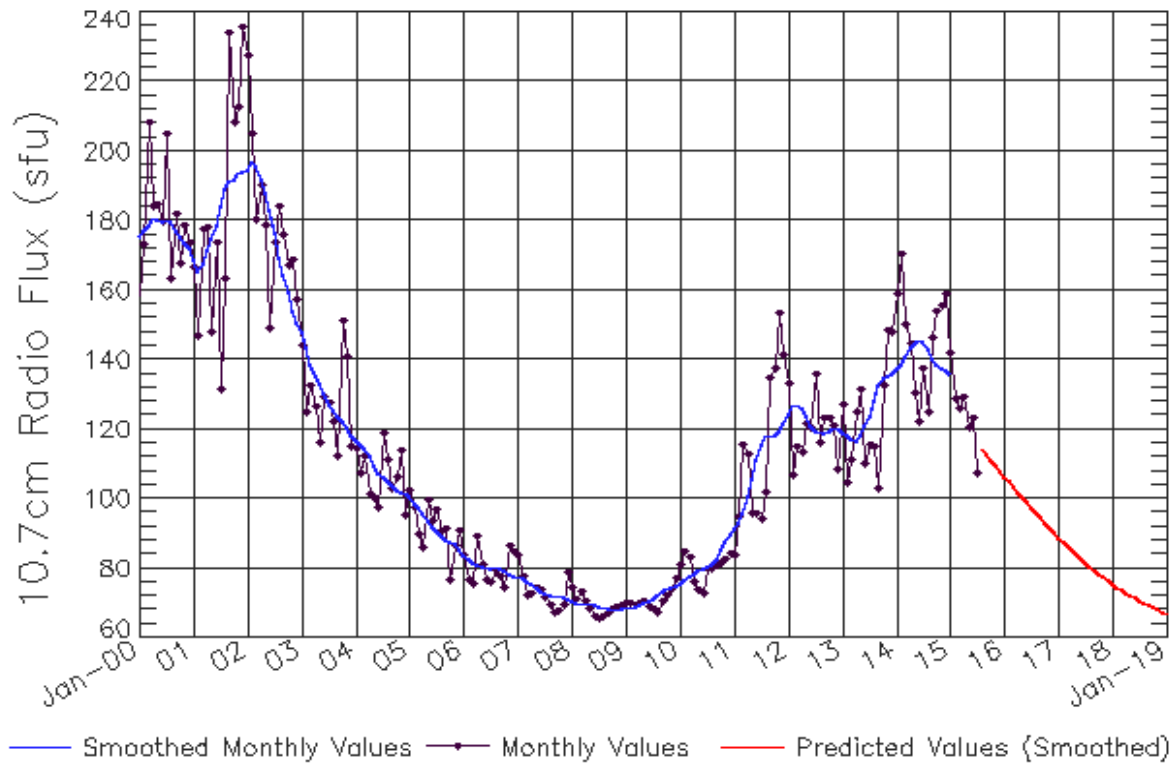
Smoothed Sunspot Number Prediction

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	59 (1)	56 (2)	54 (3)	52 (5)	52 (5)	50 (6)	48 (7)	48 (7)	49 (8)	49 (9)	48 (9)	47 (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 Jul 2015



Updated 2015 Aug 3

NOAA/SWPC Boulder, CO USA

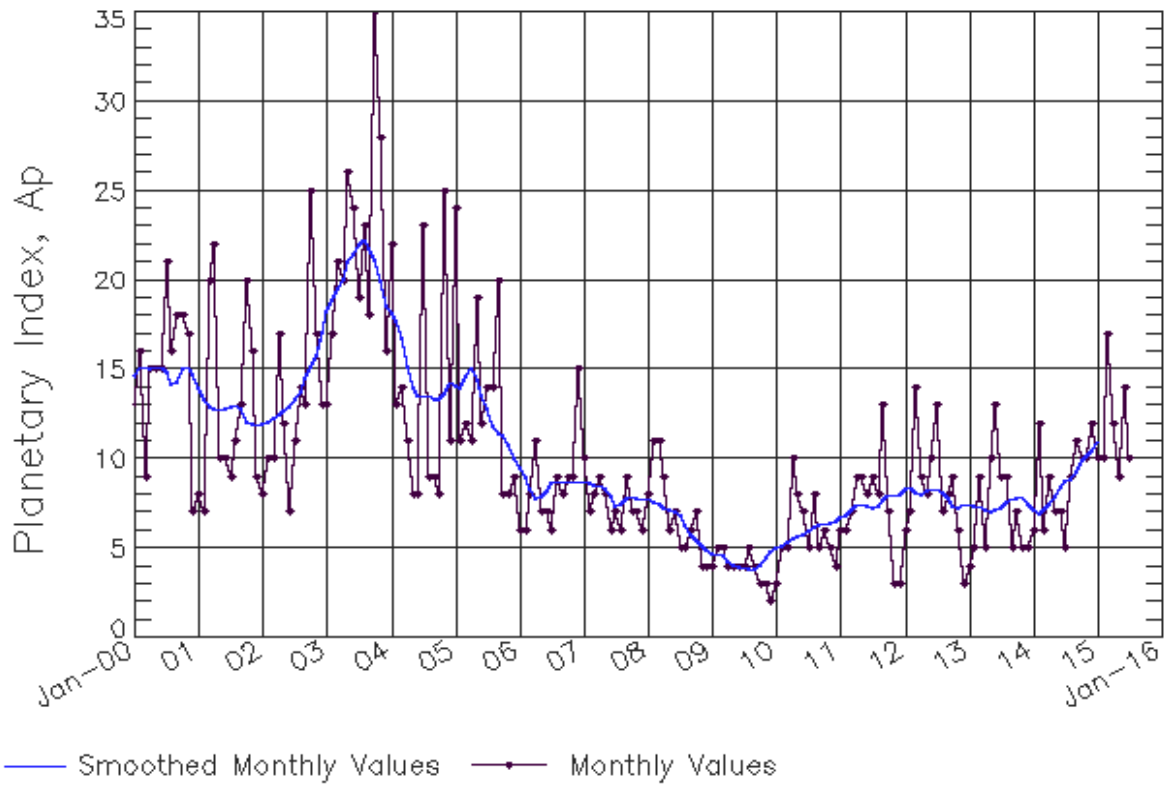
Smoothed F10.7cm Radio Flux Prediction

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 (1)	132 (1)	129 (2)	125 (3)	121 (4)	118 (4)	115 (5)	113 (6)	111 (7)	109 (8)	107 (8)
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 Jul 2015



Updated 2015 Aug 3

NOAA/SWPC Boulder, CO USA

Solar Cycle Comparison charts are temporarily unavailable.



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

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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.

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<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

