

Solar activity was mostly at very low levels with low levels observed on 01 August due to an isolated C1 flare observed at 01/0747 UTC. Region 2670 (S05, L=119, class/area Cso/160 on 02 Aug) rotated around the east limb on 02 Aug. This region was the return of old Region 2665 which was responsible for two M-class flares as well as a fast halo CME on the far side of the Sun. However, during its return on the visible disk, the region has been relatively quiet and stable, only managing to produce B-class flares with the exception of the aforementioned C1 flare that occurred as it was rounding the eastern limb. No Earth-directed coronal mass ejections were observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 04 Aug and high levels from 31 Jul-03 Aug and again from 05-06 Aug. The largest flux of the period was 8,649 pfu observed at 06/1715 UTC.

Geomagnetic field activity ranged from quiet to active levels over the period. The period began at nominal levels with solar wind speeds near 340 km/s and total field around 4 nT. A solar sector boundary crossing from a positive sector to a negative sector was observed around midday on 01 Aug along with an increase in total field to near 10 nT and an increase in solar wind speed to near 450 km/s. A general decrease in total field and solar wind speed to nominal levels was observed on 02 Aug. The geomagnetic field responded with quiet conditions on 31 Jul and 02 Aug with an isolated unsettled period on 01 Aug. At approximately 03/1000 UTC, an increase in total field was observed to 20 nT followed by an increase in solar wind speed to near 750 km/s as a corotating interaction region preceded an positive polarity coronal hole high speed stream (CH HSS). Phi angle rotated into a mostly positive orientation around 04/0220 UTC and remained positive through the rest of the period. Solar wind speed began a slow decline late on 05 Aug after having reached a maximum of 794 km/s at 05/1216 UTC. Quiet to active levels were observed on 03 Aug and 05-06 Aug with unsettled to active levels on 04 Aug.

Space Weather Outlook **07 August - 02 September 2017**

Solar activity is expected to be at very low levels throughout the forecast period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach moderate levels on 08, 17, and 31 Aug while high levels are expected on 07, 09-16, 18-30 Aug and from 01-02 Sep due to CH HSS influence.

Geomagnetic field activity is expected to be unsettled to active levels from 07-09 Aug, 17-22



Aug, and 30 Aug-02 Sep with G1 (Minor) geomagnetic storm levels likely on 18, 31 Aug and again on 01 Sep due to recurrent CH HSS activity.



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 July	72	0	0	A7.4	0	0	0	0	0	0	0	0
01 August	74	0	0	A7.4	1	0	0	0	0	0	0	0
02 August	74	12	160	A6.5	0	0	0	0	0	0	0	0
03 August	75	13	150	A6.1	0	0	0	1	0	0	0	0
04 August	74	13	150	A5.2	0	0	0	0	0	0	0	0
05 August	74	13	150	A5.4	0	0	0	1	0	0	0	0
06 August	74	13	140	A5.3	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 July	7.5e+07	1.7e+04	3.5e+03	3.9e+08	
01 August	4.4e+07	1.5e+04	2.9e+03	9.6e+07		
02 August	3.8e+07	1.5e+04	3.1e+03	5.2e+07		
03 August	2.5e+07	1.6e+04	3.6e+03	6.2e+07		
04 August	2.5e+07	1.4e+04	3.3e+03	1.9e+06		
05 August	3.3e+07	1.4e+04	3.2e+03	1.3e+08		
06 August	5.3e+07	1.5e+04	3.5e+03	3.0e+08		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	31 July	2	0-0-0-0-0-0-0-1	8	0-0-0-0-0-0-0-3	3
01 August	10	1-1-2-2-4-3-2-2	2	1-1-1-0-0-1-0-1	6	1-1-2-2-3-1-1-1
02 August	8	1-1-1-2-4-2-2-1	5	1-1-0-0-3-3-0-0	5	1-1-1-1-2-2-1-1
03 August	11	1-1-1-2-3-3-3-4	6	0-0-0-0-1-4-2-2	12	1-1-1-1-2-4-4-4
04 August	19	2-4-4-3-4-3-3-3	39	1-3-6-5-6-5-4-2	23	3-4-4-4-4-4-3-3
05 August	17	3-4-3-2-4-3-3-3	35	3-4-6-4-5-5-4-2	16	3-4-3-2-3-3-3-3
06 August	13	3-3-2-4-3-1-3-2	23	3-3-4-6-4-2-2-2	18	3-3-3-4-2-1-2-2

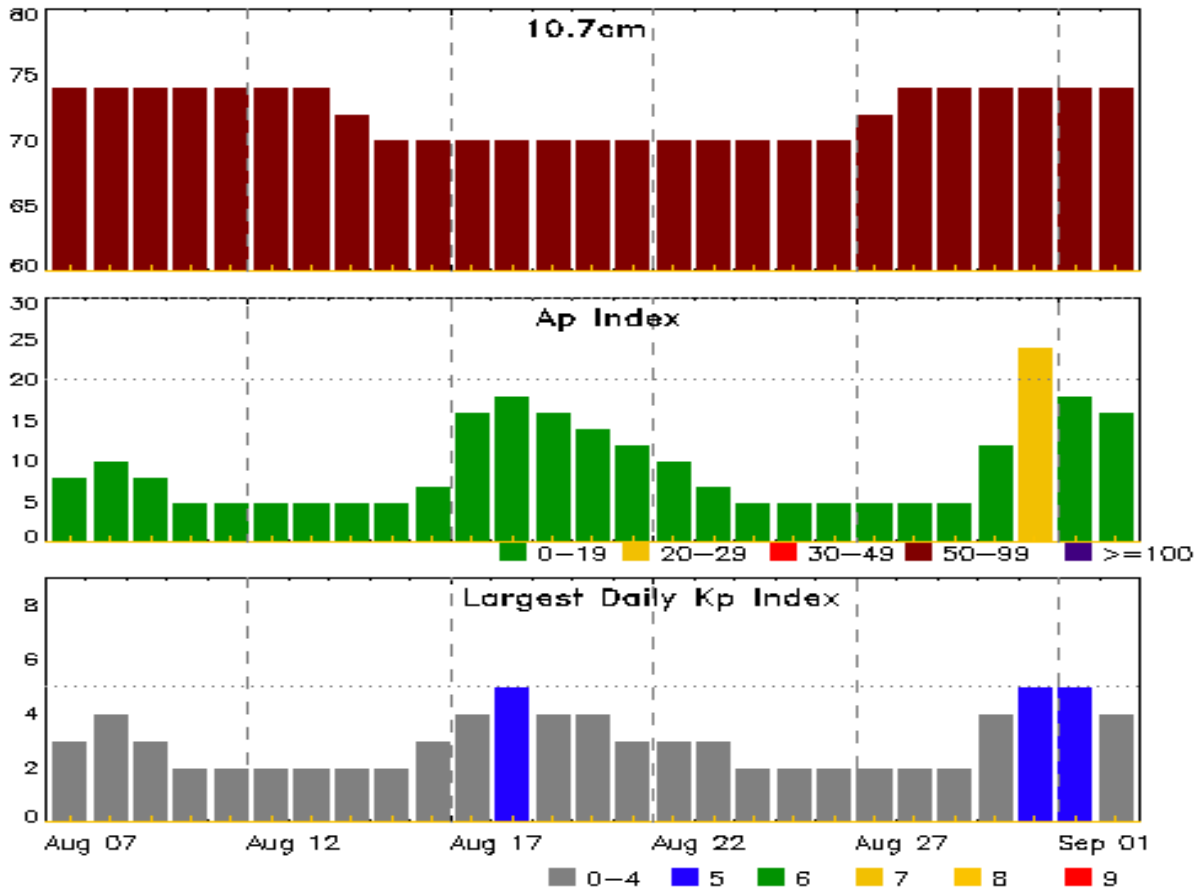


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
31 Jul 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/0325
01 Aug 1053	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/0325
02 Aug 1338	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/0325
03 Aug 1331	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/0325
03 Aug 1510	WATCH: Geomagnetic Storm Category G2 predicted	
03 Aug 1716	WARNING: Geomagnetic K = 4	03/1717 - 2359
03 Aug 1806	ALERT: Geomagnetic K = 4	03/1759
03 Aug 2348	EXTENDED WARNING: Geomagnetic K = 4	03/1717 - 0900
04 Aug 0021	EXTENDED WARNING: Geomagnetic K = 4	03/1717 - 04/0900
04 Aug 0631	WARNING: Geomagnetic K = 5	04/0630 - 1500
04 Aug 0631	EXTENDED WARNING: Geomagnetic K = 4	03/1717 - 04/2359
04 Aug 1431	EXTENDED WARNING: Geomagnetic K = 5	04/0630 - 05/0600
04 Aug 1431	EXTENDED WARNING: Geomagnetic K = 4	03/1717 - 05/1200
05 Aug 0544	EXTENDED WARNING: Geomagnetic K = 5	04/0630 - 05/1500
05 Aug 0550	EXTENDED WARNING: Geomagnetic K = 4	03/1717 - 05/2359
05 Aug 1427	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1405
05 Aug 2353	EXTENDED WARNING: Geomagnetic K = 4	03/1717 - 06/0900
06 Aug 0501	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1405
06 Aug 0855	EXTENDED WARNING: Geomagnetic K = 4	03/1717 - 06/1500
06 Aug 1419	EXTENDED WARNING: Geomagnetic K = 4	03/1717 - 06/2359



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 Aug	74	8	3	21 Aug	70	12	3
08	74	10	4	22	70	10	3
09	74	8	3	23	70	7	3
10	74	5	2	24	70	5	2
11	74	5	2	25	70	5	2
12	74	5	2	26	70	5	2
13	74	5	2	27	72	5	2
14	72	5	2	28	74	5	2
15	70	5	2	29	74	5	2
16	70	7	3	30	74	12	4
17	70	16	4	31	74	24	5
18	70	18	5	01 Sep	74	18	5
19	70	16	4	02	74	16	4
20	70	14	4				



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	2695	Intensity II

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
31 Jul	0316	0321	0329	B1.4			
31 Jul	0904	0913	0920	B9.2			
31 Jul	1553	1559	1608	B3.3			
31 Jul	1717	1721	1727	B1.3			
31 Jul	1845	1857	1905	B4.1			
31 Jul	2215	2225	2230	B4.2			
31 Jul	2322	2328	2341	B2.5			
31 Jul	2348	0001	0011	B5.6			
01 Aug	0025	0029	0032	B4.5			
01 Aug	0115	0118	0124	B2.4			
01 Aug	0214	0220	0226	B4.9			
01 Aug	0319	0326	0335	B7.9			
01 Aug	0739	0747	0755	C1.4			
01 Aug	0950	0955	1001	B2.0			
01 Aug	1308	1314	1321	B2.6			
01 Aug	1954	1959	2004	B2.8			
01 Aug	2251	2257	2301	B1.2			
02 Aug	0002	0011	0018	B2.3			2670
02 Aug	1926	1932	1937	B1.1			2670
02 Aug	2137	2144	2148	B1.5			2670
02 Aug	2353	2359	0004	B9.4			2670
03 Aug	0019	0023	0026	B2.4			2670
03 Aug	1817	1826	1833	B2.3			2670
03 Aug	1855	1904	1923	B1.6	SF	S05E55	2670
05 Aug	1743	1750	1753	B1.4	SF	S11E27	2670
05 Aug	2300	2305	2309	B1.3			2670
06 Aug	0222	0226	0231	B1.5			2670
06 Aug	0952	0956	0959	B1.3			2670



Region Summary

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

Region 2669

29 Jul	N18W25	256	5	3	Bxo	2	B										
30 Jul	N18W37	255	10	1	Axx	1	A										
31 Jul	N18W51	256	plage														
01 Aug	N18W65	256	plage														
02 Aug	N18W79	257	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 256

Region 2670

02 Aug	S05E58	119	160	4	Cso	2	B										
03 Aug	S05E45	119	150	5	Hsx	3	A				1						
04 Aug	S04E32	119	150	8	Hsx	3	A										
05 Aug	S06E20	118	150	8	Hsx	3	A				1						
06 Aug	S05E04	120	140	7	Hsx	3	A										
									0	0	0	2	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 120

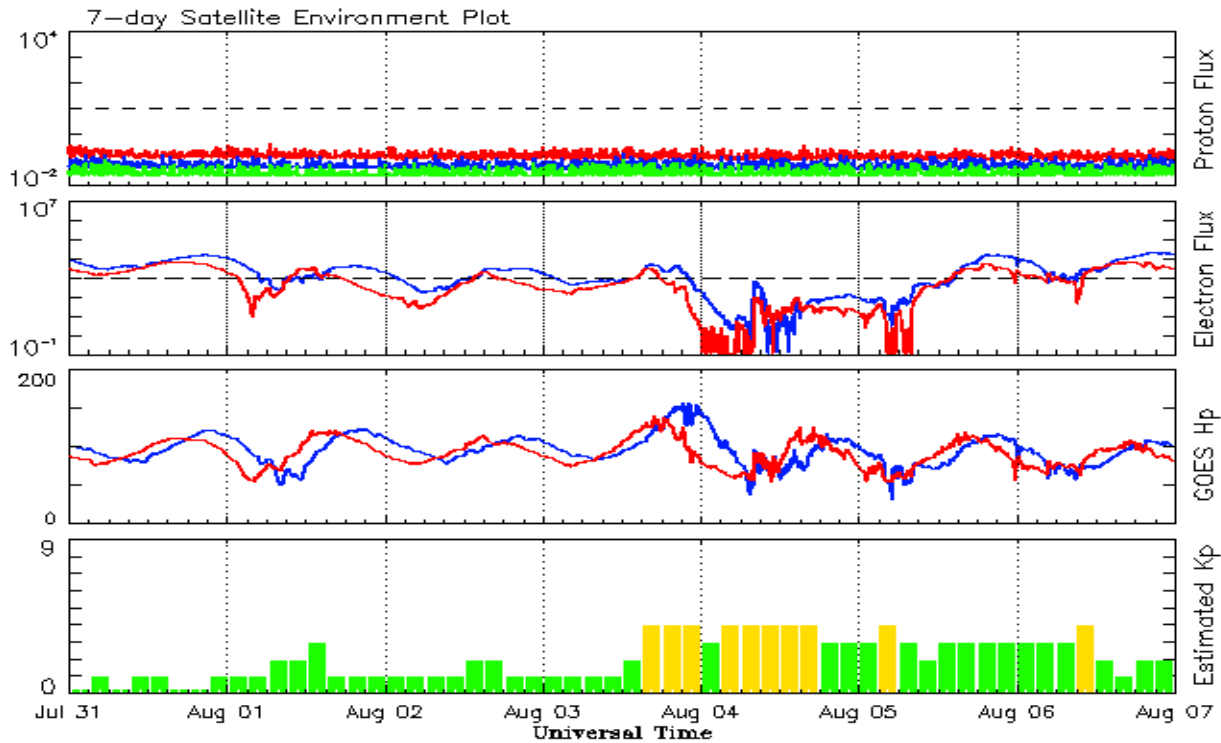


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2015									
August	61.6	38.6	0.63	65.5	39.8	106.2	113.3	16	13.1
September	72.5	47.2	0.65	64.0	39.5	102.1	110.8	16	12.8
October	59.5	38.2	0.62	61.8	38.6	104.1	107.9	15	12.5
November	61.8	37.3	0.61	59.0	36.7	109.6	105.3	13	12.5
December	54.1	34.8	0.64	55.1	34.7	112.8	102.5	15	12.5
2016									
January	50.4	34.2	0.67	51.4	32.6	103.5	99.9	10	12.3
February	56.0	33.8	0.61	49.6	31.5	103.5	98.1	10	12.0
March	40.9	32.5	0.80	47.7	30.2	91.6	96.6	11	11.8
April	39.2	22.7	0.58	45.0	28.7	93.4	95.3	10	11.8
May	48.9	30.9	0.64	42.1	26.9	93.1	93.2	12	11.7
June	19.3	12.3	0.65	39.0	24.9	81.9	90.4	9	11.4
July	36.8	19.4	0.53	36.5	23.1	85.9	87.7	10	11.2
August	50.4	30.1	0.60	34.2	21.6	85.0	85.5	10	11.2
September	37.4	26.8	0.72	32.1	19.9	87.8	83.7	16	11.3
October	30.0	20.0	0.67	31.1	18.9	86.1	82.5	16	11.6
November	22.4	12.8	0.57	29.4	17.9	78.7	81.1	10	11.6
December	17.6	11.1	0.64	28.1	17.1	75.1	80.0	10	11.4
2017									
January	28.1	15.7	0.55	27.3	16.7	77.4	79.4	10	11.3
February	22.0	15.8	0.71			76.9		10	
March	25.4	10.6	0.42			74.6		15	
April	30.4	19.6	0.64			80.9		13	
May	18.1	11.3	0.62			73.5		9	
June	18.0	11.6	0.64			74.8		7	
July	18.8	11.0	0.59			77.7		9	

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 July 2017*

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.

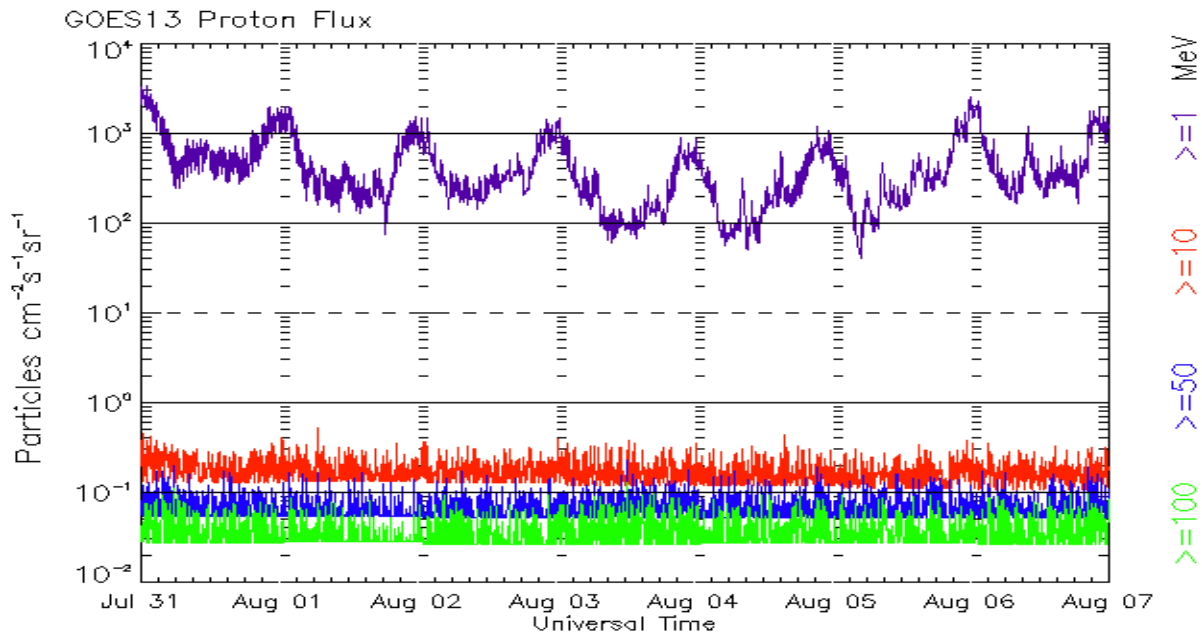
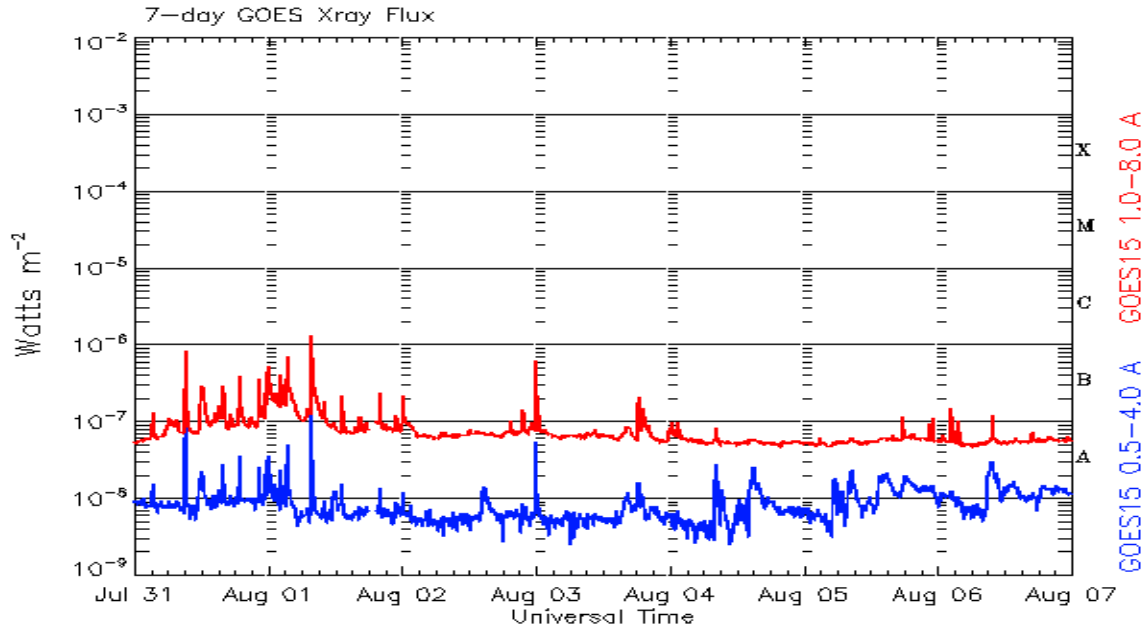
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 July 2017

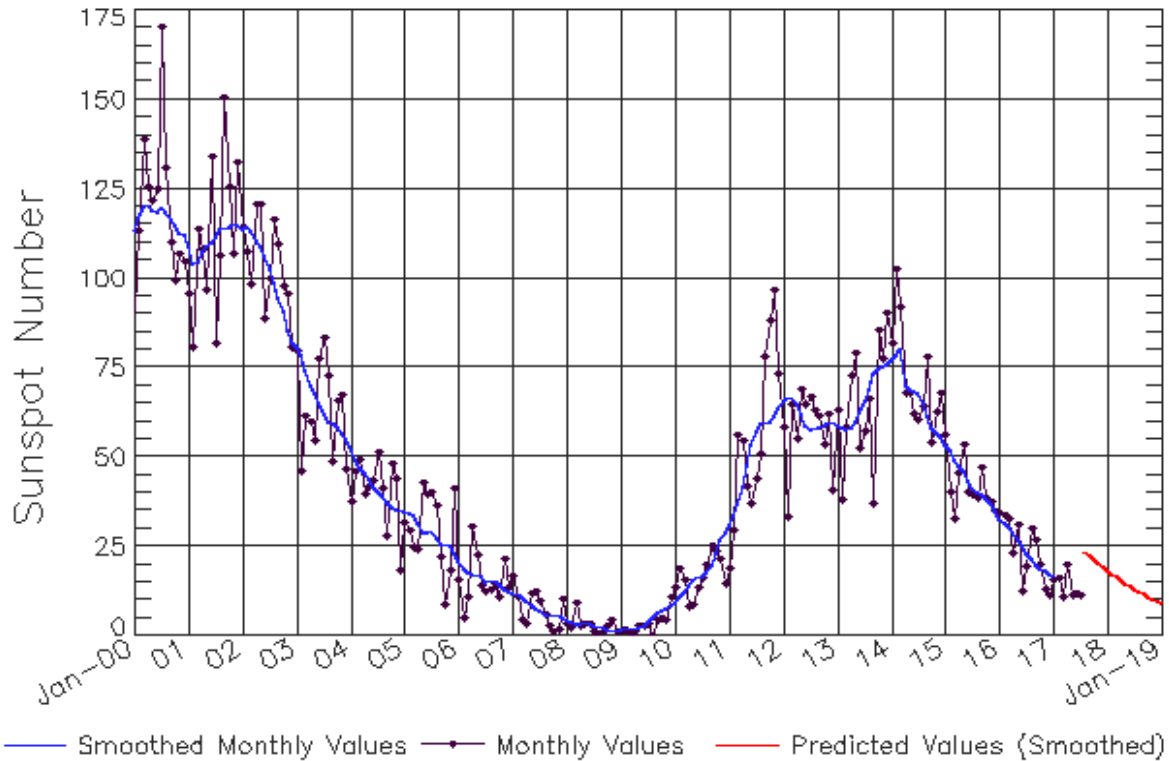
The x-ray plots contains five-minute averages x-ray flux ($Watt/m^2$) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

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 Jul 2017



Updated 2017 Aug 7

NOAA/SWPC Boulder, CO USA

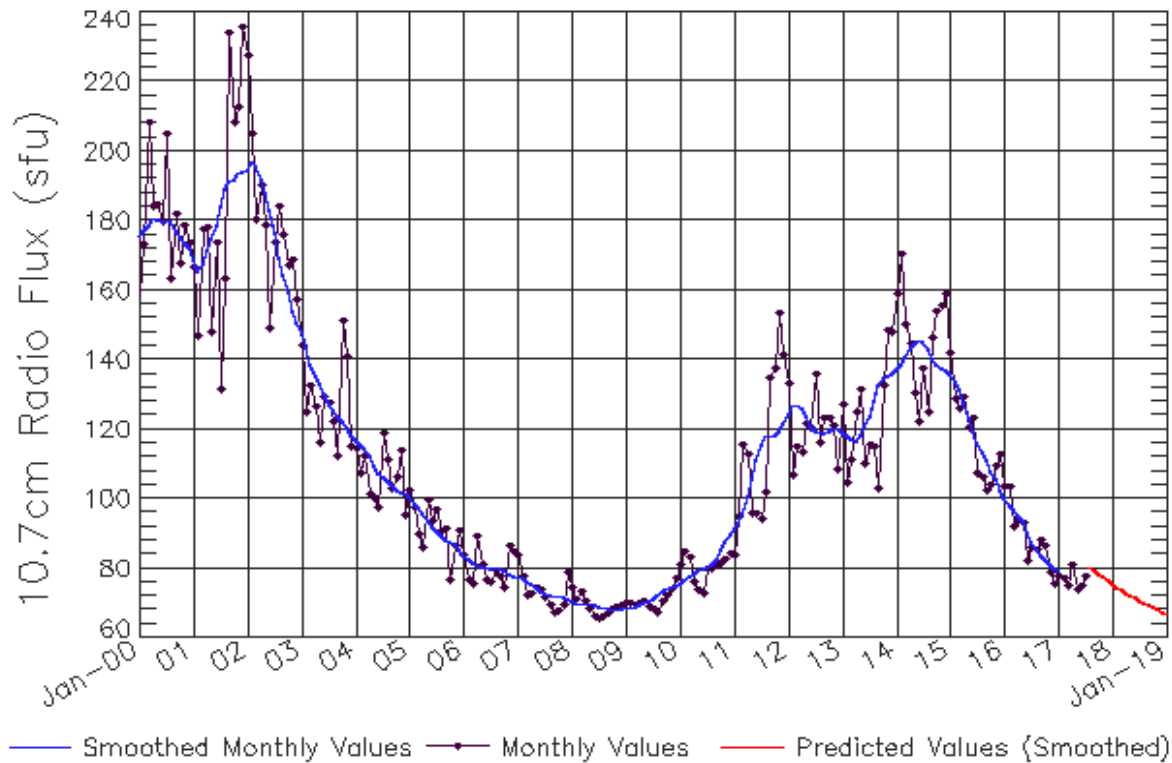
Smoothed Sunspot Number Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	9 (1)	10 (2)	11 (3)	13 (5)	15 (5)	16 (6)	17 (7)	17 (7)	20 (8)	23 (9)	27 (9)	29 (10)
2011	19 (10)	30 (10)	56 (10)	54 (10)	42 (10)	37 (10)	44 (10)	51 (10)	78 (10)	88 (10)	97 (10)	73 (10)
2012	58 (10)	33 (10)	64 (10)	55 (10)	69 (10)	65 (10)	67 (10)	63 (10)	61 (10)	53 (10)	62 (10)	41 (10)
2013	63 (10)	38 (10)	58 (10)	72 (10)	79 (10)	53 (10)	57 (10)	66 (10)	37 (10)	86 (10)	78 (10)	90 (10)
2014	82 (10)	102 (10)	92 (10)	68 (10)	68 (10)	62 (10)	60 (10)	64 (10)	78 (10)	54 (10)	62 (10)	68 (10)
2015	56 (10)	40 (10)	33 (10)	45 (10)	53 (10)	40 (10)	40 (10)	39 (10)	47 (10)	38 (10)	37 (10)	35 (10)
2016	34 (10)	34 (10)	33 (10)	23 (10)	31 (10)	12 (10)	19 (10)	30 (10)	27 (10)	20 (10)	13 (10)	11 (10)
2017	16 (10)	16 (10)	11 (10)	20 (10)	11 (10)	12 (10)	11 (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 2017



Updated 2017 Aug 7

NOAA/SWPC Boulder, CO USA

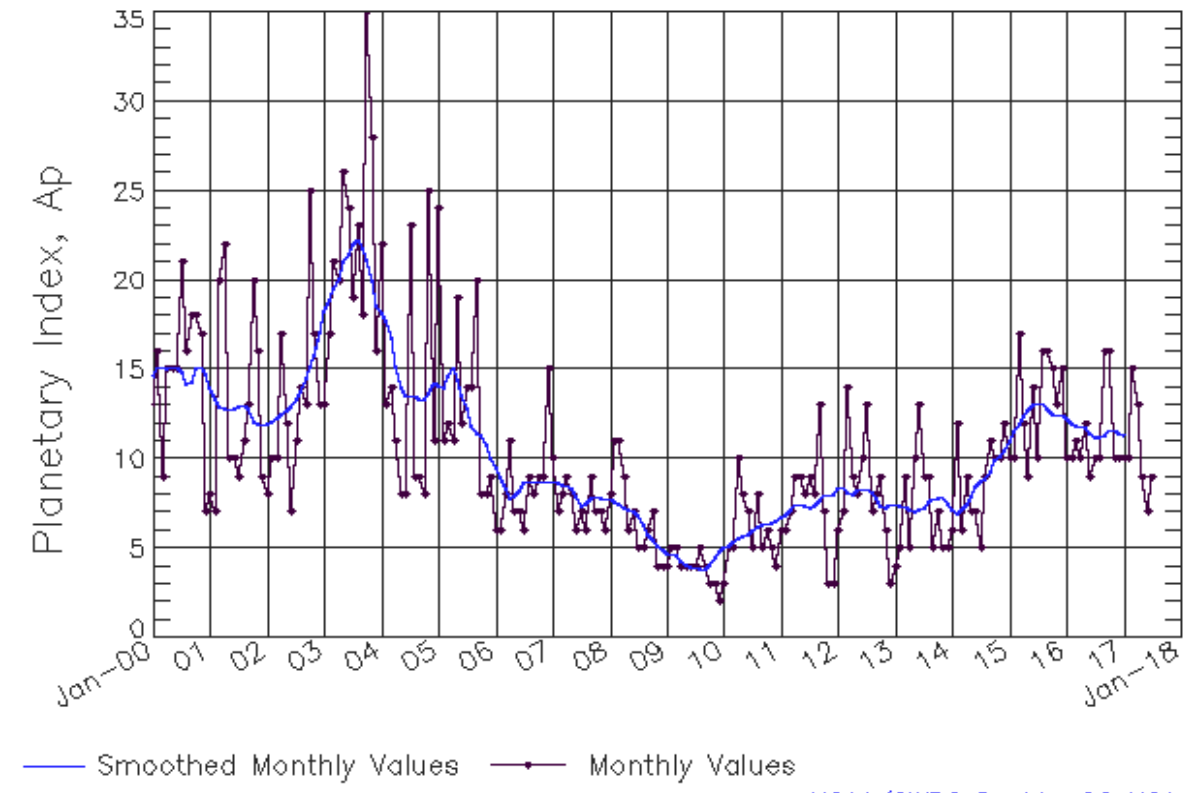
Smoothed F10.7cm Radio Flux Prediction

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 (**)	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 (**)	131 (**)	127 (**)	123 (**)	120 (**)	116 (**)	113 (**)	111 (**)	108 (**)	105 (**)	103 (**)
2016	100 (**)	98 (**)	97 (**)	95 (**)	93 (**)	90 (**)	88 (**)	86 (**)	84 (**)	83 (**)	81 (**)	80 (**)
2017	79 (**)	79 (1)	78 (1)	78 (2)	77 (3)	77 (4)	77 (4)	77 (5)	77 (6)	77 (7)	76 (8)	76 (8)
2018	76 (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

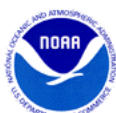
Observed data through Jul 2017



Updated 2017 Aug 7

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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

