Space Weather Highlights
14 August - 20 August 2017

SWPC PRF 2190
21 August 2017

Solar activity ranged from very low levels to moderate levels over the period. Very low levels were observed on 16-17 Aug, low levels were observed on 14-15 Aug and again from 18-19 Aug, while moderate levels were observed on 20 Aug.

The period began with Region 2671 (N11, L=305, class/area Fkc/410 on 18 Aug) rotating around the east limb. The region was in a growth phase through 18 Aug and rapidly developed from a simple Hax/alpha spot group to an Fkc/beta-gamma group by 17 Aug with an extent reaching 20 heliographic degrees by 20 Aug. Although a magnetically complex spot group, it only managed 11 C-class flares. The largest was a C7/Sf, with an associated Type II (928 km/s) radio sweep, at 19/2155 UTC. Although coronal dimming was observed in SDO/AIA 193 imagery beginning at 19/2143 UTC, there was no observable indications of an associated coronal mass ejection (CME) in coronagraph imagery. Another region began producing C-class activity on the east limb beginning on 18 Aug. By 20 Aug, the region rotated into view and was numbered 2672 (N05, L=225, class/area Dao/beta on 20 Aug). This region produced an M1 flare (R1-Minor) at 20/0152 UTC. No Earth-directed CMEs were observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels from 14-16 Aug and again from 18-20 Aug. A decrease to moderate levels was observed on 17 Aug coinciding with the arrival of a positive polarity coronal hole high speed stream (CH HSS). The largest flux value of the period was 23,392 pfu observed at 20/1540 UTC.

Geomagnetic field activity ranged from quiet to G1 (Minor) geomagnetic storm levels. The period began under the waning influence of a negative polarity CH HSS. Solar wind speed decreased from near 600 km/s to around 360 km/s by 16 Aug while total field was between 3-5 nT. Early on 16 Aug, total field began to increase to a maximum of 13 nT at 17/0740 UTC while the solar wind speed slowly increased to around 780 km/s by late on 19 Aug as a polar connected, positive polarity CH HSS became geoeffective. By the end of the period, solar wind speeds decreased to near 650 km/s while total field values had decreased to 3 nT. The geomagnetic field responded with quiet levels from 14-16 Aug, followed by quiet to G1 (Minor) storm levels from 17-20 Aug.

Space Weather Outlook
21 August - 16 September 2017

Solar activity is expected to be at low levels with a chance for M-class (R1-R2, Minor-Moderate) activity from Regions 2671 and 2672 from 21 Aug-02 Sep and again from 08-16 Sep when both regions return to the visible disk. Very low levels are expected from 03-07 Sep.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels from 21-30 Aug, 01-07 Sep, 11-13 Sep, and again from 15-16 Sep due to recurrent CH HSS influence.

Geomagnetic field activity is expected to be at unsettled to active levels from 21-22 Aug, 30 Aug-02 Sep, 08-09 Sep, and from 13-16 Sep with G1 (Minor) storm levels likely on 31 Aug, and 13-16 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		Flares						
						X-ray			Optical			
						C	M	X	S	1	2	3	4
14 August	73	12	70	B1.0	5	0	0	9	1	0	0	0
15 August	74	21	170	B1.0	2	0	0	25	0	0	0	0
16 August	77	30	380	B1.3	0	0	0	12	0	0	0	0
17 August	77	30	280	A8.3	0	0	0	10	0	0	0	0
18 August	80	41	410	B1.3	2	0	0	3	1	0	0	0
19 August	87	33	360	B3.3	9	0	0	5	0	0	0	0
20 August	86	44	530	B3.3	4	1	0	7	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
14 August	4.1e+07	1.5e+04	3.6e+03	5.1e+07		
15 August	4.7e+07	1.6e+04	3.6e+03	6.8e+07		
16 August	4.4e+07	1.5e+04	3.6e+03	4.9e+07		
17 August	4.1e+07	1.5e+04	3.2e+03	5.3e+06		
18 August	6.0e+07	1.6e+04	3.4e+03	2.7e+07		
19 August	6.2e+07	1.5e+04	3.1e+03	1.5e+08		
20 August	4.4e+07	1.5e+04	3.2e+03	7.1e+08		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
14 August	5	2-1-0-2-2-1-1-2	4	2-1-0-1-2-0-1-2	5	2-1-1-1-2-1-1-2
15 August	3	1-1-0-1-2-1-1-1	2	1-1-0-0-0-0-1-1	4	1-1-1-1-1-0-1-1
16 August	5	2-1-1-2-2-1-1-2	5	1-1-2-1-2-1-1-2	6	2-1-1-2-1-1-1-2
17 August	20	2-2-5-4-4-3-3-3	59	3-2-6-7-7-5-4-3	29	3-2-5-5-5-3-4-4
18 August	20	5-3-2-3-4-3-4-2	40	3-3-4-5-6-5-6-2	21	4-3-2-3-4-3-5-3
19 August	23	4-4-4-3-3-4-3-4	57	5-4-7-6-6-5-3-3	31	5-4-5-4-4-5-3-4
20 August	21	4-5-3-4-3-3-2-3	32	4-5-6-5-4-3-2-2	39	5-5-3-3-2-3-3-3

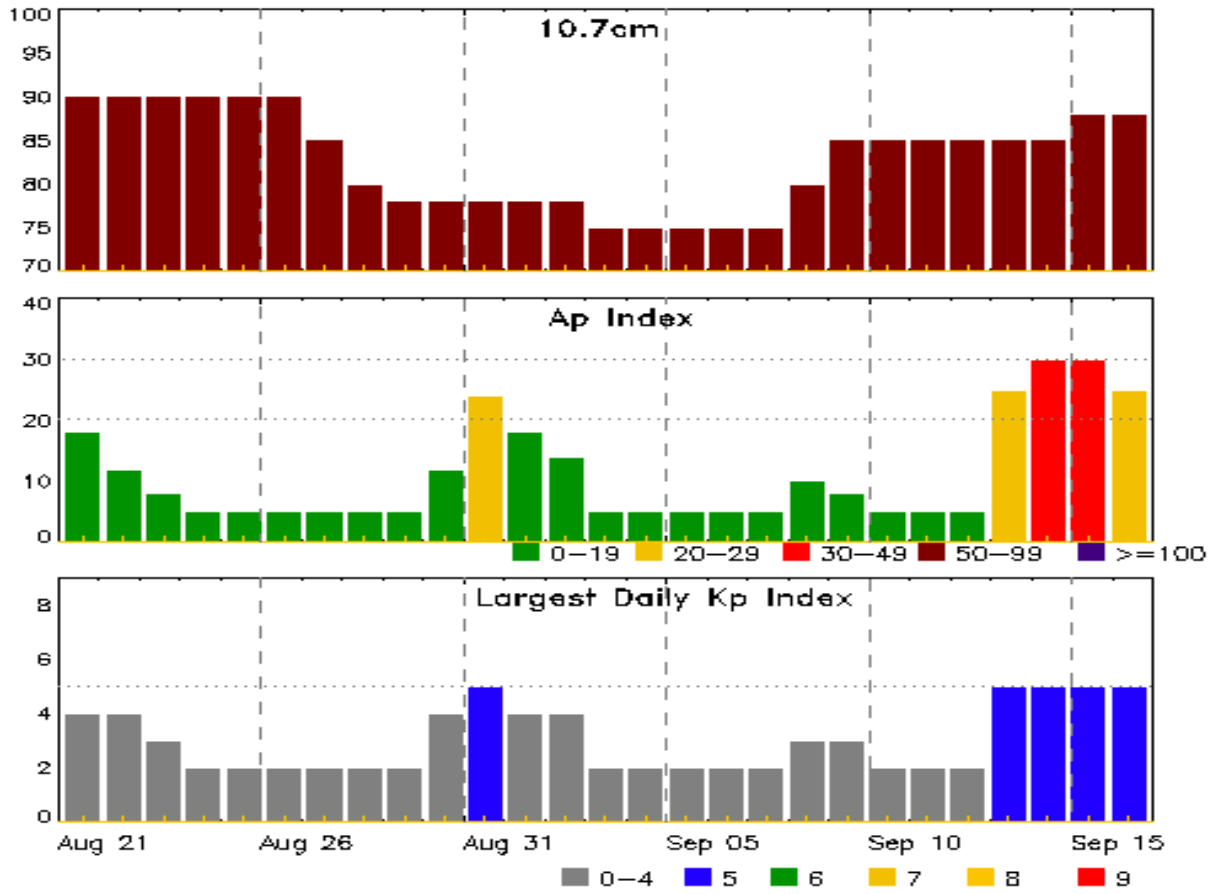
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
14 Aug 1836	WATCH: Geomagnetic Storm Category G1 predicted	
15 Aug 1317	ALERT: Electron 2MeV Integral Flux >= 1000pfu	15/1245
15 Aug 2037	WATCH: Geomagnetic Storm Category G1 predicted	
16 Aug 1516	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	15/1245
17 Aug 0752	WARNING: Geomagnetic K = 4	17/0752 - 1800
17 Aug 0805	ALERT: Geomagnetic K = 4	17/0805
17 Aug 0809	WARNING: Geomagnetic K = 5	17/0808 - 1500
17 Aug 0817	ALERT: Geomagnetic K = 5	17/0816
17 Aug 1146	ALERT: Geomagnetic K = 5	17/1146
17 Aug 1151	WARNING: Geomagnetic K = 6	17/1150 - 1500
17 Aug 1359	ALERT: Geomagnetic K = 5	17/1350
17 Aug 1447	EXTENDED WARNING: Geomagnetic K = 4	17/0752 - 18/0600
17 Aug 1448	EXTENDED WARNING: Geomagnetic K = 5	17/0808 - 2100
18 Aug 0212	WARNING: Geomagnetic K = 5	18/0212 - 1200
18 Aug 0457	EXTENDED WARNING: Geomagnetic K = 4	17/0752 - 18/1800
18 Aug 1709	ALERT: Electron 2MeV Integral Flux >= 1000pfu	18/1650
18 Aug 1755	EXTENDED WARNING: Geomagnetic K = 4	17/0752 - 19/0600
18 Aug 1936	WARNING: Geomagnetic K = 5	18/1935 - 2359
18 Aug 2000	ALERT: Geomagnetic K = 5	18/1959
19 Aug 0117	WARNING: Geomagnetic K = 5	19/0117 - 0900
19 Aug 0125	EXTENDED WARNING: Geomagnetic K = 4	17/0752 - 19/1800
19 Aug 0301	ALERT: Geomagnetic K = 5	19/0259
19 Aug 0631	EXTENDED WARNING: Geomagnetic K = 5	19/0117 - 1500
19 Aug 0857	ALERT: Geomagnetic K = 5	19/0857
19 Aug 1241	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	18/1650
19 Aug 1436	EXTENDED WARNING: Geomagnetic K = 4	17/0752 - 20/1500
19 Aug 1436	EXTENDED WARNING: Geomagnetic K = 5	19/0117 - 20/0300
19 Aug 1800	ALERT: Geomagnetic K = 5	19/1759

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
19 Aug 2244	ALERT: Type II Radio Emission	19/2148
20 Aug 0203	ALERT: Geomagnetic K = 5	20/0203
20 Aug 0208	EXTENDED WARNING: Geomagnetic K = 5	19/0117 - 20/1500
20 Aug 0535	ALERT: Geomagnetic K = 5	20/0535
20 Aug 0549	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	18/1650
20 Aug 1455	EXTENDED WARNING: Geomagnetic K = 4	17/0752 - 21/0300

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
21 Aug	90	18	4	04 Sep	75	5	2
22	90	12	4	05	75	5	2
23	90	8	3	06	75	5	2
24	90	5	2	07	75	5	2
25	90	5	2	08	80	10	3
26	90	5	2	09	85	8	3
27	85	5	2	10	85	5	2
28	80	5	2	11	85	5	2
29	78	5	2	12	85	5	2
30	78	12	4	13	85	25	5
31	78	24	5	14	85	30	5
01 Sep	78	18	4	15	88	30	5
02	78	14	4	16	88	25	5
03	75	5	2				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
20 Aug		0136	0152	0203		M1.1	0.011		2672			

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
14 Aug	0205	0213	0216	C1.8			
14 Aug	0339	0348	0355	B6.4			
14 Aug	0525	0551	0611	B7.5			
14 Aug	0821	0826	0831	B3.2			
14 Aug	0923	0927	0937	B1.3			
14 Aug	1039	1046	1049	C2.7			
14 Aug	1331	1337	1342	B2.4			
14 Aug	1404	1411	1415	B3.9			
14 Aug	1416	1500	1531		SF	N11E82	
14 Aug	1430	1430	1643		SF	N10E84	2671
14 Aug	1442	1445	1447	B2.8			
14 Aug	1531	1548	1612		SF	N11E82	2671
14 Aug	1620	1624	1627	C1.1	SF	N12E78	2671
14 Aug	1657	1903	1948		SF	N10E84	2671
14 Aug	1818	1822	1827	B3.7			
14 Aug	1900	1905	1909	B4.1			2671
14 Aug	1924	1927	1930	B2.8			
14 Aug	1950	1959	2008		SF	N10E84	2671
14 Aug	2027	2101	2118	C1.2	1F	N10E82	2671
14 Aug	2119	2125	2141	B7.4	SF	N09E81	2671
14 Aug	2146	2210	2217	C2.3	SF	N09E81	2671
14 Aug	2250	2256	2256		SF	N09E81	2671
15 Aug	0208	0215	0217	C1.0			2671
15 Aug	0424	0431	0433	B8.7			2671
15 Aug	0500	0507	0509	B7.1	SF	N11E77	2671
15 Aug	0516	0537	0649		SF	N11E73	2671
15 Aug	0707	0707	0711		SF	N11E73	2671
15 Aug	0743	0744	0749		SF	N11E73	2671
15 Aug	0751	0755	0759	B2.5	SF	N11E73	2671
15 Aug	0850	0851	0853		SF	N11E73	2671

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
15 Aug	0854	0855	0901		SF	N11E73	2671
15 Aug	0907	0913	0920		SF	N11E73	2671
15 Aug	0934	0935	0941		SF	N11E72	2671
15 Aug	0951	0953	0955		SF	N11E72	2671
15 Aug	0958	1005	1012	B4.1	SF	N10E67	2671
15 Aug	1018	1018	1018		SF	N10E67	2671
15 Aug	1022	1022	1024		SF	N10E72	2671
15 Aug	1045	1051	1058	B3.2	SF	N11E72	2671
15 Aug	1106	1111	1114	B3.4	SF	N12E73	2671
15 Aug	1120	1126	1130	B5.7	SF	N12E73	2671
15 Aug	1145	1149	1151	B8.5	SF	N11E73	2671
15 Aug	1200	1205	1209		SF	N11E73	2671
15 Aug	1220	1352	1450	C1.1	SF	N10E68	2671
15 Aug	1326	1327	1328		SF	N09E70	2671
15 Aug	1333	1336	1342		SF	N10E69	2671
15 Aug	1451	1452	1455		SF	N10E64	2671
15 Aug	1611	1615	1617	B8.3	SF	N09E55	2671
15 Aug	1810	1811	1818	B3.0	SF	N09E63	2671
15 Aug	1854	1856	1859		SF	N09E63	2671
16 Aug	0133	0139	0143	B2.8			2671
16 Aug	0157	0208	0220	B3.7	SF	N12E63	2671
16 Aug	0539	0539	0545		SF	N11E61	2671
16 Aug	0627	0632	0635	B2.4			2671
16 Aug	0740	0755	0758		SF	N12E60	2671
16 Aug	0803	0809	0818		SF	N12E60	2671
16 Aug	0829	0838	0840	B5.2	SF	N13E54	2671
16 Aug	0939	0940	0945		SF	N12E59	2671
16 Aug	0948	0948	0950		SF	N12E59	2671
16 Aug	1011	1015	1021	B3.6	SF	N12E59	2671
16 Aug	1040	1040	1045		SF	N13E51	2671
16 Aug	1106	1111	1116	B4.4			
16 Aug	1133	1138	1145	B3.5	SF	N12E58	2671
16 Aug	1645	1646	1648		SF	N13E49	2671
16 Aug	1713	1717	1719	B3.2			
16 Aug	1945	1948	1954	B2.4			
16 Aug	2109	2113	2116		SF	N12E56	2671
16 Aug	2149	2155	2159	B2.5			
16 Aug	2251	2256	2305	B2.1			

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
16 Aug	2359	0003	0008	B1.9	SF	N10E52	2671
17 Aug	0031	0035	0041	B2.0	SF	N11E53	2671
17 Aug	0050	0102	0111	B2.5	SF	N11E53	2671
17 Aug	0230	0238	0239	B6.8	SF	N12E46	2671
17 Aug	0616	0619	0621	B1.6			2671
17 Aug	0851	0855	0858		SF	N09E43	2671
17 Aug	1127	1140	1146	B2.9	SF	N13E49	2671
17 Aug	1149	1150	1158		SF	N13E49	2671
17 Aug	1204	1209	1216		SF	N12E49	2671
17 Aug	1353	1401	1426		SF	N12E48	2671
17 Aug	1435	1439	1441	B1.3			
17 Aug	1613	1616	1618	B1.2			
17 Aug	1938	1938	1943		SF	N09E38	2671
18 Aug	0042	0059	0107	B1.8			2671
18 Aug	0230	0237	0246	B2.4			2671
18 Aug	0538	0544	0548	B2.2			2671
18 Aug	0849	0852	0854	B9.5	SF	N12E49	2671
18 Aug	1025	1025	1028		SF	N12E49	2671
18 Aug	1256	1300	1304	B3.0			2671
18 Aug	1344	1351	1402	B8.1	SF	N12E49	2671
18 Aug	1949	2002	2033	C4.4			2672
18 Aug	2101	2104	2110	C2.9	1N	N11E20	2671
19 Aug	0117	0118	0122		SF	N10E17	2671
19 Aug	0128	0137	0150	C3.5			2672
19 Aug	0410	0451	0515	C3.1			2672
19 Aug	0632	0638	0649		SF	N12E19	2671
19 Aug	0859	0906	0912	C1.1			2671
19 Aug	1055	1105	1113	C1.7			2672
19 Aug	1204	1218	1246	C1.0	SF	N12E09	2671
19 Aug	1236	1239	1244		SF	N11E11	2671
19 Aug	1440	1445	1448	B7.2			2672
19 Aug	1448	1457	1501	C2.0			2672
19 Aug	1541	1547	1554	C1.4			2672
19 Aug	1710	1813	1829	B9.9			2671
19 Aug	1948	1952	1957	C1.3			2672
19 Aug	2054	2155	2205	C7.0	SF	N10E17	2671
20 Aug	0136	0152	0203	M1.1			2672
20 Aug	0422	0440	0453	C1.8	SF	N11E11	2671

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
20 Aug	0623	0627	0631	B6.6			2672
20 Aug	0745	0750	0754	C2.9	SN	N10E02	2671
20 Aug	1022	1034	1035		SF	N09E00	2671
20 Aug	1215	1215	1217		SF	N05E84	2672
20 Aug	1216	1221	1226	B6.1			2671
20 Aug	1219	1220	1226		SF	N05E84	2672
20 Aug	1220	1221	1223		SF	N11W01	2671
20 Aug	1440	1445	1452	C1.0			2672
20 Aug	1920	1939	1949	C9.4			2672
20 Aug	2303	2309	2313		SF	N11W00	2671

Region Summary

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			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								
07 Aug	S06W09	121	140	2	Hsx	1	A								
08 Aug	S05W21	120	140	2	Hsx	1	A								
09 Aug	S06W33	119	130	2	Hsx	1	A								
10 Aug	S07W47	119	110	2	Hsx	1	A								
11 Aug	S07W59	118	110	2	Hsx	1	A								
12 Aug	S07W72	117	100	2	Hsx	1	A								
13 Aug	S07W85	117	110	1	Hsx	1	A								
								0	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 120

			Region 2671												
14 Aug	N11E73	306	70	4	Hax	2	A	3			8	1			
15 Aug	N10E61	305	170	11	Eai	11	B	2			25				
16 Aug	N11E49	304	380	15	Ehc	20	BGD				12				
17 Aug	N11E34	306	280	16	Fkc	20	BG				10				
18 Aug	N11E22	305	410	18	Fkc	31	BG	1			3	1			
19 Aug	N12E08	305	360	19	Fkc	23	BG	3			5				
20 Aug	N12W06	306	410	20	Fkc	20	BG	2			5				
								11	0	0	68	2	0	0	0

Still on Disk.
Absolute heliographic longitude: 306

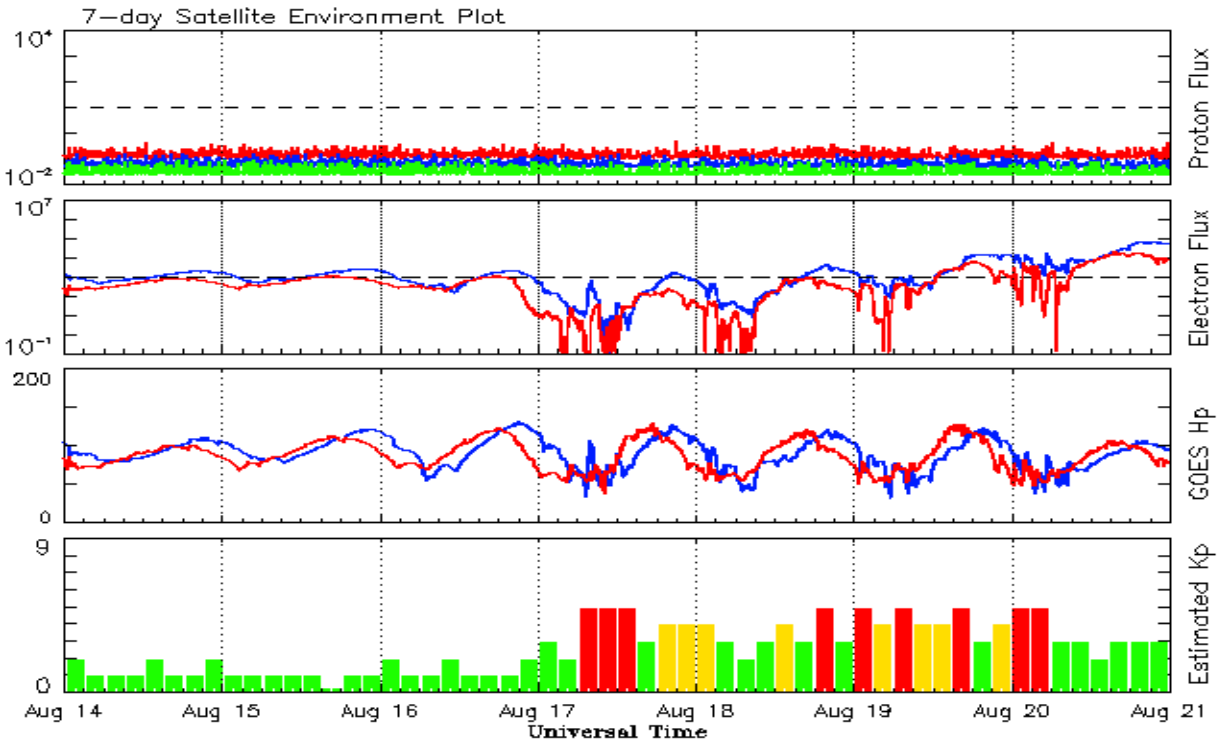
			Region 2672												
18 Aug	N05E0*	225	plage					1							
19 Aug	N05E90	225	plage					6							
20 Aug	N05E75	225	120	5	Dao	4	B	2	1		2				
								9	1	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 225

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	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 14 August 2017

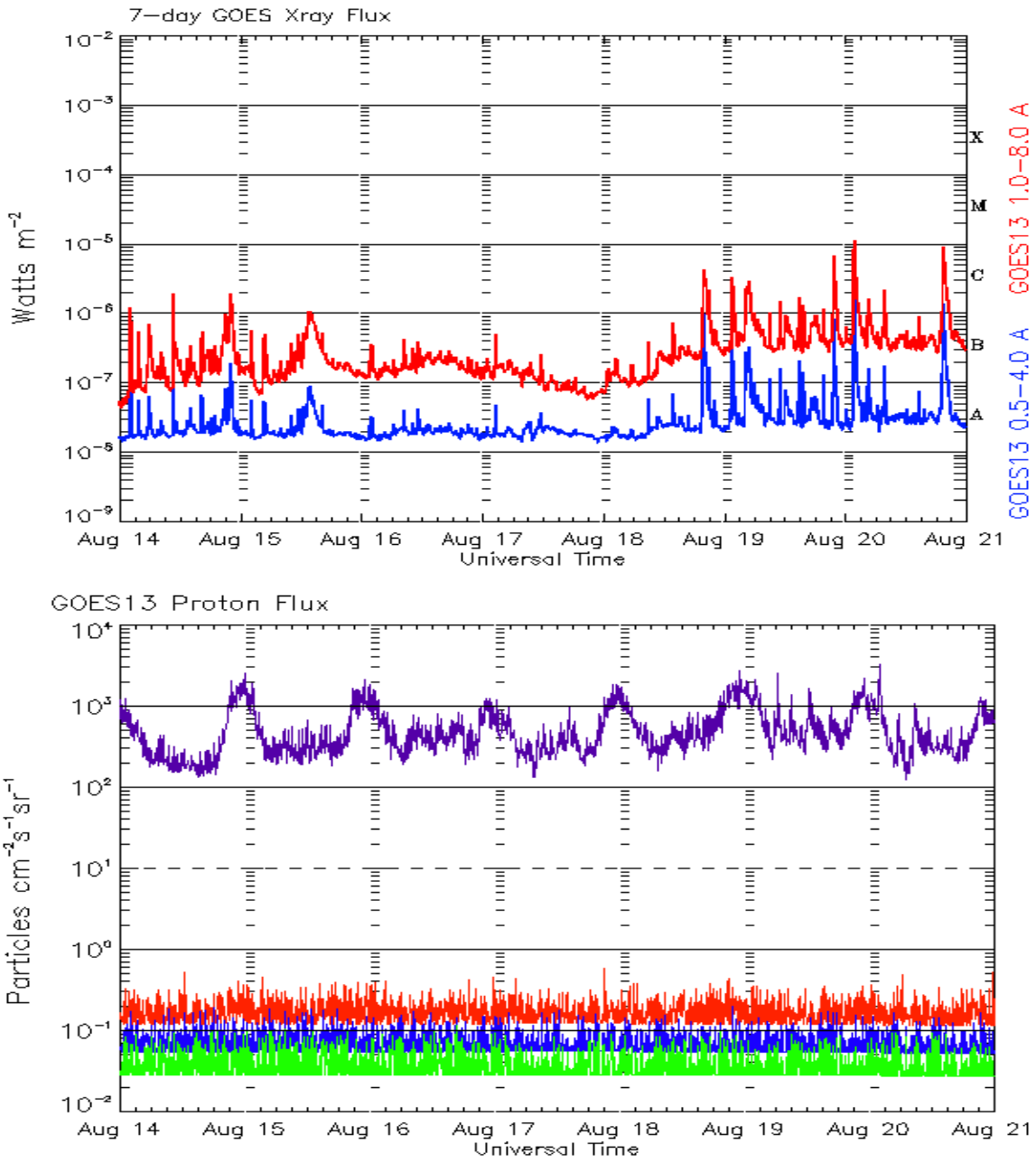
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-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 14 August 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.

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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

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http://spaceweather.gov/SolarCycle/ -- Solar Cycle Progression web site

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