Space Weather Highlights **SWPC PRF 2194**
11 September - 17 September 2017 **18 September 2017**

Solar activity was at predominately very low levels through the summary period, interupted by a brief period of low activity on 12 Sep as Region 2680 (N09, L=317, class/area Hsx/140 on 12 Sep) produced a pair of impulsive C-class flares. 11 Sep saw the X-ray background elevated at the C-level due to slow decay from the X8 flare (R3-Strong) observed at 10/1606 UTC. No Earth-directed CMEs were detected during the period.

Of note, two halo CMEs were observed on 17 Sep. The first one, a full-halo CME, was first observed in LASCO C2 imagery at 17/1224 UTC, while the second one was a partial-halo CME, first observed in LASCO C2 imagery at 17/1424 UTC. The source region of both CMEs was determined to be from old active Region 2673 (S09, L=119) which is presently on the back side of the solar disk. Old Region 2673 is due to return on 23 Sep.

10 MeV and 100 MeV protons at geosynchronous orbit exceeded their respective event thresholds during the period, both in response to the X8 flare observed on 10 Sep. At 10/1645 UTC, 10 MeV protons exceeded 10 pfu (S1-Minor), reached a maximum of 1,490 pfu (S3-Strong) and decayed below the S1 level at 14/1725 UTC. The 100 MeV proton flux exceeded the 1 pfu level at 10/1625 UTC, reached a maximum of 68 pfu at 10/2215 UTC and ended at 13/0335 UTC.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate levels on 13-14 Sep and high levels on 11-12 and 15-17 Sep. A maximum of 46,263 pfu was observed at 17/1610 UTC.

Geomagnetic field activity was a quiet to minor storm levels (G1-Minor) and major storm levels (G2-Moderate) during the summary period. Quiet to unsettled levels were observed on 11 Sep through late on 12 Sep due to waning effects from a negative polarity CH HSS. Late on 12 Sep through midday on 13 Sep, field activity increased to active to minor storm levels (G1-Minor) in response to CME effects from the 10 Sep X8 flare. During this timeframe, total field peaked at 16 nT, the Bz component reached a maximum southward extent of -12 nT and solar wind speed peaked at about 650 km/s. Quiet levels were observed for the remainder of 13 Sep through midday on 14 Sep.

From midday on 14 Sep through 17 Sep, field activity was dominated by effects from a recurrent, positive polarity CH HSS. Unsettled to G1-Minor and G2-Moderate levels were observed through 16 Sep with quiet to active levels present on 17 Sep. During this timeframe, total field peaked at near 22 nT, the Bz component reached a maximum southward extent of -18 nT and solar wind speed peaked at about 775 km/s.

Space Weather Outlook
18 September - 14 October 2017

Solar activity is expected to be at predominately very low levels on 18-22 Sep and 08-14 Oct. R1-R2 (Minor-Moderate) levels are expected on 23 Sep-07 Oct due to the return of old Region 2673 (S09, L=119).

The greater than 10 MeV protons at geosynchronous orbit are expected to remain at background levels from 18-22 Sep and 08-14 Oct. A chance for an S1-S2 (Minor-Moderate) proton event is possible from 23 Sep-07 Oct in association with significant flare activity after the return of old Region 2673.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 18-22 Sep, 28 Sep-19 Oct and 12-14 Oct due to CH HSS influence. Normal to moderate levels are expected for the remainder of the outlook period.

Geomagnetic field activity is expected to be at unsettled to active levels on 18-20 Sep, 24-25 Sep and 30 Sep-02 Oct with G1 (Minor) storm conditions possible on 27-29 Sep and 11-14 Oct due to recurrent CH HSS activity. Mostly quiet conditions are expected for 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
11 September	80	23	110	B2.6	0	0	0	0	0	0	0	0
12 September	76	11	140	A8.3	2	0	0	6	0	0	0	0
13 September	75	11	120	A1.6	0	0	0	1	0	0	0	0
14 September	74	11	120	A0.0	0	0	0	0	0	0	0	0
15 September	73	13	80	A1.4	0	0	0	0	0	0	0	0
16 September	72	13	90	A0.0	0	0	0	0	0	0	0	0
17 September	72	13	80	A0.0	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
11 September		6.5e+08	9.4e+07	2.5e+06	1.7e+08	
12 September		1.9e+08	2.8e+07	3.2e+05	2.0e+08	
13 September		4.4e+07	7.0e+06	4.6e+04	1.3e+07	
14 September		2.9e+07	3.2e+06	1.3e+04	1.8e+07	
15 September		2.2e+07	2.3e+05	4.4e+03	5.4e+08	
16 September		1.5e+07	6.6e+04	3.8e+03	4.8e+08	
17 September		6.7e+06	3.1e+04	3.4e+03	9.2e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
11 September	8	3-2-2-1-3-1-2-2	19	4-3-4-4-4-3-2-2	11	3-3-2-2-3-2-3-3
12 September	16	3-2-3-3-2-2-3-5	25	4-2-3-5-5-4-3-3	18	3-2-3-2-3-2-4-5
13 September	13	5-3-3-2-2-2-1-1	30	4-4-7-4-3-1-0-0	15	5-3-4-2-2-2-1-0
14 September	19	2-2-1-2-3-5-5-3	38	2-1-2-5-6-6-4-5	25	2-2-1-2-4-6-5-4
15 September	30	6-4-4-3-4-2-4-4	51	3-5-5-6-6-6-4-4	36	6-4-5-3-4-3-5-5
16 September	23	5-5-2-3-3-3-2-4	52	5-6-5-6-6-5-3-3	30	5-6-3-3-4-4-3-4
17 September	13	4-3-2-2-3-3-2-2	39	4-3-2-6-6-6-3-2	18	3-4-2-3-4-4-2-2

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
11 Sep 0110	ALERT: Geomagnetic K = 4	10/2359
11 Sep 0521	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1935
11 Sep 1147	WATCH: Geomagnetic Storm Category G2 predicted	
11 Sep 1921	WATCH: Geomagnetic Storm Category G2 predicted	
11 Sep 1940	EXTENDED WARNING: Proton 100MeV Integral Flux > 1pfu	10/1630 - 12/2359
11 Sep 1941	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	10/1630 - 12/2359
12 Sep 0826	ALERT: Type II Radio Emission	12/0729
12 Sep 0826	SUMMARY: 10cm Radio Burst	12/0726 - 0728
12 Sep 1016	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1935
12 Sep 1943	WARNING: Geomagnetic K = 4	12/1942 - 13/0300
12 Sep 1949	ALERT: Type II Radio Emission	12/1912
12 Sep 2032	EXTENDED WARNING: Geomagnetic K = 4	12/1942 - 13/1200
12 Sep 2033	WARNING: Geomagnetic K = 5	12/2031 - 13/0300
12 Sep 2048	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	10/1630 - 13/2359
12 Sep 2049	EXTENDED WARNING: Proton 100MeV Integral Flux > 1pfu	10/1630 - 13/1200
12 Sep 2057	WATCH: Geomagnetic Storm Category G2 predicted	
12 Sep 2112	ALERT: Geomagnetic K = 4	12/2059
12 Sep 2340	ALERT: Geomagnetic K = 5	12/2340
13 Sep 0043	ALERT: Geomagnetic K = 5	12/0040
13 Sep 0107	EXTENDED WARNING: Geomagnetic K = 5	12/2031 - 13/0900
13 Sep 0107	WARNING: Geomagnetic K = 6	13/0105 - 0600
13 Sep 1145	EXTENDED WARNING: Proton 100MeV Integral Flux > 1pfu	10/1630 - 13/2359
13 Sep 1810	SUMMARY: Proton Event 10MeV Integral Flux >= 100pfu	10/1705 - 12/2135
13 Sep 2211	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	10/1630 - 14/2359

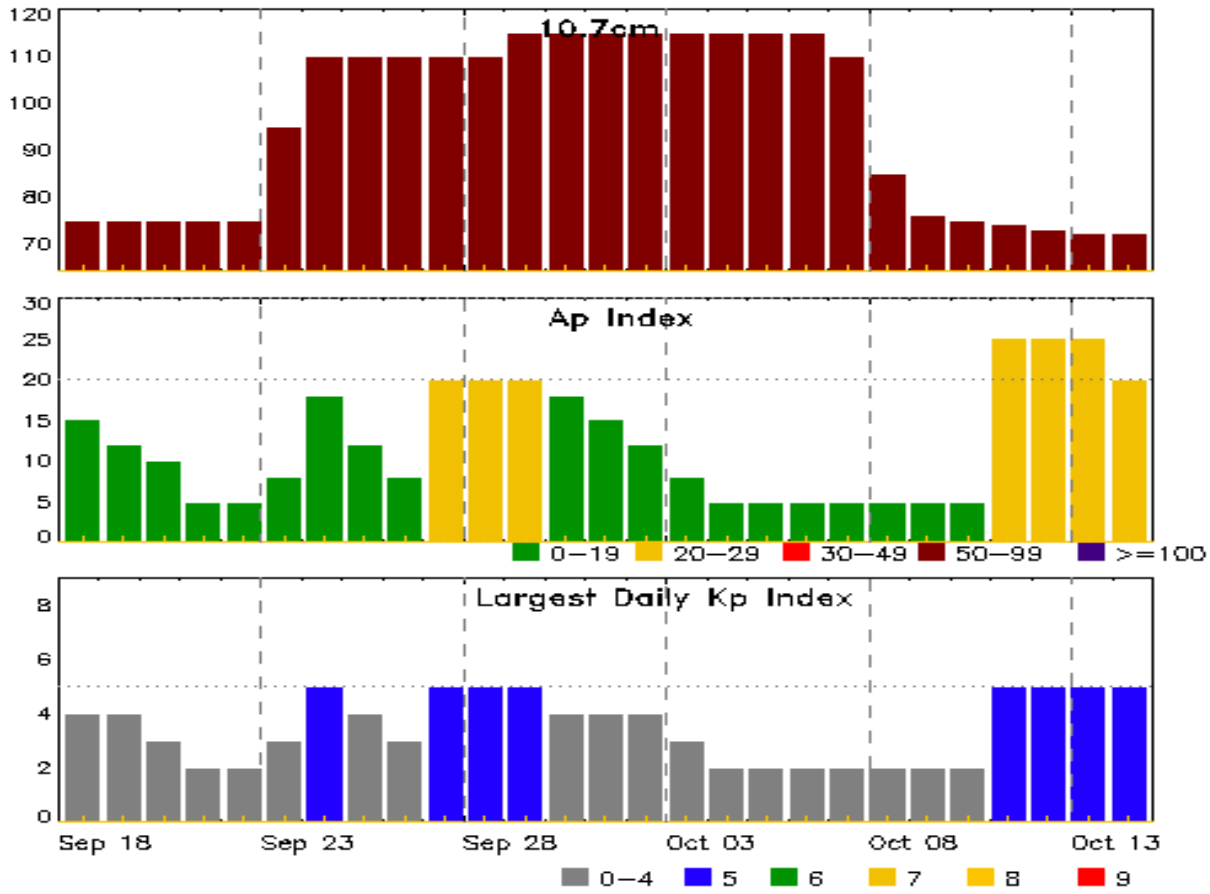
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
14 Sep 0002	SUMMARY: Proton Event 100MeV Integral Flux > 1pfu	10/1625 - 11/2205
14 Sep 1311	WARNING: Geomagnetic K = 4	14/1310 - 15/0600
14 Sep 1442	WARNING: Geomagnetic K = 5	14/1445 - 2100
14 Sep 1503	ALERT: Geomagnetic K = 4	14/1459
14 Sep 1546	ALERT: Geomagnetic K = 5	14/1543
14 Sep 1553	WARNING: Geomagnetic K = 6	14/1555 - 2100
14 Sep 1802	ALERT: Geomagnetic K = 6	14/1759
14 Sep 2023	EXTENDED WARNING: Geomagnetic K = 5	14/1445 - 15/0300
14 Sep 2033	ALERT: Geomagnetic K = 5	14/2032
14 Sep 2057	EXTENDED WARNING: Geomagnetic K = 6	14/1555 - 15/0300
15 Sep 0042	ALERT: Geomagnetic K = 5	15/0036
15 Sep 0244	ALERT: Geomagnetic K = 6	15/0240
15 Sep 0244	EXTENDED WARNING: Geomagnetic K = 6	14/1555 - 15/0900
15 Sep 0244	EXTENDED WARNING: Geomagnetic K = 4	14/1310 - 15/1200
15 Sep 0244	EXTENDED WARNING: Geomagnetic K = 5	14/1445 - 15/0900
15 Sep 0244	SUMMARY: Proton Event 10MeV Integral Flux >= 10pfu	10/1645 - 15/1725
15 Sep 0846	ALERT: Electron 2MeV Integral Flux >= 1000pfu	15/0830
15 Sep 0848	EXTENDED WARNING: Geomagnetic K = 4	14/1310 - 15/1800
15 Sep 0848	EXTENDED WARNING: Geomagnetic K = 5	14/1445 - 15/1500
15 Sep 0901	ALERT: Geomagnetic K = 5	15/0859
15 Sep 1450	EXTENDED WARNING: Geomagnetic K = 4	14/1310 - 16/0600
15 Sep 1450	EXTENDED WARNING: Geomagnetic K = 5	14/1445 - 15/2359
15 Sep 1927	ALERT: Geomagnetic K = 5	15/1926
15 Sep 2124	WATCH: Geomagnetic Storm Category G1 predicted	
15 Sep 2321	EXTENDED WARNING: Geomagnetic K = 4	14/1310 - 16/2359
15 Sep 2321	EXTENDED WARNING: Geomagnetic K = 5	14/1445 - 16/0900
15 Sep 2344	ALERT: Geomagnetic K = 5	15/2342
16 Sep 0233	ALERT: Geomagnetic K = 5	16/0231
16 Sep 0457	ALERT: Geomagnetic K = 5	16/0455

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
16 Sep 0508	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	15/0830
16 Sep 0533	WARNING: Geomagnetic K = 6	16/0532 - 0900
16 Sep 0533	ALERT: Geomagnetic K = 6	16/0533
16 Sep 0837	EXTENDED WARNING: Geomagnetic K = 5	14/1445 - 16/1500
16 Sep 1458	EXTENDED WARNING: Geomagnetic K = 5	14/1445 - 17/0900
16 Sep 1517	EXTENDED WARNING: Geomagnetic K = 4	14/1310 - 17/1200
17 Sep 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	15/0830
17 Sep 1147	EXTENDED WARNING: Geomagnetic K = 4	14/1310 - 17/2359
17 Sep 2343	EXTENDED WARNING: Geomagnetic K = 4	14/1310 - 18/0600

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
18 Sep	75	15	4	02 Oct	115	12	4
19	75	12	4	03	115	8	3
20	75	10	3	04	115	5	2
21	75	5	2	05	115	5	2
22	75	5	2	06	115	5	2
23	95	8	3	07	110	5	2
24	110	18	5	08	85	5	2
25	110	12	4	09	76	5	2
26	110	8	3	10	75	5	2
27	110	20	5	11	74	25	5
28	110	20	5	12	73	25	5
29	115	20	5	13	72	25	5
30	115	18	4	14	72	20	5
01 Oct	115	15	4				

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

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
11 Sep	0943	1010	1017	B9.8			2673
12 Sep	0722	0729	0734	C3.0	SF	N08E48	2680
12 Sep	0742	0742	0748		SF	N07E48	2680
12 Sep	1357	1401	1408	B3.4	SF	N18W43	2677
12 Sep	1528	1535	1539	B3.5	SF	N11E44	2680
12 Sep	1554	1559	1606	B1.7	SF	N09E43	2680
12 Sep	1903	1920	1928	C1.6	SF	N10E41	2680
13 Sep	0538	0541	0551	B1.1			2680
13 Sep	0739	0748	0809	B1.4			2680
13 Sep	1647	1647	1655		SF	N09E29	2680

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 2673												
29 Aug	S08E62	119	70	1	Hsx	1	A								
30 Aug	S08E48	120	70	1	Hsx	1	A								
31 Aug	S08E36	119	80	2	Hsx	1	A								
01 Sep	S08E23	119	80	2	Hsx	1	A								
02 Sep	S10E09	119	60	4	Cso	4	B								
03 Sep	S10W02	117	130	7	Dsc	12	BG	1			11				
04 Sep	S08W16	119	680	7	Dkc	28	BGD	7	7		15	4		1	
05 Sep	S09W30	119	880	9	Dkc	33	BGD	7	5		16	2			
06 Sep	S09W45	120	960	11	Ekc	24	BGD	2	2	2	8	1	1	1	
07 Sep	S09W58	120	1000	11	Ekc	21	BGD	7	4	1	8	3	1		
08 Sep	S09W70	119	1060	10	Dkc	19	BGD	16	5		11	2	2		
09 Sep	S09W83	119	530	10	Dkc	8	BGD	10	3		13	1			
10 Sep	S09W96	119	plage					4		1	2				
								54	26	4	84	13	4	2	0

Crossed West Limb.
Absolute heliographic longitude: 117

			Region 2674												
29 Aug	N11E70	111	260	4	Dko	1	B	3			8				
30 Aug	N14E64	104	490	13	Eko	5	B	3			12	1			
31 Aug	N13E53	102	770	14	Eho	10	B				2				
01 Sep	N13E38	104	770	16	Fhi	15	BG	3			7				
02 Sep	N14E25	103	810	16	Fhc	18	BG	2			9				
03 Sep	N14E12	103	930	17	Fhc	21	B	1			5				
04 Sep	N14W01	104	740	18	Fhi	34	B	1							
05 Sep	N14W14	103	680	19	Fhi	23	B								
06 Sep	N14W28	104	680	19	Fki	10	B								
07 Sep	N14W41	103	600	20	Fko	13	B				2				
08 Sep	N13W54	103	650	18	Fko	9	B				1				
09 Sep	N13W67	103	560	18	Fko	7	B				1				
10 Sep	N13W80	103	300	18	Fko	4	B								
11 Sep	N16W91	101	30	1	Hrx	2	A								
								13	0	0	47	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 104

Region Summary - continued

	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 2677												
03 Sep	N19E64	51	10	1	Axx	2	A								
04 Sep	N19E51	52	10	1	Axx	2	A				1				
05 Sep	N18E39	50	20	1	Axx	1	A								
06 Sep	N18E25	51	10	1	Axx	1	A								
07 Sep	N17E12	50	10	2	Bxo	3	B	1			1				
08 Sep	N17W02	51	10	3	Axx	3	A								
09 Sep	N17W15	51	plage												
10 Sep	N17W28	51	plage												
11 Sep	N17W41	51	plage												
12 Sep	N17W55	51	plage								1				
13 Sep	N17W69	52	plage												
14 Sep	N17W83	53	plage												
								1	0	0	3	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 51

			Region 2678												
05 Sep	N11E45	44	10	4	Bxo	2	B								
06 Sep	N11E31	45	40	4	Cso	4	B								
07 Sep	N11E18	44	40	4	Hax	3	A								
08 Sep	N11E05	44	30	5	Cro	5	B								
09 Sep	N11W07	43	20	5	Cro	4	B								
10 Sep	N11W22	45	20	3	Cro	3	B								
11 Sep	N11W35	45	plage												
12 Sep	N11W49	45	plage												
13 Sep	N11W63	46	plage												
14 Sep	N11W77	47	plage												
								0	0	0	0	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 44

			Region 2679												
07 Sep	N14W27	89	10	3	Bxo	4	B								
08 Sep	N15W41	90	10	3	Bxo	3	B								
09 Sep	N15W54	90	plage												
10 Sep	N16W71	93	plage												
11 Sep	N16W84	94	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 89

Region Summary - continued

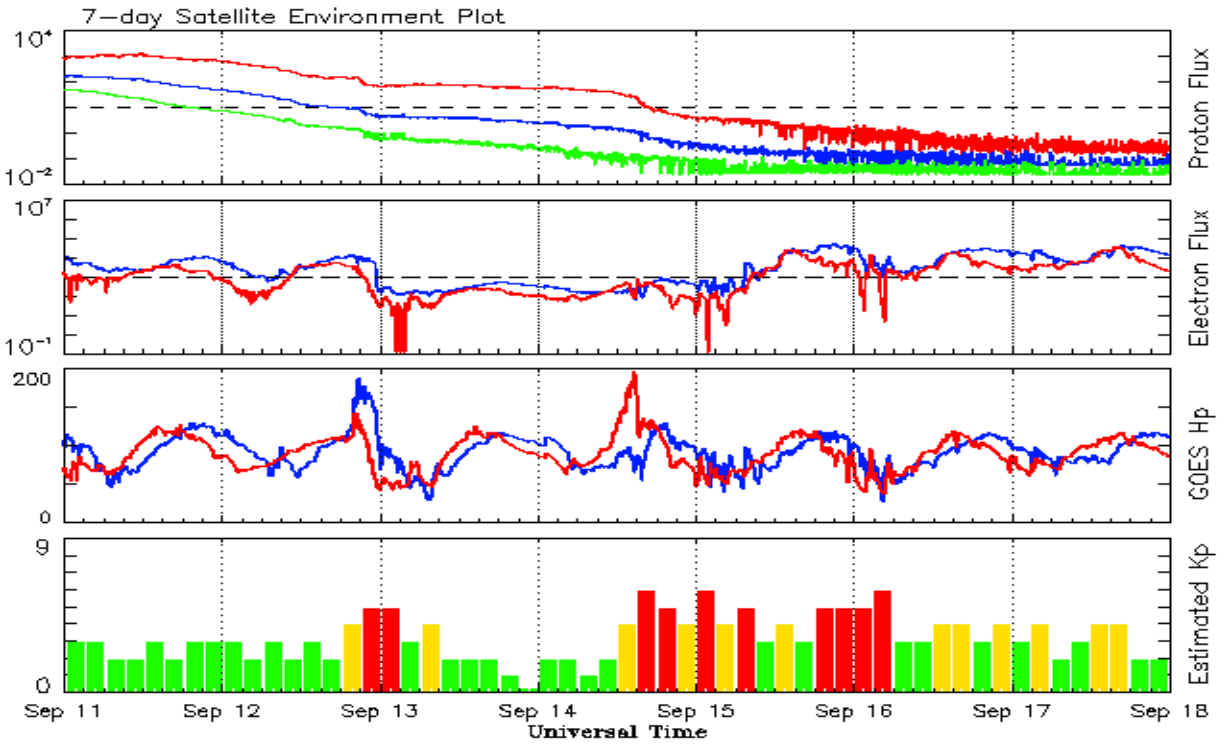
	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 2680													
10 Sep	N09E66	317	100	2	Hsx	1	A								
11 Sep	N09E53	317	80	2	Hsx	1	A								
12 Sep	N09E39	317	140	2	Hsx	1	A	2			5				
13 Sep	N09E26	317	120	2	Hsx	1	A				1				
14 Sep	N08E13	317	120	2	Hsx	1	A								
15 Sep	N08W00	317	80	2	Hsx	3	A								
16 Sep	N08W13	317	90	3	Hsx	3	A								
17 Sep	N08W27	317	80	2	Hax	3	A								
								2	0	0	6	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 317

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					
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	25.5	16.0	76.9	78.7	10	11.3
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	
August	25.0	19.9	0.80			77.9		12	

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 11 September 2017

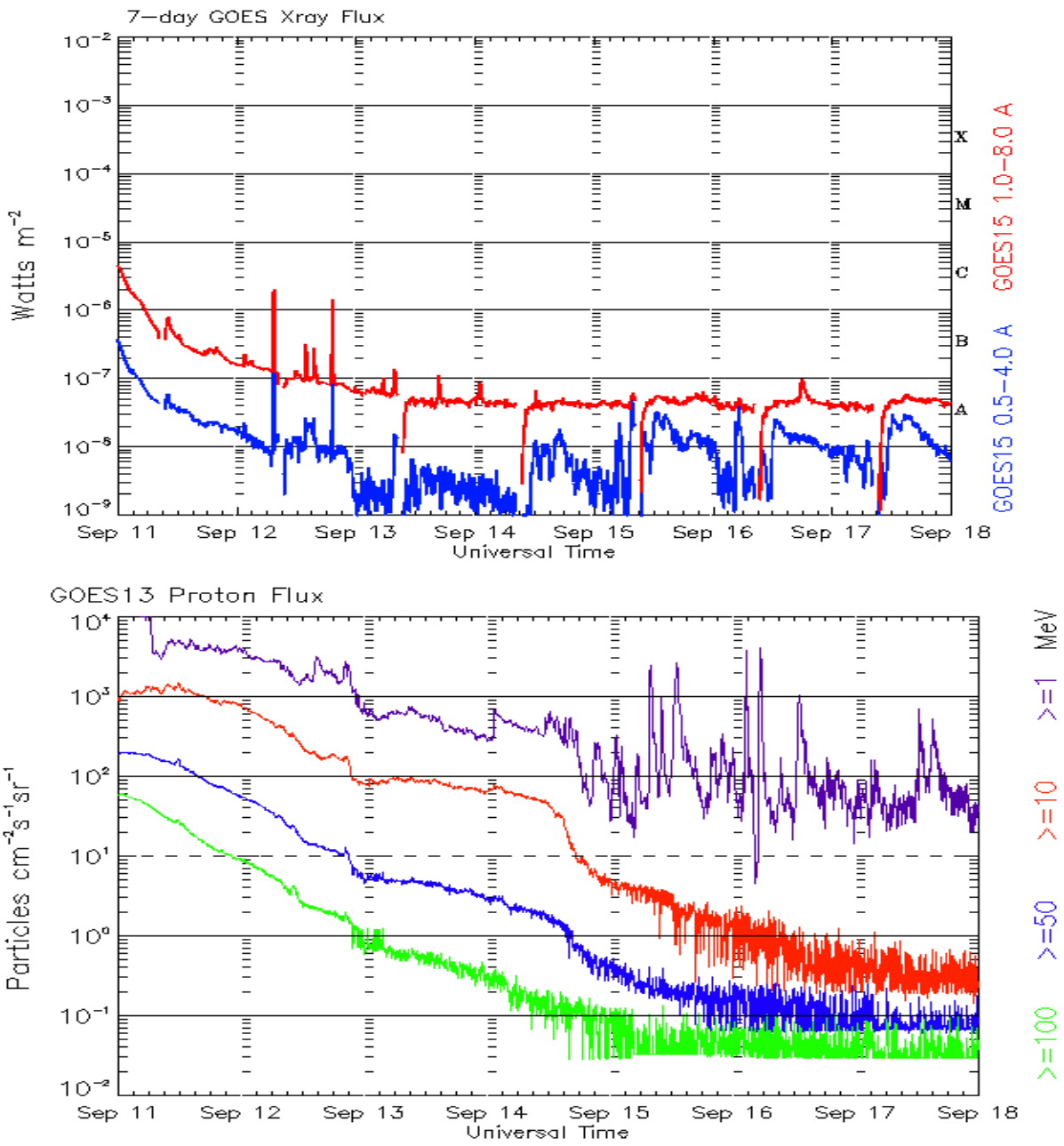
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 11 September 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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