Space Weather Highlights
23 August - 29 August 2021

SWPC PRF 2400
30 August 2021

Solar activity was at moderate levels. An approximate 40 degree eruptive filament was observed on 23 Aug with an associated CME first visible in C2 LASCO imagery at 23/0648 UTC. Region 2859 (N16, L=11, class/area Dso/50 on 26 Aug) produced a C3.0 flare on 26/1818 UTC. A partial HALO CME associated with this event was observed in LASCO C2 imagery beginning at 26/1900 UTC. This event was modeled and expected to impact Earth on 30 Aug. Region 2860 (S29, L=01, class/area Eki/340 on 28 Aug) produced an M4.7 flare at 28/0611 UTC along with numerous C-class events. The M4 event was accompanied by a 1 Normal optical flare and Type II radio emission (276 km/s). A partial HALO CME was observed in coronagraph imagery in association with this event beginning near 28/0648 UTC. This event was modeled with an arrival on 01 Sep.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 28-29 Aug most likely due to influences from a CME from 23 Aug. Normal to moderate levels were observed for the remainder of the highlight period.

Geomagnetic field activity reached G1-Minor storm levels on 28 Aug, and active levels on 27 Aug most likely due to influences from the 23 Aug CME. Total field reached 16 nT and Bz was at a negative 10-15 nT for several hours after CME arrival. The rest of the highlight period was at quiet to unsettled levels with a nominal solar wind.

Space Weather Outlook
30 August - 25 September 2021

Solar activity is expected to be at moderate levels from 30 Aug - 03 Sep with Region 2860 rotating off the visible disk on 04 Sep. Moderate levels are also likely on 16-25 Sep as Region 2860 rotates back onto the visible disk. Very low levels are expected on 04-15 Sep.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels on 30 Aug - 05 Sep due to CME influences. Normal to moderate levels are expected on 06-25 Sep.

Geomagnetic field activity is expected to be at G1-Minor storm levels on 30 Aug and 01 Sep due to influences from the CMEs from 26 and 28 Aug, respectively. Unsettled to active levels are expected on 02-03 Sep, 11-12 Sep, and 21 Sep all due to recurrent CH HSS influences. Quiet to unsettled levels 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
23 August	78	14	160	A8.1	0	0	0	0	0	0	0	0
24 August	81	29	260	A7.1	1	0	0	4	0	0	0	0
25 August	84	29	240	B1.2	1	0	0	0	0	0	0	0
26 August	89	47	210	B1.3	3	0	0	5	1	0	0	0
27 August	90	73	440	B1.6	4	0	0	6	1	0	0	0
28 August	90	77	400	B3.7	7	1	0	11	1	0	0	0
29 August	89	44	330	B1.7	3	0	0	3	1	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	>2MeV
23 August	6.8e+04	4.9e+04	1.3e+06
24 August	7.0e+04	4.7e+04	1.2e+06
25 August	5.8e+04	4.6e+04	1.3e+06
26 August	5.3e+04	4.5e+04	1.3e+06
27 August	2.5e+05	4.5e+04	1.8e+06
28 August	1.6e+05	4.6e+04	2.8e+08
29 August	1.1e+05	4.6e+04	3.5e+08

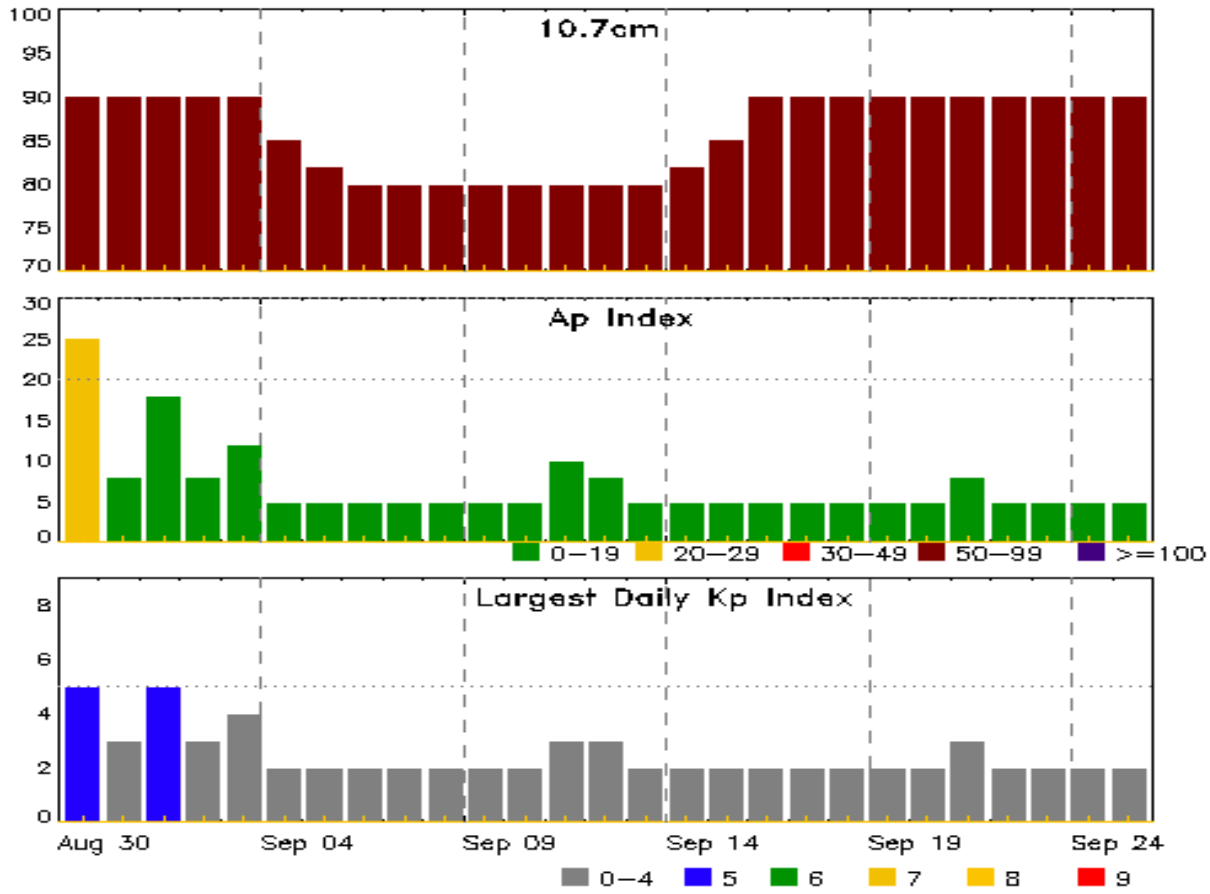
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
23 August	8	0-1-1-1-2-2-3-4	1	0-1-1-0-0-0-0-0	4	0-1-1-1-1-1-1-2
24 August	5	0-1-1-2-2-2-2-2	6	1-1-1-4-2-0-1-1	5	0-1-1-2-1-1-2-2
25 August	8	2-3-3-2-2-2-1-1	19	2-4-4-5-4-2-1-1	9	2-3-3-2-2-2-1-1
26 August	6	2-2-2-2-2-1-2-0	9	1-1-2-5-2-0-1-1	6	2-2-2-2-1-1-1-1
27 August	19	3-1-3-0-5-2-3-4	41	2-0-3-0-6-6-6-4	20	3-1-3-*-4-4-4-4
28 August	17	5-3-4-3-3-2-1-1	17	3-3-4-5-3-3-0-0	14	5-3-4-3-2-2-1-1
29 August	9	2-2-1-2-2-2-3-3	5	1-2-1-1-1-2-2-1	9	2-2-1-1-1-2-3-3

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
27 Aug 0012	ALERT: Type II Radio Emission	26/2329
27 Aug 1614	WARNING: Geomagnetic K = 4	27/1615 - 28/0600
27 Aug 1753	WARNING: Geomagnetic K = 5	27/1800 - 28/0300
27 Aug 1754	ALERT: Geomagnetic K = 4	27/1750
27 Aug 2103	WATCH: Geomagnetic Storm Category G1 predicted	
28 Aug 0216	ALERT: Electron 2MeV Integral Flux >= 1000pfu	28/0205
28 Aug 0226	EXTENDED WARNING: Geomagnetic K = 4	27/1615 - 28/1200
28 Aug 0227	ALERT: Geomagnetic K = 5	28/0216
28 Aug 0228	EXTENDED WARNING: Geomagnetic K = 5	27/1800 - 28/0900
28 Aug 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	28/0205
28 Aug 0611	ALERT: Type II Radio Emission	28/0509
28 Aug 0633	ALERT: Type II Radio Emission	28/0604
28 Aug 0643	ALERT: Type IV Radio Emission	28/0615
29 Aug 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	28/0205

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
30 Aug	90	25	5	13 Sep	80	5	2
31	90	8	3	14	82	5	2
01 Sep	90	18	5	15	85	5	2
02	90	8	3	16	90	5	2
03	90	12	4	17	90	5	2
04	85	5	2	18	90	5	2
05	82	5	2	19	90	5	2
06	80	5	2	20	90	5	2
07	80	5	2	21	90	8	3
08	80	5	2	22	90	5	2
09	80	5	2	23	90	5	2
10	80	5	2	24	90	5	2
11	80	10	3	25	90	5	2
12	80	8	3				

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
28 Aug	0539	0611	0623	M4.7	0.054	1N	S28W01	2860	340	60	1	1

Flare List

	Time				Optical			
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
23 Aug	0052	0055	0059	B1.4			
23 Aug	0103	0113	0124	B2.1			
23 Aug	1526	1533	1537	B1.5			
23 Aug	1612	1620	1629	B1.3			
23 Aug	1821	1828	1834	B1.3			
23 Aug	2041	2047	2051	B1.2			
24 Aug	0401	0408	0412	B1.2			2859
24 Aug	1152	1200	1203	B1.9			2859
24 Aug	B1218	U1218	1225		SF	N19E38	2859
24 Aug	1236	1245	1255		SF	N20E38	2859
24 Aug	1335	1345	1349	B3.2			2859
24 Aug	1429	1450	1504		SF	N19E43	2859
24 Aug	1433	1433	1444	C1.5	SF	N19E42	2859
24 Aug	1941	1944	1948	B2.3			2859
24 Aug	2201	2207	2211	B2.3			2860
24 Aug	2222	2227	2232	B2.4			2859
25 Aug	0116	0124	0137	C1.1			2860
25 Aug	1535	1542	1548	B3.0			2860
25 Aug	1557	1602	1607	B4.0			2860
25 Aug	2117	2124	2128	B1.7			2860
25 Aug	2310	2317	2321	B2.1			2859
25 Aug	2339	2345	2354	B2.3			2860
26 Aug	0522	0532	0544	B6.3	SF	N21E21	2859
26 Aug	0935	0941	0946	B2.6			2861
26 Aug	1041	1051	1100	B7.2			2861
26 Aug	1216	1223	1228	B3.7			2860
26 Aug	1328	U1329	A1339		SF	N15E60	
26 Aug	1347	1403	1408	B5.5			2860
26 Aug	1728	1737	1746	B2.6			2859
26 Aug	1748	1818	1842	C3.0	1F	N20E14	2859

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
26 Aug	1857	1901	1905	C1.3	SF	S28E23	2860
26 Aug	2003	2012	2017	B7.5			2861
26 Aug	2122	2134	2151	B4.4	SF	S28E17	2860
26 Aug	2240	2250	2256	B7.3			2859
26 Aug	2317	2322	2326	C3.9	SN	S31E23	2860
26 Aug	2340	2343	2347	B3.6			2860
27 Aug	0145	0151	0155	B3.3			2860
27 Aug	0603	0615	0621	B9.3	SF	S26E12	2860
27 Aug	0710	0716	0722	B3.6			2860
27 Aug	1211	1217	1229	B2.5	SF	S28E06	2860
27 Aug	B1311	1311	1349		SF	S25E06	2860
27 Aug	1322	1322	1332		SF	S27W65	2862
27 Aug	1504	1515	1524	C1.1	SF	S28W67	2862
27 Aug	1606	1616	1620	B4.8			2862
27 Aug	1708	1718	1728	B7.8			2862
27 Aug	1801	1808	1813	B4.4			2862
27 Aug	1822	1830	1849	B4.6			2862
27 Aug	2014	2021	2025	C1.7			
27 Aug	2032	2109	2143	C7.3	1F	S27E04	2860
27 Aug	2322	2324	2351		SF	S26E04	2860
27 Aug	2355	0000	0005	C1.2			
28 Aug	0041	0045	0049	B5.9			
28 Aug	0059	0108	0117	B5.9			
28 Aug	0126	0126	0128		SF	S29E05	2860
28 Aug	0226	0247	0303	C1.0	SF	S26E02	2860
28 Aug	0401	0409	0419	C1.1			
28 Aug	0501	0505	0509	C7.0	SN	S31E07	2860
28 Aug	0539	0611	0623	M4.7	1N	S28W01	2860
28 Aug	0838	0846	0857	C4.2	SF	S26W01	2860
28 Aug	B1015	U1017	A1026		SF	S29W02	2860
28 Aug	1147	1155	1204	C2.7	SF	S27W04	2860
28 Aug	1236	1250	1308	C1.7	SF	S26W04	2860
28 Aug	B1339	U1340	A1343		SF	S27W04	2860
28 Aug	1416	1417	1428		SN	S31E00	2860
28 Aug	1421	1427	1442	B9.1	SF	S25W04	2860
28 Aug	1612	1616	1620	B6.6			
28 Aug	1626	1643	1655	C1.4	SF	S25W07	2860
28 Aug	1908	1921	1928	B4.9			

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
29 Aug	0024	0028	0119		1F	S25W13	2860
29 Aug	0034	0044	0050	C7.4			2860
29 Aug	0353	0358	0402	B3.8			2860
29 Aug	0630	0635	0639	B7.5			
29 Aug	0822	0832	0839	B8.8			
29 Aug	0954	1003	1007	C8.1	SF	S25W18	2860
29 Aug	1701	1730	1751	C2.9	SF	S24W23	2860
29 Aug	1828	1831	1835	B9.6			
29 Aug	2001	2022	2051	B8.6			
29 Aug	B2257	2300	2300		SF	S27W23	2860

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 2855												
11 Aug	N13E61	155	10		Axx	1	A								
12 Aug	N13E47	156	10	1	Axx	1	A								
13 Aug	N13E33	156	plage												
14 Aug	N13E22	154	10	1	Axx	1	A								
15 Aug	N13E08	155	plage												
16 Aug	N13W06	156	plage												
17 Aug	N13W20	156	plage												
18 Aug	N13W34	157	plage												
19 Aug	N13W48	158	plage												
20 Aug	N13W62	159	plage												
21 Aug	N13W76	160	plage												
22 Aug	N13W90	160	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 156

			Region 2858												
18 Aug	N12W00	123	20	4	Cro	6	B								
19 Aug	N13W15	124	30	4	Cro	4	B								
20 Aug	N13W28	124	10	3	Bxo	4	B								
21 Aug	N13W42	124	10	2	Axx	2	A								
22 Aug	N13W56	126	plage												
23 Aug	N13W70	127	plage												
24 Aug	N13W84	128	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 123

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 2859												
21 Aug	N20E72	12	80	3	Cao	3	B				1				
22 Aug	N19E59	10	140	4	Cao	6	B	3			3				
23 Aug	N19E46	11	160	5	Cao	4	B								
24 Aug	N19E32	12	150	5	Hsx	4	A	1			4				
25 Aug	N19E18	13	70	3	Hsx	3	A								
26 Aug	N16E06	11	50	1	Dso	4	B	1			1	1			
27 Aug	N17W07	11	50	3	Cso	6	B								
28 Aug	N18W18	9	40	6	Cao	7	B								
29 Aug	N18W34	12	10	1	Hrx	1	A								
								9	0	0	9	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 11

			Region 2860												
24 Aug	S28E41	2	110	6	Bxo	5	B								
25 Aug	S27E28	3	170	5	Dao	6	B	1							
26 Aug	S30E14	3	150	6	Dao	12	B	2			3				
27 Aug	S28E03	1	330	12	Eki	22	BG	1			4	1			
28 Aug	S29W10	1	340	12	Eki	27	BG	6	1		11	1			
29 Aug	S29W23	1	320	14	Ekc	23	BG	3			3	1			
								13	1	0	21	3	0	0	0

Still on Disk.
Absolute heliographic longitude: 1

			Region 2861												
26 Aug	N15E53	323	10		Bxo	1	B								
27 Aug	N15E38	326	10	1	Axx	1	A								
28 Aug	N16E28	323	10	1	Axx	1	A								
29 Aug	N16E15	323	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 323

			Region 2862												
27 Aug	S28W67	71	50	5	Bxo	4	B	1			2				
28 Aug	S28W81	72	10	5	Bxo	2	B								
								1	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 71

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

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