Space Weather Highlights **SWPC PRF 2358**
02 November - 08 November 2020 **09 November 2020**

Solar activity was at very low to low levels during the period. Very low levels were observed on 02 Nov. Activity increased to low levels on 03-08 Nov with the emergence of Region 2781 (S23, L=255, class/area Eki/475 on 06 Nov). This fairly large, complex beta-gamma region produced numerous C-class events, the largest a C7/1f observed at 05/0022 UTC. Though some intermediate spot decay was evident by 08 Nov, the region continued to produce low-level activity. Region 2780 (N20, L=278, class/area Bxo/010 on 07 Nov) was quiet throughout the highlight period.

A slow-moving CME was detected off the WNW limb in LASCO C2 imagery, first visible at 08/1936 UTC. Initial model analysis indicated there was no Earth-directed component, but further analysis is ongoing. No other CMEs were detected during the highlight period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 05 and 06 Nov with a peak flux of 2,950 pfu observed at 05/1540 UTC. Moderate levels were observed on 02-04 Nov and 07-08 Nov.

Geomagnetic field activity was at mostly quiet levels with a few isolated unsettled intervals observed on 06 and 07 Nov due to weak, negative polarity CH HSS effects. The period began under a nominal solar wind environment with a predominately positive phi angle. By about 05/1400 UTC, a SSBC was observed as phi rotated from a positive to negative orientation. Solar wind parameters responded midday on 05 Nov through 07 Nov with an increase in total field to 10 nT while the Bz component reached -8 nT. Solar wind speeds increased from about 300 km/s to about 500 km/s. By 08 Nov, wind parameters were at more nominal levels with a neutral IMF and wind speeds near 425 km/s.

Space Weather Outlook
09 November - 05 December 2020

Solar activity is expected to be at low levels, with a slight chance for R1 (Minor) levels, on 09-15 Nov as Rgn 2781 remains on the visible disk. Very low to low levels are possible on 16-27 Nov due to the return of old Rgns 2778 (S22, L=084) and 2779 (S17, L=076). By 28 Nov through 05 Dec, activity levels are expected to increase to low, with a slight chance of R1 (Minor) activity, due to the return old Rgn 2781 (S23, L=255)

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels on 09-20 Nov and 29 Nov - 05 Dec. High levels are expected on 21-28 Nov due to recurrent CH HSS influence.

Geomagnetic field activity is expected to be at quiet to unsettled levels on 12-13 Nov and 03-04 Dec due to recurrent, negative polarity CH HSS. Unsettled to isolated active conditions are expected on 17-25 Nov due to recurrent, positive polarity CH HSS influence. Mostly quiet conditions are expected for 09-11, 14-16 Nov, 26 Nov - 02 Dec and 05 Dec.

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
02 November	82	11	10	B2.2	0	0	0	0	0	0	0	0
03 November	83	15	150	B1.4	1	0	0	2	0	0	0	0
04 November	88	18	410	B2.3	5	0	0	18	0	0	0	0
05 November	91	28	460	B3.7	11	0	0	14	1	0	0	0
06 November	94	35	485	B2.5	6	0	0	15	0	0	0	0
07 November	91	37	290	B1.6	1	0	0	7	0	0	0	0
08 November	90	40	260	B1.6	2	0	0	2	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
02 November	7.1e+04	4.6e+04	1.8e+07
03 November	6.0e+04	4.6e+04	2.6e+07
04 November	9.0e+04	4.7e+04	3.9e+07
05 November	6.1e+05	4.7e+04	7.8e+07
06 November	4.4e+05	4.6e+04	2.2e+07
07 November	1.9e+05	4.5e+04	2.3e+07
08 November	1.3e+05	4.6e+04	3.3e+07

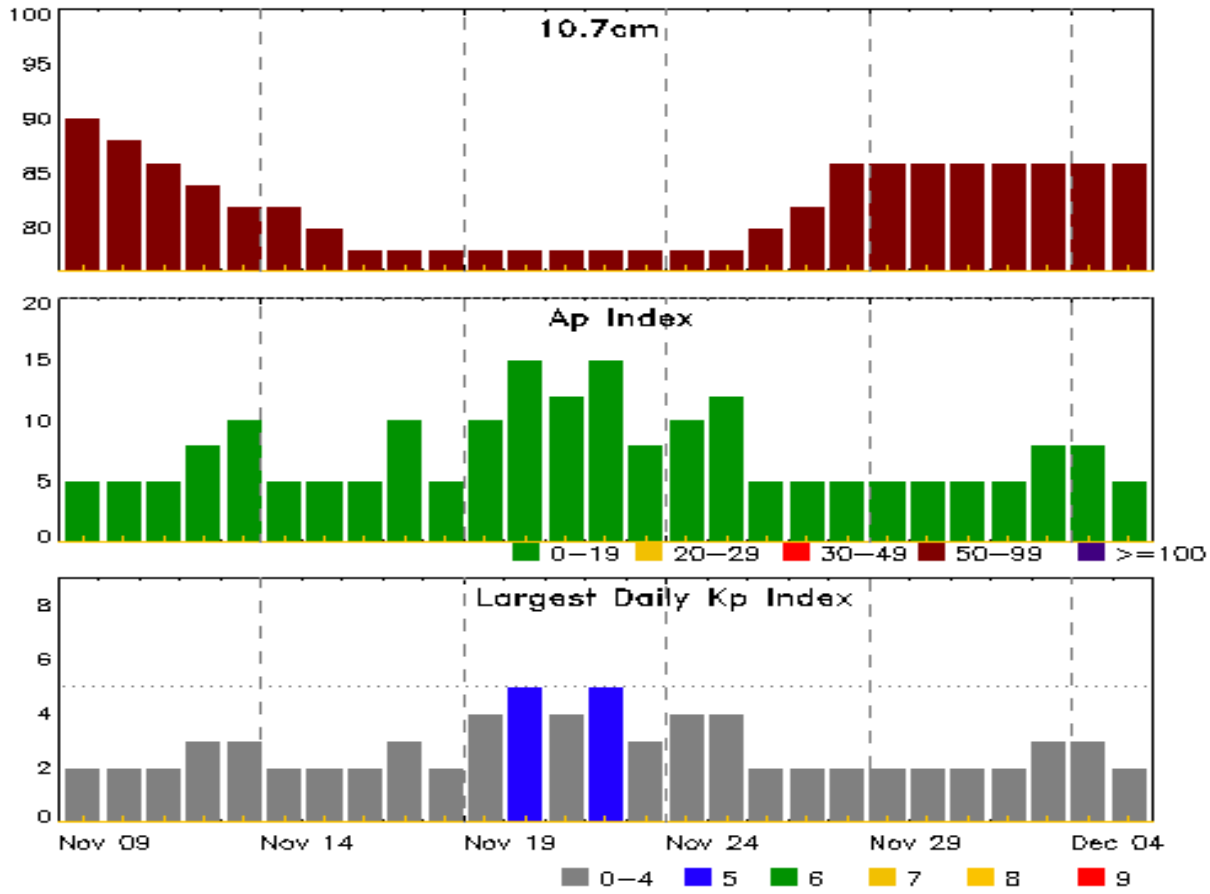
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
02 November	2	0-0-1-1-1-0-0-1	0	0-0-0-0-0-0-0-0	3	0-0-1-1-1-0-1-1
03 November	2	1-0-0-0-1-1-0-1	1	0-0-1-2-0-0-0-0	3	2-0-1-1-0-0-0-1
04 November	1	0-0-0-0-1-1-1-0	0	0-0-1-0-0-0-0-0	3	1-1-1-1-0-0-1-0
05 November	3	0-0-0-1-2-1-2-2	1	0-0-1-1-1-0-0-0	4	0-0-1-1-2-1-1-2
06 November	7	1-2-2-1-2-3-2-1	8	0-1-2-3-3-3-1-1	8	2-2-2-2-2-3-2-2
07 November	4	1-0-0-1-1-2-2-2	3	0-0-2-2-0-0-1-1	7	1-1-1-1-1-2-3-3
08 November	3	2-1-2-1-1-1-0-0	3	1-1-2-0-2-1-0-0	7	2-2-2-1-1-1-1-0

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
05 Nov 0433	SUMMARY: 10cm Radio Burst	05/0414 - 0414
05 Nov 1256	ALERT: Electron 2MeV Integral Flux >= 1000pfu	05/1250
06 Nov 2042	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	05/1250

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
09 Nov	90	5	2	23 Nov	78	8	3
10	88	5	2	24	78	10	4
11	86	5	2	25	78	12	4
12	84	8	3	26	80	5	2
13	82	10	3	27	82	5	2
14	82	5	2	28	86	5	2
15	80	5	2	29	86	5	2
16	78	5	2	30	86	5	2
17	78	10	3	01 Dec	86	5	2
18	78	5	2	02	86	5	2
19	78	10	4	03	86	8	3
20	78	15	5	04	86	8	3
21	78	12	4	05	86	5	2
22	78	15	5				

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 #
02 Nov	0544	0552	0602	B4.5			
02 Nov	1314	1319	1323	B3.9			
03 Nov	0648	0703	0709	C1.1			
03 Nov	1329	1334	1338	B2.5			
03 Nov	1510	1512	1516	B3.0	SF	S24E79	2781
03 Nov	2040	2052	2054	B1.9			
03 Nov	2054	2108	2116	B4.3			
03 Nov	2116	2120	2126	B4.7	SF	N19E50	2780
04 Nov	0051	0057	0102	B3.2			2781
04 Nov	0255	0304	0313	B3.5			
04 Nov	0313	0316	0321	B3.9			2781
04 Nov	0432	0442	0447	C1.1	SF	S24E65	2781
04 Nov	0628	0635	0642	B2.9			
04 Nov	0642	0646	0650	B9.2			2781
04 Nov	0812	0821	0825	C1.1			2781
04 Nov	0909	0915	0922	B2.7			2781
04 Nov	0944	0950	0954	B3.5	SF	S24E66	2781
04 Nov	1126	1132	1139	B4.5			
04 Nov	1139	1145	1154	B8.1			2781
04 Nov	1340	1348	1352	B5.4			2781
04 Nov	1355	1358	1403		SF	S25E63	2781
04 Nov	1410	U1425	A1448		SF	S24E62	2781
04 Nov	1449	1453	1457	B4.6			2781
04 Nov	1501	1509	1522	B4.5			2781
04 Nov	1505	1508	1514		SF	S23E61	2781
04 Nov	1520	1524	1525		SF	S23E61	2781
04 Nov	1526	1527	1533		SF	S23E61	2781
04 Nov	1658	1711	1720	C1.8	SF	S23E59	2781
04 Nov	1733	1735	1736		SF	S23E59	2781
04 Nov	1846	1907	1920	C1.0	SF	S23E59	2781
04 Nov	1921	1924	1930		SF	S23E59	2781

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
04 Nov	1931	1937	1953	B8.1	SF	S23E59	2781
04 Nov	2004	2016	2023	C1.0	SF	S23E59	2781
04 Nov	2026	2030	2038		SF	S23E59	2781
04 Nov	2053	2102	2110		SF	S23E59	2781
04 Nov	2137	2143	2150	B4.7			
04 Nov	2213	2217	2218		SF	S23E59	2781
04 Nov	2224	2230	2234	B4.4			2781
04 Nov	2235	2240	2257	B4.9	SF	S23E59	2781
04 Nov	2258	2304	2317		SF	S23E59	2781
05 Nov	0001	0022	0034	C7.3	1F	S58E13	2781
05 Nov	0053	0056	0100	C1.8			
05 Nov	0155	0204	0211	B7.0	SF	S24E65	2781
05 Nov	0214	0215	0223		SF	S24E65	2781
05 Nov	0244	0250	0254	C1.4			2781
05 Nov	0323	0329	0334	B6.7			
05 Nov	0338	0343	0347	B6.0			
05 Nov	0400	0406	0410	B8.0	SF	S23E69	2781
05 Nov	0441	0446	0450	B4.0			2781
05 Nov	0503	0513	0523	B8.9			2781
05 Nov	0606	0616	0622	C1.7	SF	S23E55	2781
05 Nov	0710	0721	0725	B5.7			2781
05 Nov	0731	0739	0743	B6.0			2781
05 Nov	0755	0804	0822	B5.3			2781
05 Nov	0852	0857	0903	B5.5			2781
05 Nov	0938	0954	0958	C2.3	SF	S23E51	2781
05 Nov	1011	1020	1028	B8.9			2781
05 Nov	1119	1128	1141	B6.2			2781
05 Nov	1213	1222	1226	C1.4			2781
05 Nov	1317	1327	1333	C1.7			2781
05 Nov	1403	1407	1411	C1.2	SF	S23E48	2781
05 Nov	1419	1424	1435	C1.0			2781
05 Nov	1514	1520	1526		SF	S23E48	2781
05 Nov	1529	1533	1545		SF	S23E48	2781
05 Nov	1545	1609	1636		SF	S23E48	2781
05 Nov	1603	1614	1618	B8.1			2781
05 Nov	1643	1643	1654		SF	S23E48	2781
05 Nov	1658	1712	1718		SF	S23E48	2781
05 Nov	1742	1749	1753	B8.6	SF	S23E48	2781

Flare List

Date	Time			X-ray	Optical		
	Begin	Max	End	Class	Imp/ Brtns	Location Lat CMD	Rgn #
05 Nov	2051	2055	2101	B5.4			2781
05 Nov	2131	2138	2144	B5.4			2781
05 Nov	2151	2156	2200	C0.9	SF	S23E48	2781
05 Nov	2218	2223	2233	C1.0			2781
05 Nov	2237	2239	2243		SF	S23E47	2781
06 Nov	0001	0005	0010	C2.8			
06 Nov	0047	0050	0054	C1.7	SF	S24E45	2781
06 Nov	0100	0104	0108	C2.0			
06 Nov	0201	0202	0205		SF	S19E40	2781
06 Nov	0231	0237	0245	B7.0			
06 Nov	0309	0321	0331	B8.0			
06 Nov	0354	0357	0401	B7.1			
06 Nov	0410	0412	0413		SF	S24E43	2781
06 Nov	0443	0448	0454	B6.2	SF	S24E43	2781
06 Nov	0515	0522	0527	B6.6	SF	S23E43	2781
06 Nov	0543	0545	0546		SF	S23E43	2781
06 Nov	0630	0638	0642	B9.6	SF	S23E42	2781
06 Nov	0739	0743	0747	B4.9			2781
06 Nov	B0800	U0807	A0808	B3.6	SF	S22E41	2781
06 Nov	0907	0907	0912		SF	S23E41	2781
06 Nov	0944	0948	0952	B6.2			2781
06 Nov	1012	1015	1019	B6.6			2781
06 Nov	1026	1036	1045	C1.3	SF	S24E38	2781
06 Nov	1146	1159	1215	B9.2	SF	S24E37	2781
06 Nov	1245	1248	1253		SF	S23E39	2781
06 Nov	1417	1419	1433		SF	S23E38	2781
06 Nov	1513	1522	1526	C1.8	SF	S21E37	2781
06 Nov	1607	1614	1618	B4.6			2781
06 Nov	1723	1730	1737	B5.2	SF	S21E35	2781
06 Nov	1740	1745	1749	C1.1			2781
06 Nov	1836	1846	1853	B4.5			2781
06 Nov	1931	1935	1941	B4.0			2781
06 Nov	2214	2221	2226	B3.8			2781
06 Nov	2302	2311	2315	B3.6			2781
07 Nov	0103	0108	0117	B2.6			2781
07 Nov	0137	0142	0147	B2.5			2781
07 Nov	0150	0158	0202	B3.6	SF	S22E31	2781
07 Nov	0237	0247	0258	B4.0			2781

Flare List

	Time			Optical			
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
07 Nov	0417	0431	0437	B6.9	SF	S22E31	2781
07 Nov	0605	0614	0628	C1.8	SF	S21E29	2781
07 Nov	0711	0718	0722	B5.5			2781
07 Nov	0954	1001	1007	B8.9			2781
07 Nov	1154	1206	1208	B5.6	SF	S21E25	2780
07 Nov	1408	1417	1424	B3.7	SF	S21E26	2781
07 Nov	1834	1840	1850	B2.9	SF	S20E21	2781
07 Nov	1942	1942	1945		SF	S23E22	2781
07 Nov	2013	2028	2039	B4.4			2781
08 Nov	0059	0106	0109	B5.3			2781
08 Nov	0105	0112	0136	C2.3	SF	S20E17	2781
08 Nov	0202	0208	0213	B6.4	SF	S20E17	2781
08 Nov	0408	0416	0427	B3.9			2781
08 Nov	0513	0518	0523	C5.7	1N	S20E17	2781
08 Nov	1153	1202	1207	B6.2			2781
08 Nov	1207	1212	1219	B6.3			2781
08 Nov	1458	1506	1515	B4.8			2781
08 Nov	1618	1628	1633	B3.4			2781
08 Nov	1633	1640	1649	B4.2			2781
08 Nov	1921	1931	1941	B4.4			2781

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 2779												
28 Oct	S15W33	76	80	4	Cai	5	B	3			4				
29 Oct	S17W45	75	140	7	Cai	7	B	4			10				
30 Oct	S15W57	74	100	8	Cao	6	B								
31 Oct	S16W72	76	20	6	Bxo	4	B								
01 Nov	S17W85	76	10	3	Bxo	2	B	1							
								8	0	0	14	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 76

			Region 2780												
02 Nov	N20E57	279	10	1	Bxo	1	B								
03 Nov	N20E43	281	plage								1				
04 Nov	N20E29	282	plage												
05 Nov	N20E15	283	10	1	Axx	1	A								
06 Nov	N19E06	281	10	2	Hrx	2	A								
07 Nov	N20W06	278	10	3	Bxo	2	B				1				
08 Nov	N20W17	276	10	3	Bxo	2	B								
								0	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 281

			Region 2781												
03 Nov	S23E66	257	150	5	Cso	5	B				1				
04 Nov	S25E55	255	410	14	Ehi	8	B	5			18				
05 Nov	S24E46	252	450	10	Dki	7	B	10			14	1			
06 Nov	S23E30	255	475	11	Eki	13	BG	4			15				
07 Nov	S23E16	256	280	10	Dki	15	BG	1			6				
08 Nov	S23E03	256	250	11	Ehi	18	B	2			2	1			
								22	0	0	56	2	0	0	0

Still on Disk.
Absolute heliographic longitude: 256

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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