Space Weather Highlights **SWPC PRF 2359**
09 November - 15 November 2020 **16 November 2020**

Solar activity was at very low to low levels during the period. Very low levels were observed on 09 Nov and 13-15 Nov, while low levels occurred on 10-12 Nov. Region 2781 (S23, L=255, class/area Eki/475 on 06 Nov) produced a C1/Sf flare observed at 10/1946 UTC. C-class activity was observed on 11-12 Nov from new Region 2782 (S31, L=155, class/area Cro/030 on 12 Nov), the largest was a C2/Sf flare observed at 11/1912 UTC. No Earth-directed CME activity was 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 on 11 Nov with a maximum flux of 2,250 pfu observed at 11/1655 UTC. Normal to moderate levels were observed on 09-10 Nov and 12-15 Nov.

Geomagnetic field activity was quiet throughout the period. A nominal solar wind regime dominated the period with a mostly neutral IMF. Solar wind speeds generally ranged between about 295 km/s to 445 km/s under a predominately negative phi orientation.

Space Weather Outlook
16 November - 12 December 2020

Solar activity is expected to be very low from 16-27 Nov and 12 Dec. The return of old Region 2781 (S23, L=255) from 28 Nov - 11 Dec is expected to increase solar activity levels to very low to low.

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 16 - 20 Nov and again on 29 Nov - 12 Dec. High levels are expected from 21-28 Nov due to recurrent CH HSS influence.

Geomagnetic field activity is expected to be at quiet to unsettled levels on 21 - 25 Nov and again on 03-04 Dec due to recurrent CH HSS influence. Active intervals are possible on 22, 24 and 25 Nov. Mostly quiet conditions are expected to prevail for 16-20 Nov, 26 Nov - 02 Dec and 05-12 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
09 November	90	27	230	B1.6	0	0	0	0	0	0	0	0
10 November	87	27	230	B1.7	1	0	0	1	0	0	0	0
11 November	88	24	120	B1.5	1	0	0	2	0	0	0	0
12 November	85	27	110	B1.2	2	0	0	2	0	0	0	0
13 November	82	24	100	A9.3	0	0	0	0	0	0	0	0
14 November	80	11	50	A9.6	0	0	0	0	0	0	0	0
15 November	79	0	0	A9.5	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	>2MeV
09 November	1.3e+05	4.5e+04	3.4e+07
10 November	3.3e+05	4.6e+04	3.8e+07
11 November	1.2e+06	4.6e+04	4.8e+07
12 November	6.0e+05	4.5e+04	2.6e+06
13 November	1.4e+05	4.7e+04	2.5e+06
14 November	2.6e+05	4.6e+04	5.1e+06
15 November	3.4e+05	4.6e+04	4.4e+06

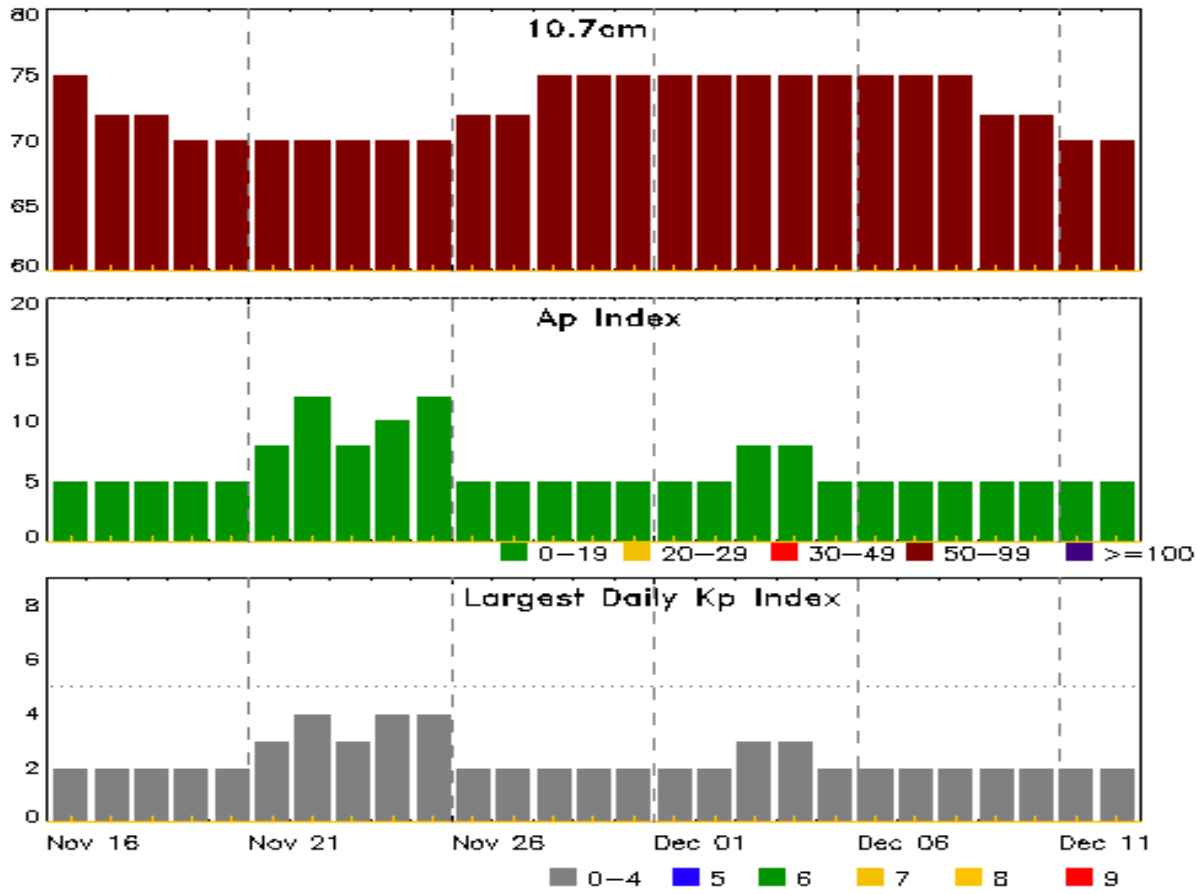
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
09 November	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0	1	0-0-0-0-0-0-0-0
10 November	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0	2	0-0-0-1-0-0-0-0
11 November	2	0-0-0-1-1-1-1-2	1	0-0-1-1-0-0-0-1	4	0-0-0-1-1-1-2-2
12 November	3	1-0-2-2-1-1-1-0	3	0-0-2-3-0-0-0-0	3	1-0-2-1-1-0-1-0
13 November	2	1-1-1-0-0-1-0-0	2	0-0-1-3-0-0-0-0	3	1-1-1-1-1-0-1-1
14 November	2	0-0-0-0-1-0-2-1	0	0-0-0-0-1-0-0-0	3	0-1-1-0-1-0-2-1
15 November	2	1-2-0-0-1-1-0-0	1	1-0-0-0-0-1-0-0	6	2-2-0-0-0-1-0-0

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
11 Nov 1522	ALERT: Electron 2MeV Integral Flux >= 1000pfu	11/1500
12 Nov 0603	SUMMARY: 10cm Radio Burst	12/0419 - 0433

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
16 Nov	75	5	2	30 Nov	75	5	2
17	72	5	2	01 Dec	75	5	2
18	72	5	2	02	75	5	2
19	70	5	2	03	75	8	3
20	70	5	2	04	75	8	3
21	70	8	3	05	75	5	2
22	70	12	4	06	75	5	2
23	70	8	3	07	75	5	2
24	70	10	4	08	75	5	2
25	70	12	4	09	72	5	2
26	72	5	2	10	72	5	2
27	72	5	2	11	70	5	2
28	75	5	2	12	70	5	2
29	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

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
09 Nov	0546	0558	0613	B3.0			2781
09 Nov	0957	1005	1025	B3.1			2781
10 Nov	1058	1111	1123	B4.4			
10 Nov	1936	1946	1950	C1.3	SF	S23W21	2781
11 Nov	1746	1755	1811	B2.3			2782
11 Nov	1836	1912	1938	C2.6	SF	S32E71	2782
11 Nov	2213	2224	2231	B6.4	SF	S18W31	2781
12 Nov	0206	0227	0235	C1.2			2782
12 Nov	0358	0413	0420	C2.5	SF	S32E63	2782
12 Nov	1317	1322	1329	B2.1	SF	S31E54	2782
12 Nov	1608	1616	1629	B2.0			2782
12 Nov	1629	1633	1637	B1.7			2782
13 Nov	0004	0013	0017	B2.6			2782
13 Nov	2103	2112	2117	B1.6			2782
13 Nov	2350	2359	0003	B7.3			2781
14 Nov	0139	0145	0149	B1.4			2781
14 Nov	0228	0234	0239	B1.6			2781
14 Nov	0540	0544	0552	B1.8			2781
15 Nov	1826	1840	1851	B3.3			2781
15 Nov	2228	2237	2243	B2.1			2781
15 Nov	2327	2335	2339	B2.1			2781
15 Nov	2350	2355	2359	B2.4			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 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								
09 Nov	N20W31	276	plage												
10 Nov	N20W45	277	plage												
11 Nov	N20W59	278	plage												
12 Nov	N20W73	279	plage												
13 Nov	N20W87	280	plage												
								0	0	0	2	0	0	0	0

Crossed West Limb.
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			
09 Nov	S23W09	254	230	12	Dsi	17	B								
10 Nov	S23W23	255	230	12	Eso	17	B	1			1				
11 Nov	S23W35	254	100	10	Hsx	1	A				1				
12 Nov	S24W52	257	80	20	Hsx	1	A								
13 Nov	S23W66	258	80	1	Hsx	1	A								
14 Nov	S24W78	257	50	2	Hsx	1	A								
								23	0	0	58	2	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 256

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 2782													
11 Nov	S31E64	154	20	11	Cro	3	B	1			1				
12 Nov	S31E50	155	30	10	Cro	6	B	2			1				
13 Nov	S31E37	156	20	10	Bxo	3	B								
14 Nov	S31E25	154	plage												
15 Nov	S31E11	155	plage												
								3	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 155

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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