

Solar activity was at very low to low levels. Region 2785 (S23, L=359, class/area, Hsx/060 on 22 Nov) produced an impulsive C3/Sf flare at 22/1731 UTC, the largest of the period, from the E limb. Shortly after, the region produced a 160 sfu tenflare at 22/1943 UTC. Multiple CME signatures were observed in coronagraph imagery that appear to have originated near the region; however, given the proximity to the limb they are not likely to have an Earth-directed component.

Region 2783 (S23, L=072, class/area, Hsx/080 on 21 Nov) was mostly stable through the week but did produce a C1/1f flare at 20/1703 UTC. Some coronal dimming was observed around the region between 21/1600-1800 UTC and may be associated with a slow-moving CME signature seen in LASCO SOHO/C2 imagery after 21/2236 UTC. Analysis and modeling of the event is ongoing.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels throughout the period.

Geomagnetic field activity ranged from quiet to G1 (Minor) geomagnetic storm levels. Quiet levels were observed over 16-19 Nov. A period of sustained southward Bz caused unsettled levels on 20 Nov. The onset of influence from a positive polarity CH HSS produced active conditions on 21 Nov and peaked with an isolated period of G1 (Minor) geomagnetic storm conditions on 22 Nov. Solar wind speeds increased to a peak between 600-650 km/s early on 22 Nov and gradually declined after. Total magnetic field strength peaked earlier with 12 nT observed at 21/2212 UTC and slowly declined to below 5 nT by the end of the reporting period. The Bz component reached a maximum southward deflection of -10 nT at 21/2212 UTC.

Space Weather Outlook

23 November - 19 December 2020

Solar activity is likely to be at low levels with a slight chance of R1 (Minor) radio blackouts from 23 Nov to 06 Dec. Very low levels are expected for the remainder of the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to range from normal to high levels. High levels are expected on 23-28 Nov and normal to moderate levels are expected for the remainder of the outlook period.

Geomagnetic field activity is expected to at quiet to G1 (minor) geomagnetic storm levels. G1 conditions are likely on 19 Dec; active conditions are likely on 23 Nov, 25 Nov and 18 Dec; unsettled conditions are likely on 24 Nov, 26 Nov and 03-04 Dec. All increases in geomagnetic



activity are expected due to multiple, recurrent CH HSSs. The remainder of outlook period is expected to be at quiet levels.



Daily Solar Data

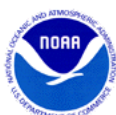
Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background Flux	Flares								
					X-ray			Optical					
					C	M	X	S	1	2	3	4	
16 November	77	0	0	A9.0	0	0	0	0	0	0	0	0	0
17 November	79	11	30	A5.5	0	0	0	0	0	0	0	0	0
18 November	77	11	80	A4.4	0	0	0	0	0	0	0	0	0
19 November	77	11	70	A6.0	0	0	0	0	0	0	0	0	0
20 November	82	11	70	A7.9	2	0	0	0	1	0	0	0	0
21 November	85	23	110	B1.8	0	0	0	1	0	0	0	0	0
22 November	88	35	160	B3.0	4	0	0	1	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
	16 November	4.2e+05	4.6e+04
17 November	5.1e+05	4.5e+04	4.8e+06
18 November	4.5e+05	4.5e+04	3.4e+06
19 November	3.9e+05	4.5e+04	4.0e+06
20 November	1.9e+05	4.4e+04	1.6e+06
21 November	5.9e+05	4.4e+04	1.6e+06
22 November	1.0e+06	4.4e+04	2.2e+07

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	16 November	0	0-0-0-0-1-0-0-0	0	0-0-0-0-1-0-0-0	2
17 November	3	0-1-0-1-1-2-1-1	2	0-0-0-3-1-0-0-0	3	0-1-0-1-1-1-0-1
18 November	3	1-1-2-0-1-1-1-0	0	0-0-0-0-1-0-0-0	4	2-1-1-0-0-0-1-1
19 November	2	0-0-0-2-1-0-1-1	2	0-0-0-3-0-0-0-0	3	1-0-0-2-0-0-1-2
20 November	9	3-4-2-2-1-1-1-1	11	1-3-3-5-0-0-0-1	8	3-3-2-2-1-0-2-1
21 November	9	2-2-2-0-3-2-3-3	12	0-1-1-2-5-3-2-3	12	2-2-1-1-3-3-3-4
22 November	19	2-4-4-4-4-3-3-2	45	3-3-6-6-6-5-4-3	12	3-4-4-4-5-4-4-3

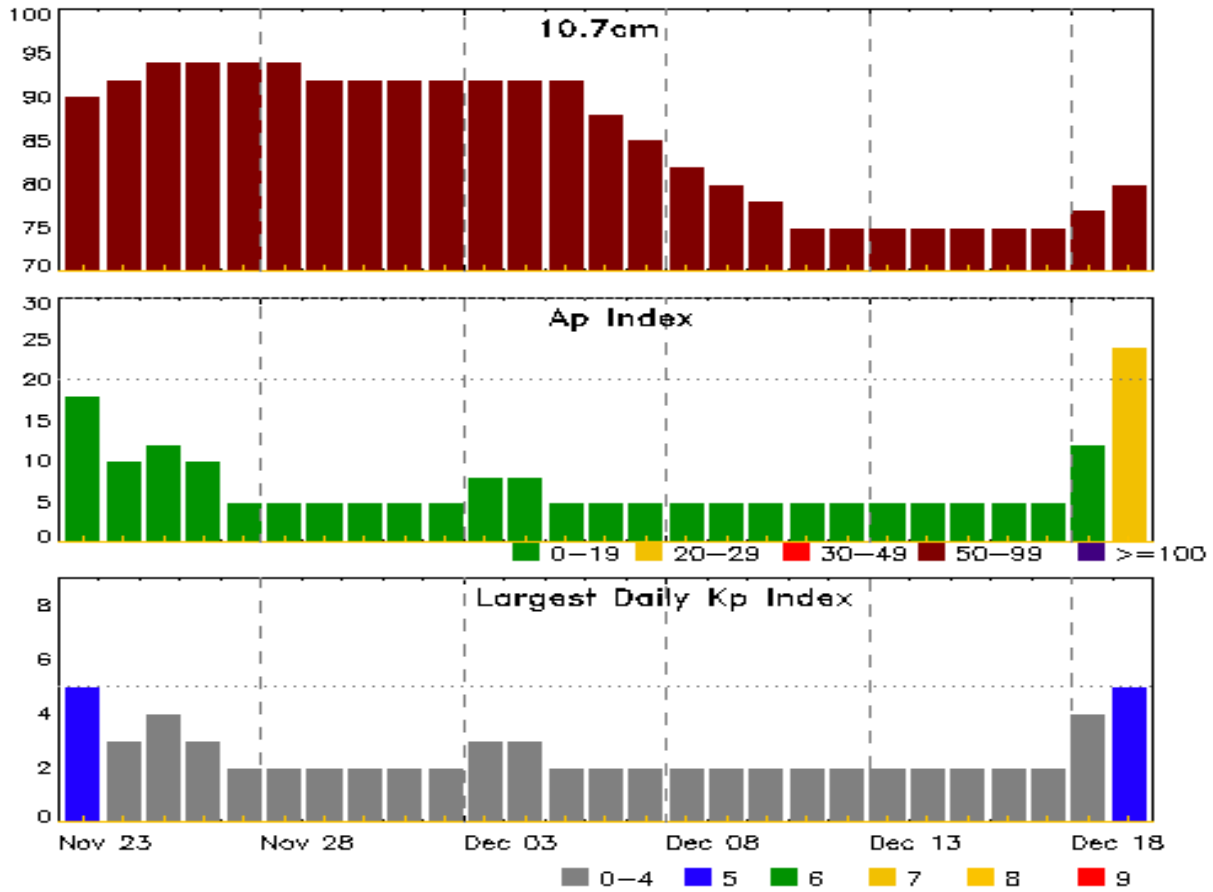


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
20 Nov 0516	WARNING: Geomagnetic K = 4	20/0515 - 1500
21 Nov 2052	WARNING: Geomagnetic K = 4	21/2053 - 22/0600
22 Nov 0001	ALERT: Geomagnetic K = 4	21/2359
22 Nov 0433	EXTENDED WARNING: Geomagnetic K = 4	21/2053 - 22/1200
22 Nov 1114	EXTENDED WARNING: Geomagnetic K = 4	21/2053 - 22/1800
22 Nov 1358	WARNING: Geomagnetic K = 5	22/1358 - 1800
22 Nov 1459	ALERT: Geomagnetic K = 5	22/1457
22 Nov 1717	EXTENDED WARNING: Geomagnetic K = 4	21/2053 - 23/0900
22 Nov 1751	EXTENDED WARNING: Geomagnetic K = 5	22/1358 - 23/0300
22 Nov 2242	SUMMARY: 10cm Radio Burst	22/1942 - 1943



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
23 Nov	90	18	5	07 Dec	85	5	2
24	92	10	3	08	82	5	2
25	94	12	4	09	80	5	2
26	94	10	3	10	78	5	2
27	94	5	2	11	75	5	2
28	94	5	2	12	75	5	2
29	92	5	2	13	75	5	2
30	92	5	2	14	75	5	2
01 Dec	92	5	2	15	75	5	2
02	92	5	2	16	75	5	2
03	92	8	3	17	75	5	2
04	92	8	3	18	77	12	4
05	92	5	2	19	80	24	5
06	88	5	2				



Energetic Events

Date	Time			X-ray	Optical Information			Peak		Sweep Freq	
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux 245	2695	Intensity II

No Events Observed

Flare List

Date	Time			X-ray Class	Optical			Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD		
16 Nov	0003	0009	0014	B1.7				2781
16 Nov	0208	0215	0220	B1.6				2781
16 Nov	0440	0504	0513	B4.8				2781
16 Nov	0619	0633	0645	B2.7				2782
16 Nov	0645	0649	0653	B2.1				2781
16 Nov	1657	1706	1712	B1.9				2782
19 Nov	1020	1025	1031	B1.1				2783
19 Nov	1700	1706	1714	B1.5				2783
19 Nov	2038	2106	2119	B2.0				2783
20 Nov	1308	1335	1423	B6.4				
20 Nov	1611	1627	1644	B1.7				2783
20 Nov	1644	1703	1711	C1.9	1F	S22E36		2783
20 Nov	1810	1845	1919	C1.0				
21 Nov	0552	0557	0606	B4.4	SF	S20E31		2783
21 Nov	1407	1413	1427	B3.9				
21 Nov	1427	1439	1448	B3.9				
21 Nov	1556	1607	1614	B3.8				
21 Nov	1723	1731	1737	B5.8				
22 Nov	0307	0314	0318	B5.8				2783
22 Nov	0730	0738	0743	B7.4				
22 Nov	0819	0837	0859	B6.0				2783
22 Nov	0859	0902	0903	B5.0				
22 Nov	0903	0921	0941	B9.9				
22 Nov	0924	0927	0934	C1.3				2785
22 Nov	1422	1432	1437	C1.3				2785
22 Nov	1447	1457	1502	B9.4				2785
22 Nov	1723	1731	1737	C3.3	SF	S23E80		2785
22 Nov	1838	1847	1854	B6.1				2785
22 Nov	2011	2019	2030	B5.0				2785
22 Nov	2030	2033	2037	B4.7				2785
22 Nov	2342	2356	0008	C1.2				



Region Summary

Date	Location		Sunspot Characteristics					Flares								
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
			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													
16 Nov	S31W03	156	plage													
17 Nov	S31W17	156	plage													
18 Nov	S31W31	158	plage													
19 Nov	S23W33	156	plage													
20 Nov	S23W47	147	plage													
21 Nov	S23W61	148	plage													
22 Nov	S23W75	149	plage													
								3	0	0	2	0	0	0	0	

Still on Disk.
 Absolute heliographic longitude: 156

Region 2783																
17 Nov	S22E68	71	30	2	Hsx	1	A									
18 Nov	S23E53	72	80	1	Hsx	1	A									
19 Nov	S22E40	72	70	2	Hsx	1	A									
20 Nov	S23E27	73	70	2	Hsx	1	A	1				1				
21 Nov	S23E15	72	80	2	Hsx	1	A				1					
22 Nov	S23E02	72	70	2	Hsx	1	A									
								1	0	0	1	1	0	0	0	

Still on Disk.
 Absolute heliographic longitude: 72

Region 2784																
21 Nov	N33E28	59	30	3	Cro	2	B									
22 Nov	N32E14	60	30	5	Bxo	3	B									
								0	0	0	0	0	0	0	0	

Still on Disk.
 Absolute heliographic longitude: 60

Region 2785																
22 Nov	S23E74	359	60	2	Hsx	1	A	3				1				
								3	0	0	1	0	0	0	0	

Still on Disk.
 Absolute heliographic longitude: 359



Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce
NOAA / National Weather Service
Space Weather Prediction Center
325 Broadway, Boulder CO 80305

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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