

Space Weather Highlights
18 October - 24 October 2021

SWPC PRF 2408
25 October 2021

Solar activity was very low. Background x-ray enhancement began on 20 Oct as new Regions 2886 (S19, L= 338, class/area Hsx/185 on 19 Oct) and 2887 (S25, L=278, class/area Dki/440 on 24 Oct) emerged around the SE limb on 17 Oct and 21 Oct, respectively. Region 2886 was quiet and stable while Region 2887 produced the majority of the B-class flare activity. The largest flare of the period was a B9.6 flare at 22/1838 UTC from a region just beyond the East limb. No Earth-directed CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels with a peak flux of 433 pfu at 18/1700 UTC.

Geomagnetic field activity ranged from quiet to active levels. The period began under the influence of a weak transient with total field reaching 13 nT and the Bz component reaching -8 nT late on 17 Oct. Solar wind speed ranged from 325-385 km/s during this time. Slightly perturbed conditions continued on 19-20 Oct as a solar sector boundary crossing followed by a co-rotating interaction region preceded the onset of a negative polarity coronal hole high speed stream (CH HSS). Solar wind speed increased to 555 km/s early on 21 Oct. Nominal solar wind conditions returned by midday on 23 Oct. The geomagnetic field responded with quiet to active levels on 18-19 Oct, quiet to unsettled conditions on 20 Oct, and quiet levels thereafter.

Space Weather Outlook
25 October - 20 November 2021

Solar activity is expected to be at very low to low levels with a slight chance for M-class (R1-R2, Minor-Moderate) flares on 25 Oct - 03 Nov as Region 2887 transits across the visible disk. Very low levels are expected from 04 Nov -15 Nov. Very low to low levels are expected again on 16-20 Nov with the return of Region 2887.

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 throughout the forecast period.

Geomagnetic field activity is expected to reach unsettled levels on 27-30 Oct, 06-08 Nov, and 15-16 Nov and active levels on 06 Nov due to CH HSS activity.



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	
18 October	76	11	170	A2.9	0	0	0	0	0	0	0	0	0
19 October	76	11	185	A2.6	0	0	0	0	0	0	0	0	0
20 October	76	11	130	A4.2	0	0	0	0	0	0	0	0	0
21 October	82	11	100	B1.3	0	0	0	0	0	0	0	0	0
22 October	87	28	250	B1.7	0	0	0	0	0	0	0	0	0
23 October	87	32	540	B1.9	0	0	0	2	0	0	0	0	0
24 October	93	46	570	B2.3	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	>2MeV	
	18 October	5.2e+04	4.3e+04	1.8e+06
19 October	6.7e+04	4.3e+04	1.9e+06	
20 October	6.9e+04	4.4e+04	1.6e+06	
21 October	7.6e+04	4.3e+04	1.2e+06	
22 October	6.3e+04	4.3e+04	1.5e+06	
23 October	7.3e+04	4.4e+04	1.7e+06	
24 October	8.6e+04	4.4e+04	1.4e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	18 October	0	0-0-0-0-0-1-1-0	6	0-0-0-0-0-1-2-2	10
19 October	9	2-2-2-1-2-3-3-2	10	2-3-2-3-2-3-2-2	14	3-4-2-2-2-4-4-2
20 October	5	1-2-1-1-2-2-1-2	3	1-1-0-0-2-2-1-1	6	1-3-1-1-2-2-1-2
21 October	9	1-3-2-2-2-2-3-2	7	2-1-4-2-1-1-1-1	7	2-2-2-2-1-2-2-2
22 October	3	1-0-0-1-2-1-1-1	2	1-0-1-1-1-0-0-1	4	1-0-1-1-2-1-1-2
23 October	2	1-0-0-0-1-1-1-1	0	0-0-0-0-0-0-0-1	3	2-0-0-1-1-0-1-1
24 October	2	0-1-1-0-1-2-1-0	3	0-0-0-2-2-1-1-0	4	1-1-1-1-1-2-1-1

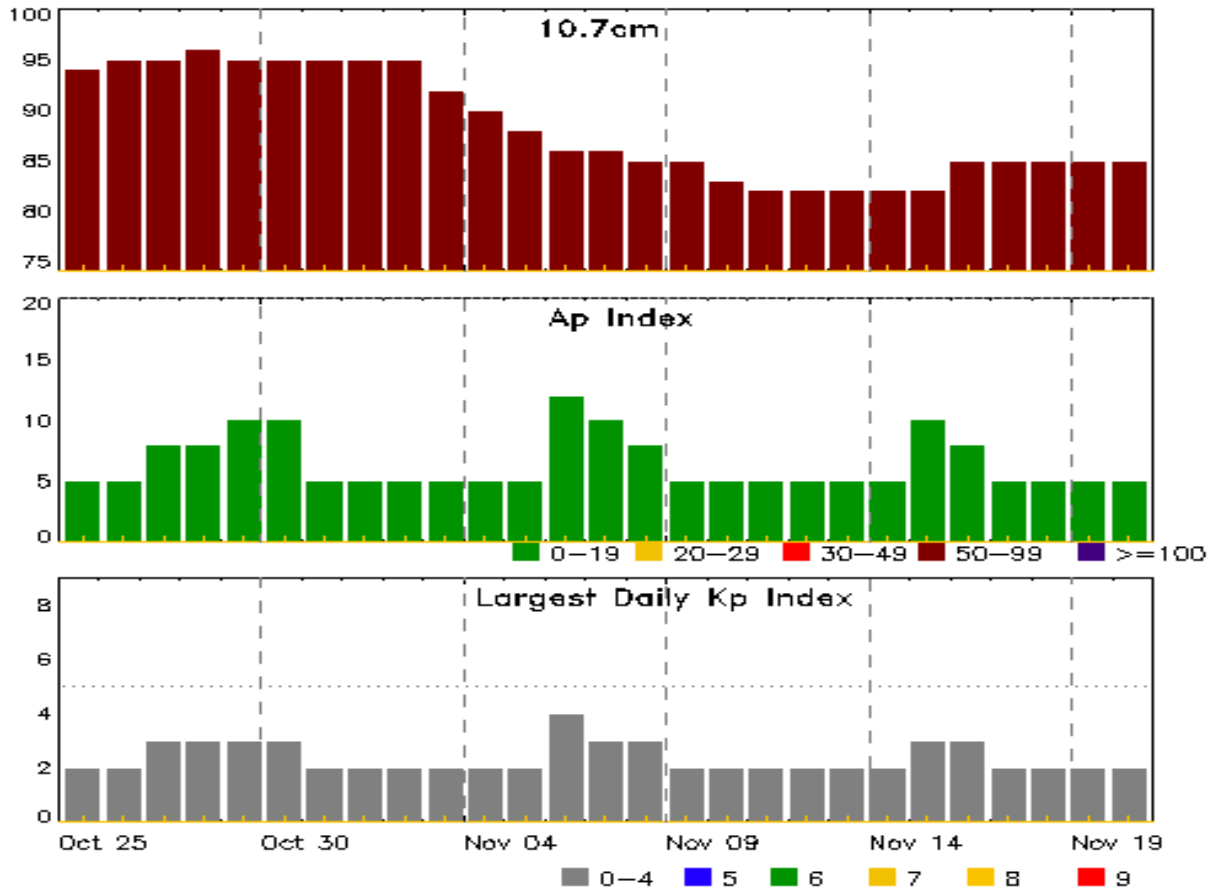


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
18 Oct 0251	WARNING: Geomagnetic K = 4	18/0250 - 1200
18 Oct 0300	ALERT: Geomagnetic K = 4	18/0259
19 Oct 0426	WARNING: Geomagnetic K = 4	19/0425 - 1500
19 Oct 0601	ALERT: Geomagnetic K = 4	19/0559
19 Oct 1748	WARNING: Geomagnetic K = 4	19/1746 - 20/0300
19 Oct 1803	ALERT: Geomagnetic K = 4	19/1759



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
25 Oct	94	5	2	08 Nov	85	8	3
26	95	5	2	09	85	5	2
27	95	8	3	10	83	5	2
28	96	8	3	11	82	5	2
29	95	10	3	12	82	5	2
30	95	10	3	13	82	5	2
31	95	5	2	14	82	5	2
01 Nov	95	5	2	15	82	10	3
02	95	5	2	16	85	8	3
03	92	5	2	17	85	5	2
04	90	5	2	18	85	5	2
05	88	5	2	19	85	5	2
06	86	12	4	20	85	5	2
07	86	10	3				



Energetic Events

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

No Events Observed

Flare List

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
18 Oct	0308	0315	0323	B1.0			
18 Oct	0323	0332	0339	B1.2			
20 Oct	1815	1822	1828	B1.1			2887
20 Oct	1957	2004	2010	B1.0			2887
20 Oct	2100	2109	2116	B1.7			2887
20 Oct	2134	2146	2158	B4.6			2887
20 Oct	2300	2308	2315	B1.2			2887
21 Oct	0340	0348	0401	B1.4			2887
21 Oct	0527	0534	0537	B1.3			2887
21 Oct	0537	0542	0549	B6.0			2887
21 Oct	0653	0705	0712	B7.3			2887
21 Oct	0802	0815	0830	B3.8			2887
21 Oct	1152	1215	1227	B3.0			2887
21 Oct	1246	1253	1305	B2.7			2887
21 Oct	1335	1341	1346	B2.9			2887
21 Oct	1502	1515	1532	B8.7			2887
21 Oct	1929	1935	1944	B2.3			2887
21 Oct	2030	2037	2042	B2.4			2887
21 Oct	2122	2125	2130	B2.6			2887
21 Oct	2145	2151	2204	B2.4			2887
21 Oct	2208	2213	2217	B4.5			2887
21 Oct	2227	2236	2242	B3.1			2887
21 Oct	2335	2342	2349	B2.5			2887
22 Oct	0239	0248	0256	B3.4			2887
22 Oct	1509	1513	1517	B4.4			2887
22 Oct	1606	1612	1619	B4.3			2887
22 Oct	1747	1755	1759	B6.3			2887
22 Oct	1830	1838	1848	B9.6			
23 Oct	0106	0111	0117	B3.5			2887
23 Oct	0219	0224	0230	B5.4			2887
23 Oct	0300	0310	0320	B4.6			2887



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
23 Oct	0653	0659	0711	B3.6			2887
23 Oct	1201	1211	1217	B6.2			
23 Oct	1253	1257	1301	B3.3	SF	S30E63	2887
23 Oct	1347	U1350	A1357	B3.7	SF	S25E62	2887
23 Oct	1444	1449	1455	B3.4			2887
23 Oct	1807	1811	1817	B3.6			2887
23 Oct	2301	2310	2317	B3.7			2887
24 Oct	0737	0744	0749	B3.2			2887
24 Oct	0912	0917	0921	B4.6			2887
24 Oct	1812	1818	1822	B6.0			2887



Region Summary

Date	Location		Sunspot Characteristics				Flares																
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
Region 2886																							
18 Oct	S19E61	337	170	3	Hsx	1	A																
19 Oct	S19E47	338	185	3	Hsx	1	A																
20 Oct	S19E36	336	130	2	Hsx	1	A																
21 Oct	S19E22	336	100	2	Hsx	1	A																
22 Oct	S19E10	335	100	2	Hsx	1	A																
23 Oct	S19W02	334	120	2	Hsx	1	A																
24 Oct	S19W15	334	110	2	Hsx	1	A																
													0	0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 334

Region 2887																							
22 Oct	S24E65	280	150	5	Dao	7	B																
23 Oct	S26E53	279	420	8	Dki	11	B						2										
24 Oct	S25E40	278	440	9	Dki	14	B																
													0	0	0	2	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 278

Region 2888																							
24 Oct	S15E66	253	20	1	Hsx	1	A																
													0	0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 253



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

The Weekly has been published continuously since 1951 and is available online since 1997.

<https://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecast> --

Current

<ftp://ftp.swpc.noaa.gov/pub/warehouse> -- Online archive from 1997

<https://www.ngdc.noaa.gov/stp/satellite/goes-r.html> -- NCEI GOES data
textarchive

<https://www.swpc.noaa.gov/products/solar-cycle-progression> -- Solar Cycle
Progression web site

<https://www.swpc.noaa.gov/content/contact-us> -- Contact and Copyright
information

https://www.swpc.noaa.gov/sites/default/files/images/u2/Usr_guide.pdf -- User
Guide

