

**Space Weather Highlights**  
**11 October - 17 October 2021**

**SWPC PRF 2407**  
**18 October 2021**

Solar activity was very low with B-class flare activity on 11-12, and 15-17 Oct. Low levels of solar activity were observed on 13-14 Oct due to C-class flare activity. Region 2885 (N15, L=171, class/area=Cro/20 on 13 Oct) produced three C-class flares this period: a C1/Sf flare at 13/2204 UTC, a C2 flare at 14/0134 UTC, and a C1 flare at 14/0304 UTC.

No proton events were observed at geosynchronous orbit.

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

Geomagnetic field activity reached G1-G2 (Minor-Moderate) geomagnetic storm levels on 12 Oct due to the passage of a CME from 09 Oct. Quiet to active conditions were observed on 17 Oct, also due to the passage of a transient feature. Quiet to unsettled conditions were observed on 11, 13, and 16 Oct, while quiet conditions were observed throughout the remainder of the period.

**Space Weather Outlook**  
**18 October - 13 November 2021**

Solar activity is expected to be very low to low throughout the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 26-28 Oct. Normal to moderate flux levels are expected to prevail throughout the remainder of the outlook period.

Geomagnetic field activity is expected to reach active levels on 18-19 Oct, and 06 Nov due to the influence of multiple, recurrent CH HSSs. The remainder of the outlook period is expected to be mostly quiet or quiet to unsettled.



### *Daily Solar Data*

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 <sup>-6</sup> hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
11 October	89	35	270	B1.0	0	0	0	1	0	0	0	0
12 October	84	26	280	A8.9	0	0	0	4	0	0	0	0
13 October	84	27	270	A7.4	1	0	0	6	0	0	0	0
14 October	83	24	260	A7.1	2	0	0	1	0	0	0	0
15 October	84	11	250	A5.3	0	0	0	0	0	0	0	0
16 October	78	11	120	A5.9	0	0	0	0	0	0	0	0
17 October	77	0	0	A4.9	0	0	0	0	0	0	0	0

### *Daily Particle Data*

Date	Proton Fluence (protons/cm <sup>2</sup> -day -sr)		Electron Fluence (electrons/cm <sup>2</sup> -day -sr)	
	>1 MeV	>10 MeV	>2MeV	
	11 October	2.3e+06	6.7e+04	2.6e+06
12 October	1.1e+06	4.6e+04	2.7e+06	
13 October	7.3e+04	4.4e+04	1.4e+06	
14 October	6.7e+04	4.4e+04	3.7e+06	
15 October	6.2e+04	4.5e+04	9.4e+06	
16 October	6.7e+04	4.4e+04	1.2e+07	
17 October	5.1e+04	4.2e+04	3.6e+06	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	11 October	15	3-3-4-3-2-1-2-4	23	2-3-5-5-5-2-1-2	13
12 October	32	4-6-4-5-4-3-3-3	60	4-5-6-7-6-6-3-2	45	5-6-4-6-4-4-3-3
13 October	5	3-2-2-0-1-1-1-0	6	2-1-2-3-3-1-0-0	6	3-2-2-0-1-1-0-0
14 October	6	2-2-2-2-1-1-2-1	11	1-1-2-4-4-3-1-1	7	2-2-1-2-1-2-2-2
15 October	4	0-2-2-2-0-1-0-2	15	0-2-5-5-0-0-0-0	6	2-2-2-2-0-0-1-2
16 October	3	0-0-0-0-0-0-1-1	0	0-0-0-0-0-0-0-0	6	3-2-1-2-0-2-1-1
17 October	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0	0	0-1-1-3-2-2-4-3

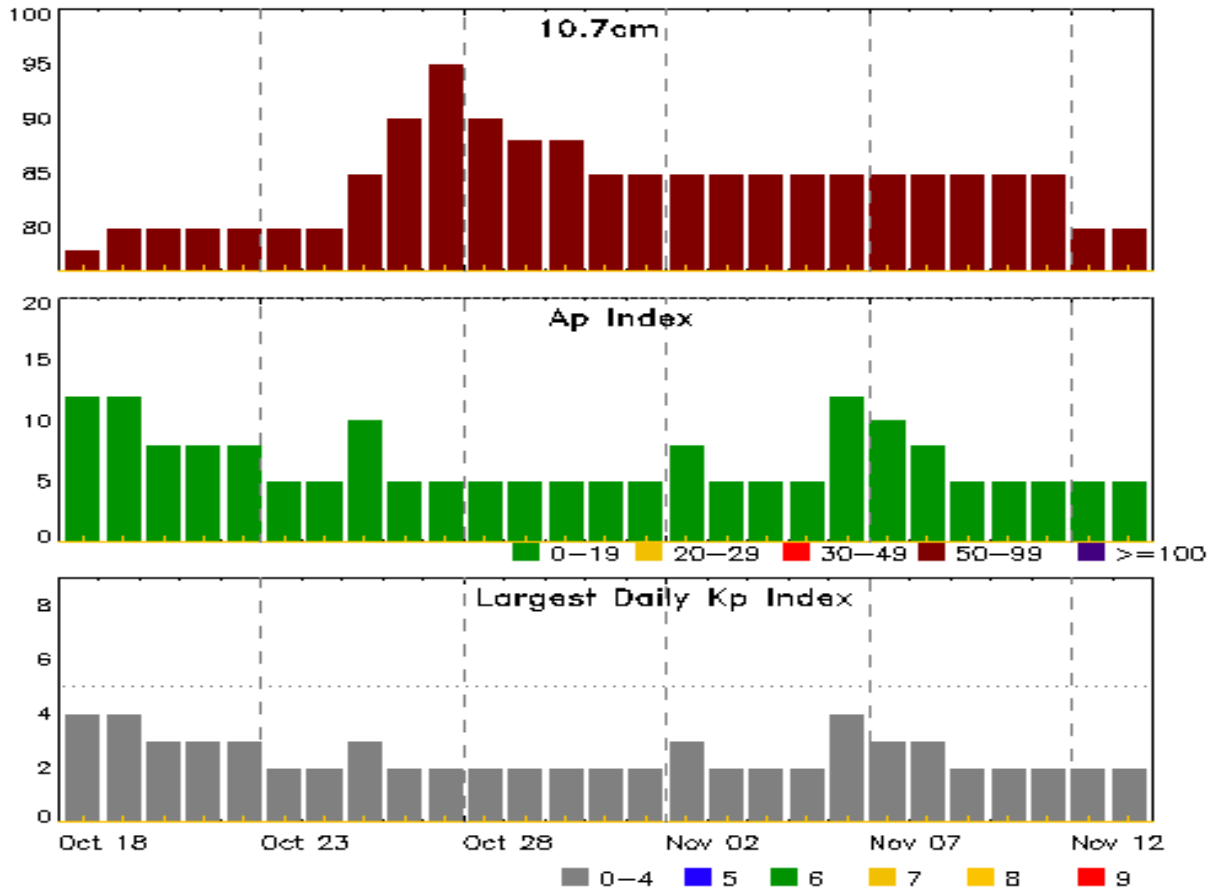


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
11 Oct 0239	EXTENDED WARNING: Geomagnetic K = 4	10/2220 - 11/1200
11 Oct 1943	WATCH: Geomagnetic Storm Category G2 predicted	
12 Oct 0004	WARNING: Geomagnetic K = 4	12/0003 - 1500
12 Oct 0056	ALERT: Geomagnetic K = 4	12/0055
12 Oct 0155	WARNING: Geomagnetic Sudden Impulse expected	12/0215 - 0315
12 Oct 0157	WARNING: Geomagnetic K = 5	12/0200 - 1500
12 Oct 0240	SUMMARY: Geomagnetic Sudden Impulse	12/0230
12 Oct 0257	ALERT: Geomagnetic K = 5	12/0257
12 Oct 0405	ALERT: Geomagnetic K = 5	12/0358
12 Oct 0438	WARNING: Geomagnetic K = 6	12/0438 - 1500
12 Oct 0448	ALERT: Geomagnetic K = 6	12/0447
12 Oct 1024	ALERT: Geomagnetic K = 5	12/1020
12 Oct 1058	ALERT: Geomagnetic K = 6	12/1052
12 Oct 1429	EXTENDED WARNING: Geomagnetic K = 4	12/0003 - 2200
12 Oct 1431	EXTENDED WARNING: Geomagnetic K = 5	12/0200 - 2200
12 Oct 2109	EXTENDED WARNING: Geomagnetic K = 4	12/0003 - 13/0600
17 Oct 1946	WARNING: Geomagnetic K = 4	17/1945 - 2359
17 Oct 1947	ALERT: Geomagnetic K = 4	17/1936



## 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
18 Oct	78	12	4	01 Nov	85	5	2
19	80	12	4	02	85	8	3
20	80	8	3	03	85	5	2
21	80	8	3	04	85	5	2
22	80	8	3	05	85	5	2
23	80	5	2	06	85	12	4
24	80	5	2	07	85	10	3
25	85	10	3	08	85	8	3
26	90	5	2	09	85	5	2
27	95	5	2	10	85	5	2
28	90	5	2	11	85	5	2
29	88	5	2	12	80	5	2
30	88	5	2	13	80	5	2
31	85	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	Radio Flux 2695	Intensity II

**No Events Observed**

## *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
11 Oct	0747	0757	0804	B3.5			
11 Oct	1441	1453	1500	B2.0			2882
11 Oct	1609	1614	1620	B2.0			2882
11 Oct	1745	1752	1810	B1.4			2883
11 Oct	1918	1925	1929	B1.9			2883
11 Oct	1937	1945	1949	B2.0			2883
11 Oct	2019	2026	2031	B4.3	SF	N27W72	2883
12 Oct	0115	0116	0118		SF	N19W29	2882
12 Oct	0136	0146	0151	B9.5	SF	N18W31	2882
12 Oct	0203	0216	0222	B7.3			2882
12 Oct	0230	0245	0301	B8.7	SF	N19W30	2882
12 Oct	1054	1058	1102	B1.3			2882
12 Oct	1111	1122	1127	B1.4			2882
12 Oct	1204	1211	1216	B1.5			2882
12 Oct	1257	1305	1310	B1.6			
12 Oct	1404	1410	1416	B1.1			
12 Oct	1554	1602	1613	B5.9	SF	N15W32	2882
12 Oct	1634	1644	1648	B1.8			2882
12 Oct	2245	2252	2300	B1.9			2882
13 Oct	0627	0629	0633	B2.0			
13 Oct	0954	1014	1022	B3.3			
13 Oct	1022	1031	1042	B4.7			2882
13 Oct	1403	1411	1419	B1.4			2885
13 Oct	1633	1651	1657		SF	N16W64	2885
13 Oct	1709	1716	1720	B1.8	SF	N16W66	2885
13 Oct	1810	1819	1829	B1.8			
13 Oct	2013	2022	2027	B4.8			2885
13 Oct	2032	2035	2039	B3.7			2885
13 Oct	2107	2117	2122	B5.4	SF	N16W67	2885
13 Oct	2127	2131	2135	B2.8	SF	N16W67	2885
13 Oct	2151	2204	2210	C1.3	SF	N16W67	2885



## *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
13 Oct	2325	2332	2336	B2.2	SF	N16W68	2885	
13 Oct	2347	2350	0015	B4.8			2885	
14 Oct	0057	0102	0106	B5.3			2885	
14 Oct	0124	0134	0140	C2.2			2885	
14 Oct	0206	0210	0214	B4.3			2885	
14 Oct	0254	0304	0314	C1.8			2885	
14 Oct	0508	0513	0519	B2.8			2885	
14 Oct	0519	0524	0536	B3.3			2885	
14 Oct	1042	1043	1046		SF	N16W75	2885	
14 Oct	1249	1254	1306	B1.2			2885	
14 Oct	1506	1513	1519	B1.0			2885	
15 Oct	1501	1516	1529	B9.7			2885	
16 Oct	0037	0041	0047	B1.4			2882	
16 Oct	1132	1140	1144	B1.6				
17 Oct	0525	0530	0535	B1.2				
17 Oct	0550	0557	0602	B1.5				
17 Oct	0616	0623	0628	B1.8				



## Region Summary

Date	Location		Sunspot Characteristics					Flares											
	Lat	CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
									C	M	X	S	1	2	3	4			
<b>Region 2282</b>																			
07 Feb	N15E76		196	30	2	Hsx	1	A											
08 Feb	N15E65		193	90	3	Cao	2	B	1				2	1					
09 Feb	N14E51		194	110	3	Dso	7	B	2	1			2						
10 Feb	N11E48		184	220	9	Dso	10	BG	1										
11 Feb	N11E31		187	250	13	Eho	13	B	2				3						
12 Feb	N10E16		190	240	13	Eso	15	BG	1				4						
13 Feb	N10E04		189	220	12	Csi	10	BG					3						
14 Feb	N11W09		188	220	11	Csi	13	BG					1						
15 Feb	N11W24		190	210	10	Cso	8	B											
16 Feb	N11W37		190	210	9	Cso	10	B											
17 Feb	N11W51		191	170	8	Cao	7	B					1						
18 Feb	N11W64		191	140	7	Cao	6	B	2				1						
19 Feb	N10W76		188	90	6	Hsx	2	A	1				1						
20 Feb	N10W90		190	plage															
									10	1	0	18	1	0	0	0	0		

Crossed West Limb.  
Absolute heliographic longitude: 189

<b>Region 2882</b>																			
03 Oct	N14E77		158	180	1	Hax	1	A											
04 Oct	N16E66		157	250	2	Hhx	1	A											
05 Oct	N16E52		157	200	2	Hsx	1	A											
06 Oct	N16E43		153	240	9	Cso	1	BG											
07 Oct	N17E28		155	230	5	Dso	3	BG	1				1						
08 Oct	N20E13		156	240	4	Dso	3	BG	2										
09 Oct	N17W01		157	280	6	Dho	4	BG	1	1			1		1				
10 Oct	N18W14		157	260	7	Dho	4	B											
11 Oct	N16W28		158	250	7	Dho	3	B											
12 Oct	N17W42		159	270	7	Dho	5	BG					4						
13 Oct	N17W55		159	250	6	Cho	4	B											
14 Oct	N15W68		157	250	6	Cho	3	B											
15 Oct	N15W76		154	250	3	Hhx	1	A											
16 Oct	N15W91		154	120	2	Hsx	1	A											
									4	1	0	6	0	1	0	0			

Crossed West Limb.  
Absolute heliographic longitude: 157



### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares								
	Lat CMD	Lon	Helio 10 <sup>-6</sup> hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
									C	M	X	S	1	2	3

#### ***Region 2883***

10 Oct	N27W60	203	30	2	Bxo	2	B										
11 Oct	N27W74	204	10	1	Axx	1	A					1					
12 Oct	N26W87	204	10	1	Axx	1	A										
								0	0	0	1	0	0	0	0	0	

Crossed West Limb.  
Absolute heliographic longitude: 203

#### ***Region 2884***

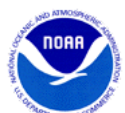
10 Oct	S20W27	170	10	2	Bxo	2	B										
11 Oct	S20W40	170	10	1	Axx	1	A										
12 Oct	S20W54	171	plage														
13 Oct	S20W67	171	plage														
14 Oct	S20W81	172	plage														
								0	0	0	0	0	0	0	0	0	

Crossed West Limb.  
Absolute heliographic longitude: 170

#### ***Region 2885***

13 Oct	N15W67	171	20	3	Cro	3	B	1				6					
14 Oct	N15W80	169	10	1	Axx	1	A	2				1					
15 Oct	N15W94	172	plage														
								3	0	0	7	0	0	0	0	0	

Crossed West Limb.  
Absolute heliographic longitude: 171





## ***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

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

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