

**Space Weather Highlights**  
**06 September - 12 September 2021**

**SWPC PRF 2402**  
**13 September 2021**

Solar activity was at low levels with C-class activity observed from three separate regions. Region 2864 (N24, L=249, class/area Cso/120 on 07 Sep) produced a C2/Sf event at 08/0009 UTC. Associated with this flare was Type II (723 km/s shock velocity) and Type IV radio signatures, along with a weak, Earth-directed CME. Region 2866 (S18, L=199, class/area Dkc/500 on 09 Sep) produced four C-class events including the largest of the period; a C8/1n at 08/1730 UTC. Region 2868 (S21, L=213, class/area Dhi/300 on 08 Sep) also produced four C-class flares during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 06-07 Sep with a peak of 3,280 pfu observed at 06/1615 UTC. Normal to moderate levels were observed on 08-12 Sep.

Geomagnetic field activity was at quiet to isolated active levels during the period. Quiet to active conditions were observed on 06-08 Sep due to weak, positive polarity CH HSS influence. Quiet levels were observed on 09 Sep through a majority of 10 Sep. Unsettled to active conditions were observed on late 10 Sep through early on 11 Sep due to weak influence from the 08 Sep CME. Quiet conditions were observed for the remainder of 11 Sep through 12 Sep.

**Space Weather Outlook**  
**13 September - 09 October 2021**

Solar activity is expected to be at low levels, with a slight chance for M-class activity, on 13-16 Sep due to potential flare activity from Regions 2866 and 2868. Very low to low activity is expected from 17-28 Sep. A return to low levels, with a slight chance for M-class activity, is possible on 29 Sep - 09 Oct upon the return of old Regions 2866 and 2868.

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 13 Sep - 04 Oct and 08-09 Oct. Moderate to high levels are possible on 05-07 Oct due to CH HSS influence.

Geomagnetic field activity is expected to be at unsettled levels on 21 Sep and unsettled to active levels on 04-05 Oct, all due to positive polarity CH HSS influence. The remainder of the outlook period is expected to be at mostly quiet levels.



### *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
06 September	100	80	720	B2.5	0	0	0	3	0	0	0	0
07 September	101	85	970	B2.3	1	0	0	5	0	0	0	0
08 September	100	87	1000	B2.4	4	0	0	10	1	0	0	0
09 September	100	124	1030	B2.4	1	0	0	3	0	0	0	0
10 September	96	99	920	B2.2	1	0	0	2	0	0	0	0
11 September	92	93	780	B2.2	1	0	0	1	0	0	0	0
12 September	88	47	390		0	0	0	1	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	
	06 September	8.1e+04	4.6e+04	5.3e+07
07 September	2.3e+05	4.6e+04	1.6e+07	
08 September	4.4e+05	4.5e+04	2.5e+06	
09 September	6.6e+04	4.5e+04	3.0e+06	
10 September	4.9e+05	4.5e+04	2.7e+06	
11 September	5.5e+04	4.5e+04	1.6e+06	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	06 September	8	2-3-1-2-3-2-1-2	3	1-1-0-2-1-2-0-1	6
07 September	10	0-1-2-3-2-1-3-4	7	1-0-3-4-1-0-2-1	8	1-1-2-3-2-2-3-3
08 September	14	4-2-3-4-3-2-2-1	33	2-2-6-6-6-1-1-1	14	4-2-3-4-3-2-2-1
09 September	7	1-2-1-2-2-2-3-2	3	0-1-2-2-1-0-0-1	6	1-2-2-2-1-1-1-2
10 September	9	1-2-2-2-2-2-2-4	6	1-3-3-0-0-1-1-2	9	1-2-2-1-1-1-3-4
11 September	8	4-0-1-1-2-2-2-2	5	3-1-1-1-2-0-1-1	7	3-1-2-1-1-1-2-2
12 September	6	1-1-2-2-2-2-1-2	14	0-1-2-5-5-1-1-1	5	1-1-2-2-2-2-1-2

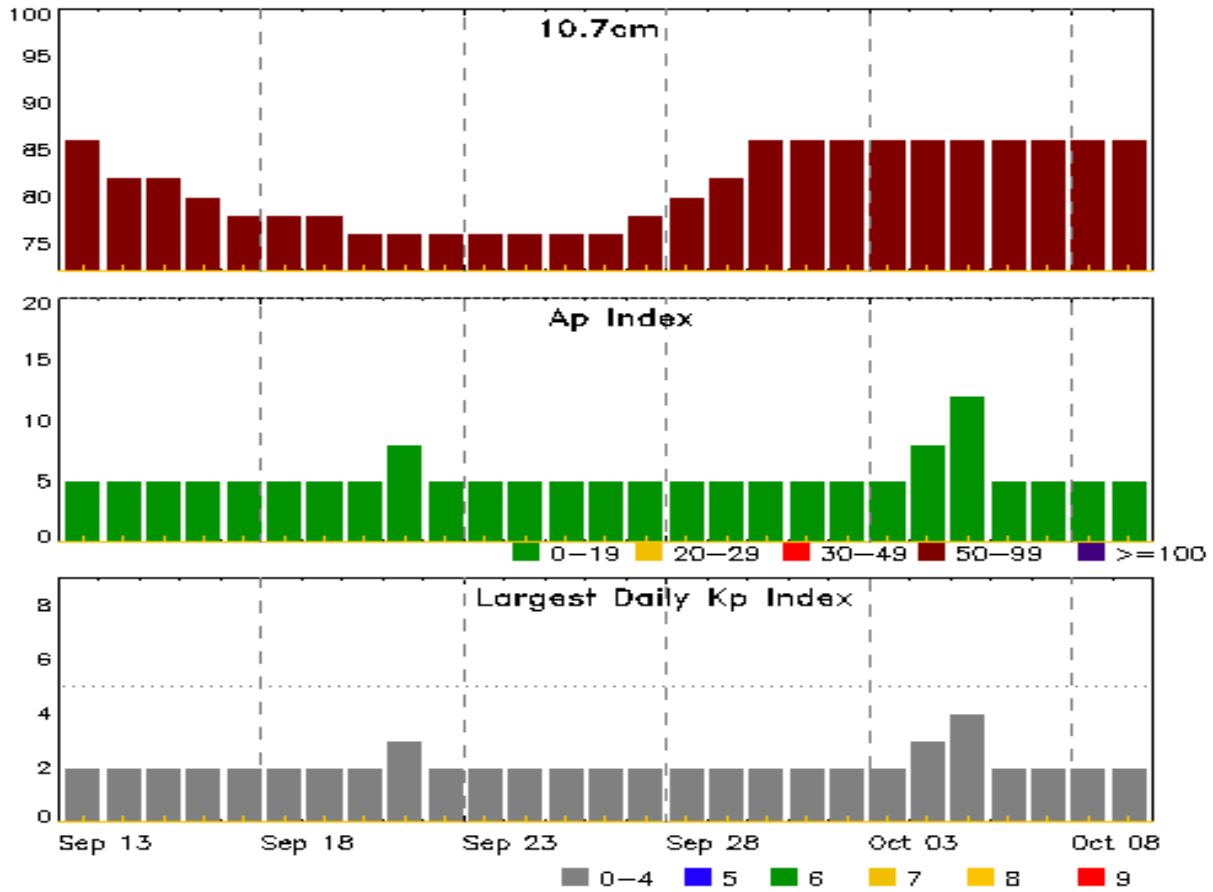


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
06 Sep 1348	ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	06/1325
07 Sep 1752	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	06/1325
08 Sep 0036	WARNING: Geomagnetic K = 4	08/0035 - 0600
08 Sep 0040	ALERT: Type II Radio Emission	08/0007
08 Sep 0041	ALERT: Type IV Radio Emission	08/0006
08 Sep 0054	ALERT: Geomagnetic K = 4	08/0050
08 Sep 0843	WARNING: Geomagnetic K = 4	08/0845 - 1500
08 Sep 1007	ALERT: Geomagnetic K = 4	08/1006
08 Sep 1455	EXTENDED WARNING: Geomagnetic K = 4	08/0845 - 2100
10 Sep 2224	WARNING: Geomagnetic K = 4	10/2223 - 11/0600
11 Sep 0009	ALERT: Geomagnetic K = 4	10/2359



## 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
13 Sep	86	5	2	27 Sep	78	5	2
14	82	5	2	28	80	5	2
15	82	5	2	29	82	5	2
16	80	5	2	30	86	5	2
17	78	5	2	01 Oct	86	5	2
18	78	5	2	02	86	5	2
19	78	5	2	03	86	5	2
20	76	5	2	04	86	8	3
21	76	8	3	05	86	12	4
22	76	5	2	06	86	5	2
23	76	5	2	07	86	5	2
24	76	5	2	08	86	5	2
25	76	5	2	09	86	5	2
26	76	5	2				



## *Energetic Events*

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

**No Events Observed**

## *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
06 Sep	0423	0423	0426		SF	S21E31	2868
06 Sep	0508	0515	0520	B4.3			
06 Sep	0552	0559	0603	B5.0			2868
06 Sep	0815	0815	0817		SF	S20E29	2868
06 Sep	1300	1304	1308	B4.5			2863
06 Sep	1657	1701	1705	B4.5			2863
06 Sep	1921	1930	1935	B4.0			2866
06 Sep	2128	2131	2135	B4.4	SF	S18E37	2866
07 Sep	0145	0156	0206	B7.3			2866
07 Sep	0329	0339	0346	B5.5			2866
07 Sep	0449	0459	0509	B4.0			
07 Sep	0624	0628	0633	B6.1	SF	S19W32	2863
07 Sep	0915	0926	0929	B6.9	SF	S15E56	2866
07 Sep	1041	1042	1046		SF	S14W35	2863
07 Sep	1150	1201	1205	B4.7	SF	S20E28	2866
07 Sep	1246	1257	1308	B3.7			
07 Sep	2307	2308	2311		SF	S20E06	2868
07 Sep	2342	0009	0033	C2.3	SF	N22W38	2864
08 Sep	0137	0142	0148	B4.7			2866
08 Sep	0304	0314	0319	C1.1	SF	S20E03	2868
08 Sep	0426	0430	0434	B4.4	SF	S20E03	2868
08 Sep	1020	1026	1031	C1.2	SF	S15E16	2866
08 Sep	1120	1124	1130		SF	S15E16	2866
08 Sep	1137	1138	1200		SF	S15E16	2866
08 Sep	1213	1221	1225	B8.9			
08 Sep	1246	1258	1304	C2.3	SF	S20W03	2868
08 Sep	1500	1511	1529	B7.6	SF	S16E14	2866
08 Sep	1711	1730	1749	C8.3	1N	S16E12	2866
08 Sep	1806	1810	1812		SF	S17E09	2866
08 Sep	2308	2323	2333	B4.5	SF	S15E10	2866
09 Sep	0612	0612	0616		SF	S15E10	2866



## *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
09 Sep	0809	0831	0843	C3.5	SF	S16E04		2866
09 Sep	0958	1007	1012	B6.6				2868
09 Sep	1658	1708	1710	B7.2				2866
09 Sep	1710	1716	1720	B8.1	SF	S15W02		2866
09 Sep	2230	2255	2333	B7.5				2868
10 Sep	1045	1049	1053	B4.2				2866
10 Sep	1056	1056	1057		SF	S19W31		2868
10 Sep	2048	2134	2213	C1.1	SF	S20W33		2868
11 Sep	0311	0315	0319	B5.0				2868
11 Sep	0419	0428	0438	B3.9				2868
11 Sep	0442	0452	0503	B7.8				2868
11 Sep	0511	0519	0528	C1.3				2868
11 Sep	0715	0728	0738	B6.8				2869
11 Sep	0737	0743	0747	B5.4				2868
11 Sep	1314	1322	1329	B4.7				2866
11 Sep	1531	1536	1542	B4.3	SF	S15W26		2866
11 Sep	1747	1754	1803	B4.3				2866
11 Sep	2241	2251	2301	B5.0				2869
12 Sep	2215	2222	2227	B4.9				2868
12 Sep	2238	2240	2244	B4.7				2868
12 Sep	2332	2341	2345	B6.5	SF	S20W59		2868



## Region Summary

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 2861

26 Aug	N15E53	323	10		Bxo	1	B										
27 Aug	N15E38	326	10	1	Axx	1	A										
28 Aug	N16E28	323	10	1	Axx	1	A										
29 Aug	N16E15	323	plage														
30 Aug	N16E02	323	plage														
31 Aug	N16W12	323	plage														
01 Sep	N16W25	323	plage														
02 Sep	N16W38	323	plage														
03 Sep	N16W51	323	plage														
04 Sep	N16W64	323	plage														
05 Sep	N16W78	323	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 323

### Region 2863

02 Sep	S16E28	256	70	4	Cao	7	B										
03 Sep	S16E15	257	160	5	Dso	9	B				1						
04 Sep	S16E02	256	90	5	Cso	5	B										
05 Sep	S16W10	255	40	6	Cso	4	B										
06 Sep	S16W28	258	100	3	Cso	4	B										
07 Sep	S17W40	258	80	3	Hsx	2	A				2						
08 Sep	S16W54	259	80	3	Hsx	1	A										
09 Sep	S16W66	258	90	3	Hsx	2	A										
10 Sep	S15W81	260	70	2	Hsx	1	A										
11 Sep	S17W92	258	30	1	Hsx	1	A										
									0	0	0	3	0	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 256



### *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	4		
<b>Region 2864</b>																		
03 Sep	S23E22	250	30	3	Cro	4	B											
04 Sep	N24E10	248	50	4	Dao	7	B											
05 Sep	N24W05	250	90	7	Dao	8	B											
06 Sep	N24W19	251	180	8	Dao	10	B											
07 Sep	N24W31	249	220	11	Cso	10	B	1										
08 Sep	N24W45	250	110	11	Hsx	1	A					1						
09 Sep	N24W62	253	100	5	Hsx	4	A											
10 Sep	N24W76	255	80	2	Cso	2	B											
11 Sep	N24W90	256	50	1	Hsx	1	A											
								1	0	0	1	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 250

<b>Region 2865</b>																		
04 Sep	N22E25	233	10	4	Bxo	3	B											
05 Sep	N23E13	232	plage															
06 Sep	N23W00	232	plage															
07 Sep	N23W14	233	plage															
08 Sep	N23W28	234	plage															
09 Sep	N23W42	235	plage															
10 Sep	N23W56	235	plage															
11 Sep	N23W70	236	plage															
12 Sep	N23W84	237	plage															
								0	0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 232





### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares												
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical							
			Lon	10 <sup>6</sup> hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4			
<b>Region 2866</b>																			
04 Sep	S18E63	195	40	2	Bxo	2	B					1							
05 Sep	S17E48	197	80	6	Dai	8	B					7							
06 Sep	S18E32	200	220	7	Dai	15	B					1							
07 Sep	S18E21	197	430	8	Dkc	23	B					2							
08 Sep	S18E07	197	500	8	Dkc	15	B	2				6	1						
09 Sep	S18W06	199	500	8	Dkc	29	B	1				3							
10 Sep	S18W19	198	460	7	Dkc	17	B												
11 Sep	S18W33	199	400	6	Dkc	17	B					1							
12 Sep	S19W46	199	180	5	Dai	10	B												
												3	0	0	21	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 199

#### **Region 2867**

04 Sep	S18W74	332	10	1	Axx	1	A												
05 Sep	S18W85	330	plage																
												0	0	0	0	0	0	0	0

Crossed West Limb.

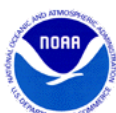
Absolute heliographic longitude: 332

#### **Region 2868**

05 Sep	S21E33	212	60	7	Dso	6	B												
06 Sep	S22E19	212	220	7	Dso	11	B					2							
07 Sep	S21E05	213	240	10	Dso	10	B					1							
08 Sep	S21W08	213	300	10	Dhi	17	B	2				3							
09 Sep	S21W19	212	260	8	Dhi	18	B												
10 Sep	S22W34	213	250	8	Dki	20	B	1				2							
11 Sep	S19W49	215	260	8	Dki	21	B	1											
12 Sep	S20W62	215	200	7	Dao	6	B					1							
												4	0	0	9	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 213



### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares								
	Lat CMD	Lon	Heli 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 2869***

08 Sep	S35E12	194	10	3	Bxo	3	B										
09 Sep	S34W01	194	70	6	Cao	10	B										
10 Sep	S34W14	193	60	7	Cao	9	B										
11 Sep	S35W28	192	40	6	Cao	3	B										
12 Sep	S34W42	195	10		Axx	1	A										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 194

#### ***Region 2870***

09 Sep	S31E56	136	10		Axx	1	A										
10 Sep	S31E45	134	plage														
11 Sep	S31E31	135	plage														
12 Sep	S31E17	136	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 136



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

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NOAA / National Weather Service  
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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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