Space Weather Highlights **SWPC PRF 2426**
21 February - 27 February 2022 **28 February 2022**

Solar activity ranged from very low to low levels throughout the week. Regions 2954 (N17, L=118, class/area=Hsx/120 on 21 Feb) and 2955 (N14, L=107, class/area=Hsx/150 on 22 Feb) were the primary regions on the disk, but remained quiescent throughout the period. No Earth-directed CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 26 Feb, and was normal to moderate throughout the remainder of the period.

Geomagnetic field activity reached active levels on 21 Feb and Minor (G1) geomagnetic storm levels on 22 Feb due to the influence of a positive polarity CH HSS. Active conditions were once again observed on 27 Feb due to another geoeffective positive polarity CH HSS. Quiet and quiet to unsettled conditions were observed throughout the remainder of the week under a background solar wind environment.

Space Weather Outlook
28 February - 26 March 2022

Solar activity is expected to be very low with a chance for C-class flares 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 28 Feb-08 Mar, 12-17 and 20-22 Mar in response to enhanced solar wind conditions associated with recurrent CH HSSs.

Geomagnetic field activity is expected to reach active levels on 28 Feb-01 Mar, 05-06, 11-12, and 19-21 Mar due to multiple recurrent CH HSSs. Quiet and quiet to unsettled field activity is expected to prevail throughout the remainder of the outlook period.

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
21 February	98	48	190	B1.7	0	0	0	0	0	0	0	0
22 February	95	38	280	B1.4	0	0	0	0	0	0	0	0
23 February	96	38	260	B1.3	0	0	0	1	0	0	0	0
24 February	92	23	200	B1.1	0	0	0	1	0	0	0	0
25 February	96	22	160	B1.4	1	0	0	0	0	0	0	0
26 February	97	22	180	B1.6	0	0	0	0	0	0	0	0
27 February	97	48	220	B1.5	1	0	0	1	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
21 February	1.6e+06	7.1e+04	3.6e+06
22 February	1.3e+06	5.7e+04	1.3e+07
23 February	6.4e+05	4.9e+04	1.3e+07
24 February	3.5e+05	4.6e+04	2.7e+07
25 February	2.2e+05	4.4e+04	3.0e+07
26 February	1.6e+05	4.4e+04	4.0e+07
27 February	1.6e+05	4.3e+04	5.3e+06

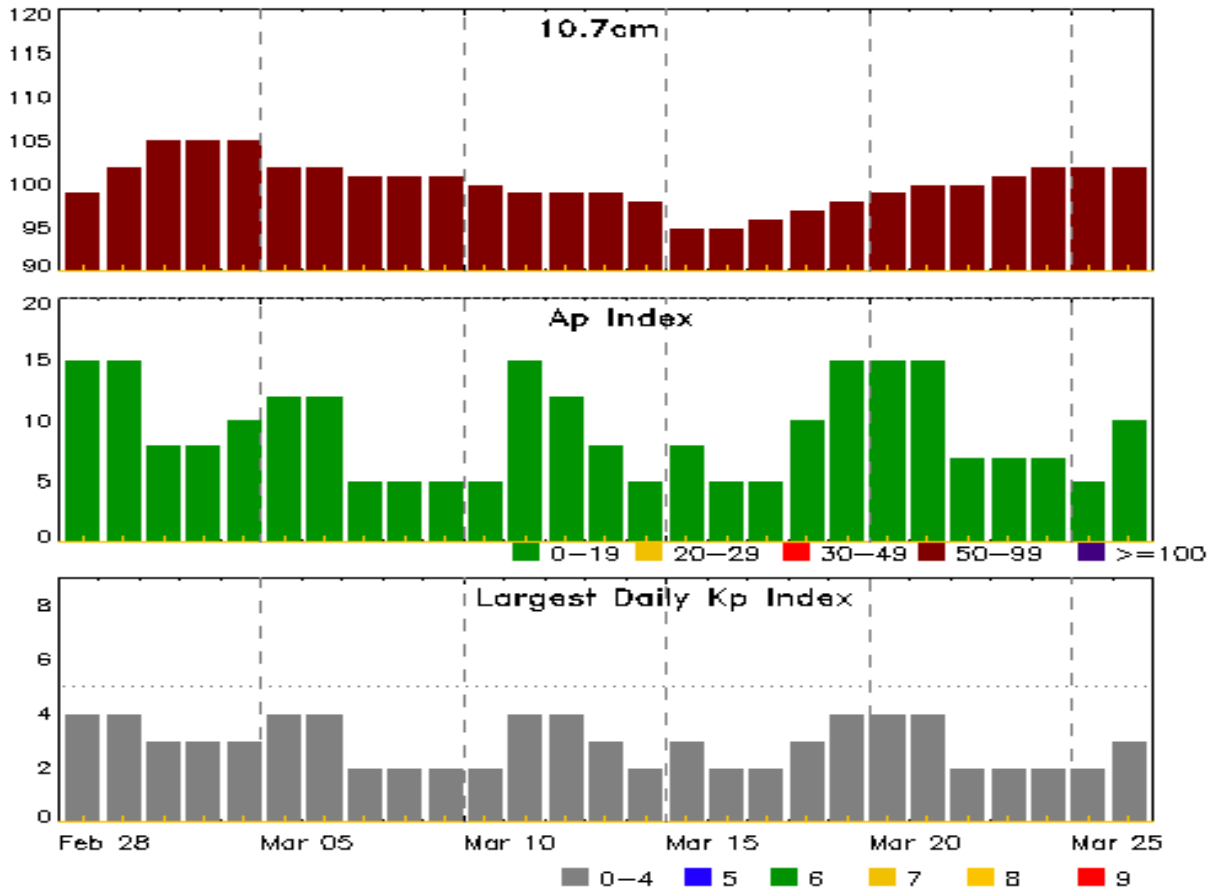
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
21 February	11	1-1-2-2-4-3-2-3	36	1-0-4-6-7-4-2-2	12	1-1-2-3-4-3-3-3
22 February	13	3-4-4-3-2-1-2-1	23	2-4-6-5-3-0-1-1	16	3-4-5-3-2-1-2-2
23 February	4	0-0-2-1-2-1-1-2	12	1-0-2-3-4-4-2-2	6	1-0-2-2-2-2-1-2
24 February	6	2-3-2-1-1-2-1-1	4	2-2-3-1-0-0-0-1	7	3-3-2-1-0-1-1-2
25 February	7	1-2-3-3-3-0-0-1	21	1-1-4-6-5-0-0-1	8	2-2-3-3-2-0-0-1
26 February	1	1-0-1-0-0-1-0-0	0	0-0-0-0-0-0-0-0	3	1-0-1-0-0-0-1-1
27 February	11	2-2-4-3-3-2-2-1	20	0-1-4-5-5-3-3-2	5	1-2-4-4-3-3-2-2

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
21 Feb 1423	WARNING: Geomagnetic K = 4	21/1424 - 1800
21 Feb 1433	ALERT: Geomagnetic K = 4	21/1432
22 Feb 0347	WARNING: Geomagnetic K = 4	22/0346 - 0900
22 Feb 0414	ALERT: Geomagnetic K = 4	22/0413
22 Feb 0537	WARNING: Geomagnetic K = 5	22/0535 - 0900
22 Feb 0544	EXTENDED WARNING: Geomagnetic K = 4	22/0346 - 1200
22 Feb 0845	EXTENDED WARNING: Geomagnetic K = 5	22/0535 - 1200
22 Feb 0904	ALERT: Geomagnetic K = 5	22/0859
22 Feb 1154	EXTENDED WARNING: Geomagnetic K = 4	22/0346 - 1500
26 Feb 1647	ALERT: Electron 2MeV Integral Flux >= 1000pfu	26/1630
27 Feb 0808	WARNING: Geomagnetic K = 4	27/0808 - 1800
27 Feb 0819	ALERT: Geomagnetic K = 4	27/0818
27 Feb 1753	EXTENDED WARNING: Geomagnetic K = 4	27/0808 - 28/0600

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
28 Feb	99	15	4	14 Mar	98	5	2
01 Mar	102	15	4	15	95	8	3
02	105	8	3	16	95	5	2
03	105	8	3	17	96	5	2
04	105	10	3	18	97	10	3
05	102	12	4	19	98	15	4
06	102	12	4	20	99	15	4
07	101	5	2	21	100	15	4
08	101	5	2	22	100	7	2
09	101	5	2	23	101	7	2
10	100	5	2	24	102	7	2
11	99	15	4	25	102	5	2
12	99	12	4	26	102	10	3
13	99	8	3				

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 #
21 Feb	1625	1630	1636	B2.5			
21 Feb	1834	1841	1843	C2.3			2954
22 Feb	0344	0353	0401	B4.0			
22 Feb	0608	0614	0621	B3.6			
22 Feb	0827	0832	0836	B2.1			
22 Feb	1147	1154	1158	B4.6			
22 Feb	1655	1702	1706	B2.4			
23 Feb	0236	0244	0250	B4.9			2955
23 Feb	0441	0447	0501	B1.9			2955
23 Feb	0809	0817	0821	B3.9	SF	S28W55	2948
23 Feb	0951	0957	1014	B2.9			
23 Feb	1208	1215	1220	B2.5			
23 Feb	1230	1239	1244	B2.6			
23 Feb	1331	1334	1340	B3.4			
24 Feb	0202	0209	0213	B2.4			2955
24 Feb	0213	0224	0244	B2.6			2955
24 Feb	0244	0254	0306	B9.3			2955
24 Feb	0253	0254	0302		SF	N15E50	2955
25 Feb	1131	1136	1142	B3.1			2955
25 Feb	1210	1219	1225	B2.8			2955
25 Feb	1355	1401	1405	B3.0			
25 Feb	2114	2140	2153	C5.1			
26 Feb	0421	0424	0428	B2.5			
26 Feb	0546	0555	0606	B3.9			2955
26 Feb	0848	0856	0904	B2.0			
26 Feb	1223	1231	1238	B6.2			
26 Feb	1314	1340	1356	B5.2			
26 Feb	1659	1711	1720	B4.0			
26 Feb	1911	1930	1943	B5.9			
26 Feb	2031	2043	2057	B2.1			
26 Feb	2153	2202	2210	B7.7			

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
26 Feb	2301	2305	2311	B2.2			
27 Feb	0127	0136	0200	B2.1			
27 Feb	0304	0316	0324	B3.2			
27 Feb	0616	0626	0632	C1.5	SF	S14E68	2957
27 Feb	0745	0750	0754	B2.9			

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 2652												
20 Apr	N13E60	54	10	1	Hrx	1	A								
21 Apr	N13E45	56	10	1	Hrx	1	A								
22 Apr	N13E31	57	plage												
23 Apr	N14E17	57	10	3	Bxo	3	B								
24 Apr	N13E01	60	10	2	Bxo	3	B								
25 Apr	N13W13	61	10		Axx	1	A								
26 Apr	N14W26	61	10	1	Axx	3	A								
27 Apr	N14W40	62	plage												
28 Apr	N14W54	62	plage												
29 Apr	N14W68	63	plage												
30 Apr	N14W82	64	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 60

			Region 2946												
11 Feb	S09E66	244	90	4	Dso	2	B								
12 Feb	S08E54	242	110	5	Dso	6	B				1				
13 Feb	S08E39	244	90	4	Cso	8	B								
14 Feb	S07E24	244	60	1	Hsx	2	A								
15 Feb	S09E11	245	50	2	Hsx	3	A								
16 Feb	S09W02	245	30	2	Cro	5	B								
17 Feb	S10W15	246	10	2	Bxo	3	B				1				
18 Feb	S10W29	246	10	3	Bxo	3	B								
19 Feb	S08W42	246	10	1	Axx	1	A								
20 Feb	S08W56	247	plage												
21 Feb	S08W70	248	plage												
22 Feb	S08W84	249	plage												
								0	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 245

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 2948												
14 Feb	S27E56	214	80	5	Dso	3	B								
15 Feb	S27E51	217	40	5	Cso	3	B								
16 Feb	S27E29	214	80	7	Dao	8	BG								
17 Feb	S27E15	216	100	8	Cao	13	B								
18 Feb	S28E01	215	70	8	Cao	8	B								
19 Feb	S27W12	216	50	8	Cso	6	B								
20 Feb	S27W24	215	30	6	Cso	4	B								
21 Feb	S28W39	216	plage												
22 Feb	S28W53	218	plage												
23 Feb	S28W67	219	plage								1				
24 Feb	S28W81	219	plage												
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 215

			Region 2949												
16 Feb	N25W18	261	20	4	Cro	5	B								
17 Feb	N24W32	263	10	5	Bxo	6	B								
18 Feb	N24W45	262	plage												
19 Feb	N24W59	263	plage												
20 Feb	N24W73	264	plage												
21 Feb	N24W87	265	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 261

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 2950													
16 Feb	N19E46	196	20		Hrx	1	A	1							
17 Feb	N21E33	198	20	1	Hrx	1	A	1							
18 Feb	N22E19	198	10	1	Axx	1	A				1				
19 Feb	N22E05	199	plage												
20 Feb	N22W09	200	plage												
21 Feb	N22W23	201	plage												
22 Feb	N22W37	202	plage												
23 Feb	N22W51	203	plage												
24 Feb	N22W65	203	plage												
25 Feb	N22W79	204	plage												
								2	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 199

		Region 2951													
16 Feb	S24W02	245	10	2	Cro	2	B								
17 Feb	S24W15	246	10	5	Bxo	4	B								
18 Feb	S25W27	244	plage												
19 Feb	S25W41	245	plage												
20 Feb	S25W55	246	plage												
21 Feb	S25W69	247	plage												
22 Feb	S25W83	248	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 245

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 2952												
17 Feb	S24E67	164	20	1	Hrx	1	A								
18 Feb	S24E55	162	10	1	Axx	1	A								
19 Feb	S24E42	162	10	1	Axx	1	A								
20 Feb	S24E29	162	10	1	Axx	1	A								
21 Feb	S23E16	161	10	1	Axx	1	A								
22 Feb	S24E01	163	plage												
23 Feb	S24W13	165	plage												
24 Feb	S24W27	165	plage												
25 Feb	S24W41	166	plage												
26 Feb	S24W55	167	plage												
27 Feb	S24W69	168	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 163

			Region 2953												
19 Feb	N18E37	167	10	5	Bxo	3	B								
20 Feb	N17E22	169	20	6	Bxo	3	B								
21 Feb	N18E09	167	10	5	Bxo	5	B								
22 Feb	N17W05	169	30	6	Cro	6	B								
23 Feb	N17W18	169	10	6	Bxo	5	B								
24 Feb	N18W29	166	plage												
25 Feb	N18W43	168	plage												
26 Feb	N18W57	169	plage												
27 Feb	N18W71	170	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 169

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 2954												
20 Feb	N18E72	119	60	2	Hsx	1	A								
21 Feb	N17E58	118	120	2	Hsx	1	A								
22 Feb	N18E45	118	100	2	Hsx	1	A								
23 Feb	N17E31	119	110	2	Hsx	1	A								
24 Feb	N17E18	119	70	1	Hsx	1	A								
25 Feb	N17E05	120	70	2	Hsx	1	A								
26 Feb	N17W06	118	80	2	Hsx	1	A								
27 Feb	N17W20	119	90	2	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 120

			Region 2955												
21 Feb	N13E70	106	50	2	Hsx	1	A								
22 Feb	N14E56	107	150	2	Hsx	1	A								
23 Feb	N15E44	106	140	4	Cso	2	B								
24 Feb	N14E30	107	130	3	Cso	2	B				1				
25 Feb	N15E17	108	90	2	Hsx	1	A								
26 Feb	N14E04	108	100	2	Hsx	1	A								
27 Feb	N15W10	109	110	2	Hsx	1	A								
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 108

			Region 2956												
27 Feb	N25E19	80	10	1	Axx	2	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 80

			Region 2957												
27 Feb	S13E57	42	10	3	Bxo	4	B	1							
								1	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 42

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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