Space Weather Highlights
03 March - 09 March 2025

SWPC PRF 2584
10 March 2025

Solar activity was moderate on 05 and 07 March with two M1 flares, neither had any significant radio or CMEs associated. The rest of the period was at low levels. No significant CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 04 March. Low to moderate levels were observed for the rest of the period.

Geomagnetic field activity reached moderate levels on 09 March due to negative polarity CH HSS influences. Solar wind speeds reached peaks of near 675 km/s. Minor storm levels were observed on 08 March in response to the same CH HSS effects. Active levels were observed late on 04 March into early on 05 March due to suspected weak CME influences. Quiet to unsettled conditions prevailed for the remainder of the period.

Space Weather Outlook
10 March - 05 April 2025

Solar activity is expected to be at low to moderate levels for the outlook period. No noteworthy regions are expected to return.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels on 29-31 March due to recurrent CH HSS influences. Normal to moderate levels are expected for the rest of the outlook period.

Geomagnetic field activity is expected to be at minor storm levels for 10-11 March, 18 March, 26-27 March, and 05 April, all due to recurrent CH HSS influences. Quiet to unsettled levels are expected for the remainder of the period. (subject to change with any CME 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
03 March	163	99	660	C1.0	7	0	0	3	0	0	0	0
04 March	161	134	560	C1.1	12	0	0	2	0	0	0	0
05 March	157	147	730	B9.4	5	1	0	1	0	0	0	0
06 March	150	139	720	B8.0	3	0	0	0	0	0	0	0
07 March	147	109	480	B8.6	4	1	0	1	0	0	0	0
08 March	148	90	450	B8.5	7	0	0	1	0	0	0	0
09 March	148	73	450	B8.6	3	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
03 March	1.2e+06	1.7e+04	5.0e+07
04 March	1.2e+06	1.7e+04	3.9e+07
05 March	6.2e+05	1.7e+04	1.3e+07
06 March	2.1e+05	1.7e+04	7.8e+06
07 March	6.1e+05	1.6e+04	1.1e+07
08 March	1.6e+06	1.7e+04	4.8e+06
09 March	6.4e+05	1.7e+04	8.8e+06

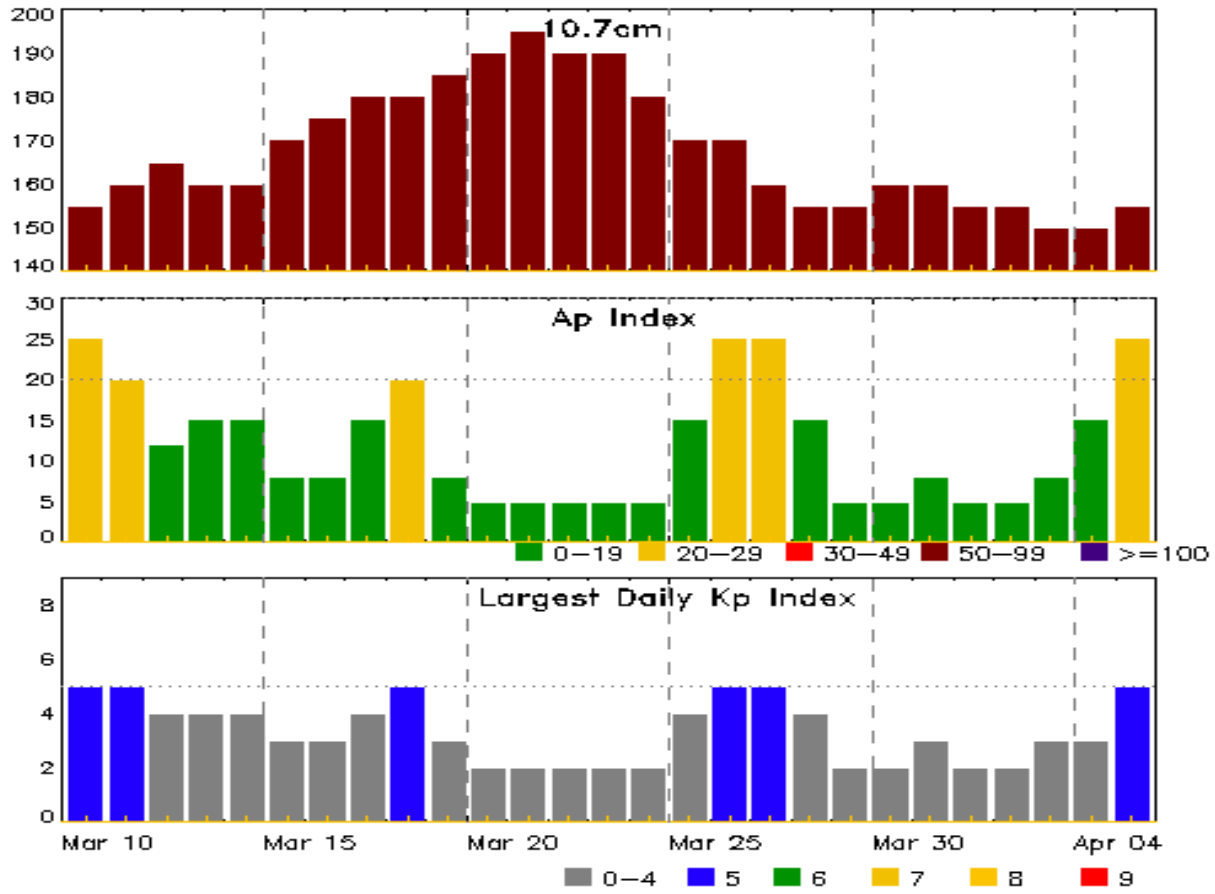
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
03 March	5	1-1-1-1-2-2-2-2	2	1-0-0-2-0-1-1-1	5	2-1-1-2-1-1-1-1
04 March	7	1-2-2-1-2-2-2-3	7	0-1-0-2-2-1-2-4	11	2-2-2-1-2-2-3-4
05 March	4	0-0-0-0-0-0-0-2	21	3-3-5-4-4-4-2-1	13	4-3-3-3-2-3-2-2
06 March	6	2-1-2-2-1-2-2-1	5	2-1-2-2-0-1-2-1	7	2-2-3-2-0-1-2-2
07 March	9	1-2-2-3-3-3-2-1	18	1-1-3-5-3-5-3-0	11	1-3-3-3-2-3-3-1
08 March	15	2-2-3-3-3-3-3-4	25	1-3-5-5-3-3-4-4	21	2-3-4-3-2-3-5-5
09 March	24	4-4-3-5-4-3-3-3	49	4-5-4-7-6-5-2-3	39	5-6-4-6-4-3-3-3

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
04 Mar 1844	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/1510
04 Mar 2133	WARNING: Geomagnetic K = 4	04/2132 - 05/1200
04 Mar 2136	ALERT: Geomagnetic K = 4	
04 Mar 2139	WARNING: Geomagnetic K = 5	04/2139 - 05/0600
05 Mar 1154	EXTENDED WARNING: Geomagnetic K = 4	04/2132 - 05/1800
07 Mar 0256	WATCH: Geomagnetic Storm Category G1 predicted	
07 Mar 1912	WATCH: Geomagnetic Storm Category G1 predicted	
08 Mar 0658	WARNING: Geomagnetic K = 4	08/0700 - 1500
08 Mar 0901	ALERT: Geomagnetic K = 4	
08 Mar 1456	WARNING: Geomagnetic K = 4	08/1500 - 09/1200
08 Mar 2020	WARNING: Geomagnetic K = 5	08/2019 - 09/1200
08 Mar 2103	ALERT: Geomagnetic K = 5	
08 Mar 2315	ALERT: Geomagnetic K = 5	
09 Mar 0257	ALERT: Geomagnetic K = 5	
09 Mar 0406	ALERT: Geomagnetic K = 5	
09 Mar 0423	EXTENDED WARNING: Geomagnetic K = 5	08/2019 - 09/1800
09 Mar 0423	WARNING: Geomagnetic K = 6	09/0422 - 1200
09 Mar 0559	ALERT: Geomagnetic K = 6	
09 Mar 0932	ALERT: Geomagnetic K = 5	
09 Mar 1040	ALERT: Geomagnetic K = 6	
09 Mar 1040	EXTENDED WARNING: Geomagnetic K = 6	09/0422 - 1800
09 Mar 2318	EXTENDED WARNING: Geomagnetic K = 6	09/0422 - 10/0600
09 Mar 2320	CANCELLATION: Geomagnetic K = 6	

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
10 Mar	155	25	5	24 Mar	180	5	2
11	160	20	5	25	170	15	4
12	165	12	4	26	170	25	5
13	160	15	4	27	160	25	5
14	160	15	4	28	155	15	4
15	170	8	3	29	155	5	2
16	175	8	3	30	160	5	2
17	180	15	4	31	160	8	3
18	180	20	5	01 Apr	155	5	2
19	185	8	3	02	155	5	2
20	190	5	2	03	150	8	3
21	195	5	2	04	150	15	3
22	190	5	2	05	155	25	5
23	190	5	2				

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
05 Mar	1145	1150	1154	M1.7	0.005	SF	S26E43	4016	100			
07 Mar	2054	2100	2109	M1.6	0.010	SN	S26E09	4016				

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
03 Mar	0228	0236	0240	C1.6			4007
03 Mar	0418	0421	0425	C1.5			4007
03 Mar	0715	0721	0726	C2.3			4007
03 Mar	0909	0909	0927		SF	S12E53	4012
03 Mar	1016	1024	1030	C1.9	SF	S12E52	4012
03 Mar	1037	1038	1040		SF	S12E52	4012
03 Mar	1439	1451	1459	C2.5			4006
03 Mar	1632	1647	1720	C2.8			
03 Mar	2225	2233	2243	C1.6			4012
04 Mar	0003	0008	0017	C2.2			4006
04 Mar	0039	0045	0047	C3.3			4006
04 Mar	0047	0052	0056	C3.4			4006
04 Mar	0414	0430	0639	C3.0			4012
04 Mar	0639	0648	0711	C1.8			4012
04 Mar	0747	0754	0810	C2.1			4012
04 Mar	1020	1026	1035	C1.8			4012
04 Mar	1120	1129	1142	C1.6			4012
04 Mar	1345	1356	1400	C2.6			4006
04 Mar	1532	1540	1612	C4.6	SF	S15E39	4012
04 Mar	1617	1621	1625	C3.9	SF	S14E39	4012
04 Mar	2033	2052	2119	C2.8			
05 Mar	0032	0044	0051	C1.9			4016
05 Mar	0250	0254	0258	C1.2			4009
05 Mar	0340	0351	0410	C2.2			
05 Mar	0822	0826	0832	C1.6			4012
05 Mar	1145	1150	1154	M1.7	SF	S26E43	4016
05 Mar	1730	1738	1745	C1.3			4007
06 Mar	0406	0415	0422	C1.4			4016
06 Mar	1452	1501	1509	C1.1			

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
06 Mar	2002	2011	2020	C1.6			4012
07 Mar	0009	0013	0018	C1.7			
07 Mar	0649	0657	0713	C1.2			4018
07 Mar	0956	1006	1024	C1.6			4012
07 Mar	2040	2048	2054	C1.4			4009
07 Mar	2054	2100	2109	M1.6	SN	S26E09	4016
08 Mar	0803	0814	0834	C1.8			4012
08 Mar	0853	0858	0904	C2.1			4012
08 Mar	1219	1225	1241	C1.9			4012
08 Mar	1403	1417	1437	C2.5			
08 Mar	1508	1510	1518		SF	S16W28	4011
08 Mar	1722	1727	1731	C1.2			4011
08 Mar	1738	1825	1900	C3.9			
08 Mar	2049	2052	2057	C1.9			4012
09 Mar	1428	1433	1440	C1.6			4012
09 Mar	1710	1854	1923	C2.5			4019
09 Mar	1816	1821	1825	C1.4			4012

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 4002												
22 Feb	N13E20	79	20	3	Cro	6	B								
23 Feb	N13E06	80	20	4	Cro	6	B								
24 Feb	N13W08	81	10	4	Bxo	6	B								
25 Feb	N13W22	81	plage												
26 Feb	N13W36	82	plage												
27 Feb	N14W45	78	10	3	Bxo	3	B								
28 Feb	N13W58	78	10	3	Bxo	3	B								
01 Mar	N16W68	75	20	4	Cao	4	B								
02 Mar	N16W79	72	20	4	Cao	3	B								
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 80

			Region 4003												
22 Feb	N10E49	50	10	3	Bxo	2	B								
23 Feb	N10E35	51	10	3	Bxo	2	B								
24 Feb	N10E21	52	plage												
25 Feb	N10E07	52	plage								1				
26 Feb	N10W07	53	plage												
27 Feb	N10W21	54	plage												
28 Feb	N10W35	55	plage												
01 Mar	N10W49	56	plage												
02 Mar	N10W63	56	plage												
03 Mar	N10W77	57	plage												
								0	0	0	1	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 52

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 4004												
22 Feb	S15E71	27	30	2	Hsx	1	A								
23 Feb	S15E57	29	30	2	Hsx	1	A								
24 Feb	S15E43	30	20	2	Hrx	1	A								
25 Feb	S15E30	29	10	1	Hrx	1	A								
26 Feb	S15E16	30	10	1	Hrx	1	A								
27 Feb	S15E09	24	10	5	Bxo	3	B								
28 Feb	S14W07	24	10	2	Axx	2	A								
01 Mar	S15W17	24	10	1	Axx	1	A								
02 Mar	S15W28	21	10	2	Axx	2	A								
03 Mar	S15W42	22	plage												
04 Mar	S15W56	23	plage												
05 Mar	S15W70	24	plage												
06 Mar	S15W84	25	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 24

			Region 4005												
22 Feb	S05E54	44	10	3	Cro	2	B								
23 Feb	S05E39	47	10	3	Cro	2	B								
24 Feb	S05E25	48	10	1	Axx	1	A								
25 Feb	S05E10	49	plage												
26 Feb	S05W05	51	plage												
27 Feb	S05W20	53	plage												
28 Feb	S05W35	55	plage												
01 Mar	S05W50	57	plage												
02 Mar	S05W65	58	plage												
03 Mar	S05W80	60	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 51

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 4006													
22 Feb	N17E71	27	110	6	Dao	3	B								
23 Feb	N17E57	29	150	6	Dai	4	B								
24 Feb	N18E47	26	380	10	Dhi	10	B								
25 Feb	N18E33	26	380	10	Dko	10	BG								
26 Feb	N18E19	27	380	10	Dki	10	BG								
27 Feb	N18E05	28	350	10	Dki	16	BG								
28 Feb	N18W05	26	180	10	Dai	14	BG	2			2				
01 Mar	N20W16	23	150	12	Eao	10	B	2			1				
02 Mar	N19W35	28	50	7	Cao	10	B	2							
03 Mar	N19W49	29	60	7	Cai	9	B	1							
04 Mar	N18W64	30	10	8	Bxo	5	B	4							
05 Mar	N18W77	31	10	8	Bxo	5	B								
								11	0	0	3	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 28

		Region 4007													
24 Feb	S12E48	25	40	5	Cao	4	B								
25 Feb	S12E34	25	30	5	Cao	5	B				3				
26 Feb	S12E20	26	30	5	Cao	5	B	2							
27 Feb	S12E06	27	20	5	Cro	3	B								
28 Feb	S11W05	26	30	4	Dro	5	B	2			2				
01 Mar	S10W18	25	70	6	Dao	7	B	1							
02 Mar	S10W31	24	150	6	Dao	8	B	2			1				
03 Mar	S10W44	24	200	6	Dai	6	BGD	3							
04 Mar	S11W57	24	210	6	Dai	14	BG								
05 Mar	S11W71	25	190	10	Dso	4	B	1							
06 Mar	S11W85	26	180	10	Dso	4	B								
								11	0	0	6	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 26

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 4008												
25 Feb	N05E65	354	20	2	Hsx	1	A								
26 Feb	N05E50	356	20	2	Hsx	1	A								
27 Feb	N05E35	358	20	2	Hsx	1	A								
28 Feb	N05E26	355	20	2	Hrx	1	A								
01 Mar	N05E11	356	20	2	Hrx	1	A								
02 Mar	N05W02	355	plage												
03 Mar	N05W17	357	plage												
04 Mar	N05W32	359	plage												
05 Mar	N05W47	1	plage												
06 Mar	N05W62	3	plage												
07 Mar	N05W77	5	plage												
								0	0	0	0	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 355

			Region 4009												
28 Feb	N11E24	356	20	3	Dao	5	B								
01 Mar	N11E10	357	130	7	Dso	8	B	2							
02 Mar	N12W06	359	150	7	Dao	12	B								
03 Mar	N12W23	3	100	5	Cao	7	B								
04 Mar	N12W37	4	50	5	Cao	6	B								
05 Mar	N12W51	5	20	1	Cao	2	B	1							
06 Mar	N12W63	4	20	1	Hrx	2	A								
07 Mar	N12W76	4	10	1	Axx	1	A	1							
08 Mar	N12W88	2	plage												
								4	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 359

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 4010												
28 Feb	N24E35	345	20	5	Cro	4	B								
01 Mar	N24E19	348	10	5	Bxo	4	B	1			1				
02 Mar	N25E07	346	10	7	Bxo	2	B								
03 Mar	N25W07	347	plage												
04 Mar	N25W21	348	plage												
05 Mar	N25W35	349	plage												
06 Mar	N25W49	350	plage												
07 Mar	N25W63	351	plage												
08 Mar	N25W77	351	plage												
								1	0	0	1	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 346

			Region 4011												
02 Mar	S19E44	309	20	3	Cao	4	B	5			1				
03 Mar	S19E29	311	20	5	Bxo	4	B								
04 Mar	S19E18	309	10	4	Bxo	2	B								
05 Mar	S19E04	310	10	1	Axx	1	A								
06 Mar	S16W06	307	10	3	Bxo	3	B								
07 Mar	S14W21	309	10	3	Bxo	5	B								
08 Mar	S14W35	309	10	3	Bxo	5	B	1			1				
09 Mar	S14W49	310	plage												
								6	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 310

			Region 4012												
02 Mar	S13E61	292	100	5	Dao	7	B								
03 Mar	S13E47	293	200	10	Dai	9	BG	2			3				
04 Mar	S13E33	294	250	11	Ekc	16	BG	7			2				
05 Mar	S12E19	295	300	12	Eki	21	BG	1							
06 Mar	S13E05	296	310	13	Eki	24	BG	1							
07 Mar	S13W10	297	260	15	Eki	20	BG	1							
08 Mar	S14W22	296	220	15	Eai	27	BG	4							
09 Mar	S14W38	299	220	17	Fao	18	BG	2							
								18	0	0	5	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 296

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 4013												
02 Mar	S04E60	293	10	1	Axx	1	A								
03 Mar	S04E45	295	plage												
04 Mar	S04E30	297	plage												
05 Mar	S04E16	298	plage												
06 Mar	S04E01	300	plage												
07 Mar	S04W14	302	plage												
08 Mar	S04W29	303	plage												
09 Mar	S04W44	305	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 300

			Region 4014												
03 Mar	N16W22	2	80	5	Dao	4	B								
04 Mar	N16W36	3	10	5	Bxo	4	B								
05 Mar	N17W50	4	10	3	Axx	1	A								
06 Mar	N17W60	1	10	1	Axx	1	A								
07 Mar	N17W74	2	plage												
08 Mar	N17W88	2	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 2

			Region 4015												
04 Mar	N28W31	358	20	3	Cro	3	B								
05 Mar	N27W45	359	20	3	Bxi	7	B								
06 Mar	N27W58	359	20	4	Bxi	6	B								
07 Mar	N27W72	360	plage												
08 Mar	N27W86	360	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 358

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 4016												
04 Mar	S25E48	278	0	4	Bxo	4	B								
05 Mar	S26E35	297	40	4	Cao	4	BG	1	1		1				
06 Mar	S26E21	280	40	2	Cai	5	BG	1							
07 Mar	S26E09	279	40	2	Cai	8	BG		1		1				
08 Mar	S25W04	278	30	2	Cao	4	B								
09 Mar	S25W18	279	10	2	Bxo	2	B								
								2	2	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 278

			Region 4017												
05 Mar	S05E58	256	10	1	Axx	1	A								
06 Mar	S05E46	255	10	1	Axx	1	A								
07 Mar	S05E32	256	10	1	Axx	1	A								
08 Mar	S05E17	257	plage												
09 Mar	S05E02	259	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 259

			Region 4018												
05 Mar	S20E75	239	120	1	Hsx	1	A								
06 Mar	S20E64	237	120	4	Cao	3	B								
07 Mar	S21E52	236	120	6	Cao	3	B	1							
08 Mar	S20E39	235	120	3	Cso	3	B								
09 Mar	S20E25	236	100	2	Hsx	1	A								
								1	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 236

			Region 4019												
07 Mar	N07E70	218	30	2	Hsx	1	A								
08 Mar	N07E58	216	70	3	Hsx	1	A								
09 Mar	N07E43	218	70	3	Hsx	1	A	1							
								1	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 218

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 4020													
09 Mar	N18E53	208	50	3	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 208

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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