

Solar activity was at low levels with C-flare activity observed over 22-26 Dec. Solar activity reached high levels on 27 Dec when Region 4325 (S09, L=294, class/area=Dao/100 on 27 Dec) produced an M5.1 flare (R2-Moderate), with Type-II radio sweep (788 km/s), at 27/0150 UTC. Solar activity reached moderate levels on 28 Dec when Region 4325 produced an impulsive M1.3/Sf flare (R1-Minor) at 28/2113 UTC, and Region 4317 (N10, L=09, class/area=Eki/260 on 23 Dec) produced an M4.2/1f flare (R1), with a 300 sfu Tenflare, at 27/2239 UTC. No Earth-directed CMEs were observed during the week, though no coronagraph imagery covering the late 28 Dec flare activity was available at the time of writing.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels each day of the 22-28 Dec period.

Geomagnetic field activity reached G1 (Minor) storm levels on 22 Dec, with active periods observed on 23-24 Dec, due to positive polarity CH HSS influences. Quiet to unsettled conditions prevailed on 25-28 Dec as positive polarity CH HSS influences slowly diminished.

### **Space Weather Outlook** **29 December - 24 January 2026**

Solar activity is expected to be predominately low through 24 Jan, with C-class flares expected throughout the outlook period. M-class flares (R1-R2/Minor-Moderate) range from a chance to likely at times as active regions evolve and rotate on/off the disk. X-class flares (R3-Strong or greater) range from a slight chance to a chance during periods of enhanced active region complexity.

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 29-31 Dec, 03-06 and 14-24 Jan. Normal to moderate levels are expected to prevail throughout the remainder of the 29 Dec-24 Jan period.

Geomagnetic field activity is likely to reach active levels on 01 Jan in response to negative polarity CH HSS influences, and again over 02-04 Jan following the onset of positive polarity CH HSS influences. Periods of active conditions are likely on 09-10 and 12-14 Jan due to negative polarity CH HSS influences. Periods of G1 (Minor) storming are likely on 17-18 Jan, with active conditions likely on 19-20 Jan, associated with positive polarity CH HSS influences.



### ***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
22 December	133	80	480	B9.1	5	0	0	0	1	0	0	0
23 December	142	106	480	B7.9	5	0	0	0	0	0	0	0
24 December	134	103	410	C1.2	2	0	0	0	0	0	0	0
25 December	163	113	550	C1.4	3	0	0	1	0	0	0	0
26 December	166	131	740	C1.4	7	0	0	2	0	0	0	0
27 December	178	130	950	C1.7	10	1	0	2	0	0	0	0
28 December	188	143	990	C1.5	8	2	0	1	1	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	
22 December	5.4e+06	1.5e+04	4.8e+07	
23 December	8.3e+06	1.6e+04	1.3e+08	
24 December	2.7e+06	1.7e+04	2.3e+08	
25 December	2.3e+06	1.7e+04	2.9e+08	
26 December	1.8e+06	1.7e+04	3.1e+08	
27 December	2.0e+06	1.7e+04	2.8e+08	
28 December	2.3e+06	1.7e+04	2.9e+08	

### ***Daily Geomagnetic Data***

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
22 December	17	3-3-4-2-4-3-3-3	53	3-2-4-5-7-6-6-4	25	4-3-4-3-5-4-4-4
23 December	14	3-3-3-2-3-3-3-3	42	2-3-5-6-6-5-4-4	21	3-4-3-3-4-4-4-4
24 December	19	4-4-3-3-3-4-2-3	40	4-4-6-6-5-3-4-3	21	4-4-4-3-3-4-3-3
25 December	8	2-3-3-2-2-2-1-1	17	3-4-4-4-3-3-1-1	11	3-3-3-2-2-2-1-2
26 December	6	1-2-2-1-2-3-1-1	13	1-1-2-4-4-4-1-1	8	2-2-2-2-2-3-1-1
27 December	5	1-2-2-1-2-2-1-1	8	1-2-2-3-3-1-2-2	7	1-3-2-2-2-1-2-2
28 December	7	2-1-1-2-2-3-2-1	13	2-1-1-4-4-4-1-1	12	3-1-1-2-2-3-2-2

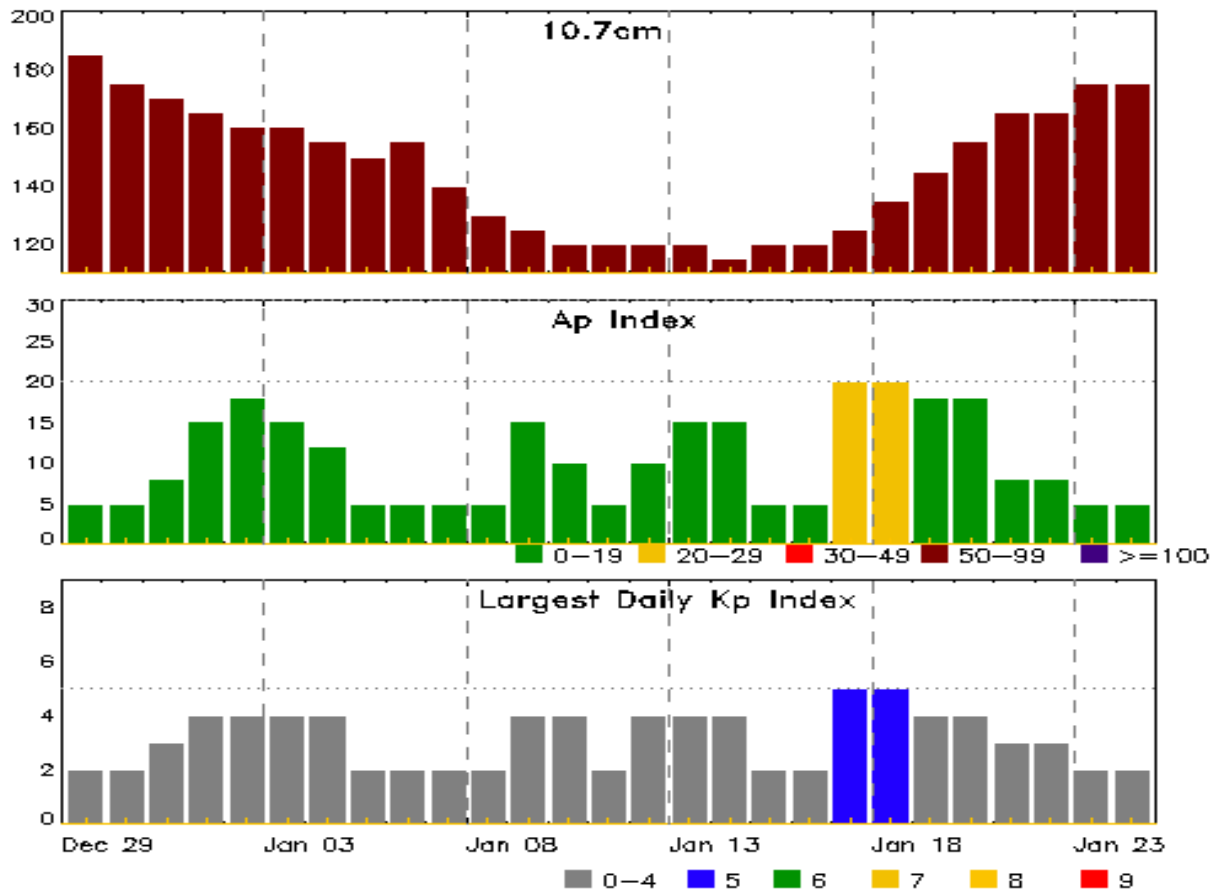


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
22 Dec 1407	WARNING: Geomagnetic K = 5	22/1407 - 2359
22 Dec 1410	ALERT: Geomagnetic K = 5	
22 Dec 1500	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	21/1425
22 Dec 1755	EXTENDED WARNING: Geomagnetic K = 4	21/0240 - 23/2359
22 Dec 2354	EXTENDED WARNING: Geomagnetic K = 5	22/1407 - 23/0600
23 Dec 0555	EXTENDED WARNING: Geomagnetic K = 5	22/1407 - 23/1500
23 Dec 0902	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	21/1425
23 Dec 1409	EXTENDED WARNING: Geomagnetic K = 5	22/1407 - 23/2359
23 Dec 2307	EXTENDED WARNING: Geomagnetic K = 4	21/0240 - 24/1200
23 Dec 2308	EXTENDED WARNING: Geomagnetic K = 5	22/1407 - 24/0900
24 Dec 0506	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	21/1425
24 Dec 0848	EXTENDED WARNING: Geomagnetic K = 4	21/0240 - 24/2100
24 Dec 0849	EXTENDED WARNING: Geomagnetic K = 5	22/1407 - 24/1800
24 Dec 2052	EXTENDED WARNING: Geomagnetic K = 4	21/0240 - 25/1200
25 Dec 0501	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	21/1425
26 Dec 0512	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	21/1425
27 Dec 0150	ALERT: X-ray Flux exceeded M5	27/0148
27 Dec 0156	SUMMARY: 10cm Radio Burst	27/0144 - 0146
27 Dec 0204	ALERT: Type II Radio Emission	27/0147
27 Dec 0215	SUMMARY: X-ray Event exceeded M5	27/0138 - 0159
27 Dec 0324	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	21/1425
27 Dec 0507	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	21/1425
28 Dec 0459	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	21/1425
28 Dec 2255	SUMMARY: 10cm Radio Burst	28/2225 - 2236



## Twenty-seven Day Outlook



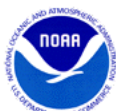
Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
29 Dec	185	5	2	12 Jan	120	10	4
30	175	5	2	13	120	15	4
31	170	8	3	14	115	15	4
01 Jan	165	15	4	15	120	5	2
02	160	18	4	16	120	5	2
03	160	15	4	17	125	20	5
04	155	12	4	18	135	20	5
05	150	5	2	19	145	18	4
06	155	5	2	20	155	18	4
07	140	5	2	21	165	8	3
08	130	5	2	22	165	8	3
09	125	15	4	23	175	5	2
10	120	10	4	24	175	5	2
11	120	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		Intensity	
									245	2695	II	IV
27 Dec	0138	0150	0159	M5.1	0.038				4325	320		3
28 Dec	2103	2113	2123	M1.3	0.009	SF	S07E47		4325			
28 Dec	2201	2239	2254	M4.2	0.075	1F	N08W31		4317	130	300	

### ***Flare List***

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
22 Dec	0022	0030	0034	C2.3				4316
22 Dec	0104	0115	0120	C1.6				4317
22 Dec	0840	0846	0852	C2.0				4317
22 Dec	0852	0914	0928	C2.8				
22 Dec	2221	2231	2256	C8.6	1N	N12E54		4317
23 Dec	0003	0011	0017	C1.2				4317
23 Dec	0137	0150	0202	C1.6				4317
23 Dec	0916	0924	0933	C1.2				4316
23 Dec	0945	0956	1004	C1.5				4317
23 Dec	1520	1529	1544	C1.1				4317
24 Dec	1007	1021	1113	C4.9				4317
24 Dec	2304	2313	2320	C2.7				4317
25 Dec	0417	0424	0426	C2.6	SF	S10E42		4319
25 Dec	0601	0609	0616	C2.3				4321
25 Dec	2147	2153	2156	C2.4				4323
26 Dec	0305	0320	0326	C2.4				4323
26 Dec	0326	0332	0335	C2.6				4323
26 Dec	0725	0729	0731	C3.5				4323
26 Dec	0810	0815	0840	C2.2	SF	N06E09		4317
26 Dec	0909	0914	0917	C6.9				4323
26 Dec	1021	1028	1037	C4.0				4323
26 Dec	1154	1157	1203		SF	N06E07		4317
26 Dec	1915	1923	1932	C2.7				4317
27 Dec	0023	0032	0038	C4.8				4324
27 Dec	0138	0150	0159	M5.1				4325
27 Dec	0532	0539	0541	C3.7	SF	N22E76		4324
27 Dec	0640	0647	0650	C2.8				4324
27 Dec	0744	0758	0816	C4.5				4317



## *Flare List*

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
27 Dec	1024	1029	1036	C2.5			4321
27 Dec	1322	1329	1332	C3.7			4324
27 Dec	1411	1415	1419	C3.2			4324
27 Dec	1535	1550	1609	C2.9			4325
27 Dec	2143	2148	2155	C2.4			4324
27 Dec	2214	2233	2250	C9.8			4317
27 Dec	B2230	2230	2244		SF	N07W12	4318
28 Dec	0535	0539	0557	C2.6			4324
28 Dec	0557	0608	0610	C3.3			4324
28 Dec	0722	0728	0735	C4.0			4324
28 Dec	0809	0820	0834	C3.2			4321
28 Dec	1157	1208	1221	C2.8			4324
28 Dec	1502	1509	1516	C2.9			4325
28 Dec	1917	2008	2040	C4.0			4325
28 Dec	2103	2113	2123	M1.3	SF	S07E47	4325
28 Dec	2148	2153	2156	C6.8			4325
28 Dec	2201	2239	2254	M4.2	1F	N08W31	4317



## Region Summary

Location			Sunspot Characteristics					Flares							
Date	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
Region 4308															
12 Dec	N08E59	131	20	4	Bxo	4	B								
13 Dec	N07E45	131	20	5	Cro	6	B	1							
14 Dec	N06E31	132	20	5	Cro	4	B								
15 Dec	N07E17	133	30	6	Cso	7	B	1			1				
16 Dec	N07E04	134	20	6	Cro	4	B								
17 Dec	N08W13	137	10	3	Axx	2	A								
18 Dec	N08W27	136	10	1	Axx	1	A	1			1				
19 Dec	N08W39	136	plage												
20 Dec	N08W53	137	plage												
21 Dec	N08W67	137	plage												
22 Dec	N08W81	139	plage												
								3	0	0	2	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 134

### Region 4311

16 Dec	N03E16	121	20	2	Cro	3	B								
17 Dec	N03E02	122	50	4	Cso	6	B								
18 Dec	N03W12	120	60	1	Cso	5	B								
19 Dec	N04W27	124	10	1	Axx	1	A								
20 Dec	N04W41	125	10	3	Bxo	1	B								
21 Dec	N03W54	125	20	5	Cro	5	B								
22 Dec	N03W70	128	plage												
23 Dec	N03W85	129	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 122



### *Region Summary - continued*

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

#### *Region 4312*

18 Dec	N18E62	48	60	1	Hax	1	A	1							
19 Dec	N19E51	51	40	2	Hsx	1	A	1							
20 Dec	N19E32	52	40	2	Hsx	1	A								
21 Dec	N18E20	51	40	2	Hsx	1	A								
22 Dec	N18E05	53	40	2	Hsx	1	A								
23 Dec	N17W09	53	40	2	Hsx	4	A								
24 Dec	N19W21	52	30	2	Hsx	1	A								
25 Dec	N19W34	52	20	2	Hsx	1	A								
26 Dec	N19W48	53	30	2	Hsx	1	A								
27 Dec	N19W61	53	30	2	Hsx	1	A								
28 Dec	N19W74	53	20	2	Hsx	1	A								
								2	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 53

#### *Region 4313*

18 Dec	S14E29	81	10	1	Axx	2	A								
19 Dec	S14E16	81	10	1	Axx	1	A								
20 Dec	S14E02	82	plage												
21 Dec	S14W12	82	plage												
22 Dec	S14W26	84	plage												
23 Dec	S14W40	84	plage												
24 Dec	S14W54	85	plage												
25 Dec	S14W68	86	plage												
26 Dec	S14W82	87	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 82





### ***Region Summary - continued***

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio	Area 10 <sup>-6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
<i>Region 4314</i>															
20 Dec	N24E31	53	10	5	Bxo	4	B	1			1				
21 Dec	N24E18	53	plage												
22 Dec	N24E04	54	plage												
23 Dec	N24W10	54	plage												
24 Dec	N24W24	55	plage												
25 Dec	N24W38	56	plage												
26 Dec	N24W52	57	plage												
27 Dec	N24W66	58	plage												
28 Dec	N24W80	59	plage												
								1	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 54

<b><i>Region 4315</i></b>															
20 Dec	N20E49	35	10	5	Bxo	2	B	2	1						
21 Dec	N19E35	36	10	3	Bxo	2	B	1			1				
22 Dec	N19E21	37	plage												
23 Dec	N21E07	37	10	1	Axx	1	A								
24 Dec	N21W07	38	plage												
25 Dec	N21W21	39	plage												
26 Dec	N21W35	40	plage												
27 Dec	N21W49	41	plage												
28 Dec	N21W63	42	plage												
								3	1	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 37



### *Region Summary - continued*

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area 10 <sup>-6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
Region 4316															
20 Dec	S00E40	44	40	3	Dao	4	B								
21 Dec	S08E26	45	50	7	Dri	12	B	8	1		7				
22 Dec	S08E10	48	130	8	Dai	12	BG	1							
23 Dec	S08W03	47	80	8	Cso	8	B	1							
24 Dec	S08W17	48	30	5	Cso	3	B								
25 Dec	S07W30	48	20	1	Hax	1	A								
26 Dec	S08W45	50	10	1	Hax	1	A								
27 Dec	S07W59	51	10	1	Hrx	1	A								
28 Dec	S07W72	51	10	1	Axx	1	A								
								10	1	0	7	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 47

<b>Region 4317</b>															
20 Dec	N13E73	11	50	5	Dao	2	B	2							
21 Dec	N11E64	11	120	6	Cao	15	B	2							
22 Dec	N11E51	8	240	11	Eai	10	B	3				1			
23 Dec	N10E35	9	260	12	Eki	15	BG	4							
24 Dec	N11E22	9	220	12	Eai	12	BG	2							
25 Dec	N12E09	9	240	12	Eai	12	B								
26 Dec	N11W06	11	230	12	Eai	9	B	2			2				
27 Dec	N12W21	13	250	11	Ekc	7	B	2							
28 Dec	N12W34	13	110	9	Dao	6	B		1			1			
								17	1	0	2	2	0	0	0

Still on Disk.

Absolute heliographic longitude: 11

<b>Region 4318</b>															
22 Dec	N05E54	4	60	6	Dao	6	B								
23 Dec	N05E41	3	50	6	Dao	6	B								
24 Dec	N05E28	3	10	6	Bxo	2	B								
25 Dec	N05E15	3	10	1	Axx	1	A								
26 Dec	N05W00	5	plage												
27 Dec	N05W15	7	plage								1				
28 Dec	N05W30	9	plage												
								0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 5



### ***Region Summary - continued***

	Location	Sunspot Characteristics						Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10 <sup>-6</sup> hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 4319															
22 Dec	S08E66	351	10	1	Axx	1	A								
23 Dec	S09E52	352	10	1	Axx	1	A								
24 Dec	S09E40	351	30	8	Cro	3	B								
25 Dec	S09E27	351	30	6	Dro	4	B	1			1				
26 Dec	S10E15	350	30	9	Dro	8	B								
27 Dec	S09E01	351	30	9	Dro	10	B								
28 Dec	S12W12	351	10	5	Bxo	2	B								
								1	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 351

<b><i>Region 4320</i></b>															
23 Dec	N06E68	336	30	1	Hsx	1	A								
24 Dec	N06E55	336	10	1	Axx	1	A								
25 Dec	N05E41	337	10	1	Axx	1	A								
26 Dec	N05E27	338	10	1	Axx	1	A								
27 Dec	N06E13	339	plage												
28 Dec	N06W02	341	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 341

<b><i>Region 4321</i></b>															
24 Dec	S10W08	39	80	4	Dai	11	BGD								
25 Dec	S10W23	41	200	5	Dai	10	BD	1							
26 Dec	S10W36	41	290	5	Dki	13	BD								
27 Dec	S10W50	42	380	7	Dkc	17	BGD	1							
28 Dec	S11W64	43	510	8	Dkc	16	BD	1							
								3	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 39

<b><i>Region 4322</i></b>															
25 Dec	N13W63	81	20	3	Cro	3	B								
26 Dec	N13W77	82	10	3	Bxo	2	B								
								0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 81



### *Region Summary - continued*

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

#### ***Region 4323***

25 Dec	S12E75	304	plage								1				
26 Dec	S12E61	304	10	1	Axx	1	A	5							
27 Dec	S14E65	287	20	1	Hax	1	A								
28 Dec	S14E53	286	20	2	Hsx	1	A								
								6	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 286

#### ***Region 4324***

26 Dec	N28E75	290	120	4	Dso	5	B								
27 Dec	N24E64	288	130	6	Dac	5	B	6			1				
28 Dec	N25E51	288	230	6	Dao	8	BG	4							
								10	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 288

#### ***Region 4325***

27 Dec	S09E58	294	100	7	Dao	8	B	1	1						
28 Dec	S09E44	295	70	7	Dao	4	B	3	1		1				
								4	2	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 295

#### ***Region 4326***

28 Dec	S03W34	13	0	3	Bxo	2	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 13

#### ***Region 4327***

28 Dec	S20W21	360	10	2	Bxo	2	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 360



## ***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

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

