

Space Weather Highlights
24 November - 30 November 2025

SWPC PRF 2622
01 December 2025

Solar activity was at low levels over 24-27 and 30 Nov with C-class flare activity observed. High levels of solar activity were observed on 28 Nov when Region 4294 (S15, L=293, class/area=Fkc/1100 on 30 Nov) produced an impulsive M5.9 flare (R2-Moderate) at 28/2222 UTC, with Type-II (828 km/s) and Tenflare (240 sfu) radio emissions, as the region rotated onto the disk from the SE limb. Solar activity reached high levels again on 29 Nov with six M-class flares (R1-Minor) observed from Region 4294. No Earth-directed CMEs were detected during the summary period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was a normal to moderate levels on 24-27 Nov, with high levels observed on 28-30 Nov.

Geomagnetic field activity reached active levels on 24 Nov, and G1 (Minor) storm levels on 25 Nov, due to negative polarity CH HSS influences. Active levels were observed again on 26 Nov as negative polarity CH HSS influences subsided, followed by the onset of positive polarity CH HSS influences. Periods of G1 (Minor) storming were observed on 27 Nov, with periods of active conditions observed over 28-30 Nov, due to continued positive polarity CH HSS influences.

Space Weather Outlook
01 December - 27 December 2025

Solar activity is likely to reach moderate to high levels during the outlook period. M-class flares (R1-R2/Minor-Moderate) are likely, with slight chance for X-flares (R3-Strong or greater), through 12 Dec due primarily to the flare potential of Region 4294.

There exists a slight chance for the greater than 10 MeV proton flux to reach S1 (Minor) solar radiation storm levels through 12 Dec, due primarily to the eruptive potential of Region 4294.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 01-06, 16-17, and 24-27 Dec. Normal to moderate levels are expected to prevail throughout the remainder of the outlook period.

Geomagnetic activity is likely to reach active levels on 03 and 06 Dec, and G1 (Minor) storm levels on 04-05 Dec, driven by influences from a negative polarity CH HSS. Additional G1 storm periods are likely on 13 Dec, with active levels likely on 14 Dec, again associated with negative polarity CH HSS effects. Active conditions are likely on 21 Dec, followed by G1 storm levels on 22 Dec, in response to negative polarity CH HSS influences. Further G1 storm periods are likely on 23-26 Dec, with active levels likely on 27 Dec, due to positive polarity CH HSS influences. Quiet and quiet to unsettled conditions are 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
24 November	116	99	230	B3.9	5	0	0	2	0	0	0	0
25 November	116	99	430	B4.2	4	0	0	2	0	0	0	0
26 November	120	85	520	B5.6	7	0	0	6	0	0	0	0
27 November	120	76	360	B8.1	7	0	0	3	0	0	0	0
28 November	138	87	460	C2.1	15	2	0	1	0	0	0	0
29 November	160	74	1080	C2.3	6	5	0	3	1	0	0	0
30 November	180	108	1880	C2.4	14	0	0	3	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	
24 November	5.7e+06	1.5e+04	1.3e+07	
25 November	7.1e+06	1.7e+04	1.0e+08	
26 November	7.5e+06	1.9e+04	2.7e+08	
27 November	3.1e+06	1.8e+04	3.4e+08	
28 November	4.1e+06	1.8e+04	4.0e+08	
29 November	4.0e+06	2.1e+04	5.3e+08	
30 November	5.3e+06	1.7e+04	3.5e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
24 November	15	3-2-2-3-4-3-3-3	44	1-3-3-5-6-6-6-4	22	3-3-3-4-4-4-4-3
25 November	17	3-3-4-3-4-3-3-2	61	4-4-6-7-6-6-4-4	32	5-4-5-4-4-4-4-3
26 November	15	3-3-3-3-3-3-3-3	43	3-4-6-5-6-5-4-3	23	3-4-4-4-4-4-4-4
27 November	23	2-3-4-5-4-3-4-3	62	3-3-6-7-7-5-4-4	27	3-3-4-5-4-4-5-4
28 November	16	3-3-3-4-3-3-3-2	48	3-4-6-6-5-6-5-2	22	4-3-4-4-4-4-4-3
29 November	12	2-3-3-3-3-3-2-2	44	3-3-6-5-6-6-3-3	20	3-3-4-3-4-4-3-3
30 November	14	4-4-1-3-2-2-3-2	18	3-3-2-5-3-3-3-3	27	4-4-2-3-2-2-3-3



Alerts and Warnings Issued

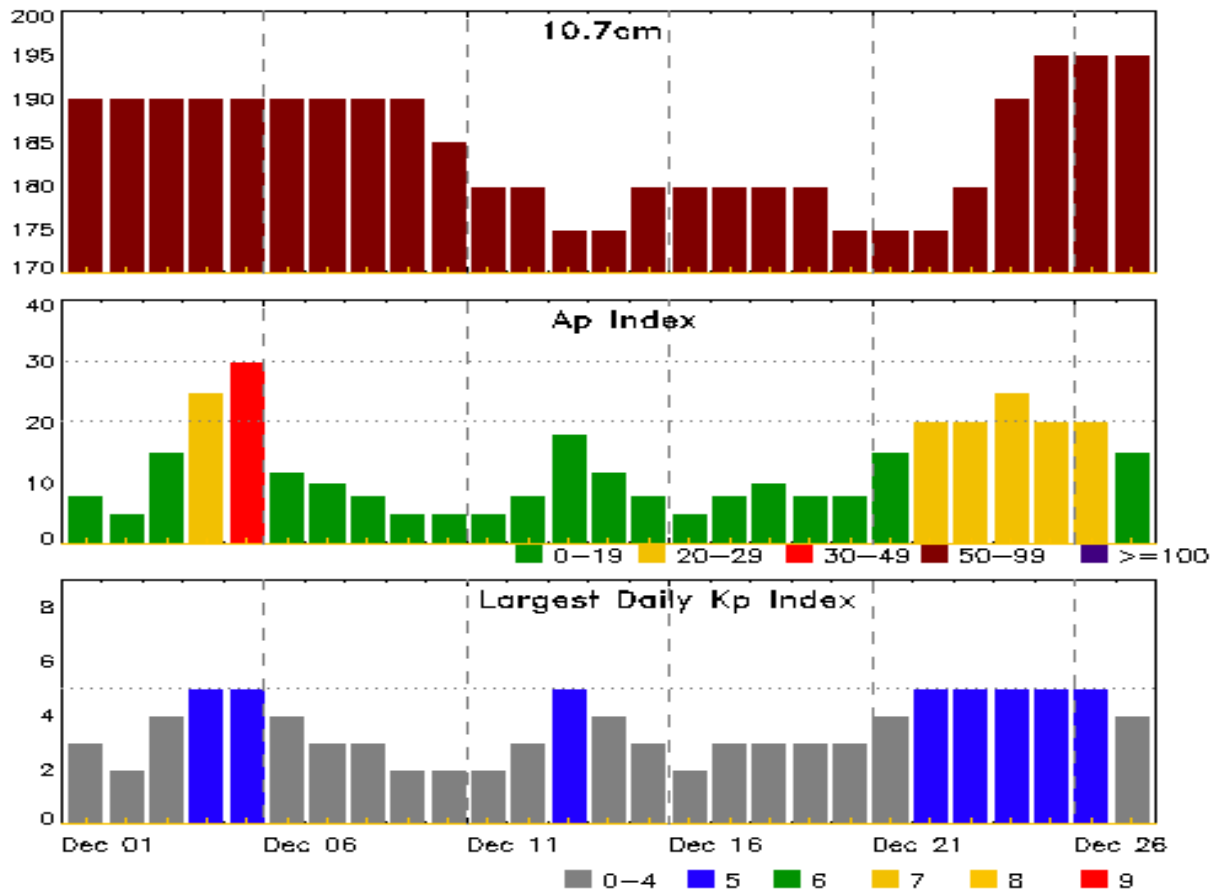
Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
24 Nov 0227	WARNING: Geomagnetic K = 4	24/0226 - 2359
24 Nov 1159	ALERT: Geomagnetic K = 4	
24 Nov 1327	WARNING: Geomagnetic K = 5	24/1330 - 2100
24 Nov 1407	ALERT: Geomagnetic K = 5	
24 Nov 2354	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 25/1200
25 Nov 0211	WARNING: Geomagnetic K = 5	25/0211 - 0900
25 Nov 0224	ALERT: Geomagnetic K = 5	
25 Nov 0823	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 25/2359
25 Nov 0824	EXTENDED WARNING: Geomagnetic K = 5	25/0211 - 1500
25 Nov 0847	ALERT: Geomagnetic K = 5	
25 Nov 1451	ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	25/1450
25 Nov 1455	EXTENDED WARNING: Geomagnetic K = 5	25/0211 - 2100
25 Nov 2053	ALERT: Type II Radio Emission	25/1950
25 Nov 2354	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 26/1200
26 Nov 0039	WATCH: Geomagnetic Storm Category G1 predicted	
26 Nov 0501	CONTINUED ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	25/1450
26 Nov 1045	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 26/2359
26 Nov 2322	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 27/1200
27 Nov 0500	CONTINUED ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	25/1450
27 Nov 1038	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 27/1800
27 Nov 1109	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 27/2359
27 Nov 1110	WARNING: Geomagnetic K = 5	27/1108 - 1800
27 Nov 1205	ALERT: Geomagnetic K = 5	
27 Nov 2109	EXTENDED WARNING: Geomagnetic K = 5	27/1108 - 28/0900
27 Nov 2111	ALERT: Geomagnetic K = 5	
27 Nov 2118	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 28/1200
28 Nov 0459	CONTINUED ALERT: Electron 2MeV Integral Flux ≥ 1000 pfu	25/1450



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
28 Nov 0858	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 28/1800
28 Nov 1720	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 29/1200
28 Nov 2224	ALERT: X-ray Flux exceeded M5	28/2222
28 Nov 2235	SUMMARY: 10cm Radio Burst	28/2220 - 2221
28 Nov 2246	SUMMARY: X-ray Event exceeded M5	28/2211 - 2224
28 Nov 2247	ALERT: Type II Radio Emission	28/2223
29 Nov 0200	SUMMARY: 10cm Radio Burst	29/0143 - 0143
29 Nov 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	25/1450
29 Nov 1158	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 29/2359
29 Nov 2057	SUMMARY: 10cm Radio Burst	29/2011 - 2013
29 Nov 2355	EXTENDED WARNING: Geomagnetic K = 4	24/0226 - 30/1200
30 Nov 0459	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	25/1450

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
01 Dec	190	8	3	15 Dec	180	8	3
02	190	5	2	16	180	5	2
03	190	15	4	17	180	8	3
04	190	25	5	18	180	10	3
05	190	30	5	19	180	8	3
06	190	12	4	20	175	8	3
07	190	10	3	21	175	15	4
08	190	8	3	22	175	20	5
09	190	5	2	23	180	20	5
10	185	5	2	24	190	25	5
11	180	5	2	25	195	20	5
12	180	8	3	26	195	20	5
13	175	18	5	27	195	15	4
14	175	12	4				

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
28 Nov	2211	2222	2224	M5.9	0.015			4294	8000		240	2
28 Nov	2352	0002	0007	M1.6	0.009			4294				
29 Nov	0414	0420	0422	M1.5	0.005			4294				
29 Nov	1302	1316	1325	M1.1	0.009			4294				
29 Nov	1536	1607	1632	M2.8	0.060							
29 Nov	2004	2014	2017	M1.4	0.006	SF	S18E80	4294			170	
29 Nov	2134	2148	2154	M1.4	0.010	1N	S18E72	4294	130			

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
24 Nov	0232	0245	0255	C1.2				
24 Nov	0603	0618	0621	C2.5	SF	S09E45		4290
24 Nov	0621	0625	0629	C2.5				4290
24 Nov	1026	1033	1035	B9.0	SF	S08E40		4290
24 Nov	2146	2203	2216	C1.5				4290
24 Nov	2216	2220	2223	C1.2				4290
25 Nov	1103	1110	1119	B7.2				
25 Nov	1233	1242	1246	B7.6				
25 Nov	1416	1435	1458	C1.9				
25 Nov	1545	1556	1606	C2.1	SF	S16W28		4292
25 Nov	1623	1628	1632	C1.6	SF	N19E17		4288
25 Nov	2013	2024	2039	B8.1				
25 Nov	2103	2112	2117	C1.1				4292
25 Nov	2245	2254	2303	B7.3				
26 Nov	0041	0047	0100	B8.7				
26 Nov	0248	0300	0307	C2.2	SF	S13E17		4290
26 Nov	0514	0522	0529	C1.0	SF	S14E29		4291
26 Nov	0547	0556	0605	C1.1	SF	S16W33		4292
26 Nov	0605	0612	0617	C1.2	SF	S16W33		4292
26 Nov	0748	0751	0754	B7.5				
26 Nov	1014	1024	1031	C1.9				4291
26 Nov	1329	1334	1351	C1.1				4291
26 Nov	1552	1558	1602	B7.1				4291
26 Nov	2014	2015	2016		SF	S16W43		4292



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
26 Nov	2038	2042	2046	B9.9			
26 Nov	2123	2124	2129	C1.3	SF	S16W43	4292
27 Nov	0035	0047	0058	C2.7	SF	S15E14	4291
27 Nov	0136	0143	0148	C1.1			4292
27 Nov	0422	0428	0429	C1.0	SF	S14E12	4291
27 Nov	0438	0444	0447	C1.0	SF	S14E12	4291
27 Nov	1307	1321	1339	C1.8			
27 Nov	1612	1622	1639	C1.3			
27 Nov	2140	2150	2205	C3.0			
28 Nov	0029	0047	0105	C3.3			4294
28 Nov	0105	0111	0115	C3.1			4294
28 Nov	0159	0211	0228	C3.3			4294
28 Nov	0316	0324	0345	C3.8			4294
28 Nov	0345	0358	0408	C3.4			4294
28 Nov	0408	0420	0433	C4.9			4294
28 Nov	0543	0554	0600	C5.1			4294
28 Nov	0717	0720	0725	C2.7			4294
28 Nov	0737	0745	0755	C4.6			4294
28 Nov	1157	1203	1221	C5.0			4294
28 Nov	1341	1345	1347	C5.0			4294
28 Nov	1615	1624	1642	C4.2			4294
28 Nov	1642	1646	1650	C5.0			4294
28 Nov	1821	1828	1831	C5.3			4294
28 Nov	1848	1856	1904	C5.3			4294
28 Nov	2211	2222	2224	M5.9			4294
28 Nov	2314	2326	2327		SF	N17W30	4288
28 Nov	2352	0002	0007	M1.6			4294
29 Nov	0140	0145	0148	C9.0			4294
29 Nov	0403	0403	0405		SF	N19W33	4288
29 Nov	0414	0420	0422	M1.5			4294
29 Nov	0615	0619	0627		SF	N19W33	4288
29 Nov	0700	0710	0725	C6.3			4294
29 Nov	0850	0908	0919	C7.0			4294
29 Nov	0933	0939	0944	C4.7			4294
29 Nov	1224	1227	1231	C3.6			4294
29 Nov	1302	1316	1325	M1.1			4294
29 Nov	1442	1448	1451	C3.3			4294
29 Nov	1536	1607	1632	M2.8			



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
29 Nov	2004	2014	2017	M1.4	SF	S18E80	4294
29 Nov	2134	2148	2154	M1.4	1N	S18E72	4294
30 Nov	0016	0040	0056	C8.0			4295
30 Nov	0202	0209	0215	C3.7			4294
30 Nov	0232	0236	0244	C3.3			4294
30 Nov	0244	0247	0250	C3.6			4294
30 Nov	0415	0420	0428	C3.0			4294
30 Nov	0538	0605	0641	C6.6			4294
30 Nov	0856	0908	0912	C5.7			4294
30 Nov	0912	0917	0922	C6.7			4294
30 Nov	1007	1023	1032	C8.3			4292
30 Nov	1047	1054	1104	C9.0			
30 Nov	1048	1048	1050		SF	N19W50	4288
30 Nov	1216	1220	1221		SF	N17W58	4288
30 Nov	1927	1941	2000	C5.4			4292
30 Nov	2033	2048	2105	C5.3			4288
30 Nov	2105	2110	2112	C5.0			4288
30 Nov	2154	2202	2206	C5.5	SF	N19W57	4288

Region Summary

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio Lon	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
								C	M	X	S	1	2	3	4

Region 4286

18 Nov	S15E49	97	10	1	Axx	1	A								
19 Nov	S15E37	96	10	1	Axx	1	A								
20 Nov	S15E23	96	plage					1			1				
21 Nov	S15E09	97	plage												
22 Nov	S15W05	98	plage												
23 Nov	S15W19	99	plage												
24 Nov	S15W33	100	plage												
25 Nov	S15W47	100	plage												
26 Nov	S15W61	101	plage												
27 Nov	S15W75	102	plage												
28 Nov	S15W89	103	plage												
								1	0	0	1	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 98

Region 4287

19 Nov	N02E65	67	90	2	Hsx	1	A								
20 Nov	N02E53	66	90	1	Hsx	1	A								
21 Nov	N03E39	67	20	1	Hsx	1	A	1							
22 Nov	N02E26	67	50	2	Hsx	1	A								
23 Nov	N02E13	67	20	1	Hrx	1	A								
24 Nov	N01W01	67	10	1	Hrx	1	A								
25 Nov	N01W14	67	20	1	Hsx	1	A								
26 Nov	N01W27	67	20	1	Hrx	1	A								
27 Nov	N01W41	68	20	1	Hrx	1	A								
28 Nov	N01W55	69	20	1	Hrx	1	A								
29 Nov	N01W70	71	plage												
30 Nov	N01W85	73	plage												
								1	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 67



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 4288															
20 Nov	N18E75	44	120	2	Hsx	1	A								
21 Nov	N17E63	43	30	2	Cso	1	B	2							
22 Nov	N17E49	44	120	3	Cso	1	B								
23 Nov	N18E36	44	90	3	Hsx	2	A	1							
24 Nov	N17E22	44	70	6	Cso	4	B								
25 Nov	N17E08	45	110	5	Cso	4	B	1			1				
26 Nov	N17W05	45	140	3	Cso	4	B								
27 Nov	N17W19	46	110	2	Hsx	2	A								
28 Nov	N17W33	47	110	2	Dao	5	B				1				
29 Nov	N18W45	46	90	8	Dao	7	B				2				
30 Nov	N19W59	47	120	9	Dai	8	B	3			3				
								7	0	0	7	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 45

Region 4289

21 Nov	S03E49	57	10	1	Axx	1	A								
22 Nov	S01E36	57	20	1	Hsx	1	A								
23 Nov	S01E21	59	10	1	Axx	1	A								
24 Nov	S03E07	58	0	1	Axx	1	A								
25 Nov	S02W05	58	10	1	Axx	1	A								
26 Nov	S02W19	59	plage												
27 Nov	S02W33	60	plage												
28 Nov	S02W47	61	plage												
29 Nov	S02W62	63	plage												
30 Nov	S02W77	65	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 58



Region Summary - continued

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
		Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 4290															
21 Nov	S10E74	32	40	2	Cao	3	B	2			1				
22 Nov	S10E58	35	120	3	Cao	3	B	8							
23 Nov	S10E45	35	20	2	Cao	3	B	1							
24 Nov	S11E29	36	30	4	Cso	4	B	4			2				
25 Nov	S11E17	36	70	4	Cso	3	B								
26 Nov	S10E04	36	70	3	Hsx	1	A	1			1				
27 Nov	S10W08	35	30	1	Hsx	1	A								
28 Nov	S10W22	36	30	1	Hsx	1	A								
29 Nov	S10W34	35	40	2	Hsx	1	A								
30 Nov	S10W48	36	30	1	Hsx	1	A								
								16	0	0	4	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 36

Region 4291

22 Nov	S14E65	28	120	5	Dao	6	B	4							
23 Nov	S13E54	26	100	11	Eai	9	B	7			1				
24 Nov	S16E37	28	100	14	Eai	15	BG								
25 Nov	S13E25	28	160	13	Eai	12	BG								
26 Nov	S14E12	28	200	11	Eai	18	BG	3			1				
27 Nov	S14W01	28	120	10	Dai	14	BD	3			3				
28 Nov	S14W15	29	120	10	Dai	14	BG								
29 Nov	S14W28	29	150	11	Eai	14	BG								
30 Nov	S12W41	29	100	11	Eai	11	BG								
								17	0	0	5	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 28

Region 4292

23 Nov	S17W07	87	0	3	Cao	3	B								
24 Nov	S16W21	87	10	4	Cro	2	B								
25 Nov	S16W34	87	50	6	Dai	7	B	2			1				
26 Nov	S16W47	87	90	8	Dai	11	BG	3			4				
27 Nov	S16W60	87	80	8	Dai	8	B	1							
28 Nov	S16W74	88	20	1	Hrx	1	A								
29 Nov	S16W88	89	plage												
								6	0	0	5	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 87



Region Summary - continued

Location			Sunspot Characteristics					Flares							
Date	Lat CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
		Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		<i>Region 4293</i>													
24 Nov	N06E44	22	10	2	Bxo	2	B								
25 Nov	N08E30	23	10	1	Axx	1	A								
26 Nov	N08E16	24	plage												
27 Nov	N08E02	25	plage												
28 Nov	N08W12	26	plage												
29 Nov	N08W26	27	plage												
30 Nov	N08W40	28	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 25

Region 4294															
28 Nov	S16E78	296	160	6	Dso	5	B	15	2						
29 Nov	S16E64	297	800	19	Fkc	12	B	6	4		1	1			
30 Nov	S15E55	293	1100	23	Fkc	21	BGD	7							
								28	6	0	1	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 293

Region 4295															
29 Nov	N04E81	282	plage												
30 Nov	N04E66	282	30	1	Hsx	1	A	1							
								1	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 282

Region 4296															
30 Nov	S14E76	271	500	11	Eki	6	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 271



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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<https://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecast> --

Current

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<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 -- User
Guide

