

Solar activity was at low to high levels. Low levels were observed on 08-10 Nov and again on 13 Nov. Moderate levels occurred on 11-12 Nov due to M1 flare activity from Region 3141 (N14, L=318, class/area Eki/610 on 11 Nov). These flares were an M1/1f at 11/0714 UTC, an M1/Sn at 11/1140 UTC, and an M1/Sf at 12/0018 UTC as well as a total of 41 C-flares. High levels occurred on 07 Nov (reported on previous weekly) due to an M5 flare from Region 3141 at 07/0011 UTC along with an associated Type II radio sweep and a 740 sfu Tenflare. Region 3141 continued to exhibit growth through 11 Nov and developed into a beta-gamma-delta magnetic class on 10-11 Nov before slowly decaying to near 270 millionths by 13 Nov. Region 3140 (N25, L=326, class/area Dai/230 on 13 Nov) began to exhibit growth and development of trailing spots beginning on 11 Nov and was responsible for 12 C-flares. No Earth-directed CMEs were observed during the reporting period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 07 and 10-11 Nov due to weak transient activity. The peak flux was 9,400 pfu at 07/0925 UTC.

Geomagnetic field activity ranged from quiet to G1 (Minor) storm levels. Solar wind parameters indicated a possible weak transient on 07-08 Nov. Total field increased to near 15 nT while the Bz component deflected southward from approximately 07/0845-1745 reaching a maximum of -15 nT. The geomagnetic field responded with quiet to G1 (Minor) storming on 07 Nov followed by quiet to active levels on 08 Nov and quiet to unsettled levels on 09 Nov. Quiet conditions were observed on 10 Nov under a nominal solar wind regime. On 11-13 Nov a weak, negative polarity, CH HSS became geoeffective. Solar wind speed increased to near 490 km/s by midday on 12 Nov. Total field increased to near 14 nT late on 11 Nov before declining to near 6-7 nT. The geomagnetic field responded with quiet to unsettled levels on 11-13 Nov.

Space Weather Outlook

14 November - 10 December 2022

Solar activity is expected to be very low to low throughout the outlook period (14 Nov-10 Dec). There is a chance for M-class flares (R1-R2, Minor-Moderate) and a slight chance for X-class flares (R3-Strong) on 14-16 Nov and again on 28 Nov-10 Dec due to the flare potential of Regions 3140 and 3141.

There is a slight chance for an S1 (Minor) solar radiation storm on 14-17 Nov due to potential significant flare activity from Regions 3140 and 3141.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 21-29 Nov and again on 02-05 Dec due to recurrent CH HSS influence.

Geomagnetic field activity is expected to reach unsettled to active levels on 15-16 Nov, 20-22



Nov, 24-28 Nov, 01-03 Dec, and 08-09 Dec due to recurrent CH HSS 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	
07 November	135	80	860	B6.4	2	0	0	0	0	0	0	0	0
08 November	132	85	730	B4.3	1	0	0	2	0	0	0	0	0
09 November	138	81	685	B4.3	3	0	0	5	0	0	0	0	0
10 November	139	79	750	B5.0	5	0	0	5	0	0	0	0	0
11 November	138	57	750	B5.6	15	2	0	15	1	0	0	0	0
12 November	138	65	750	B5.3	6	1	0	7	2	0	0	0	0
13 November	137	74	540	B6.9	14	0	0	8	2	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	
	07 November	1.1e+06	3.1e+04	2.8e+08
08 November	4.5e+04	3.0e+04	5.5e+06	
09 November	3.5e+04	3.0e+04	1.6e+07	
10 November	3.8e+04	3.1e+04	5.0e+07	
11 November	1.5e+05	3.0e+04	2.0e+07	
12 November	4.1e+04	3.1e+04	1.9e+06	
13 November	5.3e+04	3.1e+04	3.4e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	07 November	12	1-1-2-2-4-4-3-2	45	0-1-0-6-6-7-5-2	19
08 November	8	2-2-3-3-2-1-1-2	38	2-4-5-6-6-5-2-1	12	2-3-4-3-3-2-1-1
09 November	8	2-4-2-2-2-1-1-0	14	2-3-5-4-3-0-0-0	7	3-3-3-2-1-0-0-0
10 November	2	0-0-0-1-1-1-0-1	0	0-0-0-0-0-0-0-0	2	0-0-0-1-0-0-1-0
11 November	9	0-1-3-2-3-3-2-2	23	0-0-5-5-5-4-2-1	9	1-1-3-2-2-3-2-3
12 November	3	2-1-1-1-1-1-1-0	4	2-2-1-2-1-1-1-0	5	3-2-2-1-0-1-0-0
13 November	6	1-3-1-1-2-2-1-1	9	0-0-0-3-4-3-3-1	3	1-3-1-1-2-2-2-1

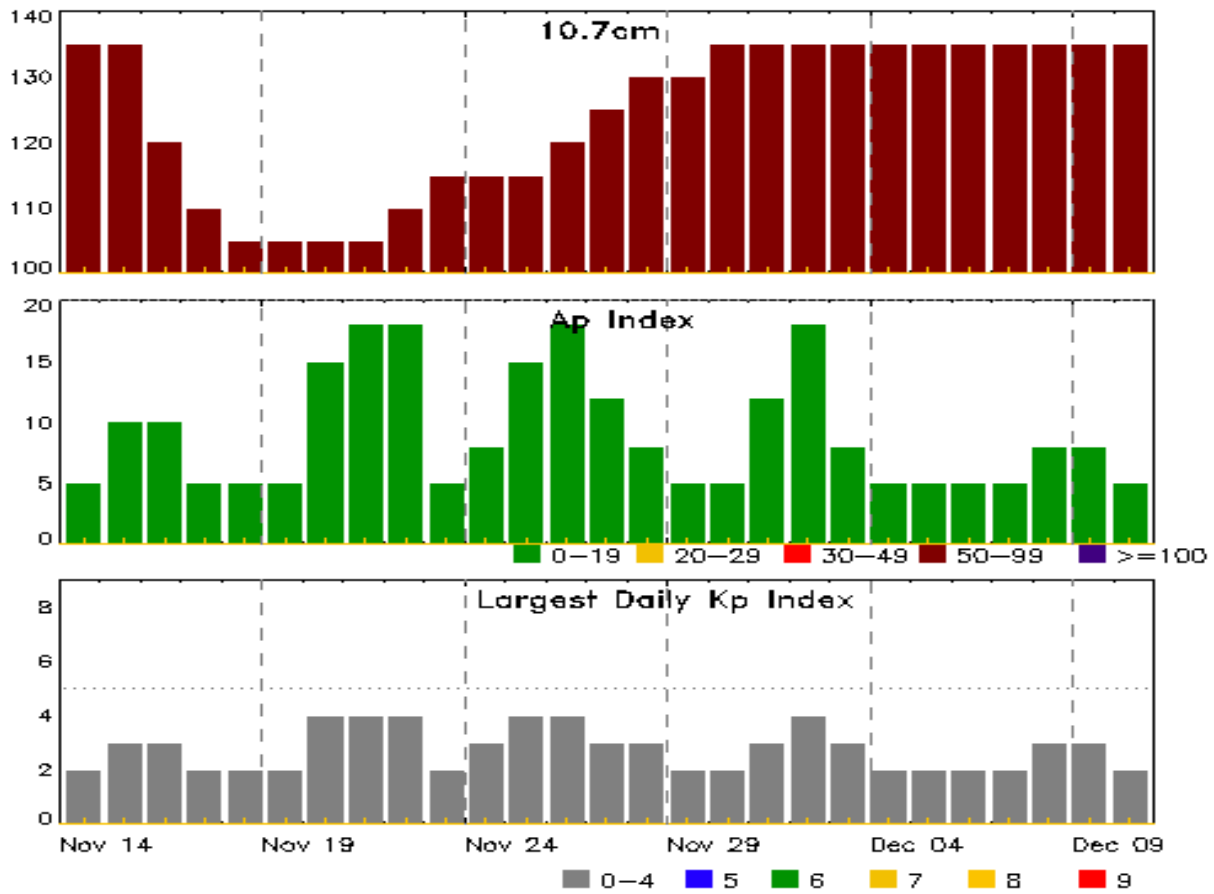


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
07 Nov 0012	ALERT: X-ray Flux exceeded M5	07/0010
07 Nov 0030	ALERT: Type II Radio Emission	07/0011
07 Nov 0034	SUMMARY: 10cm Radio Burst	07/0005 - 0008
07 Nov 0040	SUMMARY: X-ray Event exceeded M5	06/2359 - 07/0016
07 Nov 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	30/1220
07 Nov 1141	WARNING: Geomagnetic K = 4	07/1140 - 2359
07 Nov 1416	ALERT: Geomagnetic K = 4	07/1415
07 Nov 1425	WARNING: Geomagnetic K = 5	07/1425 - 1800
07 Nov 1756	EXTENDED WARNING: Geomagnetic K = 5	07/1425 - 2359
07 Nov 1756	ALERT: Geomagnetic K = 5	07/1250
07 Nov 1756	EXTENDED WARNING: Geomagnetic K = 4	07/1140 - 08/0600
08 Nov 0211	EXTENDED WARNING: Geomagnetic K = 4	07/1140 - 08/0900
08 Nov 0855	EXTENDED WARNING: Geomagnetic K = 4	07/1140 - 08/1500
09 Nov 0448	WARNING: Geomagnetic K = 4	09/0448 - 0900
09 Nov 2016	ALERT: Type II Radio Emission	09/2000
10 Nov 1943	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	11/1915
10 Nov 1944	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	10/1915
11 Nov 0801	ALERT: Type IV Radio Emission	11/0714
11 Nov 1250	ALERT: Type IV Radio Emission	11/1202
11 Nov 1627	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	10/1915



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
14 Nov	135	5	2	28 Nov	130	8	3
15	135	10	3	29	130	5	2
16	120	10	3	30	135	5	2
17	110	5	2	01 Dec	135	12	3
18	105	5	2	02	135	18	4
19	105	5	2	03	135	8	3
20	105	15	4	04	135	5	2
21	105	18	4	05	135	5	2
22	110	18	4	06	135	5	2
23	115	5	2	07	135	5	2
24	115	8	3	08	135	8	3
25	115	15	4	09	135	8	3
26	120	18	4	10	135	5	2
27	125	12	3				



Energetic Events

Date	Time			X-ray	Optical Information				Peak		Sweep Freq	
	Begin	Max	Half	Class	Integ Flux	Imp/ Brtns	Location		Radio Flux		Intensity	
			Max				Lat	Rgn	245	2695	II	IV
11 Nov	0700	0714	0720	M1.2	0.006	1F	N14W03		3141	7900		1
11 Nov	1127	1140	1146	M1.2	0.005	SN	N12W11		3141	7200		
12 Nov	0009	0018	0024	M1.1	0.005	SF	N16W22		3141	2500		

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
07 Nov	0641	0655	0720	C1.4			3141
07 Nov	1255	1515	1632	C3.1			3141
07 Nov	2258	2306	2312	B9.4			3141
08 Nov	0305	0311	0315	B8.2			3141
08 Nov	1643	1702	1729	C1.2			3141
08 Nov	1906	1906	1913		SF	N14E29	3141
08 Nov	2247	2249	2257		SF	N12E28	3141
09 Nov	0720	0724	0728	B9.6	SF	N28E10	3140
09 Nov	0859	0906	0917	B6.5			3141
09 Nov	0956	1002	1013	B6.1			3141
09 Nov	1016	1016	1018		SF	N25E08	3140
09 Nov	1046	1051	1055	B8.4			3140
09 Nov	1328	1331	1336	C1.0	SF	N28E06	3140
09 Nov	1552	1601	1609	B7.0			
09 Nov	1755	1805	1809	C1.2	SF	N14E09	3141
09 Nov	1946	2005	2024	C4.3	SF	N28E01	3140
10 Nov	0123	0127	0131	B6.7			3140
10 Nov	0309	0312	0316	C1.1			3145
10 Nov	0535	0552	0610	C1.2	SF	N15E13	3141
10 Nov	1159	1214	1230	C1.3			3141
10 Nov	1711	1717	1721	C1.0	SN	N12W02	3141
10 Nov	1809	1816	1820	B9.5	SF	N12W02	3141
10 Nov	1903	1905	1907		SF	N15W04	3141
10 Nov	2130	2141	2145	C1.4	SN	N12W05	3141
10 Nov	2251	2258	2305	B7.8			3141
11 Nov	0036	0044	0050	B9.7	SF	N14E01	3141
11 Nov	0125	0135	0140	C4.5			3141
11 Nov	0145	0151	0156	C4.3			3141



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
11 Nov	0310	0320	0326	C2.5	SF	N14E01	3141
11 Nov	0336	0341	0345	C1.3	SF	N14E01	3141
11 Nov	0433	0441	0447	C3.3	SF	N14W03	3141
11 Nov	0507	0514	0518	B7.8			3141
11 Nov	0546	0556	0600	C1.9			3141
11 Nov	0604	0609	0613	C1.3			3141
11 Nov	0700	0714	0720	M1.2	1F	N14W03	3141
11 Nov	0732	0734	0736		SF	N14W03	3141
11 Nov	0745	0751	0809	B9.3			3141
11 Nov	0815	0819	0826	B8.6			3141
11 Nov	0858	0909	0915	C5.9	SF	N14W03	3141
11 Nov	0944	0947	0951	C1.7	SF	N14W03	3141
11 Nov	1046	1047	1102		SF	N17W10	3141
11 Nov	1120	1120	1124		SF	N16W10	3141
11 Nov	1127	1140	1146	M1.2	SN	N12W11	3141
11 Nov	1202	1206	1210	C3.6	SF	N13W12	3141
11 Nov	1335	1343	1348	C1.0	SF	N14W13	3141
11 Nov	1745	1752	1759	C1.5	SF	N10W15	3141
11 Nov	1803	1809	1815	C1.4	SN	N11W15	3141
11 Nov	1822	1838	1845	C4.7	SF	N12W15	3141
11 Nov	2221	2232	2242	C1.1			3141
12 Nov	0009	0018	0024	M1.1	SF	N16W22	3141
12 Nov	0217	0224	0228	C4.5	SF	N12W19	3141
12 Nov	0314	0319	0324	B7.9			3141
12 Nov	0428	0434	0438	B9.6			3141
12 Nov	1231	1238	1243	B8.9			3141
12 Nov	1428	1434	1437	B7.4	1N	N16W27	3141
12 Nov	1504	1508	1520	C1.9			3141
12 Nov	1524	1526	1527		SF	N21W30	3140
12 Nov	1554	1600	1610		1F	N16W27	3141
12 Nov	1626	1642	1651	C2.2			3140
12 Nov	1651	1658	1702	C2.7			3141
12 Nov	1654	1707	1711		SF	N17W26	3141
12 Nov	1748	1754	1800		SF	N12W27	3141
12 Nov	1801	1804	1810	C6.5	SF	N12W27	3141
12 Nov	2021	2022	2024		SF	N22W34	3140
12 Nov	2150	2157	2204	C1.0			3140
13 Nov	0159	0207	0220	C1.8	SF	N22W37	3140



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
13 Nov	0220	0225	0230	C1.9			
13 Nov	0310	0317	0321	C1.0			3140
13 Nov	0427	0434	0438	C1.2			3141
13 Nov	0617	0621	0625	C4.0	SF	N14W25	3141
13 Nov	0649	0653	0700	C1.2			3141
13 Nov	0744	0751	0755	C1.2			3140
13 Nov	0756	0756	0803		SF	N22W37	3140
13 Nov	B0943	U0944	A1018		SF	N22W41	3140
13 Nov	B1130	U1140	A1210		SF	N22W41	3140
13 Nov	B1240	U1254	A1310	C2.6	1F	N23W42	3145
13 Nov	B1335	U1339	A1428		SF	N22W43	3140
13 Nov	1618	2007	2302		1F	N22W48	3140
13 Nov	1833	1840	1845	C3.6			3140
13 Nov	1902	1909	1914	C2.2	SF	N12W41	3141
13 Nov	2002	2007	2013	C1.8			3140
13 Nov	2032	2039	2044	C1.6			3140
13 Nov	2159	2205	2209	C2.6			3140
13 Nov	2212	2219	2227	C2.1	SF	N23W49	3140



Region Summary

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
Region 3133																							
25 Oct	N26E73		95	20	2	Cro	3	B	2				1										
26 Oct	N26E60		95	30	6	Cro	4	B	2				2										
27 Oct	N26E46		94	30	5	Cro	6	B	3														
28 Oct	N26E33		95	140	6	Dao	8	B															
29 Oct	N26E21		94	90	7	Dri	11	B															
30 Oct	N26E07		95	30	8	Bxo	11	B	1														
31 Oct	N26W03		92	10	5	Axx	2	A	1														
01 Nov	N23W20		95	plage																			
02 Nov	N23W34		96	plage																			
03 Nov	N23W48		97	plage																			
04 Nov	N23W62		98	plage																			
05 Nov	N23W76		99	plage																			
06 Nov	N23W90		100	plage																			
									9	0	0	3	0	0	0	0	0						

Crossed West Limb.
 Absolute heliographic longitude: 92

Region 3135																							
28 Oct	N27E65		63	20	6	Bxo	3	B	3														
29 Oct	N27E52		63	130	9	Dso	6	B	1														
30 Oct	N27E39		63	160	11	Eao	9	B															
31 Oct	N27E25		63	190	11	Eao	8	BG	2														
01 Nov	N26E12		63	160	9	Dso	5	B					1										
02 Nov	N26W00		61	110	11	Eso	3	B	3				3										
03 Nov	N26W12		60	120	10	Dso	4	B															
04 Nov	N26W26		62	90	9	Cso	2	B	1														
05 Nov	N26W40		63	80	4	Cso	3	B															
06 Nov	N26W54		64	100	1	Hsx	1	A															
07 Nov	N26W67		64	80	2	Hsx	1	A															
08 Nov	N27W80		63	50	3	Hsx	1	A															
09 Nov	N26W94		64	30	3	Hsx	1	A															
									10	0	0	4	0	0	0	0	0						

Crossed West Limb.
 Absolute heliographic longitude: 61



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 3136																
31 Oct	S06E51		37	10	2	Axx	2	A								
01 Nov	S08E37		38	10	3	Dso	3	B					1			
02 Nov	S07E23		38	30	4	Dso	3	B								
03 Nov	S08E09		38	30	5	Cso	4	B	2				3			
04 Nov	S07W05		41	10	1	Axx	1	A								
05 Nov	S08W19		42	10	1	Axx	1	A								
06 Nov	S08W34		44	10	1	Axx	1	A								
07 Nov	S08W48		45	plage												
08 Nov	S08W62		45	plage												
09 Nov	S08W76		46	plage												
10 Nov	S08W90		48	plage												
									2	0	0	4	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 41

Region 3137

01 Nov	N37E64		12	20	1	Hsx	1	A	2							
02 Nov	N37E50		12	20	1	Hsx	1	A								
03 Nov	N38E39		10	30	2	Hsx	1	A								
04 Nov	N38E21		15	30	9	Cro	3	B								
05 Nov	N37E09		14	30	3	Cro	2	B								
06 Nov	N37E01		9	10	1	Axx	1	A								
07 Nov	N37W10		6	10	1	Axx	1	A								
08 Nov	N27W22		5	10	1	Axx	1	A								
09 Nov	N37W34		4	10		Axx	1	A								
10 Nov	N37W48		6	10	1	Axx	1	A								
11 Nov	N37W62		6	plage												
12 Nov	N37W76		7	plage												
13 Nov	N37W90		8	plage												
									2	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 9



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

Region 3138

01 Nov	S39E08	67	10	2	Dso	1	B										
02 Nov	S39W05	68	plage														
03 Nov	S39W18	67	plage														
04 Nov	S39W31	67	plage														
05 Nov	S39W44	67	plage														
06 Nov	S39W57	67	plage														
07 Nov	S39W70	67	plage														
08 Nov	S39W83	66	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 68

Region 3139

03 Nov	N29E48	1	20	3	Cro	4	B										
04 Nov	N28E35	1	10	3	Bxo	2	B										
05 Nov	N28E23	1	10	1	Axx	1	A										
06 Nov	N28E10	1	plage														
07 Nov	N28W04	1	plage														
08 Nov	N28W18	1	plage														
09 Nov	N28W32	2	plage														
10 Nov	N28W46	4	plage														
11 Nov	N28W60	4	plage														
12 Nov	N28W74	5	plage														
13 Nov	N28W88	6	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 1



Region Summary - continued

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 3140																							
04 Nov	N26E66	330	120	3	Hsx	1	A																
05 Nov	N26E51	332	110	1	Hsx	1	A																
06 Nov	N27E38	332	100	1	Hsx	1	A																
07 Nov	N26E26	329	130	2	Hsx	1	A																
08 Nov	N26E14	328	80	3	Hsx	1	A																
09 Nov	N26E03	326	100	7	Cso	3	B	2				4											
10 Nov	N26W12	329	120	6	Cso	3	B																
11 Nov	N25W23	327	130	7	Dao	5	B																
12 Nov	N25W36	327	190	8	Dsi	12	BG	2				2											
13 Nov	N25W48	326	230	9	Dai	11	B	8				6	1										
								12	0	0		12	1	0	0	0							

Still on Disk.

Absolute heliographic longitude: 326

Region 3141

04 Nov	N15E75	321	150	4	Hsx	1	A	4														
05 Nov	N14E63	320	190	8	Dao	3	B															
06 Nov	N15E51	319	460	12	Eko	9	B	6	1			1										
07 Nov	N14E39	317	600	11	Eko	7	BG	2														
08 Nov	N14E25	318	540	12	Eko	15	BG	1				2										
09 Nov	N14E13	316	530	12	Eko	12	BG	1				1										
10 Nov	N15W01	318	600	12	Eko	21	BGD	4				5										
11 Nov	N14W14	318	610	12	Eki	21	BGD	15	2			15	1									
12 Nov	N15W27	318	550	12	Ekc	20	BG	4	1			5	2									
13 Nov	N14W40	318	270	12	Ekc	14	BG	4				2										
								41	4	0		31	3	0	0	0						

Still on Disk.

Absolute heliographic longitude: 318



Region Summary - continued

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

Region 3145

10 Nov	N27E04	313	10	4	Bxo	3	B	1									
11 Nov	N27W08	312	10	1	Axx	1	A										
12 Nov	N27W22	313	10	2	Bxo	3	B										
13 Nov	N25W33	311	10	4	Cro	4	B	1					1				
								2	0	0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 313

Region 3146

13 Nov	N31E30	248	30	3	Dro	5	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 248



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 -- User
Guide

