

Solar activity was at low to moderate levels. Moderate levels were observed on 02 Oct due to an M1.9/1n (R1-Minor) flare at 02/1249 UTC from Region 3455 (N25, L=274, class/area=Cro/020 on 02 Oct, the strongest of the period. Moderate levels were again observed on 07 Oct due to an M1.7/Sb flare at 07/1806 UTC from Region 3406 (S10, L=232, class/area=Dai/080 on 08 Oct). Associated with the event was Type II radio sweep and a narrow, faint CME that was headed east of the Sun-Earth line. The remaining 15 numbered active regions were either quiet to only produced C-class (below R1-Minor) activity.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 03 Oct and was moderate for the remainder of the reporting period.

Geomagnetic field activity was quiet to unsettled levels on 02 Oct-04 Oct. An increase to G1 (Minor) geomagnetic storm levels was observed on 05 Oct due to southward Bz (-8 nT) during elevated solar wind speeds (~450 km/s) from a positive polarity CH HSS. Geomagnetic conditions decreased to quiet to unsettled levels over the following three days.

Space Weather Outlook

09 October - 04 November 2023

Solar activity is expected to be low with a chance for moderate conditions through the outlook period due to the flare potential from active regions currently on the visible disk and regions that have produced moderate activity that expected to return from the Sun's farside.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate levels over 09-13 Oct. Influence from a negative polarity CH HSS is likely to increase electron flux to high levels over 14-18 Oct. A return to moderate levels is likely for the remainder of the outlook period.

Geomagnetic field activity is expected to range from quiet to active levels. Active levels are likely on 13-14 Oct and 31 Oct. Unsettled levels are likely on 10-12 Oct, 15 Oct, and 01 Nov. All increases in geomagnetic activity is anticipated due to multiple, recurrent CH HSSs. The remainder of the outlook period is likely to be at quiet levels.



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
02 October	158	146	810	C1.1	11	1	0	11	1	0	0	0
03 October	154	150	530	B8.8	14	0	0	14	0	0	0	0
04 October	155	151	630	B7.4	6	0	0	4	0	0	0	0
05 October	156	179	580	B8.5	10	0	0	9	0	0	0	0
06 October	155	138	460	B8.5	5	0	0	4	0	0	0	0
07 October	157	145	490	B9.8	9	1	0	11	0	0	0	0
08 October	157	149	570	B9.5	7	0	0	13	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
	02 October	2.8e+04	1.9e+04
03 October	4.1e+04	1.9e+04	2.1e+07
04 October	4.2e+04	1.9e+04	2.6e+06
05 October	2.0e+06	2.0e+04	8.2e+06
06 October	8.2e+05	1.8e+04	1.1e+07
07 October	5.8e+04	1.8e+04	1.2e+07
08 October	8.9e+04	1.8e+04	5.1e+06

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	02 October	10	2-3-1-3-3-2-2-2	9	2-2-2-4-2-1-1-2	9
03 October	6	1-2-2-1-3-2-1-1	19	2-0-2-4-5-5-3-0	8	1-3-2-1-2-2-2-2
04 October	8	2-2-2-2-2-1-2-3	19	1-1-5-5-4-2-2-2	10	3-2-3-3-2-2-2-3
05 October	11	3-4-2-3-2-1-2-2	22	3-4-3-6-4-1-1-2	16	4-5-2-3-2-1-1-2
06 October	7	2-2-2-2-1-2-1-3	10	2-3-4-1-2-3-0-2	9	2-3-2-2-1-2-1-3
07 October	0	1-2-0-0-0-0-0-0	2	1-1-1-0-0-0-1-0	5	1-2-1-1-0-0-2-2
08 October	0	0-0-0-0-0-0-0-0	7	1-2-3-3-1-1-1-1	7	2-2-2-2-1-1-2-3

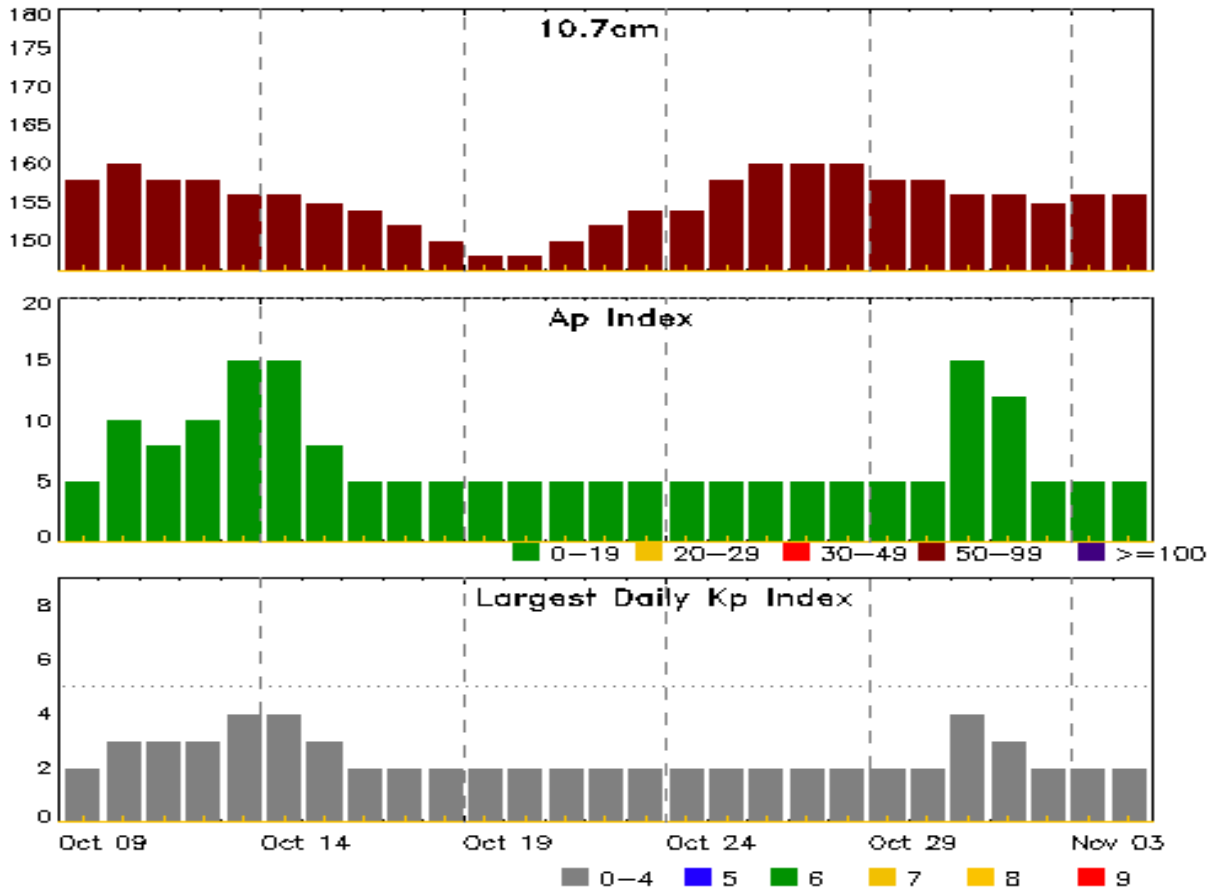


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
05 Oct 0151	WARNING: Geomagnetic K = 4	05/0151 - 1200
05 Oct 0208	ALERT: Geomagnetic K = 4	05/0200
05 Oct 0240	WARNING: Geomagnetic K = 5	05/0240 - 0900
05 Oct 0520	ALERT: Geomagnetic K = 5	05/0519
05 Oct 1141	EXTENDED WARNING: Geomagnetic K = 4	05/0151 - 1800
05 Oct 1748	WATCH: Geomagnetic Storm Category G1 predicted	
07 Oct 1450	CANCELLATION: Geomagnetic Storm Category G1 predicted	
07 Oct 1846	ALERT: Type II Radio Emission	07/1807



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
09 Oct	158	5	2	23 Oct	154	5	2
10	160	10	3	24	154	5	2
11	158	8	3	25	158	5	2
12	158	10	3	26	160	5	2
13	156	15	4	27	160	5	2
14	156	15	4	28	160	5	2
15	155	8	3	29	158	5	2
16	154	5	2	30	158	5	2
17	152	5	2	31	156	15	4
18	150	5	2	01 Nov	156	12	3
19	148	5	2	02	155	5	2
20	148	5	2	03	156	5	2
21	150	5	2	04	156	5	2
22	152	5	2				



Energetic Events

Date	Time			X-ray	Optical Information			Peak		Sweep Freq	
	Begin	Max	Half	Class	Integ Flux	Imp/ Brtns	Location	Rgn #	Radio Flux		Intensity
			Max						245	2695	
02 Oct	1235	1246	1258	M1.9	0.015	1N	N20E65	3455			
07 Oct	1757	1806	1810	M1.7	0.005	SB	S10E39	3460	920		1

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location	Rgn #
	Begin	Max	End				
02 Oct	0116	0121	0135	C2.0			3454
02 Oct	0241	0241	0243	C2.7	SF	N11E47	3452
02 Oct	0408	0426	0442	C3.2	SF	S19E18	3450
02 Oct	0506	0511	0519	C2.4	SF	N16E46	3451
02 Oct	0749	0751	0804		SF	S17E09	3450
02 Oct	0857	0858	0902	C2.9	SF	S22E17	3450
02 Oct	0901	0902	0924		SF	N15W25	3449
02 Oct	0943	0948	0953	C1.9	SF	N15W24	3449
02 Oct	1034	1043	1103	C1.7	SF	S20E16	3450
02 Oct	1132	1155	1203	C3.0	SF	S18E13	3450
02 Oct	1203	1203	1205		SF	N10E35	3452
02 Oct	1229	1229	1230		SF	S17E13	3450
02 Oct	1235	1246	1258	M1.9	1N	N20E65	3455
02 Oct	1553	1558	1602	C2.4			3450
02 Oct	1629	1635	1640	C2.0			3453
02 Oct	2026	2041	2051	C1.7			3450
03 Oct	0347	0354	0356	C1.3			3452
03 Oct	0424	0431	0439	C1.7			3454
03 Oct	0605	0611	0619		SF	N12E31	3452
03 Oct	0821	0829	0838	C1.4	SF	S18E02	3450
03 Oct	0931	0940	0947	C3.5	SF	S19E02	3450
03 Oct	1001	1001	1003		SF	N10W08	3453
03 Oct	1006	1009	1013		SF	N10W09	3453
03 Oct	1056	1105	1111	C1.7	SF	S19E00	3450
03 Oct	1204	1213	1218	C1.9	SF	S19W01	3450
03 Oct	1230	1233	1236		SF	N23W13	
03 Oct	1326	1326	1328		SF	N10E24	3452
03 Oct	1344	1352	1402		SF	N10E25	3452
03 Oct	1540	1544	1549	C2.3			3450



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
03 Oct	1605	1615	1622	C2.0	SF	N12E23		3452
03 Oct	1635	1638	1642	C2.0				3450
03 Oct	1656	1703	1707	C3.5	SF	S18W03		3450
03 Oct	1736	1743	1747	C2.3	SF	S18W04		3450
03 Oct	1824	1830	1834	C1.5				3450
03 Oct	1857	1903	1907	C1.2				3450
03 Oct	2053	2057	2103	C1.6	SF	N12E21		3452
04 Oct	0114	0123	0132	C1.8				3452
04 Oct	0749	0756	0800	C2.5	SF	S18W10		3450
04 Oct	0840	0847	0855	C2.0	SF	N11E14		3452
04 Oct	0932	0941	0944	C1.8	SF	N10W20		3453
04 Oct	0944	0952	0958	C3.0				3453
04 Oct	2327	2334	2338	C1.7	SF	S19W21		3450
05 Oct	0651	0700	0705	C3.7				3451
05 Oct	0916	0917	0923		SF	S10E58		3457
05 Oct	1221	1231	1242	C1.3				3452
05 Oct	1320	1328	1340	C1.3				3451
05 Oct	1409	1409	1412		SF	N17E02		3451
05 Oct	1523	1532	1539	C1.6	SF	N18W01		3451
05 Oct	1550	1551	1557		SF	N17E01		3451
05 Oct	1616	1627	1657	C3.5	SN	N17W01		3451
05 Oct	1747	1754	1800	C1.5	SF	N17W05		3451
05 Oct	1903	1913	1919	C4.7	SN	N18W02		3451
05 Oct	2106	2115	2122	C4.0	SN	S08E51		3457
05 Oct	2200	2207	2215	C2.1	SF	N17W05		3451
05 Oct	2346	2355	0003	C2.4	SF	N18W04		3451
06 Oct	1048	1103	1122	C3.4				
06 Oct	B1326	U1328	A1332		SF	N11W14		3452
06 Oct	B1352	U1354	A1356		SF	S11E07		3454
06 Oct	1536	1543	1548	C1.4	SF	N11W16		3452
06 Oct	1706	1713	1717	C1.5				3450
06 Oct	1743	1753	1801	C4.0				
06 Oct	1808	1817	1822	C4.2				
07 Oct	0514	0521	0525	C1.7				
07 Oct	0758	0815	0833	C3.5				3451
07 Oct	0800	0801	0803		SF	S21W48		3450
07 Oct	0805	0807	0853		SF	N16W22		3451
07 Oct	0847	0848	0853		SF	N11W25		3452



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
07 Oct	1105	1105	1109		SF	S09W07		3454
07 Oct	1344	1345	1348		SF	N18W70		3448
07 Oct	1345	1355	1405	C2.8	SF	N16W26		3451
07 Oct	1437	1445	1458	C1.7	SF	S19W58		3450
07 Oct	1741	1749	1841		SF	N16W33		3451
07 Oct	1757	1806	1810	M1.7	SB	S10E39		3460
07 Oct	1826	1830	1834	C3.3	SN	N10W31		3452
07 Oct	2038	2047	2051	C1.7				3451
07 Oct	2051	2057	2106	C1.8				3452
07 Oct	2214	2228	2240	C1.6				3460
07 Oct	2311	2320	A2359	C5.2	SF	N10W36		3452
08 Oct	0334	0340	0345	C6.6	SF	S10E32		3460
08 Oct	0448	0453	0459	C2.5				
08 Oct	0851	0904	0906	C1.9	SF	N17W40		3451
08 Oct	0906	0927	0937	C3.6				3460
08 Oct	B0912	U0920	A0940		SF	N14W38		3451
08 Oct	0920	0928	0932		SF	S10E31		3460
08 Oct	B1029	U1040	A1051		SF	S09E35		3460
08 Oct	B1151	U1152	A1204		SF	N15W42		3451
08 Oct	B1219	U1219	A1230		SF	N15W42		3451
08 Oct	1232	1240	1244	C3.4	SF	N15W42		3451
08 Oct	B1344	1346	1357		SF	N15W44		3451
08 Oct	1401	1409	1413	C2.4	SF	S09E26		3460
08 Oct	B1429	U1458	A1503		SF	S09E28		3460
08 Oct	1455	1457	1500		SF	S06E28		3460
08 Oct	1517	1525	1533	C1.5				3452
08 Oct	1816	1822	1825		SF	N17W42		3451



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

Region 3446

22 Sep	N23E63	43	10	5	Bxo	3	B										
23 Sep	N23E47	46	10	1	Axx	2	A										
24 Sep	N23E34	45	10	1	Axx	2	A										
25 Sep	N23E20	46	plage														
26 Sep	N23E06	47	plage														
27 Sep	N23W08	48	plage														
28 Sep	N23W22	49	plage														
29 Sep	N23W36	49	plage														
30 Sep	N23W50	50	plage														
01 Oct	N23W64	51	plage														
02 Oct	N23W78	52	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 47

Region 3447

25 Sep	S23E08	58	10	8	Dao	3	B					4					
26 Sep	S22W06	59	70	7	Dao	6	B										
27 Sep	S22W19	59	180	6	Dao	14	B										
28 Sep	S22W31	58	120	7	Csi	7	B										
29 Sep	S22W45	58	90	7	Cao	3	B										
30 Sep	S22W57	57	80	4	Cso	3	B	1				1					
01 Oct	S23W72	59	70	2	Hsx	1	A										
02 Oct	S24W87	60	50	2	Hsx	1	A										
									1	0	0	5	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 59



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	4							
Region 3448																							
25 Sep	N14E73	353	40	8	Hsx	1	A	1															
26 Sep	N13E59	354	90	2	Hsx	1	A																
27 Sep	N13E45	355	130	2	Hsx	1	A																
28 Sep	N13E33	354	110	2	Hsx	2	A																
29 Sep	N13E19	354	100	2	Hsx	1	A																
30 Sep	N13E06	354	80	2	Hsx	1	A																
01 Oct	N13W06	353	80	2	Hsx	1	A																
02 Oct	N13W21	354	130	3	Hsx	2	A																
03 Oct	N14W33	353	90	2	Hsx	2	A																
04 Oct	N10W46	354	90	1	Hsx	1	A																
05 Oct	N13W60	354	50	2	Hsx	1	A																
06 Oct	N13W74	355	30	2	Hsx	1	A																
07 Oct	N13W87	355	30	2	Hsx	1	A						1										
								1	0	0		1	0	0	0	0							

Crossed West Limb.
 Absolute heliographic longitude: 354

Region 3449																							
26 Sep	N15E47	6	30	5	Cro	4	BG																
27 Sep	N15E33	7	70	9	Cao	10	BG	2					3										
28 Sep	N15E16	11	90	10	Dao	9	B	1					1										
29 Sep	N15E03	9	120	10	Csi	10	B	2					3										
30 Sep	N15W09	9	110	9	Csi	10	B																
01 Oct	N15W22	9	40	8	Cso	8	B	2					1										
02 Oct	N15W39	12	30	1	Hsx	1	A	1					2										
03 Oct	N15W53	13	10	1	Axx	1	A																
04 Oct	N15W67	15	plage																				
05 Oct	N15W82	16	plage																				
								8	0	0		10	0	0	0	0							

Crossed West Limb.
 Absolute heliographic longitude: 9



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	4		
Region 3450																		
27 Sep	S18E66	334	30	2	Cro	2	B	1										
28 Sep	S19E58	329	70	10	Dai	8	B	6	1			3						
29 Sep	S19E43	330	140	11	Eai	13	BG					3						
30 Sep	S19E31	329	170	11	Eai	12	BG	2				2	1					
01 Oct	S19E18	329	180	12	Eai	20	BG	6				7						
02 Oct	S18E04	329	220	11	Eac	25	BG	6				6						
03 Oct	S19W10	330	140	13	Eai	19	BG	10				6						
04 Oct	S23W23	331	110	13	Eso	13	B	2				2						
05 Oct	S18W38	332	90	12	Eao	13	B											
06 Oct	S19W55	336	10	2	Axx	2	A	1										
07 Oct	S19W67	335	10	1	Axx	1	A	1				2						
08 Oct	S19W81	336	plage															
								35	1	0	31	1	0	0	0			

Still on Disk.

Absolute heliographic longitude: 329

Region 3451

30 Sep	N14E60	300	80	7	Dai	8	BD	7	1		11	1						
01 Oct	N16E48	299	50	6	Dri	7	BD	2			7							
02 Oct	N17E34	299	30	5	Dri	7	B	1			1							
03 Oct	N16E22	298	50	6	Dso	8	B											
04 Oct	N12E08	300	70	9	Dso	8	B											
05 Oct	N17W07	301	140	10	Dai	18	BG	8			7							
06 Oct	N16W20	301	160	10	Dai	17	BG				1							
07 Oct	N16W33	301	180	12	Eai	22	BG	3			3							
08 Oct	N16W46	301	240	11	Eai	21	BD	2			7							
								23	1	0	37	1	0	0	0			

Still on Disk.

Absolute heliographic longitude: 301



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	4							
Region 3452																							
30 Sep	N12E62	298	plage									1											
01 Oct	N11E47	300	120	8	Dai	12	B	2	1			5											
02 Oct	N11E33	300	240	10	Dai	12	B	1				2											
03 Oct	N11E19	300	150	11	Eai	16	B	3				5											
04 Oct	N07E07	301	240	13	Eac	36	B	2				1											
05 Oct	N11W08	302	220	12	Eai	28	BG	1															
06 Oct	N10W24	305	180	12	Esi	12	BG	1				2											
07 Oct	N11W36	304	180	11	Eai	16	B	3				3											
08 Oct	N10W50	305	150	12	Eao	12	B	1															
								15	1	0	18	0	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 301

Region 3453

01 Oct	N12E11	336	20	4	Cro	6	B																
02 Oct	N13W02	335	60	5	Cao	4	B	1															
03 Oct	N10W17	336	50	6	Dao	5	B					2											
04 Oct	N07W29	337	50	6	Cao	5	B	2				1											
05 Oct	N11W44	338	10	2	Bxo	4	B																
06 Oct	N10W58	339	10	2	Axx	3	A																
07 Oct	N10W72	340	plage																				
08 Oct	N10W86	341	plage																				
								3	0	0	3	0	0	0	0	0							

Still on Disk.

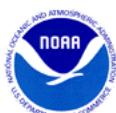
Absolute heliographic longitude: 335

Region 3454

01 Oct	S12E64	283	20	1	Hrx	1	A																
02 Oct	S12E50	283	30	2	Cro	3	B	1															
03 Oct	S13E38	281	20	4	Bxo	3	B	1															
04 Oct	S16E26	282	30	5	Cro	6	B																
05 Oct	S14E11	283	10	3	Bxo	4	B																
06 Oct	S12W01	282	20	6	Bxo	6	B					1											
07 Oct	S11W13	281	30	6	Cso	8	B					1											
08 Oct	S11W27	282	30	5	Cso	4	B																
								2	0	0	2	0	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 282



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares										
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
								C	M	X	S	1	2	3	4		
Region 3455																	
02 Oct	N25E58	274	20		Cro	1	B		1			1					
03 Oct	N25E47	273	10	4	Axx	4	A										
04 Oct	N21E34	274	plage														
05 Oct	N25E19	275	plage														
06 Oct	N25E05	276	plage														
07 Oct	N27W07	274	plage														
08 Oct	N27W21	276	plage														
								0	1	0	0	1	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 276

Region 3456																	
03 Oct	S31W06	326	10	2	Bxo	2	B										
04 Oct	S31W19	327	10	3	Axx	1	A										
05 Oct	S31W34	328	10	1	Axx	1	A										
06 Oct	S31W48	329	plage														
07 Oct	S31W62	330	plage														
08 Oct	S31W76	331	plage														
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 326

Region 3457																	
04 Oct	S11E62	246	30	1	Hrx	1	A										
05 Oct	S10E47	247	30	1	Hrx	1	A	1				2					
06 Oct	S12E38	243	20	1	Hrx	1	A										
07 Oct	S11E24	244	20	1	Hrx	1	A										
08 Oct	S11E11	244	20	1	Hrx	1	A										
								1	0	0	2	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 244



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 3458

05 Oct	N15E03	291	10	2	Bxo	7	B										
06 Oct	N15W11	292	10	1	Axx	1	A										
07 Oct	N15W23	291	10	1	Axx	1	A										
08 Oct	N15W37	292	10	2	Bxo	2	B										
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 291

Region 3459

05 Oct	N10E65	229	10	1	Axx	2	A										
06 Oct	N08E60	221	20	5	Cro	5	B										
07 Oct	N07E44	224	20	3	Cro	3	B										
08 Oct	N07E31	224	10	1	Axx	1	A										
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 224

Region 3460

07 Oct	S11E35	233	10	2	Axx	2	A	1	1								
08 Oct	S10E23	232	80	7	Dai	15	BG	3			6						
								4	1	0	6	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 232

Region 3461

08 Oct	N12E40	215	20	1	Bxo	2	B										
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 215

Region 3462

08 Oct	N22E62	193	10	1	Axx	1	A										
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 193



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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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