

Solar activity ranged from low to high levels. Activity reached high levels on 19 October due to three major solar flares. Activity was mostly low through 18 October with isolated C-class flares, but increased to moderate levels on 17 October due to an isolated M-class flare from Region 9658 (S14, L = 024, class/area Fao/230 on 19 October) (for flare details, please refer to the Energetic Events and Flares lists). Region 9658 was moderate in size and magnetic complexity, but in a gradual decay phase during 15 - 16 October. However, the region showed increased magnetic complexity on 17 October to include a short-lived magnetic delta configuration within its trailer spots. It appeared to stabilize on 18 October, but remained moderately complex. It began to gradually decay on 20 October and was crossing the west limb as the period ended. Activity rose to high levels on 19 October due to three major flares from Regions 9658 and 9661 (N15, L = 357, Ekc/800 on 16 October). The first was an X1/2b at 19/0105 UTC from Region 9661 associated with a 1400 sfu Tenflare, Type II and IV radio sweeps, and an Earth-directed coronal mass ejection (CME). Region 9661 also produced an X1/2b at 19/1630 UTC associated with a 950 sfu Tenflare, Type II and IV radio sweeps, a loop-prominence system and a Earth-directed CME. Region 9658 was responsible for the third major flare of the day: an M5/1b at 19/0943 UTC associated with a 370 sfu Tenflare. Region 9661 gradually developed through 17 October, then appeared to stabilize on 18 October as a large, magnetically complex spot group with strong magnetic field gradients and a magnetic delta configuration within the trailer portion of the region. Activity decreased to low levels on 20 October as Regions 9658 and 9661 began to gradually decay. Activity became moderate on 21 October due to an M2/2n flare from Region 9661, which remained in a gradual decay phase. Another sunspot group of interest was Region 9672 (S20, L = 269, Dko/330 on 21 October), which produced isolated C-class subflares as it gradually developed. Note: Region 9672 produced two major flares on 22 October; details will be provided in next week's report.

Solar Wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. A weak transient disturbance was observed early on 15 October associated with relatively minor variations in velocity and density, and mostly southward IMF Bz early in the day. A CME front passed the spacecraft at approximately 21/1614 UTC. Strong increases in total IMF field intensity, proton temperature, and velocities (peaks as high as 730 km/sec) accompanied the passage, along with a strong southward turn of IMF Bz with peak deflections to minus 23 nT (GSM). This passage was in progress as the period ended. The source for this CME was likely the X1/2b flare at 19/0105 UTC from Region 9661.

A greater than 10 MeV proton flux event at geosynchronous orbit began at 19/2255 UTC in the wake of major flare activity earlier that day. The event peaked at 11 pfu at 19/2235 UTC, then ended at 19/2255 UTC. The greater than 100 MeV proton flux became enhanced in the wake of the major flares, but did not reach event criteria.

The greater than 2 MeV electron flux at geosynchronous orbit ranged from normal to moderate levels.

The geomagnetic field was mildly disturbed early on 15 October with unsettled to active levels due to a weak coronal transient. A CME-related geomagnetic storm occurred on 21 October (and continued into 22 October). The disturbance began with a sudden impulse at 21/1645 UTC (15 nT, as measured by the Boulder USGS magnetometer) followed by minor to severe storm levels.



Space Weather Outlook

24 October - 19 November 2001

Solar activity is expected to range from low to high levels. Isolated, low-level M-class flares are expected throughout the period. Region 9672 is likely to produce another major flare before it rotates out of view on 30 October. There will be an increased chance for isolated major flare activity during the latter half of the period with the return of old Regions 9658 and 9661. There will be a fair chance for a proton event from Region 9672 until it departs the disk on 30 October. There will be a slight chance for a proton flare during the latter half of the period with the return of old Regions 9658 and 9661.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels during most of the period. However, high flux levels will be possible around 26 - 30 October and 06 - 07 November.

Geomagnetic storm conditions are expected during 24 - 25 October due to an anticipated CME passage. Active to major storm levels will be possible during this passage. Active conditions will be possible during 26 - 28 October and 04 - 05 November. Quiet to unsettled conditions are expected during the remainder of the period.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
15 October	193	176	1180	B8.9	5	0	0	6	0	0	0	0
16 October	207	168	1360	B9.5	9	0	0	3	0	0	0	0
17 October	217	171	1620	C1.3	5	1	0	6	0	0	0	0
18 October	229	182	1670	C1.6	9	0	0	16	1	0	0	0
19 October	248	219	2110	C2.2	8	6	2	23	5	2	0	0
20 October	245	230	1660	C2.4	6	0	0	5	0	0	0	0
21 October	224	239	1660	C1.1	9	2	0	7	0	1	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day-sr)			Electron Fluence (electrons/cm ² -day-sr)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
	15 October	3.0E+5	1.4E+4	2.3E+3		1.1E+7
16 October	3.5E+5	1.5E+4	2.4E+3		9.2E+6	
17 October	1.8E+5	1.3E+4	2.6E+3		4.7E+6	
18 October	1.7E+5	1.2E+4	2.6E+3		1.0E+7	
19 October	2.4E+6	4.2E+5	1.0E+4		2.8E+6	
20 October	1.1E+7	4.5E+5	4.9E+3		6.2E+5	
21 October	2.0E+7	1.2E+5	3.0E+3		1.0E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	15 October	9	3-4-2-1-2-2-1-1	11	3-4-4-2-1-1-1-1	11
16 October	6	3-1-1-1-2-2-2-1	13	2-1-2-4-5-2-1-1	8	3-2-2-2-3-3-2-1
17 October	2	2-1-1-0-1-0-0-1	3	0-1-1-3-0-0-0-0	4	2-1-1-1-2-2-2-1
18 October	2	1-0-0-0-1-2-1-1	1	0-0-0-0-1-1-1-0	4	0-0-0-1-2-3-2-1
19 October	6	0-1-1-1-2-3-2-2	14	0-0-2-2-4-5-3-2	8	0-1-2-2-3-3-2-3
20 October	8	0-3-1-3-2-2-2-2	21	1-2-2-6-4-4-3-1	10	1-3-2-4-3-3-2-2
21 October	29	1-2-2-1-2-5-6-6	67	2-3-3-3-4-7-8-6	40	2-3-3-2-3-6-6-7

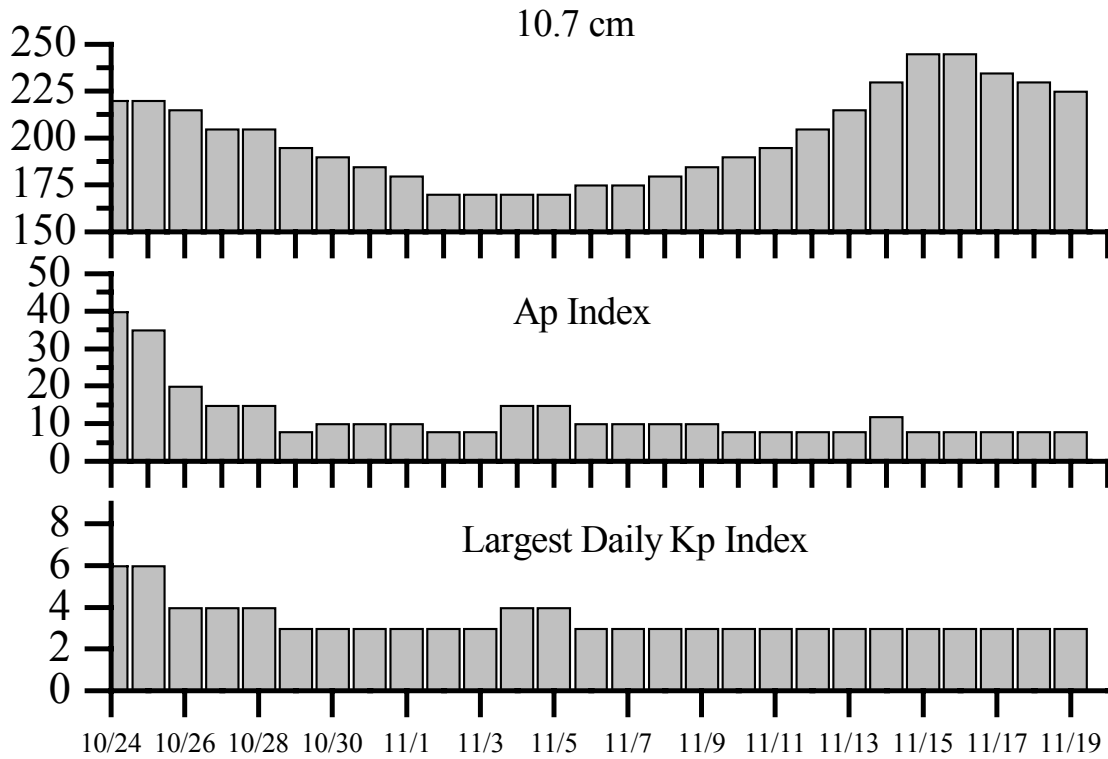


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
15 Oct 0015	5 - 245 MHz Bursts	14 Oct
15 Oct 0443	K= 4 Warning	15 Oct 0445 - 1500
15 Oct 0559	K= 4 Observed	15 Oct 0300 - 0600
16 Oct 0010	1- 245 MHz Bursts	15 Oct
16 Oct 0010	245 MHz Noise Storms	15 Oct
17 Oct 0009	2 - 245 MHz Bursts	16 Oct
18 Oct 0024	2 - 245 MHz Bursts	17 Oct
19 Oct 0012	3 - 245 MHz Bursts	18 Oct
19 Oct 0012	245 MHz Noise Storms	18 Oct
19 Oct 0116	X-Ray event X1.6/2b	19 Oct 0105
19 Oct 0134	Type II Radio Emission	19 Oct 0101
19 Oct 0311	10cm Radio Burst 1400 F.U.	19 Oct 0050
19 Oct 0502	Proton Event >10MeV >=10pfu Warning	19 Oct 0515 - 1500
19 Oct 0530	Type IV Radio Emission	19 Oct 0109
19 Oct 1009	10cm Radio Burst 440 F.U.	19 Oct 0938
19 Oct 1013	X-Ray event M5.7/1B	19 Oct 0943
19 Oct 1648	X-Ray event X1.6/2b	19 Oct 1630
19 Oct 1706	Type II Radio Emission	19 Oct 1624
19 Oct 1707	Type IV Radio Emission	19 Oct 1639
19 Oct 1714	Proton Event >10MeV >=10pfu Warning	19 Oct 1730 - 2359
19 Oct 1728	10cm Radio Burst 720 F.U.	19 Oct 1638
19 Oct 2207	A >=20 Watch	21 Oct
19 Oct 2207	A >=30 Watch	22 Oct
19 Oct 2241	Protons Event >10 MeV >=10pfu	19 Oct 2225
19 Oct 2344	CONTINUED Proton Event >10MeV >=10pfu Warning	19/1730 - 20/1500 Oct
20 Oct 0056	5 - 245 MHz Radio Bursts	19 Oct
20 Oct 0056	245 MHz Noise Storm	19 Oct
20 Oct 0102	CONTINUED Proton Event >10 MeV >=10pfu	19 Oct 2225
20 Oct 0443	ENDED Proton Event >10 MeV >=10pfu	19 Oct 2255
20 Oct 1204	K= 4 Observed	20 Oct 0900 - 1200
21 Oct 0030	3 - 245 MHz Bursts	20 Oct
21 Oct 0508	Type II Radio Emission	21 Oct 0441
21 Oct 1622	K= 5 Warning	21/1700 - 22/1500 Oct
21 Oct 1653	K >= 6 Warning	21/1700 - 22/1500 Oct
21 Oct 1714	Sudden Impulse observed at Boulder	21 Oct 1645
21 Oct 1801	K= 5 Observed	21 Oct 1500 - 1800
21 Oct 2100	K= 6 Observed	21 Oct 1800 - 2100
21 Oct 2101	A >=20 Observed	21 Oct 2100
21 Oct 2318	A >=30 Warning	21/2330 - 22/1500 Oct



Twenty-seven Day Outlook



Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index
24 Oct	220	40	6	07	175	10	3
25	220	35	6	08	180	10	3
26	215	20	4	09	185	10	3
27	205	15	4	10	190	8	3
28	205	15	4	11	195	8	3
29	195	8	3	12	205	8	3
30	190	10	3	13	215	8	3
31 Oct	185	10	3	14	230	12	3
01 Nov	180	10	3	15	245	8	3
02	170	8	3	16	245	8	3
03	170	8	3	17	235	8	3
04	170	15	4	18	230	8	3
05	170	15	4	19	225	8	3
06	175	10	3				



Energetic Events

Date	Time		X-ray		Optical Information				Peak		Sweep Freq	
	Begin	Max	$\frac{1}{2}$	Class	Integ Flux	Imp/Location		Rgn #	Radio Flux		Intensity	
			Max			Brtns	Lat		CMD	245	2695	II
17 Oct	1116	1123	1128	M1.1	.006	SF	S17W22	9658	130	43		
19 Oct	0047	0105	0113	X1.6	.120	2B	N16W18	9661	9300	1400	3	2
19 Oct	0220	0232	0246	M1.2	.018							
19 Oct	0252	0258	0303	M1.4	.008	SF	N16E17	9671		21		
19 Oct	0314	0316	0318	M1.0	.002							
19 Oct	0635	0645	0653	M1.3	.009	SF	S16W44	9658				
19 Oct	0935	0943	0955	M5.7	.040	1B	S14W47	9658	100	370		
19 Oct	1613	1630	1643	X1.6	.160	2B	N15W29	9661	13000	950	2	2
19 Oct	2314	2325	2333	M3.3	.022	1F	S17W57	9658		170		
21 Oct	0509	0518	0527	M1.3	.010				650	43		
21 Oct	1112	1136	1148	M2.5	.031	2N	N13W56	9661		100		

Flare List

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
15 October	0221	0233	0239	C2.4			
	0312	0320	0326	C2.5			
	0457	0513	0526	C3.4			
	0546	0550	0555	C2.0			
	0751	U0751	0831		SF	N17E25	9661
	1037	1037	1042		SF	N24E69	9667
	1258	1300	1317		SF	N16E22	9661
	1516	1518	1532		SF	N24E67	9667
	1614	1616	1643	C3.7	SF	N16E24	9661
	2229	2230	2235		SF	N11E69	9669
16 October	0159	0202	0205	C1.5			
	0610	0630	0648	C1.7			
	0630	0631	0637		SF	S11E13	9666
	0815	0822	0829	C1.9			
	0923	0927	0929	C5.0			
	1032	1039	1047	C2.1			
	1632	1644	1654	C2.8			
	1758	1807	1907	C3.5	SF	N16E11	9661
	1920	1928	2009	C6.0	SF	N14E08	9661
	2158	2202	2207	C2.2			
17 October	0716	0719	0747	C3.5	SF	N13W03	9661
	0835	0847	0850	C2.3			
	0930	0943	0956	C2.5			
	1119	U1121	1137	M1.1	SF	S17W22	9658
	1535	1537	1539		SF	S17W27	9658
	1615	1617	1639	C3.9	SF	N06W71	9659
	1626	1632	1638		SF	S17W26	9658
	1719	1720	1731	C2.5	SF	N15W02	9661



Flare List - continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
18 October	0155	0158	0200	C2.7			
	0302	0315	0329	C2.3			
	0423	0426	0429	C2.3			
	0529	0533	0535	C3.1			
	0831	0836	0840	C3.1			
	1240	1240	1253		SF	N17W12	9661
	1324	1350	1400	C6.5	1N	S16W37	9658
	1405	1417	1436		SF	S16W37	9658
	1508	1510	1515		SF	S18E46	9670
	1531	1532	1535		SF	N10W47	9662
	1536	1537	1542		SF	N16W12	9661
	1605	1609	1642	C4.7	SF	N16W13	9661
	1743	1744	1748		SF	N16W14	9661
	1805	1808	1813		SF	S16W37	9658
	1907	1908	1919	C8.5	SF	S17E69	9672
	1938	1938	1949		SF	N15W18	9661
	1949	1959	2044		SF	N15W18	9661
	2048	2048	2056		SF	N17W17	9661
	2117	2119	2125		SF	S15W38	9658
	2147	2147	2200		SF	N15W15	9661
	2259	2259	2304		SF	S17W43	9658
	2337	2337	2348	C3.0	SF	N18W19	9661
	19 October	0049	0059	0355	X1.6	2B	N16W18
0220		0232	0246	M1.2			
0255		0256	0315	M1.4	SF	N16E17	9671
0314		0316	0318	M1.0			
0526		0529	0536	C4.2			
0639		0646	0716		1F	N16E14	9671
0644		0645	0654	M1.3	SF	S16W44	9658
0655		0659	0733	C8.9	1F	N13W30	9661
0858		0859	0902		SF	S14W47	9658
0924		U0941	A1026	M5.7	1B	S14W47	9658
B1025		U1025	1042		SF	N17E13	9671
1037		1037	1040		SF	N13W31	9661
1221		1224	1301		1F	N15W29	9661
1227		1231	1311	C7.8	SF	S18E59	9672
1338		1339	1348	C3.8	SF	S14W49	9658
1436		1453	1506	C3.5			
1445		1451	1509		SF	N16W27	9661
1448		1448	1455		SF	N17E10	9671
1529	1530	1554		SF	N14W33	9661	
1531	1532	1535		SF	N17E12	9671	

Flare List - continued.



Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn
	Begin	Max	End			Location Lat CMD	
18 October	1547	1548	1554	C3.2	SF	N15E11	9671
	1614	1636	1849	X1.6	2B	N15W29	9661
	1722	1724	1728		SF	S14W50	9658
	1850	1850	1858		SF	N15W32	9661
19 October	1939	1940	1943		SF	S16W53	9658
	2023	2024	2029		SF	S17W55	9658
	2058	2100	2109	C4.1	SF	S15W63	9658
	2100	2106	2112		SF	S09E38	9674
	2140	2145	2150		SF	S18W53	9658
	2152	2157	2203	C3.9	SF	S18W53	9658
	2216	2219	2222		SF	S15W64	9658
	2216	2218	2224		SF	N16W30	9661
	2235	2236	2239		SF	S15W64	9658
	2314	2316	A2327	M3.3	1F	S17W57	9658
20 October	0011	0028	0042	C7.3			
	B0701	U0701	A0711	C4.1	SF	S19E26	9670
	1537	1539	1600		SF	N15W41	9661
	2109	U2112	A2127	C4.6	SF	S09E24	9674
	2129	2147	2157	C3.0	SF	S15E18	9670
	2204	2211	2213	C3.3			
	2236	2237	2243	C2.5	SF	S09E24	9674
21 October	0007	U0007	A0025	C4.3	SF	S16E33	9672
	0028	0031	0033	C2.1			
	0147	0151	0154	C1.9			
	0321	0324	0328	C1.4			
	0433	0437	0439	C7.8			9670
	0509	0518	0527	M1.3			
	0544	0547	0551	C2.7			
	0753	0757	0800	C2.7			
	0802	0805	0810		SF	S18E34	9672
	B1141	U1142	1230	M2.5	2N	N13W56	9661
	B1151	U1157	A1308		SF	N12W56	9661
	1313	1313	1334	C2.5	SF	S19E09	9670
	1425	1425	1431		SF	S19E31	9672
	1452	1453	1456		SF	S21E16	9670
	1533	1533	1539		SF	S18E31	9672
	2054	2058	2100	C2.0			



Region Summary

Date	Location		Sunspot Characteristics				Flares											
	(° Lat ° CMD)	Helio	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
		Lon						C	M	X	S	1	2	3	4			
<i>Region 9653</i>																		
04 Oct	S23E76	084	0060	05	HAX	001	A											
05 Oct	S22E62	082	0220	09	DKO	004	B											
06 Oct	S22E50	083	0270	05	DKO	005	B											
07 Oct	S22E37	083	0280	07	DKO	008	B	1				1						
08 Oct	S22E24	083	0220	07	DKC	006	B											
09 Oct	S22E11	083	0190	07	DAO	008	B		1					1				
10 Oct	S21W02	082	0160	07	DAI	013	B					1						
11 Oct	S22W14	081	0150	07	DAO	015	B											
12 Oct	S22W27	081	0130	07	DAO	013	B											
13 Oct	S22W40	081	0060	04	DAO	007	B											
14 Oct	S22W54	082	0030	03	CSO	003	B											
15 Oct	S22W64	078	0020	10	BXO	002	B											
16 Oct	S18W77	078																
								1	1	0	2	0	1	0	0			

Crossed West Limb.

Absolute heliographic longitude: 082

<i>Region 9655</i>																		
06 Oct	S22E64	069	0180	04	HKX	002	A											
07 Oct	S21E52	068	0180	04	DAO	006	B											
08 Oct	S21E38	069	0130	05	DAO	006	B											
09 Oct	S22E26	068	0090	05	DAO	004	B											
10 Oct	S21E12	068	0070	05	CAO	003	B											
11 Oct	S22E00	067	0090	04	CSO	005	B											
12 Oct	S21W14	068	0060	04	CSO	005	B											
13 Oct	S22W26	067	0030	04	CSO	004	B											
14 Oct	S22W37	065	0020	03	CRO	004	B											
15 Oct	S22W50	065																
16 Oct	S22W63	065																
17 Oct	S22W76	065																

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 067



Region Summary - continued.

Date	Location		Sunspot Characteristics				Flares											
	(° Lat ° CMD)	Helio	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
		Lon						C	M	X	S	1	2	3	4			
	<i>Region 9659</i>																	
10 Oct	N04E19	061	0010	03	BXO	003	B											
11 Oct	N03E04	063	0010	03	BXO	002	B											
12 Oct	N03W09	063																
13 Oct	N03W22	063																
14 Oct	N04W36	064	0010	03	BXO	003	A											
15 Oct	N04W51	065	0040	04	CRO	004	B											
16 Oct	N07W64	065	0030	05	CSO	004	B											
17 Oct	N05W75	063	0020	01	BXO	002	A	1				1						
18 Oct	N05W88	063																
									1	0	0	1	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 063

<i>Region 9660</i>																		
10 Oct	N12E20	060	0010	01	AXX	002	A											
11 Oct	N12E08	052	0030	06	DAO	010	B											
12 Oct	N13W06	060	0050	07	DSO	008	B											
13 Oct	N13W21	062	0020	06	CSO	005	B											
14 Oct	N13W36	064	0030	01	HSX	002	A											
15 Oct	N12W50	064	0020	01	HRX	001	A											
16 Oct	N12W63	064																
17 Oct	N12W76	064																
									0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 060

<i>Region 9661</i>																		
10 Oct	N12E76	004	0060	01	HAX	001	A											
11 Oct	N16E69	358	0480	13	EKO	005	BD	1				1						
12 Oct	N14E55	359	0760	12	EKO	008	BD	3				4						
13 Oct	N15E42	359	0720	11	EKI	016	BD	1				1						
14 Oct	N15E30	358	0670	10	DKO	018	BD	3				3						
15 Oct	N15E17	357	0720	11	EKI	016	BD	1				3						
16 Oct	N16E04	357	0800	13	EKC	034	BGD	2				2						
17 Oct	N16W08	356	0800	16	FKI	028	BGD	2				2						
18 Oct	N16W23	358	0660	11	EKI	024	BGD	2				9						
19 Oct	N16W35	357	0620	12	EKI	021	BGD	1			2	5	2	2				
20 Oct	N15W48	357	0410	11	ESO	015	BG					1						
21 Oct	N14W64	359	0360	11	EKO	010	BGD		1		1		1					
								16	1	2	32	2	3	0	0			

Still on Disk.

Absolute heliographic longitude: 357

Region Summary - continued.



Date	Location		Sunspot Characteristics					Flares										
	Helio		Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
	(° Lat ° CMD)	Lon						C	M	X	S	1	2	3	4			
<i>Region 9662</i>																		
11 Oct	N09E42	025	0020	04	BXO	005	B											
12 Oct	N08E29	025	0070	06	DSO	009	B					1						
13 Oct	N09E15	026	0070	06	DAO	011	B											
14 Oct	N08E03	025	0140	08	DSO	014	B											
15 Oct	N09W12	026	0060	08	CSO	008	B											
16 Oct	N10W24	025	0050	09	DAO	013	B											
17 Oct	N10W37	025	0070	07	CSO	010	B											
18 Oct	N10W51	026	0040	07	DSO	007	B					1						
19 Oct	N11W66	028	0070	07	DSO	005	B											
20 Oct	N11W81	030	0060	08	DSO	002	B											
21 Oct	N11W88	023	0020	01	HAX	001	A											
								0	0	0	2	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 025

<i>Region 9663</i>																		
11 Oct	S13E67	000	0020	01	HRX	001	A	1				1						
12 Oct	S14E52	002	0030	01	HSX	001	A											
13 Oct	S15E37	004	0020	01	HSX	001	A											
14 Oct	S14E25	003	0030	10	CSO	004	B											
15 Oct	S15E09	005	0020	01	HSX	001	A											
16 Oct	S16W05	006	0010	01	HSX	001	A											
17 Oct	S16W17	005	0010	00	AXX	001	A											
18 Oct	S16W30	005																
19 Oct	S16W43	005																
20 Oct	S16W56	005																
								1	0	0	1	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 006

<i>Region 9664</i>																		
12 Oct	N07E16	038	0010	01	HRX	001	A											
13 Oct	N07E03	038																
14 Oct	N07W10	038																
15 Oct	N07W23	038																
								0	0	0	0	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 038



Region Summary - continued.

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

Region 9665

13 Oct	S26W57	098	0010	04	BXO	003	B										
14 Oct	S26W70	098															
15 Oct	S26W83	098															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 098

Region 9666

14 Oct	S12E31	357	0010	03	BXO	002	B										
15 Oct	S11E18	356	0000	00	AXX	001	A										
16 Oct	S10E05	356									1						
17 Oct	S10W08	356															

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 356

Region 9667

14 Oct	N24E73	315	0030	01	HSX	001	A										
15 Oct	N23E60	314	0060	07	CAO	004	B				2						
16 Oct	N24E47	314	0070	09	DSO	008	B										
17 Oct	N25E35	313	0070	09	DAO	005	B										
18 Oct	N26E18	317	0040	05	HAX	002	A										
19 Oct	N26E06	316	0040	06	CSO	005	B										
20 Oct	N26W10	319	0010	01	HRX	001	A										
21 Oct	N26W23	318	0010	01	HRX	002	A										

0 0 0 2 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 316

Region 9668

15 Oct	N29E01	013	0010	06	BXO	004	B										
16 Oct	N29W12	013															
17 Oct	N29W25	013															
18 Oct	N29W38	013															
19 Oct	N29W51	013															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 013



Region Summary - continued.

Date	Location		Sunspot Characteristics				Flares										
	(° Lat ° CMD)	Helio	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
		Lon						C	M	X	S	1	2	3	4		
<i>Region 9673</i>																	
18 Oct	N03E73	262	0110	02	HSX	001	A										
19 Oct	N04E58	264	0130	02	HAX	001	A										
20 Oct	N03E46	263	0070	04	CAO	004	B										
21 Oct	N03E32	263	0140	04	CSO	006	B										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 263																	
<i>Region 9674</i>																	
19 Oct	S08E34	288	0060	03	BXO	004	B					1					
20 Oct	S08E20	289	0050	06	DSO	007	B	2				2					
21 Oct	S09E07	288	0080	06	DSO	007	B										
								2	0	0	0	3	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 288																	
<i>Region 9675</i>																	
20 Oct	S14E69	240	0030	01	HSX	001	A										
21 Oct	S13E56	239	0030	01	HSX	001	A										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 239																	
<i>Region 9676</i>																	
20 Oct	N13E70	239	0070	02	CAO	001	B										
21 Oct	N13E58	237	0090	07	DSO	005	B										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 237																	

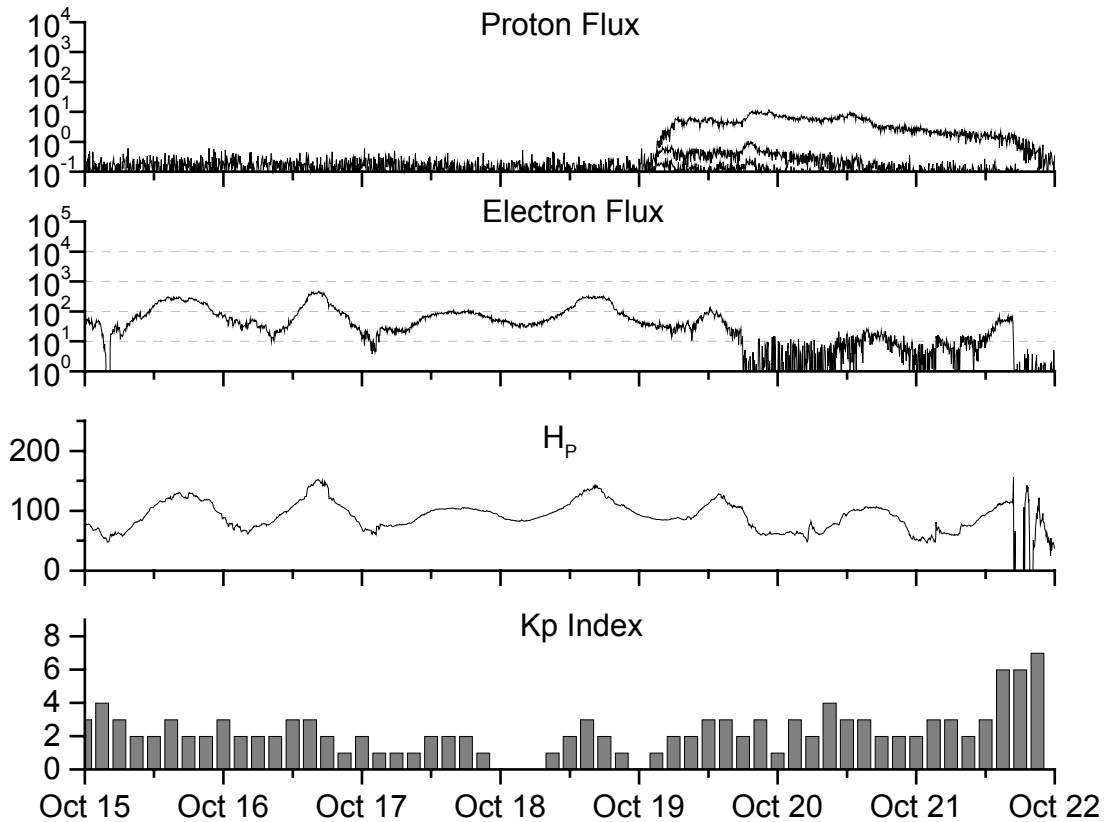


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SWO	Ratio RI	Ratio RI/SWO	Smooth values SWO	Smooth values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
1999									
October	167.7	116.7	0.70	158.5	107.8	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.0	191.5	171.5	14	13.1
December	123.5	86.4	0.69	165.9	111.1	169.8	173.4	10	13.8
2000									
January	140.8	90.1	0.64	168.0	112.9	158.1	175.5	13	14.5
February	161.9	112.9	0.70	172.1	116.7	173.2	176.8	15	15.0
March	203.6	138.5	0.68	175.4	119.9	208.2	178.4	09	15.0
April	193.4	125.5	0.65	176.3	120.8	184.2	180.5	15	15.0
May	188.8	121.6	0.64	173.1	119.0	184.5	180.0	15	15.0
June	190.3	124.9	0.66	172.0	118.7	179.8	179.7	15	15.1
July	236.7	169.1	0.71	173.0	119.7	204.7	180.2	21	14.8
August	166.6	130.5	0.78	171.8	118.6	163.1	179.5	16	14.2
September	157.9	109.9	0.70	169.0	116.2	182.1	177.1	18	14.2
October	138.9	100.1	0.72	166.2	114.4	167.7	175.6	18	14.6
November	149.9	106.5	0.71	162.7	112.7	178.8	173.6	17	14.6
December	146.4	104.5	0.71	160.8	112.1	173.6	172.0	08	14.4
2001									
January	142.7	95.1	0.67	156.3	108.8	166.7	168.8	08	13.8
February	131.0	80.1	0.61	151.4	104.2	147.3	165.8	06	13.3
March	166.7	114.2	0.69	154.0	104.9	177.7	167.9	17	12.9
April	163.6	108.2	0.66			178.3		18	
May	135.1	97.3	0.72			148.7		12	
June	196.7	134.0	0.68			173.7		12	
July	124.6	82.2	0.66			131.3		11	
August	159.4	106.8	0.67			163.2		13	
September	229.1	150.7	0.66			233.3		12	

NOTE: All smoothed values after June 1999 and monthly values after December 2000 are preliminary estimates. The lowest smoothed sunspot index number for Cycle 22, RI = 8.0, occurred in May 1996. The highest smoothed sunspot number for Cycle 22, RI= 158.5, occurred July 1989. *After June 1991, the 10.7 cm radio flux data source is Penticton, B.C. Canada. Prior to that, it was Ottawa.





Weekly Geosynchronous Satellite Environment Summary

Week Beginning 15 October 2001

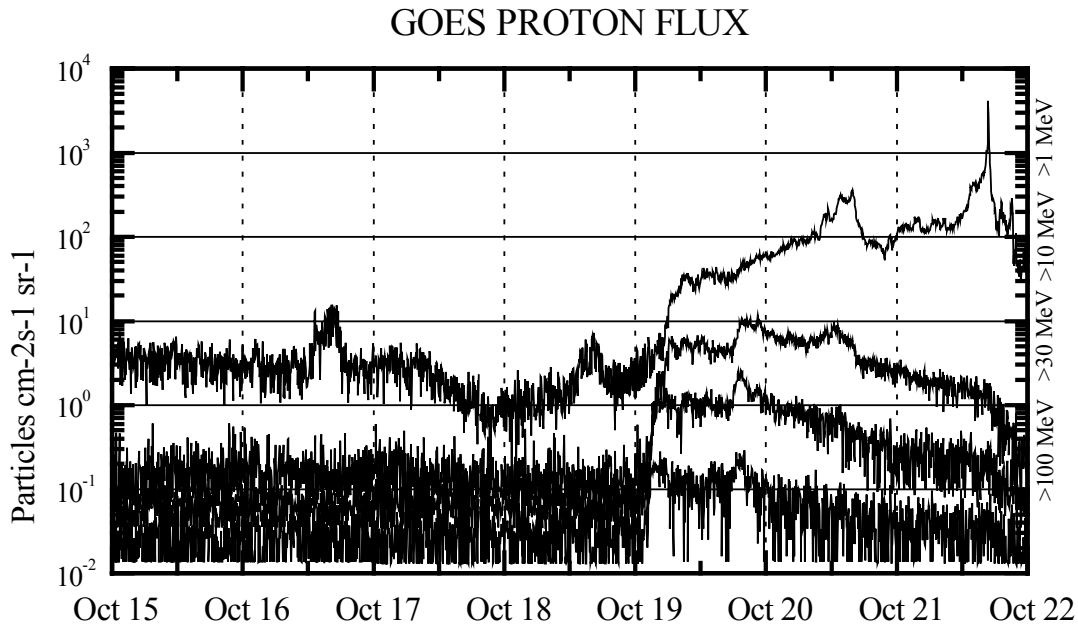
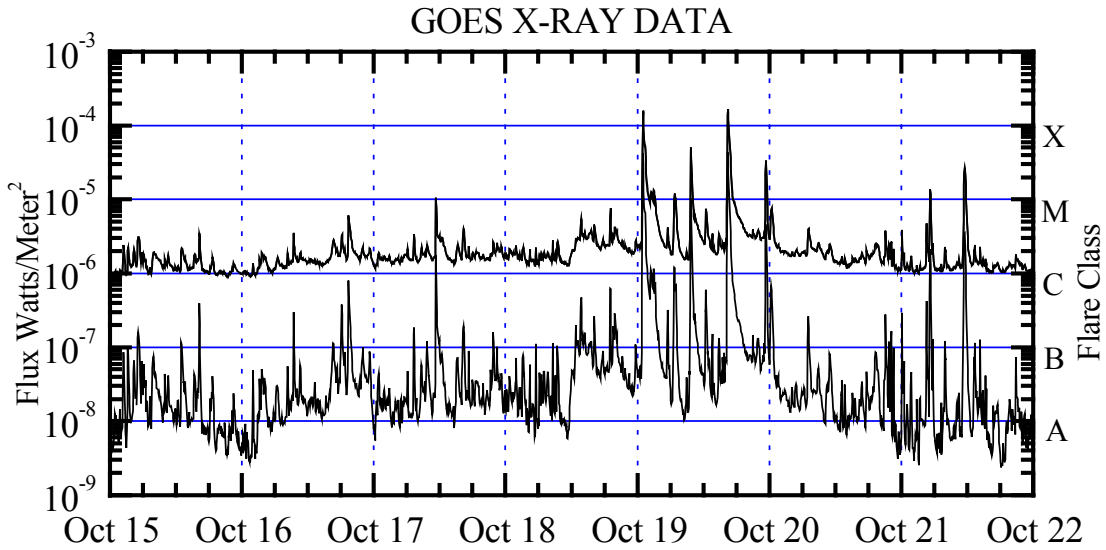
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-8.

H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-8. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

K_p plot contains the estimated planetary 3-hour K-index (derived by the Air Force Weather Agency) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and Heartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC) and the US Geological Survey. These may differ from the final K_p values derived from a more extensive network of magnetometers. The data included here are those now available in real time at the SWO and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and K_p are "global" parameters that are applicable to a first order approximation over large areas. H_p is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





Weekly GOES Satellite X-ray and Proton Plots

X-ray plot contains five-minute averaged x-ray flux (watts/m²) as measured by GOES 8 and 10 in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-8 (W75) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm²-sec-sr) at greater than 10 MeV.

