

Space Weather Highlights 13 - 19 August 2001

**SWO PRF 1355
21 August 2001**

Solar activity was low throughout the period with isolated B- and C-class flares. There was no remarkable activity noted in any of the active regions. However, there were two events of note during the period. The first was a filament disappearance from the north-central portion of the disk around midday on 14 August associated with a long-duration C2 X-ray event and an Earth-directed full-halo CME. The second was a remarkable far side event late on 15 August, possibly from old Region 9557 (S20, L = 288, class/area Dki/600 on 07 August), that was associated with a (anti-Earthward) full-halo CME and a solar energetic particle event (see the discussion below). Old Region 9557 was near far-side center disk at the time of the event!

Solar Wind data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. A CME passage occurred during 17-18 August associated with the filament disappearance mentioned above. The CME front passed the ACE spacecraft at 17/1017 UTC accompanied by abrupt increases in total IMF field intensity, velocity, density and temperature; along with a southward turn of IMF Bz until 17/1830 UTC (Bz turned northward after 17/1830 UTC). Maximum southward deflections to minus 31 nT (GSM) occurred late on 17 August during this southward turn. Peak velocities reached around 620 km/sec early on 18 August with this passage. ACE data indicated a possible weak high-speed stream during 19 August with elevated wind velocities that peaked at about 520 km/sec early in the day.

A proton event at greater than 100 MeV began at 16/0105 UTC, reached a maximum of 29 pfu at 16/0305 UTC, and ended at 17/1410 UTC. A proton event at greater than 10 MeV began at 16/0135 UTC, reached a maximum of 493 pfu at 16/0355 UTC, and ended at 18/1845 UTC. This activity was associated with the far-side event that occurred late on 15 August.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels through 15 August. Data were unreliable during the rest of the period due to effects associated with the solar energetic particle event mentioned above.

The geomagnetic field was disturbed as the period began as a CME passage continued with unsettled to minor storm conditions early on 13 August. Activity decreased to quiet to unsettled levels after 13/0600 UTC and remained so through 16 August. A CME-related disturbance began on 17 August with a sudden impulse at 17/1103 UTC (36 nT, as measured by the Boulder USGS magnetometer). Activity increased to active to major storm levels during this disturbance with brief severe storm periods detected at high latitudes. This disturbance subsided to quiet to active levels early on 18 August. Quiet to unsettled levels occurred on the final day of the period.

Space Weather Outlook 22 August - 17 September 2001

Solar activity is expected to be at low to moderate levels. Isolated M-class flares are possible. There will be a chance for a major flare during the first half of the period as old Region 9557 returns to the visible disk.

There will be a chance for a solar proton event during the first half of the period.

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, there will be slight chance for high flux levels around 23 - 24 August and 03 - 04 September.

Active geomagnetic field conditions will be possible around 22 - 24 and 27 August, 01 - 02 and 09 - 10 September. Otherwise, quiet to unsettled levels are expected.



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
13 August	152	141	960	B9.7	2	0	0	1	0	0	0	0
14 August	147	133	870	B5.9	4	0	0	2	0	0	0	0
15 August	147	155	840	B4.8	2	0	0	1	0	0	0	0
16 August	143	171	870	B3.9	1	0	0	1	0	0	0	0
17 August	145	158	540	B4.3	2	0	0	6	0	0	0	0
18 August	156	148	720	B5.9	10	0	0	7	0	0	0	0
19 August	158	142	800	B6.5	1	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)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
	13 August	6.5E+5	1.2E+4	2.5E+3		9.6E+5
14 August	1.1E+5	1.4E+4	2.6E+3		1.3E+6	
15 August	5.2E+5	3.4E+4	2.7E+3		1.3E+7	
16 August	2.1E+7	1.4E+7	6.0E+5		9.0E+6	
17 August	2.8E+7	5.9E+6	9.9E+4		3.6E+6	
18 August	6.2E+6	9.4E+5	1.4E+4		5.9E+4	
19 August	3.2E+6	5.6E+5	9.5E+3		2.7E+4	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	13 August	15	3-5-3-2-3-2-2-2	31	5-5-3-5-5-3-3-2	19
14 August	10	2-2-1-3-3-2-3-2	24	3-2-2-6-5-4-2-1	12	3-2-2-3-3-3-3-3
15 August	4	1-2-1-0-1-2-1-2	6	2-3-2-1-1-1-2-1	9	2-3-3-2-2-3-3-2
16 August	3	1-1-0-1-1-0-1-2	2	1-0-0-2-1-1-0-1	8	2-1-0-2-3-3-3-2
17 August	27	1-0-3-3-4-4-5-6	60	0-1-1-4-7-7-7-4	29	1-1-2-4-5-5-6-5
18 August	13	2-3-3-1-3-2-3-4	30	7-3-3-1-3-3-2-4	14	3-3-3-2-3-4-3-3
19 August	8	0-3-3-3-1-1-3-0	7	0-3-3-2-2-1-2-1	12	1-3-3-3-3-3-3-3

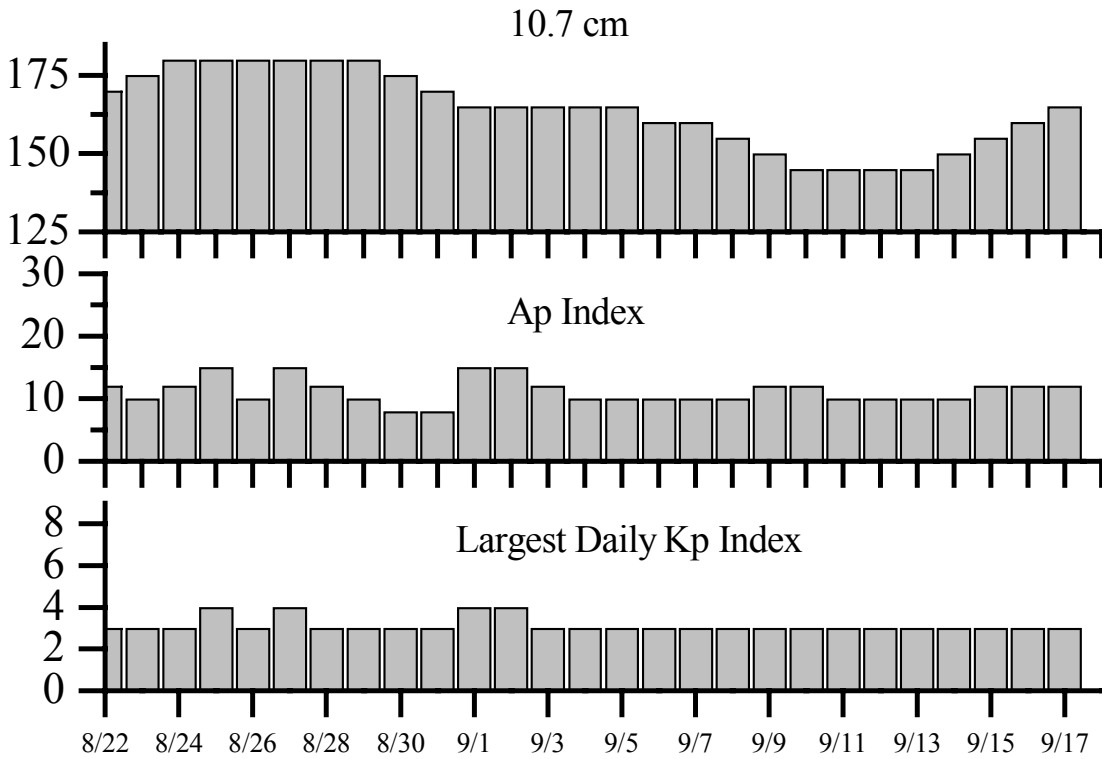


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
13 Aug 0007	5 - 245 MHz Bursts	12 Aug
13 Aug 0607	A \geq 20 Observed	13 Aug 0600
13 Aug 1444	K= 4 Warning	13/1445 - 14/1500 Aug
14 Aug 0301	ENDED A \geq 20 Observed	13 Aug 0600
14 Aug 1802	K= 4 Observed	14 Aug 1500 - 1800
14 Aug 2200	A \geq 20 Watch	17 Aug
16 Aug 0103	Proton event >100 MeV >1 pfu Warning	16 Aug 0105 - 1500
16 Aug 0121	Proton event >100 MeV >1 pfu	16 Aug 0105
16 Aug 0132	Proton Event >10 MeV ≥ 10 pfu Warning	16 Aug 0135 - 1500
16 Aug 0151	Protons Event >10 MeV ≥ 10 pfu	16 Aug 0135
16 Aug 1448	CONTINUED Proton event >100 MeV >1 pfu Warning	16 Aug 0105 -2359
16 Aug 1451	CONTINUED Proton Event >10 MeV ≥ 10 pfu Warning	16Aug 0135 - 2359
16 Aug 2236	CONTINUED Proton Event >10 MeV ≥ 10 pfu Warning	16/0135 -19/0100 Aug
16 Aug 2239	CONTINUED Proton event >100 MeV >1 pfu Warning	16/0105 -18/0100 Aug
17 Aug 0100	CONTINUED Protons Event >10 MeV ≥ 10 pfu	16 Aug 0135
17 Aug 0100	CONTINUED Proton event >100 MeV >1 pfu	16 Aug 0105
17 Aug 1121	Sudden Impulse observed at Boulder	17 Aug 1103
17 Aug 1125	K= 5 Warning	17 Aug 1125 -1500
17 Aug 1200	K= 4 Observed	17 Aug 0900 - 1200
17 Aug 1458	EXTENDED K= 5 Warning	17 Aug 1125 - 2359
17 Aug 1715	K \geq 6 Warning	17 Aug 1715 - 2359
17 Aug 1809	K= 5 Observed	17 Aug 1500 -1800
17 Aug 2102	A \geq 20 Observed	17 Aug 2100
17 Aug 2108	ENDED Proton event >100 MeV >1 pfu	17 Aug 1415
17 Aug 2109	A \geq 20 Watch	18 Aug
17 Aug 2135	CANCELLED Proton event >100 MeV >1 pfu Warning	16/0105 -18/0100 Aug
17 Aug 2325	EXTENDED K \geq 6 Warning	17/1715 -18/1500 Aug
17 Aug 2359	K= 6 Observed	17 Aug 2100 - 2400
18 Aug 0000	A \geq 30 Observed	18 Aug 0000
18 Aug 0029	1 - 245 MHz Burst	17 Aug 2001
18 Aug 0100	CONTINUED Protons Event >10 MeV ≥ 10 pfu	16 Aug 0135
18 Aug 1745	K= 4 Warning	18 Aug 1746 - 2359
18 Aug 1802	K= 4 Observed	18 Aug 1500 - 1800
18 Aug 1814	ENDED A \geq 30 Observed	18 Aug 0000
18 Aug 2317	EXTENDED K= 4 Warning	18/1746 -19/1500 Aug
19 Aug 0000	ENDED Protons Event >10 MeV ≥ 10 pfu	18 Aug 1845
19 Aug 0009	ENDED A \geq 20 Observed	17 Aug 2100



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
22 Aug	170	12	3	05 Sep	165	10	3
23	175	10	3	06	160	10	3
24	180	12	3	07	160	10	3
25	180	15	4	08	160	10	3
26	180	10	3	09	155	12	3
27	180	15	4	10	150	12	3
28	180	12	3	11	145	10	3
29	180	10	3	12	145	10	3
30	175	8	3	13	145	10	3
31	170	8	3	14	150	10	3
01 Sep	165	15	4	15	155	12	3
02	165	15	4	16	160	12	3
03	165	12	3	17	165	12	3
04	165	10	3				



Energetic Events

Date	Time		X-ray	Optical Information			Peak		Sweep Freq	
	Begin	Max	Integ Class	Imp/ Brtns	Location Lat	Rgn CMD #	Radio Flux 245 2695	Intensity		
								II	IV	

No Events Observed

Flare List

Date	Time			X-ray Class	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Location Lat	CMD	
13 August	1343	1405	1427	C4.6				
	1921	1922	1929	C1.0	SF	S02W35		9574
14 August	0035	0042	0053	C1.0	SF	S17E01		9579
	0934	0944	0949	C9.7				
	1237	1238	1240	C2.3	SF	N16W36		9577
15 August	1721	1725	1729	C1.1				
	0233	0243	0256	C3.1				
16 August	1241	1241	1244	C1.0	SF	S06W57		9574
	0249	0252	0254	B7.6				
17 August	0951	0957	1008	C3.9				
	1120	1121	1124	B8.1	SF	S28W20		9581
	1514	1518	1522	B7.6				
	1740	1746	1753	B8.8				
	0001	0002	0005		SF	N16E59		9585
	0009	0009	0019	C1.6	SF	S24W30		9581
	0146	0150	0157	B5.5				
18 August	0247	0301	0314	B8.7				
	0922	0925	0927	B5.9				
	1329	1330	1339	B7.5	SF	N19E71		9585
	1413	1414	1422		SF	N10E01		9575
	1514	1521	1530	C1.0				
	1740	1749	1750		SF	N15E55		9585
	2334	2334	2338		SF	N14E63		9585
18 August	2339	2342	2345	B9.6				
	B0035	U0043	A0043	C1.0	SF	N14E62		9585
	0103	0112	0116	C1.7				
	0204	0209	0212	C1.2				
	0325	0329	0356	C3.5	SF	N25E44		9582
	0355	0403	0405	C2.9				
	0513	0515	0520	C1.4	SF	N26E43		9582
	0652	0653	0659	C1.9	SF	N25E41		9582
	0831	0833	0839	C1.1	SF	S15W52		9586
	1112	1118	1140	C3.1	SF	N25E39		9582
	1248	1252	1313	C2.8	SF	N26E39		9582
2155	2158	2209	B9.2					



Flare List- continued

Date	Begin	Time		X-ray Brtns	Optical		Rgn
		Max	End		Class.	Imp / Lat CMD	
19 August		0143	0143	0145	SF	S08W61	9573
		1300	1302	1311	SF	N09W24	9575
		2202	2203	2216	C1.2	N11W29	9575

Region Summary

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

Region 9569

05 Aug	S18E10	223	0020	04	BXO	003	B										
06 Aug	S17W04	222	0050	05	DAO	009	B						1				
07 Aug	S18W15	220	0170	06	DAO	012	B	1					5				
08 Aug	S18W28	220	0220	07	DKI	014	B						1				
09 Aug	S17W41	220	0230	07	DKO	015	B	1					1				
10 Aug	S18W54	220	0190	07	DAO	008	B										
11 Aug	S18W68	220	0130	04	CAO	003	B										
12 Aug	S18W82	221	0080	05	CAO	006	B										
13 Aug	S17W94	219	0060	02	HAX	001	A										
								2	0	0	8	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 222

Region 9570

05 Aug	S10E76	157	0100	03	HSX	001	A										
06 Aug	S10E61	157	0140	03	HSX	001	A	2					2				
07 Aug	S11E45	160	0190	05	CAO	003	B										
08 Aug	S10E31	161	0180	08	CAO	005	B										
09 Aug	S12E20	159	0220	04	CKO	004	B	1					1				
10 Aug	S11E06	160	0170	04	CSO	002	B										
11 Aug	S12W07	159	0170	04	CSO	006	B										
12 Aug	S12W20	159	0190	04	CSO	006	B										
13 Aug	S12W34	159	0170	03	CSO	005	B										
14 Aug	S10W47	159	0170	04	CAO	002	B										
15 Aug	S12W60	159	0140	02	HAX	001	A										
16 Aug	S11W73	159	0120	02	HSX	001	A										
17 Aug	S10W90	162	0070	03	HAX	001	A										
								3	0	0	2	1	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 160



Region Summary - continued.

Location		Sunspot Characteristics					Flares							
Date	(° 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

Region 9571

06 Aug	N05E78	140	0060	03	HAX	001	A										
07 Aug	N06E66	139	0060	02	HSX	001	A										
08 Aug	N06E52	140	0070	02	HAX	001	A										
09 Aug	N06E39	140	0060	02	HSX	001	A						1				
10 Aug	N07E25	141	0040	01	HSX	001	A										
11 Aug	N04E11	141	0130	02	HSX	001	A										
12 Aug	N06W02	141	0060	02	HAX	002	A										
13 Aug	N06W16	141	0040	02	HSX	002	A										
14 Aug	N07W29	141	0040	01	HSX	001	A										
15 Aug	N06W43	142	0020	02	HAX	001	A										
16 Aug	N06W56	142	0010	01	AXX	001	A										
17 Aug	N06W69	142															
18 Aug	N06W82	142															

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 141

Region 9572

07 Aug	N16E23	182	0020	01	HSX	001	A										
08 Aug	N16E08	184	0020	01	HSX	001	A										
09 Aug	N16W05	184															
10 Aug	N16W18	184															
11 Aug	N16W31	184															
12 Aug	N16W44	184															
13 Aug	N16W57	184															
14 Aug	N16W70	184															
15 Aug	N16W83	184															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 184



Region Summary - continued.

Location		Sunspot Characteristics					Flares							
Date	(° 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 9573

08 Aug	S08E70	122	0050	03	HAX	002	A											
09 Aug	S09E58	121	0110	04	CSO	002	B											
10 Aug	S09E46	120	0180	07	DAO	008	B											
11 Aug	S09E33	119	0140	07	DAO	016	B											
12 Aug	S10E20	119	0180	09	DAO	016	B											
13 Aug	S10E07	118	0110	09	DAO	019	B											
14 Aug	S08W08	120	0070	08	CSO	012	B											
15 Aug	S08W23	122	0040	05	CAO	005	B											
16 Aug	S09W35	121	0030	01	HSX	001	A											
17 Aug	S08W49	121	0030	01	HSX	001	A											
18 Aug	S08W62	121	0030	01	HSX	001	A											
19 Aug	S08W75	121	0040	01	HRX	001	A				1							
											0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 118

Region 9574

10 Aug	S03E04	162	0030	04	CRO	009	B											
11 Aug	S04W10	162	0320	07	DAI	017	B	2			2							
12 Aug	S04W24	163	0370	09	DAI	020	BG	1			1							
13 Aug	S05W38	163	0370	11	EKI	020	BG	1			1							
14 Aug	S04W51	163	0300	11	EKI	019	BG											
15 Aug	S04W66	165	0190	11	EAO	013	B	1			1							
16 Aug	S04W79	165	0150	13	EAO	003	B											
17 Aug	S04W90	162	0040	02	HSX	001	A											
											5	0	0	5	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 162

Region 9575

11 Aug	N11E73	079	0080	02	HSX	001	A											
12 Aug	N11E61	078	0130	10	CAO	008	B											
13 Aug	N11E47	078	0140	07	CSO	005	B											
14 Aug	N11E34	078	0140	06	CSO	005	B											
15 Aug	N12E20	079	0130	03	HAX	001	A											
16 Aug	N12E08	078	0130	05	CAO	004	B											
17 Aug	N11W02	074	0100	06	CSO	003	B				1							
18 Aug	N11W12	071	0150	07	CSO	004	B											
19 Aug	N11W32	078	0110	04	CSO	003	B	1			2							
											1	0	0	3	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 074



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

Region 9576

11 Aug	N12W53	205	0020	03	CSO	002	B
12 Aug	N12W67	206	0030	05	CRO	002	B
13 Aug	N13W80	205	0010	01	AXX	001	A
14 Aug	N13W93	205					

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 205

Region 9577

12 Aug	N16W15	154	0020	02	CRO	003	B
13 Aug	N16W28	154					
14 Aug	N16W41	154		1			
15 Aug	N13W61	160	0050	05	CSO	007	B
16 Aug	N13W74	160	0100	05	DSO	003	B
17 Aug	N15W92	164	0010	01	HSX	001	A

0 0 0 1 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 154

Region 9578

12 Aug	S10W11	150	0030	05	CAO	008	B
13 Aug	S09W25	150	0060	05	DAO	008	B
14 Aug	S08W38	150	0040	06	CSO	007	B
15 Aug	S08W53	152	0020	05	CSO	004	B
16 Aug	S10W65	151	0060	00	AXX	001	A
17 Aug	S11W78	151					

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 150

Region 9579

14 Aug	S17W10	122	0020	06	CSO	006	B
15 Aug	S19W22	121	0050	09	DSO	008	B
16 Aug	S20W36	122	0040	04	CSO	004	B
17 Aug	S22W50	122	0020	01	HSX	001	A
18 Aug	S24W63	122	0020	01	HRX	001	A
19 Aug	S24W76	122					

1 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 122



Region Summary - continued.

Location		Sunspot Characteristics					Flares							
Date	(° 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

Region 9580

14 Aug	N24E73	039	0090	02	HSX	001	A									
15 Aug	N25E61	038	0140	03	HAX	001	A									
16 Aug	N25E48	038	0080	02	HSX	001	A									
17 Aug	N24E35	037	0090	02	HAX	001	A									
18 Aug	N25E22	037	0100	02	HSX	001	A									
19 Aug	N26E09	037	0090	02	HAX	001	A									

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 037

Region 9581

15 Aug	S28W09	108	0020	01	HRX	001	A									
16 Aug	S26W23	109	0050	06	CSO	003	B				1					
17 Aug	S25W42	114	0020	01	HSX	001	A	1			1					
18 Aug	S26W50	109	0040	04	DSO	003	B									
19 Aug	S26W65	111	0050	07	CAO	005	B									

1 0 0 2 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 108

Region 9582

15 Aug	N32E73	026	0040	03	CAO	003	B									
16 Aug	N32E59	027	0030	02	AXX	002	A									
17 Aug	N30E45	027	0020	03	BXO	003	B									
18 Aug	N28E33	026	0070	07	DAO	008	B	5			5					
19 Aug	N28E20	026	0110	08	DAO	011	B									

5 0 0 5 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 026

Region 9583

16 Aug	S23E13	073	0020	04	DSO	003	B									
17 Aug	S23E00	073														
18 Aug	S23W13	073														
19 Aug	S23W26	073														

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 073



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

Region 9584

16 Aug	S11E60	026	0020	06	BXO	002	B									
17 Aug	S13E47	025	0040	04	CAO	005	B									
18 Aug	S13E36	023	0040	06	DAO	006	B									
19 Aug	S12E20	026	0030	03	CAO	003	B									
										0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 026

Region 9585

16 Aug	N15E74	012	0030	03	BXO	002	B									
17 Aug	N15E63	009	0060	08	CSO	007	B					4				
18 Aug	N15E50	009	0230	09	DAI	018	BG	1			1					
19 Aug	N15E37	009	0270	09	DAI	022	BG									
										1	0	0	5	0	0	0

Still on Disk.

Absolute heliographic longitude: 009

Region 9586

17 Aug	S15W47	119	0020	02	BXO	002	B									
18 Aug	S16W62	121	0020	06	CRO	005	B	1			1					
19 Aug	S16W75	121														
										1	0	0	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 119

Region 9587

17 Aug	S11E56	016	0020	01	HRX	001	A									
18 Aug	S11E43	016	0020	01	HSX	001	A									
19 Aug	S11E28	018	0020	01	HSX	001	A									
										0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 018

Region 9588

19 Aug	S32W55	101	0080	07	CAO	005	B									
										0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 101

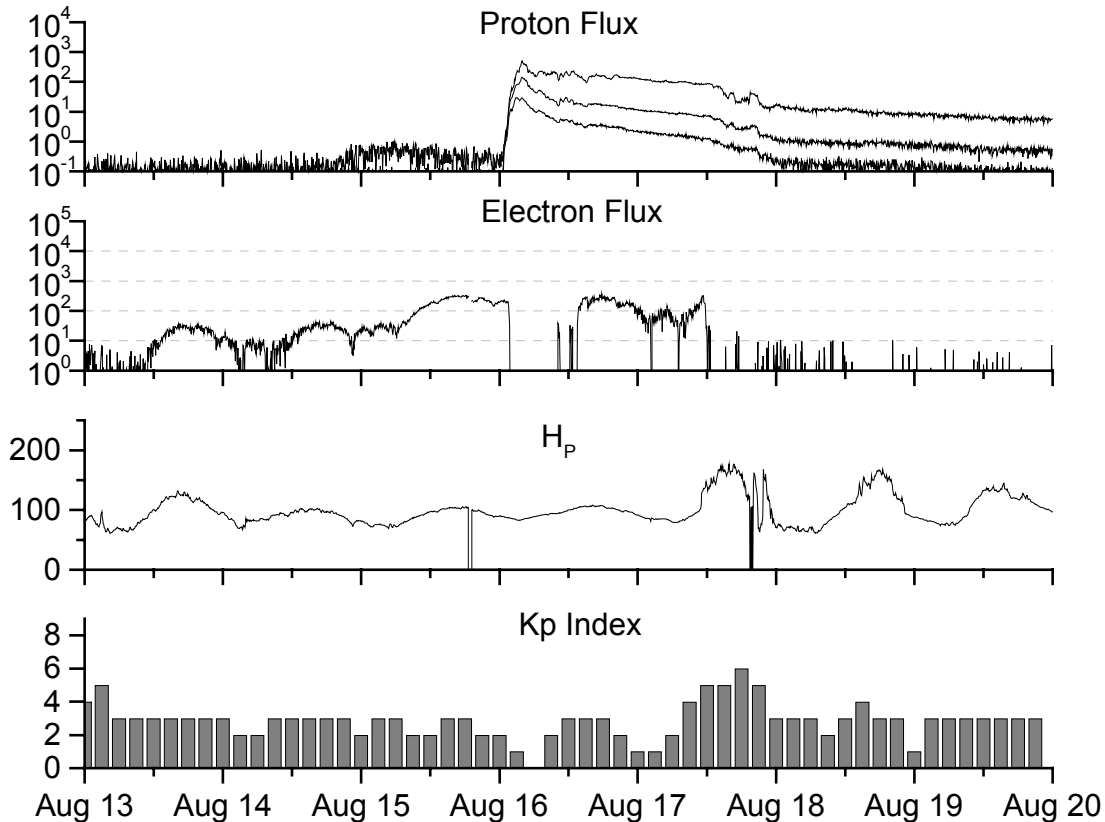


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
August	136.1	93.7	0.69	142.8	97.5	170.8	156.3	15	12.9
September	107.4	71.5	0.67	150.0	102.3	135.7	161.0	19	12.8
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			147.3		06	
March	166.7	114.2	0.69			177.7		17	
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	

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 13 August 2001

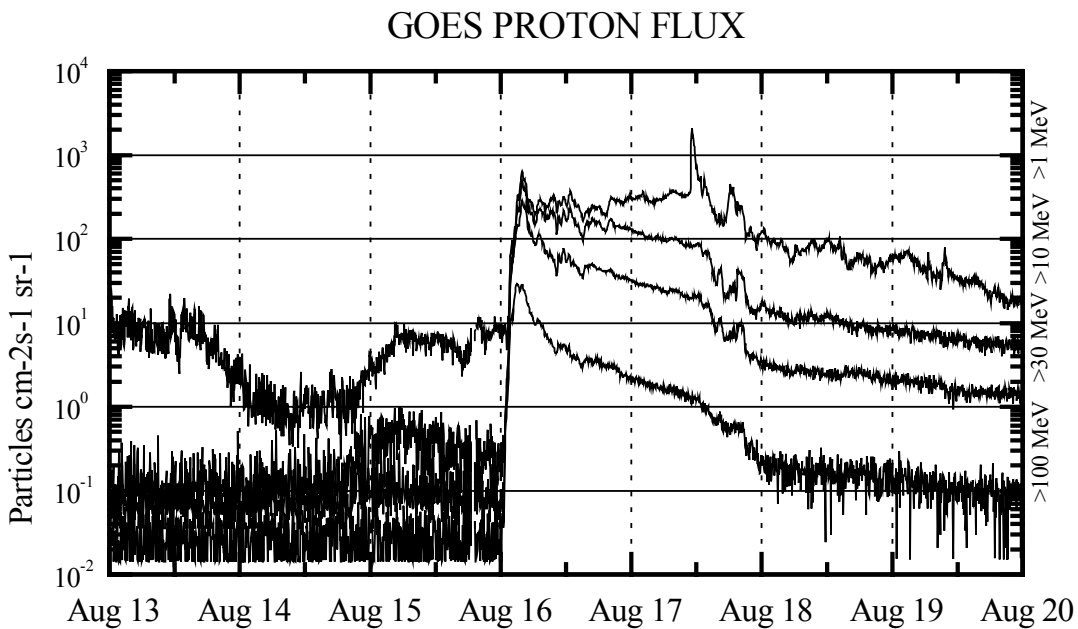
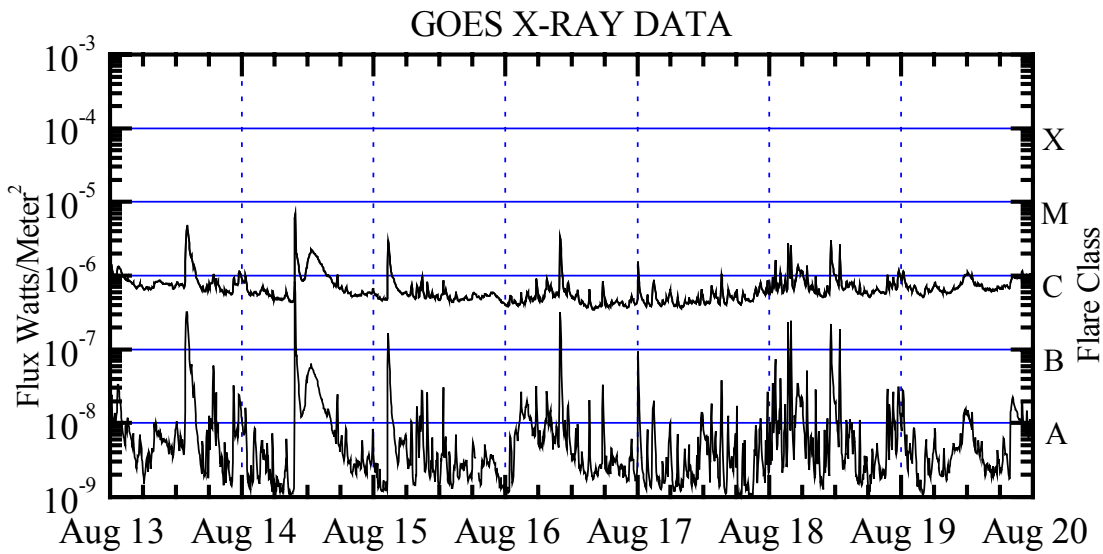
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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_{parallel} 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.

