

Space Weather Highlights 11 - 17 August 2003

**SWO PRF 1459
19 August 2003**

Solar activity was at very low to low levels. The period began on 11 August with very low level activity. For the remainder of the period (12 – 17 August), activity was at low levels with numerous C-class flares from Region 431 (S13, L=194, class/area Ekc/500 on 14 August). Region 431 was the most active region during the period and produced numerous C-class flares on 12 – 14 August. This Region exhibited rapid growth to over 500 millionths on 13 – 14 August and developed a beta-gamma-delta magnetic configuration. The largest flare of the period was a long duration C7 from Region 431 on 15 August at 0018 UTC. Region 431 entered a gradual decay phase on 15 – 17 August and simplified to a beta-gamma magnetic configuration on 17 August. Although in decay, Region 431 was the source of numerous C-class flares on 15 – 17 August. Region 424 (S18, L=290, class/area Ekc/760 on 06 August) was in steady decay before it rotated beyond the west limb on 14 August.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the summary period. A coronal hole high speed flow began on day one of the period with solar wind speeds increasing from 550 km/s to a peak near 700 km/s on 12 August. Solar wind speed decreased back to 550 km/s over the next few days. Bz during 11 – 15 August was, on average, northward. A smaller high speed flow occurred on 15 August with peak solar wind speeds near 650 km/s, then promptly declined to 420 km/s by early on 17 August. A shock was observed at the ACE spacecraft at 1340 UTC on 17 August, marked by a 100 km/s jump in solar wind speed and an increase of 20 nT in the IMF total field. Bz was initially northward with minimal impact at Earth. At the time of this report writing (18 August), Bz has turned southward. At 0100 UTC on 18 August Bz turned sharply south and maintained this southward orientation for an extended period.

There were no greater than 10 MeV proton events at geosynchronous orbit during the period.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 11 – 17 August.

The geomagnetic field ranged from quiet to minor storm levels. The period began with quiet to active levels on 11 August. The coronal hole high speed flow early in the period produced brief periods of minor storm levels on 12 – 13 August and active conditions on 14 August. The smaller high speed flow on 15 August resulted in unsettled to active conditions on 15 August. Activity decreased to quiet to unsettled levels on 16 August. The shock that passed ACE on 17 August produced active conditions late on 17 August. At the time of this report writing (18 August), geomagnetic activity has reached severe storm levels. IMF Bz turned sharply southward on 18 August, initiating the significant disturbance. Activity was at minor to severe storm levels until 1500 UTC on 18 August.

Space Weather Outlook 20 August - 15 September 2003

Solar activity is expected to range from very low to moderate levels during the period. Activity for most of the period is expected to be at very low to low levels. Region 431 may produce an isolated M-class event before it rotates off the disk on 21 August.

No greater than 10 MeV proton events at geosynchronous orbit are expected during the period.

The greater than 2 MeV electron flux is expected to reach high levels on 25 August – 01 September, 05 – 07 September, and again on 10 – 13 September.

The geomagnetic field is expected to range from quiet to major storm levels during the period. A large coronal hole high speed flow is due to return to a geoeffective position on 22 August with minor to major storm levels possible on 22 – 29 August. Another coronal hole high speed flow is due on 02 – 05 September with minor to major storm levels possible. Towards the end of the period, a couple smaller coronal holes may produce isolated minor storm levels.



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
11 August	129	118	760	B3.2	0	0	0	0	0	0	0	0
12 August	123	114	640	B2.7	4	0	0	3	0	0	0	0
13 August	131	112	800	B6.0	7	0	0	5	0	0	0	0
14 August	130	108	660	C1.0	4	0	0	2	0	0	0	0
15 August	131	86	540	B6.8	9	0	0	5	0	0	0	0
16 August	127	92	470	B4.0	4	0	0	1	0	0	0	0
17 August	119	113	540	B3.7	2	0	0	2	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
11 August	1.3E+6	1.1E+4	2.5E+3		2.2E+8	
12 August	1.6E+6	1.1E+4	2.5E+3		1.1E+8	
13 August	8.5E+5	1.1E+4	2.6E+3		1.8E+8	
14 August	9.2E+5	1.2E+4	2.7E+3		1.5E+8	
15 August	5.7E+5	1.2E+4	2.6E+3		1.4E+8	
16 August	9.0E+5	1.2E+4	2.4E+3		2.5E+8	
17 August	7.5E+5	1.1E+4	2.5E+3		1.4E+8	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	11 August	9	1-2-2-2-2-2-3-3	9	2-2-2-2-2-2-3-3	11
12 August	17	3-4-4-3-3-3-2-3	47	4-5-5-6-6-6-2-2	25	4-5-5-4-3-4-3-3
13 August	15	4-4-3-1-3-2-3-2	18	3-3-4-4-4-3-2-2	17	3-5-3-2-3-2-4-3
14 August	12	3-4-3-1-2-2-2-3	19	2-5-5-3-2-2-2-3	18	3-4-4-2-3-3-4-4
15 August	9	2-2-2-2-2-3-2-3	12	3-3-3-1-2-4-2-2	14	3-2-3-2-3-4-4-3
16 August	7	3-3-1-1-2-2-1-1	17	3-2-2-5-4-4-1-1	11	3-3-2-3-3-3-3-2
17 August	10	1-0-1-0-4-3-3-3	9	0-0-0-0-3-3-3-4	15	2-1-0-1-4-4-4-5

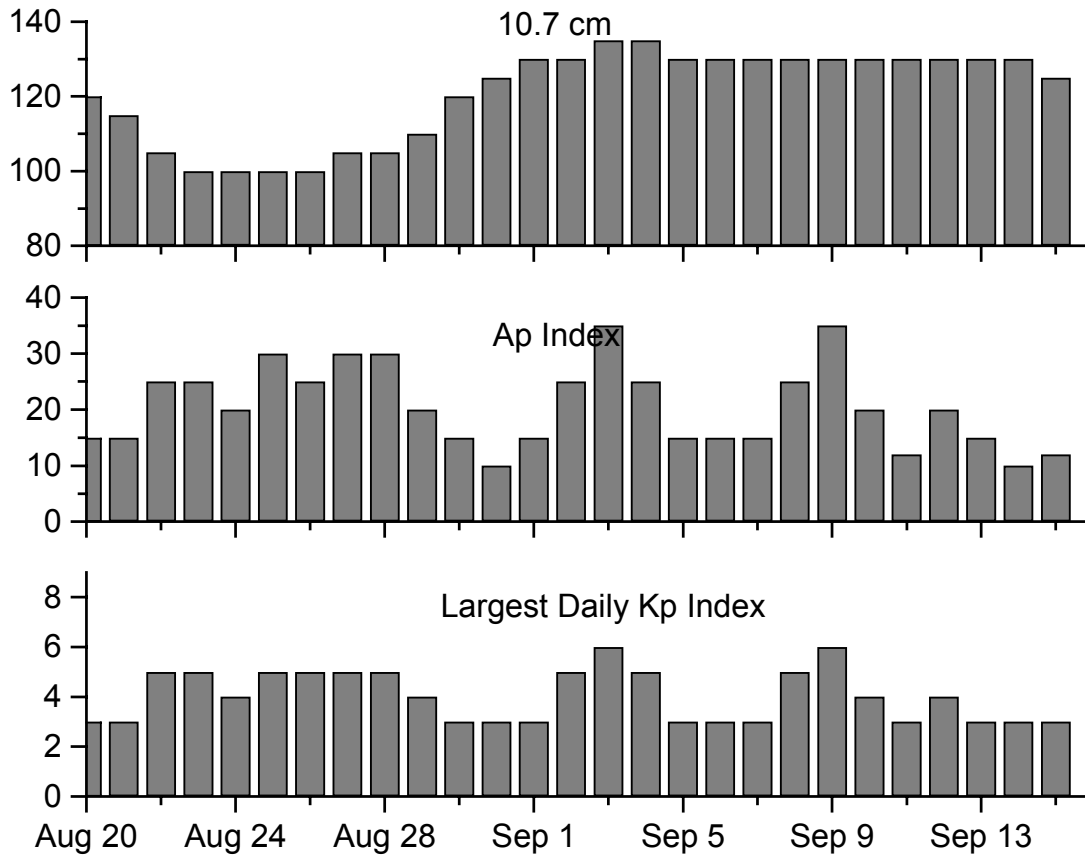


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UT</u>
11 Aug 0007	1 - 245 MHz Radio Burst	10 Aug
11 Aug 0817	ALERT: Electron 2MeV Integral Flux > 1000pfu	11 Aug 0755
11 Aug 2240	WARNING: Geomagnetic K= 4	11 Aug 2240 -12 Aug 1500
11 Aug 2243	ALERT: Geomagnetic K= 4	11 Aug 2242
12 Aug 0006	1 - 245 MHz Radio Burst	11 Aug
12 Aug 0029	WARNING: Geomagnetic K= 5	12 Aug 0130 - 1500
12 Aug 0355	ALERT: Geomagnetic K= 5	12 Aug 0355
12 Aug 1207	ALERT: Electron 2MeV Integral Flux > 1000pfu	12 Aug 1145
12 Aug 1457	EXTENDED WARNING: Geomagnetic K= 4	11 Aug 2240 - 12 Aug 2359
12 Aug 2210	EXTENDED WARNING: Geomagnetic K= 4	11 Aug 2240 - 13 Aug 1500
13 Aug 0008	1 - 245 MHz Radio Burst	12 Aug
13 Aug 0340	ALERT: Geomagnetic K= 5	13 Aug 0338
13 Aug 0501	ALERT: Electron 2MeV Integral Flux > 1000pfu	13 Aug 0500
14 Aug 0058	WARNING: Geomagnetic K= 4	14 Aug 0058 - 1500
14 Aug 0126	ALERT: Geomagnetic K= 4	14 Aug 0115
14 Aug 0717	ALERT: Electron 2MeV Integral Flux > 1000pfu	14 Aug 0655
14 Aug 2227	ALERT: Geomagnetic K= 4	14 Aug 2216
15 Aug 0043	WARNING: Geomagnetic K= 4	15 Aug 0100 -1500
15 Aug 0942	ALERT: Electron 2MeV Integral Flux > 1000pfu	15 Aug 0920
15 Aug 2015	ALERT: Geomagnetic K= 4	15 Aug 2010
16 Aug 0020	5 - 245 MHz Radio Bursts	15 Aug
16 Aug 0621	ALERT: Electron 2MeV Integral Flux > 1000pfu	16 Aug 0500
16 Aug 1455	ALERT: Geomagnetic K= 4	16 Aug 1450
17 Aug 1026	ALERT: Electron 2MeV Integral Flux > 1000pfu	17 Aug 1005
17 Aug 1424	WARNING: Geomagnetic K= 4	17 Aug 1426 -1800
17 Aug 1426	ALERT: Geomagnetic K= 4	17 Aug 1427
17 Aug 1755	EXTENDED WARNING: Geomagnetic K= 4	17 Aug 1426 -2359
17 Aug 2210	EXTENDED WARNING: Geomagnetic K= 4	17 Aug 1426 -18 Aug 1500



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
20 Aug	120	15	3	03 Sep	135	35	6
21	115	15	3	04	135	25	5
22	105	25	5	05	130	15	3
23	100	25	5	06	130	15	3
24	100	25	4	07	130	15	3
25	100	30	5	08	130	25	5
26	100	30	5	09	130	35	6
27	105	30	5	10	130	20	4
28	105	30	5	11	130	12	3
29	110	20	4	12	130	20	4
30	120	15	3	13	130	15	3
31	125	10	3	14	130	10	3
01 Sep	130	15	3	15	125	12	3
02	130	30	5				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	1/2 Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Location Lat CMD		
11 August	0023	0027	0036	B5.7				424
	0907	0910	0913	B4.3				431
	1746	1750	1755	B9.6				429
12 August	0123	0129	0133	C1.0				431
	0142	0154	0202	C1.1				431
	0217	0220	0236	B9.5	Sf	S10E35		431
	0633	0634	0645	C1.1	Sf	S18W59		424
	0704	0708	0711	B4.7				424
	1009	1012	1020	C1.6	Sf	S14E32		431
13 August	0046	0046	0053	B8.4	Sf	S16W72		424
	0234	0241	0250	C1.0				431
	0615	0619	0623	B9.4				431
	0709	0714	0723	C1.2				431
	0829	0833	0838	C2.0				431
	0941	0945	1025	C3.0	Sf	S11E23		431
	1413	1415	1429	C1.1	Sf	S12E19		431
	1436	1438	1446	B9.8	Sf	S11E23		431
	1448	1453	1455	C1.2				431
	2258	2315	2324	C2.1				
14 August	2344	2356	0015		Sf	S14E11		431
	0213	0223	0236	C1.9	Sf	S14E10		431
	0630	0639	0719	C6.8	Sf	S14E08		431
	2229	2244	2317	C4.6				431
	2354	0018	0045	C7.7				431
15 August	0233	0242	0251	C3.1				
	0608	0621	0633	C2.0	Sf	S08W05		431
	0842	0844	0855	C1.4	Sf	S10W03		431
	1101	1102	1104	C1.5	Sf	S10W08		431
	1126	1127	1131	C2.3	Sf	S08W09		431
	1305	1308	1311	C2.3				431
	1512	1515	1520	C1.0				431
	1622	1627	1630	C2.3				
	1632	1635	1642		Sf	S08W10		431
	2201	2234	2326	C4.3				



Flare List - continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
16 August	0148	0151	0153	C3.1			431
	0438	0444	0450	C1.6			431
	0541	0544	0548	B8.7			
	0807	0859	0906	B6.7			
	0946	0949	0951	C1.4			431
	1434	1438	1446	B6.7			
	B1851	U1854	1906	C2.2	Sf	S14W26	431
17 August	0029	0034	0042	B8.2			
	0419	0426	0436	C2.1			431
	0844	0844	0856	C1.9	Sf	S14W34	431
	0902	0906	0911	B8.4			
	1205	1211	1218	B7.6			
	2033	2038	2045	B7.0			
	2341	2342	0007	B8.8	Sf	S14W42	431



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 424</i>																		
01 Aug	S18E77	293	0120	06	Dao	002	B	6										
02 Aug	S18E64	293	0310	10	Dki	006	B	4	1			11	2					
03 Aug	S18E52	291	0580	10	Dki	016	B	5				10	1					
04 Aug	S18E39	291	0730	11	Eki	017	Bg											
05 Aug	S18E26	291	0720	11	Eki	017	Bg	1	1			2						
06 Aug	S18E13	290	0760	11	Ekc	030	Bgd											
07 Aug	S18W01	291	0710	10	Dki	021	Bd											
08 Aug	S18W14	290	0650	10	Dkc	024	Bg											
09 Aug	S18W28	291	0670	11	Ekc	026	Bg					1						
10 Aug	S18W41	291	0450	11	Ekc	021	Bg					1						
11 Aug	S18W54	291	0390	12	Ekc	021	Bg											
12 Aug	S18W67	291	0330	15	Eac	013	Bg	1				1						
13 Aug	S18W80	291	0100	10	Dao	005	B					1						
14 Aug	S18W93	291	0090	04	Dao	002	B											
								17	2	0	27	3	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 291

<i>Region 425</i>																		
02 Aug	S08E61	296	0120	07	Cso	003	B											
03 Aug	S08E50	293	0140	07	Cso	011	B											
04 Aug	S09E36	294	0240	09	Dao	010	B											
05 Aug	S09E23	294	0210	09	Dai	020	B											
06 Aug	S09E10	293	0190	09	Dso	017	B											
07 Aug	S09W04	294	0170	09	Dso	016	B											
08 Aug	S09W17	293	0180	08	Dso	013	B	1				1						
09 Aug	S09W31	294	0140	08	Dso	009	B											
10 Aug	S09W43	293	0130	07	Dso	008	B	2				1						
11 Aug	S09W56	293	0110	09	Cso	003	B											
12 Aug	S09W71	295	0070	03	Dso	003	B											
13 Aug	S09W86	297	0120	03	Dai	002	B											
								3	0	0	2	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 294



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 426

02 Aug S12E32	325	0030	04	Cso	005	B												
03 Aug S12E18	325	0030	04	Cso	007	B												
04 Aug S12E03	327	0010	01	Axx	001	A												
05 Aug S12W11	328	0010	01	Axx	001	A												
06 Aug S12W25	328	0010	02	Bxo	002	B												
07 Aug S12W38	328																	
08 Aug S12W51	328																	
09 Aug S12W64	328																	
10 Aug S12W77	328																	
11 Aug S12W90	328																	

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 327

Region 429

05 Aug S24E55	262	0050	01	Hsx	001	A												
06 Aug S24E43	260	0040	07	Cao	006	B												
07 Aug S24E30	260	0090	08	Dao	007	B												
08 Aug S24E17	259	0170	08	Dao	009	B												
09 Aug S24E04	259	0160	09	Dao	011	B												
10 Aug S24W08	258	0120	09	Dao	013	B												
11 Aug S24W21	258	0080	09	Dao	013	B												
12 Aug S24W34	258	0060	10	Dsi	014	B												
13 Aug S24W47	258	0050	09	Dso	015	B												
14 Aug S24W60	258	0030	07	Cao	007	B												
15 Aug S23W71	255																	
16 Aug S23W84	255																	

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 259

Region 430

07 Aug S08W13	303	0010	02	Bxo	004	B												
08 Aug S08W29	305	0020	03	Cso	003	B												
09 Aug S08W43	306	0040	04	Dso	005	B												
10 Aug S08W56	306	0030	05	Cso	004	B												
11 Aug S08W66	303	0020	03	Bxo	002	B												
12 Aug S08W79	303	0050	03	Cao	003	B												
13 Aug S08W92	303																	

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 303



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 431</i>																		
09 Aug	S12E68	195	0110	11	Eso	006	B											
10 Aug	S13E56	194	0250	11	Eac	016	Bg	1				1						
11 Aug	S13E43	194	0160	12	Eac	029	Bg											
12 Aug	S13E30	194	0130	10	Dac	031	Bg	3				2						
13 Aug	S13E17	194	0500	12	Ekc	039	Bgd	6				4						
14 Aug	S13E03	194	0500	11	Ekc	046	Bgd	4				2						
15 Aug	S11W13	197	0470	12	Eac	040	Bgd	6				5						
16 Aug	S12W26	197	0400	13	Eac	035	Bgd	4				1						
17 Aug	S10W38	196	0360	11	Eai	041	Bg	2				2						
								26	0	0	17	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 194

Region 432

13 Aug	S05E71	140	0030	01	Hsx	001	A											
14 Aug	S05E57	140	0030	01	Hsx	001	A											
15 Aug	S04E43	141	0020	01	Hsx	001	A											
16 Aug	S04E29	142	0020	02	Hrx	001	A											
17 Aug	S04E18	140	0020	01	Hsx	001	A											
								0	0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 140

Region 433

14 Aug	S23E18	179	0010	08	Bxo	002	B											
15 Aug	S19E10	174	0020	03	Cso	003	B											
16 Aug	S20W04	175	0020	02	Hrx	001	A											
17 Aug	S20W16	174	0020	01	Hax	001	A											
								0	0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 175

Region 434

15 Aug	S23E02	182	0030	03	Bxo	002	B											
16 Aug	S23W10	181	0020	04	Dro	004	B											
17 Aug	S23W20	178	0010	05	Bxo	002	B											
								0	0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 182



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 435

16 Aug	S18W41	212	0010	01	Axx	001	A											
17 Aug	S18W52	210	0020	05	Cro	005	B											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 212

Region 436

17 Aug	N07E69	089	0110	11	Eso	003	B											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 089

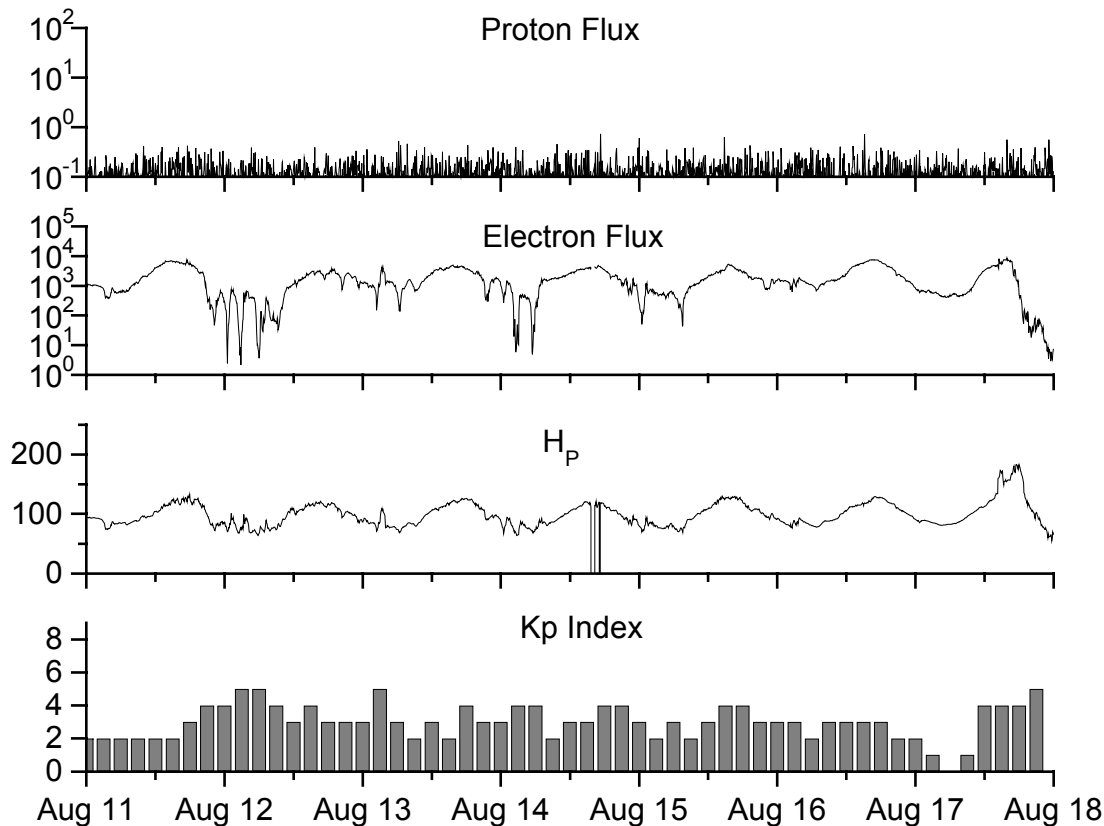


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SWO	Ratio RI	Ratio RI/SWO	Smooth values SWO	Smooth RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2001									
August	159.4	106.4	0.67	176.7	113.6	163.1	188.8	11	13.0
September	229.1	150.7	0.66	178.8	114.1	233.8	191.3	13	12.8
October	197.3	125.5	0.64	179.5	114.0	208.1	191.9	20	12.0
November	178.6	106.5	0.60	183.7	115.5	212.7	193.7	16	12.0
December	217.5	132.2	0.61	184.5	114.6	235.6	193.9	09	12.2
2002									
January	189.0	114.1	0.60	184.8	113.5	227.3	194.6	08	12.4
February	194.5	107.4	0.55	188.6	114.7	205.0	197.2	10	12.8
March	153.1	98.4	0.64	188.9	113.4	180.3	195.7	10	13.0
April	194.9	120.7	0.62	186.2	110.5	189.8	191.5	15	13.2
May	204.1	120.8	0.59	183.6	108.9	178.4	188.0	15	13.3
June	146.0	88.3	0.60	179.9	106.3	148.7	183.0	11	13.5
July	183.5	99.9	0.54	175.4	102.7	173.5	173.5	13	13.9
August	191.0	116.4	0.61	169.3	98.7	183.9	169.5	16	14.3
September	206.4	109.6	0.53	163.4	94.6	175.8	164.2	14	14.9
October	153.9	97.5	0.63	158.7	90.5	167.0	159.5	23	15.5
November	159.8	95.5	0.60	150.5	85.3	168.7	154.3	16	16.1
December	147.9	80.8	0.55	144.6	82.1	158.6	150.9	13	17.0
2003									
January	149.3	79.7	0.53	141.7	81.0	144.0	149.2	13	18.2
February	87.0	46.0	0.53			124.5		17	
March	119.7	61.1	0.51			132.5		21	
April	119.7	60.0	0.50			126.3		20	
May	89.6	55.2	0.62			129.3		26	
June	118.4	77.4	0.65			129.4		24	
July	132.8	85.0	0.64			127.8		20	

NOTE: All smoothed values after September 2002 and monthly values after March 2003 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 23, RI = 120.8, occurred April 2000. *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 11 Aug 2003

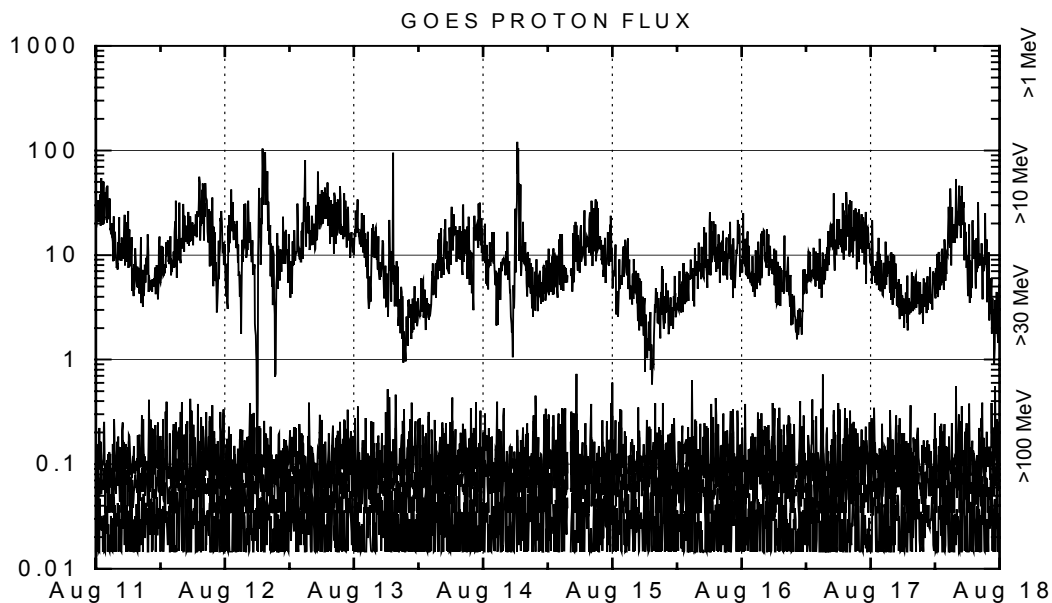
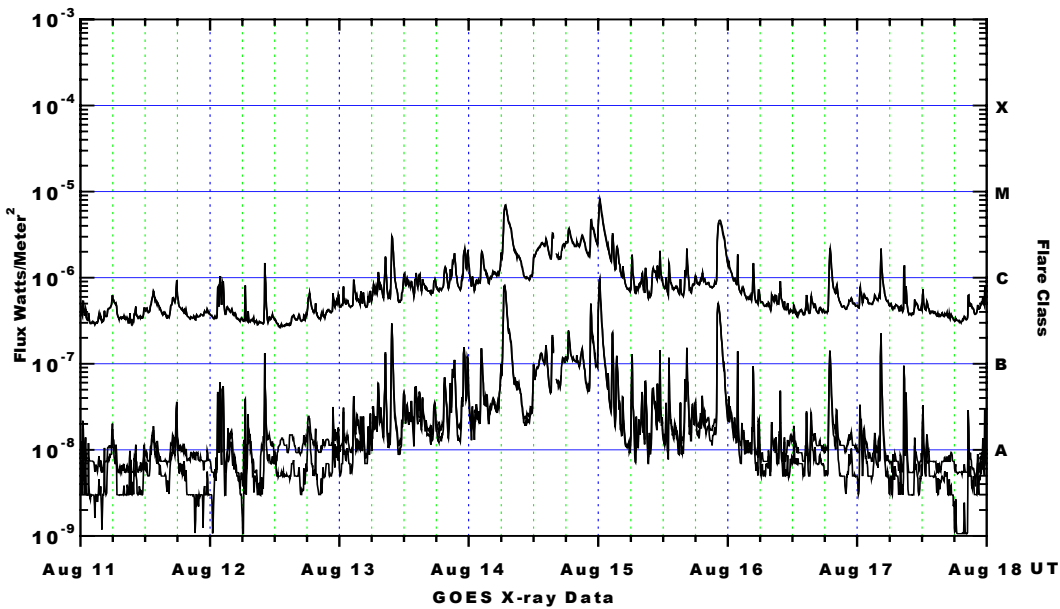
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W113) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-12.

H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. 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

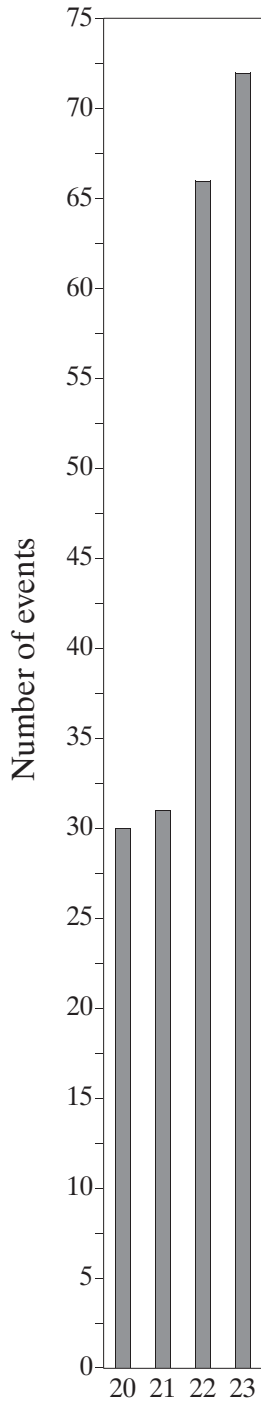
X-ray plot contains five-minute averaged x-ray flux (watts/m²) as measured by GOES 12 and 10 in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W113) 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.



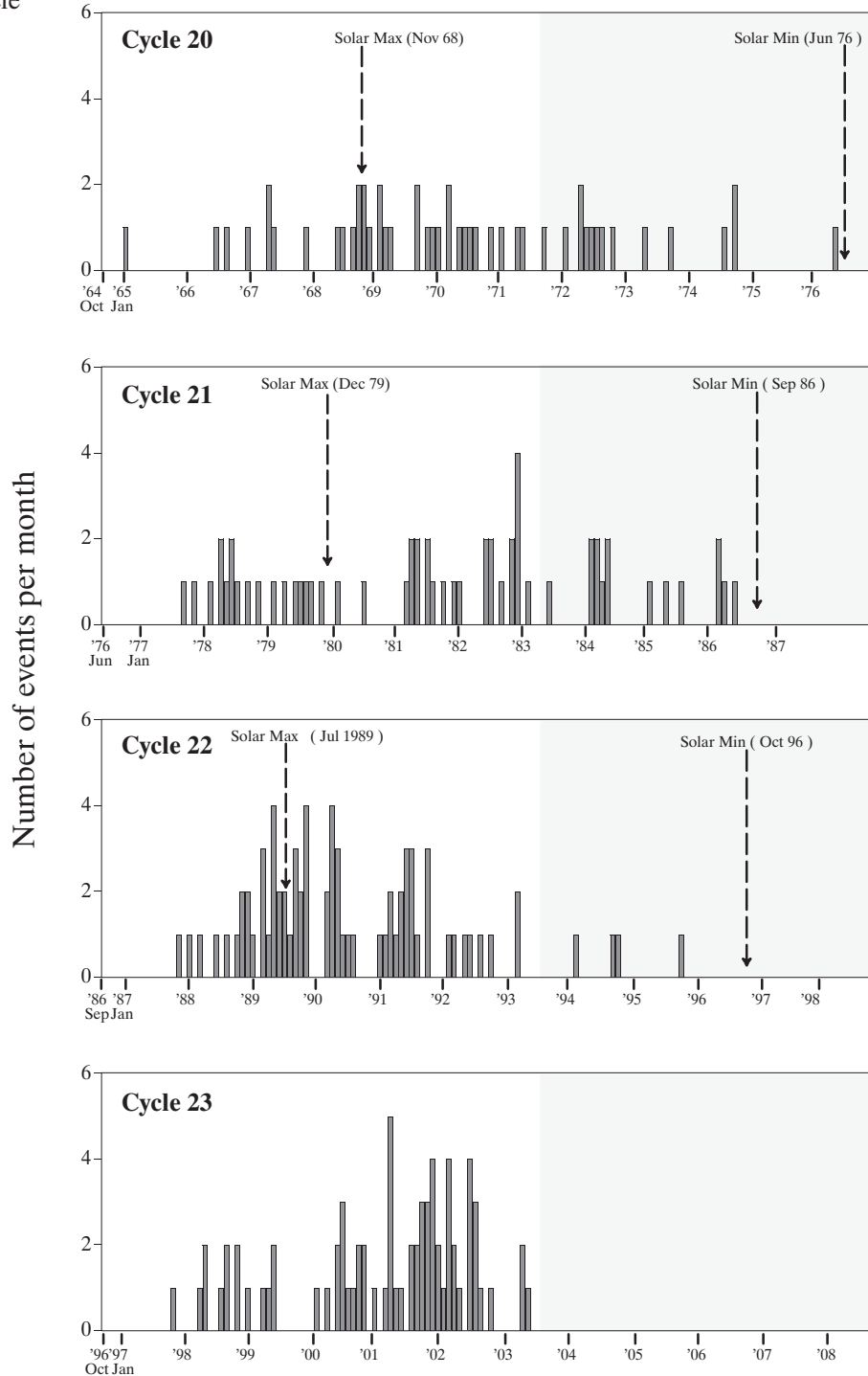
Proton Events

Comparison of Cycles at current month in cycle



July 2003
(Month 82)

█ Preliminary data



SESC defines Proton Events as periods (in excess of 15 minutes) when the geosynchronous >10MeV proton flux remains above 10 pfu (particle flux unit = 1p/cm²*cm²*s*sr). Events continue and are counted as a single event until fluxes remain below 10 pfu regardless of whether enhancements from new sources occur. Using different event criteria may result in different event totals.