

Space Weather Highlights 22 – 28 August 2005

**SWO PRF 1565
30 August 2005**

Solar activity was at low to high levels. The most active region on the disk was Region 798 (S12, L=225, class/area, 680/Dkc on 23 August), which produced two C-class and three M-class flares. Region 798 emerged on the visible disk of the Sun on 14 August. The sunspot cluster was a small, insignificant, and magnetically simple sunspot group through 18 August. A period of significant growth began on 19 August, and by 23 August, the sunspot group exhibited a size exceeding 680 millionths of the solar hemisphere with a complex beta-gamma-delta magnetic configuration. The region produced three significant solar flares beginning on 22 August. The first was a long duration M2.6 flare at 22/0133 UTC. Significant solar radio bursts accompanied this flare and an Earth-directed coronal mass ejection (CME) with a speed of 720 km/s was observed on LASCO. The second significant event from this region was a long duration M5.6 proton flare at 22/1727 UTC, which included another burst of strong radio emissions. A greater than 10 MeV proton event soon followed this M5 flare. A large, fast CME also occurred with this event. The plane of sky speed on LASCO imagery was 1700 km/s. The third event was a long duration M2.7 flare at 23/1444 UTC, again with significant radio bursts. A fast CME occurred with this flare too; however, the ejecta was mostly westward directed. The region rotated around the west limb on 24 August. Other activity included an impulsive M6.4/1f at 25/0440 UTC and a M1.6/Sf at 28/1028 UTC from Region 803 (N12, L=056, class/area, 200/Dai on 25 August). These events were associated with CME activity off the east limb. The remainder of the disk and limb was quiet and stable.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft during most of the summary period. Solar wind speed ranged from a high of about 800 km/s midday on 24 August to a low of 380 km/s early on 28 August. At about 21/1530 UTC, wind speed increased rapidly from about 375 km/s to near 525 km/s as a coronal hole high speed wind stream became geoeffective. IMF Bz went mostly south to about -10 nT for a short period of time, and then did not vary much beyond +/- 5 nT through early on 24 August. By early on 24 August, the first of the two Earth-directed CMEs impacted the magnetic field beginning at 24/0812 UTC. A second stronger CME, associated with the M5 flare, impacted the geomagnetic field at 24/1429 UTC. The coupling between the solar wind interplanetary magnetic field and Earth's magnetic field was very strong (Bz = -55 nT). Solar wind speed increased to near 800 km/s, and remained at this velocity through early on 25 August. After that, and through the rest of the summary period, wind velocity steadily decayed, and finished the period at near 400 km/s.

A greater than 10 MeV proton event began at 22/2040 UTC, peaked at 23/1045 UTC with a peak flux of 330 pfu, and ended at 25/0040 UTC.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 23 August and again on 25 – 28 August.

The geomagnetic field ranged from quiet to severe storm levels. On 22 – 23 August, activity was at predominantly quiet to unsettled levels with isolated active and minor storm periods at high latitudes. By early on 24 August, conditions increased to severe storm levels at all latitudes in response to CME activity that occurred 22 and 23 August. Conditions began to gradually decline by early on 25 August with isolated minor and major storm periods observed at high latitudes. By mid-day on 26 August, and through the rest of the period, mostly quiet conditions were observed.

Space Weather Outlook 31 August - 26 September 2005

Solar activity is expected to be at very low to moderate levels. Moderate levels are possible from 07 – 20 September after the return of old Region 798 (S11, L=227). Otherwise, very low to low levels are expected.

No greater than 10 MeV proton events are expected during the forecast period.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 02 – 08 September, and again on 14 – 19 September, and on 21 – 26 September.

The geomagnetic field is expected to range from quiet to minor storm levels. Active to minor storm conditions are possible on 02 – 03 September, 09 – 10 September, and 12 – 14 September, and 20 – 21 September due to recurrent coronal hole high speed wind streams. Otherwise, expect mostly quiet to unsettled conditions.



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
22 August	105	85	860	B1.7	0	2	0	1	2	0	0	0
23 August	112	55	860	B5.5	3	1	0	1	0	0	0	0
24 August	99	87	700	B3.5	3	0	0	1	0	0	0	0
25 August	92	76	450	B1.9	0	1	0	0	2	0	0	0
26 August	93	57	290	B1.8	3	0	0	1	0	0	0	0
27 August	92	91	280	B1.1	1	0	0	1	0	0	0	0
28 August	90	99	270	A8.7	0	1	0	1	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	>100 MeV	>.6 MeV	>2MeV	>4 MeV
	22 August	1.0E+7	7.2E+5	4.8E+3		2.9E+7
23 August	1.4E+8	1.7E+7	1.1E+4		5.2E+7	
24 August	2.6E+8	5.1E+6	4.8E+3		1.8E+7	
25 August	3.2E+7	2.9E+5	3.2E+3		5.7E+8	
26 August	2.7E+6	4.6E+4	3.6E+3		6.8E+8	
27 August	2.3E+6	2.2E+4	3.3E+3		7.3E+8	
28 August	2.8E+6	1.7E+4	3.5E+3		1.1E+9	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	22 August	7	2-3-0-1-3-2-1-2	10	2-1-1-3-4-2-2-2	12
23 August	7	2-2-2-2-2-2-2-1	17	1-2-4-5-4-3-1-2	9	3-2-2-2-2-3-2-2
24 August	72	2-3-6-8-7-5-4-3	112	6-2-6-9-7-6-6-4	110	3-3-7-9-8-5-6-5
25 August	18	5-3-3-3-3-3-3-2	37	4-3-4-5-6-6-3-2	24	5-4-3-3-4-5-3-2
26 August	5	2-3-2-1-0-1-1-1	14	3-4-4-4-0-1-2-1	11	3-4-4-2-2-2-2-2
27 August	4	2-1-2-1-1-0-1-1	8	2-1-4-3-2-0-0-1	7	3-1-2-2-2-2-1-1
28 August	5	1-2-2-1-0-1-1-3	3	2-1-0-0-1-1-1-2	7	2-2-0-1-1-1-2-3

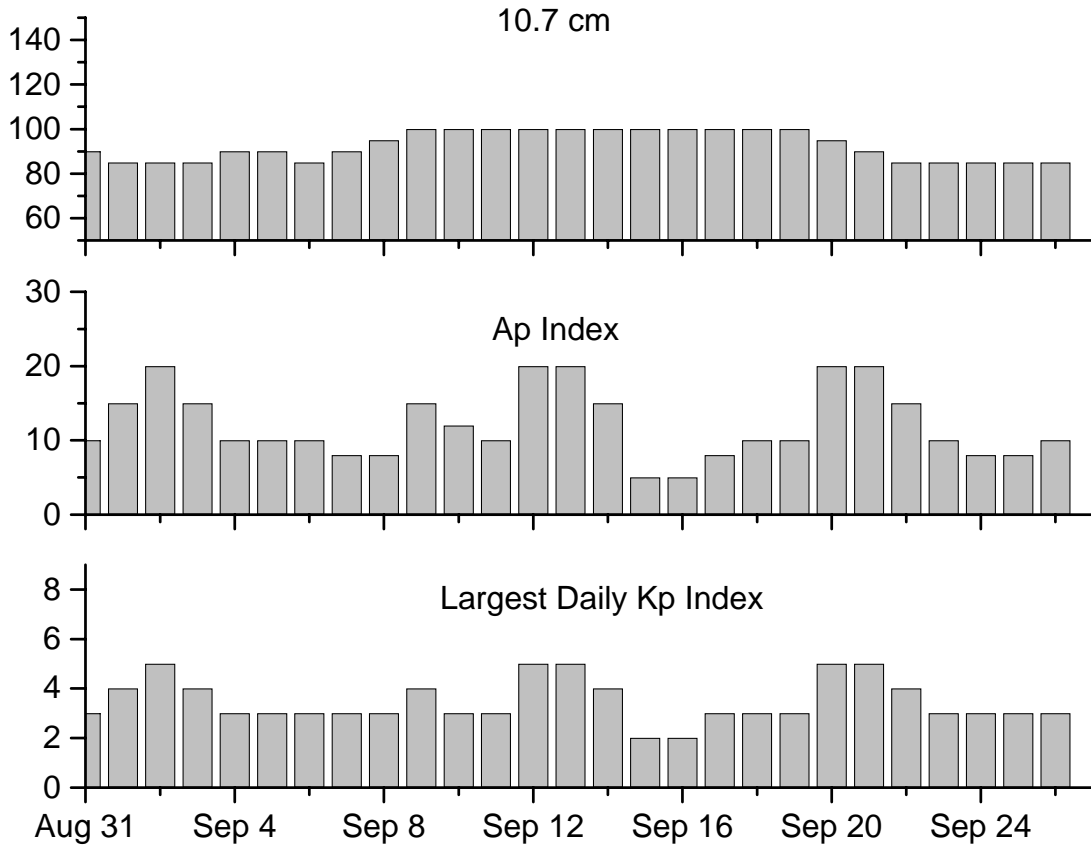


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UTC</u>
22 Aug 0007	1 – 245 MHz Radio Bursts	21 Aug
22 Aug 0007	1 – 245 MHz Radio Noise Storm	21 Aug
22 Aug 0214	ALERT: Type IV Radio Emission	22 Aug 0059
22 Aug 0313	SUMMARY: 10cm Radio Burst	22 Aug 0051
22 Aug 0416	ALERT: Geomagnetic K = 4	22 Aug 0414
22 Aug 0456	ALERT: Type II Radio Emission	22 Aug 0102
22 Aug 1212	ALERT: Type IV Radio Emission	22 Aug 0426
22 Aug 1719	ALERT: X-Ray Flux > M5	22 Aug 1718
22 Aug 1729	ALERT: Type IV Radio Emission	22 Aug 1653
22 Aug 1730	SUMMARY: 10cm Radio Burst	22 Aug 1650
22 Aug 1808	SUMMARY: X-ray Event > M5	22 Aug 1646
22 Aug 1938	WARNING: Proton 10MeV Integral Flux > 10pfu	22 Aug 2300 - 23 Aug 2359
22 Aug 2004	WATCH: Geomagnetic A \geq 20	24 Aug
22 Aug 2007	WATCH: Geomagnetic A \geq 20	25 Aug
22 Aug 2059	ALERT: Proton Event 10MeV Integral Flux > 10pfu	22 Aug 2040
23 Aug 0033	ALERT: Proton Event 10MeV Integral Flux > 100pfu	23 Aug 0015
23 Aug 0103	CONT ALERT: Proton Event 10MeV Integral Flux > 10pfu	22 Aug 2040
23 Aug 0126	CONT ALERT: Proton Event 10MeV Integral Flux > 100pfu	23 Aug 0015
23 Aug 1529	ALERT: Type II Radio Emission	23 Aug 1448
23 Aug 1530	ALERT: Type IV Radio Emission	23 Aug 1431
23 Aug 2219	EXT WARNING: Proton 10MeV Integral Flux > 10pfu	22 Aug 2300 - 24 Aug 2359
24 Aug 0100	CONT ALERT: Proton Event 10MeV Integral Flux > 100pfu	23 Aug 0015
24 Aug 0610	WARNING: Geomagnetic Sudden Impulse	24 Aug 0610 - 0700
24 Aug 0623	ALERT: Geomagnetic K = 4	24 Aug 0618
24 Aug 0637	WARNING: Geomagnetic K = 4 expected	24 Aug 0640 - 1500
24 Aug 0641	SUMMARY: Geomagnetic Sudden Impulse	24 Aug 0612
24 Aug 0727	WARNING: Geomagnetic K = 5	24 Aug 0728 - 1500
24 Aug 0731	ALERT: Geomagnetic K = 5	24 Aug 0730
24 Aug 0851	ALERT: Geomagnetic K = 6	24 Aug 0850
24 Aug 0928	WARNING: Geomagnetic K = 6	24 Aug 0930 - 1500
24 Aug 0935	ALERT: Geomagnetic K = 6	24 Aug 0930
24 Aug 0948	WARNING: Geomagnetic K \geq 7	24 Aug 0948 -1500
24 Aug 0952	ALERT: Geomagnetic K \geq 7	24 Aug 0951
24 Aug 1243	ALERT: Geomagnetic K = 6	24 Aug 1241
24 Aug 1251	ALERT: Geomagnetic K \geq 7	24 Aug 1245
24 Aug 1455	EXT WARNING: Geomagnetic K = 5	24 Aug 0728 -Aug 24 2359
24 Aug 1949	SUMMARY: Proton Event 10MeV Integral Flux > 100pfu	22 Aug 2040
24 Aug 2338	EXT WARNING: Geomagnetic K = 4	24 Aug 0640 – 25 Aug 1500
24 Aug 2345	EXT WARNING: Proton 10MeV Integral Flux > 10pfu	22 Aug 2300 - 25 Aug 1500
25 Aug 0105	CONT ALERT: Proton Event 10MeV Integral Flux > 10pfu	22 Aug 2040
25 Aug 0202	WARNING: Geomagnetic K = 5	25 Aug 0205 - 1500
25 Aug 0205	ALERT: Geomagnetic K = 5	25 Aug 0203
25 Aug 0439	ALERT: X-Ray Flux > M5	25 Aug 0438
25 Aug 0451	SUMMARY: X-ray Event > M5	25 Aug 0431
25 Aug 0501	SUMMARY: 10cm Radio Burst	25 Aug 0436
25 Aug 1010	ALERT: Electron 2MeV Integral Flux > 1000pfu	25 Aug 0945
25 Aug 1445	WARNING: Geomagnetic K = 4	25 Aug 1445 - 2359
25 Aug 1501	SUMMARY: Proton Event 10MeV Integral Flux > 10pfu	22 Aug 2040
26 Aug 0431	WARNING: Geomagnetic K = 4	26 Aug 0431 - 1500
26 Aug 0436	ALERT: Geomagnetic K = 4	26 Aug 0435
26 Aug 0529	ALERT: Electron 2MeV Integral Flux > 1000pfu	26 Aug 0500
27 Aug 0528	ALERT: Electron 2MeV Integral Flux > 1000pfu	27 Aug 0500
28 Aug 0514	ALERT: Electron 2MeV Integral Flux > 1000pfu	28 Aug 0500
28 Aug 1208	SUMMARY: 10cm Radio Burst	28 Aug 1018



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
31 Aug	90	10	3	14	100	15	4
01 Sep	85	15	4	15	100	5	2
02	85	20	5	16	100	5	2
03	85	15	4	17	100	8	3
04	90	10	3	18	100	10	3
05	90	10	3	19	100	10	3
06	85	10	3	20	95	20	5
07	90	8	3	21	90	20	5
08	95	8	3	22	85	15	4
09	100	15	4	23	85	10	3
10	100	12	3	24	85	8	3
11	100	10	3	25	85	8	3
12	100	20	5	26	85	10	3
13	100	20	5				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	Max	Class	Flux	Imp/	Location	Rgn	Radio Flux		Intensity	
						Brtns	Lat CMD		245	2695	II	IV
22 Aug	0044	0133	0218	M2.6	.096	1n	S08W50	798	67000	1600	3	3
22 Aug	1646	1727	1802	M5.6	.170	1n	S12W60	798	7500	2800	3	
23 Aug	1419	1444	1608	M2.7	.120	Sf	N70W16	798	4000	3500	1	1
25 Aug	0431	0440	0445	M6.4	.025	1n	N07E78	803	82	260		
28 Aug	1017	1028	1037	M1.6	.013	Sf	N09E36	803	470	520		

Flare List

Date	Time			Optical X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
22 August	B0109	0132	0213	M2.6	1n	S08W50	798
	B0239	0239	0247		Sf	S09W47	
		1417	1421	1425	B5.2		798
		1556	1617	1633	B5.3		798
		1652	1711	1845	M5.6	1n	S12W60
23 August	0050	0055	0058	B5.7			800
	0116	0122	0127	B6.0			800
	0410	0415	0419	B4.7			800
	0420	0429	0434	B6.7			800
	0549	0552	0554	B6.8			
	1435	1504	A1602	M2.7	Sf	N70W16	798
	2027	2031	2036	C1.9			800
	2158	2205	2211	C3.4			
24 August	2310	2315	2319	C1.2			
	0101	0101	0104		Sf	N16W07	800
	0155	0201	0207	C2.2			
	0244	0248	0256	B9.6			800
	0407	0411	0418	C1.2			
	0613	0706	0728	C4.7			798
	2013	2016	2021	B5.4			
	2035	2039	2047	B4.4			
25 August	0437	0437	0502	M6.4	1n	N07E78	803
	B0448	U0448	0453		1f	N14E76	803
	1044	1048	1053	B3.6			
	1104	1108	1113	B3.5			803
	1309	1312	1315	B3.6			
	1339	1353	1405	B5.4			803
	1421	1428	1435	B5.8			803
	2259	2303	2306	B2.8			803



Flare List – continued.

Date	Time			Optical	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End	X-ray Class.			
26 August	0241	0312	0338	C1.3			803
	1139	1155	1210	C2.1			803
	1547	1603	1621	B8.5			
	B2153	2155	2211	C2.3	Sf	N10E49	803
	2344	2351	2358	B5.0			803
27 August	0916	0920	0923	B3.3			803
	2052	2054	2058	C1.4	Sf	N10E38	803
28 August	0627	0631	0635	B1.5			
	0918	0925	0930	B1.8			
	1023	1029	1035	M1.6	Sf	N09E36	803
	1059	1102	1105	B8.2			803
	1942	1951	1954	B4.5			803

Region Summary

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

Region 797

11 Aug S13E55	254	0040	02	Hax	002	A											
12 Aug S13E42	254	0060	06	Dso	012	B											
13 Aug S13E29	254	0080	07	Dai	012	B											
14 Aug S13E16	254	0180	08	Dai	013	B											
15 Aug S13E03	252	0150	08	Dai	028	Bg											
16 Aug S14W10	252	0130	08	Dsi	025	Bg											
17 Aug S14W23	252	0090	09	Dso	020	B											
18 Aug S14W38	254	0080	02	Hsx	001	A											
19 Aug S13W52	255	0110	03	Hsx	001	A											
20 Aug S13W66	255	0070	02	Hsx	001	A											
21 Aug S14W78	254	0080	02	Hax	001	A											
22 Aug S13W90	253	0060	03	Hax	001	A											

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 252



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 798</i>																		
14 Aug	S05E54	216	0010	01	Hrx	001	A											
15 Aug	S08E39	216	0020	01	Hsx	001	A											
16 Aug	S08E25	217	0010	03	Cso	003	B											
17 Aug	S09E12	217	0020	02	Cso	002	B											
18 Aug	S10W05	221	0030	07	Dso	009	B											
19 Aug	S10W19	222	0160	10	Dai	014	Bg											
20 Aug	S11W33	222	0510	12	Eki	012	Bg											
21 Aug	S11W48	224	0560	08	Dkc	018	Bg	1										
22 Aug	S11W62	225	0670	08	Dkc	015	Bgd		2				2					
23 Aug	S12W75	225	0680	09	Dkc	012	Bg		1		1							
24 Aug	S11W90	227	0430	07	Dkc	007	Bg	1										
								2	3	0	1	2	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 221

Region 800

19 Aug	N16E46	157	0030	05	Cao	004	B											
20 Aug	N16E33	156	0050	07	Dso	008	B											
21 Aug	N17E19	157	0030	08	Cso	017	B											
22 Aug	N17E06	157	0130	09	Dai	028	B											
23 Aug	N17W08	158	0180	10	Dai	023	B	1										
24 Aug	N17W21	158	0220	11	Eai	028	Bg					1						
25 Aug	N17W35	158	0210	13	Eao	020	B											
26 Aug	N17W48	158	0170	12	Eso	010	B											
27 Aug	N16W61	158	0060	13	Eao	007	B											
28 Aug	N16W74	158	0030	10	Bxo	004	B											
								1	0	0	1	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 157

Region 801

20 Aug	N06E54	135	0020	01	Hsx	001	A											
21 Aug	N07E38	138	0010	01	Axx	001	A											
22 Aug	N08E33	130	0000	01	Axx	001	A											
23 Aug	N08E20	130																
24 Aug	N08E07	130																
25 Aug	N08W06	129																
26 Aug	N08W19	129																
27 Aug	N09W31	128	0020	04	Dso	005	B											
28 Aug	N09W44	128	0040	04	Cso	004	B											
								0	0	0	0	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 129



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 802

24 Aug	S12E14	123	0020	01	Hsx	001	A											
25 Aug	S12E00	123	0010	01	Hsx	001	A											
26 Aug	S12W13	123																
27 Aug	S12W26	123																
28 Aug	S12W39	123																
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 123

Region 803

24 Aug	N12E78	059	0030	04	Dao	011	B											
25 Aug	N12E67	056	0200	08	Dai	010	B		1			2						
26 Aug	N11E52	058	0110	09	Dai	015	Bg	3			1							
27 Aug	N11E40	057	0130	08	Dai	026	Bg	1			1							
28 Aug	N11E27	057	0100	08	Dsi	037	Bgd		1		1							
								4	2	0	3	2	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 057

Region 804

25 Aug	N11E12	111	0030	04	Cso	005	B											
26 Aug	N11W01	111	0010	02	Cso	002	B											
27 Aug	N11W14	111	0010	01	Axx	001	A											
28 Aug	N11W27	111	0000	01	Axx	001	A											
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 111

Region 805

27 Aug	S08E73	024	0060	04	Dso	002	B											
28 Aug	S08E60	024	0100	04	Dso	003	B											
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 024

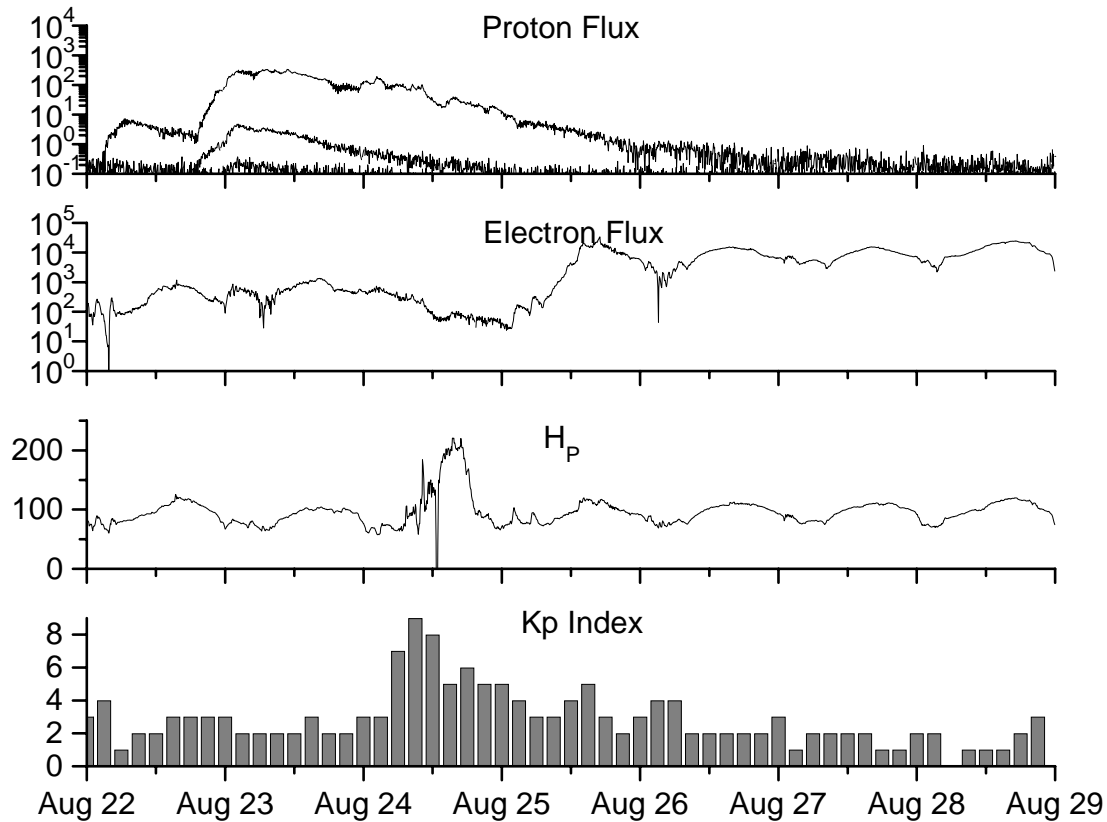


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
2003									
August	114.3	72.7	0.64	102.8	60.3	122.1	125.2	23	22.2
September	82.6	48.8	0.59	100.7	59.8	112.3	123.7	18	21.8
October	118.9	65.5	0.55	96.6	58.4	153.1	121.8	35	21.1
November	118.9	67.3	0.57	93.6	57.0	153.1	120.1	28	20.0
December	75.4	46.5	0.62	91.4	55.0	115.1	118.0	16	18.6
2004									
January	62.3	37.7	0.61	87.9	52.0	114.1	116.3	22	18.1
February	75.6	45.8	0.61	84.2	49.4	107.0	115.5	13	17.7
March	81.0	49.1	0.61	80.9	47.2	112.2	114.6	14	16.9
April	59.3	39.3	0.66	77.9	45.6	101.2	112.3	11	15.5
May	77.3	41.5	0.54	74.1	43.9	99.8	109.2	8	14.3
June	78.9	43.2	0.55	70.4	41.7	97.4	107.2	8	14.0
July	87.8	51.0	0.58	68.3	40.2	118.5	105.9	23	13.8
August	69.5	40.9	0.59	66.6	39.3	110.1	105.0	11	13.8
September	50.0	27.7	0.55	63.7	37.6	103.1	103.7	10	13.6
October	77.9	48.4	0.62	61.3	35.9	105.7	102.1	9	13.5
November	70.5	43.7	0.62	60.0	35.4	113.2	101.5	26	14.1
December	34.7	17.9	0.52	58.8	35.3	94.6	101.3	11	14.8
2005									
January	52.0	31.3	0.60	57.3	34.7	102.4	100.3	22	14.7
February	45.4	29.1	0.64			97.3		11	
March	41.0	24.8	0.60			90.0		12	
April	41.5	24.4	0.59			85.9		12	
May	65.4	42.6	0.65			99.5		20	
June	59.8	39.6	0.66			93.7		13	
July	71.0	39.9	0.56			96.6		16	

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 22 August 2005*

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.

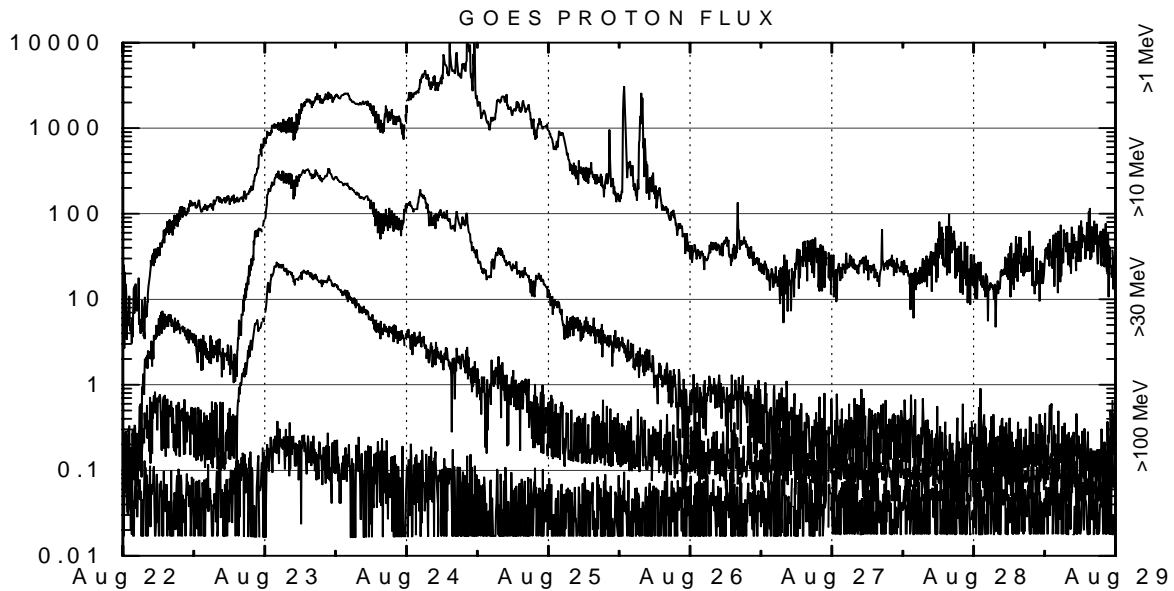
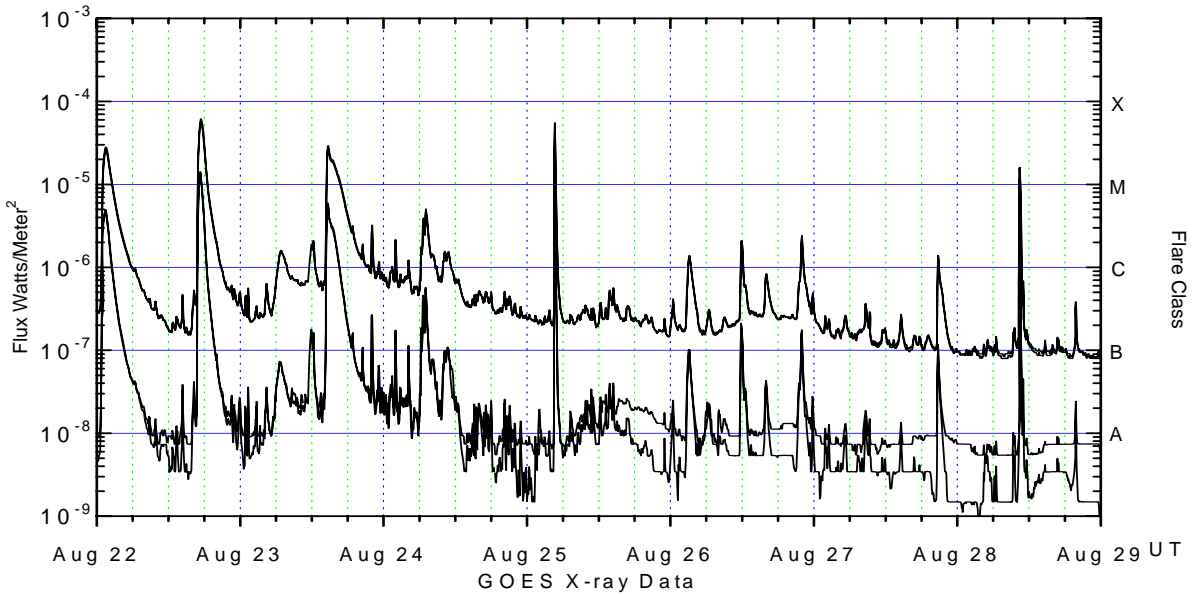
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-12 (W75).

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 Hartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC), British Geological Survey (BGS) 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/m^2) as measured by GOES 12 (W75) and GOES 10 (W135) 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 ($\text{protons/cm}^2\text{-sec-sr}$) as measured by GOES-11 (W113) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu ($\text{protons/cm}^2\text{-sec-sr}$) at greater than 10 MeV.

