

**Space Weather Highlights**  
**08 – 14 August 2005**

**SWO PRF 1563**  
**16 August 2005**

Solar activity was very low this period. Region 792 (N12, L=056, class/area, Dac/440 on 30 July) was the largest sunspot group on the disk, and rotated quietly around the west limb on 10 August. New Region 797 (S13, L=254, class/area, Dai/180 on 14 August) formed on the disk on 11 August, and showed steady growth during the period. 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 near 600 km/s early on 08 August to a low of near 330 km/s early on 12 August. The period began with wind speeds elevated at near 600 km/s and the Bz component of the IMF weakly southward at  $-5$  nT as the geomagnetic field was under the waning influence of a coronal hole high speed wind stream. Thereafter, wind speed steadily decreased to near 330 km/s by 12 August, while the IMF Bz generally did not vary much beyond  $\pm 5$  nT through early on 13 August. At about 10/0600 UTC, transient flow in the solar wind increased wind speed slightly from about 420 km/s to about 465 km/s, while the IMF Bz transitioned from a northward orientation of about  $+3$  nT to a southward orientation of between  $-5$  to  $-9$  nT for about 8 hours. Early on 13 August, a solar sector boundary crossing was observed in the ACE data. Solar wind speed gradually increased to 575 km/s by midday on 13 August, while the IMF Bz fluctuated between  $+17$  and  $-12$  nT during the same period. For the remainder of the summary period, the IMF Bz did not vary much beyond  $\pm 5$  nT, while solar wind speed ended the period at near 425 km/s.

No greater than 10 MeV proton events occurred during the summary period.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 08 and 09 August, and again on 12 August.

The geomagnetic field ranged from mostly quiet to unsettled levels, with one isolated active period observed at middle latitudes late on 13 August. At higher latitudes, an isolated active period was observed midday on 08 August, while a 12 hour period of minor to major storm levels were observed midday on 10 August.

**Space Weather Outlook**  
**17 August - 12 September 2005**

Solar activity is expected to be at very low to low levels.

No greater than 10 MeV proton events are expected.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 17 – 22 August, 26 – 27 August, and 02 – 08 September.

The geomagnetic field is expected to range from quiet to major storm levels. Recurrent coronal hole high speed wind streams are expected to produce active to minor storm levels on 17 August, and active to major storm levels on 23 – 26 August. Otherwise, expect mostly quiet to unsettled conditions.



**Daily Solar Data**

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 <sup>6</sup> hemi.)	X-ray Background	Flares								
					X-ray Flux			Optical					
					C	M	X	S	1	2	3	4	
08 August	86	56	370	B1.0	0	0	0	0	0	0	0	0	0
09 August	83	51	360	A8.1	0	0	0	0	0	0	0	0	0
10 August	76	34	190	A5.5	0	0	0	0	0	0	0	0	0
11 August	76	35	220	A4.0	0	0	0	0	0	0	0	0	0
12 August	76	47	210	A4.3	0	0	0	0	0	0	0	0	0
13 August	75	33	110	A3.4	0	0	0	0	0	0	0	0	0
14 August	75	34	190	A3.6	0	0	0	0	0	0	0	0	0

**Daily Particle Data**

Date	Proton Fluence (protons/cm <sup>2</sup> -day-sr)			Electron Fluence (electrons/cm <sup>2</sup> -day-sr)		
	>1 MeV	>10 MeV	>100 MeV	>.6 MeV	>2MeV	>4 MeV
	08 August	6.4E+5	1.2E+4	2.7E+3		1.6E+9
09 August	5.0E+5	1.2E+4	2.8E+3		1.4E+9	
10 August	8.1E+5	1.3E+4	2.8E+3		4.9E+7	
11 August	2.0E+5	1.3E+4	3.3E+3		3.8E+7	
12 August	2.5E+5	1.3E+4	3.2E+3		7.8E+7	
13 August	3.2E+5	1.3E+4	3.2E+3		5.4E+6	
14 August	3.2E+5	1.3E+4	3.2E+3		9.0E+6	

**Daily Geomagnetic Data**

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	08 August	6	2-2-2-1-2-2-1-2	9	2-2-2-1-4-2-1-2	8
09 August	8	2-3-2-2-2-0-3-2	9	2-2-2-3-2-3-3-2	10	3-3-2-2-2-2-3-3
10 August	9	2-1-3-3-3-2-1-1	39	3-2-6-6-6-5-1-0	22	3-2-4-5-5-3-2-2
11 August	2	1-0-1-1-1-1-0-0	4	1-0-2-2-3-1-0-0	6	1-1-2-1-2-2-2-2
12 August	3	1-1-1-0-1-0-1-2	6	1-1-2-3-3-0-1-1	6	1-1-1-1-2-2-2-3
13 August	14	3-3-2-3-3-1-3-4	11	2-3-2-3-3-1-2-3	16	3-4-2-3-3-2-3-3
14 August	6	2-2-1-1-1-1-2-1	9	3-2-2-3-3-1-1-1	10	4-4-2-2-2-2-2-2



### *Alerts and Warnings Issued*

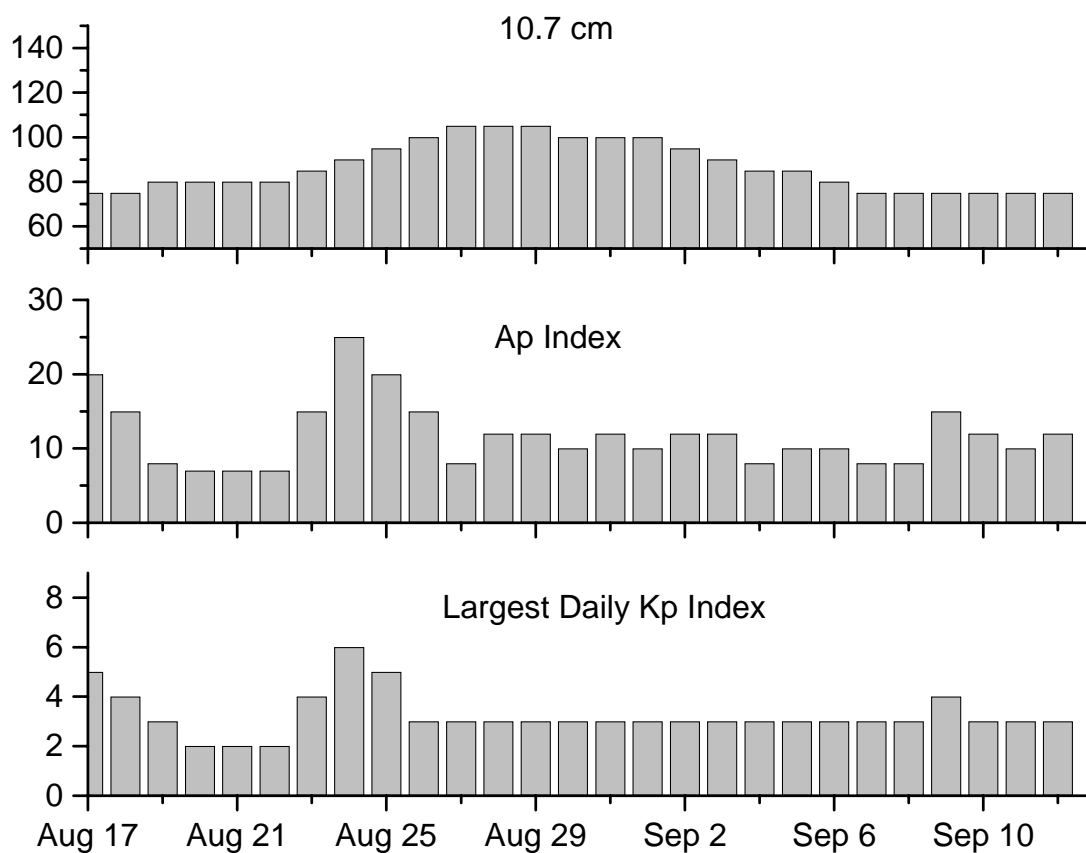
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<u>Date &amp; Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date &amp; Time of Event UTC</u>
08 Aug 0515	ALERT: Electron 2MeV Integral Flux > 1000pfu	08 Aug 0500
09 Aug 0515	ALERT: Electron 2MeV Integral Flux > 1000pfu	09 Aug 0500
10 Aug 0855	WARNING: Geomagnetic K = 4	10 Aug 0855 - 1500
10 Aug 0900	ALERT: Geomagnetic K = 4	10 Aug 0859
10 Aug 0912	WARNING: Geomagnetic K = 5	10 Aug 0915 - 1500
10 Aug 1035	ALERT: Geomagnetic K = 5	10 Aug 1035
10 Aug 1503	EXTENDED WARNING: Geomagnetic K=4	10 Aug 0855 - 2359
12 Aug 1126	ALERT: Electron 2MeV Integral Flux > 1000pfu	12 Aug 1105
13 Aug 0212	WARNING: Geomagnetic K = 4	13 Aug 0215 -1600
13 Aug 0412	ALERT: Geomagnetic K = 4	13 Aug 0411
13 Aug 0419	WARNING: Geomagnetic K = 5	13 Aug 0420 - 1600
14 Aug 0409	WARNING: Geomagnetic K = 4	14 Aug 0410 - 1600
14 Aug 0456	ALERT: Geomagnetic K = 4	14 Aug 0453

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## 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
17 Aug	75	20	5	31 Aug	100	12	3
18	75	15	4	01 Sep	100	10	3
19	80	8	3	02	95	12	3
20	80	7	2	03	90	12	3
21	80	7	2	04	85	8	3
22	80	7	2	05	85	10	3
23	85	15	4	06	80	10	3
24 Aug	90	25	6	07	75	8	3
25	95	20	5	08	75	8	3
26	100	15	3	09	75	15	4
27	105	8	33	10	75	12	3
28	105	12	3	11	75	10	3
29	105	12	3	12	75	12	3
30	100	10	3				



***Energetic Events***

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

***No Events Observed***

***Flare List***

Date	Time			Optical X-ray Class.	Imp/ Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
08 August	2019	2023	2025	B2.4			792
	2310	2314	2317	B1.6			
09 August	0023	0028	0031	B2.7			792
	1143	1148	1151	B1.7			796
	1204	1207	1209	B1.5			
	1841	1846	1853	B1.7			
10 August	0007	0010	0017	B1.4			
	0035	0039	0045	B2.1			792
	0240	0243	0247	B1.2			
	0312	0315	0319	B1.2			
11 August	1604	1610	1618	B1.3			795
12 August	1849	1857	1902	B1.2			797
13 August	1421	1440	1457	B1.7			
	1842	1845	1847	B1.6			797
14 August	1833	1839	1851	B1.1			797



### Region Summary

Date	Location		Sunspot Characteristics				Flares										
	( ° Lat ° CMD)	Helio	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
		Lon						C	M	X	S	1	2	3	4		
<i>Region 792</i>																	
28 Jul	N12E78	057	0220	09	Dso	007	B	1	2		1						
29 Jul	N11E66	055	0430	11	Ekc	028	Bg	1									
30 Jul	N12E52	056	0440	09	Dac	019	Bgd	2		1	1	1	2				
31 Jul	N12E38	057	0420	09	Dkc	040	Bgd		1								
01 Aug	N12E25	057	0420	11	Ekc	034	Bgd	1	1		1	1					
02 Aug	N12E12	057	0330	09	Dkc	043	Bgd	1			1						
03 Aug	N11W01	057	0240	08	Dkc	026	Bg	2			1						
04 Aug	N11W14	057	0180	07	Dki	018	Bg	1			1						
05 Aug	N11W28	056	0160	07	Dso	018	Bg	1			1						
06 Aug	N10W41	056	0130	05	Cso	009	Bg				1						
07 Aug	N10W54	056	0110	06	Cso	008	B	1									
08 Aug	N11W68	057	0120	05	Dso	005	B										
09 Aug	N10W82	057	0110	04	Dao	003	B										
10 Aug	N13W94	056	0030	01	Hax	001	A										
								11	4	1	8	2	2	0	0		

Crossed West Limb.

Absolute heliographic longitude: 057

<i>Region 794</i>																	
31 Jul	S11E73	022	0060	03	Hax	002	A										
01 Aug	S11E60	022	0110	06	Dao	007	B	1									
02 Aug	S11E47	022	0150	06	Dao	008	B	1	1			1					
03 Aug	S11E34	022	0210	08	Dsi	018	Bg	1	1		2	1					
04 Aug	S11E19	022	0220	10	Dsi	029	Bg	1			2						
05 Aug	S13E04	024	0230	10	Dai	024	Bg	1									
06 Aug	S12W10	025	0220	08	Dho	011	Bg										
07 Aug	S13W23	025	0170	08	Dso	010	Bg										
08 Aug	S13W36	025	0120	05	Cso	005	B										
09 Aug	S13W48	023	0140	03	Hax	003	A										
10 Aug	S12W64	026	0130	04	Hax	002	A										
11 Aug	S14W76	025	0140	02	Hax	002	A										
12 Aug	S14W89	025	0120	02	Hax	001	A										
								5	2	0	4	2	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 024



**Region Summary - continued.**

Date	Location		Sunspot Characteristics				Flares											
	( ° Lat ° CMD)	Helio	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
		Lon						C	M	X	S	1	2	3	4			
<i>Region795</i>																		
31 Jul	N15E77	018	0060	02	Hax	002	A											
01 Aug	N15E64	018	0110	02	Hax	001	A											
02 Aug	N15E51	018	0090	02	Hsx	003	A											
03 Aug	N15E38	018	0090	02	Hsx	002	A											
04 Aug	N13E27	014	0100	06	Cao	008	B											
05 Aug	N13E14	014	0090	03	Hsx	002	A											
06 Aug	N12E00	015	0070	04	Cso	004	B											
07 Aug	N12W13	015	0060	04	Cso	004	B											
08 Aug	N12W27	016	0050	02	Hsx	001	A											
09 Aug	N11W40	015	0040	02	Hax	002	A											
10 Aug	N15W55	017	0030	01	Hsx	001	A											
11 Aug	N10W66	015	0040	01	Hax	001	A											
12 Aug	N10W79	015	0030	03	Cro	004	B											
13 Aug	N10W92	015	0030	01	Axx	001	A											

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 015

<i>Region 796</i>																		
03 Aug	S07E05	051	0010	03	Cso	002	B											
04 Aug	S07W08	051																
05 Aug	S07W21	051																
06 Aug	S07W34	051																
07 Aug	S09W50	052	0060	04	Bxo	005	B											
08 Aug	S08W64	053	0080	05	Dso	005	B											
09 Aug	S08W78	053	0070	05	Dao	003	B											
10 Aug	S08W91	053																

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 051



**Region Summary - continued.**

Date	Location		Sunspot Characteristics				Flares							
	( ° Lat ° CMD)	Helio	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		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											
									0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 254

*Region 798*

14 Aug	S05E54	216	0010	01	Hrx	001	A											
									0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 216



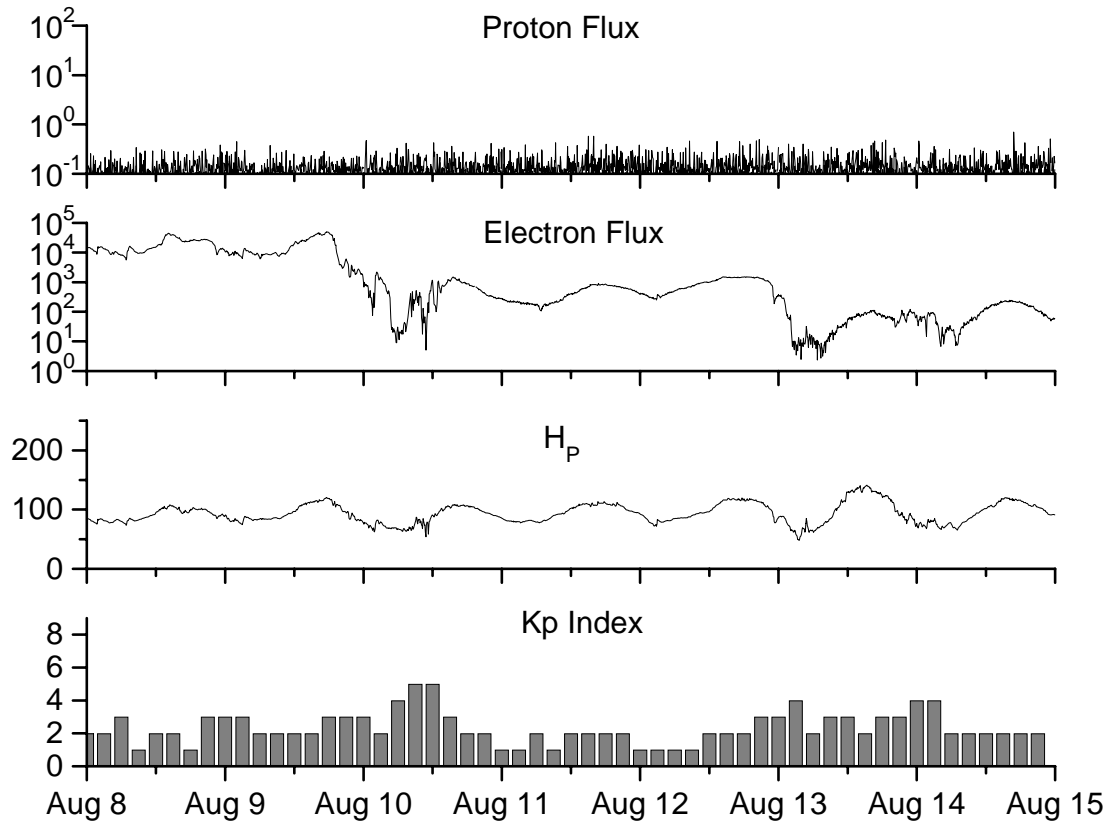


**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

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
<b>2003</b>									
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
<b>2004</b>									
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
<b>2005</b>									
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 08 August 2005*

*Protons* plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by GOES-11 (W113) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

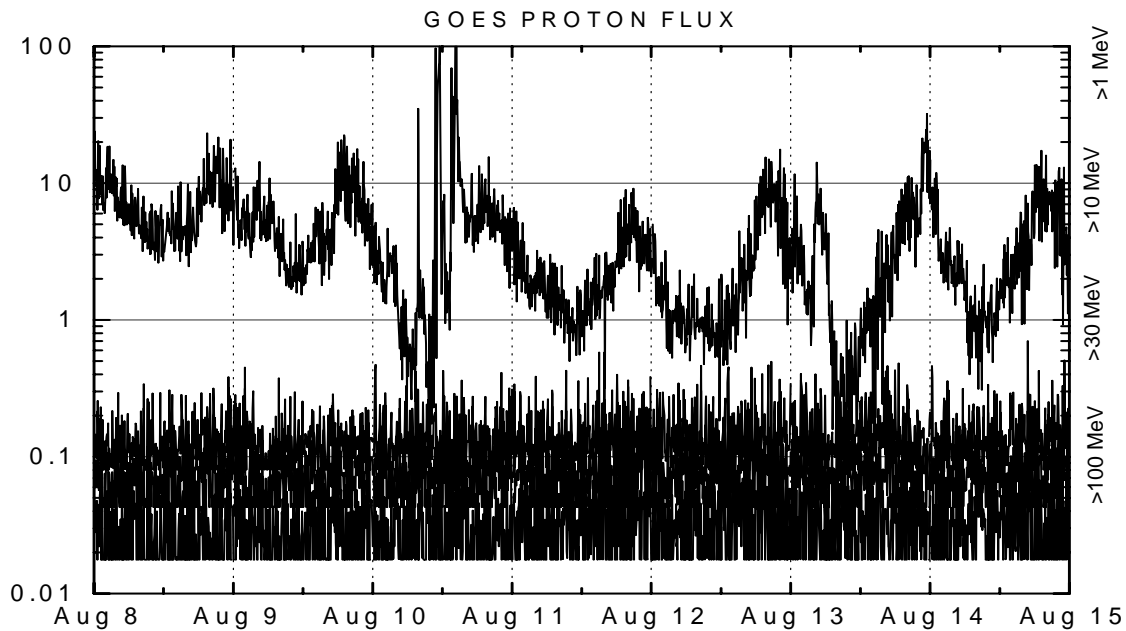
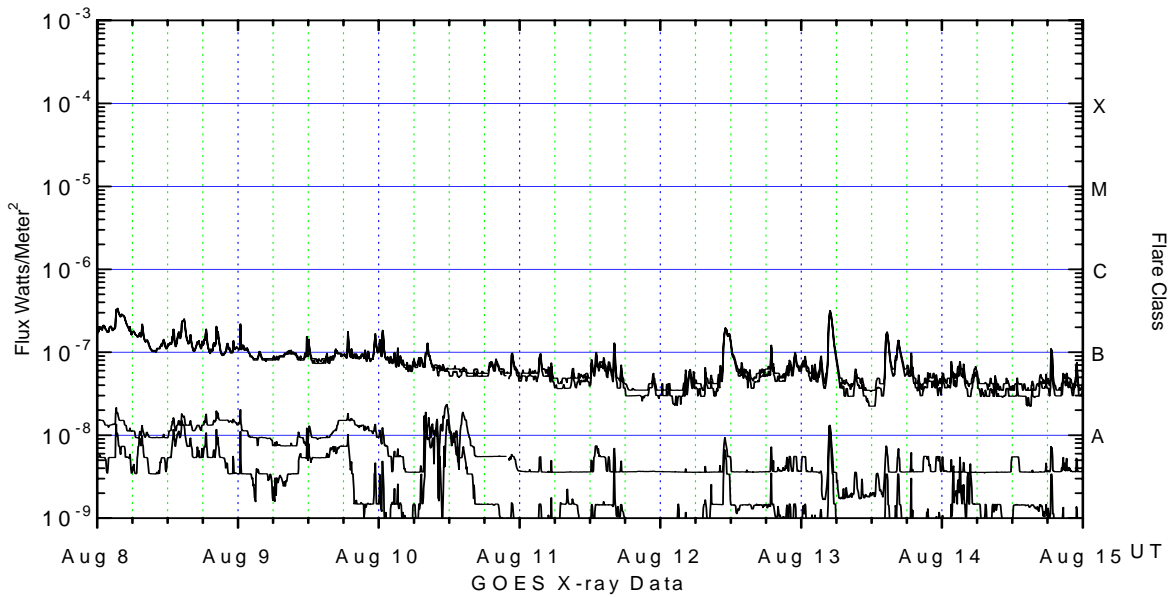
*Electrons* plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV at GOES-12 (W75).

*H<sub>p</sub>* 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<sub>p</sub>* 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<sub>p</sub> 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<sub>p</sub> 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<sup>2</sup>) 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 (protons/cm<sup>2</sup>-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/cm<sup>2</sup>-sec-sr) at greater than 10 MeV.

