

Space Weather Highlights
23 July – 29 July 2007

SEC PRF 1665
31 July 2007

Solar activity was very low. Region 965 (S11, L = 197, class/area Cso/040 on 29 July) produced an isolated B-class subflare on 28 July.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels.

The geomagnetic field was quiet during 23 – 25. Activity increased to quiet to active levels during 26 – 27 July. Activity decreased to quiet levels on 28 July. Activity increased to quiet to active levels on 29 July. ACE data indicated the 26 – 27 July and 29 July disturbances were associated with recurrent coronal hole high-speed wind streams. The recurrent coronal hole wind stream associated with the 26 – 27 July activity commenced on 26 July and eventually reached a peak velocity of 516 km/sec at 27/0457 UTC. Solar wind velocities associated with the 29 July activity reached a peak of 637 km/sec at 29/1531 UTC.

Space Weather Outlook
01 August – 27 August 2007

Solar activity is expected to be at very low levels.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels during 03 August and 12 – 15 August.

Geomagnetic field activity is expected to be at quiet to unsettled levels during 01 - 06 August. Activity is expected to increase to unsettled to minor storm levels on 07 August due to a recurrent coronal hole high-speed wind stream. Quiet to unsettled conditions are expected during 08 – 09 August as coronal hole effects subside. Another recurrent coronal hole wind stream is forecast to affect the field during 10 – 11 August with unsettled to minor storm levels expected. Activity is expected to decrease to quiet to unsettled levels during 12 – 24 August. Activity is expected to increase to unsettled to active levels during 25 – 26 August due to another round of recurrent coronal hole effects. Activity is expected to decrease to quiet to unsettled levels on the final day of the forecast period.



Daily Solar Data

Date	Radio	Sun	Sunspot	X-ray	Flares							
	Flux	spot	Area	Background	X-ray Flux			Optical				
	10.7 cm	No.	(10 ⁻⁶ hemi.)		C	M	X	S	1	2	3	4
23 July	67	0	0	<A1.0	0	0	0	0	0	0	0	0
24 July	68	0	0	<A1.0	0	0	0	0	0	0	0	0
25 July	69	0	0	<A1.0	0	0	0	0	0	0	0	0
26 July	68	0	0	<A1.0	0	0	0	0	0	0	0	0
27 July	69	0	0	<A1.0	0	0	0	0	0	0	0	0
28 July	70	13	30	<A1.0	0	0	0	3	0	0	0	0
29 July	69	14	40	<A1.0	0	0	0	0	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
23 July	4.7E+5	1.7E+4	3.8E+3		1.1E+7	
24 July	6.4E+5	1.7E+4	3.8E+3		1.5E+7	
25 July	7.6E+5	1.7E+4	4.1E+3		1.4E+7	
26 July	1.6E+6	1.8E+4	4.0E+3		6.3E+6	
27 July	4.3E+5	1.7E+4	3.9E+3		2.3E+6	
28 July	5.6E+5	1.8E+4	3.9E+3		4.0E+6	
29 July	7.1E+5	1.7E+4	3.8E+3		1.2E+6	

Daily Geomagnetic Data

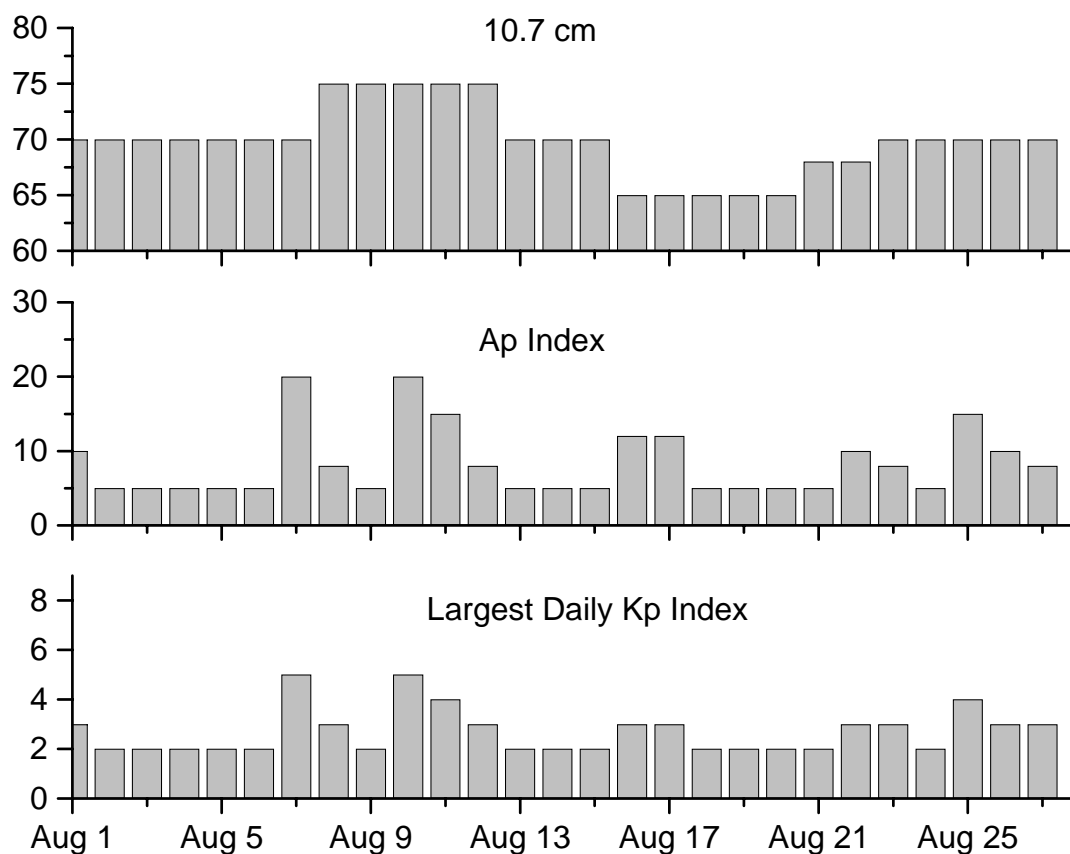
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
23 July	4	1-1-1-1-1-1-2	3	1-1-0-2-1-0-1-1	3	1-1-1-1-0-0-1-2
24 July	2	0-0-0-0-2-1-1-0	1	0-1-0-0-0-0-1-1	2	0-0-0-0-1-1-0-1
25 July	2	1-0-0-1-1-1-1-0	0	0-0-0-0-0-0-0-0	2	0-0-0-1-1-1-1-0
26 July	6	0-0-0-1-1-2-3-3	5	0-0-0-0-1-2-2-3	9	0-0-0-1-1-4-3-3
27 July	6	2-3-1-2-2-1-0-1	13	2-3-2-4-5-1-0-0	8	3-3-2-2-2-1-0-1
28 July	3	1-1-1-0-1-1-1-2	2	1-1-1-2-1-0-0-0	4	2-1-1-1-0-1-0-2
29 July	11	3-3-2-2-2-2-3-3	21	3-4-2-5-5-2-2-2	14	3-4-2-3-3-2-3-3

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
26 Jul 1703	ALERT: Geomagnetic K = 4	26 Jul 1702
26 Jul 1734	WARNING: Geomagnetic K = 5	26 Jul 1735 – 2359
26 Jul 1734	ALERT: Geomagnetic K = 5	26 Jul 1733
27 Jul 0441	WARNING: Geomagnetic K = 4	27 Jul 0445 – 0700
27 Jul 0447	ALERT: Geomagnetic K = 4	27 Jul 0447
29 Jul 0443	ALERT: Geomagnetic K = 4	29 Jul 0440
29 Jul 1106	WARNING: Geomagnetic K = 4	29 Jul 1115 – 1600



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
01 Aug	70	10	3	15 Aug	70	5	2
02	70	5	2	16	65	12	3
03	70	5	2	17	65	12	3
04	70	5	2	18	65	5	2
05	70	5	2	19	65	5	2
06	70	5	2	20	65	5	2
07	70	20	5	21	68	5	2
08	75	8	3	22	68	10	3
09	75	5	2	23	70	8	3
10	75	20	5	24	70	5	2
11	75	15	4	25	70	15	4
12	75	8	3	26	70	10	3
13	70	5	2	27	70	8	3
14	70	5	2				



Energetic Events

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

No Events Observed

Flare List

Date	Time			Optical	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End	Class.			

23 July ***No Flares Observed***

24 July ***No Flares Observed***

25 July ***No Flares Observed***

26 July ***No Flares Observed***

27 July ***No Flares Observed***

28 July 0228 0230 0232 Sf S11E35 965

 0252 0252 0300 Sf S12E35 965

 0716 0718 0739 B1.4 Sf S15E25 965

29 July ***No Flares Observed***

Region Summary

Location		Sunspot Characteristics													
		Helio		Flares				X-ray		Optical					
Date	(° Lat ° CMD)	Lon	Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	C	M	X	S	1	2	3	4

Region 965

28 Jul S11E24 195 0030 02 Cso 003 B 3

29 Jul S11E10 196 0040 03 Cso 004 B 0 0 0 3 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 196

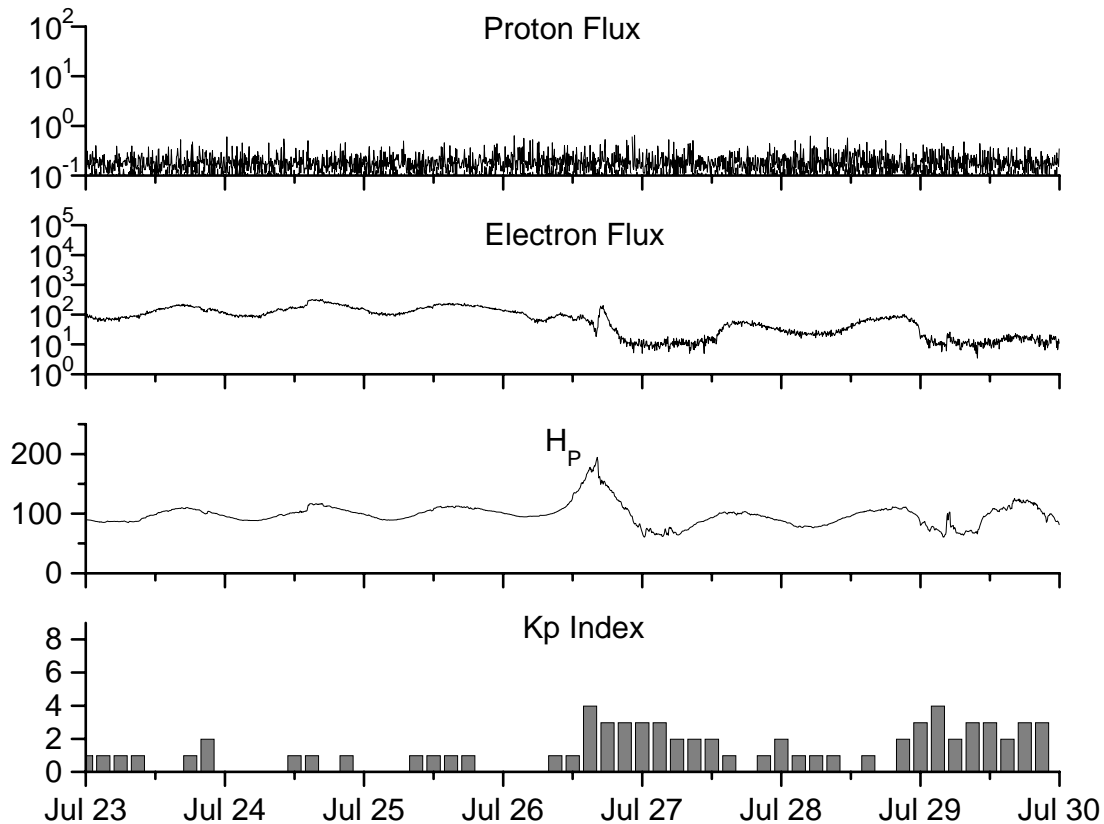


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values	Ratio	Smooth values	*Penticton	Smooth	Planetary	Smooth		
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
2005									
July	71.0	39.9	0.56	48.1	29.2	96.6	90.9	16	13.1
August	65.6	36.4	0.55	45.4	27.5	90.7	89.3	16	12.2
September	39.2	22.1	0.56	42.9	25.9	90.8	87.8	21	11.8
October	13.0	8.5	0.65	42.6	25.5	76.7	87.4	7	11.6
November	32.2	18.0	0.56	42.1	24.9	86.3	86.7	8	11.1
December	62.6	41.2	0.66	40.1	23.0	90.8	85.4	7	10.4
2006									
January	28.0	15.4	0.55	37.2	20.8	83.8	84.0	6	9.9
February	5.3	4.7	0.89	33.4	18.7	76.6	82.6	6	9.2
March	21.3	10.8	0.51	31.0	17.4	75.5	81.6	8	8.4
April	55.2	30.2	0.55	30.6	17.1	89.0	80.9	11	7.9
May	39.6	22.2	0.56	30.7	17.3	81.0	80.8	8	7.9
June	37.7	13.9	0.37	28.9	16.3	80.1	80.6	9	8.3
July	22.6	12.2	0.54	27.2	15.3	75.8	80.3	7	8.7
August	22.8	12.9	0.57	27.6	15.6	79.0	80.3	9	8.7
September	25.2	14.5	0.58	27.7	15.6	77.8	80.2	8	8.7
October	15.7	10.4	0.66	25.2	14.2	74.3	79.4	8	8.6
November	31.5	21.5	0.68	22.3	12.7	86.4	78.5	9	8.5
December	22.2	13.6	0.61	20.7	12.1	84.3	77.9	15	8.5
2007									
January	26.6	16.9	0.64			83.5		6	
February	17.2	10.6	0.62			77.8		6	
March	9.7	4.8	0.49			72.3		7	
April	6.9	3.7	0.54			72.4		9	
May	19.4	11.7	0.60			74.5		8	
June	20.0	12.0	0.60			73.7		7	

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 23 July 2007

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

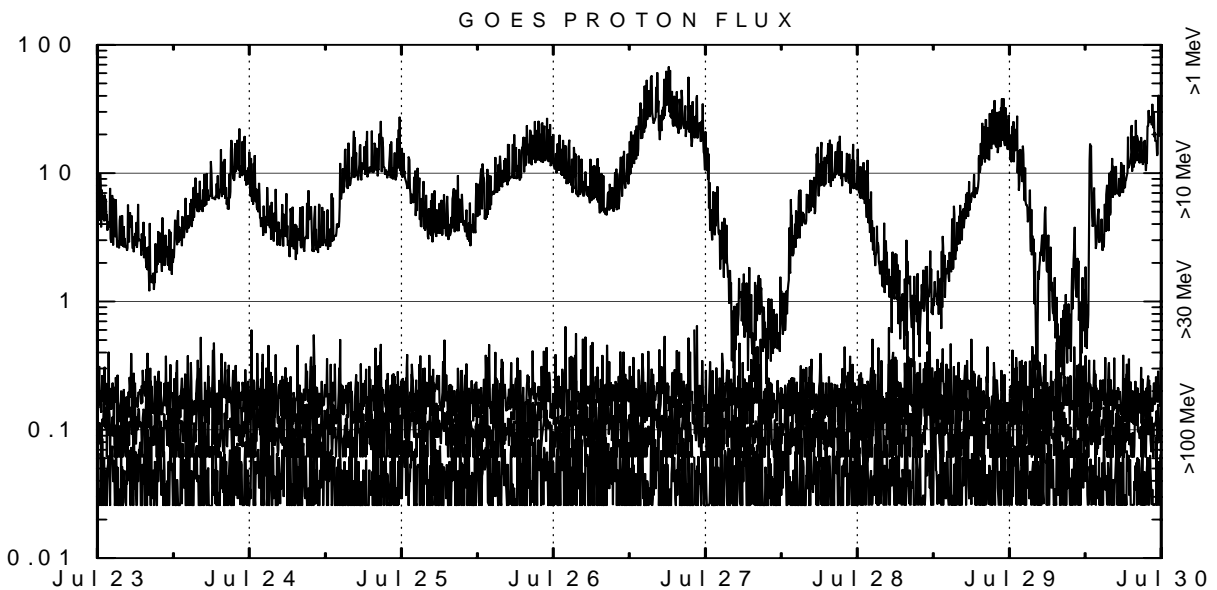
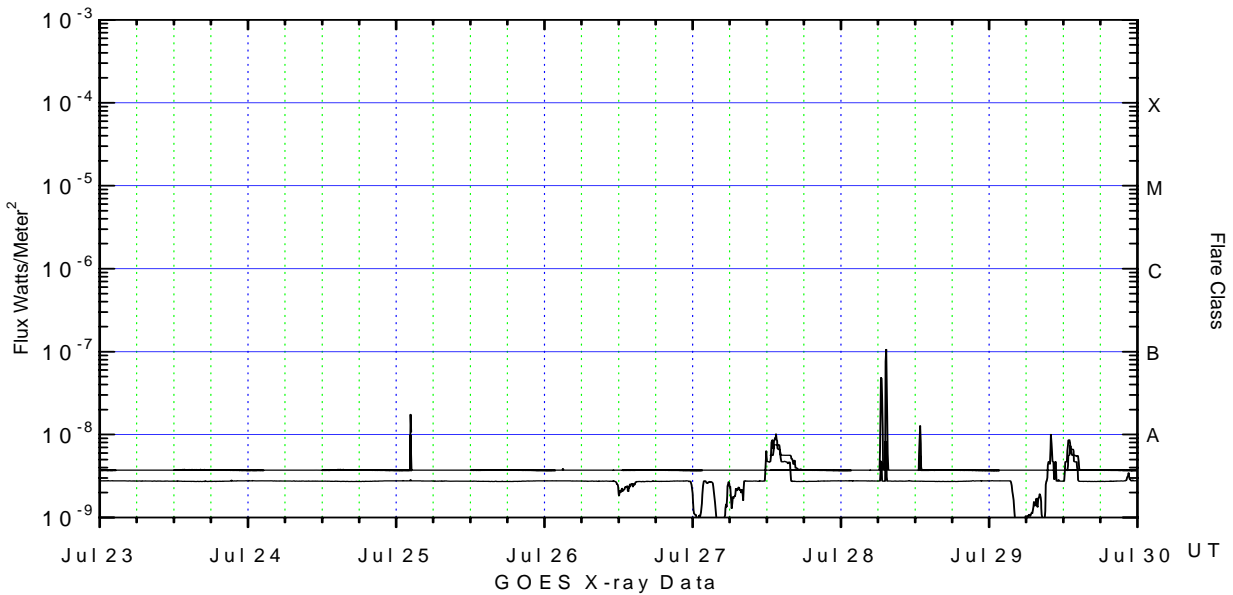
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-12 (W075).

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.

Kp 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 Kp values derived from a more extensive network of magnetometers.

The data included here are those now available in real time at the SEC 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 Kp 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 10 (W060) and GOES 11 (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/cm²-sec-sr) as measured by GOES-11 (W135) 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.

