

Space Weather Highlights
23 June 1997 - 29 June 1997

Solar activity was very low to low. Activity rose to low levels on 29 June by virtue of an isolated C-class subflare from Region 8056 (N17, L = 276, class/area Dao/040 on 26 June). A 10 degree filament disappeared from the northeast quadrant on 26 June and a 15 degree filament disappeared from the northwest quadrant on 28 June.

Solar wind data were received from the WIND spacecraft a few hours per day. Solar wind velocities ranged from 300 - 450 km/sec throughout most of the period. However, velocities briefly increased to 550 km/sec during 27 June. Particle densities ranged from 02 - 08 p/cc with an increase to 15 p/cc noted on 26 June. Bz hovered around zero, ranging from minus 06 nT to plus 06 nT (GSM). Solar sector orientation was away (phi angle near 135 degrees) during 23 - early 25 June, shifting to a toward orientation (phi angle near 315 degrees) late 25 - 26 June. Orientation was not discernible 27 June, but became away during the remainder of the period.

There were no significant proton enhancements observed at satellite altitudes.

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

The geomagnetic field was mostly quiet to unsettled.

Space Weather Forecast
02 July 1997 - 28 July 1997

Solar activity is expected to be very low.

No significant proton enhancements are expected at satellite altitudes.

The greater than 2 MeV electron flux is expected to be normal to moderate.

The geomagnetic field is expected to be quiet to unsettled.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 ⁶ hemi.)	X-ray Background	X-ray Flux			Flares				
					C	M	X	S	1	2	3	4
23 June	69	14	10	<A1.0	0	0	0	0	0	0	0	0
24 June	70	14	10	<A1.0	0	0	0	0	0	0	0	0
25 June	72	34	40	<A1.0	0	0	0	0	0	0	0	0
26 June	72	23	40	A1.4	0	0	0	0	0	0	0	0
27 June	72	19	30	A2.1	0	0	0	0	0	0	0	0
28 June	71	26	10	A1.4	0	0	0	2	0	0	0	0
29 June	70	24	0	A1.0	1	0	0	1	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
23 June	1.0E+5	1.7E+4	4.0E+3		5.3E+5	
24 June	1.7E+5	1.8E+4	3.9E+3		9.0E+5	
25 June	1.9E+5	1.7E+4	3.9E+3		6.1E+5	
26 June	1.6E+5	1.7E+4	3.9E+3		5.3E+5	
27 June	2.2E+5	1.7E+4	3.8E+3		3.2E+5	
28 June	8.0E+5	1.7E+4	3.9E+3		4.0E+6	
29 June	1.1E+5	1.7E+4	4.0E+3		2.2E+6	

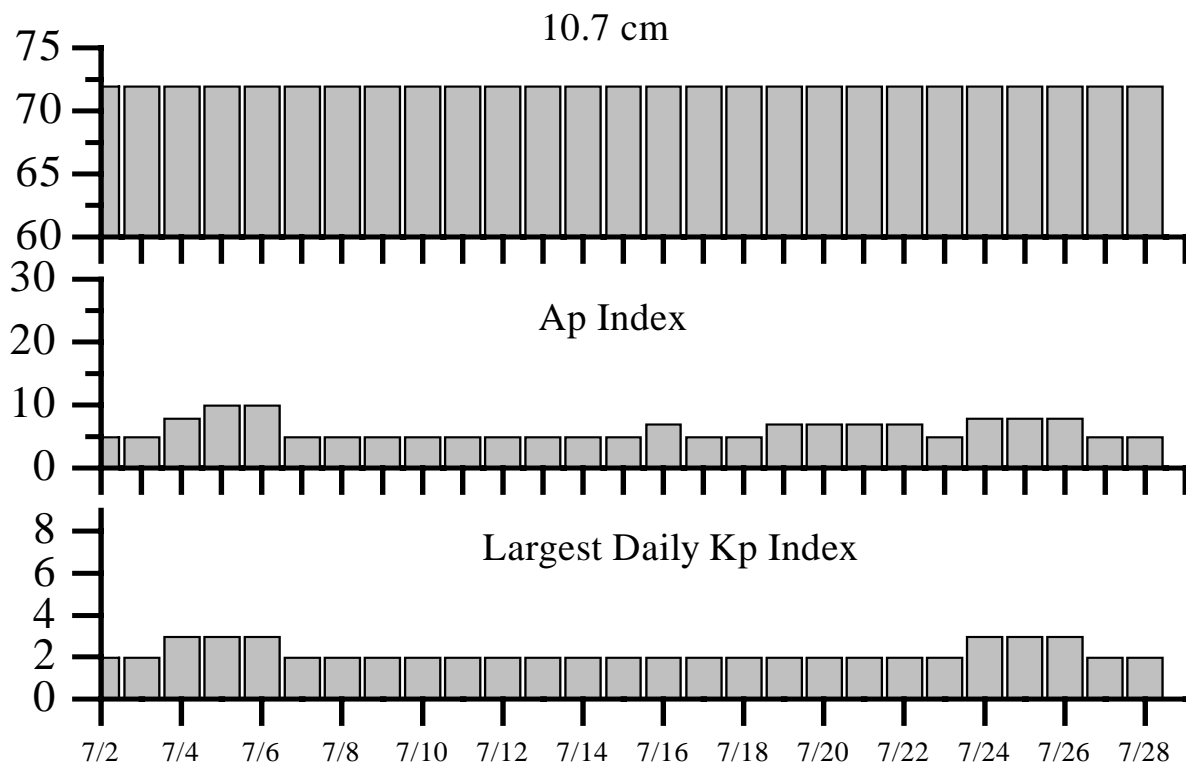
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	23 June	9	2-1-1-2-3-3-2-3	*	*-*-*-*-*-*-*	7
24 June	6	1-2-1-2-2-2-2-2	*	*-*-*-*-*0-1-1	6	1-1-1-2-2-2-2-2
25 June	11	2-3-2-3-2-1-3-3	6	2-1-1-3-3-0-1-2	8	1-2-2-3-2-2-2-3
26 June	6	2-2-1-1-1-1-2-3	1	1-1-0-0-0-0-1-0	5	2-2-1-0-1-2-2-2
27 June	15	2-1-2-4-4-3-3-3	17	0-0-2-6-4-3-2-1	16	2-1-2-5-4-3-3-3
28 June	9	2-3-2-2-2-1-2-3	10	3-4-0-2-1-0-0-1	9	3-4-2-2-2-1-2-3
29 June	11	4-3-2-2-3-2-1-2	6	3-2-3-3-1-0-0-0	11	4-3-3-3-1-2-2-2

Alerts and Warnings Issued

Date and Time of Issue (UT)	Type of Alert or Warning	Date and Time of Event (UT)
27 Jun 1203	K = 4 observed	27 Jun 09-12
29 Jun 0304	K = 4 observed	29 Jun 00-03





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 Jul	72	5	2	15 Jul	72	5	2
02	72	5	2	16	72	7	2
03	72	8	3	17	72	5	2
04	72	10	3	18	72	5	2
05	72	10	3	19	72	7	2
06	72	5	2	20	72	7	2
07	72	5	2	21	72	7	2
08	72	5	2	22	72	7	2
09	72	5	2	23	72	5	2
10	72	5	2	24	72	8	3
11	72	5	2	25	72	8	3
12	72	5	2	26	72	8	3
13	72	5	2	27	72	5	2
14	72	5	2	28	72	5	2



Energetic Event

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

No Event Observed

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location		Rgn #
	Begin	Max	End			Lat	CMD	
23 June	No Flares Observed							
24 June	No Flares Observed							
25 June	No Flares Observed							
26 June	No Flares Observed							
27 June	No Flares Observed							
28 June	0653	0654	0659		SF	N23W5		8056
	1117	1124	1131	B2.1				
	2127	2130	2140	B1.5	SF	N31E13		8057
29 June	2345	2347	0000	C1.1	SF	N17W8		8056

Region Summary

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
<i>Region 8053</i>														
18 Jun	S27E31	319	0020	03	CRO	004	B							
19 Jun	S26E17	320	0020	04	BXO	006	B							
20 Jun	S27E06	317	0010	01	AXX	002	A							
21 Jun	S27W07	317	0000	00	AXX	001	A							
22 Jun	S27W20	317												
23 Jun	S27W33	317												
24 Jun	S27W46	317												
25 Jun	S27W59	317												
26 Jun	S27W72	317												
27 Jun	S27W85	317												
28 Jun	S27W98	317												

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 317



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 8055</i>																						
22 Jun	N15E08	289	0010	04	BXO	005	B															
23 Jun	N15W06	290	0010	04	BXO	004	B															
24 Jun	N15W21	292	0010	05	BXO	004	B															
25 Jun	N15W34	292	0000	04	BXO	002	B															
26 Jun	N15W47	292																				
27 Jun	N15W60	292																				
28 Jun	N15W73	292																				
29 Jun	N15W86	292																				

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 290

<i>Region 8056</i>																						
25 Jun	N17W18	276	0040	05	CRO	012	B															
26 Jun	N17W33	277	0040	07	DAO	013	B															
27 Jun	N17W47	278	0030	08	DRO	009	B															
28 Jun	N17W61	279	0010	06	BXO	004	B														1	
29 Jun	N19W70	275	0000	00	AXX	002	A	1													1	

1 0 0 2 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 276

<i>Region 8057</i>																						
28 Jun	N30E12	206	0000	01	AXX	002	A														1	
29 Jun	N31W03	208	0000	00	AXX	002	A															

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 208



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

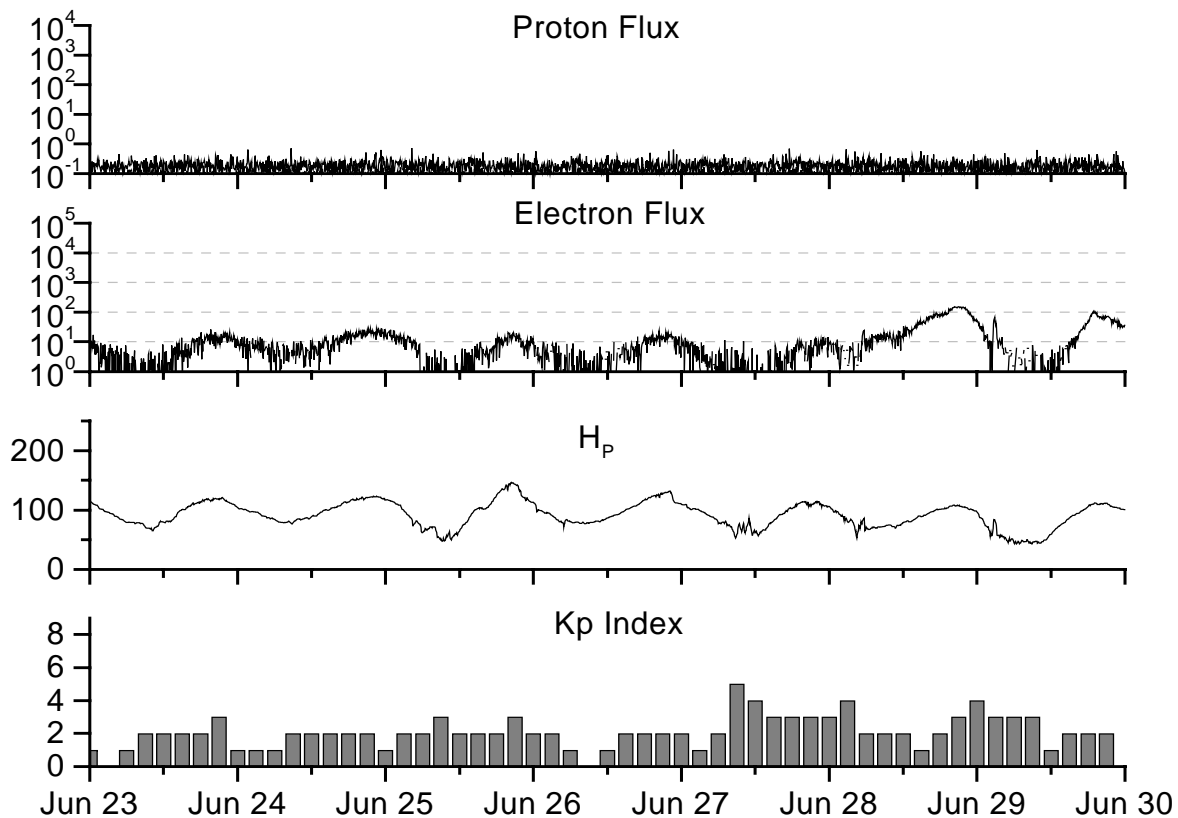
Month	Sunspot Numbers				Radio Flux		Geomagnetic		
	Observed values		Ratio	Smooth values		**Penticton	Smooth	Planetary	Smooth
	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
1995									
June	27.8	15.6	0.56	29.9	18.2	75.7	77.7	11	12.7
July	23.8	14.5	0.61	28.1	17.0	73.9	76.9	08	12.4
August	25.1	14.3	0.57	25.4	15.4	73.8	76.0	09	12.1
September	16.5	11.8	0.72	22.0	13.4	72.0	74.8	13	11.8
October	31.6	21.1	0.67	19.7	12.1	77.9	73.8	16	11.4
November	15.7	09.0	0.57	18.5	11.4	74.2	73.2	09	10.7
December	16.2	10.0	0.62	17.6	10.8	72.6	72.8	09	10.0
1996									
January	17.6	11.5	0.55	16.8	10.4	74.5	72.4	09	09.8
February	09.1	04.4	0.48	16.2	10.1	71.5	72.2	10	09.8
March	12.1	09.2	0.76	15.4	09.7	70.7	72.1	11	09.9
April	08.5	04.8	0.60	13.6	08.5*	69.3	71.6	11	09.7*
May	11.8	05.5	0.47	12.9	08.1*	70.1	71.4	07	09.5*
June	18.8	11.8	0.63	13.5	08.6*	69.6	71.8	05	09.4*
July	13.2	08.2	0.67	13.4	08.5*	71.2	72.0	07	09.3*
August	20.5	14.4	0.68	13.1	08.4*	72.4	72.1	09	09.4*
September	02.9	01.6	0.62	13.3	08.5*	69.4	72.3	15	09.3*
October	02.3	01.8*	0.78*	14.0	09.0*	69.2	72.6	13	09.1*
November	26.7	18.6*	0.70*	15.4	10.0*	78.7	73.0	08	09.1*
December	21.1	12.7*	0.60*			77.8		07	
1997									
January	09.0	06.5*	0.72*			74.0		09	
February	11.3	07.6*	0.67*			73.8		11	
March	14.4	08.8*	0.61*			73.5		08	
April	24.5	15.8*	0.64*			74.5		10	
May	28.6	18.5	0.64			74.6		08	

*Preliminary estimates.

The lowest smoothed sunspot indices number for Cycle 21, RI = 12.3, occurred September 1986. The highest smoothed sunspot number for Cycle 22, RI=158.5, occurred July 1989.

** From June 1991 onward, 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 June 1997

Protons plot contains the five minute averaged integral proton flux (protons/ cm²-sec-sr) as measured by GOES-9 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

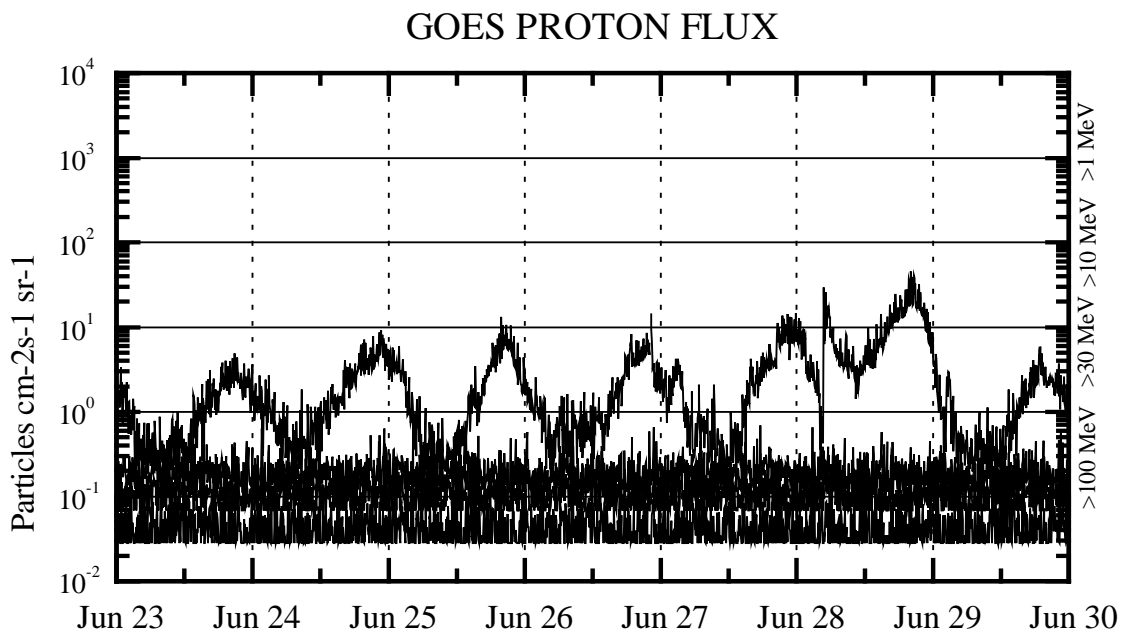
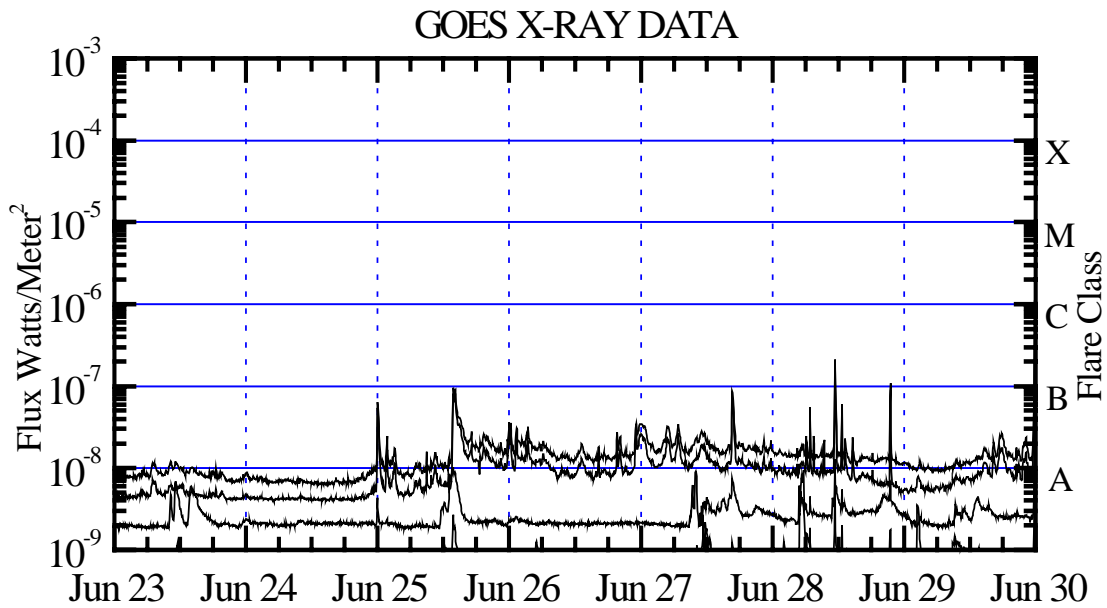
Electrons plot contains the five minute averaged integral electron flux (electrons/ cm²-sec-sr) with energies greater than 2 MeV at GOES-9.

H_p plot contains the five minute averaged magnetic field H component in nanoteslas (nT) as measured by GOES-9. 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 USAF 55th Space Weather Squadron) 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. 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 a 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

Proton plot contains the five minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-9 (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.

X-ray plot contains five minute averaged x-ray flux (watts/m²) as measured by GOES 8 and 9 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.

