

Space Weather Highlights
04 August 1997 -10 August 1997

Solar activity was very low to low. Region 8069 (N21, L112 class/area Dao/100 on 07 August) produced numerous B Class flares and Several C Class flares from 06-10 August (it rotated past the west limb on 09 August).

Solar wind data were received from the WIND spacecraft a few hours per day. Velocities gradually fell from 410 - 300 km/sec on 04 - 06 August and then began a gradual rise to 360 km/sec from 07 August to mid day on 09 August. Velocities then rose sharply to 470 km/sec and then fell to 400 km/sec at the end of the period. Densities peaked at 36 p/cc on 04 August and fell to the 4- 8 p/cc range by mid day on 05 August and remained there through 06 August. Densities rose gradually to 26 p/cc on 07 August and fell back to 4 - 10 p/cc during 08 August. Densities rose to 30 p/cc by mid day 09 August and fell abruptly to 4 - 8 p/cc, remaining there for the rest of the period. Bz varied from minus 06 to plus 05 nT (GSM). However, Bz was mostly positive on 04 August and mostly negative during the last half of both 08 and 10 August. Solar sector orientation was mostly away (phi angle near 135 degrees) on 04, 08 and 10 August and mostly toward (phi angle near 315 degrees) on 05-07 August. Orientation was not readily discernible on 09 August.

There were no significant proton enhancements observed at satellite altitudes.

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

The geomagnetic field was mostly quiet to unsettled with isolated periods of active level conditions at all latitudes on 04, 10, 11 August.

Space Weather Forecast
13 August 1997 -08 September 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 at geosynchronous altitudes is expected to be normal to moderate.

The geomagnetic field is expected to be predominately 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
04 August	73	12	20	<A1.0	0	0	0	0	0	0	0	0
05 August	75	39	30	<A1.0	0	0	0	0	0	0	0	0
06 August	77	45	120	A3.6	0	0	0	1	0	0	0	0
07 August	78	55	140	A3.0	0	0	0	8	0	0	0	0
08 August	78	65	230	A5.2	0	0	0	4	0	0	0	0
09 August	78	61	90	A8.8	5	0	0	3	0	0	0	0
10 August	78	31	40	B2.3	4	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)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
04 August	5.3E+5	1.8E+4	4.2E+3		3.1E+6	
05 August	3.0E+5	1.8E+4	4.2E+3		2.6E+6	
06 August	3.0E+5	1.8E+4	4.3E+3		2.3E+6	
07 August	4.7E+5	1.8E+4	4.3E+3		2.3E+6	
08 August	4.2E+5	1.8E+4	4.2E+3		1.7E+6	
09 August	4.2E+5	1.8E+4	4.2E+3		9.3E+5	
10 August	2.9E+5	1.8E+4	4.1E+3		2.0E+6	

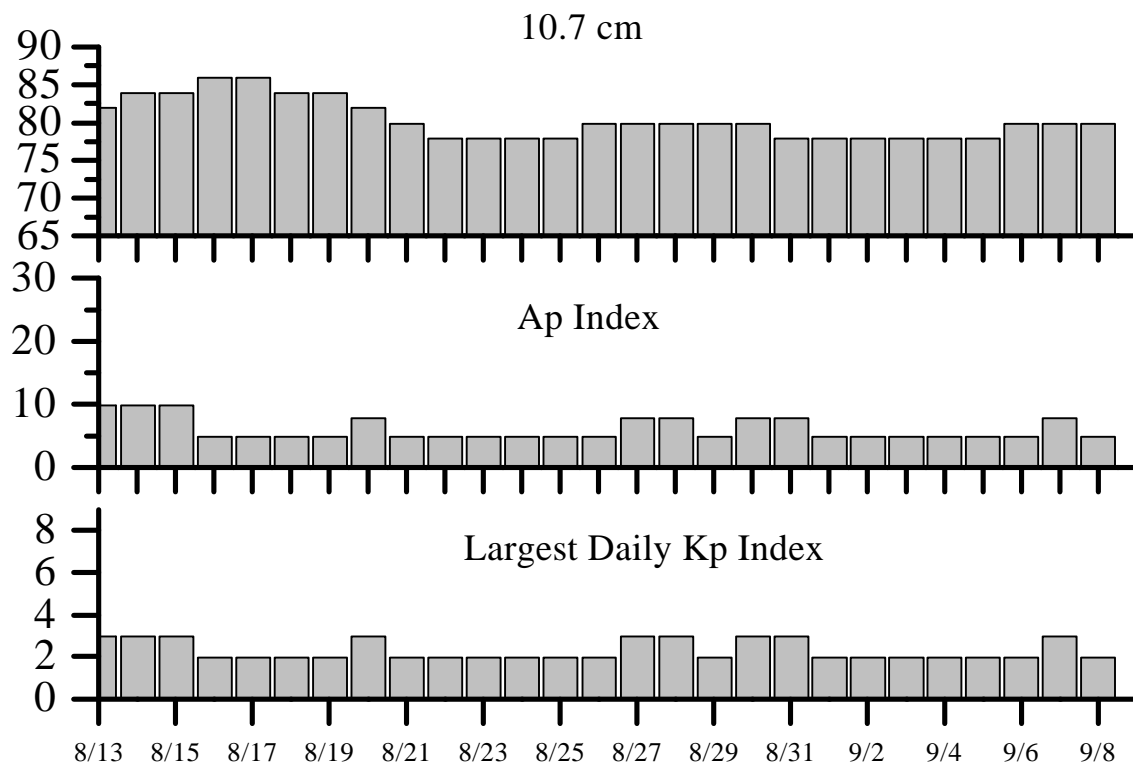
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
04 August	10	4-2-2-3-1-1-3-1	4	2-2-3-2-0-0-0-0	8	3-2-2-3-1-2-3-2
05 August	6	1-2-2-1-1-2-2-2	0	0-1-0-0-0-0-0-0	3	1-1-1-1-0-1-1-1
06 August	5	2-2-0-0-2-2-2-1	*	0-0-0-0-*-0-0-0	4	1-2-0-0-2-3-2-1
07 August	7	1-1-1-1-3-2-2-3	1	1-0-0-0-2-0-0-0	6	1-1-1-2-2-2-2-3
08 August	7	2-2-1-2-3-1-2-1	2	1-0-0-2-2-0-0-0	5	1-2-1-2-2-2-2-2
09 August	10	0-1-3-2-3-2-3-3	*	0-0-2-0-*-1-1-0	7	1-0-2-1-3-3-2-2
10 August	8	2-2-3-2-2-1-2-2	3	1-1-2-3-0-0-1-0	7	2-1-4-2-1-1-2-2

Alerts and Warnings Issued

Date and Time of Issue (UT)	Type of Alert or Warning	Date and Time of Event (UT)
10 Aug 0859	K= 4 observed	10 Aug 06-09





Twenty-seven Day Outlook

Date	Radio Flux	Planetary	Largest	Date	Radio Flux	Planetary	Largest
	10.7 cm	A Index	Kp Index		10.7 cm	A Index	Kp Index
13 Aug	82	10	3	27 Aug	80	8	3
14	84	10	3	28	80	8	3
15	84	10	3	29	80	5	2
16	86	5	2	30	80	8	3
17	86	5	2	31	78	8	3
18	84	5	2	01 Sep	78	5	2
19	84	5	2	02	78	5	2
20	82	8	3	03	78	5	2
21	80	5	2	04	78	5	2
22	78	5	2	05	78	5	2
23	78	5	2	06	80	5	2
24	78	5	2	07	80	8	3
25	78	5	2	08	80	5	2
26	80	5	2				



Energetic Event

Date	Time (UT)		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp Brtns	Location		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	
04 August	No Flares Observed							
05 August	No Flares Observed							
06 August	0603	0605	0614	B4.9	SF	N20W38	8069	
	0919	0925	0934	B1.4				
07 August	0924	0924	0933		SF	N19W55	8069	
	1035	1035	1046		SF	N19W56	8069	
	1117	1121	1123		SF	N19W56	8069	
	1136	1138	1147	B1.1	SF	N19W57	8069	
	1235	1238	1241	B1.4				
	1300	1303	1315	B2.1	SF	N19W57	8069	
	1428	U1420	A1437		SF	N19W57	8069	
	1447	1453	1459		SF	N19W58	8069	
	1723	1724	1730		SF	N19W58	8069	
	1843	1851	1858	B2.8				
08 August	2008	2037	2100	B3.5				
	0905	0909	0914	B1.7				
	1249	1252	1259	B1.8	SF	N19W71	8069	
	B1258	U1259	A1303		SF	N19W73	8069	
	1315	1316	1320		SF	N19W73	8069	
	1442	1445	1447	B1.2				
	1505	1505	1509		SF	N19W71	8069	
09 August	0154	0201	0217	B2.6				
	0722	0727	0731	B2.1				
	0843	0905	0912	B5.2				
	1144	1148	1150	B5.2				
	1210	1211	1220	C1.0	SF	N19W86	8069	
	1254	1302	1306	C3.7				
	1505	1524	1532	C1.1				
	1602	1603	1607	B4.9	SF	N20W82	8069	
	1634	1634	1637	C8.5	SF	N19W85	8069	
	1900	1904	1906	B9.4				
	1913	1917	1923	B3.3				
2341	2350	2355	C3.2					



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 8067

02 Aug	N06E65	051	0010	00	AXX	001	A											
03 Aug	N05E52	050	0000	00	AXX	001	A											
04 Aug	N05E39	050																
05 Aug	N05E26	050																
06 Aug	N05E13	050																
07 Aug	N05E00	050																
08 Aug	N05W13	050																
09 Aug	N05W26	050																
10 Aug	N05W39	050																
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 050

Region 8068

03 Aug	S22E33	069	0030	04	BXO	006	B											
04 Aug	S22E18	071	0020	01	HSX	002	A											
05 Aug	S21E06	070	0020	05	CSO	002	B											
06 Aug	S21W09	072	0010	01	HSX	001	A											
07 Aug	S20W22	072	0010	01	HRX	002	A											
08 Aug	S19W37	072	0000	00	AXX	001	A											
09 Aug	S19W50	072																
10 Aug	S19W63	072																
												0	0	0	3	0	0	0

Still on Disk.

Absolute heliographic longitude: 070

Region 8069

05 Aug	N21W35	111	0010	03	BXO	006	B											
06 Aug	N21W48	111	0100	06	DAO	011	B											
07 Aug	N21W62	112	0100	09	DAO	014	B											
08 Aug	N23W74	109	0110	09	DSO	008	B											
09 Aug	N21W86	108	0030	06	CSO	005	B	2										
												2	0	0	16	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 111



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 8070

05 Aug	S20E53	023	0000	00	AXX	001	A											
06 Aug	S19E39	024	0010	03	BXO	003	B											
07 Aug	S19E25	025	0030	06	DSO	009	B											
08 Aug	S20E11	024	0060	08	DAO	012	B											
09 Aug	S20W01	023	0050	09	CSO	012	B											
10 Aug	S20W15	024	0030	09	CSO	007	B											

Still on Disk.

Absolute heliographic longitude: 023

Region 8071

08 Aug	N21E62	333	0060	04	CRO	004	B											
09 Aug	N26E49	333	0010	06	BXO	003	B											
10 Aug	N26E37	332	0010	04	BXO	004	B											

Still on Disk.

Absolute heliographic longitude: 332

Region 8072

09 Aug	N21E21	001	0000	00	AXX	001	A											
10 Aug	N21E08	001																

Still on Disk.

Absolute heliographic longitude: 001



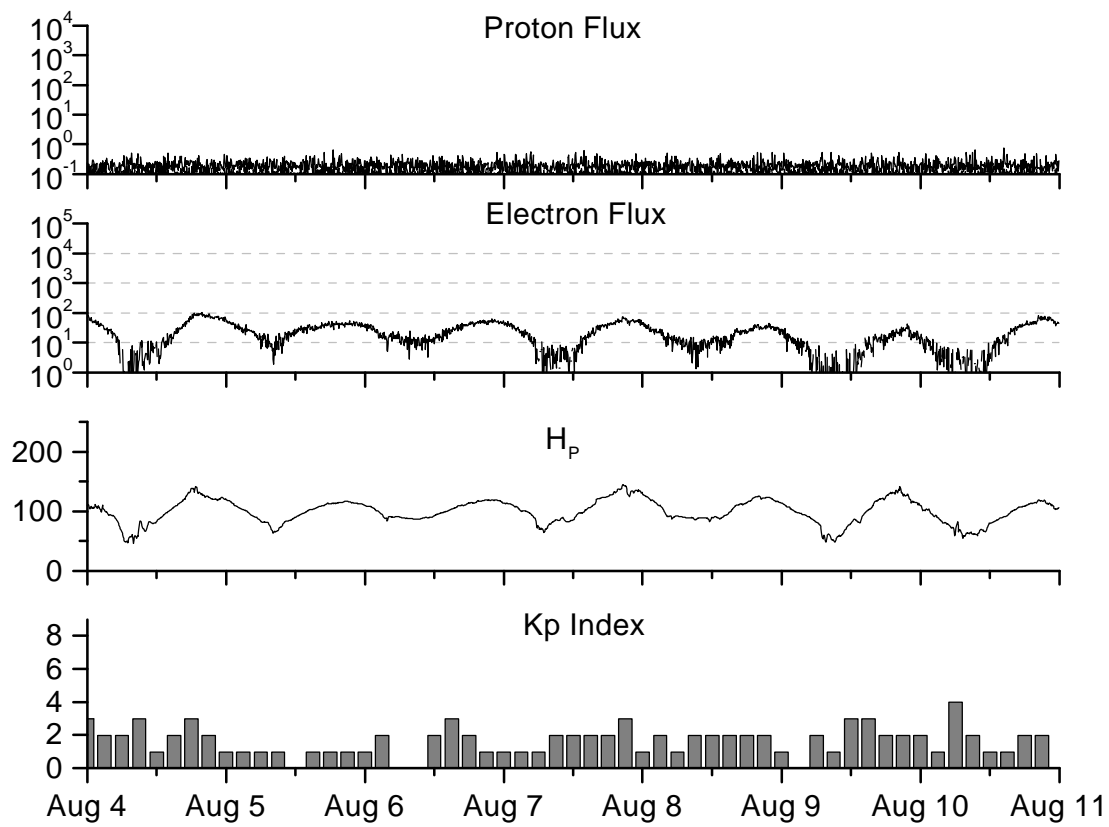
**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
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	72.7	72.1	11	09.9
April	08.5	04.8	0.60	13.6	08.6	69.3	71.6	11	09.7
May	11.8	05.5	0.47	12.9	08.1*	72.1	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*	0.72*	15.4	10.0*	78.7	73.0*	08	09.1*
December	21.1	12.7*	0.60*	16.2	10.6*	77.8	73.3*	07	09.3*
1997									
January	09.0	06.5*	0.72*	16.5	10.7*	74.0	73.5*	09	09.4*
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*	
June	22.1	13.1*	0.59*			72.4*		08*	
July	17.0	10.5*	0.62*			71.2*		07*	

*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 28 July 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.

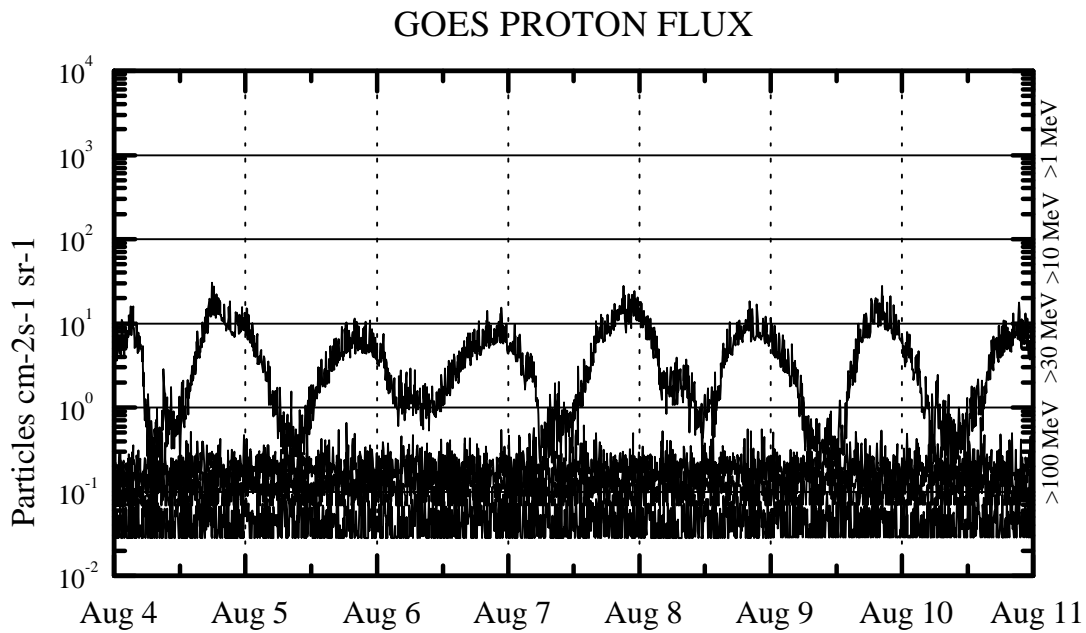
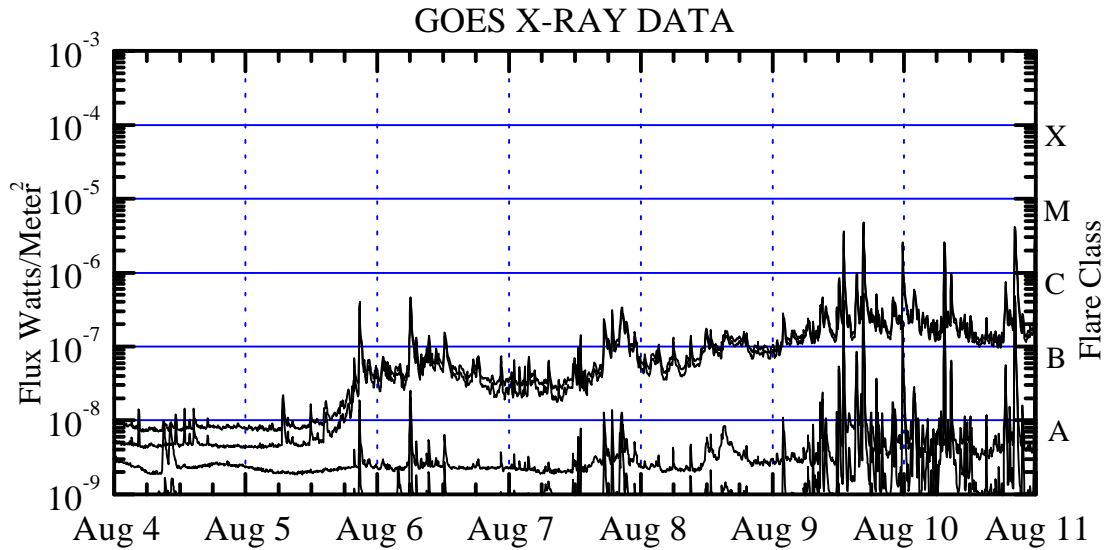
Electrons plot contains the five minute averaged integral electron flux (electrons/ cm² -sec-sr) with energies greater than 2 MeV at GOES-9.

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.



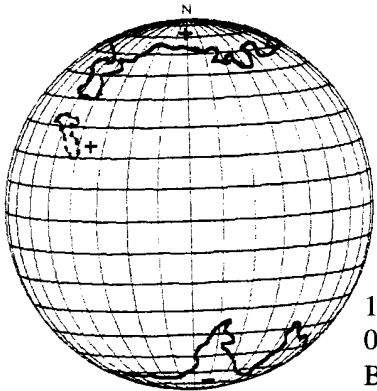


Weekly GOES Satellite X-ray and Proton Plots

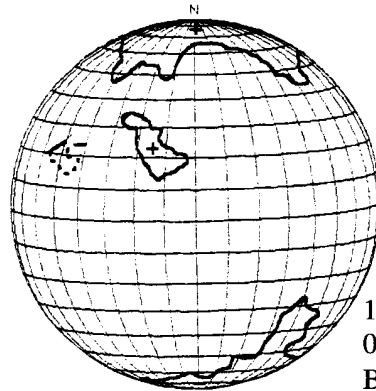
Proton plot contains the five minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-9 (W135) for each of the energy thresholds: >1 , >10 , >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm²-sec-sr) at greater than 10 MeV.

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.

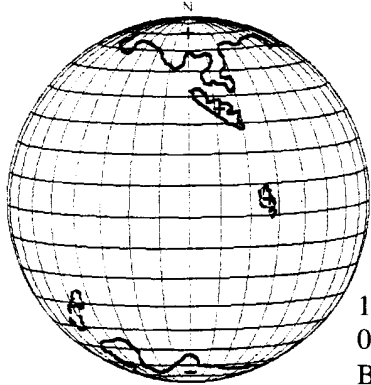




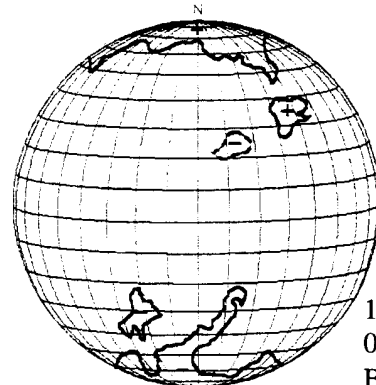
1518UT
07/23/97
B=+5°



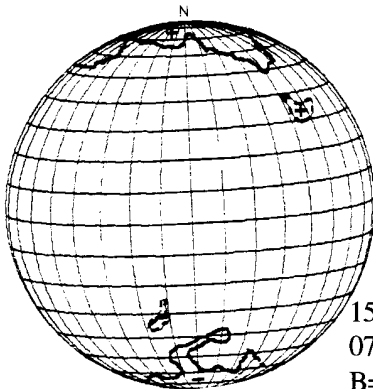
1943UT
07/25/97
B=+5°



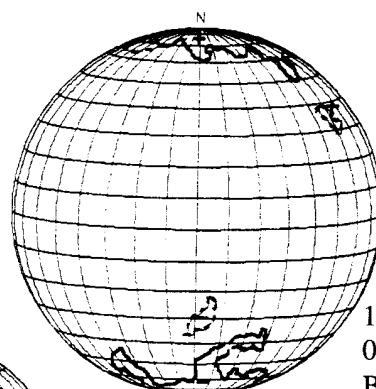
1626UT
07/28/97
B=+6°



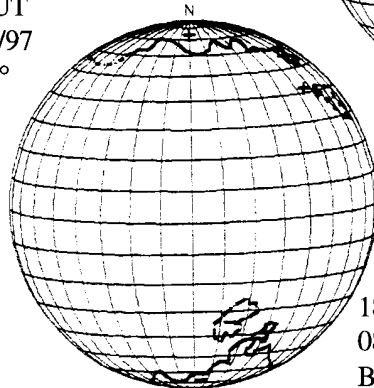
1721UT
07/30/97
B=+6°



1529UT
07/31/97
B=+6°



1911UT
08/01/97
B=+6°



1813UT
08/02/97
B=+6°

No Data
7/21, 7/22, 7/24,
7/26, 7/27, 7/29

Coronal hole maps from the National Solar Observatory, Kitt Peak, Arizona

These maps are reproductions of the coronal hole contours as derived from the Kitt Peak 1083 nm raw data images. These are preliminary data, where solid (and dashed) lines are used to indicate more (and less) confidence in an inference and are printed whenever they are available at SWO.

