

Space Weather Highlights
18 August 1997 - 24 August 1997

Solar activity was very low. Isolated B-class X-ray flares occurred, a few of which were associated with small optical subflares.

Solar wind data were received from the WIND spacecraft a few hours per day. Velocities ranged from 330 - 450 km/sec. Particle densities generally ranged 03 - 13 p/cc with a peak to 18 p/cc noted on 24 August. Bz hovered about zero, ranging from minus 06 to plus 06 nT (GSM). Solar sector orientation was mostly away (phi angle near 135 degrees).

There were no significant proton enhancements observed at satellite altitudes.

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

The geomagnetic field was mostly quiet to unsettled. However, a brief episode of active conditions occurred at all latitudes during 21/0300 - 0600UT.

Space Weather Forecast
27 August 1997 - 22 September 1997

Solar activity is expected to be very low to 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	Sun spot No.	Sunspot Area	X-ray Background	X-ray Flux			Flares				
	10.7 cm		(10 ⁶ hemi.)		C	M	X	S	1	2	3	4
18 August	76	11	60	A2.7	0	0	0	0	0	0	0	0
19 August	74	11	60	A2.1	0	0	0	0	0	0	0	0
20 August	75	11	50	A1.6	0	0	0	0	0	0	0	0
21 August	75	11	60	A2.4	0	0	0	1	0	0	0	0
22 August	76	11	60	A5.5	0	0	0	0	0	0	0	0
23 August	77	11	20	A9.5	0	0	0	0	0	0	0	0
24 August	78	0	0	A6.6	0	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
18 August	3.2E+5	1.8E+4	4.0E+3		2.7E+7	
19 August	2.6E+5	1.9E+4	4.5E+3		2.2E+7	
20 August	3.8E+5	1.9E+4	4.5E+3		2.0E+7	
21 August	4.5E+5	1.9E+4	4.6E+3		1.8E+7	
22 August	2.7E+5	1.9E+4	4.7E+3		4.2E+6	
23 August	3.5E+5	1.8E+4	4.5E+3		4.6E+6	
24 August	7.6E+5	1.8E+4	4.4E+3		5.0E+6	

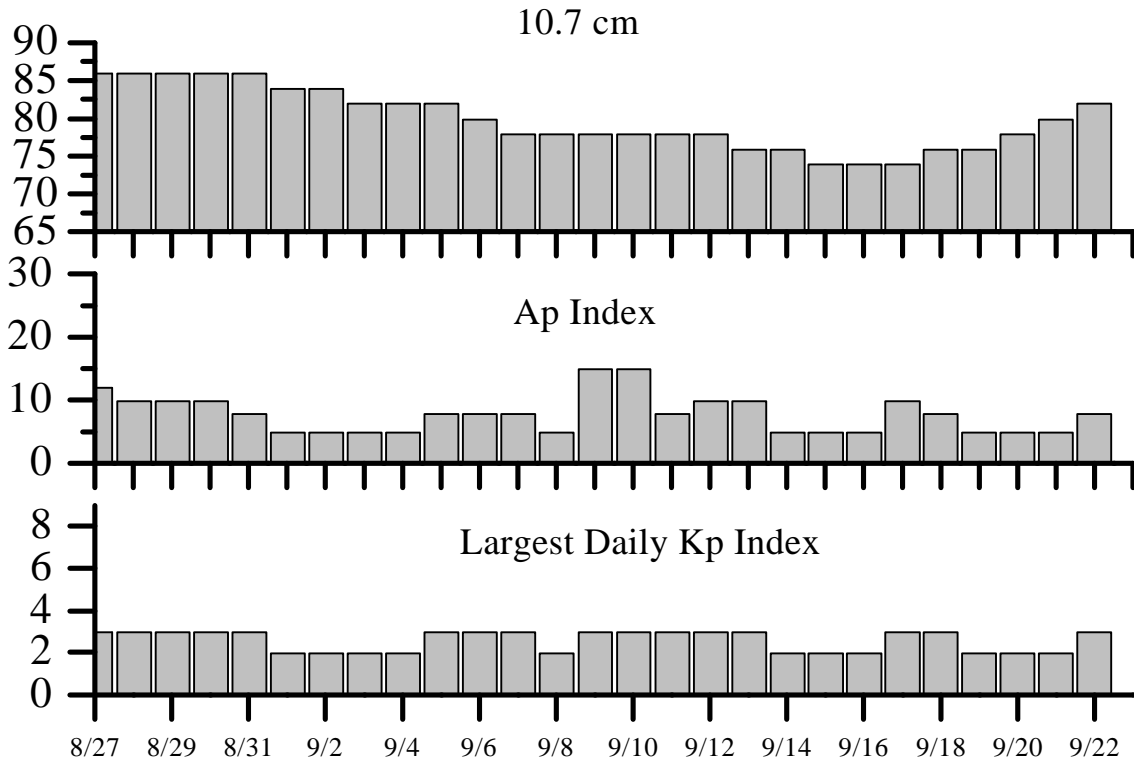
Daily Geomagnetic Data

Date	Middle Latitude		High Latitude		Estimated	
	Fredericksburg		College		Planetary	
	A	K-indices	A	K-indices	A	K-indices
18 August	8	2-2-2-2-2-3-2-1	6	1-0-1-1-4-2-1-1	6	1-1-2-2-2-3-2-2
19 August	5	2-2-1-1-2-1-1-1	0	1-0-0-0-0-0-0-0	5	2-2-0-1-2-2-2-1
20 August	5	1-2-2-1-1-1-2-2	3	0-2-1-2-1-0-1-2	5	1-2-2-1-2-1-2-2
21 August	9	2-4-1-2-2-1-2-2	*	2-3-0-5-*-0-*-1	9	3-4-0-2-2-2-2-3
22 August	8	3-3-1-1-3-2-1-1	4	1-1-1-2-3-2-0-0	7	3-3-1-1-2-2-2-2
23 August	4	2-1-0-0-1-1-2-2	0	0-0-0-0-1-0-0-0	4	1-1-0-0-1-2-1-2
24 August	8	3-2-1-2-2-1-3-2	2	0-1-0-1-1-0-2-0	6	2-1-1-2-2-1-2-3

Alerts and Warnings Issued

Date and Time of Issue (UT)	Type of Alert or Warning	Date and Time of Event (UT)
18 Aug 0009	>2 MeV Electron Event in Progress \geq 1000pfu	17 Aug
21 Aug 0600	K = 4 observed	21 Aug 03-06





Twenty-seven Day Outlook

Radio Flux	Planetary	Largest		Radio Flux	Planetary	Largest	
Date	10.7 cm	A Index	Kp Index	Date	10.7 cm	A Index	Kp Index
27	86	12	3	10 Sep	78	15	3
28	86	10	3	11	78	8	3
29	86	10	3	12	78	10	3
30	86	10	3	13	76	10	3
31	86	8	3	14	76	5	2
01 Sep	84	5	2	15	74	5	2
02	84	5	2	16	74	5	2
03	82	5	2	17	74	10	3
04	82	5	2	18	76	8	3
05	82	8	3	19	76	5	2
06	80	8	3	20	78	5	2
07	78	8	3	21	80	5	2
08	78	5	2	22	82	8	3
09	78	15	3				



Energetic Event

Date	Time (UT)			X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ 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	
18 August	1019	1023	1027	B1.1				
19 August	No Flares Observed							
20 August	No Flares Observed							
21 August	0433	0433	0438	B3.6	SF	N29W34		8074
22 August	No Flares Observed							
23 August	1413	1434	1456	B3.1				
24 August	0626	0632	0642	B1.1				
	1834	1835	1838	B2.4	SF	S23E72		
	2116	2151	2203	B3.5				

Region Summary

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

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											
11 Aug	N25E20	335	0030	06	CSO	006	B											
12 Aug	N26E07	335	0030	05	CAO	008	B											1
13 Aug	N26W07	336	0030	05	CAO	006	B											1
14 Aug	N26W22	337	0010	01	HRX	002	A	1										1
15 Aug	N26W36	338	0010	03	BXO	002	B											
16 Aug	N26W49	338																
17 Aug	N26W62	338																
18 Aug	N26W75	338																
19 Aug	N26W88	338																

1 0 0 3 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 335



Region Summary - continued.

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	4
<i>Region 8072</i>														
09 Aug	N21E21	001	0000	00	AXX	001	A							
10 Aug	N21E08	001												
11 Aug	N21W05	001						1			1			
12 Aug	N21W18	001												
13 Aug	N21W31	001												
14 Aug	N21W44	001												
15 Aug	N21W57	001												
16 Aug	N21W70	001												
											1	0	0	1
											0	0	0	0
											0	0	0	0

Died on Disk.

Absolute heliographic longitude: 001

<i>Region 8073</i>														
11 Aug	N14E74	281	0090	03	HSX	001	A							
12 Aug	N15E61	281	0070	02	HSX	001	A							
13 Aug	N14E49	280	0060	02	HSX	001	A							
14 Aug	N14E36	279	0060	02	HSX	001	A							
15 Aug	N15E23	279	0070	02	HSX	001	A							
16 Aug	N15E08	281	0070	02	HSX	001	A							
17 Aug	N15W04	280	0060	02	HSX	001	A							
18 Aug	N14W17	280	0060	02	HSX	001	A							
19 Aug	N14W31	280	0060	02	HSX	001	A							
20 Aug	N14W44	280	0050	02	HSX	001	A							
21 Aug	N13W60	283	0060	01	HSX	001	A							
22 Aug	N13W71	281	0060	02	HSX	001	A							
23 Aug	N13W85	282	0020	01	AXX	001	A							
24 Aug	N13W98	282												
											0	0	0	0
											0	0	0	0
											0	0	0	0

Still on Disk.

Absolute heliographic longitude: 280



Region Summary - continued.

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	4
<i>Region 8074</i>														
11 Aug	N26E75	280	0090	02	HSX	001	A							
12 Aug	N26E63	279	0030	02	HSX	001	A				1			
13 Aug	N26E52	277	0040	04	CSO	004	B							
14 Aug	N27E38	277	0030	02	HSX	002	A							
15 Aug	N27E27	275	0030	05	CSO	005	B							
16 Aug	N27E11	278	0020	01	HRX	001	A							
17 Aug	N27W02	278	0000	00	AXX	002	A							
18 Aug	N27W15	278												
19 Aug	N27W28	278												
20 Aug	N27W41	278												
21 Aug	N27W54	278									1			
22 Aug	N27W67	278												
23 Aug	N27W80	278												
24 Aug	N27W93	278												
														0 0 0 2 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 278

<i>Region 8075</i>														
15 Aug	N29E46	256	0000	00	AXX	001	A							
16 Aug	N29E31	258	0010	00	AXX	001	A							
17 Aug	N29E18	258												
18 Aug	N29E05	258												
19 Aug	N29W08	258												
20 Aug	N29W21	258												
21 Aug	N29W34	258												
22 Aug	N29W47	258												
23 Aug	N29W60	258												
24 Aug	N29W73	258												
														0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 258



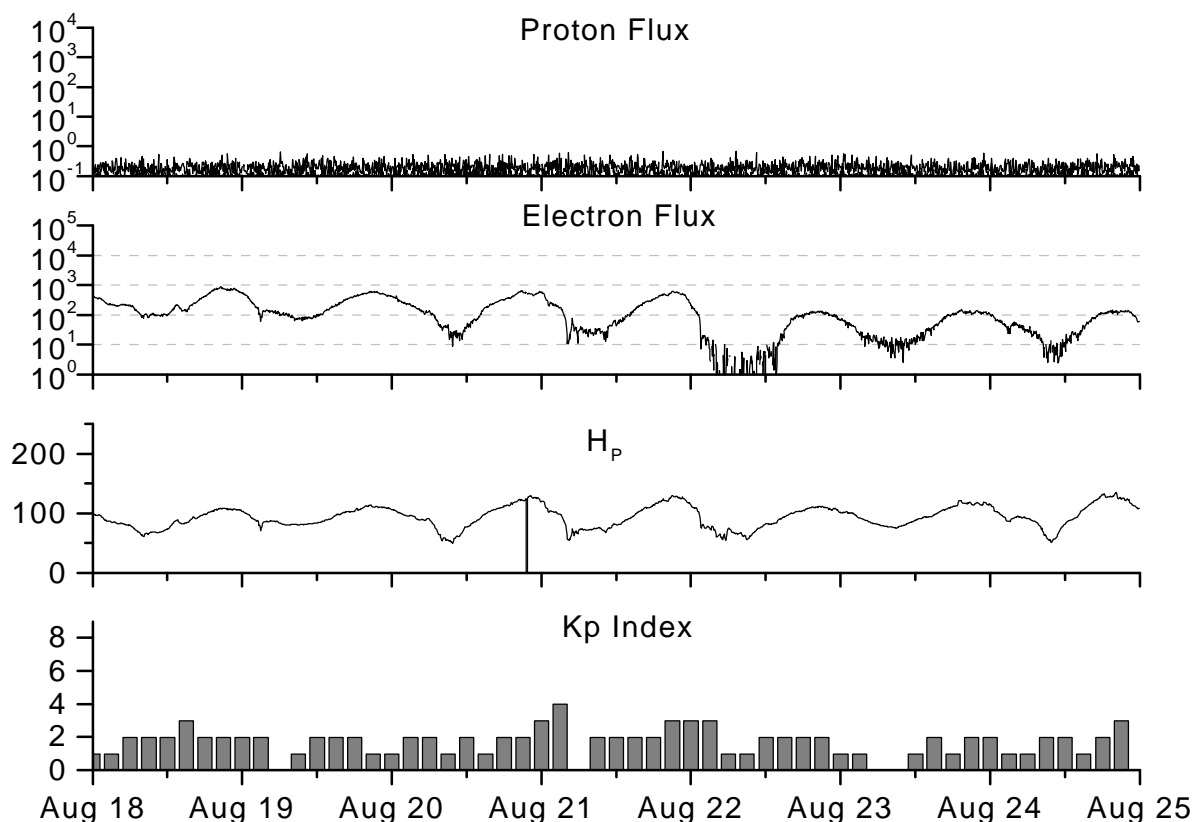
**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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 18 Aug 1997

Protons plot contains the five minute averaged integral proton flux (protons/ $\text{cm}^2\text{-sec-sr}$) as measured by GOES-9 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

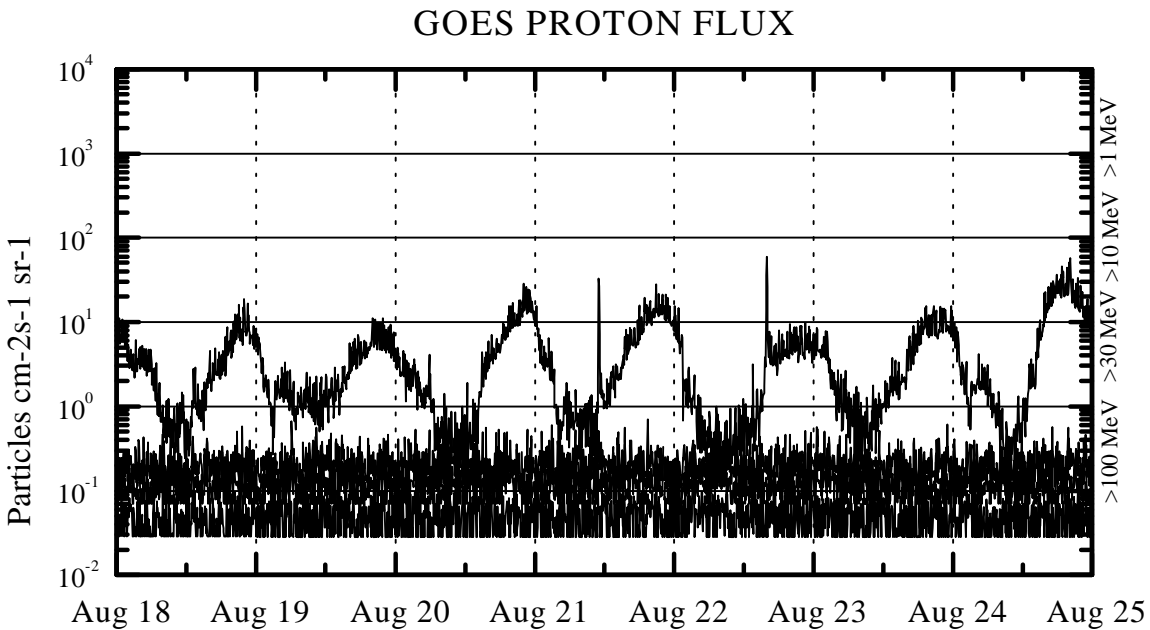
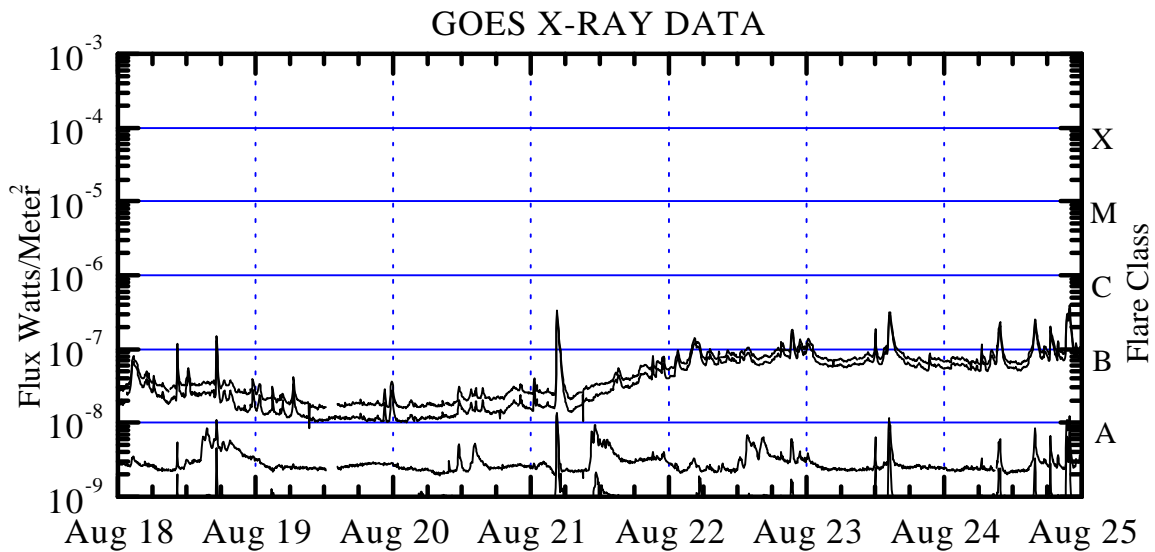
Electrons plot contains the five minute averaged integral electron flux (electrons/ $\text{cm}^2\text{-sec-sr}$) with energies greater than 2 MeV at GOES-9.

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.



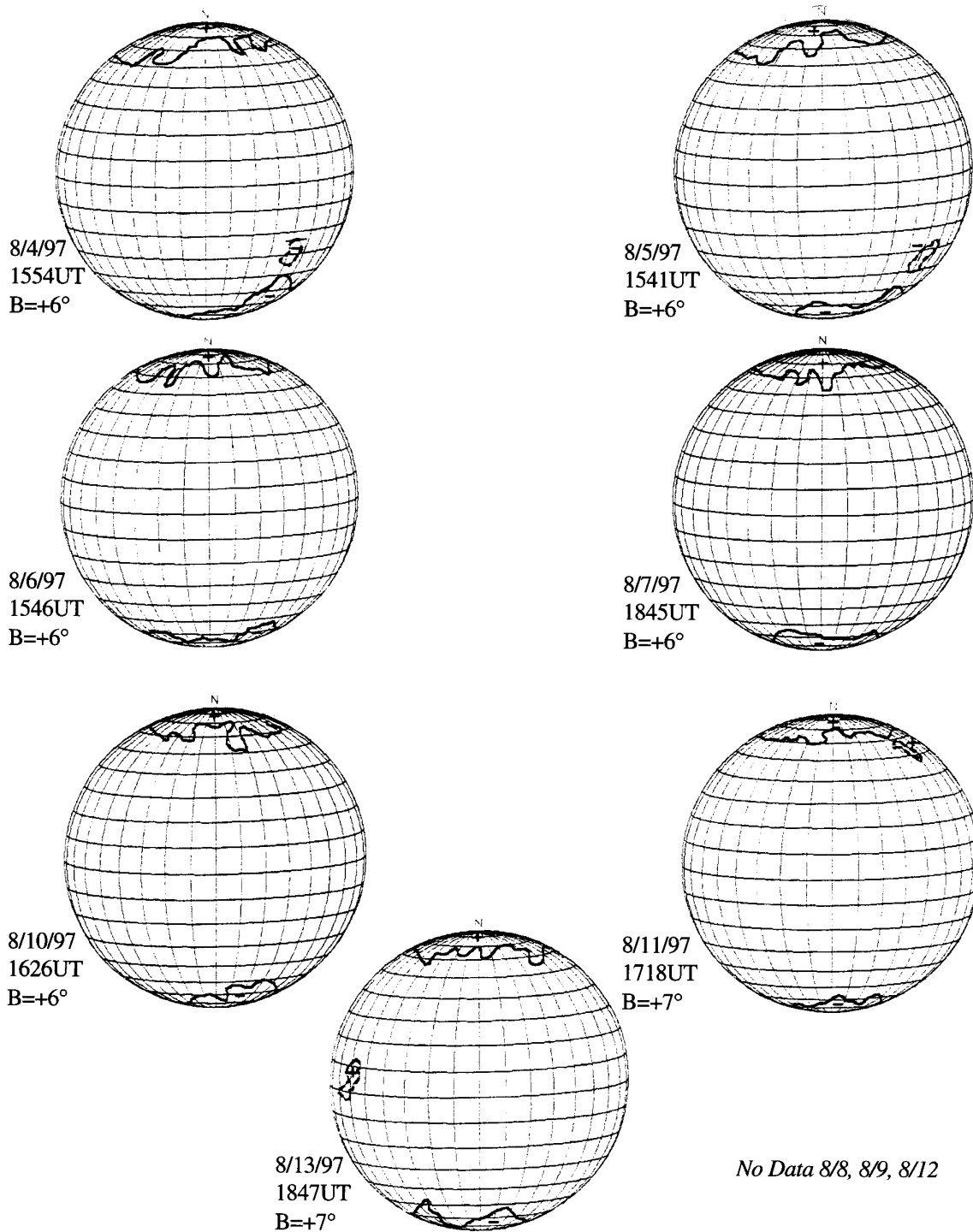


Weekly GOES Satellite X-ray and Proton Plots

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.

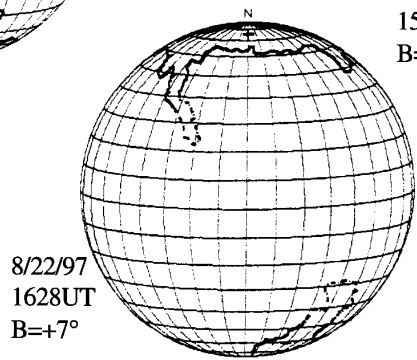
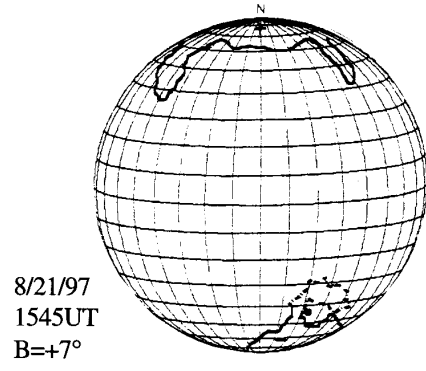
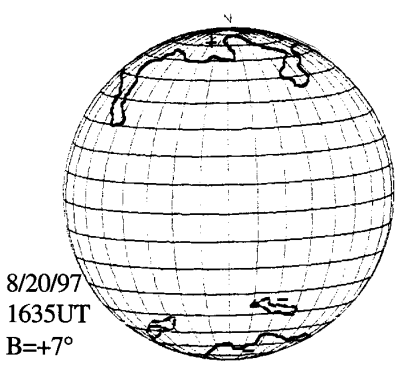
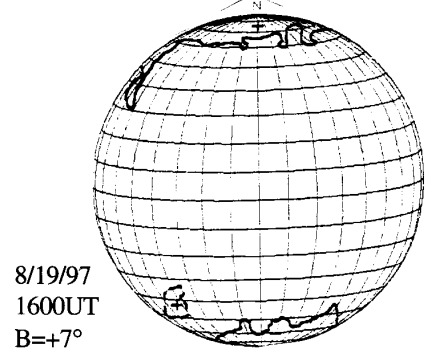
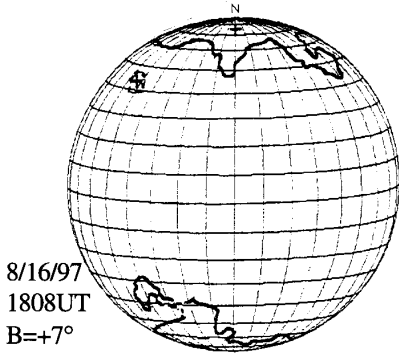
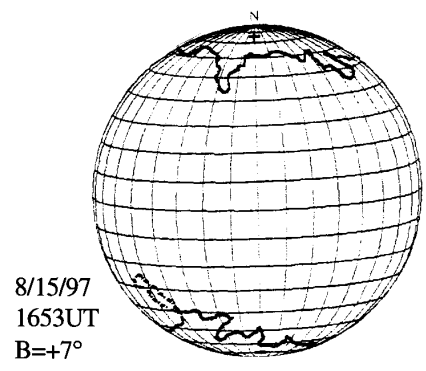
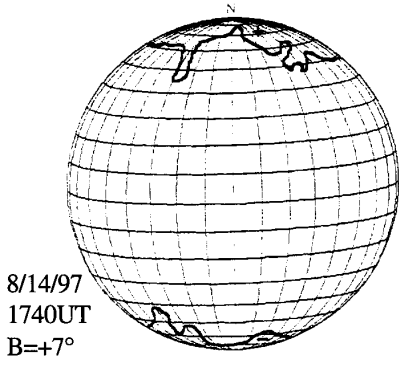




Coronal hole maps from the National Solar Observatory, Kitt Peak, Arizona

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.





No Data 8/17, 8/18, 8/23, 8/24

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