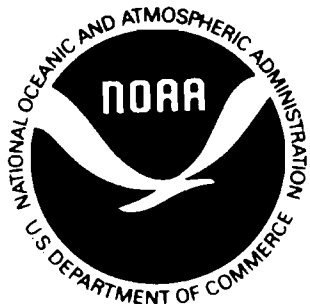




U.S. DEPARTMENT OF COMMERCE

William M. Daley, Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

D. James Baker, Administrator

NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

Gregory W. Withee, Assistant Administrator

OCTOBER 1999 NUMBER 662 - Part I

Solar-Geophysical Data prompt reports

Data for August, September 1999 and Late Data

International Standard Serial Number: 0038-0911

Library of Congress Catalog Number: 79-640375 //r81

NATIONAL GEOPHYSICAL DATA CENTER

Michael S. Loughridge, Director

Boulder, Colorado

Subscription information is on the inside back cover.

SOLAR-GEOPHYSICAL DATA

Number 662

(Issued in Two Parts)

Editor: Helen E. Coffey

Chief: Herbert W. Kroehl
Solar-Terrestrial Physics Division

Staff: Edward H. Erwin
Susan E. Wahl

CONTENTS

PART I (PROMPT REPORTS)	Page
DETAILED INDEX FOR 1999	2
DATA FOR SEPTEMBER 1999	3- 36
DATA FOR AUGUST 1999	37-166
 PART II (COMPREHENSIVE REPORTS)	 Page
DETAILED INDEX FOR 1999	2
DATA FOR APRIL 1999	3- 31
MISCELLANEOUS DATA	33-39
Total Solar Irradiance from VIRGO (Variability of solar Irradiance and Gravity Oscillations) onboard SOHO Jan 96-Dec 98	

DETAILED INDEX OF OBSERVATIONS PUBLISHED IN SOLAR-GEOPHYSICAL DATA

CODE	KIND OF OBSERVATION	FEB 99	MAR	APR	MAY	JUN	JUL	AUG	SEP
A.	SOLAR AND INTERPLANETARY								
A.1	Sunspot Drawings	656A 48	657A 44	658A 52	659A 54	660A 56	661A 60	662A 44	
A.2aa	International Provisional Sunspot Numbers	655A 24	656A 26	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25
A.2c	American Sunspot Numbers	655A 24	656A 26	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25
A.3a	Mt. Wilson Magnetograms	656A 48	657A 44	658A 52	659A 54	660A 56	661A 60	662A 44	
A.3b	Sunspot Mag Class and Regions	656A 98	657A104	658A106	659A112	660A111	661A116	662A102	
A.3c	Kitt Peak Magnetograms	656A 48	657A 44	658A 52	659A 54	660A 56	661A 60	662A 44	
A.3d	Mean Solar Magnetic Field (Stanford)	655A 35	656A 39	657A 35	658A 41	659A 43	660A 45	661A 43	662A 35
A.3e	Stanford Magnetograms	656A 48	657A 44	658A 52	659A 54	660A 56	661A 60	662A 44	
A.4	H-alpha Filtergrams	656A 48	657A 44	658A 52	659A 54	660A 56	661A 60	662A 44	
A.5d	Photometric Ca II Faculae (San Fernando)	May 88-Dec 91 in 630B 37; Jan 92-Dec 96 in 631B 22							
A.6c	Stanford Solar Mag Field Synoptic Maps	656A 42	657A 38	658A 46	659A 48	660A 50	661A 48	662A 38	
A.6d	Kitt Peak Solar Mag Field Synoptic Maps	656A 47	657A 43	658A 51	659A 53	660A 55	661A 58	662A 43	
A.6f	Active Prominences and Filaments	660B 36	661B 36	662B 28					
A.6g	Sac Peak Coronal Line Synoptic Maps	656A 44	657A 40	658A 48	659A 50	660A 52	661A 52	662A 40	
A.6h	Photometric White Light (San Fernando)	Aug 95-Jun 96 in 624B 24; Jul-Dec 96 in 630B 32							
A.7h	Coronal Line Emission (Sac Peak)	656A 48	657A 44	658A 52	659A 54	660A 56	661A 60	662A 44	
A.7j	Coronal Hole Daily Maps (NSO/KP)	656A 95	657A100	658A102	659A 85	660A106	661A 91	662A 76	
A.7k	Coronal Index (Slovak Academy)	1939-1996 in 644B 28							
A.8aa	2800 MHz- Solar Flux (Penticton)	655A 24	656A 26	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25
A.8ac	2800 MHz- Adj. Solar Flux (Penticton)	655A 24	656A 26	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25
A.8g	Adjusted Daily Solar Fluxes (Learmonth)	655A 24	656A 26	657A 24	658A 27	659A 27	660A 27	661A 26	662A 25
A.10g	Nancay Radioheliograph - 164&327 MHz	656A123	657A134	658A133	660B 42	660A170	661A166	662A148	
A.10h	Nobeyama Radioheliograph Maps - 17 GHz	656A 90	657A 94	658A 97	659A106	660A101	661A110	662A 96	
A.11g	Solar X-ray GOES (graphs/event table)	660B 28	661B 27	662B 20					
A.11k	Solar UV NOAA-9	May 86-Dec 88 in 566B 84							
A.11l	Solar UV NIMBUS7	Nov 78-Oct 84 in 542B 82							
A.11m	Solar UV SOLSTICE (UARS)	Oct 91-Sep 94 in 607B 46							
A.11n	Solar YOHKOH Soft X-ray Images	656A 76	657A 75	658A 82	659A 90	660A 86	661A 94	662A 80	
A.11o	Solar UV SUSIM (UARS)	Oct 91-Jan 97 in 629B 30							
A.12g	Solar Particles (GOES-7)	655A 4	656A 4	657A 4	658A 4	659A 4	660A 4	661A 4	662A 4
A.12h	Interplanetary Particles (SAMPEX)	Jul 95-Dec 96 in 632B 22; Jan-Dec 97 in 647B 33							
A.13e	Solar Plasma (IMP-8)	660B 37	661B 37	662B 29					
A.16c	ERBS, NOAA-9 & -10 Solar Irradiance	ERBS Jan-Dec 96 in 632B 64; Jan-Oct 97 in 639B 58							
A.16d	UARS Solar Irradiance	Oct 91-Dec 97 in 642B 32							
A.17c	Inferred Interplanetary Mag Field	1984-1988 data in 542A168; 1989-Jan 94 in 611A118							
A.17	IMP-8 Interplanetary Mag Field	660B 38	661B 38	662B 30					
C.	SOLAR FLARE-ASSOCIATED EVENTS								
C.1a	H-alpha Flares	655A 27	656A 29	657A 27	658A 30	659A 30	660A 30	661A 29	662A 28
C.1ba	H-alpha Flare Groups	660B 4	661B 4	662B 4					
C.1d	Flare Patrol Observations	660B 14	661B 16	662B 12					
C.1h	H-alpha Flare Index (ImpxDur)	Jan 86-Oct 96 in 635B 24; Jan 76-Dec 85 in 639B 26							
C.3	Radio Bursts Fixed Frequency	660B 16	661B 18	662B 14					
C.3	Radio Bursts Fixed Frequency Selected	655A 33	656A 37	657A 33	658A 39	659A 41	660A 43	661A 40	662A 33
C.4	Radio Bursts Spectral	657B 46	657A120	658A121	659A133	660A146	661A142	662A124	
C.6	Sudden Ionospheric Disturbances	656A109	657A118	658A119	659A130	660A142	661A139	662A120	
D.	GEOMAGNETIC EVENTS								
D.1a	Geomagnetic Indices	656A133	657A141	658A140	659A161	660A181	661A176	662A158	
D.1ba	27-day Chart of Kp Indices	656A135	657A143	658A142	659A163	660A183	661A178	662A160	
D.1cb	Monthly Mean aa Indices	656A136	657A144	658A143	659A164	660A184	661A179	662A161	
D.1d	Principal Magnetic Storms	656A140	657A148	658A147	659A169	660A188	661A184	662A166	
D.1f	Sudden Commencements/Flare Effects	656A141	657A149	658A148	659A170	660A189	661A185	662A167	
D.1g	Equatorial Indices Dst	656A138	657A146	658A145	659A166	660A186	661A181	662A163	
D.1i	Polar Cap (PC) Index	656A139	657A147	658A146	659A167	660A187	661A182	662A164	
F.	COSMIC RAYS								
F.1b	Cosmic Ray Neutron Cts (Climax)	656A125	657A136	658A135	659A153	660A173	661A168	662A150	
F.1h	Cosmic Ray Neutron Cts (Thule)								
F.1i	Cosmic Ray Neutron Cts (Kiel)	656A125	657A136	658A135	659A153	660A173	661A168	662A150	
F.1n	Cosmic Ray Neutron Cts (Beijing)	656A125	657A136	658A135	659A153	660A173	661A168	662A150	
F.1m	Cosmic Ray Neutron Cts (Haleakala)	656A125	657A136	658A135	659A153	660A173	661A168	662A150	
F.1o	Cosmic Ray Neutron Cts (Moscow)	656A125	657A136	658A135	659A153	660A173	661A168	662A150	
F.1p	Cosmic Ray Neutron Cts (Calgary)	656A125	657A136	658A135	659A153	660A173	661A168	662A150	
F.1r	Cosmic Ray Neutron Cts (Goose Bay)	656A125	657A136	658A135	659A153	660A173	661A168	662A150	
H.	MISCELLANEOUS								
H.60	ISES Alert Periods	655A 18	656A20	657A 19	658A 20	659A 19	660A 20	661A 20	662A 19

The entry "656A 48" under Feb 99, for example, means that the sunspot drawings for Feb 99 appear in SOLAR-GEOPHYSICAL DATA No. 656, Part I, and that they begin on page 48. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

CONTENTS

Prompt Reports

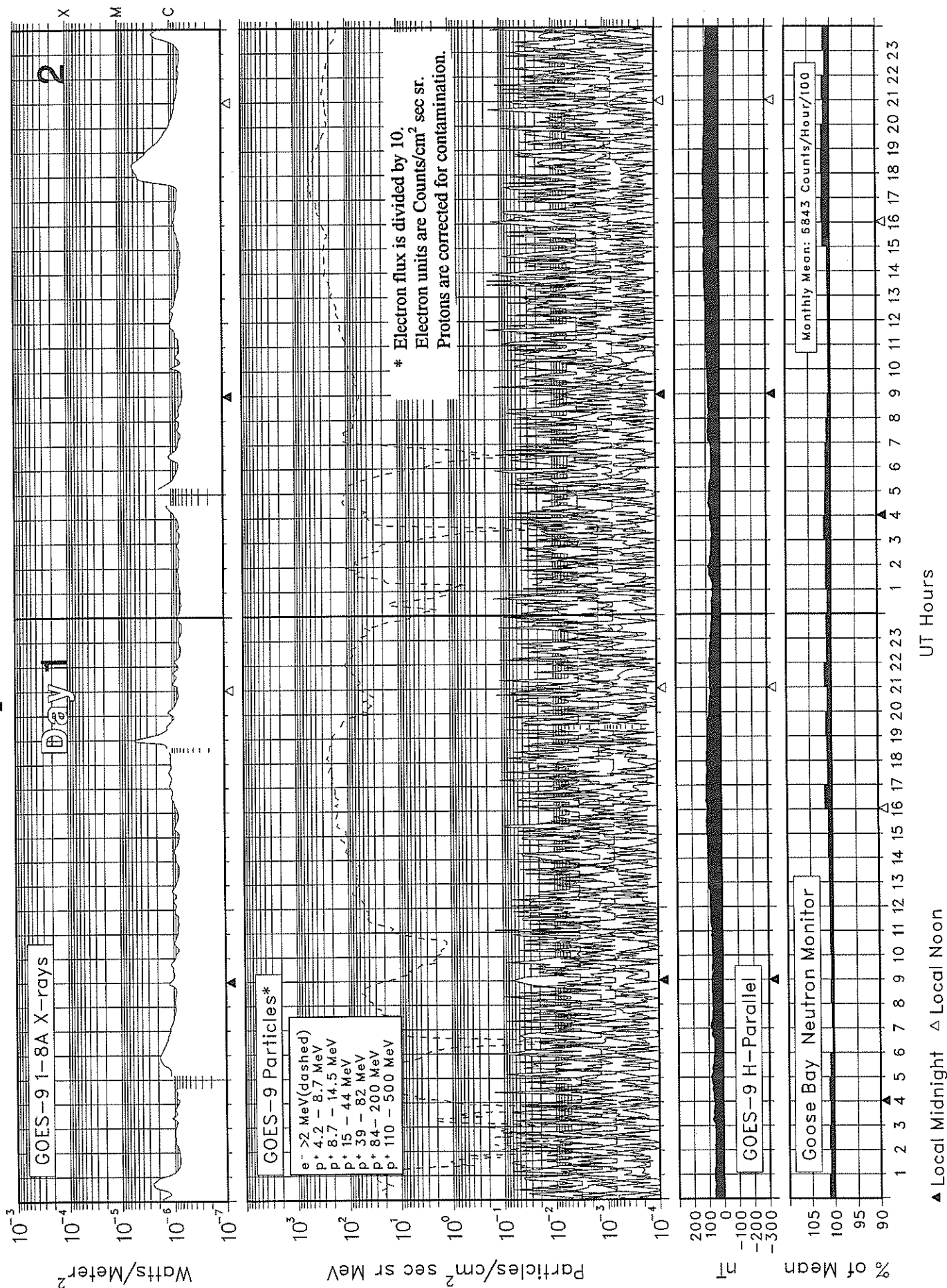
Number 662 Part I

DATA FOR SEPTEMBER 1999

	Page
SOLAR-TERRESTRIAL ENVIRONMENT	4-18
Plots of GOES satellite X-rays, Particles and Magnetometer data with ground-based Goose Bay Neutron Monitor	
ISES ALERT PERIODS (Advance and Worldwide)	19-22
SOLAR ACTIVITY INDICES	
Daily Sunspot Numbers (12 Months)	23
Daily 2800 MHz Solar Flux (12 Months)	24
Daily Solar Indices (Sunspot Numbers and Solar Flux)	25
Smoothed Observed and Predicted Sunspot Numbers	26
Graph and Table of Monthly Mean Sunspot Numbers 1950-present	27
SOLAR FLARES	
H-alpha Solar Flares	28-32
Intervals of No Flare Patrol (See 6-month late chart in Comprehensive Reports.)	
SOLAR RADIO EMISSION	
Selected Fixed Frequency Events	33
Selected Bursts (None reported.)	
STANFORD MEAN SOLAR MAGNETIC FIELD Graph	34
Table	35
GOES-8 Daily Electron Fluence	36

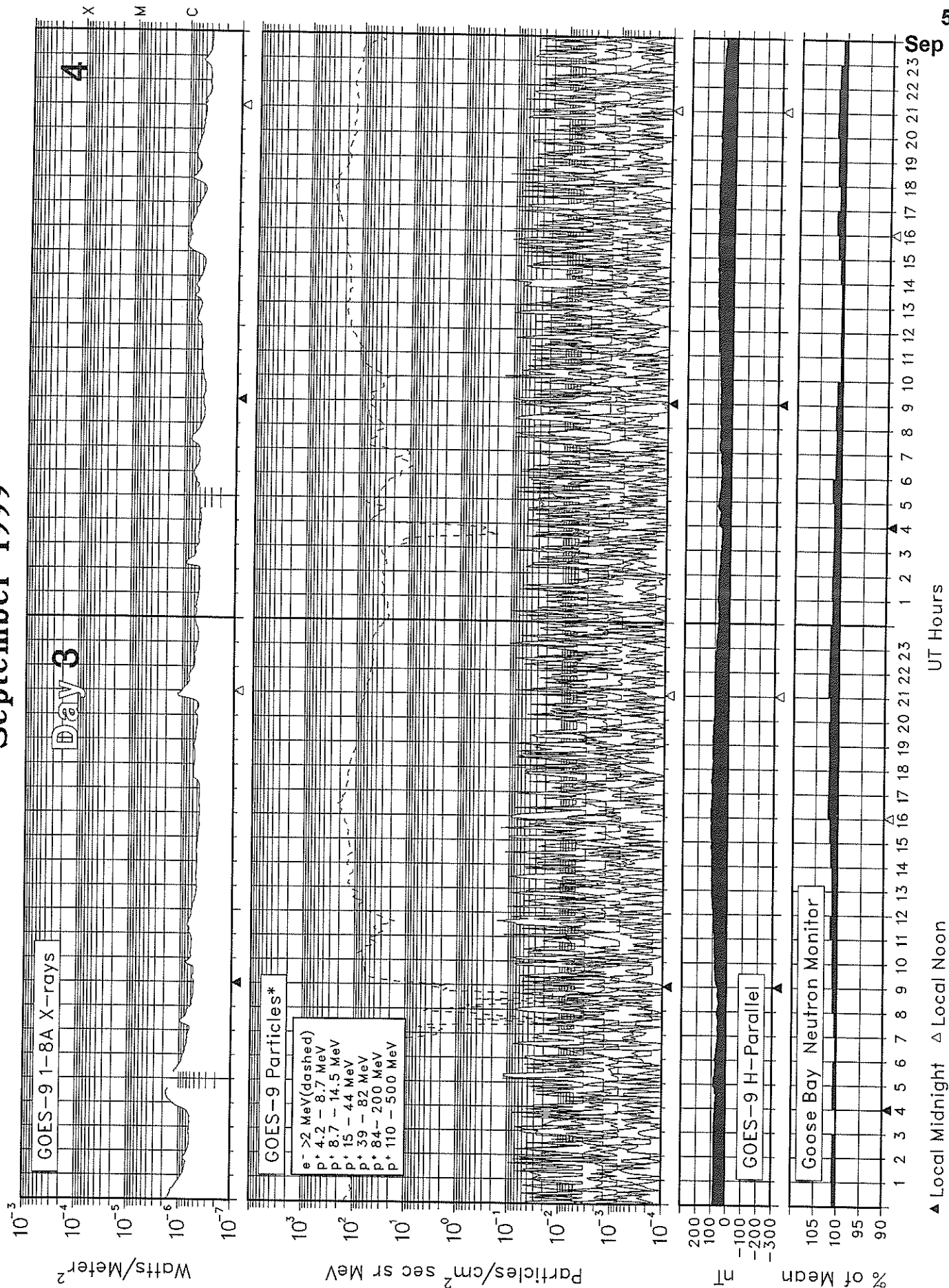
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



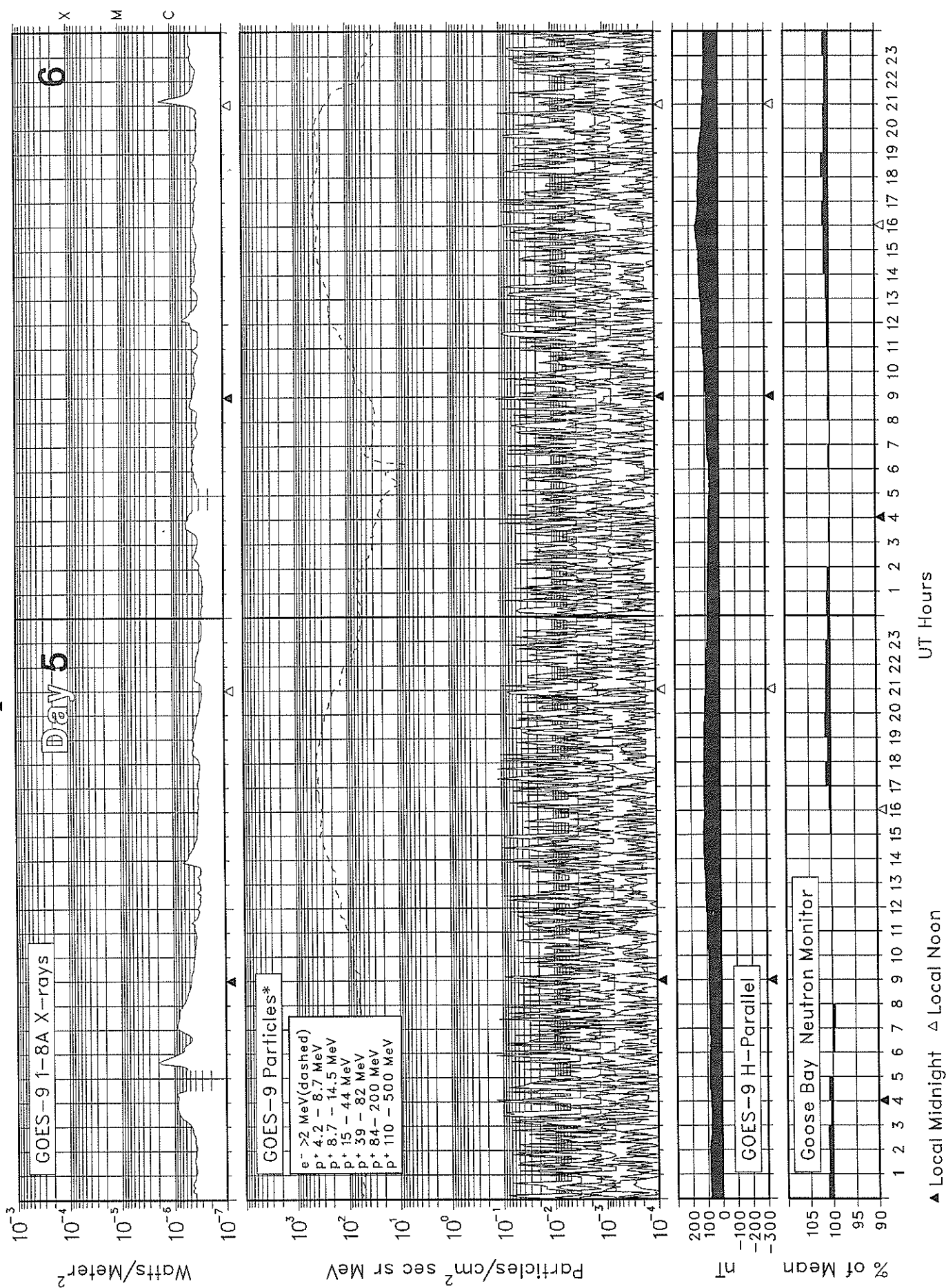
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



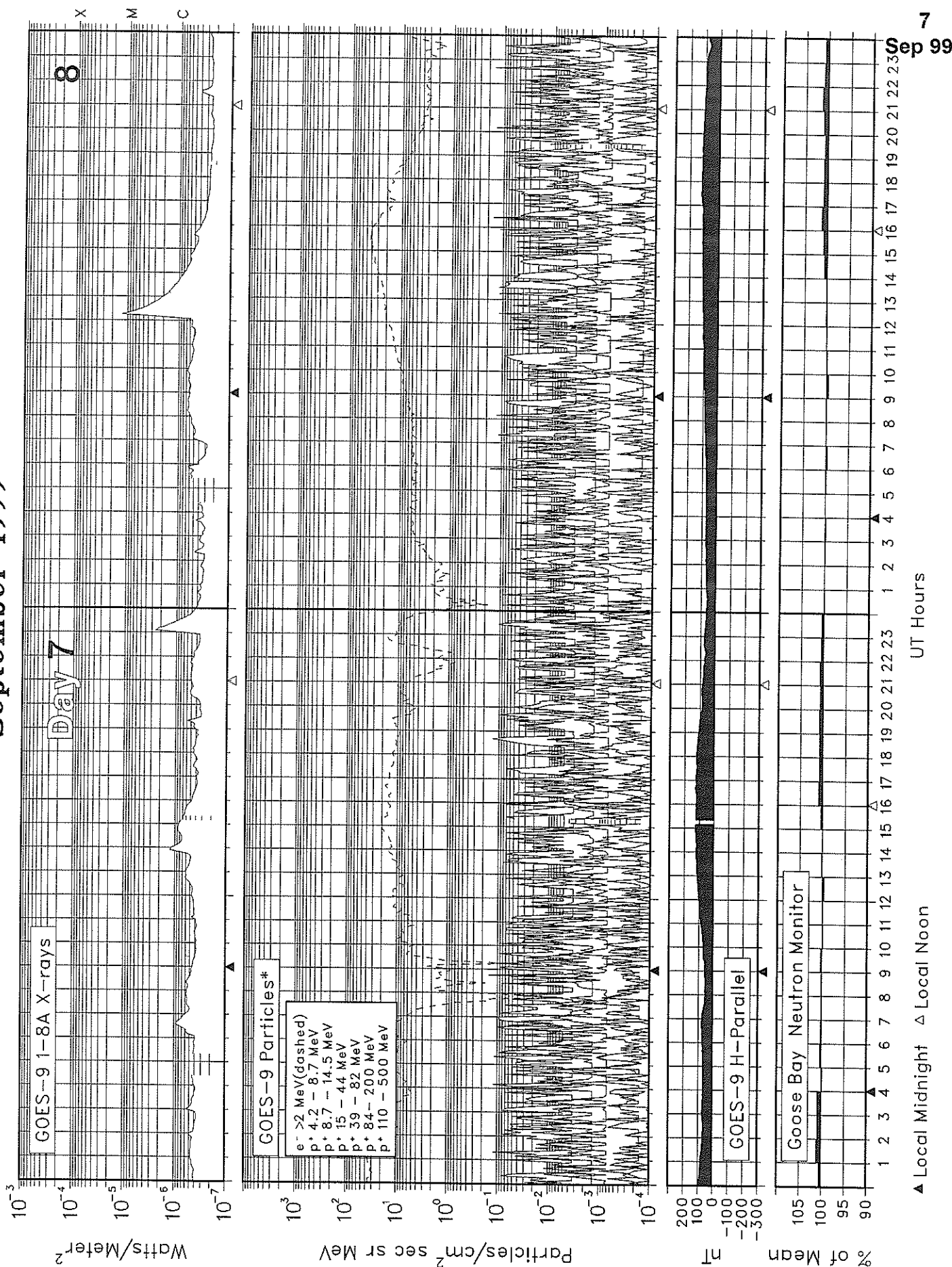
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



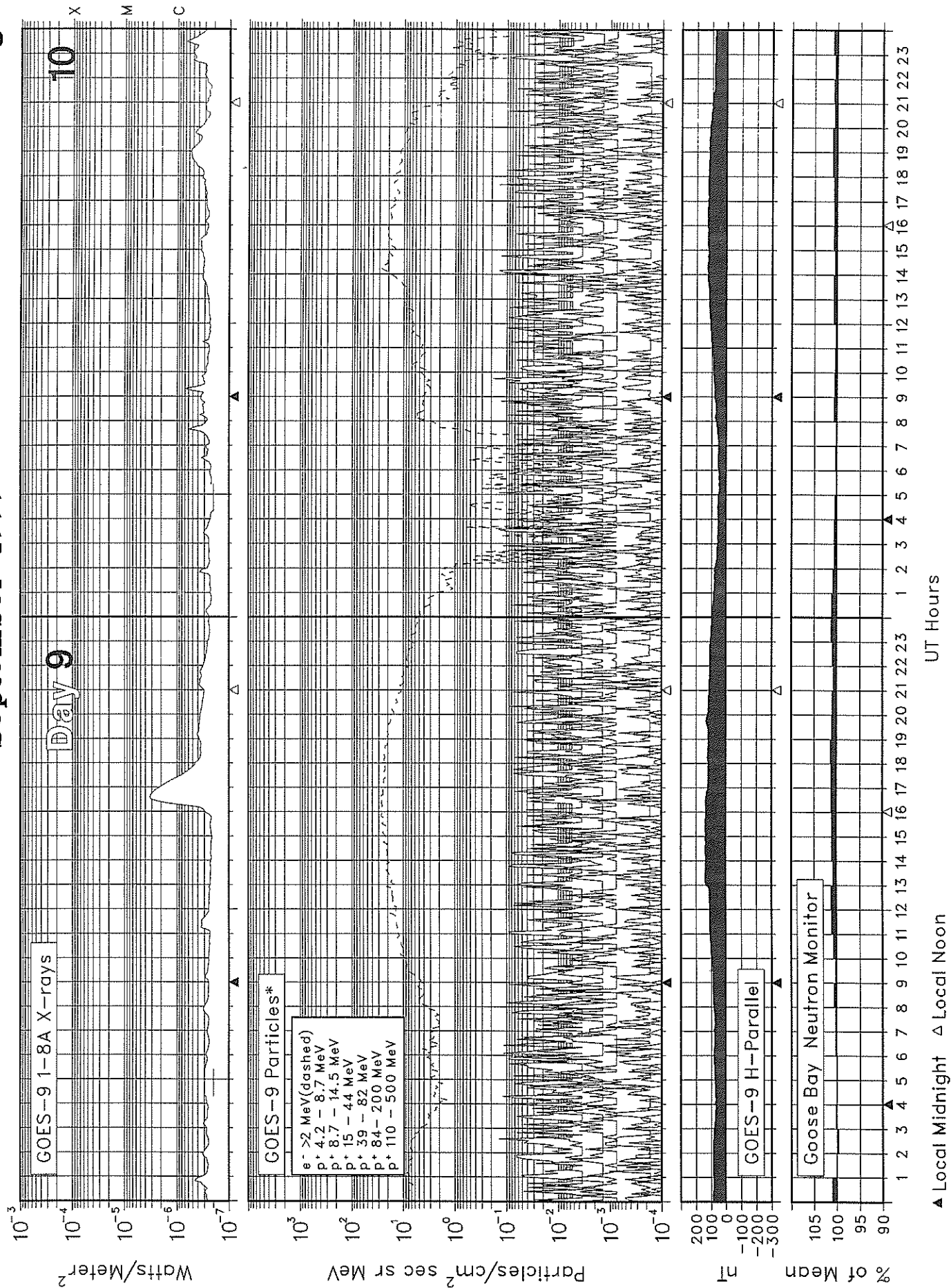
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



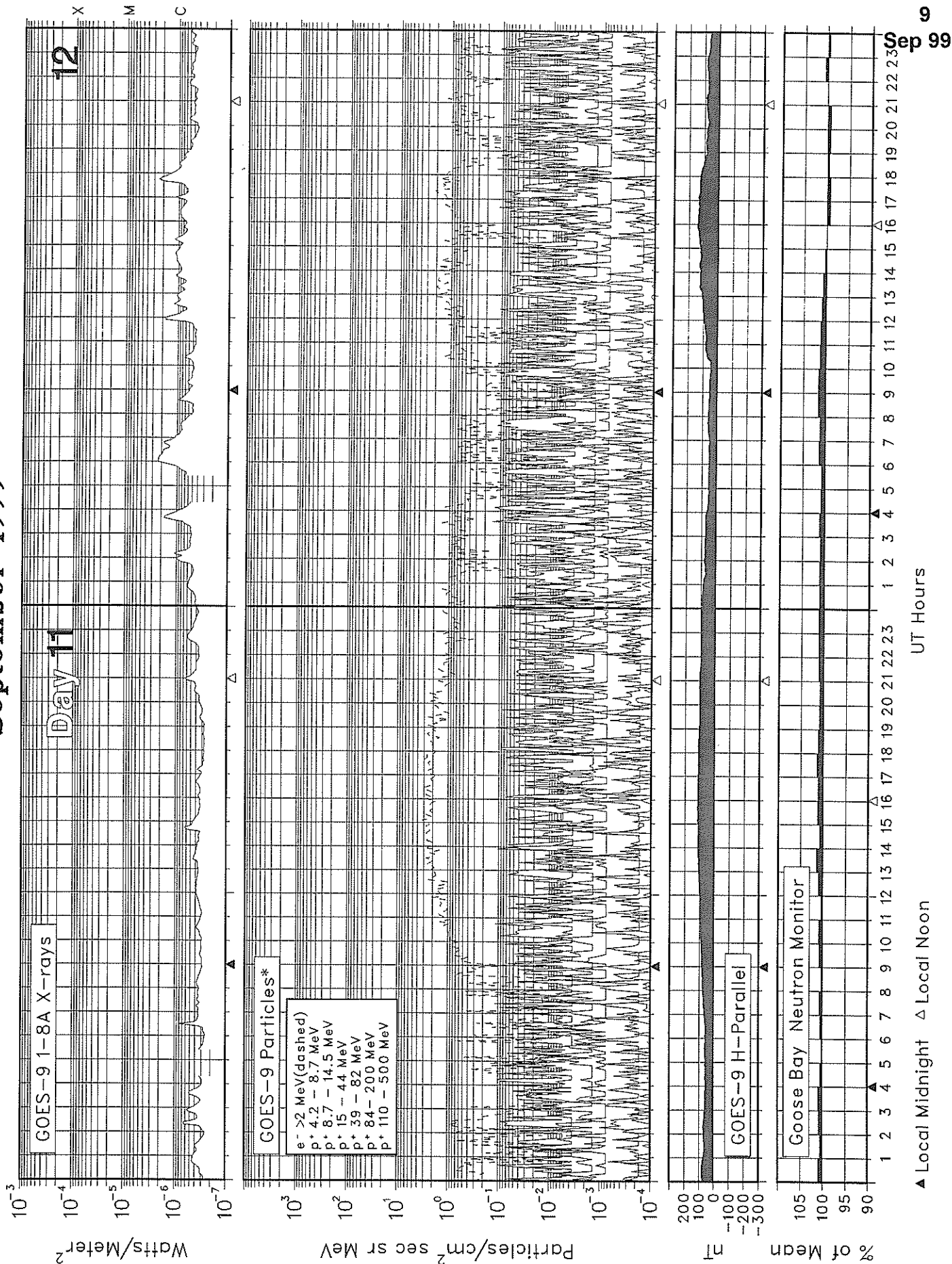
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



SOLAR-TERRESTRIAL ENVIRONMENT

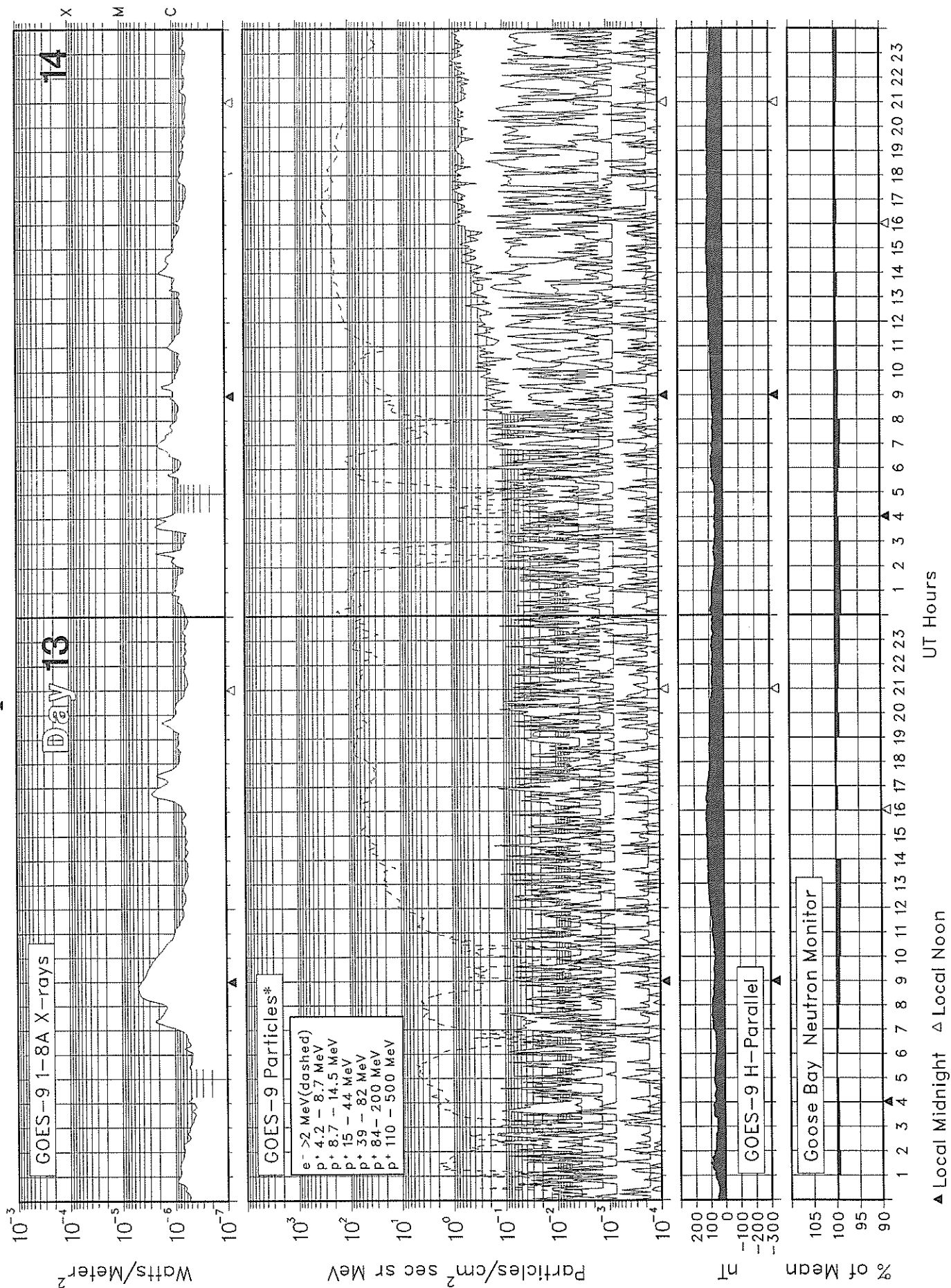
September 1999



10
Sep 99

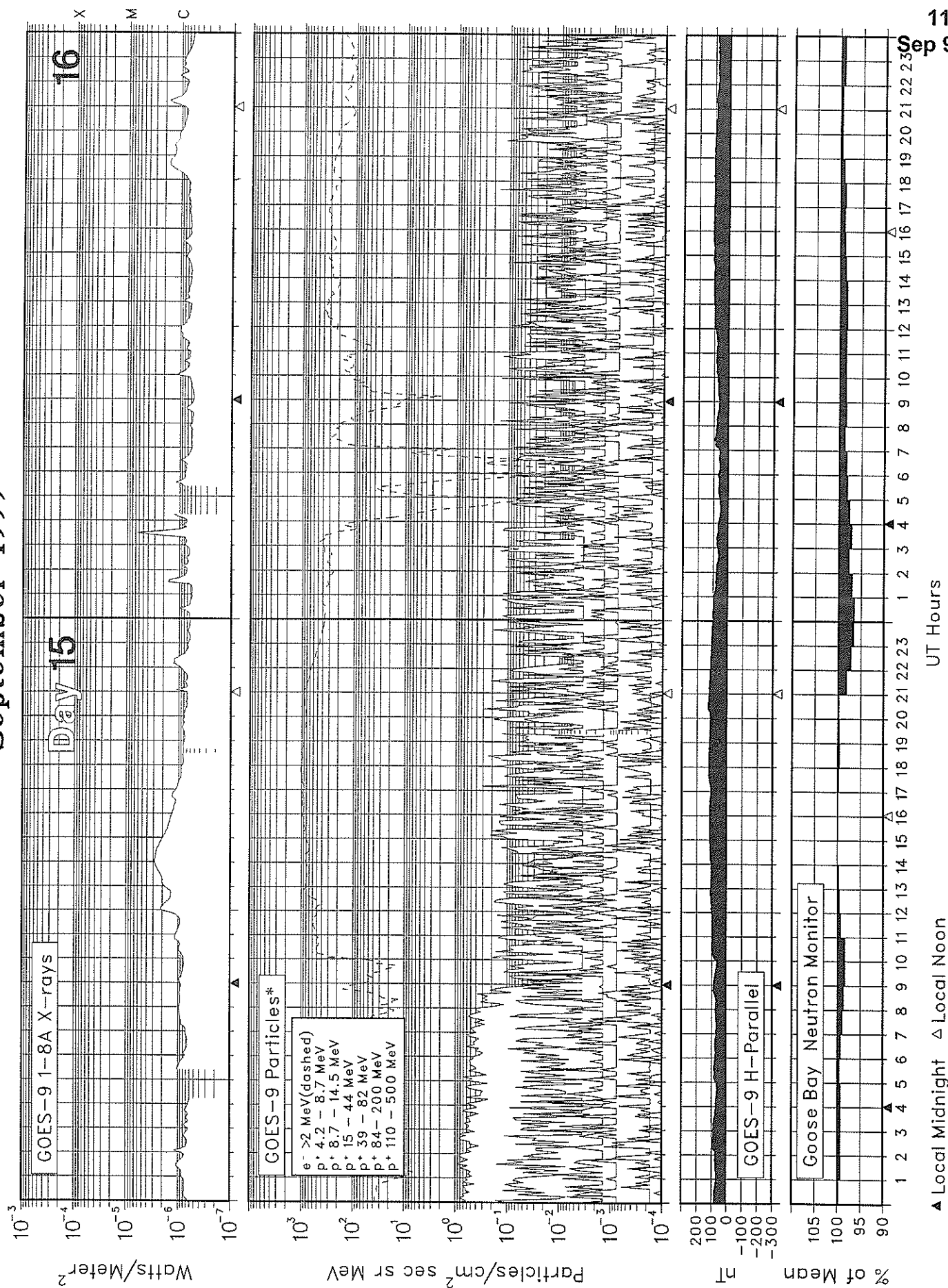
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



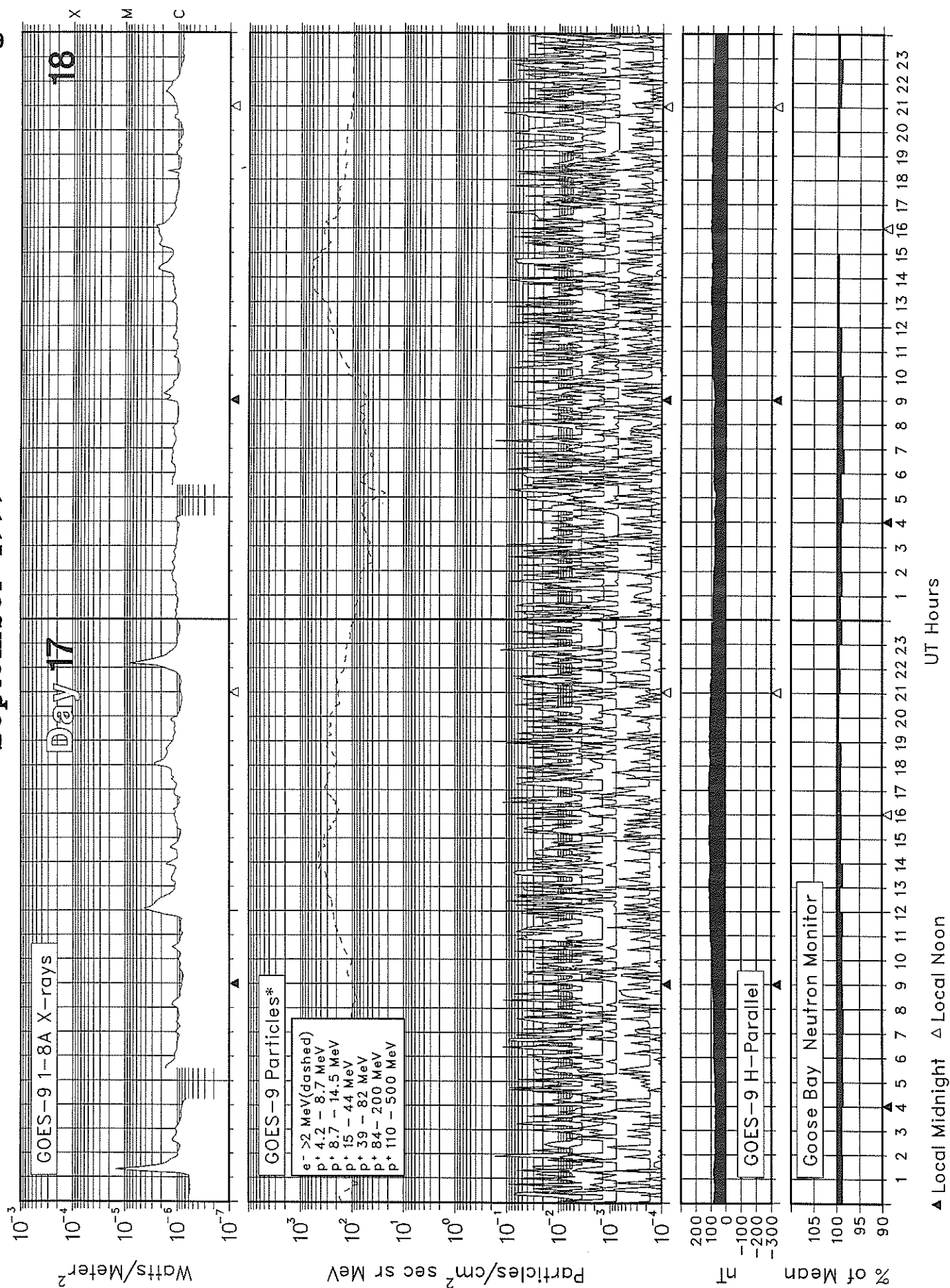
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



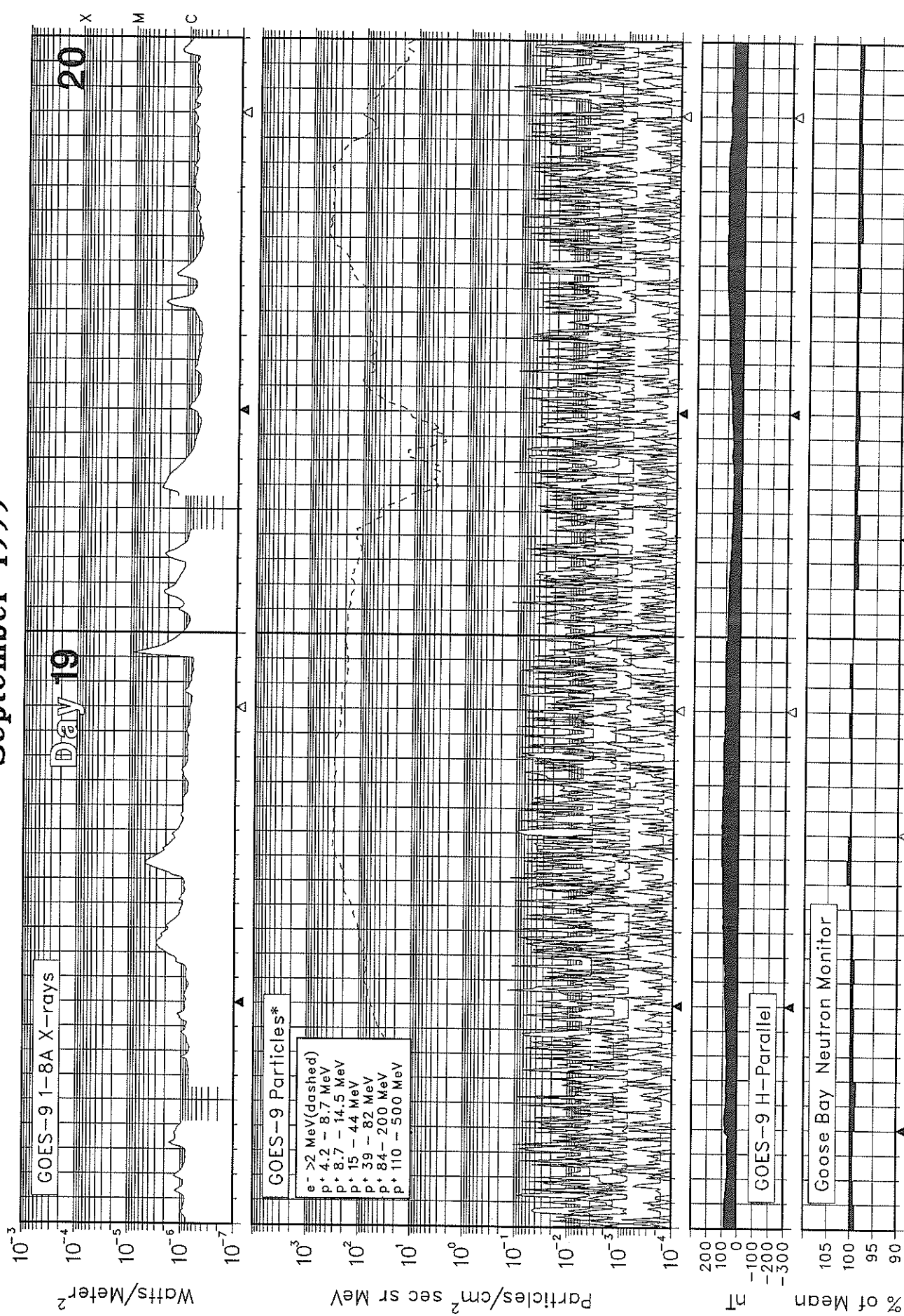
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



SOLAR-TERRESTRIAL ENVIRONMENT

September 1999

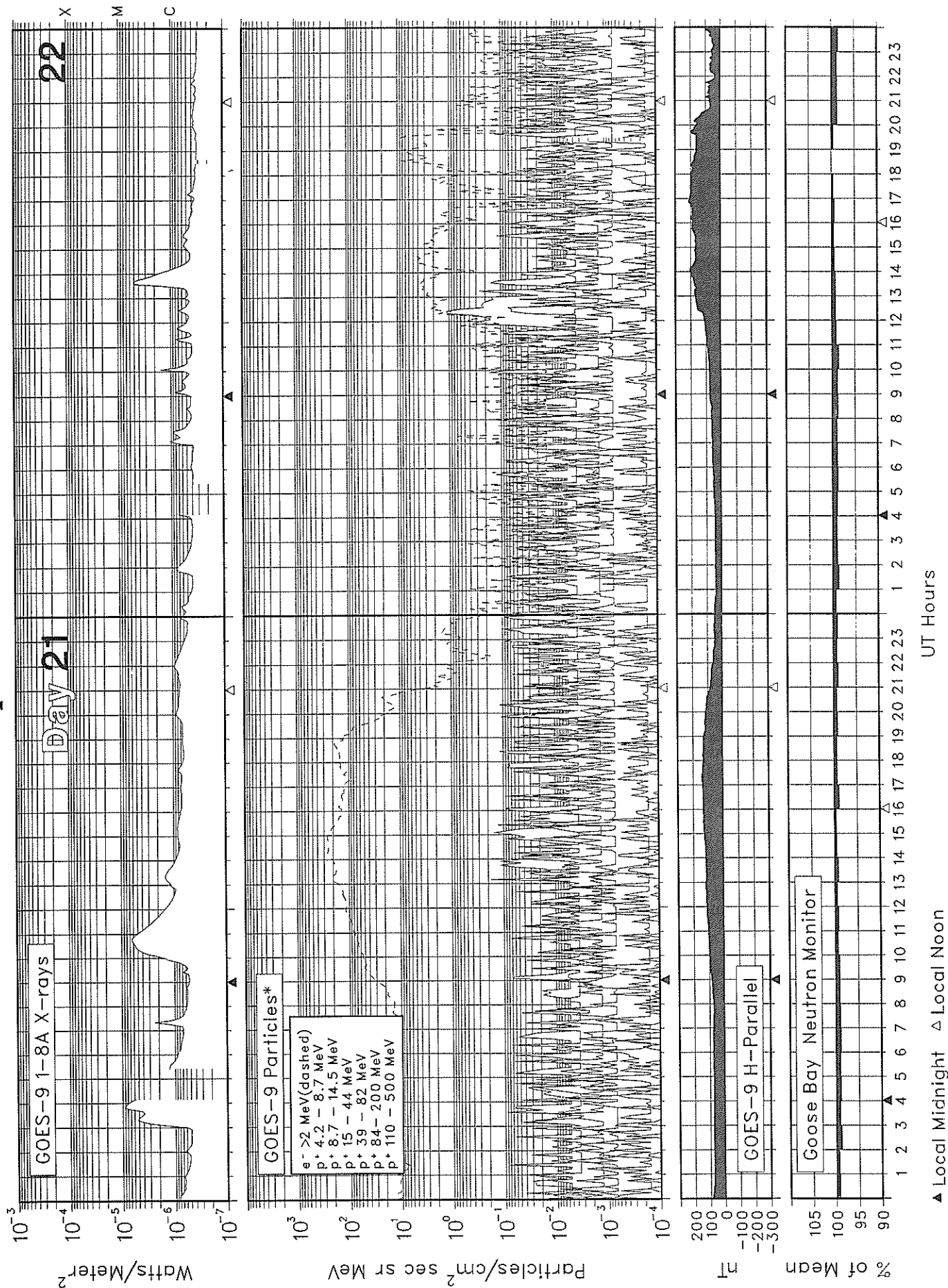


▲ Local Midnight Δ Local Noon

UT Hours

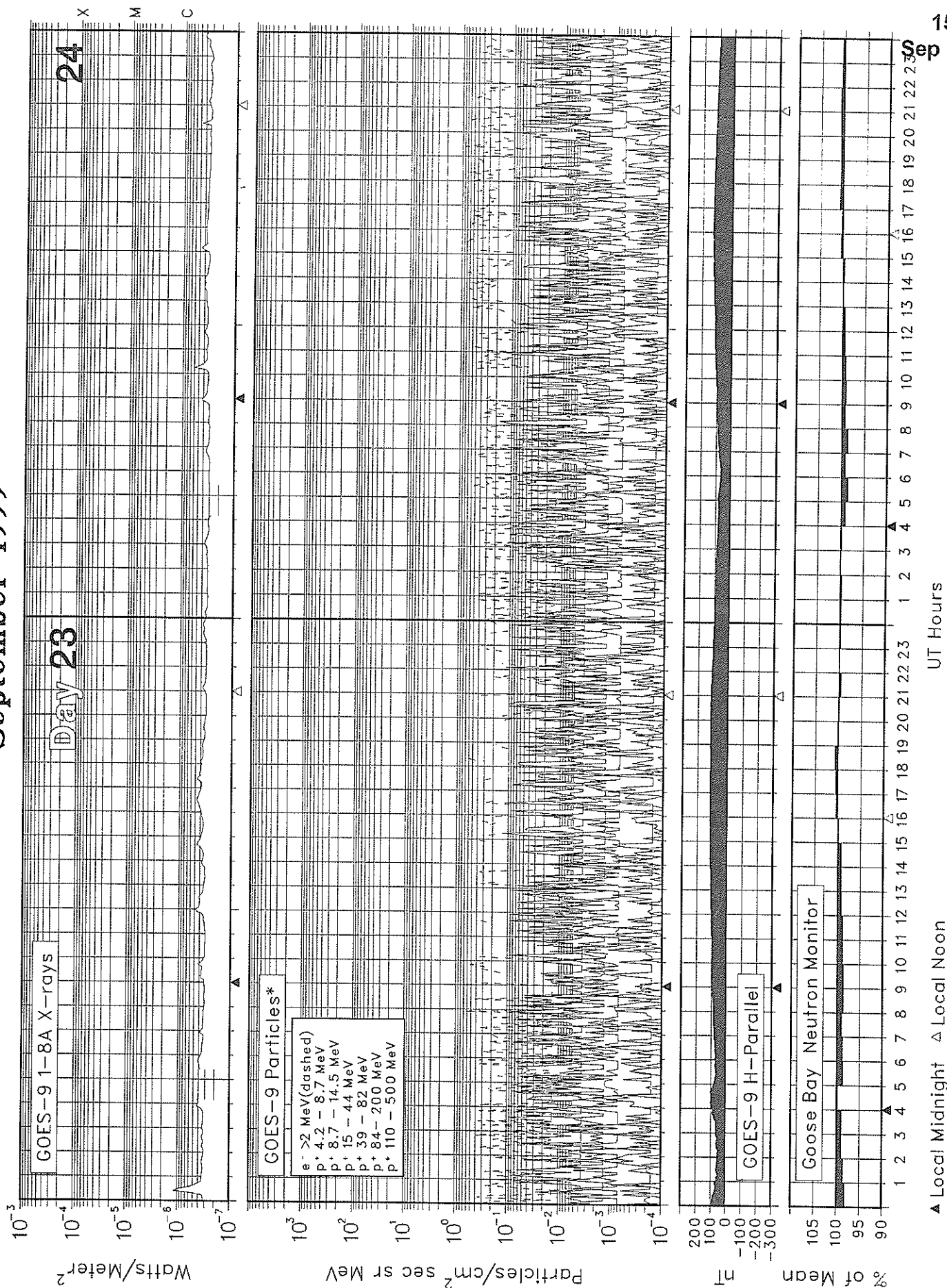
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



SOLAR-TERRESTRIAL ENVIRONMENT

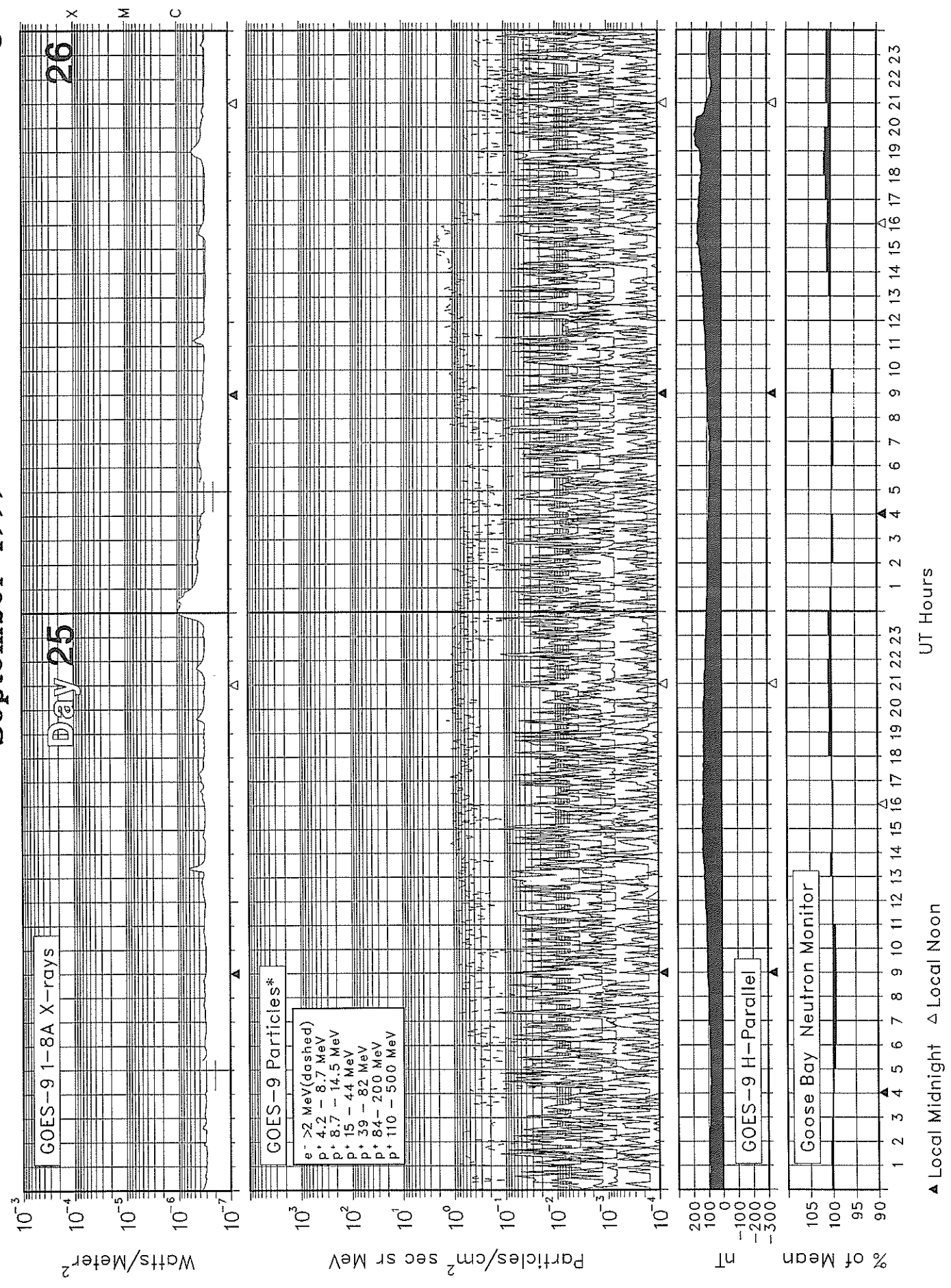
September 1999



SOLAR-TERRESTRIAL ENVIRONMENT

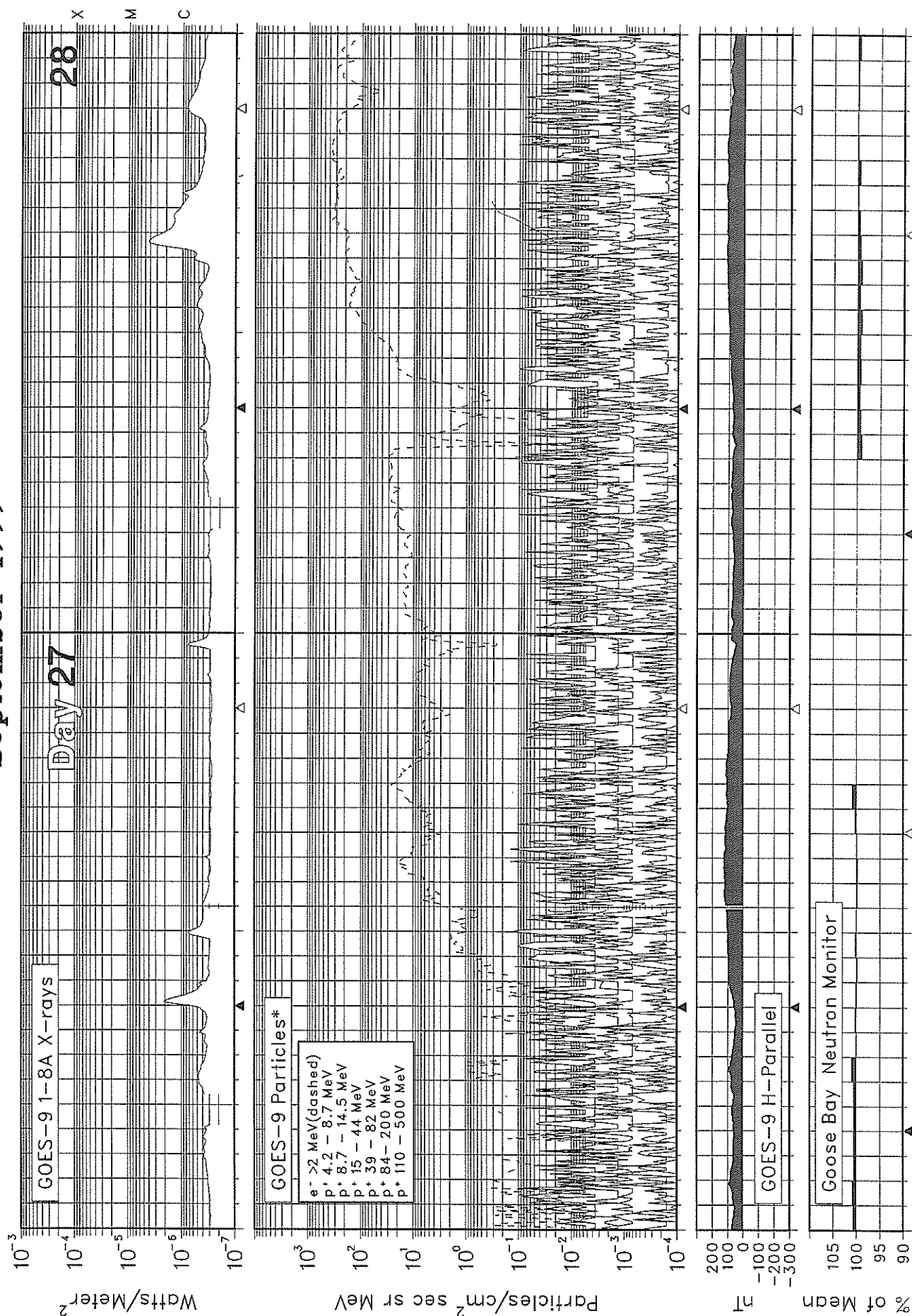
September 1999

16
Sep 99



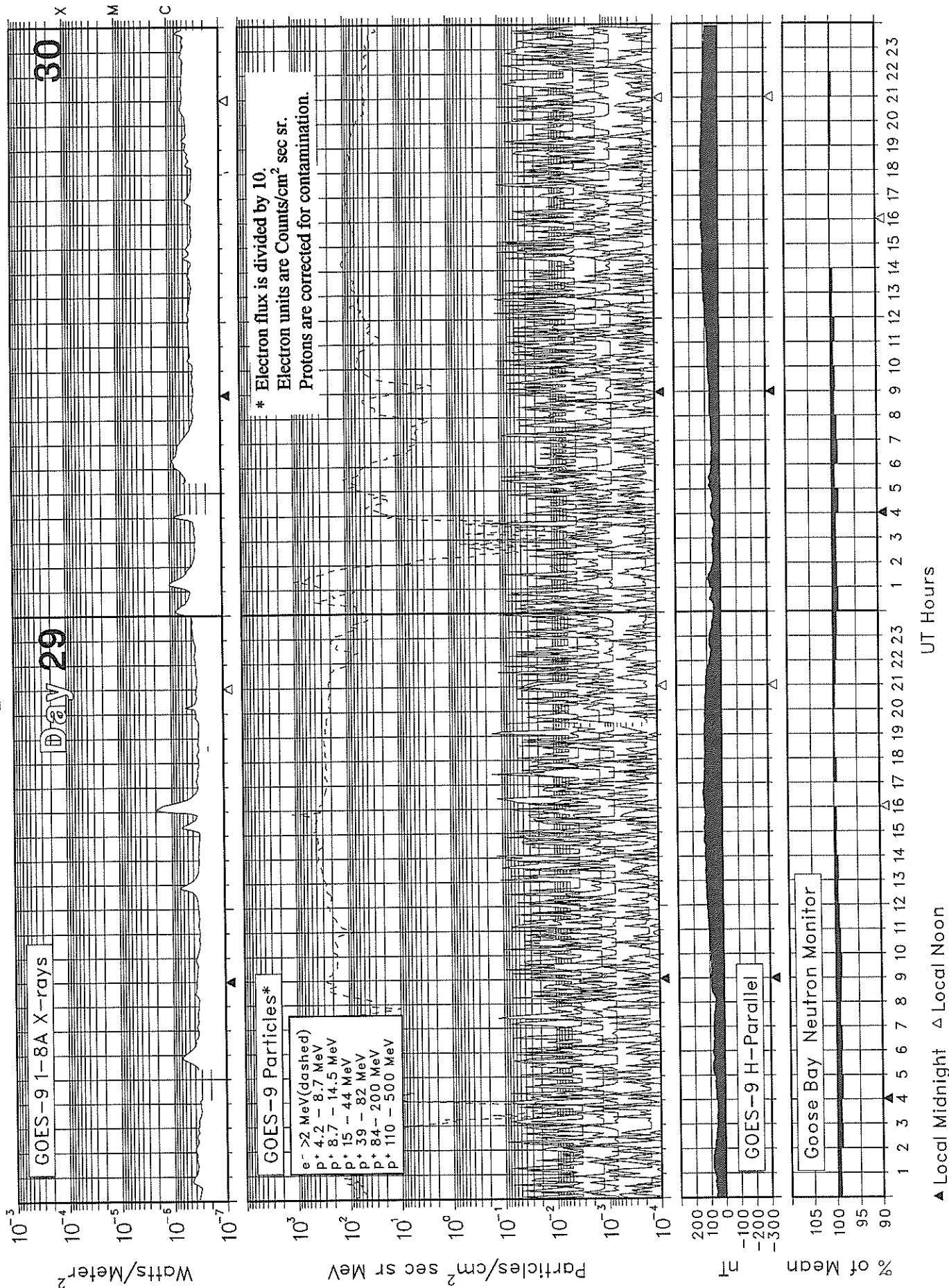
SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



SOLAR-TERRESTRIAL ENVIRONMENT

September 1999



A L E R T P E R I O D S The International Space Environment Service

SEPTEMBER 1999

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Rgn No.	Location		Flares			Date of Fcst	Region Fcst(1)	Geoadvice(1)
							Lat	Lon	Opt	M	X			
244	01	31	190	183	17	8673	S20	W76	0	0	0	01	Q	SOL: Active MAG: Quiet PRO: Warning
						8674	S23	W61	0	0	0	01	E	
						8675	N20	W12	0	0	0	01	Q	
						8677	N07	W07	0	0	0	01	Q	
						8679	S30	E00	0	0	0	01	Q	
						8681	N22	W31	5	0	0	01	E	
						8682	N19	E37	0	0	0	01	Q	
						8684	S12	E35	0	0	0	01	Q	
						8685	S08	E66	0	0	0	01	Q	
						8686	S24	E05	0	0	0	01	Q	
245	02	01	137	163	21	8673	S19	W94	0	0	0	02	Q	SOL: Active MAG: Quiet PRO: Quiet
						8674	S24	W73	1	0	0	02	E	
						8675	N19	W25	2	0	0	02	Q	
						8677	N08	W21	0	0	0	02	Q	
						8679	S36	W17	0	0	0	02	Q	
						8681	N21	W43	2	0	0	02	E	
						8682	N18	E26	0	0	0	02	Q	
						8686	S24	W09	0	0	0	02	Q	
246	03	02	134	157	11	8674	S26	W87	0	0	0	03	E	SOL: Eruptive MAG: Quiet PRO: Quiet
						8675	N19	W42	2	0	0	03	E	
						8677	N08	W35	0	0	0	03	Q	
						8679	S36	W28	0	0	0	03	Q	
						8681	N21	W57	0	0	0	03	E	
						8682	N18	E11	0	0	0	03	Q	
						8686	S24	W23	0	0	0	03	Q	
						8687	N11	W07	0	0	0	03	Q	
247	04	03	116	139	20	8675	N19	W55	1	0	0	04	Q	SOL: Eruptive MAG: Active PRO: Quiet
						8677	N08	W48	0	0	0	04	Q	
						8681	N20	W73	0	0	0	04	E	
						8682	N18	W02	1	0	0	04	Q	
						8685	S08	E28	0	0	0	04	Q	
						8686	S25	W36	0	0	0	04	Q	
						8687	N10	W21	0	0	0	04	Q	
						8688	S24	E14	0	0	0	04	Q	
248	05	04	103	131	14	8675	N20	W69	0	0	0	05	Q	SOL: Eruptive MAG: Quiet PRO: Quiet
						8677	N09	W61	0	0	0	05	Q	
						8681	N21	W87	0	0	0	05	Q	
						8682	N17	W14	0	0	0	05	Q	
						8686	S25	W49	0	0	0	05	Q	
						8687	N11	W33	0	0	0	05	Q	
						8688	S24	W01	0	0	0	05	Q	
249	06	05	101	122	6	8675	N21	W82	2	0	0	06	Q	SOL: Eruptive MAG: Quiet PRO: Quiet
						8677	N10	W74	0	0	0	06	Q	
						8682	N18	W28	0	0	0	06	Q	
						8684	S14	W27	0	0	0	06	Q	
						8686	S25	W64	2	0	0	06	Q	
						8687	N10	W48	1	0	0	06	Q	
						8689	N18	W05	0	0	0	06	Q	
250	07	06	81	119	6	8677	N08	W84	0	0	0	07	Q	SOL: Eruptive MAG: Quiet PRO: Quiet
						8682	N17	W41	1	0	0	07	Q	
						8687	N10	W60	0	0	0	07	Q	
						8689	N18	W18	0	0	0	07	Q	
						8690	N13	E73	0	0	0	07	Q	
251	08	07	111	112	14	8682	N18	W55	2	0	0	08	Q	SOL: Eruptive MAG: Active PRO: Quiet
						8687	N12	W73	0	0	0	08	Q	
						8689	N19	W32	0	0	0	08	Q	
						8690	N13	E60	1	0	0	08	Q	
						8691	S30	W32	0	0	0	08	Q	
						8692	S25	E74	0	0	0	08	Q	
						8693	N12	E79	0	0	0	08	Q	

20
Sep 99

A L E R T P E R I O D S The International Space Environment Service

SEPTEMBER 1999

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A- index	Rgn No.	Location		Flares			Date of Fcst	Region Fcst(1)	Geoadvice(1)
							Lat	Lon	Opt	M	X			
252	09	08	111	107	8	8682	N18	W69	0	0	0	09	Q	SOL: Eruptive MAG: Quiet PRO: Quiet
						8687	N09	W87	0	0	0	09	Q	
						8689	N19	W48	0	0	0	09	Q	
						8690	N13	E47	1	1	0	09	E	
						8691	S30	W45	0	0	0	09	Q	
						8692	S27	E60	0	0	0	09	Q	
						8693	N11	E64	0	0	0	09	Q	
						8694	S14	W14	0	0	0	09	Q	
253	10	09	113	107	8	8682	N18	W85	0	0	0	10	Q	SOL: Eruptive MAG: Quiet PRO: Quiet
						8689	N20	W61	0	0	0	10	Q	
						8690	N13	E33	1	0	0	10	E	
						8691	S29	W58	0	0	0	10	Q	
						8692	S26	E48	1	0	0	10	Q	
						8693	N12	E51	0	0	0	10	Q	
						8694	S16	W27	0	0	0	10	Q	
254	11	10	107	122	13	8690	N13	E20	1	0	0	11	E	SOL: Eruptive MAG: Quiet PRO: Quiet
						8691	S31	W69	0	0	0	11	Q	
						8692	S27	E36	5	0	0	11	E	
						8693	N13	E37	0	0	0	11	Q	
						8694	S17	W34	0	0	0	11	Q	
						8695	N19	E73	0	0	0	11	Q	
255	12	11	145	123	9	8690	N14	E06	1	0	0	12	E	SOL: Eruptive MAG: Quiet PRO: Quiet
						8692	S27	E23	0	0	0	12	E	
						8693	N13	E23	0	0	0	12	Q	
						8695	N20	E60	0	0	0	12	Q	
						8696	N14	W48	0	0	0	12	Q	
						8697	S20	W06	0	0	0	12	Q	
						8698	S16	E64	0	0	0	12	Q	
						8699	N21	E29	6	0	0	12	Q	
256	13	12	126	141	21	8690	N14	W06	1	0	0	13	E	SOL: Eruptive MAG: Active PRO: Quiet
						8692	S26	E11	2	0	0	13	E	
						8693	N13	E11	0	0	0	13	Q	
						8695	N20	E48	0	0	0	13	Q	
						8699	N21	E15	8	0	0	13	E	
						8700	N12	E81	0	0	0	13	Q	
257	14	13	183	155	31	8690	N15	W20	1	0	0	14	E	SOL: Eruptive MAG: Active PRO: Quiet
						8692	S28	W01	0	0	0	14	E	
						8693	N12	W02	1	0	0	14	Q	
						8695	N21	E34	0	0	0	14	Q	
						8699	N21	E01	2	0	0	14	E	
						8700	N14	E71	1	0	0	14	Q	
						8701	N18	E13	0	0	0	14	Q	
258	15	14	158	156	22	8690	N15	W34	1	0	0	15	E	SOL: Eruptive MAG: Active PRO: Quiet
						8692	S27	W14	0	0	0	15	E	
						8693	N12	W16	0	0	0	15	Q	
						8695	N21	E21	0	0	0	15	Q	
						8699	N21	W11	1	0	0	15	E	
						8700	N14	E59	1	0	0	15	Q	
259	16	15	155	155	22	8690	N15	W48	0	0	0	16	Q	SOL: Eruptive MAG: Active PRO: Quiet
						8692	S26	W27	1	0	0	16	Q	
						8693	N13	W29	0	0	0	16	Q	
						8695	N22	E08	0	0	0	16	Q	
						8699	N22	W25	1	0	0	16	Q	
						8700	N14	E45	5	0	0	16	E	
260	17	16	153	158	26	8690	N16	W62	0	0	0	17	E	SOL: Eruptive MAG: Active PRO: Quiet
						8692	S26	W41	2	0	0	17	E	
						8693	N13	W44	0	0	0	17	Q	
						8695	N21	W04	0	0	0	17	Q	

A L E R T P E R I O D S The International Space Environment Service

SEPTEMBER 1999

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A- index	Rgn No.	Location		Flares			Date of Fcst	Region Fcst(1)	Geoadvice(1)
							Lat	Lon	Opt	M	X			
						8699	N22	W39	2	0	0	17	E	
						8700	N14	E31	1	0	0	17	E	
						8702	N22	E28	0	0	0	17	Q	
261	18	17	144	158	12	8690	N16	W74	4	1	0	18	E	SOL: Eruptive
						8692	S25	W53	1	0	0	18	Q	MAG: Quiet
						8693	N12	W56	0	0	0	18	Q	PRO: Quiet
						8695	N21	W16	0	0	0	18	Q	
						8699	N22	W52	1	0	0	18	Q	
						8700	N13	E20	3	0	0	18	Q	
						8703	N21	W92	4	0	0	18	Q	
						8704	S21	E63	0	0	0	18	Q	
262	19	18	152	152	16	8690	N16	W87	0	0	0	19	Q	SOL: Eruptive
						8692	S25	W69	0	0	0	19	Q	MAG: Active
						8693	N12	W71	0	0	0	19	Q	PRO: Quiet
						8695	N21	W31	0	0	0	19	Q	
						8699	N22	W65	4	0	0	19	E	
						8700	N13	E07	7	0	0	19	E	
						8702	N24	E03	0	0	0	19	Q	
						8704	S21	E52	0	0	0	19	Q	
						8705	S11	E28	0	0	0	19	Q	
263	20	19	113	149	9	8692	S23	W84	3	0	0	20	Q	SOL: Eruptive
						8693	N12	W83	0	0	0	20	Q	MAG: Active
						8695	N21	W42	0	0	0	20	Q	PRO: Quiet
						8699	N23	W78	4	0	0	20	E	
						8700	N12	W05	2	0	0	20	E	
						8704	S22	E42	0	0	0	20	Q	
						8706	N19	E77	0	0	0	20	Q	
264	21	20	78	145	7	8695	N21	W56	0	0	0	21	Q	SOL: Eruptive
						8699	N24	W88	0	0	0	21	E	MAG: Quiet
						8700	N12	W19	3	0	0	21	E	PRO: Quiet
						8704	S22	E28	0	0	0	21	Q	
						8706	N20	E66	0	0	0	21	Q	
265	22	21	82	147	10	8695	N22	W70	0	0	0	22	Q	SOL: Eruptive
						8700	N13	W33	0	0	0	22	E	MAG: Active
						8702	N24	W40	0	0	0	22	Q	PRO: Quiet
						8704	S22	E16	1	0	0	22	E	
						8706	N22	E53	1	0	0	22	Q	
266	23	22	103	140	29	8700	N13	W47	4	0	0	23	E	SOL: Eruptive
						8702	N23	W53	0	0	0	23	Q	MAG: Minor
						8704	S22	E01	0	0	0	23	Q	PRO: Quiet
						8706	N19	E38	1	0	0	23	Q	
						8707	S07	W08	0	0	0	23	Q	
						8708	S09	E55	6	0	0	23	E	
267	24	23	78	137	20	8700	N12	W61	2	0	0	24	Q	SOL: Eruptive
						8704	S21	W11	0	0	0	24	Q	MAG: Quiet
						8706	N20	E25	0	0	0	24	Q	PRO: Quiet
						8707	S07	W21	0	0	0	24	Q	
						8708	S10	E42	0	0	0	24	Q	
268	25	24	86	132	4	8700	N13	W75	0	0	0	25	Q	SOL: Eruptive
						8704	S20	W25	0	0	0	25	Q	MAG: Quiet
						8706	N19	E11	2	0	0	25	Q	PRO: Quiet
						8707	S07	W34	0	0	0	25	Q	
						8708	S10	E29	0	0	0	25	Q	
						8709	S15	E48	0	0	0	25	Q	
269	26	25	38	125	1	8704	S21	W39	0	0	0	26	Q	SOL: Quiet
						8706	N20	W01	0	0	0	26	Q	MAG: Quiet
						8708	S11	E18	0	0	0	26	Q	PRO: Quiet

22
Sep 99

A L E R T P E R I O D S The International Space Environment Service

SEPTEMBER 1999

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A- index	Rgn No.	Location		Flares			Date of Fcst	Region Fcst(1)	Geoadvice(1)
							Lat	Lon	Opt	M	X			
270	27	26	44	123	13	8704	S20	W52	0	0	0	27	Q	SOL: Quiet
						8706	N20	W15	0	0	0	27	Q	MAG: Active
						8708	S11	E04	0	0	0	27	Q	PRO: Quiet
						8710	N20	E76	0	0	0	27	Q	
271	28	27	49	124	31	8704	S19	W67	1	0	0	28	E	SOL: Quiet
						8706	N21	W27	1	0	0	28	Q	MAG: Active
						8708	S11	W09	0	0	0	28	Q	PRO: Quiet
						8710	N19	E64	0	0	0	28	Q	
272	29	28	52	126	20	8704	S19	W81	0	0	0	29	Q	SOL: Quiet
						8706	N20	W41	0	0	0	29	Q	MAG: Active
						8710	N19	E51	0	0	0	29	Q	PRO: Quiet
						8711	N23	W31	0	0	0	29	Q	
273	30	29	84	125	22	8704	S19	W90	0	0	0	30	Q	SOL: Quiet
						8706	N20	W53	0	0	0	30	Q	MAG: Quiet
						8710	N19	E38	1	0	0	30	Q	PRO: Quiet
						8711	N22	W45	0	0	0	30	Q	
						8712	S13	W06	0	0	0	30	Q	
						8713	S13	E62	0	0	0	30	Q	
						8714	N11	E72	0	0	0	30	Q	

(1) Region Forecast and Flare (SOL) Advice

Q = Quiet (<50% probability of C-class flares)
E = Eruptive (C-class flares expected, probability >=50%)
A = Active (M-class flares expected, probability >=50%)
M = Major (X-class flares expected, probability >=50%)
P = Proton (Proton flares expected, probability >=50%)
W = Warning (activity levels are expected to increase, but no numerical forecast given)
/ = No forecast available

Magnetic (MAG) Geoadvice

'Quiet'
'Active' conditions expected (A>=20 or K=4)
'Minor' storm expected (A>=30 or K=5)
'Major' storm expected (A>=50 or K=6)
'Severe' storm expected (A>=100 or K=7)
'IP' magstorm in progress (A>=30 or K=4)
'Warning' (activity levels are expected to increase, but no numerical forecast given)
'/' no forecast available

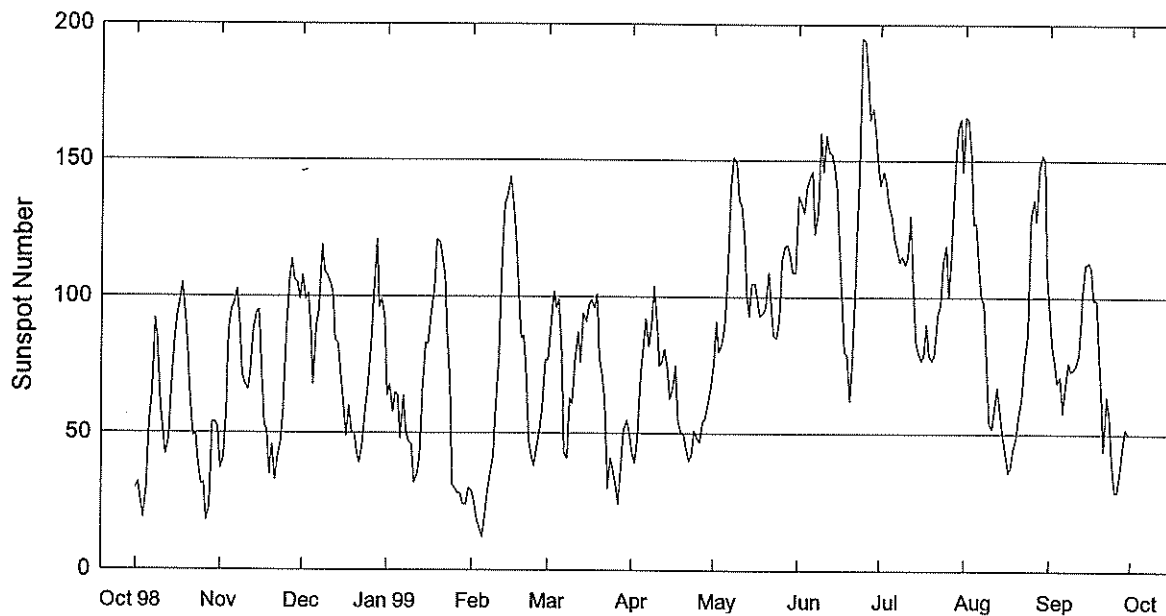
Proton (PRO) Geoadvice

'Quiet'
'Proton' event expected (10pfu at >10MeV)
'Major' proton event expected (100pfu at >100 MeV)
'IP' proton event in progress (>10 MeV)
'Warning' (activity levels are expected to increase, but no numerical forecast given)
'/' no forecast available

STRATWARM ALERTS - NONE

International Relative Sunspot Numbers Oct 1998 - Sep 1999

23
Sep 99

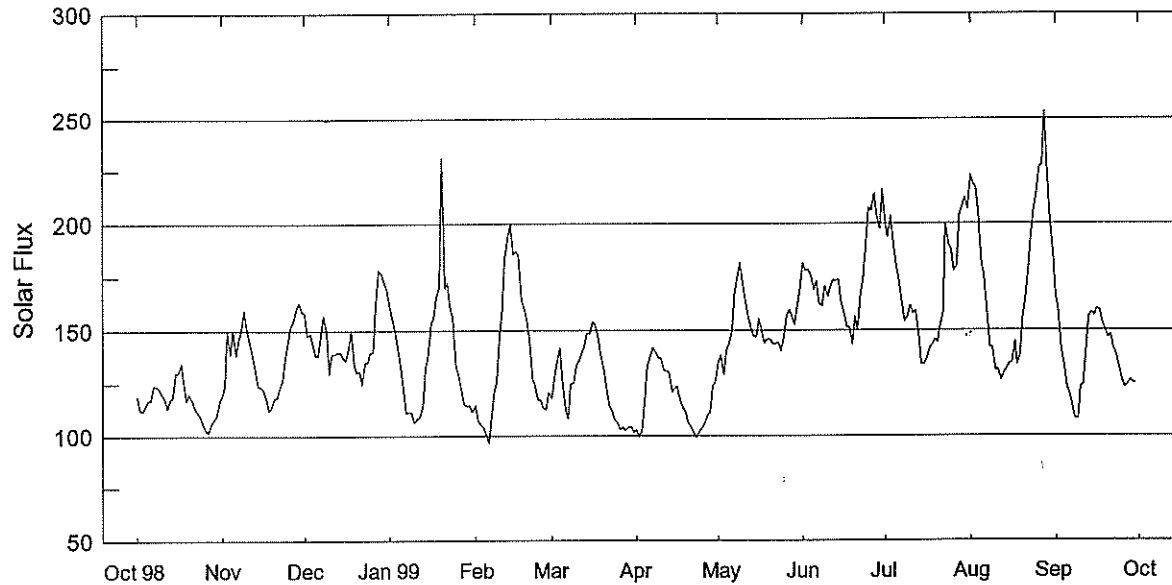


Day	Oct 98	Nov	Dec	Jan 99	Feb	Mar	Apr*	May*	Jun*	Jul*	Aug*	Sep*
1	30	37	108	64	29	77	44	75	137	141	166	94
2	32	41	99	68	25	88	39	91	135	146	165	82
3	25	56	101	58	19	102	48	80	131	142	151	77
4	19	88	86	65	15	96	71	83	140	134	127	69
5	30	95	68	64	12	99	81	89	144	130	127	71
6	54	98	89	48	19	79	92	105	146	122	110	58
7	66	103	95	64	28	43	82	141	123	117	100	69
8	92	92	119	51	36	41	89	151	131	113	98	76
9	84	71	109	47	41	63	104	149	160	115	76	73
10	60	68	108	46	60	61	90	136	146	112	54	74
11	51	66	105	32	78	76	75	134	159	115	52	76
12	42	73	102	35	115	87	76	122	153	130	60	80
13	48	88	84	41	134	76	81	101	152	103	67	102
14	66	94	83	65	138	94	74	93	147	84	57	112
15	84	95	72	83	144	91	63	105	139	80	49	113
16	93	76	60	83	133	97	67	105	120	77	44	111
17	98	53	49	93	122	99	75	99	97	79	36	99
18	105	51	60	102	105	96	55	93	80	90	38	99
19	96	35	50	121	85	101	50	94	79	79	45	81
20	81	46	50	120	86	78	50	96	62	77	48	65
21	63	33	43	114	74	71	45	109	79	79	58	44
22	49	41	39	108	47	61	40	97	106	94	63	64
23	50	47	47	87	42	30	42	86	144	97	76	57
24	39	59	58	68	38	41	51	85	195	113	86	41
25	31	85	66	31	44	37	48	92	194	119	129	29
26	32	106	81	30	51	31	47	114	182	100	136	29
27	18	114	100	28	59	24	55	119	165	115	128	35
28	23	106	121	28	77	37	55	119	169	144	147	46
29	54	105	96	24		51	61	115	160	161	152	52
30	54	99	99	24		55	66	109	148	165	150	50
31	52		92	30		51		109		146	109	
Mean	55.5	74.0	81.9	62.0	66.3	68.8	63.9	106.3	137.4	113.5	93.7	70.9

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux Oct 98 - Sep 99

Adjusted to 1 AU



Day	Oct 98	Nov	Dec	Jan 99	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	119.1	119.5	158.2	161.6	114.5	118.0	102.9	134.9*	181.2	202.0	222.9	165.8
2	112.9	124.1	147.4	154.8	107.7	127.6	99.4	137.9	178.1	193.4	218.8	159.3
3	112.0	149.3	148.7	149.4	105.8	134.6	102.7	129.2	178.5	203.5	216.9	141.7
4	114.9	139.0	144.0	142.0	104.3	141.6	116.0	141.1	175.9	191.9	206.0	133.5
5	117.1	150.1	138.3	132.0	100.9	125.4	132.7	143.3	168.8	180.0	182.1	123.8
6	116.9	138.4	138.1	121.6	96.6	112.6	137.6	149.5	172.9	173.5	175.3	120.4
7	124.1	145.8	148.7	111.3	106.5	108.3	141.7	166.4	162.4	163.7	157.6	114.1
8	123.8	149.9	157.1	111.7	121.1	125.0	139.5	175.1	161.3	154.1	141.7	108.4
9	123.2	159.3	149.3	111.0	125.9	125.3	136.7	181.7	170.3	155.9	141.9	108.0
10	120.3	150.8	129.8	106.7	148.4	133.6	136.9	172.8	166.0	161.5	130.8	123.7
11	118.5	144.1	138.8	108.2	159.3	135.3	131.3	162.6	169.8	157.8	131.4	124.1
12	113.4	138.7	138.9	109.1	183.6	138.5	130.7	156.3	173.2	159.2	126.4	142.6
13	117.5	132.6	139.7	114.7	193.4	142.7	130.3	150.5	173.0	148.3	129.8	156.5
14	118.4	123.8	139.9	132.4	199.6	148.7	121.0	147.3	173.5	133.9	131.5	158.2
15	130.4	123.7	137.2	138.0	185.5	148.4	122.7	146.8	163.5	133.8	134.5	156.6
16	130.1	121.8	136.1	153.4	187.3	154.1	123.8	155.6	157.6	136.4	134.4	159.9
17	134.4	118.0	141.5	156.2	185.3	152.9	116.6	148.6	151.3	141.3	144.5	159.1
18	125.0	112.2	149.8	165.4	164.2	146.7	113.8	143.8	151.2	142.8	133.9	153.0
19	116.8	113.7	133.6	170.3	160.5	138.1	110.9	145.8	143.3	145.8	138.0	150.6
20	120.2	118.6	130.4	231.3	153.6	131.6	105.8	145.9	156.5	144.1	155.2	146.2
21	117.2	118.3	130.9	169.7	144.0	123.1	104.4	143.7	150.3	152.1	165.0	147.9
22	113.8	123.0	124.6	172.3	127.0	115.0	101.4	143.7	166.9	157.8	176.7	141.5
23	111.4	126.7	135.2	160.8	124.3	112.2	99.3	144.2	173.0	199.9	191.7	137.8
24	109.6	136.7	134.9	156.8	117.3	107.6	102.0	140.4	191.1	190.1	206.4	132.4
25	106.3	145.6	139.6	133.9	117.1	106.4	103.8	146.8	207.5	188.0	212.9	126.1
26	102.8	152.3	140.2	129.1	113.4	103.1	105.8	156.6	206.1	177.8	226.9	123.3
27	101.8	154.7	161.4	121.6	112.9	104.1	110.0	159.3	214.3	179.9	227.7	124.4
28	106.4	160.4	178.3	115.2	120.7	102.7	111.3	156.2	203.2	203.9	253.4	126.5
29	108.0	163.2	176.8	114.2		103.8	123.9	152.7	197.7	208.6	222.5	125.3
30	109.9	158.9	173.1	114.5		104.4	125.3	161.1	216.5	212.2	201.9	125.1
31	117.0		168.8	111.5		101.7		170.1		206.7	186.1	
Mean	116.6	137.1	145.5	138.1	138.6	124.9	118.0	151.9	175.2	171.0	175.0	137.2

NOTE: * 2300UT reading - hail on antenna at 2000UT.

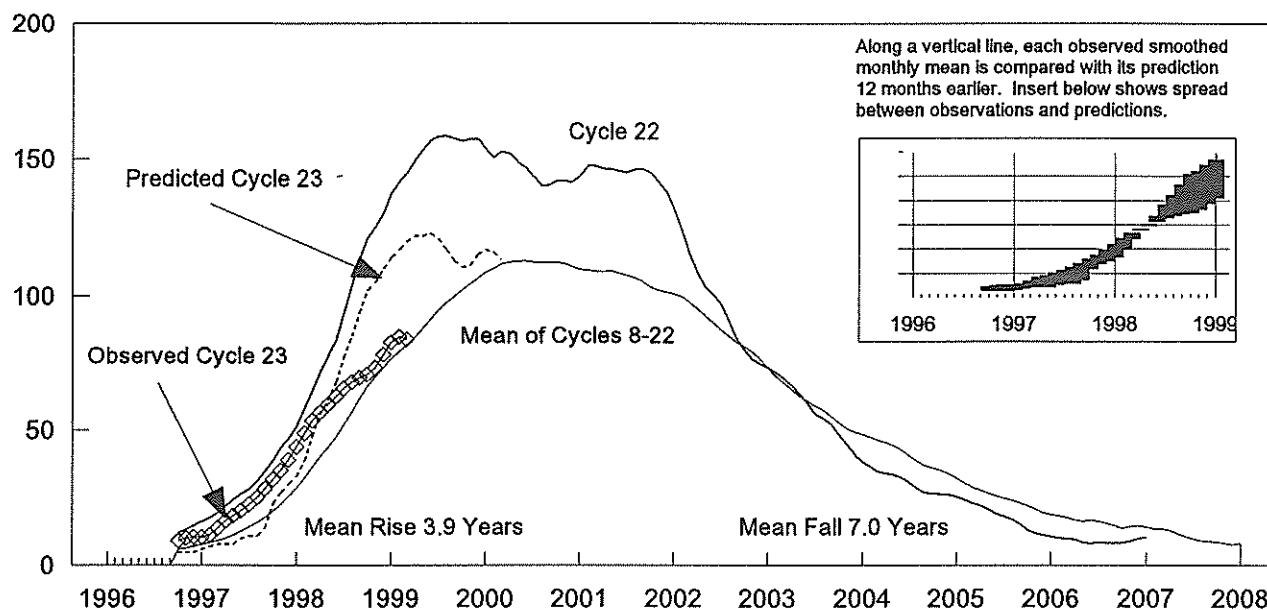
DAILY SOLAR INDICES
September 1999

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers		Obs Flux Penticton (2800)	Solar Flux Adjusted to 1 Astronomical Unit								
			Int	Amer		SGMR (15400)	SGMR (8800)	SGMR (4995)	SGMR Pentic (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
1	244	20	94	98	162.8	545	259	189	165.8	159	130	66	47	17
2	245	21	82	85	156.5	541	222	189	159.3	157	127	66	45	17
3	246	22	77	87	139.3	540	219	173	141.7	139	118	66	45	17
4	247	23	69	71	131.2	527	209	160	133.5	125	107	58	40	14
5	248	24	71	75	121.8	510	--	153	123.8	121	102	59	45	17
6	249	25	58	62	118.5	495	--	157	120.4	117	97	56	43	17
7	250	26	69	87	112.4	513	213	157	114.1	119	96	58	46	26
8	251	27	76	89	106.8	466	229	174	108.4	117	95	57	43	17
9	252	1	73	65	106.5	510	245	155	108.0	119	96	56	42	21
10	253	2	74	71	122.0	381	199	151	123.7	118	92	52	39	18
11	254	3	76	81	122.5	510	202	155	124.1	120	94	56	41	28
12	255	4	80	102	140.8	516	175	170	142.6	134	103	54	39	15
13	256	5	102	114	154.6	516	--	--	156.5	148	112	61	43	17
14	257	6	112	127	156.4	497	299	209	158.2	154	112	--	46	--
15	258	7	113	130	154.9	507	330	200	156.6	149	113	66	51	34
16	259	8	111	121	158.2	445	260	166	159.9	141	108	60	45	18
17	260	9	99	113	157.5	451	310	193	159.1	152	114	66	48	20
18	261	10	99	105	151.6	523	335	189	153.0	148	113	62	44	16
19	262	11	81	92	149.3	523	335	189	150.6	148	113	62	44	16
20	263	12	65	67	145.0	513	--	174	146.2	141	114	61	43	17
21	264	13	44	51	146.8	515	355	178	147.9	142	113	64	45	18
22	265	14	64	60	140.4	464	255	170	141.5	139	113	58	44	17
23	266	15	57	57	136.9	504	321	170	137.8	132	111	63	44	15
24	267	16	41	45	131.6	506	222	160	132.4	128	108	62	42	16
25	268	17	29	32	125.4	507	222	157	126.1	120	105	60	41	17
26	269	18	29	33	122.7	506	--	167	123.3	119	103	62	43	16
27	270	19	35	39	123.8	510	--	163	124.4	117	102	63	44	17
28	271	20	46	49	126.0	--	--	--	126.5	--	--	--	--	--
29	272	21	52	60	124.8	500	278	165	125.3	120	102	63	45	17
30	273	22	50	57	124.8	475	278	160	125.1	118	100	59	40	16
MEAN			70.9	77.5	135.7	500	259	171	137.2	133	107	60	43	18

The International numbers shown above are preliminary values; the American numbers are final.

NOTE: Radio flux values are from Sagamore Hill, Massachusetts, USA.

Cycle 23 Smoothed Sunspot Numbers: Observed and Predicted



Smoothed Sunspot Numbers (observed and Predicted) for Parts of Solar Cycles 22 and 23

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1992	124	115	108	103	100	97	91	84	80	76	74	73	94
1993	71	69	67	64	60	56	55	52	48	45	41	38	56
1994	37	35	34	34	33	31	29	27	27	27	26	26	31
1995	24	23	22	21	19	18	17	15	13	12	11	11	17
1996	10	10	10	9	8*	9	8	8	8	9**	10	10	8
1997	11	11	14	17	18	20	23	25	28	32	35	39	23
1998	44	49	53	57	59	63	65	68	69	71	73	78	62
1999	83	85	84	88 (4)	91 (7)	95 (9)	98 (12)	100 (16)	103 (20)	105 (24)	108 (26)	110 (28)	96 (12)
2000	111 (30)	112 (32)	113 (33)	113 (34)	113 (34)	114 (34)	114 (33)	114 (34)	114 (35)	113 (35)	113 (37)	112 (37)	113 (34)

Solar Cycle 22
 Solar Cycle 23
 Min, Max, and Predictions

* May 1996 marks Cycle 22's mathematical minimum. ** October 1996 marks the consensus minimum NGDC is now using.

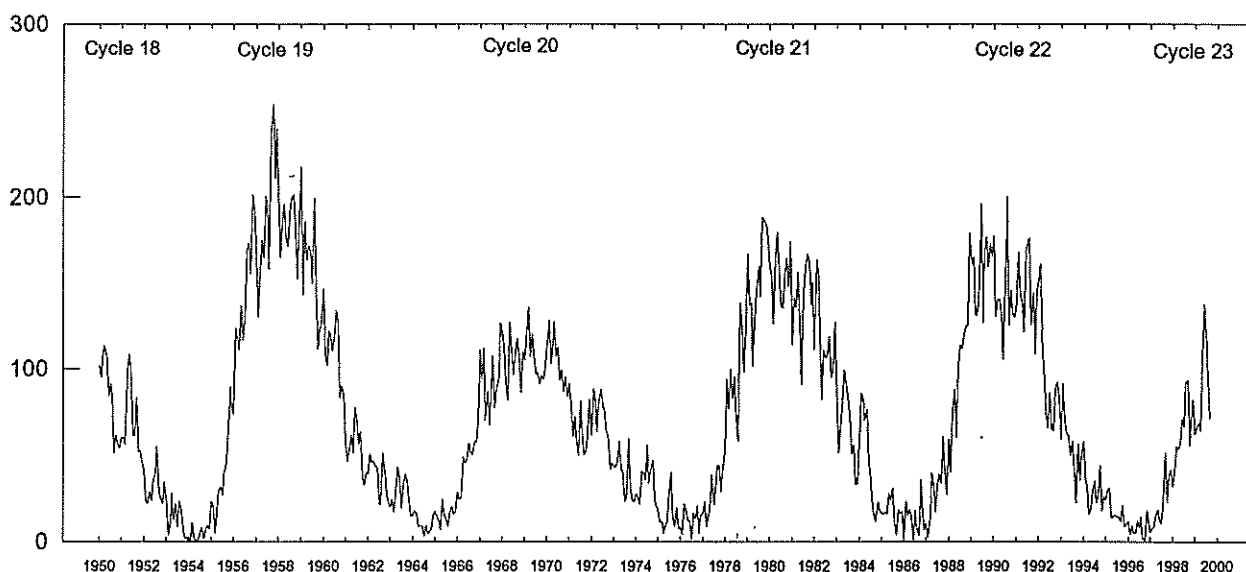
Observed and Predicted Numbers. For the end of Cycle 22, and the rise and decline of Cycle 23, the table above lists observed smoothed sunspot numbers up to the one that includes the most recent monthly mean. We based these smoothed values on final monthly means through Mar 1999 and on provisional numbers thereafter. Table entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the Jul 1987 supplement to *Solar-Geophysical Data*.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval. Subtracting the number from the predicted value generates the lower limit. Consider, for example, the March 2000 prediction. There exists a 90% chance that in March 2000, the actual smoothed number will fall somewhere between 80 and 146.

Points to Ponder. The McNish-Lincoln prediction method generates useful estimates of smoothed, monthly mean sunspot numbers for no more than 12 months ahead. Beyond 12 months, the predictions regress toward the mean of all 15 cycles of observations used in the computation. Moreover, the method remains very sensitive to the date defining the onset of the current cycle, that is, to the date of the most recent sunspot minimum. The new cycle predictions tabulated above are based on the consensus minimum value of 8.8 that occurred in October 1996.

Note: Please visit <http://www.sec.noaa.gov> for solar minimum and Cycle 23 discussions.

Mean Monthly Sunspot Numbers Jan 1950 - Aug 1999

27
Sep 99



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1	83.9
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4 m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2 M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	122.3
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2 m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9 M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6 m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4 M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4 m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.4
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	100.2
1989	161.3	165.1	131.4	130.6	138.5	196.2	126.9	168.9	176.7	159.4	173.0	165.5	157.6 M
1990	177.3	130.5	140.3	140.3	132.2	105.4	149.4	200.3	125.2	145.5	131.4	129.7	142.6
1991	136.9	167.5	141.9	140.0	121.3	169.7	173.7	176.3	125.3	144.1	108.2	144.4	145.7
1992	150.0	161.1	106.7	99.8	73.8	65.2	85.7	64.5	63.9	88.7	91.8	82.6	94.3
1993	59.3	91.0	69.8	62.2	61.3	49.8	57.9	42.2	22.4	56.4	35.6	48.9	54.6
1994	57.8	35.5	31.7	16.1	17.8	28.0	35.1	22.5	25.7	44.0	18.0	26.2	29.9
1995	24.2	29.9	31.1	14.0	14.5	15.6	14.5	14.3	11.8	21.1	9.0	10.0	17.5
1996	11.5	4.4	9.2	4.8	5.5	11.8	8.2	14.4	1.6	0.9	17.9	13.3	8.6 m
1997	5.7	7.6	8.7	15.5	18.5	12.7	10.4	24.4	51.3	22.8	39.0	41.2	21.5
1998	31.9	40.3	54.8	53.4	56.3	70.7	66.6	92.2	92.9	55.5	74.0	81.9	64.3
1999	62.0	66.3	68.8	63.9	106.3	137.4	113.5	93.7	70.9				87.0

Values are preliminary after Dec 98. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

28
Sep 99

H α SOLAR FLARES

SEPTEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	
GOES	01	0027	0045	0105			8677			38		C 2.7						5.0E-03
SVTO		0855	0857	0903	N21	W18	8675	08	31.0	8	SF		3	E		13		
RAMY		1225	1226	1228	N19	W44	8681	08	29.2	3	SF		3	E		10		
HOLL		1418	1423	1438	N22	W37	8681	08	29.8	20	SF		3	E		25		
RAMY		1739	1739	1748	N22	W22	8675	08	31.0	9	SF		3	E		13		F
HOLL		1741	1742	1746	N22	W21	8675	08	31.1	5	SF		3	E		27		F
GOES		1852	1859	1905	S28	W75	8674			13	SF	C 6.6						3.5E-03
RAMY		1857	1859	1908	S30	W77	8674	08	26.8	11	SF		3	E		35		
HOLL		1859	1900	1945	S28	W75	8674	08	27.0	46	SF		3	E		49		
HOLL	02	1742	1753	1908	N21	W34	8675	08	31.1	86	2F		3	E		269		
RAMY		1743	1751	1849	N21	W34	8675	08	31.1	66	1F		3	E		143		
GOES		1743	1828	1855	N21	W34	8675			72	2F	C 5.3						1.8E-02
GOES		2335	2348	2357						22		C 2.1						2.5E-03
GOES	03	0339	0428	0524						105		C 1.7						5.3E-03
HOLL		2005	2006	2018	N17	E03	8682	09	4.1	13	SF		3	E		19		
GOES		2034	2049	2058	N21	W50	8675			24	SF	C 1.3						1.3E-03
HOLL		2047	2049	2102	N21	W50	8675	08	31.0	15	SF		3	E		46		
HOLL		2335	2344U	2519D	S38	W26	8679	09	1.9	104D	1F		3	E		115		
GOES	04	0207	0216	0229						22		B 9.1						1.1E-03
GOES		0501	0507	0511						10		C 1.0						4.8E-04
HOLL	05	0022	0022	0041	N09	W34	8687	09	2.5	19	SF		3	E		11		F
GOES		0531	0539	0552	N17	W62	8681			21	SF	C 2.0						2.0E-03
SVTO		0533E	0534U	0619D	N17	W62	8681	08	31.5	46D	SF		2	E		18		F
RAMY		1126	1126	1131	N22	W83	8681	08	30.2	5	SF		3	E		32		
RAMY		1238	1238	1245	S25	W59	8686	08	31.9	7	SF		3	E		17		
RAMY		1318	1318	1323	S25	W59	8686	09	1.0	5	SF		3	E		23		
RAMY		1354	1354	1403	S38	W64	8679	08	31.4	9	SF		3	E		15		
GOES	06	1207	1213	1219	N17	W36	8682			12	SF	B 6.2						4.1E-04
RAMY		1209	1211	1218	N17	W36	8682	09	3.8	9	SF		3	E		11		F
GOES		2101	2112	2118						17		C 1.7						1.2E-03
GOES	07	0258	0302	0308						10		B 5.9						3.2E-04
GOES		1349	1358	1408						19		C 1.2						1.2E-03
RAMY		1534	1536	1543	N17	W52	8682	09	3.7	9	SF		3	E		12		
GOES		1916	1921	1924						8		B 6.4						2.7E-04
GOES		2258	2307	2319	N13	E59	8690			21	SF	C 2.7						2.2E-03
HOLL		2311	2311	2324	N17	W56	8682	09	3.7	13	SF		3	E		56		
HOLL		2311	2311	2339	N13	E59	8690	09	12.4	28	SF		3	E		66		
GOES	08	0218	0222	0227						9		B 5.1						2.3E-04
GOES		0551	0554	0557						6		C 1.0						2.6E-04
GOES		1208	1217	1227	N12	E53	8690			19	1B	M 1.4						8.9E-03
GOES		2126	2135	2140						14		B 4.4						3.1E-04
GOES	09	1613	1637	1708	N13	E37	8690			55	SF	C 3.3						7.8E-03
SVTO		1615E	1623U	1633	S31	W55	8690	09	5.3	18D	SF		2	E		32		F
HOLL		1616	1629	1747	N13	E37	8690	09	12.5	91	SF		3	E		49		S
RAMY		1620	1628	1713	N13	E39	8690	09	12.6	53	SF		3	E		21		FS
RAMY		1718	1718	1721	S24	E48	8692	09	13.4	3	SF		3	E		19		
HOLL		1718	1719	1723	S25	E49	8692	09	13.5	5	SF		3	E		41		
GOES	10	0149	0153	0157						8		B 4.5						1.8E-04
GOES		0739	0743	0746						7		B 7.0						2.4E-04
GOES		0811	0814	0820						9		B 4.0						1.8E-04
SVTO		0853	0853	0859	S27	E45	8692	09	13.9	6	SF		3	E		12		
GOES		0914	0920	0923	S28	E45	8692			9	SF	B 8.6						3.4E-04
SVTO		0915	0920	0924	S28	E45	8692	09	13.9	9	SF		3	E		15		
SVTO		1115	1115	1119	S28	E44	8692	09	13.9	4	SF		3	E		16		
SVTO		1145	1146	1149	S25	E35	8692	09	13.2	4	SF		3	E		13		H
HOLL		1911	1913	1916	S27	E41	8692	09	14.0	5	SF		3	E		13		
GOES		1941	1947	1958						17		B 4.8						4.5E-04
HOLL		2241	2244	2256	S26	E38	8692	09	13.9	15	SF		3	E		13		F
HOLL		2242	2244	2328	N14	E21	8690	09	12.5	46	SF		3	E		40		F

H α SOLAR FLARES

SEPTEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
GOES	11	0219	0224	0227						8		B 9.7						3.3E-04
GOES		0516	0520	0529						13		B 4.1						2.8E-04
GOES		0626	0631	0633						7		C 1.0						2.8E-04
GOES		1439	1444	1449						10		B 8.0						3.8E-04
HOLL		1947	1952	2000	N23	E31		09	14.2	13	SF		3	E		20		H
GOES		2052	2100	2105						13		B 7.0						4.6E-04
HOLL		2111	2215	2229	N23	E29	8699	09	14.1	78	SF		3	E		20		
HOLL		2234	2240	2251	N13	E07	8690	09	12.5	17	SF		3	E		19		
HOLL		2235	2244	2251	N22	E28	8699	09	14.1	16	SF		3	E		20		
HOLL		2301	2305	2307	N22	E28	8699	09	14.1	6	SF		3	E		18		
HOLL		2333	2342	2346	N23	E28	8699	09	14.1	13	SF		3	E		16		
HOLL		2351	2404	2408	N23	E28	8699	09	14.1	17	SF		3	E		15		
GOES	12	0148	0201	0207						19		B 9.9						1.0E-03
GOES		0209	0212	0217						8		C 1.1						5.1E-04
GOES		0334	0342	0353	N22	E26	8699			19	SF	C 1.8						1.7E-03
GOES		0505	0509	0517	N22	E25	8699			12	SF	B 9.0						5.5E-04
GOES		0551	0602	0634	N22	E25	8699			43	SF	C 2.4						5.1E-03
GOES		0831	0835	0842						11		C 1.1						5.6E-04
GOES		1151	1159	1207	N21	E21	8699			16	SF	C 2.2						1.4E-03
RAMY		1205	1205	1218	N21	E21	8699	09	14.1	13	SF		3	E		10		
GOES		1229	1235	1241						12		C 1.3						7.9E-04
HOLL		1348	1350	1354	N22	E20	8699	09	14.1	6	SF		3	E		26		
HOLL		1417	1430	1457	N22	E21	8699	09	14.2	40	SF		3	E		26		
HOLL		1509	1514	1528	N22	E19	8699	09	14.1	19	SF		3	E		23		
GOES		1658	1703	1705	N23	E19	8699			7	SF	C 1.2						4.6E-04
HOLL		1700	1702	1708	N23	E19	8699	09	14.2	8	SF		3	E		25		F
RAMY		1701	1702	1707	N21	E20	8699	09	14.2	6	SF		3	E		14		
GOES		1736	1746	1758						22		C 2.4						2.5E-03
HOLL		1810	1810	1818	S27	E16	8692	09	14.0	8	SF		3	E		13		
HOLL		1825	1826	1837	S27	E16	8692	09	14.0	12	SF		3	E		17		
GOES	13	0040	0048	0109						29		B 9.8						1.5E-03
GOES		0611	0614	0618						7		B 7.6						2.7E-04
GOES		0717	0724	0729						12		C 2.5						1.6E-03
GOES		0805	0846	0932	N22	E10	8699			87	SF	C 4.9						2.1E-02
GOES		1630	1645	1704	N15	E06	8693			34	1N	C 2.6						4.4E-03
RAMY		1633	1634	1639	N15	W17	8690	09	12.4	6	SF		3	E		16		
HOLL		1638E	1644	1759	N15	E06	8693	09	14.1	81D	1N		3	E		199		U
GOES		1723	1732	1738	N17	E75	8700			15	SF	C 2.1						1.7E-03
HOLL		1735	1737	1740	N17	E75	8700	09	19.4	5	SF		3	E		14		
GOES		1933	1941	1944						11		C 1.7						9.8E-04
HOLL		2242	2246	2303	N21	E03	8699	09	14.2	21	SF		3	E		25		
GOES	14	0054	0058	0102						8		C 1.2						5.1E-04
GOES		0202	0206	0208						6		C 1.0						2.9E-04
GOES		0211	0216	0227						16		C 1.1						9.9E-04
GOES		0230	0235	0239						9		C 2.8						9.9E-04
GOES		0329	0342	0357						28		C 2.2						2.8E-03
GOES		0359	0402	0404						5		C 2.8						6.3E-04
GOES		0544	0548	0553						9		C 1.5						6.6E-04
GOES		0646	0701	0724						38		C 2.0						3.7E-03
GOES		0920	0924	0928						8		C 1.9						7.9E-04
GOES		1049	1103	1109						20		C 1.2						1.3E-03
GOES		1317	1321	1345						28		C 1.1						1.7E-03
GOES		1354	1403	1414	N13	W28	8690			20	SF	C 1.8						1.9E-03
SVTO		1358E	1358	1419	N11	W30	8690	09	12.3	21D	SF		3	E		50		F
HOLL		1402	1403	1424	N13	W28	8690	09	12.5	22	SF		3	E		64		
SVTO		1433	1434	1439	N16	E64	8700	09	19.5	6	SF		3	E		21		
GOES		1602	1606	1609	N20	W04	8699			7	SF	C 1.0						3.8E-04
HOLL		1604	1605	1610	N20	W04	8699	09	14.4	6	SF		3	E		21		
GOES	15	0201	0205	0209						8		C 1.2						5.2E-04
GOES		0306	0309	0311						5		B 9.4						2.4E-04
GOES		0422	0427	0430						8		C 1.1						4.5E-04
GOES		1156	1203	1221	N11	E45	8700			25	SF	C 2.2						3.0E-03
SVTO		1200E	1200U	1208	N11	E45	8700	09	18.9	8D	SF		3	E		44		
GOES		1250	1405	1448						118		C 2.9						1.7E-02

30
Sep 99

H α SOLAR FLARES

SEPTEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	(Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	
RAMY	15	1340	1346	1356	N11	E48	8700	09	19.2	16	SF		3	E		16		
SVTO		1352E	1353	1357	N13	E44	8700	09	18.9	50	SF		3	E		18		
HOLL		1929	2016	2027	N13	E46	8700	09	19.3	58	SF		3	E		24		FH
HOLL		2103	2103	2108	N15	E48	8700	09	19.5	5	SF		3	E		12		
GOES		2104	2105	2106	N15	E48	8700			2	SF C 1.2							1.2E-04
HOLL		2105	2108	2111	N22	W20	8699	09	14.3	6	SF		3	E		20		
GOES		2106	2108	2109	N22	W20	8699			3	SF C 1.5							2.2E-04
HOLL		2136	2137	2306	N14	E48	8700	09	19.5	90	SF		3	E		89		F
HOLL		2219	2219	2232	S31	W26	8692	09	13.9	13	SF		3	E		25		F
GOES	16	0022	0026	0029						7		C 1.0						4.0E-04
GOES		0127	0134	0139	N22	W26	8699			12	SF C 1.9							1.0E-03
LEAR		0131	0131	0139	N22	W26	8699	09	14.1	8	SF		3	E		23		F
GOES		0209	0212	0214						5		C 1.0						2.7E-04
GOES		0323	0331	0335	N13	E46	8700			12	SF C 7.7							3.1E-03
LEAR		0325	0330	0346	N13	E46	8700	09	19.6	21	SF		3	E		79		
GOES		0531	0536	0540	N22	W28	8699			9	SF C 1.2							5.9E-04
LEAR		0534	0534	0541	N22	W28	8699	09	14.1	7	SF		3	E		19		
LEAR		0845	0847	0923	N24	W35	8234	09	13.7	38	4B		4	E				
GOES		0958	1004	1008						10		C 1.3						6.3E-04
GOES		1300	1304	1308	S26	W35	8692			8	SF B 9.9							4.1E-04
RAMY		1304	1305	1313	S26	W35	8692	09	13.8	9	SF		3	E		17		
GOES		2207	2219	2223	S25	W46	8692			16	SF C 1.1							9.2E-04
HOLL		2218E	2220	2227	S25	W46	8692	09	13.4	90	SF		3	E		84		
GOES	17	0114	0120	0123	N14	W64	8690			9	SF M 2.1							6.0E-03
LEAR		0115	0119	0130	N14	W64	8690	09	12.2	15	SF		3	E		84		F
GOES		0505	0512	0542	N14	E29	8700			37	SF C 2.1							4.0E-03
LEAR		0512E	0513U	0527	N14	E29	8700	09	19.4	150	SF		3	E		14		
GOES		1027	1030	1033						6		C 1.4						4.5E-04
RAMY		1130	1138	1142	N19	W80		09	11.4	12	SF		3	E		21		H
GOES		1147	1206	1220	N18	W81				33	SF C 4.5							5.6E-03
RAMY		1150	1204	1232	N18	W81		09	11.3	42	SF		3	E		64		FH
RAMY		1317	1318	1321	N18	W83		09	11.2	4	SF		3	E		17		H
GOES		1353	1357	1402	N11	E24	8700			9	SF C 1.7							8.4E-04
RAMY		1354	1356	1414	N11	E24	8700	09	19.4	20	SF		3	E		29		F
GOES		1433	1437	1444						11		C 1.4						8.8E-04
RAMY		1552	1600	1612	N13	W70	8690	09	12.4	20	SF		3	E		22		
RAMY		1648	1650	1653	N19	W82		09	11.4	5	SF		3	E		11		FH
RAMY		1737	1738	1744	N21	W82		09	11.4	7	SF		3	E		48		H
RAMY		1744	1747	1750	N12	W72	8690	09	12.3	6	SF		3	E		37		FH
RAMY		1755	1803	1827	S27	W50	8692	09	13.8	32	SF		3	E		75		F
GOES		1759	1804	1809	S27	W50	8692			10	SF C 3.1							1.6E-03
GOES		1950	1953	1957	N25	W45	8699			7	SF C 1.5							5.9E-04
RAMY		1953	1956	2001	N25	W45	8699	09	14.3	8	SF		3	E		35		FH
HOLL		2205	2214	2303	N14	E19	8700	09	19.3	58	2F		3	E		298		F
GOES		2206	2212	2217	N14	E19				11	2F C 8.8							3.9E-03
HOLL	18	0007E	0007	0013	N12	E19	8700	09	19.4	60	SF		3	E		14		
LEAR		0439	0443	0450	N11	E17	8700	09	19.5	11	SF		3	E		18		F
LEAR		0443	0443	0447	N25	W51	8699	09	14.2	4	SF		3	E		26		
LEAR		0625	0625	0628	N11	E15	8700	09	19.4	3	SF		3	E		19		F
SVTO		0625	0626U	0639D	N14	E14	8700	09	19.3	140	SF		3	E		14		
GOES		0857	0902	0909						12		C 1.7						1.1E-03
GOES		0913	0919	0921	N25	W52	8699			8	SF C 1.9							8.5E-04
SVTO		0916	0920	0923	N25	W52	8699	09	14.3	7	SF		3	E		25		H
RAMY		1132	1133	1141	N25	W52	8699	09	14.4	9	SF		3	E		39		
GOES		1414	1421	1433	N11	E12	8700			19	SF C 2.4							2.5E-03
HOLL		1414	1421	1459	N11	E12	8700	09	19.5	45	SF		3	E		41		
GOES		1514	1605	1609						55		C 2.9						7.5E-03
GOES		1818	1821	1823	N24	W58	8699			5	SF C 2.3							4.8E-04
RAMY		1820	1822	1825	N24	W55	8699	09	14.5	5	SF		3	E		33		H
HOLL		1820	1822	1827	N24	W58	8699	09	14.3	7	SF		3	E		74		
HOLL		1930	1931	1943	N14	E07	8700	09	19.3	13	SF		3	E		24		
RAMY		1932	1934	1938	N12	E09	8700	09	19.5	6	SF		3	E		17		F
HOLL		2115	2137	2149	N14	E06	8700	09	19.3	34	SF		3	E		52		
HOLL		2151	2156	2200	N14	E06	8700	09	19.4	9	SF		3	E		28		
GOES	19	0309	0316	0324	N14	E03	8700			15	SF C 1.7							1.3E-03

H α SOLAR FLARES

SEPTEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	
LEAR	19	0312	0316	0324	N14	E03	8700	09	19.4	12	SF		4	E		33		F
LEAR		0451	0451	0455	N11	E04	8700	09	19.5	4	SF		3	E		15		
GOES		0642	0645	0648	N22	W67	8699			6	SF	C 1.2						3.6E-04
SVTO		0645	0645	0652	N22	W67	8699	09	14.1	7	SF		3	E		39		
LEAR		0646	0646	0650	N23	W67	8699	09	14.1	4	SF		3	E		16		
GOES		1034	1124	1154	N21	W68	8699			80	SF	C 3.2						1.0E-02
RAMY		1116E	1116U	1135D	N21	W68	8699	09	14.2	19D	SF		3	E		21		
RAMY		1225	1227	1230	S26	W75	8692	09	13.7	5	SF		3	E		41		
RAMY		1322	1324	1326	S30	W71	8692	09	14.0	4	SF		3	E		25		
GOES		1407	1440	1501	N21	W71	8699			54	SF	C 4.9						1.1E-02
SVTO		1409	1411	1415	S30	W77	8692	09	13.5	6	SF		3	E		42		
RAMY		1409	1411	1416	S30	W73	8692	09	13.8	7	SF		3	E		47		
RAMY		1416	1435	1526	N20	W70	8699	09	14.2	70	SF		3	E		81		FS
HOLL		1418	1439	1503	N21	W71	8699	09	14.1	45	SF		3	E		74		
SVTO		1419	1433	1503	N22	W70	8699	09	14.2	44	SF		3	E		64		F
GOES		2303	2312	2320	N21	W76	8699			17	1F	C 9.6						6.3E-03
HOLL		2306	2308	2321	N21	W76	8699	09	14.1	15	1F		3	E		141		
LEAR		2309E	2309U	2319	N23	W76	8699	09	14.1	10D	SF		2	E		54		F
GOES	20	0052	0057	0102						10		C 1.3						7.2E-04
GOES		0122	0139	0152						30		C 2.5						3.5E-03
GOES		0254	0312	0321						27		C 2.4						3.1E-03
GOES		0546	0550	0610						24		C 2.8						3.6E-03
GOES		1307	1324	1330	N11	W13	8700			23	SF	C 2.6						2.8E-03
HOLL		1310E	1310U	1355D	N12	E44	8700	09	23.9	45D	SF		2	E		68		F
SVTO		1310	1325	1340	N11	W13	8700	09	19.6	30	SF		3	E		55		F
GOES		1421	1429	1442						21		C 1.6						1.8E-03
HOLL		2033	2034	2036	N12	W21	8700	09	19.3	3	SF		3	E		14		
HOLL		2057	2058	2101	N11	W19	8700	09	19.4	4	SF		3	E		19		
GOES		2318	2332	2350						32		C 1.3						2.3E-03
GOES	21	0300	0332	0341	N19	W90	8699			41		C 5.2						8.6E-03
GOES		0342	0352	0416	N20	E61	8706			34	SF	C 9.4						1.5E-02
LEAR		0344E	0349U	0356	N20	E61	8706	09	25.8	12D	SF		3	E		39		F
LEAR		0405	0409	0411	N20	E61	8706	09	25.8	6	SF		3	E		22		
GOES		0715	0720	0724	S23	E28	8704			9	SF	C 2.7						1.0E-03
SVTO		0719	0719	0723	S23	E28	8704	09	23.5	4	SF		3	E		17		
GOES		0939	1047	1120						101		C 6.4						2.3E-02
GOES	22	0147	0156	0213						26		B 8.2						1.1E-03
GOES		0407	0411	0415						8		B 7.8						3.2E-04
GOES		0446	0449	0451						5		B 6.7						1.5E-04
GOES		0704	0710	0718	N09	W43	8700			14	SF	C 1.1						7.5E-04
SVTO		0706	0708	0721	N10	W44	8700	09	19.0	15	SF		3	E		26		F
LEAR		0708	0710	0712	N09	W43	8700	09	19.1	4	SF		3	E		13		
SVTO		0734	0734	0740	N10	W39	8700	09	19.4	6	SF		3	E		33		F
GOES		0906	0911	0914	S08	E61				8	SF	B 9.5						3.5E-04
SVTO		0907	0911	0919	S08	E61		09	26.9	12	SF		2	E		30		
SVTO		0931	0945U	1014D	S08	E60		09	26.9	43D	SF		3	E		28		
GOES		1002	1006	1009	S08	E60				7	SF	C 2.1						5.2E-04
SVTO		1022	1030	1051	S09	E60		09	26.9	29	SF		3	E		33		F
GOES		1112	1116	1119						7		B 7.6						2.5E-04
RAMY		1229	1231	1233	S09	E61		09	27.1	4	SF		3	E		11		
RAMY		1301	1301	1306	S09	E61		09	27.1	5	SF		3	E		23		
GOES		1329	1340	1353	N17	E39				24	1F	C 5.2						5.4E-03
RAMY		1330	1334	1430	N17	E39	8706	09	25.5	60	1F		3	E		194		FS
HOLL		1331	1334	1423	N19	E40	8706	09	25.6	52	1F		3	E		174		
SVTO		1331	1336	1430	N18	E39	8706	09	25.5	59	1N		3	E		178		ZF
HOLL		1354	1357	1400	S10	E62		09	27.2	6	SF		3	E		16		
SVTO		1532	1532	1539	N09	W44	8700	09	19.3	7	SF		3	E		15		F
RAMY		1716	1716	1720	N10	W45	8700	09	19.3	4	SF		3	E		13		
GOES	23	0019	0028	0034						15		C 1.2						7.8E-04
RAMY		1232	1234	1237	N11	W56	8700	09	19.3	5	SF		3	E		12		
SVTO		1428	1429	1432	N14	W56	8700	09	19.4	4	SF		3	E		13		
RAMY		1428	1430	1434	N11	W58	8700	09	19.2	6	SF		3	E		10		
GOES	24	1012	1017	1021						9		B 6.5						2.9E-04

32
Sep 99

H α SOLAR FLARES

SEPTEMBER 1999

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	Remarks
[GOES	24	1458	1511	1517	N17	E17	8706			19	SF	B 4.7						4.6E-04
[SVTO		1506	1510	1519	N17	E17	8706	09	25.9	13	SF		3	E		19		F
[GOES		2014	2018	2020	N18	E15	8706			6	SF	B 5.4						1.6E-04
[HOLL		2016	2018	2022	N18	E15	8706	09	26.0	6	SF		3	E		42		
GOES	25	1318	1325	1329						11		B 7.3						3.8E-04
GOES		1932	1935	1944						12		B 4.5						2.9E-04
GOES		2345	2433	2452						67		C 1.0						3.4E-03
GOES	26	1110	1114	1121						11		B 5.3						3.0E-04
GOES		1530	1539	1557						27		B 3.9						5.7E-04
GOES		1845	1903	1918						33		B 5.3						9.1E-04
[GOES	27	0900	0912	0921	S20	W56	8704			21	SF	C 2.1						2.0E-03
[SVTO		0906	0908	0917	S20	W56	8704	09	23.1	11	SF		3	E		17		
SVTO		0955	0956	1000	N22	W18	8706	09	26.0	5	SF		3	E		14		
GOES		1145	1156	1207						22		B 7.6						8.3E-04
GOES		2325	2333	2341						16		B 8.2						6.2E-04
HOLL		2340	2340	2353	N18	W03		09	27.7	13	SF		3	E		21		
GOES	28	1522	1539	1559						37		C 4.3						7.0E-03
GOES		1734	1738	1741						7		C 1.1						4.2E-04
SVTO	29	1248	1250	1256	S17	E64		10	4.4	8	SF		3	E		25		F
GOES		1515	1523	1530						15		B 7.1						5.2E-04
GOES		1555	1605	1618						23		C 2.2						2.0E-03
[GOES		2012	2016	2018	N24	E40	8710			6	SF	B 6.7						1.8E-04
[HOLL		2016	2016	2023	N24	E40	8710	10	2.9	7	SF		3	E		20		H
GOES	30	0004	0012	0023						19		B 8.0						8.2E-04
GOES		0356	0403	0412						16		B 8.3						6.7E-04
GOES		0457	0507	0517						20		C 1.1						1.0E-03
HOLL		1822	1823	1827	N15	E66	8714	10	5.8	5	SF		3	E		23		
GOES		2342	2346	2350						8		B 7.4						3.2E-04

"Remarks"

A = Eruptive prominence whose base is less than 90 degrees from central meridian.
 B = Probably the end of a more important flare.
 C = Invisible 10 minutes before.
 D = Brilliant point.
 E = Two or more brilliant points.
 F = Several eruptive centers.
 G = No visible spots in the neighborhood.
 H = Flare accompanied by high-speed dark filament.
 I = Active region very extended.
 J = Distinct variations of plage intensity before or after the flare.
 K = Several intensity maxima.
 L = Existing filaments show signs of sudden activity.
 M = White-light flare.
 N = Continuous spectrum shows effects of polarization.

O = Observations have been made in the H and K lines of Ca II.
 P = Flare shows Helium D3 in emission.
 Q = Flare shows Balmer continuum in emission.
 R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
 S = Brightness follows disappearance of filament in same position.
 T = Region active all day.
 U = Two bright branches, parallel or converging.
 V = Occurrence of an explosive phase; important, expansion within roughly 1 minute that often includes a significant intensity increase.
 W = Great increase in area after time of maximum intensity.
 X = Unusually wide H-alpha line.
 Y = System of loop-type prominences.
 Z = Major sunspot umbra covered by flare.

Observation Type: C=Cinematographic, E=Electronic, P=Photographic, V=Visual

NOTE: Beginning July 1997, the times of all GOES X-ray events are now included in this table.

S O L A R R A D I O E M I S S I O N

Selected Fixed Frequency Events

33
Sep 99

SEPTEMBER 1999

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
						Peak (10 -22 W/m 2 Hz)	Mean		
08	8800 LEAR	8 S	0553.0	0555.0	2.0	26.0			QL=4 ST=2 TYP=3
	8800 SGMR	4 S/F	1212.0	1215.0	24.0	470.0			QL=2 ST=2 TYP=3
	8800 SVTO	48 C	1213.0	1215.0	19.0	560.0			QL=4 ST=3 TYP=8
	2695 SGMR	4 S/F	1213.0	1215.0	23.0	300.0			QL=4 ST=2 TYP=3
	2695 SVTO	4 S/F	1213.0	1215.0	22.0	290.0			QL=4 ST=2 TYP=3
09	2695 SGMR	4 S/F	1703.0	1707.0	20.0	150.0			QL=4 ST=2 TYP=3
	2695 PALE	4 S/F	1705.0	1707.0U	19.0	140.0			QL=2 ST=3 TYP=3
	8800 SGMR	4 S/F	1706.0	1708.0	17.0	36.0			QL=2 ST=2 TYP=3
13	2695 SVTO	20 GRF	0656.0	0822.0	227.0	21.0			QL=4 ST=2 TYP=2
	8800 SVTO	20 GRF	0700.0	0837.0	243.0	41.0			QL=4 ST=2 TYP=2
17	8800 PALE	4 S/F	0115.0	0119.0	14.0	180.0			QL=4 ST=2 TYP=3
	2695 LEAR	4 S/F	0117.0	0118.0	4.0	120.0			QL=4 ST=2 TYP=3
	8800 LEAR	4 S/F	0117.0	0118.0	3.0	110.0			QL=4 ST=2 TYP=3
	2695 PALE	4 S/F	0117.0	0118.0	4.0	100.0			QL=4 ST=2 TYP=3
21	2695 LEAR	4 S/F	0343.0	0344.0	3.0	46.0			QL=4 ST=2 TYP=3
22	2695 SGMR	4 S/F	1332.0	1332.0	3.0	20.0			QL=4 ST=2 TYP=3
	2695 SVTO	8 S	1332.0	1332.0	U	23.0			QL=4 ST=2 TYP=3

Reports are received routinely from the following observatories:

LEAR = Learmonth

PALE = Palehua

SGMR = Sagamore Hill

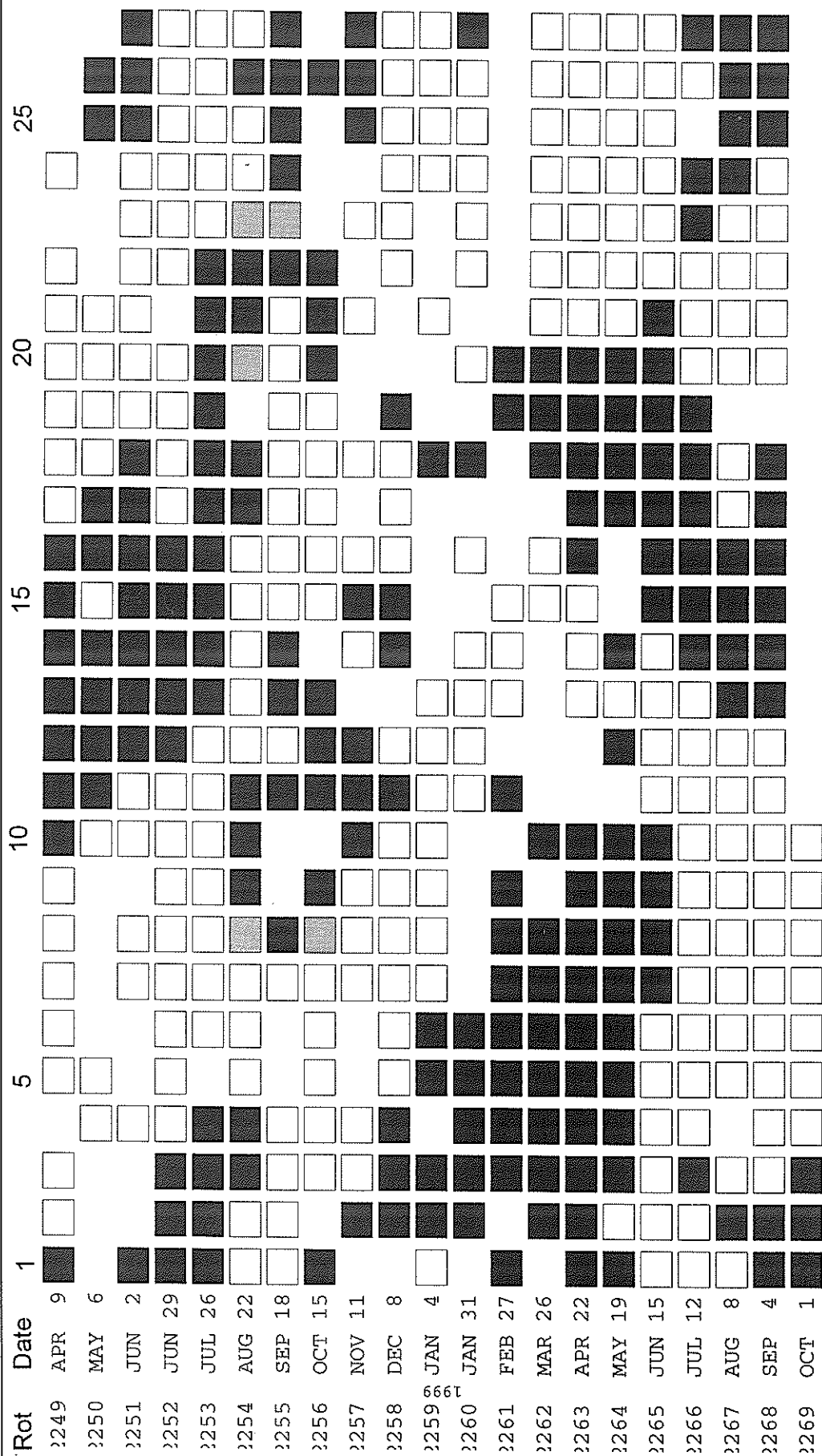
SVTO = San Vito

Explanation of Type Code:

1 Simple 1	7 Minor +	24 Rise	30 Post Burst Increase A	43 Onset of Noise Storm
2 Simple 1F	8 Spike	25 Rise A	31 Post Burst Decrease	44 Noise Storm in Progress
3 Simple 2	20 Simple 3	26 Fall	33 Absorption	45 Complex
4 Simple 2F	21 Simple 3A	27 Rise and Fall	40 Fluctuation	46 Complex F
5 Simple	22 Simple 3F	28 Precursor	41 Group of Bursts	47 Great Burst
6 Minor	23 Simple 3AF	29 Post Burst Increase	42 Series of Bursts	48 Major
1A Simple 1A	4A Simple 2AF	24PF Post Rise F	27F Rise and Fall F	
3A Simple 2A	40 Rise Only	16A Fall A	27AF Rise and Fall AF	
21A Simple 3A GRF	40F Rise Only F	260 Fall Only	31A Post Burst Decrease A	
2A Simple 1AF	4P Post Rise	26F Fall F	32A Absorption A	

RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Penticton, Canada 2800 MHz; and Hiraio, Japan 500 and 200 MHz.

STANFORD MEAN SOLAR MAGNETIC FIELD



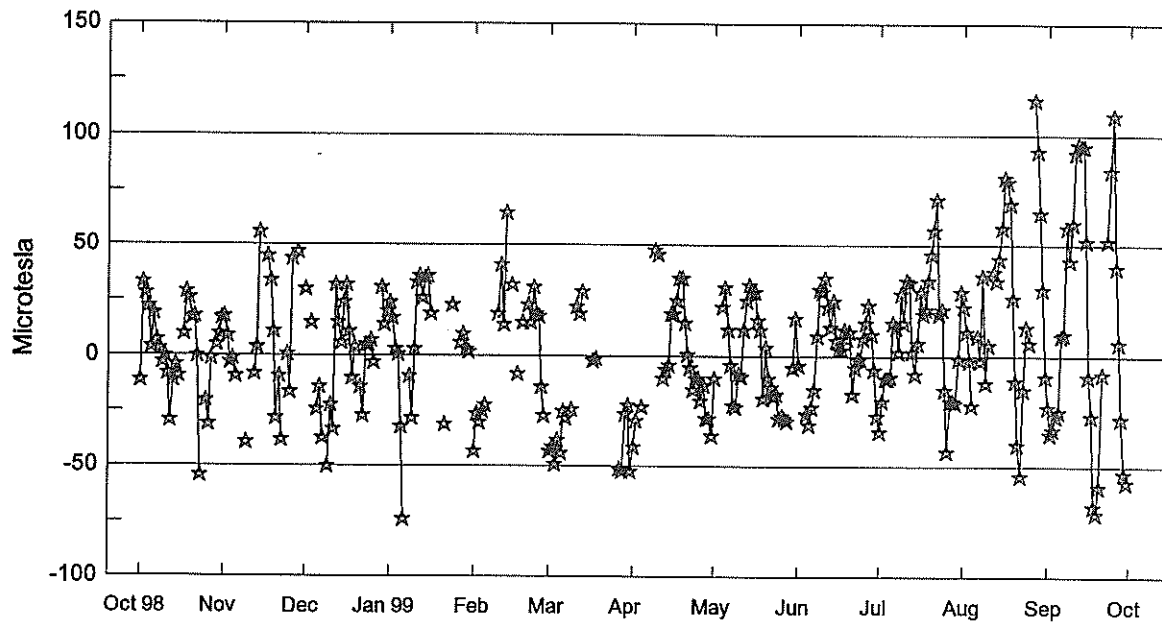
Mean Solar Magnetic Field Polarity:

- White box = field > 2 microT;
- Grey box = -2 microT ≤ field ≤ 2 microT
- Black box = field < -2 microT;
- No box = no data available

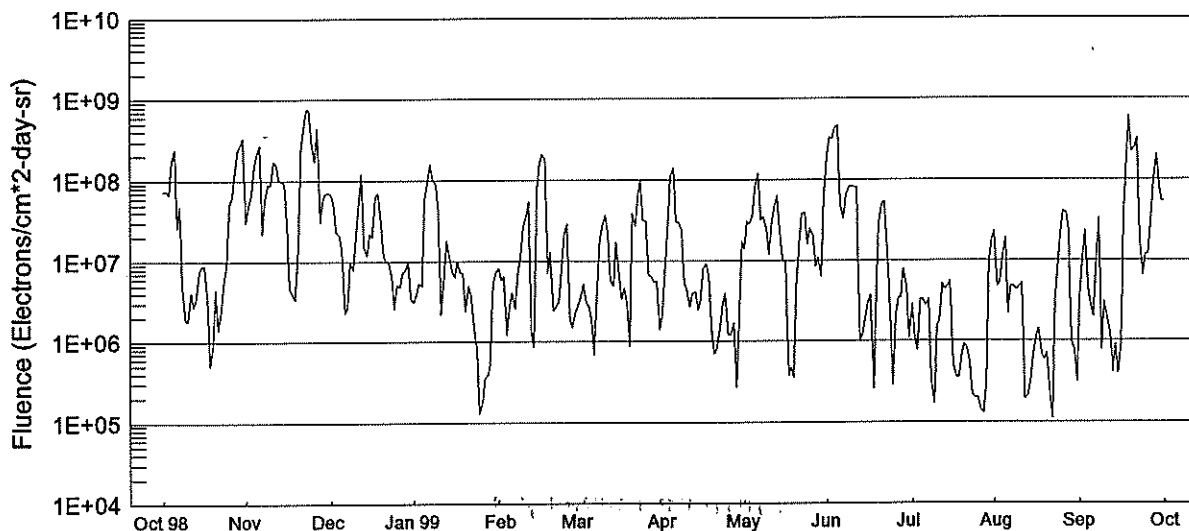
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates are five days earlier, to mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

Stanford Mean Solar Magnetic Field (Microtesla) "Sun-As-A-Star"

35
Sep 99



Day	Oct 98	Nov	Dec	Jan 99	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	-11	18	30	24	-43	-43	-41	-10	-4	-34	22	-23
2	33	9	---	17	-26	-41	-29	---	---	-20	11	-35
3	28	-3	15	3	-30	-49	---	---	---	-10	-2	-33
4	22	-1	---	1	-25	-38	-23	22	-26	-10	-22	-27
5	4	-9	-24	-32	-22	-44	---	31	-31	-9	---	-25
6	19	---	-14	-74	---	-25	---	12	-23	15	9	9
7	7	---	-37	---	---	-28	---	-4	-15	13	-2	10
8	3	---	---	-9	---	---	---	-22	9	2	36	58
9	-3	-39	-50	-28	---	-24	48	-23	30	28	-12	43
10	0	---	-22	3	19	---	46	-8	29	15	5	60
11	-8	---	-33	33	41	22	---	-9	35	34	---	92
12	-29	-8	32	36	14	19	-10	12	22	33	38	96
13	-11	4	15	26	65	29	-6	25	13	2	34	95
14	-4	56	6	35	---	---	-4	32	25	-8	44	95
15	-9	---	24	36	32	---	19	29	7	6	58	52
16	---	---	32	19	---	---	19	29	3	29	81	-9
17	10	45	11	---	-8	-2	25	16	3	19	79	-27
18	29	34	-10	---	---	-1	35	12	12	21	69	-68
19	26	11	4	---	15	---	35	-19	8	34	26	-71
20	17	-28	---	---	---	---	15	4	11	46	-11	-59
21	18	-9	-14	-31	23	---	1	-10	-17	57	-40	-8
22	0	-38	-27	---	15	---	-5	-14	-5	71	-54	---
23	-54	---	5	---	31	---	-15	-18	-1	19	-15	52
24	---	1	5	23	19	---	-10	-17	-1	21	13	84
25	-20	-16	7	---	18	---	-10	-28	8	-15	6	109
26	-31	44	-3	---	-14	---	-20	-27	15	-43	---	40
27	-1	---	---	6	-27	-51	-13	-28	23	-20	116	6
28	---	47	---	10	---	-52	-28	-29	10	-20	93	-28
29	5	---	31	3	---	-26	-28	---	-6	-21	65	-53
30	10	---	14	2	---	-22	-36	-5	-27	-1	30	-57
31	17	---	20	---	---	-52	---	17	---	29	-9	---

GOES Daily Electron Fluence
Oct 98 - Sep 99

Day	Oct 98	Nov	Dec	Jan 99	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	3.0E+07	6.6E+07	3.1E+06	8.3E+06	5.2E+06	1.4E+06	1.4E+07	1.9E+08	2.9E+06	2.3E+07	3.4E+06	5.5E+07
2	4.8E+07	5.1E+07	3.9E+06	5.9E+06	3.2E+06	2.2E+06	3.0E+07	3.3E+08	1.1E+06	4.7E+06	1.1E+07	1.4E+08
3	7.0E+07	2.3E+07	5.4E+06	6.5E+06	2.7E+06	7.2E+06	2.9E+07	3.2E+08	7.7E+05	5.5E+06	2.3E+07	7.5E+07
4	1.5E+08	2.1E+07	4.9E+06	1.2E+06	1.8E+06	2.9E+07	3.6E+07	4.4E+08	3.3E+06	1.2E+07	4.5E+06	9.7E+07
5	2.1E+08	1.4E+07	5.8E+07	2.7E+06	6.8E+05	1.1E+08	8.3E+07	4.6E+08	3.3E+06	1.9E+07	2.8E+06	1.3E+08
6	2.7E+08	2.3E+06	1.0E+08	4.1E+06	3.4E+06	1.4E+08	1.2E+08	4.9E+07	2.8E+06	2.2E+06	2.0E+06	1.4E+08
7	2.2E+07	2.7E+06	1.6E+08	2.6E+06	1.8E+07	3.0E+07	3.2E+07	3.3E+07	3.3E+06	4.8E+06	1.1E+07	9.4E+06
8	5.8E+07	9.9E+06	1.0E+08	6.8E+06	2.7E+07	3.0E+07	3.5E+07	6.4E+07	3.2E+05	4.7E+06	3.3E+07	9.7E+06
9	9.0E+07	8.0E+06	9.1E+07	1.2E+07	3.6E+07	2.4E+07	2.5E+07	8.2E+07	1.7E+05	4.3E+06	7.8E+05	1.0E+07
10	8.9E+07	1.9E+07	4.3E+07	2.7E+07	2.2E+07	5.3E+06	1.2E+07	8.4E+07	1.5E+06	4.7E+06	3.1E+06	5.4E+06
11	1.7E+08	4.5E+07	2.2E+06	3.4E+07	5.9E+06	4.4E+06	2.8E+07	8.0E+07	1.8E+06	5.3E+06	1.9E+06	9.4E+05
12	1.6E+08	1.2E+08	5.1E+06	5.5E+07	4.9E+06	2.7E+06	4.8E+07	8.0E+07	5.1E+06	1.9E+05	1.2E+06	5.6E+05
13	1.0E+08	1.5E+07	1.8E+07	1.3E+06	1.7E+07	4.0E+06	6.3E+07	1.0E+06	4.4E+06	2.1E+05	4.1E+05	2.1E+07
14	1.0E+08	1.2E+07	1.2E+07	8.6E+05	7.8E+06	4.1E+06	1.9E+07	1.2E+06	4.8E+06	3.1E+05	9.1E+05	8.2E+07
15	9.2E+07	2.2E+07	7.5E+06	7.7E+07	3.4E+06	2.5E+06	9.8E+06	2.0E+06	5.6E+06	6.3E+05	3.9E+05	4.0E+08
16	3.1E+07	2.0E+07	6.4E+06	1.6E+08	4.6E+06	3.2E+06	1.0E+07	3.1E+06	5.0E+05	1.1E+06	8.8E+05	1.7E+08
17	4.7E+06	6.4E+07	1.0E+07	2.1E+08	2.9E+06	7.9E+06	3.8E+05	3.7E+06	3.6E+05	1.4E+06	3.0E+07	1.6E+08
18	4.0E+06	7.0E+07	7.3E+06	1.8E+08	8.7E+05	9.2E+06	4.8E+05	2.6E+05	3.6E+05	6.8E+05	1.3E+08	1.4E+08
19	3.4E+06	3.7E+07	7.2E+06	7.1E+06	3.9E+07	6.6E+06	3.5E+05	4.1E+06	6.5E+05	5.9E+05	5.9E+08	1.3E+08
20	1.5E+07	1.2E+07	2.4E+06	1.3E+07	2.7E+07	1.2E+06	4.5E+06	2.8E+07	9.2E+05	7.1E+05	2.2E+08	1.2E+08
21	2.3E+08	9.8E+06	4.9E+06	2.4E+06	6.3E+07	7.0E+05	1.6E+07	5.1E+07	8.2E+05	2.1E+05	2.5E+08	5.7E+07
22	4.2E+08	1.0E+07	3.8E+06	2.7E+06	1.0E+08	8.2E+05	3.8E+07	5.4E+07	5.3E+05	1.1E+05	3.2E+08	6.6E+05
23	7.5E+08	6.6E+06	1.4E+06	3.2E+06	3.2E+07	1.5E+06	3.9E+07	1.1E+07	2.2E+05	3.1E+06	1.9E+07	1.4E+05
24	7.4E+08	2.6E+06	8.5E+05	7.8E+06	3.1E+07	2.8E+06	1.6E+07	2.3E+06	2.0E+05	7.5E+06	6.5E+06	2.2E+05
25	3.0E+08	5.1E+06	1.3E+05	2.1E+07	6.8E+06	4.0E+06	2.5E+07	2.9E+05	2.0E+05	2.2E+07	1.2E+07	4.6E+05
26	1.7E+08	4.8E+06	1.8E+05	2.9E+07	6.4E+06	1.2E+06	2.0E+07	2.1E+06	1.4E+05	4.0E+07	1.2E+07	5.0E+05
27	4.4E+08	7.3E+06	3.5E+05	2.0E+06	5.5E+06	1.2E+06	8.5E+06	3.4E+06	1.3E+05	3.9E+07	3.5E+07	3.7E+06
28	3.1E+07	8.0E+06	3.8E+05	1.5E+06	5.6E+06	1.7E+06	1.1E+07	3.5E+06	3.0E+05	2.3E+07	1.0E+08	9.9E+07
29	6.1E+07	1.0E+07	5.0E+05	2.3E+06		2.7E+05	6.4E+06	8.0E+06	1.0E+07	9.8E+05	2.0E+08	1.6E+08
30	6.9E+07	3.5E+06	5.4E+06	2.8E+06		1.7E+06	6.0E+07	4.7E+06	1.8E+07	7.5E+05	8.2E+07	5.4E+07
31	7.2E+07		7.1E+06	3.6E+06		1.7E+07		1.1E+06		3.1E+05	5.4E+07	

NOTE: The electron detector responds significantly to protons above 32 MeV; therefore, electron data are contaminated when a proton event is in progress. These days are indicated with '-999' in the table and are not plotted. '-' indicates data not available.

NOTE: GOES9 data began April, 1996 and ended on 26 July, 1998. GOES8 is primary satellite as of 27 July, 1998.

CONTENTS

Prompt Reports

Number 662 Part I

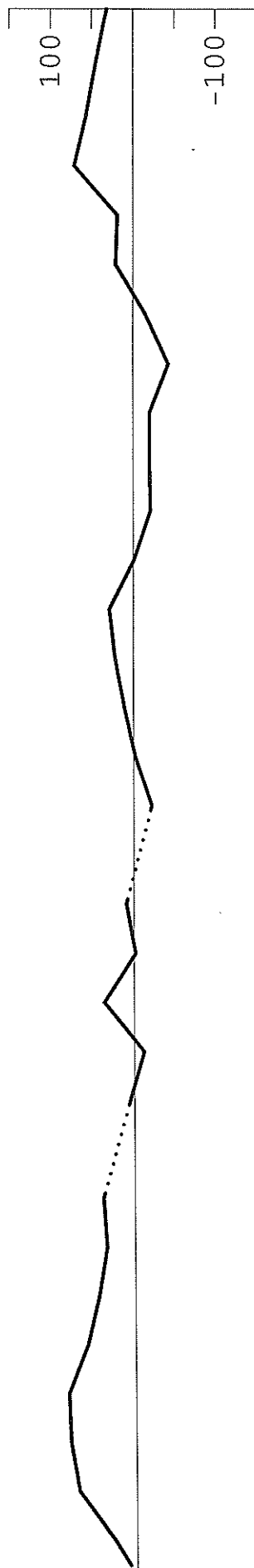
DATA FOR AUGUST 1999

	Page
SOLAR ACTIVE REGIONS	
Solar Synoptic Charts	38- 43
Daily Activity Solar Maps	44- 75
Preliminary NSO/KP Coronal Hole Daily Maps	76- 79
YOHKOH Daily Soft X-ray Images	80- 95
Nobeyama Daily Radioheliograph Images at 17 GHz	96-101
Sunspot Groups	102-119
 SUDDEN IONOSPHERIC DISTURBANCES	 120-123
 SOLAR RADIO SPECTRAL OBSERVATIONS	 124-147
 SOLAR RADIOHELIOGRAPH - 164 AND 327 MHZ - NANCAY	 148-149
 COSMIC RAY MEASUREMENTS BY NEUTRON MONITOR	
Daily Counting Rates	150
Chart of Variations	151-156
Graph and Table of Monthly Mean Kiel Data Jan 1958-Aug 1999	157
 GEOMAGNETIC INDICES	
Geomagnetic Activity Indices	158
Daily Average Ap	159
Chart of Kp by 27-day Rotation	160
Table of Monthly aa Index (1950 to present)	161
Chart of 3-hourly Km and aa by 27-day Rotation	162
 Provisional Values of Hourly Equatorial Dst	 163
Polar Cap (PC) Geomagnetic Index Plot of 15-min values – Thule	164
-- Plot of 1-min values – Vostok	165
 Principal Magnetic Storms	 166
Sudden Commencements/Solar Flare Effects (Unavailable at time of publication.)	

SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 1952
(21 July to 18 August 1999)

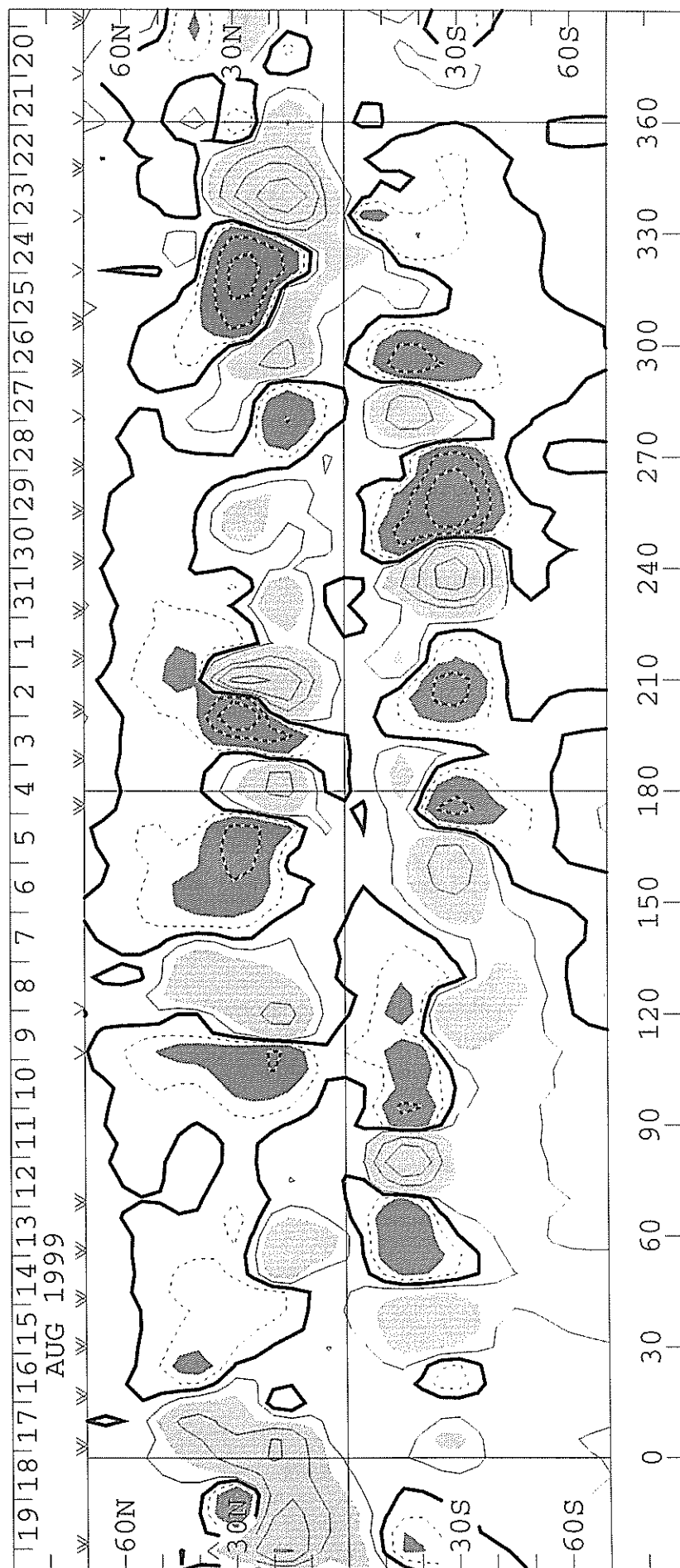
WILCOX SOLAR OBSERVATORY

Mean Field



0, ± 100 , 500, 1000, 2000 MicroTesla

Photospheric Magnetic Field



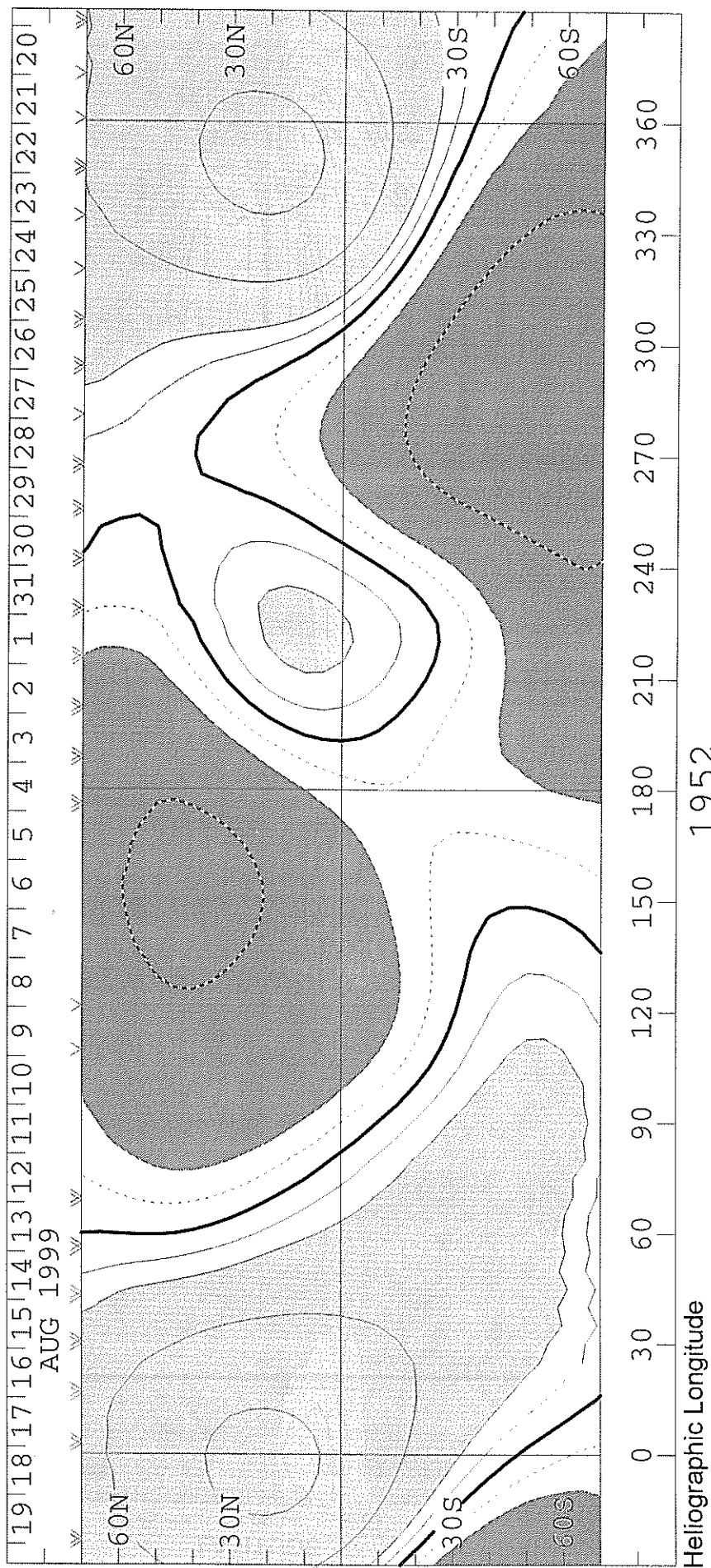
1952

Heliographic Longitude

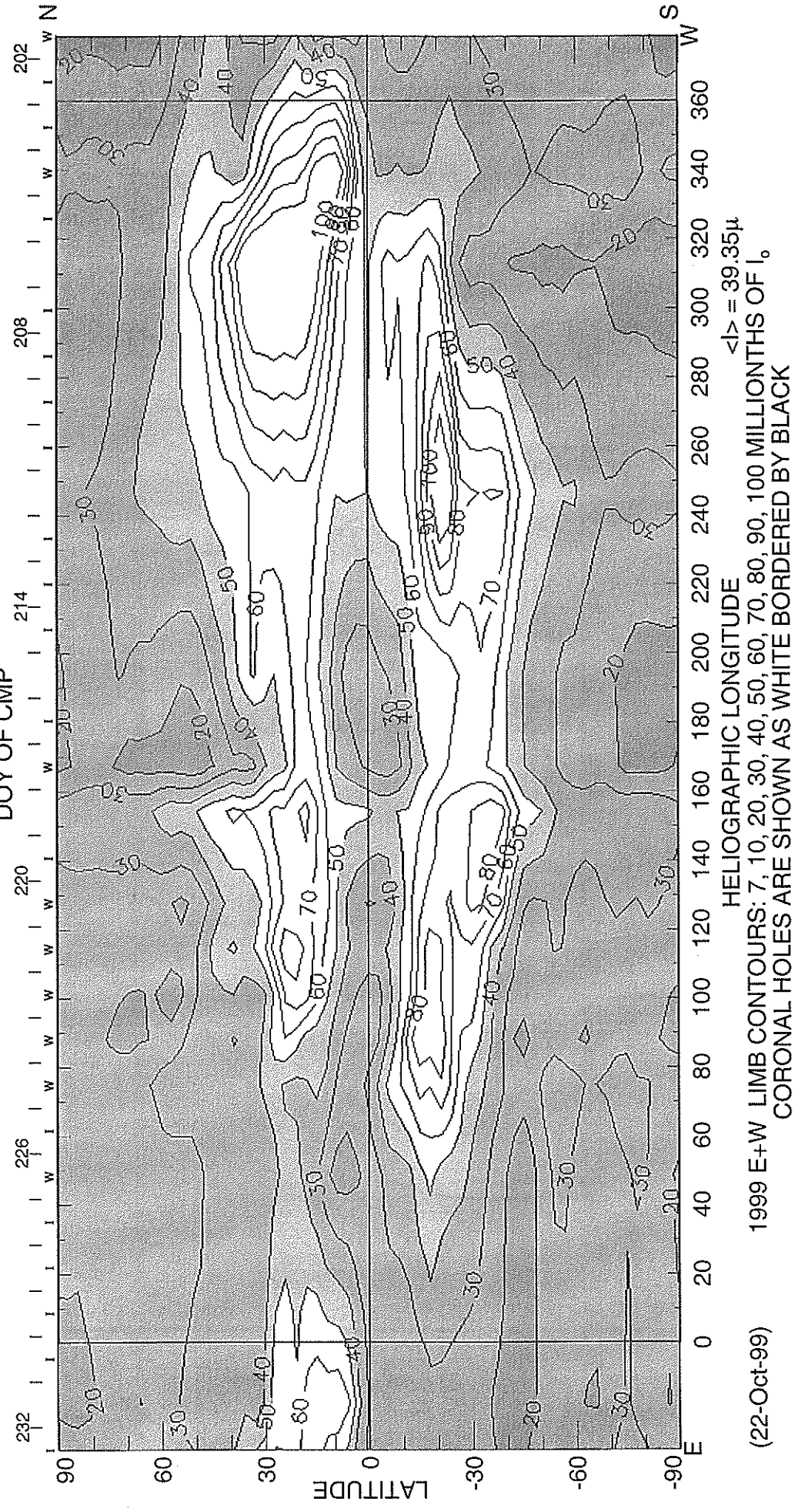
SOLAR MAGNETIC FIELD SYNOPTIC CHART
SOURCE SURFACE FIELD
CARRINGTON ROTATION NUMBER 1952
 (21 July to 18 August 1999)

Wilcox Solar Observatory

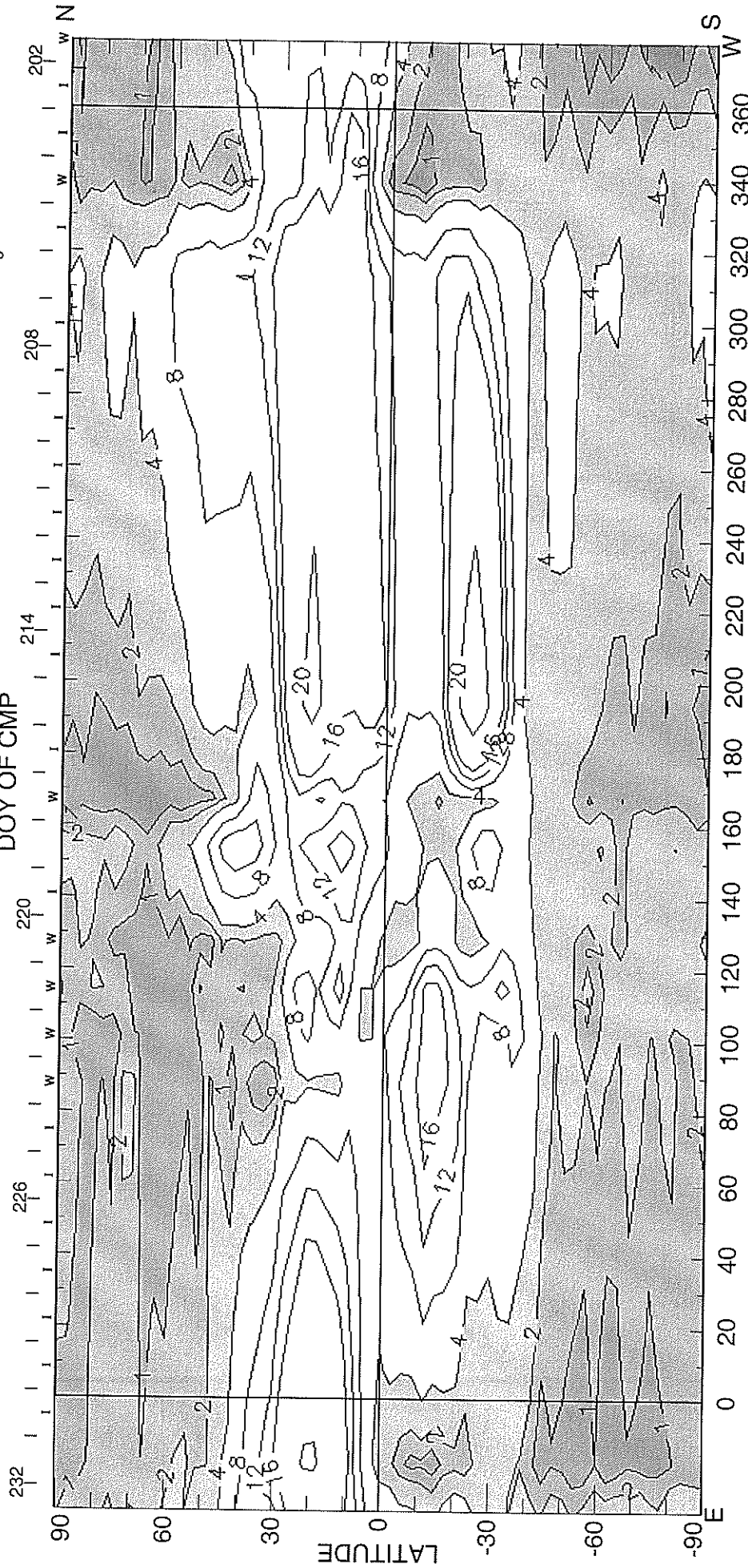
0, ± 1 , 2, 5, 10, 20 microTesla



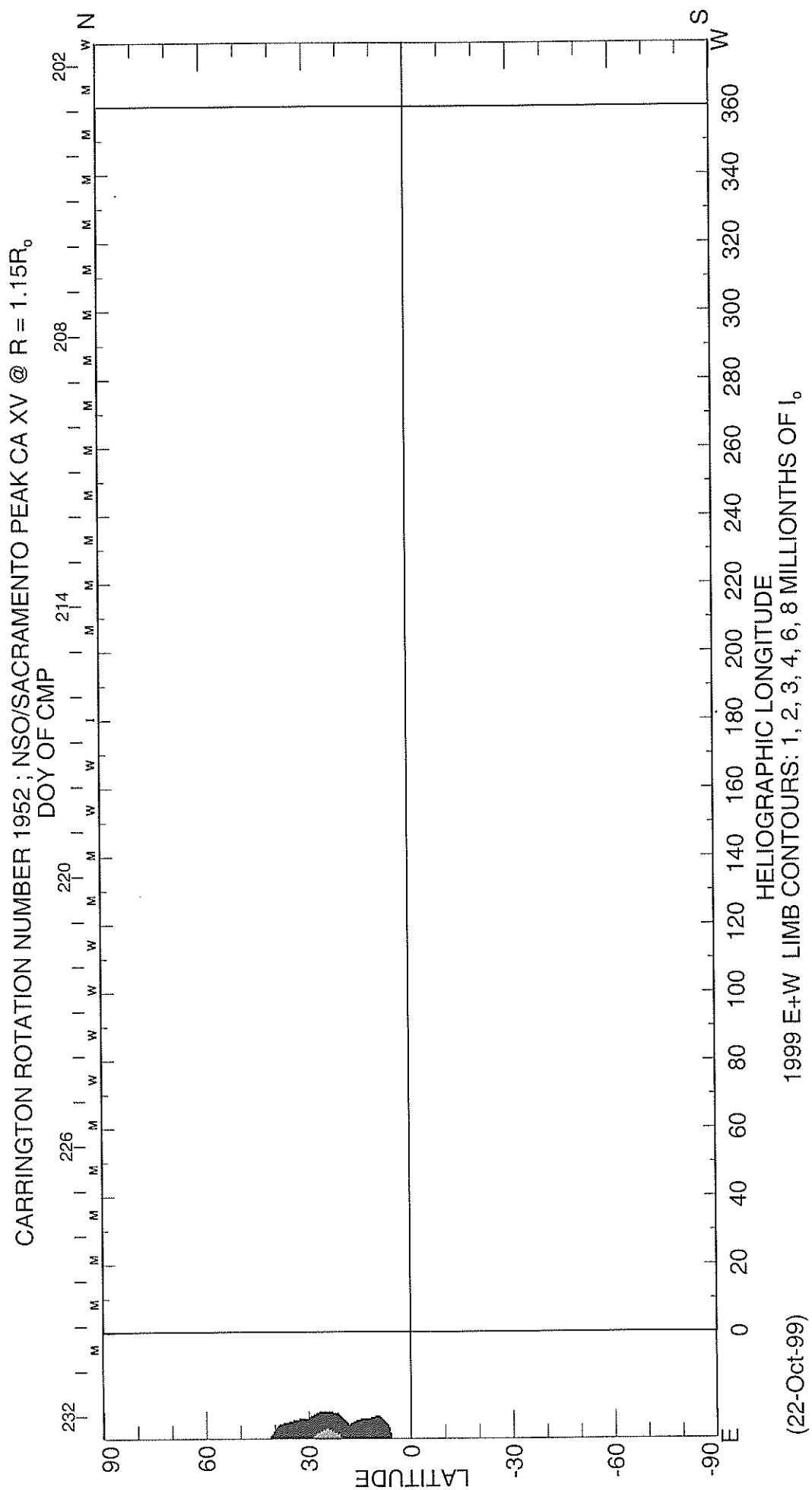
CARRINGTON ROTATION NUMBER 1952 : NSO/SACRAMENTO PEAK FE XIV @ $R = 1.15R_{\odot}$
DOY OF CMP



CARRINGTON ROTATION NUMBER 1952; NSO/SACRAMENTO PEAK FE X @ $R = 1.15R_0$
DOY OF CMP



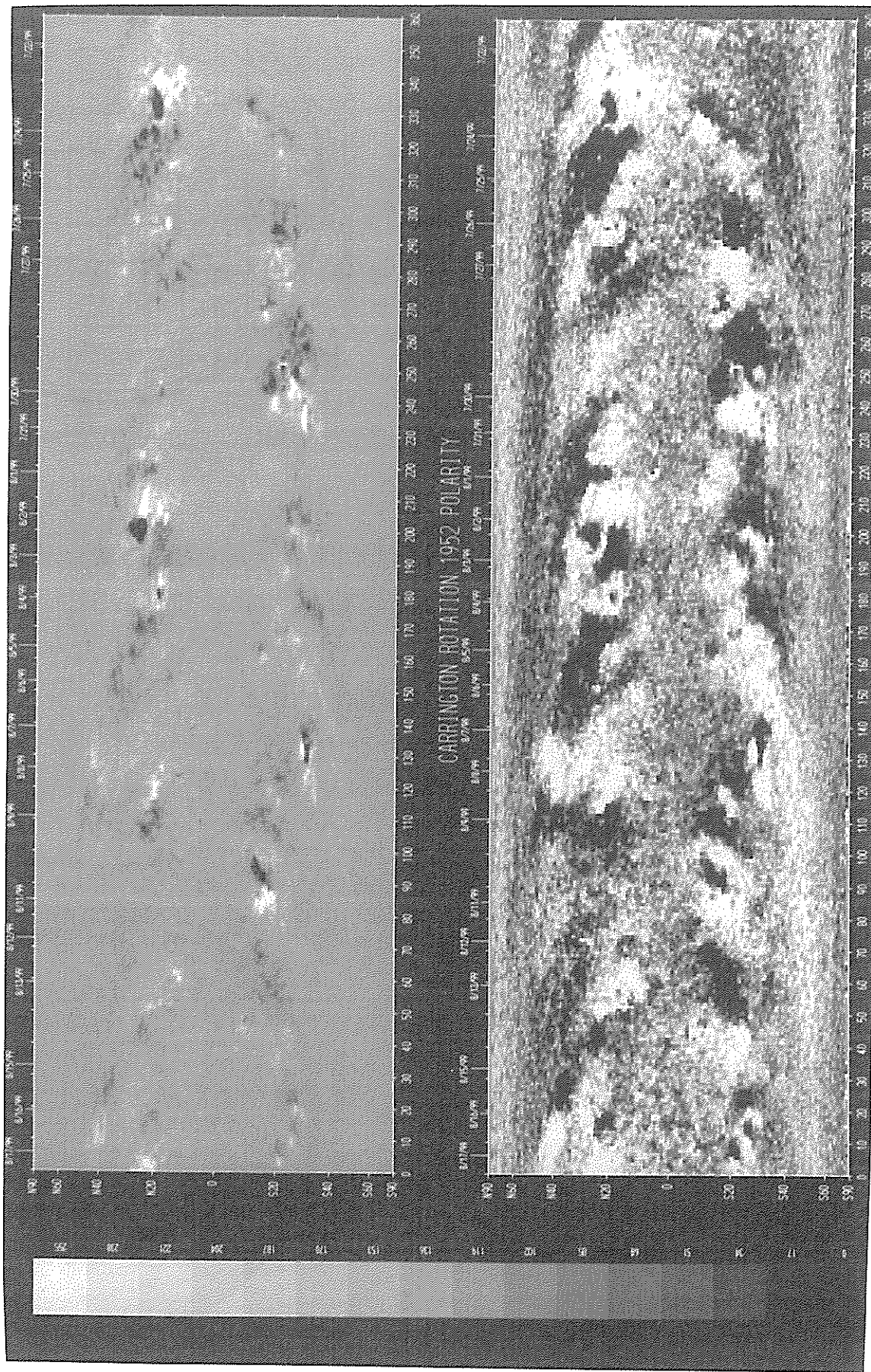
HELIOGRAPHIC LONGITUDE
1999 E+W LIMB CONTOURS: 1, 2, 4, 8, 12, 16, 32, 48 MILLIONTHS OF I_0
$\langle I \rangle = 6.2 I_0$
(22-Oct-99)



SOLAR MAGNETIC FIELD SYNOPSIS CHART CARRINGTON ROTATION NUMBER 1952 (21 July to 18 August 1999)

National Solar Observatory/Kitt Peak

Dates of Observation



Heliographic Longitude

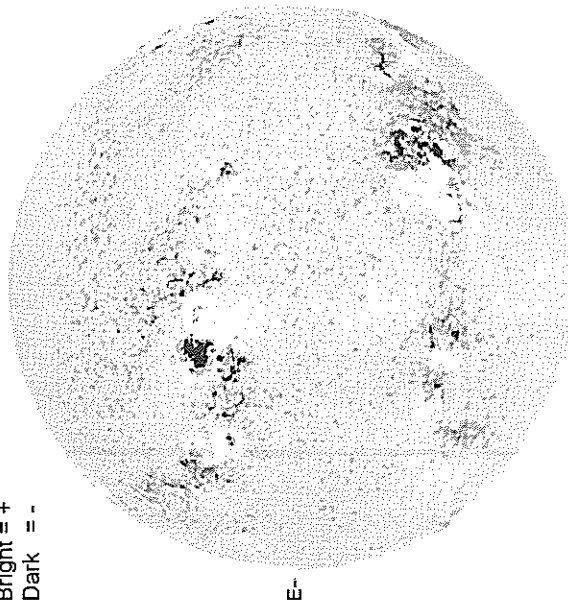
44
Aug 99

AUGUST 1, 1999 (P = 10.63, Bo = 5.75, Lo = 226.65)

KITT PEAK MAGNETOGRAM

868.8 nm

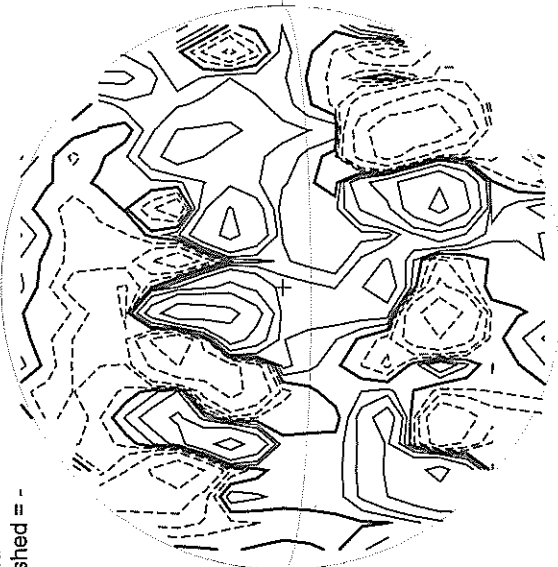
Bright = +
Dark = -



1612 UT

STANFORD MAGNETOGRAM

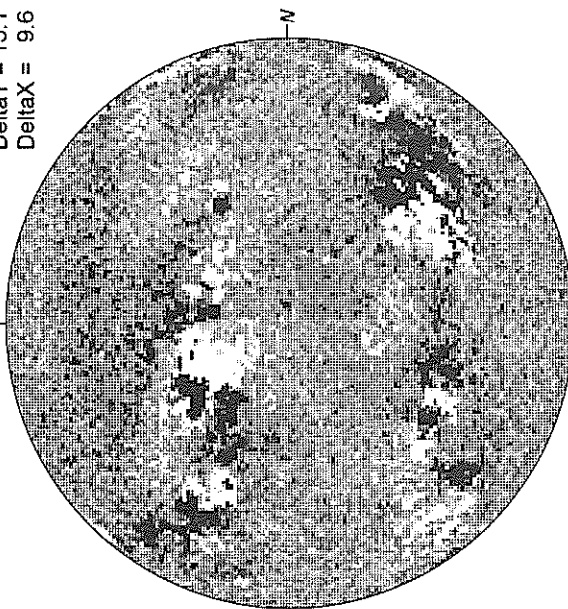
Solid = +
Dashed = -



2056 UT

MT. WILSON MAGNETOGRAM

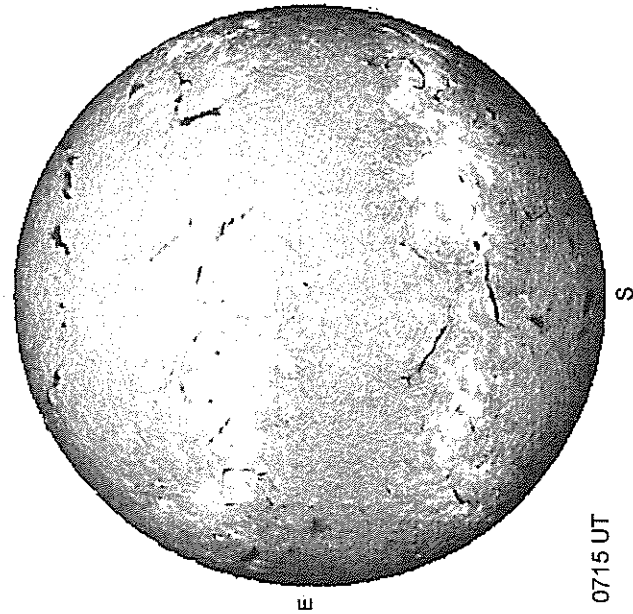
DeltaY = 13.1
DeltaX = 9.6



19.20 -
20.12 UT

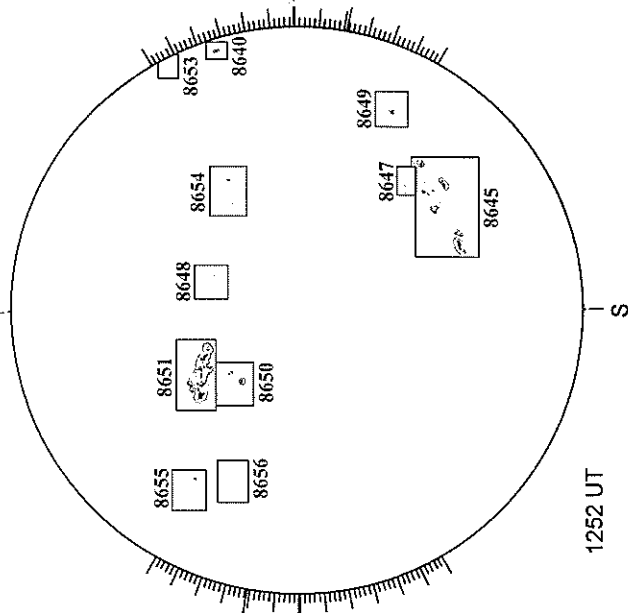
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



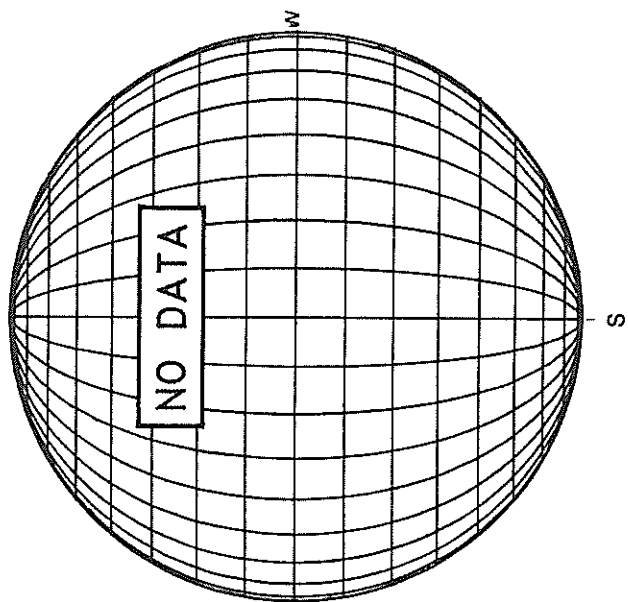
0715 UT

RAMEY SUNSPOT



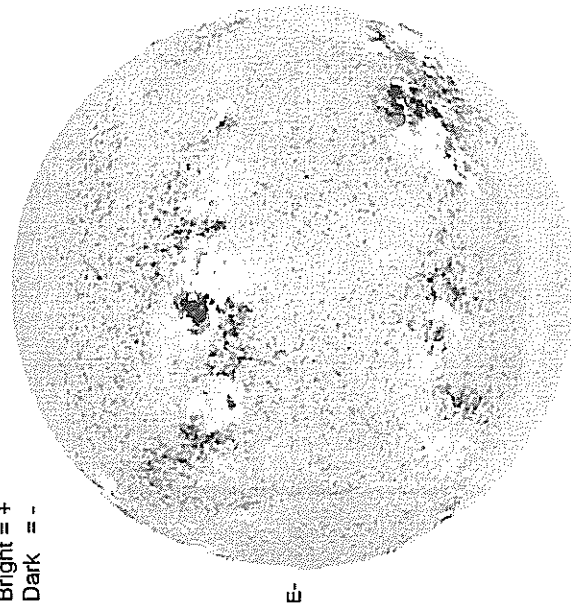
1252 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



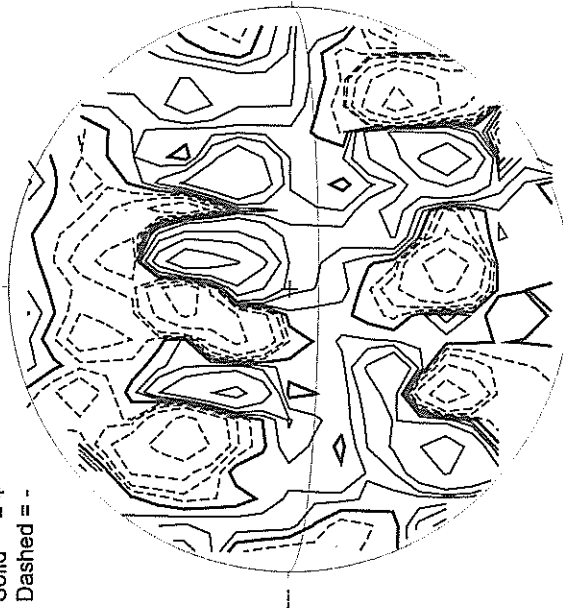
AUGUST 2, 1999 (P = 11.03, Bo = 5.83, Lo = 213.43)

KITT PEAK MAGNETOGRAM
 868.8 nm
 Bright = +
 Dark = -



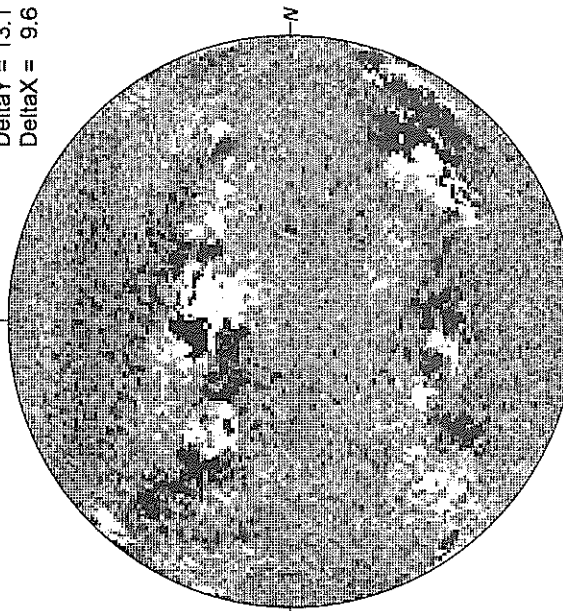
STANFORD MAGNETOGRAM

Solid = +
 Dashed = -



MT. WILSON MAGNETOGRAM

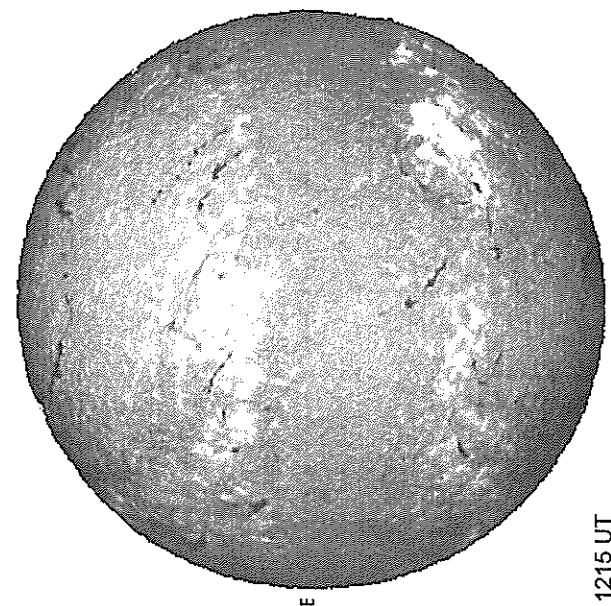
Delta Y = 13.1
 Delta X = 9.6



19.05 -
 19.97 UT

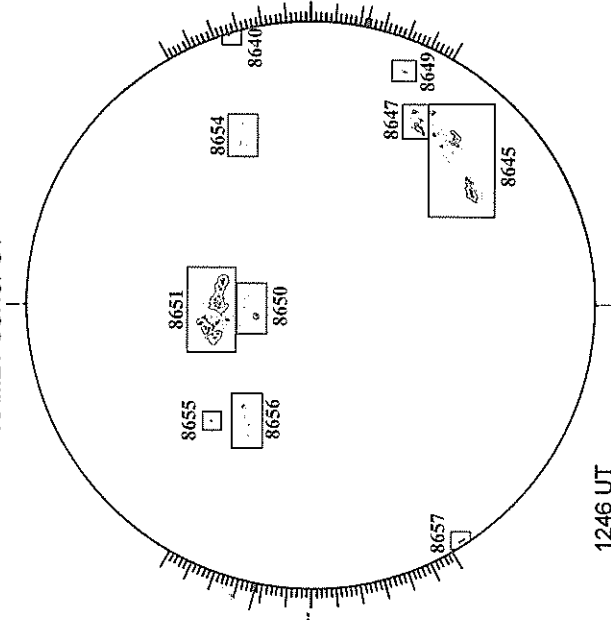
White = +7.5G
 Black = -7.5G

MEUDON H-ALPHA



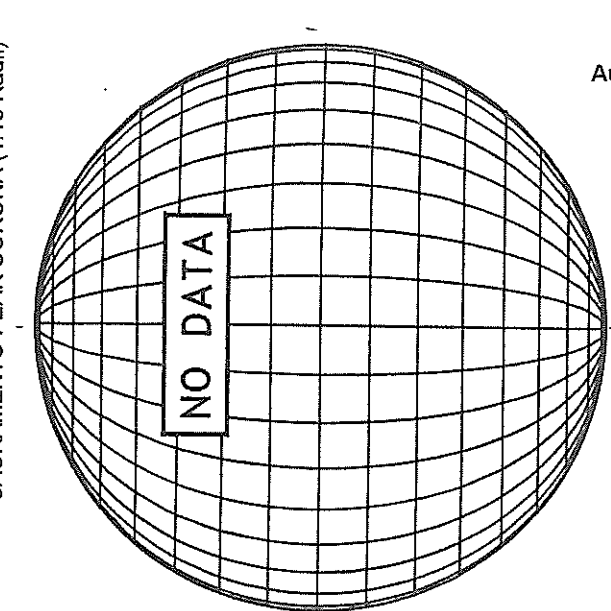
1215 UT

RAMEY SUNSPOT



1246 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



45
 Aug 99

46
Aug 99

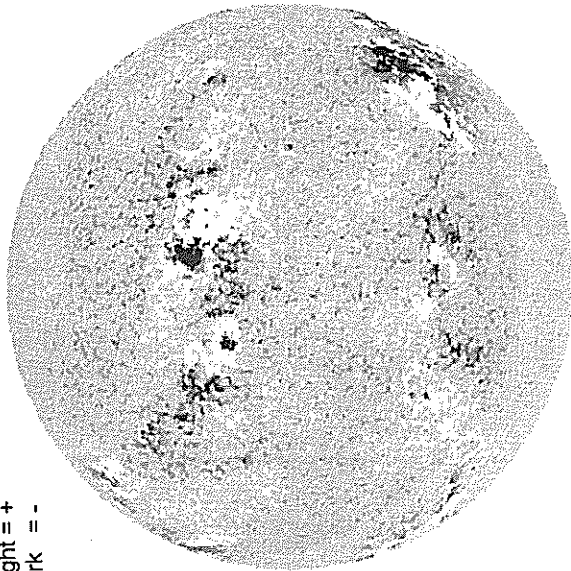
AUGUST 3, 1999 (P= 11.42, Bo = 5.90, Lo = 200.20)

KITT PEAK MAGNETOGRAM

868.8 nm

N

Bright = +
Dark = -



1414 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

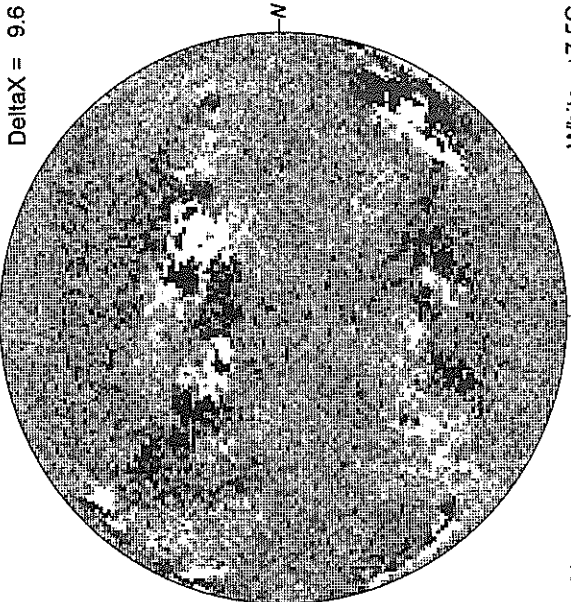


2203 UT

MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6

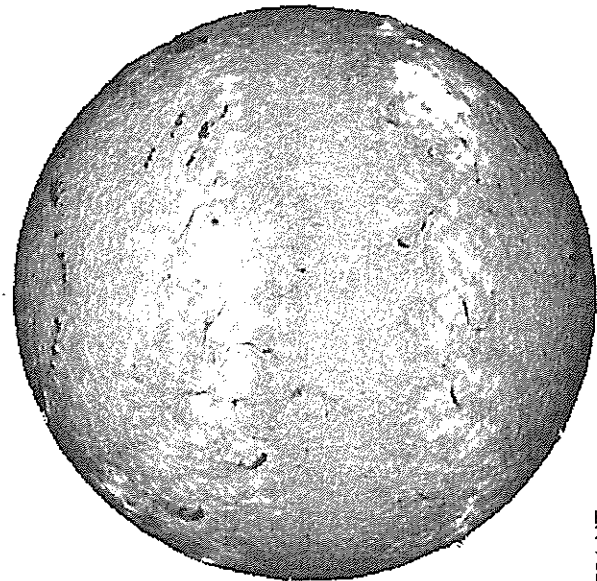
N



18.63 -
19.54 UT

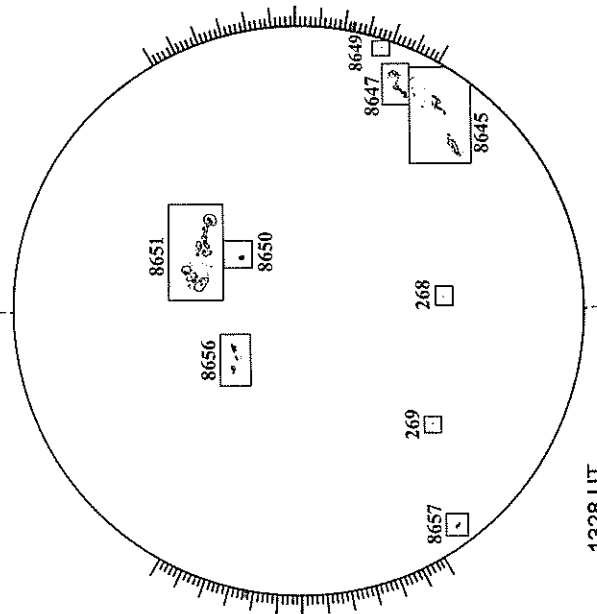
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



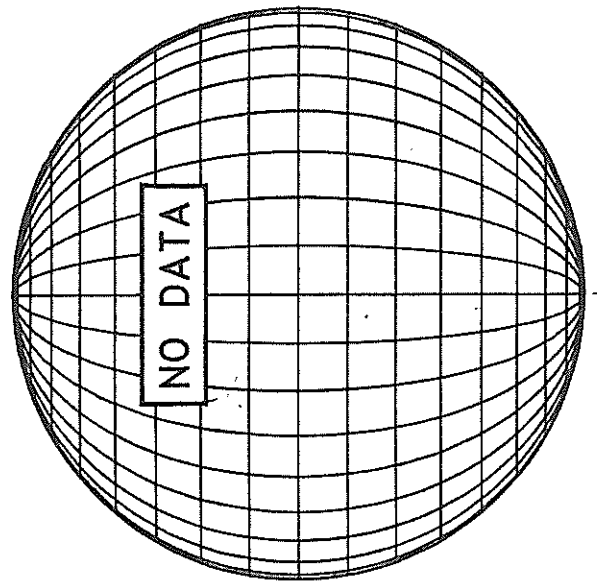
0721 UT

RAMEY SUNSPOT



1328 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



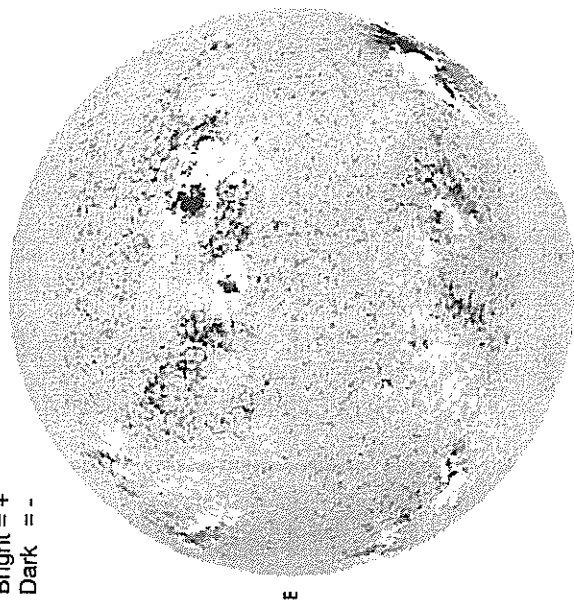
NO DATA

AUGUST 4, 1999 (P= 11.81, Bo = 5.97, Lo = 186.98)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -

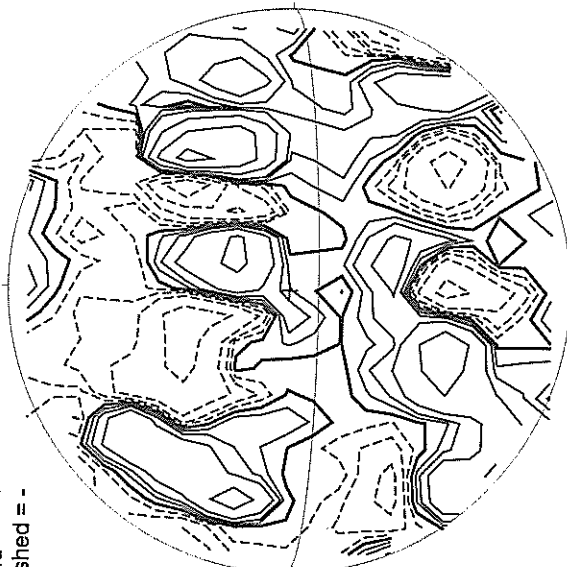
868.8 nm



1443 UT

STANFORD MAGNETOGRAM

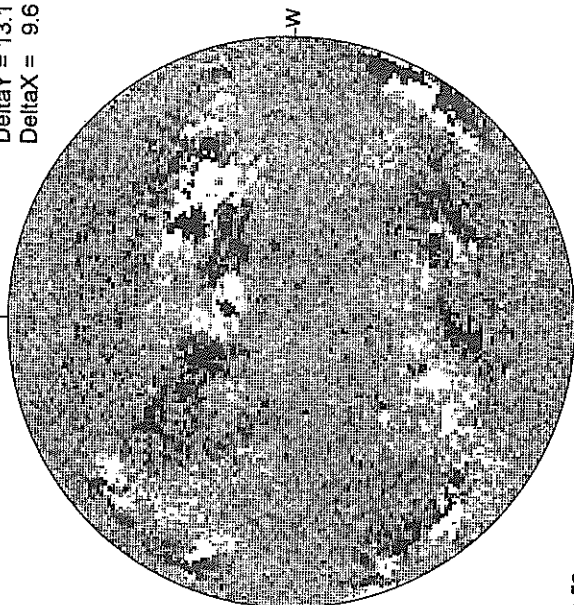
Solid = +
Dashed = -



2116 UT

MT. WILSON MAGNETOGRAM

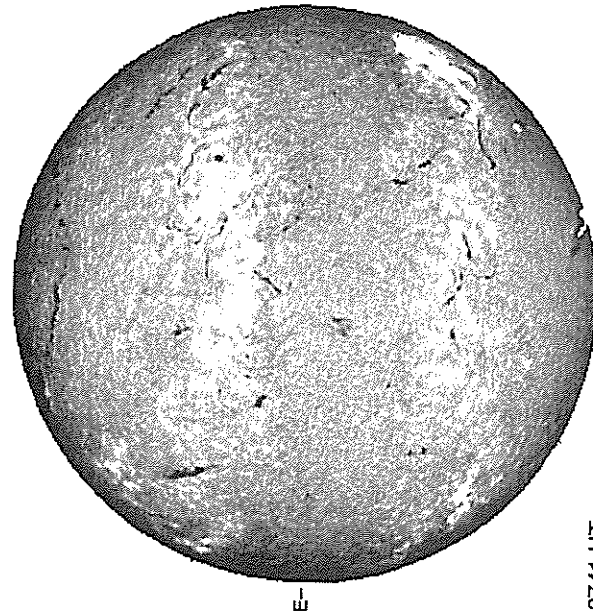
Delta Y = 13.1
Delta X = 9.6



18.59 -
19.51 UT

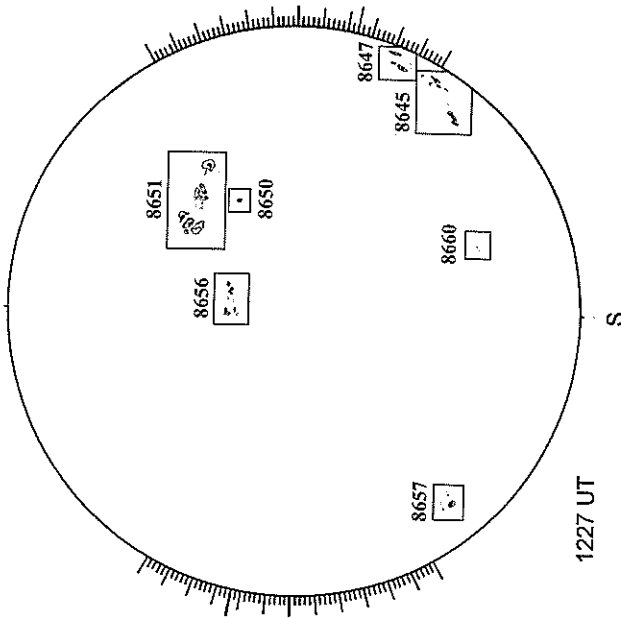
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



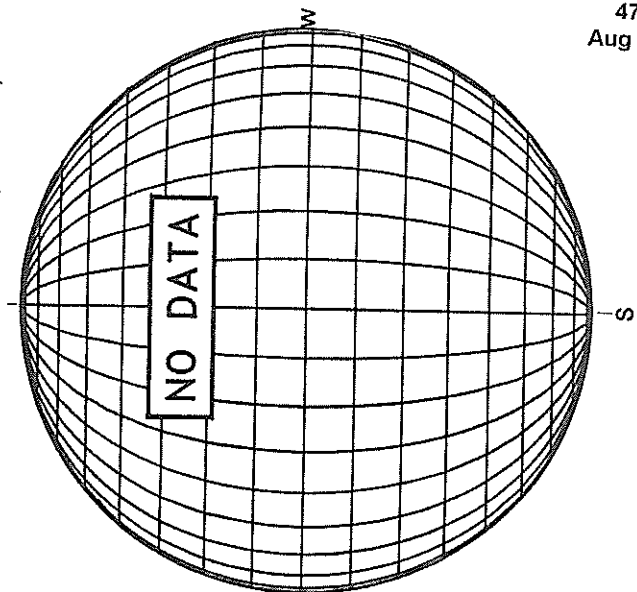
0741 UT

RAMEY SUNSPOT



1227 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



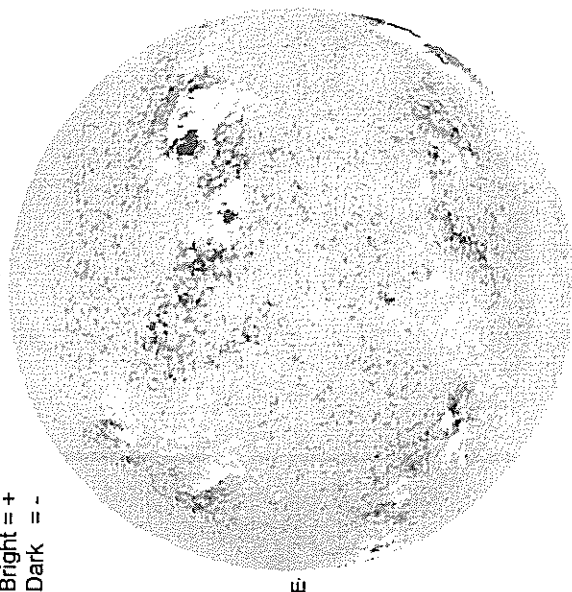
48
Aug 99

AUGUST 5, 1999 (P = 12.20, Bo = 6.04, Lo = 173.75)

KITT PEAK MAGNETOGRAM

868.8 nm

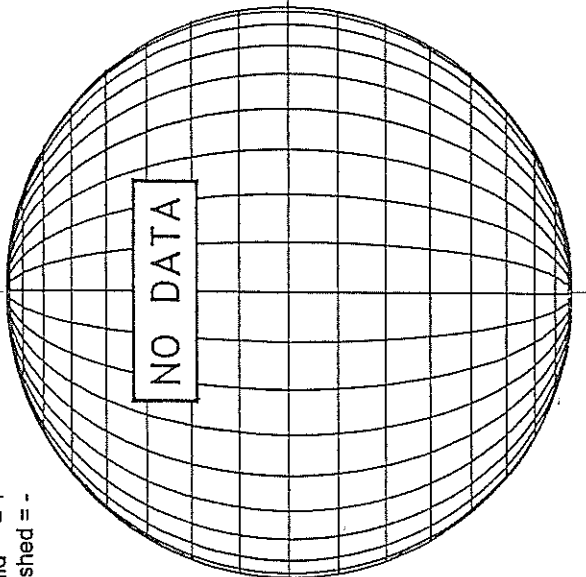
Bright = +
Dark = -



1829 UT

STANFORD MAGNETOGRAM

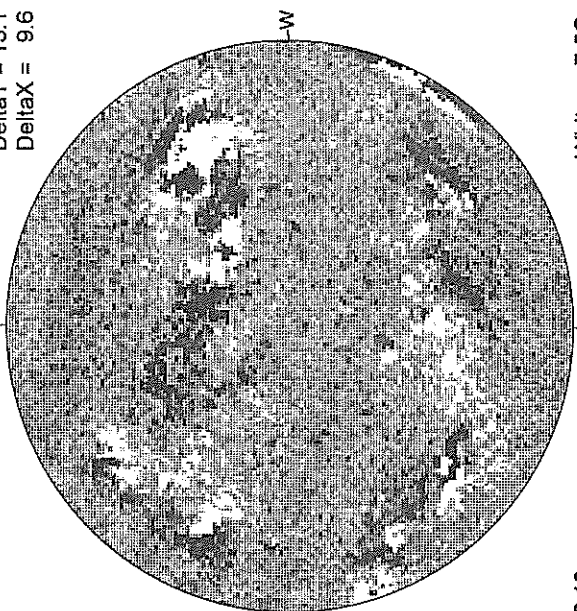
Solid = +
Dashed = -



18.10 -
19.02 UT

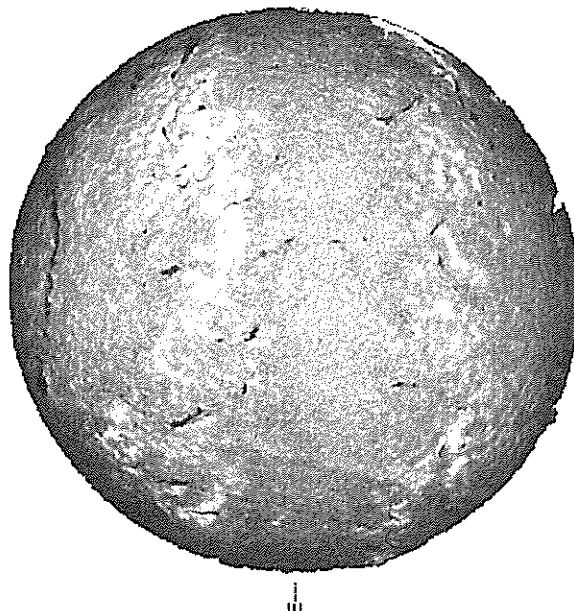
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



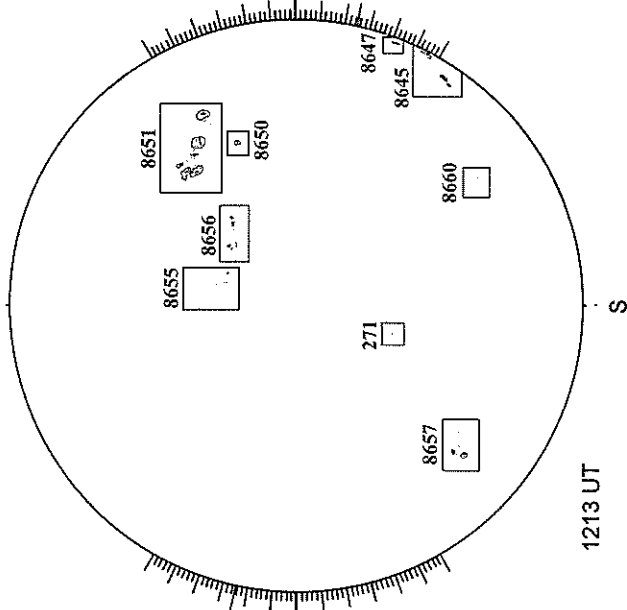
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



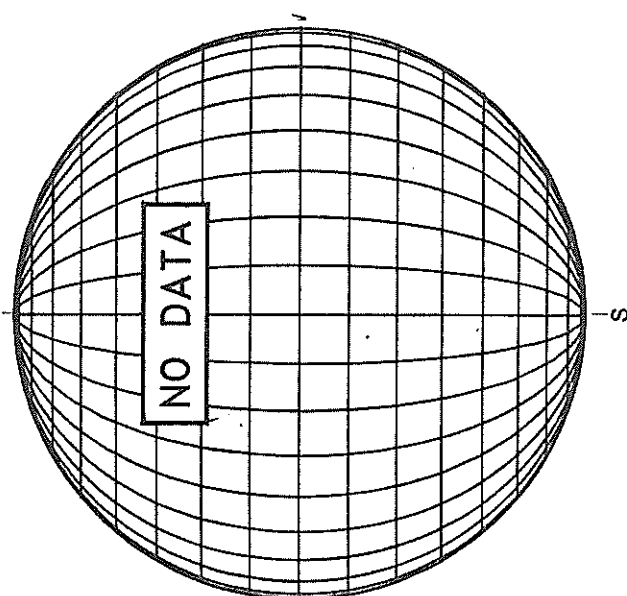
0848 UT

RAMEY SUNSPOT



1213 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

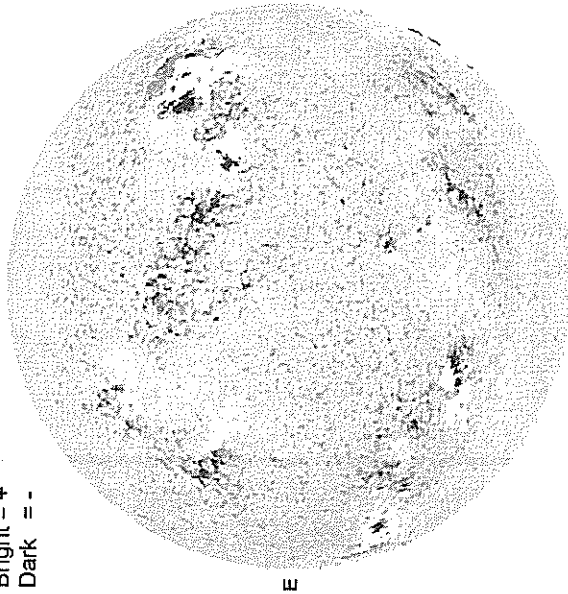


18.10 -
19.02 UT

AUGUST 6, 1999 (P= 12.58, Bo = 6.10, Lo = 160.53)

KITT PEAK MAGNETOGRAM
N
868.8 nm

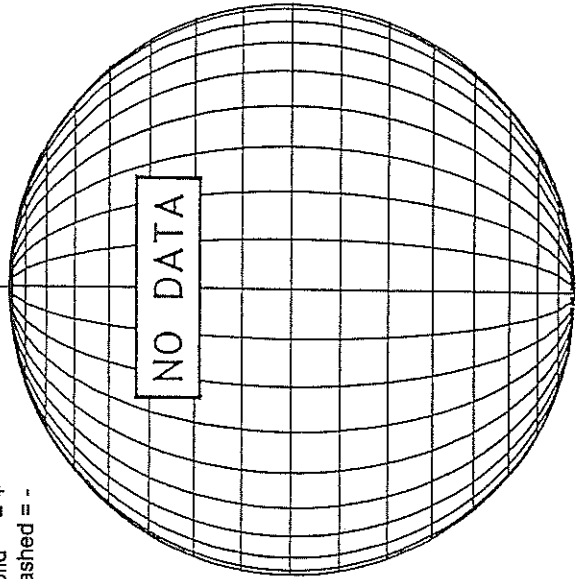
Bright = +
Dark = -



1426 UT

STANFORD MAGNETOGRAM

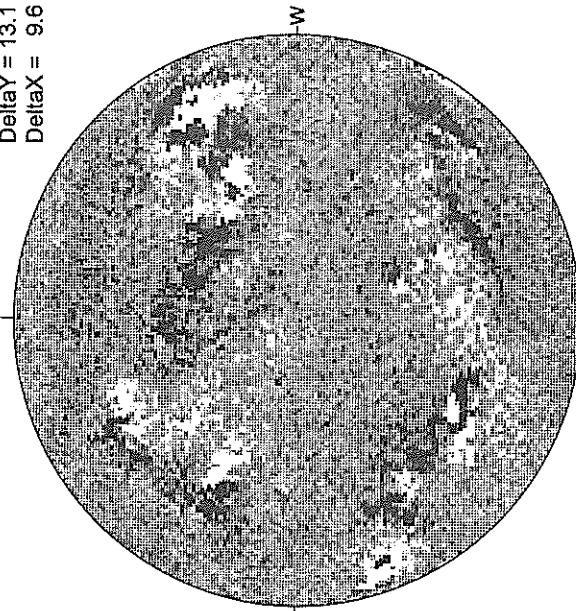
Solid = +
Dashed = -



17.43 -
18.35 UT

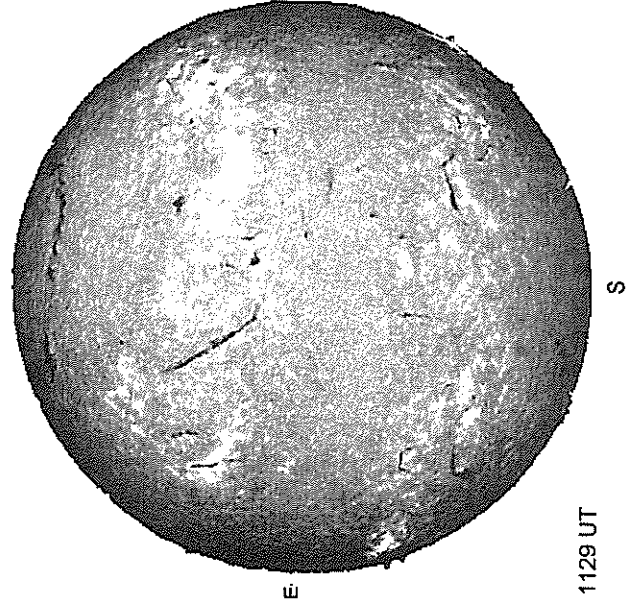
MT. WILSON MAGNETOGRAM

Delta Y = 13.1
Delta X = 9.6



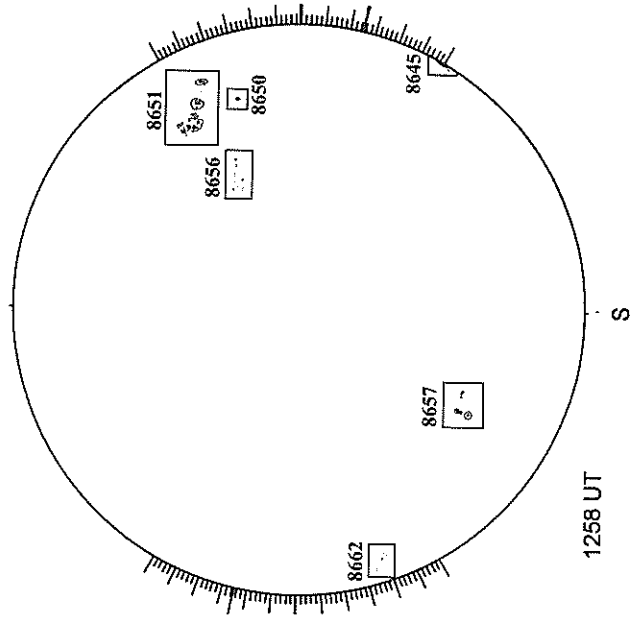
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



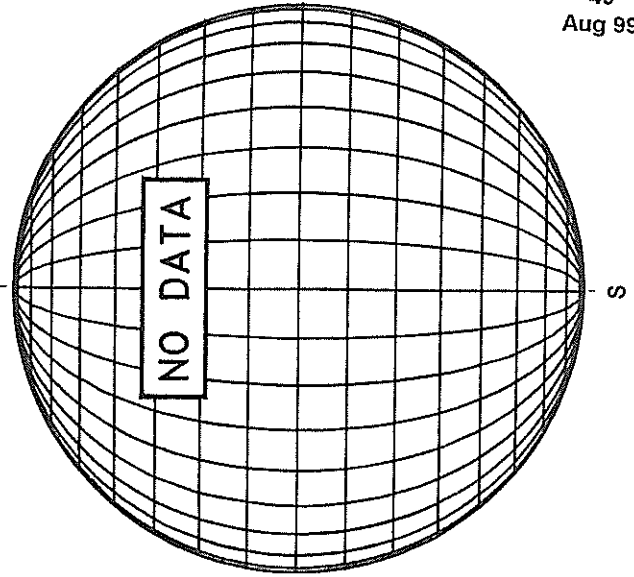
1129 UT

RAMEY SUNSPOT



1258 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



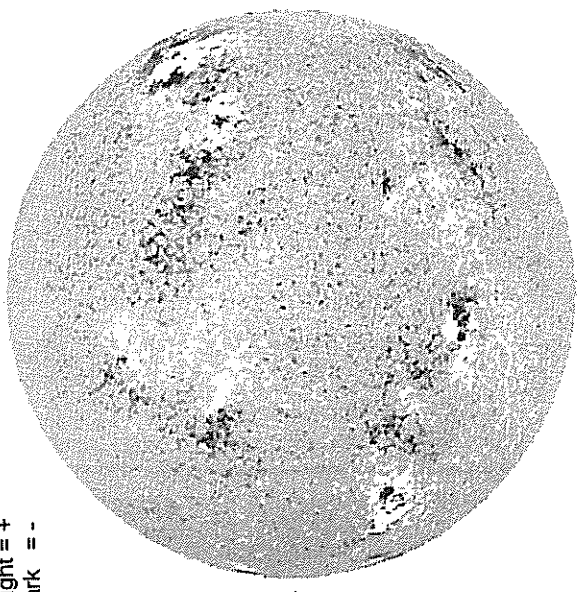
50
Aug 99

AUGUST 7, 1999 (P = 12.96, Bo = 6.17, Lo = 147.30)

KITT PEAK MAGNETOGRAM
N
W
E

++868.8 nm**

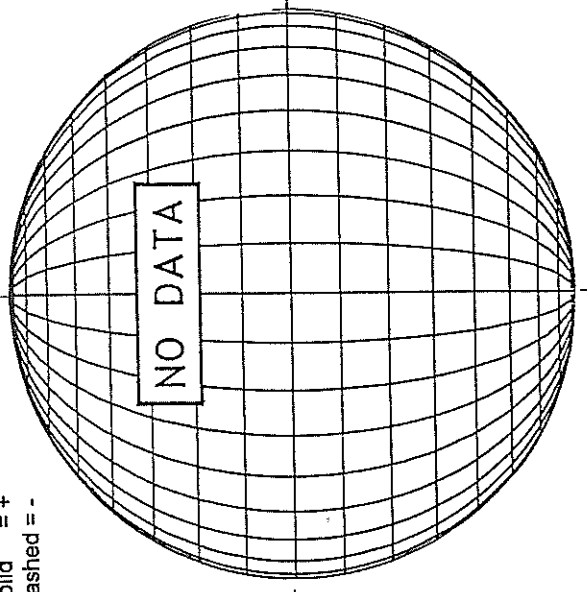
Bright = +
Dark = -



1429 UT

STANFORD MAGNETOGRAM
N
W
E

Solid = +
Dashed = -

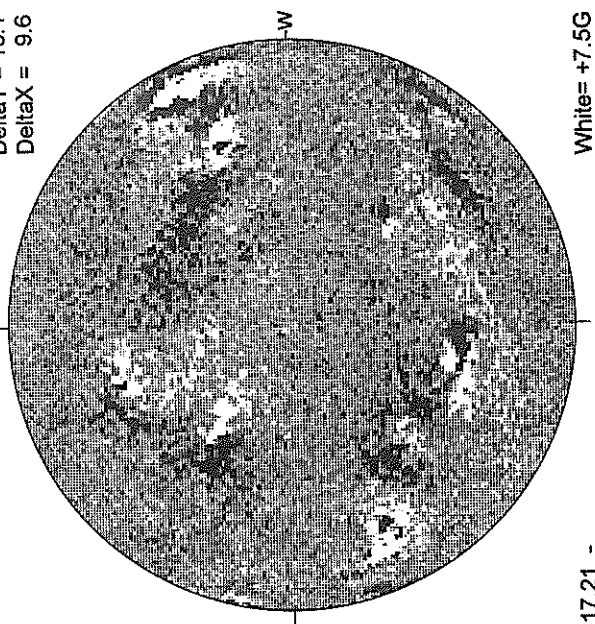


17.21 -
18.13 UT

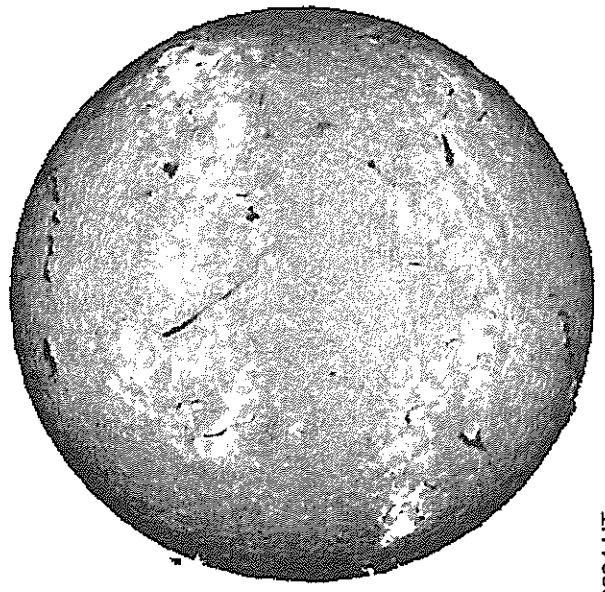
MT. WILSON MAGNETOGRAM
N
W
E

DeltaY = 13.1
DeltaX = 9.6

White = +7.5G
Black = -7.5G

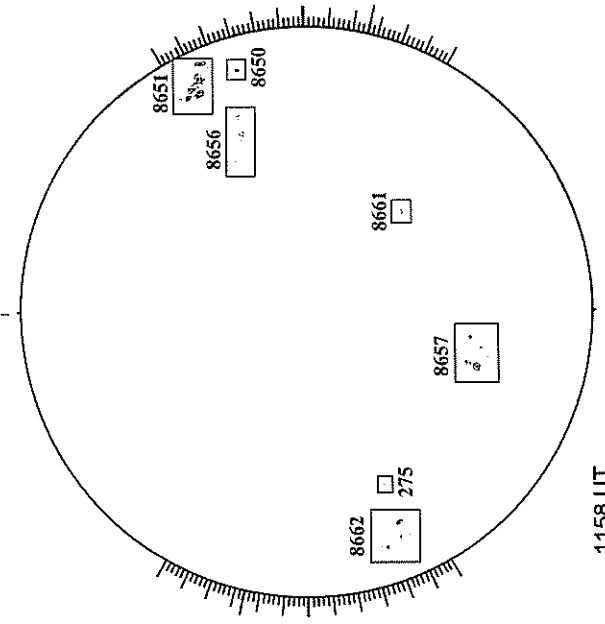


MEUDON H-ALPHA
N
W
E



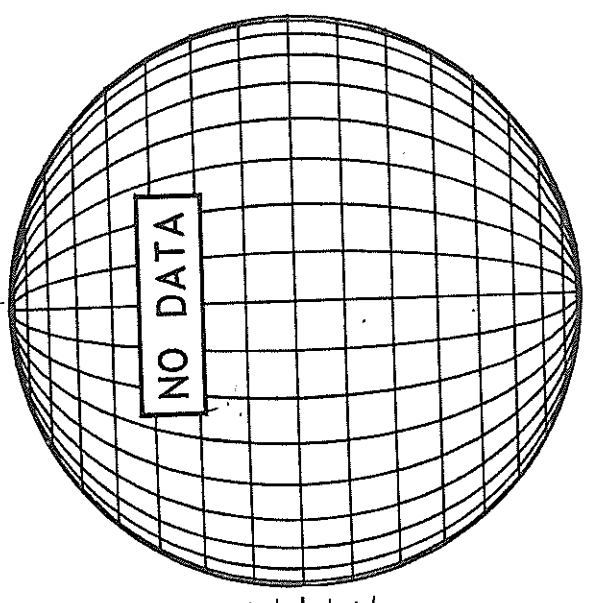
0804 UT

RAMEY SUNSPOT
N
W
E



1158 UT

SACRAMENTO PEAK CORONA (1.15 Radii)
N
W
E



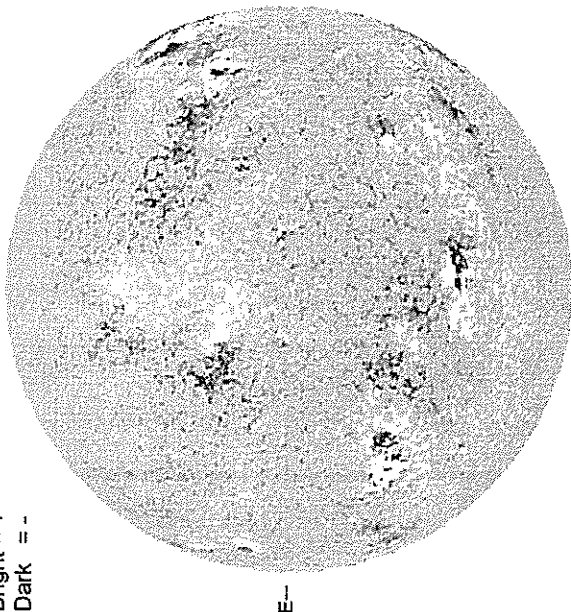
S

AUGUST 8, 1999 (P = 13.33, Bo = 6.23, Lo = 134.08)

KITT PEAK MAGNETOGRAM

868.8 nm

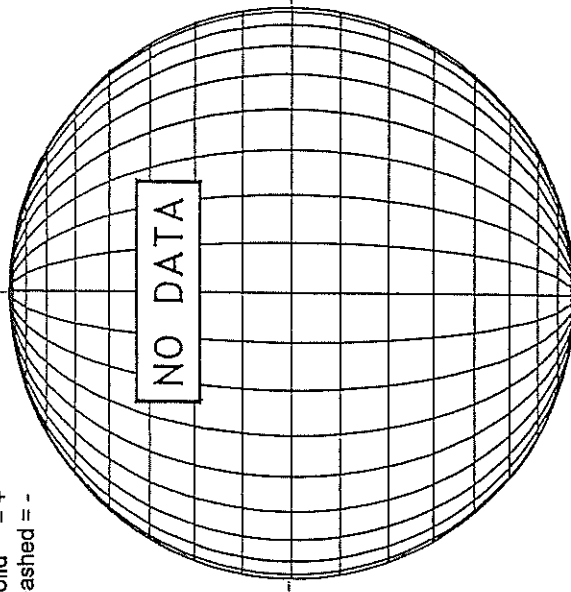
Bright = +
Dark = -



1431 UT

STANFORD MAGNETOGRAM

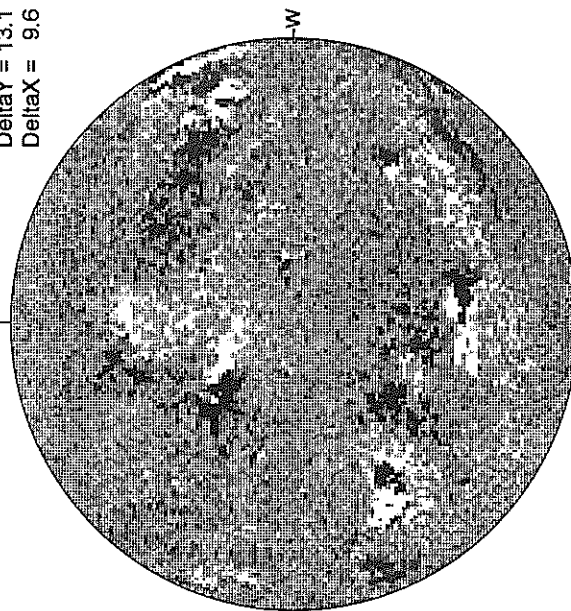
Solid = +
Dashed = -



17.50 -
18.42 UT

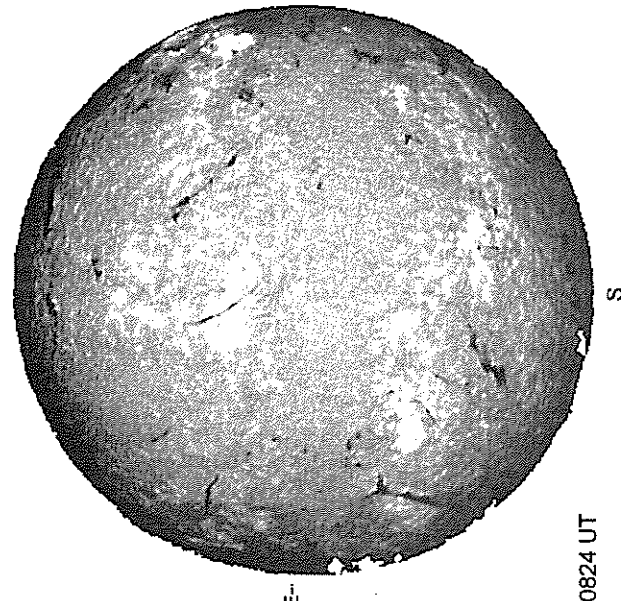
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



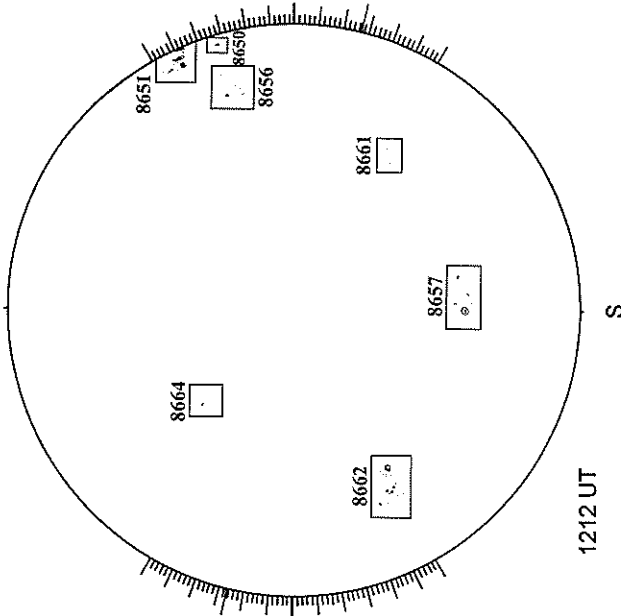
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



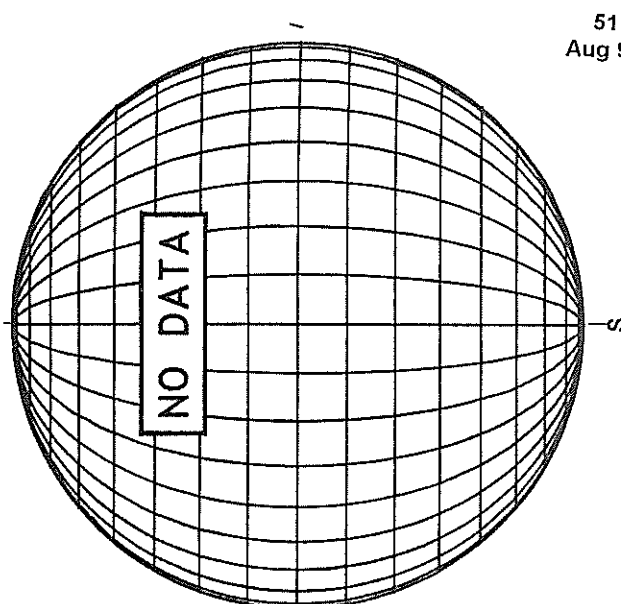
0824 UT

RAMEY SUNSPOT



1212 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



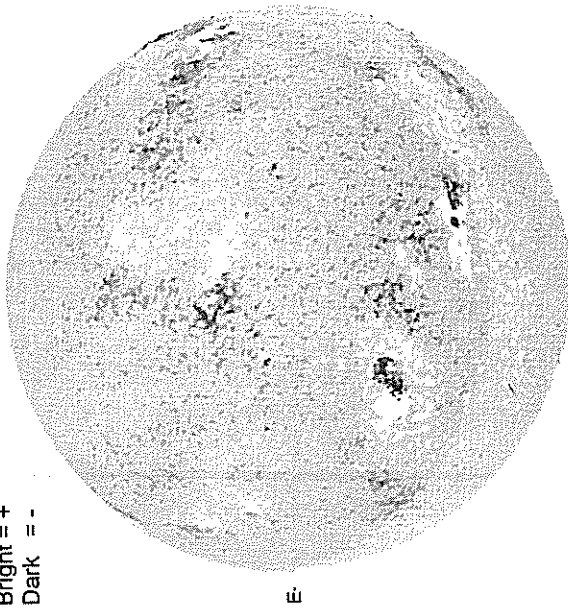
AUGUST 9, 1999 (P = 13.70, Bo = 6.29, Lo = 120.86)

52
Aug 99

KITT PEAK MAGNETOGRAM

**868.8 nm

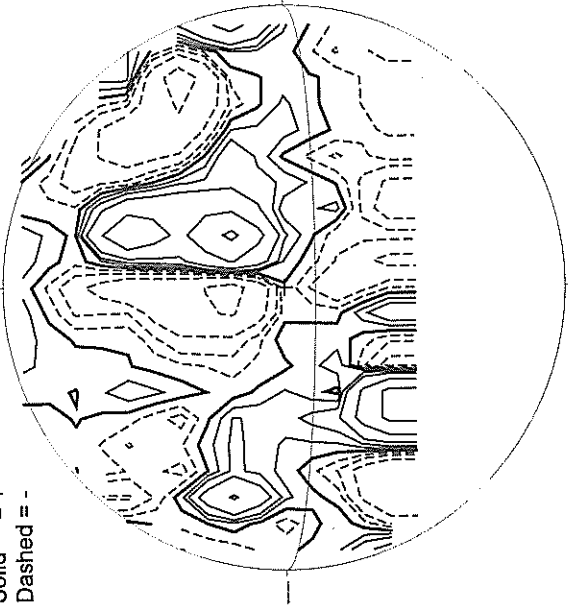
Bright = +
Dark = -



1728 UT

STANFORD MAGNETOGRAM

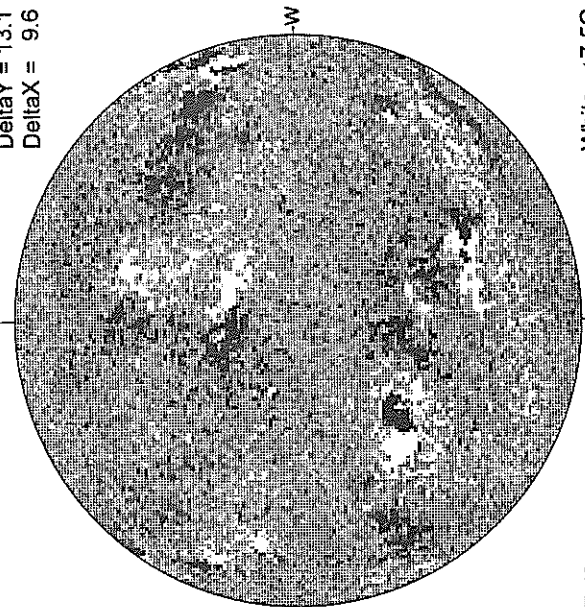
Solid = +
Dashed = -



2041 UT

MT. WILSON MAGNETOGRAM

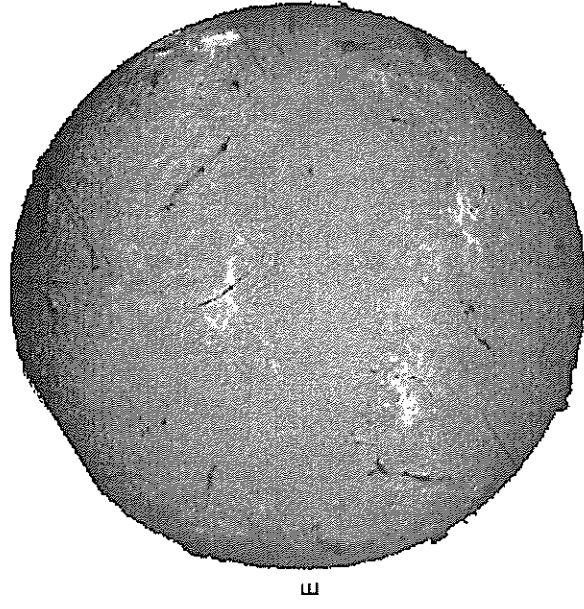
Delta Y = 13.1
Delta X = 9.6



17.42 -
18.34 UT

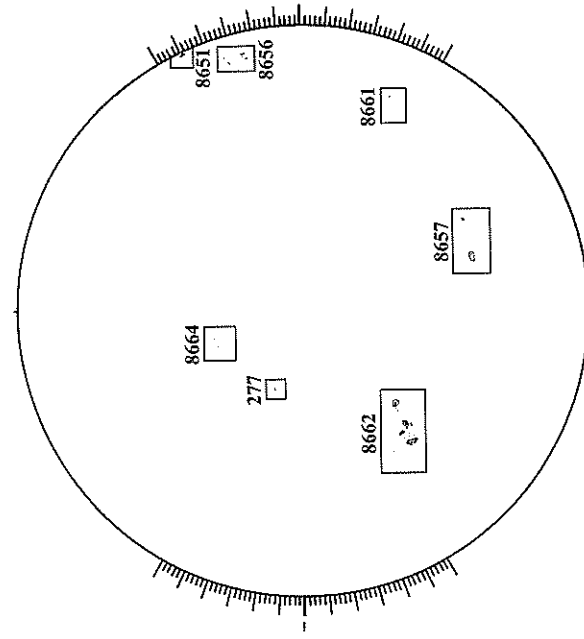
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



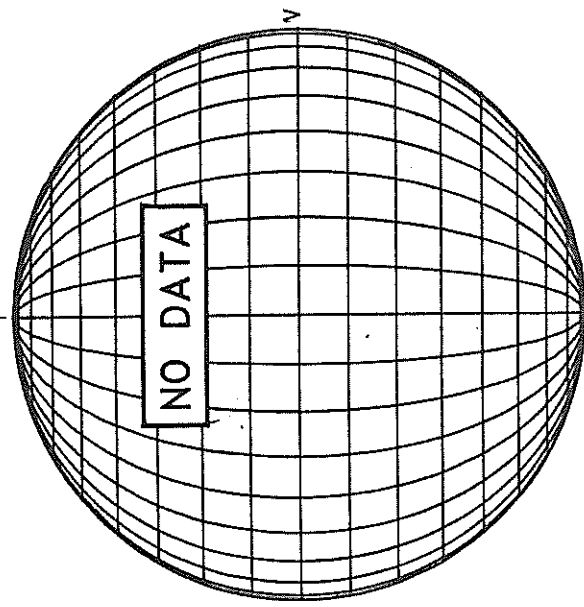
1400 UT

RAMEY SUNSPOT



1402 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



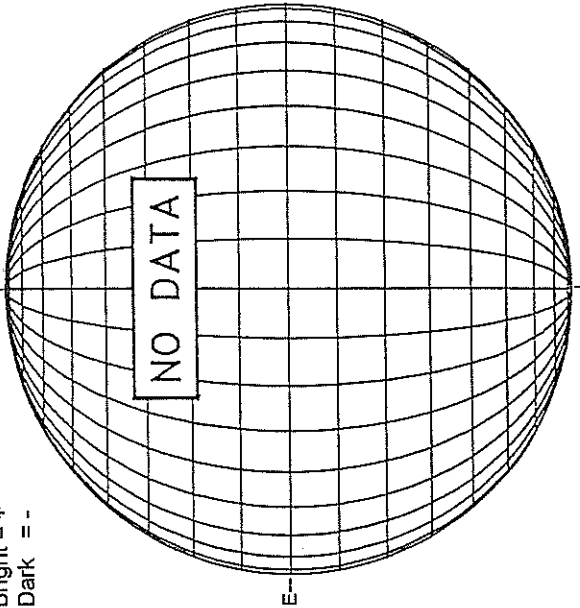
1402 UT

AUGUST 10, 1999 (P= 14.07, Bo = 6.35, Lo = 107.64)

KITT PEAK MAGNETOGRAM

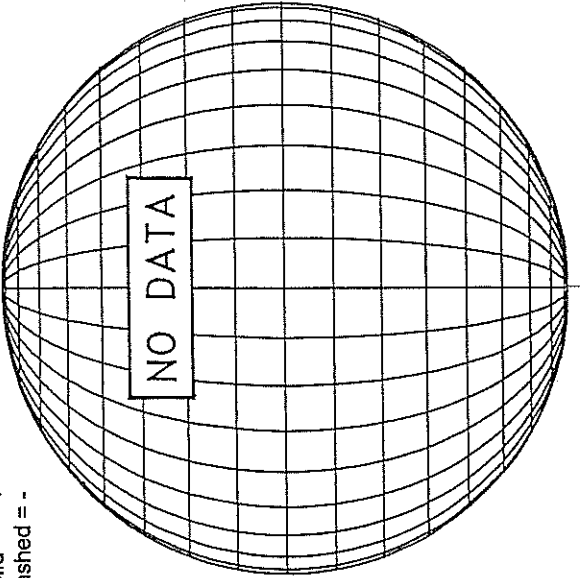
368.8 nm

Bright = +
Dark = -



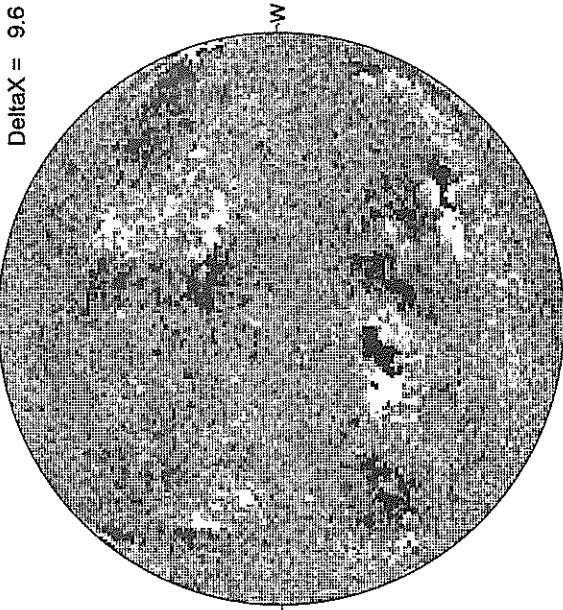
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

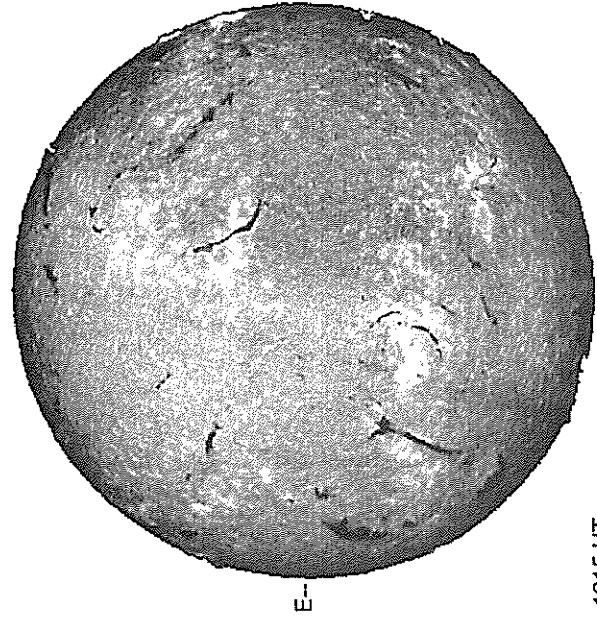
DeltaY = 13.1
DeltaX = 9.6



17.06 -
17.98 UT

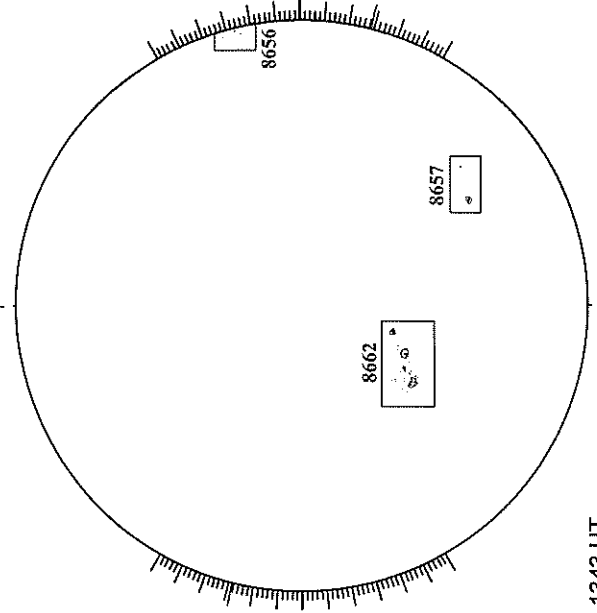
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



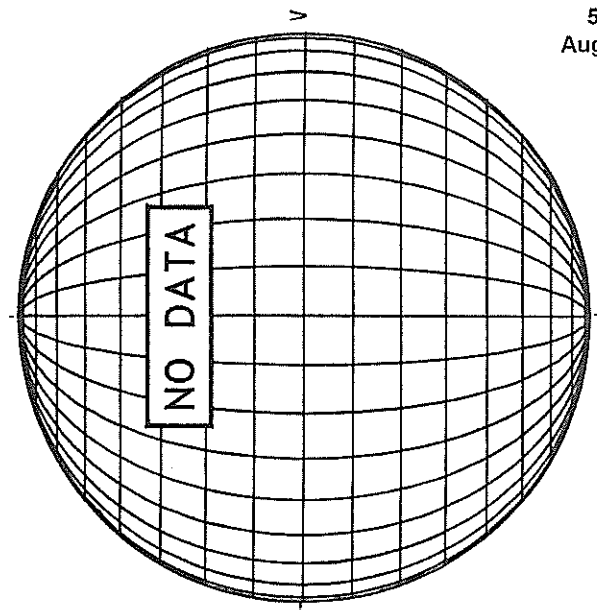
1215 UT

RAMEY SUNSPOT



1343 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---

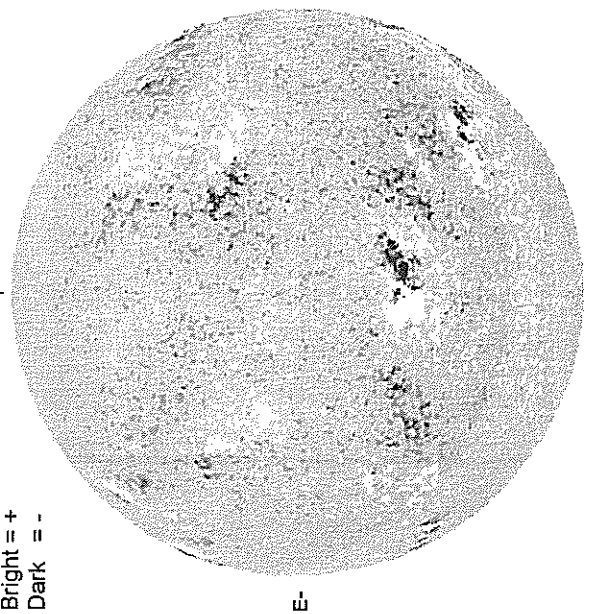


AUGUST 11, 1999 (P= 14.43, Bo = 6.41, Lo = 94.42)

54
Aug 99

KITT PEAK MAGNETOGRAM
N
868.8 nm

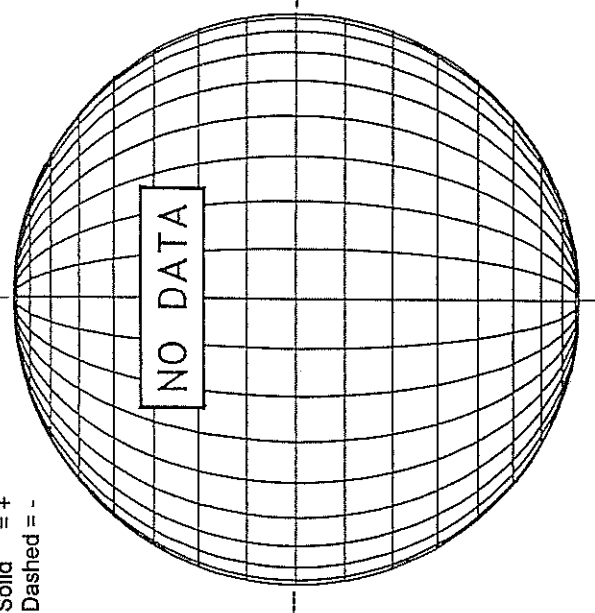
Bright = +
Dark = -



1634 UT

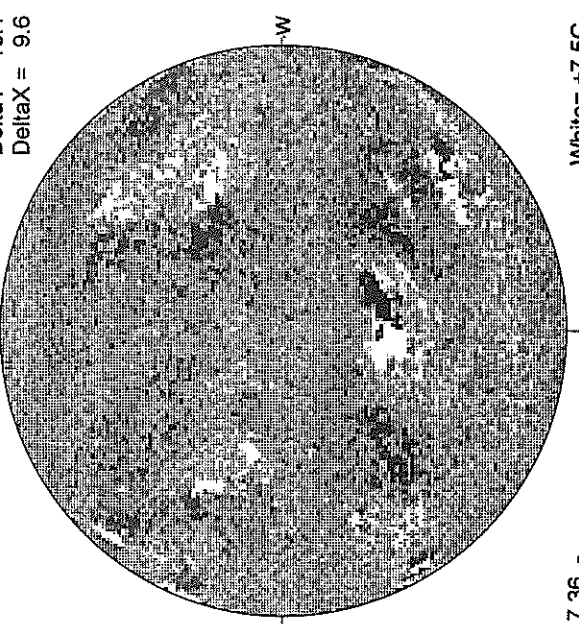
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

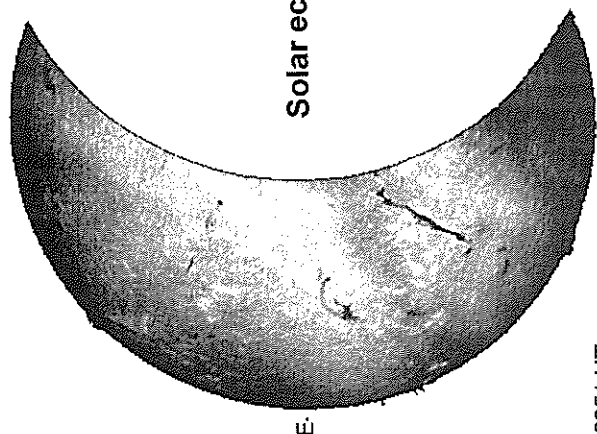
DeltaY = 13.1
DeltaX = 9.6



17.36 -
18.28 UT

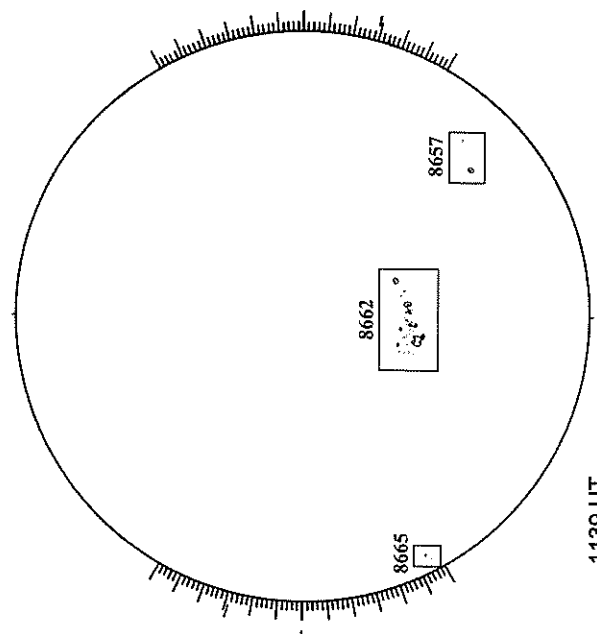
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



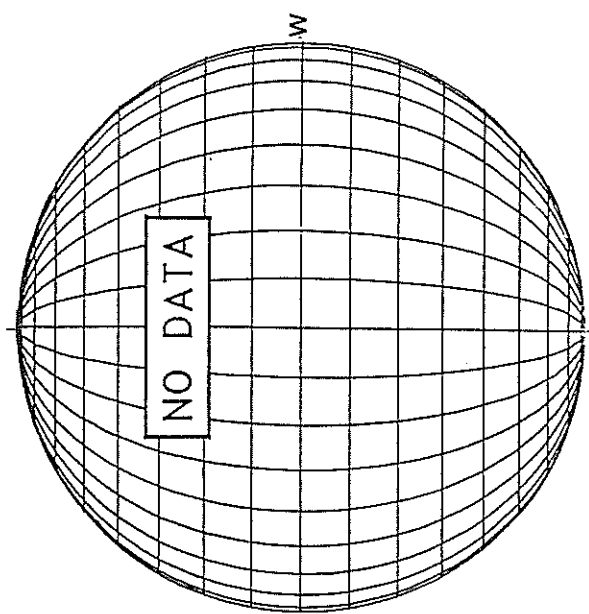
0951 UT

RAMEY SUNSPOT



1139 UT

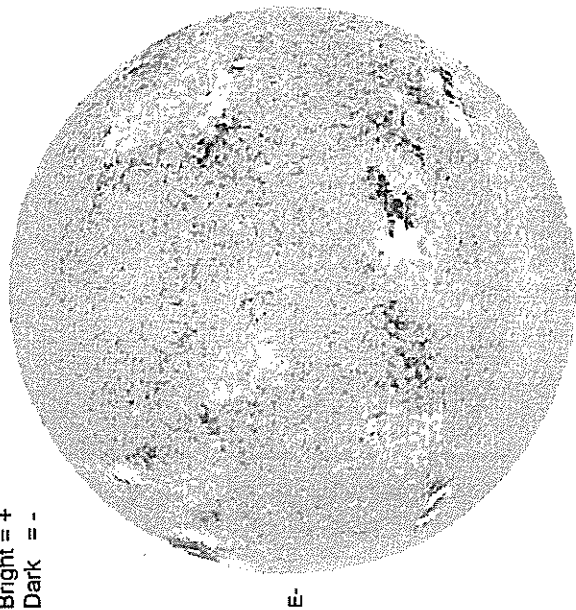
SACRAMENTO PEAK CORONA (1.15 Radii)---



AUGUST 12, 1999 (P= 14.79, Bo = 6.47, Lo = 81.20)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1547 UT

STANFORD MAGNETOGRAM

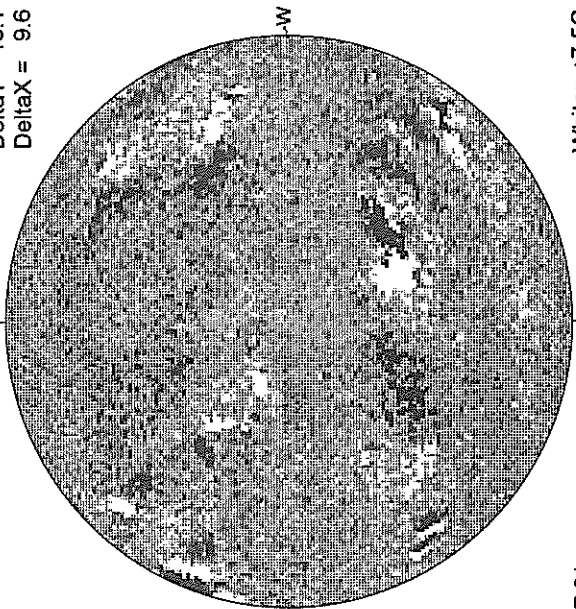
Solid = +
Dashed = -



2306 UT

MT. WILSON MAGNETOGRAM

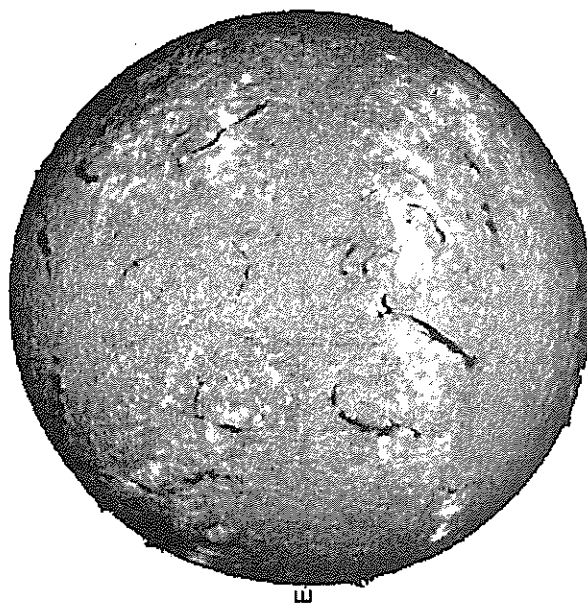
DeltaY = 13.1
DeltaX = 9.6



17.21 -
18.14 UT

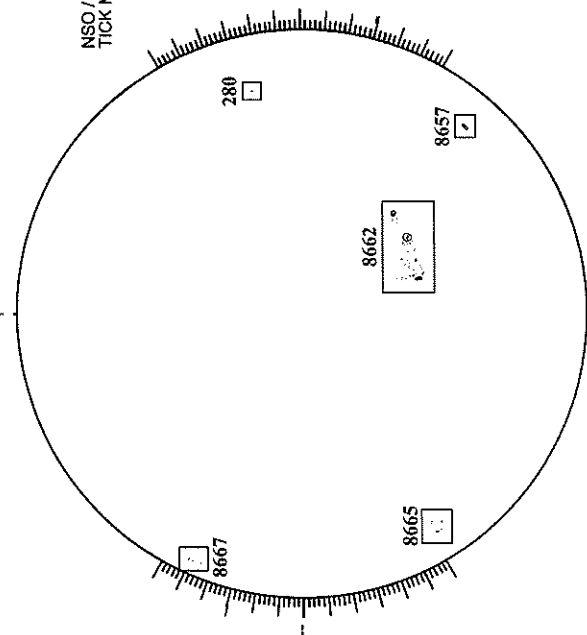
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



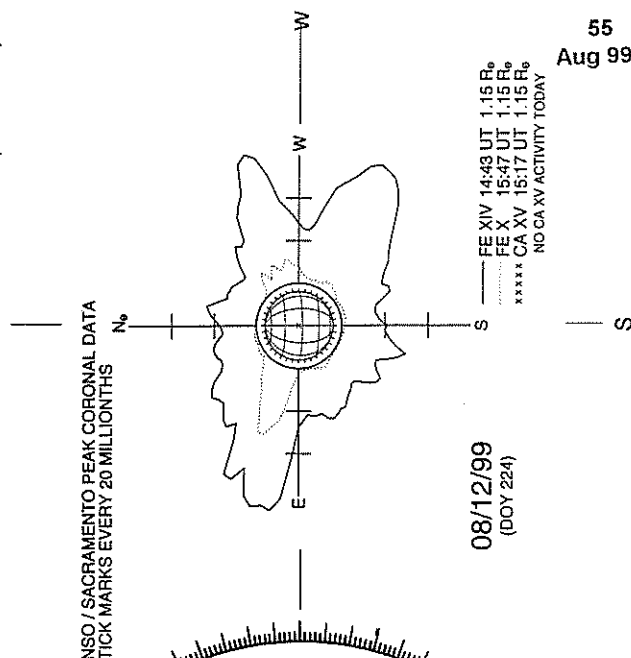
1118 UT

RAMEY SUNSPOT



1210 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



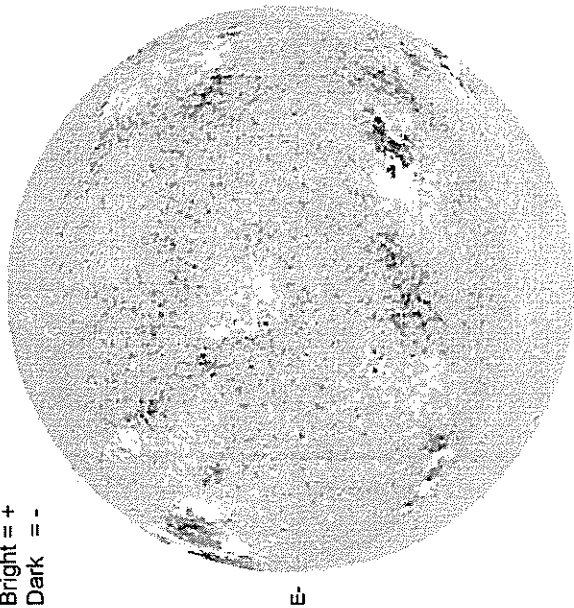
55
Aug 99

AUGUST 13, 1999 (P= 15.15, Bo = 6.52, Lo = 67.98)

56
Aug 99

KITT PEAK MAGNETOGRAM
868.8 nm

Bright = +
Dark = -



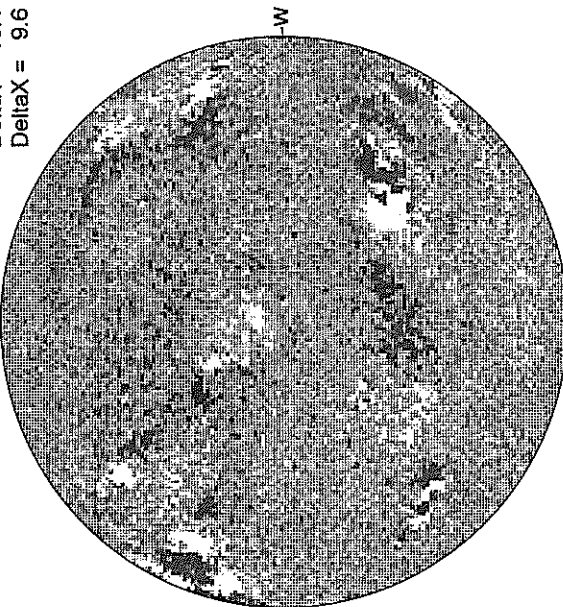
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

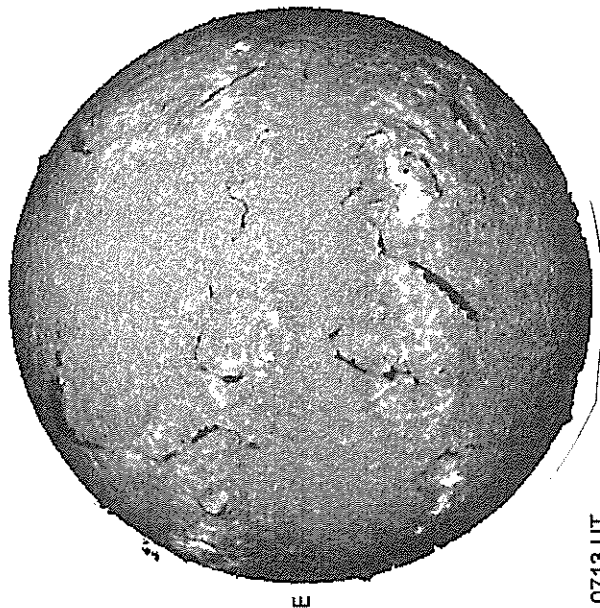
DeltaY = 13.1
DeltaX = 9.6



18.73 -
19.65 UT

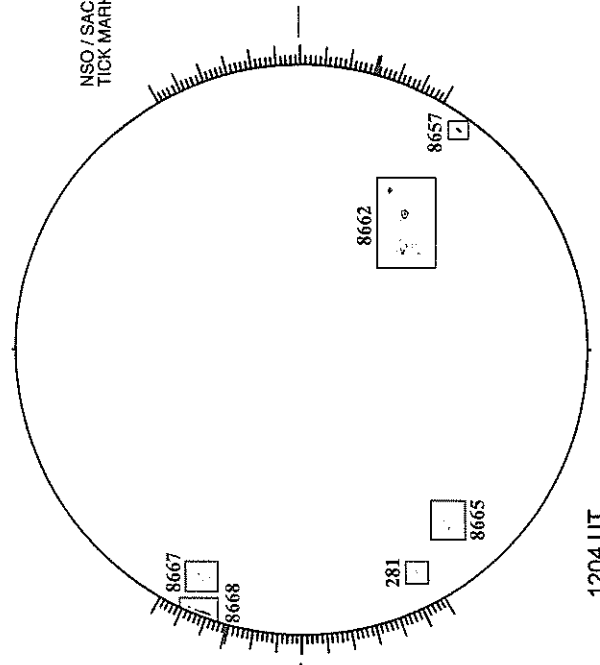
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



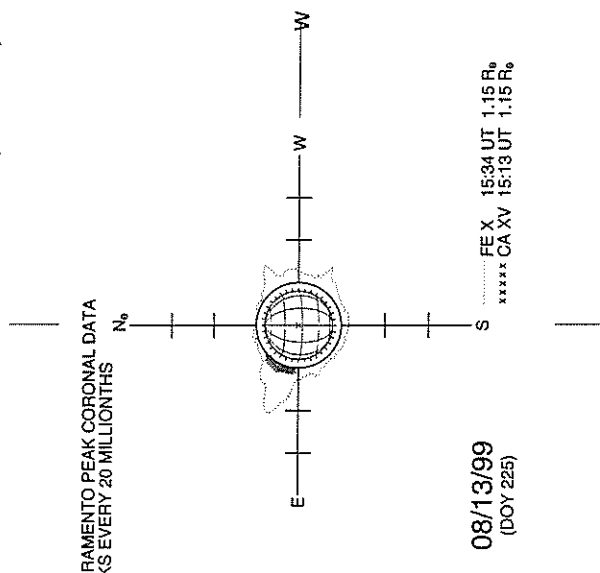
0713 UT

RAMEY SUNSPOT



1204 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



08/13/99
(DOY 225)

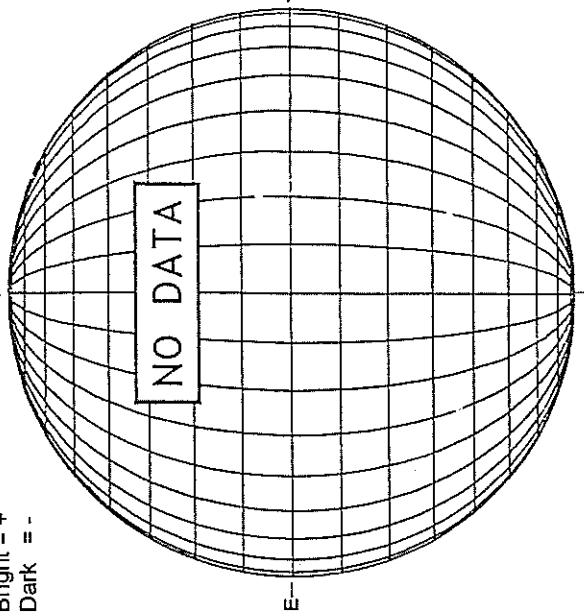
..... FEX 15:34 UT 1.15 R_o
***** CA XV 15:13 UT 1.15 R_o

AUGUST 14, 1999 (P= 15.49, Bo = 6.57, Lo = 54.76)

KITT PEAK MAGNETOGRAM

$\lambda = 868.8 \text{ nm}^{**}$

Bright = +
Dark = -



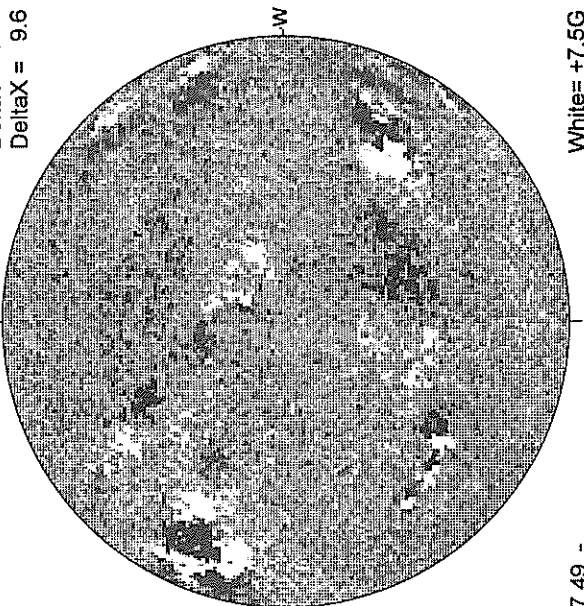
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

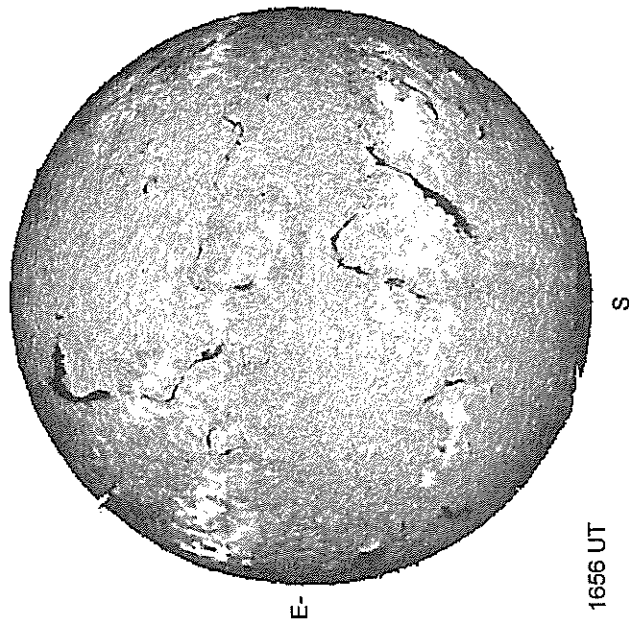
Delta Y = 13.1
Delta X = 9.6



17.49 -
18.41 UT

White = +7.5G
Black = -7.5G

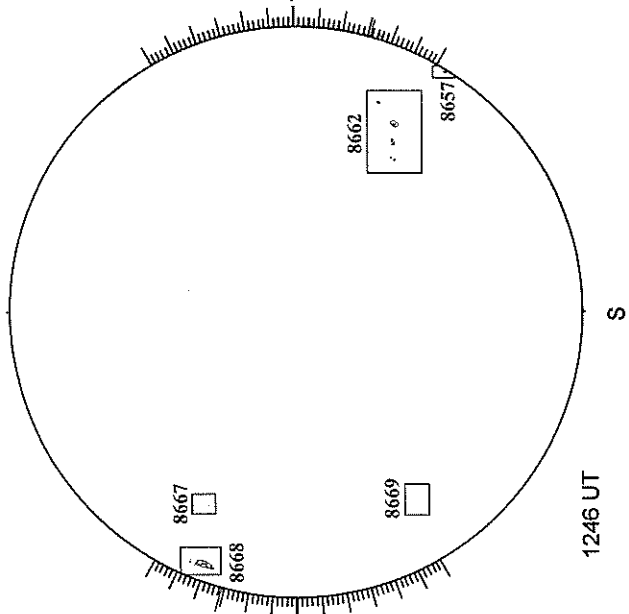
MEUDON H-ALPHA



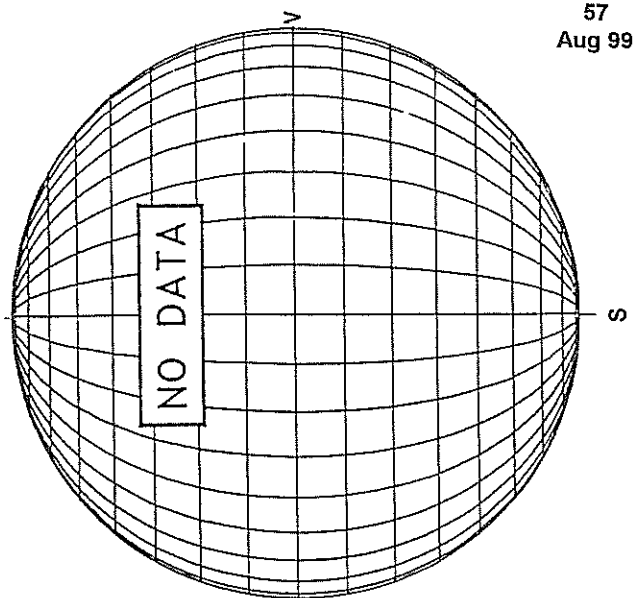
1656 UT

RAMEY SUNSPOT

LOMNICKY PEAK CORONA (1.04 Radii)---



1246 UT



57
Aug 99

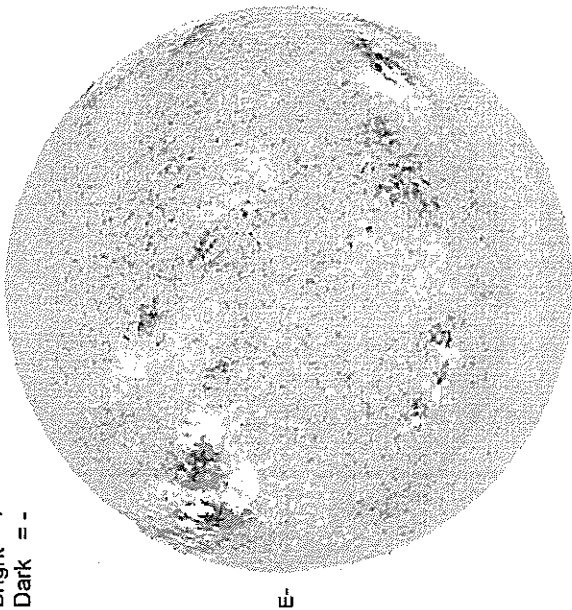
AUGUST 15, 1999 (P= 15.84, Bo = 6.62, Lo = 41.54)

58
Aug 99

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



1612 UT

STANFORD MAGNETOGRAM

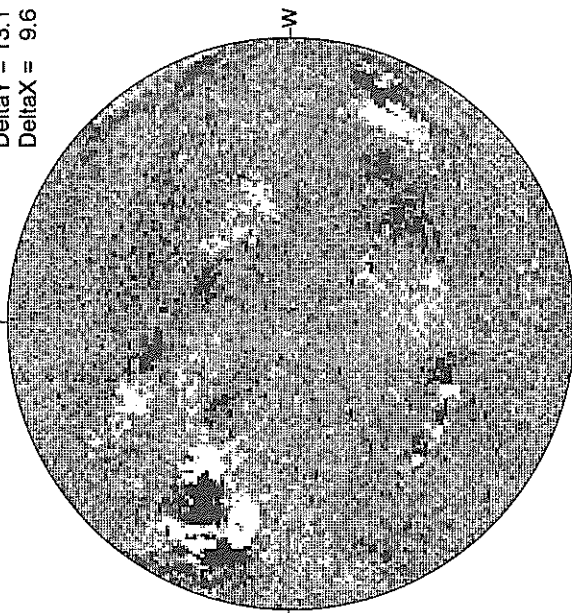
Solid = +
Dashed = -



1920 UT

MT. WILSON MAGNETOGRAM

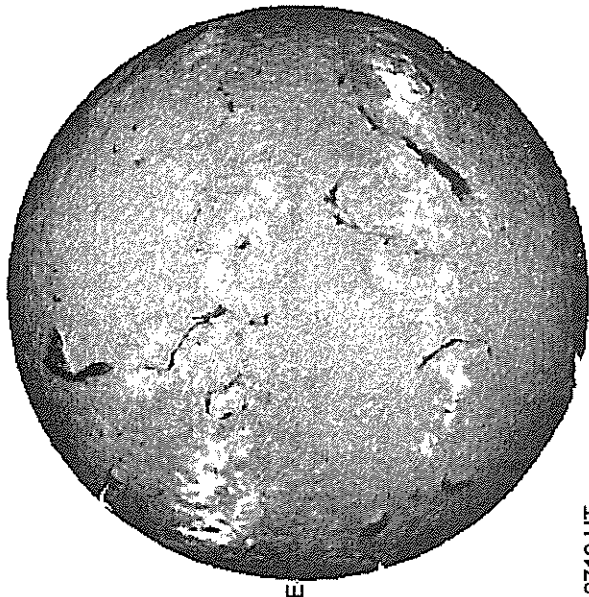
DeltaY = 13.1
DeltaX = 9.6



17.50 -
18.43 UT

White = +7.5G
Black = -7.5G

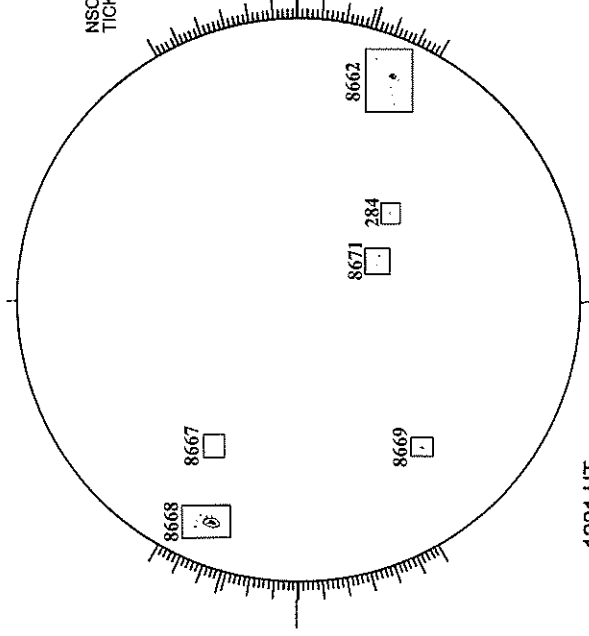
MEUDON H-ALPHA



0719 UT

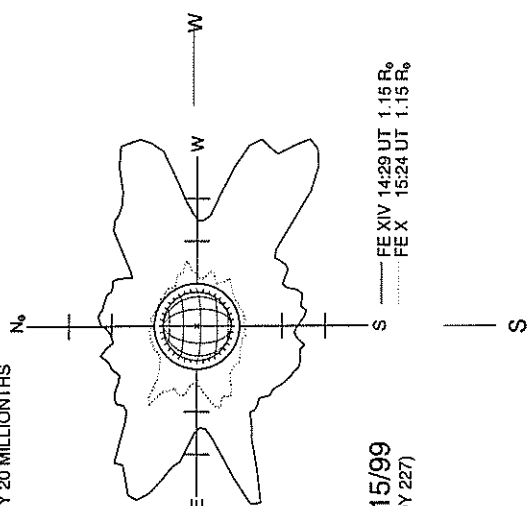
RAMEY SUNSPOT

SACRAMENTO PEAK CORONA (1.15 Radii)---



1221 UT

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS



08/15/99
(DOY 227)

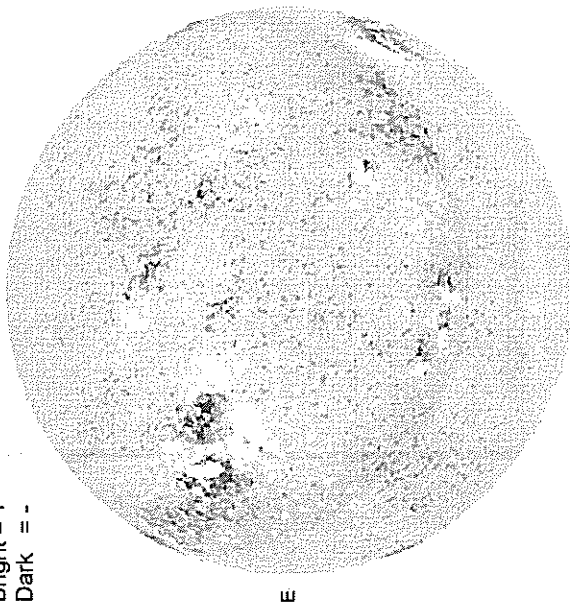
FE XIV 14:29 UT 1.15 R_o
FE X 15:24 UT 1.15 R_o

AUGUST 16, 1999 (P= 16.18, Bo = 6.67, Lo = 28.32)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -

868.8 nm**



1719 UT

STANFORD MAGNETOGRAM

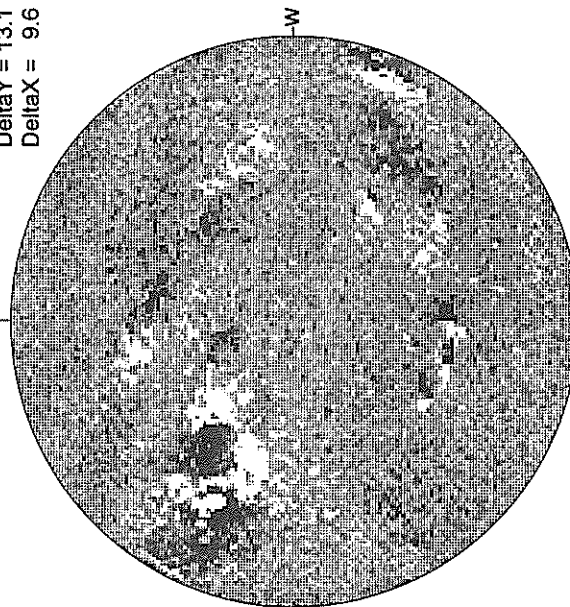
Solid = +
Dashed = -



2003 UT

MT. WILSON MAGNETOGRAM

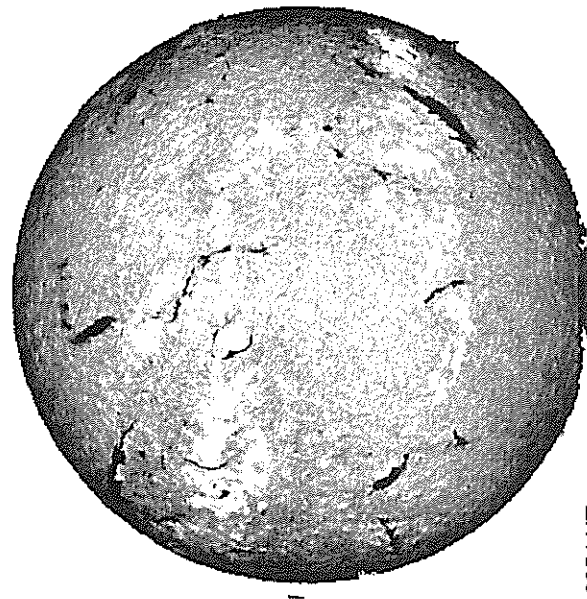
DeltaY = 13.1
DeltaX = 9.6



17.84 -
18.76 UT

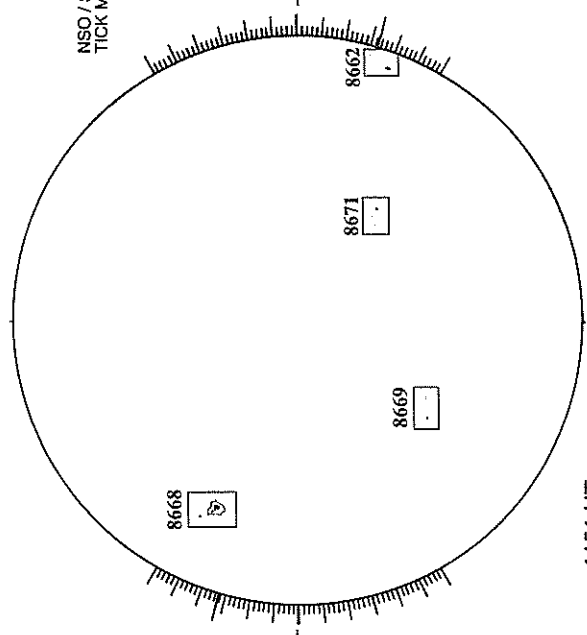
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



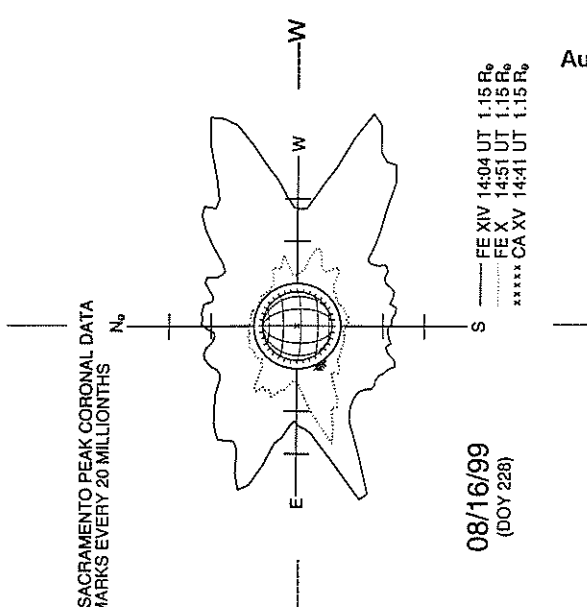
0854 UT

RAMEY SUNSPOT



1151 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



17.84 -
18.76 UT

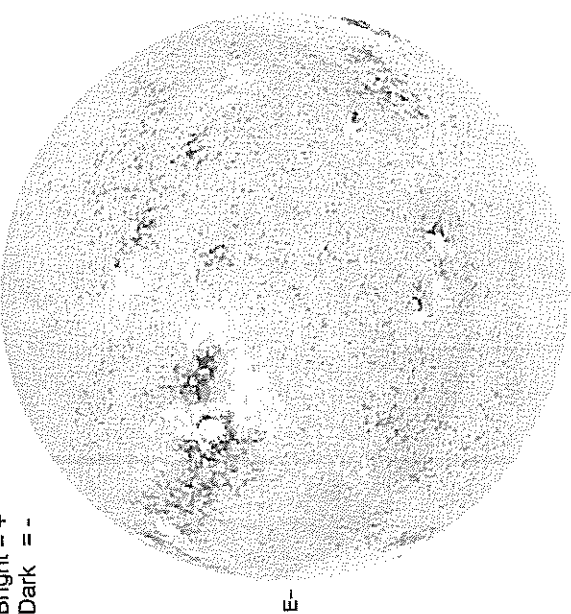
60
Aug 99

AUGUST 17, 1999 (P= 16.51, Bo = 6.72, Lo = 15.10)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



1554 UT

STANFORD MAGNETOGRAM

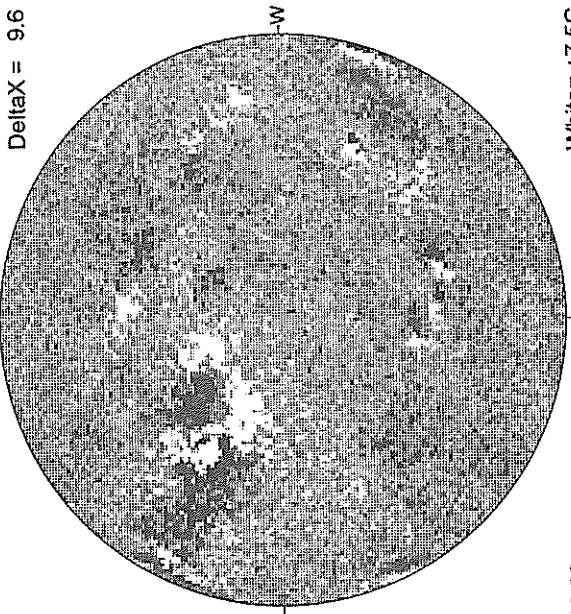
Solid = +
Dashed = -



2256 UT

MT. WILSON MAGNETOGRAM

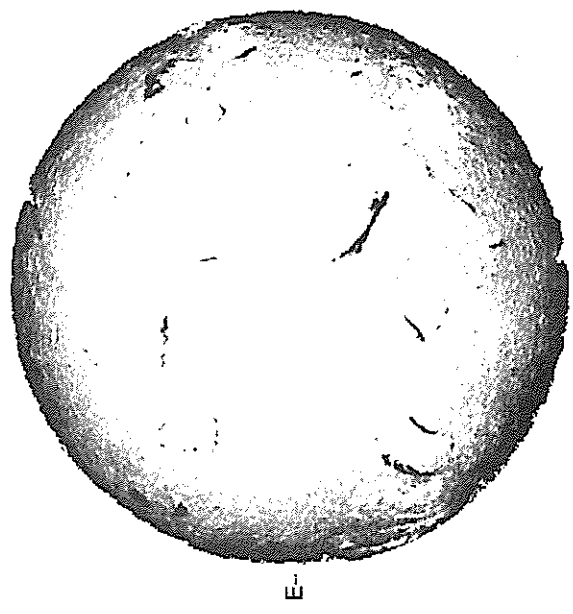
DeltaY = 13.1
DeltaX = 9.6



16.93 -
17.85 UT

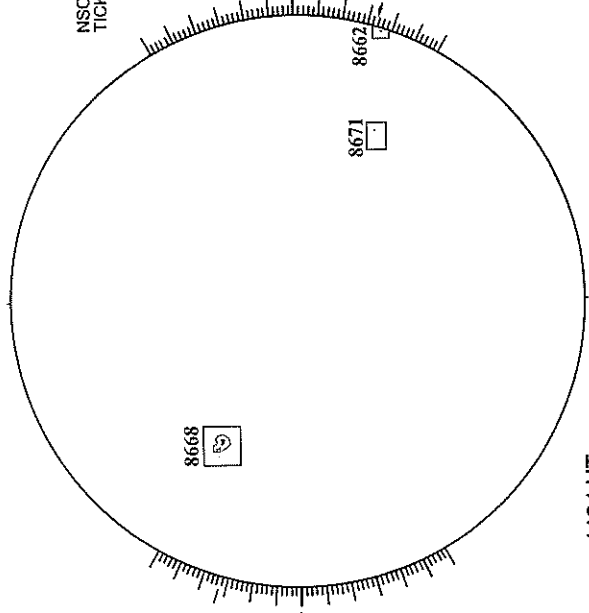
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



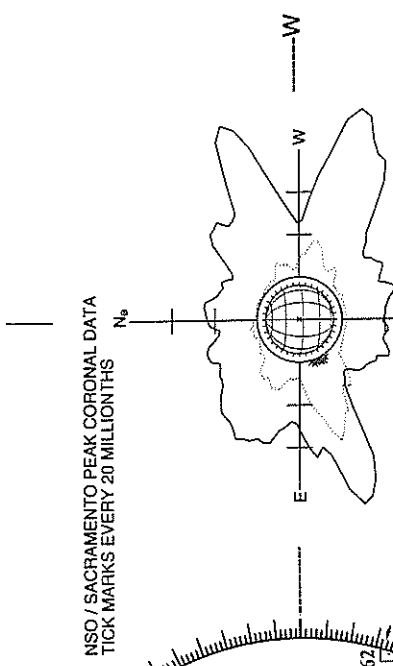
1247 UT

RAMEY SUNSPOT



1134 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



08/17/99
(DOY 229)

FE XIV 14:17 UT 1.15 R_o
FE X 15:04 UT 1.15 R_o
***** CA XV 14:47 UT 1.15 R_o

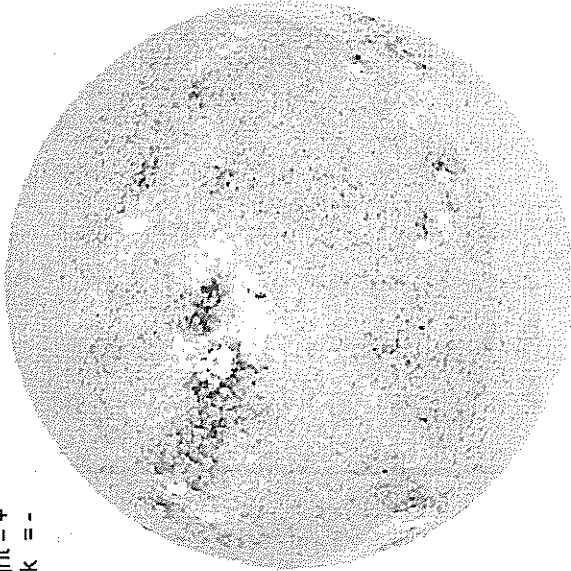
AUGUST 18, 1999 (P= 16.85, Bo = 6.76, Lo = 1.89)

KITT PEAK MAGNETOGRAM

868.8 nm

N

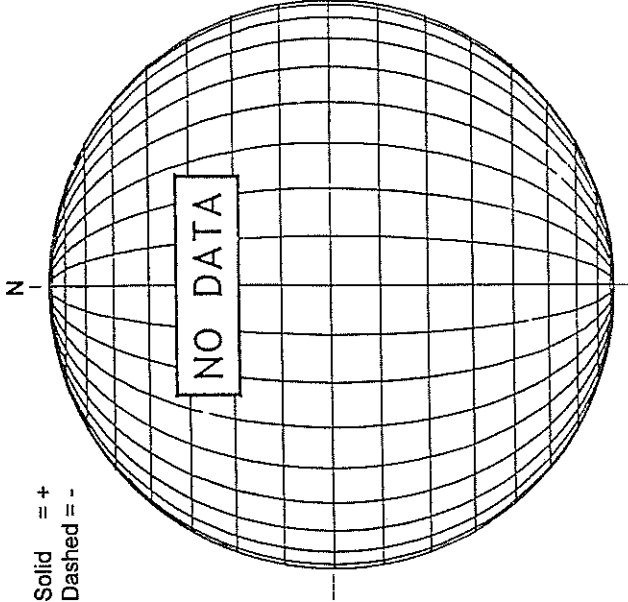
Bright = +
Dark = -



1603 UT

STANFORD MAGNETOGRAM

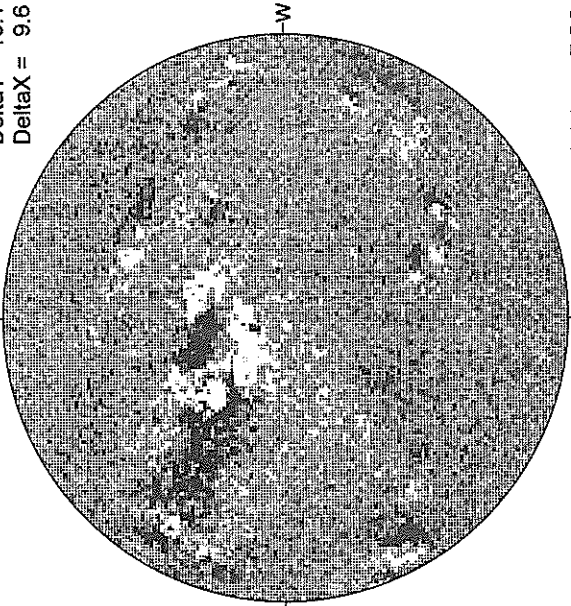
Solid = +
Dashed = -



17.16 -
18.08 UT

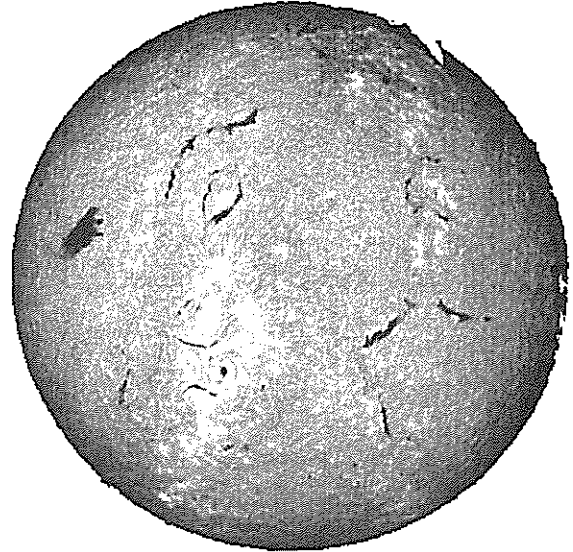
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



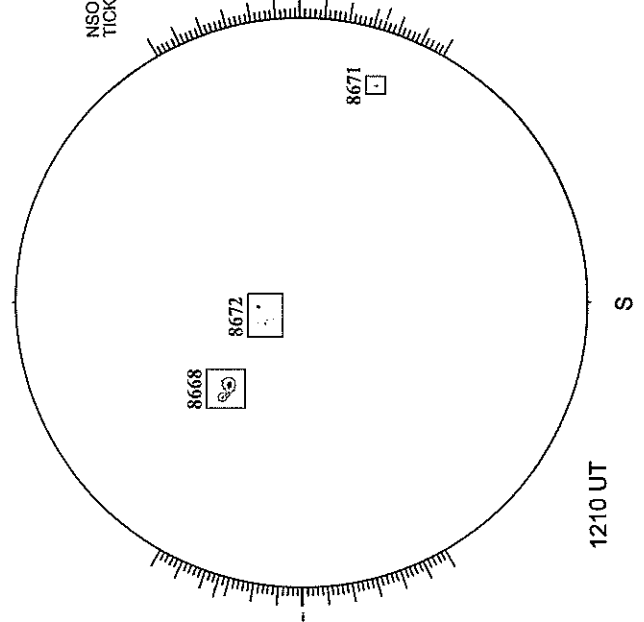
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



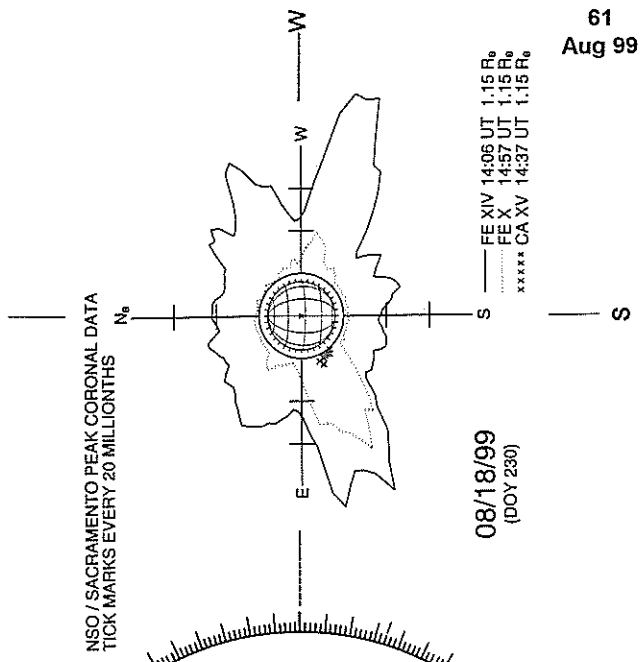
0647 UT

RAMEY SUNSPOT



1210 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



08/18/99
(DOY 230)

FE XIV 14:06 UT 1.15 R₀
FE X 14:57 UT 1.15 R₀
***** CA XV 14:37 UT 1.15 R₀

61
Aug 99

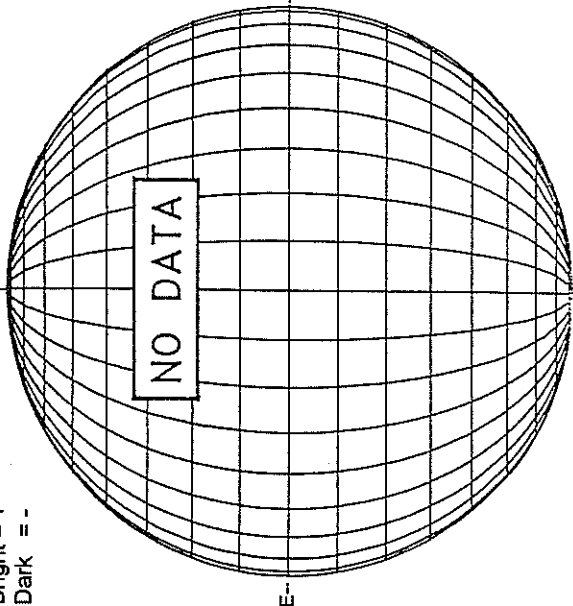
62
Aug 99

AUGUST 19, 1999 (P= 17.17, Bo = 6.81, Lo = 348.67)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



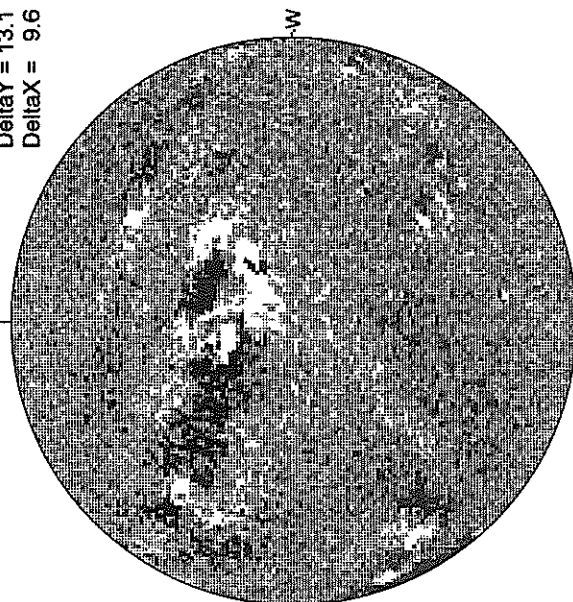
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

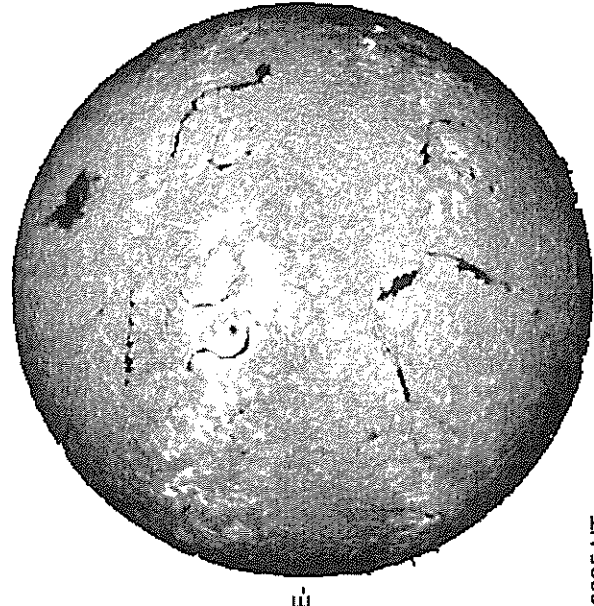
DeltaY = 13.1
DeltaX = 9.6



17.41 -
18.34 UT

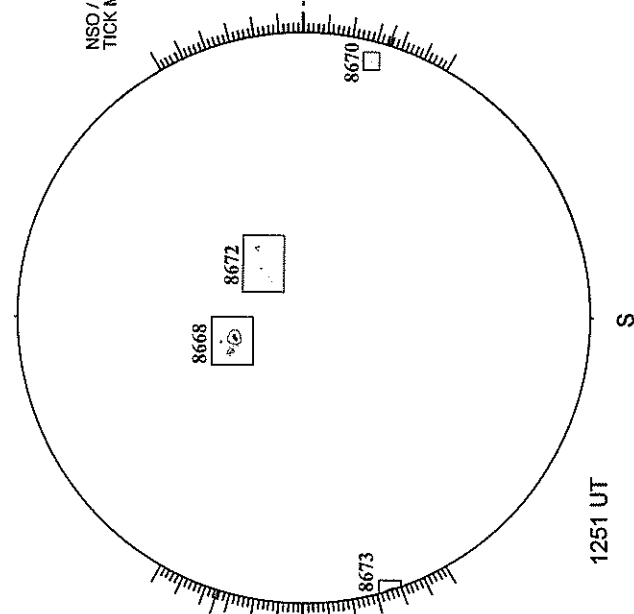
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



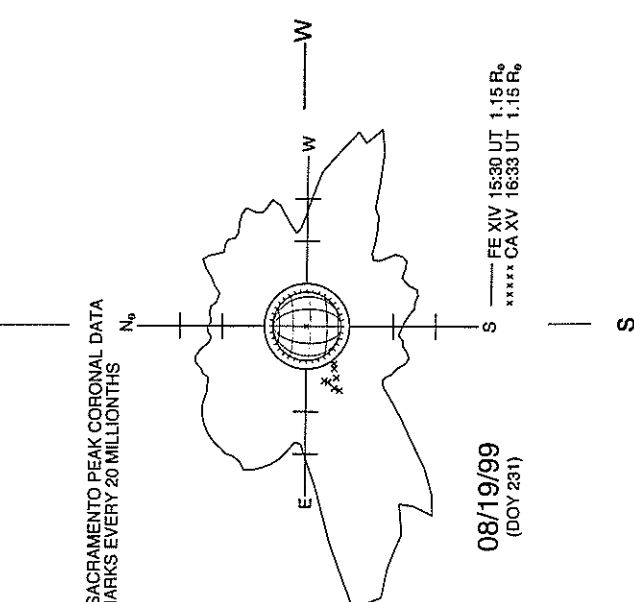
0625 UT

RAMEY SUNSPOT



1251 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



08/19/99
(DOY 231)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS

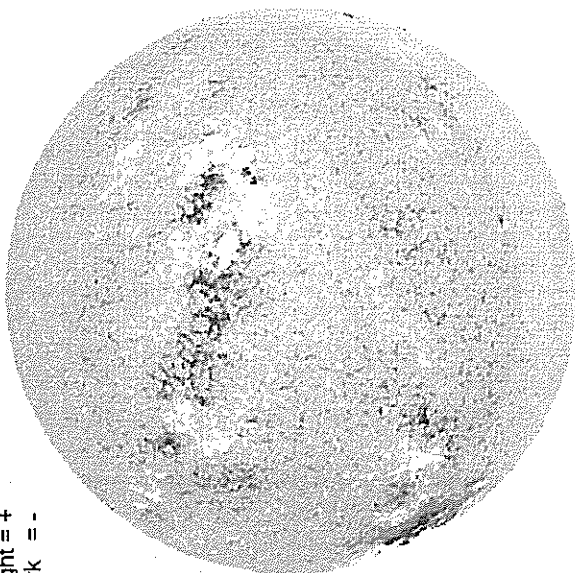
FE XIV 15:30 UT 1.15 R_o
CA XV 16:33 UT 1.15 R_o

AUGUST 20, 1999 (P= 17.49, Bo = 6.85, Lo = 335.45)

KITT PEAK MAGNETOGRAM

868.8 nm

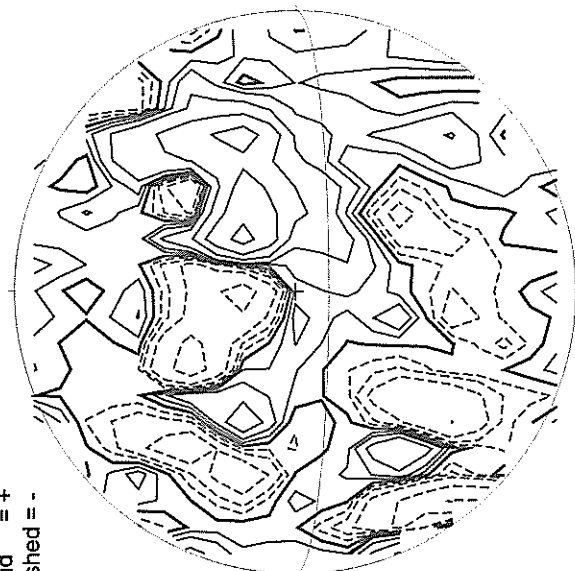
Bright = +
Dark = -



1558 UT

STANFORD MAGNETOGRAM

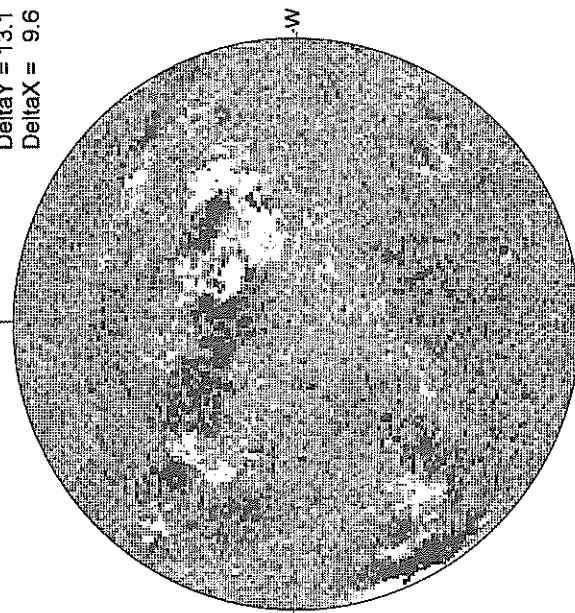
Solid = +
Dashed = -



2018 UT

MT. WILSON MAGNETOGRAM

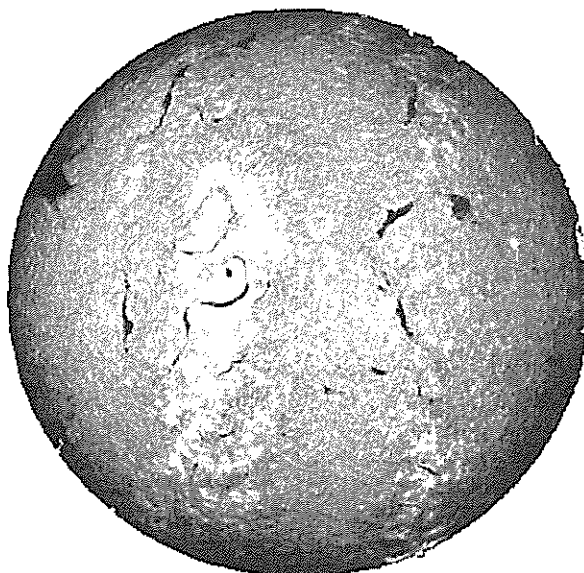
Delta Y = 13.1
Delta X = 9.6



18.90 -
19.83 UT

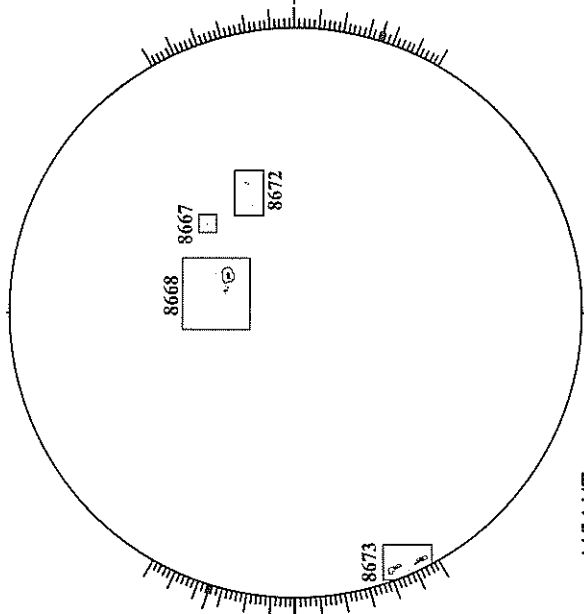
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



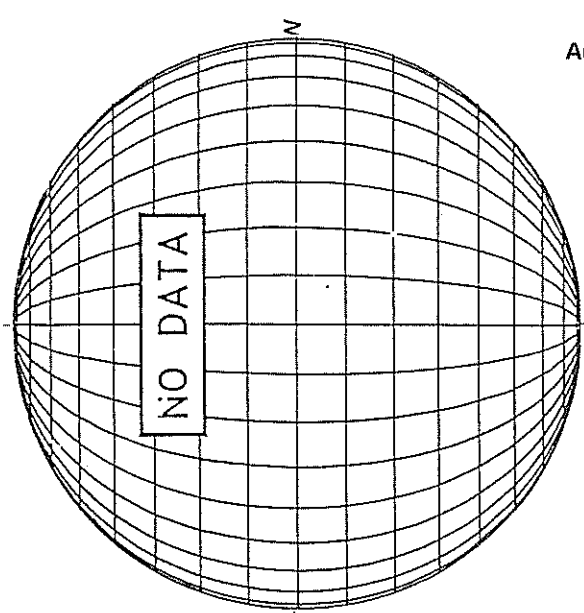
0633 UT

RAMEY SUNSPOT



1154 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



63
Aug 99

AUGUST 21, 1999 (P= 17.81, Bo = 6.89, Lo = 322.24)

64
Aug 99

KITT PEAK MAGNETOGRAM

N
W

Bright = +
Dark = -

Solid = +
Dashed = -

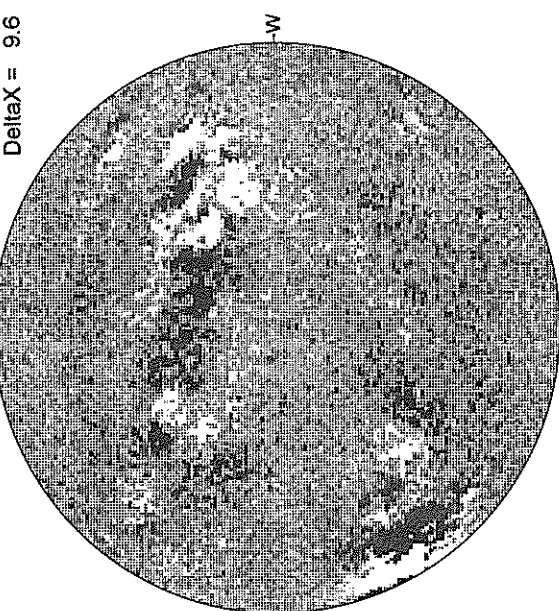
DeltaY = 13.1
DeltaX = 9.6

MT. WILSON MAGNETOGRAM

N

STANFORD MAGNETOGRAM

N

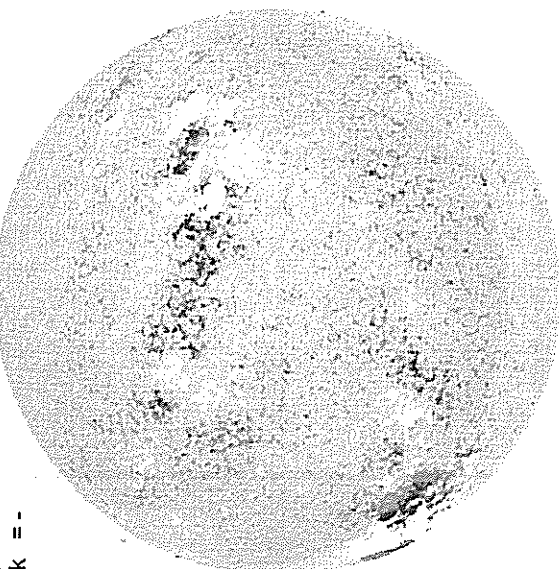


White= +7.5G
Black = -7.5G

17.34 -
18.27 UT



2003 UT

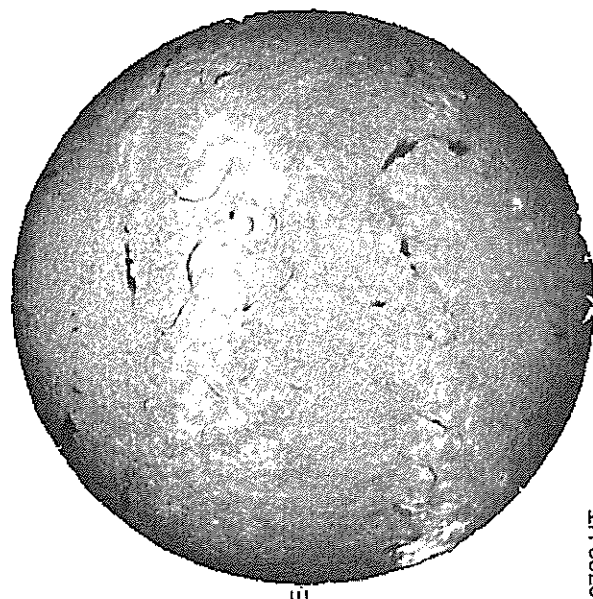


1452 UT

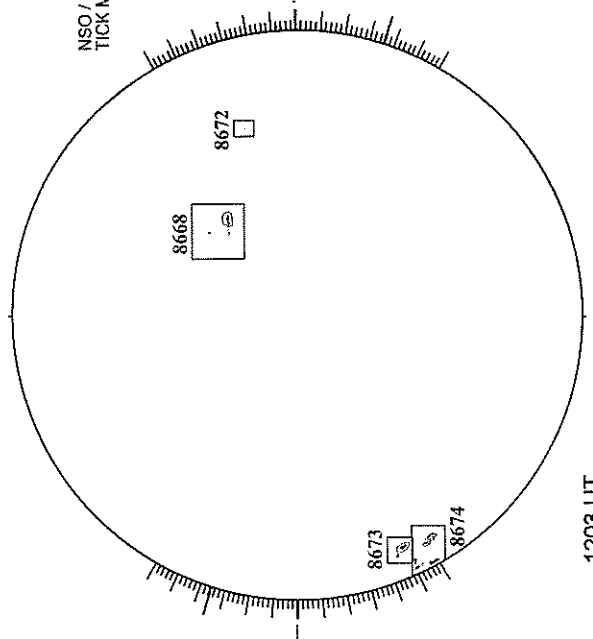
MEUDON H-ALPHA

RAMEY SUNSPOT

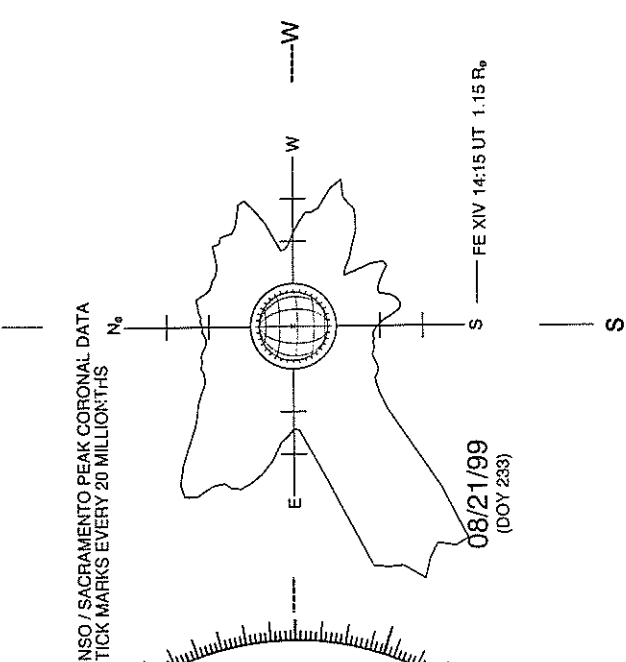
SACRAMENTO PEAK CORONA (1.15 Radii)---



0702 UT



1203 UT



NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 20 MILLIONTHS

N₀

E

W

W

S

S

S

S

S

S

S

S

S

S

S

S

S

S

S

S

S

S

S

S

S

S

08/21/99
(DOY 233)

FE XIV 14:15 UT 1.15 R₀

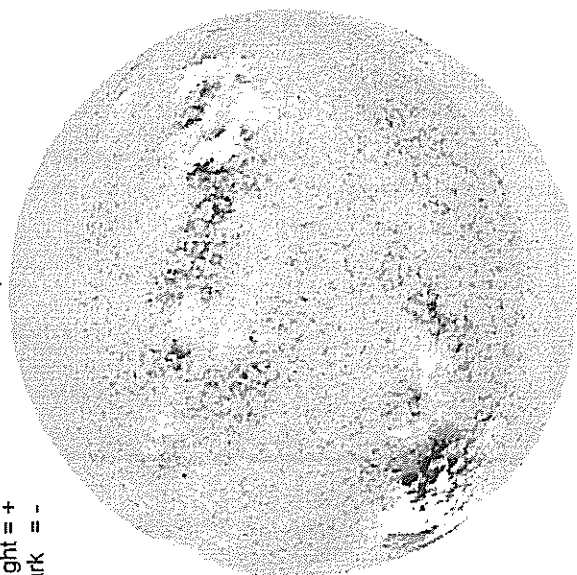
AUGUST 22, 1999 (P= 18.12, Bo = 6.92, Lo = 309.02)

KITT PEAK MAGNETOGRAM

868.8 nm

N

Bright = +
Dark = -

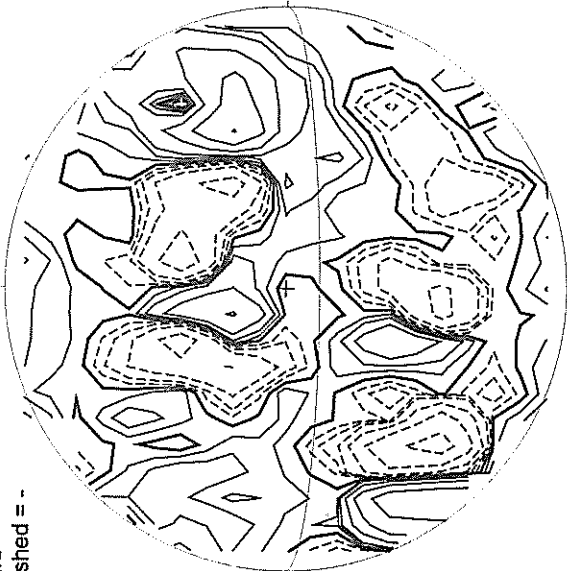


1516 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

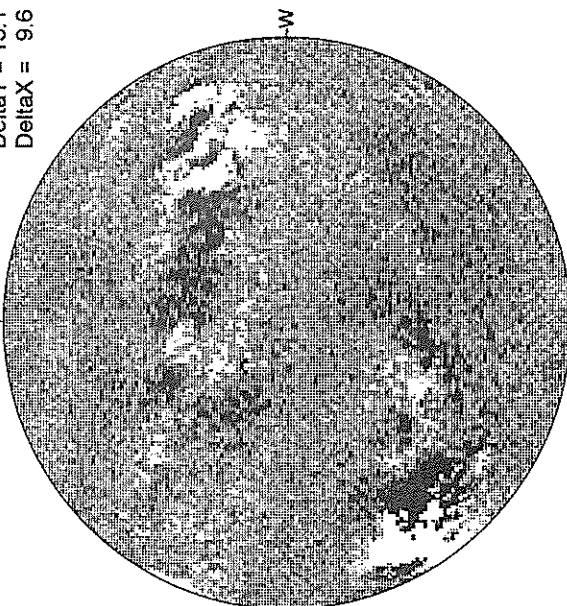


1904 UT

MT. WILSON MAGNETOGRAM

N

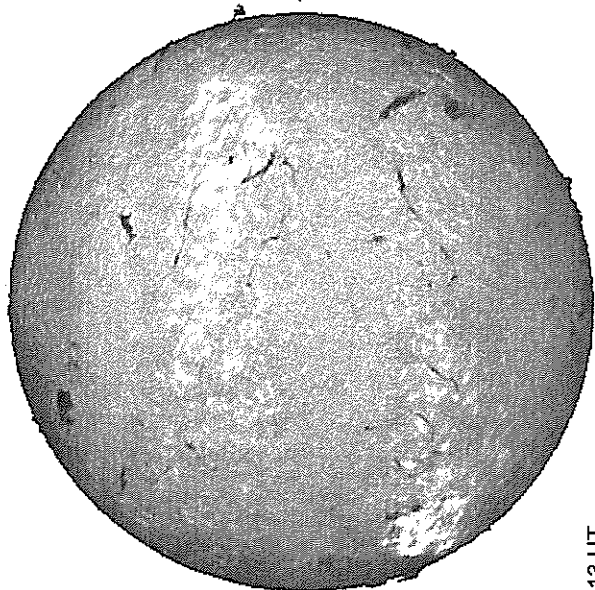
DeltaY = 13.1
DeltaX = 9.6



17.20 -
18.13 UT

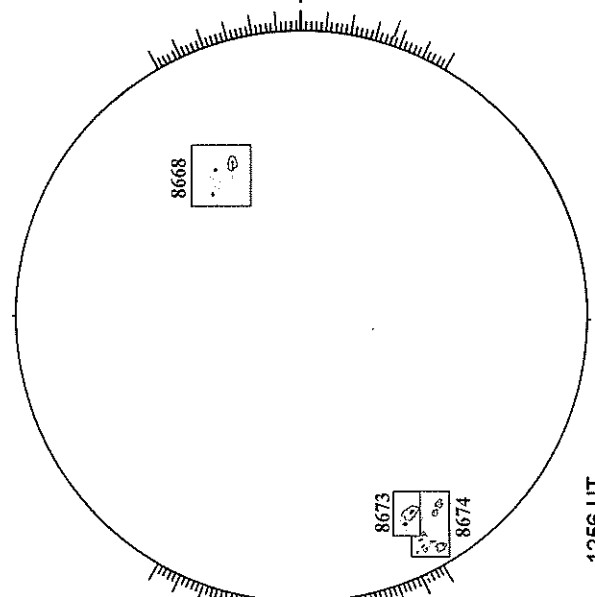
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



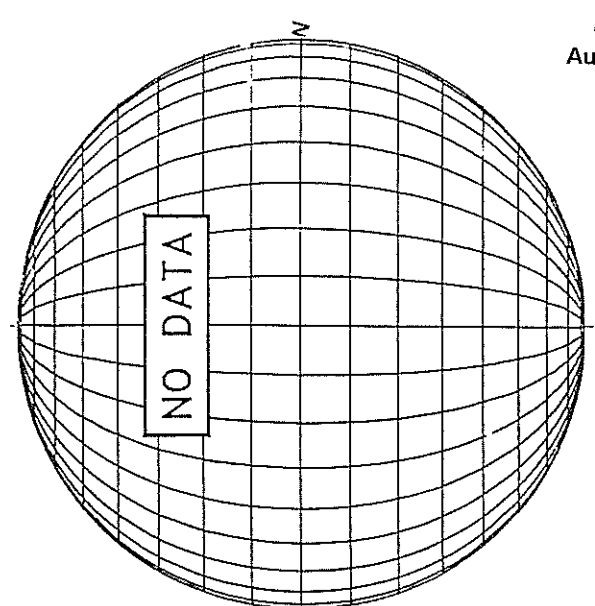
0813 UT

RAMEY SUNSPOT



1256 UT

SACRAMENTO PEAK CORONA (1.15 Radii) —



65
Aug 99

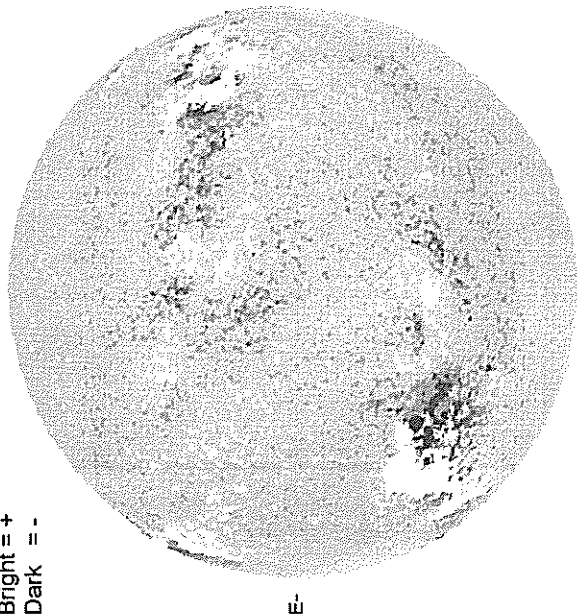
66
Aug 99

AUGUST 23, 1999 (P= 18.43, Bo = 6.96, Lo = 295.81)

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



1815 UT

STANFORD MAGNETOGRAM

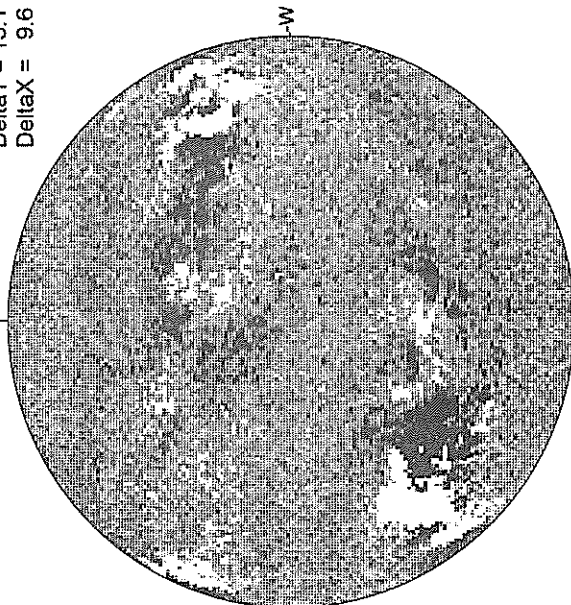
Solid = +
Dashed = -



1909 UT

MT. WILSON MAGNETOGRAM

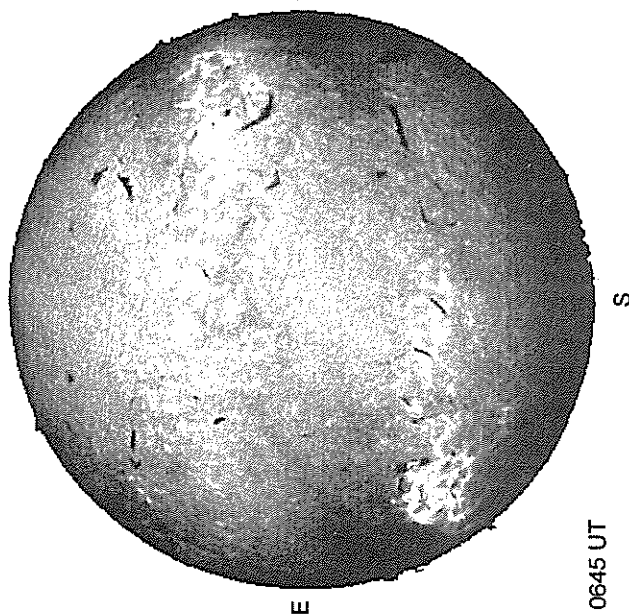
DeltaY = 13.1
DeltaX = 9.6



20.24 -
21.16 UT

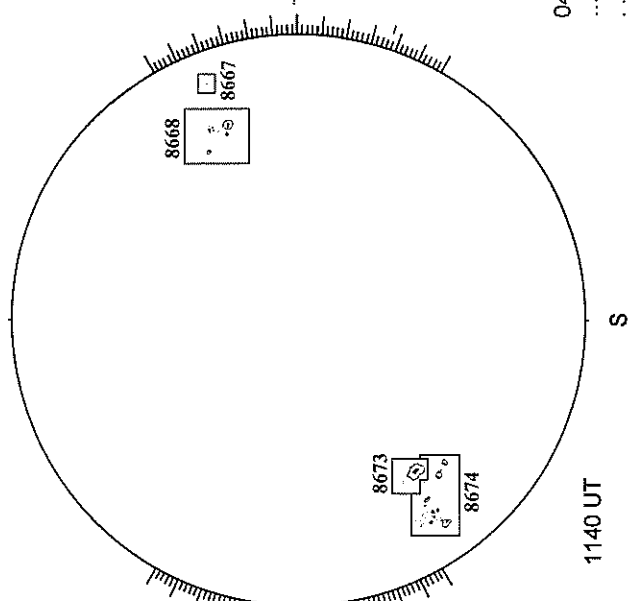
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



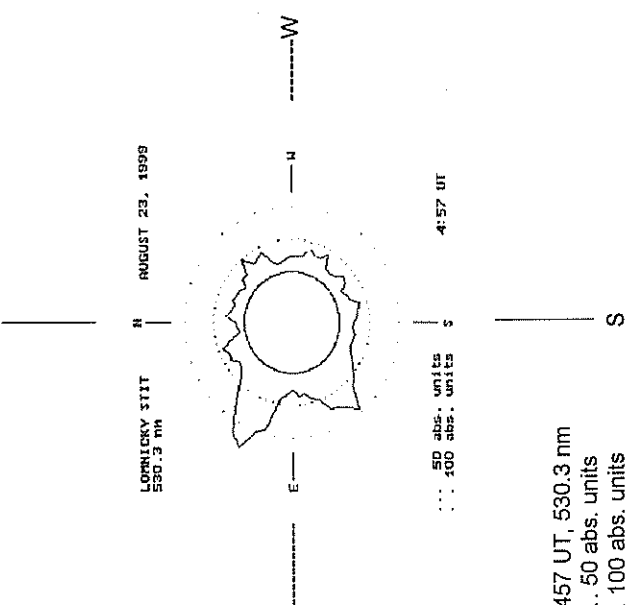
0645 UT

RAMEY SUNSPOT



1140 UT

LOMNICKY PEAK CORONA (1.04 Radii)---



0457 UT, 530.3 nm
... 50 abs. units
.. 100 abs. units

50 abs. units
100 abs. units

4:57 UT

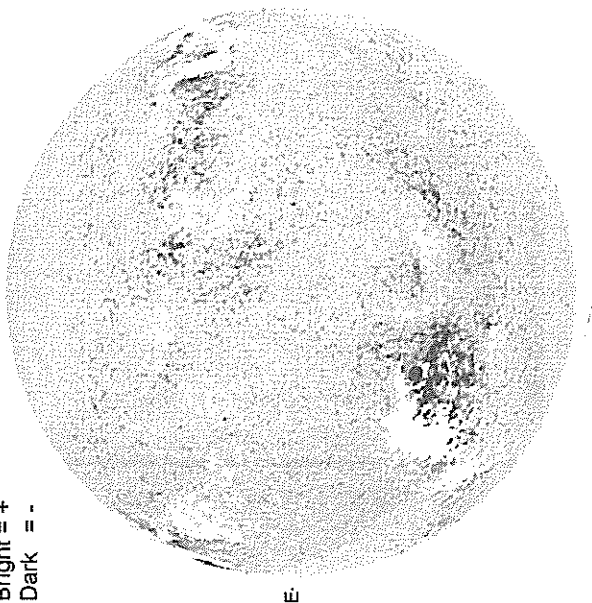
LOMNICKY STIT
530.3 nm

AUGUST 23, 1999

AUGUST 24, 1999 (P = 18.73, Bo = 6.99, Lo = 282.59)

KITT PEAK MAGNETOGRAM
868.8 nm

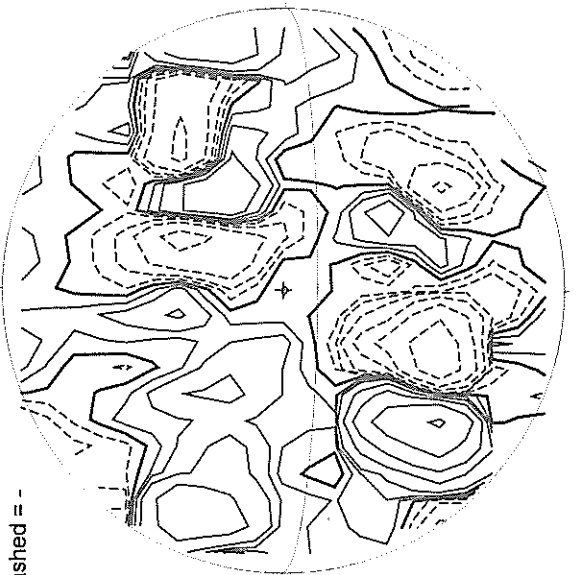
Bright = +
Dark = -



1453 UT

STANFORD MAGNETOGRAM

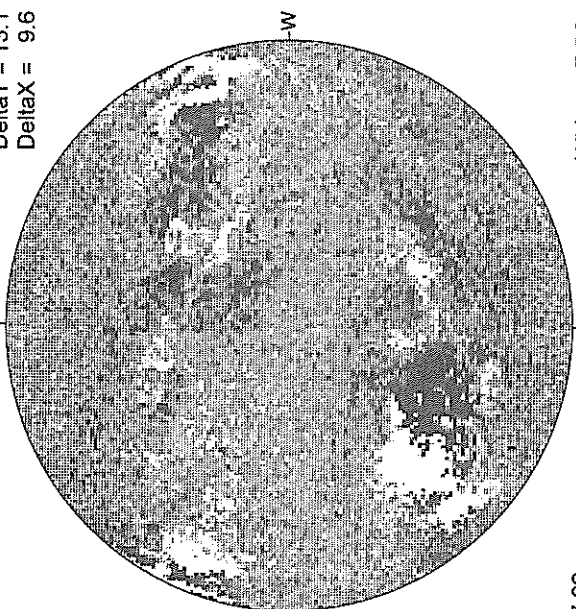
Solid = +
Dashed = -



2034 UT

MT. WILSON MAGNETOGRAM

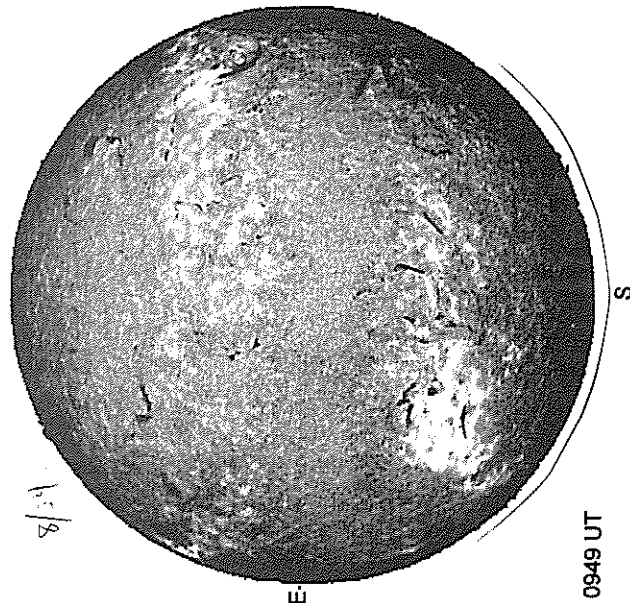
DeltaY = 13.1
DeltaX = 9.6



17.92 -
18.84 UT

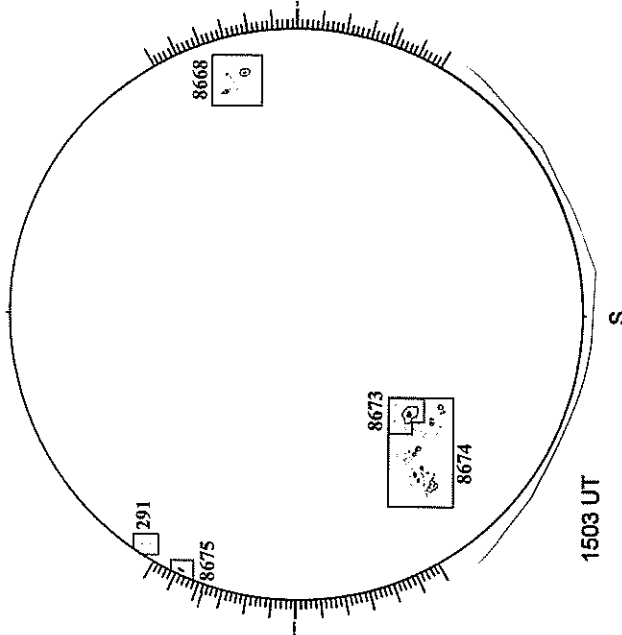
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



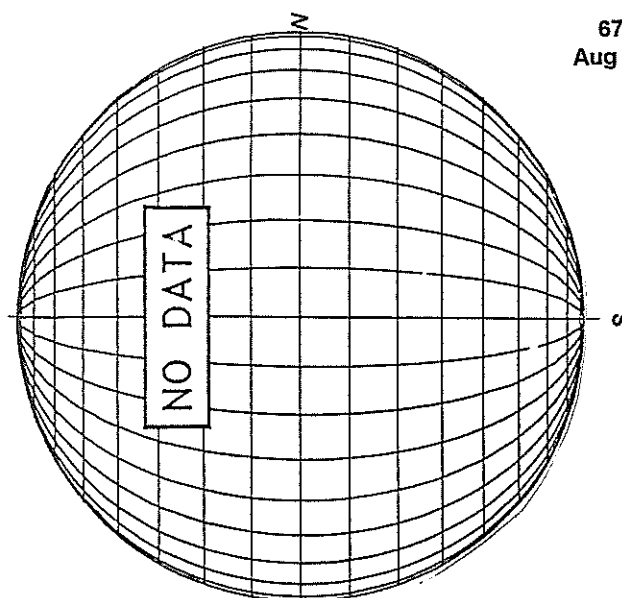
0949 UT

RAMEY SUNSPOT



1503 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



67
Aug 99

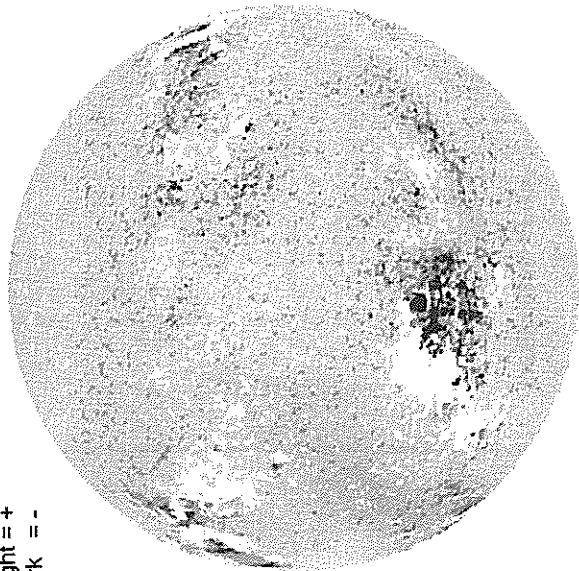
68
Aug 99

AUGUST 25, 1999 (P= 19.02, Bo = 7.02, Lo = 269.38)

KITT PEAK MAGNETOGRAM

N
868.8 nm

Bright = +
Dark = -

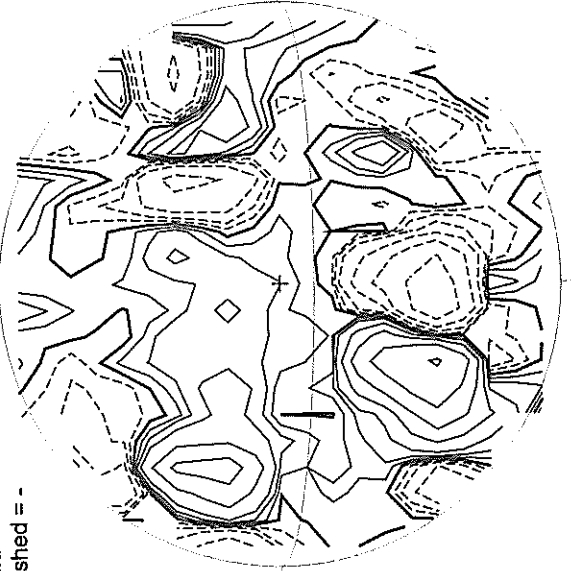


1814 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

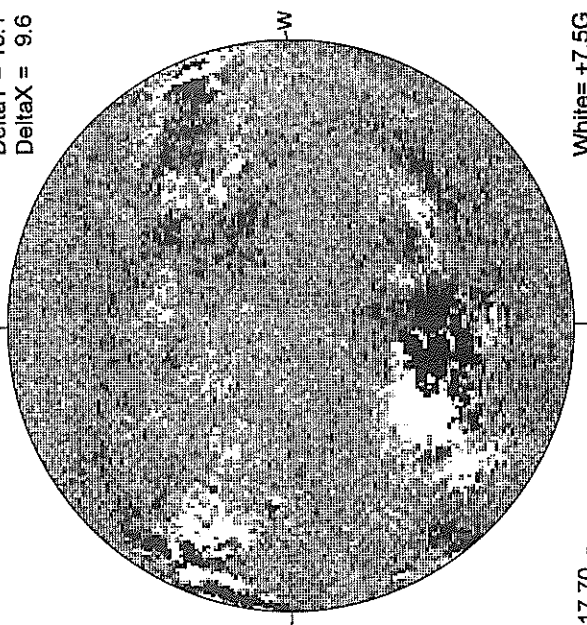


2104 UT

MT. WILSON MAGNETOGRAM

N

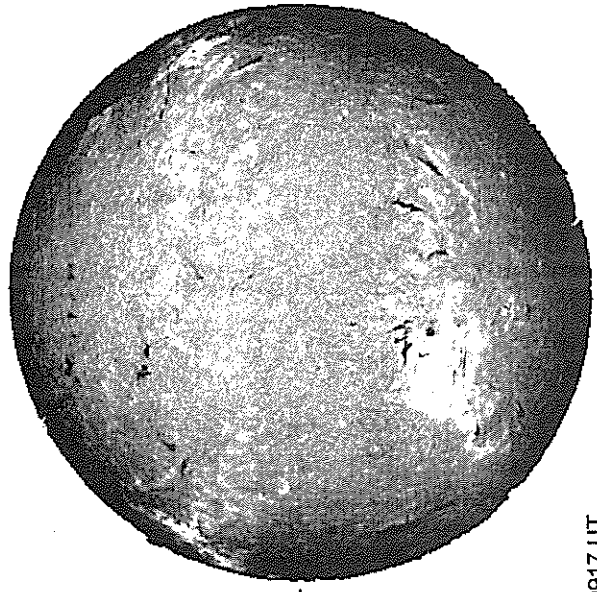
Delta Y = 13.1
Delta X = 9.6



17.70 -
18.63 UT

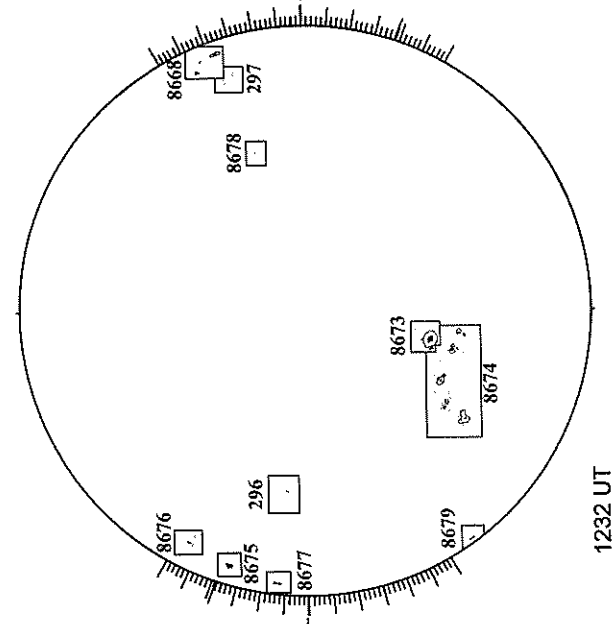
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



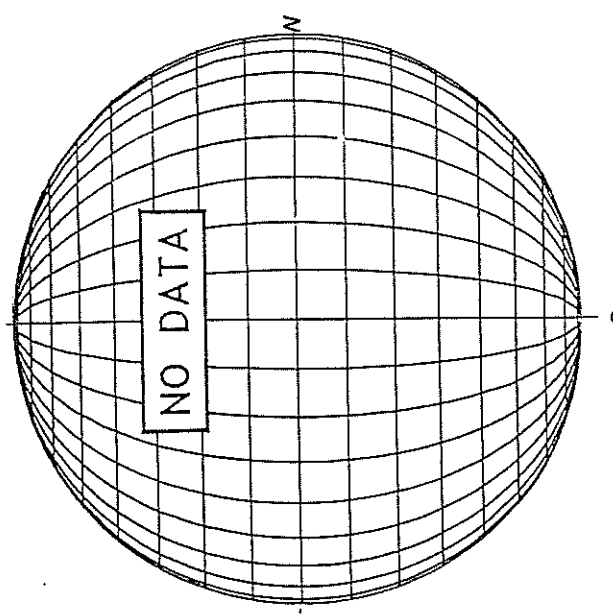
0917 UT

RAMEY SUNSPOT



1232 UT

SACRAMENTO PEAK CORONA (1.15 Radii)---



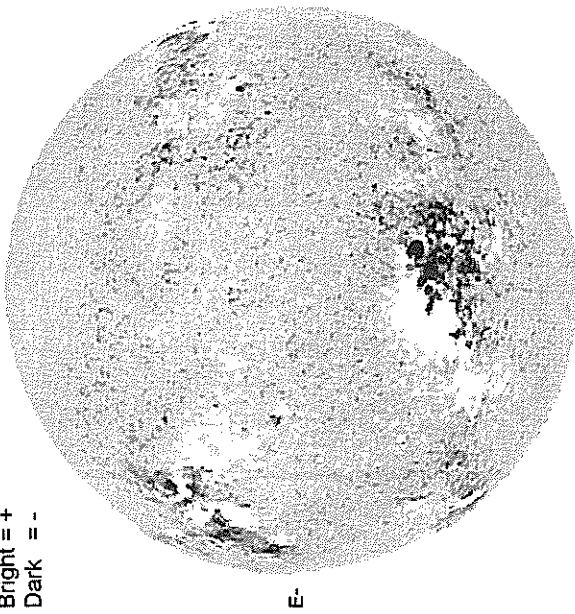
NO DATA

AUGUST 26, 1999 (P = 19.31, Bo = 7.05, Lo = 256.16)

KITT PEAK MAGNETOGRAM

N
868.8 nm

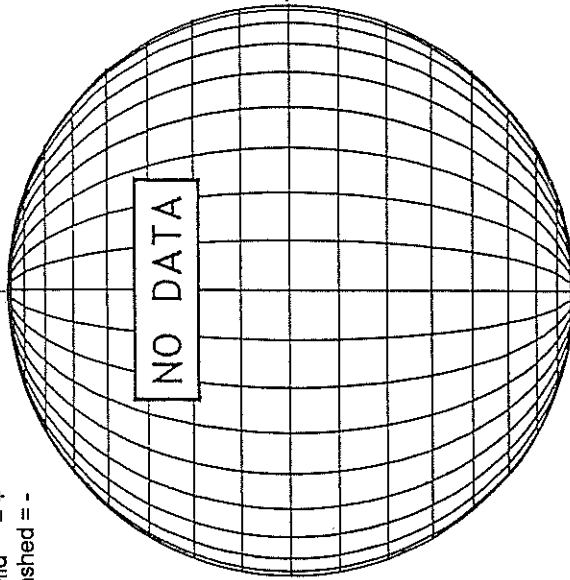
Bright = +
Dark = -



1527 UT

STANFORD MAGNETOGRAM

N
Solid = +
Dashed = -

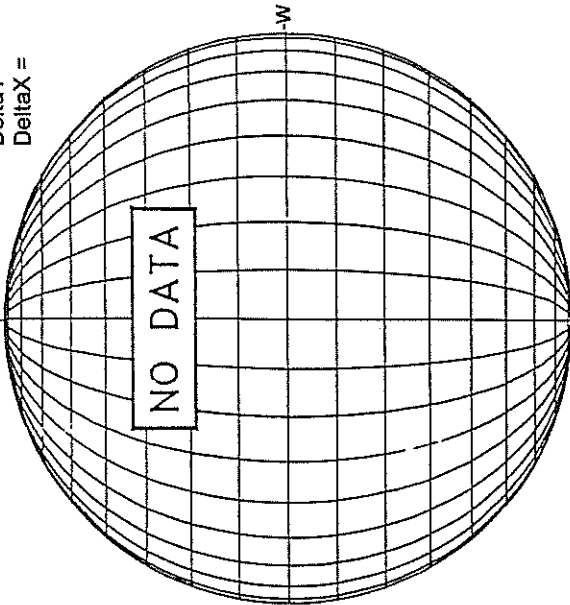


NO DATA

NO DATA

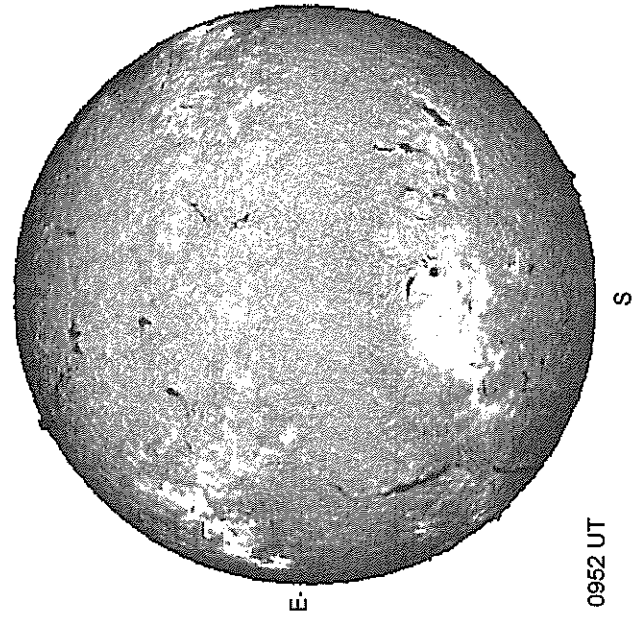
MT. WILSON MAGNETOGRAM

N
Delta Y =
Delta X =



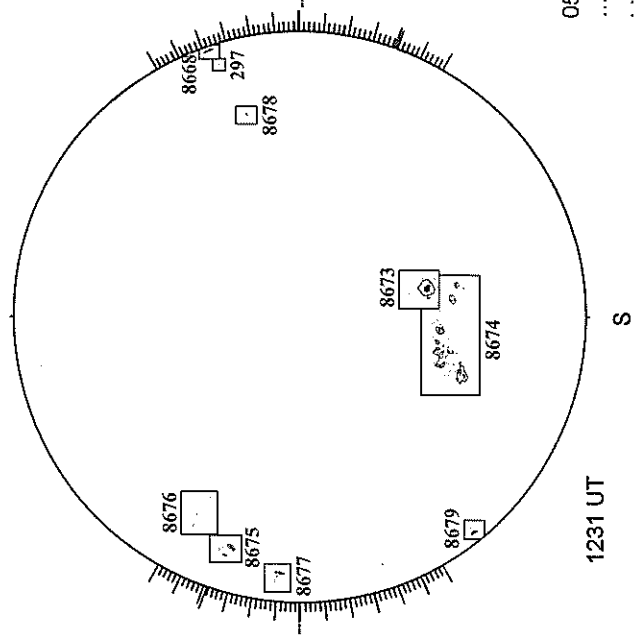
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



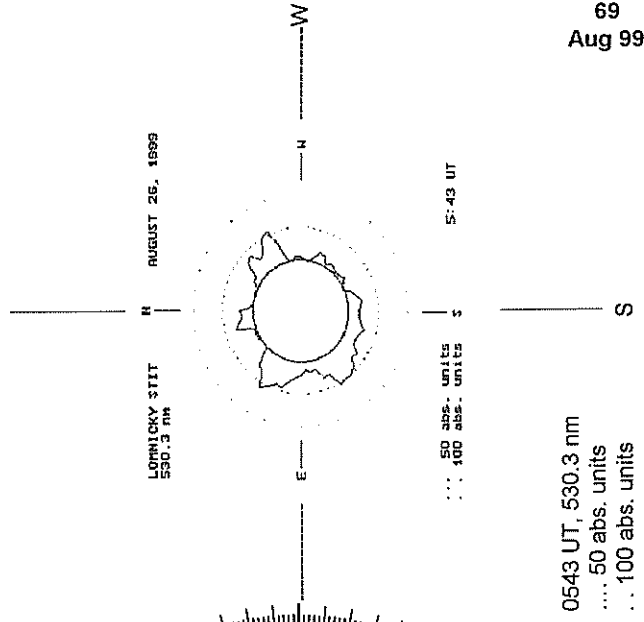
0952 UT

RAMEY SUNSPOT



1231 UT

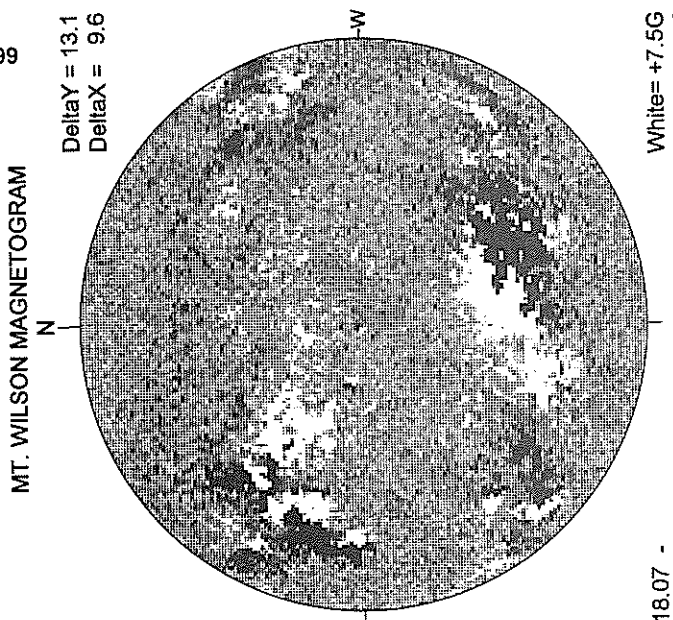
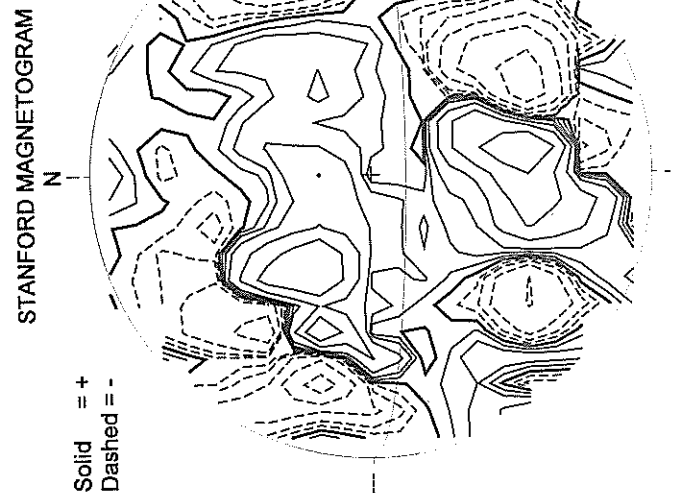
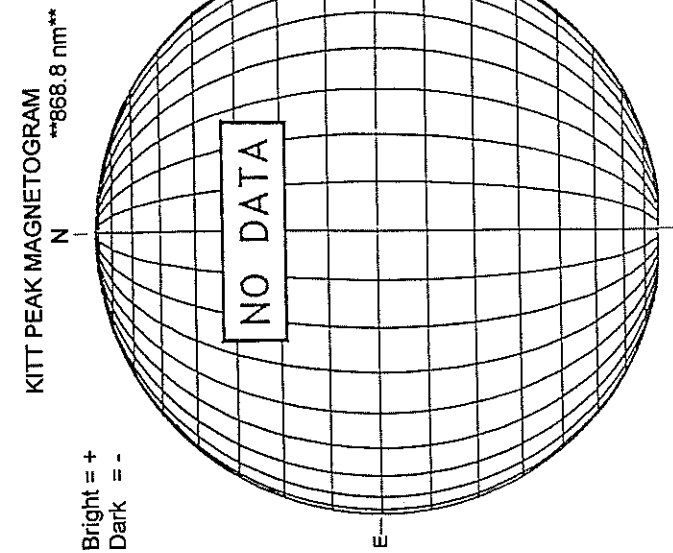
LOMNICKY PEAK CORONA (1.04 Radii)----



0543 UT, 530.3 nm
... 50 abs. units
... 100 abs. units

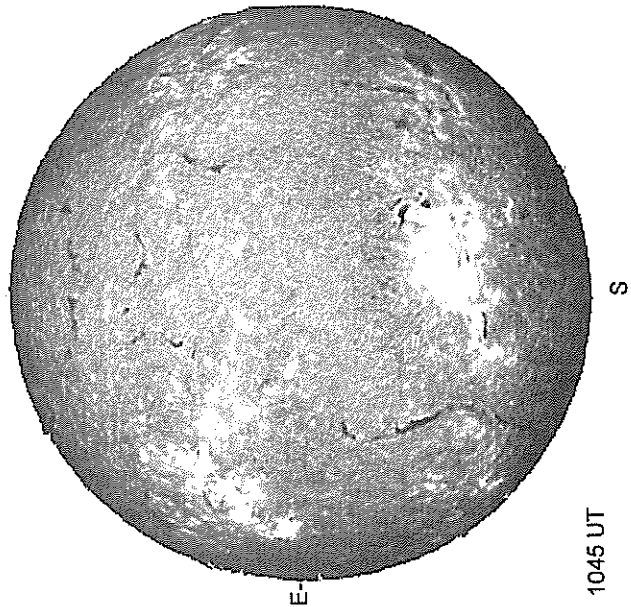
70
Aug 99

AUGUST 27, 1999 (P= 19.60, Bo = 7.08, Lo = 242.95)



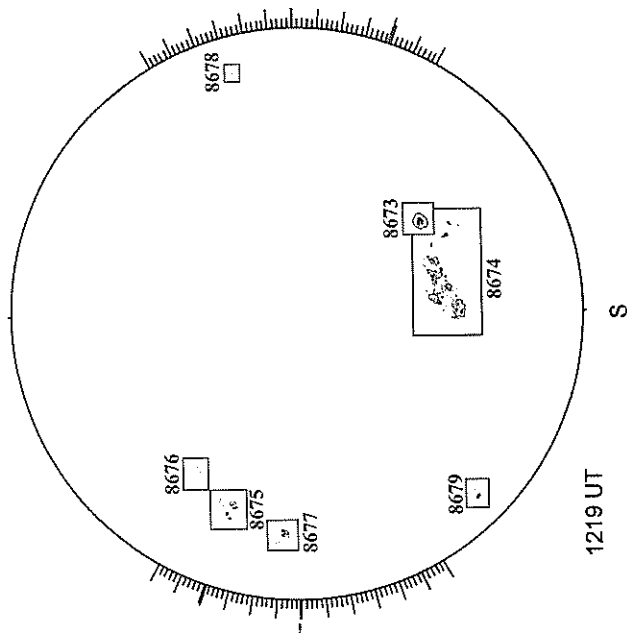
18.07 -
19.00 UT

MEUDON H-ALPHA



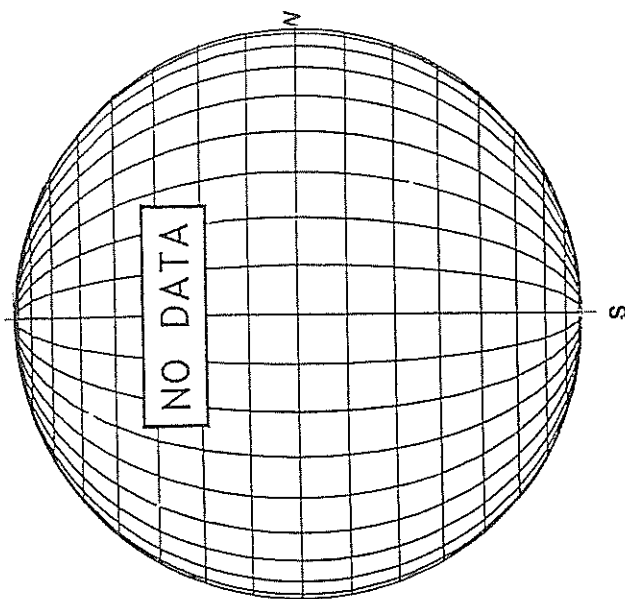
1045 UT

RAMEY SUNSPOT



1219 UT

SACRAMENTO PEAK CORONA (1.15 Radii) —

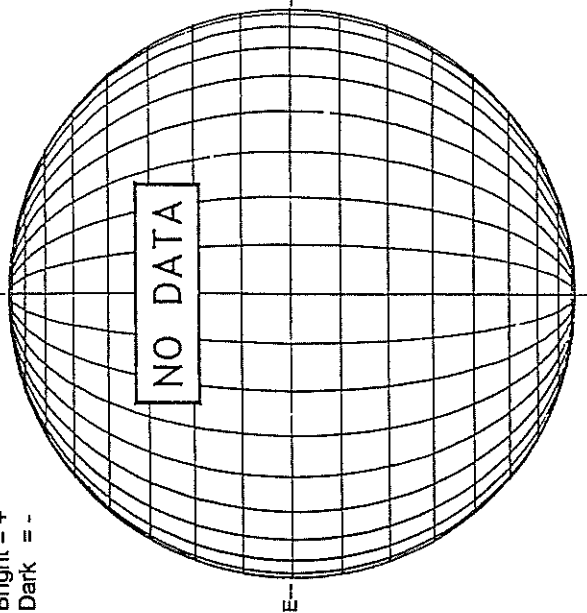


AUGUST 28, 1999 (P= 19.88, Bo = 7.11, Lo = 229.74)

KITT PEAK MAGNETOGRAM

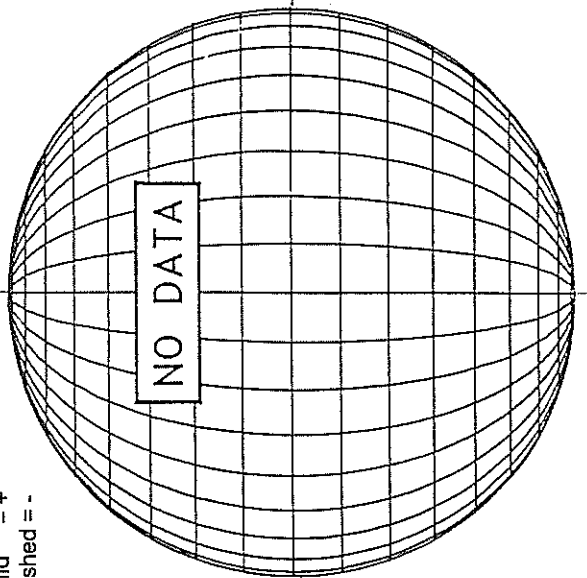
868.8 nm

Bright = +
Dark = -



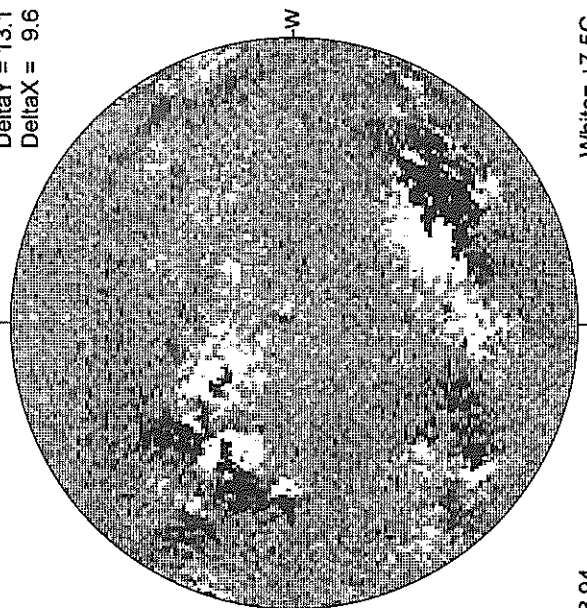
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

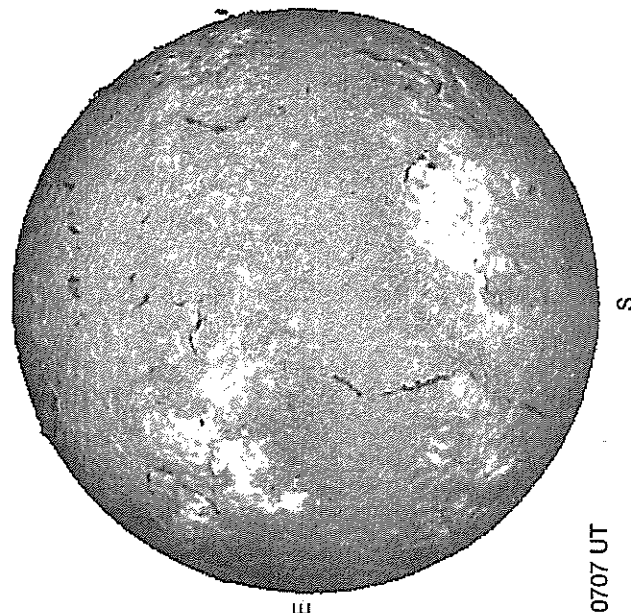
DeltaY = 13.1
DeltaX = 9.6



18.94 -
19.87 UT

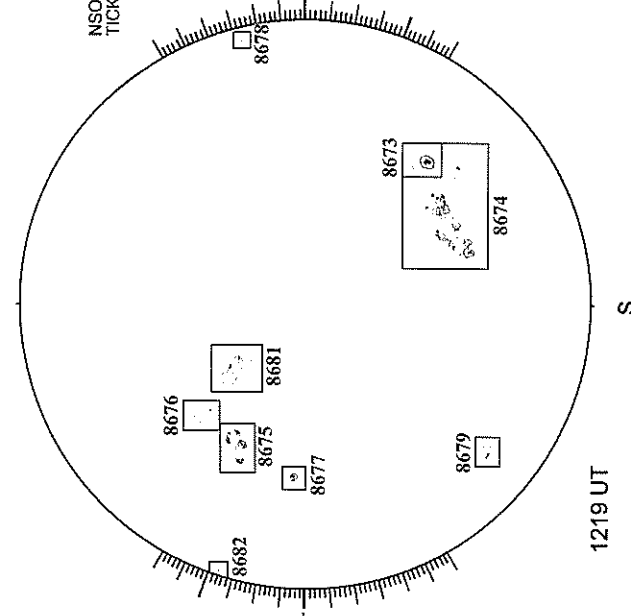
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



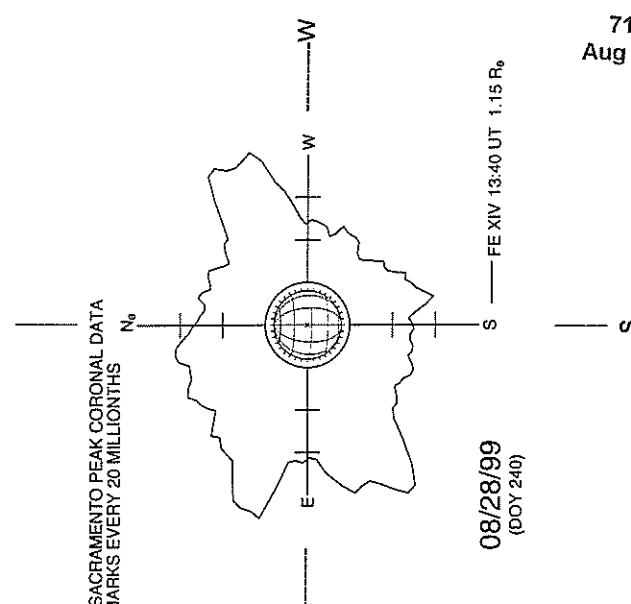
0707 UT

RAMEY SUNSPOT



1219 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



08/28/99
(DOY 240)

FE XIV 13.40 UT 1.15 R₀

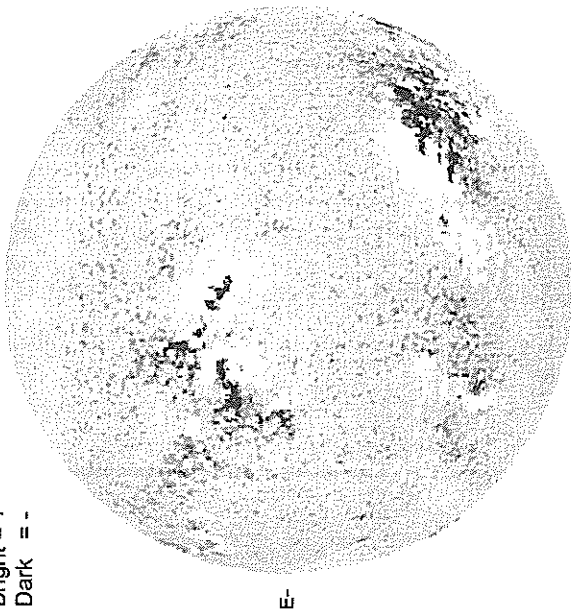
AUGUST 29, 1999 (P= 20.16, Bo= 7.13, Lo= 216.53)

72
Aug 99

KITT PEAK MAGNETOGRAM

N
868.8 nm

Bright = +
Dark = -

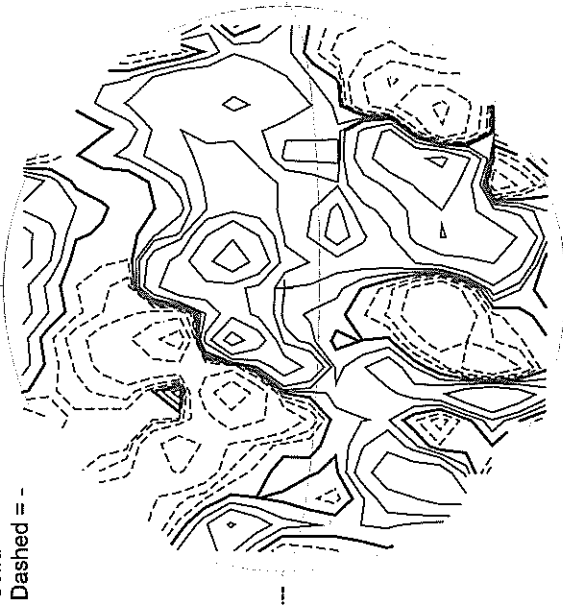


1542 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

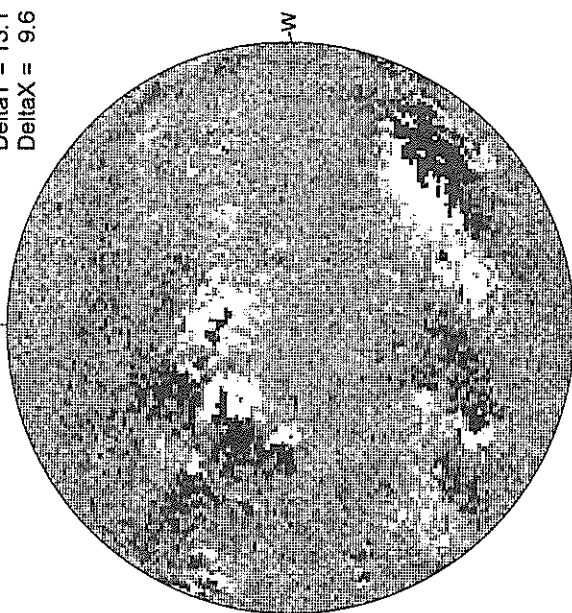


2148 UT

MT. WILSON MAGNETOGRAM

N

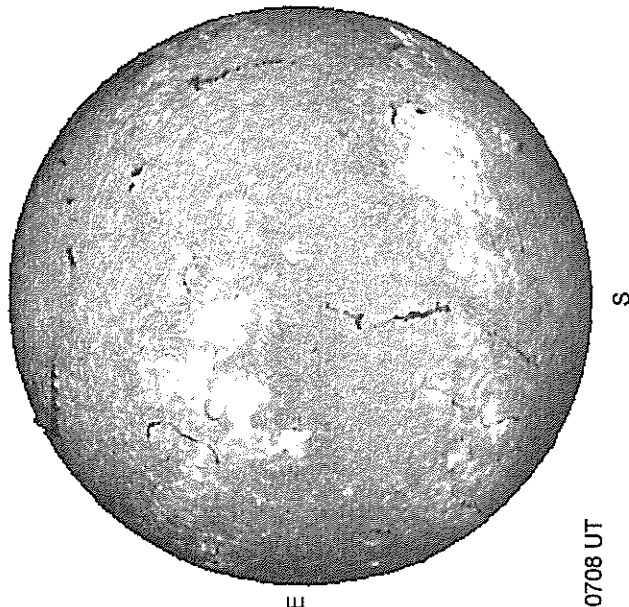
Delay = 13.1
Delta X = 9.6



18.79 -
19.72 UT

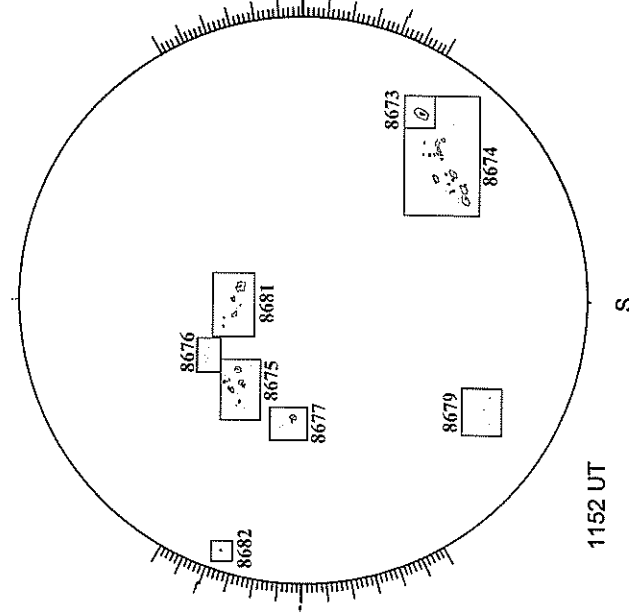
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



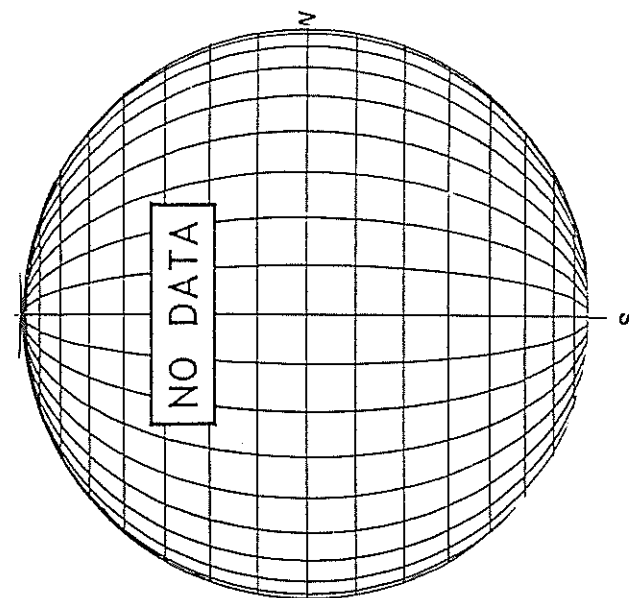
0708 UT

RAMEY SUNSPOT



1152 UT

LOMNICKY PEAK CORONA (1.04 Radii)----

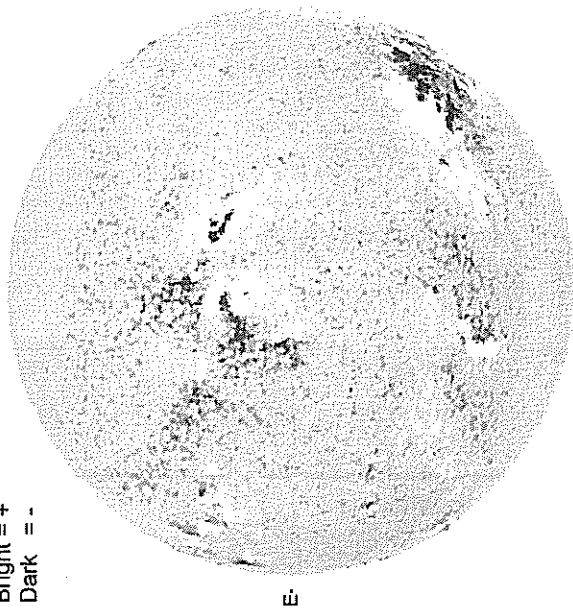


NO DATA

AUGUST 30, 1999 (P= 20.43, Bo = 7.15, Lo = 203.32)

KITT PEAK MAGNETOGRAM
***868.8 nm**

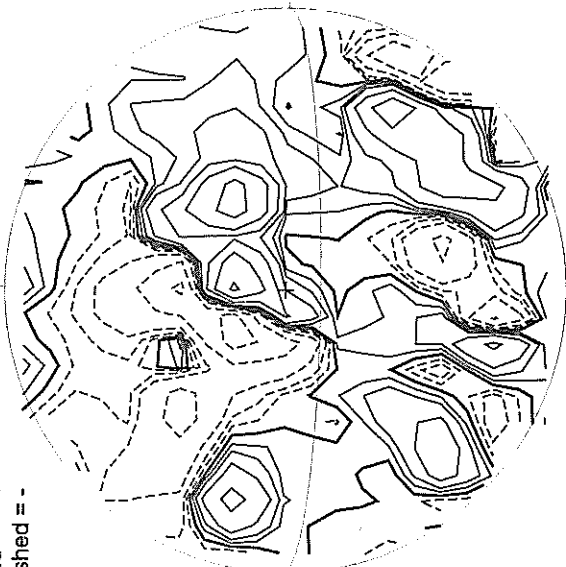
Bright = +
Dark = -



1858 UT

STANFORD MAGNETOGRAM

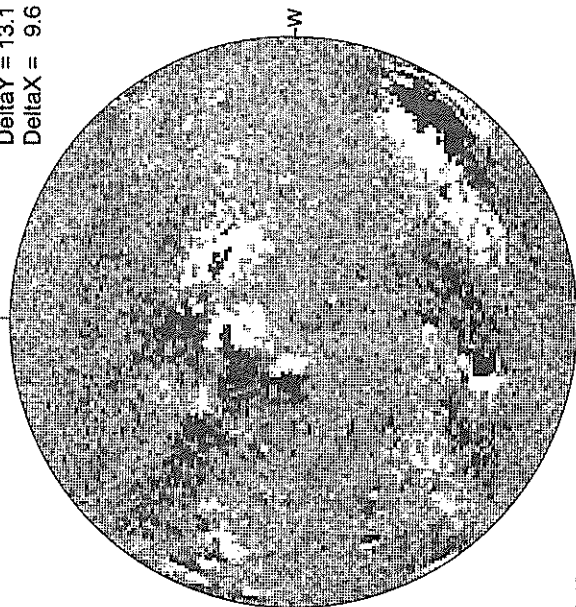
Solid = +
Dashed = -



2137 UT

MT. WILSON MAGNETOGRAM

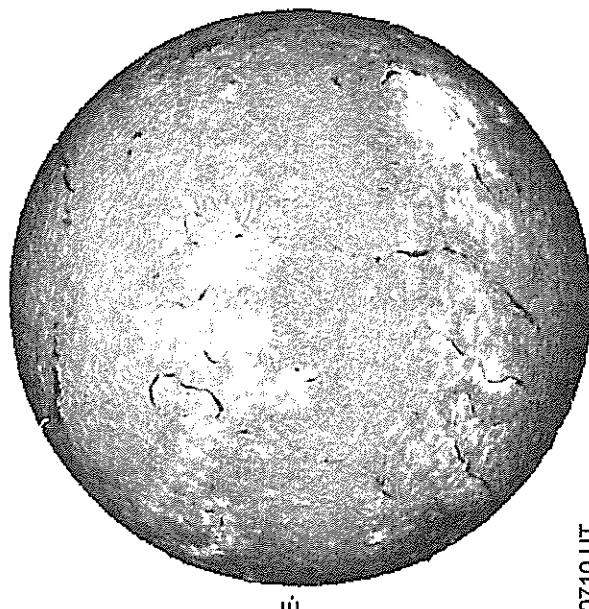
DeltaY = 13.1
DeltaX = 9.6



18.97 -
19.89 UT

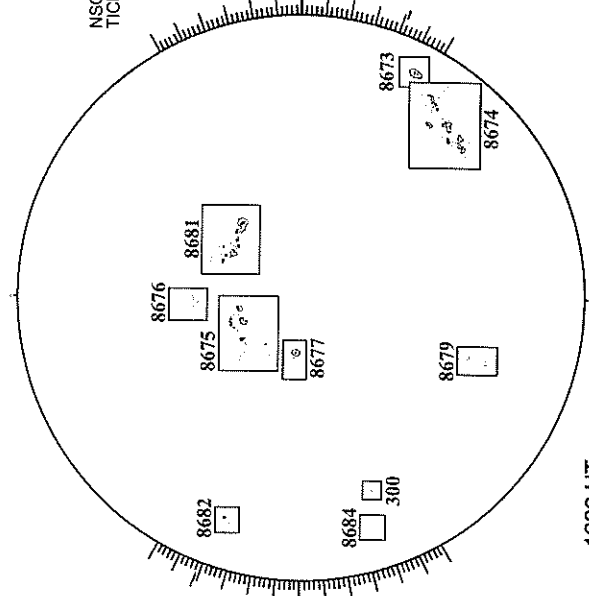
White = +7.5G
Black = -7.5G

MEUDON H-ALPHA



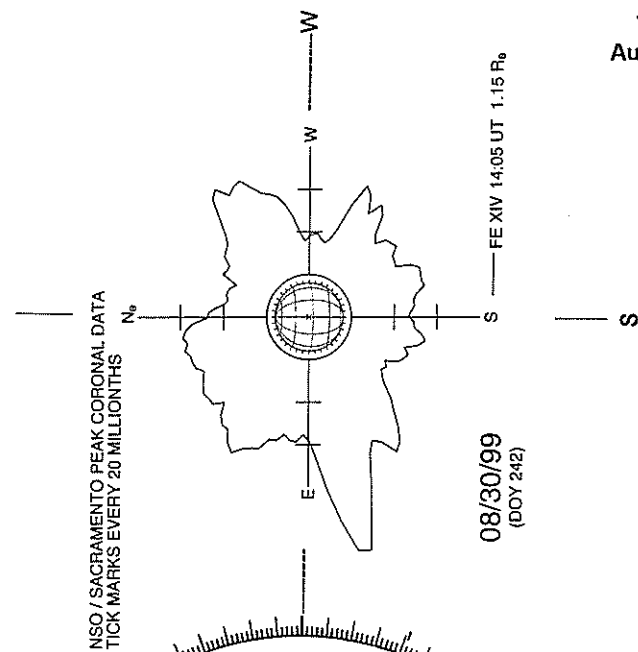
0710 UT

RAMEY SUNSPOT



1220 UT

SACRAMENTO PEAK CORONA (1.15 Radii) —



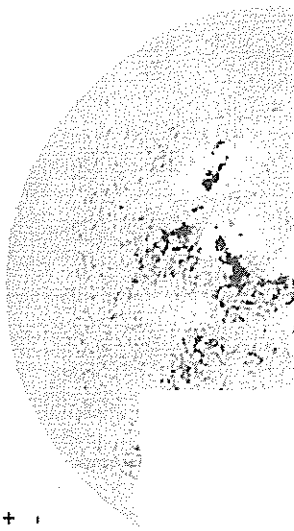
08/30/99
(DOY 242)

AUGUST 31, 1999 (P = 20.69, Bo = 7.17, Lo = 190.11)

74
Aug 99

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



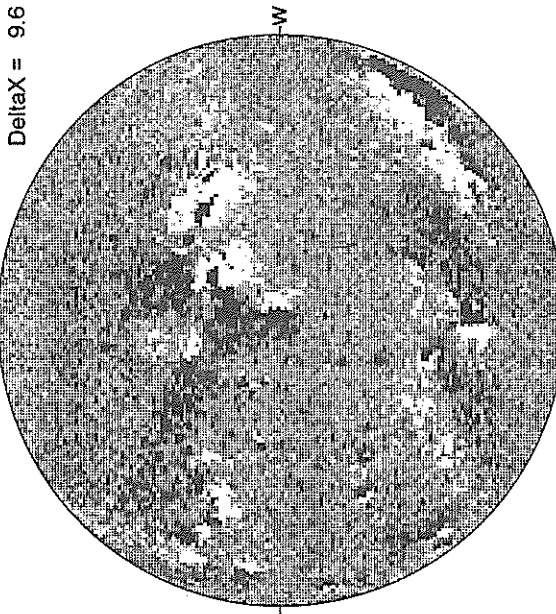
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6

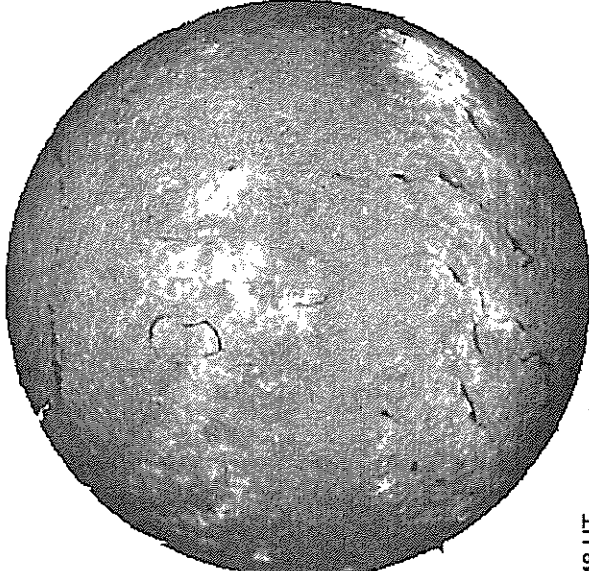


White = +7.5G
Black = -7.5G

18.27 -
19.20 UT

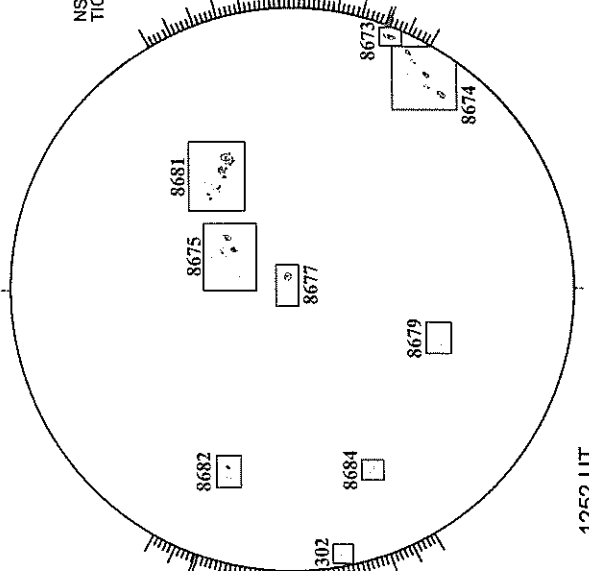
1629 UT

MEUDON H-ALPHA



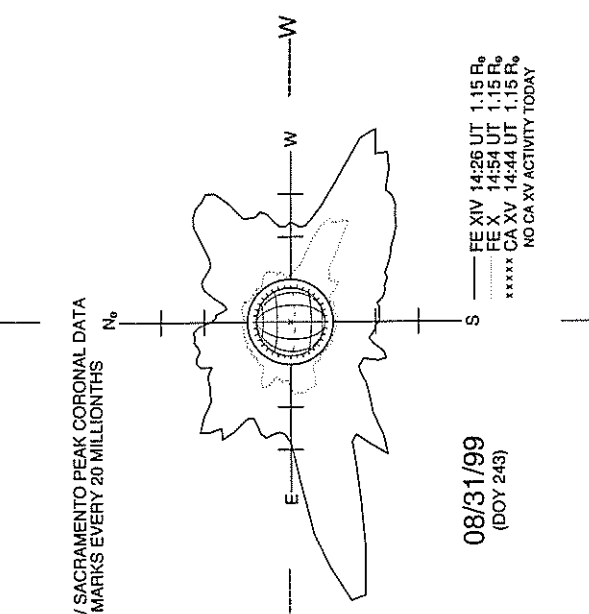
0748 UT

RAMEY SUNSPOT



1252 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

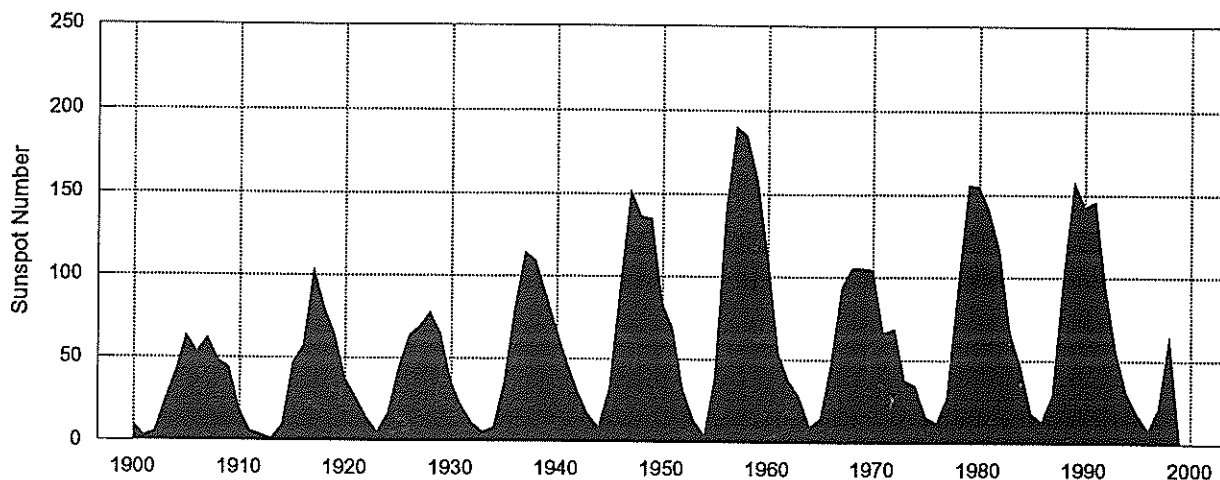
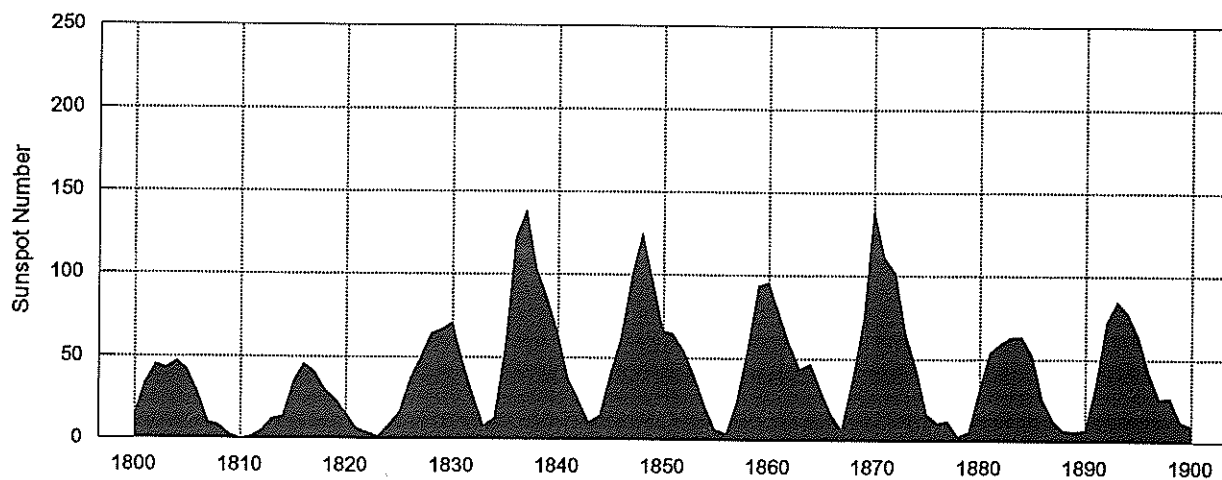
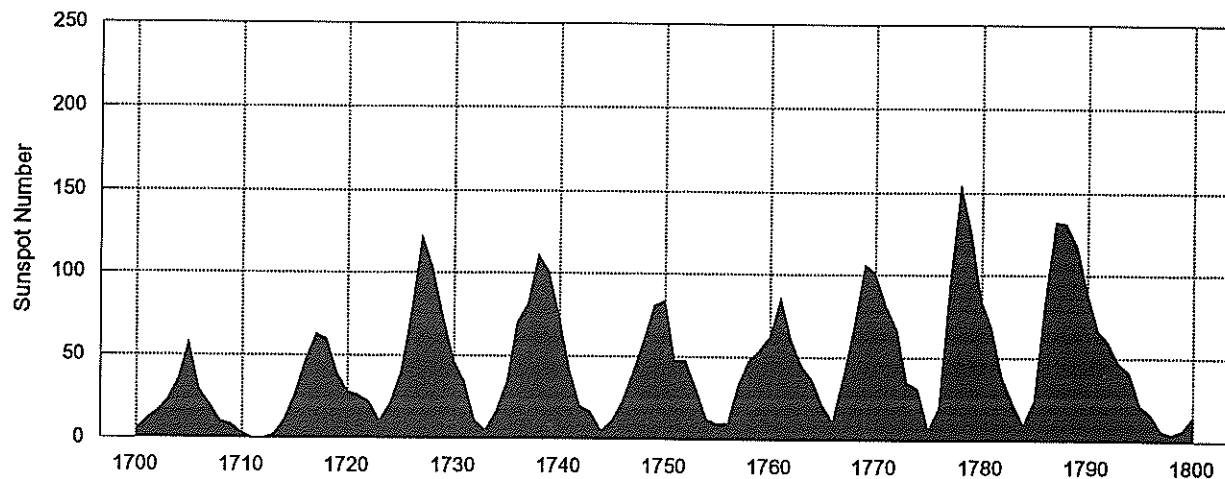


S

08/31/99
(DOY 243)

FE XIV 14:26 UT 1.15 R_o
FE X 14:54 UT 1.15 R_o
CA XV 14:44 UT 1.15 R_o
NO CA XV ACTIVITY TODAY

ANNUAL Sunspot Numbers: 1700-1998

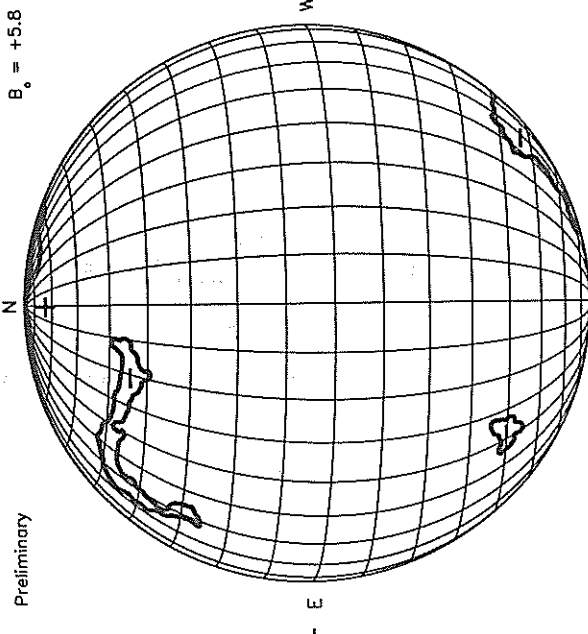


76
Aug 99

KITT PEAK CORONAL HOLE MAPS HE I 1083 nm August 1999

NSO/KP CORONAL HOLE MAP: HE I 1083 nm

Preliminary

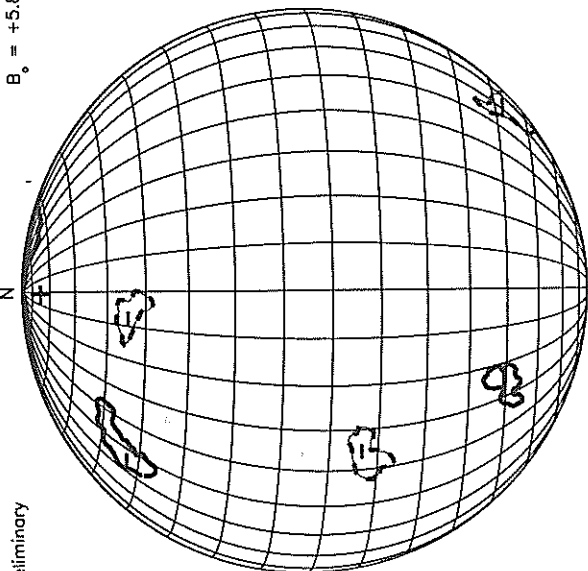


$B_0 = +5.8$

Preliminary

NSO/KP CORONAL HOLE MAP: HE I 1083 nm

Preliminary

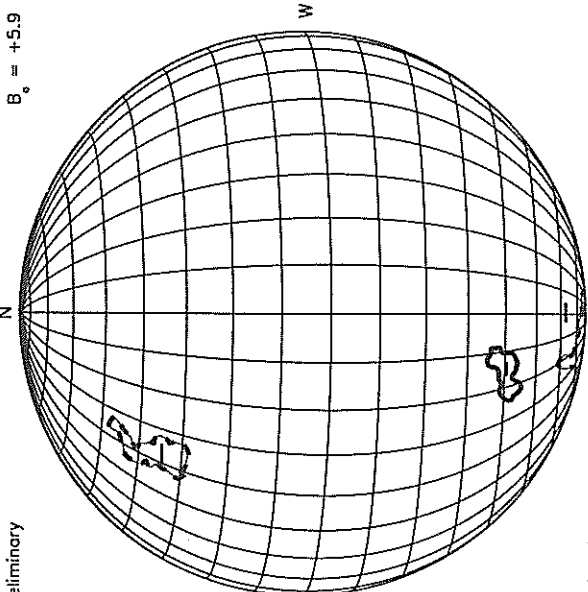


$B_0 = +5.8$

Preliminary

NSO/KP CORONAL HOLE MAP: HE I 1083 nm

Preliminary



$B_0 = +5.9$

08/01/99

2012 UT

08/02/99

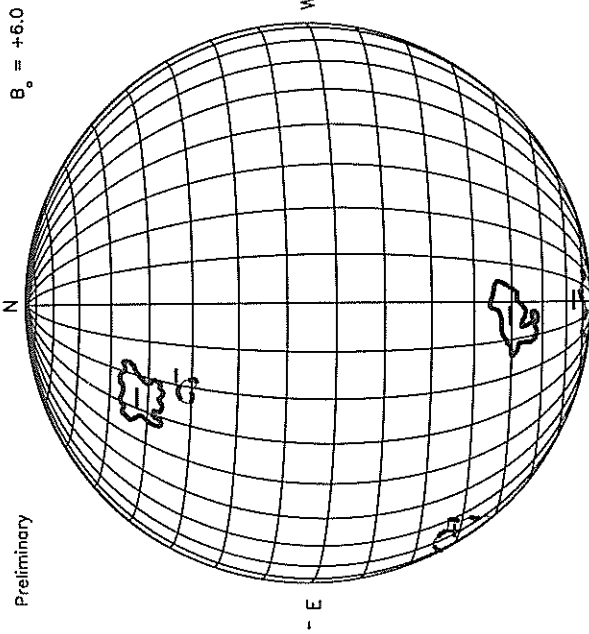
1636 UT

08/03/99

1519 UT

NSO/KP CORONAL HOLE MAP: HE I 1083 nm

Preliminary

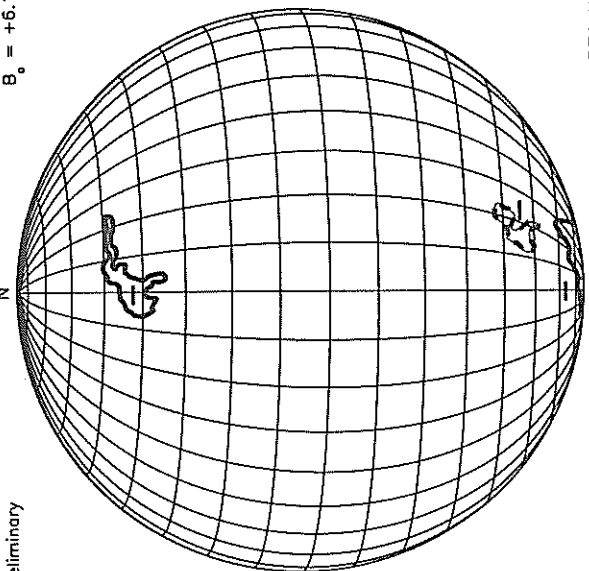


$B_0 = +6.0$

Preliminary

NSO/KP CORONAL HOLE MAP: HE I 1083 nm

Preliminary

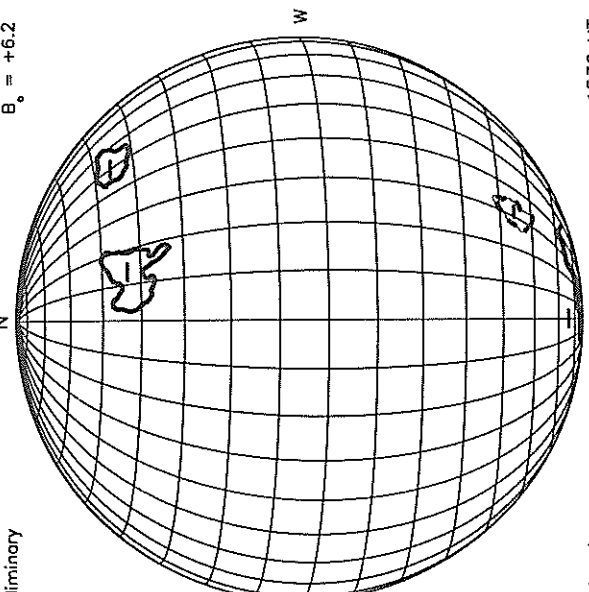


$B_0 = +6.1$

Preliminary

NSO/KP CORONAL HOLE MAP: HE I 1083 nm

Preliminary



$B_0 = +6.2$

08/04/99

1557 UT

08/06/99

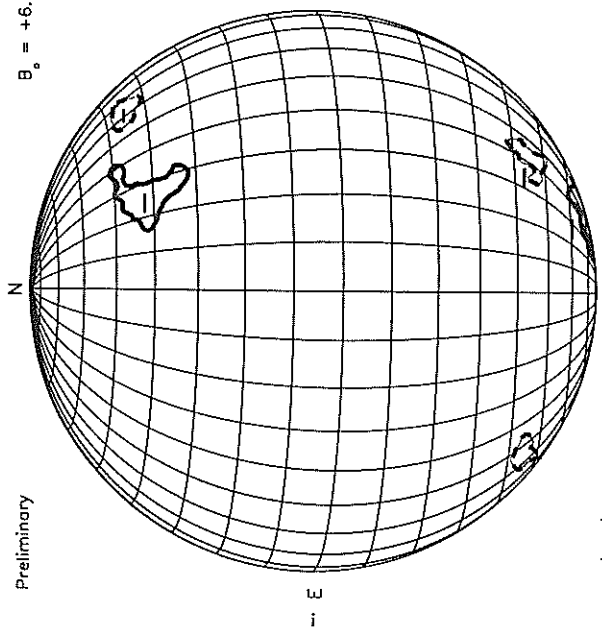
1531 UT

08/07/99

1536 UT

KITT PEAK CORONAL HOLE MAPS HE I 1083 nm August 1999

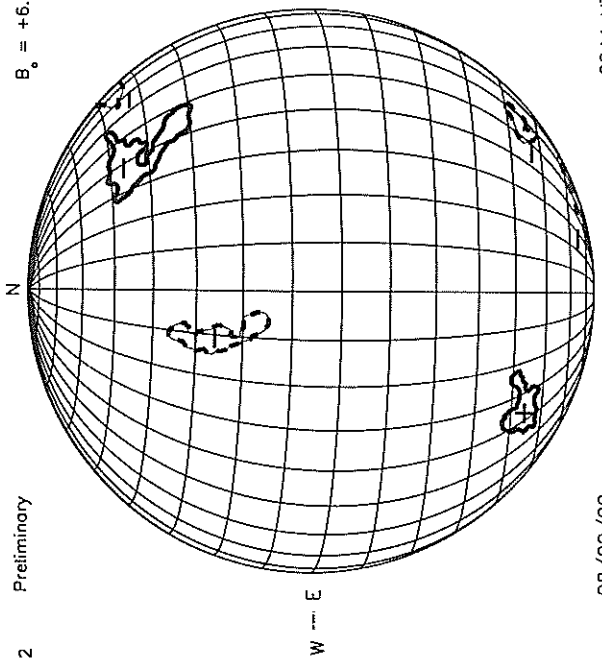
NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +6.2$



08/08/99

1539 UT

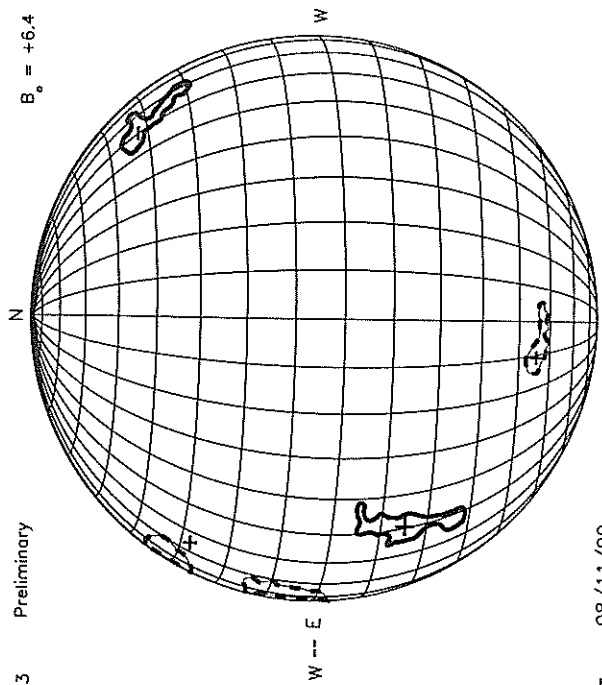
NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +6.3$



08/09/99

2044 UT

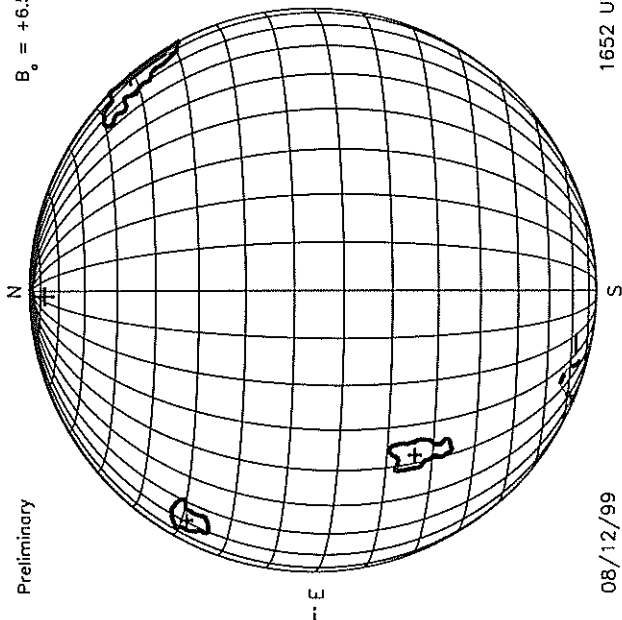
NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +6.4$



08/11/99

1740 UT

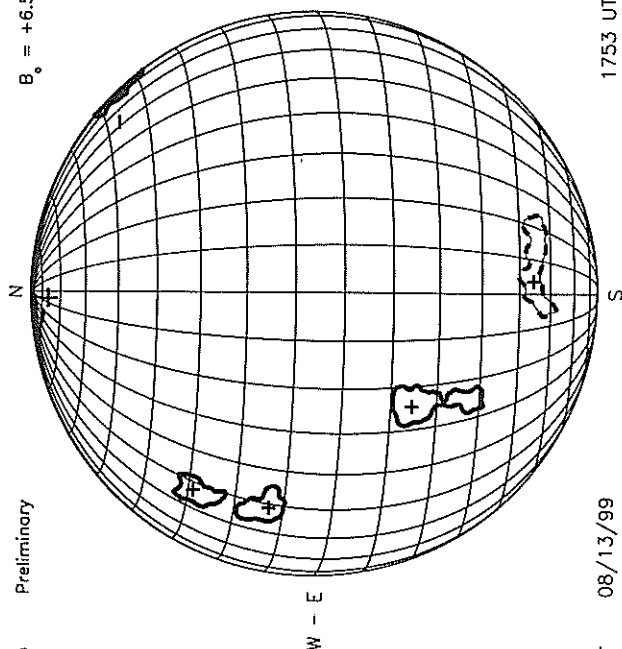
NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +6.5$



08/12/99

1652 UT

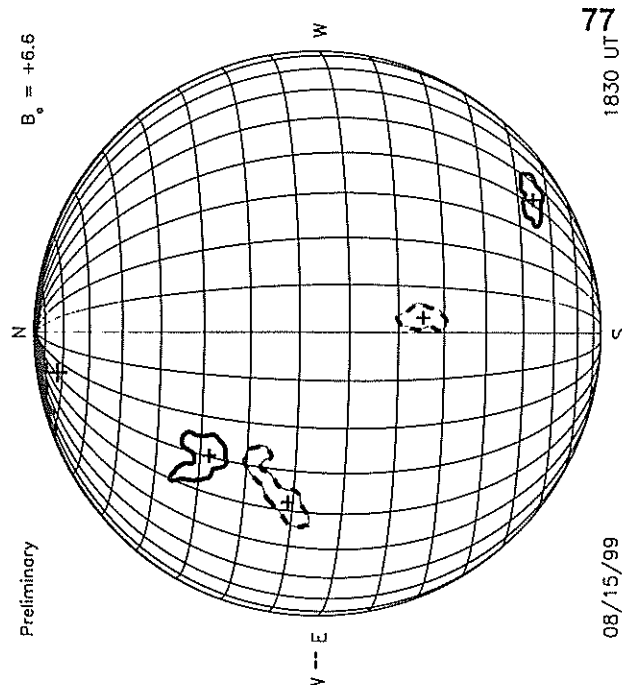
NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +6.5$



08/13/99

1753 UT

NSO/KP CORONAL HOLE MAP: HE I 1083 nm
Preliminary
 $B_0 = +6.6$



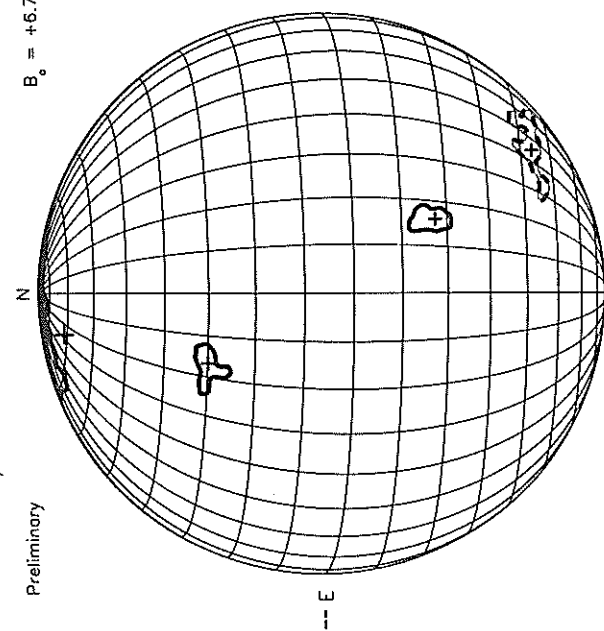
08/15/99

1830 UT

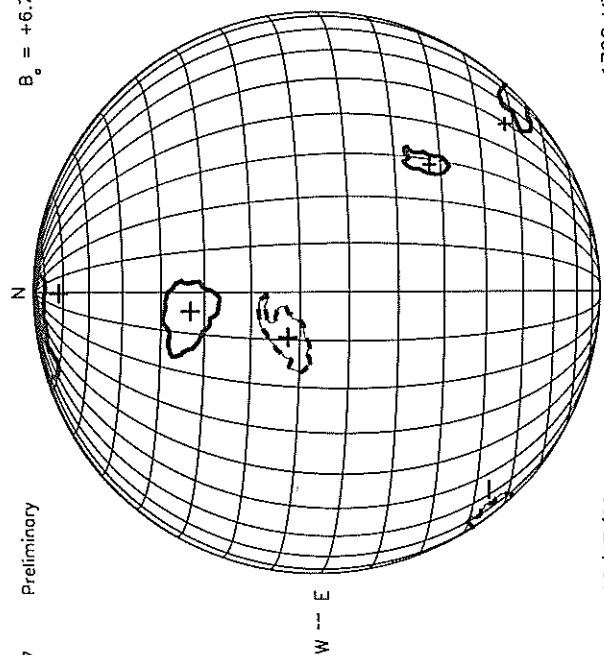
KITT PEAK CORONAL HOLE MAPS HE I 1083 nm

August 1999

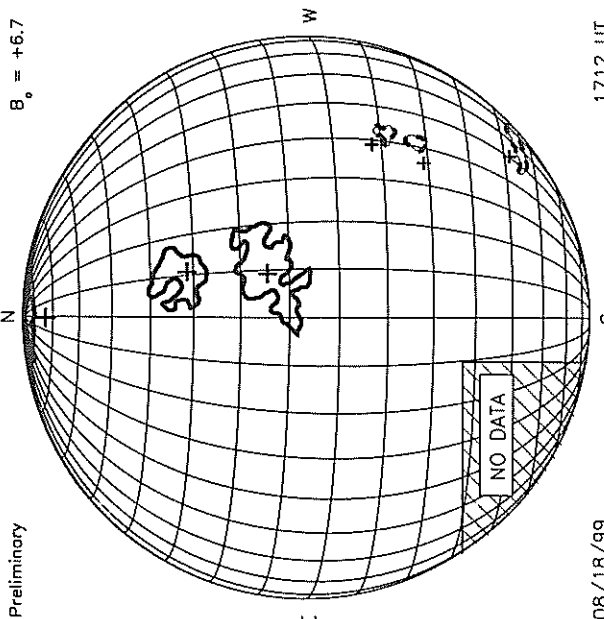
NSO/KP CORONAL HOLE MAP: HE I 1083 nm



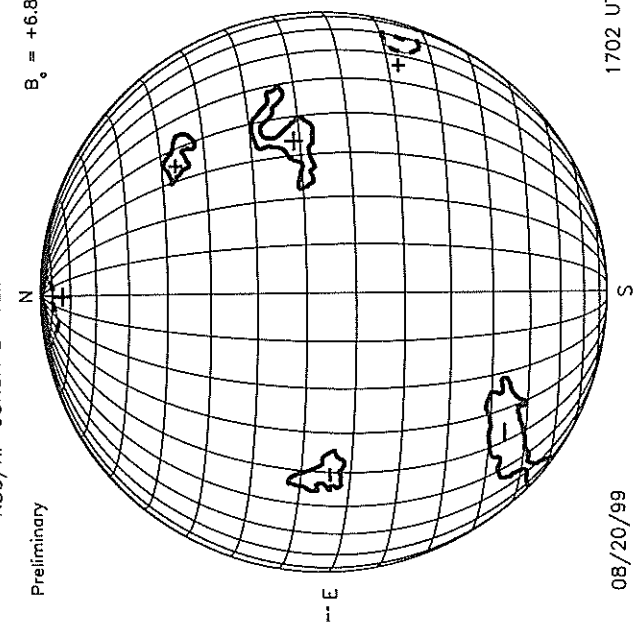
NSO/KP CORONAL HOLE MAP: HE I 1083 nm



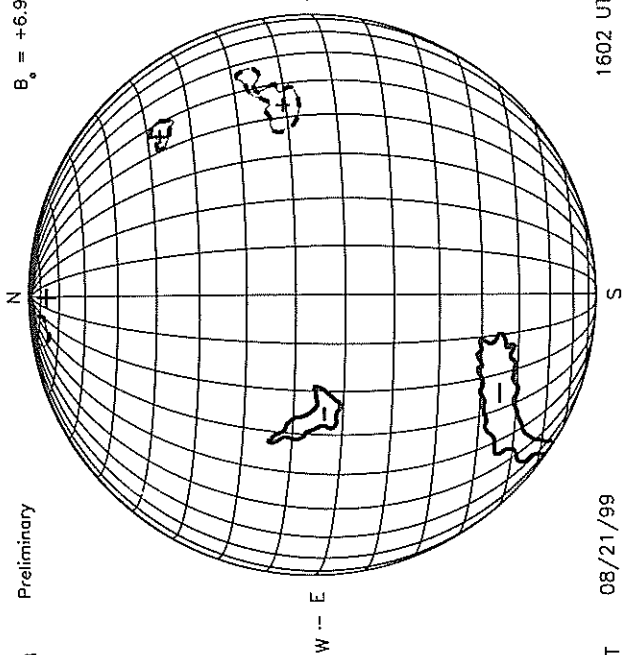
NSO/KP CORONAL HOLE MAP: HE I 1083 nm



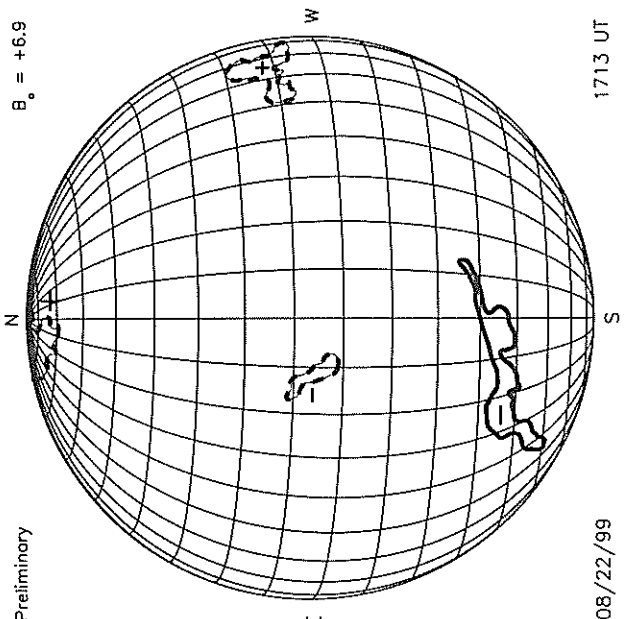
NSO/KP CORONAL HOLE MAP: HE I 1083 nm



NSO/KP CORONAL HOLE MAP: HE I 1083 nm

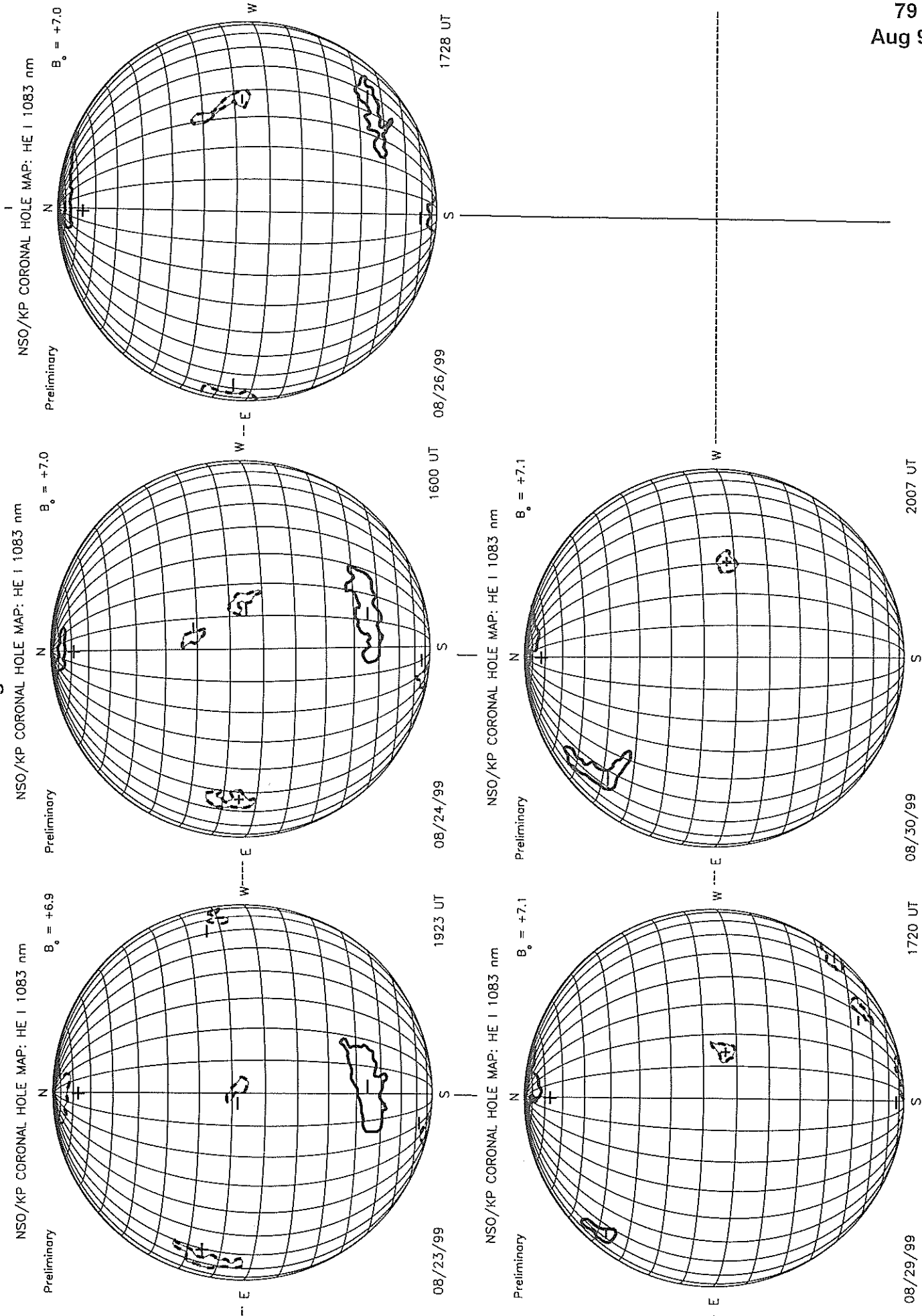


NSO/KP CORONAL HOLE MAP: HE I 1083 nm



KITT PEAK CORONAL HOLE MAPS HE I 1083 nm August 1999

79
Aug 99

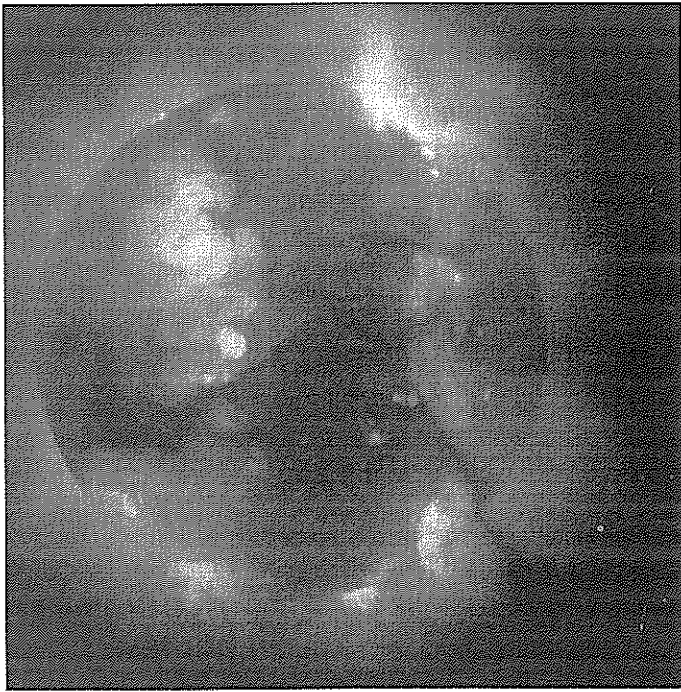
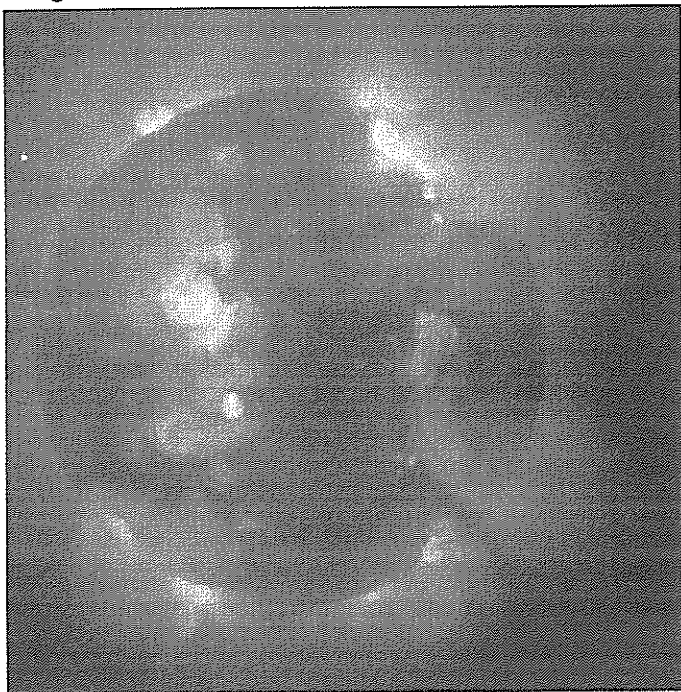
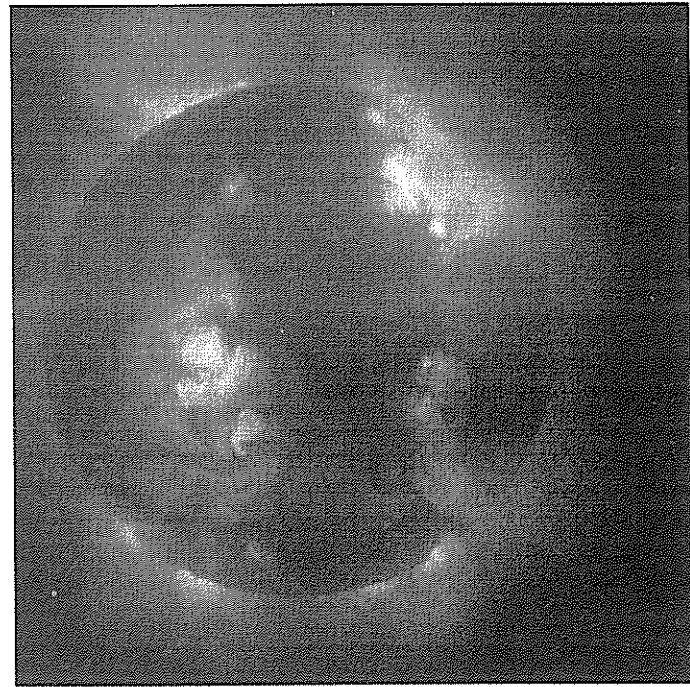
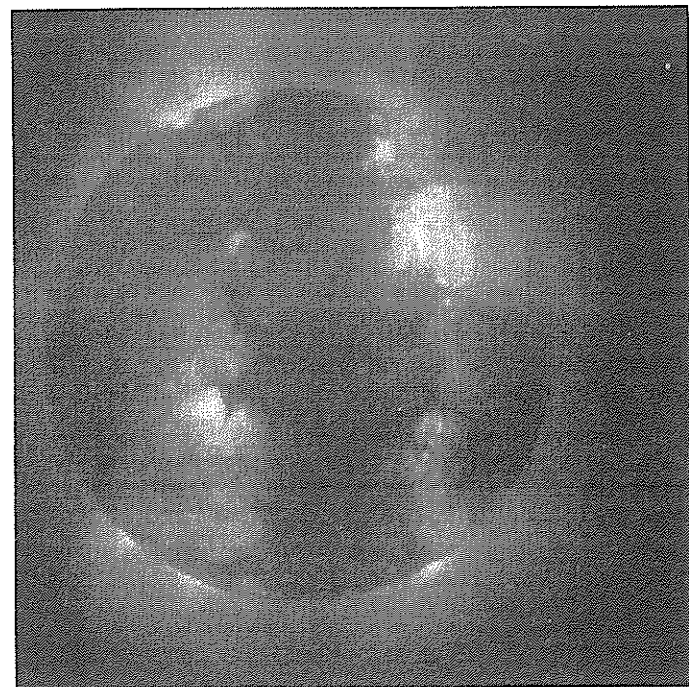


YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 1 Day 3
11:53:29 UT 10:24:34 UT

Day 2 Day 4
12:02:08 UT 11:18:18 UT

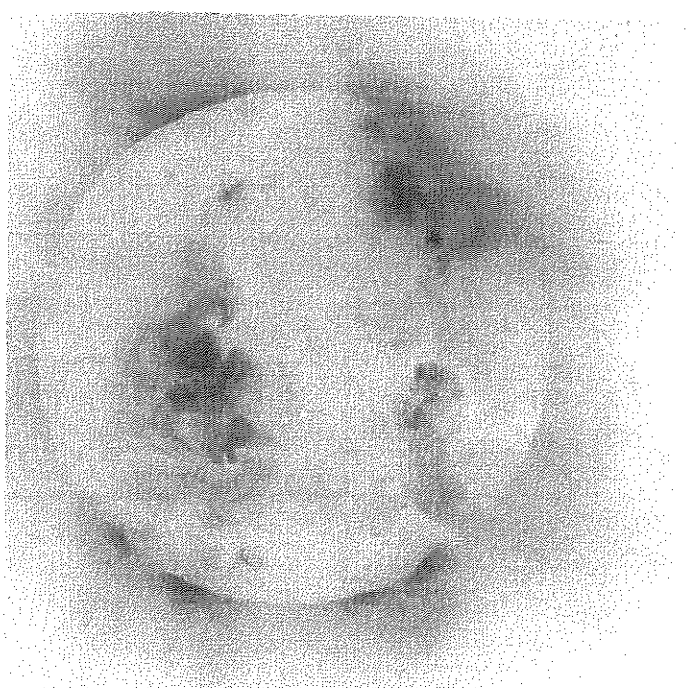
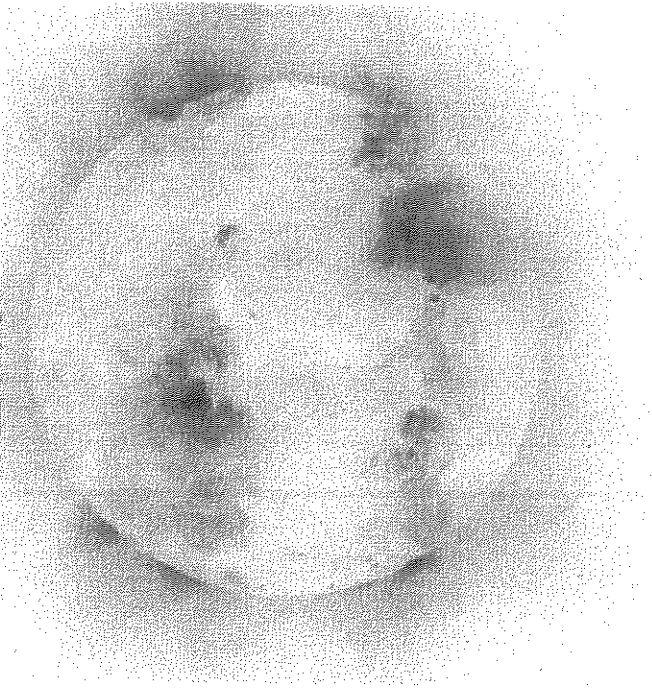
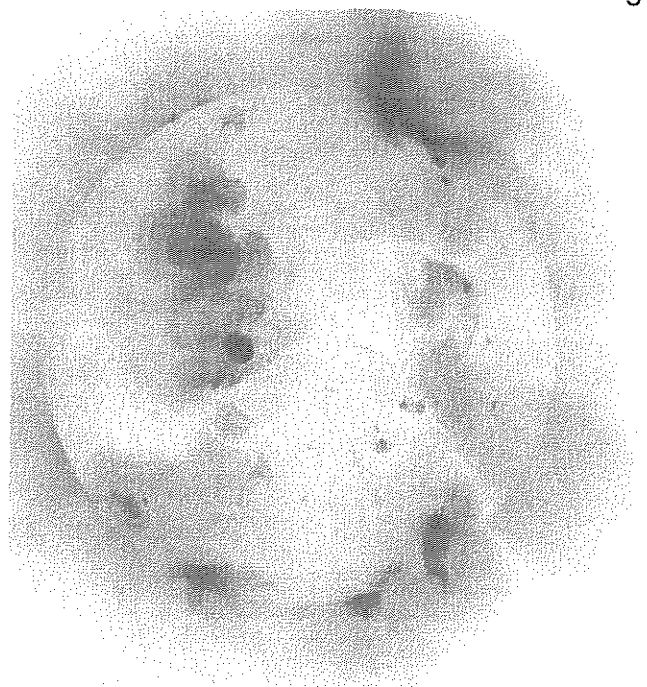
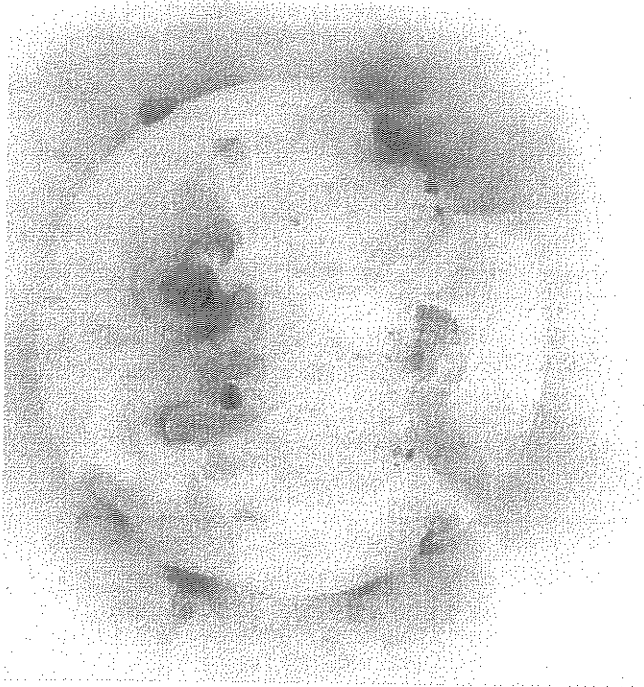


YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 1 Day 3
11:53:29 UT 10:24:34 UT

Day 2 Day 4
12:02:08 UT 11:18:18 UT



YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

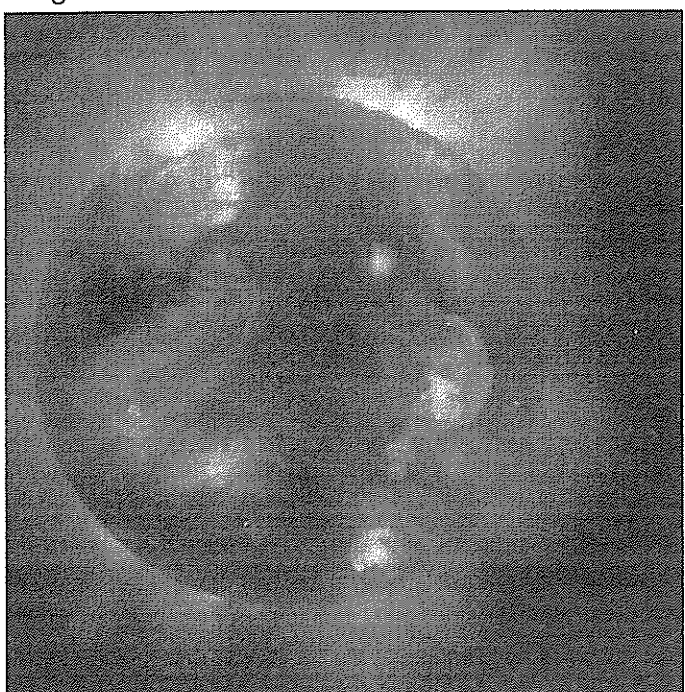
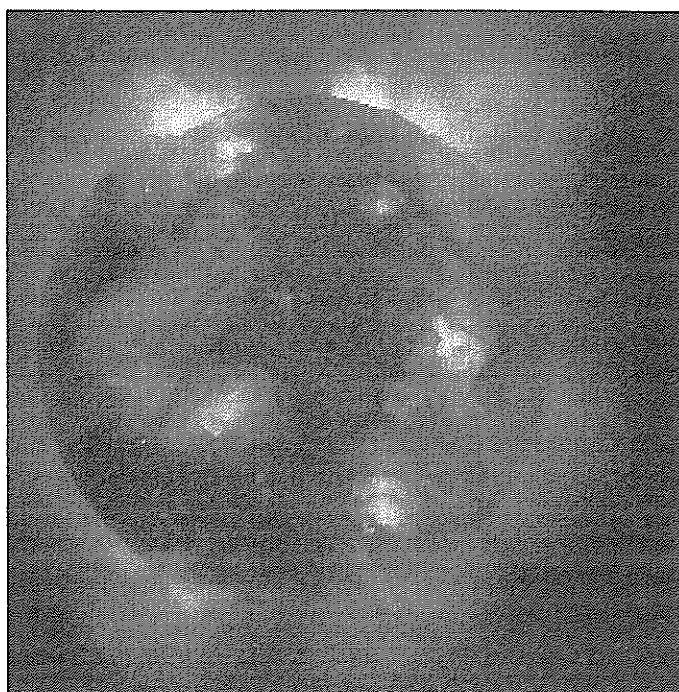
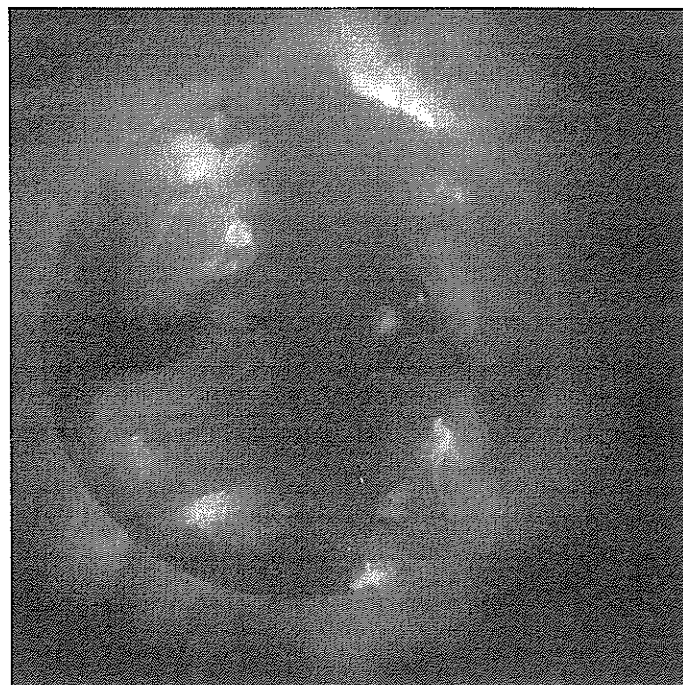
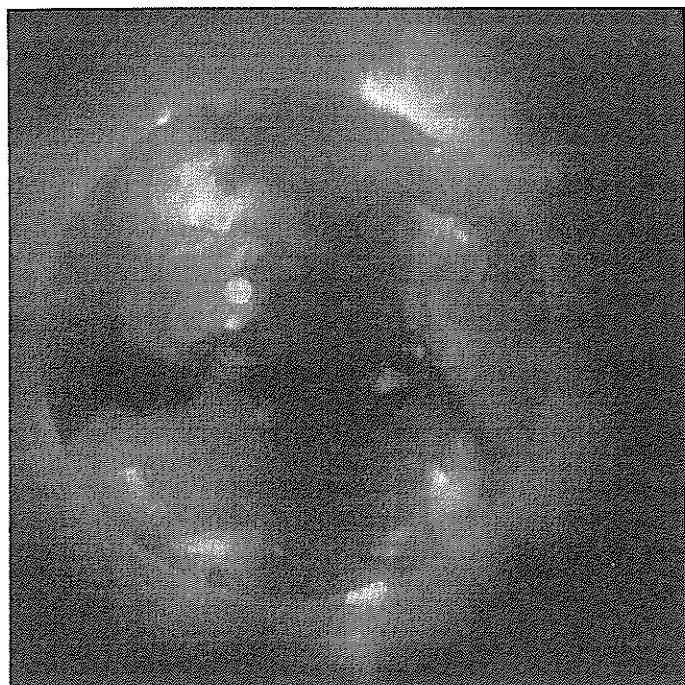
August
1999

Day 5
10:01:02 UT

Day 7
12:58:17 UT

Day 6
10:01:51 UT

Day 8
13:56:39 UT

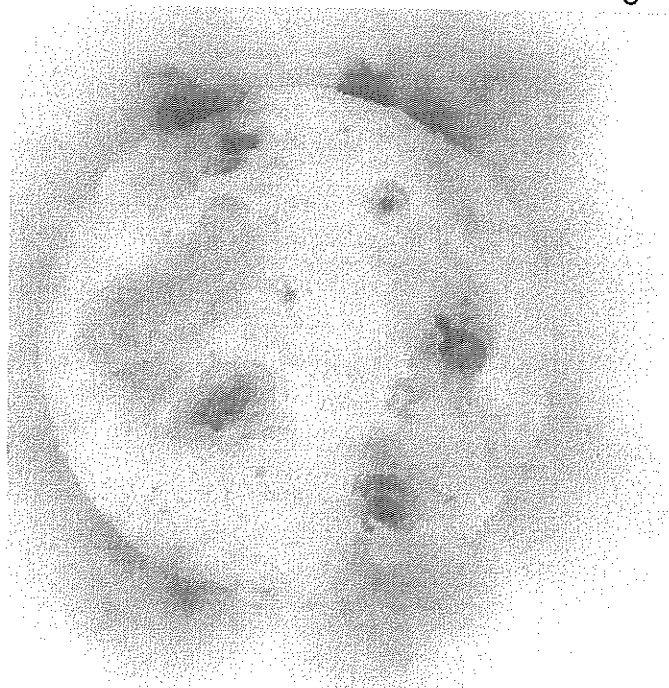
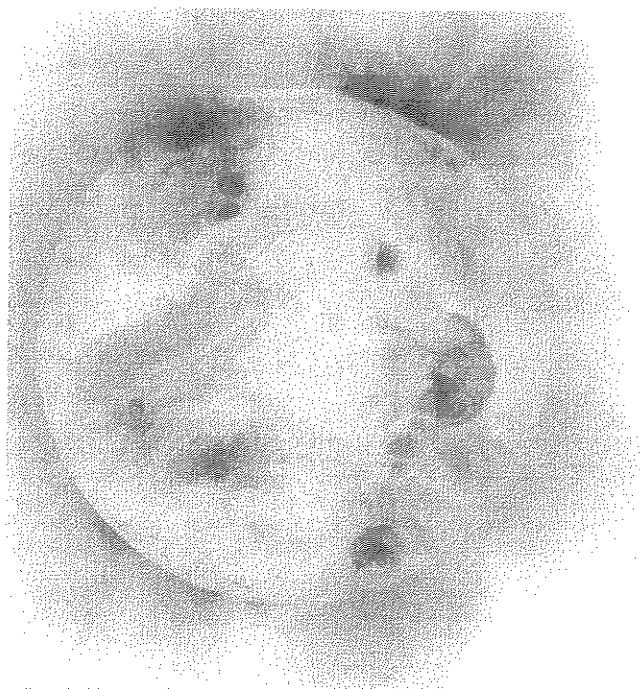
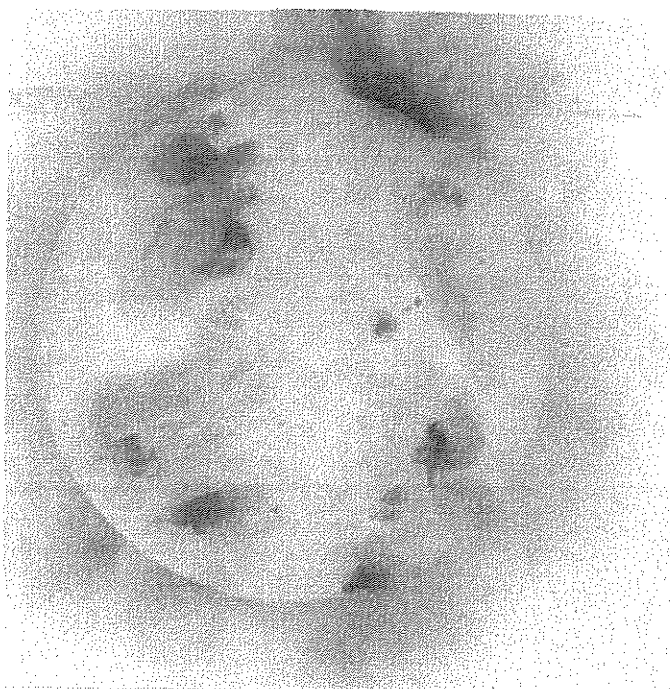
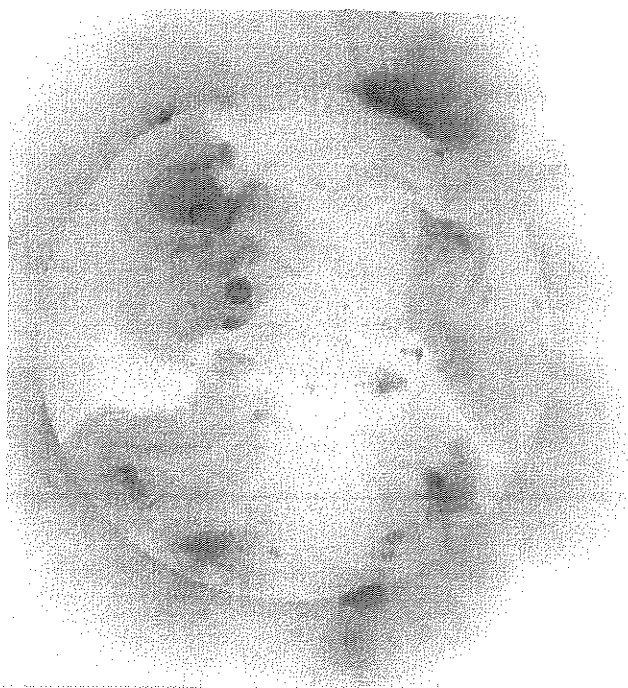


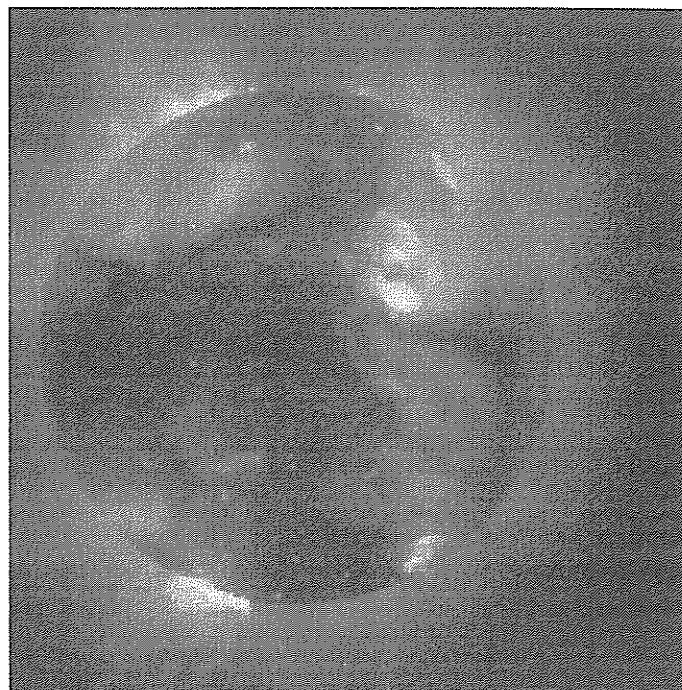
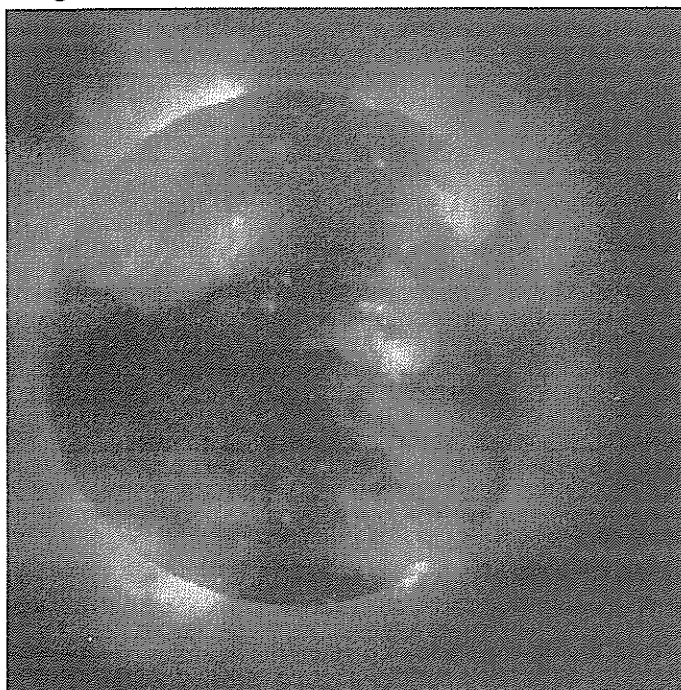
YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 5 Day 7
10:01:02 UT 12:58:17 UT

Day 6 Day 8
10:01:51 UT 13:56:39 UT

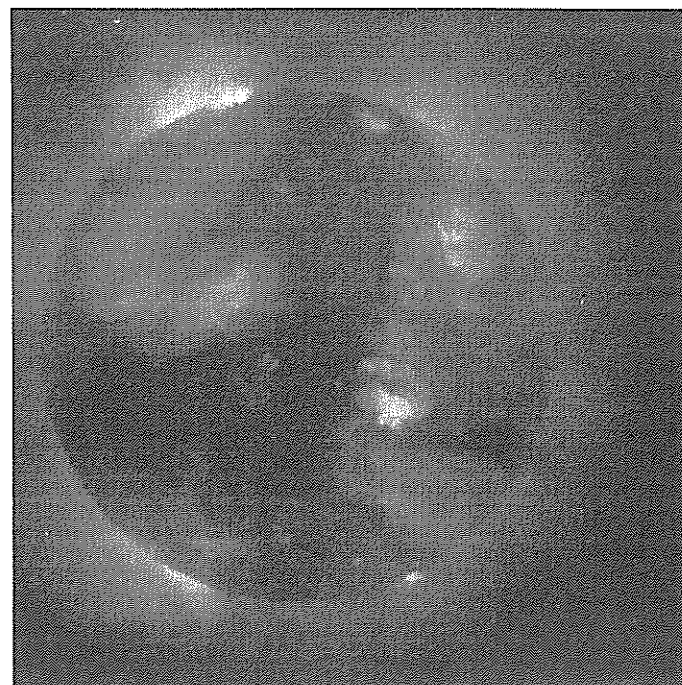
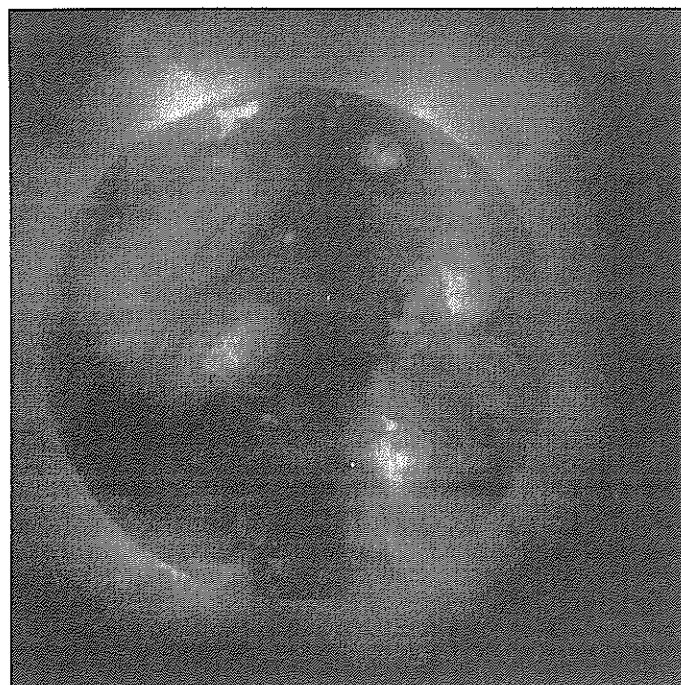




YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 9 Day 11
12:32:55 UT 12:09:22 UT



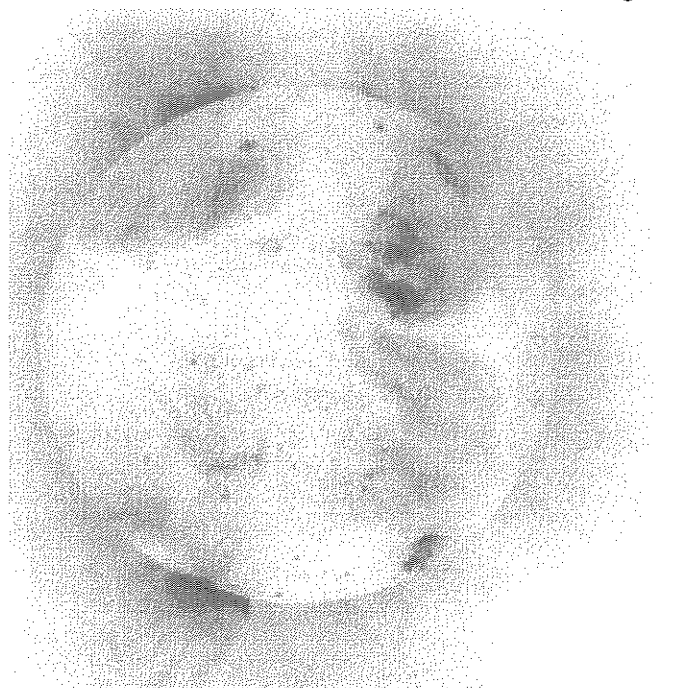
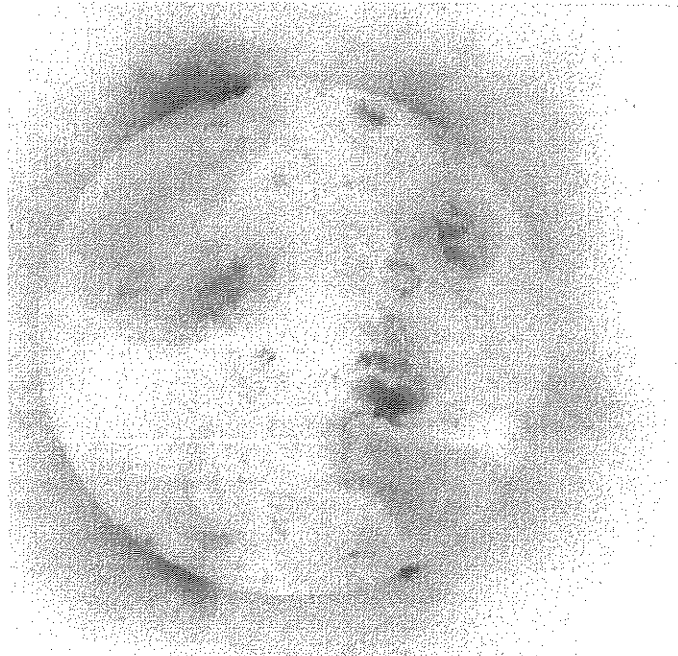
Day 10 Day 12
12:07:35 UT 11:30:30 UT

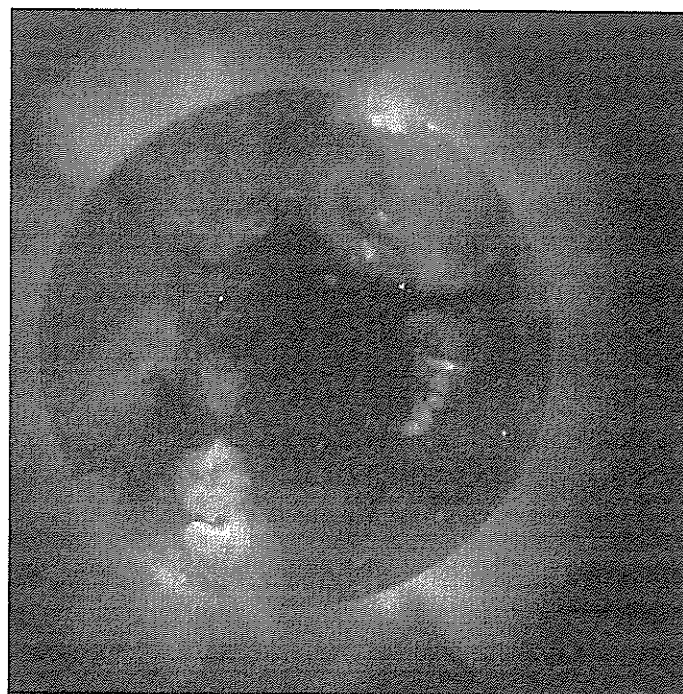
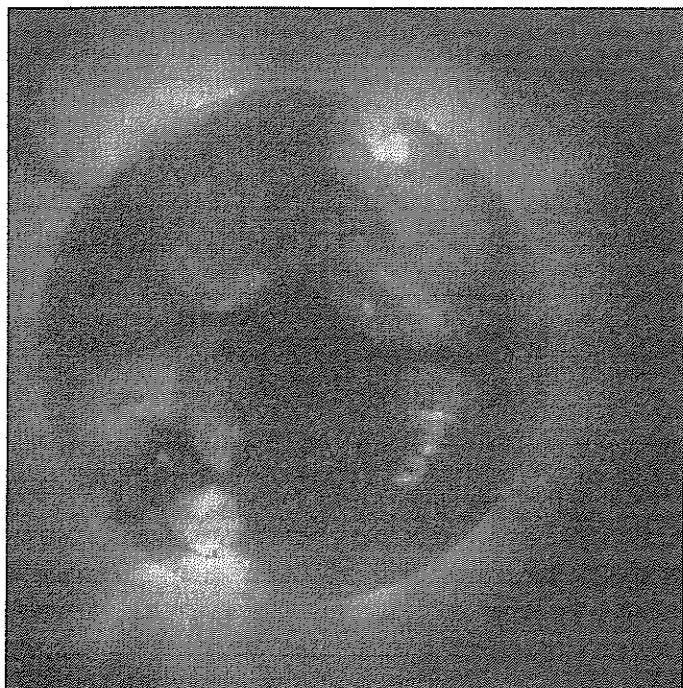
YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 9 Day 11
12:32:55 UT 12:09:22 UT

Day 10 Day 12
12:07:35 UT 11:30:30 UT



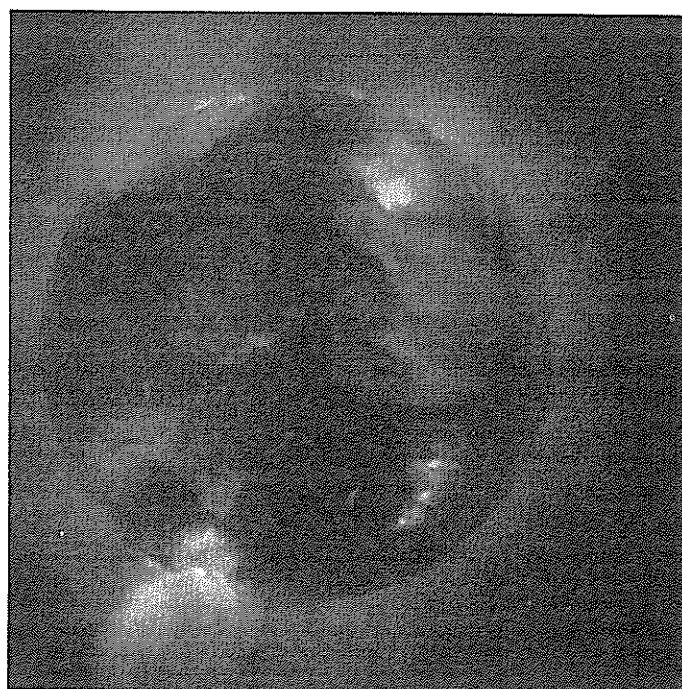
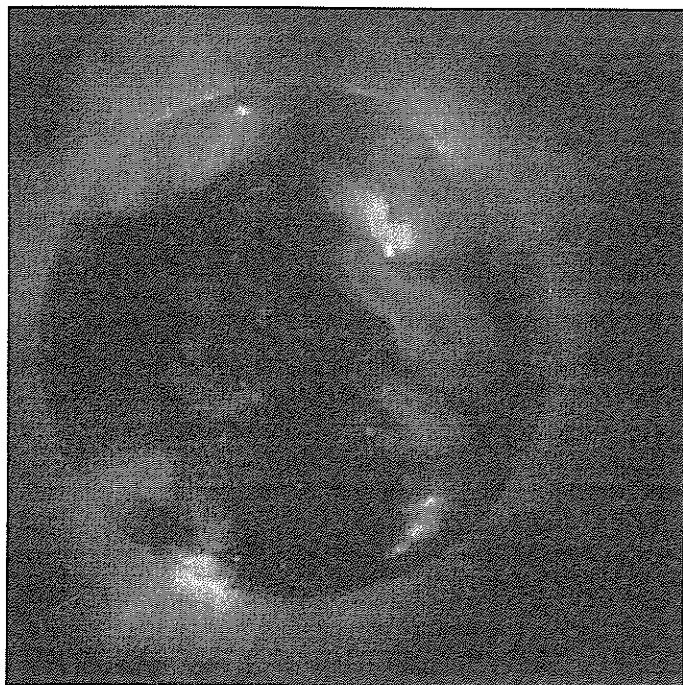


YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 13 Day 15
11:50:32 UT 12:12:05 UT

Day 14 Day 16
11:58:50 UT 12:26:31 UT

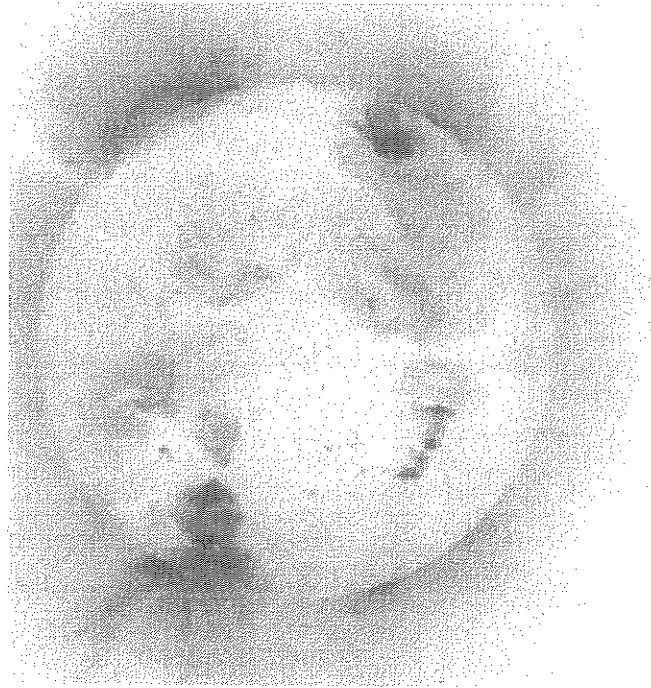
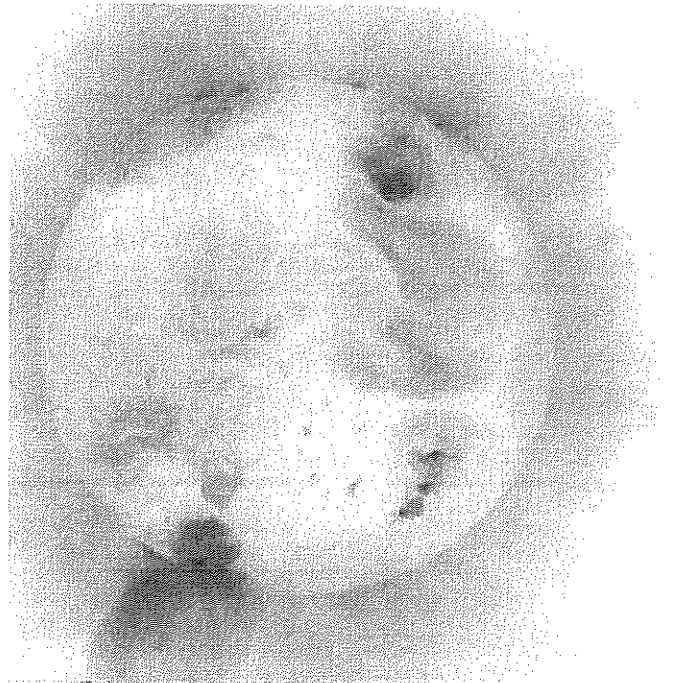
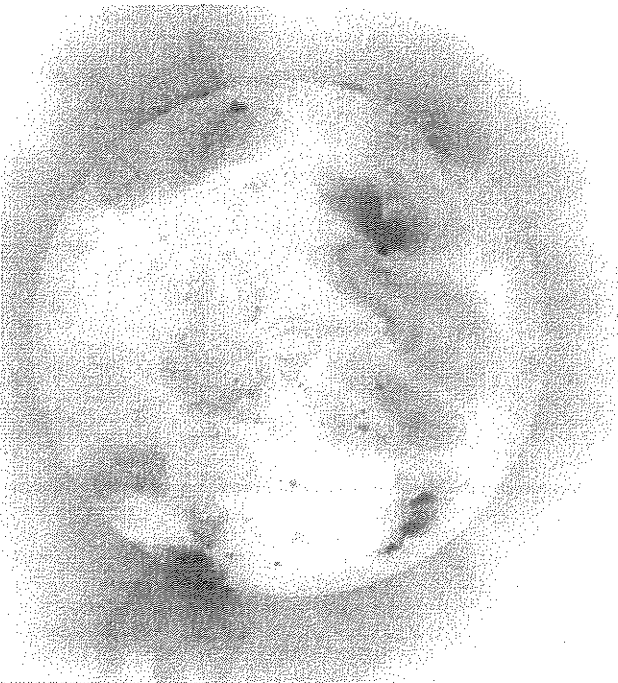


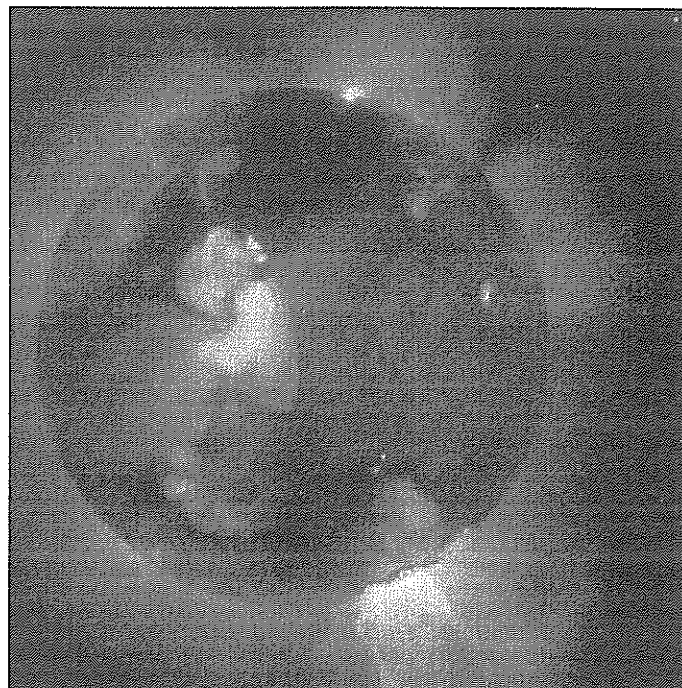
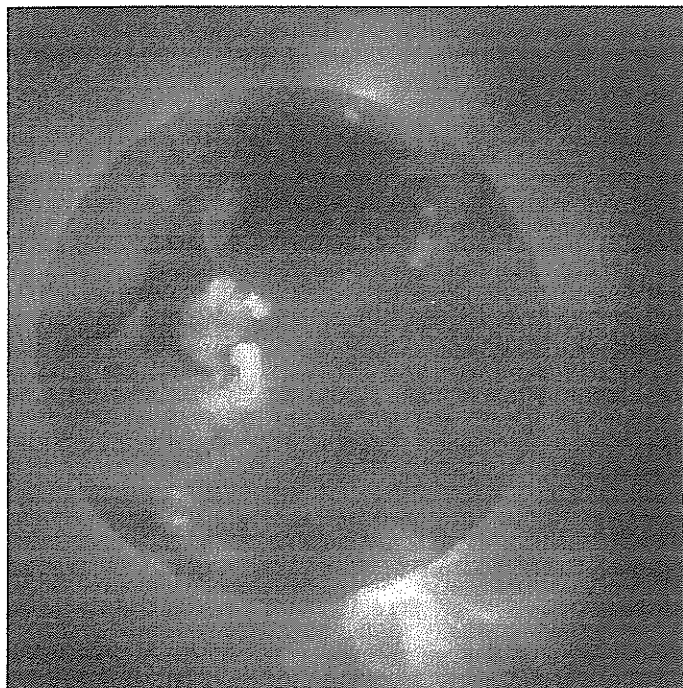
YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 13 Day 15
11:50:32 UT 12:12:05 UT

Day 14 Day 16
11:58:50 UT 12:26:31 UT





YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

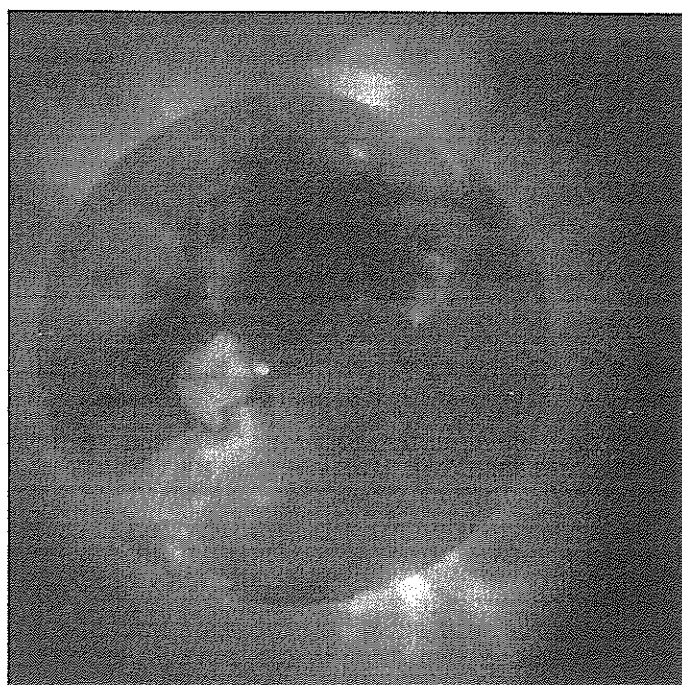
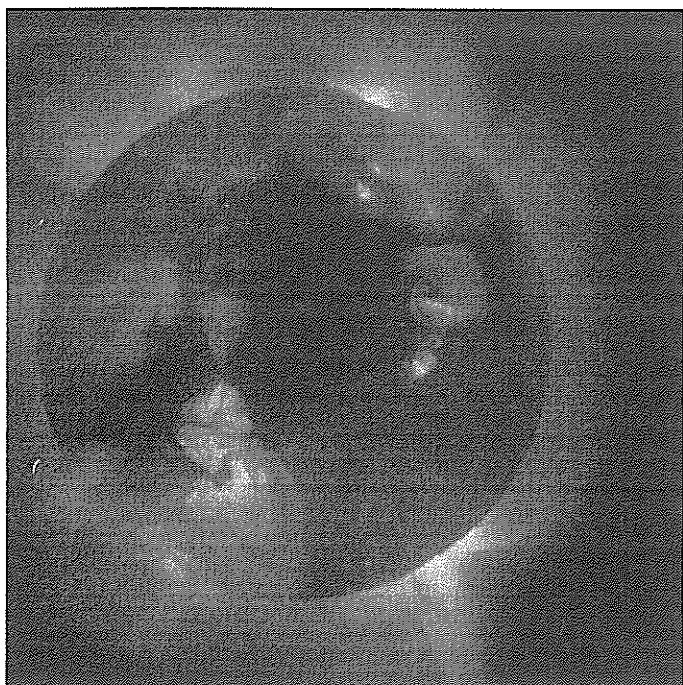
August
1999

Day 17
11:58:19 UT

Day 19
11:47:05 UT

Day 18
12:13:41 UT

Day 20
12:00:08 UT

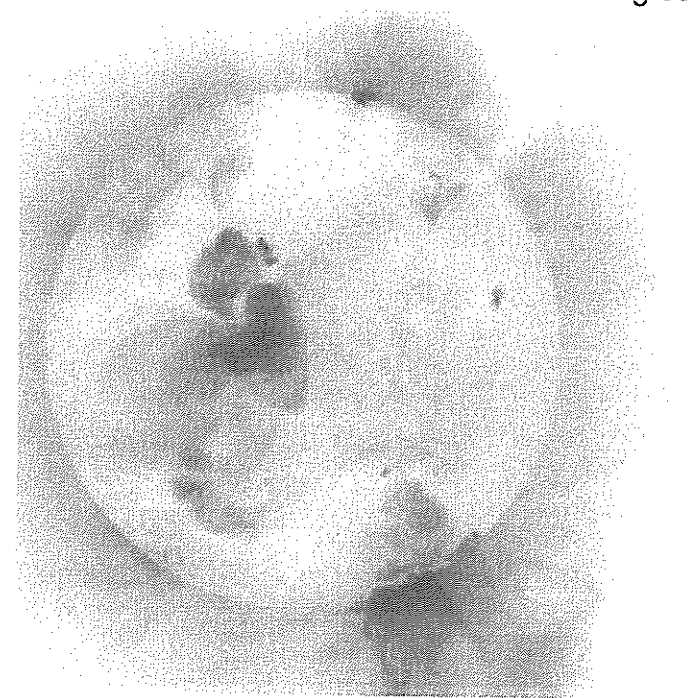
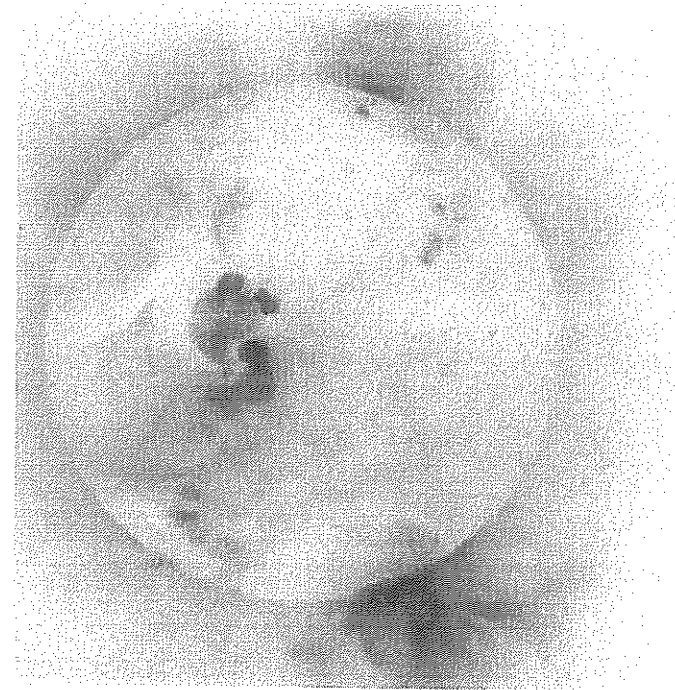
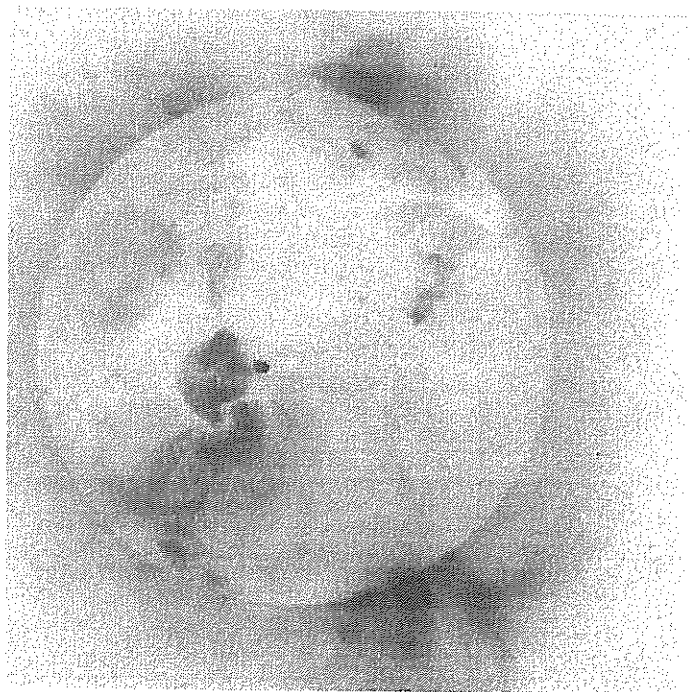


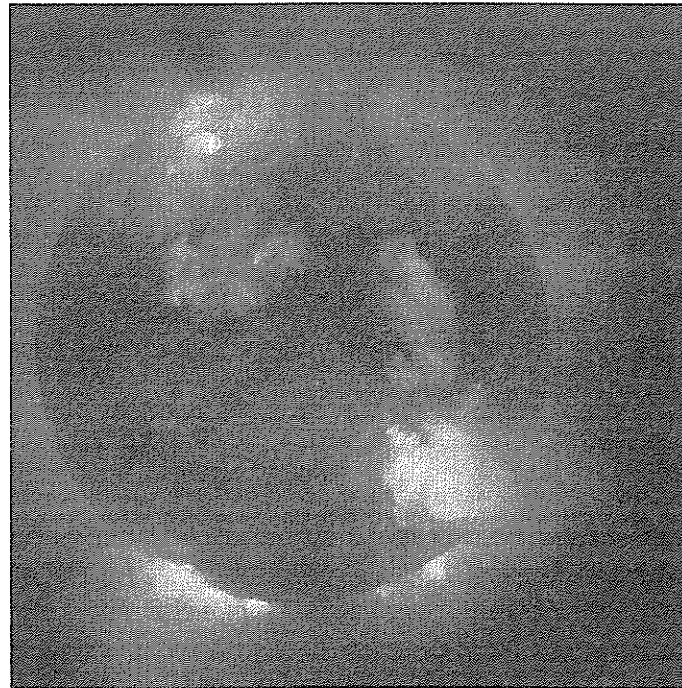
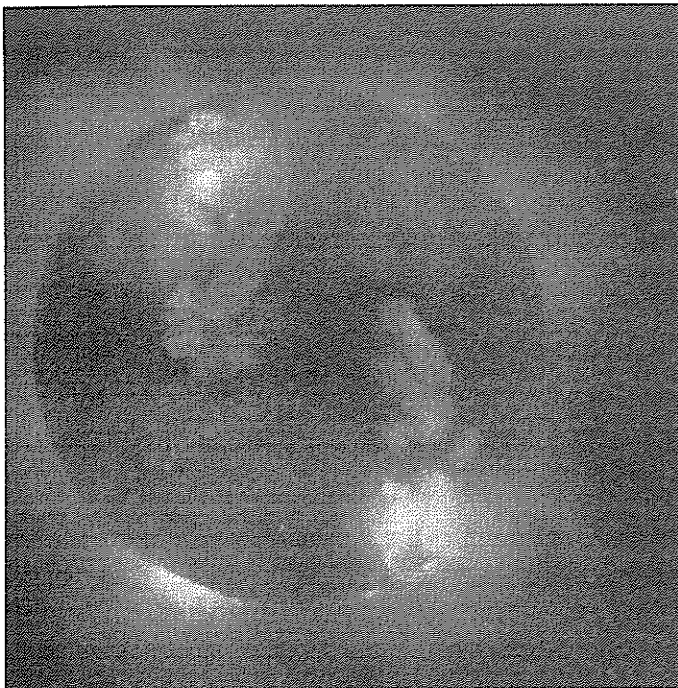
YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 17 Day 19
11:58:19 UT 11:47:05 UT

Day 18 Day 20
12:13:41 UT 12:00:08 UT

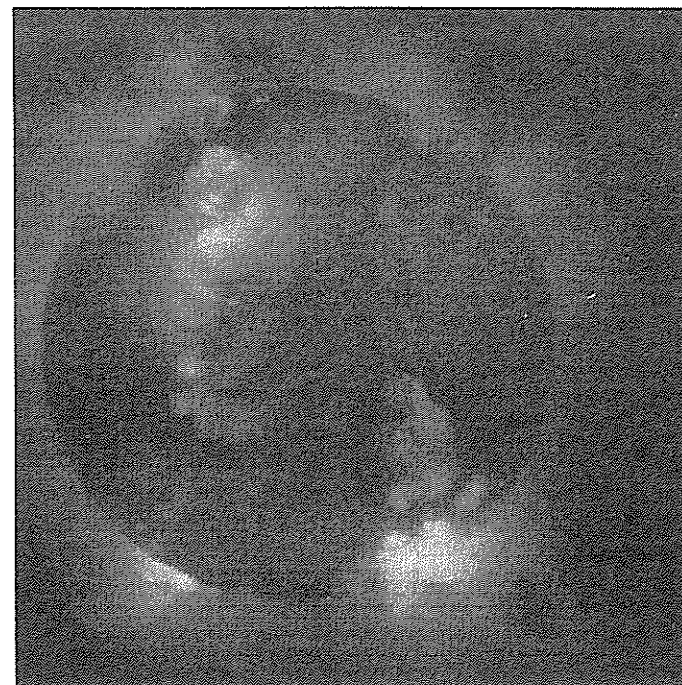
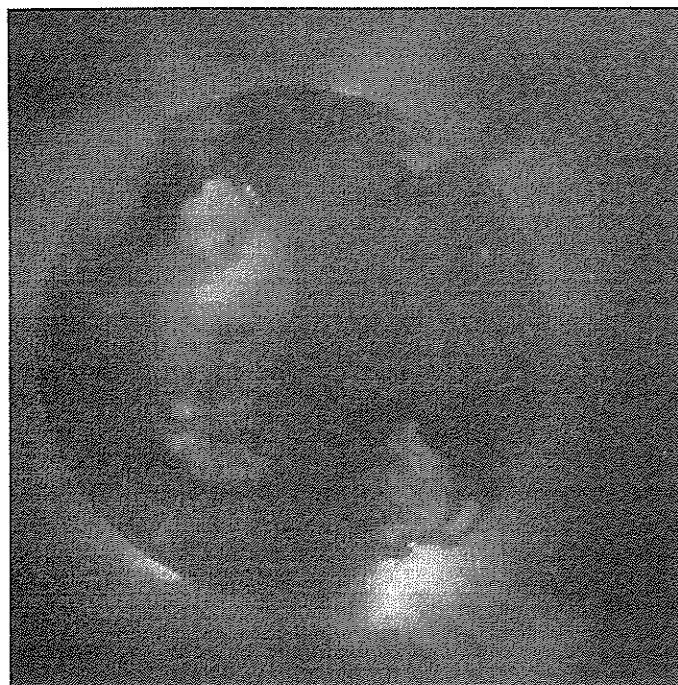




YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 21 12:00:12 UT Day 23 12:30:34 UT



Day 22 07:36:16 UT Day 24 12:48:50 UT

YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

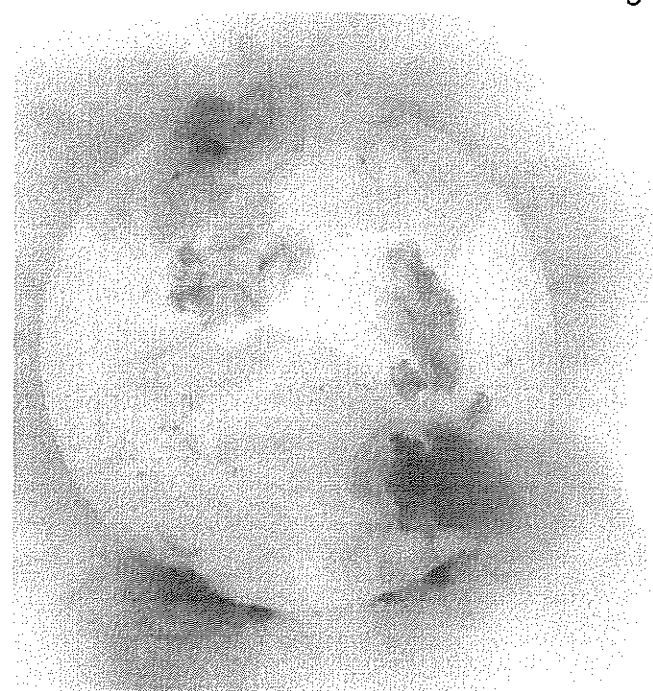
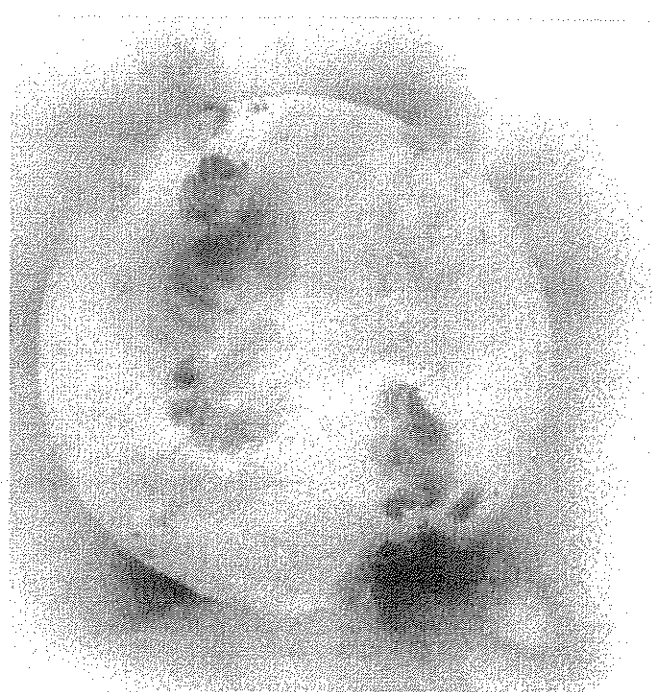
August
1999

Day 21
12:00:12 UT

Day 23
12:30:34 UT

Day 22
07:36:16 UT

Day 24
12:48:50 UT

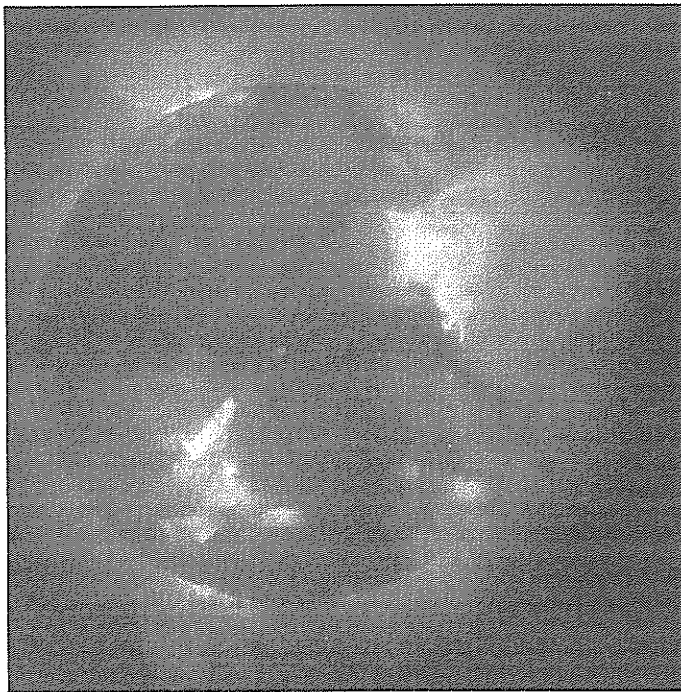
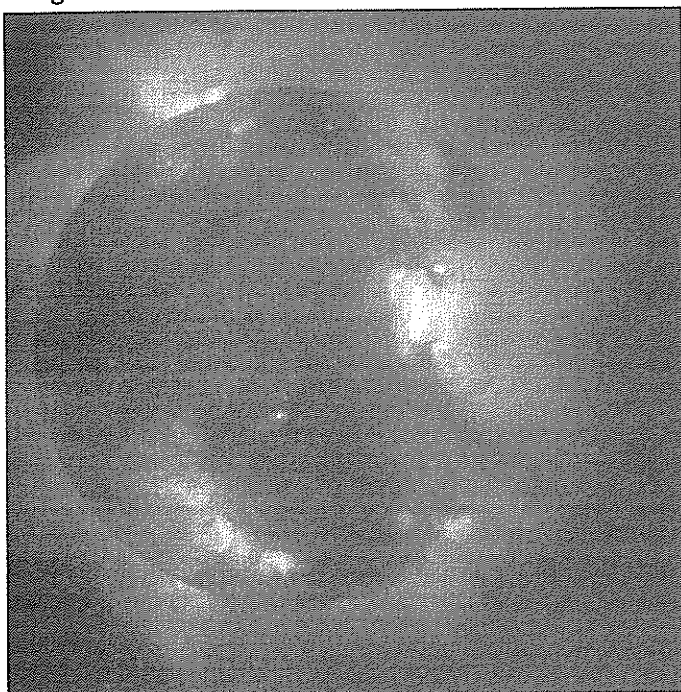
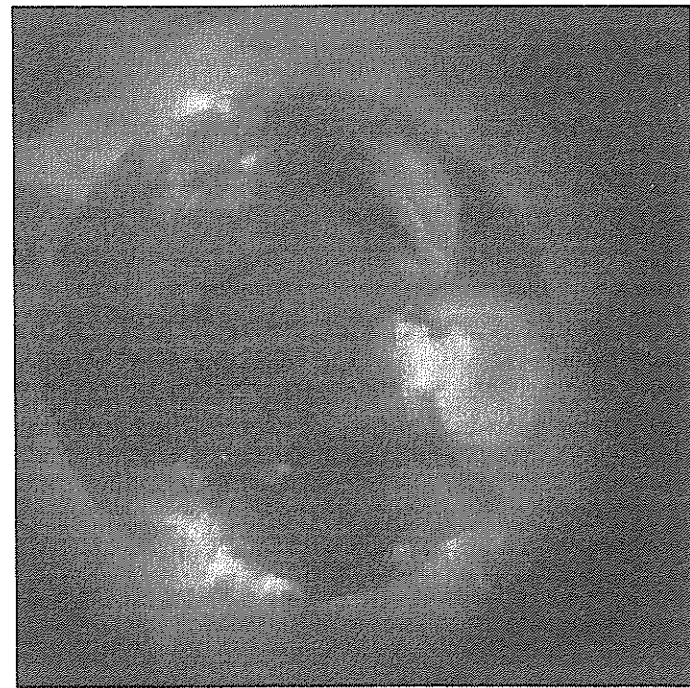
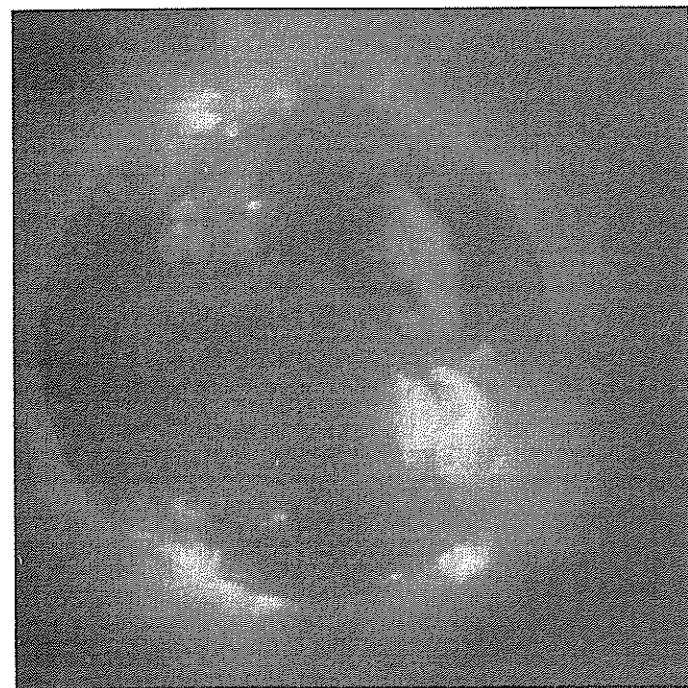


YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 25 Day 27
12:51:17 UT 11:55:37 UT

Day 26 Day 28
12:27:37 UT 12:01:39 UT

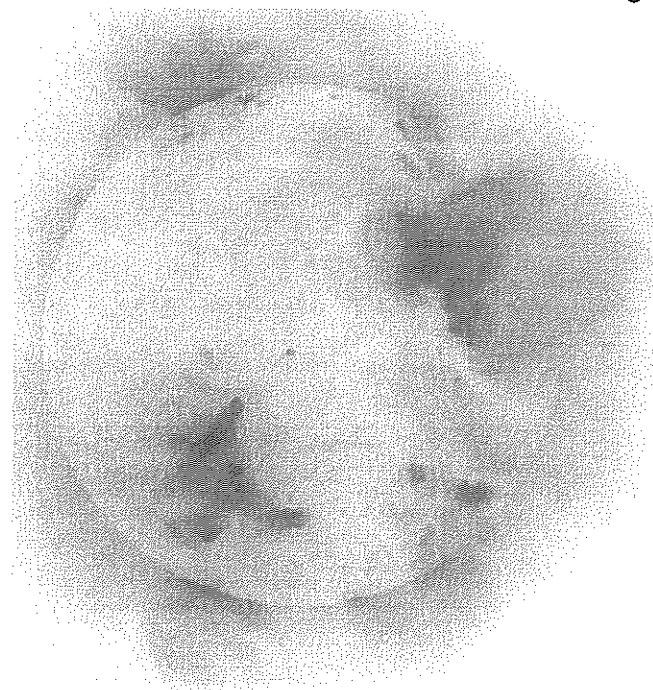
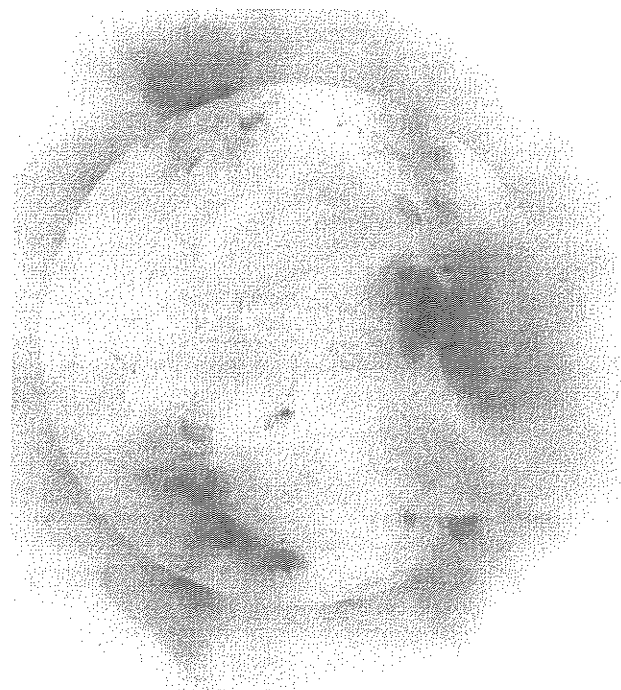
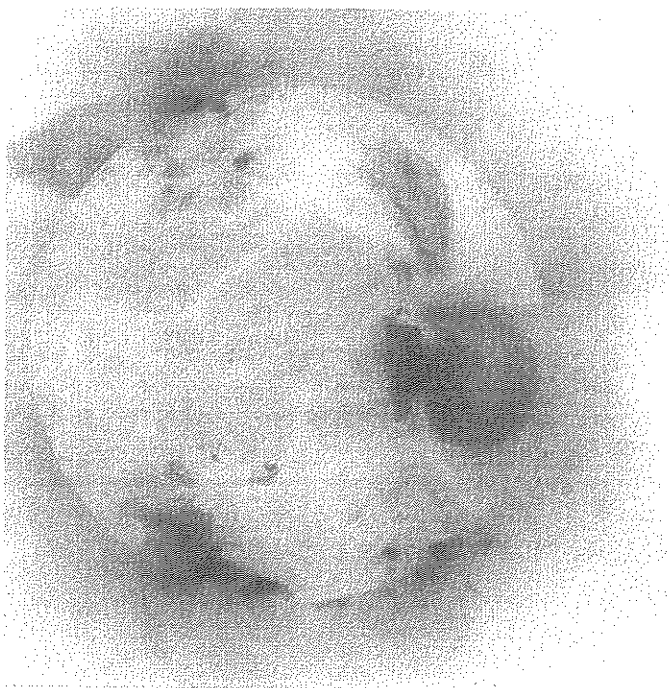
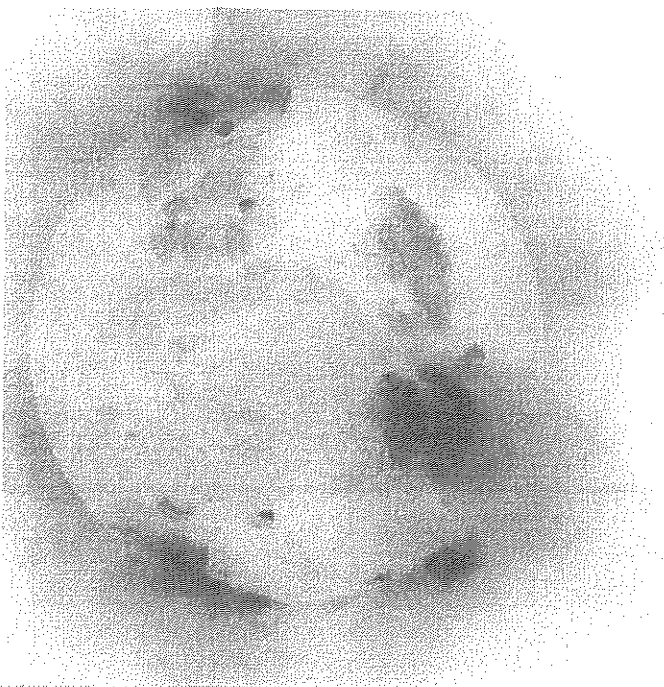


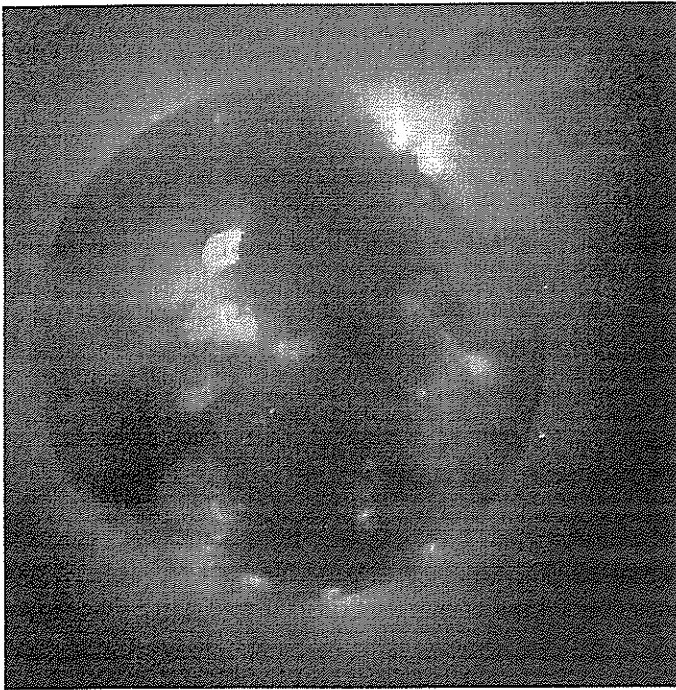
YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 25 Day 27
12:51:17 UT 11:55:37 UT

Day 26 Day 28
12:27:37 UT 12:01:39 UT

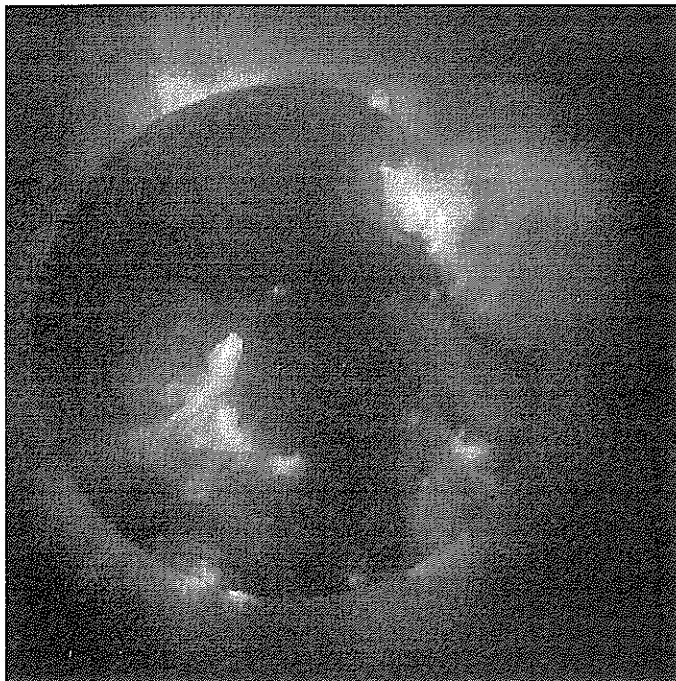




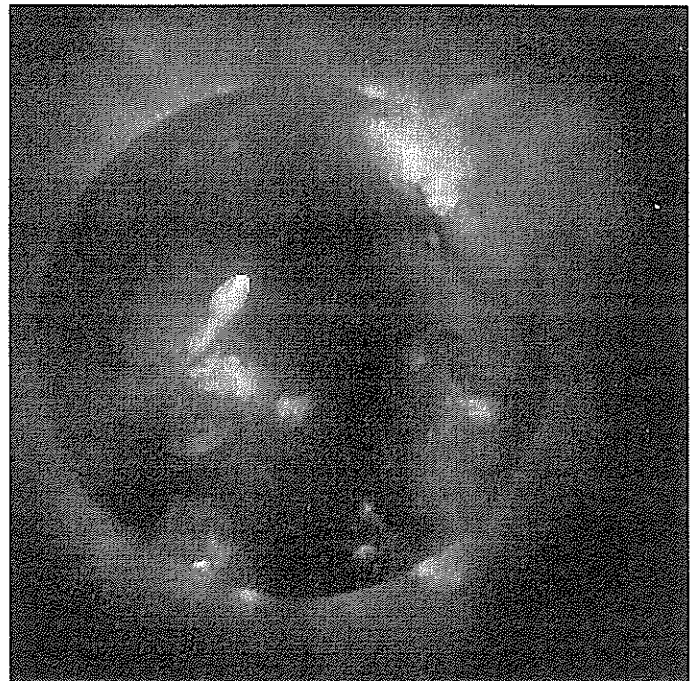
YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

August
1999

Day 29 Day 31
10:40:02 UT 11:56:02 UT



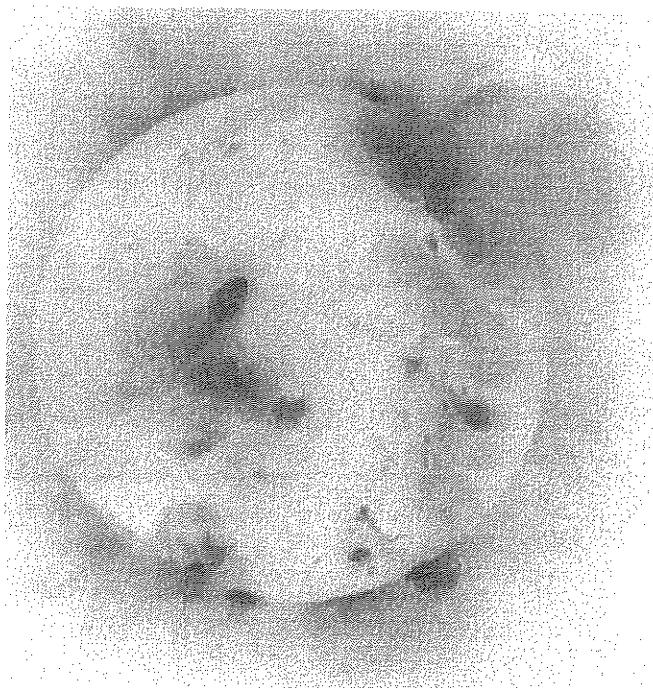
Day 30
12:28:34 UT



YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

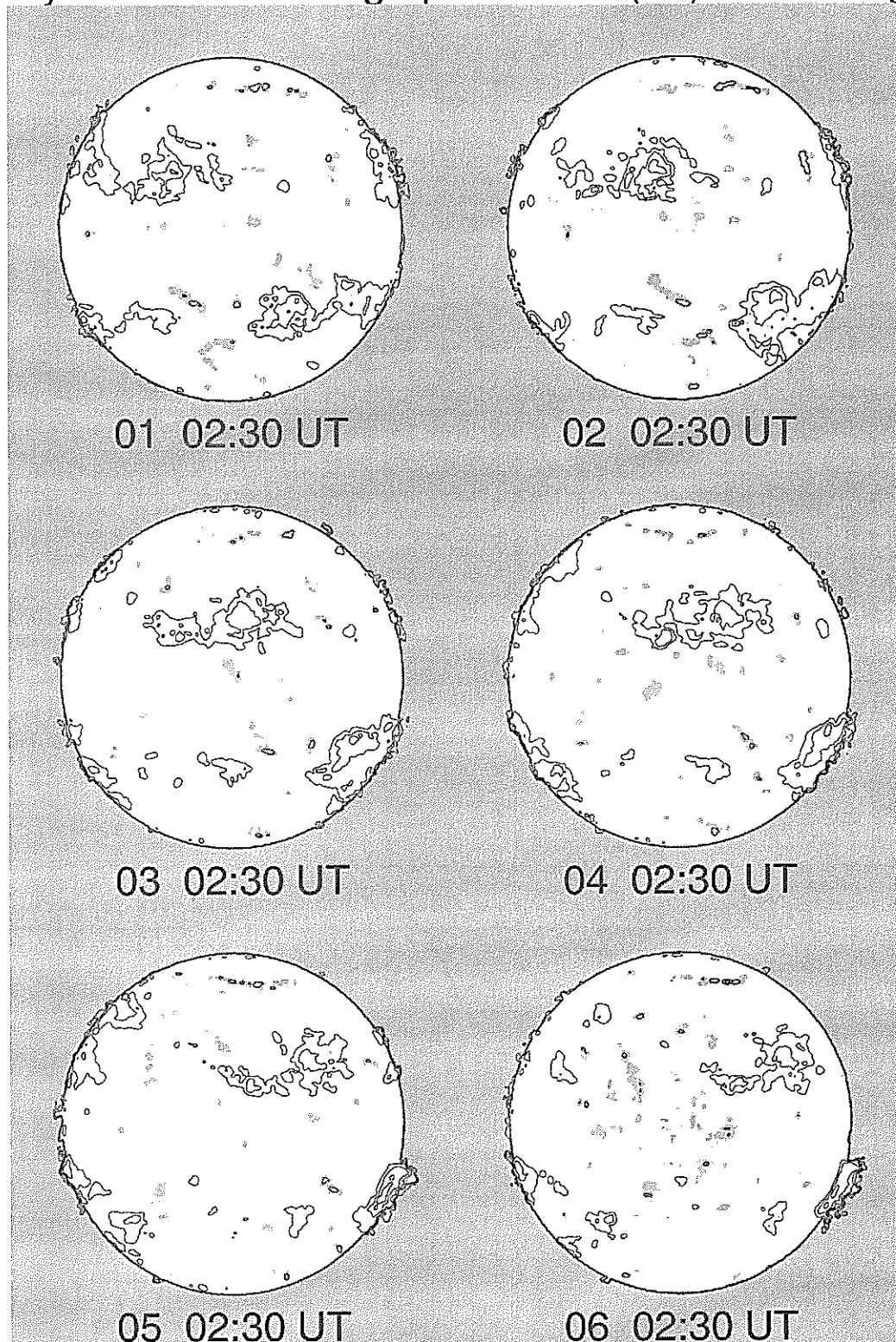
August
1999

Day 29 Day 31
10:40:02 UT 11:56:02 UT



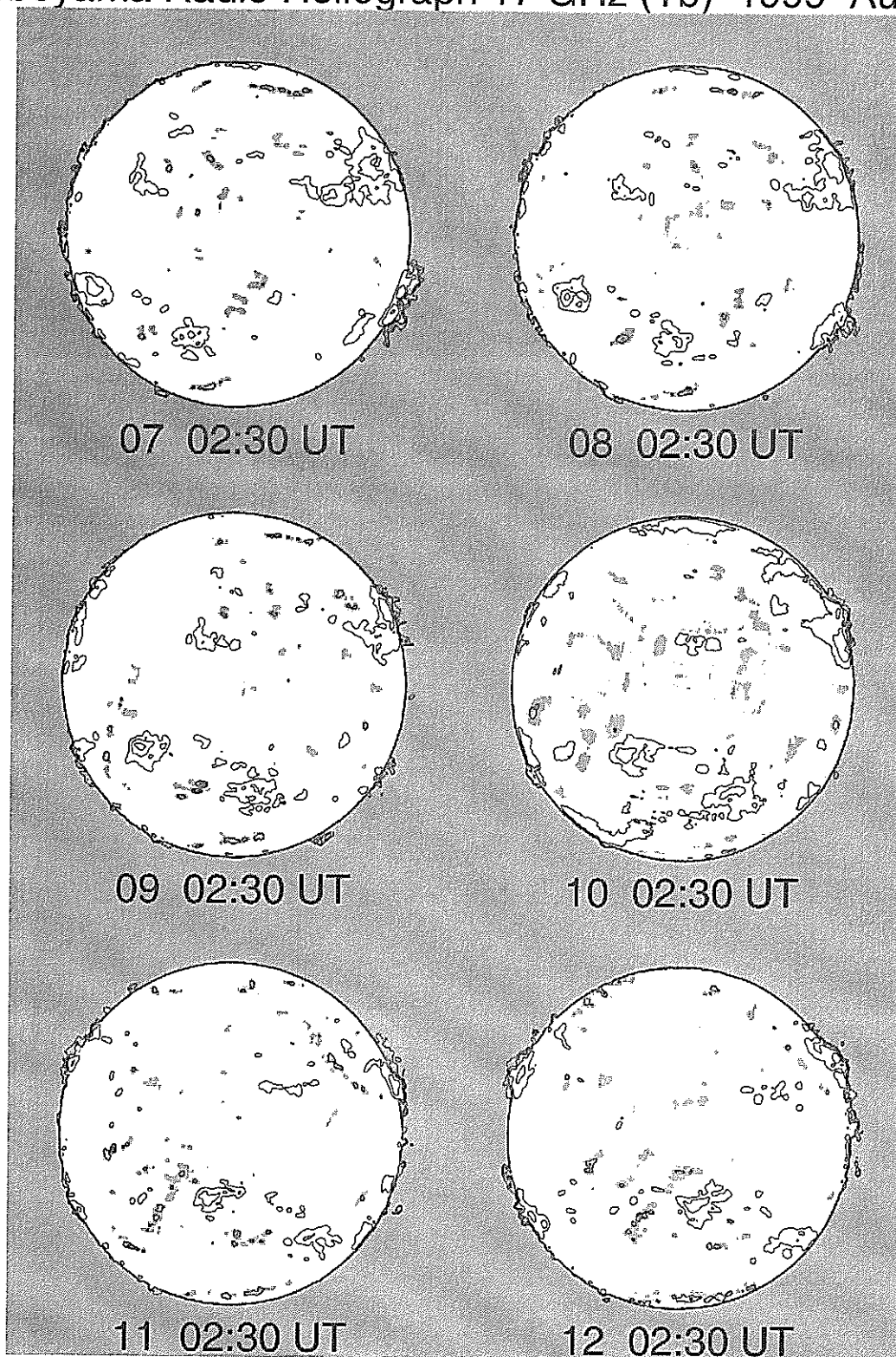
Day 30
12:28:34 UT

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 August



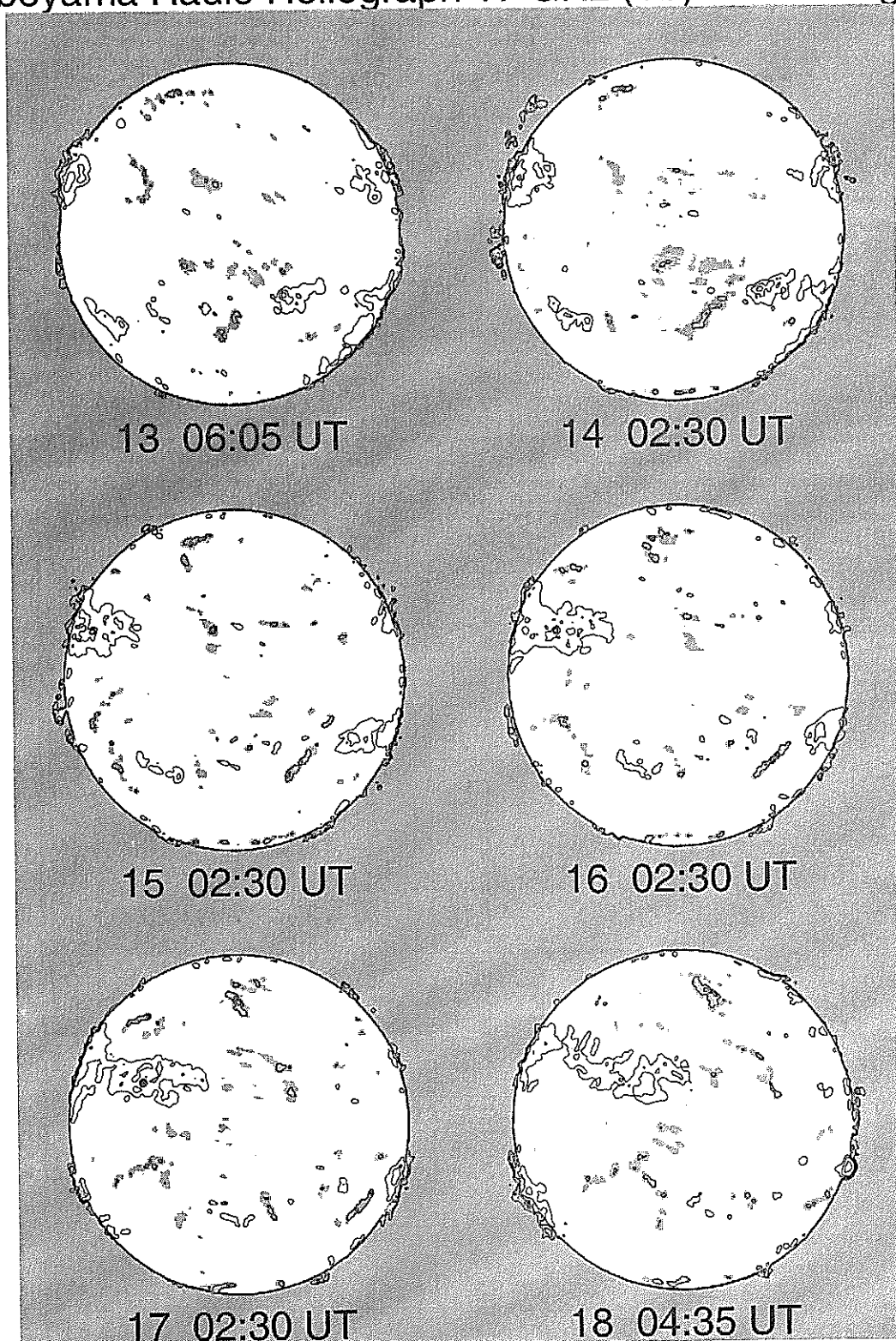
Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 August



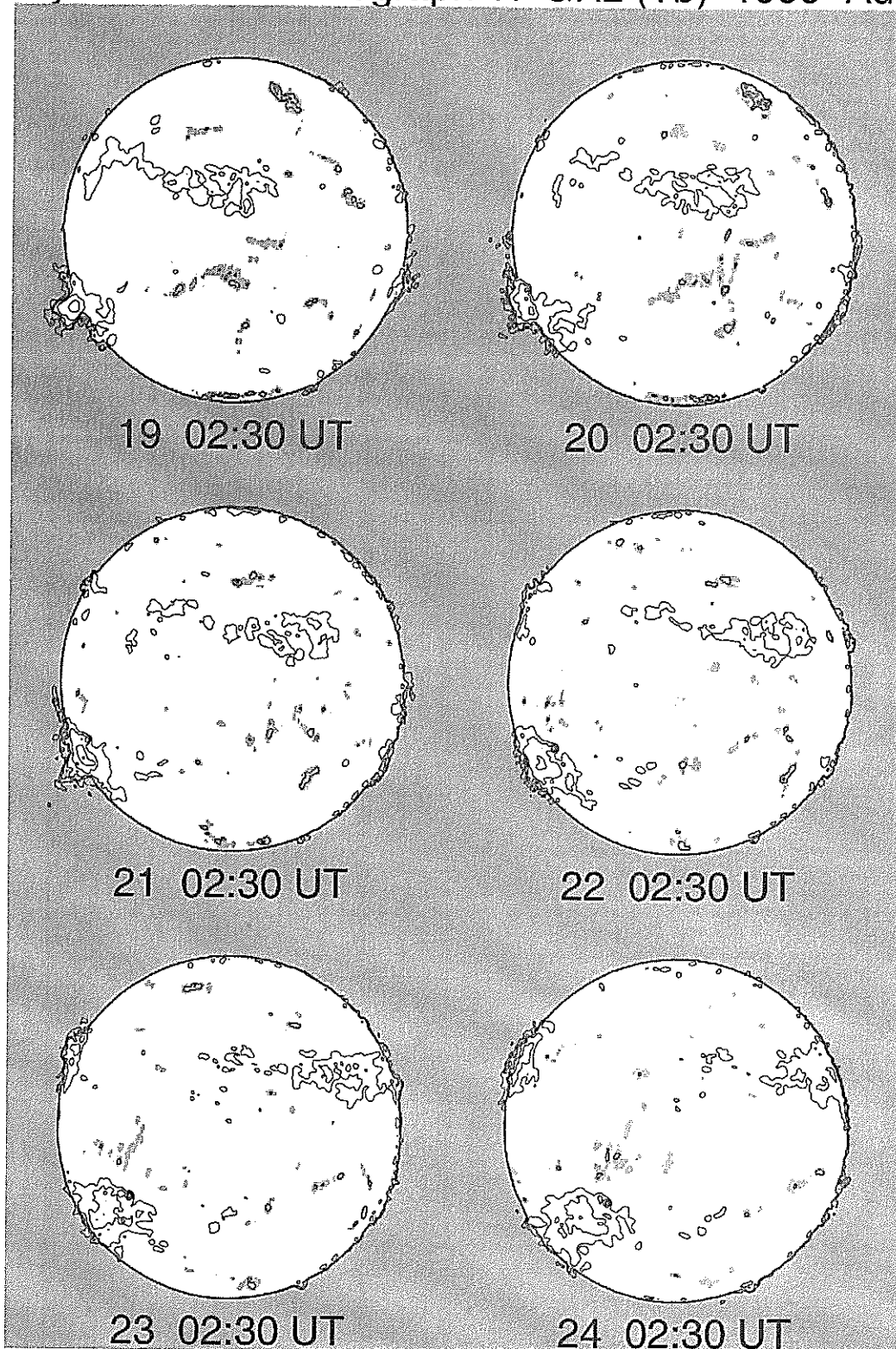
Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 August



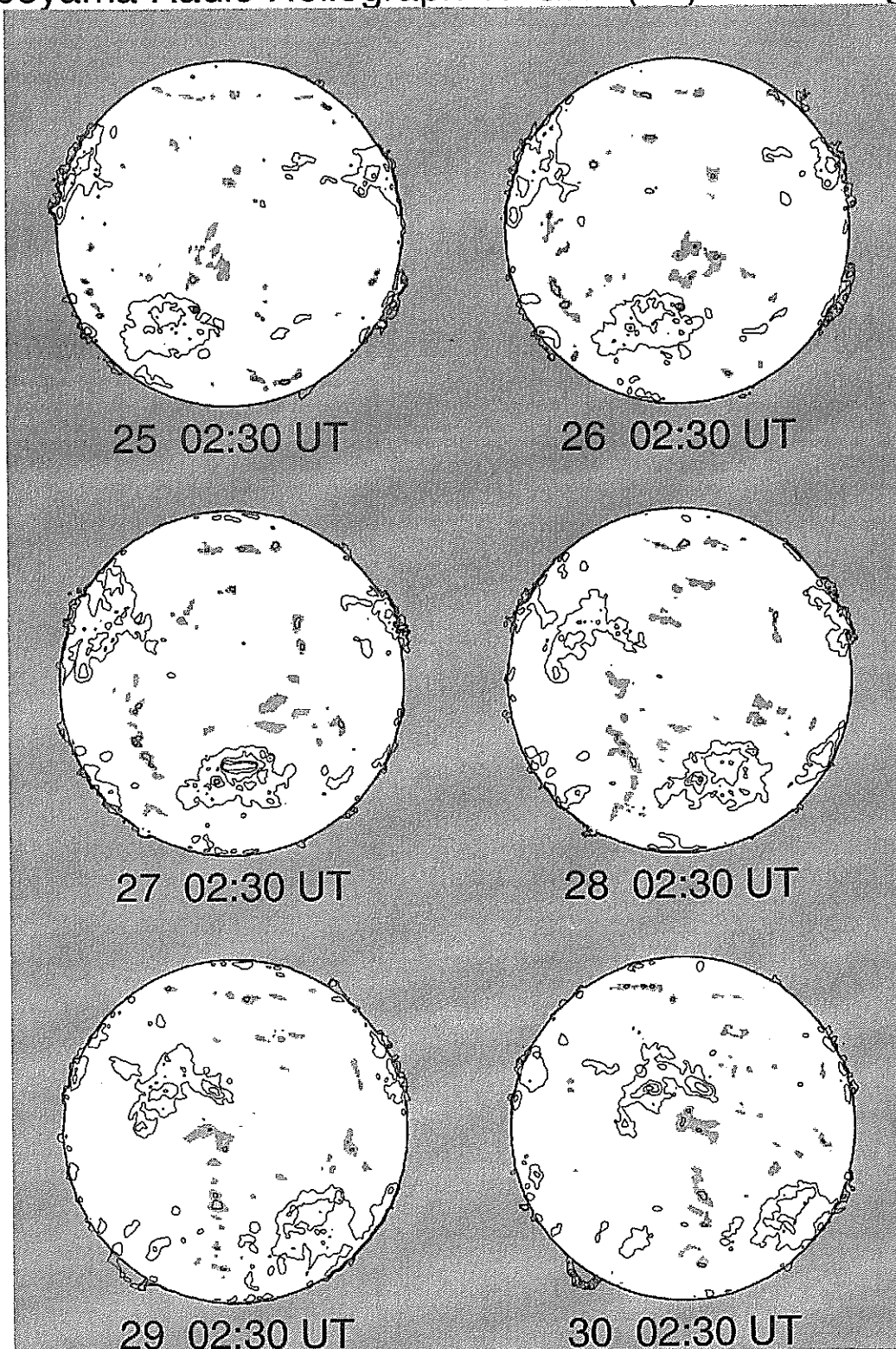
Contour Levels $T_b = [5, 8, 12, 20, 50, 100] \times 10^3 \text{ K}$
Grey level $T_b \leq 9,500 \text{ K}$

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 August



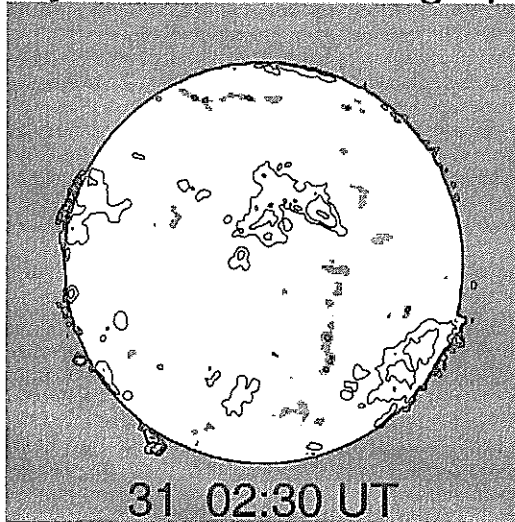
Contour Levels $T_b = [5, 8, 12, 20, 50, 100] \times 10^3$ K
Grey level $T_b \leq 9,500$ K

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 August



Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb ≤ 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 1999 August



Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb ≤ 9,500 K

102
Aug 99

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8648	29241	VORO	07 25 0357	N24 E85	07 31.7			HAX	193	1		2
8648		MWIL	07 25 1430	N23 E87	08 1.3	4	(AP)					
8648		HOLL	07 25 1600	N24 E88	08 1.5		A	AX	10	1	1	3
8648		LEAR	07 26 0127	N23 E77	08 1.0		A	HA	30	1	1	4
8648		SVTO	07 26 0500	N25 E79	08 1.3		A	HS	30	1	2	3
8648	29241	KAND	07 26 1035	N24 E74	08 1.1			HR		1	2	4
8648		HOLL	07 26 1453	N23 E70	08 1.0		A	AX	10	1	1	3
8648		MWIL	07 26 1645	N23 E71	08 1.2	4	(AP)					
8648		VORO	07 26 2135	N24 E68	08 1.1			HAX	50	1		2
8648		LEAR	07 27 0134	N22 E68	08 1.3		B	DAO	50	6	9	3
8648	29241	SVTO	07 27 0727	N22 E64	08 1.2		B	BXO	50	3	8	3
8648		KAND	07 27 1000	N22 E61	08 1.1			BXO		2	4	3
8648		RAMY	07 27 1350	N23 E60	08 1.2		B	DSO	30	2	3	4
8648		HOLL	07 27 1410	N23 E60	08 1.2		B	BXO	40	4	5	3
8648		MWIL	07 27 1545	N23 E60	08 1.3	5	(BP)					
8648	29241	LEAR	07 28 0129	N21 E55	08 1.3		B	CSO	20	3	4	3
8648		VORO	07 28 0443	N23 E52	08 1.2			DAO	48	4	2	2
8648		SVTO	07 28 0620	N22 E51	08 1.2		B	BXO	20	5	5	3
8648		RAMY	07 28 1211	N23 E48	08 1.2		B	BXO	10	6	7	3
8648		KAND	07 28 1445	N23 E46	08 1.1			CSO		3	4	4
8648	29241	MWIL	07 28 1445	N23 E47	08 1.2	4	(BP)					
8648		HOLL	07 28 1630	N22 E45	08 1.1		B	DSO	60	4	3	4
8648		KAND	07 29 0650	N23 E37	08 1.1			BXO		2	2	3
8648		SVTO	07 29 0845	N23 E37	08 1.2		B	CSO	10	2	3	3
8648		RAMY	07 29 1142	N23 E34	08 1.1		B	BXO		3	3	4
8648	29241	MWIL	07 29 1445	N23 E34	08 1.2	4	(AP)					
8648		HOLL	07 29 1715	N21 E32	08 1.2		B	CSO	10	3	3	4
8648		LEAR	07 30 0145	N21 E28	08 1.2		B	CSO	30	3	2	3
8648		SVTO	07 30 0500	N23 E25	08 1.1		A	AX		2	2	3
8648		KAND	07 30 0755	N21 E23	08 1.1			BXO		2	2	4
8648	29241	RAMY	07 30 1205	N24 E22	08 1.2		B	BXO	10	4	5	4
8648		MWIL	07 30 1445	N22 E20	08 1.1	4	(AP)					
8648		29254	07 30 1445	N26 E22	08 1.3	3	(AP)					
8648		LEAR	07 31 0118	N23 E16	08 1.3		B	BXO	10	2	6	4
8648		KAND	07 31 0605	N25 E13	08 1.3			AX		1		4
8648	29257	LEAR	08 01 0105	N24 E00	08 1.0		B	BXO	10	4	2	4
8648		RAMY	08 01 1252	N24 W06	08 1.1		B	BXO	10	5	4	4
8648		MWIL	08 01 1445	N22 W07	08 1.1	4	(AP)					
8648		LEAR	08 04 0033	N25 W33	08 1.5		A	AX		1		3
8648A		RAMY	07 27 1350	N24 E78	08 2.6		A	AX		1		4
8648A		HOLL	07 27 1410	N24 E78	08 2.6		A	AX	10	1		3
8650	29246	RAMY	07 27 1350	N17 E80	08 2.6		A	HA	30	1	2	4
8650		HOLL	07 27 1410	N17 E79	08 2.6		A	HS	60	1	1	3
8650		MWIL	07 27 1545	N16 E80	08 2.7	4	(AP)					
8650		LEAR	07 28 0129	N15 E75	08 2.7		A	HA	60	1	2	3
8650		VORO	07 28 0443	N17 E73	08 2.7			HAX	48	1		2
8650	29246	SVTO	07 28 0620	N15 E74	08 2.9		A	HS	120	1	3	3
8650		RAMY	07 28 1211	N17 E68	08 2.7		B	CSO	40	2	6	3
8650		MWIL	07 28 1445	N16 E68	08 2.8	5	(AP)					
8650		KAND	07 28 1445	N17 E69	08 2.8			HS		1	2	4
8650		HOLL	07 28 1630	N16 E68	08 2.8		A	HS	50	1	2	4
8650	29246	KAND	07 29 0650	N16 E59	08 2.7			HS		1	2	3
8650		SVTO	07 29 0845	N17 E58	08 2.8		B	CSO	40	2	2	3
8650		RAMY	07 29 1142	N17 E55	08 2.7		B	CSO	60	3	4	4
8650		MWIL	07 29 1445	N16 E54	08 2.7	5	(AP)					
8650		29251	07 29 1445	N19 E56	08 2.9	3	(AP)					
8650	29246	HOLL	07 29 1715	N17 E53	08 2.7		B	CSO	30	4	3	4
8650		LEAR	07 30 0145	N16 E48	08 2.7		A	HS	50	1	2	3
8650		SVTO	07 30 0500	N16 E46	08 2.7		A	HS	60	1	2	3
8650		KAND	07 30 0755	N16 E45	08 2.7			HA		1	2	4
8650		RAMY	07 30 1205	N17 E42	08 2.7		A	HS	40	1	2	4
8650	29251	MWIL	07 30 1445	N16 E42	08 2.8	5	(AP)					
8650		29251	07 30 1445	N19 E43	08 2.9	3	(B)					
8650		LEAR	07 31 0118	N17 E36	08 2.8		B	DAO	60	3	4	4
8650		SVTO	07 31 0530	N19 E33	08 2.7		B	DSO	130	10	5	3
8650		KAND	07 31 0605	N16 E32	08 2.7			HS		1	2	4
8650		KAND	07 31 0605	N18 E33	08 2.8			DSO		7	5	4

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

103
Aug 99

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8650		RAMY	07	31	1220	N18 E29	08	2.7		B	DSO	90	10	4	4
8650	29246	MWIL	07	31	1445	N16 E28	08	2.7	5	(AP)					
8650	29251	MWIL	07	31	1445	N19 E29	08	2.8	4	(B)					
8650		HOLL	07	31	1802	N18 E26	08	2.7		B	DSO	80	4	5	2
8650		VORO	07	31	2205	N18 E25	08	2.8			DAI	100	3	5	2
8650		LEAR	08	01	0105	N18 E22	08	2.7		B	DAO	70	13	6	4
8650		KAND	08	01	0700	N17 E19	08	2.7			HS		1	2	4
8650		KAND	08	01	0700	N19 E19	08	2.7			BXO		5	7	4
8650		SVTO	08	01	0820	N19 E18	08	2.7		B	CSO	40	11	9	3
8650		RAMY	08	01	1252	N19 E16	08	2.7		B	CSO	60	14	7	4
8650	29246	MWIL	08	01	1445	N17 E15	08	2.7	5	(AP)					
8650	29251	MWIL	08	01	1445	N19 E16	08	2.8	4	(BG)					
8650		HOLL	08	01	1531	N18 E15	08	2.8		B	CSO	40	10	6	3
8650		VORO	08	01	2320	N18 E09	08	2.6			CAO	77	2	2	2
8650		SVTO	08	02	0510	N17 E07	08	2.7		B	CAO	40	3	4	3
8650		KAND	08	02	0830	N17 E05	08	2.7			HA		1	2	3
8650		KAND	08	02	0830	N20 E03	08	2.6			AX		1		3
8650		RAMY	08	02	1246	N18 E01	08	2.6		B	CSO	50	8	8	3
8650	29246	MWIL	08	02	1500	N17 E02	08	2.8	5	(BP)					
8650	29251	MWIL	08	02	1500	N20 W00	08	2.6	4	(BP)					
8650		HOLL	08	02	1509	N18 E01	08	2.7		B	CSO	30	8	7	3
8650		LEAR	08	03	0110	N18 W06	08	2.6		B	DAO	50	7	5	3
8650		SVTO	08	03	0505	N18 W08	08	2.6		B	CSO	50	6	5	3
8650		KAND	08	03	0805	N18 W08	08	2.7			HA		1	2	4
8650		KAND	08	03	0805	N20 W09	08	2.6			AX		1		4
8650		RAMY	08	03	1328	N18 W13	08	2.6		B	CSO	20	2	4	4
8650	29246	MWIL	08	03	1445	N17 W11	08	2.8	5	(AP)					
8650	29251	MWIL	08	03	1445	N20 W12	08	2.7	4	(AP)					
8650		HOLL	08	03	2232	N17 W15	08	2.8		A	HS	20	1	2	1
8650		LEAR	08	04	0033	N18 W16	08	2.8		A	HS	20	1	1	3
8650		SVTO	08	04	0540	N18 W21	08	2.6		B	CSO	40	2	5	4
8650		KAND	08	04	0745	N18 W21	08	2.7			HA		1	2	3
8650		RAMY	08	04	1227	N17 W24	08	2.7		A	HS	20	1	1	3
8650	29246	MWIL	08	04	1430	N17 W24	08	2.8	5	(AP)					
8650	29251	MWIL	08	04	1430	N21 W27	08	2.5	4	(AP)					
8650		HOLL	08	04	1934	N17 W28	08	2.7		A	HS	40	1	1	3
8650		VORO	08	04	2230	N17 W28	08	2.8			HAX	83	1		3
8650		LEAR	08	05	0220	N18 W32	08	2.7		A	HS	30	1	2	3
8650		SVTO	08	05	0530	N17 W33	08	2.7		A	HS	40	1	1	3
8650		KAND	08	05	0845	N17 W34	08	2.8			HS		1	2	2
8650		RAMY	08	05	1213	N16 W37	08	2.7		A	HS	40	1	1	3
8650	29246	MWIL	08	05	1430	N17 W37	08	2.8	5	(AP)					
8650		HOLL	08	05	1827	N17 W40	08	2.7		A	HS	30	1		3
8650		VORO	08	05	2303	N17 W42	08	2.8			HSX	52	1		4
8650		LEAR	08	06	0115	N18 W44	08	2.7		A	HS	30	1	2	3
8650		SVTO	08	06	0625	N17 W48	08	2.6		A	HS	30	1	1	3
8650		KAND	08	06	0750	N18 W48	08	2.7			HS		1	1	3
8650		RAMY	08	06	1258	N17 W51	08	2.7		A	HS	30	1	1	3
8650	29246	MWIL	08	06	1430	N17 W50	08	2.8	4	(AP)					
8650		HOLL	08	06	1641	N17 W52	08	2.7		A	HS	30	1	1	2
8650		LEAR	08	07	0103	N18 W57	08	2.7		A	HS	30	1	1	4
8650		KAND	08	07	0840	N17 W61	08	2.7			HS		1	2	3
8650		SVTO	08	07	0900	N16 W61	08	2.7		A	HS	40	1	2	4
8650		RAMY	08	07	1158	N16 W63	08	2.7		A	HS	20	1	1	4
8650		HOLL	08	07	1425	N17 W63	08	2.8		A	HS	20	1	1	4
8650	29246	MWIL	08	07	1430	N17 W64	08	2.7	4	(AP)					
8650		VORO	08	07	2206	N16 W70	08	2.6			HSX	55	1		2
8650		LEAR	08	08	0112	N18 W71	08	2.6		A	HS	30	1	1	2
8650		KAND	08	08	0740	N17 W72	08	2.8			HR		1	2	4
8650		SVTO	08	08	1030	N15 W75	08	2.7		A	HA	60	2	2	4
8650		RAMY	08	08	1212	N17 W78	08	2.6		A	HS	20	1	1	3
8650	29246	MWIL	08	08	1430	N18 W77	08	2.7	4	(AP)					
8650		HOLL	08	08	1435	N17 W78	08	2.7		A	HS	30	1	1	4
8650		VORO	08	08	2245	N16 W84	08	2.6			HAX	60	1		3
8650		LEAR	08	09	0111	N18 W81	08	2.9		A	AX		1		4
8651	29245	MWIL	07	27	1545	N23 E77	08	2.6	4	(BP)					
8651		LEAR	07	28	0129	N23 E73	08	2.7		B	CAO	50	3	10	3
8651		VORO	07	28	0443	N25 E69	08	2.5			HAX	92	1		2

104
Aug 99

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8651		SVTO	07 28 0620	N24	E72	08 2.8		B	CSO	150	5	8	3
8651		RAMY	07 28 1211	N25	E67	08 2.7		B	CAO	90	6	8	3
8651		KAND	07 28 1445	N24	E65	08 2.6			CAO		7	9	4
8651	29245	MWIL	07 28 1445	N24	E65	08 2.6	5	(BP)					
8651		HOLL	07 28 1630	N24	E66	08 2.8		B	CAO	110	11	9	4
8651		KAND	07 29 0650	N24	E57	08 2.7			DAO		8	9	3
8651		SVTO	07 29 0845	N24	E56	08 2.7		B	EAI	220	12	11	3
8651		RAMY	07 29 1142	N24	E55	08 2.7		B	DAO	170	37	10	4
8651	29245	MWIL	07 29 1445	N24	E53	08 2.7	5	(B)					
8651		HOLL	07 29 1715	N23	E52	08 2.7		B	DSC	240	23	10	4
8651		LEAR	07 30 0145	N23	E47	08 2.7		B	DAI	290	35	10	3
8651		SVTO	07 30 0500	N25	E47	08 2.8		BG	EAI	640	24	12	3
8651		KAND	07 30 0755	N24	E44	08 2.7			EKC		27	12	4
8651		RAMY	07 30 1205	N25	E42	08 2.7		B	DKI	580	21	10	4
8651	29245	MWIL	07 30 1445	N24	E41	08 2.8	5	(D2)					
8651		LEAR	07 31 0118	N23	E35	08 2.7		B	EKI	540	48	12	4
8651		SVTO	07 31 0530	N26	E33	08 2.8		BG	EKI	940	39	13	3
8651		KAND	07 31 0605	N24	E33	08 2.8			EKC		34	14	4
8651		RAMY	07 31 1220	N26	E28	08 2.7		B	EKI	730	31	11	4
8651	29245	MWIL	07 31 1445	N24	E27	08 2.7	5	(B)					
8651		HOLL	07 31 1802	N24	E25	08 2.7		B	FKC	780	26	13	2
8651		VORO	07 31 2205	N25	E23	08 2.7			DKI	1336	27	11	2
8651		LEAR	08 01 0105	N23	E22	08 2.7		BG	EKC	630	64	13	4
8651		KAND	08 01 0700	N26	E19	08 2.8			EKC		16	14	4
8651		SVTO	08 01 0820	N26	E18	08 2.7		BG	EKI	1100	49	15	3
8651		RAMY	08 01 1252	N25	E14	08 2.6		BD	EKC	970	57	14	4
8651	29245	MWIL	08 01 1445	N25	E14	08 2.7	5	(BG)					
8651		HOLL	08 01 1531	N24	E13	08 2.6		BG	EKC		62	14	3
8651		VORO	08 01 2320	N25	E09	08 2.7			FKI	1802	25	12	2
8651		SVTO	08 02 0510	N25	E08	08 2.8		BG	FKI	1600	32	16	3
8651		KAND	08 02 0830	N25	E05	08 2.7			EKC		40	14	3
8651		RAMY	08 02 1246	N25	E01	08 2.6		B	FKI	1340	54	16	3
8651	29245	MWIL	08 02 1500	N26	E01	08 2.7	5	(B)					
8651		HOLL	08 02 1509	N25	E00	08 2.6		BG	FKC	1160	44	16	3
8651		LEAR	08 03 0110	N26	W05	08 2.7		BG	FKC	1020	52	17	3
8651		SVTO	08 03 0505	N25	W09	08 2.5		BG	FKI	1380	54	17	3
8651		KAND	08 03 0805	N25	W08	08 2.7			FKC		22	18	4
8651		RAMY	08 03 1328	N26	W14	08 2.5		B	FKC	900	42	17	4
8651		RAMY	08 03 1328	S25	W13	08 2.5		A	AX		2	1	4
8651	29245	MWIL	08 03 1445	N25	W12	08 2.7	5	(BG)					
8651		HOLL	08 03 2232	N24	W17	08 2.6		BG	FKC	690	27	17	1
8651		LEAR	08 04 0033	N26	W18	08 2.6		BG	FKC	810	33	19	3
8651		SVTO	08 04 0540	N25	W22	08 2.5		BG	FKI	1390	50	18	4
8651		KAND	08 04 0745	N26	W22	08 2.6			FKC		18	19	3
8651		RAMY	08 04 1227	N25	W25	08 2.6		B	FKC	880	42	18	3
8651	29245	MWIL	08 04 1430	N25	W25	08 2.7	5	(BG)					
8651		HOLL	08 04 1934	N25	W29	08 2.6		BG	FKC	590	34	18	3
8651		VORO	08 04 2230	N24	W31	08 2.5			DKI	1262	36	15	3
8651		LEAR	08 05 0220	N26	W33	08 2.5		B	FKI	720	44	18	3
8651		SVTO	08 05 0530	N26	W34	08 2.6		BG	FKI	960	34	21	3
8651		KAND	08 05 0845	N25	W35	08 2.6			FKC		19	18	2
8651		RAMY	08 05 1213	N26	W38	08 2.5		B	FHI	840	39	19	3
8651	29245	MWIL	08 05 1430	N25	W38	08 2.7	5	(BG)					
8651		HOLL	08 05 1827	N25	W41	08 2.6		BG	FKC	610	40	19	3
8651		VORO	08 05 2303	N25	W43	08 2.6			EAI	598	27	15	4
8651		LEAR	08 06 0115	N27	W45	08 2.5		B	FKI	610	44	18	3
8651		SVTO	08 06 0625	N25	W50	08 2.4		BG	FAI	900	27	20	3
8651		KAND	08 06 0750	N27	W47	08 2.7			FKO		10	19	3
8651		RAMY	08 06 1258	N27	W51	08 2.6		B	FAI	780	28	18	3
8651	29245	MWIL	08 06 1430	N26	W49	08 2.8	5	(B)					
8651		HOLL	08 06 1641	N25	W52	08 2.7		BG	FAC	520	26	18	2
8651		LEAR	08 07 0103	N27	W57	08 2.6		B	FKI	670	24	19	4
8651		KAND	08 07 0840	N26	W61	08 2.6			FAO		11	17	3
8651		SVTO	08 07 0900	N26	W61	08 2.6		BG	FAI	800	20	16	4
8651		RAMY	08 07 1158	N26	W65	08 2.4		B	FAI	520	29	18	4
8651		HOLL	08 07 1425	N25	W65	08 2.6		BG	FAC	420	27	18	4
8651	29245	MWIL	08 07 1430	N25	W64	08 2.6	5	(B)					
8651		VORO	08 07 2206	N25	W68	08 2.6			EAI	259	8	20	2
8651		LEAR	08 08 0112	N27	W70	08 2.6		B	FAI	540	20	18	2

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

105
Aug 99

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8651	29245	KAND	08	08	0740	N25	W70	08	2.9			FAI		11	18	4
8651		SVTO	08	08	1030	N25	W73	08	2.8		B	FAI	300	10	17	4
8651		RAMY	08	08	1212	N27	W78	08	2.4		B	FAI	270	22	19	3
8651		MWIL	08	08	1430	N26	W75	08	2.8	4	(B)					
8651		HOLL	08	08	1435	N26	W78	08	2.5		B	FAI	420	20	18	4
8651		VORO	08	08	2245	N24	W79	08	2.8			DAO	183	3	6	3
8651		LEAR	08	09	0111	N27	W78	08	3.0		A	HA	180	5	8	4
8651		SVTO	08	09	0540	N25	W85	08	2.6		B	DSO	180	4	9	3
8651		RAMY	08	09	1402	N25	W86	08	2.9		A	HA	30	1	1	3
8651		HOLL	08	09	1507	N25	W86	08	3.0		A	AX	20	2	3	3
8660	29263	HOLL	08	03	2232	S35	W12	08	3.0		A	AX		1		1
8660		LEAR	08	04	0033	S33	W15	08	2.8		A	AX		1		3
8660		KAND	08	04	0745	S33	W16	08	3.0			AX		1	1	3
8660		RAMY	08	04	1227	S34	W17	08	3.2		B	BXO	10	4	3	3
8660		MWIL	08	04	1430	S34	W19	08	3.1	4	(B)					
8660		HOLL	08	04	1934	S35	W22	08	3.0		B	BXO	10	2	3	3
8660		VORO	08	04	2230	S34	W24	08	3.0			BXO	17	2	2	3
8660		LEAR	08	05	0220	S33	W27	08	2.9		B	BXO	10	4	4	3
8660		SVTO	08	05	0530	S34	W27	08	3.1		B	CRO	20	3	4	3
8660	29263	KAND	08	05	0845	S34	W29	08	3.0			CAO		2	3	2
8660		RAMY	08	05	1213	S35	W32	08	2.9		B	BXO	10	3	4	3
8660		MWIL	08	05	1430	S34	W33	08	3.0	4	(B)					
8660		HOLL	08	05	1827	S36	W35	08	2.9		B	BXO	10	4	4	3
8660		VORO	08	05	2303	S34	W39	08	2.8			AXX	1	1		4
8660		LEAR	08	06	0115	S33	W41	08	2.8		A	AX		2	2	3
8660		SVTO	08	06	0625	S35	W45	08	2.7		A	AX		1		3
8658	29255	MWIL	07	30	1445	S24	E51	08	3.5	3	(AP)					
8658		LEAR	07	31	0118	S25	E43	08	3.4		A	AX		1		4
8658	29260	KAND	07	31	0605	S25	E43	08	3.6			AX		1		
8658		MWIL	08	02	1500	S25	E10	08	3.4	3	(AP)					
8658	29260	SVTO	08	03	0505	S24	E03	08	3.4		A	AX	10	2	2	3
8658		MWIL	08	03	1445	S25	W03	08	3.4	4	(AP)					
8658		HOLL	08	03	2232	S25	W08	08	3.3		B	BXO	10	2	2	1
8658		VORO	08	04	2230	S25	W22	08	3.2			BXO	11	2	3	3
8658		LEAR	08	05	0220	S24	W23	08	3.3		B	BXO		2	3	3
8656	29258	RAMY	08	01	1252	N18	E40	08	4.6		B	BXO	10	6	6	4
8656		MWIL	08	01	1445	N18	E37	08	4.4	4	(B)					
8656	29259	MWIL	08	01	1445	N18	E42	08	4.8	3	(AP)					
8656		HOLL	08	01	1531	N17	E37	08	4.4		B	BXO	10	5	3	3
8656		VORO	08	01	2320	N19	E32	08	4.4			BXO	26	2	2	2
8656		SVTO	08	02	0510	N16	E31	08	4.6		B	BXO	20	7	7	3
8656		KAND	08	02	0830	N19	E28	08	4.5			CSO		10	8	3
8656		RAMY	08	02	1246	N18	E25	08	4.4		B	BXO	10	10	7	3
8656	29259	MWIL	08	02	1500	N18	E28	08	4.7	4	(AP)					
8656		MWIL	08	02	1500	N19	E23	08	4.4	4	(BP)					
8656		HOLL	08	02	1509	N18	E25	08	4.5		B	CSO	10	7	8	3
8656		LEAR	08	03	0110	N18	E18	08	4.4		B	DAO	40	7	6	3
8656		SVTO	08	03	0505	N19	E15	08	4.3		B	CRO	50	13	7	3
8656		KAND	08	03	0805	N19	E15	08	4.5			DAI		11	8	4
8656		RAMY	08	03	1328	N19	E11	08	4.4		B	DAO	80	11	7	4
8656	29259	MWIL	08	03	1445	N19	E10	08	4.4	5	(BG)					
8656		HOLL	08	03	2232	N18	E06	08	4.4		B	DSO	70	11	6	1
8656		LEAR	08	04	0033	N19	E05	08	4.4		B	DAO	100	13	6	3
8656		SVTO	08	04	0540	N19	E02	08	4.4		B	DAO	220	14	8	4
8656		KAND	08	04	0745	N19	E01	08	4.4			DAO		7	7	3
8656		RAMY	08	04	1227	N19	W01	08	4.4		B	DAO	100	19	7	3
8656	29259	MWIL	08	04	1430	N19	W02	08	4.4	5	(BG)					
8656		HOLL	08	04	1934	N18	W06	08	4.3		B	DAO	70	13	7	3
8656		VORO	08	04	2230	N19	W07	08	4.4			DAI	153	8	6	3
8656		LEAR	08	05	0220	N21	W07	08	4.6		B	EAO	120	23	13	3
8656		SVTO	08	05	0530	N19	W11	08	4.4		B	DAO	110	16	8	3
8656		KAND	08	05	0845	N19	W14	08	4.3			DAO		7	8	2
8656		RAMY	08	05	1213	N19	W15	08	4.4		B	DRO	40	16	8	3
8656	29259	MWIL	08	05	1430	N19	W15	08	4.4	5	(B)					
8656		HOLL	08	05	1827	N18	W17	08	4.5		B	ESO	30	20	15	3
8656		VORO	08	05	2303	N19	W22	08	4.3			CRI	68	9	7	4

106
Aug 99

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8656		LEAR	08	06	0115	N19	W18	08	4.7		B	CRO	40	15	14	3
8656		SVTO	08	06	0625	N18	W25	08	4.4		B	BXO	20	14	8	3
8656		KAND	08	06	0750	N19	W25	08	4.4			BXI		10	8	3
8656		RAMY	08	06	1258	N18	W29	08	4.3		B	BXO	10	16	8	3
8656	29259	MWIL	08	06	1430	N18	W29	08	4.4	5	(BG)					
8656		HOLL	08	06	1641	N18	W28	08	4.6		B	CRO	60	11	13	2
8656		LEAR	08	07	0103	N19	W33	08	4.5		B	DRO	30	10	13	4
8656		KAND	08	07	0840	N18	W41	08	4.2			BXO		3	8	3
8656		SVTO	08	07	0900	N19	W44	08	4.0		B	BXO	10	3	3	4
8656		RAMY	08	07	1158	N18	W40	08	4.4		B	BXO	10	11	13	4
8656		HOLL	08	07	1425	N18	W41	08	4.5		B	DSO	50	12	13	4
8656	29259	MWIL	08	07	1430	N18	W45	08	4.2	4	(B)					
8656		LEAR	08	08	0112	N19	W47	08	4.5		B	DSO	50	5	5	2
8656		KAND	08	08	0740	N19	W52	08	4.3			CRO		4	9	4
8656		SVTO	08	08	1030	N16	W54	08	4.3		B	DRO	30	5	9	4
8656		RAMY	08	08	1212	N17	W56	08	4.2		B	CRO	20	9	9	3
8656	29259	MWIL	08	08	1430	N17	W55	08	4.4	4	(B)					
8656		HOLL	08	08	1435	N17	W52	08	4.6		B	CAO	60	10	9	4
8656		LEAR	08	09	0111	N17	W60	08	4.5		B	CSO	20	5	4	4
8656		SVTO	08	09	0540	N15	W63	08	4.5		B	BXO	10	3	5	3
8656		KAND	08	09	1300	N15	W68	08	4.4			DAO		2	4	3
8656		KAND	08	09	1300	N18	W66	08	4.5			BXO		3	4	3
8656		RAMY	08	09	1402	N15	W68	08	4.4		B	CRO	20	6	6	3
8656	29259	MWIL	08	09	1445	N16	W67	08	4.5	4	(B)					
8656		HOLL	08	09	1507	N16	W67	08	4.5		B	CRO	50	6	6	3
8656		KAND	08	10	0650	N14	W78	08	4.4			CAO		2	5	3
8656		SVTO	08	10	0728	N14	W77	08	4.5		B	CRO	10	2	5	3
8656		RAMY	08	10	1343	N14	W81	08	4.4		B	BXO	10	4	10	3
8656	29259	MWIL	08	10	1430	N16	W80	08	4.5	4	(BF)					
8655	29256	MWIL	07	30	1445	N25	E70	08	5.0	3	(AP)					
8655		LEAR	07	31	0118	N24	E62	08	4.8		A	AX		1		4
8655	29256	MWIL	07	31	1445	N24	E55	08	4.9	3	(AP)					
8655		LEAR	08	01	0105	N24	E49	08	4.8		A	HS	10	1	1	4
8655		KAND	08	01	0700	N26	E46	08	4.9			AX		1	1	4
8655		SVTO	08	01	0820	N26	E45	08	4.8		A	HS	10	1	1	3
8655		RAMY	08	01	1252	N26	E46	08	5.1		B	BXO	10	2	8	4
8655	29256	MWIL	08	01	1445	N24	E41	08	4.8	4	(AP)					
8655		HOLL	08	01	1531	N25	E41	08	4.8		A	HS	10	1		3
8655		SVTO	08	02	0510	N23	E34	08	4.8		A	AX		1		3
8655		KAND	08	02	0830	N26	E30	08	4.7			AX		1	1	3
8655		RAMY	08	02	1246	N26	E27	08	4.6		A	AX		1		3
8655	29256	MWIL	08	02	1500	N26	E27	08	4.7	4	(AP)					
8655		HOLL	08	02	1509	N26	E27	08	4.7		A	AX		1		3
8655		HOLL	08	03	2232	N26	E16	08	5.2		A	AX	10	1	1	1
8655		SVTO	08	05	0530	N22	W04	08	4.9		B	BXO	10	3	6	3
8655		KAND	08	05	0845	N20	W04	08	5.0			CRO		2	3	2
8655		RAMY	08	05	1213	N23	W04	08	5.2		B	BXO	10	8	8	3
8655	29265	MWIL	08	05	1430	N20	W07	08	5.1	4	(B)					
8655	29266	MWIL	08	05	1430	N25	W03	08	5.4	3	(AF)					
8655		HOLL	08	05	1827	N25	W07	08	5.2		B	BXO	10	3	3	3
8655		VORO	08	05	2303	N20	W12	08	5.0			AXX	12	2	2	4
8655		LEAR	08	06	0115	N26	W08	08	5.4		B	BXO		2	3	3
8655		SVTO	08	06	0625	N21	W17	08	5.0		A	AX	10	3	2	3
8655	29266	MWIL	08	06	1430	N26	W16	08	5.4	3	(AF)					
8655		LEAR	08	07	0103	N22	W24	08	5.2		A	AX	10	3	3	4
8655		SVTO	08	07	0900	N18	W29	08	5.2		A	HR	10	3	2	4
8655	29265	MWIL	08	07	1430	N19	W35	08	4.9	4	(AP)					
8655		VORO	08	07	2206	N18	W43	08	4.6			AXX	19	1		2
8655	29265	MWIL	08	08	1430	N20	W47	08	5.0	4	(B)					
8655		HOLL	08	08	1435	N22	W53	08	4.5		A	AX	10	2	1	4
8655		VORO	08	08	2245	N17	W58	08	4.5			AXX	10	1		3
8655		VORO	08	09	2115	N15	W70	08	4.6			DAI	156	6	3	2
8659		SVTO	08	03	0505	S22	E32	08	5.7		B	BXO	10	2	3	3
8659		KAND	08	03	0805	S22	E35	08	6.0			BXO		2	4	4
8659		RAMY	08	03	1328	S23	E26	08	5.6		A	AX		1		4
8659	29262	MWIL	08	03	1445	S23	E25	08	5.5	4	(AP)					
8659		HOLL	08	03	2232	S23	E21	08	5.5		A	AX	10	1	1	1

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

107
Aug 99

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8659		SVTO	08 04 0540	S22 E17	08 5.5		A	AX		1		4
8659		KAND	08 06 0750	S20 W08	08 5.7			AX		1	1	3
8659A	29267	MWIL	08 05 1430	N23 E05	08 6.0	3	(AF)					
8661	29264	MWIL	08 04 1430	S14 E21	08 6.2	4	(AF)					
8661		LEAR	08 05 0220	S14 E13	08 6.1		B	BXO		2	4	3
8661		SVTO	08 05 0530	S13 E12	08 6.1		B	BXO	10	3	4	3
8661		RAMY	08 05 1213	S14 E06	08 6.0		B	BXO		2	1	3
8661		LEAR	08 06 0115	S14 W01	08 6.0		B	BXO	10	3	3	3
8661		KAND	08 06 0750	S13 W05	08 5.9			AX		1	1	3
8661	29264	MWIL	08 06 1430	S14 W07	08 6.1	3	(B)					
8661		HOLL	08 06 1641	S14 W08	08 6.1		B	BXO	20	4	4	2
8661		LEAR	08 07 0103	S14 W13	08 6.1		B	BXO	10	3	4	4
8661		RAMY	08 07 1158	S14 W21	08 5.9		A	AX		4	2	4
8661		HOLL	08 07 1425	S14 W21	08 6.0		B	CSO	20	4	3	4
8661	29264	MWIL	08 07 1430	S14 W22	08 5.9	4	(BP)					
8661		VORO	08 07 2206	S15 W26	08 5.9			AXX	8	1		2
8661		LEAR	08 08 0112	S14 W28	08 5.9		B	DRO	30	2	4	2
8661		KAND	08 08 0740	S14 W31	08 6.0			BXO		2	4	4
8661		SVTO	08 08 1030	S16 W33	08 5.9		B	CRO	10	2	4	4
8661		RAMY	08 08 1212	S14 W34	08 5.9		B	BXO		3	4	3
8661	29264	MWIL	08 08 1430	S14 W35	08 5.9	4	(B)					
8661		HOLL	08 08 1435	S15 W34	08 6.0		B	CSO	30	4	5	4
8661		SVTO	08 09 0540	S15 W45	08 5.8		A	AX		1		3
8661		KAND	08 09 1300	S13 W50	08 5.8			AX		1		3
8661		RAMY	08 09 1402	S15 W48	08 5.9		B	BXO		2	6	3
8661	29264	MWIL	08 09 1445	S14 W51	08 5.8	4	(AP)					
8661		HOLL	08 09 1507	S15 W50	08 5.8		A	AX	20	1	1	3
8661		VORO	08 09 2115	S14 W55	08 5.7			HAX	23	1		2
8661		SVTO	08 10 0728	S14 W61	08 5.7		A	AX		1		3
8663A	29270	MWIL	08 08 1430	N24 W09	08 7.9	3	(AP)					
8657		KAND	08 02 0830	S31 E80	08 8.7			HS		1	2	3
8657		RAMY	08 02 1246	S32 E80	08 8.9		A	HS	20	1	2	3
8657	29261	MWIL	08 02 1500	S31 E75	08 8.5	4	(AP)					
8657		HOLL	08 02 1509	S31 E72	08 8.3		A	HS	50	1	1	3
8657		LEAR	08 03 0110	S33 E68	08 8.4		A	HA	60	1	2	3
8657		SVTO	08 03 0505	S30 E65	08 8.3		A	HA	60	1	2	3
8657		KAND	08 03 0805	S32 E66	08 8.6			HS		1	3	4
8657		RAMY	08 03 1328	S31 E62	08 8.4		A	HS	50	1	1	4
8657	29261	MWIL	08 03 1445	S31 E61	08 8.4	4	(BG)					
8657		HOLL	08 03 2232	S31 E57	08 8.4		B	CSO	40	3	4	1
8657		LEAR	08 04 0033	S31 E52	08 8.1		B	CAO	90	4	7	3
8657		SVTO	08 04 0540	S29 E55	08 8.5		B	CSO	240	7	8	4
8657		KAND	08 04 0745	S30 E50	08 8.2			CAI		7	8	3
8657		RAMY	08 04 1227	S30 E49	08 8.4		B	CSO	90	6	7	3
8657	29261	MWIL	08 04 1430	S30 E48	08 8.4	4	(BP)					
8657		HOLL	08 04 1934	S30 E44	08 8.3		B	CSO	90	7	8	3
8657		VORO	08 04 2230	S30 E42	08 8.2			CAI	145	5	6	3
8657		LEAR	08 05 0220	S31 E37	08 8.0		B	CSO	50	9	7	3
8657		SVTO	08 05 0530	S31 E38	08 8.2		B	DSI	120	11	8	3
8657		KAND	08 05 0845	S30 E37	08 8.3			DAO		9	9	2
8657		RAMY	08 05 1213	S30 E34	08 8.2		B	DSO	80	12	8	3
8657	29261	MWIL	08 05 1430	S30 E34	08 8.3	5	(B)					
8657		HOLL	08 05 1827	S30 E31	08 8.2		B	CSO	90	13	9	3
8657		VORO	08 05 2303	S30 E31	08 8.4			DSI	175	6	3	4
8657		LEAR	08 06 0115	S31 E27	08 8.2		B	DAO	80	14	8	3
8657		SVTO	08 06 0625	S30 E25	08 8.2		B	CSO	150	14	9	3
8657		KAND	08 06 0750	S30 E24	08 8.2			DAO		7	10	3
8657		RAMY	08 06 1258	S30 E22	08 8.3		B	DSO	60	7	8	3
8657	29261	MWIL	08 06 1430	S30 E22	08 8.3	5	(B)					
8657		HOLL	08 06 1641	S30 E20	08 8.3		B	DAO	120	9	8	2
8657		LEAR	08 07 0103	S30 E15	08 8.2		B	DSO	110	11	8	4
8657		KAND	08 07 0840	S30 E10	08 8.1			DSO		7	8	3
8657		SVTO	08 07 0900	S30 E11	08 8.2		B	DSO	160	9	9	4
8657		RAMY	08 07 1158	S31 E10	08 8.3		B	DSO	100	14	8	4
8657		HOLL	08 07 1425	S31 E09	08 8.3		B	DSO	130	10	8	4

108
Aug 99

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8657	29261	MWIL	08	07	1430	S30	E09	08	8.3	5	(BG)					
8657		VORO	08	07	2206	S30	E05	08	8.3			CSO	120	3	8	2
8657		LEAR	08	08	0112	S30	E02	08	8.2		B	DSO	80	9	9	2
8657		KAND	08	08	0740	S31	E00	08	8.3			DAO		6	10	4
8657		SVTO	08	08	1030	S30	W02	08	8.3		B	DSO	120	5	9	4
8657		RAMY	08	08	1212	S31	W04	08	8.2		B	DSO	100	7	9	3
8657	29261	MWIL	08	08	1430	S30	W04	08	8.3	5	(BG)					
8657		HOLL	08	08	1435	S31	W04	08	8.3		B	DSO	70	8	9	4
8657		VORO	08	08	2245	S30	W09	08	8.2			DSO	199	3	8	3
8657		LEAR	08	09	0111	S29	W11	08	8.2		B	DAI	120	9	10	4
8657		SVTO	08	09	0540	S31	W13	08	8.2		B	DSO	130	3	10	3
8657		KAND	08	09	1300	S30	W18	08	8.1			DAO		2	10	3
8657		RAMY	08	09	1402	S31	W18	08	8.2		B	EAO	80	3	12	3
8657	29261	MWIL	08	09	1445	S30	W17	08	8.3	5	(BG)					
8657		HOLL	08	09	1507	S31	W17	08	8.3		B	CAO	70	5	10	3
8657		VORO	08	09	2115	S30	W21	08	8.2			DSI	145	3	9	2
8657		KAND	08	10	0650	S30	W28	08	8.1			DAO		2	10	3
8657		SVTO	08	10	0728	S31	W27	08	8.2		B	CSO	60	2	10	3
8657		RAMY	08	10	1343	S31	W29	08	8.3		B	CSO	60	2	9	3
8657	29261	MWIL	08	10	1430	S30	W30	08	8.2	5	(AP)					
8657		HOLL	08	10	1624	S30	W32	08	8.2		B	CSO	40	2	10	2
8657		VORO	08	11	0215	S30	W36	08	8.3			CSO	151	3	9	2
8657		SVTO	08	11	0704	S31	W39	08	8.2		B	CSO	30	2	10	3
8657		KAND	08	11	0720	S30	W40	08	8.1			CAO		2	10	2
8657		RAMY	08	11	1139	S31	W42	08	8.2		B	CSO	70	2	10	3
8657	29261	MWIL	08	11	1445	S30	W43	08	8.2	5	(AP)					
8657		HOLL	08	11	1930	S31	W45	08	8.3		B	CSO	70	2	9	3
8657		VORO	08	11	2120	S31	W42	08	8.6			HAX	111	1		3
8657		SVTO	08	12	0520	S32	W48	08	8.4		A	HS	40	1	1	3
8657		KAND	08	12	1205	S30	W50	08	8.6			CSO		2	1	1
8657		RAMY	08	12	1210	S32	W51	08	8.5		A	HS	60	1	2	3
8657	29261	MWIL	08	12	1445	S30	W52	08	8.5	5	(AP)					
8657		HOLL	08	12	1650	S30	W52	08	8.6		A	HS	70	1	2	4
8657		VORO	08	12	2123	S31	W55	08	8.5			HAX	132	1		3
8657		SVTO	08	13	0508	S29	W59	08	8.6		A	HS	80	1	2	3
8657		HOLL	08	13	1404	S30	W63	08	8.6		A	HS	60	1	1	3
8657	29261	MWIL	08	13	1445	S30	W64	08	8.6	4	(AP)					
8657		VORO	08	13	2316	S31	W70	08	8.4			HRX	61	1		3
8657		SVTO	08	14	0852	S31	W76	08	8.4		A	AX	10	1	1	3
8657		RAMY	08	14	1246	S30	W80	08	8.2		A	HS	20	1	1	3
8657	29261	MWIL	08	14	1430	S30	W76	08	8.6	4	(AP)					
8657		HOLL	08	14	1542	S31	W80	08	8.3		A	HS	20	1	1	3
8657A		KAND	08	12	1205	N15	W53	08	8.5			AX		1		1
8657A		RAMY	08	12	1210	N13	W54	08	8.4		A	AX	10	1		3
8657A	29277	MWIL	08	12	1445	N15	W55	08	8.4	4	(B)					
8657A		HOLL	08	12	1650	N15	W55	08	8.5		B	BXO	20	3	3	4
8657A	29277	MWIL	08	13	1445	N15	W68	08	8.5	4	(AP)					
8663B	29272	MWIL	08	09	1445	S18	W06	08	9.1	4	(AF)					
8663	29268	MWIL	08	06	1430	N20	E34	08	9.2	2	(AP)					
8663		LEAR	08	07	0103	N19	E29	08	9.2		A	AX	10	2	1	4
8663		HOLL	08	07	1425	N19	E20	08	9.1		B	BXO	20	4	3	4
8663	29268	MWIL	08	07	1430	N20	E20	08	9.1	3	(AP)					
8663		LEAR	08	08	0112	N19	E15	08	9.2		B	BXO	10	3	2	2
8664		HOLL	08	07	1425	N22	E33	08	10.1		A	AX	10	4	2	4
8664		VORO	08	07	2206	N24	E30	08	10.2			AXX	2	1		2
8664		LEAR	08	08	0112	N23	E28	08	10.2		A	HR	10	1	1	2
8664		KAND	08	08	0740	N23	E23	08	10.1			BXO		2	3	4
8664		SVTO	08	08	1030	N24	E23	08	10.2		A	AX	10	2	2	4
8664		RAMY	08	08	1212	N23	E21	08	10.1		B	BXO		3	3	3
8664	29271	MWIL	08	08	1430	N23	E20	08	10.1	4	(B)					
8664		HOLL	08	08	1435	N22	E19	08	10.1		B	CSO	10	2	3	4
8664		LEAR	08	09	0111	N22	E13	08	10.0		B	CSO	10	3	4	4
8664		SVTO	08	09	0540	N25	E12	08	10.2		A	AX		1		3
8664		RAMY	08	09	1402	N23	E07	08	10.1		B	BXO	10	6	4	3
8664	29271	MWIL	08	09	1445	N23	E07	08	10.1	4	(BF)					

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

109
Aug 99

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8664A		RAMY	08 07 1158	S11 E38	08 10.3		A	AX		1		4
8664B		RAMY	08 09 1402	N12 E16	08 10.8		A	AX		2	1	3
8664B	29273	MWIL	08 09 1445	N11 E16	08 10.8	4	(AP)					
8662		RAMY	08 06 1258	S16 E66	08 11.5		B	BXO	10	7	8	3
8662	29269	MWIL	08 06 1430	S15 E65	08 11.5	4	(BG)					
8662		HOLL	08 06 1641	S17 E64	08 11.5		A	CRO	40	5	9	2
8662		LEAR	08 07 0103	S16 E62	08 11.7		B	DAO	120	15	13	4
8662		KAND	08 07 0840	S15 E55	08 11.5			CSO		2	10	3
8662		SVTO	08 07 0900	S16 E58	08 11.8		B	CAO	100	6	9	4
8662		RAMY	08 07 1158	S15 E54	08 11.6		B	DSO	60	9	10	4
8662		HOLL	08 07 1425	S16 E55	08 11.8		B	DSO	100	9	10	4
8662	29269	MWIL	08 07 1430	S15 E52	08 11.5	5	(B)					
8662		VORO	08 07 2206	S14 E48	08 11.5			DAI	151	4	9	2
8662		LEAR	08 08 0112	S16 E46	08 11.5		B	DAO	120	14	10	2
8662		KAND	08 08 0740	S16 E41	08 11.4			EAO		15	11	4
8662		SVTO	08 08 1030	S15 E43	08 11.7		B	ESO	140	18	12	4
8662		RAMY	08 08 1212	S16 E40	08 11.5		B	ESO	120	20	11	3
8662	29269	MWIL	08 08 1430	S16 E38	08 11.5	5	(B)					
8662		HOLL	08 08 1435	S16 E39	08 11.6		B	DAI	140	22	10	4
8662		VORO	08 08 2245	S14 E35	08 11.6			DAI	234	14	10	3
8662		LEAR	08 09 0111	S16 E34	08 11.6		B	EAC	220	28	12	4
8662		SVTO	08 09 0540	S16 E30	08 11.5		B	EAI	280	26	12	3
8662		KAND	08 09 1300	S16 E25	08 11.4			ESO		25	15	3
8662		RAMY	08 09 1402	S15 E26	08 11.5		B	EAI	180	31	14	3
8662	29269	MWIL	08 09 1445	S16 E25	08 11.5	5	(B)					
8662		HOLL	08 09 1507	S16 E25	08 11.5		B	EAC	260	24	12	3
8662		VORO	08 09 2115	S15 E21	08 11.5			DAI	436	15	10	2
8662		KAND	08 10 0650	S16 E15	08 11.4			EAC		22	14	3
8662		SVTO	08 10 0728	S15 E15	08 11.4		BG	FAI	320	34	16	3
8662		RAMY	08 10 1343	S15 E13	08 11.5		B	EAI	250	46	14	3
8662	29269	MWIL	08 10 1430	S16 E12	08 11.5	5	(BG)					
8662		HOLL	08 10 1624	S17 E12	08 11.6		B	FSC	210	51	16	2
8662		VORO	08 11 0215	S15 E04	08 11.4			EAI	434	14	12	2
8662		SVTO	08 11 0704	S16 E03	08 11.5		BG	FAI	320	32	16	3
8662		KAND	08 11 0720	S15 E02	08 11.4			FAO		27	16	2
8662		RAMY	08 11 1139	S13 E01	08 11.6		B	FAI	320	40	16	3
8662	29269	MWIL	08 11 1445	S16 W01	08 11.5	5	(BG)					
8662		HOLL	08 11 1930	S17 W04	08 11.5		B	FSC	220	44	16	3
8662		VORO	08 11 2120	S15 W06	08 11.4			EAI	513	15	14	3
8662		SVTO	08 12 0520	S15 W09	08 11.5		BG	EAI	170	26	15	3
8662		KAND	08 12 1205	S15 W15	08 11.4			FAO		17	16	1
8662		RAMY	08 12 1210	S17 W14	08 11.4		B	EAI	240	36	15	3
8662	29269	MWIL	08 12 1445	S15 W14	08 11.5	5	(B)					
8662		HOLL	08 12 1650	S15 W16	08 11.5		B	FAI	130	45	16	4
8662		VORO	08 12 2123	S16 W20	08 11.4			ESI	261	8	14	3
8662		SVTO	08 13 0508	S15 W23	08 11.5		BG	FAI	230	27	17	3
8662		HOLL	08 13 1404	S16 W28	08 11.5		B	FSC	110	22	17	3
8662	29269	MWIL	08 13 1445	S15 W28	08 11.5	5	(B)					
8662		VORO	08 13 2316	S15 W34	08 11.4			EAI	241	11	15	3
8662		SVTO	08 14 0852	S16 W38	08 11.5		BG	FSI	110	13	16	3
8662		RAMY	08 14 1246	S15 W40	08 11.5		B	ESO	140	17	15	3
8662		KAND	08 14 1300	S15 W40	08 11.5			FAO		10	17	3
8662	29269	MWIL	08 14 1430	S15 W41	08 11.5	4	(B)					
8662		HOLL	08 14 1542	S16 W42	08 11.5		B	FSC	150	15	16	3
8662		LEAR	08 15 0035	S15 W46	08 11.5		B	FSO	140	11	17	4
8662		VORO	08 15 0254	S15 W50	08 11.3			EAI	158	4	9	3
8662		SVTO	08 15 0656	S14 W50	08 11.5		B	FSO	110	12	16	3
8662		KAND	08 15 0900	S15 W52	08 11.4			CAO		6	17	3
8662		RAMY	08 15 1221	S16 W53	08 11.5		B	FSO	70	7	16	3
8662		HOLL	08 15 1420	S14 W54	08 11.5		B	CSO	90	5	14	4
8662	29269	MWIL	08 15 1445	S15 W55	08 11.4	4	(BP)					
8662		VORO	08 15 2145	S16 W60	08 11.3			HAX	97	1		3
8662		LEAR	08 16 0013	S17 W62	08 11.3		B	CSO	30	2	2	3
8662		SVTO	08 16 0605	S14 W66	08 11.3		B	CSO	60	3	7	3
8662		KAND	08 16 0710	S16 W68	08 11.1			HS		1	2	4
8662		RAMY	08 16 1151	S14 W69	08 11.3		B	CSO	30	3	8	4
8662	29269	MWIL	08 16 1445	S15 W69	08 11.4	4	(AP)					

110
Aug 99

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8662		HOLL	08 16 1500	S17 W70	08 11.3		A	HA	50	3	2	3
8662		LEAR	08 17 0034	S12 W76	08 11.3		B	CSO	40	3	3	4
8662		VORO	08 17 0355	S16 W76	08 11.4			HAX	54	1		2
8662		SVTO	08 17 0555	S17 W82	08 11.0		A	HR	50	1	2	3
8662		RAMY	08 17 1134	S18 W85	08 11.0		A	AX	30	1	3	4
8662		HOLL	08 17 1436	S17 W86	08 11.1		A	HR	30	1	1	3
8662	29269	MWIL	08 17 1500	S15 W83	08 11.3	4	AP					
8662A		VORO	08 15 0254	S10 W15	08 14.0			AXX	6	1		3
8662A		KAND	08 15 0900	S14 W17	08 14.1			AX		2	2	3
8662A		RAMY	08 15 1221	S13 W18	08 14.1		A	AX		1		3
8662A		HOLL	08 15 1420	S12 W18	08 14.2		A	AX	10	1	1	4
8662A	29282	MWIL	08 15 1445	S12 W20	08 14.1	4	(AP)					
8671	29274	MWIL	08 10 1430	S11 E55	08 14.7	3	(AP)					
8671		RAMY	08 15 1221	S09 W08	08 14.9		B	BXO		2	2	3
8671		HOLL	08 15 1420	S09 W08	08 15.0		B	DSO	20	2	3	4
8671	29283	MWIL	08 15 1445	S09 W09	08 14.9	4	(B)					
8671		LEAR	08 16 0013	S10 W14	08 14.9		B	CSO	10	4	3	3
8671		SVTO	08 16 0605	S09 W18	08 14.9		B	DSO	20	4	4	3
8671		KAND	08 16 0710	S10 W20	08 14.8			BXO		2	4	4
8671		RAMY	08 16 1151	S09 W21	08 14.9		B	BXO	10	4	5	4
8671	29283	MWIL	08 16 1445	S09 W23	08 14.9	4	(B)					
8671		HOLL	08 16 1500	S10 W24	08 14.8		B	CRO	20	4	5	3
8671		LEAR	08 17 0034	S08 W32	08 14.6		B	BXO	10	2	2	4
8671		VORO	08 17 0355	S11 W33	08 14.7			AXX	15	2		2
8671		SVTO	08 17 0555	S10 W35	08 14.6		A	HR	20	2	1	3
8671		KAND	08 17 0700	S10 W34	08 14.7			HR		X2	1	1
8671		RAMY	08 17 1134	S11 W36	08 14.8		B	BXO	10	2	3	4
8671		HOLL	08 17 1436	S10 W37	08 14.8		B	CRO	30	3	4	3
8671	29283	MWIL	08 17 1500	S09 W38	08 14.8	5	(B)					
8671		VORO	08 17 2240	S10 W44	08 14.6			AXX	24	2		2
8671		LEAR	08 18 0107	S09 W43	08 14.8		B	CRO	20	4	5	3
8671		SVTO	08 18 0701	S11 W46	08 14.8		B	BXO	10	3	4	3
8671		RAMY	08 18 1210	S11 W51	08 14.7		A	AX	20	2	1	4
8671		KAND	08 18 1245	S10 W52	08 14.6			AX		3	2	3
8671		HOLL	08 18 1420	S10 W52	08 14.7		B	CSO	10	2	1	4
8671	29283	MWIL	08 18 1430	S09 W52	08 14.7	4	(AP)					
8671		LEAR	08 19 0105	S09 W59	08 14.6		A	AX		1		5
8671		SVTO	08 19 0550	S11 W61	08 14.6		A	AX		1		3
8671		RAMY	08 19 1251	S11 W67	08 14.5		A	AX		1		3
8671	29283	MWIL	08 19 1430	S11 W69	08 14.4	4	(AP)					
8671		HOLL	08 19 1725	S12 W76	08 14.0		B	BXO	10	2	8	3
8665A		VORO	08 12 2123	S17 E43	08 16.1			AXX	3	1		3
8665		VORO	08 11 0215	S26 E74	08 16.8			AXX	4	1		2
8665		SVTO	08 11 0704	S28 E77	08 17.3		B	CRO	30	3	9	3
8665		KAND	08 11 0720	S26 E71	08 16.8			CAO		2	5	2
8665		RAMY	08 11 1139	S23 E68	08 16.7		B	BXO	30	3	4	3
8665	29275	MWIL	08 11 1445	S26 E67	08 16.8	4	(B)					
8665		HOLL	08 11 1930	S28 E69	08 17.2		B	CSO	90	9	18	3
8665		SVTO	08 12 0520	S26 E61	08 17.0		B	CRO	30	3	5	3
8665		KAND	08 12 1205	S27 E57	08 16.9			CRO		3	5	1
8665		RAMY	08 12 1210	S25 E56	08 16.8		B	BXO	20	5	6	3
8665	29275	MWIL	08 12 1445	S25 E57	08 17.0	4	(BG)					
8665		HOLL	08 12 1650	S25 E54	08 16.9		B	CRO	30	7	8	4
8665		SVTO	08 13 0508	S26 E48	08 16.9		A	AX	10	3	1	3
8665	29275	MWIL	08 13 1445	S27 E45	08 17.1	4	(AF)					
8665	29275	MWIL	08 14 1430	S25 E38	08 17.5	4	(AF)					
8669	29279	MWIL	08 13 1445	S20 E57	08 18.0	4	(B)					
8669		VORO	08 13 2316	S21 E54	08 18.1			AXX	6	1		3
8669		SVTO	08 14 0852	S21 E49	08 18.1		A	AX		1		3
8669		RAMY	08 14 1246	S21 E45	08 18.0		B	BXO	10	5	4	3
8669	29279	MWIL	08 14 1430	S21 E44	08 18.0	4	(B)					
8669		HOLL	08 14 1542	S20 E42	08 17.9		B	BXO	30	5	4	3
8669		LEAR	08 15 0035	S20 E38	08 17.9		B	BXO	10	3	4	4
8669		VORO	08 15 0254	S20 E39	08 18.1			AXX	6	1		3

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

111
Aug 99

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8669		SVTO	08 15 0656	S20	E34	08 17.9		B	CRO	20	3	5	3
8669		KAND	08 15 0900	S22	E36	08 18.1			AX		1	1	3
8669		RAMY	08 15 1221	S20	E34	08 18.1		A	AX	10	2	1	3
8669		HOLL	08 15 1420	S20	E33	08 18.1		B	CSO	20	4	2	4
8669	29279	MWIL	08 15 1445	S21	E31	08 18.0	4	(B)					
8669		VORO	08 15 2145	S22	E30	08 18.2			AXX	11	1		3
8669		LEAR	08 16 0013	S20	E26	08 18.0		B	BXO	10	5	6	3
8669		SVTO	08 16 0605	S21	E22	08 17.9		B	CRO	10	2	5	3
8669		KAND	08 16 0710	S21	E21	08 17.9			BXO		2	5	4
8669		RAMY	08 16 1151	S20	E19	08 17.9		B	BXO		2	4	4
8669	29279	MWIL	08 16 1445	S20	E18	08 18.0	5	(BF)					
8669		HOLL	08 16 1500	S21	E17	08 17.9		B	BXO	20	3	5	3
8669		LEAR	08 17 0034	S21	E09	08 17.7		B	BXO	10	3	6	4
8669		VORO	08 17 0355	S21	E13	08 18.1			AXX	10	1		2
8669		SVTO	08 17 0555	S21	E12	08 18.2		A	AX	10	1		3
8669A		LEAR	08 16 0013	N12	E25	08 17.9		A	AX		1	1	3
8667	29276	MWIL	08 11 1445	N23	E87	08 18.3	3	(AP)					
8667		SVTO	08 12 0520	N23	E80	08 18.4		B	BXO	10	3	4	3
8667		RAMY	08 12 1210	N24	E74	08 18.2		B	BXO	30	3	3	3
8667	29278	MWIL	08 12 1445	N23	E73	08 18.2	4	(AP)					
8667		HOLL	08 12 1650	N23	E71	08 18.2		B	CRO	50	3	3	4
8667		VORO	08 12 2123	N22	E69	08 18.2			AXX	21	1		3
8667		SVTO	08 13 0508	N23	E66	08 18.3		B	BXO	10	2	3	3
8667		HOLL	08 13 1404	N22	E58	08 18.0		A	AX	10	2	2	3
8667	29278	MWIL	08 13 1445	N23	E59	08 18.2	4	(AP)					
8667		VORO	08 13 2316	N22	E56	08 18.3			AXX	12	2		3
8667		SVTO	08 14 0852	N23	E50	08 18.2		B	BXO	10	2	3	3
8667		RAMY	08 14 1246	N24	E48	08 18.2		B	BXO		3	3	3
8667		KAND	08 14 1300	N22	E47	08 18.1			BXO		3	3	3
8667	29278	MWIL	08 14 1430	N23	E46	08 18.1	4	(AP)					
8667	29281	MWIL	08 14 1430	N27	E57	08 19.0	4	(B)					
8667		HOLL	08 14 1542	N23	E45	08 18.1		B	BXO	10	3	3	3
8667		LEAR	08 15 0035	N23	E41	08 18.2		B	BXO	20	5	2	4
8667		VORO	08 15 0254	N23	E40	08 18.2			AXX	3	1		3
8667		SVTO	08 15 0656	N24	E37	08 18.1		B	CRO	10	6	4	3
8667		RAMY	08 15 1221	N23	E34	08 18.1		A	AX		2	1	3
8667		HOLL	08 15 1420	N23	E33	08 18.1		B	BXO	10	2	2	4
8667	29278	MWIL	08 15 1445	N23	E33	08 18.1	3	(AP)					
8667		LEAR	08 16 0013	N24	E29	08 18.2		B	BXO	10	3	3	3
8667	29281	MWIL	08 16 1445	N27	E28	08 18.8	4	(AP)					
8667		LEAR	08 17 0034	N24	E18	08 18.4		B	BXO	10	3	3	4
8667	29281	MWIL	08 17 1500	N25	E10	08 18.4	4	(AP)					
8667	29287	MWIL	08 18 1430	N23	E01	08 18.7	4	(AP)					
8667	29287	MWIL	08 19 1430	N23	W09	08 18.9	4	(AP)					
8667	29293	MWIL	08 23 1445	N24	W66	08 18.5	4	(B)					
8672	29284	MWIL	08 16 1445	N14	E31	08 18.9	4	(AP)					
8672		LEAR	08 17 0034	N14	E24	08 18.8		B	BXO	20	8	5	4
8672	29284	MWIL	08 17 1500	N14	E19	08 19.1	4	(AP)					
8672		LEAR	08 18 0107	N14	E11	08 18.9		B	BXO	10	7	6	3
8672		SVTO	08 18 0701	N13	E07	08 18.8		B	BXO	10	7	6	3
8672		RAMY	08 18 1210	N14	E03	08 18.7		B	CAO	40	10	4	4
8672		KAND	08 18 1245	N14	E02	08 18.7			BXO		10	4	3
8672		HOLL	08 18 1420	N16	E01	08 18.7		B	DAO	40	12	6	4
8672		HOLL	08 18 1420	N17	E02	08 18.7		B	BXO	10	2	2	4
8672	29284	MWIL	08 18 1430	N15	E02	08 18.7	4	(BG)					
8672		LEAR	08 19 0105	N15	W04	08 18.7		B	DSO	50	13	6	5
8672		SVTO	08 19 0550	N15	W07	08 18.7		B	CRO	40	11	6	3
8672		KAND	08 19 0740	N15	W09	08 18.6			CSO		8	6	4
8672		RAMY	08 19 1251	N15	W12	08 18.6		B	BXO	20	17	8	3
8672	29286	MWIL	08 19 1430	N16	W12	08 18.7	5	(B)					
8672		HOLL	08 19 1725	N16	W15	08 18.6		B	DSO	50	8	6	3
8672		LEAR	08 20 0125	N16	W19	08 18.6		B	CSO	40	8	6	2
8672		SVTO	08 20 0619	N16	W22	08 18.6		B	CRO	10	3	6	3
8672		KAND	08 20 0910	N16	W24	08 18.6			BXO		7	7	3
8672		RAMY	08 20 1154	N15	W20	08 19.0		A	AX		1		4
8672		RAMY	08 20 1154	N16	W26	08 18.5		B	BXO	10	6	6	4

112
Aug 99

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8672		HOLL	08 20 1521	N16 W27	08 18.6		B	CRO	20	6	7	4
8672		LEAR	08 21 0123	N18 W37	08 18.2		A	AX	10	4	2	2
8672		SVTO	08 21 0735	N16 W41	08 18.2		A	AX	10	2	1	2
8672		RAMY	08 21 1203	N15 W43	08 18.2		A	AX		1		3
8672		HOLL	08 21 1500	N15 W45	08 18.2		A	AX	10	1		3
8672	29286	MWIL	08 21 1500	N16 W44	08 18.3	4	(AP)					
8668A	29285	MWIL	08 17 1500	N27 E20	08 19.2	4	(AF)					
8672A	29286	MWIL	08 17 1500	S10 E24	08 19.4	3	(AF)					
8668		HOLL	08 13 1404	N21 E80	08 19.7		A	HK	180	1	2	3
8668	29280	MWIL	08 13 1445	N20 E84	08 20.0	5	AP					
8668		VORO	08 13 2316	N21 E81	08 20.2			HHX	300	1		3
8668		SVTO	08 14 0852	N21 E77	08 20.3		A	HK	540	1	6	3
8668		RAMY	08 14 1246	N23 E73	08 20.1		B	CKO	320	5	6	3
8668		KAND	08 14 1300	N21 E72	08 20.1			CKO		3	4	3
8668	29280	MWIL	08 14 1430	N20 E71	08 20.0	5	(AP)					
8668		HOLL	08 14 1542	N22 E69	08 19.9		B	CKO	190	4	5	3
8668		LEAR	08 15 0035	N22 E66	08 20.1		B	CKO	320	10	7	4
8668		VORO	08 15 0254	N22 E65	08 20.1			HKX	332	2		3
8668		SVTO	08 15 0656	N22 E64	08 20.2		B	DKO	440	7	8	3
8668		KAND	08 15 0900	N21 E61	08 20.0			CKO		7	7	3
8668		RAMY	08 15 1221	N23 E59	08 20.1		B	CHO	380	7	7	3
8668		HOLL	08 15 1420	N22 E59	08 20.1		B	DKO	400	8	6	4
8668	29280	MWIL	08 15 1445	N20 E57	08 20.0	5	(BP)					
8668		VORO	08 15 2145	N22 E56	08 20.2			HKX	664	4	5	3
8668		LEAR	08 16 0013	N23 E53	08 20.1		B	CHO	350	9	9	3
8668		SVTO	08 16 0605	N22 E50	08 20.1		B	DHO	450	5	8	3
8668		KAND	08 16 0710	N21 E48	08 20.0			CKO		11	7	4
8668		RAMY	08 16 1151	N23 E46	08 20.0		B	CKO	440	6	7	4
8668	29280	MWIL	08 16 1445	N21 E45	08 20.1	5	(BG)					
8668		HOLL	08 16 1500	N22 E44	08 20.0		B	DKO	400	11	9	3
8668		LEAR	08 17 0034	N19 E41	08 20.1		B	CKO	420	10	7	4
8668		VORO	08 17 0355	N21 E37	08 20.0			HKX	479	3		2
8668		SVTO	08 17 0555	N21 E37	08 20.1		B	CKO	360	7	5	3
8668		KAND	08 17 0700	N21 E36	08 20.0			CKO		10	5	1
8668		RAMY	08 17 1134	N22 E33	08 20.0		B	CKO	450	7	5	4
8668		HOLL	08 17 1436	N21 E31	08 20.0		A	HK	240	4	4	3
8668	29280	MWIL	08 17 1500	N21 E31	08 20.0	6	(BP)					
8668		VORO	08 17 2240	N21 E26	08 19.9			HKX	495	4		2
8668		LEAR	08 18 0107	N20 E26	08 20.0		B	CKO	360	8	5	3
8668		SVTO	08 18 0701	N21 E23	08 20.0		A	HK	460	7	5	3
8668		RAMY	08 18 1210	N22 E19	08 20.0		B	DKO	410	5	5	4
8668		KAND	08 18 1245	N20 E20	08 20.1			HK		5	5	3
8668		HOLL	08 18 1420	N23 E22	08 20.3		B	CKO	430	12	12	4
8668	29288	MWIL	08 18 1430	N16 E13	08 19.6	3	(AP)					
8668	29280	MWIL	08 18 1430	N21 E18	08 20.0	6	(AP)					
8668		LEAR	08 19 0105	N20 E13	08 20.0		B	DKO	400	12	6	5
8668		SVTO	08 19 0550	N23 E11	08 20.1		B	CKO	360	12	6	3
8668		KAND	08 19 0740	N21 E09	08 20.0			DKO		10	6	4
8668		RAMY	08 19 1251	N22 E05	08 19.9		B	CHO	320	15	6	3
8668	29280	MWIL	08 19 1430	N21 E05	08 20.0	5	(BP)					
8668		HOLL	08 19 1725	N22 E05	08 20.1		B	DAO	290	19	11	3
8668		LEAR	08 20 0125	N21 E00	08 20.0		B	DKO	360	14	6	2
8668		SVTO	08 20 0619	N21 W03	08 20.0		B	CKO	360	8	7	3
8668		KAND	08 20 0910	N21 W05	08 20.0			DKO		5	5	3
8668		RAMY	08 20 1154	N23 W04	08 20.2		B	CAO	300	16	10	4
8668		HOLL	08 20 1521	N21 W07	08 20.1		B	DKO	200	11	8	4
8668		LEAR	08 21 0123	N21 W13	08 20.1		B	DAO	240	10	6	2
8668		SVTO	08 21 0735	N21 W18	08 19.9		B	CKO	260	10	5	2
8668		KAND	08 21 1055	N20 W20	08 19.9			DKO		7	8	4
8668		KAND	08 21 1055	N24 W16	08 20.2			BXO		2	5	4
8668		RAMY	08 21 1203	N23 W18	08 20.1		BG	CSO	220	10	8	3
8668		HOLL	08 21 1500	N21 W21	08 20.0		B	CHO	200	12	7	3
8668	29280	MWIL	08 21 1500	N21 W21	08 20.0	5	(AP)					
8668	29291	MWIL	08 21 1500	N24 W18	08 20.2	4	(B)					
8668		VORO	08 21 2130	N22 W22	08 20.2			DKI	304	8	6	3
8668		LEAR	08 22 0110	N23 W23	08 20.3		B	DAO	190	19	10	4

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

113
Aug 99

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8668		SVTO	08 22	0745	N24	W28	08 20.1		B	EKO	330	18	11	3
8668		KAND	08 22	0820	N20	W31	08 20.0			CAO		7	7	5
8668		KAND	08 22	0820	N24	W28	08 20.2			BXO		6	6	5
8668	29280	MWIL	08 22	1430	N20	W31	08 20.2	5	(AP)					
8668	29291	MWIL	08 22	1430	N25	W31	08 20.2	4	(B)					
8668		VORO	08 22	2200	N22	W36	08 20.1			DKI	322	8	7	2
8668		KAND	08 23	0900	N20	W45	08 19.9			CAO		4	6	2
8668		KAND	08 23	0900	N23	W43	08 20.1			CRO		7	9	2
8668	29280	MWIL	08 23	1445	N20	W47	08 20.0	5	(AP)					
8668	29291	MWIL	08 23	1445	N25	W44	08 20.2	4	(B)					
8668		VORO	08 23	2135	N22	W48	08 20.2			DAI	328	9	7	2
8668		SVTO	08 24	0719	N22	W55	08 20.1		B	CAO	160	6	7	3
8668	29280	MWIL	08 24	1445	N20	W61	08 19.9	5	(AP)					
8668	29291	MWIL	08 24	1445	N24	W57	08 20.2	4	(B)					
8668		RAMY	08 24	1503	N22	W58	08 20.2		B	DSO	200	7	9	3
8668		HOLL	08 24	1804	N23	W60	08 20.1		B	CAO	140	7	14	3
8668		VORO	08 24	2129	N23	W61	08 20.2			DAI	287	5	7	3
8668		LEAR	08 25	0055	N23	W63	08 20.2		B	DAO	160	11	10	3
8668		KAND	08 25	0835	N20	W72	08 19.8			HA		1	4	3
8668		KAND	08 25	0835	N25	W68	08 20.1			DAO		2	8	3
8668		SVTO	08 25	1220	N22	W70	08 20.1		B	CAO	50	4	9	2
8668	29280	MWIL	08 25	1430	N20	W72	08 20.1	5	(AP)					
8668	29291	MWIL	08 25	1430	N24	W70	08 20.2	4	(B)					
8668		HOLL	08 25	2121	N23	W74	08 20.2		B	CSO	60	6	9	3
8668		VORO	08 25	2242	N23	W75	08 20.2			DAO	211	3	7	2
8668		SVTO	08 26	0642	N20	W85	08 19.8		A	HR	60	1	2	3
8668		KAND	08 26	0700	N20	W84	08 19.9			HA		1	3	3
8668		RAMY	08 26	1231	N19	W83	08 20.2		A	HS	50	1	2	3
8668	29280	MWIL	08 26	1430	N20	W86	08 20.0	4	(AP)					
8668		HOLL	08 26	1700	N22	W89	08 19.9		B	CAO	60	3	5	2
8680		HOLL	08 18	1420	N24	E35	08 21.3		B	BXO	10	2	1	4
8680		LEAR	08 25	0055	N21	W51	08 21.1		B	CRO	20	3	3	3
8680		KAND	08 25	0835	N19	W58	08 20.9			BXO		2	4	3
8680		SVTO	08 25	1220	N17	W60	08 20.9		B	BXO	10	2	3	2
8680	29297	MWIL	08 25	1430	N18	W60	08 21.0	4	(B)					
8680		HOLL	08 25	2121	N19	W63	08 21.1		B	BXO	10	2	4	3
8680		SVTO	08 26	0642	N20	W68	08 21.1		A	AX		1		3
8680		KAND	08 26	0700	N20	W67	08 21.2			AX		1	1	3
8680		RAMY	08 26	1231	N19	W69	08 21.2		A	AX		1		3
8680		HOLL	08 26	1700	N19	W72	08 21.2		A	AX	30	1	1	2
8680		LEAR	08 27	0037	N22	W75	08 21.3		A	AX		1		3
8680A		KAND	08 25	0835	N28	W46	08 21.8			AX		1		3
8678	29294	MWIL	08 24	1445	N15	W21	08 23.0	4	(AP)					
8678		LEAR	08 25	0055	N16	W27	08 23.0		A	AX		1		3
8678		KAND	08 25	0835	N16	W34	08 22.8			BXO		2	2	3
8678		SVTO	08 25	1220	N15	W36	08 22.8		A	AX		1		2
8678	29294	MWIL	08 25	1430	N15	W35	08 22.9	5	(BP)					
8678		HOLL	08 25	2121	N16	W38	08 23.0		B	CSO	10	2	3	3
8678		SVTO	08 26	0642	N15	W43	08 23.0		B	CSO	10	2	3	3
8678		KAND	08 26	0700	N16	W44	08 22.9			BXO		2	3	3
8678		RAMY	08 26	1231	N15	W48	08 22.9		B	BXO		2	1	3
8678	29294	MWIL	08 26	1430	N16	W49	08 22.9	4	(BP)					
8678		HOLL	08 26	1700	N16	W50	08 22.9		B	CSO	30	2	2	2
8678		LEAR	08 27	0037	N17	W53	08 23.0		B	CSO	10	2	3	3
8678		RAMY	08 27	1219	N15	W62	08 22.8		A	AX		1		4
8678		KAND	08 27	1300	N15	W60	08 23.0			BXO		2	2	4
8678	29294	MWIL	08 27	1445	N15	W62	08 22.9	4	(BP)					
8678		HOLL	08 27	1734	N15	W64	08 22.9		B	BXO	10	3	3	2
8678		LEAR	08 28	0125	N17	W69	08 22.8		A	AX		1		3
8678		RAMY	08 28	1219	N14	W75	08 22.8		A	AX		1		4
8678E	29292	MWIL	08 22	1430	S21	E15	08 23.7	3	(AF)					
8678A		LEAR	08 29	0042	S16	W68	08 23.9		A	HA	30	1	1	3
8678B		HOLL	08 26	1700	S24	W32	08 24.2		A	AX	10	2	2	2

114
Aug 99

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8678B		LEAR	08 27 0037	S23	W36	08 24.2		B	BXO		2	2	3
8678D		KAND	08 17 0700	N31	E90	08 24.4			CRO		3	2	1
8678C		LEAR	08 20 0125	S26	E72	08 25.6		A	HS	80	1	2	2
8678C		SVTO	08 20 0619	S23	E75	08 26.0		B	DRO	110	2	8	3
8678C		KAND	08 20 0910	S26	E77	08 26.4			DAO		3	5	3
8678C		KAND	08 21 1055	S26	E60	08 26.1			DAO		9	8	4
8678C		KAND	08 22 0820	S25	E49	08 26.1			DAI		14	6	5
8678C		KAND	08 23 0900	S25	E35	08 26.1			DAI		9	4	2
8678C		KAND	08 25 0835	S26	E08	08 26.0			DAO		6	6	3
8678C		KAND	08 26 0700	S26	W03	08 26.0			DAO		9	5	3
8678C		KAND	08 27 1300	S26	W20	08 26.0			DAO		7	9	4
8678C		KAND	08 28 1345	S26	W33	08 26.0			DAO		2	4	3
8678C		KAND	08 29 0645	S26	W43	08 25.9			BXO		2	4	3
8678C		KAND	08 30 0750	S26	W57	08 25.9			BXO		2	5	4
8673		RAMY	08 19 1251	S16	E89	08 26.3		A	HS	30	1	2	3
8673		HOLL	08 19 1725	S18	E81	08 25.9		A	HH	160	1	3	3
8673		LEAR	08 20 0125	S19	E75	08 25.8		A	HS	100	1	2	2
8673		SVTO	08 20 0619	S18	E75	08 26.0		A	HH	300	1	7	3
8673		KAND	08 20 0910	S20	E77	08 26.3			DAO		5	8	3
8673		RAMY	08 20 1154	S21	E74	08 26.2		B	EKO	430	6	13	4
8673		HOLL	08 20 1521	S18	E70	08 26.0		A	HK	190	3	4	4
8673		LEAR	08 21 0123	S20	E64	08 25.9		A	HK	260	2	7	2
8673		SVTO	08 21 0735	S19	E62	08 26.0		B	CKO	440	5	7	2
8673		KAND	08 21 1055	S19	E61	08 26.1			HH		7	7	4
8673		RAMY	08 21 1203	S18	E60	08 26.1		B	DHO	330	4	6	3
8673		HOLL	08 21 1500	S18	E64	08 26.5		B	FHO	470	16	18	3
8673		LEAR	08 22 0110	S22	E58	08 26.5		B	FKC	470	20	20	4
8673		SVTO	08 22 0745	S19	E49	08 26.1		B	FKO	540	12	22	3
8673		KAND	08 22 0820	S19	E49	08 26.1			CKO		8	6	5
8673		KAND	08 23 0900	S20	E35	08 26.0			CKO		19	8	2
8673		SVTO	08 24 0719	S22	E22	08 26.0		B	FKI	550	25	20	3
8673		RAMY	08 24 1503	S17	E22	08 26.3		B	CKO	390	6	5	3
8673		HOLL	08 24 1804	S18	E26	08 26.7		B	CKO	330	5	7	3
8673		LEAR	08 25 0055	S20	E20	08 26.6		B	FKO	380	17	18	3
8673		KAND	08 25 0835	S19	E18	08 26.7			CKO		6	5	3
8673		SVTO	08 25 1220	S22	E13	08 26.5		B	FKI	460	19	20	2
8673		HOLL	08 25 2121	S18	E03	08 26.1		B	CHO	300	5	5	3
8673		SVTO	08 26 0642	S20	E04	08 26.6		B	FKI	520	19	21	3
8673		KAND	08 26 0700	S19	W03	08 26.1			CKO		7	7	3
8673		RAMY	08 26 1231	S18	W06	08 26.1		B	DHO	360	8	6	3
8673		HOLL	08 26 1700	S18	W07	08 26.2		B	CHO	350	9	11	2
8673		LEAR	08 27 0037	S17	W13	08 26.0		B	CHO	440	5	5	3
8673		SVTO	08 27 0820	S22	W19	08 25.9		B	FKI	770	28	21	2
8673		RAMY	08 27 1219	S19	W19	08 26.1		A	HH	340	1	4	4
8673		KAND	08 27 1300	S20	W20	08 26.0			HH		1	4	4
8673		HOLL	08 27 1734	S19	W22	08 26.0		A	HH	290	1	4	2
8673		LEAR	08 28 0125	S18	W27	08 26.0		A	HH	400	1	4	3
8673		SVTO	08 28 0722	S20	W28	08 26.2		BG	FKI	790	35	23	3
8673		RAMY	08 28 1219	S19	W32	08 26.1		A	HH	340	5	5	4
8673		KAND	08 28 1345	S19	W34	08 26.0			HH		1	4	3
8673		LEAR	08 29 0042	S18	W40	08 26.0		A	HH	380	2	4	3
8673		KAND	08 29 0645	S19	W43	08 26.0			HK		1	5	3
8673		SVTO	08 29 0750	S19	W43	08 26.0		A	HK	280	4	4	3
8673		RAMY	08 29 1152	S19	W44	08 26.1		A	HH	260	1	3	3
8673		HOLL	08 29 1555	S19	W47	08 26.1		A	HH	230	1	3	3
8673		LEAR	08 30 0205	S17	W53	08 26.0		A	HH	270	2	3	2
8673		KAND	08 30 0750	S19	W57	08 26.0			HH		1	4	4
8673		RAMY	08 30 1220	S20	W58	08 26.1		A	HH	300	1	4	4
8673		HOLL	08 30 1503	S19	W59	08 26.1		A	HH	230	4	3	4
8673		KAND	08 31 0625	S19	W70	08 25.9			HK		1	4	3
8673		SVTO	08 31 0810	S23	W73	08 25.7		B	CKO	280	8	14	3
8673		RAMY	08 31 1253	S19	W72	08 26.0		A	HS	120	1	2	3
8673		HOLL	08 31 1527	S19	W75	08 25.9		A	HA	120	2	4	4
8673		LEAR	09 01 0125	S19	W80	08 26.0		A	HA	120	1	2	3
8673		SVTO	09 01 0610	S19	W88	08 25.6		A	HR	300	1	4	3

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

115
Aug 99

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8673A		HOLL	08 29	1555	N19	W40	08 26.6		A	AX		2	1	3
8674	29289	MWIL	08 19	1430	S19	E80	08 25.7	5	AP					
8674	29290	MWIL	08 19	1430	S24	E80	08 25.8	4	AP					
8674		HOLL	08 20	1521	S24	E74	08 26.3		B	EKO	180	8	11	4
8674		LEAR	08 21	0123	S26	E68	08 26.3		B	EAO	240	4	15	2
8674		SVTO	08 21	0735	S25	E70	08 26.7		B	FKO	360	15	23	2
8674		KAND	08 21	1055	S25	E75	08 27.3			EAO		10	12	4
8674		RAMY	08 21	1203	S23	E68	08 26.7		B	FAO	460	14	22	3
8674	29289	MWIL	08 21	1500	S19	E69	08 26.9	5	(AP)					
8674	29290	MWIL	08 21	1500	S25	E65	08 26.7	4	(B)					
8674		HOLL	08 21	1500	S27	E65	08 26.7		B	FAO	400	6	22	3
8674		LEAR	08 22	0110	S28	E60	08 26.7		B	FAI	270	12	23	4
8674		SVTO	08 22	0745	S24	E56	08 26.6		B	FAO	480	16	22	3
8674		KAND	08 22	0820	S24	E53	08 26.4			EAO		30	15	5
8674		KAND	08 22	0820	S24	E63	08 27.2			EAO		30	15	5
8674	29289	MWIL	08 22	1430	S23	E50	08 26.4	6	(B)					
8674		KAND	08 23	0900	S25	E40	08 26.5			EAI		43	15	2
8674		KAND	08 23	0900	S25	E49	08 27.2			EAI		43	15	2
8674	29289	MWIL	08 23	1445	S24	E39	08 26.6	6	(B)					
8674		SVTO	08 24	0719	S27	E32	08 26.8		B	FAO	350	10	21	3
8674	29289	MWIL	08 24	1445	S22	E26	08 26.6	6	(B)					
8674		RAMY	08 24	1503	S22	E31	08 27.0		B	FAI	500	50	22	3
8674		HOLL	08 24	1804	S24	E24	08 26.6		BG	FAI	400	41	22	3
8674		LEAR	08 25	0055	S22	E24	08 26.9		BG	FAI	390	31	24	3
8674		KAND	08 25	0835	S24	E21	08 27.0			EAO		28	15	3
8674		SVTO	08 25	1220	S27	E15	08 26.7		B	FAO	270	12	20	2
8674	29289	MWIL	08 25	1430	S22	E14	08 26.7	6	(B)					
8674		HOLL	08 25	2121	S24	E11	08 26.7		BG	FAC	310	72	23	3
8674		SVTO	08 26	0642	S26	E06	08 26.7		B	FAO	300	12	23	3
8674		KAND	08 26	0700	S25	E11	08 27.1			EAI		56	15	3
8674		RAMY	08 26	1231	S24	E03	08 26.7		B	FAI	530	93	23	3
8674	29289	MWIL	08 26	1430	S22	E01	08 26.7	6	(B)					
8674		HOLL	08 26	1700	S24	E02	08 26.9		BG	FAC	660	77	23	2
8674		LEAR	08 27	0037	S23	W03	08 26.8		BG	FKC	750	72	25	3
8674		SVTO	08 27	0820	S28	W08	08 26.7		BG	FKI	550	20	25	2
8674		RAMY	08 27	1219	S24	W10	08 26.7		BG	FKC	900	88	27	4
8674		KAND	08 27	1300	S24	W05	08 27.1			FAC		59	18	4
8674	29289	MWIL	08 27	1445	S22	W10	08 26.8	5	(B)					
8674		HOLL	08 27	1734	S22	W12	08 26.8		BG	FKC	740	94	23	2
8674		LEAR	08 28	0125	S23	W17	08 26.7		BGD	FKC	700	84	23	3
8674		SVTO	08 28	0722	S27	W19	08 26.8		BG	FKI	480	18	23	3
8674		RAMY	08 28	1219	S23	W21	08 26.9		BG	FAC	760	91	23	4
8674		KAND	08 28	1345	S23	W20	08 27.0			FAO		57	18	3
8674	29289	MWIL	08 28	1445	S22	W23	08 26.8	5	(B)					
8674		LEAR	08 29	0042	S23	W30	08 26.7		BGD	FKC	690	93	23	3
8674		KAND	08 29	0645	S23	W28	08 27.1			EKO		44	15	3
8674		SVTO	08 29	0750	S23	W30	08 27.0		G	FKI	910	68	23	3
8674		RAMY	08 29	1152	S24	W34	08 26.9		BG	FAC	680	58	23	3
8674	29289	MWIL	08 29	1445	S22	W35	08 26.9	5	(B)					
8674		HOLL	08 29	1555	S23	W34	08 27.0		BG	FAC	530	58	23	3
8674		LEAR	08 30	0205	S23	W43	08 26.8		BGD	FAC	590	63	21	2
8674		KAND	08 30	0750	S24	W42	08 27.1			FAO		18	17	4
8674		SVTO	08 30	1100	S24	W45	08 27.0		B	DAO	420	16	9	3
8674		RAMY	08 30	1220	S25	W47	08 26.9		BG	FAI	520	46	24	4
8674	29289	MWIL	08 30	1500	S23	W48	08 26.9	5	(B)					
8674		HOLL	08 30	1503	S23	W45	08 27.1		BG	FAC	420	58	23	4
8674		KAND	08 31	0625	S24	W55	08 27.0			FAO		20	17	3
8674		SVTO	08 31	0810	S24	W50	08 27.5		B	EAO	260	9	11	3
8674		RAMY	08 31	1253	S23	W57	08 27.1		B	FAI	210	27	20	3
8674	29289	MWIL	08 31	1430	S23	W61	08 26.9	5	(BG)					
8674		HOLL	08 31	1527	S23	W59	08 27.1		BG	FAC	280	27	18	4
8674		LEAR	09 01	0125	S23	W64	08 27.2		B	EAO	180	11	13	3
8674		SVTO	09 01	0610	S26	W63	08 27.5		B	CRO	140	9	10	3
8674		KAND	09 01	0710	S26	W64	08 27.4			DAO		4	8	3
8674		RAMY	09 01	1205	S25	W65	08 27.6		B	FKO	130	9	13	4
8674	29289	MWIL	09 01	1430	S25	W70	08 27.3	4	(BG)					
8674		HOLL	09 01	1450	S23	W70	08 27.3		BG	EAO	150	6	11	4
8674		LEAR	09 02	0021	S24	W75	08 27.3		B	CAO	70	6	9	5

116
Aug 99

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8674		SVTO	09	02	0710	S28	W78	08	27.3		A	HS	60	1	4	2
8674		RAMY	09	02	1245	S27	W78	08	27.5		A	HS	40	1	2	3
8674	29289	MWIL	09	02	1500	S28	W79	08	27.5	3	AP					
8674A		KAND	08	25	0835	N08	E42	08	28.5			AX		1		3
8674A	29298	MWIL	08	25	1430	N09	E40	08	28.6	4	(B)					
8674A		HOLL	08	25	2121	N09	E37	08	28.7		B	BXO	10	2	3	3
8674A	29298	MWIL	08	26	1430	N08	E25	08	28.5	3	(AP)					
8674A		HOLL	08	26	1700	N08	E24	08	28.5		A	AX	10	1	1	2
8674B		LEAR	08	29	0042	S25	W06	08	28.6		A	AX		1		3
8681		KAND	08	26	0700	N19	E47	08	29.9			AX		1		3
8681	29301	MWIL	08	26	1430	N24	E42	08	29.8	4	(AP)					
8681	29301	MWIL	08	27	1445	N21	E27	08	29.7	4	(AP)					
8681		LEAR	08	28	0125	N21	E21	08	29.7		B	DSO	40	16	8	3
8681		SVTO	08	28	0722	N21	E18	08	29.7		B	BXO	80	25	10	3
8681		RAMY	08	28	1219	N21	E13	08	29.5		B	DAO	30	26	7	4
8681		KAND	08	28	1345	N22	E14	08	29.6			DAI		22	8	3
8681	29301	MWIL	08	28	1445	N21	E14	08	29.7	4	(B)					
8681		LEAR	08	29	0042	N21	E08	08	29.6		B	DSO	80	40	6	3
8681		KAND	08	29	0645	N20	E04	08	29.6			DAO		12	8	3
8681		SVTO	08	29	0750	N21	E04	08	29.6		B	DAO	310	32	10	3
8681		RAMY	08	29	1152	N23	E02	08	29.6		B	EAI	230	26	12	3
8681	29301	MWIL	08	29	1445	N20	W00	08	29.6	5	(BG)					
8681		HOLL	08	29	1555	N20	E00	08	29.7		B	DAI	250	18	10	3
8681		LEAR	08	30	0205	N22	W06	08	29.6		B	EAI	230	27	11	2
8681		KAND	08	30	0750	N20	W09	08	29.6			EKO		14	11	4
8681		SVTO	08	30	1100	N22	W10	08	29.7		B	EKO	350	19	12	3
8681		RAMY	08	30	1220	N22	W11	08	29.7		B	DAI	240	29	10	4
8681	29301	MWIL	08	30	1500	N21	W12	08	29.7	5	(BG)					
8681		HOLL	08	30	1503	N20	W13	08	29.6		B	DAI	290	33	10	4
8681		KAND	08	31	0625	N20	W20	08	29.7			EKO		25	11	3
8681		SVTO	08	31	0810	N22	W22	08	29.6		B	EAI	300	19	14	3
8681		RAMY	08	31	1253	N22	W26	08	29.5		B	EAI	230	33	14	3
8681	29301	MWIL	08	31	1430	N21	W25	08	29.7	5	(BG)					
8681		HOLL	08	31	1527	N21	W27	08	29.6		BG	EAC	240	37	12	4
8681		LEAR	09	01	0125	N22	W31	08	29.8		BG	EAI	240	24	12	3
8681		SVTO	09	01	0610	N20	W34	08	29.7		B	EAI	250	24	11	3
8681		KAND	09	01	0710	N20	W35	08	29.7			DSO		8	10	3
8681		RAMY	09	01	1205	N22	W36	08	29.8		B	ESO	240	15	11	4
8681	29301	MWIL	09	01	1430	N21	W40	08	29.6	5	(BG)					
8681		HOLL	09	01	1450	N21	W38	08	29.8		BG	DAC	60	17	10	4
8681		LEAR	09	02	0021	N22	W44	08	29.7		B	EAO	160	17	11	5
8681		SVTO	09	02	0710	N21	W49	08	29.6		B	DAO	180	7	10	2
8681		KAND	09	02	1150	N20	W57	08	29.2			HA		2	6	1
8681		RAMY	09	02	1245	N21	W51	08	29.7		B	CSO	140	10	9	3
8681	29301	MWIL	09	02	1500	N20	W53	08	29.7	5	(BP)					
8681		HOLL	09	02	1650	N20	W57	08	29.4		A	HS	150	2	2	1
8681		LEAR	09	03	0630	N22	W63	08	29.5		B	DAO	120	3	3	2
8681		KAND	09	03	0650	N19	W65	08	29.4			HA		3	5	3
8681		SVTO	09	03	0738	N20	W67	08	29.3		B	CAO	100	3	4	3
8681		RAMY	09	03	1224	N19	W67	08	29.5		B	DSO	130	4	6	3
8681		HOLL	09	03	1450	N20	W67	08	29.6		B	CAO	120	7	6	3
8681	29301	MWIL	09	03	1500	N20	W68	08	29.5	5	(BP)					
8681		LEAR	09	04	0050	N22	W72	08	29.6		B	DAO	120	5	7	3
8681		KAND	09	04	0555	N19	W82	08	29.1			CAO		6	7	2
8681		SVTO	09	04	0606	N19	W77	08	29.5		B	CAO	180	2	4	3
8681		RAMY	09	04	1308	N20	W86	08	29.1		A	HA	110	1	2	3
8681	29301	MWIL	09	04	1500	N21	W80	08	29.6	4	(AP)					
8681		HOLL	09	04	1525	N21	W83	08	29.4		B	CSO	110	2	4	4
8681		LEAR	09	05	0130	N22	W87	08	29.5		A	HA	20	1	1	2
8681A		SVTO	08	31	0810	S24	W14	08	30.2		B	BXO		2	3	3
8676		SVTO	08	24	0719	N25	E80	08	30.5		A	AX	10	1		3
8676	29295	MWIL	08	24	1445	N26	E76	08	30.5	4	(AP)					
8676		RAMY	08	24	1503	N23	E77	08	30.6		B	BXO	30	2	6	3
8676		HOLL	08	24	1804	N26	E75	08	30.6		B	BXO	20	2	6	3

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

117
Aug 99

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8676		LEAR	08 25	0055	N25	E74	08 30.8		BG	CAO	60	5	7	3
8676		KAND	08 25	0835	N27	E68	08 30.6			DAO		2	5	3
8676		SVTO	08 25	1220	N27	E66	08 30.6		B	BXO	10	3	5	2
8676	29295	MWIL	08 25	1430	N27	E64	08 30.6	4	(BP)					
8676		HOLL	08 25	2121	N26	E61	08 30.6		B	BXO	20	7	5	3
8676		SVTO	08 26	0642	N25	E50	08 30.1		B	BXO	10	4	11	3
8676		KAND	08 26	0700	N26	E54	08 30.5			AX		1	1	3
8676		RAMY	08 26	1231	N25	E49	08 30.3		B	BXO	10	4	12	3
8676	29295	MWIL	08 26	1430	N26	E51	08 30.6	4	(AP)					
8676		HOLL	08 26	1700	N25	E46	08 30.3		B	DSO	30	6	10	2
8676		LEAR	08 27	0037	N25	E46	08 30.6		B	BXO	10	4	5	3
8676		RAMY	08 27	1219	N27	E39	08 30.5		B	BXO	10	6	5	4
8676		KAND	08 27	1300	N26	E38	08 30.5			BXI		5	5	4
8676	29295	MWIL	08 27	1445	N26	E37	08 30.5	4	(BG)					
8676		HOLL	08 27	1734	N25	E32	08 30.2		B	BXO	20	6	10	2
8676		LEAR	08 28	0125	N25	E32	08 30.5		B	CRO	10	3	4	3
8676		SVTO	08 28	0722	N27	E30	08 30.6		B	BXO	10	4	5	3
8676		RAMY	08 28	1219	N27	E27	08 30.6		B	BXO	10	8	4	4
8676		KAND	08 28	1345	N26	E25	08 30.5			DAO		7	5	3
8676	29295	MWIL	08 28	1445	N26	E26	08 30.6	4	(BG)					
8676		LEAR	08 29	0042	N28	E20	08 30.6		B	BXO	20	8	6	3
8676		KAND	08 29	0645	N26	E16	08 30.5			BXO		4	4	3
8676		SVTO	08 29	0750	N26	E16	08 30.6		B	CSO	20	5	3	3
8676		RAMY	08 29	1152	N26	E12	08 30.4		B	BXO	10	6	4	3
8676	29295	MWIL	08 29	1445	N26	E12	08 30.5	4	(BG)					
8676		HOLL	08 29	1555	N26	E12	08 30.6		B	BXO	10	6	4	3
8676		LEAR	08 30	0205	N26	E07	08 30.6		B	BXO		2	2	2
8676		KAND	08 30	0750	N32	E07	08 30.9			AX		1	1	4
8676		RAMY	08 30	1220	N31	E02	08 30.7		B	BXO	10	5	4	4
8676	29303	MWIL	08 30	1500	N32	E03	08 30.9	4	(AF)					
8675	29296	MWIL	08 24	1445	N17	E83	08 30.9	5	AP					
8675		RAMY	08 24	1503	N24	E84	08 31.1		A	HS	60	1	8	3
8675		HOLL	08 24	1804	N17	E81	08 30.9		A	HS	60	1	2	3
8675		LEAR	08 25	0055	N18	E78	08 31.0		A	HS	40	2	2	3
8675		KAND	08 25	0835	N17	E73	08 30.9			HA		2	4	3
8675		SVTO	08 25	1220	N16	E78	08 31.4		A	HR	60	1	1	2
8675		SVTO	08 25	1220	N17	E72	08 31.0		B	BXO	20	4	3	2
8675	29296	MWIL	08 25	1430	N18	E70	08 30.9	5	(BP)					
8675		HOLL	08 25	2121	N17	E68	08 31.0		A	HS	90	2	2	3
8675		SVTO	08 26	0642	N18	E60	08 30.8		B	CAO	110	4	5	3
8675		SVTO	08 26	0642	N19	E62	08 31.0		B	CAO	50	3	5	3
8675		KAND	08 26	0700	N17	E62	08 31.0			DSO		2	3	3
8675		RAMY	08 26	1231	N18	E60	08 31.1		B	DAO	70	6	5	3
8675	29296	MWIL	08 26	1430	N18	E58	08 31.0	5	(B)					
8675		HOLL	08 26	1700	N18	E58	08 31.1		B	DSO	70	8	6	2
8675		LEAR	08 27	0037	N17	E53	08 31.0		B	DAO	80	9	7	3
8675		SVTO	08 27	0820	N19	E48	08 31.0		B	DAO	180	13	6	2
8675		RAMY	08 27	1219	N20	E46	08 31.0		B	DSO	80	10	7	4
8675		KAND	08 27	1300	N18	E48	08 31.2			DAO		11	6	4
8675	29296	MWIL	08 27	1445	N20	E44	08 31.0	5	(BP)					
8675		HOLL	08 27	1734	N19	E43	08 31.0		B	CAO	70	12	6	2
8675		LEAR	08 28	0125	N18	E40	08 31.1		B	DAO	100	13	6	3
8675		SVTO	08 28	0722	N20	E36	08 31.1		B	DAO	220	15	9	3
8675		RAMY	08 28	1219	N20	E32	08 31.0		B	DSI	150	24	8	4
8675		KAND	08 28	1345	N20	E32	08 31.0			DAC		18	10	3
8675	29296	MWIL	08 28	1445	N19	E31	08 31.0	5	(BG)					
8675		LEAR	08 29	0042	N20	E27	08 31.1		B	DSI	180	31	9	3
8675		KAND	08 29	0645	N19	E23	08 31.0			DAC		14	9	3
8675		SVTO	08 29	0750	N20	E22	08 31.0		B	DAO	230	27	10	3
8675		RAMY	08 29	1152	N19	E19	08 30.9		B	DSI	160	27	10	3
8675	29296	MWIL	08 29	1445	N19	E18	08 31.0	5	(BP)					
8675		HOLL	08 29	1555	N20	E18	08 31.0		B	DSC	260	27	8	3
8675		LEAR	08 30	0205	N20	E12	08 31.0		B	DSI	190	17	8	2
8675		KAND	08 30	0750	N19	E08	08 30.9			DAO		11	8	4
8675		SVTO	08 30	1100	N19	E08	08 31.1		B	DAO	100	18	9	3
8675		RAMY	08 30	1220	N19	E08	08 31.1		B	EAO	170	27	12	4
8675	29296	MWIL	08 30	1500	N20	E05	08 31.0	5	(BP)					
8675		HOLL	08 30	1503	N19	E04	08 30.9		B	DSI	220	20	8	4

118
Aug 99

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

AUGUST 1999

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8675		KAND	08 31	0625	N19	W05	08 30.9			DAO		13	7	3
8675		SVTO	08 31	0810	N20	W05	08 30.9		B	DAO	100	15	8	3
8675		RAMY	08 31	1253	N20	W08	08 30.9		B	DSO	80	21	9	3
8675	29296	MWIL	08 31	1430	N20	W08	08 31.0	5	(BP)					
8675		HOLL	08 31	1527	N19	W07	08 31.1		B	DSO	110	22	13	4
8675		LEAR	09 01	0125	N20	W14	08 31.0		B	DSI	120	16	6	3
8675		SVTO	09 01	0610	N20	W17	08 31.0		B	DAO	130	19	10	3
8675		KAND	09 01	0710	N19	W19	08 30.9			DAO		4	4	3
8675		RAMY	09 01	1205	N17	W19	08 31.0		B	DSO	90	12	10	4
8675	29296	MWIL	09 01	1430	N19	W22	08 31.0	5	(BG)					
8675		HOLL	09 01	1450	N19	W20	08 31.1		B	ESO	80	17	12	4
8675		LEAR	09 02	0021	N19	W28	08 31.0		B	DSO	70	25	9	5
8675		SVTO	09 02	0710	N18	W32	08 31.0		B	DAO	60	10	6	2
8675		KAND	09 02	1150	N19	W36	08 30.8			CAO		3	4	1
8675		RAMY	09 02	1245	N18	W37	08 30.8		B	CSO	70	8	4	3
8675	29296	MWIL	09 02	1500	N19	W36	08 31.0	4	(BF)					
8675		HOLL	09 02	1650	N19	W38	08 30.9		B	CSO	70	4	4	1
8675		LEAR	09 03	0630	N19	W46	08 30.9		B	DSO	50	4	4	2
8675		KAND	09 03	0650	N19	W45	08 30.9			CAO		3	4	3
8675		SVTO	09 03	0738	N19	W47	08 30.8		B	CAO	40	3	4	3
8675		RAMY	09 03	1224	N18	W48	08 31.0		B	CSO	40	6	7	3
8675		HOLL	09 03	1450	N19	W51	08 30.8		A	HS	30	1	1	3
8675	29296	MWIL	09 03	1500	N20	W50	08 30.9	5	(AP)					
8675		LEAR	09 04	0050	N21	W56	08 30.8		A	HS	40	2	2	3
8675		KAND	09 04	0555	N19	W61	08 30.7			HA		1	2	2
8675		SVTO	09 04	0606	N19	W60	08 30.8		A	HS	80	1	2	3
8675		RAMY	09 04	1308	N20	W65	08 30.7		A	HS	40	1	1	3
8675	29296	MWIL	09 04	1500	N20	W63	08 30.9	4	(AP)					
8675		HOLL	09 04	1525	N21	W64	08 30.8		A	HS	50	1	2	4
8675		LEAR	09 05	0130	N22	W69	08 30.8		A	HA	60	1	2	2
8675		SVTO	09 05	0530	N20	W72	08 30.8		A	HA	120	1	2	3
8675		KAND	09 05	0815	N20	W74	08 30.8			HA		1	3	3
8675		RAMY	09 05	1140	N20	W75	08 30.8		A	HS	30	1	1	3
8675	29296	MWIL	09 05	1430	N21	W76	08 30.9	4	(AP)					
8675		HOLL	09 05	1546	N22	W79	08 30.7		A	HA	60	1	2	4
8675G	29303	MWIL	09 01	1430	N32	W23	08 30.9	4	(AF)					
8677		LEAR	08 25	0055	N08	E82	08 31.2		A	HS	60	1	2	3
8677		KAND	08 25	0835	N07	E78	08 31.2			HA		1	3	3
8677	29300	MWIL	08 25	1430	N07	E76	08 31.3	4	(AP)					
8677		HOLL	08 25	2121	N07	E73	08 31.3		A	HA	60	1	1	3
8677		KAND	08 26	0700	N06	E69	08 31.4			CAO		3	3	3
8677		RAMY	08 26	1231	N07	E67	08 31.5		B	CSO	50	7	6	3
8677	29300	MWIL	08 26	1430	N07	E64	08 31.4	5	(BP)					
8677		HOLL	08 26	1700	N07	E65	08 31.6		B	CAO	70	6	8	2
8677		LEAR	08 27	0037	N07	E59	08 31.4		B	CAO	70	8	8	3
8677		SVTO	08 27	0820	N05	E53	08 31.3		B	DAO	170	5	5	2
8677		RAMY	08 27	1219	N08	E53	08 31.5		B	CSO	70	6	6	4
8677		KAND	08 27	1300	N07	E54	08 31.6			CAO		8	6	4
8677	29300	MWIL	08 27	1445	N08	E51	08 31.4	5	(BP)					
8677		HOLL	08 27	1734	N07	E49	08 31.4		B	CSO	60	6	5	2
8677		LEAR	08 28	0125	N07	E45	08 31.4		B	DSO	70	5	3	3
8677		SVTO	08 28	0722	N08	E42	08 31.4		B	CRO	80	4	3	3
8677		RAMY	08 28	1219	N08	E38	08 31.4		A	HS	50	4	2	4
8677		KAND	08 28	1345	N08	E38	08 31.4			DAO		5	4	3
8677	29300	MWIL	08 28	1445	N08	E38	08 31.5	5	(BP)					
8677		LEAR	08 29	0042	N07	E31	08 31.3		B	CSO	70	4	3	3
8677		KAND	08 29	0645	N07	E29	08 31.4			HA		2	3	3
8677		SVTO	08 29	0750	N08	E28	08 31.4		B	DAO	70	2	2	3
8677		RAMY	08 29	1152	N08	E27	08 31.5		B	CSO	70	7	5	3
8677	29300	MWIL	08 29	1445	N07	E24	08 31.4	5	(BP)					
8677		HOLL	08 29	1555	N08	E24	08 31.5		B	CSO	80	5	5	3
8677		LEAR	08 30	0205	N07	E17	08 31.4		B	CSO	60	2	3	2
8677		KAND	08 30	0750	N07	E14	08 31.4			HS		1	2	4
8677		SVTO	08 30	1100	N07	E13	08 31.4		B	CSO	60	2	3	3
8677		RAMY	08 30	1220	N07	E13	08 31.5		B	CSO	70	3	4	4
8677	29300	MWIL	08 30	1500	N07	E11	08 31.4	5	(BP)					
8677		HOLL	08 30	1503	N08	E13	08 31.6		B	CSO	80	3	5	4

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)
AUGUST 1999

119
Aug 99

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8677		KAND	08 31	0625	N08	E01	08 31.3			HS		1	2	3
8677		SVTO	08 31	0810	N07	E01	08 31.4		B	CSO	60	2	4	3
8677		RAMY	08 31	1253	N08	W01	08 31.5		B	CSO	60	2	5	3
8677	29300	MWIL	08 31	1430	N07	W03	08 31.4	5	(BP)					
8677		HOLL	08 31	1527	N07	W03	08 31.4		B	CSO	60	3	2	4
8677		LEAR	09 01	0125	N08	W09	08 31.4		A	HS	40	1	1	3
8677		SVTO	09 01	0610	N08	W12	08 31.3		A	HA	50	1	2	3
8677		KAND	09 01	0710	N08	W13	08 31.3			HS		1	2	3
8677		RAMY	09 01	1205	N08	W15	08 31.4		A	HS	40	1	2	4
8677	29300	MWIL	09 01	1430	N08	W16	08 31.4	5	(BP)					
8677		HOLL	09 01	1450	N08	W17	08 31.3		A	HS	40	1	2	4
8677		LEAR	09 02	0021	N09	W22	08 31.4		A	HS	40	1	2	5
8677		SVTO	09 02	0710	N08	W27	08 31.3		A	HA	40	1	2	2
8677		KAND	09 02	1150	N09	W29	08 31.3			CAO		3	2	1
8677		RAMY	09 02	1245	N08	W29	08 31.3		A	HS	40	1	1	3
8677	29300	MWIL	09 02	1500	N08	W29	08 31.4	5	(AP)					
8677		HOLL	09 02	1650	N08	W31	08 31.4		A	HS	40	1	1	1
8677		LEAR	09 03	0630	N09	W38	08 31.4		A	HS	40	1	2	2
8677		KAND	09 03	0650	N08	W39	08 31.4			HA		1	2	3
8677		SVTO	09 03	0738	N09	W40	08 31.3		A	HA	30	1		3
8677		RAMY	09 03	1224	N08	W43	08 31.3		A	HS	30	1	1	3
8677		HOLL	09 03	1450	N08	W43	08 31.4		A	HS	20	1	1	3
8677	29300	MWIL	09 03	1500	N09	W43	08 31.4	5	(AP)					
8677		LEAR	09 04	0050	N10	W49	08 31.3		A	HS	30	1	2	3
8677		KAND	09 04	0555	N08	W53	08 31.3			HR		1	1	2
8677		SVTO	09 04	0606	N08	W52	08 31.3		A	HS	30	1	2	3
8677		RAMY	09 04	1308	N09	W57	08 31.3		A	HS	20	1	1	3
8677	29300	MWIL	09 04	1500	N09	W56	08 31.4	5	(AP)					
8677		HOLL	09 04	1525	N09	W57	08 31.4		A	HS	60	1	2	4
8677		LEAR	09 05	0130	N11	W62	08 31.4		A	HS	40	1	2	2
8677		SVTO	09 05	0530	N09	W65	08 31.3		A	HS	30	1	1	3
8677		KAND	09 05	0815	N09	W66	08 31.4			HR		1	1	3
8677		RAMY	09 05	1140	N09	W67	08 31.4		A	HS	20	1	1	3
8677	29300	MWIL	09 05	1430	N10	W69	08 31.4	4	(AP)					
8677		HOLL	09 05	1546	N10	W71	08 31.3		A	HS	50	1	2	4
8677		KAND	09 06	0620	N08	W80	08 31.3			HR		1	3	4
8677		SVTO	09 06	0808	N09	W74	08 31.8		B	CRO	30	2	5	2
8677		RAMY	09 06	1145	N08	W79	08 31.6		A	AX		1		3
8679	29299	MWIL	08 25	1430	S34	E75	08 31.6	4	(AP)					
8679		KAND	08 26	0700	S36	E68	08 31.7			CAO		3	3	3
8679		RAMY	08 26	1231	S34	E65	08 31.7		B	CSO	30	2	8	3
8679	29299	MWIL	08 26	1430	S34	E61	08 31.5	4	(AP)					
8679		HOLL	08 26	1700	S35	E60	08 31.5		B	CAO	60	3	4	2
8679		SVTO	08 27	0820	S35	E54	08 31.7		B	CAO	70	2	2	2
8679		RAMY	08 27	1219	S33	E50	08 31.5		B	CSO	40	2	4	4
8679		KAND	08 27	1300	S36	E52	08 31.7			CAO		2	6	4
8679	29299	MWIL	08 27	1445	S34	E48	08 31.4	4	(AP)					
8679		HOLL	08 27	1734	S34	E47	08 31.5		B	CAO	50	2	6	2
8679		LEAR	08 28	0125	S35	E41	08 31.3		B	CAO	20	3	5	3
8679		SVTO	08 28	0722	S35	E41	08 31.6		B	CRO	70	3	4	3
8679		RAMY	08 28	1219	S34	E38	08 31.5		B	CAO	20	5	5	4
8679		KAND	08 28	1345	S36	E37	08 31.5			CAO		4	6	3
8679	29299	MWIL	08 28	1445	S34	E35	08 31.4	4	(AP)					
8679		KAND	08 29	0645	S36	E30	08 31.7			BXO		4	6	3
8679		RAMY	08 29	1152	S34	E28	08 31.7		B	BXO	20	8	8	3
8679	29299	MWIL	08 29	1445	S34	E24	08 31.5	4	(BG)					
8679		HOLL	08 29	1555	S34	E25	08 31.6		B	BXO	20	9	8	3
8679		LEAR	08 30	0205	S34	E17	08 31.4		B	BXO	10	3	5	2
8679		RAMY	08 30	1220	S32	E15	08 31.7		B	BXO	10	4	5	4
8679	29299	MWIL	08 30	1500	S33	E12	08 31.6	3	(BP)					
8679		HOLL	08 30	1503	S34	E14	08 31.7		B	BXO	10	5	4	4
8679	29299	MWIL	08 31	1430	S33	E01	08 31.7	4	(B)					
8679		HOLL	08 31	1527	S33	E01	08 31.7		B	BXO	10	2	2	4
8679	29299	MWIL	09 01	1430	S36	W11	08 31.7	4	(AP)					
8679		HOLL	09 01	1450	S36	W12	08 31.6		A	AX	10	1	1	4
8679		RAMY	09 02	1245	S36	W22	08 31.8		A	AX		1		3
8679	29299	MWIL	09 02	1500	S36	W23	08 31.8	3	(AP)					
8679D		HOLL	08 29	1555	N17	E28	08 31.8		A	AX		2	1	3

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1999

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
01	0642	0647	0707	1-	5	1	2		1	1	0638	C9.2	8645
01	0830	0835	0900	1+	1					1	0831		8645
01	0902	0906	0915	1-	3					2	0904	C3.6	8645
01	1030	1043	1126	1	1		1				1031		8647
01	1250	1257	1340	1-	5			1		3	1244	C3.3	8645
01	1540	1545	1545D	1-	5		1	1		4	1535	C4.7	8645
01	1616	1624	1715	1-	5			1		4	1612	C5.7	
01	1745	1755	1755D	1-	5			1		1	1740		8645
01	1829	1834	1915	1-	5			1		1	1821		8651
01	2313	2317	2346	2-	5					2	2310	C4.3	8645
02	0020	0022	0053	1+	1					1	0023	M1.8	
02	0540	0607	0727	1	1		1				0532E		8645
02	0945	0957	1041	1	5	1	2		1	2	0942	C6.4	8651
02	1149	1157	1244	1	5		1		1	1	1148	C6.3	8645
02	1403	1422	1450	1	3		1			1	1401	C5.0	8656
02	2120	2128	2128D	2	5			1		7	2118	X1.4	8647
03	0437	0440	0452	1-	1					1	0435	C4.0	8651
03	0458	0502	0524	1+	1					1	0458	C5.7	8647
03	0717	0721	0746	1	1					1	0717	C3.5	8650
03	1135	1144	1144D	1-	5		2	1	1	2	1134	C4.6	8645
03	1225	1227	1300	1-	5		1	1		1	1221	C3.1	8656
03	1529	1538	1615	1-	1			1			1528	C2.5	8656
03	1730	1746	1840	1-	5			1		3	1740	C4.7	
03	1853	1900	1900D	1-	5			1		1	1851	C2.7	
03	1945	1957	2115	2-	5			1		7	1943	M1.3	
04	0550	0603	0626	2	5	1	2		1	1	0545	M6.0	8647
04	0852	0856	0912	1-	3					2	0853	C3.9	8647
04	1159	1205	1245	1-	5			1		2	1156	C4.2	8645
04	1550	1610	1745	2-	5	1	2	1		3	1549	M1.2	8647
04	1807	1822	1946	1	5			1		3	1808	C7.0	
05	0816	0905	0926	1	1		1				No flare		
05	1038	1049	1134	1-	5	1	2		1		No flare		
05	1427	1445	1445D	1-	5			1		2	1440		8645
05	1551	1624	1845	3-	5	1	1	1	1	5	1555	M1.9	8645
05	1640E	1641	1730	2+	1					1	No flare		
05	1848	1854	1945	1-	5			1		5	1847	C3.4	8645
05	1938	1944	2015	2-	3					2	1939	C2.2	8651
05	2215	2222	2240	1	1					1	2215	M1.1	
05	2240	2244	2330D	2+	1					1	2234	M1.5	
05	2330	2335	2359D	1+	1					1	2327	C8.6	
06	0711	0724	0815	2	3		1			1	0712	C6.9	
06	0931	1008	1032	2-	3		1			1	0925	C7.1	
06	1115	1142	1156	1+	1		1				No flare		
06	1156	1207	1222	1+	1		1				No flare		
06	1235	1240	1315	1-	5			1		1	1235	C3.6	
06	1330	1428	1615	2+	5	1	1	1	1	3	1350	M1.0	8656
06	1630	1636	1845	2+	5	1	1	1		6	1628	M1.8	8645
06	1832	1837	2010	3	1					1	1838		8662
07	1041	1101	1147	1	5		1		1		1040	C2.9	
07	1230	1300	1339	2+	1		1				No flare		
07	1511	1549	1710	1-	5			1		2	1510	C3.5	8656
07	1853	1915	1915D	2+	5			1		6	1852	M1.2	8656
07	2029	2052	2208	3-	5					4	2043	M1.7	
08	0643	0652	0730	2+	1					1	0643	C2.3	
08	0745	0759	0827	1-	3		1			1	0749	C2.3	
08	0852	0902	0938	1	1		1				No flare		
08	1035	1040	1155	2+	1					1	1035	C1.3	8662
08	2109	2120	2158	2	5					3	2110	C2.2	
09	1420	1430	1515	2+	1					1	1419	C1.1	
09	1625	1840	1940	3+	1					1	1626	C2.1	
09	2333	2337	2418	2	1					1	2318	C4.5	

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

121
Aug 99

AUGUST 1999

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
10	0559	0614	0706	2	3		1			1	0552	C4.8	8656
10	0747	0751	0854	2-	3		1			1	0745	C2.0	8656
10	0954	0957	1015	1	1					1	0951	C1.4	8662
10	1222	1228	1300	1-	5			1		3	1218	C1.9	
10	1621	1628	1745	1-	5			1		5	1618	C4.6	8662
12	0621	0646	0821	1	1		1				No flare		
12	1010	1020D	1040	1+	1					1	1012	C1.1	
13	0608	0639	0713	2	1		1				0600	B9.1	8662
13	0740	0754	0825	1	3		1			1	0745	C3.0	8662
13	1505	1517	1517D	2-	5		1	1		6	1502	C5.3	
13	1550	1600	1650	1-	5			1		5	1548	C4.2	8662
13	1701	1707	1740	1-	5			1		3	1658	C1.4	
13	1927	1930	2027	2+	1					1	1927	C3.2	8662
13	1930	1945	2040	1-	5			1		4	1927	C3.2	8662
14	0604	0729U	0815	2	1		1				No flare		
14	1205	1214	1256	1+	5	1	2		1	6	1158	C7.2	8668
14	1320	1330	1340	1	1					1	1322	C1.0	
14	1520	1526	1543	1	1					1	1519	C1.5	8662
14	1539	1548	1607	1+	5					2	1541	C2.1	
14	1930	1940	2022	2	3					2	1927	C1.6	
16	2022	2027	2055	2	1					1	2023	C1.2	8668
17	0739	0744	0904	1	1		1				No flare		
17	1505	1530	1647	2	5		1			1	1505		8668
17	1730	1735	1753	1	1		1				No flare		
18	0623	0626	0637D	1-	1					1	0621	C3.0	
18	0637E	0646	0800	3	1					1	No flare		
18	0925	1006	1149	1+	5	1	2		1	1	0921	C7.8	
19	1202	1206	1249	1	5	1	2		1	4	1159	M1.0	8672
19	1210	1215	1250	2	1					1	1159	M1.0	8672
19	1550	1555	1610	1-	5			1		2	No flare		
20	0720	0725	0747	1	5	1	1		1	1	0716	C6.0	
20	1233	1318	1455	2	5	1	2	1	1	3	1236	M1.8	8674
20	1826	1831	1831D	1+	5			1		9	1825	M1.2	8674
20	1923	1929	1929D	1-	5			1		7	1921	C7.8	8674
20	2057	2104	2104D	1-	5			1		7	2054	C5.1	
20	2305	2309	2339	1+	5					5	2303	M9.8	8674
21	1057	1108	1200	1-	5	1	2	1	1	1	1100	C5.2	8674
21	1505	1515	1600	1-	5			1		4	1505	C2.2	
21	1634	1637	1705	1-	5	1	2		1	8	1630	M3.7	8674
21	2210	2213	2308	2	5					6	2210	M5.9	8674
21	2320	2326	2350	1+	1					1	2316	C2.4	
22	1410	1414	1414D	1-	5		1	1		5	1409	C5.3	8674
22	1503	1505	1520	1-	5			1		1	1500	C2.1	8674
22	1548	1554	1730	2	5	1	2	1	1	8	1546	C9.8	8674
22	1803	1805	1830	1+	1					1	1801	C2.1	8674
22	2140	2146	2215	2	1					1	2138	C2.0	
23	1627	1649	1736	2	3		1			1	1616	C4.5	
23	1759	1808	1827	1+	5					3	1801	C5.7	
23	2024	2028	2058	1+	5					5	2024	C4.5	
23	2108	2114	2132	1	1					1	2105	C2.1	
23	2308	2316	2359	2	5					2	2305	C4.7	

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1999

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
24	0604	0616	0725	2-	3		1			1	0606	C5.3	
24	1545	1600	1650	1-	5			1		3	1540	C3.1	8674
24	1642	1709	1822	3	3					2	1650	C4.4	8674
24	1655	1730	1915	1-	5			1		1	1650	C4.4	8674
25	0135	0139	0238	2+	1					1	0132	M3.6	8674
25	0648	0715	0745	2	1		1				0718	C2.4	
25	0809	0907	0941	2	1		1				No flare		
25	1200	1330	1415	3+	1					1	1153	C4.0	
25	1417	1442	1530	2+	1					1	1439	C6.5	8674
25	1436	1505	1635	2-	5		1	1		3	1439	C6.5	8674
26	0655	0702	0800	2-	3		1			1	0657	C7.1	8674
26	0659	0719	0754	1	5	1	1		1		0657	C7.1	8674
26	1009	1020	1050	1	5	1	2		1		0934	C4.8	
26	1108	1113	1140	1-	5	1	1	1	1		1105	C4.4	
26	1215	1352U	1404	1	1		1				1250		8674
26	1442	1445	1516	2-	3					2	1452	C3.7	8674
26	1455	1502	1605	1-	5			1		4	1452	C3.7	8674
26	1647	1651	1730	2	1					1	1650		8673
26	1709	1716	1830	1-	5			1		5	1706	C4.7	8674
26	2102	2107	2130	1+	1					1	2118	C5.5	
26	2119	2125	2206	2-	5					5	2118	C5.5	
27	0125	0135	0213	2+	1					1	0122	M3.0	
27	0443	0454	0546	2	3		1			1	0451	C7.1	8673
27	0523E	0530	0600	2	1					1	0451	C7.1	8673
27	0630	0632	0655	1	1					1	0628	C5.5	8674
27	0855	0905	0925	2	1					1	0856	C4.2	
27	1056	1105	1115	1-	5	1	1	1	1		No flare		
27	1250	1308	1440	3	5	1	2	1	1	7	1250	M5.5	8674
27	1520	1530	1530D	1-	1			1			1523		8675
27	1547	1605	1605D	1-	1			1			1547		8673
27	1620	1637	1637D	2	5		1	1		3	1623	M3.0	8674
27	1715	1720	1900	1-	5			1		3	*		
28	0053	0100	0138	2-	5					3	0050	M2.8	8674
28	1120	1130	1200	1-	1			1			1113	C5.1	8676
28	1456	1507	1507D	1	5			1		5	1455	C7.3	8676
28	1536	1545	1715	1-	1			1			1534		8674
28	1755	1806	2000	3	5		1	1		6	1752	X1.1	8674
28	2211	2215	2242	1+	5					3	2211	C5.7	
29	0628	0639	0712	2-	3		1			1	0632	C7.4	
29	0852	0903	0923	1	1		1				0855		8673
29	1004	1016	1144	1	1		1				*		
29	1206	1217	1217D	1-	1			1			1205	C4.4	8674
29	1229	1238	1309	1-	1			1			1225		8674
29	1630	1635	1645	1	1					1	1632		8673
29	1656	1658	1704	1-	1					1	No flare		
29	1707	1713	1815	2+	1					1	No flare		
29	1726	1734	1900	2	5			1		6	1722	C9.6	8681
29	1913	1914	1932	1	1					1	No flare		
29	1928	1931	1944	1-	3					2	1926	C3.2	8675
30	0113	0119	0137	1	1					1	No flare		
30	0848	0934	1002	1	1		1				No flare		
30	1012	1020	1100	1	1		1				1019	C2.1	8673
30	1144	1151	1228	1	5	1	2		1		1142	C5.6	8681
30	1242	1251D	1310	1	3	1	2				1239	C6.5	
30	1444	1456	1545	1	5	1	2		1		1440	C9.4	8674
30	1725	1731	1751	1	5					2	1723	M3.8	8674
30	1752	1805	1853	2	5		1			2	1801		8676
31	0030	0038	0118	2+	1					1	0030	C7.3	8681
31	0544	0552	0643	2	3		1			1	0541	C8.8	8681
31	0745	0758	0814	1	1		1				No flare		

* = no flare patrol.

AUGUST 1999

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
31	1240	1244	1330	2+	1					1	No flare		
31	1254	1304	1410	1+	5	1	1	1	1	6	1257	C6.9	
31	1702	1717	1830	3	1					1	No flare		
31	1725	1740	1900	1-	5			1		1	1719	C3.5	8681

* = no flare patrol.

OBSERVATORIES REPORTING FOR AUGUST 1999

Allentown, Pennsylvania, USA	SES	New Milford, New York, USA	SES
Cambridge, England, UK	SES	Panska Ves, Czech Republic	SES, SEA, SWF
Edenvale, Rep of S. Africa	SES	Parma, Ohio, USA	SES
Houston, Texas, USA	SES	Rimavska Sobota, Slovakia	SEA
Hudson, Ohio, USA	SES	Rochester, New Hampshire, USA	SES
Itapetinga, Brazil	SPA	Sun City Center, FL, USA	SES
Koniz, Switzerland	SES	Tucson, Arizona, USA	SES
Marlboro, Massachusetts, USA	SES	Zilina, Slovakia	SEA

Observations are not necessarily continuous.

124
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION			EVENT			FREQUENCY			Remarks				
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)		Lower (MHz)	Upper (MHz)		
01			LEAR	0019.0	0024.0	III			2	30	51		
			LEAR	0110.0	0110.0	III			1	30	40		
			LEAR	0121.0	0121.0	III			2	30	49		
			LEAR	0140.0	0143.0	III			2	30	80		
			LEAR	0201.0	0212.0	III	N		3	30	80		
			LEAR	0249.0	0249.0	III			2	30	80		
			SVTO	0431.0	0433.0	III			2	35	85		
			LEAR	0432.0	0433.0	III			3	30	80		
			PALE	0432.0	0433.0	III			2	25	75		
	0444	1729		ONDR									
				LEAR	0530.0	0531.0	III			1	31	49	
				SVTO	0530.0	0655.0	III	N		2	35	85	
				LEAR	0536.0	0536.0	III			1	30	49	
				LEAR	0618.0	0619.0	III			1	31	41	
				LEAR	0627.0	0632.0	III			2	30	47	
				SVTO	0627.0	0630.0	V			2	35	64	
	0507	1800		BLEN	0640.8	0644.7	III	GG		3	250	550x	
	0551	0744		IZMI	0644.1	0644.1	III	B		1	215	270X	
				IZMI	0644.8U	0656.0U	CONT	FS		1	200	270X	
				BLEN	0645.0	0656.8	DCIM	P		3	240	490	
				IZMI	0651.5	0652.4	III	G		2	45X	125	
				IZMI	0651.6	0652.8	V	G		2	45	65	
				IZMI	0654.7	0655.3	III	G,FS		2	70	270	
				SVTO	0739.0	0739.0	III			2	42U	52U	
				BLEN	0746.8	0754.9	III	GG,U		3	220x	550x	
				BLEN	0822.2	0826.5	III	G		3	235	550x	
	0841	1200		IZMI	0844.3	0844.3	III	B		2	225	270X	
				IZMI	0931.8	0931.8	III	B		1	230	270X	
				IZMI	0933.7	0934.7	III	GG		2	230	270X	
				SVTO	0951.0	0953.0	V			2	35	85	
				IZMI	1024.6	1025.3	III	G		2	200	270X	
				BLEN	1037.9	1038.9	III	GG		3	220	450	
				IZMI	1037.9	1038.6	III	GG		2	200	270X	
				IZMI	1057.9	1058.1	III	G		1	190	265	
				SVTO	1100.0	1101.0	III			2	35	63	
				IZMI	1119.7	1119.7	III	B		2	200	265	
				BLEN	1142.7	1144.2	III	GG		3	430	550x	
				IZMI	1144.6	1144.8	III	G		1	200	230	
				IZMI	1146.8	1146.8	III	B		1	190	250	
				SVTO	1326.0	1327.0	III			1	35	66	
				SGMR	1327.0	1327.0	III			1	30	55	
				SGMR	1419.0	1419.0	III			1	30	80	
				SVTO	1419.0	1419.0	III			1	38	83	
				BLEN	1515.7	1529.0	III	GG		2	240	550x	
				SVTO	1516.0	1516.0	III			1	36	85	
				SGMR	1639.0	1639.0	III			1	30	80	
				PALE	1945.0	1945.0	V			1	25	75	
				SGMR	1945.0	1945.0	III			1	30	80	
				PALE	2110.0	2119.0	II			2	25	70	ESS 0700
				SGMR	2111.0	2118.0	II			1	30	80	ESS 0600
				LEAR	2353.0	0242.0	CONT			1	40	80	
02	0000	0700	CULG	0000.0E	0307.0	III	S		1	30	170		
			CULG	0011.0	0013.0	III	G		2	45	530		
			CULG	0025.0	0028.0	III	G		2	40	1100		
			PALE	0026.0	0027.0	III			1	43	56		
			CULG	0030.0	0033.0	III	G		1	70	300		
			CULG	0033.0	0042.0	II	FN		1	35	80		
			CULG	0033.0	0044.0	II	SH		1	55	160	ESS 450	
			CULG	0212.0	0212.0	III	B		1	70	250		
			CULG	0235.0	0240.0	III	G		1	40	420		
			PALE	0235.0	0236.0	III			1	52	58		
			CULG	0302.0	0303.0	III	G		2	60	600		
			CULG	0340.0	0340.0	III	B		1	50	160		
			CULG	0403.0	0403.0	III	G		1	40	180		
			CULG	0427.0	0438.0	III	N		1	40	90		
			CULG	0531.0	0535.0	III	G		2	30	600		
			LEAR	0531.0	0533.0	III			2	30	80		
			SVTO	0531.0	0544.0	III	N		2	35	85		

S O L A R R A D I O E M I S S I O N

Spectral Observations

125
Aug 99

AUGUST 1999

OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Start Day (UT)	End (UT)					Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
02	0445	1728	ONDR	0531.2	0532.4	DCIM	GG,SP	2	800X	1990	
			CULG	0540.0	0550.0	II	FN	1	30	80	ESS 500
			LEAR	0540.0	0804.0	CONT		1	30	50	
			CULG	0541.0	0544.0	II	SH	1	90	160	
			SVTO	0541.0	0546.0	II		2	40	72	ESS 0500
			CULG	0542.0	0546.0	III	G	1	30	270	
			SVTO	0627.0	0637.0	III		2	35	85	
			SVTO	0627.0	0638.0	III	N	2	35	85	
			ONDR	0627.3	0628.2	DCIM		1	800X	2000X	
0603	1200		IZMI	0627.5	0629.3	III	GG,HARM	2	70	270X	
			CULG	0628.0	0629.0	III	G	2	70	480	
			CULG	0632.0	0633.0	II	FN	1	80	100	
			CULG	0632.0	0633.0	II	SH	1	160	180	
			IZMI	0632.3	0632.8	I	G	1	200	225	
			IZMI	0632.3	0633.0	I	GG,DC	2	75	90	
			CULG	0638.0	0638.0	III	B	1	23	80	
			IZMI	0638.2	0638.4	III	G	1	45X	95	
			CULG	0649.0	0653.0	II	UE	1	30	45	
			SVTO	0650.0	0659.0	CONT		2	35	45	
			IZMI	0704.9	0705.3	III	G	2	190	270	
			IZMI	0709.7	0709.9	III	G	1	210	245	
			IZMI	0710.8	0711.2	III	G	1	200	230	
			IZMI	0715.0	0715.5	III	G,HARM	2	50	270X	
			SVTO	0715.0	0715.0	III		2	45	85	
			SVTO	0732.0	0733.0	III		1	53U	85U	
			IZMI	0732.5	0733.0	III	G	2	55X	270X	
			IZMI	0732.6	0732.9	V	B,HARM	2	120	270	
			SVTO	0810.0	0834.0	CONT		1	35	55	
			IZMI	0849.2	0849.6	I	GG	1	225	260	
			LEAR	0905.0	0906.0	III		2	58	78	
			SVTO	0905.0	0916.0	III	N	3	35	85	
			IZMI	0905.6	0906.5	III	G,FS	2	50	270X	
0832	0949		HIRA	0905.6	0905.8	III	B	2	50	340	
			LEAR	0915.0	0916.0	III		3	52	80	
			ONDR	0915.5	0916.0	DCIM	G	2	800X	1965	
			IZMI	0915.8	0916.5	III	G,HARM	3	45	270X	
			IZMI	0915.8	0916.8	V	G,HARM	2	50	270	
			HIRA	0916.2	0916.4	III	B	3	50	700	
			IZMI	0921.0	0921.1	III	B,U	1	70	95	
			IZMI	0942.3	0948.4	III	GG	2	50	270X	
			ONDR	0943.5	0950.1	DCIM	G	1	800X	2000X	
			SVTO	0947.0	0947.0	III		1	35U	71U	
			IZMI	0949.1	0952.1	III	GG	2	80	270X	
			IZMI	0955.8	0956.0	III	G,FS	2	55	270X	
			IZMI	0958.8	1005.5	II	HARM	2	45X	120	
			SVTO	0959.0	1006.0	II		2	35	60	ESS 0600
			IZMI	1035.8	1036.1	III	G	2	45	270	
			SVTO	1036.0	1036.0	III		1	45U	83U	
			IZMI	1040.8	1041.7	III	G	2	45	250	
			IZMI	1047.5	1047.9	III	G,FS	2	50	170	
			IZMI	1051.7	1051.9	III	G	2	55	245	
			IZMI	1054.2	1102.5	III	N	2	200	270	
			SVTO	1058.0	1320.0	CONT		1	35	55	
			IZMI	1107.1	1108.8	III	GG	2	45X	270X	
			SGMR	1108.0	1108.0	III		1	30	55	
			SVTO	1108.0	1108.0	III		1	35	62	
			IZMI	1128.9	1139.0U	I	N	1	200	245	
			SVTO	1148.0	1157.0	V		3	35	85	
			ONDR	1148.5	1153.4	DCIM	GG,FS	2	800X	2000X	
			IZMI	1148.7	1152.1U	III	G	2	45X	270X	
			SGMR	1149.0	1155.0	III		2	30	80	
			IZMI	1149.4	1155.0U	V	G	2	45	150U	
			IZMI	1153.3	1153.8	I	GG,DC	2	50	55	
			ONDR	1246.5	1251.3	DCIM	GG	2	800X	2000	
			SGMR	1248.0	1250.0	III		2	30	80	
			SVTO	1248.0	1250.0	V		3	35	85	
			SGMR	1358.0	1432.0	III	N	2	30	80	
			SVTO	1358.0	1432.0	III	N	3	35	85	
			ONDR	1429.5	1449.5	DCIM	GG	2	800X	2000X	

126
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION			EVENT			FREQUENCY			Remarks		
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)		Lower (MHz)	Upper (MHz)
02			SVTO	1443.0	1505.0	III	N	3	35	85	
			SGMR	1444.0	1503.0	III	N	3	30	80	
			SVTO	1530.0	1530.0	III		1	68U	82U	
			SGMR	1547.0	1549.0	V		1	30	70	
			SVTO	1548.0	1550.0	V		1	35U	85U	
			SGMR	1709.0	1710.0	III		1	30	60	
			PALE	1804.0	1804.0	III		1	40	60	
			SGMR	1804.0	1804.0	III		1	40	60	
			SGMR	1934.0	1937.0	III		2	30	80	
			PALE	1935.0	1937.0	III		1	25	75	
			PALE	1954.0	2001.0	III		1	30	75	
			SGMR	1954.0	2001.0	III		1	30	80	
2115	2400		CULG	2121.0	2127.0	III	G	1	28	140	
			SGMR	2124.0	2126.0	III		1	30	70	
			CULG	2129.0	2140.0	II	SH	2	60	220	ESS 700
			CULG	2129.0	2142.0	II	FN	2	30	100	SWF
			HIRA	2129.5	2135.0	II		3	80	200	ESS 700
1939	2400		HIRA	2129.5	2133.5	II		2	50	140	ESS 700
			SGMR	2130.0	2157.0	II		2	30	80	ESS 0500
			PALE	2133.0	2200.0	II		2	25	75	ESS 0600
			CULG	2136.0	2140.0	III	G	3	25U	1300	
			HIRA	2136.5	2138.5	III	G	3	25X	260	
			CULG	2139.0	2147.0	II	FN	2	25	50	
			CULG	2139.0	2158.0	II	SH	3	30	100	ESS 450
			HIRA	2139.0	2146.5	II		3	50	100	ESS 450
			CULG	2251.0	2254.0	III	G	3	28	390	
			PALE	2252.0	2253.0	III		2	25	75	
			SGMR	2252.0	2253.0	III		1	30	80	
			HIRA	2252.4	2252.8	III	B	3	30	350	
			CULG	2314.0	2314.0	III	B	1	20	40	
03	0000	0700	CULG	0001.0	0001.0	III	B	2	60	90	
			CULG	0025.0	0027.0	III	G	2	35	440	
			LEAR	0025.0	0026.0	III		1	38	80	
			PALE	0025.0	0026.0	III		1	43	74	
0000	0948		HIRA	0025.0	0025.6	III	G	2	60	340	
			CULG	0106.0	0147.0	III	N	1	30	180	
			CULG	0216.0	0242.0	III	N	1	30	140	
			LEAR	0219.0	0230.0	III	N	3	30	80	
			PALE	0219.0	0227.0	V		3	25	75	
			CULG	0220.0	0222.0	III	G	2	18X	180	
			CULG	0224.0	0226.0	III	G	3	18X	300	
			HIRA	0225.2	0225.8	III	G	2	25X	300	
			CULG	0226.0	0227.0	V		1	18	60	
			CULG	0430.0	0450.0	III	N	1	28	180	
			LEAR	0436.0	0442.0	III		2	30	80	
			HIRA	0436.5	0438.5	III	G	1	50	250	
			CULG	0438.0	0438.0	III	B	3	35	180	
			SVTO	0438.0	0438.0	III		2	57U	85U	
			CULG	0528.0	0700.00	III	N	1	28	90	
			SVTO	0528.0	0911.0	CONT		1	35	85	
0558	1200		IZMI	0548.8E	1200.00	I	S	1	50	250	
			SVTO	0605.0	0607.0	III		2	35	85	
			IZMI	0605.4	0607.0	III	GG	2	45X	270X	
			SVTO	0753.0	0915.0	III	N	2	35	85	
			IZMI	0753.3	0753.7	III	G,FS	2	45X	125	
			IZMI	0801.4U	1117.0U	III	N	1	45X	95U	
			IZMI	0824.5	0825.0	III	GG	2	45X	95U	
0510	1800		BLEN	0845.3	0845.8	III	G	2	240	400	
			IZMI	0845.5	0845.7	III	G	2	45X	270X	
			BLEN	0951.0	0951.4	III	U,RS	2	250	550x	
			SVTO	0951.0	0952.0	III		2	35	63	
			SVTO	1006.0	1013.0	III		2	35	62	
			IZMI	1028.2	1032.0	III	GG	2	45X	260	
			SVTO	1029.0	1042.0	III	N	2	35	85	
			IZMI	1042.2	1042.5	III	G	2	45X	215	
			IZMI	1042.5	1042.7	V		2	55	65	
			SGMR	1119.0	1253.0	III	N	1	30	80	
			SVTO	1119.0	1122.0	V		2	35	83	

S O L A R R A D I O E M I S S I O N

Spectral Observations

127
Aug 99

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Start Day	End Day				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
03	0446 1724	IZMI	1119.7	1121.3	III	G	2	45X	230U	
			1120.0	1121.4	V	G	2	45	85	
			1130.8	1131.6	III	G	2	50	260	
		BLEN	1132.9	1139.0	III	GG	2	240	550x	
			1134.2	1139.3	III	GG,FS	2	45X	260	
		SVTO	1135.0	1139.0	V		2	35	83	
			1135.0	1138.5	DCIM	G	1	800X	2000X	
		SVTO	1215.0	1216.0	III		2	35	80	
		SGMR	1222.0	1224.0	III		3	30	80	
		SVTO	1222.0	1224.0	III		3	35	85	
		ONDR	1223.2	1224.0	DCIM	G	1	800X	1965	
		BLEN	1223.4	1224.2	III	G	2	230	450	
		SGMR	1251.0	1253.0	III		3	30	80	
		SVTO	1251.0	1255.0	III		3	35	85	
		BLEN	1251.3	1254.9	III	GG	2	220x	550x	
		SVTO	1424.0	1425.0	III		1	42	66	
		SVTO	1444.0	1445.0	III		1	64	76	
		SGMR	1622.0	1732.0	III	N	2	30	80	
		PALE	1719.0	1724.0	III		2	25	70	
		SVTO	1719.0	1719.0	III		1	35	50	
		SVTO	1723.0	1724.0	III		2	35	84	
		PALE	1730.0	1731.0	III		1	25	67	
		PALE	1859.0	1900.0	III		1	47	62	
		SGMR	1859.0	1900.0	III		1	48	75	
		PALE	2017.0	2018.0	III		1	27	55	
		SGMR	2018.0	2032.0	III	N	2	30	80	
		PALE	2030.0	2032.0	III		1	27	70	
	1939 2400	HIRA	2031.2	2031.4	III	B	1	30	220	
	2115 2400	CULG	2246.0	2246.0	III	B	1	30	70	
		CULG	2317.0	2318.0	III	G	1	50	180	
		CULG	2320.0	2322.0	III	G	2	18	130	
		LEAR	2320.0	2321.0	III		1	30	40	
		PALE	2320.0	2322.0	III		2	25	75	
		HIRA	2320.4	2321.4	III	G	1	25X	120	
04	0000 0700	LEAR	0034.0	0035.0	III		1	30	44	
		PALE	0034.0	0035.0	III		1	25	55	
		CULG	0035.0	0035.0	III	B	1	20	90	
		CULG	0237.0	0249.0	III	GG	2	20	1300	
		LEAR	0237.0	0237.0	III		1	30	44	
		LEAR	0237.0	0244.0	III		2	30	55	
		PALE	0237.0	0249.0	III		1	25	75	
		LEAR	0247.0	0247.0	III		1	30	44	
		CULG	0323.0	0323.0	III	B	1	30	80	
		CULG	0510.0	0700.00	I	S	1	70	170	
		CULG	0549.0	0550.0	III	G	1	23	300	
		CULG	0551.0	0558.0	II	SH	2	100	220	SWF ESS 1000
		CULG	0552.0	0558.0	II	FN	1	50	110	
		HIRA	0552.0	0556.0	II	SH	2	100	210	ESS 1000
		SVTO	0552.0	0555.0	II		1	73	85	ESS 0400
	0000 0947	HIRA	0552.0	0553.4	II	FN	1	80	100	ESS 1000
	0602 1200	IZMI	0552.0U	0556.4U	I	GG,DC	2	60	95U	
	0447 1724	ONDR	0557.0	0557.4	DCIM	G,SP	1	800X	1315	
		CULG	0601.0	0607.0	CONT		1	400	570	
		IZMI	0602.0E	1200.0D	I	S	2	85	270	
		SVTO	0617.0	0643.0	CONT		1	75	85	
		IZMI	0705.9	0706.0	III	B	2	85	135	
		IZMI	0733.3	0733.6	III	B	1	45	90	
		LEAR	0750.0	0750.0	III		1	30	45	
		SVTO	0750.0	0751.0	III		2	35	72	
		IZMI	0750.5	0751.7	III	G	2	45X	120	
		IZMI	0854.3	0854.4	III	B	1	80	150	
		SGMR	1101.0	1102.0	III		1	30	60	
		SVTO	1101.0	1102.0	III		2	35	77	
		IZMI	1101.5	1102.3	III	G,FS	2	45X	175	
		IZMI	1124.0	1127.2	III	GG,FS	2	45X	160	
		SVTO	1124.0	1125.0	III		1	37	60	
		IZMI	1138.5	1147.2	III	GG,FS	2	45X	270X	
		SGMR	1139.0	1145.0	III		1	30	80	

128
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
04	0510	1800	SVTO	1139.0	1149.0	V		2	35	81	
			BLN	1139.3	1144.3	III	GG	2	240	530	
			SVTO	1203.0	1216.0	III	N	2	35	66	
			SGMR	1215.0	1232.0	III	N	1	30	60	
			BLN	1307.2	1308.5	III	G	2	240	450	
			SGMR	1330.0	1333.0	III		1	30	57	
			SVTO	1331.0	1333.0	V		2	35	64	
			SVTO	1356.0	1358.0	III		2	43	71	
			SGMR	1357.0	1358.0	III		1	50	73	
			SGMR	1516.0	1517.0	III		1	30	75	
	1940	2400	SVTO	1516.0	1518.0	III		2	36	84	
			SGMR	1806.0	1806.0	III		1	30	50	
			PALE	2005.0	2007.0	III		3	25	75	
			SGMR	2005.0	2008.0	III		3	30	80	
			HIRA	2006.2	2006.6	III	B	2	25X	130	
	2115	2400	PALE	2021.0	2021.0	III		1	04	56	
			PALE	2021.0	2021.0	III		1	45	56	
			CULG								
05	0000	0700	CULG	0126.0	0135.0	III	G	1	20	70	
			CULG	0255.0	0258.0	III	G	2	20	130	
			LEAR	0255.0	0257.0	V		2	30	70	
			PALE	0255.0	0300.0	III		3	25	75	
			HIRA	0255.6	0255.8	III	B	1	25X	120	
	0448	1722	ONDR								
			CULG	0616.0	0616.0	III	B	1	30	70	
	0549	1200	CULG	0633.0	0633.0	III	B	1	30	70	
			I2MI	0819.3	0819.5	III	G	2	145	270X	
	0512	1755	BLN	1127.1	1127.4	III		2	260	530	
			SVTO	1436.0	1440.0	III		3	35	85	
			SGMR	1439.0	1440.0	III		2	30	80	
			SGMR	1457.0	1458.0	III		1	30	42	
			SVTO	1518.0	1547.0	III	N	3	35	85	
			SGMR	1527.0	1922.0	III	N	3	30	80	
			SVTO	1618.0	1713.0	III	N	3	35	85	
			PALE	2018.0	2018.0	III		1	25	60	
			SGMR	2018.0	2018.0	III		1	30	60	
			SGMR	2202.0	2217.0	III	N	1	30	80	
			CULG	2202.0	2204.0	III	G	2	20	180	
			HIRA	2202.4	2203.4	III	G	1	25X	170	
			CULG	2214.0	2218.0	III	G	2	23	450	
			HIRA	2214.0	2216.0	III	G	1	25X	410	
			CULG	2226.0	2227.0	III	G	1	30	50	
			CULG	2231.0	2233.0	III	G	1	30	440	
	2110	2400	HIRA	2232.6	2232.8	III	B	1	200	400	
			CULG	2238.0	2243.0	III	G	3	18X	180	
			SGMR	2238.0	2241.0	III		1	30	80	
			HIRA	2238.5	2240.0	III	G	2	25X	170	
			CULG	2247.0	2248.0	III	G	1	80	170	
			CULG	2302.0	2303.0	III	G	1	30	80	
			CULG	2320.0	2320.0	III	B	1	30	80	
06			LEAR	0004.0	0012.0	III		2	30	80	
			PALE	0004.0	0012.0	III		3	25	75	
	0000	0700	CULG	0004.0	0007.0	III	G	3	18	240	
			HIRA	0004.6	0004.8	III	B	2	25X	220	
	0000	0945	CULG	0009.0	0012.0	III	G	2	18	180	
			HIRA	0010.6	0010.8	III	B	1	50	180	
			HIRA	0016.6	0016.8	III	B	1	50	170	
			CULG	0017.0	0017.0	III	B	2	20	180	
			PALE	0029.0	0030.0	III		1	25	65	
			CULG	0030.0	0030.0	III	B	1	20	90	
			CULG	0039.0	0039.0	III	B	1	30	80	
			CULG	0124.0	0125.0	III	G	1	30	180	
			PALE	0124.0	0125.0	III		1	25	55	
			PALE	0129.0	0130.0	III		1	25	65	
			PALE	0136.0	0139.0	III		3	25	75	
			CULG	0137.0	0138.0	III	G	2	18X	180	
			LEAR	0137.0	0139.0	V		2	30	70	

S O L A R R A D I O E M I S S I O N

Spectral Observations

129
Aug 99

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	UT				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
06		HIRA	0137.4	0137.6	III	B	1	25X	180	
		CULG	0138.0	0140.0	V		2	18X	70	
		CULG	0149.0	0149.0	III	B	1	35	80	
		LEAR	0217.0	0222.0	III		1	30	45	
		CULG	0218.0	0221.0	III	G	1	25	180	
		PALE	0224.0	0225.0	III		1	25	55	
		CULG	0243.0	0300.0	III	N	1	30	170	
		PALE	0243.0	0251.0	III		1	25	55	
		LEAR	0245.0	0252.0	III		2	30	50	
		CULG	0339.0	0344.0	III	G	2	20	160	
		LEAR	0343.0	0353.0	III		2	30	65	
		PALE	0343.0	0343.0	III		1	25	60	
		HIRA	0343.4	0343.6	III	B	1	25X	140	
		CULG	0352.0	0352.0	III	B	1	25	80	
		CULG	0412.0	0414.0	III	G	1	35	170	
		CULG	0429.0	0433.0	III	G	2	20	170	
		LEAR	0429.0	0433.0	III		2	30	80	
		SVTO	0430.0	0432.0	III		1	35	79	
		HIRA	0430.6	0431.8	III	G	1	25X	130	
	0450 1722	ONDR								
0604 1112		LEAR	0459.0	0638.0	III	N	3	30	80	
		SVTO	0459.0	0504.0	III		2	36	85	
		CULG	0500.0	0509.0	III	G	2	20	160	
		SVTO	0518.0	0703.0	III	N	3	35	85	
		CULG	0519.0	0520.0	III	G	3	18X	200	
		HIRA	0519.2	0520.4	III	G	3	25X	230	
		CULG	0520.0	0523.0	V		3	18X	90	
		CULG	0530.0	0638.0	III	N	2	20	100	
		IZMI	0605.9	0606.5	III	G	2	45X	95	
		IZMI	0609.6	0610.3	III	G	1	45X	95	
		IZMI	0618.0U	1112.0D	I	S	1	200	270	
		IZMI	0648.4	0648.7	III	G	2	55	150	
		IZMI	0702.6	0703.0	III	G	1	50	70	
		SVTO	0713.0	1053.0	CONT		2	35	65	
		IZMI	0734.6	0735.3	III	G	1	45	95	
		IZMI	0740.0	0740.4	CONT		1	45X	75U	
		IZMI	0850.5	0851.0	III	G	2	45X	125	
		IZMI	0907.2	0907.3	III	B	2	45	110	
		IZMI	0912.5	0912.6	III	B	2	45X	75	
		LEAR	0926.0	0926.0	III		2	30	66	
1127 1205		SVTO	0926.0	0952.0	III	N	3	35	80	
		IZMI	0926.6	0927.6	III	GG	2	45X	95	
		IZMI	0938.2	0940.8	III	G,RS	1	65	95	
		IZMI	0945.5	0946.6	III	GG,RS	2	45X	65	
		IZMI	0946.2	0950.1	III	G	2	45X	95	
		SVTO	1034.0	1041.0	III		2	35	50	
		IZMI	1036.2	1036.5	III	B	2	55	92	
		IZMI	1039.2	1039.2	III	B	1	220	260	
		IZMI	1041.4	1041.6	III	B,HARM	2	45	120	
		SVTO	1100.0	1113.0	III	N	2	35	75	
		IZMI	1100.8	1101.2	III	G	1	45	95	
		SGMR	1113.0	1113.0	III		1	30	55	
		SVTO	1147.0	1233.0	III	N	3	35	83	
		SGMR	1148.0	1232.0	III	N	2	30	80	
		IZMI	1154.2	1154.5	III	G	1	45X	120	
		IZMI	1205.0	1205.3D	III	G	2	45X	95	
		SGMR	1329.0	1329.0	III		1	30	60	
		SVTO	1525.0	1656.0	CONT		1	69	85	
		SVTO	1629.0	1639.0	V		3	36	84	
		SGMR	1630.0	1708.0	III	N	2	30	70	
0512 1755		BLEN	1630.0	1631.0	DCIM	UNCL	2	1000	1440	
		SVTO	1640.0	1646.0	II		1	35	63	ESS 0900
		SGMR	1641.0	1646.0	II		2	30	60	ESS 0900
		PALE	1706.0	1707.0	III		1	30	60	
		SVTO	1706.0	1707.0	III		2	35	83	
		PALE	1831.0	1831.0	III		1	25	60	
		SGMR	1831.0	1832.0	III		1	30	70	
		PALE	1907.0	1914.0	III		1	40	60	
		SGMR	1907.0	1914.0	III		1	30	55	

130
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start End (UT) (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
06	2110 2400	PALE	2029.0	2032.0	III		2	25	75	
		SGMR	2029.0	2032.0	III		2	30	80	
		CULG	2141.0	2141.0	III	B	1	25	80	
		CULG	2220.0	2230.0	III	G	1	25	90	
	1942 2400	CULG	2301.0	2302.0	III	G	2	60	360	
		HIRA	2301.2	2301.4	III	B	1	60	300	
07	0000 0700	CULG	0004.0	0004.0	III	B	1	25	75	
		CULG	0032.0	0034.0	III	G	1	20	180	
		LEAR	0032.0	0034.0	III		1	30	55	
		CULG	0056.0	0056.0	III	B	1	30	60	
		LEAR	0153.0	0157.0	V		3	30	80	
		CULG	0154.0	0156.0	III	G	3	18X	180	
	0000 0944	PALE	0154.0	0156.0	III		3	25	75	
		HIRA	0154.2	0154.6	III	B	2	25X	230	
	0451 1720	ONDR								
		CULG	0507.0	0508.0	III	G	1	25	90	
		LEAR	0507.0	0508.0	III		1	30	47	
		SVTO	0507.0	0507.0	III		1	36U	50U	
	0512 1755	BLEN								
		SVTO	0540.0	0608.0	III	N	3	35	85	
		CULG	0541.0	0545.0	III	G	2	23	80	
		LEAR	0541.0	0544.0	III		2	30	71	
		HIRA	0542.0	0542.2	III	B	1	30	70	
	0601 1200	LEAR	0601.0	0607.0	III		2	30	68	
		IZMI	0601.6	0602.6	III	G	2	45X	70	
		CULG	0602.0	0603.0	III	G	1	30	80	
		IZMI	0606.6	0607.7	III	GG	2	45X	95	
		CULG	0607.0	0608.0	III	G	2	23	90	
		HIRA	0607.2	0607.4	III	B	1	30	80	
		IZMI	0621.6	0621.7	III	B	1	45	95	
		SVTO	0651.0	0725.0	III	N	3	35	83	
		LEAR	0656.0	0657.0	III		2	30	71	
		HIRA	0656.6	0656.8	III	B	1	30	80	
		IZMI	0656.6	0656.9	III	G	2	45X	95	
		CULG	0657.0	0657.0	III	B	2	25	90	
		LEAR	0725.0	0725.0	III		1	32	40	
		SVTO	0857.0	0952.0	III	N	3	35	85	
		LEAR	0859.0	0900.0	III		1	30	50	
		IZMI	0859.3	0900.0	III	G	2	45X	70	
		IZMI	0915.2	0915.4	III	B	2	45X	95	
		IZMI	0943.4	0944.4	V		2	45	70	
		IZMI	0943.4	0945.5	III	GG, FS	2	45X	120	
		IZMI	0951.1	0951.4	III	G	2	45X	125	
		IZMI	1045.6	1100.0U	I	N	1	200	270	
		SVTO	1059.0	1100.0	III		2	35U	85U	
		SGMR	1100.0	1100.0	III		1	37	40	
		SGMR	1143.0	1143.0	III		1	30	50	
		SVTO	1143.0	1143.0	III		1	37	48	
		SGMR	1420.0	1421.0	III		1	30	70	
		SVTO	1420.0	1422.0	III		2	36	68	
		SGMR	1521.0	1521.0	III		1	30	60	
		SVTO	1521.0	1550.0	III	N	2	35	84	
		SGMR	1632.0	1633.0	III		1	30	55	
		SVTO	1632.0	1633.0	III		2	36	65	
		SGMR	1702.0	1705.0	V		3	30	80	
		SVTO	1702.0	1704.0	III		3	36	84	
		PALE	1703.0	1703.0	III		1	25	75	
		SGMR	1750.0	1750.0	III		1	30	80	
		PALE	1751.0	1751.0	III		1	25	75	
	1943 2400	HIRA	2001.0	2003.5	III	G	1	25X	130	
		SGMR	2025.0	2108.0	III	N	2	30	80	
	2110 2400	CULG	2158.0	2221.0	III	N	1	25	70	
		CULG	2302.0	2313.0	III	GG	2	20	460	
		PALE	2302.0	2308.0	V		2	30	70	
		HIRA	2304.5	2307.5	III	G	1	25X	200	
		LEAR	2306.0	2307.0	III		1	30U	50U	
08	0000 0700	CULG								

S O L A R R A D I O E M I S S I O N Spectral Observations

131
Aug 99

AUGUST 1999

OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
08	0000	0943	HIRA								
			LEAR	0333.0	0334.0	III		1	30	42	
	0515	1750	BLN								
	0547	1200	IZMI								
	0452	1718	ONDR	0751.5	0753.0	DCIM	W	1	1060	2000X	
			SGMR	1607.0	1607.0	III		1	30	45	
			SVTO	1607.0	1607.0	III		1	36	50	
			SGMR	1817.0	1817.0	III		1	32	50	
	1944	2400	HIRA	2027.4	2027.6	III	B	1	50	170	
	2110	2400	CULG								
09	0000	0942	HIRA								
	0000	0700	CULG	0123.0	0123.0	III	B	1	30	80	
	0453	1717	ONDR								
	0515	1750	BLN								
	0549	1200	IZMI								
			SGMR	1844.0	1945.0	CONT		1	30	55	
	1945	2400	HIRA								
	2110	2400	CULG								
10	0000	0700	CULG								
	0000	0941	HIRA								
	0603	1200	IZMI								
			SVTO	0656.0	0658.0	III		1	35U	48U	
			LEAR	0657.0	0658.0	III		1	30	38	
			SVTO	1444.0	1444.0	III		1	45U	60U	
			SVTO	1525.0	1528.0	III		2	35	85	
			SGMR	1526.0	1528.0	III		2	30	70	
			SGMR	1621.0	1625.0	V		3	30	80	
			SVTO	1621.0	1625.0	V		3	35	85	
			ONDR	1621.4	1622.1	DCIM	G	2	800X	2000X	
	0455	1717	ONDR	1621.5	1623.0	DCIM	G	2	2000X	4295X	
			PALE	1749.0	1753.0	III		1	35	75	
			SGMR	1749.0	1754.0	III		1	30	80	
	2110	2400	CULG	2205.0	2207.0	III	G	3	20	460	
			PALE	2206.0	2208.0	V		3	25	75	
			SGMR	2206.0	2206.0	III		2	30	80	
	1946	2400	HIRA	2206.2	2206.4	III	B	2	25X	440	
			CULG	2207.0	2208.0	V		1	23	150	
			CULG	2220.0	2220.0	III	B	1	30	90	
11	0000	0940	HIRA								
			LEAR	0312.0	0312.0	III		1	30	49	
			PALE	0312.0	0312.0	III		1	40	65	
	0000	0700	CULG	0312.0	0312.0	III	B	1	30	180	
			CULG	0455.0	0503.0	III	G	1	20	90	
	0456	1715	ONDR								
	0515	1750	BLN								
	0602	1200	IZMI	0815.4	0815.6	III	G	1	225	270X	
			IZMI	0816.6	0817.0	III	G	2	200	270X	
			IZMI	1024.4	1025.4	III	G	2	45X	215	
			PALE	1930.0	1932.0	III		1	27	57	
			SGMR	1930.0	1931.0	III		1	38	80	
			SGMR	2000.0	2001.0	III		1	38	80	
			PALE	2056.0	2057.0	III		1	25	55	
			PALE	2318.0	2321.0	III		1	25	55	
	2110	2400	CULG	2318.0	2320.0	III	G	1	20	300	
	1947	2400	HIRA	2318.4	2319.2	III	G	2	80	360	
12	0000	0939	HIRA								
	0000	0700	CULG	0256.0	0257.0	III	G	1	100	170	
	0457	1714	ONDR								
	0515	1750	BLN								
	0550	1200	IZMI	0554.1	0554.4	I	GG	2	105	120	
			SVTO	0620.0	0716.0	CONT		1	61U	85U	
			CULG	0627.0	0700.00	III	N	1	30	90	
			IZMI	0635.1	0712.7	I	N	1	60	95U	
			IZMI	0647.5	0702.3	III	N	1	45	95U	
			IZMI	0703.3	0703.9	III	G	2	45X	120	

132
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION			EVENT				FREQUENCY			Remarks
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	
12			SGMR	1207.0	1210.0	III		1	30	80
			SVTO	1207.0	1210.0	V		2	35	69
			SVTO	1237.0	1240.0	V		2	35	69
	1948 2400		HIRA	2040.2	2040.4	III	B	1	110	250
	2110 2400		CULG							
13	0000 0938		HIRA							
	0000 0705		CULG	0259.0	0259.0	III	B	1	30	90
			CULG	0315.0	0315.0	III	B	1	30	90
			CULG	0354.0	0442.0	III	N	1	30	90
	0520 1745		BLN	0602.4	0603.9	III	GG	2	300	450
	0600 1200		IZMI	0602.6	0603.1	UNCLF		1	200	250
			IZMI	0747.6	0749.8	III	GG	2	160	270X
			BLN	0747.7	0750.4	III	GG,S	3	250	550X
	0458 1710		ONDR	0748.0	0749.5	DCIM	G	1	2000X	4295X
			ONDR	0748.4	0750.1	DCIM	G	1	800X	2000X
			BLN	0748.8	0751.5	DCIM	P	2	400	550X
			BLN	1123.6	1124.0	III	P	2	320	340
			BLN	1319.7	1320.4	III	G	2	290	360
			SVTO	1508.0	1531.0	III	N	2	35	85
			SGMR	1509.0	1557.0	III	N	1	30	70
	2105 2400		CULG	2108.0	2111.0	III	G	1	60	90
			CULG	2116.0	2118.0	III	G	1	60	750
			CULG	2123.0	2125.0	III	G	1	60	90
			CULG	2136.0	2138.0	III	G	3	25	180
			PALE	2136.0	2138.0	V		3	25	75
			SGMR	2136.0	2138.0	III		3	30	80
	1948 2400		HIRA	2136.8	2137.6	III	G	3	25X	200
			CULG	2245.0	2246.0	III	G	1	23	90
			PALE	2245.0	2342.0	III	N	1	25	55
			CULG	2302.0	2303.0	III	G	1	20	50
			CULG	2333.0	2336.0	III	G	2	30	240
			HIRA	2333.8	2334.2	III	G	1	80	230
			CULG	2342.0	2343.0	III	G	2	30	750
			HIRA	2342.0	2342.4	III	G	1	50	150
14			PALE	0051.0	0112.0	III	N	2	25	56
			LEAR	0052.0	0053.0	III		1	30	55
	0000 0705		CULG	0052.0	0113.0	III	N	2	20	110
			LEAR	0105.0	0106.0	III		2	30	51
			LEAR	0111.0	0112.0	III		1	30	51
			LEAR	0146.0	0148.0	III		1	30	75
			PALE	0146.0	1047.0	III		1	25	70
	0000 0936		HIRA	0146.8	0147.0	III	B	1	50	180
			CULG	0147.0	0148.0	III	G	2	28	180
			CULG	0305.0	0305.0	III	B	1	120	180
			CULG	0340.0	0343.0	III	G	1	25	70
			LEAR	0341.0	0343.0	III		2	30	47
			CULG	0515.0	0515.0	III	B	1	120	180
			SVTO	0529.0	0530.0	III		2	35	83
			CULG	0629.0	0705.00	III	N	1	23	170
			LEAR	0629.0	0632.0	III		1	30	45
			SVTO	0629.0	0821.0	III	N	2	35U	85U
	0600 1200		IZMI	0629.7	0630.9	III	GG	2	45	240
			LEAR	0650.0	0839.0	CONT		1	30	47
			IZMI	0715.8	0717.2	III	G	1	45	95
			IZMI	0834.3	0835.6	III	G	1	45	95
			LEAR	0838.0	0839.0	III		2	30	47
			SVTO	0838.0	0839.0	III		2	35	54
			IZMI	0838.1	0838.2	III	G	2	45X	95
			IZMI	0839.0	0839.1	III	B	1	45	90
	0500 1709		ONDR	0914.0	0916.2	DCIM		1	2245	4295X
			IZMI	1011.9	1012.2	III	B	1	45	65
			IZMI	1150.7	1153.5	III	G	2	45X	155
			SGMR	1152.0	1215.0	III	N	2	30	80
			SVTO	1152.0	1153.0	III		2	35	62
	0520 1745		BLN	1200.5	1208.2	III	GG	3	220X	550X
			SVTO	1205.0	1215.0	V		2	35	82
			ONDR	1206.1	1207.5	DCIM	G	1	800X	2000X

S O L A R R A D I O E M I S S I O N

Spectral Observations

133
Aug 99

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Start	End				Spectral	Event		Lower	Upper	
Day (UT)	(UT)		(UT)	(UT)	Class	Remarks		(MHz)	(MHz)	
14		ONDR	1206.4	1208.2	DCIM	G	1	3170	4295X	
		SGMR	1420.0	1420.0	III		1	30	45	
		SVTO	1420.0	1421.0	III		1	36	61	
		SGMR	1515.0	1516.0	III		1	30	80	
		SVTO	1515.0	1516.0	III		3	35	85	
		PALE	1922.0	1951.0	III	N	2	25	75	
		SGMR	1922.0	1951.0	III	N	2	30	80	
	1949 2400	HIRA								
15		LEAR	0352.0	0355.0	III		2	30	75	
		PALE	0352.0	0355.0	III		1	35	55	
	0000 0935	HIRA	0355.4	0355.6	III	B	1	25X	240	
		SVTO	0544.0	0545.0	III		2	35	85	
	0547 1200	IZMI	0544.6	0545.4	III	GG	2	45X	95U	
		HIRA	0544.8	0545.2	III	G	1	25X	100	
		LEAR	0721.0	0721.0	III		1	30	40	
		LEAR	0725.0	0737.0	III	N	1	30	50	
		SVTO	0725.0	0737.0	III	N	2	35	77	
		IZMI	0725.5	0726.5	III	G,FS	2	45	95	
		IZMI	0736.0	0738.0	III	G	2	45X	150	
	0501 1707	ONDR	0751.3	0752.3	DCIM	GG,SP	1	800X	2000X	
		ONDR	0751.3	0752.4	DCIM	G	1	2000X	4295X	
		IZMI	0758.8	0759.0	III	G	2	85	120	
		IZMI	0811.3	0812.3	III	G	2	60	140	
	0520 1745	BLN	1253.1	1300.5	III	GG	3	300	450	
		SVTO	1317.0	1318.0	III		1	35	56	
		BLN	1317.6	1321.0	DCIM	P,C	3	240	550X	
		SGMR	1318.0	1319.0	III		1	30	80	
		SGMR	1400.0	1401.0	III		2	30	60	
		SVTO	1400.0	1520.0	III	N	2	35	85	
		SGMR	1418.0	1703.0	III	N	2	30	75	
		BLN	1433.7	1452.3	III	GG	1	250	500	
		SVTO	1449.0	1451.0	III		2	03	85	
		SVTO	1451.0	1453.0	III		2	03	85	
		SVTO	1451.0	1453.0	III		2	35	85	
		SVTO	1621.0	1629.0	III		2	35	85	
		SGMR	1821.0	1906.0	III	N	2	30	80	
		PALE	1822.0	1829.0	III		2	25	70	
		PALE	1851.0	1851.0	III		1	25	55	
	1950 2400	HIRA								
	2105 2400	CULG	2109.0	2140.0	III	N	2	23	130	
		PALE	2110.0	2115.0	III		1	25	70	
		SGMR	2110.0	2115.0	III	N	1	30	80	
		CULG	2215.0	2216.0	III	G	1	28	170	
		CULG	2244.0	2316.0	III	N	1	25	150	
		CULG	2351.0	2351.0	III	B	1	20	90	
		PALE	2351.0	0007.0	III	N	2	25	75	
16		LEAR	0004.0	0006.0	III		2	30	80	
	0000 0934	HIRA	0004.8	0005.2	III	B	2	25X	160	
	0000 0705	CULG	0005.0	0006.0	III	G	3	20	180	
		CULG	0108.0	0115.0	III	G	1	20	150	
		LEAR	0108.0	0114.0	III		1	30	50	
		CULG	0150.0	0213.0	III	N	1	25	160	
		LEAR	0153.0	0213.0	III	N	1	30	50	
		PALE	0153.0	0153.0	III		1	40	60	
		CULG	0325.0	0325.0	III	B	1	20	110	
		LEAR	0326.0	0326.0	III		1	30	50	
		CULG	0412.0	0415.0	III	G	1	30	90	
		CULG	0447.0	0447.0	III	B	1	25	120	
		LEAR	0448.0	0449.0	III		1	30	47	
	0502 1706	ONDR								
	0525 1740	BLN								
	0533 0820	POTS	0536.3	0536.5	UNCLF		2	130	150	
		LEAR	0627.0	0633.0	III		2	30	75	
	0547 1201	IZMI	0627.0	0628.4	III	G	2	45X	125	
		POTS	0627.7	0628.6	III	G	2	40X	165	
		CULG	0628.0	0634.0	III	G	1	20	160	
		SVTO	0628.0	0633.0	III		2	35	85	

134
Aug 99

SOLAR RADIO EMISSION Spectral Observations

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Start	End				Spectral	Event		Lower	Upper	
Day (UT)	(UT)		(UT)	(UT)	Class	Remarks		(MHz)	(MHz)	
16		IZMI	0633.0	0633.6	III	B	2	45X	245	
		POTS	0633.1	0633.6	III	G	3	40X	360	
		IZMI	0633.2	0633.3	V		2	45X	90	
		IZMI	0707.4	0707.8	III	B	1	45	95	
		POTS	0707.5	0713.1	III	G	2	40X	170U	
		SVTO	0712.0	0713.0	III		1	35U	65U	
		IZMI	0712.5	0713.0	III	G,FS	2	45	125	
		POTS	0806.2	0810.6	III	G	2	40X	70	
		LEAR	0810.0	0810.0	III		1	30	50	
		SVTO	0810.0	0810.0	III		2	35	60	
		IZMI	0824.0	0824.1	III	B	1	65	95	
		SVTO	0900.0	0901.0	III		1	35U	55U	
		IZMI	0937.0	0937.4	III	G	2	45X	95	
		SGMR	1156.0	1311.0	III	N	2	30	80	
		SVTO	1156.0	1200.0	III		2	35	85	
		IZMI	1156.1	1156.3	III	B,FS	2	45X	95	
		IZMI	1159.8	1200.5	III	G	2	45X	260	
		SVTO	1301.0	1311.0	V		2	35	84	
		SGMR	1412.0	1432.0	III	N	1	30	70	
		SVTO	1412.0	1447.0	III	N	2	35	85	
		SGMR	1549.0	1550.0	III		1	30	60	
		SVTO	1549.0	1550.0	III		1	35	62	
		SGMR	1718.0	1730.0	III	N	2	30	60	
		PALE	1719.0	1721.0	III		1	25	55	
		PALE	1851.0	1851.0	III		2	25	56	
		SGMR	1851.0	1851.0	III		1	30	70	
		PALE	2011.0	2011.0	III		1	28	56	
		SGMR	2011.0	2029.0	III	N	1	30	80	
		PALE	2025.0	2029.0	III		2	25	70	
	1951 2400	HIRA	2025.8	2026.6	III	G	1	50	200	
	2110 2400	CULG	2202.0	2210.0	III	G	1	20	90	
		PALE	2316.0	2327.0	III	N	2	25	70	
		LEAR	2326.0	2326.0	III		1	30	47	
		HIRA	2326.8	2327.0	III	B	1	25X	150	
		CULG	2327.0	2327.0	III	B	2	20	150	
17		LEAR	0136.0	0136.0	III		1	30	42	
	0000 0710	CULG	0136.0	0137.0	III	G	1	20	90	
		CULG	0319.0	0325.0	III	G	1	23	180	
		LEAR	0319.0	0319.0	III		1	30	51	
		CULG	0454.0	0502.0	II	SH	1	100	160	ESS 400
	0000 0933	HIRA	0455.5	0459.0	II		1	110	140	ESS 400
		CULG	0457.0	0458.0	II	FN	1	60	70	
		SVTO	0538.0	0539.0	III		2	36	74	
	0525 1740	BLN	0538.6	0538.8	III	S	2	210	440	
	0548 1200	IZMI	0538.8	0539.0	III	B	2	45X	70	
		CULG	0539.0	0539.0	III	B	2	20	80	
		IZMI	0623.1	0623.2	III	B	1	45	85	
	0701 0948	POTS	0715	0948 U	I	S	2	200U	400	
		LEAR	0725.0	0725.0	III		2	30	56	
		POTS	0725.0	0725.1	III	B,RS	2	275	360	
		SVTO	0725.0	0725.0	III		2	35	65	
		IZMI	0725.1	0725.4	III	B	2	45X	65	
		POTS	0725.1	0725.5	III	B	2	40X	70	
		BLN	0818.5	0826.5	III	GG	1	260	340	
		IZMI	0820.7	1120.0U	I	S	1	200	270X	
		BLN	1045.8	1100	I	GG	2	240X	400	
		BLN	1047.5	1047.7	DCIM	P	2	220X	350	
		ONDR	1244.5	1255.2	DCIM	G	1	800X	2000X	
	0504 1704	ONDR	1244.5	1248.0	DCIM	GG	2	2000X	4290X	
		SGMR	1245.0	1245.0	III		1	35	55	
		SVTO	1245.0	1245.0	III		1	40U	55U	
		BLN	1247.4	1249.3	III	GG	2	220X	550X	
		SGMR	1434.0	2321.0	CONT		3	30	80	
		SGMR	1442.0	1448.0	II		2	39	60	ESS 0600
		SVTO	1442.0	1510.0	II		2	43U	63U	ESS 0700
		ONDR	1445.1	1520.1	DCIM	GG,FS	2	800X	2000X	
		BLN	1447.9	1530	DCIM	S,P	1	250	2200	
		ONDR	1520.1	1546.5	DCIM	GG,FS	1	800X	2000X	

S O L A R R A D I O E M I S S I O N

Spectral Observations

135
Aug 99

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Start Day (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
17		ONDR	1546.5	1619.0	DCIM	GG,FS	2	800X	1780	
		BLER	1600	1740	DCIM	P	3	1000X	1500	
		ONDR	1619.0	1704.2	DCIM	GG,FS	2	800X	2000X	
		PALE	1654.0	0222.0	CONT		3	25	75	
		SGMR	1735.0	1740.0	III		3	30	80	
	1951 2400	HIRA								
	2110 2400	CULG	2110.0E	2400.0D	III	S	3	25	160	
		LEAR	2303.0	0357.0	CONT		1	30	80	
		PALE	2348.0	0212.0	III	N	2	25	75	
		CULG	2400.0	2400.0	III	B	2	18	140	
18	0000 0710	CULG	0000.0E	0450.0	III	S	1	20	130	
		CULG	0203.0	0212.0	III	GG	2	20	340	
		LEAR	0203.0	0212.0	V		3	30	80	
	0000 0931	HIRA	0205.0	0211.0	III	G	2	25X	340	
		LEAR	0257.0	0307.0	III		2	30	50	
		CULG	0258.0	0337.0	III	N	2	20	170	
		PALE	0258.0	0325.0	III	N	1	25	60	
		LEAR	0325.0	0327.0	III		2	30	51	
		HIRA	0325.8	0326.0	III	B	1	25X	80	
		LEAR	0419.0	0421.0	III		2	30	69	
		CULG	0420.0	0421.0	III	G	2	18	170	
		HIRA	0420.0	0420.4	III	B	1	25X	140	
	0505 1702	ONDR								
		LEAR	0524.0	0824.0	III	N	2	30	80	
		SVTO	0524.0	0901.0	III	N	3	35	84	
		HIRA	0524.5	0528.0	III	G	1	25X	140	
	0530 1730	CULG	0525.0	0528.0	III	G	2	23	150	
		BLER								
		CULG	0533.0	0538.0	III	G	2	20	140	
	0602 1200	HIRA	0535.8	0536.6	III	G	1	25X	140	
		CULG	0555.0	0657.0	III	N	1	23	150	
		IZMI	0602.4	0602.5	III	B	1	50	65	
		IZMI	0607.3	0607.4	III	B	2	45X	150	
		IZMI	0618.2	0618.4	III	B	2	45X	270	
		IZMI	0639.4	0640.6	III	G	2	45X	130	
		IZMI	0647.6	0654.0U	III	N	1	45X	95	
		IZMI	0718.4	0719.0	III	G	2	45X	125	
		IZMI	0724.5	0724.5	UNCLF		2	60	70	
		IZMI	0724.7	0731.4	I	N	2	80	95	
		IZMI	0727.8	0728.3	III	G	1	45X	70	
		IZMI	0740.7	0745.1	III	GG,FS	2	45X	270X	
		HIRA	0741.0	0745.0	III	G	2	25X	180	
		IZMI	0741.8	0743.2	V	G	2	45	70	
		IZMI	0747.1	0748.4	III	G	2	45X	120	
		IZMI	0807.2	0807.6	III	G	2	45X	95	
		IZMI	0823.2	0824.1	III	GG	2	45X	270X	
		IZMI	0852.1	0852.4	III	G	1	45	95	
		IZMI	0859.5	0901.7	III	GG	2	45X	95	
		SVTO	0938.0	1007.0	III	N	2	35	63	
		IZMI	0939.6	0939.8	III	B	1	45X	95	
		IZMI	0952.2	0953.3	III	G	1	45X	95	
		IZMI	0955.4	0956.1	III	G	2	45X	120	
		IZMI	1000.5	1004.6	III	GG	2	45X	120	
		IZMI	1006.5	1006.6	III	B	1	50	95	
		IZMI	1048.5	1048.7	III	B	1	45X	95	
		IZMI	1054.1	1055.5	III	GG	2	45X	95	
		IZMI	1058.5	1158.0U	III	N	1	45	95	
		IZMI	1154.0	1155.7	III	GG,FS	2	45X	170	
		SGMR	1154.0	1156.0	III		1	30	60	
		SGMR	1221.0	1221.0	III		1	30	60	
		SGMR	1604.0	1617.0	III		1	30	40	
		SGMR	1708.0	1721.0	III	N	1	30	80	
		PALE	1717.0	1719.0	III		1	28	55	
		PALE	1844.0	1915.0	III	N	1	25	65	
		SGMR	1844.0	1859.0	III	N	1	30	70	
		PALE	2001.0	2022.0	III	N	2	25	75	
		SGMR	2001.0	2022.0	III	N	2	30	80	
	1952 2400	HIRA	2001.4	2001.6	III	B	1	25X	260	

136
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day (UT)	Start (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
18	2110	2400	PALE	2146.0	2147.0	III		1	25	60	
			SGMR	2146.0	2147.0	III		1	30	80	
			CULG	2146.0	2148.0	III	G	2	20	160	
			HIRA	2146.8	2147.4	III	G	1	25X	180	
			CULG	2209.0	2211.0	III	G	1	25	90	
			CULG	2231.0	2400.0	III	N	2	20	130	
			SGMR	2253.0	2254.0	III		1	30	50	
			LEAR	2307.0	2307.0	III		1	30	53	
			LEAR	2329.0	2329.0	III		1	30	51	
			LEAR	2336.0	2345.0	III		1	30	65	
19	0000	0715	LEAR	0042.0	0042.0	III		1	30	54	
			PALE	0042.0	0111.0	III	N	2	25	75	
			CULG	0042.0	0042.0	III	B	1	20	70	
			CULG	0054.0	0113.0	III	N	1	30	120	
			LEAR	0059.0	0111.0	III	N	3	30	80	
	0000	0930	CULG	0103.0	0111.0	III	G	3	18X	180	
			HIRA	0103.0	0111.0	III	G	3	25X	220	
			LEAR	0304.0	0327.0	III	N	2	30	55	
			PALE	0304.0	0325.0	III	N	1	25	65	
			CULG	0305.0	0424.0	III	N	1	20	180	
	0547	1204	LEAR	0410.0	0429.0	III	N	2	30	80	
			PALE	0410.0	0443.0	III	N	1	25	60	
			CULG	0411.0	0411.0	III	B	2	18X	90	
			SVTO	0423.0	0647.0	CONT		2	35	85	
			HIRA	0428.6	0428.8	III	B	1	25X	180	
			CULG	0429.0	0429.0	III	B	2	18X	180	
			CULG	0525.0	0640.0	III	N	1	28	80	
			IZMI	0546.6	0546.9	I	GG	2	110	120	
			IZMI	0624.6	0631.0U	I	N	1	110	220	
			LEAR	0627.0	0645.0	III	N	1	30U	47U	
			IZMI	0638.2	0639.5	III	G	2	45X	95	
			SVTO	0823.0	1257.0	CONT		2	35	69	
			IZMI	0823.5	0824.8	III	G	2	45X	95	
			IZMI	0837.6	0837.8	III	G	2	45X	90	
			IZMI	0843.9	0844.1	III	G	2	45X	125	
			IZMI	0846.0	0846.1	III	B	2	45	70	
			IZMI	0947.1	0950.6	III	GG	2	45X	170	
			IZMI	0955.7	0957.0	III	GG	2	45X	95	
			IZMI	1025.9	1026.1	III	B, HARM	2	50	150	
			IZMI	1126.9	1127.4	III	G	2	45X	270X	
			SGMR	1141.0	1148.0	III		1	30	60	
			IZMI	1141.6	1144.0	III	GG	2	45X	120	
			IZMI	1148.1	1149.7	III	GG	2	45X	95	
			IZMI	1152.6	1153.6	III	GG, FS	2	45	245	
			IZMI	1155.8	1155.9	III	B	1	60	95	
			SVTO	1158.0	1205.0	V		3	35	85	
			IZMI	1158.8	1203.4	III	GG	2	45X	270X	
			SGMR	1159.0	1205.0	V		3	30	80	
	0506	1659	ONDR	1202.0	1202.5	DCIM	GG	2	2000X	4295X	
			ONDR	1202.1	1203.1	DCIM	G	2	800X	2000X	
			SGMR	1304.0	1338.0	III	N	2	30	80	
			SVTO	1304.0	1435.0	III	N	2	35	83	
			SGMR	1427.0	1436.0	III		1	30	70	
	1600	1730	SVTO	1533.0	1534.0	III		1	37	50	
			BLEN								
			SGMR	1610.0	1644.0	III	N	1	30	70	
	2105	2400	SVTO	1610.0	1644.0	III	N	2	36	69	
			CULG	2114.0	2114.0	III	B	1	110	170	
			CULG	2123.0	2204.0	III	N	1	28	150	
			CULG	2226.0	2227.0	III	G	1	60	180	
			CULG	2319.0	2320.0	III	G	3	50	300	
	1953	2400	LEAR	2319.0	2319.0	III		1	55	80	
			HIRA	2319.0	2319.4	III	B	3	50	330	
			CULG	2340.0	2340.0	III	B	1	110	170	
20	0000	0715	CULG	0011.0	0012.0	III	G	1	140	180	
			CULG	0032.0	0032.0	III	B	1	120	180	
			CULG	0050.0	0050.0	III	B	1	60	180	

S O L A R R A D I O E M I S S I O N

Spectral Observations

137
Aug 99

AUGUST 1999

OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
20	0000	0929	HIRA	0050.2	0050.4	III	B	1	100	180	
			CULG	0135.0	0136.0	III	G	2	50	180	
			HIRA	0135.0	0135.4	III	B	2	50	180	
			LEAR	0135.0	0135.0	III		1	55	80	
			PALE	0135.0	0135.0	III		1	60	70	
			CULG	0206.0	0242.0	III	N	1	20	180	
			LEAR	0226.0	0226.0	III		1	30	40	
			LEAR	0237.0	0240.0	III		1	30	65	
			CULG	0447.0	0449.0	III	G	3	18X	270	
			LEAR	0447.0	0449.0	III		3	30	80	
			SVTO	0447.0	0455.0	III		3	35	85	
			HIRA	0447.6	0449.2	III	G	2	25X	240	
			LEAR	0454.0	0455.0	III		3	30	80	
			CULG	0455.0	0455.0	III	B	3	18X	100	
			HIRA	0455.0	0455.2	III	B	1	25X	110	
	0519	0807	POTS	0527.5	0527.7	III	B	3	150	225	
			POTS	0530.9	0531.1	III	B	2	110U	145	
			CULG	0549.0	0550.0	III	G	3	80	300	
			SVTO	0549.0	0606.0	III	N	1	60U	85U	
			POTS	0549.3	0550.2	III	G,U	3	75	300	
			HIRA	0549.6	0549.8	III	B	2	120	250	
			POTS	0550	0807 U	I	S	2	110U	400	
			CULG	0558.0	0558.0	III	B	1	30	90	
	0605	1200	IZMI	0558.1	0558.4	III	G	1	45X	95	
			CULG	0606.0	0607.0	III	G	1	50	260	
			IZMI	0606.0	0606.5	III	G	2	55	270	
			POTS	0606.0	0606.7	III	G,U	3	60	275	
			HIRA	0606.2	0606.4	III	B	1	100	200	
			POTS	0616.7	0617.0	III	G	1	110U	250	
			CULG	0624.0	0625.0	III	G	2	80	280	
			IZMI	0624.5	0625.0	III	G	2	60	270X	
			POTS	0624.5	0625.2	III	G,U	3	110U	275	
			HIRA	0624.8	0625.0	III	B	2	120	240	
			IZMI	0633.6	0633.9	III	G	2	160	260	
			POTS	0633.6	0634.0	III	G	2	135	250	
			CULG	0655.0	0658.0	III	G	1	30	60	
			IZMI	0659.4	0700.7	I	GG	2	85	95	
			IZMI	0712.7	0825.0U	I	N	1	55	240	
			SVTO	0754.0	0827.0	III	N	2	35	85	
			IZMI	0754.1	0758.4	III	GG	2	45X	270	
			POTS	0754.5U	0801.7	III	GG,RS,P	2	40X	350	
			LEAR	0755.0	0803.0	III		2	30	70	
			IZMI	0800.0	0802.0	III	GG	2	45X	210	
			IZMI	0818.1	0819.0	III	G,FS	1	45	95	
			IZMI	0824.9	0826.7	III	GG,FS	2	45X	270X	
			LEAR	0825.0	0826.0	III		2	30	80	
			IZMI	0825.1	0825.9	CONT		1	45X	95	
			HIRA	0825.4	0825.6	III	B	1	50	240	
			IZMI	0919.3	0919.6	III	G	3	60	270X	
			IZMI	0922.0	0922.2	III	B,FS	2	50	90	
			IZMI	0925.6	0927.7	III	GG	2	50	270X	
			SVTO	0926.0	0928.0	III		2	56	85	
			LEAR	0927.0	0927.0	III		1	60	80	
			SGMR	1233.0	1234.0	III		1	60	80	
	0507	1659	ONDR	1255.3	1307.5	DCIM	GG,W	1	985	2000X	
			SGMR	1403.0	1409.0	III	N	2	30	80	
			SVTO	1403.0	1411.0	III		3	35	85	
			SGMR	1532.0	1622.0	III	N	2	30	80	
			SVTO	1532.0	1622.0	III	N	2	35	84	
	1600	1730	BLEN								
			SGMR	1705.0	1713.0	III	N	2	30	70	
			SVTO	1705.0	1711.0	III		1	35	60	
			PALE	1706.0	1711.0	V		1	25	60	
			PALE	1805.0	1806.0	V		1	25	58	
			SGMR	1805.0	1814.0	III	N	1	30	50	
			PALE	1827.0	1833.0	V		3	25	75	
			SGMR	1827.0	1831.0	III		3	30	80	
			SGMR	1839.0	1847.0	II		2	30	50	ESS 0400
			PALE	1840.0	1845.0	II		3	30	50	ESS 0400

138
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
20		PALE	1922.0	1925.0	V		3	25	75	
		SGMR	1922.0	1925.0	V		3	30	80	
		PALE	2033.0	2039.0	V		2	26	70	
		SGMR	2033.0	2100.0	III	N	1	30	80	
	1954 2400	HIRA	2037.8	2038.4	III	G	1	25X	300	
		PALE	2041.0	2233.0	III	N	3	25	75	
		SGMR	2055.0	2059.0	III		2	30	80	
		HIRA	2056.4	2056.8	III	B	2	25X	230	
		SGMR	2140.0	2316.0	III	N	1	30	80	
		HIRA	2140.4	2140.6	III	B	1	50	80	
		HIRA	2152.2	2152.4	III	B	1	100	140	
		HIRA	2212.2	2212.4	III	B	1	25X	120	
		HIRA	2232.8	2233.6	III	G	1	25X	80	
		LEAR	2305.0	2312.0	III		3	30	80	
		PALE	2305.0	2313.0	V		3	25	75	
		SGMR	2305.0	2308.0	III		3	30	80	
		HIRA	2306.0	2308.0	III	G	3	25X	500	
		PALE	2317.0	2333.0	II		2	28	70	ESS 0700
		LEAR	2318.0	2332.0	II		2	33	52	ESS 0500
		HIRA	2320.0	2325.0	II	FN	1	30	50	
		HIRA	2320.0	2325.0	II	SH	1	60	100	
21		LEAR	0013.0	0015.0	III		1	30	35	
		PALE	0013.0	0014.0	III		1	25	35	
		LEAR	0026.0	0027.0	III		1	30	43	
		PALE	0026.0	0027.0	III		1	30	45	
		LEAR	0049.0	0050.0	III		2	30	80	
		PALE	0049.0	0050.0	III		3	25	75	
	0000 0928	HIRA	0049.4	0050.4	III	G	1	25X	80	
		LEAR	0157.0	0209.0	III	N	3	30	80	
		PALE	0158.0	0208.0	III		3	25	75	
		HIRA	0206.0	0206.8	III	G	2	25X	170	
		LEAR	0317.0	0317.0	III		1	30	48	
		LEAR	0431.0	0432.0	III		1	30	40	
		LEAR	0503.0	0504.0	III		1	30	45	
		LEAR	0557.0	0558.0	III		2	30	55	
		SVTO	0557.0	0558.0	III		2	35	61	
	0547 1200	IZMI	0557.3	0558.1	III	G	2	45X	250	
		IZMI	0604.6	0604.7	III	B	1	55	65	
		IZMI	0638.3	0638.6	III	G,FS	2	45	180	
		IZMI	0750.7	0751.0	III	G	2	45X	95	
		LEAR	0756.0	0758.0	III		2	30	80	
		SVTO	0757.0	0758.0	III		3	35	85	
		IZMI	0757.1	0758.2	III	GG	2	45X	170	
		HIRA	0757.4	0758.0	III	G	1	25X	150	
		LEAR	0825.0	0825.0	III		1	30	45	
		SVTO	0825.0	0825.0	III		1	35U	50U	
		IZMI	0855.4	0855.6	III	G,FS	2	45	215	
		IZMI	0911.9	0912.0	III	G	2	225	270X	
		IZMI	0932.7	0932.9	III	B	1	80	150	
		IZMI	0941.7	0941.8	III	B	1	190	270X	
		IZMI	0954.1	0954.8	III	G	1	220	270X	
		SGMR	1102.0	1103.0	III		2	30	80	
		SVTO	1102.0	1103.0	III		3	35	85	
		IZMI	1102.3	1103.8	III	GG,FS	3	45X	270X	
		IZMI	1102.7	1103.6	CONT		2	45	180	
		IZMI	1115.4	1116.7	III	GG	2	45X	270X	
		IZMI	1117.0	1117.3	III	G	2	85	270X	
		IZMI	1129.8	1129.9	III	G	2	110	215	
		IZMI	1132.2	1132.4	III	G	2	85	145	
		IZMI	1140.0	1140.7	III	G	2	45X	250	
		SGMR	1140.0	1140.0	III		1	30	80	
		SVTO	1140.0	1140.0	III		2	35	76	
		IZMI	1158.5	1159.0	III	G	2	105	145	
		SGMR	1223.0	1224.0	III		1	30	80	
		SVTO	1223.0	1224.0	III		2	35	85	
		SGMR	1456.0	1458.0	V		1	30	60	
		SGMR	1628.0	1628.0	III		1	32	50	
		SGMR	1633.0	1651.0	III	N	3	30	80	

S O L A R R A D I O E M I S S I O N

Spectral Observations

139
Aug 99

AUGUST 1999

OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
21	0509	1657	ONDR	1633.0	1634.2	DCIM	G	2	800X	2000X	
			SGMR	1652.0	1701.0	II		2	30	64	ESS 0500
			PALE	1935.0	1942.0	III		3	25	75	
			PALE	1945.0	1945.0	III		1	25	55	
			PALE	2026.0	2027.0	III		1	25	55	
			PALE	2039.0	2244.0	III	N	3	25	75	
			SGMR	2131.0	2215.0	III	N	1	30	80	
	1954	2400	HIRA	2132.0	2132.2	III	B	1	40	120	
			HIRA	2141.2	2141.4	III	B	1	25X	80	
			HIRA	2209.6	2210.4	III	G	1	25X	120	
			SGMR	2212.0	2215.0	III		3	30	80	
			HIRA	2213.0	2214.0	III	G	3	25X	230	
			PALE	2348.0	0048.0	III	N	2	25	60	
22			LEAR	0027.0	0027.0	III		1	45	57	
			LEAR	0141.0	0147.0	III		2	30	80	
			PALE	0141.0	0302.0	III	N	2	25	75	
	0000	0926	HIRA	0147.2	0147.4	III	B	1	25X	120	
			LEAR	0152.0	0155.0	III		2	30	80	
			LEAR	0205.0	0212.0	III		1	30	55	
			LEAR	0300.0	0301.0	III		3	30	80	
			HIRA	0301.8	0302.0	III	B	2	25X	130	
			LEAR	0342.0	0653.0	III	N	3	30	55	
			SVTO	0505.0	0739.0	III	N	2	35	85	
			HIRA	0547.5	0557.0	III	G	1	25X	120	
	0555	0901	IZMI	0547.6	0547.8	III	B	2	45X	95	
			IZMI	0549.6	0550.5	III	G,FS	2	45X	95	
			IZMI	0552.0	0553.1	III	GG	2	45X	95	
			IZMI	0556.1	0556.7	III	G	2	45X	85	
			IZMI	0557.7	0557.9	III	B	1	45X	65	
			IZMI	0624.7	0624.8	III	B	2	45	65	
			HIRA	0628.8	0629.0	III	B	1	25X	80	
			IZMI	0628.8	0629.0	III	B	2	45X	110	
			IZMI	0630.3	0630.4	III	G	1	45X	65	
			IZMI	0639.2	0639.8	III	G	2	45X	90	
			HIRA	0639.4	0639.6	III	B	1	25X	80	
			IZMI	0641.6	0641.7	III	B	2	45X	70	
			IZMI	0644.1	0644.8	III	G,U	2	45X	120	
			HIRA	0644.2	0644.4	III	B	1	25X	100	
			IZMI	0646.2	0646.4	III	G	1	45	95	
			HIRA	0652.2	0652.4	III	B	1	25X	80	
			IZMI	0652.2	0652.5	III	G	2	45X	95U	
			IZMI	0732.8	0733.5	III	G	1	45X	270X	
			IZMI	0821.4	0821.8	III	G	2	45X	95	
			IZMI	0825.4	0825.5	III	B	1	45	70	
			IZMI	0837.7	0837.8	III	G	1	45	95	
	0908	1200	IZMI	0918.9	0919.3	III	G	2	45X	170	
			LEAR	0919.0	0924.0	III		2	30	67	
			SVTO	0922.0	0924.0	III		2	35U	85U	
			IZMI	0922.4	0922.6	III	G,FS	2	45X	120	
			IZMI	0924.3	0925.3	III	G,FS	2	45X	190	
			IZMI	0924.7	0925.0	V	FS	2	50	62	
			IZMI	0938.4	0938.5	UNCLF		2	225	250	
			SVTO	1000.0	1000.0	III		2	35U	72U	
			IZMI	1000.4	1000.6	III	G	2	45X	125	
			IZMI	1000.6	1000.9	V		2	45	70	
			IZMI	1003.3	1003.4	III	B,RS	1	45X	50	
			IZMI	1003.8	1003.9	III	B	1	45	65	
			IZMI	1031.3	1031.5	III	G	1	45X	120	
			IZMI	1035.7	1035.8	III	B,RS	1	50	65	
			SGMR	1104.0	1104.0	III		1	35	60	
			SVTO	1104.0	1104.0	III		1	35U	57U	
			IZMI	1104.3	1104.6	III	G	1	45X	95	
			IZMI	1118.2	1118.4	III	G	1	45X	95	
			SVTO	1155.0	1233.0	III	N	1	35	85	
			IZMI	1155.5	1156.9	III	G	2	45X	95	
			IZMI	1159.4	1159.7	III	G	2	45X	60	
			SGMR	1245.0	1247.0	III		3	30	80	
			SVTO	1245.0	1247.0	III		3	35	85	

140
Aug 99

S O L A R R A D I O E M I S S I O N

Spectral Observations

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
22		SVTO	1311.0	1405.0	III		1	35	85	
		SGMR	1410.0	1413.0	III		3	30	80	
		SVTO	1410.0	1417.0	V		3	35	85	
	0510 1656	ONDR	1411.0	1416.3	DCIM	G	1	800X	2000X	
		SGMR	1428.0	1431.0	III		3	30	80	
		SGMR	1547.0	1552.0	III		3	30	80	
		ONDR	1549.1	1552.0	DCIM	G	1	800X	2000X	
		SVTO	1634.0	1637.0	III		2	35	85	
		SGMR	1635.0	1641.0	V		2	30	80	
		PALE	1636.0	1636.0	III		1	25	60	
		PALE	1657.0	1658.0	III		1	25	75	
		PALE	2014.0	2314.0	III	N	1	25	55	
	1955 2400	HIRA	2118.4	2118.6	III	B	1	25X	140	
	2200 2400	CULG	2211.0	2212.0	III	G	2	20	140	
		HIRA	2211.2	2212.2	III	G	1	25X	120	
		HIRA	2223.8	2224.0	III	B	1	25X	130	
		CULG	2224.0	2224.0	III	B	2	18	150	
		CULG	2255.0	2255.0	III	B	2	20	140	
23	0000 0715	CULG	0134.0	0134.0	III	B	1	30	80	
	0000 0925	HIRA	0253.8	0254.0	III	B	1	25X	50	
		CULG	0254.0	0254.0	III	B	2	18	70	
		CULG	0359.0	0359.0	III	B	1	30	60	
		CULG	0414.0	0414.0	III	B	1	20	50	
		LEAR	0414.0	0414.0	III		1	30	41	
		LEAR	0419.0	0419.0	III		1	30	40	
	0511 1653	ONDR								
	0536 0703	POTS	0536 E	0703 U	I	S	1	110U	170U	
		POTS	0552.8	0552.9	III	B	3	55	170U	
	0604 1200	IZMI	0552.8	0553.0	III	G	1	50	70	
		IZMI	0625.9	0626.2	III	B	2	50	90	
		CULG	0626.0	0642.0	III	N	1	30	90	
		POTS	0626.1	0626.2	III	G	1	50	70	
		POTS	0633	0642	III	N	1	40X	90U	
		IZMI	0633.5	0634.2	III	G	2	45X	95	
		IZMI	0640.5	0642.0	III	G,FS	2	45X	95	
		IZMI	0737.0	0737.2	III	G,HARM	2	45X	160	
		IZMI	0944.6	0945.2	III	G,FS	2	200	270X	
		IZMI	0950.5	0950.9	III	B	1	55	121	
		IZMI	1036.3	1036.4	III	B	1	60	120	
		IZMI	1054.6	1054.8	III	B	2	50	125	
		IZMI	1055.9	1056.6	III	G,HARM	2	45X	225	
		IZMI	1056.0	1056.7	V	G,HARM	2	45X	95	
		SGMR	1056.0	1059.0	III		1	30	80	
		IZMI	1059.3	1059.6	V		2	45	70	
		IZMI	1059.3	1100.0	III	G	2	45X	140	
		SVTO	1327.0	1554.0	III	N	2	35	85	
		SGMR	1751.0	1753.0	III		1	30	50	
		SGMR	1831.0	1832.0	III		1	30	60	
		SGMR	1852.0	1905.0	III		1	35	55	
		PALE	1900.0	2158.0	CONT		1	25	75	
		PALE	1930.0	1934.0	III		2	25	75	
		SGMR	2040.0	2047.0	III		3	30	80	
	1956 2400	HIRA	2046.8	2047.0	III	B	2	30	150	
	2100 2400	CULG	2122.0	2122.0	III	B	1	40	140	
		HIRA	2122.2	2122.4	III	B	1	100	150	
		HIRA	2145.6	2147.8	III	G	1	100	140	
		CULG	2146.0	2148.0	III	G	1	40	170	
		CULG	2350.0	2351.0	III	G	2	30	150	
		LEAR	2350.0	2350.0	III		1	30	80	
		PALE	2350.0	2351.0	III		2	25	75	
		HIRA	2350.2	2350.4	III	B	1	30	140	
24	0000 0720	CULG	0008.0	0008.0	III	B	1	30	130	
		LEAR	0332.0	0339.0	III		1	30	50	
		CULG	0333.0	0339.0	III	G	1	30	70	
		CULG	0349.0	0349.0	III	B	1	30	70	
	0000 0924	HIRA	0420.8	0421.0	III	B	1	120	230	
		CULG	0421.0	0421.0	III	B	2	130	260	

S O L A R R A D I O E M I S S I O N

Spectral Observations

141
Aug 99

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day (UT)	Start End (UT) (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
24		SVTO	0459.0	0500.0	III		1	35	70	
	0513 1650	ONDR								
		LEAR	0519.0	0520.0	III		1	30	47	
		CULG	0520.0	0520.0	III	B	1	30	70	
	0547 1200	IZMI	0548.0U	0611.0	I	N	1	210	260	
		SVTO	0609.0	0908.0	III	N	2	35	85	
		IZMI	0647.0	0647.3	III	B	1	45X	95	
		IZMI	0652.5	0652.9	III	G	1	45	120	
	0653 0951	POTS	0653 E	0951 U	I	S,W	1	110U	170U	
		IZMI	0753.3	0753.5	III	B	1	45X	95	
		IZMI	0856.1	0902.7	III	GG	2	45X	95	
		POTS	0941.1	0941.2	III	G	1	110U	170U	
	1055 1354	POTS	1055 E	1354 U	I	S	1	110U	250	
		IZMI	1102.7	1102.7	III	B	2	200	240	
		POTS	1316.4	1316.5	III	B	2	110U	150	200-400 MHz:
		PALE	1918.0	1918.0	III		1	30	55	
		SGMR	1918.0	1918.0	III		1	30	50	
	1957 2400	HIRA								
	2100 2400	CULG	2243.0	2243.0	III	B	1	60	100	
25		LEAR	0133.0	0144.0	V		3	30	80	
		PALE	0133.0	0142.0	V		3	25	75	
	0000 0720	CULG	0133.0	0137.0	III	G	3	18X	430	
	0000 0922	HIRA	0133.0	0136.0	III	G	3	25X	420	
		CULG	0137.0	0140.0	III	G	1	20	90	
		CULG	0140.0	0149.0	II	SH	1	75	180	SWF FLA
		CULG	0140.0	0150.0	II	FN	1	35	80	ESS 500
		LEAR	0142.0	0149.0	II		1	39	67	ESS 0500
		PALE	0144.0	0149.0	II		1	40	55	ESS 0500
		CULG	0234.0	0235.0	III	G	1	30	90	
		LEAR	0234.0	0235.0	III		1	30	75	
		CULG	0318.0	0318.0	III	B	1	23	45	
		CULG	0357.0	0359.0	III	G	1	25	300	
		LEAR	0357.0	0359.0	III		2	30	80	
		CULG	0427.0	0427.0	III	B	1	20	70	
	0548 1200	IZMI	0549.9	0550.0	III	B	2	50	70	
		IZMI	0552.7	0553.4	I	GG,DC	2	105	115	
		CULG	0555.0	0609.0	III	N	2	23	130	
		LEAR	0555.0	0745.0	III	N	2	30	80	
		SVTO	0555.0	0556.0	III		2	35	83	
		SVTO	0555.0	0609.0	III	N	2	35	83	
		IZMI	0555.5	0556.1	III	G	2	45X	125	
		IZMI	0603.5	0603.8	III	B	2	45X	260	
		IZMI	0608.8	0609.2	III	G	2	45X	95	
		IZMI	0609.3	0911.5	I	GG	2	110	120	
		SVTO	0612.0	0716.0	III	N	2	35	85	
		IZMI	0620.1	0850.0U	I	N	1	110	120	
		IZMI	0626.8	0627.1	III	B	2	45X	150	
		CULG	0627.0	0627.0	III	B	1	30	90	
		IZMI	0633.5	0633.8	III	B	1	45	95	
		IZMI	0636.8	0637.0	III	B	1	60	90	
		SVTO	0642.0	0746.0	III	N	2	35	85	
		IZMI	0642.5	0642.7	III	G	2	45X	125	
		CULG	0643.0	0643.0	III	B	1	30	90	
		IZMI	0647.0	0647.1	III	B	1	50	90	
		IZMI	0650.8	0651.0	III	B	1	55	95	
		IZMI	0655.1	0656.2	III	G	1	45X	95	
	0514 1648	ONDR	0720.2	0720.5	DCIM		1	2320	4295X	
		IZMI	0720.5	0720.7	III	B	2	45	165	
		IZMI	0721.8	0722.4	III	G	2	45X	125	
		IZMI	0736.1	0736.3	III	G	1	55	120	
		IZMI	0737.5	0738.9	III	G	2	45X	240	
		LEAR	0738.0	0738.0	III		3	30	80	
		HIRA	0738.2	0738.4	III	B	1	25X	160	
		IZMI	0741.3	0741.5	III	B	1	45	95	
		IZMI	0745.3	0745.7	III	G	2	45X	150	
		HIRA	0745.4	0745.6	III	B	1	40	130	
		IZMI	0747.3	0748.3	III	G	1	45	90	
		IZMI	0750.8	0751.8	III	G	2	45X	95	

142
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks		
Day (UT)	Start (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)			
25	0814	1510	POTS	0814	E	1510	U	I	S	1	110U	400	no obs.:1400-1510
			IZMI	0931.3		0931.4		III	G	1	50	95	
			IZMI	1008.4		1008.5		III	B	1	55	70	
			IZMI	1011.3		1011.3		III	B	1	55	70	
			IZMI	1015.0		1015.2		III	G	2	45X	95	
			SGMR	1016.0		1017.0		III		1	30	80	
			SVTO	1016.0		1018.0		V		3	35	85	
			IZMI	1016.7		1018.2		III	G	3	45X	240	
			IZMI	1016.9		1017.6		V	G	2	45X	90	
			IZMI	1024.5		1024.7		III	G	2	45	170	
			IZMI	1026.4		1026.5		III	B	1	55	95	
			IZMI	1042.0		1042.1		III	B	1	45	95	
			IZMI	1047.1		1047.8		III	G	1	45	95	
			IZMI	1105.0		1110.0		III	GG	1	45X	95	
			SVTO	1109.0		1116.0		III		2	36	85	
			SGMR	1110.0		1116.0		III		1	30	60	
			IZMI	1115.0		1116.6		III	GG	2	45X	230	
			SGMR	1328.0		1329.0		III		1	30	60	
			SVTO	1329.0		1329.0		III		1	35	52	
			SGMR	1705.0		1706.0		V		1	30	60	
			SGMR	1842.0		1843.0		III		1	30	45	
	1958	2400	HIRA										no obs.:1400-1510
	2100	2400	CULG	2100.0		2100.0		III	B	1	30	140	
26	0000	0921	HIRA	0005.8		0006.4		III	G	1	25X	180	no obs.:1400-1510
			LEAR	0006.0		0006.0		III		2	30	73	
			PALE	0006.0		0006.0		III		1	28	70	
	0000	0720	CULG	0006.0		0007.0		III	G	2	20	180	
			CULG	0048.0		0048.0		III	B	1	20	80	
			LEAR	0048.0		0048.0		III		2	30	52	
			PALE	0048.0		0048.0		III		1	30	55	
			CULG	0117.0		0117.0		III	B	1	20	90	
			LEAR	0117.0		0117.0		III		2	30	60	
			PALE	0117.0		0117.0		III		1	28	56	
			LEAR	0149.0		0150.0		III		2	30	80	
			HIRA	0149.4		0149.6		III	B	1	50	200	
			CULG	0150.0		0150.0		III	B	1	28	180	
			LEAR	0159.0		0200.0		III		2	30	70	
			CULG	0200.0		0200.0		III	B	1	28	90	
			CULG	0316.0		0317.0		III	G	2	30	230	
			HIRA	0316.0		0316.8		III	G	2	30	200	
			LEAR	0316.0		0317.0		III		2	30	80	
			PALE	0316.0		0317.0		III		1	40	65	
			CULG	0330.0		0343.0		III	N	1	23	150	
			HIRA	0330.0		0330.2		III	B	1	50	160	
			LEAR	0330.0		0334.0		III		2	30	75	
			HIRA	0342.8		0343.0		III	B	1	50	130	
			CULG	0423.0		0424.0		III	G	1	30	150	
			HIRA	0423.0		0423.4		III	B	1	50	150	
			LEAR	0432.0		0432.0		III		1	30	67	
	0449	1657	POTS	0449	E	1605		III	N	1	110U	170U	200-400 MHz:
			POTS	0523.5		0524.1		III	G	3	45	170U	no obs.:0449-0536
			CULG	0524.0		0524.0		III	B	1	60	180	no obs.:1325-1657
			POTS	0530		1657	U	I	S,W	1	110U	400	
			POTS	0530.0		0530.1		III	B	2	110U	170U	
			POTS	0534.3		0534.4		III	B	2	110U	170U	
			CULG	0549.0		0551.0		III	G	2	60	150	
			POTS	0549.0		0551.4		III	G	2	110U	170U	
			CULG	0609.0		0610.0		III	G	2	20	160	
			LEAR	0609.0		0610.0		III		1	30	80	
			SVTO	0609.0		0610.0		III		2	53	85	
			POTS	0609.2		0611.7		III	G	3	40X	225	
			HIRA	0609.6		0610.0		III	B	1	50	160	
	0603	1200	IZMI	0609.6		0610.3		III	G	2	45X	170	
			IZMI	0611.7		0611.8		III	B	1	50	95	
			POTS	0636.2		0636.3		III	G	2	110U	150	
			IZMI	0701.8		0703.0		III	G	1	55	120	
			POTS	0702.1		0703.2		III	G	2	110U	170U	
			POTS	0720.6		0723.4		III	G	2	110U	225	

143
Aug 99

OBSERVATION			EVENT			FREQUENCY			Remarks		
Day (UT)	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)				
26			POTS	0735.3	0735.4	III	B	2	110U	170U	
			POTS	0748.1	0748.5	III	G	2	110U	250	
			POTS	0859.8	0900.1	III	G	2	110U	250	
			POTS	0929.0	0932.1	III	G	2	40X	170U	
			SVTO	0930.0	0931.0	III		2	36	60	
			IZMI	0930.3	0933.1	III	GG	2	45X	160	
			IZMI	0953.7	0953.9	III	B	2	95	170	
			POTS	0953.7	0954.0	III	B	2	110U	170U	
			IZMI	1013.1	1013.3	UNCLF	RS	1	110	270X	
			POTS	1013.2	1013.3	III	B,RS	2	115	275	
			IZMI	1015.4	1016.2	III	G	1	45	95	
			POTS	1032.5	1033.4	III	G	2	110U	170U	
			IZMI	1042.7	1044.6	III	GG	2	45X	170	
			POTS	1042.7	1049.9	III	G	3	40X	225	
			IZMI	1049.3	1049.9	III	G	2	50	120	
			SVTO	1106.0	1108.0	III		2	35	71	
			IZMI	1106.8	1107.9	III	GG,U	2	215	270X	
			IZMI	1106.8	1108.5	CONT		1	200	270X	
			POTS	1106.8	1108.4	DCIM	U	2	200U	400	
0540	1720		BLN	1106.8	1108.4	III	GG,U	3	210	440	
			ONDR	1107.0	1108.5	DCIM		1	800X	2000X	
0515	1646		ONDR	1107.1	1108.2	DCIM	G	1	2000X	4295X	
			IZMI	1107.2	1108.0	III	G	2	45X	130	
			POTS	1107.2	1108.4	III	G	2	40X	200U	
			POTS	1113.9	1114.4	III	G	2	110U	160	
			IZMI	1127.3	1127.5	III	B	2	105	160	
			POTS	1127.3	1127.5	III	B	2	110U	225	
			POTS	1141.5	1152.7	III	G	2	120	170U	
			IZMI	1151.9	1152.0	III	B	1	80	125	
			POTS	1159.6	1204.9	III	G	2	110U	170U	
			POTS	1228.1	1228.5	III	G	3	110U	275	
			POTS	1241.3	1247.3	III	GG	3	40X	225	
			SGMR	1246.0	1247.0	III		1	30	80	
			SVTO	1246.0	1247.0	III		1	41	83	
			POTS	1259.6	1301.0	III	G	2	110U	170U	
			POTS	1306.5	1309.7	III	G	2	110U	170U	
			POTS	1400.2	1400.6	III	G	2	110U	170U	
			POTS	1452.9	1506.9	III	G,RS	3	110U	170U	
			SGMR	1517.0	1518.0	III		1	30	60	
			SVTO	1517.0	1518.0	III		2	35	62	
			POTS	1523.6							

144
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION			Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Start (UT)	End (UT)				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
27	0607	1200	IZMI	0600.0	0600.7	III	G	2	45X	95U	no obs.:1110-1658
			POTS	0616.1	0616.4	III	G	2	110U	150	
	0517	1646	ONDR	0625.4	0641.4	DCIM	G,W	1	800X	2000X	
			IZMI	0627.3	0628.3	III	G	1	200	270X	
			POTS	0627.3	0630.9	DCIM		2	200U	375	
			POTS	0627.5	0628.3	III	G	2	110U	170U	
			POTS	0630	1658 U	I	S	1	110U	275	
			IZMI	0630.4	0631.4	III	G	2	230	270X	
	0545	1710	BLEN	0630.6	0630.9	III	GG,U	2	250	350	
			BLEN	0637.6	0637.8	III	U	1	320	380	
			POTS	0648.7	0649.1	III	G	2	110U	220	
			IZMI	0648.8	0649.0	III	B	2	105	140	
			POTS	0656	1630	III	N	1	110U	170U	
			POTS	0733.3	0733.4	III	B	2	110U	160	
			POTS	0747.3	0747.6	III	G	2	110U	160	
			IZMI	0757.1	0759.8	III	GG	2	50	235	
			POTS	0757.2	0800.2	III	G	3	110U	250	
			IZMI	0807.0	0807.4	III	G	2	45X	95	
			POTS	0827.6	0827.7	III	B	2	110U	150	
			POTS	0850.5	0908.0	III	G	3	70	250	
			IZMI	0850.6	0851.0	III	G	2	75	125	
			IZMI	0853.8	0854.5	III	G	2	45X	120	
			SVTO	0854.0	0907.0	III	N	1	35	85	
			IZMI	0855.8	0856.7	III	GG,FS	2	50	270	
			HIRA	0856.0	0856.2	III	B	1	50	200	
			IZMI	0858.6	0858.7	III	B	2	85	140	
			IZMI	0902.2	0903.1	III	G	2	45	150	
			IZMI	0902.3	0903.1	V	G	2	50	80	
			IZMI	0907.1	0907.7	III	G	2	45X	160	
			IZMI	0909.6	0909.8	III	G	2	50	95	
			IZMI	0932.8	0933.6	III	G	2	50	95	
			IZMI	0936.1	0936.2	III	B	2	70	120	
			POTS	0936.1	0936.3	III	B	2	110U	135	
			IZMI	0956.7	0956.8	III	B	2	50	65	
			POTS	1003.5	1005.7	III	G	2	110U	170U	
			IZMI	1004.6	1005.6	III	G	2	100	170	
			POTS	1019.9	1020.0	III	B,U	2	145	170U	
			IZMI	1022.8	1023.0	III	B	2	100	150	
			POTS	1022.9	1023.1	III	B	2	110U	160	
			POTS	1053.1	1059.6	III	G	2	110U	170U	
			IZMI	1100.3	1100.4	UNCLF		1	50	65	
			SGMR	1202.0	1207.0	III		1	30	80	
			POTS	1221.4	1221.7	III	G	2	110U	170U	
			POTS	1231.2	1231.7	III	G	2	110U	150	
			ONDR	1253.0	1259.1	DCIM	G	2	2000X	4295X	
			ONDR	1253.0	1300.1	DCIM	G	1	985	2000X	
			POTS	1328.3	1328.5	III	G	2	125	170U	
			POTS	1342.9	1352.5	III	GG	2	110U	170U	
			POTS	1544.9	1548.8	III	GG	3	50	170U	
			SVTO	1546.0	1548.0	III		2	47	85	
			POTS	1600.0	1613.4	III	GG	3	110U	170U	
			POTS	1615.1	1615.5	III	G	3	110U	170U	
			ONDR	1622.2	1626.2	DCIM	G	1	2000X	4295X	
			ONDR	1622.4	1627.4	DCIM	GG,SP	2	1085	2000X	
			BLEN	1624.6	1625.8	DCIM	P,C	2	1180	2800X	
			POTS	1625.3	1629.0	III	G	2	110U	170U	
			PALE	1812.0	1817.0	III		2	35	75	
			SGMR	1816.0	1817.0	III		2	30	80	
	2100	2400	CULG	2142.0	2143.0	III	G	1	100	170	
			CULG	2202.0	2204.0	III	G	2	40	230	
			SGMR	2202.0	2204.0	III		1	35	70	
	1959	2400	HIRA	2202.5	2204.5	III	G	2	50	230	
			CULG	2234.0	2234.0	III	B	1	25	90	
			PALE	2234.0	2234.0	III		1	25	55	
			CULG	2313.0	2316.0	III	G	1	45	180	
			HIRA	2313.2	2313.4	III	B	1	80	220	
28	0000	0720	CULG	0002.0	0002.0	III	B	1	35	150	
			CULG	0022.0	0024.0	III	G	2	40	170	

S O L A R R A D I O E M I S S I O N

Spectral Observations

145
Aug 99

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Time				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
28		LEAR	0022.0	0024.0	III		1	45	80	
		PALE	0022.0	0024.0	III		1	50	75	
	0000 0918	HIRA	0022.8	0023.8	III	G	1	50	220	
		LEAR	0145.0	0157.0	CONT		1	30	44	
		LEAR	0200.0	0202.0	III		1	47	68	
		HIRA	0200.8	0201.6	III	G	1	50	230	
		CULG	0201.0	0202.0	III	G	1	40	180	
	0449 1658	POTS	0532.4	0534.0	III	G	2	110U	170U	200-400 MHz: no obs.:0449-1658
		POTS	0540	1542	III	N	1	110U	170U	
		POTS	0600.7	0612.6	III	GG	2	110U	170U	
		CULG	0601.0	0601.0	III	B	1	35	180	
		SVTO	0601.0	0601.0	III		1	46	61	
	0604 1200	IZMI	0601.1	0602.0	III	G,FS	2	45X	95	
		IZMI	0604.3	0828.0U	III	N	1	45	95	
		CULG	0641.0	0642.0	III	G	1	30	80	
		SVTO	0641.0	0642.0	III		1	38U	60U	
		LEAR	0742.0	0742.0	III		1	33	48	
		POTS	0742.4	0743.4	III	G	2	40X	170U	
		IZMI	0743.0	0743.5	III	G	2	45X	130	
		SVTO	0743.0	0743.0	III		1	35	64	
		SVTO	0843.0	0843.0	III		1	35	64	
		IZMI	0855.2	0856.4	III	GG	2	105	270X	
		POTS	0855.6	0858.6	III	G	2	40X	170U	
		IZMI	0856.9	0857.7	III	G	2	45X	160	
		SVTO	0857.0	0857.0	III		1	41U	54U	
		IZMI	0859.5	0859.8	III	G	2	200	270X	
		IZMI	1033.4	1033.7	III	G	2	145	270X	
		POTS	1033.4	1033.7	III	G	2	130	350	
		IZMI	1121.1	1121.2	III	G	2	165	260	
		POTS	1121.2	1121.7	III	G	2	110U	250	
		SGMR	1357.0	1358.0	III		1	30	60	
		POTS	1357.7	1358.0	III	B	2	40X	140	
		SVTO	1358.0	1359.0	III		1	35	60	
	0545 1710	POTS	1453.9	1456.4	III	G	2	110U	170U	
		BLER	1457.6	1457.6	III	GG,RS	1	220	300	
		ONDR	1458.1	1459.5	DCIM	W	1	1125	2000X	
	0518 1643	ONDR	1458.4	1459.1	DCIM	G	1	2665	4295X	
		SGMR	1533.0	1537.0	III		1	30	60	
		SVTO	1533.0	1536.0	III		1	35U	85U	
		POTS	1534.1	1536.7	III	G	2	40X	170U	
		SGMR	1730.0	1730.0	III		1	30	40	
		PALE	1758.0	1805.0	III		2	26	75	
		SGMR	1758.0	1803.0	III		2	30	80	
		PALE	1807.0	1832.0	II		3	25	75	ESS 0600
		SGMR	1807.0	1836.0	II		3	30	80	ESS 0600
		SGMR	1852.0	1852.0	III		1	30	60	
		PALE	1939.0	1940.0	III		1	25	75	
		SGMR	1939.0	1940.0	III		2	30	80	
		PALE	2125.0	2125.0	III		2	26	57	
		SGMR	2125.0	2135.0	III	N	1	30	60	
	2100 2400	CULG	2125.0	2125.0	III	B	2	30	140	
	2000 2400	HIRA	2125.2	2125.4	III	B	1	25X	130	
		CULG	2135.0	2136.0	III	G	2	25	150	
		HIRA	2135.6	2135.8	III	B	1	25X	150	
		CULG	2228.0	2228.0	III	B	1	20	90	
		CULG	2257.0	2257.0	III	B	1	20	90	
		CULG	2312.0	2312.0	III	B	1	30	80	
29		LEAR	0006.0	0006.0	III		1	30	60	
		PALE	0006.0	0008.0	III		1	30	55	
	0000 0720	CULG	0006.0	0040.0	III	N	1	25	170	
		PALE	0036.0	0040.0	III		2	25	65	
		LEAR	0039.0	0040.0	III		2	30	75	
		CULG	0159.0	0201.0	III	G	1	23	80	
		LEAR	0159.0	0207.0	III		2	30	75	
		PALE	0159.0	0208.0	III		2	25	75	
		CULG	0205.0	0207.0	III	G	2	18	90	
	0000 0917	HIRA	0205.6	0205.8	III	B	1	25X	80	
		LEAR	0306.0	0307.0	III		2	30	70	

146
Aug 99

S O L A R R A D I O E M I S S I O N Spectral Observations

AUGUST 1999

OBSERVATION		Sta	Start (UT)	End (UT)	EVENT		Int (1-3)	FREQUENCY		Remarks
Day	Time				Spectral Class	Event Remarks		Lower (MHz)	Upper (MHz)	
29		PALE	0306.0	0307.0	III		2	25	75	
		HIRA	0306.8	0307.0	III	B	1	25X	90	
		CULG	0307.0	0307.0	III	B	2	20	90	
		LEAR	0330.0	0330.0	III		2	30	50	
		CULG	0350.0	0350.0	III	B	1	23	90	
		CULG	0355.0	0355.0	III	B	1	23	60	
	0449 1658	POTS	0449	E 1658	U I	S,C	2	110U	170U	200-400 MHz:
	0520 1641	ONDR								
	0547 1201	LEAR	0529.0	0529.0	III		1	31	45	
		IZMI	0547.0E	1200.0D	I	S	1	50	270X	
		IZMI	0549.5	0549.6	III	G	1	45	95	
		IZMI	0554.0	1138.0U	III	N	1	45	95	
	0545 1710	LEAR	0620.0	0622.0	III		3	30	80	
		SVTO	0620.0	0644.0	III	N	2	35	85	
		IZMI	0620.5	0621.7	III	GG	2	45X	170	
		POTS	0620.6	0621.3	III	G	2	110U	170U	no obs.:0449-1658
		HIRA	0620.8	0621.0	III	B	1	25X	140	
		BLN	0620.9	0627.0	III	GG,RS	2	200	550X	
		CULG	0621.0	0622.0	III	G	2	20	90	
		CULG	0626.0	0627.0	III	G	1	200	400	
		IZMI	0626.5	0627.1	III	GG	2	200	270X	
		LEAR	0629.0	0629.0	III		1	31	45	
		POTS	0632.1	0636.9	III	GG,C	3	110U	170U	
		IZMI	0632.5	0639.5	III	S,FS	2	45X	270X	
		CULG	0633.0	0639.0	III	GG	1	25	260	
		LEAR	0633.0	0641.0	III		2	30	80	
		SVTO	0634.0	0759.0	CONT		1	70U	85U	
		SVTO	0737.0	0738.0	III		1	35U	61U	
		SVTO	0904.0	0905.0	III		1	35	55	
		IZMI	1050.7	1051.1	III	G	2	45X	215	
		POTS	1050.9	1051.1	III	G	1	40X	90U	
		POTS	1216.8	1217.9	III	G,RS	2	40X	170U	
		SGMR	1301.0	1301.0	III		1	30	58	
		SVTO	1301.0	1301.0	III		1	35	43	
		POTS	1346.3	1346.5	III	B	2	40X	170U	
		SGMR	1415.0	1423.0	III	N	2	30	80	
		POTS	1415.9	1421.2	III	GG	2	40X	170U	
		SVTO	1416.0	1423.0	III		2	35	85	
		SVTO	1610.0	1610.0	III		1	52U	80U	
		POTS	1610.2	1610.4	III	G	2	110U	140	
		SGMR	1725.0	1729.0	V		2	30	80	
		PALE	1726.0	1728.0	III		2	25	75	
		PALE	1757.0	1807.0	III		1	25	60	
		SGMR	1757.0	1758.0	III		1	30	70	
	2001 2400	HIRA								
		PALE	2138.0	2138.0	III		1	25	55	
		SGMR	2138.0	2138.0	III		1	30	60	
	2100 2400	CULG	2138.0	2139.0	III	G	2	30	140	
30		PALE	0104.0	0105.0	III		1	25	55	
		LEAR	0105.0	0105.0	III		1	30	60	
		CULG	0105.0	0106.0	III	G	1	30	130	
	0000 0725	CULG	0136.0	0138.0	III	G	3	18	170	
	0000 0915	HIRA	0136.2	0137.2	III	G	1	25X	190	
		LEAR	0420.0	0420.0	III		1	30	45	
		CULG	0421.0	0421.0	III	B	1	20	120	
	0449 1658	POTS	0449	E 1658	U I	S	2	110U	350	200-400 MHz:
		POTS	0454.0	0554.1	III	B	1	110U	170U	no obs.:0449-0535
	0545 1700	BLN								
	0619 1200	IZMI	0619.0E	1200.0D	I	S	1	100	270X	
		IZMI	0807.0	0807.1	III	B	1	45	90	
	0521 1640	ONDR	1020.3	1020.5	DCIM	G,W	1	2900	4295X	
		POTS	1050.5	1050.6	III	B	2	110U	160	no obs.:1410-1658
		POTS	1243.0	1244.4	III	G	2	40X	350	
		SGMR	1243.0	1243.0	III		1	30	80	
		SVTO	1243.0	1243.0	III		2	35	75	
		ONDR	1443.2	1446.0	DCIM	G	1	2225	4295X	
		PALE	1755.0	1755.0	III		1	35	50	
		SGMR	1755.0	1756.0	III		1	30	60	

S O L A R R A D I O E M I S S I O N

Spectral Observations

147
Aug 99

AUGUST 1999

OBSERVATION			EVENT				FREQUENCY			Remarks	
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)		Upper (MHz)
30			PALE	1803.0	1812.0	II		2	25	60	ESS 0500
			SGMR	1803.0	1825.0	II		2	30	80	ESS 0700
			SGMR	1934.0	1959.0	III	N	2	30	80	
			PALE	2250.0	2320.0	III	N	2	25	60	
	2002	2400	HIRA	2250.8	2251.0	III	B	1	25X	110	
	2100	2400	CULG	2251.0	2251.0	III	B	2	20	90	
31	0000	0914	HIRA								
	0449	1658	POTS	0449	E 1234	I	S,W	1	110U	300	200-400 MHz:
	0522	1637	ONDR								
			SVTO	0612.0	0708.0	CONT		1	70	85	
			POTS	0640.1	0643.5	III	G	2	110U	170U	no obs.:0449-0538
	0000	0725	CULG	0641.0	0646.0	III	G	1	30	90	
	0559	1200	IZMI	0641.0	0645.9	III	GG	2	45X	120	
			IZMI	0641.9	0645.0	I	GG	2	80	120	
			SVTO	0712.0	0713.0	III		2	39	84	
			CULG	0713.0	0713.0	III	B	2	30	150	
			IZMI	0713.1	0713.2	III	G,FS	2	45X	175	
			POTS	0713.1	0713.2	III	G	2	70	250	no obs.:1410-1658
			IZMI	0713.2	0713.5	V		2	50	85	
			POTS	0757.5	0757.6	III	B	1	110U	170U	
			POTS	0804.5	0804.8	III	G	2	110U	350	
			IZMI	0913.8	0932.7	III	G	2	45X	90	
			SVTO	0932.0	1000.0	III	N	2	35	56	
			POTS	0932.1	0932.9	III	G	2	40X	125	
			POTS	0939.5	0940.2	DCIM		1	240	450	
	0545	1730	BLN	0939.5	0939.7	III	RS	1	330	500	
			IZMI	0959.5	1000.0	III	G	2	45X	95U	
			POTS	0959.6	1000.1	III	B	2	40X	90U	
			POTS	1025.3	1025.6	III	B	1	40X	140	
			IZMI	1025.4	1025.6	III	B	2	45	95	
			POTS	1041.7	1042.3	DCIM		1	275	475	
			POTS	1046.7	1046.8	DCIM		1	325	400	
			SGMR	1649.0	1650.0	III		1	30	50	
			PALE	1958.0	1959.0	III		1	28	61	
	2003	2400	HIRA								
	2050	2400	CULG								

Event Remarks:

B = Single burst	N = Intermittent activity in this period
C = Underlying continuum (particularly with Type I)	MOV = Moving (Type IV)
DC = Drifting chains	MWB = Meter wave burst
DP = Drifting pairs	RS = Reverse slope burst
F = Fundamental emission (Type II)	S = Storm in the sense of intermittent but apparently connected actively
FS = Fine structures (Type IV)	SH = Secondary harmonic emission
G = Small group of bursts (<10)	STA = Stationary (Type IV)
GG = Large group of bursts (>10)	U = U-shaped burst of Type III
H = Herringbone	UE = Uncertain emission (Type II)
HARM = Harmonic	W = Weak

Frequency qualifiers:

X = Extends beyond instrument range U = Uncertain frequency

Remarks:

SWF = Associated short wave fade observed
ESS = Estimated shock speed in km/s (Type II)
FLA = Associated flare observed (class optional)

Stations Reporting:

CULG = Culgoora	IZMI = Izmiran	LEAR = Learmonth	ONDR = Ondrejov
PALE = Palehua	POTS = Potsdam	SGMR = Sagamore Hill	SVTO = San Vito
BLN = Bleien			

SOLAR RADIO NOISE STORM AT 164 MHZ

FROM NANCAY RADIOHELIOGRAPH

AUGUST 1999

DAY	HELIOGRAPHICS POSITIONS MEAN VALUES ¹		IMP ²	OBSERVING TIME ³	
	E-W	S-N		START(UT)	END(UT)
02/08/99	-0.28	+0.68	I	9H10 E	15H27 D
03/08/99	-0.26	+0.25	I	8H41 E	15H27 D
04/08/99	+0.19	+0.33	II	8H27 E	15H27 D
04/08/99	+0.51	+0.59	I	12H20	15H27 D
04/08/99	+1.38	+0.05	I	8H27 E	15H27 D
06/08/99	+1.41	-0.02	I	8H27 D	12H48
06/08/99	+1.05	+1.04	I	8H27 E	14H23 D
12/08/99	+0.25	-0.71	I	8H55 E	15H26 D
12/08/99	+0.39	+0.42	I	11H01	12H33
19/08/99	-1.53	-0.85	I	12H12	15H25 D
20/08/99	+0.33	+0.48	I	9H35 E	12H50
22/08/99	-0.33	-0.56	I	8H24 E	15H24 D
23/08/99	+1.07	+0.56	II	8H24 E	15H24 D

¹ POSITIVE E-W AND S-N COORDINATES CORRESPOND TO THE N-W QUADRANT

² IMP1: FLUX < 5 SFU IMP2: 5 < FLUX < 20 SFU IMP3: 20 < FLUX < 100 SFU
IMP4: 100 < FLUX < 300 SFU IMP5 > 300 SFU

³ E NOISE STORM IN PROGRESS AT THE BEGINNING OF THE NANCAY OBSERVATIONS

D NOISE STORM IN PROGRESS AT THE END OF THE NANCAY OBSERVATIONS

SOLAR RADIO NOISE STORM AT 327 MHZ
FROM NANCAY RADIOHELIOGRAPH
AUGUST 1999

	HELIOGRAPHICS POSITIONS MEAN VALUES ¹		IMP ²	OBSERVING TIME ³	
DAY	E-W	S-N		START(UT)	END(UT)
02/08/99	-0.23	+0.60	I	9H10 E	15H27 D
02/08/99	+0.59	-0.62	I	9H10 E	15H27 D
03/08/99	-0.16	+0.23	I	8H41 E	15H27 D
03/08/99	+0.11	+0.51	I	8H41 E	15H27 D
04/08/99	+0.06	+0.57	I	8H27 E	15H27 D
04/08/99	+0.22	+0.28	I	8H27 E	15H27 D
04/08/99	+1.15	-0.11	I	8H27 E	15H27 D
05/08/99	+1.24	-0.08	I	10H20	15H26 D
06/08/99	+0.62	+0.47	I	8H27 E	14H23 D
06/08/99	+1.36	+0.16	I	8H27 E	14H23 D
12/08/99	+0.20	-0.68	I	8H55 E	15H26 D
12/08/99	+0.36	+0.34	I	11H20	15H26 D
19/08/99	+0.03	+0.29	I	8H25 E	15H25 D
20/08/99	+1.18	-0.67	I	9H35 E	15H25 D
20/08/99	+1.21	-0.35	I	12H21	15H25 D
21/08/99	-1.10	-0.65	I	8H24 E	15H24 D
22/08/99	-1.18	-0.59	I	8H24 E	15H24 D
22/08/99	+0.73	+0.20	I	11H41	15H24 E
23/08/99	-0.98	-0.78	I	8H24 E	15H24 D
23/08/99	+1.01	+0.34	I	8H24 E	15H24 D

01,07,08,17,24,25,26,27,28,29,30 AUGUST 1999: NO DATA
OTHERS DAYS: NO DETECTABLE NOISE STORM

COSMIC RAY INDICES
(Neutron Monitor)
August 1999

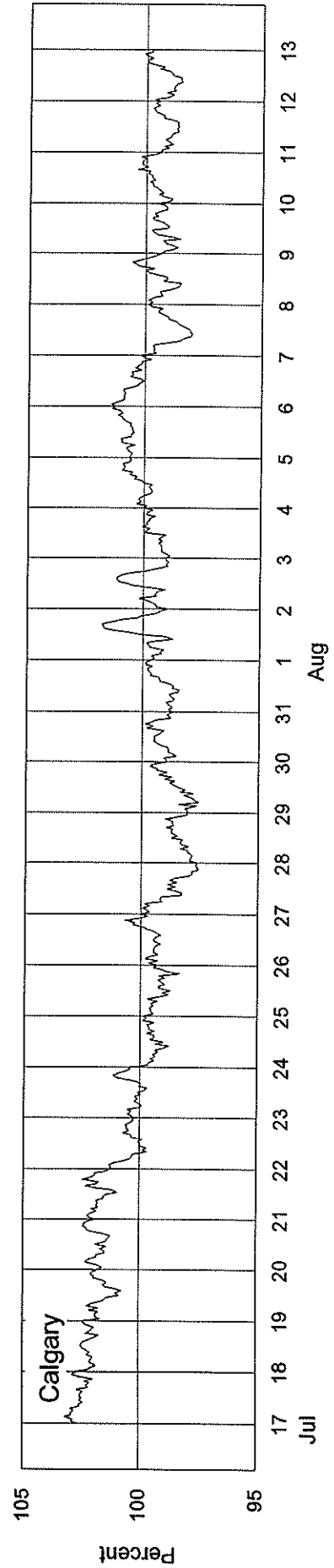
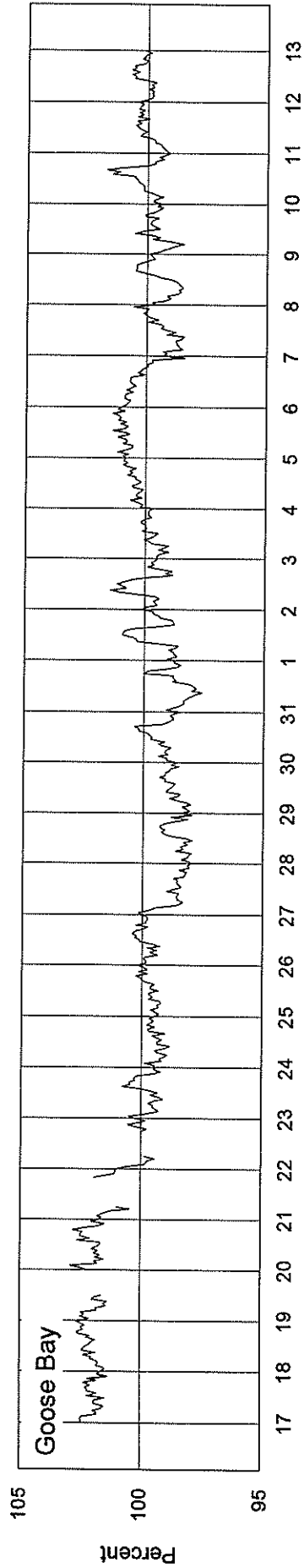
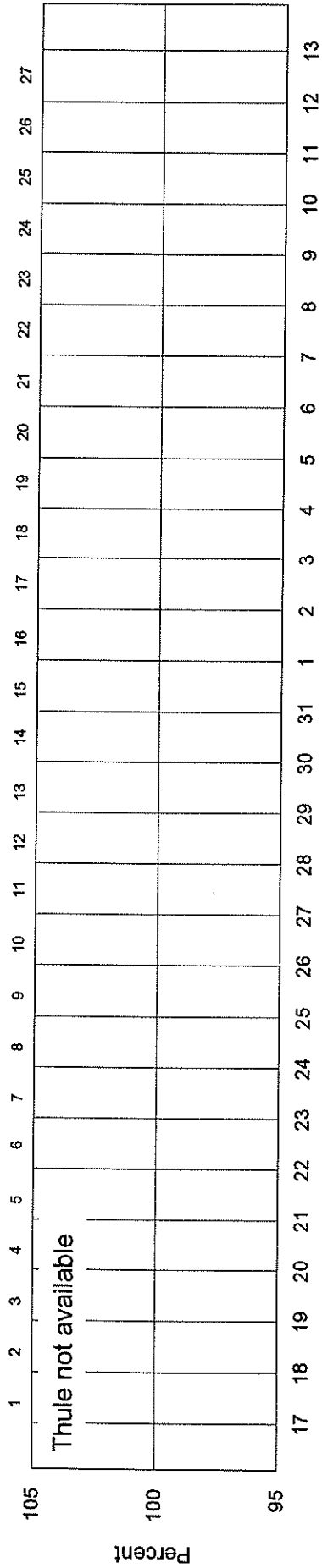
Day	THULE Average (cts/h)/100	GOOSE BAY Average (cts/h)/100	CALGARY Average (cts/h)/300	KIEL Average (cts/h)/100	MOSCOW Average (cts/h)/64	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h)/256	HALEAKALA Average (cts/h)/1000
1	No data	7104.8	3848.3	6096.5	8997.3	4103.1	1858.8	3550.8
2	at time of	7140.5	3839.5	6138.6	9078.8	4100.0	1868.4	3559.7
3	publication	7121.2	3826.8	6109.1	9032.2	4090.2	1865.8	3556.4
4		7172.3	3855.7	6160.3	9096.4	4127.8	1871.4	3560.8
5		7208.5	3875.7	6187.7	9130.1	4157.6	1880.0	3570.6
6		7169.5	3867.2	6145.6	9073.0	4142.3	1879.3	3565.4
7		7091.8	3806.7	6108.0	9027.5	4094.5	1876.7	3553.9
8		7102.5	3828.7	6124.5	9051.0	4105.5	1882.1	3563.8
9		7112.2	3816.5	6121.6	9034.5	4104.3	1887.5	3573.0
10		7150.2	3835.0	6136.6	9057.1	4107.3	1886.0	3565.4
11		7142.0	3812.3	6138.9	9029.6	4108.2	1888.1	3566.1
12		7152.1	3816.5	6162.1	9095.3	4130.2	1889.2	3574.1
13		7158.7(23)	3838.7	6172.9	9105.4	4142.2	1887.5	3577.2
14		7150.0	3859.7	6170.0	9085.1	4134.1	1882.5	3574.1
15		7150.9(23)	3858.3	6177.7	9101.9	4123.4	1882.9	3570.0
16		7067.5	3807.2	6106.4	9008.6	4081.8	1870.6	3545.7
17		7031.8	3773.0	6084.0	8974.7	4062.3	1865.8	3541.1
18		7022.0(7)	3770.5	6057.1	8936.5	4048.8	1874.8	3546.0
19		6891.7(8)	3737.0	5986.9	8816.0	4013.1	1869.9	3525.0
20		6757.9	3625.0	5822.2	8599.6	3881.4	1856.6(22)	3485.5
21		6737.8	3609.5	5809.5	8601.2	3868.3	1842.0	3470.5
22		6703.5	3609.0	5765.9	8554.2	3865.3	1839.1	3466.6
23		6753.3	3607.5	5813.7	8609.4	3876.8	1847.3	3473.2
24		6803.3	3634.2	5836.2	8659.1	3901.8	1850.5	3486.9
25		6773.6	3620.8	5825.0	8629.0	3877.7	1847.6	3470.4
26		6804.2	3650.7	5838.0	8648.3	3903.5	1855.8	3479.9
27		6856.6	3678.0	5879.2	8719.4	3929.8	1871.8	3490.8
28		6861.7	3697.2	5909.1	8773.4	3954.5	1878.2	3500.7
29		6903.6	3707.2	5929.5	8797.1	3963.2	1891.0	3512.2
30		6954.2	3718.0	5953.9	8847.5	3987.9	1890.6	3523.9
31		6917.4	3734.2	5958.0	8845.5	3978.3	1884.8	3503.5
Mean		6999.0	3760.1	6023.4	8903.7	4031.5	1871.7	3532.3

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours, and for Haleakala, whenever the sum of all three sections falls below 60 hours.

COSMIC RAY INDICES

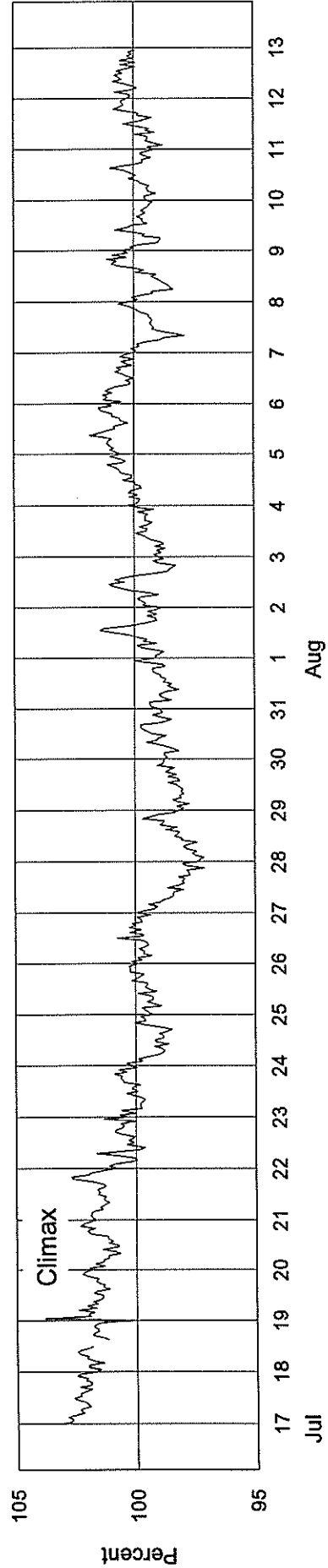
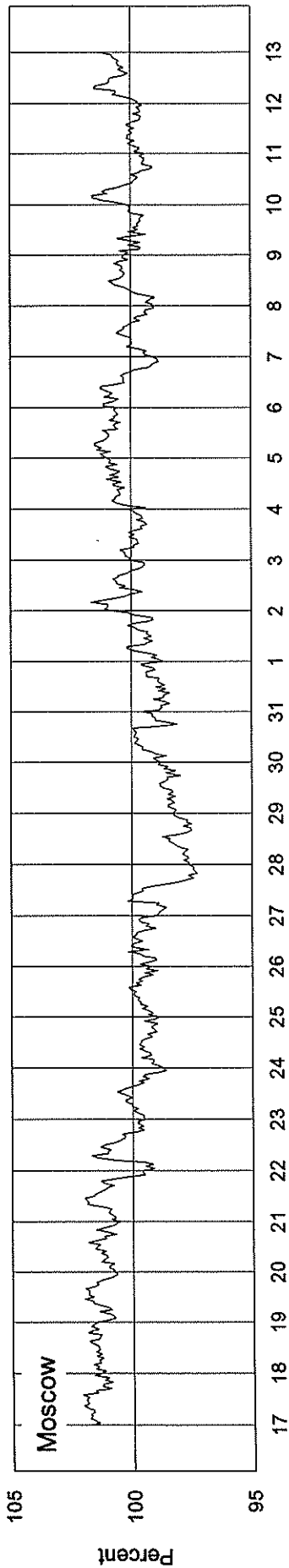
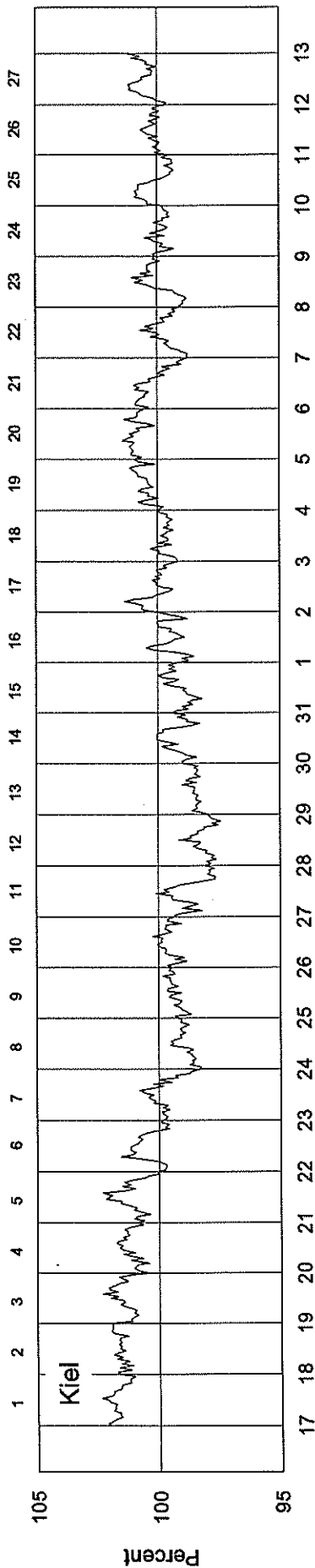
(Neutron Monitor)

Bartels Rotation 2266 - Beginning 17 Jul 99



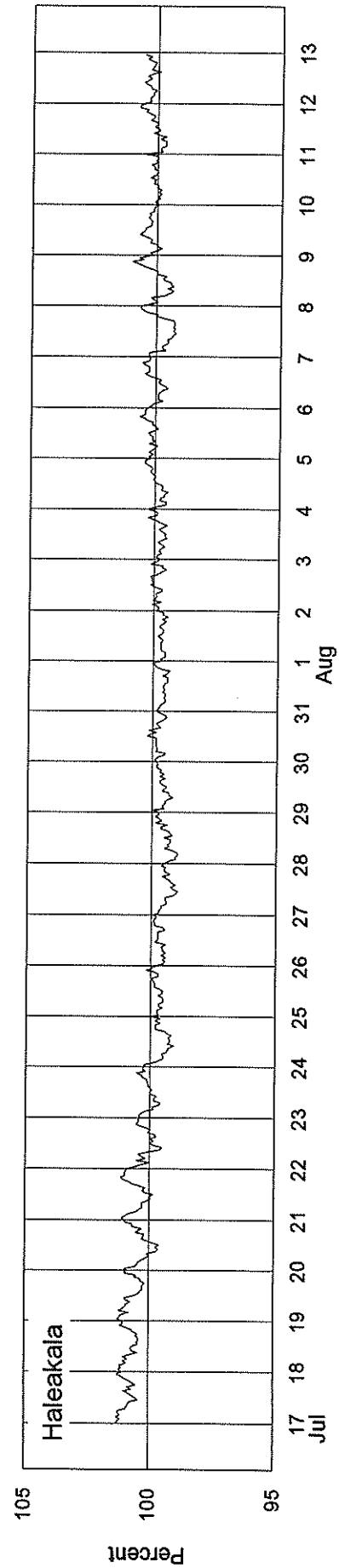
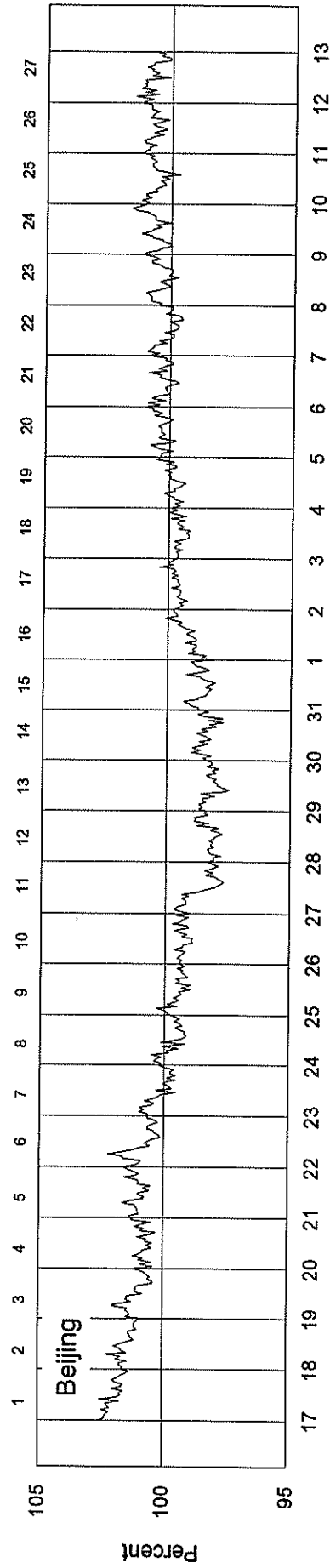
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2266 - Beginning 17 Jul 99



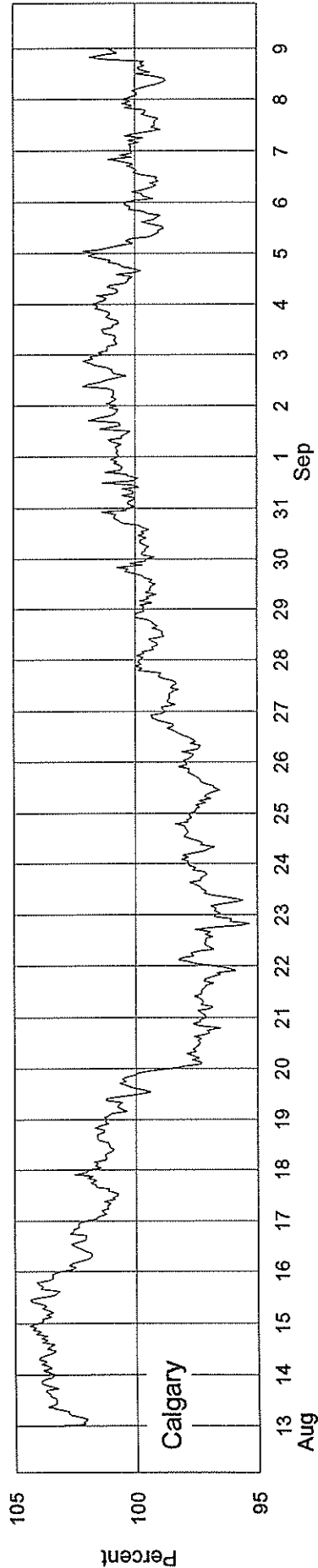
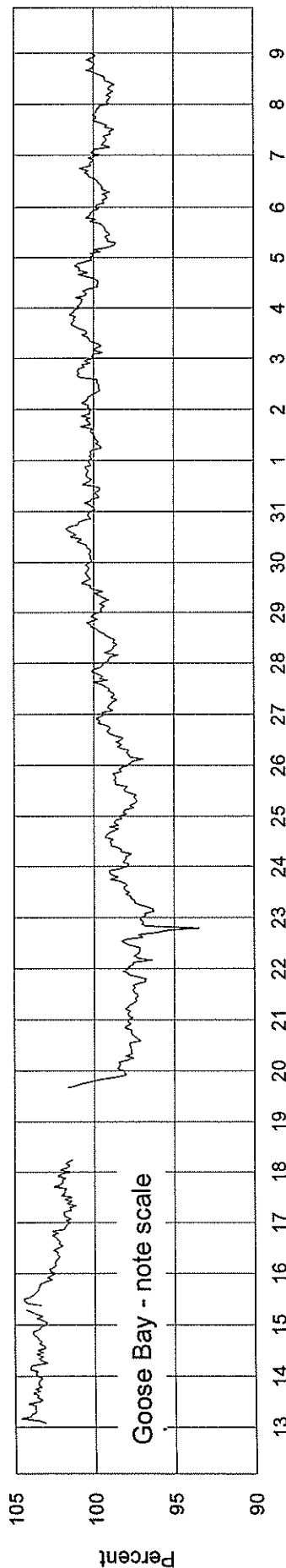
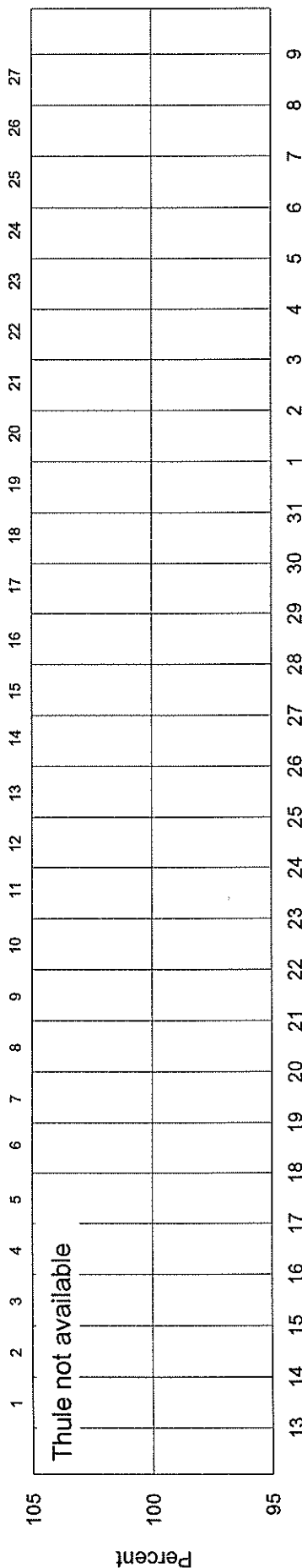
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2266 - Beginning 17 Jul 99



COSMIC RAY INDICES (Neutron Monitor)

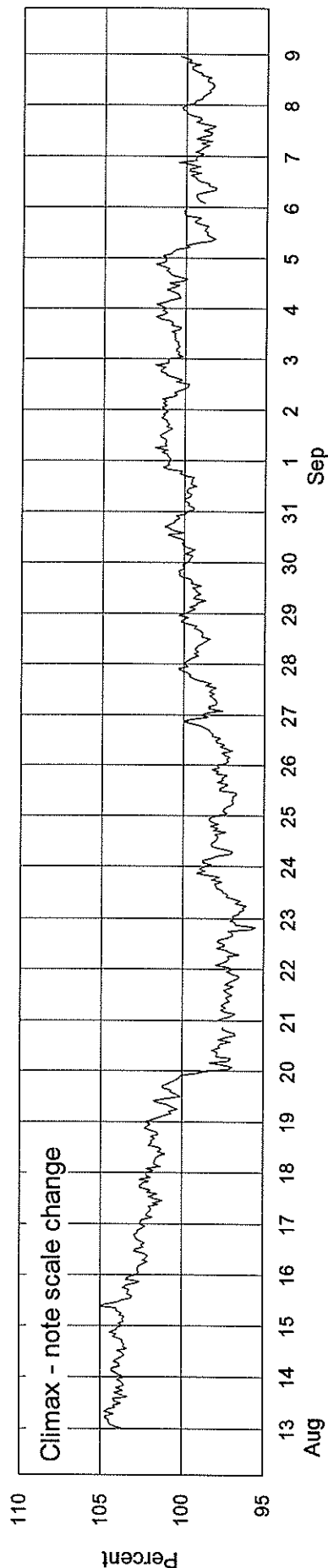
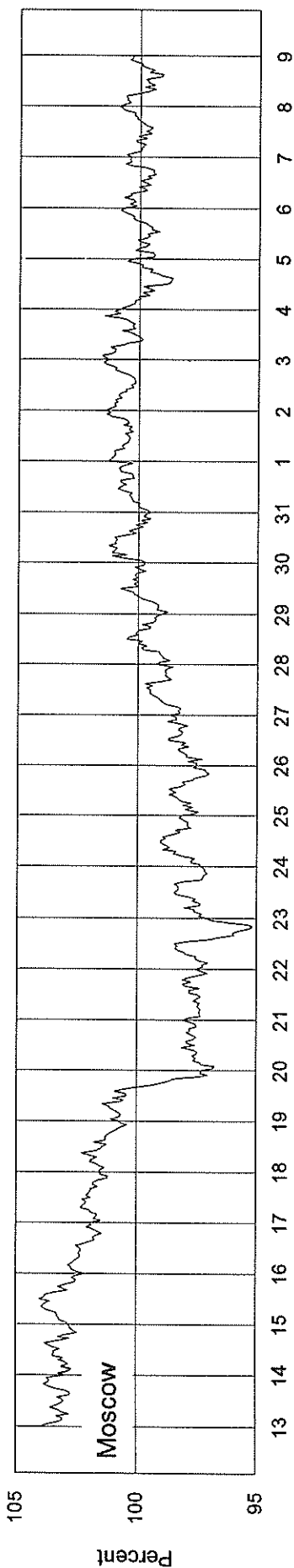
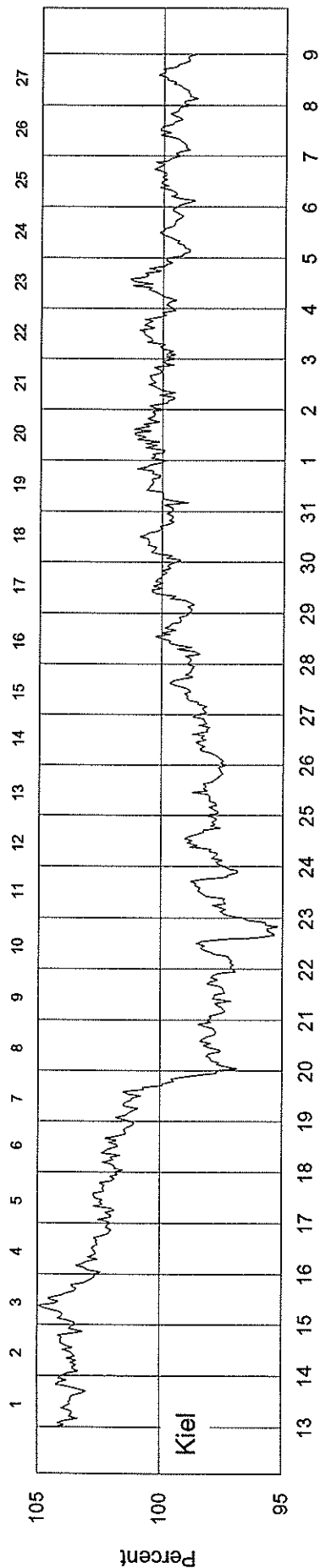
Bartels Rotation 2267 - Beginning 13 Aug 99



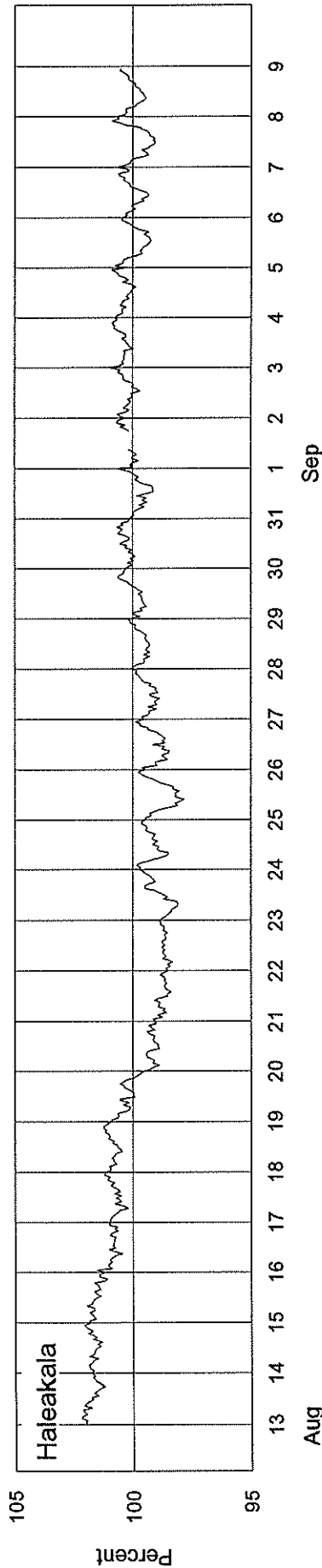
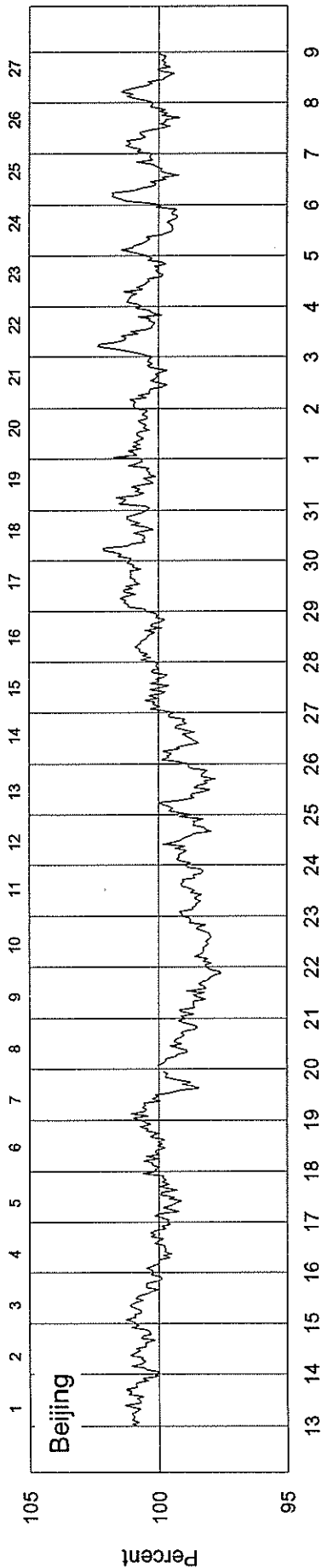
COSMIC RAY INDICES

(Neutron Monitor)

Bartels Rotation 2267 - Beginning 13 Aug 99

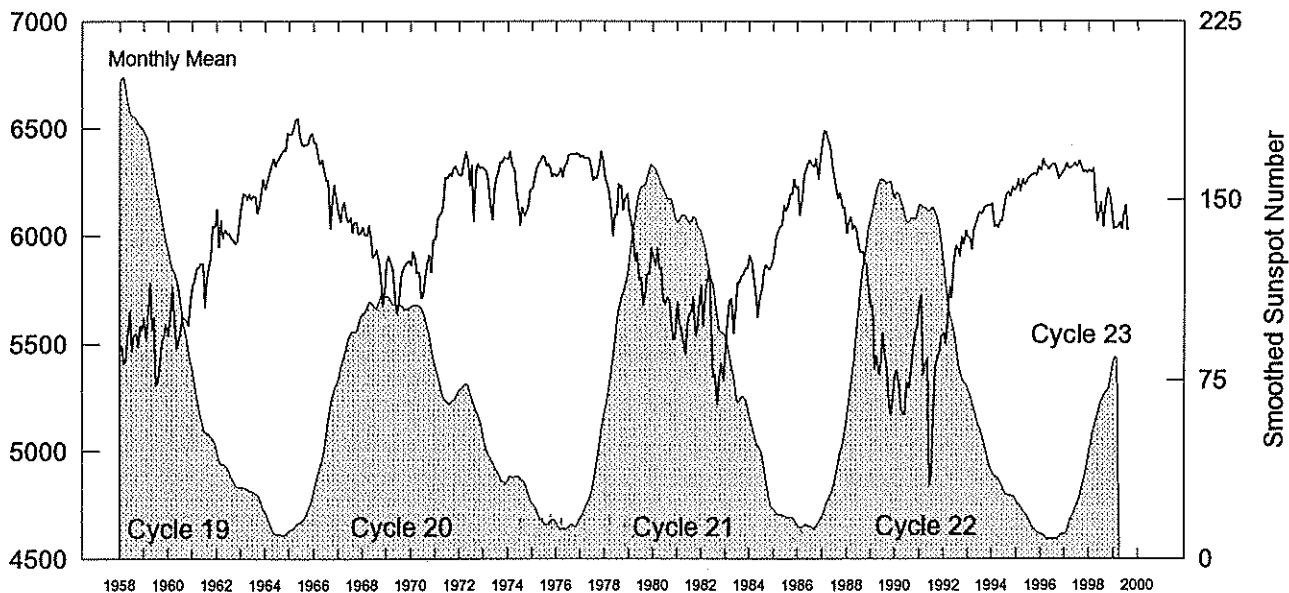


COSMIC RAY INDICES (Neutron Monitor) Bartels Rotation 2267 - Beginning 13 Aug 99



Kiel Neutron Monitor Pressure-Corrected Values Jan 1958 - Aug 1999

157
Aug 99

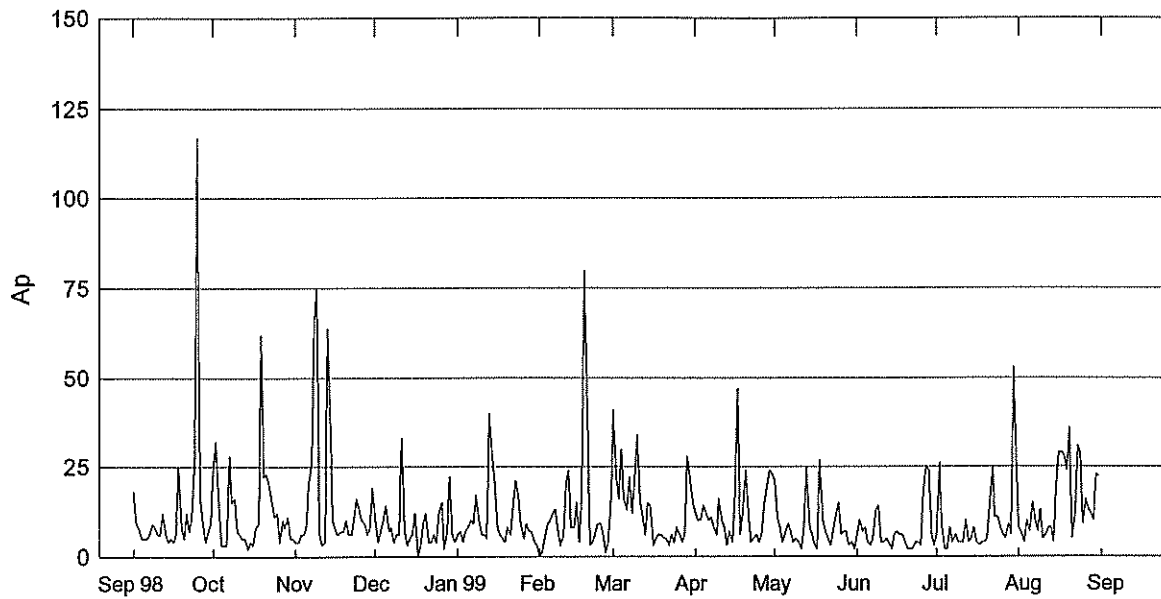


Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1958	5481	5488	5409	5417	5523	5651	5466	5538	5553	5485	5584	5561	5513
1959	5623	5515	5659	5783	5569	5625	5307	5328	5420	5518	5536	5593	5540
1960	5539	5628	5764	5596	5480	5509	5557	5628	5620	5607	5586	5692	5601
1961	5766	5793	5853	5856	5872	5874	5672	5804	5859	5898	6046	6041	5861
1962	6122	5949	6072	5989	6030	6010	6013	5991	5982	5963	5971	6052	6012
1963	6125	6197	6191	6163	6194	6168	6185	6182	6103	6133	6197	6260	6175
1964	6215	6253	6287	6331	6355	6321	6347	6366	6383	6399	6393	6475	6344
1965	6474	6469	6506	6542	6545	6451	6424	6420	6423	6424	6467	6475	6468
1966	6433	6432	6375	6330	6353	6300	6258	6258	6033	6168	6236	6172	6279
1967	6101	6061	6139	6155	6088	6061	6086	6016	6064	6063	6014	6009	6071
1968	6041	6011	6001	6048	5997	5901	5910	5937	5878	5805	5673	5739	5912
1969	5876	5909	5872	5845	5686	5640	5700	5812	5843	5864	5879	5887	5818
1970	5863	5928	5906	5830	5831	5716	5719	5803	5885	5915	5832	5985	5851
1971	5985	6081	6094	6103	6151	6268	6265	6286	6275	6314	6322	6288	6203
1972	6281	6278	6351	6387	6344	6232	6328	6065	6306	6334	6313	6318	6295
1973	6309	6298	6250	6155	6074	6220	6271	6296	6341	6340	6365	6360	6273
1974	6353	6391	6331	6308	6201	6139	6047	6132	6090	6113	6139	6215	6205
1975	6217	6267	6308	6334	6341	6370	6363	6320	6334	6313	6272	6286	6310
1976	6275	6281	6314	6269	6325	6331	6370	6380	6379	6375	6383	6380	6339
1977	6366	6371	6355	6366	6357	6322	6254	6272	6263	6317	6391	6355	6332
1978	6271	6242	6215	6113	5998	6101	6095	6241	6232	6117	6167	6193	6165
1979	6104	6063	6006	5883	5923	5794	5806	5682	5723	5820	5827	5942	5881
1980	5905	5862	5942	5850	5854	5702	5690	5717	5704	5611	5522	5528	5741
1981	5697	5600	5569	5517	5447	5600	5642	5650	5717	5539	5564	5702	5604
1982	5772	5586	5755	5799	5848	5582	5347	5362	5217	5349	5414	5329	5530
1983	5481	5606	5702	5711	5549	5659	5787	5785	5814	5820	5852	5849	5718
1984	5911	5880	5799	5740	5622	5706	5753	5837	5867	5856	5844	5864	5807
1985	5911	5986	6016	6038	6049	6142	6114	6135	6193	6192	6260	6220	6105
1986	6229	6093	6176	6280	6308	6336	6350	6331	6315	6356	6259	6359	6283
1987	6429	6489	6484	6443	6410	6319	6273	6217	6171	6198	6131	6131	6308
1988	6013	6064	6085	6030	6047	6033	5945	5922	5931	5880	5872	5761	5965
1989	5673	5678	5385	5441	5360	5407	5552	5460	5378	5228	5167	5241	5414
1990	5348	5381	5313	5197	5177	5173	5324	5297	5382	5471	5563	5584	5351
1991	5696	5726	5355	5405	5431	4841	4882	5162	5390	5443	5466	5540	5361
1992	5553	5500	5624	5766	5713	5869	5956	5942	5905	5994	5960	6024	5817
1993	5996	5992	5937	6026	6061	6094	6108	6099	6129	6137	6142	6141	6072
1994	6150	6042	6052	6067	6070	6068	6129	6189	6203	6183	6226	6209	6132
1995	6225	6260	6205	6260	6234	6250	6267	6279	6281	6285	6279	6319	6262
1996	6301	6354	6330	6324	6306	6325	6332	6331	6303	6262	6277	6294	6312
1997	6313	6337	6313	6314	6324	6336	6317	6347	6319	6295	6301	6289	6317
1998	6305	6293	6312	6177	6069	6101	6154	6042	6149	6220	6190	6124	6178
1999	6034	6040	6041	6062	6032	6100	6140	6023					6059

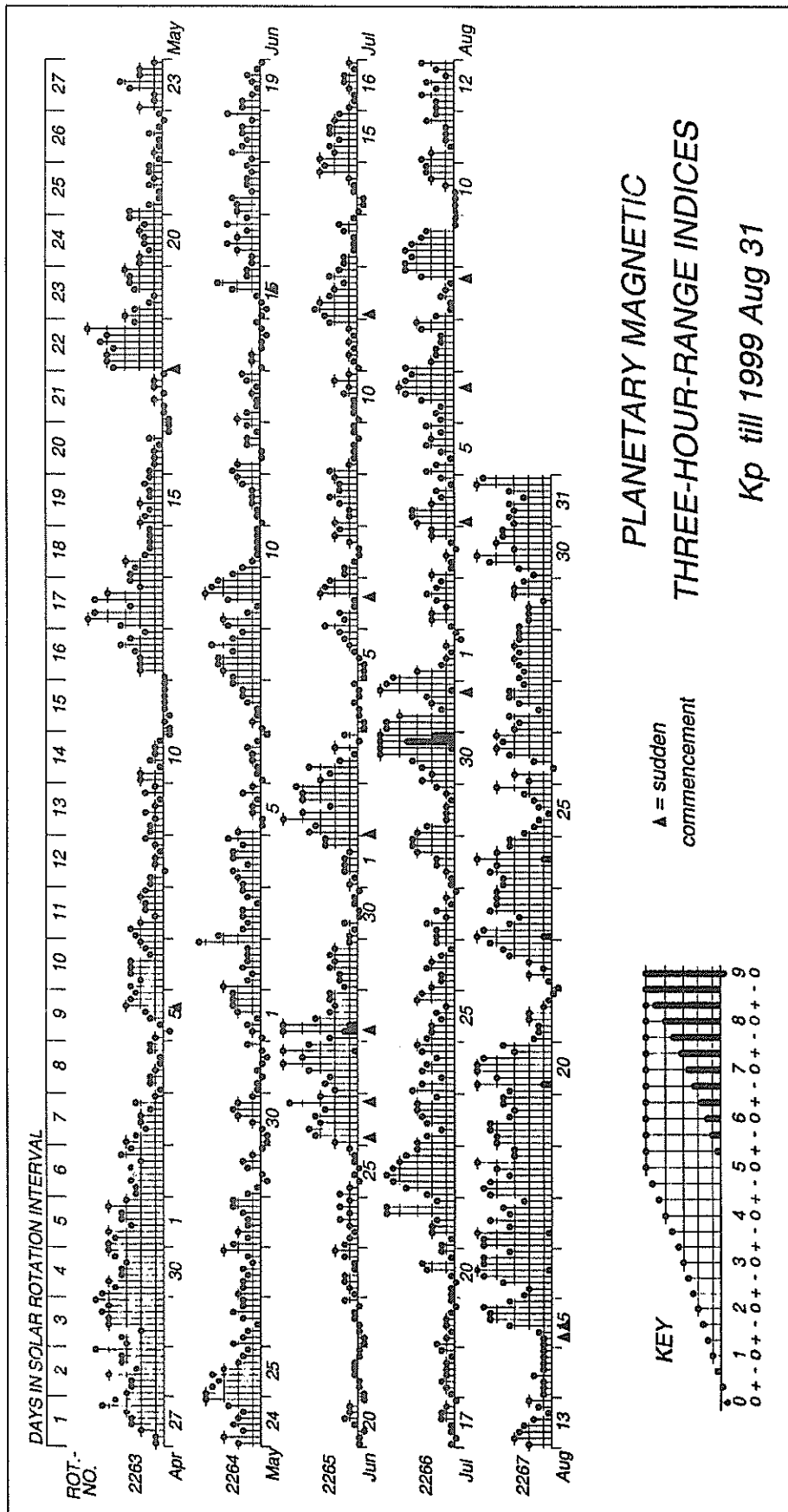
Multiply table entries by 100 to obtain hourly counting rate. Kiel, Germany: N54, E10, Alt= 54 m, Cutoff Rigidity= 2.32GV.

Daily Average Indices Ap Sep 1998 - Aug 1999

159
Aug 99

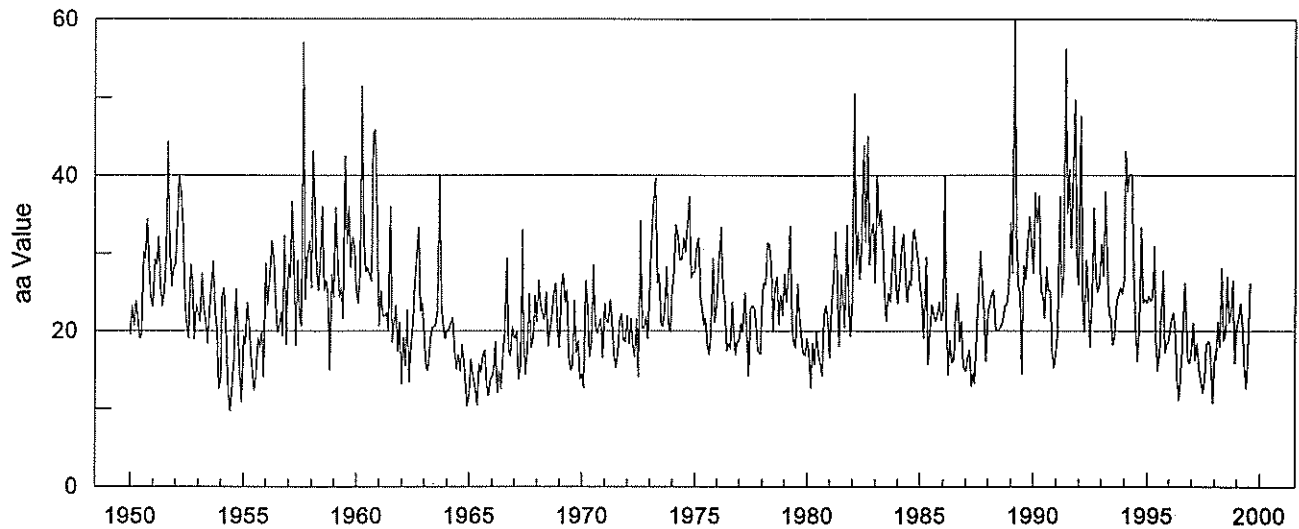


Day	Sep 98	Oct	Nov	Dec	Jan 99	Feb	Mar	Apr	May	Jun	Jul	Aug
1	18	24	4	11	6	0	41	12	21	6	6	8
2	9	32	4	4	7	1	22	10	11	10	26	6
3	8	14	6	7	4	5	16	10	8	7	9	4
4	5	3	6	10	7	9	30	14	4	8	2	10
5	5	3	8	14	8	10	16	12	7	4	2	7
6	5	3	20	7	10	12	13	10	9	3	8	15
7	6	28	26	8	9	13	22	11	7	5	4	10
8	9	15	66	4	17	6	12	8	4	13	6	7
9	8	16	75	6	11	3	21	6	5	14	4	13
10	6	7	6	6	6	6	34	16	4	4	4	5
11	6	6	3	33	6	20	15	10	2	4	4	6
12	12	5	4	7	5	24	11	8	8	5	10	8
13	6	5	64	3	40	8	6	3	25	4	4	8
14	4	2	41	5	29	8	15	7	8	2	5	4
15	5	4	10	6	20	15	14	4	6	6	8	19
16	4	3	7	12	8	4	3	18	3	7	4	29
17	6	8	6	0	6	17	5	47	2	6	3	29
18	25	9	7	3	5	80	6	6	27	6	4	28
19	8	62	7	9	4	40	6	12	10	4	4	24
20	5	22	10	12	8	3	5	24	7	2	5	36
21	12	23	6	4	6	4	5	12	5	2	14	5
22	7	20	6	4	14	6	3	4	3	2	25	12
23	11	15	11	6	21	9	6	5	8	4	11	31
24	28	11	16	4	17	9	4	6	11	4	11	29
25	117	12	13	12	9	6	8	4	15	3	8	9
26	17	4	10	15	5	1	6	6	6	18	6	16
27	10	10	9	2	9	4	4	14	7	25	5	13
28	4	8	6	7	7	17	6	19	7	24	9	12
29	7	11	8	22	7		28	24	3	6	6	10
30	9	5	19	6	4		22	23	4	3	53	23
31		5		4	3		15		2		28	22
Mean	13	13	16	8	10	12	14	12	8	7	10	15



Monthly Mean aa Index Jan 1950 - Aug 1999

161
Aug 99



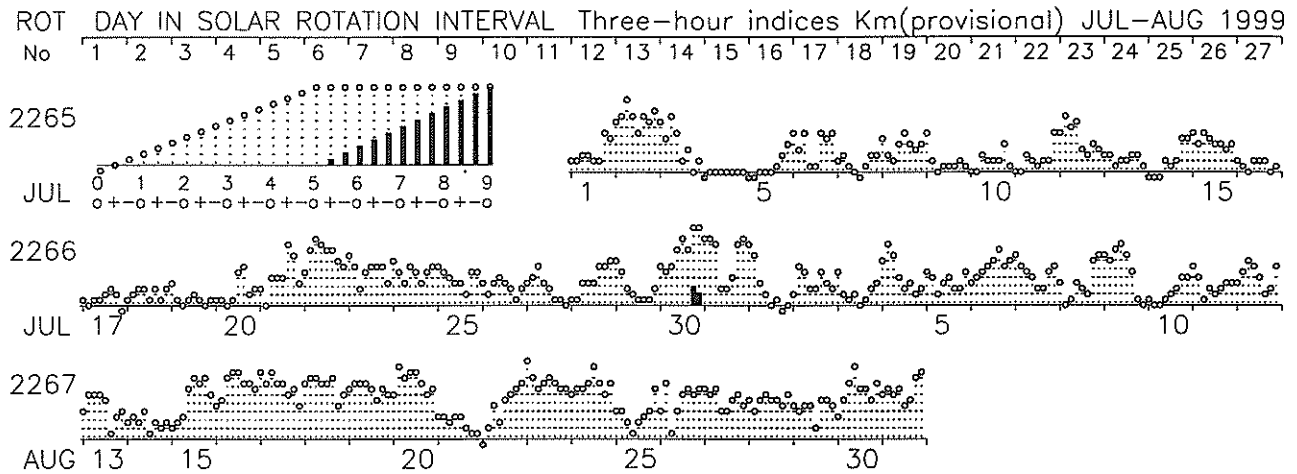
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	22.5	26.1	29.0	22.4	20.2	12.6	22.2
1954	13.9	24.5	25.5	20.6	12.0	9.7	13.1	16.5	25.4	21.1	14.5	10.9	17.3
1955	19.3	18.2	23.6	21.1	16.7	15.1	12.3	14.3	19.1	17.8	19.9	14.1	17.6
1956	28.7	23.3	27.6	31.7	29.3	23.5	19.8	20.7	22.4	19.3	32.3	18.2	24.7
1957	28.7	26.8	36.7	28.8	18.1	29.1	21.7	20.7	57.0	24.0	29.5	31.7	29.4
1958	25.5	43.2	36.1	27.6	25.2	29.7	36.0	25.1	26.5	24.7	15.0	27.2	28.5
1959	24.3	35.9	29.9	24.2	25.7	21.6	42.5	31.2	36.1	28.2	32.1	30.8	30.2
1960	25.2	23.5	27.6	51.5	31.6	27.6	28.1	27.2	26.4	45.6	45.9	34.5	32.9
1961	20.6	25.1	22.0	21.8	22.3	20.1	36.0	18.5	20.7	23.3	17.3	21.1	22.4
1962	13.2	19.2	15.5	22.6	13.4	18.1	21.0	26.2	29.8	33.3	22.5	23.5	21.5
1963	19.3	15.3	14.9	18.2	20.4	20.5	20.8	22.5	40.2	23.5	20.7	18.9	21.3
1964	20.1	20.1	21.0	21.7	17.5	15.1	16.9	14.8	18.2	16.9	13.8	10.3	17.2
1965	11.8	16.3	14.3	12.6	10.5	15.7	14.7	16.8	17.5	13.1	11.7	13.8	14.1
1966	14.2	14.8	18.6	12.0	14.8	12.5	17.1	20.0	29.4	17.5	16.8	20.5	17.3
1967	18.9	19.8	13.8	15.5	33.1	18.6	14.4	17.5	24.7	17.8	18.9	24.5	19.8
1968	21.1	26.5	23.3	22.2	21.4	24.9	18.0	20.1	22.0	24.8	26.2	20.3	22.6
1969	17.8	25.8	27.3	23.6	25.2	16.7	15.0	15.3	23.8	17.2	18.7	13.8	20.0
1970	14.4	12.7	26.4	23.1	16.6	18.3	28.4	21.0	19.7	20.6	21.6	16.5	19.9
1971	23.5	21.2	21.1	23.9	21.1	17.0	15.2	17.1	21.4	22.2	18.8	18.6	20.1
1972	21.9	18.3	21.5	18.1	16.6	21.5	14.0	34.2	20.4	20.4	21.8	18.9	20.6
1973	26.1	32.7	36.9	39.6	26.1	27.3	20.9	20.6	22.8	28.2	20.7	19.9	26.8
1974	25.8	26.4	33.7	32.9	29.2	29.2	32.0	30.2	33.7	37.3	26.8	27.5	30.4
1975	27.6	31.1	32.0	24.3	22.7	20.7	21.7	18.1	16.9	20.2	29.3	21.1	23.8
1976	23.3	28.5	33.4	25.4	23.7	17.5	18.4	17.7	23.7	20.4	16.9	18.6	22.3
1977	18.7	21.0	19.9	24.9	20.1	14.2	22.9	23.2	23.0	20.9	17.3	17.0	20.3
1978	24.6	26.2	25.9	31.3	31.2	28.3	19.9	25.6	27.0	20.8	24.6	22.0	25.6
1979	27.3	23.7	26.9	33.5	21.0	18.3	17.9	26.0	22.0	19.3	17.1	16.8	22.5
1980	19.0	17.3	12.7	18.4	15.6	20.0	17.0	15.9	14.2	21.9	23.3	21.7	18.1
1981	16.5	23.1	26.6	32.8	26.9	18.0	27.2	24.0	20.4	33.7	24.1	19.3	24.4
1982	24.2	50.6	28.5	32.9	26.7	32.1	43.9	31.4	45.1	28.5	33.0	33.8	34.2
1983	26.2	40.0	33.6	35.7	31.6	24.9	21.3	24.9	23.7	28.3	33.5	26.0	29.1
1984	23.5	26.7	30.7	32.5	27.2	23.7	26.4	25.8	32.6	33.1	31.0	29.0	28.5
1985	25.7	24.1	19.0	29.5	15.6	19.9	23.4	22.0	21.2	22.2	23.7	21.4	22.3
1986	22.4	40.0	21.1	14.3	18.8	15.9	16.3	22.3	24.7	18.6	21.2	15.3	20.9
1987	14.8	16.6	17.6	12.9	14.7	13.2	19.3	24.3	30.3	25.8	22.4	16.0	19.0
1988	22.4	23.4	24.8	25.2	20.5	20.0	20.2	20.6	21.4	23.2	23.3	25.5	22.5
1989	33.9	27.5	60.1	32.8	25.7	24.9	14.4	28.4	26.7	31.4	34.7	31.4	31.0
1990	27.4	37.8	33.9	37.4	25.1	24.6	21.6	28.2	25.1	25.1	17.4	15.2	26.6
1991	17.2	20.1	37.3	24.3	27.3	56.2	35.2	40.8	30.7	44.1	49.7	28.0	34.2
1992	25.9	47.7	24.5	19.8	29.1	24.8	17.9	24.1	35.8	27.0	25.0	26.1	27.3
1993	31.2	27.1	37.9	29.2	22.1	21.8	18.2	19.2	23.8	24.6	25.5	24.8	25.5
1994	26.5	43.2	37.9	40.2	40.2	27.2	20.6	16.0	20.2	33.3	23.6	24.1	29.4
1995	23.6	24.5	23.8	24.2	30.9	19.1	14.9	17.0	22.2	27.9	17.2	18.2	22.0
1996	18.8	20.8	22.3	20.5	14.0	11.1	14.7	18.8	26.2	23.5	16.3	15.9	18.6
1997	17.4	21.0	16.3	18.4	15.1	13.7	12.1	13.7	18.4	18.7	18.0	10.8	16.1
1998	16.8	16.4	21.2	18.0	28.1	18.8	19.3	27.0	21.1	22.4	26.5	15.9	21.0
1999	20.8	21.3	23.5	21.3	15.8	12.7	16.9	26.2					19.8

PLANETARY GEOMAGNETIC ACTIVITY

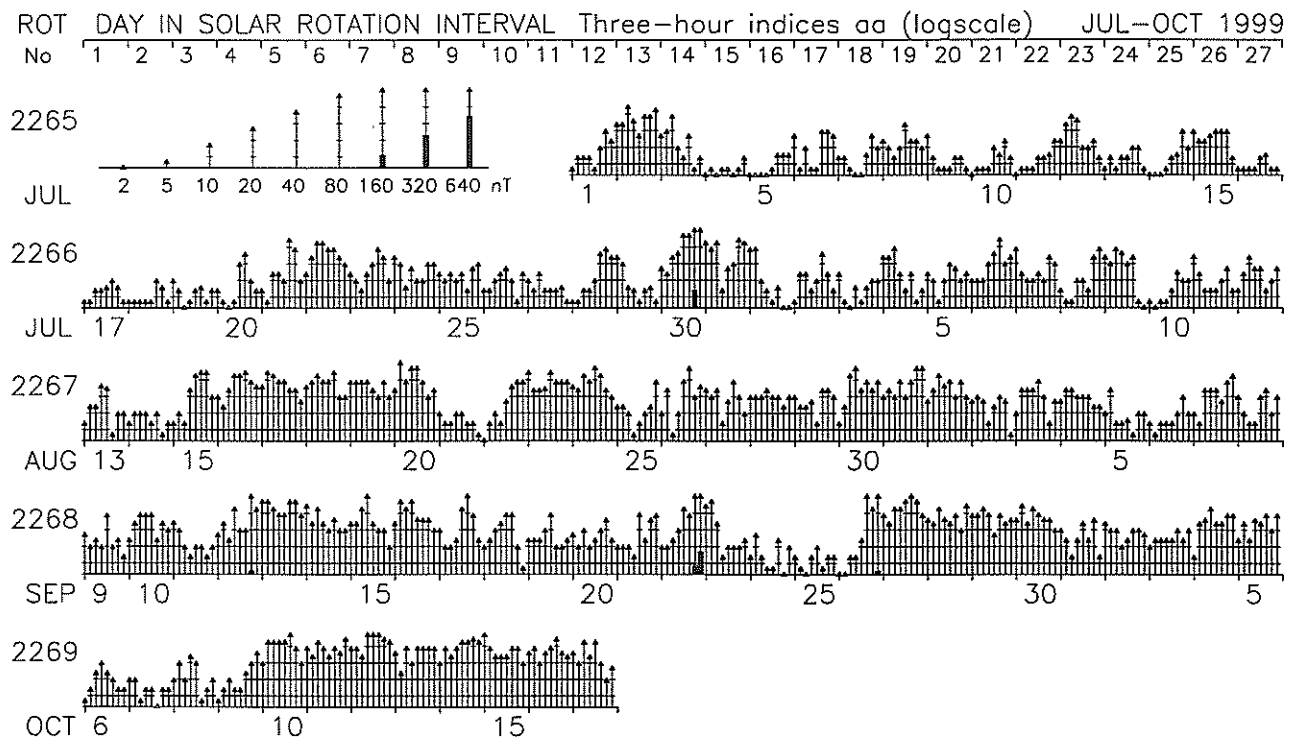
3-HOUR-RANGE INDICES Km AND aa BY 27-DAY SOLAR ROTATION INTERVAL

ISGI PUBLICATION OFFICE – EMail : ISGI.PUBOFF@cetp.ipsl.fr

CETP, 4 Avenue de Neptune, F-94107 Saint Maur des Fosses CEDEX – FRANCE



Indices Derivation at Universite Paris Sud; Graph Prepared at ISGI Publication Office.



Indices Derivation at Universite Paris Sud; Graph Prepared at ISGI Publication Office.

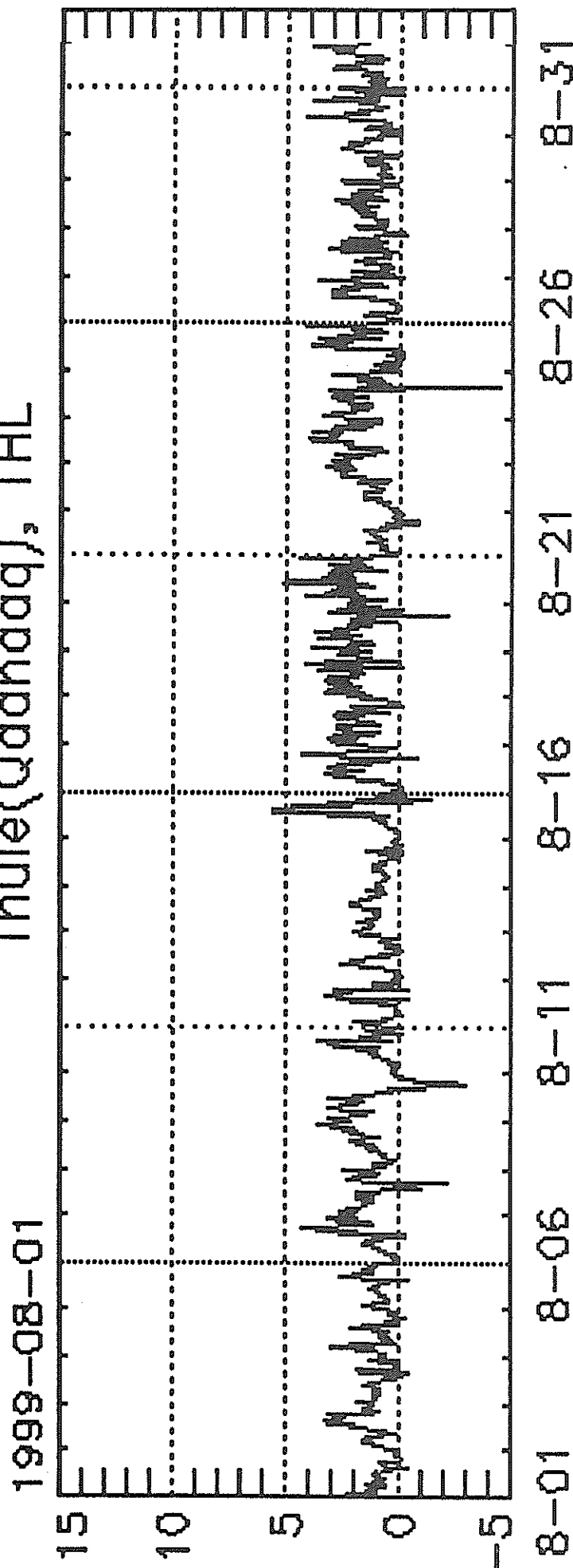
HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

AUGUST 1999

DAY	UNIT=NT		U.T.																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-28	-17	-11	-4	-20	-21	-19	-18	-23	-24	-21	-20	-20	-20	-20	-22	-20	-19	-17	-19	-17	-18	-22	-24
2	-25	-26	-26	-26	-25	-23	-23	-23	-25	-22	-21	-21	-20	-20	-20	-20	-22	-19	-16	-14	-14	-17	-22	-24
3	-16	-9	-10	-10	-10	-9	-6	-5	-6	-5	-7	-10	-12	-11	-11	-11	-7	-6	-8	-8	-4	-2	-19	3
4	-1	-3	9	14	7	6	-15	-15	-8	-3	-2	0	-3	-5	-5	-5	-12	-17	-16	-11	-5	-2	-8	8
5	-7	-7	-12	-9	-4	-4	-2	2	2	1	-1	-4	-6	-2	-2	-4	-1	-3	-3	-1	3	5	2	6
6	10	14	6	7	9	11	13	21	15	18	11	8	5	3	-2	-21	-29	-29	-28	-27	-25	-23	-20	-18
7	-22	-26	-26	-26	-27	-26	-22	-20	-19	-15	-14	-19	-22	-21	-23	-24	-22	-20	-24	-27	-18	-15	-18	-20
8	-18	-19	-20	-21	-19	-16	-13	-12	-13	-14	-14	-15	-16	-16	-17	-18	-18	-19	-23	-27	-27	-23	-25	-28
9	-37	-42	-47	-47	-43	-36	-45	-45	-48	-52	-59	-62	-58	-50	-49	-45	-39	-35	-34	-34	-34	-32	-29	-25
10	-20	-19	-19	-17	-14	-13	-8	-6	-5	-3	1	1	1	2	2	2	-1	-3	1	1	-1	-2	-7	-7
11	-8	-11	-12	-12	-7	-9	-9	-10	-12	-22	-6	-7	-9	-9	-6	-4	-3	-1	1	-3	-2	0	-3	-4
12	1	-3	-5	-3	1	6	0	-13	-23	-22	-22	-20	-16	-12	-13	-12	-5	-5	-1	-2	-4	-2	-4	-4
13	-7	-9	-15	-21	-22	-23	-24	-23	-19	-21	-7	-18	-12	-8	-7	-9	-10	-13	-15	-17	-13	-13	-9	-7
14	-3	-3	-4	-6	-5	-2	-4	-5	-3	-7	-7	-3	-1	1	4	6	4	4	-2	1	1	1	1	-3
15	-4	-4	-1	0	3	5	8	6	4	1	6	22	23	19	2	4	17	-1	-2	-14	12	22	9	-7
16	-15	-9	-7	-11	-10	-4	6	2	-14	-18	-18	-22	-29	-31	-29	-31	-28	-27	-36	-36	-33	-28	-24	-26
17	-26	-36	-38	-42	-40	-47	-38	-44	-41	-38	-30	-29	-37	-45	-42	-32	-35	-32	-35	-35	-27	-25	-25	-30
18	-36	-41	-47	-47	-44	-40	-44	-47	-51	-46	-41	-34	-30	-33	-41	-38	-30	-33	-33	-35	-34	-29	-34	-33
19	-29	-31	-38	-40	-35	-40	-38	-35	-40	-32	-34	-29	-25	-29	-31	-31	-29	-27	-22	-19	-23	-18	-19	-23
20	-17	-18	-22	-35	-44	-48	-44	-53	-57	-47	-49	-61	-64	-52	-57	-62	-62	-54	-49	-48	-48	-44	-38	-39
21	-39	-35	-34	-32	-33	-34	-31	-32	-31	-28	-29	-25	-25	-27	-30	-30	-28	-26	-26	-26	-23	-21	-24	-28
22	-33	-33	-29	-27	-23	-23	-28	-25	-27	-27	-25	-29	-32	-33	-31	-30	-30	-38	-40	-46	-48	-42	-36	-46
23	-56	-58	-54	-58	-57	-57	-59	-49	-52	-56	-56	-66	-60	-75	-74	-80	-78	-69	-65	-55	-55	-58	-54	-49
24	-44	-51	-60	-64	-60	-55	-46	-37	-38	-53	-55	-59	-62	-64	-60	-58	-48	-49	-50	-50	-48	-41	-39	-40
25	-34	-31	-28	-30	-26	-27	-23	-20	-18	-16	-15	-16	-19	-23	-23	-23	-19	-19	-21	-23	-19	-20	-23	-28
26	-28	-30	-29	-29	-25	-18	-13	-11	-12	-11	-8	-10	-16	-25	-28	-39	-44	-39	-34	-33	-36	-38	-46	-47
27	-40	-35	-34	-34	-30	-28	-27	-28	-24	-18	-17	-17	-19	-21	-22	-21	-17	-17	-20	-29	-33	-31	-29	-28
28	-28	-33	-31	-25	-21	-23	-24	-23	-27	-22	-26	-33	-32	-35	-37	-33	-28	-24	-22	-23	-22	-25	-29	-29
29	-29	-30	-26	-21	-17	-12	-14	-14	-11	-14	-18	-21	-24	-22	-22	-20	-18	-19	-23	-27	-25	-27	-27	-27
30	-29	-27	-27	-24	-17	-14	2	1	-12	-18	-6	0	-13	-26	-21	-26	-27	-26	-26	-24	-20	-18	-18	-22
31	-17	-18	-19	-26	-21	-17	-18	-17	-11	-10	-10	-17	-21	-15	-12	-14	-19	-16	-25	-35	-35	-35	-45	-43

1999 AUG 100NT

WDC C1 for Geomagnetism, Copenhagen
Polar Cap index
Thule(Qaanaaq), THL

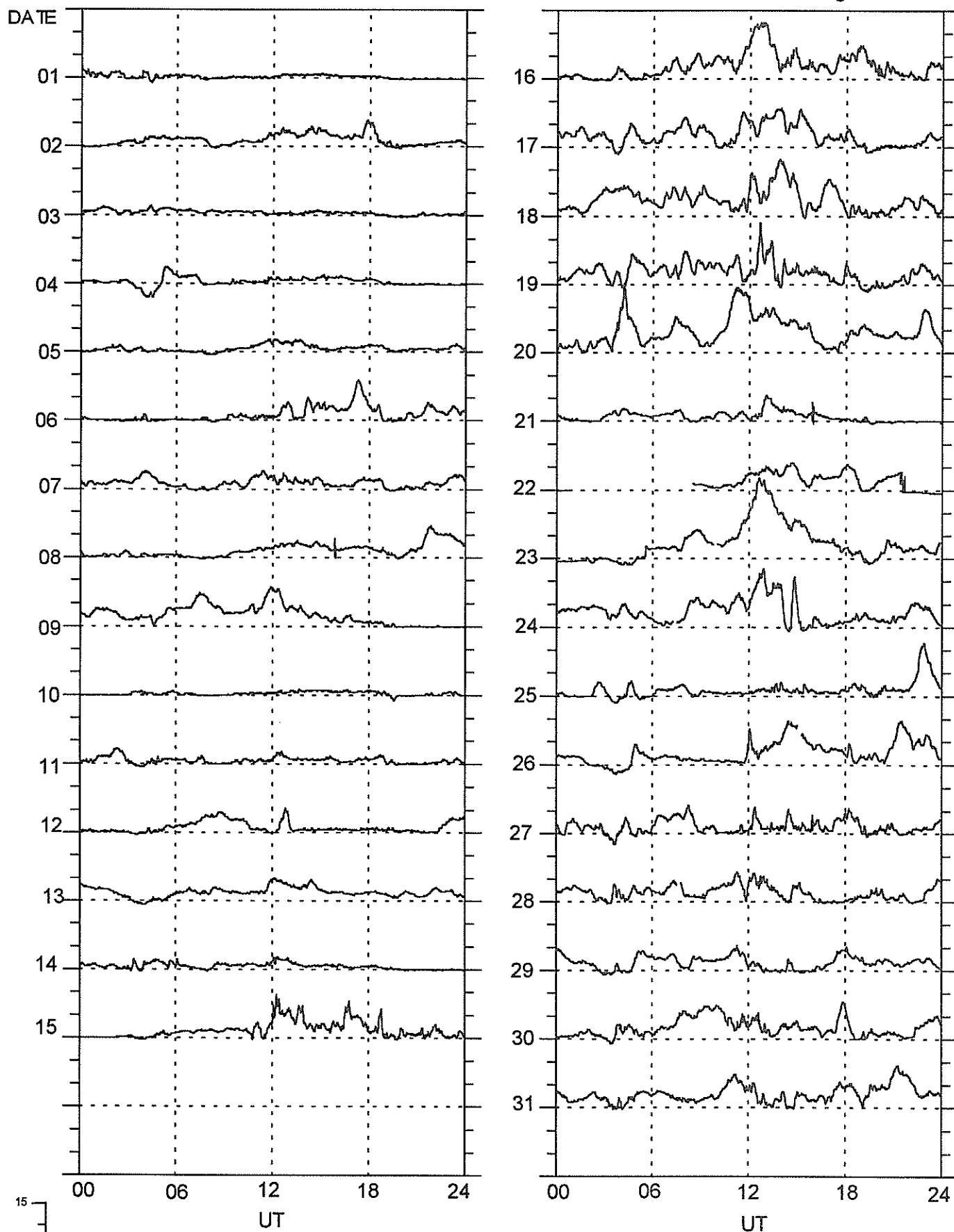


Date, mm-dd
Data source: Solar-Terrestrial Physics Division
Danish Meteorological Institute

PC-INDEX

Vostok

August, 1999



166
Aug 99

PRINCIPAL MAGNETIC STORMS

AUGUST 1999

Sta	Geomag Lat	Commencement		Type	SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges			End		
		Time Day (UT)	D (Min)		H (Gamma)	Z (Gamma)	D K (Min)		H (Gamma)	Z (Gamma)	Day (UT)	Hour		
July														
UJJ	13.6N	31	1800	..	..	..	..	01(2)	-	7	62	49	01	15
NGP	11.3N	31	1800	..	..	..	..		-	8	95	45	01	15
ABG	09.4N	31	1800	..	..	..	..		5	7	81	56	01	15
PND	02.0N	31	1800	..	..	..	..		-	6	90	45	01	15
TRD	01.1S	31	1800	..	..	..	..		-	5	127	62	01	15
August														
HYB	07.6N	04	0220	SC	0.3	21	- 1	04(2,3) 06(3,6)	-	--	--	--	--	--
ETT	00.7S	04	0220	SC	- 0.1	31	20		-	--	--	--	--	--
UJJ	13.6N	05	2200	..	..	..	..		-	6	116	27	06	22
NGP	11.3N	05	2200	..	..	..	..		-	4	153	25	06	22
ABG	09.4N	05	2200	..	..	..	..		4	5	147	36	06	22
PND	02.0N	05	2200	..	..	..	..	-	4	142	35	06	22	
TRD	01.1S	05	2200	..	..	..	..	-	3	175	65	06	22	
UJJ	13.6N	08	1800	..	..	..	..	09(2) 09(2,5)	-	7	85	28	09	20
NGP	11.3N	08	1800	..	..	..	..		-	7	99	24	09	20
ABG	09.4N	08	1800	..	..	..	..		-	6	96	39	09	20
HYB	07.6N	08	1830	..	..	..	..		4	6	101	21	09	19
PND	02.0N	08	1800	..	..	..	..		-	5	103	45	09	20
ETT	00.7S	08	1842	SC	0	6	4	-	--	164	55	09	19	
TRD	01.1S	08	1800	..	..	..	..	-	4	176	95	09	20	
KRC	16.4N	15	1051	SC	- 2	34	21	15(4,5,6,7) 16(3,6)	5	9	137	44	17	00
HYB	07.6N	15	1044	SC	- 0.3	12	- 1	15(6,7) 16(3)	5	7	136	25	17	22
ETT	00.7S	15	1044	SC	- 0.4	15	12	-	--	200	62	17	20	
BJI	28.8N	16	0300	..	..	..	..	16(3)	5	10	110	29	17	24
KRC	16.4N	17	0325	..	..	..	..	17(1,3,5) 18(6)	5	10	83	67	19	07
UJJ	13.6N	17	0100	..	..	..	..	15(5,6,7)17(2,4)20(4)	-	7	88	40	20	19
NGP	11.3N	17	0100	..	..	..	..		-	7	90	49	20	19
ABG	09.4N	17	0100	..	..	..	..		5	8	98	63	20	19
PND	02.0N	17	0100	..	..	..	..		-	6	109	59	20	19
TRD	01.1S	17	0100	..	..	..	..		-	5	176	85	20	19
HYB	07.6N	18	0200	..	..	..	..	18(6) 20(4)	5	7	95	41	20	24
ETT	00.7S	18	0200	..	..	..	..	-	--	164	62	20	24	
UJJ	13.6N	22	1700	..	..	..	..	25(6) 30(3,4) 23(6) 24(6)	-	8	97	43	23	22
NGP	11.3N	22	1700	..	..	..	..		-	7	126	29	23	22
ABG	09.4N	22	1700	..	..	..	..		5	7	118	42	23	22
HYB	07.6N	22	1200	..	..	..	..		5	8	138	33	24	23
PND	02.0N	22	1700	..	..	..	..		-	7	63	44	23	22
ETT	00.7S	22	1500	..	..	..	..	-	--	215	69	24	24	
TRD	01.1S	22	1700	..	..	..	..	-	5	143	69	23	22	
HER	33.6S	22	21--	..	..	..	..	23(1,8)	5	28	110	82	25	00
KRC	16.4N	23	0302	..	..	..	..	23(1,2,6) 24(5,6)	5	11	119	41	24	17
HYB	07.6N	29	0200	..	..	..	..	30(3)	5	8	119	42	30	23

Stations:

ABG = ALIBAG
AMS = MARTIN DE VIVIES
ANN = ANNAMALAINAGAR
BJI = BEIJING
CAN = CANBERRA
CMO = COLLEGE

CZT = PORT ALFRED
DRV = DUMONT D'URVILLE
ETT = ETAIYAPURAM
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS

HON = HONOLULU
HYB = HYDERABAD
JAI = JAIPUR
KRC = KARACHI
NGP = NAGPUR
PAF = PORT AUX FRANCAIS

PMG = PORT MORESBY
PND = PONDICHERRY
SHL = SHILLONG
SIT = SITKA
TRD = TRIVANDRUM
UJJ = UJJAIN



WORLD DATA CENTER A

FOR

SOLAR-TERRESTRIAL PHYSICS



The ICSU Panel on WDCs has recommended that it would be appropriate courtesy to acknowledge in publications that data were obtained from the originating station or investigator through the intermediary of the WDCs. The following statement is suggested:

"Data used in this study were provided by WDC-A for Solar-Terrestrial Physics, NOAA E/GC2, 325 Broadway, Boulder Colorado 80303, USA."