



Solar-Geophysical Data prompt reports

Data for July and August 2004

Explanation of Data Reports Issued as Number 515 (Supplement) July 1987

Please visit: <http://sgd.ngdc.noaa.gov>

SGD On-line Edition:

<http://www.ngdc.noaa.gov/stp> -- Click on SGD Online

SGD PDF version: <http://sgd.ngdc.noaa.gov>

ftp.ngdc.noaa.gov/STP/SOLAR_DATA/SGD_PDFversion

NGDC On-Line Addresses:

World-Wide Web: <http://www.ngdc.noaa.gov>

Gopher: <gopher.ngdc.noaa.gov>

Anonymous FTP: <ftp.ngdc.noaa.gov>

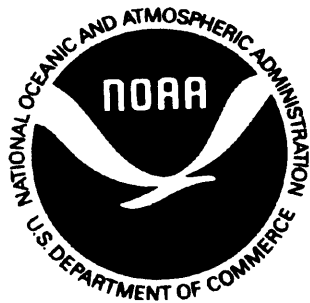
noaa

NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION

NATIONAL ENVIRONMENTAL SATELLITE,
DATA, AND INFORMATION SERVICE

NATIONAL GEOPHYSICAL
DATA CENTER

BOULDER,
COLORADO



U.S. DEPARTMENT OF COMMERCE

Donald L. Evans, Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Vice Admiral Conrad C. Lautenbacher, Jr., Under Secretary/Administrator

NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

Gregory W. Withee, Assistant Administrator

SEPTEMBER 2004 NUMBER 721 - Part I

Solar-Geophysical Data prompt reports

Data for July and August 2004

International Standard Serial Number: 0038-0911

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

NATIONAL GEOPHYSICAL DATA CENTER

Christopher G. Fox, Director

Boulder, Colorado

Subscription information is on the inside back cover.

SOLAR-GEOPHYSICAL DATA

Number 721

(Issued in Two Parts)

Editor: Helen E. Coffey

Acting Chief: David M. Clark
Solar-Terrestrial Physics Division

Staff: Edward H. Erwin

CONTENTS

PART I (PROMPT REPORTS)	Page
DETAILED INDEX FOR 2003-2004	2
DATA FOR AUGUST 2004	3- 38
DATA FOR JULY 2004	39-130

PART II (COMPREHENSIVE REPORTS)	Page
DETAILED INDEX FOR 2003-2004	2
DATA FOR MARCH 2004	3-33
NEW DATA:	
ACE SOLAR WIND, INTERPLANETARY MAGNETIC FIELD AND PARTICLES	
-- MONTHLY PLOTS	

DETAILED INDEX OF OBSERVATIONS PUBLISHED IN SOLAR-GEOPHYSICAL DATA

CODE	KIND OF OBSERVATION	JAN 04	FEB	MAR	APR	MAY	JUN	JUL	AUG
A. SOLAR AND INTERPLANETARY									
A.1	Sunspot Drawings	715 44A	716A 46	717A 44	718A 44	719A 42	720A 48	721A 46	
A.2aa	International Sunspot Numbers	714A 26	715A 25	716A 25	717A 22	718A 23	719A 24	720A 25	721A 25
A.2c	American Sunspot Numbers	714A 26	715A 25	716A 25	717A 22	718A 23	719A 24	720A 25	721A 25
A.3a	Mt. Wilson Magnetograms	715A 44	716A 46	717A 44	718A 44	719A 42	720A 48	721A 46	
A.3b	Sunspot Mag Class and Regions	715A 81	716A 80	717A 81	718A 79	719A 79	720A 83	721A 83	
A.3c	Kitt Peak Magnetograms	715A 44	716A 46	717A 44	718A 44	719A 42	720A 48	721A 46	
A.3d	Mean Solar Magnetic Field (Stanford)	714A 36	715A 34	716A 36	717A 34	718A 34	719A 32	720A 38	721A 37
A.3e	Stanford Magnetograms	715A 44	716A 46	717A 44	718A 44	719A 42	720A 48	721A 46	
A.4	H-alpha Filtergrams	715A 44	716A 46	717A 44	718A 44	719A 42	720A 48	721A 46	
A.5d	Photometric Ca II Faculae San Fernando	Jan 92-Dec 96 - 631B 22; 1997-1998 in 663B 66							
A.6c	Stanford Solar Mag Field Synoptic Map	715A 38	716A 40	717A 38	718A 38	719A 36	720A 42	721A 40	
A.6d	Kitt Peak Solar Mag Field Synoptic Map	715A	716A	717A 43	718A 43	719A 41	-----	721A 45	
A.6f	Active Prominences and Filaments	719B 33	720B 27	721B 27					
A.6g	Sac Peak Coronal Line Synoptic Maps	715A 40	716A 42	717A 40	718A 40	719A 38	720A 44	721A 42	
A.6h	Photometric White Light San Fernando	Jul-Dec 96 630B 32; 1997-1998 in 663B 51							
A.7h	Coronal Line Emission (Sac Peak)	715A 44	716A 46	717A 44	718A 44	719A 42	720A 48	721A 46	
A.7j	Coronal Hole Daily Maps (NSO/KP)	-----							
A.7k	Coronal Index (Slovak Academy)	1939-1996 -644B 28							
A.7m	Coronal Mass Ejections (CSPSW)	719B	720B	721B					
A.8aa	2800 MHz- Solar Flux (Penticton)	714A 26	715A 25	716A 25	717A 22	718A 25	719A 24	720A 25	721A 25
A.8ac	2800 MHz- Adj. Solar Flux (Penticton)	714A 26	715A 25	716A 25	717A 22	718A 25	719A 24	720A 25	721A 25
A.8g	Adjusted Daily Solar Fluxes Sagamore	714A 26	715A 25	716A 25	717A 22	718A 25	719A 24	720A 25	721A 25
A.10g	Nancay Radioheliograph-164&327MHz	-----	-----	717A112	718A103	719A100	720A108	721A116	
A.10h	Nobeyama Radioheliograph -17 GHz	715A 75	716A 75	717A 75	718A 74	719A 73	720A 78	721A 77	
A.11g	Solar X-ray GOES (graphs/event table)	719B 24	720B 19	721B 18					
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.11o	Solar UV SUSIM (UARS)	Oct 91-Jan 97 in 629B 30							
A.11p	Solar UV Mg II Daily Index	719B 34	720B 28	721B 28					
A.12g	Solar Particles (GOES)	714A 4	715A 4	716A 4	717A 4	718A 4	719A 4	720A 4	721A 4
A.12i	Interplanetary Particles (ACE)	719B 37	720B 31	721B 31					
A.13g	Solar Plasma (ACE)	719B 36	720B 30	721B 30					
A.16c	ERBS, NOAA-9 & -10 Solar Irradiance	ERBS Oct 84-Jun 00 in 671B 36							
A.16d	UARS Solar Irradiance	Oct 91-May 2001 684B 26 - Complete Mission							
A.16e	VIRGO/SOHO Solar Irradiance	Jan 96-Sep 00 in 678B 46							
A.17c	Inferred Interplanetary Mag Field	1984-1988 data in 542A168; 1989-Jan 94 in 611A118							
A.17d	ACE Interplanetary Mag Field	719B 35	720B 29	721B 29					
SOLAR FLARE-ASSOCIATED EVENT									
C.1a	H-alpha Flares	714A 29	715A 28	716A 30	717A 27	718A 28	719A 27	720A 28	721A 28
C.1ba	H-alpha Flare Groups	719B 4	720B 4	721B 4					
C.1d	Flare Patrol Observations	719B 9	720B 9	721B 10					
C.1h	H-alpha Flare Index (ImpxDur)	Jan 76-Dec 85 in 639B 26; Jan 86-Oct 96 in 635B 24; Jan 96-Dec 98 in 665B 63							
C.3	Radio Bursts Fixed Frequency	719B 11	720B 11	721B 12					
C.3	Radio Bursts Fixed Frequency Select	714A 33	715A 32	716A 35	717A 32	718A 33	719A 31	720A 34	721A 34
C.4	Radio Bursts Spectral	715A 89	716A 91	717A 94	718A 90	719A 90	720A 94	721A 97	
C.6	Sudden Ionospheric Disturbances	715A 87	716A 89	717A 92	718A 88	719A 88	720A 92	721A 93	
D. GEOMAGNETIC EVENTS									
D.1a	Geomagnetic Indices	715A112	716A114	717A120	718A111	719A108	720A114	721A122	
D.1ba	27-day Chart of Kp Indices	715A114	716A116	717A122	718A113	719A110	720A116	721A124	
D.1cb	Monthly Mean aa Indices	715A115	716A117	717A123	718A114	719A111	720A117	721A125	
D.1d	Principal Magnetic Storms	715A121	716A121	717A127	718A118	719A115	720A121	721A129	
D.1f	Sudden Commencements/Flare Effects	715A122	716A122	717A128	718A119	719A116	720A122	721A130	
D.1g	Equatorial Indices Dst	715A119	716A119	717A125	718A116	719A113	720A119	721A127	
D.1l	Polar Cap (PC) Index	715A120	716A120	717A126	718A117	719A114	720A120	721A128	
F. COSMIC RAYS									
F.1b	Cosmic Ray Neutron Cts (Climax)	715A104	716A106	717A114	718A105	719A102	720A110	721A118	
F.1h	Cosmic Ray Neutron Cts (Thule)	715A104	716A106	717A114	718A105	719A102	720A110	721A118	
F.1l	Cosmic Ray Neutron Cts (Kiel)	715A104	716A106	717A114	718A105	719A102	720A110	721A118	
F.1n	Cosmic Ray Neutron Cts (Beijing)	715A104	716A106	717A114	718A105	719A102	720A110	721A118	
F.1m	Cosmic Ray Neutron Cts (Haleakala)	715A104	716A106	717A114	718A105	719A102	720A110	721A118	
F.1o	Cosmic Ray Neutron Cts (Moscow)	715A104	716A106	717A114	718A105	719A102	720A110	721A118	
F.1p	Cosmic Ray Neutron Cts (Calgary)	715A104	716A106	717A114	718A105	719A102	720A110	721A118	
H. MISCELLANEOUS									
H.60	ISES Alert Periods	714A 20	715A 19	716A 20	717A 19	718A 20	719A 19	720A 20	721A 20

The entry "715A 44" under Jan 04, for example, means that the sunspot drawings for Jan 04 appear in SOLAR-GEOPHYSICAL DATA No. 715, Part I, and that they begin on page 44. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

CONTENTS

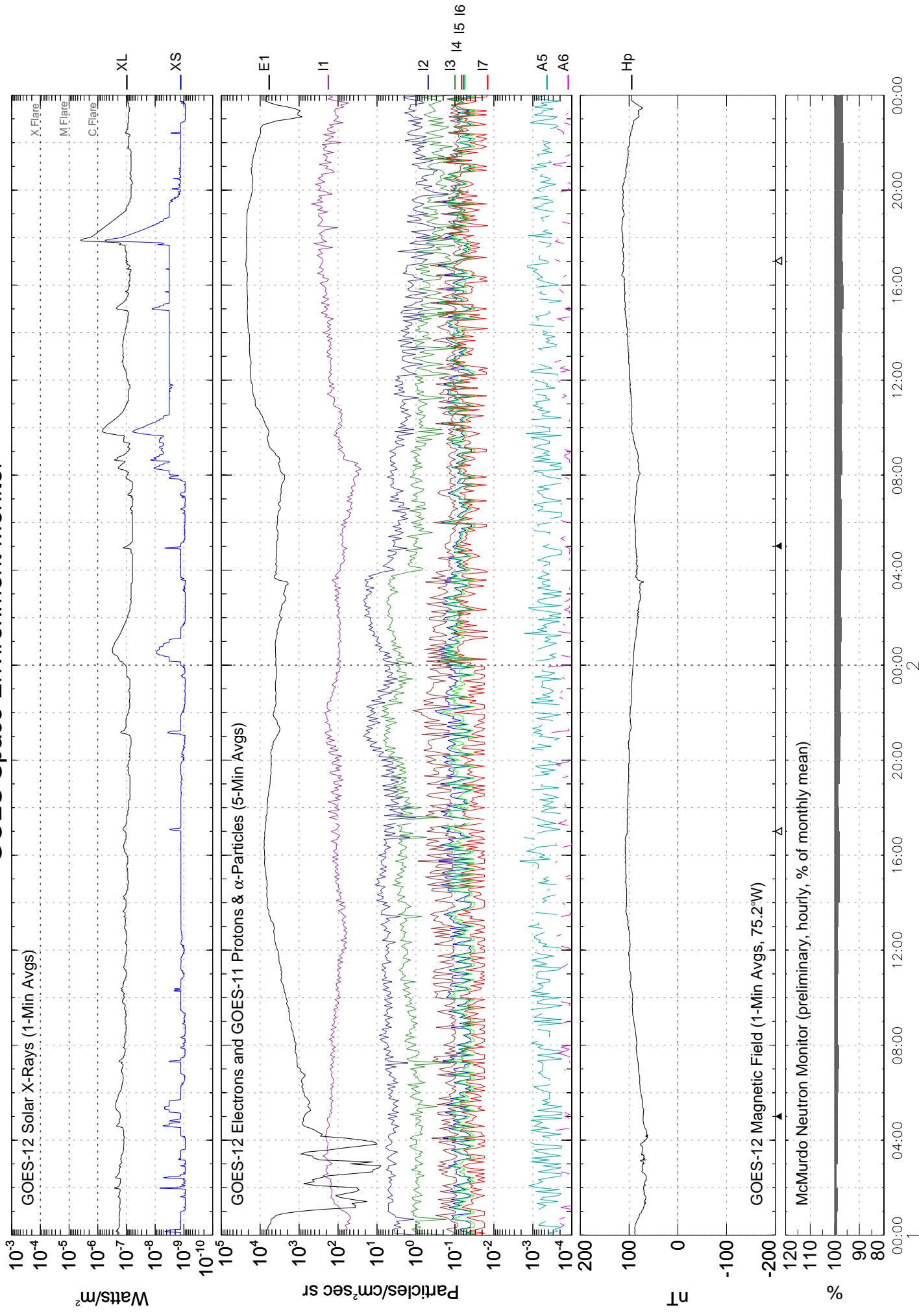
Prompt Reports

Number 721 Part I

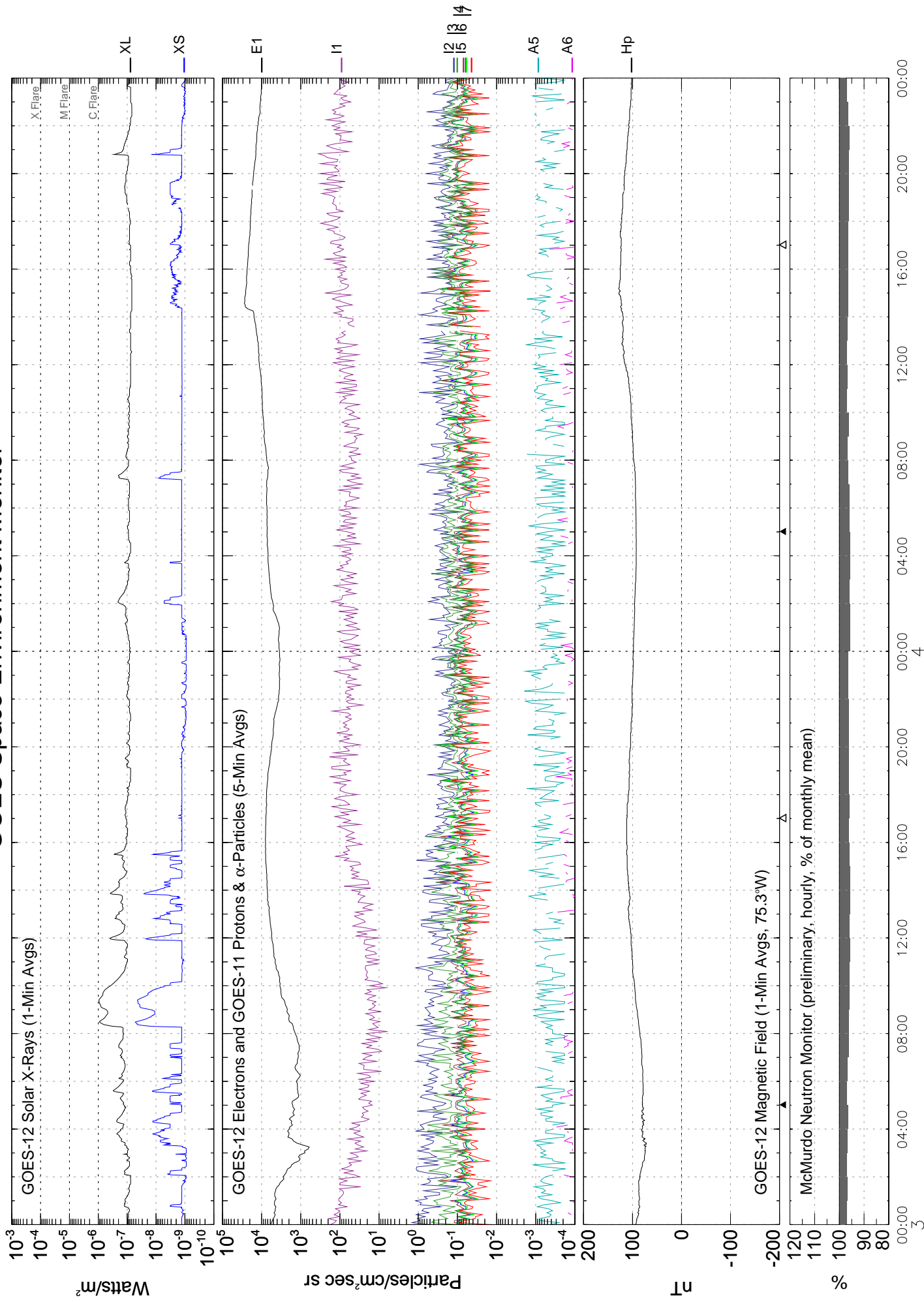
DATA FOR AUGUST 2004

	Page
SOLAR-TERRESTRIAL ENVIRONMENT	4-19
Plots of GOES Satellite X-rays, Particles and Magnetometer Data with ground-based McMurdo Neutron Monitor Cosmic Rays	
ISES ALERT PERIODS (Advance and Worldwide)	20-22
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 1951-present.....	27
SOLAR FLARES	
H-alpha Solar Flares	28-33
Intervals of No Flare Patrol (See 6-month late chart in Comprehensive Reports.)	
SOLAR RADIO EMISSION	
Selected Fixed Frequency Events	34-35
Selected Bursts (None reported.)	
STANFORD MEAN SOLAR MAGNETIC FIELD	
Graph	36
Table	37
GOES Daily Electron Fluence	38

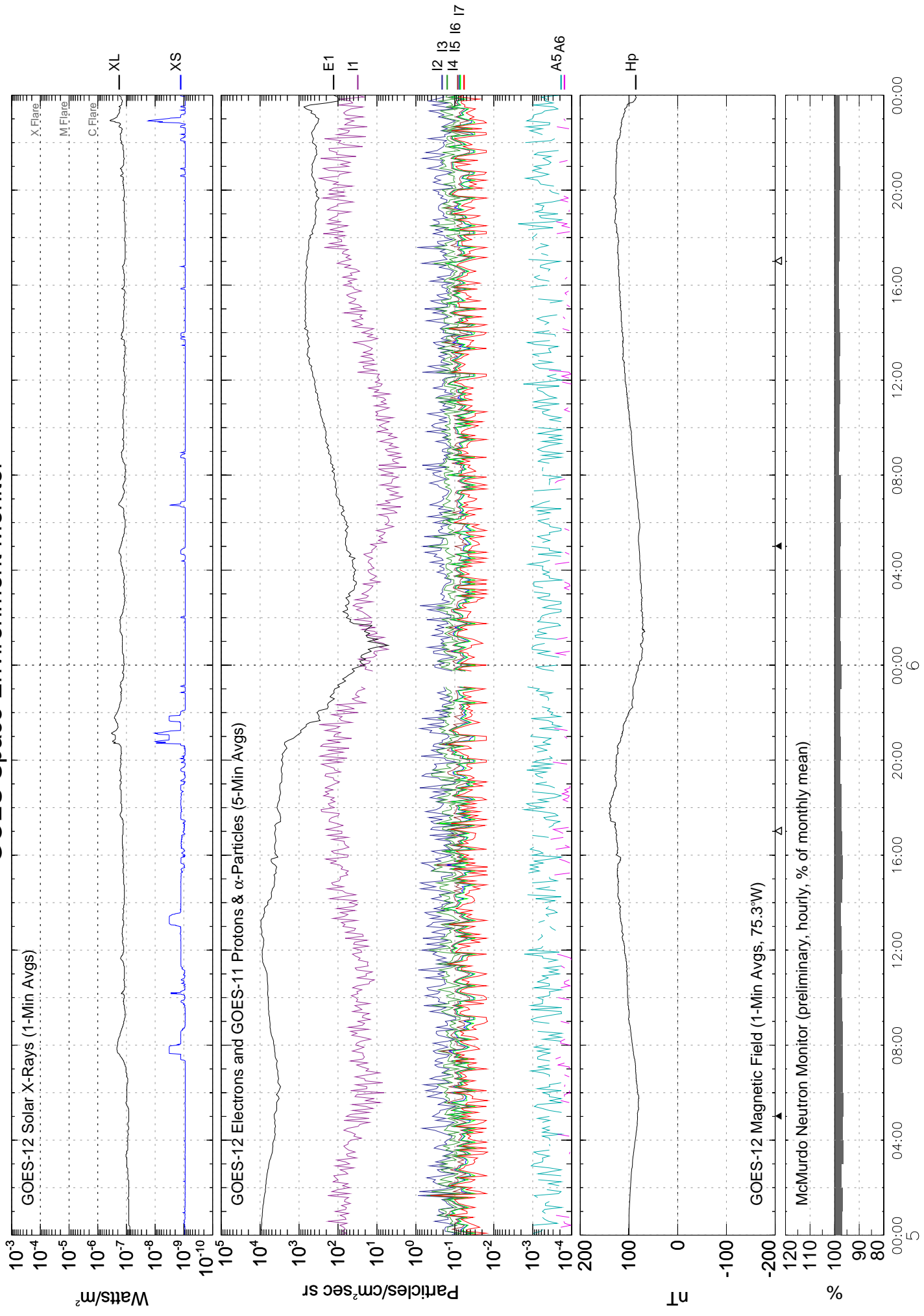
GOES Space Environment Monitor



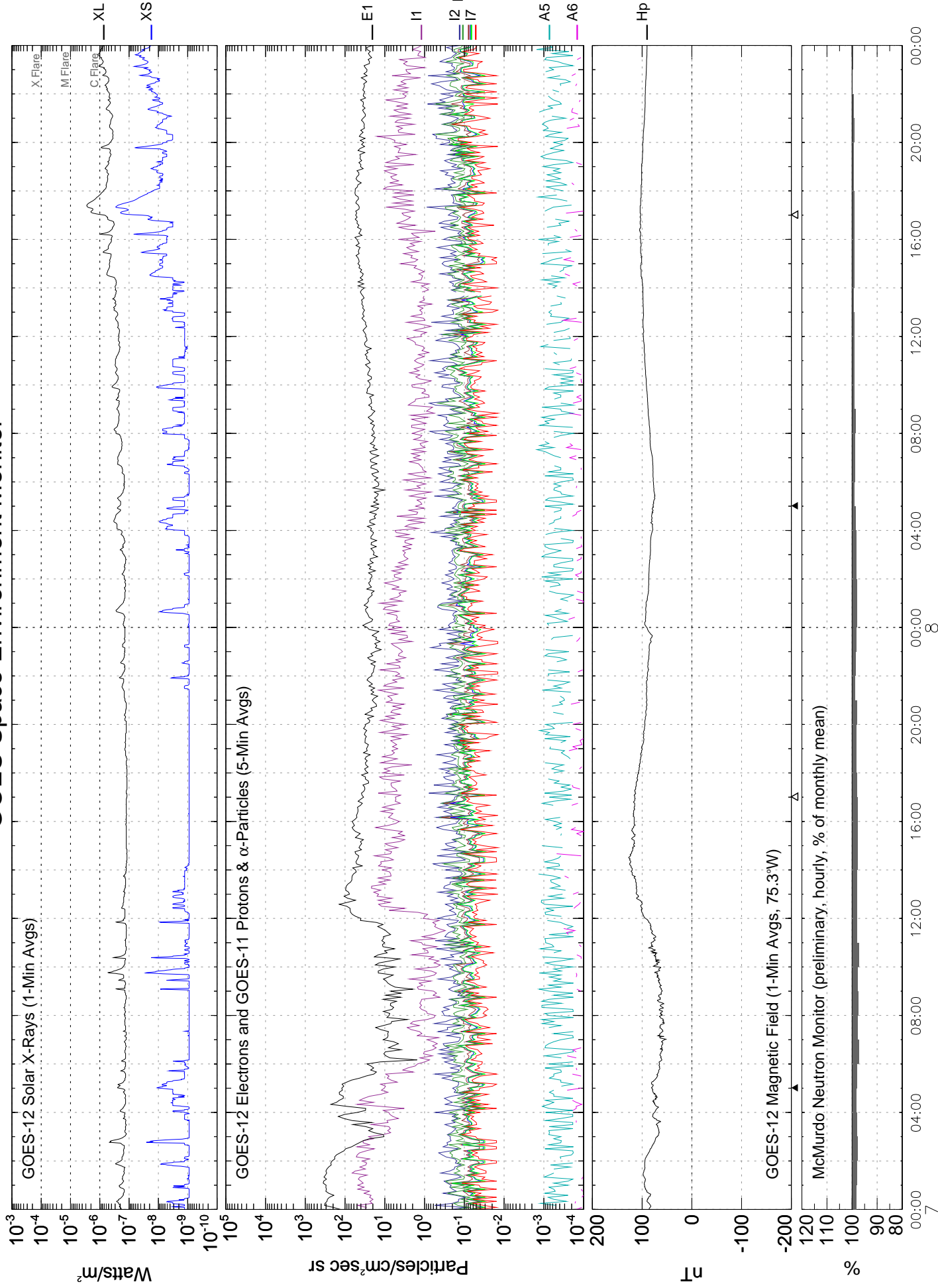
GOES Space Environment Monitor



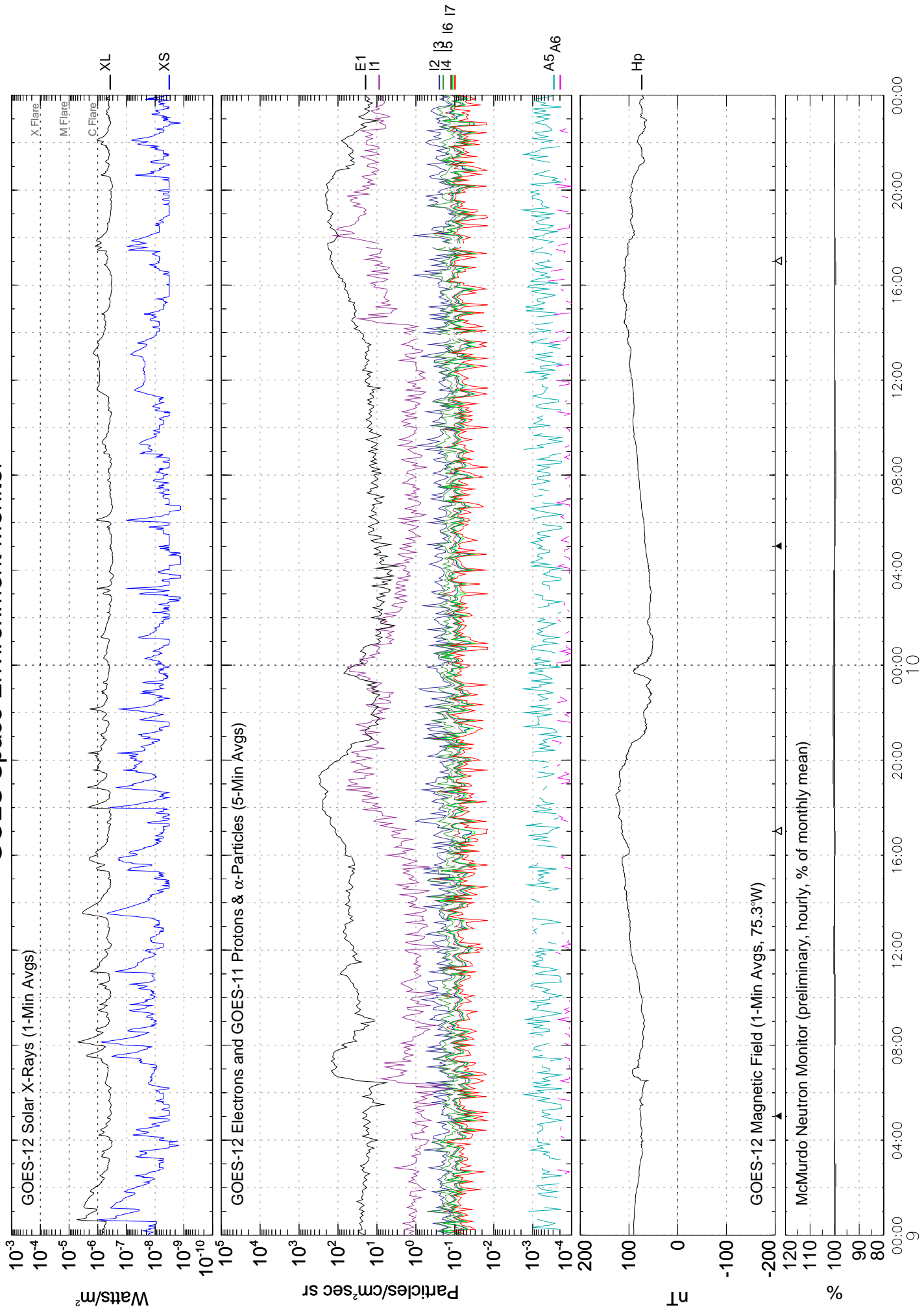
GOES Space Environment Monitor



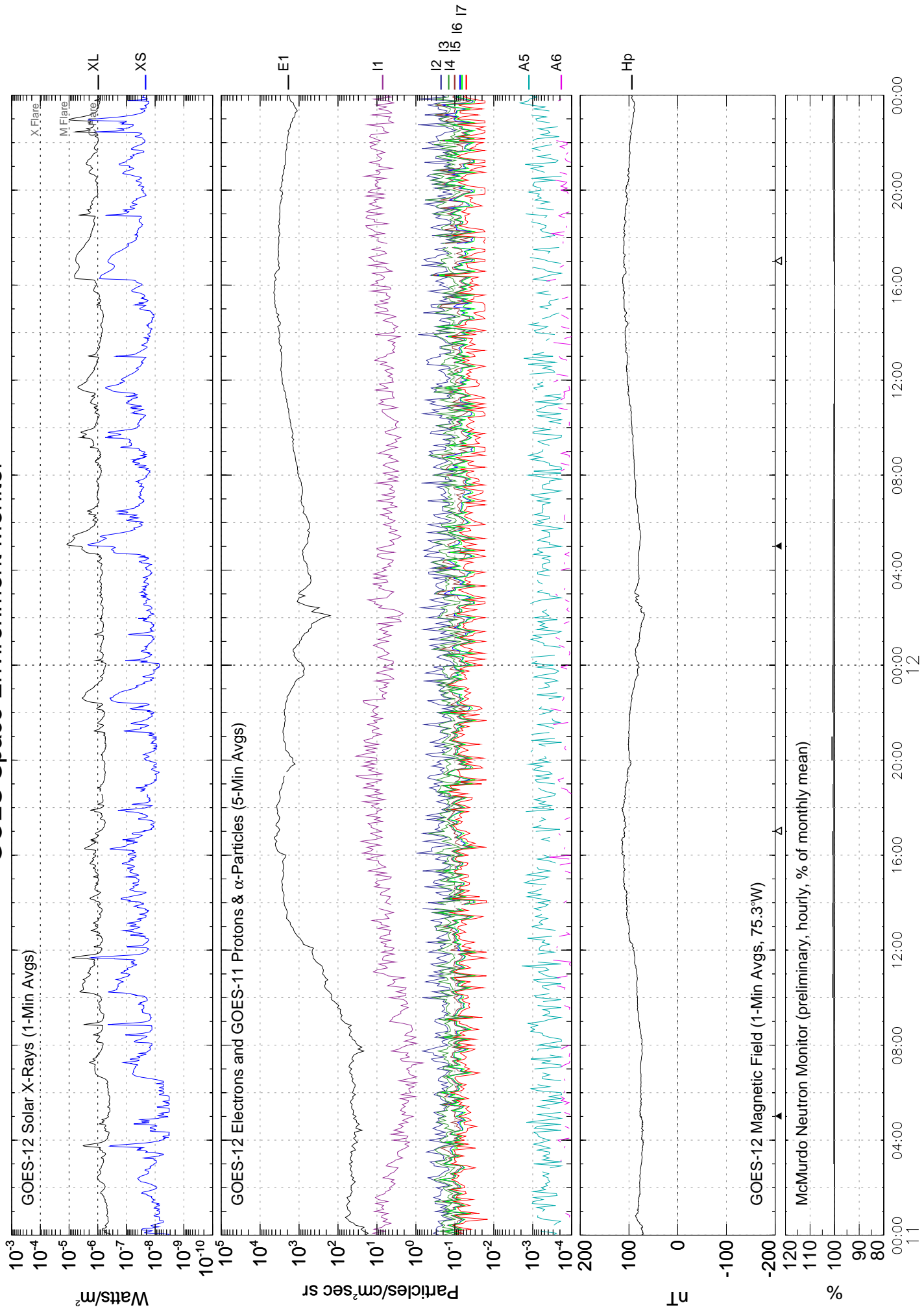
GOES Space Environment Monitor



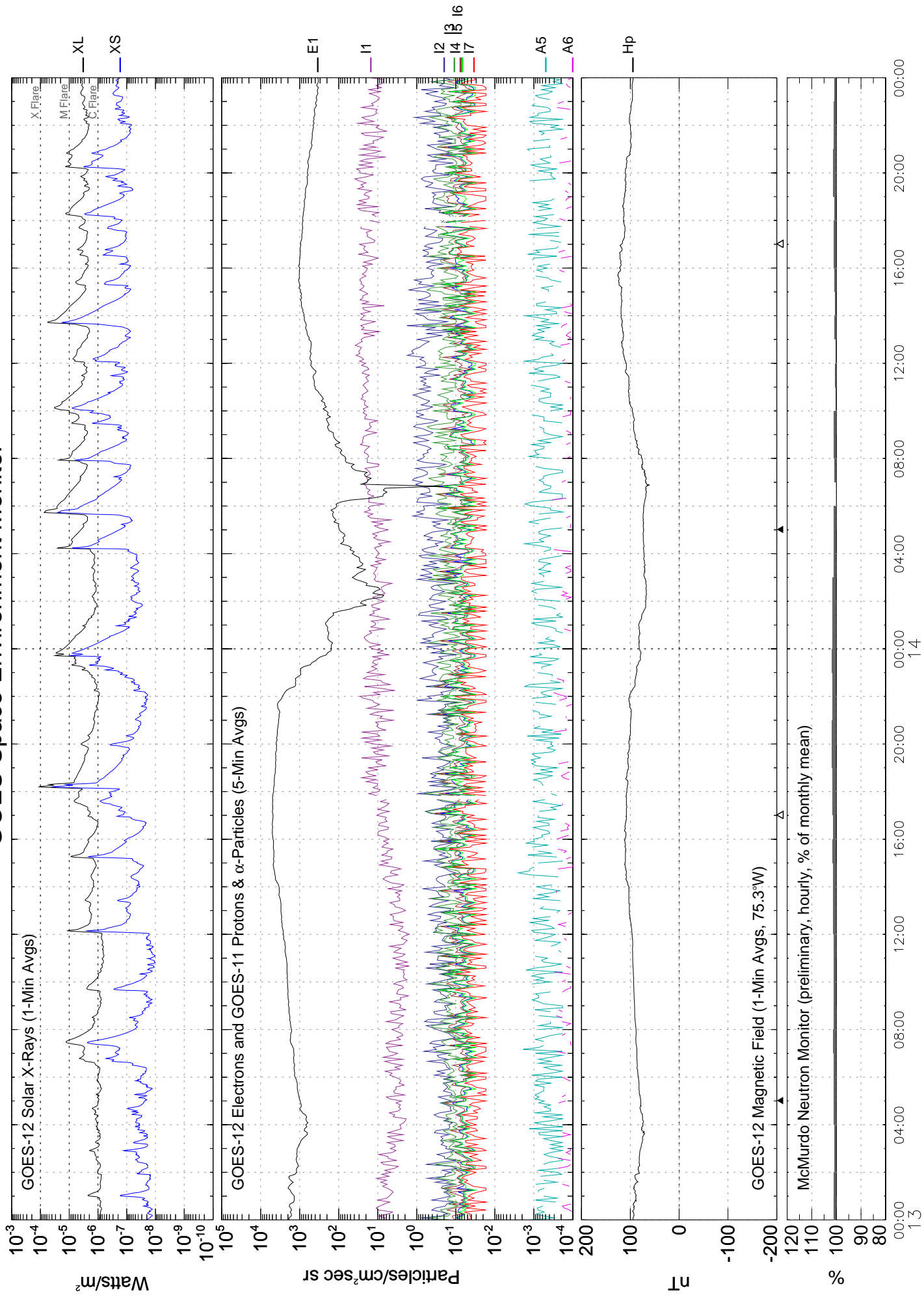
GOES Space Environment Monitor



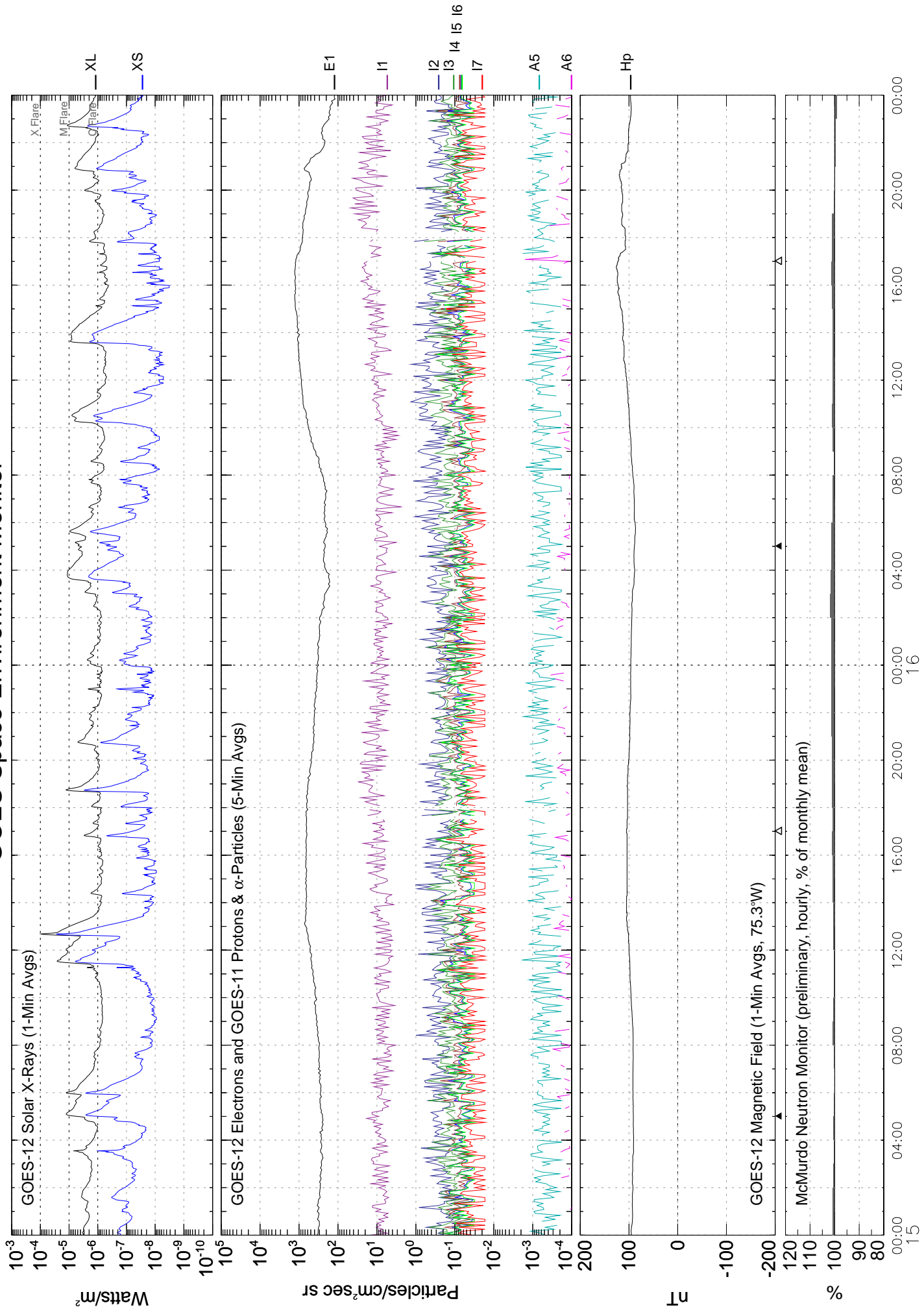
GOES Space Environment Monitor



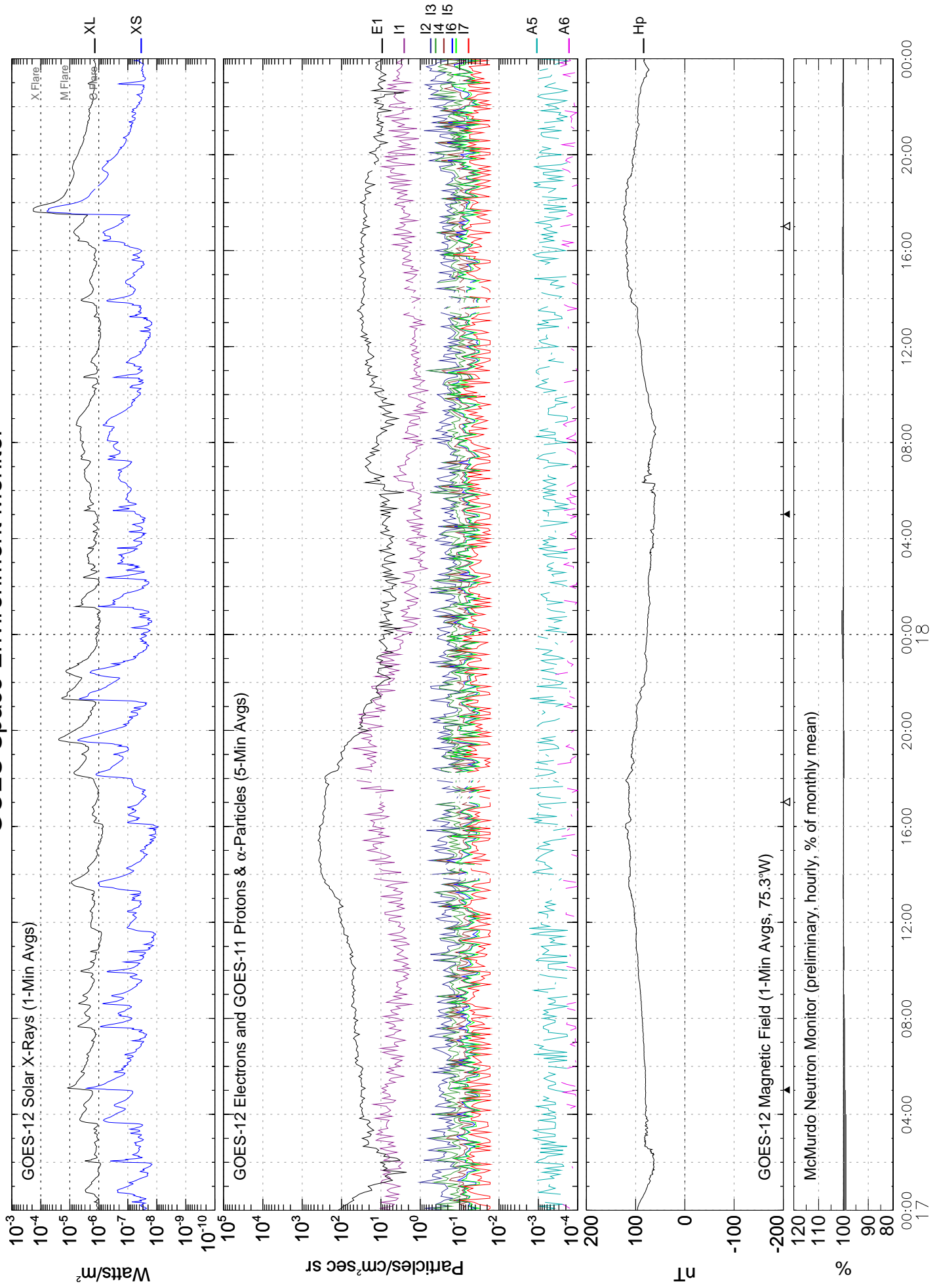
GOES Space Environment Monitor



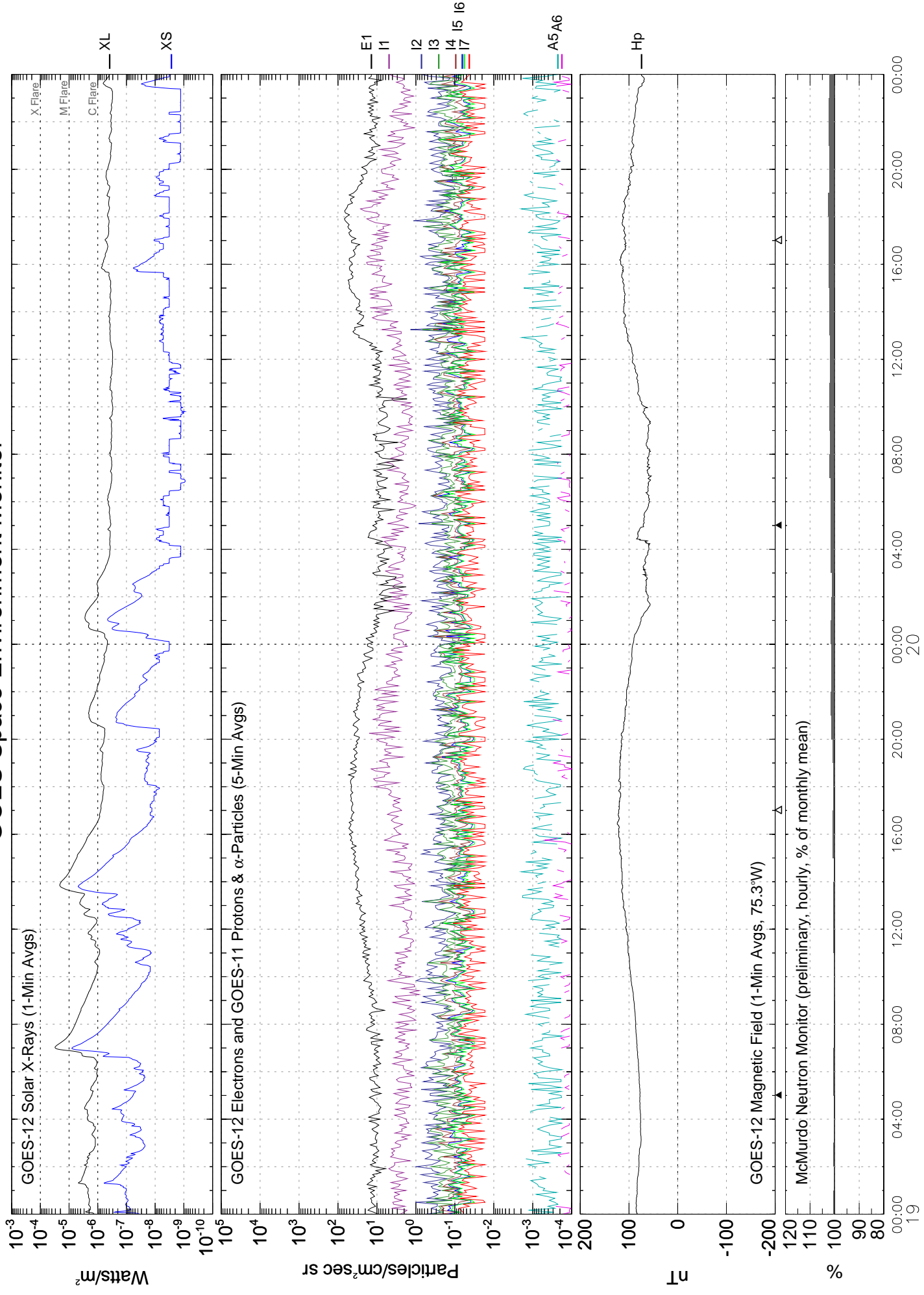
GOES Space Environment Monitor



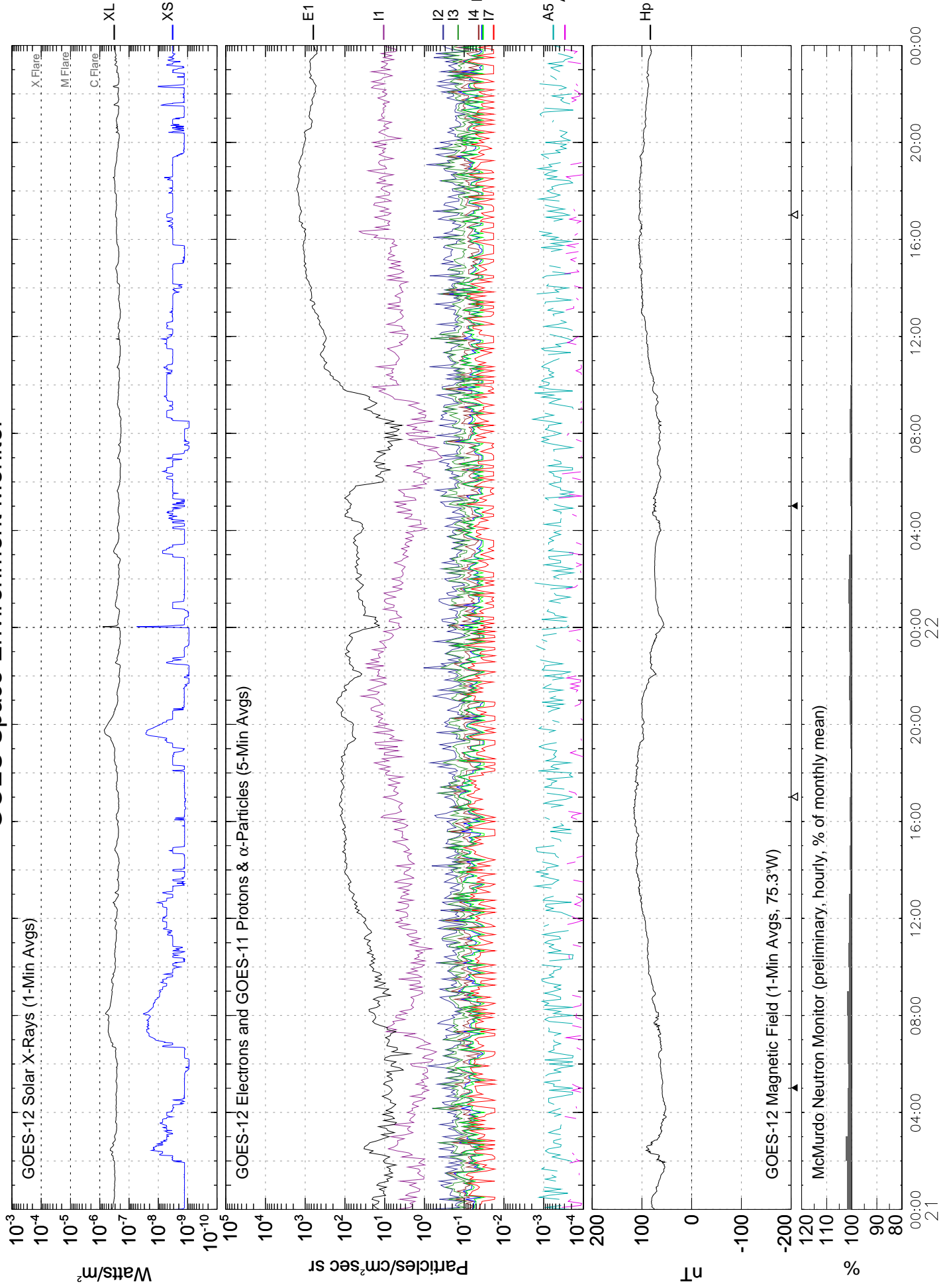
GOES Space Environment Monitor



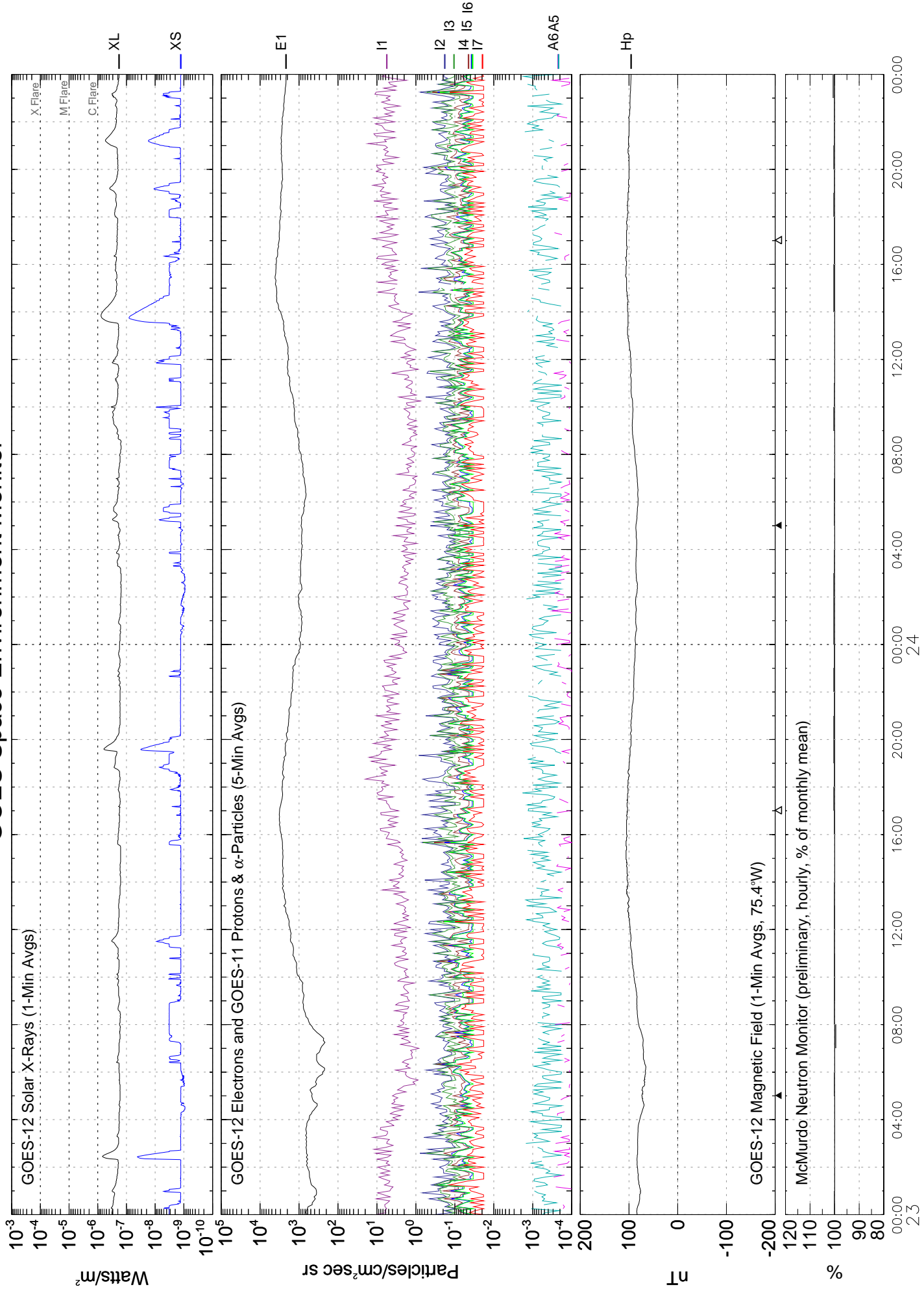
GOES Space Environment Monitor



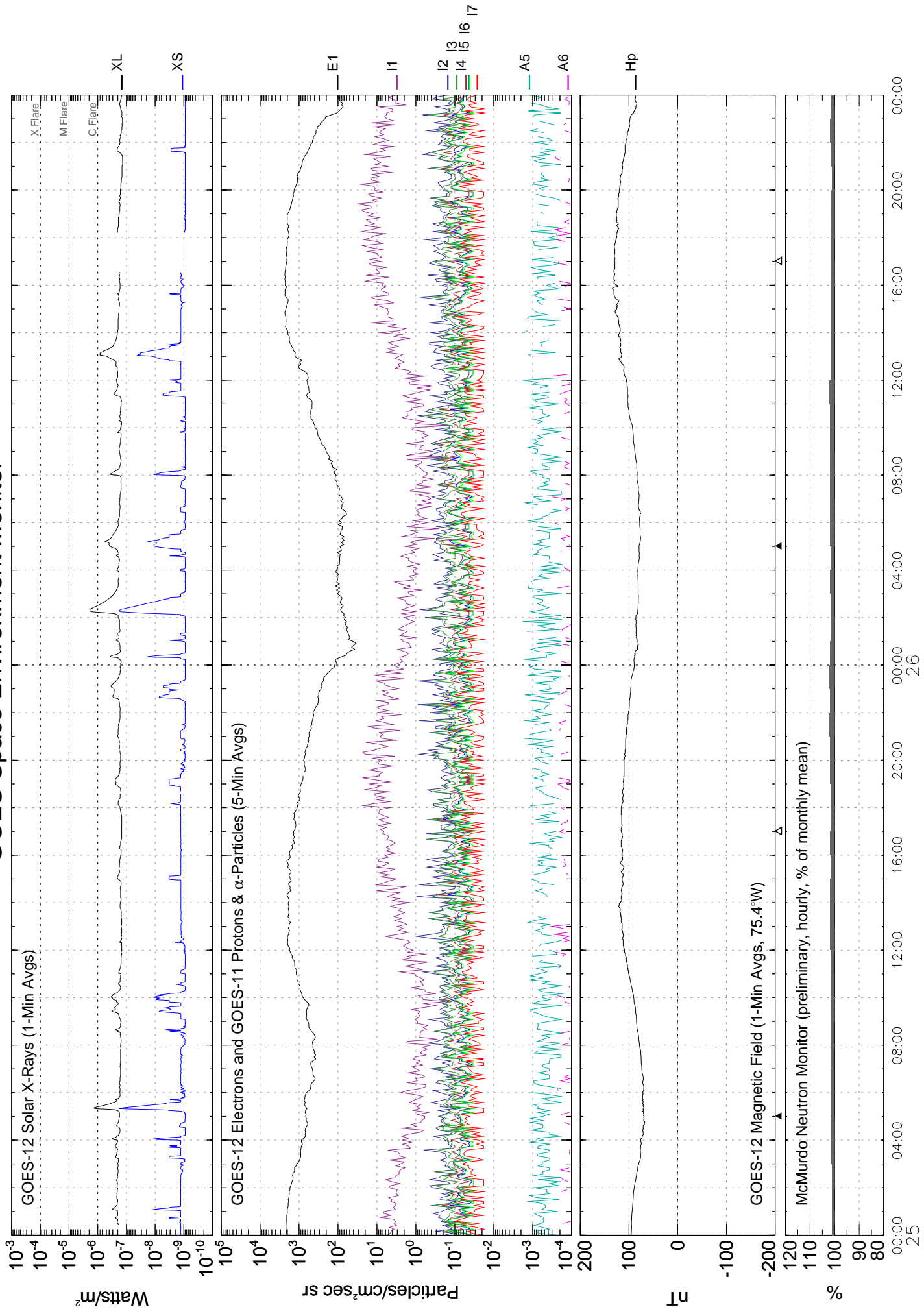
GOES Space Environment Monitor



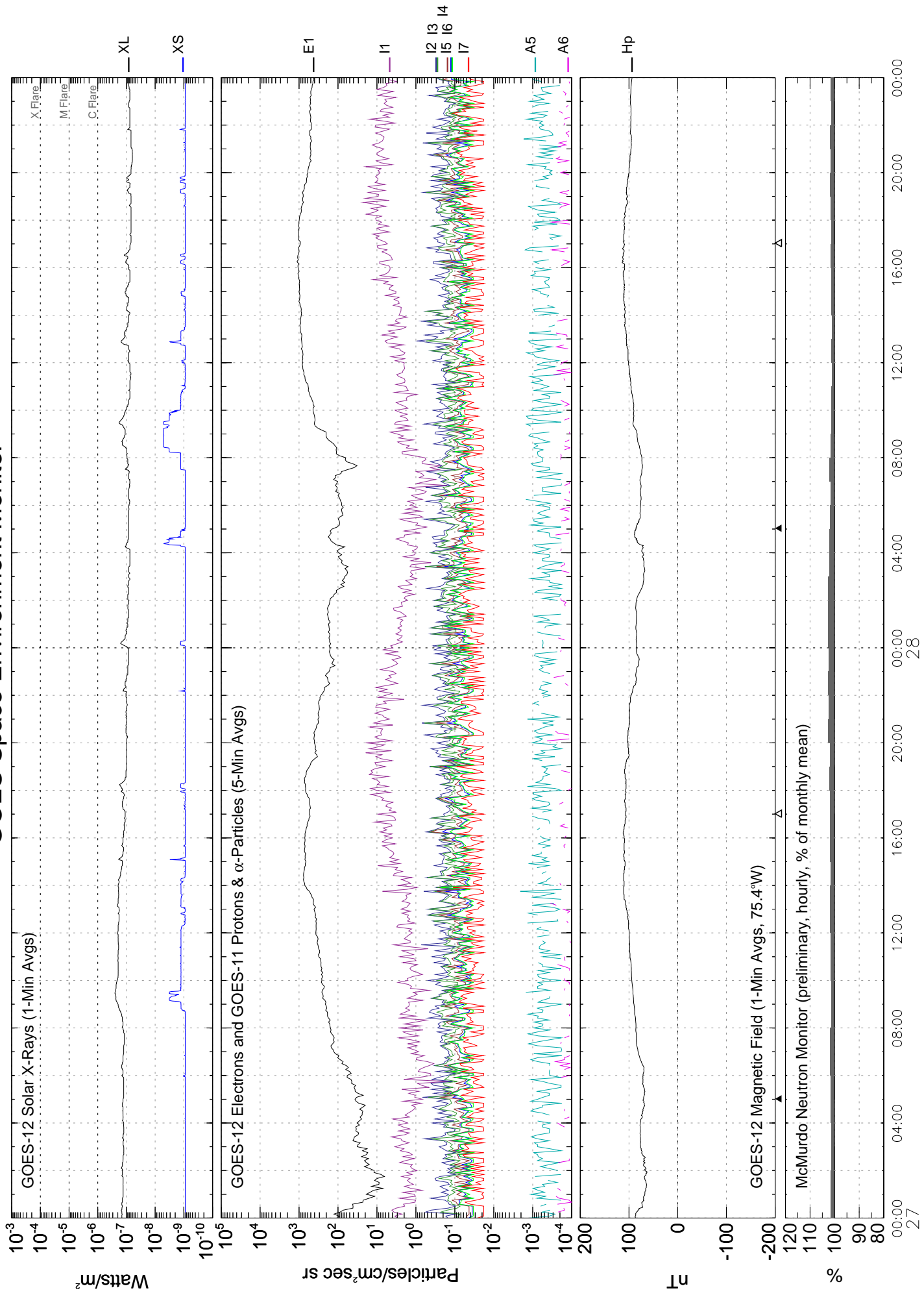
GOES Space Environment Monitor



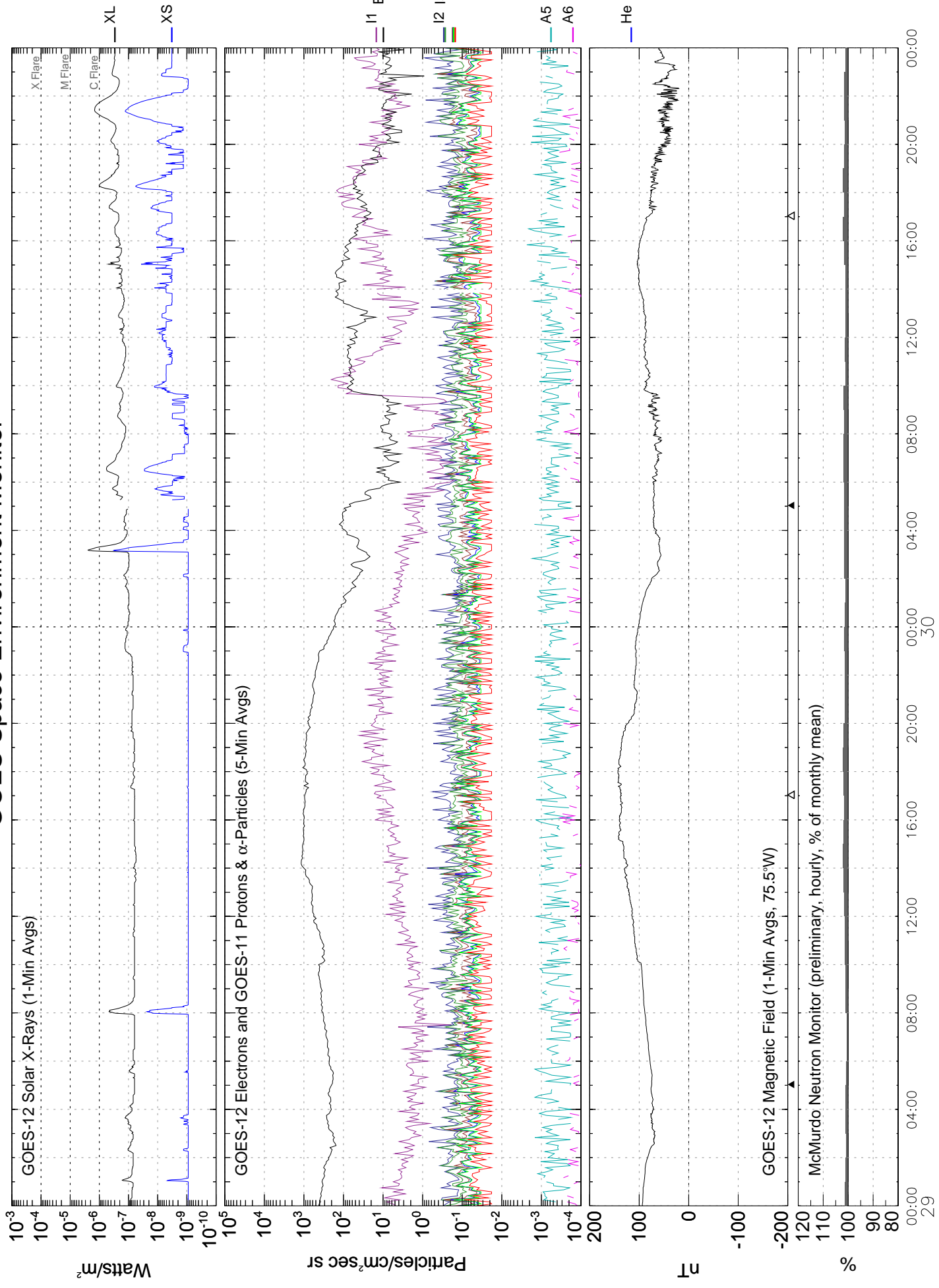
GOES Space Environment Monitor



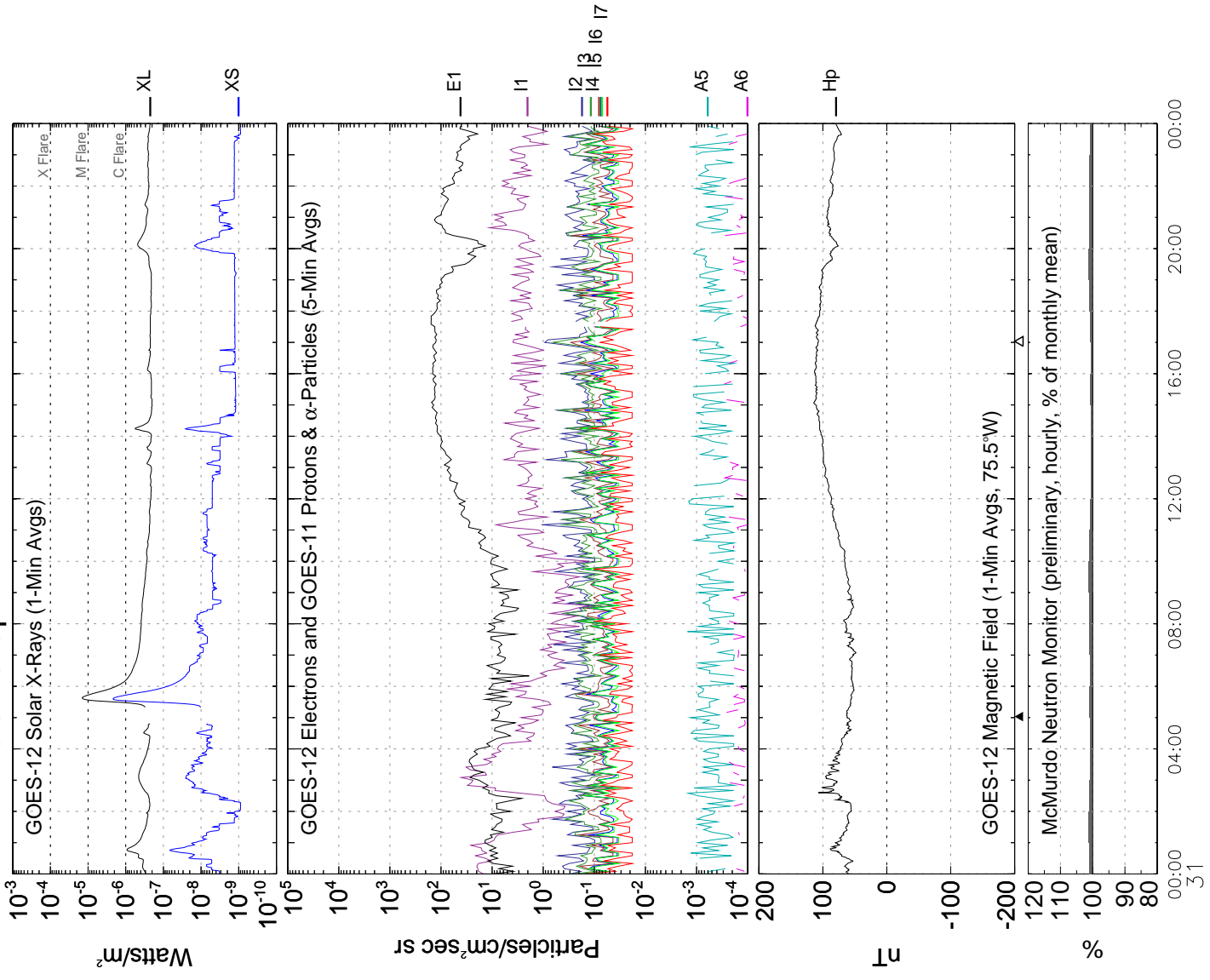
GOES Space Environment Monitor



GOES Space Environment Monitor



GOES Space Environment Monitor



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

AUGUST 2004

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			
214	01	31	39	86	9	10655	N08	W28	0	0	0	01	Q	SOL: Eruptive
						10655	S09	E57	0	0	0	01	Q	MAG: Quiet
									0	0	0	01		PRO: Quiet
215	02	01	40	83	11	10655	N08	W41	0	0	0	02	Q	SOL: Eruptive
						10655	S09	E44	0	0	0	02	Q	MAG: Quiet
									0	0	0	02		PRO: Quiet
216	03	02	39	85	17	10655	N08	W56	0	0	0	03	Q	SOL: Eruptive
						10655	S09	E33	0	0	0	03	Q	MAG: Quiet
									0	0	0	03		PRO: Quiet
217	04	03	52	88	4	10655	N07	W71	0	0	0	04	Q	SOL: Eruptive
						10655	S09	E16	3	0	0	04	Q	MAG: Quiet
									0	0	0	04		PRO: Quiet
218	05	04	62	85	5	10655	N07	W86	0	0	0	05	Q	SOL: Quiet
						10655	S09	E03	0	0	0	05	Q	MAG: Quiet
									0	0	0	05		PRO: Quiet
219	06	05	36	89	5	10655	S09	W09	0	0	0	06	Q	SOL: Quiet
									0	0	0	06		MAG: Quiet
									0	0	0	06		PRO: Quiet
220	07	06	52	91	6	10655	S09	W25	0	0	0	07	Q	SOL: Quiet
						10656	S12	E69	0	0	0	07	Q	MAG: Quiet
						10657	N10	E82	0	0	0	07	Q	PRO: Quiet
221	08	07	71	95	19	10655	S10	W38	0	0	0	08	Q	SOL: Eruptive
						10656	S13	E58	0	0	0	08	Q	MAG: Quiet
						10657	N11	E65	0	0	0	08	Q	PRO: Quiet
						10658	S06	E50	0	0	0	08	Q	
222	09	08	77	105	5	10655	S10	W54	0	0	0	09	Q	SOL: Eruptive
						10656	S12	E45	3	0	0	09	E	MAG: Quiet
						10657	N11	E51	0	0	0	09	Q	PRO: Quiet
						10658	S05	E38	0	0	0	09	Q	
223	10	09	101	114	13	10655	S09	W69	0	0	0	10	Q	SOL: Eruptive
						10656	S12	E31	13	0	0	10	E	MAG: Quiet
						10657	N11	E38	0	0	0	10	Q	PRO: Quiet
224	11	10	93	121	18	10655	S10	W83	0	0	0	11	Q	SOL: Eruptive
						10656	S12	E18	2	0	0	11	E	MAG: Quiet
						10657	N11	E25	0	0	0	11	Q	PRO: Quiet
						10659	N17	E59	0	0	0	11	Q	
225	12	11	115	131	13	10656	S13	E03	11	0	0	12	A	SOL: Eruptive
						10657	N10	E12	0	0	0	12	A	MAG: Quiet
						10659	N17	E46	0	0	0	12	A	PRO: Quiet
						10660	S08	E62	0	0	0	12	A	
226	13	12	140	147	11	10656	S13	W09	10	1	0	13	A	SOL: Eruptive
						10657	N10	W02	0	0	0	13	A	MAG: Quiet
						10659	N18	E33	0	0	0	13	A	PRO: Quiet
						10660	S07	E48	0	0	0	13	A	
						10661	N08	E84	0	0	0	13	A	
227	14	13	160	149	8	10656	S13	W22	11	4	1	14	A	SOL: Major
						10657	N10	W15	0	0	0	14	A	MAG: Active
						10659	N18	E20	0	0	0	14	A	PRO: Quiet
						10660	S07	E35	0	0	0	14	A	
						10661	N07	E73	0	0	0	14	A	
228	15	14	111	149	7	10656	S13	W35	19	7	0	15	A	SOL: Active
						10657	N10	W28	0	0	0	15	A	MAG: Quiet
						10660	S07	E17	0	0	0	15	A	PRO: Quiet

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

AUGUST 2004

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			
						10661	N07	E60	0	0	0	15	A	
229	16	15	98	139	4	10656	S13	W48	8	5	0	16	A	SOL: Active
						10657	N10	W41	0	0	0	16	A	MAG: Quiet
						10660	S07	E04	0	0	0	16	A	PRO: Quiet
						10661	N07	E47	0	0	0	16	A	
230	17	16	68	134	7	10656	S13	W61	14	2	0	17	A	SOL: Active
						10660	S07	W10	0	0	0	17	A	MAG: Quiet
						10661	N07	E34	0	0	0	17	A	PRO: Quiet
231	18	17	63	135	10	10656	S14	W77	7	4	0	18	A	SOL: Active
						10660	S08	W24	0	0	0	18	A	MAG: Quiet
						10661	N09	E20	1	0	0	18	A	PRO: Quiet
232	19	18	53	140	10	10656	S36	W91	1	0	1	19	Q	SOL: Active
						10661	N10	E07	1	0	0	19	E	MAG: Quiet
						10662	N12	E28	0	0	0	19	Q	PRO: Quiet
233	20	19	60	121	5	10661	N09	W06	1	0	0	20	E	SOL: Eruptive
						10662	N13	E13	0	0	0	20	Q	MAG: Quiet
						10663	N08	E75	0	0	0	20	Q	PRO: Quiet
234	21	20	85	121	16	10661	N08	W19	0	0	0	21	E	SOL: Eruptive
						10662	N13	E00	0	0	0	21	Q	MAG: Active
						10663	N10	E67	0	0	0	21	Q	PRO: Quiet
						10664	S11	E40	0	0	0	21	Q	
235	22	21	88	120	22	10661	N07	W33	0	0	0	22	Q	SOL: Eruptive
						10662	N13	W13	0	0	0	22	Q	MAG: Active
						10663	N11	E52	0	0	0	22	Q	PRO: Quiet
						10664	S10	E25	0	0	0	22	Q	
236	23	22	102	115	17	10661	N06	W47	0	0	0	23	Q	SOL: Quiet
						10662	N13	W27	0	0	0	23	Q	MAG: Quiet
						10663	N11	E39	0	0	0	23	Q	PRO: Quiet
						10664	S10	E12	0	0	0	23	Q	
						10665	N04	W15	0	0	0	23	Q	
237	24	23	93	110	10	10661	N07	W60	0	0	0	24	Q	SOL: Quiet
						10662	N14	W41	0	0	0	24	Q	MAG: Quiet
						10663	N11	E26	0	0	0	24	Q	PRO: Quiet
						10664	S11	W03	0	0	0	24	Q	
						10665	N05	W28	0	0	0	24	Q	
238	25	24	55	105	7	10661	N06	W73	0	0	0	25	Q	SOL: Quiet
						10663	N10	E12	0	0	0	25	Q	MAG: Quiet
						10664	S11	W16	0	0	0	25	Q	PRO: Quiet
239	26	25	60	100	6	10661	N06	W86	0	0	0	26	Q	SOL: Eruptive
						10663	N10	W01	0	0	0	26	Q	MAG: Quiet
						10664	S11	W29	0	0	0	26	Q	PRO: Quiet
240	27	26	44	98	8	10664	N10	W14	1	0	0	27	Q	SOL: Quiet
						10664	S11	W42	0	0	0	27	Q	MAG: Quiet
									0	0	0	27		PRO: Quiet
241	28	27	33	91	6	10664	N10	W27	0	0	0	28	Q	SOL: Quiet
						10664	S11	W58	0	0	0	28	Q	MAG: Quiet
									0	0	0	28		PRO: Quiet
242	29	28	28	87	12	10664	N10	W41	0	0	0	29	Q	SOL: Quiet
						10664	S11	W73	0	0	0	29	Q	MAG: Quiet
									0	0	0	29		PRO: Quiet
243	30	29	36	86	6	10663	N07	W58	0	0	0	30	Q	SOL: Quiet
						10664	S11	W85	0	0	0	30	Q	MAG: Quiet

22
Aug 04

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

AUGUST 2004

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)
				Flux				Lat	Lon	Opt	M	X			
							10666	N16	E31	0	0	0	30	Q	PRO: Quiet
244	31	30	30	90	24	10666	N04	W73	0	0	0	31	Q	SOL: Quiet	
						10666	N17	E17	0	0	0	31	Q	MAG: Quiet	
									0	0	0	31		PRO: Quiet	

(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

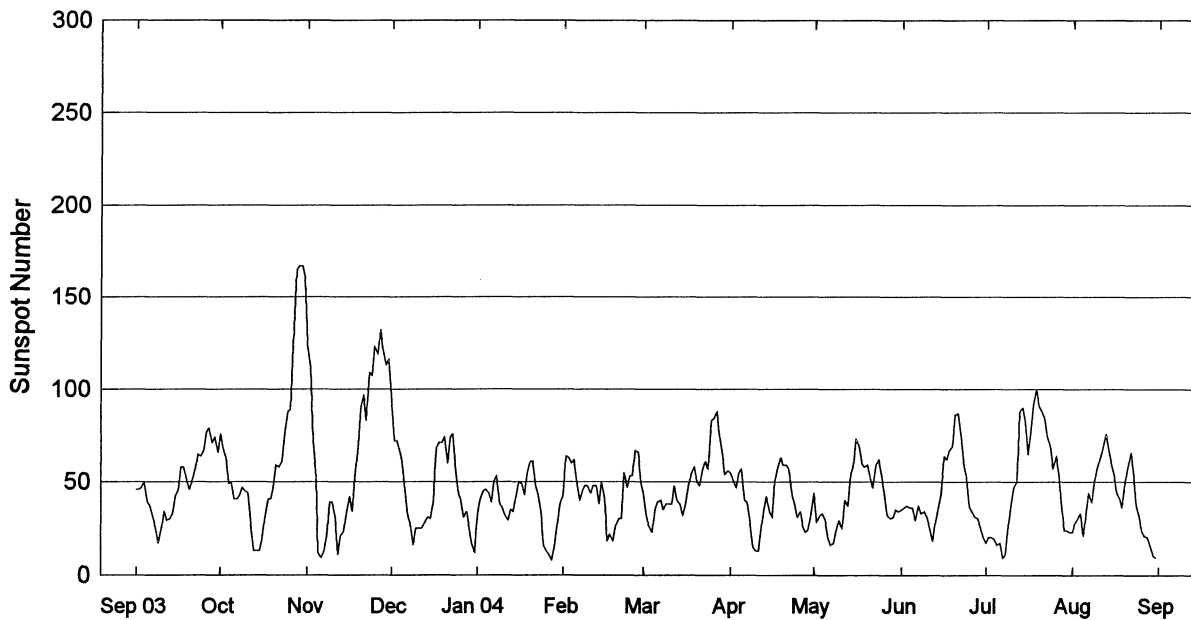
'Quiet'
 'Active' conditions expected (A>=20 or K=4)
 'Minor' storm expected (A>=30 or K=5)
 'Major' storm expected (A>=50 or K>=6)
 'Severe' storm expected (A>=100 or K>=7)
 'IP' magstorm in progress (A>=30 or K>=4)
 'Warning' (activity levels are expected to increase, but no numerical forecast given)
 '/' 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 Sep 2003- Aug 2004

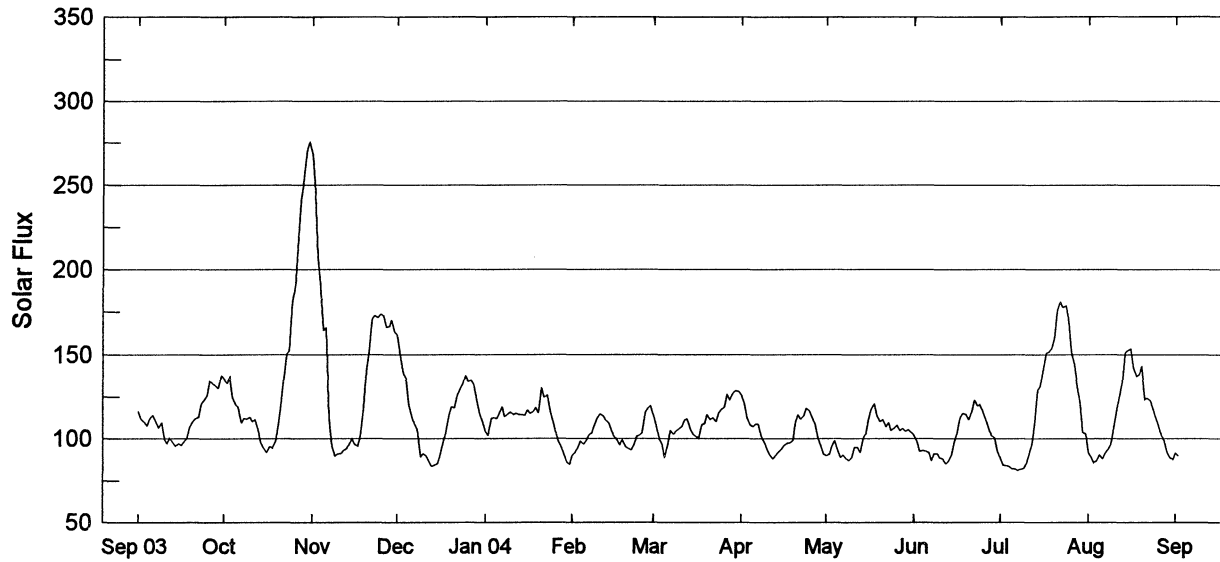


Day	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr*	May*	Jun*	Jul*	Aug*
1	46	76	124	92	32	43	44	55	44	35	17	23
2	46	68	112	72	40	64	31	51	28	36	20	28
3	47	62	72	72	45	63	26	47	32	37	20	30
4	50	49	52	66	46	60	23	55	33	36	19	33
5	39	50	12	59	44	62	35	57	29	36	16	21
6	37	41	9	45	39	51	39	40	20	29	17	33
7	30	41	12	32	50	40	40	39	16	37	9	44
8	25	43	21	26	53	45	35	27	17	33	11	39
9	17	47	39	16	38	48	38	15	24	34	27	50
10	25	45	39	25	36	48	38	13	29	31	38	58
11	34	44	30	25	32	44	38	13	25	26	47	63
12	29	25	11	25	29	48	48	25	40	18	50	68
13	30	13	21	28	35	48	40	35	37	28	88	76
14	33	13	23	31	34	38	38	42	54	35	90	68
15	42	13	33	30	43	50	32	34	58	44	82	61
16	46	19	42	39	50	41	37	31	73	64	65	54
17	58	30	34	68	49	18	48	50	69	62	79	44
18	58	41	52	71	43	22	54	58	60	67	93	41
19	52	41	70	71	54	18	58	63	58	69	100	36
20	46	47	90	74	61	26	50	59	59	86	91	50
21	50	59	97	60	61	30	48	59	52	87	88	57
22	57	58	83	74	49	30	57	57	47	76	84	66
23	65	61	109	76	42	55	61	43	59	61	74	56
24	64	75	107	59	34	47	57	38	62	52	69	38
25	67	88	123	44	16	53	83	31	55	37	57	31
26	77	89	119	40	13	53	84	34	43	34	64	24
27	79	133	132	31	11	67	88	26	32	31	55	21
28	71	165	121	34	8	66	76	23	30	30	39	20
29	74	167	113	26	16	50	66	24	31	26	24	16
30	66	167	116	17	27		54	34	35	20	24	10
31		160		12	38		56		34		23	9
Mean	48.7	65.5	67.3	46.5	37.7	45.8	49.1	39.3	41.5	43.2	51.0	40.9

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux Sep 2003 - Aug 2004

Adjusted to 1 AU



Day	Sep 03	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr	May	Jun	Jul	Aug
1	110.1	137.1	207.2	139.3	112.2	94.5	100.0	112.6	95.7	92.5	84.0	85.8
2	107.6	125.0	187.4	135.4	112.6	98.5	97.1	108.1	99.1	93.0	83.4	87.0
3	112.4	120.3	164.2	120.3	112.3	96.6	88.9	107.4	92.8	92.6	82.2	90.1
4	114.1	119.0	165.6#	112.5	115.5	98.6	95.9	109.0	88.9	92.0	82.1	87.9
5	109.8	109.6	112.1	108.5	119.0	102.5	105.0	108.9	90.1	87.0	80.9	91.5
6	106.6	112.0	96.1	105.7	113.4	103.7	102.9	101.6	88.0	91.0	81.6	93.6
7	109.4	111.8	89.4	89.3	114.9	108.1	104.6	98.4	86.8	91.2	81.9	97.3
8	100.3	113.1	91.0	90.9	116.1	113.1	106.3	93.8	88.9	88.6	84.6	107.7
9	97.3	110.5	91.2	89.4	114.4	114.7	107.2	90.3	95.0	87.9	89.6	117.0
10	100.6	111.4	92.8	86.5	115.3	113.5	111.1	88.1	94.8	85.0	96.4	124.7
11	98.0	105.4	93.7	83.4	114.6	111.2	111.7	90.0	92.0	86.5	107.9	134.3
12	95.6	97.4	96.7	84.5	114.4	109.3	106.2	91.8	100.9	90.7	129.2	151.1
13	97.3	94.0	100.0	85.0	114.1	105.1	102.6	93.6	103.0	98.2	131.6#	152.5
14	95.8	91.9	96.8	89.5	117.1	101.1	101.3	95.8	112.1	103.1	142.6	153.1
15	98.4	95.3	95.6	97.7	115.2	99.6	100.3	97.4	117.9	112.9	150.5	142.4
16	100.4	94.6	102.0	103.0	116.4	96.3	108.5	97.6	121.0	115.1	151.3	137.0
17	107.0	98.1	118.2	113.8	118.6	99.5	108.8	99.0	113.7	114.9	154.1	138.3
18	110.2	107.8	141.0	119.1	115.6	95.4	114.4	110.0	110.4	111.3	160.2	143.3
19	112.1	119.4	151.5	118.6	130.3	94.2	111.3	114.5	111.4	116.4	175.8	123.5
20	112.9	133.9	171.0	125.9	124.8	93.2	112.7	111.8	107.2	123.0	180.8	124.2
21	120.9	150.2	172.8	129.1	126.0	96.0	110.4	113.9	109.6	119.6	177.7	122.8
22	123.5	152.0#	171.9	133.2	117.9	101.7	115.6	118.4	105.0	120.5	178.4	117.8
23	125.7	181.3#	173.8	137.4	111.6	102.1	117.6	116.6	106.6	116.2	170.4	111.9
24	134.3	188.5	172.8	134.4	104.1	103.4	119.0	112.9	107.9	111.9	151.8	107.2
25	133.4	219.0	166.3	134.6	99.1	116.1	126.4	108.4	105.1	106.3	143.9*	102.5
26	131.8	240.6*	166.5	132.7	95.0	118.4	123.2	100.9	106.1	102.2	132.0	99.5
27	130.3	254.0	170.1	122.4#	90.8	119.8	127.2	96.4	104.6	100.4	121.8	92.3
28	137.6	270.9	163.2	115.1	85.9	113.6	128.6	90.7	105.2	92.4	103.8	88.9
29	135.6	275.4#	161.4	110.7	84.8	108.0	128.3	89.8	104.0	87.9	102.8	87.7
30	133.3	267.6	148.6	104.2	89.9		126.4	90.8	102.4	84.5	91.4	91.6
31		245.2		102.1	91.6		121.0		98.1		89.0	89.7
Mean	113.4	150.1	137.7	111.4	110.4	104.4	111.0	101.9	102.1	100.5	122.4	112.7

NOTE: # - 1700 or 1800UT reading, burst in progress at 2000UT. *-2300UT reading, burst in progress.

DAILY SOLAR INDICES
August 2004

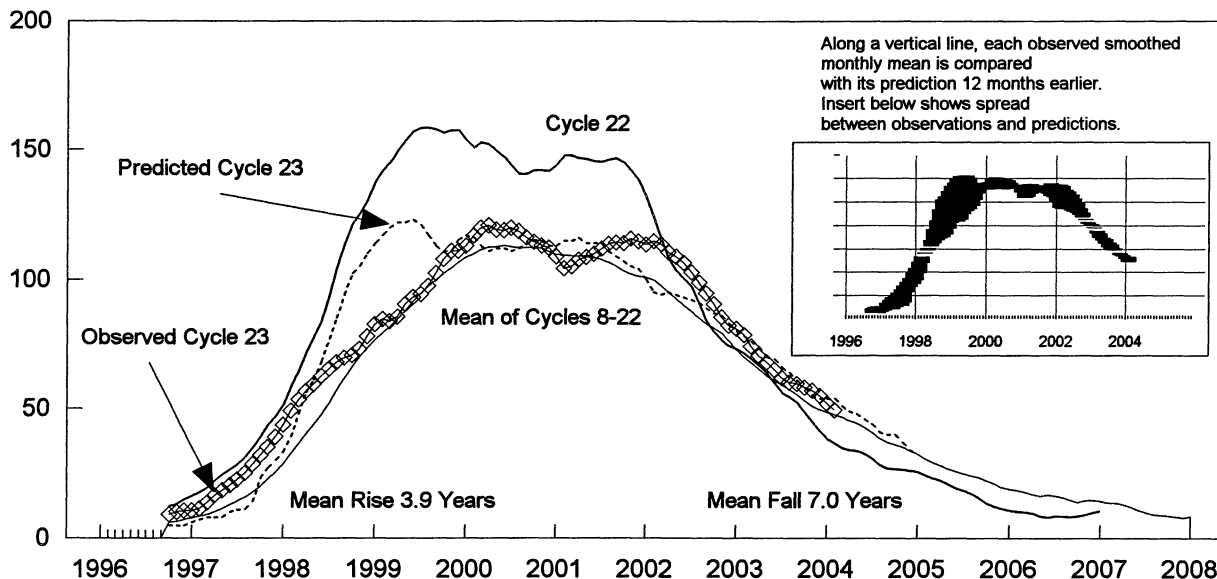
Day	Day of Year	Bartels Cycle Day	Sunspot Numbers		Obs Flux		Solar Flux Adjusted to 1 Astronomical Unit							
			Int	Amer	Penticton (2800)	SGMR (15400)	SGMR (8800)	SGMR (4995)	Penticton (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
1	214	7	23	31	83.4	515	227	143	85.8	93	55	33	26	17
2	215	8	28	34	84.5	530	226	141	87.0	94	55	38	44	—
3	216	9	30	37	87.6	524	228	143	90.1	91	56	36	27	12
4	217	10	33	32	85.4	514	226	140	87.9	95	56	37	30	23
5	218	11	21	30	88.9	—	—	—	91.5	—	—	—	—	—
6	219	12	33	40	91.0	527	226	153	93.6	97	59	37	32	14
7	220	13	44	49	94.6	524	230	153	97.3	101	61	35	26	—
8	221	14	39	47	104.8	534	239	159	107.7	110	66	41	31	—
9	222	15	50	61	113.9	535	248	177	117.0	118	69	42	35	—
10	223	16	58	67	121.4	540	253	188	124.7	144	73	43	37	39
11	224	17	63	72	130.8	532	267	210	134.3	140	77	46	53	34
12	225	18	68	81	147.2	548	287	242	151.1	168	87	48	38	41
13	226	19	76	86	148.6	513	274	244	152.5	152	84	52	66	—
14	227	20	68	84	149.2	554	288	230	153.1	154	89	47	45	27
15	228	21	61	71	138.8	536	289	234	142.4	155	85	46	33	16
16	229	22	54	68	133.6	542	272	213	137.0	141	82	45	33	11
17	230	23	44	52	135.0	551	273	198	138.3	143	80	45	38	12
18	231	24	41	47	139.9	563	283	201	143.3	135	80	43	33	15
19	232	25	36	47	120.6	532	261	181	123.5	125	78	44	30	12
20	233	26	50	61	121.4	531	295	178	124.2	130	76	40	31	12
21	234	27	57	69	120.0	510		164	122.8	127	75	41	32	15
22	235	1	66	75	115.2	541	226	179	117.8	121	73	41	29	15
23	236	2	56	59	109.5	535	221	161	111.9	118	71	39	30	13
24	237	3	38	45	104.9	540	225	169	107.2	114	68	42	32	13
25	238	4	31	36	100.4	529	216	162	102.5	109	65	38	30	—
26	239	5	24	29	97.5	533	213	160	99.5	106	64	38		15
27	240	6	21	28	90.5	519	219	145	92.3	100	60	36	28	12
28	241	7	20	27	87.2	522	213	140	88.9	89	58	34	25	12
29	242	8	16	16	86.1	518	214	139	87.7	90	58	36	28	9
30	243	9	10	17	89.9	515	216	145	91.6	92	57	34	26	12
31	244	10	9	7	88.1	510	218	144	89.7	91	57	36	29	11
MEAN			40.9	48.5	110.0	530	243	174	112.7	118	69	40	33	17

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

- 1800UT Reading, burst in progress at 2000UT.

* - 2300UT Reading with burst in progress.

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
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	85	90	93	94	98	102	108	111	111	95
2000	113	117	120	120.8+	119	119	120	119	116	115	113	112	107
2001	109	104	105	108	109	110	112	114	114	114	115	115	111
2002	114	115	113	111	109	106	103	99	95	91	85	82	102
2003	81	79	74	70	68	65	62	60	60	58	57	57	66
2004	53	49	48	47	46	45	43	40	39	37	36	35	43
			(2)	(4)	(5)	(6)	(9)	(11)	(13)	(14)	(15)	(17)	(17)
2005	33	32	31	29	28	27	26	25	24	23	22	21	27
	(18)	(18)	(19)	(19)	(19)	(19)	(18)	(18)	(19)	(18)	(18)	(17)	(18)
2006	20	19	19	18	17	17	16	15	15	14	16	12	17
	(16)	(16)	(17)	(17)	(18)	(18)	(17)	(16)	(16)	(15)	(15)	(14)	(16)

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.
 + April 2000 marks Cycle 23 maximum.

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 2004 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 February 2005 prediction. There exists a 90% chance that in February, the actual smoothed number will fall somewhere between 14 and 50.

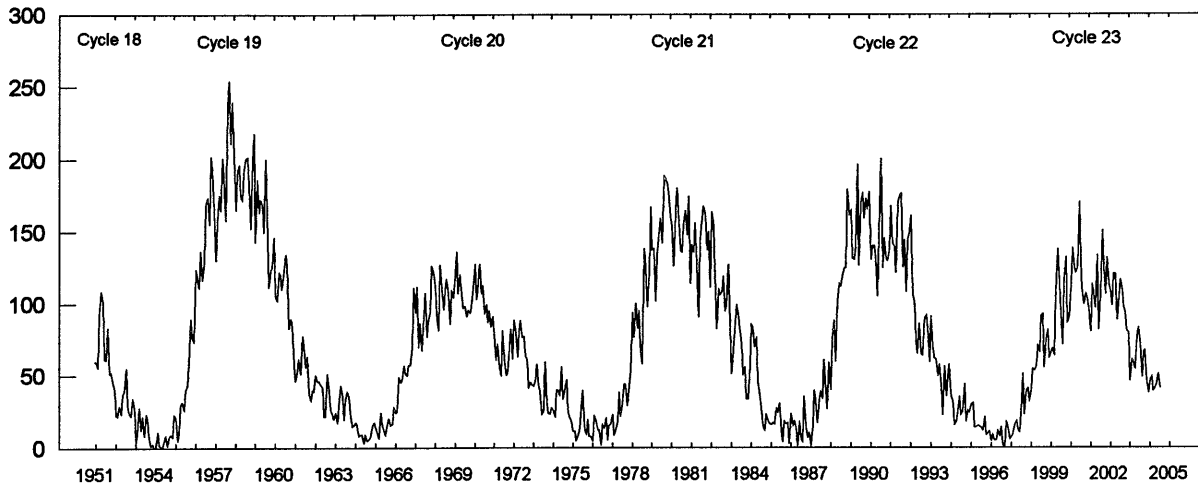
Points to Ponder. The McNish-Lincoln prediction method generates useful estimates of smoothed, monthly mean sunspot numbers for no more than 12 months ahead. Beyond 12 months, the predictions regress toward the mean of all 15 cycles of observations used in the computation. Moreover, the method remains 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 1951 - Aug 2004

27
Aug 04



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
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	63.7	106.4	137.7	113.5	93.7	71.5	116.7	133.2	84.6	93.2
2000	90.1	112.9	138.5	125.5	121.6	124.9	170.1	130.5	109.7	99.4	106.8	104.4	119.6 M
2001	95.6	80.6	113.5	107.7	96.6	134.0	81.8	106.4	150.7	125.5	106.5	132.2	111.0
2002	114.1	107.4	98.4	120.7	120.8	88.3	99.9	116.4	109.3	97.5	95.5	80.8	104.0
2003	79.7	46.0	61.1	60.0	54.6	77.4	83.3	72.7	48.7	65.5	67.3	46.5	63.9
2004	37.7	45.8	49.1	39.3	41.5	43.2	51.0	40.9					43.6

Values are preliminary after March, 2004. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

28
Aug 04

H α SOLAR FLARES

AUGUST 2004

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)	
GOES	01	0156	0159	0202			10655			6	B	2.6						8.0E-05
GOES		0222	0226	0233						11	B	2.4						1.4E-04
GOES		0432	0436	0443			10654			11	B	2.2						1.3E-04
GOES		0508	0524	0547						39	B	2.3						5.1E-04
GOES		0711	0719	0724						13	B	1.8						1.2E-04
GOES		1020	1023	1026						6	B	1.5						5.2E-05
GOES		1701	1707	1711						10	B	1.3						7.6E-05
GOES		2105	2110	2115						10	B	1.5						8.3E-05
GOES	02	0452	0456	0500						8	B	1.3						5.1E-05
GOES		0813	0818	0826						13	B	1.9						1.3E-04
GOES		0834	0838	0846			10654			12	B	2.6						1.5E-04
GOES		0920	0951	1011			10655			51	B	7.0						1.1E-03
GOES		1454	1501	1512			10655			18	B	2.2						1.9E-04
GOES		1739	1754	1800			10655			21	C	3.9						2.1E-03
GOES	03	0203	0207	0221						18	B	1.2						1.2E-04
GOES		0413	0420	0430			10655			17	B	2.3						2.1E-04
GOES		0530	0536	0545	S11	E25	10655			15	SF	B 3.0						2.2E-04
LEAR		0534	0534	0541	S11	E25	10655	08	5.1	7	SF		3	E		14		F
GOES		0604	0607	0610			10655			6	B	1.9						6.2E-05
LEAR		0659	0701	0706	S10	E25	10655	08	5.2	7	SF		3	E		12		
GOES		0814	0829	0846	S10	E23	10655			32	SF	B 9.1						1.2E-03
LEAR		0827	0828	0832	S10	E23	10655	08	5.1	5	SF		3	E		11		
GOES		0855	0923	0944			10655			49	B	9.6						2.3E-03
GOES		1152	1159	1205			10655			13	B	3.9						2.3E-04
GOES		1246	1249	1258			10655			12	B	2.6						1.7E-04
GOES		1347	1352	1400			10655			13	B	3.8						2.4E-04
GOES		1526	1530	1534			10655			8	B	2.8						1.0E-04
GOES	04	0151	0204	0206			10655			15	B	2.0						1.4E-04
GOES		0340	0343	0346						6	B	1.1						3.8E-05
GOES		0710	0721	0729			10655			19	B	2.0						1.9E-04
GOES		2044	2048	2052						8	B	2.8						8.8E-05
GOES	05	2040	2108	2114			10655			34	B	3.3						5.4E-04
GOES	06	2249	2256	2301			10656			12	B	3.7						2.1E-04
GOES	07	0242	0246	0252			10656			10	B	4.6						2.1E-04
GOES		0457	0502	0512			10656			15	B	2.4						1.9E-04
GOES		0604	0607	0610						6	B	1.7						5.5E-05
GOES		0902	0906	0908			10655			6	B	2.7						7.0E-05
GOES		0924	0927	0930			10656			6	B	2.2						6.7E-05
GOES		0940	0946	0950			10656			10	B	5.1						2.0E-04
GOES		1019	1023	1026			10656			7	B	3.3						9.4E-05
GOES		1147	1151	1153			10656			6	B	2.7						7.6E-05
GOES		2152	2156	2200						8	B	2.0						8.6E-05
GOES	08	0035	0042	0049			10656			14	B	2.8						2.1E-04
GOES		0950	0956	1003			10656			13	B	3.8						2.6E-04
GOES		1426	1433	1506			10656			40	B	5.7						1.2E-03
GOES		1524	1528	1534			10656			10	B	7.6						3.9E-04
GOES		1609	1613	1616	S10	E50	10656			7	SF	B 9.5						2.9E-04
HOLL		1613	1613	1616	S10	E50	10656	08	12.4	3	SF		3	E		19		
GOES		1659	1724	1736	S13	E50	10656			37	SF	C 2.7						4.5E-03
HOLL		1706	1708	1734	S13	E50	10656	08	12.5	28	SF		3	E		25		
HOLL		1734	1737	1739	S12	E46	10656	08	12.2	5	SF		3	E		12		
GOES		1943	1948	1952	S11	E45	10656			9	SF	B 8.9						3.9E-04
HOLL		1945	1947	1949	S11	E45	10656	08	12.2	4	SF		3	E		29		
GOES		2243	2246	2249			10656			6	B	7.9						2.6E-04
GOES		2305	2309	2313			10656			8	C	1.0						4.6E-04
GOES	09	0033	0039	0043	S14	E43	10656			10	SF	C 5.1						1.7E-03
LEAR		0036	0037	0157	S14	E43	10656	08	12.3	81	SF		3	E		38		FH
GOES		0105	0113	0135	S11	E41	10656			30	1N	C 3.0						4.5E-03
GOES		0314	0318	0335			10656			21	B	7.2						7.9E-04
GOES		0409	0413	0417			10656			8	B	8.9						3.4E-04

H α S O L A R F L A R E S

AUGUST 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement		Remarks
															Time (UT)	Apparent (10-6 Disk)		Corr (Sq Deg)
LEAR	09	0423	0425	0437	S15	E43	10656	08	12.4	14	SF		3	E		23	F
SVTO		0425E	0425U	0439D	S13	E42	10656	08	12.3	14D	SF		2	E		18	F
LEAR		0458	0459	0502	S12	E40	10656	08	12.2	4	SF		3	E		13	F
LEAR		0716	0716	0721	S12	E39	10656	08	12.2	5	SF		3	E		14	F
GOES		0726	0733	0739	S12	E38	10656			13	SF	C 2.4					1.4E-03
LEAR		0731	0732	0741	S12	E38	10656	08	12.2	10	SF		3	E		13	F
SVTO		0732	0733	0750D	S14	E44	10656	08	12.6	18D	SF		3	E		24	F
GOES		0756	0808	0814	S12	E38	10656			18	SF	C 4.8					2.7E-03
LEAR		0804	0808	0822	S12	E38	10656	08	12.2	18	SF		3	E		51	F
SVTO		0806	0809	0815	S14	E42	10656	08	12.5	9	SF		3	E		71	F
GOES		0832	0840	0843			10656			11		C 1.1					6.6E-04
GOES		0922	0928	0932			10656			10		B 9.6					4.6E-04
GOES		0940	0943	0946			10656			6		B 8.4					2.5E-04
GOES		1031	1034	1036			10656			5		B 9.0					2.3E-04
GOES		1101	1106	1115			10656			14		C 1.7					1.0E-03
GOES		1322	1335	1348			10656			26		C 3.3					3.5E-03
GOES		1518	1527	1532			10656			14		C 1.1					7.4E-04
GOES		1536	1550	1559			10656			23		C 1.9					2.1E-03
GOES		1756	1801	1807	S12	E34	10656			11	SF	C 2.0					9.4E-04
HOLL		1758	1759	1813	S12	E34	10656	08	12.3	15	SF		3	E		35	F
GOES		1843	1851	1856	S12	E32	10656			13	SF	C 2.2					9.7E-04
HOLL		1847	1852	1912	S12	E32	10656	08	12.2	25	SF		3	E		60	F
GOES		1927	1935	1942	S12	E31	10656			15	SF	C 1.3					8.3E-04
HOLL		1933	1934	1939	S12	E31	10656	08	12.1	6	SF		3	E		20	F
HOLL		1947	1948	2025	S12	E31	10656	08	12.1	38	SF		3	E		19	F
GOES		2015	2018	2020	S12	E31	10656			5	SF	C 2.2					4.6E-04
HOLL		2031	2034	2037	S12	E31	10656	08	12.2	6	SF		3	E		13	F
GOES		2138	2143	2152			10656			14		B 6.9					5.1E-04
GOES		2204	2209	2212	S11	E30	10656			8	SF	C 1.8					6.3E-04
GOES	10	0105	0111	0122			10656			17		B 7.7					6.6E-04
GOES		0257	0301	0305			10656			8		B 6.5					2.7E-04
GOES		0310	0314	0316			10656			6		B 9.6					2.5E-04
GOES		0601	0607	0611	S12	E26	10656			10	SF	C 1.1					5.0E-04
LEAR		0604	0607	0612	S12	E26	10656	08	12.2	8	SF		3	E		30	F
GOES		0851	0858	0902	S12	E24	10656			11	SF	B 6.2					3.6E-04
LEAR		0854	0854	0900	S12	E24	10656	08	12.2	6	SF		3	E		20	F
GOES		1725	1729	1735			10656			10		C 1.0					5.1E-04
GOES		1735	1738	1743			10656			8		C 1.2					5.0E-04
GOES		2034	2039	2042			10656			8		B 7.6					3.1E-04
GOES		2202	2207	2212			10655			10		C 1.0					5.4E-04
GOES	11	0003	0015	0019	S12	E16	10656			16	SF	B 7.0					5.5E-04
HOLL		0015	0017	0020	S12	E16	10656	08	12.2	5	SF		3	E		22	F
GOES		0341	0346	0349	S11	E10	10656			8	SF	C 3.2					1.1E-03
LEAR		0342	0345	0356	S11	E10	10656	08	11.9	14	SF		3	E		42	F
GOES		0438	0441	0444			10658			6		B 8.6					2.6E-04
LEAR		0713	0717	0733	S12	E12	10656	08	12.2	20	SF		3	E		20	F
GOES		0805	0810	0820			10656			15		C 1.1					8.9E-04
GOES		0823	0826	0829			10656			6		C 1.3					4.2E-04
GOES		0849	0852	0855	S13	E13	10656			6	SF	C 2.9					7.1E-04
SVTO		0852	0852	0856	S13	E13	10656	08	12.3	4	SF		3	E		30	F
GOES		1009	1015	1040	S14	E13	10656			31	SF	C 4.2					5.9E-03
SVTO		1038	1051	1053	S14	E13	10656	08	12.4	15	SF		3	E		24	F
GOES		1135	1141	1145	S13	E11	10656			10	SF	C 7.6					2.5E-03
SVTO		1140	1140	1148	S13	E11	10656	08	12.3	8	SF		3	E		48	F
GOES		1205	1209	1211			10656			6		C 1.3					3.9E-04
GOES		1246	1249	1252			10656			6		C 1.7					5.3E-04
HOLL		1403	1409	1423	S14	E09	10656	08	12.3	20	SF		3	E		19	F
GOES		1406	1411	1415	S14	E09	10656			9	SF	C 1.8					8.9E-04
HOLL		1428	1433	1446	S13	E08	10656	08	12.2	18	SF		3	E		18	F
HOLL		1449	1450	1452	S13	E09	10656	08	12.3	3	SF		3	E		14	F
GOES		1502	1505	1507			10656			5		C 1.4					3.7E-04
GOES		1535	1539	1544			10656			9		C 1.8					9.1E-04
GOES		1612	1617	1623			10656			11		C 2.8					1.5E-03
GOES		1633	1636	1638			10656			5		C 1.6					4.1E-04
GOES		1747	1753	1756	S13	E07	10656			9	SF	C 1.7					7.1E-04
HOLL		1753	1753	1755	S13	E07	10656	08	12.3	2	SF		3	E		12	F

30
Aug 04

H α S O L A R F L A R E S

AUGUST 2004

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 Time (UT)	Measurement Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
GOES	11	1805	1809	1812			10656		7	B 9.9					3.5E-04
GOES		2109	2114	2118			10656		9	C 1.3					5.5E-04
GOES		2129	2134	2139			10656		10	C 1.0					5.5E-04
GOES		2205	2210	2215			10656		10	C 1.0					5.5E-04
GOES		2222	2237	2256	S13	E02	10656		34	SF C 3.4					5.2E-03
GOES	12	0113	0118	0121			10656		8	C 1.2					4.6E-04
GOES		0438	0505	0520	S14	E02	10656		42	1F M 1.2					1.4E-02
LEAR		0443	0444	0454	S12	E00	10656	08 12.2	11	SF	3	E	14		
LEAR		0458	0505	0553	S14	E02	10656	08 12.3	55	1F	3	E	172		F
SVTO		0458E	0517U	0540	S12	E04	10656	08 12.5	42D	SF	2	E	121		F
LEAR		0606	0606	0613	S14	E00	10656	08 12.2	7	SF	3	E	16		
LEAR		0617	0617	0622	S15	W07	10656	08 11.7	5	SF	3	E	11		
GOES		0619	0629	0633	S14	W07	10656		14	SF C 2.2					1.6E-03
LEAR		0628	0634	0637	S14	W07	10656	08 11.7	9	SF	3	E	12		
LEAR		0639	0639	0645	S14	W04	10656	08 12.0	6	SF	3	E	15		
GOES		0907	0911	0915	S12	W02	10656		8	SF C 1.8					7.2E-04
SVTO		0909	0910	0912	S14	W03	10656	08 12.1	3	SF	3	E	14		
LEAR		0909	0910	0914	S12	W02	10656	08 12.2	5	SF	3	E	25		F
GOES		0931	0935	0942	S14	W03	10656		11	SF C 4.0					1.9E-03
SVTO		0932	0950	0956	S14	W03	10656	08 12.2	24	SF	3	E	94		F
SVTO		1035	1039	1043	S14	W04	10656	08 12.1	8	SF	3	E	34		F
GOES		1127	1143	1152			10656		25	C 4.9					5.4E-03
GOES		1257	1301	1304			10656		7	C 2.1					6.7E-04
HOLL		1422	1423	1427	S14	W07	10656	08 12.1	5	SF	3	E	10		F
GOES		1611	1623	1729	S18	W06	10656		78	SF C 6.5					2.4E-02
HOLL		1615	1617	1628	S18	W06	10656	08 12.2	13	SF	3	E	84		FR
SVTO		1616	1616	1623	S12	W06	10656	08 12.2	7	SF	3	E	35		F
HOLL		1714	1716	1719	S15	W08	10656	08 12.1	5	SF	3	E	11		
GOES		1853	1857	1859	S15	W13	10656		6	SF C 4.4					1.1E-03
HOLL		1855	1858	1901	S15	W13	10656	08 11.8	6	SF	3	E	15		
GOES		2223	2227	2229			10656		6	C 6.1					1.1E-03
GOES		2253	2258	2303	S12	W07	10656		10	SN C 9.9					4.0E-03
GOES		2343	2346	2349			10656		6	C 1.2					3.8E-04
GOES	13	0056	0102	0108			10656		12	C 2.2					1.2E-03
GOES		0252	0255	0258			10656		6	C 1.9					6.2E-04
GOES		0636	0729	0738			10656		62	M 1.2					1.8E-02
LEAR		0640	0641	0646	S15	W17	10656	08 12.0	6	SF	3	E	27		F
SVTO		0641	0646	0654	S14	W15	10656	08 12.1	13	SF	3	E	37		F
LEAR		0702	0703	0708	S14	W16	10656	08 12.1	6	SF	3	E	11		F
LEAR		0722	0729	0743	S12	W18	10656	08 11.9	21	SF	3	E	81		F
SVTO		0723	0729	0745	S15	W12	10656	08 12.4	22	1F	3	E	102		F
GOES		0936	0943	0957			10656		21	C 2.4					2.5E-03
GOES		1202	1209	1212	S13	W19	10656		10	1F M 1.1					3.3E-03
SVTO		1206	1209	1219	S13	W19	10656	08 12.1	13	1F	3	E	118		
SVTO		1326	1326	1331	S14	W17	10656	08 12.3	5	SF	3	E	13		
GOES		1510	1516	1521	S14	W21	10656		11	1F C 8.6					3.5E-03
HOLL		1512	1514	1522	S13	W22	10656	08 12.0	10	SF	3	E	68		
SVTO		1512	1514	1524	S14	W21	10656	08 12.0	12	1F	3	E	111		F
GOES		1655	1658	1703	S12	W23	10656		8	SF C 2.3					1.0E-03
HOLL		1656	1658	1659	S12	W23	10656	08 12.0	3	SF	3	E	12		
GOES		1807	1812	1815	S13	W24	10656		8	1N X 1.0					2.7E-02
HOLL		1808	1815	1826	S13	W24	10656	08 11.9	18	1N	3	E	180		F
GOES		2304	2307	2310			10656		6	C 3.5					1.1E-03
GOES		2314	2343	2346			10656		32	M 3.0					1.7E-02
GOES		2346	2350	2354	S12	W27	10656		8	SF M 2.8					1.2E-02
LEAR		2347	2348	2352	S12	W27	10656	08 11.9	5	SF	3	E	20		
GOES	14	0410	0414	0417	S13	W30	10656		7	SF M 2.4					5.6E-03
LEAR		0413	0414	0425	S13	W30	10656	08 11.9	12	SF	3	E	75		F
LEAR		0432	0437	0441	S13	W31	10656	08 11.8	9	SF	3	E	51		F
SVTO		0440	0442	0445	S12	W27	10656	08 12.2	5	SF	3	E	28		F
GOES		0536	0544	0552	S11	W28	10656		16	2N M 7.4					3.8E-02
LEAR		0540	0544	0623	S12	W30	10656	08 12.0	43	1N	3	E	190		F
SVTO		0540	0544	0646	S11	W28	10656	08 12.1	66	2N	3	E	272		F
LEAR		0624	0624	0627	S13	W30	10656	08 12.0	3	SF	3	E	17		F
GOES		0751	0756	0759	S13	W32	10656		8	1F M 2.3					6.2E-03

H α S O L A R F L A R E S

AUGUST 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement		Remarks
							Region	Mo Day						Time (UT)	Apparent (10-6 Disk)		Corr (Sq Deg)
SVTO	14	0751	0756	0815	S11	W30	10656	08	12.1	24	1F	3	E	131	F	
LEAR		0751	0756	0826	S13	W32	10656	08	11.9	35	1F	3	E	127	F	
GOES		0923	0929	0937	S13	W30	10656			14	SF	C	8.1		4.9E-03	
SVTO		0934	0935	0938	S13	W30	10656	08	12.1	4	SF	3	E	14	F	
GOES		0952	1007	1017	S14	W30	10656			25	1F	M	3.2		2.8E-02	
SVTO		0956	1008	1021	S14	W30	10656	08	12.1	25	1F	3	E	145	F	
SVTO		1022	1023	1030	S14	W30	10656	08	12.2	8	SF	3	E	15	F	
SVTO		1113	1115	1117	S12	W34	10656	08	11.9	4	SF	3	E	30	F	
GOES		1201	1211	1235	S14	W31	10656			34	SF	C	7.4		1.2E-02	
SVTO		1204	1205	1219	S14	W31	10656	08	12.1	15	SF	3	E	26	F	
GOES		1331	1343	1350	S14	W34	10656			19	2M	M	5.6		2.8E-02	
SVTO		1333	1343	1410	S14	W34	10656	08	12.0	37	2M	3	E	304	F	
SVTO		1454	1455	1459	S13	W36	10656	08	11.9	5	SF	3	E	22	F	
GOES		1515	1525	1532			10656			17	C		5.9		5.0E-03	
SVTO		1610	1610	1615	S13	W36	10656	08	11.9	5	SF	3	E	55	F	
GOES		1629	1647	1654	S14	W33	10656			25	SF	C	5.2		5.8E-03	
SVTO		1631	1633	1639	S14	W33	10656	08	12.2	8	SF	3	E	45	F	
SVTO		1646	1649	1654	S13	W37	10656	08	11.9	8	SF	3	E	57	F	
GOES		1809	1818	1832			10656			23	M		1.3		1.3E-02	
GOES		2009	2016	2059			10656			50	M		1.3		2.8E-02	
HOLL		2242	2242	2248	S14	W37	10656	08	12.1	6	SF	3	E	27	F	
HOLL		2249	2249	2255	S14	W37	10656	08	12.1	6	SF	3	E	40	F	
HOLL		2316	2327	2330	S13	W39	10656	08	12.0	14	SF	3	E	13	F	
HOLL		2339	2340	2344	S12	W41	10656	08	11.9	5	SF	3	E	22	F	
GOES	15	0327	0333	0335	S12	W41	10656			8	SF	C	6.9		2.2E-03	
LEAR		0330	0333	0338	S12	W41	10656	08	12.0	8	SF	3	E	25	F	
LEAR		0344	0345	0351	S12	W41	10656	08	12.1	7	SF	3	E	34	F	
GOES		0445	0506	0522	S12	W44	10656			37	SF	M	1.2		1.5E-02	
SVTO		0459	0502	0543	S15	W41	10656	08	12.1	44	SF	3	E	85	F	
LEAR		0459	0502	0551	S12	W44	10656	08	11.9	52	SF	3	E	60	F	
GOES		0554	0600	0604	S12	W42	10656			10	SF	M	1.2		5.4E-03	
LEAR		0557	0603	0608	S12	W42	10656	08	12.1	11	SF	3	E	26	F	
SVTO		0558	0603	0631D	S15	W42	10656	08	12.1	33D	SF	3	E	30	F	
GOES		1123	1132	1148	S15	W47	10656			25	2F	M	2.6		2.4E-02	
SVTO		1128E	1132U	1150	S15	W47	10656	08	11.9	22D	2F	2	E	264	F	
SVTO		1153E	1159	1216	S14	W51	10656	08	11.6	23D	SF	3	E	35	F	
GOES		1234	1241	1243	S15	W45	10656			9	1N	M	9.4		2.2E-02	
SVTO		1238	1240	1304	S15	W45	10656	08	12.1	26	1N	3	E	235	F	
GOES		1418	1424	1432	S14	W52	10656			14	SF	C	1.7		1.1E-03	
SVTO		1421	1421	1427	S14	W52	10656	08	11.7	6	SF	3	E	10	F	
GOES		1642	1650	1656			10656			14	C		2.9		1.7E-03	
GOES		1716	1721	1726			10656			10	C		1.4		7.7E-04	
GOES		1759	1803	1812			10656			13	C		1.6		1.1E-03	
GOES		1837	1845	1850			10656			13	M		1.2		5.6E-03	
GOES		2037	2046	2054			10656			17	C		4.9		3.5E-03	
GOES		2255	2300	2302			10656			7	C		2.1		6.4E-04	
GOES		2355	2413	2422			10656			27	C		2.3		2.8E-03	
GOES	16	0258	0305	0314			10656			16	C		2.8		2.1E-03	
GOES		0331	0347	0415	S12	W54	10656			44	SF	M	1.1		2.4E-02	
LEAR		0337	0341	0352	S12	W54	10656	08	12.1	15	SF	3	E	67	F	
LEAR		0353	0357	0404	S12	W54	10656	08	12.1	11	SF	3	E	21	F	
LEAR		0445	0502	0519	S12	W55	10656	08	12.0	34	SF	3	E	53	F	
SVTO		0448	0503	0520	S15	W53	10656	08	12.2	32	1F	3	E	104	F	
GOES		0505	0509	0514	S15	W53	10656			9	1F	C	5.9		2.8E-03	
LEAR		0528	0530	0534	S12	W55	10656	08	12.1	6	SF	3	E	20	F	
SVTO		0529	0537	0542	S15	W54	10656	08	12.1	13	SF	3	E	34	F	
GOES		0530	0538	0545	S15	W54	10656			15	SF	C	9.4		6.6E-03	
LEAR		0535	0539	0541	S12	W55	10656	08	12.1	6	SF	3	E	13	F	
LEAR		0545	0548	0551	S12	W55	10656	08	12.1	6	SF	3	E	13	F	
GOES		0735	0749	0755			10656			20	C		1.9		1.8E-03	
LEAR		0739	0741	0746	S12	W56	10656	08	12.1	7	SF	3	E	15	F	
SVTO		0749	0749	0752	S16	W55	10656	08	12.1	3	SF	3	E	21	F	
LEAR		0749	0750	0755	S12	W56	10656	08	12.1	6	SF	3	E	21	F	
GOES		0829	0835	0841			10656			12	C		1.7		9.6E-04	
GOES		1010	1031	1042	S15	W57	10656			32	SF	C	8.0		1.1E-02	
SVTO		1014	1016	1023	S15	W57	10656	08	12.1	9	SF	3	E	81	F	

32
Aug 04

H α S O L A R F L A R E S

AUGUST 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		CMP Mo	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement		Remarks
							Region	Mo							(UT)	(10-6 Disk)		(Sq Deg)
SVTO	16	1025	1032	1036	S14	W58	10656	08	12.0	11	SF		3	E	16	F	
GOES		1330	1338	1417	S15	W59	10656			47	SF C	9.0				2.0E-02	
SVTO		1336	1346	1356	S15	W59	10656	08	12.1	20	SF		3	E	36	F	
GOES		1505	1508	1510			10656			5	C	1.1				2.9E-04	
GOES		1521	1525	1530			10656			9	B	8.5				4.2E-04	
GOES		1629	1632	1635			10656			6	B	8.8				2.6E-04	
GOES		1646	1651	1656			10656			10	B	8.0				4.2E-04	
SVTO		1716E	1716U	1722D	S12	W61	10656	08	12.1	6D	SF		2	E	39		
GOES		1716	1719	1721	S12	W61	10656			5	SF B	8.4				2.0E-04	
GOES		1744	1751	1758			10656			14	C	1.9				1.2E-03	
GOES		1949	2000	2006			10656			17	C	2.8				2.0E-03	
GOES		2046	2055	2120			10656			34	C	6.2				9.5E-03	
GOES		2229	2244	2252	S12	W62	10656			23	1F M	1.1				8.1E-03	
GOES	17	0041	0050	0059			10656			18	C	2.9				2.8E-03	
GOES		0157	0203	0206	S12	W66	10656			9	SF C	2.9				1.0E-03	
LEAR		0201	0204	0207	S12	W66	10656	08	12.1	6	SF		3	E	60	F	
GOES		0335	0347	0410	S12	W67	10656			35	SF C	4.5				7.4E-03	
LEAR		0340	0340	0347	S12	W67	10656	08	12.1	7	SF		3	E	12	F	
SVTO		0458	0504	0513	S12	W66	10656	08	12.2	15	SF		3	E	72		
GOES		0459	0506	0514	S12	W66	10656			15	SF M	1.1				6.4E-03	
LEAR		0502	0505	0507	S12	W68	10656	08	12.1	5	SF		3	E	21	F	
SVTO		0519	0520	0524	S12	W66	10656	08	12.2	5	SF		3	E	13		
SVTO		0545	0547	0549	S12	W68	10656	08	12.1	4	SF		3	E	24		
SVTO		0629	0630	0633	S15	W66	10656	08	12.3	4	SF		3	E	15		
GOES		0735	0740	0747	S14	W67	10656			12	SF C	5.2				2.9E-03	
SVTO		0737	0739	0742	S14	W67	10656	08	12.2	5	SF		3	E	27	F	
LEAR		0738	0739	0741	S10	W72	10656	08	11.9	3	SF		3	E	18		
GOES		0832	0837	0842			10656			10	C	4.9				2.3E-03	
GOES		0952	0958	1002			10656			10	C	4.1				1.9E-03	
GOES		1044	1047	1050	N06	E26	10661			6	SF C	1.8				5.6E-04	
SVTO		1047	1048	1051	N06	E26	10661	08	19.4	4	SF		3	E	26		
GOES		1319	1340	1351			10656			32	C	8.8				1.1E-02	
GOES		1605	1648	1703			10656			58	C	1.6				4.9E-03	
GOES		1800	1814	1828			10656			28	C	7.2				8.8E-03	
GOES		1926	1937	1948			10656			22	M	2.4				2.1E-02	
GOES		2112	2121	2139			10656			27	M	1.8				1.9E-02	
GOES		2212	2228	2237			10656			25	M	1.3				1.5E-02	
GOES	18	0106	0110	0115			10656			9	C	6.1				2.0E-03	
GOES		0217	0223	0228			10656			11	C	3.3				1.5E-03	
GOES		0238	0242	0247			10656			9	C	1.8				8.7E-04	
GOES		0255	0319	0325			10656			30	C	2.5				4.1E-03	
GOES		0414	0417	0420			10656			6	C	1.6				5.3E-04	
GOES		0506	0510	0514	N12	E19	10661			8	SF C	3.0				1.1E-03	
SVTO		0510	0510	0518	N12	E19	10661	08	19.6	8	SF		3	E	52		
LEAR		0510	0510	0521	N08	E19	10661	08	19.6	11	SF		3	E	55		
GOES		0714	0726	0735			10656			21	C	4.1				4.5E-03	
GOES		1040	1044	1048	N03	E14	10661			8	1F C	3.2				1.2E-03	
SVTO		1042	1043	1053	N03	E14	10661	08	19.5	11	1F		3	E	160	H	
GOES		1312	1315	1322			10656			10	C	1.4				7.7E-04	
GOES		1348	1356	1403			10656			15	C	4.0				2.8E-03	
GOES		1621	1646	1701			10656			40	C	7.2				1.4E-02	
GOES		1729	1740	1754	S12	W83	10656			25	SF X	1.8				1.8E-01	
HOLL		1736	1746	1754	S12	W83	10656	08	12.5	18	SF		3	E	22	F	
GOES		2253	2258	2302			10656			9	C	2.3				1.0E-03	
GOES	19	0002	0006	0009			10656			7	C	2.6				9.0E-04	
GOES		0115	0119	0126			10656			11	C	4.7				2.6E-03	
LEAR		0223	0224	0228	N09	E07	10661	08	19.6	5	SF		3	E	25	F	
GOES		0635	0701	0718			10656			43	M	3.0				4.0E-02	
GOES		1228	1239	1248			10656			20	C	3.0				2.9E-03	
GOES		1250	1307	1325			10656			35	C	4.2				7.5E-03	
GOES		1329	1351	1416			10656			47	M	2.1				4.1E-02	
GOES	20	0031	0107	0136						65	C	2.8				8.7E-03	
GOES	21	2358	2402	2404			10661			6	B	7.9				1.4E-04	

H α S O L A R F L A R E S

AUGUST 2004

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
GOES	22	2129	2133	2137			10661			8	B	3.2						1.4E-04
GOES		2215	2219	2221			10664			6	B	3.4						1.1E-04
GOES	23	0218	0227	0235			10663			17	B	6.8						5.3E-04
GOES		1929	1936	1947			10663			18	B	6.1						5.2E-04
GOES	24	1148	1152	1200						12	B	3.0						2.0E-04
GOES		1330	1352	1412						42	B	7.6						1.5E-03
GOES		2054	2112	2127						33	B	5.4						8.2E-04
GOES	25	0102	0106	0110						8	B	3.0						1.3E-04
GOES		0359	0403	0407			10661			8	B	3.1						1.3E-04
GOES		0515	0521	0526			10661			11	C	1.3						5.8E-04
GOES		0922	0926	0930						8	B	3.2						1.4E-04
GOES		1459	1504	1509						10	B	2.0						1.2E-04
GOES		1858	1910	1914						16	B	2.4						2.3E-04
GOES		2230	2241	2245						15	B	3.0						2.2E-04
GOES		2256	2306	2312						16	B	3.4						2.9E-04
GOES	26	0017	0021	0025			10661			8	B	3.8						1.4E-04
GOES		0208	0219	0230	N10	W05	10663			22	SF	C 1.8						1.7E-03
LEAR		0214	0215	0224	N10	W05	10663	08	25.7	10	SF		3	E		31		FH
GOES		0449	0513	0517						28	B	5.6						6.1E-04
GOES		0757	0802	0810			10662			13	B	3.6						2.2E-04
GOES		1259	1304	1313						14	B	8.4						6.1E-04
GOES		1737	1743	1751						14	B	3.1						2.3E-04
GOES	27	1504	1506	1507						3	B	1.8						3.2E-05
GOES		1809	1814	1817						8	B	1.7						7.9E-05
GOES	28	0830	0841	0843						13	B	1.4						1.1E-04
GOES		0915	0928	0937						22	B	1.8						2.0E-04
GOES		1243	1253	1302						19	B	1.5						1.5E-04
GOES		1627	1632	1637						10	B	1.2						6.3E-05
GOES	29	0059	0104	0108			10664			9	B	1.6						6.8E-05
GOES		0328	0339	0345			10663			17	B	1.3						1.2E-04
GOES		0755	0803	0810			10664			15	B	4.6						2.9E-04
GOES	30	0304	0311	0318			10663			14	C	2.4						1.1E-03
GOES		0954	1000	1010			10663			16	B	2.6						2.3E-04
GOES		1400	1403	1405			10663			5	B	2.5						6.2E-05
GOES		1449	1452	1454			10663			5	B	2.5						6.2E-05
GOES		1458	1502	1504			10663			6	B	4.8						1.2E-04
GOES		1541	1544	1547						6	B	2.6						7.9E-05
GOES		1806	1818	1829			10663			23	C	1.0						1.1E-03
GOES		2045	2125	2147						62	C	1.4						3.4E-03
GOES	31	0040	0046	0052			10663			12	B	9.3						5.8E-04
GOES		0524	0538	0547			10663			23	M	1.4						1.1E-02
GOES		1407	1415	1420			10663			13	B	5.5						3.3E-04

S O L A R R A D I O E M I S S I O N
Selected Fixed Frequency Events

AUGUST 2004

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 ⁻²² W/m ² Hz)	Mean	Int	Remarks
11	8800	PALE	8 S	0441.0	0441.0	U	65.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	1137.0	1140.0	3.0	98.0			QL=4 ST=3 TYP=3
	8800	SGMR	8 S	1140.0	1140.0	U	50.0			QL=4 ST=2 TYP=3
	8800	SGMR	8 S	1248.0	1248.0	U	26.0			QL=4 ST=2 TYP=3
	2695	SGMR	8 S	1248.0	1248.0	U	33.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	1248.0	1248.0	U	26.0			QL=4 ST=3 TYP=3
	2695	SVTO	8 S	1248.0	1248.0	U	33.0			QL=4 ST=3 TYP=3
	8800	PALE	8 S	1644.0	1645.0	1.0	60.0			QL=4 ST=3 TYP=3
12	8800	LEAR	8 S	0501.0	0501.0	1.0	63.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	0501.0	0501.0	1.0	58.0			QL=4 ST=2 TYP=3
	2695	SGMR	8 S	1616.0	1616.0	U	56.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	1657.0	1657.0	U	54.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	2226.0	2226.0	U	60.0			QL=4 ST=2 TYP=3
	8800	SGMR	8 S	2226.0	2226.0	U	54.0			QL=4 ST=2 TYP=3
	8800	PALE	4 S/F	2255.0	2255.0	3.0	90.0			QL=4 ST=2 TYP=3
	8800	PALE	4 S/F	2255.0	2255.0	3.0	90.0			QL=4 ST=2 TYP=3
13	8800	SVTO	20 GRF	0722.0	0728.0	40.0	55.0			QL=4 ST=2 TYP=2
	8800	SGMR	4 S/F	1513.0	1515.0	3.0	67.0			QL=4 ST=2 TYP=3
	2695	PALE	8 S	1810.0	1810.0	2.0	180.0			QL=4 ST=2 TYP=3
	8800	PALE	48 C	1810.0	1810.0	4.0	510.0			QL=4 ST=2 TYP=8
	8800	SGMR	8 S	1817.0	1817.0	1.0	63.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	2342.0	2343.0	1.0	62.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	2342.0	2343.0	1.0	62.0			QL=4 ST=2 TYP=3
14	8800	LEAR	8 S	0412.0	0414.0	2.0	200.0			QL=4 ST=2 TYP=3
	8800	PALE	48 C	0412.0	0414.0	4.0	180.0			QL=4 ST=2 TYP=8
	2695	LEAR	8 S	0413.0	0414.0	1.0	98.0			QL=4 ST=2 TYP=3
	2695	PALE	8 S	0413.0	0414.0	1.0	100.0			QL=4 ST=2 TYP=3
	8800	LEAR	48 C	0539.0	0543.0	13.0	210.0			QL=4 ST=2 TYP=8
	8800	SVTO	48 C	0539.0	0543.0	29.0	230.0			QL=4 ST=2 TYP=8
	2695	SVTO	20 GRF	0539.0	0543.0	39.0	100.0			QL=4 ST=2 TYP=2
	2695	LEAR	48 C	0543.0	0543.0	1.0	96.0			QL=4 ST=2 TYP=8
	8800	LEAR	8 S	0754.0	0755.0	1.0	86.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	0754.0	0755.0	4.0	77.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	0815.0	0815.0	U	43.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	1005.0	1007.0	4.0	49.0			QL=4 ST=2 TYP=3
	2695	SVTO	4 S/F	1006.0	1007.0	3.0	25.0			QL=4 ST=2 TYP=3
	8800	SGMR	4 S/F	1340.0	1341.0	8.0	170.0			QL=4 ST=2 TYP=3
	2695	SGMR	8 S	1340.0	1340.0	U	70.0			QL=4 ST=2 TYP=3
	2695	SVTO	4 S/F	1340.0	1340.0	16.0	77.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	1340.0	1341.0	15.0	140.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	1814.0	1814.0	U	58.0			QL=4 ST=2 TYP=3
15	8800	LEAR	8 S	0329.0	0329.0	1.0	130.0			QL=4 ST=2 TYP=3
	2695	LEAR	8 S	0329.0	0329.0	1.0	45.0			QL=4 ST=2 TYP=3
	2695	PALE	8 S	0329.0	0329.0	1.0	56.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	0329.0	0330.0	1.0	100.0			QL=4 ST=2 TYP=3
	8800	LEAR	8 S	0556.0	0557.0	2.0	80.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	0556.0	0557.0	5.0	80.0			QL=4 ST=2 TYP=3
	8800	SGMR	4 S/F	1124.0E	1126.0U	10.0D	100.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	1125.0	1134.0	11.0	100.0			QL=4 ST=2 TYP=3
	2695	SVTO	4 S/F	1127.0	1134.0	7.0	52.0			QL=4 ST=2 TYP=3
	8800	SVTO	4 S/F	1237.0	1241.0	6.0	110.0			QL=4 ST=2 TYP=3
	8800	SGMR	8 S	1240.0E	1241.0	2.0D	100.0			QL=4 ST=2 TYP=3
16	8800	SVTO	8 S	1013.0	1013.0	1.0	59.0			QL=4 ST=2 TYP=3
17	8800	LEAR	8 S	0200.0	0200.0	U	70.0			QL=4 ST=2 TYP=3
	8800	PALE	8 S	0200.0	0200.0	U	68.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	1329.0	1329.0	1.0	53.0			QL=4 ST=2 TYP=3
	8800	SGMR	4 S/F	1801.0	1803.0	5.0	100.0			QL=4 ST=2 TYP=3
	2695	SGMR	4 S/F	1802.0	1804.0	4.0	85.0			QL=4 ST=2 TYP=3
18	2695	SVTO	8 S	1041.0	1042.0	2.0	110.0			QL=4 ST=2 TYP=3
	2695	SGMR	8 S	1042.0	1042.0	U	100.0			QL=4 ST=2 TYP=3
	8800	SVTO	8 S	1042.0	1042.0	1.0	85.0			QL=4 ST=2 TYP=3
	8800	PALE	48 C	1731.0	1732.0	8.0	1200.0			QL=4 ST=2 TYP=8
	8800	SGMR	48 C	1731.0	1732.0	14.0	1100.0			QL=4 ST=2 TYP=8
	2695	PALE	48 C	1732.0	1735.0	6.0	150.0			QL=4 ST=2 TYP=8

S O L A R R A D I O E M I S S I O N
Selected Fixed Frequency Events

35
Aug 04

AUGUST 2004

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 ⁻²² W/m ² Hz)	Mean	Int	Remarks
18	2695 SGMR	48 C	1732.0	1736.0	7.0	150.0			QL=4 ST=2 TYP=8
	8800 PALE	4 S/F	1749.0	1750.0	3.0	120.0			QL=4 ST=2 TYP=3
	8800 SGMR	8 S	1750.0	1750.0	1.0	110.0			QL=4 ST=2 TYP=3
19	8800 SVTO	4 S/F	0652.0	0656.0	6.0	100.0			QL=4 ST=2 TYP=3
	8800 LEAR	8 S	0655.0	0656.0	1.0	100.0			QL=4 ST=2 TYP=3
20	8800 SGMR	8 S	1205.0	1205.0	U	51.0			QL=4 ST=2 TYP=3
25	2695 LEAR	8 S	0217.0	0217.0	U	58.0			QL=4 ST=2 TYP=3

Reports are received routinely from the following observatories:

LEAR = Learmonth

PALE = Palehua

SGMR = Sagamore Hill

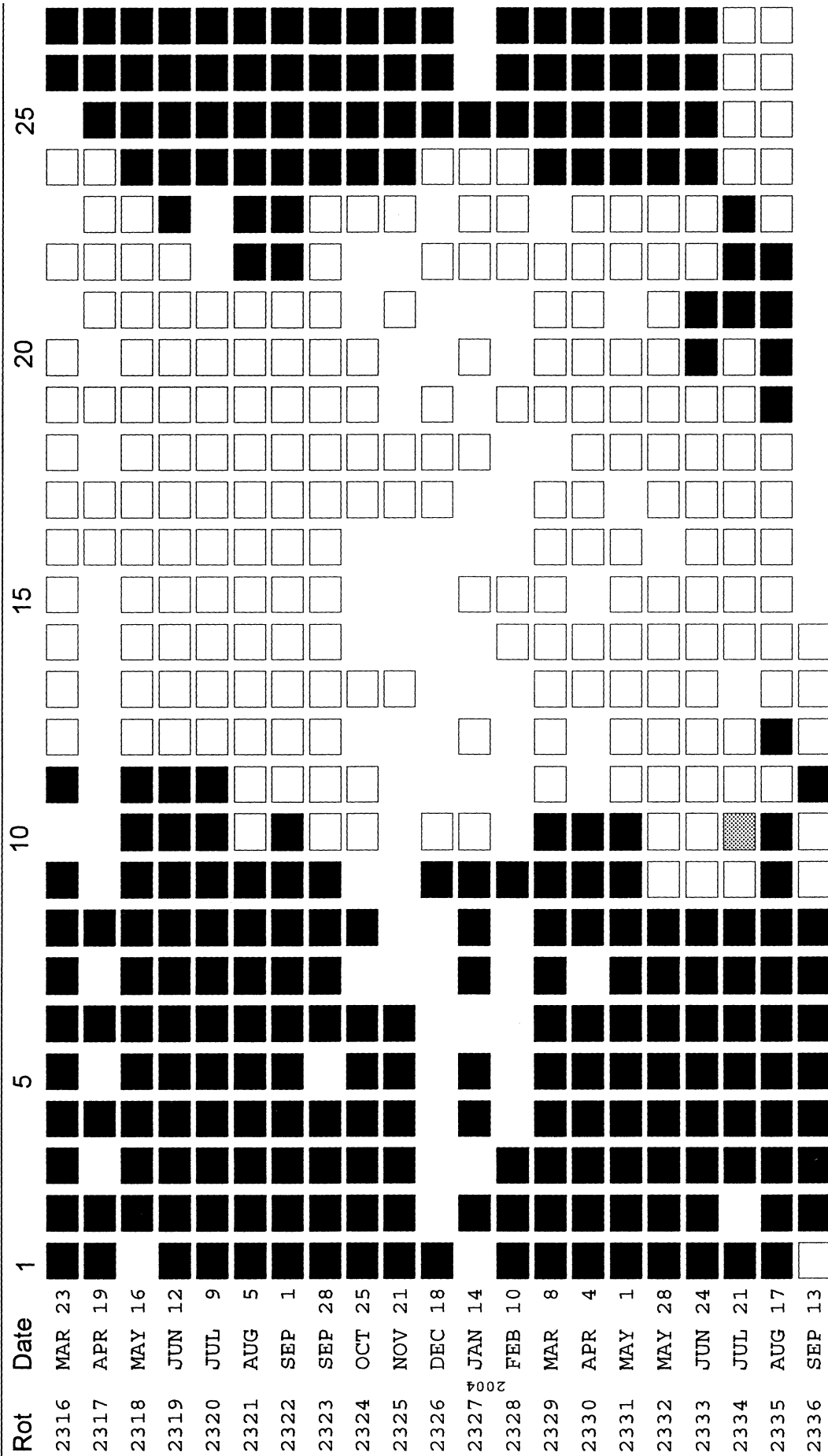
SVTO = San Vito

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 Hiraiso, Japan 500 and 200 MHz.

STANFORD MEAN SOLAR MAGNETIC FIELD

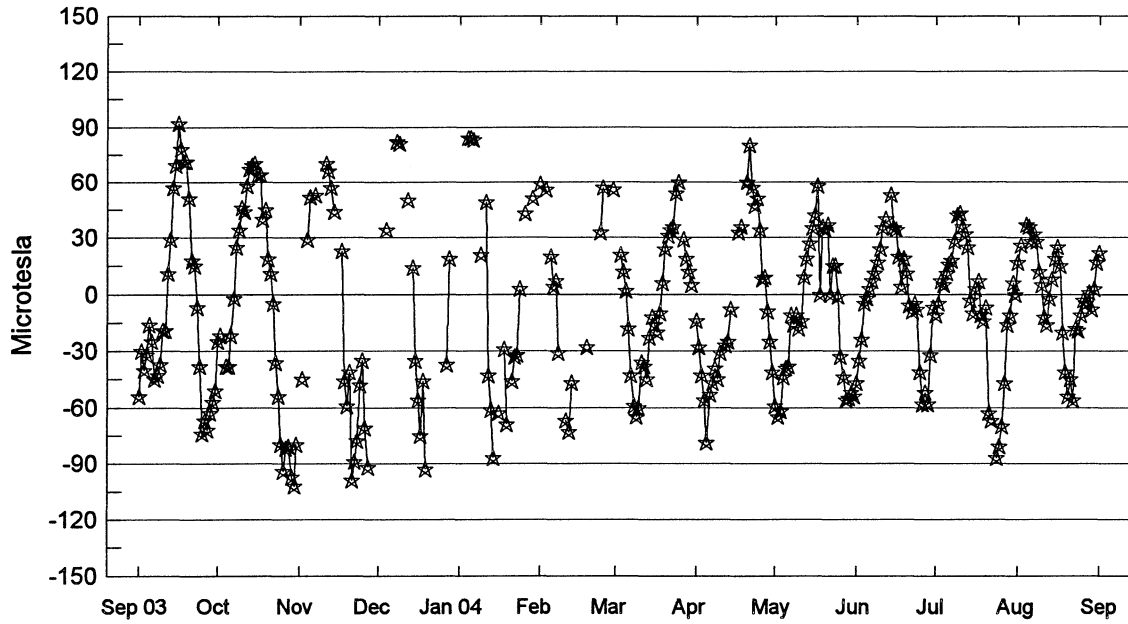


Mean Solar Magnetic Field Polarity:
 □ = field > 2 microT; ▨ = -2 microT ≤ field ≤ 2 microT
 █ = field < -2 microT; No box = no data available

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.

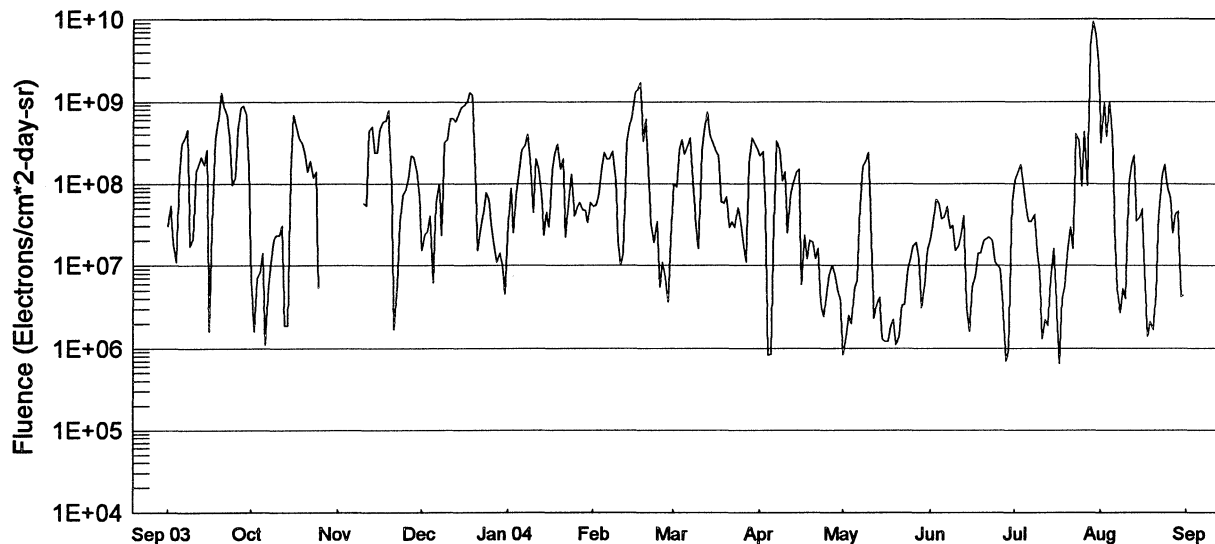
Stanford Mean Solar Magnetic Field (Microtesla) "Sun-As-A-Star"

37
Aug 04



Day	Sep 03	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr	May	Jun	Jul	Aug
1	-30	-22	-45	—	—	—	—	-28	-65	-35	-5	26
2	-40	—	—	—	—	56	21	-43	-62	-24	7	—
3	-32	-38	29	34	84	—	12	-56	-44	-5	5	37
4	-16	-38	52	—	84	20	2	-79	-39	-2	11	36
5	-25	-22	—	—	83	4	-18	-53	-38	3	16	28
6	-45	-2	53	—	—	7	-43	-47	-11	7	18	32
7	-43	25	—	82	—	-31	-59	-39	-16	11	28	28
8	-37	34	—	81	21	—	-65	-45	-11	17	42	12
9	-19	46	—	—	—	—	-60	-31	-18	24	43	5
10	-19	44	70	—	49	-67	-36	—	-14	35	36	-12
11	11	58	66	50	-43	-73	-38	-27	9	40	32	-16
12	29	67	57	—	-61	-47	-45	-25	19	—	25	-2
13	57	69	44	14	-87	—	-23	-8	27	53	-3	8
14	69	70	—	-35	—	—	-12	—	35	35	-10	19
15	92	64	—	-56	-63	—	-16	—	42	34	3	25
16	78	64	23	-75	—	—	-20	33	58	20	7	15
17	71	40	-46	-46	-29	—	-10	36	—	4	-11	-20
18	71	45	-59	-93	-69	-28	6	—	36	19	-14	-41
19	51	19	-41	—	—	—	24	60	34	11	-7	-54
20	18	11	-99	—	-46	—	31	80	37	-6	-63	-45
21	15	-5	-89	—	-33	—	34	57	—	-9	-67	-56
22	-7	-36	-78	—	-32	—	36	47	15	-5	—	-18
23	-38	-54	-48	—	3	33	54	51	15	-8	-87	-19
24	-74	-80	-35	—	—	57	60	34	-1	-41	-81	-11
25	-67	-94	-71	—	43	—	—	8	-33	-58	-70	-3
26	-72	-82	-92	-37	—	—	29	9	-44	-52	-47	-5
27	-63	-81	—	19	—	—	19	-9	-56	-58	-16	1
28	-57	-97	—	—	51	56	12	-25	-55	-32	-11	-8
29	-51	-102	—	—	—	—	5	-41	-52	-7	6	3
30	-25	-80	—	—	—	—	—	-59	-54	-11	0	17
31	—	—	—	—	59	—	-14	—	-47	—	17	22

GOES Daily Electron Fluence Sep 2003 - Aug 2004



Day	Sep 03	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr	May	Jun	Jul	Aug
1	3.0E+07	6.7E+06	-999	1.5E+07	3.3E+07	5.3E+07	9.9E+07	2.2E+08	8.3E+05	2.1E+07	1.1E+08	3.1E+08
2	5.4E+07	1.6E+06	-999	2.4E+07	8.8E+07	5.5E+07	9.2E+07	2.5E+08	1.4E+06	3.4E+07	1.4E+08	9.6E+08
3	1.9E+07	6.9E+06	-999	2.6E+07	2.5E+07	7.1E+07	2.6E+08	4.1E+07	2.5E+06	6.4E+07	1.7E+08	3.7E+08
4	1.1E+07	8.2E+06	-999	4.0E+07	7.2E+07	1.6E+08	3.4E+08	8.3E+05	2.0E+06	5.8E+07	1.0E+08	1.0E+09
5	1.2E+08	1.4E+07	-999	6.2E+06	1.5E+08	2.4E+08	2.3E+08	8.5E+05	5.4E+06	3.7E+07	4.7E+07	4.1E+08
6	3.0E+08	1.1E+06	-999	5.9E+07	2.6E+08	2.0E+08	2.9E+08	3.3E+07	6.6E+06	3.9E+07	3.4E+07	2.7E+07
7	3.6E+08	5.7E+06	-999	1.0E+08	2.9E+08	2.0E+08	3.6E+08	3.3E+08	5.2E+07	5.2E+07	3.4E+07	5.1E+06
8	4.5E+08	1.1E+07	-999	2.3E+07	4.0E+08	2.5E+08	1.1E+08	2.6E+08	1.6E+08	2.8E+07	4.2E+07	2.7E+06
9	1.7E+07	2.0E+07	-999	3.2E+08	2.0E+08	1.1E+08	3.1E+07	1.1E+08	1.9E+08	3.1E+07	1.5E+07	5.3E+06
10	2.1E+07	2.3E+07	5.6E+07	3.5E+08	4.4E+07	1.9E+07	1.6E+07	1.4E+08	2.4E+08	1.5E+07	8.4E+06	4.0E+06
11	1.4E+08	2.3E+07	5.4E+07	6.2E+08	2.0E+08	1.0E+07	2.5E+08	2.5E+07	3.4E+07	1.7E+07	1.3E+06	1.0E+08
12	1.7E+08	3.0E+07	4.4E+08	6.3E+08	1.6E+08	1.4E+07	4.7E+08	7.8E+07	2.3E+06	2.4E+07	2.2E+06	1.7E+08
13	2.1E+08	1.9E+06	5.0E+08	5.7E+08	7.3E+07	3.2E+08	7.4E+08	1.1E+08	3.3E+06	4.0E+07	1.9E+06	2.2E+08
14	1.7E+08	1.9E+06	2.4E+08	7.1E+08	2.3E+07	5.0E+08	3.8E+08	1.4E+08	4.1E+06	3.5E+06	6.6E+06	3.5E+07
15	2.6E+08	1.3E+08	2.4E+08	8.4E+08	4.5E+07	6.7E+08	3.2E+08	1.5E+08	1.3E+06	1.6E+06	1.6E+07	3.8E+07
16	1.6E+06	6.8E+08	4.6E+08	9.0E+08	2.9E+07	1.3E+09	2.6E+08	5.9E+06	1.2E+06	5.6E+06	3.8E+06	4.9E+07
17	5.5E+07	5.0E+08	5.7E+08	1.0E+09	1.5E+08	1.4E+09	2.2E+08	2.3E+07	1.2E+06	7.6E+06	6.5E+05	8.4E+06
18	3.5E+08	3.6E+08	5.8E+08	1.3E+09	2.4E+08	1.7E+09	6.0E+07	1.2E+07	1.8E+06	1.4E+07	4.0E+06	1.4E+06
19	6.5E+08	3.1E+08	7.7E+08	1.2E+09	3.0E+08	3.3E+08	5.7E+07	2.0E+07	2.2E+06	1.4E+07	5.5E+06	2.1E+06
20	1.3E+09	2.3E+08	9.6E+07	2.3E+08	1.5E+08	6.1E+08	6.9E+07	1.9E+07	1.1E+06	2.0E+07	1.6E+07	1.7E+06
21	8.7E+08	1.4E+08	1.7E+06	1.5E+07	2.0E+08	1.4E+08	2.9E+07	1.2E+07	1.4E+06	2.1E+07	2.9E+07	4.6E+06
22	6.8E+08	1.9E+08	5.8E+06	2.9E+07	2.2E+07	3.3E+07	3.4E+07	1.6E+07	3.3E+06	2.2E+07	1.6E+07	4.4E+07
23	3.7E+08	1.2E+08	3.3E+07	4.4E+07	6.6E+07	1.9E+07	2.9E+07	3.5E+06	3.4E+06	2.0E+07	4.0E+08	1.3E+08
24	9.7E+07	1.4E+08	7.1E+07	7.8E+07	1.3E+08	3.4E+07	5.1E+07	2.4E+06	8.9E+06	1.1E+07	3.3E+08	1.7E+08
25	1.2E+08	5.3E+06	8.7E+07	6.5E+07	4.0E+07	5.5E+06	3.7E+07	4.3E+06	1.2E+07	1.0E+07	9.3E+07	9.2E+07
26	4.5E+08	-999	1.2E+08	2.8E+07	5.1E+07	1.1E+07	2.0E+07	7.5E+06	1.7E+07	9.2E+06	4.3E+08	6.8E+07
27	8.3E+08	-999	2.2E+08	1.7E+07	5.9E+07	7.7E+06	1.1E+07	1.0E+07	1.9E+07	2.6E+06	9.4E+07	2.5E+07
28	8.9E+08	-999	2.1E+08	1.1E+07	4.7E+07	3.6E+06	1.8E+08	7.9E+06	1.2E+07	7.0E+05	4.5E+09	4.3E+07
29	7.0E+08	-999	1.4E+08	1.4E+07	4.7E+07	2.0E+07	3.6E+08	4.8E+06	3.1E+06	9.5E+05	9.3E+09	4.6E+07
30	1.6E+08	-999	7.1E+07	1.0E+07	3.3E+07		3.1E+08	3.8E+06	5.9E+06	6.0E+07	6.4E+09	4.2E+06
31		-999		4.5E+06	5.9E+07		2.7E+08		1.5E+07		3.0E+09	4.4E+06

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. GOES12 is primary satellite as of 15 May 2003.

CONTENTS

Prompt Reports

Number 721 Part I

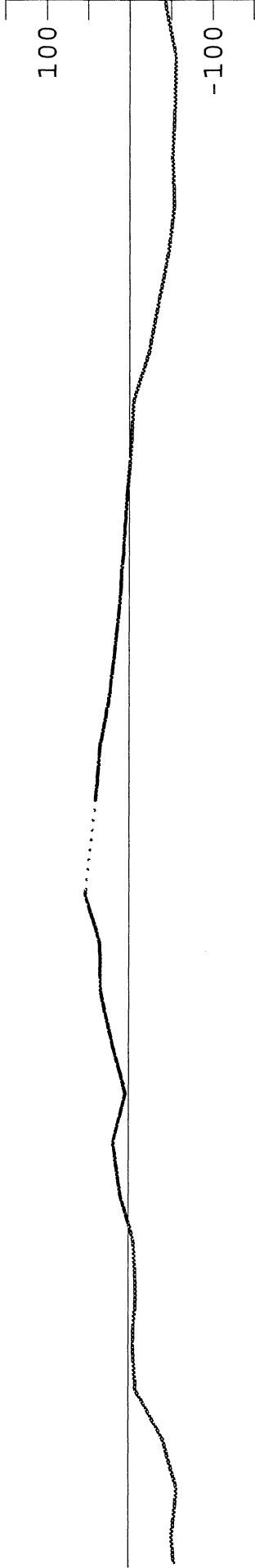
DATA FOR JULY 2004

	Page
SOLAR ACTIVE REGIONS	
Solar Synoptic Charts	40- 45
Daily Activity Solar Maps	46- 76
Preliminary NSO/KP Coronal Hole Daily Maps -- none available	
Nobeyama Daily Radioheliograph Images at 17 GHz	77- 82
Sunspot Groups	83- 92
SUDDEN IONOSPHERIC DISTURBANCES	93- 96
SOLAR RADIO SPECTRAL OBSERVATIONS	97-115
SOLAR RADIOHELIOGRAPH - 164 AND 327 MHZ - NANCAY	116-117
COSMIC RAY MEASUREMENTS BY NEUTRON MONITOR	
Daily Counting Rates	118
Chart of Variations	119-120
Graph and Table of Monthly Mean Huancayo Data Jan 1953-Jul 2004	121
GEOMAGNETIC INDICES	
Geomagnetic Activity Indices	122
Daily Average Ap	123
Chart of Kp by 27-day Rotation	124
Table of Monthly aa Index (1950 to present)	125
Chart of 3-hourly Km and aa by 27-day Rotation	126
Provisional Values of Hourly Equatorial Dst	127
Polar Cap (PC) Geomagnetic Index Plot of 15-min values – Thule	128
-- Plot of 1-min values – Vostok -- No data – Antarctic station inaccessible.	
Principal Magnetic Storms	129
Sudden Commencements/Solar Flare Effects	130

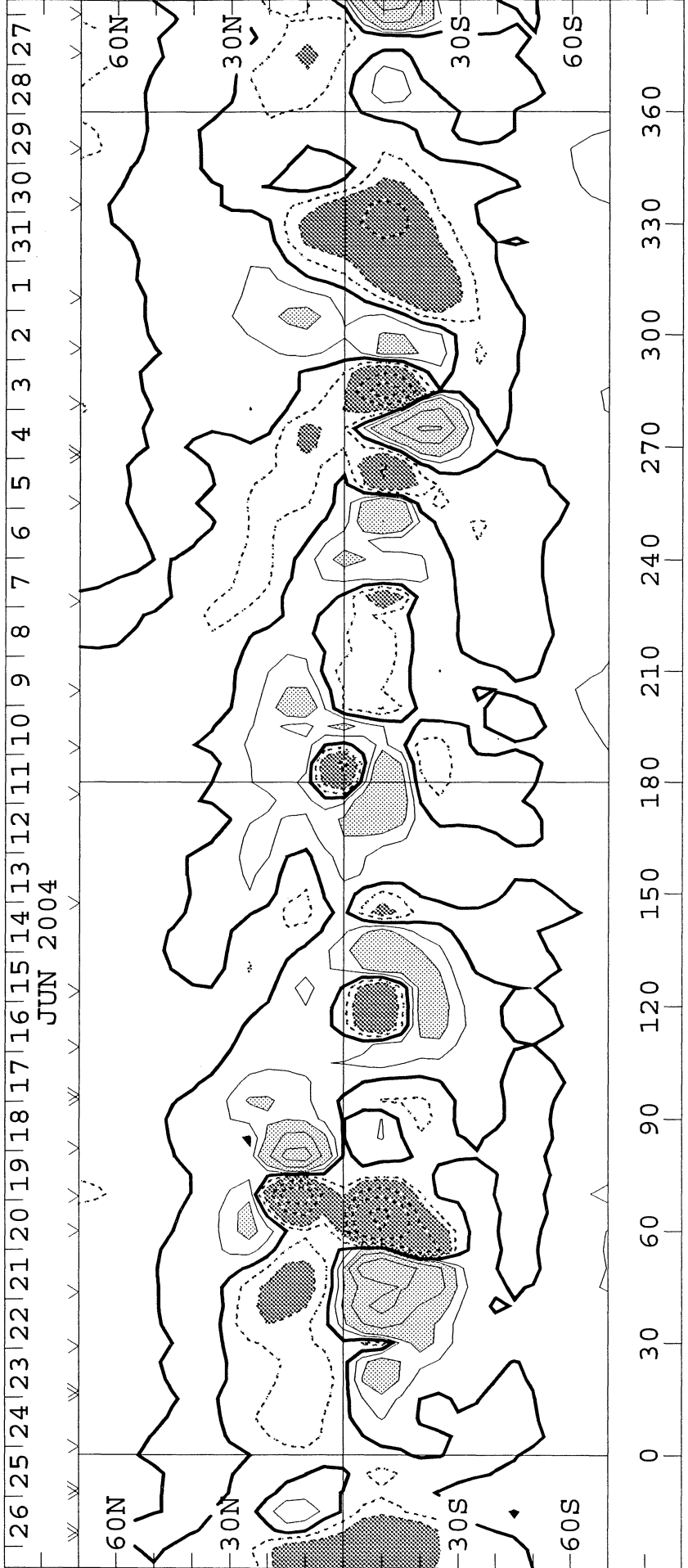
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 2017
(28 May to 25 June 2004)

WILCOX SOLAR OBSERVATORY

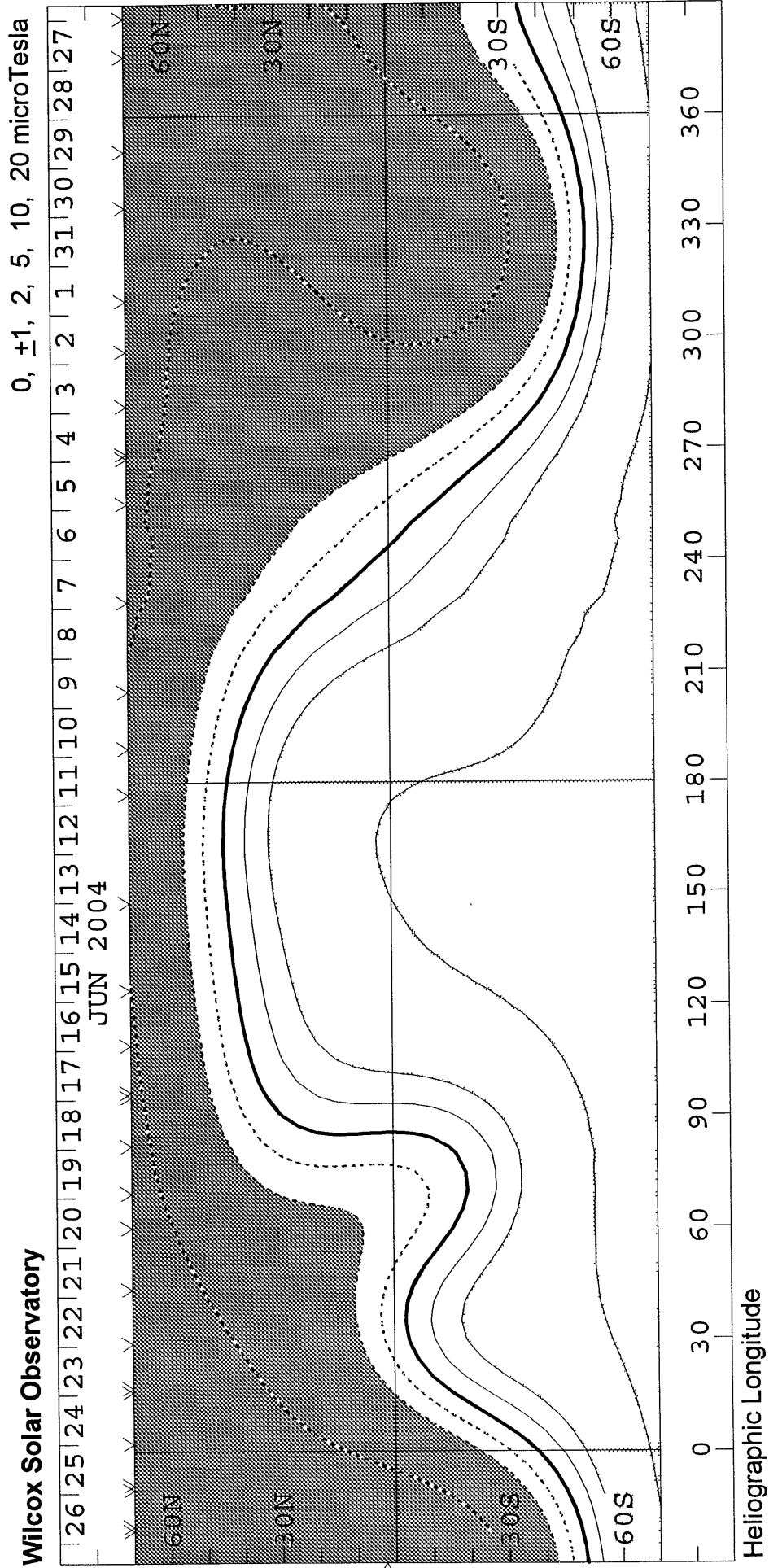
Mean Field



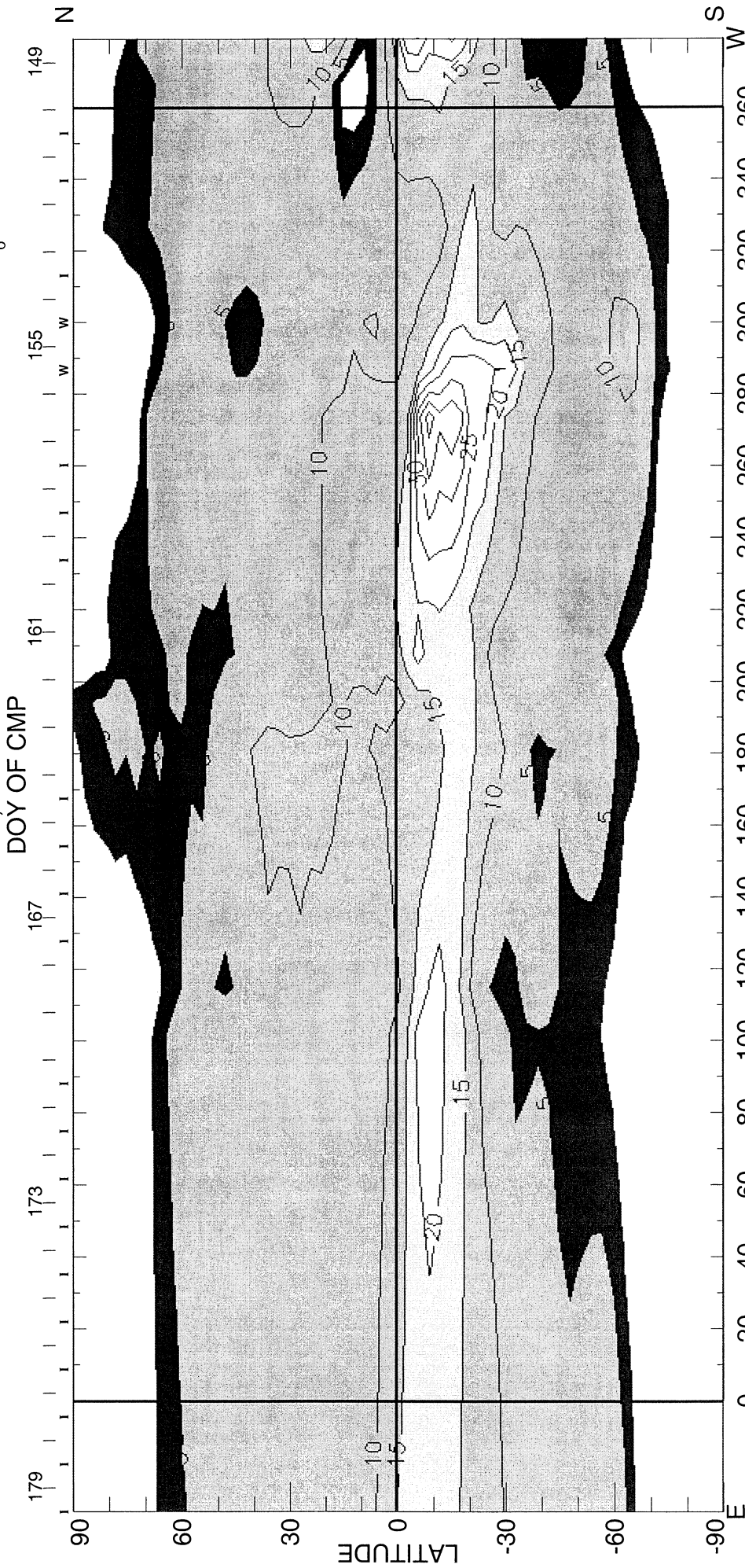
WSO - Photospheric Magnetic Field 0, +100, 200, 500, 1000, 2000 MicroTesla



SOLAR MAGNETIC FIELD SYNOPSIS CHART
SOURCE SURFACE FIELD
CARRINGTON ROTATION NUMBER 2017
 (28 May to 25 June 2004)

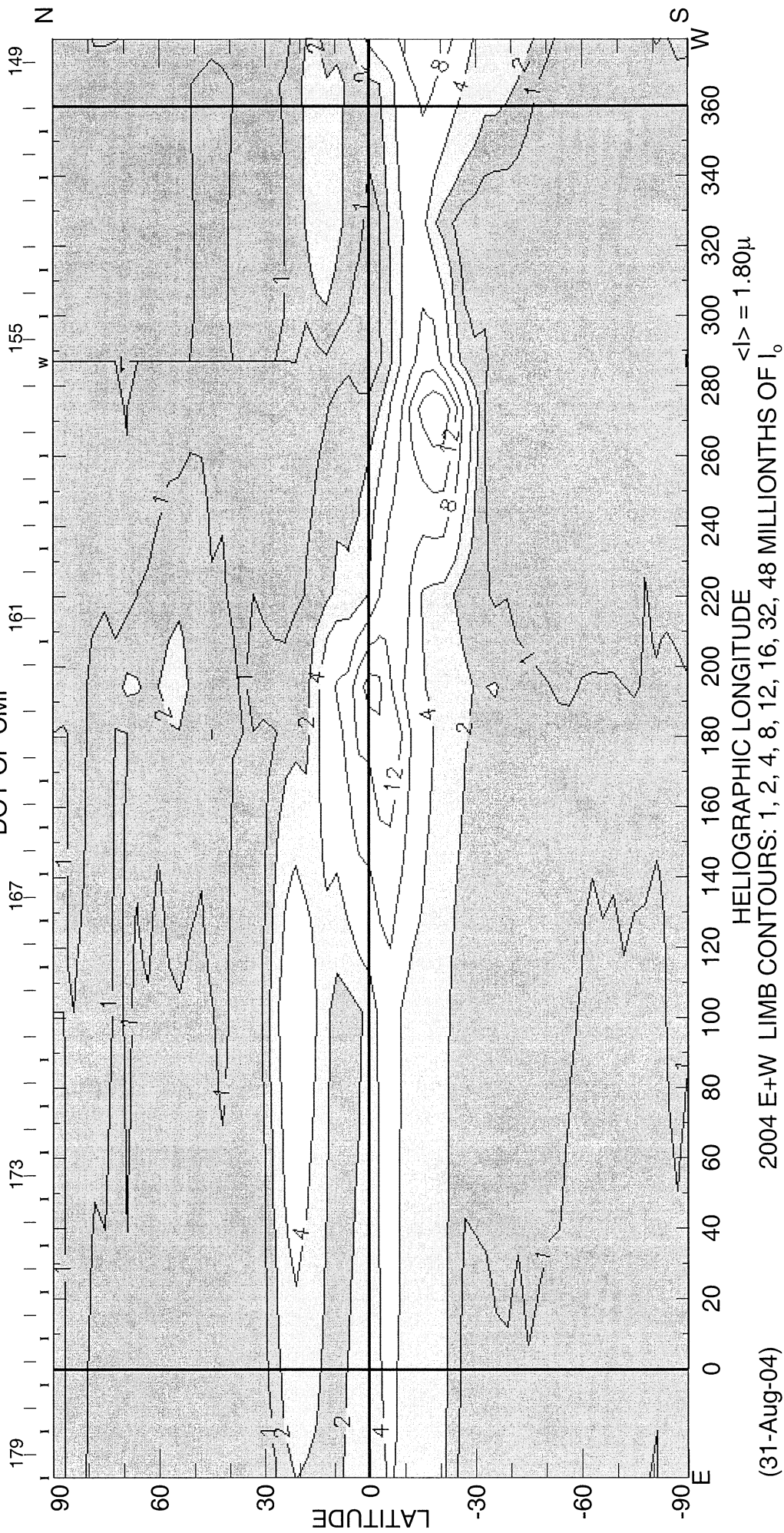


CARRINGTON ROTATION NUMBER 2017 ; NSO/SACRAMENTO PEAK FE XIV @ R = 1.15R_o

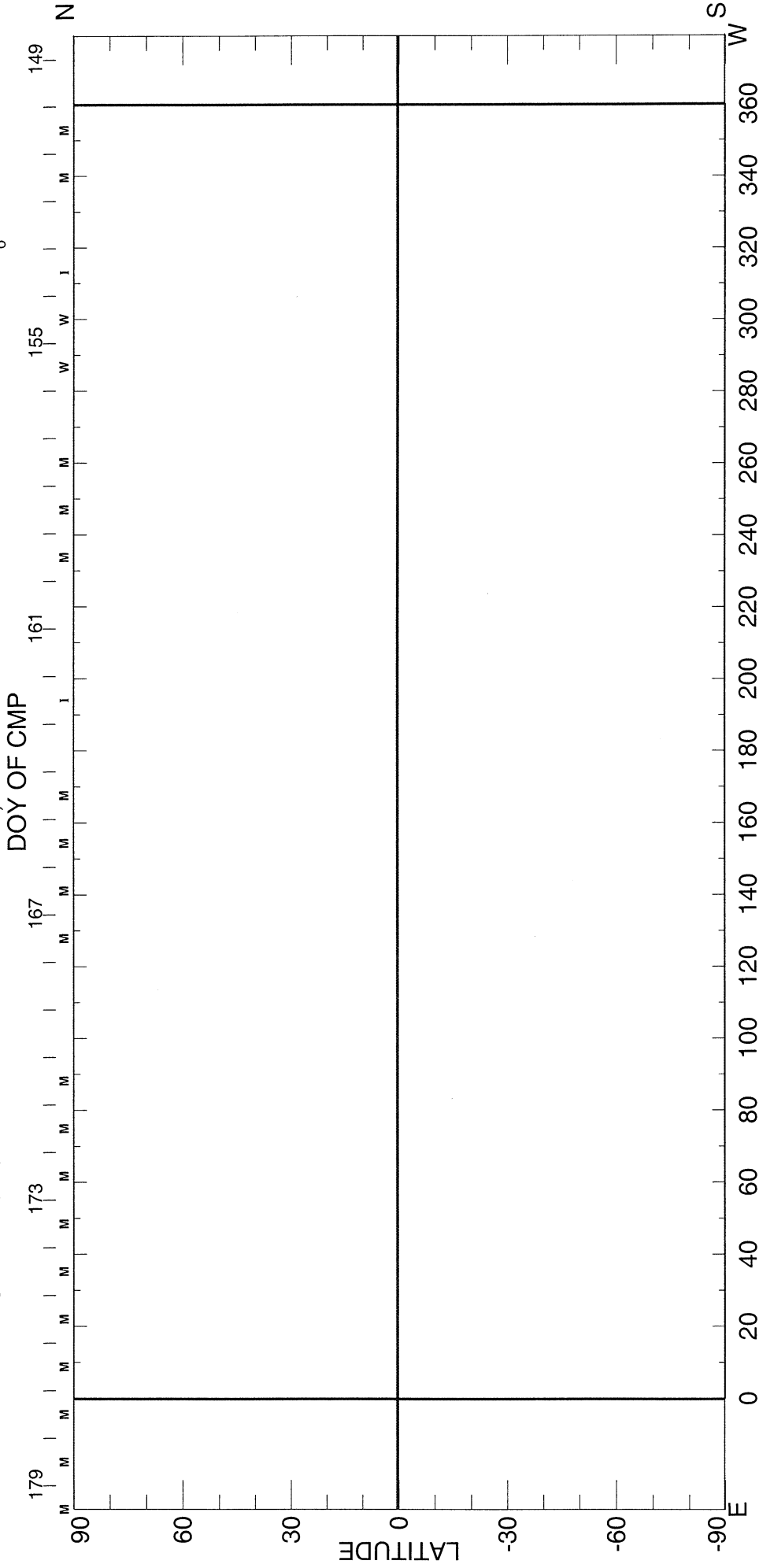


(31-Aug-04) 2004 E+W LIMB CONTOURS: 3, 5, 10, 15, 20, 25, 30, 35, 40, 100, 120 MILLIONTHS OF I_o
CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK
HELIOGRAPHIC LONGITUDE
<I> = 7.15μ

CARRINGTON ROTATION NUMBER 2017; NSO/SACRAMENTO PEAK FE X @ R = 1.15R_o



CARRINGTON ROTATION NUMBER 2017; NSO/SACRAMENTO PEAK CA XV @ R = 1.15R_o

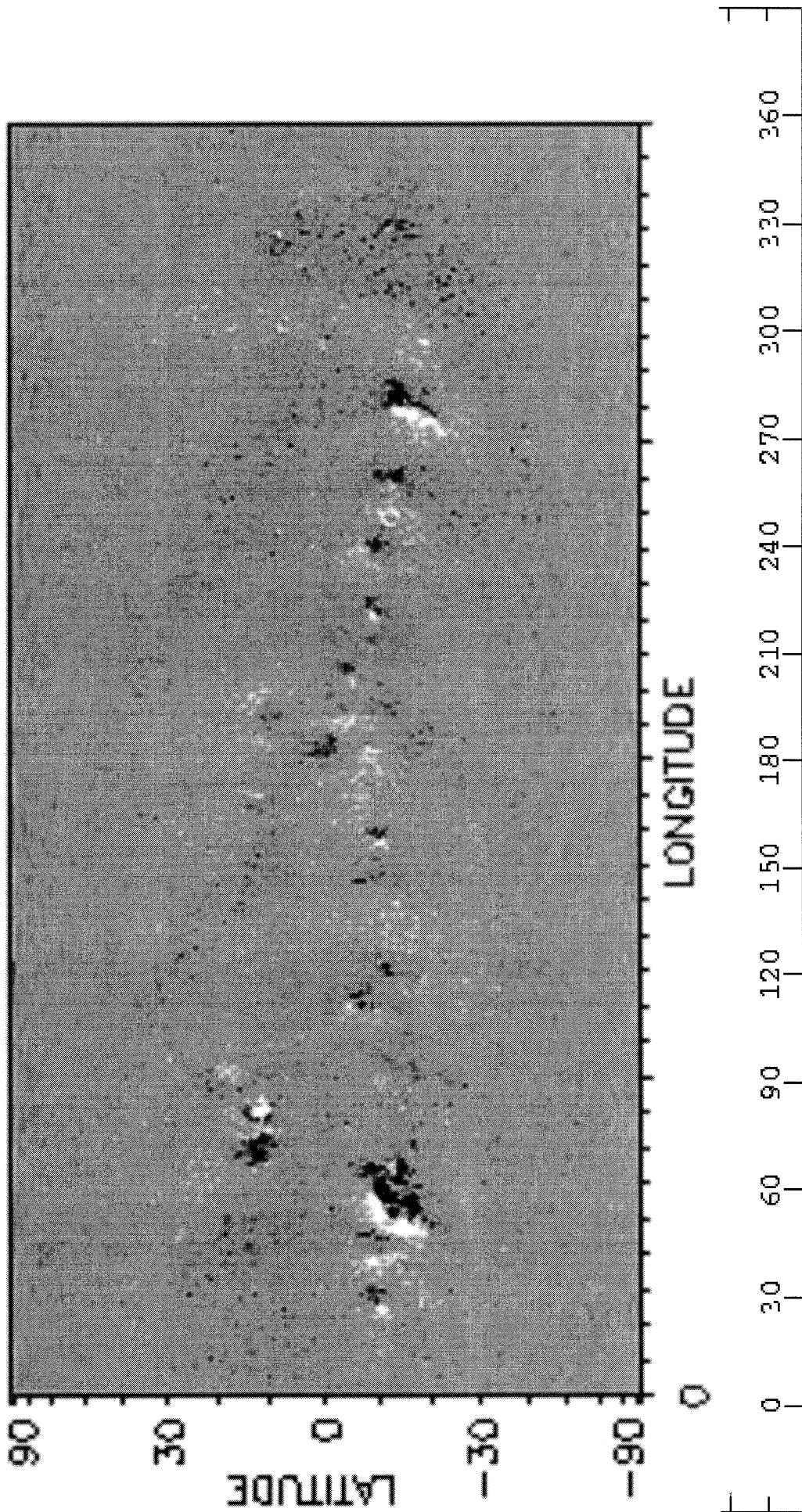


(31-Aug-04) 2004 E+W LIMB CONTOURS: YELMIN, 1, 2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20 MILLIONTHS OF I_o
HELIOGRAPHIC LONGITUDE

SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 2017
(28 May to 25 June 2004)

National Solar Observatory/Kitt Peak

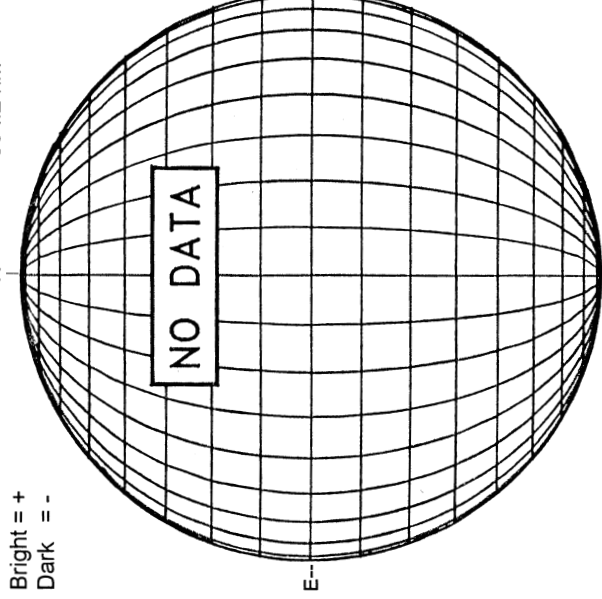
NSO/VSM MAGNETIC FLUX SYNOPTIC MAP
CARRINGTON ROTATION 2017



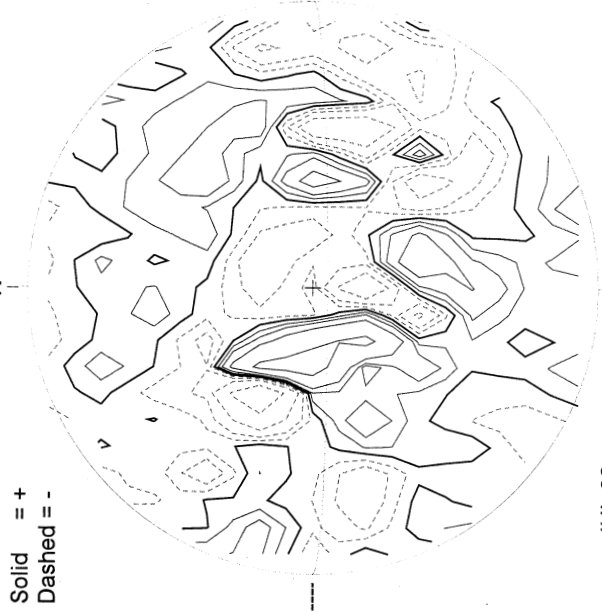
Heliographic Longitude

JULY 1, 2004 (P = -2.55, Bo = 2.91, Lo = 282.62)

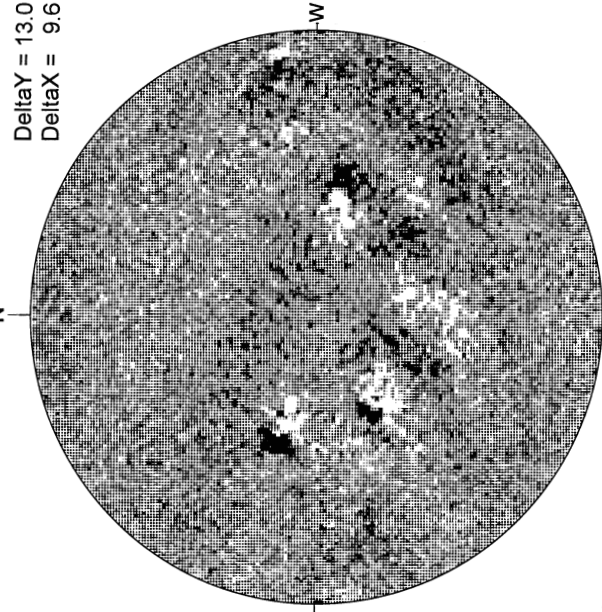
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



STANFORD MAGNETOGRAM

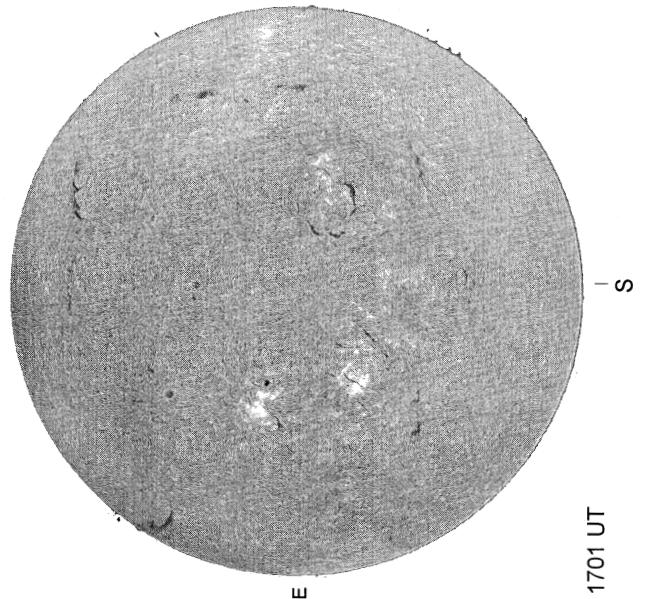


MT. WILSON MAGNETOGRAM

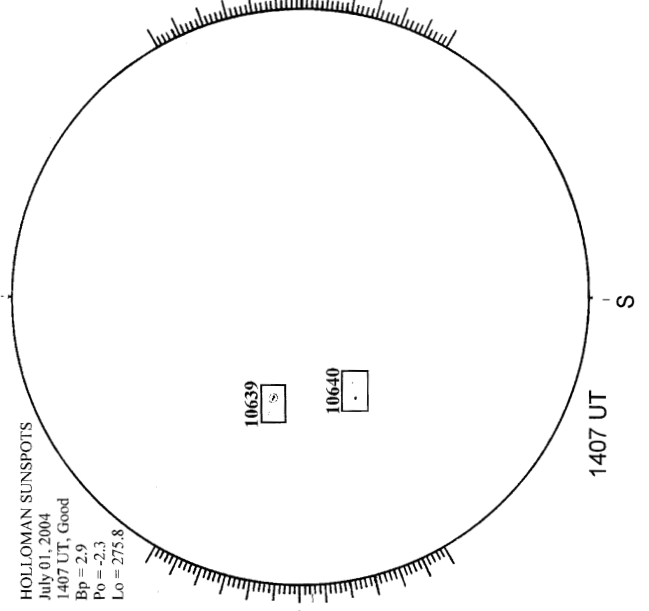


17.30 -
18.22 UT

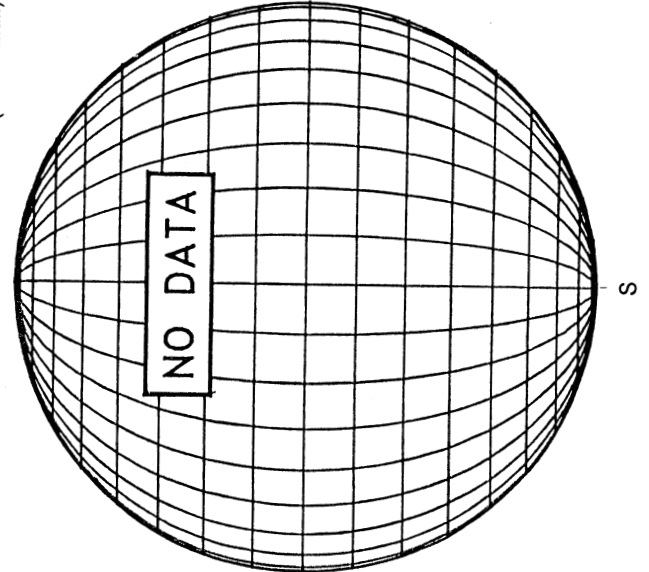
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



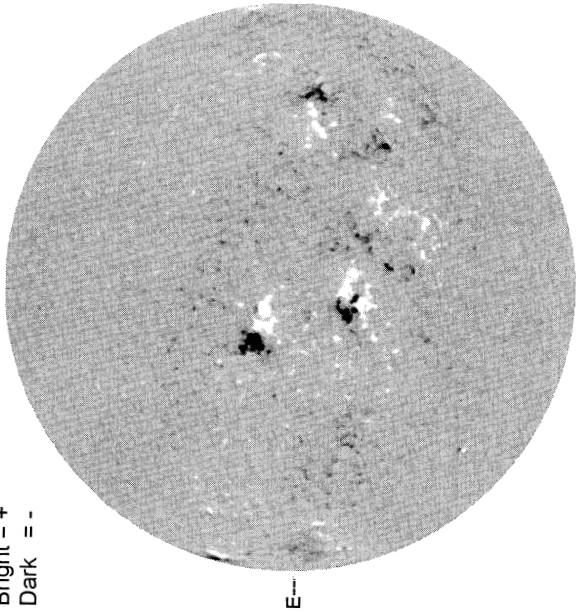
SACRAMENTO PEAK CORONA (1.15 Radii)----



JULY 2, 2004 (P= -2.10, Bo = 3.02, Lo = 269.39)

KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

Bright = +
Dark = -



1916 UT

STANFORD MAGNETOGRAM

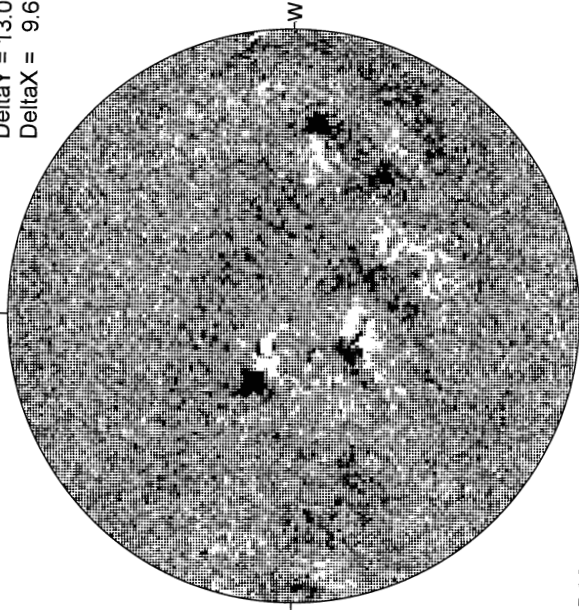
Solid = +
Dashed = -



1950 UT

MT. WILSON MAGNETOGRAM

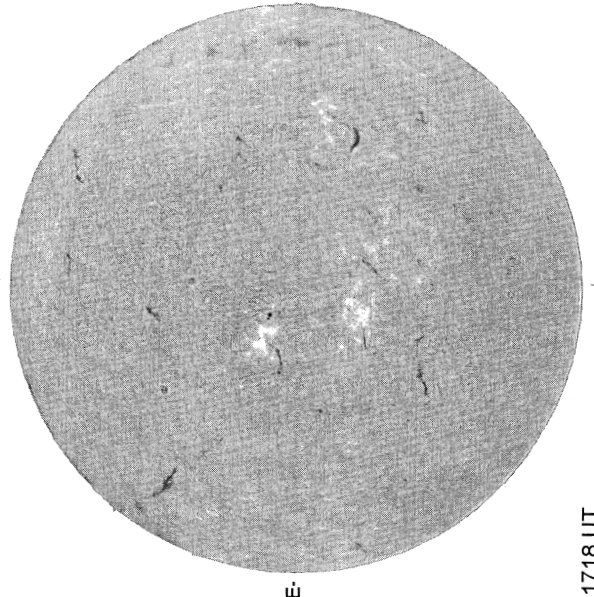
DeltaY = 13.0
DeltaX = 9.6



15.93 -
16.86 UT

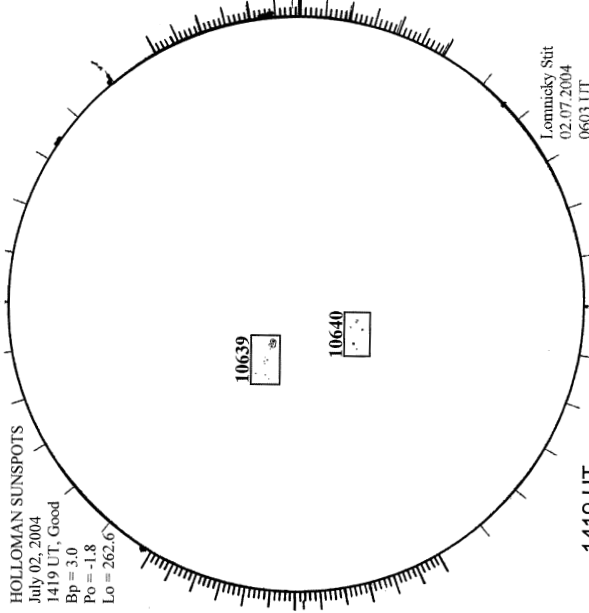
White= +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



1718 UT

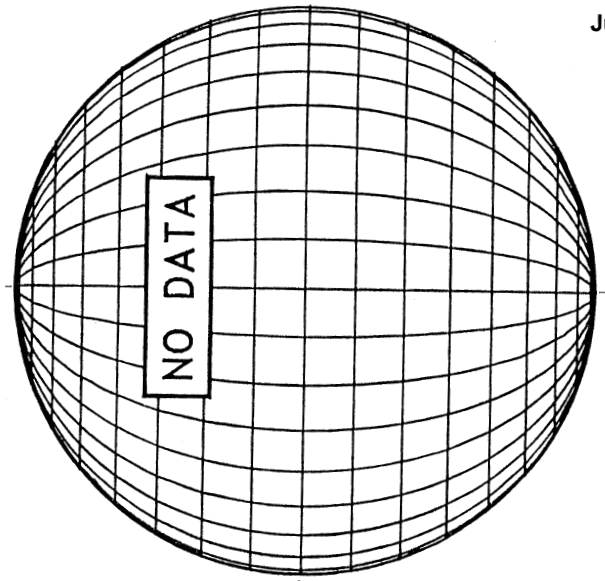
HOLLOMAN SUNSPOTS



1419 UT

0603 UT LOMN Prom S

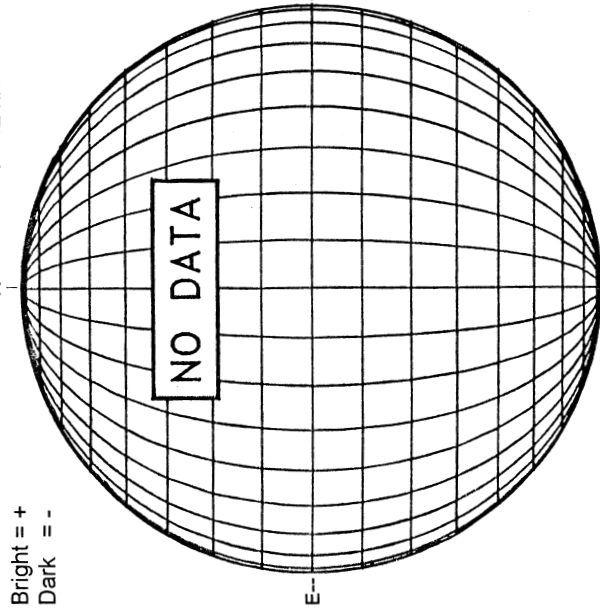
SACRAMENTO PEAK CORONA (1.15 Radii)----



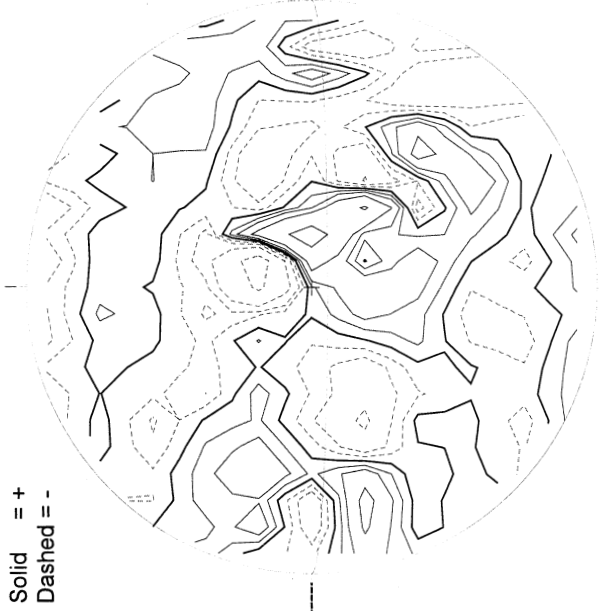
S

JULY 3, 2004 (P= -1.64, Bo = 3.13, Lo = 256.15)

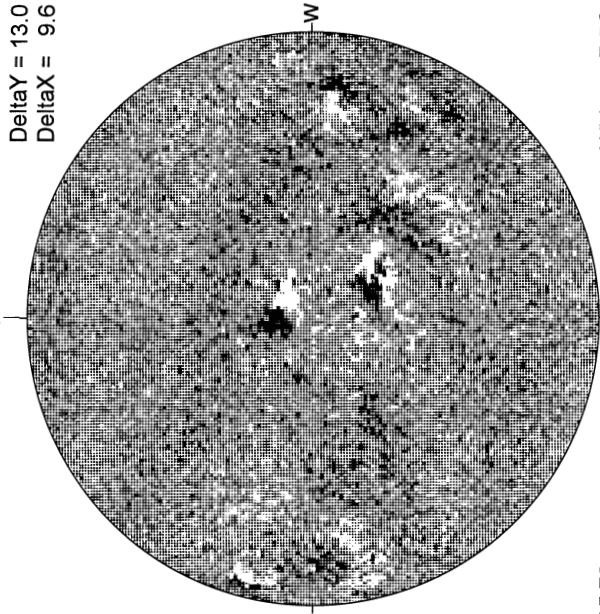
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



STANFORD MAGNETOGRAM

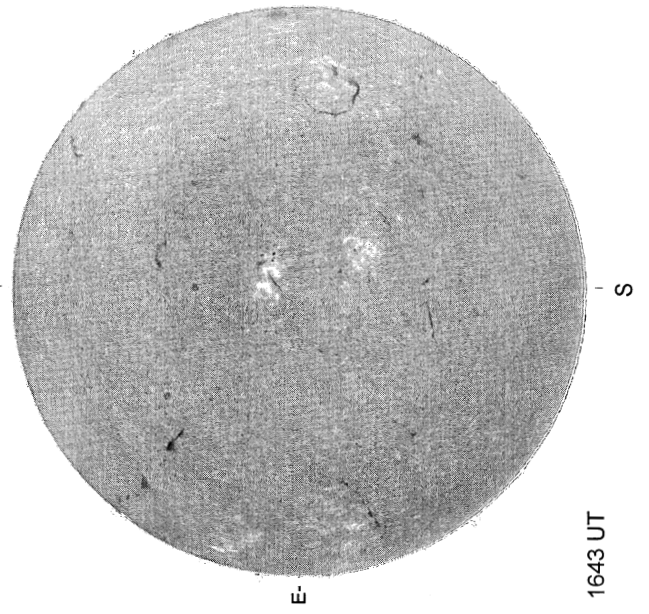


MT. WILSON MAGNETOGRAM

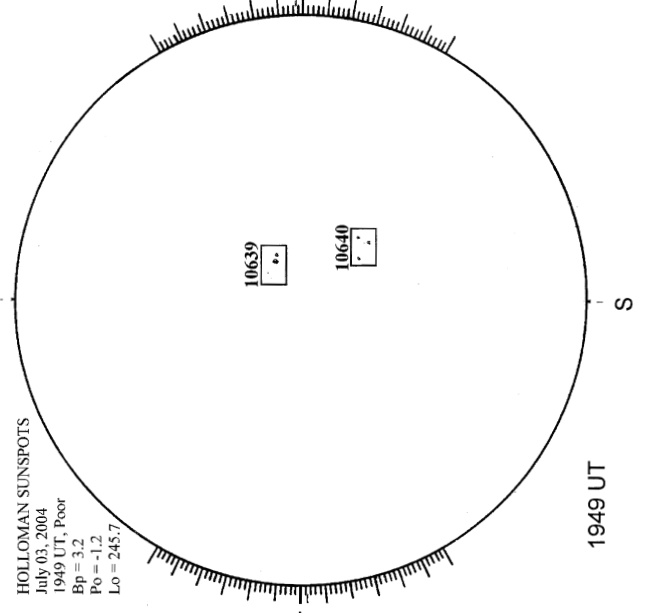


15.72 -
16.64 UT

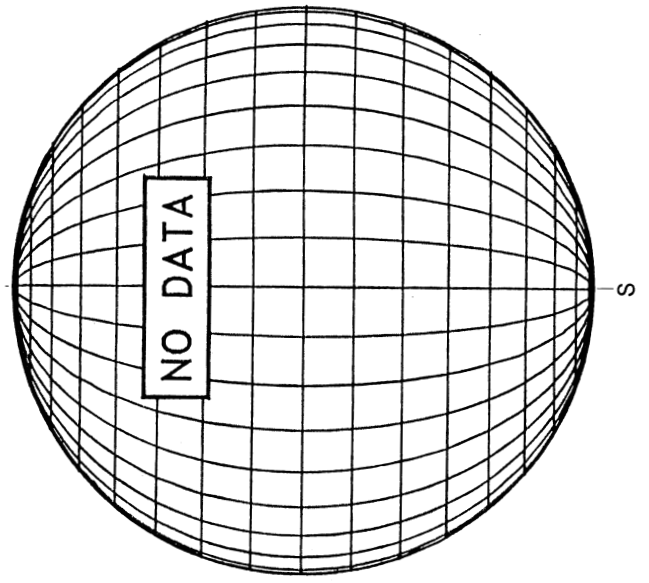
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS

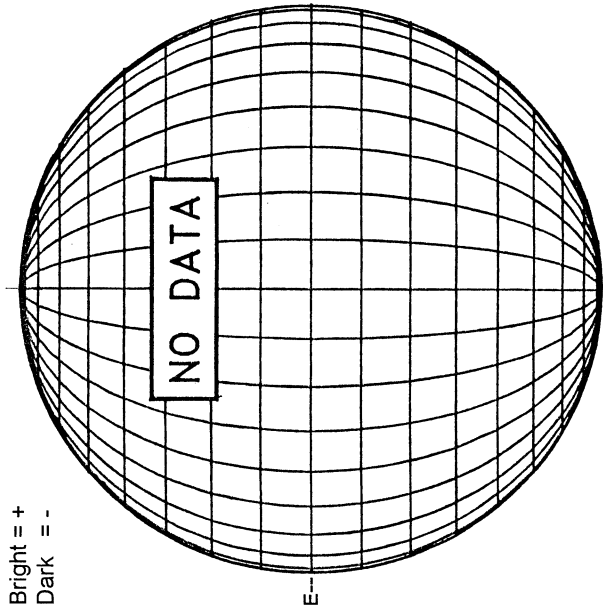


SACRAMENTO PEAK CORONA (1.15 Radii)---



JULY 4, 2004 (P= -1.19, Bo = 3.23, Lo = 242.91)

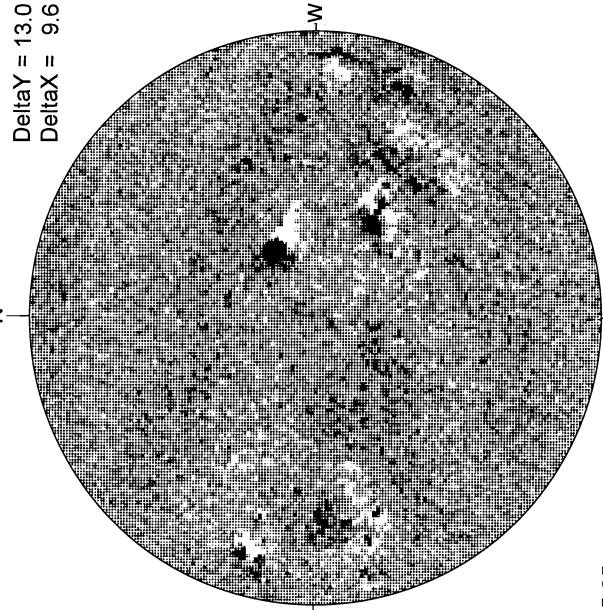
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



STANFORD MAGNETOGRAM

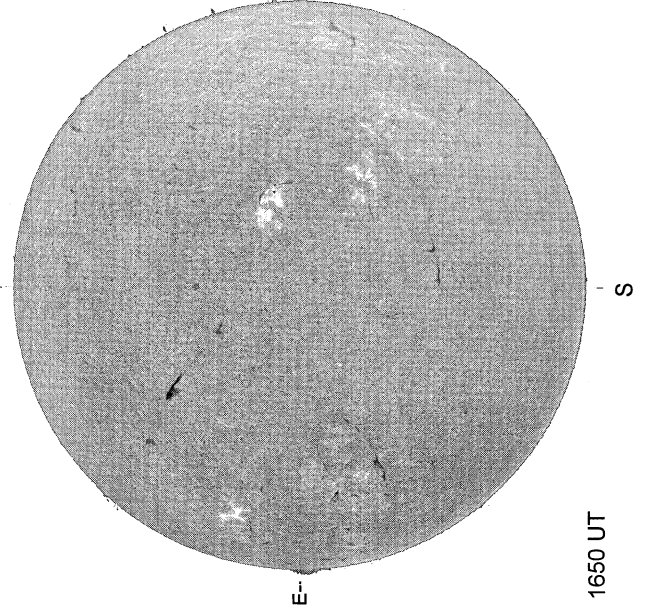


MT. WILSON MAGNETOGRAM



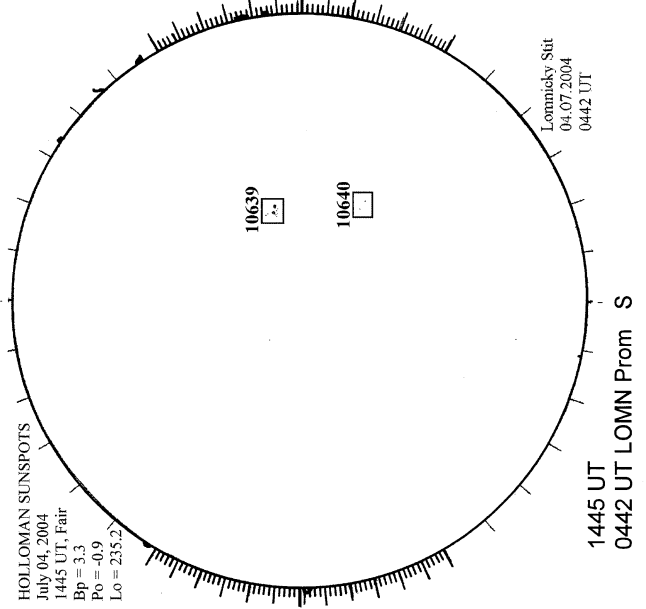
15.65 -
16.57 UT

BIG BEAR H-ALPHA

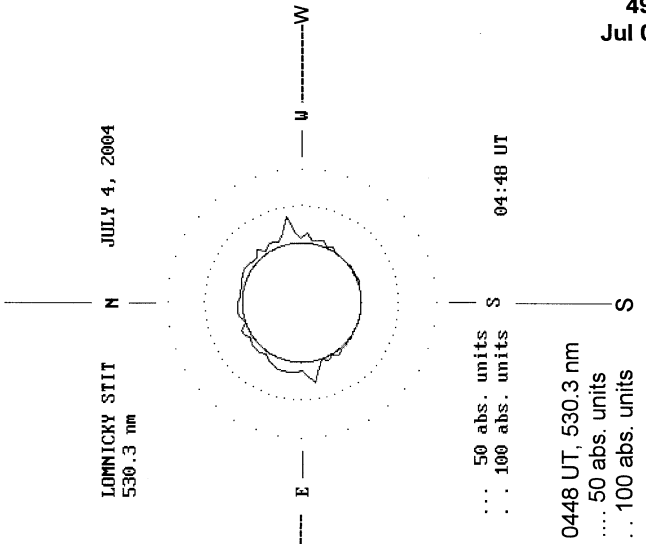


1650 UT

HOLLOMAN SUNSPOTS



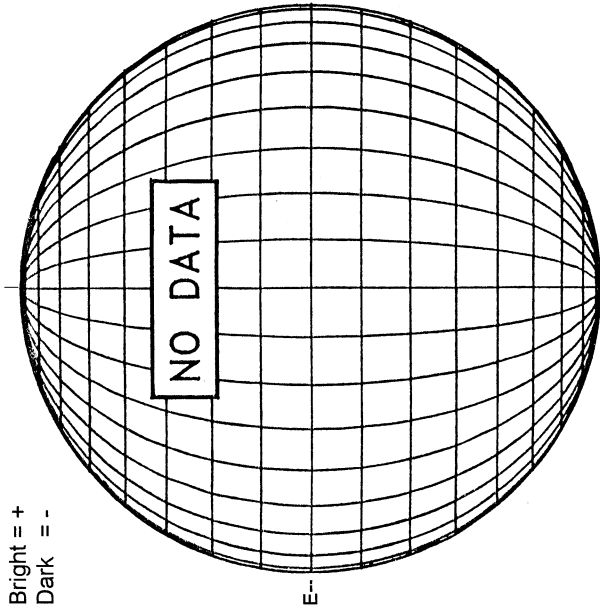
LOMNICKY PEAK CORONA (1.04 Radii)----



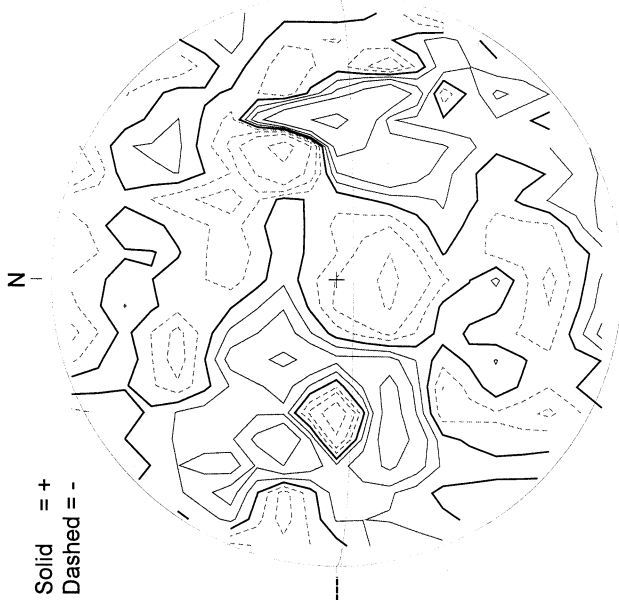
JULY 5, 2004 (P= -0.74, Bo = 3.34, Lo = 229.68)

50
JUL 04

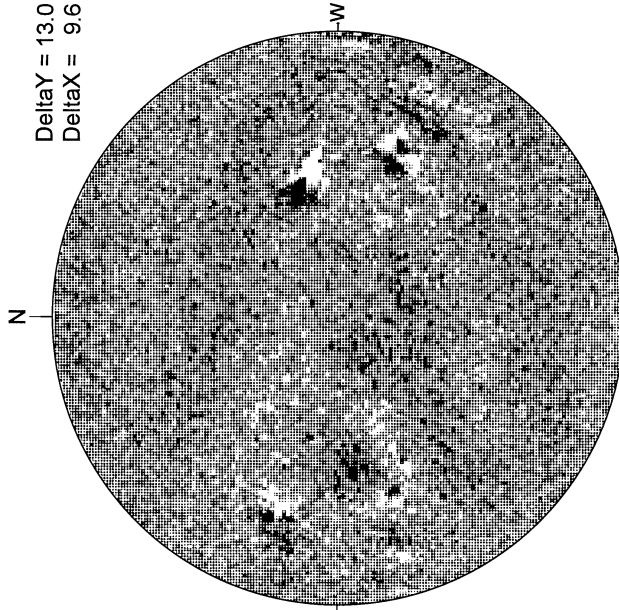
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



STANFORD MAGNETOGRAM



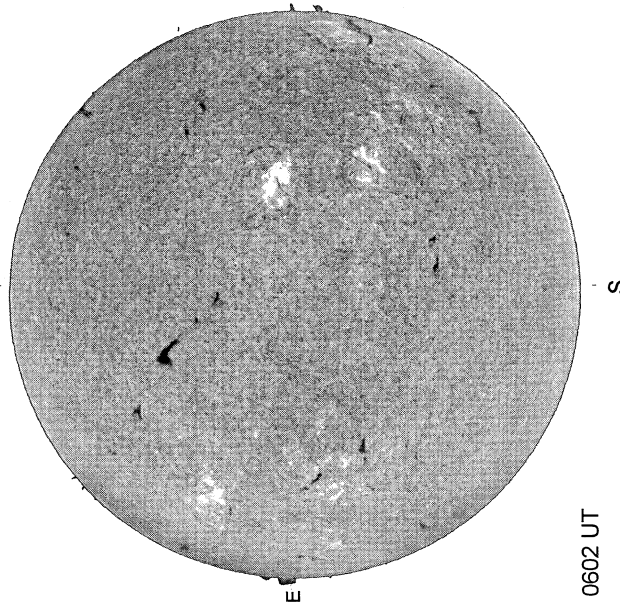
MT. WILSON MAGNETOGRAM



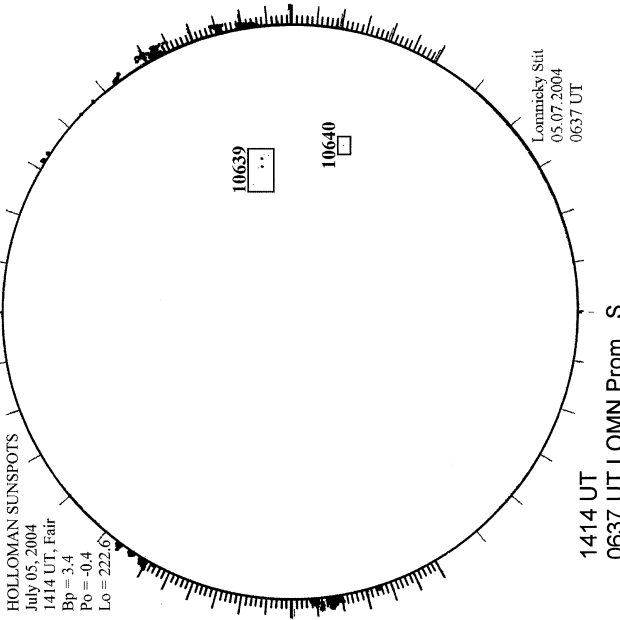
15.71 -
16.63 UT

1722 UT

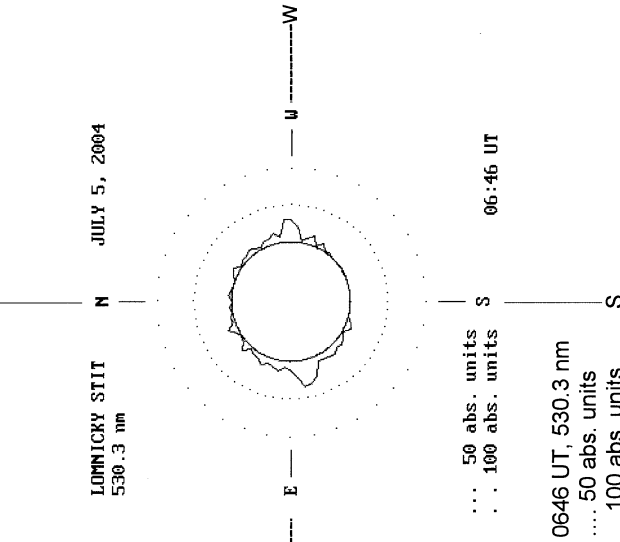
KANZELHOHE H-ALPHA



HOLLOMAN SUNSPOTS

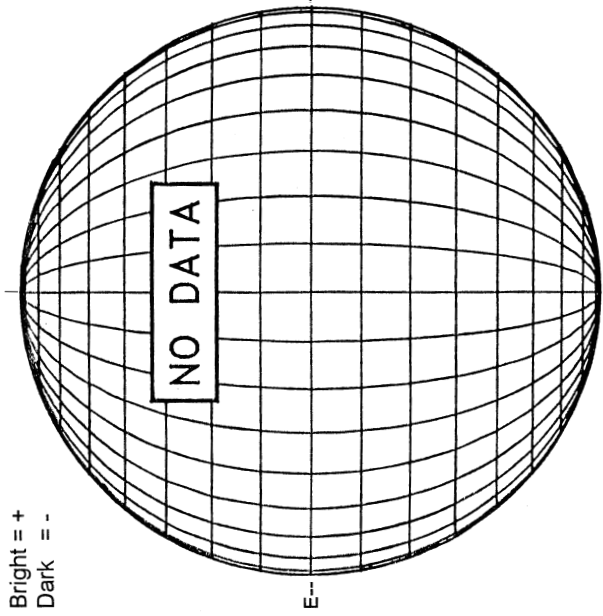


LOMNICKY PEAK CORONA (1.04 Radii)---

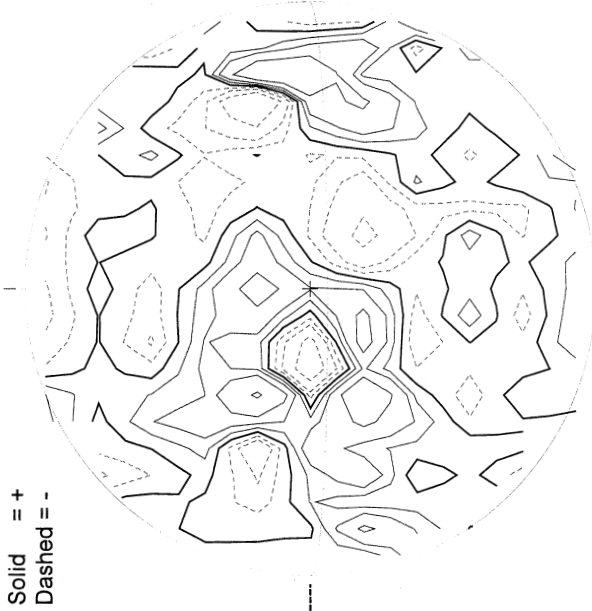


JULY 6, 2004 (P= -0.28, Bo = 3.45, Lo = 216.44)

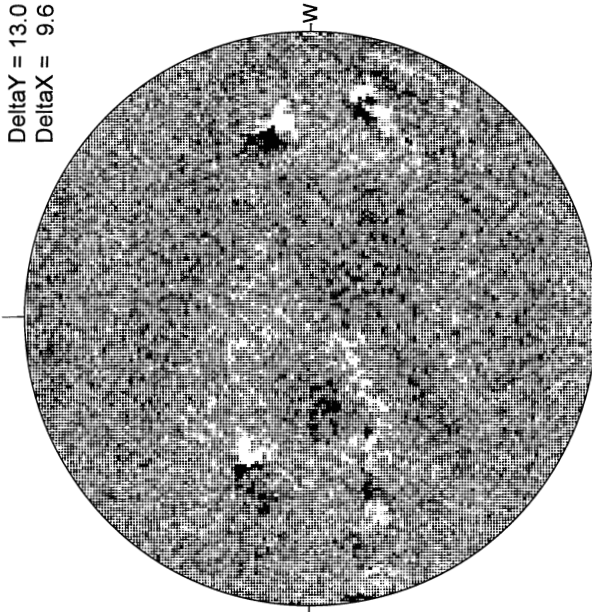
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



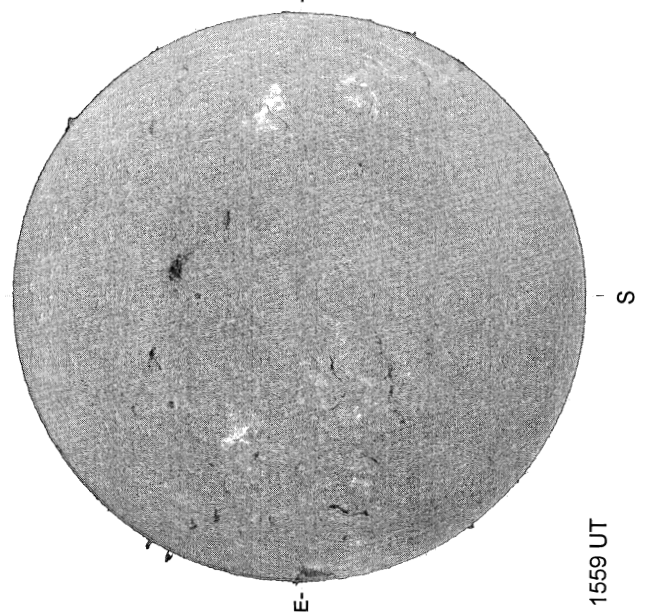
STANFORD MAGNETOGRAM



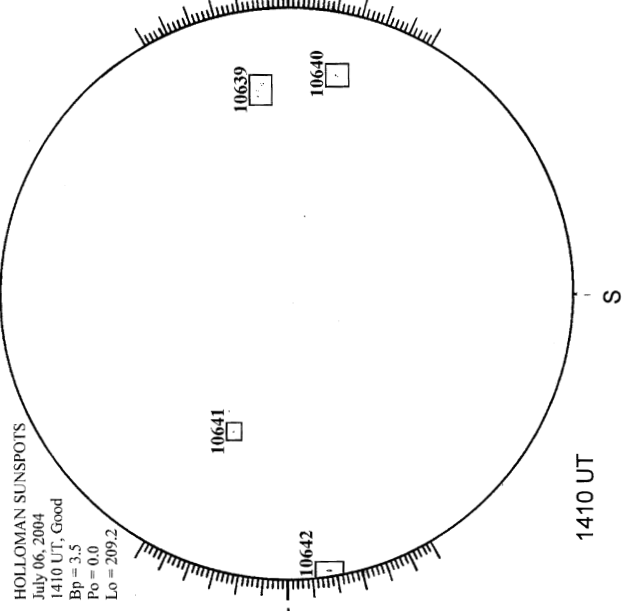
MT. WILSON MAGNETOGRAM



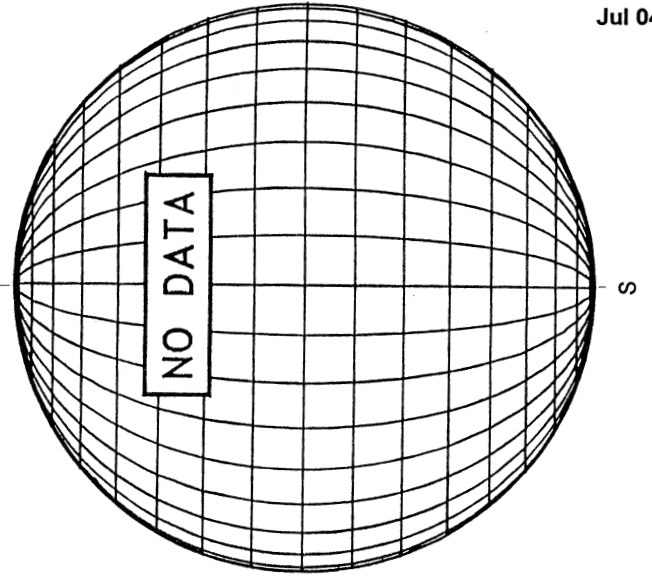
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)---



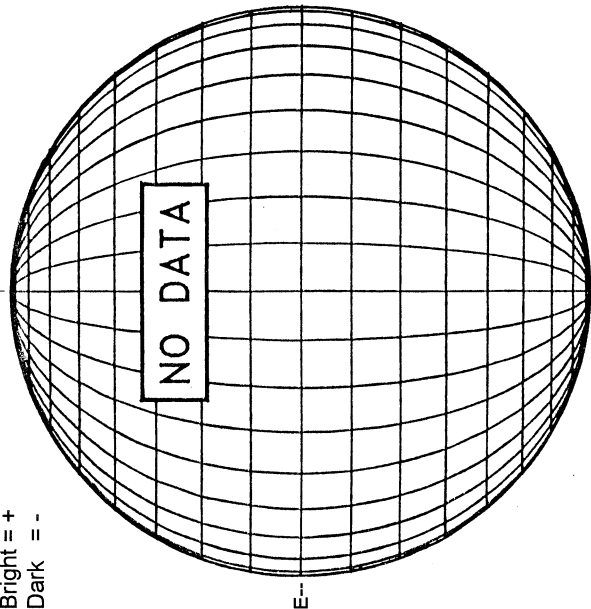
JULY 7, 2004 (P= 0.17, Bo = 3.55, Lo = 203.21)

52
Jul 04

KITT PEAK MAGNETOGRAM--SOLIS

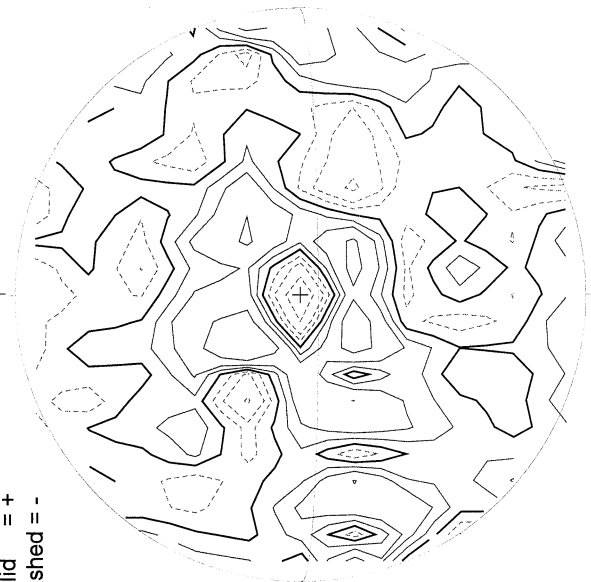
854.2 nm

Bright = +
Dark = -



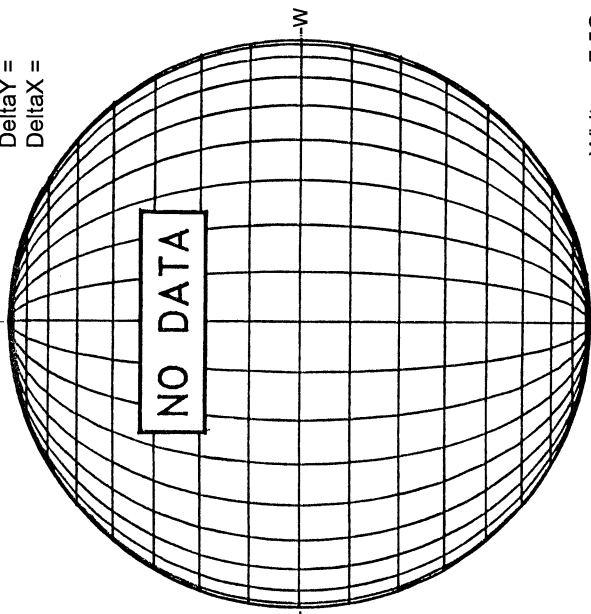
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



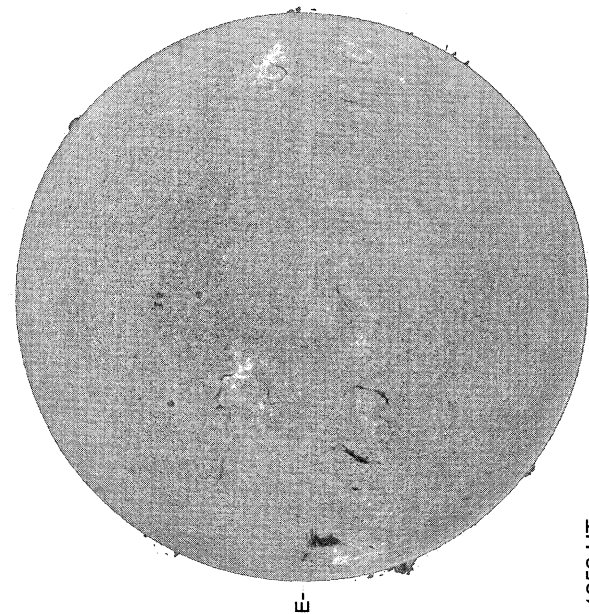
MT. WILSON MAGNETOGRAM

Delta Y =
Delta X =



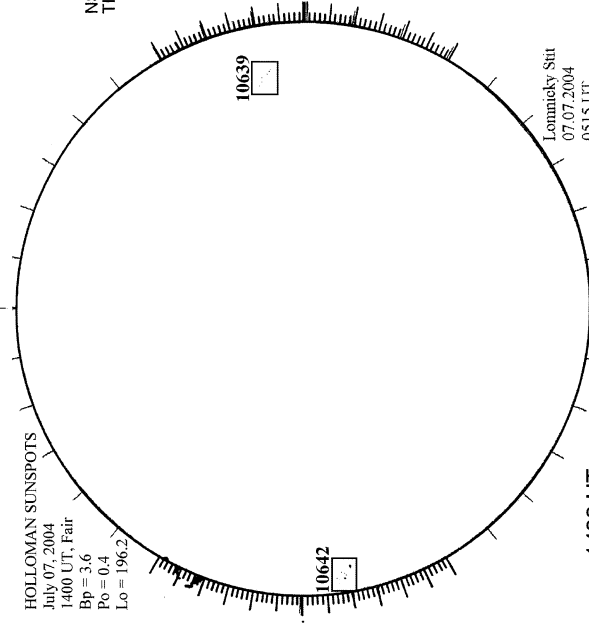
White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



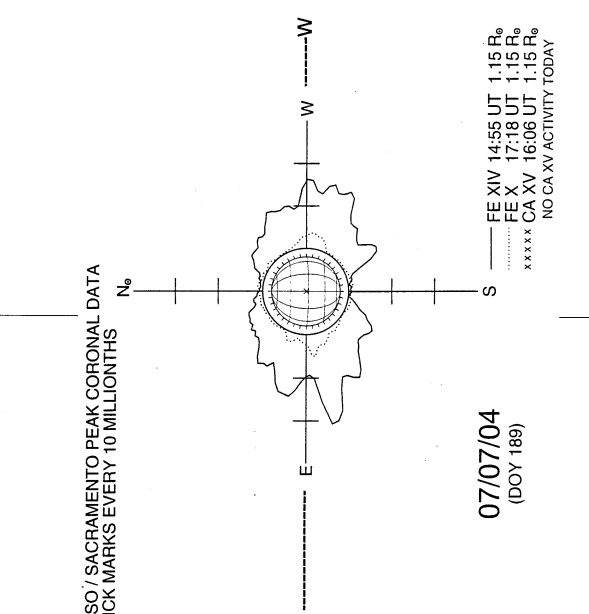
1852 UT

HOLLOMAN SUNSPOTS



1400 UT
0515 UT LOMN Prom. S

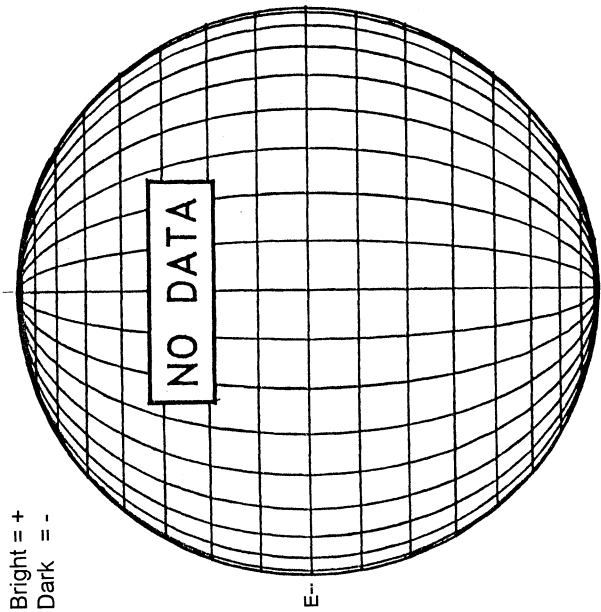
SACRAMENTO PEAK CORONA (1.15 Radii)----



07/07/04
(DOY 189)

JULY 8, 2004 (P= 0.62, Bo = 3.66, Lo = 189.97)

KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

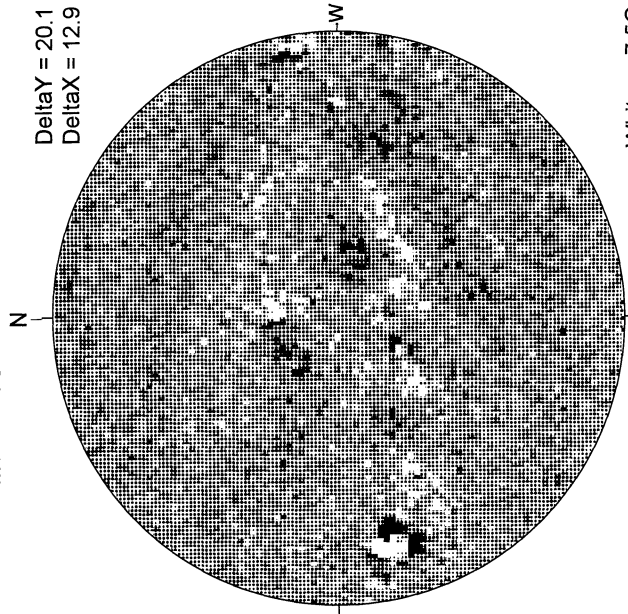


STANFORD MAGNETOGRAM



2039 UT

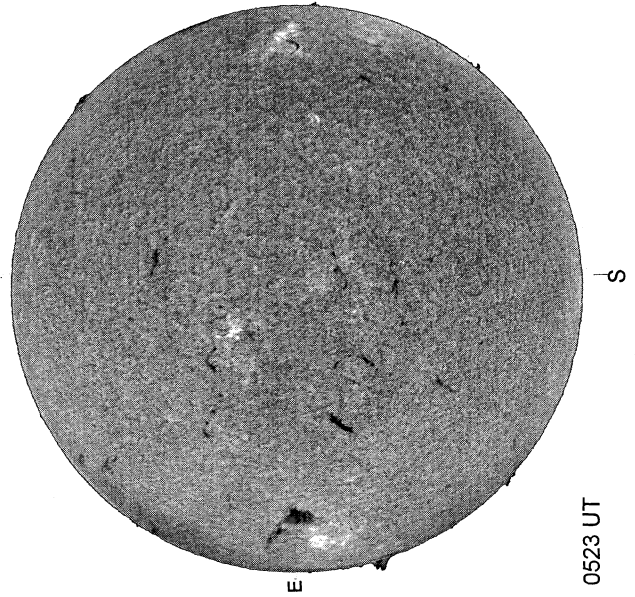
MT. WILSON MAGNETOGRAM



24.02 -
24.43 UT

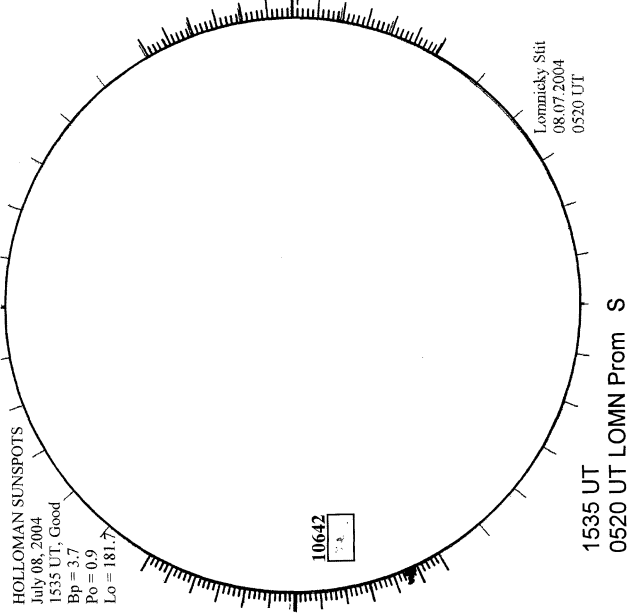
White = +7.5G
Black = -7.5G

KANZELHOHE H-ALPHA

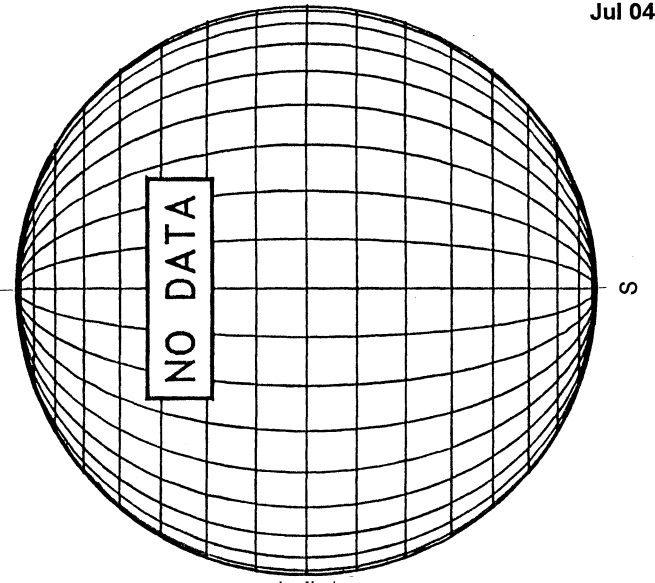


0523 UT

HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----



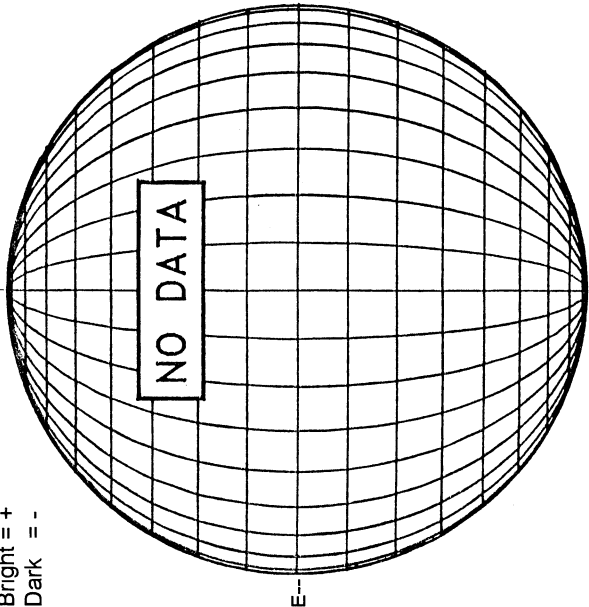
JULY 9, 2004 (P= 1.07, Bo = 3.76, Lo = 176.74)

54
Jul 04

KITT PEAK MAGNETOGRAM--SOLIS

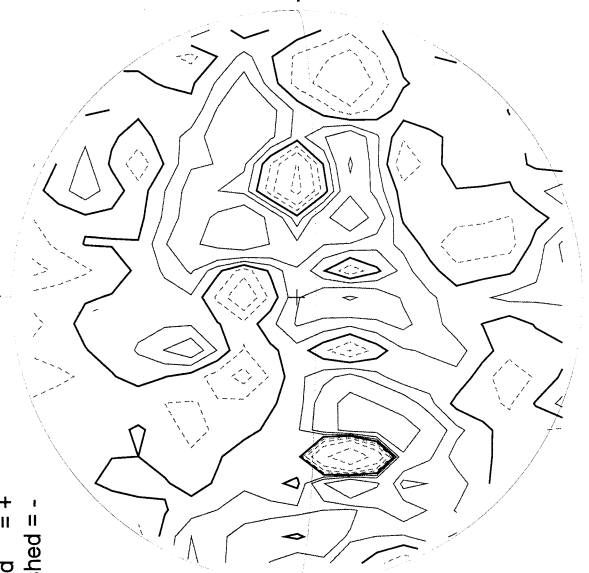
**854.2 nm

Bright = +
Dark = -



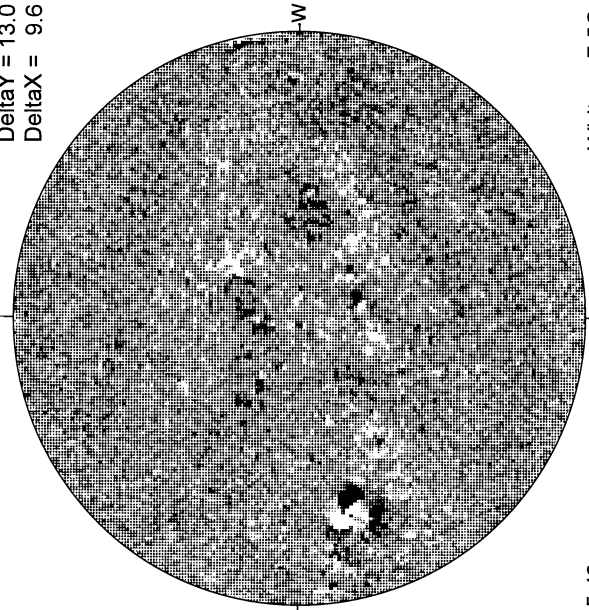
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

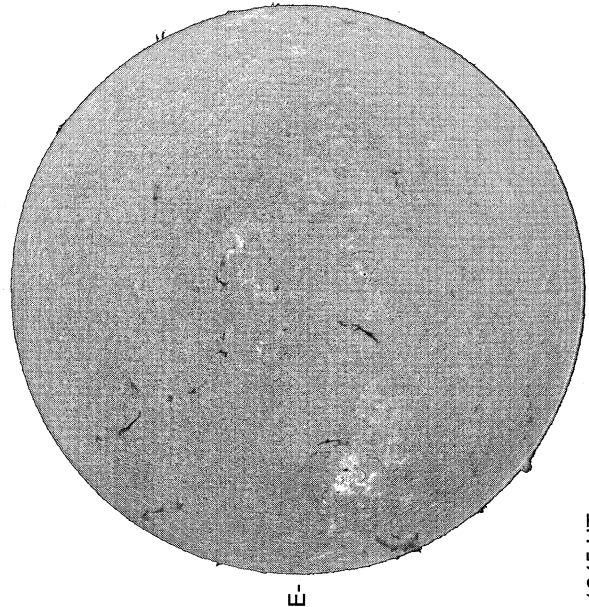
DeltaY = 13.0
DeltaX = 9.6



15.46 -
16.38 UT

White = +7.5G
Black = -7.5G

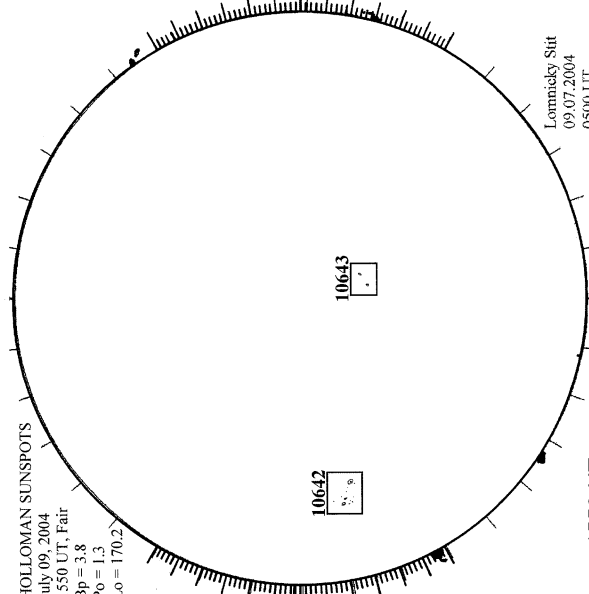
BIG BEAR H-ALPHA



1645 UT

HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
July 09, 2004
1550 UT, Fair
Bp = 3.8
Po = 1.3
Lo = 170.2

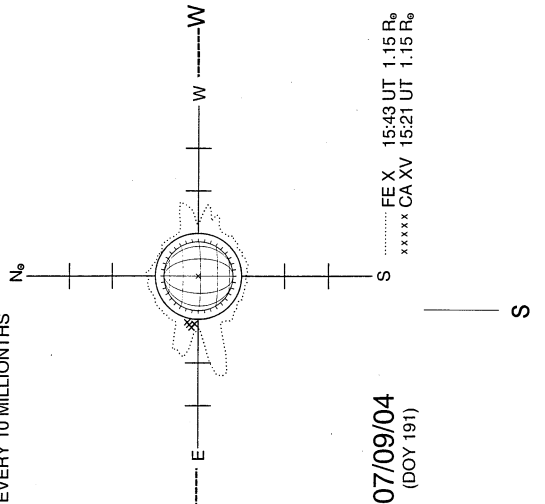


1550 UT
0500 UT LOMN Prom S

Lomnický Slit
09.07.2004
0500 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



07/09/04
(DOY 191)

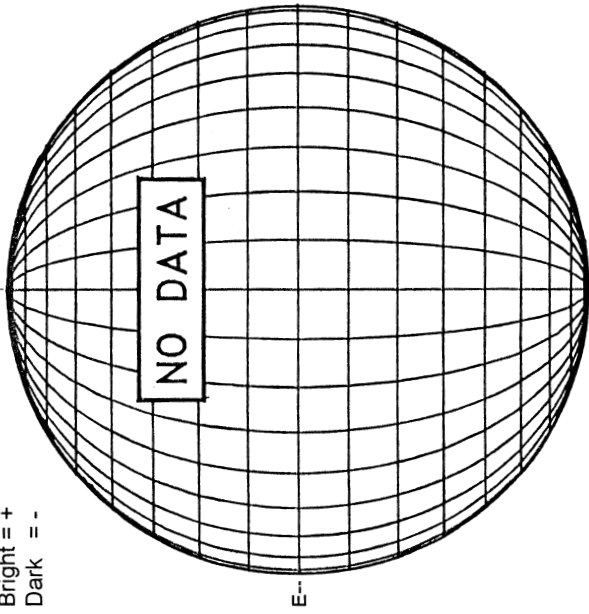
..... FE X 15:43 UT 1.15 R_o
xxxxx CA XV 15:21 UT 1.15 R_o

JULY 10, 2004 (P= 1.52, Bo = 3.86 Lo = 163.50)

KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

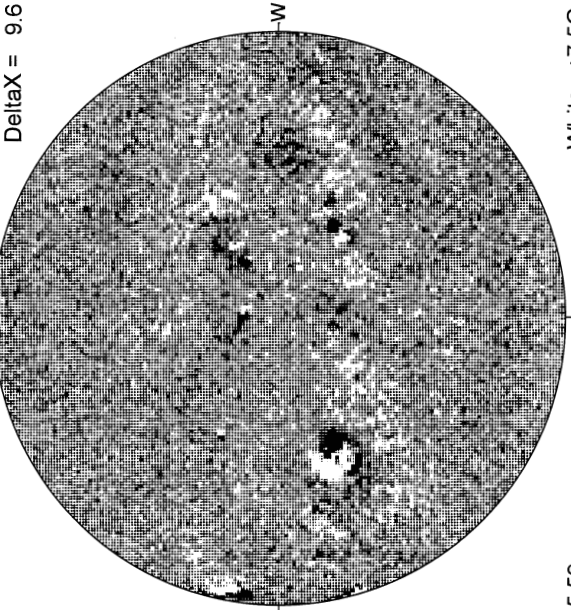
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

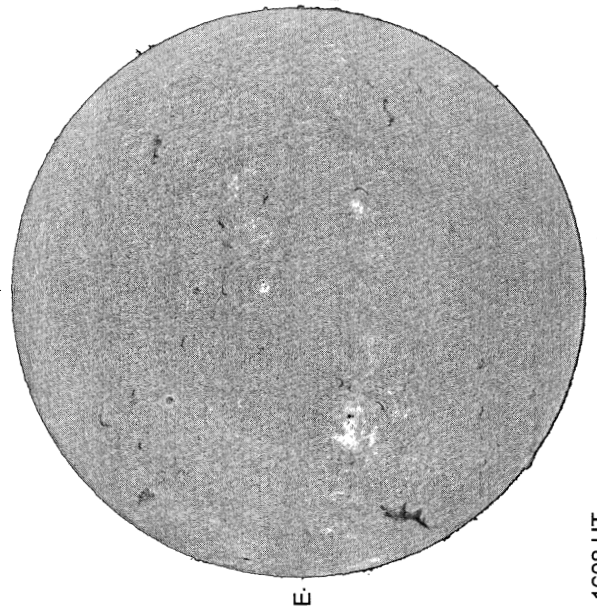
Delta Y = 13.0
Delta X = 9.6



15.59 -
16.51 UT

White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA



1608 UT

HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS

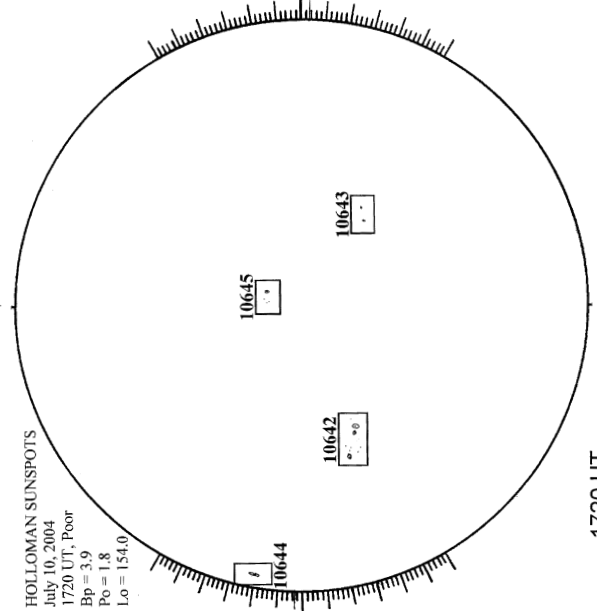
July 10, 2004

1720 UT, Poor

Bp = 3.9

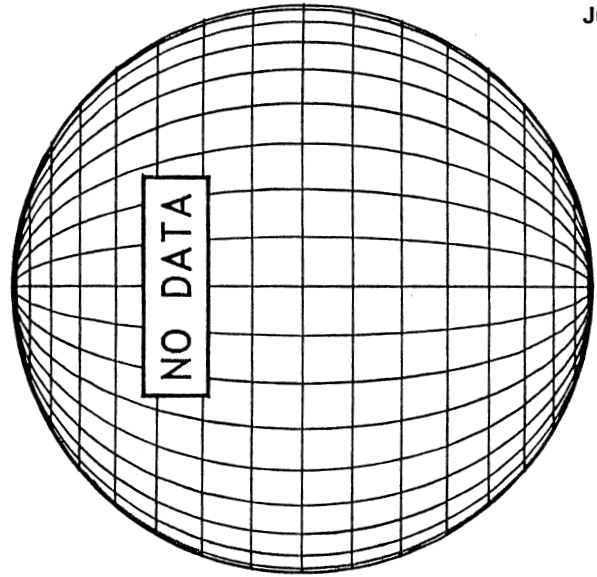
Po = 1.8

Lo = 154.0



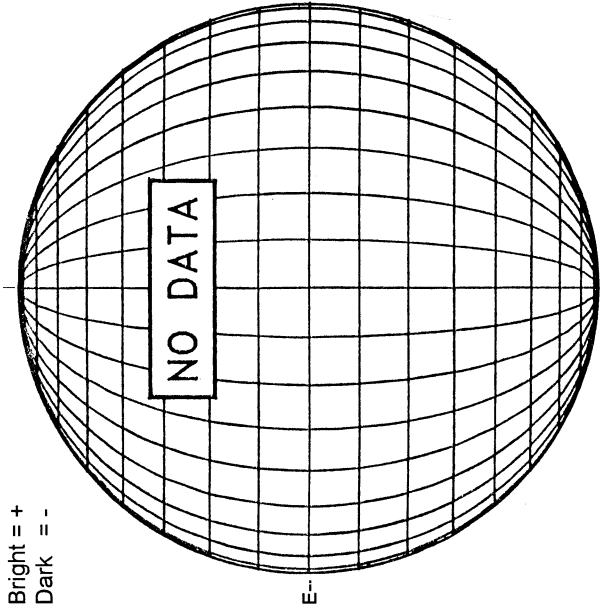
1720 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

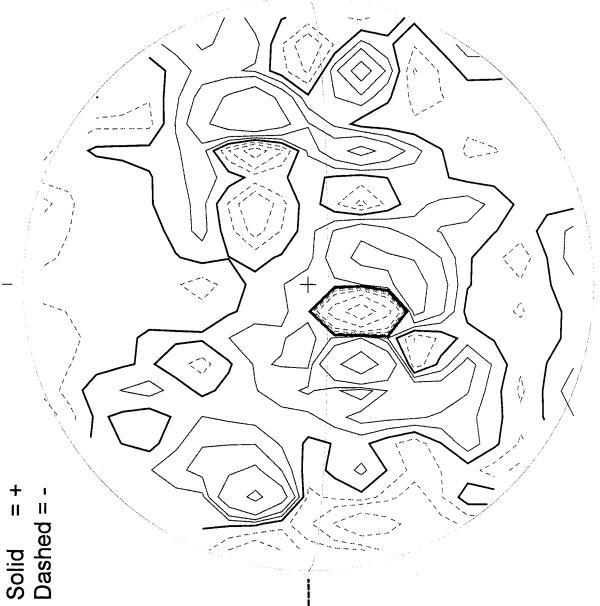


JULY 11, 2004 (P= 1.97, Bo = 3.97, Lo = 150.27)

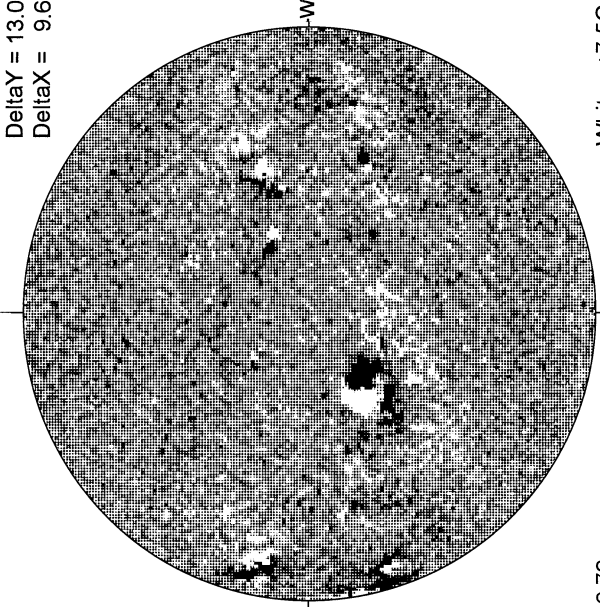
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



STANFORD MAGNETOGRAM



MT. WILSON MAGNETOGRAM

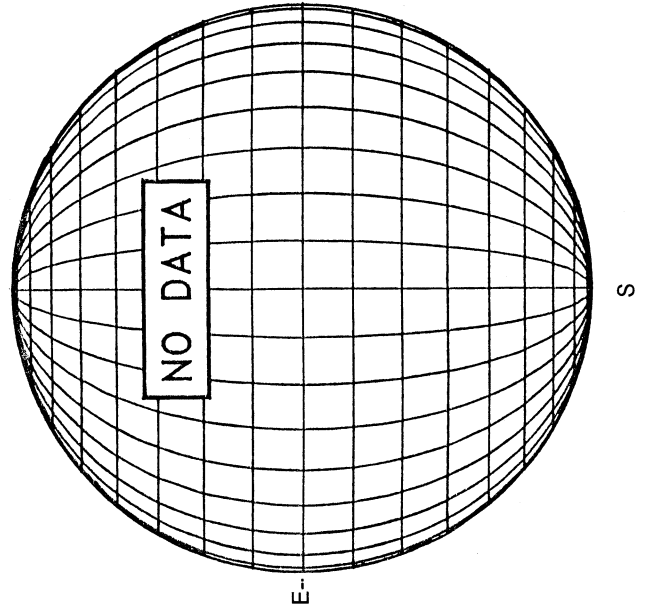


56
Jul 04

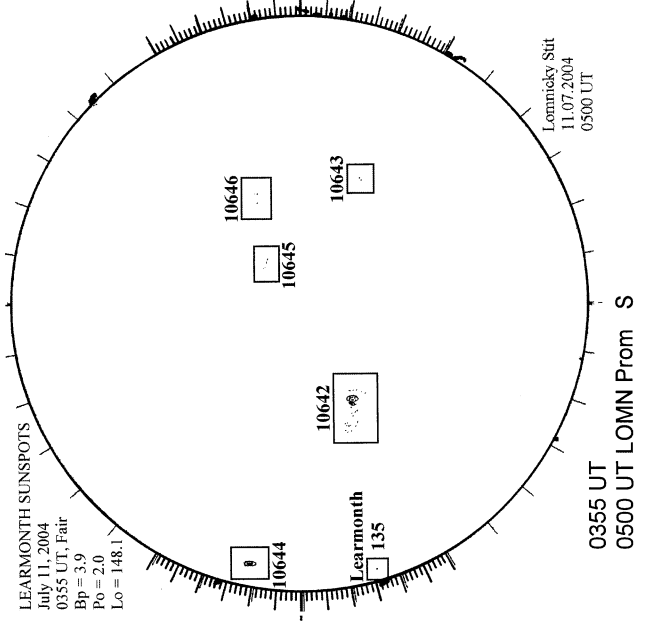
White = +7.5G
Black = -7.5G

16.72 -
17.65 UT

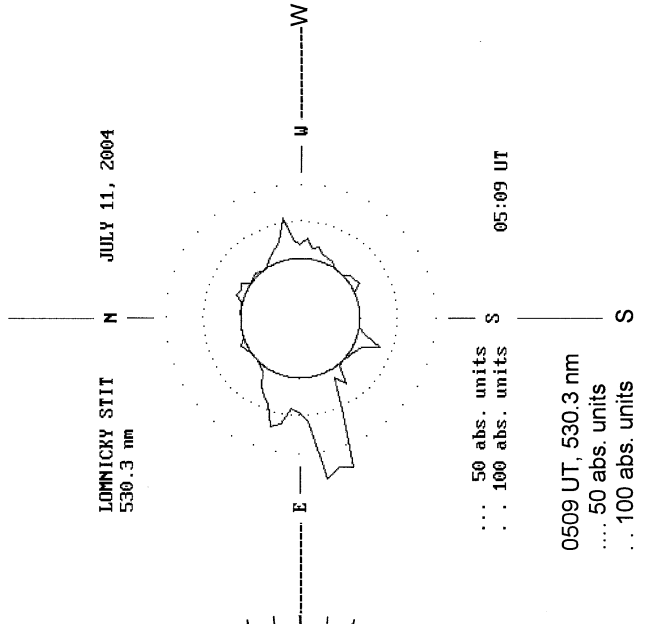
BIG BEAR H-ALPHA



LEARNMOUTH SUNSPOTS

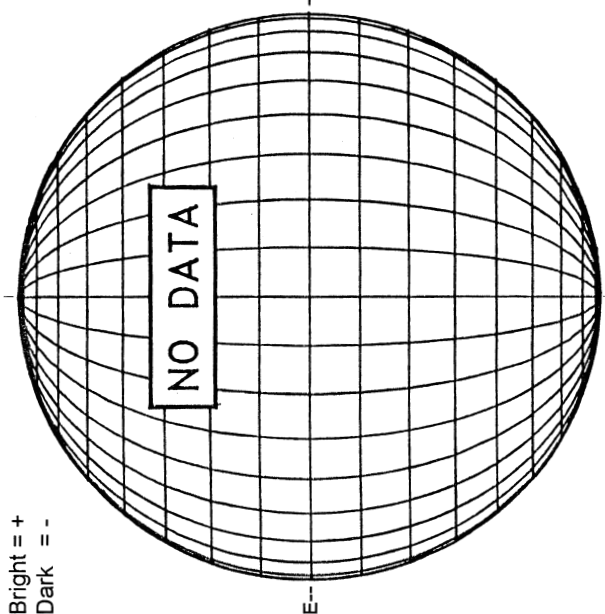


LOMNICKY PEAK CORONA (1.04 Radii)-----

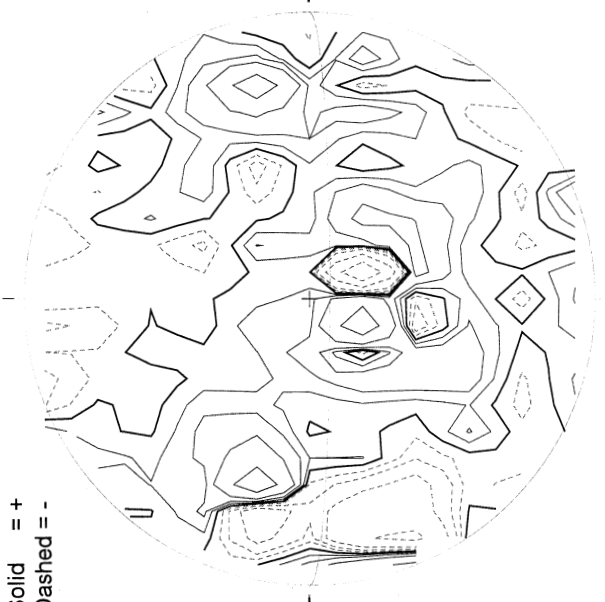


JULY 12, 2004 (P = 2.42, Bo = 4.07, Lo = 137.03)

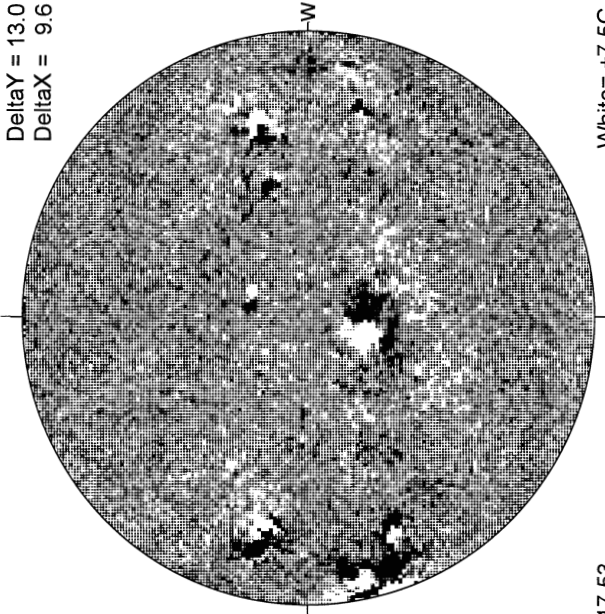
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



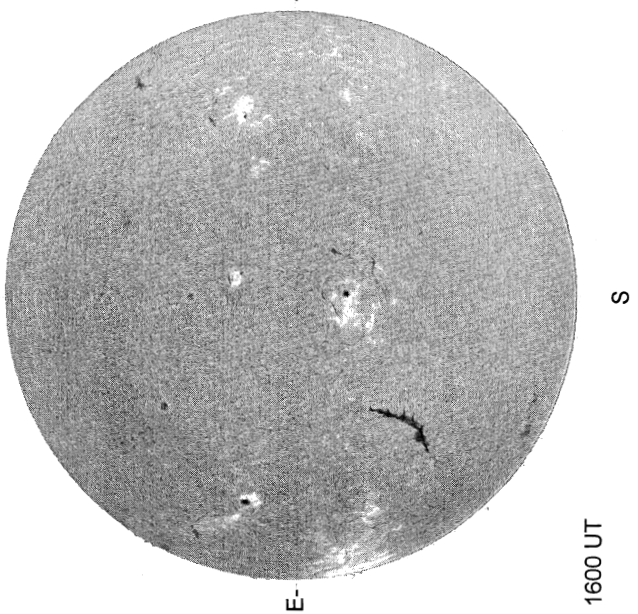
STANFORD MAGNETOGRAM



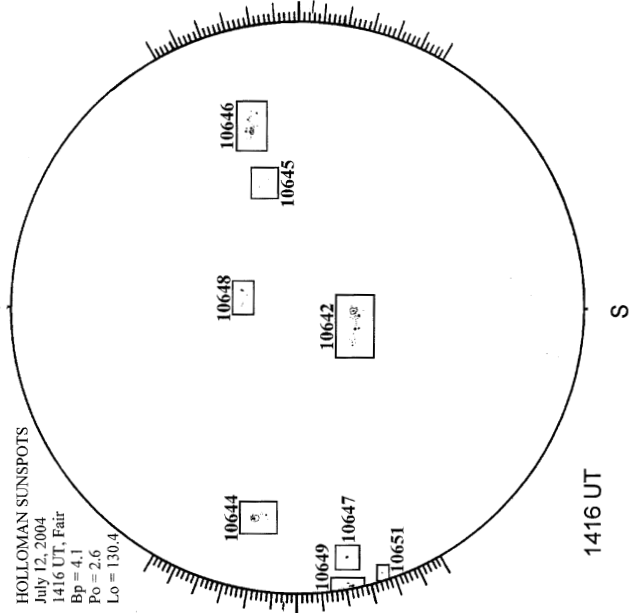
MT. WILSON MAGNETOGRAM



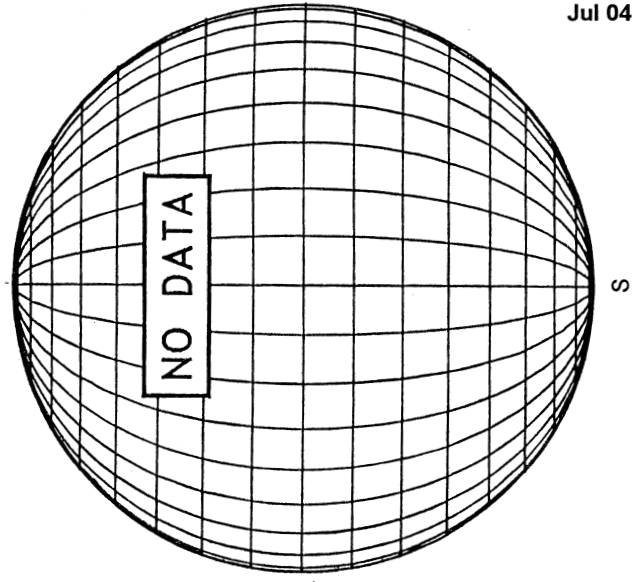
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



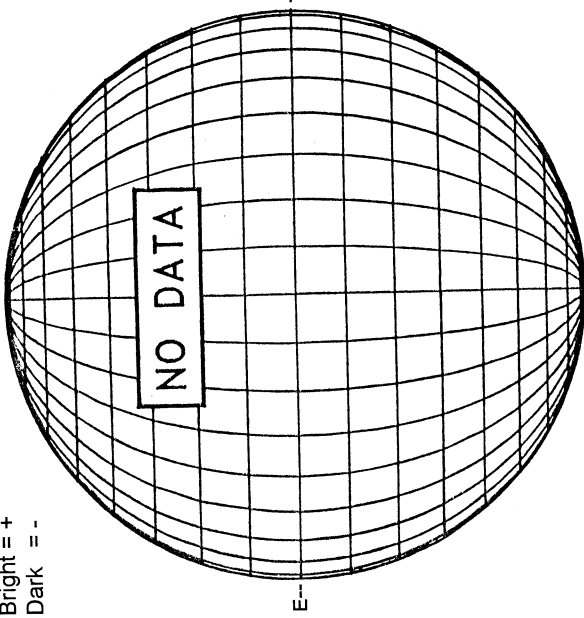
SACRAMENTO PEAK CORONA (1.15 Radii)----



JULY 13, 2004 (P= 2.87, Bo = 4.16, Lo = 123.80)

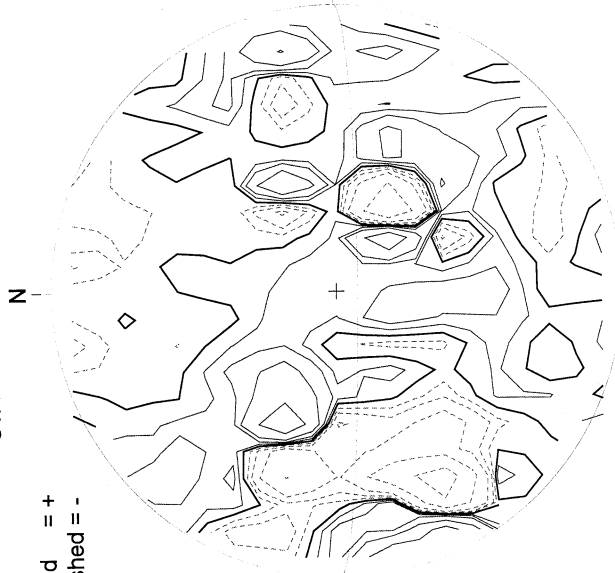
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

Bright = +
Dark = -



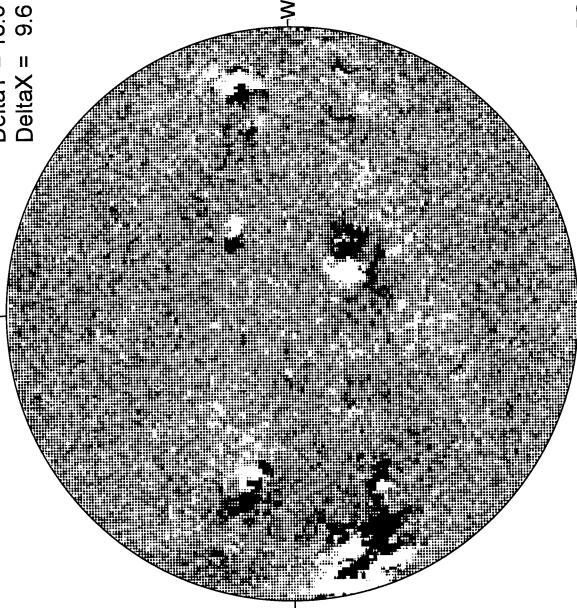
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

DeltaY = 13.0
DeltaX = 9.6

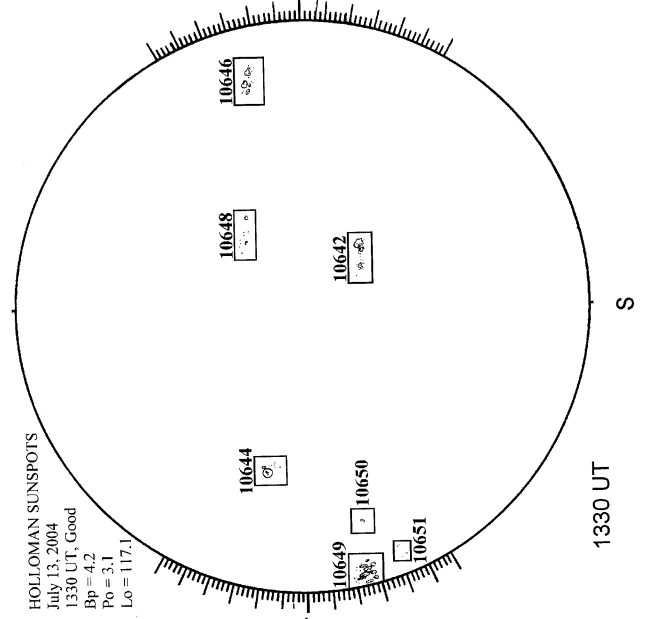


White = +7.5G
Black = -7.5G

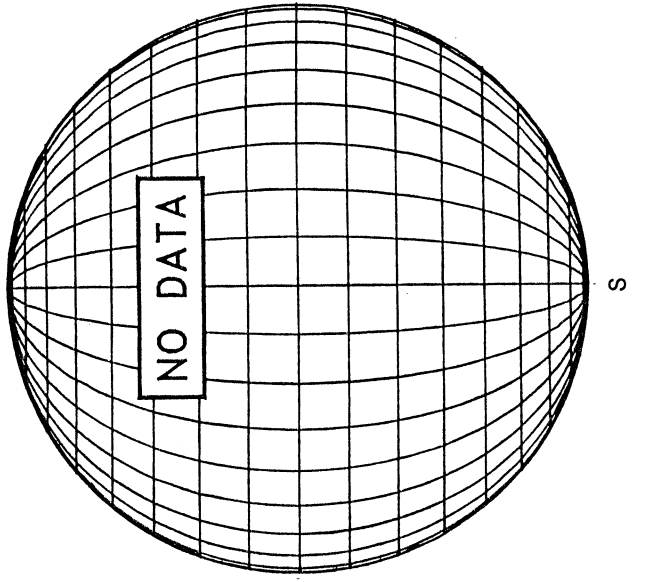
15.65 -
16.58 UT

HOLLOMAN SUNSPOTS

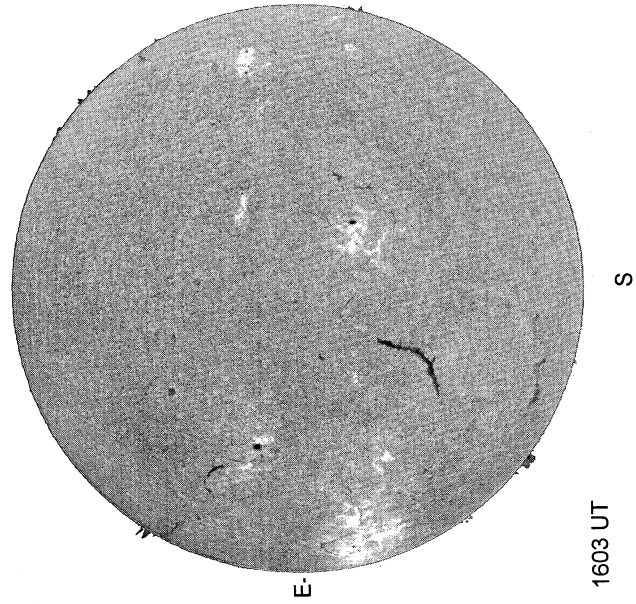
HOLLOMAN SUNSPOTS
July 13, 2004
1330 UT, Good
Bp = 4.2
Po = 3.1
Lo = 117.1



SACRAMENTO PEAK CORONA (1.15 Radii)----



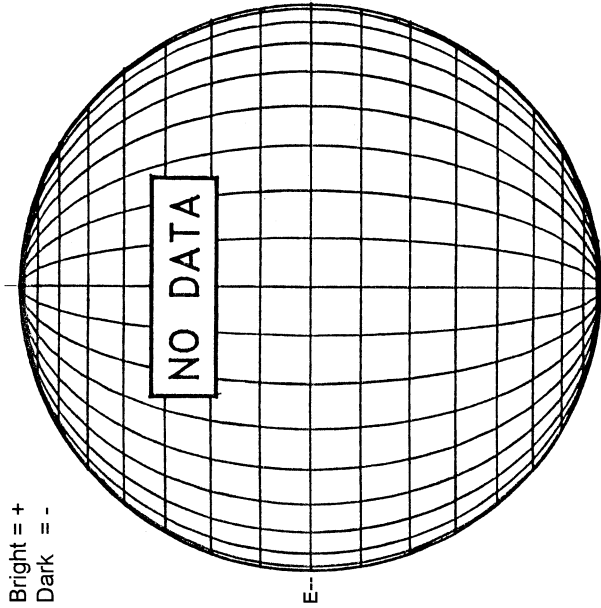
BIG BEAR H-ALPHA



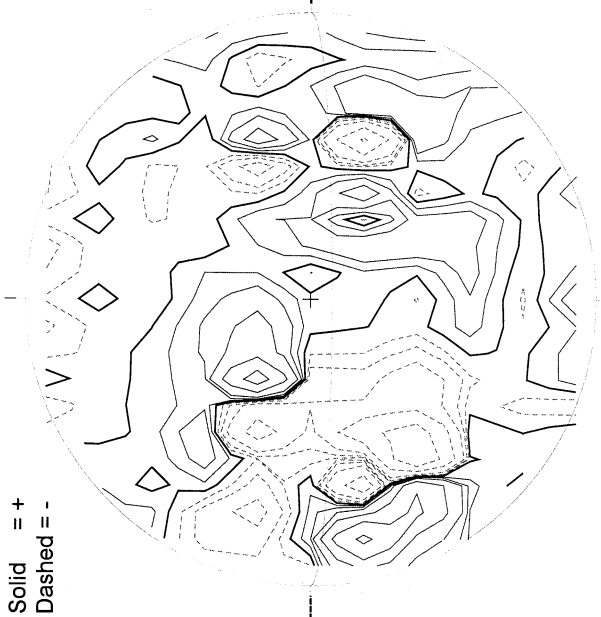
1603 UT

JULY 14, 2004 (P= 3.31, Bo = 4.26, Lo = 110.57)

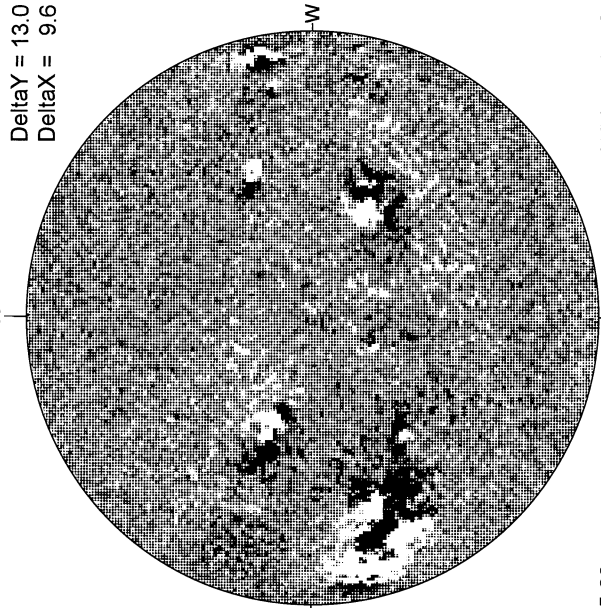
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



STANFORD MAGNETOGRAM

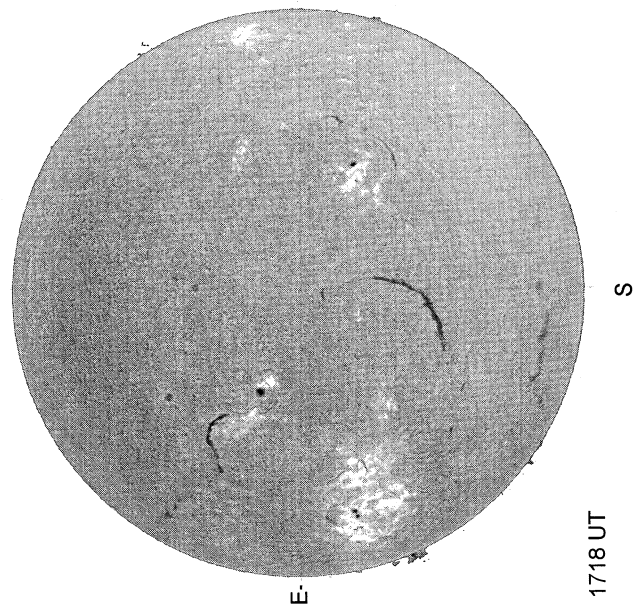


MT. WILSON MAGNETOGRAM

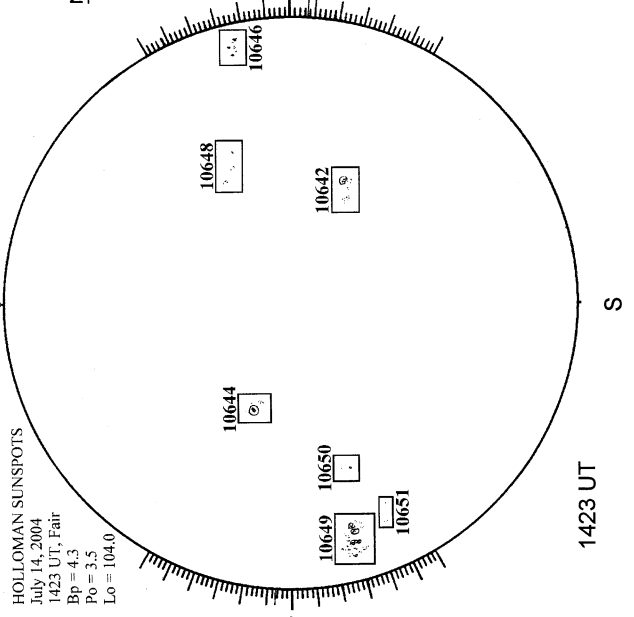


15.69 -
16.62 UT

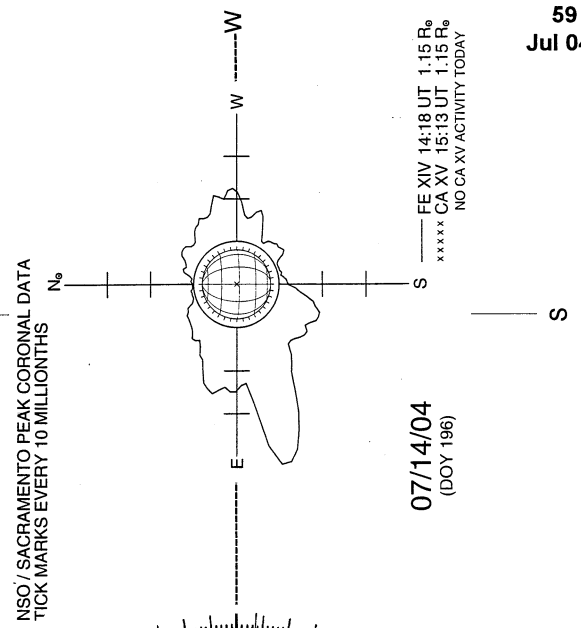
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)---



1718 UT

1423 UT

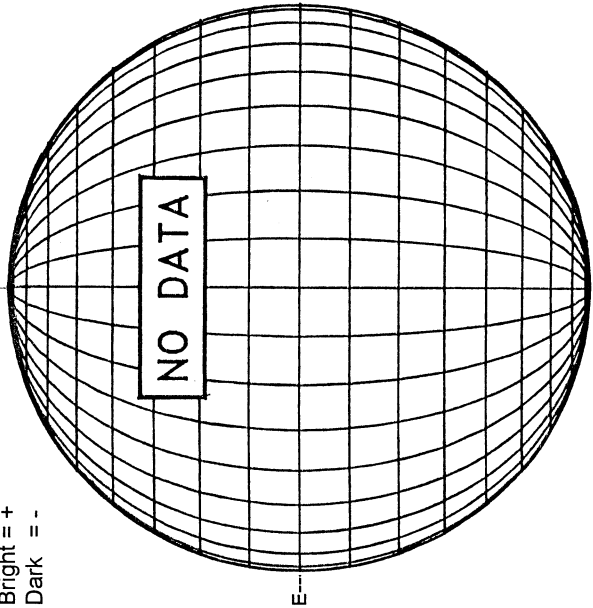
15.69 -
16.62 UT

JULY 15, 2004 (P= 3.76, Bo = 4.36, Lo = 97.34)

60
Jul 04

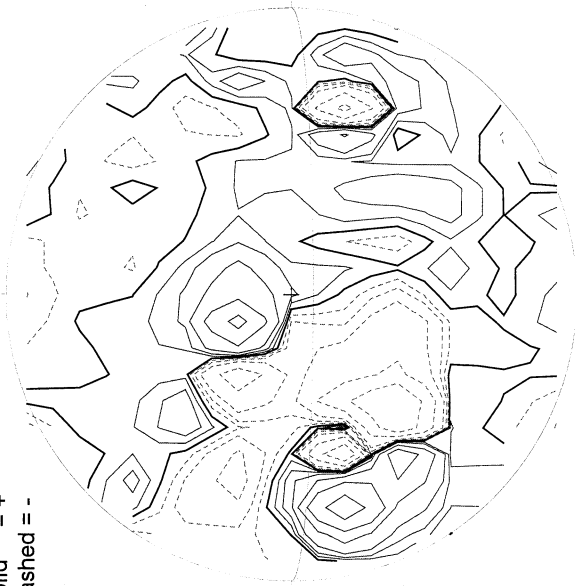
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

Bright = +
Dark = -



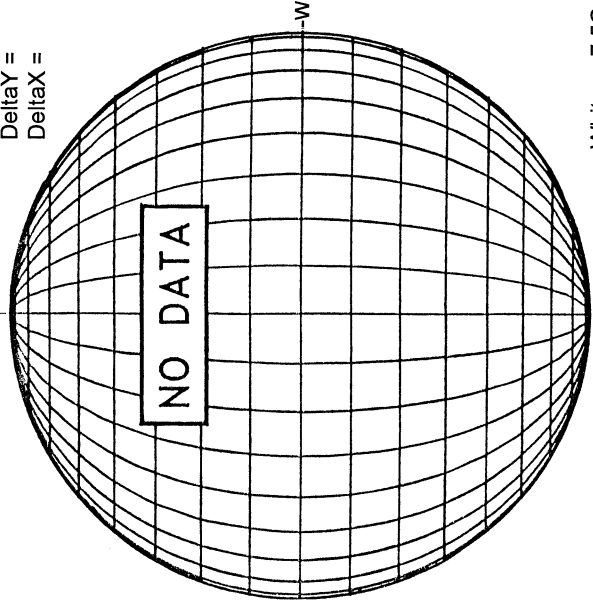
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



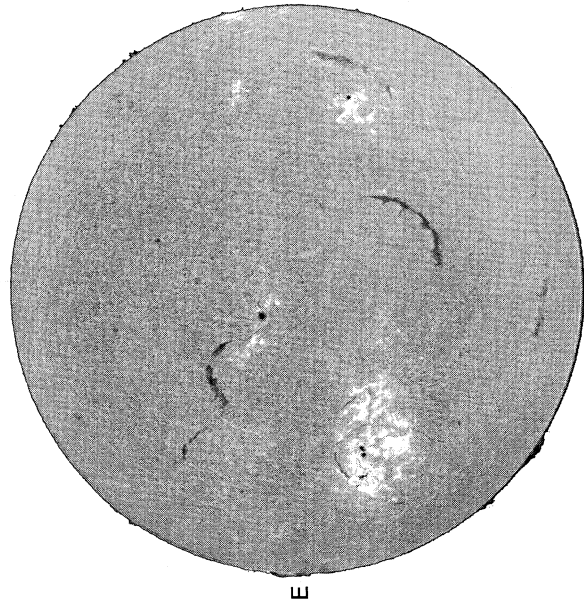
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



White= +7.5G
Black = -7.5G

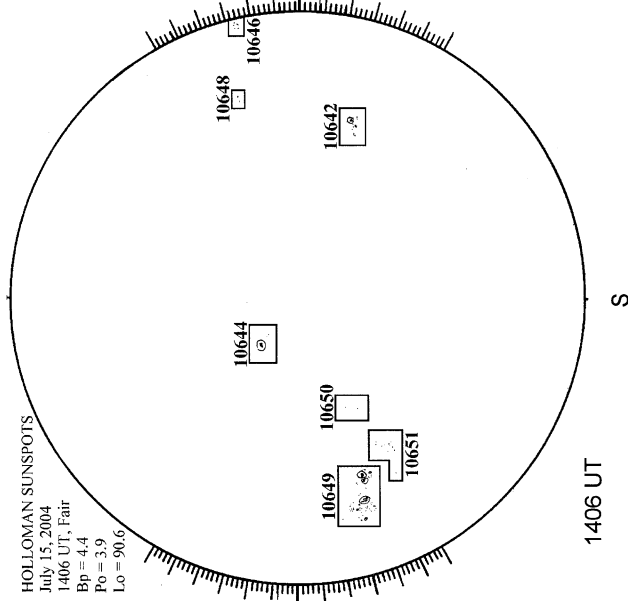
BIG BEAR H-ALPHA



2131 UT

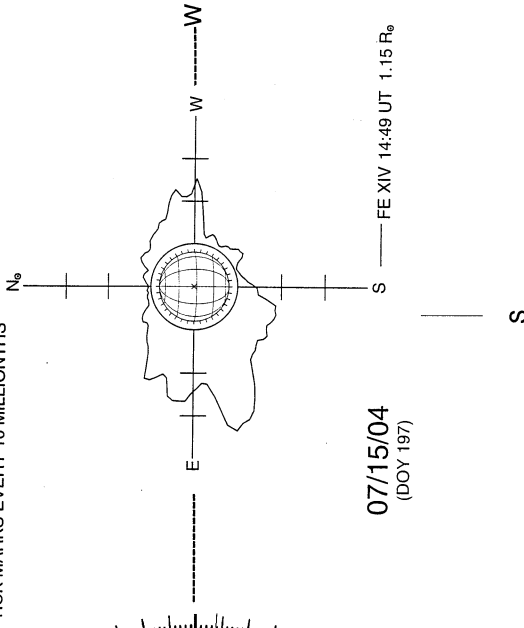
HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
July 15, 2004
1406 UT, Fair
Bp = 4.4
Po = 3.9
Lo = 90.6



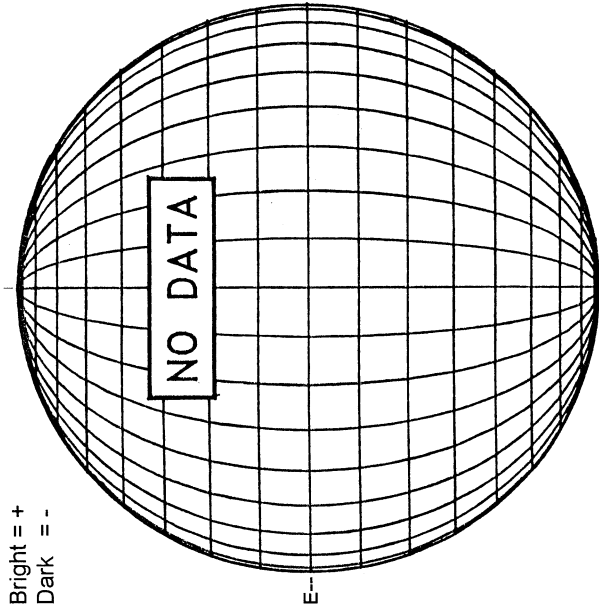
SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS

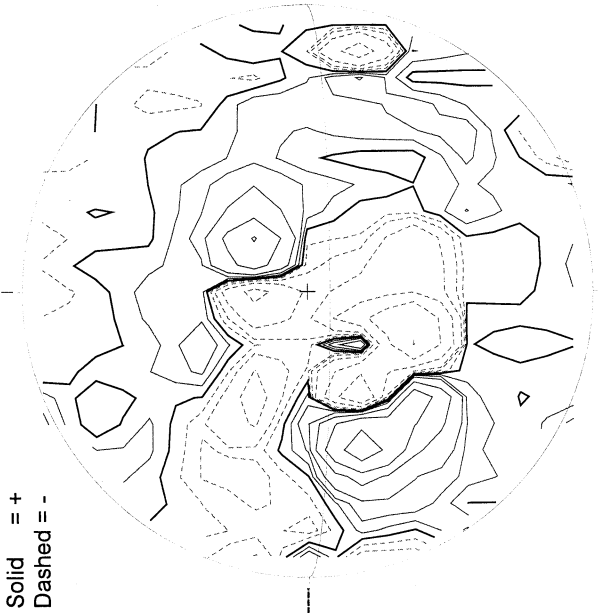


JULY 16, 2004 (P= 4.20, Bo = 4.46, Lo = 84.10)

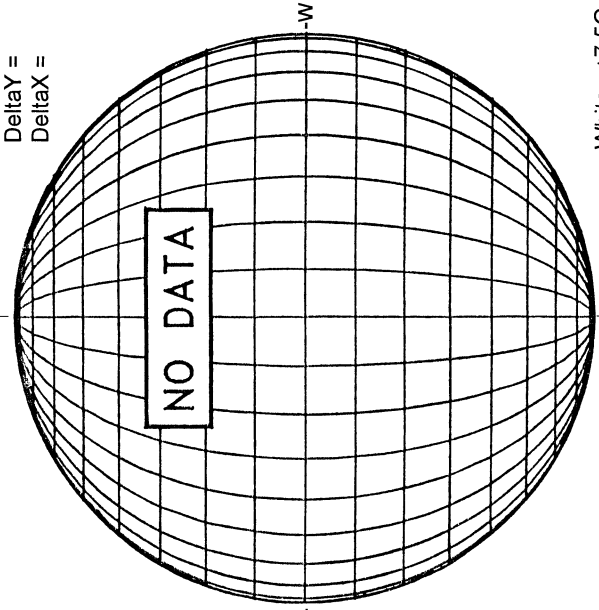
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



STANFORD MAGNETOGRAM

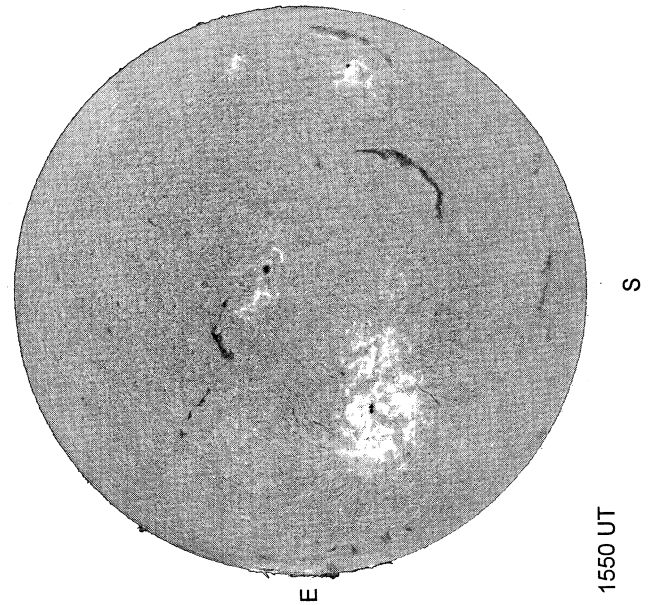


MT. WILSON MAGNETOGRAM

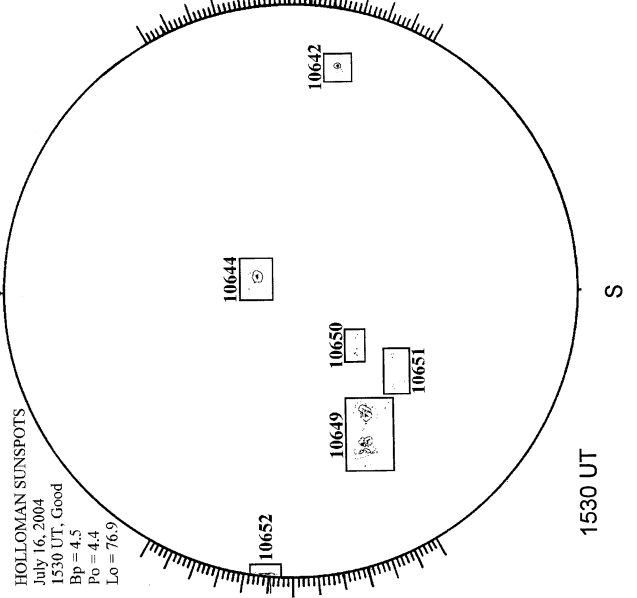


White = +7.5G
Black = -7.5G

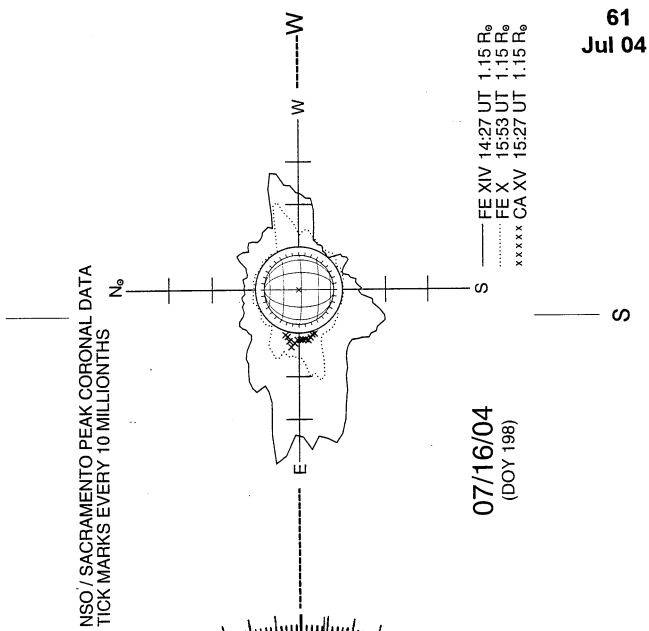
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



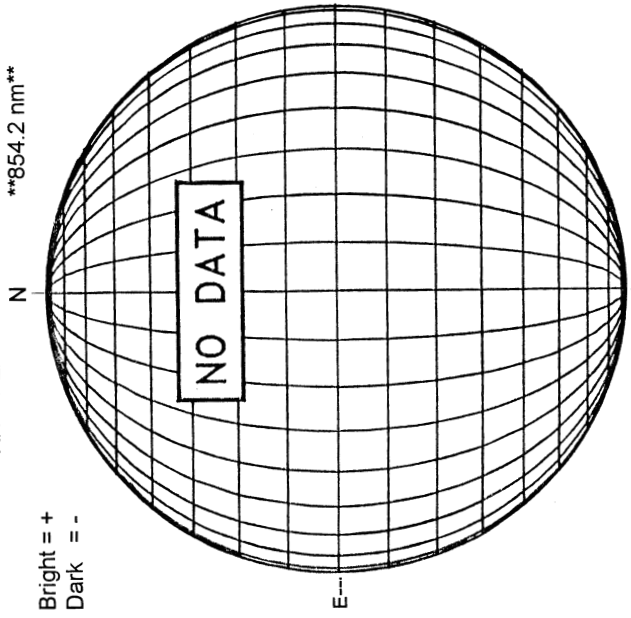
SACRAMENTO PEAK CORONA (1.15 Radii)----



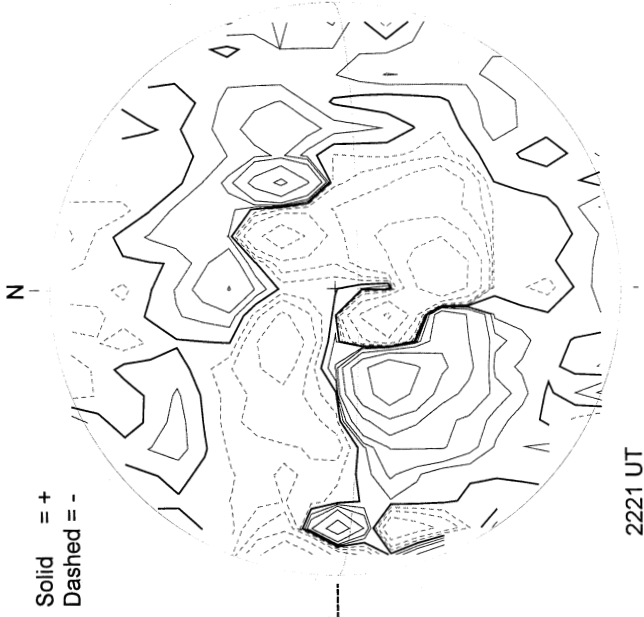
JULY 17, 2004 (P= 4.64, Bo = 4.55, Lo = 70.87)

62
JUL 04

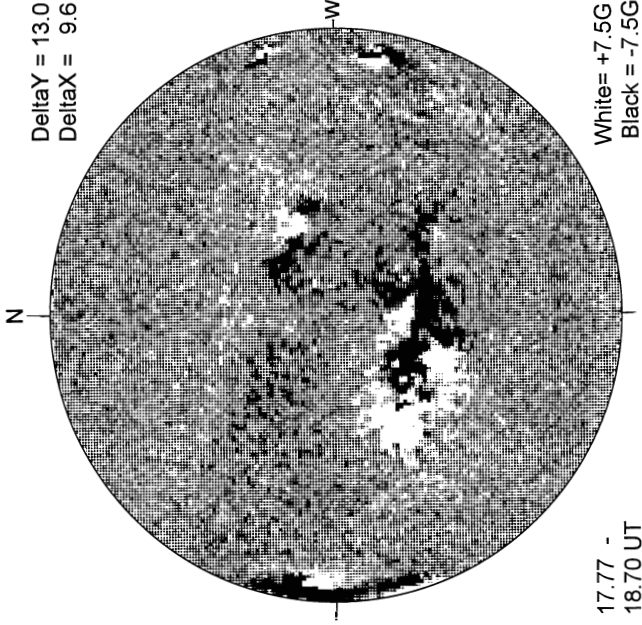
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



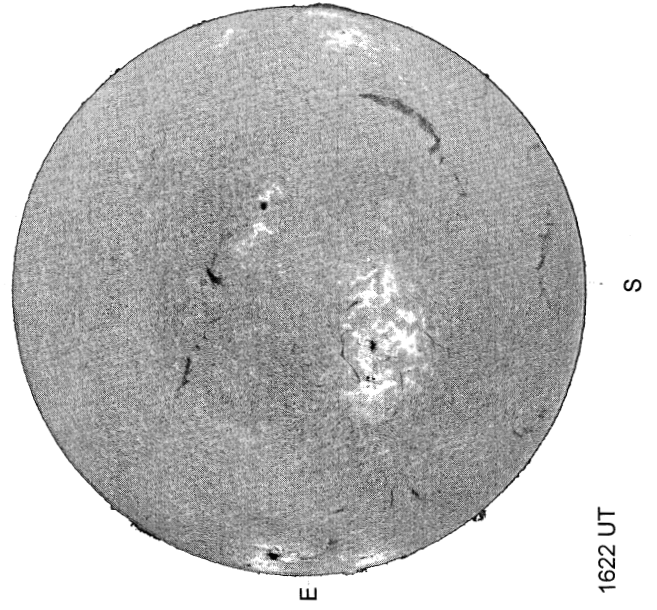
STANFORD MAGNETOGRAM



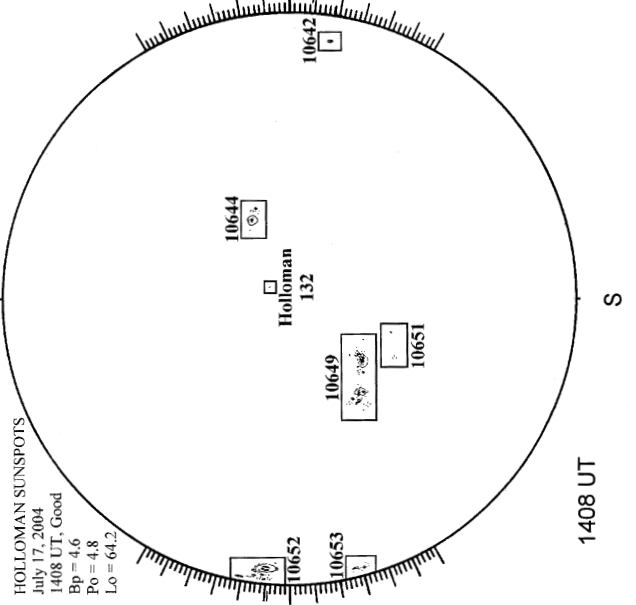
MT. WILSON MAGNETOGRAM



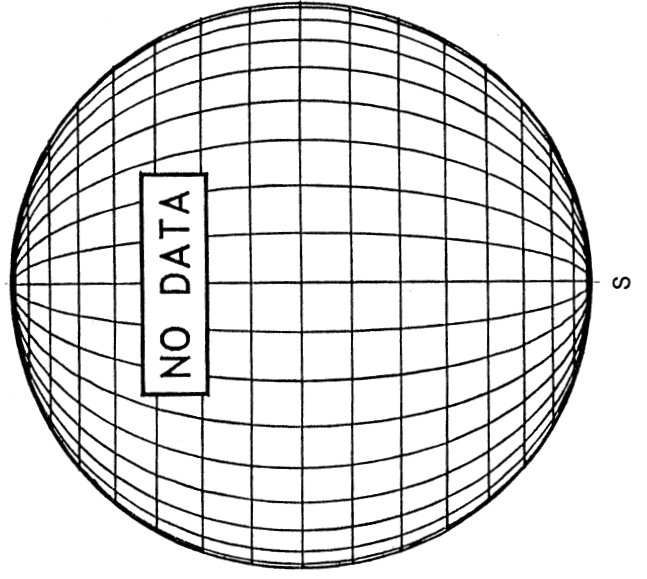
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS

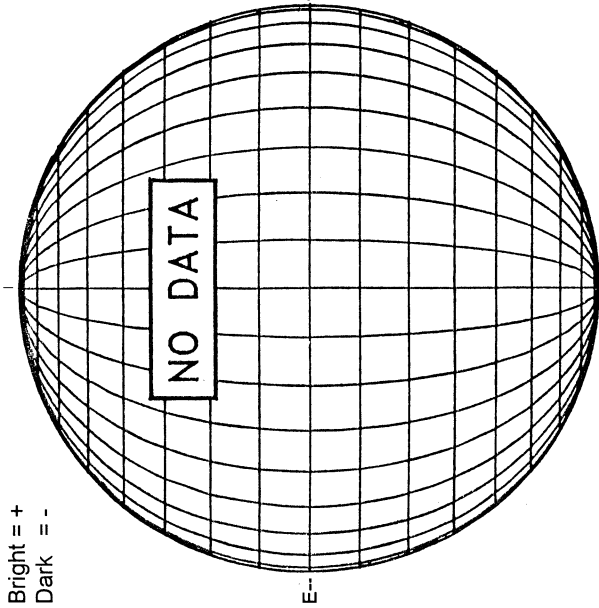


LOMNICKY PEAK CORONA (1.04 Radii)----

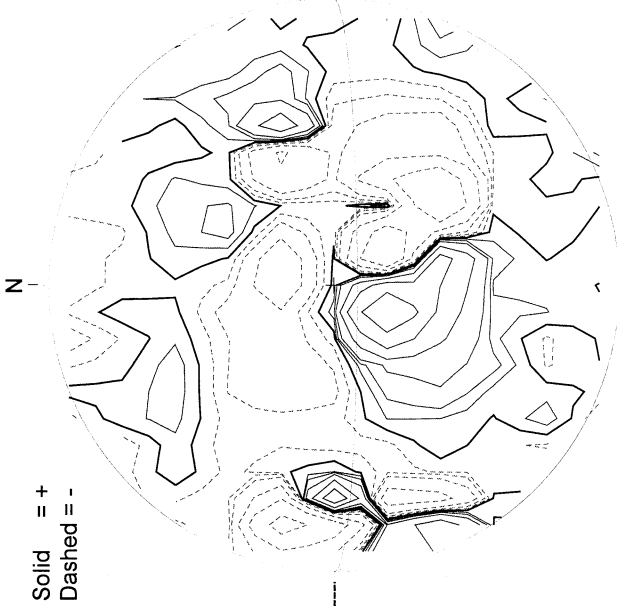


JULY 18, 2004 (P= 5.08, Bo = 4.64, Lo = 57.64)

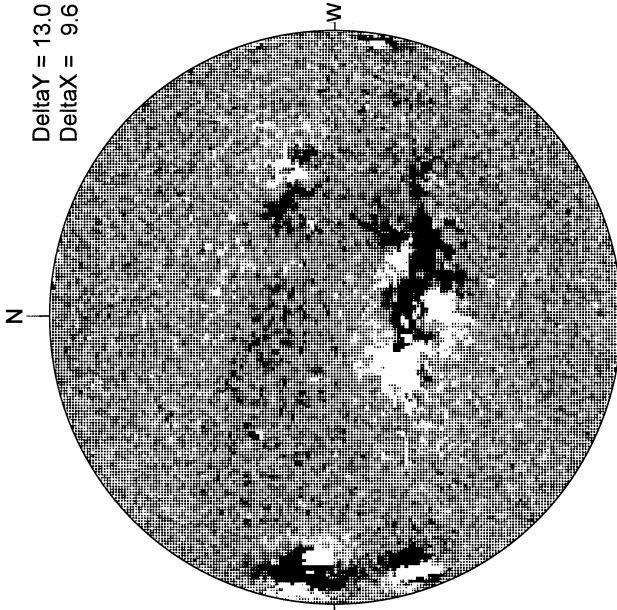
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



STANFORD MAGNETOGRAM



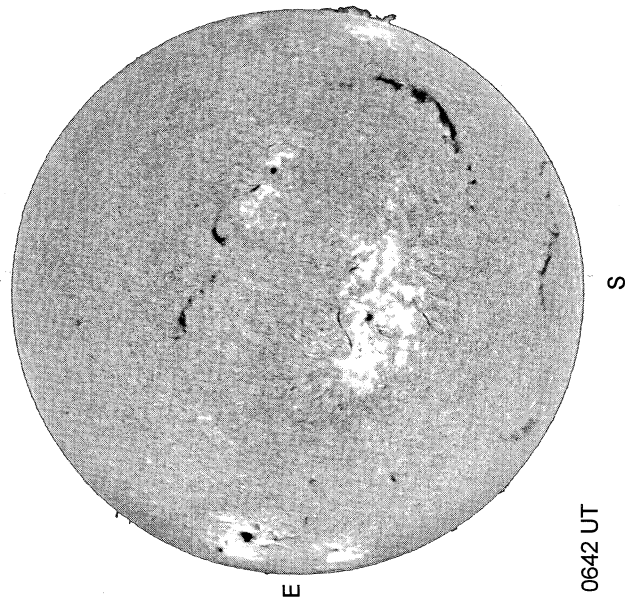
MT. WILSON MAGNETOGRAM



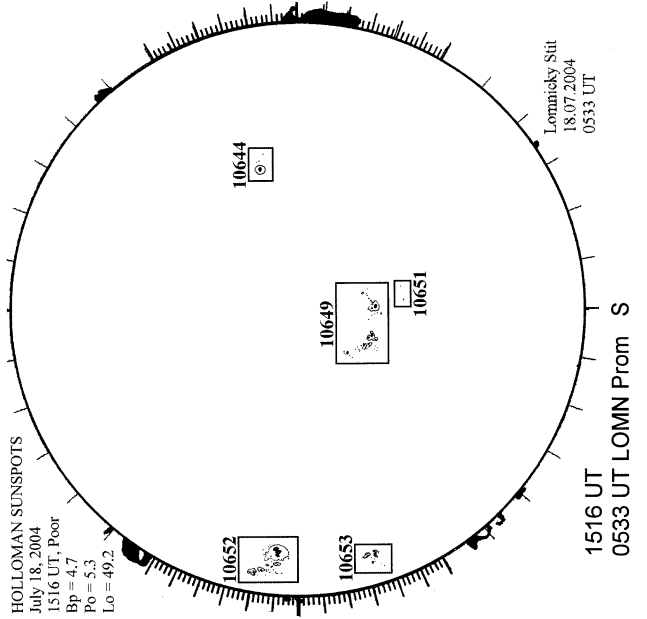
JUL 19
0110 UT

16.14 -
17.06 UT

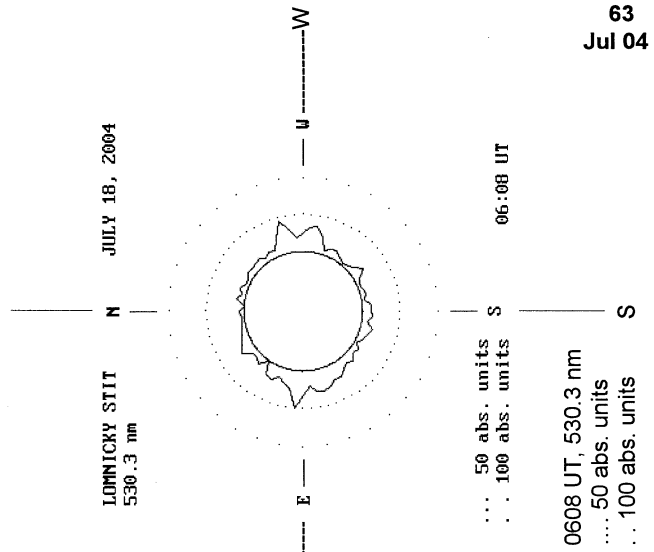
KANZELHOHE H-ALPHA



HOLLOMAN SUNSPOTS



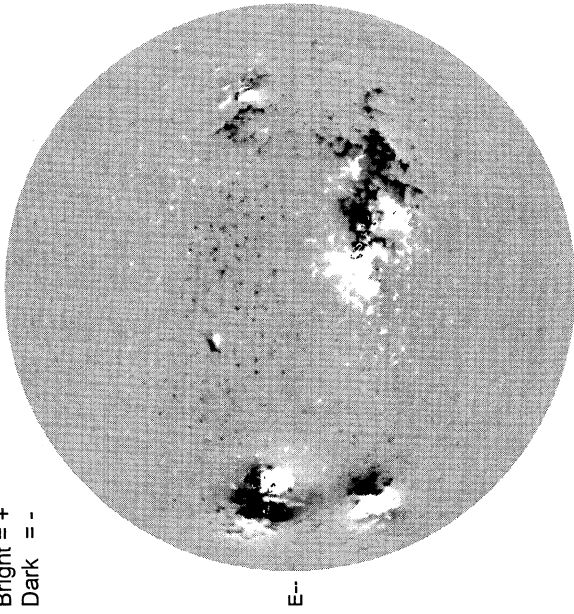
LOMNICKY PEAK CORONA (1.04 Radii)-----



64
Jul 04

KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

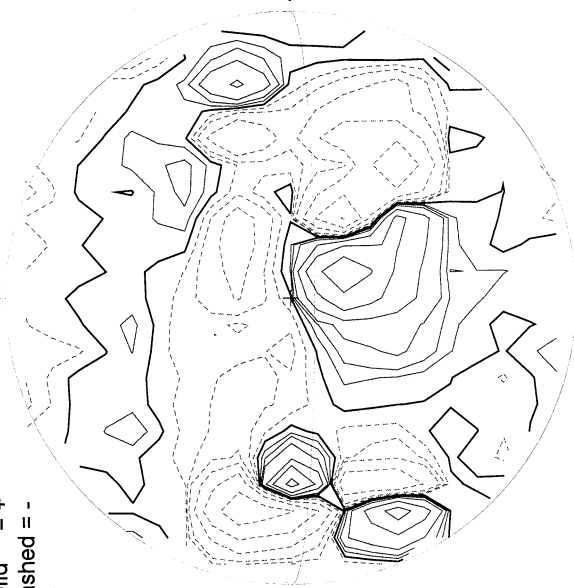
Bright = +
Dark = -



1620 UT

STANFORD MAGNETOGRAM

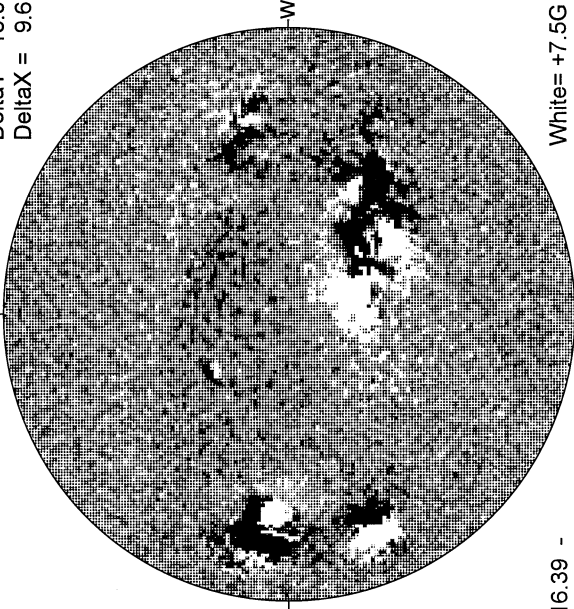
Solid = +
Dashed = -



2031 UT

MT. WILSON MAGNETOGRAM

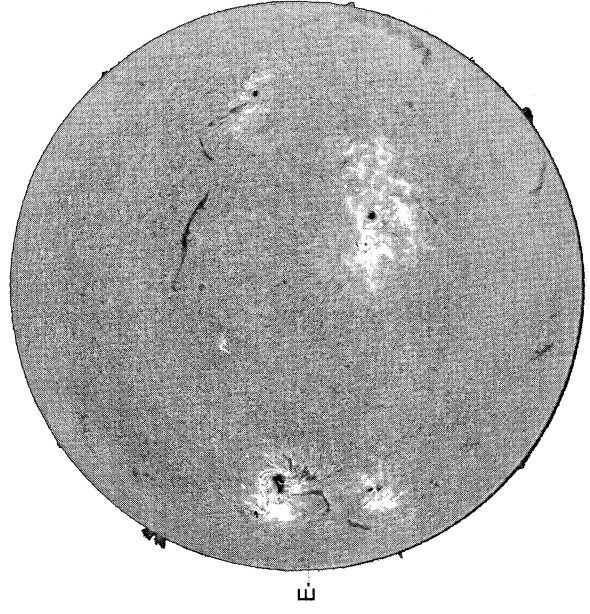
DeltaY = 13.0
DeltaX = 9.6



16:39 -
17:31 UT

White = +7.5G
Black = -7.5G

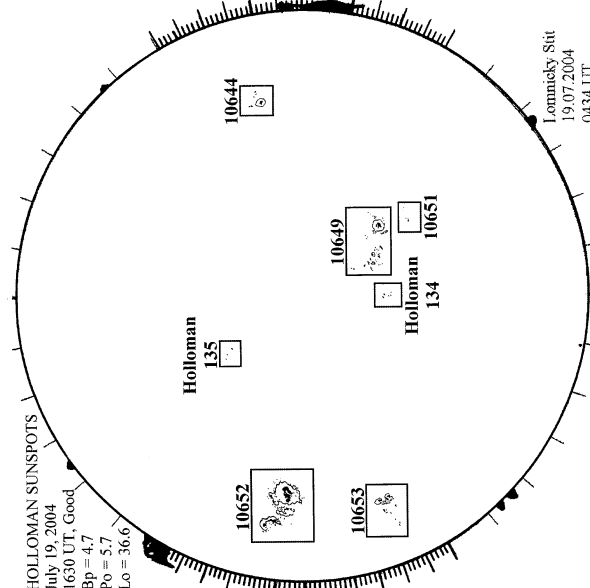
BIG BEAR H-ALPHA



1628 UT

HOLLOMAN SUNSPOTS

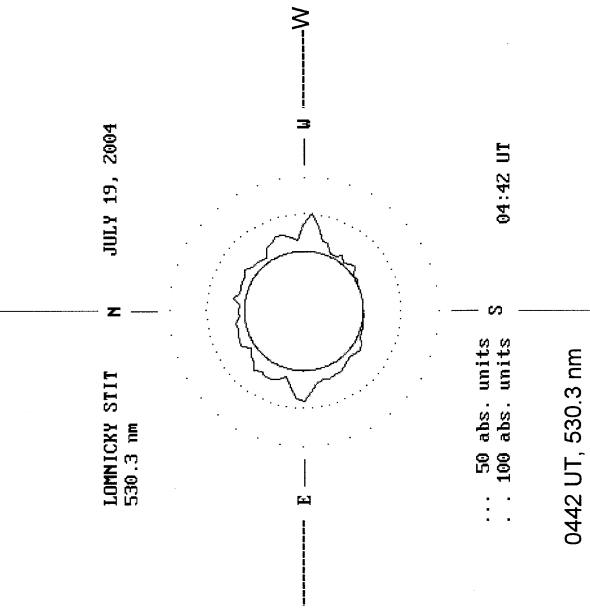
HOLLOMAN SUNSPOTS
July 19, 2004
1630 UT, Good
Bp = 4.7
Po = 5.7
Lo = 36.6



1630 UT
0434 UT LOMN Prom S

Lomnický Sit
19.07.2004
0434 UT

LOMNICKY PEAK CORONA (1.04 Radii)----



... 50 abs. units
... 100 abs. units

0442 UT, 530.3 nm
... 50 abs. units
... 100 abs. units

JULY 19, 2004

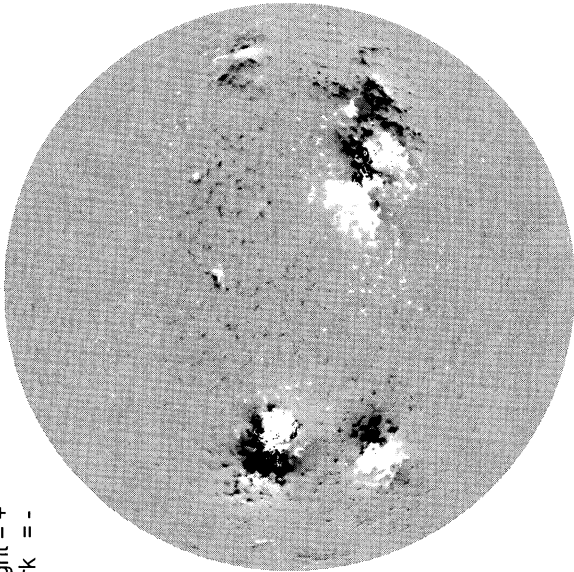
LOMNICKY STIT
530.3 nm

04:42 UT

JULY 20, 2004 (P= 5.95, B₀ = 4.83, L₀ = 31.18)

KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

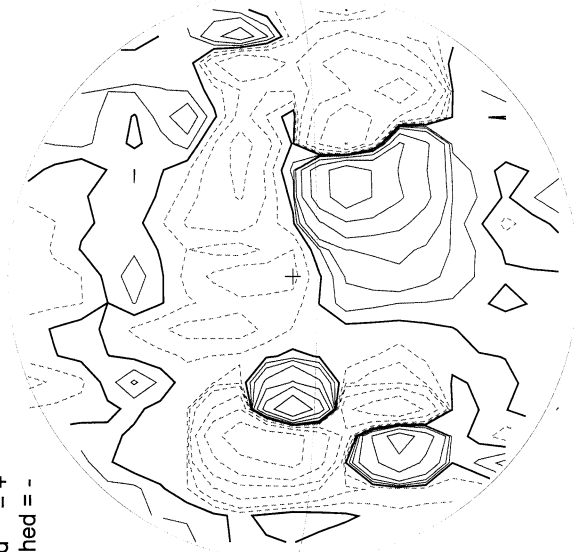
Bright = +
Dark = -



1814 UT

STANFORD MAGNETOGRAM

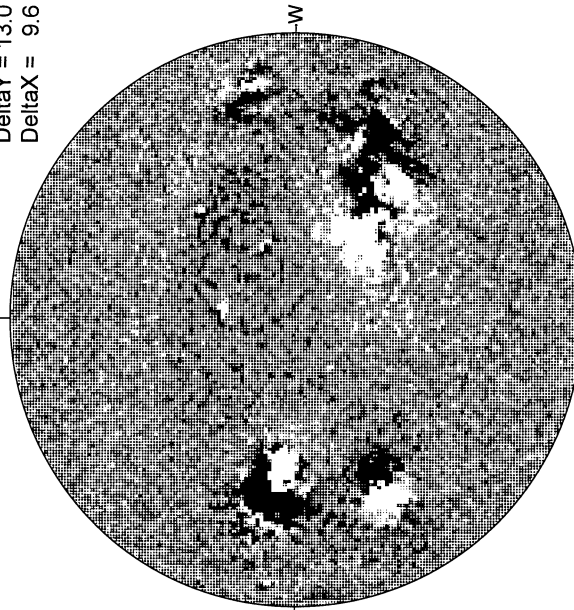
Solid = +
Dashed = -



2054 UT

MT. WILSON MAGNETOGRAM

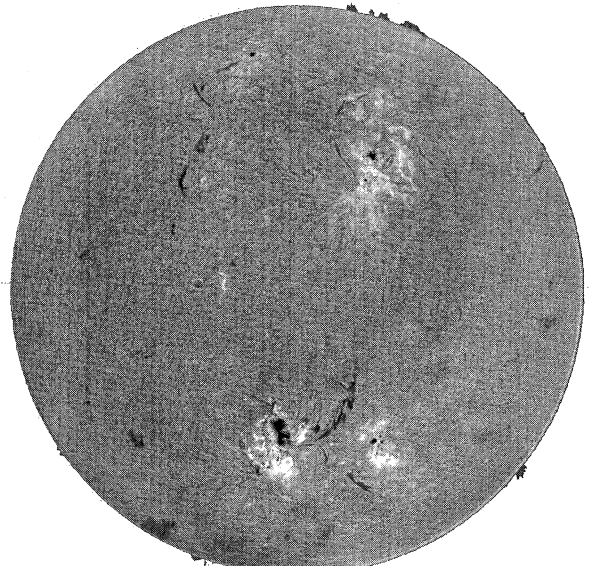
Delta Y = 13.0
Delta X = 9.6



16.59 -
17.52 UT

White = +7.5G
Black = -7.5G

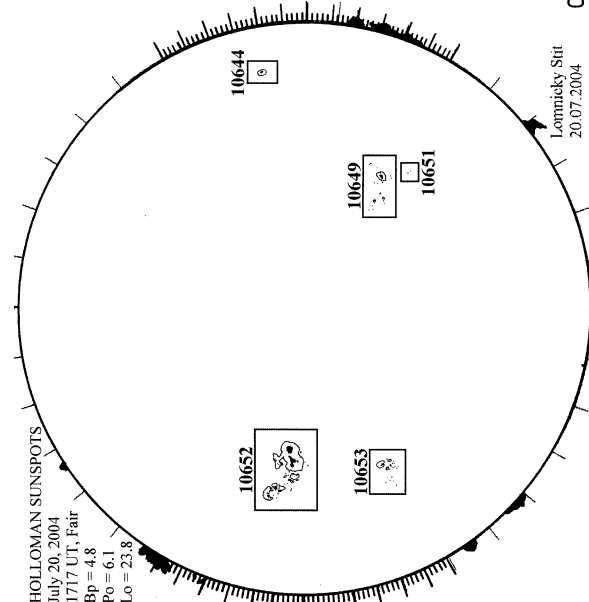
BIG BEAR-ALPHA



1834 UT

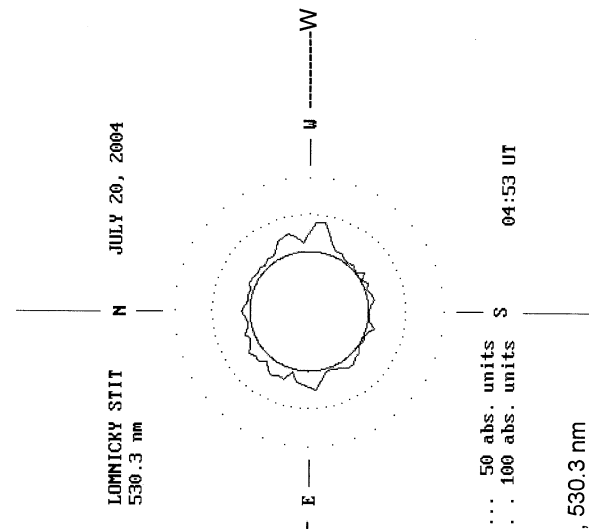
HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
July 20, 2004
1717 UT, Fair
Bp = 4.8
Po = 6.1
Lo = 23.8



1717 UT
0424 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



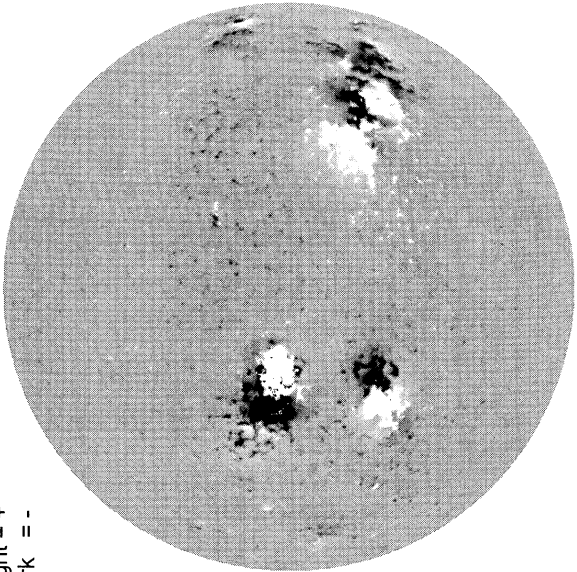
0453 UT, 530.3 nm
... 50 abs. units
... 100 abs. units

04:53 UT

66
JUL 04

KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

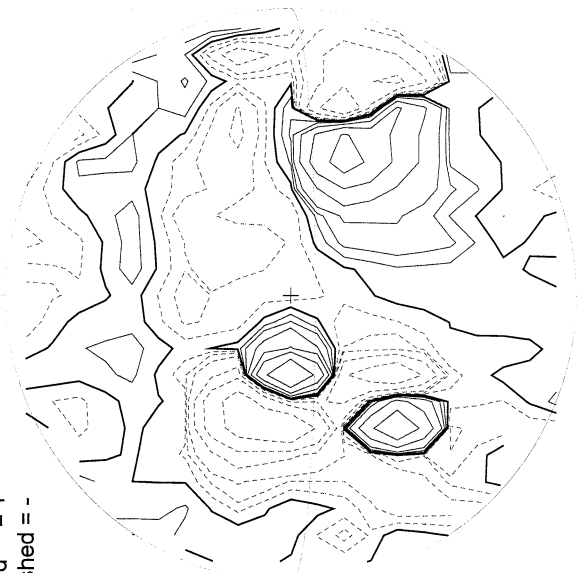
Bright = +
Dark = -



1812 UT

STANFORD MAGNETOGRAM

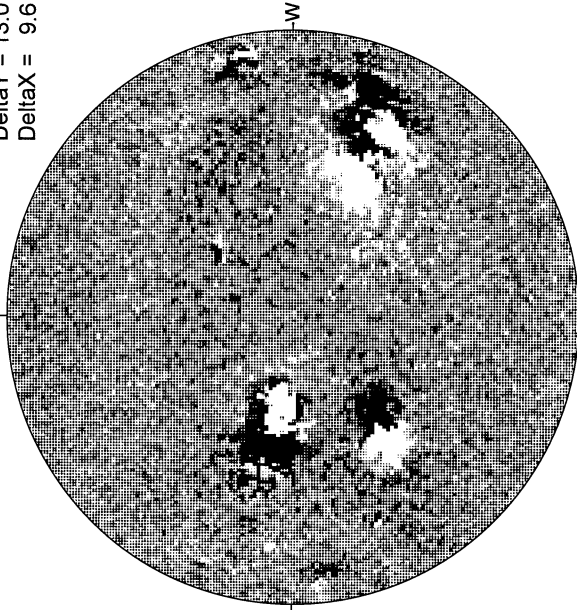
Solid = +
Dashed = -



1744 UT

MT. WILSON MAGNETOGRAM

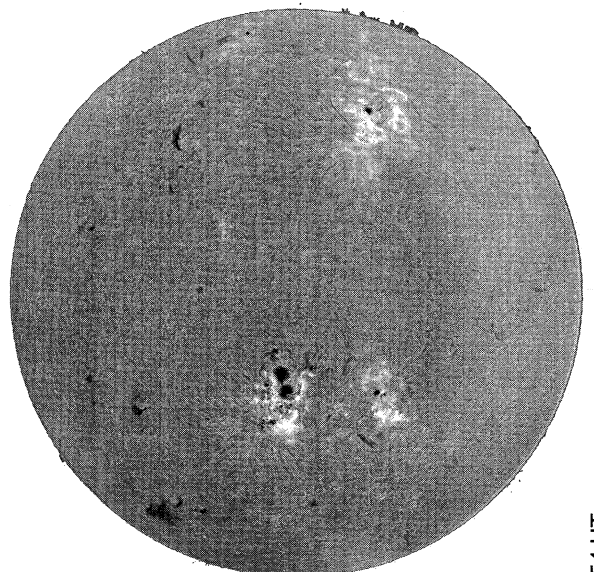
DeltaY = 13.0
DeltaX = 9.6



16.37 -
17.30 UT

White = +7.5G
Black = -7.5G

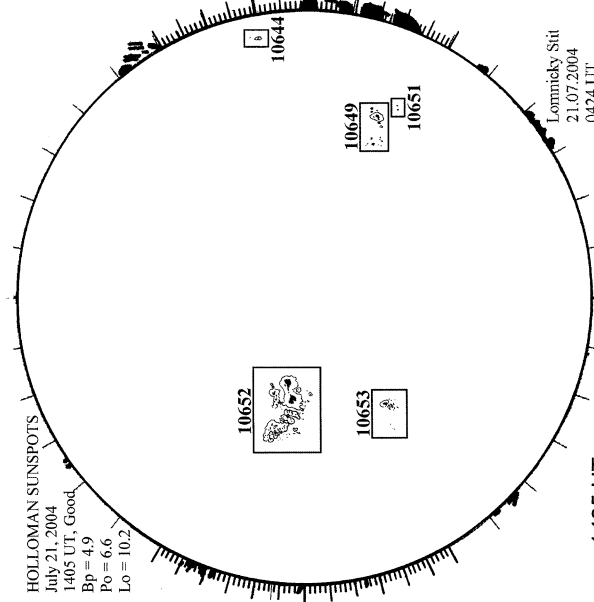
BIG BEAR H-ALPHA



1554 UT

HOLLOMAN SUNSPOTS

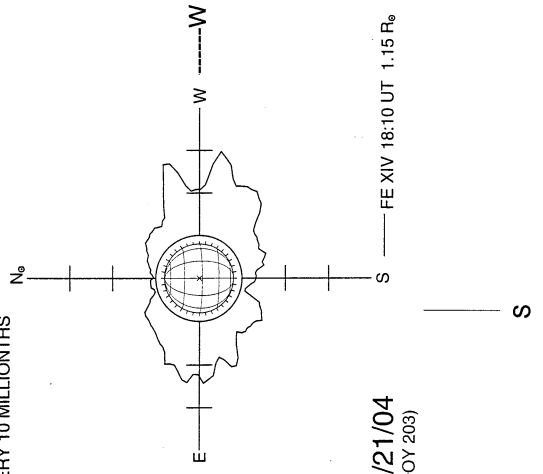
HOLLOMAN SUNSPOTS
July 21, 2004
1405 UT, Good.
Bp = 4.9
Pb = 6.6
Lo = 10.2



1405 UT
0424 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

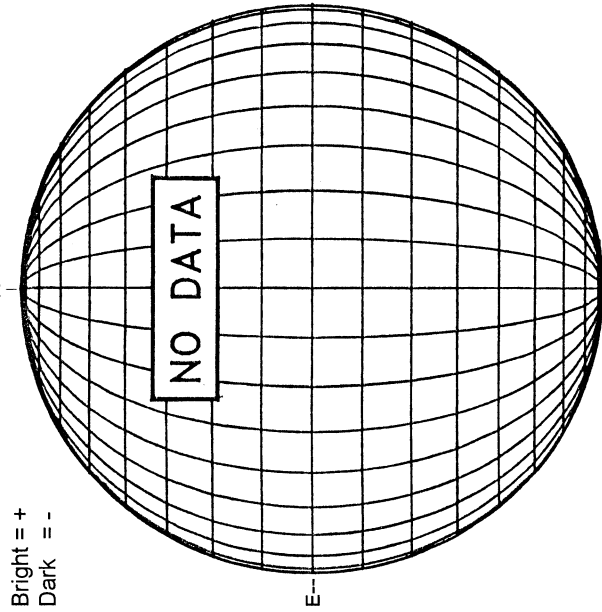
NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



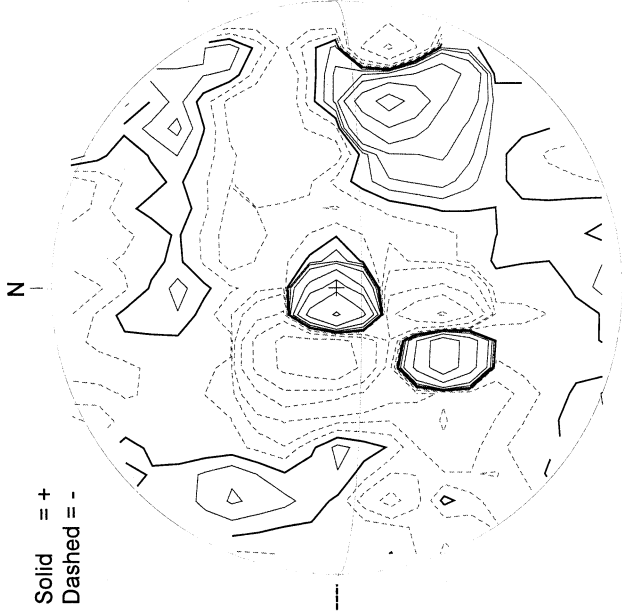
07/21/04
(DOY 203)

JULY 22, 2004 (P = 6.81, Bo = 5.00, Lo = 4.72)

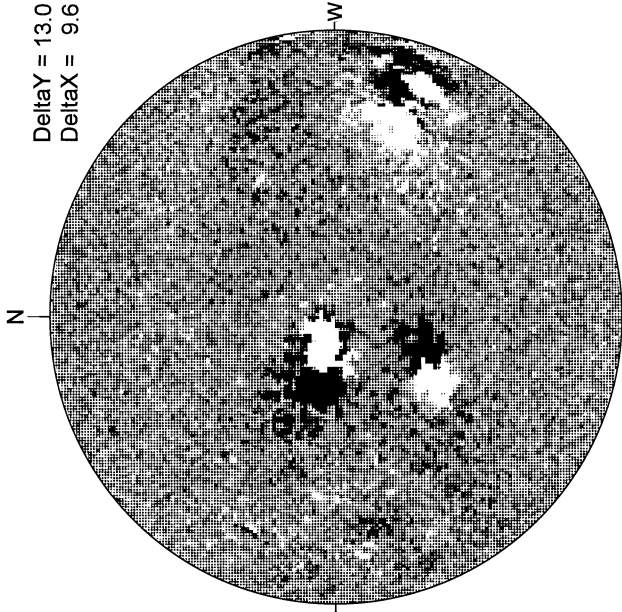
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



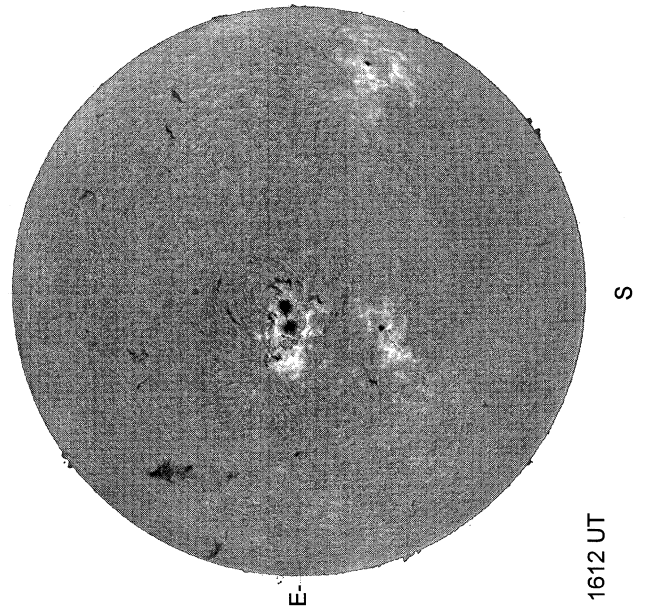
STANFORD MAGNETOGRAM



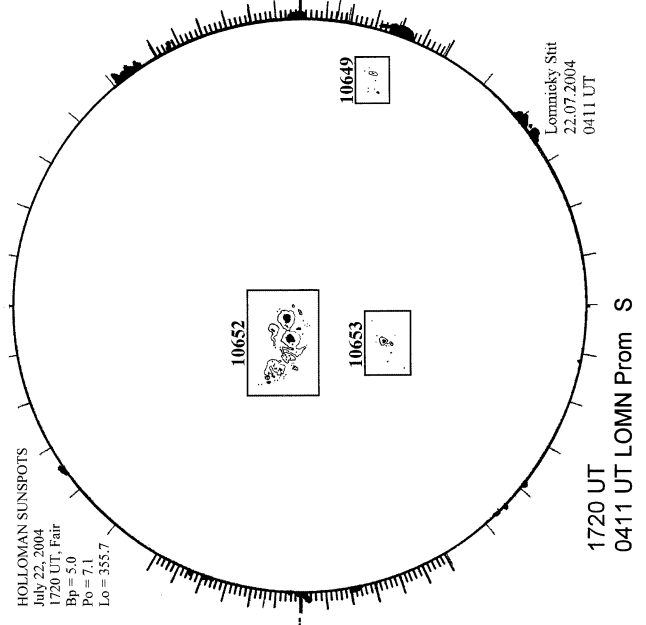
MT. WILSON MAGNETOGRAM



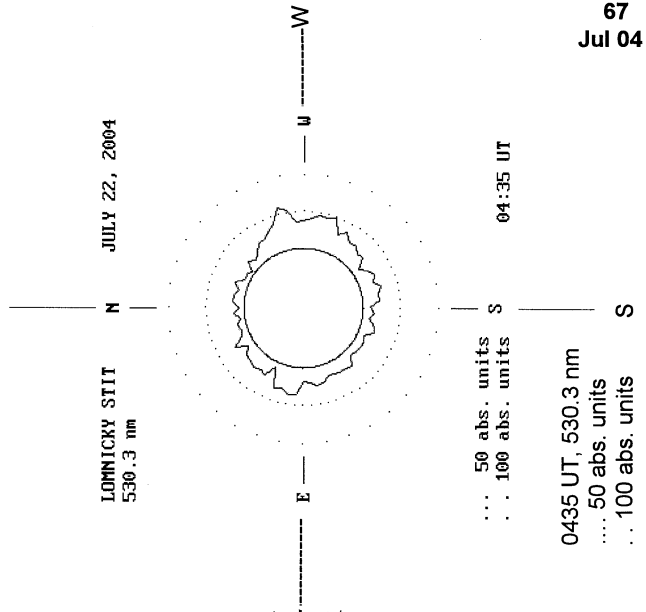
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



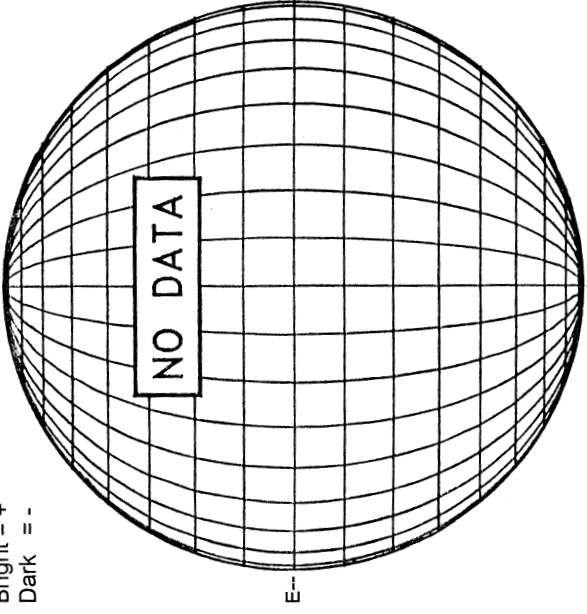
LOMNICKY PEAK CORONA (1.04 Radii)----



JULY 23, 2004 (P= 7.24, Bo = 5.09, Lo = 351.49)

KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

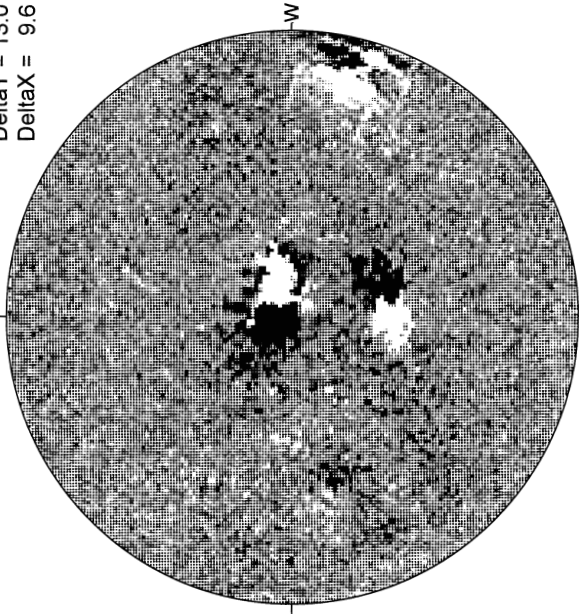
Solid = +
Dashed = -



JUL 24
0008 UT

MT. WILSON MAGNETOGRAM

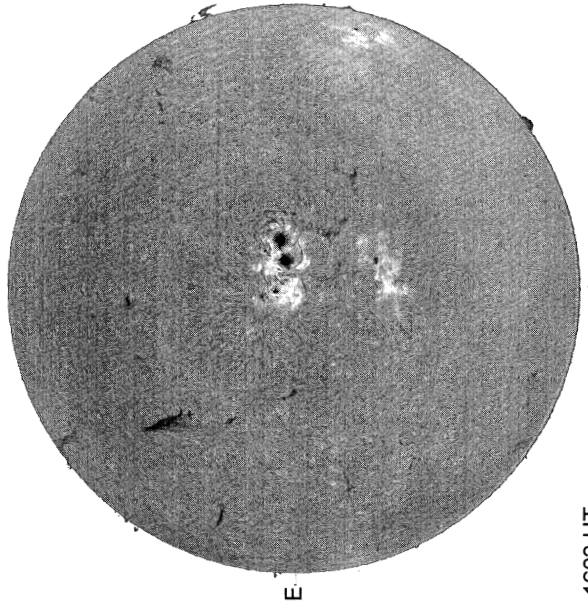
DeltaY = 13.0
DeltaX = 9.6



17.54 -
18.47 UT

White = +7.5G
Black = -7.5G

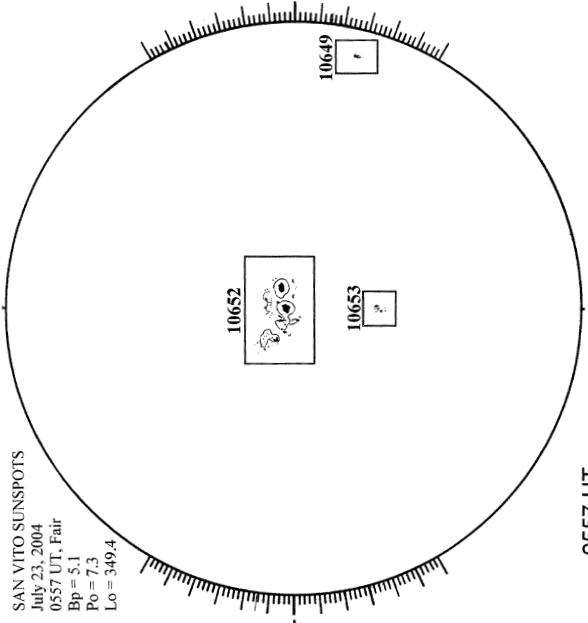
BIG BEAR H-ALPHA



1603 UT

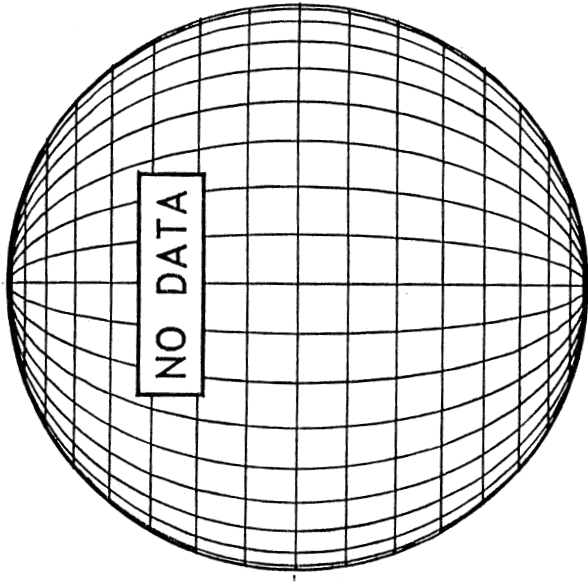
SAN VITO SUNSPOTS

SAN VITO SUNSPOTS
July 23, 2004
0557 UT, Fair
Bp = 5.1
Po = 7.3
Lo = 349.4



0557 UT

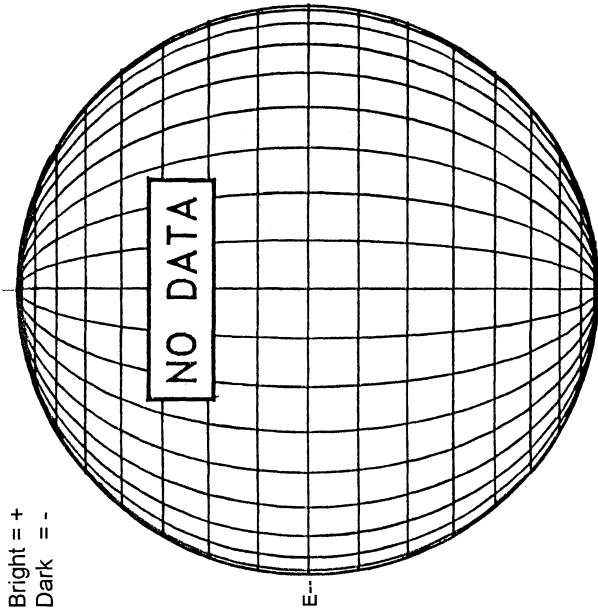
LOMNICKY PEAK CORONA (1.04 Radii)----



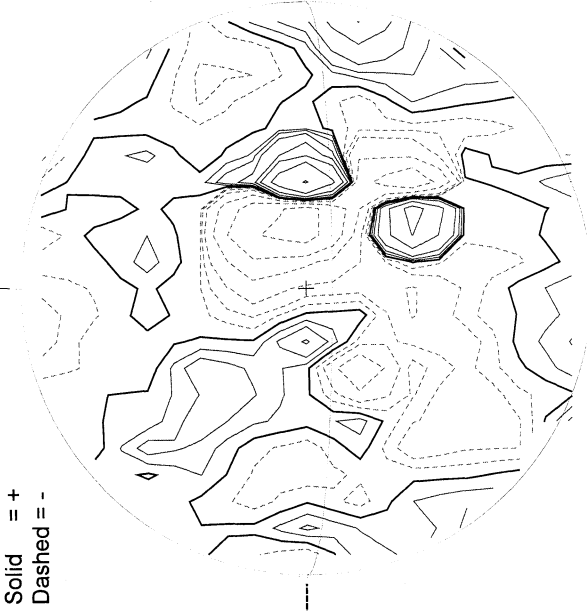
S

JULY 24, 2004 (P= 7.66, Bo = 5.18, Lo = 338.26)

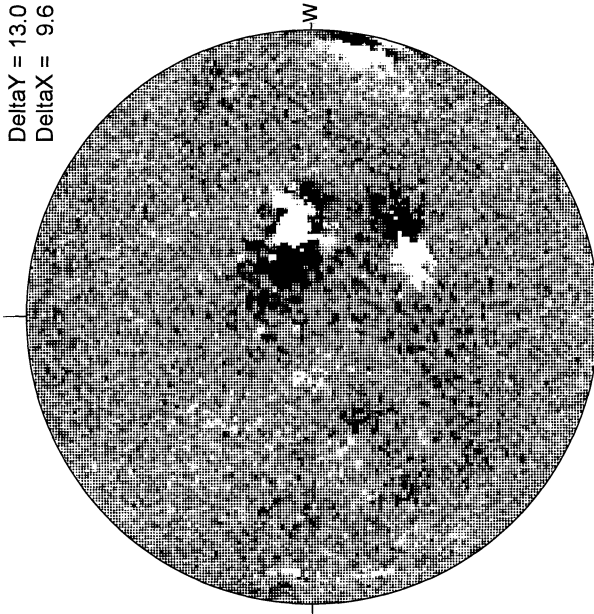
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



STANFORD MAGNETOGRAM

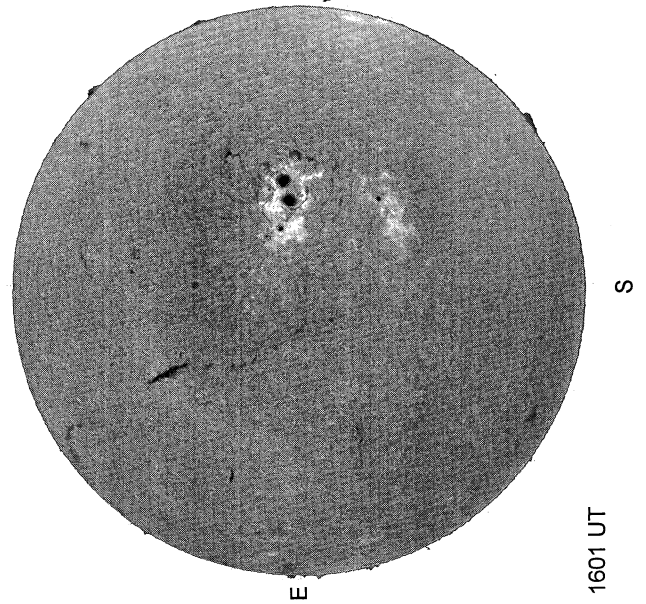


MT. WILSON MAGNETOGRAM

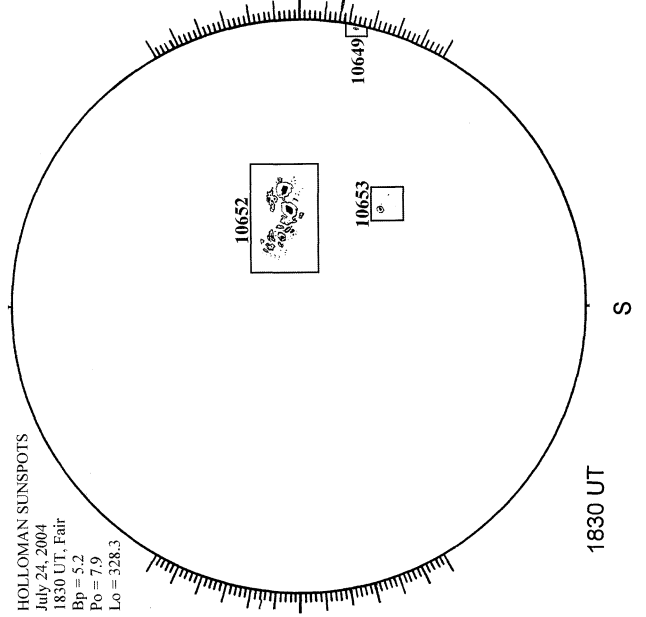


16.51 -
17.43 UT

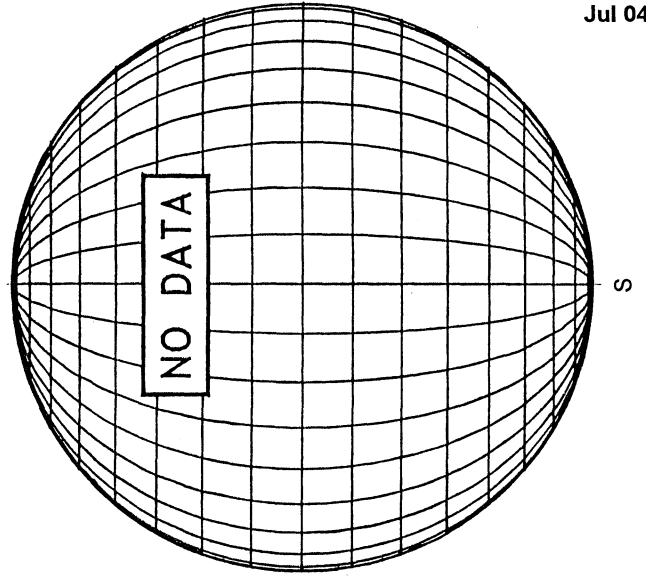
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)----



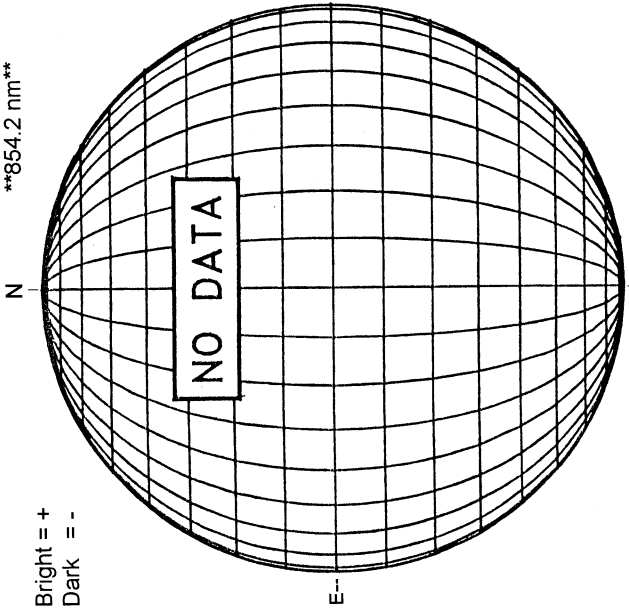
1601 UT

1830 UT

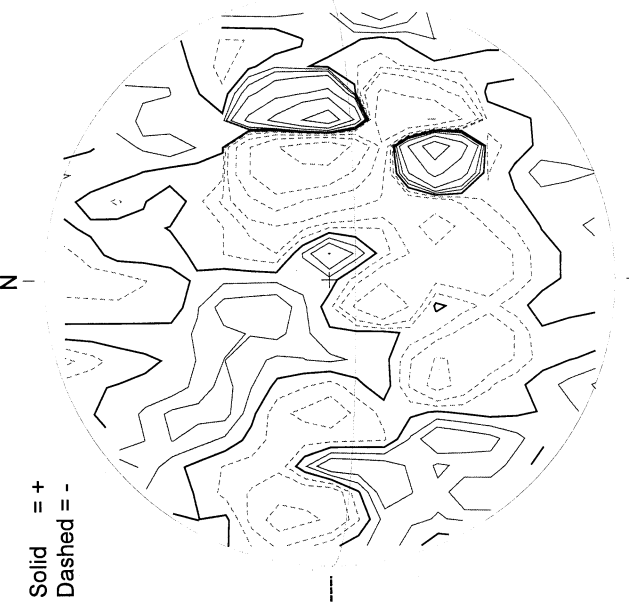
16.51 -
17.43 UT

70
Jul 04

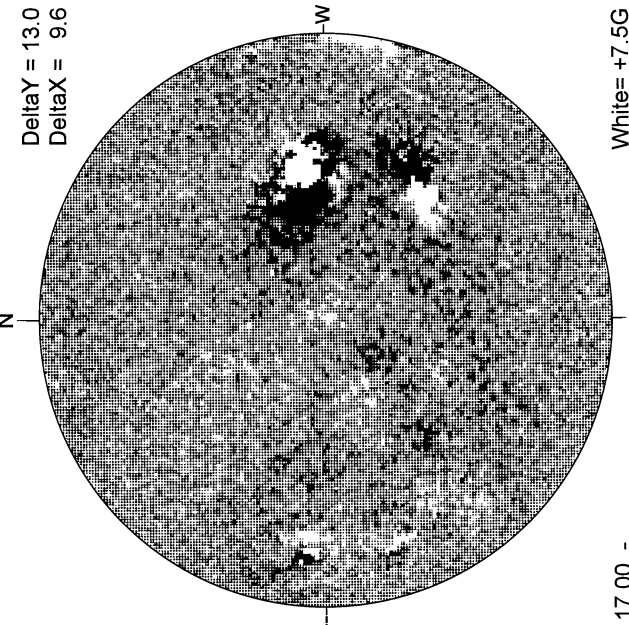
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



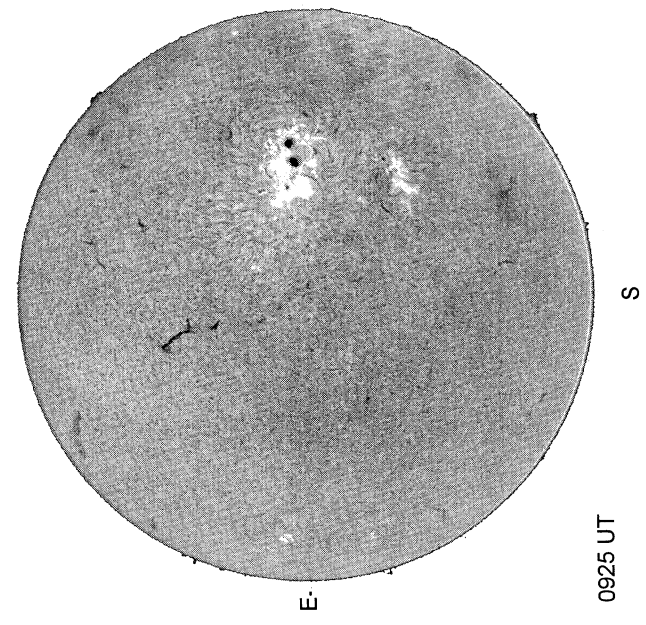
STANFORD MAGNETOGRAM



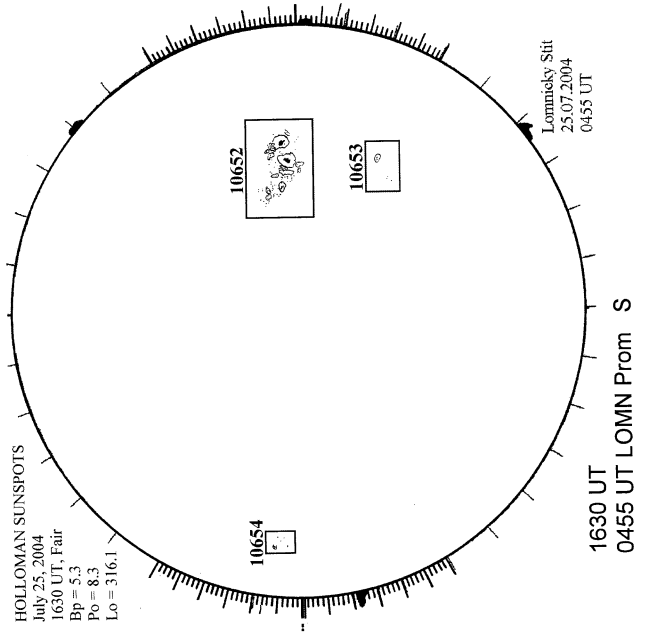
MT. WILSON MAGNETOGRAM



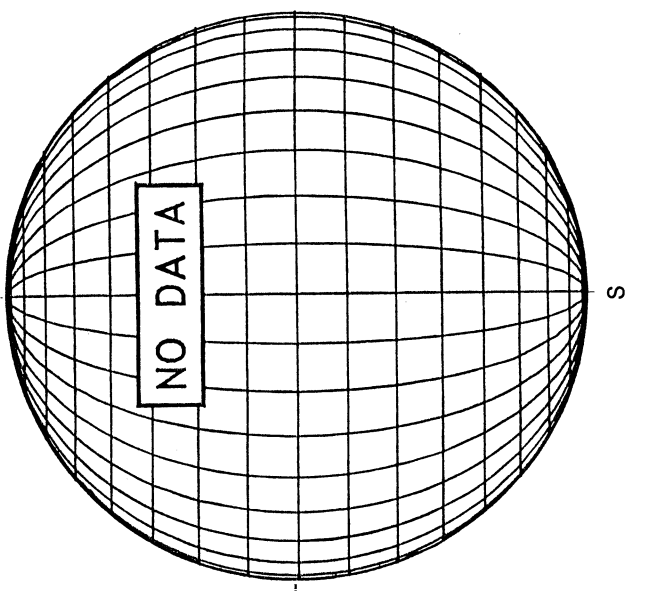
CATANIA H-ALPHA



HOLLOMAN SUNSPOTS



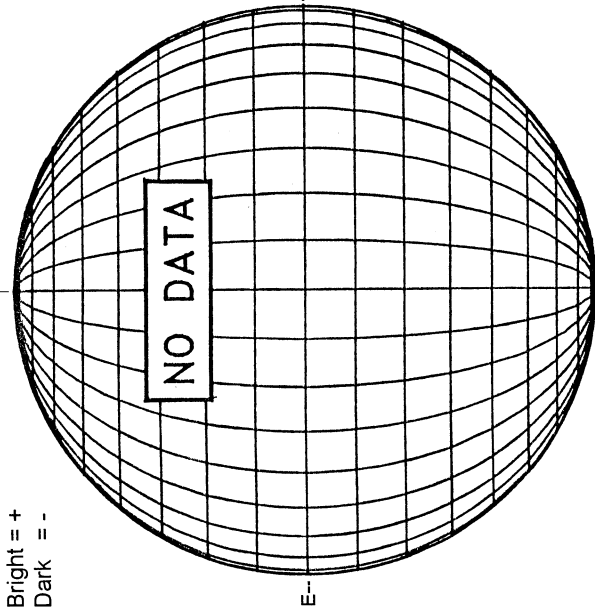
SACRAMENTO PEAK CORONA (1.15 Radii)----



JULY 26, 2004 (P= 8.50, Bo = 5.34, Lo = 311.80)

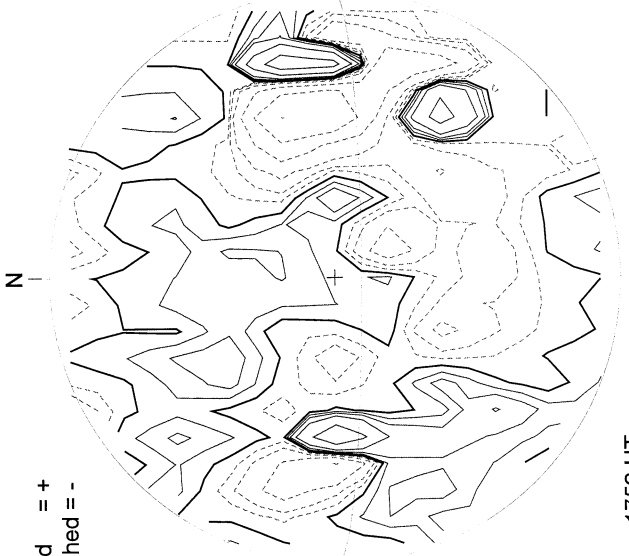
KITT PEAK MAGNETOGRAM--SOLIS

854.2 nm



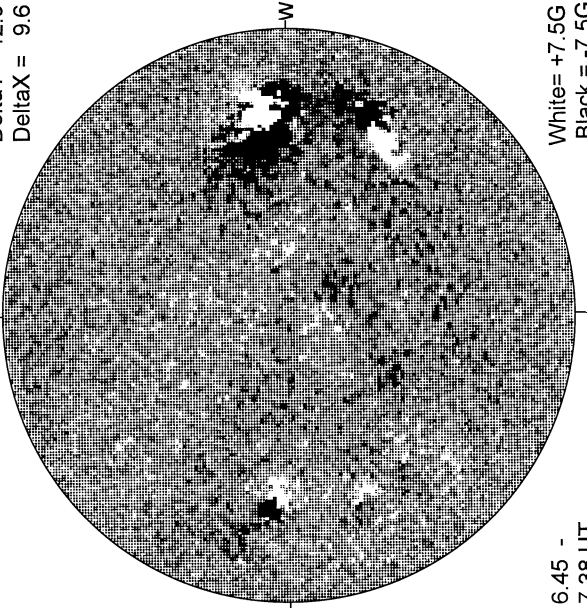
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



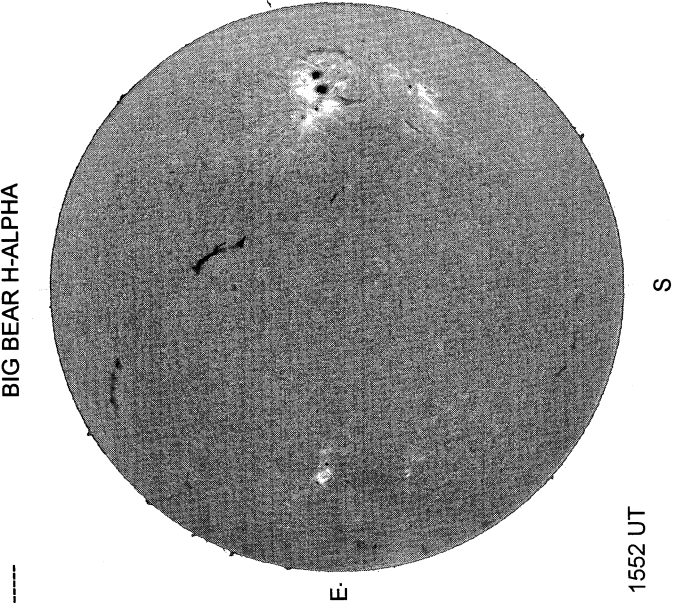
MT. WILSON MAGNETOGRAM

Delta Y = 12.9
Delta X = 9.6



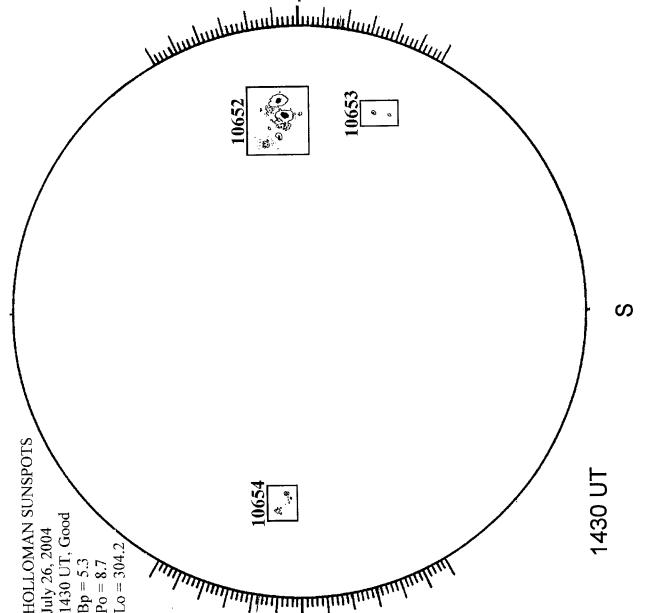
White = +7.5G
Black = -7.5G

BIG BEAR H-ALPHA

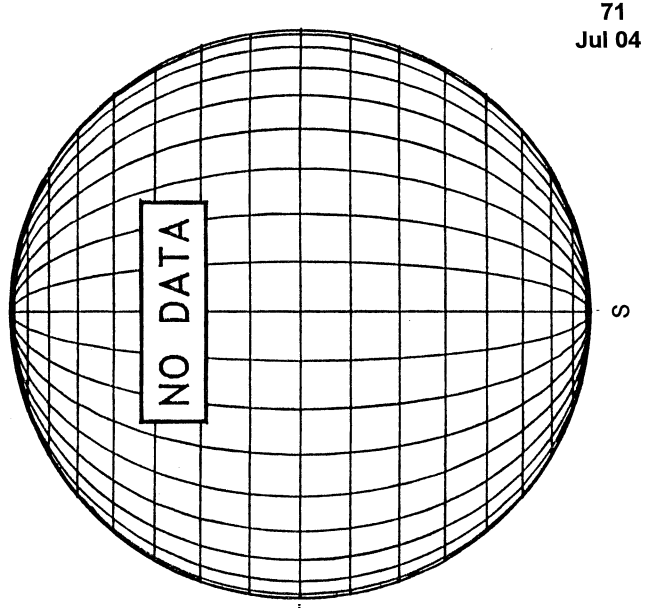


HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
July 26, 2004
1430 UT, Good
Bo = 5.3
Po = 8.7
Lo = 304.2



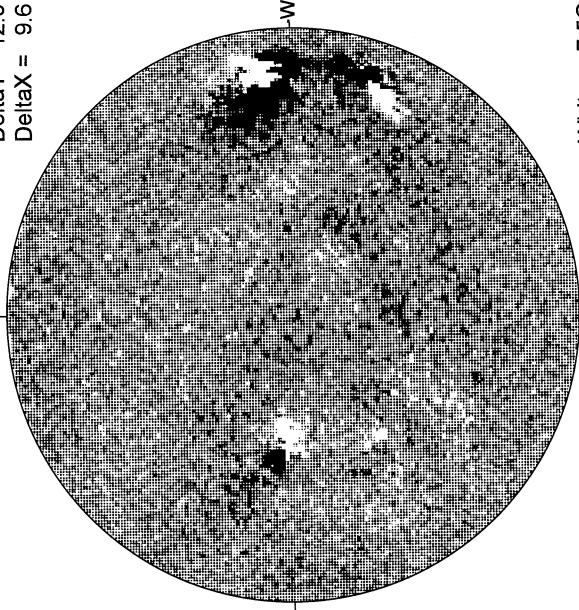
SACRAMENTO PEAK CORONA (1.15 Radii)----



72
Jul 04

MT. WILSON MAGNETOGRAM

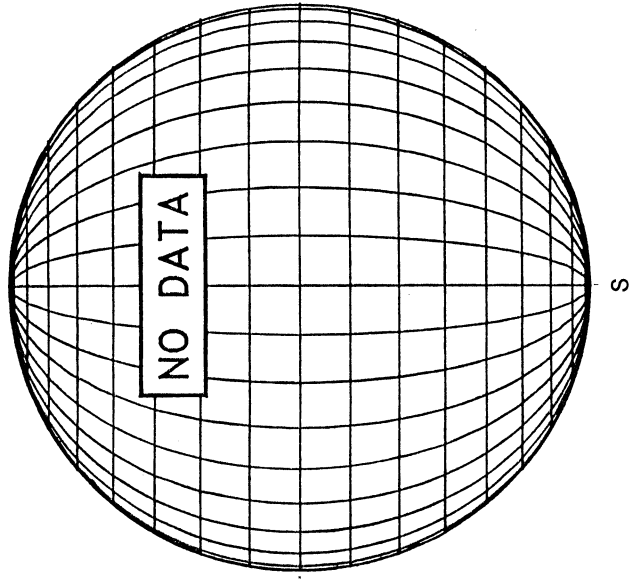
DeltaY = 12.9
DeltaX = 9.6



White = +7.5G
Black = -7.5G

15.92 -
16.85 UT

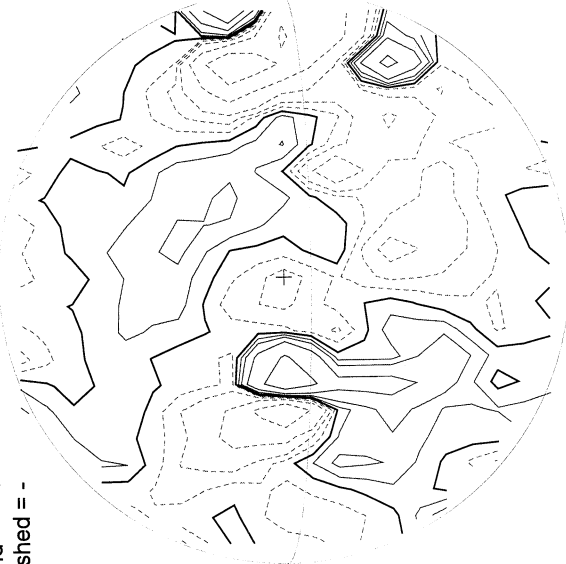
SACRAMENTO PEAK CORONA (1.15 Radii)----



JULY 27, 2004 (P= 8.91, Bo = 5.42, Lo = 298.57)

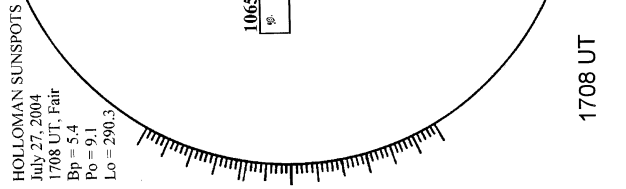
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



2149 UT

HOLLOMAN SUNSPOTS

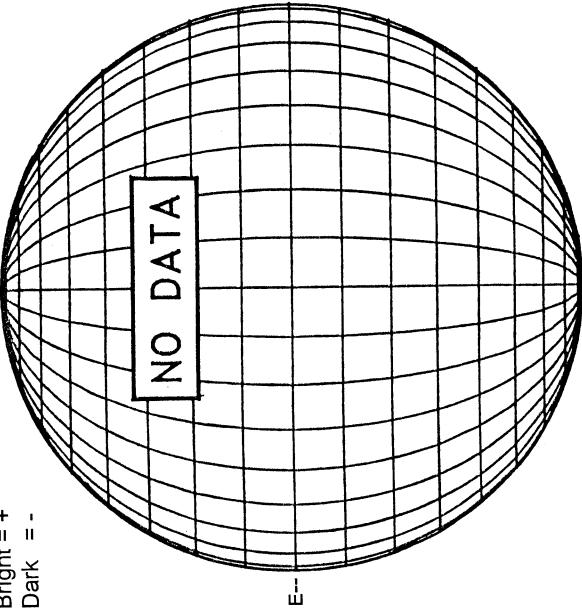


HOLLOMAN SUNSPOTS
July 27, 2004
1708 UT, Fair
Bp = 3.4
Po = 9.1
Lo = 290.3

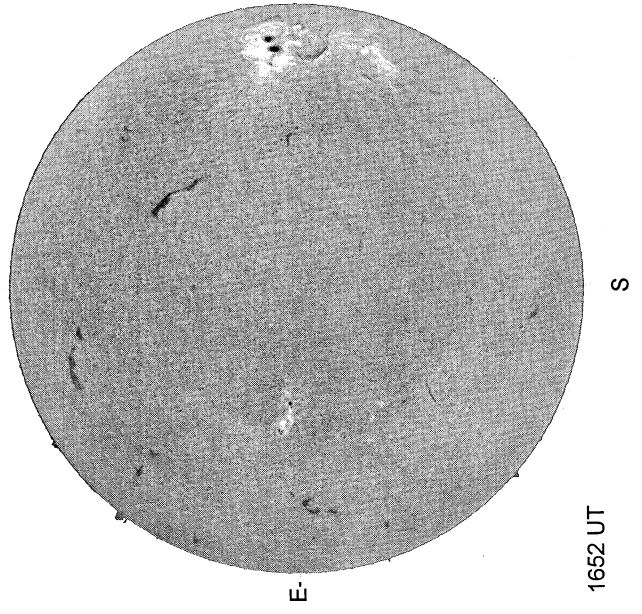
1708 UT

KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm

Bright = +
Dark = -



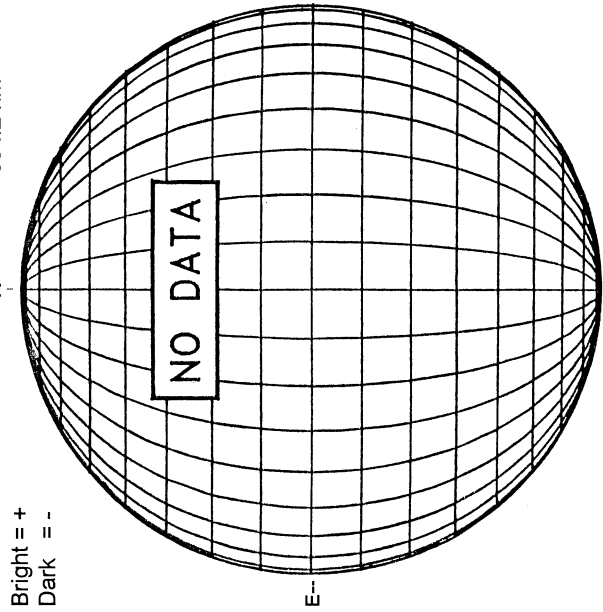
BIG BEAR H-ALPHA



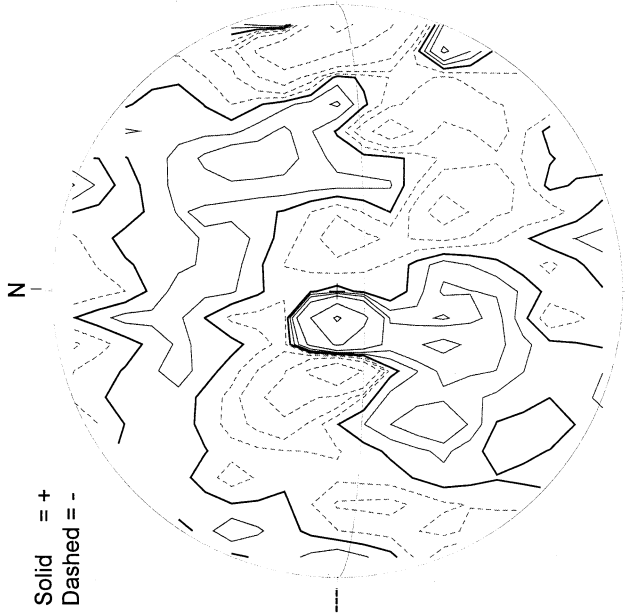
1652 UT

JULY 28, 2004 (P= 9.32, Bo = 5.50, Lo = 285.34)

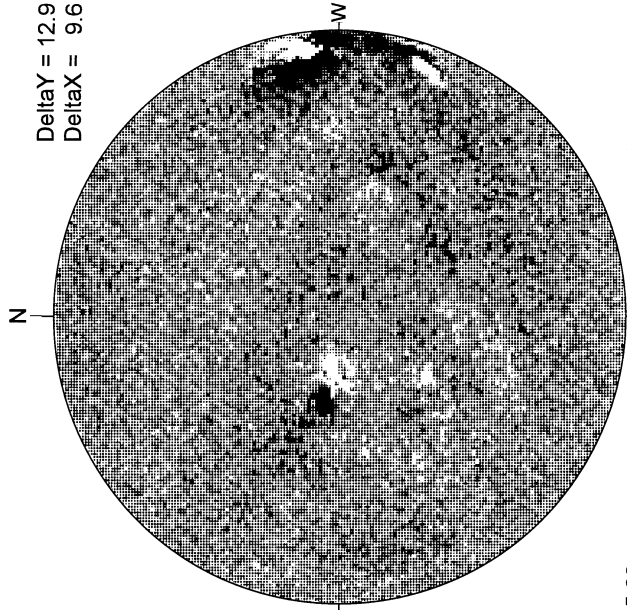
KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



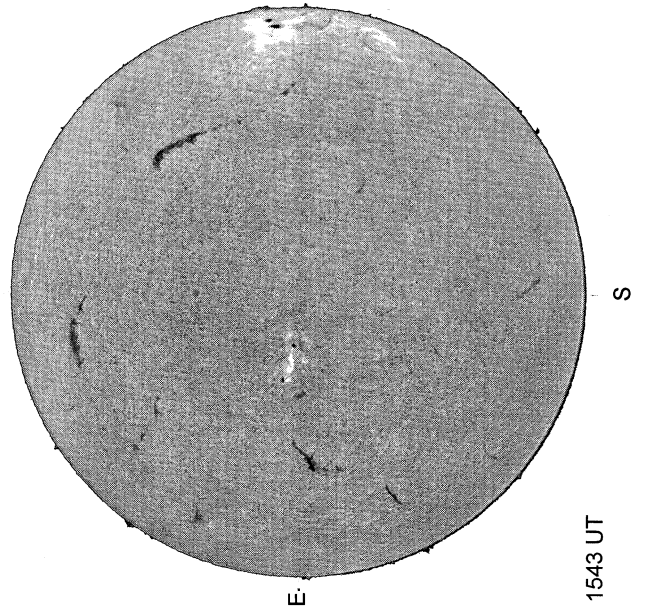
STANFORD MAGNETOGRAM



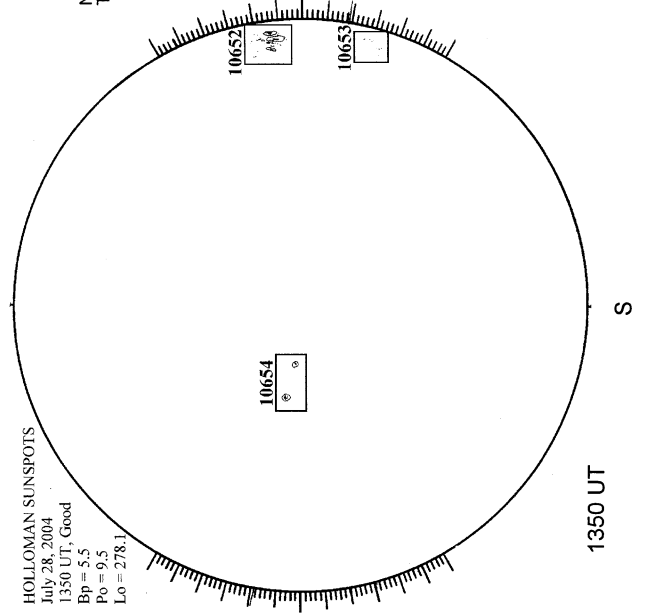
MT. WILSON MAGNETOGRAM



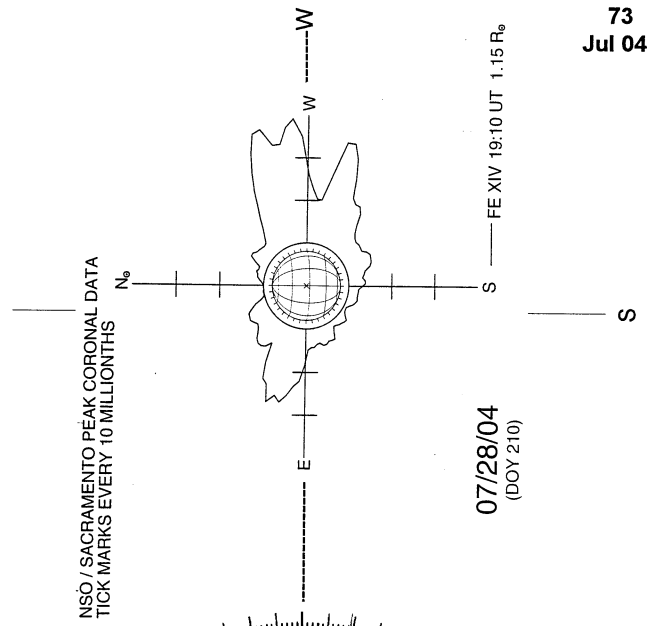
BIG BEAR H-ALPHA



HOLLOMAN SUNSPOTS



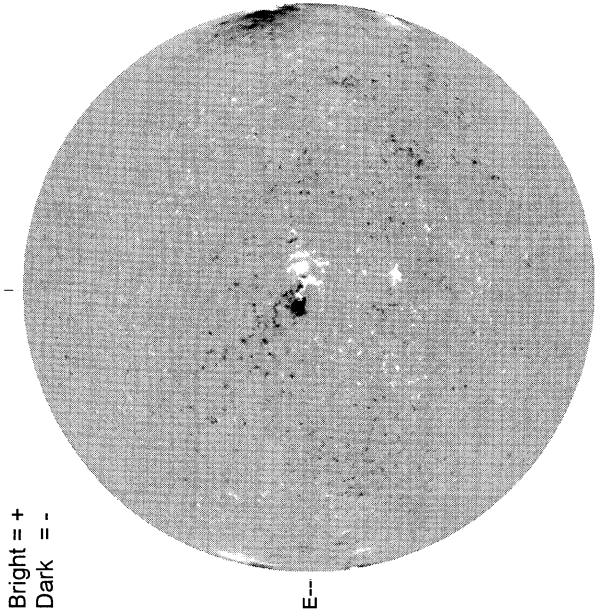
SACRAMENTO PEAK CORONA (1.15 Radii)----



JULY 29, 2004 (P= 9.73, Bo = 5.58, Lo = 272.12)

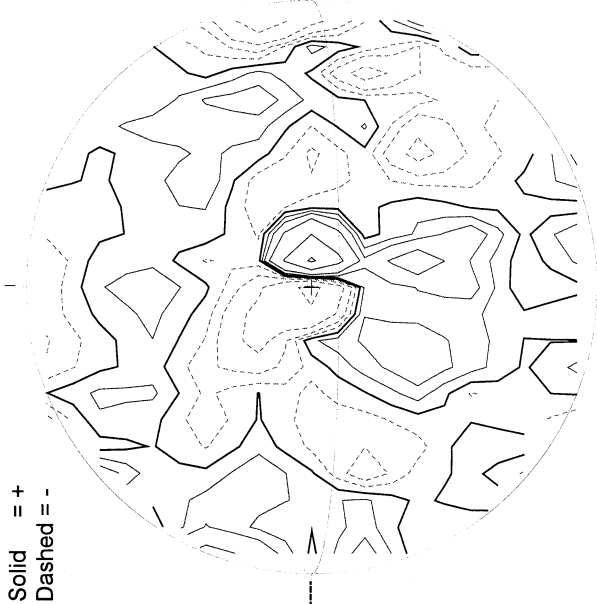
74
Jul 04

KITT PEAK MAGNETOGRAM--SOLIS
854.2 nm



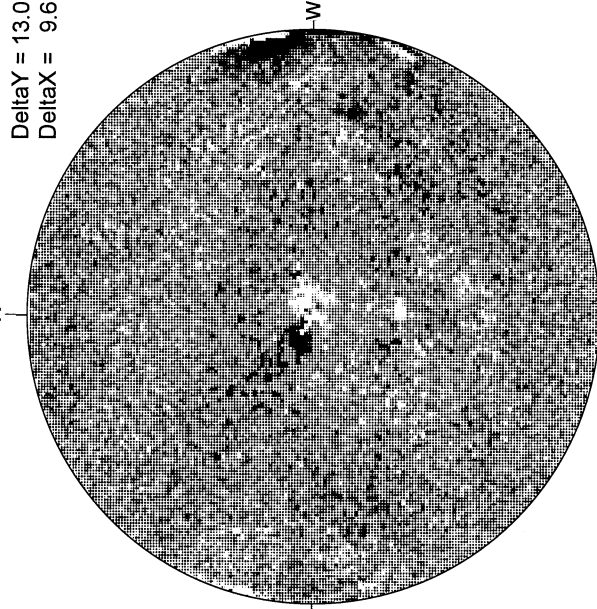
1839 UT

STANFORD MAGNETOGRAM



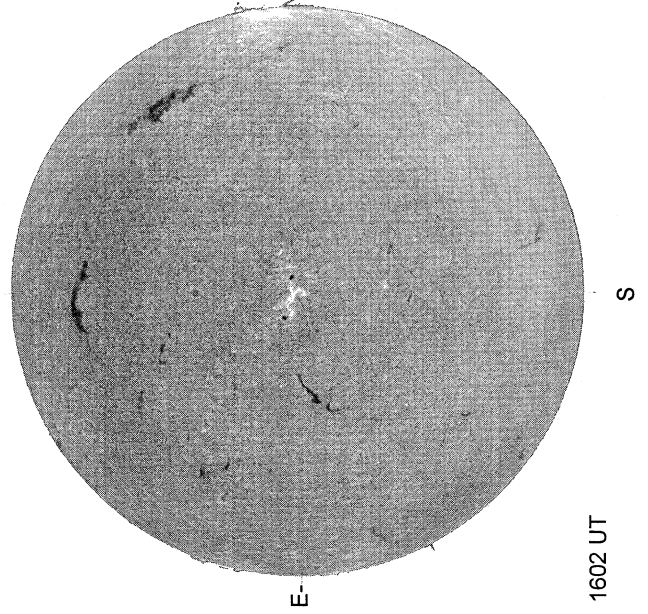
2216 UT

MT. WILSON MAGNETOGRAM



16.38 -
17.31 UT

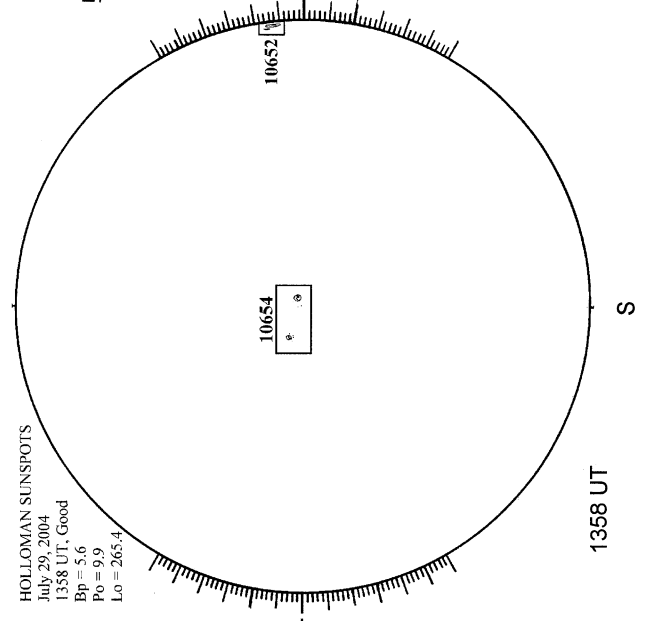
BIG BEAR H-ALPHA



1602 UT

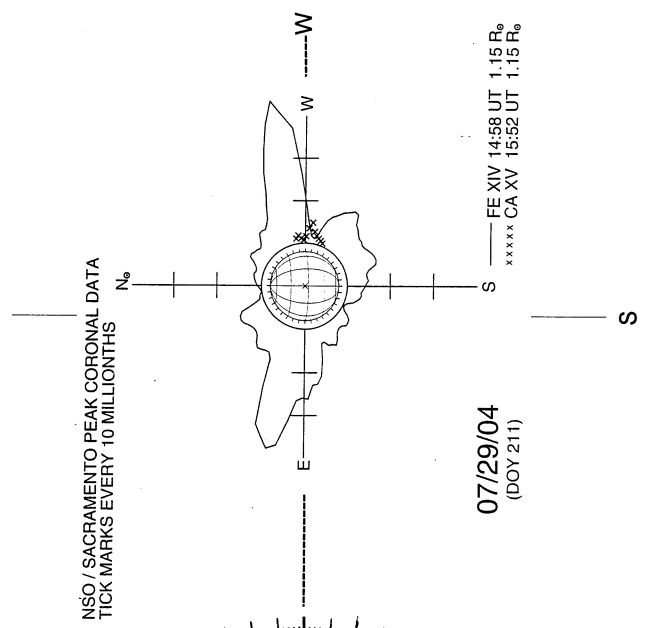
HOLLOMAN SUNSPOTS

HOLLOMAN SUNSPOTS
July 29, 2004
1358 UT, Good
Bn = 5.6
Po = 9.9
Lo = 265.4



1358 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



07/29/04
(DOY 211)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS

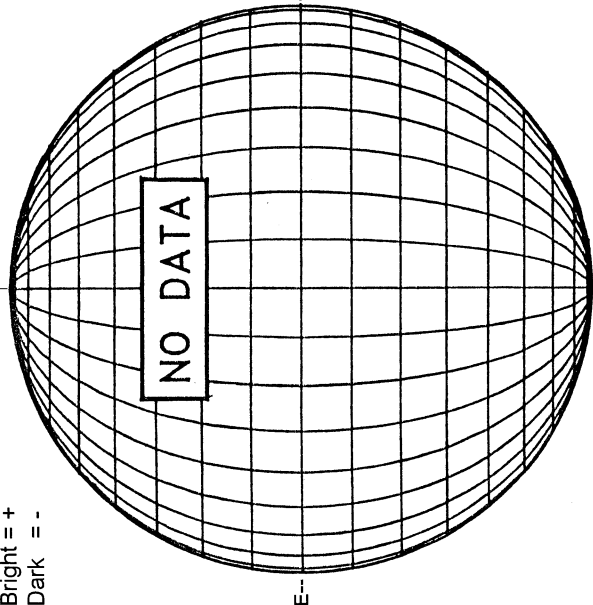
FE XIV 14:58 UT 1.15 R_o
CA XV 15:52 UT 1.15 R_o

JULY 30, 2004 (P= 10.14, Bo = 5.66, Lo = 258.89)

KITT PEAK MAGNETOGRAM—SOLIS

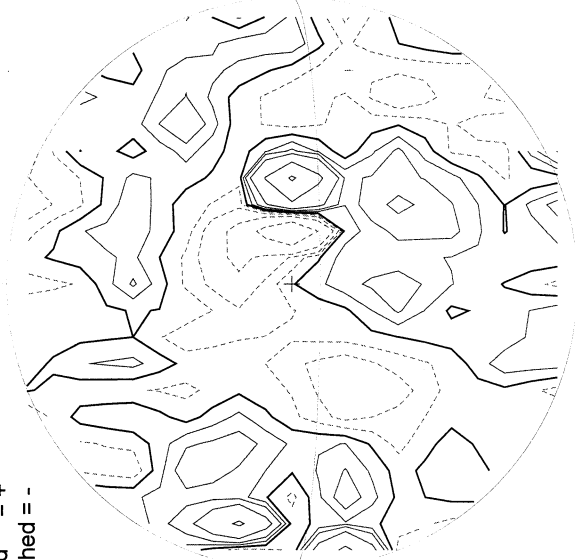
854.2 nm

Bright = +
Dark = -



STANFORD MAGNETOGRAM

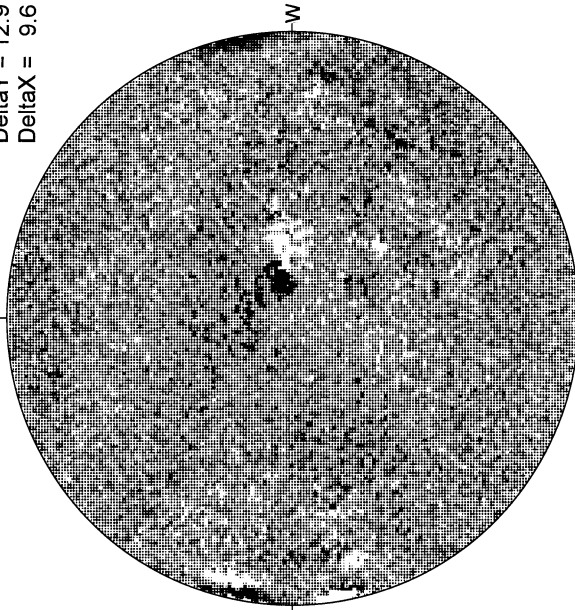
Solid = +
Dashed = -



JUL 31
0042 UT

MT. WILSON MAGNETOGRAM

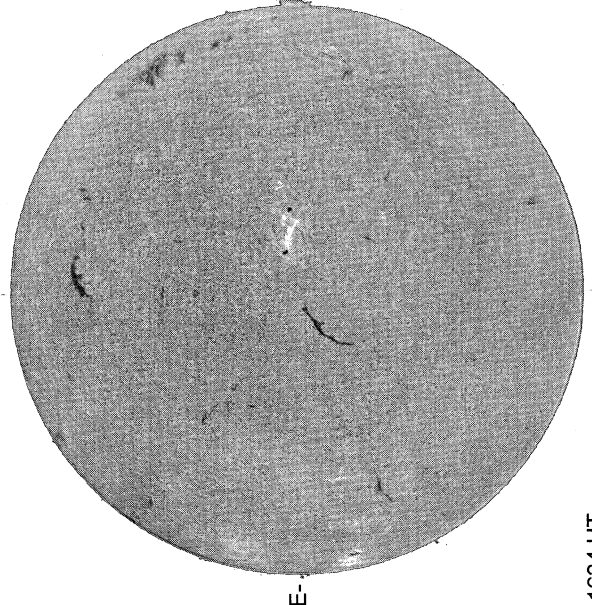
Delta Y = 12.9
Delta X = 9.6



15.95 -
16.88 UT

White = +7.5G
Black = -7.5G

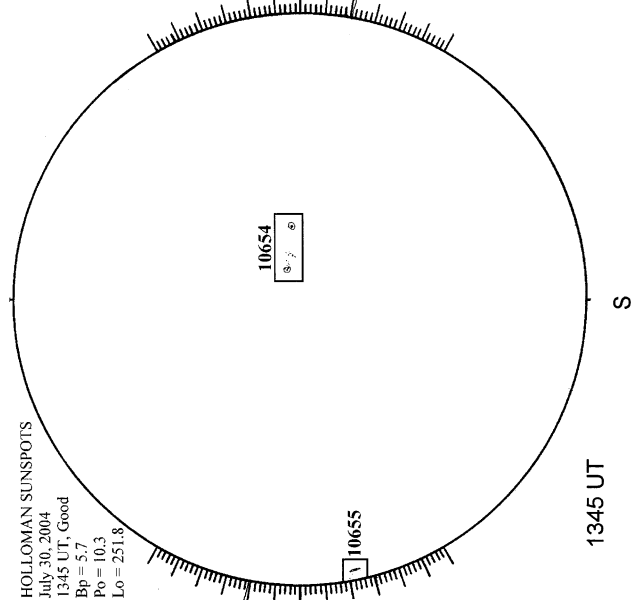
BIG BEAR H-ALPHA



1634 UT

HOLLOMAN SUNSPOTS

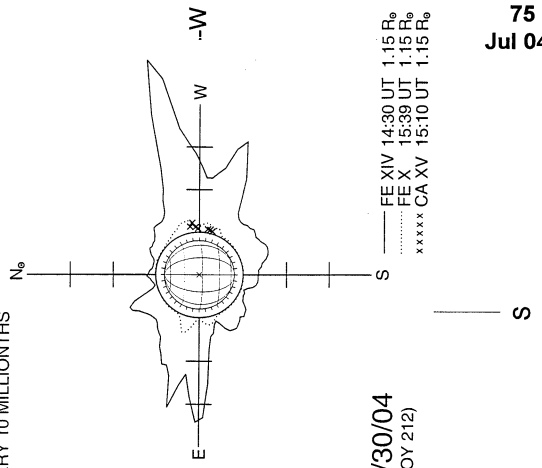
HOLLOMAN SUNSPOTS
July 30, 2004
1345 UT, Good
Bp = 5.7
Po = 10.3
Lo = 251.8



1345 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



07/30/04
(DOY 212)

— EE XIV 14:30 UT 1.15 R₆
- - - - - EE X 15:39 UT 1.15 R₆
* * * * * CA XV 15:10 UT 1.15 R₆

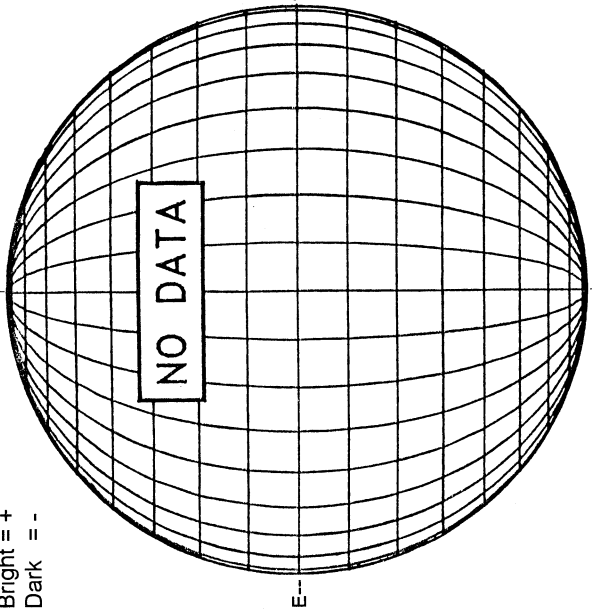
JULY 31, 2004 (P= 10.54, Bo = 5.73, Lo = 245.66)

76
Jul 04

KITT PEAK MAGNETOGRAM--SOLIS

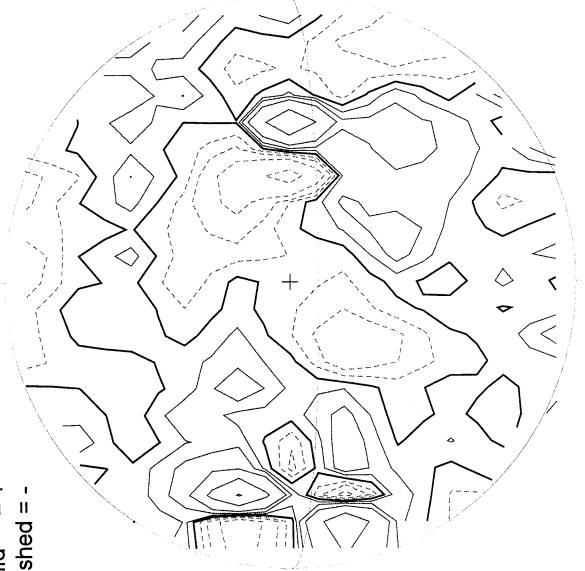
854.2 nm

Bright = +
Dark = -



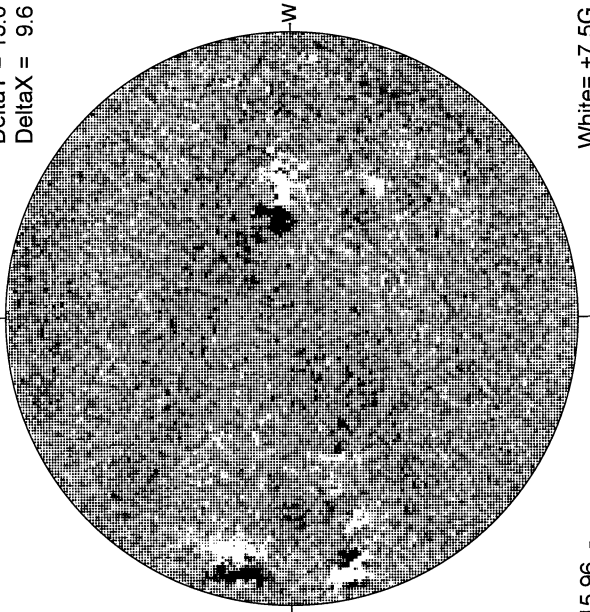
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

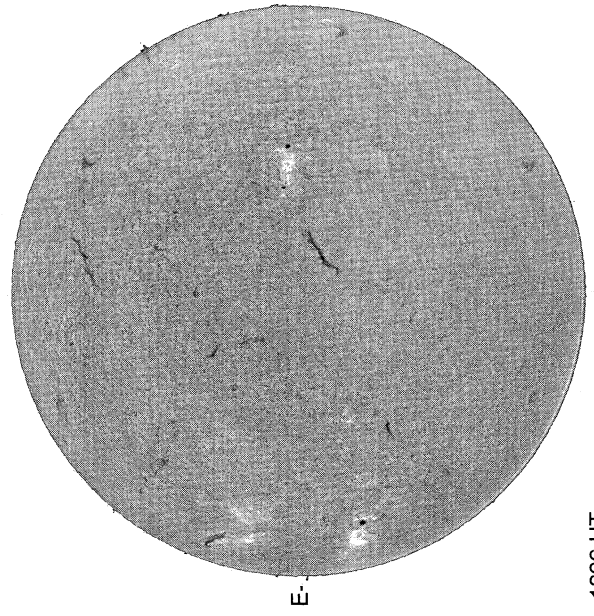
DeltaY = 13.0
DeltaX = 9.6



15.96 -
16.89 UT

White = +7.5G
Black = -7.5G

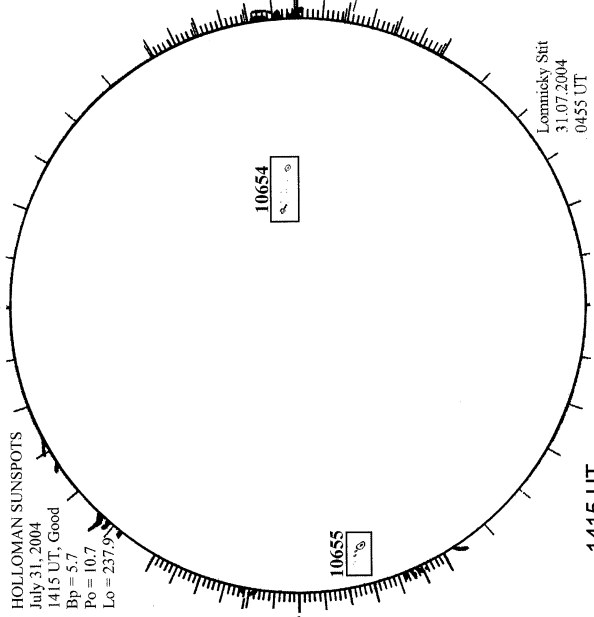
BIG BEAR H-ALPHA



1826 UT

HOLLOMAN SUNSPOTS

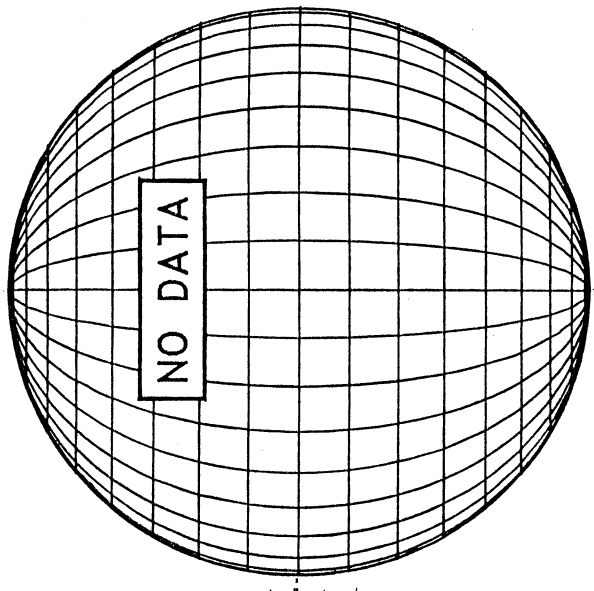
HOLLOMAN SUNSPOTS
July 31, 2004
1415 UT, Good
Bp = 5.7
Po = 10.7
Lo = 237.9°



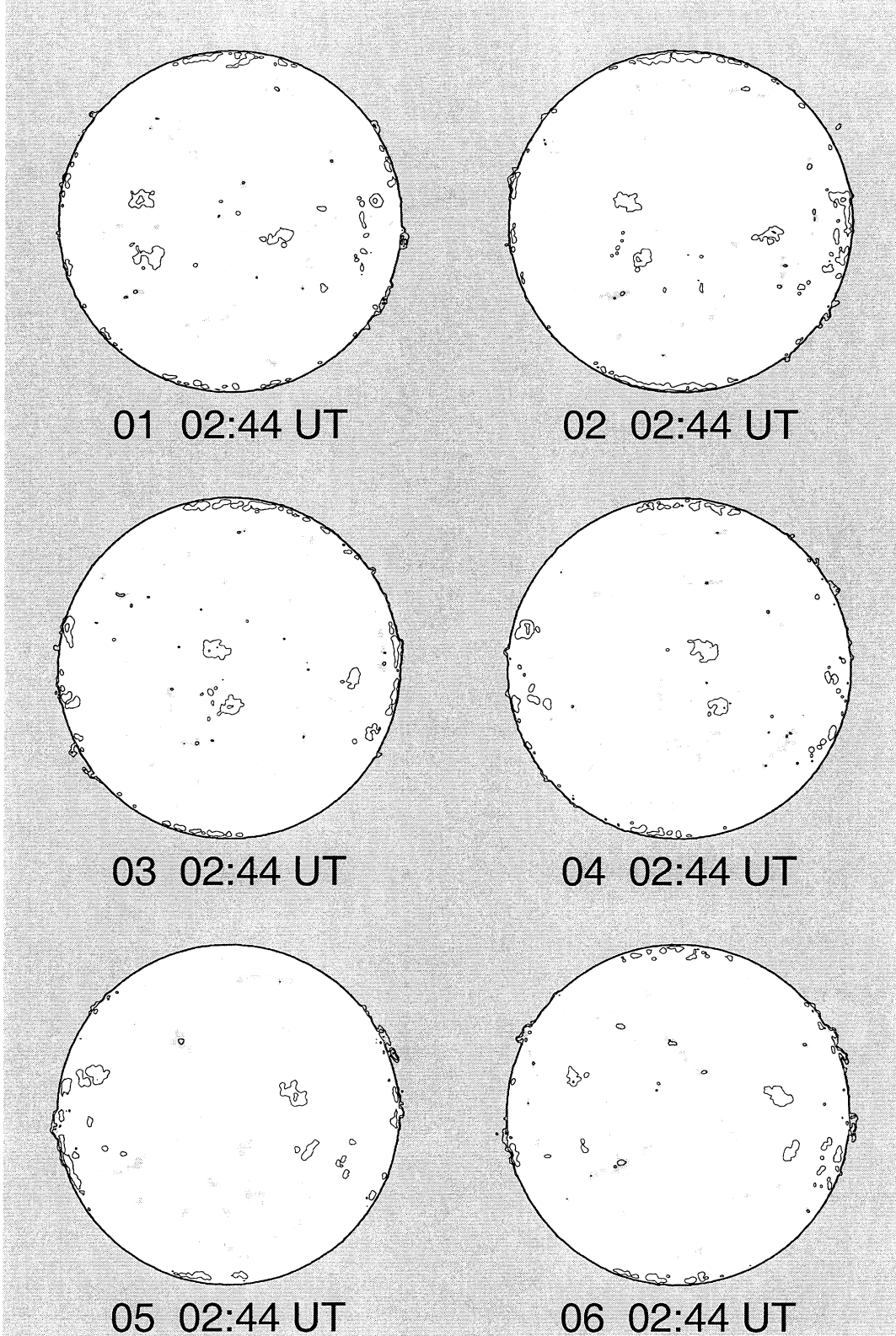
1415 UT
0455 UT LOMN Prom S

Lomnický Sit
31.07.2004
0455 UT

LOMNICKY PEAK CORONA (1.04 Radii)----

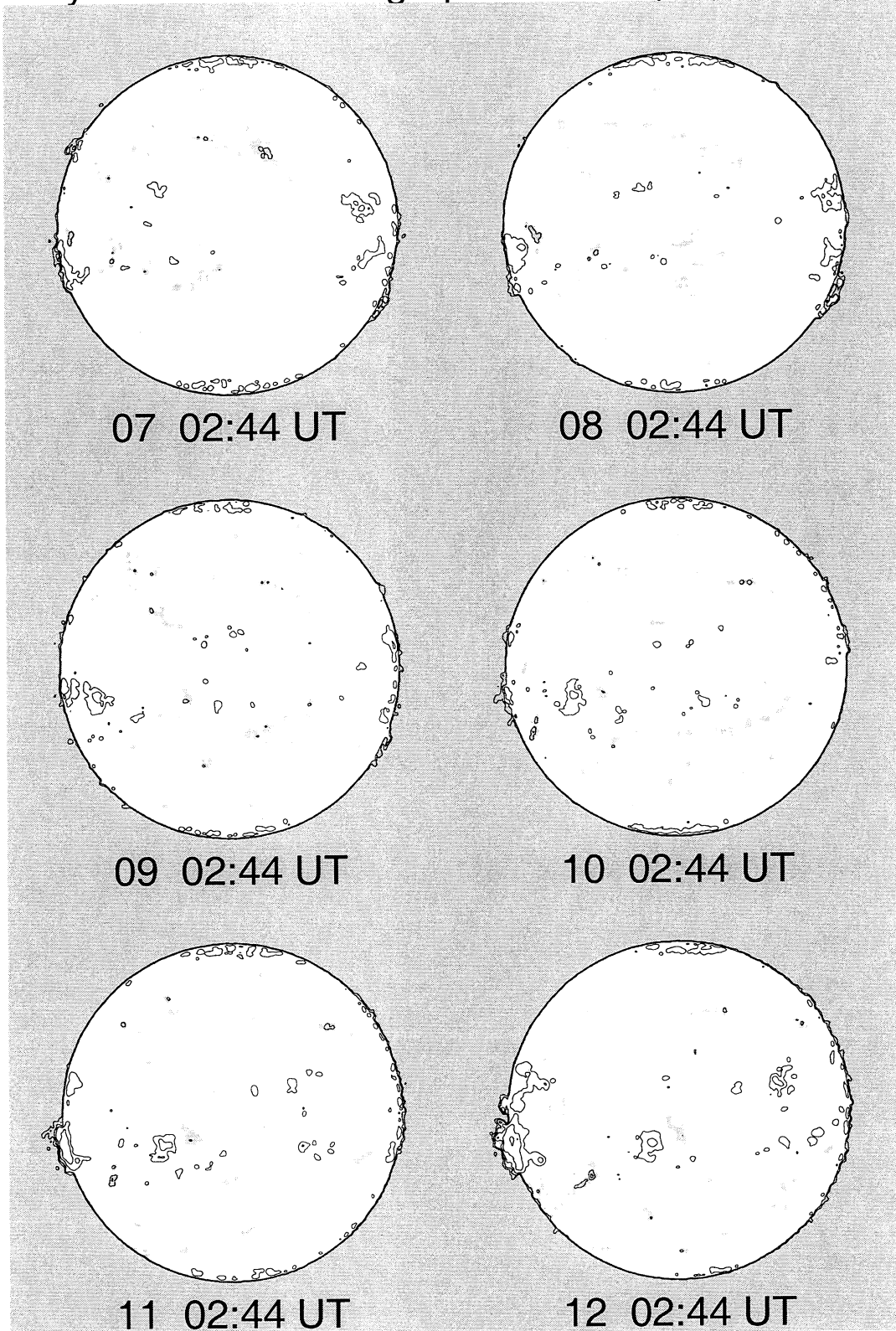


Nobeyama Radio Heliograph 17 GHz (Tb) 2004 July



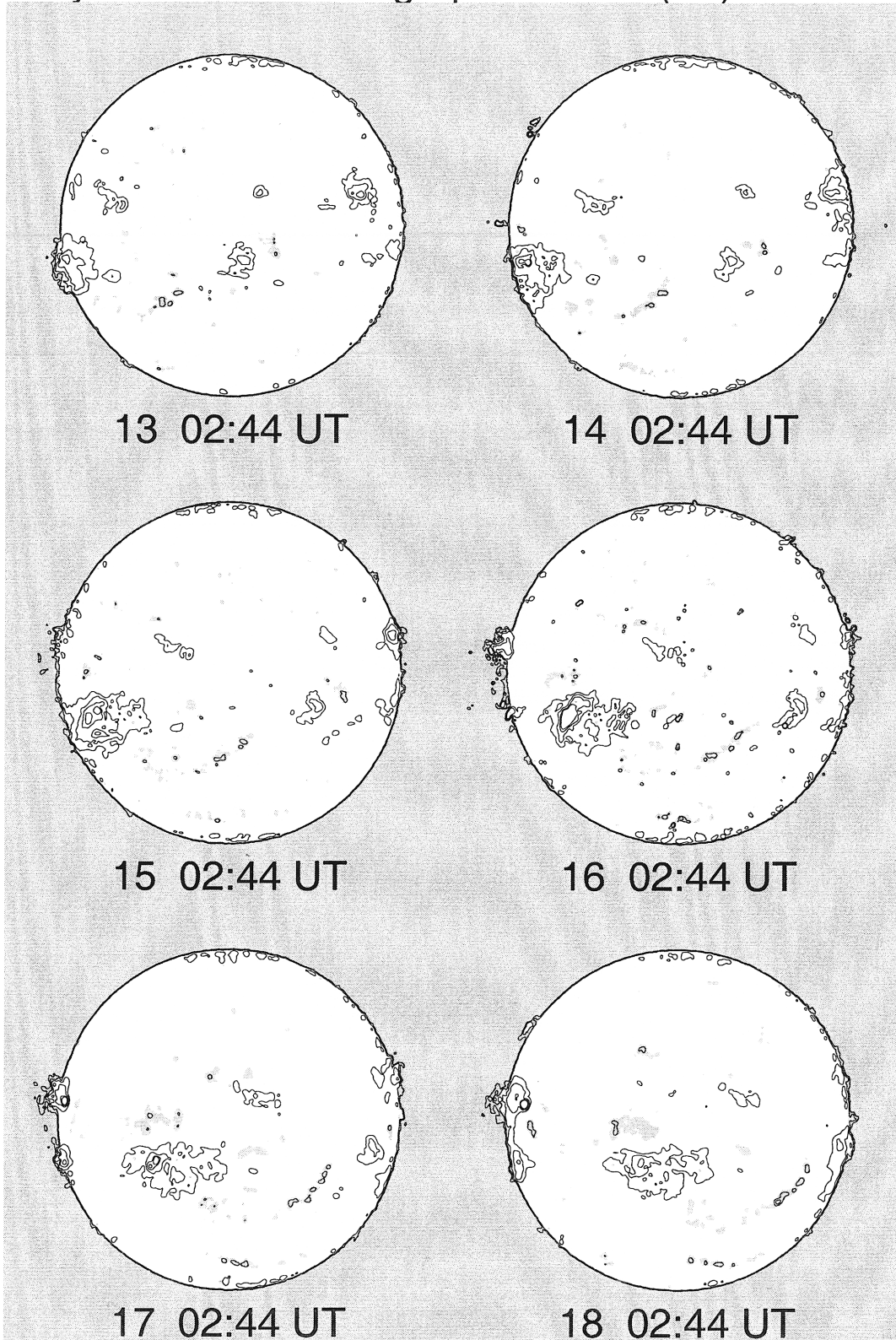
Contour Levels Tb=[5,8,12,20,50,100] x 10³ K
Grey level Tb <= 9,500 K

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 July



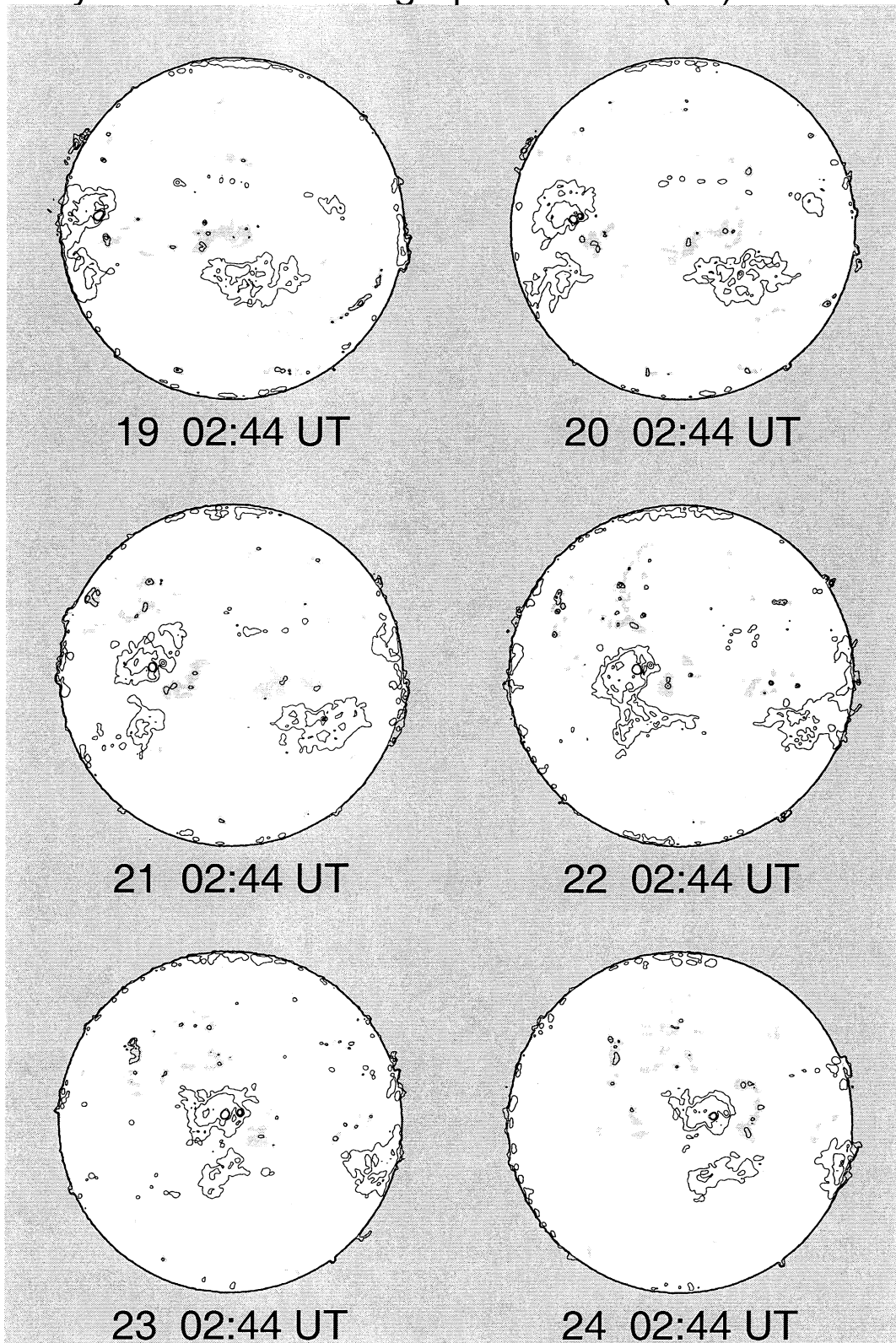
Contour Levels $T_b = [5, 8, 12, 20, 50, 100] \times 10^3 \text{ K}$
Grey level $T_b \leq 9,500 \text{ K}$

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 July



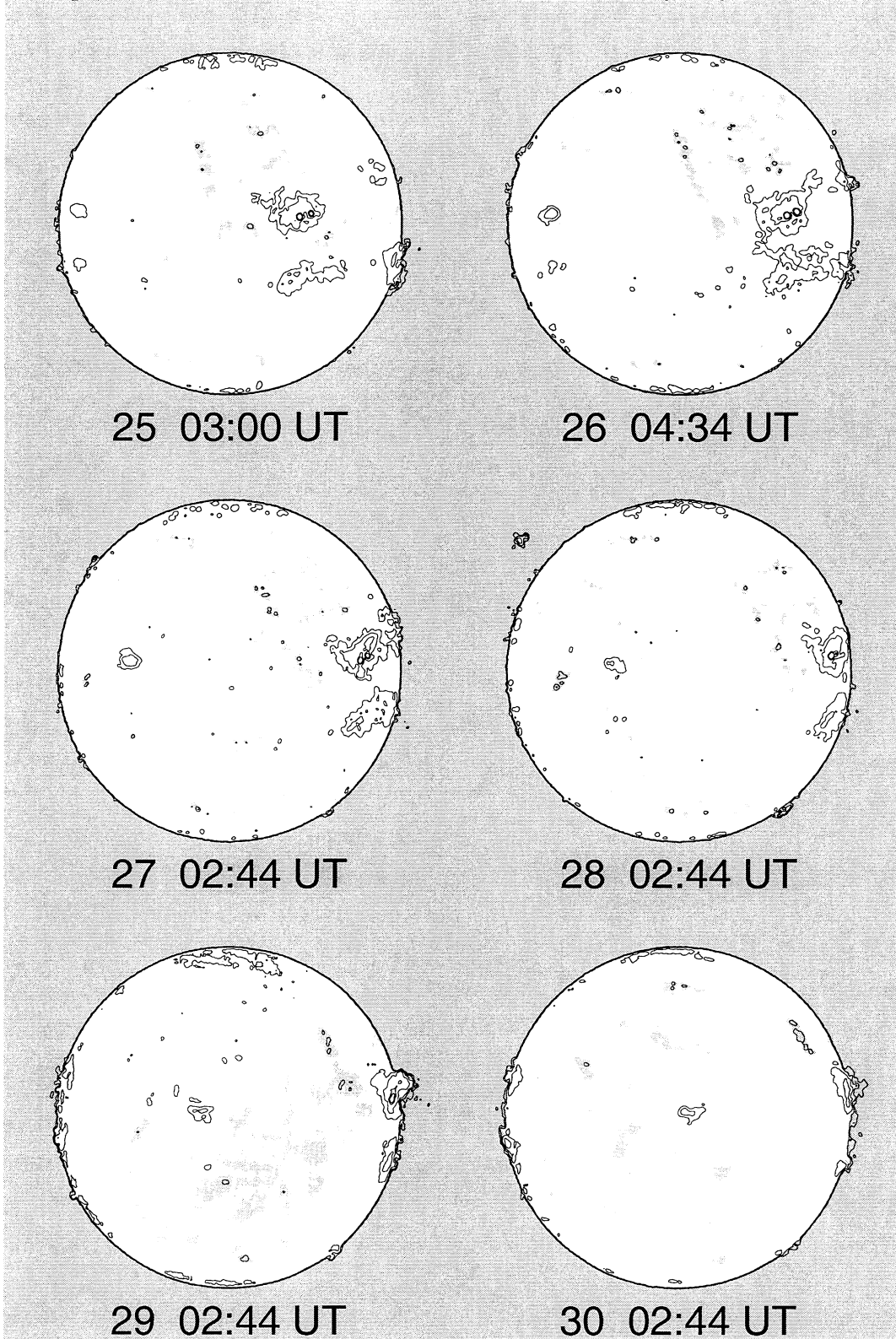
Contour Levels $T_b = [5, 8, 12, 20, 50, 100] \times 10^3$ K
Grey level $T_b \leq 9,500$ K

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 July



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

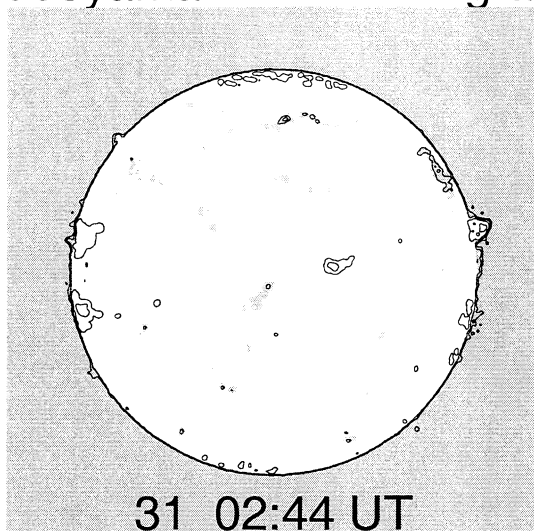
Nobeyama Radio Heliograph 17 GHz (Tb) 2004 July



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

82
Jul 04

Nobeyama Radio Heliograph 17 GHz (Tb) 2004 July



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

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

83
Jul 04

JULY 2004

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
10640		VORO	06 27 0024	S08 E79	07 2.9			AXX	16	1		3
10640		LEAR	06 27 0103	S09 E78	07 2.9		A	AXX	40	1	1	3
10640	32138	MWIL	06 27 1445	S08 E74	07 3.2	5	(B)					
10640		VORO	06 27 2244	S08 E68	07 3.0			BAO	51	2	3	3
10640		LEAR	06 28 0119	S07 E68	07 3.1		B	DAO	40	2	4	3
10640		KAND	06 28 0820	S08 E65	07 3.2			CRO		2	6	4
10640		KAND	06 28 0820	S08 E65	07 3.2			CRO		2	6	4
10640	32138	MWIL	06 28 1430	S08 E60	07 3.1	5	(B)					
10640		HOLL	06 28 1916	S08 E57	07 3.1		B	CAO	30	3	5	2
10640		LEAR	06 29 0041	S07 E53	07 3.0		B	DAO	50	4	4	2
10640		VORO	06 29 0459	S08 E52	07 3.1			CAO	42	5	5	3
10640		KAND	06 29 0745	S08 E51	07 3.1			CRO		5	5	4
10640		KAND	06 29 0745	S08 E51	07 3.1			CRO		5	5	4
10640	32138	MWIL	06 29 1430	S08 E47	07 3.1	4	(BG)					
10640		HOLL	06 29 2020	S12 E45	07 3.2		B	CAO	30	9	8	2
10640		VORO	06 29 2212	S08 E42	07 3.1			CAO	32	4	5	3
10640		LEAR	06 30 0045	S07 E41	07 3.1		B	DAO	40	5	5	3
10640		KAND	06 30 1055	S07 E35	07 3.1			BXO		2	4	3
10640		KAND	06 30 1055	S07 E35	07 3.1			BXO		2	4	3
10640		HOLL	06 30 1405	S08 E32	07 3.0		B	CSO	10	3	5	4
10640	32138	MWIL	06 30 1430	S08 E34	07 3.1	4	(BG)					
10640		LEAR	07 01 0213	S08 E28	07 3.2		A	HSX	120	2	2	3
10640		KAND	07 01 1035	S08 E23	07 3.2			AX		1		3
10640		HOLL	07 01 1407	S09 E19	07 3.0		B	CSO	20	2	4	4
10640	32138	MWIL	07 01 1500	S07 E20	07 3.1	4	(AP)					
10640		VORO	07 02 0047	S08 E13	07 3.0			BRO	26	3	4	3
10640		LEAR	07 02 0641	S09 E10	07 3.0		B	CSO	20	4	4	2
10640		KAND	07 02 0820	S09 E10	07 3.1			BXO		5	7	5
10640		HOLL	07 02 1419	S09 E07	07 3.1		B	DSO	20	6	6	4
10640	32138	MWIL	07 02 1430	S09 E05	07 3.0	4	(B)					
10640		LEAR	07 03 0123	S09 W01	07 3.0		B	BXO	30	7	6	3
10640		VORO	07 03 0415	S09 W02	07 3.0			BXO	13	5	5	3
10640		KAND	07 03 1130	S11 W07	07 2.9			BXO		3	4	4
10640	32138	MWIL	07 03 1430	S10 W07	07 3.1	4	(B)					
10640		HOLL	07 03 1949	S09 W11	07 3.0		B	CSO	30	4	6	2
10640		VORO	07 03 2342	S08 W14	07 2.9			BXO	17	3	5	2
10640		LEAR	07 04 0040	S10 W13	07 3.0		B	BXO	10	7	5	3
10640	32138	MWIL	07 04 1430	S08 W21	07 3.0	4	(B)					
10640		LEAR	07 05 0052	S09 W25	07 3.1		B	CAO	50	4	3	3
10640		HOLL	07 05 1414	S08 W36	07 2.9		A	AXX		1	1	3
10640	32138	MWIL	07 05 1430	S08 W36	07 2.9	4	(AF)					
10640		VORO	07 06 0445	S07 W45	07 2.8			ARX	3	1		2
10640		HOLL	07 06 1410	S07 W50	07 2.8		A	AXX	10	2	1	4
10640	32138	MWIL	07 06 1430	S07 W51	07 2.8	4	(AF)					
10639	32137	MWIL	06 27 1445	N11 E79	07 3.5	4	(B)					
10639		VORO	06 27 2244	N10 E71	07 3.3			HAX	121	2		3
10639		LEAR	06 28 0119	N13 E72	07 3.5		B	DAO	70	4	5	3
10639		KAND	06 28 0820	N11 E70	07 3.6			CAO		4	6	4
10639		KAND	06 28 0820	N11 E70	07 3.6			CAO		4	6	4
10639	32137	MWIL	06 28 1430	N11 E65	07 3.5	5	(B)					
10639		HOLL	06 28 1916	N11 E62	07 3.5		B	CSO	100	7	9	2
10639		LEAR	06 29 0041	N13 E58	07 3.4		B	CAO	150	8	8	2
10639		VORO	06 29 0459	N08 E53	07 3.2			HAX	138	2		3
10639		VORO	06 29 0459	N12 E58	07 3.6			AXX	14	1		3
10639		KAND	06 29 0745	N10 E55	07 3.4			CSO		3	8	4
10639		KAND	06 29 0745	N10 E55	07 3.4			CSO		3	8	4
10639	32137	MWIL	06 29 1430	N10 E50	07 3.4	5	(BP)					
10639		HOLL	06 29 2020	N15 E45	07 3.2		B	CSI	100	5	4	2
10639		VORO	06 29 2212	N09 E43	07 3.1			HHX	161	3		3
10639		VORO	06 29 2212	N12 E49	07 3.6			HRX	24	5		3
10639		LEAR	06 30 0045	N12 E45	07 3.4		B	CAO	120	6	9	3
10639		KAND	06 30 1055	N09 E38	07 3.3			CAO		6	8	3
10639		KAND	06 30 1055	N09 E38	07 3.3			CAO		6	8	3
10639		HOLL	06 30 1405	N07 E35	07 3.2		B	CAO	90	8	7	4
10639	32137	MWIL	06 30 1430	N10 E37	07 3.4	5	(BP)					
10639		LEAR	07 01 0213	N11 E31	07 3.4		B	CSO	20	4	8	3
10639		KAND	07 01 1035	N08 E23	07 3.2			HA		2	2	3
10639		HOLL	07 01 1407	N09 E23	07 3.3		B	CSO	80	4	6	4

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

JULY 2004

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	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
10639	32137	MWIL	07	01	1500	N09	E21	07	3.2	5	(BP)					
10639		VORO	07	02	0047	N09	E15	07	3.1			HAX	140	2		3
10639		LEAR	07	02	0641	N10	E15	07	3.4		B	CSO	80	4	9	2
10639		KAND	07	02	0820	N08	E11	07	3.2			HA		3	2	5
10639		HOLL	07	02	1419	N09	E11	07	3.4		B	CAO	90	10	8	4
10639	32137	MWIL	07	02	1430	N08	E08	07	3.2	5	(BP)					
10639		LEAR	07	03	0123	N08	E02	07	3.2		A	HSX	60	4	2	3
10639		VORO	07	03	0415	N08	W00	07	3.2			HAX	101	3		3
10639		KAND	07	03	1130	N08	W05	07	3.1			CAO		6	5	4
10639	32137	MWIL	07	03	1430	N08	W05	07	3.2	4	(BP)					
10639		HOLL	07	03	1949	N09	W07	07	3.3		B	CSO	30	4	6	2
10639		VORO	07	03	2342	N09	W11	07	3.2			HAX	54	3	1	2
10639		LEAR	07	04	0040	N09	W08	07	3.4		B	DAO	40	10	7	3
10639		KAND	07	04	1220	N08	W18	07	3.2			DAO		4	2	4
10639	32137	MWIL	07	04	1430	N08	W19	07	3.2	4	(AP)					
10639		LEAR	07	05	0052	N08	W25	07	3.2		A	AXX	10	5	3	3
10639		KAND	07	05	0615	N09	W25	07	3.4			CAO		3	7	4
10639		HOLL	07	05	1414	N09	W29	07	3.4		B	CSO	30	6	7	3
10639	32137	MWIL	07	05	1430	N08	W33	07	3.1	4	(AP)					
10639		VORO	07	06	0445	N09	W38	07	3.3			HRX	21	1		2
10639		KAND	07	06	0823	N08	W42	07	3.2			BXO		2	2	4
10639		HOLL	07	06	1410	N09	W46	07	3.1		B	BXO	10	6	6	4
10639	32137	MWIL	07	06	1430	N09	W45	07	3.2	4	(B)					
10639		HOLL	07	07	1400	N10	W55	07	3.4		B	BXO	10	6	7	3
10639		SVTO	07	07	1630	N14	W53	07	3.7		A	HSX	20	1	1	3
10639B		VORO	07	03	0415	S06	E05	07	3.5			AXX	2	1		3
10639A		LEAR	07	08	0319	N04	W37	07	5.4		B	BXX	10	3	2	3
10641A	32141	MWIL	07	03	1430	S12	E60	07	8.1	4	(AF)					
10641A	32141	MWIL	07	04	1430	S10	E45	07	8.0	4	(AF)					
10641A	32153	MWIL	07	12	1430	S07	W58	07	8.2	3	(AF)					
10641B	32142	MWIL	07	03	1430	S09	E68	07	8.7	3	(B)					
10641		HOLL	07	06	1410	N15	E30	07	8.9		A	AXX	10	1	1	4
10641	32144	MWIL	07	09	1430	N16	W08	07	9.0	4	(AP)					
10643		LEAR	07	09	0032	S08	E05	07	9.4		B	CAO	20	5	3	3
10643		SVTO	07	09	0528	S08	E02	07	9.4		B	CSO	30	3	4	3
10643		KAND	07	09	1112	S08	W02	07	9.3			DSO		4	4	3
10643	32145	MWIL	07	09	1430	S08	W03	07	9.4	4	(B)					
10643		HOLL	07	09	1550	S09	W03	07	9.4		B	DAO	20	2	4	3
10643		LEAR	07	10	0058	S08	W10	07	9.3		B	CAO	30	5	4	2
10643		VORO	07	10	0251	S08	W10	07	9.4			BRI	9	5	2	3
10643		SVTO	07	10	0545	S09	W12	07	9.3		B	CSO	20	2	4	3
10643		KAND	07	10	1030	S09	W15	07	9.3			HR		5	2	1
10643	32145	MWIL	07	10	1445	S08	W17	07	9.3	4	(B)					
10643		HOLL	07	10	1720	S09	W18	07	9.4		B	DAO	20	2	3	2
10643		LEAR	07	11	0355	S08	W26	07	9.2		B	BXO	10	2	2	3
10643		SVTO	07	11	0605	S08	W28	07	9.1		A	AXX		1		3
10643	32145	MWIL	07	12	1430	S08	W43	07	9.4	4	(AF)					
10646		LEAR	07	09	0032	N11	E10	07	9.8		A	AXX	10	1	1	3
10646		KAND	07	09	1112	N11	E04	07	9.8			BXO		2	3	3
10646	32146	MWIL	07	09	1430	N12	E02	07	9.7	4	(B)					
10646		LEAR	07	10	0058	N12	W06	07	9.6		A	AXX	10	1	1	2
10646		VORO	07	10	0251	N12	W07	07	9.6			AXX	3	1		3
10646		LEAR	07	11	0355	N13	W23	07	9.4		B	BXO	10	3	3	3
10646		SVTO	07	11	0605	N13	W23	07	9.5		B	CRO	10	3	4	3
10646		KAND	07	11	1110	N13	W26	07	9.5			CRO		6	4	5
10646	32149	MWIL	07	11	1430	N13	W28	07	9.5	4	(B)					
10646		SVTO	07	12	0510	N13	W37	07	9.4		B	CSO	30	6	5	2
10646		KAND	07	12	0840	N12	W39	07	9.4			CSI		10	7	4
10646		HOLL	07	12	1416	N12	W41	07	9.5		B	DAI	100	20	9	3
10646	32149	MWIL	07	12	1430	N13	W41	07	9.5	5	(B)					
10646		LEAR	07	13	0254	N13	W50	07	9.3		B	DAI	260	18	7	2
10646		KAND	07	13	0615	N13	W50	07	9.5			DAO		4	8	4

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

85
Jul 04

JULY 2004

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
10646		SVTO	07 13 0735	N14 W50	07 9.5		B	DAO	200	9	7	3
10646		HOLL	07 13 1330	N13 W55	07 9.4		B	DAI	220	21	10	4
10646	32149	MWIL	07 13 1430	N13 W54	07 9.5	5	(D)					
10646		LEAR	07 14 0122	N12 W60	07 9.5		B	DAC	260	11	8	3
10646		SVTO	07 14 0508	N13 W63	07 9.5		B	DSI	180	10	10	3
10646		VORO	07 14 0527	N13 W62	07 9.5			DAI	201	8	8	3
10646		KAND	07 14 0735	N12 W64	07 9.5			BXI		7	5	3
10646	32149	MWIL	07 14 1415	N13 W68	07 9.5	5	(B)					
10646		HOLL	07 14 1423	N12 W65	07 9.7		BG	DAC	120	10	8	3
10646		VORO	07 14 2327	N13 W73	07 9.5			DAI	118	6	10	3
10646		SVTO	07 15 0520	N14 W75	07 9.5		B	BXO	90	7	10	3
10646		HOLL	07 15 1406	N13 W79	07 9.6		B	BXO	50	6	6	3
10645		VORO	07 10 0251	N11 E06	07 10.6			AXX	3	7		3
10645	32147	MWIL	07 10 1445	N12 E00	07 10.6	4	(B)					
10645		HOLL	07 10 1720	N11 W02	07 10.6		B	CAO	20	4	3	2
10645		LEAR	07 11 0355	N11 W08	07 10.6		B	BXO	10	4	3	3
10645		SVTO	07 11 0605	N11 W09	07 10.6		B	DRO	20	4	3	3
10645		KAND	07 11 1110	N11 W12	07 10.6			BXO		4	3	5
10645	32147	MWIL	07 11 1430	N12 W14	07 10.5	4	(B)					
10645		HOLL	07 12 1416	N11 W27	07 10.6		B	BXO	10	2	2	3
10645	32147	MWIL	07 12 1430	N11 W27	07 10.6	4	(B)					
10648A		KAND	07 11 1110	S11 E09	07 12.1			BXO		2	2	5
10648A	32150	MWIL	07 11 1430	S10 E07	07 12.1	4	(B)					
10648		HOLL	07 12 1416	N14 W03	07 12.4		B	CAO	30	6	5	3
10648	32154	MWIL	07 12 1430	N15 W03	07 12.4	4	(B)					
10648		LEAR	07 13 0254	N16 W11	07 12.3		B	CAI	20	10	6	2
10648		KAND	07 13 0615	N15 W11	07 12.4			CRO		5	7	4
10648		SVTO	07 13 0735	N16 W13	07 12.3		B	DAO	40	9	6	3
10648		HOLL	07 13 1330	N17 W17	07 12.3		B	DSO	30	10	7	4
10648	32154	MWIL	07 13 1430	N15 W16	07 12.4	5	(B)					
10648		LEAR	07 14 0122	N16 W23	07 12.3		B	DAO	40	6	7	3
10648		SVTO	07 14 0508	N17 W25	07 12.3		B	CRO	20	4	7	3
10648		VORO	07 14 0527	N16 W24	07 12.4			BRO	25	6	7	3
10648	32154	MWIL	07 14 1415	N16 W29	07 12.4	4	(B)					
10648		HOLL	07 14 1423	N16 W30	07 12.3		B	BXO	30	9	7	3
10648		VORO	07 14 2327	N16 W35	07 12.3			BRO	11	3	7	3
10648		HOLL	07 15 1406	N15 W46	07 12.1		B	BXO	10	2	2	3
10648		VORO	07 15 2313	N15 W52	07 12.0			AXX	3	1		3
10642		HOLL	07 06 1410	S08 E79	07 12.5		A	HXX	10	1	2	4
10642	32143	MWIL	07 06 1430	S07 E78	07 12.4	4	(AP)					
10642		KAND	07 07 1100	S08 E70	07 12.7			CSO		2	7	4
10642		HOLL	07 07 1400	S07 E69	07 12.7		B	BRO	20	8	12	3
10642	32143	MWIL	07 07 1445	S07 E67	07 12.6	4	(BP)					
10642		SVTO	07 07 1630	S09 E65	07 12.6		A	BXO	40	2	2	3
10642		LEAR	07 08 0319	S06 E62	07 12.8		B	CAO	40	5	8	3
10642		SVTO	07 08 0525	S09 E59	07 12.6		B	DRO	60	3	10	3
10642		KAND	07 08 0850	S08 E60	07 12.9			CAO		3	10	4
10642		HOLL	07 08 1535	S07 E56	07 12.8		B	CAO	40	12	11	4
10642		LEAR	07 09 0032	S07 E52	07 12.9		B	DAO	40	8	6	3
10642		SVTO	07 09 0528	S06 E48	07 12.8		B	DSO	60	4	6	3
10642		KAND	07 09 1112	S07 E45	07 12.8			DSO		6	7	3
10642	32143	MWIL	07 09 1430	S06 E44	07 12.9	5	(B)					
10642		HOLL	07 09 1550	S07 E44	07 12.9		B	DAI	100	14	8	3
10642		LEAR	07 10 0058	S07 E37	07 12.8		B	DAO	80	18	9	2
10642		VORO	07 10 0251	S06 E36	07 12.8			DAI	105	20	6	3
10642		SVTO	07 10 0545	S07 E36	07 12.9		B	DAO	60	6	9	3
10642		KAND	07 10 1030	S08 E32	07 12.8			CAO		11	9	1
10642	32143	MWIL	07 10 1445	S06 E31	07 12.9	5	(B)					
10642		HOLL	07 10 1720	S08 E29	07 12.9		B	DAI	130	12	8	2
10642		LEAR	07 11 0355	S07 E22	07 12.8		B	CAO	140	32	9	3
10642		SVTO	07 11 0605	S07 E21	07 12.8		B	DAO	110	22	10	3
10642		KAND	07 11 1110	S08 E18	07 12.8			DAI		21	10	5
10642	32143	MWIL	07 11 1430	S07 E17	07 12.9	5	(B)					
10642		SVTO	07 12 0510	S06 E08	07 12.8		B	DSO	130	14	7	2
10642		KAND	07 12 0840	S08 E06	07 12.8			DAI		21	8	4

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

JULY 2004

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	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
10642		HOLL	07	12	1416	S08	E05	07	13.0		B	DAI	130	32	8	3
10642	32143	MWIL	07	12	1430	S07	E03	07	12.8	5	(B)					
10642		LEAR	07	13	0254	S07	W05	07	12.7		B	CAI	130	20	7	2
10642		KAND	07	13	0615	S07	W06	07	12.8			CAO		12	8	4
10642		SVTO	07	13	0735	S06	W07	07	12.8		B	CAO	110	11	8	3
10642		HOLL	07	13	1330	S07	W12	07	12.7		B	DAI	180	21	8	4
10642	32143	MWIL	07	13	1430	S07	W10	07	12.8	5	(B)					
10642		LEAR	07	14	0122	S08	W16	07	12.8		B	DAO	110	21	6	3
10642		SVTO	07	14	0508	S08	W18	07	12.9		B	DAO	100	7	6	3
10642		VORO	07	14	0527	S07	W19	07	12.8			DAI	160	6	4	3
10642		KAND	07	14	0735	S08	W21	07	12.7			DSO		8	6	3
10642	32143	MWIL	07	14	1415	S07	W24	07	12.8	5	(BP)					
10642		HOLL	07	14	1423	S07	W24	07	12.8		B	CAO	100	17	6	3
10642		VORO	07	14	2327	S07	W28	07	12.9			DAI	150	7	4	3
10642		SVTO	07	15	0520	S07	W33	07	12.7		B	DSO	120	6	5	3
10642		KAND	07	15	0845	S08	W35	07	12.7			CSI		9	6	2
10642		HOLL	07	15	1406	S08	W37	07	12.8		B	CAI	100	15	5	3
10642		VORO	07	15	2313	S07	W44	07	12.7			HAX	104	3	1	3
10642		SVTO	07	16	0612	S08	W47	07	12.7		B	CSO	80	4	4	3
10642		KAND	07	16	0845	S08	W49	07	12.7			HS		1	3	3
10642		HOLL	07	16	1530	S07	W52	07	12.7		B	CAO	60	7	3	4
10642		VORO	07	17	0003	S07	W58	07	12.6			HAX	101	1		3
10642		SVTO	07	17	0544	S08	W63	07	12.5		B	CSO	80	3	4	3
10642		KAND	07	17	1055	S08	W65	07	12.6			HA		4	4	4
10642		HOLL	07	17	1408	S06	W67	07	12.6		A	HSX	50	7	2	4
10642	32143	MWIL	07	17	1430	S07	W66	07	12.7	4	(AP)					
10642		VORO	07	17	2350	S07	W71	07	12.7			HAX	70	1		3
10642		LEAR	07	18	0135	S07	W71	07	12.7		A	HAX	110	2	2	4
10642		SVTO	07	18	0535	S09	W75	07	12.6		B	CSO	60	2	6	3
10642		KAND	07	18	1025	S08	W77	07	12.7			HA		1	3	3
10642	32143	MWIL	07	18	1430	S07	W78	07	12.8	4	AP					
10644		LEAR	07	10	0058	N10	E78	07	15.9		A	HXX	120	1	2	2
10644		VORO	07	10	0251	N11	E81	07	16.2			HAX	137	1		3
10644		SVTO	07	10	0545	N11	E80	07	16.2		A	HSX	60	1	4	3
10644		KAND	07	10	1030	N10	E78	07	16.3			HS		1	3	1
10644	32148	MWIL	07	10	1445	N11	E75	07	16.2	5	(AP)					
10644		HOLL	07	10	1720	N11	E74	07	16.3		A	HKX	150	1	2	2
10644		LEAR	07	11	0355	N12	E68	07	16.3		A	HAX	150	1	3	3
10644		SVTO	07	11	0605	N12	E67	07	16.3		A	HSX	120	1	3	3
10644		KAND	07	11	1110	N10	E64	07	16.3			HA		1	2	5
10644	32148	MWIL	07	11	1430	N12	E62	07	16.3	5	(BF)					
10644		SVTO	07	12	0510	N12	E54	07	16.3		A	HSX	100	1	3	2
10644		KAND	07	12	0840	N11	E52	07	16.3			HS		1	2	4
10644		HOLL	07	12	1416	N10	E48	07	16.2		B	DSO	110	7	4	3
10644	32148	MWIL	07	12	1430	N12	E49	07	16.3	5	(BP)					
10644		LEAR	07	13	0254	N11	E41	07	16.2		B	DAO	170	7	4	2
10644		KAND	07	13	0615	N11	E41	07	16.3			CSO		7	4	4
10644		SVTO	07	13	0735	N12	E38	07	16.2		B	CAO	110	8	5	3
10644		HOLL	07	13	1330	N10	E36	07	16.3		B	DHO	110	12	5	4
10644	32148	MWIL	07	13	1430	N11	E35	07	16.2	5	(BF)					
10644		LEAR	07	14	0122	N12	E28	07	16.2		B	DAO	160	11	3	3
10644		SVTO	07	14	0508	N11	E27	07	16.2		B	CAO	100	4	5	3
10644		VORO	07	14	0527	N11	E26	07	16.2			HKX	165	6	2	3
10644		KAND	07	14	0735	N11	E26	07	16.3			CAO		5	3	3
10644	32148	MWIL	07	14	1415	N11	E22	07	16.2	5	(BF)					
10644		HOLL	07	14	1423	N11	E22	07	16.2		B	CSO	120	13	4	3
10644		VORO	07	14	2327	N11	E17	07	16.2			HAX	139	3	2	3
10644		SVTO	07	15	0520	N12	E14	07	16.3		B	CSO	120	4	5	3
10644		KAND	07	15	0845	N11	E12	07	16.3			HA		1	2	2
10644		HOLL	07	15	1406	N11	E09	07	16.3		A	HSX	120	3	3	3
10644		VORO	07	15	2313	N12	E05	07	16.3			HKX	166	2		3
10644		SVTO	07	16	0612	N12	E02	07	16.4		A	HSX	150	2	4	3
10644		KAND	07	16	0845	N11	E00	07	16.4			CAO		5	4	3
10644		HOLL	07	16	1530	N13	W03	07	16.4		A	HSX	160	7	4	4
10644		VORO	07	17	0003	N11	W10	07	16.2			HKX	167	4	2	3
10644		SVTO	07	17	0544	N11	W14	07	16.2		B	CSO	120	6	4	3
10644		KAND	07	17	1055	N10	W16	07	16.2			CSO		9	4	4
10644		HOLL	07	17	1408	N12	W17	07	16.3		B	DSO	140	9	6	4

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

87
Jul 04

JULY 2004

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	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
10644	32148	MWIL	07	17	1430	N12	W18	07 16.2	5	(BF)					
10644		VORO	07	17	2350	N11	W23	07 16.3			HKX	169	5	3	3
10644		LEAR	07	18	0135	N12	W24	07 16.2		B	CAO	110	8	3	4
10644		SVTO	07	18	0535	N11	W26	07 16.3		B	CSO	110	6	5	3
10644		KAND	07	18	1025	N11	W28	07 16.3			CSO		4	4	3
10644	32148	MWIL	07	18	1430	N12	W31	07 16.3	5	(BF)					
10644		HOLL	07	18	1516	N11	W31	07 16.3		B	CSO	110	4	5	2
10644		LEAR	07	19	0035	N12	W36	07 16.3		A	HSX	180	1	3	3
10644		SVTO	07	19	0524	N12	W37	07 16.4		A	HSX	140	1	4	3
10644		KAND	07	19	0855	N11	W40	07 16.4			CSO		3	4	3
10644	32148	MWIL	07	19	1430	N12	W43	07 16.4	5	(BG)					
10644		HOLL	07	19	1630	N12	W44	07 16.4		B	CSO	140	7	6	4
10644		VORO	07	20	0306	N12	W49	07 16.4			HKX	180	4		3
10644		SVTO	07	20	0620	N12	W52	07 16.3		A	HSX	90	1	2	4
10644		KAND	07	20	1015	N11	W54	07 16.4			HS		1	2	3
10644	32148	MWIL	07	20	1430	N12	W56	07 16.4	5	(BP)					
10644		HOLL	07	20	1717	N12	W58	07 16.3		A	HXX	110	1	2	3
10644		VORO	07	20	2115	N12	W59	07 16.4			HXX	140	1		3
10644		SVTO	07	21	0611	N12	W65	07 16.4		A	HSX	90	1	4	4
10644		KAND	07	21	0640	N11	W66	07 16.3			HS		1	2	4
10644		HOLL	07	21	1405	N12	W68	07 16.5		A	HSX	90	3	3	4
10644	32148	MWIL	07	21	1430	N12	W69	07 16.4	5	(AP)					
10644		VORO	07	21	2345	N12	W74	07 16.4			HXX	143	1		3
10644		SVTO	07	22	0553	N11	W79	07 16.3		A	HSX	60	1	2	3
10644		KAND	07	22	0845	N11	W77	07 16.6			HS		1	2	4
10644	32148	MWIL	07	22	1445	N11	W82	07 16.4	4	(AP)					
10644A		LEAR	07	11	0355	S14	E71	07 16.5		A	AXX	10	1	1	3
10644A		SVTO	07	11	0605	S14	E70	07 16.5		A	AXX	10	1	1	3
10644A		KAND	07	11	1110	S16	E67	07 16.5			BXO		4	5	5
10644A	32151	MWIL	07	11	1430	S15	E66	07 16.6	4	(B)					
10644B		HOLL	07	17	1408	N09	W03	07 17.4		A	AXX		1	1	4
10644B	32157	MWIL	07	17	1430	N09	W03	07 17.4	4	(AF)					
10650A	32160	MWIL	07	18	1430	S16	W15	07 17.5	3	(AP)					
10650	32152	MWIL	07	11	1430	S08	E76	07 17.3	4	(AP)					
10650		KAND	07	12	0840	S08	E66	07 17.3			AX		1		4
10650		HOLL	07	12	1416	S08	E62	07 17.2		A	HSX	20	1	1	3
10650	32152	MWIL	07	12	1430	S08	E61	07 17.2	4	(AP)					
10650		LEAR	07	13	0254	S07	E55	07 17.2		A	HAX	20	1	1	2
10650		KAND	07	13	0615	S09	E54	07 17.3			AX		1	1	4
10650		SVTO	07	13	0735	S08	E53	07 17.3		A	AXX	10	1	1	3
10650		HOLL	07	13	1330	S08	E49	07 17.2		A	HAX	10	1	1	4
10650		HOLL	07	13	1330	S08	E49	07 17.2		A	HAX	10	1	1	4
10650	32152	MWIL	07	13	1430	S08	E49	07 17.3	4	(AP)					
10650		LEAR	07	14	0122	S08	E43	07 17.3		A	HSX	10	1	1	3
10650		SVTO	07	14	0508	S08	E42	07 17.4		A	HAX	10	1	1	3
10650		VORO	07	14	0527	S08	E41	07 17.3			AXX	7	1		3
10650		KAND	07	14	0735	S09	E39	07 17.2			AX		1		3
10650	32152	MWIL	07	14	1415	S08	E36	07 17.3	4	(AP)					
10650		HOLL	07	14	1423	S08	E36	07 17.3		B	CSO	20	3	3	3
10650		VORO	07	14	2327	S08	E31	07 17.3			AXX	6	1		3
10650		SVTO	07	15	0520	S08	E28	07 17.3		A	HRX	10	1	1	3
10650		KAND	07	15	0845	S08	E26	07 17.3			AX		1		2
10650		HOLL	07	15	1406	S07	E23	07 17.3		A	AXX		2	3	3
10650		VORO	07	15	2313	S08	E18	07 17.3			AXX	4	1		3
10650		HOLL	07	16	1530	S08	E12	07 17.5		B	BXO	10	10	4	4
10650		LEAR	07	18	0135	S12	W03	07 17.8		B	BXO	10	2	4	4
10651		HOLL	07	12	1416	S17	E76	07 18.4		A	AXX		1	1	3
10651	32155	MWIL	07	12	1430	S17	E76	07 18.4	3	(AP)					
10651		LEAR	07	13	0254	S16	E66	07 18.1		A	AXX	10	1	1	2
10651		KAND	07	13	0615	S17	E68	07 18.4			AX		1	1	4
10651		HOLL	07	13	1330	S17	E65	07 18.5		B	BXO	10	6	7	4
10651	32155	MWIL	07	13	1430	S17	E65	07 18.5	4	(BG)					
10651		LEAR	07	14	0122	S15	E57	07 18.4		B	BXO	10	3	6	3
10651		SVTO	07	14	0508	S16	E53	07 18.2		A	AXX		1		3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

JULY 2004

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	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
10651		VORO	07	14	0527	S16	E52	07	18.2			AXX	6	1		3
10651	32155	MWIL	07	14	1415	S16	E50	07	18.4	4	(B)					
10651		HOLL	07	14	1423	S18	E50	07	18.4		B	BXO	10	4	6	3
10651		VORO	07	14	2327	S16	E42	07	18.2			AXX	2	1		3
10651		SVTO	07	15	0520	S15	E39	07	18.2		A	AXX	10	2	2	3
10651		KAND	07	15	0845	S14	E36	07	18.1			BXO		6	3	2
10651		HOLL	07	15	1406	S16	E34	07	18.2		B	BXO	30	12	9	3
10651		VORO	07	15	2313	S15	E28	07	18.1			AXX	5	1		3
10651		HOLL	07	16	1530	S16	E18	07	18.0		B	BXO	10	11	9	4
10651		VORO	07	17	0003	S16	E15	07	18.1			AXX	3	1		3
10651		HOLL	07	17	1408	S16	E10	07	18.3		B	BXO	10	5	6	4
10651	32155	MWIL	07	17	1430	S16	E10	07	18.4	4	(AF)					
10651		LEAR	07	18	0135	S18	E05	07	18.4		B	BXO	10	6	4	4
10651	32155	MWIL	07	18	1430	S15	W03	07	18.4	3	(AF)					
10651		HOLL	07	18	1516	S16	W03	07	18.4		B	BXO	10	2	4	2
10651	32155	MWIL	07	19	1430	S18	W16	07	18.4	4	(BF)					
10651		HOLL	07	19	1630	S17	W17	07	18.4		B	BXO	10	6	4	4
10651	32155	MWIL	07	20	1430	S17	W28	07	18.5	3	(BF)					
10651		HOLL	07	20	1717	S17	W30	07	18.4		A	AXX		2	1	3
10651		HOLL	07	21	1405	S16	W43	07	18.3		B	BXO	10	2	2	4
10651	32155	MWIL	07	21	1430	S16	W45	07	18.2	4	(BF)					
10649		HOLL	07	12	1416	S10	E81	07	18.7		B	CAO	90	4	10	3
10649	32156	MWIL	07	12	1430	S10	E80	07	18.6	4	B					
10649		LEAR	07	13	0254	S09	E73	07	18.6		B	DAI	270	11	10	2
10649		KAND	07	13	0615	S10	E71	07	18.6			EAI		11	11	4
10649		SVTO	07	13	0735	S10	E71	07	18.6		B	DAI	210	12	11	3
10649		HOLL	07	13	1330	S11	E72	07	19.0		B	FAC	490	32	16	4
10649	32156	MWIL	07	13	1430	S10	E70	07	18.9	5	(BG)					
10649		LEAR	07	14	0122	S10	E64	07	18.9		BG	FAC	430	34	17	3
10649		SVTO	07	14	0508	S10	E63	07	18.9		B	EAI	240	16	15	3
10649		VORO	07	14	0527	S10	E63	07	19.0			EKI	613	21	14	3
10649		KAND	07	14	0735	S11	E64	07	19.1			FAI		26	16	3
10649	32156	MWIL	07	14	1415	S10	E57	07	18.9	5	(D)					
10649		HOLL	07	14	1423	S10	E58	07	18.9		BG	EAC	410	53	14	3
10649		VORO	07	14	2327	S10	E54	07	19.0			EKI	660	19	13	3
10649		SVTO	07	15	0520	S10	E50	07	19.0		B	FSC	250	19	17	3
10649		KAND	07	15	0845	S11	E48	07	19.0			FAO		22	17	2
10649		HOLL	07	15	1406	S10	E45	07	19.0		BG	EAC	460	57	15	3
10649		VORO	07	15	2313	S10	E41	07	19.0			EKI	769	26	14	3
10649		SVTO	07	16	0612	S10	E35	07	18.9		B	ESI	460	21	14	3
10649		KAND	07	16	0845	S11	E33	07	18.8			FAI		32	16	3
10649		HOLL	07	16	1530	S10	E30	07	18.9		BG	FKI	590	68	16	4
10649		VORO	07	17	0003	S10	E26	07	18.9			DKI	422	16	9	3
10649		SVTO	07	17	0544	S10	E23	07	19.0		B	EAI	410	29	12	3
10649		KAND	07	17	1055	S11	E18	07	18.8			FKO		27	12	4
10649		HOLL	07	17	1408	S09	E16	07	18.8		BGD	FKC	360	47	16	4
10649	32156	MWIL	07	17	1430	S10	E17	07	18.9	5	(D)					
10649		VORO	07	17	2350	S10	E12	07	18.9			DKI	500	18	10	3
10649		LEAR	07	18	0135	S10	E11	07	18.9		BGD	EAI	420	51	13	4
10649		SVTO	07	18	0535	S09	E11	07	19.0		B	FAI	600	26	18	3
10649		KAND	07	18	1025	S10	E06	07	18.9			FKC		33	17	3
10649	32156	MWIL	07	18	1430	S10	E03	07	18.8	5	(D)					
10649		HOLL	07	18	1516	S08	E04	07	18.9		BGD	FAC	330	40	16	2
10649		LEAR	07	19	0035	S08	W02	07	18.9		BG	EAO	320	54	15	3
10649		SVTO	07	19	0524	S08	W02	07	19.1		B	FHO	260	24	19	3
10649		KAND	07	19	0855	S10	W06	07	18.9			EAC		29	13	3
10649	32156	MWIL	07	19	1430	S10	W07	07	19.1	5	(D)					
10649		HOLL	07	19	1630	S09	W10	07	18.9		BG	EAI	390	67	12	4
10649		VORO	07	20	0306	S09	W16	07	18.9			DHI	463	16	8	3
10649		SVTO	07	20	0620	S11	W18	07	18.9		BG	ESI	230	38	13	4
10649		KAND	07	20	1015	S11	W22	07	18.8			EAC		30	12	3
10649	32156	MWIL	07	20	1430	S10	W21	07	19.0	5	(D)					
10649		HOLL	07	20	1717	S10	W25	07	18.8		BG	DAO	180	27	10	3
10649		VORO	07	20	2115	S10	W27	07	18.8			DHI	397	11	7	3
10649		SVTO	07	21	0611	S11	W32	07	18.8		BG	ESI	170	25	11	4
10649		KAND	07	21	0640	S11	W34	07	18.7			DAO		10	9	4
10649		HOLL	07	21	1405	S10	W37	07	18.8		BG	DAO	220	26	10	4
10649	32156	MWIL	07	21	1430	S11	W37	07	18.8	5	(BG)					

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

89
Jul 04

JULY 2004

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation			CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day	Time (UT)									Lat	CMD
10649		VORO	07	21	2345	S09 W42	07 18.8		DAI	235	12	6	3
10649		SVTO	07	22	0553	S10 W47	07 18.7		B DSO	210	11	10	3
10649		KAND	07	22	0845	S11 W49	07 18.7		DSO		10	10	4
10649	32156	MWIL	07	22	1445	S11 W50	07 18.8	5	(BG)				
10649		HOLL	07	22	1720	S12 W53	07 18.7		BG DAO	90	8	9	3
10649		VORO	07	22	2317	S11 W59	07 18.5		HHX	131	1		3
10649		SVTO	07	23	0557	S11 W65	07 18.3		A HAX	120	1	4	3
10649		KAND	07	23	0630	S12 W64	07 18.4		HS		1	2	5
10649	32156	MWIL	07	23	1430	S11 W69	07 18.4	5	(BP)				
10649		VORO	07	23	2257	S11 W72	07 18.5		HHX	63	1		3
10649		SVTO	07	24	0547	S11 W80	07 18.2		A HSX	90	1	4	3
10649		KAND	07	24	1015	S12 W78	07 18.5		HA		1	1	3
10649	32156	MWIL	07	24	1430	S11 W81	07 18.5	4	(AP)				
10649		HOLL	07	24	1830	S11 W81	07 18.7		B B X	20	2	3	3
10649A		HOLL	07	19	1630	S12 W01	07 19.6		B BXO	10	5	1	4
10649A		SVTO	07	20	0620	S13 W09	07 19.6		A HRX		3	3	4
10649B	32161	MWIL	07	18	1430	N21 E26	07 20.6	4	(B)				
10649B		KAND	07	19	0855	N21 E17	07 20.7		CSO		3	2	3
10649B	32161	MWIL	07	19	1430	N21 E13	07 20.6	5	(B)				
10649B		HOLL	07	19	1630	N20 E12	07 20.6		B BXO	10	3	3	4
10652		HOLL	07	16	1530	N05 E88	07 23.2		A HHX	60	2	7	4
10652		VORO	07	17	0003	N07 E79	07 22.9		HKX	679	2		3
10652		SVTO	07	17	0544	N08 E79	07 23.2		B CHO	660	8	9	3
10652		KAND	07	17	1055	N06 E75	07 23.1		EKO		7	14	4
10652		HOLL	07	17	1408	N07 E75	07 23.2		B EKC	820	32	13	4
10652	32158	MWIL	07	17	1430	N07 E77	07 23.4	6	(B)				
10652		VORO	07	17	2350	N09 E72	07 23.4		EKI	1680	10	11	3
10652		LEAR	07	18	0135	N08 E70	07 23.3		BGD FKC	1390	20	16	4
10652		SVTO	07	18	0535	N09 E68	07 23.3		B FKI	1440	12	17	3
10652		KAND	07	18	1025	N08 E66	07 23.4		FKC		21	16	3
10652	32158	MWIL	07	18	1430	N09 E64	07 23.4	5	(B)				
10652		HOLL	07	18	1516	N04 E64	07 23.4		BGD FKC	1220	36	18	2
10652		LEAR	07	19	0035	N09 E58	07 23.4		BGD FKC	1360	32	16	3
10652		SVTO	07	19	0524	N09 E56	07 23.4		B FKI	1460	15	20	3
10652		KAND	07	19	0855	N08 E54	07 23.4		FKC		21	16	3
10652	32158	MWIL	07	19	1430	N09 E50	07 23.3	6	(D)				
10652		HOLL	07	19	1630	N06 E46	07 23.1		BGD FKC	1590	72	18	4
10652		VORO	07	20	0306	N10 E43	07 23.4		EHI	1957	35	12	3
10652		SVTO	07	20	0620	N11 E42	07 23.4		BG FKC	1840	46	18	4
10652		KAND	07	20	1015	N08 E39	07 23.3		FKC		52	16	3
10652	32158	MWIL	07	20	1430	N08 E36	07 23.3	6	(D)				
10652		HOLL	07	20	1717	N08 E36	07 23.4		BGD FKC	1450	40	16	3
10652		VORO	07	20	2115	N10 E33	07 23.4		EKI	1686	21	12	3
10652		SVTO	07	21	0611	N09 E28	07 23.3		BG FKC	1940	52	17	4
10652		KAND	07	21	0640	N08 E28	07 23.4		FKC		29	16	4
10652		HOLL	07	21	1405	N08 E24	07 23.4		BGD FKC	2070	81	16	4
10652	32158	MWIL	07	21	1430	N08 E23	07 23.3	6	(D)				
10652		VORO	07	21	2345	N10 E18	07 23.3		EHI	2274	29	12	3
10652		SVTO	07	22	0553	N08 E15	07 23.4		BG FKC	1840	48	19	3
10652		KAND	07	22	0845	N08 E14	07 23.4		FKC		54	17	4
10652	32158	MWIL	07	22	1445	N08 E10	07 23.4	6	(D)				
10652		HOLL	07	22	1720	N08 E08	07 23.3		BGD FKC	1620	64	17	3
10652		VORO	07	22	2317	N10 E05	07 23.3		EHI	2021	45	12	3
10652		SVTO	07	23	0557	N08 W01	07 23.2		BG FKC	1840	49	19	3
10652		KAND	07	23	0630	N08 E01	07 23.3		FKC		56	18	5
10652	32158	MWIL	07	23	1430	N08 W04	07 23.3	6	(D)				
10652		VORO	07	23	2257	N10 W07	07 23.4		EHI	1622	29	13	3
10652		SVTO	07	24	0547	N09 W11	07 23.4		BG FKC	1640	60	20	3
10652		KAND	07	24	1015	N07 W15	07 23.3		FKC		10	17	3
10652	32158	MWIL	07	24	1430	N08 W17	07 23.3	6	(D)				
10652		HOLL	07	24	1830	N08 W18	07 23.4		BGD FKC	1570	85	18	3
10652		LEAR	07	25	0120	N08 W23	07 23.3		BGD FKC	1510	0	17	3
10652		VORO	07	25	0347	N09 W24	07 23.3		EKI	1918	23	13	2
10652		SVTO	07	25	0817	N08 W27	07 23.3		B FKC	1230	52	19	3
10652		KAND	07	25	0930	N08 W27	07 23.4		FKC		48	20	4
10652	32158	MWIL	07	25	1445	N08 W30	07 23.4	6	(D)				

90
Jul 04S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)

JULY 2004

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time			CMP			Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day	(UT)	Lat	CMD	Mo								Day
10652		HOLL	07	25	1630	N08	W30	07	23.4	BGD	FKC	1290	0	17	4
10652		VORO	07	26	0002	N09	W35	07	23.4		EKI	1340	33	13	3
10652		LEAR	07	26	0058	N09	W36	07	23.3	BGD	FKC	940	82	17	4
10652		KAND	07	26	0800	N08	W40	07	23.3		FKC		63	16	3
10652		SVTO	07	26	0825	N07	W39	07	23.4	B	FKC	940	27	18	2
10652		HOLL	07	26	1430	N08	W42	07	23.4	BGD	FKC	1240	76	16	4
10652	32158	MWIL	07	26	1430	N08	W43	07	23.4	6	(D)				
10652		VORO	07	26	2143	N09	W46	07	23.4		EKI	1376	34	12	3
10652		SVTO	07	27	0540	N07	W52	07	23.3	BG	FKC	930	25	17	3
10652		KAND	07	27	0810	N07	W54	07	23.3		FKC		48	17	4
10652	32158	MWIL	07	27	1430	N08	W56	07	23.4	6	(D)				
10652		VORO	07	27	2143	N09	W59	07	23.5		EKI	1131	22	12	3
10652		SVTO	07	28	0610	N07	W68	07	23.2	B	EKC	840	17	13	3
10652		LEAR	07	28	0640	N08	W69	07	23.1	BG	EKO	630	20	11	3
10652		KAND	07	28	0730	N07	W68	07	23.2		FKC		7	15	5
10652		HOLL	07	28	1350	N08	W70	07	23.3	BGD	FKC	960	23	16	4
10652	32158	MWIL	07	28	1430	N07	W70	07	23.4	6	(D)				
10652		VORO	07	28	2302	N08	W75	07	23.3		DKI	808	9	9	3
10652		LEAR	07	29	0228	N04	W78	07	23.3	B	EAI	330	7	12	3
10652		SVTO	07	29	0600	N07	W80	07	23.2	B	ESO	240	4	15	3
10652		KAND	07	29	0740	N06	W80	07	23.3		EKO		14	13	4
10652		HOLL	07	29	1358	N08	W80	07	23.6	B	DKO	270	2	10	4
10652	32158	MWIL	07	29	1430	N07	W80	07	23.6	5	BG				
10653		KAND	07	17	1055	S13	E80	07	23.5		CSO		2	2	4
10653		HOLL	07	17	1408	S14	E76	07	23.3	B	DAO	100	10	8	4
10653	32159	MWIL	07	17	1430	S13	E78	07	23.5	4	(AP)				
10653		VORO	07	17	2350	S13	E72	07	23.4		DAI	292	6	3	3
10653		LEAR	07	18	0135	S13	E70	07	23.3	B	DAO	210	15	5	4
10653		SVTO	07	18	0535	S12	E69	07	23.4	B	EAO	160	6	11	3
10653		KAND	07	18	1025	S13	E65	07	23.3		DAO		9	7	3
10653	32159	MWIL	07	18	1430	S12	E64	07	23.4	4	(BP)				
10653		HOLL	07	18	1516	S13	E64	07	23.5	B	EAI	220	11	11	2
10653		LEAR	07	19	0035	S12	E57	07	23.3	B	DAC	290	10	8	3
10653		SVTO	07	19	0524	S12	E57	07	23.5	B	DSI	180	12	7	3
10653		KAND	07	19	0855	S13	E53	07	23.4		DAI		12	8	3
10653	32159	MWIL	07	19	1430	S13	E50	07	23.4	5	(BP)				
10653		HOLL	07	19	1630	S12	E50	07	23.4	B	CAI	260	17	12	4
10653		VORO	07	20	0306	S13	E43	07	23.4		DAO	382	13	6	3
10653		SVTO	07	20	0620	S12	E43	07	23.5	B	CAO	220	13	7	4
10653		KAND	07	20	1015	S13	E38	07	23.3		CAO		9	7	3
10653	32159	MWIL	07	20	1430	S13	E37	07	23.4	5	(BP)				
10653		HOLL	07	20	1717	S13	E36	07	23.4	B	CAI	140	22	8	3
10653		VORO	07	20	2115	S12	E31	07	23.2		DSO	148	7	2	3
10653		SVTO	07	21	0611	S12	E27	07	23.3	B	DSO	110	10	5	4
10653		KAND	07	21	0640	S12	E26	07	23.2		DSO		4	3	4
10653		HOLL	07	21	1405	S13	E26	07	23.5	B	CAI	110	20	7	4
10653	32159	MWIL	07	21	1430	S13	E23	07	23.3	5	(BP)				
10653		VORO	07	21	2345	S12	E17	07	23.3		DAO	123	2	1	3
10653		SVTO	07	22	0553	S13	E14	07	23.3	B	DSO	130	6	4	3
10653		KAND	07	22	0845	S12	E13	07	23.3		CSO		11	10	4
10653	32159	MWIL	07	22	1445	S13	E11	07	23.4	5	(BP)				
10653		HOLL	07	22	1720	S12	E07	07	23.2	B	DAI	120	14	12	3
10653		VORO	07	22	2317	S12	E04	07	23.3		DSO	108	5	0	3
10653		SVTO	07	23	0557	S13	E00	07	23.2	B	DSO	90	5	4	3
10653		KAND	07	23	0630	S13	E02	07	23.4		CAO		8	7	5
10653	32159	MWIL	07	23	1430	S13	W03	07	23.4	5	(BP)				
10653		VORO	07	23	2257	S11	W10	07	23.2		HAX	38	2		3
10653		SVTO	07	24	0547	S11	W14	07	23.2	B	CSO	60	4	3	3
10653		KAND	07	24	1015	S12	W16	07	23.2		HA		3	2	3
10653	32159	MWIL	07	24	1430	S13	W16	07	23.4	5	(BP)				
10653		HOLL	07	24	1830	S12	W22	07	23.1	B	CSO	60	3	4	3
10653		LEAR	07	25	0120	S13	W26	07	23.1	B	CSO	70	2	4	3
10653		VORO	07	25	0347	S11	W26	07	23.2		HAX	99	1		2
10653		SVTO	07	25	0817	S12	W28	07	23.2	A	HSX	70	1	2	3
10653		KAND	07	25	0930	S13	W26	07	23.4		CSO		3	13	4
10653	32159	MWIL	07	25	1445	S14	W28	07	23.5	5	(B)				
10653		HOLL	07	25	1630	S12	W32	07	23.3	B	CSO	70	6	5	4
10653		VORO	07	26	0002	S11	W37	07	23.2		HAX	63	1		3

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

JULY 2004

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
			Mo	Day											(UT)
10653		LEAR	07	26	0058	S11 W38	07 23.2		A	HSX	110	2	2	4
10653		KAND	07	26	0800	S12 W41	07 23.2			HS		1	2	3
10653		SVTO	07	26	0825	S13 W43	07 23.1		A	HSX	60	1	2	2
10653		HOLL	07	26	1430	S13 W45	07 23.2		BG	DSO	50	2	2	4
10653	32159	MWIL	07	26	1430	S14 W41	07 23.5	5	(B)					
10653		VORO	07	26	2143	S11 W49	07 23.2			HAX	62	2		3
10653		SVTO	07	27	0540	S14 W55	07 23.1		B	DSO	70	3	4	3
10653		KAND	07	27	0810	S13 W56	07 23.1			CSO		2	2	4
10653	32159	MWIL	07	27	1430	S13 W59	07 23.1	5	(AP)					
10653		VORO	07	27	2143	S11 W62	07 23.2			HRX	34	1		3
10653		LEAR	07	28	0640	S13 W69	07 23.1		A	AXX	10	1	1	3
10653		KAND	07	28	0730	S12 W70	07 23.0			AX		1	2	5
10653		HOLL	07	28	1350	S12 W70	07 23.3		B	BXO	20	9	11	4
10653	32159	MWIL	07	28	1430	S12 W70	07 23.3	4	(B)					
10654	32162	MWIL	07	25	1445	N08 E56	07 29.8	5	(B)					
10654		HOLL	07	25	1630	N08 E56	07 29.9		B	CAO	30	7	5	4
10654		VORO	07	26	0002	N07 E50	07 29.7			CRI	59	6	2	3
10654		LEAR	07	26	0058	N08 E50	07 29.8		B	DAO	80	11	5	4
10654		KAND	07	26	0800	N07 E46	07 29.8			DSO		14	6	3
10654		KAND	07	26	0800	N07 E46	07 29.8			DSO		14	6	3
10654		SVTO	07	26	0825	N07 E46	07 29.8		B	DAO	100	4	7	2
10654		HOLL	07	26	1430	N07 E42	07 29.7		B	DAO	90	16	8	4
10654	32162	MWIL	07	26	1430	N08 E43	07 29.8	5	(B)					
10654		VORO	07	26	2143	N08 E37	07 29.7			DAI	135	15	6	3
10654		SVTO	07	27	0540	N07 E35	07 29.8		B	DSO	130	8	8	3
10654		KAND	07	27	0810	N07 E32	07 29.7			DAO		16	10	4
10654		KAND	07	27	0810	N07 E32	07 29.7			DAO		16	10	4
10654	32162	MWIL	07	27	1430	N07 E30	07 29.8	5	(B)					
10654		VORO	07	27	2143	N08 E24	07 29.7			DAI	94	10	7	3
10654		SVTO	07	28	0610	N08 E20	07 29.7		B	DSO	100	5	10	3
10654		LEAR	07	28	0640	N08 E19	07 29.7		B	DSO	120	6	10	3
10654		KAND	07	28	0730	N06 E20	07 29.8			DAO		10	8	5
10654		KAND	07	28	0730	N06 E20	07 29.8			DAO		10	8	5
10654		HOLL	07	28	1350	N08 E16	07 29.8		B	DAO	120	9	9	4
10654	32162	MWIL	07	28	1430	N07 E16	07 29.8	5	(B)					
10654		VORO	07	28	2302	N08 E10	07 29.7			DAO	130	4	7	3
10654		LEAR	07	29	0228	N03 E08	07 29.7		B	DAO	100	6	8	3
10654		SVTO	07	29	0600	N08 E06	07 29.7		B	DSO	110	4	10	3
10654		KAND	07	29	0740	N07 E06	07 29.8			DSO		6	10	4
10654		KAND	07	29	0740	N07 E06	07 29.8			DSO		6	10	4
10654		HOLL	07	29	1358	N07 E03	07 29.8			DSO	120	11	9	4
10654	32162	MWIL	07	29	1430	N08 E02	07 29.7	5	(B)					
10654		LEAR	07	30	0311	N08 W05	07 29.7		BG	DSO	120	10	10	3
10654		SVTO	07	30	0600	N08 W07	07 29.7		B	DSO	130	8	10	3
10654		KAND	07	30	0915	N08 W08	07 29.8			EAO		15	12	3
10654		KAND	07	30	0915	N08 W08	07 29.8			EAO		15	12	3
10654		HOLL	07	30	1345	N08 W10	07 29.8		BG	DAO	120	16	11	4
10654	32162	MWIL	07	30	1430	N08 W11	07 29.8	5	(BG)					
10654		LEAR	07	31	0050	N08 W16	07 29.8		BG	DAO	120	19	10	4
10654		SVTO	07	31	0600	N08 W19	07 29.8		B	EAO	70	7	11	3
10654		KAND	07	31	0815	N07 W20	07 29.8			ESI		7	11	4
10654		KAND	07	31	0815	N07 W20	07 29.8			ESI		7	11	4
10654	32162	MWIL	07	31	1415	N07 W24	07 29.8	5	(B)					
10654		HOLL	07	31	1415	N08 W24	07 29.8		BG	DSO	70	14	11	4
10654		LEAR	08	01	0130	N08 W31	07 29.8		B	EAO	80	6	11	2
10654		VORO	08	01	0146	N09 W30	07 29.9			DRI	86	6	9	3
10654		SVTO	08	01	0632	N08 W32	07 30.0		B	ESO	80	5	11	3
10654	32162	MWIL	08	01	1415	N08 W37	07 29.9	5	(B)					
10654		HOLL	08	01	1520	N08 W38	07 29.9		B	ESO	70	10	11	4
10654		LEAR	08	02	0100	N08 W45	07 29.8		B	DAO	40	4	10	2
10654		SVTO	08	02	0705	N08 W46	07 29.9		B	ESO	100	6	11	3
10654		KAND	08	02	1110	N08 W50	07 29.8			DSC		5	9	4
10654	32162	MWIL	08	02	1430	N08 W50	07 29.9	5	(B)					
10654		HOLL	08	02	1455	N08 W52	07 29.8		B	EAI	140	8	11	4
10654		VORO	08	02	2232	N08 W55	07 29.9			DAI	123	4	10	3
10654		LEAR	08	03	0130	N07 W56	07 30.0		B	CAO	60	5	10	3
10654		SVTO	08	03	0550	N07 W64	07 29.5		B	DSO	80	2	6	3
10654		KAND	08	03	1125	N07 W63	07 29.8			CAO		4	12	3

92
Jul 04

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

JULY 2004

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
10654	32162	MWIL	08 03	1430	N08	W65	07 29.8	5	(BP)					
10654		HOLL	08 03	1500	N08	W68	07 29.6		B	DAO	40	7	8	4
10654		LEAR	08 04	0150	N07	W70	07 29.9		B	EAO	70	4	12	3
10654		VORO	08 04	0448	N09	W70	07 30.0			CAO	68	2	8	3
10654		SVTO	08 04	0551	N07	W72	07 29.9		B	DRO	10	2	6	3
10654		KAND	08 04	0835	N07	W77	07 29.7			AX		2	3	4
10654		HOLL	08 04	1415	N08	W80	07 29.7		B	BXO	10	2	2	4
10654	32162	MWIL	08 04	1430	N08	W75	07 30.1	4	(B)					

Stations reporting:

HOLL = Holloman
KAND = Kandilli
LEAR = Learmonth

MWIL = Mt. Wilson
PALE = Palehua

RAMY = Ramey
SVTO = San Vito

TACH = Tashkent
VORO = Voroshilov

SUDDEN IONOSPHERIC DISTURBANCES
JULY 2004

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	1000	1010	1031	1	1		1				*		
04	0508	0544	0650	2	1		1				No flare		
04	1038	1052	1128	1	1		1				*		
04	1456	1528	1618	1	1		1				1503	B4.5	10641
05	0742	0756	0806	1	1		1				No flare		
05	0826	0836	0948	1	1		1				No flare		
05	1531	1541	1615	1	1		1				1550	B2.6	10639
06	0625	0638	0705	1	1		1				*		
07	1706	1712	1815	1	1		1				1709	B4.9	10641
08	0709	0719	0737	1	1		1				0654	B3.6	10642
10	1234	1248	1256	1	1		1				No flare		
10	1319	1331	1342	1	1		1				No flare		
10	1504	1514	1550	1	1		1				No flare		
11	0608	0627U	0652	1	1		1				0603	C3.6	
11	0700	0704U	0739D	1	1		1				0603	C3.6	
11	0734	0753	0827	2	5	1	1	1		3	0603	C3.6	
11	0939	0946	1005	2	5	1	1	1		3	0937	C4.2	
11	1321	1332	1410	3-	5	1	2	1		6	1316	C4.2	
11	1651	1659	1719	1	5		1			6	1649	C2.8	
11	1725	1734	1817	2	5		1			7	1724	C3.3	
11	1942	1950	2033	2	3					6	1940	C3.2	
11	2105	2113	2151	2	3					4	2104	C2.5	
11	2253	2259	2319D	1+	1					1	2251	C1.7	
11	2319	2328	2340D	1	1					1	2317	C3.0	
11	2340	2347	2408	1+	1					1	2317	C3.0	
12	0103	0110	0126	1	1					1	0057	C3.2	
12	0704	0729U	0740	1	1		1				0711	C2.8	
12	0746	0811	0908	3	5	1	1	1		1	0736	M1.6	
12	1258	1308	1319	2	5	1	1	1		1	1249	C3.4	10649
12	1549	1559	1630	2	5	1	1	1		3	1550	C3.2	10649
12	1822	1844	1937	2+	3					2	1831	C4.5	10649
12	2002	2020	2100	2+	1					1	No flare		
12	2119	2127	2146	1+	3					2	2119	C1.7	10649
12	2146	2151	2224	2	3					2	2146	C2.5	10649
13	0011	0016	0110	2	5					3	0009	M6.7	10646
13	0525	0616U	0625	1	1		1				0521	C6.7	10646
13	0630	0634	0708	1	1		1				0626	C4.1	10649
13	0803	0836	0836	1	1		1				0825	C1.5	10649
13	0844	0848	1004	3	5	1	2	1		4	0840	M5.4	10646
13	1204	1211	1218U	3-	5	1	2	1		9	1159	M2.9	10649
13	1243	1248	1311	2	5	1		1		1	1245	C5.0	10649
13	1834	1840	1919	2	3					4	1833	M1.1	10649
13	1926	1932	2025	2+	5					5	1924	M6.2	10646
13	2118	2123	2139	1	3					2	2117	C2.2	10646
13	2205	2209	2221	1-	3					2	2201	C5.1	10649
13	2222	2227	2255	2	1					1	No flare		
13	2304	2311	2328D	1	1					1	2304	C2.8	10646
13	2335	2341	2353	1-	1					1	2327	C3.2	10646
14	0518	0525	0648	2+	3		1			2	0502	M6.2	10646
14	0810	0817	0904	1	1		1				0811	C1.9	10646
14	1747	1751	1809	1	5					5	1739	C5.8	10649
14	1816	1819	1855	1+	3					5	1812	M1.0	10649
14	1951	1956	2010	1-	3					2	1950	C2.0	10646
14	2012	2021	2038D	1+	1					1	2010	C3.6	10646
14	2047	2050	2107	1	3					2	2036	C3.5	10646

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

JULY 2004

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			
15	0135	0141	0226	2-	3					2	0130	X1.8	10649
15	0940	0950	1054	2+	5	1	2	1		1	No flare		
15	1818	1826	1916	2-	5		1			8	1815	X1.6	10649
15	2137	2146	2150	1-	1					1	2125	C3.9	10649
15	2157	2203	2226D	1+	1					1	2125	C3.9	10649
15	2224	2232	2329	2+	3					4	2224	C7.9	
16	0201	0205	0256	2	5					3	0143	X1.3	10649
16	1032	1043	1156	3	5	1	2	1		7	1032	X1.1	10649
16	1219	1226	1254	2	1					1	1232	C8.2	
16	1250	1259	1318	3-	5	1	1	1		9	1232	C8.2	
16	1318	1319	1430	2+	1					1	No flare		
16	1335	1343	1509	1+	5					6	1349	X3.6	10649
16	1353	1415	1518	3	5	1	1	1		4	1349	X3.6	10649
16	1624	1629	1701	2-	5		1			8	1622	M1.2	10649
16	2031	2041	2145	2+	3					4	2029	C9.0	10649
17	0754	0758	0824	3-	5	1	1	1		5	0756	X1.0	10649
17	0854	0903	0922	1+	1					1	No flare		
17	0941	0952	1013	1+	5					3	0946	C5.0	10649
17	1130	1139	1153	3	5	1		1		6	1124	C7.2	10649
17	1252	1258	1353	3-	5	1	1	1		9	1231	C8.8	10649
17	1551	1557	1621	1+	3					4	1548	C2.6	10649
17	1650	1654	1714	2	5			1		8	1645	M2.5	10649
17	1651	1704	1747	1+	5		1			1	1645	M2.5	10649
17	1825	1828	1846	1	3					3	1821	C2.2	
17	1914	1917	1953	2-	5					4	1915	C5.3	10652
17	2040	2046	2056	1-	3					3	2036	C3.4	10649
17	2056	2103	2126	1+	3					4	2054	C5.7	10649
17	2127	2132	2202	1+	5					5	2124	M2.0	10649
17	2232	2241	2256	1	1					1	2228	C5.7	10649
17	2256	2303	2334	2-	3					2	2254	M1.1	10649
18	0009	0012	0028D	1	1					1	0005	M2.0	10649
18	0028	0036	0120	2+	1					1	0005	M2.0	10649
18	0253	0256	0325	1+	1					1	0251	M1.5	10649
18	1032	1035	1100	1+	1					1	No flare		
18	1145	1152	1205	2+	5	1		1		7	1147		10649
18	1226	1234	1314	2-	5					4	1225	C2.9	10649
18	1338	1349	1411	2	3					6	1337	C4.0	10649
18	1411	1416	1453	2	5	1		1		11	1409	C9.4	10649
18	1626	1632	1643	1-	1					1	1625	C1.4	10649
18	1644	1648	1701	1-	3					2	1643	C1.6	10649
18	1708	1713	1755	2	5					8	1704	M1.9	10649
18	1715	1740	1830	2+	1					1	1717	C4.1	10649
18	1808	1810	1817	1-	1					1	1805	C1.7	10649
18	1846	1849	1905	1-	3					2	1843	C2.3	10649
18	2142	2144	2154	1-	1					1	2139	C1.3	10649
19	1049	1052	1126	2	1					1	1047	C2.9	10652
19	2057	2101	2116	1	1					1	2054	C1.8	10652
19	2141	2148	2209	1+	1					1	2137	C1.7	10652
20	0104	0106	0110	1-	1					1	0055	C3.3	10649
20	1015	1018	1024	1-	1					1	No flare		
20	1104	1116	1146	3-	5	1		1		3	1101	C6.0	10652
20	1224	1237	1329	3	5	1	1	1		9	1222	M8.6	10652
20	1815	1821	1851	1+	3					6	1815	C3.8	10652
20	2113	2121	2208	2	5					6	2109	C8.1	10652
21	0032	0035	0101	1+	3					2	0029	C6.6	10649
21	0515	0526	0654	1+	1					1	0505	C8.9	10652
22	0018	0030	0124	2+	1					1	0014	M9.1	10652
22	0752	0800	0826	2	5	1		1		2	0741	C5.3	10652
22	1103	1116	1205	3-	5	1		1		4	1102	C5.8	10652

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

JULY 2004

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				
22	1524	1531	1537D	1-	1						1	No flare		
22	1539	1544	1600	1	3						5	1537	C2.3	10652
22	1719	1726	1820	2	3						4	1717	C3.2	10652
22	1903	1911	1923	1	1						1	No flare		
22	2206	2211	2226	1	1						1	2201	C4.1	10652
22	2244	2253	2351	2	3						2	2240	M1.6	10652
23	0718	0725	0814	2	5	1	1	1				0717	C4.1	10652
23	1714	1724	1803	2-	5						9	1707	M2.2	10652
23	1803	1808	1838	1+	3						5	1802	C4.1	10652
23	2118	2125	2209	2	5						5	2115	M1.7	10652
24	0603	0607	0703	2-	5						2	0601	M1.0	10652
24	0805	0820	0844	2	1						1	0807	C2.5	10652
24	1017	1024	1119	2+	5	1			1		4	1014	C3.5	10652
24	1309	1318U	1335	1	1			1				No flare		
24	1334	1342	1420	3-	5	1	1	1			10	1331	C4.8	10652
24	1444	1450	1501	1-	5						2	1446	B9.7	10652
24	1815	1816	1920	2+	1						1	1823	C1.1	10652
24	1842	1847	1931	2	5						6	1840	M2.5	10652
24	2137	2139	2154	1-	1						1	2134	C1.2	10652
24	2201	2209	2228	1+	1						1	2159	C1.4	10652
24	2315	2325	2403	2+	1						1	2311	C2.7	10652
25	0029	0034	0113	2	1						1	0025	C7.4	10652
25	0544	0554	0650	3	5	1	2	1			4	0539	M7.1	10652
25	0634	0641	0716	1+	5						2	0630	M1.0	10652
25	1320	1327	1339	1-	5						2	1318	C2.1	10652
25	1340	1350	1516	3	5	1	1	1			13	1337	M2.2	10652
25	1433	1450	1530	2+	1						1	1419	M1.1	10652
25	1439	1505	1706	3	5						3	1419	M1.1	10652
25	1954	2001	2048	2	3						2	*		
26	0542	0553	0643	2-	5						3	0536	M1.3	10652
26	0550	0624U	0714	2	1			1				No flare		
26	1653	1701	1725	2-	3						2	1650	C4.7	10652
26	1725	1732	1814	2+	3						2	1723	M1.1	10652
26	2204	2207	2239	2	1						1	2200	C1.0	10652
26	2247	2253	2318	1+	1						1	2245	C1.8	10652
26	2351	2356	0029	1+	1						1	2346	M1.2	10652
27	0542	0549	0653	3-	5			1			1	0541	M1.1	10652
27	0705	0718	0750	3+	1						1	No flare		
27	1015	1022	1032	2	5	1			1			0914	C3.7	10652
27	1453	1505	1510	2+	5	1			1			1501	C3.0	10652
27	1714	1719	1749	2-	3						2	No flare		
27	1854	1901	1919	1+	1						1	No flare		
27	2010	2018	2132	2+	3						3	1959	M1.5	10652
27	2230	2235	2314	2	1						1	2227	C2.9	10652
27	2250	2252	2304	1-	1						1	2252	C1.1	10652
28	0805	0817	0847	2+	5	1	2	1				0803	C6.3	10652
28	1144	1150	1213	3-	5		1	1			2	1141	C3.0	10652
28	1346	1419U	1441	1	1			1				No flare		
28	1530	1535	1606	2+	5	1	2	1			3	1528	C3.6	10652
28	1615	1623	1637	1	5						3	1608	C3.3	10652
28	2352	2403	2506	2+	1						1	2345	M2.0	10652
29	1624	1632	1700	1	5			1			2	1628	C2.8	10652
29	1907	1912	1935	1+	1						1	No flare		
31	0051	0059	0137	2+	1						1	0046	C2.8	10652
31	1038	1042	1159	3	5			1	1		3	1035	C5.3	10652
31	1517	1520	1530	3-	1				1			No flare		

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

JULY 2004

OBSERVATORIES REPORTING FOR JULY 2004

Alberta, Canada	SES	Isola del Gran Sasso, Italy	SES
Athens, Greece	SES	Marlborough, Massachusetts, USA	SES
Bedford, Massachusetts, USA	SES	Neerpelt, Belgium	SES
Bern, Switzerland	SES	Nerja, Spain	SES
Brookline, Massachusetts, USA	SES	Panska Ves, Czech Republic	SES, SEA, SWF
Calcutta, India	SES	Sofia, Bulgaria	SES
Edenvale, Rep of S. Africa	SES	Sussex, United Kingdom	SES
Hoogstraten, Belgium	SES	Tucson, Arizona, USA	SES
Houston, Texas, USA	SES	Upice, Czech Republic	SEA

Observations are not necessarily continuous.

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

97
Jul 04

JULY 2004

OBSERVATION Day	OBSERVATION		Sta	EVENT		Spectral Class	Event Remarks	Int (1-3)	FREQUENCY		Remarks
	Start (UT)	End (UT)		Start (UT)	End (UT)				Lower (MHz)	Upper (MHz)	
01	0000	1000	HIRA								
	0000	0700	CULG	0022.0	0024.0	III	G	1	35	90	
	0418	1753	ONDR								
			CULG	0518.0	0522.0	III	G	1	23	180	
			CULG	0522.0	0523.0	V		3	20	35	
			CULG	0531.0	0536.0	UNCLF		1	57	100	
			CULG	0644.0	0644.0	III	B	1	40	80	
	0604	1204	IZMI	0815.1	0815.6	III	B	1	25x	85	
	0850	1810	BLEN								
	1922	2400	HIRA								
	2110	2400	CULG	2124.0	2129.0	UNCLF		1	75	180	
02	0000	1000	HIRA								
	0000	0700	CULG	0005.0	0005.0	III	B	1	40	80	
	0419	1753	ONDR								
	0430	1815	BLEN								
	0555	1200	IZMI								
			HOLL	1743.0	1744.0	III		1	25	85	
	1922	2400	HIRA								
	2110	2400	CULG	2251.0	2251.0	III	G	1	27	180	
03	0000	1000	HIRA								
	0000	0700	CULG	0030.0	0030.0	III	B	1	27	50	
	0420	1753	ONDR								
	0430	1815	BLEN								
	0603	1200	IZMI	0721.2	0721.9	III	G	1	50	270x	
	2110	2400	CULG	2132.0	2134.0	III	G	1	25	180	
			CULG	2233.0	2241.0	III	G	3	18	180	
			HOLL	2233.0	2338.0	III	N	1	25	87	
			PALE	2233.0	2240.0	III		1	25	85	
	1923	2400	HIRA	2238.5	2239.0	III	B	1	25X	80	
04			LEAR	0331.0	0331.0	III		1	25	100	
			PALE	0331.0	0331.0	III		1	25	58	
	0000	0700	CULG	0331.0	0331.0	III	B	3	18X	180	
	0000	1000	HIRA	0331.0	0332.0	III	B	1	25X	50	
	0420	1752	ONDR								
	0430	1815	BLEN								
			CULG	0538.0	0539.0	III	G	3	18	180	
			HIRA	0538.0	0538.5	III	B	1	25X	110	
			LEAR	0538.0	0538.0	III		1	25	95	
			SVTO	0538.0	0538.0	III		1	25	84	
	0555	1200	IZMI	0844.9	0845.1	III	G,FS	2	45	170	
			SVTO	1221.0	1224.0	III		1	25	180	
	1923	2400	HIRA								
	2110	2400	CULG								
05	0000	1000	HIRA								
	0421	1752	ONDR								
	0000	0700	CULG	0448.0	0448.0	III	B	1	23	180	
	0555	0706	IZMI								
	0721	1200	IZMI								
			HOLL	1542.0	1542.0	III		1	25	63	
			HOLL	1551.0	1702.0	III	N	2	25	180	
			SVTO	1551.0	1554.0	III		2	25	180	
	0430	1815	BLEN	1551.2	1556.1	III	GG	3	100X	1800	
			SVTO	1555.0	1800.0	III	N	1	31	180	
			PALE	1701.0	1702.0	III		1	25	62	
			HOLL	1858.0	1903.0	III		1	25	180	
			PALE	1858.0	1900.0	III		2	25	180	
			HOLL	2046.0	2054.0	III		1	25	180	
	1924	2400	HIRA	2046.5	2054.5	III	G	1	25X	310	
	2110	2400	CULG	2222.0	2224.0	UNCLF		1	65	80	
			CULG	2225.0	2228.0	III	G	1	35	100	
			CULG	2233.0	2239.0	II	FN	1	27	57	
			CULG	2233.0	2245.0	II	SH	2	27	100	ESS 700
			CULG	2346.0	2348.0	III	G	3	18	180	
			HIRA	2346.5	2347.5	III	G	1	25X	130	
			LEAR	2347.0	2347.0	III		1	25	180	

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

JULY 2004

OBSERVATION			EVENT				FREQUENCY		Remarks
Start Day	End Day	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	
06	0000	0700	CULG						
	0000	1000	HIRA						
	0422	1752	ONDR						
	0555	1203	IZMI	0936.9	0938.1	III	G	1	25X 95
			SVTO	1148.0	1149.0	III		1	25 174
			IZMI	1148.7	1149.7	III	GG	2	25X 270X
			IZMI	1202.1	1203.7	III	GG	1	25X 165
			HOLL	1317.0	1317.0	III		1	25 163
			SVTO	1317.0	1317.0	III		1	25 168
	0430	1810	BLEN	1317.5	1318.5	III	G	1	150 350
			HOLL	1430.0	1434.0	III		1	25 116
			SVTO	1430.0	1430.0	III		1	25 83
			HOLL	1458.0	1504.0	III		1	25 147
			HOLL	1458.0	1723.0	III	N	1	25 147
			SVTO	1458.0	1504.0	III		2	25 149
			SVTO	1517.0	1526.0	III		1	25 82
			HOLL	1834.0	1839.0	III		1	25 89
			PALE	1834.0	2304.0	III	N	1	25 85
	1924	2400	HIRA						
	2110	2400	CULG						
			LEAR	2347.0	2347.0	III		1	25 180
07	0000	0700	CULG	0154.0	0155.0	III	G	1	30 170
	0422	1751	ONDR						
	0435	1810	BLEN						
			LEAR	0847.0	0848.0	III		1	25 108
			SVTO	0847.0	0848.0	III		1	25 125
	0000	0959	HIRA	0847.5	0848.5	III	G	1	25X 130
			IZMI	0847.6	0848.6	III	GG,FS,C	2	35 170
			SVTO	0948.0	0948.0	III		1	37U 170U
			HIRA	0948.5	0949.0	III	B	1	80 140
			IZMI	0948.5	0948.6	III	G,HARM	2	45 175
			HOLL	1353.0	1353.0	III		1	25 97
			HOLL	1525.0	1528.0	III		1	25 84
			SVTO	1525.0	1526.0	III		1	36U 82U
			HOLL	1724.0	1724.0	III		1	25 60
	1925	2400	HIRA						
			HOLL	2257.0	2258.0	III		1	25 88
			PALE	2258.0	2258.0	III		1	25 150
	2110	2400	CULG	2258.0	2259.0	III	G	2	23 150
08	0000	0700	CULG	0001.0	0003.0	III	G	1	40 150
			CULG	0119.0	0119.0	III	B	2	35 130
			LEAR	0119.0	0119.0	III		1	34 107
			PALE	0119.0	0119.0	III		1	33 85
	0423	1751	ONDR						
	0435	1810	BLEN						
			CULG	0543.0	0544.0	III	G	1	23 180
			LEAR	0543.0	0543.0	III		1	25 180
			SVTO	0543.0	0543.0	III		1	48U 180U
	0000	0959	HIRA	0543.0	0543.5	III	B	2	80 130
			CULG	0631.0	0631.0	III	B	1	27 80
			CULG	0654.0	0656.0	III	G	1	20 180
	0555	1205	IZMI	0655.4	0655.7	III	G	1	45 160
			IZMI	0819.8	0820.0	III	G	1	60U 120
			IZMI	0831.0	0831.1	III	B,U	2	60 95
			IZMI	0834.2	0935.6	III	G	2	50 145
			IZMI	0834.6	0836.3	III	G	2	50U 165
			IZMI	0902.8	0903.0	III	G	1	80U 165
			IZMI	1130.6	1130.7	III	B	1	100U 150
	1926	2400	HIRA						
	2110	2400	CULG	2149.0	2149.0	III	B	1	30 180
			CULG	2226.0	2226.0	III	B	1	23 70
09	0000	0958	HIRA						
	0435	1810	BLEN						
	0000	0700	CULG	0508.0	0522.0	III	G	1	27 180
			CULG	0610.0	0610.0	III	B	1	27 90
	0555	1200	IZMI	0636.8	0637.0	III	B	1	45 85

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

99
Jul 04

JULY 2004

OBSERVATION		Sta	EVENT		Spectral Class	Event Remarks	Int (1-3)	FREQUENCY		Remarks	
Start Day (UT)	End (UT)		Start (UT)	End (UT)				Lower (MHz)	Upper (MHz)		
09		CULG	0637.0	0637.0	III	B	1	27	180		
		HOLL	1500.0	1550.0	III	N	1	25	180		
		SVTO	1501.0	1505.0	III		1	25	83		
		SVTO	1521.0	1521.0	III		1	25	74		
		SVTO	1625.0	1625.0	III		1	25	135		
	1926	2400	HIRA								
			HOLL	1953.0	1953.0	III		1	25	54	
			PALE	1953.0	1953.0	III		1	25	60	
	2110	2400	CULG								
	10	0000	0958	HIRA							
0000		0700	CULG	0219.0	0220.0	III	G	1	20	120	
0440		1810	BLEN								
			CULG	0529.0	0530.0	III	G	1	20	75	
0555		1200	IZMI								
			HOLL	1739.0	1739.0	III		1	25	180	
			PALE	1739.0	1739.0	III		1	25	90	
			SVTO	1739.0	1739.0	III		1	25	44	
1927		2400	HIRA								
2110		2400	CULG								
11	0000	0700	CULG								
	0000	0958	HIRA								
			LEAR	0034.0	0238.0	III	N	1	87	100	
			LEAR	0337.0	0511.0	III	N	1	76	95	
	0600	1200	IZMI	0600.0E	1200.0D	I	N	1	140U	270X	
	0440	1810	BLEN	0737.6	0741.3	DCIM	C	2	350	4000X	
			IZMI	1113.9	1114.8	III	GG	2	50	240	
	1927	2400	HIRA								
	2110	2400	CULG								
	12	0000	0700	CULG							
0555		1200	IZMI	0555.0E	1200.0D	I	N	1	110U	270X	
0445		1805	BLEN	0735.5	0805.5	I	DC	3	140	700	
			IZMI	0741.8	0744.4	III	GG	2	130	270X	
			IZMI	0805.5	0816.4	II	HARM	2	25X	75	
			LEAR	0806.0	0814.0	II		1	25	143	
0000		0958	HIRA	0806.0	0814.0	II		1	25X	70	
			IZMI	0845.0U	1000.0U	IV		2	45U	175U	
			SVTO	0906.0	1200.0	CONT		1	25	88	
			BLEN	1421.6	1424.3	DCIM	P	2	420	1700	
			HOLL	1952.0	1952.0	III		1	25	90	
			PALE	1952.0	1952.0	III		1	25	70	
1928		2400	HIRA	1952.5	1953.0	III	B	2	25X	50	
2110		2400	CULG								
13			HOLL	0014.0	0035.0	III	N	2	25	180	
		LEAR	0014.0	0031.0	III	N	2	25	180		
		PALE	0014.0	0016.0	III		1	25	180		
	0000	0700	CULG	0014.0	0019.0	III	G	3	18X	1800X	
	0000	0957	HIRA	0014.0	0016.0	III	G	3	25X	400	
			LEAR	0016.0	0040.0	II		2	25	180	
			HIRA	0016.5	0038.0	II		3	25X	250	
			CULG	0017.0	0020.0U	II	FN	2	57	150	
			CULG	0017.0	0020.0U	II	SH	2	100	300	
			CULG	0018.0	0018.0	III	B	3	27	140	
			CULG	0019.0	0040.0	III	GG	1	20	180	
			CULG	0020.0	0023.0	III	G	3	18X	180	
			CULG	0023.0	0043.0	II	UE	3	20	140	
			CULG	0026.0	0038.0	III	GG	3	18X	100	
			HOLL	0027.0	0041.0	II		2	25	180	
			CULG	0335.0	0335.0	III	B	1	27	80	
			CULG	0532.0	0632.0	III	N	1	20	200	
			SVTO	0534.0	0538.0	III		1	25	122	
			LEAR	0535.0	0628.0	III	N	1	25	180	
	0600	1200	IZMI	0603.8	0604.2	III	G	1	50	65	
			IZMI	0614.9	0615.2	III	G,C	3	110U	270X	
			CULG	0615.0	0615.0	III	B	1	27	300	
	0445	1805	BLEN	0843.8	0954.1	DCIM	P,S	3	140	4000X	

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

JULY 2004

OBSERVATION			EVENT				FREQUENCY			Remarks	
Start Day (UT)	End Day (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)		
13		LEAR	0846.0	0849.0	III		1	25	180		
		SVTO	0846.0	0847.0	III		2	25	180		
		IZMI	0846.3	0847.6	III	G,C	2	25X	270X		
		HIRA	0846.5	0847.0	III	B	2	25X	210		
		HIRA	0848.0	0857.0	II		2	30	420		
		IZMI	0848.0	0849.0	III	G,C,FS	2	50U	215		
		IZMI	0848.0	0849.4	II	HARM,FS	2	15X	270X		
		IZMI	0850.6	0858.9	III	N,C	2	25X	270X		
		LEAR	0851.0	0858.0	II		1	25	180	ESS 0841	
		SVTO	0851.0	0858.0	II		2	25	180	ESS 0951	
		IZMI	0851.4	0857.7	II	HARM	2	30	180		
		IZMI	0859.1	0910.4	III	S	2	25X	95U		
		IZMI	0900.0	1100.0U	IV	C	2	45U	270X		
		SVTO	0902.0	0910.0	III		2	25	66		
		IZMI	0907.9	0910.4	III	GG	2	25X	65		
		HIRA	0908.0	0910.0	III	G	1	25X	70		
		LEAR	0908.0	0909.0	III		1	25	86		
		SVTO	0930.0	1019.0	III	N	1	25	84		
		IZMI	0930.2	0931.0	III	G	2	70	95		
		IZMI	0934.3	1110.0U	III	S	2	45U	95U		
		IZMI	1045.0	1055.0	I	GG	2	120	175		
		BLEN	1204.4	1207.2	DCIM	C	3	200	4000X		
		HOLL	1808.0	1810.0	III		1	25	84		
		HOLL	1932.0	1937.0	III		1	25	171		
		PALE	1936.0	1940.0	III		1	25	60		
		HOLL	1954.0	1955.0	III		1	25	86		
		PALE	1954.0	1955.0	III		1	25	86		
	1929	2400	HIRA	1954.5	1955.0	III	B	1	50	70	
			HOLL	2103.0	2205.0	III	N	1	25	87	
			PALE	2103.0	2316.0	III	N	1	25	86	
	2110	2400	HIRA	2103.5	2104.5	III	G	1	25X	130	
			CULG	2110.0E	2135.0	III	N	1	20	160	
			CULG	2307.0	2320.0	III	G	3	18	180	
		HOLL	2307.0	2320.0	III	N	1	25	119		
		HIRA	2308.0	2308.5	III	B	1	25X	60		
		LEAR	2349.0	2355.0	III	N	1	25	180		
		CULG	2352.0	2356.0	III	G	3	18	200		
14	0000	0700	LEAR	0052.0	0052.0	III		1	25	105	
			CULG	0120.0	0122.0	III	G	1	25	90	
			LEAR	0121.0	0031.0	III	N	1	25	86	
			PALE	0121.0	0140.0	III	N	1	25	124	
			CULG	0130.0	0131.0	III	G	3	20	100	
			LEAR	0220.0	0222.0	III		1	25	125	
			PALE	0220.0	0223.0	III		1	25	90	
	0000	0957	HIRA	0220.5	0222.5	III	G	1	25X	50	
			CULG	0221.0	0224.0	III	G	3	20	160	
			CULG	0232.0	0236.0	III	G	1	20	100	
			CULG	0301.0	0318.0	III	G	1	20	150	
			LEAR	0311.0	0317.0	III		1	25	129	
			PALE	0311.0	0317.0	III		1	25	118	
			HIRA	0311.5	0312.0	III	B	1	25X	100	
			CULG	0312.0	0312.0	III	G	3	20	180	
			CULG	0323.0	0408.0	I	S	1	110	180	
			CULG	0428.0	0536.0	III	N	1	20	180	
			CULG	0438.0	0439.0	III	G	2	27	180	
			LEAR	0438.0	0516.0	III	N	1	25	180	
			SVTO	0438.0	0510.0	III	N	1	25	180	
			CULG	0443.0	0446.0	III	G	3	20	200	
			CULG	0457.0	0457.0	III	B	2	23	120	
			SVTO	0515.0	0516.0	III		2	25	116	
			CULG	0516.0	0516.0	III	B	3	23	180	
			HIRA	0516.0	0516.5	III	B	2	30	110	
	0445	1805	BLEN	0517.8	0529.4	DCIM	P,C,S	3	750	4000X	
			CULG	0536.0	0700.0D	I	S	1	100	180	
	0600	1200	IZMI	0600.0E	1130.0U	I	N	1	110	180	
			LEAR	0611.0	0618.0	III		1	25	180	
			SVTO	0611.0	0618.0	III		1	25	79	
			IZMI	0611.5	0914.2	III	G	2	25X	115	

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

101
Jul 04

JULY 2004

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)	
14			CULG	0612.0	0619.0	III	G	3	18	150		
			HIRA	0612.0	0614.0	III	G	1	30	80		
			IZMI	0617.0	0618.7	III	G	1	25X	95		
			LEAR	0712.0	0712.0	III		1	25	47		
			SVTO	0712.0	0712.0	III		1	25	56		
			LEAR	0745.0	0754.0	III		2	25	115		
			SVTO	0745.0	0754.0	III		2	25	120		
			IZMI	0745.4	0748.5	III	G	1	25X	85		
			IZMI	0752.0	0753.9	III	G	2	25X	95		
			HIRA	0753.0	0754.0	III	B	1	25X	100		
			IZMI	0753.1	0753.8	V		2	45U	70		
			IZMI	0815.6	0815.8	III	G	1	50	65		
			SVTO	0840.0	0935.0	III	N	2	25	132		
			IZMI	0840.3	0841.0	III	G	1	25X	150		
			IZMI	0844.0	0844.6	III	G,C	2	25X	95		
			LEAR	0844.0	0915.0	III	N	1	25	134		
			IZMI	0855.3	0856.1	III	G,C	3	25X	165		
			IZMI	0857.3	0858.6	III	G	1	45	120		
			IZMI	0912.0	0913.0	III	G	1	25	95		
			IZMI	0921.8	0922.0	III	G,C	1	25X	95		
			SVTO	1043.0	1048.0	III		1	25	48		
			IZMI	1044.0	1045.5	III	G	1	25X	45		
			IZMI	1154.0	1155.3	III	G	1	25X	150		
			SVTO	1154.0	1154.0	III		1	25	52		
			IZMI	1159.1	1159.6	III	G	1	30	65		
			HOLL	1248.0	1249.0	III		1	25	65		
			SVTO	1248.0	1249.0	III		1	25	80		
			HOLL	1327.0	1327.0	III		1	34	145		
			SVTO	1327.0	1327.0	III		1	29	118		
			SVTO	1354.0	1402.0	III		1	25	48		
			HOLL	1528.0	1528.0	III		1	34	142		
			SVTO	1528.0	1528.0	III		1	66	136		
			HOLL	1737.0	1738.0	III		1	110	147		
			PALE	1737.0	1738.0	III		1	104	135		
			SVTO	1737.0	1738.0	III		1	112	175		
			PALE	2110.0	2110.0	III		1	25	55		
			HOLL	2213.0	2214.0	III		1	38	150		
			PALE	2213.0	2214.0	III		1	25	157		
		1930 2400		HIRA	2213.0	2215.0	III	G	1	40	170	
		2110 2400		CULG	2213.0	2215.0	III	G	2	35	240	
				HOLL	2352.0	2355.0	III		1	25	150	
				CULG	2355.0	2358.0	III	G	1	45	320	
				HIRA	2355.0	2355.5	III	B	1	90	570	
			HOLL	2355.0	2356.0	III		1	72	180		
15	0000 0700		CULG	0012.0	0012.0	III	B	1	45	180		
			CULG	0146.0	0146.0	III	B	1	35	90		
			CULG	0147.0	0152.0	UNCLF		1	65	90		
			LEAR	0228.0	0229.0	III		1	44	180		
		0000 0956		HIRA	0228.5	0229.0	III	B	1	50	140	
				CULG	0229.0	0229.0	III	B	3	40	200	
				CULG	0242.0	0244.0	III	G	3	18X	75	
				LEAR	0242.0	0243.0	III		1	30	44	
				CULG	0414.0	0415.0	III	G	1	120	280	
				CULG	0441.0	0441.0	III	B	1	50	180	
		0555 1200		IZMI	0555.0E	1200.0D	I	N	1	110U	270X	
				LEAR	0609.0	0609.0	III		1	71	107	
				SVTO	0609.0	0609.0	III		1	76	121	
				IZMI	0609.7	0909.9	III	G,C	2	80	155	
				CULG	0610.0	0610.0	III	B	1	65	140	
				IZMI	0816.5	0816.9	III	G	1	110U	210	
				SVTO	1033.0	1034.0	III		1	31	140	
				IZMI	1033.6	1034.1	III	G,C	2	30	165	
				SVTO	1214.0	1215.0	III		1	113U	121U	
		0450 1805		BLEN	1258.2	1300.4	III	GG,S	3	300	700	
				SVTO	1706.0	1708.0	III		1	80	125	
				PALE	2002.0	2002.0	III		1	25	74	
		1930 2400		HIRA	2002.5	2003.0	III	B	1	25X	130	
			HIRA	2019.0	2019.5	III	B	1	25X	50		

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

JULY 2004

OBSERVATION			EVENT				FREQUENCY		Remarks	
Start Day	End Day	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)		Upper (MHz)
15		PALE	2019.0	2019.0	III		1	25	63	
		PALE	2025.0	2027.0	III		1	25	59	
	2110 2400	HIRA	2025.5	2027.5	III	G	1	25X	40	
		CULG	2128.0	2130.0	III	G	1	100	200	
		CULG	2156.0	2156.0	III	B	1	25	45	
		CULG	2237.0	2237.0	III	B	1	20	150	
		CULG	2251.0	2251.0	III	B	1	20	35	
		PALE	2326.0	2327.0	III		1	75	180	
		HIRA	2326.5	2327.0	III	B	2	120	220	
		CULG	2327.0	2327.0	III	B	2	70	250	
		LEAR	2355.0	0043.0	III	N	1	48	180	
		PALE	2355.0	2355.0	III		1	58	156	
16	0000 0700	CULG	0246.0	0248.0	III	G	1	27	90	
		LEAR	0419.0	0420.0	III		1	28	83	
		PALE	0419.0	0421.0	III		1	25	65	
		SVTO	0419.0	0420.0	III		1	29	82	
	0000 0956	HIRA	0419.5	0420.5	III	B	1	30	70	
		CULG	0420.0	0422.0	III	G	3	20	180	
		CULG	0513.0	0515.0	III	G	3	20	45	
		LEAR	0513.0	0514.0	III		1	25	42	
		SVTO	0513.0	0514.0	III		1	25	47	
		LEAR	0534.0	0538.0	III		1	25	42	
		SVTO	0534.0	0535.0	III		1	28U	38U	
		CULG	0535.0	0535.0	III	B	2	20	45	
		LEAR	0553.0	0624.0	III	N	1	25	180	
		CULG	0554.0	0557.0	III	G	3	50	200	
		HIRA	0554.0	0557.0	III	G	2	60	220	
		SVTO	0554.0	0750.0	III	N	1	25	180	
	0550 1200	IZMI	0554.0	0554.6	III	G,C	2	100U	250	
		IZMI	0556.0	0557.4	III	GG,C	2	45	270X	
		CULG	0558.0	0559.0	III	G	3	20	57	
		CULG	0604.0	0700.00	III	N	1	27	180	
		IZMI	0604.1	0604.9	III	G	1	50	160	
		IZMI	0607.2	0608.1	III	G	1	55	160	
		IZMI	0625.4	0625.5	III	B	1	45	65	
		LEAR	0711.0	0720.0	III		1	25	180	
		IZMI	0711.7	0718.7	III	G	1	45	95	
		IZMI	0720.4	0720.8	III	G,C	2	110	270X	
	0450 1805	BLEN	0720.4	0720.5	III		1	140	300	
		HIRA	0720.5	0721.0	III	B	1	80	210	
		IZMI	0802.7	0803.1	III	G	1	115	180	
		IZMI	0832.9	0833.1	III	B	1	110U	150	
		IZMI	0855.9	0900.0	III	GG,FS	2	40	270X	
		LEAR	0856.0	0901.0	III		1	43	180	
		SVTO	0856.0	0900.0	III		1	40	167	
		BLEN	0856.3	0900.5	DCIM	S	3	100X	2000	
		HIRA	0856.5	0858.5	III	G	2	100	200	
		IZMI	0938.9	0940.9	III	G,HARM	2	35	180	
		SVTO	0940.0	0940.0	III		1	37	177	
		IZMI	1020.6	1020.8	CONT		2	55	90	
		SVTO	1038.0	1038.0	III		1	75	176	
		IZMI	1038.1	1038.4	III	G,C	2	60	170	
		BLEN	1038.4	1041.4	DCIM	S,P,C	3	600	4000X	
		SVTO	1240.0	1244.0	III		2	25	180	
		HOLL	1243.0	1244.0	III		1	25	180	
		SVTO	1313.0	1314.0	III		1	113	173	
		BLEN	1353.0	1357.5	DCIM	S,C	3	700	4000X	
		HOLL	1359.0	1404.0	II		1	41	68	ESS 0790
		SVTO	1359.0	1405.0	II		1	40	58	ESS 0456
		SVTO	1438.0	1538.0	III	N	2	25	165	
		HOLL	1501.0	2145.0	III	N	2	25	91	
		BLEN	1648.1	1649.9	III	G	1	200	400	
		SVTO	1659.0	1659.0	III		1	34	126	
	1931 2400	HIRA	1948.5	1950.5	III	B	1	25	200	
		PALE	1949.0	1951.0	V		1	25	149	
		HIRA	1959.0	2000.5	III	G	2	80	320	
	2105 2400	CULG	2108.0	2114.0	III	G	3	23	80	
		CULG	2112.0	2113.0	III	G	3	20	330	

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

103
Jul 04

JULY 2004

OBSERVATION			EVENT					FREQUENCY		Remarks	
Start Day	End Day	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	Lower (MHz)	Upper (MHz)		
16		HIRA	2112.0	2114.0	III	G	3	25X	500		
		PALE	2112.0	2114.0	III		2	25	180		
		CULG	2113.0	2116.0	V		3	20	90		
		CULG	2132.0	2315.0	III	N	2	20	90		
		CULG	2311.0	2311.0	III	B	3	20	45		
17	0000 0700	LEAR	0018.0	0019.0	III		1	25	45		
		CULG	0018.0	0019.0	III	G	3	18	45		
		LEAR	0222.0	0250.0	III	N	1	25	180		
		CULG	0238.0	0239.0	III	G	2	27	90		
		LEAR	0238.0	0239.0	III		1	25	180		
	0000 0956	HIRA	0238.5	0239.0	III	B	1	50	100		
		HIRA	0345.5	0347.0	III	G	2	120	430		
		LEAR	0349.0	0350.0	III		1	25	97		
		LEAR	0359.0	0916.0	III	N	1	25	180		
		SVTO	0400.0	1640.0	III	N	2	25	160		
	0600 1200	CULG	0417.0	0417.0	III	B	1	30	90		
		CULG	0522.0	0522.0	III	B	2	27	90		
		CULG	0534.0	0539.0	III	G	1	30	90		
		IZMI	0631.6	0634.1	III	GG	2	60	95		
		CULG	0632.0	0638.0	III	G	1	35	100		
		IZMI	0635.0U	1141.0U	III	N	2	45U	95U		
		HIRA	0637.5	0638.5	III	G	1	60	110		
		IZMI	0637.5	0639.6	III	G	2	40	130		
		IZMI	0704.1	0708.1	III	GG	2	35	165		
		HIRA	0704.5	0706.0	III	G	1	60	100		
		IZMI	0720.4	0723.9	III	GG	2	50	95		
		HIRA	0720.5	0721.0	III	G	1	50	80		
		IZMI	0728.4	0738.6	III	GG	2	25X	250		
		HIRA	0729.0	0738.5	III	G	1	50	100		
		SVTO	0735.0	0738.0	III		1	25	167		
		0450 1805	BLEN	0735.5	0737.3	III	GG,U	1	500	1200	
			IZMI	0739.7	0941.8	III	G	1	50	95	
			IZMI	0749.4	0754.5	III	GG	2	40	95	
			BLEN	0755.4	0800.5	DCIM	C	3	700	4000X	
			HIRA	0803.5	0804.5	III	G	1	50	100	
	IZMI		0803.8	0807.5	III	GG	2	45	95		
	BLEN		0803.9	0804.2	III	G	1	180	500		
	IZMI		0821.5	0824.0	III	GG,C	2	25X	270X		
	SVTO		0822.0	0823.0	III		2	25	180		
	BLEN		0822.5	0823.8	III	GG	2	100X	900		
	HIRA		0822.5	0824.0	III	G	2	30	270		
	IZMI		0827.6	0829.9	III	GG	2	45	85		
	IZMI		0845.9	0853.2	III	GG	2	25X	85		
	IZMI		0901.4	0903.2	III	G	2	25X	65		
	IZMI		0934.8	0938.1	III	GG	2	25X	90		
	IZMI		0942.8	0949.9	III	GG	2	25X	90		
	IZMI		1037.1	1050.5	III	GG	2	25X	120		
	IZMI		1058.0	1058.5	III	G,C	2	25X	95		
	IZMI		1123.0	1129.8	III	GG	2	25X	270X		
	BLEN		1126.6	1134.5	III	GG,RS	2	190	3200		
	SVTO		1128.0	1130.0	III		2	25	82		
	IZMI		1133.4	1140.6	III	GG	2	25X	270X		
	IZMI		1141.6	1142.8	III	GG	2	25X	95		
	IZMI		1147.9	1148.2	III	G,HARM	2	25X	85		
	IZMI		1157.0	1157.1	III	B	1	45	65		
	BLEN	1253.2	1254.6	DCIM	C	3	1300	4000X			
	HOLL	1515.0	1641.0	III	N	1	25	82			
BLEN	1648.7	1651.6	DCIM	C,S	3	900	4000X				
HOLL	1759.0	1800.0	III		1	25	75				
PALE	1759.0	2045.0	III	N	1	25	180				
HOLL	1814.0	1815.0	III		1	25	86				
HOLL	1840.0	2045.0	III	N	1	25	180				
2110 2400	CULG	2110.0E	2400.0D	III	N	1	30	180			
	CULG	2159.0	2209.0	III	GG	3	20	300			
1932 2400	PALE	2159.0	0459.0	III	N	1	25	180			
	HIRA	2201.5	2209.0	III	G	1	50	240			
	CULG	2222.0	2224.0	III	G	3	20	100			
		CULG	2305.0	2306.0	III	G	3	20	120		

104
Jul 04

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

JULY 2004

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)
17			CULG	2312.0	2313.0	III	G	3	20	120	
18	0000	0700	CULG	0000.0E	0700.0D	III	N	1	27	160	
			LEAR	0008.0	0014.0	III		1	25	100	
			LEAR	0030.0	0034.0	III		1	25	97	
			CULG	0031.0	0035.0	III	G	3	18X	90	
	0000	0955	HIRA	0034.0	0034.5	III	G	1	40	100	
			LEAR	0202.0	0203.0	III		1	25	48	
			CULG	0203.0	0203.0	III	G	2	18	100	
			LEAR	0320.0	0321.0	III		1	35	180	
			HIRA	0320.5	0321.0	III	B	1	40	130	
			CULG	0321.0	0321.0	III	G	2	20	100	
			HIRA	0335.0	0336.0	III	B	1	50	200	
			LEAR	0335.0	0335.0	III		1	58	180	
			CULG	0441.0	0441.0	III	B	2	20	140	
			HIRA	0441.0	0441.5	III	B	1	40	110	
			LEAR	0441.0	0441.0	III		1	25	112	
			SVTO	0441.0	0441.0	III		1	25	81	
			LEAR	0452.0	0456.0	III		1	25	109	
	0600	1200	IZMI	0600.0E	1200.0D	I	S	2	60U	270X	
			IZMI	0630.0U	1200.0D	III	N	1	25X	95U	
			LEAR	0632.0	0916.0	CONT		1	125	180	
			CULG	0633.0	0700.0D	I	S	2	150	180	
	0450	1805	BLEN	0637.7	0804.5	I	DC,P,C	3	140	700	
			SVTO	0645.0	1359.0	CONT		1	115	180	
			IZMI	0708.8	0716.2	III	GG	2	25X	140	
			HIRA	0709.0	0717.0	III	G	2	25X	110	
			LEAR	0709.0	0717.0	III		1	25	116	
			SVTO	0709.0	0717.0	III		1	25	84	
			IZMI	0715.6	0716.1	III	G,C	3	25X	150	
			SVTO	0734.0	1359.0	CONT		1	115	180	
			LEAR	0748.0	0751.0	III		1	25	180	
			IZMI	0749.0	0750.9	III	G	2	25X	170	
			SVTO	0749.0	0753.0	III		1	25	89	
			HIRA	0750.0	0751.0	III	G	1	30	130	
			BLEN	0750.5	0752.1	III	GG	3	550	1100	
			IZMI	0755.8	0756.0	III	G	2	180	270X	
			HIRA	0822.0	0822.5	III	B	1	30	60	
			LEAR	0822.0	0822.0	III		1	25	50	
			SVTO	0822.0	0822.0	III		1	25	53	
			SVTO	0916.0	0916.0	III		1	25	46	
			IZMI	0933.6	0933.8	III	B	2	45	85	
			IZMI	1001.7	1004.3	III	GG	2	25X	140	
			SVTO	1034.0	1035.0	III		1	25	40	
			IZMI	1045.3	1045.5	III	G	2	125	270X	
			IZMI	1057.8	1057.9	III	G	2	110U	210	
			SVTO	1103.0	1109.0	III		1	25	38	
			BLEN	1134.7	1138.0	III	GG,C	3	100X	4000X	
			IZMI	1134.8	1139.4	III	GG	2	80U	270X	
			SVTO	1136.0	1137.0	III		1	115	180	
			BLEN	1146.4	1147.6	DCIM	C,S	2	1600	4000X	
			SVTO	1151.0	1151.0	III		1	34	84	
			SVTO	1303.0	1303.0	III		1	25	36	
			SVTO	1313.0	1640.0	III	N	2	25	160	
			BLEN	1411.9	1413.2	DCIM	C,S	2	1600	4000X	
			HOLL	1430.0	1740.0	III	N	1	25	141	
			BLEN	1708.7	1709.6	DCIM	C	1	1600	4000X	
			SVTO	1712.0	1712.0	III		1	25	58	
			HOLL	1836.0	2344.0	III	N	1	25	180	
			CULG	2110.0E	2400.0D	I	S,C	1	110	180	
	2110	2400	CULG	2110.0E	2400.0D	III	S	1	23	160	
			CULG	2129.0	2130.0	III	G	2	23	100	
	1933	2400	HIRA	2129.5	2130.0	III	B	1	50	70	
			CULG	2200.0	2200.0	III	B	2	25	80	
			LEAR	2349.0	0917.0	CONT		1	91	180	
			LEAR	2349.0	0917.0	III	N	1	25	109	
			CULG	2355.0	2355.0	III	B	2	20	90	
19			CULG	0000.0	0000.0	III	B	2	20	110	

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

105
Jul 04

JULY 2004

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)
19			CULG	0000.0E	0710.0D	I	S,C	1	60	180	
	0000	0710	CULG	0000.0E	0710.0D	III	S	1	20	130	
	0000	0955	HIRA	0010.5	0011.0	III	B	1	50	80	
			CULG	0011.0	0011.0	III	B	2	20	100	
			CULG	0025.0	0025.0	III	B	2	23	90	
			HIRA	0025.0	0025.5	III	B	1	50	70	
			CULG	0107.0	0136.0	III	N	2	20	100	
			SVTO	0356.0	1754.0	CONT		2	25	180	
			IZMI	0550.0E	1200.0D	I	S,C	2	40U	270X	
	0550	1200	IZMI	0550.0E	1200.0D	III	N	2	25X	95U	
			HIRA	0614.5	0615.0	III	B	1	50	120	
			IZMI	0614.7	0614.9	III	G,HARM	2	45	155	
			CULG	0615.0	0615.0	III	B	2	50	150	
			HIRA	0626.5	0629.5	III	G	1	40	110	
			IZMI	0626.7	0628.1	III	G	2	25X	130	
			CULG	0627.0	0628.0	III	G	3	20	140	
			BLEN	0647.8	0653.5	DCIM	C	2	100X	4000X	
	0450	1805	BLEN	0647.8	0650.5	III	GG	2	300	600	
			CULG	0652.0	0652.0	III	B	2	20	1200	
			HIRA	0652.0	0652.5	III	B	3	100	1200	
			IZMI	0652.1	0652.9	III	G	2	80	270X	
			IZMI	0713.1	0713.4	III	G	2	25X	65	
			IZMI	0745.8	0746.0	III	G	2	110	270X	
			IZMI	0811.2	0812.2	III	G	2	80	270X	
			BLEN	0901.7	0905.6	III	GG	2	130	900	
			IZMI	0903.2	0906.5	III	GG	2	25X	270X	
			HIRA	0903.5	0905.5	III	G	2	40	420	
			SVTO	0948.0	1149.0	III	N	2	25	180	
			IZMI	0948.1	0948.4	III	G	2	25X	100U	
			BLEN	1005.5	1014.3	III	G,U	2	130	900	
			IZMI	1005.5	1006.0	III	G,C	3	25X	270X	
			IZMI	1012.6	1013.0	III	G,C	2	110	270X	
			IZMI	1013.8	1014.2	III	G	2	110	270X	
			IZMI	1034.7	1034.9	III	B	2	25X	95	
			BLEN	1050.2	1050.9	III	G,U	2	400	2400	
			IZMI	1055.8	1056.8	III	G	2	25X	270X	
			HOLL	1257.0	1258.0	III		1	25	167	
			SVTO	1257.0	1305.0	V		2	25	168	
			BLEN	1423.6	1428.1	III	G,U	2	160	600	
			SVTO	1642.0	1649.0	III		1	25	160	
			PALE	1648.0	1758.0	CONT		1	109	159	
			SVTO	1658.0	1659.0	III		1	61	171	
	1934	2400	HIRA								
	2110	2400	CULG	2110.0E	2400.0D	III	S,C	1	20	200	
			CULG	2201.0	2201.0	III	B	3	20	60	
		CULG	2209.0	2209.0	III	B	3	20	90		
		CULG	2231.0	2232.0	III	G	1	120	330		
		LEAR	2347.0	0917.0	CONT		1	75	180		
20	0000	0710	CULG	0000.0E	0450.0	III	S,C	1	20	180	
			LEAR	0009.0	0806.0	III	N	1	25	180	
			CULG	0028.0	0028.0	III	B	2	20	460	
	0000	0954	HIRA	0028.0	0028.5	III	B	1	50	420	
			CULG	0037.0	0037.0	III	B	3	20	50	
			CULG	0045.0	0045.0	III	B	3	25	50	
			CULG	0450.0	0710.0D	III	S,C	2	20	180	
	0450	1805	BLEN	0450.0X	1805.0X	I	DC,P	3	100X	500	
			HIRA	0456.5	0457.5	III	G	1	200	320	
			SVTO	0512.0	1334.0	III	N	2	25	180	
			SVTO	0530.0	1232.0	CONT		1	25	180	
			IZMI	0550.0E	1200.0D	I	S,C	2	40U	270X	
	0550	1200	IZMI	0550.0E	1200.0D	III	N	2	25X	270X	
			IZMI	0634.2	0639.6	III	GG	2	180	270X	
			IZMI	0657.4	0657.8	III	G	2	25X	240	
			IZMI	0920.4	0921.8	III	G	2	40	270X	
			IZMI	0925.8	0926.1	III	G	2	40	95	
			IZMI	1018.5	1019.5	III	GG	2	25X	270X	
			IZMI	1103.5	1105.7	III	GG	2	130	270X	
			BLEN	1105.5	1108.1	DCIM	C,S,P	3	200	4000X	

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

JULY 2004

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)
20			IZMI	1108.4	1111.4	III	GG	2	25X	270X	
			IZMI	1111.5	1118.2	III	GG	2	25X	270X	
			IZMI	1121.7	1129.1	III	GG	2	25X	270X	
			BLEN	1123.8	1128.5	III	GG,RS	3	100X	1900	
			BLEN	1226.0	1623.5	IV	P,C	3	200	4000X	
			BLEN	1231.4	1240.7	II	H	2	100X	280	
			SVTO	1232.0	1753.0	IV		2	25	180	
			SVTO	1235.0	1248.0	II		2	25	180	ESS 0485
			SVTO	1435.0	1753.0	III	N	2	25	180	
			BLEN	1624.0	1629.3	III	GG,RS	2	100X	600	
			PALE	2107.0	2116.0	II		2	25	180	ESS 0112
1934	2400		HIRA	2107.0	2121.5	III	G	2	25X	320	
			CULG	2110.0E	2124.0	III	GG	3	20	450	
2110	2400		CULG	2110.0E	2400.00	III	S,C	2	20	250	
			CULG	2159.0	2159.0	III	B	3	18	70	
			CULG	2205.0	2205.0	III	B	3	20	90	
			HIRA	2205.0	2205.5	III	B	1	30	80	
			CULG	2243.0	2315.0	III	N	3	18	180	
			HIRA	2251.0	2259.0	III	G	2	50	310	
			CULG	2253.0	2259.0	III	G	3	18	700	
			CULG	2308.0	2309.0	III	G	3	18	300	
			HIRA	2309.0	2309.5	III	B	1	60	240	
			LEAR	2350.0	0541.0	CONT		1	25	180	
21	0000	0710	CULG	0000.0E	0545.0	III	S,C	2	18	200	
			CULG	0130.0	0134.0	III	G	3	18X	340	
	0000	0953	HIRA	0130.5	0132.0	III	G	1	40	230	
			CULG	0212.0	0217.0	III	G	3	18X	180	
			CULG	0342.0	0350.0	III	G	3	18X	100	
			SVTO	0357.0	0541.0	CONT		1	25	180	
			CULG	0415.0	0421.0	III	G	3	18X	180	
			SVTO	0420.0	0424.0	III		1	25	83	
			HIRA	0420.5	0421.0	III	B	1	30	90	
			HIRA	0441.0	0441.5	III	B	1	25X	100	
			SVTO	0441.0	1606.0	III	N	2	25	180	
			CULG	0442.0	0442.0	III	B	3	20	180	
	0450	1800	BLEN	0504.7	0518.6	DCIM	P	3	140	4000X	
			CULG	0505.0	0520.0	III	N	3	18X	1800X	
			HIRA	0511.0	0517.5	III	G	1	25X	210	
			SVTO	0511.0	0518.0	III		2	25	180	
			LEAR	0514.0	0517.0	III		2	25	180	
			LEAR	0541.0	0918.0	IV		2	25	180	
			SVTO	0541.0	1753.0	IV		2	25	180	
			CULG	0545.0	0710.0D	III	S,C	3	18	200	
			CULG	0559.0	0559.0	III	B	1	20	420	
			IZMI	0600.0E	1200.0D	III	N	2	25X	270X	
	0600	1200	IZMI	0600.0E	1200.0D	I	S,C	2	30U	270X	
			IZMI	0619.2	0920.9	I	GG,DC	2	160	270X	
			CULG	0620.0	0620.0	III	B	1	100	370	
			BLEN	0703.0	1250.5	DCIM	P	2	140	3900	
			IZMI	0719.5	0720.5	III	G	2	25X	190	
			IZMI	0751.1	0752.1	III	G	2	25X	215	
			HIRA	0751.5	0752.0	III	B	1	30	200	
			SVTO	0757.0	0801.0	III		2	25	180	
			IZMI	0757.3	0801.4	III	GG	2	25X	270X	
	0525	1742	ONDR	0757.4	0805.3	DCIM	GG	2	800X	2000X	
			HIRA	0757.5	0801.0	III	G	2	25X	240	
			BLEN	0800.2	0800.8	III	GG,RS	1	100X	3000	
			IZMI	0803.0	0809.8	III	GG	2	25X	270X	
			IZMI	0814.9	0815.7	III	G,C	2	25X	215	
			HIRA	0815.0	0818.0	III	G	2	25X	210	
			IZMI	0816.5	0819.2	III	GG	2	25X	180	
			IZMI	0829.7	0829.7	III	G	3	170	270X	
			IZMI	0932.5	0934.9	III	G	2	25X	270X	
			IZMI	0937.6	0944.2	III	GG	2	25X	270X	
			IZMI	0947.6	0954.8	III	GG	2	25X	270X	
			ONDR	0957.2	1046.4	DCIM	GG	2	800X	1644	
			IZMI	1011.6	1014.6	III	GG,P	2	180U	270X	
			IZMI	1018.7	1019.7	III	GG	2	25X	270X	

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

107
Jul 04

JULY 2004

OBSERVATION		Sta	EVENT		Event Remarks	Int (1-3)	FREQUENCY		Remarks		
Start Day (UT)	End (UT)		Start (UT)	End (UT)			Spectral Class	Lower (MHz)		Upper (MHz)	
21		IZMI	1131.8	1136.4	III	GG,DC	2	25X	270X		
		PALE	1700.0	0458.0	CONT		1	25	180		
		PALE	1743.0	1744.0	III		1	25	180		
		PALE	1833.0	0458.0	III	N	1	25	180		
	1935 2400		HIRA								
	2110 2400		CULG	2110.0E	2400.0D	III	S,C	3	18	200	
			LEAR	2342.0	0417.0	III	N	2	25	180	
		LEAR	2342.0	0918.0	CONT		2	25	180		
22	0000 0710	CULG	0000.0E	0710.0D	III	S,C	3	18X	200		
		CULG	0015.0	0131.0	III	N	1	100	1000		
		CULG	0207.0	0207.0	III	B	1	150	450		
	0000 0952	HIRA	0207.0	0207.5	III	B	1	300	400		
		CULG	0214.0	0217.0	III	G	1	50	800		
		HIRA	0215.0	0215.5	III	B	1	100	120		
		CULG	0252.0	0253.0	III	G	3	18X	550		
		HIRA	0252.5	0253.0	III	G	1	40	200		
		CULG	0357.0	0359.0	III	G	3	35	450		
		HIRA	0357.5	0358.5	III	G	2	50	500		
		SVTO	0358.0	0432.0	III	N	1	33	180		
		SVTO	0358.0	1752.0	CONT		2	25	180		
		SVTO	0456.0	1752.0	III	N	2	25	180		
		LEAR	0524.0	0918.0	III	N	1	25	180		
		HIRA	0547.5	0548.5	III	B	1	130	330		
	0450 1800	BLEN	0547.8	0548.6	III	GG	2	160	1200		
		CULG	0548.0	0548.0	III	B	1	150	350		
		IZMI	0600.0E	1200.0D	I	S,C	2	30U	270X		
	0600 1200	IZMI	0600.0E	1200.0D	III	N	2	25X	160U		
		IZMI	0635.6	0636.1	III	G,FS	2	180	270X		
		IZMI	0657.8	0657.9	III	B	2	180	240		
		IZMI	0734.0	0734.4	III	B	2	25X	65		
		IZMI	0736.6	0737.4	III	G	2	180	270X		
		BLEN	0736.8	0737.4	III	GG	2	260	400		
		IZMI	0741.3	0752.3	III	GG,C,FS	2	25X	270X		
		HIRA	0742.0	0748.5	III	G	3	25X	600		
		LEAR	0742.0	0747.0	V		3	25	180		
		SVTO	0742.0	0749.0	V		2	25	180		
	0436 1740	ONDR	0743.2	0757.1	DCIM	GG	2	800X	2000X		
		BLEN	0743.9	0744.2	III	U	2	180	400		
		BLEN	0743.9	0758.5	DCIM	P,C,F	3	100X	4000X		
		LEAR	0754.0	0758.0	III		2	25	180		
		SVTO	0754.0	0758.0	III		2	25	180		
		IZMI	0754.4	0758.3	III	GG	2	25X	95		
		HIRA	0755.0	0757.0	III	G	2	25X	90		
		IZMI	0813.7	0814.7	III	G	2	180	260		
		IZMI	0819.8	0820.0	III	G	2	180	260		
		IZMI	0843.8	0846.5	III	G	2	160	270X		
		BLEN	0903.0	0910.5	III	GG,RS,C	2	100X	4000X		
		SVTO	0908.0	0910.0	III		2	25	180		
		IZMI	0908.9	0909.9	III	G,FS	2	25X	270X		
		HIRA	0909.0	0910.0	III	B	1	25X	520		
		ONDR	0909.0	0911.5	DCIM	G,W	1	800X	2000X		
		IZMI	1011.5	1012.9	III	GG	2	25X	270X		
		IZMI	1054.0	1103.2	III	GG	2	25X	180		
		SVTO	1103.0	1106.0	III		3	25	180		
		IZMI	1103.7	1106.7	III	GG	2	25X	270X		
		ONDR	1105.1	1108.2	DCIM	G	1	800X	2000X		
		IZMI	1115.3	1115.8	III	G	3	25X	270X		
		IZMI	1134.5	1134.5	III	G	2	150	270X		
		IZMI	1158.7	1159.1	III	G	2	25X	270X		
		BLEN	1538.2	1540.9	III	GG,RS,C	3	100X	4000X		
	SVTO	1539.0	1540.0	III		2	25	180			
	ONDR	1539.2	1539.5	DCIM	G	1	800X	2000X			
	PALE	1628.0	0458.0	CONT		1	25	180			
	PALE	1653.0	0458.0	III	N	1	25	180			
	BLEN	1700.9	1708.8	III	GG	2	100X	600			
1935 2400		HIRA	2050.5	2051.0	III	B	1	25X	220		
2110 2400		CULG	2110.0E	2400.0D	III	S,C	3	18	200		
		HIRA	2252.0	2255.0	III	G	1	25X	920		

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

JULY 2004

OBSERVATION		Sta	EVENT		Event Remarks	Int (1-3)	FREQUENCY		Remarks	
Start Day (UT)	End (UT)		Start (UT)	End (UT)			Spectral Class	Lower (MHz)		Upper (MHz)
22		CULG	2253.0	2302.0	III	GG	3	18X	880	
		LEAR	2338.0	0919.0	CONT		2	25	180	
23	0000 0710	CULG	0000.0E	0710.0D	III	S,C	3	18	200	
		LEAR	0022.0	0023.0	III		2	25	180	
	0000 0952	HIRA	0022.5	0023.0	III	B	1	50	230	
		CULG	0023.0	0023.0	III	B	3	45	300	
		LEAR	0038.0	0039.0	III		2	25	80	
		HIRA	0045.5	0046.5	III	G	1		140	
		CULG	0046.0	0046.0	III	G	1	40	800	
		LEAR	0051.0	0919.0	III	N	2	25	115	
		SVTO	0359.0	1751.0	CONT		2	25	180	
		LEAR	0439.0	0440.0	III		2	25	180	
		SVTO	0439.0	0440.0	III		2	25	180	
		HIRA	0439.5	0441.0	III	G	1	25X	180	
		IZMI	0550.0E	1200.0D	III	N	1	25X	95U	
	0555 1200	IZMI	0550.0E	1200.0D	I	S,C	2	25X	270X	
		IZMI	0555.2	0555.9	III	G	2	25X	240	
		IZMI	0615.2	1615.6	III	G	2	110	270X	
		IZMI	0640.5	0647.9	III	GG	2	25X	270X	
		LEAR	0641.0	0648.0	V		2	25	180	
		SVTO	0641.0	0649.0	V		1	25	180	
		SVTO	0641.0	0649.0	V		2	25	180	
		HIRA	0641.5	0645.5	III	G	2	25X	120	
	0455 1800	BLEN	0642.8	0645.5	DCIM	P,C	3	100X	4000X	
		CULG	0643.0	0645.0	III	G	3	20	1500	
	0437 1739	ONDR	0643.3	0645.1	DCIM	GG	2	800X	2000X	
		IZMI	0702.7	0704.7	III	G	2	25X	270X	
		BLEN	0718.6	0736.4	DCIM	P,C	2	100X	4000X	
		ONDR	0720.0	0736.2	DCIM	GG	1	800X	2000X	
		IZMI	0720.9	0726.0	III	GG	2	25X	270X	
		HIRA	0721.0	0732.0	III	G	1	25X	110	
		IZMI	0727.8	0736.4	III	GG	2	25X	270X	
		IZMI	0845.7	0848.6	III	GG	2	25X	240	
		IZMI	0851.5	0859.7	III	GG	2	25X	270	
		IZMI	0901.1	0904.4	III	G	2	25X	270X	
		IZMI	0946.9	0954.4	III	GG	2	25X	45	
		IZMI	1008.9	1013.1	III	GG	2	25X	65U	
		IZMI	1031.3	1033.9	III	G	2	25X	270X	
		IZMI	1116.2	1117.9	III	G	2	25X	65U	
		BLEN	1230.8	1231.3	III	G	1	100X	230	
		BLEN	1245.4	1245.9	III	GG	1	180	330	
		BLEN	1409.8	1410.4	III	GG,S	2	230	1000	
		SVTO	1600.0	1608.0	II		1	25	75	ESS 0717
		SVTO	1604.0	1605.0	III		2	25	180	
		BLEN	1604.8	1605.1	III	GG,S	2	100X	500	
		PALE	1619.0	0458.0	CONT		2	25	180	
		PALE	1710.0	1711.0	III		2	25	180	
		SVTO	1710.0	1711.0	III		2	25	180	
		BLEN	1710.4	1737.3	DCIM	P,C	3	100X	4000X	
		PALE	1716.0	1732.0	III	N	2	25	180	
		SVTO	1717.0	1725.0	III		2	25	180	
		ONDR	1718.2	1729.2	DCIM	GG	2	800X	2000X	
		PALE	1804.0	1958.0	III	N	1	25	180	
	1936 2400	HIRA	1945.0	1945.5	III	B	2	30	200	
	2110 2400	CULG	2110.0E	2400.0D	III	S,C	3	18X	280	
		PALE	2111.0	0257.0	III	N	1	25	180	
		CULG	2118.0	2122.0	III	G	3	20	900	
		LEAR	2350.0	0920.0	CONT		1	37	180	
24	0000 0710	CULG	0000.0E	0041.0	III	S,C	3	18	200	
		CULG	0035.0	0039.0	III	G	3	18X	280	
		LEAR	0035.0	0038.0	V		2	25	180	
		PALE	0035.0	0038.0	V		2	25	180	
	0000 0951	HIRA	0035.0	0038.0	III	G	3	25X	130	
		CULG	0041.0	0710.0D	III	S,C	2	18	180	
		SVTO	0400.0	1750.0	CONT		1	25	180	
		LEAR	0424.0	0821.0	III	N	1	25	66	
		CULG	0454.0	0454.0	III	B	3	20	90	

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

109
Jul 04

JULY 2004

OBSERVATION		Sta	EVENT		Spectral Class	Event Remarks	Int (1-3)	FREQUENCY		Remarks
Start Day (UT)	End Day (UT)		Start (UT)	End (UT)				Lower (MHz)	Upper (MHz)	
24		SVTO	0454.0	0938.0	III	N	1	25	125	
		CULG	0515.0	0515.0	III	B	3	20	90	
		IZMI	0555.0E	1200.0D	III	N	2	25X	95U	
	0555 1200	IZMI	0555.0E	1200.0D	I	S,C	2	45U	270X	
	0455 1800	BLEN	0603.0	0609.5	DCIM	P,C	3	200	4000X	
	0438 1738	ONDR	0603.4	0610.1	DCIM	G	2	800X	2000X	
		CULG	0604.0	0607.0	III	G	1	360	1200	
		IZMI	0604.2	0605.8	III	GG	2	180	270X	
		CULG	0621.0	0701.0	III	N	3	20	90	
		ONDR	0632.2	0633.2	DCIM	G	1	800X	1494	
		IZMI	0644.1	0644.5	III	G	2	25X	160	
		IZMI	0648.2	0648.3	III	G	2	25X	60	
		IZMI	0655.5	0655.7	III	G	2	25X	100U	
		ONDR	0802.2	0815.1	DCIM	G	1	2000X	4500X	
		HIRA	0802.5	0803.5	III	G	1	120	210	
		ONDR	0802.5	0816.1	DCIM	G	2	800X	2000X	
		IZMI	0802.7	0804.8	III	GG	2	140	270X	
		BLEN	0802.8	0815.6	III	GG,RS,C	3	150	4000X	
		IZMI	0928.1	0928.2	III	B	2	25X	65	
		BLEN	0953.1	0954.2	III	GG,RS,C	2	250	4000X	
		ONDR	0953.1	0954.0	DCIM	GG	2	1123	2000X	
		ONDR	1011.5	1023.4	DCIM	G	1	2000X	4500X	
		ONDR	1016.1	1018.1	DCIM	GG	1	1418	2000X	
		BLEN	1016.3	1019.0	DCIM	C	2	1500	4000X	
		SVTO	1026.0	1558.0	III	N	1	25	173	
		IZMI	1144.4	1144.5	III	G	2	25X	65	
		IZMI	1153.5	1153.8	III	G	2	25X	85	
		SVTO	1242.0	1243.0	III		2	25	68	
		ONDR	1334.2	1337.2	DCIM	G	2	2000X	4500X	
		BLEN	1334.3	1337.5	DCIM	C	3	200	4000X	
		ONDR	1334.3	1336.2	DCIM	G	2	800X	2000X	
		SVTO	1539.0	1541.0	V		2	25	171	
		SVTO	1633.0	1634.0	III		1	25	78	
		PALE	1722.0	1725.0	III		1	25	88	
		PALE	1821.0	0340.0	III	N	1	25	124	
	1937 2400	HIRA	2019.5	2020.0	III	B	2	25X	50	
		HIRA	2055.0	2058.0	III	G	3	25X	100	
	2110 2400	CULG	2110.0E	2400.0D	I	S,C	1	80	180	
		CULG	2121.0	2127.0	III	G	2	23	120	
		HIRA	2131.0	2138.5	III	G	3	25X	200	
	CULG	2132.0	2138.0	III	G	3	18X	180		
	PALE	2136.0	2138.0	III		2	25	180		
	CULG	2151.0	2400.0D	III	N	1	20	180		
	CULG	2242.0	2244.0	III	G	3	18	90		
	CULG	2312.0	2321.0	III	GG	3	18X	200		
	HIRA	2312.5	2319.0	III	G	2	25X	130		
	CULG	2325.0	2325.0	III	B	2	25	180		
	HIRA	2337.5	2338.0	III	B	1	25X	120		
	CULG	2338.0	2338.0	III	G	3	20	190		
	LEAR	2346.0	0820.0	III	N	1	25	180		
25		CULG	0000.0E	0710.0D	III	S,C	1	20	180	
	0000 0710	CULG	0000.0E	0710.0D	I	S,C	1	70	180	
	0000 0950	HIRA	0052.5	0053.5	III	G	1	25X	60	
		CULG	0053.0	0053.0	III	G	2	20	160	
		LEAR	0101.0	0615.0	CONT		1	80	180	
		HIRA	0147.5	0148.0	III	B	1	25X	50	
		CULG	0148.0	0148.0	III	B	2	18X	100	
		HIRA	0219.5	0224.0	III	G	1	25X	60	
		CULG	0220.0	0224.0	III	G	2	18	100	
		HIRA	0530.5	0531.0	III	B	1	25X	50	
		CULG	0531.0	0531.0	III	B	2	20	90	
		BLEN	0541.4	0737.5	IV	P,C	3	200	4000X	
	0450 1800	BLEN	0541.4	0717.6	III	GG,RS	3	200	2500	
		ONDR	0542.0	0559.1	DCIM	GG,FS	2	800X	2000X	
		CULG	0547.0	0554.0	CONT		1	400	1800X	
		IZMI	0600.0E	1200.0D	III	N	1	25X	95U	
	0600 1200	IZMI	0600.0E	1200.0D	I	SG	1	110U	270X	
	IZMI	0604.0	0830.0D	I	S,C,DC	2	45U	270X		

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

JULY 2004

OBSERVATION		Sta	EVENT		Event Remarks	Int (1-3)	FREQUENCY		Remarks		
Start Day (UT)	End (UT)		Start (UT)	End (UT)			Spectral Class	Lower (MHz)		Upper (MHz)	
25		IZMI	0604.0U	0830.0U	III	N	2	25X	270X		
		CULG	0610.0	0710.0D	IV	FS	2	57	750		
		HIRA	0615.0	0810.0	IV		1	60	200		
		LEAR	0615.0	0920.0	IV		1	54	180		
		SVTO	0615.0	1040.0	IV		1	25	180		
		CULG	0617.0	0619.0	III	G	3	27	90		
		HIRA	0617.0	0619.0	III	G	1	25X	100		
		IZMI	0617.0	0618.9	III	G	2	25X	180		
		LEAR	0617.0	0619.0	V		1	25	122		
		SVTO	0617.0	0620.0	III		1	25	84		
	0439	1737	ONDR	0631.4	0657.1	DCIM	GG	1	2000X	4500X	
			CULG	0705.0	0705.0	III	B	2	23	80	
			HIRA	0705.0	0705.5	III	B	1	25X	80	
			SVTO	0705.0	0705.0	III		1	25	75	
			ONDR	0707.2	0717.4	DCIM	GG	2	800X	2000X	
			ONDR	0710.1	0715.2	DCIM	G	1	2000X	4500X	
			SVTO	0801.0	0807.0	III		2	25	83	
			IZMI	0801.6	0807.7	III	GG	2	25X	140	
			LEAR	0802.0	0807.0	III		2	25	116	
			HIRA	0802.5	0806.0	III	G	1	25X	110	
			IZMI	0824.4	0825.6	III	G	2	180	270X	
			IZMI	0922.6	0922.8	III	G	2	45	150	
			IZMI	1013.2	1013.5	III	G	2	25X	145	
			IZMI	1018.2	1018.5	III	G	2	45	95	
			SVTO	1205.0	1207.0	III		1	25U	180U	
			SVTO	1207.0	1415.0	CONT		1	114U	172U	
			BLEN	1250.0	1800.0X	I	DC,C	3	100X	450	
			SVTO	1253.0	1257.0	V		2	25	83	
			ONDR	1254.2	1255.5	DCIM	GG	2	800X	2000X	
			BLEN	1254.3	1355.8	III	GG,U,C	3	200	4000X	
			ONDR	1319.2	1324.1	DCIM	G	1	2000X	4500X	
			SVTO	1322.0	1356.0	III	N	2	25	146	
			ONDR	1341.0	1355.5	DCIM	GG	2	800X	2000X	
			ONDR	1341.1	1358.1	DCIM	GG	2	2000X	4500X	
			SVTO	1415.0	1731.0	IV		2	25	180	
			ONDR	1421.4	1518.0	DCIM	GG	2	2000X	4500X	
			ONDR	1434.3	1543.4	DCIM	GG	2	800X	2000X	
			BLEN	1503.4	1530.0	DCIM	C	3	390	3000	
			SVTO	1521.0	1526.0	II		1	25	81	ESS 0898
			ONDR	1543.2	1543.5	DCIM	G,W	1	2000X	4500X	
			SVTO	1709.0	1709.0	III		1	25	83	
			PALE	2056.0	0212.0	III	N	1	25	180	
1938	2400	HIRA	2056.0	2057.5	III	G	1	40	120		
		CULG	2110.0E	2400.0D	III	S,C	1	23	160		
2110	2400	CULG	2110.0E	2400.0D	I	S,C	1	130	260		
		HIRA	2240.5	2241.0	III	B	1	25X	50		
		CULG	2241.0	2241.0	III	B	3	18	80		
		CULG	2318.0	2318.0	III	B	3	18	70		
		LEAR	2345.0	0232.0	CONT		1	45	180		
26		CULG	0000.0E	0416.0	III	N	1	20	180		
	0000	0710	CULG	0000.0E	0030.0	I	S,C	1	40	160	
			LEAR	0155.0	0155.0	III		1	25	46	
	0000	0949	HIRA	0155.0	0155.5	III	B	1	25X	40	
			LEAR	0257.0	0258.0	III		1	25	51	
			PALE	0257.0	0258.0	III		1	25	114	
			HIRA	0257.5	0258.0	III	B	1	30	50	
			CULG	0258.0	0258.0	III	B	2	20	100	
			PALE	0424.0	0426.0	III		1	25	90	
			CULG	0425.0	0427.0	III	G	3	18X	180	
			HIRA	0425.0	0427.0	III	G	2	25X	120	
			LEAR	0425.0	0428.0	III		2	25	164	
			SVTO	0425.0	0426.0	III		1	25	126	
			CULG	0428.0	0428.0	III	G	2	50	180	
			CULG	0435.0	0710.0D	I	S	1	100	180	
			CULG	0448.0	0450.0	III	G	2	20	90	
			LEAR	0521.0	0522.0	III		1	25	103	
			SVTO	0521.0	0530.0	III		1	25U	82U	
		HIRA	0521.5	0522.0	III	B	1	25X	100		

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

111
Jul 04

JULY 2004

OBSERVATION Day	Start (UT)	End (UT)	Sta	EVENT			Int (1-3)	FREQUENCY		Remarks	
				Start (UT)	End (UT)	Spectral Class		Event Remarks	Lower (MHz)		Upper (MHz)
26			CULG	0522.0	0522.0	III	B	3	18X	170	
			CULG	0529.0	0531.0	III	G	3	18X	180	
			LEAR	0529.0	0530.0	III		1	25	109	
			HIRA	0529.5	0530.0	III	B	1	25X	70	
0440	1736		ONDR	0539.0	0552.0	DCIM	GG	2	800X	2000X	
			BLEN	0539.1	0552.2	III	GG,RS,C	3	400	4000X	
0500	1800		BLEN	0539.1	0552.2	III	GG,RS,C	3	400	4000X	
			CULG	0551.0	0710.00	III	N	1	20	100	
0600	1200		IZMI	0600.0E	1045.0U	I	S	2	110U	270X	
			IZMI	0605.3	0605.6	III	G	1	45	65	
			LEAR	0613.0	0659.0	CONT		1	136	180	
			CULG	0624.0	0627.0	III	G	3	18X	130	
			HIRA	0624.0	0627.5	III	G	2	25X	100	
			LEAR	0624.0	0627.0	III		1	25	180	
			SVTO	0624.0	0627.0	III		2	25U	82U	
			IZMI	0624.2	0624.7	III	G	2	25X	115	
			IZMI	0626.9	0627.3	III	G	2	25X	95	
			LEAR	0643.0	0644.0	III		1	25	138	
			SVTO	0643.0	0644.0	III		1	25	126	
			HIRA	0643.5	0644.0	III	B	1	25X	130	
			IZMI	0643.7	0644.1	III	G	2	25X	140	
			CULG	0644.0	0644.0	III	G	3	18	180	
			IZMI	0645.9	0646.4	III	G	2	110	175	
			ONDR	0650.5	0655.0	DCIM	G	1	800X	2000X	
			BLEN	0650.8	0655.0	III	GG,RS,C	2	360	3000	
			IZMI	0652.8	0652.9	III	B	1	45	85	
			IZMI	0704.1	0704.6	III	G	2	40	170	
			LEAR	0707.0	0707.0	III		1	25	45	
			IZMI	0715.8	0715.9	III	G	1	95U	160	
			HIRA	0804.0	0804.5	III	B	1	80	130	
			LEAR	0804.0	0804.0	III		1	39	168	
			IZMI	0828.0	0830.1	III	G	1	30	155	
			LEAR	0828.0	0828.0	III		1	25	116	
			IZMI	0837.8	0838.1	III	G	1	45	85	
			HIRA	0924.5	0925.0	III	G	1	80	130	
			IZMI	0924.5	0925.0	III	G,C	2	70	160	
			IZMI	0943.1	0943.4	III	G	1	45	175	
			IZMI	1012.2	1012.5	III	G	1	50	155	
			IZMI	1017.8	1018.6	III	GG	2	40	160	
			IZMI	1041.9	1042.5	III	G,C	2	40	165	
			IZMI	1057.5	1058.6	III	G,FS	2	25X	120	
			IZMI	1100.7	1102.3	III	G,C	2	25X	155	
			IZMI	1111.7	1112.6	III	GG,C	2	25X	190	
			IZMI	1135.4	1135.5	III	G	2	80U	160	
			IZMI	1137.7	1137.8	III	G	2	110U	160	
			IZMI	1147.8	1147.9	III	B	1	25X	65	
			ONDR	1257.4	1259.2	DCIM	G	2	2000X	4021	
			ONDR	1258.5	1259.0	DCIM	G	2	1634	2000X	
			ONDR	1640.1	1643.5	DCIM	G	1	2000X	4500X	
			BLEN	1649.0	1657.5	III	GG,RS,C	2	250	4000X	
			PALE	1649.0	1649.0	III		1	25	180	
			ONDR	1651.1	1654.1	DCIM	GG	3	800X	1175	
			PALE	1718.0	1718.0	III		1	25	66	
			BLEN	1723.7	1730.7	III	GG,RS,C	3	250	4000X	
			ONDR	1725.1	1730.4	DCIM	GG	1	800X	2000X	
			PALE	1752.0	1752.0	III		1	31	63	
			PALE	1758.0	1759.0	III		1	25	54	
			PALE	1813.0	1818.0	III		2	25	180	
			PALE	2012.0	2012.0	III		1	25	75	
1939	2400		HIRA	2012.5	2013.0	III	B	1	25X	40	
2110	2400		CULG	2118.0	2118.0	III	G	1	45	150	
			CULG	2202.0	2208.0	III	G	2	20	100	
			HIRA	2202.5	2203.5	III	G	1	25X	90	
			CULG	2232.0	2235.0	III	G	3	20	90	
			HIRA	2233.0	2235.5	III	G	1	25X	70	
			CULG	2245.0	2247.0	III	G	3	18X	80	
			HIRA	2246.5	2247.0	III	B	1	25X	60	
			HIRA	2252.5	2253.0	III	B	1	25X	50	
			CULG	2253.0	2253.0	III	B	2	20	90	

112
Jul 04

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

JULY 2004

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)
26			PALE	2329.0	0058.0	III	N	1	25U	60U	
			CULG	2330.0	2330.0	III	B	2	18	75	
			CULG	2335.0	2356.0	III	N	1	20	140	
			LEAR	2342.0	0729.0	III	N	1	25	107	
27	0000 0710		CULG	0036.0	0140.0	III	N	1	20	180	
			CULG	0057.0	0058.0	III	G	2	20	90	
			LEAR	0101.0	0102.0	V		2	25	180	
			PALE	0101.0	0102.0	V		1	25	180	
	0000 0948		HIRA	0101.5	0102.5	III	B	2	25X	180	
			CULG	0102.0	0103.0	III	G	3	18X	200	
			CULG	0103.0	0710.0D	I	S	1	60	180	
			PALE	0218.0	0359.0	III	N	1	25	85	
			CULG	0219.0	0221.0	III	G	2	20	90	
			CULG	0232.0	0236.0	III	G	2	20	180	
			HIRA	0232.0	0236.5	III	G	1	25X	60	
			CULG	0243.0	0508.0	III	N	1	23	140	
			CULG	0258.0	0259.0	III	G	3	20	150	
			HIRA	0258.0	0259.5	III	G	1	25X	100	
			CULG	0313.0	0314.0	III	G	3	20	180	
			HIRA	0313.0	0314.0	III	B	1	25X	140	
			LEAR	0353.0	0356.0	V		2	25	166	
			CULG	0354.0	0357.0	III	G	3	18X	300	
			HIRA	0354.0	0357.0	III	G	3	25X	140	
			CULG	0358.0	0359.0	III	G	2	20	180	
			HIRA	0358.5	0359.0	III	B	1	25X	60	
			LEAR	0445.0	0920.0	CONT		1	75	180	
			SVTO	0445.0	0828.0	CONT		1	75	180	
			SVTO	0445.0	1059.0	CONT		1	75	180	
			CULG	0500.0	0501.0	III	G	3	18	45	
			SVTO	0507.0	0507.0	III		1	25	84	
			HIRA	0507.5	0508.0	III	B	1	40	110	
			CULG	0536.0	0536.0	III	B	2	20	80	
			CULG	0543.0	0547.0	III	G	3	18X	1000	
			HIRA	0543.0	0548.0	III	G	3	25X	500	
			LEAR	0543.0	0548.0	V		3	25	180	
			SVTO	0543.0	0551.0	V		3	25	180	
			CULG	0544.0	0549.0	V		3	18X	100	
		0500 1800		BLEN	0544.0	0556.8	DCIM	C,P	3	100X	4000X
				CULG	0549.0	0551.0	III	G	3	18X	200
				HIRA	0549.0	0551.5	III	G	1	25X	220
			CULG	0556.0	0558.0	III	G	3	18	320	
			HIRA	0556.0	0557.5	III	G	3	25X	320	
			LEAR	0556.0	0557.0	III		2	25	180	
			SVTO	0556.0	0600.0	III		2	25	180	
			CULG	0600.0	0710.0D	III	N	1	25	160	
	0600 0804			IZMI	0600.0E	0650.0U	I	N	1	110U	270X
				IZMI	0600.4	0600.5	III	B	2	45	155
			IZMI	0658.6	0659.5	III	G	1	55	170	
			IZMI	0717.9	0719.1	III	G	1	50	85	
			SVTO	0724.0	0729.0	III		1	25	85	
			HIRA	0724.5	0726.0	III	G	1	25X	110	
		IZMI	0724.6	0726.4	III	G	1	25X	160		
		IZMI	0727.3	0729.6	III	G	1	25X	90		
		IZMI	0733.5	0737.0	III	G	1	50	85		
0811 0824 0830 1200			IZMI	0834.6	0838.7	III	G	1	45	95	
		IZMI	0853.2	0858.8	III	G	1	45	65		
		IZMI	0915.1	0917.6	III	G	1	45	65		
		SVTO	0917.0	0917.0	III		1	25	56		
		SVTO	0923.0	1059.0	III	N	1	25	81		
		IZMI	0930.7	0937.4	III	N	1	25X	70U		
		ONDR	0944.2	0945.5	DCIM	GG	2	800X	1011		
		IZMI	0956.5	0956.7	III	B	2	55	140		
		ONDR	1016.3	1017.2	DCIM	GG	2	800X	1062		
		BLEN	1016.4	1017.5	DCIM	C,S	2	200	4000X		
0441 1735		ONDR	1016.4	1017.1	DCIM	G,W	1	2000X	4500X		
		IZMI	1023.0	1200.0U	I	N	2	110U	270X		
		SVTO	1026.0	1033.0	III		1	25	141		

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

113
Jul 04

JULY 2004

OBSERVATION		Sta	EVENT		Spectral Class	Event Remarks	Int (1-3)	FREQUENCY		Remarks
Start Day (UT)	End Day (UT)		Start (UT)	End (UT)				Lower (MHz)	Upper (MHz)	
27		IZMI	1027.0	1037.9	III	GG	2	25X	150	
		BLN	1141.1	1141.5	III	G,RS	2	390	560	
		SVTO	1327.0	1334.0	III		1	25	83	
		SVTO	1456.0	1532.0	III	N	2	25	170	
		BLN	1503.6	1507.9	III	G,RS	2	390	3500	
		PALE	1834.0	1835.0	III		1	25	71	
		PALE	1911.0	0456.0	III	N	1	25	180	
2110	2400	CULG	2110.0E	2400.0D	III	N	1	25	150	
1940	2400	HIRA	2228.5	2238.0	III	G	3	25X	120	
		CULG	2229.0	2238.0	III	GG	3	18X	180	
		CULG	2250.0	2251.0	III	G	3	20	180	
		HIRA	2250.0	2250.5	III	B	1	25X	40	
		CULG	2253.0	2257.0	III	G	3	18	150	
		LEAR	2348.0	0754.0	III	N	1	25	180	
		HIRA	2348.5	2349.0	III	B	1	25X	40	
		CULG	2349.0	2351.0	III	G	3	20	80	
28	0000 0710	CULG	0000.0E	0340.0	III	N	1	20	180	
		CULG	0021.0	0022.0	III	G	3	18X	150	
	0000 0948	HIRA	0021.0	0022.5	III	B	1	25X	60	
		CULG	0102.0	0102.0	III	B	2	18	90	
		HIRA	0102.0	0102.5	III	B	1	25X	50	
		CULG	0232.0	0500.0	I	S,C	2	40	180	
		LEAR	0315.0	0921.0	CONT		1	25	180	
		CULG	0340.0	0555.0	III	S,C	2	18	150	
		SVTO	0403.0	1124.0	CONT		1	25	180	
		CULG	0422.0	0455.0	CONT		1	400	700	
		CULG	0500.0	0710.0D	I	S	1	100	180	
0500	1800	BLN	0505.3	0554.8	DCIM	C	2	200	600	
0550	1200	IZMI	0550.0E	1200.0D	I	S,C	2	110U	270X	
		CULG	0555.0	0710.0D	III	S	1	20	140	
		CULG	0557.0	0602.0	III	G	3	18X	130	
		SVTO	0557.0	0923.0	III	N	1	25	162	
		IZMI	0557.1	0603.2	III	G	2	25X	120	
		HIRA	0559.5	0600.0	III	B	1	25X	100	
		IZMI	0614.3	0618.6	III	G	2	25X	95	
		CULG	0618.0	0618.0	III	B	3	18	100	
		IZMI	0629.4	0632.3	III	GG,C	2	45	270X	
		HIRA	0629.5	0630.0	III	B	1	50	110	
		CULG	0630.0	0630.0	III	B	2	30	180	
		CULG	0632.0	0632.0	III	B	2	18	100	
		IZMI	0634.6	0637.3	III	G	2	45	95	
		CULG	0637.0	0637.0	III	B	2	18	120	
		IZMI	0642.1	0645.6	III	G	1	45	95	
		HIRA	0647.5	0648.0	III	B	1	25X	120	
		IZMI	0647.5	0647.8	III	B	2	25X	95	
		CULG	0648.0	0648.0	III	B	2	20	140	
		IZMI	0655.4	0655.8	III	G	1	45	95	
		IZMI	0711.0	0711.8	I	GG	1	55	65	
		ONDR	0803.5	0805.4	DCIM	GG	2	800X	1100	
		BLN	0803.8	0809.2	DCIM	C,S	2	450	4000X	
0442	1734	ONDR	0805.0	0808.5	DCIM	G	1	2000X	4500X	
		IZMI	0957.9	0958.0	III	B	1	50	65	
		IZMI	1031.6	1031.7	III	B	2	110	160	
		IZMI	1057.4	1057.6	CONT		2	55	65	
		SVTO	1140.0	1704.0	III	N	2	25	147	
		BLN	1531.6	1537.2	III	GG	3	100X	1500	
		SVTO	1534.0	1535.0	III		1	25	180	
		SVTO	1534.0	1535.0	III		2	25	180	
		PALE	1840.0	1842.0	III		1	25	136	
2110	2400	CULG	2125.0	2137.0	III	GG	2	20	160	
		PALE	2129.0	2136.0	III		1	25	76	
1941	2400	HIRA	2130.0	2130.5	III	B	1	25X	110	
		PALE	2148.0	2150.0	III		1	25	75	
		HIRA	2150.5	2151.0	III	B	1	25X	110	
		CULG	2151.0	2151.0	III	B	2	23	120	
		CULG	2152.0	2200.0	III	G	1	23	90	
		CULG	2311.0	2311.0	III	B	3	18	200	
		HIRA	2311.0	2311.5	III	B	1	25X	120	

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

JULY 2004

OBSERVATION			EVENT				FREQUENCY		Remarks	
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)		Lower (MHz)
29			LEAR	0034.0	0034.0	III		1	25	79
			PALE	0034.0	0034.0	III		1	25	70
	0000	0710	CULG	0034.0	0034.0	III	B	3	18X	90
	0000	0947	HIRA	0034.0	0034.5	III	B	1	25X	50
			HIRA	0102.0	0102.5	III	B	1	25X	50
			CULG	0105.0	0105.0	III	B	1	20	90
			CULG	0129.0	0129.0	III	B	1	20	35
			LEAR	0129.0	0129.0	III		1	25	38
			CULG	0137.0	0137.0	III	G	1	30	80
			CULG	0156.0	0159.0	III	G	3	18X	200
			HIRA	0156.0	0159.0	III	G	2	25X	130
			LEAR	0156.0	0158.0	III		1	25	180
			PALE	0156.0	0158.0	III		1	25	180
			CULG	0247.0	0247.0	III	B	3	18X	80
			LEAR	0247.0	0247.0	III		1	25	44
			CULG	0331.0	0338.0	III	GG	3	18X	100
			HIRA	0331.0	0338.5	III	G	1	25X	80
			PALE	0331.0	0338.0	III		1	25	80
			LEAR	0332.0	0338.0	III		1	25	97
			CULG	0423.0	0425.0	III	G	2	20	100
			LEAR	0423.0	0425.0	III		1	25	103
			HIRA	0423.5	0425.5	III	G	1	25X	100
			CULG	0430.0	0431.0	III	G	1	20	80
			CULG	0455.0	0501.0	III	G	3	18X	140
			HIRA	0455.0	0501.5	III	G	1	25X	120
			SVTO	0455.0	0501.0	III		1	25	127
			LEAR	0523.0	0527.0	III		1	25	105
			CULG	0524.0	0528.0	III	G	3	18X	100
			HIRA	0524.0	0528.0	III	G	1	25X	80
			SVTO	0524.0	0527.0	III		1	25	79
	0600	1200	IZMI	0622.0	0710.00	I	N	1	200U	270X
			CULG	0625.0	0645.0	III	GG	3	18X	180
			LEAR	0625.0	0644.0	III	N	1	25	180
			SVTO	0625.0	0644.0	III	N	2	25	172
			HIRA	0625.5	0644.5	III	G	2	25X	200
			IZMI	0625.6	0626.7	III	G	2	25X	150
			IZMI	0629.2	0635.0	III	GG	2	25X	160
			IZMI	0641.3	0642.0	III	G	2	25X	270X
			IZMI	0643.9	0644.4	III	B	2	25X	145
			IZMI	0737.3	0738.1	I	GG	1	225	270X
			LEAR	0819.0	0819.0	III		1	25	40
			SVTO	0819.0	0819.0	III		1	25	41
			LEAR	0838.0	0838.0	III		1	25	101
			SVTO	0838.0	0838.0	III		1	25	62
			IZMI	0838.2	0838.6	III	B	2	25X	95
			LEAR	0905.0	0906.0	III		1	25	100
			SVTO	0905.0	0906.0	III		1	25U	83U
			HIRA	0905.5	0906.0	III	B	1	30	110
			IZMI	0905.8	0906.2	III	B	2	25X	95
			SVTO	0950.0	1355.0	CONT		1	25	180
			IZMI	0952.00	1200.00	I	S,C	2	50U	270X
			IZMI	1057.0	1059.2	III	G,U	2	25X	95
			SVTO	1057.0	1100.0	III		2	25	123
			IZMI	1129.6	1137.1	III	N	2	45	160
	0443	1733	ONDR	1630.4	1632.4	DCIM	G	1	2000X	4500X
	0505	1755	BLEN	1631.7	1636.1	III	GG	2	1100	4000X
	1941	2400	HIRA							
	2110	2400	CULG	2229.0	2229.0	III	B	1	20	90
			CULG	2256.0	2257.0	III	G	3	18	40
30			LEAR	0006.0	0006.0	III		1	70	180
	0000	0700	CULG	0007.0	0007.0	III	B	1	40	170
			LEAR	0117.0	0118.0	III		1	25	40
			PALE	0117.0	0118.0	III		1	25	80
			CULG	0118.0	0118.0	III	B	2	18	60
	0000	0946	HIRA	0118.0	0118.5	III	B	1	25X	50
			CULG	0218.0	0220.0	III	G	1	27	60
			CULG	0325.0	0325.0	III	B	1	20	45
	0600	1200	IZMI	0600.0E	1200.0D	I	N	1	180U	270X

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

115
Jul 04

JULY 2004

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)	
30			ONDR	0729.3	0730.2	DCIM	G	1	800X	2000X	
	0445	1731	ONDR	0729.3	0730.2	DCIM	G,W	1	2000X	4500X	
	0510	1755	BLEN	0729.5	0730.5	DCIM	C,S	2	540	4000X	
			LEAR	0811.0	0811.0	III		1	25	180	
			SVTO	0811.0	0811.0	III		1	25	180	
			IZMI	0811.4	0811.9	III	G,FS	2	25X	175	
			HIRA	0811.5	0812.0	III	B	1	25X	140	
	1942	2400	HIRA								
	2110	2400	CULG	2229.0	2229.0	III	B	1	27	90	
			CULG	2256.0	2256.0	III	G	2	18	90	
31	0000	0710	CULG	0007.0	0007.0	III	B	1	18	180	
			CULG	0118.0	0118.0	III	B	2	18	57	
			CULG	0218.0	0220.0	III	G	1	25	45	
			CULG	0325.0	0325.0	III	B	1	20	50	
			LEAR	0326.0	0328.0	III		1	25	170	
			PALE	0327.0	0328.0	III		1	25	97	
	0000	0945	HIRA	0327.0	0328.5	III	G	1	25X	120	
			LEAR	0520.0	0653.0	III	N	1	25	155	
			SVTO	0539.0	0738.0	CONT		1	25	180	
			LEAR	0543.0	0757.0	CONT		1	74	180	
			IZMI	0550.0E	0635.0U	III	N	1	25X	170U	
	0550	1200	IZMI	0550.0E	0635.0U	I	S,C	2	45U	270X	
			IZMI	0635.0	0810.0U	I	S	1	50	170	
			IZMI	0737.5	0738.0	III		2	50	170	
			IZMI	0742.4	0743.2	I	GG	2	180	215	
			IZMI	0827.3	0827.8	III	G	2	50	85	
			ONDR	1033.4	1045.3	DCIM	GG	2	800X	2000X	
	0510	1755	BLEN	1033.6	1049.6	DCIM	C,S	3	700	4000X	
	0446	1730	ONDR	1034.1	1048.5	DCIM	G	2	2000X	4500X	
	2110	2400	CULG	2232.0	2400.0D	I	S	1	60	180	
			CULG	2314.0	2314.0	III	B	1	45	180	
			CULG	2321.0	2321.0	III	B	3	23	180	
			PALE	2321.0	2321.0	III		1	25	180	
	1943	2400	HIRA	2321.0	2321.5	III	B	2	30	190	
			CULG	2327.0	2329.0	III	G	3	18	180	
			PALE	2327.0	2328.0	III		1	25	180	
			HIRA	2327.5	2329.0	III	G	1	25X	200	
			CULG	2344.0	2344.0	III	G	1	35	140	
		LEAR	2344.0	0406.0	III	N	2	25	180		

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 BLEN = Bleien
 PALE = Palehua POTS = Potsdam SGMR = Sagamore Hill SVTO = San Vito

NOTE 1: Beginning June 26, 2001, the Bleien observatory changed to higher frequencies (1-4Ghz).

SOLAR RADIO NOISE STORM AT 164 MHZ

FROM NANÇAY RADIOHELIOGRAPH

JULY 2004

DAY	HELIOGRAPHIC POSITION MEAN VALUES ¹		IMP ²	OBSERVING TIME ³	
	E-W	S-N		START(UT)	END(UT)
03/07/04	+0.08	-0.10	I	11H34	15H26 D
04/07/04	+0.25	-0.08	I	8H25 E	15H26 D
10/07/04	-0.73	-0.30	I	8H26 E	15H27 D
12/07/04	-1.42	-0.21	I	8H25 E	15H25 D
13/07/04	+0.83	+0.26	I	8H52 E	13H10
14/07/04	-1.06	+0.79	I	13H48	15H27 D
14/07/04	+1.16	+0.26	I	8H26 E	13H16
15/07/04	-1.33	+0.32	I	9H24 E	15H27 D
16/07/04	-1.25	+0.41	II	8H26 E	10H52 D
19/07/04	-1.30	+0.26	III	12H02	14H49
19/07/04	-1.28	+0.53	IV	8H26 E	15H28 D
19/07/04	-0.70	-0.4 3	III	8H26 E	15H28 D
19/07/04	-0.70	+0.60	III	8H26 E	15H28 D
19/07/04	-0.62	+0.10	III	13H08	15H28 D
20/07/04	-0.45	+0.02	V	8H26 E	15H28 D
20/07/04	-0.37	+0.37	V	12H32	14H15
21/07/04	-0.28	+0.00	IV	8H26 E	15H24 D
21/07/04	-0.26	-0.37	IV	8H26 E	15H24 D
21/07/04	+0.08	-0.24	IV	8H26 E	15H24 D
22/07/04	-0.64	-0.08	V	8H26 E	15H08 D
22/07/04	-0.05	+0.01	V	8H26 E	15H08 D
23/07/04	-0.32	+0.07	IV	8H26 E	15H23 D
23/07/04	+0.16	-0.08	V	8H26 E	15H23 D
24/07/04	+0.58	-0.02	V	8H26 E	15H27 D
25/07/04	+1.00	-0.35	II	8H26 E	13H40
25/07/04	+1.05	+0.11	III	8H26 E	15H27 D
26/07/04	+0.96	-0.40	II	8H26 E	14H40 D
26/07/04	+1.26	-0.12	I	8H26 E	14H40 D
26/07/04	+1.33	+0.43	I	8H26 E	14H40 D
27/07/04	+1.51	-0.21	III	8H30 E	14H14 D
28/07/04	+1.48	+0.38	II	8H37 E	13H02 D
29/07/04	+1.51	+0.03	III	8H27 E	15H28 D
30/07/04	-1.05	-0.13	I	8H27 E	15H28 D
31/07/07	-1.14	-0.39	I	8H27 E	15H28 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 NANÇAY OBSERVATIONS

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

SOLAR RADIO NOISE STORM AT 327 MHZ FROM NANÇAY RADIOHELIOGRAPH

JULY 2004

DAY	HELIOGRAPHIC POSITION MEAN VALUES ¹		IMP ²	OBSERVING TIME ³	
	E-W	S-N		START(UT)	END(UT)
03/07/04	+0.12	+0.02	I	8H25 E	11H34
03/07/04	+0.14	-0.09	I	8H25 E	15H26 D
04/07/04	+0.41	+0.10	I	8H25 E	15H26 D
04/07/04	+0.41	-0.03	I	8H25 E	15H26 D
07/07/04	-1.02	-0.14	I	8H24 E	15H26 D
13/07/04	+0.31	-0.20	I	8H52 E	15H27 D
13/07/04	+0.81	+0.27	I	8H52 E	15H27 D
14/07/04	+0.53	-0.18	I	8H26 E	15H27 D
14/07/04	+1.12	+0.26	I	8H26 E	15H27 D
15/07/04	-1.16	+0.40	I	9H24 E	15H27 D
15/07/04	+1.23	+0.30	I	9H24 E	15H27 D
16/07/04	-1.12	+0.41	II	8H26 E	10H52 D
19/07/04	-1.29	+0.15	II	8H26 E	13H58
19/07/04	-0.65	-0.05	II	8H26 E	15H28 D
19/07/04	-0.49	-0.34	II	8H26 E	15H28 D
20/07/04	-0.50	+0.04	IV	8H26 E	15H28 D
21/07/04	-0.26	-0.17	IV	8H26 E	15H24 D
21/07/04	-0.29	+0.01	III	8H26 E	15H24 D
22/07/04	-0.39	+0.20	III	8H26 E	15H08 D
22/07/04	-0.06	+0.06	V	8H26 E	15H08 D
23/07/04	-0.27	+0.21	II	8H26 E	15H23 D
23/07/04	+0.21	-0.02	III	8H26 E	15H23 D
24/07/04	+0.02	+0.23	I	8H26 E	15H27 D
24/07/04	+0.54	-0.01	III	8H26 E	11H55
25/07/04	+0.83	-0.07	II	12H20	15H27 D
25/07/04	+0.87	+0.09	II	8H26 E	15H27 D
25/07/04	+0.92	-0.11	II	8H26 E	15H27 D
26/07/04	+1.03	-0.03	I	8H26 E	14H40 D
27/07/04	-0.65	+0.12	I	8H30 E	14H14 D
27/07/04	+1.12	-0.13	I	8H30 E	14H14 D
28/07/04	+1.13	-0.30	I	8H37 E	13H02 D
28/07/04	+1.29	+0.24	I	8H37 E	13H02 D
29/07/04	+1.27	-0.06	II	8H27 E	15H28 D
30/07/04	-1.08	-0.17	I	8H27 E	15H28 D
30/07/04	+1.23	-0.14	I	8H27 E	15H28 D
31/07/04	-1.04	-0.25	I	8H27 E	15H28 D
31/07/04	-0.82	-0.25	I	8H27 E	15H28 D

17, 18 JULY : NO DATA

OTHERS DAYS: NO DETECTABLE NOISE STORM

* For the days marked by an asterisk, intense ionospheric gravity waves are observed during the whole day.
Without a more detailed analysis leading to decreased uncertainties in the deviation, the positions indicated are estimated within 0.2 R

** Following a large burst

*** importance not well determined due to the proximity of another very strong source

**** no flux measurements available

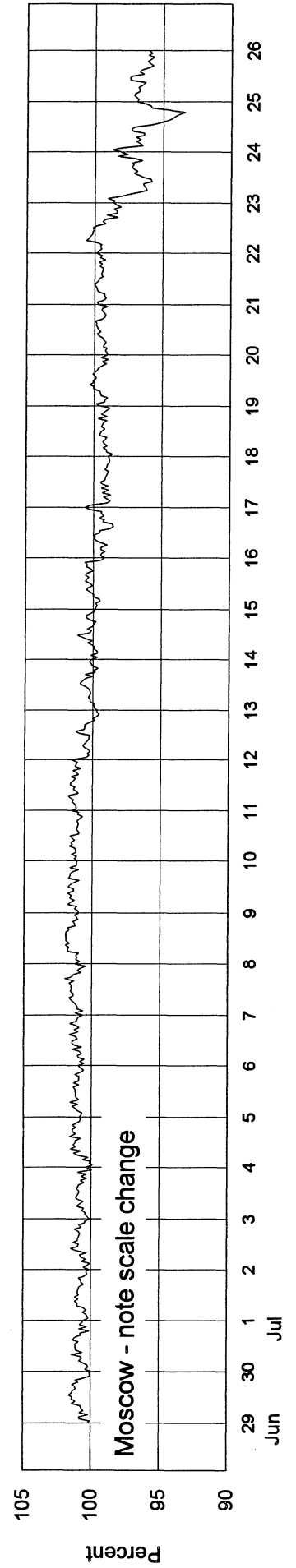
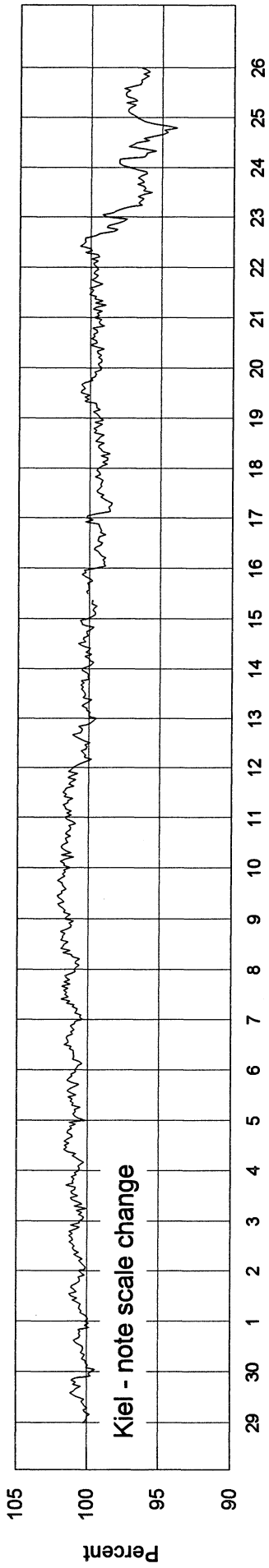
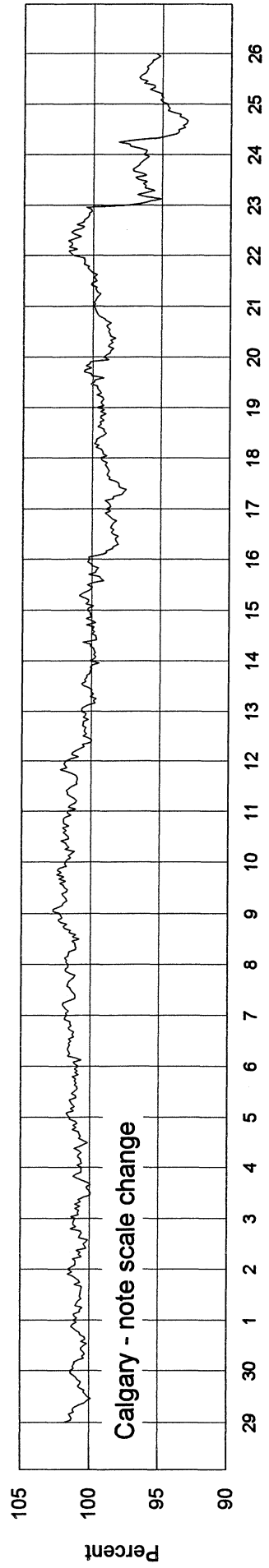
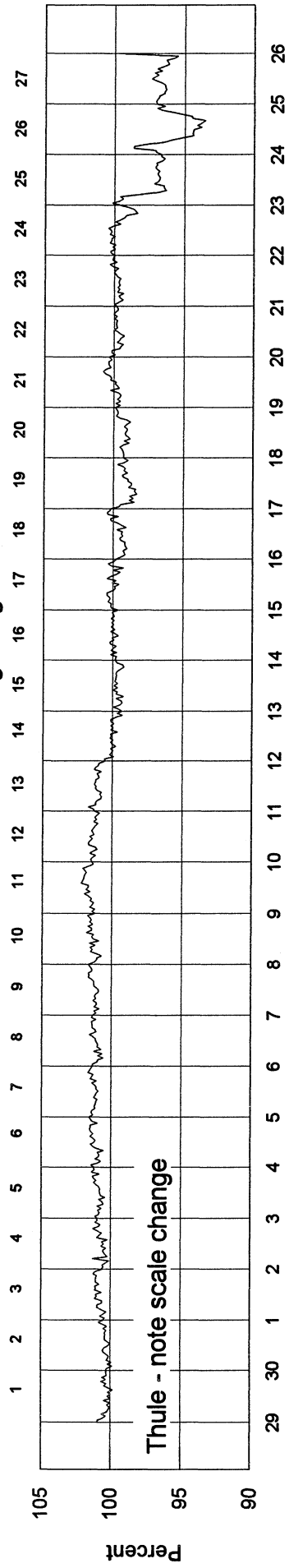
COSMIC RAY INDICES
(Neutron Monitor)
July 2004

Day	THULE 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	4250.5	3688.7	5907.6	8686.4	3980.8	1945.3	3557.5
2	4242.8	3687.7	5918.4	8691.6	3982.6	1958.9	3556.5
3	4252.9	3680.0	5919.6	8686.2	3995.8	1942.0	3566.6
4	4264.6	3686.7	5936.0	8707.5	4010.0	1950.6	3571.8
5	4267.5	3700.7	5932.2	8717.0	4008.7	1955.0	3568.8
6	4262.3	3708.0	5935.8	8719.4	4013.7	1950.0	3574.2
7	4267.1	3713.7	5945.6	8735.0	4022.9	1946.0	3570.3
8	4272.1	3715.0	5952.1	8755.4	4032.0	1945.0	3574.2
9	4286.5	3733.5	5979.0	8749.1	4042.7	1947.5	3582.3
10	4271.3	3720.8	5962.1	8732.0	4021.2	1942.6	3577.5
11	4260.6	3710.3	5955.8	8742.5	4003.1	1939.9	3574.2
12	4217.6	3681.7	5896.0	8660.4	3963.8	1938.4	3556.7
13	4198.2	3663.8	5885.0	8645.6	3959.3	1935.6	3554.2
14	4212.5	3656.2	5883.9	8642.9	3959.6	1932.9	3560.2
15	4215.8	3659.7	5870.8(22)	8639.0	3947.2	1931.4	3557.4
16	4196.0	3610.0	5831.8	8575.0	3919.5	1924.8	3542.9
17	4176.2	3605.3	5825.4	8556.7	3915.1	1932.9	3545.2
18	4182.5	3634.7	5828.3	8559.2	3933.3	1935.0	3556.5
19	4215.6	3648.8	5868.5	8598.0	3948.0	1933.5	3565.5
20	4206.5	3621.0	5842.2	8576.6	3922.9	1929.5	3556.1
21	4205.0	3658.5	5850.6	8588.7	3936.0	1925.4	3560.7
22	4206.8	3695.5	5841.1	8579.9	3920.6	1928.8	3552.0
23	4111.3	3526.3	5689.5	8381.4	3797.3	1907.5	3506.5
24	4032.1	3472.7	5651.5	8294.8	3743.2	1888.3	3469.5
25	4073.9	3501.2	5692.1	8332.1	3789.6	1913.4	3497.8
26	4096.1	3525.0	5780.7	8345.4	3803.2	1913.9	3510.2
27	3897.9	3319.7	5404.9	7899.8	3575.6	1872.2	3407.9
28	4028.0	3454.3	5619.0	8209.7	3732.8	1888.4	3465.0
29	4066.5	3500.0	5655.6	8267.0	3797.1	1886.9	3475.1
30	4073.2	3526.3	5698.1	8318.1	3833.3	1901.3	3496.3
31	4061.7	3553.7	5716.7	8337.1	3848.8	1910.4	3516.6
Mean	4179.0	3621.3	5825.9	8546.1	3914.5	1927.5	3539.5

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.

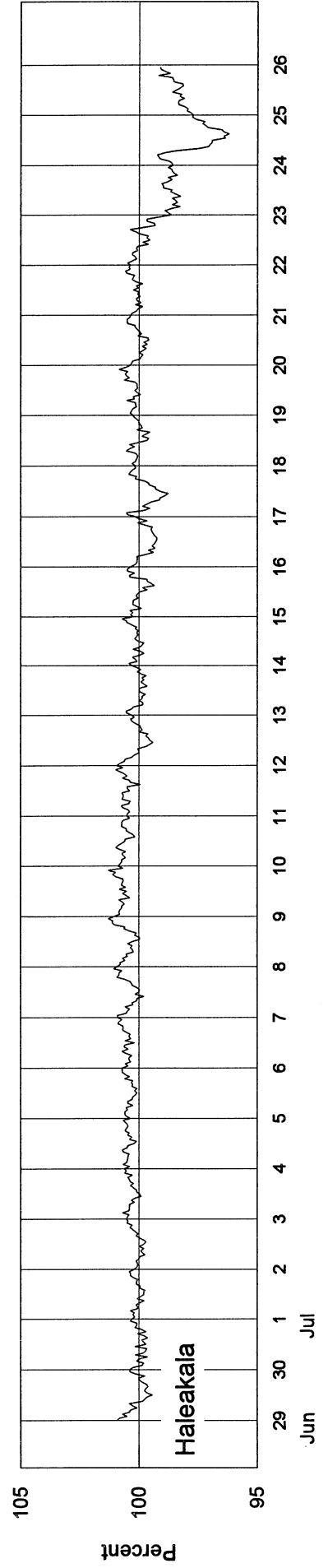
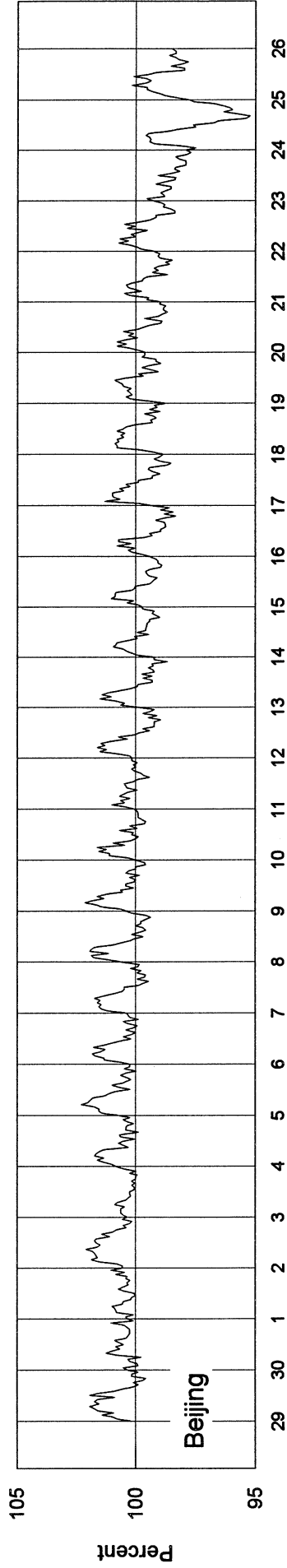
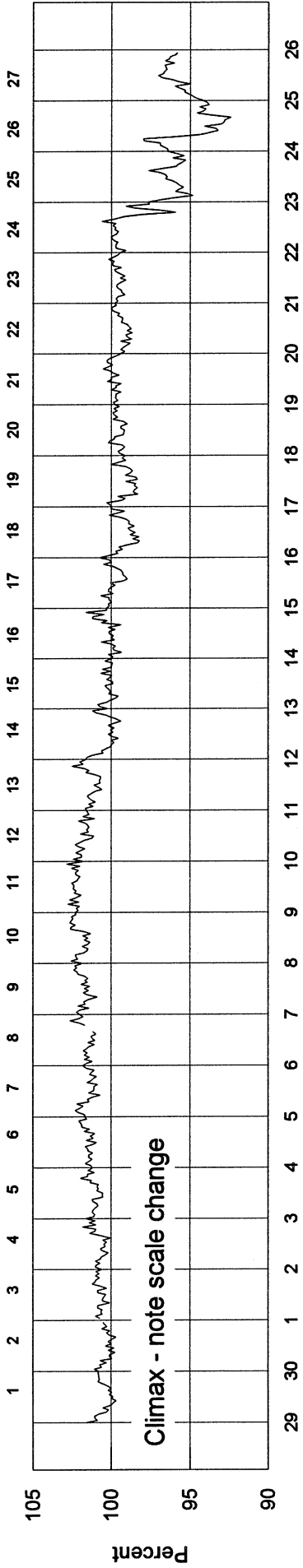
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2333 - Beginning 29 Jun 2004



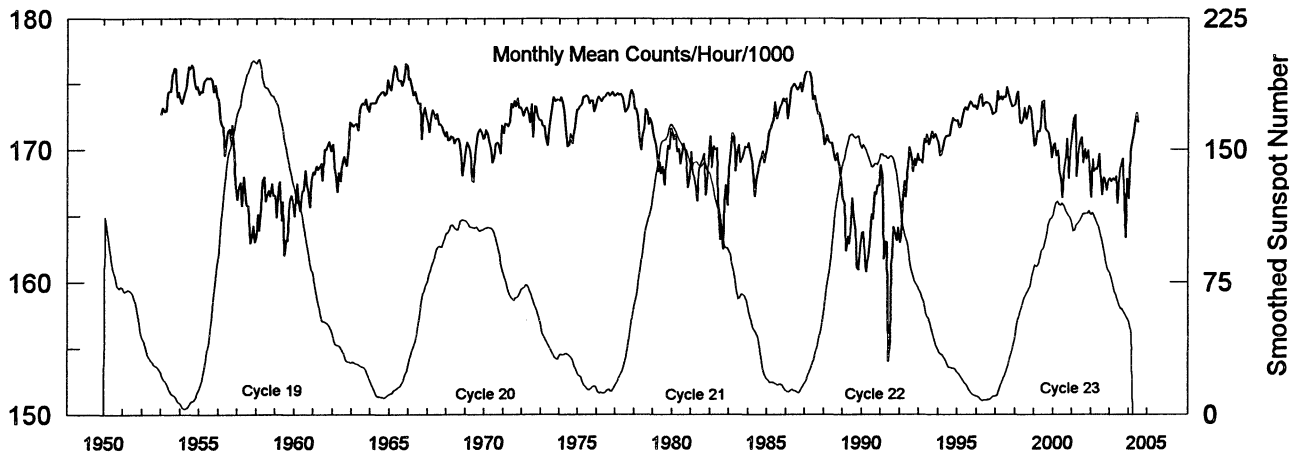
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2333 - Beginning 29 Jun 2004



Huancayo* Neutron Monitor Pressure-Corrected/Adjusted Values Jan 1953 - Jul 2004

121
Jul 04



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1953	1727	1732	1730	1729	1742	1744	1744	1756	1762	1761	1740	1744	1743
1954	1737	1735	1738	1744	1747	1763	1761	1764	1762	1754	1746	1748	1750
1955	1742	1744	1744	1751	1754	1755	1754	1755	1753	1744	1749	1741	1749
1956	1738	1724	1719	1718	1696	1707	1715	1716	1706	1719	1697	1675	1711
1957	1663	1671	1675	1658	1680	1670	1659	1658	1630	1633	1643	1630	1656
1958	1635	1652	1639	1657	1677	1680	1661	1667	1670	1665	1675	1666	1662
1959	1666	1649	1671	1676	1647	1661	1621	1632	1632	1661	1666	1663	1654
1960	1650	1663	1675	1660	1654	1669	1669	1685	1674	1670	1657	1677	1667
1961	1684	1682	1688	1685	1688	1690	1677	1701	1700	1704	1706	1699	1692
1962	1704	1687	1683	1668	1683	1677	1690	1695	1690	1688	1703	1721	1691
1963	1720	1718	1720	1720	1715	1729	1734	1736	1734	1739	1732	1729	1727
1964	1735	1736	1736	1736	1739	1741	1742	1744	1744	1741	1743	1753	1741
1965	1748	1745	1756	1764	1762	1754	1753	1753	1748	1754	1765	1764	1755
1966	1754	1754	1747	1741	1744	1737	1736	1736	1708	1725	1732	1727	1737
1967	1721	1714	1726	1731	1727	1724	1727	1720	1720	1718	1713	1710	1721
1968	1714	1708	1708	1710	1710	1705	1708	1709	1706	1698	1681	1689	1704
1969	1702	1706	1702	1698	1678	1676	1695	1708	1714	1716	1714	1709	1701
1970	1709	1715	1712	1707	1701	1691	1695	1705	1706	1705	1697	1719	1705
1971	1712	1720	1720	1718	1722	1735	1732	1737	1732	1739	1732	1732	1728
1972	1730	1726	1731	1732	1728	1721	1734	1710	1733	1733	1726	1723	1727
1973	1723	1719	1718	1709	1704	1716	1723	1733	1740	1737	1738	1738	1725
1974	1737	1740	1736	1729	1713	1703	1704	1712	1705	1713	1718	1731	1720
1975	1730	1733	1734	1740	1740	1742	1740	1735	1737	1738	1729	1733	1736
1976	1738	1741	1739	1737	1740	1740	1742	1743	1742	1742	1744	1741	1741
1977	1741	1743	1742	1742	1740	1735	1729	1730	1732	1742	1745	1741	1739
1978	1731	1731	1726	1710	1700	1710	1717	1731	1729	1719	1724	1720	1721
1979	1711	1707	1702	1684	1691	1682	1688	1674	1689	1703	1700	1717	1696
1980	1713	1708	1712	1699	1701	1690	1698	1705	1699	1688	1672	1680	1697
1981	1699	1682	1680	1671	1662	1685	1690	1693	1697	1666	1675	1700	1683
1982	1710	1687	1703	1700	1702	1662	1632	1643	1625	1662	1674	1658	1671
1983	1688	1703	1713	1709	1685	1697	1704	1690	1694	1697	1703	1702	1699
1984	1705	1699	1693	1685	1665	1677	1684	1691	1695	1699	1691	1698	1690
1985	1703	1714	1716	1721	1723	1736	1724	1727	1732	1734	1739	1737	1725
1986	1739	1724	1734	1746	1748	1750	1748	1745	1747	1751	1744	1752	1744
1987	1757	1760	1760	1757	1754	1738	1741	1735	1728	1728	1721	1718	1741
1988	1704	1706	1711	1706	1705	1705	1696	1692	1698	1690	1688	1674	1698
1989	1663	1660	1624	1635	1629	1638	1664	1650	1640	1611	1609	1627	1637
1990	1638	1638	1623	1608	1616	1630	1651	1648	1668	1666	1673	1673	1644
1991	1689	1682	1617	1631	1630	1540	1555	1611	1642	1638	1632	1641	1626
1992	1630	1635	1659	1677	1665	1689	1702	1696	1684	1693	1688	1697	1676
1993	1692	1692	1690	1708	1705	1711	1704	1707	1714	1709	1712	1709	1705
1994	1705	1696	1697	1703	1708	1711	1711	1711	1718	1724	1723	1722	1711
1995	1723	1717	1718	1726	1730	1732	1730	1733	1736	1735	1732	1734	1729
1996	1730	1734	1740	1742	1733	1735	1736	1736	1735	1733	1727	1727	1734
1997	1728	1744	1738	1740	1737	1741	1739	1747	1741	1737	1733	1733	1738
1998	1734	1741	1744	1721	1720	1723	1732	1723	1728	1733	1731	1719	1729
1999	1703	1704	1714	1713	1719	1736	1737	1717	1714	1713	1705	1694	1714
2000	1704	1704	1695	1700	1685	1678	1664	1688	1695	1708	1679	1699	1692
2001	1712	1723	1726	1680	1700	1705	1791	1690	1701	1693	1700	1687	1709
2002	1664	1693	1684	1686	1685	1696	1683	1666	1680	1679	1669	1672	1680
2003	1679	1676	1679	1677	1680	1659	1681	1688	1693	1673	1634	1678	1675
2004	1663	1698	1705	1711	1720	1727	1720						1706

Multiply table entries by 100 to obtain hourly counting rate for Huancayo, Peru: S12 W75, Alt=3400m, Cutoff Rigidity=12.92GV (1980). NOTE: Secular changes in the Earth's magnetic field resulted in a slow lowering of the geomagnetic cutoff rigidity at Huancayo over the 40 year period. This dataset was adjusted by applying a linear time-correction based on the calculated change in response to the change in the vertical cutoff. * Data from Jan 92 on are from the 18-NM64 at Haleakala, Hawaii: N20 W156, Alt=3030m, Cutoff Rigidity=12.91GV (1980). Multiply table entries by 2057.6 to obtain equivalent Haleakala counting rate.

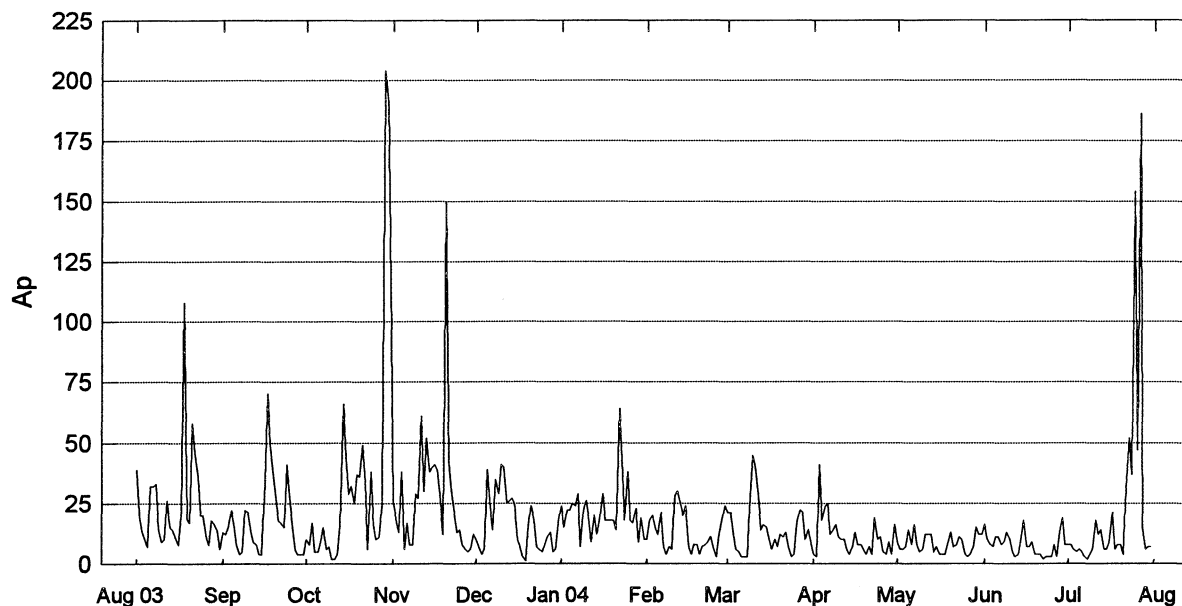
Geomagnetic Activity Indices July 2004

Day	Kp Three-Hourly Indices								Sum	Ap	Cp	Km Three-Hourly Indices								aa Provisional				
	1	2	3	4	5	6	7	8				1	2	3	4	5	6	7	8	Am	N	S	M	
1	2+	2	3-	2+	2+	1+	2	2+	17+	8	0.5	2+	2+	3-	3-	2o	2-	2o	3-	19	20	16	20	16
2	2-	2	2-	2	2	2+	2+	3-	17-	8	0.4	2-	2+	2-	2-	2-	2+	2-	3o	16	21	13	13	21
3	Q10	2+	1+	2-	1+	2-	1+	2	12+	6	0.3	2+	1+	2-	2-	2+	1+	2-	1o	12	13	13	13	14 C
4	Q6	2	1+	1+	2-	1	1+	1	12-	5	0.2	2o	2o	2-	2o	1-	1o	1-	2-	11	16	8	14	10 CC
5		2+	2-	0+	1	1	1+	2	12+	6	0.3	2+	2o	2o	1o	1+	1+	2-	2+	11	17	7	11	14 CC
6	Q5	1+	2+	1+	1+	1-	1	1-	9+	5	0.2	2-	2+	2-	2o	1-	1-	0+	0+	10	10	9	12	7 CC
7	Q2	0+	1+	1	0+	1	0+	1-	6-	3	0.1	0+	1+	1+	1-	1-	0+	1o	0+	5	6	4	4	6 CC
8	Q1	0+	0+	0+	0+	1-	0+	0+	3	2	0.0	0o	0+	0o	0+	0o	0+	0+	0+	2	4	2	2	4 CC
9	Q3	1+	1+	1	0+	0+	1-	1+	7-	4	0.1	1+	1+	1+	0+	0+	0+	1o	0+	6	8	5	7	7 CC
10	Q7	1	2	2	1+	1	2-	2	12	6	0.2	0+	2	2o	2-	1-	2-	1+	1+	10	13	9	10	12 CK
11		3-	1	1	3+	4+	2	4-	23	18	1.0	2+	1+	1o	3o	3+	2-	3-	4o	24	32	23	18	37
12		4	3-	2	1	2-	1+	2+	19	12	0.7	4-	2+	2+	1+	2-	1+	2o	3+	20	29	18	23	24
13		4+	3	3+	2+	2	2+	3-	22+	14	0.8	4o	3-	3+	2o	2-	2o	3-	3-	25	31	21	28	24
14		1	2-	2-	1+	1+	2	2-	13	6	0.3	1+	2+	2o	2-	1+	1+	2-	1o	11	15	9	9	14 CK
15		1	1-	1-	1-	0+	2	3	11	6	0.3	2-	0+	1+	1-	0+	1+	2+	3o	11	16	7	6	17 KK
16		1	1-	1+	1+	2+	2	2	15	9	0.5	1o	1-	2-	2-	2o	2-	2-	4-	14	24	10	7	28
17		6	4	4+	2+	2	1	1+	23-	21	1.1	5+	4-	4o	3-	2+	1o	1+	2-	34	35	27	49	13
18	Q9	1+	2	2	2	1-	1+	1+	12+	6	0.3	1+	2+	3-	2o	0+	1+	1+	2-	12	12	9	12	10 CC
19		1-	2+	1+	2-	2-	3-	2	15+	8	0.4	1o	2+	2-	2+	1+	2+	2-	3-	15	16	14	12	18 C
20		2-	2	1+	1+	3-	2-	3-	16	8	0.4	2-	2+	2-	1+	2-	2-	3-	2+	15	22	13	11	24
21	Q4	1	2	2-	0+	0+	1-	0+	7-	4	0.1	1o	1+	2-	0+	0o	1-	0+	0+	5	8	5	9	5 CK
22		1	0+	0+	3-	4-	3+	5+	24-	31	1.3	1o	0+	0+	3o	3o	3-	5-	6-	40	55	35	13	77
23	D3	6	5+	6	5+	5+	6-	3	38	52	1.6	5-	5-	6-	5-	4o	4+	2+	2-	65	75	57	79	54
24	D5	3-	3-	4+	3	6	5	4	33+	37	1.4	3o	3o	4o	3o	5-	4-	3o	5-	47	62	37	33	66
25	D2	7	7+	6+	8-	7+	8	7+	58+	154	2.0	6-	5+	7-	6+	6o	6o	6-	6-	156	149	136	146	140
26	D4	7+	4-	2-	2	1+	2	4-	29	47	1.5	6o	4-	2o	3-	1o	2-	3o	6+	59	62	63	52	72
27	D1	8+	8-	7+	8	9-	8+	6+	61-	186	2.1	7o	7o	7+	7+	8o	7-	5o	5o	240	195	190	200	184
28		3+	3+	2+	2	3+	4-	3	24	15	0.9	4-	3+	3-	2o	3o	3o	3o	3+	30	30	24	23	31
29	Q8	2	2+	2	1+	1	1+	1	12	6	0.3	2+	3-	2+	2-	1-	1o	1-	1-	12	11	10	13	8 C
30		1	1+	1+	1	1+	2-	2+	13+	7	0.4	1+	1+	1+	1+	2-	1+	2-	3o	12	16	10	9	17 CC
31		1+	2-	1+	2-	2+	2	2+	14+	7	0.3	1+	2o	1+	2-	3-	2o	2-	2-	14	12	15	10	17 C
Mean										23	0.65									31.1	33.4	26.5		29.9

Day	Kn Three-Hourly Indices								An	Ks Three-Hourly Indices								Prov				
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	As	Sa	Ri	Ra	Rs	IMF
1	2+	2+	3-	3o	2+	2o	2+	3-	21	3-	2o	3-	2+	1+	1+	2-	2+	17	84.0	17	19	29
2	2o	2+	2o	2+	2o	2+	2o	3-	17	1+	2+	1+	1o	1+	3-	1+	3o	15	83.4	20	22	28
3	2+	1+	2-	2-	2+	1+	2o	1+	14	2+	1o	1+	2-	2o	1-	2-	0+	10	82.2	20	23	27
4	2-	2o	2-	2+	1o	1+	1+	2o	12	2+	2o	1+	2-	1-	0+	0+	2-	10	82.1	19	18	27
5	2+	2o	0+	1+	1+	2-	2o	2o	12	2+	2o	0+	1-	1o	1-	1+	3-	10	80.9	16	14	25
6	2-	3-	2o	2o	1o	1+	1o	0+	11	2-	2+	2-	2+	0+	0o	0o	0+	8	81.6	17	16	26
7	1o	2-	2-	1o	1+	0+	1o	1-	7	0o	1o	1o	1-	0+	0o	1o	0o	3	81.9	9	11	26
8	0+	0+	0o	0+	0+	1-	0+	1-	3	0o	0o	0o	0+	0o	0o	0o	0o	1	84.6	11	16	29
9	2-	2-	1+	1-	1-	1o	2-	1-	8	1+	1o	1o	0+	0o	0o	0+	0o	3	89.6	27	28	35
10	1-	2o	3-	2-	1o	2o	2-	2o	12	0o	1+	2-	1+	0+	1+	1+	1-	7	96.4	38	46	42
11	3-	1+	1+	3+	4-	2+	3o	4+	29	2o	1+	0+	3-	3o	1o	2o	4o	19	107.9	47	53	55
12	4o	3-	2+	2o	2o	2-	2+	3+	24	3+	2o	3-	0+	1+	1-	1+	3o	17	129.2	50	74	78
13	4o	3o	4-	2+	2o	2+	3o	2+	29	4+	2o	3o	2-	1+	2-	2+	3-	22	131.6#	88	96	80
14	2-	3-	2+	2o	2-	2o	2o	1+	15	1-	2+	2-	1+	1-	1-	1o	1-	8	142.6	90	95	92
15	2-	1-	1o	1o	1-	2o	2+	3+	14	1+	0+	0+	0+	0o	1-	2+	3-	8	150.5	82	81	101
16	2-	1-	2o	2o	3-	2o	2o	4-	19	1-	0+	2-	1+	1+	1-	1o	3+	10	151.3	65	73	101
17	5+	4o	4o	3-	3-	1+	1+	2-	37	5o	3+	4o	2+	2o	0+	1o	2-	32	154.1	79	88	104
18	2-	2+	3-	2+	1-	2-	2-	2-	14	1o	2+	3-	2-	0o	1-	1+	1+	10	160.2	93	99	111
19	1o	2+	2-	3-	2-	3-	2-	3-	17	1-	2+	2-	2+	1-	1+	1+	3-	12	175.8	100	106	128
20	2o	2+	2o	2-	2o	2o	3-	3-	17	2-	2+	2-	1+	1+	1+	3-	2o	14	180.8	91	103	133
21	1+	2o	2o	1-	0+	1o	1-	0+	7	1o	1o	1+	0o	0o	1-	0o	0+	4	177.7	88	93	130
22	1+	1-	1-	3o	4-	3+	5o	6-	45	1-	0o	0+	3-	3-	2+	4+	6-	35	178.4	84	91	131
23	5-	5-	6-	5-	4+	5-	2+	2-	68	5-	5-	5+	5-	4o	4+	2o	1+	62	170.4	74	85	122
24	3o	3o	4o	3+	5o	4+	3+	5-	54	3-	3-	4-	3-	4o	3+	3-	5o	40	151.8	69	80	102
25	6-	6-	6+	6+	6o	6o	6o	6o	161	5+	5+	7o	6+	6o	6-	5o	6-	150	143.9*	57	68	93
26	6o	3+	2+	3o	1+	2o	3+	6+	61	6-	4o	1+	2o	1-	1+	3-	6+	55	132.0	64	66	81
27	7o	7o	8-	7+	8o	7-	5+	5o	262	7-	7-	7-	7o	8-	6+	5o	5+	217	121.8	55	56	70
28	3+	3+	3-	2+	3-	3o	3o	3o	29	4-	3o	3-	2o	3o	3-	3o	3+	30	103.8	39	33	50
29	2+	3-	2o	2-	1o	2-	1+	1+	13	2+	3-	3-	2-	0+	0+	0+	0+	10	102.8	24	24	49
30	1+	1+	2-	2-	2o	2-	2-	3+	14	1o	1+	1o	1o	1o	1+	1+	3-	10	91.4	24	26	37
31	2-	2o	2-	2o	3-	2o	2-	2o	15	1+	2-	1o	2-	3o	2+	1+	1+	13	89.0	23	26	34
Mean									34.2									27.8	122.4	51.0	55.9	70.2

Daily Average Indices Ap Aug 2003 - Jul 2004

123
Jul 04

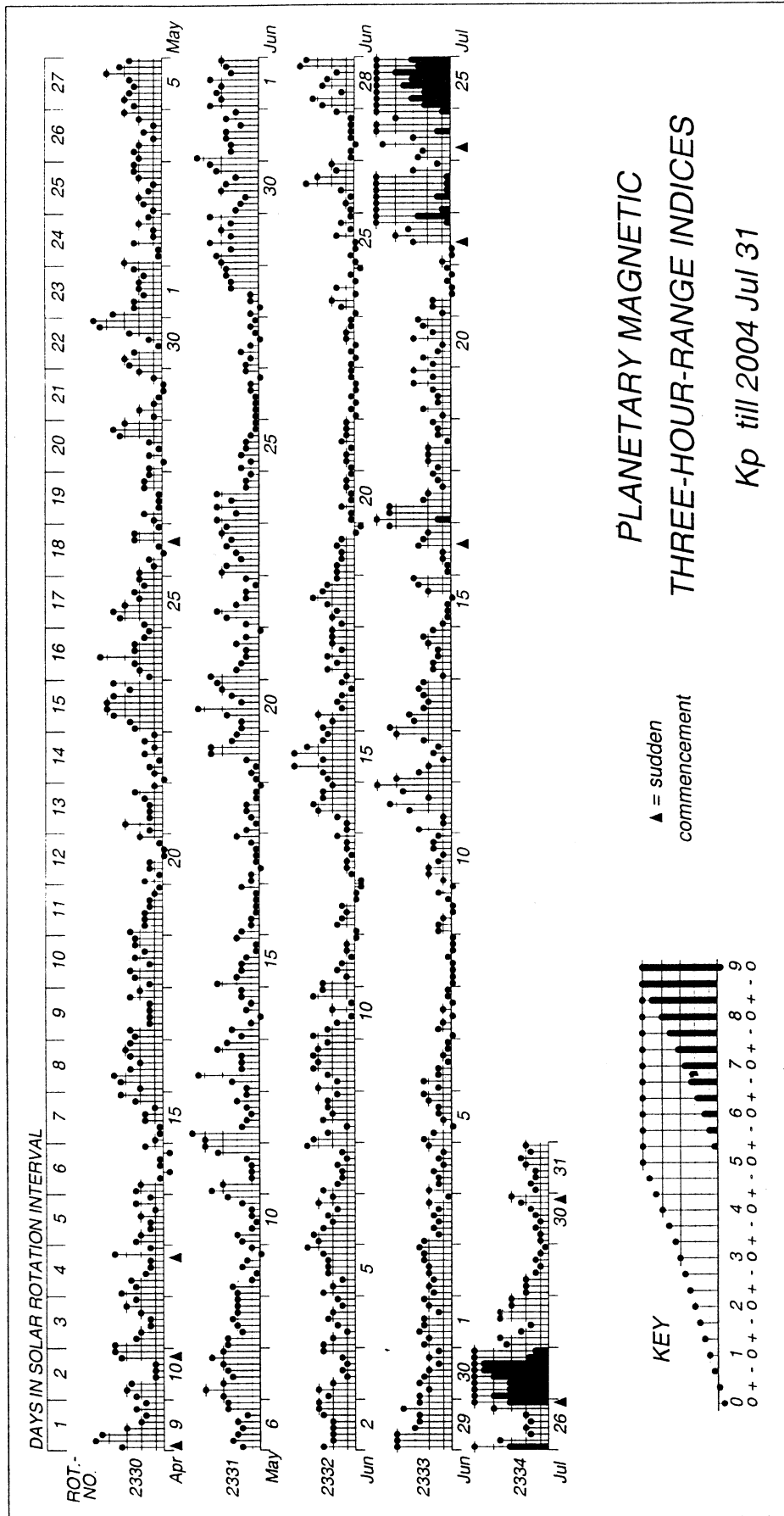


Day	Aug 03	Sep	Oct	Nov	Dec	Jan 04	Feb	Mar	Apr	May	Jun	Jul
1	39	13	10	26	10	24	10	21	4	9	16	8
2	21	12	8	18	7	15	18	21	3	6	10	8
3	14	15	17	13	4	22	20	13	41	6	8	6
4	10	22	5	38	6	22	15	6	18	7	7	5
5	7	16	5	6	39	25	12	5	24	14	11	6
6	32	8	9	17	23	24	21	3	25	8	11	5
7	32	4	15	8	14	29	7	3	12	16	8	3
8	33	5	6	8	35	7	4	3	14	8	9	2
9	14	22	7	29	29	23	7	28	16	5	13	4
10	9	21	2	27	41	26	6	45	11	6	10	6
11	10	14	2	61	40	19	28	40	10	12	5	18
12	26	9	4	30	25	9	30	28	10	12	3	12
13	15	8	16	52	26	20	25	14	6	12	4	14
14	14	4	66	38	27	12	20	16	4	5	10	6
15	11	4	44	40	25	18	24	15	7	7	18	6
16	8	34	29	41	10	29	7	10	13	4	7	9
17	20	70	32	39	7	18	4	6	8	4	7	21
18	108	50	25	26	3	18	8	10	8	4	9	6
19	19	39	37	12	1	18	8	7	6	9	4	8
20	17	27	36	150	16	18	4	12	4	13	4	8
21	58	18	49	42	24	14	7	11	7	7	4	4
22	46	17	34	30	18	64	8	13	4	8	2	31
23	36	15	6	22	7	43	9	7	19	11	3	52
24	20	41	38	13	6	18	11	3	10	10	3	37
25	20	28	16	14	5	38	6	4	11	4	3	154
26	11	15	10	8	8	18	3	17	5	3	8	47
27	8	6	11	6	11	17	12	22	4	4	3	186
28	18	4	25	5	13	23	19	21	9	7	14	15
29	16	4	204	6	5	9	24	10	4	15	19	6
30	14	4	191	12	6	19		14	16	12	8	7
31	6		116		19	10		9		12		7
Mean	23	18	35	28	16	22	13	14	11	8	8	23

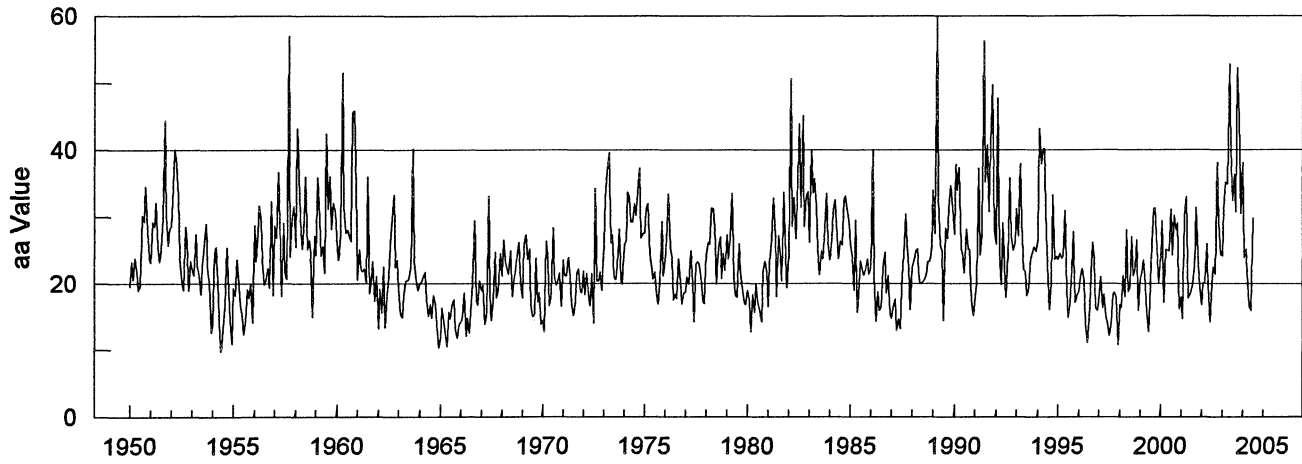
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

Kp through July 31, 2004

GeoForschungsZentrum Potsdam



Monthly Mean aa Index Jan 1950 - Jul 2004



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	31.2	31.3	25.1	20.1	22.2
2000	24.2	29.4	17.1	25.1	25.0	24.9	31.1	24.3	30.2	28.1	29.1	16.1	25.4
2001	18.0	14.7	30.2	33.0	17.8	18.2	18.7	19.9	22.7	31.4	24.4	19.5	22.4
2002	16.8	20.0	20.2	26.0	19.9	14.2	19.9	22.5	21.4	38.1	29.3	24.4	22.7
2003	24.2	31.3	35.2	34.9	52.7	40.2	32.4	36.4	30.7	52.2	44.7	30.4	37.1
2004	38.1	23.9	25.2	20.1	16.6	15.9	29.9						24.2

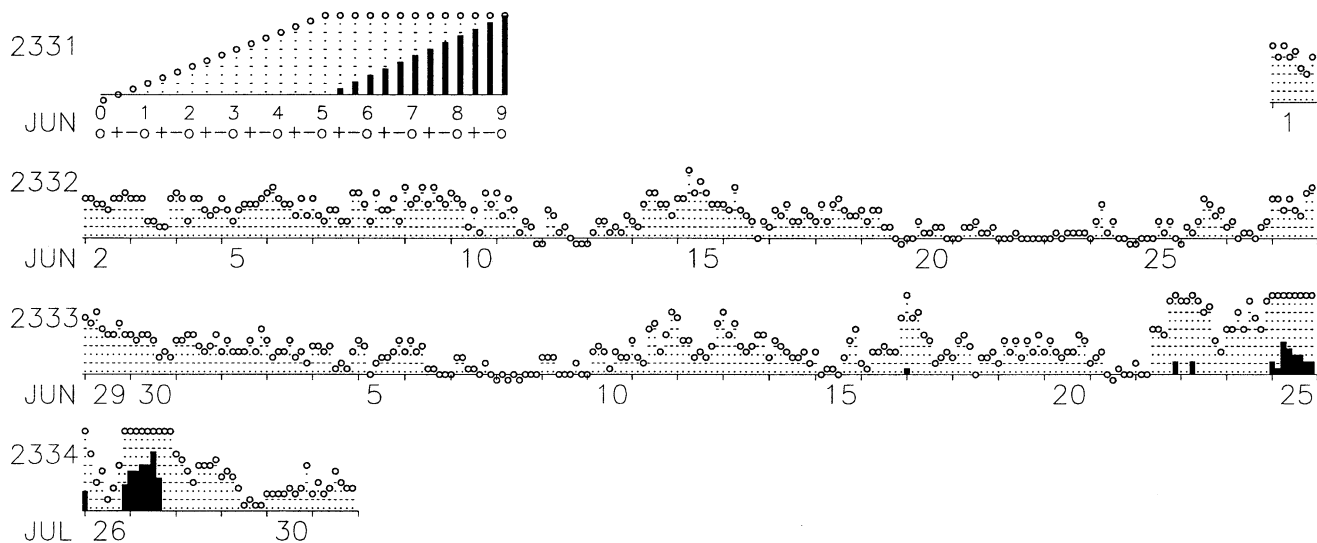
PLANETARY GEOMAGNETIC ACTIVITY

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

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

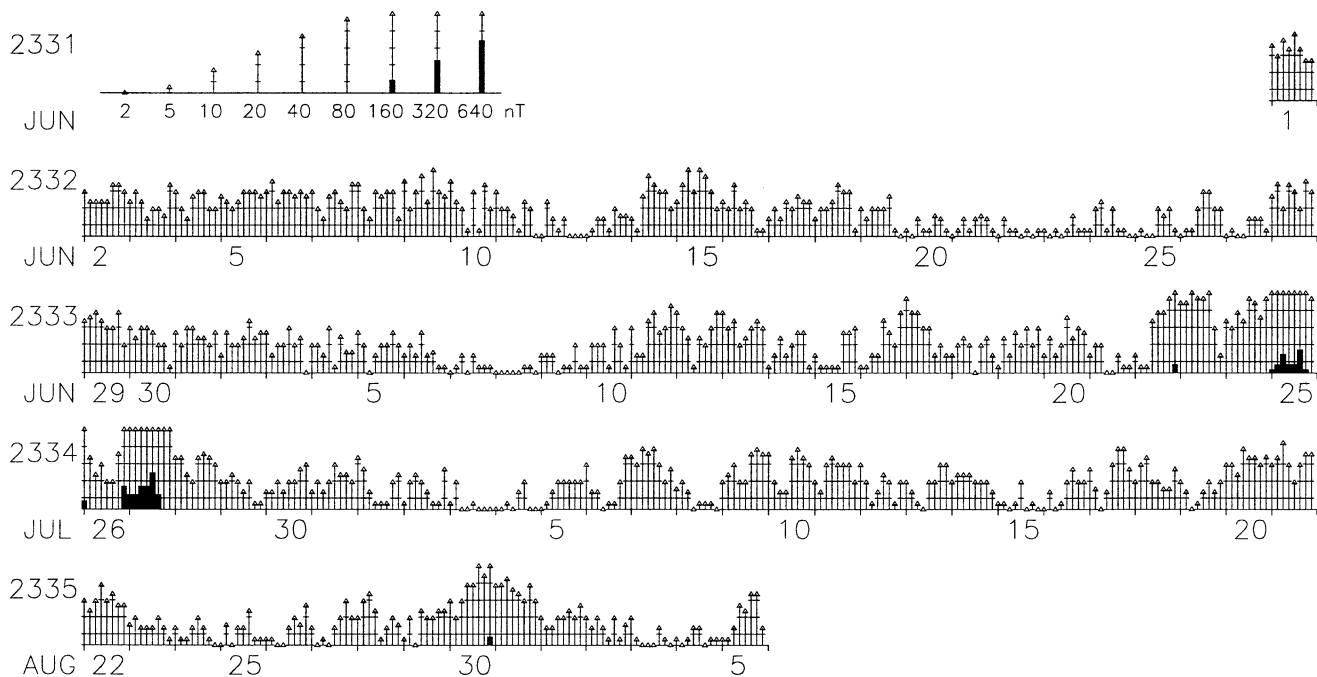
CETP, 4 Avenue de Neptune, F-94107 Saint Maur des Fosses CEDEX – FRANCE

ROT DAY IN SOLAR ROTATION INTERVAL Three-hour indices Km(provisional) JUN-JUL 2004
No 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27



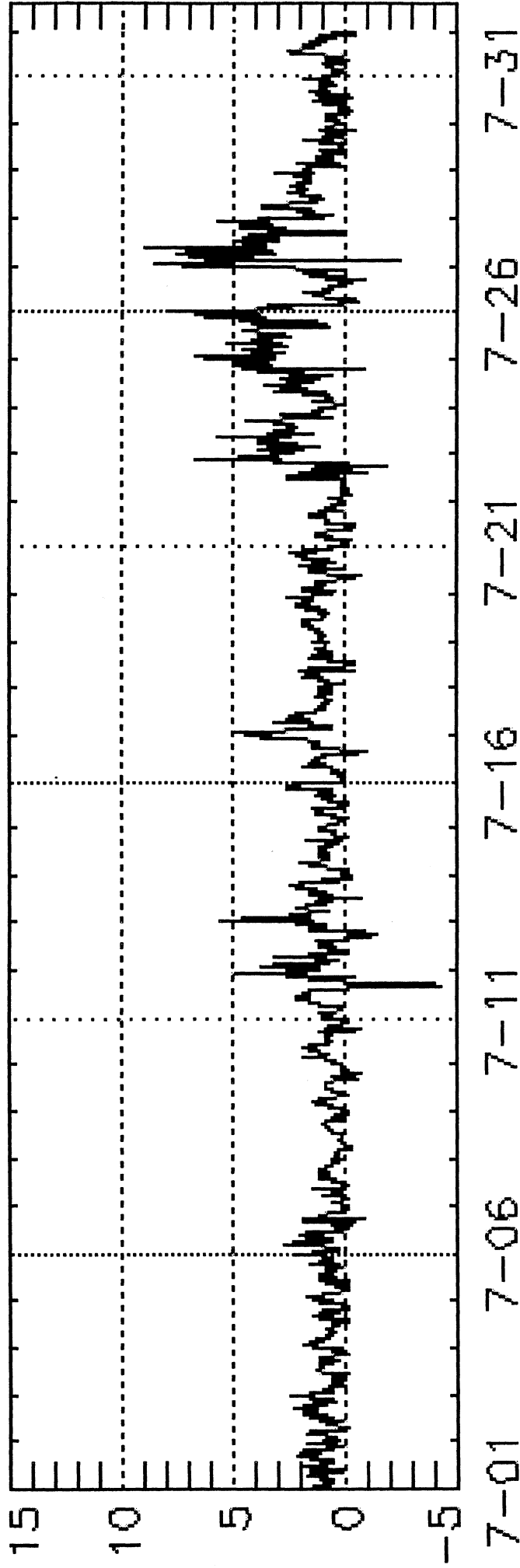
Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.

ROT DAY IN SOLAR ROTATION INTERVAL Three-hour indices aa (logscale) JUN-SEP 2004
No 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27



Indices Derivation at C.E.T.P.; Graph Prepared at ISGI Publication Office.

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



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

P R I N C I P A L M A G N E T I C S T O R M S

JULY 2004

Sta	Geomag Lat	Commencement Time		Type	SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	D	Ranges			End Hour
		Day (UT)	Time (UT)		D (Min)	H (Gamma)	Z (Gamma)			D (Min)	H (Gamma)	Z (Gamma)		Day (UT)
HYB	07.6N	10	1600	..	..	..	..	11(5)	4	6	93	33	13 23
JAI	17.4N	11	0700	..	..	..	..		-	6	65	39	13 22
NGP	11.3N	11	0700	..	..	..	..		-	7	86	46	13 22
ABG	09.4N	11	0700	..	..	..	..	09(2,3) 11(1,5,8) 12(1) 13(1,3,5)	4	7	87	45	13 22
PND	02.0N	11	0700	..	..	..	..		-	5	93	49	13 22
TIR	00.6S	11	0700	..	..	..	..		-	5	121	50	13 22
JAI	17.4N	16	2150	SC*	--	--	--		-	--	--	--	17 15
NGP	11.3N	16	2150	SC*	..	10	..		-	6	98	30	17 15
ABG	09.4N	16	2150	SC*	..	9	..	17(1)	6	5	89	50	17 15
HYB	07.6N	16	1400	..	..	..	..	17(1)	6	6	100	28	17 16
PND	02.0N	16	2150	SC*	0.0	7	5		-	5	125	36	17 15
TIR	00.6S	16	2150	SC*	- 0.1	5	6		-	4	225	69	17 15
JAI	17.4N	22	1033	SC	--	--	--		-	--	--	--	23 21
KRC	16.4N	22	1024	..	..	..	..	25(6,8)	6	11	200	55	26 04
NGP	11.3N	22	1033	SC	- 0.2	12	- 2		-	7	152	32	23 21
ABG	09.4N	22	1033	SC	- 0.4	9	- 7	22(8)	6	7	145	40	23 21
HYB	07.6N	22	1035	SC	- 0.4	9	..	25(4,6)	7	7	307	29	26 12
PND	02.0N	22	1033	SC	- 0.1	8	8		-	6	143	65	23 21
TIR	00.6S	22	1033	SC	- 0.1	18	19		-	5	136	71	23 21
GNA	43.0S	22	1036	SC	2.1	11.9	11.2	25(5)	8	57	224	250	26 06
CAN	43.6S	22	1036	SC	0.5	18.6	3.6	25(3)	7	40	203	144	26 09
JAI	17.4N	24	0615	SC	--	--	--		-	--	--	--	26 13
NGP	11.3N	24	0615	SC	0.3	54	- 8		-	7	294	29	26 13
ABG	09.4N	24	0615	SC	- 0.2	47	- 6	25(1,4,6)	6	8	285	56	26 13
PND	02.0N	24	0615	SC	- 0.2	56	40		-	6	312	110	26 13
TIR	00.6S	24	0615	SC	- 0.9	75	72		-	6	336	78	26 13
JAI	17.4N	26	2248	SC	--	--	--		-	--	--	--	28 23
KRC	16.4N	26	2248	SC*	- 60	90	40	27(2,5)	7	16	360	130	28 00
NGP	11.3N	26	2248	SC	- 0.7	70	- 11		-	8	355	36	28 23
ABG	09.4N	26	2248	SC	- 1.4	61	- 15	27(2,5)	7	7	342	37	28 23
HYB	07.6N	26	2250	SC	- 0.9	63	- 4	27(5)	9	7	358	40	28 23
PND	02.0N	26	2248	SC	- 0.7	57	61		-	6	352	152	28 23
TIR	00.6S	26	2248	SC	- 1.0	48	52		-	7	378	47	28 23
GNA	43.0S	26	2248	SC	12.9*	30.0*	52.7*	27(5)	8	59	241	323	28 06
CAN	43.6S	26	2248	SC	6.1*	58.0*	7.8*	27(3,4,5)	7	44	231	151	28 06

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
TIR = TIRUNELVELI
UJJ = UJJAIN

**MAGNETIC STORM SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS
(PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS)**

July 2004

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
16	1353	A: SOD NAG SPT GUI	12	0616-0628	NGK+
		B: NUR DOU CLF HRB	13	0844-0900	BDV+
		C: NGK* GCK	13	0927-0933	NGK+
		-. COI	14	0516-0540	MMB+ KAK+ KNY+ HYB
		(SI: VAL)	15	0132-0206	GNA+ CNB+
16	2155	C: BDV* MMB* KAK KNY	15	0137-0200	MMB+ KAK+ KNY+
			15	2236-2255	MMB+ KAK+ KNY+
22	1036	A: LER* ESK* VAL* HAD* GUI GNA CNB	16	1619-0255	MMB+ KAK+ KNY+
		B: SOD* NUR* HRB NAG* MMB* EBR KAK* KNY*		0204-0212	GNA+
		C: NGK* DOU BDV* CLF* GCK SPT HYB		1038-1055	BDV+
24	0614	A: SOD* LER* ESK* VAL* HAD* MMB* EBR* SPT* KAK* KNY* GUI B: NUR* CLF* HRB NAG* C: NGK* DOU BDV* -. COI	16	1353-1521	LER ESK HAD BDV+ EBR+ (See SSC list)
			17	0755-0805	MMB+ KAK+ KNY+
			17	2128-2150	MMB+ KAK+ KNY+
			18	0254-0310	MMB+ KAK+ KNY+
			20	1225-1252	NGK+ HAD BDV+ EBR GUI
26	2249	A: SOD* NUR LER* ESK* NGK* VAL HAD* DOU* CLF HRB* NAG* MMB* EBR* SPT* KAK KNY* HYB GNA* CNB* B: BDV* GCK* -. COI*	21	0032-0045	MMB+ KAK+ KNY+
			21	0513-0520	MMB+ KAK+ KNY+
			22	0023-0050	MMB+ KAK+ KNY+ CNB+
30	2114	A: NAG* B: SPT GUI* C: NGK* BDV* CLF HRB -. COI (SI: LER* ESK* HAD* EBR)			

REPORTING OBSERVATORIES (up to the 2nd of September 2004):

SOD NUR LER ESK NGK VAL HAD DOU BDV CLF HRB NAG GCK MMB EBR COI SPT KAK HTY KNY GUI
HYB GNA CNB

Three-letter codes identify each observatory. Reporting stations have been grouped by the character of the observed event. The letter A means very remarkable; B means fair, but unmistakable; C means very poor, doubtful; and - means no quality figure given. The * means that the SSC, at least in one component, was preceded by a small reversed impulse. SSCs are given only when five or more stations report the event. SFEs include all reports. If an SFE is confirmed by solar or ionospheric events, the name of the station is identified with a plus sign (+).

Note that we have included data of the Antarctic Station LIVINGSTONE (62° 39' 44" S, 60°23' 41" W) -- Luis F.

Criterion on Provisional SSC data

From December 2002, we are giving as provisional SSC only the SSC reported by more than 4 observatories. This is a change with respect to the previous criterion according to which we used to give the SSC reported by more than 5 observatories. The change, pending IAGA confirmation, has been provisionally taken because of the decreasing number of reporting observatories in order to keep the homogeneity of the data. The idea is to keep the same minimum percentage of the observatories reporting an SSC, relative to the total number of reporting observatories, to be considered as a probable SSC.