U.S. DEPARTMENT OF COMMERCE
William M. Daley, Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
D. James Baker, Administrator

NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
Robert S. Winokur, Assistant Administrator

DECEMBER 1997 NUMBER 640 - Part I

Solar-Geophysical Data prompt reports

Data for October, November 1997 and Late Data

International Standard Serial Number: 0038-0911
Library of Congress Catalog Number: 79-640375 //r81

NATIONAL GEOPHYSICAL DATA CENTER
Michael S. Loughridge, Director
Boulder, Colorado

Subscription information is on the inside back cover.

SOLAR-GEOPHYSICAL DATA

Number 640

(Issued in Two Parts)

Editor: Helen E. Coffey

Chief: Herbert W. Kroehl
Solar-Terrestrial Physics Division

Staff: Christine D. Hanchett
Edward H. Erwin

Computer Consultant:
Daniel C. Wilkinson

CONTENTS

PART I (PROMPT REPORTS) Page

PART II (COMPREHENSIVE REPORTS) Page

DETAILED INDEX OF OBSERVATIONS PUBLISHED IN SOLAR-GEOPHYSICAL DATA

CODE	KIND OF OBSERVATION	APR 97	MAY	JUN	JUL	AUG	SEP	OCT	NOV
A.	SOLAR AND INTERPLANETARY								
A.1	Sunspot Drawings	634A 41	635A 42	636A 41	637A 41	638A 45	639A 41	640A 47	
A.2aa	International Provisional Sunspot Numbers	633A 23	634A 25	635A 24	636A 25	637A 24	638A 24	639A 24	640A 24
A.2c	American Sunspot Numbers	633A 23	634A 25	635A 24	636A 25	637A 24	638A 24	639A 24	640A 24
A.3a	Mt. Wilson Magnetograms	634A 41	635A 42	636A 41	637A 41	638A 45	639A 41	640A 47	
A.3b	Sunspot Mag Class and Regions	634A 86	635A 92	636A 89	637A 88	638A 92	639A 89	640A 94	
A.3c	Kitt Peak Magnetograms	634A 41	635A 42	636A 41	637A 41	638A 45	639A 41	640A 47	
A.3d	Mean Solar Magnetic Field (Stanford)	633A 28	634A 32	635A 28	636A 32	637A 32	638A 36	639A 32	640A 37
A.3e	Stanford Magnetograms	634A 41	635A 42	636A 41	637A 41	638A 45	639A 41	640A 47	
A.4	H-alpha Filtergrams	634A 41	635A 42	636A 41	637A 41	638A 45	639A 41	640A 47	
A.5d	Photometric Ca II Faculae (San Fernando)	May 88-Dec 91 in 630B 37; Jan 92-Dec 96 in 631B 22							
A.6c	Stanford Solar Mag Field Synoptic Maps	634A 36	635A 32	636A 36	637A 36	638A 40	639A 36	640A 42	
A.6d	Kitt Peak Solar Mag Field Synoptic Maps	634A 40	635A 40	636A 40	637A 40	638A 44	639A 40	640A 46	
A.6f	Active Prominences and Filaments	638B 22	639B 20	640B 17					
A.6g	Sac Peak Coronal Line Synoptic Maps	634A 38	635A 36	636A 38	637A 38	638A 42	639A 38	640A 44	
A.6h	Photometric White Light (San Fernando)	Aug 95-Jun 96 in 624B 24; Jul-Dec 96 630B 32							
A.7h	Coronal Line Emission (Sac Peak)	634A 41	635A 42	636A 41	637A 41	638A 45	639A 41	640A 47	
A.8aa	2800 MHz- Solar Flux (Penticton)	633A 23	634A 25	635A 24	636A 25	637A 24	638A 24	639A 24	640A 24
A.8ac	2800 MHz- Adj. Solar Flux (Penticton)	633A 23	634A 25	635A 24	636A 25	637A 24	638A 24	639A 24	640A 24
A.8g	Adjusted Daily Solar Fluxes (Learmonth)	633A 23	634A 25	635A 24	636A 25	637A 24	638A 24	639A 24	640A 24
A.10g	Nancay Radioheliograph - 164&327 MHz	634A100	635A104	636A 99	637A 97	638A107	639A119	640A106	
A.11g	Solar X-ray GOES (graphs/event table)	638B 15	639B 12	640B 10					
A.11k	Solar UV NOAA-9	May 86-Dec 88 in 566B 84							
A.11l	Solar UV NIMBUS7	Nov 78-Oct 84 in 542B 82							
A.11m	Solar UV SOLSTICE (UARS)	Oct 91-Sep 94 in 607B 46							
A.11n	Solar YOHKOH Soft X-ray Images	634A 74	635A 73	636A 71	637A 72	638A 76	639A 71	640A 78	
A.11o	Solar UV SUSIM (UARS)	Oct 91-Jan 97 in 629B 30							
A.12g	Solar Particles (GOES-7)	633A 4	634A 4	635A 4	636A 4	637A 4	638A 4	639A 4	640A 4
A.12h	Interplanetary Particles (SAMPEX)	Jul 95-Dec 96 in 632B 22; Jan-Feb 97 in 633B 28							
A.13e	Solar Plasma (IMP-8)	638B 26	639B 24	640B 21					
A.16c	ERBS, NOAA-9 & -10 Solar Irradiance	ERBS Jan-Dec 96 in 632B 64; Jan-Oct 97 in 639B 58							
A.16d	UARS Solar Irradiance	Oct 91-Dec 96 in 634B 28							
A.17c	Inferred Interplanetary Mag Field	1984-1988 data in 542A168; 1989-Jan 94 in 611A118							
A.17	IMP-8 Interplanetary Mag Field	638B 27	640B 24						
C.	SOLAR FLARE-ASSOCIATED EVENTS								
C.1a	H-alpha Flares	633A 26	634A 28	635A 27	636A 28	637A 27	638A 27	639A 29	640A 27
C.1ba	H-alpha Flare Groups	638B 4	639B 4	640B 4					
C.1d	Flare Patrol Obsevations	638B 8	639B 8	640B 6					
C.1h	H-alpha Flare Index (ImpxDur)	Jan 86-Oct 96 in 635B 24; Jan 76-Dec 85 in 639B 26							
C.3	Radio Bursts Fixed Frequency	638B 10	639B 10	640B 8					
C.3	Radio Bursts Fixed Frequency Selected	633A 28	634A 30	----------	636A 30	637A 30	638A 34	639A 30	640A 35
C.4	Radio Bursts Spectral	634A 92	635A 99	636A 95	637A 93	638A101	639A100	640A101	
C.6	Sudden Ionospheric Disturbances	634A 91	635A 98	636A 94	637A 92	638A100	639A 98	640A100	
D.	GEOMAGNETIC EVENTS								
D.1a	Geomagnetic Indices	634A106	635A113	636A108	637A106	638A117	639A130	640A115	
D.1ba	27-day Chart of Kp Indices	634A108	635A115	636A110	637A108	638A119	639A132	640A117	
D.1cb	Monthly Mean aa Indices	634A109	635A116	637A109	637A109	638A120	639A134	640A118	
D.1d	Principal Magnetic Storms	634A113	635A120	636A114	637A112	638A123	639A137	640A122	
D.1f	Sudden Commencements/Flare Effects	634A114	635A121	636A115	637A113	638A124	639A138	640A124	
D.1g	Equatorial Indices Dst	634A112	635A119				639A136	640A121	
D.1i	Polar Cap (PC) Index	634A111	635A118	636A113	637A111	638A122	639A135	640A120	
F.	COSMIC RAYS								
F.1b	Cosmic Ray Neutron Cts (Climax)	634A101	635A105	636A100	637A 98	638A109	639A122	640A107	
F.1h	Cosmic Ray Neutron Cts (Thule)	634A101	635A105	636A100	----------	----------	----------	----------	
F.1i	Cosmic Ray Neutron Cts (Kiel)	634A101	635A105	636A100	637A 98	638A109	639A122	640A107	
F.1n	Cosmic Ray Neutron Cts (Beijing)	634A101	635A105	636A100	637A 98	638A109	639A122	640A107	
F.1m	Cosmic Ray Neutron Cts (Haleakala)	634A101	635A105	636A100	637A 98	638A109	639A122	640A107	
F.1o	Cosmic Ray Neutron Cts (Moscow)	634A101	635A105	636A100	637A 98	638A109	639A122	640A107	
F.1p	Cosmic Ray Neutron Cts (Calgary)	634A101	635A105	636A100	637A 98	638A109	639A122	640A107	
F.1r	Cosmic Ray Neutron Cts (Goose Bay)			636A100	637A 98	638A109	639A122	640A107	
H.	MISCELLANEOUS								
H.60	ISES Alert Periods	633A 19	634A 20	635A 19	636A 20	637A 20	638A 19	639A 20	640A 19

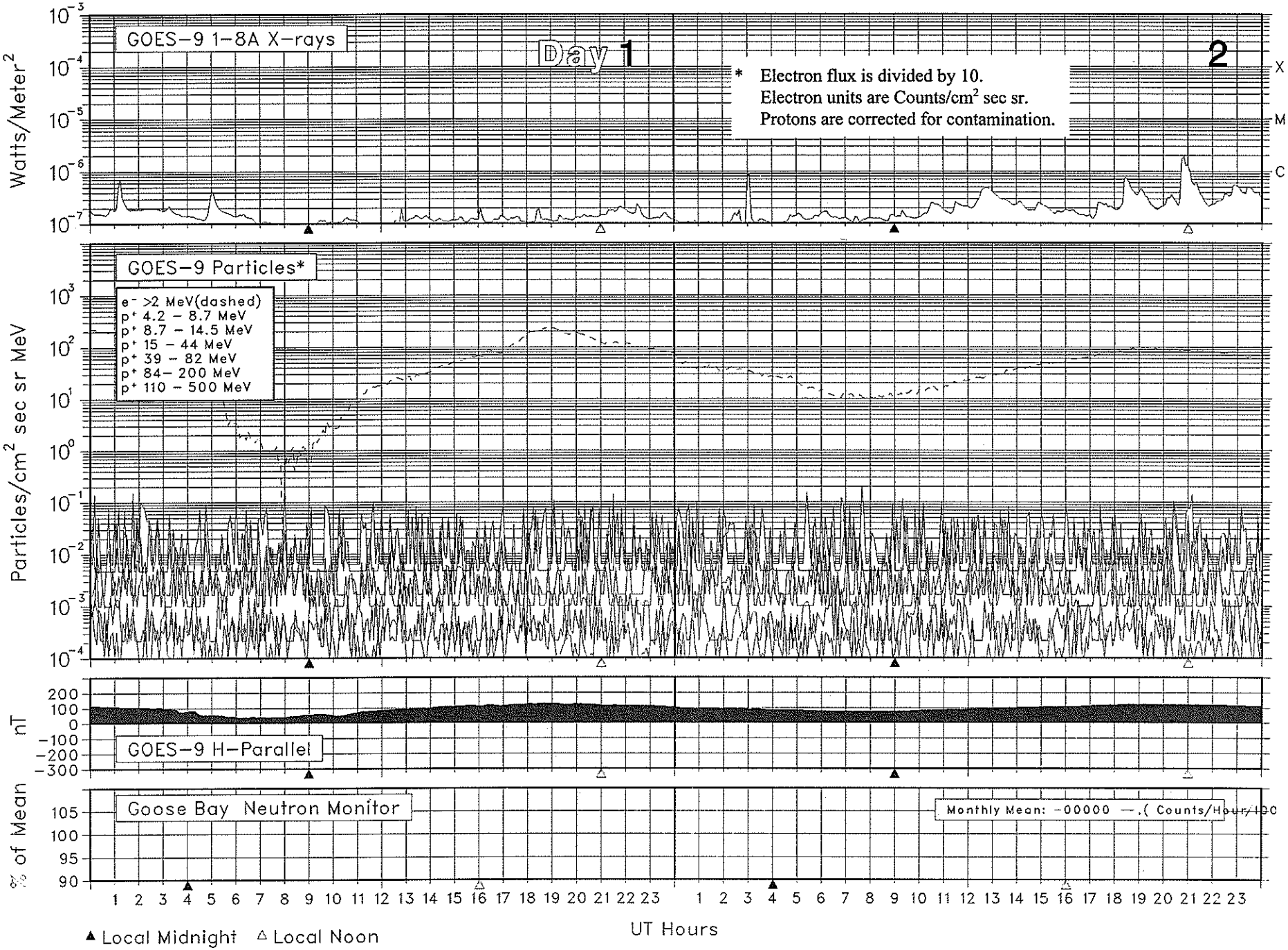
The entry "634 41" under Apr 97, for example, means that the sunspot drawings for Apr 1997 appear in SOLAR-GEOPHYSICAL DATA No. 634, Part I, and that they begin on page 41. "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

CONTENTS

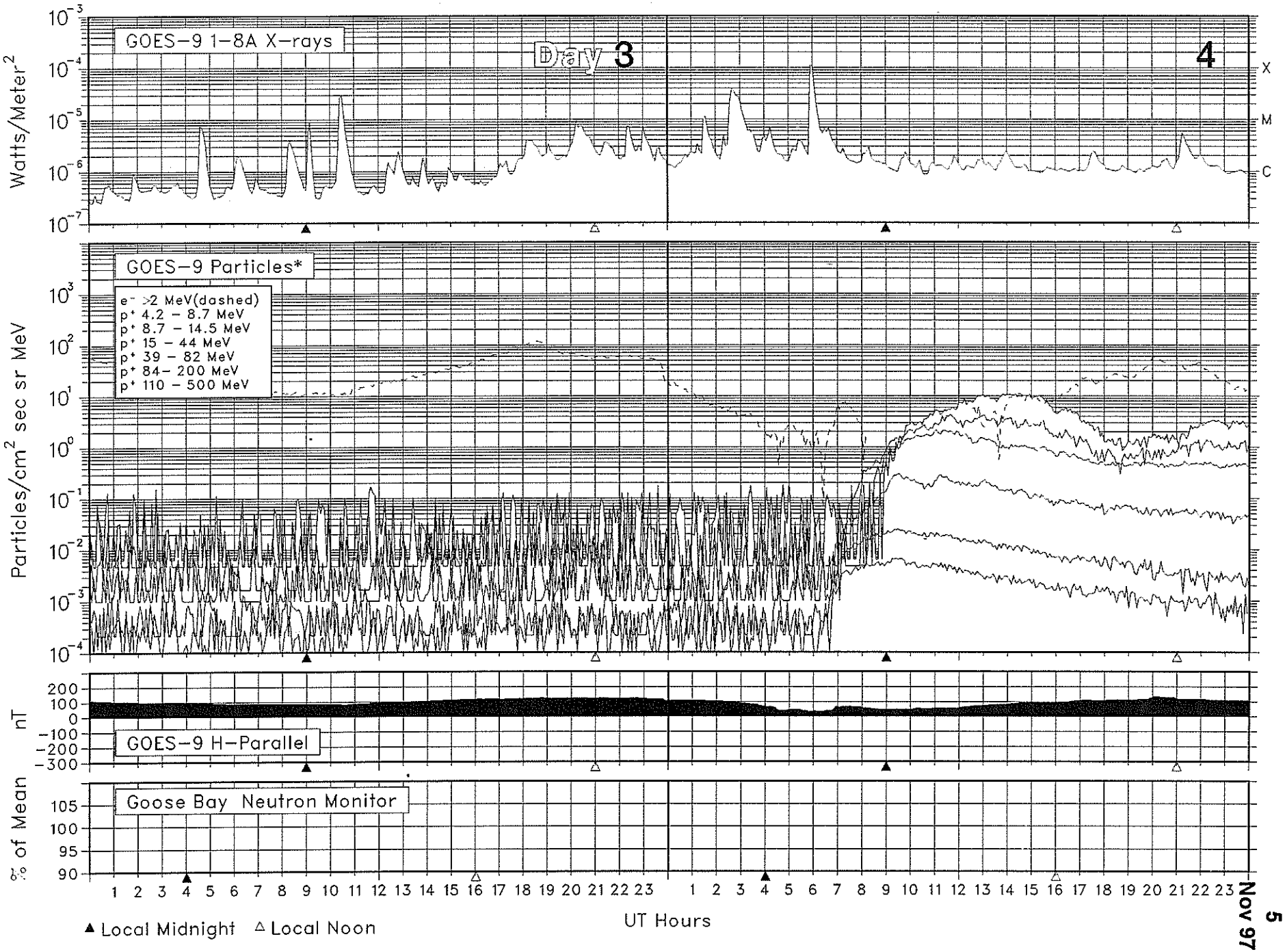
Prompt Reports — Number 640 Part I

DATA FOR NOVEMBER 1997

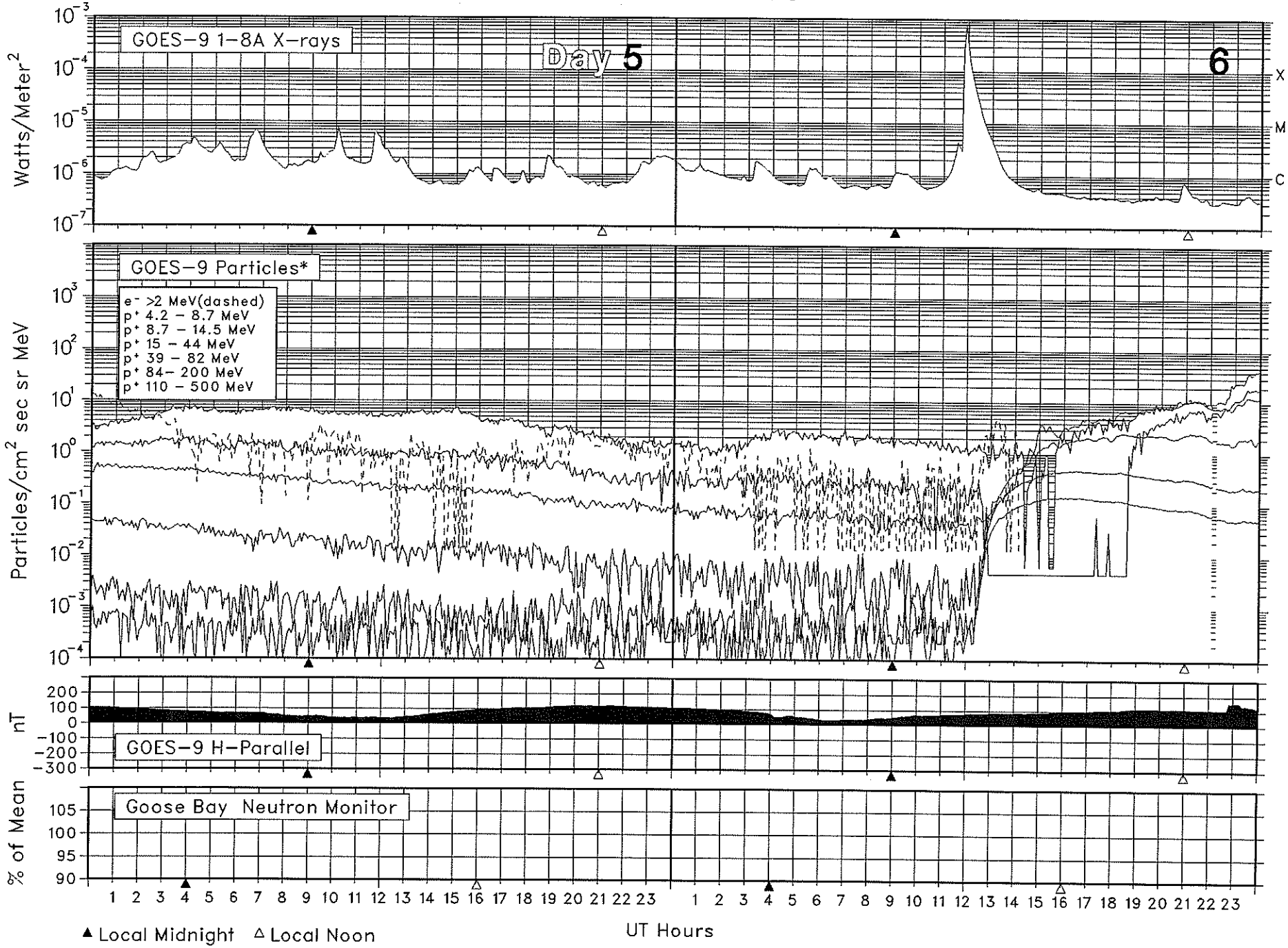
SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



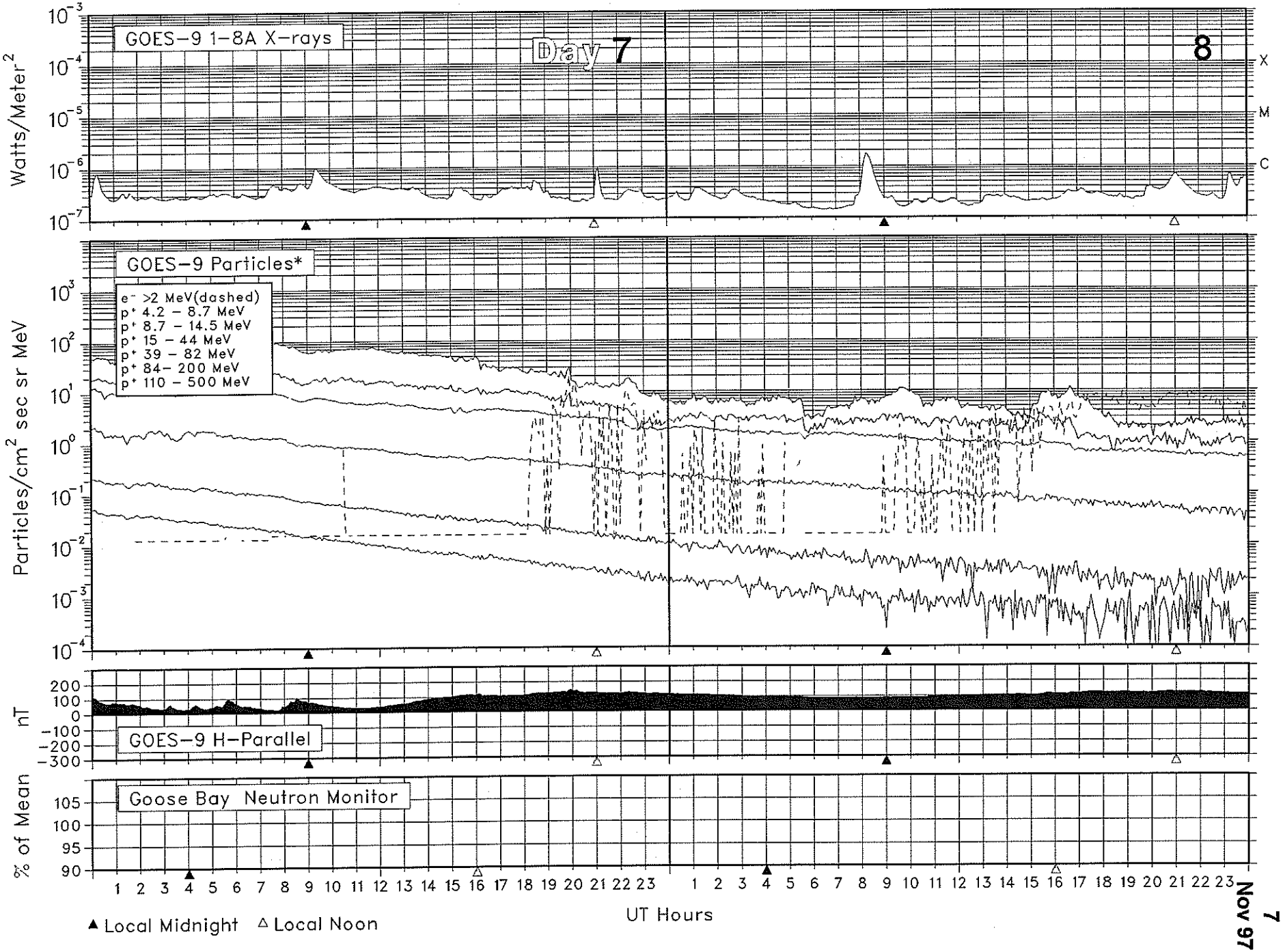
SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



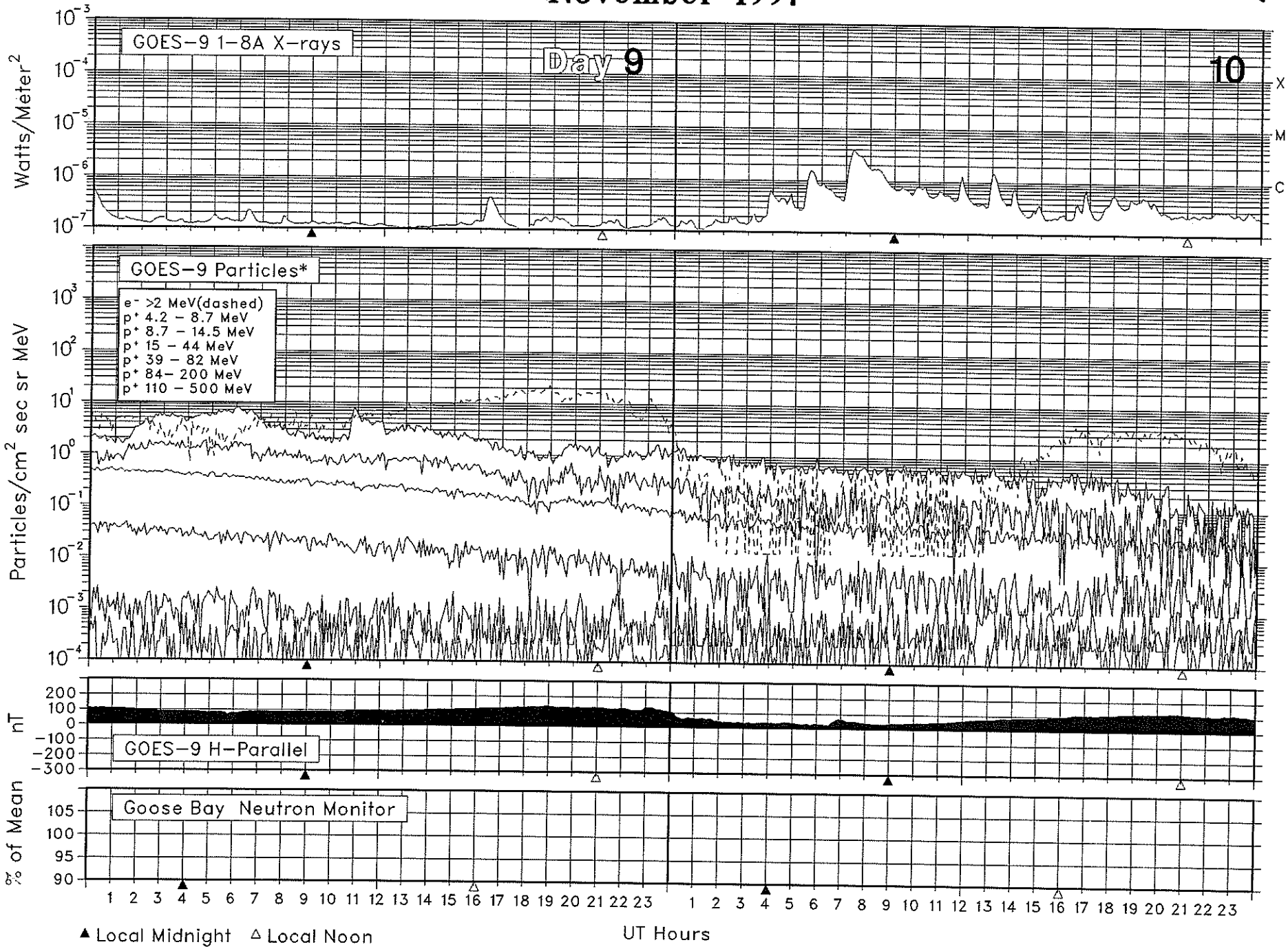
SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



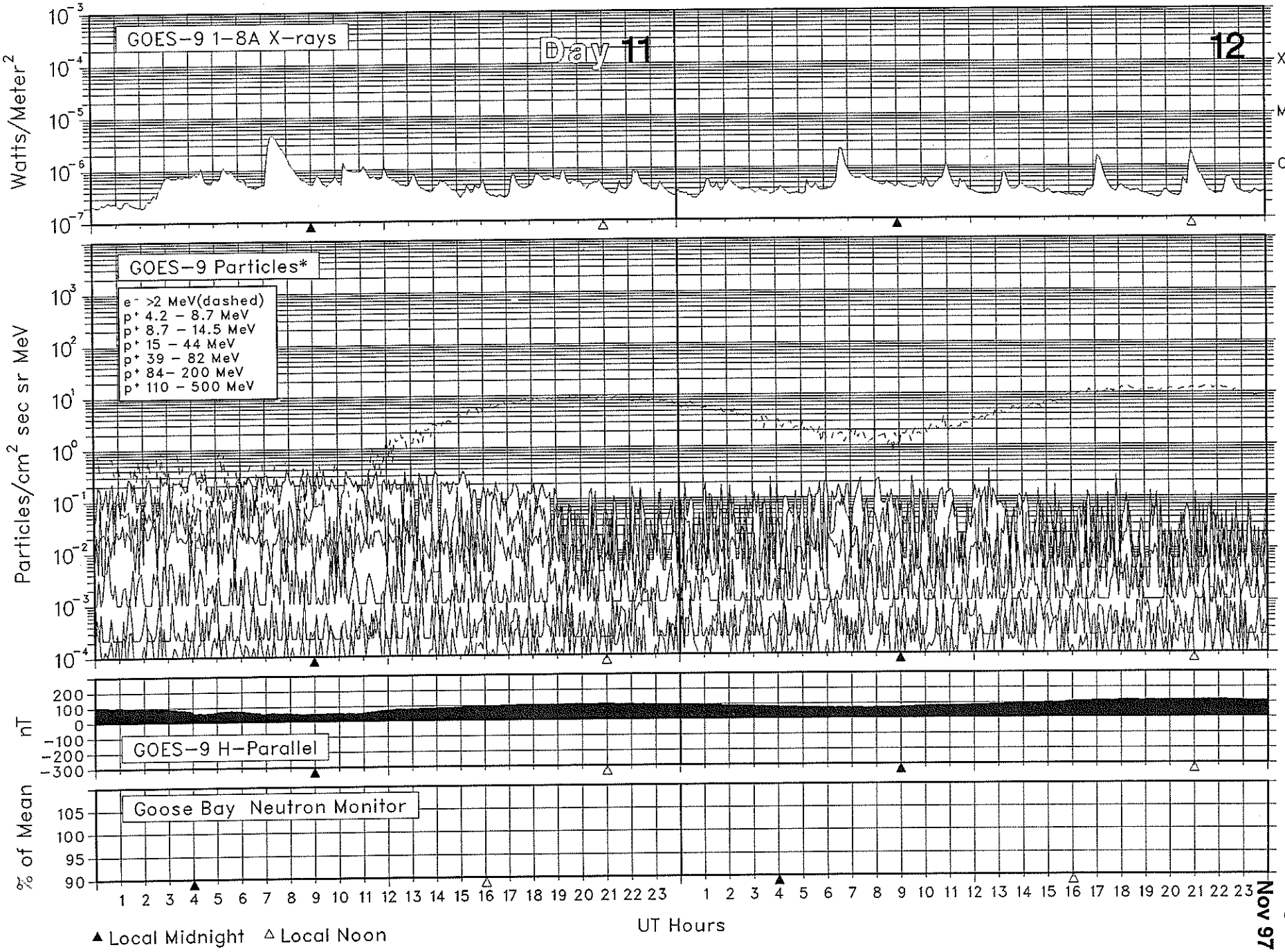
SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



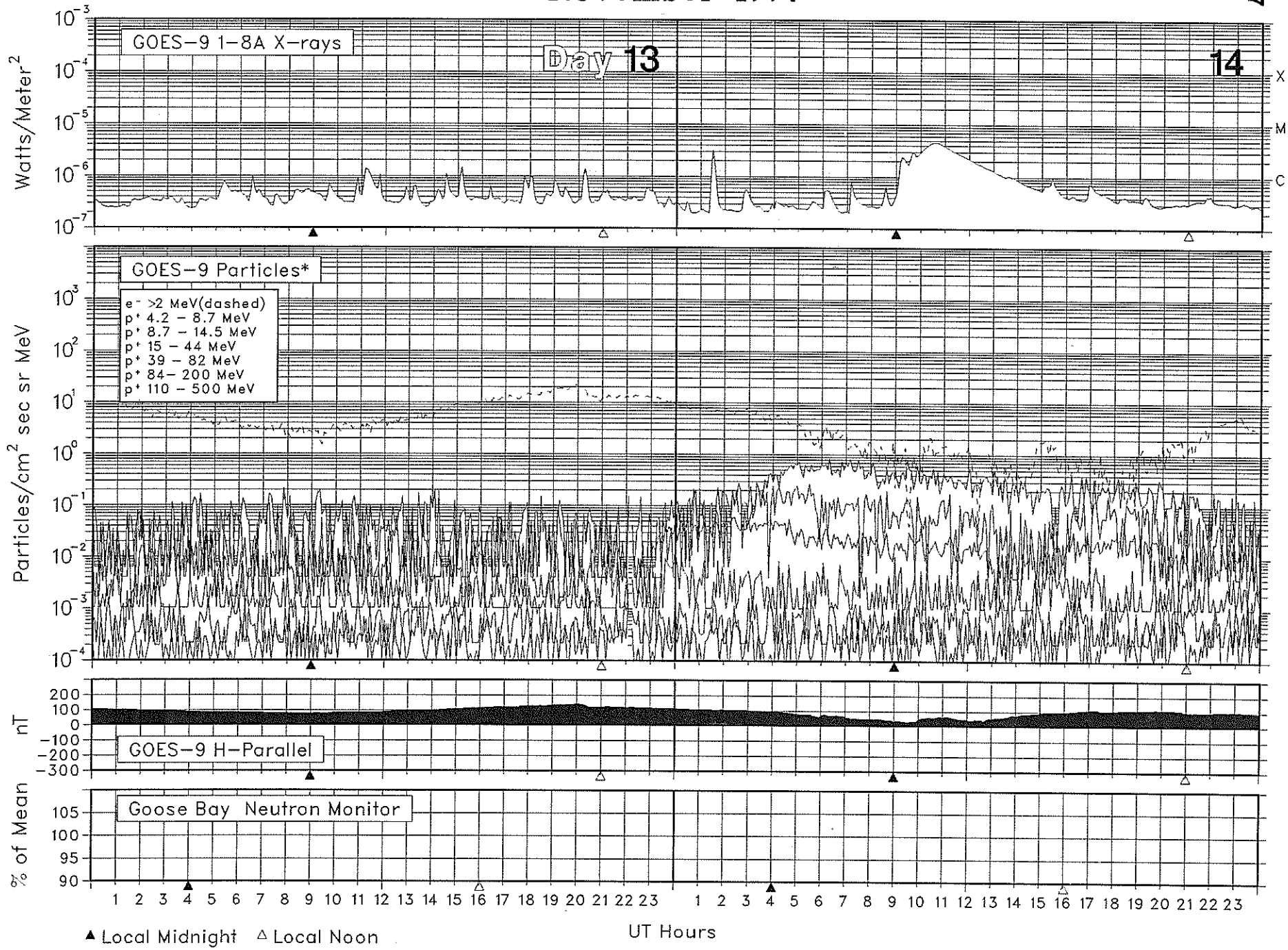
SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



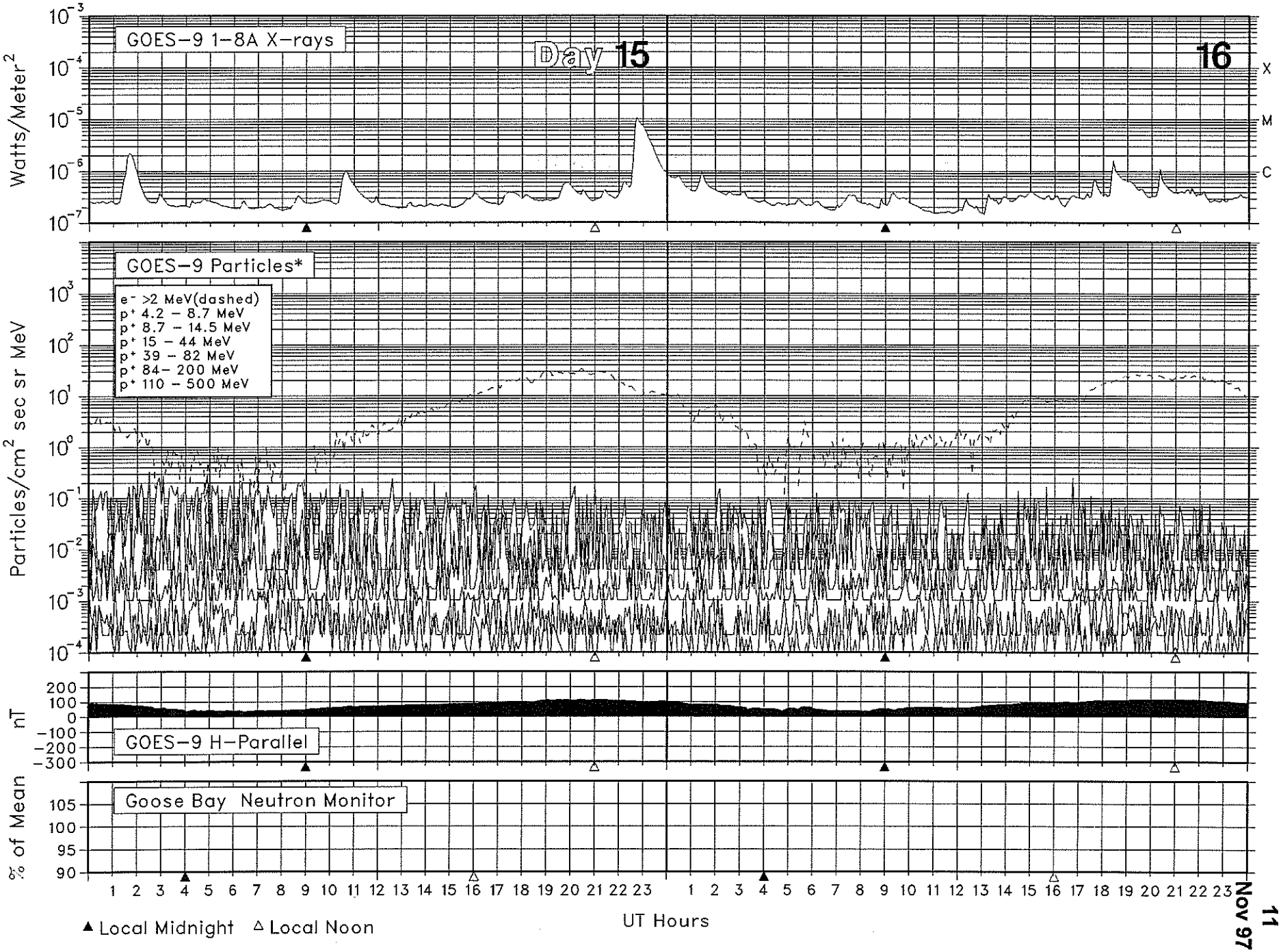
SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



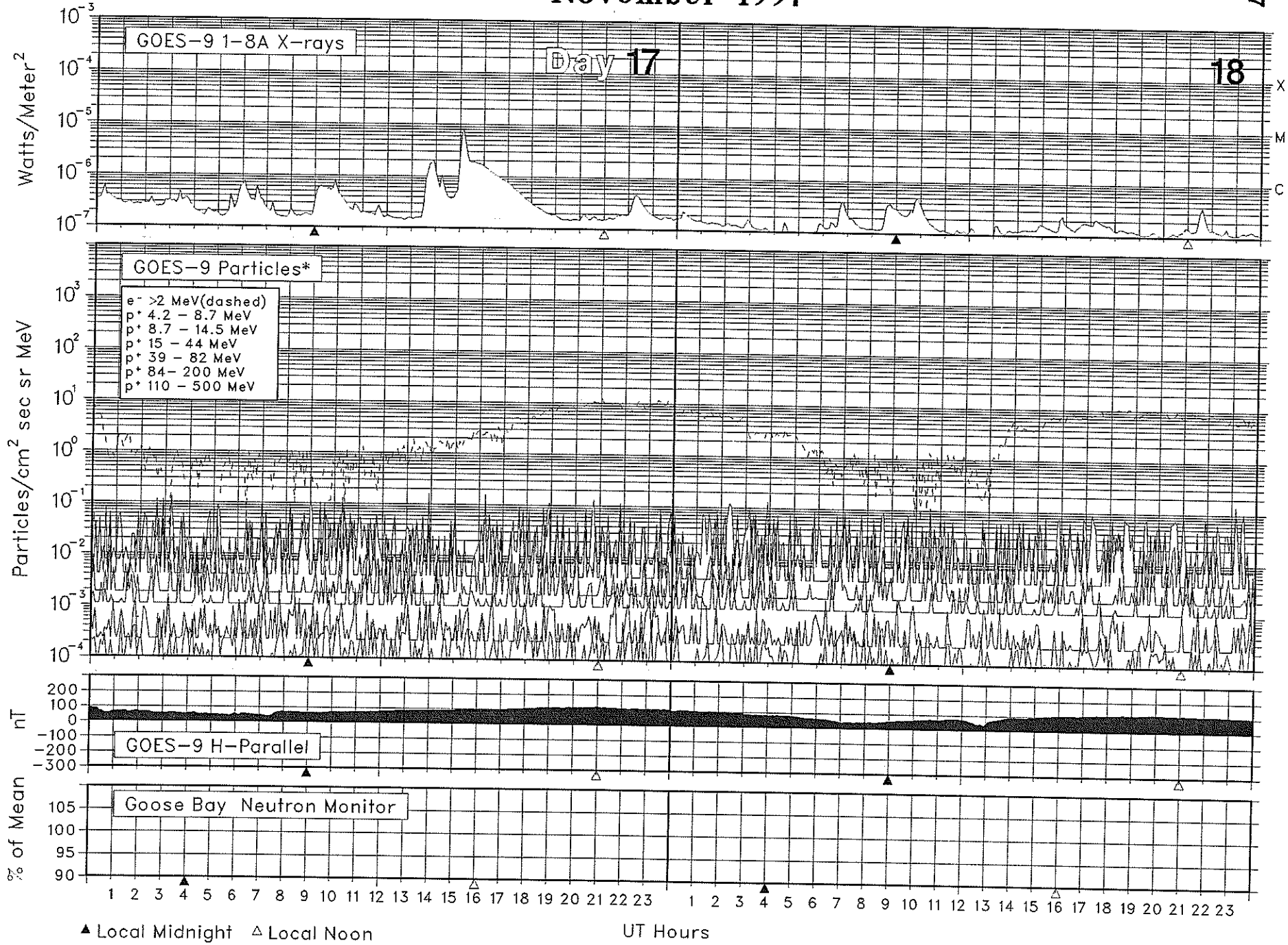
SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



SOLAR-TERRESTRIAL ENVIRONMENT
November 1997

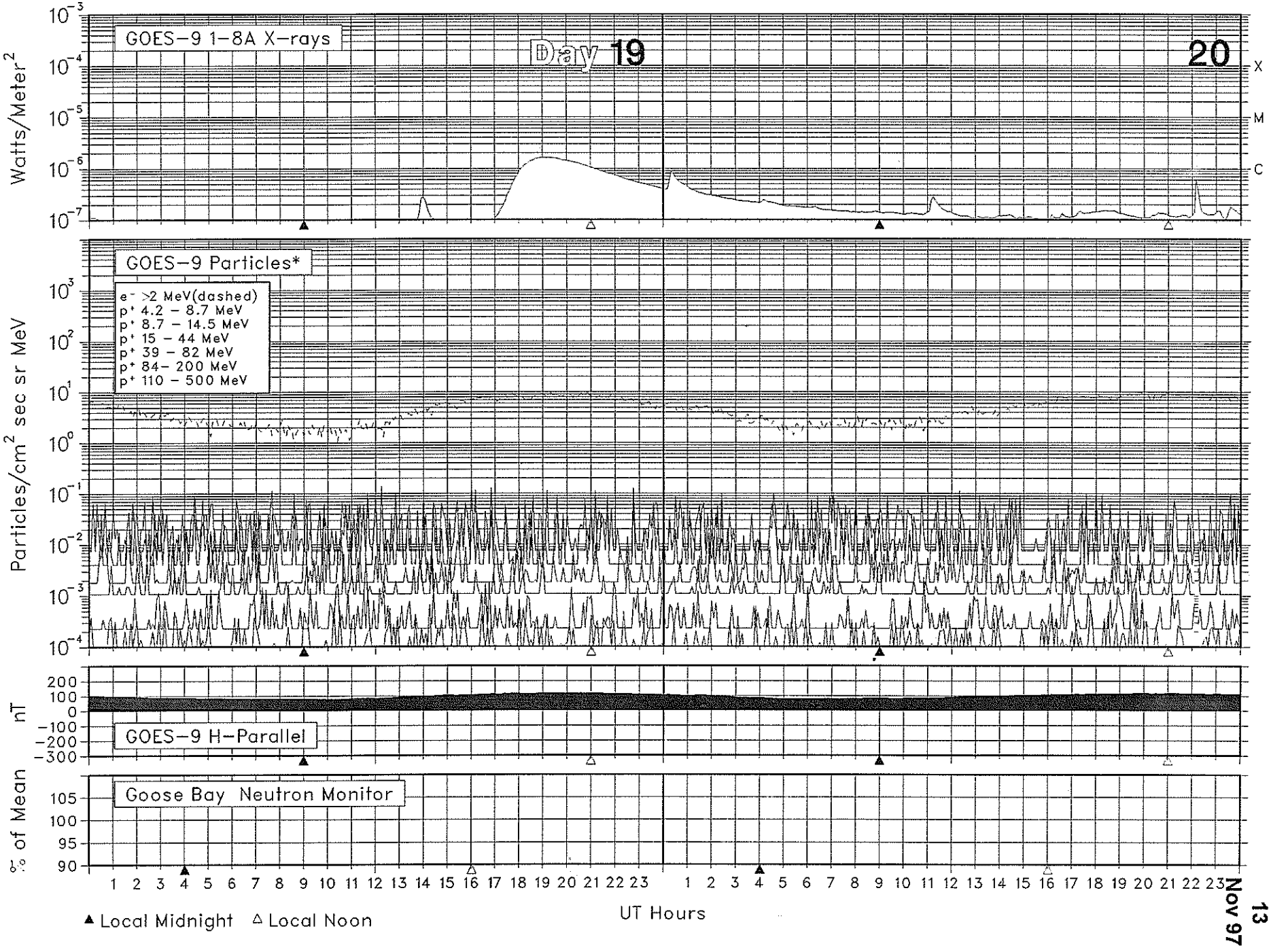


SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



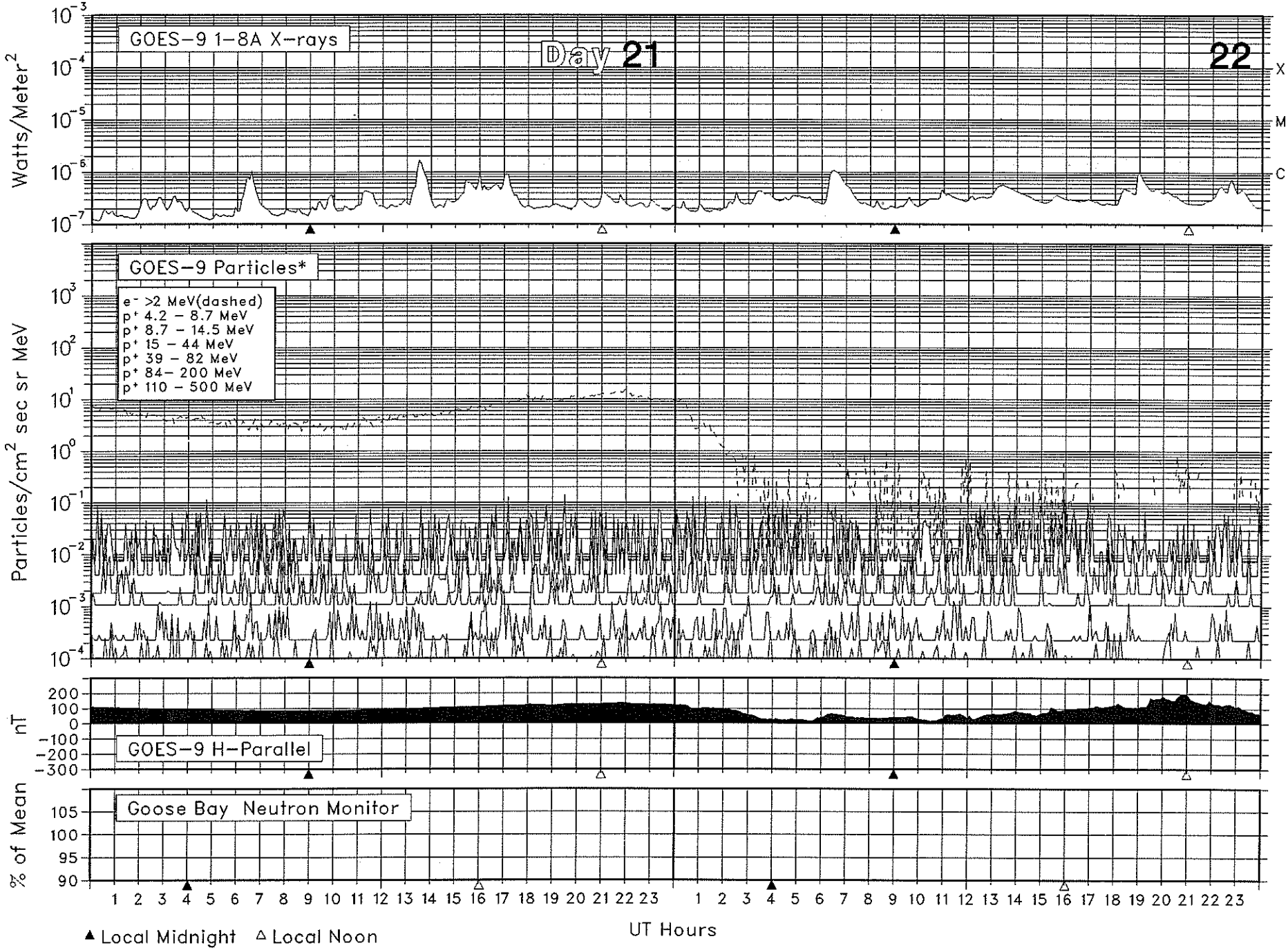
12 Nov 97

SOLAR-TERRESTRIAL ENVIRONMENT
November 1997

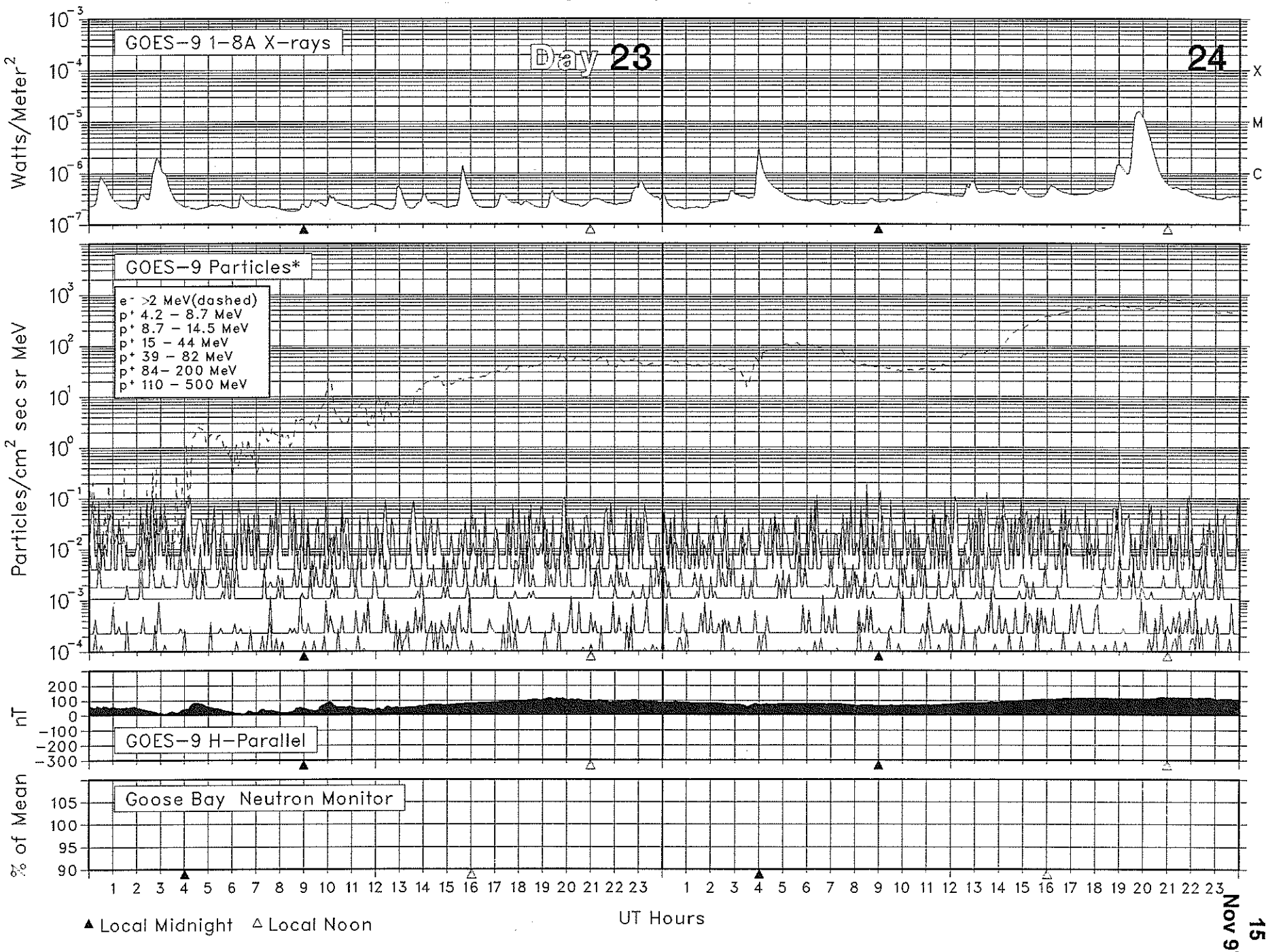


SOLAR-TERRESTRIAL ENVIRONMENT
November 1997

14 Nov 97



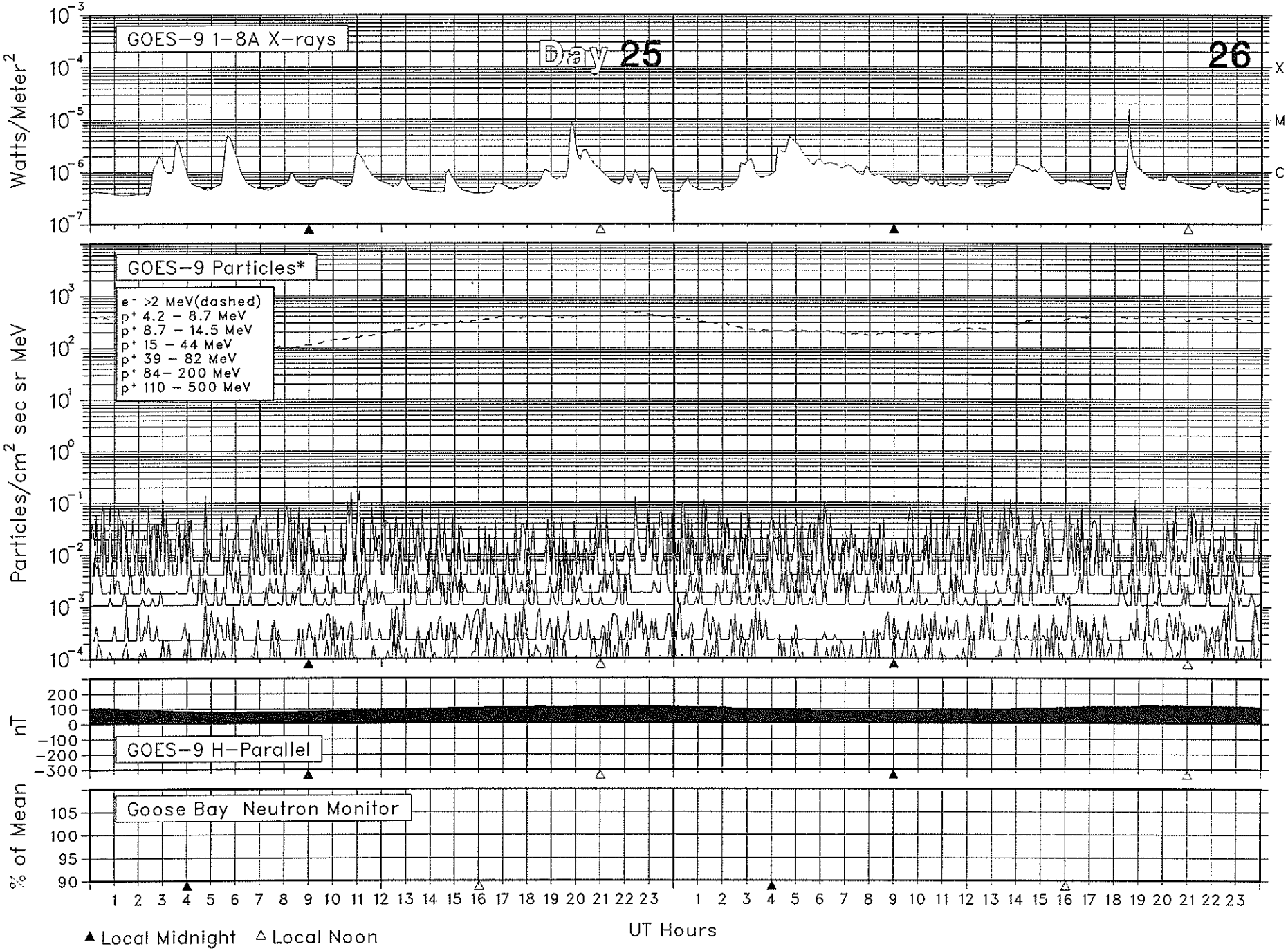
SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



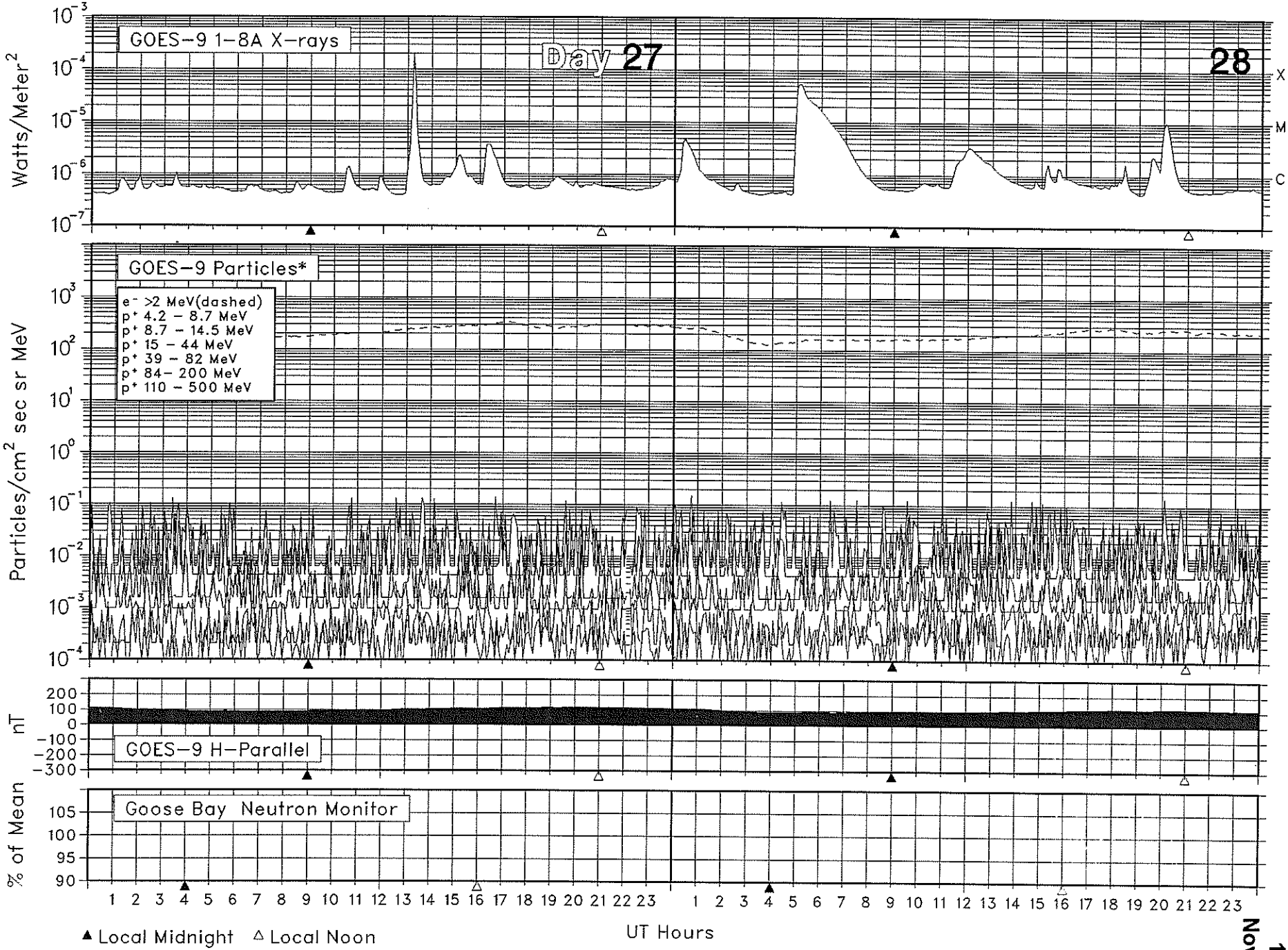
15 Nov 97

SOLAR-TERRESTRIAL ENVIRONMENT
November 1997

16 Nov 97

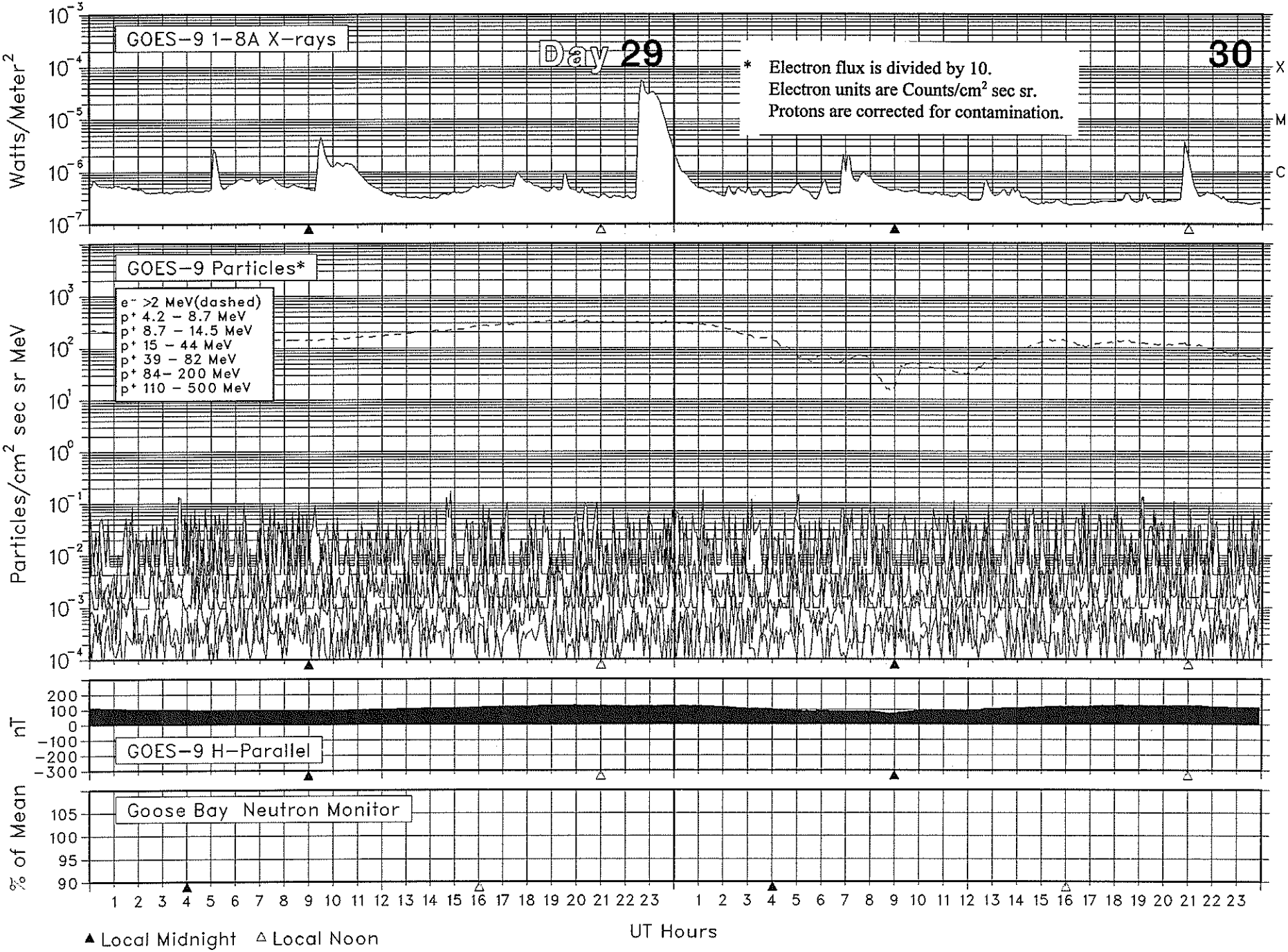


SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



17 Nov 97

SOLAR-TERRESTRIAL ENVIRONMENT
November 1997



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

NOVEMBER 1997

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Location		Flares			Date of Forecast	Region Forecast(1)	Geoadvice(1)
						Lat	Long	Optical	M	X			
305	01	31	55	91	2	N18	W17	0	0	0	01	Q	SOL: Eruptive
						S20	E15	1	0	0	01	Q	MAG: Quiet
						S19	W70	0	0	0	01	Q	PRO: Quiet
306	02	01	62	93	7	N18	W35	0	0	0	02	Q	SOL: Eruptive
						S19	E01	2	0	0	02	E	MAG: Quiet
						S18	W83	0	0	0	02	Q	PRO: Quiet
307	03	02	74	98	1	N18	W51	0	0	0	03	Q	SOL: Eruptive
						S19	W12	12	0	0	03	E	MAG: Quiet
						N30	E12	0	0	0	03	Q	PRO: Quiet
308	04	03	66	110	1	N18	W65	0	0	0	04	Q	SOL: Active
						S20	W27	17	2	0	04	E	MAG: Quiet
						N30	E02	0	0	0	04	Q	PRO: Quiet
309	05	04	68	118	9	S21	W39	21	2	1	05	E	SOL: Quiet
						N24	E09	8	0	0	05	E	MAG: Quiet
								0	0	0	05		PRO: Quiet
310	06	05	51	114	6	S20	W53	15	0	0	06	A	SOL: Active
						N23	W03	3	0	0	06	A	MAG: Minor
								0	0	0	06		PRO: Quiet
311	07	06	60	105	10	S19	W68	6	0	0	07	A	SOL: Active
						N22	W17	2	0	0	07	A	MAG: Major
								0	0	0	07		PRO: IP
312	08	07	60	94	30	S19	W77	1	0	0	08	Q	SOL: Active
						N22	W33	1	0	0	08	Q	MAG: Minor
						N30	E72	0	0	0	08	E	PRO: IP
313	09	08	61	90	5	S20	W90	0	0	0	09	E	SOL: Eruptive
						N23	W42	0	0	0	09	Q	MAG: Active
						N28	E55	0	0	0	09	Q	PRO: IP
						S35	E21	0	0	0	09	Q	
314	10	09	40	86	7	N20	W60	1	0	0	10	Q	SOL: Quiet
						N30	E41	0	0	0	10	Q	MAG: Quiet
						S29	E14	0	0	0	10	Q	PRO: Quiet
315	11	10	28	89	9	N19	W70	3	0	0	11	E	SOL: Quiet
						N29	E28	0	0	0	11	Q	MAG: Quiet
								0	0	0	11		PRO: Quiet
316	12	11	28	92	5	N20	W82	6	0	0	12	Q	SOL: Eruptive
						N28	W44	1	0	0	12	Q	MAG: Quiet
								0	0	0	12		PRO: Quiet
317	13	12	26	87	2	N20	W93	0	0	0	13	Q	SOL: Eruptive
						N28	W56	0	0	0	13	Q	MAG: Quiet
								0	0	0	13		PRO: Quiet
318	14	13	41	90	2	N28	W71	2	0	0	14	Q	SOL: Eruptive
						S25	W26	0	0	0	14	Q	MAG: Quiet
						N21	E78	0	0	0	14	Q	PRO: Quiet
319	15	14	48	93	7	N28	W84	1	0	0	15	Q	SOL: Eruptive
						S24	W40	0	0	0	15	Q	MAG: Warning
						N19	E67	7	0	0	15	E	PRO: Quiet
320	16	15	35	96	6	S24	W52	0	0	0	16	Q	SOL: Active
						N20	E58	2	1	0	16	E	MAG: Quiet
								0	0	0	16		PRO: Quiet
321	17	16	58	96	4	S26	W69	0	0	0	17	Q	SOL: Eruptive
						N21	E42	3	0	0	17	E	MAG: Quiet

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

NOVEMBER 1997

Julian Day	Date of Issue	Date of Obs	Wolf No.	10-cm Solar Flux	A-index	Location Lat	Location Long	Flares Optical	Flares M	Flares X	Date of Forecast	Region Forecast(1)	Geoadvice(1)
						S18	E66	0	0	0	17	Q	PRO: Quiet
322	18	17	74	94	7	S24	W82	0	0	0	18	Q	SOL: Eruptive
						N21	E29	8	0	0	18	E	MAG: Quiet
						S18	E51	1	0	0	18	Q	PRO: Quiet
323	19	18	71	92	9	N19	E16	2	0	0	19	E	SOL: Eruptive
						S19	E38	1	0	0	19	Q	MAG: Quiet
						N27	E54	0	0	0	19	Q	PRO: Quiet
324	20	19	62	99	2	N19	E03	1	0	0	20	E	SOL: Eruptive
						S19	E25	0	0	0	20	Q	MAG: Quiet
						N28	E39	0	0	0	20	Q	PRO: Quiet
325	21	20	57	89	1	N19	W11	3	0	0	21	E	SOL: Eruptive
						S19	E11	0	0	0	21	Q	MAG: Active
								0	0	0	21		PRO: Quiet
326	22	21	52	96	0	N19	W22	13	0	0	22	E	SOL: Eruptive
						S19	E00	0	0	0	22	Q	MAG: Active
								0	0	0	22		PRO: Quiet
327	23	22	62	100	34	N19	W38	1	0	0	23	E	SOL: Eruptive
						S19	W18	1	0	0	23	Q	MAG: Active
						N23	E74	0	0	0	23	Q	PRO: Quiet
328	24	23	70	100	47	N19	W52	5	0	0	24	E	SOL: Eruptive
						S18	W30	0	0	0	24	Q	MAG: Active
						N24	E61	0	0	0	24	Q	PRO: Quiet
						S17	E59	0	0	0	24	Q	
329	25	24	61	103	4	N20	W66	3	0	0	25	E	SOL: Eruptive
						S18	W47	0	0	0	25	Q	MAG: Quiet
						N24	E48	0	0	0	25	Q	PRO: Quiet
						S20	E46	0	0	0	25	Q	
330	26	25	58	102	1	N19	W79	1	0	0	26	Q	SOL: Eruptive
						S21	W60	0	0	0	26	Q	MAG: Quiet
						N23	E35	0	0	0	26	Q	PRO: Quiet
						S16	E33	0	0	0	26	Q	
						N19	E87	0	0	0	26	Q	
331	27	26	43	108	2	N18	W92	0	0	0	27	Q	SOL: Eruptive
						N22	E20	0	0	0	27	Q	MAG: Quiet
						N20	E77	7	1	0	27	E	PRO: Quiet
332	28	27	44	111	0	S22	W82	0	0	0	28	Q	SOL: Active
						N22	E06	0	0	0	28	Q	MAG: Quiet
						N20	E60	5	0	1	28	E	PRO: Quiet
333	29	28	40	116	0	N21	W06	0	0	0	29	Q	SOL: Active
						N20	E48	9	1	0	29	E	MAG: Quiet
								0	0	0	29		PRO: Quiet
334	30	29	48	112	0	N22	W19	0	0	0	30	Q	SOL: Active
						N20	E36	6	1	0	30	E	MAG: Quiet
								0	0	0	30		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

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

NOVEMBER 1997

Magnetic (MAG) Geoadvice

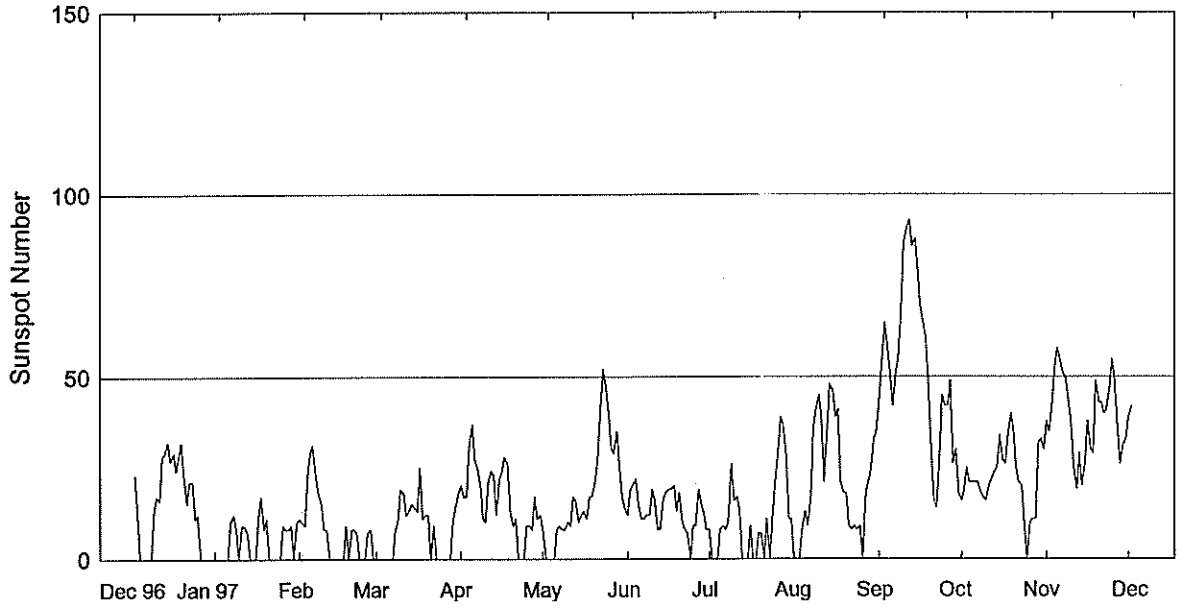
'Quiet'		
'Active'	conditions expected	(A>=20 or K=4)
'Minor'	storm expected	(A>=30 or K=5)
'Major'	storm expected	(A>=50 or K>=6)
'Severe'	storm expected	(A>=100 or K>=7)
'IP'	magstorm in progress	(A>=30 or K>=4)
'Warning'	(activity levels are expected to increase, but no numerical forecast given)	
'/'	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
Dec 1996 - Nov 1997

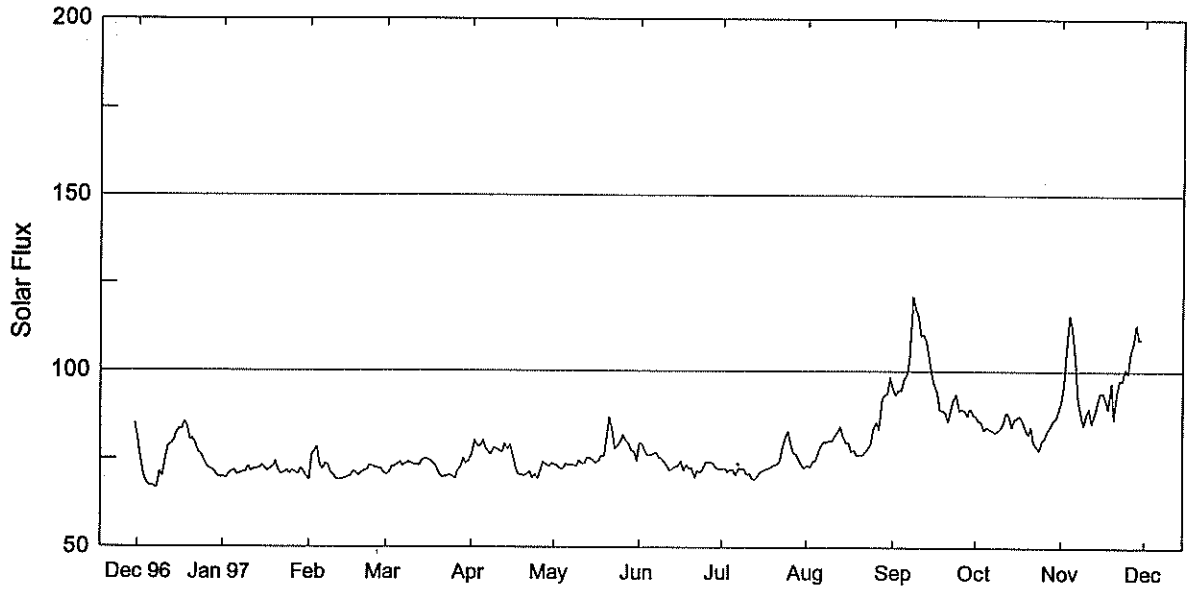


Day	Dec 96	Jan 97	Feb	Mar	Apr	May	Jun	Jul*	Aug*	Sep*	Oct*	Nov*
1	23	0	9	0	17	0	20	0	0	65	25	43
2	12	0	23	0	31	0	22	0	8	59	21	53
3	0	0	30	0	37	0	15	8	13	52	21	58
4	0	11	31	0	27	8	11	9	9	42	21	55
5	0	10	23	0	25	9	11	8	17	50	21	51
6	0	12	18	8	20	8	12	10	36	56	18	50
7	0	8	15	10	11	8	12	26	41	68	17	43
8	13	0	8	19	10	10	19	16	45	87	16	37
9	17	9	8	18	21	9	16	17	38	91	20	25
10	16	9	0	12	24	17	8	13	21	93	22	19
11	28	7	0	13	23	16	8	0	36	86	24	29
12	29	0	0	15	12	10	16	0	48	88	25	20
13	32	0	0	14	22	12	18	0	46	80	34	26
14	27	0	0	13	24	13	19	9	39	70	27	38
15	29	11	0	25	28	11	19	0	41	65	26	30
16	24	17	9	11	26	17	20	0	21	61	34	29
17	28	8	0	12	13	17	13	7	18	49	40	49
18	32	11	8	12	9	21	18	7	18	33	35	43
19	23	0	8	0	11	27	10	0	9	16	25	43
20	15	0	7	9	0	39	8	11	8	14	21	40
21	21	0	0	0	0	52	7	0	9	28	20	41
22	21	0	0	0	8	48	0	11	8	45	9	47
23	11	0	0	0	9	40	9	20	9	42	0	55
24	12	9	7	0	9	30	9	29	0	42	10	49
25	0	8	8	0	8	29	19	39	18	49	11	35
26	0	8	0	0	17	35	15	37	21	26	11	26
27	0	9	0	10	11	25	12	28	24	30	32	31
28	0	0	0	14	12	17	8	11	33	18	33	33
29	0	10		18	8	14	8	11	35	16	30	39
30	0	11		20	0	12	0	0	43	19	38	42
31	0	10		17		19		0	53		35	
Mean	13.3	5.7	7.6	8.7	15.5	18.5	12.7	10.5	24.7	51.3	23.3	39.3

* = Provisional.

Penticton 2800 MHz (10.7cm) Solar Flux
Dec 96 - Nov 97

Adjusted to 1 AU



Day	Dec	Jan 97	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	80.8	70.0	69.2	70.5*	76.2	73.4	79.6	72.4	73.2	95.1	87.3	91.6
2	75.7	69.7	76.2	71.1	80.4	73.3	79.1	72.4	72.9	93.3	86.0	96.2
3	70.7	70.8	77.4	72.8	78.8	72.3	77.4	71.4	74.3	94.7	85.8	108.0
4	68.6	71.4	78.4	72.8	78.6	72.1	76.1	72.0	74.9	94.6	83.4	115.9
5	67.6	71.9	73.3	73.4	80.3	73.6	76.1	72.0	76.9	97.6	84.3	111.9
6	67.6	70.6	72.2	74.2	78.3	73.4	76.4	70.6	79.0	99.1	83.6	103.5
7	67.1	70.9	73.7	73.1	77.0	73.3	76.9	72.6	80.1	103.6	83.4	92.7
8	66.6	71.3	73.2	73.6	76.3	73.3	75.4	72.1	79.9	121.1	82.7	87.9
9	71.5	71.3	71.2	74.1	78.3	73.0	75.3	72.3	80.3	117.7	83.3	84.8
10	70.2	72.9	70.4	73.8	78.0	74.6*	74.2	70.8	80.4	116.4	84.0	87.6
11	75.2	71.6	69.3	73.4	77.4	73.8	73.0	70.9	81.6	110.0	85.8	89.6
12	78.6	72.1	69.1	73.4	76.9	73.7	71.8	69.6	83.0	110.3	88.3	85.4
13	79.2	72.1	69.3	73.3	79.3	75.4	72.3	69.3	84.2	108.9	87.8	88.2
14	80.0	72.4	69.6	74.7	77.9	75.1	72.9	70.3	81.6	103.7	84.3	91.0
15	82.3	73.3	70.1	75.0	79.2	74.7	73.0	71.5	79.6	99.1	86.4	94.1
16	83.5	72.4	70.3	75.0	75.6	73.9	74.4	71.9	79.8	96.4	86.9	94.1
17	83.6	71.7	71.4	74.4	72.3	74.4	71.8	72.2	77.4	94.0	87.5	92.0
18	85.6	72.2	71.2	73.7	70.7	75.8	73.5	72.3	77.7	89.0	85.9	89.4
19	84.6	72.9	70.4	73.1	70.6	76.0	72.4	72.8	76.1	89.1	84.0	96.8
20	80.3	74.3	71.0	71.0	70.4	81.1	72.5	73.5	76.3	88.4	82.1	86.5
21	80.9	71.8	71.6	70.0	70.9	86.9	69.8	73.6	76.3	85.8	84.2	93.6
22	78.9	70.7	71.9	70.1	71.5	83.0	71.8	74.5	77.2	89.6	79.9	97.7
23	76.9	71.1	73.0	70.3	69.7	78.1	71.3	78.1	78.2	92.3	78.8	97.3
24	76.4	71.9	73.1	70.6	70.7	78.9	72.2	81.2	79.4	93.5	77.7	100.6
25	74.7	70.9	72.6	70.2	69.6	80.1	74.1	83.0	83.7	88.9	80.5	99.4
26	73.0	71.9	72.4	69.5	71.8	82.0#	74.2	79.0	85.5	89.5	81.0	105.2
27	72.2	71.3	72.4	71.9	74.1	80.4	74.1	76.8	83.5	88.8	83.3	108.2
28	71.8	70.8	71.5	72.9	73.4	79.5	73.6	76.5	92.3	87.5	84.4	113.2
29	71.4	72.4		75.1	72.9	77.6	72.6	75.0	93.3	90.0	86.0	109.0
30	70.1	71.5		73.8	73.7	77.2	72.1	73.2	93.8	87.9	86.9	109.3
31	69.8	70.3		74.6		74.5		72.5	98.2		89.2	
Mean	75.3	71.6	72.0	72.8	75.0	76.3	74.0	73.4	81.0	97.2	84.3	97.4

NOTE: *=Average of 1700 and 2300UT readings. #=1900UT reading.

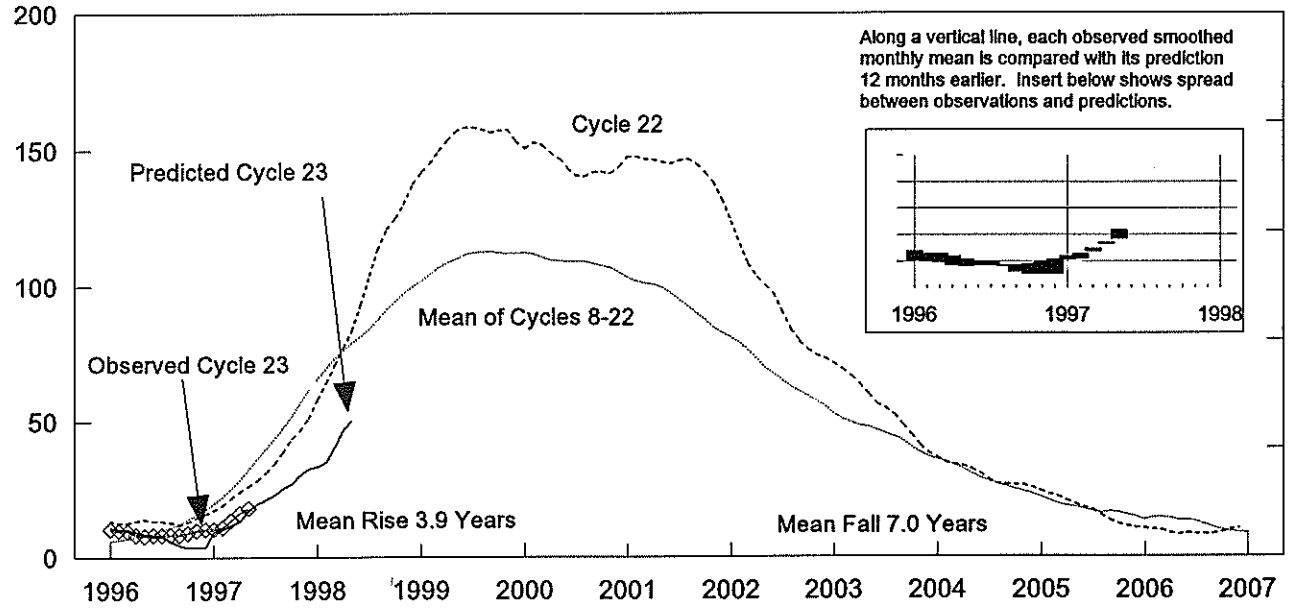
DAILY SOLAR INDICES

November 1997

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers Int	Amer	Obs Flux Penticton (2800)	Solar Flux Adjusted to 1 Astronomical Unit — LEAR (15400)	LEAR (8800)	LEAR (4995)	Pentic (2800)	LEAR (2695)	LEAR (1415)	LEAR (610)	LEAR (410)	LEAR (245)
1	305	26	43	44	93.0	520	218	135	91.6	86	65	39	33	13
2	306	27	53	68	97.8	508	221	135	96.2	88	65	39	32	12
3	307	1	58	54	109.8	518	235	151	108.0	95	68	40	33	25
4	308	2	55	68	117.9	550	254	163	115.9	104	73	50	51	34
5	309	3	51	60	113.8	538	263	186	111.9	121	82	48	58	--
6	310	4	50	53	105.3	520	246	167	103.5	111	77	46	42	25
7	311	5	43	43	94.4	514	225	150	92.7	96	71	43	37	19
8	312	6	37	36	89.6	519	220	135	87.9	87	67	41	37	39
9	313	7	25	26	86.4	511	218	129	84.8	82	64	40	33	17
10	314	8	19	25	89.4	506	216	127	87.6	81	62	40	32	14
11	315	9	29	32	91.5	515	224	137	89.6	85	64	40	33	13
12	316	10	20	18	87.2	513	219	133	85.4	84	63	40	36	14
13	317	11	26	26	90.1	556	218	131	88.2	81	62	39	33	14
14	318	12	38	40	93.0	558	218	132	91.0	85	62	38	33	14
15	319	13	30	35	96.2	562	220	137	94.1	89	65	39	33	13
16	320	14	29	37	96.2	564	222	138	94.1	94	69	38	32	16
17	321	15	49	42	94.2	574	223	137	92.0	92	67	38	35	22
18	322	16	43	46	91.5	571	222	134	89.4	91	66	38	35	33
19	323	17	43	45	99.1	572	215	129	96.8	87	65	37	34	28
20	324	18	40	42	88.7	569	221	130	86.5	86	66	50	33	16
21	325	19	41	43	95.9	572	218	131	93.6	89	66	39	34	71
22	326	20	47	44	100.2	566	223	141	97.7	94	69	39	31	18
23	327	21	55	64	99.8	575	223	140	97.3	90	69	39	33	15
24	328	22	49	56	103.3	579	222	139	100.6	95	72	40	32	14
25	329	23	35	30	102.1	568	221	140	99.4	95	75	41	33	13
26	330	24	26	30	108.1	575	240	147	105.2	101	77	42	33	13
27	331	25	31	35	111.1	546	232	152	108.2	102	80	44	35	14
28	332	26	33	45	116.3	579	233	152	113.2	103	81	44	35	13
29	333	27	39	53	112.1	585	226	155	109.0	108	83	42	34	14
30	334	1	42	43	112.4	575	234	154	109.3	106	83	43	34	13
MEAN			39.3	44.7	99.5	549	226	142	97.4	93	69	41	35	19

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

Cycle 23 Smoothed Sunspot Numbers: Observed and Predicted



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

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1992	124	115	108	103	100	97	91	84	80	76	74	73	93.8
1993	71	69	67	64	60	56	55	52	48	45	41	38	55.5
1994	37	35	34	34	33	31	29	27	27	27	26	26	30.5
1995	24	23	22	21	19	18	17	16	13	12	11	11	17.3
1996	11	10	10	9	8	9	8	8	8	9	10	10	9.2
1997	11	11	14	17	18	21	23	27	30	34	37	41	24
( )						(2)	(4)	(6)	(8)	(11)	(13)	(16)	(5)
1998	45	49	54	59	63	67	70	73	77	80	83	87	67
( )	(18)	(20)	(23)	(26)	(29)	(32)	(35)	(37)	(38)	(37)	(37)	(38)	(31)

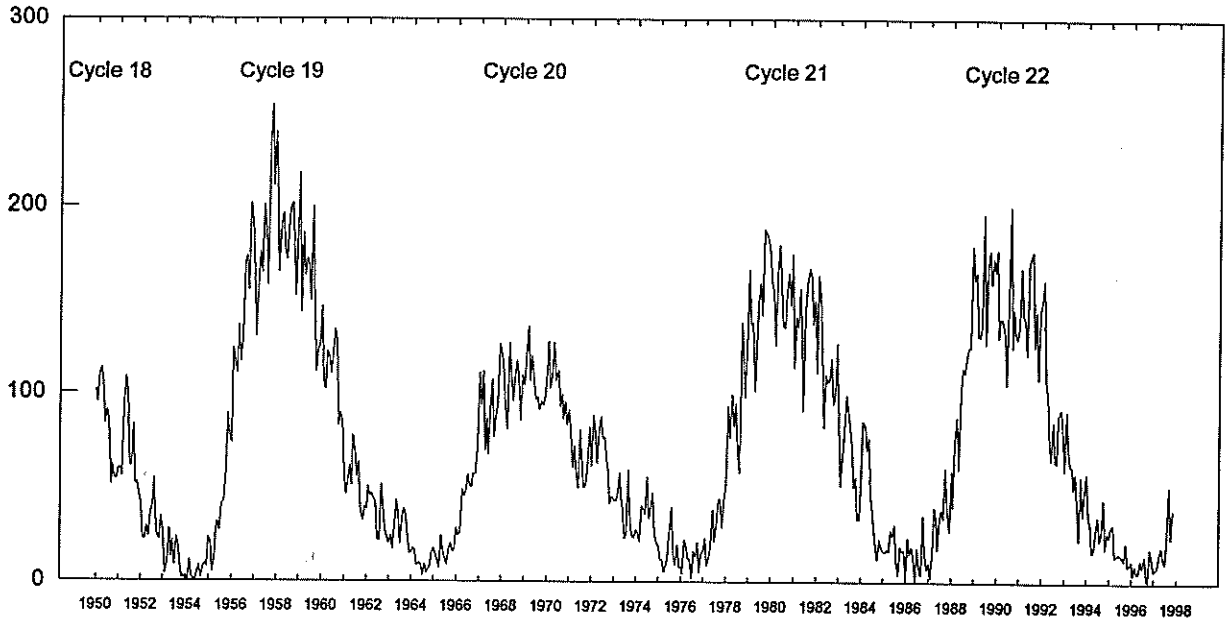
Solar Cycle 22 | Solar Cycle 23 | Min, Max, and Predictions

July 1989 marks the maximum of Solar Cycle 22. May 1996 marks the minimum of Solar Cycle 22 and the onset of Cycle 23.

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 Dec 1996 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 May 1998 prediction. There exists a 90% chance that in May 1998, the actual smoothed number will fall somewhere between 34 and 92

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 minimum value of 8.0 that occurred in May 1996. For next solar maximum discussions, visit http://www.sec.noaa.gov.

Mean Monthly Sunspot Numbers
Jan 1950 - Nov 1997



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1	83.9	
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4	
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5	
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9	
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4	m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0	
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7	
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2	M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8	
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0	
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	122.3	
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9	
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6	
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9	
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2	m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1	
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0	
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8	
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9	M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5	
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5	
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6	
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9	
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0	
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5	
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5	
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6	m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5	
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5	
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4	M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6	
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4	
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9	
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6	
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9	
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9	
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4	m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.4	
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	100.2	
1989	161.3	165.1	131.4	130.6	138.5	196.2	126.9	168.9	176.7	159.4	173.0	165.5	157.6	M
1990	177.3	130.5	140.3	140.3	132.2	105.4	149.4	200.3	125.2	145.5	131.4	129.7	142.6	
1991	136.9	167.5	141.9	140.0	121.3	169.7	173.7	176.3	125.3	144.1	108.2	144.4	145.7	
1992	150.0	161.1	106.7	99.8	73.8	65.2	85.7	64.5	63.9	88.7	91.8	82.6	94.3	
1993	59.3	91.0	69.8	62.2	61.3	49.8	57.9	42.2	22.4	56.4	35.6	48.9	54.6	
1994	57.8	35.5	31.7	16.1	17.8	28.0	35.1	22.5	25.7	44.0	18.0	26.2	29.9	
1995	24.2	29.9	31.1	14.0	14.5	15.6	14.5	14.3	11.8	21.2	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	10.5	24.7	51.3	23.3	39.3		19.8	

Values are preliminary after Jun 97. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

Hα SOLAR FLARES

NOVEMBER 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	01	0108	0115	0119	S19	E10	8100			11	SF	B 8.7						3.7E-04
LEAR		0111	0115	0124	S19	E10	8100	11	1.8	13	SF		3	E		24		
GOES		0454	0501	0511	S19	E08	8100			17	SF	B 4.4						3.5E-04
LEAR		0457	0503	0513	S19	E08	8100	11	1.8	16	SF		3	E		14		
GOES		1232	1235	1237						5		B 1.2						3.0E-05
GOES		1248	1252	1254						6		B 2.6						6.3E-05
GOES		1602	1606	1609						7		B 2.2						7.3E-05
GOES		1825	1829	1832						7		B 2.5						8.5E-05
GOES		2229	2233	2237						8		B 2.6						1.1E-04
GOES	02	0226	0230	0234						8		B 1.7						7.5E-05
GOES		0238	0241	0243						5		B 2.3						5.5E-05
GOES		0258	0304	0307	S20	E01	8100			9	SB	C 2.3						4.7E-04
LEAR		0302	0304	0311	S20	E01	8100	11	2.2	9	SB		3	E		58		
GOES		0443	0446	0448						5		B 1.7						4.4E-05
GOES		0725	0728	0731						6		B 1.7						5.1E-05
LEAR		0922	0923	0927	S15	W10	8100	11	1.6	5	SF		3	E		30		
GOES		1128	1132	1149	S17	W06	8100			21	SF	B 2.7						3.0E-04
RAMY		1131	1132	1135	S17	W06	8100	11	2.0	4	SF		3	E		15		
GOES		1657	1700	1702						5		B 1.8						4.7E-05
GOES		1716	1724	1748	S20	W07	8100			32	SF	B 2.7						4.5E-04
HOLL		1743	1743	1746	S20	W07	8100	11	2.2	3	SF		3	E		14		H
GOES		1821	1828	1842	S20	W08	8100			21	SF	B 8.0						7.8E-04
HOLL		1825	1834	1839	S20	W08	8100	11	2.1	14	SF		3	E		24		
RAMY		1831	1834	1837	S16	W17	8100	11	1.5	6	SF		4	E		10		H
HOLL		1902	1907	1913	S20	W09	8100	11	2.1	11	SF		3	E		16		F
HOLL		2022	2022	2026	S22	W10	8100	11	2.1	4	SF		3	E		13		
GOES		2041	2049	2058	S18	W11	8100			17	SF	C 2.2						1.5E-03
HOLL		2046	2048	2101	S18	W11	8100	11	2.0	15	SF		3	E		34		
HOLL		2102	2106	2115	S15	W16	8100	11	1.7	13	SF		3	E		37		
HOLL		2117	2120	2130	S20	W09	8100	11	2.2	13	SF		3	E		28		
GOES		2248	2253	2308	S20	W10	8100			20	SF	B 6.2						6.3E-04
HOLL		2253	2254	2311	S20	W10	8100	11	2.2	18	SF		3	E		12		
GOES		2322	2335	2338	S19	W13	8100			16	SF	B 5.5						4.7E-04
HOLL		2326	2334	2342	S19	W13	8100	11	2.0	16	SF		3	E		18		
GOES	03	0011	0016	0018						7		B 4.6						1.4E-04
GOES		0035	0040	0044	S20	W11	8100			9	SF	B 6.2						2.4E-04
LEAR		0038	0039	0056	S20	W11	8100	11	2.2	18	SF		3	E		37		
LEAR		0117	0121	0124	S20	W11	8100	11	2.2	7	SF		3	E		14		
GOES		0145	0150	0202	S20	W11	8100			17	SF	C 1.0						7.3E-04
LEAR		0148	0152	0213	S20	W11	8100	11	2.2	25	SF		3	E		56		
GOES		0432	0438	0449	S20	W13	8100			17	SB	C 8.6						6.1E-03
LEAR		0434	0437	0502	S20	W13	8100	11	2.2	28	SB		3	E		82		
GOES		0600	0612	0625						25		C 2.0						2.3E-03
GOES		0650	0655	0703						13		B 7.8						5.0E-04
GOES		0813	0820	0831	S20	W15	8100			18	SF	C 4.6						3.4E-03
LEAR		0816	0817	0828	S20	W15	8100	11	2.2	12	SF		3	E		21		
SVTO		0832E	0832U	0841D	S18	W19	8100	11	1.9	9D	SF		1	E		60		F
GOES		0903	0910	0913	S20	W15	8100			10	1B	M 1.4						4.1E-03
LEAR		0906	0909	0923	S20	W15	8100	11	2.2	17	1B		3	E		175		
GOES		1018	1029	1034						16		M 4.2						1.8E-02
SVTO		1211E	1223U	1230D	S19	W20	8100	11	2.0	19D	SF		1	E		70		F
GOES		1219	1224	1238	S18	W20	8100			19	SF	C 1.6						1.3E-03
RAMY		1222	1223	1233D	S18	W20	8100	11	2.0	11D	SF		3	E		36		FH
GOES		1244	1251	1258						14		C 2.4						1.6E-03
GOES		1322	1326	1330						8		B 8.6						3.6E-04
GOES		1344	1350	1359	S18	W22	8100			15	SF	C 1.9						1.3E-03
RAMY		1349	1351	1355	S18	W22	8100	11	1.9	6	SF		3	E		18		FH
GOES		1435	1438	1445						10		B 6.9						3.7E-04
GOES		1452	1458	1504						12		C 1.3						7.4E-04
GOES		1700	1720	1724	S17	W28	8100			24	SF	C 1.9						1.9E-03
RAMY		1702	1706	1717D	S17	W26	8100	11	1.7	15D	SF		3	E		42		F
HOLL		1704	1706	1713	S17	W28	8100	11	1.6	9	SF		3	E		21		
GOES		1808	1812	1833	S19	W20	8100			25	SF	C 4.3						5.7E-03
HOLL		1809	1810	1850	S19	W20	8100	11	2.2	41	SF		3	E		40		
RAMY		1842E	1842U	1858D	S19	W21	8100	11	2.2	16D	SF		3	E		34		F
HOLL		1901	1907	1922	S20	W21	8100	11	2.2	21	SF		3	E		72		

Hα SOLAR FLARES

NOVEMBER 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	03	1903	1907	1910	S20	W21	8100			7		C 3.9						1.3E-03
HOLL		1955	2008	2109	S19	W20	8100	11	2.3	74	SF		3	E		84		
GOES		1955	2016	2036	S19	W20	8100			41	SF	M 1.0						1.4E-02
HOLL		2114	2116	2121	S20	W22	8100	11	2.2	7	SF		3	E		18		
GOES		2120	2125	2142	S19	W22	8100			22		C 3.9						4.5E-03
HOLL		2122	2147	2203	S19	W22	8100	11	2.2	41	SF		3	E		63		
GOES		2216	2224	2232	S19	W23	8100			16	SN	C 8.6						5.7E-03
HOLL		2220	2249	2337	S19	W23	8100	11	2.2	77	SN		3	E		70		
LEAR		2231	2301	2330	S20	W23	8100	11	2.2	59	1N		3	E		103		
GOES		2258	2302	2307	S20	W23				9		C 8.0						3.2E-03
GOES		2333	2340	2344	S20	W23	8100			11	SF	C 3.2						1.8E-03
LEAR		2336	2342	2352	S20	W23	8100	11	2.2	16	SF		3	E		43		
LEAR		2356	2358	2401	S20	W23	8100	11	2.2	5	SF		3	E		28		
LEAR	04	0040	0043	0050	S20	W24	8100	11	2.2	10	SF		3	E		46		
LEAR		0056	0118	0121	S20	W24	8100	11	2.2	25	SF		3	E		16		
GOES		0113	0116	0120	S20	W24	8100			7		C 3.7						1.3E-03
GOES		0127	0135	0140	S20	W24	8100			13	1N	M 1.3						7.3E-03
LEAR		0128	0132	0201	S20	W24	8100	11	2.2	33	1N		3	E		124		
GOES		0216	0221	0225						9		C 5.4						2.1E-03
GOES		0232	0242	0303	S20	W25	8100			31	1F	M 4.1						5.3E-02
LEAR		0303	0328	0500	S20	W25	8100	11	2.2	117	1F		3	E		218		
GOES		0355	0402	0406						11		C 5.5						3.0E-03
GOES		0412	0416	0419						7		C 8.0						2.7E-03
LEAR		0509	0509	0516	N20	E23		11	6.0	7	SF		3	E		13		
LEAR		0510	0512	0551	S13	W33	8100	11	1.7	41	SF		3	E		30		
GOES		0522	0528	0541						19		C 4.2						4.1E-03
LEAR		0547	0548	0600	N19	E21		11	5.8	13	SF		3	E		20		
GOES		0552	0558	0602	S14	W33	8100			10	2B	X 2.1						5.6E-02
LEAR		0554	0559	0713	S14	W33	8100	11	1.7	79	2B		3	E		312		
GOES		0627	0630	0632						5		C 8.8						2.0E-03
GOES		0637	0640	0644						7		C 7.3						2.8E-03
LEAR		0649	0652	0658	N19	E21		11	5.9	9	SF		3	E		15		
GOES		0714	0717	0720	S20	W27	8100			6	SF	C 3.0						9.8E-04
LEAR		0715	0716	0728	S20	W27	8100	11	2.2	13	SF		3	E		27		
GOES		0803	0821	0824	S20	W28	8100			21	SF	C 3.4						3.0E-03
LEAR		0806	0808	0827	S20	W28	8100	11	2.2	21	SF		3	E		29		
GOES		0948	0951	0954						6		C 2.6						8.2E-04
GOES		1021	1025	1028						7		C 1.8						6.7E-04
RAMY		1117	1127	1137	S19	W31	8100	11	2.1	20	SF		3	E		12		F
RAMY		1124	1131	1151	N22	E14		11	5.5	27	SF		3	E		24		F
RAMY		1247	1249	1256	S20	W29	8100	11	2.3	9	SF		3	E		21		F
RAMY		1257	1303	1308	S19	W29	8100	11	2.3	11	SF		4	E		47		F
RAMY		1449	1449	1453	S19	W31	8100	11	2.2	4	SF		4	E		48		F
HOLL		1455	1457	1500	N21	E16		11	5.8	5	SF		3	E		16		
HOLL		1523	1527	1534	N21	E17		11	5.9	11	SF		3	E		20		
HOLL		1536	1540	1542	N21	E17		11	5.9	6	SF		3	E		10		
HOLL		1604	1612	1625	N21	E16		11	5.9	21	SF		3	E		10		
GOES		1723	1738	1757	S19	W32	8100			34	SF	C 2.5						3.9E-03
RAMY		1730	1736	1739	S19	W32	8100	11	2.3	9	SF		4	E		31		F
HOLL		1731	1736	1747	S18	W31	8100	11	2.4	16	SF		3	E		75		
RAMY		1759	1800	1804	S19	W35	8100	11	2.1	5	SF		4	E		18		
HOLL		1759	1801	1804	S18	W37	8100	11	1.9	5	SF		3	E		16		
HOLL		1806	1807	1810	S18	W37	8100	11	1.9	4	SF		3	E		38		
RAMY		1814	1814	1829D	S20	W36	8100	11	2.0	15D	SF		3	E		12		F
HOLL		1814	1815	1820	S18	W37	8100	11	1.9	6	SF		3	E		28		
HOLL		1837	1839	1855	S18	W37	8100	11	1.9	18	SF		3	E		20		
HOLL		1847	1848	1854	N21	E15	8103	11	5.9	7	SF		3	E		10		
HOLL		1855	1903	1906	N21	E14	8103	11	5.9	11	SF		3	E		17		
HOLL		1928	1928	1935	S19	W36	8100	11	2.1	7	SF		3	E		13		
RAMY		2026	2037	2047	S19	W36	8100	11	2.1	21	SF		3	E		24		
HOLL		2101	2101	2105	S18	W38	8100	11	2.0	4	SF		3	E		32		
GOES		2106	2117	2126	S18	W38	8100			20	SF	C 5.9						4.8E-03
HOLL		2326	2330	2339	S18	W39	8100	11	2.0	13	SF		3	E		16		
LEAR	05	0157	0201	0207	S20	W38	8100	11	2.2	10	SF		3	E		39		
LEAR		0208	0208	0212	S13	W47	8100	11	1.5	4	SF		3	E		34		
LEAR		0218	0229	0234	S12	W48	8100	11	1.5	16	SF		3	E		17		

Hα SOLAR FLARES

NOVEMBER 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	05	0234	0238	0240	S13	W47	8100	11	1.6	6	SF		3	E		17		
LEAR		0247	0251	0258	N21	E08	8103	11	5.7	11	SF		3	E		23		
LEAR		0337	0338	0344	S11	W47	8100	11	1.6	7	SF		3	E		14		
LEAR		0346	0348	0357	S11	W48	8100	11	1.5	11	SF		3	E		81		
LEAR		0405	0407	0414	S16	W38	8100	11	2.3	9	SF		3	E		34		F
LEAR		0418	0419	0428	S20	W40	8100	11	2.1	10	SF		3	E		38		
GOES		0617	0641	0656	S13	W49	8100			39	1N	C 7.0						1.2E-02
LEAR		0622	0637	0713	S13	W49	8100	11	1.6	51	1N		3	E		136		F
LEAR		0803	0803	0815	S20	W42	8100	11	2.1	12	SF		3	E		17		F
GOES		0917	0921	0923						6		C 3.0						8.8E-04
GOES		1000	1006	1012						12		C 8.1						4.5E-03
GOES		1130	1140	1155						25		C 6.8						7.7E-03
HOLL		1523	1530	1556D	S20	W45	8100	11	2.2	33D	SF		3	E		26		
GOES		1628	1632	1652	S19	W46	8100			24	SF	C 1.4						1.7E-03
RAMY		1631	1631	1637	S19	W46	8100	11	2.2	6	SF		3	E		18		F
GOES		1739	1744	1750						11		C 1.2						7.4E-04
GOES		1838	1849	1901	N22	W02	8103			23	SF	C 2.3						2.6E-03
HOLL		1841	1842	1916	N22	W02	8103	11	5.6	35	SF		3	E		34		FH
RAMY		1856E	1856U	1916D	N23	W02	8103	11	5.6	20D	SF		3	E		25		
HOLL		1923	1925	1932	S19	W50	8100	11	2.0	9	SF		3	E		13		FH
HOLL		1937	1942	1944	S19	W49	8100	11	2.1	7	SF		3	E		11		
HOLL		2012	2016	2028	S19	W51	8100	11	1.9	16	SF		3	E		13		
LEAR		2323	2412	2417	N22	W03	8103	11	5.7	54	SF		3	E		48		
HOLL		2325	2335	2344D	S19	W54	8100	11	1.8	19D	1F		3	E		192		
LEAR	06	0052	0059	0118	S20	W51	8100	11	2.1	26	SF		3	E		61		
LEAR		0119	0122	0136	N22	W05	8103	11	5.7	17	SF		3	E		20		
LEAR		0219	0221	0223	S20	W52	8100	11	2.1	4	SF		3	E		28		
GOES		0246	0249	0252						6		C 1.1						3.6E-04
GOES		0312	0318	0341	S15	W56	8100			29	1F	C 1.9						2.8E-03
LEAR		0314	0317	0331	S15	W56	8100	11	1.9	17	1F		3	E		107		FH
LEAR		0522	0531	0546	N22	W05	8103	11	5.8	24	SF		3	E		51		
LEAR		0929	0931	0946	S15	W59	8100	11	1.9	17	SF		3	E		13		
RAMY		1122E	1156	1244	S18	W63	8100	11	1.7	82D	2B		3	E		353		FH
GOES		1131	1136	1144			8100			13		C 4.7						3.0E-03
GOES		1149	1155	1201	S18	W63	8100			12	2B	X 9.4						3.6E-01
HOLL		1415	1417	1419	S19	W60	8100	11	2.0	4	SF		3	E		44		
GOES		2043	2051	2102						19		B 7.7						7.7E-04
GOES	07	0009	0022	0027	S15	W67	8100			18	SF	B 8.7						7.9E-04
LEAR		0013	0013	0023	S15	W67	8100	11	1.9	10	SF		3	E		22		
GOES		0918	0926	0937	N22	W21	8103			19	SF	C 1.0						1.0E-03
LEAR		0919	0925	0939	N22	W21	8103	11	5.8	20	SF		3	E		36		
RAMY		1125E	1125U	1145	N29	E79		11	13.7	20D	SF		2	E		24		
RAMY		1329	1330	1337	N29	E80		11	13.8	8	SF		4	E		33		
GOES		1828	1833	1839						11		B 6.1						3.5E-04
GOES		2103	2109	2115						12		C 1.1						5.8E-04
GOES	08	0748	0819	0833						45		C 1.7						2.5E-03
GOES		1948	2105	2126						98		B 7.0						2.6E-03
GOES		2311	2319	2327						16		B 7.8						5.8E-04
GOES	09	0748	0752	0800						12		B 1.5						1.0E-04
GOES		1611	1624	1637	N21	W53	8103			26	SF	B 4.3						5.5E-04
RAMY		1622	1623	1643	N21	W53	8103	11	5.6	21	SF		4	E		17		E
GOES	10	0349	0355	0411						22		B 6.7						6.9E-04
GOES		0518	0535	0550	N22	W59	8103			32	SF	C 1.6						2.2E-03
LEAR		0525	0531	0544	N22	W59	8103	11	5.7	19	SF		3	E		27		
LEAR		0546	0554	0559	N22	W59	8103	11	5.7	13	SF		3	E		22		
LEAR		0601	0604	0608	N22	W59	8103	11	5.7	7	SF		3	E		20		
GOES		0700	0722	0752	N22	W60	8103			52	SF	C 4.0						8.6E-03
LEAR		0703	0709	0717	N22	W60	8103	11	5.7	14	SF		3	E		35		
SVTO		0706E	0715U	0735D	N17	W59	8103	11	5.8	29D	SF		2	E		29		F
GOES		1139	1146	1151						12		C 1.4						7.6E-04
GOES		1251	1307	1315						24		C 1.5						1.6E-03
GOES		1349	1354	1359						10		B 9.3						4.3E-04
GOES		1622	1630	1636						14		B 4.0						2.9E-04

Hα SOLAR FLARES

NOVEMBER 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	10	1644	1649	1655						11		B 8.9						4.2E-04
GOES		1756	1759	1801						5		B 5.9						1.6E-04
GOES	11	0244	0431	0438						114		C 1.2						5.1E-03
LEAR		0526	0527	0530	N26	W71	8103	11	5.7	4	SF		3	E		14		
GOES		0707	0727	0749	N26	W71	8103			42	SF	C 4.7						8.3E-03
LEAR		0716	0717	0723	N26	W71	8103	11	5.8	7	SF		3	E		18		
SVTO		0716	0722U	0737D	N21	W70	8103	11	5.9	21D	SF		3	E		32		
LEAR		0955	0955	1000	N31	W35	8106	11	8.6	5	SF		3	E		23		
SVTO		0956	0956	1003	N27	W36	8106	11	8.6	7	SF		3	E		26		
GOES		1018	1022	1027	N18	W76	8103			9	SF	C 1.8						6.6E-04
SVTO		1022	1022	1024	N18	W76	8103	11	5.6	2	SF		3	E		32		
RAMY		1139	1141	1146	N22	W74	8103	11	5.8	7	SF		3	E		15		E
GOES		1157	1202	1206						9		C 1.3						5.5E-04
RAMY		1209	1213	1221	N22	W75	8103	11	5.7	12	SF		3	E		18		E
RAMY		1253	1258	1300	N21	W76	8103	11	5.7	7	SF		3	E		13		E
GOES		1306	1318	1321	N22	W77	8103			15	SF	B 9.1						6.5E-04
RAMY		1310	1319	1347	N22	W77	8103	11	5.6	37	SF		3	E		24		EH
GOES		1526	1529	1531						5		B 5.7						1.5E-04
GOES		1545	1548	1551						6		B 5.8						1.8E-04
GOES		1602	1606	1609						7		B 6.7						2.5E-04
GOES		1714	1721	1728						14		B 8.6						6.1E-04
GOES		1918	1926	1929						11		B 8.9						5.2E-04
GOES		2137	2141	2144						7		B 6.3						2.1E-04
GOES		2212	2217	2231						19		B 9.5						9.3E-04
GOES		2317	2321	2327						10		B 5.5						3.0E-04
GOES	12	0110	0119	0124						14		B 6.7						4.7E-04
GOES		0517	0521	0526						9		B 6.1						2.6E-04
GOES		0633	0644	0653						20		C 2.4						2.1E-03
GOES		1008	1013	1017						9		B 6.3						3.0E-04
GOES		1055	1104	1108						13		C 1.0						6.9E-04
GOES		1133	1138	1141						8		B 6.1						2.5E-04
GOES		1316	1325	1331						15		B 8.1						6.0E-04
GOES		1702	1713	1723						21		C 1.6						1.4E-03
GOES		2037	2042	2050						13		B 6.0						3.8E-04
GOES		2054	2102	2110						16		C 2.0						1.4E-03
GOES		2220	2230	2248						28		B 5.9						8.8E-04
GOES	13	0624	0631	0635						11		C 1.1						4.7E-04
GOES		0725	0728	0736						11		B 5.4						2.9E-04
GOES		0934	0944	0947						13		B 8.5						4.7E-04
GOES		1047	1050	1053						6		C 1.3						3.5E-04
GOES		1103	1112	1126						23		C 1.4						1.5E-03
GOES		1142	1145	1147						5		C 2.0						3.4E-04
GOES		1250	1253	1256						6		B 8.9						2.3E-04
GOES		1311	1314	1317						6		B 9.7						2.7E-04
GOES		1401	1405	1407						6		B 5.1						1.5E-04
GOES		1426	1433	1436						10		C 1.3						5.1E-04
GOES		1504	1508	1513						9		C 2.3						7.2E-04
GOES		1619	1622	1624						5		B 9.3						2.0E-04
GOES		1740	1746	1754	N29	W65	8106			14	SF	C 1.0						6.5E-04
RAMY		1742	1744	1754	N29	W65	8106	11	8.6	12	SF		4	E		40		H
HOLL		1743	1746	1805	N30	W67	8106	11	8.5	22	SF		3	E		51		H
GOES		1800	1804	1807						7		C 1.6						4.6E-04
GOES		1859	1903	1906						7		C 1.1						3.6E-04
GOES		1923	1927	1931	N29	W67	8106			8	SF	B 7.2						2.7E-04
RAMY		1931	1931	1936	N29	W67	8106	11	8.6	5	SF		4	E		11		
GOES		2009	2018	2021						12		C 1.7						8.4E-04
GOES		2335	2340	2348						13		B 4.1						2.8E-04
GOES	14	0025	0029	0031						6		B 4.9						1.3E-04
GOES		0123	0131	0136	N21	E74	8108			13	SF	C 3.6						1.6E-03
LEAR		0127	0129	0132	N21	E74	8108	11	19.7	5	SF		3	E		40		
GOES		0242	0253	0302						20		B 5.8						5.6E-04
GOES		0352	0356	0359						7		B 3.2						1.2E-04
GOES		0404	0408	0410						6		B 4.2						1.2E-04
GOES		0603	0607	0622						19		B 6.5						5.8E-04

Hα SOLAR FLARES

NOVEMBER 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	14	0709	0713	0715						6		C 1.4						2.8E-04
GOES		0831	0835	0839						8		B 7.8						2.9E-04
GOES		0905	1038	1146	N21	E70	8108			161	SF	C 4.6						3.1E-02
LEAR		0938	0938	0947	N12	E72	8108	11	19.8	9	SF		3	E		12		
SVTO		0942	0943	0947	N21	E70	8108	11	19.8	5	SF		3	E		23		F
LEAR		0954	1007	1021	N14	E75	8108	11	20.1	27	SF		3	E		31		
SVTO		1004	1021U	1040D	N19	E76	8108	11	20.2	36D	SF		3	E		17		F
GOES		1505	1509	1514	N29	W75	8106			9	SF	B 8.2						3.8E-04
RAMY		1508	1508	1513	N29	W75	8106	11	8.7	5	SF		4	E		11		
RAMY		1516	1525	1531	N18	E70	8108	11	20.0	15	SF		4	E		53		
HOLL		1517	1518	1522	N16	E70	8108	11	19.9	5	SF		3	E		32		
HOLL		1524	1525	1531	N16	E69	8108	11	19.9	7	SF		3	E		60		
GOES		1651	1658	1710						19		B 8.0						7.4E-04
GOES		1911	1914	1918	N16	E68	8108			7	SF	B 4.9						1.9E-04
RAMY		1913	1914	1918	N16	E68	8108	11	19.9	5	SF		4	E		51		E
HOLL		2147	2148	2150	N19	E74	8108	11	20.5	3	SF		3	E		16		
GOES	15	0121	0142	0156	N19	E64	8108			35	SF	C 2.2						3.0E-03
LEAR		0133	0136	0145	N19	E64	8108	11	19.9	12	SF		3	E		33		
LEAR		0145	0145	0201	N19	E64	8108	11	19.9	16	SF		3	E		59		
GOES		0414	0417	0420						6		B 3.0						9.7E-05
GOES		1025	1041	1052						27		C 1.0						1.3E-03
GOES		1152	1155	1158	N30	W83	8106			6	SF	B 3.9						1.2E-04
RAMY		1155	1156	1159	N30	W83	8106	11	9.0	4	SF		3	E		43		F
GOES		1316	1319	1323						7		B 2.8						1.1E-04
GOES		2231	2246	2310	N20	E64	8108			39	1N	M 1.0						1.6E-02
LEAR		2236	2242	2330	N16	E55	8108	11	20.1	54	1N		3	E		188		
HOLL		2237	2242	2338	N20	E64	8108	11	20.8	61	1N		3	E		231		
GOES	16	0121	0125	0132	N18	E56	8108			11	SF	C 1.0						5.7E-04
LEAR		0123	0130	0134	N18	E56	8108	11	20.3	11	SF		3	E		16		
GOES		0659	0702	0704						5		B 2.2						6.0E-05
GOES		0848	0851	0854						6		B 3.3						1.0E-04
GOES		1214	1222	1226						12		B 3.1						1.9E-04
GOES		1310	1314	1323						13		B 4.3						2.4E-04
GOES		1717	1721	1725						8		B 3.6						1.6E-04
GOES		1733	1741	1744						11		B 8.3						4.3E-04
GOES		1819	1826	1829						10		C 1.9						7.4E-04
GOES		2016	2021	2023						7		C 1.4						3.8E-04
GOES		2126	2130	2132	N18	E46	8108			6	SF	B 5.6						1.7E-04
HOLL		2130	2131	2137	N18	E46	8108	11	20.4	7	SF		3	E		13		
HOLL		2158	2158	2202	N18	E46	8108	11	20.4	4	SF		3	E		18		
GOES		2207	2210	2212						5		B 5.1						1.3E-04
GOES	17	0015	0021	0024	N15	E42	8108			9	SF	B 7.0						3.0E-04
LEAR		0022	0023	0027	N15	E42	8108	11	20.2	5	SF		3	E		19		H
GOES		0322	0327	0329						7		B 5.3						1.9E-04
LEAR		0337	0338	0342	S22	E61	8109	11	21.8	5	SF		3	E		15		
GOES		0528	0532	0536						8		B 4.8						1.8E-04
LEAR		0606	0607	0612	N16	E43	8108	11	20.5	6	SF		3	E		12		
GOES		0632	0637	0642	N17	E39	8108			10	SF	B 6.8						3.2E-04
LEAR		0635	0639	0649	N17	E39	8108	11	20.2	14	SF		3	E		14		
LEAR		0651	0651	0656	N17	E39	8108	11	20.2	5	SF		3	E		12		
GOES		0713	0716	0719						6		B 3.1						1.0E-04
GOES		0800	0803	0806						6		B 2.3						7.4E-05
GOES		0858	0951	0959						61		B 8.9						2.1E-03
GOES		1040	1043	1046						6		B 3.3						1.1E-04
GOES		1134	1141	1146						12		B 2.7						1.8E-04
GOES		1328	1354	1401						33		C 2.6						2.5E-03
GOES		1414	1417	1420						6		C 1.3						3.8E-04
GOES		1456	1510	1517	N21	E30				21	SF	C 8.6						6.0E-03
HOLL		1459	1507	1522	N21	E30	8108	11	19.9	23	SF		3	E		85		F
HOLL		2010	2010	2014	N19	E31	8108	11	20.2	4	SF		3	E		17		
GOES		2030	2033	2035						5		B 1.8						4.5E-05
HOLL		2209	2209	2213	N22	E26	8108	11	19.9	4	SF		3	E		22		F
HOLL		2215	2223	2231	N23	E26	8108	11	19.9	16	SF		3	E		21		F
GOES	18	0424	0429	0431						7		B 2.2						6.7E-05

Hα SOLAR FLARES

NOVEMBER 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	18	0550	0554	0558						8		B 1.5						6.5E-05
GOES		0637	0649	0657	N18	E27	8108			20	SF	B 4.5						3.9E-04
LEAR		0645	0650	0656	N18	E27	8108	11	20.3	11	SF		3	E		12		
GOES		0829	0845	0911	N18	E26	8108			42	SF	B 3.8						7.6E-04
LEAR		0835	0836	0849	N18	E26	8108	11	20.3	14	SF		3	E		10		
GOES		0935	0938	0940						5		B 4.1						9.0E-05
GOES		0942	0951	1002						20		B 5.0						5.1E-04
SVTO		1145	1146	1223	S19	E46	8109	11	22.0	38	SF		3	E		23		
GOES		1303	1309	1314						11		B 1.8						9.9E-05
GOES		1544	1549	1554						10		B 2.9						1.4E-04
GOES	19	1349	1402	1412	N24	E05	8108			23	SF	B 2.8						3.1E-04
RAMY		1357	1402	1412	N24	E05	8108	11	20.0	15	SF		4	E		18		H
HOLL		1402E	1402U	1416	N23	E10	8108	11	20.3	14D	SF		2	E		31		H
GOES		1700	1910	2140						280		C 1.6						T1.8E-02
GOES	20	0014	0022	0033	N20	E09	8108			19	SF	B 9.2						8.4E-04
LEAR		0021	0023	0032	N20	E09	8108	11	20.7	11	SF		3	E		31		
GOES		1109	1114	1123						14		B 3.0						2.2E-04
GOES		2206	2212	2216	N21	W08	8108			10	SF	B 7.4						2.6E-04
HOLL		2210	2212	2230	N21	W08	8108	11	20.3	20	SF		3	E		59		F
HOLL		2309	2311	2318	N21	W09	8108	11	20.3	9	SF		3	E		14		
GOES		2330	2336	2352						22		B 1.5						1.9E-04
GOES	21	0321	0324	0327						6		B 4.7						1.4E-04
GOES		0553	0557	0600						7		B 2.4						8.5E-05
GOES		0608	0637	0642	N23	W12	8108			34	SF	C 1.1						1.3E-03
LEAR		0625	0628	0632	N23	W12	8108	11	20.3	7	SF		3	E		26		H
LEAR		0633	0637	0647	N23	W11	8108	11	20.4	14	SF		3	E		19		
LEAR		0832	0833	0837	N23	W13	8108	11	20.3	5	SF		3	E		10		
GOES		0901	0905	0912						11		B 1.9						1.2E-04
GOES		0919	0923	0930						11		B 2.9						1.7E-04
GOES		0941	0954	0957	N23	W14	8108			16	SF	B 5.0						3.2E-04
LEAR		0954	0954	1002	N23	W14	8108	11	20.3	8	SF		3	E		26		
GOES		1108	1134	1139	N22	W17	8108			31	SF	B 4.5						7.5E-04
RAMY		1133E	1133U	1142	N22	W17	8108	11	20.2	9D	SF		3	E		36		
RAMY		1248	1328	1336	N22	W17	8108	11	20.2	48	SF		3	E		70		F
GOES		1310	1332	1344	N22	W17	8108			34		C 1.7						2.0E-03
GOES		1523	1528	1531	N21	W19	8108			8	SF	B 8.8						3.1E-04
RAMY		1528	1528	1534	N21	W19	8108	11	20.2	6	SF		3	E		21		
HOLL		1552E	1555U	1606	N19	W22	8108	11	20.0	14D	SF		2	E		41		
GOES		1557	1600	1603	N22	W17	8108			6	SF	C 1.2						3.5E-04
RAMY		1600	1600	1605	N22	W17	8108	11	20.4	5	SF		3	E		18		
GOES		1609	1612	1616						7		B 6.2						2.3E-04
HOLL		1620	1623	1627	N22	W18	8108	11	20.3	7	SF		3	E		17		
HOLL		1659	1704	1717	N21	W18	8108	11	20.3	18	SF		3	E		67		F
GOES		1700	1704	1708	N21	W19	8108			8	SF	C 1.1						4.3E-04
RAMY		1702	1704	1708	N21	W19	8108	11	20.2	6	SF		4	E		18		F
HOLL		1755	1758	1803	N22	W19	8108	11	20.3	8	SF		3	E		25		
HOLL		1820	1825	1834	N22	W19	8108	11	20.3	14	SF		3	E		33		F
HOLL		1837	1837	1844	N22	W20	8108	11	20.2	7	SF		3	E		23		F
HOLL		1908	1910	1913	N22	W20	8108	11	20.3	5	SF		3	E		14		F
GOES		2058	2105	2115						17		B 4.2						3.9E-04
GOES		2142	2146	2151						9		B 3.9						1.8E-04
GOES	22	0018	0021	0025						7		B 3.0						1.1E-04
GOES		0228	0232	0235						7		B 4.4						1.6E-04
GOES		0613	0630	0654						41		C 1.0						2.2E-03
GOES		1053	1057	1101						8		B 5.0						2.1E-04
RAMY		1204	1204	1218	S17	W12	8109	11	21.6	14	SF		3	E		12		F
GOES		1852	1900	1911						19		C 1.1						9.5E-04
HOLL		2243	2250	2256	N20	W30	8108	11	20.6	13	SF		3	E		46		
GOES	23	0021	0032	0047						26		B 9.0						1.0E-03
GOES		0236	0253	0304	N22	W40	8108			28	SF	C 2.0						2.3E-03
LEAR		0239	0240	0259	N22	W40	8108	11	20.0	20	SF		3	E		24		
LEAR		0300	0300	0303	N22	W39	8108	11	20.1	3	SF		3	E		16		
LEAR		0311	0315	0325	N23	W38	8108	11	20.2	14	SF		3	E		22		

Hα SOLAR FLARES

NOVEMBER 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	23	0617	0623	0632						15		B 4.1						3.1E-04
GOES		1002	1007	1012						10		B 4.0						2.1E-04
GOES		1251	1259	1309	N19	W45	8108			18	SF	B 6.1						5.1E-04
RAMY		1254	1259	1308	N19	W45	8108	11	20.1	14	SF		3	E		25		F
GOES		1400	1404	1409						9		B 4.4						2.1E-04
GOES		1534	1541	1547	N20	W49	8108			13	SF	C 1.5						8.3E-04
RAMY		1537	1537	1600	N18	W49	8108	11	19.9	23	SF		3	E		14		
HOLL		1538	1540	1556	N20	W49	8108	11	19.9	18	SF		3	E		17		
GOES		1919	1924	1930						11		B 5.0						2.8E-04
GOES		2244	2308	2317	N20	W53	8108			33	SF	B 7.6						1.1E-03
HOLL		2306	2307	2316	N20	W53	8108	11	19.9	10	SF		3	E		20		
GOES	24	0001	0004	0007	N23	W49	8108			6	SF	B 4.9						1.8E-04
LEAR		0002	0003	0008	N23	W49	8108	11	20.2	6	SF		3	E		19		
GOES		0249	0254	0301						12		B 4.9						3.2E-04
GOES		0355	0400	0407	N23	W51	8108			12	1F	C 3.4						1.6E-03
LEAR		0358	0401	0418	N23	W51	8108	11	20.2	20	1F		3	E		202		
GOES		1236	1241	1304	N21	W58	8108			28	SF	B 6.1						4.1E-04
RAMY		1242	1242	1249	N21	W58	8108	11	20.1	7	SF		3	E		29		
RAMY		1252	1253	1257	N21	W63	8108	11	19.7	5	SF		3	E		28		H
GOES		1849	1859	1917						28		C 1.4						2.1E-03
GOES		1930	1950	2010						40		M 1.6						2.7E-02
GOES	25	0230	0254	0305						35		C 2.1						2.9E-03
GOES		0327	0337	0347						20		C 3.9						3.5E-03
GOES		0527	0543	0557						30		C 5.0						6.1E-03
GOES		0814	0818	0823						9		C 1.1						5.2E-04
GOES		1050	1103	1120						30		C 2.3						3.3E-03
RAMY		1249	1249	1255	N20	W73	8108	11	19.9	6	SF		3	E		18		
GOES		1438	1445	1456						18		C 1.1						1.0E-03
GOES		1936	1952	1959						23		C 9.3						6.4E-03
GOES		2217	2224	2232						15		C 1.3						7.8E-04
GOES		2258	2306	2321						23		C 1.1						1.4E-03
GOES	26	0032	0035	0038						6		B 8.8						2.8E-04
LEAR		0148	0150	0154	N13	E90	8113	12	2.9	6	SF		3	E		38		
LEAR		0226	0227	0231	N13	E90	8113	12	2.9	5	SF		3	E		19		
GOES		0242	0311	0319						37		C 1.8						3.3E-03
GOES		0412	0417	0429						17		C 3.6						2.7E-03
GOES		0438	0447	0502	N13	E85	8113			24	SF	C 4.7						5.7E-03
LEAR		0442	0443	0444	N13	E85	8113	12	2.6	2	SF		3	E		24		
GOES		0749	0754	0759						10		C 1.3						7.1E-04
GOES		1040	1045	1047						7		B 8.3						3.0E-04
GOES		1753	1800	1805	N16	E74	8113			12	SF	C 1.3						7.7E-04
HOLL		1754E	1810	1819	N16	E74	8113	12	2.3	25D	SF		2	E		76		F
HOLL		1828	1835	1844	N16	E75	8113	12	2.4	16	SF		3	E		72		F
GOES		1831	1837	1840	N16	E75	8113			9		M 2.0						5.4E-03
HOLL		1917	1920	1922	N17	E76	8113	12	2.6	5	SF		3	E		23		
HOLL		2210	2213	2224	N18	E79	8113	12	2.9	14	SF		3	E		30		
GOES	27	0108	0114	0128	N19	E75	8113			20	SF	B 8.4						8.8E-04
LEAR		0115	0115	0119	N19	E75	8113	12	2.8	4	SF		3	E		15		
GOES		0201	0203	0205						4		C 1.3						2.5E-04
GOES		0324	0330	0335						11		C 1.1						6.2E-04
LEAR		0642	0645	0648	N12	E67	8113	12	2.3	6	SF		3	E		18		
GOES		1025	1035	1044						19		C 1.4						1.3E-03
GOES		1148	1153	1200						12		C 1.0						6.0E-04
GOES		1259	1317	1320	N17	E63	8113			21	2B	X 2.6						7.0E-02
RAMY		1302	1317	1338	N17	E63	8113	12	2.3	36	2B		3	E		419		H
GOES		1501	1507	1519						18		C 2.3						2.2E-03
GOES		1610	1624	1637	N18	E70	8113			27	SF	C 3.8						4.9E-03
RAMY		1613	1616	1622	N19	E67	8113	12	2.8	9	SF		3	E		10		F
HOLL		1613	1626	1639	N18	E70	8113	12	3.0	26	SF		3	E		84		
RAMY		1623	1623	1627	N19	E65	8113	12	2.6	4	SF		3	E		14		F
RAMY		1955	1957	2033D	N20	E62	8113	12	2.6	38D	SF		3	E		21		
HOLL		1956	1958	2004	N15	E59	8113	12	2.3	8	SF		3	E		35		
GOES	28	0016	0027	0041	N13	E55	8113			25	1F	C 5.1						5.6E-03

Hα SOLAR FLARES

NOVEMBER 1997

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	28	0019	0025	0045	N13	E55	8113	12	2.2	26	1F		3	E		115		F
GOES		0453	0503	0523	N15	E61	8113			30	2B	M 6.8						7.0E-02
LEAR		0456	0506	0633	N15	E61	8113	12	2.8	97	2B		3	E		278		F
GOES		1117	1205	1236	S15	E18	8112			79	SF	C 3.4						1.1E-02
RAMY		1136	1207	1315	S15	E18	8112	11	29.8	99	SF		3	E		90		UF
RAMY		1156	1159	1209	N23	E60	8113	12	3.1	13	SF		3	E		22		F
RAMY		1320	1320	1325	S16	E07	8112	11	29.1	5	SF		3	E		11		
GOES		1444	1447	1450						6		B 9.4						3.0E-04
GOES		1509	1515	1518	N19	E54	8113			9	SF	C 2.2						7.9E-04
HOLL		1513	1514	1520	N19	E54	8113	12	2.7	7	SF		3	E		29		
GOES		1538	1543	1548	N19	E54	8113			10	SF	C 1.6						8.2E-04
HOLL		1541	1542	1549	N19	E54	8113	12	2.8	8	SF		3	E		13		
HOLL		1740	1740	1744	N19	E53	8113	12	2.8	4	SF		3	E		19		
HOLL		1750	1752	1808	N19	E53	8113	12	2.8	18	SF		3	E		16		
RAMY		1814E	1816U	1856D	N19	E54	8113	12	2.9	42D	SF		2	E		21		
GOES		1821	1826	1829	N19	E54	8113			8		C 1.9						F 7.1E-04
HOLL		1920	1933	1951	N19	E52	8113	12	2.8	31	SF		3	E		42		
GOES		1925	1934	1946	N19	E52	8113			21		C 2.4						2.5E-03
RAMY		1928	1931U	1933D	N20	E50	8113	12	2.6	5D	SF		2	E		10		
GOES		1954	2009	2017						23		M 1.1						1.1E-02
GOES	29	0009	0013	0017						8		B 7.7						3.3E-04
GOES		0501	0508	0515	N15	E49	8113			14	SF	C 3.2						1.7E-03
LEAR		0506	0508	0520	N15	E49	8113	12	2.9	14	SF		3	E		38		
GOES		0919	0930	0940	N19	E47	8113			21	SF	C 5.0						3.8E-03
LEAR		0922	0930	0948	N16	E47	8113	12	2.9	26	SF		3	E		60		
SVTO		0923	0929	0953	N19	E47	8113	12	3.0	30	SF		3	E		38		
HOLL		1732	1734	1748	N19	E38	8113	12	2.6	16	SF		3	E		25		
GOES		1929	1933	1939	N15	E33	8113			10	SF	C 1.2						5.4E-04
HOLL		1931	1934	1950	N15	E33	8113	12	2.3	19	SF		3	E		52		H
RAMY		2016E	2016U	2020D	N20	E37	8113	12	2.7	4D	SF		2	E		14		
HOLL		2016	2017	2021	N19	E39	8113	12	2.8	5	SF		3	E		15		
GOES		2228	2244	2253	N15	E38	8113			25	2N	M 6.4						5.0E-02
HOLL		2232	2242	2344D	N19	E38	8113	12	2.8	72D	2B		3	E		330		
LEAR		2233	2242	2358	N15	E38	8113	12	2.8	85	2N		3	E		281		
GOES	30	0330	0333	0335	N17	E38	8113			5	SF	B 5.2						1.4E-04
LEAR		0333	0334	0339	N17	E38	8113	12	3.0	6	SF		3	E		31		
GOES		0558	0609	0614						16		B 8.1						5.7E-04
GOES		0649	0655	0658	N18	E32	8113			9	1F	C 2.9						8.6E-04
LEAR		0653	0655	0707	N18	E32	8113	12	2.7	14	1F		3	E		108		
GOES		0702	0710	0713	N18	E32	8113			11	SF	C 2.6						1.2E-03
LEAR		0708	0710	0718	N18	E32	8113	12	2.7	10	SF		3	E		24		
GOES		1236	1247	1254	N18	E28	8113			18	SF	B 6.9						6.1E-04
RAMY		1240	1240	1259	N18	E28	8113	12	2.6	19	SF		4	E		15		
GOES		1401	1404	1407	N17	E22	8113			6	SF	B 5.5						1.7E-04
RAMY		1403	1404	1410	N17	E22	8113	12	2.2	7	SF		4	E		15		
HOLL		1834	1834	1840	N16	E20	8113	12	2.3	6	SF		3	E		18		F
GOES		1908	1916	1920	N16	E19	8113			12	SF	B 4.1						2.7E-04
HOLL		1910	1912	1923	N16	E19	8113	12	2.2	13	SF		3	E		21		F
GOES		2045	2051	2100						15		C 4.0						2.2E-03

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

NOVEMBER 1997

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
03	2695	LEAR	4	S/F	0434.0	0437.0	4.0	47.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0436.0	0437.0	1.0	44.0			QL=4 ST=2 TYP=3
	2695	SVTO	48	C	0904.0	0908.0	11.0	130.0			QL=4 ST=2 TYP=8
	8800	LEAR	8	S	0907.0	0908.0	1.0	81.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0907.0	0908.0	3.0	120.0			QL=4 ST=2 TYP=3
	8800	SVTO	48	C	0907.0	0908.0	12.0	140.0			QL=4 ST=2 TYP=8
	2695	SVTO	4	S/F	1022.0	1026.0	13.0	230.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1022.0	1026.0	21.0	120.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1411.0	1412.0	3.0	18.0			QL=4 ST=2 TYP=3
04	8800	LEAR	4	S/F	0114.0	0114.0	4.0	34.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0114.0	0114.0	1.0	46.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0234.0	0235.0	3.0	110.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	0234.0	0235.0	3.0	150.0			QL=4 ST=3 TYP=3
	8800	LEAR	48	C	0555.0	0557.0	7.0	1000.0			QL=4 ST=3 TYP=8
	2695	LEAR	48	C	0555.0	0557.0	9.0	690.0			QL=4 ST=3 TYP=8
	8800	SVTO	49	GB	0555.0	0557.0	7.0	630.0			QL=2 ST=2 TYP=6
	2695	SVTO	49	GB	0555.0	0557.0	14.0	560.0			QL=2 ST=2 TYP=6
	2695	LEAR	8	S	0817.0	0817.0	U	30.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0817.0	0817.0	U	66.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0817.0	0817.0	U	30.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0817.0	0817.0	1.0	62.0			QL=2 ST=2 TYP=3
	8800	PALE	8	S	2112.0	2114.0	2.0	80.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	2112.0	2114.0	3.0	30.0			QL=4 ST=2 TYP=3
05	2695	SVTO	4	S/F	1131.0	1137.0	28.0	18.0			QL=4 ST=2 TYP=3
	8800	SVTO	20	GRF	1131.0	1137.0	32.0	18.0			QL=4 ST=2 TYP=2
06	2695	PALE	8	S	0056.0	0056.0	1.0	41.0			QL=4 ST=2 TYP=3
	8800	SGMR	49	GB	1151.0	1153.0	18.0	8400.0			QL=4 ST=2 TYP=6
	2695	SGMR	49	GB	1151.0	1153.0	25.0	3400.0			QL=4 ST=2 TYP=6
	8800	SVTO	49	GB	1151.0	1153.0	21.0	10000.0			QL=2 ST=3 TYP=6
	2695	SVTO	49	GB	1245.0	1246.0	1.0	3300.0			QL=4 ST=2 TYP=6
	2695	SGMR	8	S	1252.0	1253.0	1.0	28.0			QL=4 ST=2 TYP=3
14	2695	LEAR	4	S/F	0125.0	0128.0	4.0	16.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0126.0	0128.0	3.0	23.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0711.0	0712.0	3.0	60.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0711.0	0712.0	2.0	12.0			QL=2 ST=2 TYP=3
	2695	LEAR	8	S	0909.0	0909.0	1.0	26.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0909.0	0910.0	1.0	26.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0909.0	0910.0	1.0	25.0			QL=2 ST=2 TYP=3
	8800	SVTO	20	GRF	0952.0E	1007.0	50.0D	23.0			QL=2 ST=3 TYP=2
	2695	LEAR	20	GRF	0953.0	1008.0	31.0	55.0			QL=4 ST=2 TYP=2
	2695	SVTO	48	C	0953.0	1007.0	50.0	52.0			QL=4 ST=3 TYP=8
	8800	LEAR	20	GRF	0958.0	1007.0	26.0	15.0			QL=4 ST=2 TYP=2
	8800	SVTO	20	GRF	1006.0	1006.0	1.0	23.0			QL=2 ST=2 TYP=2
15	2695	LEAR	48	C	2238.0	2243.0	10.0	110.0			QL=4 ST=2 TYP=8
	8800	LEAR	4	S/F	2241.0	2242.0	7.0	47.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	2241.0	2242.0	5.0	110.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2241.0	2243.0	4.0	42.0			QL=4 ST=2 TYP=3
17	8800	LEAR	8	S	0714.0	0714.0	1.0	16.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0714.0	0714.0	U	17.0			QL=2 ST=2 TYP=3
	2695	SVTO	8	S	0714.0	0714.0	1.0	7.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1351.0	1352.0	1.0	67.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1351.0	1352.0	3.0	58.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1352.0	1352.0	2.0	31.0			QL=2 ST=2 TYP=3
	2695	SGMR	8	S	1415.0	1416.0	2.0	8.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1415.0	1415.0	2.0	34.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1415.0	1416.0	1.0	8.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1415.0	1415.0	1.0	40.0			QL=2 ST=2 TYP=3
	2695	SGMR	4	S/F	1503.0	1506.0	5.0	84.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1503.0E	1506.0	3.0D	82.0			QL=4 ST=3 TYP=3
	8800	SGMR	4	S/F	1504.0	1505.0	4.0	110.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1504.0E	1505.0	2.0D	60.0			QL=2 ST=2 TYP=3
21	8800	SGMR	4	S/F	1557.0	1559.0	4.0	22.0			QL=4 ST=2 TYP=3

SOLAR RADIO EMISSION
Selected Fixed Frequency Events

NOVEMBER 1997

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
25	2695	PALE	4	S/F	1945.0	1946.0	4.0	140.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1945.0	1946.0	3.0	130.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1946.0	1946.0	1.0	25.0			QL=4 ST=2 TYP=3
26	2695	PALE	48	C	1832.0	1835.0	4.0	66.0			QL=4 ST=2 TYP=8
	2695	SGMR	4	S/F	1832.0	1835.0	4.0	54.0			QL=4 ST=3 TYP=3
	8800	PALE	8	S	1834.0	1835.0	1.0	160.0			QL=2 ST=2 TYP=3
	8800	SGMR	8	S	1834.0	1835.0	2.0	130.0			QL=4 ST=3 TYP=3
27	2695	LEAR	4	S/F	0201.0	0202.0	3.0	19.0			QL=4 ST=2 TYP=3
	8800	SGMR	48	C	1313.0	1316.0	8.0	430.0			QL=4 ST=2 TYP=8
	2695	SVTO	48	C	1313.0	1316.0	7.0	380.0			QL=2 ST=3 TYP=8
	8800	SVTO	48	C	1313.0	1316.0	7.0	440.0			QL=2 ST=3 TYP=8
	2695	SGMR	4	S/F	1313.0	1316.0	10.0	350.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1613.0	1613.0	1.0	82.0			QL=4 ST=2 TYP=3
28	8800	LEAR	4	S/F	0459.0	0502.0	28.0	330.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0500.0	0503.0	13.0	170.0			QL=4 ST=2 TYP=3
29	2695	LEAR	20	GRF	2232.0	2236.0	28.0	140.0			QL=4 ST=2 TYP=2
	2695	PALE	20	GRF	2233.0	2236.0	13.0	120.0			QL=4 ST=2 TYP=2
	8800	LEAR	48	C	2233.0	2240.0	27.0	210.0			QL=4 ST=2 TYP=8
	8800	PALE	20	GRF	2233.0	2240.0	28.0	220.0			QL=4 ST=2 TYP=2
30	2695	SVTO	4	S/F	0651.0	0653.0	4.0	30.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0652.0	0653.0	2.0	31.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0652.0	0654.0	2.0	24.0			QL=4 ST=2 TYP=3

Reports are received routinely from the following observatories:
LEAR = Learmonth PALE = Palehua SGMR = Sagamore Hill SVTO = San Vito

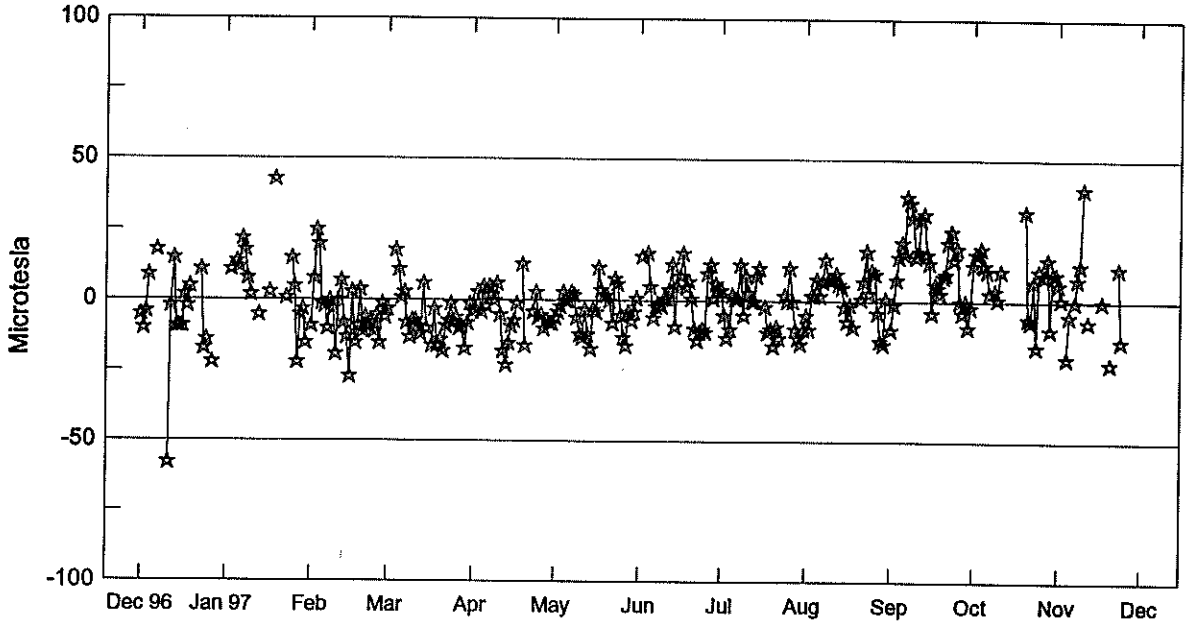
Explanation of Type Code:

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 Precusor	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; Hiraiso, Japan 500 and 200 MHz; and Toyokawa, Japan 9400, 3750, 2000 and 1000 MHz.

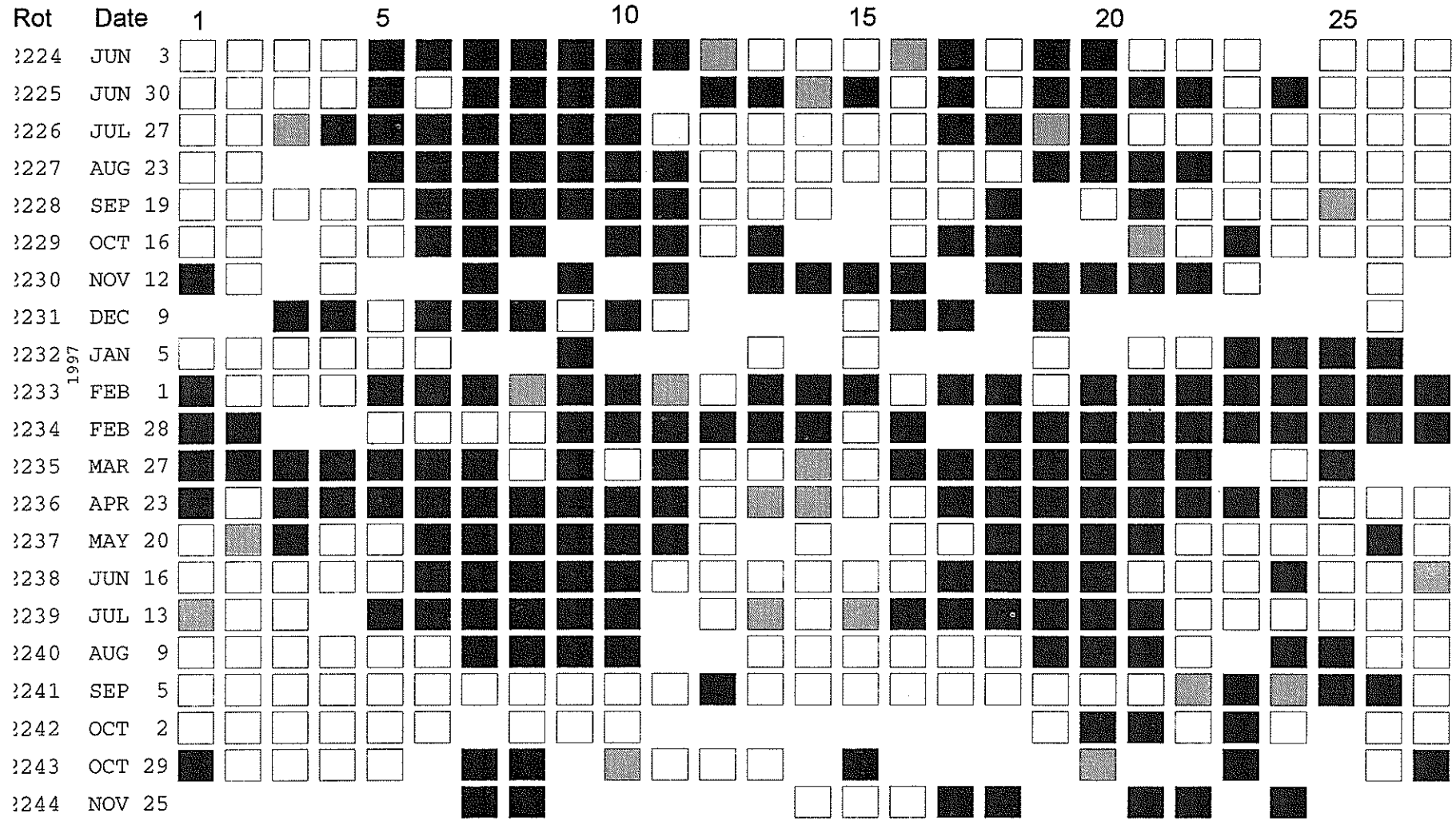
Stanford Mean Solar Magnetic Field (Microtesla)
"Sun-As-A-Star"



Day	Dec 96	Jan 97	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	-5	---	-9	-3	-4	-6	---	4	-5	-10	13	6
2	-10	---	8	---	-3	-4	16	-5	-10	-1	17	1
3	-4	11	25	---	3	-2	---	-13	2	8	17	---
4	9	---	20	18	-4	3	17	-10	2	16	19	-20
5	---	14	-1	11	5	0	5	-2	8	21	13	-5
6	---	12	-2	1	-2	0	-6	1	2	17	11	---
7	18	22	-10	3	5	3	-2	1	7	37	3	0
8	---	18	0	-8	2	2	-1	13	15	35	---	8
9	---	8	-3	-13	0	-6	-2	-5	8	30	4	13
10	---	2	-19	-7	6	-12	1	9	8	16	1	40
11	-58	---	0	-7	-5	-13	1	3	8	18	11	---
12	-2	---	7	-9	-18	-3	4	0	10	29	---	-7
13	15	-5	-8	-12	-23	-12	13	0	6	31	---	---
14	-9	---	-13	6	-15	-17	-9	9	5	17	---	---
15	-9	---	-27	-10	-9	-3	5	12	-2	14	---	---
16	-9	---	3	---	-7	-4	9	---	-7	-4	---	---
17	2	3	-15	-16	-1	12	17	-2	-1	6	---	0
18	-2	---	-9	-3	---	4	5	-11	-9	5	---	---
19	5	43	4	-16	13	2	7	-10	---	3	---	---
20	---	---	-11	-14	-16	2	1	-16	---	9	32	-22
21	---	---	-6	-18	---	0	-10	-9	1	10	-6	---
22	---	---	-9	-9	---	-8	-14	-13	7	21	-7	---
23	11	1	-8	-7	-4	8	-11	---	18	25	7	12
24	-17	---	-11	-1	3	6	-10	2	3	15	-16	-14
25	-14	15	-5	-8	-6	-5	-11	0	11	19	11	---
26	---	5	-15	-6	-5	-13	10	12	10	0	---	---
27	-22	-22	-1	-10	-10	-16	13	0	-4	-4	9	---
28	---	-5	-6	-9	-7	-4	1	-10	-14	0	15	---
29	---	-3		-17	-8	-7	6	-13	-15	-9	-10	---
30	---	-15		-8	-8	-4	4	-15	1	-2	10	---
31	---	---		-1		1		-10	---		10	

Note: --- Indicates no data available for the day.

STANFORD MEAN SOLAR MAGNETIC FIELD

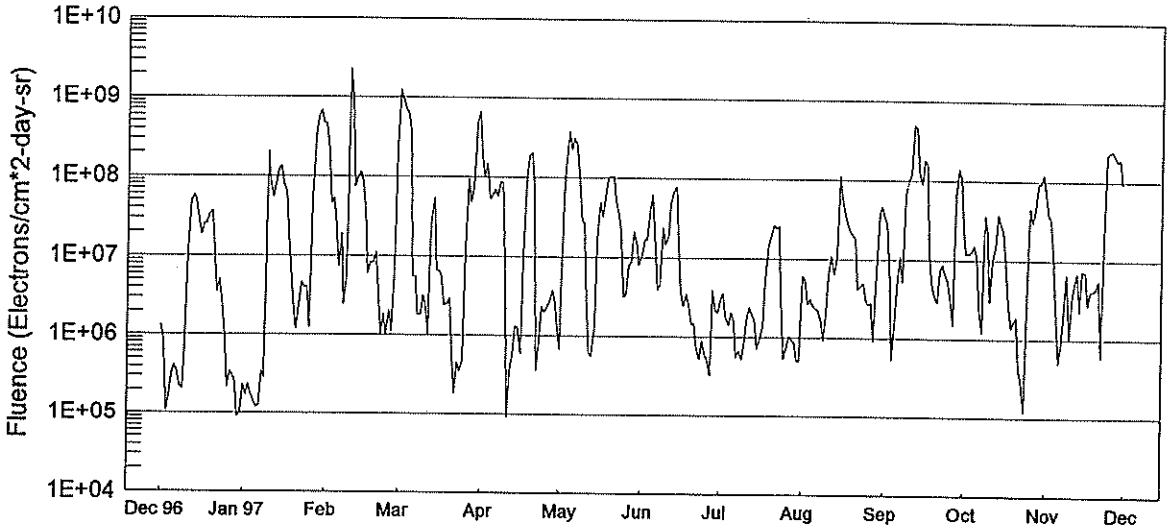


Mean Solar Magnetic Field Polarity: = field > 2 microT; = -2 microT ≤ field ≤ 2 microT

= 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.

GOES Daily Electron Fluence
Dec 96 - Nov 97



Day	Dec 96	Jan 97	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	1.3E+06	2.3E+05	4.7E+08	1.2E+09	1.8E+08	6.8E+05	1.0E+07	2.9E+06	6.1E+06	3.5E+07	1.9E+07	6.9E+07
2	8.8E+05	1.7E+05	2.0E+08	9.0E+08	1.0E+08	5.2E+07	1.6E+07	3.6E+06	5.4E+06	2.8E+07	1.2E+07	3.8E+07
3	1.0E+05	2.3E+05	4.5E+07	7.0E+08	1.4E+08	1.3E+08	1.6E+07	1.8E+06	2.6E+06	5.5E+06	1.2E+07	3.3E+07
4	1.7E+05	1.8E+05	5.3E+07	6.3E+08	5.2E+07	3.8E+08	3.7E+07	1.4E+06	3.1E+06	5.4E+05	1.3E+07	1.2E+07
5	3.1E+05	1.4E+05	2.4E+07	3.4E+08	5.6E+07	2.2E+08	6.1E+07	2.0E+06	2.5E+06	1.7E+06	1.5E+07	1.8E+06
6	4.1E+05	1.2E+05	7.5E+06	5.6E+06	6.8E+07	3.1E+08	1.3E+07	1.6E+06	2.3E+06	5.4E+06	1.1E+07	5.0E+05
7	3.4E+05	1.2E+05	1.9E+07	5.5E+06	5.6E+07	2.6E+08	3.9E+06	5.5E+05	2.2E+06	1.1E+07	2.4E+06	8.7E+05
8	2.1E+05	3.4E+05	2.4E+06	1.8E+06	8.7E+07	1.1E+08	4.6E+06	6.6E+05	1.7E+06	5.3E+06	1.2E+06	2.2E+06
9	2.0E+05	2.8E+05	6.0E+06	1.8E+06	8.4E+07	2.9E+07	2.3E+07	5.2E+05	9.3E+05	6.6E+07	3.6E+07	6.7E+06
10	9.7E+05	2.0E+08	2.3E+09	3.2E+06	9.8E+06	2.6E+07	1.4E+07	7.6E+05	1.9E+06	1.0E+08	2.2E+07	1.0E+06
11	1.1E+07	8.6E+07	9.7E+08	2.3E+06	9.1E+04	3.1E+06	1.8E+07	1.7E+06	6.3E+06	1.2E+08	3.0E+06	3.2E+06
12	4.7E+07	5.4E+07	7.4E+07	1.0E+06	3.7E+05	6.1E+05	4.8E+07	2.4E+06	1.0E+07	5.0E+08	9.9E+06	5.2E+06
13	5.8E+07	8.2E+07	9.6E+07	2.6E+07	5.7E+05	5.5E+05	6.8E+07	1.9E+06	6.4E+06	4.6E+08	1.5E+07	7.0E+06
14	5.1E+07	1.2E+08	1.1E+08	5.3E+07	1.2E+06	1.2E+06	7.8E+07	1.6E+06	1.0E+07	1.3E+08	3.7E+07	2.3E+06
15	2.7E+07	1.3E+08	8.2E+07	6.6E+06	1.2E+06	1.6E+07	1.4E+07	7.2E+05	1.1E+08	9.1E+07	2.8E+07	7.5E+06
16	1.8E+07	7.9E+07	3.4E+07	6.6E+06	5.9E+05	4.9E+07	3.7E+06	1.0E+06	5.7E+07	1.8E+08	2.3E+07	7.1E+06
17	2.4E+07	6.2E+07	6.1E+06	5.8E+06	9.7E+06	3.2E+07	2.4E+06	1.3E+06	3.8E+07	1.6E+08	9.3E+06	2.7E+06
18	2.5E+07	1.7E+07	8.3E+06	2.4E+06	1.0E+08	5.5E+07	3.4E+06	5.4E+06	2.7E+07	1.2E+07	3.0E+06	4.0E+06
19	3.2E+07	6.8E+06	8.4E+06	2.4E+06	1.8E+08	9.8E+07	2.5E+06	1.3E+07	2.2E+07	5.1E+06	1.4E+06	4.1E+06
20	3.6E+07	2.4E+06	1.1E+07	2.9E+06	2.0E+08	1.0E+08	1.4E+06	1.8E+07	2.0E+07	3.6E+06	1.7E+06	4.3E+06
21	1.1E+07	1.1E+06	3.7E+06	5.6E+05	6.9E+07	1.0E+08	1.5E+06	2.6E+07	1.8E+07	2.9E+06	1.9E+06	5.6E+06
22	3.4E+06	2.6E+06	9.9E+05	1.8E+05	3.6E+05	5.0E+07	7.3E+05	2.4E+07	4.2E+06	7.3E+06	4.2E+05	5.9E+05
23	5.1E+06	4.6E+06	1.8E+06	4.5E+05	8.4E+05	3.6E+07	5.2E+05	2.5E+07	4.5E+06	8.9E+06	2.9E+05	1.6E+07
24	2.8E+06	3.9E+06	1.0E+06	3.5E+05	2.3E+06	2.1E+07	9.0E+05	2.9E+06	4.9E+06	6.7E+06	1.2E+05	2.1E+08
25	9.5E+05	4.0E+06	2.0E+06	4.8E+05	2.0E+06	3.1E+06	6.1E+05	5.4E+05	2.9E+06	5.6E+06	2.9E+06	2.3E+08
26	2.1E+05	1.2E+06	1.1E+06	1.2E+07	2.3E+06	3.4E+06	5.2E+05	7.2E+05	2.6E+06	3.0E+06	4.6E+07	2.4E+08
27	3.4E+05	5.2E+07	5.7E+06	9.4E+07	2.7E+06	8.0E+06	3.2E+05	1.0E+06	2.7E+06	1.5E+06	3.0E+07	2.1E+08
28	3.0E+05	3.3E+08	2.2E+08	4.7E+07	3.8E+06	8.8E+06	4.0E+06	9.3E+05	9.4E+05	6.6E+07	4.1E+07	1.8E+08
29	2.6E+05	5.7E+08		7.3E+07	2.7E+06	2.1E+07	2.2E+06	8.7E+05	6.9E+06	1.4E+08	9.5E+07	1.9E+08
30	9.0E+04	6.8E+08		4.9E+08	1.2E+06	1.4E+07	2.0E+06	5.1E+05	3.6E+07	1.1E+08	9.3E+07	9.3E+07
31	1.0E+05	4.7E+08		6.6E+08		8.2E+06		5.0E+05	4.6E+07		1.2E+08	

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. GOES9 data began April, 1996.

CONTENTS

Prompt Reports Number 640 Part I

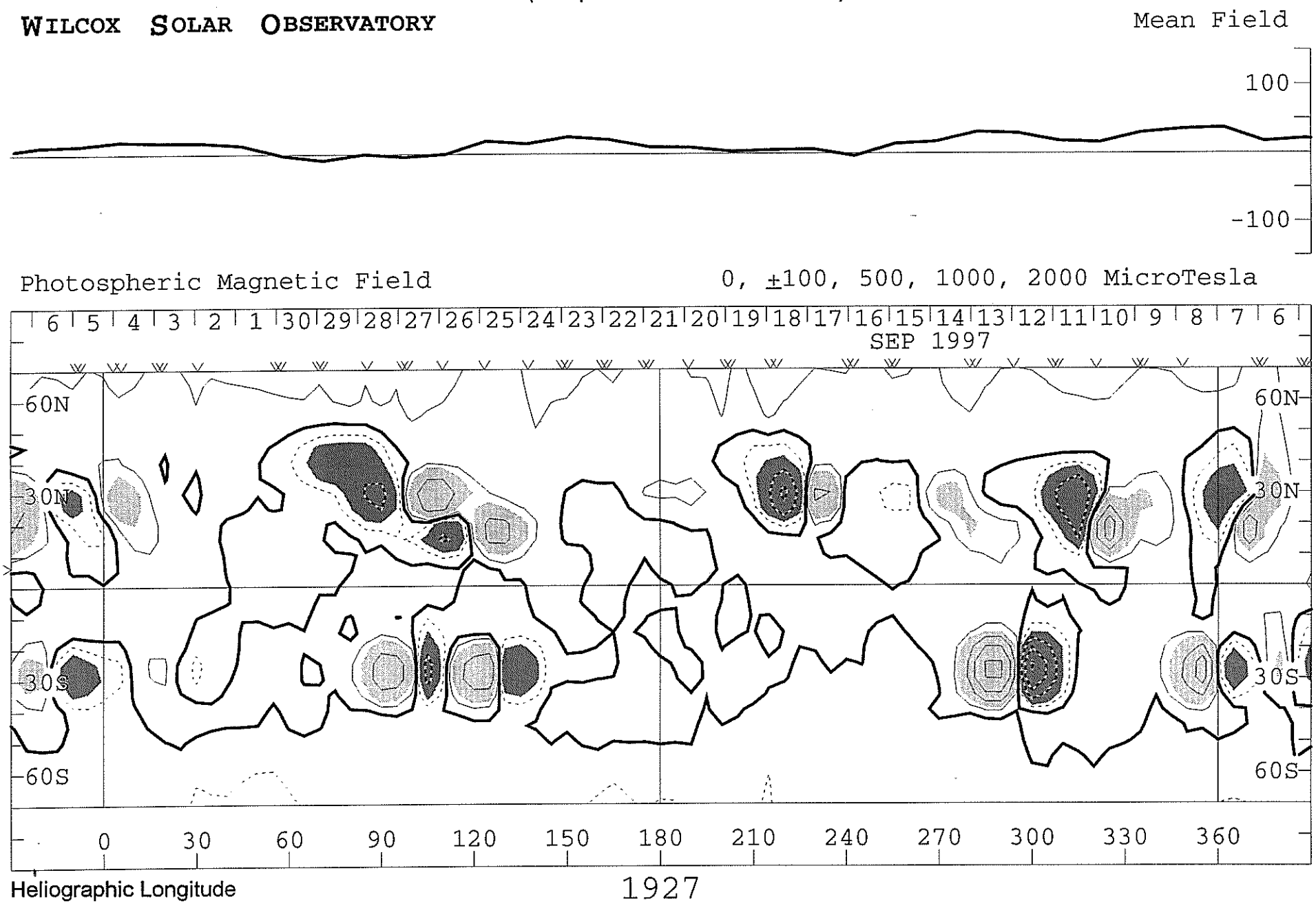
DATA FOR OCTOBER 1997

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1927

(7 September to 5 October 1997)

WILCOX SOLAR OBSERVATORY



SOLAR MAGNETIC FIELD SYNOPTIC CHART

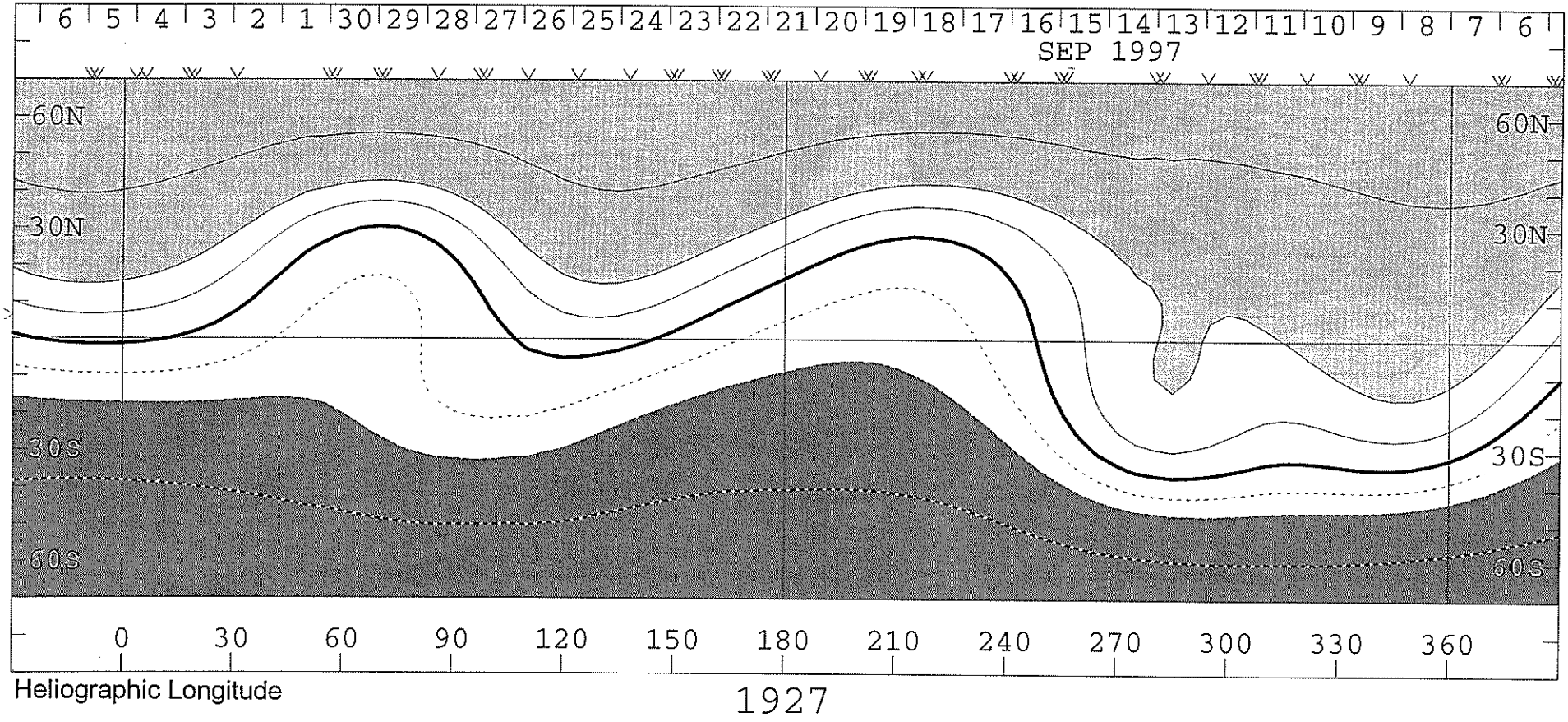
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1927

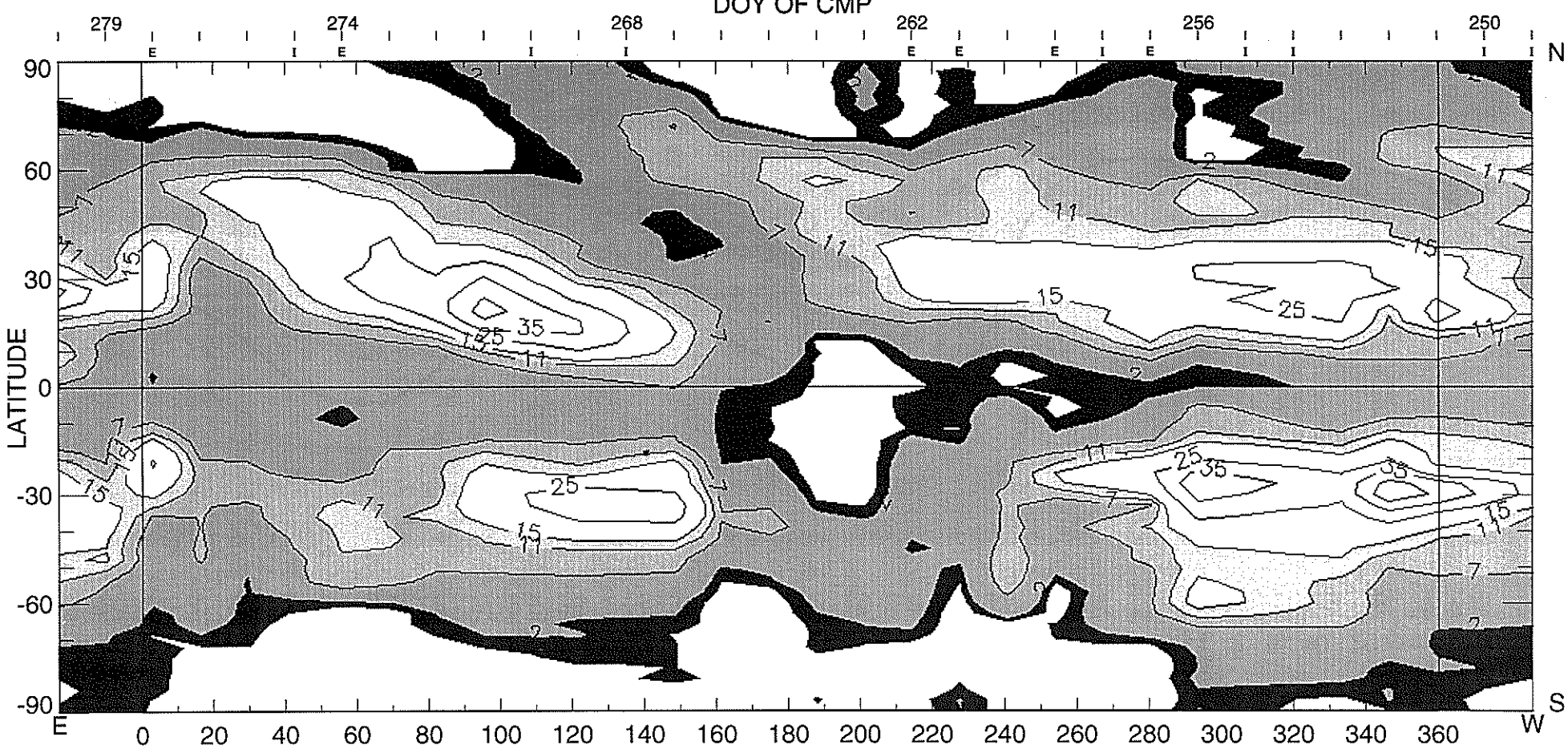
(7 September to 5 October 1997)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla



CARRINGTON ROTATION NUMBER 1927 ; NSO/SACRAMENTO PEAK FE XIV @ R = 1.15R_o



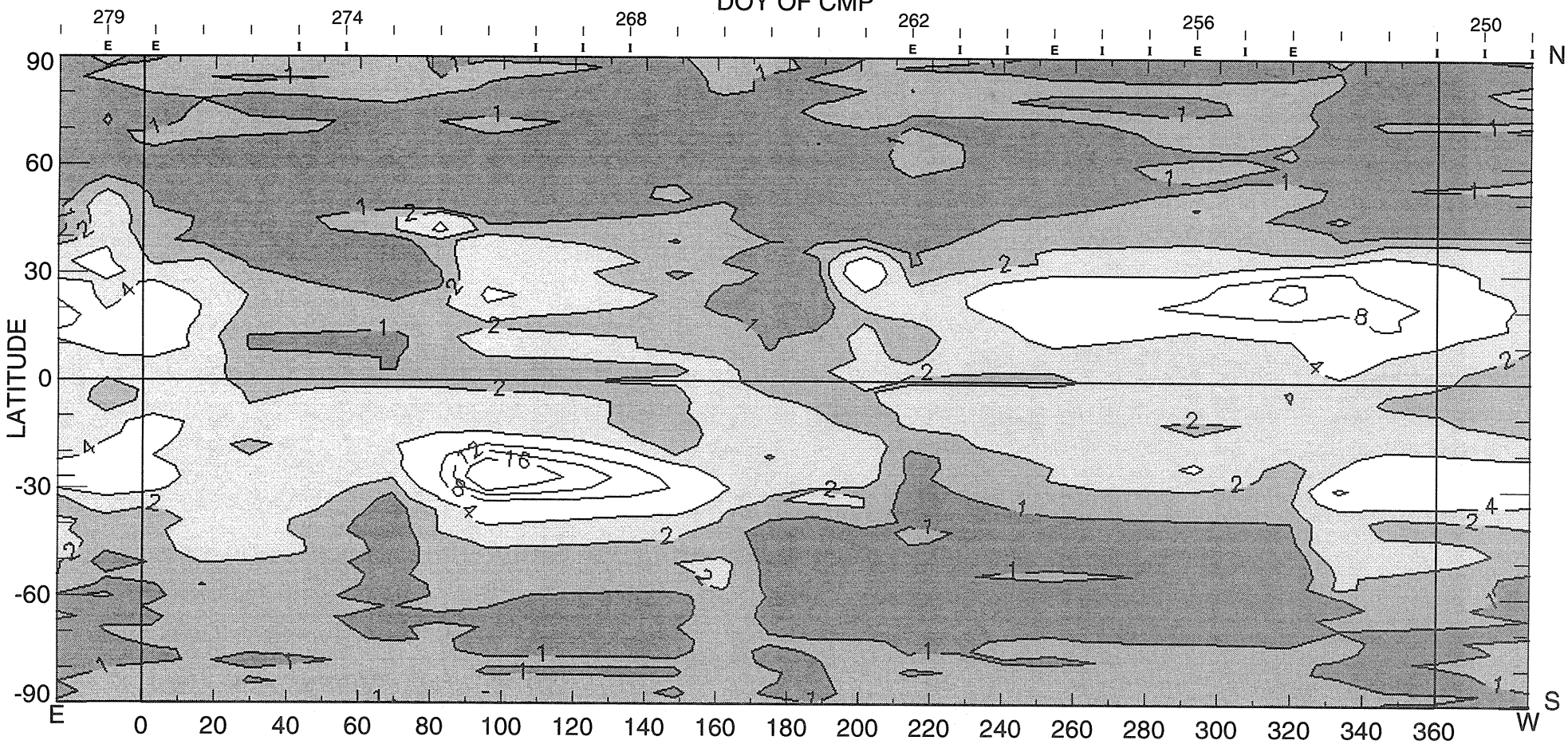
<I> = 7.61μ

(17-Dec-97)

1997 W+E LIMB CONTOURS: 1, 2, 7, 11, 15, 25, 35, 45 MILLIONTHS OF I_o

CORONAL HOLES ARE SHOWN AS WHITE BORDERED BY BLACK

CARRINGTON ROTATION NUMBER 1927 ; NSO/SACRAMENTO PEAK FE X @ R = 1.15R_o



(25-Nov-97)

<I> = 1.92μ

1997 W+E LIMB CONTOURS: 1, 2, 4, 8, 12, 16, 32, 48 MILLIONTHS OF I_o

NOTE: No Ca XV emission observed at Sacramento Peak for rotation 1927.

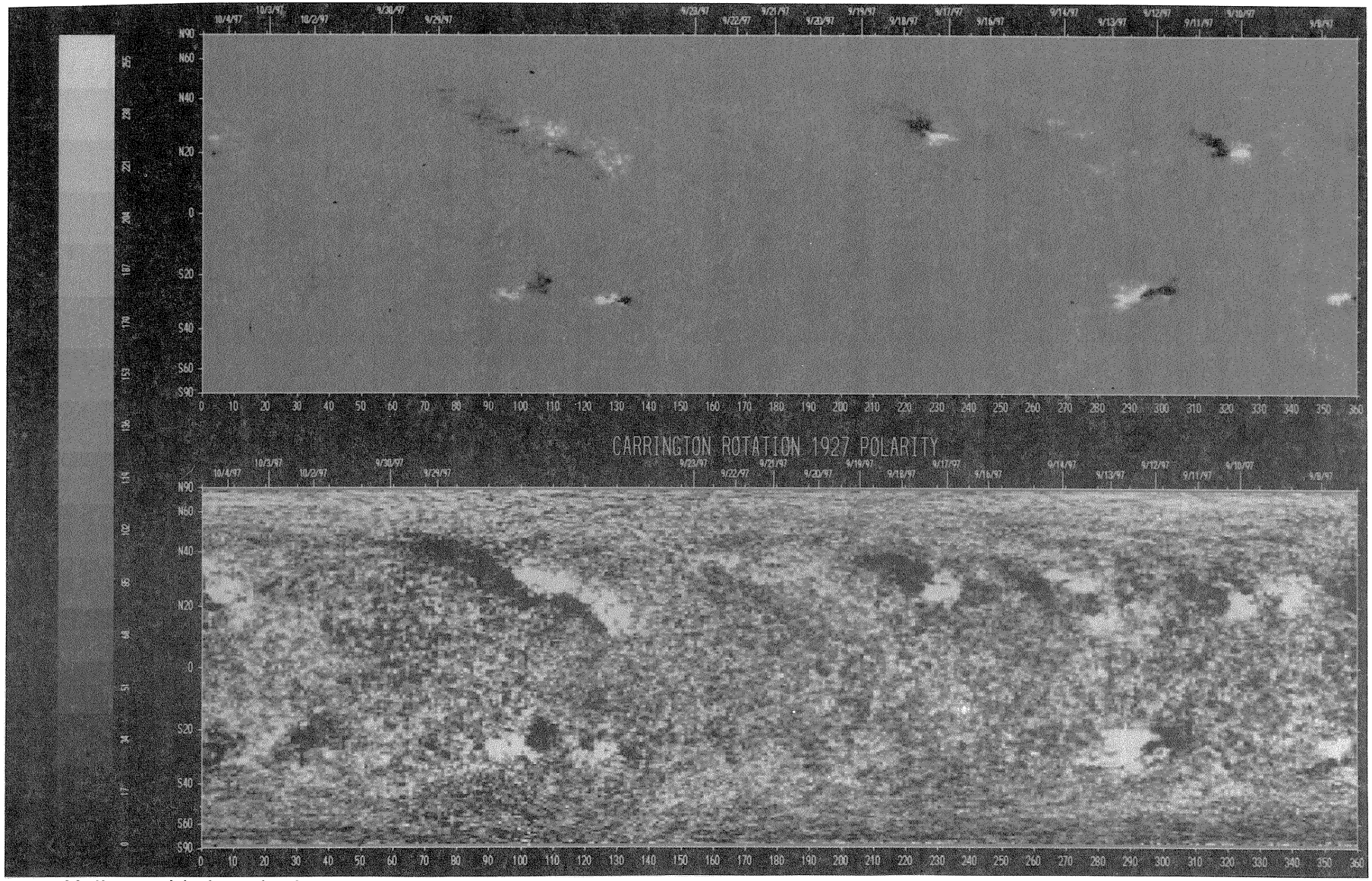
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1927

(7 September to 5 October 1997)

National Solar Observatory/Kitt Peak

Dates of Observation



Heliographic Longitude

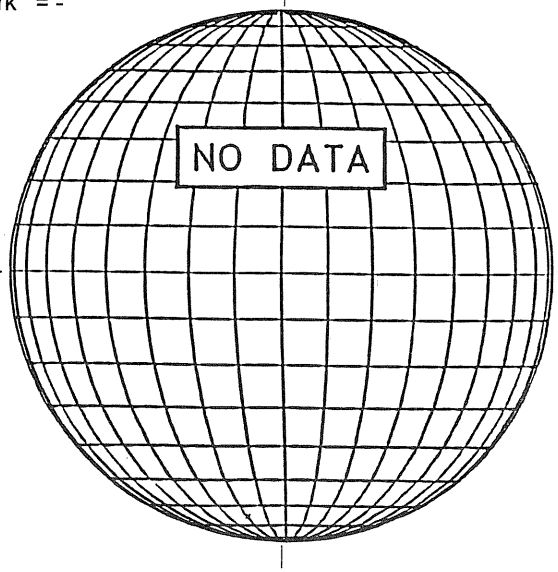
OCTOBER 1, 1997 (P= 25.98 , Bo = 6.72 , Lo = 55.95)

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -

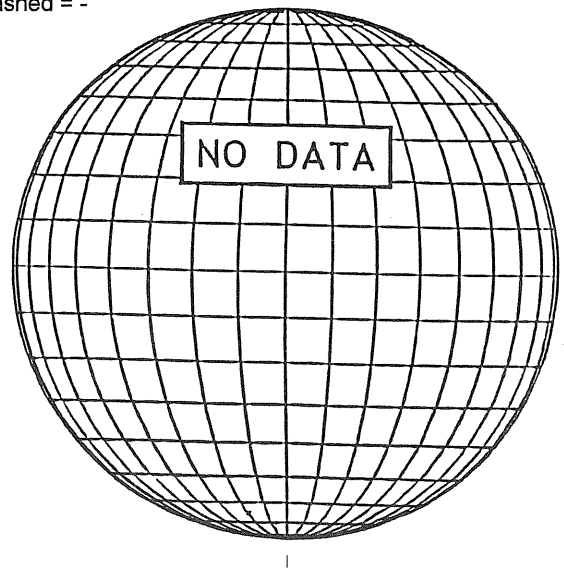


E---

STANFORD MAGNETOGRAM

N

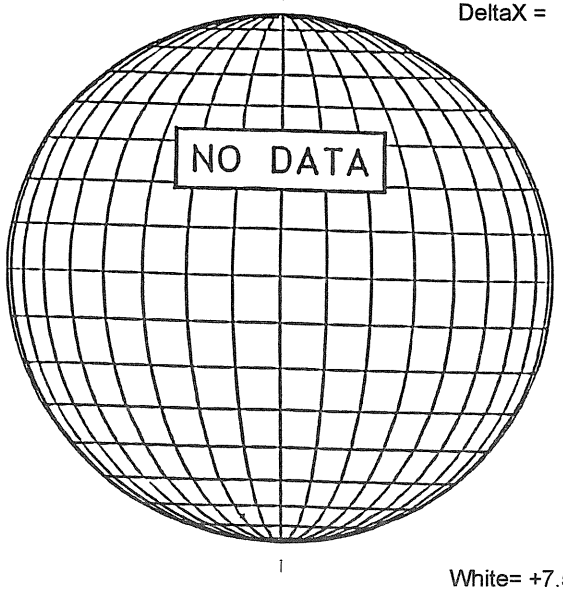
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

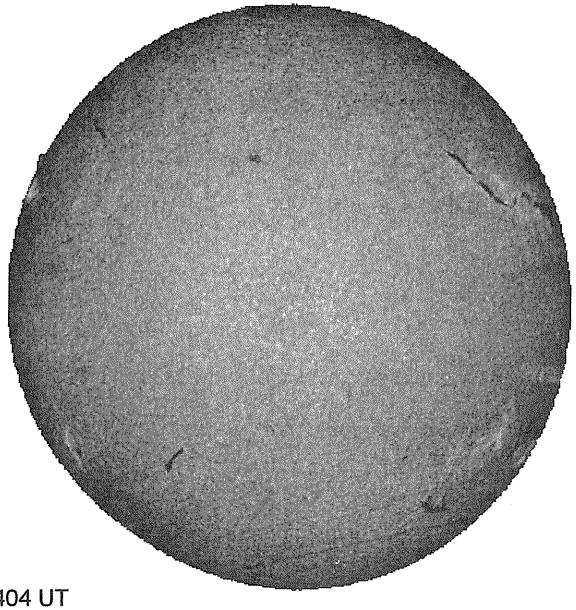
DeltaY =
DeltaX =



--W

White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA

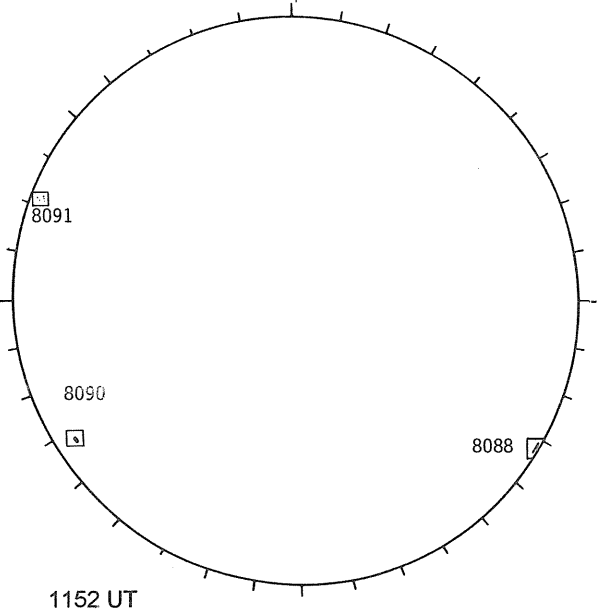


E-

1404 UT

S

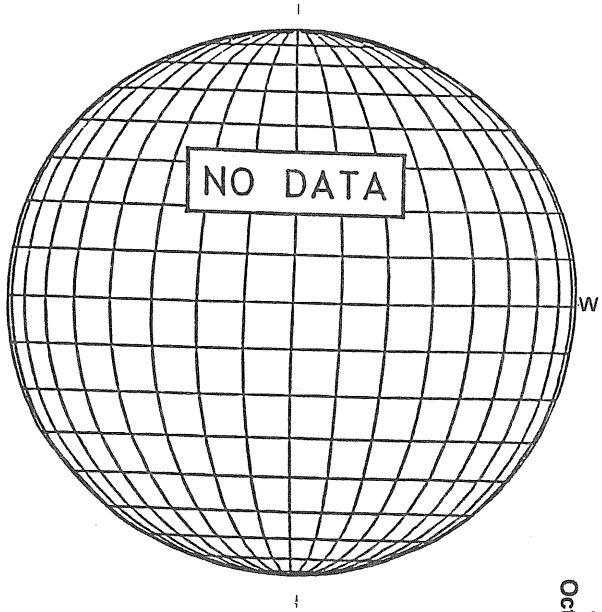
RAMEY SUNSPOT



1152 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



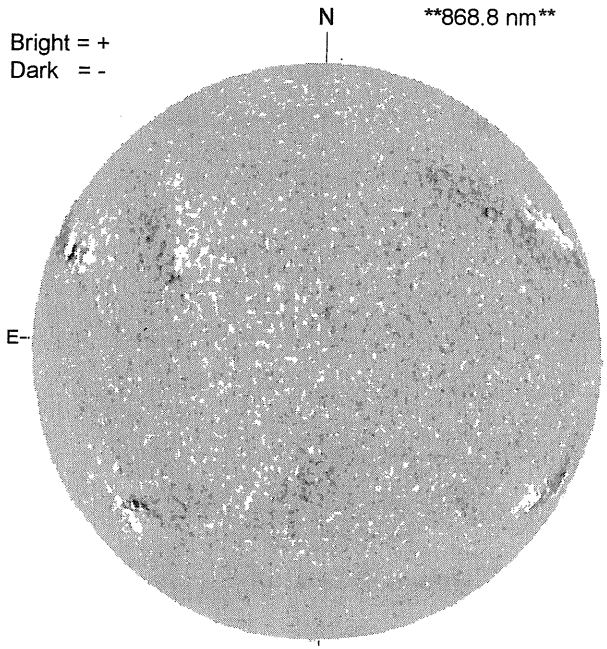
W

S

47
Oct 97

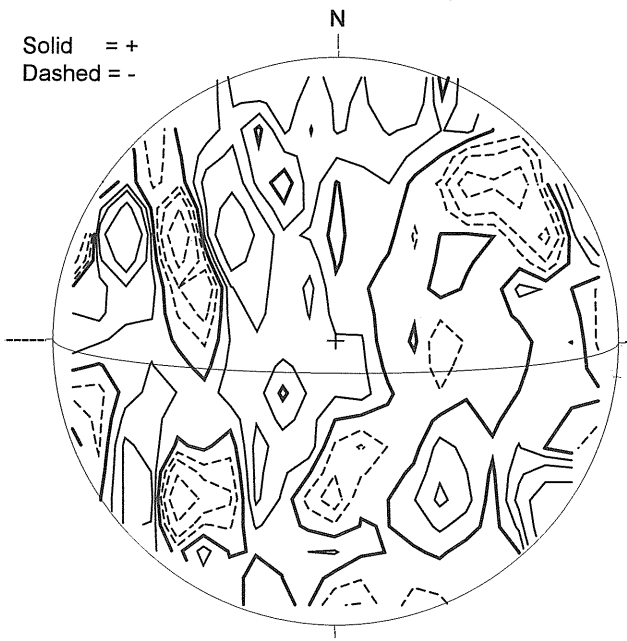
OCTOBER 2, 1997 (P= 26.05, Bo = 6.67, Lo = 42.76)

KITT PEAK MAGNETOGRAM



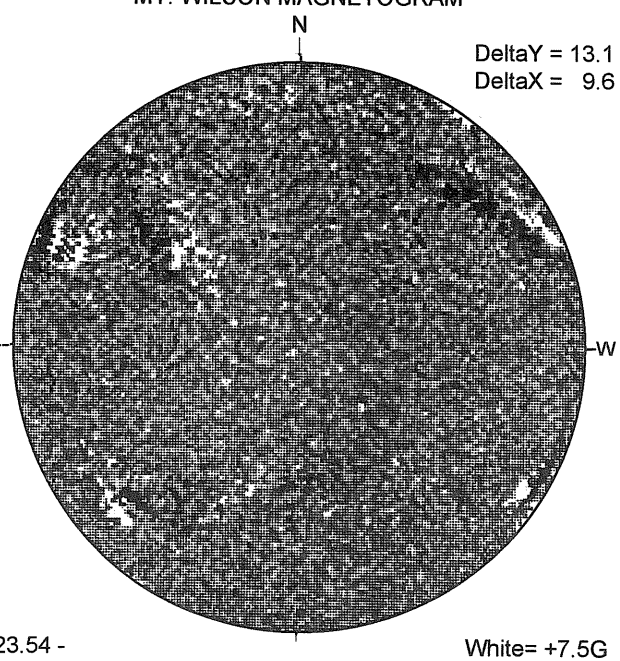
1446 UT

STANFORD MAGNETOGRAM



2214 UT

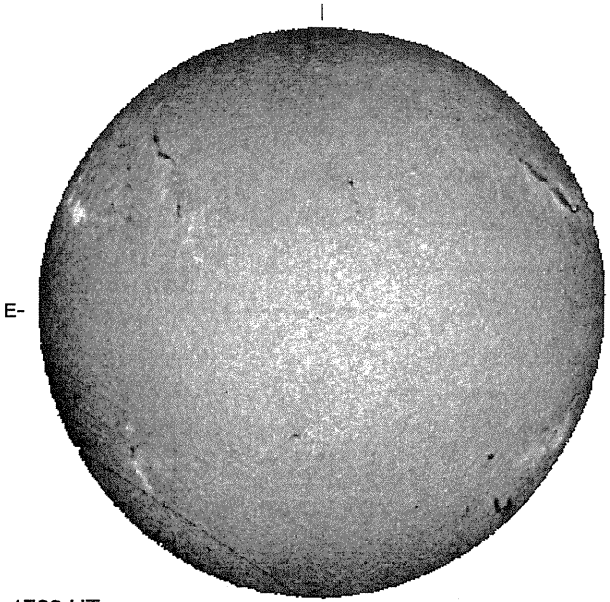
MT. WILSON MAGNETOGRAM



23.54 -
24.49 UT

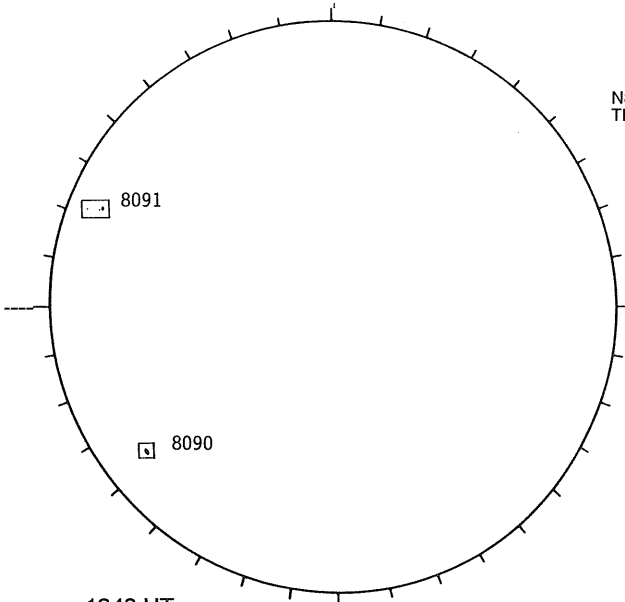
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



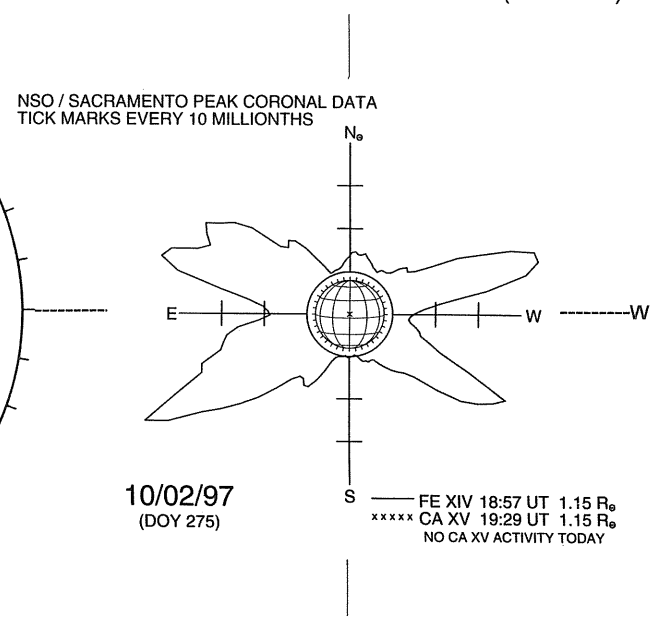
1709 UT

RAMEY SUNSPOT



1240 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

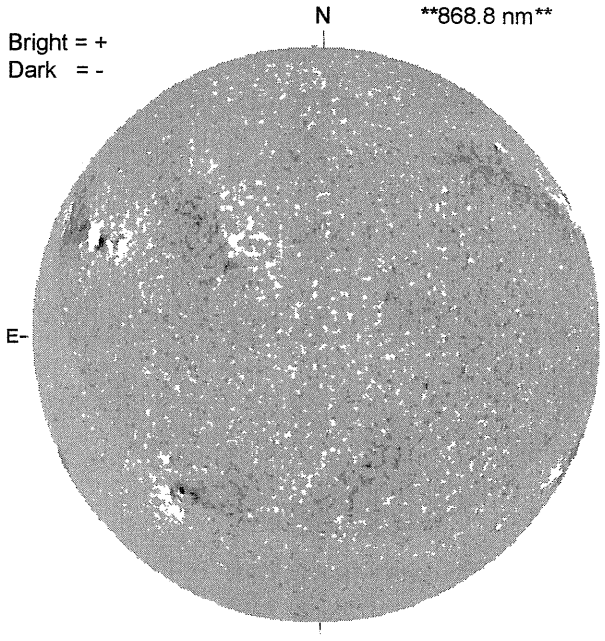


10/02/97
(DOY 275)

FE XIV 18:57 UT 1.15 $R_\odot$
xxxxx CA XV 19:29 UT 1.15 $R_\odot$
NO CA XV ACTIVITY TODAY

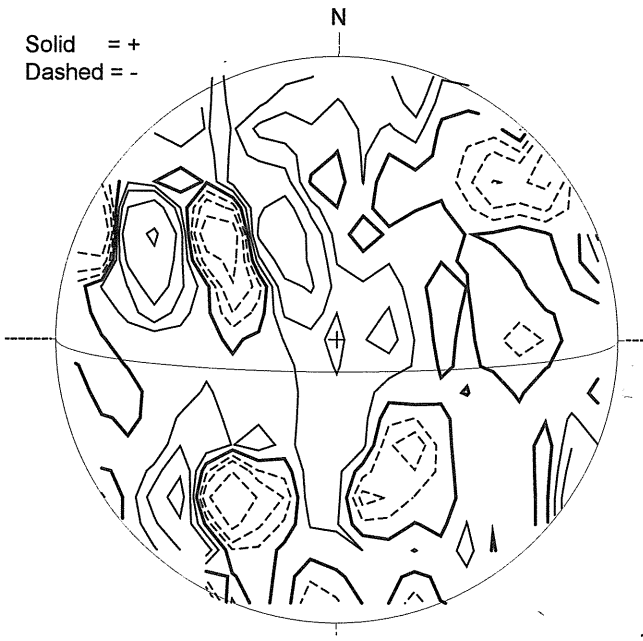
OCTOBER 3, 1997 (P= 26.10, Bo = 6.62 , Lo = 29.56)

KITT PEAK MAGNETOGRAM



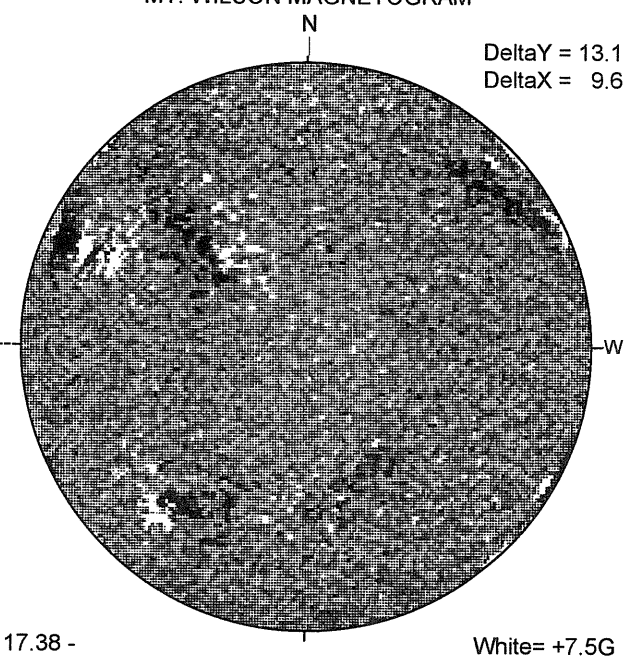
1522 UT

STANFORD MAGNETOGRAM



1918 UT

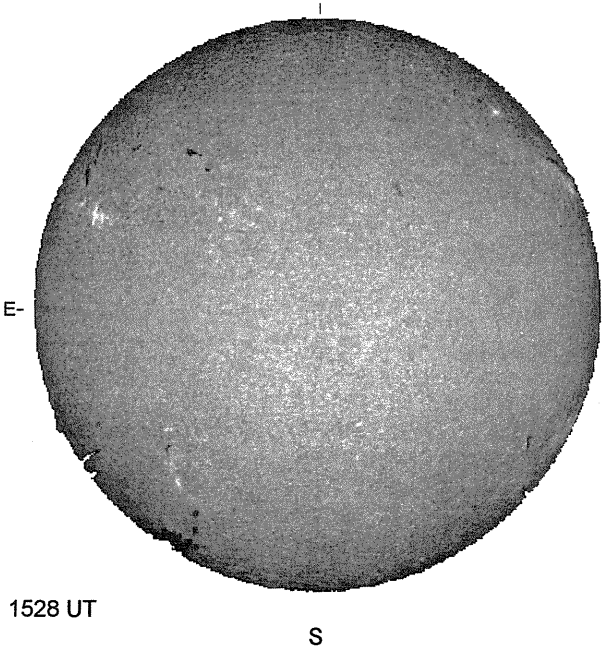
MT. WILSON MAGNETOGRAM



17.38 -
18.32 UT

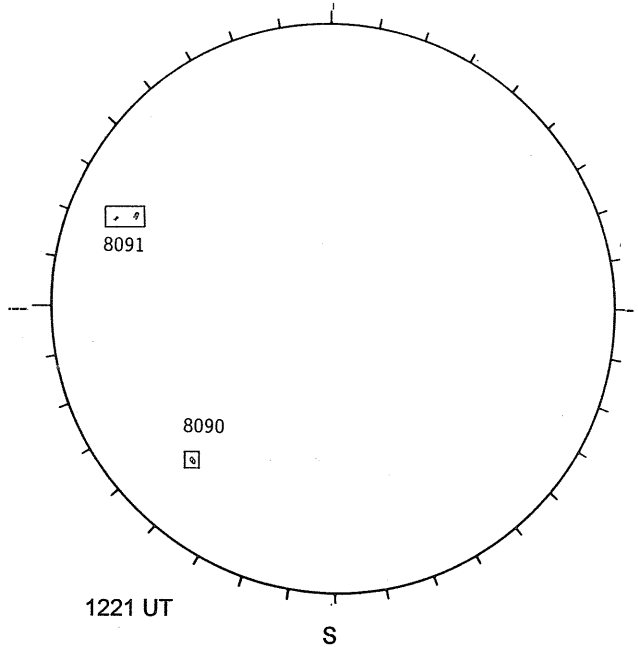
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



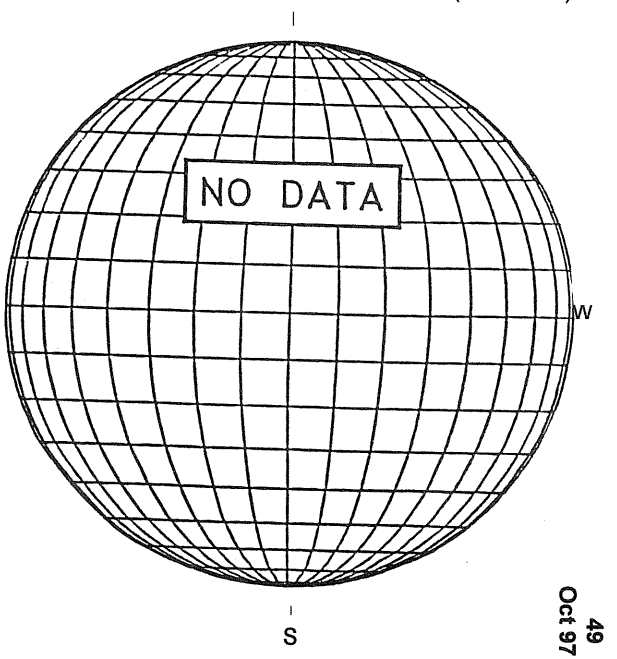
1528 UT

RAMEY SUNSPOT



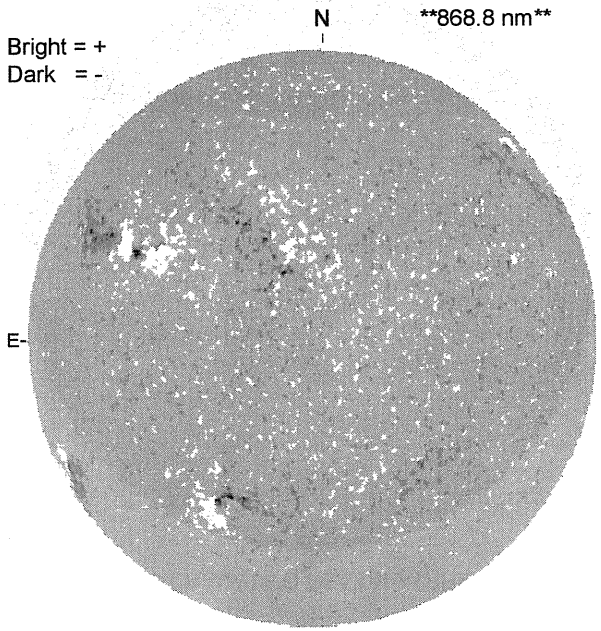
1221 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----



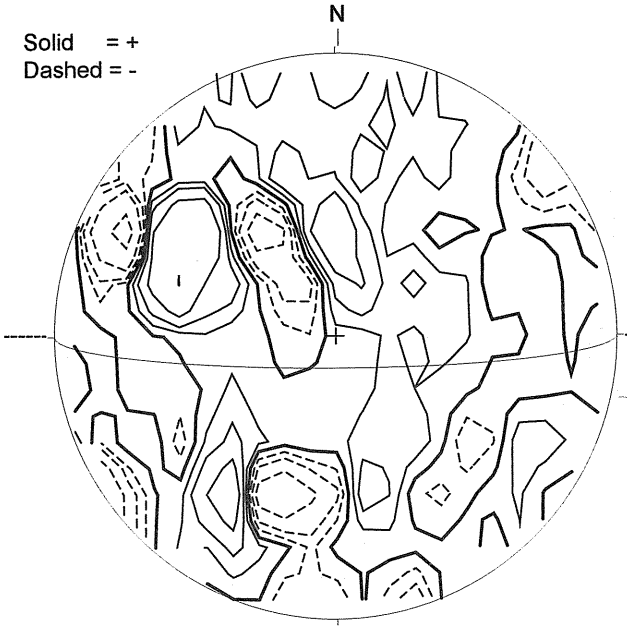
OCTOBER 4, 1997 (P= 26.15 , Bo = 6.57 Lo = 16.37)

KITT PEAK MAGNETOGRAM



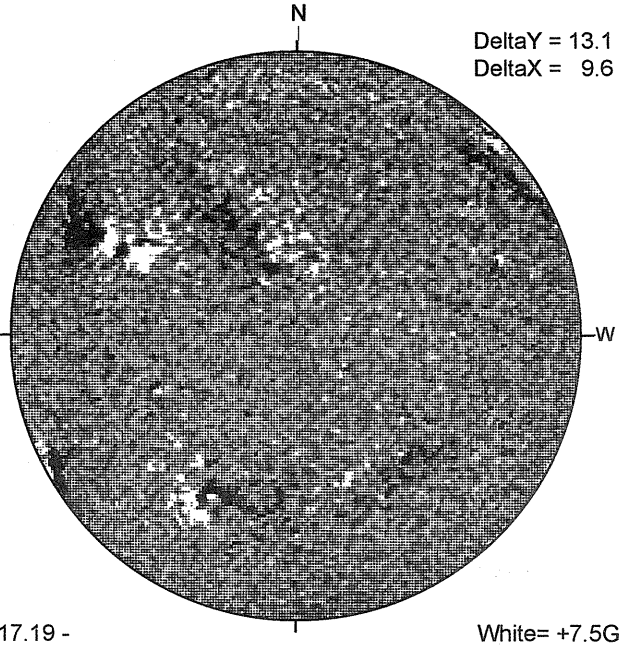
1555 UT

STANFORD MAGNETOGRAM



1916 UT

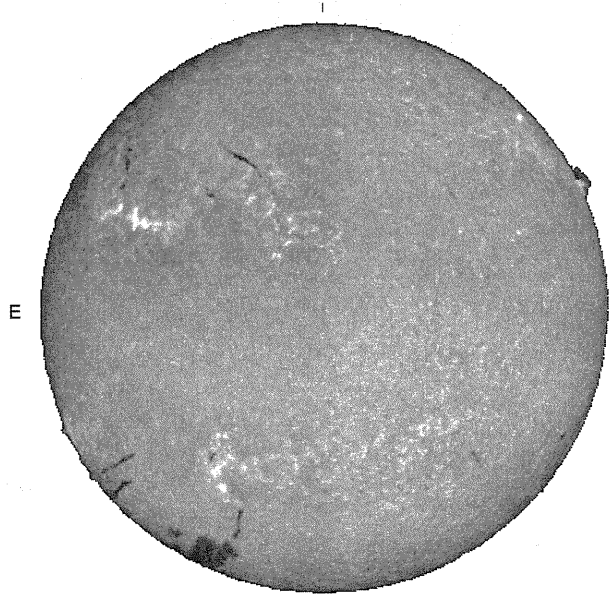
MT. WILSON MAGNETOGRAM



17.19 -
18.13 UT

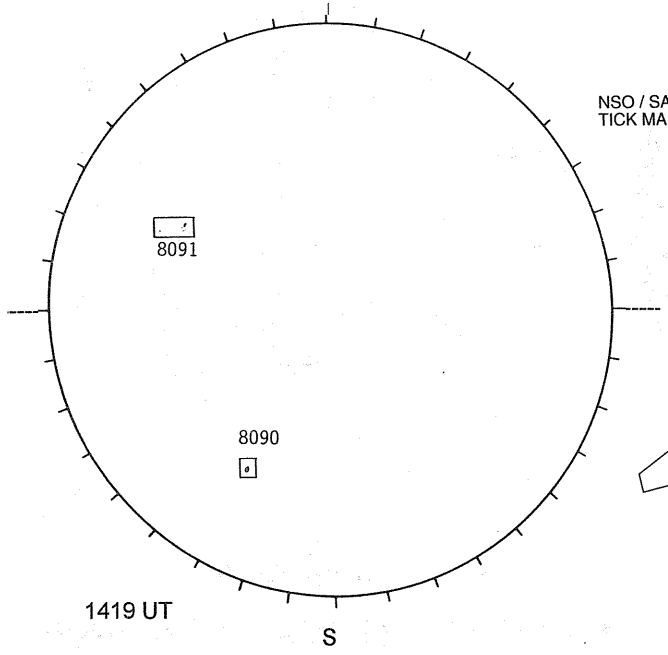
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



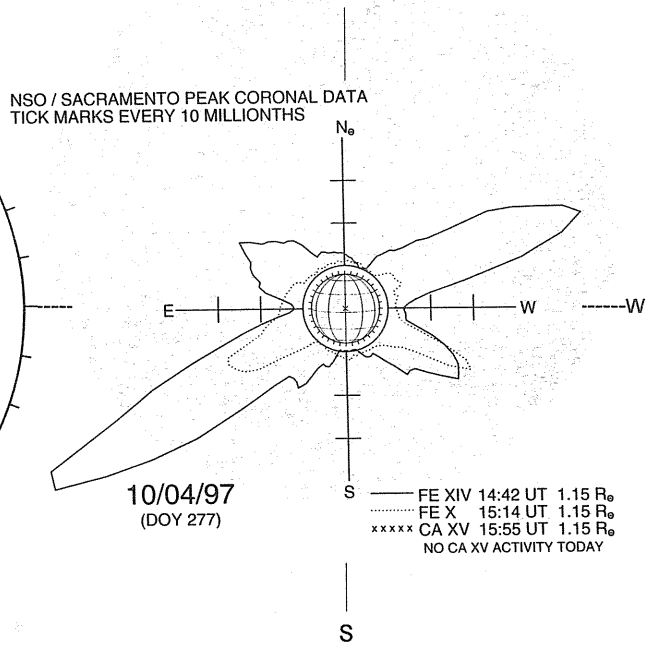
1218 UT

RAMEY SUNSPOT



1419 UT

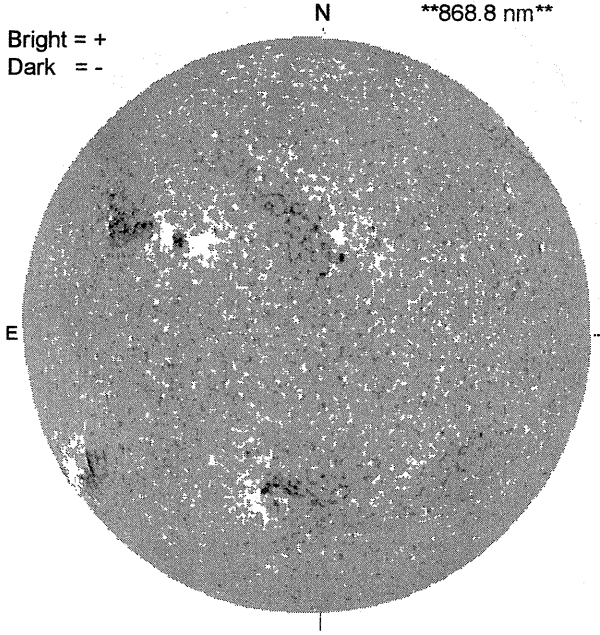
SACRAMENTO PEAK CORONA (1.15 Radii)----



10/04/97
(DOY 277)

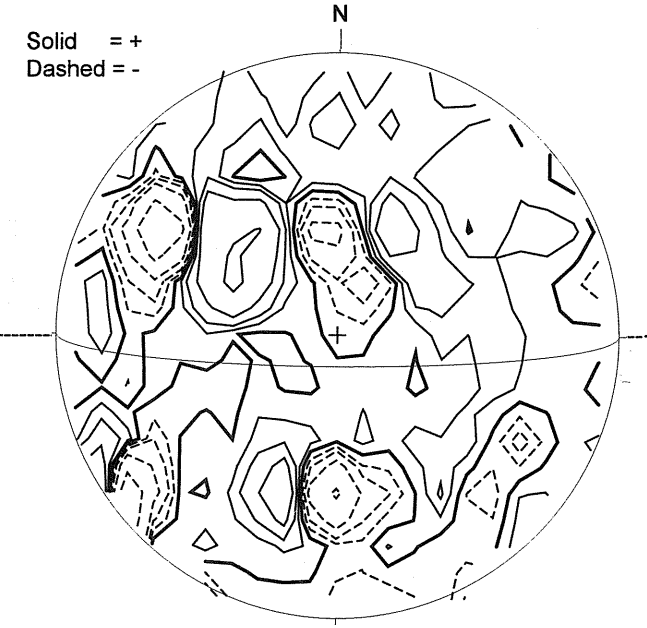
OCTOBER 5, 1997 (P= 26.19 , Bo = 6.51 , Lo = 3.18)

KITT PEAK MAGNETOGRAM



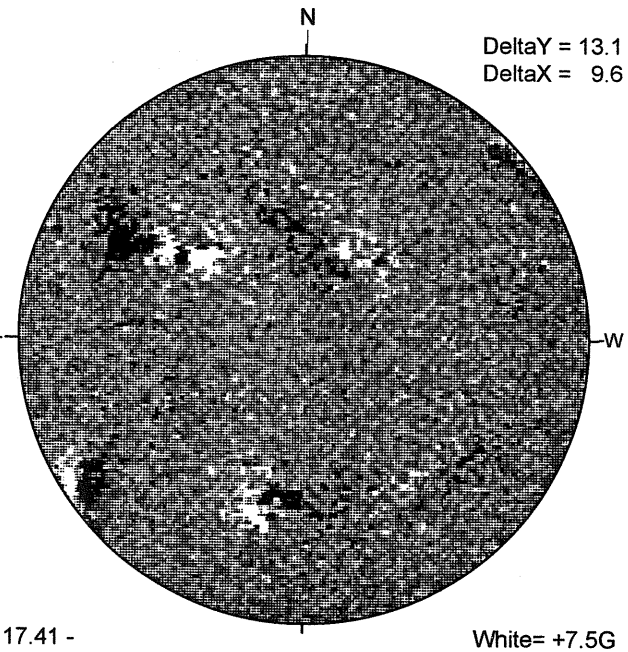
1429 UT

STANFORD MAGNETOGRAM



1939 UT

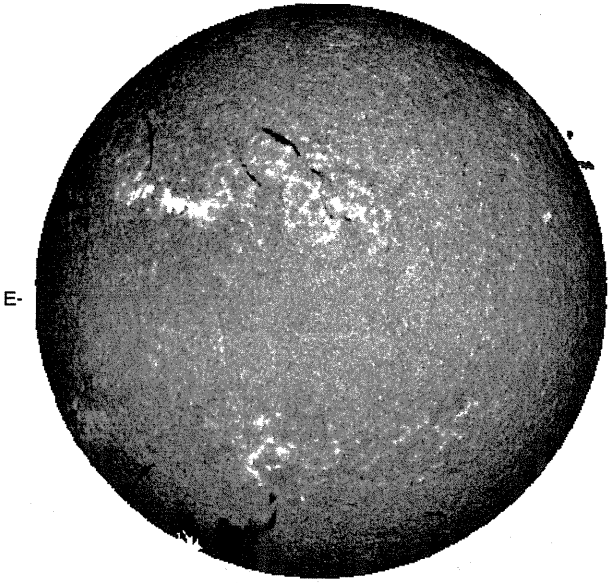
MT. WILSON MAGNETOGRAM



17.41 -
18.35 UT

White= +7.5G
Black = -7.5G

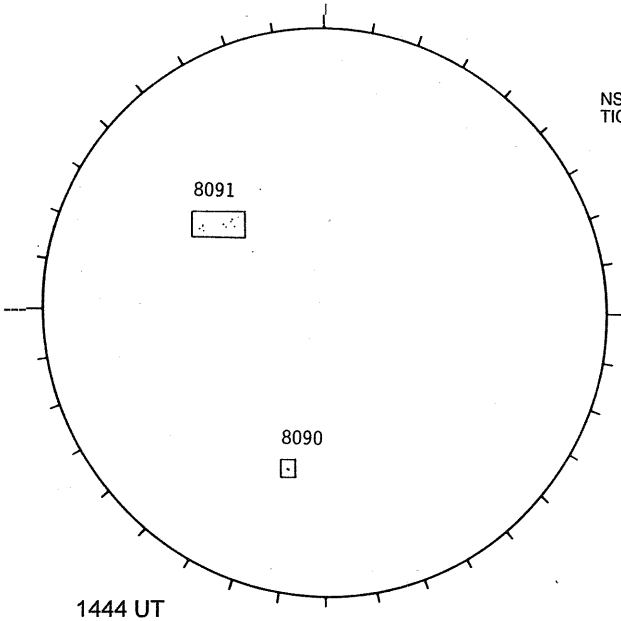
MEUDON H-ALPHA



0741 UT

S

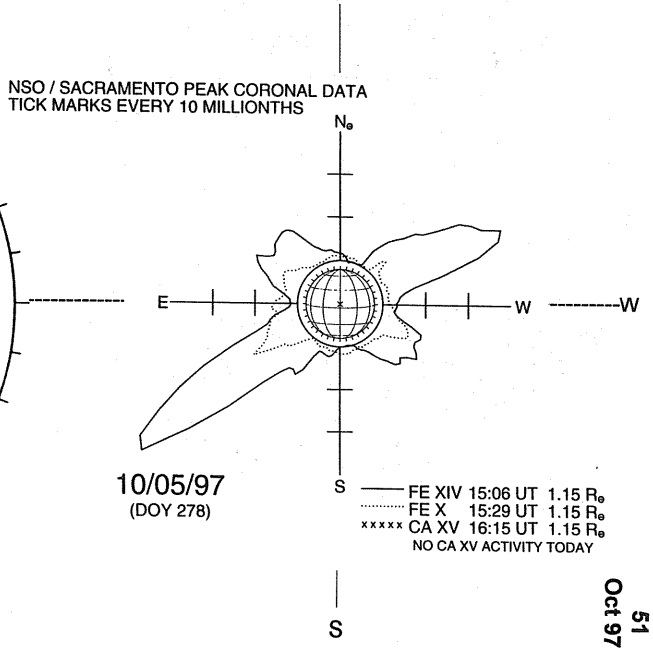
RAMEY SUNSPOT



1444 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



10/05/97
(DOY 278)

S

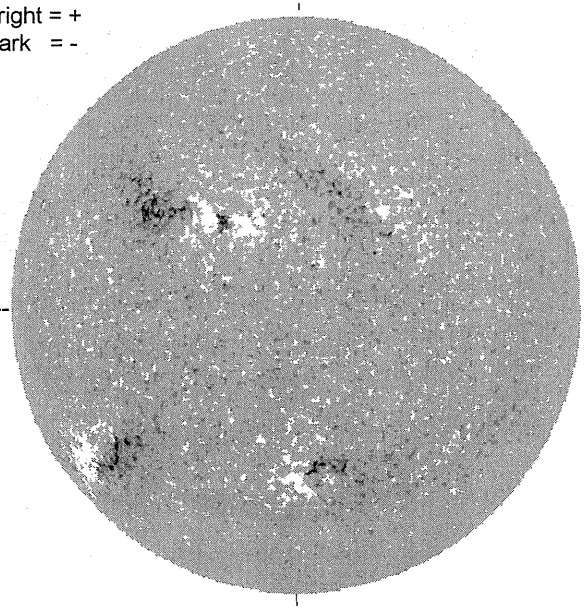
51
Oct 97

OCTOBER 6, 1997 (P= 26.23, Bo = 6.45 , Lo = 349.98)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



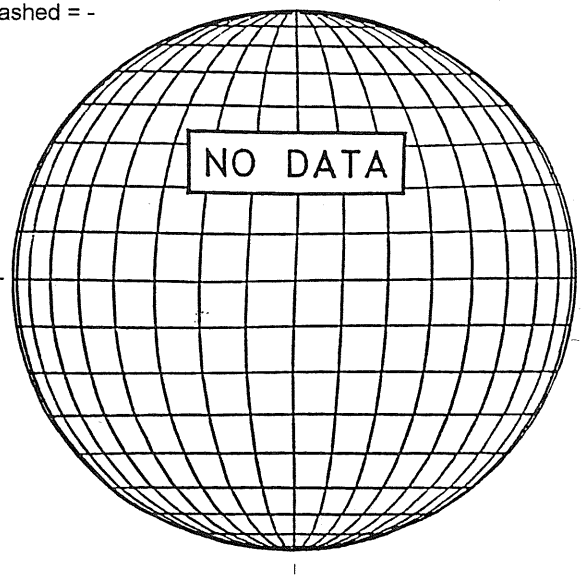
E--

1433 UT

STANFORD MAGNETOGRAM

N

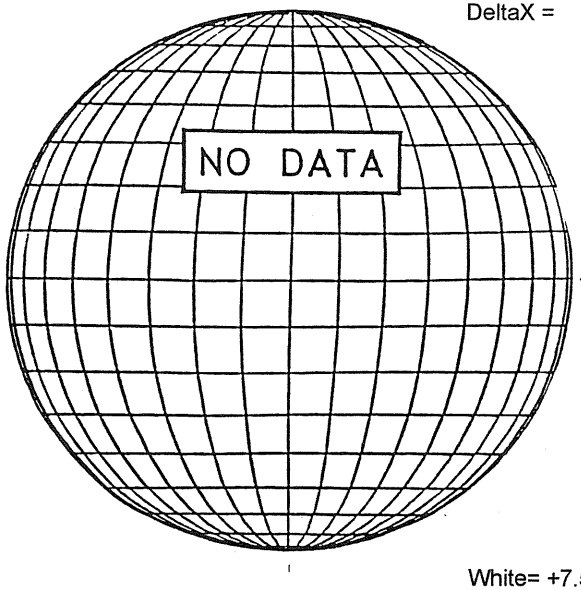
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

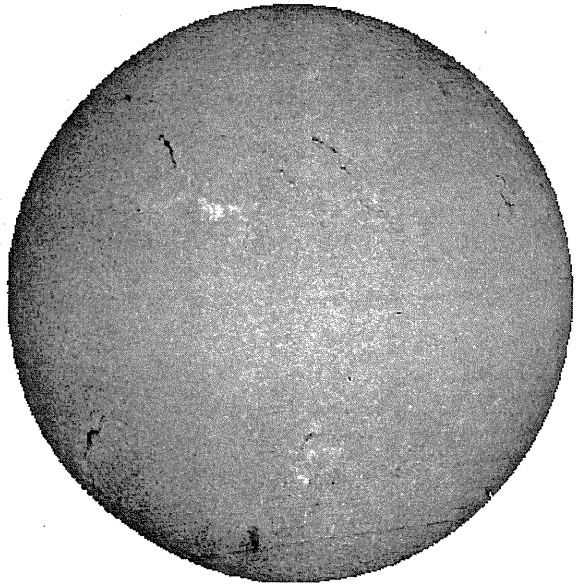
DeltaY =
DeltaX =



-W

White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA

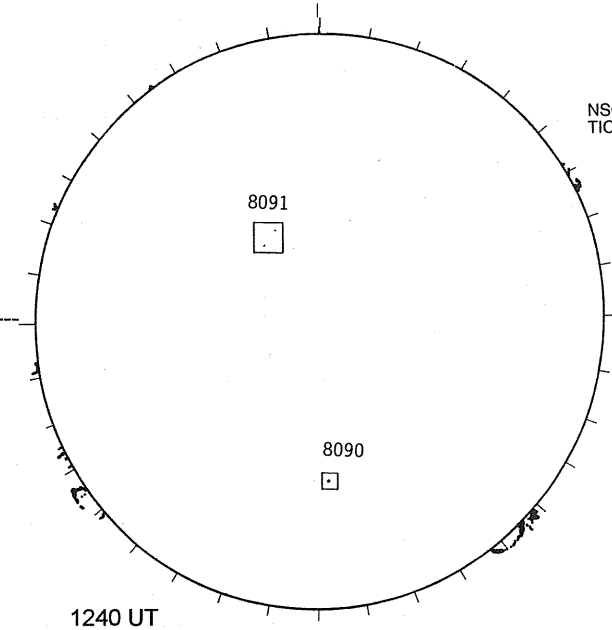


E-

1420 UT

S

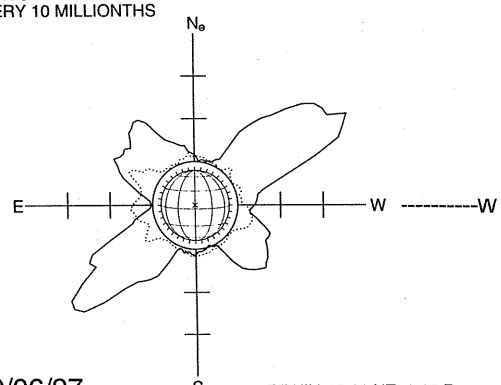
RAMEY SUNSPOT



1240 UT
0630 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



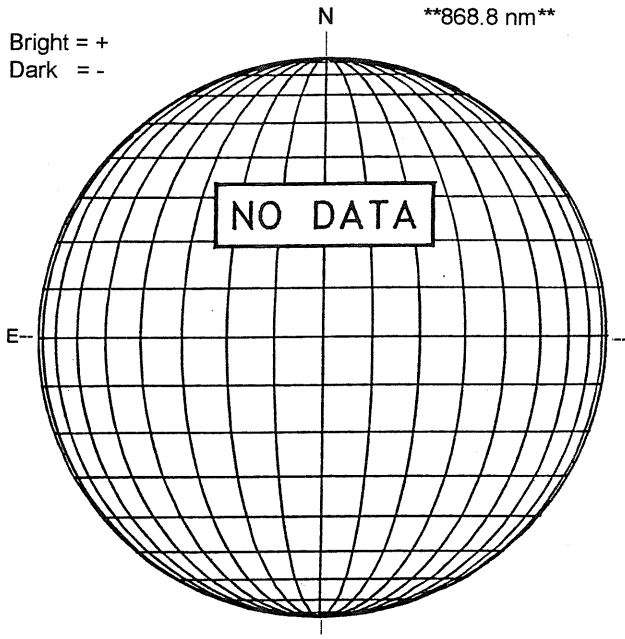
10/06/97
(DOY 279)

FE XIV 15:11 UT 1.15 R
FE X 16:02 UT 1.15 R
xxxxx CA XV 15:50 UT 1.15 R
NO CA XV ACTIVITY TODAY

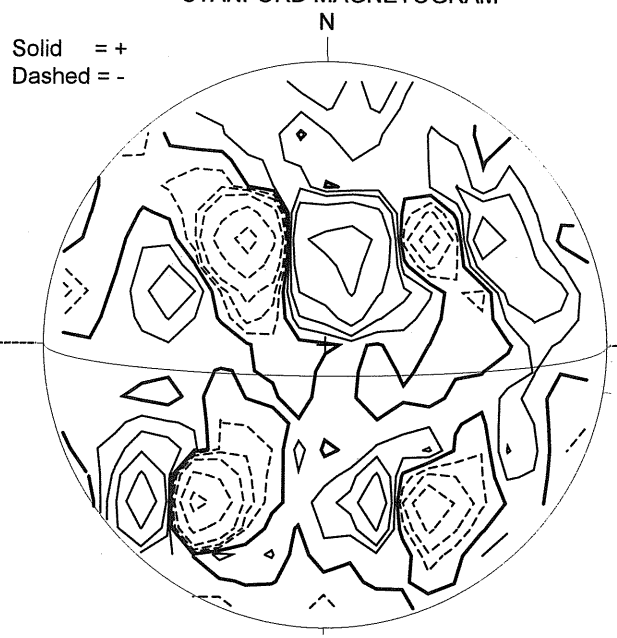
S

OCTOBER 7, 1997 (P= 26.26, Bo = 6.40 Lo = 336.79)

KITT PEAK MAGNETOGRAM

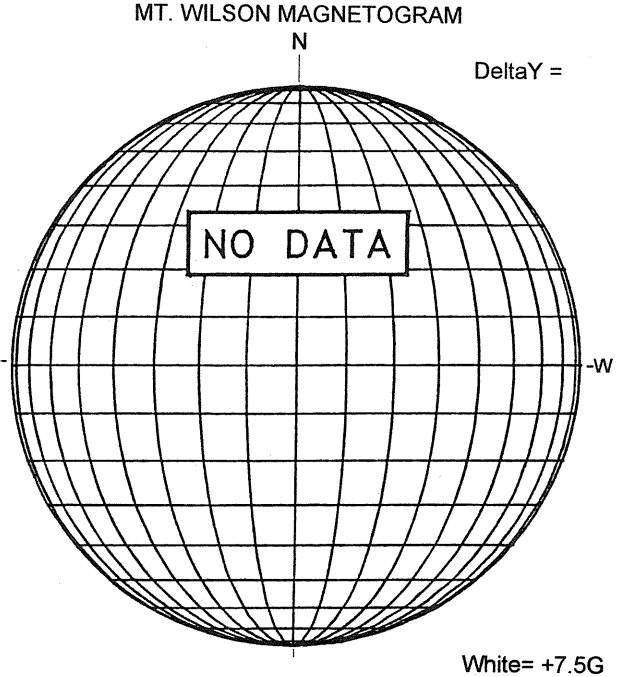


STANFORD MAGNETOGRAM



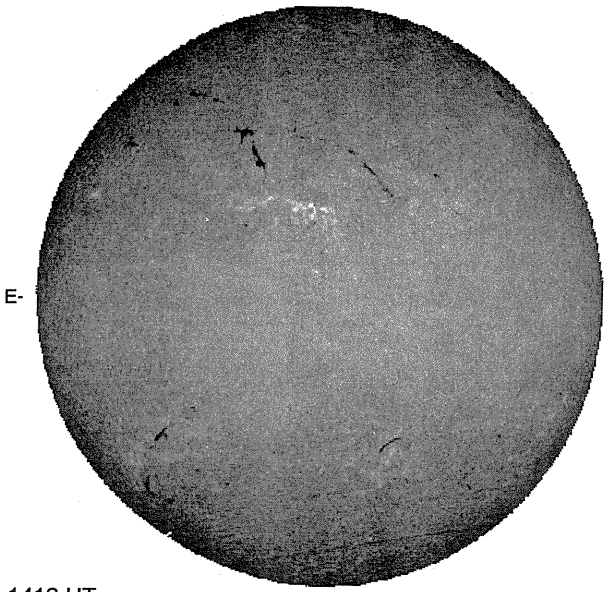
2141 UT

MT. WILSON MAGNETOGRAM



White= +7.5G
Black = -7.5G

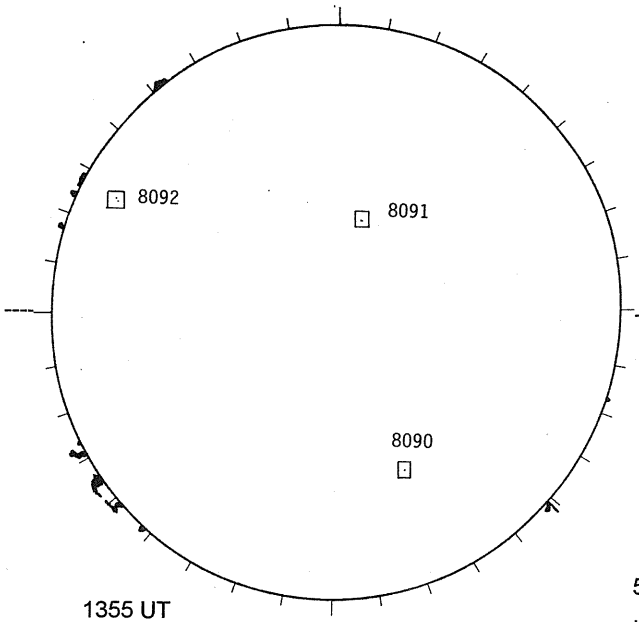
SACRAMENTO PEAK H-ALPHA



1416 UT

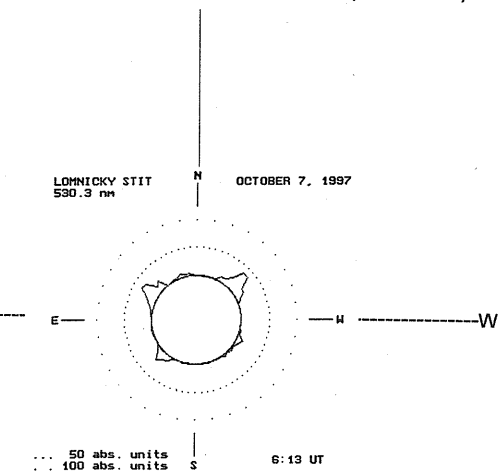
S

RAMEY SUNSPOT



1355 UT
0545 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)----



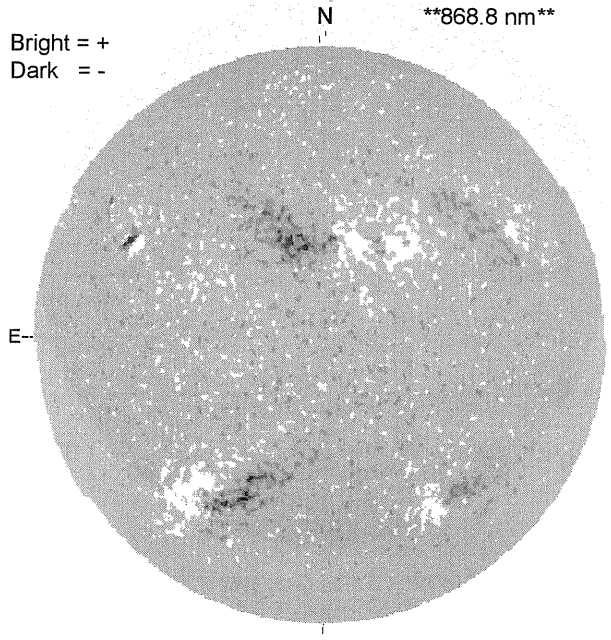
530.3 nm, 0613 UT
... 50 abs. units
. . 100 abs. units

S

53
Oct 97

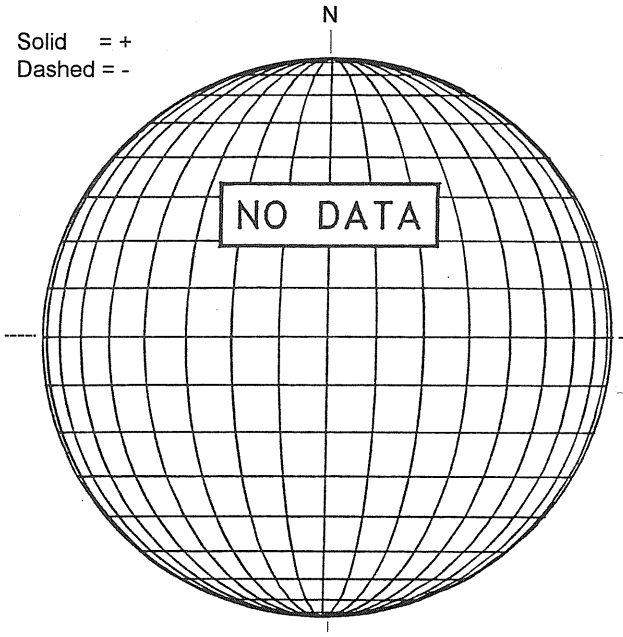
OCTOBER 8, 1997 (P= 26.28, Bo = 6.34 , Lo = 323.60)

KITT PEAK MAGNETOGRAM

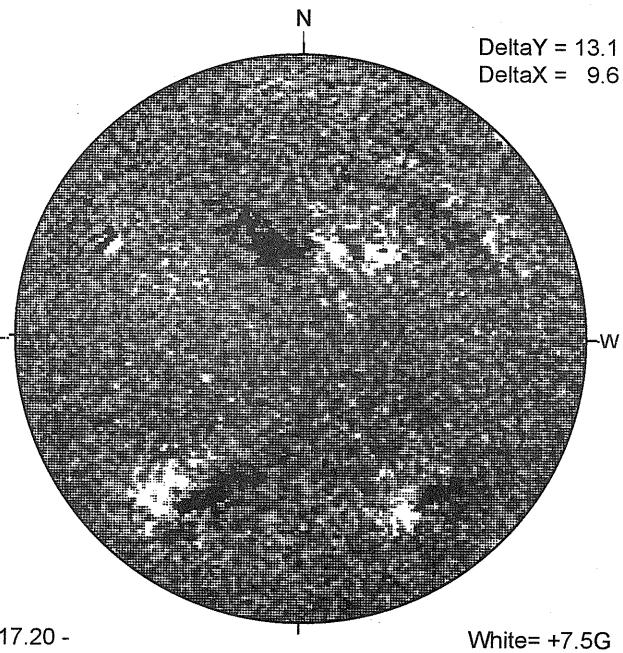


1830 UT

STANFORD MAGNETOGRAM



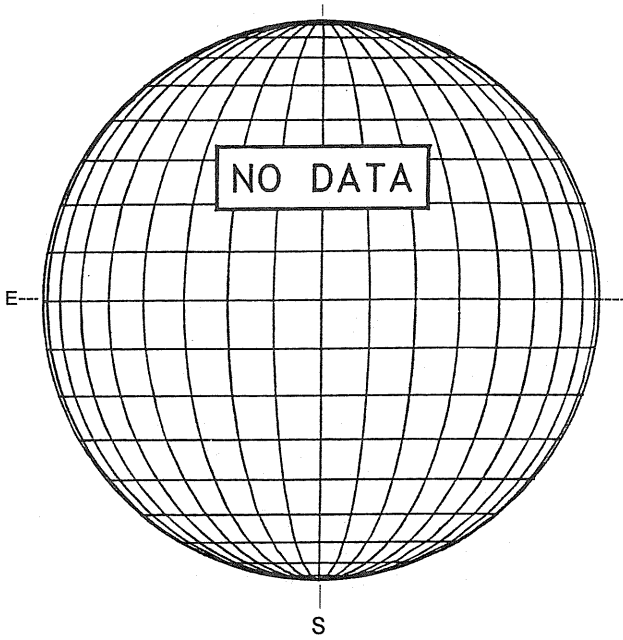
MT. WILSON MAGNETOGRAM



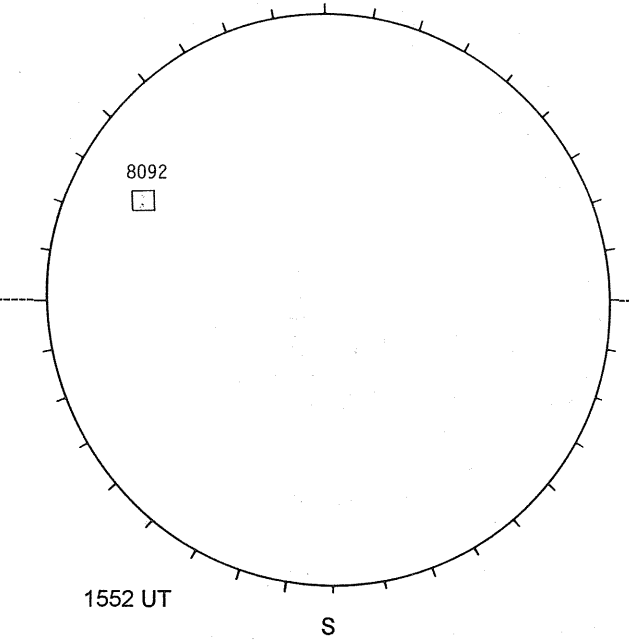
17.20 -
18.14 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

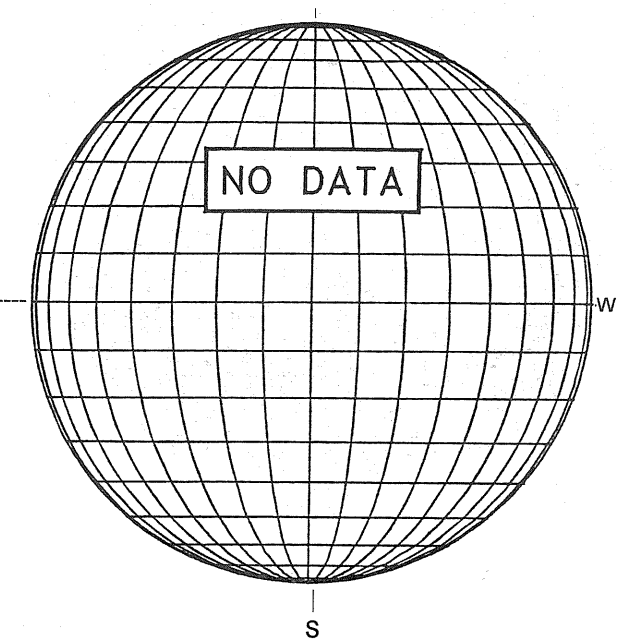


RAMEY SUNSPOT



1552 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

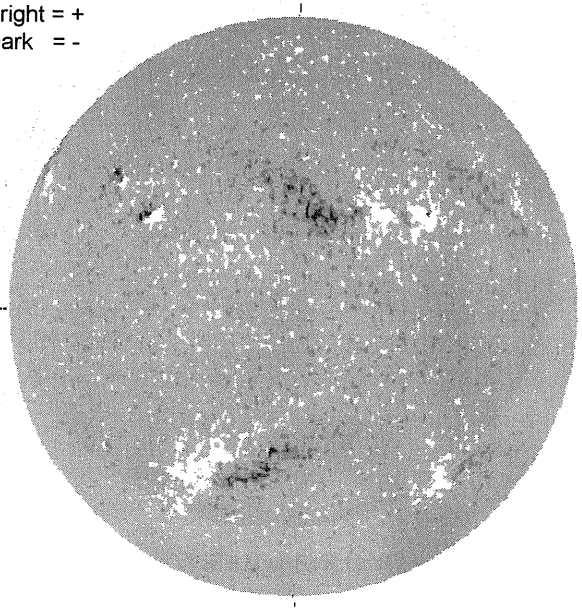


OCTOBER 9, 1997 (P= 26.29, Bo = 6.28, Lo = 310.40)

KITT PEAK MAGNETOGRAM

N **868.8 nm

Bright = +
Dark = -



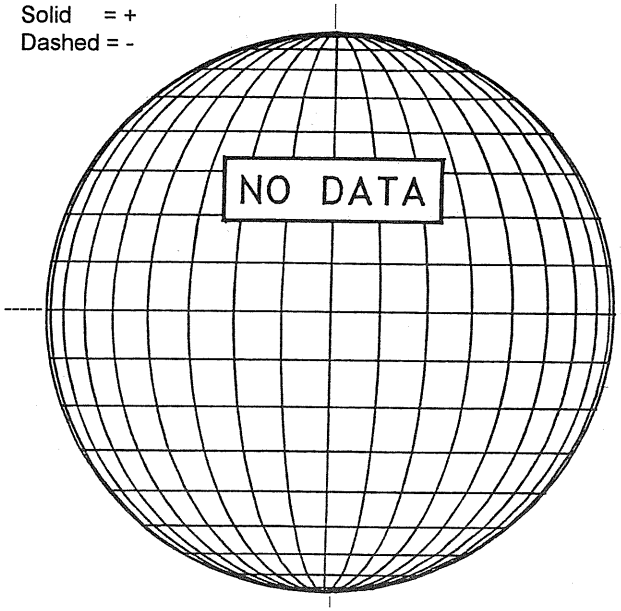
E--

1549 UT

STANFORD MAGNETOGRAM

N

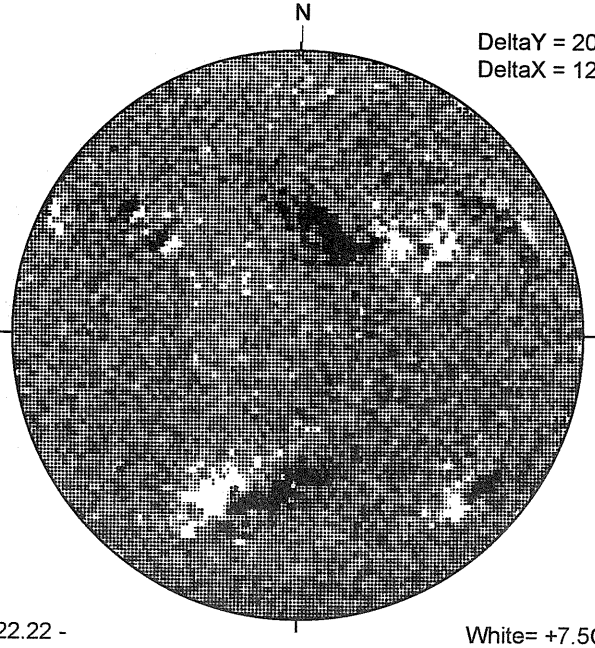
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 20.1
DeltaX = 12.9

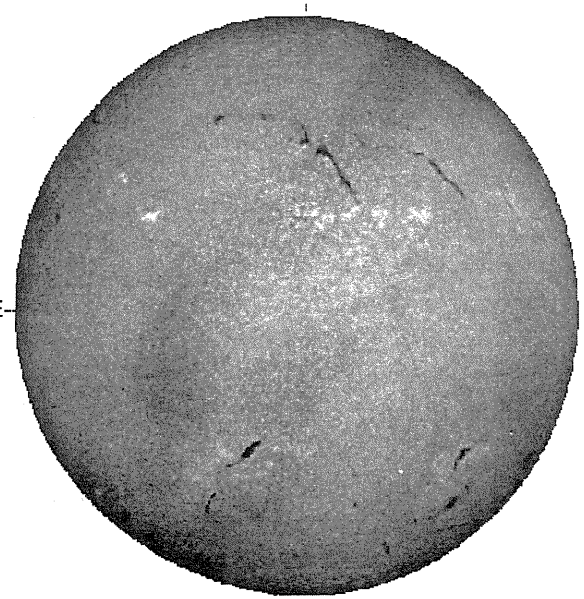


-W

22.22 -
22.64 UT

White= +7.5G
Black = -7.5G

----- SACRAMENTO PEAK H-ALPHA

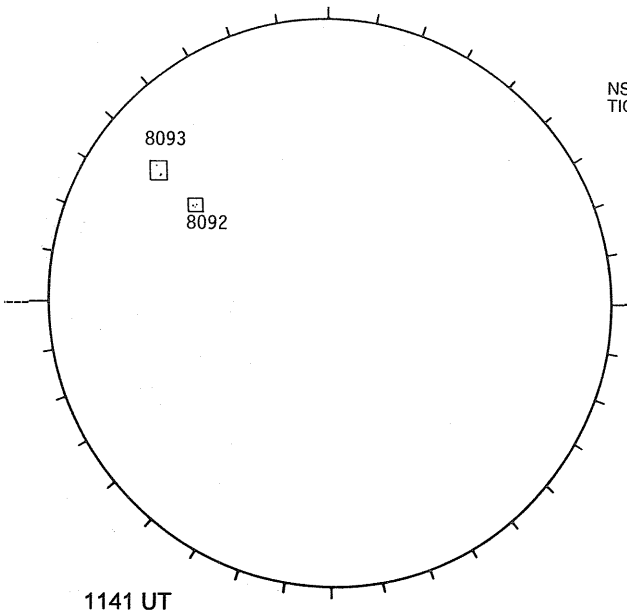


E--

1400 UT

S

RAMEY SUNSPOT

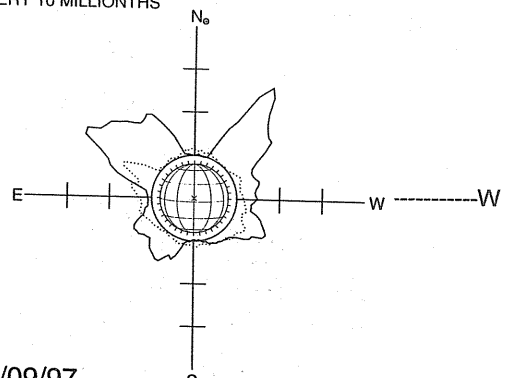


1141 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



10/09/97
(DOY 282)

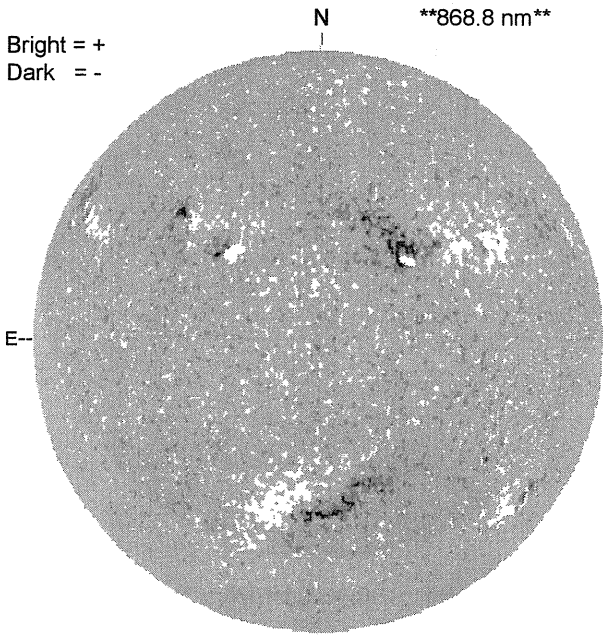
FE XIV 14:48 UT 1.15 R⊙
FE X 15:40 UT 1.15 R⊙
xxxxx CA XV 15:22 UT 1.15 R⊙
NO CA XV ACTIVITY TODAY

S

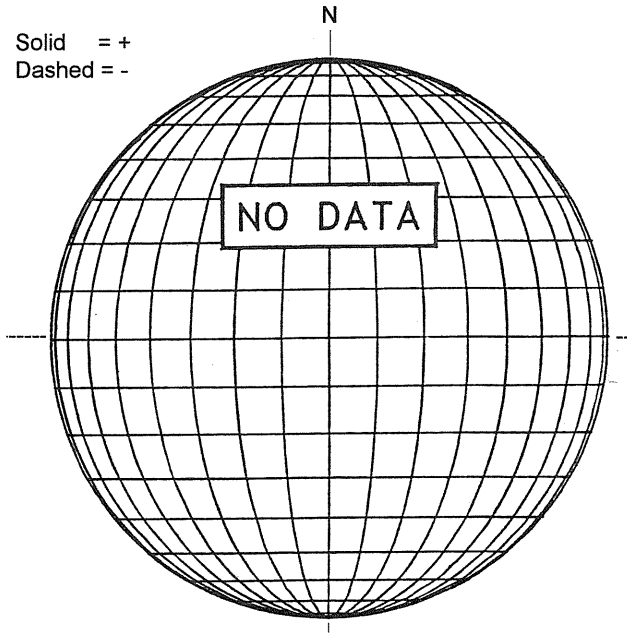
55
Oct 97

OCTOBER 10, 1997 (P= 26.30, Bo = 6.21, Lo = 297.21)

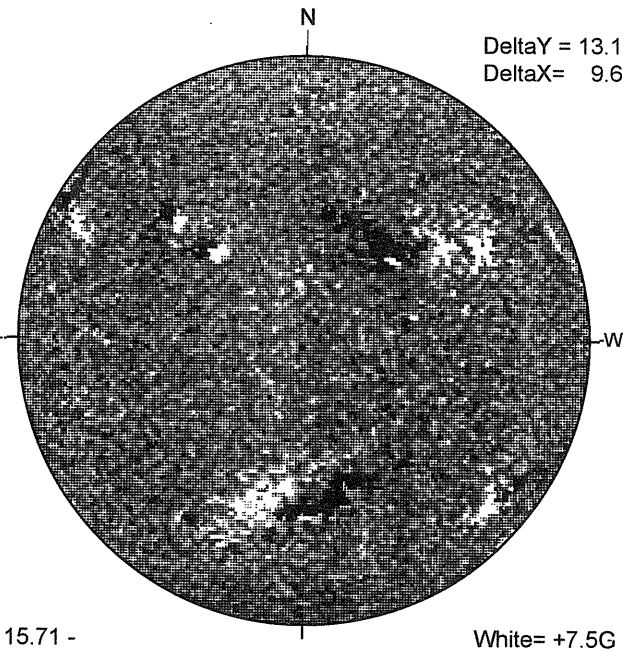
KITT PEAK MAGNETOGRAM



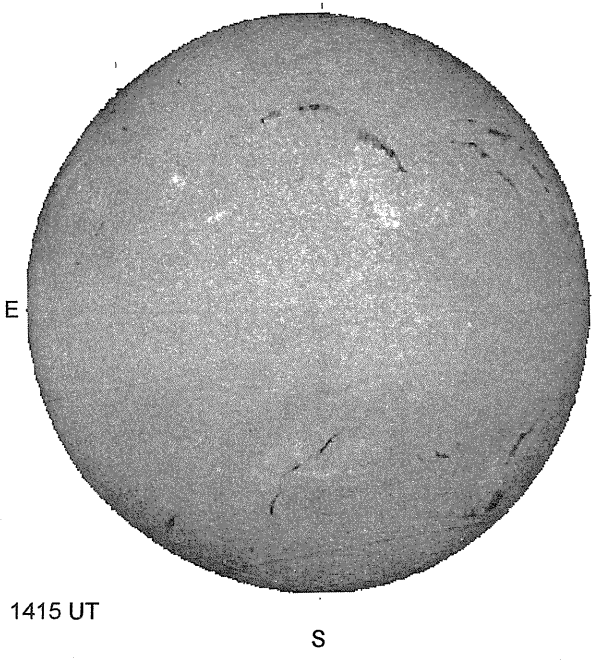
STANFORD MAGNETOGRAM



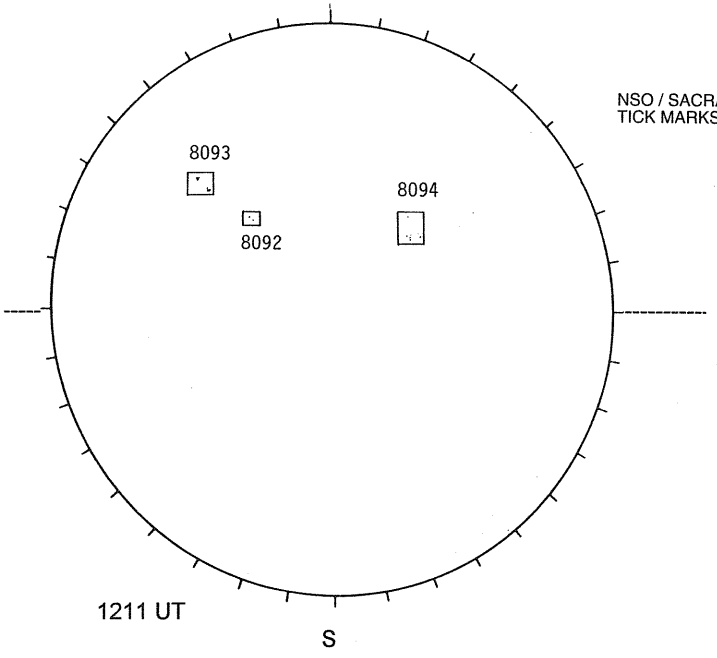
MT. WILSON MAGNETOGRAM



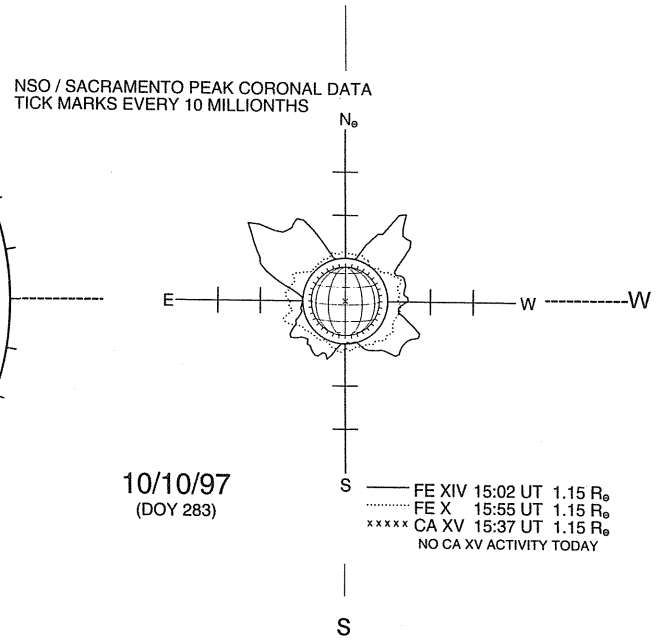
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



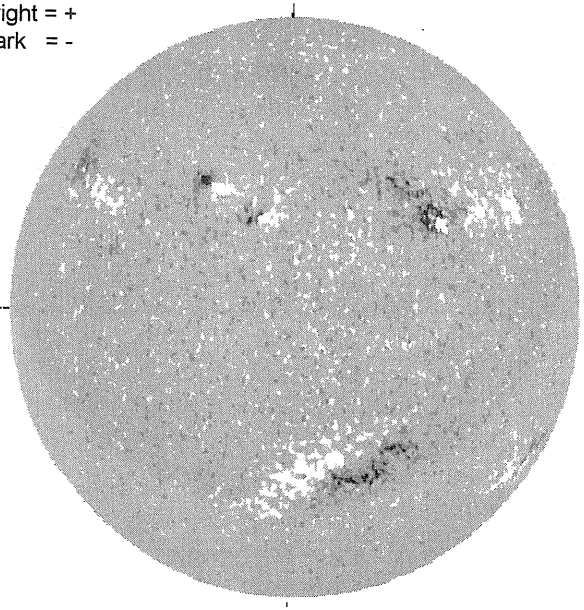
OCTOBER 11, 1997 (P= 26.29, Bo = 6.15, Lo = 284.02)

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -



E----

1441 UT

STANFORD MAGNETOGRAM

N

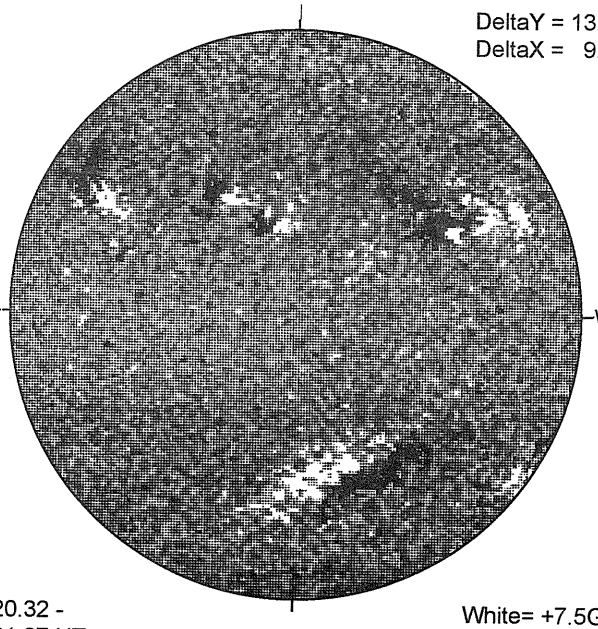
Solid = +
Dashed = -

2048 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

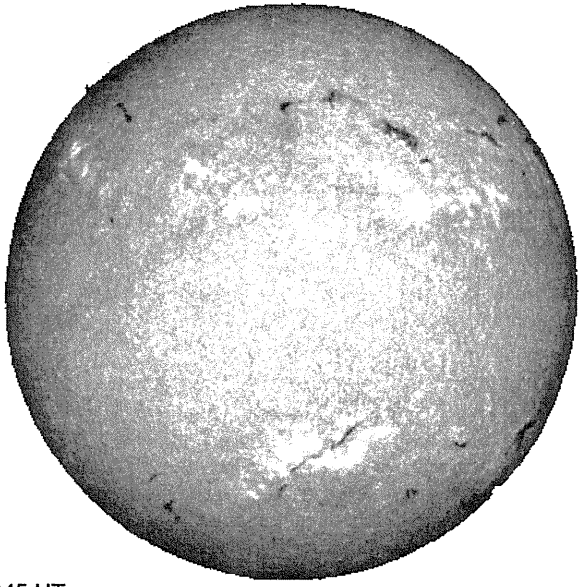


-W

20.32 -
21.27 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

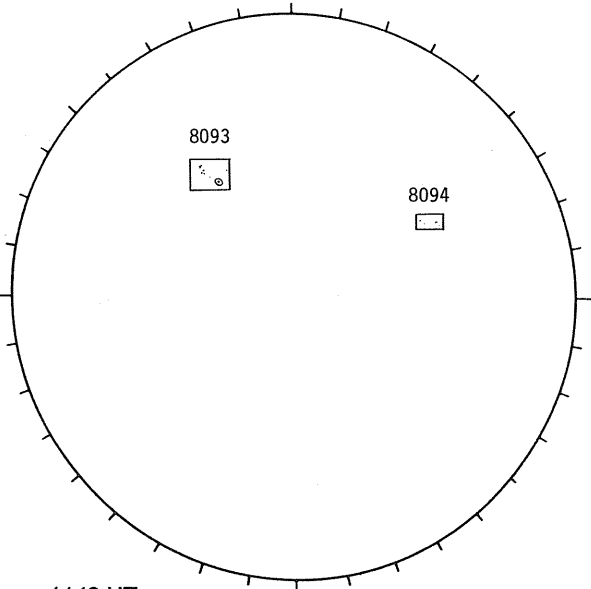


E-

0845 UT

S

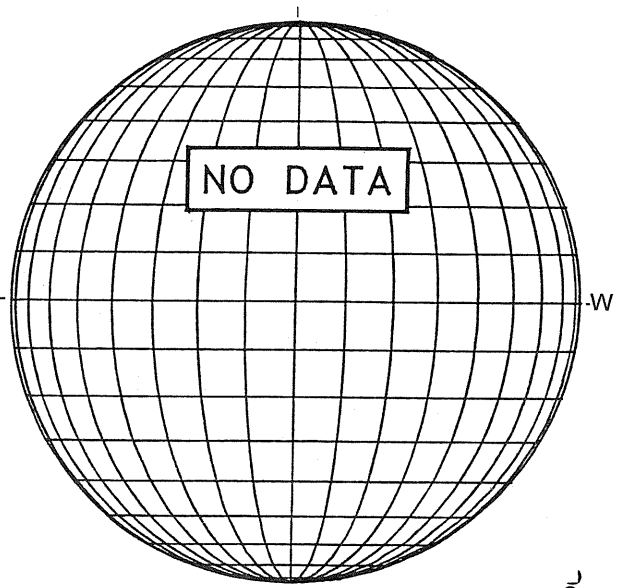
RAMEY SUNSPOT



1140 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



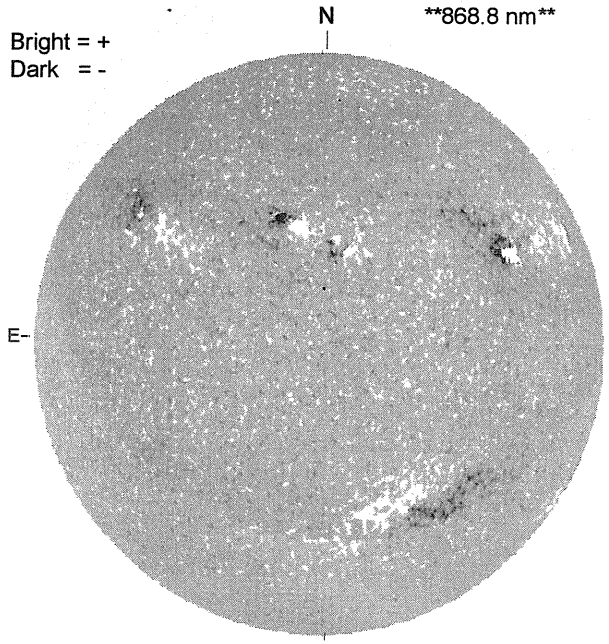
-W

S

Oct 97

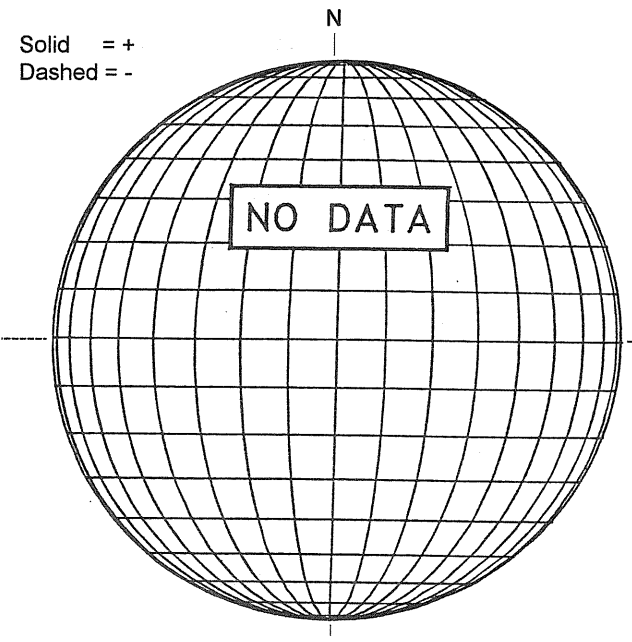
OCTOBER 12, 1997 (P= 26.28, Bo = 6.08, Lo = 270.83)

KITT PEAK MAGNETOGRAM

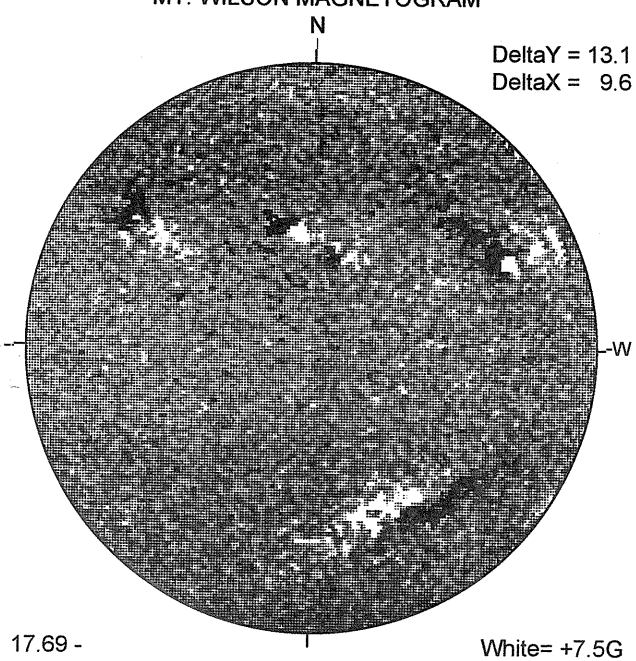


1501 UT

STANFORD MAGNETOGRAM



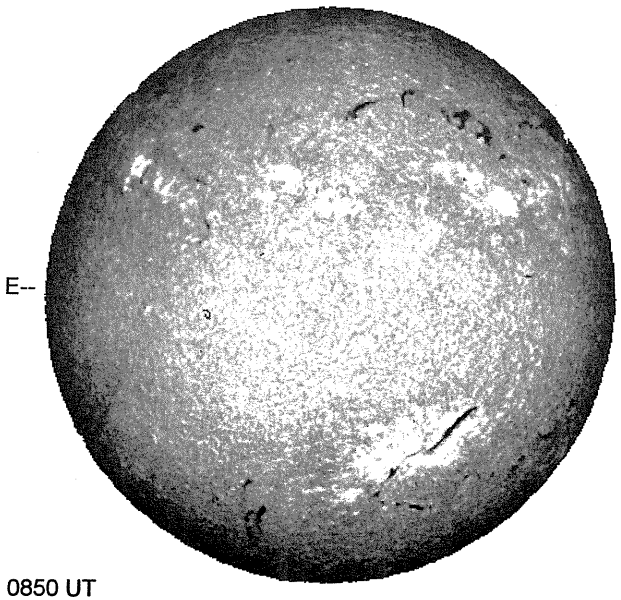
MT. WILSON MAGNETOGRAM



17.69 -
18.64 UT

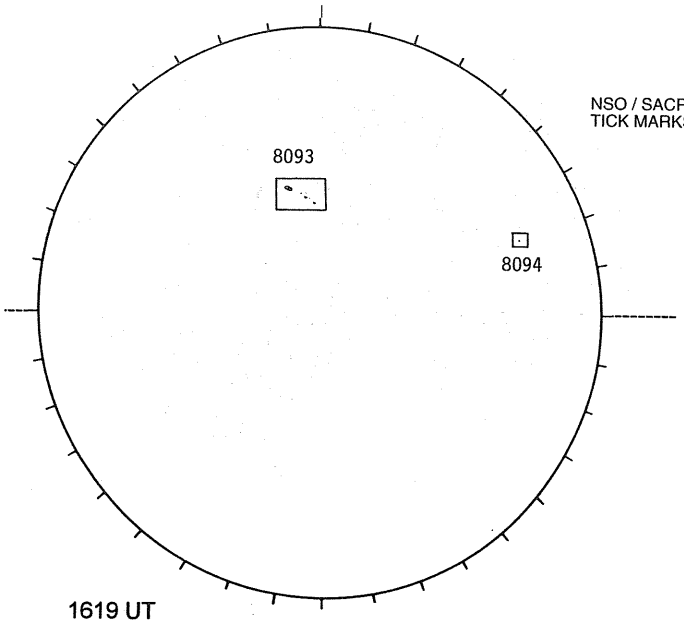
White= +7.5G
Black = -7.5G

MEUDON H-ALPHA



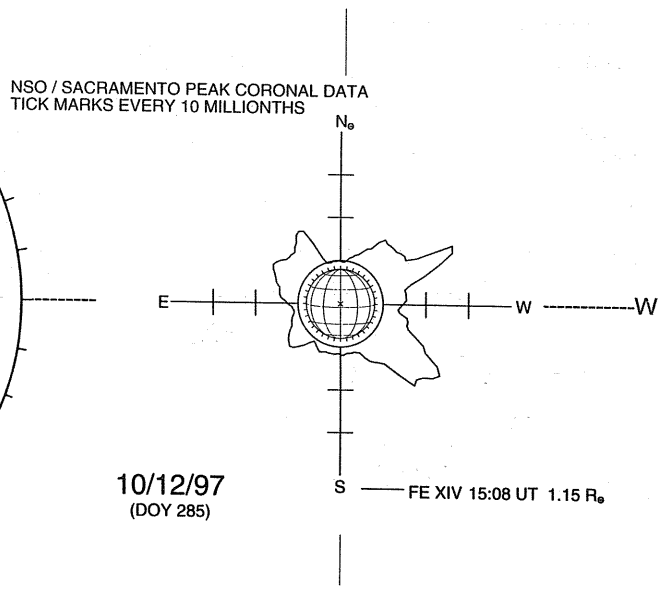
0850 UT

RAMEY SUNSPOT



1619 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

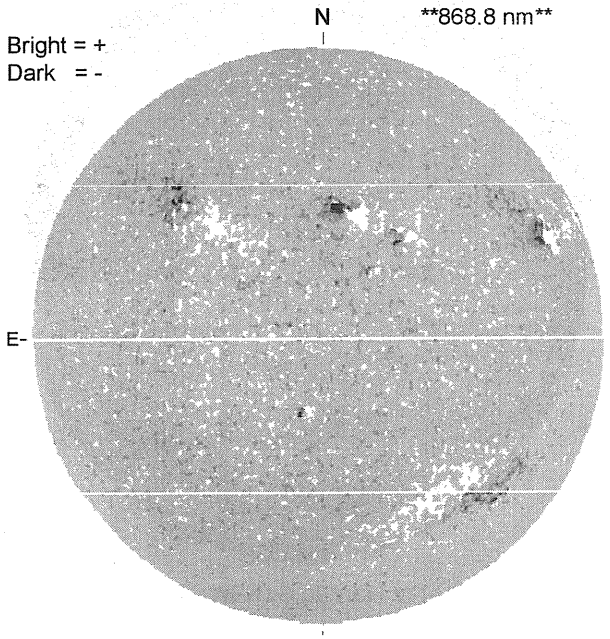


10/12/97
(DOY 285)

FE XIV 15:08 UT 1.15 $R_\odot$

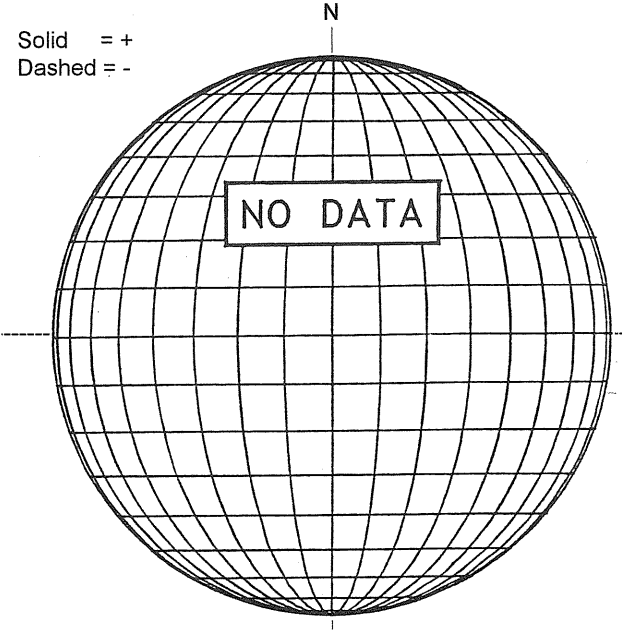
OCTOBER 13, 1997 (P= 26.27, Bo = 6.01, Lo = 257.63)

KITT PEAK MAGNETOGRAM

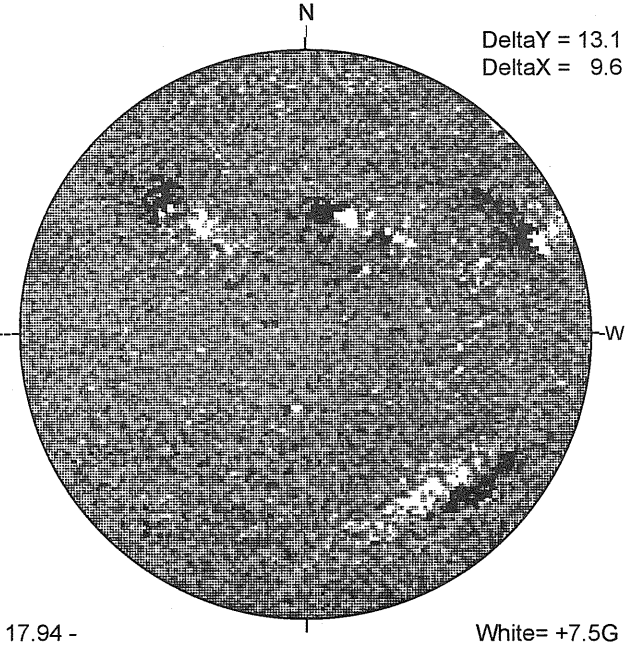


1723 UT

STANFORD MAGNETOGRAM



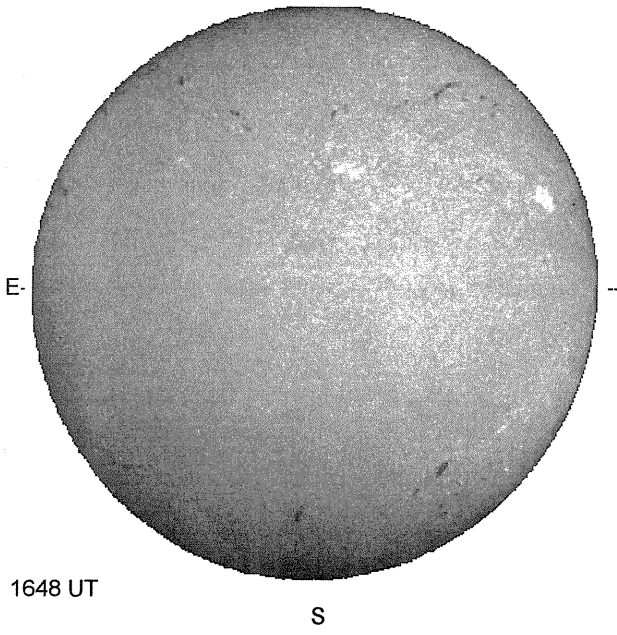
MT. WILSON MAGNETOGRAM



17.94 -
18.89 UT

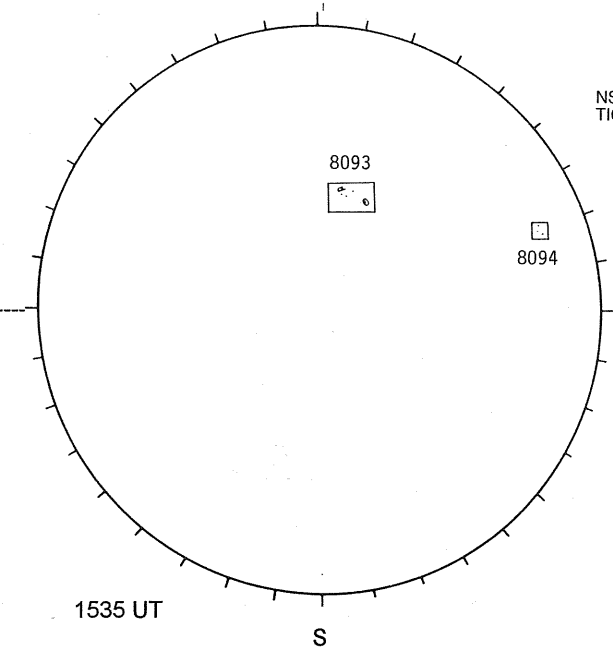
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



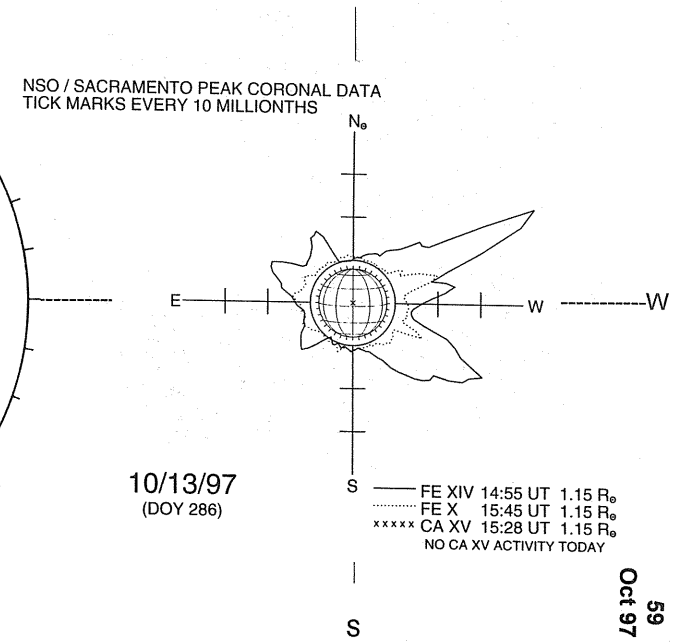
1648 UT

RAMEY SUNSPOT



1535 UT

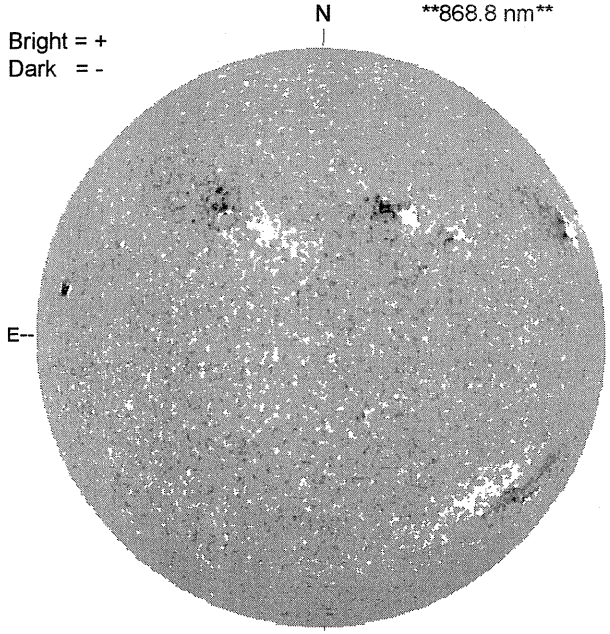
SACRAMENTO PEAK CORONA (1.15 Radii)----



10/13/97
(DOY 286)

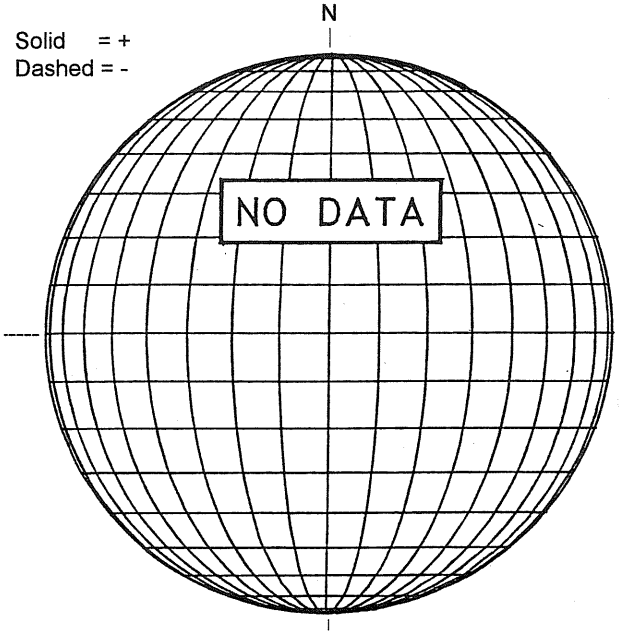
OCTOBER 14, 1997 (P= 26.24, Bo = 5.94, Lo= 244.44)

KITT PEAK MAGNETOGRAM

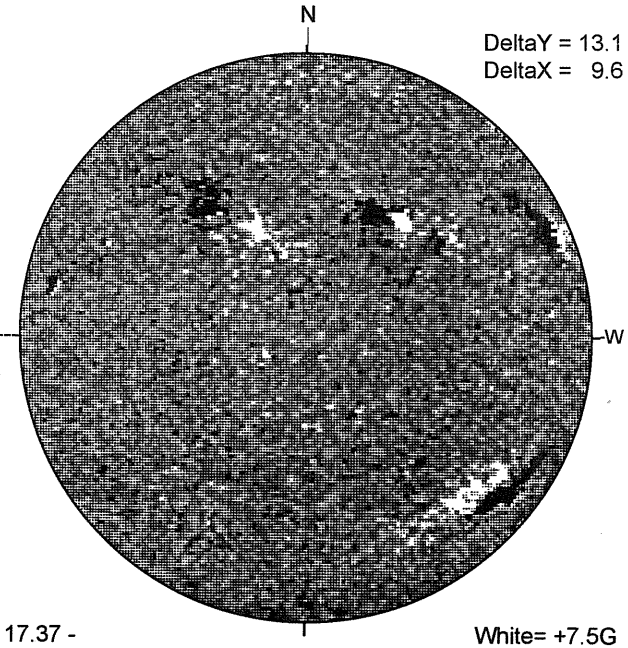


1427 UT

STANFORD MAGNETOGRAM



MT. WILSON MAGNETOGRAM



17.37 -
18.32 UT

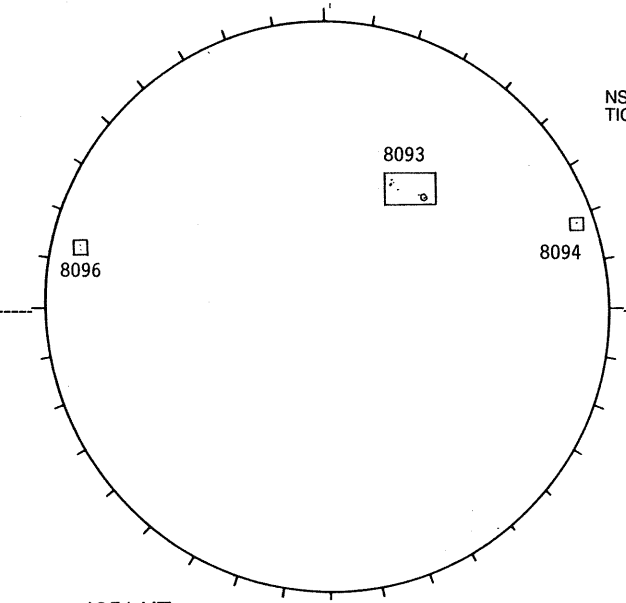
White= +7.5G
Black = -7.5G

---- SACRAMENTO PEAK H-ALPHA

1358 UT

S

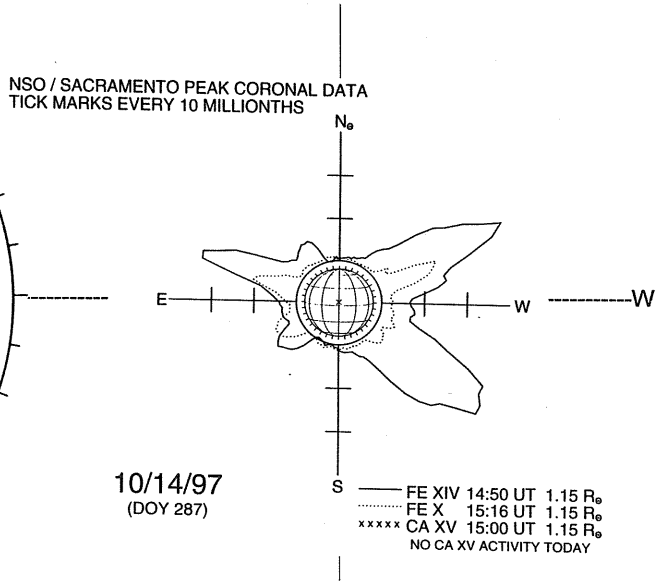
RAMEY SUNSPOT



1351 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)--



10/14/97
(DOY 287)

S

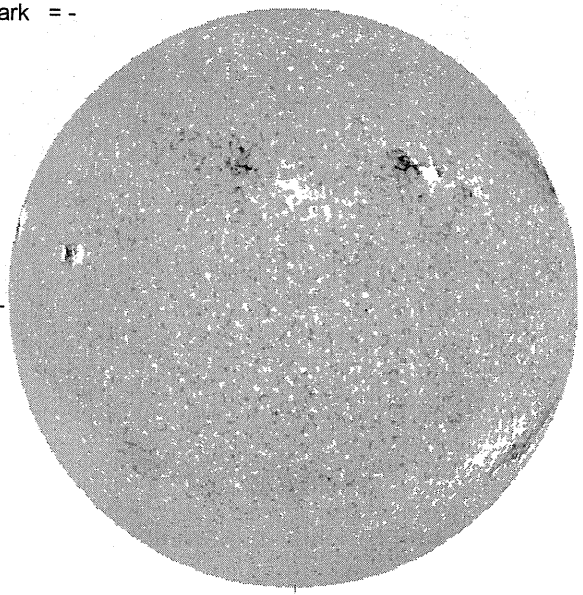
OCTOBER 15, 1997 (P= 26.21, Bo = 5.87, Lo = 231.25)

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -



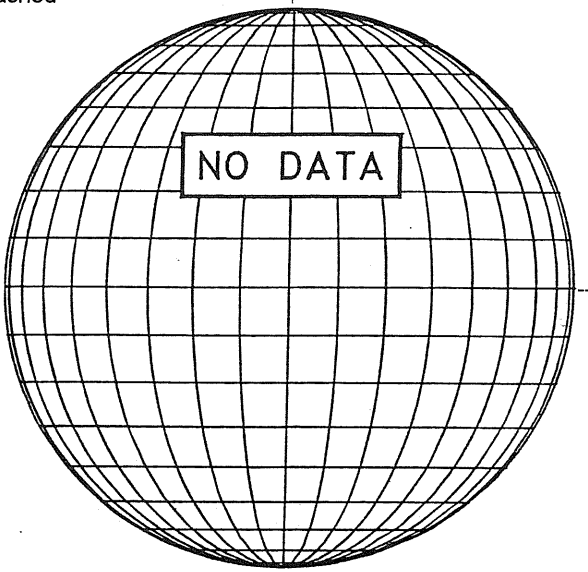
E--

1429 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

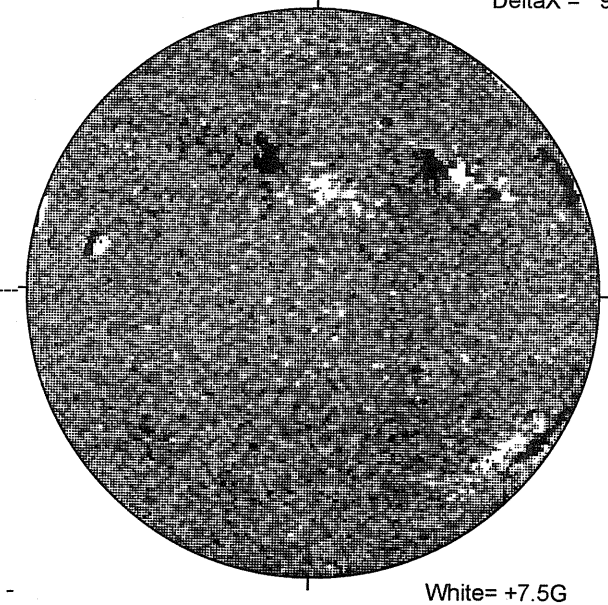


17.55 -
18.50 UT

MT. WILSON MAGNETOGRAM

N

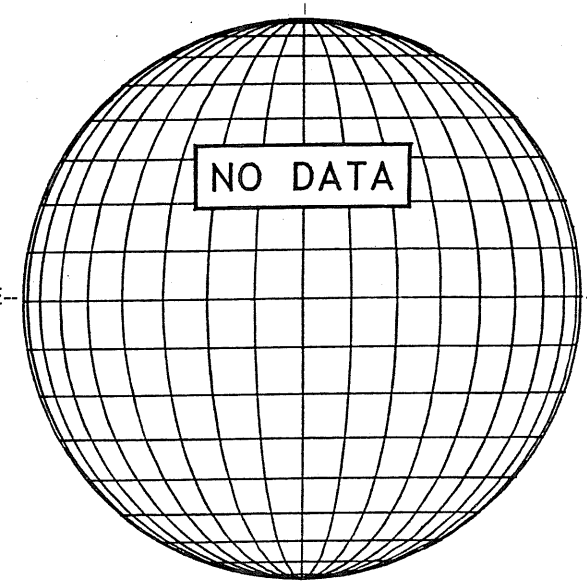
DeltaY = 13.1
DeltaX = 9.6



-W

White= +7.5G
Black = -7.5G

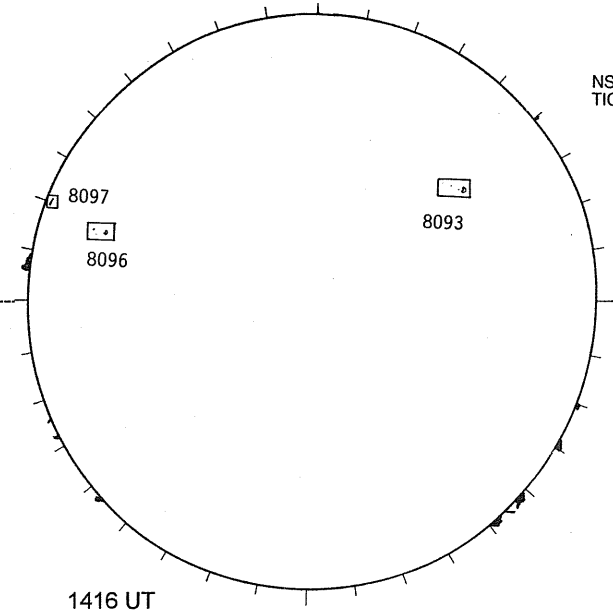
MEUDON H-ALPHA



E--

S

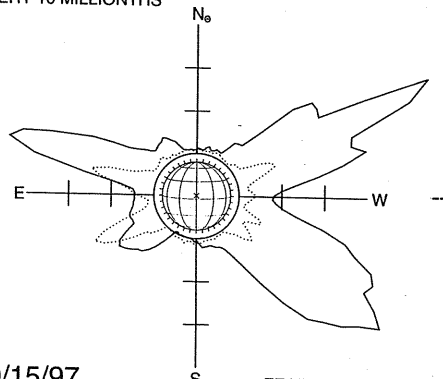
RAMEY SUNSPOT



1416 UT
1027 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



-------W

10/15/97
(DOY 288)

S

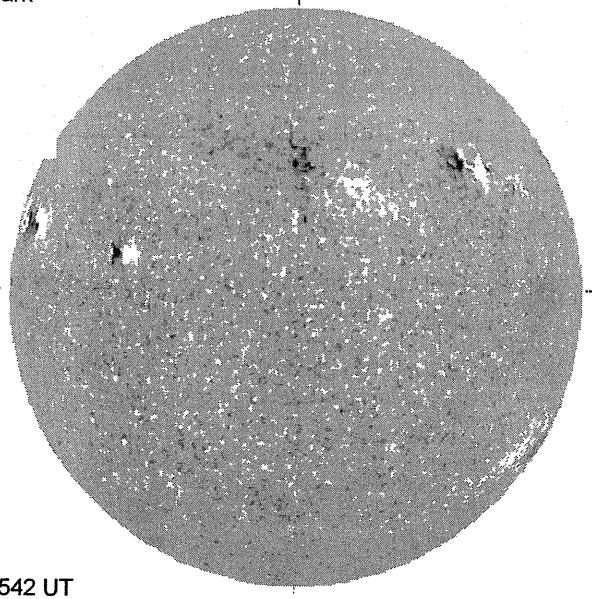
FE XIV 14:42 UT 1.15 R_e
FE X 15:30 UT 1.15 R_e
xxxxx CA XV 15:13 UT 1.15 R_e
NO CA XV ACTIVITY TODAY

61
Oct 97

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



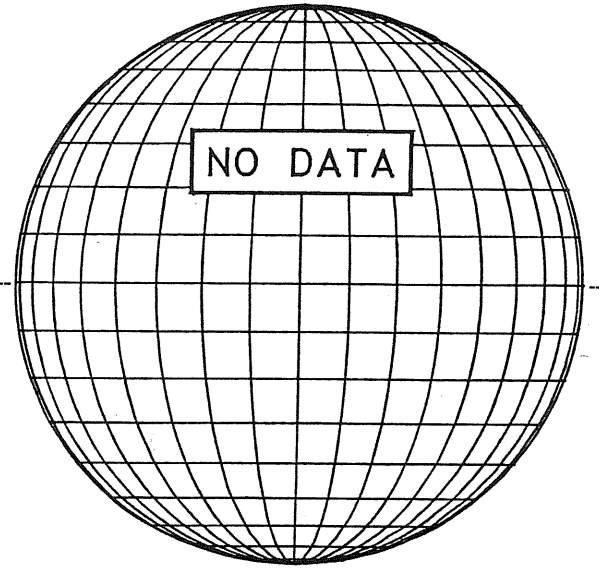
E-

1542 UT

STANFORD MAGNETOGRAM

N

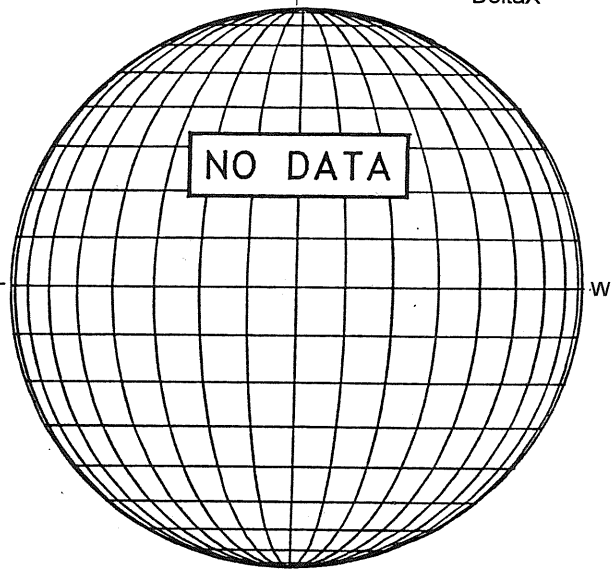
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

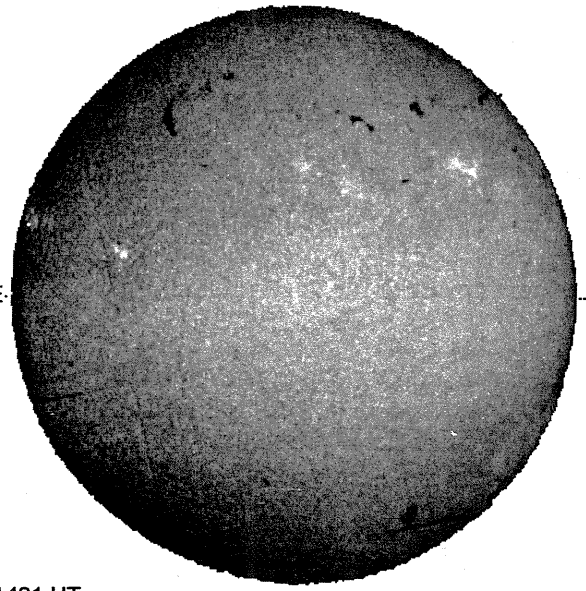
DeltaY =
DeltaX =



W

White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA

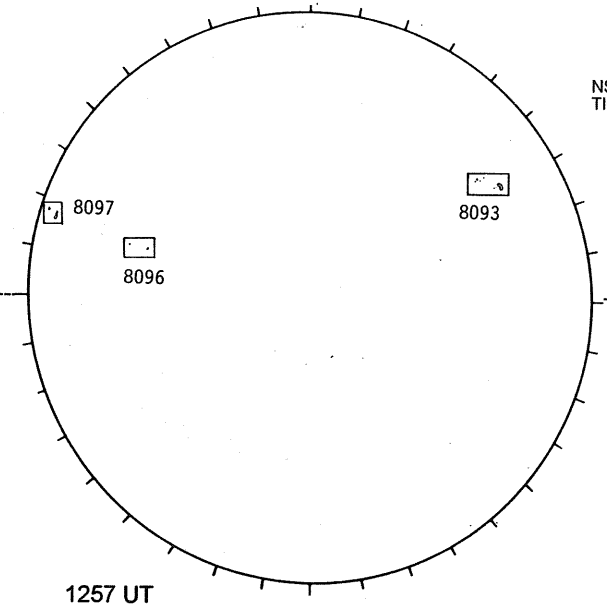


E

1401 UT

S

RAMEY SUNSPOT

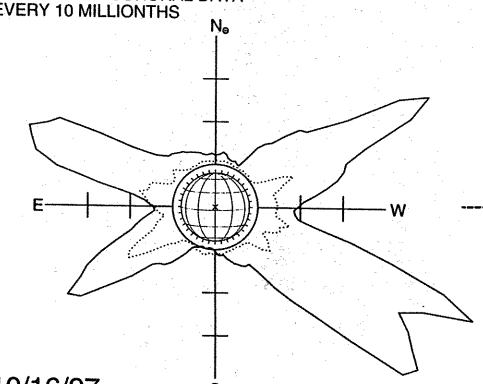


1257 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



W

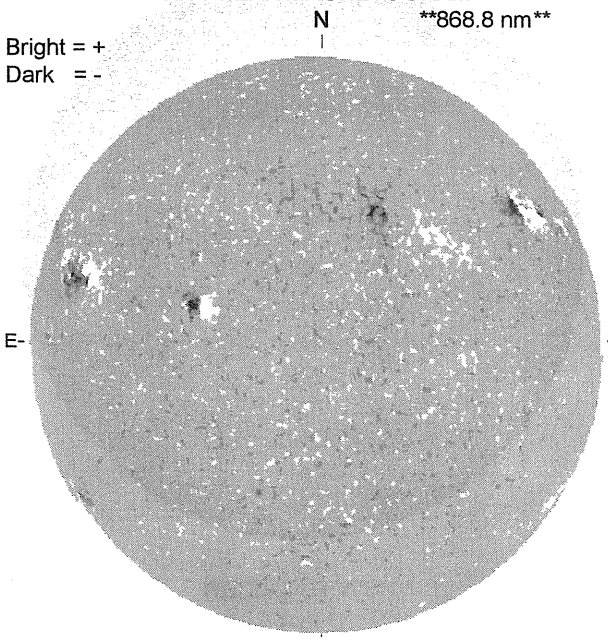
10/16/97
(DOY 289)

FE XIV 14:28 UT 1.15 R⊙
FE X 15:15 UT 1.15 R⊙
CA XV 15:06 UT 1.15 R⊙
NO CA XV ACTIVITY TODAY

S

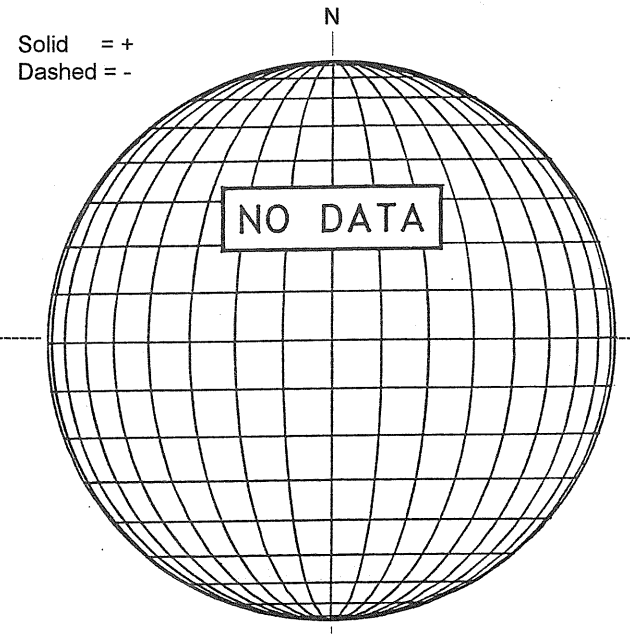
OCTOBER 17, 1997 (P= 26.13, Bo = 5.71, Lo = 204.87)

KITT PEAK MAGNETOGRAM

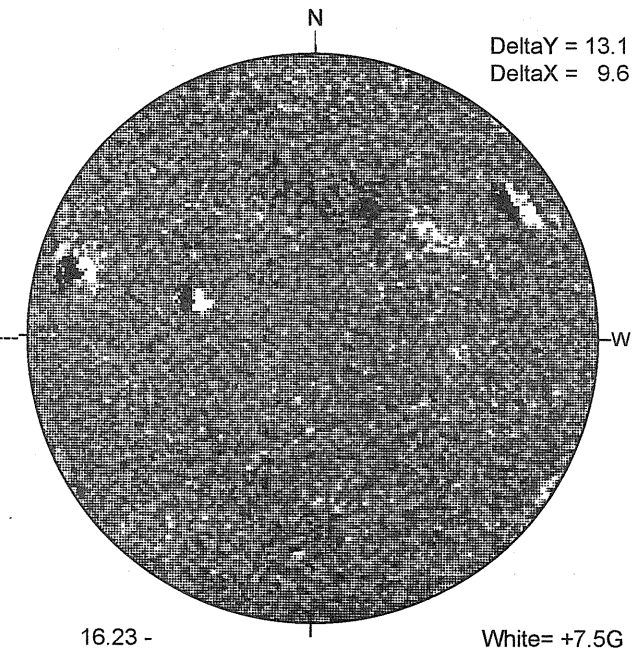


1706 UT

STANFORD MAGNETOGRAM



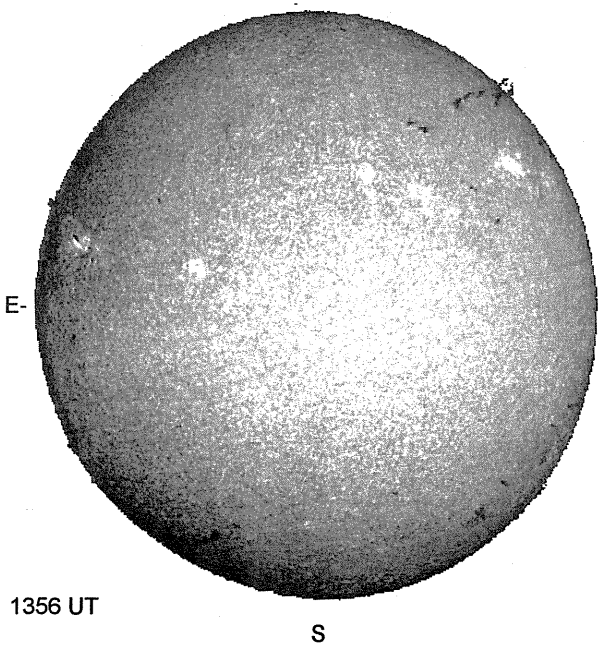
MT. WILSON MAGNETOGRAM



16.23 -
17.18 UT

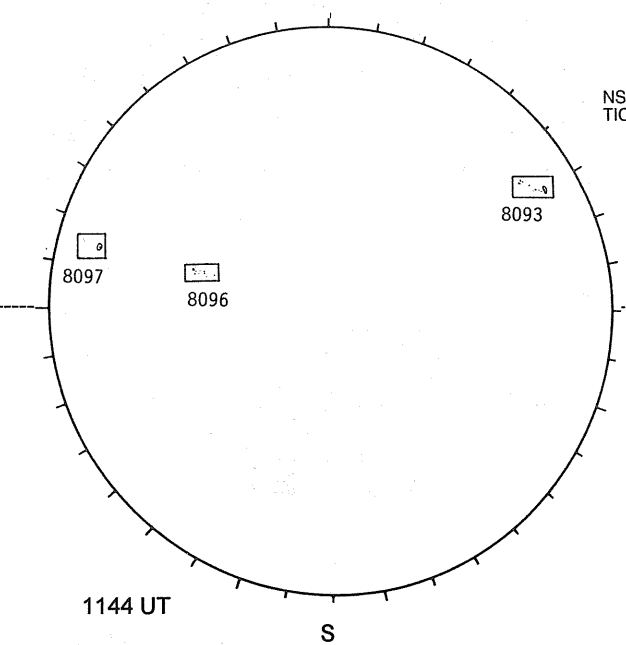
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



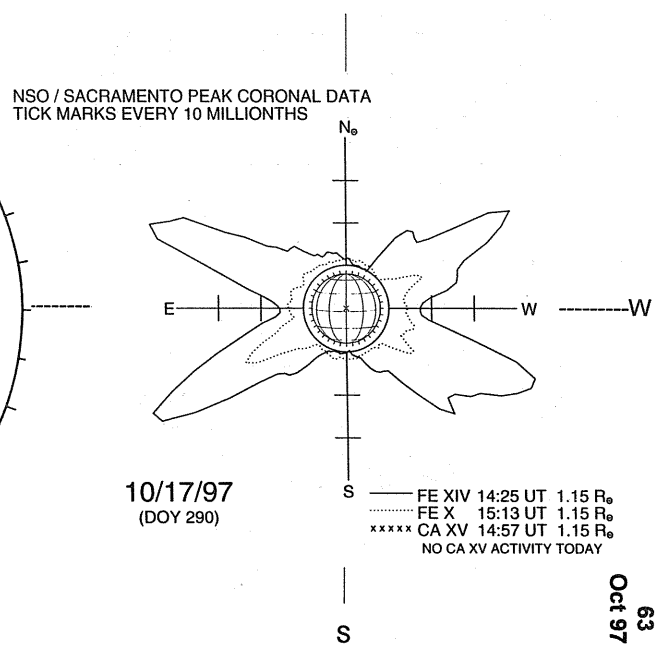
1356 UT

RAMEY SUNSPOT



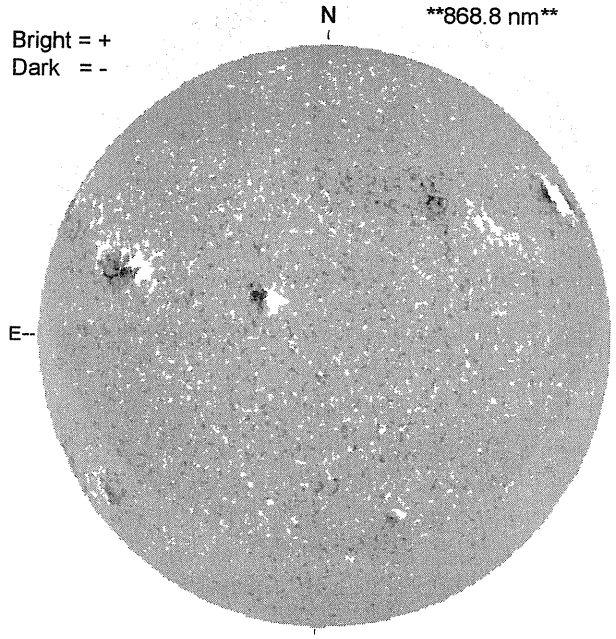
1144 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



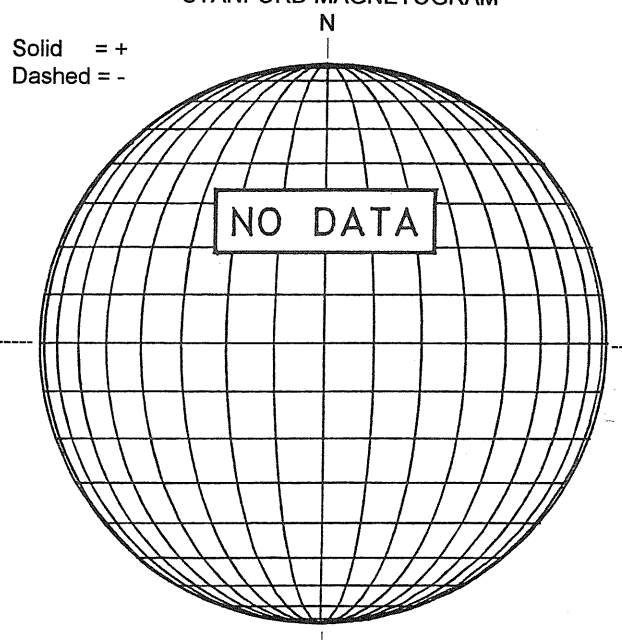
OCTOBER 18, 1997 (P= 26.07, Bo = 5.64, Lo = 191.68)

KITT PEAK MAGNETOGRAM

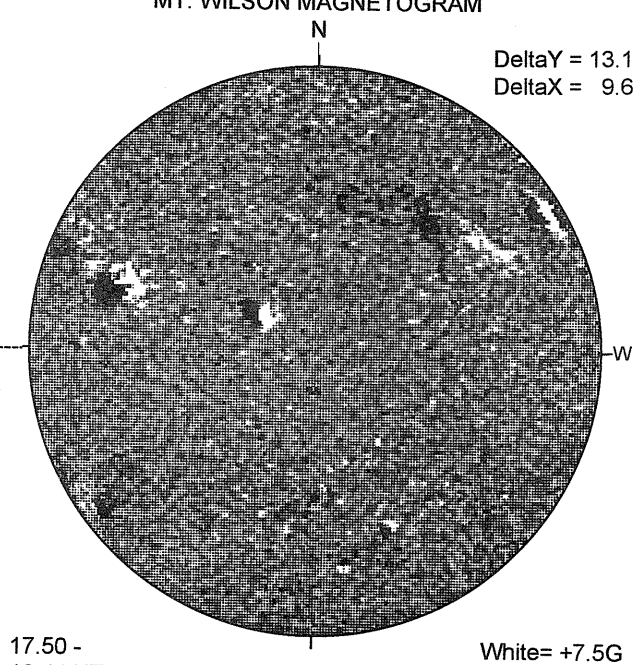


1510 UT

STANFORD MAGNETOGRAM



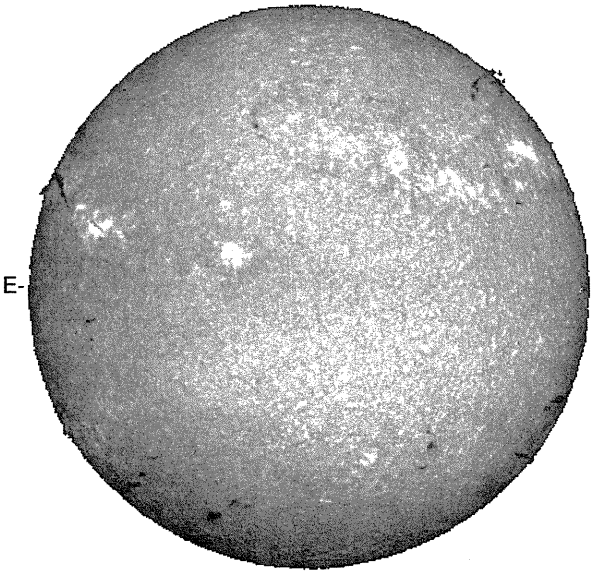
MT. WILSON MAGNETOGRAM



17.50 -
18.44 UT

White= +7.5G
Black = -7.5G

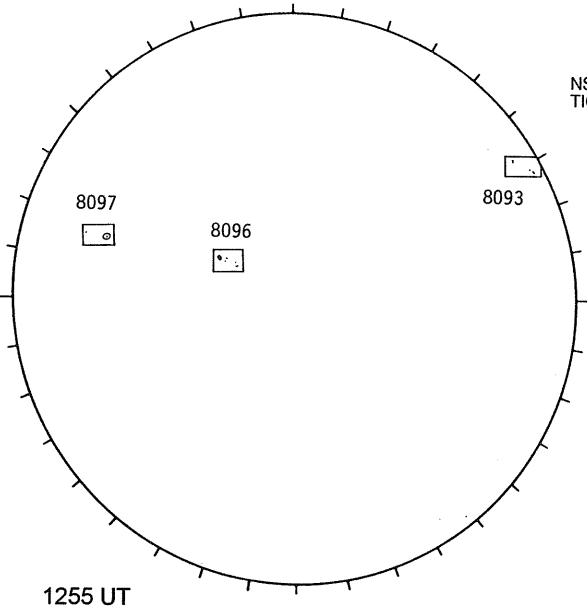
MEUDON H-ALPHA



0751 UT

S

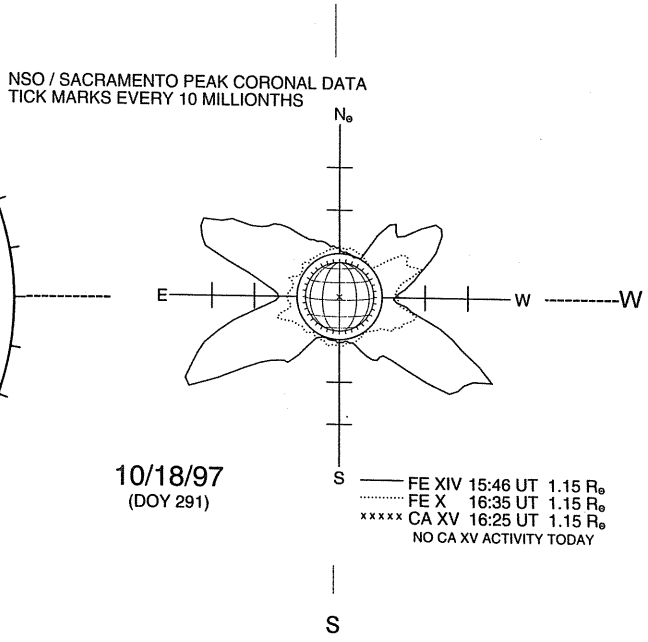
RAMEY SUNSPOT



1255 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



10/18/97
(DOY 291)

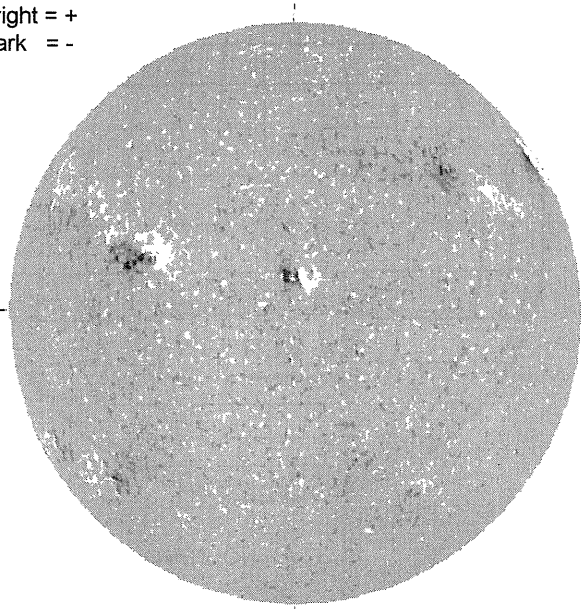
S

OCTOBER 19, 1997 (P= 26.01, Bo = 5.56, Lo = 178.49)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



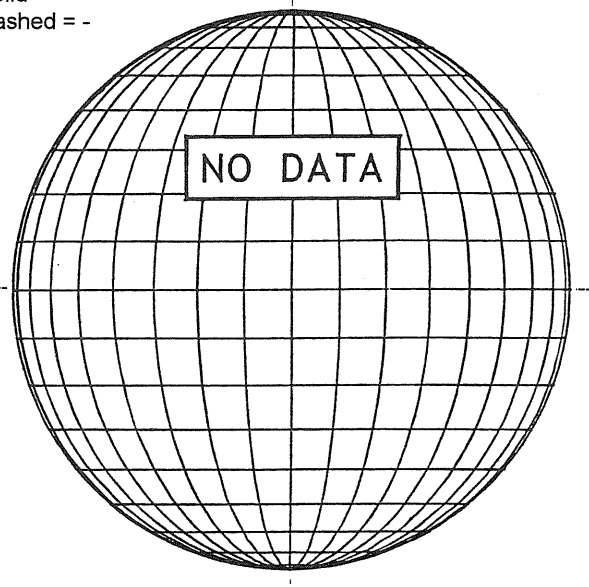
E

1503 UT

STANFORD MAGNETOGRAM

N

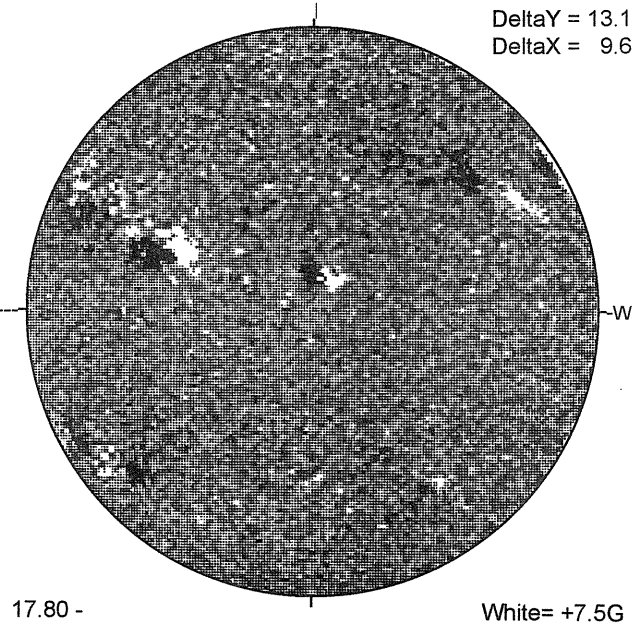
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

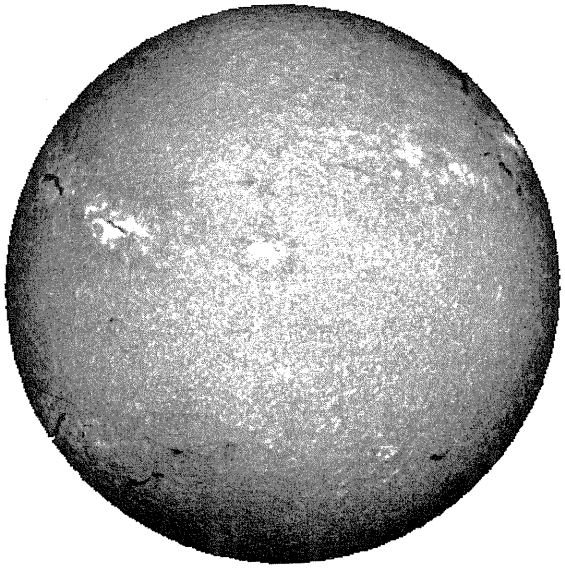


W

17.80 -
18.75 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

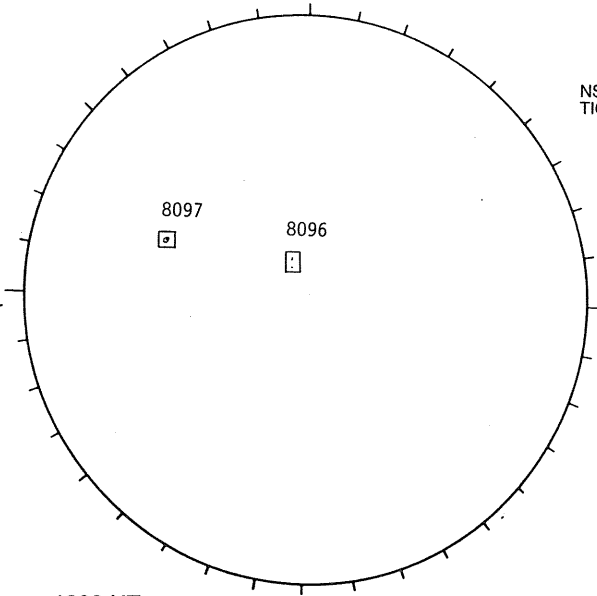


E

0728 UT

S

RAMEY SUNSPOT

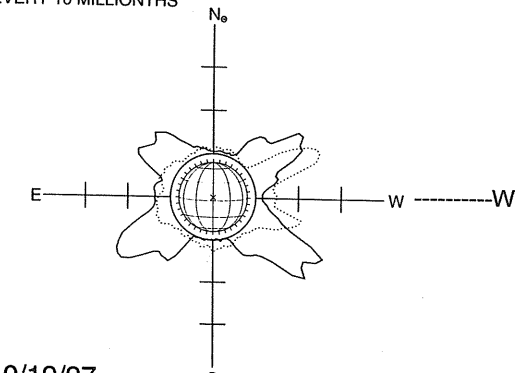


1233 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



10/19/97
(DOY 292)

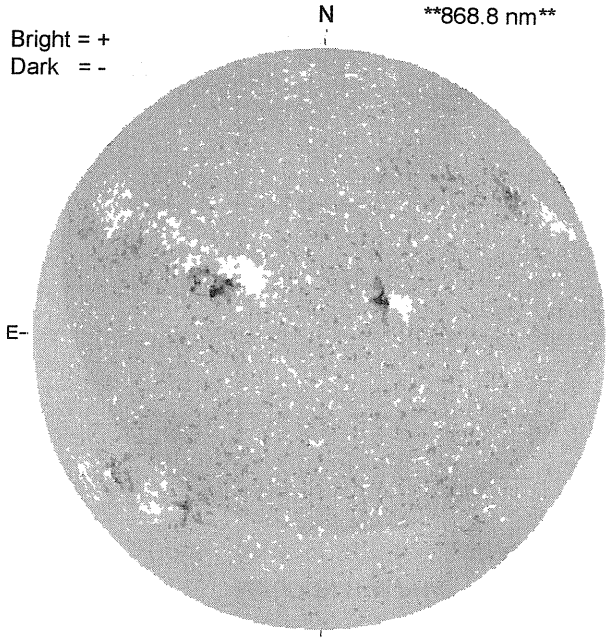
FE XIV 15:30 UT 1.15 $R_\odot$
FE X 15:57 UT 1.15 $R_\odot$
xxxxx CA XV 15:47 UT 1.15 $R_\odot$
NO CA XV ACTIVITY TODAY

S

65
Oct 97

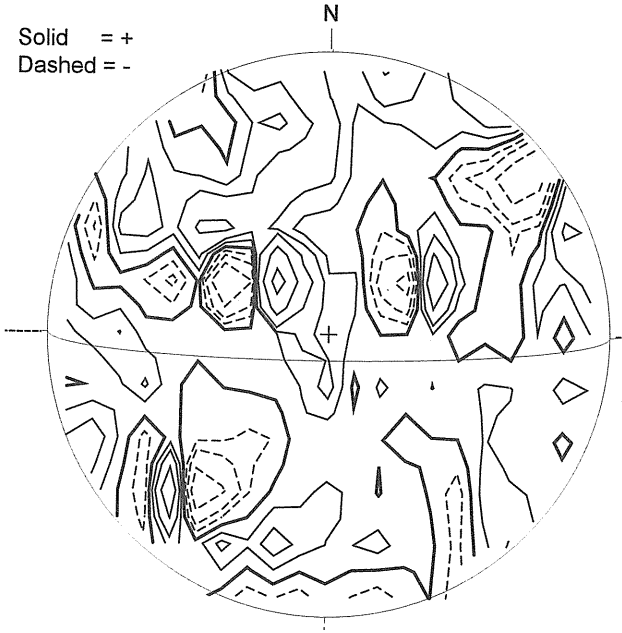
OCTOBER 20, 1997 (P= 25.94, Bo = 5.48, Lo = 165.30)

KITT PEAK MAGNETOGRAM



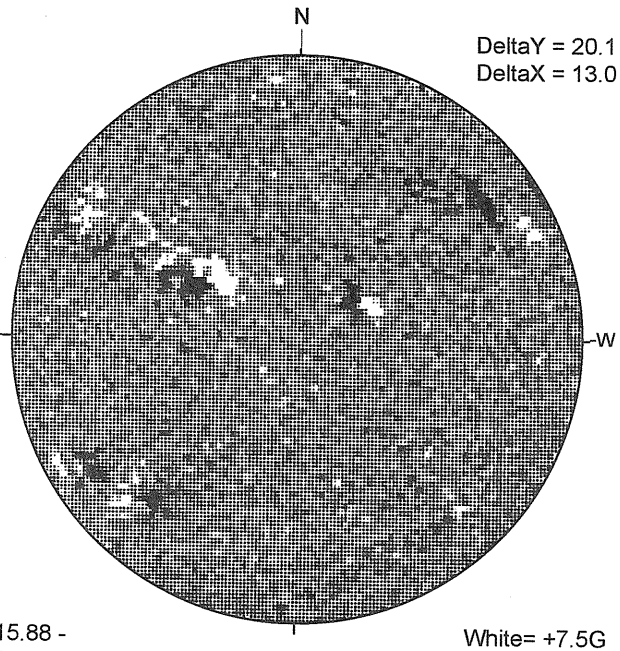
1738 UT

STANFORD MAGNETOGRAM



2241 UT

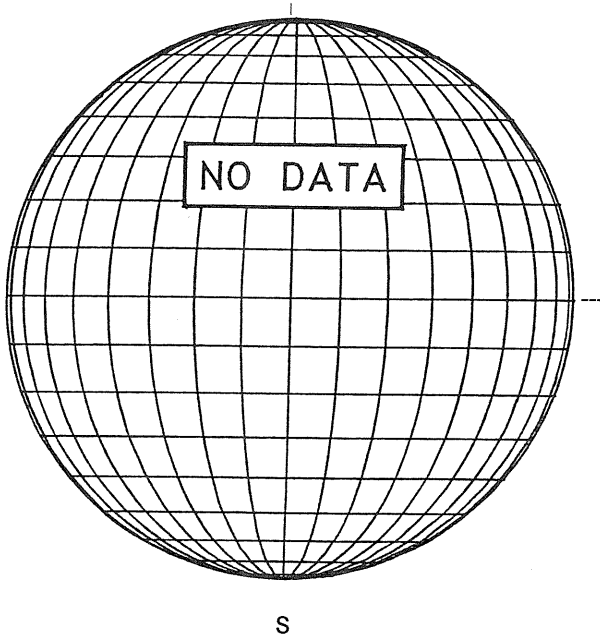
MT. WILSON MAGNETOGRAM



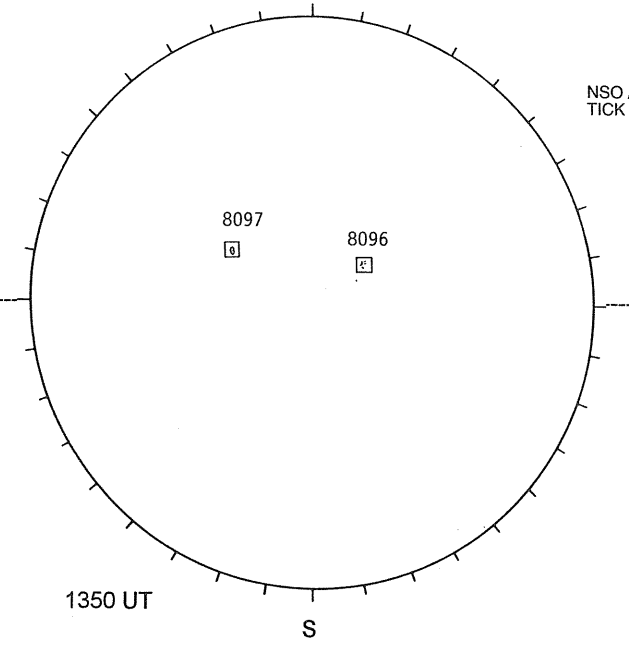
15.88 - 16.30 UT

White= +7.5G
Black = -7.5G

MEUDON H-ALPHA

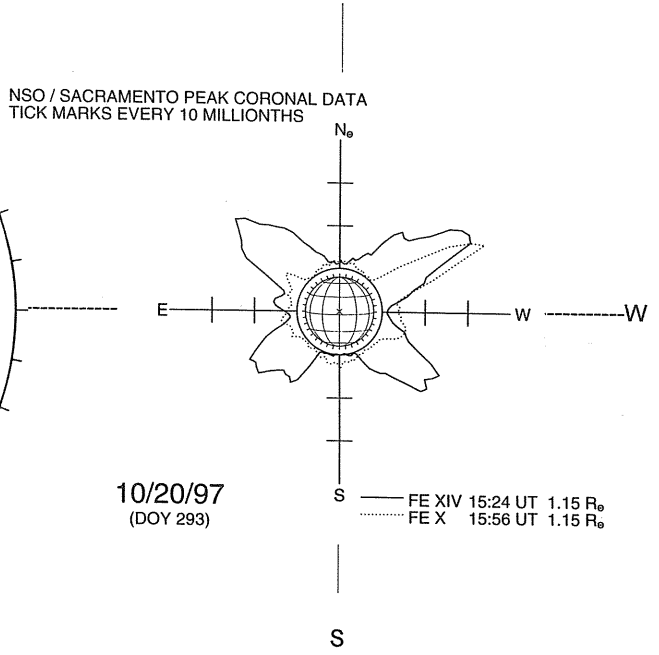


RAMEY SUNSPOT



1350 UT

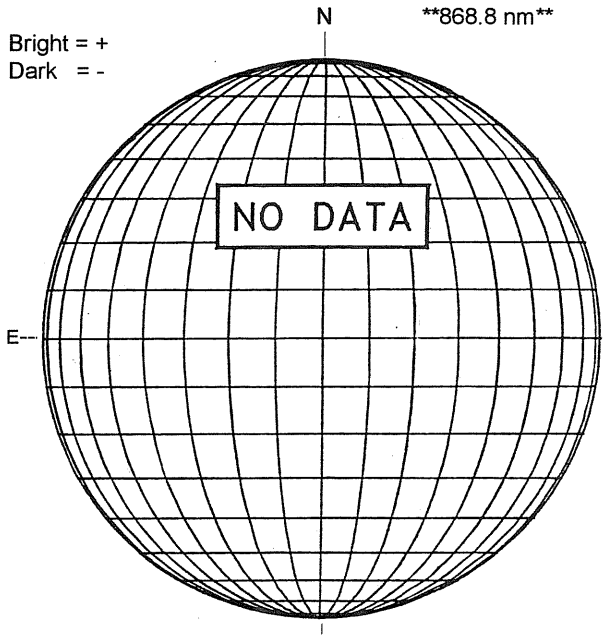
SACRAMENTO PEAK CORONA (1.15 Radii)----



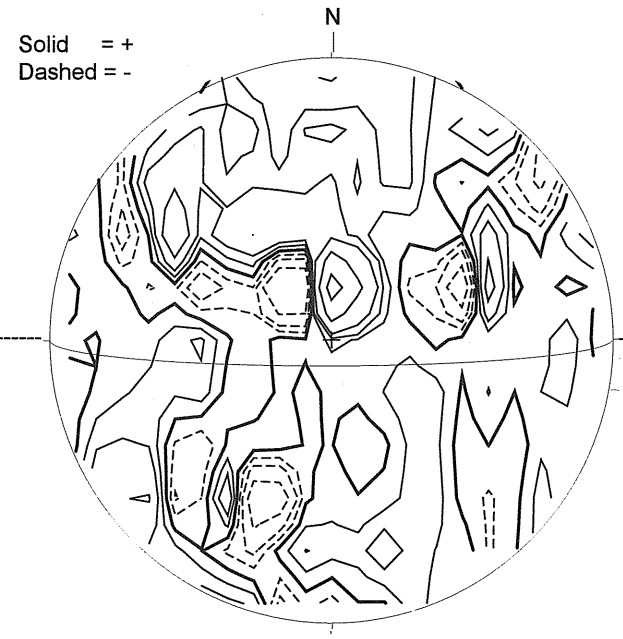
10/20/97
(DOY 293)

OCTOBER 21, 1997 (P= 25.87, Bo = 5.39, Lo = 152.11)

KITT PEAK MAGNETOGRAM

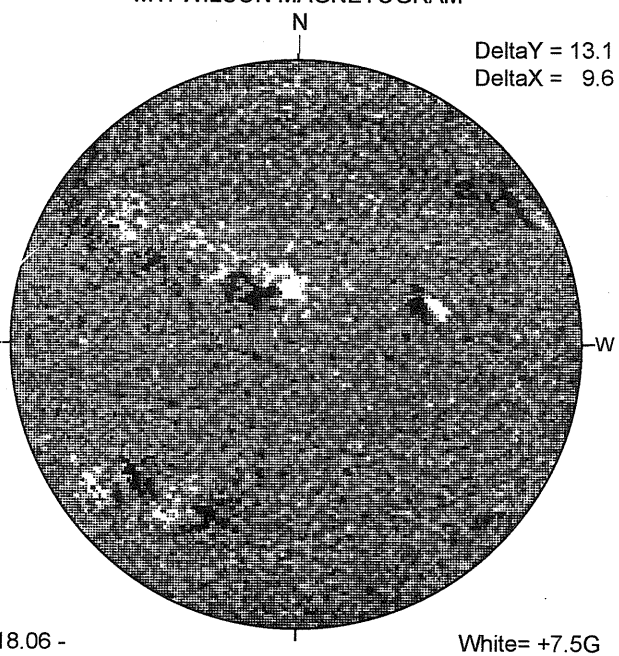


STANFORD MAGNETOGRAM



2235 UT

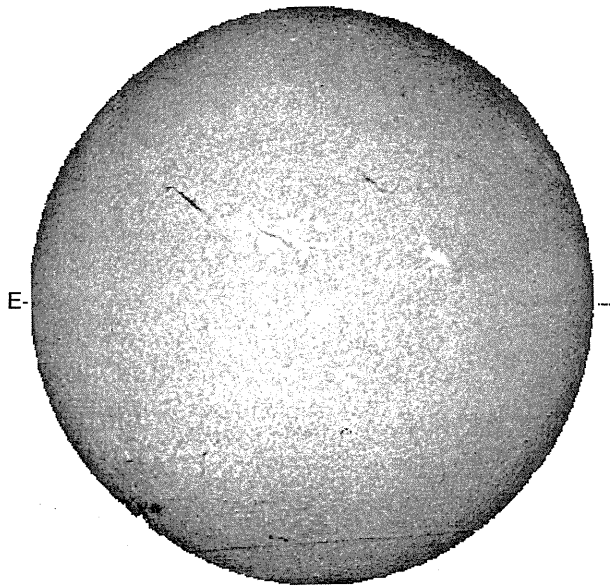
MT. WILSON MAGNETOGRAM



18.06 -
19.01 UT

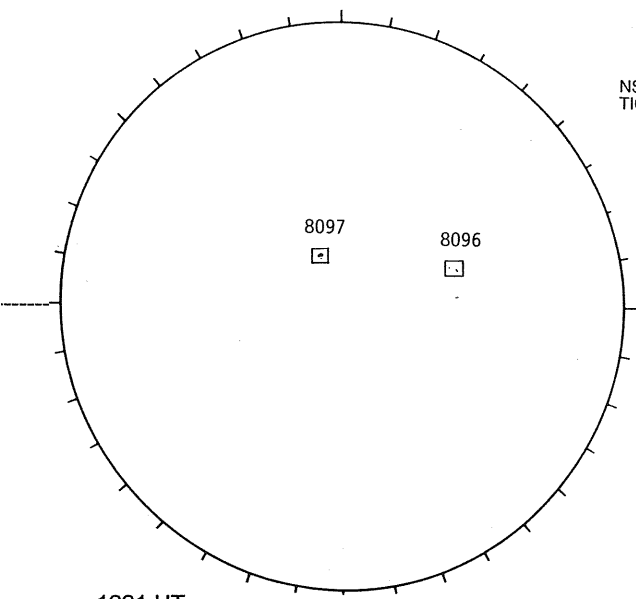
White= +7.5G
Black = -7.5G

----- SACRAMENTO PEAK H-ALPHA



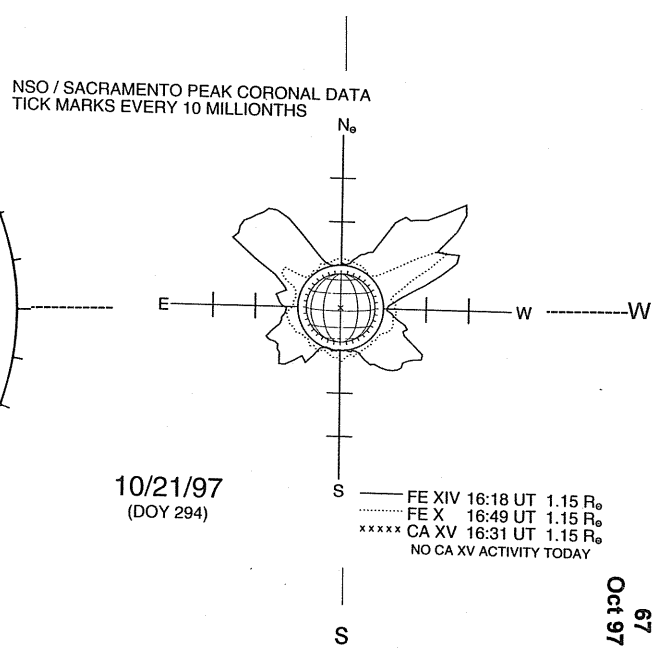
1438 UT

RAMEY SUNSPOT



1221 UT

SACRAMENTO PEAK CORONA (1.15 Radii)-----



Oct 97

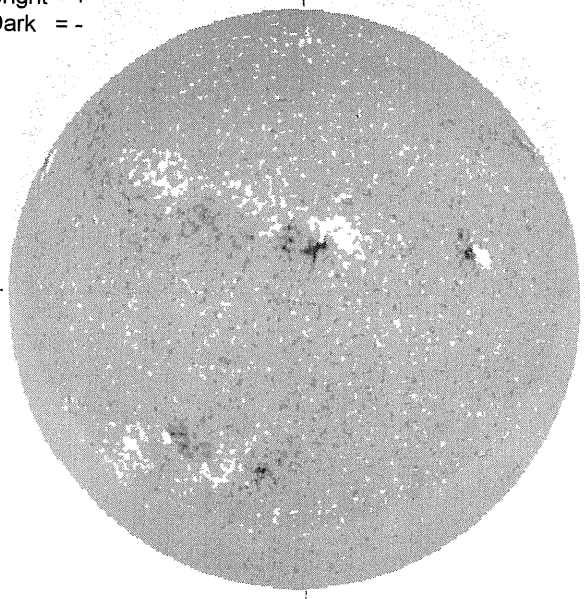
OCTOBER 22, 1997 (P= 25.78, Bo = 5.31, Lo = 138.92)

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -



E-

1553 UT

STANFORD MAGNETOGRAM

N

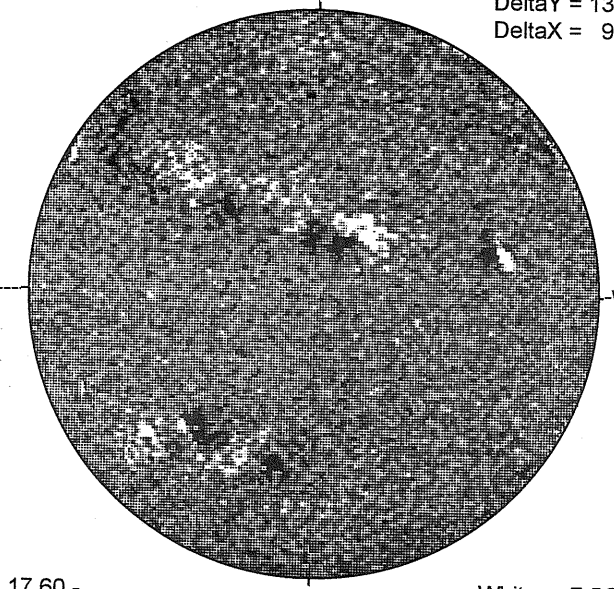
Solid = +
Dashed = -

2146 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

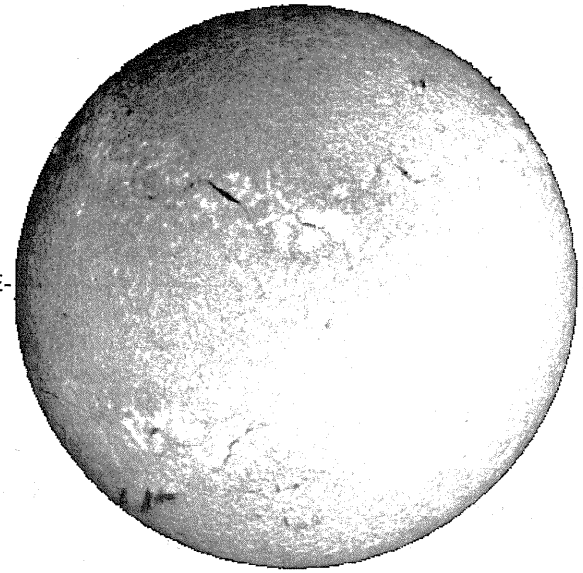


W

17.60 -
18.56 UT

White= +7.5G
Black = -7.5G

---- MEUDON H-ALPHA

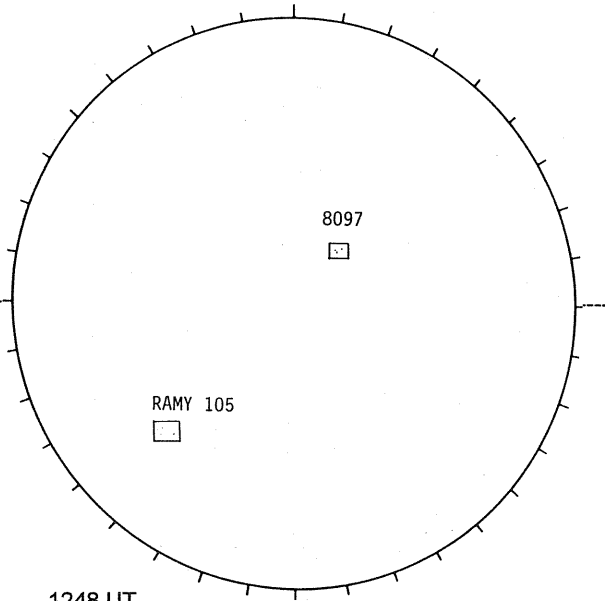


E-

1334 UT

S

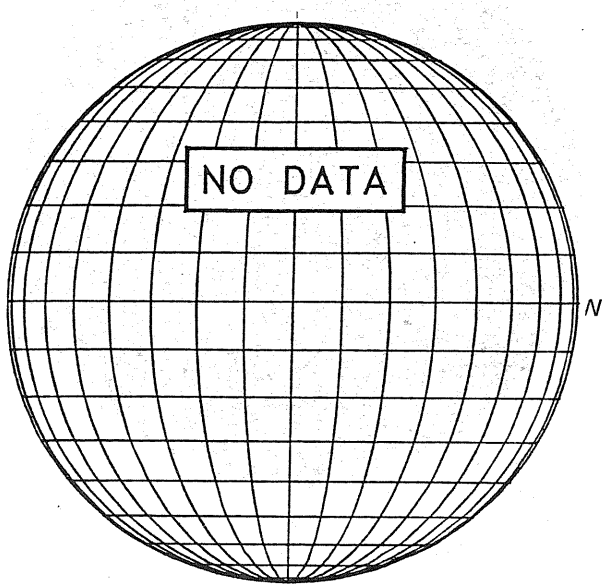
RAMEY SUNSPOT



1248 UT

S

LOMNICKY PEAK CORONA (1.04 Radii)----

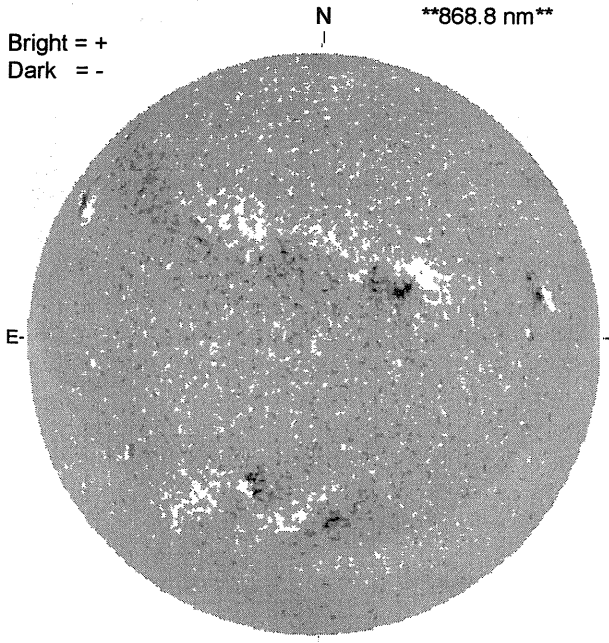


N

S

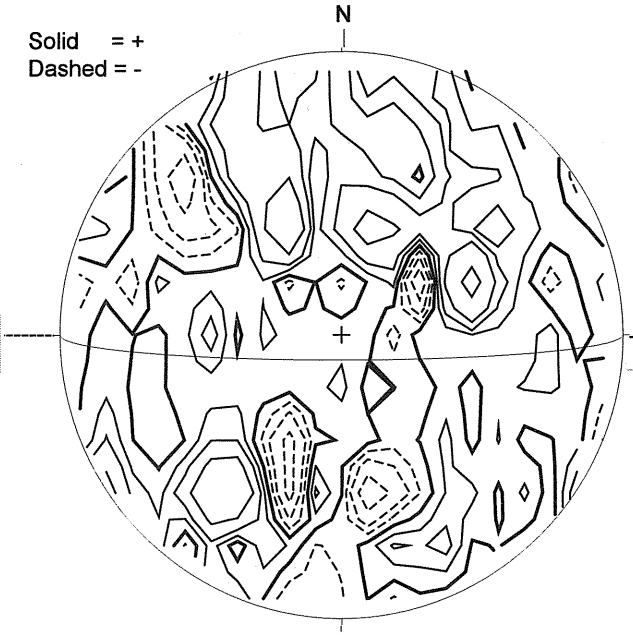
OCTOBER 23, 1997 (P= 25.69, Bo = 5.22, Lo = 125.73)

KITT PEAK MAGNETOGRAM



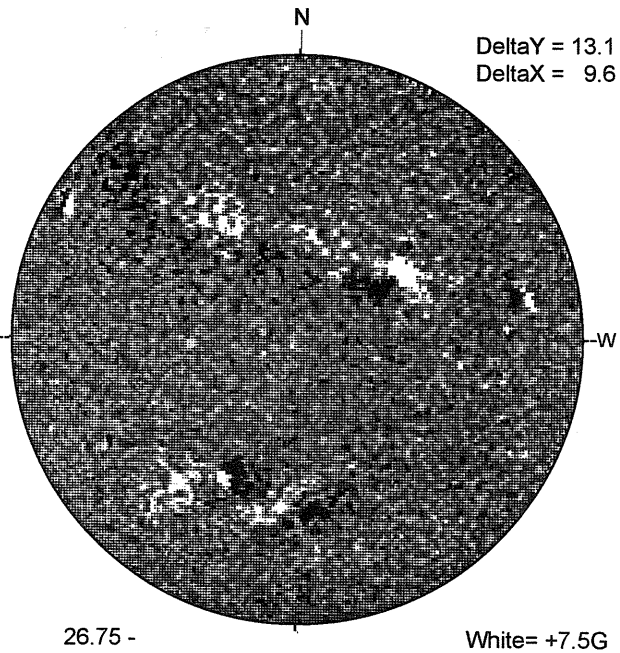
1743 UT

STANFORD MAGNETOGRAM



2059 UT

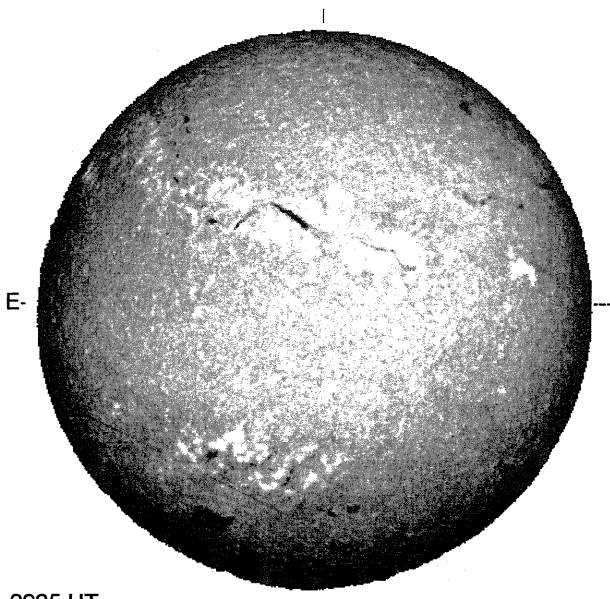
MT. WILSON MAGNETOGRAM



26.75 -
17.70 UT

White= +7.5G
Black = -7.5G

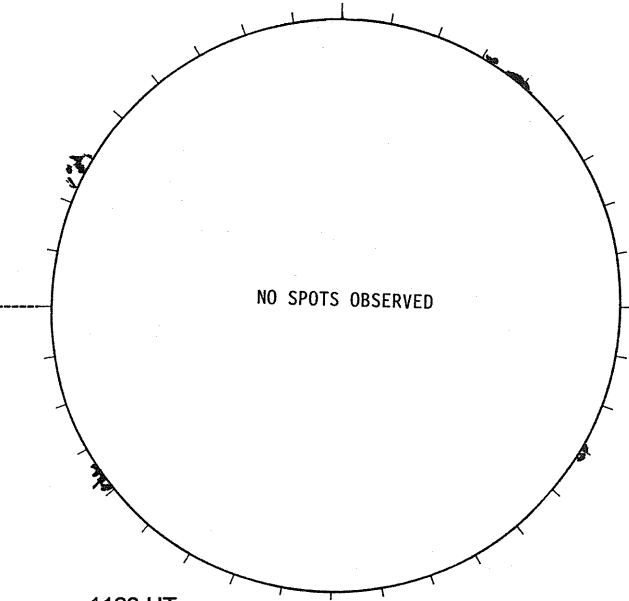
MEUDON H-ALPHA



0925 UT

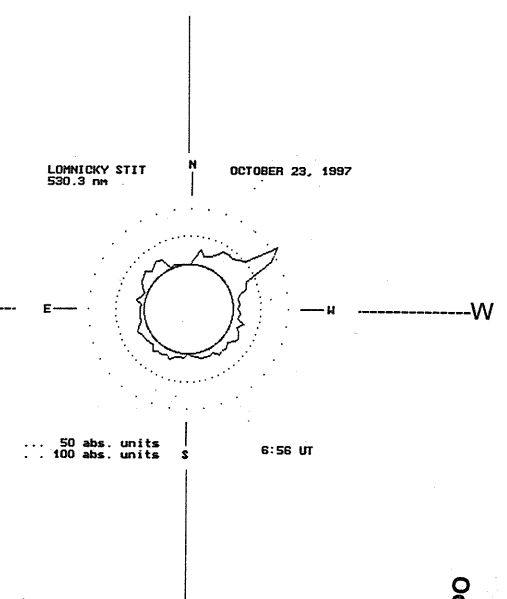
S

RAMEY SUNSPOT



1123 UT
0627 UT LOMN Prom S

LOMNICKY PEAK CORONA (1.04 Radii)



0656 UT
... 50 abs. units
. . 100 abs. units

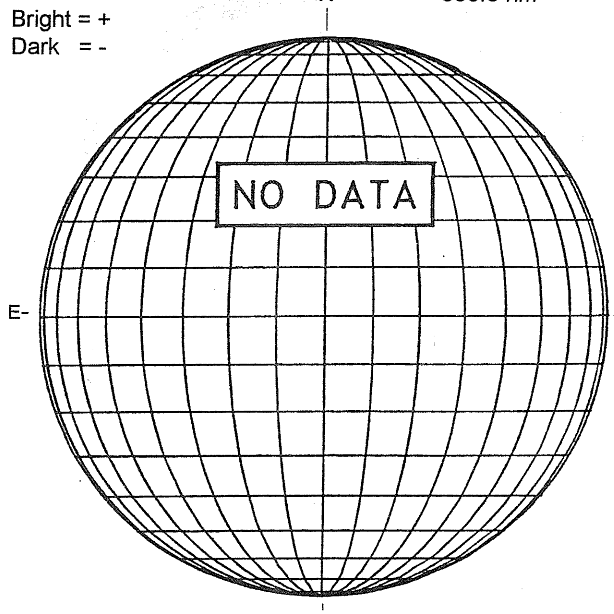
S

69
Oct 97

KITT PEAK MAGNETOGRAM

868.8 nm

Bright = +
Dark = -



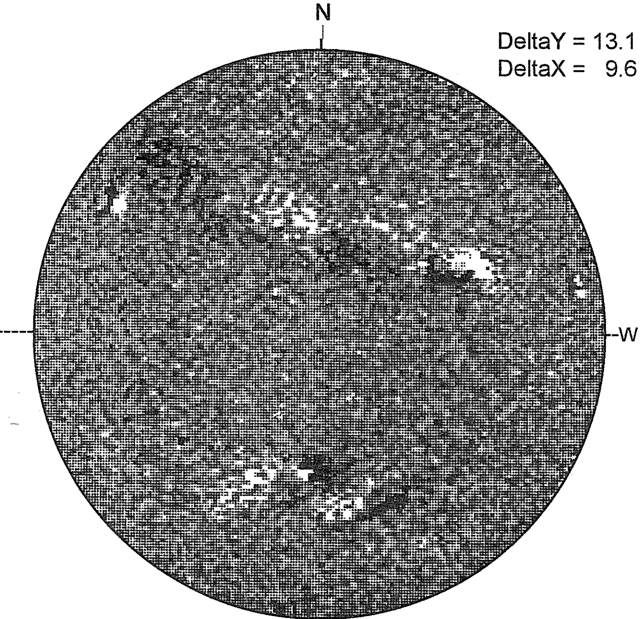
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2350 UT

MT. WILSON MAGNETOGRAM

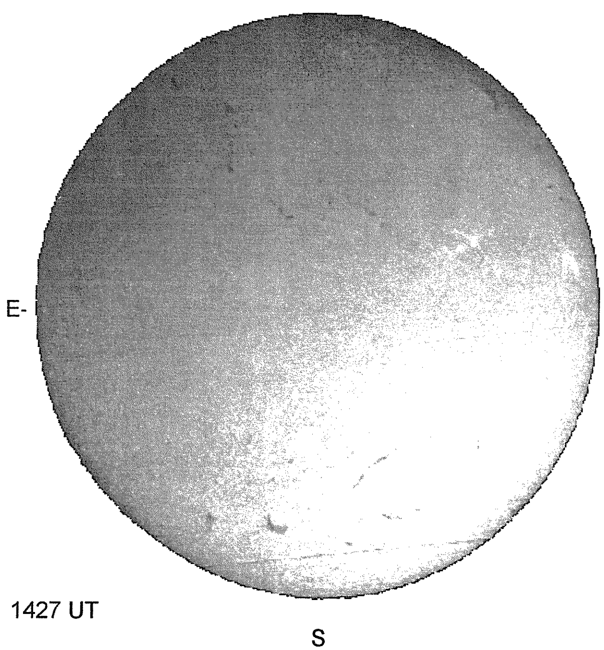
DeltaY = 13.1
DeltaX = 9.6



15.88 -
16.83 UT

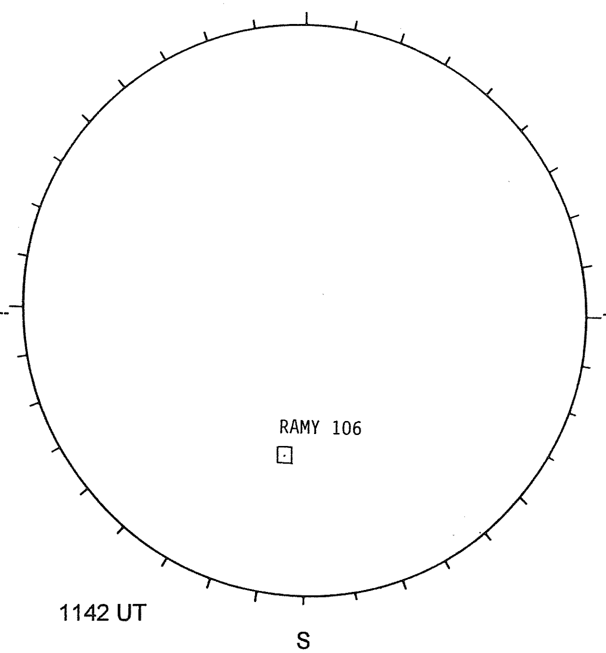
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



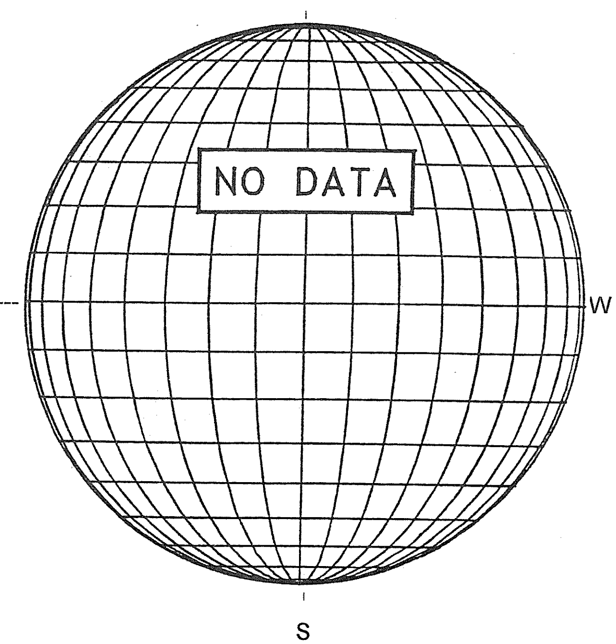
1427 UT

RAMEY SUNSPOT



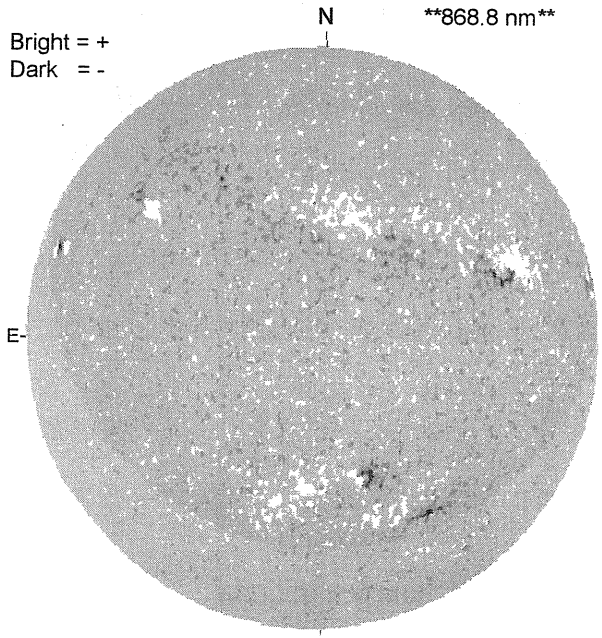
1142 UT

LOMNICKY PEAK CORONA (1.04 Radii)



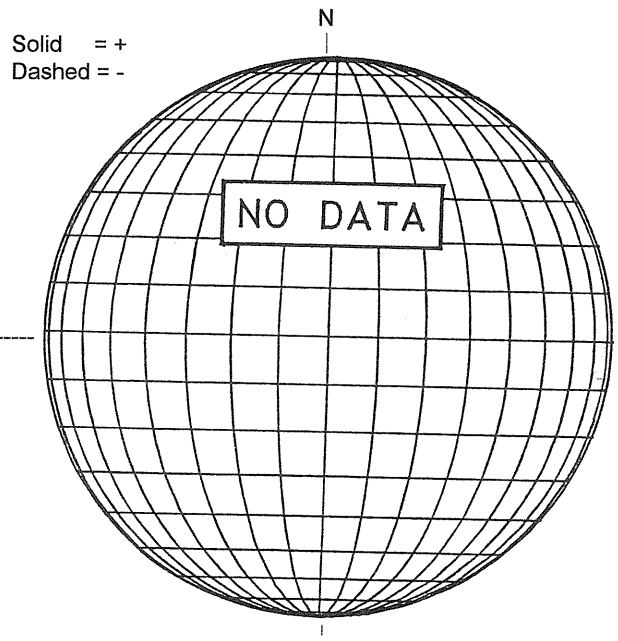
OCTOBER 25, 1997 (P= 25.48, Bo = 5.04, Lo = 99.35)

KITT PEAK MAGNETOGRAM

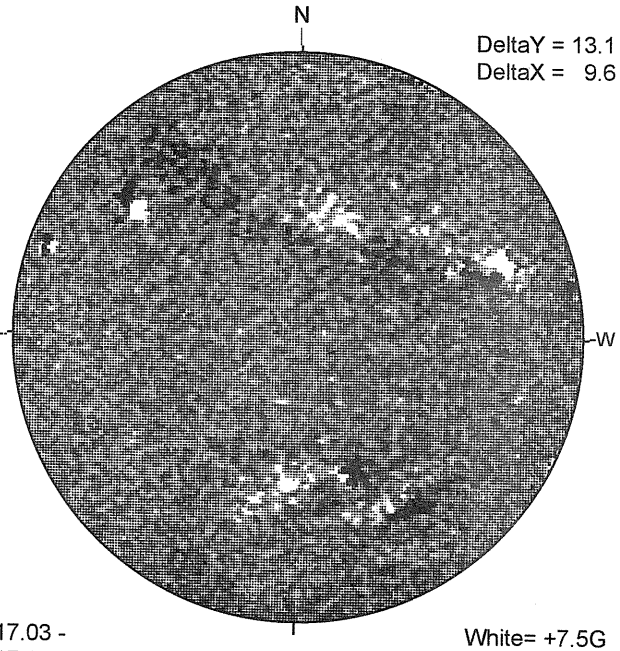


1605 UT

STANFORD MAGNETOGRAM



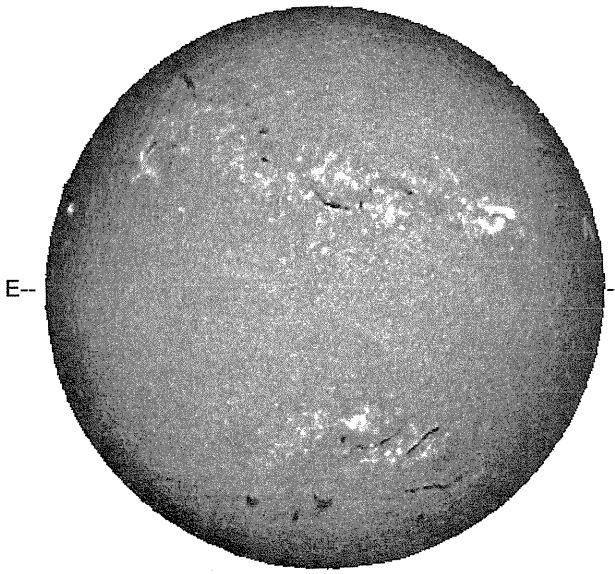
MT. WILSON MAGNETOGRAM



17.03 -
17.98 UT

White= +7.5G
Black = -7.5G

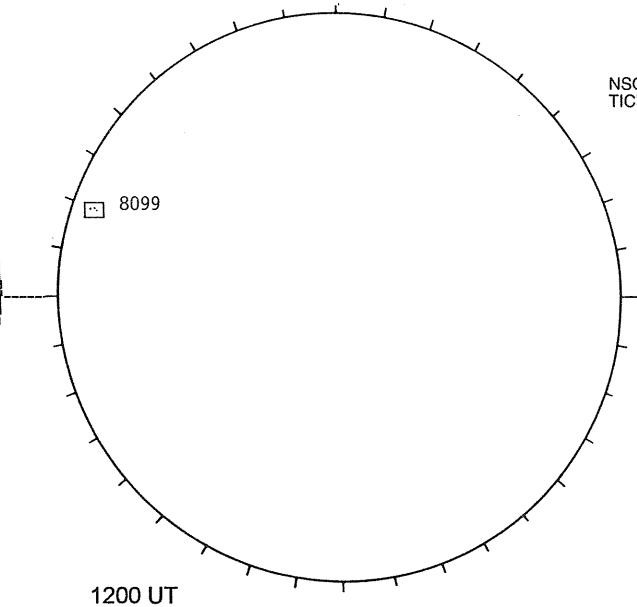
MEUDON H-ALPHA



0751 UT

S

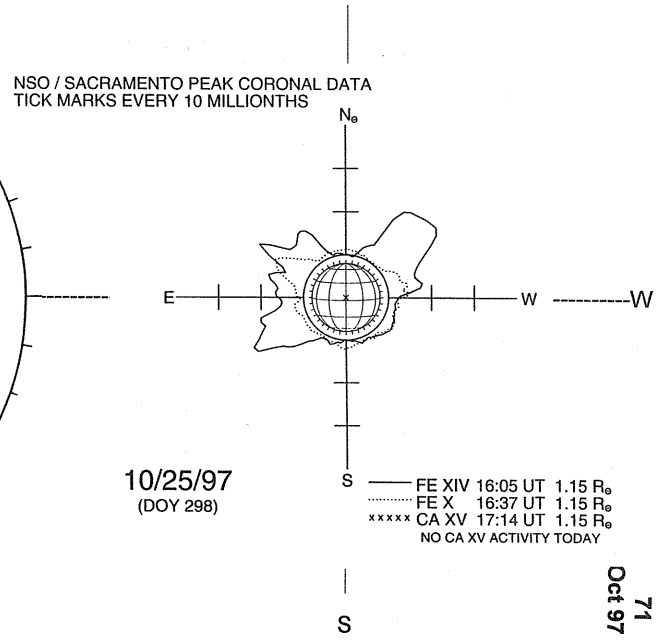
RAMEY SUNSPOT



1200 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----



10/25/97
(DOY 298)

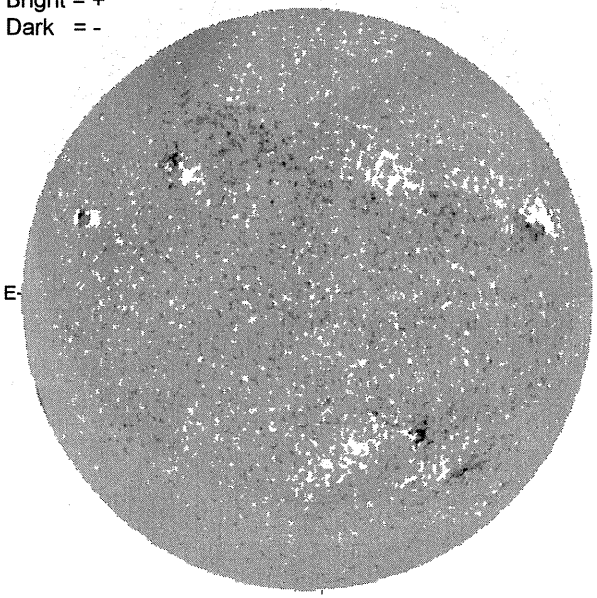
S

71
Oct 97

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -



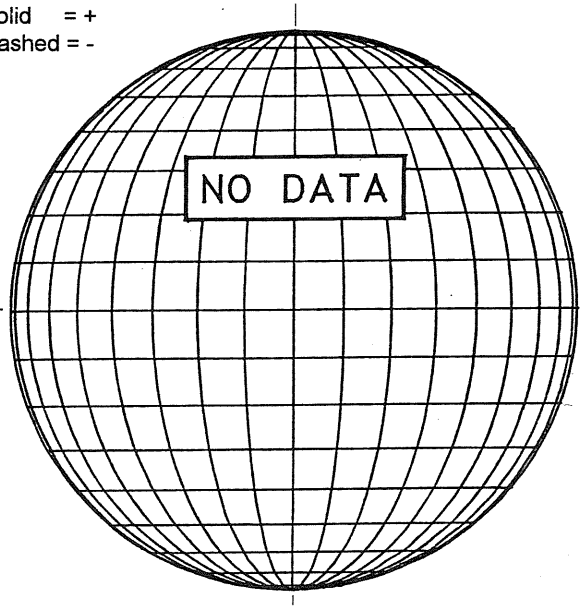
E

1507 UT

STANFORD MAGNETOGRAM

N

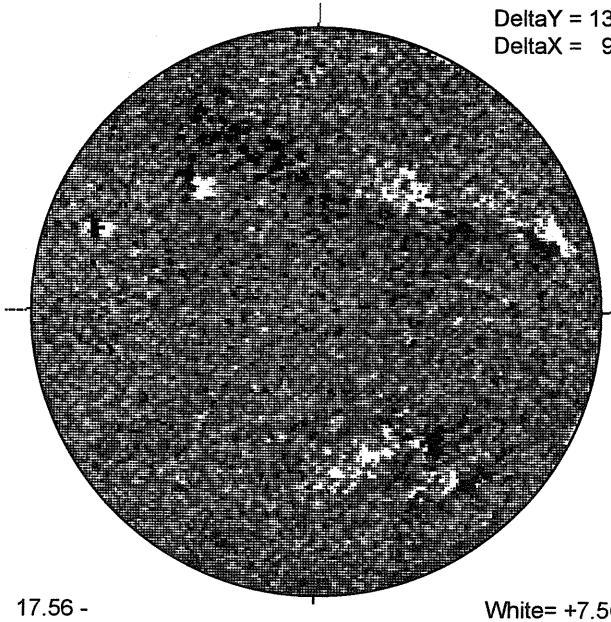
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

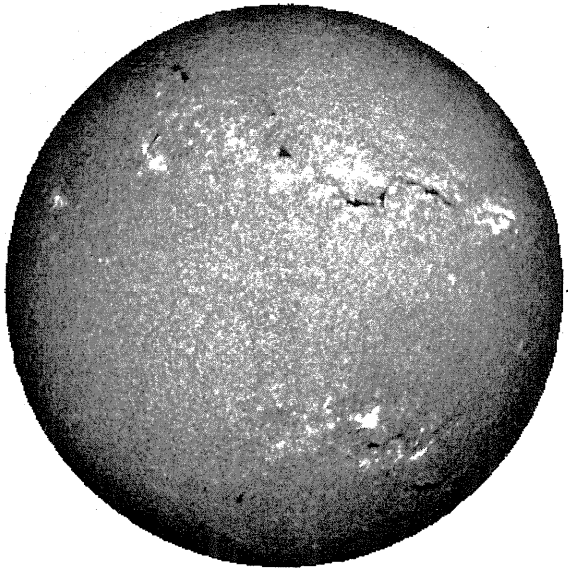


W

17.56 -
18.52 UT

White= +7.5G
Black = -7.5G

---- MEUDON H-ALPHA

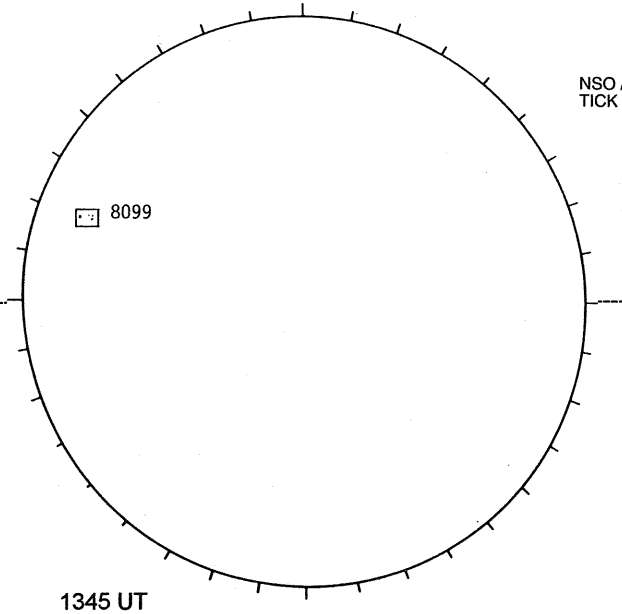


E--

0747 UT

S

RAMEY SUNSPOT

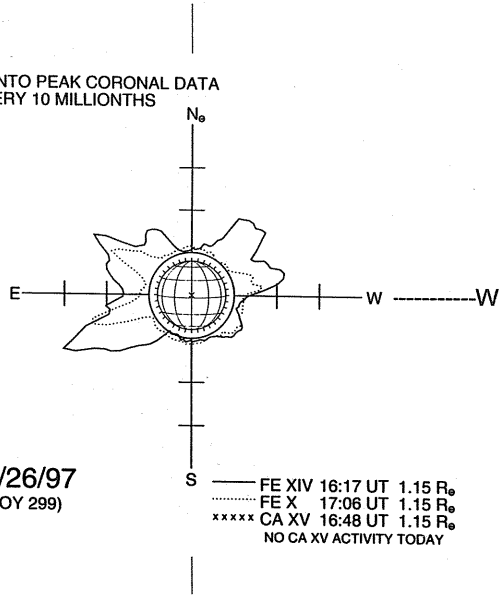


1345 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



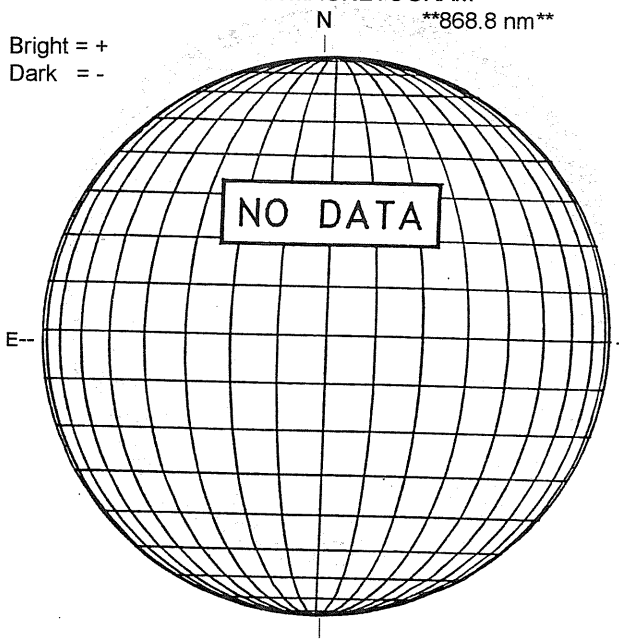
10/26/97
(DOY 299)

FE XIV 16:17 UT 1.15 R
FE X 17:06 UT 1.15 R
CA XV 16:48 UT 1.15 R
NO CA XV ACTIVITY TODAY

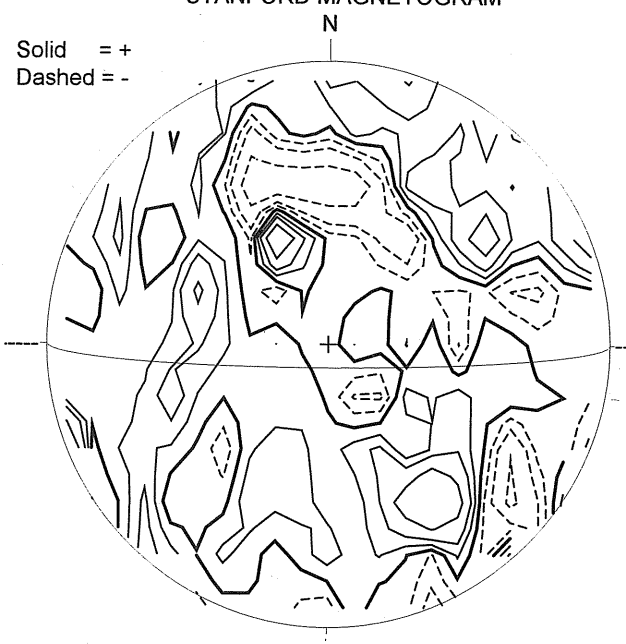
S

OCTOBER 27, 1997 (P= 25.24, Bo = 4.86, Lo = 72.98)

KITT PEAK MAGNETOGRAM

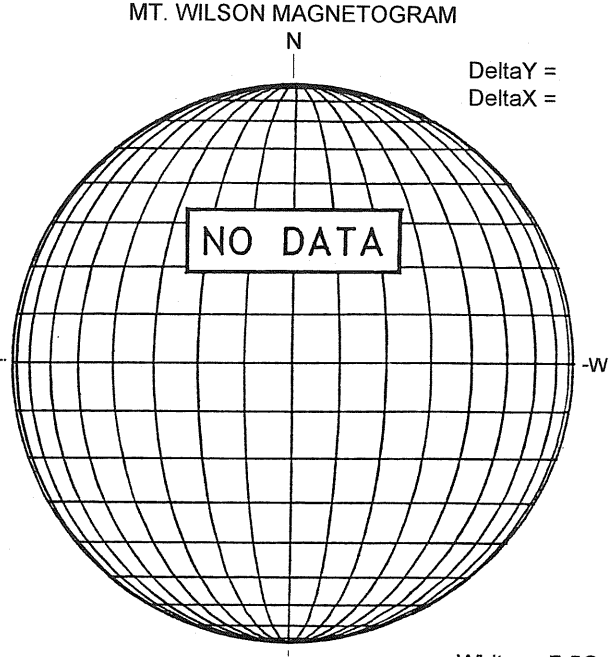


STANFORD MAGNETOGRAM



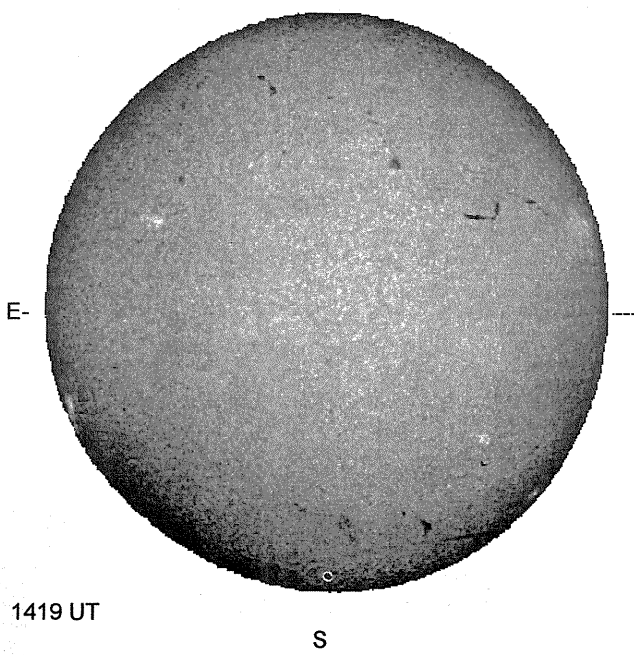
2205 UT

MT. WILSON MAGNETOGRAM



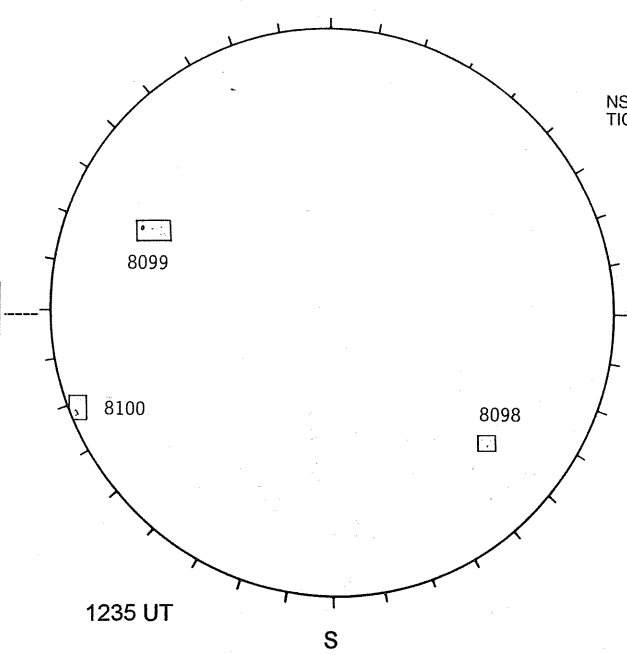
White= +7.5G
Black = -7.5G

---- SACRAMENTO PEAK H-ALPHA



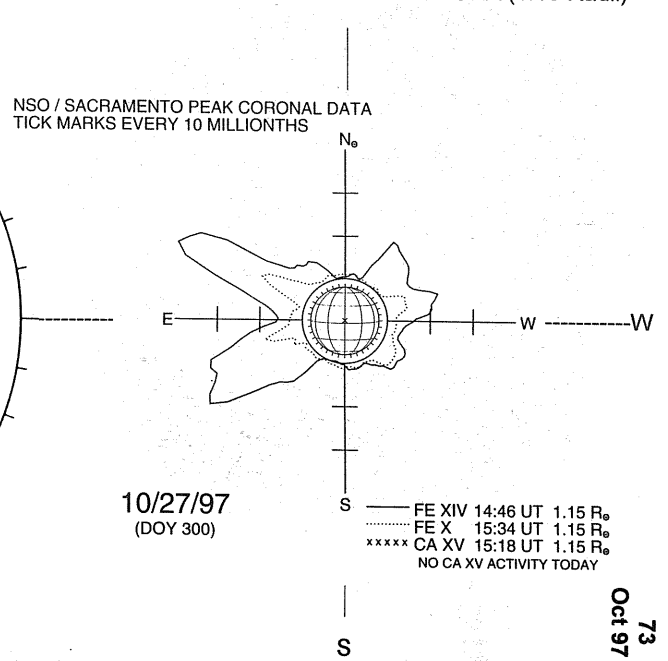
1419 UT

RAMEY SUNSPOT



1235 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

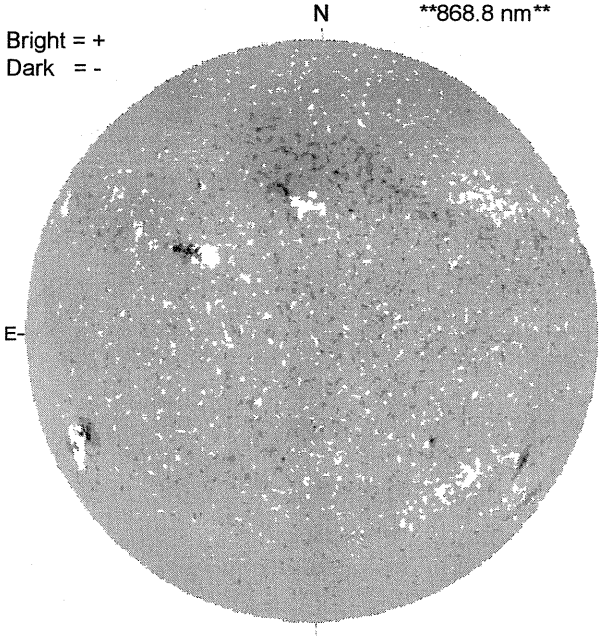


10/27/97
(DOY 300)

73
Oct 97

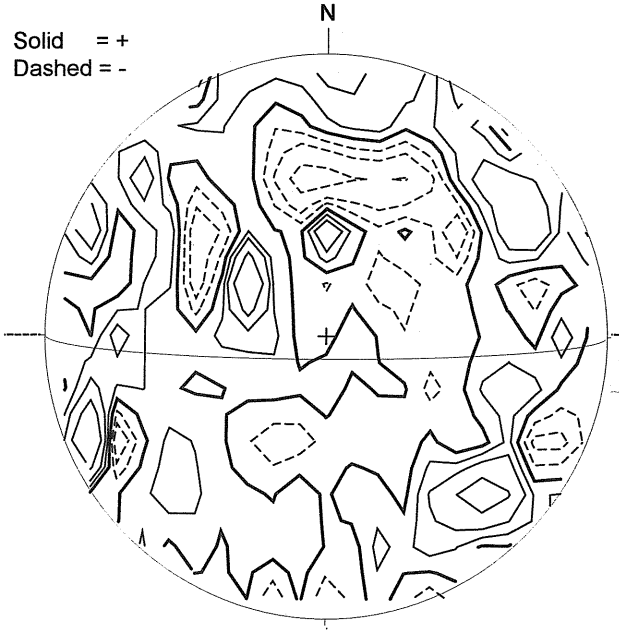
OCTOBER 28, 1997 (P= 25.11, Bo = 4.76, Lo = 59.79)

KITT PEAK MAGNETOGRAM



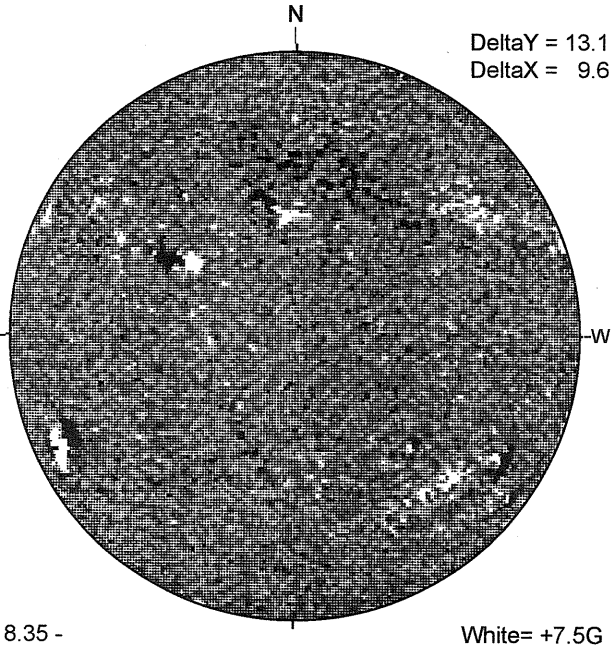
1735 UT

STANFORD MAGNETOGRAM



2246 UT

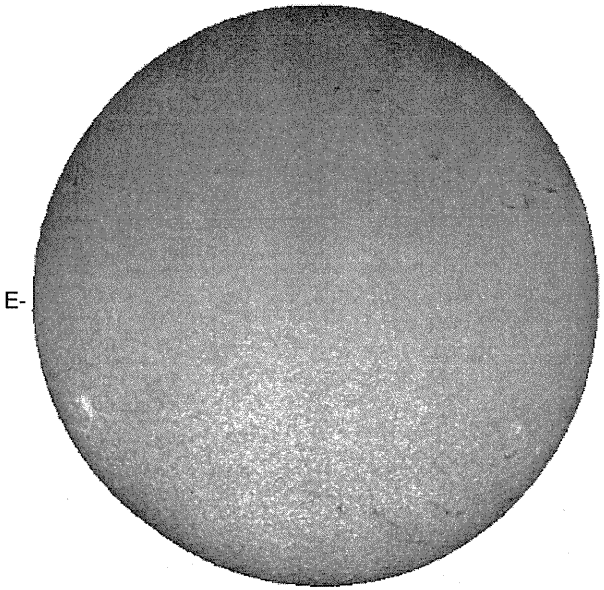
MT. WILSON MAGNETOGRAM



18.35 -
19.31 UT

White= +7.5G
Black = -7.5G

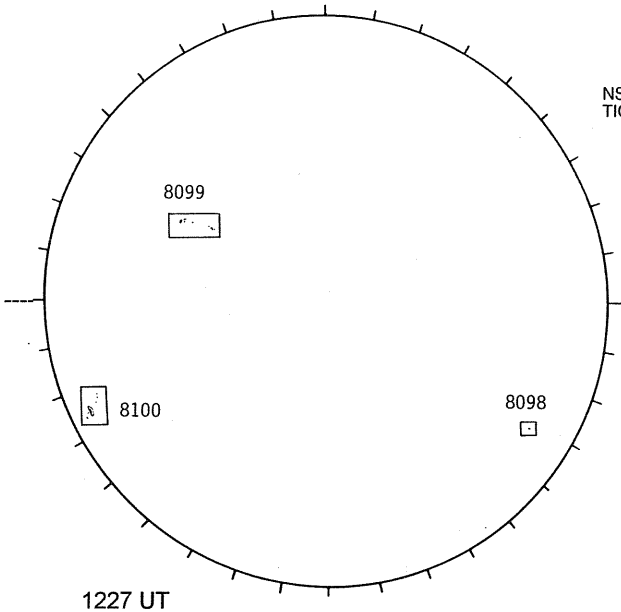
SACRAMENTO PEAK H-ALPHA



1415 UT

S

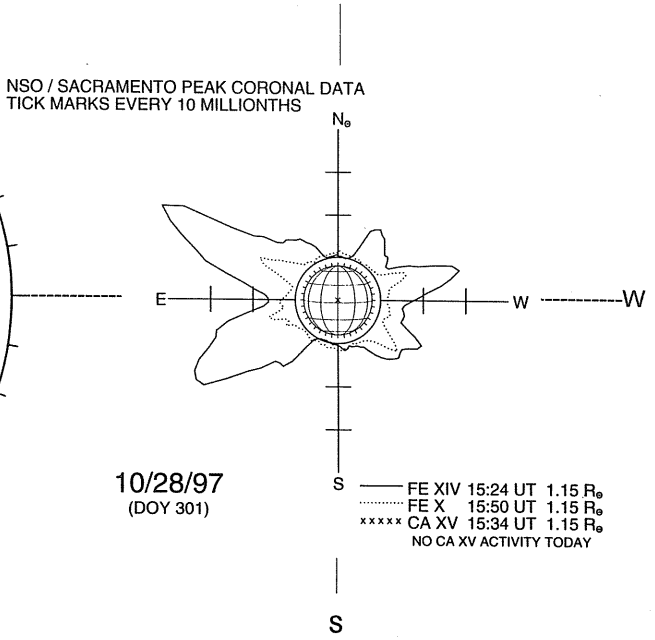
RAMEY SUNSPOT



1227 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)



10/28/97
(DOY 301)

FE XIV 15:24 UT 1.15 R_e
FE X 15:50 UT 1.15 R_e
xxxxx CA XV 15:34 UT 1.15 R_e
NO CA XV ACTIVITY TODAY

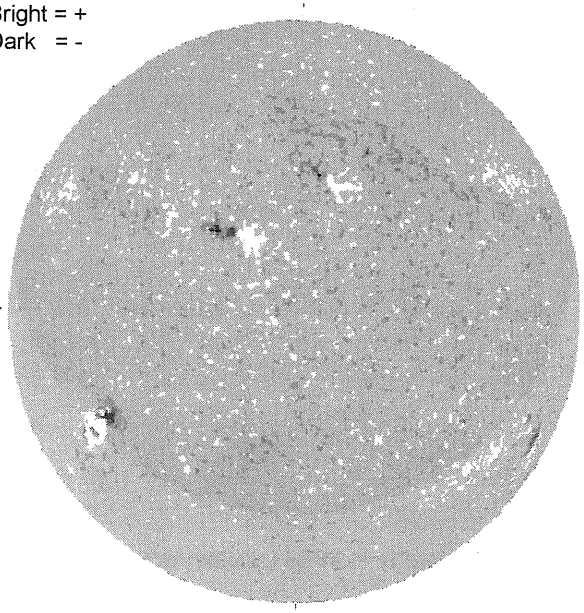
S

OCTOBER 29, 1997 (P= 24.97, Bo = 4.67, Lo = 46.60)

KITT PEAK MAGNETOGRAM

N **868.8 nm**

Bright = +
Dark = -

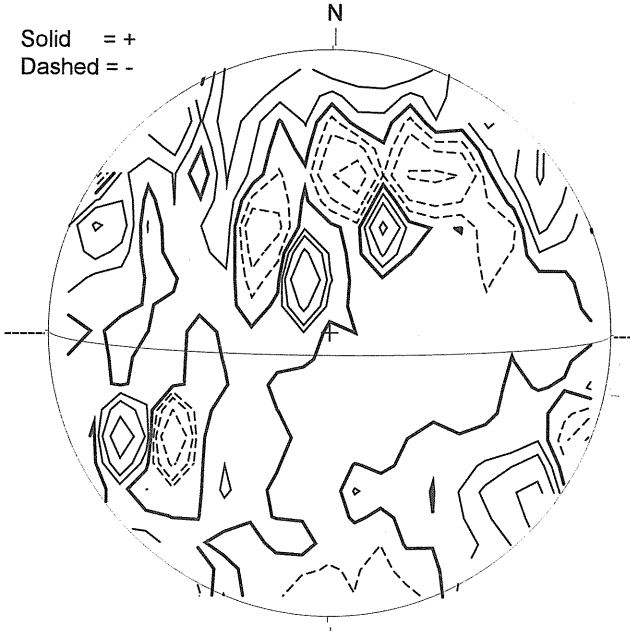


1725 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

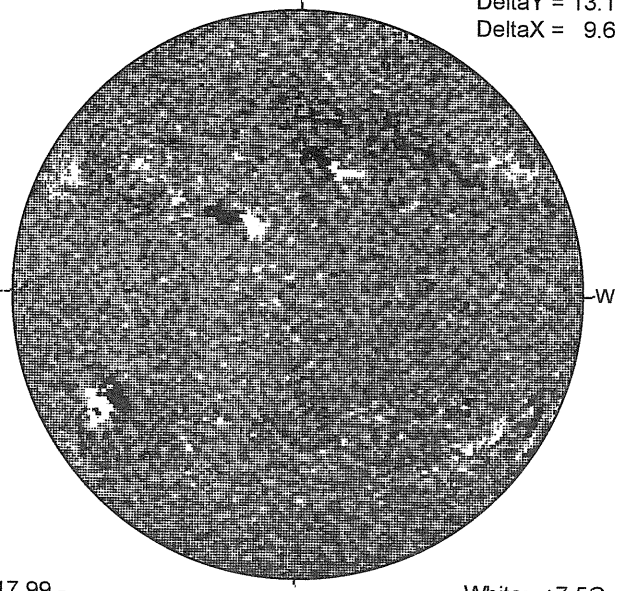


2111 UT

MT. WILSON MAGNETOGRAM

N

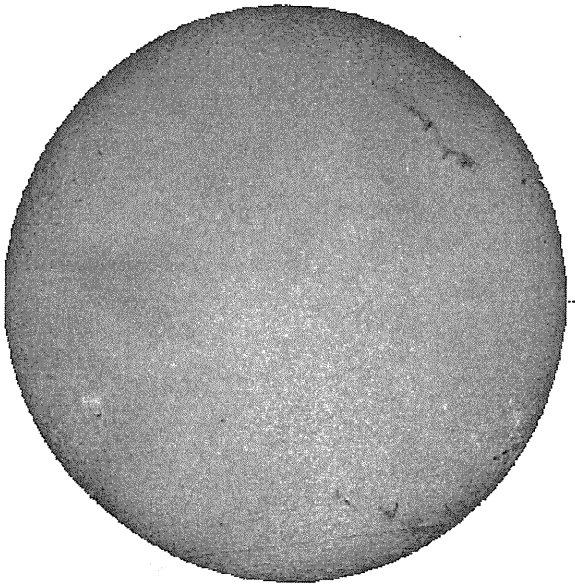
DeltaY = 13.1
DeltaX = 9.6



17.99 -
18.94 UT

White= +7.5G
Black = -7.5G

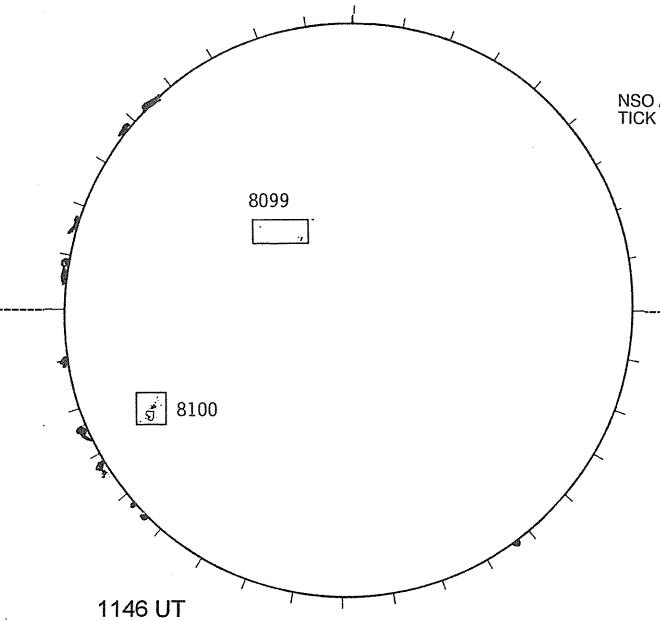
----- SACRAMENTO PEAK H-ALPHA



1424 UT

S

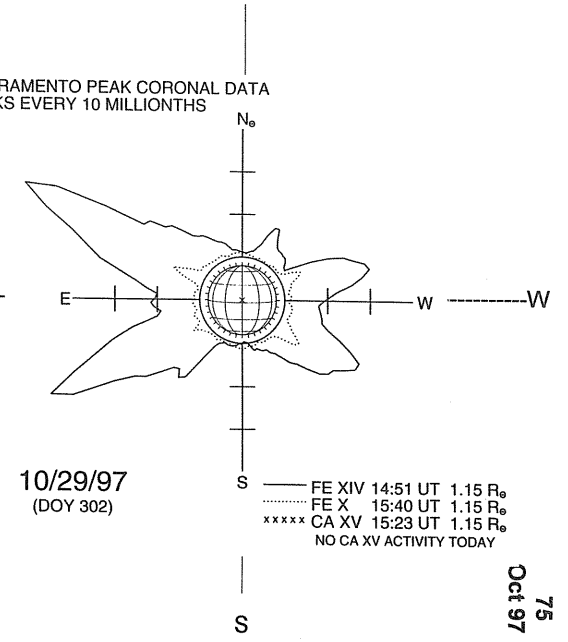
RAMEY SUNSPOT



1146 UT
0711 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)----

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



10/29/97
(DOY 302)

FE XIV 14:51 UT 1.15 R_e
FE X 15:40 UT 1.15 R_e
xxxxx CA XV 15:23 UT 1.15 R_e
NO CA XV ACTIVITY TODAY

S

75
Oct 97

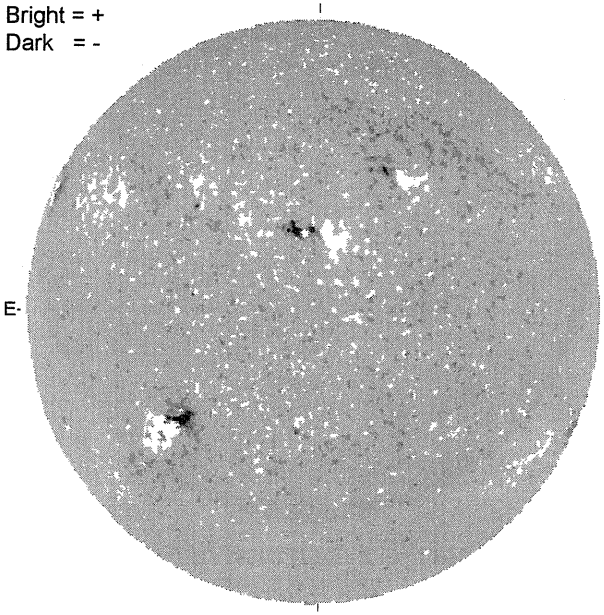
OCTOBER 30, 1997 (P= 24.83, Bo = 4.57, Lo = 33.42)

KITT PEAK MAGNETOGRAM

N

868.8 nm

Bright = +
Dark = -



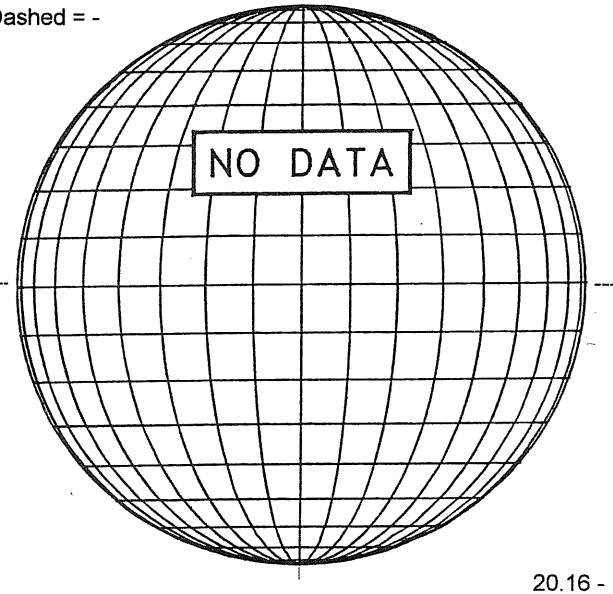
E-

1728 UT

STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

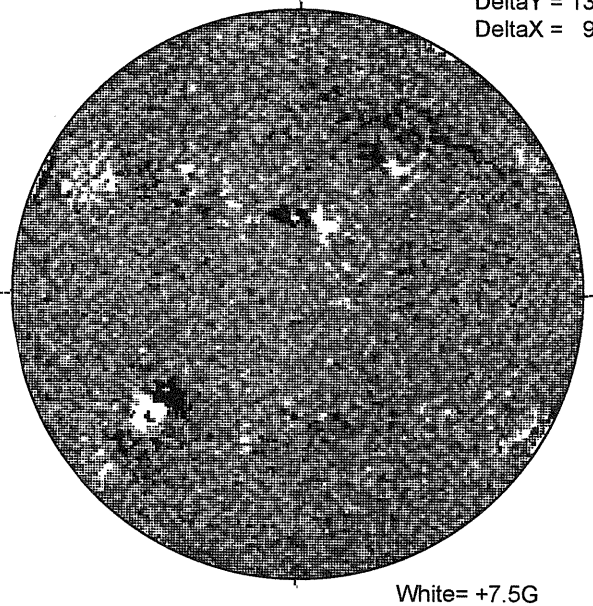


20.16 -
21.12 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

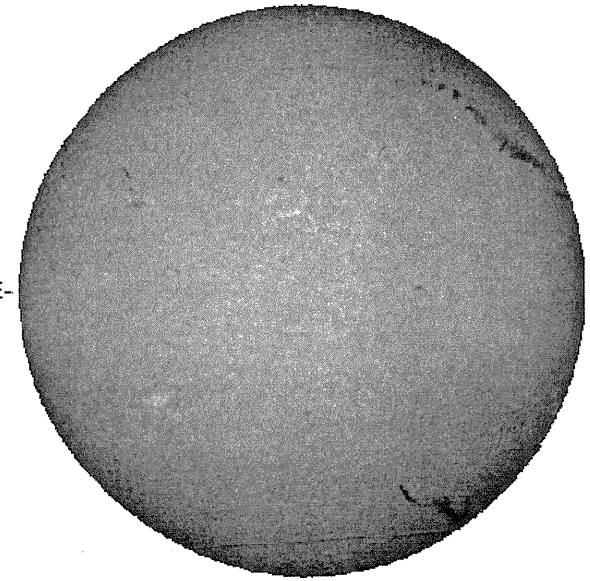


W

White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA

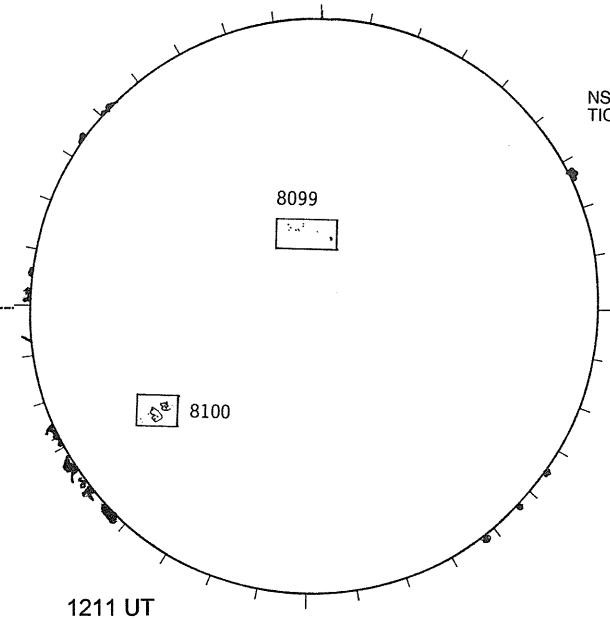
E-



1441 UT

S

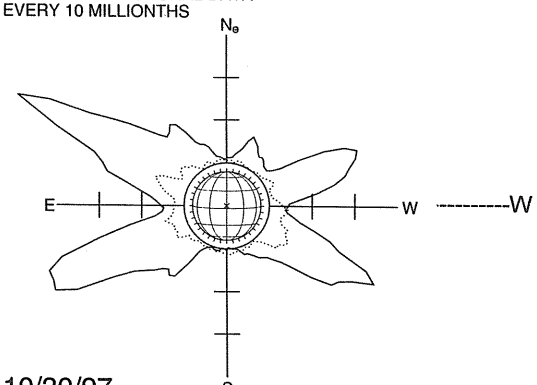
RAMEY SUNSPOT



1211 UT
0624 UT LOMN Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)

NSO / SACRAMENTO PEAK CORONAL DATA
TICK MARKS EVERY 10 MILLIONTHS



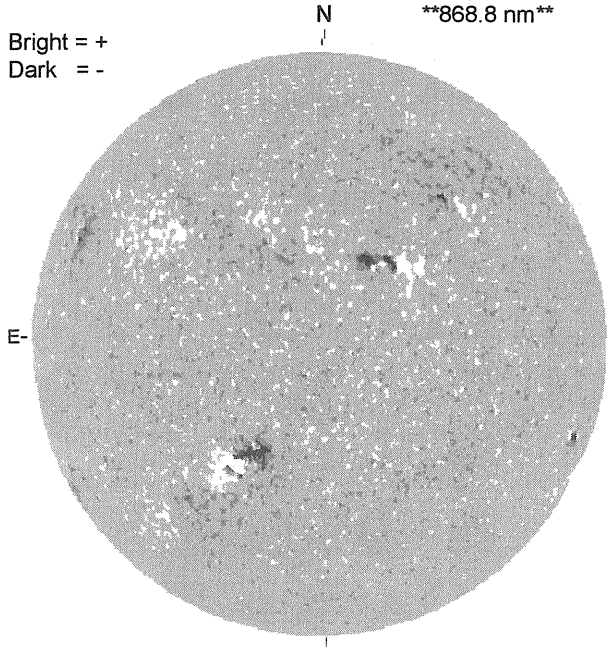
10/30/97
(DOY 303)

FE XIV 15:09 UT 1.15 $R_\odot$
FE X 16:02 UT 1.15 $R_\odot$
CA XV 15:44 UT 1.15 $R_\odot$
NO CA XV ACTIVITY TODAY

S

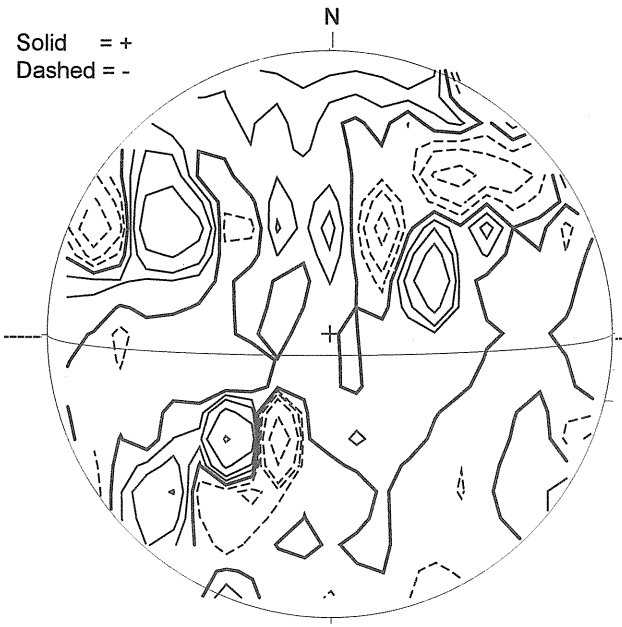
OCTOBER 31, 1997 (P= 24.67, Bo = 4.47, Lo = 20.23)

KITT PEAK MAGNETOGRAM



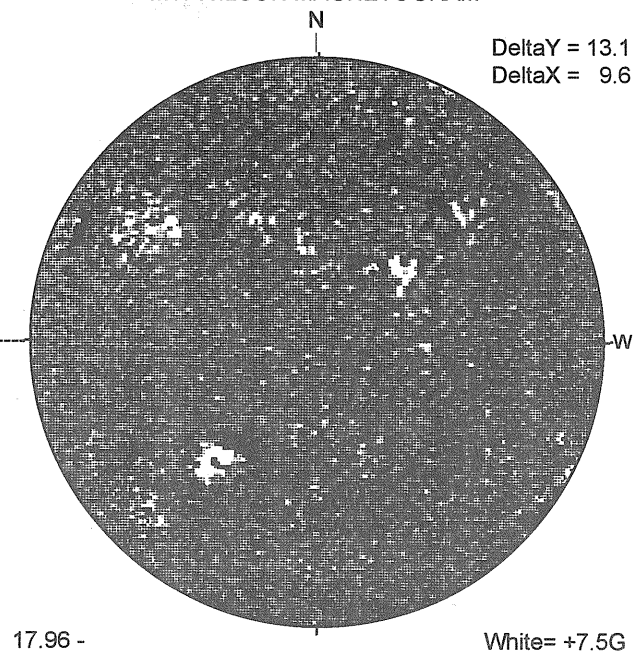
2031 UT

STANFORD MAGNETOGRAM



2234 UT

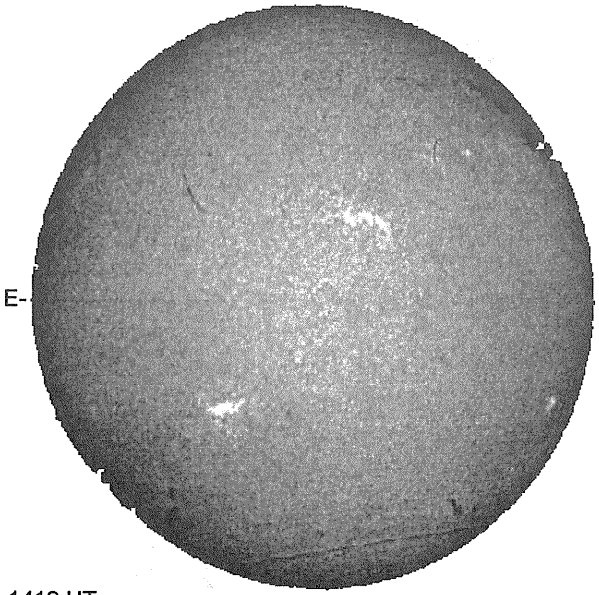
MT. WILSON MAGNETOGRAM



17.96 -
18.91 UT

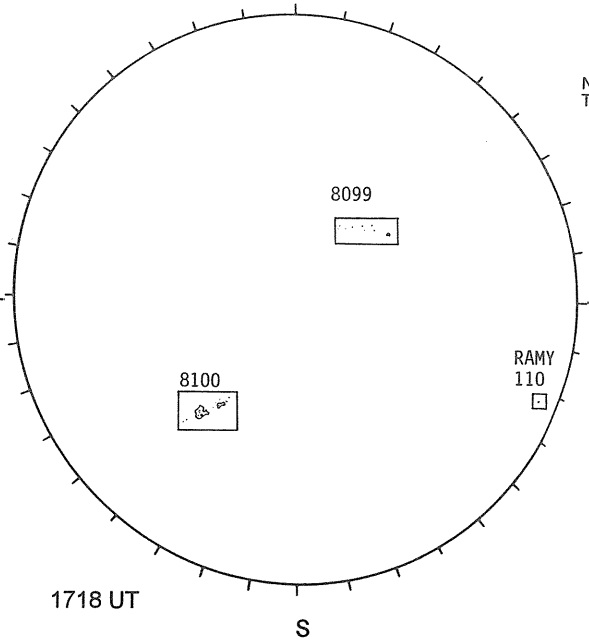
White= +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



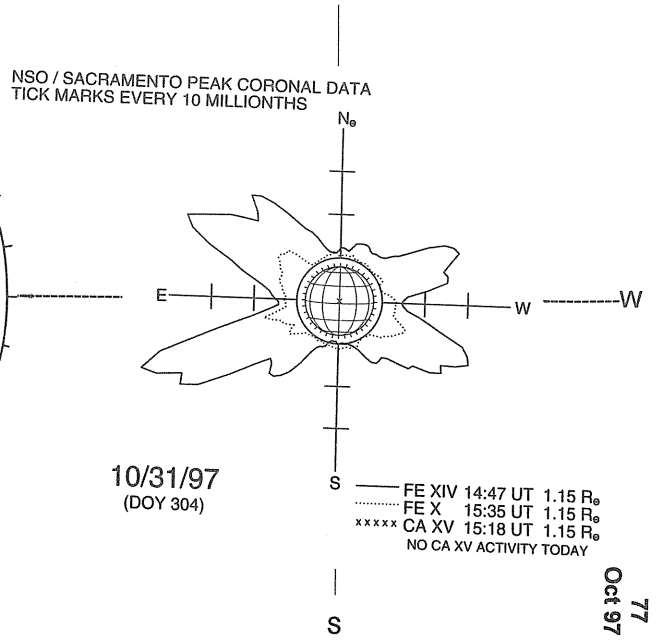
1419 UT

RAMEY SUNSPOT



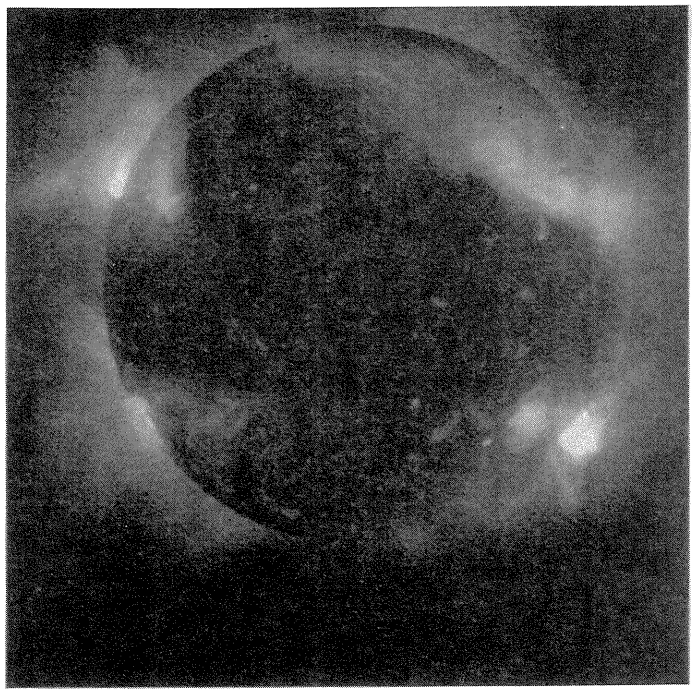
1718 UT

SACRAMENTO PEAK CORONA (1.15 Radii)----

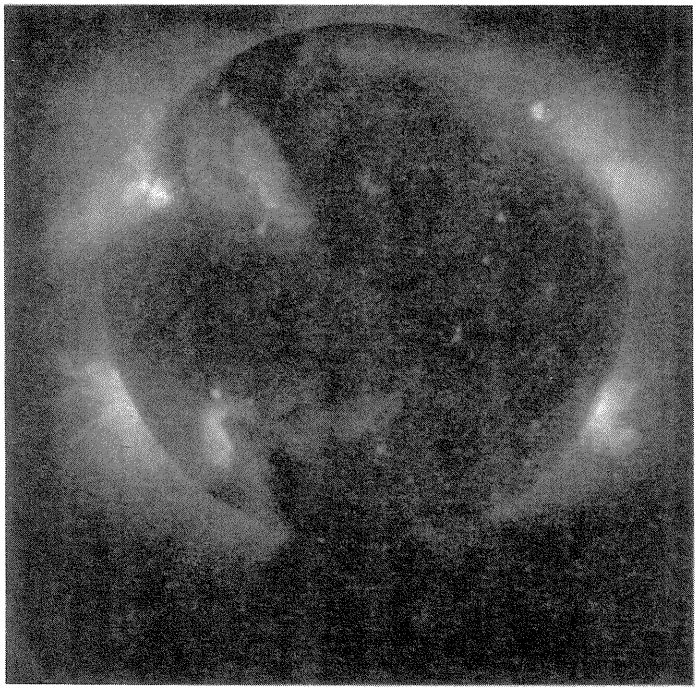


YOHKOH SOFT X-RAY TELESCOPE IMAGES

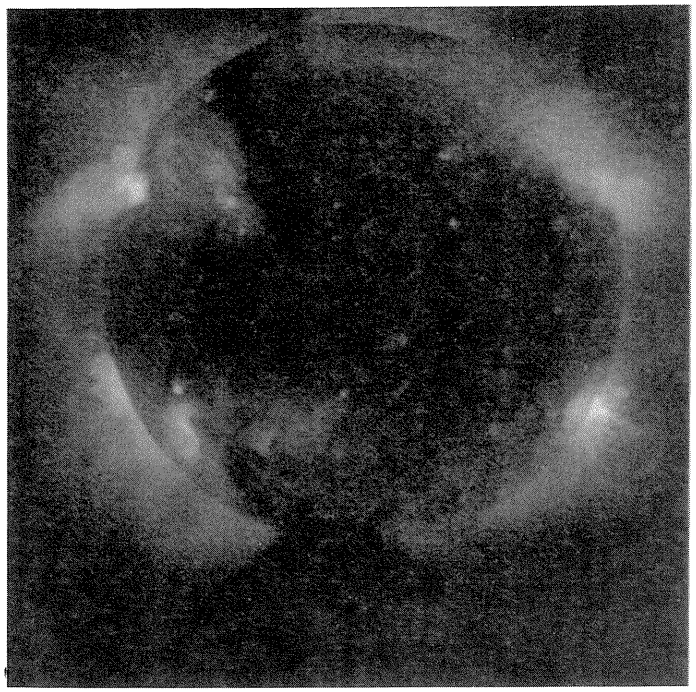
October
1997



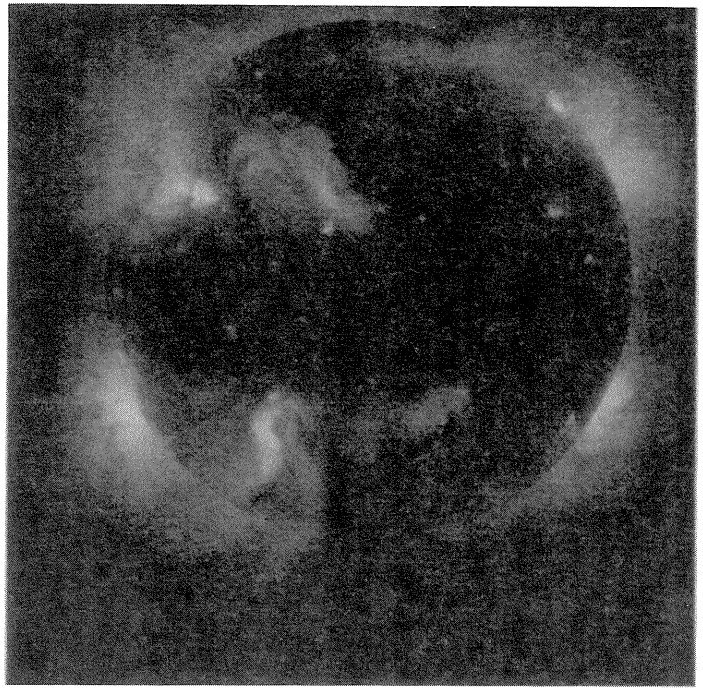
Day 1
00:57:17 UT



Day 3
11:47:47 UT



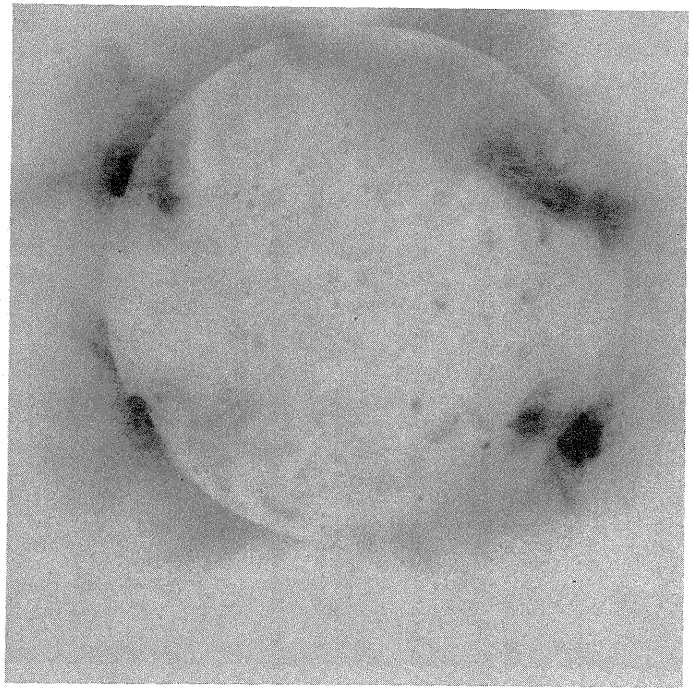
Day 2
15:32:21 UT



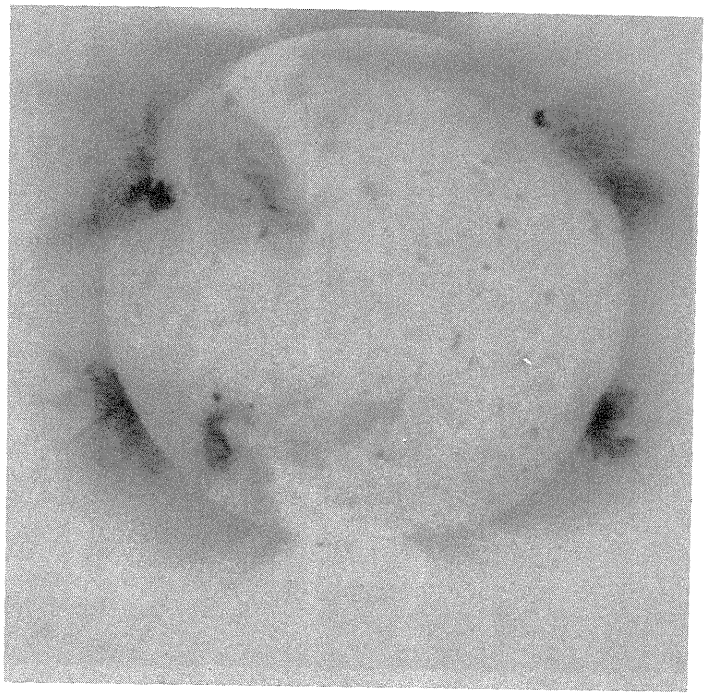
Day 4
13:11:39 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

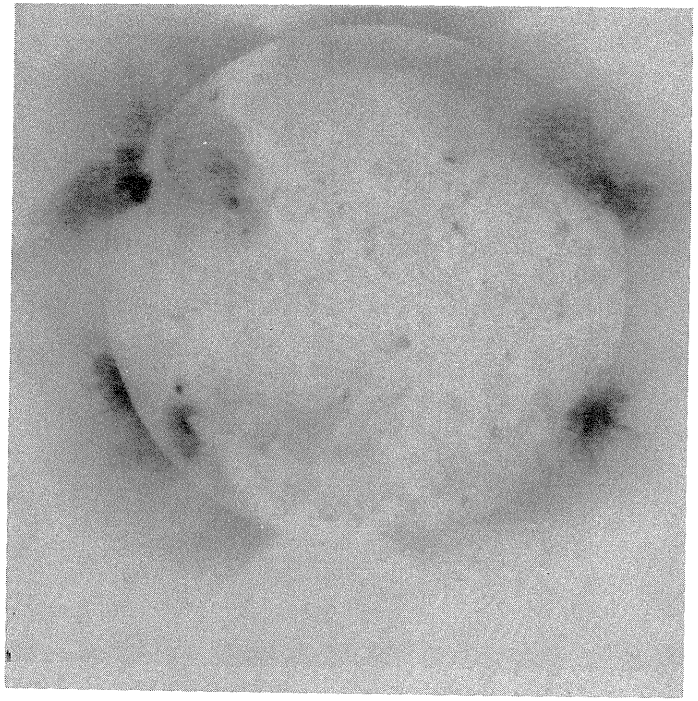
October 1997



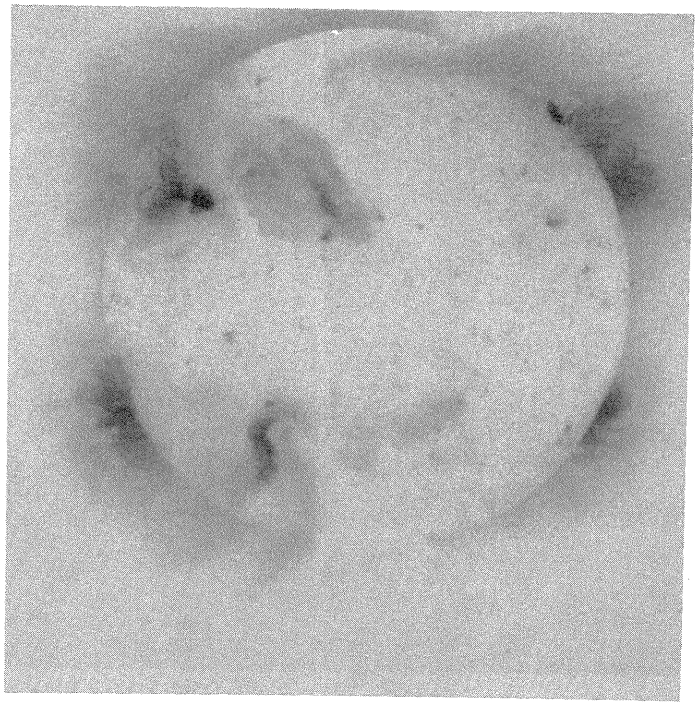
Day 1
00:57:17 UT



Day 3
11:47:47 UT



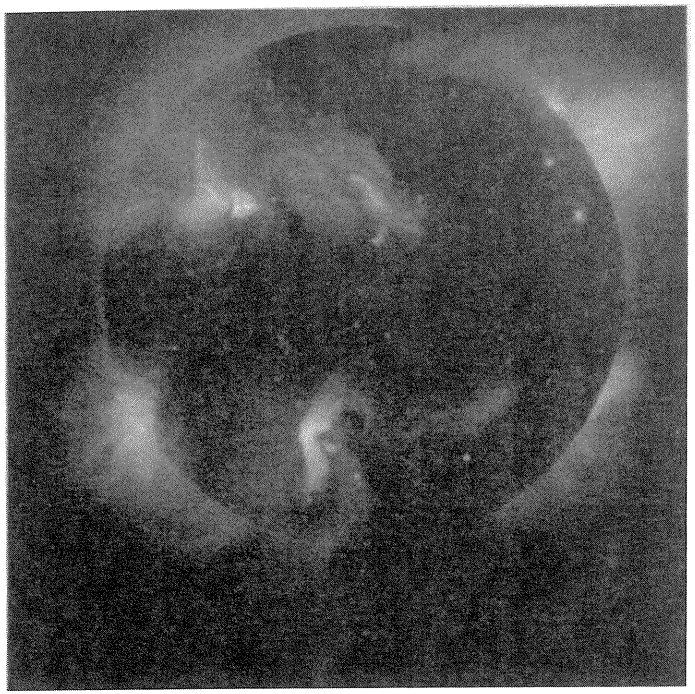
Day 2
15:32:21 UT



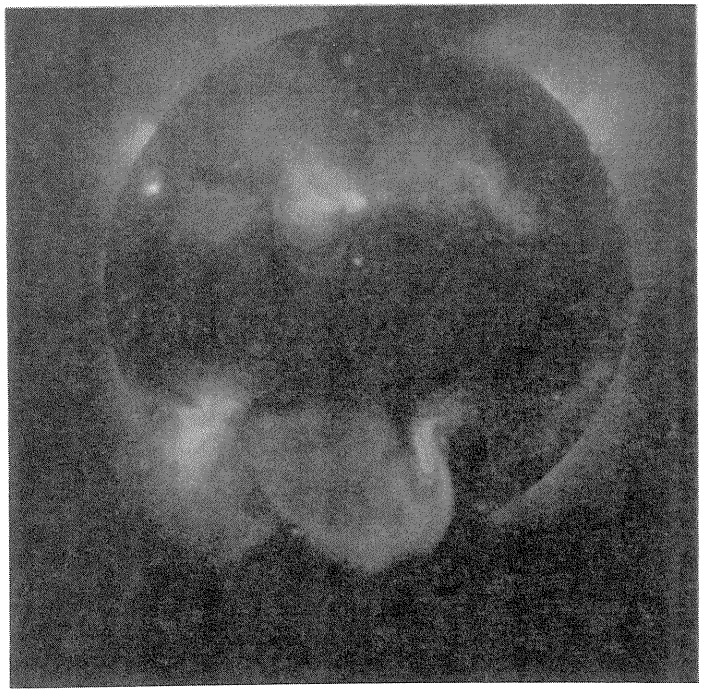
Day 4
13:11:39 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

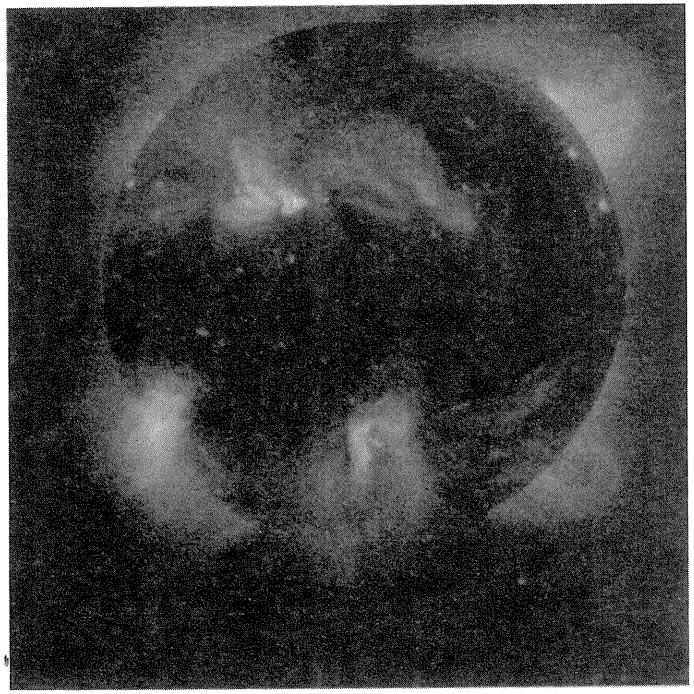
October
1997



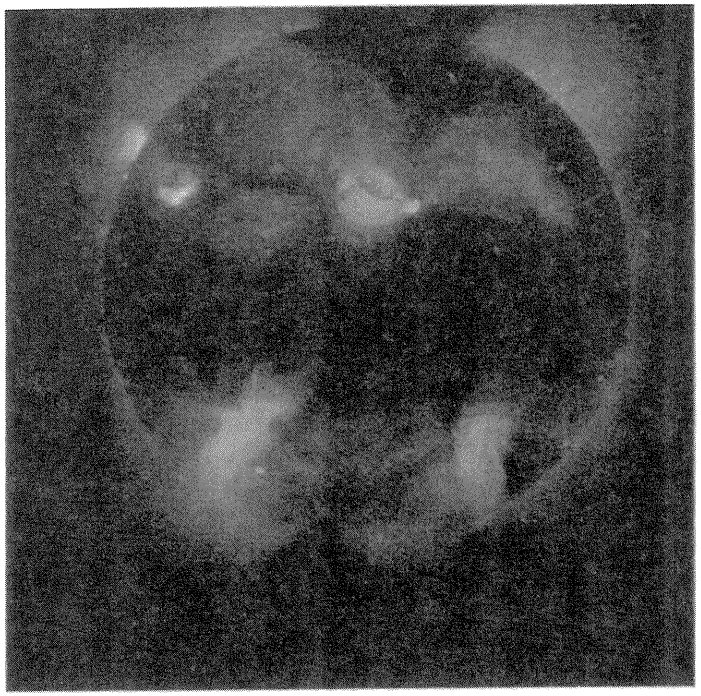
Day 5
12:10:44 UT



Day 7
12:48:12 UT



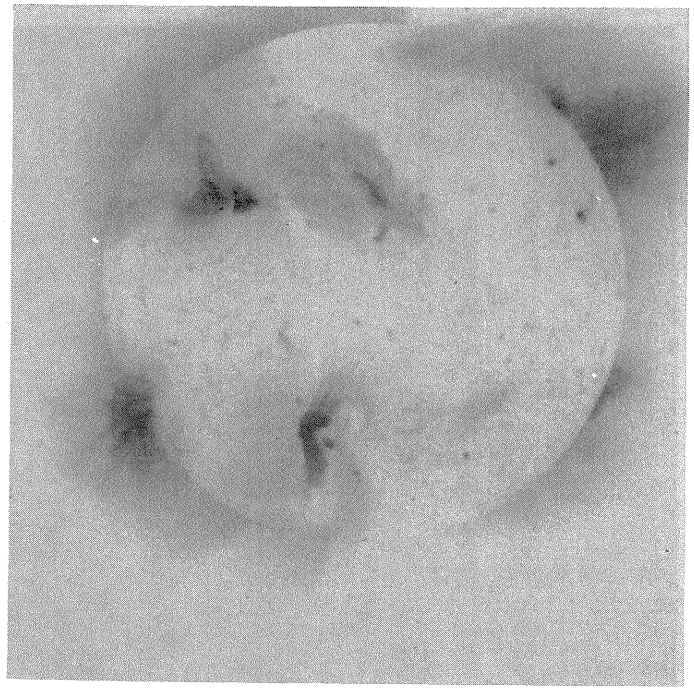
Day 6
10:57:38 UT



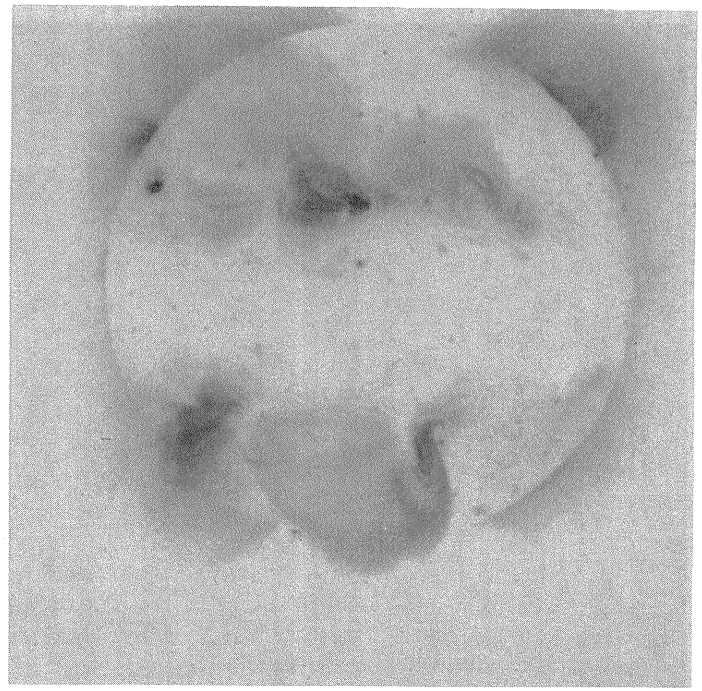
Day 8
11:43:44 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

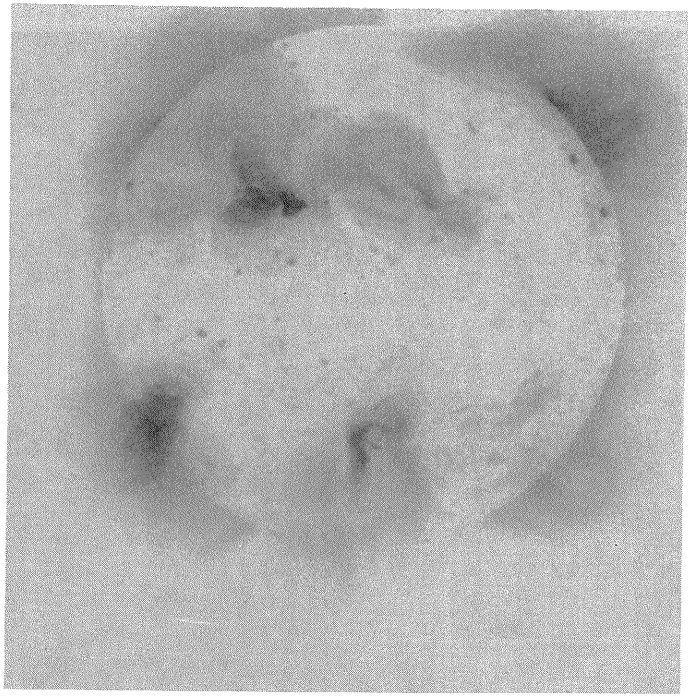
October
1997



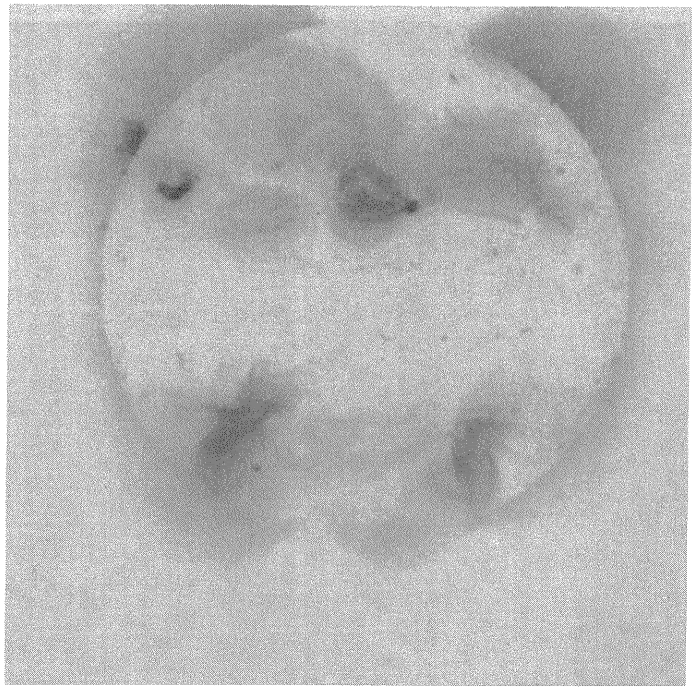
Day 5
12:10:44 UT



Day 7
12:48:12 UT



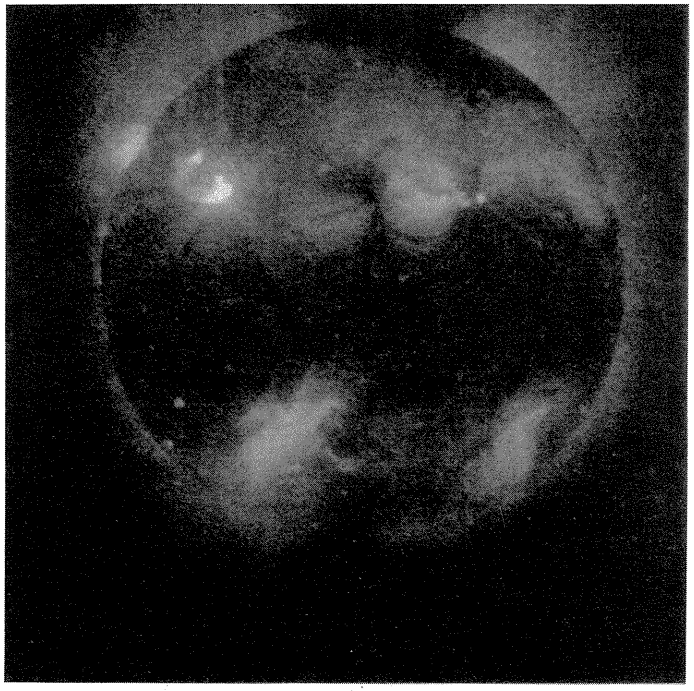
Day 6
10:57:38 UT



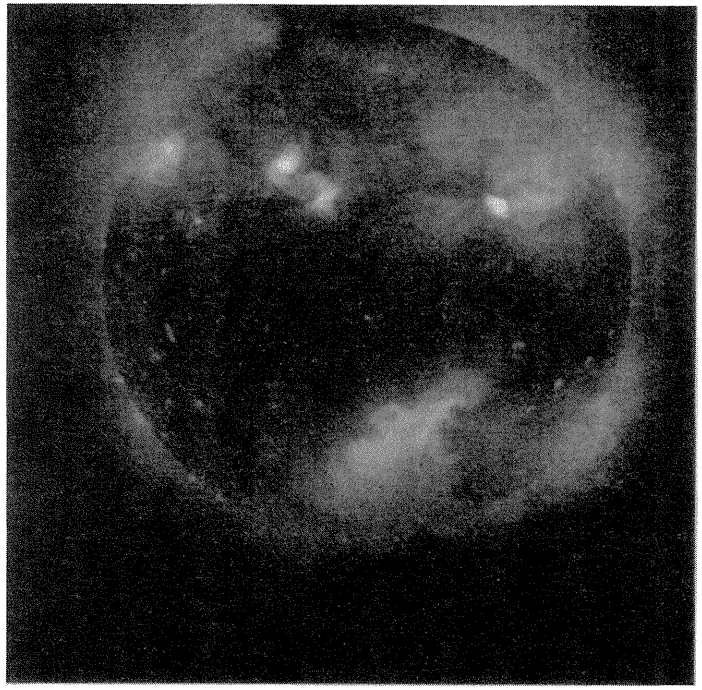
Day 8
11:43:44 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

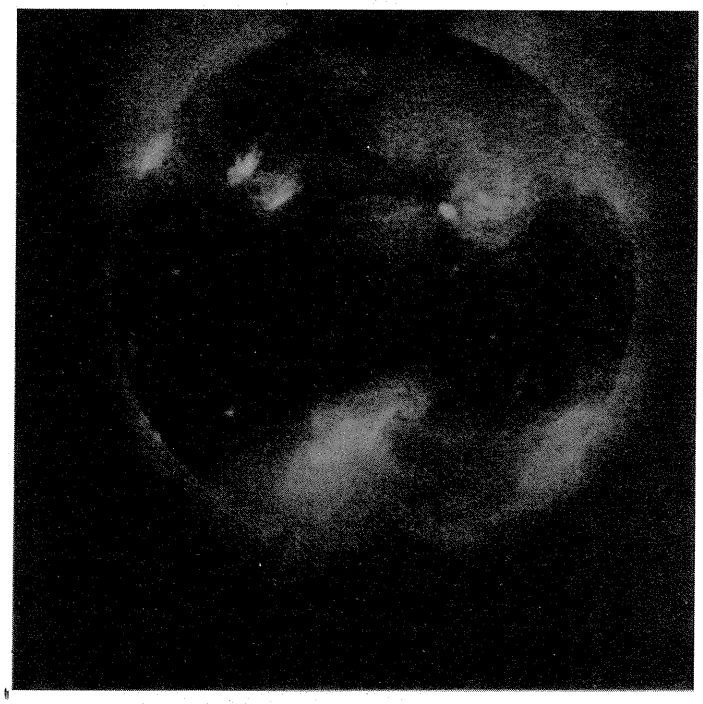
October
1997



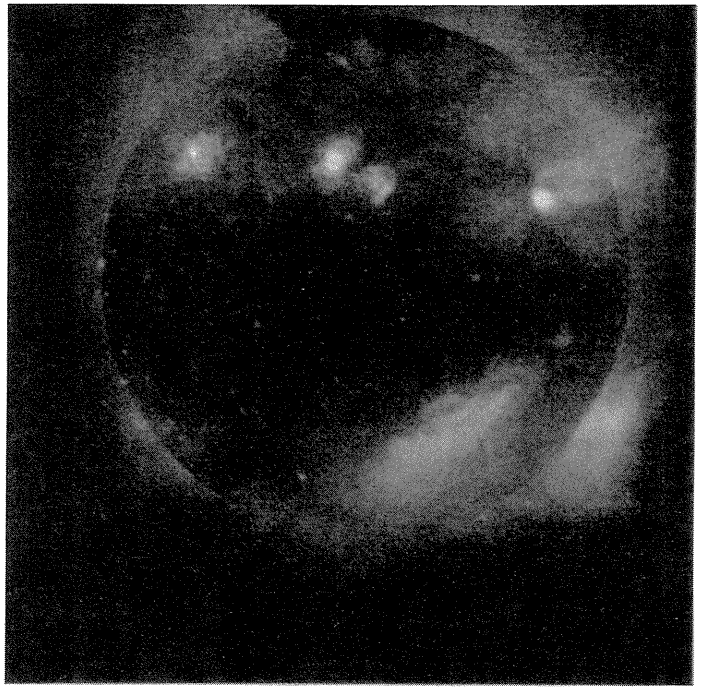
Day 9
11:55:28 UT



Day 11
12:07:17 UT



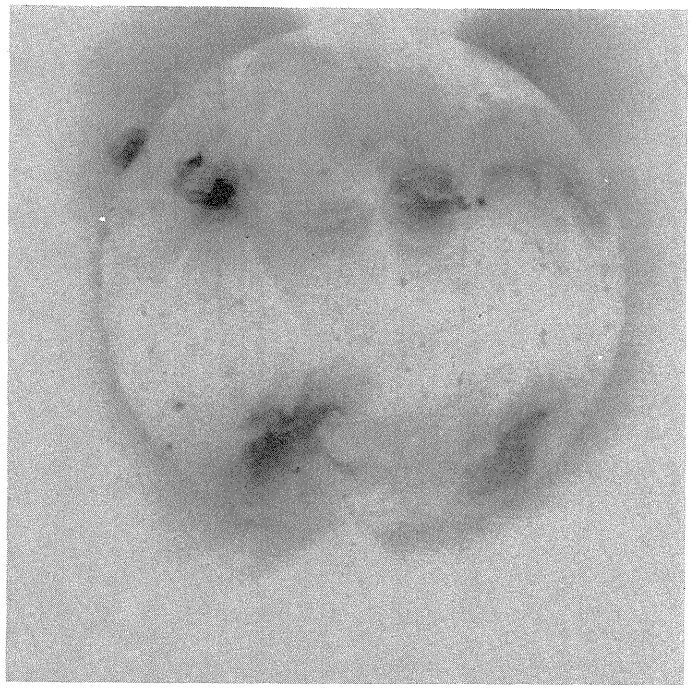
Day 10
12:06:29 UT



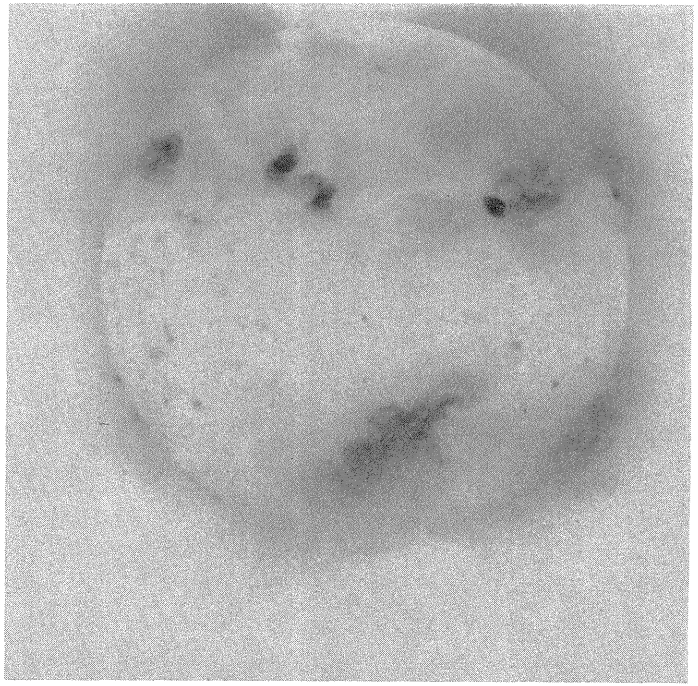
Day 12
12:10:23 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

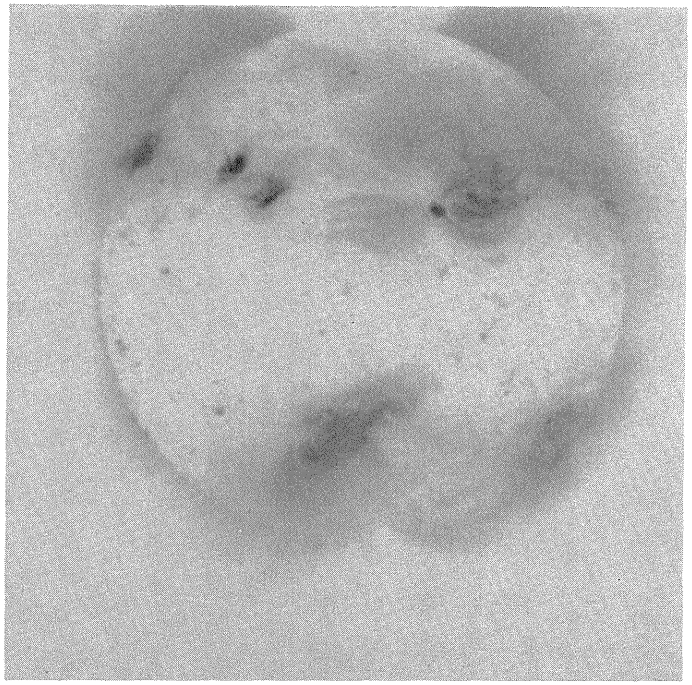
October
1997



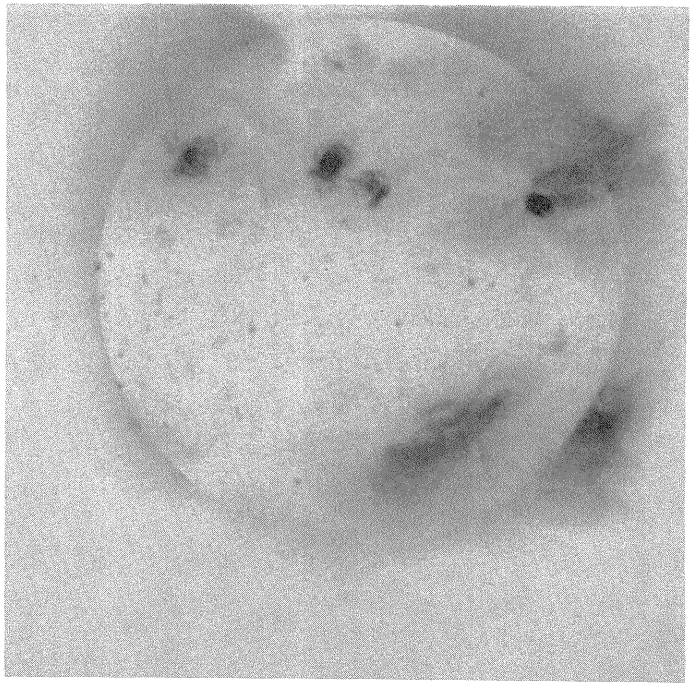
Day 9
11:55:28 UT



Day 11
12:07:17 UT



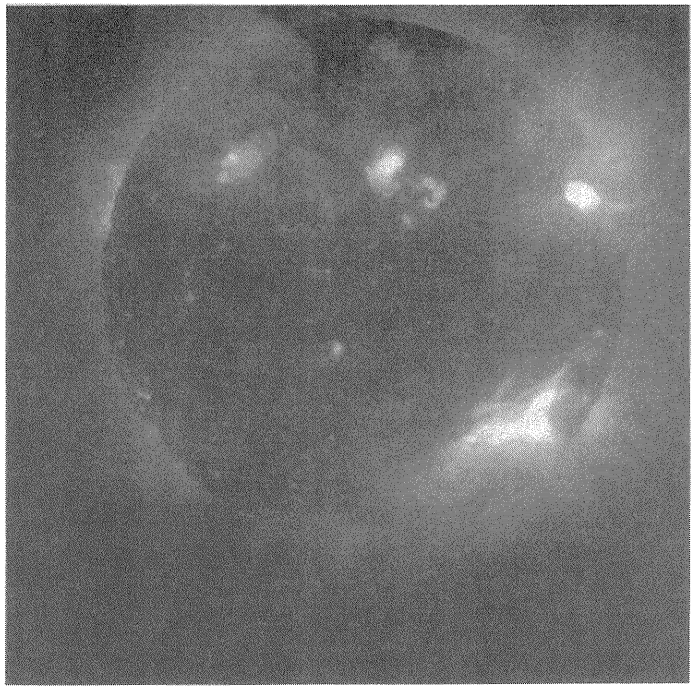
Day 10
12:06:29 UT



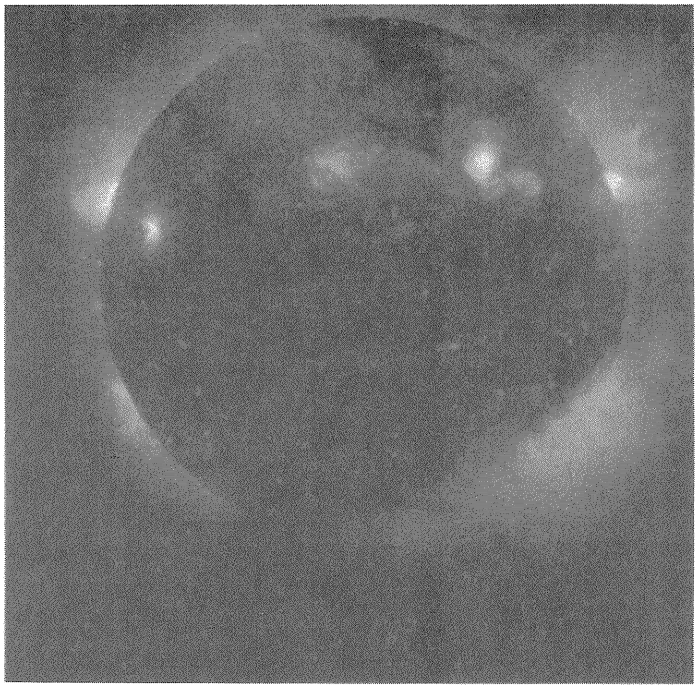
Day 12
12:10:23 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

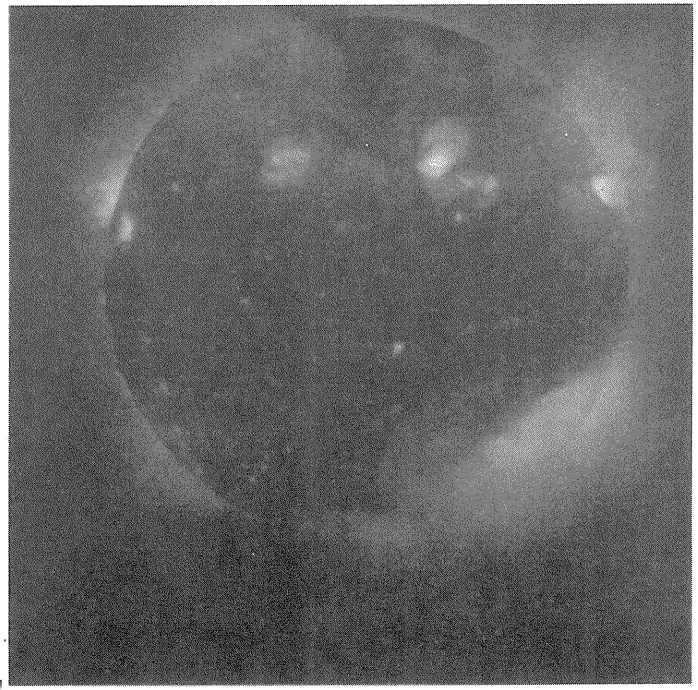
October
1997



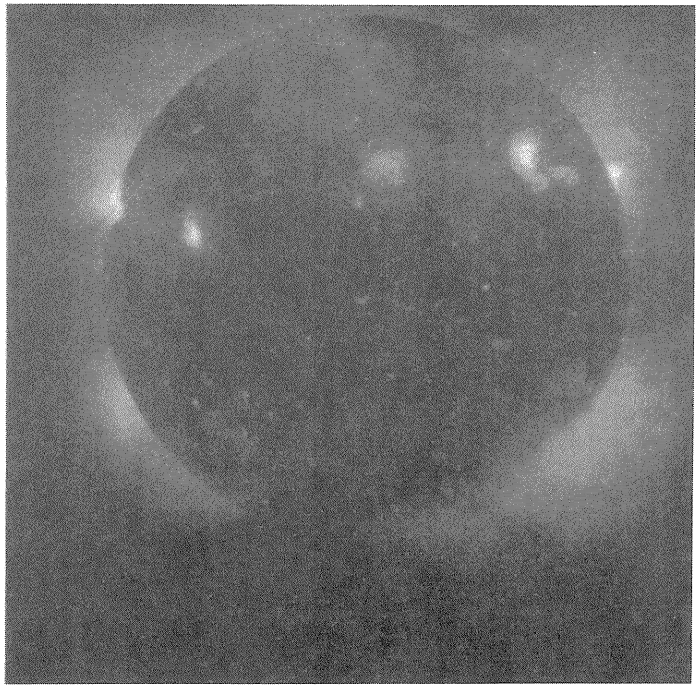
Day 13
13:11:23 UT



Day 15
11:59:02 UT



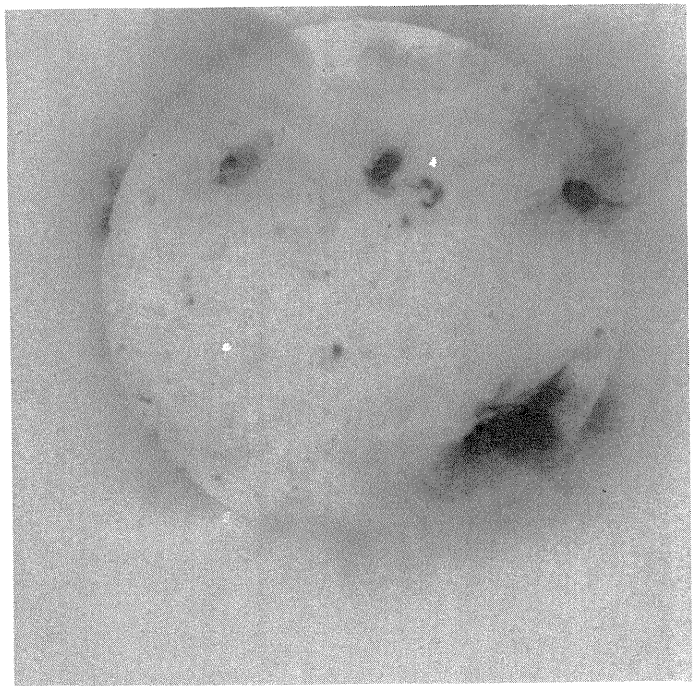
Day 14
11:48:57 UT



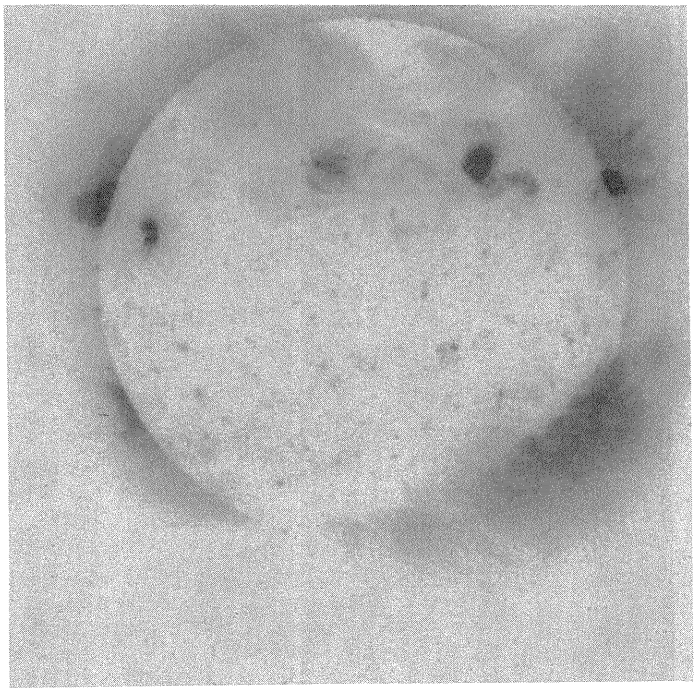
Day 16
11:47:26 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

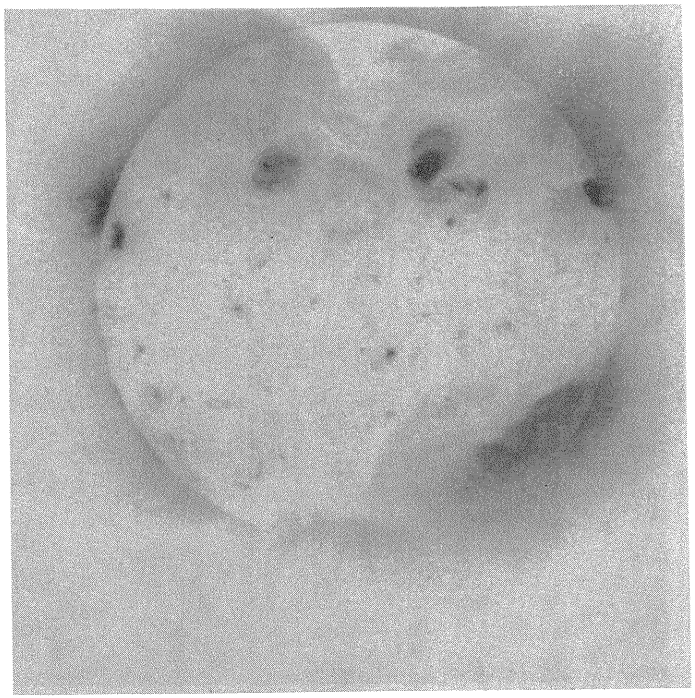
October
1997



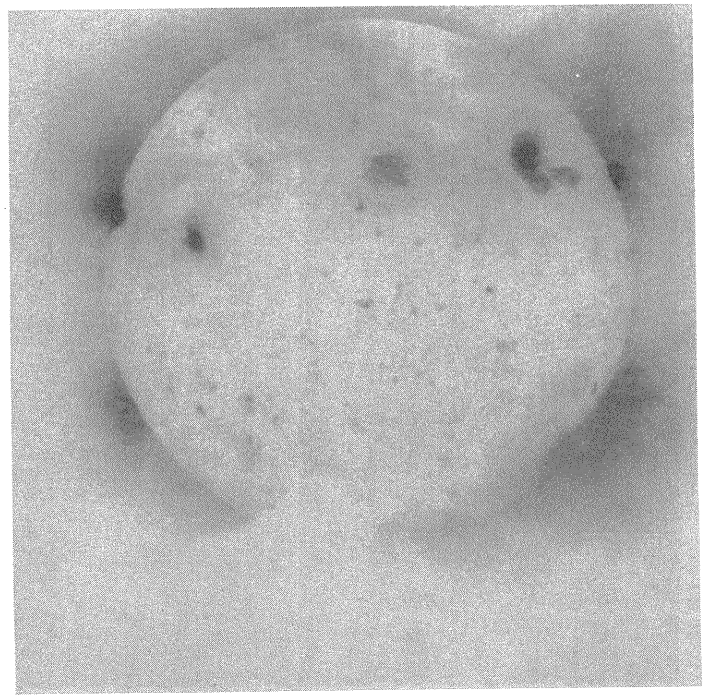
Day 13
13:11:23 UT



Day 15
11:59:02 UT



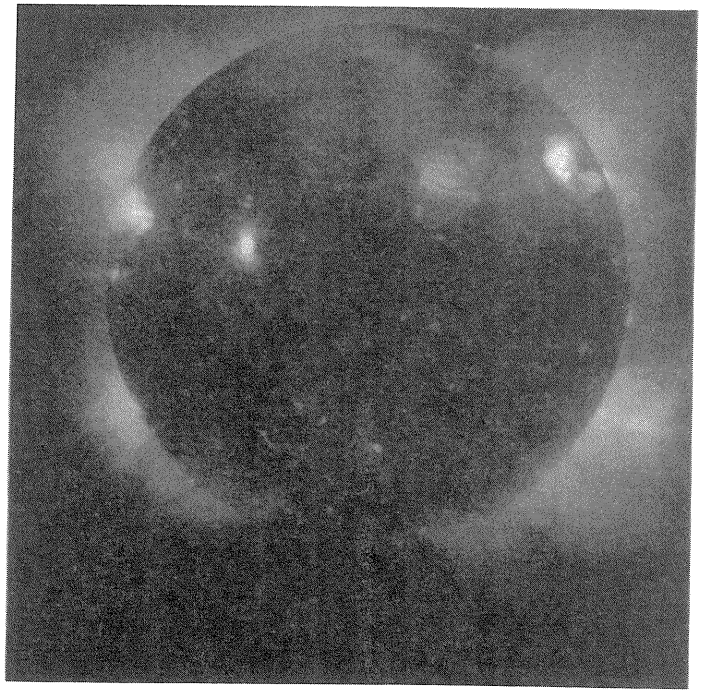
Day 14
11:48:57 UT



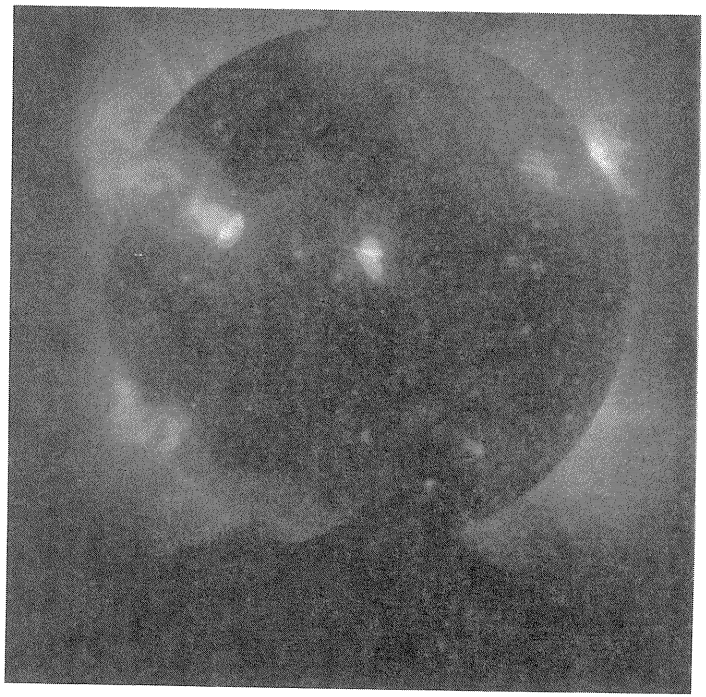
Day 16
11:47:26 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

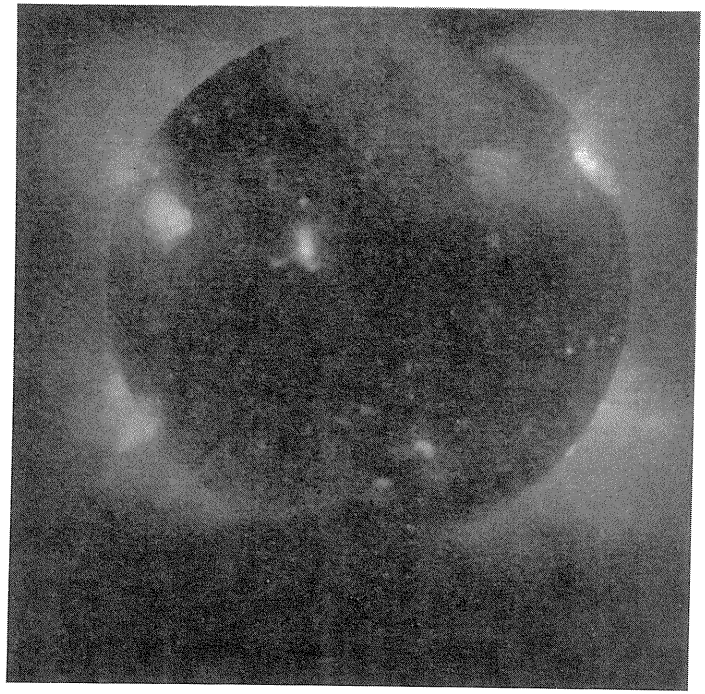
October
1997



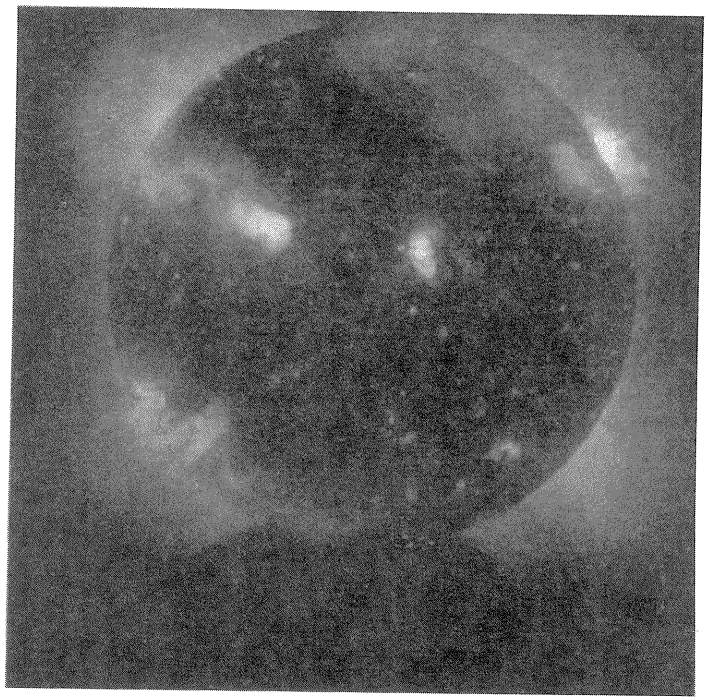
Day 17
11:49:32 UT



Day 19
15:43:25 UT



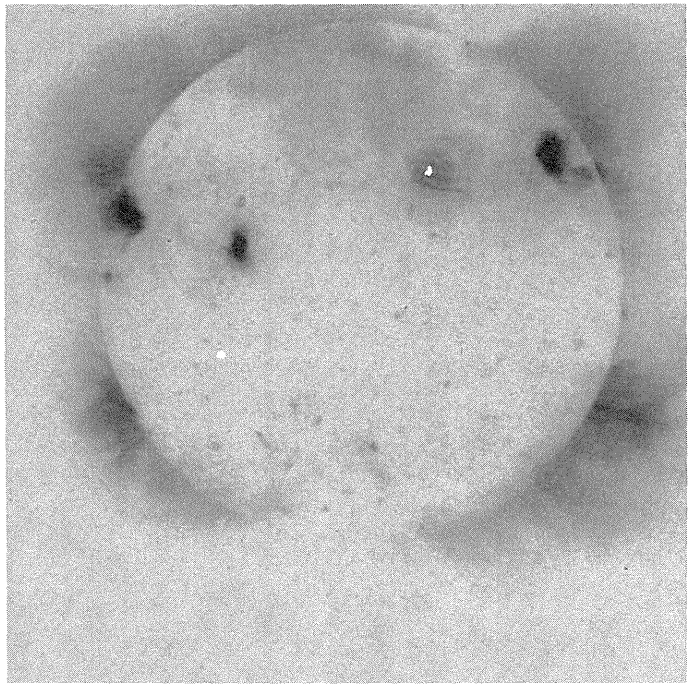
Day 18
12:09:32 UT



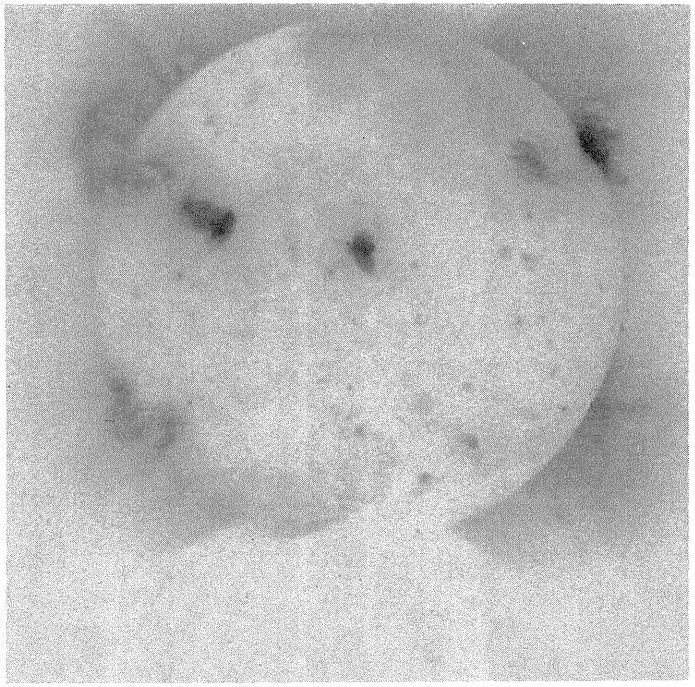
Day 20
10:09:05 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

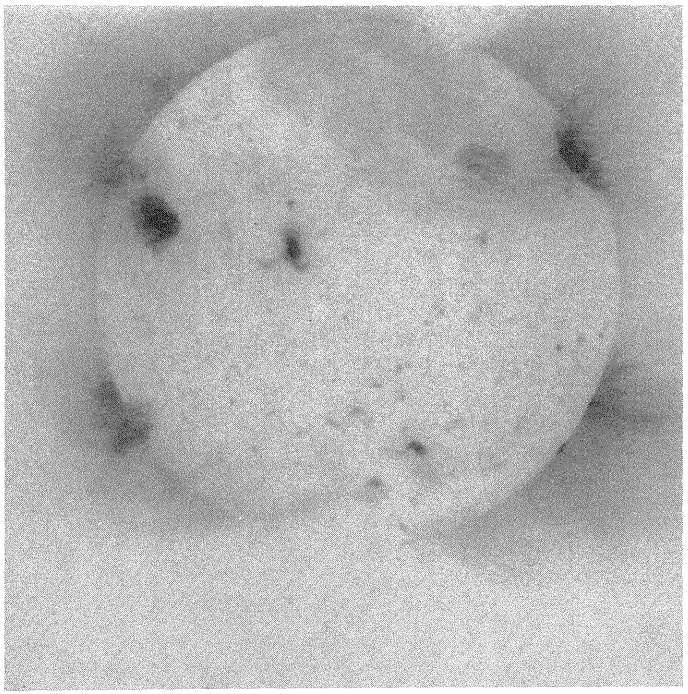
October
1997



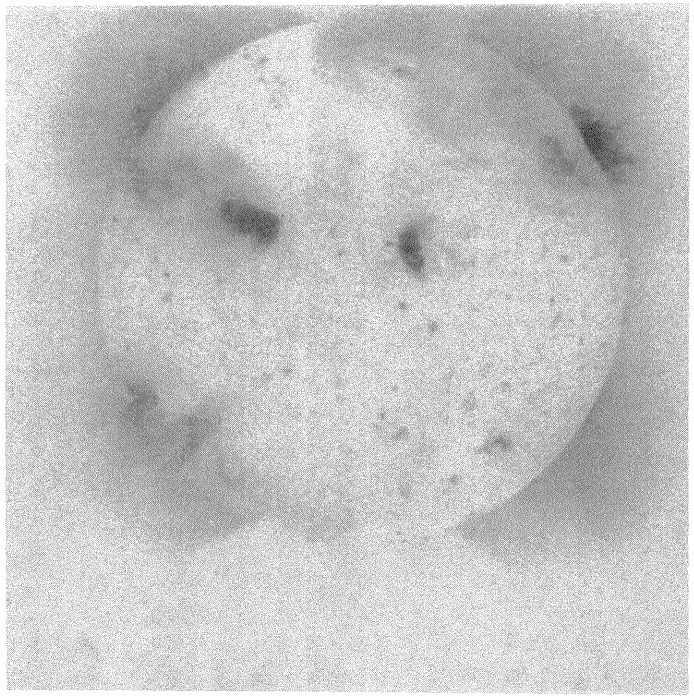
Day 17
11:49:32 UT



Day 19
15:43:25 UT



Day 18
12:09:32 UT



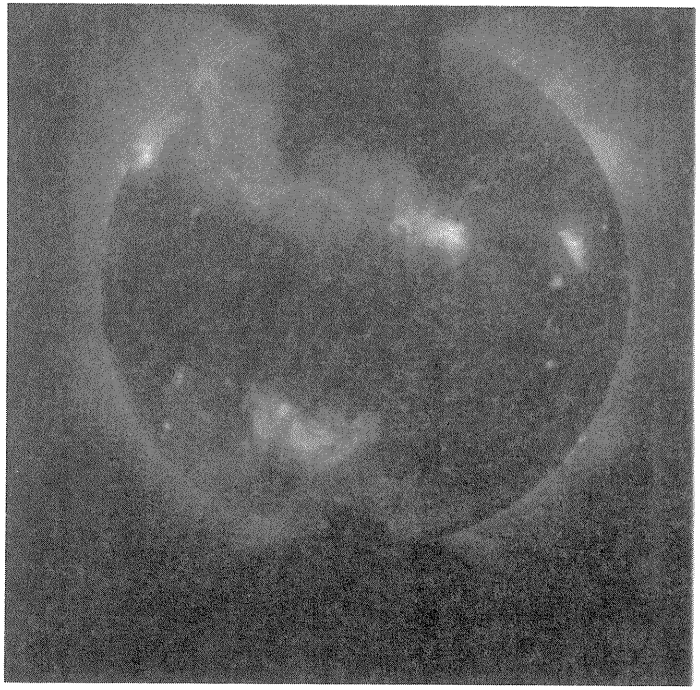
Day 20
10:09:05 UT

87
Oct 97

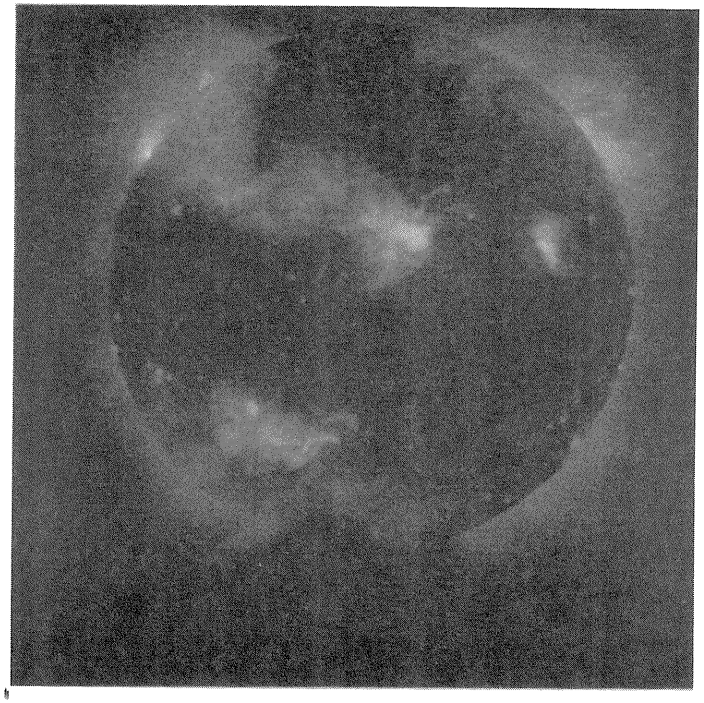
YOHKOH SOFT X-RAY TELESCOPE IMAGES

October
1997

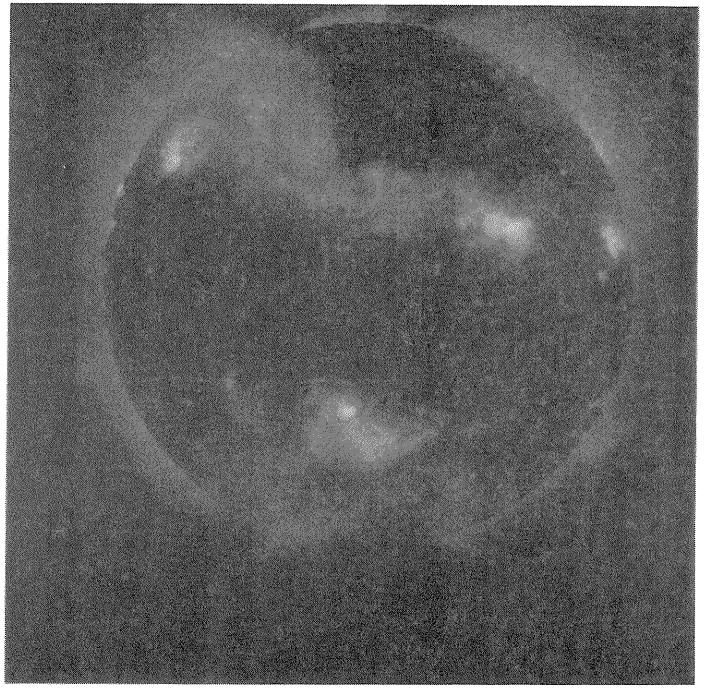
Day 21
12:11:01 UT



Day 23
12:07:09 UT



Day 22
18:21:47 UT

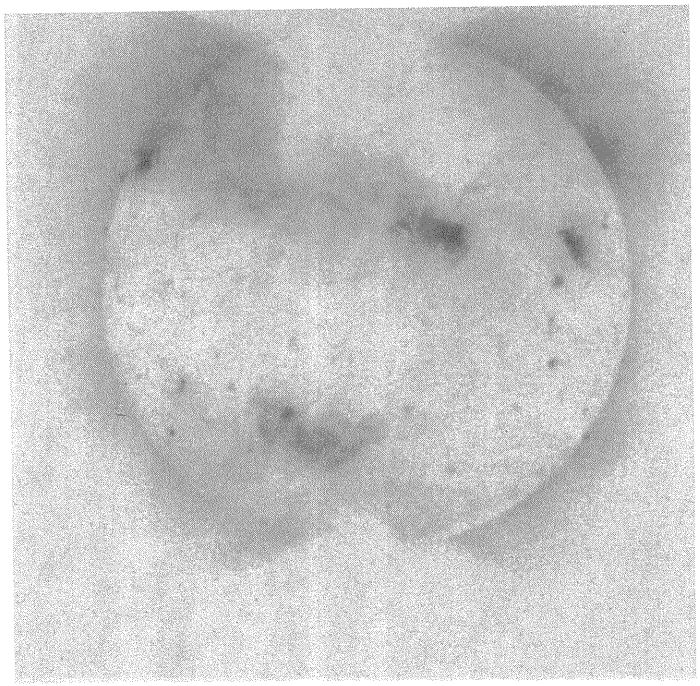


Day 24
14:04:38 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

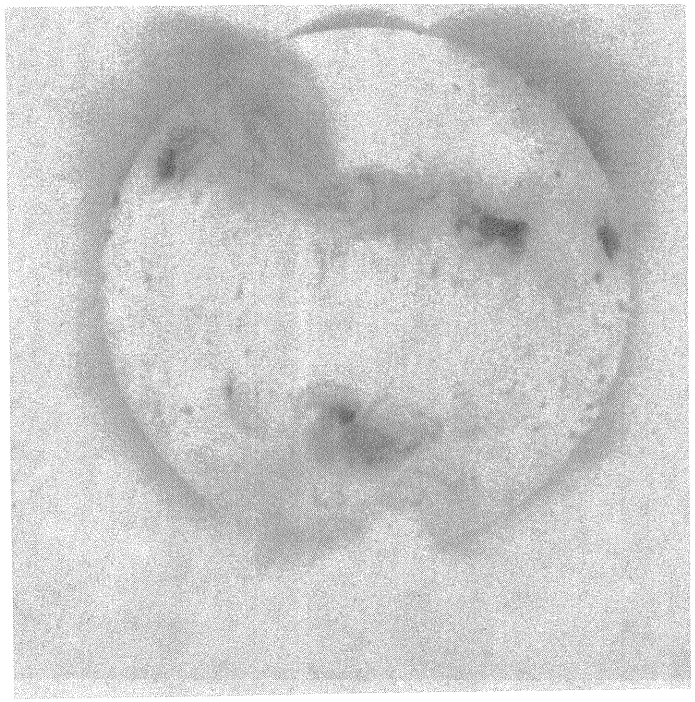
October
1997

Day 21
12:11:01 UT



Day 23
12:07:09 UT

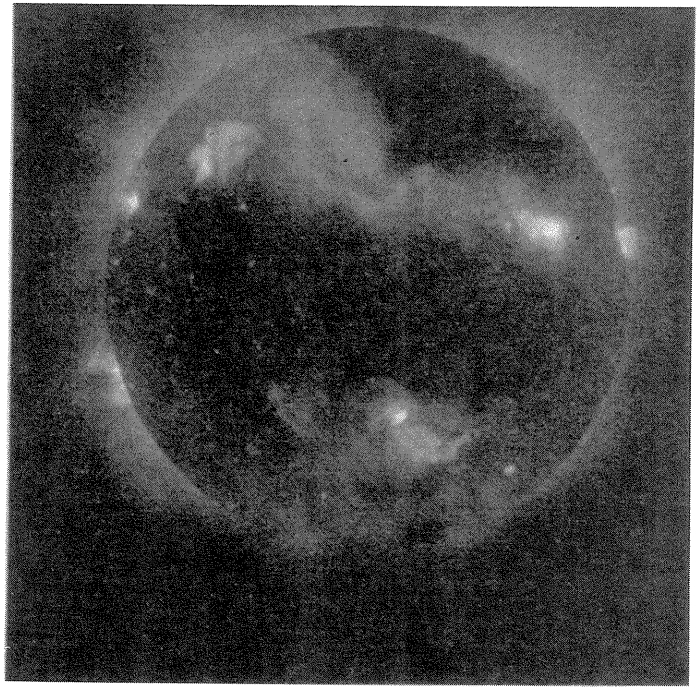
Day 22
18:21:47 UT



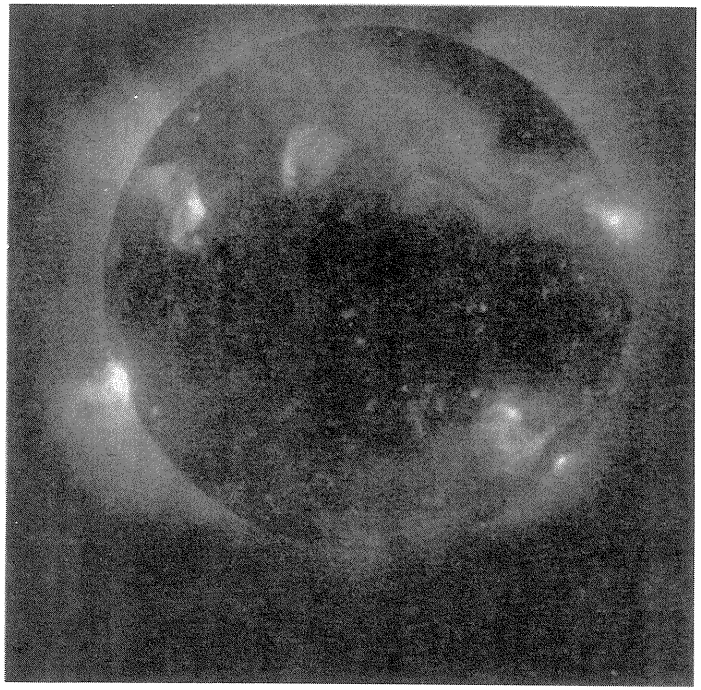
Day 24
14:04:38 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

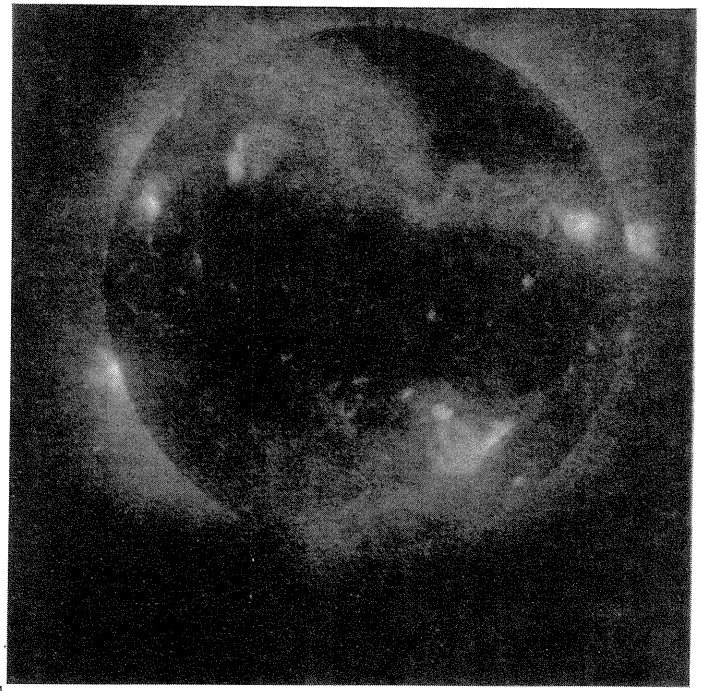
October
1997



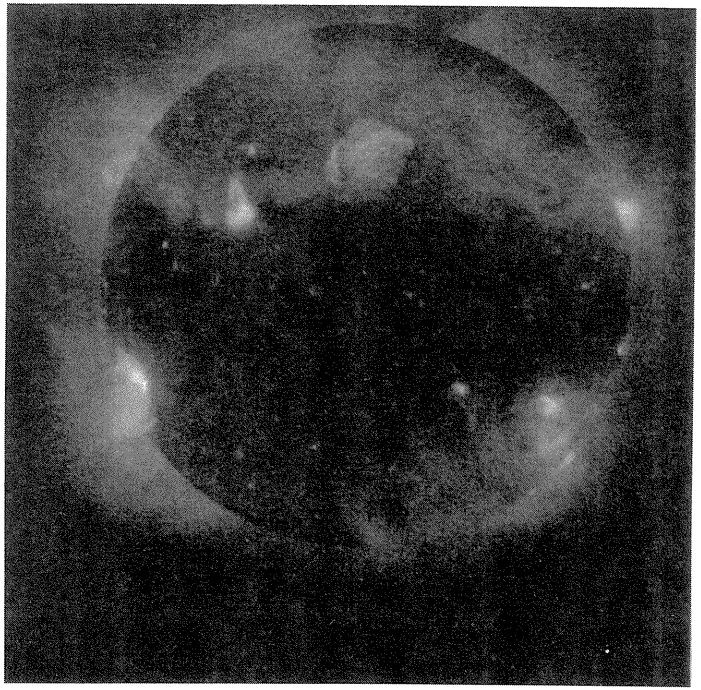
Day 25
11:51:46 UT



Day 27
12:19:10 UT



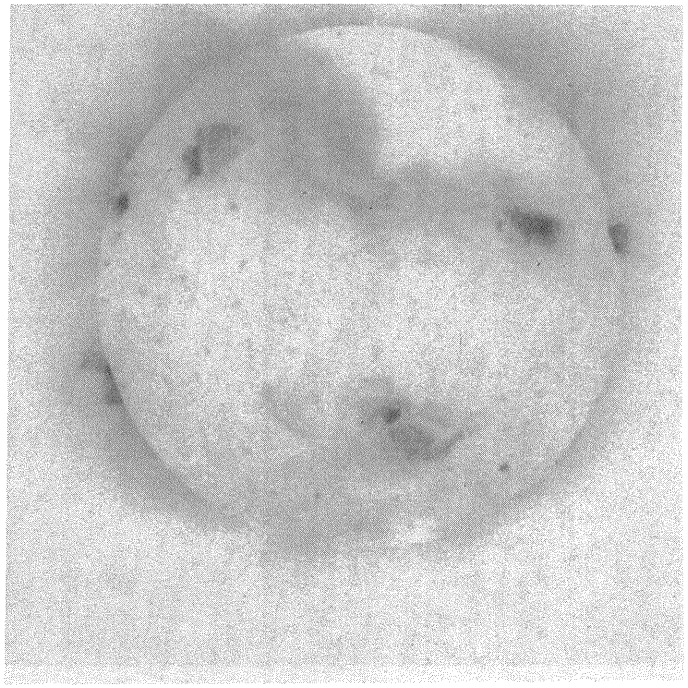
Day 26
07:14:56 UT



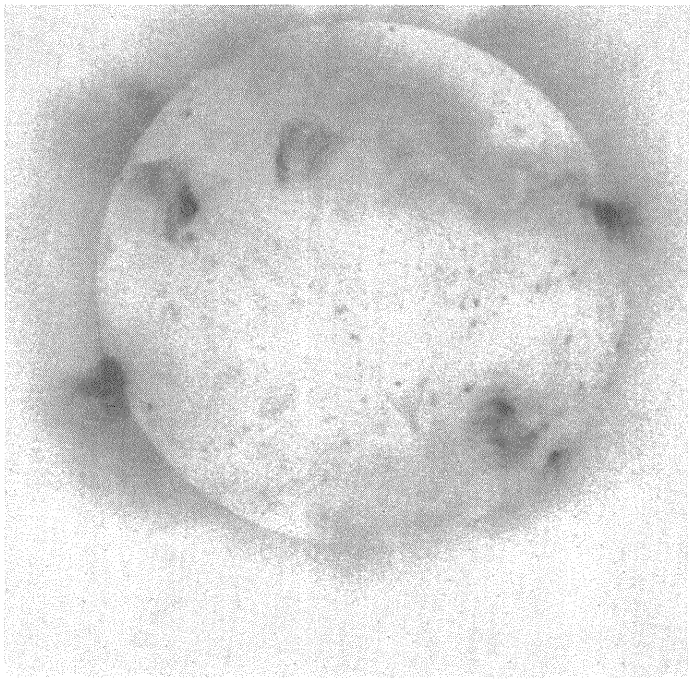
Day 28
11:55:24 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

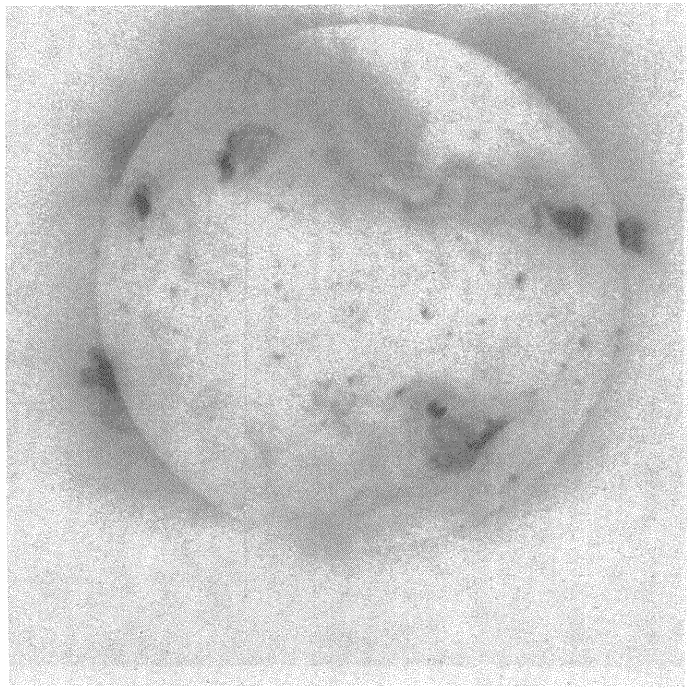
October
1997



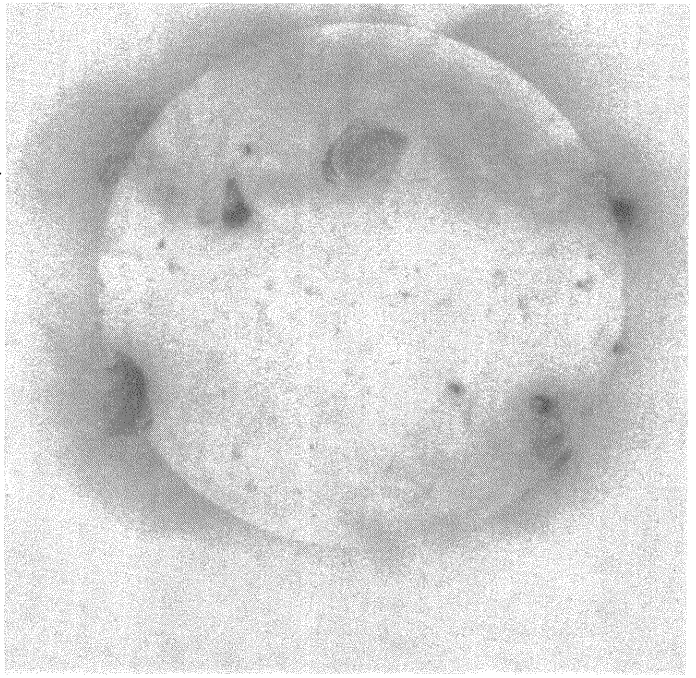
Day 25
11:51:46 UT



Day 27
12:19:10 UT



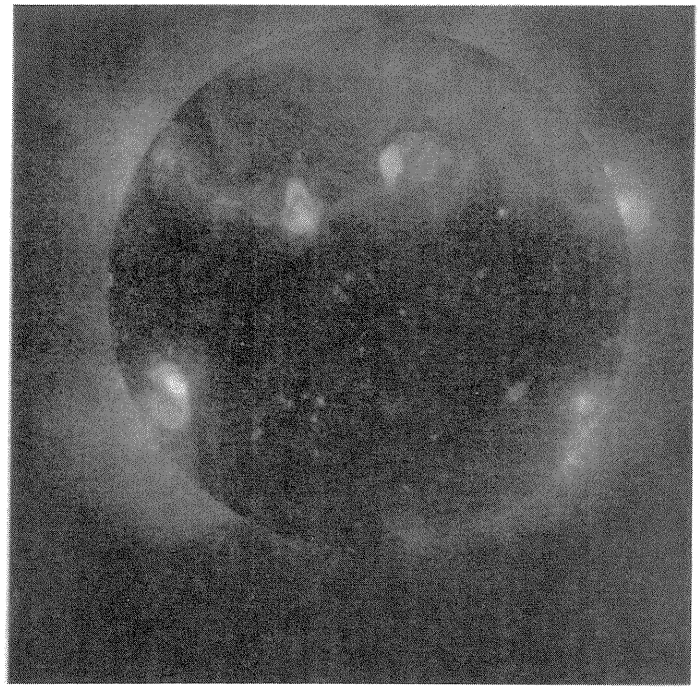
Day 26
07:14:56 UT



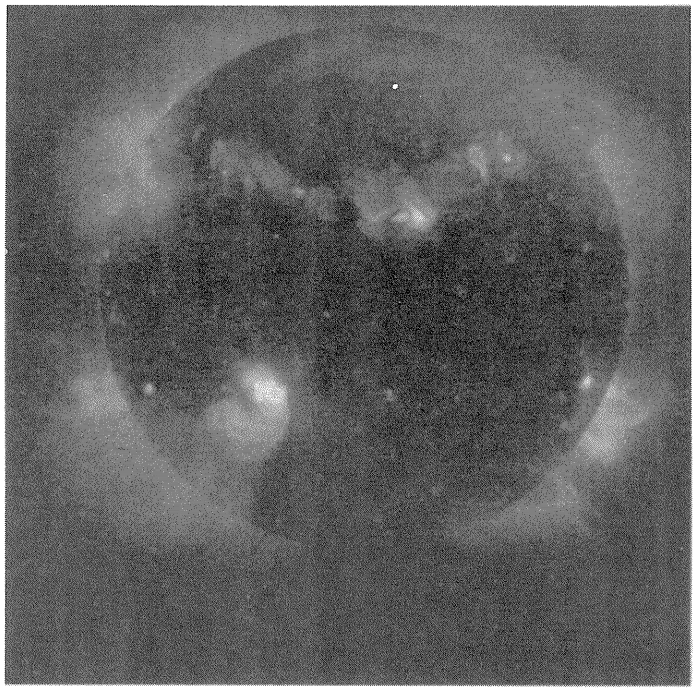
Day 28
11:55:24 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

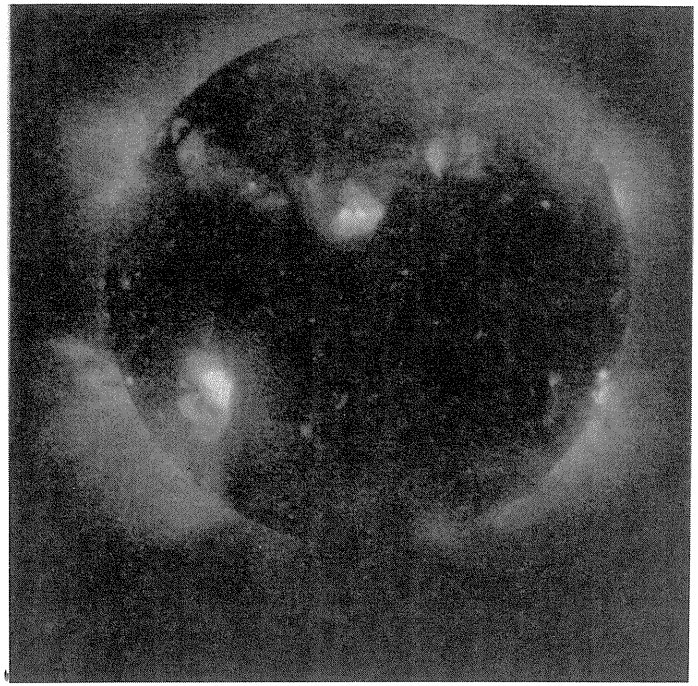
October
1997



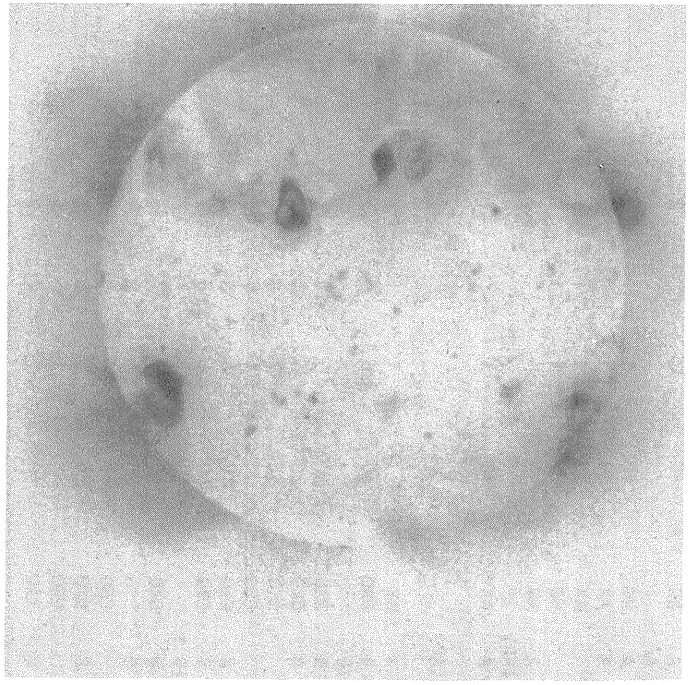
Day 29
11:15:09 UT



Day 31
11:56:23 UT



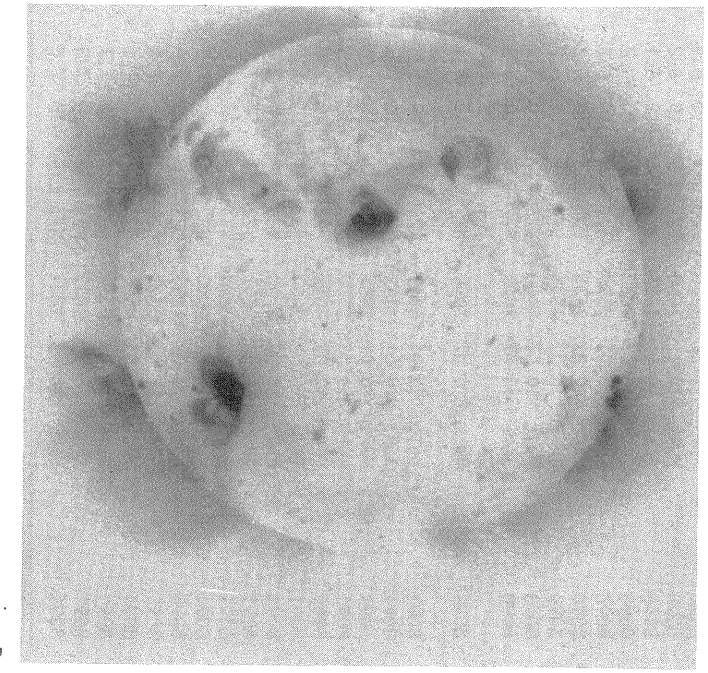
Day 30
11:37:07 UT



YOHKOH SOFT X-RAY TELESCOPE IMAGES

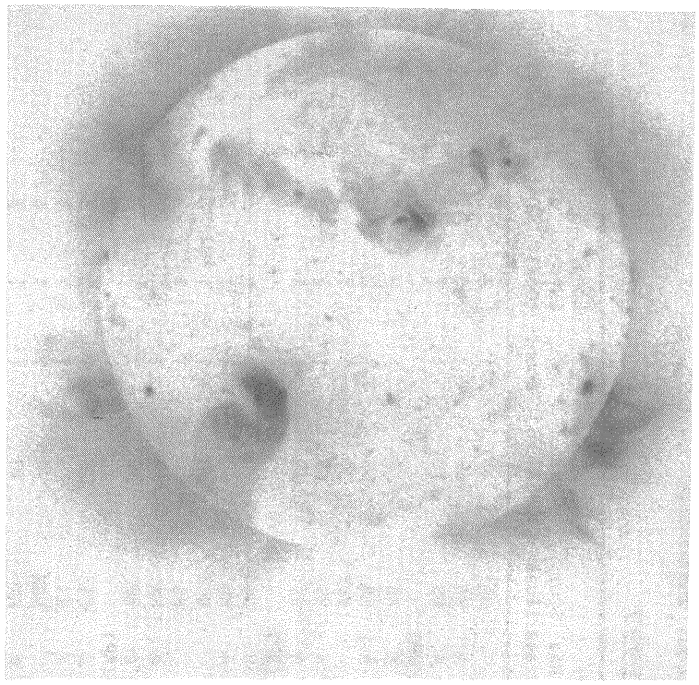
October
1997

Day 29
11:15:09 UT



Day 30
11:37:07 UT

Day 31
11:56:23 UT



SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 1997

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
8090		KAND	09 30 0600	S29 E80	10 6.5			HS		1	2	3
8090		SVTO	09 30 0715	S27 E79	10 6.4		A	HS	60	2	6	3
8090		RAMY	09 30 1229	S27 E76	10 6.4		A	HS	70	1	1	3
8090	28501	MWIL	09 30 1430	S27 E72	10 6.2	4	(AP)					
8090		HOLL	09 30 1813	S27 E70	10 6.2		A	HS	60	1	2	3
8090		LEAR	10 01 0000	S28 E68	10 6.3		A	HS	50	1	2	3
8090		TACH	10 01 0444	S28 E64	10 6.2			HSX	70	1	1	3
8090		SVTO	10 01 0615	S27 E64	10 6.2		A	HS	50	1	2	3
8090		RAMY	10 01 1152	S26 E60	10 6.1		A	HS	40	1	1	3
8090	28501	MWIL	10 01 1445	S28 E58	10 6.1	4	(BP)					
8090		HOLL	10 01 1509	S27 E61	10 6.4		B	CSO	90	3	6	3
8090		LEAR	10 02 0040	S27 E51	10 6.0		A	HS	40	1	1	3
8090		TACH	10 02 0404	S27 E51	10 6.1			HSX	70	1	1	4
8090		KAND	10 02 0730	S26 E50	10 6.2			HS		1	1	2
8090		SVTO	10 02 0842	S28 E49	10 6.2		A	HA	40	1	1	3
8090		RAMY	10 02 1240	S26 E47	10 6.2		A	HS	30	1	1	3
8090	28501	MWIL	10 02 1500	S27 E45	10 6.1	4	(AP)					
8090		HOLL	10 02 1635	S28 E45	10 6.2		A	HS	50	1	2	3
8090		LEAR	10 03 0015	S27 E40	10 6.1		A	HS	30	1	1	3
8090		TACH	10 03 0552	S27 E39	10 6.3			NSX	50	1	1	4
8090		SVTO	10 03 0723	S27 E38	10 6.3		A	AX	10	1	1	3
8090		KAND	10 03 0835	S27 E37	10 6.2			HS		1	1	3
8090		RAMY	10 03 1221	S26 E34	10 6.1		A	HS	30	1	1	4
8090	28501	MWIL	10 03 1430	S27 E32	10 6.1	5	(AP)					
8090		HOLL	10 03 1550	S28 E31	10 6.1		A	HS	30	1	2	3
8090		LEAR	10 04 0010	S27 E27	10 6.1		A	HS	10	1	1	4
8090		TACH	10 04 0424	S27 E24	10 6.0			HSX	40	1	1	3
8090		KAND	10 04 0705	S26 E24	10 6.1			HS		1	1	3
8090		SVTO	10 04 0855	S27 E24	10 6.2		A	HR	30	1	1	4
8090		RAMY	10 04 1419	S27 E20	10 6.1		A	HS	10	1	1	2
8090	28501	MWIL	10 04 1430	S27 E20	10 6.2	5	(AP)					
8090		HOLL	10 04 1515	S28 E19	10 6.1		A	HS	50	1	1	3
8090		LEAR	10 05 0007	S27 E16	10 6.2		A	HS	20	1	1	3
8090		KAND	10 05 0555	S26 E13	10 6.2			HR		1	1	3
8090		SVTO	10 05 0710	S28 E11	10 6.1		B	CRO	10	6	1	4
8090		RAMY	10 05 1444	S28 E08	10 6.2		A	AX	10	1		2
8090	28501	MWIL	10 05 1445	S28 E08	10 6.2	4	(AP)					
8090		LEAR	10 06 0030	S28 E03	10 6.2		A	AX	10	1	1	4
8090		SVTO	10 06 0550	S28 W01	10 6.2		A	HR	10	1	1	3
8090		KAND	10 06 0655	S28 W02	10 6.1			HR		1	1	2
8090		TACH	10 06 0840	S27 W02	10 6.2			HX	40	1	1	3
8090		RAMY	10 06 1240	S28 W03	10 6.3		A	HR	10	2		2
8090	28501	MWIL	10 06 1430	S27 W05	10 6.2	4	AP					
8090		HOLL	10 06 1433	S28 W06	10 6.1		A	HS	10	1		3
8090		LEAR	10 07 0032	S28 W10	10 6.2		A	AX	10	1		3
8090		TACH	10 07 0524	S27 W13	10 6.2			AX	30	1	1	3
8090		KAND	10 07 0635	S28 W13	10 6.2			HS		1	1	2
8090		RAMY	10 07 1355	S28 W17	10 6.2		A	AX		1		3
8090	28501	MWIL	10 07 1600	S28 W19	10 6.2	4	(AP)					
8090		HOLL	10 07 2002	S28 W20	10 6.3		A	AX	10	1		2
8090A	28505	MWIL	10 07 1600	N21 W17	10 6.4	3	(AP)					
8091		SVTO	10 01 0615	N23 E80	10 7.4		A	AX		1		3
8091		RAMY	10 01 1152	N22 E76	10 7.3		B	BXO	40	6	6	3
8091	28502	MWIL	10 01 1445	N22 E77	10 7.5	5	(B					
8091		HOLL	10 01 1509	N22 E78	10 7.6		B	BXO	30	5	10	3
8091		LEAR	10 02 0040	N23 E71	10 7.5		B	CRO	20	4	8	3
8091		TACH	10 02 0404	N22 E72	10 7.7			BRO	38	7	8	4
8091		KAND	10 02 0730	N23 E70	10 7.7			CSO		4	9	2
8091		SVTO	10 02 0842	N22 E70	10 7.7		B	BXO	10	6	8	3
8091		RAMY	10 02 1240	N23 E65	10 7.5		B	CRO	40	4	8	3
8091	28502	MWIL	10 02 1500	N22 E64	10 7.5	4	(B)					
8091		HOLL	10 02 1635	N21 E64	10 7.6		B	CAO	70	5	7	3
8091		LEAR	10 03 0015	N23 E59	10 7.5		B	CSO	80	6	9	3
8091		TACH	10 03 0552	N23 E57	10 7.6			CSO	47	4	7	4
8091		SVTO	10 03 0723	N23 E57	10 7.7		B	BXO	20	5	8	3
8091		KAND	10 03 0835	N23 E54	10 7.5			CSO		4	8	3
8091		RAMY	10 03 1221	N23 E53	10 7.6		B	DAO	50	7	8	4

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

OCTOBER 1997

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8091	28502	MWIL	10 03	1430	N22 E53	10 7.7	5	(BP)					
8091		HOLL	10 03	1550	N21 E51	10 7.6		B	CSO	80	5	8	3
8091		LEAR	10 04	0010	N23 E46	10 7.5		B	CSO	30	5	6	4
8091		TACH	10 04	0424	N22 E44	10 7.6			DRO	78	9	7	3
8091		KAND	10 04	0705	N23 E43	10 7.6			CSO		7	9	3
8091		SVTO	10 04	0855	N24 E43	10 7.7		B	CRO	30	7	8	4
8091		RAMY	10 04	1419	N23 E36	10 7.4		B	CRO	20	4	7	2
8091	28502	MWIL	10 04	1430	N23 E40	10 7.7	5	(B)					
8091		HOLL	10 04	1515	N23 E39	10 7.6		B	CSO	80	5	6	3
8091		LEAR	10 05	0007	N24 E34	10 7.6		B	CSO	40	5	8	3
8091		KAND	10 05	0555	N24 E30	10 7.6			BXO		4	8	3
8091		SVTO	10 05	0710	N23 E30	10 7.6		A	HR	20	1	8	4
8091		RAMY	10 05	1444	N23 E24	10 7.5		B	BXO	20	9	9	2
8091	28502	MWIL	10 05	1445	N23 E23	10 7.4	5	(BG)					
8091		LEAR	10 06	0030	N23 E20	10 7.6		B	BXO	10	2	7	4
8091		SVTO	10 06	0550	N25 E14	10 7.3		A	HR	10	1	1	3
8091		KAND	10 06	0655	N24 E13	10 7.3			AX		1	1	2
8091		TACH	10 06	0840	N20 E12	10 7.3			AX	25	1	1	3
8091		RAMY	10 06	1240	N23 E11	10 7.4		B	BXO	10	3	4	2
8091	28502	MWIL	10 06	1430	N22 E10	10 7.4	4	B					
8091		HOLL	10 06	1433	N24 E12	10 7.5		B	BXO	10	2	5	3
8091		LEAR	10 07	0032	N24 E03	10 7.2		A	AX		1		3
8091		TACH	10 07	0524	N25 W01	10 7.1			AX	10	1	1	3
8091		KAND	10 07	0655	N24 W01	10 7.2			AX		1		2
8091		RAMY	10 07	1355	N25 W05	10 7.2		A	AX		1		3
8094A	28504	MWIL	10 04	1430	N25 E60	10 9.2	3	(AF)					
8094		RAMY	10 10	1211	N23 W18	10 9.1		B	BXO	20	9	5	4
8094	28509	MWIL	10 10	1445	N22 W17	10 9.3	4	(B)					
8094		HOLL	10 10	1518	N22 W19	10 9.2		B	BXO	20	4	3	3
8094		LEAR	10 11	0010	N22 W25	10 9.1		BG	CRO	30	5	5	3
8094		KAND	10 11	0620	N21 W28	10 9.1			CRO		4	5	3
8094		SVTO	10 11	0638	N20 W28	10 9.1		B	BXO	10	4	4	3
8094		RAMY	10 11	1140	N20 W30	10 9.2		B	BXO	10	4	5	3
8094	28509	MWIL	10 11	1445	N22 W32	10 9.1	4	(B)					
8094		HOLL	10 11	1559	N21 W33	10 9.1		B	BXO	20	6	6	2
8094		LEAR	10 12	0219	N21 W38	10 9.2		B	BXO	10	7	6	4
8094		TACH	10 12	0504	N23 W40	10 9.1			BRO	6	3	6	3
8094		SVTO	10 12	0655	N19 W42	10 9.1		B	BXO	20	9	6	3
8094		KAND	10 12	1055	N20 W38	10 9.5			AX		1		1
8094	28509	MWIL	10 12	1445	N22 W46	10 9.1	4	(AP)					
8094		HOLL	10 12	1555	N20 W46	10 9.1		B	CRO	30	7	6	4
8094		RAMY	10 12	1619	N19 W48	10 9.0		A	AX		1		1
8094		SVTO	10 13	0610	N19 W55	10 9.0		B	CRO	20	5	6	3
8094		TACH	10 13	0750	N22 W55	10 9.1			BRI	153	4	5	4
8094		KAND	10 13	0910	N22 W53	10 9.3			AX		1		1
8094	28509	MWIL	10 13	1445	N22 W57	10 9.2	4	(B)					
8094		RAMY	10 13	1535	N20 W57	10 9.3		B	BXO	10	2	2	2
8094		HOLL	10 13	1545	N20 W59	10 9.1		B	BXO	20	3	6	3
8094		LEAR	10 14	0019	N22 W60	10 9.4		A	AX	10	1	1	3
8094		TACH	10 14	0448	N23 W64	10 9.3			AX	187	2	1	4
8094		KAND	10 14	0950	N22 W67	10 9.3			AX		1	1	2
8094		RAMY	10 14	1351	N19 W70	10 9.2		A	AX	10	1		2
8094	28509	MWIL	10 14	1430	N23 W68	10 9.4	3	(AF)					
8094B	28508	MWIL	10 10	1445	N27 W17	10 9.3	3	(AF)					
8092		SVTO	10 07	1310	N25 E65	10 12.6		B	BXO	10	2	2	3
8092		RAMY	10 07	1355	N25 E60	10 12.2		B	BXO		2	2	3
8092		HOLL	10 07	2002	N23 E59	10 12.4		A	AX	20	3	1	2
8092		LEAR	10 08	0345	N24 E52	10 12.2		B	BXO	30	3	3	3
8092	28506	MWIL	10 08	1445	N23 E48	10 12.3	4	(B)					
8092		HOLL	10 08	1550	N23 E46	10 12.2		B	CSO	60	7	5	3
8092		RAMY	10 08	1552	N25 E45	10 12.1		B	BXO	20	7	4	2
8092		LEAR	10 09	0155	N24 E40	10 12.2		B	BXO	10	4	4	3
8092		TACH	10 09	0440	N24 E39	10 12.2			AX	38	3	3	3
8092		KAND	10 09	0625	N22 E38	10 12.2			BXO		6	4	4
8092		SVTO	10 09	1015	N25 E34	10 12.1		B	BXO	10	3	2	2

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 1997

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
8092		RAMY	10 09 1141	N26 E32	10 12.0		A	AX	10	3	1	2
8092	28506	MWIL	10 09 1445	N22 E33	10 12.1	4	(B)					
8092		HOLL	10 09 1450	N24 E34	10 12.2		B	BXO	30	4	6	4
8092		KAND	10 10 0605	N23 E23	10 12.0			AX		2	2	4
8092		RAMY	10 10 1211	N24 E18	10 11.9		B	BXO	10	2	2	4
8092	28506	MWIL	10 10 1445	N23 E18	10 12.0	4	(AP)					
8092		HOLL	10 10 1518	N24 E18	10 12.0		A	AX		1		3
8092		SVTO	10 12 0655	N26 E01	10 12.4		A	AX		2	1	3
8093		LEAR	10 09 0155	N30 E52	10 13.2		B	BXO	20	2	4	3
8093		TACH	10 09 0440	N29 E50	10 13.1			AX	22	3	2	3
8093		KAND	10 09 0625	N30 E51	10 13.3			BXO		2	4	4
8093		SVTO	10 09 1015	N32 E48	10 13.2		B	BXO	10	2	4	2
8093		RAMY	10 09 1141	N32 E46	10 13.1		B	BXO	10	2	3	2
8093	28507	MWIL	10 09 1445	N28 E46	10 13.2	4	(B)					
8093		HOLL	10 09 1450	N33 E47	10 13.3		B	BXO	40	4	6	4
8093		KAND	10 10 0605	N29 E38	10 13.2			CRO		4	5	4
8093		TACH	10 10 0636	N31 E36	10 13.1			BRO	50	3	2	3
8093		SVTO	10 10 1020	N32 E34	10 13.1		B	BXO	30	3	5	3
8093		RAMY	10 10 1211	N31 E32	10 13.0		B	DSO	30	5	5	4
8093	28507	MWIL	10 10 1445	N29 E32	10 13.1	4	(B)					
8093		HOLL	10 10 1518	N31 E32	10 13.2		B	CRO	30	6	7	3
8093		LEAR	10 11 0010	N30 E27	10 13.1		B	DRO	50	6	7	3
8093		KAND	10 11 0620	N30 E24	10 13.1			DAO		4	7	3
8093		SVTO	10 11 0638	N32 E22	10 13.0		B	BXO	30	4	6	3
8093		RAMY	10 11 1140	N31 E21	10 13.1		B	CSO	50	7	6	3
8093	28507	MWIL	10 11 1445	N29 E19	10 13.1	5	(B)					
8093		HOLL	10 11 1559	N31 E18	10 13.1		B	DSO	50	10	7	2
8093		LEAR	10 12 0219	N31 E13	10 13.1		B	DSO	50	11	7	4
8093		TACH	10 12 0504	N31 E11	10 13.1			BRO	101	6	6	3
8093		SVTO	10 12 0655	N32 E09	10 13.0		B	DSO	30	8	7	3
8093		KAND	10 12 1055	N30 E09	10 13.2			DAO		10	8	1
8093	28507	MWIL	10 12 1445	N30 E06	10 13.1	5	(B)					
8093		HOLL	10 12 1555	N31 E04	10 13.0		B	DAI	90	9	8	4
8093		RAMY	10 12 1619	N31 E04	10 13.0		B	DAI	40	6	7	1
8093		SVTO	10 13 0610	N32 W04	10 12.9		B	DAO	70	13	8	3
8093		TACH	10 13 0750	N31 W03	10 13.1			CRO	12	14	6	4
8093		KAND	10 13 0910	N31 W03	10 13.1			DAO		5	8	1
8093	28507	MWIL	10 13 1445	N31 W06	10 13.1	5	(B)					
8093		RAMY	10 13 1535	N29 W08	10 13.0		B	DSO	90	10	8	2
8093		HOLL	10 13 1545	N31 W08	10 13.0		B	DAO	110	11	8	3
8093		LEAR	10 14 0019	N32 W10	10 13.2		B	DAO	70	12	8	3
8093		TACH	10 14 0448	N31 W13	10 13.2			DSI	12	12	7	4
8093		KAND	10 14 0950	N31 W16	10 13.1			DAO		5	9	2
8093		RAMY	10 14 1351	N30 W19	10 13.1		B	DSO	50	11	8	2
8093		HOLL	10 14 1430	N31 W18	10 13.2		B	DAO	40	9	9	4
8093	28507	MWIL	10 14 1430	N31 W18	10 13.2	5	(B)					
8093		LEAR	10 15 0004	N32 W23	10 13.2		B	CSO	90	11	10	3
8093		TACH	10 15 0526	N31 W26	10 13.2			CSO	131	3	8	3
8093		SVTO	10 15 0645	N29 W30	10 12.9		B	CAO	60	7	9	3
8093		KAND	10 15 0655	N30 W28	10 13.1			CSO		3	10	2
8093		RAMY	10 15 1416	N28 W34	10 12.9		B	CAO	50	6	6	3
8093	28507	MWIL	10 15 1430	N31 W33	10 13.0	5	(BP)					
8093		HOLL	10 15 1440	N31 W31	10 13.2		B	CSO	80	12	12	3
8093		LEAR	10 16 0004	N31 W37	10 13.1		B	CSO	70	5	9	3
8093		TACH	10 16 0401	N31 W39	10 13.1			CSO	121	4	6	4
8093		SVTO	10 16 0611	N31 W42	10 12.9		B	CSO	40	5	10	2
8093		RAMY	10 16 1257	N28 W45	10 13.0		B	CAO	80	8	9	3
8093	28507	MWIL	10 16 1445	N31 W44	10 13.1	5	(B)					
8093		HOLL	10 16 1550	N30 W46	10 13.0		B	CSO	120	12	10	4
8093		LEAR	10 17 0205	N30 W50	10 13.1		B	DSO	50	8	9	2
8093		TACH	10 17 0435	N31 W52	10 13.1			CSI	89	8	9	3
8093		SVTO	10 17 0854	N31 W56	10 12.9		B	BXO	60	6	11	2
8093		RAMY	10 17 1144	N30 W55	10 13.2		B	CAO	90	10	10	4
8093	28507	MWIL	10 17 1445	N31 W56	10 13.2	4	(B)					
8093		HOLL	10 17 1454	N32 W58	10 13.0		B	DSO	80	10	10	3
8093		LEAR	10 18 0229	N31 W63	10 13.1		B	DAO	20	4	9	2
8093		TACH	10 18 0420	N31 W65	10 13.0			BRO	73	7	9	4
8093		RAMY	10 18 1255	N31 W70	10 13.0		B	BXO	60	3	12	4

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 1997

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8093	28507	MWIL	10	18	1445	N31	W68	10	13.2	4	(B)					
8093		HOLL	10	18	1500	N32	W71	10	13.0		B	BXO	30	7	11	3
8093		SVTO	10	19	0705	N27	W82	10	12.9		B	CRO	30	2	3	4
8093	28507	MWIL	10	19	1500	N32	W87	10	12.7	4	AF)					
8095		SVTO	10	12	0655	N35	E51	10	16.4		A	AX		2	2	3
8095		SVTO	10	13	0610	N33	E41	10	16.5		A	AX		2	1	3
8096		KAND	10	14	0950	N13	E67	10	19.5			AX		1	1	2
8096		RAMY	10	14	1351	N15	E65	10	19.5		B	BXO	20	3	3	2
8096	28510	MWIL	10	14	1430	N12	E65	10	19.5	5	(B)					
8096		HOLL	10	14	1430	N14	E68	10	19.7		B	BXO	40	3	4	4
8096		LEAR	10	15	0004	N13	E60	10	19.5		B	BXO	30	4	4	3
8096		TACH	10	15	0526	N14	E55	10	19.4			HSX	42	2	2	3
8096		SVTO	10	15	0645	N17	E56	10	19.5		B	CSO	20	6	6	3
8096		KAND	10	15	0655	N14	E55	10	19.4			AX		1	1	2
8096		RAMY	10	15	1416	N16	E52	10	19.5		B	CRO	40	7	6	3
8096	28510	MWIL	10	15	1430	N13	E53	10	19.6	5	(B)					
8096		HOLL	10	15	1440	N14	E53	10	19.6		B	DAO	90	5	6	3
8096		LEAR	10	16	0004	N13	E47	10	19.5		B	DSO	40	3	6	3
8096		TACH	10	16	0401	N13	E45	10	19.6			BRO	62	4	5	4
8096		SVTO	10	16	0611	N13	E44	10	19.6		B	DSO	30	3	6	2
8096		RAMY	10	16	1257	N15	E39	10	19.5		B	BXO	30	5	6	3
8096	28510	MWIL	10	16	1445	N12	E39	10	19.5	5	(B)					
8096		HOLL	10	16	1550	N13	E38	10	19.5		B	CRO	60	8	6	4
8096		LEAR	10	17	0205	N13	E34	10	19.6		B	BXO	10	7	7	2
8096		TACH	10	17	0435	N13	E31	10	19.5			BRO	54	6	5	3
8096		SVTO	10	17	0854	N13	E28	10	19.5		B	BXO	30	6	6	2
8096		RAMY	10	17	1144	N13	E28	10	19.6		B	BXO	40	12	7	4
8096	28510	MWIL	10	17	1445	N12	E26	10	19.6	5	(BF)					
8096		HOLL	10	17	1454	N12	E26	10	19.6		B	CRO	70	13	8	3
8096		LEAR	10	18	0229	N13	E20	10	19.6		B	CSO	20	6	4	2
8096		TACH	10	18	0420	N13	E19	10	19.6			CRO	71	10	3	4
8096		RAMY	10	18	1255	N13	E13	10	19.5		B	CSO	40	5	6	4
8096	28510	MWIL	10	18	1445	N13	E14	10	19.7	5	(BF)					
8096		HOLL	10	18	1500	N12	E13	10	19.6		B	CSO	30	9	6	3
8096		TACH	10	19	0450	N14	E07	10	19.7			HSX	40	1	1	3
8096		SVTO	10	19	0705	N13	E05	10	19.7		B	CAO	20	3	5	4
8096		RAMY	10	19	1233	N13	E03	10	19.7		A	AX	10	2	2	4
8096	28510	MWIL	10	19	1500	N12	E01	10	19.7	5	(BF)					
8096		HOLL	10	19	1605	N13	E01	10	19.7		B	CSO	40	6	3	3
8096		LEAR	10	20	0010	N13	W03	10	19.8		B	CSO	20	4	2	3
8096		SVTO	10	20	0749	N13	W07	10	19.8		A	HA	30	4	2	3
8096		TACH	10	20	0755	N14	W07	10	19.8			HSX	64	3	2	3
8096		RAMY	10	20	1350	N13	W11	10	19.7		A	AX	10	5	2	3
8096	28510	MWIL	10	20	1445	N12	W11	10	19.8	4	(BF)					
8096		HOLL	10	20	1600	N13	W12	10	19.8		A	HS	30	3	2	3
8096		LEAR	10	21	0010	N13	W17	10	19.7		B	CSO	30	3	3	3
8096		TACH	10	21	0434	N12	W20	10	19.7			AX	16	3	3	3
8096		SVTO	10	21	0720	N13	W22	10	19.6		B	BXO	10	3	3	3
8096		KAND	10	21	1220	N12	W24	10	19.7			BXO		2	3	3
8096		RAMY	10	21	1221	N13	W23	10	19.8		B	BXO	10	3	2	4
8096	28510	MWIL	10	21	1445	N13	W24	10	19.8	4	(AF)					
8096		HOLL	10	21	1500	N13	W24	10	19.8		B	BXO	10	3	3	3
8096		LEAR	10	22	0009	N13	W30	10	19.7		B	BXO		3	2	3
8097		RAMY	10	15	1416	N19	E89	10	22.4		A	HS	20	1	2	3
8097	28511	MWIL	10	15	1430	N15	E83	10	21.9	4	BP					
8097		HOLL	10	15	1440	N18	E85	10	22.1		A	HS	90	2	2	3
8097		LEAR	10	16	0004	N16	E78	10	21.9		A	AX	30	1	1	3
8097		TACH	10	16	0401	N16	E81	10	22.3			BRO	45	2	10	4
8097		SVTO	10	16	0611	N15	E78	10	22.2		B	CSO	60	2	7	2
8097		RAMY	10	16	1257	N18	E76	10	22.3		B	DSO	80	2	7	3
8097	28511	MWIL	10	16	1445	N15	E73	10	22.1	4	(BP)					
8097		HOLL	10	16	1550	N16	E74	10	22.3		B	CSO	70	2	9	4
8097		LEAR	10	17	0205	N17	E67	10	22.2		B	DSO	30	2	8	2
8097		TACH	10	17	0435	N16	E67	10	22.3			DRO	125	2	7	3
8097		SVTO	10	17	0854	N16	E64	10	22.2		B	BXO	50	2	8	2
8097		RAMY	10	17	1144	N17	E64	10	22.3		B	CSO	90	3	7	4

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 1997

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
8097	28511	MWIL	10	17	1445	N15	E60	10	22.1	5	(BP)					
8097		HOLL	10	17	1454	N16	E61	10	22.2		B	CSO	110	4	9	3
8097		LEAR	10	18	0229	N17	E55	10	22.3		B	DSO	70	3	8	2
8097		TACH	10	18	0420	N15	E52	10	22.1			CSO	112	3	13	4
8097		RAMY	10	18	1255	N17	E48	10	22.2		B	CSO	60	2	7	4
8097	28511	MWIL	10	18	1445	N16	E46	10	22.1	5	(BP)					
8097		HOLL	10	18	1500	N16	E47	10	22.2		B	CSO	60	3	8	3
8097		TACH	10	19	0450	N16	E35	10	21.8			HSX	60	1	1	3
8097		SVTO	10	19	0705	N18	E36	10	22.0		A	HS	20	2	2	4
8097		RAMY	10	19	1233	N16	E31	10	21.9		A	HS	20	1	1	4
8097	28511	MWIL	10	19	1500	N16	E31	10	22.0	5	(BP)					
8097		HOLL	10	19	1605	N16	E29	10	21.9		A	HS	60	1	2	3
8097		LEAR	10	20	0010	N16	E26	10	22.0		B	CSO	50	2	3	3
8097		SVTO	10	20	0749	N16	E23	10	22.1		B	CAO	60	3	6	3
8097		TACH	10	20	0755	N15	E20	10	21.8			HSX	100	1	2	3
8097		RAMY	10	20	1350	N16	E17	10	21.9		A	HA	20	1	1	3
8097	28511	MWIL	10	20	1445	N15	E17	10	21.9	5	(AP)					
8097		HOLL	10	20	1600	N15	E16	10	21.9		A	HS	40	1	2	3
8097		LEAR	10	21	0010	N16	E12	10	21.9		A	HS	60	2	2	3
8097		TACH	10	21	0434	N16	E08	10	21.8			HSX	52	2	2	3
8097		SVTO	10	21	0720	N16	E08	10	21.9		A	HA	20	4	4	3
8097		KAND	10	21	1220	N15	E04	10	21.8			CSO		3	2	3
8097		RAMY	10	21	1221	N16	E04	10	21.8		A	HA	20	2	1	4
8097	28511	MWIL	10	21	1445	N16	E04	10	21.9	4	(AP)					
8097		HOLL	10	21	1500	N15	E05	10	22.0		B	CRO	40	4	3	3
8097		LEAR	10	22	0009	N16	W01	10	21.9		A	HS	10	1	1	3
8097		TACH	10	22	0416	N18	W05	10	21.8			AR	21	3	2	3
8097		KAND	10	22	0710	N16	W06	10	21.8			AX		2	1	2
8097		RAMY	10	22	1248	N16	W09	10	21.8		B	BXO	10	3	2	3
8097	28511	MWIL	10	22	1445	N15	W10	10	21.8	4	(AP)					
8097		HOLL	10	22	1515	N17	W10	10	21.9		A	AX	20	2	2	2
8098		RAMY	10	22	1248	S23	E30	10	24.8		B	BXO	10	3	4	3
8098	28512	MWIL	10	22	1445	S23	E29	10	24.8	4	(AP)					
8098		HOLL	10	23	1828	S22	E13	10	24.8		A	AX		1		3
8098		RAMY	10	24	1142	S26	E04	10	24.8		A	AX		1		4
8098		HOLL	10	24	1615	S26	W01	10	24.6		A	AX		1		3
8098		LEAR	10	27	0002	S23	W29	10	24.8		A	AX	10	1	1	3
8098		SVTO	10	27	0700	S24	W35	10	24.6		B	BXO	10	3	3	5
8098		KAND	10	27	0705	S23	W35	10	24.6			BXO		3	5	4
8098		RAMY	10	27	1235	S23	W37	10	24.7		B	BXO	10	3	3	3
8098		HOLL	10	27	1415	S23	W38	10	24.7		B	BXO	30	3	4	4
8098	28514	MWIL	10	27	1500	S23	W38	10	24.7	4	(B)					
8098		VORO	10	27	2242	S23	W42	10	24.7			BXO	14	3	3	2
8098		LEAR	10	28	0010	S23	W43	10	24.7			BXO	30	4	5	3
8098		KAND	10	28	0740	S24	W49	10	24.5			AX		1		4
8098		RAMY	10	28	1227	S23	W52	10	24.5		A	AX		1		4
8098A	28516	MWIL	10	31	1500	S18	W64	10	26.7	4	(AP)					
8098A		HOLL	10	31	1537	S19	W65	10	26.7		A	AX	10	1	1	2
8098A		RAMY	10	31	1718	S19	W67	10	26.6		A	AX		1		3
8098A		LEAR	11	01	0000	S18	W70	10	26.8		B	BXO	10	2		3
8099		SVTO	10	25	0700	N22	E75	10	31.0		B	BXO	10	2	2	3
8099		RAMY	10	25	1235	N21	E68	10	30.7		B	BXO	20	3	5	4
8099		HOLL	10	25	1710	N18	E68	10	30.9		B	CRO	30	3	4	3
8099	28513	MWIL	10	25	2130	N19	E67	10	31.0	4	(AF)					
8099		LEAR	10	26	0030	N19	E65	10	31.0		B	CRO	20	5	2	2
8099		VORO	10	26	0110	N19	E62	10	30.8			HRX	35	1		3
8099		SVTO	10	26	1050	N19	E59	10	30.9		B	CAO	40	4	6	3
8099		RAMY	10	26	1345	N20	E55	10	30.8		B	CRO	30	4	6	2
8099	28513	MWIL	10	26	1445	N20	E57	10	31.0	4	(BF)					
8099		HOLL	10	26	1523	N18	E55	10	30.8		B	CSO	40	3	7	3
8099		LEAR	10	27	0002	N19	E49	10	30.7		B	CSO	40	2	7	3
8099		SVTO	10	27	0700	N19	E46	10	30.8		B	CSO	30	7	6	5
8099		KAND	10	27	0705	N20	E49	10	31.0			HS		1	2	4
8099		TACH	10	27	0822	N19	E45	10	30.8			CSO	104	3	6	4
8099		RAMY	10	27	1235	N20	E43	10	30.8		B	CSO	50	8	8	3
8099		HOLL	10	27	1415	N18	E43	10	30.9		B	CSO	70	6	8	4

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

OCTOBER 1997

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
8099	28513	MWIL	10	27	1500	N20	E42	10	30.8	5	(BF)					
8099		VORO	10	27	2242	N20	E38	10	30.8			CAI	72	4	7	2
8099		LEAR	10	28	0010	N20	E35	10	30.7		B	CSO	50	5	8	3
8099		TACH	10	28	0418	N19	E34	10	30.8			CSO	67	6	8	3
8099		KAND	10	28	0740	N19	E32	10	30.8			DAO		9	9	4
8099		RAMY	10	28	1227	N20	E29	10	30.7		B	DSO	50	9	9	4
8099		HOLL	10	28	1430	N18	E29	10	30.8		B	CAO	80	15	9	4
8099	28513	MWIL	10	28	1500	N20	E28	10	30.8	5	(B)					
8099		LEAR	10	29	0238	N20	E21	10	30.7		B	BXO	20	8	10	3
8099		TACH	10	29	0506	N20	E20	10	30.7			CSO	70	3	10	3
8099		RAMY	10	29	1146	N20	E17	10	30.8		B	BXO	20	4	10	4
8099	28513	MWIL	10	29	1500	N20	E15	10	30.8	5	(B)					
8099		HOLL	10	29	1512	N19	E15	10	30.8		B	CSO	20	5	11	3
8099		VORO	10	29	2308	N20	E11	10	30.8			BXI	20	3	12	3
8099		LEAR	10	30	0123	N20	E09	10	30.7		B	BX	30	8	11	4
8099		TACH	10	30	0434	N20	E06	10	30.6			CSO	63	9	10	4
8099		KAND	10	30	0900	N20	E05	10	30.7			CRO		8	12	3
8099		RAMY	10	30	1211	N20	E03	10	30.7		BG	CRO	30	11	11	3
8099	28513	MWIL	10	30	1515	N19	E02	10	30.8	5	(BG)					
8099		HOLL	10	30	1549	N19	W01	10	30.6		BG	CSO	20	10	12	2
8099		VORO	10	30	2338	N19	W03	10	30.7			BXI	29	4	12	2
8099		LEAR	10	31	0030	N19	W05	10	30.6		B	BXO	20	7	11	3
8099		TACH	10	31	0614	N19	W08	10	30.6			BRO	37	5	10	3
8099		KAND	10	31	0920	N18	W13	10	30.4			CSO		3	6	4
8099	28513	MWIL	10	31	1500	N20	W13	10	30.6	5	(BG)					
8099		HOLL	10	31	1537	N18	W14	10	30.6		BG	CSO	20	6	12	2
8099		RAMY	10	31	1718	N18	W14	10	30.6		BG	CRO	30	10	12	3
8099		VORO	10	31	2256	N19	W23	10	30.2			HRX	23	2		3
8099		LEAR	11	01	0000	N19	W19	10	30.6		B	BXO	20	3	10	3
8099		TACH	11	01	0448	N19	W21	10	30.7			BRO	50	2	11	4
8099		KAND	11	01	0815	N18	W28	10	30.3			HS		1	1	4
8099		SVTO	11	01	0915	N17	W29	10	30.3		A	AX	10	1	1	4
8099		RAMY	11	01	1329	N17	W32	10	30.2		A	AX	10	1		4
8099	28513	MWIL	11	01	1500	N20	W30	10	30.4	4	(AP)					
8099		HOLL	11	01	1545	N18	W29	10	30.5		B	CRO	20	2	4	3
8099		VORO	11	01	2306	N19	W37	10	30.2			AXX	8	1		2
8099		LEAR	11	02	0013	N18	W37	10	30.3		A	AX	10	1	1	3
8099		KAND	11	02	0740	N17	W42	10	30.2			AX		1	1	3
8099		TACH	11	02	0820	N19	W42	10	30.2			AXX	10	1	1	3
8099		RAMY	11	02	1226	N18	W46	10	30.1		A	AX		1		4
8099	28513	MWIL	11	02	1500	N19	W45	10	30.3	4	(AP)					
8099		HOLL	11	02	1530	N18	W46	10	30.2		A	AX	40	1	1	2
8099		VORO	11	02	2304	N19	W50	10	30.2			AXX	10	1		3
8099		LEAR	11	03	0015	N18	W52	10	30.1		A	AX	20	1	1	3
8099		TACH	11	03	0750	N21	W55	10	30.2			AXX	10	1	1	3
8099	28513	MWIL	11	03	1500	N19	W58	10	30.3	4	(AP)					
8099		KAND	11	04	0835	N21	W67	10	30.3			AX		2	1	3
8099		VORO	11	04	2247	N19	W73	10	30.5			AXX	21	1		2

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

OCTOBER 1997

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
02	2145	2150	2253	2+	1					1	No flare		
03	0743	0753	0830	2	3		2				No flare		
06	1103	1111	1142	1	1		1				No flare		
06	1255	1318	1403	1	1		1				No flare		
09	1412	1425U	1523	1	1		1				*		
12	0601	0618U	0651	1	1		1				0602	B2.3	
14	1052	1054	1110	2	5	1		1			*		
14	1140	1155U	1226	1	1		1				1218	B1.3	
16	0334	0337	0413	2	5					2	No flare		
16	0959	1002	1033	1	1		1				No flare		
18	1248	1301	1335	1	1		1				No flare		
19	1107	1115	1130	1	3		2				No flare		
20	0930	0938	0959	1	1		1				No flare		
20	1030	1031	1056	1	1		1				No flare		
20	1058	1105	1140	1	1		1				1110	B1.7	
21	1200	1209	1223	1+	3		3				No flare		
23	1312	1320	1338	1	1		1				No flare		
26	0857	0914	0931	1	1		1				*		
27	0900	1011	1102	2	1		1				No flare		
27	1310	1328	1341	1+	3		2				No flare		
27	1400	1408	1503	1	1		1				1418	B1.2	
28	0821	0840	0939	1	1		1				0838	B3.2	
28	1059	1106	1123	1	1		1				No flare		
28	1202	1209U	1244	1	1		1				No flare		
28	1220	1231	1242	1-	1					1	No flare		
28	1252	1258	1333	1+	5		1			4	1251	C5.9	8100
29	0753	0808	0852	1	1					1	*		
30	1338	1414	1448	1	1		1				1433	B2.5	
31	0314	0321	0353	2	1					1	No flare		
31	0726	0750	0818	1	1		1				No flare		

* = no flare patrol.

OBSERVATORIES REPORTING FOR OCTOBER 1997

Cambridge, England, UK	SES	Sofia, Bulgaria	SES
Edenvale, Rep of S. Africa	SES	Sun City Center, FL, USA	SES
Houston, Texas, USA	SES	Tucson, Arizona, USA	SES
Hudson, Ohio, USA	SES	Upice, Czech Republic	SEA
Nerja, Spain	SES	Windsor Locks, Connecticut, USA	SES
New Milford, New York, USA	SES	Ziar nad Hronom, Slovakia	SEA
Panska Ves, Czech Republic	SES, SEA, SWF	Zilina, Slovakia	SEA
Rimavska Sobota, Slovakia	SEA		

Observations are not necessarily continuous.

SOLAR RADIO EMISSION
Spectral Observations

OCTOBER 1997

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	FREQUENCY Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
01	0000	0827	HIRA								
			LEAR	0028.0	0200.0	CONT		1	30	80	
	0610	1529	ONDR								
			LEAR	0620.0	0621.0	III		1	30	60	
			SVTO	0620.0	0621.0	III		2	35	47	
	0557	1527	POTS	0620.6	0622.9	III	G	2	40X	325	
	0605	1200	IZMI	0620.8	0621.0	III	G	2	45X	120	
			POTS	0700	1010	I	S,W	1	110U	170U	
			LEAR	0752.0	0753.0	III		1	35	50	
			SVTO	0752.0	0753.0	III		2	35U	42U	
			IZMI	0752.7	0752.9	III	B	1	45X	120	
			POTS	0752.7	0753.1	III	G	2	40X	150	
			POTS	0844.5	0845.0	III	G	1	110U	170U	
			POTS	1057.8	1058.7	III	G,U	2	110U	170U	
			IZMI	1058.0	1058.7	UNCLF		1	110	135	
	2032	2400	HIRA								
02	0000	0826	HIRA								
	0555	1200	IZMI								
	0611	1527	ONDR								
	0557	1527	POTS	0848.2	0848.4	III	B	1	110U	150	
			POTS	1008.6	1008.7	III	B,RS	2	110U	130	
	2033	2400	HIRA								
03	0000	0824	HIRA								
	0557	1527	POTS	0558.8	0559.3	III	G	1	200U	325	
	0613	1524	ONDR								
			POTS	0716.6	0716.8	III	B	1	40X	170U	
			LEAR	0822.0	0822.0	III		1	35	80	
			SVTO	0822.0	0822.0	III		2	35U	81U	
			POTS	0822.1	0822.9	III	GG	3	40X	325	
	0600	1155	IZMI	0822.3	0822.9	III	G, HARM	2	45X	270	
			POTS	0851.4	0851.5	III	G	2	110U	160	
			POTS	1238.2	1238.3	III	B	1	110U	170U	
			POTS	1416.1	1416.4	III	G	2	110U	170U	
	2034	2400	HIRA								
04			LEAR	0314.0	0319.0	III		1	30	53	
			LEAR	0428.0	0429.0	III		2	32	73	
	0000	0600	HIRA	0429.8	0429.9	III	B	1	25X	260	
	0557	1527	POTS	0608.1	0610.4	III	G	2	40X	350	
	0615	1522	ONDR								
			POTS	0620.1	0620.3	III	G	1	110U	170U	
			POTS	0635.1	0636.7	III	GG	2	40X	170U	
	0610	1200	IZMI	0636.0	0636.4	III	G	1	45X	140	
			POTS	0659.0	0659.1	III	G	2	110U	170U	
			POTS	0813.8	0814.0	III	B	2	40X	300	
			POTS	0840.9	0844.1	III	G	2	40X	350	
			LEAR	0842.0	0843.0	III		1	30	80	
			SVTO	0843.0	0844.0	III		2	35U	77U	
			IZMI	0843.3	0844.2	III	G	2	45X	270	
			POTS	0844.1	0844.7	V		2	40X	50	
			POTS	1000.6	1000.8	III	G	2	110U	170U	
			POTS	1010.4	1011.1	III	G	2	110U	170U	
			POTS	1028.0	1033.6	III	G	2	40X	350	
			IZMI	1033.4	1033.6	III	B	1	50	85	
			POTS	1044.8	1044.9	III	B	1	110U	150	
			POTS	1240.6	1241.5	III	G	1	110U	170U	
			POTS	1419.6	1420.0	III	G	2	40X	170U	
			PALE	2115.0	2125.0	III		1	25	55	
			LEAR	2346.0	2346.0	III		1	37	53	
05			PALE	0003.0	0004.0	III		1	30	55	
			LEAR	0004.0	0004.0	III		2	30	80	
			LEAR	0304.0	0304.0	III		2	30	75	
			LEAR	0429.0	0430.0	III		1	30	63	
			LEAR	0440.0	0440.0	III		1	30	60	
			LEAR	0459.0	0500.0	III		2	30	72	
			LEAR	0518.0	0521.0	III		1	30	47	

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

OCTOBER 1997

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	EVENT Spectral Class	EVENT Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
05	0557	1527	POTS	0601.7	0604.2	III	GG	2	40X	170U	
	0600	1200	IZMI	0601.9	0603.3	III	GG	2	45	150	
	0617	1521	ONDR								
			POTS	0623.0	0623.2	III	G	1	110U	170U	
			POTS	0706.5	0706.6	III	B	1	140	170U	
			POTS	0734.4	0734.5	UNCLF		1	130	150	
			POTS	0822.8	0829.6	III	GG	2	40X	325	
			IZMI	0824.0	0824.4	III	G	1	45	230	
			IZMI	0828.0	0828.7	III	G	2	45	125	
			POTS	0836.9	0838.2	III	GG	2	40X	350	
			POTS	1244.8	1245.2	III	G	2	40X	170U	
			POTS	1246.8	1247.2	III	G	1	50	170U	
			POTS	1417	1419	I	S	2	120	150	
			POTS	1424.5	1424.6	III	B	1	110U	170U	
06			PALE	0006.0	0012.0	III		2	25	75	
			LEAR	0244.0	0245.0	III		1	30	50	
			LEAR	0259.0	0301.0	III		1	30	50	
	0557	1527	POTS	0758.9	0808.4	UNCLF		1	110U	250	
			LEAR	0855.0	0856.0	III		1	38	65	
			POTS	0855.1	0901.1	III	GG	2	40X	325	
	0555	1200	IZMI	0855.4	0859.1	III	GG, HARM	2	45X	270X	
			PALE	1809.0	1809.0	III		1	25	50	
			SGMR	1809.0	1809.0	III		1	30	53	
			LEAR	2313.0	2313.0	III		1	30	60	
			PALE	2313.0	2313.0	III		1	27	53	
07	0007	0819	HIRA								
			LEAR	0021.0	0022.0	III		1	30	50	
			PALE	0021.0	0022.0	III		1	27	47	
	0605	1200	IZMI								
	0557	1527	POTS	0741	0858	I	S,W	1	110U	170U	
			SGMR	1235.0	1236.0	III		1	35	50	
			SVTO	1235.0	1236.0	III		2	35U	44U	
			POTS	1235.3	1239.6	III	G	2	40X	300	
			POTS	1248.9	1253.6	II	UE	2	70	170U	
	1323	1515	ONDR								
			POTS	1336.7	1339.1	III	GG	2	40X	300	
	2037	2400	HIRA								
08	0000	0817	HIRA								
	0620	1200	IZMI								
	0622	1513	ONDR								
	0557	1527	POTS	1048.5	1048.7	III	G	2	145	300	
			SGMR	1452.0	1452.0	III		1	32	57	
			POTS	1452.5	1452.7	III	G	2	40X	170U	
	2038	2400	HIRA								
			LEAR	2256.0	2256.0	III		2	63	78	
09	0000	0816	HIRA								
			LEAR	0006.0	0006.0	III		1	37	45	
	0623	1511	ONDR								
	0557	1527	POTS	1151	1212 U	IV	FS	2	110U	600	
	0600	1225	IZMI	1156.6	1202.1	CONT		1	190U	270X	
			IZMI	1158.4	1205.1	II	HARM	2	50	95U	
			SGMR	1159.0	1203.0	II		1	30	45	ESS 1200
			SVTO	1159.0	1206.0	II		2	35	76	ESS 1000
			SVTO	1159.0	1216.0	II		2	35	76	ESS 1000
			POTS	1159.2	1201.0	II	F	2	40X	45	
			POTS	1159.5	1205.1	II	SH	2	50	90u	
	2039	2400	HIRA								
10	0000	0814	HIRA								
			LEAR	0310.0	0310.0	III		1	34	41	
			LEAR	0334.0	0335.0	III		1	40	49	
			LEAR	0349.0	0349.0	III		1	32	42	
	0557	1527	POTS	0606.1	0606.3	III	G	1	110U	160	
			POTS	0608	0843	I	S	1	130	350	
	0625	1506	ONDR								

SOLAR RADIO EMISSION
Spectral Observations

OCTOBER 1997

Day	OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
10			LEAR	0732.0	0732.0	III		1	30	55	
			SVTO	0732.0	0732.0	III		1	35U	45U	
			POTS	0732.2	0732.7	UNCLF		2	40X	60	
			LEAR	0839.0	0839.0	III		1	30	65	
			SVTO	0839.0	0839.0	III		2	35U	48U	
			POTS	0839.1	0839.5	III	B	2	40X	160	
	0555	1200	IZMI	0839.1	0839.1	III	B	2	45	120	
			POTS	1304.4	1306.1	III	G	2	40X	70	
			SGMR	1431.0	1432.0	III		1	30	52	
			POTS	1431.6	1431.8	III	G	2	40X	170U	
			SGMR	1639.0	1647.0	III		1	30	48	
	2040	2400	HIRA								
11	0000	0813	HIRA								
	0627	1505	ONDR								
			LEAR	0850.0	0905.0	II		2	30	80	ESS 1200
	0555	1200	IZMI	0851.4	0903.2	II	HARM	2	45X	140	
			SVTO	0853.0	0906.0	II		2	35U	85U	ESS 1200
			IZMI	0918.0U	1200.0D	I	N	1	80	130	
			SVTO	0953.0	1044.0	CONT		2	55U	85U	
	2041	2400	HIRA								
12	0000	0812	HIRA								
	0605	1200	IZMI								
			LEAR	0613.0	0623.0	II		1	32	53	ESS 0600
			SVTO	0613.0	0618.0	II		2	35U	48U	ESS 0600
	0629	1504	ONDR								
	2041	2400	HIRA								
13	0000	0811	HIRA								
	0631	1459	ONDR								
	0647	1510	POTS	0647 E	1510 U	I	S,W	1	110U	325	
			POTS	1129.5	1132.5	UNCLF		1	110U	170U	
	0555	1200	IZMI	1155.9	1156.2	I	GG	1	200	240	
	2304	2400	HIRA								
14	0000	0809	HIRA								
	0600	1200	IZMI								
			SVTO	0610.0	0610.0	III		2	67U	77U	
	0620	1504	POTS	0620 E	0800	I	S,W	1	110U	325	
	0633	1458	ONDR								
	2043	2400	HIRA								
15	0000	0808	HIRA								
	0555	1200	IZMI								
	0634	1456	ONDR								
	0620	1504	POTS	0735	1504 U	I	S,W	1	130	170U	
	2044	2400	HIRA								
16	0000	0806	HIRA								
	0610	1200	IZMI								
	0620	1504	POTS	0628	0852	I	S,W	1	130	250	
	0644	1453	ONDR								
	2045	2400	HIRA								
17	0000	0805	HIRA								
	0555	1200	IZMI								
	0638	1450	ONDR								
	0620	1504	POTS	0954.1	0954.2	UNCLF		1	150	170U	
			POTS	1136.0	1136.2	III	B	1	110U	170U	
	2046	2400	HIRA								
18	0000	0804	HIRA								
	0640	1449	ONDR								
	0620	1504	POTS	1143	1258	I	S,W	1	130	160	
	2047	2400	HIRA								
19	0000	0803	HIRA								
	0642	1448	ONDR								

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

OCTOBER 1997

Day	OBSERVATION Start (UT)	End (UT)	Sta	EVENT Start (UT)	End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	Upper (MHz)	Remarks
19	0620	1504	POTS	0932.3	0932.6	III	G	2	150	300	
			POTS	1027.4	1031.6	III	G,U	2	110U	300	
			POTS	1105.8	1105.9	III	B	1	250	325	
			POTS	1115.8	1115.9	III	B	1	110U	300	
			POTS	1207.9	1208.0	III	B	1	140	300	
			POTS	1255.6	1300.9	III	G	1	110U	350	
			POTS	1319.7	1319.9	DCIM		1	150	325	
	2048	2400	HIRA								
20	0000	0802	HIRA								
	0620	1504	POTS								
	0644	1446	ONDR								
	2049	2400	HIRA								
21	0000	0800	HIRA								
			LEAR	0107.0	0114.0	II		1	30	47	ESS 0800
	0646	1443	ONDR								
	0641	1438	POTS	0720.4	0728.0	III	G	2	40X	170U	
	0931	1200	IZMI								
			PALE	1741.0	1759.0	CONT		2	25	56	
			SGMR	1741.0	1803.0	III	N	2	30	80	
	2050	2400	HIRA								
22	0000	0759	HIRA								
	0555	1200	IZMI								
	0641	1438	POTS								
	0648	1441	ONDR								
	2050	2400	HIRA								
23	0000	0758	HIRA								
	0600	1200	IZMI								
	0641	1438	POTS								
	0650	1437	ONDR								
	2051	2400	HIRA								
24	0000	0757	HIRA								
	0600	1200	IZMI								
	0641	1438	POTS								
	0654	1434	ONDR								
	2052	2400	HIRA								
25	0000	0756	HIRA								
	0550	1200	IZMI								
	0641	1438	POTS								
	0654	1434	ONDR								
	2053	2400	HIRA								
26	0000	0754	HIRA								
	0641	1438	POTS								
	0645	1200	IZMI								
	0656	1430	ONDR								
	2054	2400	HIRA								
27	0000	0753	HIRA								
	0658	1458	ONDR								
	0700	0822	IZMI								
	0641	1438	POTS	0729.5	0730.2	III	G	2	110U	170U	
			POTS	0820	1438 U	I	S,C	1	110U	170U	
	0829	1200	IZMI								
	2055	2400	HIRA								
28	0000	0752	HIRA								
			PALE	0135.0	0136.0	III		1	25	55	
			PALE	0137.0	0138.0	III		1	25	55	
			LEAR	0141.0	0142.0	III		1	30	57	
	0641	1438	POTS	0641 E	1438 U	I	S,W	1	110U	170U	
	0705	1200	IZMI								
			POTS	0913.2	0914.4	III	G	1	110U	170U	
			POTS	1223.9	1224.4	DCIM		1	250	350	

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

OCTOBER 1997

Day	OBSERVATION Start (UT)	OBSERVATION End (UT)	Sta	EVENT Start (UT)	EVENT End (UT)	Spectral Class	Event Remarks	Int (1-3)	FREQUENCY Lower (MHz)	FREQUENCY Upper (MHz)	Remarks
28	0700	1427	ONDR	1254.3	1257.0	DCIM	G	1	2185	4305	
	2107	2400	HIRA								
29	0000	0751	HIRA								
	0641	1438	POTS	0641 E	1438 U	I	S,W	1	110U	350	
	0702	1425	ONDR								
	0708	1203	IZMI								
			SGMR	1442.0	1442.0	III		1	30	50	
	2057	2400	HIRA								
30	0000	0750	HIRA								
	0640	1438	POTS	0640 E	1438 U	I	S,W	1	110U	170U	
	0650	1200	IZMI								
	0704	1423	ONDR								
			POTS	0907.0	0907.3	III	G,U	1	120	170U	
			POTS	1236.2	1236.3	III	G	1	110U	350	
	2058	2400	HIRA								
31	0000	0749	HIRA								
			LEAR	0218.0	0220.0	III		1	30	66	
			LEAR	0349.0	0350.0	III		1	30	53	
	0600	1200	IZMI								
	0640	1438	POTS	0640 E	1438 U	I	S,W	1	110U	350	
			POTS	0711.1	0711.2	III	B,RS	2	110U	150	
	0714	1422	ONDR								
			POTS	0852.4	0852.7	III	G,RS	1	110U	170U	
			POTS	0908.2	0909.9	III	G	2	110U	170U	
			POTS	0936.4	0936.5	III	B	2	110U	145	
			POTS	1210.5	1210.9	III	G	1	110U	170U	
	2059	2400	HIRA								

Event Remarks:

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

Frequency qualifiers:

- X = Extends beyond instrument range
- U = Uncertain frequency

Remarks:

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

Stations Reporting: CULG = Culgoora, HIRA = Hiraiso, IZMI = Izmiran, LEAR = Learmonth, ONDR = Ondrejov, PALE = Palehua, POTS = Potsdam, SGMR = Sagamore Hill, SVTO = San Vito

SOLAR RADIO NOISE STORM AT 164 MHZ
FROM NANÇAY RADIOHELIOGRAPH
OCTOBER 1997

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
10/10/97	-0.64	+0.29	1	7H52 E	10H50
11/10/97	-0.34	+0.13	3	8H50	15H21 D
15/10/97	-0.97	-0.13	1	7H49 E	15H19 D
27/10/97	-0.97	+0.00	1	8H52 E	11H50
28/10/97	-0.59	+0.05	1	8H19 E	10H30
29/10/97	-1.00	-0.61	1	8H16 E	15H18 D
30/10/97	-0.78	-0.53	1	8H14 E	9H50

SOLAR RADIO NOISE STORM AT 327 MHZ
FROM NANÇAY RADIOHELIOGRAPH
OCTOBER 1997

	HELIOGRAPHICS POSITIONS MEAN VALUES[1]		IMP[2]	OBSERVING TIME[3]	
DAY	E-W	S-N		START(UT)	END(UT)
10/10/97	-0.55	+0.29	1	7H52 E	15H22 D
11/10/97	-0.27	+0.21	3	8H50	15H21 D
12/10/97	-0.17	+0.34	1	11H00	15H20 D
13/10/97	+0.26	+0.32	1	7H51 E	15H21 D
14/10/97	+0.42	+0.21	1	7H51 E	15H21 D
15/10/97	-0.91	+0.00	1	7H49 E	15H19 D
17/10/97	-0.48	+0.08	1	8H45 E	15H15 D
29/10/97	-0.89	-0.55	1	8H16 E	15H18 D
29/10/97	-0.13	+0.08	1	12H50	15H18 D

OTHERS DAYS: NO DETECTABLE NOISE STORM

---

[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

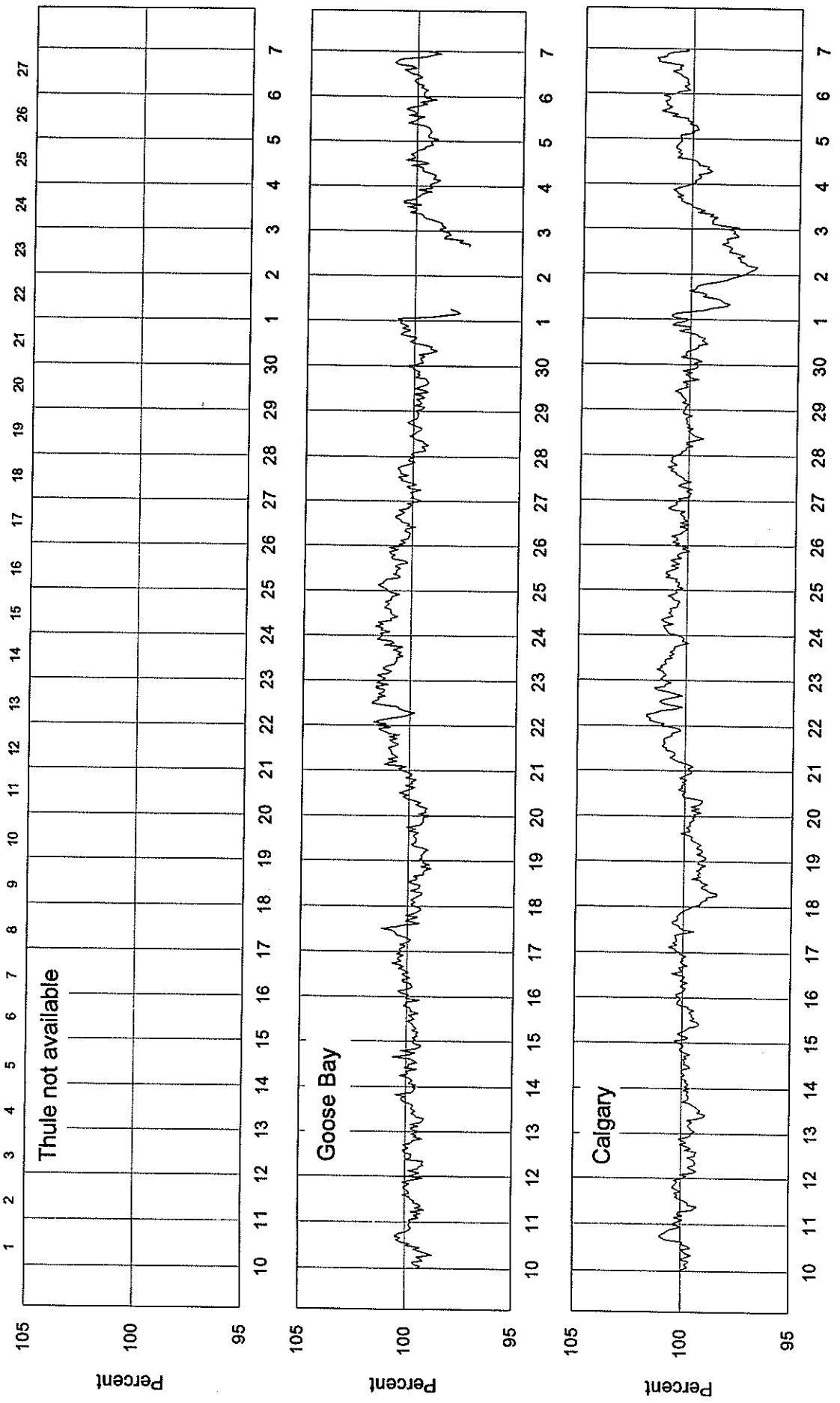
[3] E NOISE STORM IN PROGRESS AT THE BEGINNING OF THE NANÇAY OBSERVATIONS
D NOISE STORM IN PROGRESS AT THE END OF THE NANCAY OBSERVATIONS

COSMIC RAY INDICES
(Neutron Monitor)
OCTOBER 1997

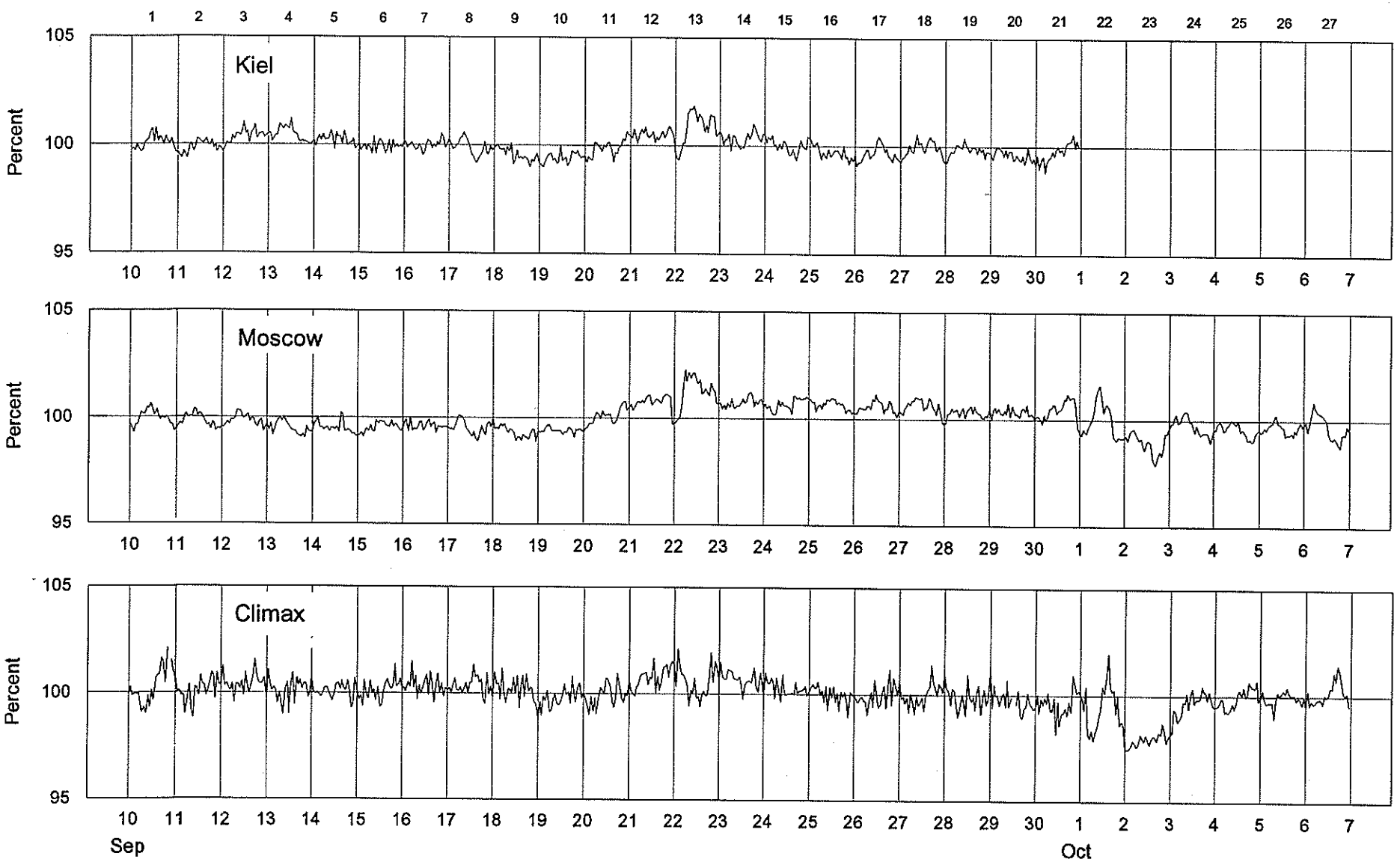
Day	THULE Average (cts/h)/100	GOOSE BAY Average (cts/h)/100	CALGARY Average (cts/h)/300	KIEL Average (cts/h)/100	MOSCOW Average (cts/h)/64	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h)/256	HALEAKALA Average (cts/h)/1000
1	No data	7309.6 (7)	3965.2	6250.7	9384.4	4243.8	1984.0	3576.1
2	at time of	7238.0 (8)	3907.0	6254.9	9283.4	4180.0	1970.0	3560.6
3	publication	7349.0	3981.8	6287.0	9363.7	4252.0	1990.3	3566.1
4	---	7350.1	3995.2	6295.2	9347.2	4263.5	2001.0	3562.2
5	---	7359.6	4019.2	6318.8	9354.1	4264.2	2002.6	3566.5
6	---	7381.0	4022.7	6307.7	9363.2	4274.8	2004.3	3570.6
7	---	7350.2	3980.8	6293.4	9299.2	4268.8	2001.0	3558.2
8	---	7337.8 (11)	3946.5	6291.5	9284.7	4277.8	2001.3	3567.5
9	---	7326.7 (10)	3950.3	6300.0	9269.5	4269.3	2006.4	3573.2
10	---	7260.4	3921.5	6248.1	9181.6	4248.1	2000.6	3565.1
11	---	7262.5	3926.8	6283.2	9138.1	4260.2	2000.7	3561.4
12	---	7294.2	3940.7	6283.0	9182.9	4248.7	1994.0	3559.4
13	---	7333.0	3976.7	6335.7	9238.4	4262.2	2006.8	3571.4
14	---	7376.1	4005.7	6350.2	9290.7	4270.4	2008.5	3585.5
15	---	7390.9	4017.3 (10)	6365.7	9331.8	4275.6 (32)	2008.9	3592.1
16	---	7410.6	4020.0	6348.4	9342.3	4287.4 (28)	2011.6	3592.8
17	---	7430.9	4026.7	6329.2	9327.2	---	2012.3	3589.1
18	---	7420.4	4030.8	6312.9	9333.6	4296.4 (10)	2012.3	3590.2
19	---	7413.7	4032.8	6322.8	9306.0	4291.4	2006.8	3586.1
20	---	7429.4	4032.0	6355.5	9337.4	4297.0	2004.5	3581.0
21	---	7443.7	4038.0	6360.1	9359.5	4308.0	2005.2	3589.8
22	---	7445.2	4030.5	6324.4	9363.6	4295.5	2003.9	3577.6
23	---	7367.2	4004.5	6301.4	9304.8	4268.8	2014.3	3572.2
24	---	7371.0	3983.3	6253.5	9269.9	4281.7	2023.6	3576.8
25	---	7234.3	3910.8 (2)	6191.5	9143.6	4212.5	2010.8	3558.8
26	---	7239.6	---	6220.5	9145.5	4199.3	2012.9	3562.5
27	---	7260.7	3936.2 (7)	6229.6	9173.1	4203.8	2017.1	3566.3
28	---	7301.0	3950.5	6249.7	9199.6	4224.6	2020.8	3572.4
29	---	7345.3	3985.0	6274.9	9254.5	4260.5	2029.8	3579.0
30	---	7383.6	4000.3	6296.8	9263.7	4273.4	2033.8	3585.6
31	---	7410.3	4022.8	6297.8 (12)	9264.5	4281.9	2037.4	3582.1
Mean	---	7349.2	3985.4	6294.6	9280.7	4259.7	2007.7	3574.1

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.

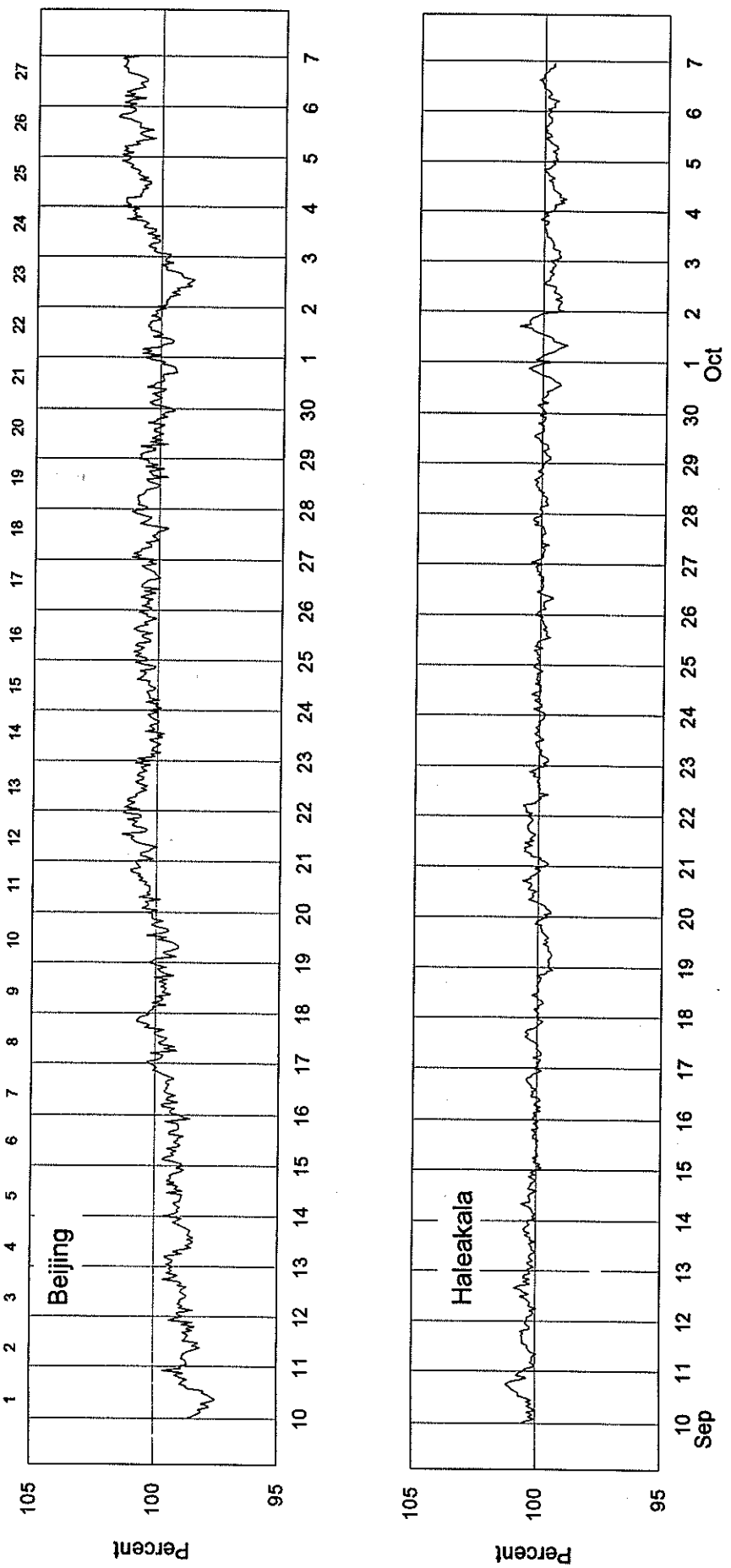
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2241 - Beginning 10 Sep 97



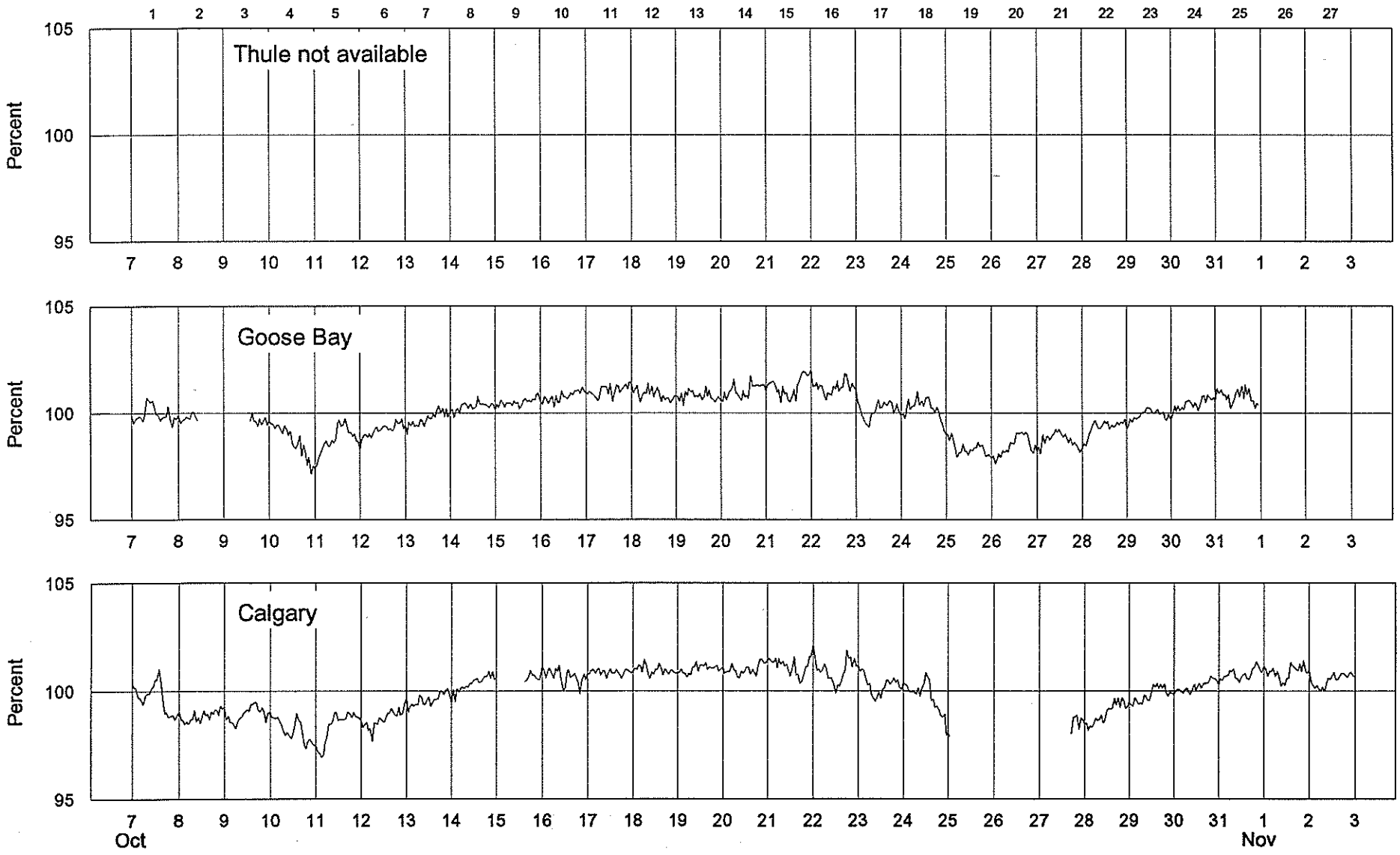
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2241 - Beginning 10 Sep 97



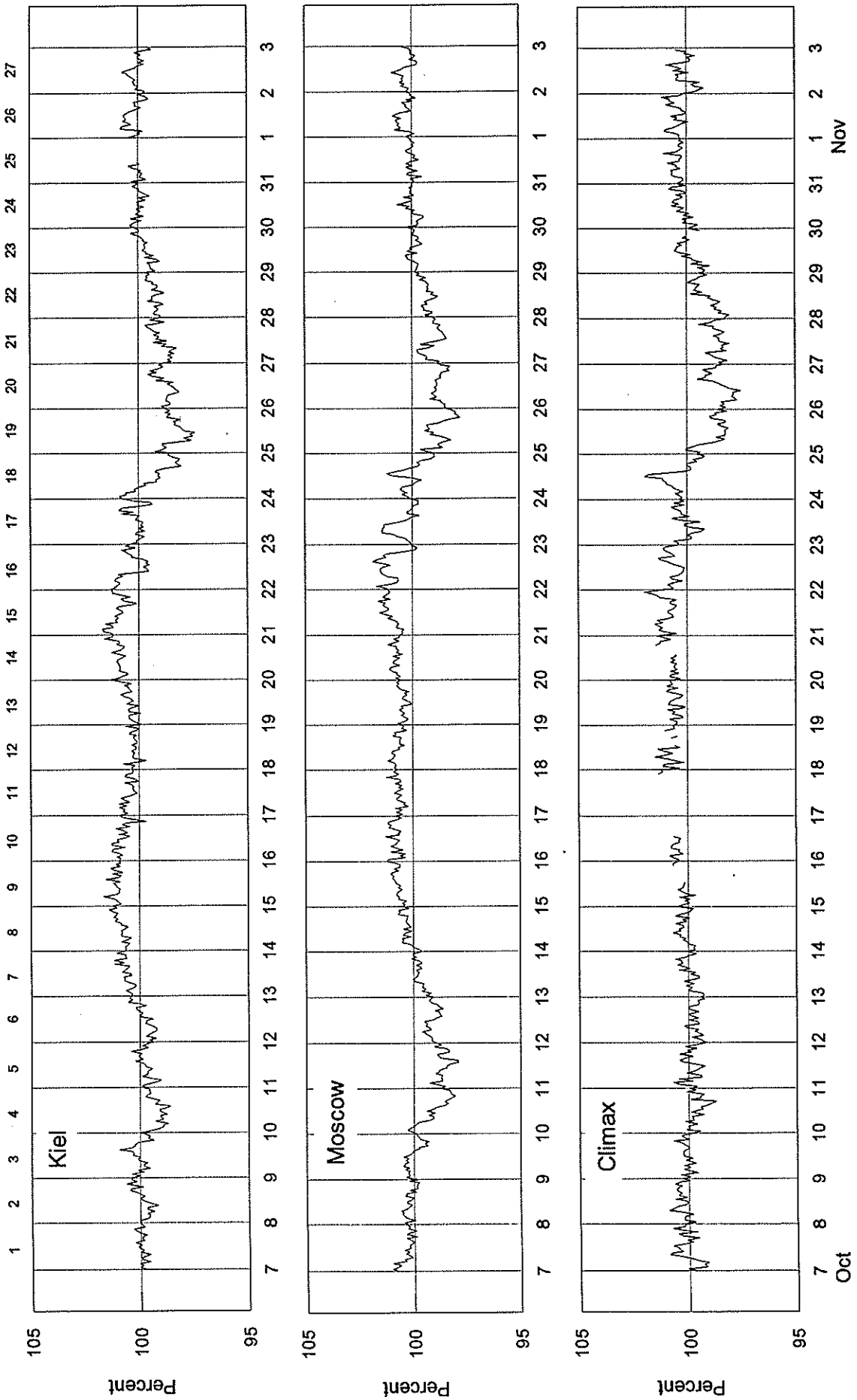
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2241 - Beginning 10 Sep 97



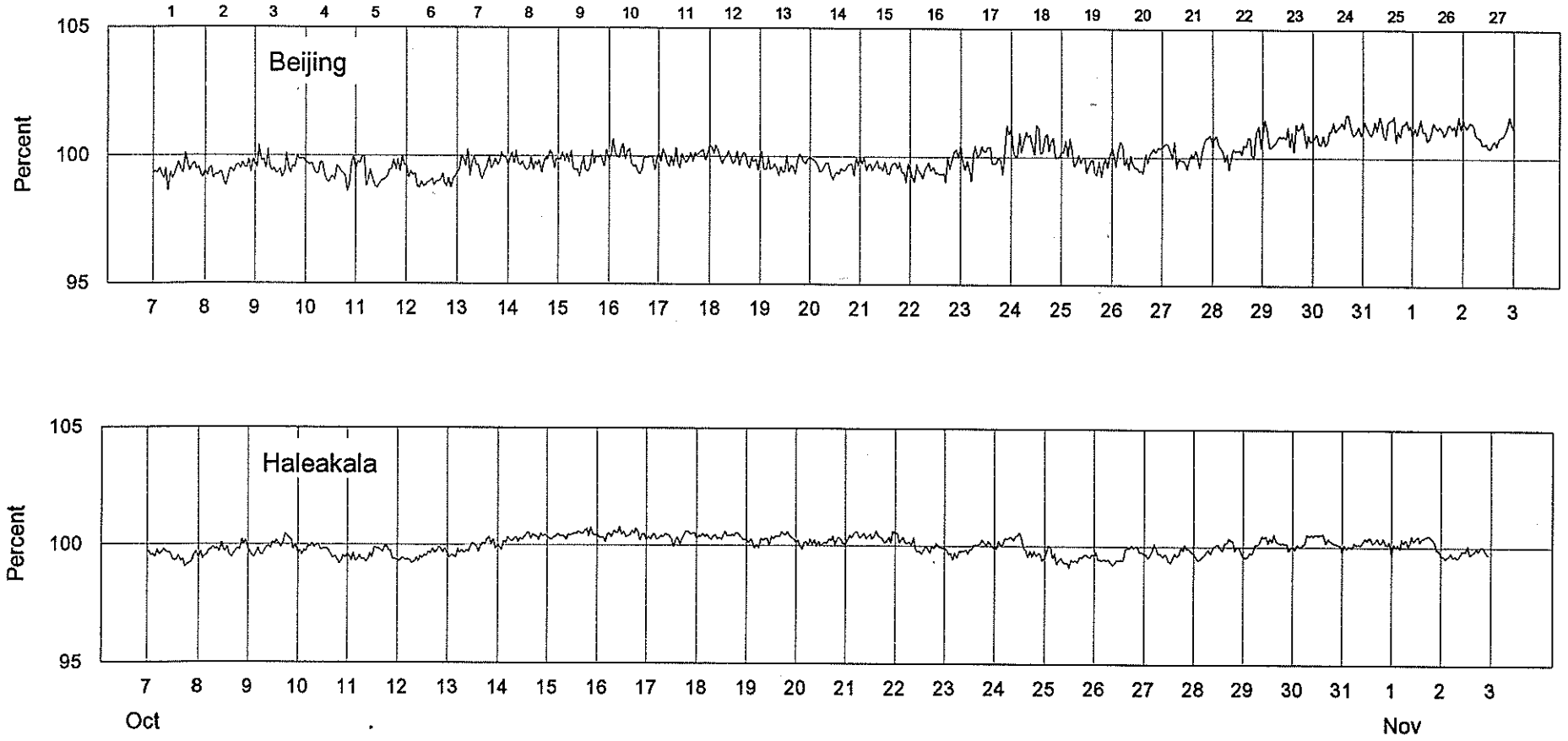
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2242 - Beginning 7 Oct 97



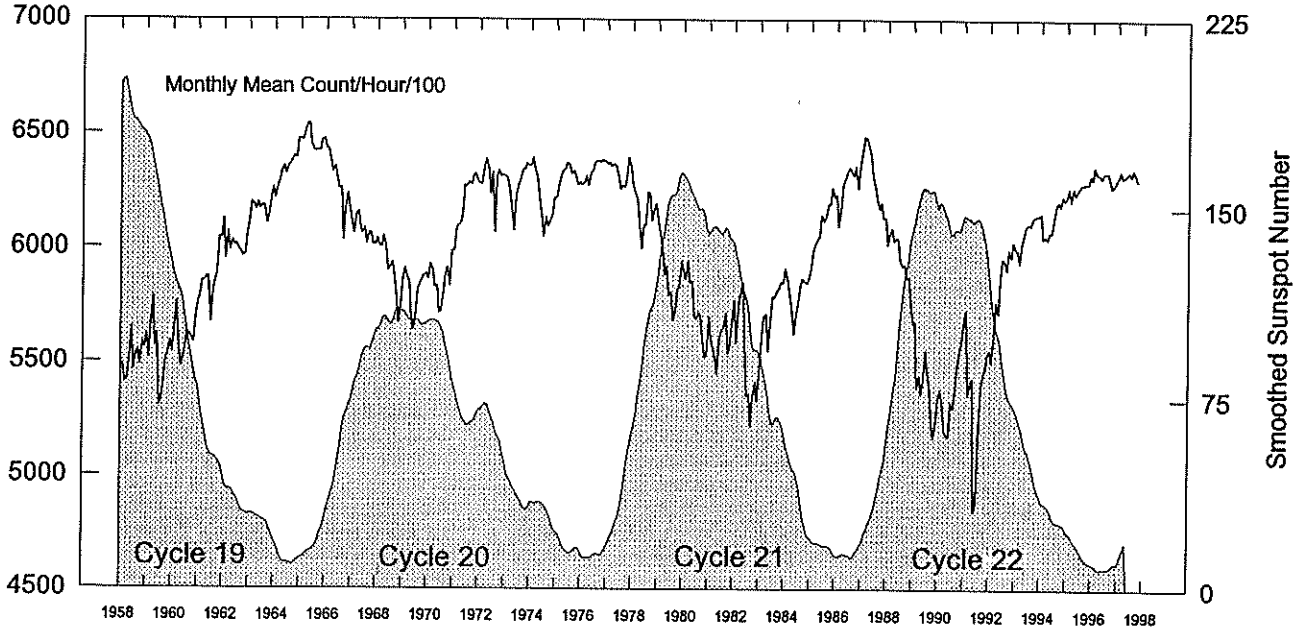
COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2242 - Beginning 7 Oct 97



COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2242 - Beginning 7 Oct 97



Kiel Neutron Monitor Pressure-Corrected Values
Jan 1958 - Oct 1997



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

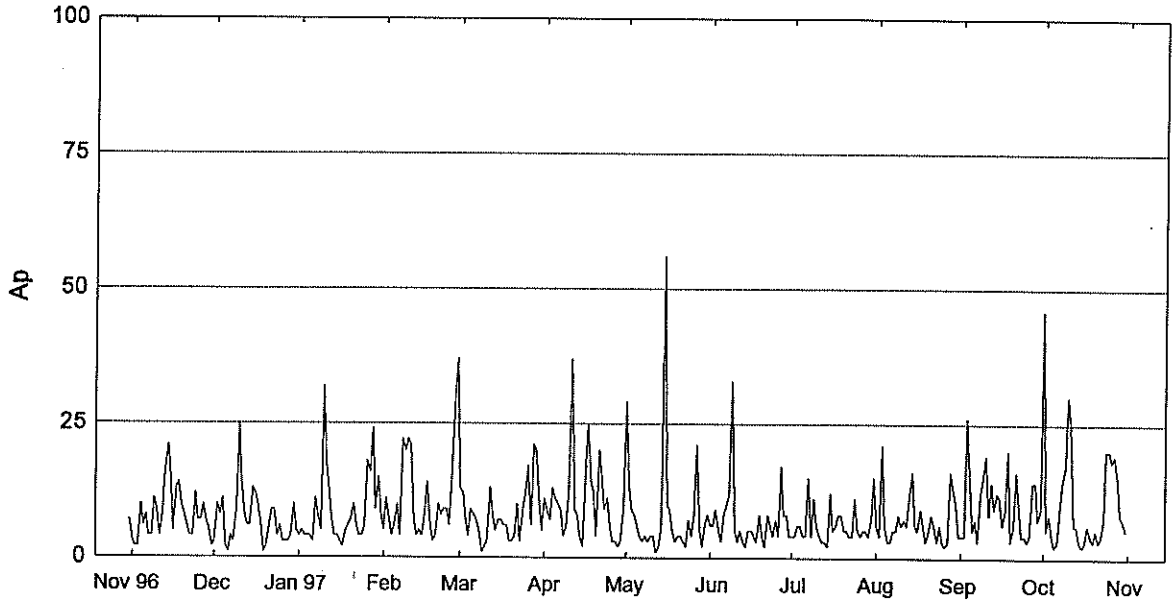
Multiply table entries by 100 to obtain hourly counting rate. Kiel, Germany: N54, E10, Alt= 54 m, Cutoff Rigidity= 2.32GV.

Geomagnetic Activity Indices
October 1997

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	Am	aa Provisional N	S	M	
1	D1	4	4-	5+	5+	5-	7	4	2-	36-	46	1.5	4-	3+	5-	5o	4+	5+	3o	2-	60	62	64	72	55	
2		2-	2	1-	1-	1+	1-	0	3-	10-	5	0.2	2-	2-	1-	1-	1+	1+	0+	3-	10	9	11	10	11	C
3		1+	2-	2+	3-	3-	2+	2	1-	16-	8	0.4	1+	2+	3o	3o	3-	2+	2-	1-	18	15	26	23	18	
4	Q9	2-	0+	0+	1+	2	1	0+	1	8	4	0.1	2-	1-	1-	2-	2o	1o	1-	1+	8	9	11	10	11	CK
5	Q1	1	0+	0	0+	0	0+	1-	1-	3+	2	0.0	1o	0+	0+	0+	0o	0+	1o	1-	3	5	4	4	4	CC
6	Q6	0	0	0	0+	0+	1+	1+	2	5+	3	0.0	1-	0+	0+	1-	0o	1+	2-	2o	6	7	8	4	12	CC
7		1+	2	1+	1+	2	3	2	4-	17-	9	0.5	2-	2o	1+	2-	2o	3-	2o	3o	17	23	14	11	27	
8		1	1+	3	3-	4	3+	2	4-	21	14	0.8	1-	1+	3o	2+	4-	3o	2o	3o	24	30	23	18	35	
9		3	4-	4+	3-	3+	2+	3+	2+	25	17	0.9	3-	3o	4+	3-	3o	2+	3o	2o	29	34	23	30	27	
10	D2	3	4-	4+	3-	2+	3+	5-	6+	30+	30	1.3	2+	3+	4-	3o	3-	4-	5-	6-	52	45	39	34	50	
11		6-	6+	4-	2-	0+	1-	0+	0+	19	25	1.2	5o	5o	3+	2-	1-	1-	0+	0+	33	27	17	40	4	
12		1-	3-	2	2	1+	1	1-	1-	11	6	0.2	1o	3-	2o	3-	1o	1o	1-	1o	12	11	9	13	7	CC
13		3-	2	1	2+	1	1-	1+	1-	12-	6	0.3	2o	1+	1+	3-	1o	1o	1o	1-	11	12	8	11	9	CC
14	Q7	0	1	1+	1+	2-	1-	0+	0	6+	3	0.1	0o	1o	2-	2-	2o	1+	1-	0o	7	6	9	8	7	CC
15	Q3	0	0	0+	1	1	2-	0+	0+	5-	2	0.0	0o	0o	0+	2o	1+	2-	1-	1-	6	7	10	7	9	CC
16	Q5	0+	1-	1	1-	0	0+	1	2-	6-	3	0.1	0+	1-	1+	1+	0+	1-	1+	2o	7	7	9	8	9	CC
17		0	0	1	2+	2	2	2+	2+	12	6	0.3	1-	0+	1+	2+	2+	2o	2o	2+	12	15	19	10	24	K
18	Q8	2-	2	1	1-	0+	1-	0+	1-	7+	4	0.1	2-	2-	1o	1+	0+	1+	0+	1-	7	6	10	10	6	CK
19	Q2	0+	0+	1-	1	1-	1	0+	1-	5	3	0.1	0+	0+	1-	1+	1o	1+	0+	1-	5	5	7	5	7	CC
20		2+	2	2+	1-	1	1-	1+	0+	11-	5	0.2	2o	2-	2+	1+	2-	1-	1o	0+	10	13	10	15	8	CC
21	Q4	1+	1-	1	1	1-	0+	0	1-	6-	3	0.1	1+	0+	1+	2-	1-	0+	0+	1-	6	5	6	7	4	CC
22	Q10	2-	2	0+	1-	0+	1-	2-	1+	9-	4	0.1	2-	2-	1-	1o	1-	1+	1+	1o	8	10	8	9	9	CC
23		0	0	2-	2	2-	2+	2+	4-	14-	7	0.4	0o	0+	2-	2+	2o	3-	3-	3+	16	19	17	8	27	
24	D4	2+	3-	2+	4+	5+	3	2	3+	25+	20	1.0	2-	2+	2+	4-	5o	2+	2+	3o	33	34	36	25	45	
25	D3	5	5-	2+	3+	3	2+	2+	3	26	20	1.0	4o	4-	2-	3o	3o	3-	2+	3o	31	40	24	36	28	
26		5-	3+	1-	0+	2+	4	3+	4	23-	18	1.0	4-	3-	1-	1-	2+	4-	3+	4-	28	39	24	23	40	
27	D5*	5-	4	4-	2+	1+	2	4-	4-	25+	19	1.0	4o	3+	4-	3-	1+	2o	3+	3+	32	36	29	37	28	
28		4	2+	2	3-	3-	3+	4-	3	24-	15	0.9	4-	3-	3-	3-	3-	3+	3+	3-	29	34	35	33	37	
29		3-	2+	3	2	1-	1-	2-	2-	15-	8	0.4	3-	2+	3o	3-	1o	1-	2-	2o	16	13	19	21	11	
30		1+	0	2-	2+	3-	1+	2	2+	14-	7	0.3	2-	0+	2-	3o	3-	1+	2-	2-	15	19	16	14	21	
31		2	2-	1	0+	1-	2	1	1	10-	5	0.2	1+	1+	1o	0+	1-	2-	1+	1+	8	10	9	9	11	C
Mean											10	0.47									18.0	19.7	17.9	18.7		

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	3+	4-	5-	5+	5-	6-	3o	2-	64	4-	3o	5-	5o	4o	5+	3o	2-	56	87.3	25	25	32	
2	1+	1+	1-	0+	2-	1o	0o	3o	9	2-	2-	1-	1+	1o	1+	1-	3-	10	86.0	21	25	31	
3	1o	2o	3o	3o	3o	2o	2-	0+	18	2-	2+	3+	3o	2+	2+	2-	1o	18	85.8	21	27	31	
4	1o	0+	0o	2-	2-	1o	0o	1+	6	2o	1+	1o	2-	2o	1o	1o	1+	10	83.4	21	26	28	
5	1o	0o	0o	0o	0o	0+	1o	0+	3	1o	1-	0+	1-	0+	0+	1o	1-	4	84.3	21	26	29	
6	0+	0o	0o	0+	0o	2-	2-	2o	6	1-	1-	0+	1o	0+	1+	2-	2-	7	83.6	18	21	28	
7	1+	1+	1o	2-	2-	3o	2o	3+	17	2o	2+	2-	2-	2o	2+	2o	3-	17	83.4	17	19	28	
8	0+	1-	4-	3-	4o	3o	2o	3+	25	1o	2-	3-	2+	4-	3o	2+	3o	23	82.7	16	14	27	
9	3-	4-	5-	3-	3o	3-	3+	2o	33	2+	3-	4o	3-	3-	2o	3-	2o	24	83.3	20	23	28	
10	2+	3+	4-	3+	3-	4o	4+	5o	48	3-	3+	4o	3o	3-	3+	5-	6o	56	84.0	22	27	29	
11	5+	5+	3+	2-	1o	1-	0o	0o	35	5o	5-	4-	1+	0+	1o	0+	0+	31	85.8	24	29	31	
12	1-	3-	2-	3o	1o	1+	1-	1-	12	1+	2+	2o	3-	1o	1o	1-	1+	12	88.3	25	33	33	
13	2o	2-	1+	3-	1+	1+	1o	1-	11	2+	1+	1+	3-	1o	1o	1o	1-	11	87.8	34	32	33	
14	0o	1-	2o	1+	2+	1+	0o	0o	7	0+	1o	2-	2-	2-	1+	1o	0+	8	84.3	27	30	29	
15	0o	0o	0o	2o	2-	2-	1-	0+	6	0+	0+	1-	2o	1+	2-	1-	1-	7	86.4	26	35	31	
16	0+	0+	1+	1-	0o	1-	1o	2o	6	1-	1o	1+	2-	1-	1-	1+	2o	8	86.9	34	46	32	
17	0+	0+	1o	2o	2+	2o	2o	2+	12	1-	1-	1+	2+	2o	2o	2o	2o	13	87.5	40	49	33	
18	1+	1+	1-	1o	0o	1+	0+	1-	6	2-	2-	1o	1+	1-	2-	0+	1-	8	85.9	35	37	31	
19	0+	0o	0+	1+	1+	1o	0+	1-	4	1-	0+	1-	2-	1o	1+	0+	1o	6	84.0	25	29	29	
20	2-	2-	2+	1o	1+	0+	1o	0+	9	2+	2o	2+	1+	2-	1o	1o	0+	11	82.1	21	26	27	
21	1o	0o	1o	1+	1-	0o	0o	0+	4	1+	1-	2-	2-	1-	1-	0+	1o	7	84.2	20	24	29	
22	2-	2-	1-	1-	1-	1o	2-	1o	8	2-	2-	1o	1o	1-	1+	1+	1o	8	79.9	9	9	24	
23	0o	0o	2-	2+	2o	3-	3-	3o	16	0+	0+	2-	2o	2o	3-	3-	3+	16	78.8	0	2	23	
24	2-	2+	2o	4o	5o	3-	2+	3o	33	2-	2+	3-	4-	5o	2o	2+	3o	33	77.7	10	1	22	
25	4o	4o	2-	3o	4-	3-	2+	3-	32	4o	3+	2-	3o	3-	2+	3-	3o	29	80.5	11	11	25	
26	4o	3-	1-	1-	3-	4-	4-	4o	32	3+	3-	1-	0+	2o	3+	3o	3+	23	81.0	11	13	25	
27	4-	3o	3+	2+	1+	2o	3+	3+	29	4+	3+	4+	3-	1+	2o	4-	3+	36	83.3	32	28	28	
28	3+	3-	2+	3-	3-	3+	3+	2+	27	4o	3-	3o	2+	3-	3+	3+	3-	30	84.4	33	38	29	
29	2+	2+	3-	3o	1-	0+	2-	2-	15	3-	2+	3o	2+	1o	1-	2-	2+	17	86.0	30	41	31	
30	1o	0+	2-	3+	3o	1+	2o	2-	15	2+	0+	2o	3-	3-	2-	2-	1+	14	86.9	38	50	32	
31	2-	1+	1-	0o	0+	2-	2-	1o	7	1+	1+	1+	1o	1o	2-	1o	1+	9	89.2	35	45	34	
Mean									17.9									18.1	84.3	23.3	27.2	29.0	

Daily Average Indices Ap
Nov 1996 - Oct 1997

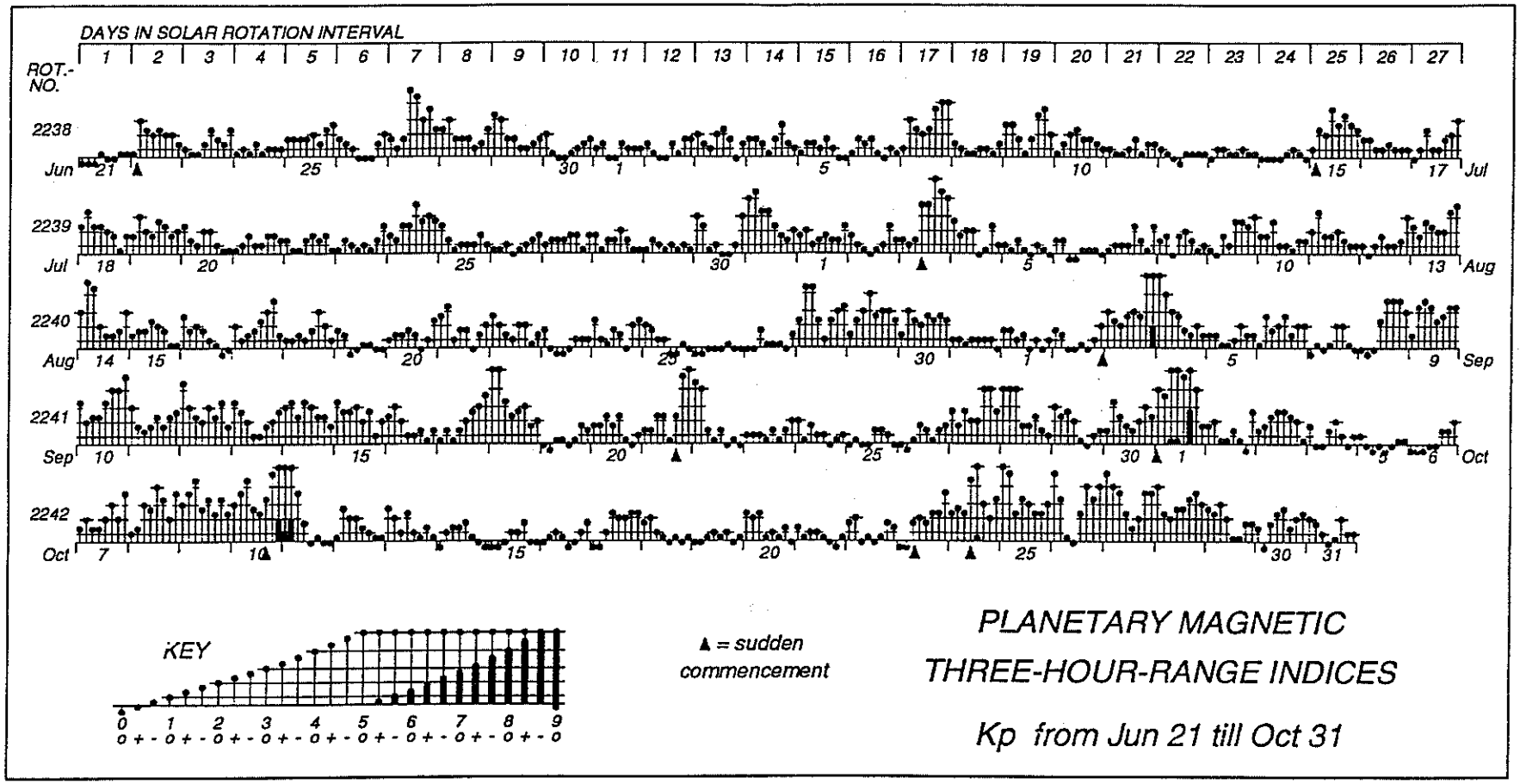


Day	Nov 96	Dec	Jan 97	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1	3	3	4	5	13	11	29	6	4	6	4	46
2	2	10	5	11	12	9	14	6	4	4	4	5
3	2	8	4	7	7	7	9	9	6	21	26	8
4	10	11	4	4	4	13	8	5	6	6	16	4
5	6	2	4	6	9	11	6	3	4	3	5	2
6	8	1	3	10	8	10	4	8	4	3	7	3
7	4	4	11	4	7	9	3	10	15	5	3	9
8	4	3	8	22	5	4	4	12	4	5	12	14
9	11	9	5	20	1	6	3	33	11	8	15	17
10	9	25	32	22	2	13	4	5	6	6	19	30
11	4	14	18	21	3	37	4	3	4	7	8	25
12	8	8	12	7	13	9	1	5	3	6	14	6
13	16	6	7	4	8	8	2	3	3	11	9	6
14	21	6	4	5	5	4	6	2	2	16	12	3
15	15	13	4	4	7	2	56	5	12	6	11	2
16	5	12	3	8	7	15	10	5	5	5	6	3
17	13	10	2	14	6	25	9	4	6	9	9	6
18	14	6	5	6	6	14	5	3	8	6	20	4
19	10	1	6	3	3	12	3	8	8	3	3	3
20	8	2	7	4	3	4	4	4	5	5	6	5
21	6	6	10	10	4	20	4	2	5	8	16	3
22	4	9	6	8	10	15	3	8	4	6	10	4
23	4	9	4	9	3	9	2	6	4	3	4	7
24	12	4	4	9	9	11	7	4	11	6	4	20
25	7	6	6	6	12	6	4	7	5	3	3	20
26	7	3	18	15	17	3	8	4	4	2	4	18
27	10	3	16	30	6	3	21	17	5	3	14	19
28	7	3	24	37	21	2	5	8	5	16	14	15
29	5	4	9		20	3	2	8	4	13	7	8
30	2	10	15		10	10	6	4	7	10	9	7
31		5	8		5	5	8		15	4		5
Mean	8	7	9	11	8	10	8	7	6	7	10	10

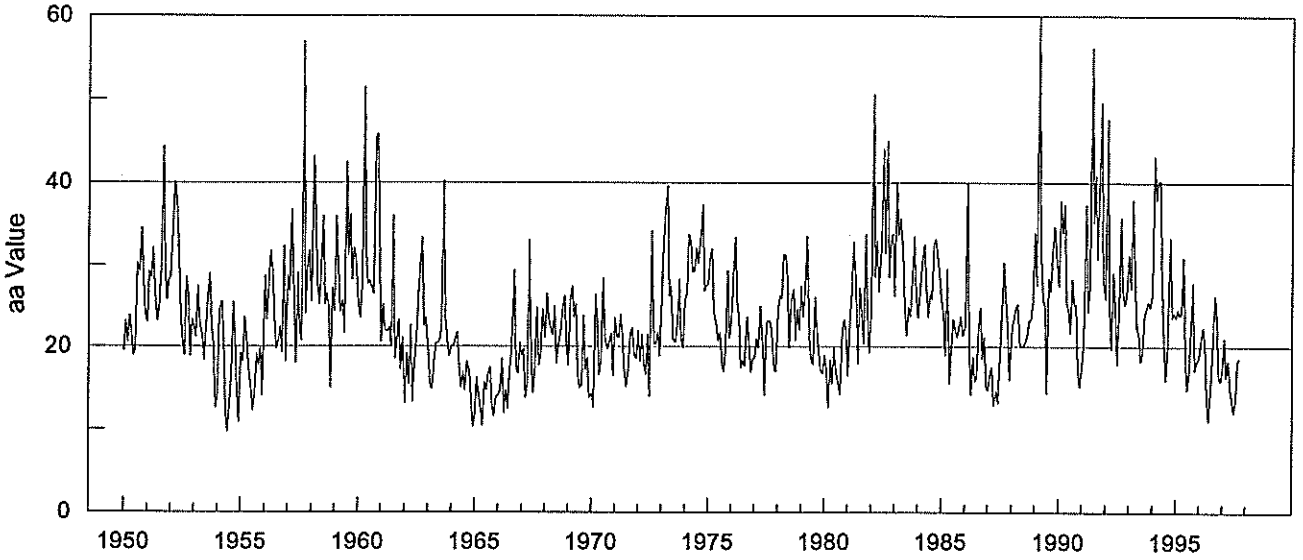
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

University of Gottingen

Kp through October 31, 1997



Monthly Mean aa Index Jan 1950 - Oct 1997

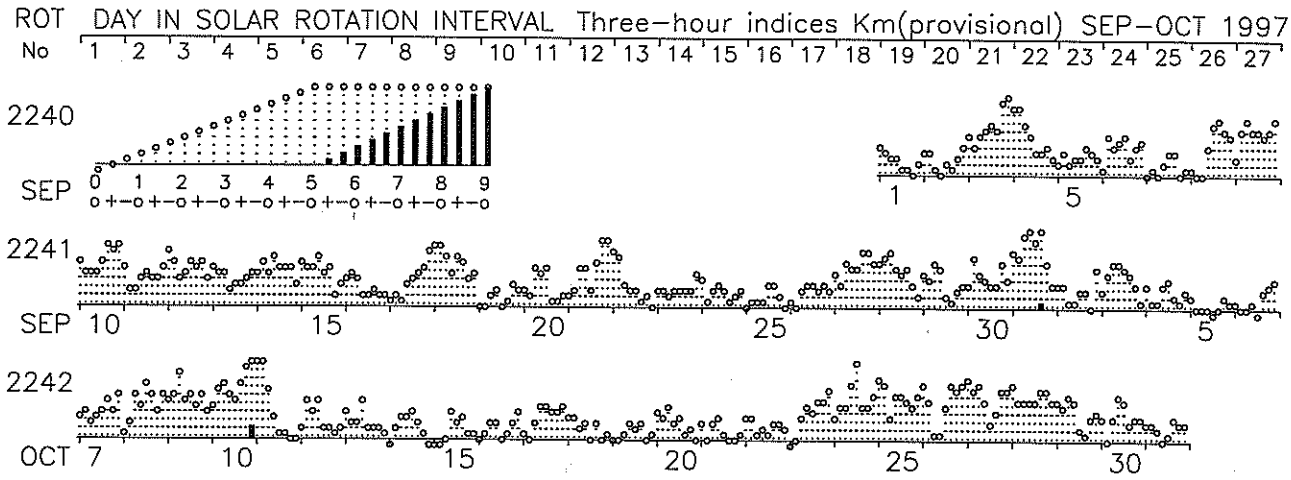


Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	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			16.5

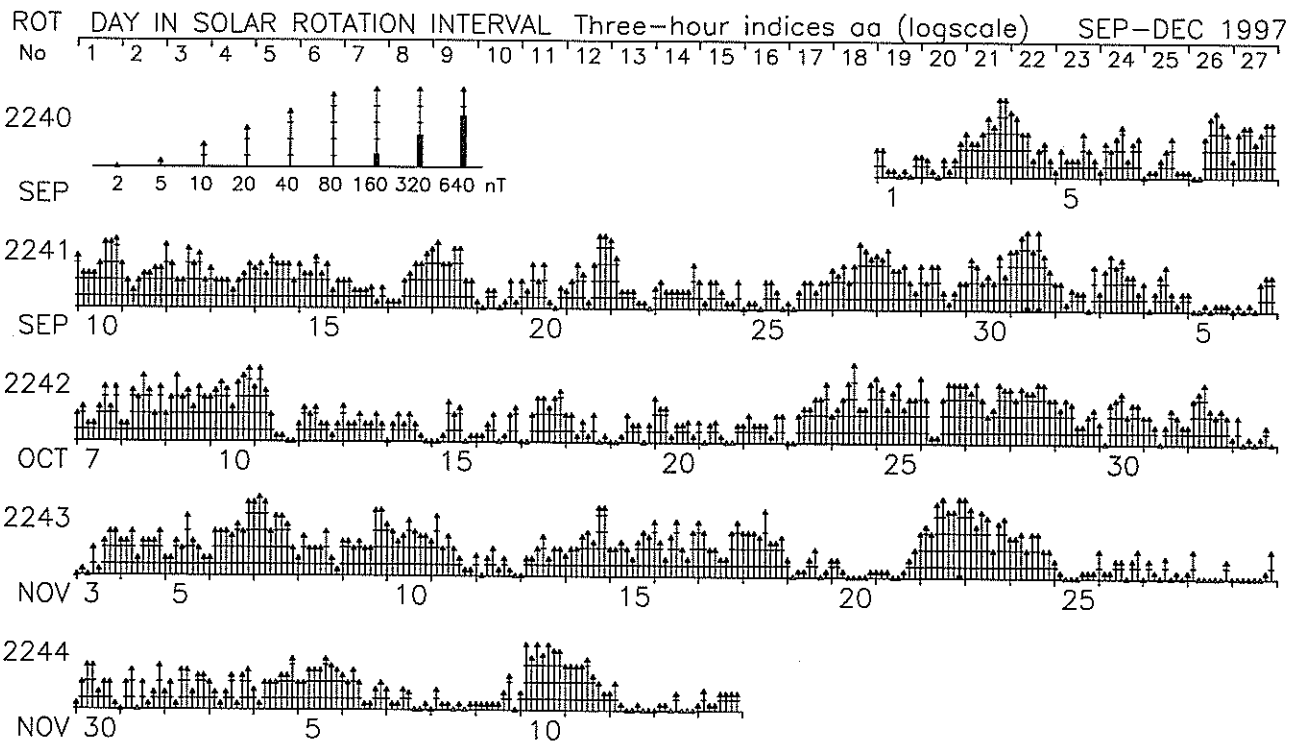
PLANETARY GEOMAGNETIC ACTIVITY

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

ISGI PUBLICATION OFFICE - EMail : ISGI.PUBOFF@cetp.ipsl.fr
CETP, 4 Avenue de Neptune, F-94107 Saint Maur des Fosses CEDEX - FRANCE



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



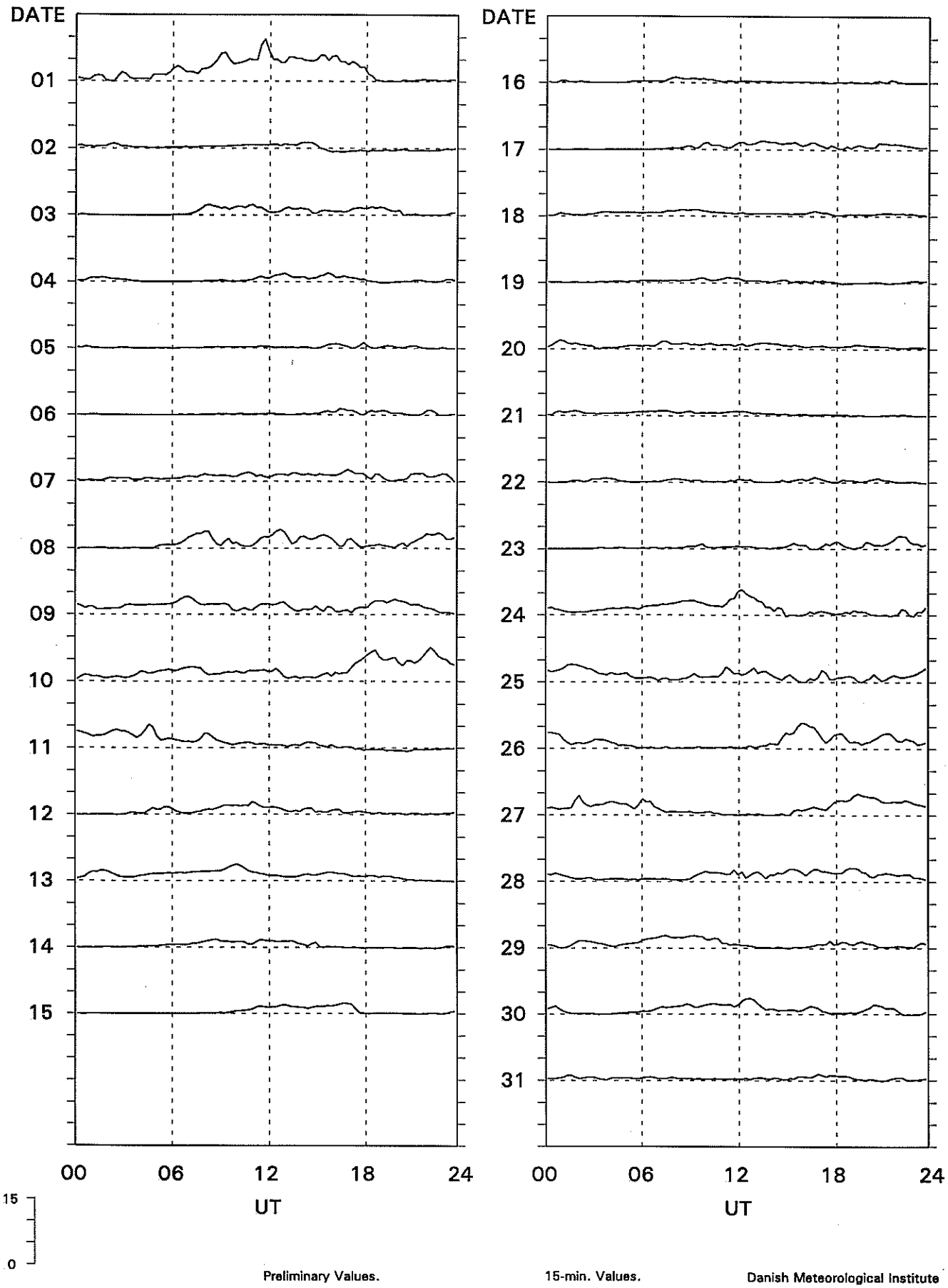
Indices Derivation at Universite Paris Sud; Graph Prepared at ISGI Publication Office.

120
Oct 97

PC-INDEX

Thule

October, 1997



Preliminary Values.

15-min. Values.

Danish Meteorological Institute

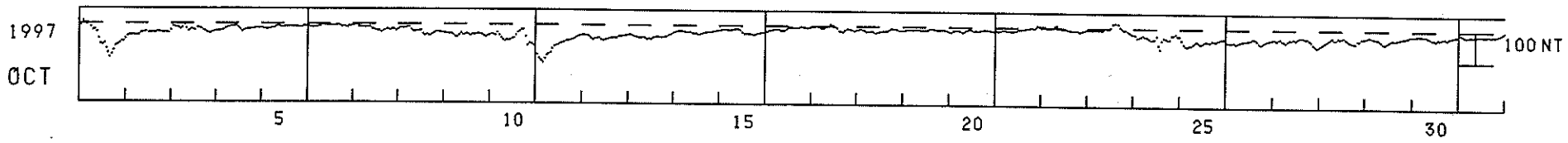
WDC-C2 FOR GEOMAGNETISM, KYOTO UNIVERSITY

HOURLY EQUATORIAL DST VALUES(PROVISIONAL)

OCTOBER 1997

UNIT=NT

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	U.T. 24
1	-5	10	4	-2	1	-9	-21	-17	-26	-47	-65	-66	-62	-79	-95	-108	-98	-85	-70	-67	-62	-56	-55	-47
2	-39	-36	-37	-35	-38	-38	-34	-29	-27	-26	-25	-28	-28	-26	-26	-28	-25	-24	-27	-28	-27	-28	-29	-21
3	-8	-9	-9	-11	-16	-11	-2	-14	-22	-20	-16	-18	-19	-11	-11	-14	-19	-23	-26	-29	-31	-27	-24	-23
4	-23	-22	-19	-18	-14	-12	-10	-7	-7	-7	-6	-12	-18	-25	-21	-17	-16	-15	-15	-14	-13	-12	-13	-12
5	-14	-16	-16	-15	-14	-12	-11	-8	-6	-8	-9	-8	-8	-7	-7	-7	-7	-8	-8	-10	-10	-5	-5	-6
6	-7	-10	-10	-9	-8	-7	-5	-2	-1	-3	-4	-4	-3	-3	-3	-2	-3	-7	-6	-8	-10	-5	-6	-4
7	-1	-2	-7	-7	-7	-9	-10	-8	-8	-13	-15	-18	-19	-21	-24	-21	-17	-14	-15	-18	-13	-14	-20	-16
8	-11	-10	-11	-9	-7	-8	-15	-23	-23	-19	-19	-17	-31	-36	-31	-36	-34	-30	-26	-23	-22	-25	-25	-26
9	-27	-28	-28	-29	-33	-39	-39	-33	-26	-32	-30	-29	-33	-35	-31	-30	-30	-28	-31	-31	-36	-40	-36	-33
10	-29	-31	-32	-25	-32	-41	-48	-52	-48	-49	-47	-43	-42	-33	-25	-21	-14	-13	-38	-65	-58	-60	-65	-81
11	-94	-108	-113	-120	-107	-97	-91	-87	-75	-67	-64	-62	-58	-55	-54	-49	-49	-48	-46	-43	-40	-35	-33	-31
12	-30	-30	-32	-37	-42	-45	-42	-42	-39	-46	-47	-45	-43	-41	-40	-40	-40	-39	-35	-35	-33	-32	-30	-31
13	-28	-30	-33	-35	-37	-39	-40	-38	-40	-43	-42	-43	-40	-37	-36	-38	-38	-37	-36	-34	-31	-28	-26	-23
14	-20	-17	-16	-16	-17	-20	-19	-20	-20	-24	-24	-25	-29	-27	-24	-22	-20	-19	-21	-20	-18	-16	-16	-14
15	-13	-12	-11	-12	-14	-14	-12	-10	-10	-10	-13	-20	-24	-25	-24	-25	-26	-29	-27	-25	-23	-23	-21	-20
16	-17	-14	-13	-11	-9	-10	-10	-14	-13	-14	-10	-6	-3	-4	-5	-6	-5	-3	-2	-3	-4	-5	-4	-3
17	-1	2	1	-1	-5	-5	-5	-2	1	8	6	4	-1	-6	-14	-15	-17	-11	-7	-8	-10	-11	-13	-12
18	-9	-7	-9	-11	-15	-16	-13	-14	-15	-19	-18	-16	-13	-13	-14	-13	-9	-6	-6	-7	-8	-11	-12	-11
19	-10	-9	-7	-7	-9	-9	-8	-8	-10	-9	-10	-10	-9	-6	-6	-6	-8	-9	-9	-8	-7	-10	-11	-14
20	-15	-11	-9	-10	-9	-11	-15	-13	-10	-8	-6	-8	-11	-10	-11	-10	-9	-8	-8	-8	-9	-10	-11	-10
21	-10	-11	-9	-8	-8	-9	-10	-11	-11	-10	-9	-6	-6	-6	-4	-3	-2	-1	0	-1	1	7	6	5
22	6	6	1	-2	1	2	7	9	3	-2	-3	-1	-3	-5	-6	-7	-8	-8	-8	-12	-10	-8	-5	-3
23	-3	-6	-5	-3	-4	-6	-5	-5	1	2	-2	4	15	17	19	15	5	0	-5	-3	-7	-12	-15	-18
24	-21	-29	-27	-24	-21	-24	-26	-30	-35	-36	-32	-22	-52	-64	-38	-28	-31	-36	-32	-19	-19	-15	-22	-23
25	-34	-47	-54	-57	-51	-51	-47	-41	-39	-44	-47	-45	-42	-39	-42	-41	-37	-37	-39	-36	-32	-30	-30	-35
26	-41	-44	-43	-42	-45	-44	-42	-39	-38	-38	-36	-35	-32	-29	-30	-36	-44	-48	-44	-40	-37	-36	-32	-30
27	-31	-35	-31	-29	-35	-37	-42	-36	-31	-32	-29	-32	-29	-25	-24	-24	-28	-27	-33	-37	-45	-51	-55	-52
28	-47	-45	-41	-38	-33	-29	-24	-31	-31	-25	-26	-24	-23	-29	-32	-38	-39	-42	-42	-33	-32	-27	-27	-24
29	-24	-21	-22	-24	-26	-27	-28	-34	-41	-43	-40	-36	-30	-29	-30	-29	-27	-25	-25	-22	-22	-19	-15	-16
30	-15	-15	-14	-14	-16	-16	-15	-19	-22	-26	-27	-30	-25	-26	-24	-22	-23	-26	-23	-20	-17	-17	-15	-12
31	-10	-12	-15	-18	-15	-16	-15	-15	-15	-14	-13	-14	-15	-15	-14	-13	-15	-14	-15	-14	-11	-9	-6	-2



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

OCTOBER 1997

Sta	Geomag Lat	Commencement Day	Commencement Time (UT)	Type	SC Amplitudes D (Min)	SC Amplitudes H (Gamma)	SC Amplitudes Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	Ranges H (Gamma)	Ranges Z (Gamma)	End Day	End Hour (UT)
FRD	49.4N	01	0059	SC	0.5	37	5	01(3,4,5,6)	5	20	166	45	02	06
BJI	28.8N	01	0057	SC	1.8	18	0	01(6)	6	10	137	30	01	22
KRC	16.4N	01	0103	SC	- 1.1	34	16	01(6)	7	6	200	61	02	09
UJJ	13.6N	01	0043	SC	--	27	- 3		-	6	170	30	02	18
NGP	11.3N	01	0043	SC	0.4	24	- 3		-	6	205	30	02	18
ABG	09.4N	01	0043	SC	- 0.0	22	- 1	01 (7)	6	4	191	37	02	18
HYB	07.6N	01	0059	SC	0.1	22	- 2	01(3,6)	6	6	214	26	02	16
GUA	04.3N	01	0058	SC*	0.1	10	- 3	01(4)	5	--	190	30	02	09
PND	02.0N	01	0043	SC	0.1	23	2		-	5	246	94	02	18
ETT	00.7S	01	0058	SC	0.3	21	18		-	--	293	87	01	23
TRD	01.1S	01	0043	SC	0.4	21	- 29		-	4	297	108	02	18
HER	33.6S	01	0059	SC	3	22	20	01(6)	5	30	163	129	01	19
CAN	43.6S	01	0059	SC*	- 1.9	16	10	01(4)	6	22	116	52	01	21
AMS	46.8S	01	0058	SC	3.3	4.9	- 9.4	01(6)	6	30	142	131	01	22
CZT	51.5S	01	0058	SC*	4.7*	12.6*	- 7.3*	01(6)	6	51	190	120	01	22
PAF	57.2S	01	0058	SC*	6.9*	9.7	- 7.4*	01(6)	8	103	668	258	01	19
DRV	75.2S	01	0058	SC*	- 22.9	117.8*	111.6*	01(1)	5	430	524	456	02	07
ETT	00.7S	06	1600	..	..	..	..		-	--	172	64	09	21
DRV	75.2S	07	17--	..	..	..	..	07(8) 10(1)	5	483	485	396	11	12
GUA	04.3N	09	06--	..	..	..	..	09(3)	5	--	40	10	09	17
FRD	49.4N	10	16--	..	..	..	..	10(8) 11(1)	6	29	148	81	11	12
BJI	28.8N	10	02--	..	..	..	..	11(1)	5	11	168	22	11	13
KRC	16.4N	10	1611	SC	- 1	26	11	10(6,7,8)	5	8	133	59	11	10
UJJ	13.6N	10	1612	SC	- 0.2	17	- 4		-	4	100	25	11	22
NGP	11.3N	10	1612	SC	--	--	--		-	--	--	--	11	22
ABG	09.4N	10	1612	SC	- 0.3	13	- 4	10 (7,8) 11(1)	5	3	93	30	11	22
HYB	07.6N	10	1612	SC	- 0.1	15	- 1	10(7,8) 11(1)	5	3	94	20	11	18
GUA	04.3N	10	16--	..	..	..	..	10(8)	5	--	130	20	11	10
PND	02.0N	10	1612	SC	- 0.1	14	13		-	2	93	54	11	22
ETT	00.7S	10	1613	SC	- 0.1	11	12		-	--	99	45	11	18
TRD	01.1S	10	1612	SC	- 0.2	13	- 18		-	2	106	78	11	22
HER	33.6S	10	1611	SC	1	11	6	10(8)	6	30	88	119	11	06
AMS	46.8S	10	1612	SC	1.3	13.2	- 7.2	10(8) 11(2)	5	21	128	78	11	11
CZT	51.5S	10	1612	SC	- 1	- 3	--	10(8) 11(1,2)	5	27	190	100	11	09
PAF	57.2S	10	1612	SC	1.7	18.8	6.9	10(8)	8	69	748	405	11	11
ETT	00.7S	23	0804	SC	0.1	15	8		-	--	172	81	25	19
AMS	46.8S	23	0805	SC	2	5	- 5	24(5)	5	18	112	55	24	20
KRC	16.4N	24	1056	..	..	..	..	24(5)	6	5	137	42	25	08
UJJ	13.6N	24	1113	SC	- 0.2	15	- 2		-	3	115	15	25	21
NGP	11.3N	24	1113	SC	--	14	- 2		-	4	132	10	25	21
ABG	09.4N	24	1113	SC	- 0.2	12	- 2	24 (5)	6	3	118	21	25	21
HYB	07.6N	24	1116	SC	- 0.1	14	- 1	24(6)	6	3	125	13	26	04
GUA	04.3N	24	1114	SC	..	10	- 3	24(5)	5	--	70	10	24	14
PND	02.0N	24	1113	SC	--	15	14		-	3	129	67	25	21
ETT	00.7S	24	1114	SC	0.1	15	13		-	--	--	--	28	23
TRD	01.1S	24	1113	SC	--	17	- 19		-	3	145	112	25	21
HER	33.6S	24	10--	..	..	..	..	24(5)	5	23	99	79	25	15
AMS	46.8S	24	1050	SC	- 2	- 6	2	24(5)	5	18	112	55	24	20
CZT	51.5S	24	1050	SC*	4.3*	13.7*	- 7.2*	24(5)	5	29	116	66	26	03
PAF	57.2S	24	1050	SC	- 4	- 17	--	24(5)	6	39	300	120	24	16
GUA	04.3N	25	01--	..	..	..	..	25(1)	5	--	70	20	25	16
UJJ	13.6N	26	1400	..	..	..	..		-	3	79	23	28	21
NGP	11.3N	26	1400	..	..	..	..		-	4	101	21	28	21
ABG	09.4N	26	1400	..	..	..	..	26 (6,7) 27(2,3,7) 28 (6,7)	4	3	85	28	28	21
HYB	07.6N	26	1400	..	..	..	..	26(6,7) 27(7) 28(6,7)	4	4	95	13	28	21
PND	02.0N	26	1400	..	..	..	..		-	3	106	51	28	21
ETT	00.7S	26	1400	..	..	..	..		-	--	127	57	28	23
TRD	01.1S	26	1400	..	..	..	..		-	--	--	--	28	21
PAF	57.2S	26	14--	..	..	..	..	27(7,8) 28(1)	5	38	205	177	28	03

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

OCTOBER 1997

Sta	Geomag Lat	Commencement Time Day (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
GUA	04.3N	27 01--	..	..	..	..	27(3)	5	--	80	10	27	15
CZT	51.5S	27 17--	..	..	..	..	28(1)	5	24	66	42	28	23

Stations:

ABG = ALIBAG
AMS = MARTIN DE VIVIES
ANN = ANNAMALAINAGAR
BJI = BEIJING
CAN = CANBERRA
CMO = COLLEGE
CZT = PORT ALFRED
DRV = DUMONT D'URVILLE
ETT = ETAIYAPURAM
FRD = FREDERICKSBURG
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS
HON = HONOLULU
HYB = HYDERABAD
JAI = JAIPUR
KRC = KARACHI
NGP = NAGPUR
PAF = PORT AUX FRANCAIS
PMG = PORT MORESBY
PND = PONDICHERRY
SHL = SHILLONG
SIT = SITKA
TRD = TRIVANDRUM
UJJ = UJJAIN

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

OCTOBER 1997

Storm Sudden Commencements (SSC)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
01	0059	A: WNG* NAG* COI SPT QUE TEN LNP HER	14	1006-1020	BDV
		B: NUR VAL BDV* CLF GCK MMB* EBR*	17	0857-0912	CLF TEN
		BJI KNY* HYB ETT CNB*	23	1158-1216	EBR TEN
		C: NGK KAK HTY	27	0608-0622	QUE
10	1612	A: HRB* SPT TEN			
		B: DOB WNG* VAL BDV* NAG* MMB* COI HTY KNY* QUE LNP			
		C: NGK CLF GCK* EBR KAK HYB ETT HER			
23	0804	B: WNG* HRB* ETT			
		C: NGK BDV QUE CNB*			
24	1050	A: QUE			
		B: WNG* SPT*			
		C: NGK BDV*			
24	1114	A: HRB*			
		B: DOB* GCK* LNP ETT			
		C: EBR HYB			

REPORTING OBSERVATORIES (up to the 2nd of December 1997):
DOB NUR WNG NGK VAL BDV CLF HRB NAG GCK MMB EBR COI BJI SPT KAK HTY KNY QUE TEN LNP HYB ETT HER 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 (+).

☆U.S. GOVERNMENT PRINTING OFFICE: 1998-673-001/29008

WORLD DATA CENTER A
FOR
SOLAR-TERRESTRIAL PHYSICS

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

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