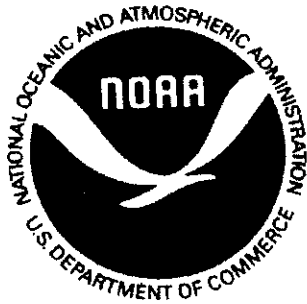




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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

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Number 586

(Issued in Two Parts)

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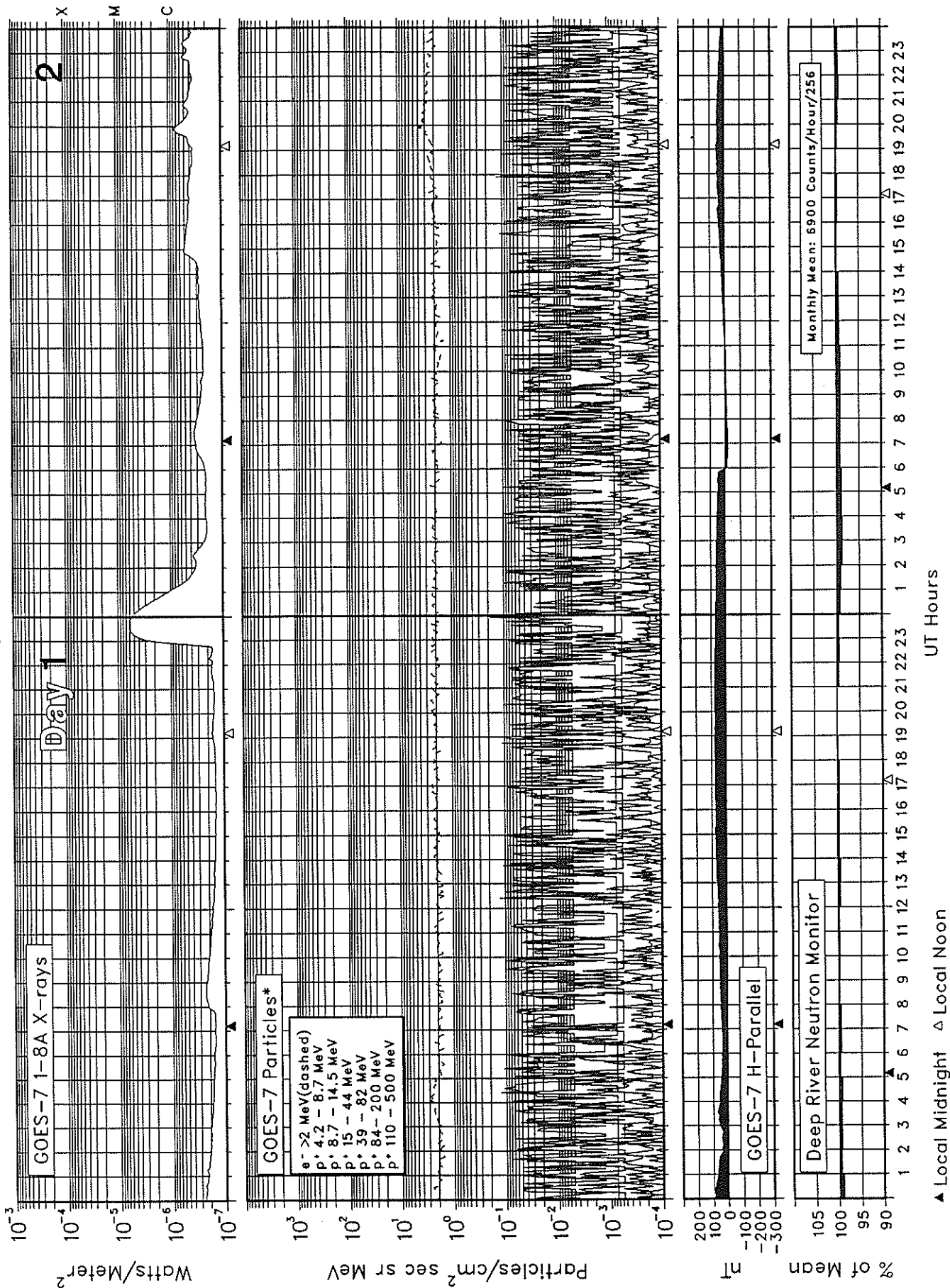
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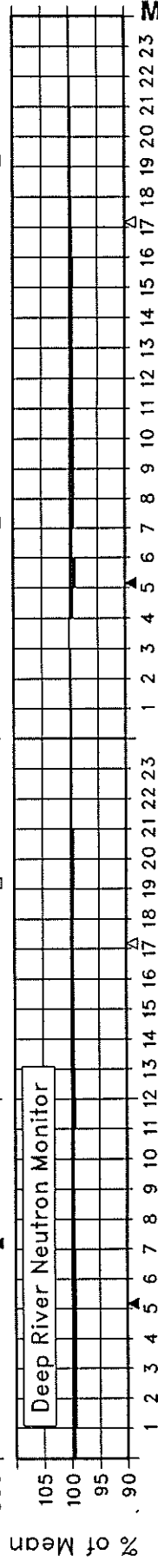
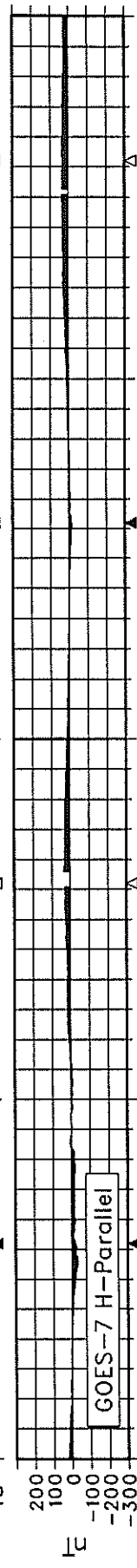
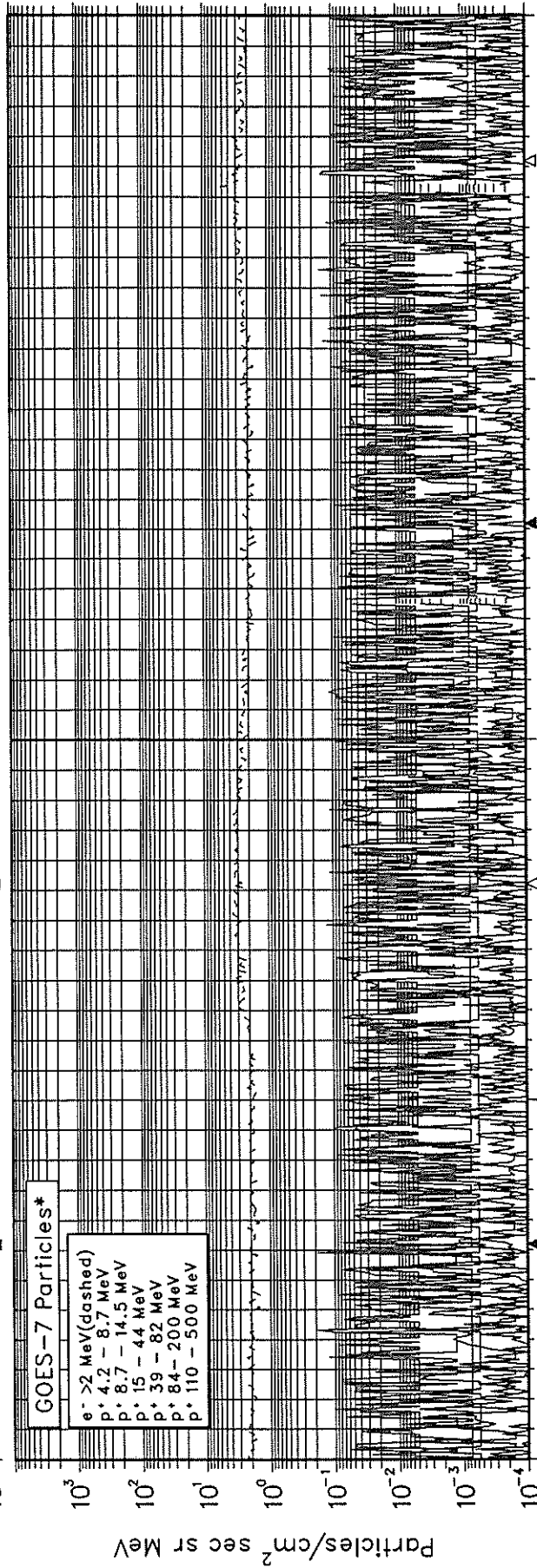
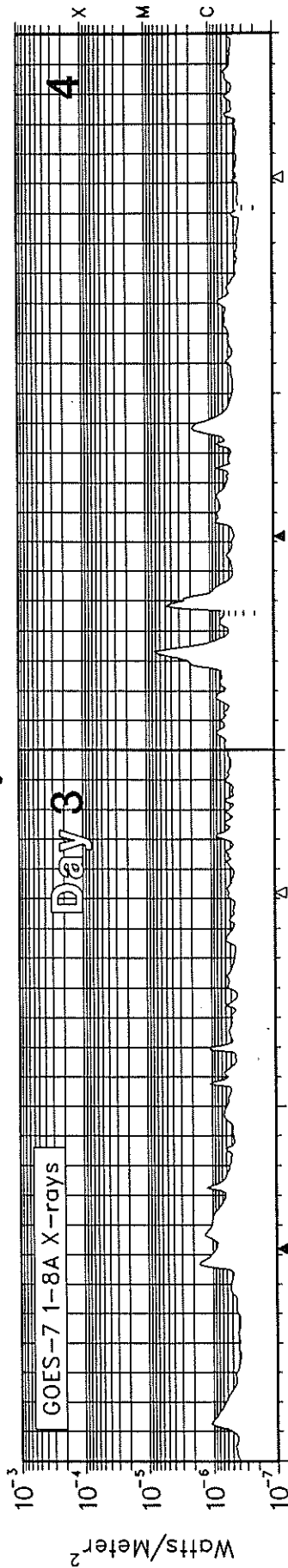
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SOLAR-TERRESTRIAL ENVIRONMENT

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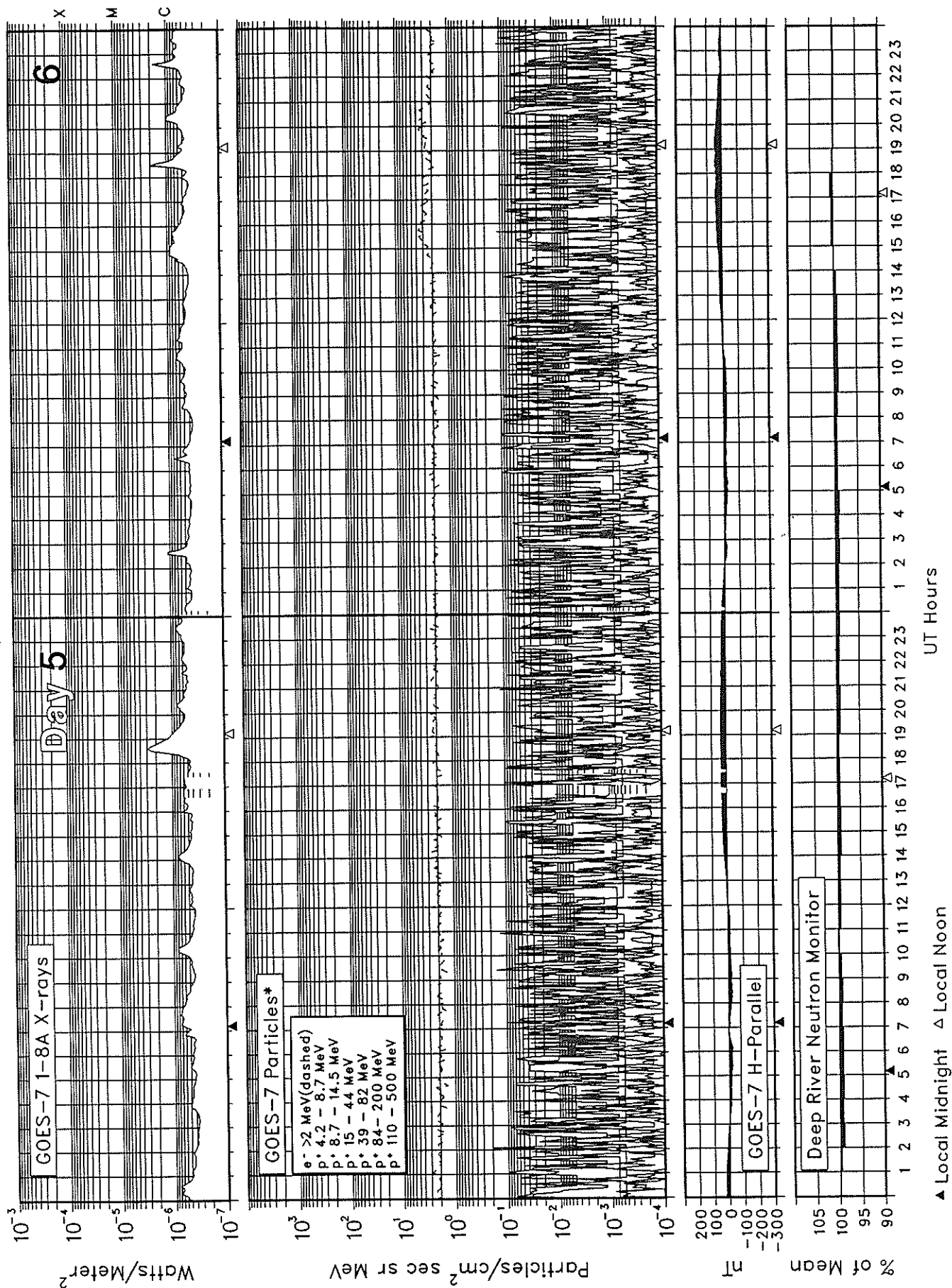


UT Hours

▲ Local Midnight ▲ Local Noon

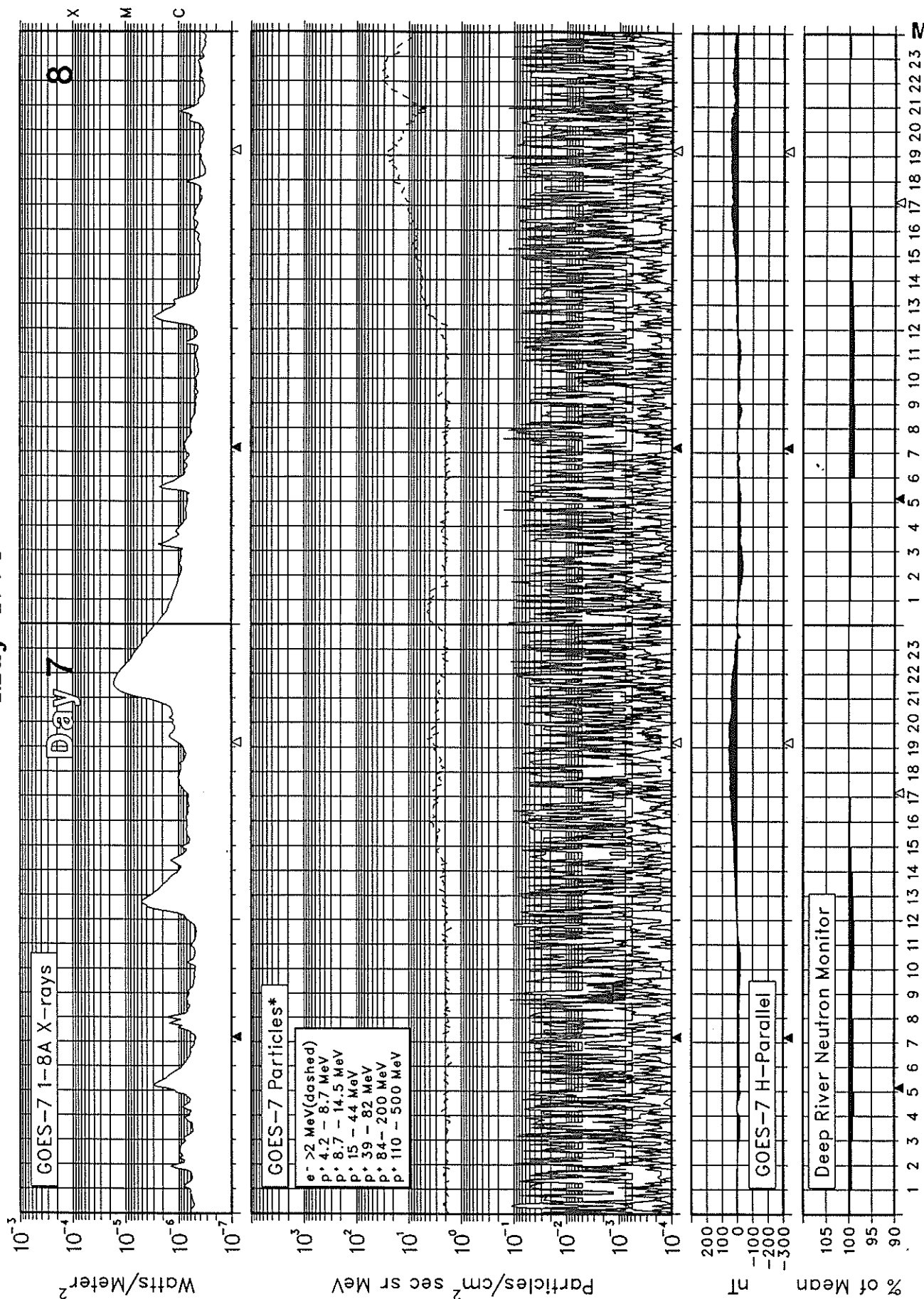
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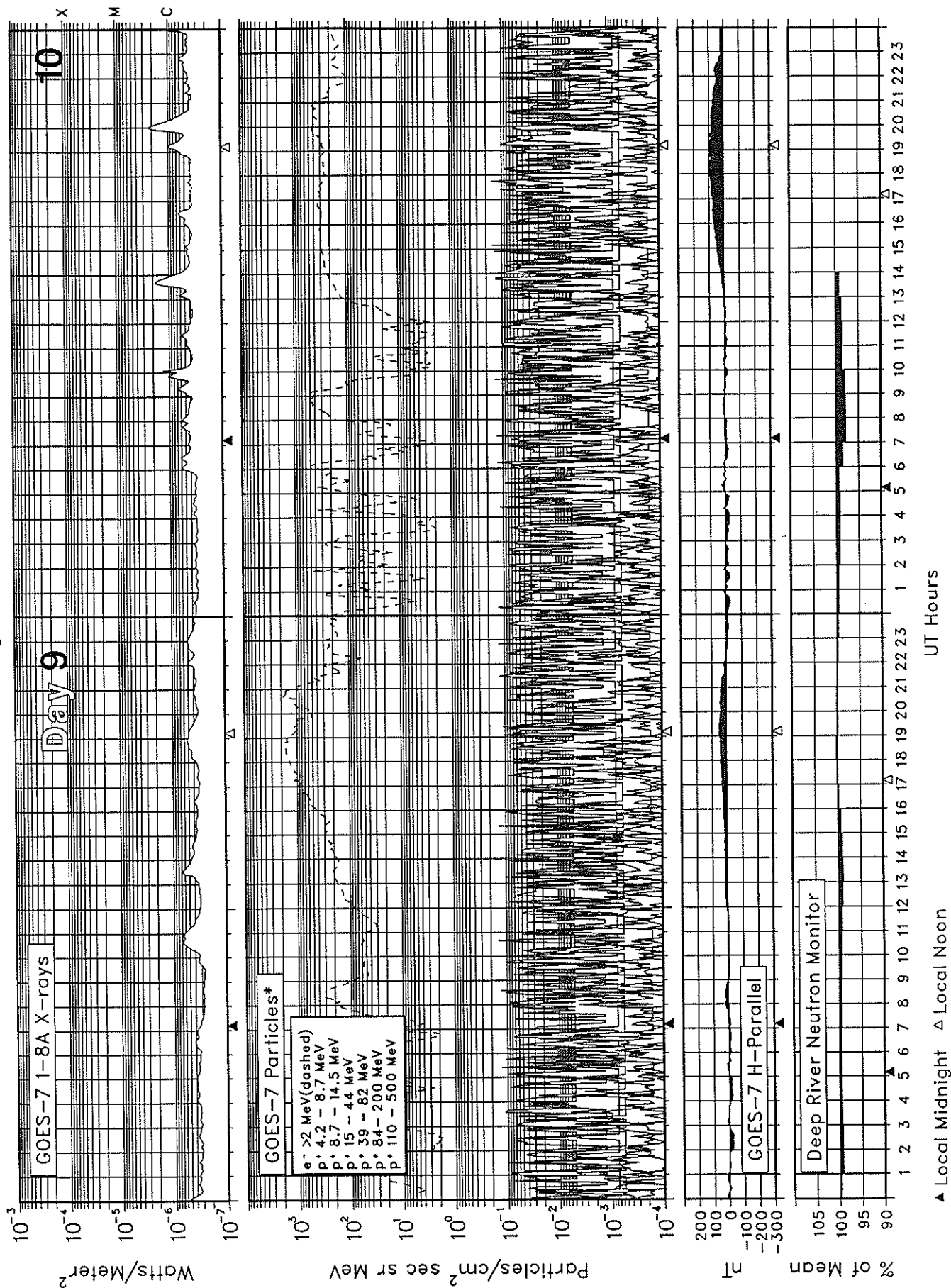


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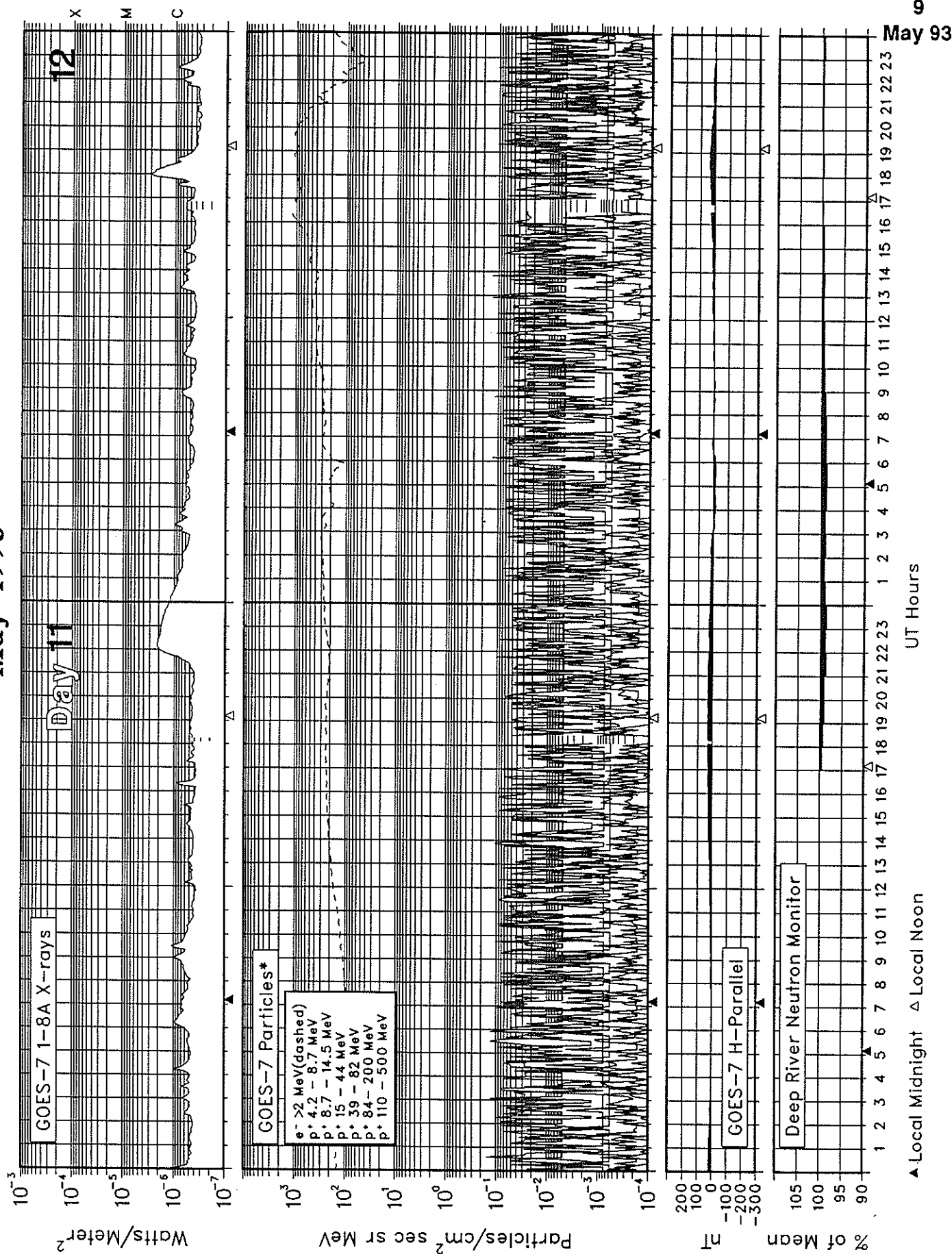
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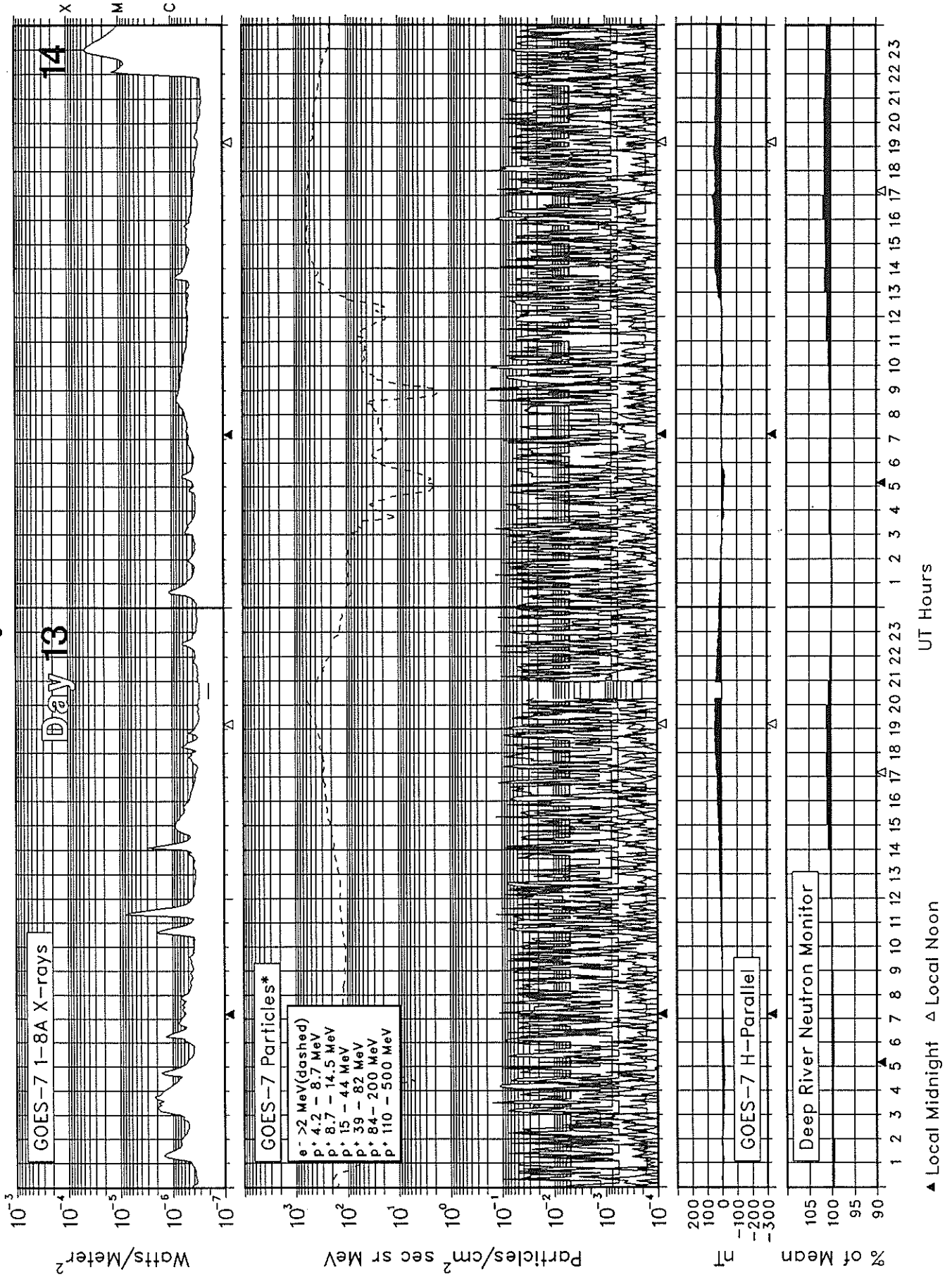
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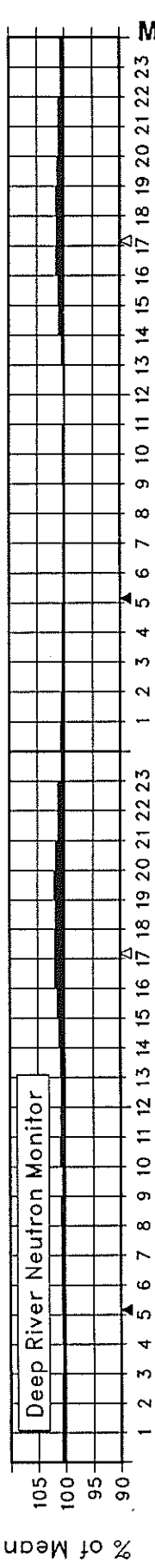
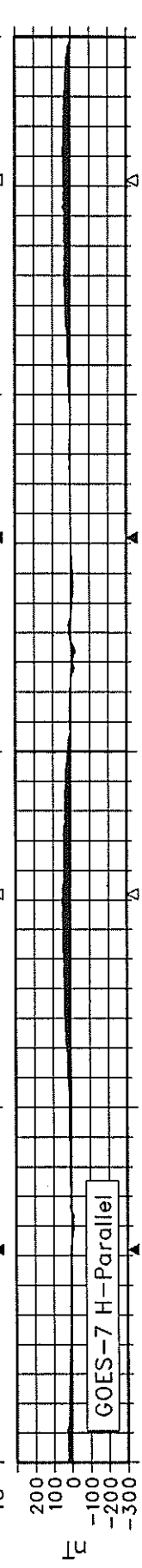
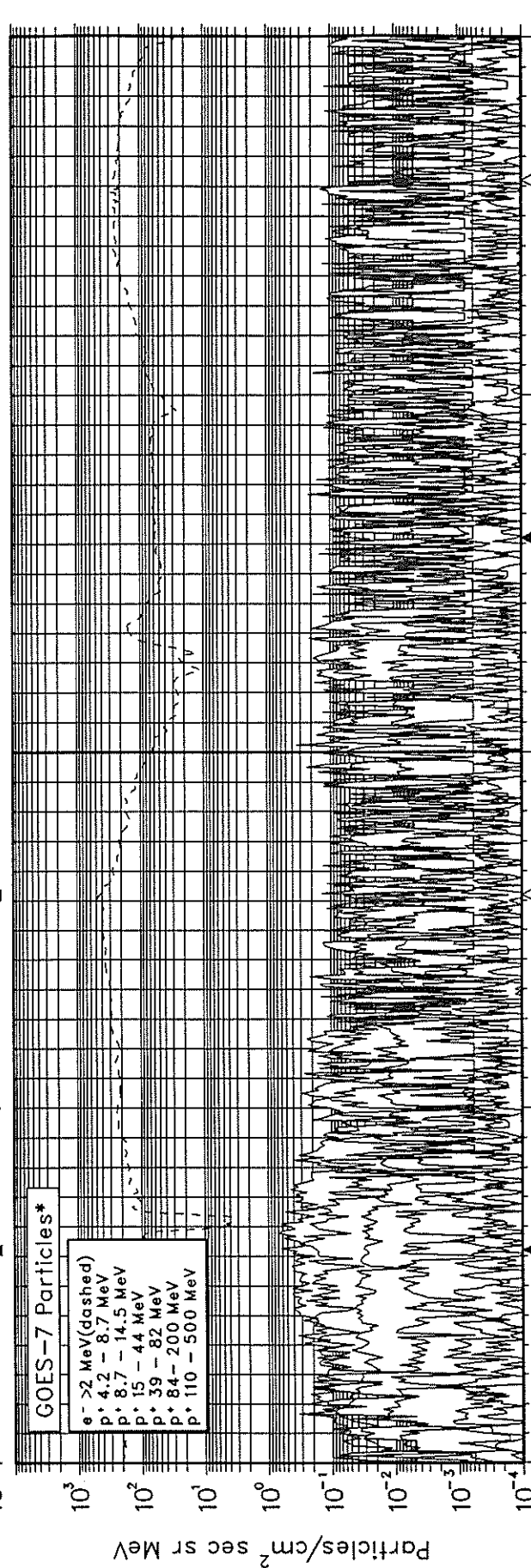
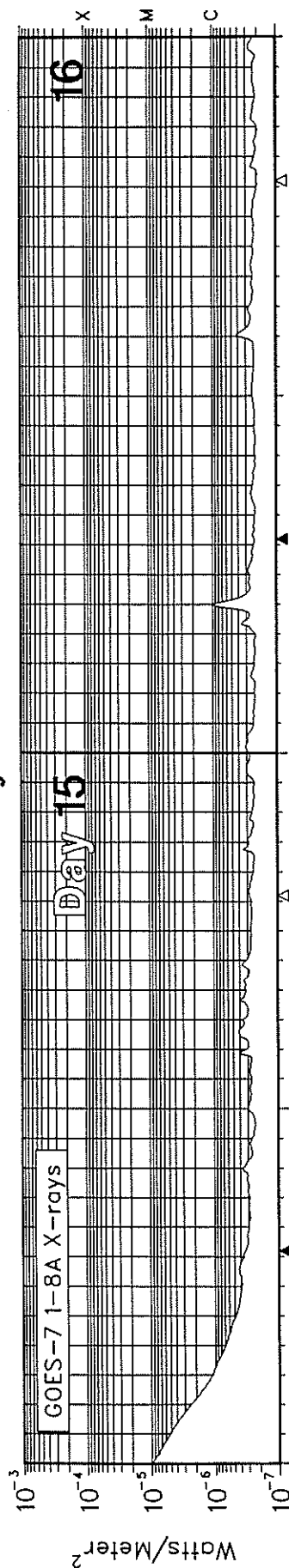
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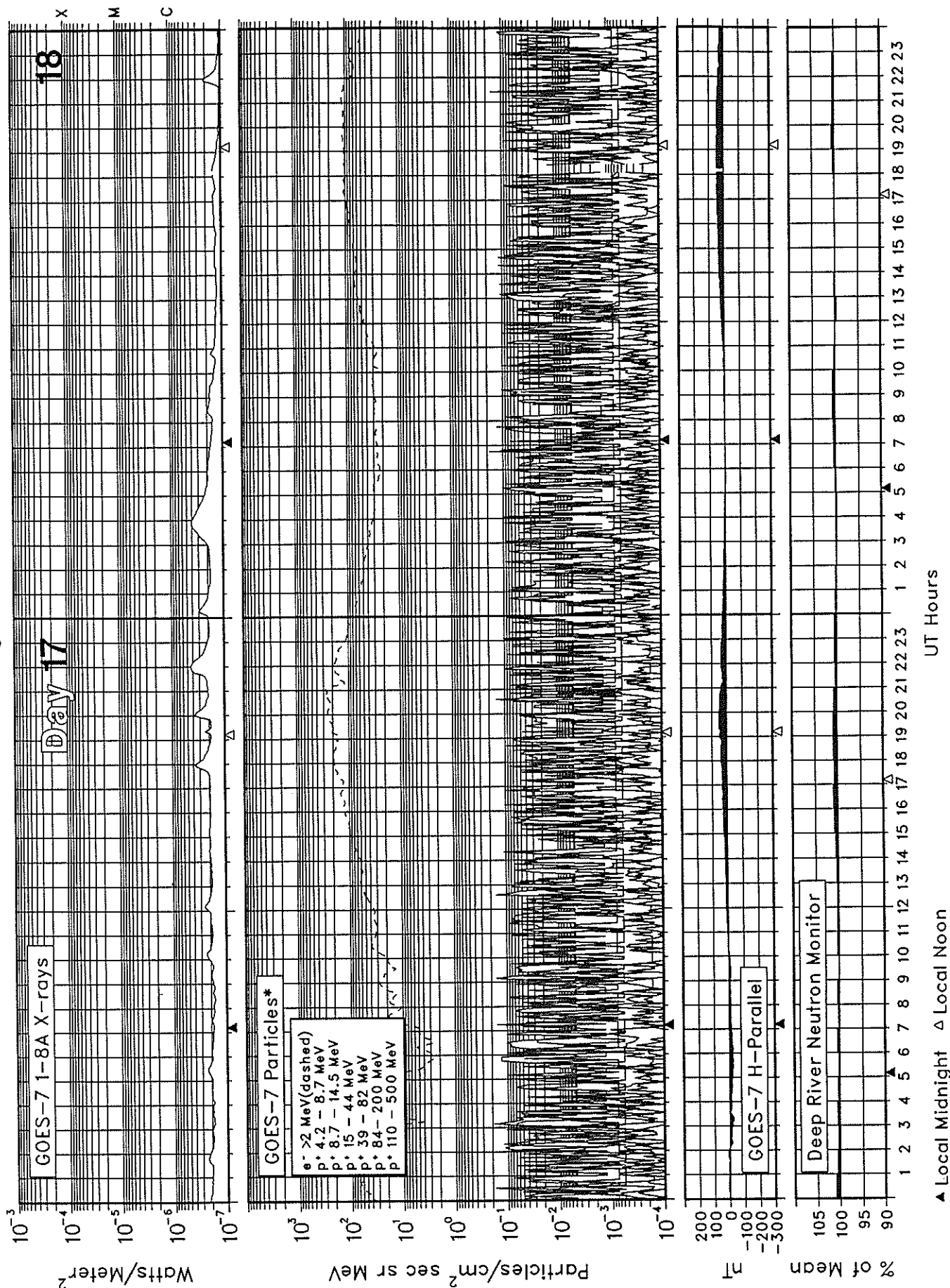
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UT Hours

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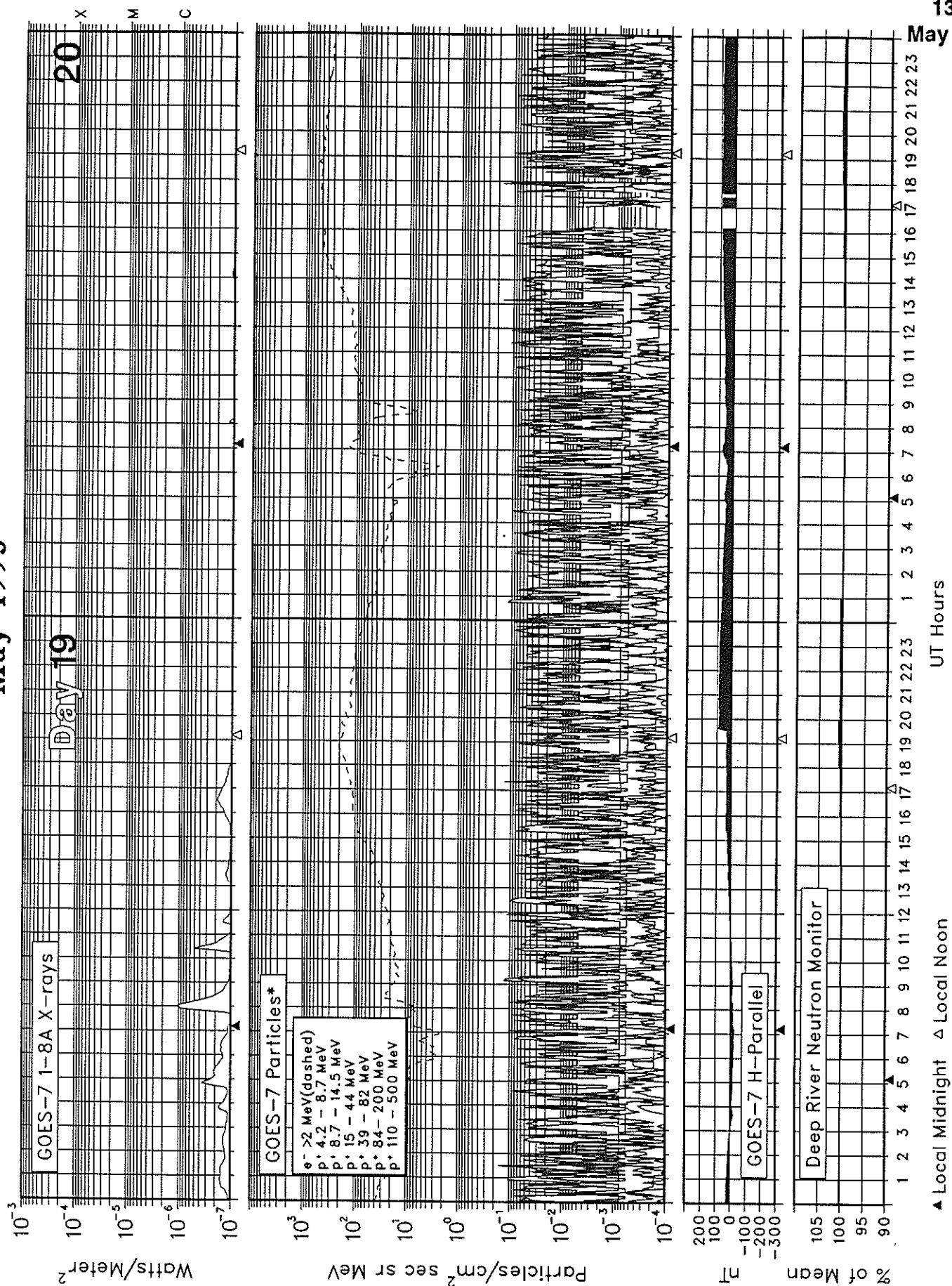
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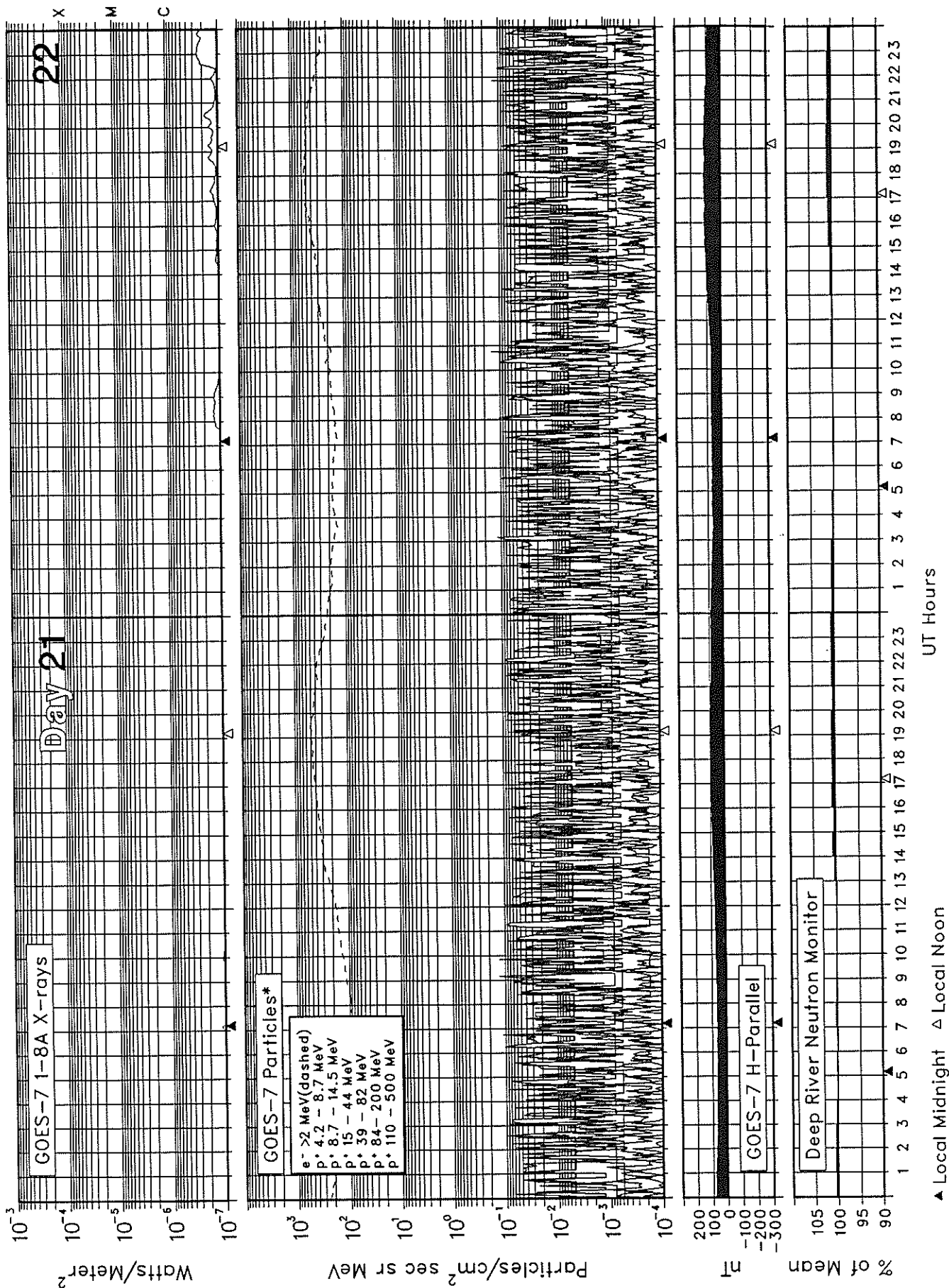
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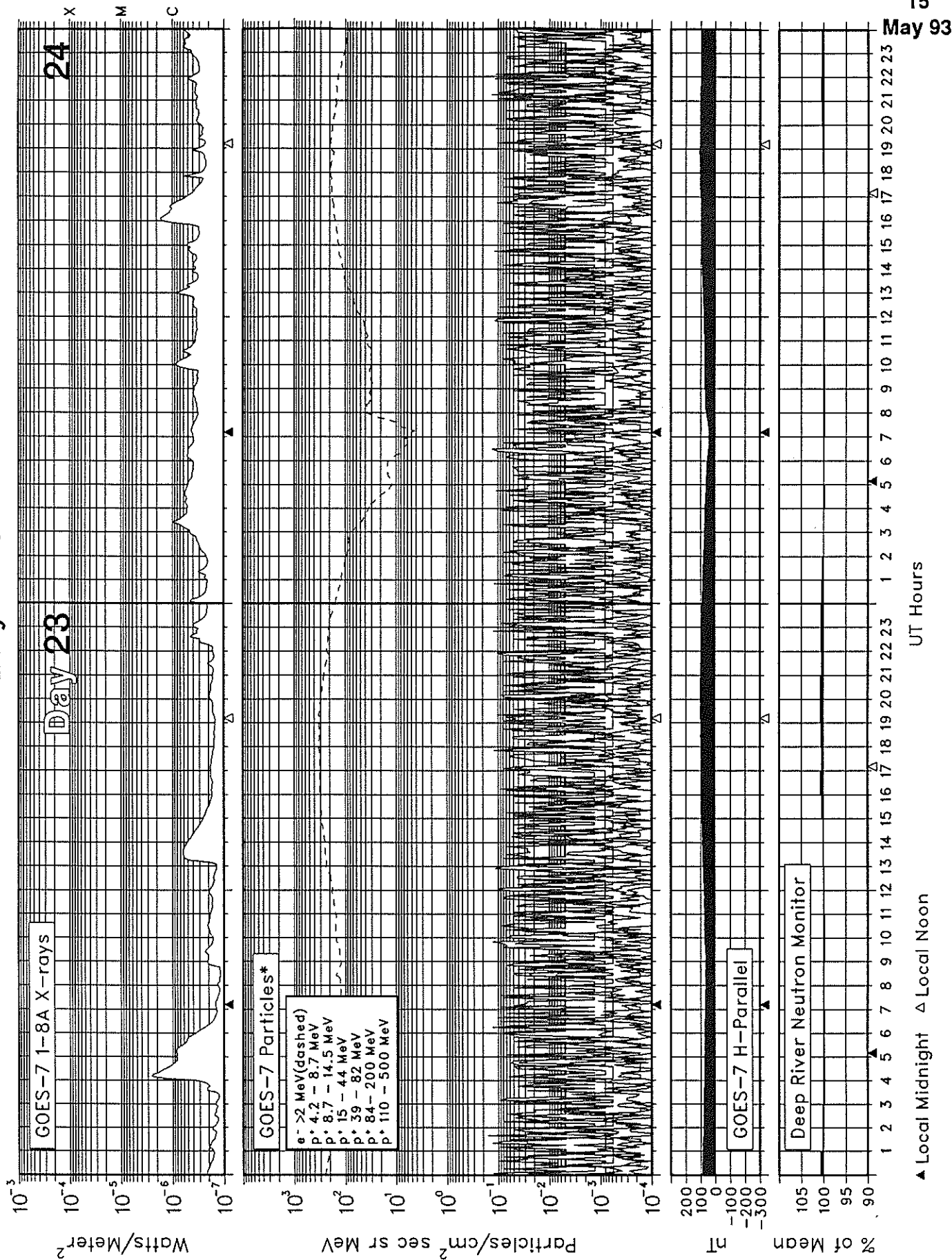
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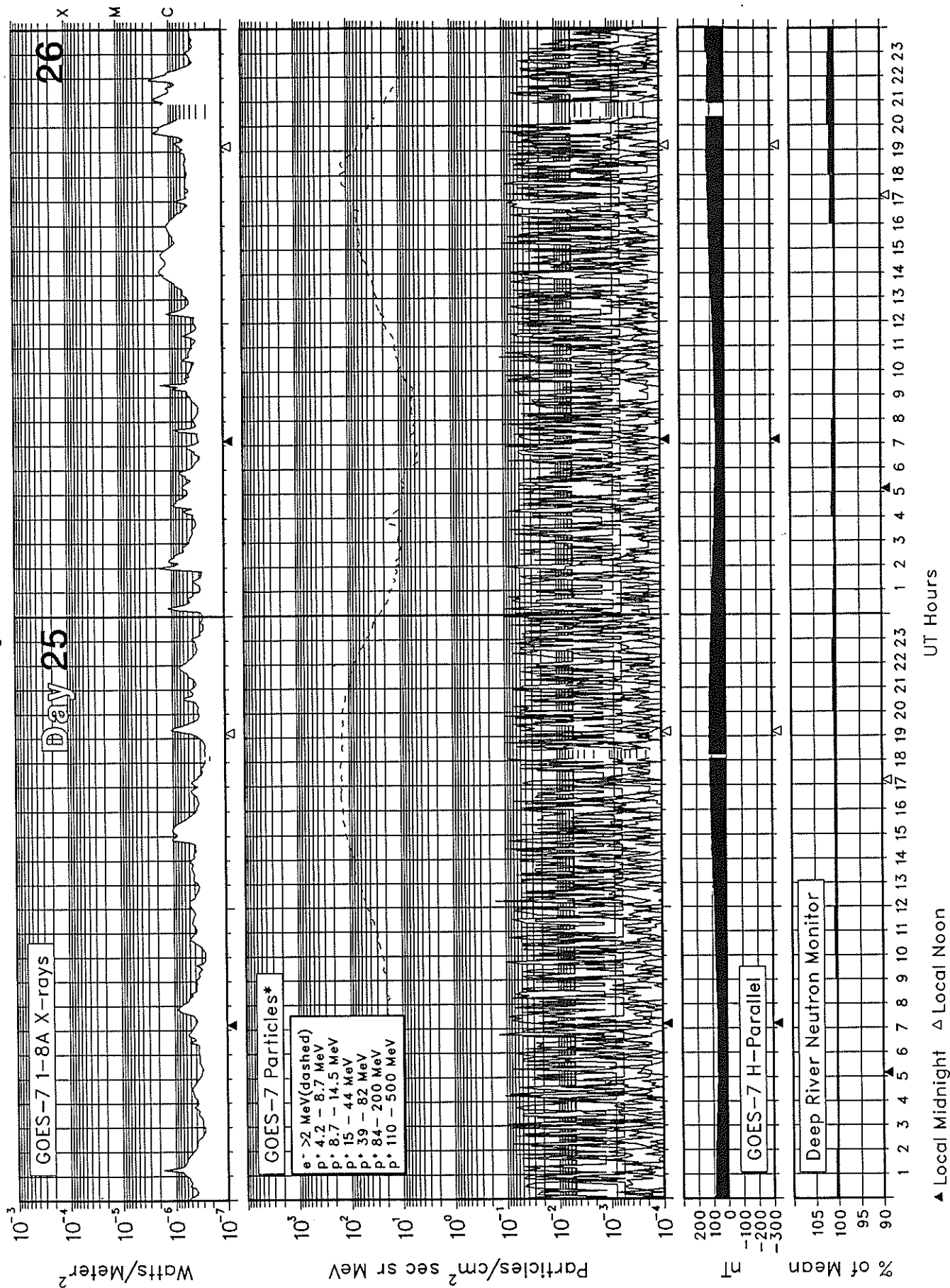
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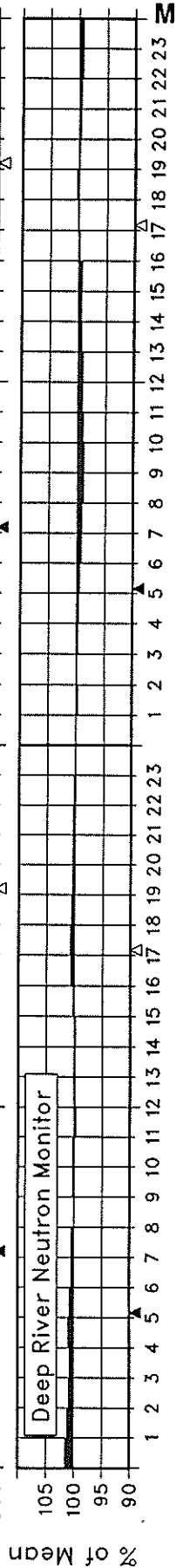
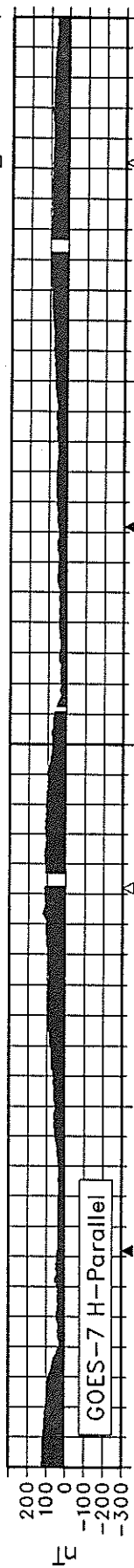
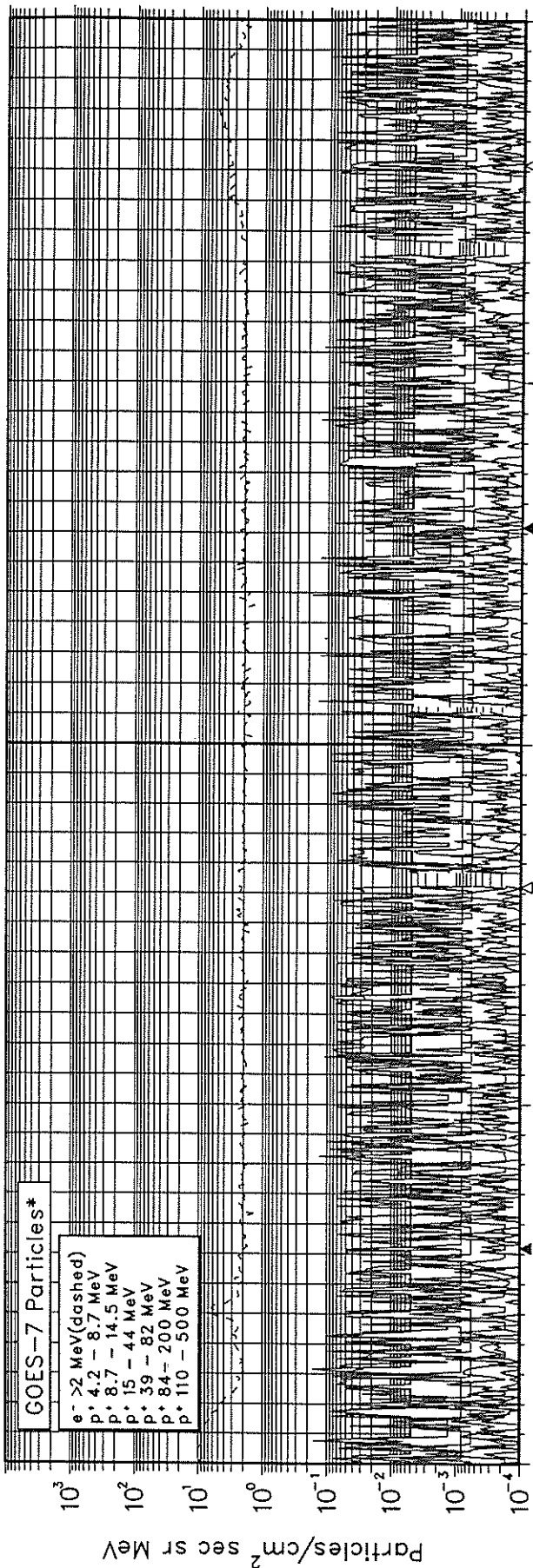
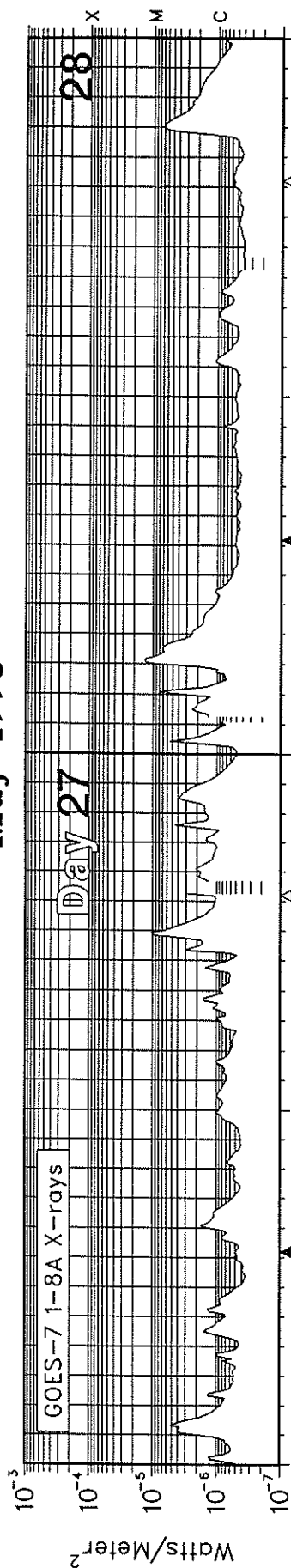
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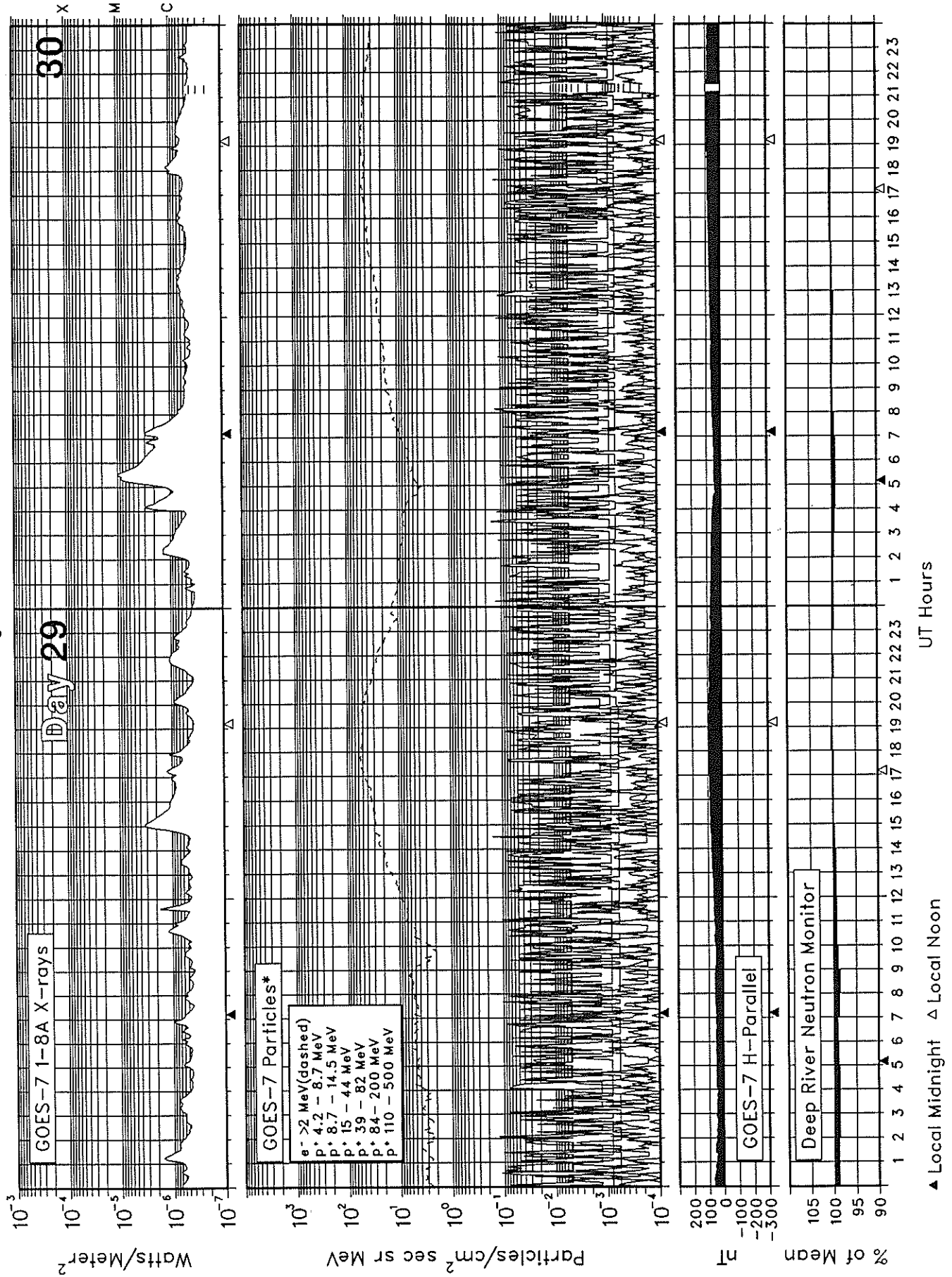
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UT Hours

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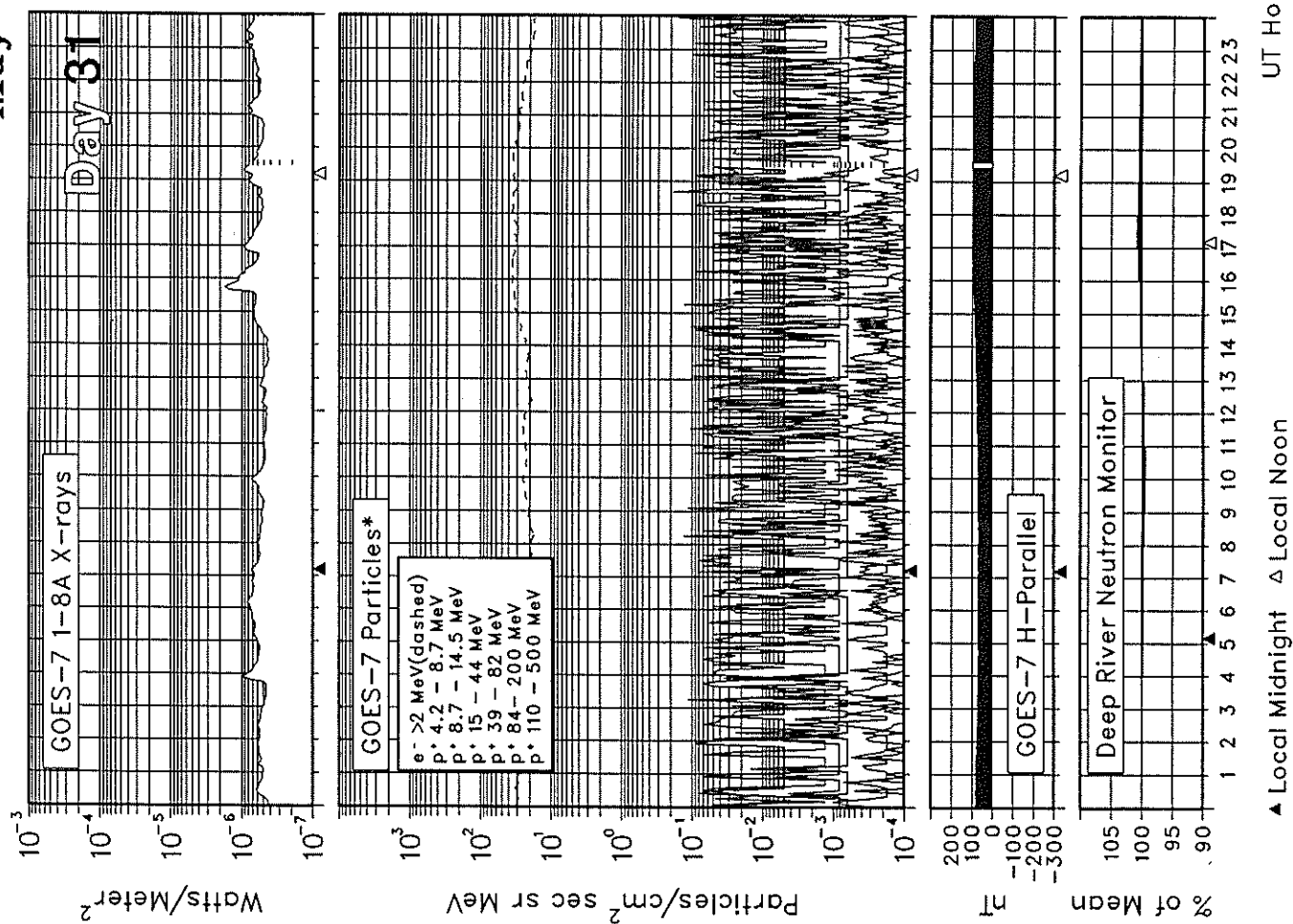
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SOLAR-TERRESTRIAL ENVIRONMENT

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages

MAY 1993

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A- index	Location		Flares			Date of Forecast	Region Forecast ¹	Geoadvice ¹
						°Lat	°Long	Total	M	X			
121	01	30	051	106	11	N08	W06	0	0	0	01	Q	SOL: Quiet
						S12	W27	0	0	0	01	Q	MAG: Active
						S11	E33	0	0	0	01	Q	PROTON: Quiet
						S04	E23	1	0	0	01	Q	
122	02	01	041	103	6	S19	W44	0	0	0	02	Q	SOL: Quiet
						N08	W19	0	0	0	02	Q	MAG: Quiet
						S12	E20	0	0	0	02	Q	PROTON: Quiet
123	03	02	042	103	5	N08	W33	0	0	0	03	Q	SOL: Quiet
						S10	E09	2	0	0	03	Q	MAG: Quiet
						N01	W33	0	0	0	03	Q	PROTON: Quiet
124	04	03	055	107	10	N09	W50	0	0	0	04	Q	SOL: Quiet
						S09	W02	1	0	0	04	Q	MAG: Quiet
						S08	W14	0	0	0	04	Q	PROTON: Quiet
						N15	E72	0	0	0	04	Q	
125	05	04	091	111	5	S20	W85	0	0	0	05	Q	SOL: Eruptive
						N09	W63	0	0	0	05	Q	MAG: Quiet
						S07	W15	0	0	0	05	Q	PROTON: Quiet
						N16	E66	3	0	0	05	E	
						S08	W49	1	0	0	05	Q	
						S22	W24	0	0	0	05	Q	
126	06	05	090	118	6	S07	W29	0	0	0	06	Q	SOL: Eruptive
						N13	E46	4	0	0	06	E	MAG: Quiet
						S07	W62	2	0	0	06	Q	PROTON: Quiet
						S23	W35	0	0	0	06	Q	
						S10	E17	0	0	0	06	Q	
						N17	E64	2	0	0	06	E	
127	07	06	084	120	10	N15	E34	0	0	0	07	Q	SOL: Eruptive
						S07	W76	1	0	0	07	Q	MAG: Quiet
						S09	E03	0	0	0	07	Q	PROTON: Quiet
						N17	E52	3	0	0	07	Q	
						S11	E09	0	0	0	07	Q	
128	08	07	108	131	14	N15	E22	5	0	0	08	E	SOL: Eruptive
						S08	W88	0	0	0	08	Q	MAG: Active
						S08	W11	0	0	0	08	Q	PROTON: Quiet
						N17	E39	5	1	0	08	E	
						S10	W03	0	0	0	08	Q	
129	09	08	104	129	37	N15	E07	4	0	0	09	E	SOL: Eruptive
						S08	W26	0	0	0	09	Q	MAG: Active
						N17	E27	1	0	0	09	E	PROTON: Quiet
						S10	W23	0	0	0	09	Q	
130	10	09	134	129	28	N15	W05	2	0	0	10	E	SOL: Eruptive
						S08	W39	0	0	0	10	Q	MAG: Active
						N17	E15	2	0	0	10	E	PROTON: Quiet
						S12	W24	0	0	0	10	Q	
						S07	E69	0	0	0	10	Q	
131	11	10	137	134	46	N15	W20	5	0	0	11	E	SOL: Eruptive
						S08	W52	1	0	0	11	Q	MAG: Active
						N17	E03	0	0	0	11	E	PROTON: Quiet
						S12	W38	1	0	0	11	Q	
						S07	E53	0	0	0	11	Q	
						N07	E70	0	0	0	11	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

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May 93

Summary of the Geolert Messages

MAY 1993

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A- index	Location		Total	Flares			Date of Forecast	Region Forecast ¹	Geoadvice ¹
						° Lat	° Long		M	X				
132	12	11	132	132	3	N14	W32	4	0	0		12	E	SOL: Eruptive MAG: Quiet PROTON: Quiet
						S08	W64	1	0	0		12	Q	
						N17	W12	5	0	0		12	E	
						S12	W50	0	0	0		12	Q	
						S06	E41	0	0	0		12	Q	
						N09	E61	0	0	0		12	Q	
133	13	12	126	126	13	N16	W45	5	0	0		13	E	SOL: Eruptive MAG: Quiet PROTON: Quiet
						S08	W81	1	0	0		13	Q	
						N18	W25	8	0	0		13	E	
						S12	W63	0	0	0		13	Q	
						S04	E27	0	0	0		13	Q	
						N09	E49	1	0	0		13	Q	
134	14	13	093	120	4	N16	W58	2	0	0		14	E	SOL: Eruptive MAG: Quiet PROTON: Quiet
						N18	W38	10	0	0		14	E	
						S03	E13	0	0	0		14	Q	
						N08	E33	0	0	0		14	Q	
135	15	14	072	112	15	N15	W71	0	0	0		15	Q	SOL: Eruptive MAG: Active PROTON: Warning
						N18	W50	3	1	0		15	E	
						N08	E21	0	0	0		15	Q	
						N12	E63	0	0	0		15	Q	
136	16	15	053	104	8	N15	W85	0	0	0		16	Q	SOL: Eruptive MAG: Active PROTON: Quiet
						N17	W64	0	0	0		16	E	
						N09	E07	0	0	0		16	Q	
						N13	E51	0	0	0		16	Q	
137	17	16	062	099	13	N17	W79	0	0	0		17	Q	SOL: Eruptive MAG: Active PROTON: Quiet
						N09	W06	0	0	0		17	Q	
						N13	E38	0	0	0		17	Q	
						N13	E05	0	0	0		17	Q	
						N11	E70	0	0	0		17	Q	
138	18	17	049	096	16	N17	W88	0	0	0		18	Q	SOL: Quiet MAG: Quiet PROTON: Quiet
						N10	W18	0	0	0		18	Q	
						N14	W06	0	0	0		18	Q	
						N10	E56	0	0	0		18	Q	
						N17	E13	0	0	0		18	Q	
139	19	18	039	091	4	N10	W32	1	0	0		19	Q	SOL: Quiet MAG: Quiet PROTON: Quiet
						N14	W20	0	0	0		19	Q	
						S17	W05	0	0	0		19	Q	
140	20	19	047	091	10	N10	W45	2	0	0		20	Q	SOL: Quiet MAG: Quiet PROTON: Quiet
						S18	W15	0	0	0		20	Q	
						S18	E74	0	0	0		20	Q	
						S13	W29	0	0	0		20	Q	
141	21	20	048	091	11	N10	W57	1	0	0		21	Q	SOL: Quiet MAG: Quiet PROTON: Quiet
						N10	W50	0	0	0		21	Q	
						S18	E64	0	0	0		21	Q	
						S13	W42	0	0	0		21	Q	
142	22	21	034	091	2	N10	W70	1	0	0		22	Q	SOL: Quiet MAG: Quiet PROTON: Quiet
						N10	W65	0	0	0		22	Q	
						S18	E50	0	0	0		22	Q	
143	23	22	022	092	1	N10	W84	0	0	0		23	Q	SOL: Quiet MAG: Quiet PROTON: Quiet
						S17	E38	0	0	0		23	Q	
						S18	E50	0	0	0		23	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages

MAY 1993

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location		Flares			Date of Forecast	Region Forecast ¹	Geo advice ¹
						° Lat	° Long	Total	M	X			
144	24	23	013	095	1	S20	E26	0	0	0	24	Q	SOL: Quiet
						S17	E38	0	0	0	24	Q	MAG: Quiet
						S18	E50	0	0	0	24	Q	PROTON: Quiet
145	25	24	038	098	2	S19	E12	0	0	0	25	Q	SOL: Quiet
						N08	E63	4	0	0	25	Q	MAG: Quiet
						N03	E54	0	0	0	25	Q	PROTON: Quiet
146	26	25	055	100	0	S18	W01	0	0	0	26	Q	SOL: Eruptive
						N08	E49	2	0	0	26	Q	MAG: Quiet
						N04	E40	1	0	0	26	Q	PROTON: Quiet
						N15	E72	2	0	0	26	E	
147	27	26	088	108	2	S18	W14	0	0	0	27	Q	SOL: Eruptive
						N08	E36	0	0	0	27	Q	MAG: Quiet
						N03	E28	0	0	0	27	Q	PROTON: Quiet
						N16	E56	1	0	0	27	E	
						N14	E63	16	0	0	27	E	
						S10	E11	0	0	0	27	Q	
148	28	27	097	120	15	N08	E23	3	0	0	28	Q	SOL: Eruptive
						N02	E18	0	0	0	28	Q	MAG: Active
						N17	E43	2	0	0	28	Q	PROTON: Quiet
						N14	E51	11	1	0	28	E	
						N08	E74	0	0	0	28	Q	
149	29	28	105	126	18	N08	E10	2	0	0	29	Q	SOL: Eruptive
						N02	E05	0	0	0	29	Q	MAG: Active
						N17	E30	1	0	0	29	Q	PROTON: Quiet
						N13	E37	6	0	0	29	E	
						N08	E63	0	0	0	29	Q	
150	30	29	130	129	9	S24	W52	0	0	0	30	Q	SOL: Active
						N08	W04	2	0	0	30	Q	MAG: Quiet
						N02	W14	0	0	0	30	Q	PROTON: Quiet
						N17	E16	0	0	0	30	Q	
						N14	E24	13	0	0	30	A	
						N08	E50	1	0	0	30	Q	
151	31	30	130	140	3	N08	W16	0	0	0	31	Q	SOL: Active
						N17	E04	1	0	0	31	Q	MAG: Quiet
						N14	E11	6	1	0	31	A	PROTON: Quiet
						N08	E38	0	0	0	31	Q	
						S10	E71	0	0	0	31	Q	

¹ Region Forecast and Flare Geoadvice

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%)
Warning condition (activity levels expected to increase, but no
numeric forecast given)
Nil (end of Alert period)
No forecast

Magnetic Geoadvice

Quiet
Active conditions expected (A>=20 or K=4)
Minor storm expected (A>=30 or K=5)
Major magstorm expected (A>=50 or K>=6)
Severe magstorm expected (A>=100 or K>=7)
Magstorm in progress (A>=30 or K>=4)
Warning condition (activity levels expected
to increase, but no numeric forecast given)
Nil (end of Alert period)
No forecast

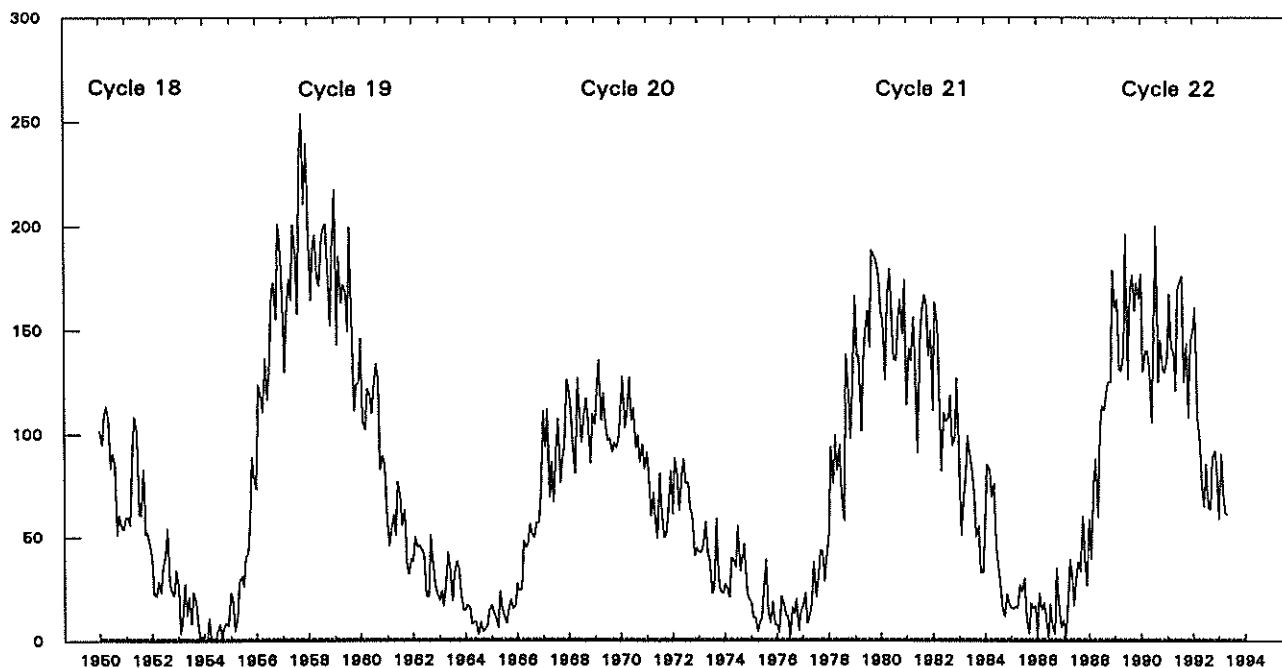
Proton Geoadvice

Quiet
Proton event expected (10 pfu at >10 MeV)
Major proton event expected (100 pfu at >100 MeV)
Proton event in progress (>10 MeV)
Warning condition (activity levels expected to increase, but no
numeric forecast given)
Nil (end of Alert period)
No forecast

STRATWARM ALERTS

No STRATWARM ALERTS this month.

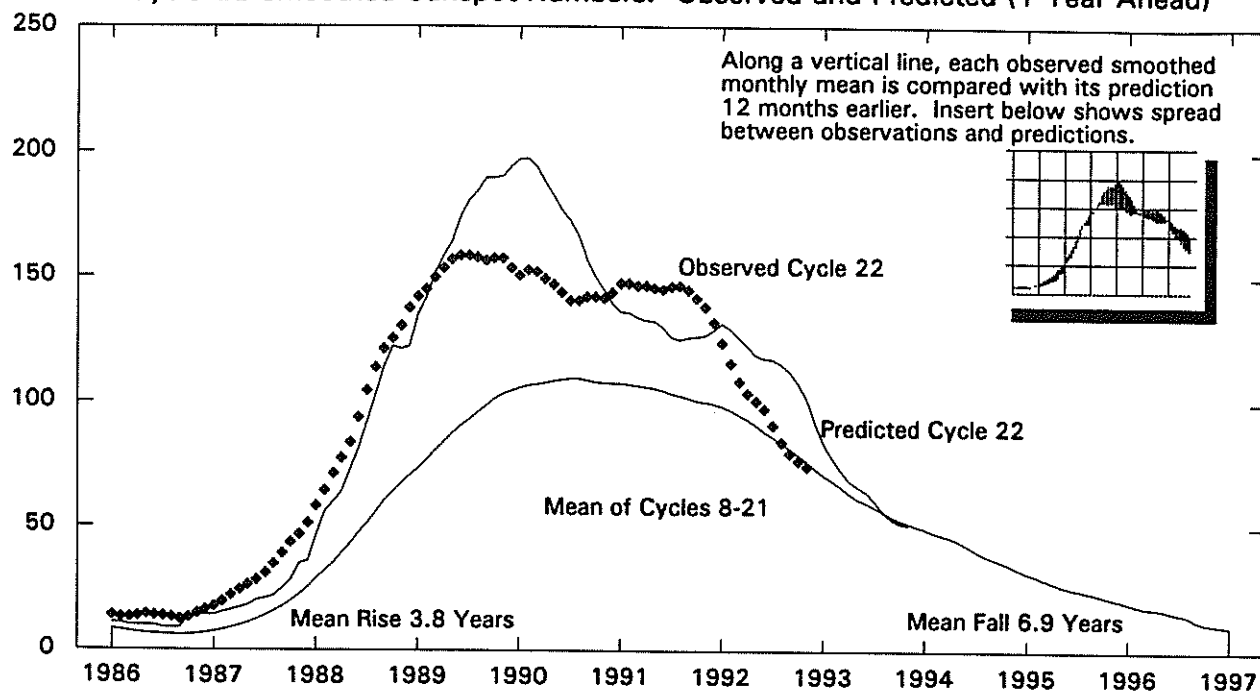
Monthly Mean Sunspot Numbers Jan 1950 - May 1993



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	112.3
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	59.1	90.5	70.5	61.9	61.2								68.6

Values are preliminary since Jan 1993. For the yearly means, each 'M' marks a sunspot cycle maximum and each 'm' a minimum.

Cycle 22 Smoothed Sunspot Numbers: Observed and Predicted (1 Year Ahead)



Smoothed Sunspot Numbers (Observed and Predicted) for Parts of Solar Cycles 21 and 22

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
1986	14	13	13	14	14	14	14	13	12	13	15	16	14
1987	18	20	22	24	26	28	31	35	39	44	47	51	32
1988	58	65	71	78	84	94	104	114	121	125	130	138	98
1989	142	145	150	154	157	158	158	158	157	157	158	154	154
1990	151	153	152	149	147	144	141	140	142	142	142	144	146
1991	148	148	147	146	146	145	146	147	145	142	138	132	144
1992 ()	124	115	108	103	100	97	91	84	80	76	74	72 (2)	94 (2)
1993 ()	69 (3)	68 (5)	65 (7)	62 (8)	60 (9)	59 (10)	57 (11)	55 (13)	54 (15)	52 (16)	51 (18)	50 (19)	58 (12)
1994 ()	48 (20)	47 (20)	46 (21)	45 (21)	44 (22)	42 (22)	40 (23)	38 (24)	37 (25)	35 (25)	34 (26)	33 (26)	41 (23)

Solar Cycle 21

Solar Cycle 22

Min, Max, and Predictions

September 1986 marks the minimum of Solar Cycle 21 and the onset of Cycle 22, which in turn, reached a maximum in July 1989.

Observed and Predicted Numbers. For the end of Cycle 21, and the rise and decline of Cycle 22, 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 1992 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 November 1993 prediction. There exists a 90% chance that in November 1993 the actual smoothed number will fall somewhere between 33 and 69.

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 14 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 12.3 that occurred in Sep 1986.

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May 93

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

Day	Jun 92	Jul	Aug	Sep	Oct	Nov	Dec	Jan [†] 93	Feb [†]	Mar [†]	Apr [†]	May [†]
01	31	78	65	47	85	104	65	46	22	86	67	33
02	38	66	90	49	98	88	56	37	34	80	67	30
03	72	63	103	44	95	68	59	36	69	84	75	42
04	74	71	103	46	105	86	59	52	85	98	67	69
05	81	78	94	47	122	95	51	66	119	105	75	80
06	70	77	89	52	113	95	48	84	129	96	89	71
07	64	79	86	44	103	96	34	81	128	93	79	74
08	60	83	93	38	88	74	63	89	134	82	81	81
09	70	102	93	57	91	76	91	94	126	89	87	87
10	74	129	74	54	73	74	99	100	114	81	74	120
11	82	133	60	59	57	84	116	91	95	86	55	125
12	102	132	53	63	41	83	109	94	97	77	37	111
13	86	126	61	77	36	62	113	107	92	67	19	85
14	77	151	82	77	43	69	115	69	78	56	15	59
15	60	161	76	75	40	70	112	58	73	60	15	51
16	64	159	96	76	54	84	109	59	84	56	15	37
17	64	140	90	62	55	100	105	62	68	60	36	32
18	59	102	71	54	73	102	98	66	78	69	49	29
19	63	88	69	63	92	108	97	68	88	72	51	13
20	56	66	59	62	75	98	97	52	97	70	89	33
21	55	65	48	65	98	85	84	47	92	78	98	27
22	69	67	44	66	104	95	91	34	100	73	93	20
23	73	54	36	89	95	115	79	30	101	63	96	23
24	70	43	38	90	114	122	78	45	90	42	98	33
25	64	37	20	75	113	125	81	51	88	40	88	53
26	59	54	30	84	125	116	90	37	86	46	50	66
27	38	61	34	86	138	116	73	38	86	51	62	59
28	43	53	33	62	131	99	86	37	82	51	51	74
29	70	39	40	72	111	92	78	35		54	41	88
30	67	47	35	81	100	74	69	36		58	38	97
31		53	36		82		56	32		61		96
Mean	65.2	85.7	64.5	63.9	88.7	91.8	82.6	59.1	90.5	70.5	61.9	61.2

[†]=preliminary. The yearly mean sunspot number equals 94.3 for 1992.

Dominion Radio Observatory PENTICTON 2800 MHz (10.7 cm) SOLAR FLUX Adjusted to 1 AU

Day	Jun 92	Jul	Aug	Sep	Oct	Nov	Dec	Jan 93	Feb	Mar	Apr	May
01	101.4	134.1	113.6	101.6	118.2	144.8	127.1	118.3	121.5	129.6	123.5	104.2
02	105.0	141.2	128.2	106.3	119.5	138.8	126.0	117.4	124.7	141.0	120.7	104.7
03	110.1	141.1	135.1	108.9	120.2	132.9	121.3	120.6	133.0	148.6	117.0	108.9
04	111.5	141.3	134.7	106.4	126.1	140.4	115.9	117.1	143.2	163.8	116.4	112.4
05	118.4	150.6	134.3	121.2	130.1	133.6	112.4	120.8	155.6	162.5	118.9	120.0
06	123.2	155.4	141.9	141.3	137.3	130.5	115.9	125.8	178.8	164.0	133.1	122.2
07	119.2	159.9	145.4	133.6	135.8	132.4	116.1	126.3	171.2	150.9	130.0	133.0
08	118.7	156.6	147.5	130.8	125.4	129.7	124.8	128.6	183.4	144.3	143.5	131.2
09	122.3	165.0	141.1	118.5	121.0	129.9	129.6	124.5	180.3	140.6	136.0	131.5
10	129.3	175.7	136.3	118.4	112.1	133.7	137.5	127.7	175.0	146.7	139.2	136.8
11	133.1	173.9	133.9	120.1	110.0	132.0	159.0	127.4	168.8	148.0	119.4	134.7
12	130.6	177.8	131.7	118.7	106.5	124.7	163.1	135.6	144.9	158.7	103.7	129.0
13	127.5	181.4	132.3	128.8	108.2	122.2	167.6	136.6	131.7	139.9	97.7	122.4
14	127.2	181.3	132.0	123.1	104.9	123.4	161.8	128.8	137.9	134.2	92.8	114.6
15	124.7	173.3	133.8	121.5	97.8	124.1	150.4	121.9	131.6	129.7	88.8	106.7
16	122.9	162.8	140.0	127.9	99.9	133.7	145.8	129.1	130.5	120.5	90.0	101.1
17	134.4	140.4	137.1	120.6	105.8	148.9	145.5	121.9	121.4	122.4	96.5	98.4
18	119.8	130.2	132.7	118.5	111.4	158.2L	144.9	117.7	123.2	126.2	106.6	93.5
19	119.1	122.3	138.0	113.4	123.4	157.1	142.2	112.7	113.4	133.4	111.9	93.1
20	116.8	127.5	159.1	107.1	131.9	155.0	143.2	106.5	120.6	127.0	119.9	93.4
21	121.3	111.8	127.8	110.4	139.2	161.3K	140.8	103.3	120.3	129.7	120.5	93.3
22	120.0	107.7	124.4	112.3	149.2	162.0	137.6	101.0	130.3	126.6	118.4	94.1
23	125.5	101.9	113.2	112.6	140.3	171.7	139.3	102.7	129.6	120.1	122.9	97.3
24	121.8	103.2	104.0	112.6	145.1	169.4	132.0	101.6	132.7	114.4	130.3	100.9
25	127.4	101.5	100.1	116.5	159.4	162.4	132.0	102.6	125.5	116.0	126.2	102.4
26	115.3	104.3	94.4	117.3	167.9	158.2	127.2	103.3	123.8	116.4	125.0	110.4
27	113.1	103.4	95.8	121.6	168.9	152.6	121.2	107.6	121.6	122.4	119.6	122.7
28	112.0	98.5	97.6	116.6	172.3	144.7	123.4	108.6	121.4	125.8	115.2	129.2
29	114.4	101.1	97.1	117.7	161.6	136.0	121.3	110.7		128.3	108.1	132.5
30	127.0	99.9	96.6	116.2	225.8*	135.9	121.9	109.6		128.7	107.4	144.1
31		106.3	99.0		147.3		125.8	115.6		124.9		142.1
Mean	120.4	136.5	125.1	118.0	130.0*	142.0	134.6	117.2	139.1	135.0	116.7	114.9

* = corrected for burst in progress; K = wet snow on antenna (2300 UT measurement); L = value enhanced by burst

DAILY SOLAR INDICES

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May 93

May 1993

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers		Obs Flux Penticton (2800)	Solar Flux Adjusted to 1 Astronomical Unit								
			Int	Amer		LEAR (15400)	LEAR (8800)	LEAR (4995)	Pentic (2800)	LEAR (2695)	LEAR (1415)	LEAR (610)	LEAR (410)	LEAR (245)
01	121	1	33	28	102.6	537	234	148	104.2	101	84	47	27	13
02	122	2	30	24	103.1	539	242	147	104.7	100	80	55	30	14
03	123	3	42	42	107.1	539	245	150	108.9	99	81	54	30	15
04	124	4	69	61	110.6	545	254	160	112.4	108	80	55	30	15
05	125	5	80	64	117.9	547	253	161	120.0	111	80	53	30	20
06	126	6	71	65	120.0	537	252	166	122.2	117	83	50	29	19
07	127	7	74	67	130.6	544	260	173	133.0	120	85	52	30	15
08	128	8	81	79	128.7	540	259	176	131.2	121	84	51	28	15
09	129	9	87	93	129.0	538	250	179	131.5	127	88	52	30	16
10	130	10	120	105	134.1	517	250	184	136.8	118	89	50	29	16
11	131	11	125	106	132.0	551	259	190	134.7	128	87	52	29	15
12	132	12	111	99	126.4	550	255	179	129.0	124	84	51	29	14
13	133	13	85	77	119.8	500	256	181	122.4	117	88	53	29	13
14	134	14	59	50	112.1	546	248	164	114.6	113	85	54	30	14
15	135	15	51	39	104.4	541	247	156	106.7	105	78	52	30	15
16	136	16	37	31	98.8	529	240	147	101.1	98	78	53	31	15
17	137	17	32	28	96.2	534	238	143	98.4	93	73	52	30	15
18	138	18	29	17	91.3	473	224	138	93.5	91	73	49	30	14
19	139	19	13	20	90.9	---	---	---	93.1	---	---	---	---	---
20	140	20	33	30	91.1	521	233	137	93.4	89	73	52	30	15
21	141	21	27	22	91.0	521	233	137	93.3	90	69	55	31	15
22	142	22	20	12	91.8	512	232	138	94.1	89	70	50	30	16
23	143	23	23	14	94.9	---	229	139	97.3	93	72	52	30	15
24	144	24	33	28	98.4	523	235	143	100.9	94	71	52	31	16
25	145	25	53	41	99.8	525	242	148	102.4	99	76	52	31	17
26	146	26	66	51	107.5	523	243	148	110.4	100	76	53	31	16
27	147	27	59	62	119.5	---	---	176	122.7	118	82	58	32	17
28	148	1	74	78	125.8	531	264	184	129.2	127	87	58	32	15
29	149	2	88	86	129.0	552	257	175	132.5	128	91	62	33	15
30	150	3	97	90	140.1	544	256	181	144.1	132	95	58	33	15
31	151	4	96	92	138.2	502	249	182	142.1	139	96	63	37	17
Mean			61.2	54.9	112.4	531	246	161	114.9	110	81	53	30	15

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

The observed and the adjusted Penticton fluxes tabulated here are the "Series C" daily values reported by the Dominion Radio Astrophysical Observatory, Penticton, British Columbia, Canada. Numbers in parentheses in the column headings denote frequencies in MHz.

Equipment problems produced any gaps in the Air Weather Service's Learmonth (LEAR) observations.

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May 93

H α SOLAR FLARES

MAY 1993

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement		Remarks
																Apparent (10-6 Disk)	Corr (Sq Deg)	
GOES	01	2249	2337	2431						102				C 5.9				
PALE	02	0050	0050	0100	S03	E08	7494	05	2.6	100	SF		3	E		11		
HOLL		1919	1922	1931	S10	E12	7493	05	3.7	12	SF		3	E		17		
HOLL		1953	2050	2100	S07	E13	7493	05	3.8	67	SF	B 7.1	3	E		12		F
GOES	03	0055	0117	0145						50				C 1.1				
GOES		0632	0645	0700						28				C 1.6				
GOES		0728	0740	0756						28				C 1.3				
GOES		0912	0918	0924						12				C 1.2				
GOES		1026	1034	1039						13				B 6.5				
GOES		1243	1249	1254						11				C 1.1				
GOES		1353	1400	1405						12				C 1.3				
HOLL		1422	1423	1436	S12	E04	7493	05	3.9	14	SF		3	E		13		F
GOES		1523	1526	1532						9				B 6.3				
HOLL		1822	1827	1849	S06	W34		05	1.2	27	SF		3	E		18		
HOLL		1950	1951	2003	S07	W35		05	1.2	13	SF		3	E		13		H
GOES	04	0250	0321	0327						37				C 8.3				
GOES		0442	0454	0502						20				C 5.0				
GOES		0739	0744	0808						29				B 8.5				
GOES		0929	0933	0936						7				B 8.5				
GOES		1015	1020	1025						10				B 8.8				
SVTO		1041	1041	1045	N18	E74	7496	05	10.1	4	SF	C 1.8	3	E		30		
RAMY		1758	1758	1807	S07	W47	7497	05	1.2	9	SF	B 5.8	3	E		17		
HOLL		1759	1759	1803	S05	W48	7497	05	1.1	4	SF		3	E		23		
RAMY		1907	1908	1912	N14	E62	7496	05	9.5	5	SF	B 5.0	3	E		21		
HOLL		1907	1908	1912	N12	E62	7496	05	9.5	5	SF	B 5.0	3	E		26		
GOES		2116	2120	2125						9				B 6.2				
HOLL		2153	2154	2207	N14	E65	7496	05	9.8	14	SF	B 6.0	3	E		28		
SVTO	05	1017	1017	1020	N17	E71	7496	05	10.8	3	SF	B 8.9	3	E		24		
SVTO		1209	1211	1246	S07	W56	7497	05	1.3	37	SF		3	E		12		
GOES		1344	1412	1424						40				B 7.9				
GOES		1557	1601	1607						10				B 6.7				
RAMY		1705	1707	1737	S07	W59	7497	05	1.3	32	SF		3	E		21		FH
RAMY		1824	1840	1907	N15	E66	7500	05	10.8	43	SF	C 2.9	3	E		73		F
HOLL		1850E	1850U	1908	S06	W26	7500	05	3.8	180	SF		3	E		64		F
RAMY		1918	1919	1925	N16	E68	7500	05	11.0	7	SF		3	E		23		
GOES		2004	2025	2030						26				B 8.9				
HOLL		2143	2143	2158	N16	E50	7496	05	9.7	15	SF	B 9.1	3	E		25		
HOLL		2317	2341	2348	N15	E48	7496	05	9.6	31	SF		3	E		43		F
LEAR		2321	2339	2347	N17	E48	7496	05	9.6	26	SF		3	E		28		F
HOLL		2359		2409	N15	E49	7496	05	9.7	10	SF		3	E		64		F
LEAR		2359		2411	N17	E48	7496	05	9.6	12	SF	C 1.3	3	E		52		F
GOES	06	0233	0240	0245						12				C 1.2				
GOES		0626	0632	0637						11				B 8.3				
HOLL		1448	1453	1526	N15	E51	7500	05	10.5	38	SF	B 9.4	3	E		44		F
GOES		1542	1544	1547						5				B 9.7				
HOLL		1547	1552	1604	S04	W73	7497	05	1.2	17	SF		3	E		43		
HOLL		1829	1829	1842	N15	E58	7500	05	11.2	13	SF	C 2.2	3	E		22		
GOES		2017	2021	2035						18				C 1.0				
HOLL		2203	2236	2259	N16	E52	7500	05	10.9	56	SF	C 1.9	3	E		81		F
LEAR	07	0154	0159	0206	N17	E53	7500	05	11.1	12	SF	C 1.5	3	E		43		
GOES		0212	0216	0220						8				C 1.0				
LEAR		0223	0227	0240	N16	E50	7500	05	10.9	17	SF		3	E		21		F
LEAR		0233	0233	0241	N14	E33	7496	05	9.6	8	SF		3	E		20		F
LEAR		0354	0356	0402	N16	E51	7500	05	11.0	8	SF	B 9.6	3	E		26		F
LEAR		0506	0508	0535	N13	E33	7496	05	9.7	29	SF	C 3.0	3	E		33		F
GOES		0731	0736	0739						8				C 1.1				
GOES		0742	0748	0752						10				C 1.6				
GOES		0757	0801	0805						8				C 1.9				
GOES		1011	1015	1021						10				B 7.4				
HOLL		1229E	1234U	1302	N16	E41	7500	05	10.6	330	SF	C 5.3	1	E		55		F
HOLL		1345	1348	1351	S03	W51	7493	05	3.8	6	SF		2	E		77		
HOLL		1412	1421	1438	S10	W52	7493	05	3.7	26	SF	C 1.4	3	E		85		F

H α SOLAR FLARES

MAY 1993

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF	CMP	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks	
							Region							Mo	Day	Time (UT)		Apparent (10-6 Disk)
L-RAMY	07	1417E	1425	1432	S10	W51	7493	05	3.8	150	SF		3	E		24		F
HOLL		1427	1431	1440	N15	E27	7496	05	9.6	13	SF		3	E		30		F
L-RAMY		1457	1458	1505	N12	E26	7496	05	9.6	8	SF		3	E		27		
HOLL		1457	1458	1506	N11	E26	7496	05	9.6	9	SN	C 1.0	3	E		69		FH
HOLL		1918	1925	1941	N15	E26	7496	05	9.8	23	SF	C 1.5	3	E		28		F
L-RAMY		2037	2055U	2055D	N16	E39	7500	05	10.8	180	SF		3	E		60		F
HOLL		2047	2110	2401	N14	E41	7500	05	11.0	194	1B	M 1.6	3	E		140		YF
LEAR	08	0311	0314	0344	N15	E23	7496	05	9.9	33	SF	C 2.8	3	E		91		F
SVTO		0532	0534U	0550	N15	E21	7496	05	9.8	18	SF	C 2.3	2	E		32		F
LEAR		0549	0550	0601	N14	E21	7496	05	9.8	12	SF		3	E		22		F
GOES		1123	1128	1135						12		B 7.9						
SVTO		1213	1232	1324	N16	E17	7496	05	9.8	71	SF	C 2.8	3	E		46		F
SVTO		1301	1307	1334	N19	E33	7500	05	11.1	33	SF		3	E		27		
HOLL		1753	1754	1809	N15	E16	7496	05	9.9	16	SF	B 7.0	3	E		15		FH
PALE		1832E	1835U	1839D	S11	W68	7493	05	3.6	70	SF		3	E		25		
GOES		2041	2046	2052						11		B 9.5						
GOES	09	0003	0007	0011						8		B 6.0						
SVTO		1037	1043	1107	N14	E06	7496	05	9.9	30	SF	C 6.9	3	E		10		F
HOLL		1322	1326	1422	N15	E06	7496	05	10.0	60	SF	B 6.8	3	E		33		
HOLL		2203	2207	2213	N16	E10	7500	05	10.7	10	SF		3	E		21		
HOLL		2351	2353	2356	N21	E15	7500	05	11.1	5	SF		3	E		20		F
GOES	10	0915	0922	0927						12		B 7.4						
GOES		0944	0951	1001						17		C 1.0						
SVTO		1005	1006	1012	N14	W12	7496	05	9.5	7	SF	C 1.7	3	E		33		F
HOLL		1302	1341	1434	N16	W12	7496	05	9.6	92	SF		3	E		70		F
L-SVTO		1335	1343	1409	N15	W13	7496	05	9.6	34	SF	C 1.9	3	E		36		
HOLL		1453	1455	1459	N13	W29		05	8.4	6	SF		3	E		17		F
L-SVTO		1624	1624	1628	N14	W14	7496	05	9.6	4	SF		3	E		13		F
HOLL		1624	1624	1628	N13	W13	7496	05	9.7	4	SF		3	E		21		F
SVTO		1630	1633	1643	N15	W15	7496	05	9.5	13	SF	B 7.3	3	E		12		F
HOLL		1808	1809	1812	S12	W35	7502	05	8.1	4	SF		3	E		12		
HOLL		1914	1916	1921	N14	W12	7496	05	9.9	7	SF	C 1.0	3	E		26		F
HOLL		1933	1934	1937	N13	W32		05	8.4	4	SF		3	E		17		
HOLL		1952	1953	2011	N15	W13	7496	05	9.8	19	SF	C 2.4	3	E		27		F
HOLL		2223	2223	2228	S07	W53	7499	05	7.0	5	SF		3	E		19		
L-HOLL		2358	2359	2419	N19	E03	7500	05	11.2	21	SF	C 1.3	3	E		37		F
LEAR		2359	2359	2420	N20	E02	7500	05	11.1	21	SF		3	E		34		F
GOES	11	0329	0333	0336						7		B 8.1						
GOES		0411	0416	0421						10		C 1.1						
SVTO		0615	0620	0637	N14	W22	7496	05	9.6	22	SF	B 9.7	3	E		22		F
SVTO		0652	0652	0704	N14	W22	7496	05	9.6	12	SF		3	E		13		F
GOES		0807	0902	0910						63		C 1.0						
GOES		0924	0930	0936						12		C 1.1						
SVTO		1211	1211	1214	N15	W26	7496	05	9.5	3	SF	B 7.8	3	E		14		F
HOLL		1438	1439	1446	N17	W08	7500	05	11.0	8	SF		3	E		21		
SVTO		1522	1522	1535	S11	W60	7499	05	7.1	13	SF	B 7.8	3	E		24		
L-HOLL		1618	1619	1636	N22	W08	7500	05	11.1	18	SF	C 1.4	3	E		39		F
L-RAMY		1618	1620	1628	N21	W09	7500	05	11.0	10	SF		3	E		18		F
L-HOLL		1717	1717	1729	N18	W07	7500	05	11.2	12	SF		3	E		35		F
L-RAMY		1717	1718	1725	N19	W08	7500	05	11.1	8	SF	B 6.6	3	E		20		F
HOLL		1830	1831	1836	N22	W10	7500	05	11.0	6	SF		3	E		11		
HOLL		2132	2152	2309	N16	W14	7500	05	10.8	97	SF	C 2.1	3	E		83		F
HOLL		2340	2341	2350	N13	W32	7496	05	9.6	10	SF		3	E		28		
HOLL	12	0058	0103	0109	S05	W64	7499	05	7.2	11	SF		3	E		22		
LEAR		0314	0315	0328	N15	W32	7496	05	9.7	14	SF	C 1.0	3	E		27		F
GOES		0341	0344	0347						6		B 9.2						
L-LEAR		0842	0843	0851	N13	W36	7496	05	9.6	9	SF		3	E		23		F
L-SVTO		0843	0843	0849	N14	W36	7496	05	9.6	6	SF	B 7.6	3	E		17		F
GOES		1121	1124	1126						5		B 6.2						
GOES		1137	1140	1145						8		B 7.0						
HOLL		1313	1314	1317	N08	E56	7504	05	16.7	4	SF	B 7.9	3	E		20		F
RAMY		1319	1333	1339	N09	E56	7504	05	16.7	20	SF		3	E		11		F
HOLL		1341	1342	1345	N23	W18	7500	05	11.2	4	SF		3	E		19		

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May 93

H α SOLAR FLARES

MAY 1993

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CND	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
HOLL	12	1348	1354	1358	N13	W39	7496	05	9.6	10	SF		3	E		42		
RAMY		1348	1354	1400	N11	W40	7496	05	9.6	12	SF		3	E		39		F
HOLL		1359	1400	1403	N17	W20	7500	05	11.1	4	SF		3	E		47		
HOLL		1405	1412	1423	N17	W21	7500	05	11.0	18	SF		3	E		68		
RAMY		1406	1407	1419	N16	W20	7500	05	11.1	13	SF		3	E		23		F
HOLL		1447	1449	1452	N18	W24	7500	05	10.8	5	SF		3	E		25		
HOLL		1459	1459	1506	N19	W19	7500	05	11.2	7	SF		3	E		44		
RAMY		1633	1635	1648	N13	W37	7496	05	9.9	15	SF	C 1.3	3	E		92		F
HOLL		1651	1705	1711	N17	W41	7496	05	9.6	20	SF		3	E		26		
RAMY		1730	1730	1746	N22	W22	7500	05	11.0	16	SF		3	E		21		F
HOLL		1730	1735	1742	N22	W20	7500	05	11.2	12	SF	C 1.0	3	E		36		F
RAMY		1747	1759	1833	N21	W23	7500	05	11.0	46	SF		3	E		66		F
HOLL		1754	1803	1829	N25	W20	7500	05	11.2	35	SF	C 3.2	4	E		58		FH
HOLL		1838	1839	1849	N19	W23	7500	05	11.0	11	SF	C 1.0	3	E		43		F
GOES		2143	2147	2149						6		B 7.5						
GOES		2222	2231	2239						17		B 9.3						
GOES	13	0109	0123	0134						25		C 1.5						
LEAR		0304	0331	0350	N20	W26	7500	05	11.1	46	SF	C 2.0	3	E		59		F
LEAR		0441	0442	0450	N21	W29	7500	05	11.0	9	SF	C 1.8	3	E		33		F
GOES		0601	0616	0628						27		C 1.4						
GOES		1029	1038	1045						16		C 2.4						
GOES		1116	1122	1130						14		C 9.7						
HOLL		1351	1351	1356	N23	W34	7500	05	10.9	5	SF		3	E		23		
HOLL		1405	1406	1428	N23	W34	7500	05	11.0	23	SN	C 3.6	3	E		53		
GOES		1436	1503	1529						53		B 8.7						
HOLL		1446	1447	1451	N18	W29	7500	05	11.4	5	SF		3	E		19		F
HOLL		1502	1505	1516	N19	W34	7500	05	11.0	14	SF		3	E		62		
HOLL		1506	1515	1517	N18	W54	7496	05	9.5	11	SF		3	E		12		FH
HOLL		1536	1536	1540	N18	W34	7500	05	11.1	4	SF		3	E		14		
HOLL		1541	1553	1602	N19	W34	7500	05	11.0	21	SF		3	E		46		H
GOES		1810	1816	1825						15		B 6.9						
HOLL		1849	1853	1907	N20	W33	7500	05	11.2	18	SF	B 5.1	3	E		21		F
HOLL		2025	2028	2035	N23	W36	7500	05	11.1	10	SF	B 6.5	3	E		42		F
HOLL		2228	2234	2305	N18	W58	7496	05	9.5	37	SF		3	E		42		F
LEAR	14	0031	0036	0102	N17	W36	7500	05	11.3	31	SF	C 1.2	3	E		60		F
GOES		0450	0454	0457						7		B 5.4						
GOES		1333	1340	1350						17		B 8.7						
HOLL		1545	1545	1559	N16	W48	7500	05	11.0	14	SF		3	E		12		F
HOLL		2154	2253	2458	N19	W48	7500	05	11.2	184	2B	M 4.4	3	E		581		ZU
GOES	15	1349	1353	1359						10		B 4.5						
GOES		2042	2045	2050						8		B 3.7						
GOES	16	0451	0501	0508						17		C 1.1						
GOES		1356	1406	1415						19		B 4.1						
GOES	17	1918	1921	1923						5		B 2.7						
GOES		1953	2003	2017						24		B 3.7						
HOLL	18	0011	0011	0025	N14	W16	7504	05	16.8	14	SF	B 2.9	3	E		15		
GOES		0257	0352	0522						145		B 4.0						
GOES		2147	2158	2212						25		B 2.1						
SVTO	19	0447E	0447U	0514	N10	W35	7504	05	16.6	27D	SF	B 3.7	2	E		22		F
GOES		0746	0801	0812						26		C 1.1						
SVTO		1023	1029	1043	N11	W38	7504	05	16.6	20	SF	B 5.7	3	E		49		F
RAMY		1036E	1037U	1042D	N11	W37	7504	05	16.6	60	SF		2	E		18		F
HOLL	20	1633	1634	1646	N11	W54	7504	05	16.6	13	SF	B 1.8	3	E		24		
SVTO	21	0802	0803	0812	N11	W62	7504	05	16.7	10	SF		3	E		31		H
GOES	22	2231	2350	2432						121		B 2.4						
GOES	23	0400	0413	0430						30		C 2.6						
GOES		0849	0925	0942						53		B 2.4						

H α SOLAR FLARES

MAY 1993

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
GOES	23	1310	1332	1426						76		B 6.2						
GOES		2219	2239	2244						25		B 4.9						
HOLL	24	0007	0010	0013	N06	E79		05	29.9	6	SF	B 5.2	3	E		12		
GOES		0322	0326	0331						9		C 1.0						
GOES		0948	1003	1017						29		B 9.0						
GOES		1030	1036	1040						10		B 6.9						
GOES		1255	1302	1307						12		B 9.8						
HOLL		1416	1417	1422	N06	E69		05	29.7	6	SF		3	E		21		F
SVTO		1417	1417	1420	N09	E68		05	29.7	3	SF		3	E		11		
HOLL		1433	1434	1436	N05	E69		05	29.8	3	SF		3	E		12		
HOLL		1448	1451	1500	N06	E68		05	29.7	12	SF		3	E		28		
SVTO		1449	1449	1458	N09	E68		05	29.7	9	SF		3	E		17		
GOES		1550	1606	1632						42		C 1.7						
GOES		1749	1752	1755						6		B 7.7						
GOES		1852	1856	1901						9		B 4.1						
GOES		1922	1926	1934						12		B 3.1						
GOES	25	0112	0116	0119						7		C 2.1						
SVTO		0420E	0430U	0452	N16	E90		06	1.0	32D	SF		2	E		30		
GOES		0627	0632	0635						8		B 5.7						
SVTO		0743	0748	0818	N08	E61		05	29.9	35	SF	B 8.6	4	E		20		F
LEAR		0759	0803	0830	N07	E60	7512	05	29.8	31	SF		3	E		23		
HOLL		1416	1416	1424	N06	E56	7512	05	29.8	8	SF		3	E		12		
HOLL		1442	1449	1503	N11	E82		05	31.8	21	SF	C 1.1	3	E		21		
HOLL		1501	1511	1548	S01	E50	7513	05	29.4	47	SF		3	E		55		F
RAMY		1505E	1506	1511D	N01	E46	7513	05	29.1	60	SF		3	E		12		UF
GOES		1915	1922	1930						15		C 1.1						
GOES		2034	2038	2041						7		B 8.5						
GOES	26	0013	0021	0026						13		C 1.3						
GOES		0154	0159	0203						9		C 3.2						
GOES		0213	0218	0226						13		C 1.1						
GOES		0416	0419	0422						6		B 8.9						
GOES		0428	0434	0446						18		C 1.0						
GOES		0540	0543	0545						5		B 6.2						
GOES		0655	0658	0702						7		B 5.9						
GOES		0734	0741	0743						9		C 1.1						
GOES		0918	0923	0925						7		C 1.2						
GOES		0927	0930	0932						5		C 2.5						
SVTO		1037	1043	1101	N16	E72		05	31.9	24	SF	B 7.4	3	E		26		FH
GOES		1126	1131	1137						11		B 6.1						
GOES		1220	1226	1232						12		C 1.3						
SVTO		1259	1300	1303	N15	E69		05	31.8	4	SF		3	E		23		F
HOLL		1308E	1310U	1325D	N12	E73	7514	06	1.0	17D	SF		2	E		29		
SVTO		1408	1411	1416	N14	E68		05	31.7	8	SF		3	E		11		
SVTO		1444	1456	1526	N16	E62	7514	05	31.3	42	SF		3	E		18		
RAMY		1542E	1604U	1615D	N13	E70	7515	05	31.9	33D	SF		3	E		39		
RAMY		1623	1627	1639	N14	E71	7515	06	1.0	16	SF		3	E		45		FH
RAMY		1640	1644	1648	N14	E70	7515	06	1.0	8	SF		3	E		17		F
RAMY		1705	1708	1710	N15	E71	7515	06	1.1	5	SF	B 8.5	3	E		30		F
RAMY		1711	1718	1732	N14	E70	7515	06	1.0	21	SF		3	E		18		F
RAMY		1845	1848	1851	N13	E67	7515	05	31.8	6	SF		3	E		23		F
RAMY		1852	1853	1858	N13	E68	7515	05	31.9	6	SF		3	E		24		FH
RAMY		1858	1903	1904	N14	E69	7515	06	1.0	6	SF		3	E		32		F
RAMY		1936	2002	2010	N13	E67	7515	05	31.9	34	SF	C 2.2	3	E		93		FE
RAMY		2015	2015	2102D	N14	E66	7515	05	31.8	47D	SF		3	E		24		F
HOLL		2105	2111	2114	N12	E68	7515	06	1.0	9	SF	C 2.2	2	E		24		
HOLL		2155	2159	2232	N11	E67	7515	05	31.9	37	SF	C 2.8	3	E		74		F
HOLL	27	0010	0013	0024	N12	E66	7515	06	1.0	14	SF	C 1.5	3	E		48		
HOLL		0054	0110	0146D	N10	E59	7515	05	31.5	52D	1W	C 5.4	3	E		161		UE
GOES		0219	0223	0227						8		C 1.9						
GOES		0326	0330	0334						8		B 8.4						
GOES		0339	0344	0350						11		C 1.2						
GOES		0422	0432	0442						20		C 1.6						
GOES		0507	0516	0521						14		C 1.4						
SVTO		0804	0813	0816	N15	E60	7515	05	31.9	12	SF	C 1.8	3	E		38		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement		Remarks
							Region									(10-6 Disk)	Corr (Sq Deg)	
SVTO	27	1211	1212	1218	N16	E50	7514	05	31.3	7	SF		3	E		10		
[RAMY		1446	1447	1611	N12	E52	7515	05	31.5	85	SF		3	E		89		F
[HOLL		1447	1505	1521	N10	E52	7515	05	31.5	34	SN	C 1.1	4	E		57		F
[SVTO		1448	1453U	1521	N10	E52	7515	05	31.5	33	SF		2	E		40		F
[HOLL		1524	1545	1557	N11	E54	7515	05	31.7	33	SF	C 1.7	4	E		61		F
[RAMY		1644	1646	1648	N14	E53	7515	05	31.7	4	SF	C 1.6	3	E		14		F
[RAMY		1720	1721	1736	N15	E57	7515	06	1.0	16	SN	C 3.5	3	E		42		FE
[RAMY		1747	1749	1902D	N14	E47	7514	05	31.3	75D	SF		3	E		44		FE
[HOLL		1747	1755	1842	N12	E53	7515	05	31.7	55	2B	M 1.2	3	E		383		UY
[RAMY		1747	1756	1902D	N14	E52	7515	05	31.7	75D	1B		3	E		246		UF
[HOLL		1914	1918	1933	N12	E57	7515	06	1.1	19	SF	C 3.7	3	E		52		F
[HOLL		1943	1948	1956	N07	E25	7512	05	29.7	13	SF		3	E		29		F
[RAMY		2010	2013	2023	N08	E25	7512	05	29.7	13	SF		3	E		38		F
[HOLL		2131	2135	2204	N12	E51	7515	05	31.7	33	SF	C 5.2	3	E		36		F
[HOLL		2201	2205	2224	N07	E24	7512	05	29.7	23	SF		3	E		19		F
[HOLL		2226	2228	2302	N13	E51	7515	05	31.8	36	SN	C 4.2	3	E		73		F
[HOLL	28	0021	0027	0050	N13	E52	7515	05	31.9	29	1N	C 7.4	3	E		235		FE
[GOES		0125	0130	0138						13		C 2.4						
[LEAR		0158	0205	0210D	N14	E49	7515	05	31.8	12D	SF	C 9.1	3	E		72		
[GOES		0244	0248	0254						10		C 1.1						
[GOES		0255	0310	0322						27		M 1.4						
[GOES		0521	0528	0532						11		C 1.2						
[GOES		1059	1103	1105						6		C 1.1						
[GOES		1154	1155	1158						4		B 5.5						
[SVTO		1303	1313	1331	N06	E15	7512	05	29.7	28	SF		3	E		36		F
[RAMY		1307	1324	1331	N06	E17	7512	05	29.8	24	SF		3	E		20		F
[RAMY		1437	1446	1504	N14	E42	7515	05	31.8	27	SF	B 9.7	3	E		17		F
[RAMY		1530	1530	1539	N12	E42	7515	05	31.8	9	SF	B 9.4	3	E		14		F
[RAMY		1908E	1908U	1925	N14	E41	7515	05	31.9	17D	SF		3	E		32		F
[HOLL		2051	2100	2154	N13	E37	7515	05	31.7	63	2B		2	E		309		FE
[RAMY		2053	2054	2106	N16	E31	7514	05	31.2	13	SF		3	E		19		UF
[RAMY		2053	2057	2139D	N13	E39	7515	05	31.8	46D	1N	C 7.3	3	E		125		F
[HOLL		2153	2155	2219	N07	E12	7512	05	29.8	26	SF		3	E		37		F
[LEAR	29	0100	0114	0129	N15	E40	7515	06	1.1	29	SF	C 1.6	3	E		78		FH
[LEAR		0110	0113	0117	N08	E09	7512	05	29.7	7	SF		3	E		45		F
[GOES		0457	0507	0516						19		B 6.6						
[LEAR		0610	0610	0616	N14	E33	7515	05	31.7	6	SF	B 7.7	3	E		21		F
[LEAR		0625	0626	0639	N14	E33	7515	05	31.8	14	SF	B 7.0	3	E		14		F
[LEAR		0654	0654	0706	N14	E32	7515	05	31.7	12	SF	C 1.1	3	E		15		F
[SVTO		0739	0742	0805	N08	E06	7512	05	29.8	26	SF		3	E		28		
[SVTO		0753	0757	0801	N10	E59	7517	06	2.8	8	SF		3	E		21		
[LEAR		0754	0756	0759	N09	E63	7517	06	3.0	5	SF		3	E		14		F
[LEAR		0830	0839	0848	N14	E32	7515	05	31.8	18	SF		3	E		12		F
[GOES		1024	1041	1055						31		C 1.2						
[RAMY		1048	1103	1113	N13	E32	7515	05	31.9	25	SF		3	E		31		F
[RAMY		1136	1137	1205	N14	E30	7515	05	31.7	29	SN		3	E		42		UF
[SVTO		1136	1142	1209	N15	E30	7515	05	31.7	33	SN	C 2.4	3	E		46		F
[RAMY		1229	1249	1256	N14	E30	7515	05	31.8	27	SF		3	E		32		F
[RAMY		1323	1325	1335	N16	E31	7515	05	31.9	12	SF		3	E		29		F
[RAMY		1449	1500	1538	N14	E31	7515	06	1.0	49	1F		3	E		113		F
[HOLL		1450	1501	1531	N14	E29	7515	05	31.8	41	SF		3	E		72		F
[SVTO		1452	1508	1532	N16	E30	7515	05	31.9	40	SF	C 3.4	3	E		73		F
[HOLL		1651	1700	1724	N14	E28	7515	05	31.8	33	SN		3	E		34		F
[RAMY		1653	1655	1707	N14	E30	7515	06	1.0	14	SF	C 1.0	3	E		19		
[GOES		1709	1715	1722						13		C 1.3						
[HOLL		1755	1755	1805	N13	E27	7515	05	31.8	10	SF	C 1.2	3	E		27		F
[RAMY		1755	1755	1809	N14	E26	7515	05	31.7	14	SF		3	E		15		F
[HOLL		2002	2003	2005	N13	E28	7515	05	31.9	3	SF		3	E		19		F
[GOES	30	0045	0050	0054						9		B 6.1						
[GOES		0117	0120	0125						8		B 5.7						
[GOES		0201	0228	0252						51		C 1.3						
[LEAR		0408	0409	0432	N12	E21	7515	05	31.7	24	SF	C 3.1	3	E		48		F
[LEAR		0501E	0513U	0600	N16	E18	7515	05	31.6	59D	SF	M 1.0	2	E		75		F
[LEAR		0537E	0537	0548	N17	E14	7514	05	31.3	11D	SF		2	E		17		
[LEAR		0646	0649	0716D	N13	E19	7515	05	31.7	30D	SF		2	E		43		F

H α SOLAR FLARES

MAY 1993

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement		Remarks
																Apparent (10-6 Disk)	Corr (Sq Deg)	
SVTO	30	0647	0655	0739	N16	E16	7515	05	31.5	52	SF	C 2.8	3	E		52		F
GOES		0706	0714	0724						18		C 3.1						
RAMY		1701	1707	1716	N15	E14	7515	05	31.8	15	SF		3	E		14		F
HOLL		1755	1756	1817	N14	E14	7515	05	31.8	22	SF		3	E		43		F
RAMY		1757	1757	1806	N14	E13	7515	05	31.7	9	SF	C 1.1	3	E		22		F
HOLL		1855	1857	1901	N14	E11	7515	05	31.6	6	SF	B 8.9	3	E		30		F
GOES	31	0349	0356	0405						16		C 1.0						
GOES		1537	1545	1555						18		C 1.8						
RAMY		1604	1606	1611	N16	W04	7514	05	31.4	7	SF		3	E		10		F
GOES		1647	1654	1718						31		B 9.6						
HOLL		1909	1910	1943	S13	E59	7518	06	5.2	34	SF	B 9.5	3	E		23		H
GOES		2056	2101	2109						13		B 8.2						
HOLL		2301	2301	2325D	N14	E00	7515	05	31.9	24D	SF	C 1.0	3	E		12		F
HOLL		2342	2343	2358	N04	W37	7513	05	29.2	16	SF		3	E		11		F

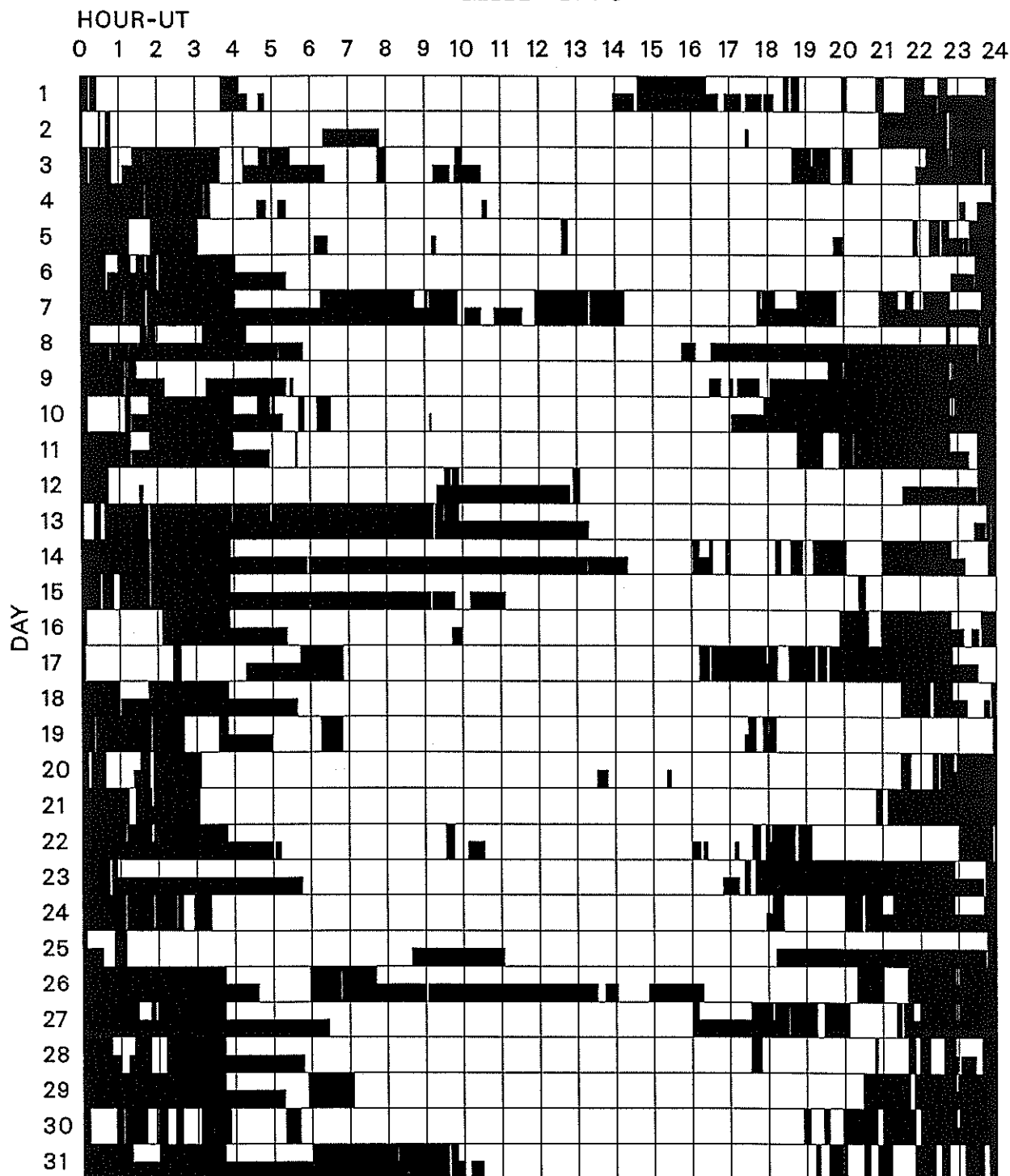
"Remarks"

- A = Eruptive prominence whose base is less than 90 degrees from central meridian.
 B = Probably the end of a more important flare.
 C = Invisible 10 minutes before.
 D = Brilliant point.
 E = Two or more brilliant points.
 F = Several eruptive centers.
 G = No visible spots in the neighborhood.
 H = Flare accompanied by high-speed dark filament.
 I = Active region very extended.
 J = Distinct variations of plage intensity before or after the flare.
 K = Several intensity maxima.
 L = Existing filaments show signs of sudden activity.
 M = White-light flare.
 N = Continuous spectrum shows effects of polarization.
 O = Observations have been made in the H and K lines of Ca II.
 P = Flare shows Helium D3 in emission.
 Q = Flare shows Balmer continuum in emission.
 R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
 S = Brightness follows disappearance of filament in same position.
 T = Region active all day.
 U = Two bright branches, parallel or converging.
 V = Occurrence of an explosive phase; important, expansion within roughly 1 minute that often includes a significant intensity increase.
 W = Great increase in area after time of maximum intensity.
 X = Unusually wide H-alpha line.
 Y = System of loop-type prominences.
 Z = Major sunspot umbra covered by flare.

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

INTERVALS OF NO FLARE PATROL OBSERVATION FOR PRECEDING SOLAR FLARE TABLE

MAY 1993



Times of no flare patrol, shown here as shaded areas, combine reports from the observatories listed below. Portions of a panel completely shaded mark dates and times of no patrol of any kind, that is, of neither visual nor cinematographic; portions of a panel with only the bottom half shaded mark times of strictly visual patrol.

Holloman

Learmonth

Palehua

Ramey

San Vito

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

Selected Fixed Frequency Events

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May 93

MAY 1993

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
						Peak (10 -22	Mean W/m 2 Hz)		
06	8800 PALE	8 S	1829.0	1829.0	U	39.0			QL=4 ST=2 TYP=3
07	2695 SGMR	8 S	1458.0	1458.0	1.0	40.0			QL=2 ST=2 TYP=3
	2695 SVTO	8 S	1458.0	1458.0	1.0	34.0			QL=2 ST=2 TYP=3
	8800 PALE	4 S/F	2101.0	2107.0	7.0	7.0			QL=4 ST=2 TYP=3
	2695 PALE	4 S/F	2101.0	2127.0	52.0	130.0			QL=4 ST=2 TYP=5
	8800 PALE	4 S/F	2110.0	2127.0	30.0	40.0			QL=4 ST=3 TYP=3
	2695 SGMR	20 GRF	2110.0	2127.0	35.0	140.0			QL=2 ST=3 TYP=2
	2695 PALE	4 S/F	2156.0	2201.0	7.0	110.0			QL=4 ST=3 TYP=3
14	2695 SGMR	20 GRF	2156.0	2203.0	20.0	120.0			QL=2 ST=2 TYP=2
	2695 PALE	4 S/F	2203.0	2205.0	5.0	81.0			QL=4 ST=2 TYP=3
	8800 PALE	8 S	2204.0	2205.0	1.0	42.0			QL=4 ST=2 TYP=3
	2695 PALE	49 GB	2244.0	2250.0	37.0	970.0			QL=4 ST=2 TYP=6
	8800 PALE	4 S/F	2244.0	2251.0	41.0	340.0			QL=4 ST=2 TYP=3
	2695 LEAR	20 GRF	2305.0	2308.0	15.0	290.0			QL=4 ST=2 TYP=2
	8800 LEAR	4 S/F	2306.0	2310.0	37.0	63.0			QL=4 ST=2 TYP=5
27	2695 PALE	8 S	1746.0	1747.0	2.0	65.0			QL=4 ST=2 TYP=3
	2695 SGMR	8 S	1746.0	1747.0	2.0	85.0			QL=2 ST=3 TYP=3
	8800 PALE	8 S	1747.0	1747.0	1.0	49.0			QL=4 ST=2 TYP=3
	8800 SGMR	8 S	1747.0	1747.0	1.0	46.0			QL=4 ST=3 TYP=3
28	8800 LEAR	8 S	0202.0	0202.0	1.0	74.0			QL=4 ST=2 TYP=3
	8800 PALE	8 S	0202.0	0202.0	1.0	69.0			QL=4 ST=2 TYP=3
	2695 PALE	8 S	0258.0	0300.0	2.0	31.0			QL=4 ST=2 TYP=3
	8800 PALE	8 S	0300.0	0301.0	1.0	29.0			QL=4 ST=2 TYP=3
29	8800 PALE	8 S	1754.0	1754.0	1.0	42.0			QL=4 ST=2 TYP=3
	8800 SGMR	4 S/F	1754.0	1754.0	4.0	52.0			QL=2 ST=2 TYP=3
30	2695 LEAR	4 S/F	0404.0	0406.0	5.0	46.0			QL=4 ST=2 TYP=3
	8800 LEAR	4 S/F	0404.0	0407.0	5.0	16.0			QL=4 ST=2 TYP=3
	2695 LEAR	4 S/F	0518.0	0522.0	5.0	180.0			QL=4 ST=2 TYP=5
	2695 SVTO	4 S/F	0518.0	0522.0	6.0	210.0			QL=2 ST=2 TYP=5
	8800 SVTO	4 S/F	0519.0	0519.0	6.0	33.0			QL=4 ST=2 TYP=3
	8800 LEAR	8 S	0648.0	0648.0	1.0	45.0			QL=4 ST=2 TYP=3
	8800 SVTO	8 S	0648.0	0648.0	1.0	53.0			QL=4 ST=2 TYP=3

Reports are received routinely from the following observatories:

LEAR = Learmonth

PALE = Palehua

SGMR = Sagamore Hill

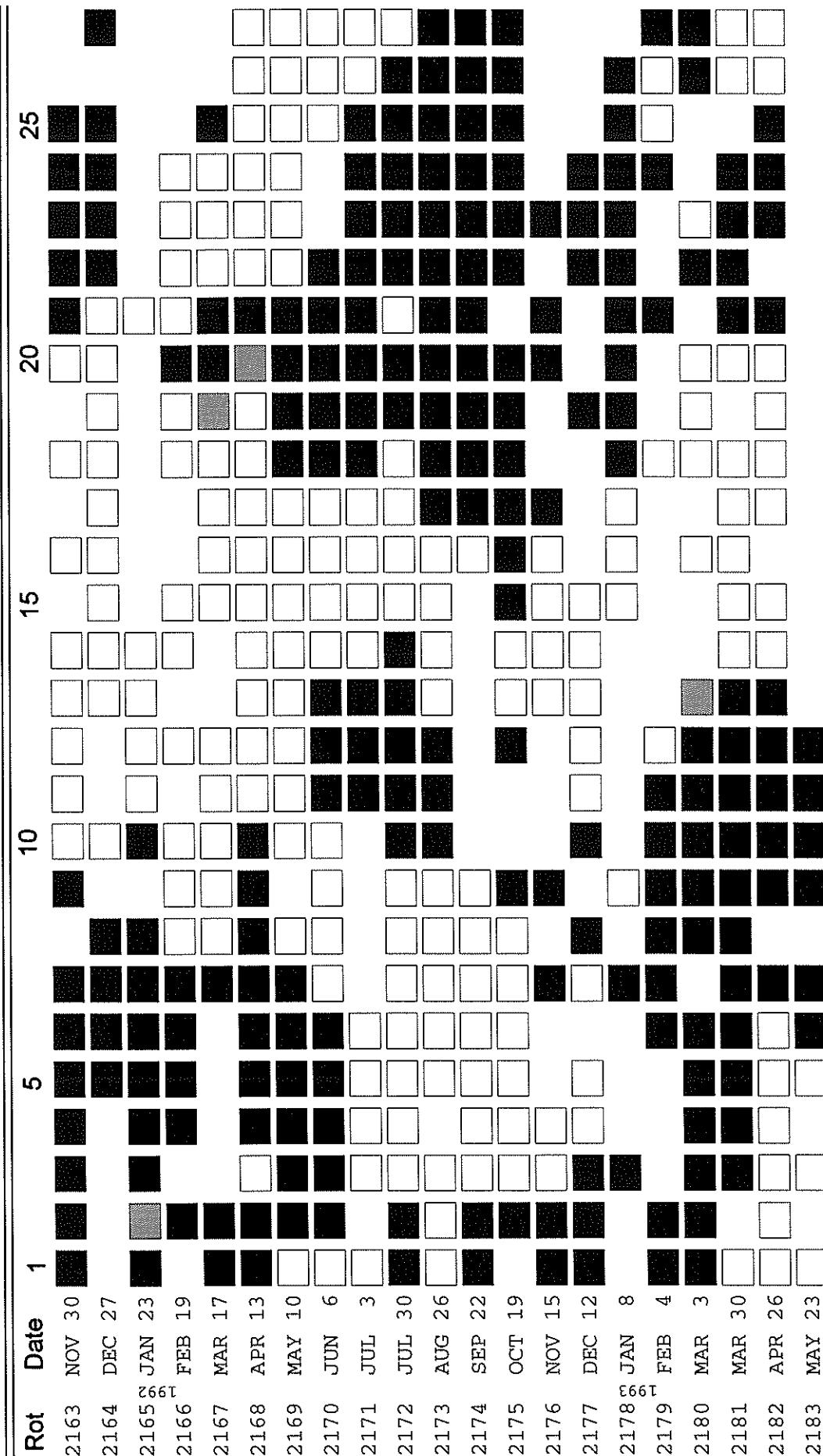
SVTO = San Vito

Explanation of Type Code:

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

RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Penticton, Canada 2800 MHz; Hiraiso, Japan 500 and 200 MHz; and Toyokawa, Japan 9400, 3750, 2000 and 1000 MHz.

STANFORD MEAN SOLAR MAGNETIC FIELD



Mean Solar Magnetic Field Polarity:

□ = field > 2 microT; ■ = -2 microT ≤ field ≤ 2 microT

■ = field < -2 microT; No box = no data available

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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1992							1993				
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1	14	8	39	88	.	19	-16	.	-8	1	-1	4
2	17	17	60	67	.	-5	.	-33	-25	-30	-11	-29
3	23	13	58	43	.	-24	.	-28	.	-38	-11	.
4	47	.	58	-22	.	-41	-39	-22	-61	-44	-25	-86
5	52	33	46	-27	.	-57	-38	.	-52	-56	-38	-85
6	17	39	38	-18	.	-47	.	.	.	-51	-63	-83
7	-5	21	37	13	4	-48	-20	.	.	-58	-68	-48
8	-12	18	-4	24	-17	.	.	.	.	-40	-59	-14
9	-18	.	-45	19	-40	-29	.	.	-27	.	-55	9
10	-18	.	-44	29	-68	-7	.	-38	-30	-25	-37	44
11	-2	.	-10	-18	-57	-1	.	.	-28	-41	-14	.
12	20	.	-2	-25	-31	-5	-50	.	-51	-37	20	75
13	20	-52	10	-53	-38	-16	-41	.	-46	-50	44	41
14	18	-46	9	-46	-29	-24	-15	-3	-36	-19	59	30
15	6	-16	34	-33	-33	-23	8	.	21	0	64	7
16	-18	2	14	-30	-14	-19	11	1	.	.	53	-7
17	-13	8	-19	-26	-5	20	.	.	.	.	.	.
18	-19	24	-4	-26	-13	57	6	.	.	65	13	-12
19	12	25	11	-9	.	.	-9	.	.	.	-1	-26
20	35	-31	-14	-13	-5	.	.	.	.	41	-11	-14
21	23	-56	-12	-22	.	-2	-3	.	48	36	-13	3
22	10	-55	-17	-23	24	.	11	67	.	4	-9	19
23	-21	-59	-3	-1	50	-9	42	69	.	.	.	38
24	-50	-55	-6	17	66	.	57	61	-43	-26	20	.
25	-45	-42	1	54	47	.	49	-14	.	4	1	60
26	-36	-26	4	79	20	.	40	-53	.	.	9	.
27	-11	-5	25	85	-7	60	.	-62	-1	.	18	21
28	.	1	55	60	.	62	.	-44	13	-11	39	-15
29	.	4	.	39	.	55	.	-19	.	-11	43	-42
30	17	-1	101	7	-14	11	-59	-28	.	8	18	.
31	.	-5	97	.	22	.	.	-2	.	.	.	-75

Dot symbol indicates no data available for the day.

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Prompt Reports

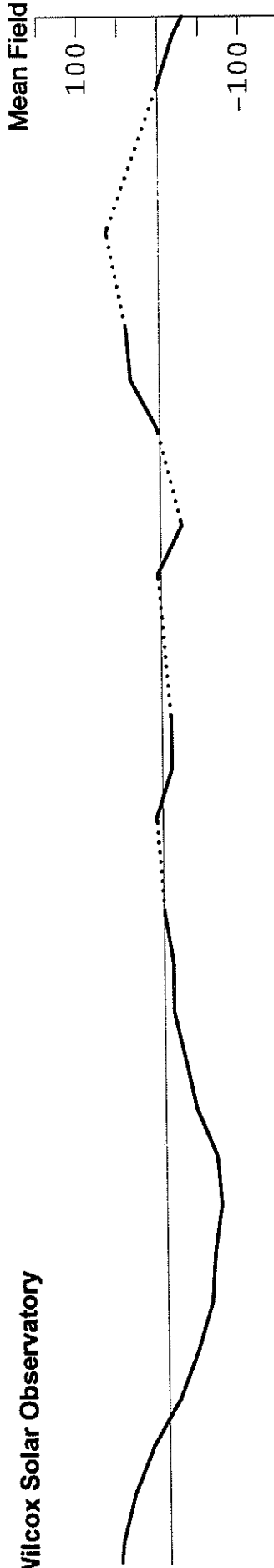
Number 586 Part I

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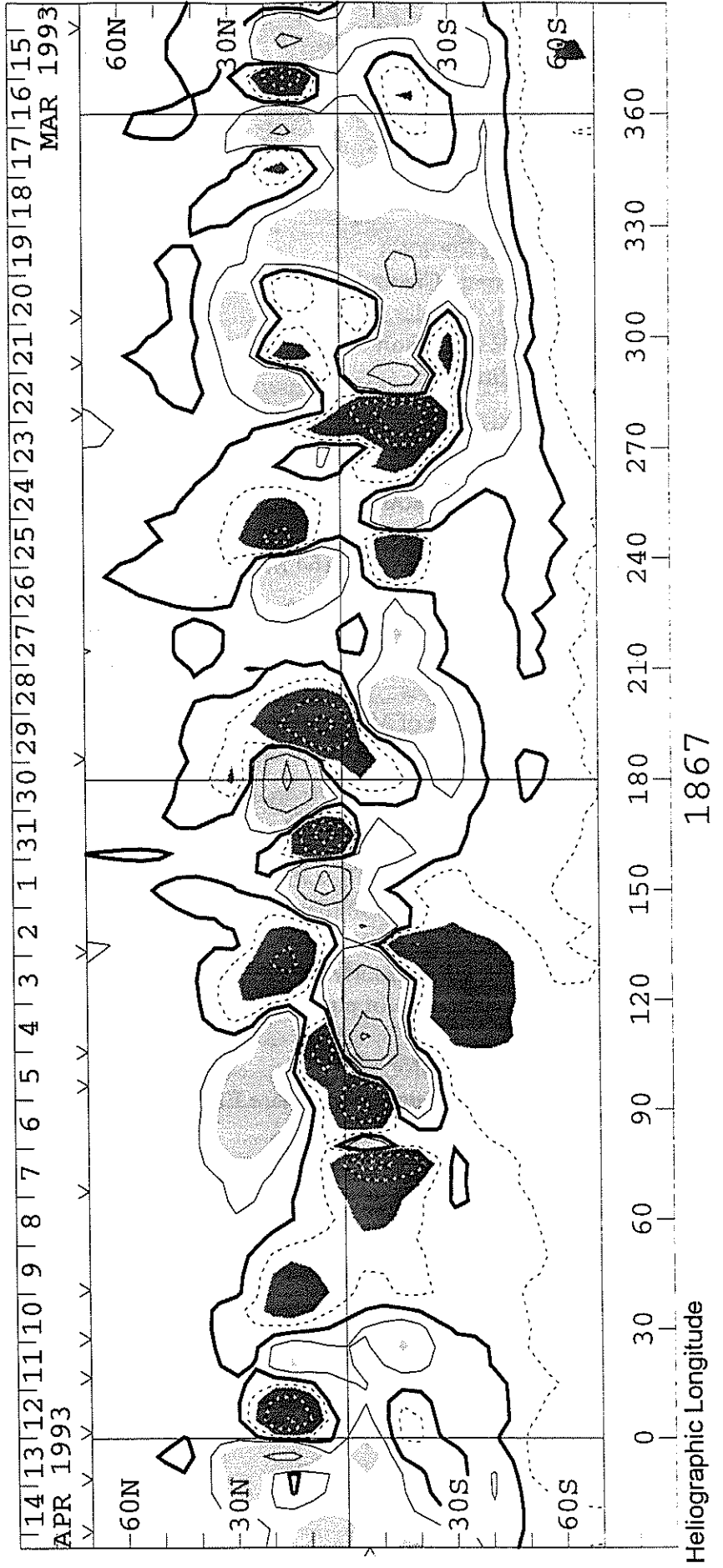
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 1867
(16 March to 13 April 1993)

Wilcox Solar Observatory



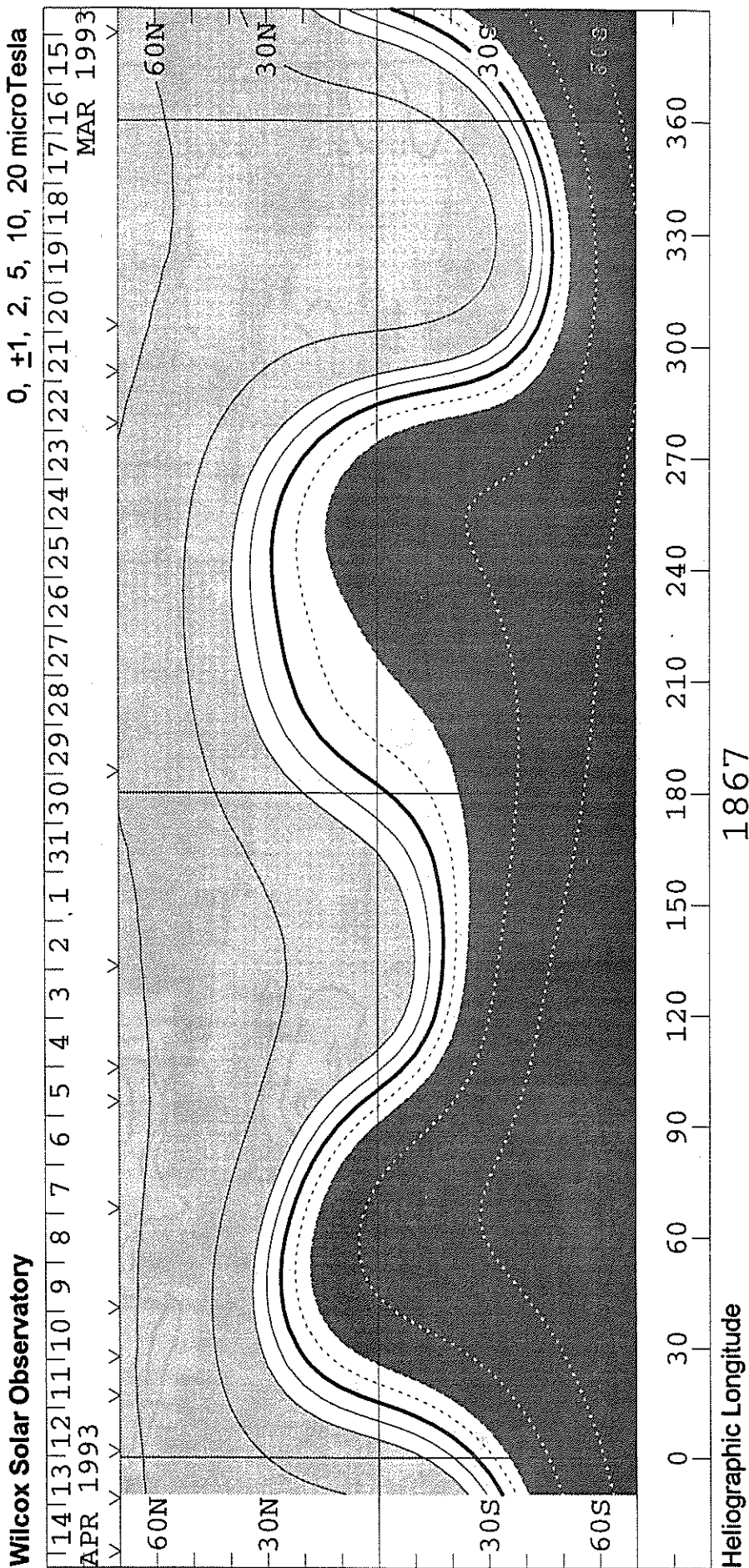
Photospheric Magnetic Field

0, ± 100 , 500, 1000, 2000 MicroTesla



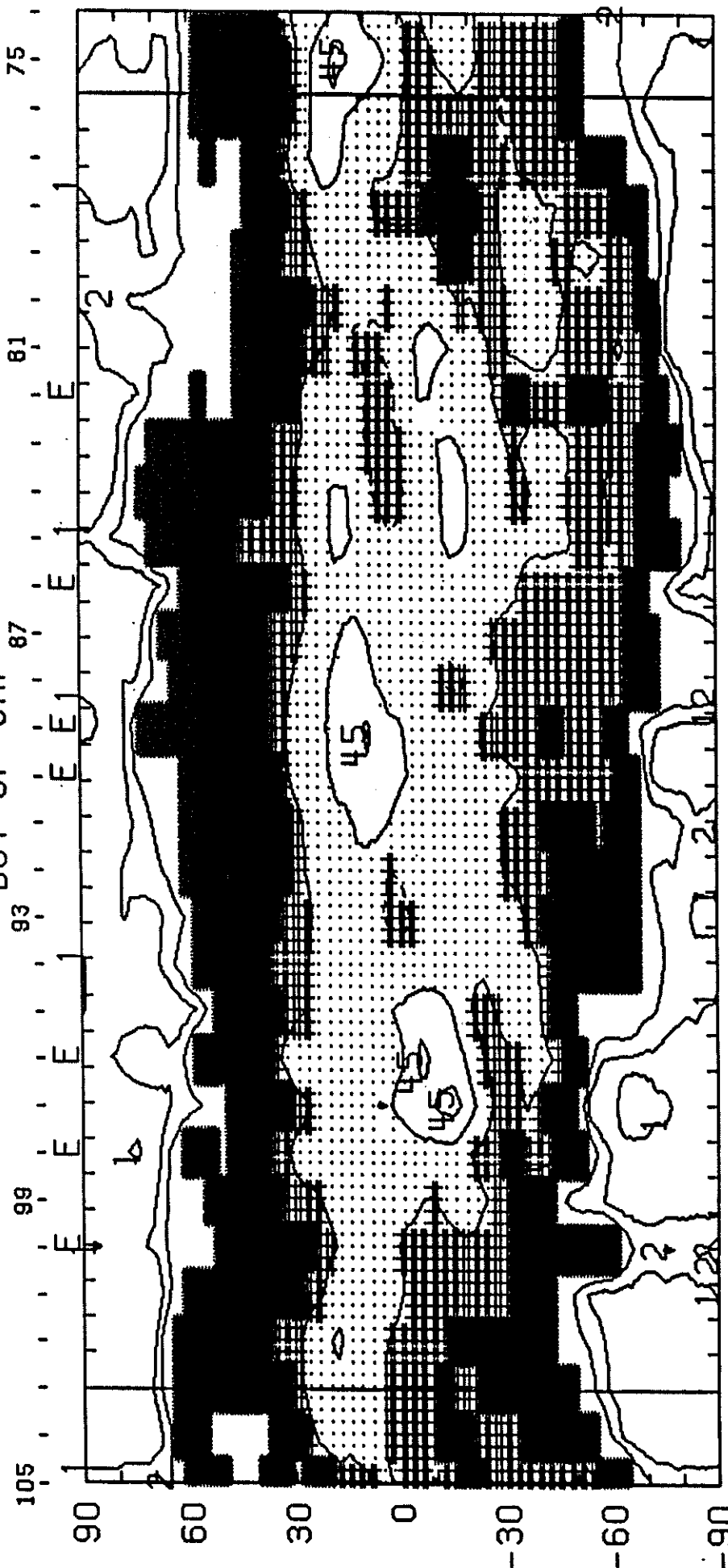
SOLAR MAGNETIC FIELD SYNOPSIS CHART

SOURCE SURFACE FIELD
CARRINGTON ROTATION NUMBER 1867
(16 March to 13 April 1993)



42
Apr 93

CARRINGTON ROTATION NUMBER 1867 ; SAC. PEAK FE XIV AT R = 1.15
DOY OF CMP

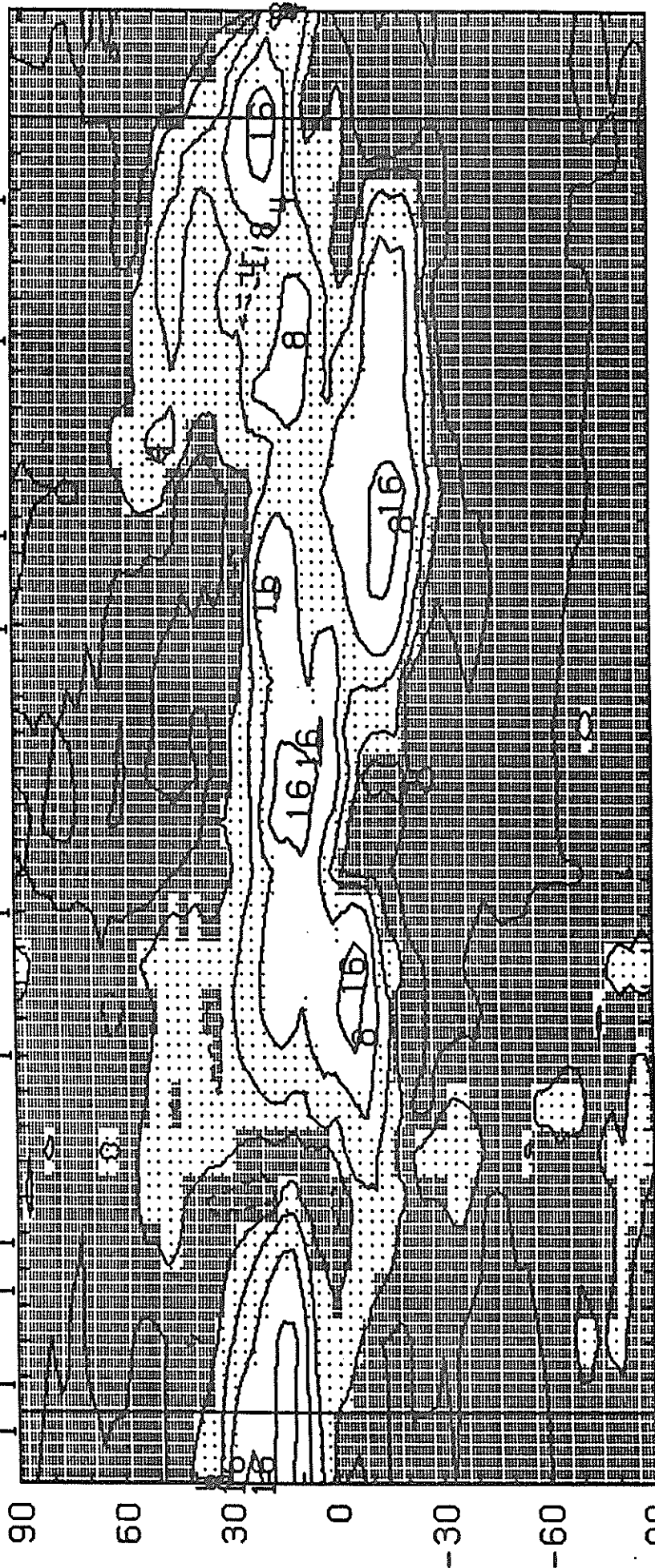


E
1993 W+E LIMB CONTOURS: 1,2,6,10,15,30,45,60,75 MILLIONTHS OF I
(26-May-93) CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK
HELIOGRAPHIC LONGITUDE Iave = 10.21μ W

CARRINGTON ROTATION NUMBER 1867; SAC. PEAK FE X AT R = 1.15

DOY OF CMP

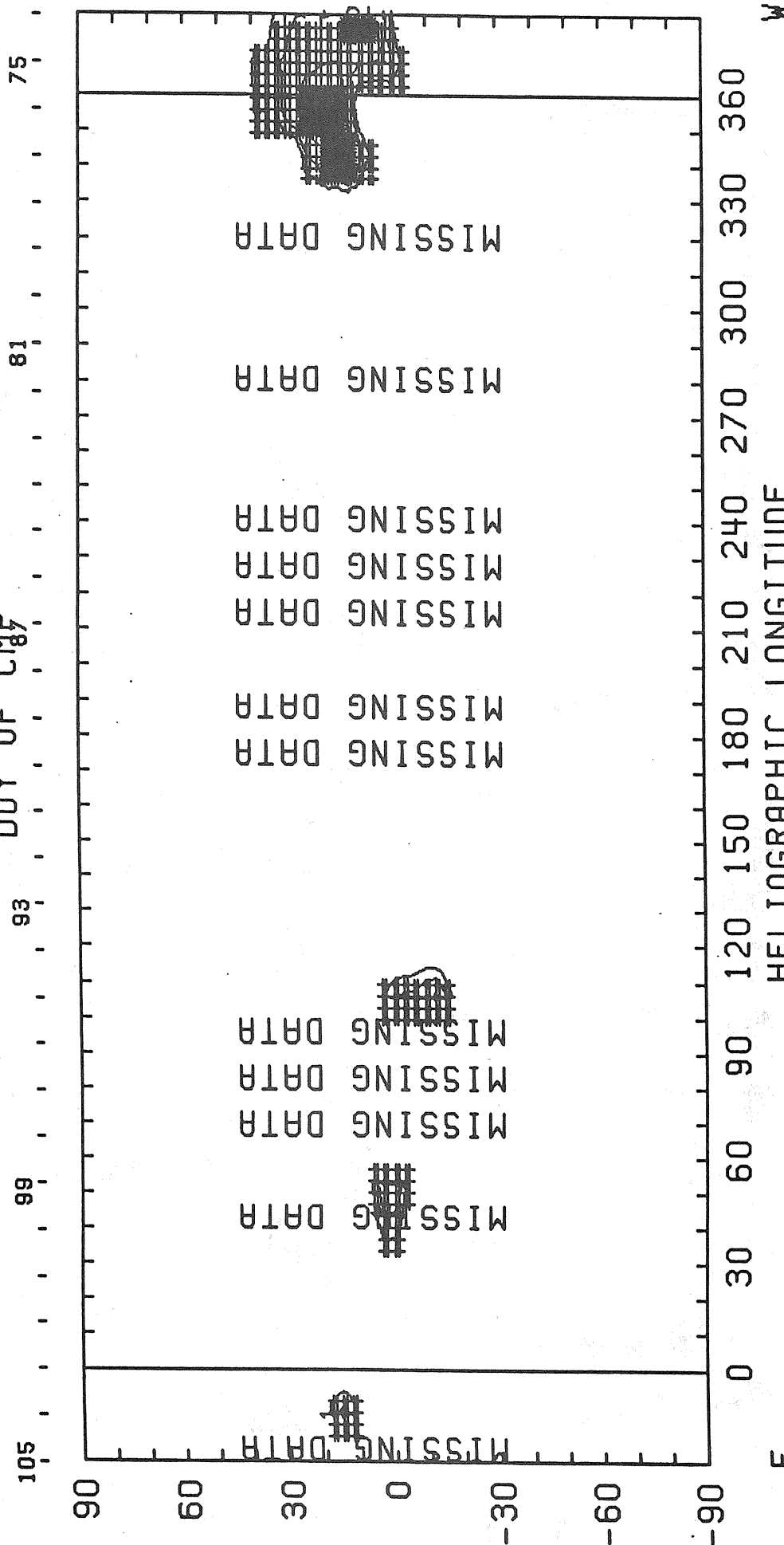
104 98 92 86 80 74



0 30 60 90 120 150 180 210 240 270 300 330 360
 E HELIOGRAPHIC LONGITUDE I_{ave} = 2.80μ W

1993 E LIMB CONTOURS: 1,2,4,8,16,32,48,64,80 MILLIONTHS OF I_o
 (28-May-93)

DOY FO CMP

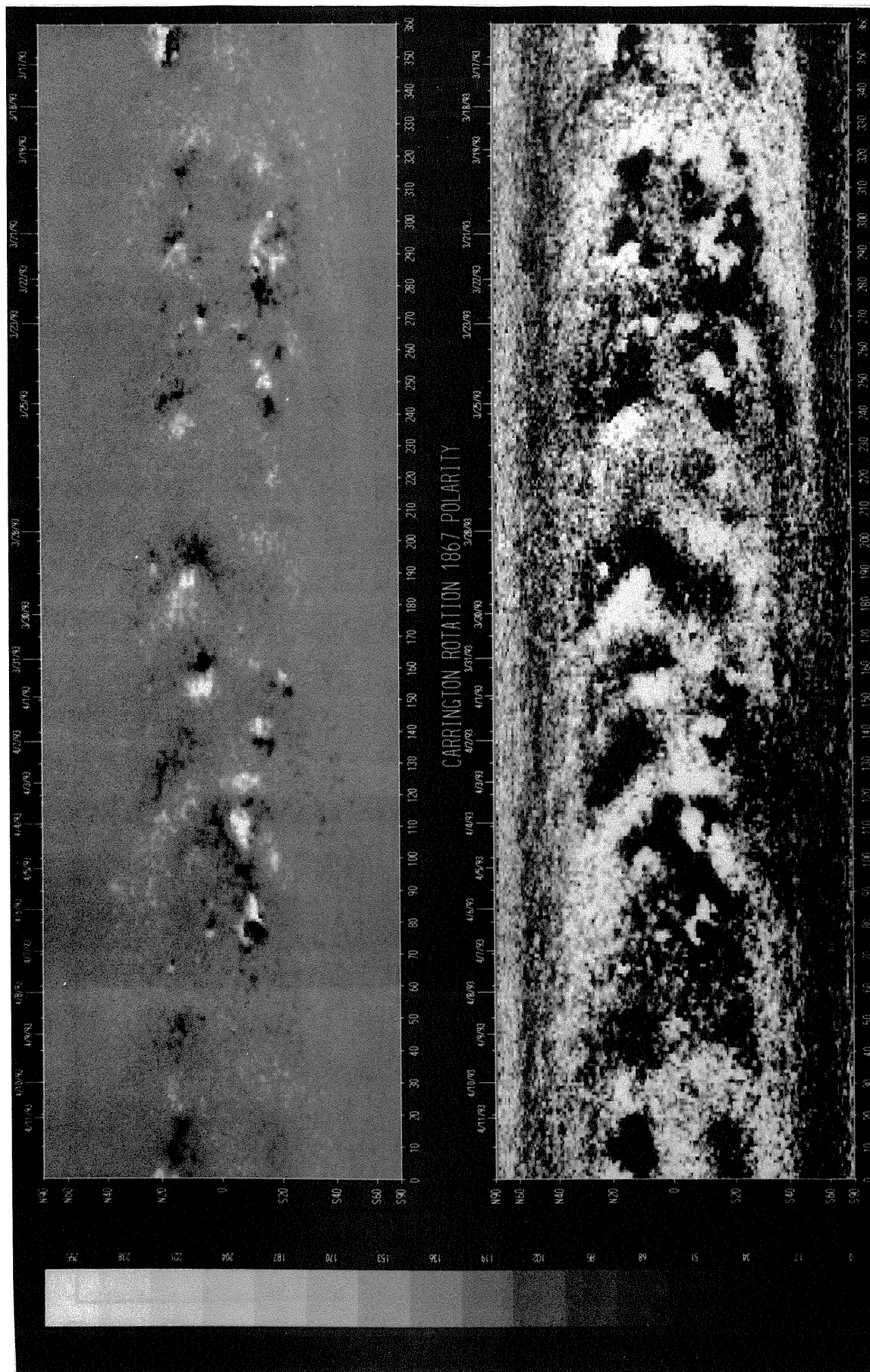


1993 WEST LIMB CONTOURS: YELLOW-MINIMUM, 1, 2, 4, 8 MILLIONTHS OF Io
(26-May-93)

SOLAR MAGNETIC FIELD SYNOPSIS CHART
CARRINGTON ROTATION NUMBER 1867
(16 March to 13 April 1993)

National Solar Observatory/Kitt Peak

Dates of Observation

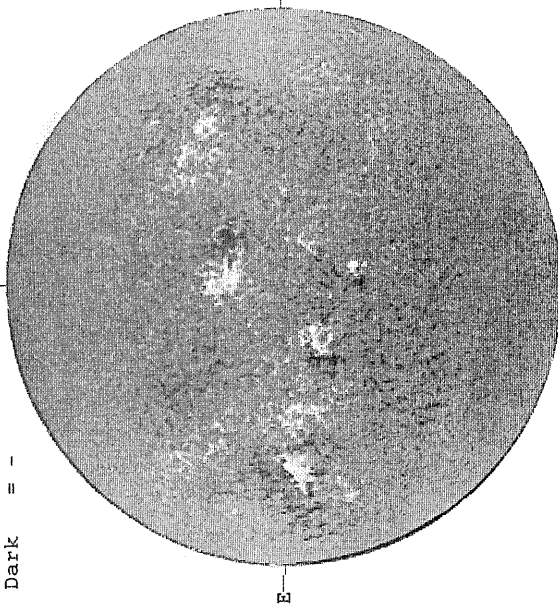


Heliographic Longitude

APRIL 1, 1993 (P=-26.17, B_O = -6.52, L_O = 158.62)

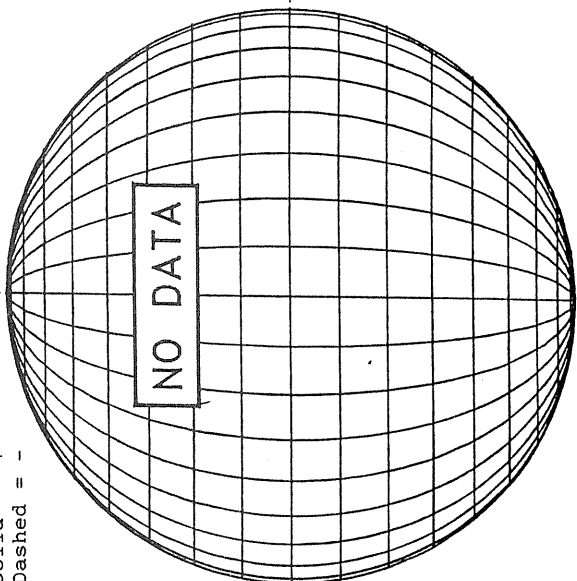
KITT PEAK MAGNETOGRAM
5507A

Bright = +
Dark = -



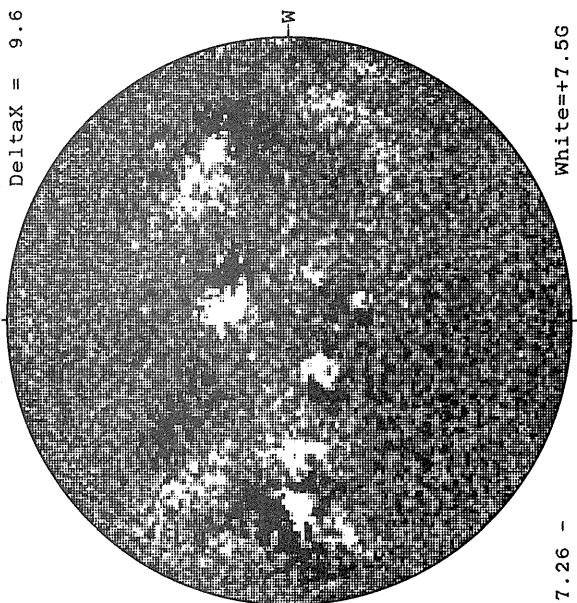
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

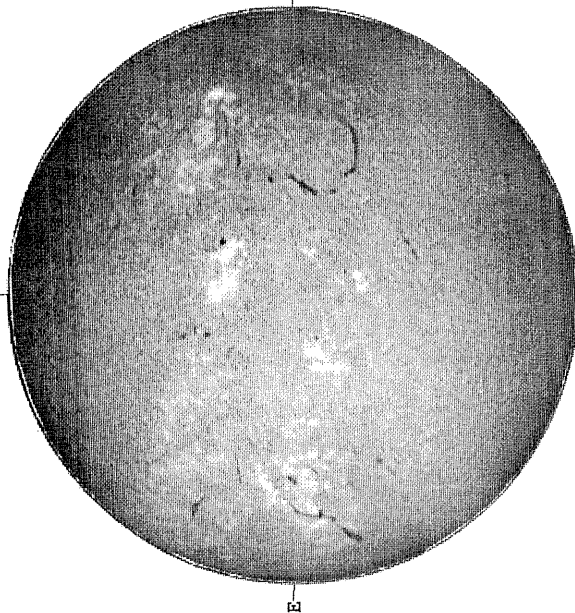


MT. WILSON MAGNETOGRAM

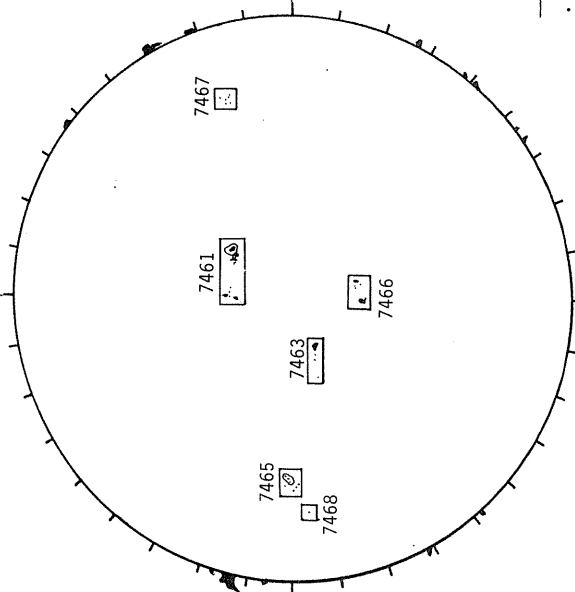
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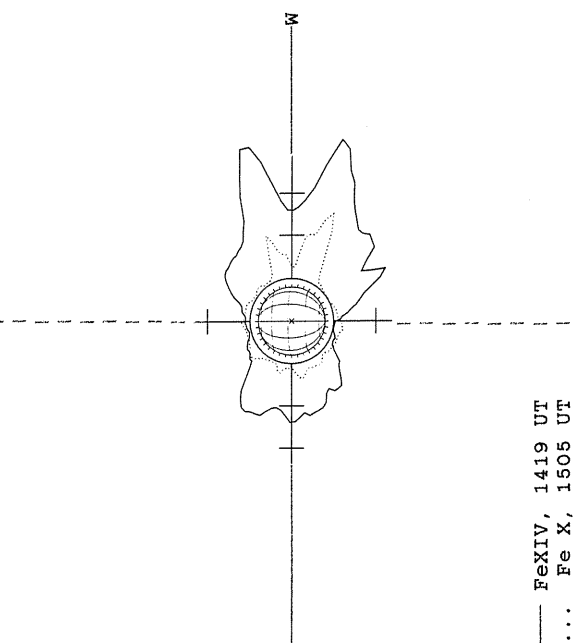
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



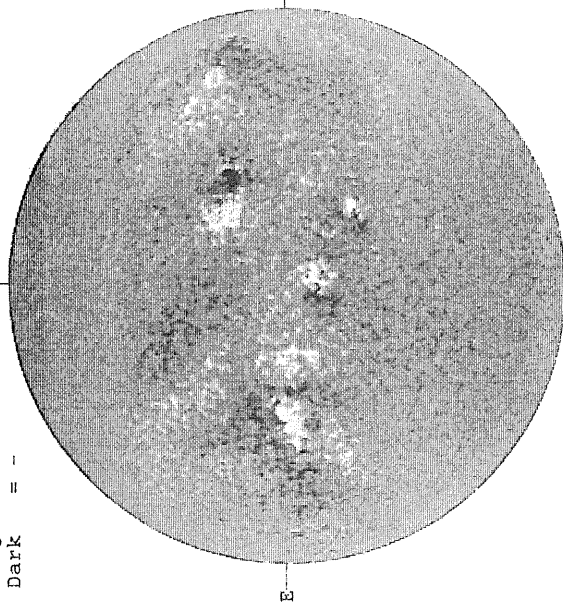
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 2, 1993 (P=-26.21, B₀ = -6.47, I₀ = 145.43)

KITT PEAK MAGNETOGRAM
5507A

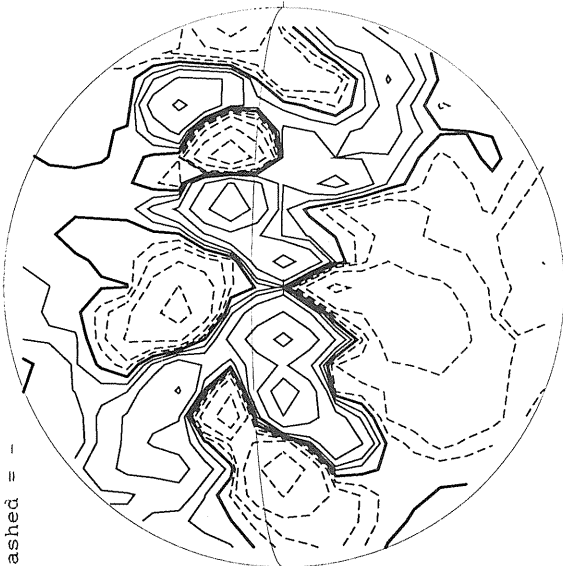
Bright = +
Dark = -



1507 UT

STANFORD MAGNETOGRAM

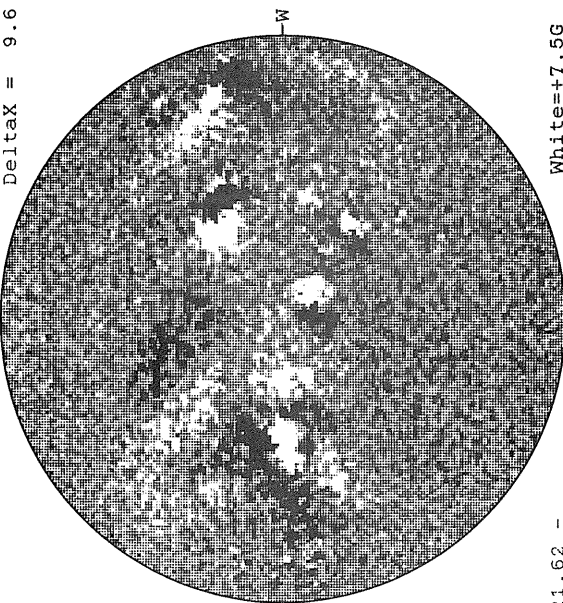
Solid = +
Dashed = -



2210 UT

NT. WILSON MAGNETOGRAM

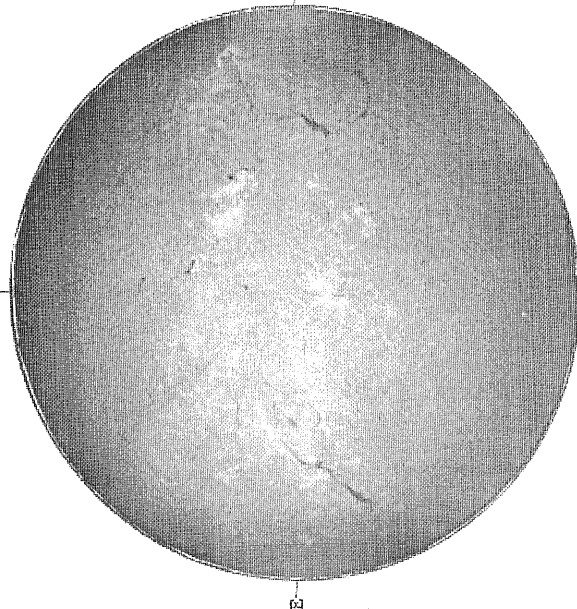
DeltaY = 13.1
DeltaX = 9.6



21.62 -
22.57 UT

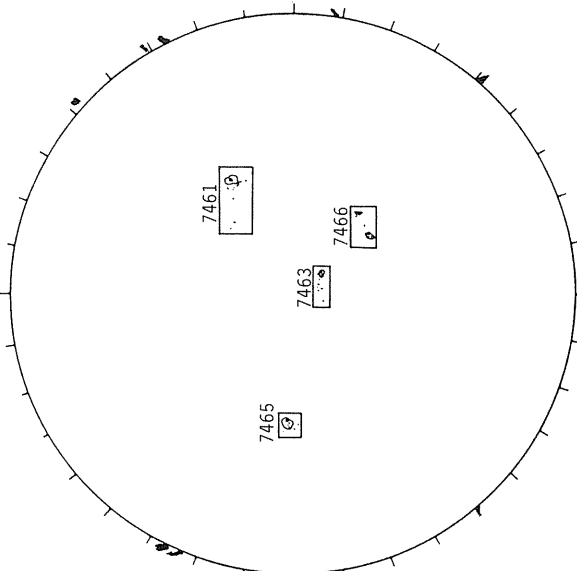
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SACRAMENTO PEAK H-ALPHA



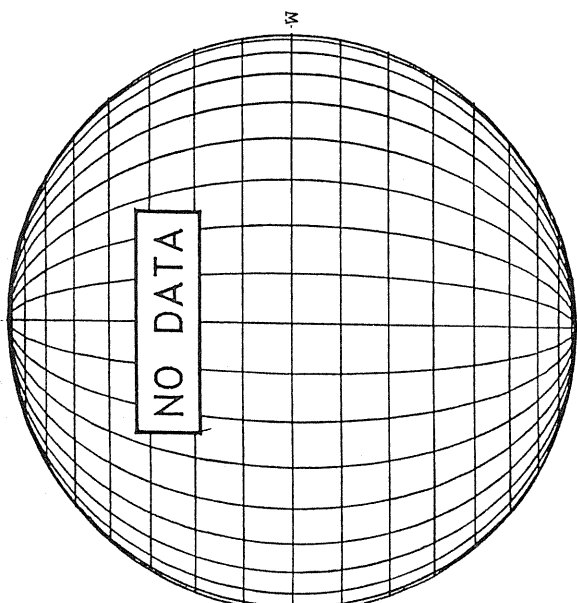
1534 UT

BOULDER SUNSPOT



1434 UT
1612 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

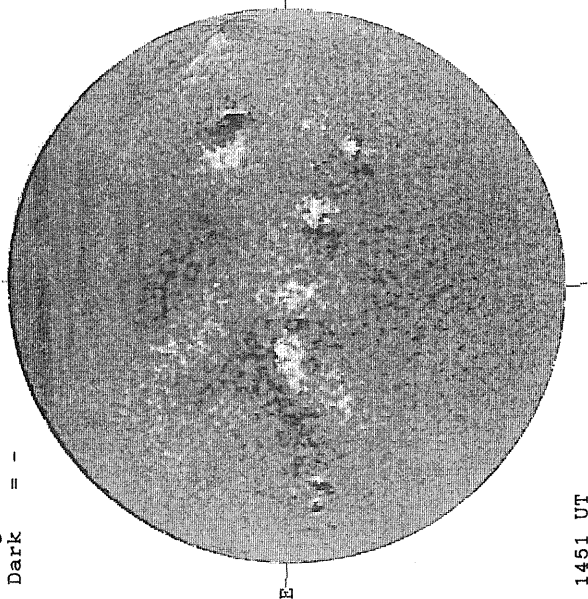


NO DATA

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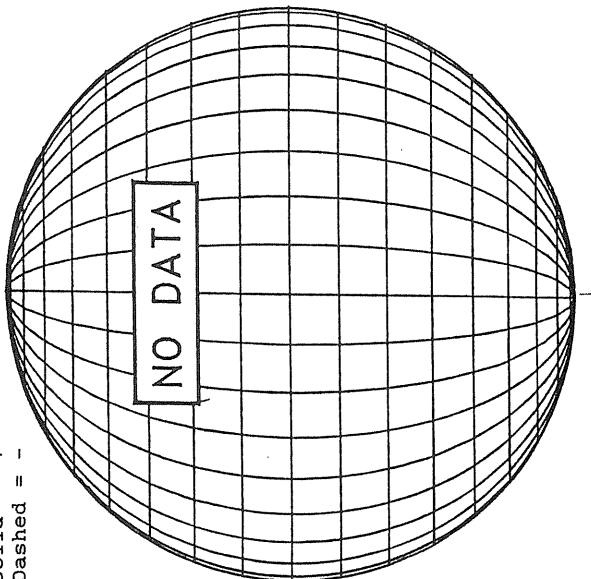
KITT PEAK MAGNETOGRAM
5507A

Bright = +
Dark = -



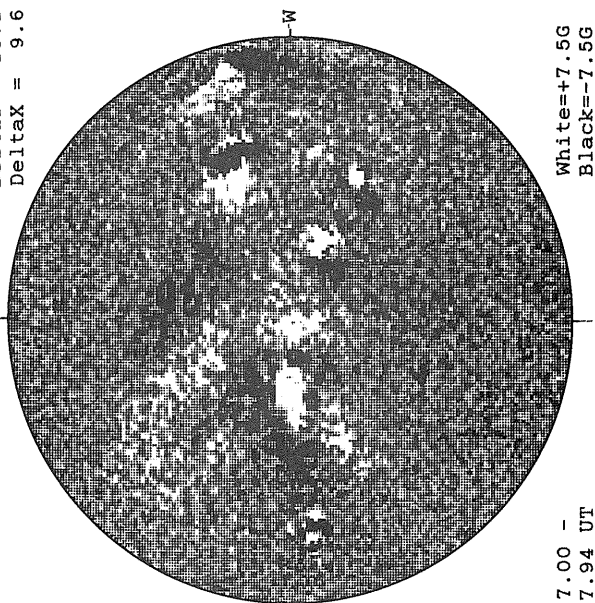
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



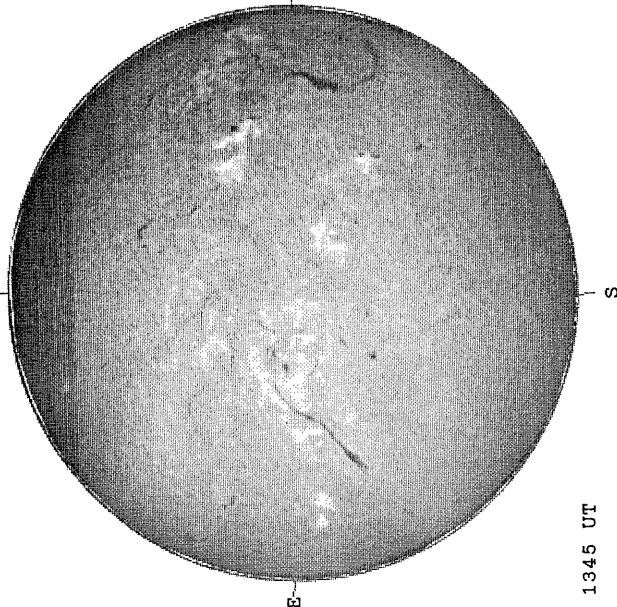
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



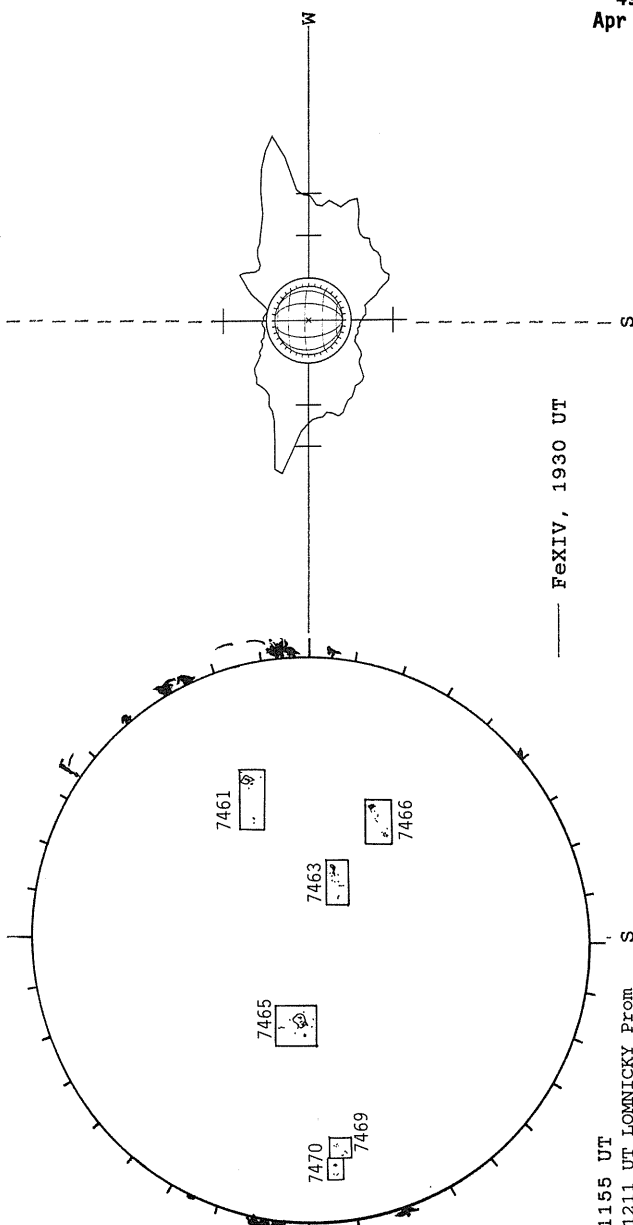
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Black = -7.5G

SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT

SACRAMENTO PEAK CORONA (1.15 Radii)



FeXIV, 1930 UT

1345 UT

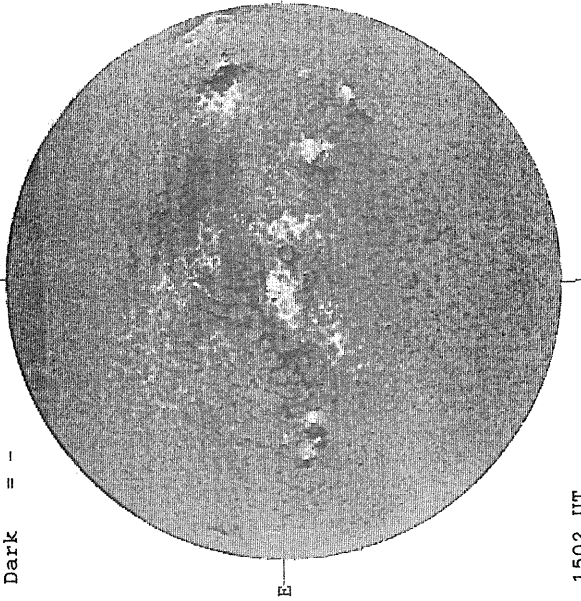
1155 UT

1211 UT LOMNICKY Prom S

APRIL 4, 1993 (P=-26.26, B₀ = -6.35, L₀ = 119.04)

KITT PEAK MAGNETOGRAM
N
5507A

Bright = +
Dark = -



1502 UT

STANFORD MAGNETOGRAM
N

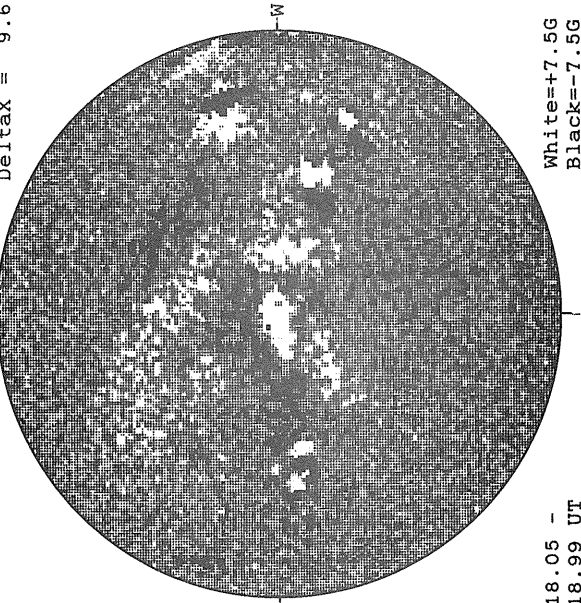
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Dashed = -



0012 UT
APR 05

MT. WILSON MAGNETOGRAM
N

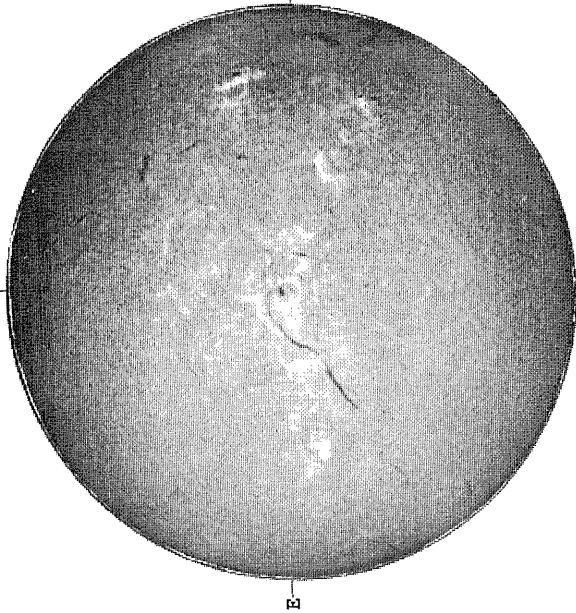
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DeltaX = 9.6



18.05 -
18.99 UT

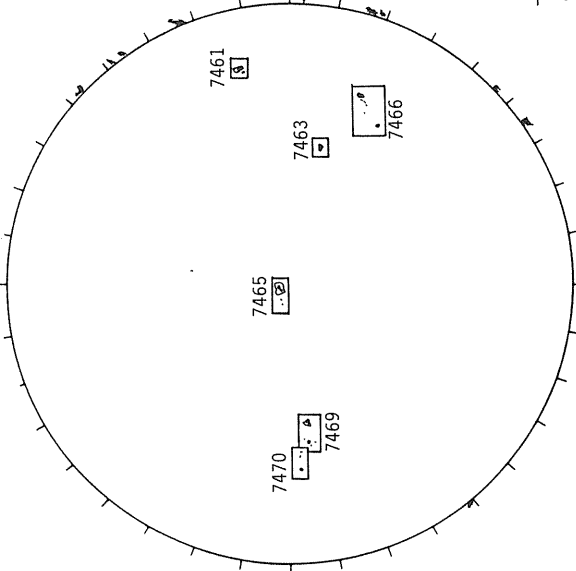
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SACRAMENTO PEAK H-ALPHA



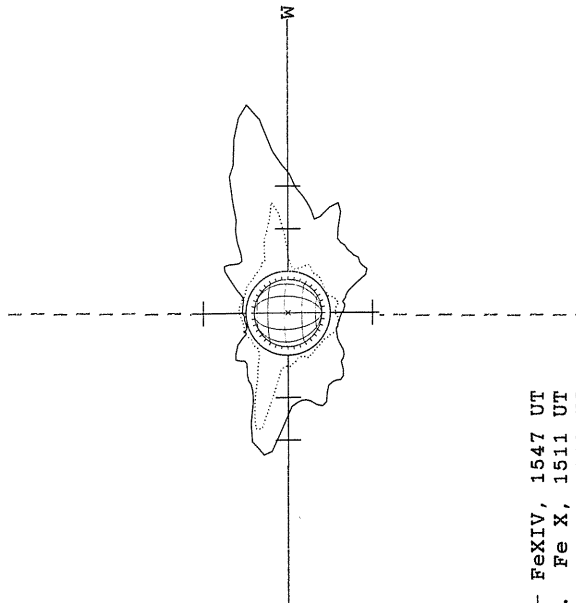
1641 UT

BOULDER SUNSPOT



1500 UT BOUL Prom
1600 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

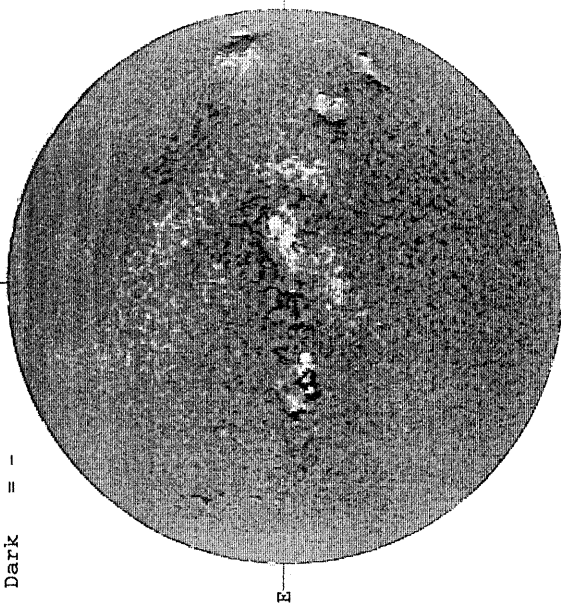


— FeXIV, 1547 UT
.... Fe X, 1511 UT
xxxx Ca XV, 1529 UT
NO CA XV ACTIVITY TODAY

APRIL 5, 1993 (P=-26.28, B₀ = -6.29, L₀ = 105.84)

KITT PEAK MAGNETOGRAM
N **5507A**

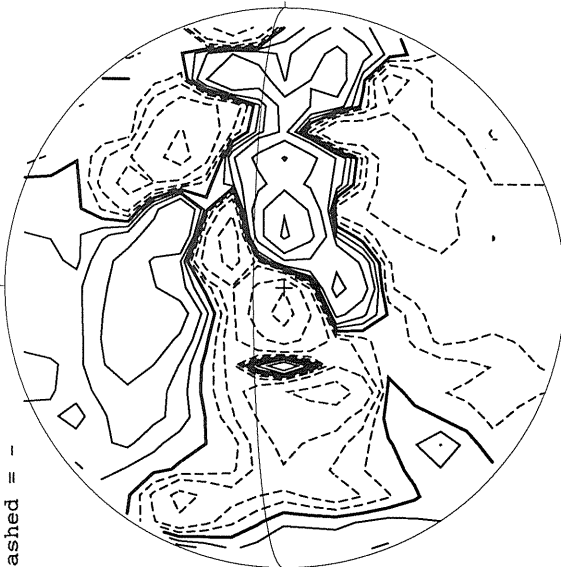
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Dark = -



1634 UT

STANFORD MAGNETOGRAM
N

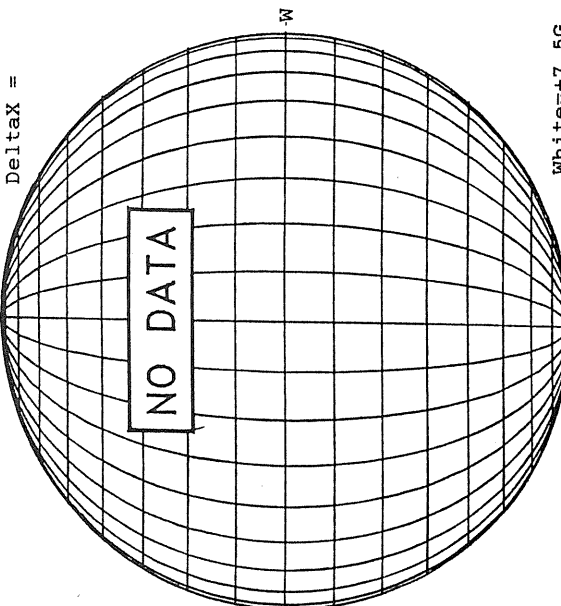
Solid = +
Dashed = -



1701 UT

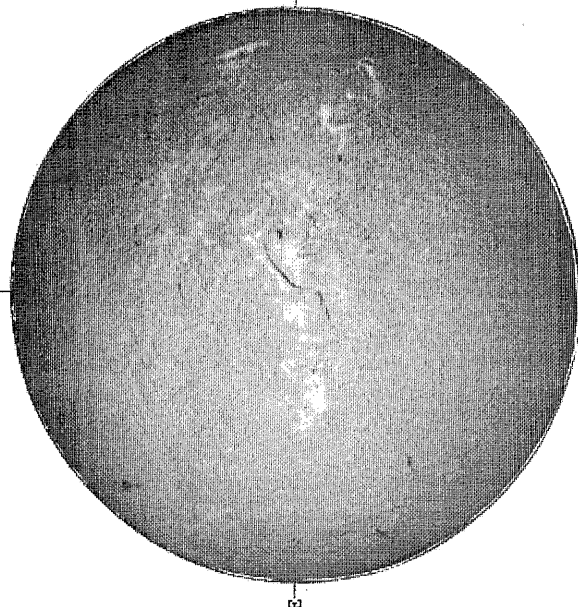
MT. WILSON MAGNETOGRAM

Delta Y =
Delta X =



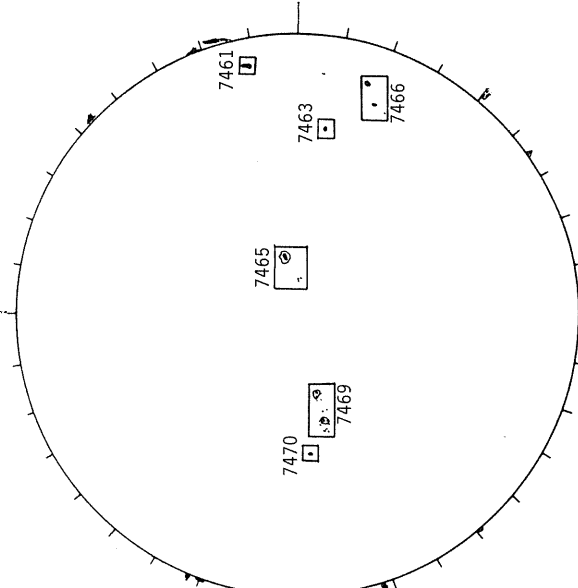
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Black = -7.5G

SACRAMENTO PEAK H-ALPHA



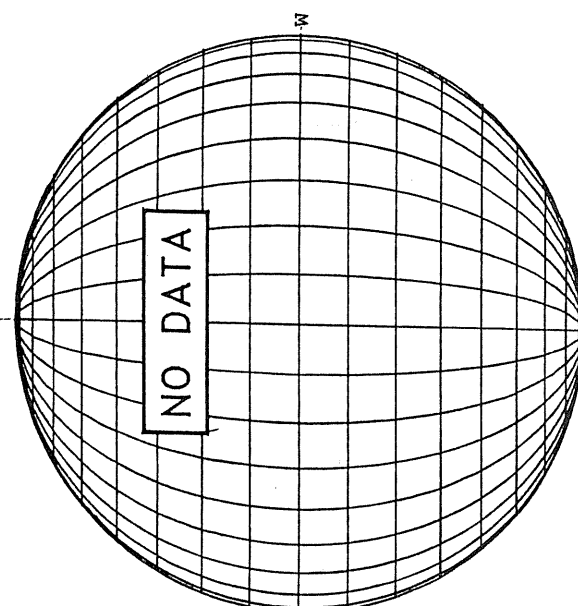
1641 UT

BOULDER SUNSPOT



1400 UT
1431 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

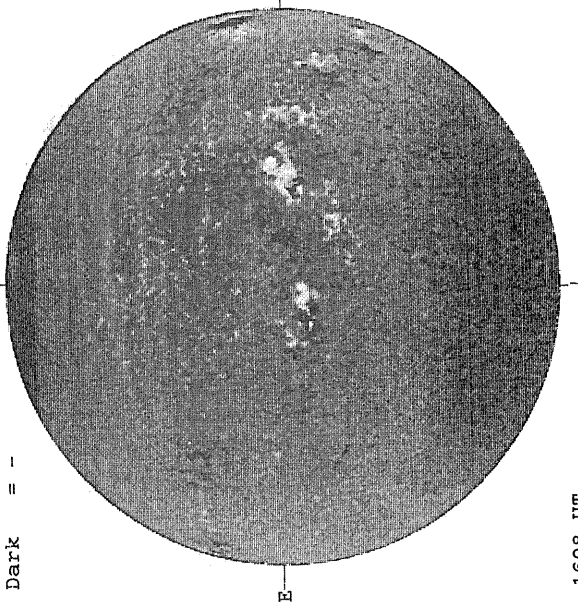


APRIL 6, 1993 (P=-26.29, B₀ = -6.23, L₀ = 92.65)

KITT PEAK MAGNETOGRAM

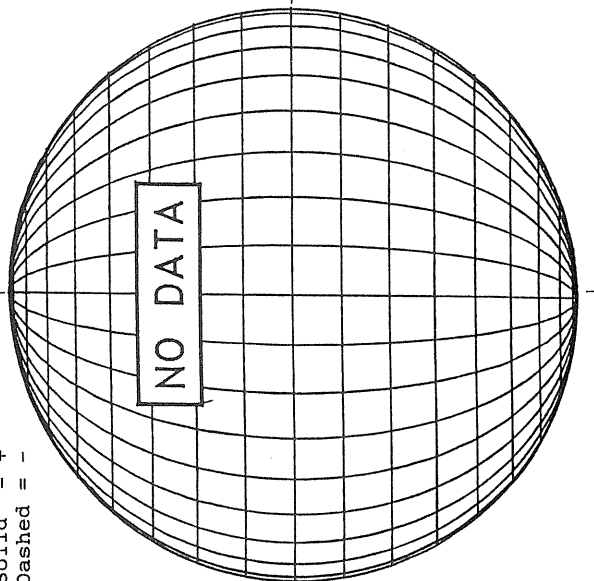
5507A

Bright = +
Dark = -



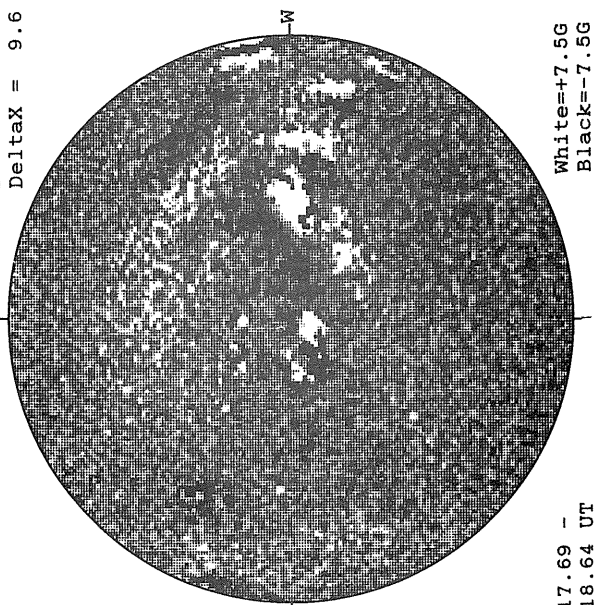
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



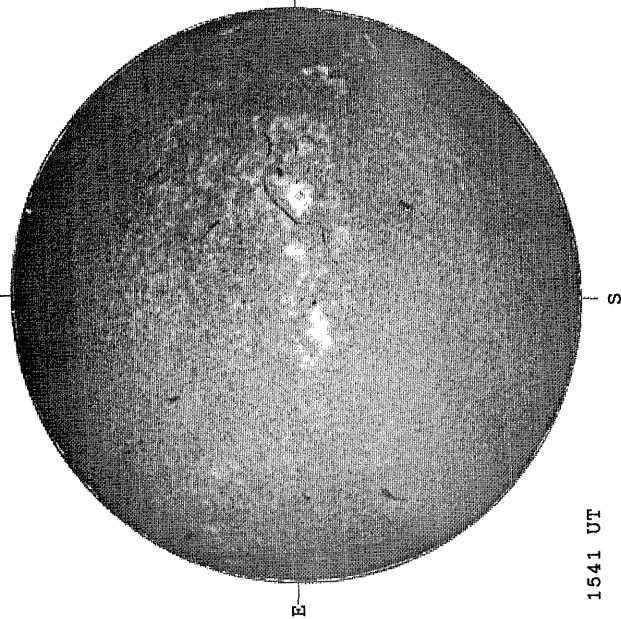
MT. WILSON MAGNETOGRAM

Delta Y = 13.0
Delta X = 9.6

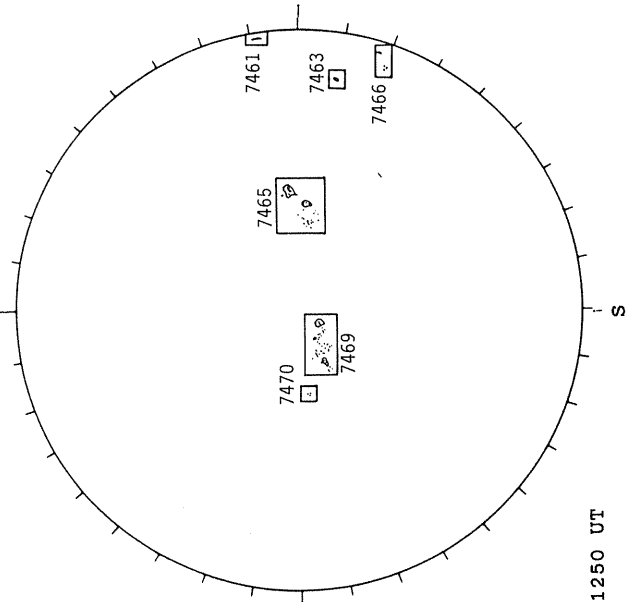


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Black = -7.5G

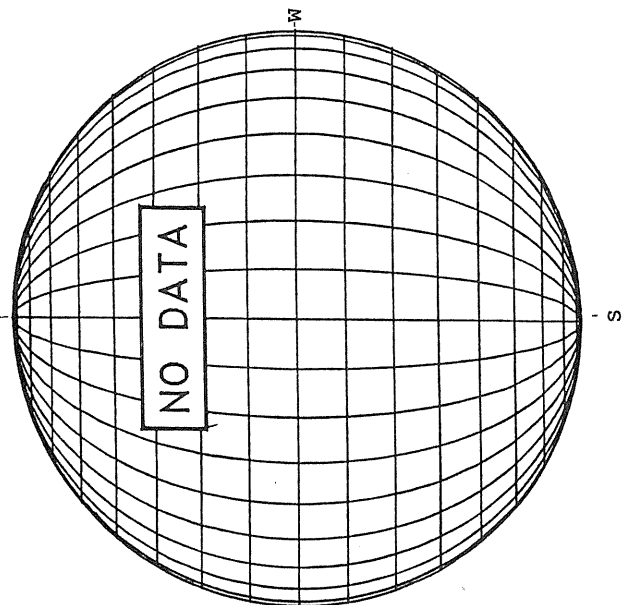
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



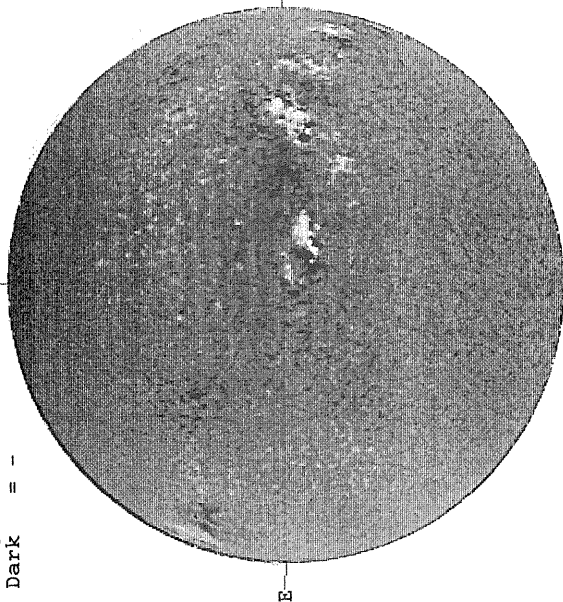
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APRIL 7, 1993 (P=-26.29 B₀ = -6.16, L₀ = 79.45)

KITT PEAK MAGNETOGRAM

5807A

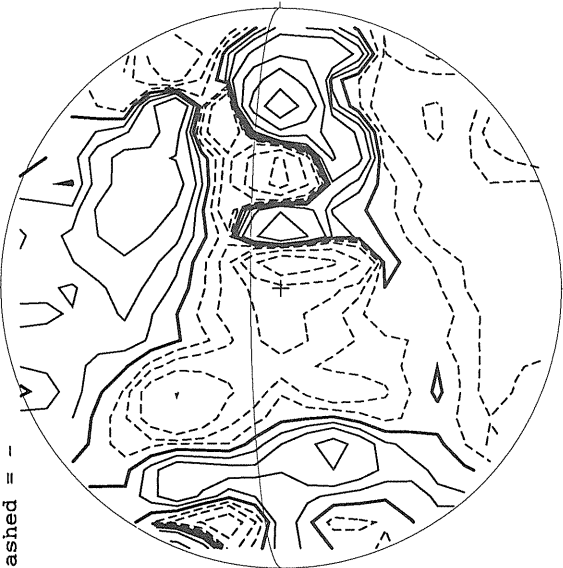
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1613 UT

STANFORD MAGNETOGRAM

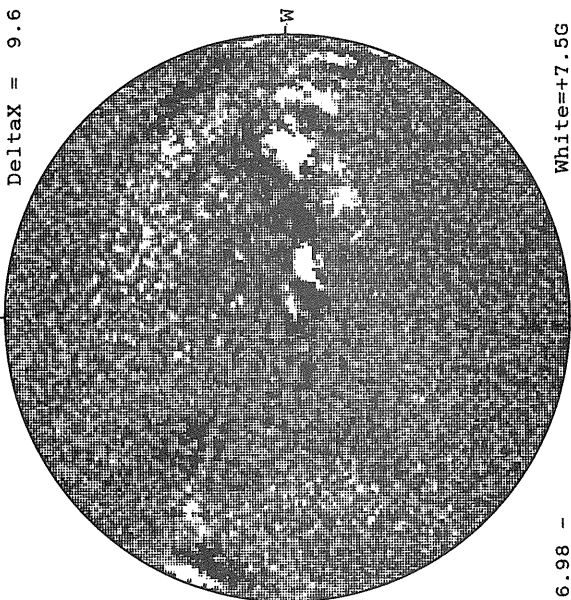
Solid = +
Dashed = -



2121 UT

MT. WILSON MAGNETOGRAM

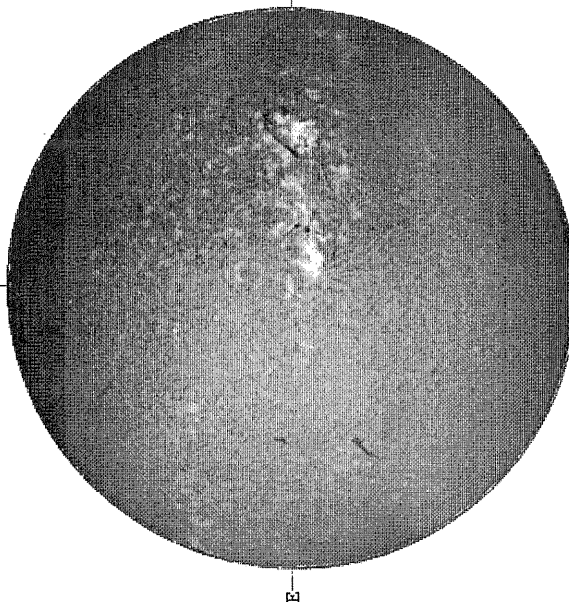
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Delta_X = 9.6



16.98 -
17.92 UT

White = +7.5G
Black = -7.5G

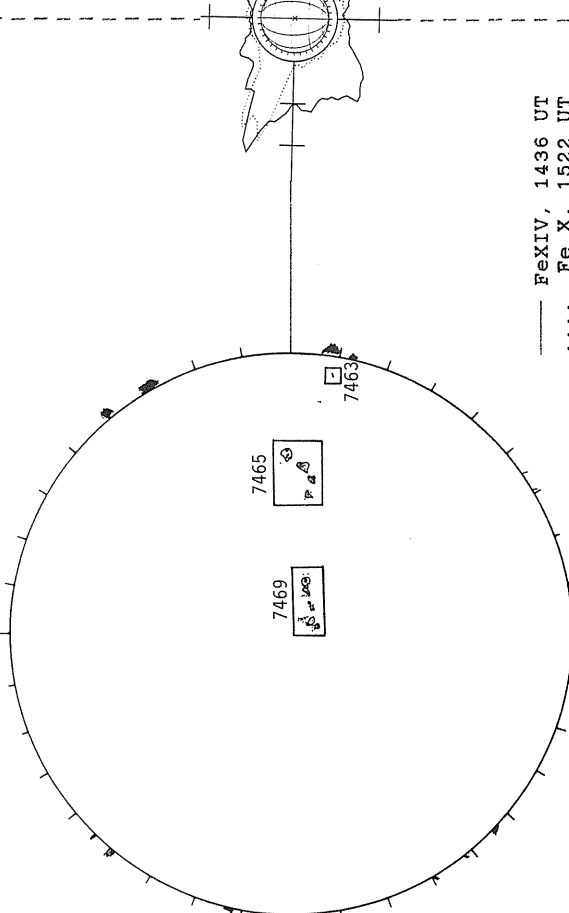
SACRAMENTO PEAK H-ALPHA



1601 UT

BOULDER SUNSPOT

SACRAMENTO PEAK CORONA (1.15 Radii)



1448 UT
1457 UT BOUL Prom

— Fe XIV, 1436 UT
.... Fe X, 1522 UT
xxxx Ca XV, 1510 UT
NO CA XV ACTIVITY TODAY

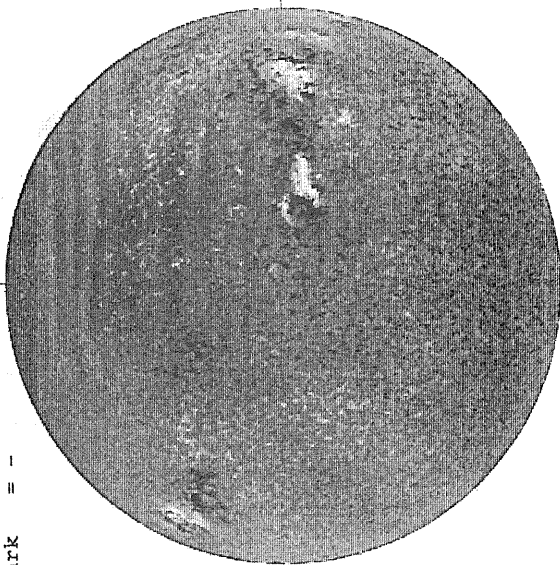
54
Apr 93

APRIL 8, 1993 (P=-26.29, B₀ = -6.10, L₀ = 66.25)

KITT PEAK MAGNETOGRAM

5507A

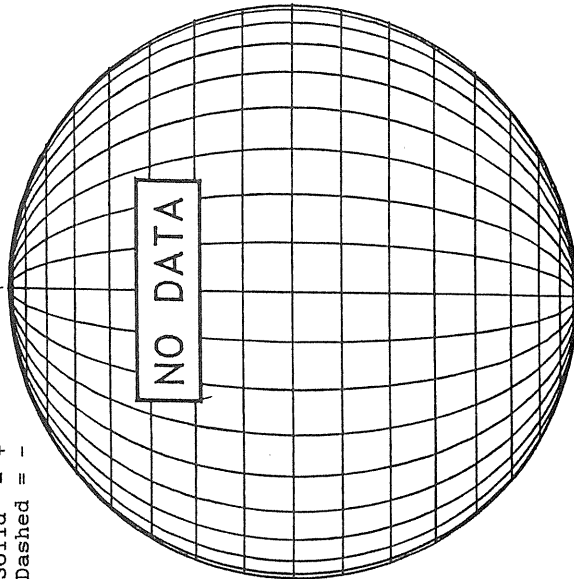
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1437 UT

STANFORD MAGNETOGRAM

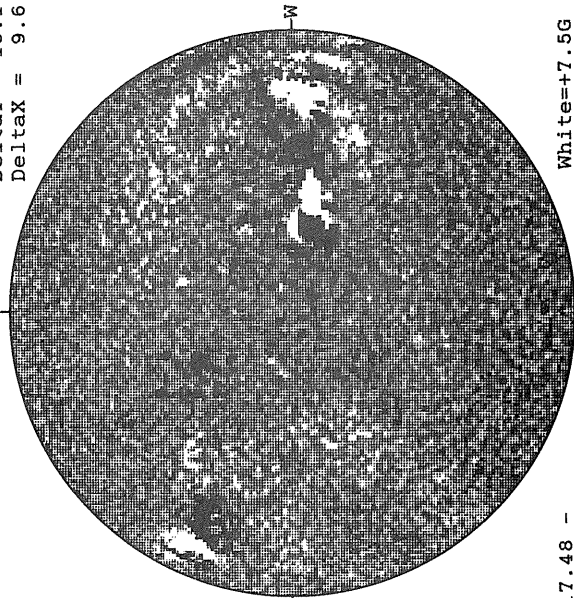
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17.48 -
18.43 UT

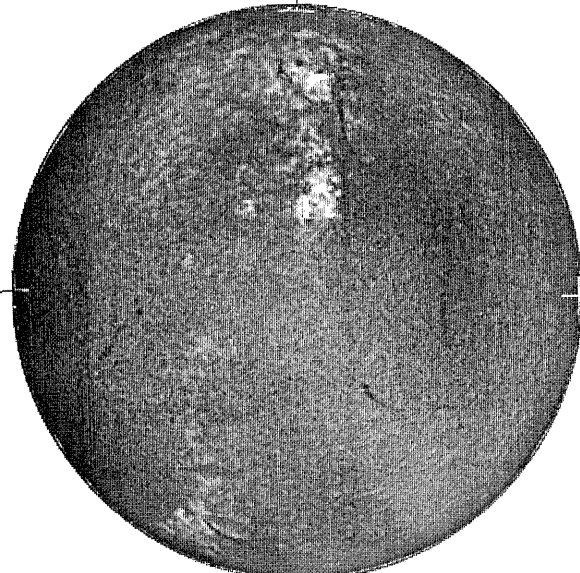
MT. WILSON MAGNETOGRAM

Delta Y = 13.1
Delta X = 9.6



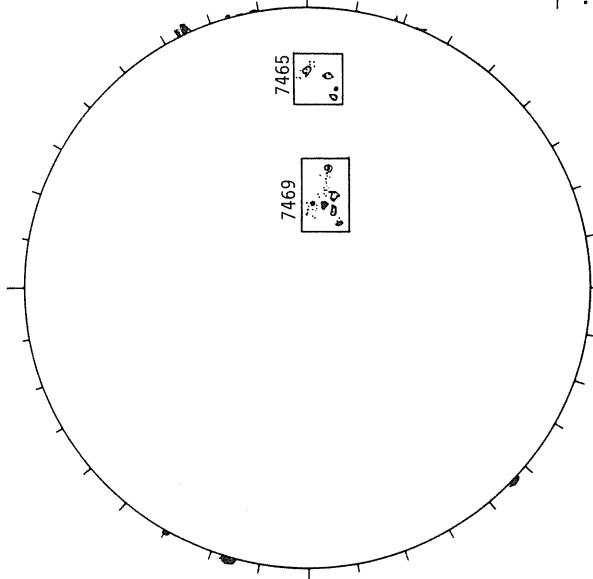
White = +7.5G
Black = -7.5G

BOULDER H-ALPHA



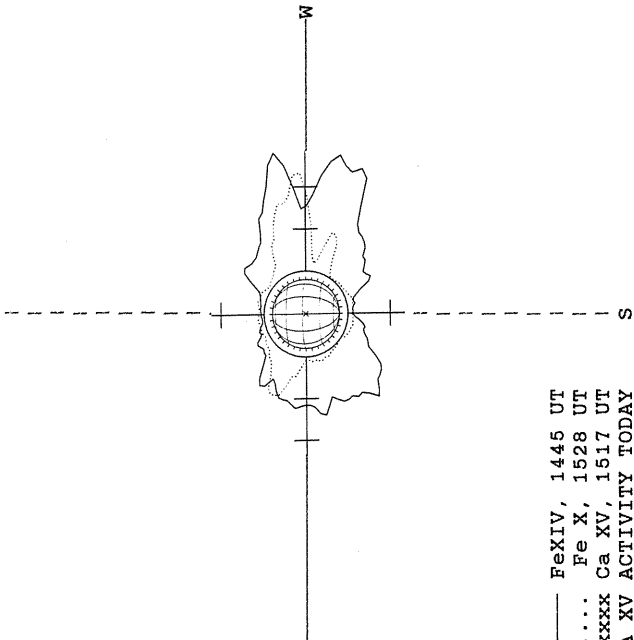
1431 UT

BOULDER SUNSPOT



1348 UT
1431 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

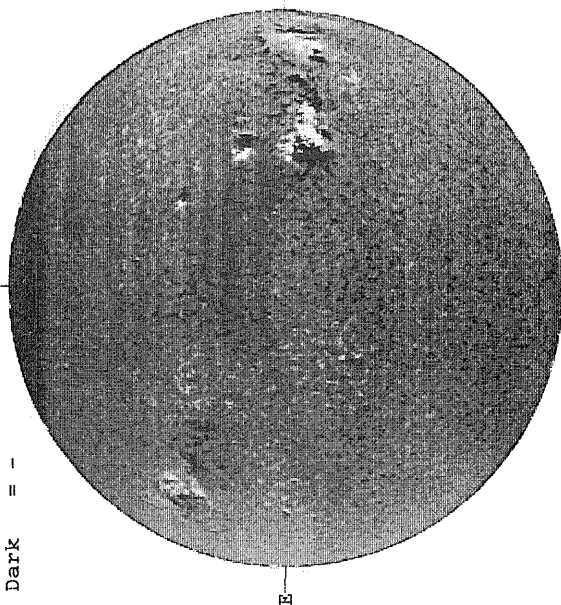


— Fe XIV, 1445 UT
.... Fe X, 1528 UT
xxxx Ca XV, 1517 UT
NO CA XV ACTIVITY TODAY

APRIL 9, 1993 (P=-26.28 B₀ = -6.03, L₀ = 53.05)

KITT PEAK MAGNETOGRAM
5507A

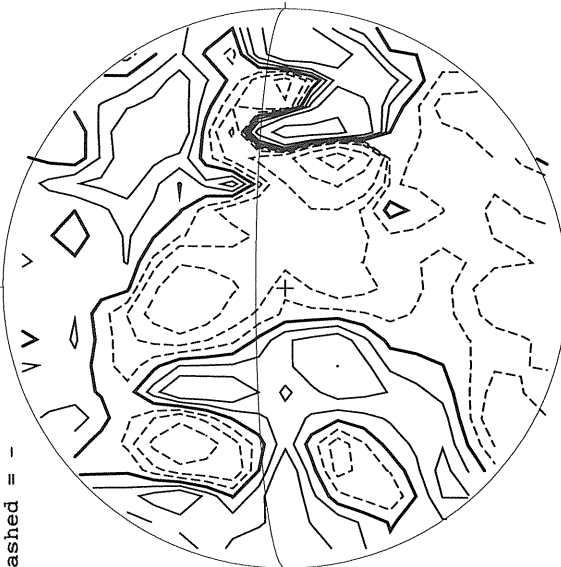
Bright = +
Dark = -



1427 UT

STANFORD MAGNETOGRAM

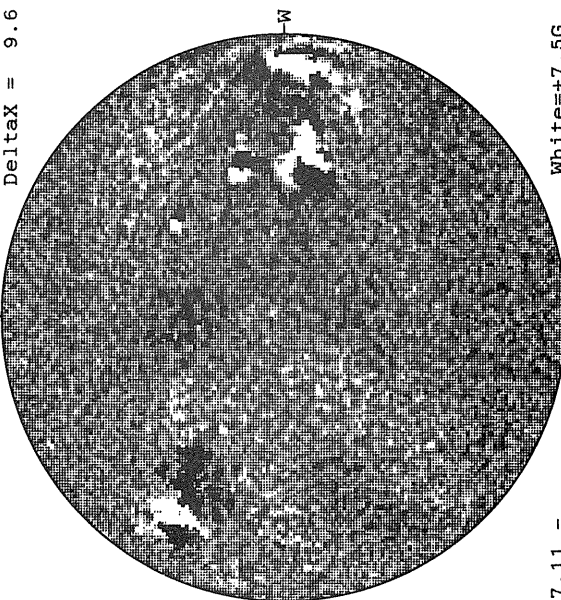
Solid = +
Dashed = -



2210 UT

MT. WILSON MAGNETOGRAM

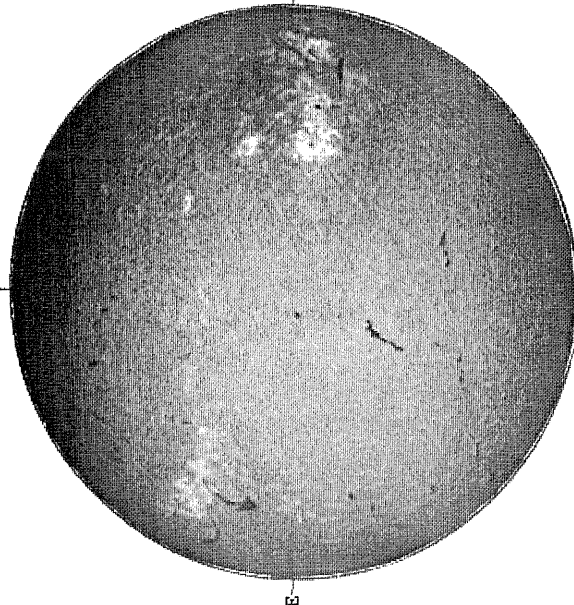
DeltaY = 13.1
DeltaX = 9.6



17.11 -
18.06 UT

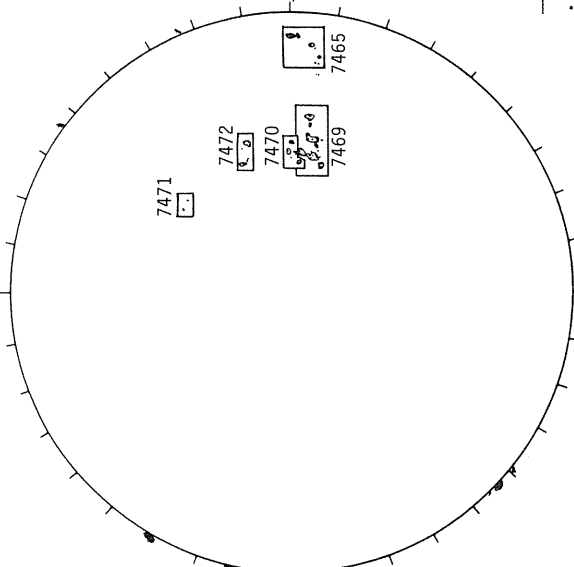
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



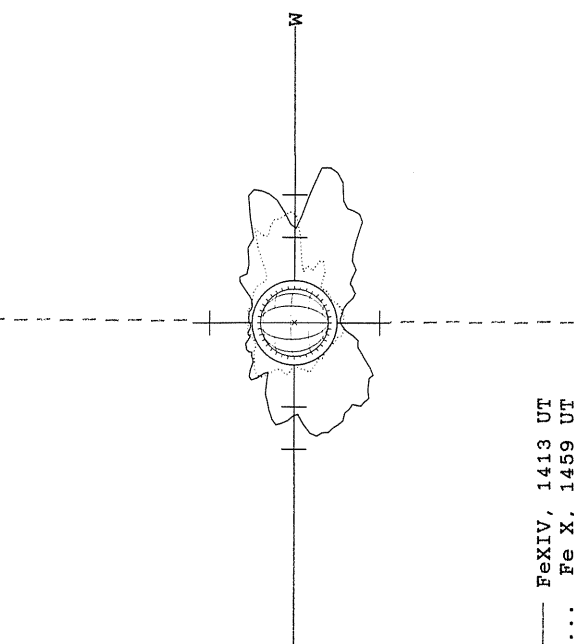
1559 UT

BOULDER SUNSPOT



1439 UT
1454 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

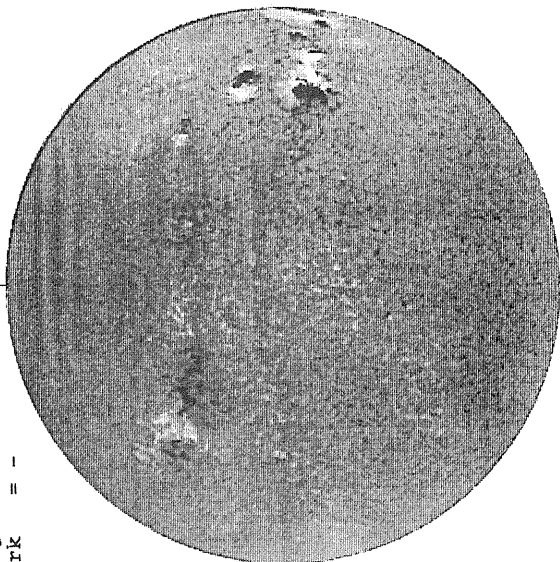


--- FeXIV, 1413 UT
.... Fe X, 1459 UT
xxxx Ca XV, 1440 UT
NO CA XV ACTIVITY TODAY

APRIL 10, 1993 (P=-26.26, B₀ =-5.96, L₀ = 39.85)

KITT PEAK MAGNETOGRAM
5507A

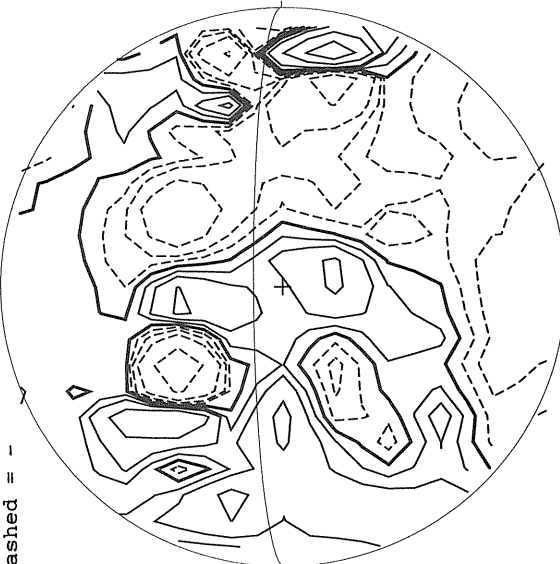
Bright = +
Dark = -



1842 UT

STANFORD MAGNETOGRAM

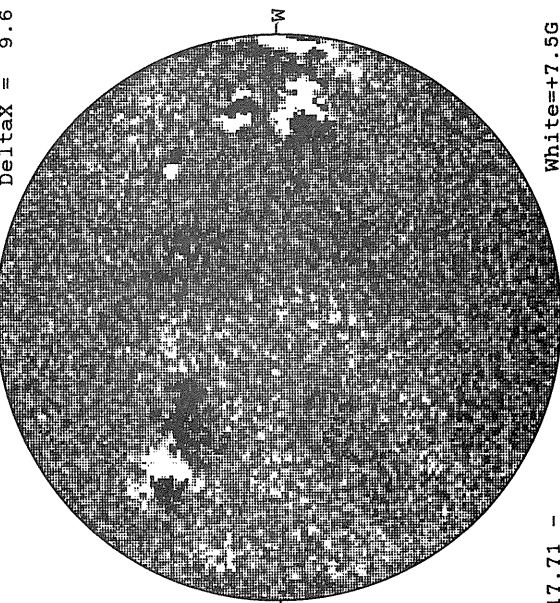
Solid = +
Dashed = -



2235 UT

MT. WILSON MAGNETOGRAM

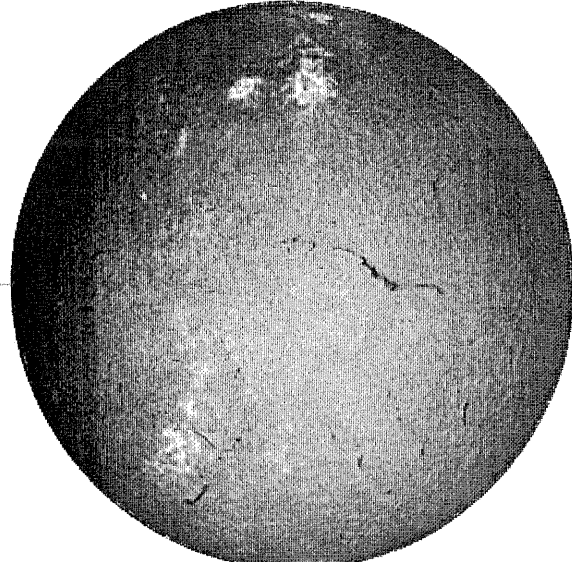
Delta_y = 13.1
Delta_x = 9.6



17.71 -
18.65 UT

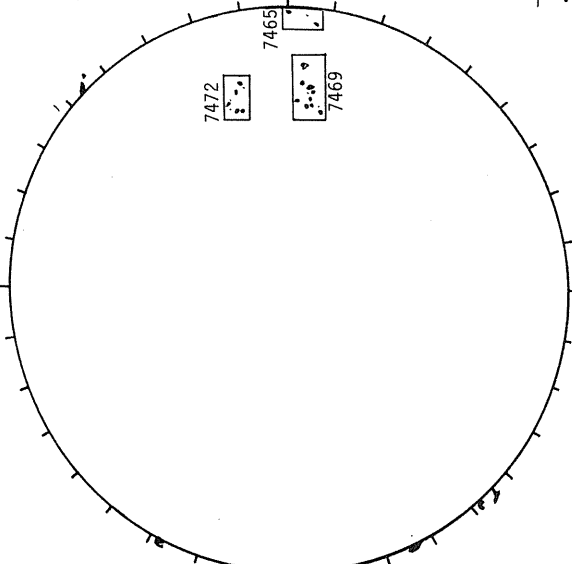
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



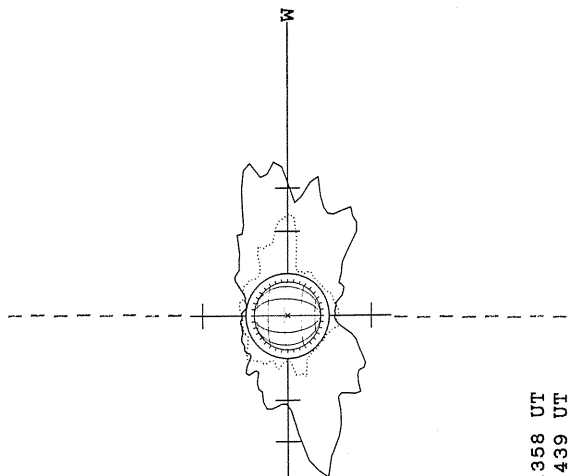
1541 UT

BOULDER SUNSPOT



1340 UT
0605 UT LOMNICKY Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



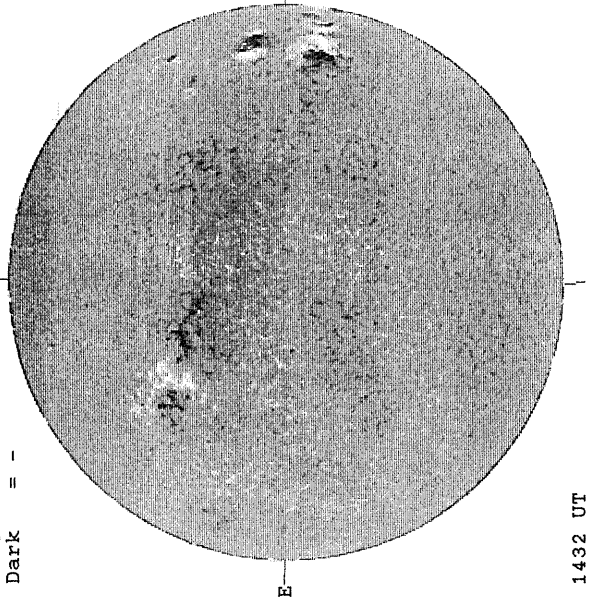
— FeXIV, 1358 UT
.... Fe X, 1439 UT
xxxx Ca XV, 1429 UT
NO CA XV ACTIVITY TODAY

APRIL 11, 1993 (P=-26.23, B₀ = -5.89, L₀ = 26.65)

KITT PEAK MAGNETOGRAM

5507A

Bright = +
Dark = -



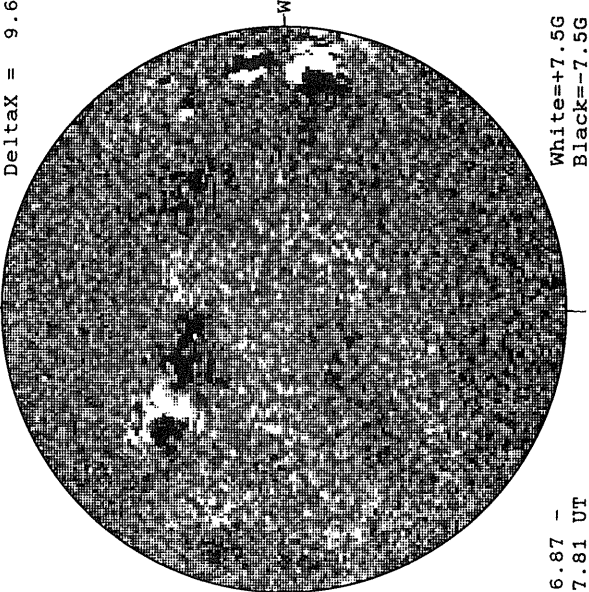
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



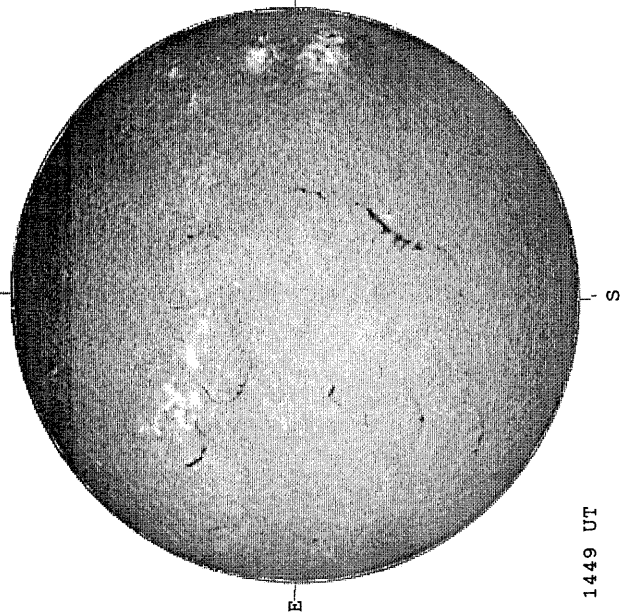
MT. WILSON MAGNETOGRAM

Delta Y = 13.1
Delta X = 9.6

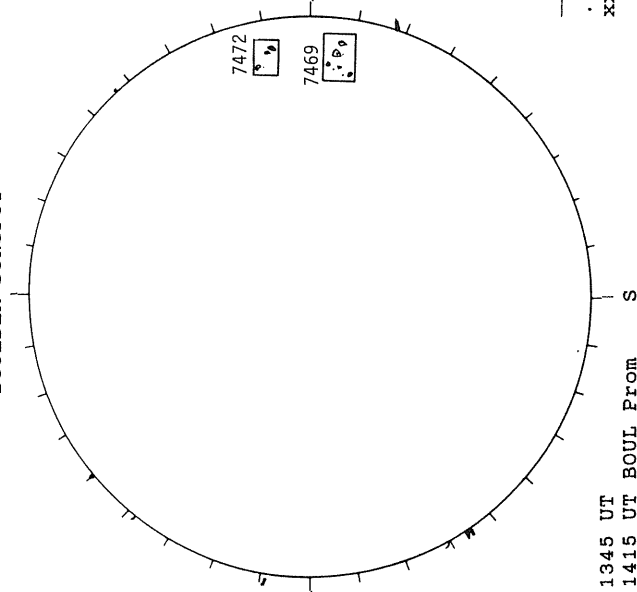


White = +7.5G
Black = -7.5G

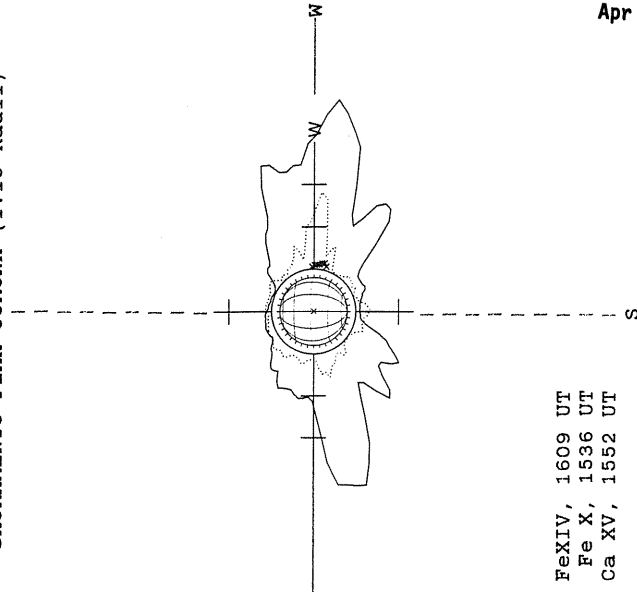
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



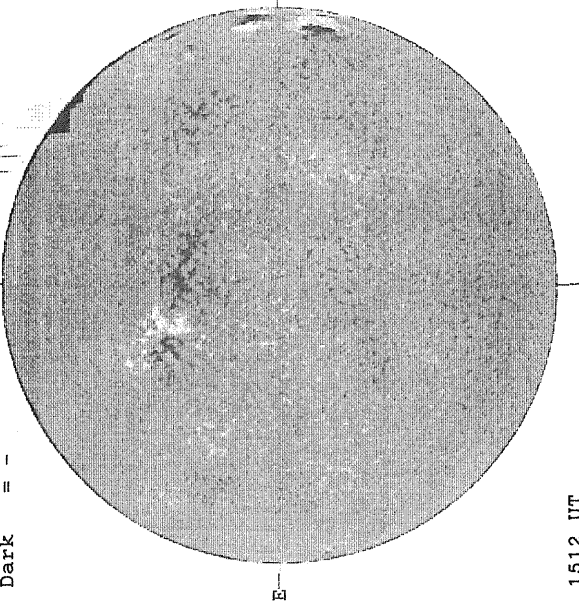
— Fe XIV, 1609 UT
.... Fe X, 1536 UT
xxxx Ca XV, 1552 UT

58
Apr 93

APRIL 12, 1993 (P=-26.19, B₀ = -5.82, L₀ = 13.45)

KITT PEAK MAGNETOGRAM
*** 7A**

Bright = +
Dark = -



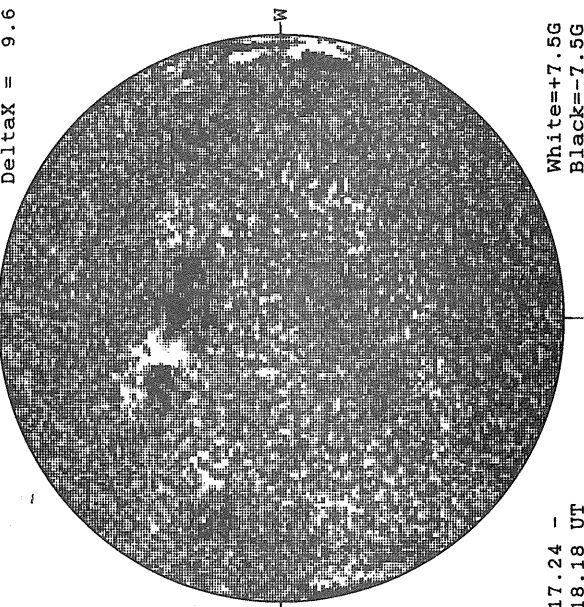
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



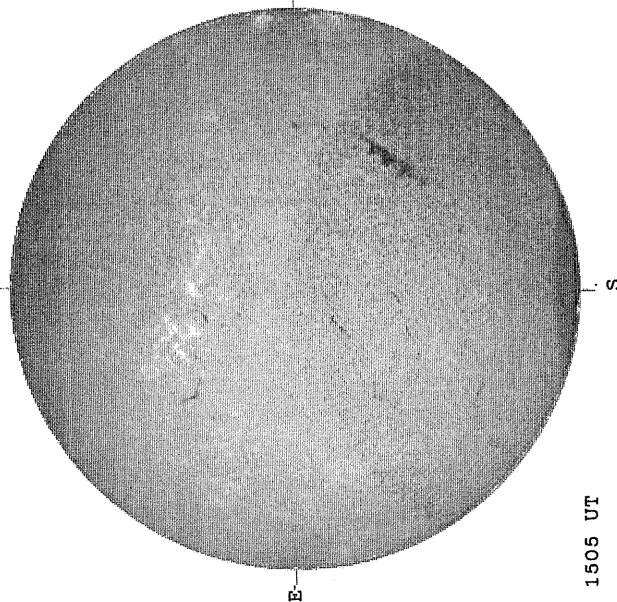
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6

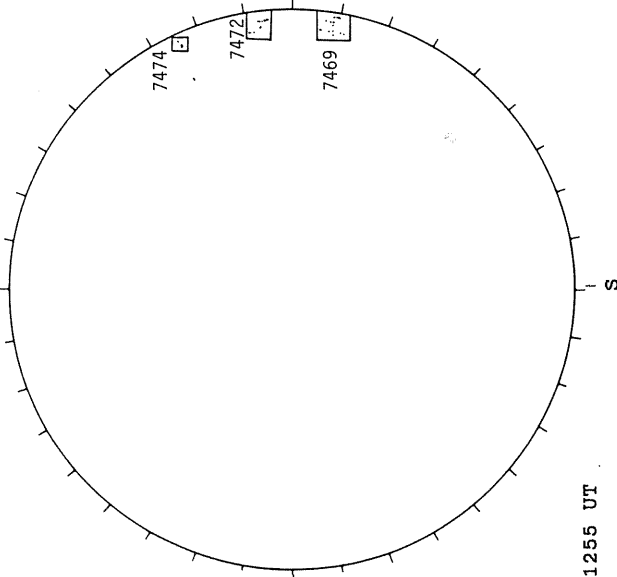


White = +7.5G
Black = -7.5G

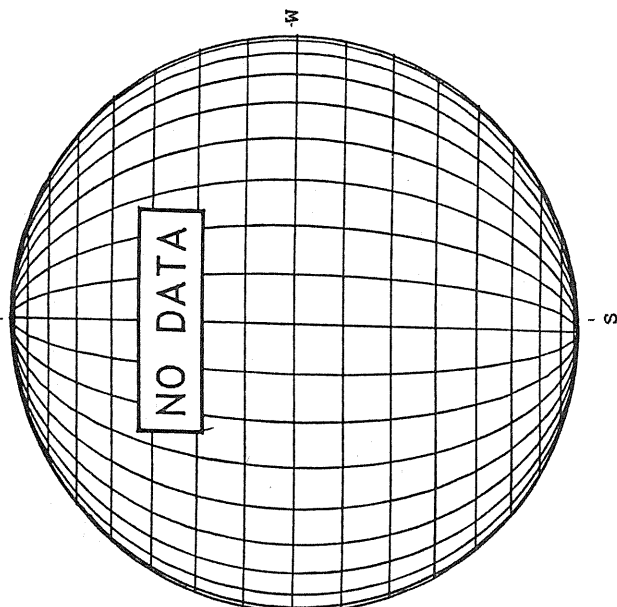
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

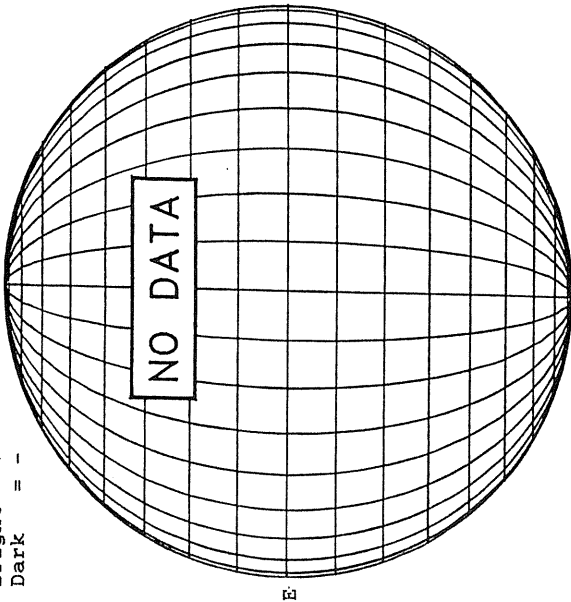


APRIL 13, 1993 (P=-26.15, B₀ = -5.74, L₀ = 0.25)

KITT PEAK MAGNETOGRAM

5507A

Bright = +
Dark = -



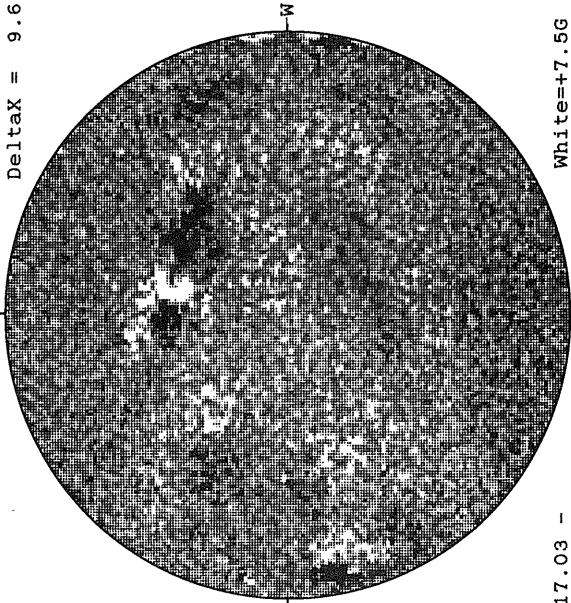
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

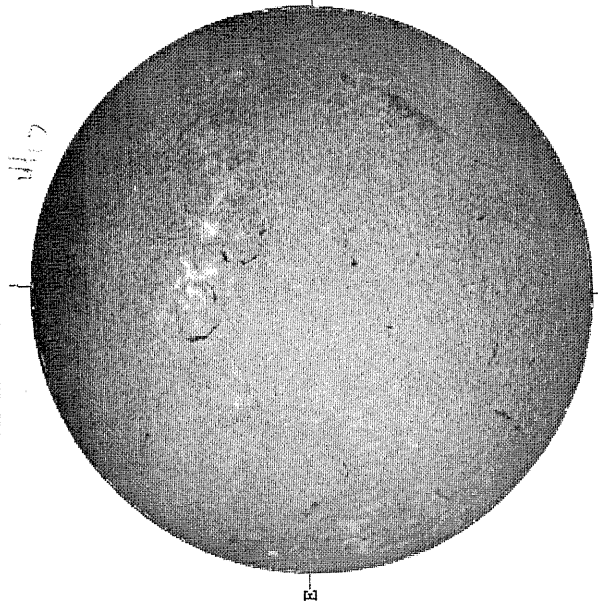
DeltaY = 13.1
DeltaX = 9.6



17.03 -
17.96 UT

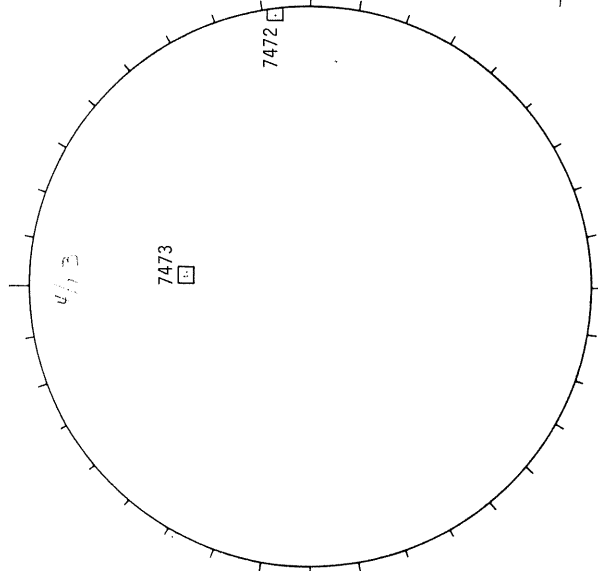
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



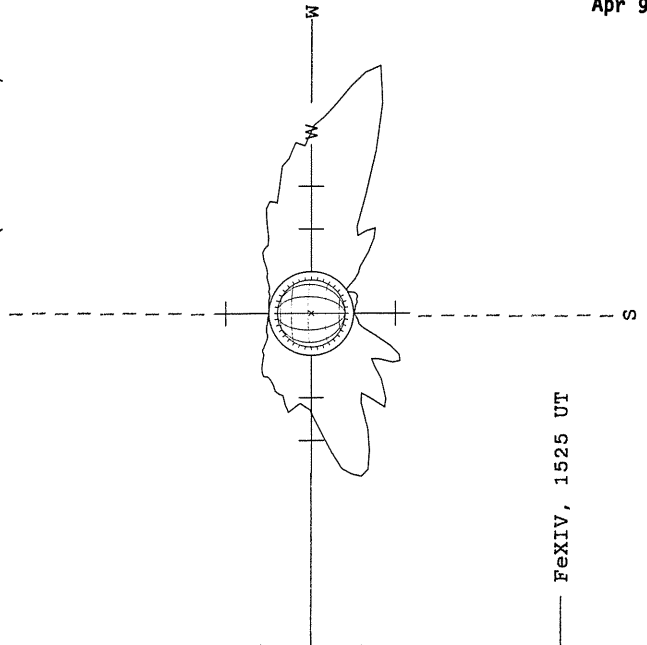
1456 UT

RAMEY SUNSPOT



1250 UT

SACRAMENTO PEAK CORONA (1.15 RadII)

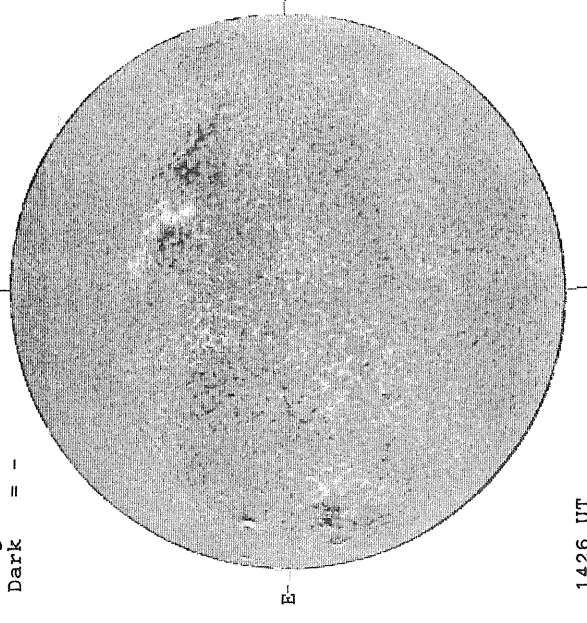


FeXIV, 1525 UT

APRIL 14, 1993 (P=-26.10, B₀ = -5.67, L₀ = 347.05)

KITT PEAK MAGNETOGRAM
5507A

Bright = +
Dark = -



1426 UT

STANFORD MAGNETOGRAM

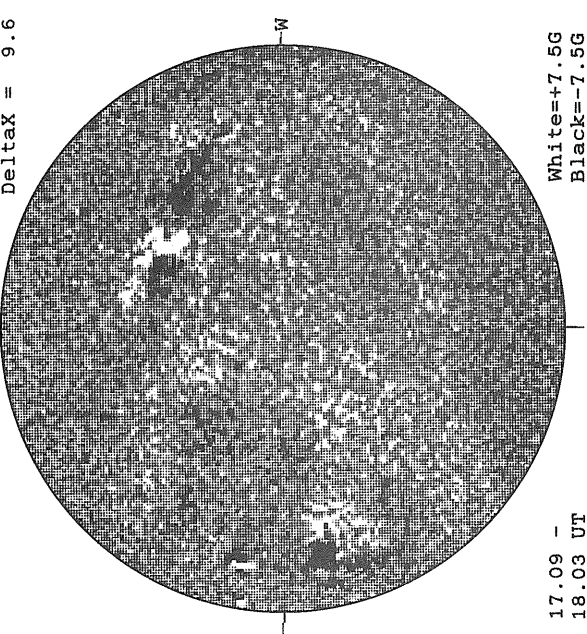
Solid = +
Dashed = -



2254 UT

MT. WILSON MAGNETOGRAM

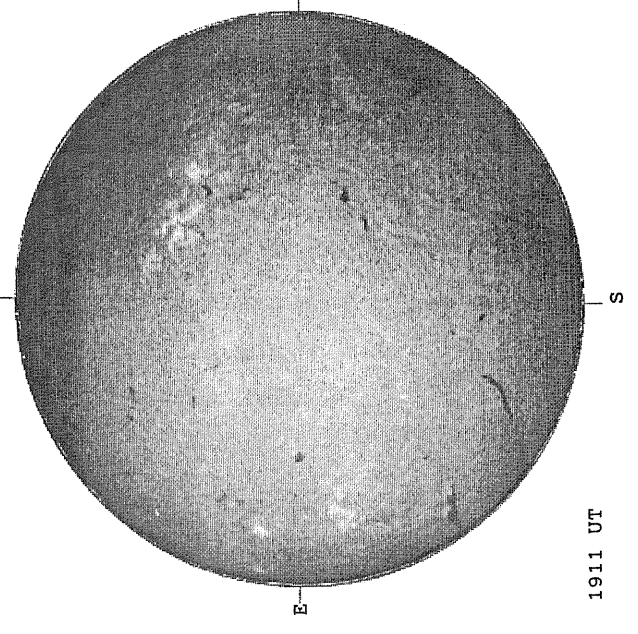
Delta_Y = 13.1
Delta_X = 9.6



17.09 -
18.03 UT

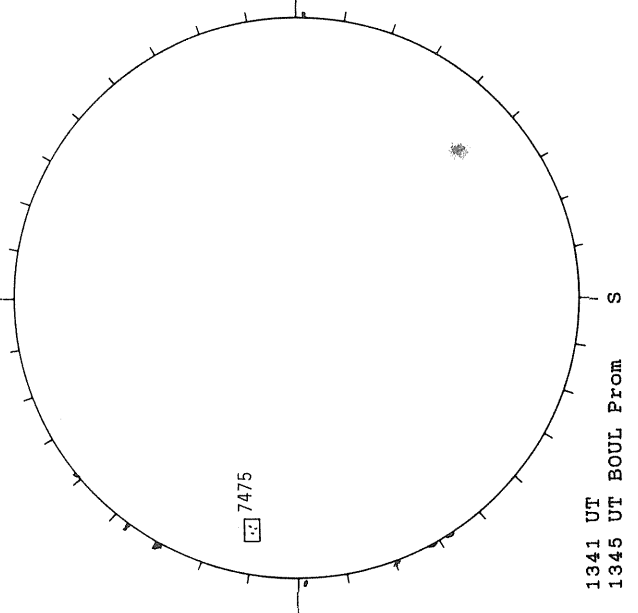
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



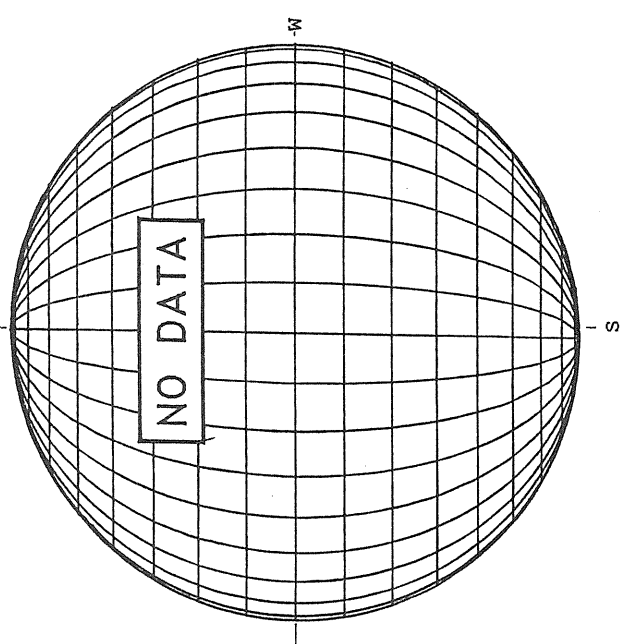
1911 UT

BOULDER SUNSPOT



1341 UT
1345 UT BOUL Prom

LOMNICKY STIT CORONA (1.15 Radii)

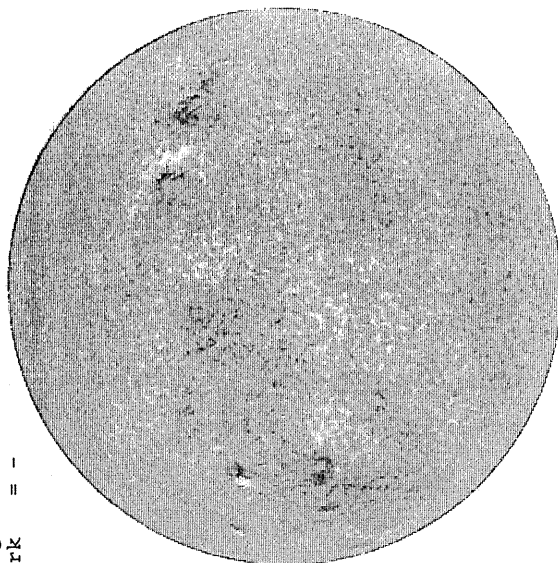


APRIL 15, 1993 (P=-26.05, B₀ = -5.59, L₀ = 333.84)

KITT PEAK MAGNETOGRAM

5507A

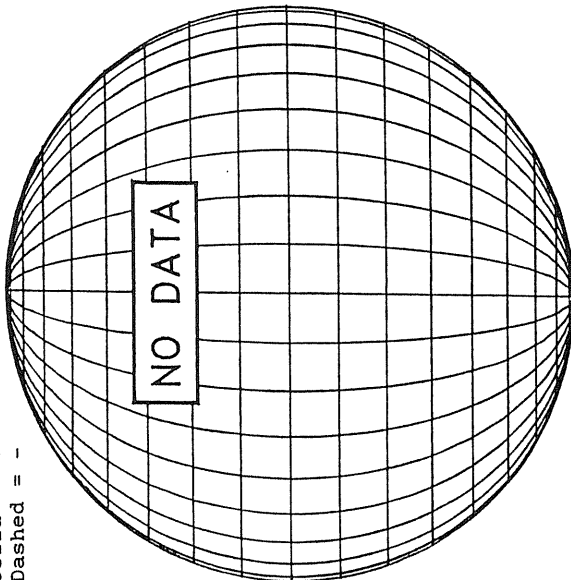
Bright = +
Dark = -



1359 UT

STANFORD MAGNETOGRAM

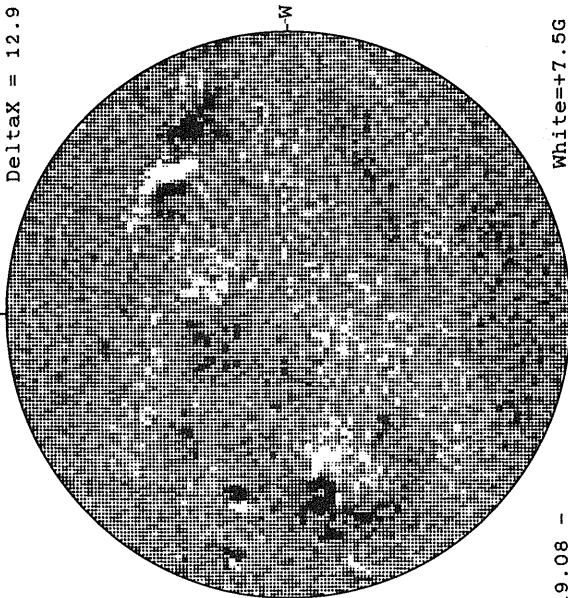
Solid = +
Dashed = -



NO DATA

MT. WILSON MAGNETOGRAM

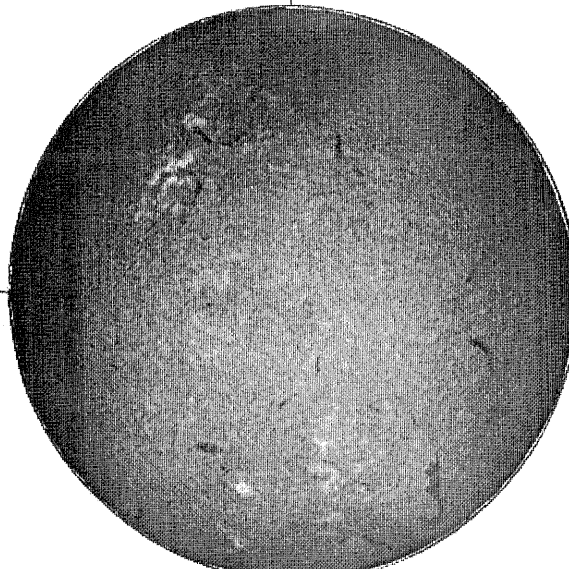
Delta Y = 20.1
Delta X = 12.9



19.08 -
19.49 UT

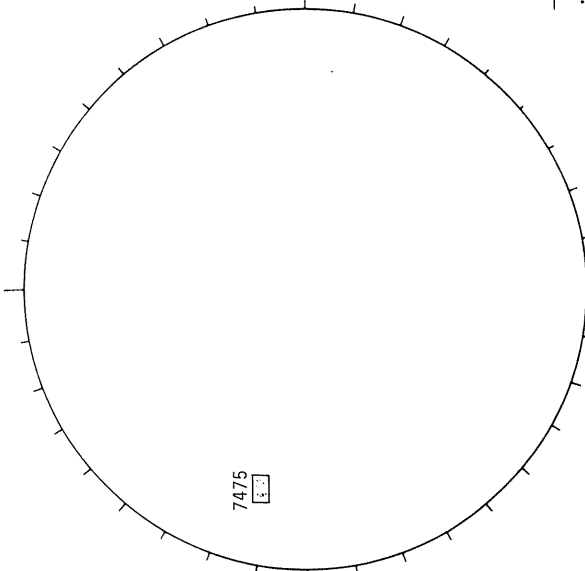
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



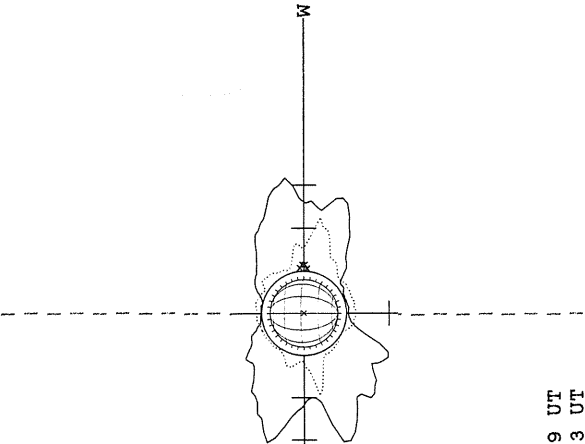
1604 UT

RAMEY SUNSPOT



1121 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



— Fe XIV, 1449 UT
.... Fe X, 1513 UT
xxxx Ca XV, 1500 UT

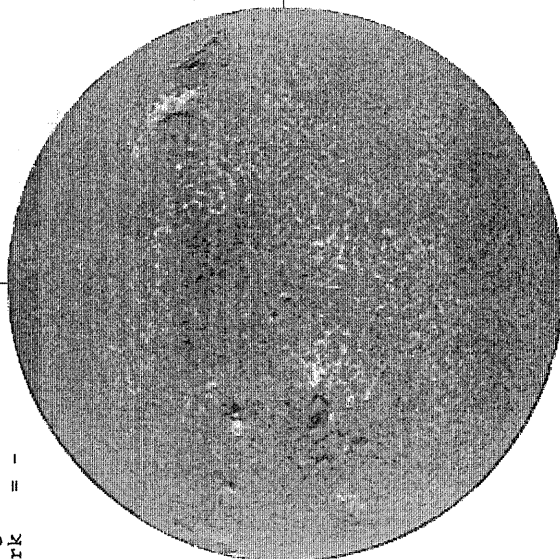
7475

APRIL 16, 1993 (P=-25.98, B₀ = -5.51, L₀ = 320.64)

KITT PEAK MAGNETOGRAM

5507A

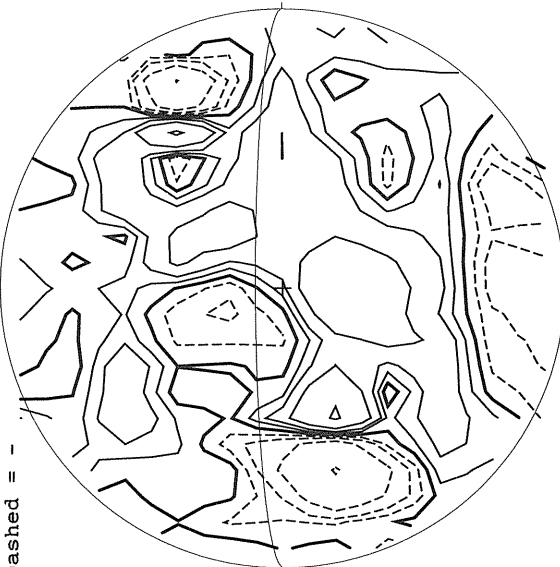
Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

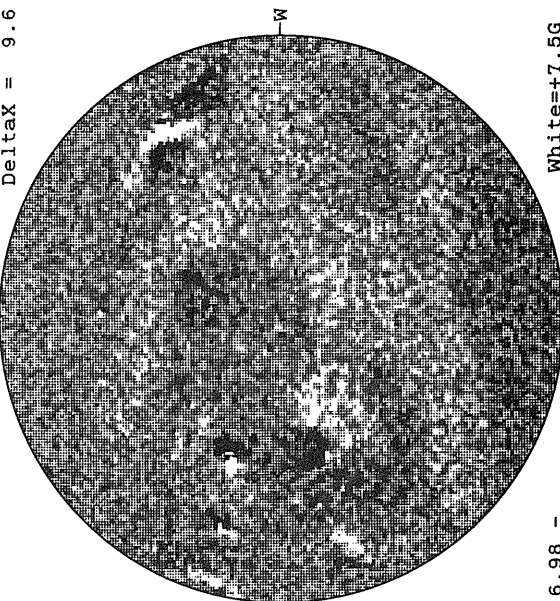
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

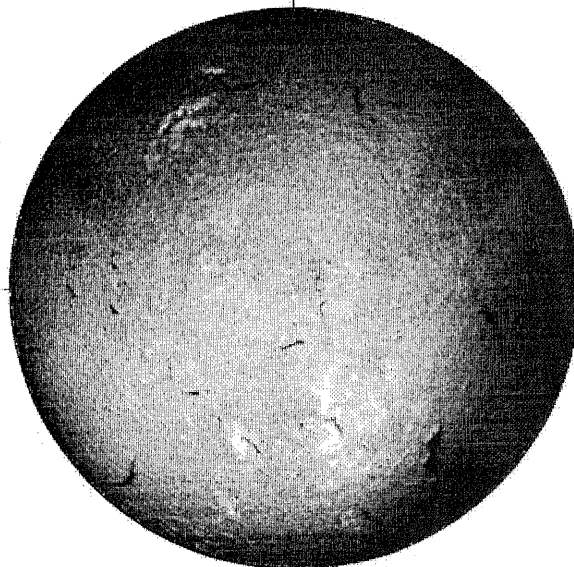
Delta Y = 13.1
Delta X = 9.6



16.98 -
17.92 UT

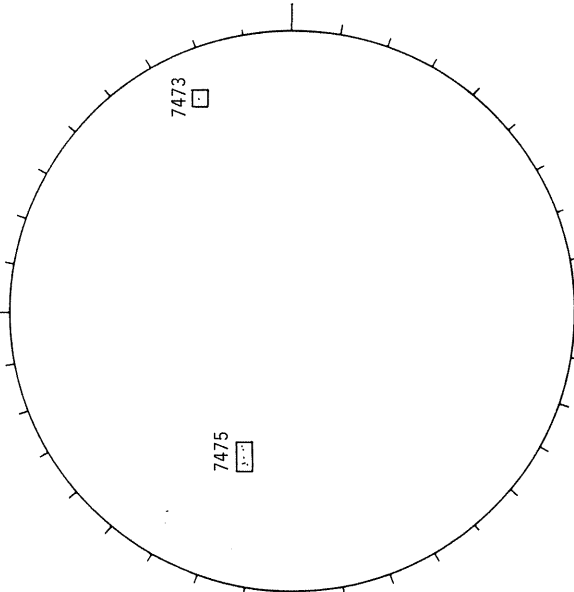
White = +7.5G
Black = -7.5G

LARISSA H-ALPHA



0820 UT

RAMEY SUNSPOT

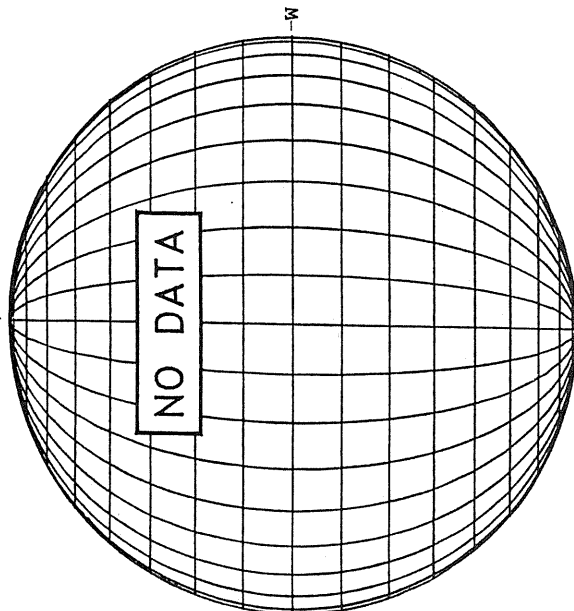


1207 UT

7473

7475

SACRAMENTO PEAK CORONA (1.15 Radii)

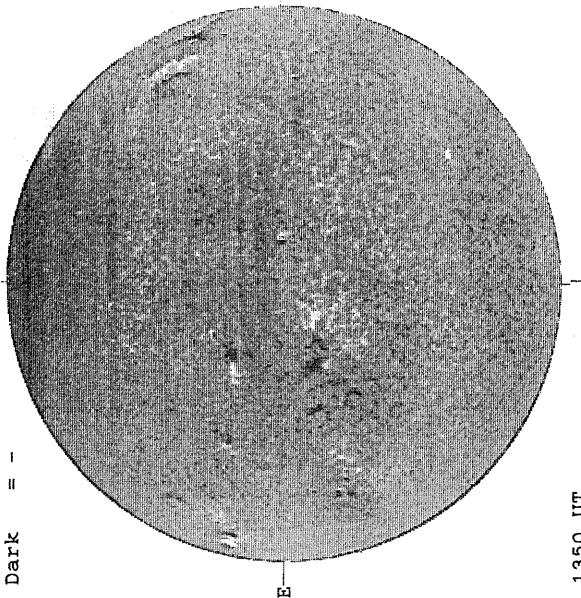


NO DATA

APRIL 17, 1993 (P=-25.91, B₀ = -5.43, L₀ = 307.44)

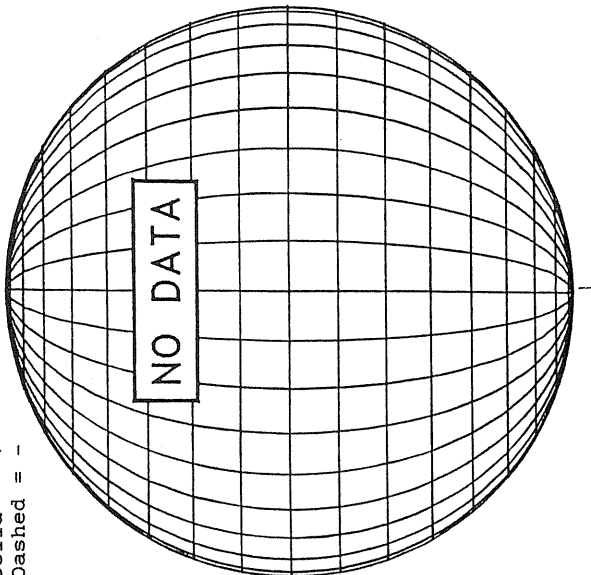
KITT PEAK MAGNETOGRAM
N **5507A**

Bright = +
Dark = -



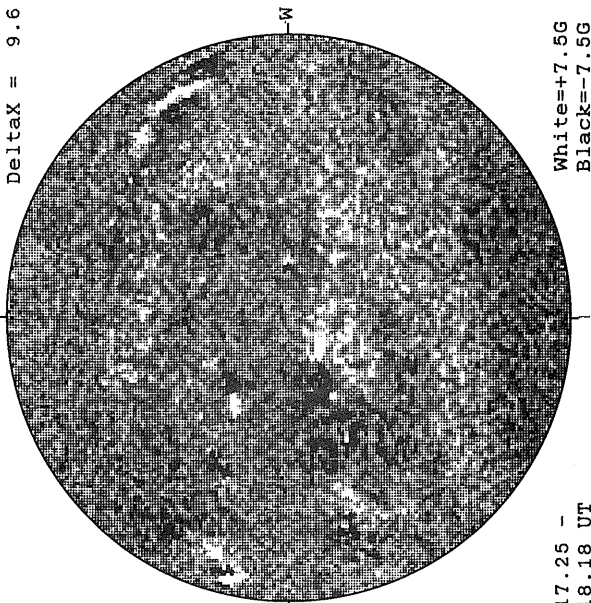
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

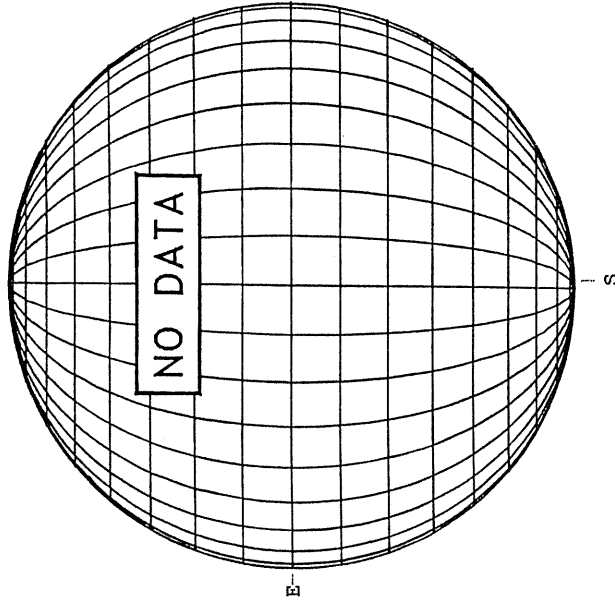


MT. WILSON MAGNETOGRAM

Delta Y = 13.0
Delta X = 9.6

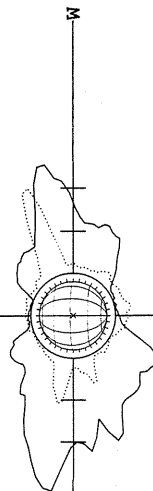
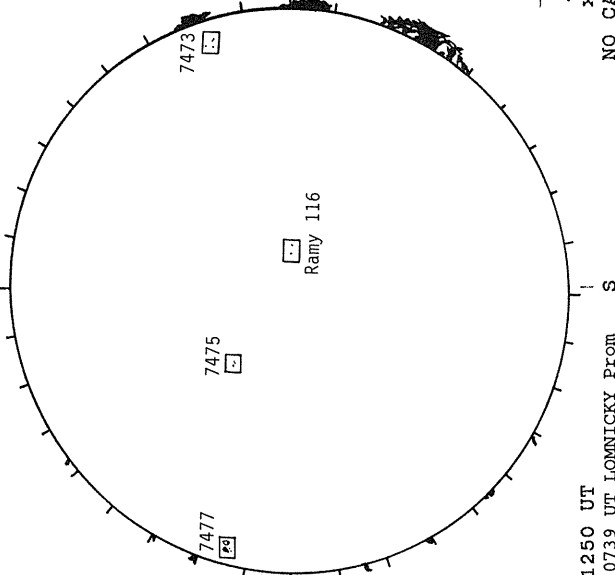


SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT

SACRAMENTO PEAK CORONA (1.15 Radii)



— Fe XIV, 1356 UT
.... Fe X, 1447 UT
xxxx Ca XV, 1430 UT
NO CA XV ACTIVITY TODAY

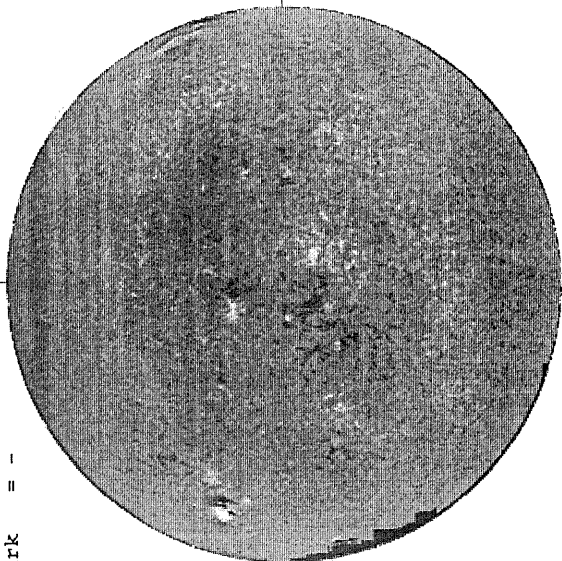
1250 UT
0739 UT LOMNICKY Prom

64
Apr 93

APRIL 18, 1993 (P=-25.83, B₀ = -5.35, L₀ = 294.23)

KITT PEAK MAGNETOGRAM
N **5507A**

Bright = +
Dark = -



1510 UT

STANFORD MAGNETOGRAM
N

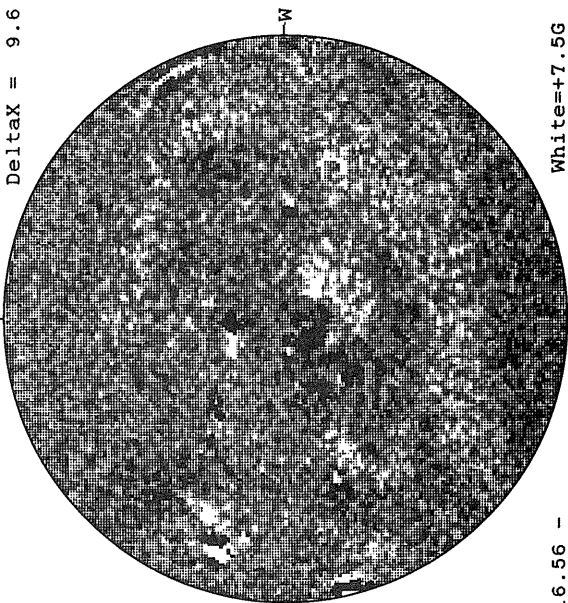
Solid = +
Dashed = -



2146 UT

MT. WILSON MAGNETOGRAM
N

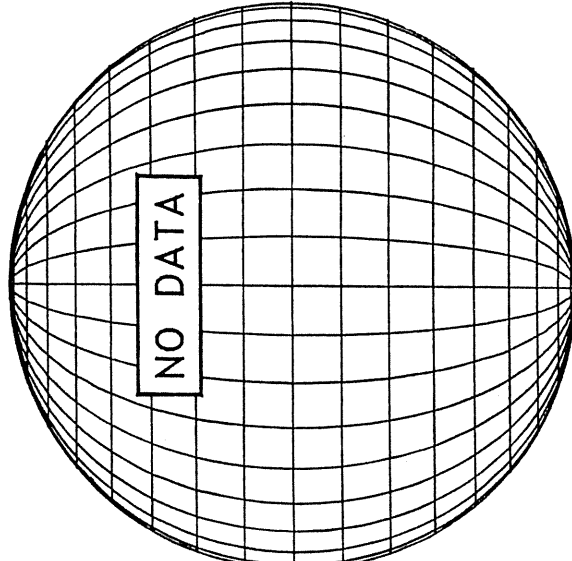
DeltaY = 13.1
DeltaX = 9.6



16.56 -
17.50 UT

White = +7.5G
Black = -7.5G

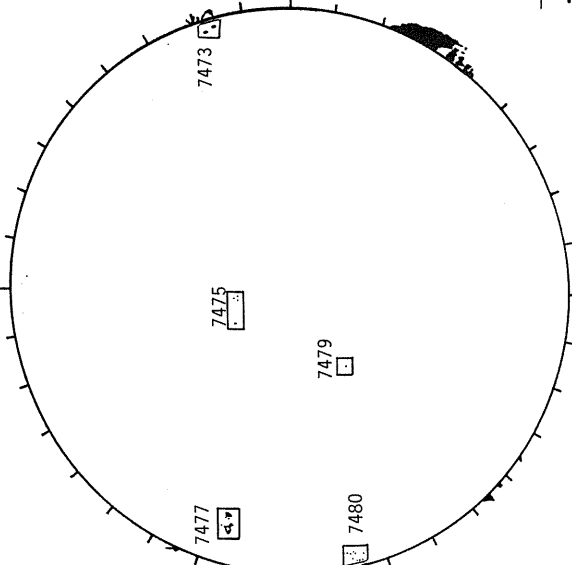
SACRAMENTO PEAK H-ALPHA



E

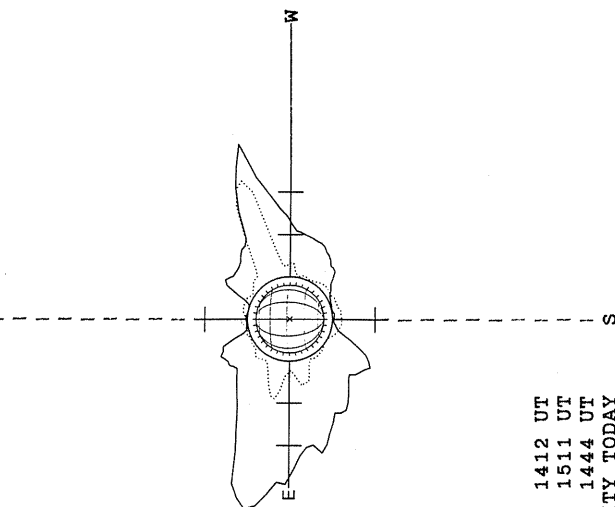
S

RAMEY SUNSPOT



1250 UT
0621 UT LOMNICKY Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

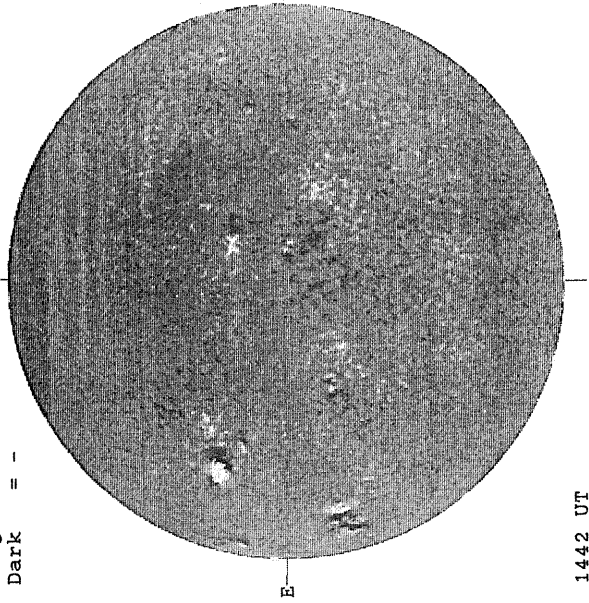


— Fe XIV, 1412 UT
.... Fe X, 1511 UT
xxxx Ca XV, 1444 UT
NO CA XV ACTIVITY TODAY

APRIL 19, 1993 (P=-25.75, B₀ = -5.26, L₀ = 281.02)

KITT PEAK MAGNETOGRAM
5507A

Bright = +
Dark = -



1442 UT

STANFORD MAGNETOGRAM

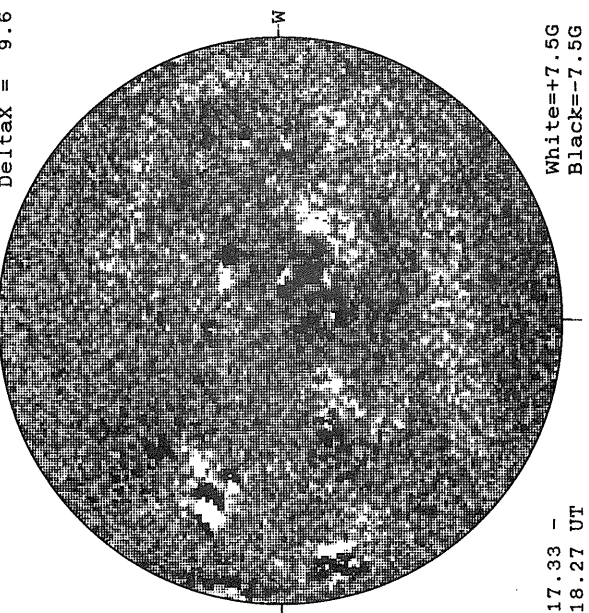
Solid = +
Dashed = -



2223 UT

MT. WILSON MAGNETOGRAM

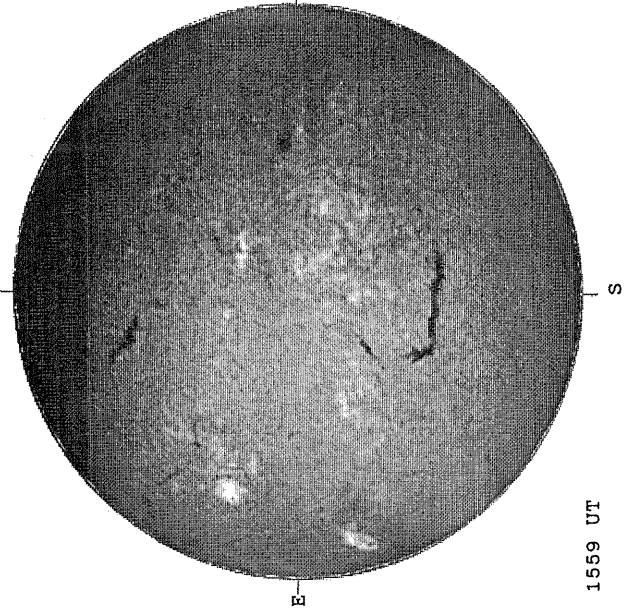
DeltaY = 13.1
DeltaX = 9.6



17.33 -
18.27 UT

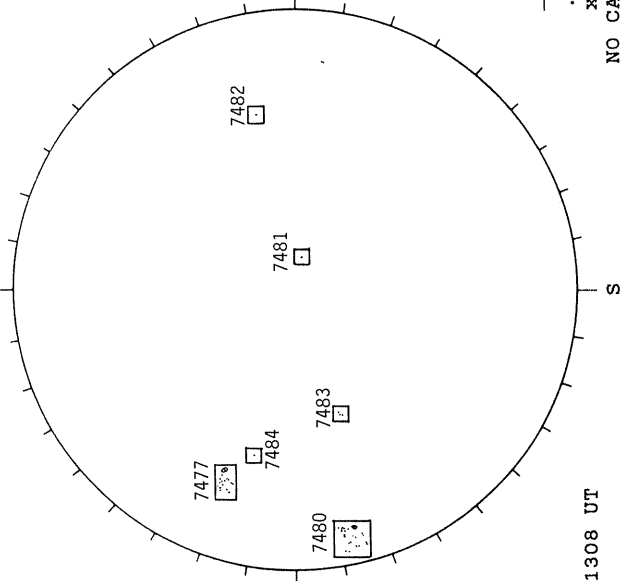
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



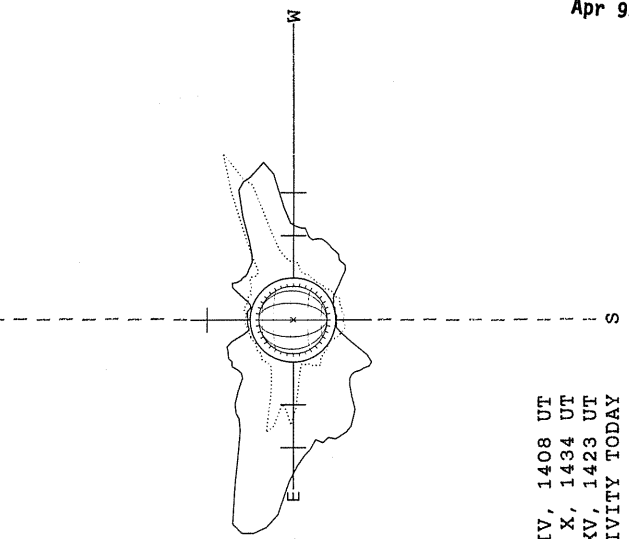
1559 UT

RAMEY SUNSPOT



1308 UT

SACRAMENTO PEAK CORONA (1.15 Radil)



— Fe XIV, 1408 UT
.... Fe X, 1434 UT
xxxx Ca XV, 1423 UT
NO CA XV ACTIVITY TODAY

66
Apr 93

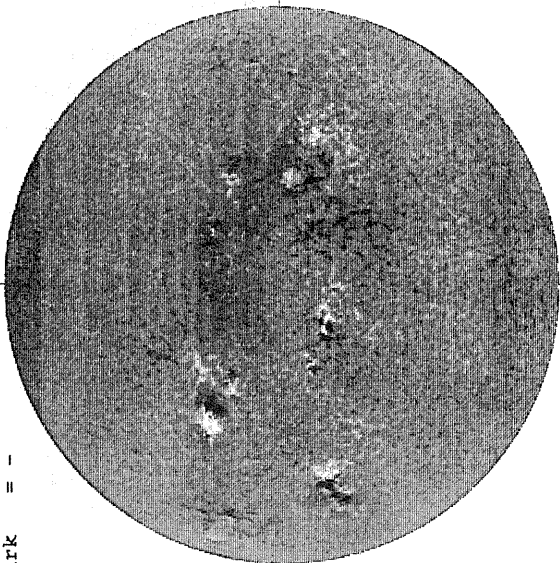
APRIL 20, 1993 (P=-25.65, B₀ = -5.18, L₀ = 267.82)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -

N

5507A



1624 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

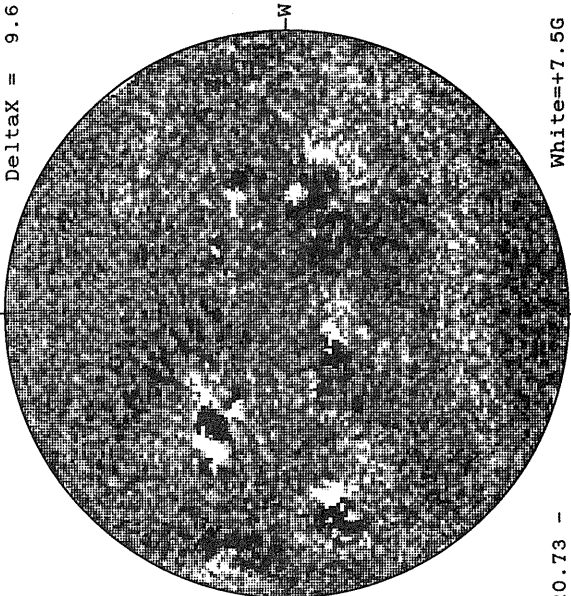


0008 UT
APR 21

MT. WILSON MAGNETOGRAM

Delta Y = 13.1
Delta X = 9.6

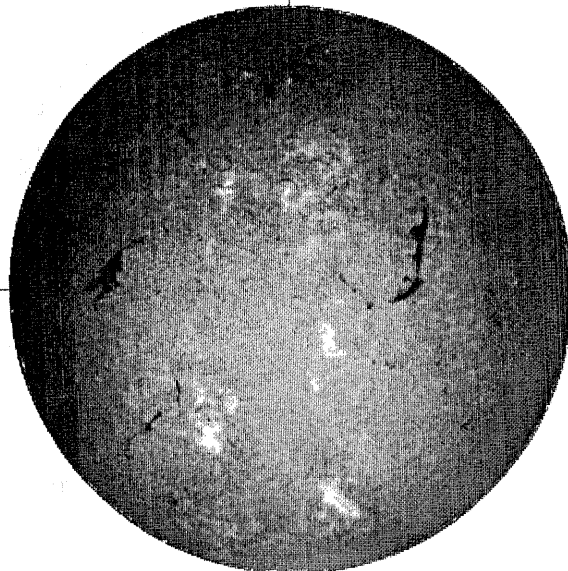
N



20.73 -
21.67 UT

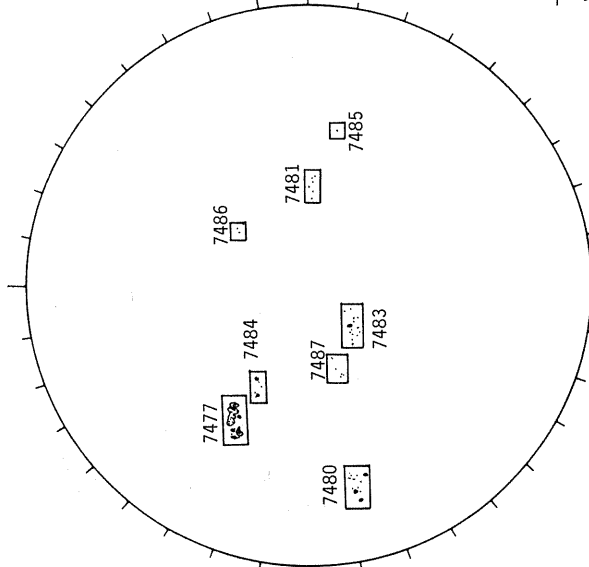
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



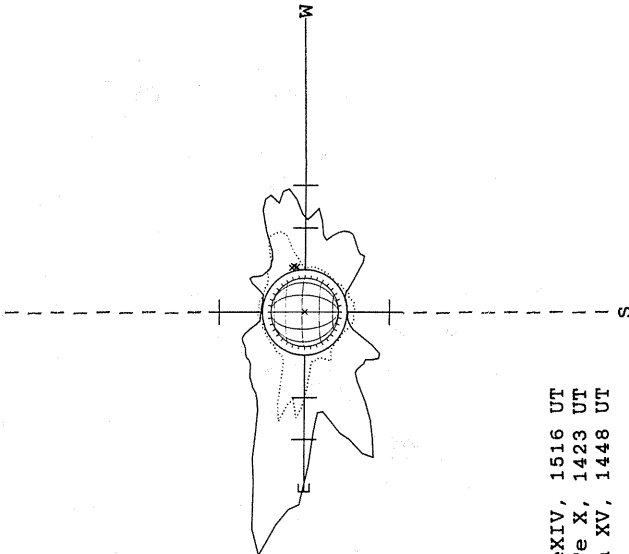
1454 UT

RAMEY SUNSPOT



1628 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



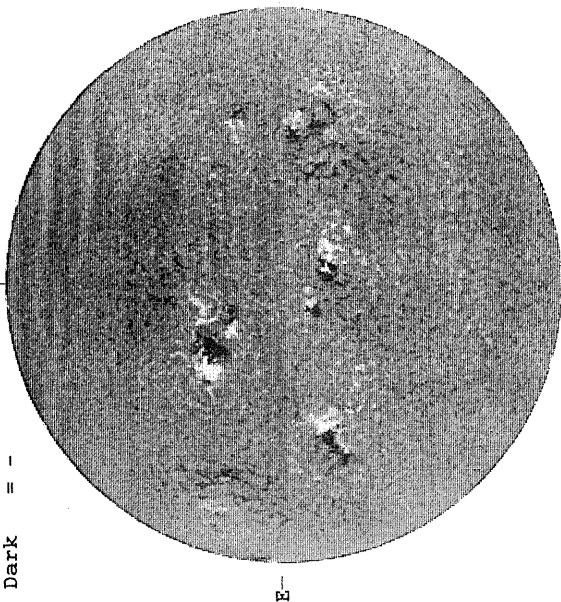
— Fe XIV, 1516 UT
.... Fe X, 1423 UT
xxxx Ca XV, 1448 UT

APRIL 21, 1993 (P=-25.55, B₀ = -5.09 L₀ = 254.61)

KITT PEAK MAGNETOGRAM

5507A

Bright = +
Dark = -



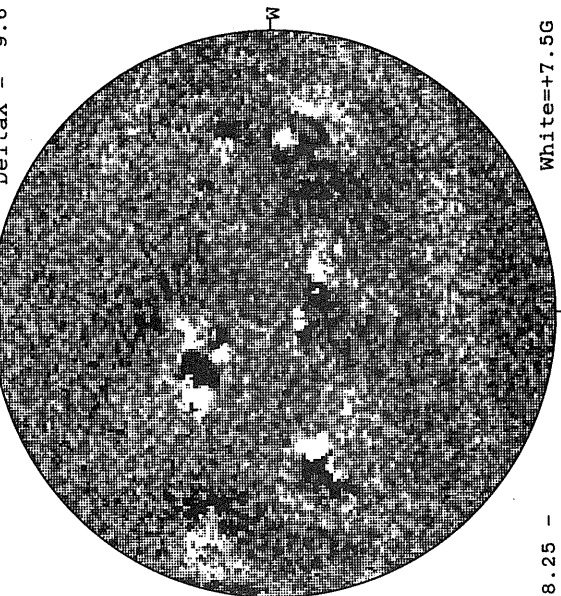
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



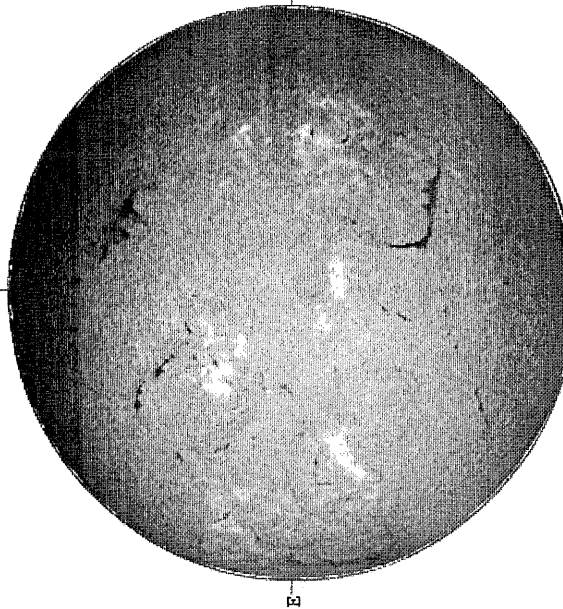
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6

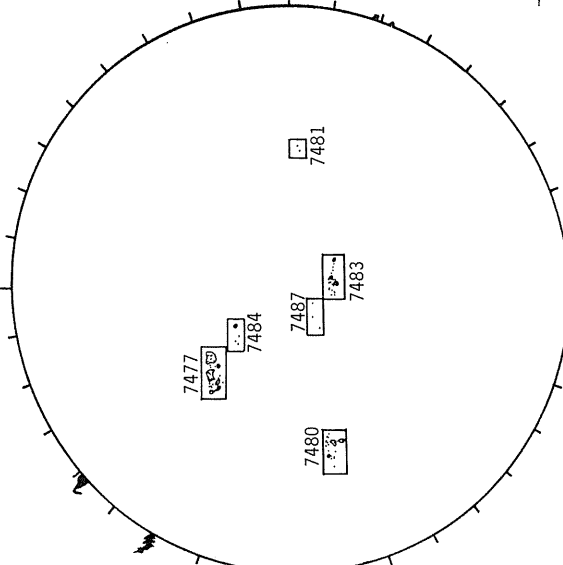


White = +7.5G
Black = -7.5G

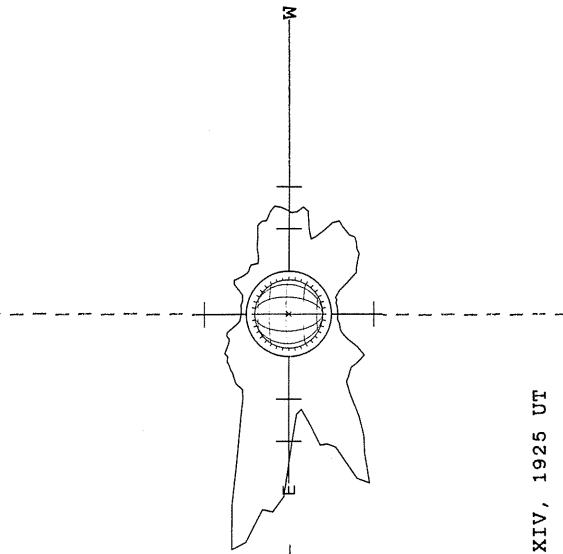
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



— FeXIV, 1925 UT

1501 UT

1403 UT
0609 UT LOMNICKY Prom

— FeXIV, 1925 UT

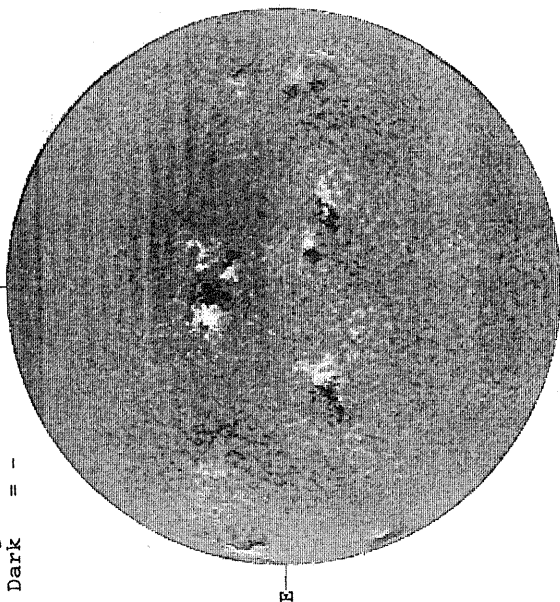
1403 UT
0609 UT LOMNICKY Prom

— FeXIV, 1925 UT

APRIL 22, 1993 (P=-25.44, B₀ = -5.00, L₀ = 241.40)

KITT PEAK MAGNETOGRAM
5507A

Bright = +
Dark = -



1342 UT

STANFORD MAGNETOGRAM

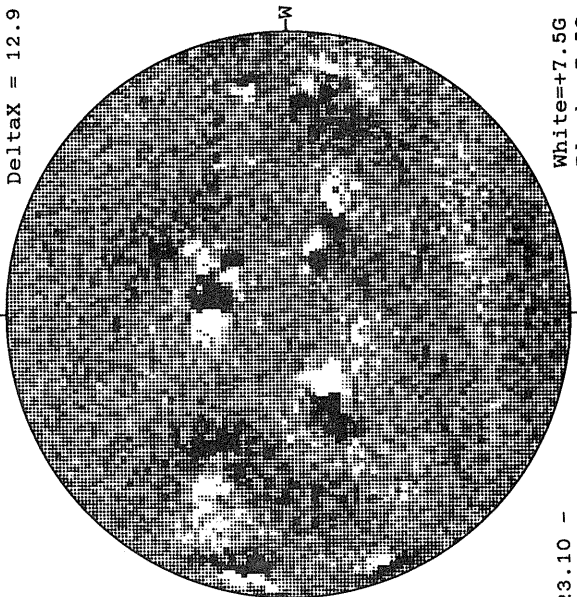
Solid = +
Dashed = -



2251 UT

MT. WILSON MAGNETOGRAM

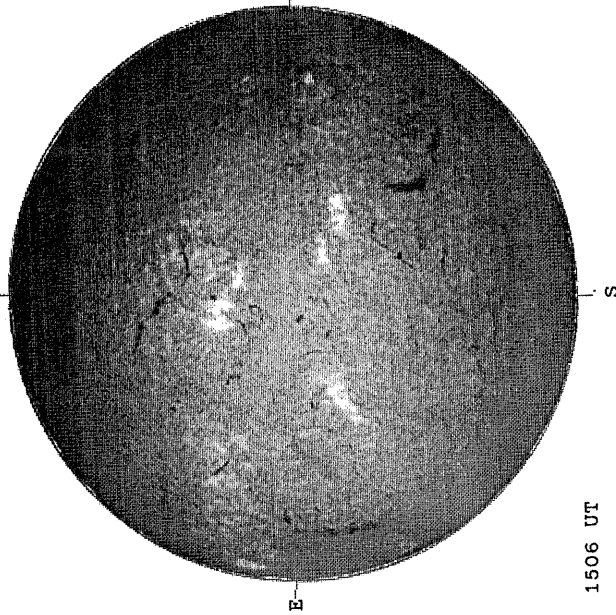
DeltaY = 20.2
DeltaX = 12.9



23.10 -
23.51 UT

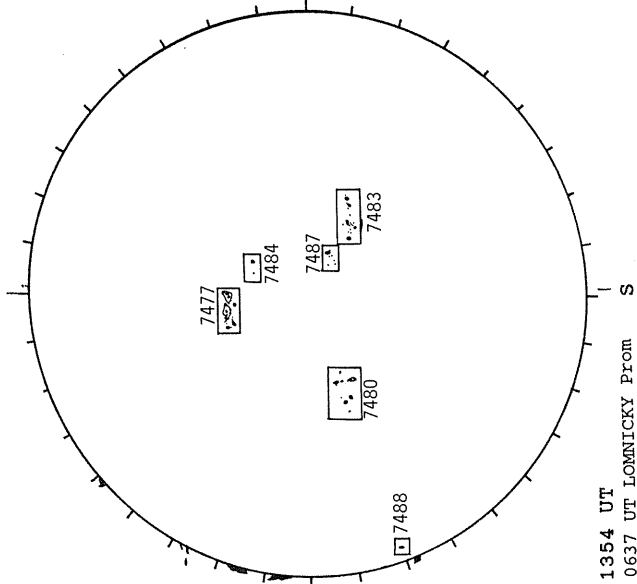
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



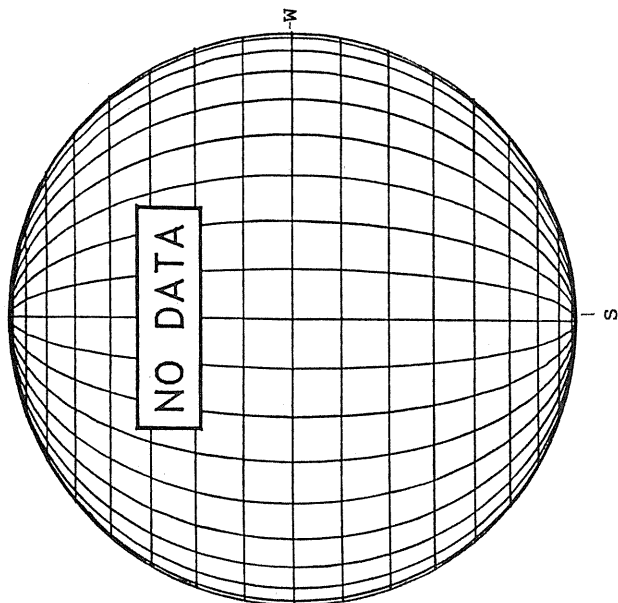
1506 UT

BOULDER SUNSPOT



1354 UT
0637 UT LOMNICKY Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)

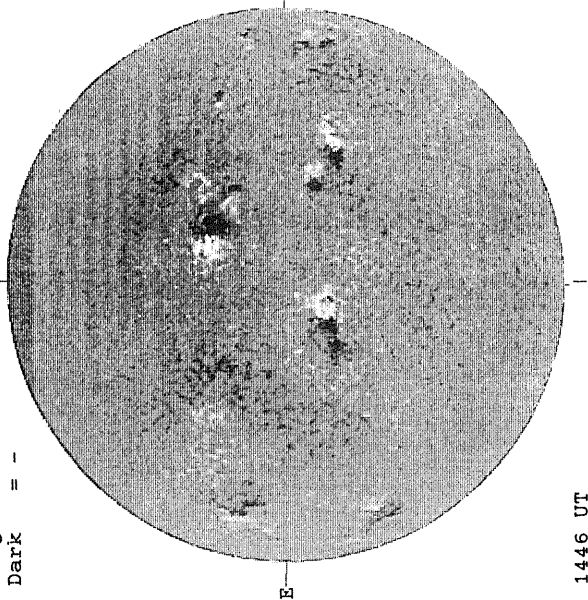


NO DATA

APRIL 23, 1993 (P=-25.33, B₀ = -4.91, L₀ = 228.19)

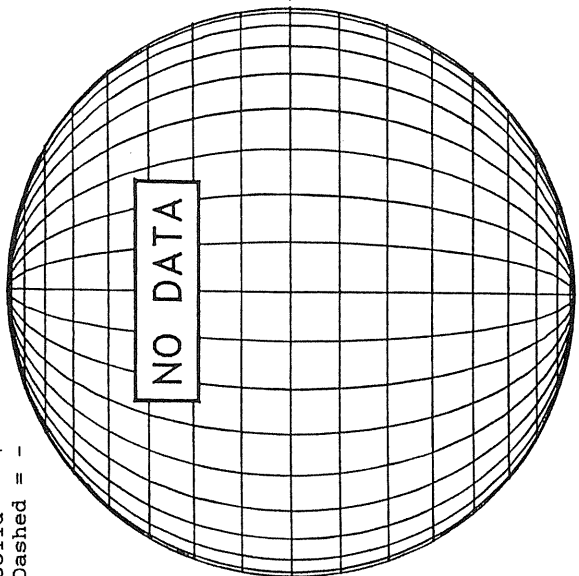
KITT PEAK MAGNETOGRAM
5507A

Bright = +
Dark = -



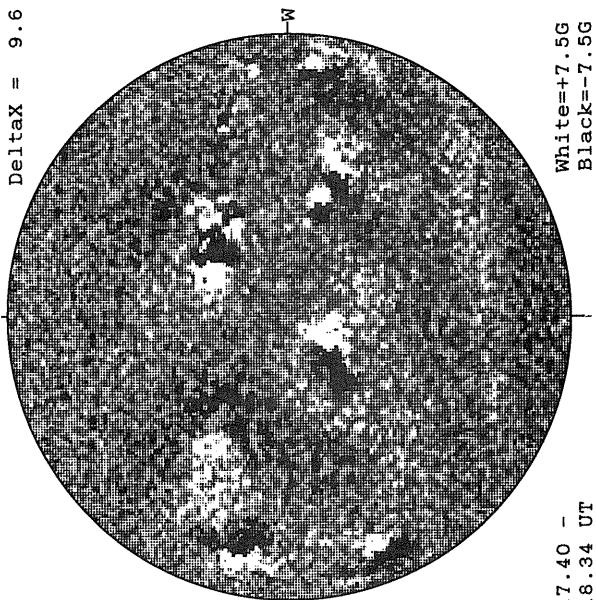
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



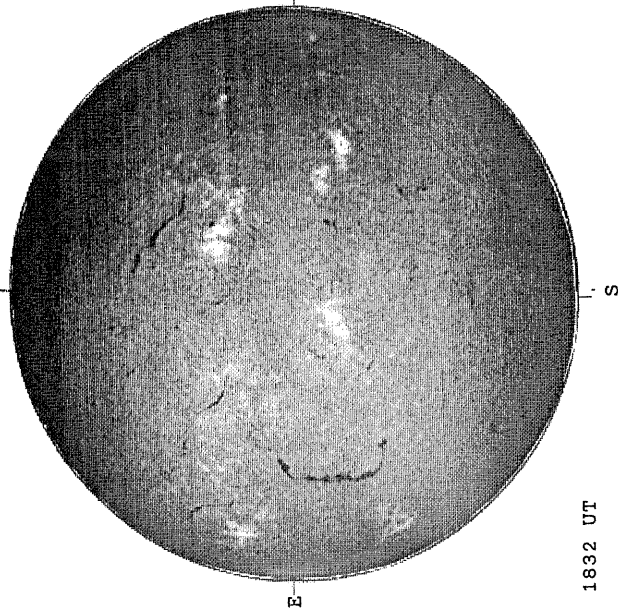
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



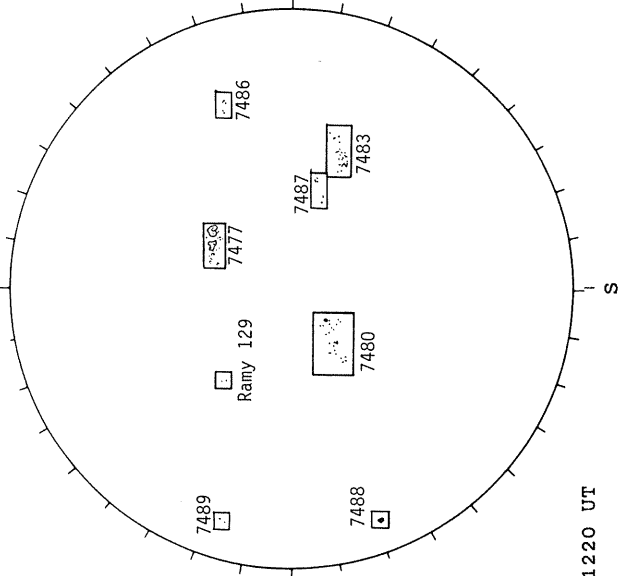
17.40 -
18.34 UT

SACRAMENTO PEAK H-ALPHA



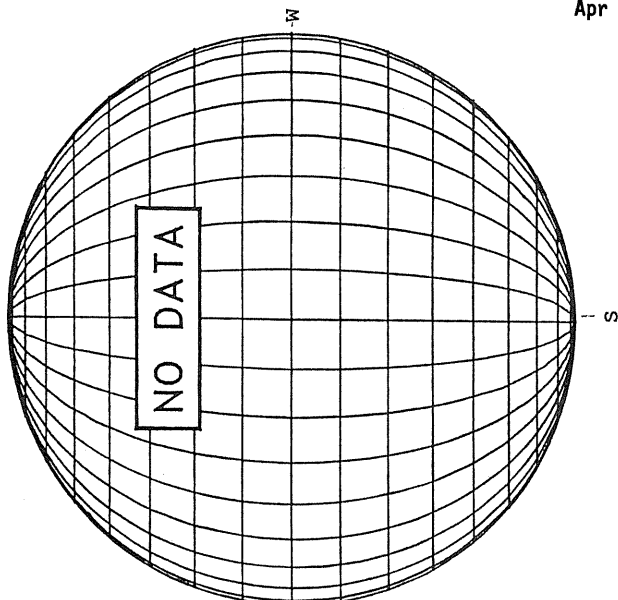
1832 UT

RAMEY SUNSPOT



1220 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



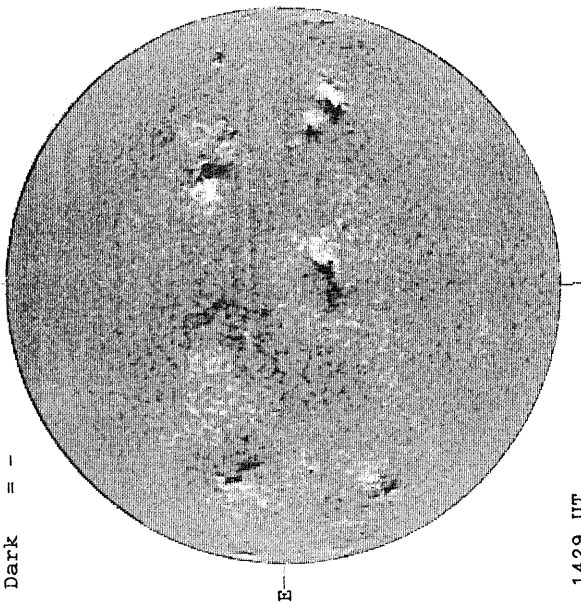
17.40 -
18.34 UT

70
Apr 93

APRIL 24, 1993 (P=-25.21 B₀ = -4.82, L₀ = 214.98)

KITT PEAK MAGNETOGRAM
5507A

Bright = +
Dark = -



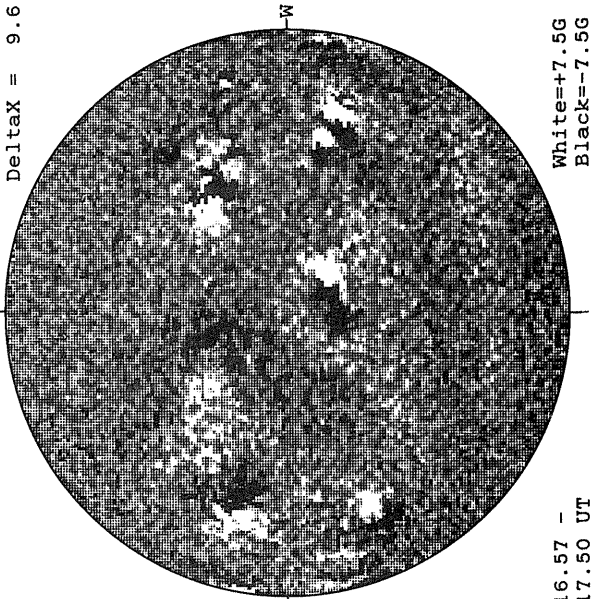
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



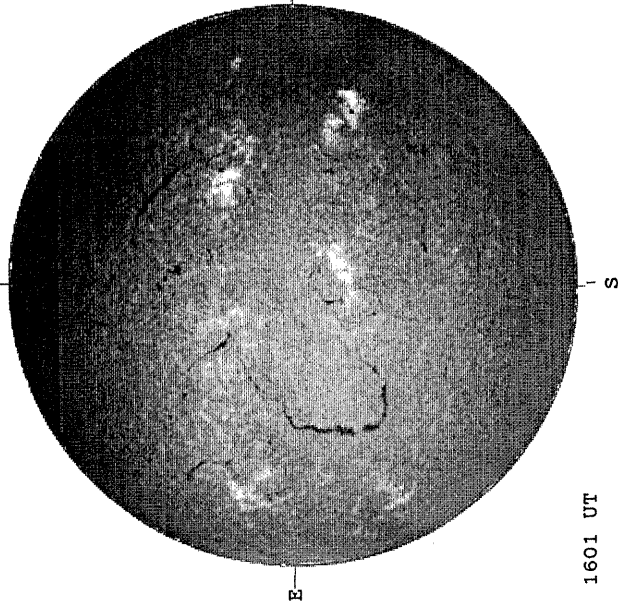
MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



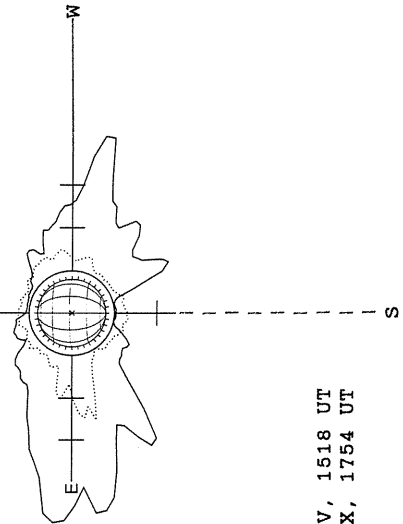
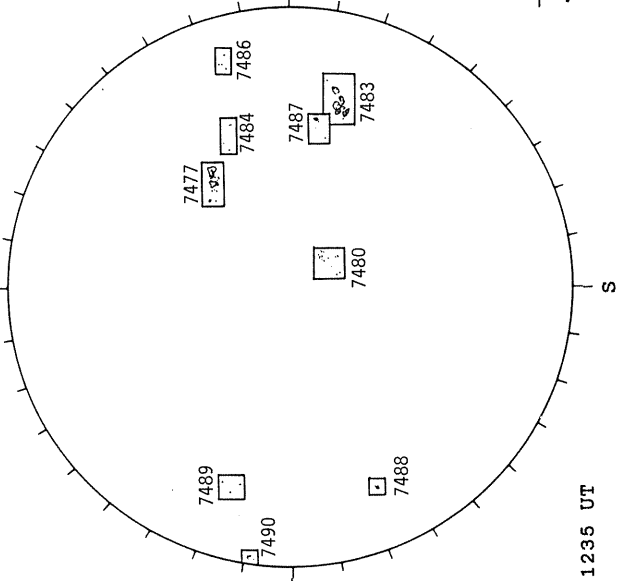
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT

SACRAMENTO PEAK CORONA (1.15 Radii)



— Fe XIV, 1518 UT
.... Fe X, 1754 UT

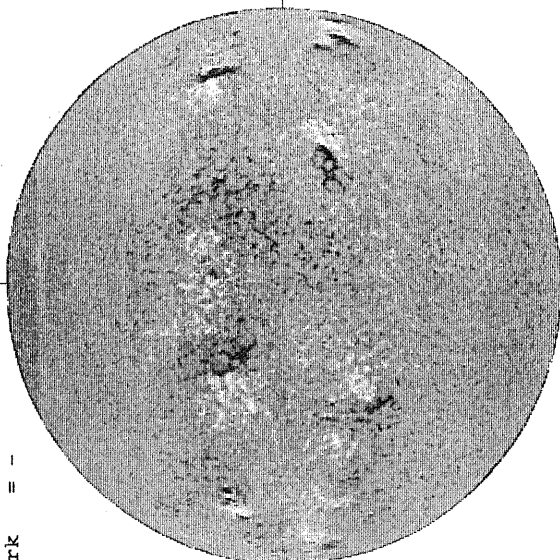
.... PG A, 1433 UT
xxxxx Ca XV, 1433 UT
NO CA XV ACTIVITY TODAY

72
Apr 93

APRIL 26, 1993 (P=-24.94, B₀ = -4.64, L₀ = 188.56)

KITT PEAK MAGNETOGRAM
5507A

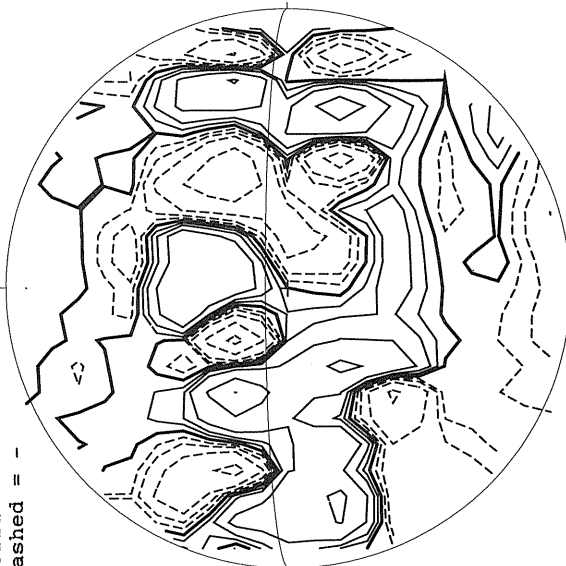
Bright = +
Dark = -



1419 UT

STANFORD MAGNETOGRAM

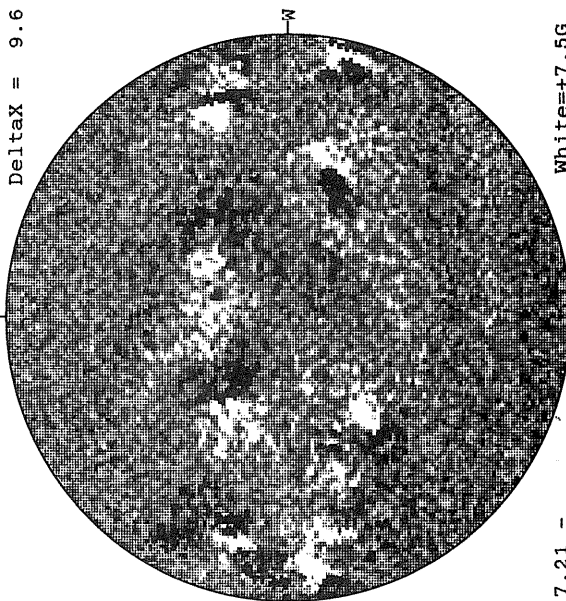
Solid = +
Dashed = -



1946 UT

MT. WILSON MAGNETOGRAM

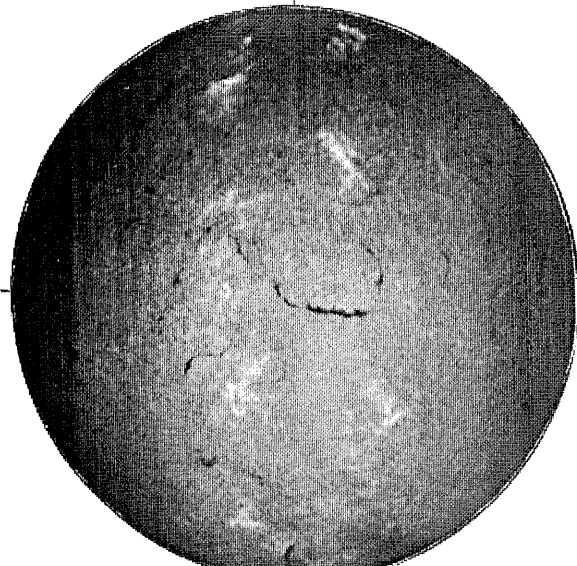
Delta_Y = 13.1
Delta_X = 9.6



17.21 -
18.14 UT

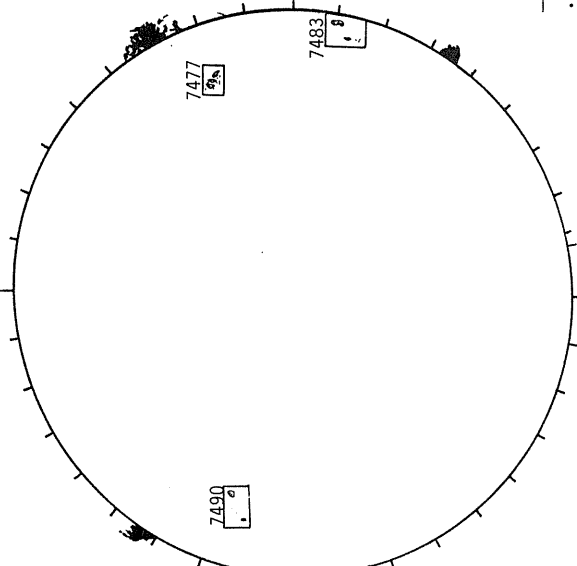
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



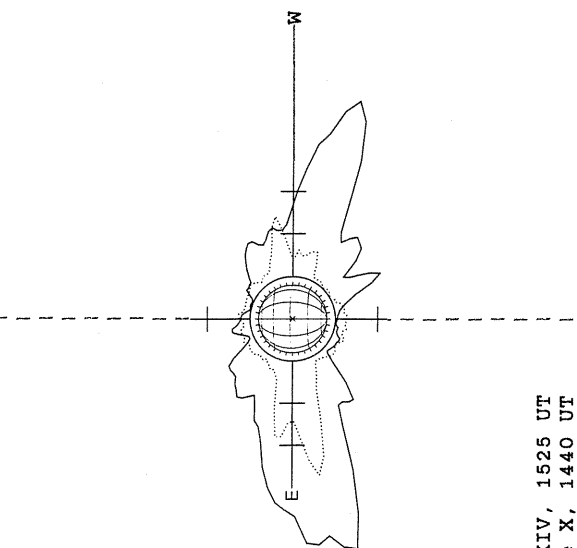
1328 UT

BOULDER SUNSPOT



LOMNICKY PROM

SACRAMENTO PEAK CORONA (1.15 Radii)

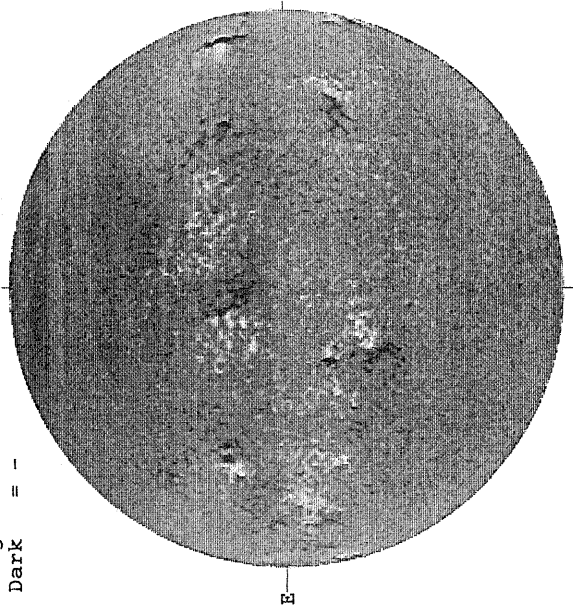


— Fe XIV, 1525 UT
.... Fe X, 1440 UT

APRIL 27, 1993 (P=-24.79, B₀ =-4.54, L₀ = 175.34)

KITT PEAK MAGNETOGRAM
5507A

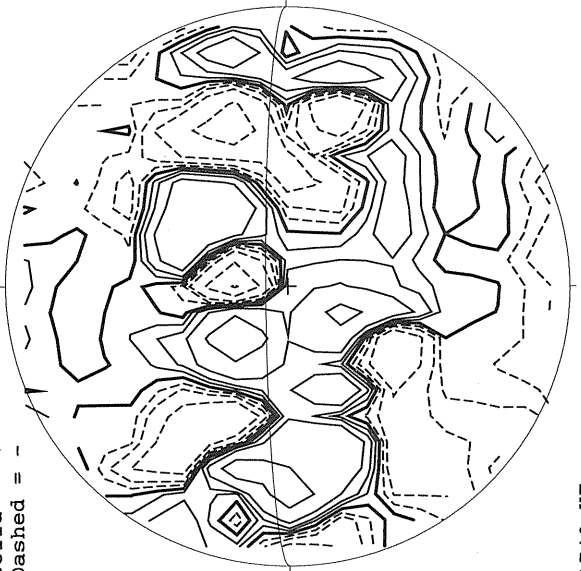
Bright = +
Dark = -



1406 UT

STANFORD MAGNETOGRAM

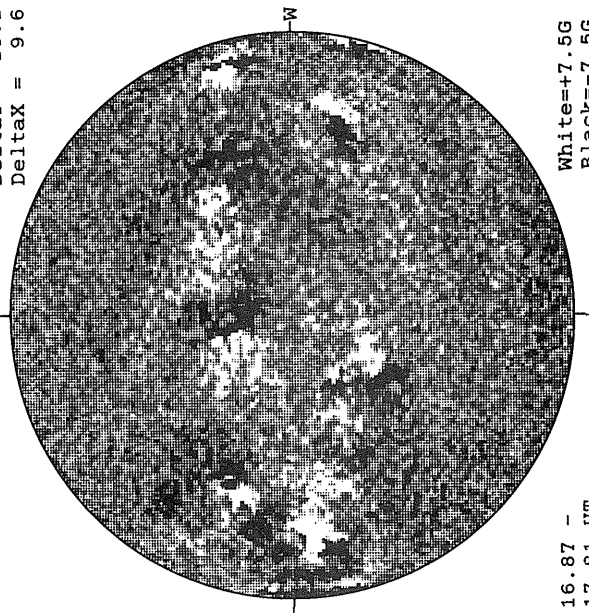
Solid = +
Dashed = -



1743 UT

MT. WILSON MAGNETOGRAM

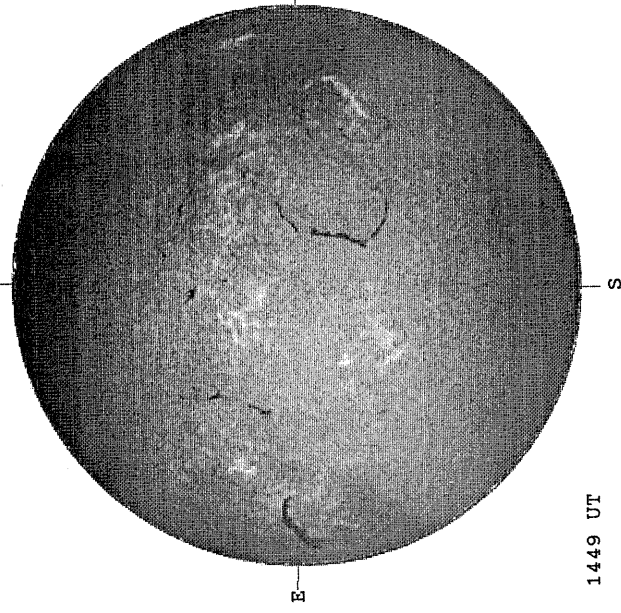
DeltaY = 13.1
DeltaX = 9.6



16.87 -
17.81 UT

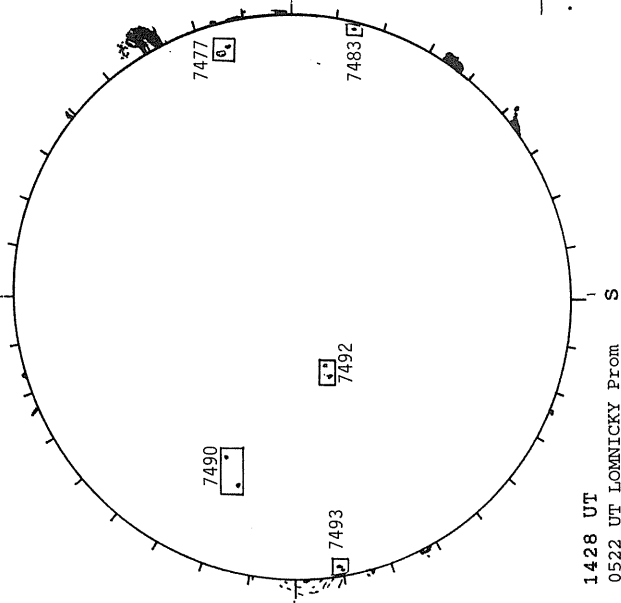
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



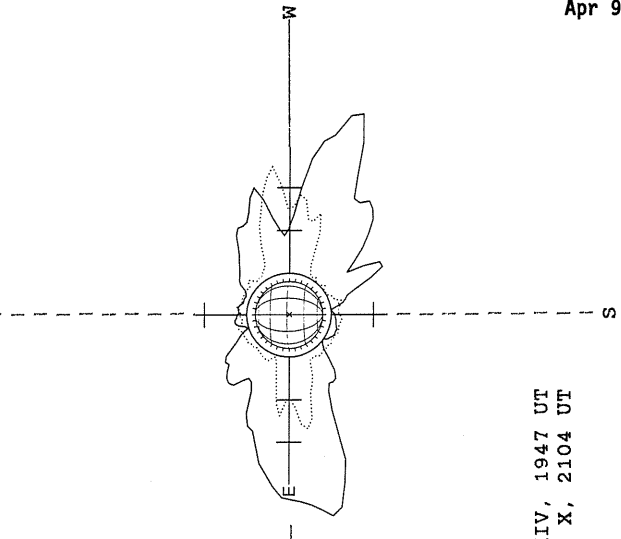
1449 UT

BOULDER SUNSPOT



1428 UT
0522 UT LOMNICKY Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

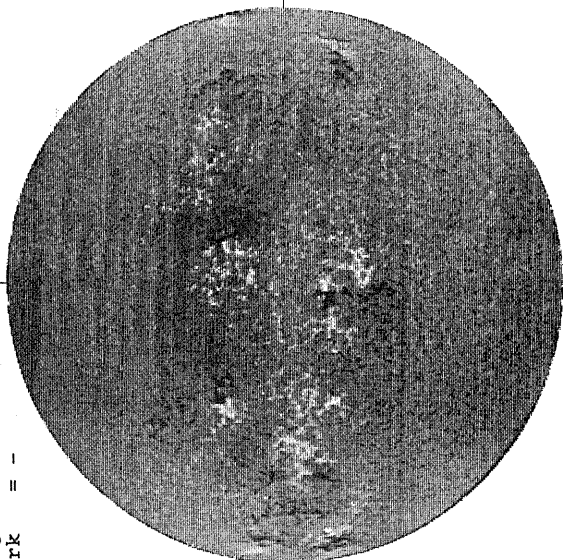


— FeXIV, 1947 UT
.... Fe X, 2104 UT

APRIL 28, 1993 (P=-24.64 B₀ = -4.44, L₀ = 162.13)

KITT PEAK MAGNETOGRAM
5507A

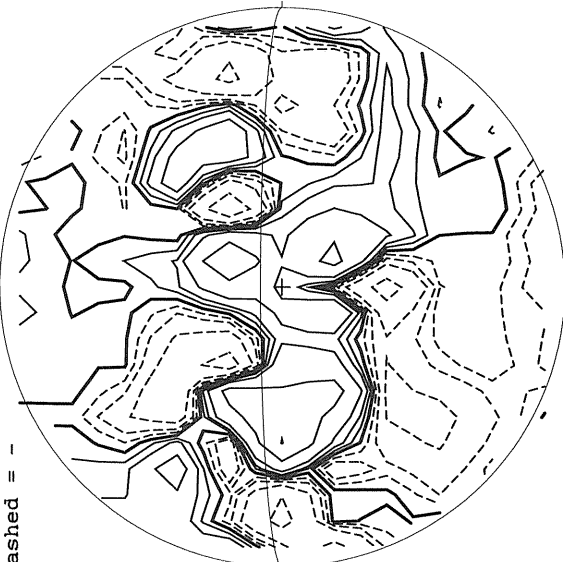
Bright = +
Dark = -



1346 UT

STANFORD MAGNETOGRAM

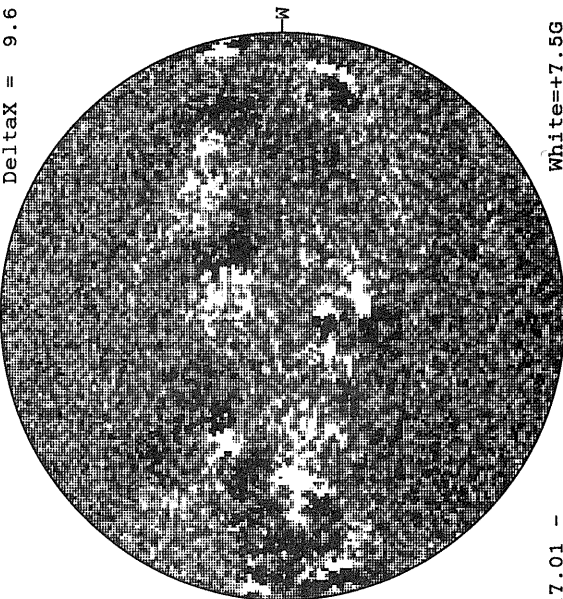
Solid = +
Dashed = -



2214 UT

MT. WILSON MAGNETOGRAM

DeltaY = 13.1
DeltaX = 9.6



17.01 -
17.94 UT

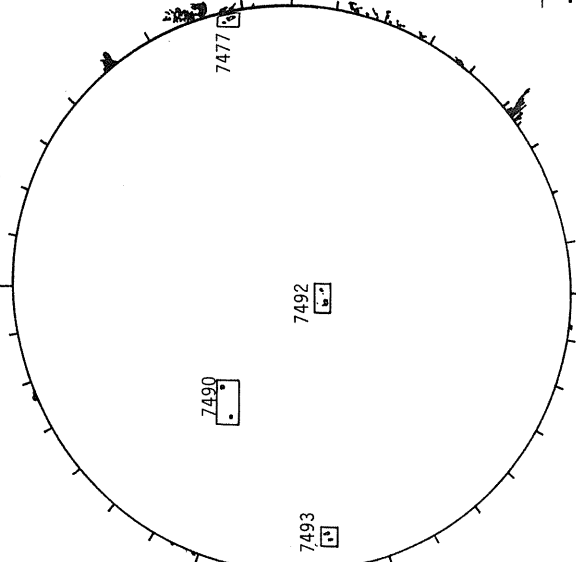
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



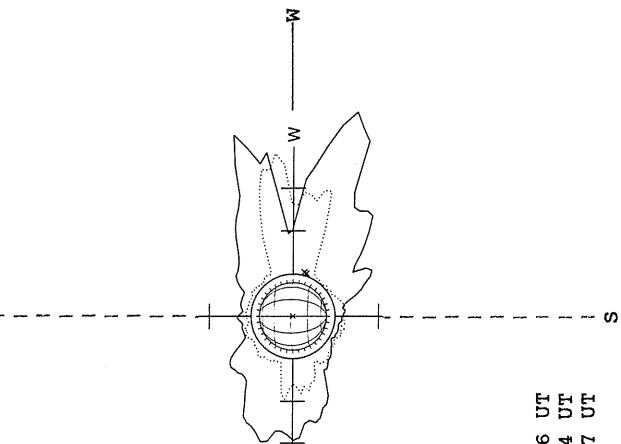
1328 UT

BOULDER SUNSPOT



1424 UT
0505 UT LOMNICKY Prom S

SACRAMENTO PEAK CORONA (1.15 Radii)



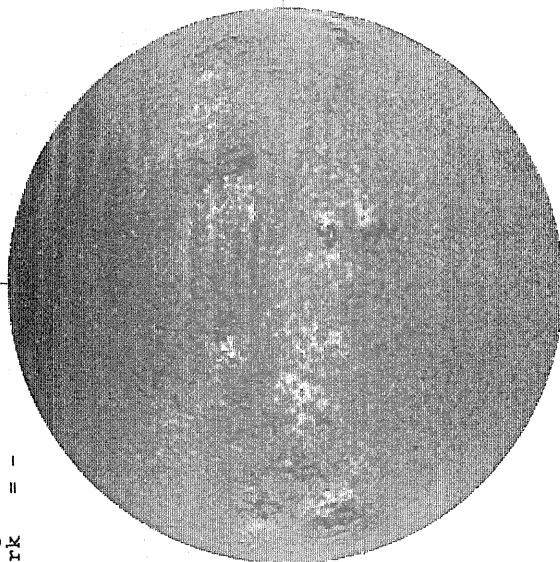
— Fe XIV, 2116 UT
.... Fe X, 1454 UT
xxxx Ca XV, 2007 UT

APRIL 29, 1993 (P=-24.48, B₀ =-4.35, L₀ = 148.92)

KITT PEAK MAGNETOGRAM

5507A

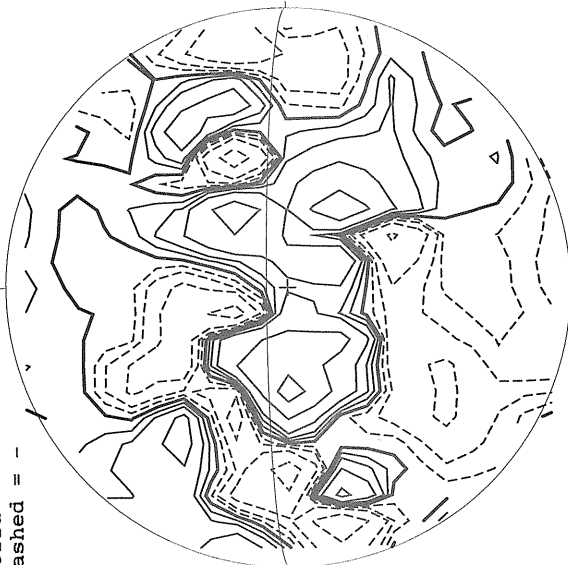
Bright = +
Dark = -



1526 UT

STANFORD MAGNETOGRAM

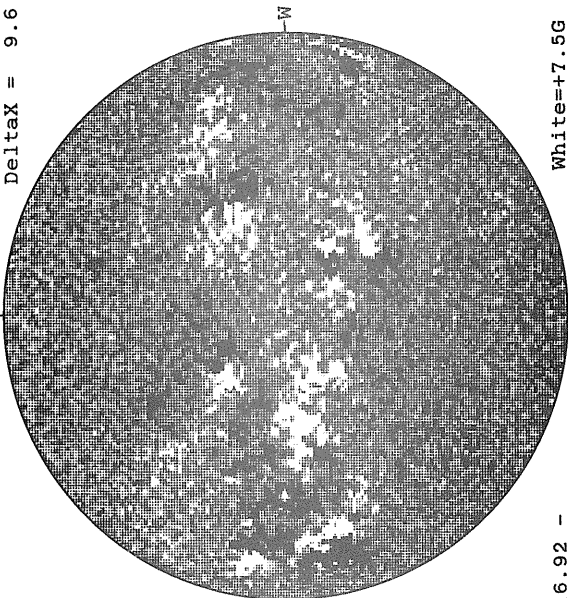
Solid = +
Dashed = -



1657 UT

MT. WILSON MAGNETOGRAM

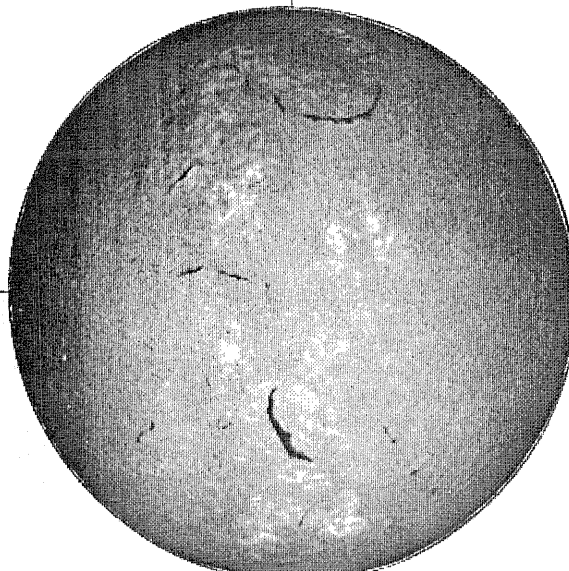
Delta_{ray} = 13.1
Delta_{ax} = 9.6



16.92 -
17.85 UT

White=+7.5G
Black=-7.5G

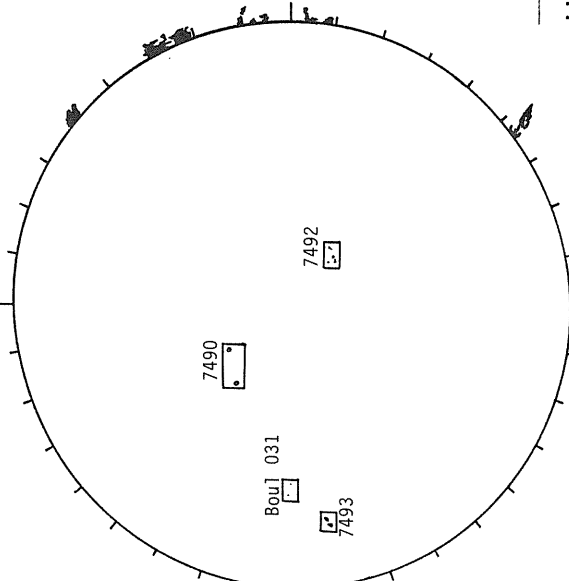
SACRAMENTO PEAK H-ALPHA



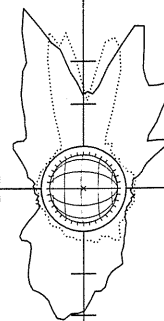
1707 UT

BOULDER SUNSPOT

SACRAMENTO PEAK CORONA (1.15 Radii)



1354 UT
1258 UT LOMNICKY Prom



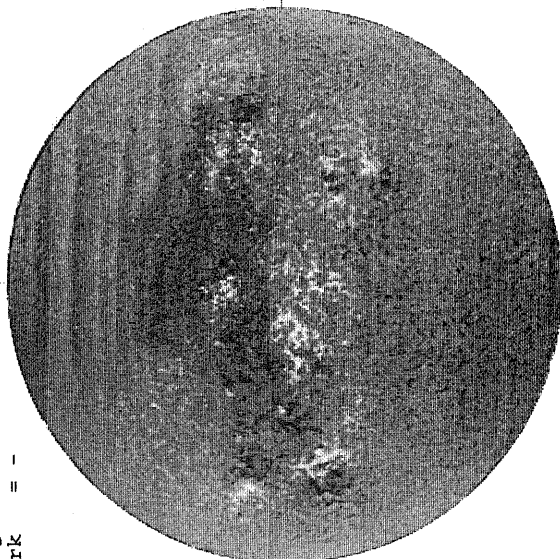
Fe XIV, 1405 UT
Fe X, 1453 UT
xxxx Ca XV, 1439 UT
NO CA XV ACTIVITY TODAY

76
Apr 93

APRIL 30, 1993 (P=-24.32, B₀ = -4.25, L₀ = 135.70)

KITT PEAK MAGNETOGRAM
N

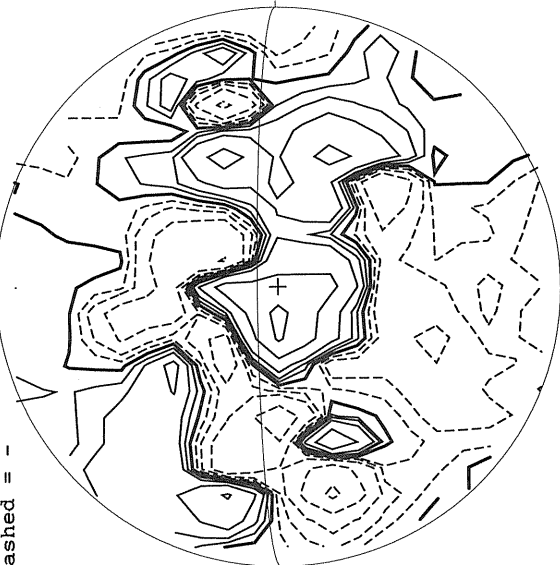
Bright = +
Dark = -



1357 UT

STANFORD MAGNETOGRAM
N

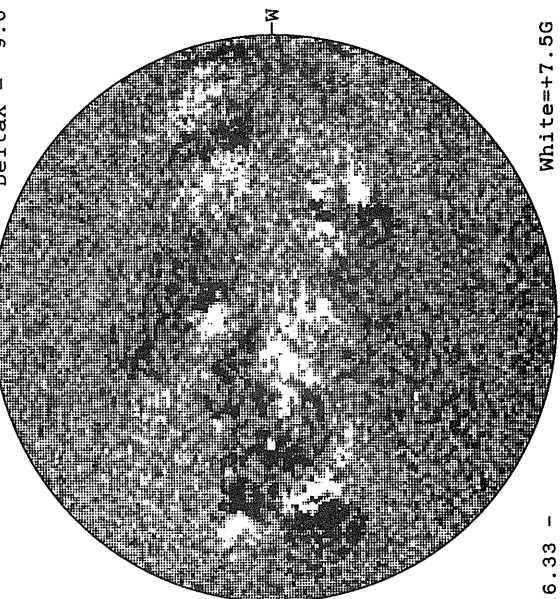
Solid = +
Dashed = -



1647 UT

MT. WILSON MAGNETOGRAM
N

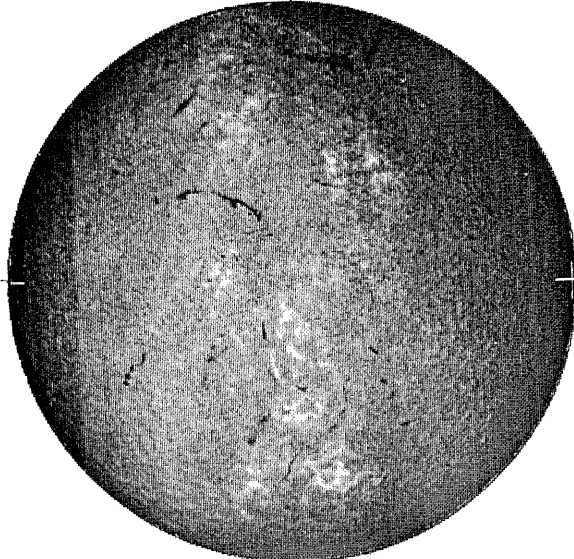
DeltaY = 13.1
DeltaX = 9.6



16.33 -
17.26 UT

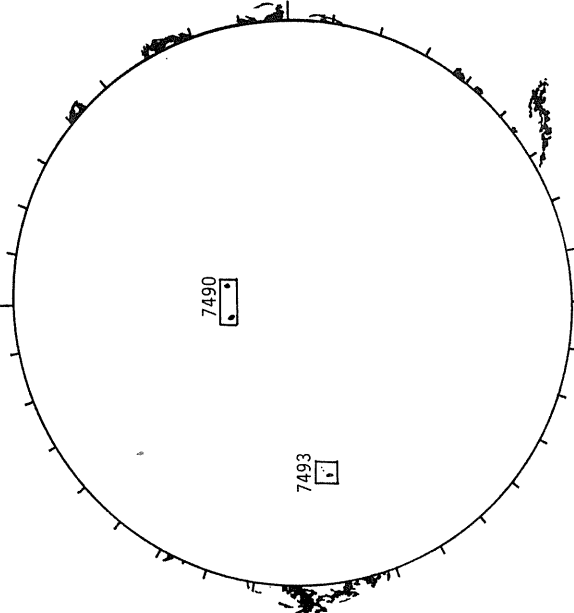
White = +7.5G
Black = -7.5G

BOULDER H-ALPHA



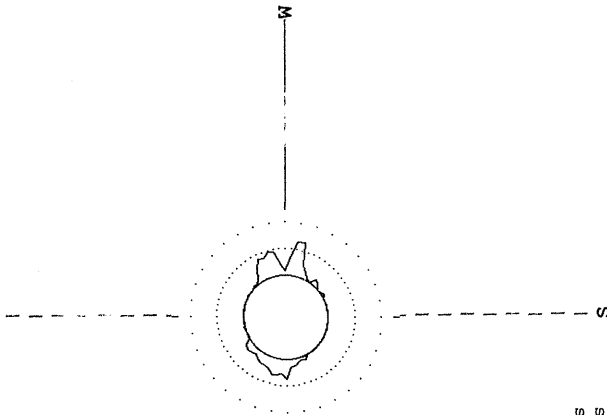
1427 UT

BOULDER SUNSPOT



1441 UT
0457 UT LOMNICKY Prom

LOMNICKY STIT CORONA (1.15 Radii)



5303A, 0525 UT
... 50 abs. units
... 100 abs. units

DAILY SOFT X-RAY IMAGES FROM YOHKOH

The YOHKOH ("sunbeam") mission is a Japanese program designed to answer many questions in solar flare and coronal physics that have been raised by the highly successful Hinotori and SMM missions. It includes the United States and the United Kingdom as participating partners. The Japanese Institute for Space and Astronautical Sciences (ISAS) provided overall program management, the launch vehicle, the spacecraft, and two science instruments -- a Hard X-ray Telescope, one of the primary mission instruments, and a Wide Band Spectrometer. The other primary instrument, a Soft X-ray Telescope, was prepared by the Lockheed Palo Alto Research Laboratory, under NASA support, in collaboration with the National Astronomical Observatory of Japan and the University of Tokyo. The U.K., in collaboration with the E. O. Hulburt Center for Space Research, provided a Bragg Crystal Spectrometer. The NASA Deep Space Network cooperates in tracking Yohkoh.

The Soft X-ray Telescope (SXT) uses low-scatter grazing incidence optics to form direct images on a CCD detector. It employs a Nariai-Werner design which differs from the more commonly used Wolter Type 1 in that both mirror segments have been made hyperbolic in order to gain better

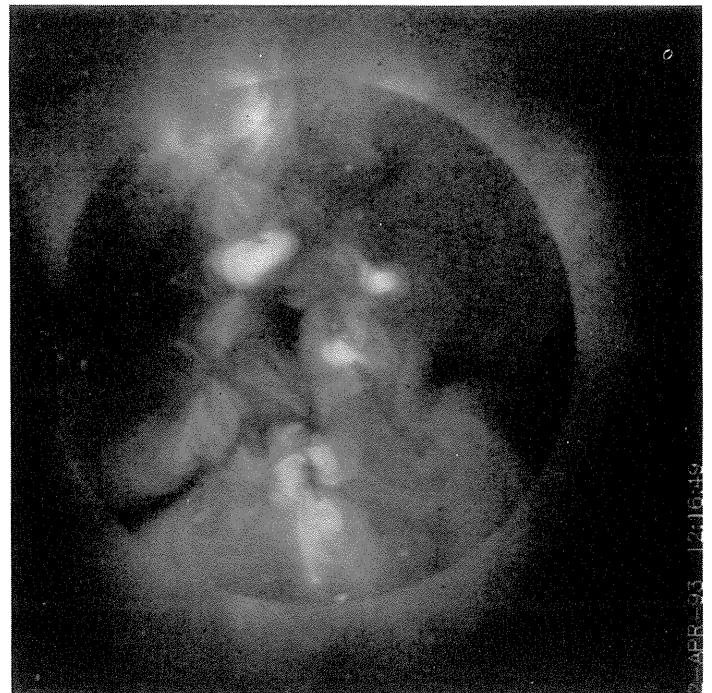
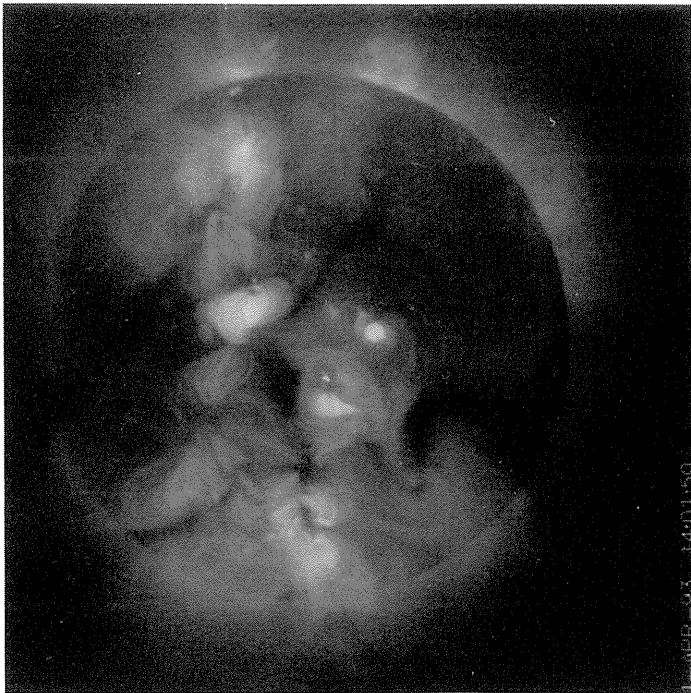
off-axis performance at the expense of a slight loss of on-axis resolution. The optical system includes an entrance aperture filter, the X-ray mirror, a filter wheel assembly, a rotating shutter, and the CCD camera. A detailed description of the SXT has been published in Tsuneta, et al., *Solar Physics*, Vol. 136, pp. 37-67, 1991.

ISAS bears full responsibility for YOHKOH operations. U.S. and U.K. investigators in residence at ISAS participate in mission operations and scientific analyses. With the approval of Professor Y. Ogawara, Yohkoh Program Manager, and the YOHKOH Science Committee, the Lockheed Palo Alto Research Laboratory is kindly providing daily digital SXT images for publication in SGD. The digital images are 512x512 (5" pixels) or 256x256 (10" pixels) in size. They combine two exposures differing by a factor of 35 in duration and are printed with a logarithmic intensity scale to cope with the great range in intensity of the X-ray corona. The brightest features are typically more than 100,000 times brighter than the faintest. The mean wavelength of the pictures is about 20 angstroms. We display these images of the solar corona in soft X-rays in both positive and negative forms. They are printed on a dye sublimation printer at NGDC.

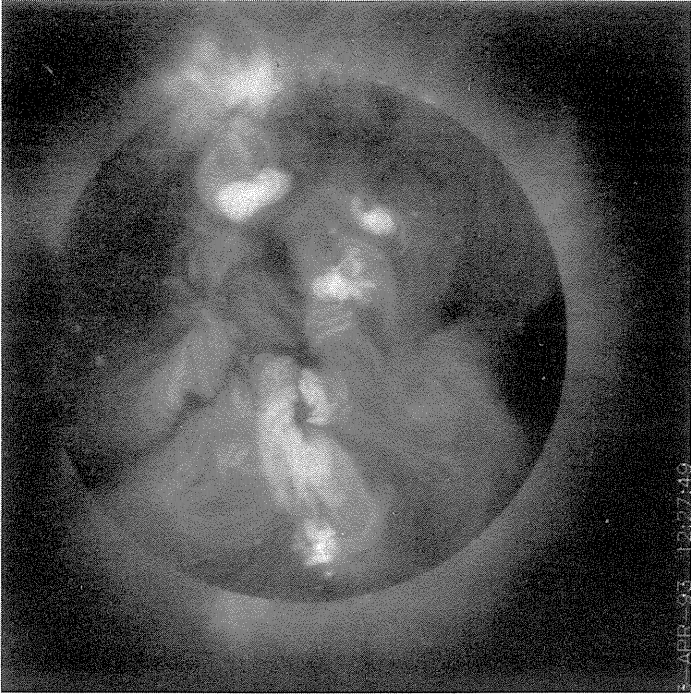
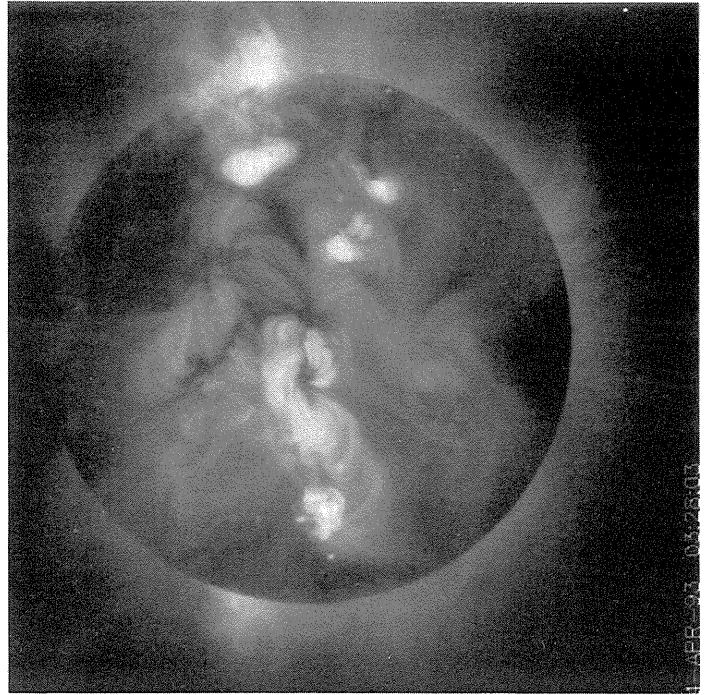
YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

April
1993

Day 1 Day 3
14:01:50 UT 12:27:49 UT



Day 2 Day 4
12:16:49 UT 03:28:03 UT



YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

April
1993



Day 1
14:01:50 UT

Day 3
12:27:49 UT



Day 2
12:16:49 UT



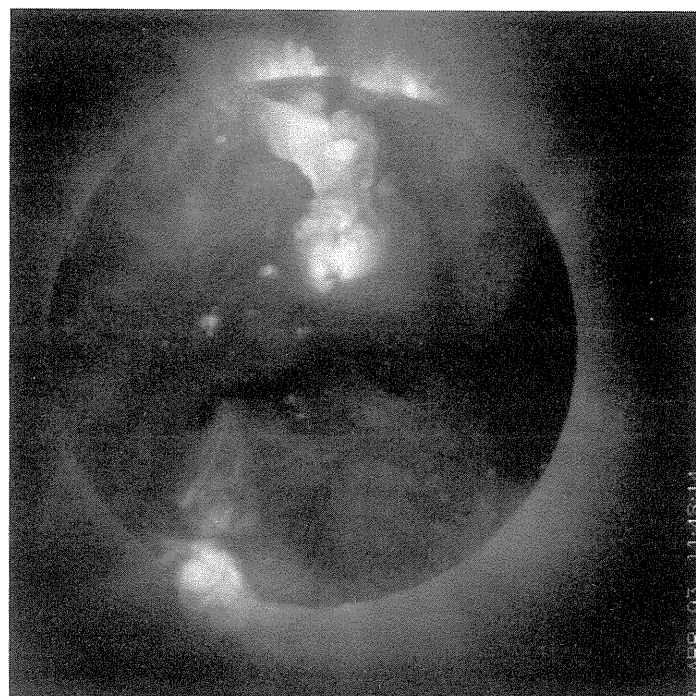
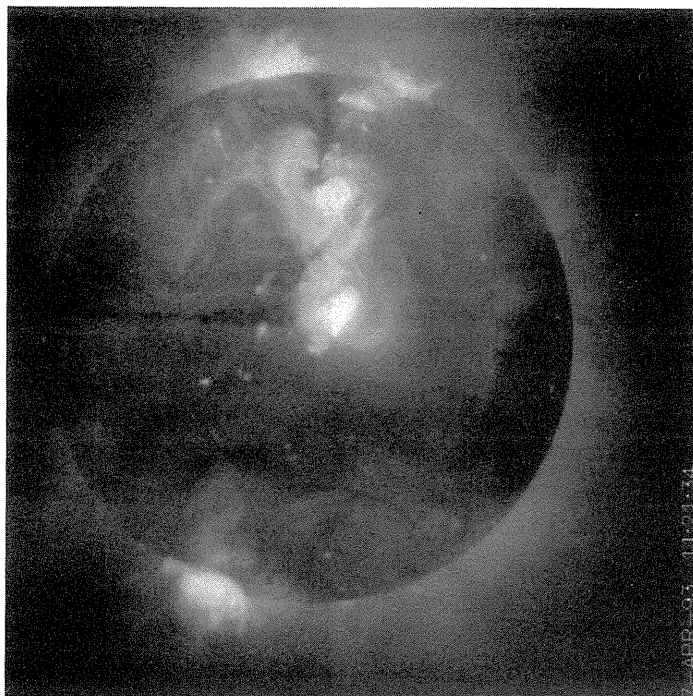
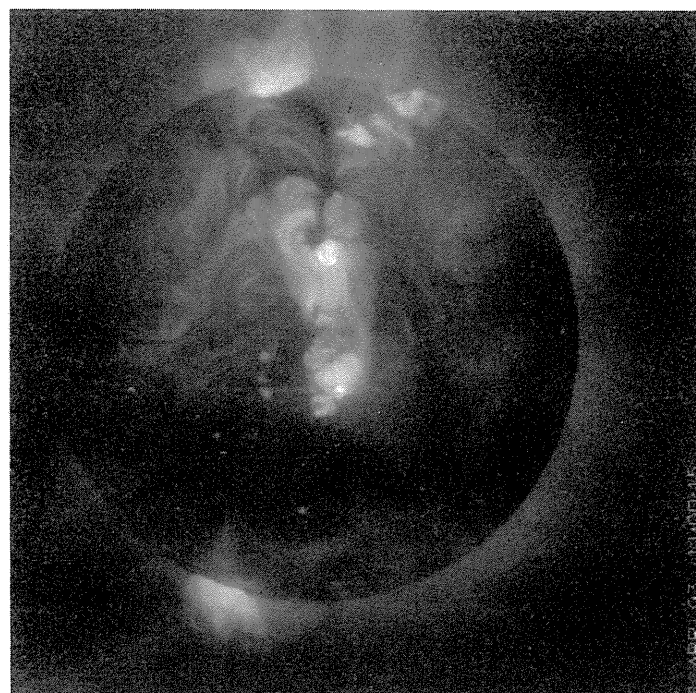
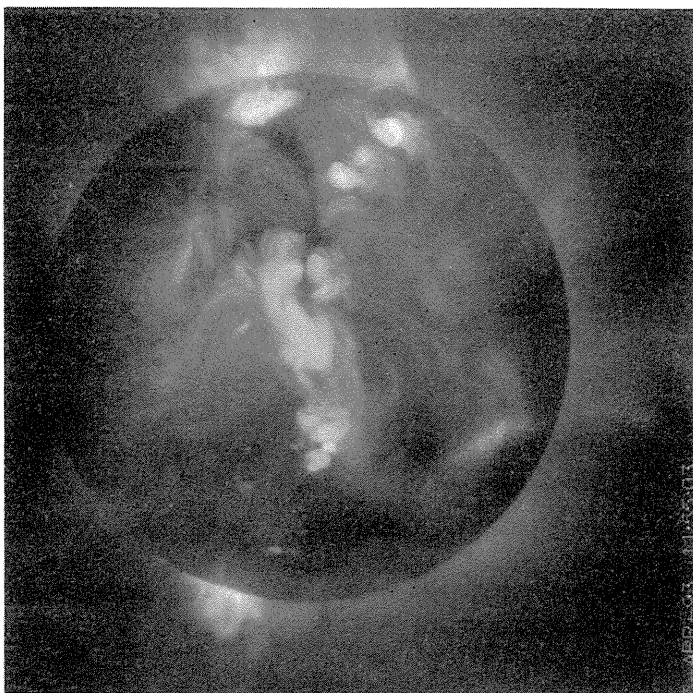
Day 4
03:28:03 UT

YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

April
1993

Day 5 Day 7
11:55:03 UT 11:21:34 UT

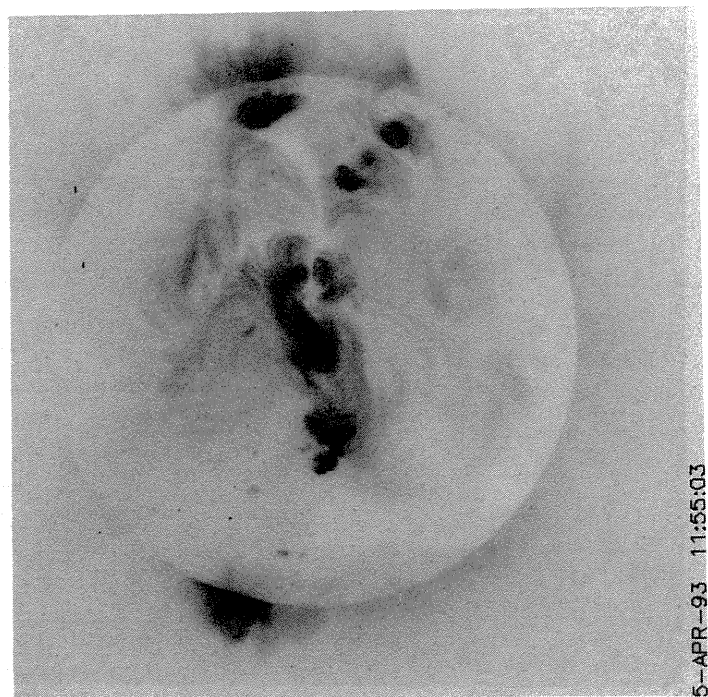
Day 6 Day 8
11:00:15 UT 11:48:14 UT



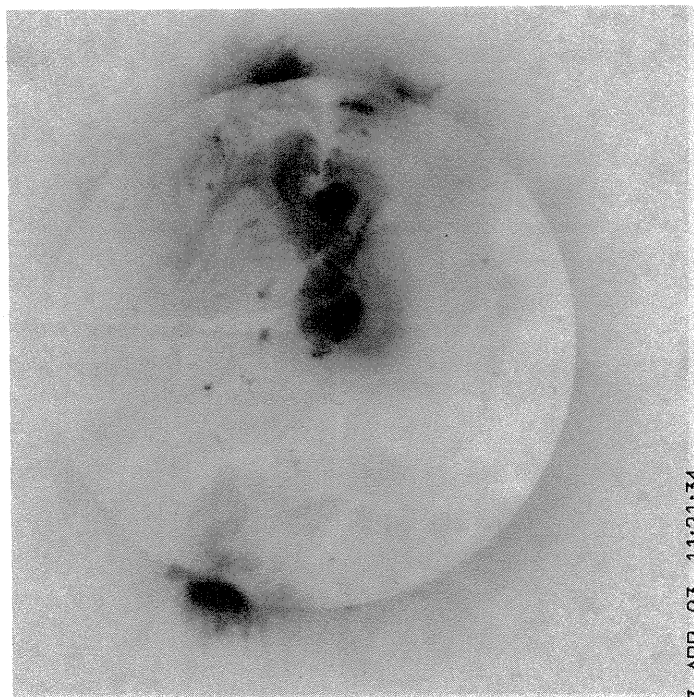
**YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES**

**April
1993**

Day 5 Day 7
11:55:03 UT 11:21:34 UT



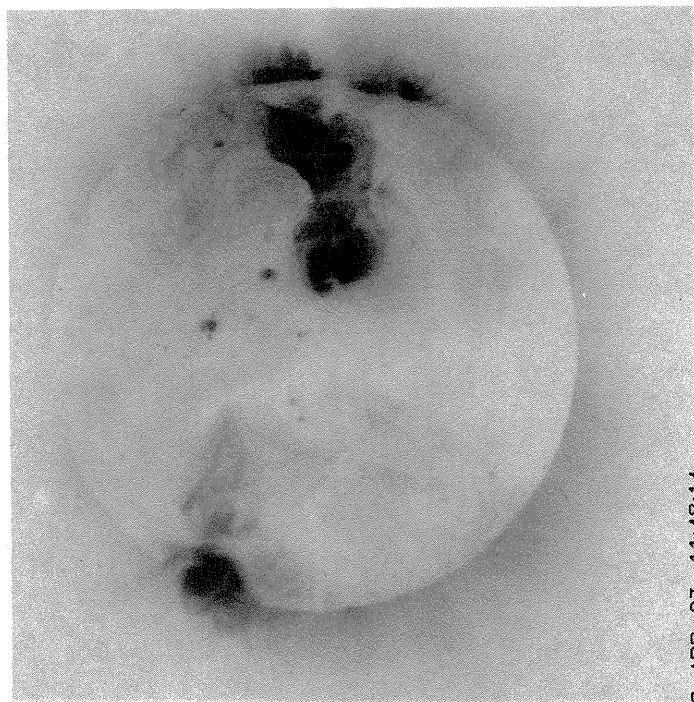
5-APR-93 11:55:03



7-APR-93 11:21:34



6-APR-93 11:00:15



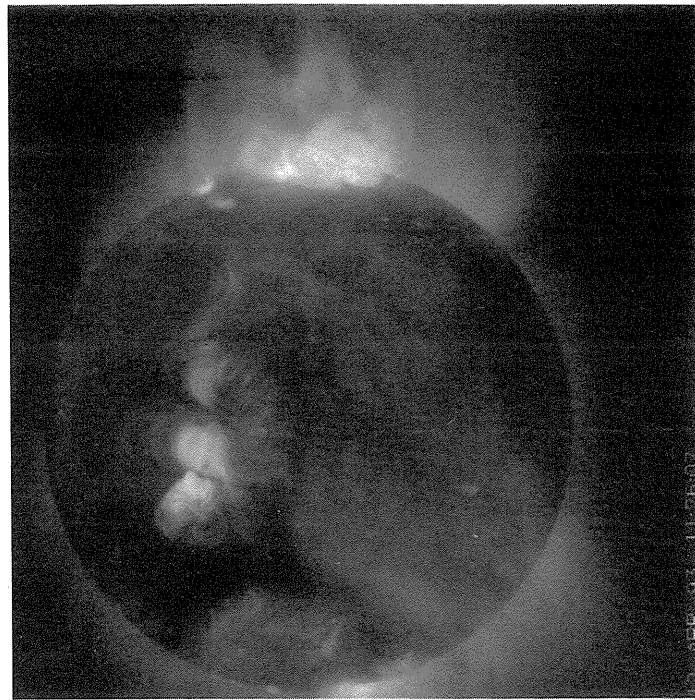
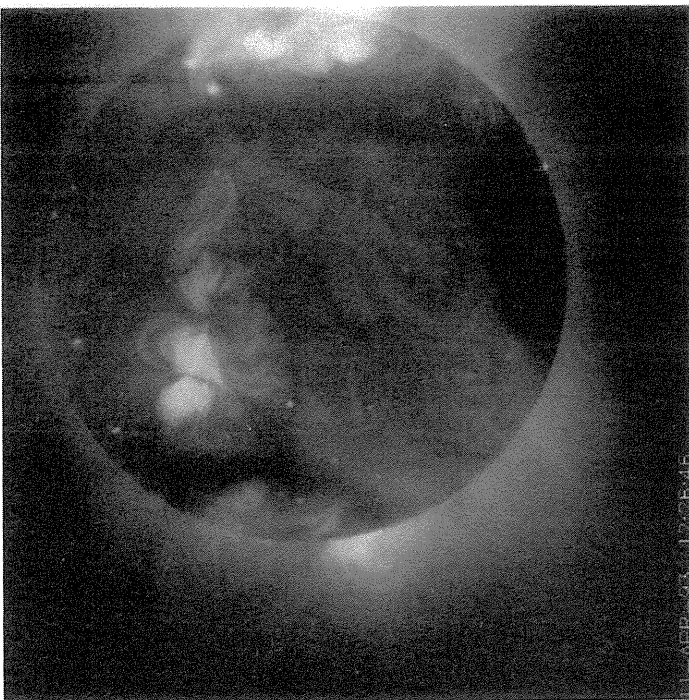
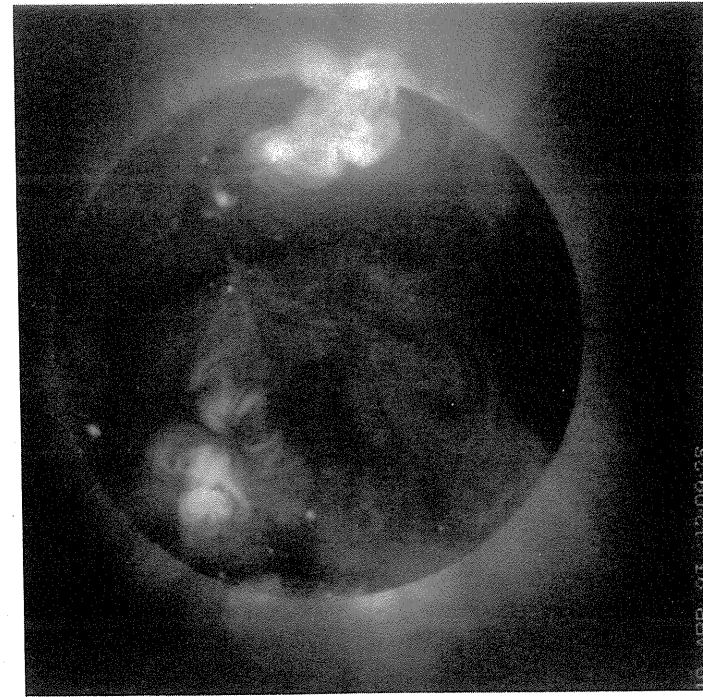
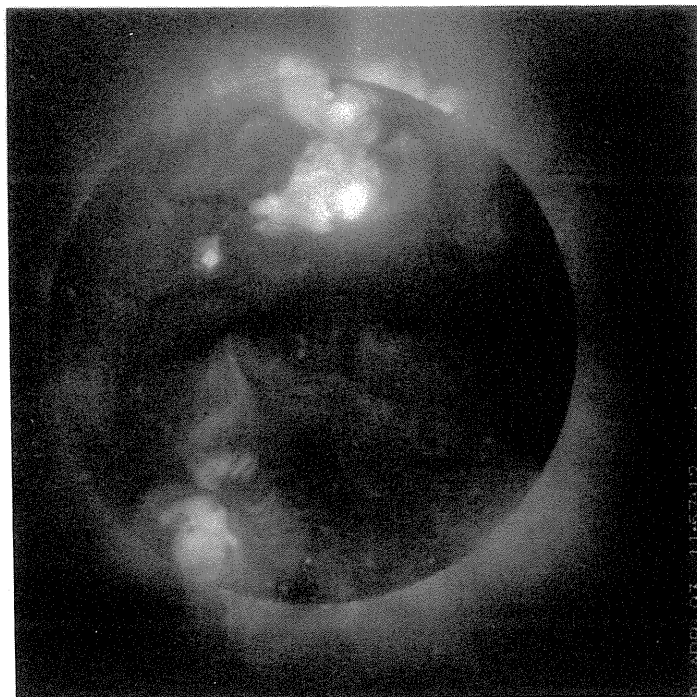
8-APR-93 11:48:14

Day 6 Day 8
11:00:15 UT 11:48:14 UT

YOHKOH
SOFT X-RAY
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IMAGES

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1993

Day 9 Day 11
11:57:12 UT 12:26:46 UT

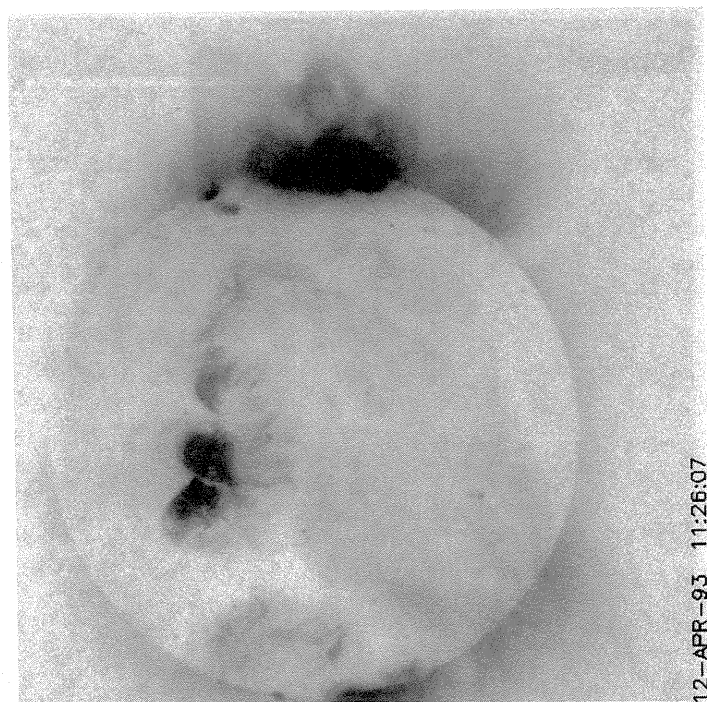
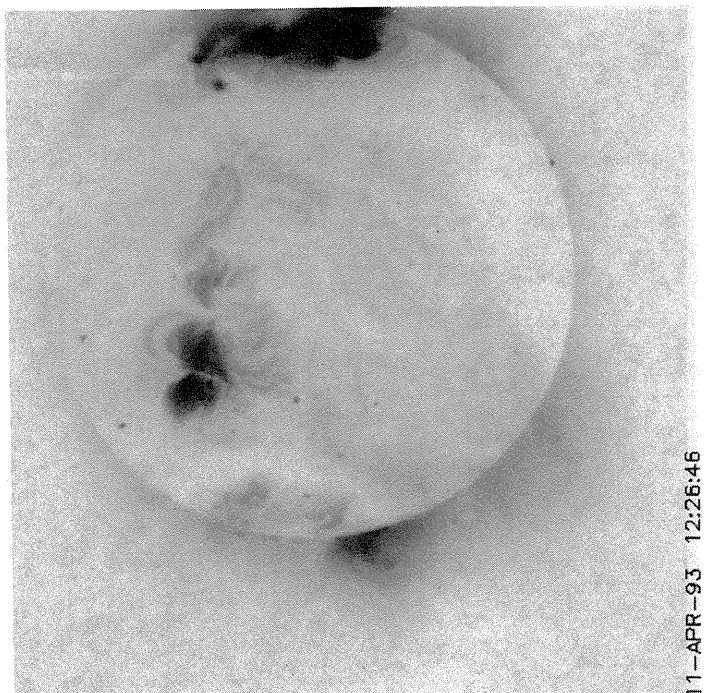
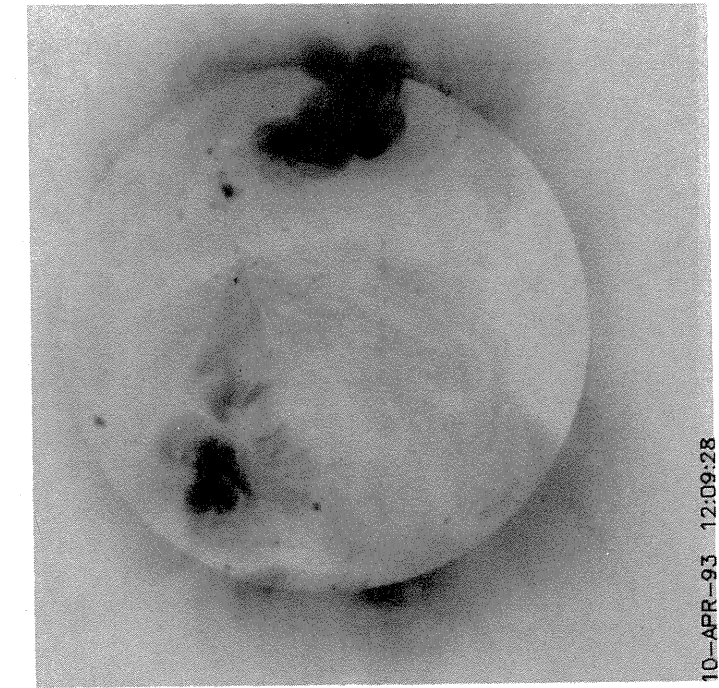
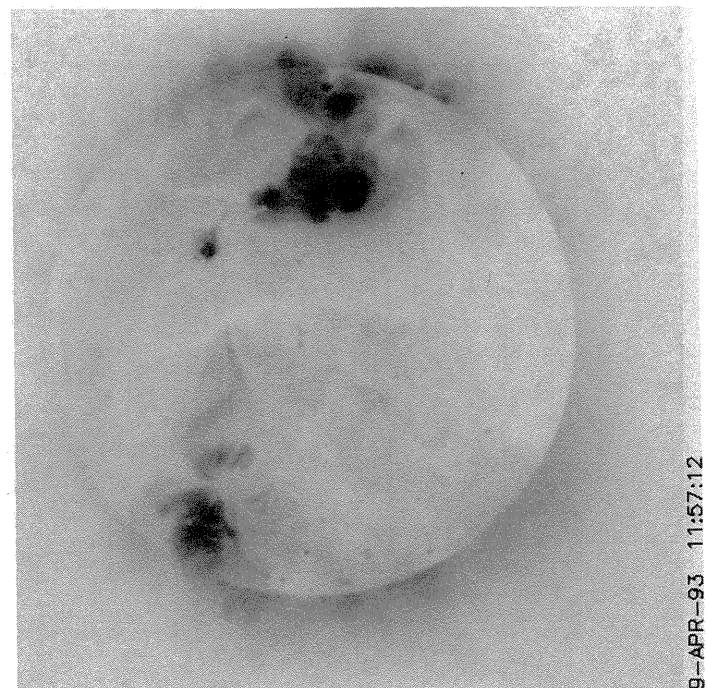


Day 10 Day 12
12:09:28 UT 11:26:07 UT

YOHKOH SOFT X-RAY TELESCOPE IMAGES

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1993

Day 9 Day 11
11:57:12 UT 12:26:46 UT

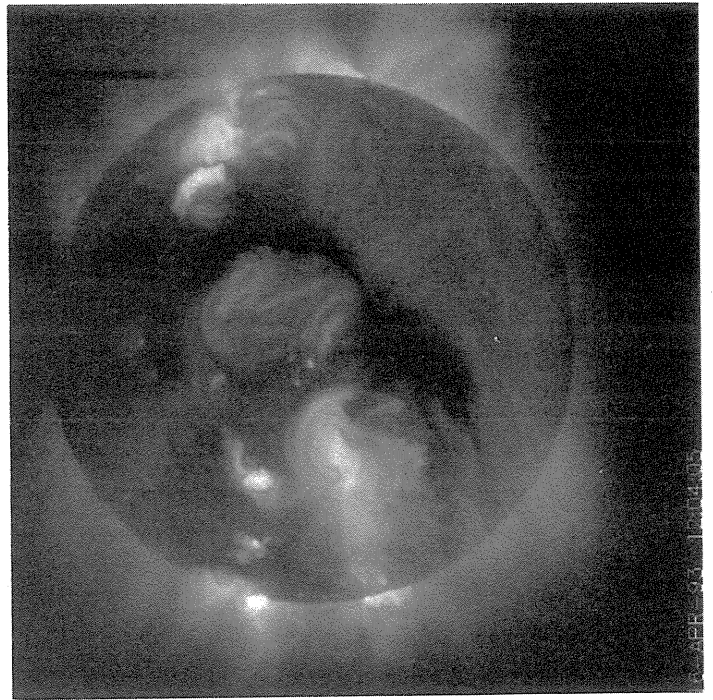
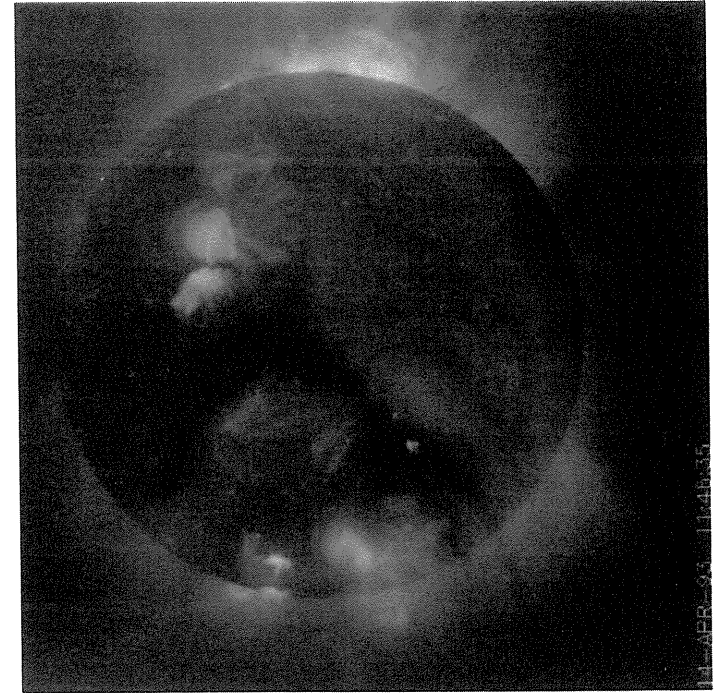
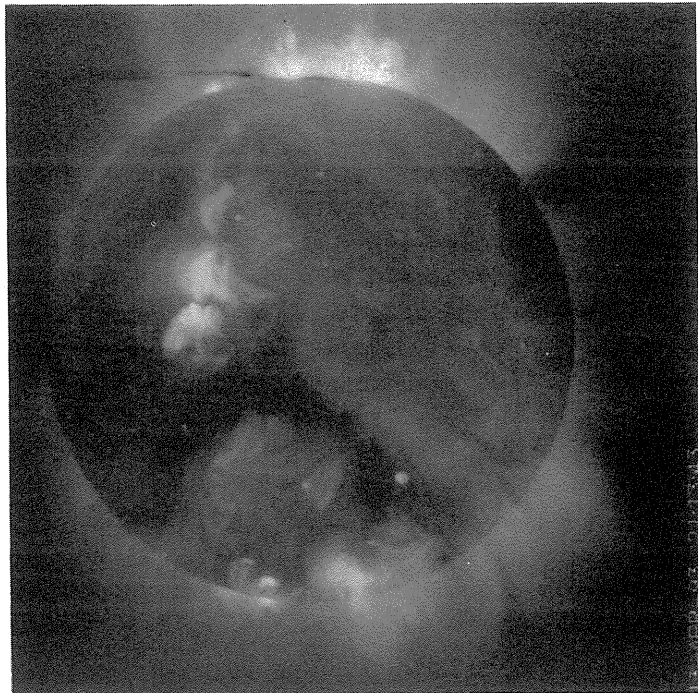


Day 10 Day 12
12:09:28 UT 11:26:07 UT

YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

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Day 13 Day 15
21:13:43 UT 12:09:35 UT

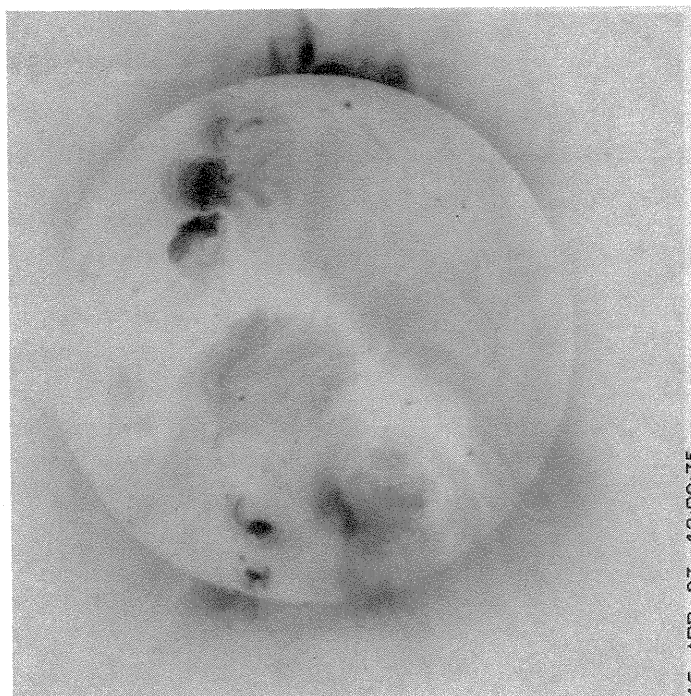
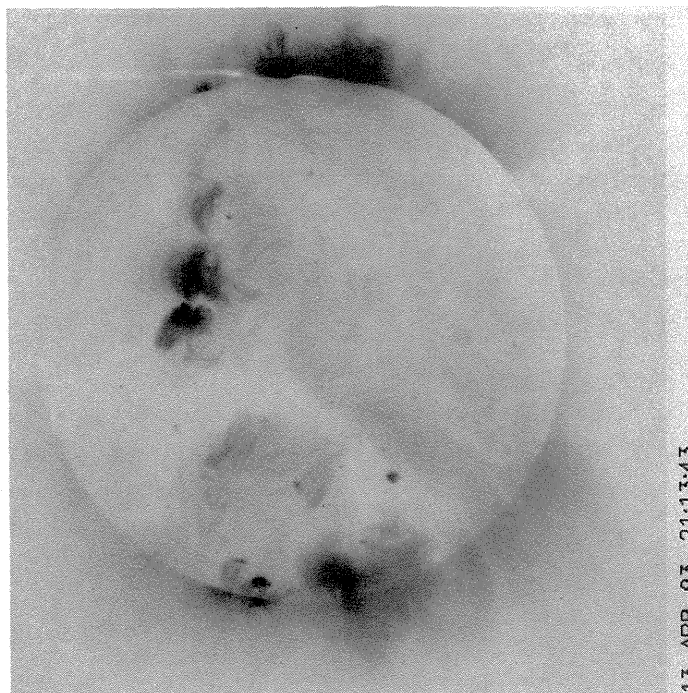


Day 14 Day 16
11:46:35 UT 12:04:05 UT

YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

April
1993

Day 13 Day 15
21:13:43 UT 12:09:35 UT

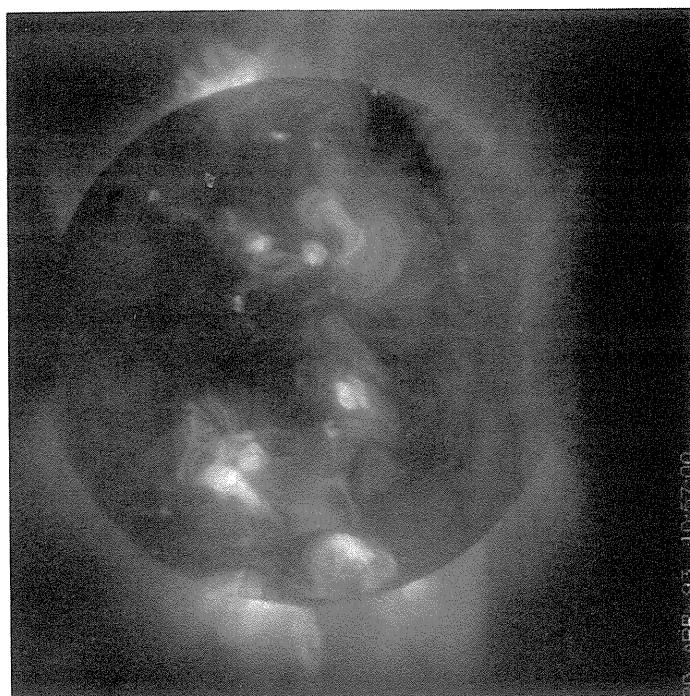
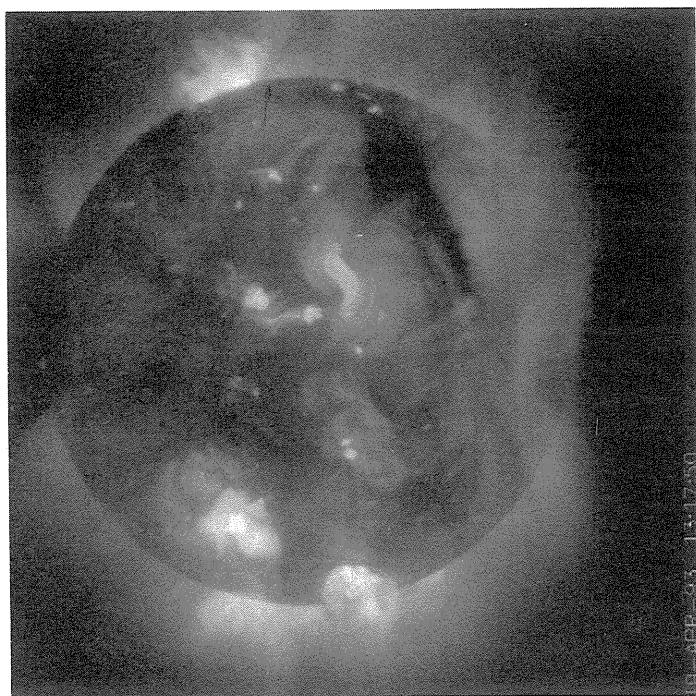
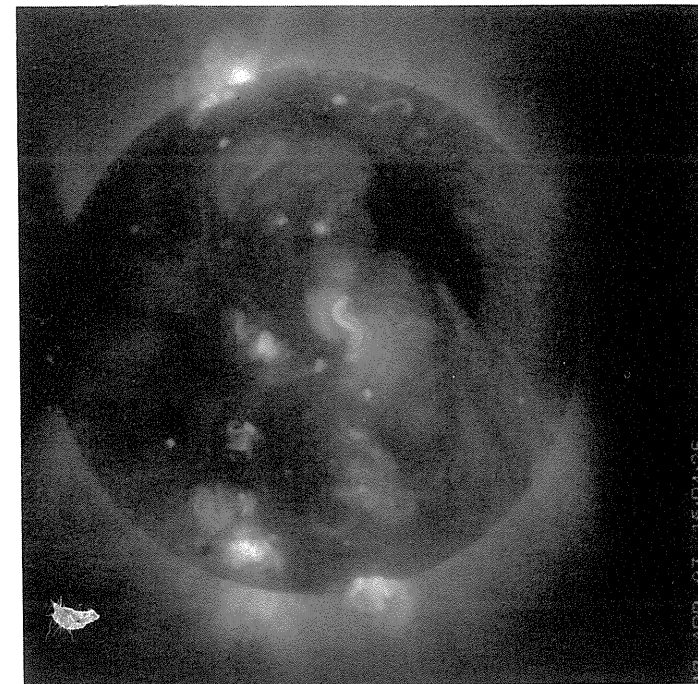
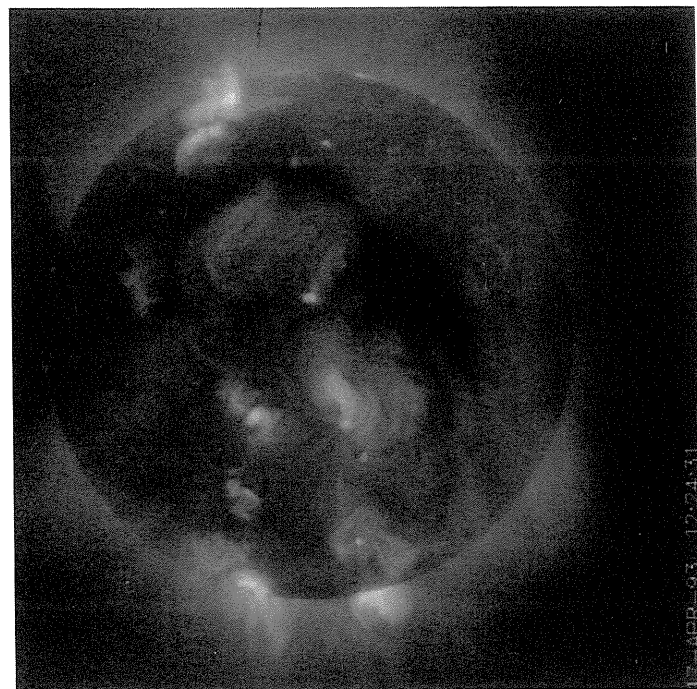


Day 14 Day 16
11:46:35 UT 12:04:05 UT

YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

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Day 17 Day 19
12:24:31 UT 13:17:50 UT



Day 18 Day 20
15:04:26 UT 10:57:00 UT

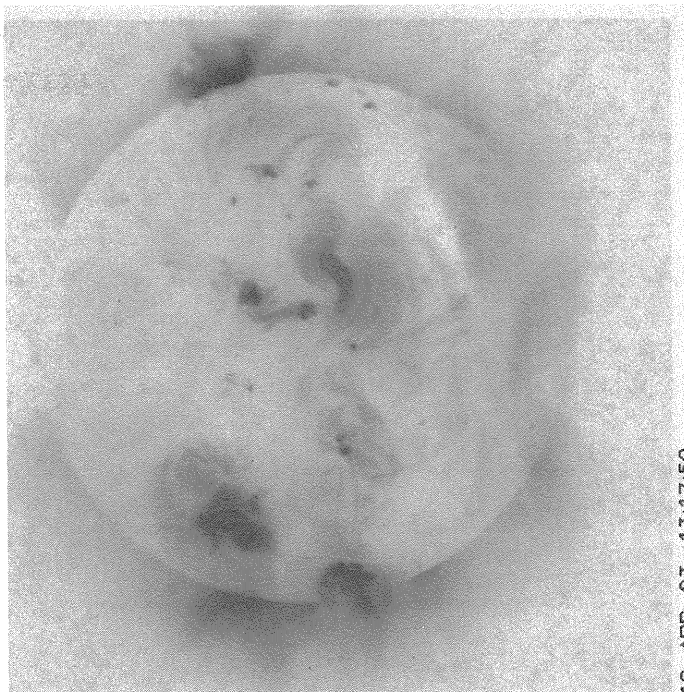
**YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES**

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1993**

Day 17 Day 19
12:24:31 UT 13:17:50 UT



17-APR-93 12:24:31



19-APR-93 13:17:50

Day 18 Day 20
15:04:26 UT 10:57:00 UT



18-APR-93 15:04:26



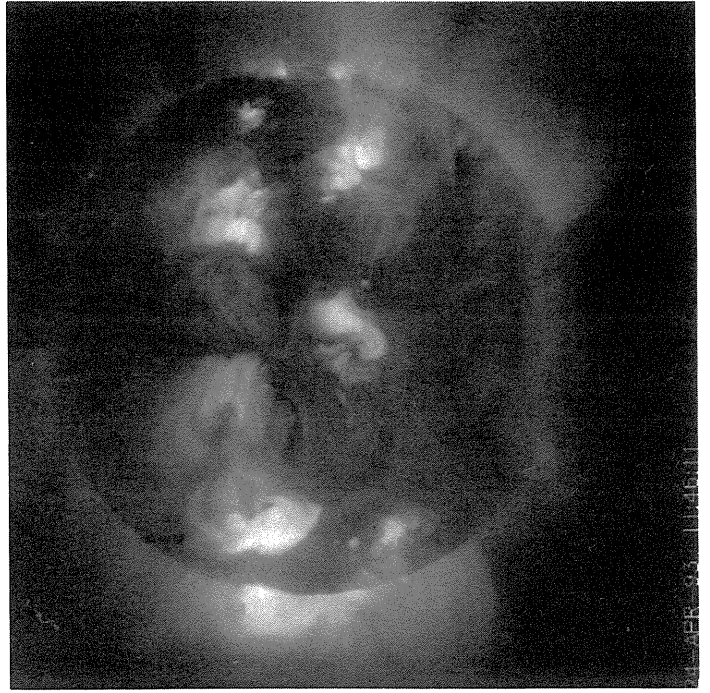
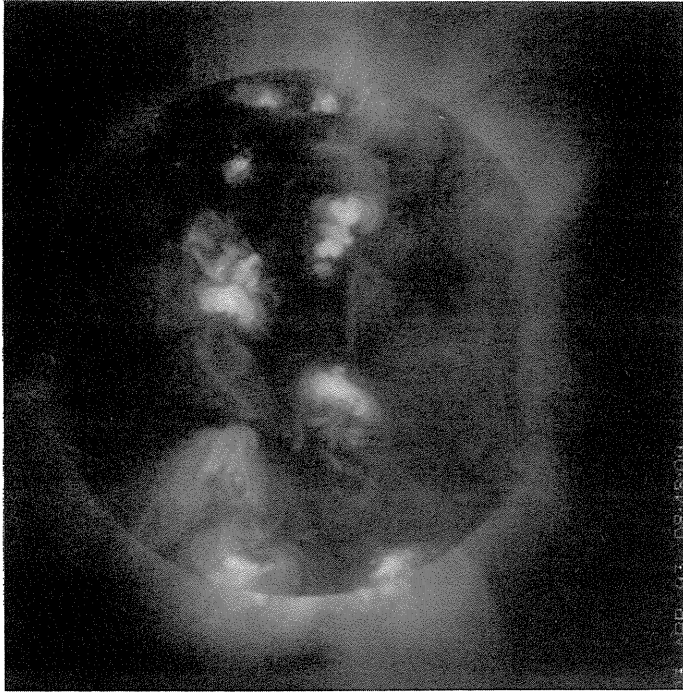
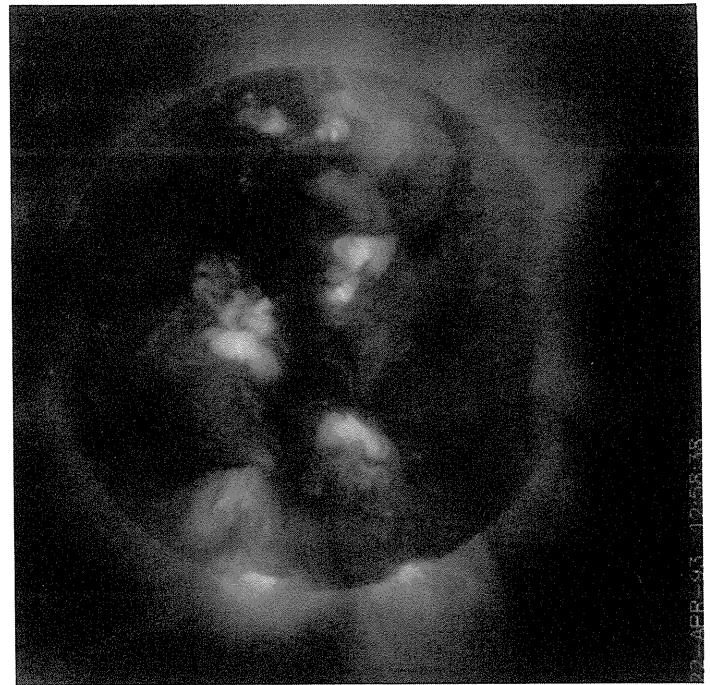
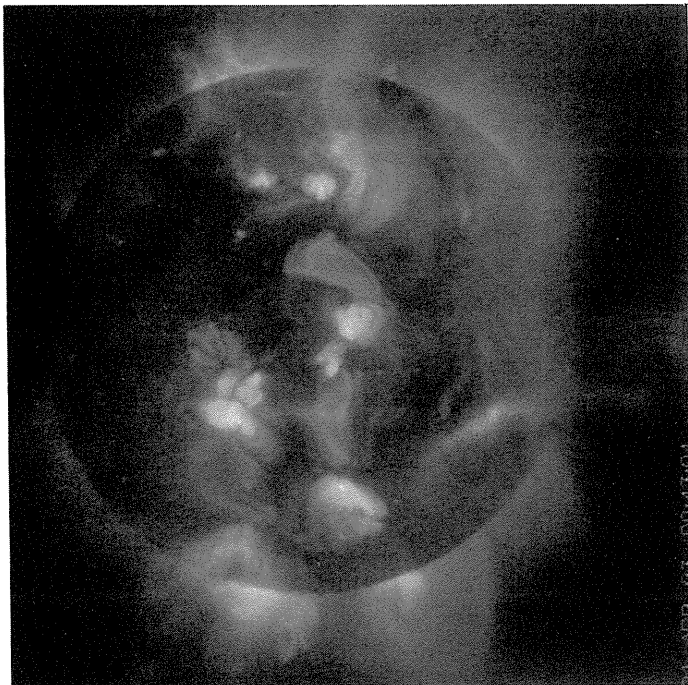
20-APR-93 10:57:00

YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

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1993

Day 21 Day 23
09:43:04 UT 08:48:09 UT

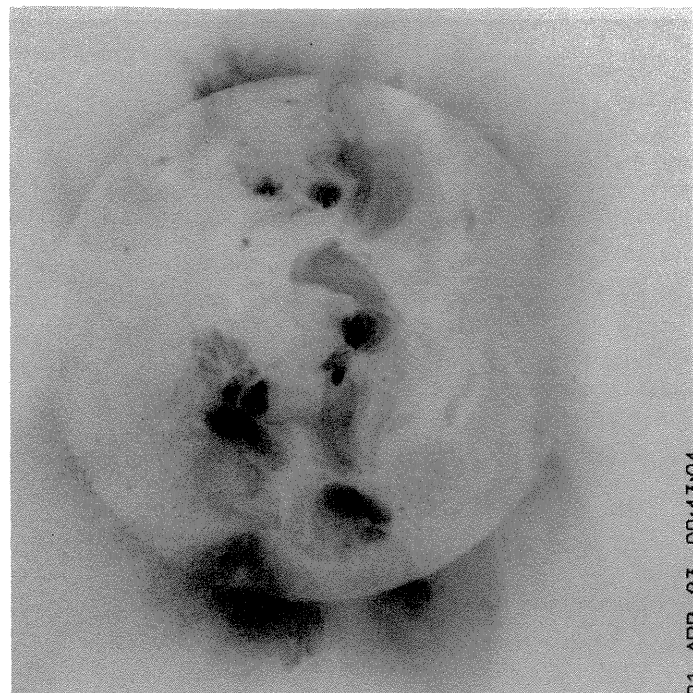
Day 22 Day 24
12:58:38 UT 11:46:11 UT



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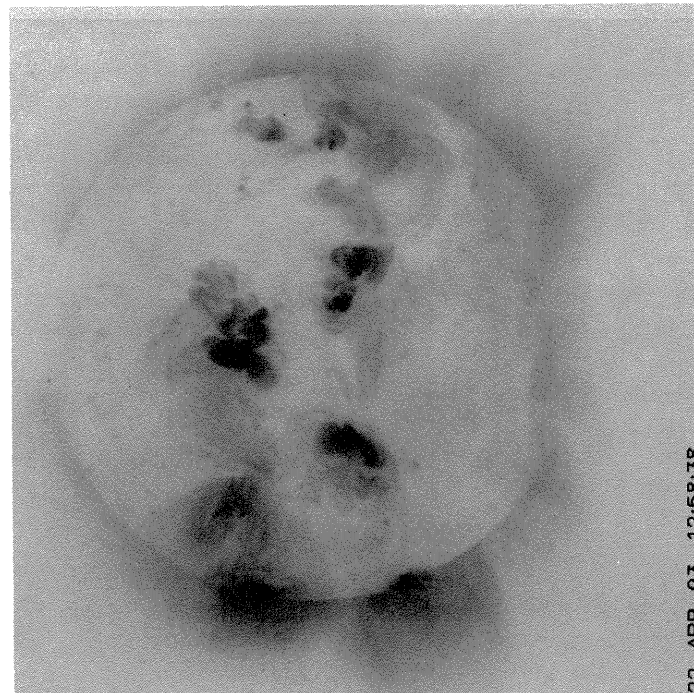
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09:43:04 UT 08:48:09 UT



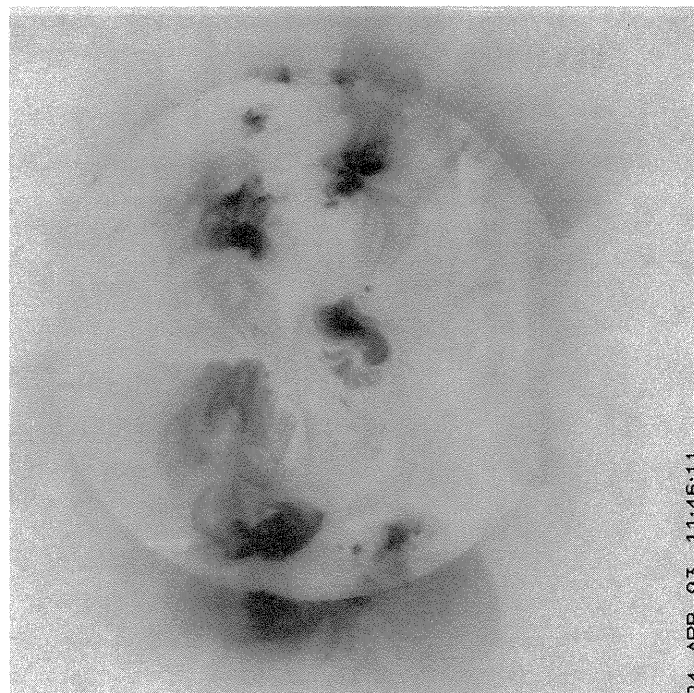
21-APR-93 09:43:04



23-APR-93 08:48:09



22-APR-93 12:58:38



24-APR-93 11:46:11

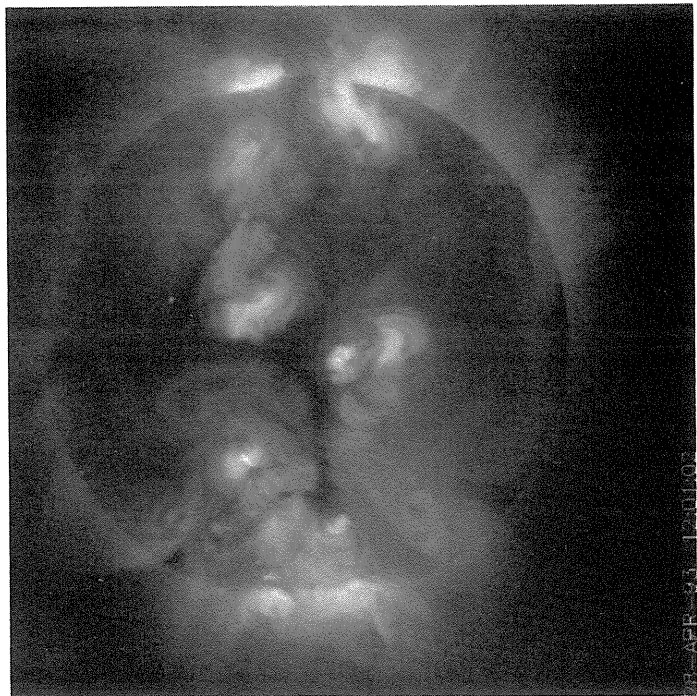
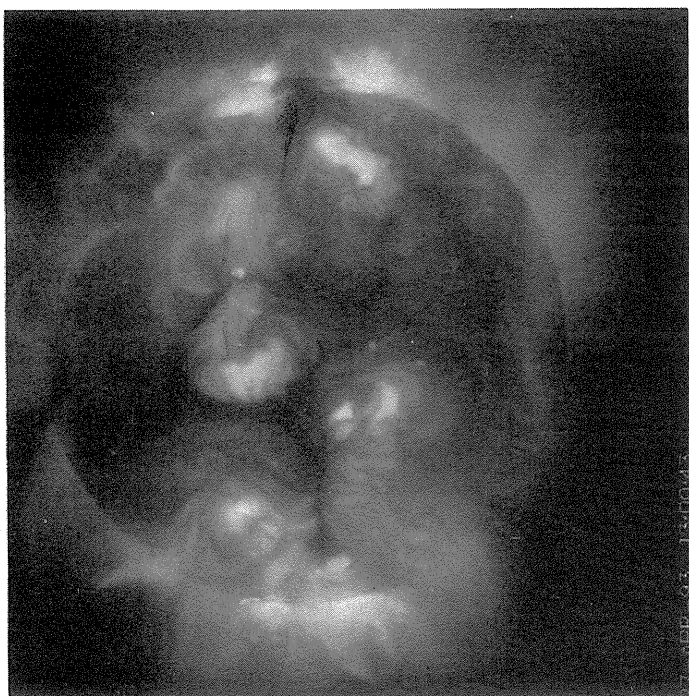
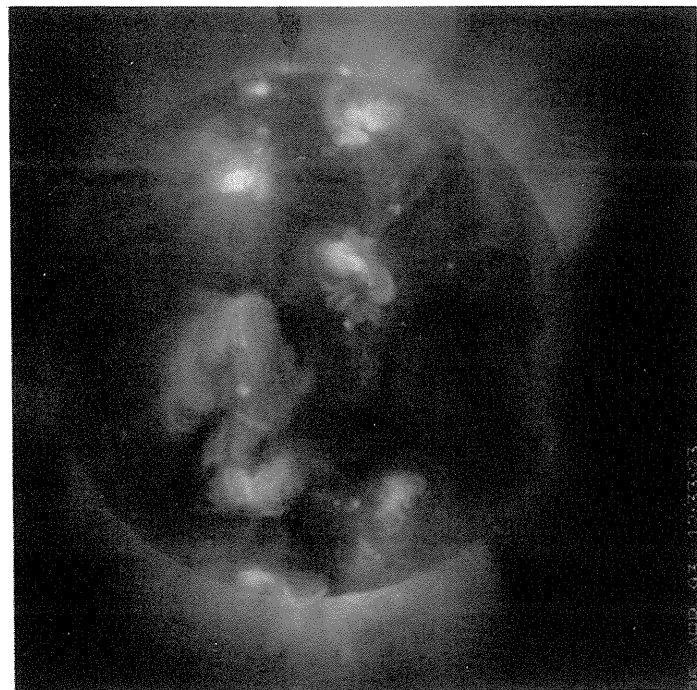
Day 22 Day 24
12:58:38 UT 11:46:11 UT

YOHKOH
SOFT X-RAY
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Day 25 Day 27
12:33:23 UT 13:00:43 UT

Day 26 Day 28
12:39:43 UT 12:01:02 UT



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Day 25 Day 27
12:33:23 UT 13:00:43 UT



25-APR-93 12:33:23



27-APR-93 13:00:43



26-APR-93 12:39:43



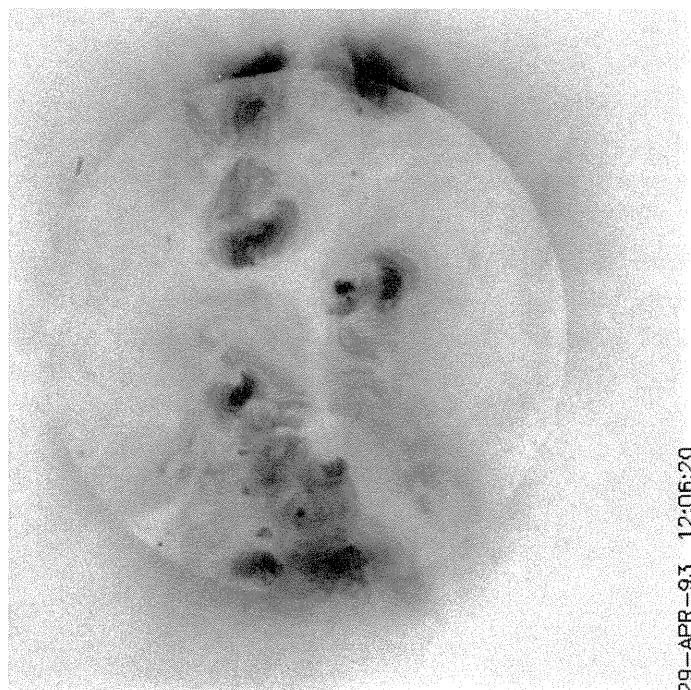
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Day 26 Day 28
12:39:43 UT 12:01:02 UT

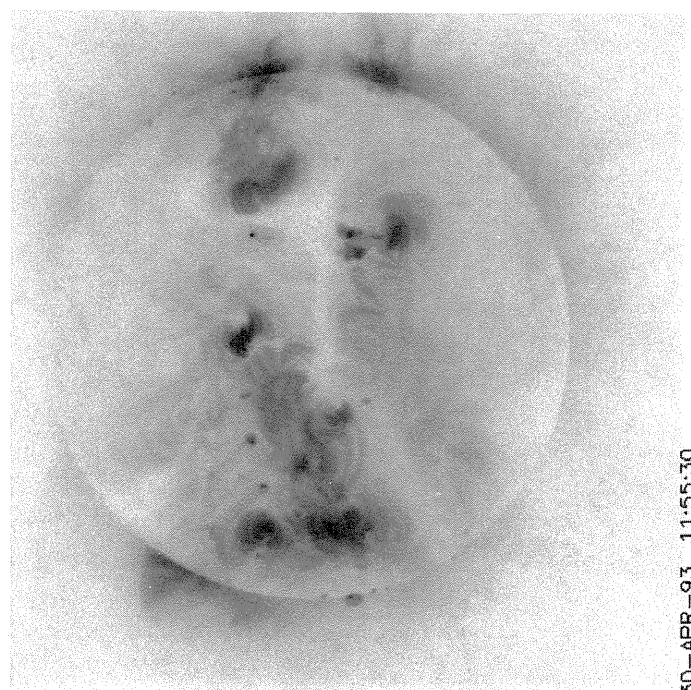
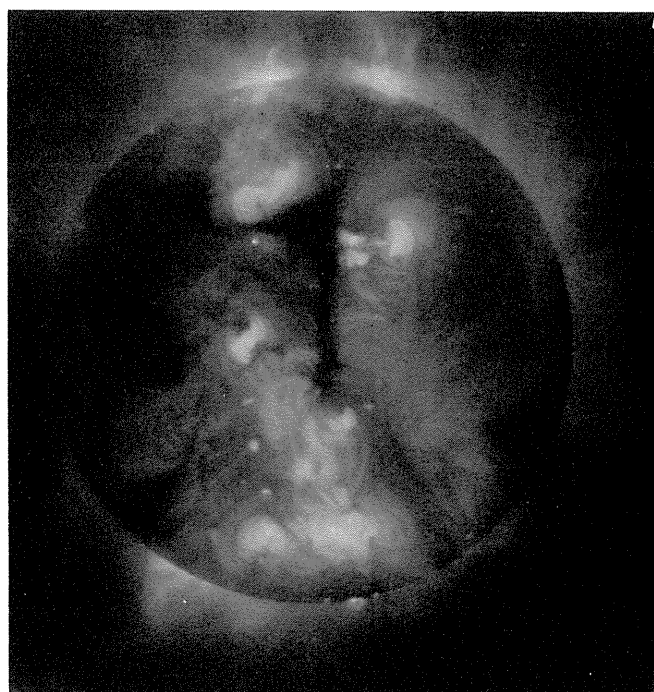
YOHKOH
SOFT X-RAY
TELESCOPE
IMAGES

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Day 29 Day 29
12:06:20 UT 12:06:20 UT



Day 30 Day 30
11:55:30 UT 11:55:30 UT



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

93
Apr 93

APRIL 1993

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
7461		RAMY	03	25	1200	N04 E87	04 1.0		A	HA	60	1	2	3
7461		SVTO	03	25	1424	N04 E85	03 31.9		A	HS	80	1	2	4
7461		BOUL	03	25	1534	N05 E84	03 31.9		A	HA	60	2	2	3
7461		HOLL	03	25	1730	N05 E85	04 1.1		A	HS	120	1	3	4
7461		PALE	03	25	2030	N03 E80	03 31.8		A	HS	150	1	2	3
7461		LEAR	03	26	0007	N05 E79	03 31.9		A	HA	120	1	3	3
7461		RAMY	03	26	1250	N04 E74	04 1.1		B	DAO	300	10	11	3
7461		HOLL	03	26	1525	N04 E72	04 1.0		B	CSO	50	6	12	2
7461		PALE	03	26	2145	N04 E68	04 1.0		B	ESO	310	11	15	3
7461		LEAR	03	27	0030	N03 E66	03 31.9		B	CAO	220	8	10	2
7461		RAMY	03	27	1218	N04 E62	04 1.1		B	EKO	360	20	11	4
7461		HOLL	03	27	1733	N04 E58	04 1.1		B	EAO	440	7	11	3
7461		PALE	03	27	1957	N03 E58	04 1.2		BG	FKO	380	22	16	3
7461		LEAR	03	28	0015	N06 E55	04 1.1		B	EKO	370	16	12	2
7461		SVTO	03	28	0910	N04 E48	04 1.0		B	DAO	340	11	11	2
7461		RAMY	03	28	1211	N05 E48	04 1.1		B	EKO	420	25	13	4
7461		HOLL	03	28	1455	N06 E47	04 1.1		B	EKO	390	18	11	3
7461		BOUL	03	28	1545	N06 E45	04 1.0		B	ESO	280	10	12	3
7461		PALE	03	28	1800	N05 E45	04 1.1		B	EAO	320	25	12	3
7461		LEAR	03	29	0020	N05 E41	04 1.1		B	EKO	350	13	12	2
7461		PALE	03	29	0125	N05 E39	04 1.0		B	EAO	170	15	12	1
7461		SVTO	03	29	0840	N05 E37	04 1.1		B	DAO	390	15	11	4
7461		RAMY	03	29	1303	N06 E34	04 1.1		B	EKO	460	32	12	3
7461	27808	MWIL	03	29	1530	N06 E32	04 1.0	5	(D)					
7461		HOLL	03	29	2210	N03 E29	04 1.1		B	ESI	330	22	11	1
7461		LEAR	03	30	0010	N04 E28	04 1.1		B	EAO	220	20	11	3
7461		RAMY	03	30	1205	N05 E23	04 1.2		B	EAI	260	49	13	3
7461		HOLL	03	30	1510	N05 E20	04 1.1		B	EAI	230	27	12	3
7461	27808	MWIL	03	30	1530	N06 E19	04 1.1	5	(BG)					
7461		PALE	03	30	1740	N05 E20	04 1.2		B	EAI	210	39	11	2
7461		LEAR	03	31	0015	N04 E15	04 1.1		B	ESO	200	22	11	3
7461		RAMY	03	31	1250	N05 E09	04 1.2		BG	EAI	240	29	13	4
7461		HOLL	03	31	1444	N04 E08	04 1.2		BG	ESO	330	27	12	3
7461		BOUL	03	31	1458	N06 E06	04 1.1		B	EAI	260	16	11	3
7461	27808	MWIL	03	31	1515	N06 E05	04 1.0	5	(BP)					
7461		SVTO	03	31	1532	N05 E09	04 1.3		B	EAO	290	25	13	3
7461		PALE	03	31	1900	N05 E08	04 1.4		BG	EAI	210	30	13	3
7461		LEAR	04	01	0002	N05 E04	04 1.3		B	EKO	270	20	13	3
7461		SVTO	04	01	0820	N06 W02	04 1.2		BD	EAO	260	16	13	4
7461		RAMY	04	01	1150	N05 W04	04 1.2		B	EAO	240	26	13	3
7461		BOUL	04	01	1447	N07 W05	04 1.2		B	EKO	250	15	12	3
7461		HOLL	04	01	1455	N07 W05	04 1.2		B	CSO	200	16	12	3
7461	27808	MWIL	04	01	1500	N05 W08	04 1.0	5	(BG)					
7461		PALE	04	01	2345	N07 W11	04 1.2		B	EAO	190	12	11	3
7461		LEAR	04	02	0015	N06 W12	04 1.1		B	EAO	210	7	12	2
7461		SVTO	04	02	1120	N07 W16	04 1.3		B	EKO	220	14	12	4
7461		RAMY	04	02	1211	N05 W16	04 1.3		B	CAO	250	15	12	4
7461		BOUL	04	02	1434	N06 W19	04 1.2		B	CKO	210	10	12	3
7461	27808	MWIL	04	02	1500	N06 W22	04 1.0	5	(BG)					
7461		PALE	04	02	2005	N05 W20	04 1.3		B	CKO	200	10	11	2
7461		HOLL	04	02	2111	N07 W23	04 1.1		B	CKO	240	11	9	3
7461		LEAR	04	03	0025	N07 W25	04 1.1		B	CKO	220	4	11	2
7461		HOLL	04	03	1415	N08 W31	04 1.3		B	CSO	100	6	11	2
7461	27808	MWIL	04	03	1500	N06 W36	03 31.9	5	(BP)					
7461		SVTO	04	03	1500	N07 W31	04 1.3		B	DSO	70	5	3	2
7461		PALE	04	03	1930	N07 W33	04 1.3		B	CSO	140	9	10	3
7461		LEAR	04	04	0230	N06 W39	04 1.2		B	CAO	120	4	10	3
7461		SVTO	04	04	1112	N10 W46	04 1.0		B	CAO	120	2	2	3
7461		RAMY	04	04	1239	N07 W48	03 31.9		A	HA	100	2	2	3
7461		HOLL	04	04	1400	N07 W49	03 31.9		A	HA	140	4	2	3
7461	27808	MWIL	04	04	1500	N07 W50	03 31.9	5	(AP)					
7461		BOUL	04	04	1500	N07 W51	03 31.8		A	HA	110	2	2	4
7461		PALE	04	04	1915	N08 W51	04 1.0		A	HA	140	3	2	3
7461		LEAR	04	05	0005	N08 W55	03 31.9		B	CSO	90	2	2	3
7461		RAMY	04	05	1222	N07 W62	03 31.9		A	HS	90	2	2	4
7461		BOUL	04	05	1400	N08 W65	03 31.7		A	HA	90	2	2	2
7461		HOLL	04	05	1815	N08 W65	03 31.9		A	HA	140	1	2	3
7461		PALE	04	05	1940	N10 W67	03 31.8		A	HA	100	3	2	3
7461		LEAR	04	06	0050	N08 W68	03 31.9		A	HS	60	1	2	2

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

APRIL 1993

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
7461	27808	SVTO	04 06 0815	N08 W74	03 31.8		A	HA	100	3	2	2
7461		RAMY	04 06 1212	N08 W79	03 31.6		A	HS	80	1	2	4
7461		MWIL	04 06 1530	N07 W78	03 31.8	5	(AP)					
7461		HOLL	04 06 1700	N09 W77	03 31.9		A	HA	120	1	2	2
7461		PALE	04 06 2015	N08 W79	03 31.9		A	HS	60	1	2	3
7466	27814	RAMY	03 29 1303	S22 E37	04 1.4		A	AX		1		3
7466		RAMY	03 31 1250	S22 E13	04 1.5		B	CRO	10	6	3	4
7466		HOLL	03 31 1444	S23 E12	04 1.5		B	BXO	30	5	3	3
7466		BOUL	03 31 1458	S21 E12	04 1.5		B	BXO	20	4	4	3
7466		MWIL	03 31 1515	S22 E12	04 1.5	4	(B)					
7466		SVTO	03 31 1532	S21 E14	04 1.7		B	BXO	10	4	4	3
7466		PALE	03 31 1900	S22 E10	04 1.6		B	CRO	20	5	3	3
7466		LEAR	04 01 0002	S22 E06	04 1.5		B	BXO	10	4	4	3
7466		SVTO	04 01 0820	S22 E02	04 1.5		B	CRO	30	12	5	4
7466		RAMY	04 01 1150	S22 E00	04 1.5		B	DAO	50	12	5	3
7466	27814	BOUL	04 01 1447	S21 W02	04 1.5		B	DAO	40	9	5	3
7466		HOLL	04 01 1455	S21 W02	04 1.5		B	DRO	30	6	5	3
7466		MWIL	04 01 1500	S22 W02	04 1.5	5	(B)					
7466		PALE	04 01 2345	S21 W07	04 1.4		B	DSO	50	12	6	3
7466		LEAR	04 02 0015	S22 W08	04 1.4		B	CAO	40	5	5	2
7466		SVTO	04 02 1120	S20 W13	04 1.5		B	DAO	90	14	7	4
7466		RAMY	04 02 1211	S21 W13	04 1.5		B	DAO	70	13	7	4
7466		BOUL	04 02 1434	S20 W16	04 1.4		B	DAO	130	10	6	3
7466		MWIL	04 02 1500	S21 W15	04 1.5	4	(BP)					
7466		PALE	04 02 2005	S22 W16	04 1.6		B	DAO	80	16	7	2
7466	27814	HOLL	04 02 2111	S20 W19	04 1.4		B	DSO	110	13	6	3
7466		LEAR	04 03 0025	S20 W21	04 1.4		B	DAO	80	6	8	2
7466		HOLL	04 03 1415	S19 W29	04 1.4		B	DAO	70	14	8	2
7466		SVTO	04 03 1500	S20 W27	04 1.5		B	DAO	90	12	9	2
7466		MWIL	04 03 1500	S21 W30	04 1.3	4	(BP)					
7466		PALE	04 03 1930	S21 W31	04 1.4		B	DAO	70	12	8	3
7466		LEAR	04 04 0230	S22 W35	04 1.4		B	CAO	80	6	8	3
7466		SVTO	04 04 1112	S17 W38	04 1.6		B	CAO	80	4	10	3
7466		RAMY	04 04 1239	S20 W40	04 1.5		B	DAO	100	7	9	3
7466		HOLL	04 04 1400	S19 W40	04 1.5		B	DSO	70	7	9	3
7466	27814	MWIL	04 04 1500	S20 W42	04 1.4	5	(BP)					
7466		BOUL	04 04 1500	S21 W42	04 1.4		B	ESO	70	6	11	4
7466		PALE	04 04 1915	S20 W42	04 1.6		B	DSO	60	10	9	3
7466		LEAR	04 05 0005	S20 W45	04 1.6		B	CSO	50	7	8	3
7466		RAMY	04 05 1222	S21 W54	04 1.4		B	DAO	60	5	10	4
7466		BOUL	04 05 1400	S19 W56	04 1.3		B	DSO	120	4	10	2
7466		HOLL	04 05 1815	S18 W57	04 1.4		B	CSO	100	3	8	3
7466		PALE	04 05 1940	S17 W59	04 1.3		B	DAO	70	4	8	3
7466		LEAR	04 06 0050	S19 W61	04 1.4		B	ESO	40	3	12	2
7466		SVTO	04 06 0815	S19 W65	04 1.4		B	CSO	70	3	10	2
7466	27814	RAMY	04 06 1212	S19 W69	04 1.2		B	DAO	70	4	10	4
7466		MWIL	04 06 1530	S20 W71	04 1.2	4	(B)					
7466		HOLL	04 06 1700	S16 W73	04 1.2		A	HA	60	1	1	2
7466		PALE	04 06 2015	S18 W73	04 1.3		B	CSO	70	2	10	3
7463	27809	RAMY	03 27 1218	S13 E81	04 2.6		A	HS	50	2	2	4
7463		HOLL	03 27 1733	S13 E76	04 2.5		A	AX	10	1	1	3
7463		PALE	03 27 1957	S15 E78	04 2.7		A	HS	60	1	2	3
7463		LEAR	03 28 0015	S12 E75	04 2.7		A	AX	10	1	1	2
7463		SVTO	03 28 0910	S14 E68	04 2.5		A	HR	60	1	2	2
7463		RAMY	03 28 1211	S13 E69	04 2.7		A	HA	70	4	2	4
7463		HOLL	03 28 1455	S14 E67	04 2.7		B	CAO	140	1	3	3
7463		BOUL	03 28 1545	S11 E64	04 2.5		B	CSO	30	2	5	3
7463		PALE	03 28 1800	S13 E65	04 2.6		B	CAO	40	4	3	3
7463		LEAR	03 29 0020	S13 E62	04 2.7		B	CAO	60	3	3	2
7463		PALE	03 29 0125	S14 E60	04 2.6		B	DSO	60	7	5	1
7463		SVTO	03 29 0840	S13 E57	04 2.7		B	CSO	70	5	3	4
7463		RAMY	03 29 1303	S12 E54	04 2.6		B	DAO	80	4	3	3
7463		MWIL	03 29 1530	S13 E52	04 2.6	5	(AP)					
7463		HOLL	03 29 2210	S14 E50	04 2.7		B	CSO	60	4	5	1
7463		LEAR	03 30 0010	S14 E49	04 2.7		B	DSO	60	4	6	3
7463		RAMY	03 30 1205	S13 E43	04 2.7		B	DAO	90	17	7	3
7463		HOLL	03 30 1510	S13 E40	04 2.6		A	CSO	80	9	8	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
7463	27809	MWIL	03	30	1530	S12 E39	04	2.6	5	(BG)					
7463		PALE	03	30	1740	S13 E42	04	2.9		B	DAO	80	13	7	2
7463		LEAR	03	31	0015	S12 E35	04	2.6		B	CSO	80	8	7	3
7463		RAMY	03	31	1250	S12 E27	04	2.6		BG	DSO	100	16	7	4
7463		HOLL	03	31	1444	S13 E24	04	2.4		B	DSO	80	7	3	3
7463	27809	BOUL	03	31	1458	S11 E26	04	2.6		B	DAO	70	7	5	3
7463		MWIL	03	31	1515	S12 E24	04	2.4	5	(BG)					
7463		SVTO	03	31	1532	S12 E28	04	2.7		BG	DAO	80	14	8	3
7463		PALE	03	31	1900	S12 E26	04	2.7		B	DSO	120	14	7	3
7463		LEAR	04	01	0002	S13 E21	04	2.6		B	CSO	60	12	8	3
7463	27809	SVTO	04	01	0820	S13 E17	04	2.6		B	CAO	80	15	7	4
7463		RAMY	04	01	1150	S13 E15	04	2.6		B	CAO	60	10	8	3
7463		BOUL	04	01	1447	S11 E13	04	2.6		B	CAO	40	4	7	3
7463		HOLL	04	01	1455	S13 E13	04	2.6		B	DAO	100	5	7	3
7463		MWIL	04	01	1500	S12 E12	04	2.5	5	(BP)					
7463	27809	PALE	04	01	2345	S12 E08	04	2.6		B	CSO	60	13	7	3
7463		LEAR	04	02	0015	S13 E07	04	2.5		B	CAO	70	5	7	2
7463		SVTO	04	02	1120	S12 E01	04	2.5		B	DAO	70	21	6	4
7463		RAMY	04	02	1211	S13 E01	04	2.6		B	DAO	90	14	6	4
7463		BOUL	04	02	1434	S11 W02	04	2.4		B	CAO	50	9	6	3
7463	27809	MWIL	04	02	1500	S12 W03	04	2.4	5	(BP)					
7463		PALE	04	02	2005	S14 W03	04	2.6		B	CSO	50	11	6	2
7463		HOLL	04	02	2111	S11 W05	04	2.5		B	CSO	50	13	6	3
7463		LEAR	04	03	0025	S12 W07	04	2.5		B	CAO	90	6	9	2
7463		HOLL	04	03	1415	S12 W13	04	2.6		B	DAO	80	8	8	2
7463	27809	MWIL	04	03	1500	S12 W15	04	2.5	5	(BP)					
7463		SVTO	04	03	1500	S13 W13	04	2.6		B	DAO	50	20	8	2
7463		PALE	04	03	1930	S13 W17	04	2.5		B	DAO	70	15	8	3
7463		LEAR	04	04	0230	S12 W20	04	2.6		B	CAO	80	6	8	3
7463		SVTO	04	04	1112	S10 W27	04	2.4		B	CAO	30	4	3	3
7463	27809	RAMY	04	04	1239	S11 W28	04	2.4		A	HA	40	5	3	3
7463		HOLL	04	04	1400	S11 W29	04	2.4		A	HS	20	4	3	3
7463		BOUL	04	04	1500	S11 W30	04	2.4		A	HS	40	1	1	4
7463		MWIL	04	04	1500	S12 W30	04	2.4	5	(AP)					
7463		PALE	04	04	1915	S11 W30	04	2.5		B	CSO	40	6	3	3
7463	27809	LEAR	04	05	0005	S11 W35	04	2.4		B	CAO	50	4	2	3
7463		RAMY	04	05	1222	S11 W42	04	2.3		A	HS	50	1	2	4
7463		BOUL	04	05	1400	S10 W43	04	2.3		A	HS	30	1	1	2
7463		HOLL	04	05	1815	S09 W45	04	2.4		A	HS	30	1	1	3
7463		PALE	04	05	1940	S09 W46	04	2.4		A	HS	30	1	1	3
7463	27809	LEAR	04	06	0050	S11 W48	04	2.4		A	HS	20	1	1	2
7463		RAMY	04	06	1212	S11 W57	04	2.2		A	HS	40	1	1	4
7463		MWIL	04	06	1530	S10 W56	04	2.4	4	(B)					
7463		HOLL	04	06	1700	S07 W57	04	2.4		B	CSO	70	3	8	2
7463		PALE	04	06	2015	S08 W57	04	2.6		B	DSO	30	2	4	3
7463	27809	LEAR	04	07	0410	S12 W62	04	2.5		B	CSO	20	2	4	1
7463		RAMY	04	07	1300	S11 W69	04	2.3		A	HR	20	1	1	4
7463		HOLL	04	07	1415	S10 W71	04	2.2		A	AX	10	1		3
7463		BOUL	04	07	1448	S11 W71	04	2.3		A	AX	10	2	2	3
7463		MWIL	04	07	1530	S10 W69	04	2.5	4	(B)					
7463	27810	LEAR	04	08	0055	S12 W73	04	2.5		A	AX	10	1	1	3
7465		SVTO	03	29	0840	S05 E86	04	4.8		A	HS	60	1	3	4
7465		RAMY	03	29	1303	S06 E81	04	4.6		A	HS	60	1	2	3
7465		MWIL	03	29	1530	S05 E81	04	4.7	5	AP					
7465		HOLL	03	29	2210	S09 E77	04	4.7		B	CSO	120	2	4	1
7465	27810	LEAR	03	30	0010	S08 E76	04	4.7		B	DSO	150	2	4	3
7465		RAMY	03	30	1205	S07 E69	04	4.7		B	DAO	240	10	6	3
7465		HOLL	03	30	1510	S08 E69	04	4.8		B	DAO	210	7	7	3
7465		MWIL	03	30	1530	S06 E69	04	4.8	5	(BP)					
7465		PALE	03	30	1740	S07 E62	04	4.4		B	DAO	230	8	5	2
7465	27810	LEAR	03	31	0015	S08 E65	04	4.9		B	DSO	190	6	10	3
7465		RAMY	03	31	1250	S07 E58	04	4.9		B	DAO	230	10	10	4
7465		HOLL	03	31	1444	S09 E59	04	5.0		B	CAO	180	8	10	3
7465		BOUL	03	31	1458	S07 E57	04	4.9		B	DKO	260	12	7	3
7465		MWIL	03	31	1515	S06 E56	04	4.8	5	(BP)					
7465	27810	SVTO	03	31	1532	S06 E58	04	5.0		B	DAO	120	7	7	3
7465		PALE	03	31	1900	S07 E54	04	4.8		B	DAO	180	9	10	3
7465		LEAR	04	01	0002	S07 E52	04	4.9		B	EKO	210	8	11	3

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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
7465		SVTO	04 01 0820	S05 E45	04 4.7		B	CAO	260	4	4	4
7465		RAMY	04 01 1150	S07 E44	04 4.8		B	DAO	200	10	7	3
7465		BOUL	04 01 1447	S06 E41	04 4.7		B	CAO	220	8	5	3
7465		HOLL	04 01 1455	S05 E43	04 4.8		B	DAO	230	5	3	3
7465	27810	MWIL	04 01 1500	S05 E43	04 4.8	5	(BP)					
7465		PALE	04 01 2345	S06 E38	04 4.8		B	CHO	210	9	9	3
7465		LEAR	04 02 0015	S07 E38	04 4.8		B	DAO	220	8	6	2
7465		SVTO	04 02 1120	S05 E30	04 4.7		B	DKO	210	12	6	4
7465		RAMY	04 02 1211	S06 E30	04 4.7		B	DKO	230	7	4	4
7465		BOUL	04 02 1434	S05 E27	04 4.6		B	CAO	210	7	3	3
7465	27810	MWIL	04 02 1500	S04 E28	04 4.7	5	(AP)					
7465		PALE	04 02 2005	S07 E28	04 4.9		B	CHO	190	10	5	2
7465		HOLL	04 02 2111	S06 E26	04 4.8		B	CSO	220	11	5	3
7465		LEAR	04 03 0025	S05 E23	04 4.7		B	DKO	220	8	7	2
7465		HOLL	04 03 1415	S05 E14	04 4.6		B	CAI	170	10	5	2
7465	27810	MWIL	04 03 1500	S04 E15	04 4.7	5	(BG)					
7465		SVTO	04 03 1500	S05 E16	04 4.8		B	CAO	210	9	5	2
7465		PALE	04 03 1930	S05 E13	04 4.8		B	CAI	210	12	5	3
7465		LEAR	04 04 0230	S07 E09	04 4.8		B	CAO	230	6	5	3
7465		SVTO	04 04 1112	S05 E05	04 4.8		B	CSO	200	14	5	3
7465		RAMY	04 04 1239	S04 E04	04 4.8		B	CAO	220	9	6	3
7465		HOLL	04 04 1400	S05 E02	04 4.7		B	CSO	210	14	5	3
7465		BOUL	04 04 1500	S04 E01	04 4.7		B	CAO	160	4	5	4
7465	27810	MWIL	04 04 1500	S04 E01	04 4.7	5	(BP)					
7465		PALE	04 04 1915	S05 E02	04 4.9		B	CSO	210	8	5	3
7465		LEAR	04 05 0005	S04 W04	04 4.7		B	CSO	150	5	4	3
7465		RAMY	04 05 1222	S04 W09	04 4.8		B	CAO	210	6	4	4
7465		BOUL	04 05 1400	S05 W10	04 4.8		B	CAO	170	4	7	2
7465		HOLL	04 05 1815	S06 W11	04 4.9		B	DKO	520	7	10	3
7465		PALE	04 05 1940	S05 W11	04 5.0		B	DKO	230	14	8	3
7465		LEAR	04 06 0050	S06 W15	04 4.9		B	DSO	190	8	8	2
7465		SVTO	04 06 0815	S05 W18	04 5.0		BG	EHO	330	39	11	2
7465		RAMY	04 06 1212	S07 W22	04 4.9		BG	EAO	600	27	13	4
7465	27810	MWIL	04 06 1530	S04 W26	04 4.7	5	(AP)					
7465		HOLL	04 06 1700	S02 W26	04 4.8		A	HS	230	3	5	2
7465		PALE	04 06 2015	S06 W27	04 4.8		BG	DAO	350	26	9	3
7465		LEAR	04 07 0410	S07 W28	04 5.1		BG	DAO	390	20	10	1
7465		SVTO	04 07 0820	S06 W31	04 5.0		BG	EKO	480	25	13	2
7465		RAMY	04 07 1300	S06 W35	04 4.9		BG	EAI	420	22	12	4
7465		HOLL	04 07 1415	S03 W39	04 4.7		B	CAO	180	4	4	3
7465		BOUL	04 07 1448	S06 W36	04 4.9		B	EAO	460	22	13	3
7465	27810	MWIL	04 07 1530	S04 W39	04 4.7	5	(AP)					
7465		LEAR	04 08 0055	S08 W40	04 5.0		BG	EAI	450	16	12	3
7465		RAMY	04 08 1211	S05 W45	04 5.1		BG	EAO	400	25	13	4
7465		BOUL	04 08 1348	S06 W48	04 5.0		BG	EAO	350	17	12	3
7465		HOLL	04 08 1405	S04 W46	04 5.1		BG	EAO	270	16	12	3
7465	27810	MWIL	04 08 1515	S04 W54	04 4.6	5	(BF)					
7465		PALE	04 08 2255	S07 W52	04 5.0		BG	ESO	300	17	13	2
7465		LEAR	04 09 0110	S07 W53	04 5.1		BG	EAO	400	12	12	3
7465		SVTO	04 09 0730	S05 W56	04 5.1		BG	EAO	290	21	13	4
7465		RAMY	04 09 1210	S07 W61	04 4.9		BG	EAO	190	21	12	3
7465		BOUL	04 09 1439	S06 W63	04 4.9		B	EAO	310	10	12	1
7465	27810	MWIL	04 09 1515	S04 W67	04 4.6	5	(G)					
7465		HOLL	04 09 1815	S05 W65	04 4.9		B	CAO	180	8	13	3
7465		PALE	04 10 0015	S05 W67	04 5.0		BG	ESO	230	17	13	2
7465		LEAR	04 10 0020	S10 W66	04 5.0		BG	EAO	280	15	11	2
7465		SVTO	04 10 0702	S06 W72	04 4.9		B	EAO	210	14	13	3
7465		RAMY	04 10 1222	S05 W70	04 5.3		B	DAO	160	9	8	2
7465		BOUL	04 10 1340	S06 W75	04 4.9		B	DSO	110	3	8	3
7465	27810	MWIL	04 10 1530	S04 W79	04 4.7	5	(AP)					
7465		PALE	04 10 2000	S05 W78	04 5.0		B	EAO	140	6	13	3
7465		SVTO	04 11 1100	S10 W80	04 5.4		B	CAO	90	4	5	2
7465		RAMY	04 11 1245	S05 W82	04 5.4		A	AX	10	1	1	3
7468		SVTO	03 31 1532	S06 E69	04 5.8		A	AX	10	1		3
7468		SVTO	04 01 0820	S08 E54	04 5.4		A	AX	10	1	1	4
7468		RAMY	04 01 1150	S08 E52	04 5.4		A	AX	10	1	1	3
7468		BOUL	04 01 1447	S08 E51	04 5.4		A	AX		1		3
7468		HOLL	04 01 1455	S08 E51	04 5.4		A	AX	10	1		3

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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
7468	27818	PALE	04 01 2345	S10 E46	04 5.4	5	A	AX	10	1		3
7468		MWIL	04 06 1530	S07 W22	04 5.0		(BG)					
7468		HOLL	04 06 1700	S06 W22	04 5.1		B	DAO	140	18	8	2
7468		HOLL	04 07 1415	S08 W34	04 5.0	5	BGD	DAI	240	10	7	3
7468		MWIL	04 07 1530	S07 W35	04 5.0		(BG)					
7468		MWIL	04 08 1515	S08 W48	04 5.0		(B)					
7468	27818	MWIL	04 09 1515	S08 W61	04 5.1	5	(B)					
7468	27818	MWIL	04 10 1530	S08 W74	04 5.1	5	(B)					
7469	27815	MWIL	04 02 1500	S09 E62	04 7.3	3	(AP)					
7469		HOLL	04 02 2111	S11 E57	04 7.2		A	AX		1		3
7469		HOLL	04 03 1415	S11 E47	04 7.1		B	BXO	10	5	1	2
7469	27816	SVTO	04 03 1500	S09 E46	04 7.1	4	B	BXO	10	3	3	2
7469		MWIL	04 03 1500	S09 E51	04 7.4		(B)					
7469		PALE	04 03 1930	S11 E45	04 7.2		B	BXO	10	10	4	3
7469		LEAR	04 04 0230	S12 E40	04 7.1	5	B	BXO	40	7	6	3
7469		SVTO	04 04 1112	S14 E35	04 7.1		B	DAO	120	9	8	3
7469		RAMY	04 04 1239	S10 E34	04 7.1		B	DAO	130	16	8	3
7469		HOLL	04 04 1400	S13 E34	04 7.1		BG	DAO	120	15	8	3
7469		BOUL	04 04 1500	S08 E31	04 6.9		B	DAO	70	6	6	4
7469		MWIL	04 04 1500	S10 E32	04 7.0		(BG)					
7469	27816	PALE	04 04 1915	S12 E33	04 7.3	5	BG	DAO	130	11	7	3
7469		LEAR	04 05 0005	S08 E28	04 7.1		B	DSO	170	11	8	3
7469		RAMY	04 05 1222	S11 E21	04 7.1		BG	DAO	180	32	10	4
7469		BOUL	04 05 1400	S11 E20	04 7.1		B	DAO	180	16	9	2
7469		HOLL	04 05 1815	S11 E17	04 7.0		BG	EAO	230	19	11	3
7469		PALE	04 05 1940	S12 E17	04 7.1		B	DAO	250	32	10	3
7469	27816	LEAR	04 06 0050	S11 E15	04 7.2	5	B	ESO	200	14	12	2
7469		SVTO	04 06 0815	S10 E10	04 7.1		BG	EHI	200	43	11	2
7469		RAMY	04 06 1212	S11 E08	04 7.1		BGD	EAI	280	49	11	4
7469		MWIL	04 06 1530	S10 E05	04 7.0		(BG)					
7469		HOLL	04 06 1700	S09 E05	04 7.1		BG	EAI	420	22	11	2
7469		PALE	04 06 2015	S11 E03	04 7.1		BGD	EAI	310	46	11	3
7469	27816	LEAR	04 07 0410	S11 W02	04 7.0	5	BG	EAI	300	22	12	1
7469		SVTO	04 07 0820	S09 W03	04 7.1		BG	ESI	340	47	12	2
7469		RAMY	04 07 1300	S11 W05	04 7.2		B	EAI	300	40	12	4
7469		HOLL	04 07 1415	S11 W08	04 7.0		BGD	EAI	330	26	12	3
7469		BOUL	04 07 1448	S10 W07	04 7.1		B	EAI	350	43	12	3
7469		MWIL	04 07 1530	S11 W08	04 7.0		(D)					
7469	27816	LEAR	04 08 0055	S12 W12	04 7.1	5	BG	EAI	300	38	12	3
7469		RAMY	04 08 1211	S10 W18	04 7.1		BG	EAI	340	66	12	4
7469		BOUL	04 08 1348	S08 W19	04 7.1		BG	EAI	480	49	14	3
7469		HOLL	04 08 1405	S10 W22	04 6.9		B	EAI	290	30	12	3
7469		MWIL	04 08 1515	S09 W21	04 7.0		(D)					
7469		PALE	04 08 2255	S12 W26	04 7.0		BG	ESI	280	41	13	2
7469	27816	LEAR	04 09 0110	S08 W25	04 7.2	5	BG	EAI	380	27	13	3
7469		SVTO	04 09 0730	S12 W29	04 7.1		BG	FKI	640	49	16	4
7469		RAMY	04 09 1210	S11 W32	04 7.1		BG	EKI	490	54	14	3
7469		BOUL	04 09 1439	S08 W34	04 7.1		BG	EKC	580	29	13	1
7469		MWIL	04 09 1515	S10 W34	04 7.1		(D)					
7469		HOLL	04 09 1815	S08 W33	04 7.3		BG	EKC	670	33	14	3
7469	27816	PALE	04 10 0015	S10 W39	04 7.1	5	BG	EAI	330	39	13	2
7469		LEAR	04 10 0020	S12 W40	04 7.0		BG	EKI	380	30	15	2
7469		SVTO	04 10 0702	S12 W43	04 7.0		BG	EAI	390	27	14	3
7469		RAMY	04 10 1222	S09 W45	04 7.1		B	EAI	390	31	15	2
7469		BOUL	04 10 1340	S10 W46	04 7.1		B	ESI	240	12	14	3
7469		MWIL	04 10 1530	S11 W47	04 7.1		(BG)					
7469	27816	PALE	04 10 2000	S12 W51	04 7.0	5	B	EAI	280	29	14	3
7469		SVTO	04 11 1100	S08 W55	04 7.3		BG	DAO	370	23	14	2
7469		RAMY	04 11 1245	S10 W60	04 7.0		B	EKI	380	28	14	3
7469		BOUL	04 11 1345	S09 W60	04 7.1		B	FSO	320	8	16	2
7469		HOLL	04 11 1500	S08 W60	04 7.1		B	EAI	240	21	15	3
7469		MWIL	04 11 1500	S10 W61	04 7.0		(B)					
7469	27816	PALE	04 11 2215	S11 W68	04 6.8	4	B	EKI	290	24	14	2
7469		RAMY	04 12 1255	S11 W75	04 6.9		B	EAO	160	13	15	3
7469		HOLL	04 12 1445	S09 W73	04 7.1		B	EAO	180	11	14	3
7469		MWIL	04 12 1515	S10 W75	04 7.0		(B)					
7469		PALE	04 12 2129	S10 W75	04 7.2		B	CSO	60	4	8	3
7469		SVTO	04 13 1115	S07 W81	04 7.4		B	BXO	60	5	6	2

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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
7474	27823	MWIL	04 11 1500	N22 W58	04 7.2	4	(B)					
7474		HOLL	04 11 1500	N23 W58	04 7.1		A	AX		1		3
7474		RAMY	04 12 1255	N23 W72	04 7.0		B	BXO	20	3	5	3
7474		HOLL	04 12 1445	N23 W72	04 7.1		B	BXO	10	2	3	3
7474	27823	MWIL	04 12 1515	N22 W71	04 7.2	3	X					
7472		HOLL	04 07 1415	N03 W02	04 7.4		A	AX		1		3
7472		HOLL	04 08 1405	N06 W15	04 7.5		B	BXO	10	3	3	3
7472	27819	MWIL	04 08 1515	N04 W17	04 7.4	4	(B)					
7472		PALE	04 08 2255	N04 W22	04 7.3		B	DRO	40	3	4	2
7472		LEAR	04 09 0110	N06 W24	04 7.2		B	DAO	40	5	6	3
7472		SVTO	04 09 0730	N04 W26	04 7.4		B	DAO	30	10	5	4
7472		RAMY	04 09 1210	N04 W29	04 7.3		B	DAO	70	11	6	3
7472		BOUL	04 09 1439	N04 W30	04 7.4		B	DAO	170	9	6	1
7472	27819	MWIL	04 09 1515	N04 W31	04 7.3	5	(B)					
7472		HOLL	04 09 1815	N06 W32	04 7.4		B	DAO	160	9	6	3
7472		PALE	04 10 0015	N04 W35	04 7.4		B	DAO	120	13	7	2
7472		LEAR	04 10 0020	N03 W36	04 7.3		B	DAO	100	10	8	2
7472		SVTO	04 10 0702	N05 W39	04 7.4		B	DAO	160	14	8	3
7472		RAMY	04 10 1222	N05 W42	04 7.4		B	DAO	160	14	8	2
7472		BOUL	04 10 1340	N04 W42	04 7.4		B	DSO	100	8	9	3
7472	27819	MWIL	04 10 1530	N04 W45	04 7.3	5	(BG)					
7472		PALE	04 10 2000	N07 W45	04 7.5		B	DAO	20	20	8	3
7472		SVTO	04 11 1100	N05 W54	04 7.4		B	DAO	190	11	10	2
7472		RAMY	04 11 1245	N04 W56	04 7.3		B	DAO	230	12	9	3
7472		BOUL	04 11 1345	N06 W61	04 7.0		B	DSO	170	5	9	2
7472	27819	MWIL	04 11 1500	N04 W58	04 7.3	5	(B)					
7472		HOLL	04 11 1500	N06 W58	04 7.3		B	DAO	210	17	9	3
7472		PALE	04 11 2215	N05 W61	04 7.4		B	DAO	200	11	10	2
7472		RAMY	04 12 1255	N06 W69	04 7.4		B	EAO	240	11	10	3
7472		HOLL	04 12 1445	N07 W70	04 7.4		B	DSO	220	5	10	3
7472	27819	MWIL	04 12 1515	N04 W73	04 7.2	5	(B)					
7472		PALE	04 12 2129	N04 W76	04 7.2		B	BXO	90	3	9	3
7472		SVTO	04 13 1115	N08 W85	04 7.1		B	BXO	60	2	1	2
7472		RAMY	04 13 1250	N06 W88	04 6.9		A	HR	10	1	1	3
7470		HOLL	04 03 1415	S10 E53	04 7.6		B	DRO	20	3	4	2
7470	27817	MWIL	04 03 1500	S08 E54	04 7.7	5	(B)					
7470		SVTO	04 03 1500	S08 E55	04 7.7		B	DRO	30	2	4	2
7470		PALE	04 03 1930	S10 E53	04 7.8		B	DRO	30	2	4	3
7470		LEAR	04 04 0230	S10 E47	04 7.6		B	BXO	20	2	4	3
7470		SVTO	04 04 1112	S07 E45	04 7.8		A	AX	10	1	1	3
7470		RAMY	04 04 1239	S08 E41	04 7.6		B	BXO	10	3	5	3
7470		HOLL	04 04 1400	S10 E40	04 7.6		B	CRO	10	2	5	3
7470		BOUL	04 04 1500	S07 E38	04 7.5		B	CSO	20	3	5	4
7470	27817	MWIL	04 04 1500	S08 E40	04 7.6	4	(B)					
7470		PALE	04 04 1915	S09 E39	04 7.7		B	CRO	10	2	4	3
7470		LEAR	04 05 0005	S07 E34	04 7.5		B	CSO	20	5	6	3
7470		RAMY	04 05 1222	S08 E29	04 7.7		B	CAO	10	3	3	4
7470		BOUL	04 05 1400	S08 E29	04 7.7		A	AX	10	1	1	2
7470		HOLL	04 05 1815	S07 E28	04 7.8		A	AX	10	1	1	3
7470		PALE	04 05 1940	S09 E26	04 7.8		B	CRO	10	2	3	3
7470		LEAR	04 06 0050	S09 E25	04 7.9		A	HS	10	1	1	2
7470		SVTO	04 06 0815	S06 E19	04 7.8		A	HS	10	1	1	2
7470		RAMY	04 06 1212	S07 E17	04 7.8		A	HR	10	3	2	4
7470	27817	MWIL	04 06 1530	S07 E16	04 7.8	4	(AF)					
7470		HOLL	04 06 1700	S07 E16	04 7.9		A	AX	10	1		2
7470		PALE	04 06 2015	S08 E14	04 7.9		A	HS	10	1	1	3
7470		LEAR	04 07 0410	S07 E09	04 7.8		A	HS	10	1	1	1
7470		SVTO	04 07 0820	S06 E05	04 7.7		A	HS	10	2	1	2
7470		RAMY	04 07 1300	S06 W01	04 7.5		B	BX		2	3	4
7470		HOLL	04 07 1415	S08 E01	04 7.7		B	BXO		3	6	3
7470		RAMY	04 08 1211	S06 W15	04 7.4		B	CAO	40	13	4	4
7470		HOLL	04 08 1405	S07 W17	04 7.3		B	CAI	50	14	4	3
7470		PALE	04 08 2255	S06 W22	04 7.3		B	CRO	40	16	5	2
7470		LEAR	04 09 0110	S05 W23	04 7.3		B	DAI	80	12	6	3
7470		SVTO	04 09 0730	S07 W26	04 7.4		B	DAO	90	17	7	4
7470		RAMY	04 09 1210	S07 W28	04 7.4		B	DAO	60	18	6	3

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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
7470		BOUL	04 09 1439	S05 W31	04 7.3		B	DSO	100	9	6	1
7470		HOLL	04 09 1815	S05 W32	04 7.4		B	BXO	40	13	6	3
7470		PALE	04 10 0015	S07 W34	04 7.5		B	CRO	40	11	4	2
7470		LEAR	04 10 0020	S09 W35	04 7.4		B	DAO	100	19	7	2
7470		SVTO	04 10 0702	S07 W40	04 7.3		B	DAO	80	11	7	3
7470		RAMY	04 10 1222	S07 W41	04 7.4		B	BXO	30	10	5	2
7470		PALE	04 10 2000	S06 W44	04 7.5		B	BXO	40	11	5	3
7471		RAMY	04 08 1211	N17 W03	04 8.3		B	BXO		2	3	4
7471		HOLL	04 08 1405	N16 W04	04 8.3		B	BXO		2	3	3
7471	27820	MWIL	04 08 1515	N17 W06	04 8.2	4	(B)					
7471		SVTO	04 09 0730	N16 W15	04 8.2		B	CRO	20	3	4	4
7471		RAMY	04 09 1210	N17 W18	04 8.1		B	BXO	20	5	4	3
7471		BOUL	04 09 1439	N17 W19	04 8.2		B	BXO	10	2	3	1
7471	27820	MWIL	04 09 1515	N17 W20	04 8.1	4	(B)					
7471		HOLL	04 09 1815	N17 W22	04 8.1		B	BXO	10	2	3	3
7471		PALE	04 10 0015	N17 W25	04 8.1		B	CRO	10	4	3	2
7471		LEAR	04 10 0020	N15 W25	04 8.1		B	BXO	200	4	4	2
7471		SVTO	04 10 0702	N17 W28	04 8.2		B	BXO	10	2	4	3
7471		RAMY	04 10 1222	N17 W31	04 8.1		A	AX		1		2
7471	27821	MWIL	04 10 1530	N13 W31	04 8.3	4	(AP)					
7471		PALE	04 10 2000	N14 W35	04 8.2		B	BXO	10	2	3	3
7471A	27825	MWIL	04 13 1500	N13 W30	04 11.4	3	(B)					
7473		PALE	04 10 0015	N16 E35	04 12.7		B	BXO	10	3	3	2
7473		SVTO	04 10 0702	N15 E33	04 12.8		B	BXO	10	4	3	3
7473		RAMY	04 10 1222	N16 E32	04 12.9		B	BXO	20	8	11	2
7473	27822	MWIL	04 10 1530	N16 E30	04 12.9	4	(B)					
7473		PALE	04 10 2000	N14 E25	04 12.7		A	AX	10	3	2	3
7473		SVTO	04 11 1100	N17 E18	04 12.8		B	BXO	10	3	5	2
7473		RAMY	04 11 1245	N17 E14	04 12.6		A	AX		2	2	3
7473		HOLL	04 11 1500	N16 E13	04 12.6		A	AX		2		3
7473	27822	MWIL	04 11 1500	N17 E14	04 12.7	4	(AP)					
7473		PALE	04 11 2215	N15 E12	04 12.8		B	BXO	10	2	3	2
7473	27822	MWIL	04 12 1515	N15 W01	04 12.5	3	(AP)					
7473		PALE	04 12 2129	N15 W05	04 12.5		B	BXO	10	2	7	3
7473		SVTO	04 13 1115	N20 W13	04 12.5		B	BXO	10	3	2	2
7473		RAMY	04 13 1250	N20 W14	04 12.5		A	AX	20	3	2	3
7473	27822	MWIL	04 13 1500	N18 W08	04 13.0	4	(B)					
7473		PALE	04 13 2205	N17 W17	04 12.6		A	AX	10	2	1	3
7473		LEAR	04 14 0010	N16 W19	04 12.6		A	AX		1	1	3
7473		SVTO	04 14 0800	N17 W16	04 13.1		A	AX	10	1		3
7473		HOLL	04 15 1426	N17 W37	04 12.8		A	AX	10	2	1	3
7473		PALE	04 15 1820	N16 W40	04 12.7		A	AX	10	1		3
7473	27822	MWIL	04 15 1900	N16 W40	04 12.7	3	(AP)					
7473		RAMY	04 16 1207	N15 W52	04 12.6		A	AX		1		4
7473	27822	MWIL	04 16 1500	N17 W54	04 12.5	4	(AP)					
7473		HOLL	04 16 2225	N17 W54	04 12.8		B	BXO	10	2	2	1
7473		LEAR	04 17 0014	N17 W58	04 12.6		B	BXO	40	4	4	3
7473		SVTO	04 17 0815	N18 W59	04 12.8		B	BXO	40	5	6	2
7473		RAMY	04 17 1250	N16 W63	04 12.7		B	BXO	20	4	6	4
7473	27822	MWIL	04 17 1500	N17 W68	04 12.4	4	(B)					
7473		HOLL	04 17 1700	N17 W67	04 12.6		B	BXO	60	4	6	3
7473		PALE	04 17 2243	N16 W67	04 12.9		B	BXO	20	5	5	3
7473		LEAR	04 18 0002	N16 W69	04 12.8		B	BXO	10	6	5	3
7473		SVTO	04 18 1045	N17 W74	04 12.8		B	BXO	40	4	6	3
7473		RAMY	04 18 1250	N17 W80	04 12.4		B	DAO	60	2	7	4
7473	27822	MWIL	04 18 1415	N16 W80	04 12.5	4	X					
7473		HOLL	04 18 1525	N17 W75	04 12.9		A	AX	30	1	1	3
7473		PALE	04 18 1815	N17 W85	04 12.3		A	HS	30	1	2	4
7473		LEAR	04 19 0109	N16 W88	04 12.4		A	AX	30	1	1	2
7473A	27826	MWIL	04 13 1500	N06 W08	04 13.0	4	(AP)					
7473B	27824	MWIL	04 11 1500	N22 E20	04 13.2	4	(AP)					
7473C		LEAR	04 10 0020	S05 E49	04 13.7		B	AXO	20	2	2	2
7473C		SVTO	04 10 0702	S04 E43	04 13.5		A	AX		1		3

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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
7473D		PALE	04 13 2205	S26 E33	04 16.5		A	AX	20	2	1	3
7473D		LEAR	04 14 0010	S25 E32	04 16.5		A	AX	10	1	1	3
7473D		SVTO	04 14 0800	S26 E26	04 16.3		A	AX	10	1		3
7473D		PALE	04 14 1745	S29 E22	04 16.5		A	AX		1		4
7478	27828	RAMY	04 17 1250	S06 W08	04 16.9		B	BXO		2	2	4
7478		MWIL	04 17 1500	S05 W10	04 16.9	4	(B)					
7478		HOLL	04 17 1700	S05 W10	04 17.0		B	BXO	10	4	3	3
7478		PALE	04 17 2243	S05 W15	04 16.8		A	AX	10	1	1	3
7478		LEAR	04 18 0002	S04 W16	04 16.8		A	AX		1	1	3
7478		SVTO	04 18 0650	S05 W18	04 16.9		A	AX		1		1
7478		RAMY	04 19 1308	S04 W38	04 16.7		A	AX		1		4
7478		HOLL	04 19 1420	S06 W38	04 16.7		A	AX		1		3
7479		SVTO	04 18 1045	S13 W02	04 18.3		A	AX		1		3
7479		PALE	04 18 1815	S12 W03	04 18.5		A	AX		1		4
7479		LEAR	04 19 0109	S12 W10	04 18.3		A	AX	10	1	1	2
7479		SVTO	04 19 0820	S10 W15	04 18.2		A	AX		1		3
7479		SVTO	04 20 0740	S11 W28	04 18.2		A	AX	10	2	1	3
7475	27827	MWIL	04 13 1500	N07 E70	04 18.9	4	(B)					
7475		PALE	04 13 2205	N04 E66	04 18.8		A	AX	20	4	2	3
7475		LEAR	04 14 0010	N07 E64	04 18.8		B	BXO	30	4	4	3
7475		SVTO	04 14 0800	N04 E60	04 18.8		B	BXO	30	5	4	3
7475		RAMY	04 14 1212	N05 E58	04 18.8		B	CRO	40	9	3	4
7475		BOUL	04 14 1341	N06 E57	04 18.8		B	BXO	20	5	3	3
7475		MWIL	04 14 1515	N06 E56	04 18.8	4	(B)					
7475		HOLL	04 14 1715	N06 E56	04 18.9		B	BXO	40	9	4	3
7475		PALE	04 14 1745	N05 E55	04 18.8		B	BXO	10	12	5	4
7475	27827	LEAR	04 15 0145	N06 E50	04 18.8		B	BXO	50	7	5	3
7475		SVTO	04 15 0900	N05 E45	04 18.7		B	DAO	30	6	5	2
7475		RAMY	04 15 1121	N05 E44	04 18.8		B	DRO	40	11	4	3
7475		HOLL	04 15 1426	N05 E43	04 18.8		B	BXO	60	7	5	3
7475		PALE	04 15 1820	N04 E41	04 18.8		B	BXO	20	8	6	3
7475		MWIL	04 15 1900	N06 E41	04 18.9	4	(B)					
7475		LEAR	04 16 0100	N05 E38	04 18.9		B	BXO	30	8	6	3
7475		RAMY	04 16 1207	N06 E31	04 18.8		B	BXO	10	6	4	4
7475		MWIL	04 16 1500	N07 E29	04 18.8	4	(B)					
7475	27827	HOLL	04 16 2225	N06 E26	04 18.9		B	CRO	20	5	5	1
7475		LEAR	04 17 0014	N07 E24	04 18.8		B	CRO	30	5	6	3
7475		SVTO	04 17 0815	N07 E19	04 18.8		B	BXO	20	7	6	2
7475		RAMY	04 17 1250	N07 E16	04 18.7		B	CAO	10	3	2	4
7475		MWIL	04 17 1500	N07 E16	04 18.8	3	(AP)					
7475		HOLL	04 17 1700	N07 E13	04 18.7		A	AX	10	3	2	3
7475		PALE	04 17 2243	N05 E10	04 18.7		A	AX	10	2	1	3
7475		LEAR	04 18 0002	N06 E08	04 18.6		B	BXO	10	6	7	3
7475		SVTO	04 18 0650	N07 E06	04 18.7		B	BXO	20	3	3	1
7475	27827	RAMY	04 18 1250	N07 E04	04 18.8		B	BXO	10	4	5	4
7475		MWIL	04 18 1415	N06 E01	04 18.7	4	(AP)					
7475		HOLL	04 18 1525	N06 E03	04 18.9		B	BXO	20	6	7	3
7475		PALE	04 18 1815	N07 E02	04 18.9		B	BXO	10	13	6	4
7475		LEAR	04 19 0109	N06 W03	04 18.8		B	BXO	10	4	6	2
7475		SVTO	04 19 0820	N05 W09	04 18.7		B	BXO	10	2	3	3
7475		PALE	04 19 1908	N05 W13	04 18.8		A	AX		1		3
7475		SVTO	04 20 0740	N06 W19	04 18.9		B	BXO	10	2	1	3
7485		HOLL	04 16 2225	S11 E27	04 19.0		A	AX		2	1	1
7485		RAMY	04 20 1628	S10 W24	04 18.9		A	AX		1		2
7485		PALE	04 20 1730	S11 W23	04 19.0		A	AX		1		2
7481	27831	PALE	04 18 1815	S05 E08	04 19.3		A	AX		2	2	4
7481		SVTO	04 19 0820	S06 W03	04 19.1		B	BXO	10	2	3	3
7481		RAMY	04 19 1308	S06 W06	04 19.1		A	AX		1		4
7481		HOLL	04 19 1420	S06 W08	04 19.0		A	AX		1		3
7481		MWIL	04 19 1445	S06 W08	04 19.0	4	(AP)					
7481		PALE	04 19 1908	S06 W10	04 19.0		B	BXO	10	4	4	3
7481		LEAR	04 20 0044	S06 W12	04 19.1		B	BXO	10	3	4	3
7481		SVTO	04 20 0740	S06 W15	04 19.2		B	CRO	20	4	4	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
7481	27831	HOLL	04 20	1445	S06	W20	04 19.1		B	CRO	10	8	5	3
7481		MWIL	04 20	1500	S06	W21	04 19.0	4	(B)					
7481		RAMY	04 20	1628	S05	W21	04 19.1		B	BXO	10	6	5	2
7481		PALE	04 20	1730	S05	W22	04 19.1		B	CRO	20	7	5	2
7481		LEAR	04 21	0015	S06	W26	04 19.1		B	CSO	20	4	6	3
7481		SVTO	04 21	1030	S05	W30	04 19.2		A	HR	20	2	2	3
7481		RAMY	04 21	1210	S06	W32	04 19.1		A	AX	10	3	2	3
7481	27831	BOUL	04 21	1403	S06	W32	04 19.2		A	AX	10	2	2	3
7481		MWIL	04 21	1500	S06	W35	04 19.0	4	(B)					
7481		HOLL	04 21	1715	S04	W35	04 19.1		A	AX		1		3
7481		PALE	04 21	1945	S06	W36	04 19.1		A	AX	10	1		3
7481A		SVTO	04 18	0650	S16	E18	04 19.6		A	AX	10	1	1	1
7481A		RAMY	04 18	1250	S15	E16	04 19.7		A	AX		1		4
7486		PALE	04 15	1820	N07	E59	04 20.2		A	AX	10	3	1	3
7486		PALE	04 19	1908	N09	E01	04 19.9		A	AX		1		3
7486		LEAR	04 20	0044	N09	W03	04 19.8		A	AX	10	1	1	3
7486		SVTO	04 20	0740	N09	W07	04 19.8		B	BXO	10	3	1	3
7486		RAMY	04 20	1628	N09	W11	04 19.9		A	AX		2	2	2
7486		PALE	04 20	1730	N08	W10	04 20.0		A	AX		1		2
7486		PALE	04 22	1930	N10	W30	04 20.5		A	AX	10	2	2	3
7486		LEAR	04 23	0010	N10	W34	04 20.4		A	AX		1	1	3
7486		SVTO	04 23	0845	N10	W38	04 20.5		B	BXO	10	2	3	2
7486		RAMY	04 23	1220	N10	W41	04 20.4		B	BXO	20	5	4	2
7486	27836	MWIL	04 23	1500	N10	W43	04 20.4	4	(B)					
7486		HOLL	04 23	1907	N11	W45	04 20.4		B	BXI	40	4	3	3
7486		PALE	04 23	2130	N10	W41	04 20.8		B	EAO	30	6	12	2
7486		LEAR	04 24	0120	N11	W50	04 20.3		B	BXO	10	2	1	2
7486		SVTO	04 24	0820	N12	W52	04 20.4		B	BXO	10	3	4	3
7486		RAMY	04 24	1235	N11	W54	04 20.5		B	BXO	10	4	6	2
7486	27836	MWIL	04 24	1500	N10	W57	04 20.3	4	(B)					
7486		HOLL	04 24	1645	N12	W55	04 20.5		B	BXO	30	2	6	2
7486		PALE	04 24	2145	N10	W58	04 20.5		B	BXO	20	8	5	3
7486		LEAR	04 25	0315	N09	W62	04 20.5		B	BXO	50	4	7	3
7486		SVTO	04 25	0910	N12	W68	04 20.2		B	BXO	10	2	4	2
7486		RAMY	04 25	1430	N10	W69	04 20.4		B	BXO	10	2	3	1
7486	27836	MWIL	04 25	1500	N10	W68	04 20.5	4	(AF)					
7486		LEAR	04 26	0200	N09	W72	04 20.7		A	AX	30	1	1	3
7486		RAMY	04 26	1123	N11	W82	04 20.3		A	AX	10	1		4
7483		RAMY	04 19	1308	S13	E26	04 21.5		A	AX	10	3	1	4
7483		HOLL	04 19	1420	S14	E31	04 21.9		B	BXO	10	4	4	3
7483	27832	MWIL	04 19	1445	S13	E26	04 21.6	4	(B)					
7483		PALE	04 19	1908	S14	E22	04 21.4		B	BXO	10	6	3	3
7483		LEAR	04 20	0044	S14	E18	04 21.4		B	BXO	20	6	4	3
7483		SVTO	04 20	0740	S14	E15	04 21.4		B	CRO	40	10	8	3
7483		HOLL	04 20	1445	S12	E08	04 21.2		A	AX		2	1	3
7483	27832	MWIL	04 20	1500	S13	E10	04 21.4	5	(G)					
7483		RAMY	04 20	1628	S13	E08	04 21.3		BG	DAI	40	15	8	2
7483		PALE	04 20	1730	S14	E08	04 21.3		B	DSO	70	11	6	2
7483		LEAR	04 21	0015	S14	E04	04 21.3		B	DAO	70	18	7	3
7483		SVTO	04 21	1030	S15	W03	04 21.2		BG	DAO	120	32	10	3
7483		RAMY	04 21	1210	S14	W03	04 21.3		B	DAI	70	32	8	3
7483		BOUL	04 21	1403	S14	W04	04 21.3		B	DSI	100	23	8	3
7483	27832	MWIL	04 21	1500	S14	W04	04 21.3	5	(D)					
7483		HOLL	04 21	1715	S13	W05	04 21.3		B	DSO	40	19	8	3
7483		PALE	04 21	1945	S15	W07	04 21.3		B	DSI	60	17	8	3
7483		LEAR	04 22	0018	S13	W09	04 21.3		BG	DSI	100	13	9	3
7483		SVTO	04 22	1145	S14	W16	04 21.3		B	DSO	90	20	8	3
7483		RAMY	04 22	1225	S14	W17	04 21.2		B	DAI	50	19	8	4
7483		BOUL	04 22	1354	S13	W17	04 21.3		B	DSO	90	20	10	2
7483	27832	MWIL	04 22	1500	S14	W17	04 21.3	5	(B)					
7483		HOLL	04 22	1720	S14	W19	04 21.3		B	CRO	40	12	10	3
7483		PALE	04 22	1930	S14	W20	04 21.3		B	DSO	30	12	9	3
7483		LEAR	04 23	0010	S13	W24	04 21.2		B	DSO	70	8	10	3
7483		SVTO	04 23	0845	S13	W28	04 21.2		B	CAO	80	12	9	2
7483		RAMY	04 23	1220	S14	W30	04 21.2		B	DAO	60	26	10	2
7483	27832	MWIL	04 23	1500	S14	W32	04 21.2	5	(B)					

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
7483		HOLL	04 23 1907	S13	W32	04 21.4		B	DAC	240	23	10	3
7483		PALE	04 23 2130	S14	W31	04 21.5		B	DAI	130	22	10	2
7483		LEAR	04 24 0120	S14	W36	04 21.3		B	DAO	180	14	9	2
7483		SVTO	04 24 0820	S13	W42	04 21.2		B	EAI	200	29	11	3
7483		RAMY	04 24 1235	S14	W43	04 21.3		B	EAI	340	22	12	2
7483	27832	MWIL	04 24 1500	S15	W45	04 21.2	5	(B)					
7483		HOLL	04 24 1645	S13	W44	04 21.4		B	DAC	230	18	8	2
7483		PALE	04 24 2145	S14	W46	04 21.4		B	DAI	170	23	10	3
7483		LEAR	04 25 0315	S15	W50	04 21.3		B	EAO	270	14	11	3
7483		SVTO	04 25 0910	S14	W52	04 21.4		B	ESO	240	17	12	2
7483		RAMY	04 25 1430	S13	W58	04 21.2		B	DAO	140	14	8	1
7483		HOLL	04 25 1500	S13	W55	04 21.5		B	EAO	260	11	11	4
7483	27832	MWIL	04 25 1500	S14	W58	04 21.2	5	(B)					
7483		BOUL	04 25 1500	S14	W59	04 21.2		B	ESO	80	8	10	3
7483		PALE	04 25 1822	S13	W57	04 21.5		B	DSI	220	13	8	2
7483		LEAR	04 26 0200	S15	W65	04 21.2		B	DAO	390	12	10	3
7483		SVTO	04 26 0728	S13	W66	04 21.3		B	DAO	260	8	9	2
7483		RAMY	04 26 1123	S14	W70	04 21.2		B	EAO	170	8	11	4
7483		HOLL	04 26 1420	S13	W69	04 21.4		B	DAO	300	6	10	2
7483		BOUL	04 26 1426	S13	W72	04 21.2		B	EAO	240	9	11	2
7483	27832	MWIL	04 26 1500	S13	W71	04 21.3	5	(B)					
7483		PALE	04 26 1807	S13	W70	04 21.5		B	ESO	180	6	11	3
7483		LEAR	04 27 0017	S13	W75	04 21.3		B	DAO	270	8	9	3
7483		SVTO	04 27 0720	S13	W77	04 21.5		B	CAO	90	6	12	3
7483		RAMY	04 27 1208	S13	W80	04 21.5		B	CAO	40	3	3	3
7483		BOUL	04 27 1428	S14	W81	04 21.5		A	HA	30	1	1	2
7483	27832	MWIL	04 27 1445	S14	W81	04 21.5	4	X					
7483		HOLL	04 27 1540	S13	W85	04 21.2		A	AX	60	3	2	2
7483		PALE	04 27 2010	S16	W87	04 21.2		A	HS	50	2	1	3
7487		SVTO	04 20 0740	S12	E22	04 22.0		B	BXO	20	2	1	3
7487	27834	MWIL	04 20 1500	S10	E18	04 22.0	4	(B)					
7487		RAMY	04 20 1628	S11	E18	04 22.0		B	BXO	10	5	4	2
7487		PALE	04 20 1730	S10	E16	04 21.9		B	BXO	20	6	5	2
7487		LEAR	04 21 0015	S11	E14	04 22.1		B	CAO	30	6	5	3
7487		SVTO	04 21 1030	S11	E06	04 21.9		B	CRO	20	9	6	3
7487		RAMY	04 21 1210	S11	E05	04 21.9		B	CAO	20	12	5	3
7487		BOUL	04 21 1403	S11	E04	04 21.9		B	BXO	20	3	6	3
7487	27834	MWIL	04 21 1500	S11	E04	04 21.9	5	(B)					
7487		HOLL	04 21 1715	S10	E05	04 22.1		B	BXO	10	4	4	3
7487		PALE	04 21 1945	S11	E03	04 22.0		B	DSO	20	3	3	3
7487		LEAR	04 22 0018	S10	E00	04 22.0		B	CSO	20	2	4	3
7487		SVTO	04 22 1145	S11	W07	04 22.0		B	DRO	30	5	4	3
7487		RAMY	04 22 1225	S11	W08	04 21.9		B	CAO	30	8	3	4
7487		BOUL	04 22 1354	S09	W07	04 22.0		B	CSO	30	7	4	2
7487	27834	MWIL	04 22 1500	S11	W08	04 22.0	5	(B)					
7487		HOLL	04 22 1720	S11	W10	04 22.0		B	BXO	30	8	4	3
7487		PALE	04 22 1930	S11	W10	04 22.1		B	DSO	20	9	5	3
7487		LEAR	04 23 0010	S10	W14	04 21.9		B	CSO	40	6	4	3
7487		SVTO	04 23 0845	S10	W18	04 22.0		B	CRO	40	5	6	2
7487		RAMY	04 23 1220	S10	W21	04 21.9		B	CAO	20	6	6	2
7487	27834	MWIL	04 23 1500	S10	W24	04 21.8	4	(B)					
7487		HOLL	04 23 1907	S10	W22	04 22.1		B	BRO	50	4	4	3
7487		PALE	04 23 2130	S10	W23	04 22.2		B	CAO	20	6	6	2
7487		LEAR	04 24 0120	S09	W28	04 21.9		B	CSO	30	4	5	2
7487		SVTO	04 24 0820	S09	W33	04 21.9		B	DRO	30	4	3	3
7487		RAMY	04 24 1235	S10	W35	04 21.9		B	CAO	20	5	6	2
7487	27834	MWIL	04 24 1500	S10	W38	04 21.8	4	(AP)					
7487		HOLL	04 24 1645	S09	W39	04 21.8		A	AX	30	2	2	2
7487		PALE	04 24 2145	S09	W40	04 21.9		A	AX	10	4	2	3
7487		LEAR	04 25 0315	S10	W45	04 21.7		A	AX	10	1	1	3
7487		SVTO	04 25 0910	S09	W48	04 21.8		A	AX		1		2
7487	27834	MWIL	04 25 1500	S10	W51	04 21.8	5	(B)					
7487		HOLL	04 25 1500	S10	W52	04 21.7		A	AX		1		4
7487		PALE	04 25 1822	S10	W53	04 21.8		A	AX		1	1	2
7487		LEAR	04 26 0200	S11	W59	04 21.6		A	AX	20	1	1	3
7484		RAMY	04 19 1308	N05	E37	04 22.3		A	AX		1		4
7484		HOLL	04 19 1420	N04	E36	04 22.3		B	BXO		2	2	3

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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
7484	27833	MWIL	04 19 1445	N06	E36	04 22.3	4	(B)					
7484		PALE	04 19 1908	N05	E34	04 22.3		B	BXO	10	3	3	3
7484		LEAR	04 20 0044	N05	E30	04 22.3		B	BXO	30	4	3	3
7484		SVTO	04 20 0740	N05	E27	04 22.3		B	CRO	40	4	4	3
7484		HOLL	04 20 1445	N04	E22	04 22.2		B	DSO	30	7	5	3
7484	27833	MWIL	04 20 1500	N06	E22	04 22.3	5	(B)					
7484		RAMY	04 20 1628	N05	E21	04 22.2		B	DAO	30	6	5	2
7484		PALE	04 20 1730	N06	E21	04 22.3		B	DSO	70	7	5	2
7484		LEAR	04 21 0015	N07	E16	04 22.2		B	DAO	40	3	5	3
7484		SVTO	04 21 1030	N06	E11	04 22.3		B	DAO	40	6	5	3
7484		RAMY	04 21 1210	N06	E09	04 22.2		B	DAO	30	9	5	3
7484		BOUL	04 21 1403	N04	E08	04 22.2		B	CSO	40	5	5	3
7484	27833	MWIL	04 21 1500	N06	E08	04 22.2	5	(B)					
7484		HOLL	04 21 1715	N07	E07	04 22.2		B	BXO	20	6	5	3
7484		PALE	04 21 1945	N06	E06	04 22.3		B	DSO	40	4	4	3
7484		LEAR	04 22 0018	N07	E03	04 22.2		B	DSO	20	2	5	3
7484		SVTO	04 22 1145	N06	W04	04 22.2		A	HS	40	3	3	3
7484		RAMY	04 22 1225	N06	W06	04 22.1		A	AX		2	1	4
7484		BOUL	04 22 1354	N06	W06	04 22.1		B	CSO	10	2	3	2
7484	27833	MWIL	04 22 1500	N06	W06	04 22.2	4	(B)					
7484		HOLL	04 22 1720	N07	W09	04 22.0		A	AX	10	2	1	3
7484		PALE	04 22 1930	N07	W09	04 22.1		A	HS	20	2	1	3
7484		LEAR	04 23 0010	N07	W12	04 22.1		A	AX	10	1	1	3
7484		SVTO	04 23 0845	N08	W17	04 22.1		A	AX	10	2	1	2
7484		SVTO	04 24 0820	N08	W31	04 22.0		B	BXO	10	2	5	3
7484		RAMY	04 24 1235	N08	W32	04 22.1		B	BXO	10	4	7	2
7477		HOLL	04 16 2225	N08	E77	04 22.7		B	CAO	60	4	4	1
7477		LEAR	04 17 0014	N08	E72	04 22.4		B	CAO	50	4	3	3
7477		SVTO	04 17 0815	N08	E70	04 22.6		B	CAO	90	7	9	2
7477		RAMY	04 17 1250	N10	E68	04 22.6		B	DAO	120	5	5	4
7477	27829	MWIL	04 17 1500	N11	E69	04 22.8	5	(B)					
7477		HOLL	04 17 1700	N09	E68	04 22.8		B	DAO	100	6	8	3
7477		PALE	04 17 2243	N08	E62	04 22.6		B	DSO	130	4	8	3
7477		LEAR	04 18 0002	N10	E65	04 22.9		B	DAO	240	8	8	3
7477		SVTO	04 18 0650	N08	E60	04 22.8		B	DAO	240	10	8	1
7477		RAMY	04 18 1250	N11	E57	04 22.8		BG	DAO	260	12	8	4
7477	27829	MWIL	04 18 1415	N11	E57	04 22.9	5	(B)					
7477		HOLL	04 18 1525	N10	E56	04 22.8		B	DAI	230	10	8	3
7477		PALE	04 18 1815	N10	E58	04 23.1		B	DAO	220	16	8	4
7477		LEAR	04 19 0109	N09	E50	04 22.8		B	EAI	240	10	8	2
7477		SVTO	04 19 0820	N08	E46	04 22.8		B	DAO	320	17	8	3
7477		RAMY	04 19 1308	N11	E45	04 22.9		B	DAI	250	17	9	4
7477		HOLL	04 19 1420	N10	E43	04 22.8		B	DAI	180	15	9	3
7477	27829	MWIL	04 19 1445	N12	E42	04 22.8	5	(D)					
7477		PALE	04 19 1908	N10	E41	04 22.9		B	DAI	390	19	10	3
7477		LEAR	04 20 0044	N10	E37	04 22.8		B	DAI	420	19	8	3
7477		SVTO	04 20 0740	N10	E34	04 22.9		B	DAI	490	41	9	3
7477		HOLL	04 20 1445	N09	E30	04 22.9		B	DAI	290	26	9	3
7477	27829	MWIL	04 20 1500	N12	E29	04 22.8	5	(B)					
7477		RAMY	04 20 1628	N11	E29	04 22.9		BD	DAI	400	27	9	2
7477		PALE	04 20 1730	N11	E30	04 23.0		B	DAI	420	40	10	2
7477		LEAR	04 21 0015	N12	E25	04 22.9		B	DHI	460	30	9	3
7477		SVTO	04 21 1030	N10	E20	04 22.9		B	DKI	380	35	10	3
7477		RAMY	04 21 1210	N11	E18	04 22.9		B	DAI	370	42	9	3
7477		BOUL	04 21 1403	N11	E17	04 22.9		B	DAI	490	30	9	3
7477	27829	MWIL	04 21 1500	N12	E16	04 22.8	5	(BG)					
7477		HOLL	04 21 1715	N12	E16	04 22.9		B	DKI	350	25	9	3
7477		PALE	04 21 1945	N11	E15	04 22.9		B	DAI	370	34	9	3
7477		LEAR	04 22 0018	N11	E12	04 22.9		B	DKI	440	20	10	3
7477		SVTO	04 22 1145	N10	E05	04 22.9		B	DKO	390	27	8	3
7477		RAMY	04 22 1225	N12	E04	04 22.8		B	DAI	310	40	9	4
7477		BOUL	04 22 1354	N11	E04	04 22.9		B	DAC	310	27	8	2
7477	27829	MWIL	04 22 1500	N12	E03	04 22.8	5	(D)					
7477		HOLL	04 22 1720	N11	E02	04 22.9		B	DAC	410	23	9	3
7477		PALE	04 22 1930	N11	E01	04 22.9		B	DAI	300	30	9	3
7477		LEAR	04 23 0010	N11	W03	04 22.8		B	DKI	420	20	10	3
7477		RAMY	04 23 1220	N11	W08	04 22.9		B	DAI	250	35	8	2
7477	27829	MWIL	04 23 1500	N12	W10	04 22.9	5	(D)					

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
7477		HOLL	04 23 1907	N11	W12	04 22.9		B	DSC	440	22	9	3
7477		PALE	04 23 2130	N12	W12	04 23.0		B	DAI	220	20	10	2
7477		LEAR	04 24 0120	N12	W15	04 22.9		B	DAO	200	14	8	2
7477		SVTO	04 24 0820	N11	W19	04 22.9		B	DAO	130	23	8	3
7477		RAMY	04 24 1235	N11	W21	04 22.9		B	DAO	220	13	8	2
7477	27829	MWIL	04 24 1500	N12	W23	04 22.9	5	(D)					
7477		HOLL	04 24 1645	N12	W25	04 22.8		BD	DAI	260	17	8	2
7477		PALE	04 24 2145	N11	W24	04 23.1		B	DAI	170	24	10	3
7477		LEAR	04 25 0315	N11	W28	04 23.0		B	DAO	200	9	8	3
7477		SVTO	04 25 0910	N13	W32	04 23.0		B	DKI	190	25	9	2
7477		RAMY	04 25 1430	N11	W36	04 22.9		B	DKI	180	13	8	1
7477		BOUL	04 25 1500	N11	W35	04 23.0		B	DAI	170	15	8	3
7477		HOLL	04 25 1500	N11	W35	04 23.0		BGD	DKC	310	15	8	4
7477	27829	MWIL	04 25 1500	N12	W37	04 22.8	5	(D)					
7477		PALE	04 25 1822	N12	W37	04 23.0		BG	DSI	210	14	7	2
7477		LEAR	04 26 0200	N11	W42	04 22.9		BG	DAI	330	16	8	3
7477		SVTO	04 26 0728	N13	W45	04 22.9		B	DAO	270	16	7	2
7477		RAMY	04 26 1123	N11	W47	04 22.9		B	DAI	180	15	7	4
7477		HOLL	04 26 1420	N12	W48	04 23.0		B	DAC	260	6	6	2
7477		BOUL	04 26 1426	N13	W50	04 22.8		B	DAI	150	15	6	2
7477	27829	MWIL	04 26 1500	N12	W51	04 22.8	5	(D)					
7477		PALE	04 26 1807	N12	W51	04 22.9		BGD	DSI	260	13	8	3
7477		LEAR	04 27 0017	N11	W55	04 22.9		BG	DAI	240	13	7	3
7477		SVTO	04 27 0720	N12	W60	04 22.8		BGD	DAI	300	6	8	3
7477		RAMY	04 27 1208	N13	W62	04 22.8		B	DAO	190	6	4	3
7477		BOUL	04 27 1428	N12	W65	04 22.7		B	DAO	190	6	5	2
7477	27829	MWIL	04 27 1445	N12	W65	04 22.7	5	(D)					
7477		HOLL	04 27 1540	N14	W65	04 22.7		B	DAI	390	6	6	2
7477		PALE	04 27 2010	N11	W66	04 22.9		B	DAI	140	6	4	3
7477		LEAR	04 28 0018	N13	W70	04 22.7		B	DAI	240	6	8	3
7477		SVTO	04 28 0745	N13	W75	04 22.7		B	DAO	120	5	5	2
7477		RAMY	04 28 1326	N12	W78	04 22.7		B	DAI	70	4	6	3
7477		BOUL	04 28 1424	N13	W76	04 22.9		B	DAO	150	3	8	2
7477	27829	MWIL	04 28 1445	N12	W78	04 22.7	4	X					
7477		HOLL	04 28 1520	N13	W78	04 22.7		B	CAO	60	4	5	3
7477		PALE	04 28 1910	N13	W80	04 22.8		A	HA	30	2	1	3
7480		LEAR	04 18 0002	S14	E80	04 24.0		A	AX	10	2	2	3
7480		SVTO	04 18 1045	S16	E75	04 24.1		B	CRO	120	10	10	3
7480		RAMY	04 18 1250	S13	E76	04 24.3		B	DAO	130	10	9	4
7480	27830	MWIL	04 18 1415	S13	E73	04 24.1	4	(AP)					
7480		HOLL	04 18 1525	S14	E73	04 24.1		B	CAO	90	11	10	3
7480		PALE	04 18 1815	S15	E72	04 24.2		B	DAO	130	17	10	4
7480		LEAR	04 19 0109	S15	E72	04 24.5		B	CAO	200	11	12	2
7480		SVTO	04 19 0820	S16	E65	04 24.3		B	ESO	90	15	14	3
7480		RAMY	04 19 1308	S14	E64	04 24.4		B	EAO	160	23	12	4
7480		HOLL	04 19 1420	S14	E60	04 24.1		B	CSO	60	13	11	3
7480	27830	MWIL	04 19 1445	S13	E61	04 24.2	5	(B)					
7480		PALE	04 19 1908	S15	E56	04 24.0		B	CSO	150	21	11	3
7480		LEAR	04 20 0044	S14	E58	04 24.4		B	CSO	200	14	11	3
7480		SVTO	04 20 0740	S15	E52	04 24.2		B	CAO	140	21	8	3
7480		HOLL	04 20 1445	S15	E48	04 24.2		B	DSO	80	14	10	3
7480	27830	MWIL	04 20 1500	S13	E46	04 24.1	5	(B)					
7480		RAMY	04 20 1628	S13	E47	04 24.2		B	DAO	90	14	9	2
7480		PALE	04 20 1730	S13	E46	04 24.2		B	DSO	80	13	10	2
7480		LEAR	04 21 0015	S11	E43	04 24.2		B	DAO	160	20	10	3
7480		SVTO	04 21 1030	S14	E36	04 24.1		B	DSO	120	22	9	3
7480		RAMY	04 21 1210	S13	E36	04 24.2		B	DAO	80	20	9	3
7480		BOUL	04 21 1403	S14	E34	04 24.1		B	DAI	140	20	9	3
7480	27830	MWIL	04 21 1500	S13	E33	04 24.1	5	(B)					
7480		HOLL	04 21 1715	S11	E32	04 24.1		B	CAI	90	19	8	3
7480		PALE	04 21 1945	S13	E32	04 24.2		B	DAI	100	21	8	3
7480		LEAR	04 22 0018	S13	E30	04 24.3		B	DAO	150	11	8	3
7480		SVTO	04 22 1145	S13	E23	04 24.2		B	DSO	120	18	7	3
7480		RAMY	04 22 1225	S13	E23	04 24.2		B	EAI	90	30	11	4
7480		BOUL	04 22 1354	S12	E21	04 24.2		B	DAO	100	13	10	2
7480	27830	MWIL	04 22 1500	S13	E20	04 24.1	5	(B)					
7480		HOLL	04 22 1720	S13	E19	04 24.1		B	CSI	90	15	6	3
7480		PALE	04 22 1930	S14	E18	04 24.2		B	DSO	40	20	9	3

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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
7480	27830	LEAR	04 23 0010	S13 E16	04 24.2		B	DAO	90	17	9	3
7480		RAMY	04 23 1220	S13 E12	04 24.4		B	EAO	70	21	13	2
7480		MWIL	04 23 1500	S13 E07	04 24.1	5	(B)					
7480		HOLL	04 23 1907	S12 E05	04 24.2		B	BXI	150	15	7	3
7480		PALE	04 23 2130	S13 E06	04 24.3		B	DAO	80	21	9	2
7480	27830	LEAR	04 24 0120	S13 E03	04 24.3		B	CAO	80	12	7	2
7480		SVTO	04 24 0820	S14 W03	04 24.1		B	DRO	30	17	7	3
7480		RAMY	04 24 1235	S13 W05	04 24.1		B	DAO	40	15	6	2
7480		MWIL	04 24 1500	S13 W06	04 24.2	4	(B)					
7480		HOLL	04 24 1645	S13 W07	04 24.2		B	CSO	70	10	7	2
7480	27830	PALE	04 24 2145	S13 W08	04 24.3		B	CSO	40	21	7	3
7480		LEAR	04 25 0315	S16 W12	04 24.2		B	BXO	20	3	5	3
7480		SVTO	04 25 0910	S14 W16	04 24.2		B	CAO	30	6	6	2
7480		RAMY	04 25 1430	S14 W17	04 24.3		B	CRO	10	4	5	1
7480		HOLL	04 25 1500	S14 W17	04 24.3		B	BXO	30	8	6	4
7480	27830	MWIL	04 25 1500	S14 W19	04 24.2	5	(BG)					
7480		BOUL	04 25 1500	S16 W17	04 24.3		B	CSO	20	8	6	3
7480		PALE	04 25 1822	S15 W19	04 24.3		B	BXO	20	4	5	2
7480		LEAR	04 26 0200	S16 W27	04 24.0		A	AX	10	1	1	3
7480		SVTO	04 26 0728	S14 W27	04 24.3		B	BXO	10	3	5	2
7480	27830	RAMY	04 26 1123	S14 W29	04 24.3		B	BXO	10	5	4	4
7480		HOLL	04 26 1420	S13 W33	04 24.1		B	BXO	30	4	5	2
7480		MWIL	04 26 1500	S15 W34	04 24.0	4	(B)					
7480		PALE	04 26 1807	S12 W34	04 24.2		A	AX	10	1	1	3
7480		SVTO	04 27 0720	S14 W41	04 24.2		B	BXO	10	3	2	3
7480	27830	RAMY	04 27 1208	S13 W44	04 24.2		A	AX	10	2	1	3
7480		MWIL	04 27 1445	S15 W45	04 24.2	4	(B)					
7480		HOLL	04 27 1540	S12 W48	04 24.0		A	AX	30	2	1	2
7480		PALE	04 27 2010	S14 W49	04 24.1		B	BXO	10	4	3	3
7480		LEAR	04 28 0018	S13 W52	04 24.1		A	AX	10	2	1	3
7480A		RAMY	04 23 1220	N09 E19	04 24.9		A	AX		2	2	2
7480A		PALE	04 23 2130	N08 E15	04 25.0		B	BXO	10	3	3	2
7480B	27840	MWIL	04 25 1500	N10 E01	04 25.7	4	(B)					
7480B		HOLL	04 25 1500	N10 E02	04 25.8		A	AX	10	2	2	4
7480B		PALE	04 25 1822	N12 W01	04 25.7		A	AX	10	1		2
7491	27838	MWIL	04 24 1500	N10 E23	04 26.3	4	(B)					
7491		SVTO	04 25 0910	N10 E15	04 26.5		B	BXO	10	6	3	2
7491		RAMY	04 25 1430	N09 E12	04 26.5		B	BXO		2	2	1
7491		BOUL	04 25 1500	N09 E13	04 26.6		A	AX		2	2	3
7491		MWIL	04 25 1500	N10 E12	04 26.5	5	(AP)					
7491	27838	HOLL	04 25 1500	N10 E13	04 26.6		A	AX	10	2	2	4
7491		PALE	04 25 1822	N12 E10	04 26.5		B	BXO	10	2	3	2
7491		MWIL	04 26 1500	N09 W04	04 26.3	3	(B)					
7491		MWIL	04 27 1445	N12 W12	04 26.7	4	(AF)					
7489	27837	RAMY	04 23 1220	N11 E57	04 27.8		A	AX	10	2	2	2
7489		MWIL	04 23 1500	N12 E57	04 27.9	4	(B)					
7489		RAMY	04 24 1235	N09 E46	04 28.0		B	BXO	10	4	4	2
7489		LEAR	04 25 0315	N08 E41	04 28.2		A	AX	10	2	2	3
7489		PALE	04 27 2010	N04 E01	04 27.9		A	AX	10	3	2	3
7489		PALE	05 02 2010	N05 W65	04 28.1		A	AX		1		3
7488	27835	LEAR	04 22 0018	S21 E84	04 28.4		A	HS	90	1	3	3
7488		SVTO	04 22 1145	S22 E76	04 28.3		A	HA	120	2	2	3
7488		RAMY	04 22 1225	S21 E74	04 28.2		A	HS	60	1	2	4
7488		BOUL	04 22 1354	S20 E73	04 28.2		A	HS	60	1	2	2
7488		MWIL	04 22 1500	S22 E75	04 28.4	4	(AP)					
7488	27835	HOLL	04 22 1720	S21 E71	04 28.2		A	HS	60	1	1	3
7488		PALE	04 22 1930	S22 E72	04 28.3		A	HS	50	1	1	3
7488		LEAR	04 23 0010	S21 E69	04 28.3		A	HS	100	1	3	3
7488		RAMY	04 23 1220	S22 E62	04 28.3		A	HA	40	3	2	2
7488		MWIL	04 23 1500	S21 E62	04 28.4	4	(AP)					
7488	27835	HOLL	04 23 1907	S21 E58	04 28.2		A	HR	50	5	2	3
7488		PALE	04 23 2130	S22 E60	04 28.5		A	HA	10	2	1	2
7488		LEAR	04 24 0120	S20 E57	04 28.4		B	BXO	10	2	1	2
7488		SVTO	04 24 0820	S22 E52	04 28.3		B	BXO	20	3	3	3

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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
7488	27835	RAMY	04 24 1235	S21	E49	04 28.3		A	HA	20	2	2	2
7488		MWIL	04 24 1500	S21	E48	04 28.3	4	(AP)					
7488		HOLL	04 24 1645	S22	E48	04 28.4		A	AX	20	2	1	2
7488		PALE	04 24 2145	S22	E48	04 28.6		A	AX	10	2	1	3
7488		LEAR	04 25 0315	S21	E43	04 28.4		A	AX	10	2	2	3
7488		SVTO	04 25 0910	S19	E40	04 28.4		B	BXO	20	5	5	2
7488		RAMY	04 25 1430	S21	E37	04 28.4		B	BXO	10	2	2	1
7488		HOLL	04 25 1500	S21	E36	04 28.4		A	AX	10	2	2	4
7488		MWIL	04 25 1500	S21	E37	04 28.5	4	(AP)					
7488		BOUL	04 25 1500	S22	E37	04 28.5		B	BXO	10	3	4	3
7488	27835?	PALE	04 25 1822	S21	E35	04 28.4		B	BXO	10	2	3	2
7488		MWIL	04 26 1500	S25	E26	04 28.6	3	(AP)					
7488	27835	RAMY	04 27 1208	S26	E16	04 28.7		A	AX		1		3
7488		MWIL	04 28 1445	S24	W02	04 28.5	4	(B)					
7488	27835?	MWIL	04 29 1445	S20	W13	04 28.6	4	(AP)					
7488		SVTO	05 01 0815	S19	W35	04 28.8		A	AX		1		3
7488		HOLL	05 04 1450	S20	W80	04 28.6		A	AX	30	3	3	3
7492	27841	PALE	04 26 1807	S14	E27	04 28.8		A	AX	10	1	1	3
7492		LEAR	04 27 0017	S13	E23	04 28.7		B	BXO	20	4	4	3
7492		SVTO	04 27 0720	S12	E18	04 28.7		B	DRO	40	8	4	3
7492		RAMY	04 27 1208	S13	E17	04 28.8		B	DAO	40	10	3	3
7492		BOUL	04 27 1428	S12	E15	04 28.7		B	DAO	40	7	3	2
7492		MWIL	04 27 1445	S13	E15	04 28.7	5	(BG)					
7492		HOLL	04 27 1540	S13	E12	04 28.5		B	DAO	100	10	3	2
7492		PALE	04 27 2010	S12	E13	04 28.8		B	DAO	40	9	3	3
7492		LEAR	04 28 0018	S12	E10	04 28.8		B	DAO	40	10	5	3
7492		SVTO	04 28 0745	S12	E05	04 28.7		B	DAO	40	14	5	2
7492	27841	RAMY	04 28 1326	S12	E02	04 28.7		B	DAO	40	10	4	3
7492		BOUL	04 28 1424	S10	E02	04 28.7		B	DAO	70	8	4	2
7492		MWIL	04 28 1445	S12	E02	04 28.8	5	(B)					
7492		HOLL	04 28 1520	S11	E02	04 28.8		B	CSO	30	9	5	3
7492		PALE	04 28 1910	S12	W01	04 28.7		B	DSO	30	15	4	3
7492		LEAR	04 29 0215	S13	W04	04 28.8		B	BXO	40	10	6	3
7492		RAMY	04 29 1328	S12	W11	04 28.7		B	BXO	20	12	4	3
7492		BOUL	04 29 1354	S11	W10	04 28.8		B	BXO	40	6	4	3
7492		MWIL	04 29 1445	S12	W11	04 28.8	4	(B)					
7492		HOLL	04 29 1725	S12	W13	04 28.7		B	BXO	10	8	5	3
7492	27841	PALE	04 29 2030	S12	W13	04 28.9		B	BXO	10	8	5	3
7492		LEAR	04 30 0350	S15	W17	04 28.9		B	BXO	20	3	3	3
7492		SVTO	04 30 0830	S12	W17	04 29.1		B	CSO	20	3	4	3
7492		RAMY	04 30 1410	S12	W23	04 28.8		A	AX		2	1	3
7492		MWIL	04 30 1420	S12	W23	04 28.9	3	(AF)					
7492		HOLL	04 30 1520	S11	W23	04 28.9		A	AX		1		3
7490	27839	SVTO	04 24 0820	N06	E82	04 30.5		B	BXO	30	4	6	3
7490		RAMY	04 24 1235	N07	E79	04 30.4		B	CAO	50	6	5	2
7490		MWIL	04 24 1500	N08	E78	04 30.5	5	B					
7490		HOLL	04 24 1645	N06	E75	04 30.3		B	BXO	60	2	6	2
7490		PALE	04 24 2145	N05	E75	04 30.5		B	DAO	60	6	7	3
7490		LEAR	04 25 0315	N07	E70	04 30.4		B	CAO	120	2	9	3
7490		SVTO	04 25 0910	N08	E69	04 30.5		B	DSO	70	6	9	2
7490		RAMY	04 25 1430	N07	E65	04 30.5		B	DAO	70	2	9	1
7490		BOUL	04 25 1500	N07	E63	04 30.3		B	DSO	80	4	8	3
7490		MWIL	04 25 1500	N07	E64	04 30.4	5	(B)					
7490	27839	HOLL	04 25 1500	N08	E63	04 30.3		B	EA0	60	3	11	4
7490		PALE	04 25 1822	N07	E64	04 30.5		B	DSO	110	3	10	2
7490		LEAR	04 26 0200	N06	E58	04 30.4		B	DAO	170	4	8	3
7490		SVTO	04 26 0728	N07	E55	04 30.4		B	DSO	80	3	10	2
7490		RAMY	04 26 1123	N07	E52	04 30.4		B	DAO	100	7	10	4
7490		HOLL	04 26 1420	N06	E51	04 30.4		B	DSO	130	2	9	2
7490		BOUL	04 26 1426	N08	E52	04 30.5		B	DAO	100	3	9	2
7490		MWIL	04 26 1500	N07	E51	04 30.4	5	(B)					
7490		PALE	04 26 1807	N07	E49	04 30.4		BD	ESO	170	6	12	3
7490		LEAR	04 27 0017	N07	E47	04 30.5		B	DSO	150	9	9	3
7490	27839	SVTO	04 27 0720	N07	E43	04 30.5		B	DSO	120	6	9	3
7490		RAMY	04 27 1208	N07	E41	04 30.6		B	DAO	110	10	9	3
7490		BOUL	04 27 1428	N08	E38	04 30.4		B	DSO	50	2	9	2
7490		MWIL	04 27 1445	N07	E38	04 30.5	5	(B)					

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat CMD		CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
7490	27842	MWIL	04 27	1445	N07 E41		04 30.7	3	(AP)					
7490		HOLL	04 27	1540	N07 E40		04 30.6		B	DAO	230	10	10	2
7490		PALE	04 27	2010	N08 E37		04 30.6		B	DSO	80	5	8	3
7490		LEAR	04 28	0018	N09 E33		04 30.5		B	DSO	130	5	8	3
7490		RAMY	04 28	1326	N08 E26		04 30.5		B	DAO	70	3	9	3
7490	27839	BOUL	04 28	1424	N10 E25		04 30.5		B	DSO	70	2	7	2
7490		MWIL	04 28	1445	N08 E25		04 30.5	5	(B)					
7490		HOLL	04 28	1520	N11 E24		04 30.4		B	DAO	100	5	8	3
7490		PALE	04 28	1910	N08 E24		04 30.6		B	DSO	100	4	8	3
7490		LEAR	04 29	0215	N08 E18		04 30.4		B	DSO	80	2	7	3
7490	27839	RAMY	04 29	1328	N09 E13		04 30.5		B	DAO	60	2	8	3
7490		BOUL	04 29	1354	N09 E13		04 30.5		B	DSO	60	2	8	3
7490		MWIL	04 29	1445	N09 E12		04 30.5	5	(B)					
7490		HOLL	04 29	1725	N08 E10		04 30.5		B	DSO	100	5	9	3
7490		PALE	04 29	2030	N08 E11		04 30.7		B	DSO	50	13	8	3
7490	27839	LEAR	04 30	0350	N07 E05		04 30.5		B	DAO	100	2	8	3
7490		SVTO	04 30	0830	N08 E04		04 30.6		B	DSO	100	4	8	3
7490		RAMY	04 30	1410	N08 W01		04 30.5		B	DAO	80	3	8	3
7490		MWIL	04 30	1420	N09 W01		04 30.5	4	(B)					
7490		BOUL	04 30	1441	N09 W01		04 30.5		B	DSO	50	3	7	3
7490	27839	HOLL	04 30	1520	N08 W02		04 30.5		B	DAO	70	3	7	3
7490		LEAR	05 01	0032	N07 W07		04 30.5		B	DSO	60	2	8	3
7490		SVTO	05 01	0815	N08 W10		04 30.6		B	DSO	60	4	9	3
7490		RAMY	05 01	1305	N08 W13		04 30.6		B	DAO	70	4	8	4
7490		MWIL	05 01	1430	N08 W15		04 30.5	4	(BP)					
7490	27839	PALE	05 01	1927	N08 W15		04 30.7		B	CSO	50	4	7	3
7490		LEAR	05 02	0012	N07 W19		04 30.6		B	CSO	20	2	7	2
7490		HOLL	05 02	0035	N09 W20		04 30.5		B	CSO	50	4	8	3
7490		SVTO	05 02	0840	N07 W25		04 30.5		B	CSO	40	3	7	3
7490		RAMY	05 02	1203	N08 W27		04 30.5		B	CAO	20	3	8	3
7490	27839	BOUL	05 02	1340	N08 W27		04 30.5		B	CSO	30	2	8	4
7490		HOLL	05 02	1430	N07 W28		04 30.5		B	CAO	70	8	10	3
7490		MWIL	05 02	1430	N09 W29		04 30.4	5	(BP)					
7490		PALE	05 02	2010	N09 W33		04 30.4		B	DSO	50	2	3	3
7490		LEAR	05 03	0339	N08 W39		04 30.2		A	HS	30	1	1	1
7490	27839	SVTO	05 03	0620	N08 W40		04 30.3		A	HR	40	2	1	3
7490		RAMY	05 03	1159	N09 W43		04 30.3		A	HA	20	2	1	4
7490		BOUL	05 03	1400	N08 W44		04 30.3		A	CAO	30	3	1	4
7490		HOLL	05 03	1523	N09 W46		04 30.2		A	HA	20	1	1	4
7490		MWIL	05 03	1545	N09 W46		04 30.2	5	(AP)					
7490	27839	LEAR	05 04	0012	N10 W51		04 30.2		A	HA	20	2	2	4
7490		SVTO	05 04	0720	N09 W55		04 30.2		A	HS	20	3	1	3
7490		RAMY	05 04	1257	N09 W56		04 30.3		A	AX	10	2	1	4
7490		HOLL	05 04	1450	N09 W57		04 30.3		A	AX		1		3
7490		MWIL	05 04	1530	N09 W59		04 30.2	4	(AP)					
7490	27839	SVTO	05 05	1202	N08 W72		04 30.1		B	BXO	10	2	2	4

Stations reporting:

BOUL = Boulder
CULG = Culgoora

HOLL = Holloman
LEAR = Learmonth

MWIL = Mt. Wilson
PALE = Palehua

RAMY = Ramey
SVTO = San Vito

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SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1993

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
01	0430	0438	0514	1-	5			1		1	0423	C3.9	7463
01	1545	1547	1600U	1-	1					1	1543	B4.3	7467
01	1635	1639	1705D	1+	1					1	1634	B9.6	7461
01	1705	1706	1717	1-	1					1	1705	B8.0	7467
02	1505	1512	1538	2	1					1	No flare		
02	1810	1824	2030	2+	1					1	No flare		
02	1909	1913	1925	1-	1					1	No flare		
02	2041	2050	2110	1+	1					1	*		
02	2110	2130	2257	2	1					1	No flare		
03	0706	0712	0720	1-	5			1		2	0705	C1.2	7463
04	2100	2107	2117	1-	1					1	No flare		
04	2300	2300	2310	1-	1					1	No flare		
05	0000	0015	0029	1+	3					2	0001	B6.0	
05	0904	0927	1002	1	1		1				*		
05	1636	1645	1714	2-	5		1			8	1635	C4.6	
05	1947	1959	2028	2	1					1	1947	B5.3	
05	2056	2058	2105	1-	1					1	2057	B9.4	7469
05	2214	2215	2230	1-	3					2	2218E	B9.7	7466
06	0235	0244	0310	1-	5	1		1		1	0234	C2.9	7465
06	1059	1110	1152	1	1		1				1051	B5.6	
06	1154	1216	1254	1	5	2	1	1		3	1150	C5.6	7465
06	1436	1453	1505	1	1		1				No flare		
06	1511	1526	1557	1	1		1				No flare		
06	1747	1748	1802	1-	1					1	1748	C1.4	
06	1846	1850	1911	1-	3					5	1846	C4.4	7469
06	2111	2115	2123	1-	1					1	2111	C1.6	
06	2212	2220	2228	1-	5			1		1	2210	C1.9	
06	2240	2248	2332	1	5			1		2	2239	C5.2	
06	2344	2348	2428	2-	5	3		1		3	2343	M1.5	
07	0255	0305	0330	1-	5	1		1		2	0255	C4.2	
07	0416	0424	0454	1-	1			1			0415	C4.1	
07	0504	0512	0538	1-	1			1			0503	C2.2	
07	0616	0624	0640	1-	5			1		2	0615	C1.4	7469
07	0654	0720	0836	1	1		1				No flare		
07	0756	0804	0820	1-	1			1			0801	C1.3	7469
07	0917	0929	0937	1	1		1				0919		7469
07	0938	0948	1002	1-	5		1	1		1	0938	C4.1	7465
07	1044	1052	1100	1-	1			1			1042	C3.0	7469
07	1151	1156	1215	1	5		1			1	1141	C3.5	7469
07	1231	1244	1338	2	3					3	No flare		
07	1343	1343	1356D	1-	1					1	1343	C1.2	7469
07	1358	1412	1444	1	5	1	1	1		7	1356	C7.6	7469
07	1520	1522	1529	1-	1					1	1520	B6.4	
08	0212	0244	0424	1-	3	1		1			0211	C5.9	7465
08	0315	0320	0345	1+	3					2	0211	C5.9	7465
08	0805	0838	0849	1	1		1				No flare		
08	1245	1324	1355	1	1					1	No flare		
08	1423	1528	1549	2+	1					1	1446		7470
08	1600	1610	1629	1+	1					1	1553	B9.9	7470
08	1929	1942	2003	1+	3					2	1937	C6.5	7469
08	1935	1957	2036	2	3					3	1937	C6.5	7469
08	2034	2046	2106	1-	5			1		2	2034	C9.2	
08	2129	2130	2135	1-	1					1	2123E		7465
08	2132	2227	2357	1	1	1					*		
09	1108	1117	1132	1	5					2	1046	C1.4	
09	1736	1746	1857	2	3					7	1739	B7.1	
09	2122	2124	2143	1-	3					2	2123	C2.1	7470

* = no flare patrol.

APRIL 1993

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
10	1240	1245	1315	2	1					1	1247	C1.1	7472
10	1340	1358	1435	2+	1					1	No flare		
10	1353	1425	1450	1	1					1	No flare		
10	1510	1515	1528	1	1					1	1510		7472
10	1640	1642	1659	1	1					1	1640	C1.3	7465
10	1739	1745	1816	2-	5					8	1739	C6.6	7470
10	1810	1828	1840	1	1	1					No flare		
10	1941	1946	2030	2+	1					1	No flare		
10	2118	2124	2144	1-	5			1		1	2120	C4.4	7465
10	2333	2338	2414	1	5	1		1		1	2331	C9.1	7469
11	0028	0034	0118	1-	5	1		1		1	0024	C6.2	7469
11	0614	0620	0710	2	5	1	2	1		2	0612	C8.9	
11	0733	0741	0804	1	1		1				No flare		
11	1200	1203	1210	1-	1					1	1202		7469
11	1727	1732	1742	1-	3					2	1726	C1.0	
12	0152	0158	0216	1-	1			1			0152	C1.1	
12	0232	0236	0252	1-	1			1			0230	C1.0	
12	0324	0330	0342	1-	1			1			0323		7472
12	0838	0911	1008	1	1		1				No flare		
12	1131	1138	1145U	1-	1					1	1131	B6.8	
12	1605	1608	1618	1-	1					1	1606	B5.6	
12	1805	1810	1820	1-	1					1	1805	B7.6	7469
12	2306	2312	2328	1-	1			1			2305	C1.4	7472
13	0652	0718	0752	1-	3		1			2	0652	B6.0	
13	1026	1051	1102	1	1		1				*		
13	2027	2029	2038	1-	1					1	2027	B5.5	
15	0904	0916	0948	1+	5	1	1	1		1	0901	C1.2	
15	1026	1043	1127	1	1		1				No flare		
15	1056	1100	1110	1-	1					1	No flare		
15	1500	1503	1512	1-	1					1	1500		7475
16	0841	0852	0922	1	1		1				No flare		
16	1240	1243	1252	1-	1					1	1242	B1.4	
16	1730	1740	1750	1	1					1	1733E		
16	1922	1927	1939	1-	3					3	1921	B7.2	
16	1944	1945	2003D	1	1					1	1945	B3.2	
16	2004	2012	2024	1-	5			1		10	2003	C3.5	
16	2104	2107	2116	1-	1					1	No flare		
17	0026	0030	0038	1-	1					1	0026	B2.5	
17	0202	0206	0215U	1-	1					1	0202	B5.1	
17	0408	0416	0424	1-	1			1			0408	B9.8	
17	0651	0708	0904	1	1		1				0643	B3.3	
17	1007	1015	1022	1-	1					1	1011E	C1.6	7473
17	1030	1035	1049	1	1		1				No flare		
17	1336	1345	1400	1	1					1	1336	C1.1	
17	1632	1633	1639	1-	1					1	1630	B9.8	7477
17	1717	1723	1752	1+	3					3	No flare		
18	0548	0608	0630	1-	1			1			0548	C2.7	7473
18	0658	0704	0722	1-	5		1	1		1	0655	C1.3	
18	0905	0912	1000	2+	1					1	0902	C1.2	7477
18	1000	1012	1050	1	5	1	1	1			0951	C4.5	
18	1818	1822	1844	1+	3					3	1818	C1.1	7477
18	1907	1926	2020	3-	5	2		1		9	1907	M8.7	7477
18	2216	2222	2238	1-	5			1		1	2214	C1.4	
18	2340	2342	2354	1-	1			1			2340	C3.4	7477
19	0000	0026	0114	1-	1			1		1	0002E		7477
19	0230	0238	0300	1-	1			1			0219	C1.5	7477
19	0328	0334	0350	1-	1			1			0325	B9.4	
19	0502	0516	0550	1-	5			1		1	0450	C1.1	7477
19	0604	0608	0644	1-	5			1		1	0603	C2.1	7477
19	0632	0642	0717	1	1		1				0635		7480

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1993

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF- SPA	SES			
19	0752	0808	0832	1-	1			1			0748	C2.7	7480
19	0943	0956	1016	1	1		1				*		
19	1429	1432	1445	1-	3					2	1431	B9.4	7477
19	1911	1915	1952	2	3					2	1924	C2.8	7477
19	2042	2045	2106	1	1					1	2046		7477
20	0218	0224	0238	1-	1			1			0215	B7.3	7477
20	0624	0715	0855	1	1		1				No flare		
20	0932	0939	1000	1+	1					1	0927	C1.2	7477
20	1022	1030	1030U	1-	1					1	1020	C1.8	7480
20	1058	1112U	1122	1	1		1				No flare		
20	1205	1221	1235	1	1		1				No flare		
20	1252	1304	1322	1+	5	2	2	1		7	1247E	C5.6	7477
20	1330	1335	1353	1-	1					1	1330	C1.3	7477
20	1518	1522	1550	1	5		1			2	1517	C1.6	7477
20	1716	1720	1729	1-	1					1	1717E		7477
20	1742	1751	1818	2-	5					5	1744	C5.1	7477
20	1846	1849	1916	1	1					1	1847	C1.2	7477
20	1930	1931	1948	1-	1					1	1920		7477
20	2108	2110	2120	1-	3					3	2109	C1.6	7477
21	0426	0434	0454	1-	1			1			0425	C1.2	7477
21	0636	0646U	0714	1	1		1				No flare		
21	0720	0726	0812	1+	5	1	1	1		3	0720	C4.5	
21	0852	0856	0904	1-	1			1			0849	C1.1	7483
21	1431	1434	1513	2-	5		2			9	1431	C4.5	7483
21	1545	1602	1646	1	1					1	No flare		
22	1408	1420	1456	2-	5	3	2	1		10	1407	M1.5	7477
22	1945	1947	2008	1	1					1	1943	B5.3	7477
23	0237	0242	0254	1-	1			1			0230	C1.1	
24	0658	0708	0749	1	1		1				*		
24	1538	1540	1559	1	1					1	1536	B8.6	7483
25	0244	0245	0305	1	1					1	0244	B8.4	
25	0636	0741	0814	1	1		1				No flare		
25	0810	0811	0825	1-	1					1	0810	B5.5	
25	0954	1002	1020	1-	1			1			0959	C1.9	7477
25	1221	1229	1252	1	5		1			3	1219	C2.0	
25	2130E	2136	2205U	2	1					1	*		
26	0324	0338	0354	1-	1			1			0323	B9.5	
26	0418	0422	0444	1-	1			1			No flare		
26	1205	1206	1215	1-	1					1	1205	B7.3	7483
27	1145	1211	1234	1	1		1				No flare		
28	1606	1610	1628	1	1					1	1604	B7.2	
30	1745E	1752	1830U	2	1					1	1732	B6.1	

* = no flare patrol.

OBSERVATORIES REPORTING FOR APRIL 1993

Amherst, New Hampshire, USA	SES	LaCrescenta, California, USA	SES
Athens, Georgia, USA	SES	Locust Grove, Georgia, USA	SES
Ayrshire, Scotland	SES	Madison, Wisconsin, USA	SES
Boksburg, Rep of S. Africa	SES	Manahawkin, New Jersey, USA	SES
Cambridge, England, UK	SES	Maui, Hawaii, USA	SWF
Cleveland, Ohio, USA	SES	Nampa, Idaho, USA	SES
Cranford, New Jersey, USA	SES	Nerja, Spain	SES
Darmstadt, Germany	SWF	Panska Ves, Czechoslovakia	SES, SEA, SWF
Durham, New Hampshire, USA	SES	Paterson, New Jersey, USA	SES
Edenvale, Rep of S. Africa	SES	Piscataway, New Jersey, USA	SES
Gettysburg, Pennsylvania, USA	SES	Rochester, New Hampshire, USA	SES
Hiraiso, Japan	SWF	San Francisco, California, USA	SES
Houston, Texas, USA	SES	Shaker Heights, Ohio, USA	SES
Hudson, Ohio, USA	SES	Tucson, Arizona, USA	SES
Huntsville, Alabama, USA	SES	Upice, Czechoslovakia	SEA
Inubo, Japan	SPA	Wellington, Ohio, USA	SES
Itapetinga, Brazil	SPA, SES	Windsor Locks, Connecticut, USA	SES
Johannesburg, Rep of So. Africa	SES		

Observations are not necessarily continuous.

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Apr 93

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

APRIL 1993

Observation				Decimetric Band			Metric Band			Dekametric Band			Spectral Type
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
01	0546	1527	POTS				0600.0U	1527.0U	1				I,S,DC
			POTS				0817.9	0818.8	2				IIIG
	0600	1620	ONDR	0818.6	0818.7	2	0818.6	0818.7	2				IIIB
			POTS				0925.1	0925.3	1				IIIG
	0600	1200	POTS				0957.4	0958.7	1				IIIGG
			IZMI				1006.8	1007.2	1				IIIG
			POTS				1006.8	1007.2	1				IIIG
			POTS				1022.5	1022.9	1				IIIG
			POTS				1052.9	1053.3	1				IIIG
			POTS				1124.0	1124.3	1				IIIG
			POTS				1235.3	1237.8	3				IIIGG,RS
			POTS				1402.7	1405.0	1				IIIGG
02	0603	1600	ONDR										
			POTS				0605.0E	0907.0	1				I,S,DC
	0605	1515	POTS				0744.9	0745.4	1				IIIG,RS
			POTS				0848.0	0848.2	1				UNCLF
			POTS				0935.3	0935.6	2				IIIG,RS
			POTS				1130.0U	1515.0U	1				I,S
			POTS				1336.1	1336.2	1				IIIB
			POTS				1509.7	1510.8	1				IIIB
			SGMR				1510.0	1510.0	1				III
03	0600	1200	IZMI				0726.7	0729.8	1				IIIG
			IZMI				0756.1	0756.2	1				IIIB
			LEAR				0840.0	0840.0	2				III
			SVTO				0840.0	0840.0	2				III
			IZMI				0840.6	0840.7	1				IIIB
			IZMI				0907.8	0908.1	1				IIIG
			IZMI				0932.5	0932.8	1				IIIG
			IZMI				0947.3	0947.4	1				IIIB
	0600	1610	ONDR				1011.0	1011.1	1				IIIG
04	0600	1200	IZMI				0646.0	0649.7	1				IIIG
			IZMI				0700.0	0715.0	1				IN
			IZMI				0944.3	0944.4	1				IIIB
			IZMI				1001.9	1002.0	1				IIIB
			IZMI				1149.0	1150.0	1				IIIB
	0600	1610	ONDR	1230.7	1231.6	2	1230.7	1231.6	2				IIIG
			SGMR				1436.0	1436.0	2				III
			SGMR				1450.0	1508.0	1				S
			SGMR				1627.0	1628.0	1				III
			PALE				1801.0	1801.0	1				III
			SGMR				1802.0	1802.0	1				III
			PALE				2200.0	2201.0	1				III
			PALE				2241.0	2241.0	2				V
			SGMR				2241.0	2241.0	1				III
05			PALE				0033.0	0109.0	1				S
			LEAR				0241.0	0242.0	1				III
			PALE				0302.0	0302.0	2				III
			LEAR				0306.0	0315.0	2				III
			LEAR				0501.0	0509.0	1				III
			LEAR				0518.0	0519.0	2				III
			LEAR				0524.0	0524.0	1				III
			LEAR				0538.0	0655.0	2				S
			SVTO				0538.0	0539.0	1				III
	0600	1620	ONDR										
	0600	1200	IZMI				0600.0	0740.0	1				IIIN
			POTS				0603.0E	1000.0U	3				IIIG/INT1
	0603	1529	POTS				0603.0E	1000.0U	3				I,S,C,DC
			POTS				0612.0	0612.1	1				RS
			SVTO				0612.0	0618.0	1				III
			SVTO				0716.0	0721.0	2				III
			IZMI				0716.9	0717.0	1				IIIB
			POTS				0716.9	0717.0	2				IIIB
			POTS				0729.9	0814.9	2				IIIGG
			IZMI				0740.0	0820.0	2				IS,IIIS
			LEAR				0752.0	0900.0	1				CONT

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

Spectral Observations

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APRIL 1993

Observation			Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)		Int (1-3)
05			SVTO				0752.0	0828.0	1				CONT
			POTS				1000.00	1529.00	1				I,S,IIIG,C
			IZMI				1008.1	1008.2	1				IIIB
			POTS				1228.0	1234.0	2				IIIGG
			SGMR				1317.0	1323.0	2				III
			SVTO				1317.0	1322.0	2				III
			POTS				1317.1	1323.80	3				IIIGG
			POTS				1339.5	1350.8	2				IIIGG
			SGMR				1345.0	1353.0	2				III
			SVTO				1349.0	1350.0	2				III
			SGMR				1408.0	1410.0	1				III
			SGMR				1437.0	1548.0	1				CONT
			POTS				1521.9	1522.1	3				IIIG
			SGMR				1816.0	2104.0	1				CONT
			PALE				1821.0	2130.0	1				CONT
06			LEAR				0130.0	0140.0	2				III
			PALE				0130.0	0140.0	1				III
			LEAR				0315.0	0322.0	2				III
			PALE				0321.0	0321.0	1				III
			LEAR				0345.0	0352.0	2				III
			LEAR				0546.0	0551.0	3				III
			SVTO				0546.0	0550.0	3				III
			LEAR				0600.0	0600.0	1				III
0601	1527		POTS				0601.0E	1527.00	1				I,S
			POTS				0602.7	0602.8	1				IIIB
			POTS				0654.0	0654.5	1				IIIG
			POTS				0707.2	0707.4	1				IIIG,RS
			POTS				0735.1	0735.2	1				IIIB
			POTS				0738.8	0739.0	1				IIIG
			POTS				0802.8	0807.5	3				IIIGG,C
			LEAR				0807.0	0807.0	2				III
0600	1200		IZMI				0816.3	0816.6	1				IIIG
			POTS				0816.3	0816.5	1				IIIB
			POTS				0838.2	0851.1	3				IIIGG
			POTS				0932.4	0940.0	2				IIIGG
			LEAR				0942.0	0942.0	1				III
			IZMI				0953.9	0954.0	1				IIIB
			POTS				0953.9	1000.0	1				IIIG
			POTS				1002.9	1003.1	1				IIIG
			POTS				1030.5	1036.7	1				IIIG
			IZMI				1030.6	1036.6	1				IIIG
			POTS				1032.7	1032.8	1				IIIG
			POTS				1132.4	1132.5	1				IIIB
			POTS				1150.7	1205.9	3				DCIM,RS
			POTS				1150.7	1205.9	3				IIIGG,C
0600	1630		ONDR	1153.4	1153.9	3							DCIM
			SGMR				1158.0	1205.0	2				III
			SVTO				1158.0	1201.0	3				V
			IZMI				1158.8	1201.8	2				IIIGG
			POTS				1217.7	1217.8	1				IIIB
			POTS				1220.8	1220.9	1				IIIB
			POTS				1312.2	1322.7	2				IIIGG,RS
			SVTO				1321.0	1321.0	2				III
			POTS				1408.1	1411.3	1				IIIG
			POTS				1417.7	1421.0	1				IIIG,RS
			POTS				1511.5	1525.8	2				IIIGG,V
			SGMR				1525.0	1526.0	2				V
			SVTO				1525.0	1526.0	2				III
			SGMR				1548.0	1548.0	1				III
			SGMR				1745.0	1751.0	2				V
			PALE				1748.0	1750.0	2				III
			SGMR				1756.0	1757.0	1				III
07	0605	1620	ONDR										
	0615	1529	POTS				0615.0E	1529.U	1				I,S,C,DC
			POTS				0816.7	0817.4	1				IIIG
	0600	1200	IZMI				0830.8	0830.9	1				IIIB
			POTS				0830.8	0830.9	2				IIIB

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Spectral Observations

APRIL 1993

Observation			Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)		Int (1-3)
07			POTS				0933.6	0934.5	3				IIIG
			POTS	1020.2	1020.8	1							DCIM
			POTS	1041.3	1049.2	1							DCIM
			POTS				1044.8	1049.1	2				IIIG
08			PALE				0220.0	0220.0	1				III
			PALE				0224.0	0321.0	2				CONT
			LEAR				0233.0	0347.0	1				CONT
	0600	1529	POTS				0600.0E	1529.0U	1				I,S
			POTS				0918.6	0918.7	1				IIIB
			POTS				0932.2	0935.3	3				DCIM,RS
	0600	1620	ONDR	0932.5	0932.8	1							DCIM
			POTS	1009.7	1010.3	2							DCIM
			ONDR	1009.8	1010.3	1							DCIM
			POTS				1037.2	1037.3	1				IIIB
			POTS				1223.1	1223.2	1				IIIB
			ONDR	1230.5	1232.8	3							DCIM
			POTS	1230.5	1232.3	3							DCIM
			POTS	1332.2	1332.4	1							DCIM
			POTS	1336.8	1338.3	2							DCIM
			POTS				1446.4	1446.7	1				IIIG
			PALE				2033.0	2107.0	2				II 2000km/s
			SGMR				2033.0	2059.0	2				II 1600km/s
09	0601	1515	POTS				0603.0E	1515.0U	1				I,S,C
			POTS				0606.2	0610.1	2				DCIM
			POTS				0622.8	0623.5	1				IIIGG
			POTS				0648.4	0659.5	2				IIIGG,V
			POTS				0719.8	0721.5	2				DCIM
			POTS				0740.6	0740.8	1				DCIM
			POTS				0750.9	0759.9	1				IIIG
	0600	1600	ONDR	0802.6	0802.8	2							IIIG
			POTS	0802.6	0802.9	3							DCIM
			POTS				0825.1	0826.0	1				IIIG
			POTS				0856.3	0856.4	1				IIIB
			POTS				0944.0	0944.4	1				IIIG
			POTS				1059.9	1100.7	2				DCIM
			POTS				1113.6	1115.6	1				IIIG
	0600	1200	IZMI				1113.7	1115.6	1				IIIG
			POTS				1117.3	1119.9	2				RSG
			POTS	1118.2	1119.9	2							IIIG
			POTS				1202.7	1203.8	3				IIIG,V,C
			POTS				1202.7	1203.8	3				RS
			POTS				1301.0	1303.3	1				IIIG
			SVTO				1320.0	1321.0	1				III
			POTS				1320.8	1321.9	1				IIIG,RS
			SGMR				1321.0	1321.0	1				III
			POTS				1335.4	1335.9	1				IIIG
			SVTO				1348.0	1349.0	1				III
			POTS				1348.7	1349.3	3				IIIG,V,U
			SGMR				1745.0	1746.0	1				III
10			LEAR				0410.0	0411.0	1				III
	0715	1630	ONDR										
11	0600	1200	IZMI				0612.0	0614.0	3				IIIG,V
			LEAR				0612.0	0615.0	3				III
			SVTO				0612.0	0614.0	3				III
	0603	1600	ONDR	0612.9	0613.8	2							IIIG
			SGMR				1225.0	1226.0	2				III
			SVTO				1225.0	1226.0	2				III
			ONDR				1354.9	1355.5	1				IIIG
			SGMR				1355.0	1356.0	2				V
			SVTO				1355.0	1356.0	2				V
			SGMR				1431.0	1433.0	1				V
			SVTO				1431.0	1433.0	2				V
12			LEAR				0258.0	0259.0	2				III
			PALE				0258.0	0259.0	1				III

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Spectral Observations

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Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
12	0540	1630	ONDR										
	0545	1529	POTS				0545.0E	1529.0U	2				I,S,DC
	0600	1200	IZMI				0747.2	0747.3	1				IIIB
			SGMR				1114.0	1114.0	1				III
			SVTO				1114.0	1114.0	1				III
			IZMI				1114.3	1114.5	2				IIIG
			POTS				1114.3	1115.0	2				IIIG,C
			POTS				1131.9	1143.7	1				IIIG
			POTS				1216.0	1216.2	1				UNCLF
			POTS				1503.4	1503.6	1				UNCLF
			PALE				2218.0	2218.0	1				III
13	0533	1528	POTS				0533.0E	1528.0U	1				I,S
	0540	1630	ONDR										
			POTS				0555.0	0608.1	1				IIIG,RS
			POTS				0741.9	0742.3	1				IIIG
14	0530	1640	ONDR										
	0603	1529	POTS				0952.2	0952.5	1				IIIG
15	0530	1640	ONDR										
	0605	1529	POTS				1141.1	1141.3	1				RS
16	0530	1640	ONDR										
	0525	1529	POTS				0949.0	0949.1	1				UNCLF
			SVTO				0949.0	0959.0	1				S
			PALE				1710.0	1720.0	1				III
			SGMR				1710.0	1711.0	1				III
			SGMR				1720.0	1720.0	2				III
			SGMR				1915.0	1923.0	1				III
			PALE				1916.0	1923.0	1				III
			PALE				2006.0	2008.0	2				III
			SGMR				2006.0	2007.0	2				III
			PALE				2125.0	2125.0	1				III
			SGMR				2125.0	2125.0	1				III
			PALE				2223.0	2233.0	1				III
			LEAR				2255.0	2255.0	1				III
			PALE				2255.0	2255.0	2				III
			SGMR				2255.0	2255.0	1				III
17			PALE				0148.0	0211.0	2				S
			LEAR				0149.0	0149.0	1				III
			LEAR				0159.0	0159.0	1				III
			LEAR				0203.0	0205.0	2				III
			LEAR				0303.0	0303.0	1				III
			PALE				0303.0	0303.0	2				III
			LEAR				0408.0	0409.0	1				III
			PALE				0408.0	0409.0	2				III
	0600	1200	IZMI				0726.7	0727.7	1				IIIB
			IZMI				0729.6	0729.7	1				IIIB
			LEAR				0735.0	0736.0	2				III
			SVTO				0735.0	0736.0	2				V
	0530	1640	ONDR	0735.6	0736.4	2	0735.6	0736.4	2				IIIG
			IZMI				0735.7	0738.5	2				IIIG
			SVTO				0749.0	0750.0	1				III
			IZMI				0749.1	0749.8	1				IIIG
			IZMI				0754.0	0755.5	2				IIIGG
			LEAR				0754.0	0755.0	2				III
			ONDR				0754.0	0755.3	2				IIIGG
			SVTO				0754.0	0755.0	2				V
			LEAR				0853.0	0904.0	1				S
			SVTO				0853.0	0904.0	2				S
			IZMI				0853.1	0854.3	2				IIIG
			IZMI				0901.6	0906.1	2				IIIGG
			SVTO				1005.0	1016.0	2				S
			SGMR				1304.0	1308.0	1				III
			SVTO				1304.0	1305.0	2				III
			SGMR				1428.0	1433.0	2				III
			SVTO				1428.0	1433.0	2				III

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

APRIL 1993

Observation			Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)		Int (1-3)
17			ONDR	1432.3	1432.4	3							DCIM
			PALE				1820.0	1831.0	1				S
			SGMR				1825.0	1829.0	2				V
			PALE				2058.0	2104.0	2				III
			SGMR				2058.0	2134.0	1				S
			PALE				2123.0	2130.0	1				III
18			LEAR				0319.0	0324.0	2				III
			PALE				0319.0	0323.0	1				III
			LEAR				0422.0	0423.0	2				III
	0530	1640	ONDR										
			SVTO				0947.0	1006.0	3				S
	0600	1200	IZMI				0947.7	0948.9	1				IIIG
			IZMI				0958.4	1003.9	2				IIIG
			PALE				1904.0	1907.0	1				III
			SGMR				1905.0	1910.0	1				III
			PALE				1908.0	1929.0	3				1000km/s
			SGMR				1910.0	2100.0	3				II
			PALE				1929.0	2025.0	2				IV
			PALE				2033.0	2034.0	1				III
			PALE				2049.0	2201.0	2				S
			SGMR				2125.0	2201.0	1				S
			PALE				2327.0	2328.0	1				III
19			LEAR				0253.0	0253.0	2				III
			PALE				0253.0	0253.0	1				III
	0530	1650	ONDR										
			LEAR				0604.0	0605.0	2				III
			SVTO				0604.0	0605.0	2				III
	0557	1511	POTS				0604.5	0605.4	2				IIIG
	0600	1200	IZMI				0604.8	0605.0	1				IIIG
			POTS				0727.1	0728.1	1				UNCLF
			POTS				0746.8	0800.0	2				IIIGG,RS
			LEAR				0747.0	0748.0	2				III
			SVTO				0747.0	0748.0	2				III
			IZMI				0747.7	0747.9	2				IIIG,U
			IZMI				0753.4	0756.6	1				IIIG
			SVTO				0759.0	0818.0	2				S
			IZMI				0759.5	0759.6	1				IIIB
			POTS				0920.0	1313.0	1				1,S,DC
			POTS				1130.9	1131.0	1				IIIB
20	0603	1529	POTS				0603.0E	1529.00	2				1,S,C,DC
	0507	1650	ONDR				0736.0	1400.0	2				IN
	0600	1200	IZMI				0848.0	1200.0	1				IN
			POTS				0939.3	0946.1	1				IIIG
			IZMI				1134.7	1135.2	1				IIIG
			PALE				2100.0	2100.0	1				III
			SGMR				2100.0	2100.0	1				III
21	0505	1652	ONDR										
	0600	1523	POTS				0600.0E	1523.00	1				1,S,DC
			POTS				0721.5	0721.6	1				IIIB
			POTS				0721.5	0721.6	2				IIIG
			POTS				0748.6	0748.8	1				RS
22	0553	1529	POTS										
	0504	1652	ONDR	1408.1	1410.0	3							V
23			LEAR				0442.0	0442.0	2				III
	0514	1653	ONDR										
			LEAR				0543.0	0543.0	1				III
			SGMR				1457.0	1459.0	2				V
			SVTO				1457.0	1459.0	2				III
	0607	1529	POTS				1457.7	1459.5	1				IIIG
			PALE				2018.0	2018.0	1				III
			PALE				2258.0	2259.0	2				III
24	0603	1656	ONDR										

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Spectral Observations

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Observation				Decimetric Band			Metric Band			Dekametric Band			Spectral Type
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
24	0600	1200	IZMI				0959.0	0959.1	1				IIIB
			IZMI				1000.0	1110.0	1				IN
25	0458	1657	ONDR										
	0600	1200	IZMI				0907.9	0908.0	1				IIIB
			IZMI				0946.4	0946.5	2				IIIB
			IZMI				1023.9	1028.1	2				IIIGG
			SVTO				1024.0	1027.0	2				III
26	0457	1700	ONDR										
	0601	1529	POTS										
27			LEAR				0504.0	0504.0	1				III
	0604	1600	ONDR										
			LEAR				0609.0	0610.0	1				III
	0609	1527	POTS				0609.7	0610.4	1				IIIG
			POTS				1027.4	1027.5	1				UNCLF
			POTS				1230.9	1231.1	1				I
			POTS				1307.4	1307.6	1				IIIG
			POTS				1442.4	1444.3	1				IIIG
28	0626	1703	ONDR										
	0617	1529	POTS				0714.4	0715.5	1				IIIG
			POTS				1049.0U	1131.01					I,S,DC
			POTS				1233.8	1242.5	1				IIIGG
			POTS				1502.2	1502.7	1				IIIG
			POTS				1517.8	1522.7	2				IIIGG,I,RS
			PALE				1912.0	1912.0	1				III
			SGMR				1912.0	1912.0	1				III
			PALE				1941.0	1943.0	1				V
			SGMR				1941.0	1943.0	1				III
			PALE				1959.0	1959.0	1				III
			SGMR				1959.0	2000.0	1				III
			PALE				2027.0	2028.0	1				III
			SGMR				2027.0	2028.0	1				III
			PALE				2222.0	2222.0	1				III
29	0452	1701	ONDR										
	0603	1527	POTS				1316.9	1317.2	1				IIIG
30	0450	1610	ONDR										
	0557	1529	POTS				1427.0	1432.02					II
			SGMR				1427.0	1432.0	1				II 1000km/s
			SVTO				1428.0	1431.0	1				II 800km/s

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst	RS = Reverse slope burst
G = Small group (< 10) of bursts	DP = Drifting pairs
GG = Large group (> 10) of burst	DC = Drifting Chains
C = Underlying continuum (particularly with Type I)	H = Herringbone
S = Storm in the sense of intermittent but apparently connected activity	W = Weak
N = Intermittent activity in this period	P = Pulsations
U = U-shaped burst of Type III	CONT = Continuum
SP = SPIKES	UNCLF = Unclassified activity
	DCIM = Fast drift

Stations Reporting:

IZMI = IZMIRAN	LEAR = Learmonth	ONDR = Ondrejov	PALE = Palehua	POTS = Potsdam
SGMR = Sagamore Hill	SVTO = San Vito			

SOLAR RADIO NOISE STORMS AT 164 MHZ FROM NANCAY RADIOHELIOGRAPH

APRIL 1993

	HELIOGRAPHIC POSITIONS				
DAY	MEAN VALUES*		IMP**	OBSERVING TIME***	
	E-W	S-N		START(UT)	END (UT)
01/04/93	-0.35	-0.05	1	0930E	1445D
04/04/93	-0.21	+0.50	1	0900E	1515D
06/04/93	+0.67	+0.51	1	0900E	1450D
10/04/93	+0.86	+0.25	1	0800E	1415
19/04/93	-0.85	+0.14	1	0900E	1330D
20/04/93	-0.61	+0.23	2	0915E	1445D
21/04/93	-0.49	+0.19	1	0900E	1545D
22/04/93	-0.17	+0.43	1	0900E	1545D
24/04/93	+0.62	+0.37	1	0945	1415
24/04/93	+0.60	-0.01	1	1315	1445D
26/04/93	+1.17	+0.25	1	1115	1400

5,11,12,13 APRIL NO DATA

OTHER DAYS : NO DETECTABLE NOISE STORMS

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

** IMP 1: FLUX<5 SFU IMP 2 : 5<FLUX<20 SFU IMP 3: 20<FLUX<100 SFU
IMP 4: 100<FLUX<300 SFU IMP 5: FLUX>300 SFU

*** E NOISE STORM IN PROGRESS AT THE BEGINNING OF THE NANCAY OBSERVATIONS
D NOISE STORM IN PROGRESS AT THE END OF THE NANCAY OBSERVATIONS

COSMIC RAY INDICES
(Neutron Monitor)

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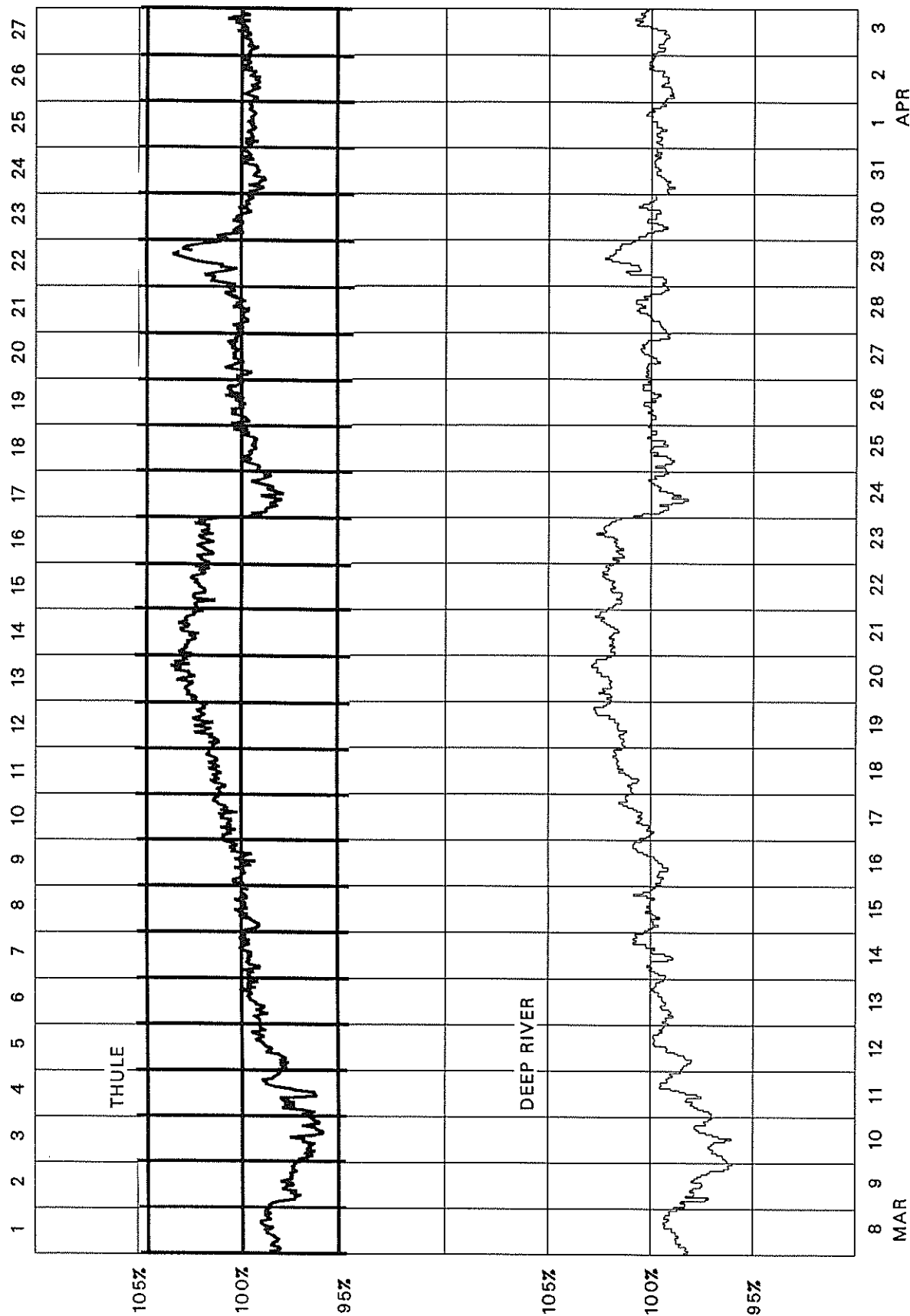
Day	THULE Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	BEIJING Average (cts/h) 256	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	4253	6743.3		3861.9		3526.0	
2	4253	6727.7		3877.1		3529.8	
3	4267	6755.0		3878.4		3505.3	
4	4255	6749.9		3886.6		3518.7	
5	4220	6709.2		3893.9		3540.7	
6	4253	6755.2		3908.9		3534.2	
7	4263	6790.3		3926.9		3540.7	
8	4294	6815.7		3944.6		3552.0	
9	4300	6806.9		3930.4		3554.1	
10	4289	6797.0		3919.6		3560.9	
11	4286	6824.2		3924.7		3554.2	
12	4303	6846.5		3938.2		3560.1	
13	4303	6835.8		3951.7		3560.9	
14	4323	6865.1		3979.6		3569.0	
15	4334	6872.8		3989.5		3554.8	
16	4336	6890.2		3994.7		3562.4	
17	4389	6964.2		4009.8		3575.4	
18	4401	6985.2		4031.0		3562.3	
19	4361	6939.8		4014.5		3549.7	
20	4361	6904.4		3995.8		3542.4	
21	4339	6897.2		3982.6		3538.9	
22	4339	6912.0		3969.4		3517.6	
23	4362	6939.8		3991.0		3505.7	
24	4365	6938.6		3998.1		3508.1	
25	4377	6930.6		3986.5		3528.8	
26	4403	6966.8		3984.9		3534.7	
27	4385	6932.5		3973.6		3532.6	
28	4382	6921.2		3971.7		3528.5	
29	4373	6899.2		3967.1		3524.4	
30	4329	6861.2		3957.4		3523.0	
Mean	4323	6859.3		3954.8		3539.9	

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

* = A&B includes only hours when both A&B sections are available.

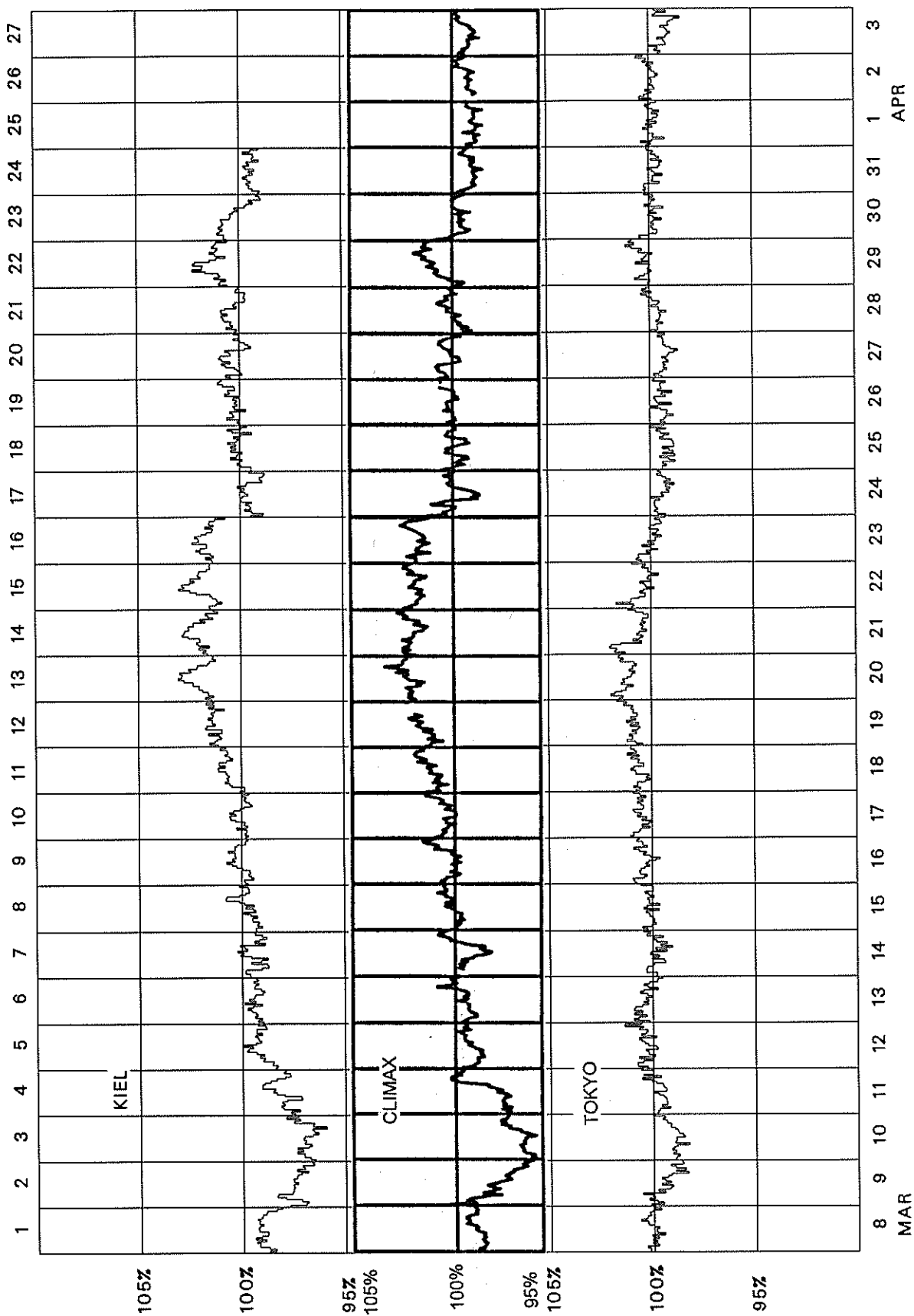
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2180 (March 1993-April 1993)



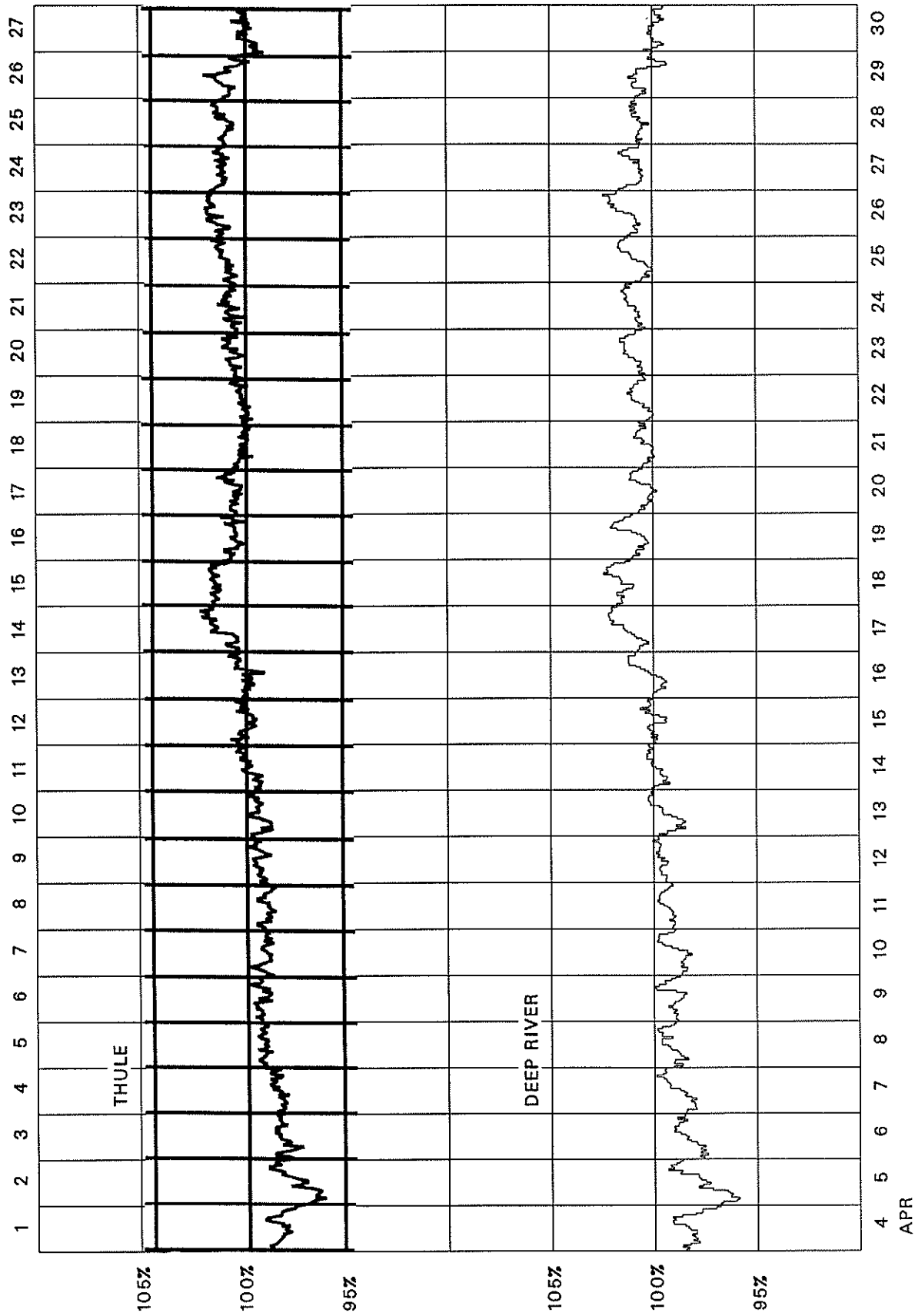
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2180 (March 1993-April 1993)



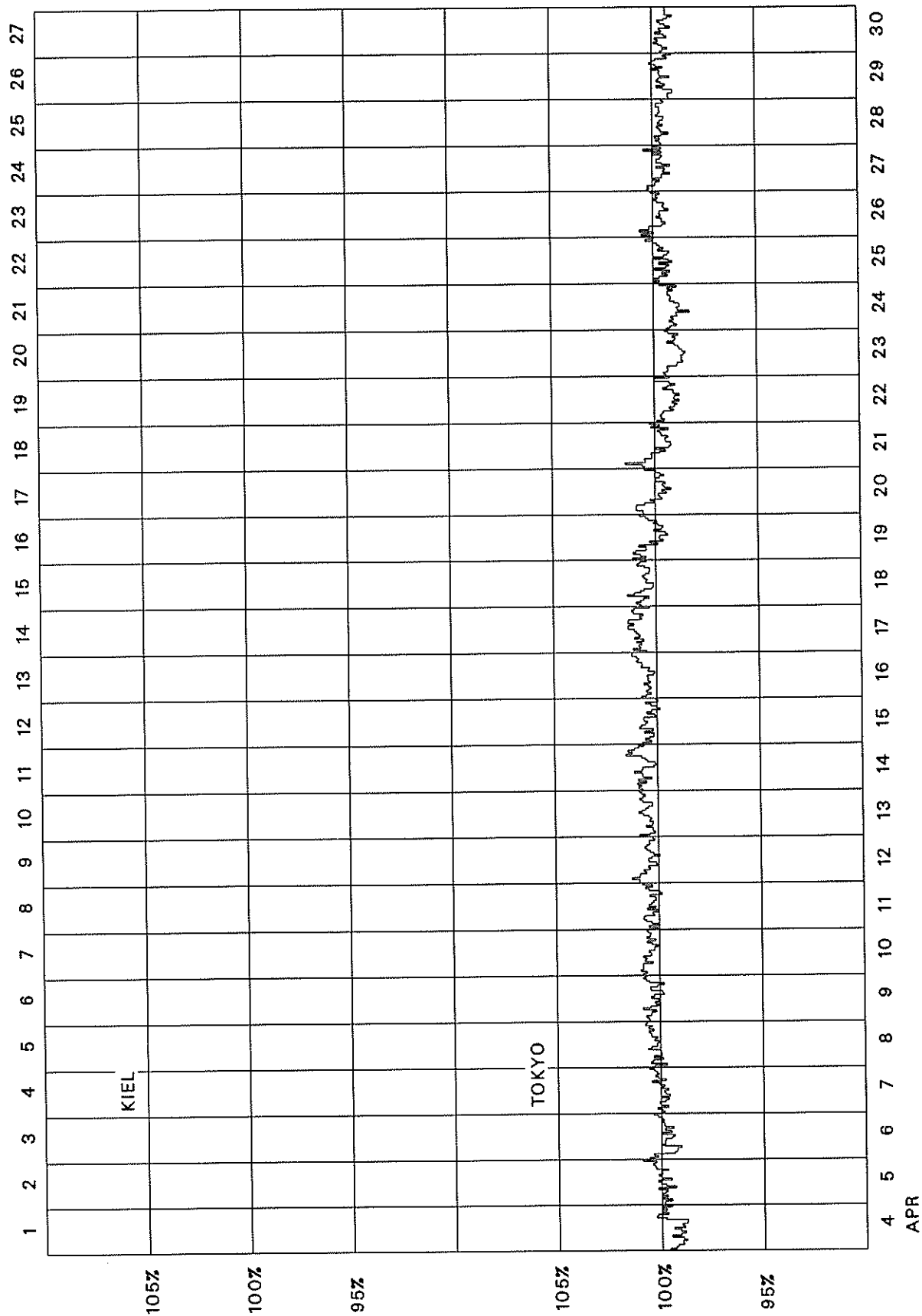
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2181 (April 1993)

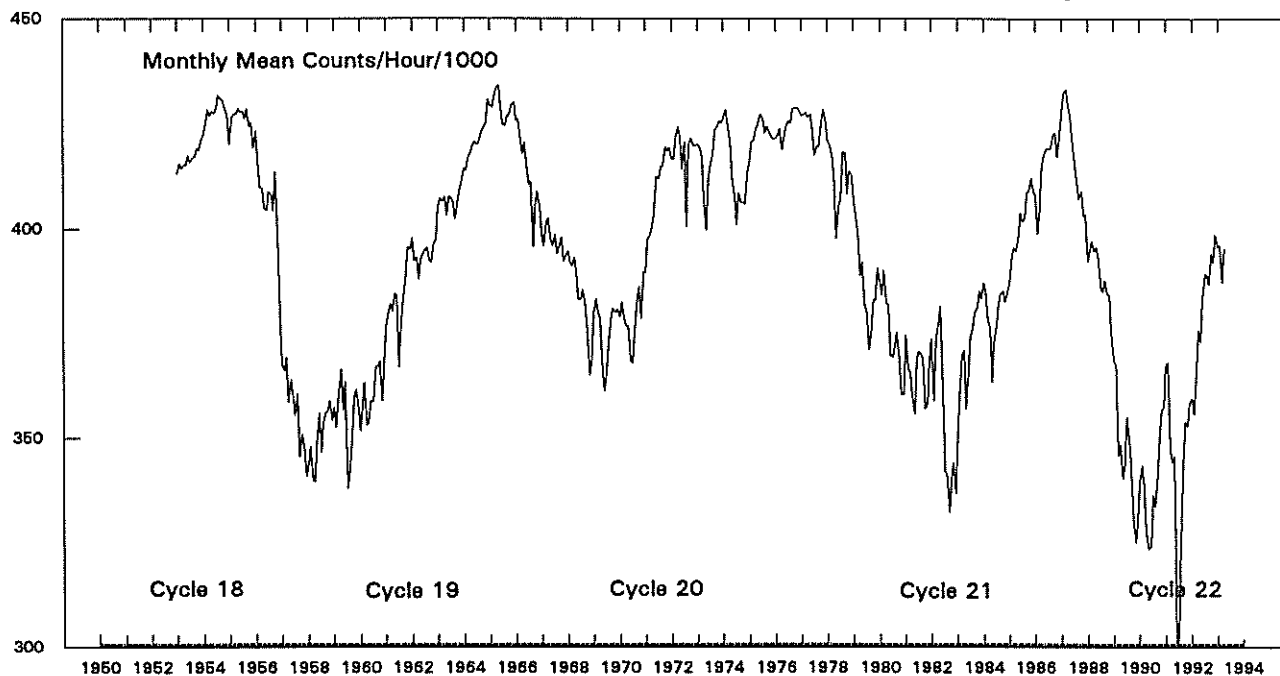


COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2181 (April 1993)



Climax Neutron Monitor Pressure-Corrected Values Jan 1953 - Apr 1993



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1950													
1951													
1952													
1953	4131	4155	4143	4152	4152	4175	4158	4168	4173	4192	4188	4213	4167
1954	4224	4248	4283	4269	4280	4276	4287	4319	4308	4307	4287	4269	4280
1955	4201	4266	4272	4273	4287	4278	4279	4263	4286	4245	4252	4192	4258
1956	4234	4160	4099	4097	4049	4044	4089	4083	4044	4136	3979	3800	4068
1957	3676	3661	3693	3586	3640	3602	3555	3605	3456	3508	3482	3409	3573
1958	3437	3480	3401	3396	3489	3560	3467	3537	3561	3564	3588	3542	3502
1959	3573	3526	3606	3663	3567	3634	3380	3419	3483	3597	3614	3574	3554
1960	3517	3573	3631	3531	3537	3589	3588	3670	3669	3681	3588	3682	3605
1961	3763	3802	3819	3801	3843	3838	3668	3784	3833	3872	3955	3950	3827
1962	3977	3922	3930	3878	3927	3941	3951	3953	3922	3919	3962	3971	3938
1963	4049	4073	4065	4077	4034	4075	4073	4060	4024	4067	4093	4113	4067
1964	4145	4139	4168	4181	4198	4208	4200	4212	4232	4240	4254	4307	4207
1965	4294	4289	4314	4334	4340	4289	4247	4246	4268	4271	4295	4300	4291
1966	4258	4262	4211	4179	4206	4143	4107	4112	3956	4056	4090	4053	4136
1967	3990	3959	4013	4024	3974	3960	3986	3940	3955	3979	3923	3933	3970
1968	3946	3923	3911	3931	3894	3830	3830	3853	3817	3756	3650	3684	3835
1969	3790	3831	3798	3783	3659	3611	3652	3734	3784	3807	3799	3806	3755
1970	3790	3823	3780	3766	3765	3682	3679	3753	3831	3859	3785	3896	3784
1971	3894	3975	3982	4002	4032	4124	4118	4148	4149	4193	4184	4192	4083
1972	4166	4165	4215	4244	4215	4141	4206	4005	4198	4215	4197	4198	4180
1973	4201	4193	4173	4074	3996	4119	4149	4178	4235	4240	4255	4253	4172
1974	4262	4283	4237	4207	4121	4077	4009	4083	4062	4062	4058	4138	4133
1975	4158	4206	4210	4238	4247	4272	4263	4228	4243	4230	4218	4214	4227
1976	4216	4222	4236	4187	4217	4244	4254	4251	4284	4287	4285	4280	4247
1977	4268	4272	4274	4266	4271	4233	4175	4195	4196	4244	4282	4264	4245
1978	4214	4198	4173	4107	3977	4058	4068	4182	4179	4084	4137	4129	4125
1979	4071	4035	3983	3887	3919	3816	3806	3709	3745	3829	3829	3905	3878
1980	3871	3840	3900	3820	3817	3695	3692	3718	3752	3687	3604	3604	3750
1981	3744	3663	3656	3601	3557	3683	3706	3701	3688	3570	3581	3682	3653
1982	3735	3589	3732	3773	3814	3608	3420	3415	3324	3402	3441	3367	3552
1983	3507	3601	3700	3708	3569	3656	3744	3755	3799	3813	3851	3833	3711
1984	3870	3850	3784	3761	3633	3727	3766	3818	3845	3851	3825	3843	3798
1985	3872	3937	3954	3947	3978	4039	4018	4026	4088	4090	4122	4091	4013
1986	4080	3988	4048	4148	4180	4191	4191	4193	4226	4228	4172	4226	4156
1987	4277	4324	4332	4294	4271	4204	4164	4120	4073	4089	4031	4035	4184
1988	3922	3947	3970	3948	3957	3934	3859	3849	3877	3845	3841	3752	3892
1989	3686	3670	3458	3485	3404	3437	3549	3493	3423	3306	3251	3309	3491
1990	3392	3434	3384	3277	3236	3244	3365	3337	3409	3497	3565	3575	3393
1991	3675	3680	3473	3443	3456	3003	3025	3253	3440	3538	3529	3585	3425
1992	3595	3557	3640	3757	3730	3830	3892	3890	3868	3941	3919	3987	3800
1993	3958	3960	3872	3955									3936

Multiply table entries by 100 to obtain hourly counting rate. Climax, Colorado: N39, W106, Alt=3400 m, Cutoff Rigidity=2.96 GV.

GEOMAGNETIC ACTIVITY INDICES

April 1993

Kp Three-Hourly Indices													Km Three-Hourly Indices													aa Provisional			
Day		1	2	3	4	5	6	7	8	Sum	Ap	Cp	1	2	3	4	5	6	7	8	Am	N	S	M					
1	Q7A	2	3-	2	1	1+	2+	3-	3-	17-	8	0.5																	
2	Q3	1	1+	2-	1+	1-	1-	1	1+	9	4	0.2																	
3	Q2	2-	1	0+	0+	1-	1-	1+	2-	8-	4	0.1																	
4	D2	2-	2-	1	1+	5	6	7	8-	31+	58	1.7																	
5	D1	6+	7+	7	6-	6+	6-	6-	3+	47+	87	1.8																	
6		2	2+	2	3-	3	3	2+	5-	22	14	0.8																	
7		2	3	2+	2	2-	3	2+	4	20+	12	0.7																	
8		2+	3	4	4	4+	4+	5	3	30	26	1.2																	
9		4-	3	3	2-	2	5+	4+	6-	29-	28	1.2																	
10		4+	4-	4	2+	3	3	3	3-	26	18	1.0																	
11	Q6A	2-	3-	2-	2	3-	1+	2-	3-	16+	8	0.4																	
12		4+	5+	3-	2-	1+	1-	2-	2-	19+	16	0.9																	
13	D4	2	5	5-	6-	4+	4	4	2	32-	32	1.3																	
14		4-	4+	3+	3+	1+	4-	4-	4-	27	20	1.0																	
15	D5	4+	5-	4+	3+	2-	2-	5-	5+	30	28	1.2																	
16		3+	5-	4-	2	2	3	3-	2+	24-	16	0.9																	
17		2-	2	2	3-	2-	3+	4-	2-	19-	10	0.6																	
18		4-	4+	3+	4+	4-	3+	3-	1+	27-	20	1.0																	
19	Q8A	3-	2-	1+	3-	2+	3	2	2	18-	9	0.5																	
20		3+	5	4-	3+	4	4-	3	3-	29-	23	1.1																	
21	D3	4+	4	5-	4-	3+	6-	4+	4	34	33	1.3																	
22		4-	3-	3	2-	2+	4	5	4+	27-	21	1.1																	
23		2+	2+	1+	2+	1	3-	4	3+	19+	12	0.7																	
24	Q9A	3	2-	2	2+	3-	3-	2	1+	18-	9	0.5																	
25	Q10A	2+	3-	3+	2+	2-	1+	2+	3-	19-	10	0.6																	
26	Q5	1	1	2	1	2-	1+	1+	1-	10	5	0.2																	
27	Q1	1-	1-	1	1-	1+	1+	1-	2-	8	4	0.1																	
28	Q4	1+	1	1	1	2-	2-	2-	1-	10	5	0.2																	
29		1-	1	1	2-	3	3	4-	4	18	12	0.7																	
30		4+	3	3-	2-	2+	2+	3	2	21+	13	0.8																	
Mean													19	0.81															
Day		Kn Three-Hourly Indices									Ks Three-Hourly Indices									Prov									
		1	2	3	4	5	6	7	8	An	1	2	3	4	5	6	7	8	As	Sa	Ri	Ra	Rs	IMF					
1																				123.5	67	70	71						
2																				120.7	67	64	71						
3																				117.0	75	85	64						
4																				116.4	67	67	64						
5																				118.9	75	79	66						
6																				133.1	89	92	82						
7																				130.0	79	82	78						
8																				143.5	81	91	93						
9																				136.0	87	90	85						
10																				139.2	74	78	88						
11																				119.4	55	63	67						
12																				103.7	37	36	50						
13																				97.7	19	20	44						
14																				92.8	15	15	38						
15																				88.8	15	14	34						
16																				90.9	15	26	36						
17																				96.5	36	39	42						
18																				106.6	49	54	53						
19																				111.9	51	70	59						
20																				119.9	89	96	67						
21																				120.5	98	98	68						
22																				118.4	93	96	66						
23																				122.9	96	104	71						
24																				130.3	98	106	79						
25																				126.2	88	88	74						
26																				125.0	50	57	73						
27																				119.6	62	62	67						
28																				115.2	51	52	62						
29																				108.1	41	43	55						
30																				107.4	38	34	54						
Mean													.									116.7	61.9	65.7	64.0				

DAILY AVERAGE INDICES Ap

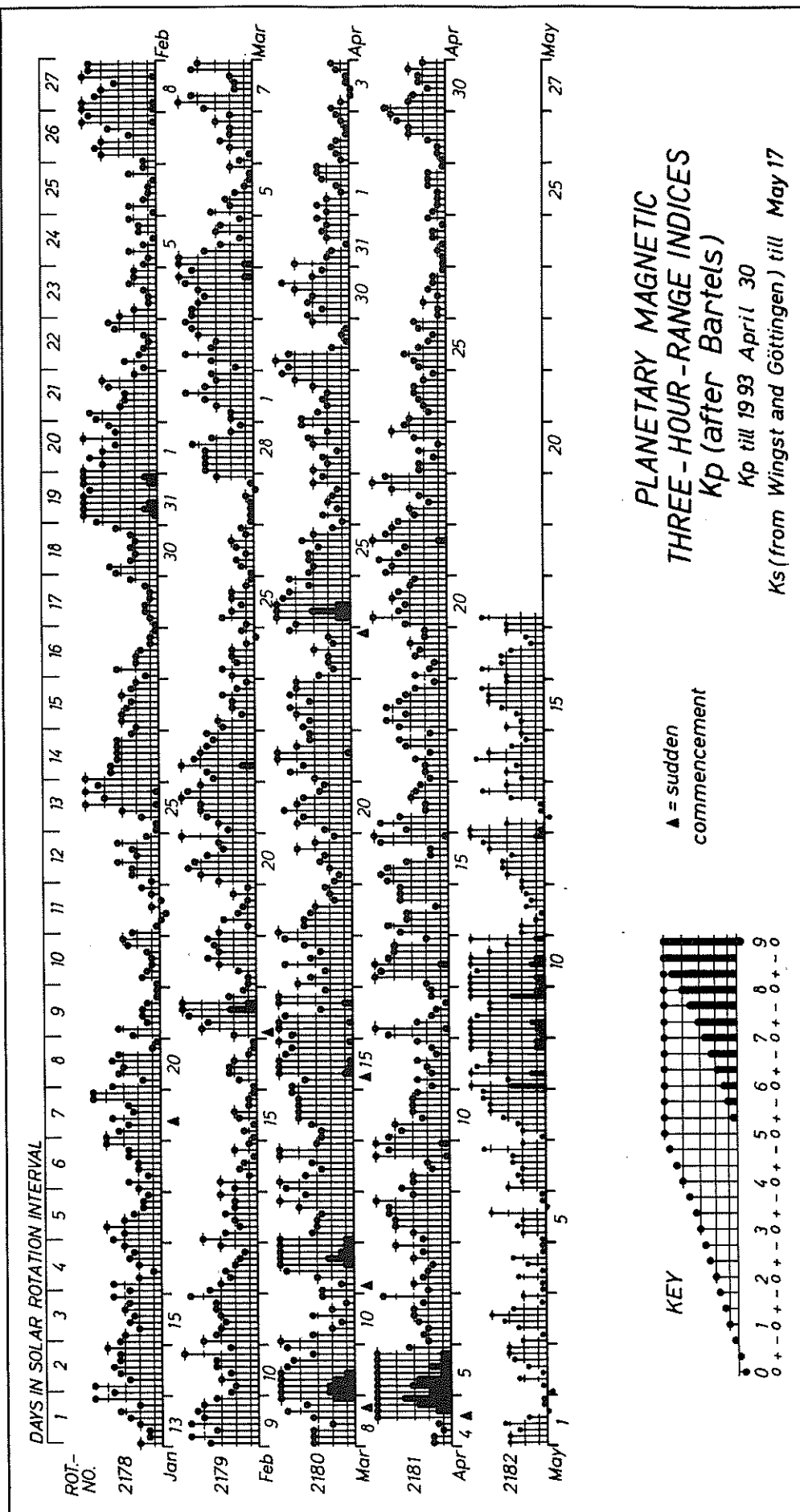
May 1992 to April 1993

DAY	1992 MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1993 JAN	FEB	MAR	APR
1	15	8	19	8	2	26	16	17	10	31	18	8
2	12	5	16	5	23	9	23	9	24	21	24	4
3	9	6	5	4	48	6	17	15	33	10	35	4
4	12	4	4	15	33	7	25	15	31	7	23	58
5	5	6	9	35	28	5	15	7	17	6	7	87
6	5	5	5	16	17	10	14	5	16	5	8	14
7	13	12	4	26	22	8	12	16	23	27	22	12
8	29	46	5	16	18	8	11	26	15	40	29	26
9	39	17	4	12	84	26	42	19	16	28	64	28
10	179	20	6	7	88	10	12	17	25	17	15	18
11	70	26	4	13	32	24	19	10	21	20	50	8
12	11	40	15	6	5	34	16	8	12	11	28	16
13	21	12	23	11	5	23	17	8	12	12	31	32
14	4	6	12	15	8	25	12	10	22	6	23	20
15	5	10	6	8	10	35	19	14	14	4	45	28
16	4	4	12	8	12	22	10	6	11	6	39	16
17	3	5	5	4	93	16	8	25	13	36	23	10
18	16	27	5	6	31	12	7	9	11	13	18	20
19	14	12	4	9	13	16	7	11	22	7	11	9
20	8	7	8	26	8	12	4	13	14	26	21	23
21	8	9	11	20	7	6	7	14	7	27	30	33
22	50	10	34	39	17	9	17	7	7	30	25	21
23	14	13	16	73	9	5	31	8	4	8	12	12
24	8	22	7	10	4	3	12	8	10	6	58	9
25	10	14	11	5	11	7	12	5	25	6	16	10
26	8	8	4	11	8	14	10	4	22	5	8	5
27	10	11	7	14	4	31	5	8	11	4	12	4
28	13	15	17	5	16	19	6	39	7	19	17	5
29	19	38	5	16	62	27	5	42	5		18	12
30	14	37	9	6	35	16	13	10	12		19	13
31	8		10	4		10		11	59		10	
MEAN	21	15	10	15	25	15	14	13	17	16	24	19

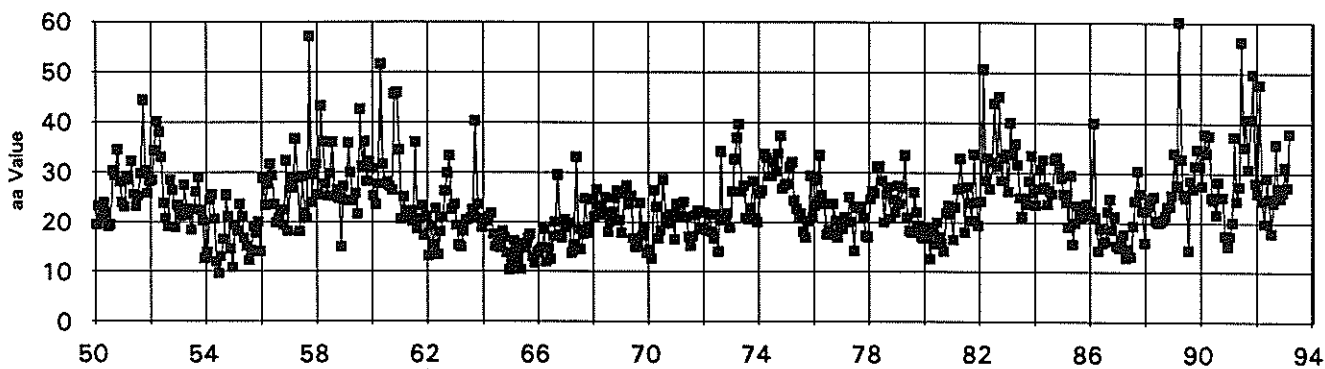
PLANETARY 3-HOUR-RANGE INDICES (Kp) BY 27-DAY SOLAR ROTATION INTERVAL

Kp through April 30, 1993

University of Gottingen



MONTHLY MEAN aa INDICES 01/50-03/93



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										32.2

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

APRIL 1993

Sta	Geomag Lat	Commencement			SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges			End	
		Day	Time (UT)	Type	D (Min)	H (Gamma)	Z (Gamma)		D (Min)	H (Gamma)	Z (Gamma)	Day	Hour (UT)
FRD 49.4N	04	1434	SC*	-	2.5	23	- 3	04(8) 05(1,2,3)	6	40	159	218	05 23
KRC 16.4N	04	1426	SC	-	2.2	45	25	04(6,8)	7	10	240	100	07 00
UJJ 13.6N	04	1433	SC	-	.7	36	- 8		-	6	219	35	05 24
ABG 09.4N	04	1433	SC	-	.7	31	- 8	04(6)	7	6	227	47	05 24
HYB 07.6N	04	1433	SC	-	.3	32	- 2	04(6,7,8)	7	6	244	37	06 24
GUA 04.3N	04	14--	..	..	..	..	..	04(6)	6	10	140	30	04 24
ANN 01.5N	04	1433	SC	-	1.6	39	24		-	6	240	121	05 24
ETT 00.7S	04	1433	SC	-	.8	26	27		-	8	263	127	06 23
PMG 18.3S	04	1434	SC		.5	35	30	04(6,7) 05(5)	6	7	240	80	06 00
HER 33.6S	04	1434	SC		5 *	21	20	04(6)	7	44	205	204	05 23
GNA 43.0S	04	1433	SC*		4.6*	34 *	- 9	04(7,8) 05(5)	6	37	146	194	06 00
CNB 43.6S	04	1434	SC		1.5	55	8	04(6) 05(5)	6	28	250	132	05 23
KGL 57.2S	04	1433	SC		1	28	10	04(7,8)	9	224	1592	633	06 01
HYB 07.6N	07	1600	..	..	..	..	..	09(6,7)	5	7	138	36	10 04
HER 33.6S	08	16--	..	..	..	..	..	08(7)	6	11	73	73	08 24
KGL 57.2S	08	02--	..	..	..	..	..	09(8)	7	65	511	308	10 23
HER 33.6S	09	16--	..	..	..	..	..	09(6,8) 10(1)	5	23	76	101	10 07
HYB 07.6N	12	1700	..	..	..	..	..	13(2,4,7)	5	5	157	22	14 22
GUA 04.3N	12	03--	..	..	..	..	..	12(2)	5	--	60	10	12 08
ETT 00.7S	12	2000	..	..	..	..	..		-	5	250	65	13 21
GUA 04.3N	13	02--	..	..	..	..	..	13(2)	6	--	170	20	13 16
HER 33.6S	13	02--	..	..	..	..	..	13(2)	5	22	97	38	13 13
HER 33.6S	15	19--	..	..	..	..	..	15(7)	5	13	44	47	15 24
GUA 04.3N	18	01--	..	..	..	..	..	18(1)	5	--	100	20	18 14
ETT 00.7S	18	0100	..	..	..	..	..		-	5	163	50	18 19
FRD 49.4N	20	----	..	..	..	..	..	20(2) 21(6) 22(7)	5	19	136	41	22 --
HYB 07.6N	20	0000	..	..	..	..	..	21(6) 22(7)	5	5	112	31	22 22
GUA 04.3N	20	23--	..	..	..	..	..	21(1)	5	--	90	30	21 13
ETT 00.7S	20	0100	..	..	..	..	..		-	6	186	55	22 23
HER 33.6S	22	16--	..	..	..	..	..	22(6,8)	5	9	54	60	22 23
HYB 07.6N	23	0729	SC	-	.2	8	0	23(7)	4	6	105	29	25 11
ETT 00.7S	23	0729	SC	-	.5	15	12		-	--	--	--	--
HYB 07.6N	29	0300	..	..	..	..	..	29(8)	4	5	113	17	30 23
GUA 04.3N	29	22--	..	..	..	..	..	30(1)	5	--	50	20	30 06
KGL 57.2S	29	1146	SC		2	5	1	30(1)	5	16	156	108	01 02

Stations:

ABG = ALIBAG
 ANN = ANNAMALAINAGAR
 API = APIA
 BJI = BEIJING
 CNB = CANBERRA
 CMO = COLLEGE

ETT = ETAIYAPURAM
 FRD = FREDERICKSBURG
 GNA = GNANGARA
 GUA = GUAM
 HER = HERMANUS

HON = HONOLULU
 HYB = HYDERABAD
 JAI = JAIPUR
 KGL = KERGUELEN
 KRC = KARACHI

PMG = PORT MORESBY
 SHL = SHILLONG
 SIT = SITKA
 TRD = TRIVANDRUM
 UJJ = UJJAIN
 WIT = WITTEVEEN

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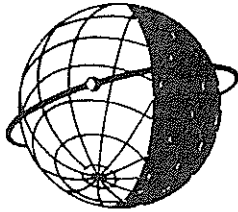
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Late
Dec 89

COSMIC RAY INDICES
(Neutron Monitor)

DECEMBER 1989

Day	THULE Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	3588	5755.9	5140.2	3226.3	3349.1	1625.7(36)
2	3574	5714.1	5129.0	3231.8	3356.3	1618.5
3	3630	5752.6	5161.9	3248.1	3359.0	1627.3
4	3600	5730.4	5167.6	3232.8	3336.7	1620.2
5	3627	5788.6	5180.8	3291.7	3373.0	1633.3
6	3649	5833.0	5245.2	3327.0	3388.5	1641.6
7	3690	5911.7	5304.0	3356.4	3416.0	1650.0
8	3706	5922.5	5303.0	3346.7	3421.0	1658.0
9	3713	5905.8	5304.8	3347.0	3415.3	1652.7
10	3681	5839.2	5259.3	3296.3	3396.6	1640.4
11	3660	5836.2	5239.4	3280.7	3389.3	1640.7(38)
12	3665	5882.7	5266.9	3349.4	3410.4	1650.8
13	3695	5924.1	5291.3	3343.7	3417.6	1656.0
14	3700	5931.2	5261.3	3346.3	3417.4	1656.0
15	3701	5936.7	5255.3	3344.8	3417.6	1652.7
16	3708	5944.6	5280.7	3364.3	3422.8	1656.5
17	3731	5947.7	5299.6	3267.1	3421.3	1655.6
18	3733	5960.4	5304.3	3364.2	3418.7	1655.4(38)
19	3724	5950.4	5302.7	3352.8	3430.9	1655.1
20	3740	5956.6	5302.1	3360.5	3436.2	1656.2
21	3753	5978.7	5311.1	3369.7	3437.8	1663.8
22	3721	5972.5	5282.9	3350.1	3435.4	1659.3
23	3697	5914.6	5249.2	3295.8	3418.8	1654.4
24	3666	5849.0	5231.1	3279.5	3407.2	1645.7
25	3687	5877.8	5265.8	3317.2	3423.0	1652.7(38)
26	3698	5911.7	5277.3	3334.5	3422.1	1654.5
27	3674	5858.4	5244.2	3289.8	3402.1	1642.0
28	3634	5803.0	5189.3	3266.6	3381.3	1635.0
29	3533	5701.6	5108.3	3204.8	3362.9	1616.5
30	3536	5714.0	5121.0	3220.5	3369.2	1632.0
31	3617	5758.5	5192.2	3274.3	3397.7	1634.0
Mean	3669	5863.4	5241.0	3309.1	3401.6	1644.9

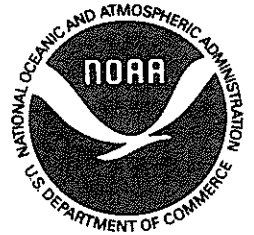
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.



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."