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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
Thomas N. Pyke, Jr., Assistant Administrator

JUNE 1988 NUMBER 526 - Part I

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Data for May, April 1988, and Late Data

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NATIONAL GEOPHYSICAL DATA CENTER
Michael A. Chinnery, Director
Boulder, Colorado

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NUMBER 526

(Issued in Two Parts)

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C O N T E N T S

PART I (PROMPT REPORTS)

PART II (COMPREHENSIVE REPORTS)

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C O N T E N T S

Prompt Reports DATA FOR MAY 1988 Number 526 Part I

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — MAY 1988

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
122	01	30	079	103	008	S19 W27	0	0	0	01	S19 W27	Q	Solquiet, Magquiet.
						S19 W03	0	0	0		S19 W03	E	
						S22 W34	0	0	0		S22 W34	Q	
						S19 E72	2	0	0		S19 E72	E	
						S20 W08	1	0	0		S20 W08	E	
123	02	01	085	107	006	S18 W41	0	0	0	02	S18 W41	Q	Solquiet, Magquiet.
						S18 W19	1	0	0		S18 W19	Q	
						S19 E59	1	0	0		S19 E59	Q	
						S21 W22	2	0	0		S21 W22	Q	
						N20 E56	0	0	0		N20 E56	Q	
						N18 W38	0	0	0		N18 W38	Q	
124	03	02	106	115	007	S19 W54	0	0	0	03	S19 W54	Q	Solquiet, Magquiet
						S17 W33	0	0	0		S17 W33	E	
						S18 E45	1	0	0		S18 E45	Q	
						S22 W36	4	0	0		S22 W36	E	
						N20 E43	0	0	0		N20 E43	Q	
						N17 W51	0	0	0		N17 W51	Q	
						N17 E64	1	0	0		N17 E64	Q	
125	04	03	104	121	004	S18 W67	0	0	0	04	S18 W67	Q	Solquiet, Magquiet.
						S17 W44	4	0	0		S17 W44	Q	
						S19 E31	0	0	0		S19 E31	Q	
						S22 W49	4	0	0		S22 W49	E	
						N18 W64	0	0	0		N18 W64	Q	
						N17 E52	0	0	0		N17 E52	Q	
						N25 E64	0	0	0		N25 E64	Q	
126	05	04	120	125	013	S19 W80	0	0	0	05	S19 W80	Q	Solquiet, Magquiet.
						S18 E16	0	0	0		S18 E16	Q	
						S21 W62	8	0	0		S21 W62	E	
						N18 W76	0	0	0		N18 W76	Q	
						N18 E37	0	0	0		N18 E37	Q	
						N25 E53	0	0	0		N25 E53	Q	
						S28 E74	0	0	0		S28 E74	Q	
						N26 E36	0	0	0		N26 E36	Q	
127	06	05	107	119	016	S20 W91	0	0	0	06	S20 W91	Q	Solquiet, Magalert
						S19 E03	0	0	0		S19 E03	Q	06/07.
						S20 W75	2	0	0		S20 W75	E	
						N16 E24	0	0	0		N17 E24	Q	
						S28 E61	0	0	0		S28 E61	Q	
						N25 E23	0	0	0		N25 E23	Q	
						N17 E62	0	0	0		N17 E62	Q	
128	07	06	097	114	064	S19 W10	0	0	0	07	S19 W10	Q	Solquiet, Magalert
						S21 W85	3	0	0		S21 W85	E	07/XX.
						N17 E12	0	0	0		N17 E12	Q	
						S22 E50	1	0	0		S22 E50	Q	
						N24 E11	0	0	0		N24 E11	E	
						N17 E51	0	0	0		N17 E51	Q	
						N02 W02	0	0	0		N02 W02	Q	

Presto:[2] Boulder Strong Magstorm in progress 06/1500 UT.

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — MAY 1988

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
129	08	07	067	111	007	S19 W23	3	0	0	08	S19 W23	Q	Solquiet, Magnil.
						N18 W02	0	0	0		N18 W02	Q	
						S27 E37	0	0	0		S27 E37	Q	
						N25 W02	1	0	0		N25 W02	E	
						N18 E39	0	0	0		N18 E39	Q	
130	09	08	087	115	012	N20 W09	0	0	0	09	N20 W09	Q	Solquiet, Magquiet.
						S27 E25	0	0	0		S27 E25	Q	
						N25 W15	0	0	0		N25 W15	Q	
						N18 E26	0	0	0		N18 E26	Q	
						S16 E35	2	0	0		S16 E35	E	
						S34 W37	0	0	0		S34 W37	Q	
131	10	09	138	120	010	N21 W22	0	0	0	10	N21 W22	Q	Solquiet, Magquiet.
						S27 E13	0	0	0		S27 E13	Q	
						N25 W28	1	0	0		N25 W28	Q	
						N18 E12	0	0	0		N18 E12	Q	
						S16 E21	3	0	0		S16 E21	E	
						S35 W50	0	0	0		S35 W50	Q	
						S26 W52	0	0	0		S26 W52	Q	
						S12 E08	0	0	0		S12 E08	Q	
						S20 E60	0	0	0		S20 E60	Q	
132	11	10	117	114	014	N20 W35	0	0	0	11	N20 W35	Q	Solquiet, Magquiet.
						N25 W46	0	0	0		N25 W46	Q	
						N18 W01	0	0	0		N18 W01	Q	
						S16 E08	0	0	0		S16 E08	E	
						S27 W66	0	0	0		S27 W66	Q	
						S13 W04	0	0	0		S13 W04	Q	
						S20 E46	0	0	0		S20 E46	Q	
						N12 E38	0	0	0		N12 E38	Q	
133	12	11	122	112	007	N21 W47	0	0	0	12	N21 W47	Q	Solquiet, Magquiet.
						S27 W10	0	0	0		S27 W10	Q	
						N25 W60	1	0	0		N25 W60	Q	
						N19 W14	0	0	0		N19 W14	Q	
						S16 W05	0	0	0		S16 W05	E	
						S27 W80	0	0	0		S27 W80	Q	
						S20 E34	0	0	0		S20 E34	Q	
						N13 E23	0	0	0		N13 E23	Q	
134	13	12	083	109	005	N21 W60	0	0	0	13	N21 W60	Q	Solquiet, Magquiet.
						N24 W72	0	0	0		N24 W72	Q	
						N17 W28	0	0	0		N17 W28	Q	
						S16 W19	0	0	0		S16 W19	Q	
						N13 E10	0	0	0		N13 E10	Q	
						N14 W54	0	0	0		N14 W54	Q	
135	14	13	071	104	003	N22 W72	0	0	0	14	N22 W72	Q	Solquiet, Magquiet.
						N17 W40	0	0	0		N17 W40	Q	
						S16 W32	0	0	0		S16 W32	Q	
						N12 W03	0	0	0		N12 W03	Q	
						N14 W66	0	0	0		N14 W66	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages MAY 1988

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
136	15	14	070	103	005	N17 W54	0	0	0	15	N17 W54	Q	Solquiet, Magquiet.
						S16 W45	1	0	0		S16 W45	Q	
						N08 E65	0	0	0		N08 E65	Q	
						N24 W01	0	0	0		N24 W01	Q	
						N21 E19	0	0	0		N21 E19	Q	
137	16	15	070	101	004	S17 W57	1	0	0	16	S17 W57	Q	Solquiet, Magquiet.
						S18 W16	1	0	0		S18 W16	Q	
						N08 E52	0	0	0		N08 E52	Q	
						N24 W13	0	0	0		N24 W13	Q	
						N22 E05	0	0	0		N22 E05	Q	
138	17	16	079	101	014	S17 W69	2	0	0	17	S17 W69	Q	Solquiet, Magquiet.
						S17 W29	2	0	0		S17 W29	Q	
						N25 W26	0	0	0		N25 W26	Q	
						N22 W10	0	0	0		N22 W10	Q	
						S36 W01	0	0	0		S36 W01	Q	
139	18	17	068	101	029	S18 W81	0	0	0	18	S18 W81	Q	Solquiet, Magquiet.
						S17 W42	5	0	0		S17 W42	Q	
						N24 W39	0	0	0		N24 W39	Q	
						N25 W21	0	0	0		N25 W21	Q	
						S36 W14	0	0	0		S36 W14	Q	
140	19	18	057	104	014	S18 W95	0	0	0	19	S18 W95	Q	Solquiet, Magalert 19/XX.
						S17 W55	4	0	0		S17 W55	Q	
						N25 W51	0	0	0		N25 W51	Q	
						N24 W34	0	0	0		N24 W34	Q	
		Presto:[2] Boulder Tenflare 220 flux units began 17/2004 UT duration 46 minutes.											
141	20	19	030	102	006	S17 W69	1	0	0	20	S17 W69	Q	Solquiet, Magnil.
						N23 W48	0	0	0		N23 W48	Q	
142	21	20	038	104	007	S17 W82	1	0	0	21	S17 W82	Q	Solquiet, Magquiet.
						S20 E61	0	0	0		S20 E61	Q	
						S14 W72	1	0	0		S14 W72	Q	
		Presto: Toyokawa Tenflare 190 flux units began 20/0610 UT duration 10 minutes.											
143	22	21	042	110	010	S20 E46	0	0	0	22	S20 E46	Q	Solquiet, Magquiet.
						S15 W85	4	0	0		S15 W85	Q	
						S23 E83	1	0	0		S23 E83	E	
144	23	22	048	111	007	S19 E32	2	0	0	23	S19 E32	E	Solquiet, Magquiet.
						S24 E65	15	0	0		S24 E65	E	
						S22 E54	0	0	0		S22 E54	Q	
145	24	23	066	119	004	S19 E17	3	0	0	24	S19 E17	Q	Solquiet, Magquiet.
						S25 E53	20	1	0		S25 E53	A	
						S23 E41	3	0	0		S23 E41	Q	
146	25	24	072	117	008	S18 E06	0	0	0	25	S18 E06	Q	Solquiet, Magquiet.
						S25 E40	15	0	0		S25 E40	A	
						S23 E28	0	0	0		S23 E28	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — MAY 1988

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location (°Lat °Long)	Flares Total	M	X	Date of Forecast	Location (°Lat °Long)	Region Forecast[1]	Geoalerts
147	26	25	079	119	006	S17 W08	0	0	0	26	S17 W08	Q	Solalert 26/XX,
						S24 E27	12	0	0		S24 E27	A	Magquiet.
						S22 E16	0	0	0		S22 E16	Q	
		Presto:[2] Sydney Culgoora Type II sweep began 25/2142 UT ended 25/2153 UT.											
148	27	26	103	125	008	S18 W21	0	0	0	27	S18 W21	Q	Solalert 27/28,
						S24 E13	13	2	0		S24 E13	A	Magquiet.
						S22 E03	0	0	0		S22 E03	Q	
						N37 W41	0	0	0		N37 W41	Q	
149	28	27	091	127	002	S23 W00	8	1	0	28	S23 W00	A	Solalert 28/29,
						S22 W11	0	0	0		S22 W11	Q	Magquiet.
		Presto: Toyokawa Tenflare 120 flux units began 27/2345 UT duration 2 minutes.											
150	29	28	103	127	001	S24 W12	11	1	0	29	S24 W12	A	Solalert 29/30,
						S23 W24	0	0	0		S23 W24	Q	Magquiet.
						N27 E01	0	0	0		N27 E01	Q	
151	30	29	116	136	010	S24 W25	10	1	0	30	S24 W25	A	Solalert 30/XX,
						S22 W36	0	0	0		S22 W36	Q	Magquiet.
						N26 W12	0	0	0		N26 W12	Q	
						N26 E75	1	0	0		N26 E75	Q	
						N17 E75	3	0	0		N17 E75	Q	
152	31	30	090	139	012	S24 W37	13	0	0	31	S24 W37	E	Solalert 31/XX,
						S23 W47	0	0	0		S23 W47	Q	Magquiet.
						N28 E71	0	0	0		N28 E71	Q	
						N17 E64	2	0	0		N17 E64	Q	
153	01	31	109	145	009	S24 W49	6	0	0	01	S24 W49	E	Solalert 01/XX,
						S23 W62	0	0	0		S23 W62	Q	Magquiet.
						N27 E56	3	0	0		N27 E56	Q	
						N17 E50	8	0	0		N17 E50	E	
						N38 W19	0	0	0		N38 W19	Q	

[1]Q = quiet, E = eruptive, A = active, P = proton.
[2]Presto message is a rapid report of a major event.

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

Day	Jun 87	Jul	Aug	Sep	Oct	Nov	Dec	Jan 88	Feb	Mar	Apr†	May†
01	15	13	45	33	34	56	17	47	63	68	110	69
02	11	0	47	38	25	57	16	31	68	66	96	84
03	0	0	39	37	31	57	16	25	68	72	94	76
04	0	0	33	38	58	46	15	23	74	77	74	96
05	10	0	31	39	54	47	19	32	58	64	66	97
06	0	0	32	44	48	27	24	40	43	61	62	77
07	0	9	38	56	39	31	34	58	44	65	84	50
08	0	12	45	67	55	43	36	57	46	67	92	63
09	0	13	39	64	50	42	41	62	50	49	115	74
10	0	11	47	59	51	30	34	68	38	36	107	87
11	11	0	56	58	63	28	22	75	26	20	115	65
12	21	0	48	44	53	25	13	67	14	39	118	56
13	14	0	47	25	74	18	20	76	23	53	120	44
14	10	0	49	20	92	23	26	91	28	62	138	37
15	11	13	49	21	101	22	42	90	33	63	145	44
16	12	17	55	24	101	33	40	83	42	74	148	53
17	14	14	46	25	91	46	39	72	35	99	144	54
18	24	17	43	30	86	48	39	68	55	95	137	44
19	13	23	45	35	82	51	28	73	66	105	108	20
20	22	38	51	38	79	49	26	85	51	85	88	23
21	29	67	48	32	61	51	14	78	27	81	79	25
22	38	87	34	23	50	70	24	66	15	76	72	32
23	37	102	39	26	33	83	17	47	13	74	48	41
24	38	92	35	25	22	56	13	44	23	83	30	47
25	38	88	35	12	29	42	25	33	19	92	44	57
26	41	85	34	12	40	47	27	44	15	93	44	63
27	33	77	24	19	70	21	29	54	31	103	36	61
28	41	60	23	22	79	11	28	67	40	109	43	70
29	25	60	13	26	82	20	30	59	52	104	39	74
30	14	62	10	26	85	16	42	56		108	44	83
31		63	20		62		43	57		120		88
Mean	17.4	33.0	38.7	33.9	60.6	39.9	27.1	59.0	40.0	76.2	88.0	59.7

† = preliminary. The yearly mean sunspot number equaled 29.2 in 1987.

Algonquin Radio Observatory — OTTAWA 2800 MHz (10.7 cm) SOLAR FLUX — Adjusted to 1 AU

Day	Jun 87	Jul	Aug	Sep	Oct	Nov	Dec	Jan 88	Feb	Mar	Apr	May
01	77.8	76.0	91.0	85.3*	84.2	99.1	87.6	100.1	105.5	99.8*	127.2	108.8
02	77.9	74.4	89.7	85.5	84.8	105.0	86.5	93.7	104.3	99.1	126.5	113.1*
03	76.4	73.7	87.1	87.5	85.6*	98.0	85.8	101.2	103.6	101.9*	127.6	116.4*
04	77.3	73.2	84.0	89.6	89.2	101.1*	85.1	98.2	103.1	102.6*	122.6	127.4
05	76.1	73.4	81.6	93.5*	90.1	99.2	86.8	99.5	102.6	106.7*	114.6	121.1
06	75.8	73.3	85.2	95.6*	89.5	94.9	85.7	101.7	103.6	107.6	116.8	116.5
07	76.0	74.1	89.5*	99.5*	90.9	94.4	85.3	102.1	105.3	107.3	120.0	112.9
08	77.0	76.1	93.8	101.9	95.0	92.7	88.7	105.6	102.5	104.1*	121.8*	116.7
09	76.8	76.3	94.8	100.9	92.7	90.3	91.2	100.6*	101.0	101.5	121.8*	121.9
10	78.1	76.3	94.0	97.8	101.1	89.2	90.1	100.9	100.2	99.2	127.2	116.4
11	80.7	75.7	99.8*	95.4	100.8*	92.6	91.1	101.7*	99.6	102.9	128.0*	114.6
12	82.1	75.5	100.0	91.1	102.2	92.6	91.5*	107.5*	101.3	103.5	130.6*	111.6
13	82.3	75.1	101.8*	89.7	105.5	92.9	91.1	108.1*	102.9	107.8	134.6	105.9
14	80.6	76.6	102.4	86.8	113.3*	92.3	91.5	113.7	102.6	108.9*	146.3	105.2
15	80.4	78.8	101.3	85.0	117.8I	93.7	92.0*	112.4	100.4	112.6*	143.5	103.4
16	81.3	80.9	102.7	83.5	111.1	95.0	93.4*	121.8*	101.0	114.1*	147.6	103.3
17	81.8	81.5	101.2	84.0	106.0	96.8	92.2	116.4*	106.2	117.4	145.5	103.7
18	82.9	82.5	100.4	82.4	106.5	100.0	90.2	110.9	112.5	116.1	145.3	106.7
19	82.4	85.1	99.0	82.7	100.4	106.6	88.4	114.2	109.0	116.1*	138.5	104.8
20	81.1	93.8	101.2	84.9	95.6	112.2	86.9	112.7	106.5	116.3*	134.9	106.1
21	82.6	95.6	96.6	83.0	89.3	115.3	90.7	111.6	104.7	117.5*	127.6	112.6
22	87.1	102.6*	94.4*	81.3	88.2	117.8	88.1	104.5	102.5	117.6	120.1	114.0
23	87.5	115.6	91.8	80.4	87.0	115.1	88.2	104.7	100.2	120.9*	111.5	122.2
24	89.1	115.0	89.6	80.3	87.1	109.4	89.9	102.2	99.6	123.0*	105.6	119.8
25	86.3	114.9	89.9	77.9	92.3	104.9	96.2*	94.9	96.4	128.5*	106.7	123.8*
26	84.3	109.8*	87.3	76.4	96.9	101.3	96.8*	93.5	96.7	127.5*	103.8	127.8
27	78.9	105.4	85.1	80.2	105.9	94.9	101.4	101.6	96.3	128.0*	101.9	130.0
28	79.2	102.5	81.3	82.3	106.2	92.3	102.5	103.0	97.1	129.8	101.6	130.1
29	76.6	97.3	79.9	83.5	102.7	90.7	101.4	99.1	103.3	131.7	102.1	140.2
30	75.9H	94.0	78.5	81.9	104.2	89.1	99.2	100.1		128.3	104.8	142.8
31		91.9	83.2		97.8		99.7	103.1		130.6*		153.6*
Mean	80.4	87.0	92.2	87.0	97.4	99.0	91.5	104.6	102.4	113.8	123.6	117.9

* = corrected for burst in progress; H = measured at Penticton; I = 1700 UT calibration taken at 1915 UT.
The yearly mean flux equaled 85.3 in 1987.

DAILY SOLAR INDICES

May 1988

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers Int	Amer	Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit — SGMR (15400)	SGMR (8800)	SGMR (4995)	Ottawa (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
01	122	11	69	64	107.1	542	234	137	108.8	108	75	55	24	21
02	123	12	84	81	111.3*	562	---	129	113.1*	115	76	54	23	19
03	124	13	76	80	114.5*	572	254	153	116.4*	121	80	50	23	17
04	125	14	96	91	125.3	569	255	161	127.4	123	83	48	27	13
05	126	15	97	93	119.0	584	251	155	121.1	121	83	47	25	13
06	127	16	77	71	114.4	577	247	149	116.5	111	82	47	26	--
07	128	17	50	55	110.8	591	252	145	112.9	109	82	49	27	15
08	129	18	63	65	114.5	598	249	148	116.7	111	84	55	27	17
09	130	19	74	100	119.6	586	251	151	121.9	119	86	59	27	16
10	131	20	87	92	114.1	524	243	146	116.4	113	84	53	25	18
11	132	21	65	74	112.3	500	206	125	114.6	110	81	41	24	15
12	133	22	56	61	109.3	586	246	143	111.6	108	82	46	25	16
13	134	23	44	57	103.7	574	242	139	105.9	104	77	53	25	15
14	135	24	37	51	102.9	581	239	139	105.2	102	75	48	25	15
15	136	25	44	59	101.1	578	239	139	103.4	100	72	50	25	18
16	137	26	53	65	101.0	572	239	137	103.3	100	70	50	25	28
17	138	27	54	55	101.3	573	242	139	103.7	101	71	47	26	32
18	139	1	44	51	104.2	572	235	140	106.7	104	72	43	40	20
19	140	2	20	18	102.3	480	225	133	104.8	101	68	50	26	21
20	141	3	23	34	103.6	527	248	143	106.1	104	72	47	25	23
21	142	4	25	37	109.9	---	---	---	112.6	---	--	--	--	--
22	143	5	32	34	111.2	596	249	146	114.0	110	77	42	26	23
23	144	6	41	51	119.2	593	244	152	122.2	115	82	51	25	15
24	145	7	47	56	116.8	582	248	154	119.8	117	84	40	20	18
25	146	8	57	58	120.6*	396	228	147	123.8*	122	84	48	26	13
26	147	9	63	77	124.5	587	249	160	127.8	125	85	51	26	17
27	148	10	61	75	126.6	584	251	160	130.0	125	88	49	27	39
28	149	11	70	83	126.6	574	241	158	130.1	126	90	49	27	30
29	150	12	74	88	136.4	592	257	172	140.2	133	94	47	28	26
30	151	13	83	90	138.9	556	244	170	142.8	139	92	55	27	18
31	152	14	88	90	149.4*	608	266	181	153.6*	146	96	55	28	17
Mean			59.7	66.3	115.2	564	244	148	117.9	115	81	49	26	20

All sunspot numbers shown above are preliminary values.

The observed and the adjusted Ottawa fluxes tabulated here are the "Series C" daily values reported by the Algonquin Radio Observatory in Ottawa, Ontario, Canada. Numbers in parentheses in the column headings denote frequencies in MHz. Qualifiers after an entry have the following meaning:

* = corrected for burst in progress

Equipment problems produced any gaps shown above in the observations from the Air Weather Service's Sagamore Hill site at South Hamilton, Massachusetts.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

MAY 1988

Date	RELATIVE SUNSPOT NUMBERS: International (R_i) Monthly Mean	International (R_i) Smoothed	American (R_a) Monthly Mean	American (R_a) Smoothed	Derived (R_s) Monthly Mean	Derived (R_s) Smoothed	2800 MHz RADIO FLUX Adjusted to 1 AU (S_a) Monthly Mean	2800 MHz RADIO FLUX Adjusted to 1 AU (S_a) Smoothed
Jul 84	37.4	44	36.2	42	37.6	39	92.2	99
Aug	25.5	40	24.5	38	30.7	41	85.8	95
Sep	15.7	34	13.6	32	23.2	35	78.9	90
Oct	12.0	29	9.8	27	16.9	31	73.1	86
Nov	22.8	25	19.4	23	18.6	26	74.6	72
Dec	18.7	22	17.0	20	17.4	23	73.5	79
Jan 85	16.5	20	14.5	19	15.9	21	72.1	77
Feb	15.9	20	16.3	18	15.7	20	71.9	76
Mar	17.2	19	11.8	16	16.3	19	72.5	75
Apr	16.2	18	17.1	17	19.8	19	75.7	75
May	27.5	18	24.0	17	26.6	19	82.0	75
Jun	24.2	18	22.2	16	22.8	19	78.5	75
Jul	30.7	17	30.8	16	25.8	19	81.3	75
Aug	11.1	17	10.7	15	17.2	19	73.3	75
Sep	3.9	17	3.4	16	13.8	20	70.2	76
Oct	18.6	17	16.5	16	18.1	20	74.2	76
Nov	16.2	17	16.4	15	16.4	19	72.6	75
Dec	17.3	15	10.1	14	16.2	19	72.4	75
Jan 86	2.5	14	2.3	12	14.6	18	70.9	74
Feb	23.2	13	23.8	11	26.0	17	81.5	74
Mar	15.1	13	12.5	11	20.3	17	76.2	73
Apr	18.5	14	13.8	12	19.6	18	75.6	74
May	13.7	14	11.6	12	18.1	18	74.2	74
Jun	1.1	14	0.8	11	13.3	18	69.7	74
Jul	18.1	14	17.7	11	16.3	18	72.5	74
Aug	7.4	13	7.6	11	13.7	17	70.1	73
Sep	3.8	12	3.5	10	13.0	17	69.4	73
Oct	35.4	13	19.8	11	27.0	17	82.4	73
Nov	15.2	15	14.7	13	19.5	18	75.5	74
Dec	6.8	16	5.1	14	14.0	19	70.4	75
Jan 87	10.4	18	9.4	16	13.8	20	70.2	76
Feb	2.4	20	3.0	18	13.4	22	69.8	78
Mar	14.7	22	13.3	20	17.2	24	73.3	80
Apr	39.6	24	39.4	23	30.3	25	85.5	81
May	33.0	26	30.7	26	35.0	27	89.8	83
Jun	17.4	28	18.0	28	24.8	29	80.4	84
Jul	33.0	31	34.3	31	32.0	32	87.0	87
Aug	38.7	35	39.0	34	37.6	35	92.2	89
Sep	33.9	39	34.0	38	32.0	38	87.0	93
Oct	60.6	44*	55.8	43	43.2	41	97.4	96
Nov	39.9	47*	42.5	47*	44.9	44	99.0	99
Dec	27.1	53(2)*	26.7	54	36.8	50	91.5	--
Jan 88	59.0	60(5)*	56.8	60	51.0	56	104.6	--
Feb	40.0	66(8)*	39.1	66	48.6	62	102.4	--
Mar	76.2	71(12)*	77.5	72	60.9	67	113.8	--
Apr	88.0*	77(15)*	90.9	78	71.5	73	123.6	--
May	59.7*	83(17)*	66.3*	84	65.3	79	117.9	--
Jun	----	89(20)*	----	90	----	84	----	--
Jul	----	96(24)*	----	97	----	92	----	--
Aug	----	104(28)*	----	105	----	99	----	--
Sep	----	111(31)*	----	111	----	105	----	--
Oct	----	116(35)*	----	117	----	111	----	--
Nov	----	121(39)*	----	122	----	115	----	--

*An asterisk marks either a preliminary value or one based in part on preliminary observations.

Underlined entries indicate predicted values and parentheses enclose the absolute value of the 90% confidence limits. The two columns headed "Derived" represent a sunspot number computed from a linear regression equation between the 2800 MHz solar flux (adjusted to 1 astronomical unit) and the Zurich sunspot number.

SMOOTHED (OBSERVED AND PREDICTED) SUNSPOT NUMBERS: CYCLES 21 AND 22

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	138
1982	137	133	129	124	120	117	115	109	101	96	95	95
1983	93	90	86	82	77	71	66	66	68	68	67	64
1984	60	56	53	50	48	47	44	40	34	29	25	22
1985	21	20	19	18	18	18	17	17	17	17	17	15
1986	14	13	13	14	14	14	14	13	12*	13	15	16
1987	18	20	22	24	27	28	31	35	39	44	47	53
												(2)
1988	60	66	71	77	83	89	96	104	111	116	121	125
	(5)	(8)	(12)	(15)	(17)	(20)	(24)	(28)	(31)	(35)	(39)	(42)
1989	128	133	142	150	157	163	167	170	177	183	185	185
	(42)	(41)	(40)	(40)	(41)	(43)	(44)	(46)	(49)	(50)	(51)	(54)
1990	184	183	180	173	166	161	158	155	147	139	131	127
	(57)	(60)	(61)	(60)	(57)	(53)	(51)	(52)	(50)	(46)	(42)	(37)

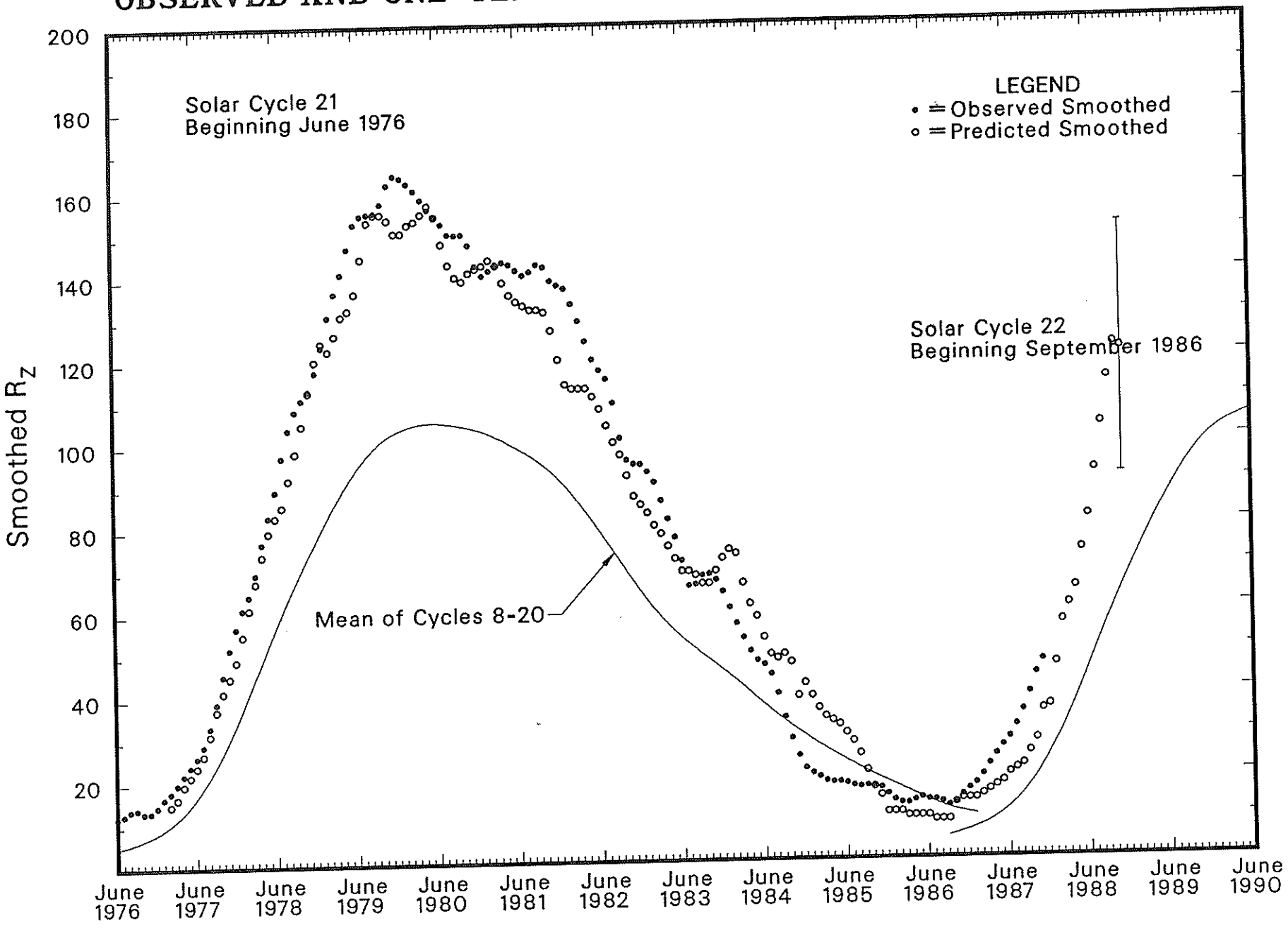
*September 1986 marks the onset of Sunspot Cycle 22.

For the end of Solar Cycle 21, and the beginning of 22, the table gives observed smoothed sunspot numbers up to the one calculated from the most recently available monthly mean. These smoothed observed values are based on final, monthly means through March 1988 and on provisional numbers thereafter.

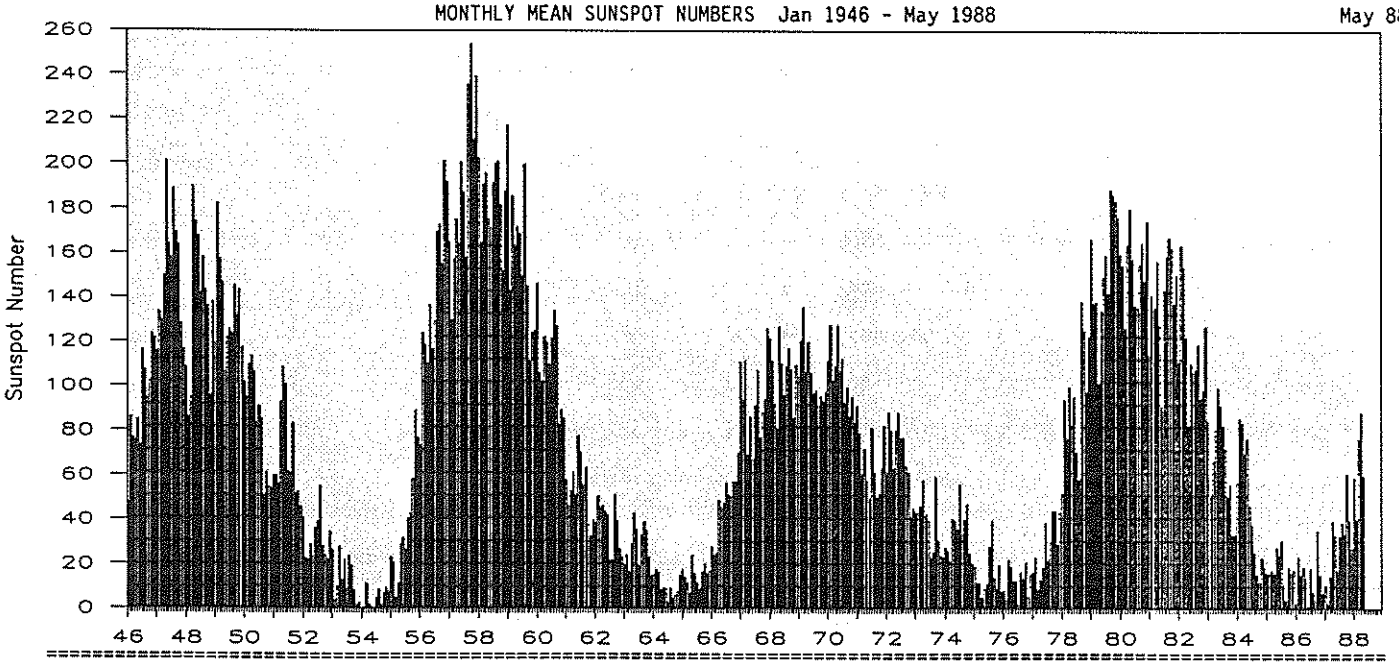
Table entries, with numbers in parentheses below them, denote predictions by the McNish-Lincoln method. (See page 9 in the July 1987 supplement to *Solar-Geophysical Data*.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number from the predicted value generates the lower limit. Consider, for example, the November prediction. There exists a 90% chance that in November 1988 the actual smoothed sunspot number will fall somewhere between 82 and 160.

THE MCNISH-LINCOLN PREDICTION METHOD GENERATES USEFUL ESTIMATES OF SMOOTHED, MONTHLY MEAN SUNSPOT NUMBERS FOR NO MORE THAN 12 MONTHS AHEAD. Beyond a year the predictions regress rapidly toward the mean of all 14 cycles used in the computation. Moreover, the method is very sensitive to the data defined as the beginning of the current sunspot 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 September 1986.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SUNSPOT NUMBERS



MONTHLY MEAN SUNSPOT NUMBERS Jan 1946 - May 1988



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	
1946	47.6	86.2	76.6	75.7	84.9	73.5	116.2	107.2	94.4	102.3	123.8	121.7	92.6	
1947	115.7	133.4	129.8	149.8	201.3	163.9	157.9	188.8	169.4	163.6	128.0	116.5	151.6	M
1948	108.5	86.1	94.8	189.7	174.0	167.8	142.2	157.9	143.3	136.3	95.8	138.0	136.3	
1949	119.1	182.3	157.5	147.0	106.2	121.7	125.8	123.8	145.3	131.6	143.5	117.6	134.7	
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	29.2	
1988	59.0	40.0	76.2	88.0*	59.7*								64.6*	

*Preliminary

For the yearly means, each "M" marks a sunspot cycle maximum and each "m" a minimum.

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Grp #	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 Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
0001	RAMY	01	1143	1143	1150	S20	E67	5004	05	6.6	7	SF		3	E		10		
0002	HOLL	01	2123	2125	2147	S22	W22	5005	04	30.2	24	SF		2	E		35		
0003	HOLL	01	Z124	2124	2142	S18	W14	5002	04	30.8	18	SF		2	E		15		
0004	RAMY	01	2209	2209	2220	S22	W22	5005	04	30.2	11	SF		3	E		15		
0005	YUNN	02	0123	0133	0153	S20	W26	5005	04	30.1	30	SF			C		80	1.0	
0006	YUNN	02	0311	0316	0321	S21	E66	5004	05	7.2	10	SN			C		24		
0007	SVTO	02	0944	0945	0955	S25	W27	5005	04	30.3	11	SF		3	E		20		
0008	RAMY	02	1205	1205	1215	S22	W26	5005	04	30.5	10	SF		3	E		11		
0009		02	13511	13541	1418	S22	W31	5005	04	30.2	27	SF	C 1.2				30		F
	RAMY	02	1351	1354	1416	S21	W31	5005	04	30.2	25	SF	C 1.2	3	E		38		
	SVTO	02	1351	1354	1428	S23	W30	5005	04	30.3	37	SF	C 1.2	3	E		19		F
	HOLL	02	1352	1355	1409	S22	W31	5005	04	30.2	17	SF	C 1.2	3	E		32		
0010	HOLL	02	1610	1615	1627	S23	W35	5005	04	30.0	17	SF		3	E		28		
0011	HOLL	02	1654	1658	1703	S19	E50	5004	05	6.5	9	SF		3	E		19		
0012	RAMY	02	2010	2011	2015	N15	E64	5008	05	7.7	5	SF		3	E		15		
0013	HTPR	03	0823E		0830	S22	W36	5002	04	30.6	7D	SF			C	0826	10	0.1	
0014	LEAR	03	0901	0912	0918	S24	W41	5005	04	30.2	17	SF		3	E		18		
0015	RAMY	03	1055	1056	1102	S24	W43	5005	04	30.1	7	SF		3	E		27		
0016	RAMY	03	1133	1135	1140	S20	W40	5005	04	30.4	7	SF		3	E		14		
0017	HOLL	03	1433	1436	1454	S22	W40	5002	04	30.5	21	SF		3	E		17		
0018		03	15361	15396	1615	S20	W40	5002	04	30.6	39	1F	C 5.0				116		F
	RAMY	03	1536	1545	1607	S20	W40	5002	04	30.6	31	1F	C 5.0	3	E		123		F
	HOLL	03	1537	1539	1623	S20	W39	5002	04	30.7	46	1F	C 5.0	3	E		110		F
0019		03	1748*	17576	1818	S20	W39	5002	04	30.7	30	SN	C 3.4				74		F
	HOLL	03	1748	1757	1821	S22	W40	5002	04	30.7	33	SN	C 3.4	3	E		97		F
	RAMY	03	1803	1803	1815	S17	W38	5002	04	30.9	12	SF	C 3.4	3	E		50		
0020	HOLL	03	2216	2255	2314	S22	W50	5005	04	30.1	58	SF		3	E		42		
0021	HOLL	03	2241	2244	2248	S21	W44	5002	04	30.6	7	SF		3	E		14		
0022	LEAR	04	0012	0014	0039	S21	W49	5005	04	30.2	27	SF		3	E		26		
0023		04	02048	02247	0304	S18	W44	5002	04	30.7	60	1N	C 5.1				258	7.2	F
	YUNN	04	0204	0224	0331	S18	W43	5002	04	30.8	87	2N	C 5.1		P		498	7.2	F
	LEAR	04	0212	0231	0238	S18	W45	5002	04	30.7	26	SF	C 5.1	3	E		19		
0024	LEAR	04	0237	0237	0253	S23	W53	5005	04	30.0	16	SF		3	E		17		
0025	LEAR	04	0619	0623	0657	S18	W46	5002	04	30.8	38	SF		3	E		38		
0026	HTPR	04	0621E		0643	N17	W68		04	29.2	22D	SF			C	0624	20	0.3	
0027	HTPR	04	0621E		0644	S22	W54	5005	04	30.1	23D	SF			C	0636	50	0.9	E
0028	LEAR	04	0747	0748	0751	S22	W52	5005	04	30.3	4	SF		3	E		18		
0029	LEAR	04	0852	0858	0905	S22	W53	5005	04	30.3	13	SF	C 3.4	3	E		14		
0030	HOLL	04	1542	1542	1551	S23	W58	5005	04	30.2	9	SF		3	E		12		
0031	HOLL	04	1603	1612	1629	S23	W59	5005	04	30.1	26	SF		3	E		39		

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Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0032	HTPR	05	0657E		0740D	N27	E36		05	8.1	43D	SF			C	0659	59	0.6	E
0033	HTPR	05	0719		0740D	N17	E38		05	8.2	21D	SF			C	0734	60	0.7	E
0034	HOLL	05	1512	1513	1521	S21	W75	5005	04	30.0	9	SF		4	E		29		
0035		05	19443	19462	1958	S22	W74	5005	04	30.1	14	1N	C 8.8				140		
	HOLL	05	1944	1946	2002	S22	W76	5005	04	30.0	18	1N	C 8.8	3	E		138		
	RAMY	05	1947	1948	1955	S22	W72	5005	04	30.3	8	1F	C 8.8	3	E		141		
0036	YUNN	06	0309E	0309U	0319	N25	E25		05	8.1	10D	SN			P	0309	48	0.6	
0037	HTPR	06	0604E		1025D	N25	E23		05	8.0	261D	SF			C	0718	40	0.4	EK
0038	HOLL	06	1435	1438	1442	S18	W87	5005	04	30.0	7	SF		3	E		25		
0039	HOLL	06	1752	1754	1800	S22	W82	5005	04	30.4	8	SF	C 1.3	3	E		31		
0040	HOLL	06	2248	2249	2302	S29	E53	5010	05	11.1	14	SF		3	E		34		F
0041	LEAR	07	0305	0309	0314	S28	E14		05	8.2	9	SF		3	E		12		F
0042	RAMY	07	1140E	1146	1155	N24	W02	5011	05	7.3	15D	SF		3	E		19		F
0043	HOLL	07	2316	2318	2327	S17	E50	5014	05	11.8	11	SF		3	E		20		F
0044	YUNN	08	0645	0646	0708	S28	E38	5010	05	11.2	23	SF			P		32	0.5	D
0045	HOLL	08	2143	2144	2155	S15	E37	5014	05	11.7	12	SF		3	E		25		F
0046	LEAR	09	0435	0435	0445	S19	E33	5014	05	11.7	10	SF		3	E		17		
0047	HOLL	09	1543	1544	1559	S19	E28	5014	05	11.8	16	SF		3	E		20		
0048	HOLL	09	1650	1653	1706	N24	W25	5011	05	7.8	16	SF		3	E		22		
0049	HOLL	09	2014	2015	2030	S16	E24	5014	05	11.7	16	SF		3	E		36		
0050	HTPR	10	0838	0840	0923	N20	W34	5011	05	7.7	45	SF			C	0846	30	0.4	EK
0051	HOLL	11	1817	1817	1827	N24	W56	5011	05	7.4	10	SF	C 1.1	3	E		28		
0052	URUM	12	0516	0520	0525	N25	W62	5011	05	7.4	9	SN			C		48		D
0053	PEKG	14	0721	0725	0729	S18	W36	5014	05	11.6	8	1F			P	0725	168	2.2	C
0054		14	1715	1715	1719	S14	W40	5014	05	11.7	4	SF					11		F
	RAMY	14	1715	1715	1719	S14	W40	5014	05	11.7	4	SF		3	E		11		F
	HOLL	14	1715	1715	1719	S14	W39	5014	05	11.8	4	SF		3	E		11		
0055		15	01137	0115*	0203	S18	W46	5014	05	11.5	50	SN					70	1.9	E
	LEAR	15	0113	0115	0126	S17	W46	5014	05	11.5	13	SF		3	E		15		
	PEKG	15	0120	0155	0240	S18	W45	5014	05	11.6	80	SB			P	0155	126	1.9	E
0056	HOLL	15	2030	2031	2039	S18	W14	5018	05	14.8	9	SF		3	E		12		
0057	HOLL	15	2359	2404	2419	S16	W58	5014	05	11.6	20	SF		3	E		10		
0058	LEAR	16	0021	0026	0040	S16	W58	5014	05	11.6	19	SF		3	E		19		
0059	LEAR	16	0052	0053	0055	N08	E55	5021	05	20.1	3	SF		3	E		26		
0060	HOLL	16	1722	1722U	1730	S18	W26	5018	05	14.7	8	SF		2	E		19		
0061	HOLL	16	1827	1829	1835	S17	W67	5014	05	11.7	8	SF		3	E		22		F
0062	LEAR	16	2324	2328	2417	S17	W30	5018	05	14.7	53	SF		3	E		23		

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Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0063		17	0033	0034*	0046	S18	W31	5018	05	14.7	13	SF					12		H
	LEAR	17	0033	0034	0042	S18	W31	5018	05	14.7	9	SF		3	E		14		
	PALE	17	0047E	0049	0051	S17	W31	5018	05	14.7	4D	SF		2	E		10		H
0064	YUNN	17	0313E	0314	0422	S16	W33	5018	05	14.6	69D	SN			P		64	0.8	E
0065		17	0646	0647	0702	S17	W32	5018	05	14.8	16	SN					44	0.8	D
	BUCA	17	0645E		0710	S16	W31	5018	05	14.9	25D	SB			C	0645	64	0.8	D
	LEAR	17	0646	0647	0654	S18	W33	5018	05	14.8	8	SF		3	E		24		
0066	HTPR	17	1017	1022	1028	S18	W68	5014	05	12.2	11	SF			C	1022	20	0.5	
0067	RAMY	17	1223	1223	1227	S18	W35	5018	05	14.8	4	SF		3	E		16		
0068	HOLL	17	1906	1915	1917	S18	W38	5018	05	14.9	11	SF		3	E		11		F
0069	PALE	18	0139	0139	0143	S18	W41	5018	05	14.9	4	SF		3	E		16		
0070		18	1054	10561	1105	S18	W48	5018	05	14.8	11	SF	C 1.3				44		H
	SVTO	18	1054	1056	1101	S20	W48	5018	05	14.8	7	SF	C 1.3	3	E		24		
	RAMY	18	1054	1057	1109	S17	W48	5018	05	14.8	15	SF	C 1.3	3	E		63		H
0071	RAMY	18	1728	1728	1730	S16	W54	5018	05	14.6	2	SF		3	E		17		
0072	HOLL	19	1823	1826	1842	S18	W65	5018	05	14.8	19	SF		3	E		42		F
0073		20	0610	06141	0623	S23	E90	5027	05	27.2	13	1B					413		A
	HTPR	20	0610	0615	0627	S24	E90	5027	05	27.2	17	SN			C	0615	30		A
	ATHN	20	0614E	0614	0619	S22	E90	5027	05	27.2	5D	2B			V	0614	796		
0074	HTPR	20	0718	0730	0748	S24	E90	5027	05	27.2	30	1B			C	0730	120		A
0075	HTPR	20	1207	1210	1213	S20	E67	5025	05	25.6	6	SF			C	1210	30	0.7	
0076	HTPR	20	1400	1404	1420	N25	W71		05	15.1	20	SN			C	1404	20	0.5	
0077	HTPR	20	1420	1426	1432	S23	E64	5025	05	25.5	12	SF			C	1426	20	0.4	
0078	HTPR	20	1600	1606	1620	N23	W71		05	15.2	20	SF			C	1606	20	0.5	
0079		20	1730*	1737	1740	S24	E90	5027	05	27.7	10	SN					50		
	HTPR	20	1730	1737	1740	S24	E90	5027	05	27.7	10	SN			C	1737	40		
	HTPR	20	1747		1755D	S24	E90	5027	05	27.7	8D	SN			C	1753	60		
0080	HOLL	20	1853	1854	1858	S19	W78	5018	05	14.8	5	SF		3	E		18		
0081	HOLL	20	2354	2358	2403	S15	W71	5026	05	15.6	9	SF		3	E		26		
0082	SVTO	21	0415E	0418U	0435D	S16	W74	5026	05	15.6	20D	SF		1	E		25		H
0083	HTPR	21	0540E		0605	S25	E90	5027	05	28.2	25D	SN			C	0556	100		AE
0084	HTPR	21	0616		0726D	S15	W78	5026	05	15.3	70D	SN			C	0708	30		E
0085	HTPR	21	0700		0726D	N27	W90		05	14.3	26D	SN			C	0710	40		A
0086	HTPR	21	1210E		1401D	S15	W78	5026	05	15.6	111D	SB			C	1242	50		ET
0087		21	1321E	1338	1342	S15	W81	5026	05	15.4	21D	SF					21		
	HOLL	21	1321E	1322U	1343	S16	W78	5026	05	15.6	22D	SF		3	E		25		
	RAMY	21	1327E	1338	1342	S14	W84	5026	05	15.2	15D	SF		3	E		17		
0088		21	1418*	15201	1612	S15	W80	5026	05	15.5	114	SN					30		
	HTPR	21	1418		1545D	S15	W79	5026	05	15.6	87D	SN			C	1506	30		
	HOLL	21	1517	1521	1539	S16	W79	5026	05	15.6	22	SF		4	E		22		
	RAMY	21	1520	1520	1609D	S15	W85	5026	05	15.2	49D	SF		3	E		19		
	HTPR	21	1548E		1645	S15	W79	5026	05	15.7	57D	SB			C	1610	50		
0089	HTPR	21	1519	1520	1531	S22	E55	5025	05	25.9	12	SB			C	1520	20	0.3	

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Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0090	HTPR	21	1652	1701	1706	S17	E52	5025	05	25.6	14	SF			C	1701	20	0.3	E
0091		21	1728*	1804	1808	S23	E85	5027	05	28.3	40	SN					41		AE
	HTPR	21	1728		1812D	S23	E90	5027	05	28.7	44D	SN			C	1800	30		A
	HTPR	21	1756		1812D	S22	E80	5027	05	27.9	16D	SN			C	1803	60		E
	PALE	21	1801	1804	1808	S23	E85	5027	05	28.3	7	SF		3	E		34		
0092	HOLL	21	1859	1859	1905	S15	W90	5026	05	15.0	6	SF	C 3.8	3	E		18		
0093	HOLL	22	0015	0016	0019	S15	W82	5026	05	15.8	4	SF		4	E		34		
0094	LEAR	22	0109	0112	0127	S28	E82	5027	05	28.4	18	SF		3	E		26		
0095	PALE	22	0137	0147	0202	S19	E45	5025	05	25.5	25	SF	C 1.4	3	E		50		
0096	PALE	22	0219	0227	0229	S26	E77	5027	05	28.1	10	SF		3	E		82		
0097		22	0300*	0307*	0336	S24	E75	5027	05	27.9	36	SF					38		A
	YUNN	22	0300	0307	0315D	S26	E76	5027	05	28.0	15D	SN			P		64		A
	LEAR	22	0300	0314	0321	S27	E78	5027	05	28.2	21	SF		3	E		30		
	PALE	22	0303E	0335	0414D	S24	E72	5027	05	27.7	71D	SF		3	E		37		
	LEAR	22	0335	0342	0350	S21	E75	5027	05	27.9	15	SF		3	E		21		
0098		22	0325	03276	0405	S22	E48	5025	05	25.8	40	SF	C 1.8				34		F
	LEAR	22	0325	0327	0405	S23	E51	5025	05	26.1	40	SF	C 1.8	3	E		23		F
	PALE	22	0332E	0333	0405	S20	E46	5025	05	25.7	33D	SF	C 1.8	3	E		45		
0099	LEAR	22	0423	0429	0437	S21	E74	5027	05	27.8	14	SF		3	E		28		
0100	LEAR	22	0428	0429	0435	S15	W70	5026	05	16.9	7	SF		3	E		19		
0101	LEAR	22	0558	0559	0604	S25	E74	5027	05	28.0	6	SF		3	E		24		
0102	LEAR	22	0644	0645	0649	S25	E74	5027	05	28.0	5	SF		3	E		15		
0103	SVTO	22	1101	1106	1120	S24	E74	5027	05	28.2	19	1F	C 4.6	3	E		115		
0104	HOLL	22	1613	1615	1622	S25	E67	5027	05	27.9	9	SF	C 1.2	3	E		21		
0105	HOLL	22	1916	1919	1923	S27	E72	5027	05	28.4	7	SF		3	E		22		F
0106		22	1944	19442	2002	S26	E68	5027	05	28.1	18	SF					20		F
	PALE	22	1944	1944	2004	S26	E67	5027	05	28.0	20	SF		3	E		29		F
	HOLL	22	1944	1946	1959	S25	E68	5027	05	28.1	15	SF		4	E		12		F
0107		22	20281	20297	2042	S26	E68	5027	05	28.1	14	SF					22		F
	HOLL	22	2028	2029	2043	S26	E71	5027	05	28.4	15	SF		4	E		27		F
	PALE	22	2029	2036	2040	S25	E66	5027	05	28.0	11	SF		3	E		17		
0108	HOLL	22	2114	2114	2122	S27	E70	5027	05	28.3	8	SF		3	E		20		
0109	HOLL	22	2210	2212	2218	S24	E69	5027	05	28.2	8	SF		3	E		51		F
0110		22	23492	23501	2354	S25	E68	5027	05	28.3	5	SF					26		
	HOLL	22	2349	2350	2355	S25	E68	5027	05	28.3	6	SF		3	E		23		
	PALE	22	2351	2351	2353	S25	E67	5027	05	28.2	2	SF		3	E		29		
0111	HOLL	23	0032	0032	0043	S19	E36	5025	05	25.8	11	SF		3	E		13		F
0112	HOLL	23	0033	0043	0046	S22	E64	5027	05	27.9	13	SF		3	E		19		F
0113		23	0056*	0107*	0121	S26	E64	5027	05	28.0	25	SF					14		F
	HOLL	23	0056	0107	0117	S25	E68	5027	05	28.3	21	SF		3	E		17		
	PALE	23	0100	0108	0113	S26	E62	5027	05	27.8	13	SF		3	E		11		F
	LEAR	23	0109	0109	0131	S27	E62	5027	05	27.9	22	SF		3	E		16		
	PALE	23	0118	0121	0123	S25	E63	5027	05	27.9	5	SF		3	E		12		

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Grp #	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 Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
0114		23	0136*	0200*	0228	S26	E63	5027	05	28.0	52	SF					26		
	LEAR	23	0136	0200	0213	S27	E66	5027	05	28.2	37	SF		3	E		28		
	PALE	23	0136	0227	0231	S25	E61	5027	05	27.8	55	SF		3	E		19		
	LEAR	23	0226	0227	0239	S26	E62	5027	05	27.9	13	SF		3	E		32		
0115		23	02531	03001	0326	S24	E60	5027	05	27.7	33	SF	C 8.6				50		F
	LEAR	23	0253	0301	0327	S24	E60	5027	05	27.7	34	SF	C 8.6	3	E		62		F
	PALE	23	0254	0300	0326	S23	E60	5027	05	27.7	32	SF	C 8.6	3	E		37		F
0116	LEAR	23	0309	0314	0318	S23	E52	5028	05	27.1	9	SF		3	E		27		
0117	LEAR	23	0353	0353	0359	S26	E62	5027	05	28.0	6	SF		3	E		35		
0118	PALE	23	0414	0415	0416	S25	E59	5027	05	27.7	2	SF		3	E		21		
0119	LEAR	23	0504	0505	0515	S22	E34	5025	05	25.8	11	SF		3	E		14		F
0120		23	0528*	0531*	0612	S24	E63	5027	05	28.1	44	SN	C 7.9				74		F
	LEAR	23	0528	0532	0640	S27	E61	5027	05	28.0	72	1N	C 7.9	3	E		101		
	SVTO	23	0530	0531	0548	S24	E62	5027	05	28.0	18	SN	C 7.9	3	E		58		F
	SVTO	23	0554	0600	0607	S22	E65	5027	05	28.2	13	SF		3	E		64		F
0121		23	05376	05452	0602	S20	E32	5025	05	25.7	25	SF					26		F
	LEAR	23	0537	0547	0606	S21	E32	5025	05	25.7	29	SF		3	E		35		F
	SVTO	23	0543	0545	0558	S19	E33	5025	05	25.7	15	SF		3	E		16		
0122	LEAR	23	0756	0758	0805	S25	E58	5027	05	27.8	9	SN	C 4.0	3	E		17		
0123		23	08245	08303	0908	S24	E59	5027	05	27.9	44	SN	C 6.6				50		F
	LEAR	23	0824	0833	0908	S25	E58	5027	05	27.8	44	SN	C 6.6	3	E		72		F
	SVTO	23	0829	0830	0846D	S24	E60	5027	05	28.0	17D	SF	C 6.6	2	E		29		
0124		23	11582	1159*	1214	S25	E55	5027	05	27.7	16	SF	M 1.1				75		EF
	RAMY	23	1138E	1140U	1157	S26	E57	5027	05	27.9	19D	SF		2	E		70		F
	RAMY	23	1158	1159	1204	S24	E50	5027	05	27.4	6	SF	M 1.1	3	E		31		
	RAMY	23	1200	1206	1226	S26	E56	5027	05	27.8	26	1N	M 1.1	2	E		118		FE
	SVTO	23	1200	1209	1227	S24	E57	5027	05	27.9	27	SF	M 1.1	3	E		82		F
0125	RAMY	23	1345	1345	1351	S26	E55	5027	05	27.8	6	SF		4	E		11		
0126		23	15061	15094	1526	S23	E48	5028	05	27.3	20	SF	C 3.8				87		FH
	SVTO	23	1506	1513	1525	S21	E49	5028	05	27.4	19	1F		3	E		100		
	HOLL	23	1507	1509	1526	S24	E48	5028	05	27.3	19	SF	C 3.8	3	E		79		FH
	RAMY	23	1507	1509	1526	S24	E48	5028	05	27.3	19	SF	C 3.8	4	E		83		FH
0127		23	1616	1618	1628	S24	E54	5027	05	27.8	12	SF	C 4.3				22		F
	SVTO	23	1616	1618	1625	S23	E55	5027	05	27.9	9	SF	C 4.3	3	E		13		
	RAMY	23	1616	1618	1631	S26	E54	5027	05	27.9	15	SF	C 4.3	3	E		32		F
0128		23	1728*	1734*	1803	S26	E57	5027	05	28.1	35	SF	C 6.4				38		F
	HOLL	23	1728	1734	1752	S24	E54	5027	05	27.9	24	SF	C 6.4	3	E		38		F
	RAMY	23	1728	1734	1813	S27	E59	5027	05	28.3	45	SN	C 6.4	3	E		59		
	HOLL	23	1754	1759	1804	S26	E59	5027	05	28.3	10	SF		3	E		17		F
0129	HOLL	23	1839	1845	1855	S23	E55	5027	05	28.0	16	SF	C 1.7	3	E		22		F
0130	PALE	23	1857	1858	1909	S25	E57	5027	05	28.2	12	SF		3	E		24		
0131	HOLL	23	2009	2009	2014	S24	E56	5027	05	28.2	5	SF		3	E		19		F
0132	HOLL	23	2258	2300	2317	S25	E56	5027	05	28.3	19	SF		3	E		15		F
0133		24	00582	00592	0108	S26	E55	5027	05	28.3	10	SF					16		F
	HOLL	24	0058	0059	0104	S26	E55	5027	05	28.3	6	SF		3	E		17		F
	PALE	24	0100	0101	0112	S27	E55	5027	05	28.3	12	SF		3	E		15		
0134	PALE	24	0129	0129	0133	S26	E52	5027	05	28.1	4	SF		3	E		14		

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Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0135		24	0327*	0334*	0345	S26	E51	5027	05	28.1	18	SF					68		F
	PALE	24	0327	0334	0338	S26	E51	5027	05	28.1	11	SF		3	E		85		F
	PALE	24	0344	0344	0352	S26	E51	5027	05	28.1	8	SF		3	E		52		
0136		24	0550	05502	0600	S27	E55	5027	05	28.5	10	SN	C 2.0				53	1.2	D
	PEKG	24	0550E	0550	0610	S28	E57	5027	05	28.7	20D	SB	C 2.0		P	0550	63	1.2	D
	LEAR	24	0550	0551	0557	S28	E54	5027	05	28.5	7	SN	C 2.0	3	E		33		
	ATHN	24	0550	0552	0554	S26	E55	5027	05	28.5	4	SF	C 2.0		V	0552	64	1.2	
0137	HTPR	24	0746	0755	0806	S24	E46	5027	05	27.9	20	SN			C	0755	30	0.4	E
0138		24	08084	08191	0854	S25	E46	5027	05	27.9	46	SB	C 4.6				58	1.1	EFI
	HTPR	24	0808	0820	0843	S24	E43	5027	05	27.7	35	SB			C	0820	80	1.1	EI
	LEAR	24	0812	0819	0906	S26	E49	5027	05	28.1	54	SN	C 4.6	3	E		35		F
0139	HTPR	24	1301	1303	1318	S24	E45	5027	05	28.0	17	SF			C	1303	40	0.6	E
0140		24	13284	13321	1340	S24	E42	5027	05	27.8	12	SN	C 1.5				32	0.9	EF
	HTPR	24	1328	1332	1345	S24	E43	5027	05	27.9	17	SB			C	1332	70	0.9	E
	RAMY	24	1329	1332	1334	S24	E43	5027	05	27.9	5	SF	C 1.5	3	E		13		
	HOLL	24	1332	1333	1341	S24	E41	5027	05	27.7	9	SF	C 1.5	3	E		14		F
0141		24	15123	1515	1524	S23	E45	5027	05	28.1	12	SF					21	0.4	F
	HTPR	24	1512	1515	1520	S24	E46	5027	05	28.2	8	SN			C	1515	30	0.4	
	HOLL	24	1515	1515	1524	S19	E43	5027	05	27.9	9	SF		3	E		20		
	HOLL	24	1515	1515	1528	S26	E47	5027	05	28.3	13	SF		3	E		14		F
0142	HTPR	24	1637	1644	1658	S24	E43	5027	05	28.0	21	SF			C	1644	60	0.8	E
0143	PALE	24	1922	1933	1937	S26	E44	5027	05	28.2	15	SF		3	E		21		F
0144	PALE	24	2140E	2140	2149	S26	E42	5027	05	28.2	9D	SF		3	E		18		
0145		24	22312	22331	2238	S24	E37	5027	05	27.8	7	SF	C 2.1				17		F
	PALE	24	2231	2233	2237	S25	E36	5027	05	27.7	6	SF	C 2.1	4	E		20		F
	HOLL	24	2233	2234	2238	S24	E38	5027	05	27.9	5	SF	C 2.1	3	E		14		
0146	HOLL	24	2303	2309	2317	S24	E39	5027	05	28.0	14	SF	C 1.0	3	E		22		F
0147	LEAR	24	2346	2354	2356	S24	E39	5027	05	28.0	10	SF		3	E		21		
0148		25	00345	0043	0048	S26	E41	5027	05	28.2	14	SF					42		E
	PALE	25	0034	0043	0049	S24	E38	5027	05	27.9	15	SF		3	E		57		E
	HOLL	25	0039	0043	0047	S27	E44	5027	05	28.4	8	SF		3	E		28		
0149		25	01071	01091	0113	S26	E41	5027	05	28.2	6	SF	C 1.0				49	1.7	
	YUNN	25	0107	0109	0110	S26	E42	5027	05	28.3	3	SN	C 1.0		C		113	1.7	
	HOLL	25	0107	0109	0118	S25	E40	5027	05	28.1	11	SF	C 1.0	3	E		21		
	LEAR	25	0108	0110	0111	S26	E41	5027	05	28.2	3	SF	C 1.0	3	E		14		
0150	YUNN	25	0215	0218	0221	S27	E45	5027	05	28.6	6	SN			C		129	2.1	
0151	PALE	25	0327	0327	0330	S24	E36	5027	05	27.9	3	SF	C 1.0	3	E		22		F
0152	LEAR	25	0606	0611	0617	S26	E42	5027	05	28.5	11	SF		3	E		29		
0153		25	0655D		0745	S21	E04	5025	05	25.6	50	SF					40	0.4	E
	HTPR	25	0655D		0740	S20	E03	5025	05	25.5	45	SF			C	0659	40	0.4	E
	HTPR	25	0655E		0750	S22	E06	5025	05	25.7	55D	SF			C	0659	40	0.4	E
0154	HTPR	25	0738	0742	0801	S23	E34	5027	05	27.9	23	SN			C	0742	120	1.5	EI
0155	HTPR	25	1154	1202	1230	S20	E31	5027	05	27.9	36	SN			C	1202	30	0.3	
0156	HTPR	25	1232	1235	1242	S23	E25	5027	05	27.4	10	SF			C	1235	50	0.6	E
0157		25	1305*	1322	1334	S24	E34	5027	05	28.2	29	SN	C 1.1				30	0.4	EI
	HTPR	25	1305		1329D	S23	E31	5027	05	27.9	24D	SN			C	1323	40	0.4	EI
	RAMY	25	1319	1322	1334	S26	E36	5027	05	28.3	15	SF	C 1.1	3	E		19		

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Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp	Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0158	SVTO	25	1354	1355	1359	S25	E34	5027	05	28.2	5	SF	C	2.1	3	E		24		
0159		25	14292	14331	1440	S24	E32	5027	05	28.1	11	SF						16		F
	RAMY	25	1429	1434	1443	S24	E33	5027	05	28.1	14	SF			3	E		19		F
	SVTO	25	1431	1433	1438	S25	E32	5027	05	28.1	7	SF			3	E		12		
0160		25	1509*	1536*	1626	S24	E32	5027	05	28.1	77	SF	C	7.5				49		FH
	HOLL	25	1509	1537	1704	S24	E33	5027	05	28.2	115	SF	C	7.5	3	E		45		FH
	SVTO	25	1510	1536	1544	S25	E33	5027	05	28.2	34	SF	C	7.5	3	E		14		
	RAMY	25	1514	1553	1557D	S24	E31	5027	05	28.0	43D	1F			3	E		100		
	SVTO	25	1548	1556	1629	S25	E31	5027	05	28.1	41	SF			3	E		38		
0161	PALE	25	2108	2109	2120D	S25	E26	5027	05	27.9	12D	SF	C	2.0	3	E		66		E
0162	PALE	25	2153	2209	2239	S27	E28	5027	05	28.1	46	SF	C	2.0	3	E		83		F
0163	PALE	25	2250	2254	2311D	S24	E28	5027	05	28.1	21D	SF	C	3.1	3	E		32		F
0164		25	2350*	2402*	2424	S25	E26	5027	05	28.0	34	SF	C	2.5				23		F
	LEAR	25	2350	2402	2420	S25	E24	5027	05	27.8	30	SN	C	2.5	3	E		32		F
	PALE	26	0005	0006	0009D	S25	E24	5027	05	27.9	4D	SF	C	2.5	3	E		14		F
	HOLL	26	0014	0017	0028	S26	E31	5027	05	28.4	14	SF			2	E		23		
0165		26	00583	01013	0152	S27	E30	5027	05	28.4	54	1N	M	1.0				155	4.3	FU
	YUNN	26	0058	0104	0106D	S27	E30	5027	05	28.4	8D	1B				P		321	4.3	F
	LEAR	26	0100	0101	0150	S28	E30	5027	05	28.4	50	SB	M	1.0	3	E		54		UF
	HOLL	26	0101	0102	0134D	S27	E30	5027	05	28.4	33D	1N	M	1.0	3	E		101		UF
	PALE	26	0108E	0108U	0155	S27	E29	5027	05	28.3	47D	1F	M	1.0	3	E		144		F
0166	YUNN	26	0245	0255	0312	S24	E22	5027	05	27.8	27	SN	C	2.5		C		113	1.4	E
0167		26	0418*	0421*	0446	S26	E26	5027	05	28.2	28	SF						16		F
	LEAR	26	0418	0421	0440	S27	E27	5027	05	28.3	22	SF			3	E		17		
	LEAR	26	0442	0442	0449	S25	E22	5027	05	27.9	7	SF			3	E		17		
	PALE	26	0442	0443	0448	S25	E29	5027	05	28.4	6	SF			2	E		15		F
0168	PEKG	26	0452	0505	0525	S27	E29	5027	05	28.5	33	1N				V	0520	168	2.1	E
0169		26	0540*	0546*	0611	S26	E22	5027	05	27.9	31	SF						49	1.3	D
	SVTO	26	0540	0541U	0610	S25	E12	5027	05	27.2	30	SF			1	E		56		
	SVTO	26	0546	0546	0603	S24	E23	5027	05	28.0	17	SF			3	E		10		
	LEAR	26	0546	0546	0610	S27	E25	5027	05	28.2	24	SF			3	E		26		
	PEKG	26	0550	0558	0620	S28	E26	5027	05	28.3	30	SF				P	0558	105	1.3	D
0170		26	07289	0730	0807	S26	E21	5027	05	27.9	39	SF						25	0.3	EF
	LEAR	26	0728	0730	0807	S26	E23	5027	05	28.1	39	SF			3	E		15		F
	HTPR	26	0731D		0804D	S26	E23	5027	05	28.1	33D	SF				C	0735	20	0.2	
	HTPR	26	0737		0804D	S25	E17	5027	05	27.6	27D	SF				C	0747	40	0.4	E
0171	HTPR	26	1117E		1121	S27	E28	5027	05	28.6	4D	SB				C	1119	50	0.5	
0172	RAMY	26	1156	1200	1202	S24	E18	5027	05	27.9	6	SF			3	E		16		
0173	HTPR	26	1625		1640D	S25	E20	5027	05	28.2	15D	SF				C	1629	40	0.4	E
0174		26	2032*	2035*	2208	S26	E16	5027	05	28.1	96	SF	M	1.1				67		F
	PALE	26	2032	2116	2214	S26	E16	5027	05	28.1	102	1F	M	1.1	3	E		113		F
	RAMY	26	2033	2035	2040D	S25	E16	5027	05	28.1	7D	SF	C	5.3	3	E		45		F
	HOLL	26	2033	2112	2156	S24	E15	5027	05	28.0	83	SN	M	1.1	3	E		95		F
	HOLL	26	2211	2212	2215	S27	E18	5027	05	28.3	4	SF			3	E		14		
0175	PALE	26	2309	2317	2326	S27	E18	5027	05	28.4	17	SF	C	1.0	3	E		35		F
0176	PALE	27	0218	0222	0222D	S25	E13	5027	05	28.1	4D	SF			3	E		17		
0177		27	05391	0545	0615	S26	E14	5027	05	28.3	36	SN	C	5.7				72		
	LEAR	27	0539	0545	0615	S28	E15	5027	05	28.4	36	SN	C	5.7	3	E		87		
	SVTO	27	0540	0541U	0542D	S25	E12	5027	05	28.2	2D	SF	C	5.7	1	E		56		
0178	YUNN	27	0757	0801	0810	S24	E20	5027	05	28.9	13	SN				C		96	1.1	E

H - ALPHA S O L A R F L A R E S

MAY 1988

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0179	RAMY	27	1049	1054	1104	S25	E06	5027	05	27.9	15	SF		3	E		33		
0180	RAMY	27	1126	1134	1258	S26	E13	5027	05	28.5	92	SF	C 7.4	3	E		74		EF
0181		27	13431	13483	1442	S25	E04	5027	05	27.9	59	1B	M 2.0				180		F
	RAMY	27	1343	1348	1450	S25	E05	5027	05	27.9	67	1B	M 2.0	3	E		228		
	HOLL	27	1344	1351	1435	S25	E04	5027	05	27.9	51	1B	M 2.0	3	E		133		F
0182		27	15463	16011	1630	S26	E07	5027	05	28.2	44	SF	C 1.5				28		F
	RAMY	27	1546	1601	1628	S26	E07	5027	05	28.2	42	SF	C 1.5	3	E		29		F
	HOLL	27	1549	1602	1633	S25	E07	5027	05	28.2	44	SF	C 1.5	3	E		28		F
0183		27	18311	18322	1842	S26	E02	5027	05	27.9	11	SF					20		F
	RAMY	27	1831	1832	1846	S26	E01	5027	05	27.8	15	SF		3	E		24		F
	HOLL	27	1832	1834	1839	S25	E03	5027	05	28.0	7	SF		3	E		16		
0184		27	19591	2001	2015	S25	E00	5027	05	27.8	16	SF	C 2.2				45		EF
	HOLL	27	1959	2001	2018	S25	E00	5027	05	27.8	19	SF	C 2.2	3	E		62		F
	PALE	27	2000	2001	2013	S24	E00	5027	05	27.8	13	SF	C 2.2	3	E		44		F
	RAMY	27	2000	2001	2013	S25	E00	5027	05	27.8	13	SF	C 2.2	4	E		28		FE
0185	PEKG	27	2345E	2348	2350	S27	E10	5027	05	28.8	5D	SN			P	2348	147	1.7	D
0186		28	00421	00505	0126	S25	W00	5027	05	28.0	44	1N	M 1.1				228	3.6	EF
	YUNN	28	0042	0050	0127D	S24	E01	5027	05	28.1	45D	1B	M 1.1		P		402	4.5	F
	PEKG	28	0042	0055	0126	S26	W02	5027	05	27.9	44	1B	M 1.1		C	0055	252	2.6	E
	PALE	28	0043	0043U	0053D	S24	E00	5027	05	28.0	10D	SF	M 1.1	3	E		30		F
0187	PALE	28	0247	0247	0250	S25	W04	5027	05	27.8	3	SF		3	E		16		
0188	LEAR	28	0437	0437	0457	S27	E05	5027	05	28.6	20	SF	C 2.5	2	E		17		
0189		28	0751*	0802*	0833	S25	W04	5027	05	28.0	42	SN	C 2.3				91	1.0	DEK
	HTPR	28	0751	0802	0832	S25	W06	5027	05	27.9	41	SB			C	0802	130	1.3	EK
	URUM	28	0752	0805	0815	S25	W08	5027	05	27.7	23	SN			C		64	0.7	D
	SVTO	28	0759E	0824U	0853	S25	W04	5027	05	28.0	54D	SN	C 2.3	3	E		55		
	HTPR	28	0815	0822	0826	S24	W01	5027	05	28.3	11	SB			C	0822	60	0.6	
	URUM	28	0821	0829	0837	S25	W03	5027	05	28.1	16	SN	C 2.3		C		145	1.6	E
0190		28	08596	0900*	0941	S25	W04	5027	05	28.1	42	SN	C 1.4				122	1.6	EU
	SVTO	28	0859	0900	0950	S24	W04	5027	05	28.1	51	SF	C 1.4	3	E		69		U
	URUM	28	0905	0911	0932	S25	W04	5027	05	28.1	27	SN	C 1.4		C		177	2.0	E
	HTPR	28	0921E		0923D	S25	W05	5027	05	28.0	2D	SN			C	0923	120	1.3	E
0191		28	1109	1103*	1146	S25	W05	5027	05	28.1	37	SN	C 2.5				54		EF
	SVTO	28	1102E	1103	1124	S25	W04	5027	05	28.1	22D	SF	C 2.5	3	E		25		
	RAMY	28	1109	1117	1208	S25	W06	5027	05	28.0	59	SN	C 2.5	3	E		84		FE
0192		28	13185	1323	1341	S26	W02	5027	05	28.4	23	SF	C 1.2				49	0.7	EF
	HTPR	28	1318		1329D	S26	E07	5027	05	29.1	11D	SF			C	1323	40	0.4	E
	HTPR	28	1321		1329D	S26	W06	5027	05	28.1	8D	SF			C	1324	90	1.0	E
	RAMY	28	1323	1323	1341	S25	W07	5027	05	28.0	18	SF	C 1.2	3	E		16		F
0193		28	14464	14502	1507	S26	W01	5027	05	28.5	21	SN	C 1.3				51	0.8	EF
	HTPR	28	1446	1450	1459	S26	E06	5027	05	29.1	13	SB			C	1450	100	1.1	E
	HTPR	28	1446	1450	1512	S26	W06	5027	05	28.1	26	SN			C	1450	40	0.4	E
	HOLL	28	1449	1450	1505	S25	W04	5027	05	28.3	16	SN	C 1.3	4	E		41		FE
	SVTO	28	1449	1452	1501	S26	W04	5027	05	28.3	12	SF	C 1.3	3	E		27		
	RAMY	28	1450	1450	1517	S26	E02	5027	05	28.8	27	SB	C 1.3	3	E		45		F
0194		28	16085	1613	1621	S26	W13	5027	05	27.7	13	SF					16	0.2	EF
	HTPR	28	1608		1618D	S26	W15	5027	05	27.5	10D	SF			C	1611	20	0.2	E
	RAMY	28	1613	1613	1621	S26	W11	5027	05	27.8	8	SF		3	E		12		F
0195		28	17491	17493	1758	S24	W08	5027	05	28.1	9	SF					14		F
	PALE	28	1749	1749	1755	S24	W08	5027	05	28.1	6	SF		3	E		11		
	RAMY	28	1749	1752	1802	S25	W07	5027	05	28.2	13	SF		3	E		16		
	HOLL	28	1750	1752	1756	S24	W08	5027	05	28.1	6	SF		3	E		14		F

H - ALPHA SOLAR FLARES

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Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp	Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0196		28	2318	2322	2336	S24	W12	5027	05	28.0	18	SF	C	3.0				31		F
	HOLL	28	2309E	2321U	2340	S24	W13	5027	05	28.0	31D	SF	C	3.0	3	E		34		F
	PALE	28	2318	2322	2332	S24	W12	5027	05	28.0	14	SF	C	3.0	3	E		28		F
0197	HOLL	28	2349	2349	2405	S24	W12	5027	05	28.1	16	SF			3	E		14		F
0198		29	0531*	0537*	0609	S24	W16	5027	05	28.0	38	1B	M	1.0				276	3.8	EH
	SVTO	29	0531	0538	0634	S24	W14	5027	05	28.1	63	1N	M	1.0	3	E		170		H
	URUM	29	0534	0537	0550	S24	W16	5027	05	28.0	16	1B	M	1.0		C		337	3.9	E
	URUM	29	0550	0552	0602	S25	W17	5027	05	27.9	12	1B				C		321	3.8	E
0199	SVTO	29	0642	0644	0646	S27	W10	5027	05	28.5	4	SF			3	E		34		
0200	SVTO	29	0728	0728	0737	S26	W17	5027	05	28.0	9	SF	C	1.0	3	E		20		F
0201	SVTO	29	0909	0911	0952	S25	W15	5027	05	28.2	43	SF	C	2.4	3	E		37		H
0202	RAMY	29	1039	1041	1046	S26	W20	5027	05	27.9	7	SF	C	1.3	3	E		36		
0203	RAMY	29	1247	1249	1256	S26	W22	5027	05	27.8	9	SF			3	E		29		
0204		29	1350	1351	1358	S26	W22	5027	05	27.9	8	SF	C	3.3				48		
	HOLL	29	1350	1351	1357	S26	W22	5027	05	27.9	7	SF	C	3.3	3	E		45		
	RAMY	29	1350	1351	1359	S26	W23	5027	05	27.8	9	SF	C	3.3	3	E		51		
0205	RAMY	29	1413	1414	1509	N14	E85	5032	06	5.0	56	SF			3	E		16		
0206	PALE	29	1731	1736	1744	N18	E79	5032	06	4.7	13	SF			3	E		32		
0207	PALE	29	1750	1757	1808	N18	E79	5032	06	4.7	18	SF			3	E		60		F
0208		29	1835	18353	1842	S25	W18	5027	05	28.4	7	SF	C	1.3				14		
	PALE	29	1835	1835	1840	S24	W21	5027	05	28.1	5	SF	C	1.3	3	E		14		
	HOLL	29	1835	1838	1843	S26	W15	5027	05	28.6	8	SF	C	1.3	3	E		14		
0209	HOLL	29	1933	1933	1942	S23	W25	5027	05	27.9	9	SF			3	E		16		F
0210	HOLL	29	2008	2013	2019	S26	W17	5027	05	28.5	11	SF	C	2.7	3	E		60		HZ
0211	PALE	29	2106	2111	2123D	N24	E78	5031	06	4.9	17D	SF			3	E		59		
0212	YUNN	30	0103	0107	0116	S24	W22	5027	05	28.3	13	1B				C		338	4.1	FT
0213	YUNN	30	0132	0136	0140	S27	W18	5027	05	28.7	8	SB				C		64	0.8	T
0214	YUNN	30	0237	0240	0249	S25	W22	5027	05	28.4	12	1B	C	1.6		C		209	2.5	T
0215		30	04381	04421	0504	S24	W23	5027	05	28.4	26	1N	C	1.9				276	6.1	FHT
	YUNN	30	0438	0443	0445D	S24	W23	5027	05	28.4	7D	2B	C	1.9		P		498	6.1	FT
	SVTO	30	0439	0442	0504	S25	W23	5027	05	28.4	25	SF	C	1.9	3	E		53		FH
0216	SVTO	30	0612	0620	0630	S25	W24	5027	05	28.4	18	SF	C	1.8	3	E		63		
0217	SVTO	30	0847	0847	0853	S25	W28	5027	05	28.2	6	SF	C	2.7	3	E		11		F
0218	SVTO	30	1101	1104	1106	S25	W25	5027	05	28.5	5	SF	C	1.3	3	E		19		
0219		30	1332	1333	1339	S28	W26	5027	05	28.5	7	SF						26		
	SVTO	30	1332	1333	1338	S30	W23	5027	05	28.7	6	SF			3	E		26		
	HOLL	30	1332	1333	1340	S26	W28	5027	05	28.4	8	SF			3	E		26		
0220		30	15013	1510	1525	S25	W30	5027	05	28.3	24	SF	C	2.1				70		FH
	RAMY	30	1501	1510	1527	S24	W32	5027	05	28.1	26	SF	C	2.1	3	E		88		
	HOLL	30	1504	1510	1517	S26	W29	5027	05	28.4	13	SF	C	2.1	3	E		48		FH
	SVTO	30	1504	1510	1532	S26	W28	5027	05	28.4	28	SF	C	2.1	3	E		74		
0221	HOLL	30	1708	1710	1715	S26	W38	5027	05	27.8	7	SF			3	E		13		F

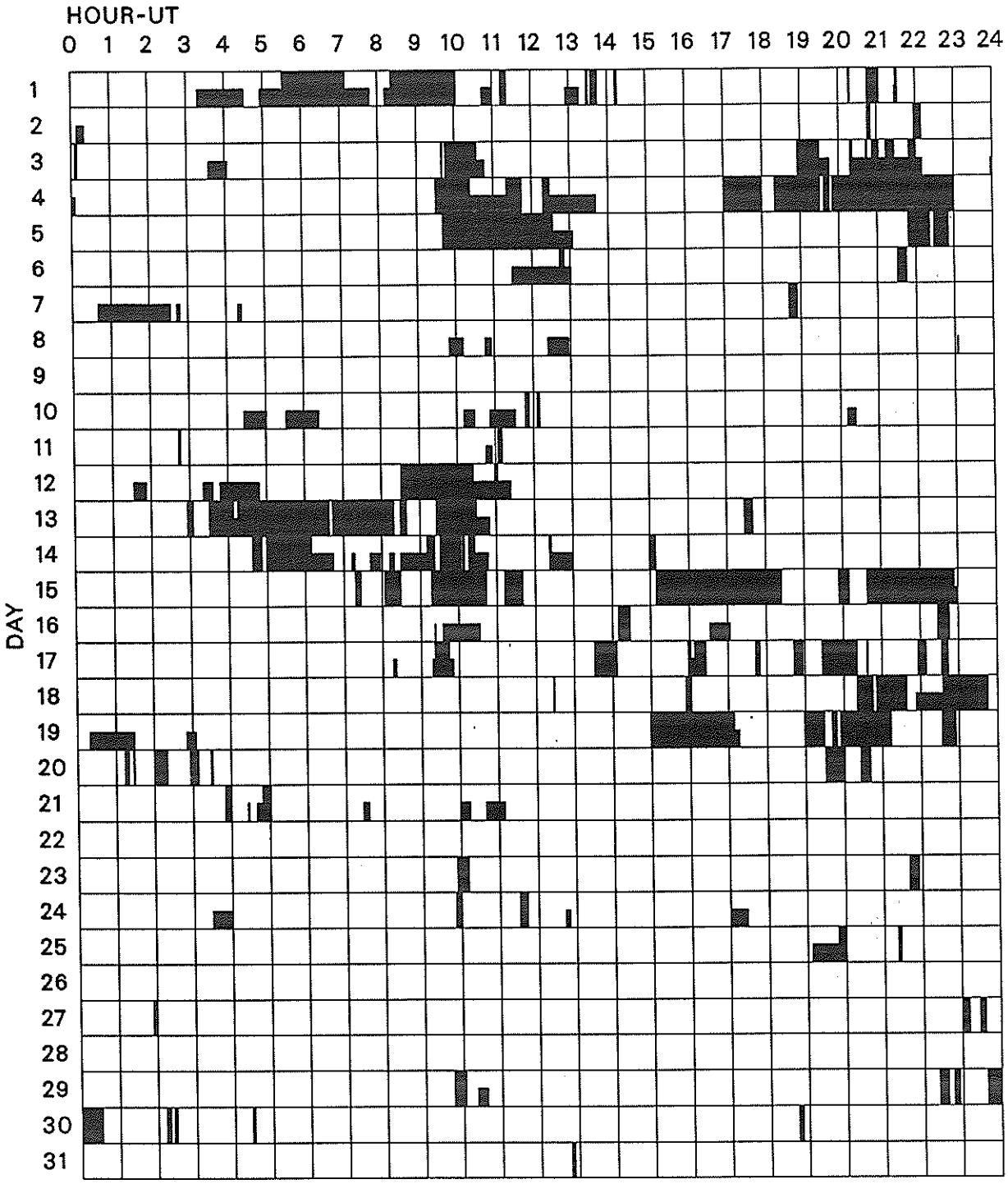
H - ALPHA S O L A R F L A R E S

MAY 1988

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
0222		30	17238	17328	1744	S24	W36	5027	05	27.9	21	SF					20		EF
	HOLL	30	1723	1732	1743	S24	W37	5027	05	27.9	20	SF		3	E		23		F
	PALE	30	1731	1740	1744	S24	W34	5027	05	28.1	13	SF		3	E		17		E
0223		30	17498	18021	1816	S24	W34	5027	05	28.1	27	SF	C 2.9				55		F
	PALE	30	1749	1802	1818	S24	W34	5027	05	28.1	29	SF	C 2.9	3	E		70		F
	HOLL	30	1757	1803	1813	S24	W34	5027	05	28.1	16	SF	C 2.9	3	E		40		F
0224		30	1913	1913	1924	N18	E70	5032	06	5.1	11	SF					18		
	HOLL	30	1913	1913	1923	N18	E71	5032	06	5.2	10	SF		3	E		17		
	PALE	30	1913	1913	1924	N19	E69	5032	06	5.1	11	SF		3	E		19		
0225		30	1947	1955*	2021	S24	W38	5027	05	27.9	34	1N	C 8.9				108		EF
	PALE	30	1947	1955	1956	S24	W35	5027	05	28.1	9	SF		3	E		40		
	PALE	30	1947	2018	2046	S23	W40	5027	05	27.7	59	1N	C 8.9	3	E		176		FE
0226	HOLL	30	2142	2215	2235	S25	W34	5027	05	28.3	53	SF	C 2.7	3	E		50		FH
0227	HOLL	30	2334	2340	2345	N18	E68	5032	06	5.2	11	SF		3	E		19		
0228		31	0018	00261	0052	S25	W40	5027	05	27.9	34	SF	C 5.7				88		F
	LEAR	31	0018	0026	0053	S24	W39	5027	05	28.0	35	SF	C 5.7	3	E		97		
	HOLL	31	0018	0027	0051	S26	W42	5027	05	27.7	33	SF	C 5.7	3	E		79		F
0229	SVTO	31	0820	0826	0844	N17	E62	5032	06	5.0	24	SF		3	E		26		
0230	HTPR	31	0901		0907D	N15	E59	5032	06	4.8	6D	SF			C	0903	50	1.0	E
0231	RAMY	31	1053	1055	1101	S24	W47	5027	05	27.8	8	SF		3	E		17		
0232		31	1043*	1050*	1106	N18	E59	5032	06	4.9	23	SF					44		F
	RAMY	31	1043	1050	1054	N17	E57	5032	06	4.8	11	SF		3	E		54		F
	RAMY	31	1055	1059	1113	N17	E59	5032	06	4.9	18	SF		3	E		56		F
	SVTO	31	1100	1103	1110	N19	E61	5032	06	5.1	10	SF		3	E		21		
0233	RAMY	31	1121	1121	1129	N25	E68	5031	06	5.7	8	SF		3	E		29		
0234	SVTO	31	1138	1140	1145	N19	E60	5032	06	5.1	7	SF		3	E		12		
0235	HOLL	31	1330	1331	1334	N19	E59	5032	06	5.1	4	SF		3	E		20		
0236	HOLL	31	1358	1400	1404	S25	W48	5027	05	27.9	6	SF		3	E		17		F
0237		31	1419*	1420*	1442	S28	W42	5027	05	28.3	23	SF	C 5.4				37		F
	HOLL	31	1419	1420	1442	S24	W42	5027	05	28.3	23	SF	C 5.4	3	E		58		F
	SVTO	31	1435	1435	1442	S32	W42	5027	05	28.3	7	SF	C 5.4	3	E		16		
0238	HOLL	31	1443	1443	1452	N16	E53	5032	06	4.6	9	SF		3	E		14		
0239	HOLL	31	1524	1528	1531	N19	E58	5032	06	5.1	7	SF		3	E		17		
0240	HOLL	31	1616	1627	1633	S24	W49	5027	05	27.9	17	SF		3	E		14		F
0241		31	17358	17462	1804	S24	W46	5027	05	28.2	29	SF					24		F
	RAMY	31	1735	1746	1756	S24	W45	5027	05	28.2	21	SF		3	E		24		F
	HOLL	31	1743	1748	1813	S24	W46	5027	05	28.2	30	SF		3	E		24		F
0242		31	1822*	1825*	1836	N28	E60	5031	06	5.4	14	SF					22		
	RAMY	31	1822	1825	1830	N28	E60	5031	06	5.4	8	SF		3	E		22		
	HOLL	31	1837	1837	1842	N27	E60	5031	06	5.4	5	SF		3	E		22		
0243	HOLL	31	2342	2345	2349	N19	E53	5032	06	5.0	7	SF	C 1.1	3	E		30		

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

MAY 1988



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.

Athens	Haute Provence	Istanbul	Palehua	San Vito
Bucharest	Holloman	Learmonth	Peking	Urumqi
			Ramey	Yunnan

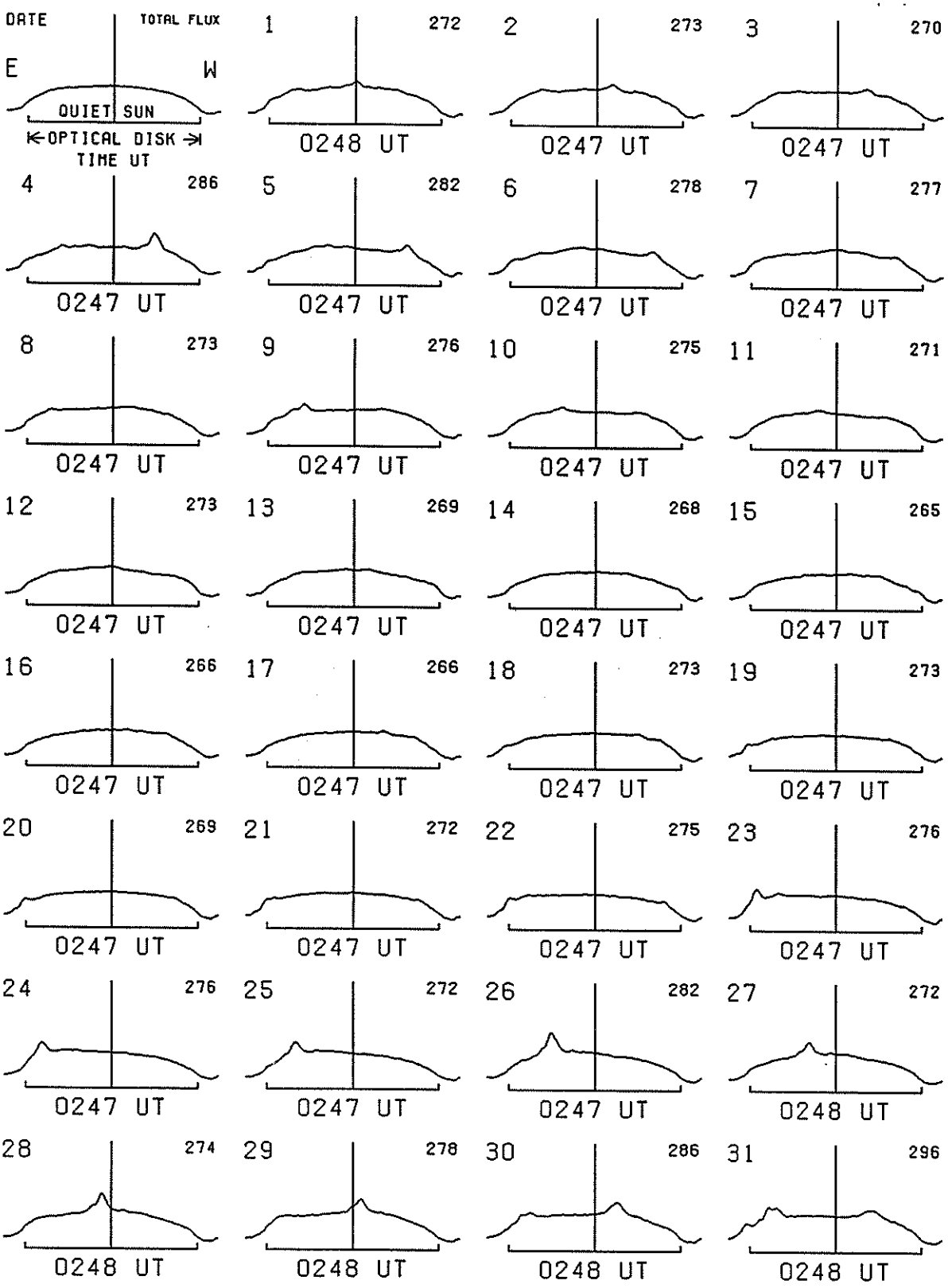
EAST-WEST SOLAR SCANS

25
May 88

MAY 1988

TOYOKAWA, JAPAN

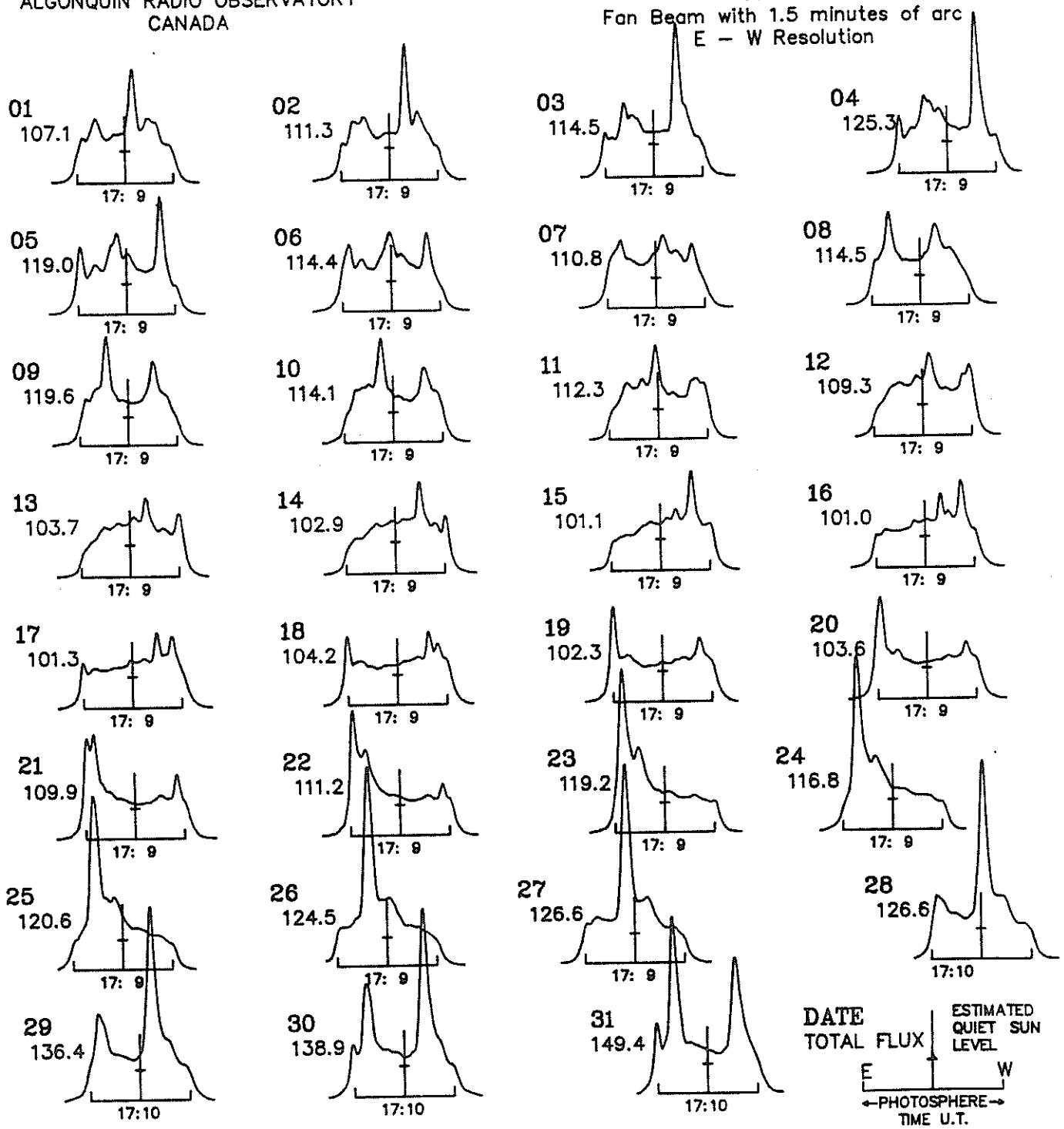
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST – WEST SOLAR SCANS
MAY 1988

ALGONQUIN RADIO OBSERVATORY
CANADA

10.7 cm
Fan Beam with 1.5 minutes of arc
E – W Resolution

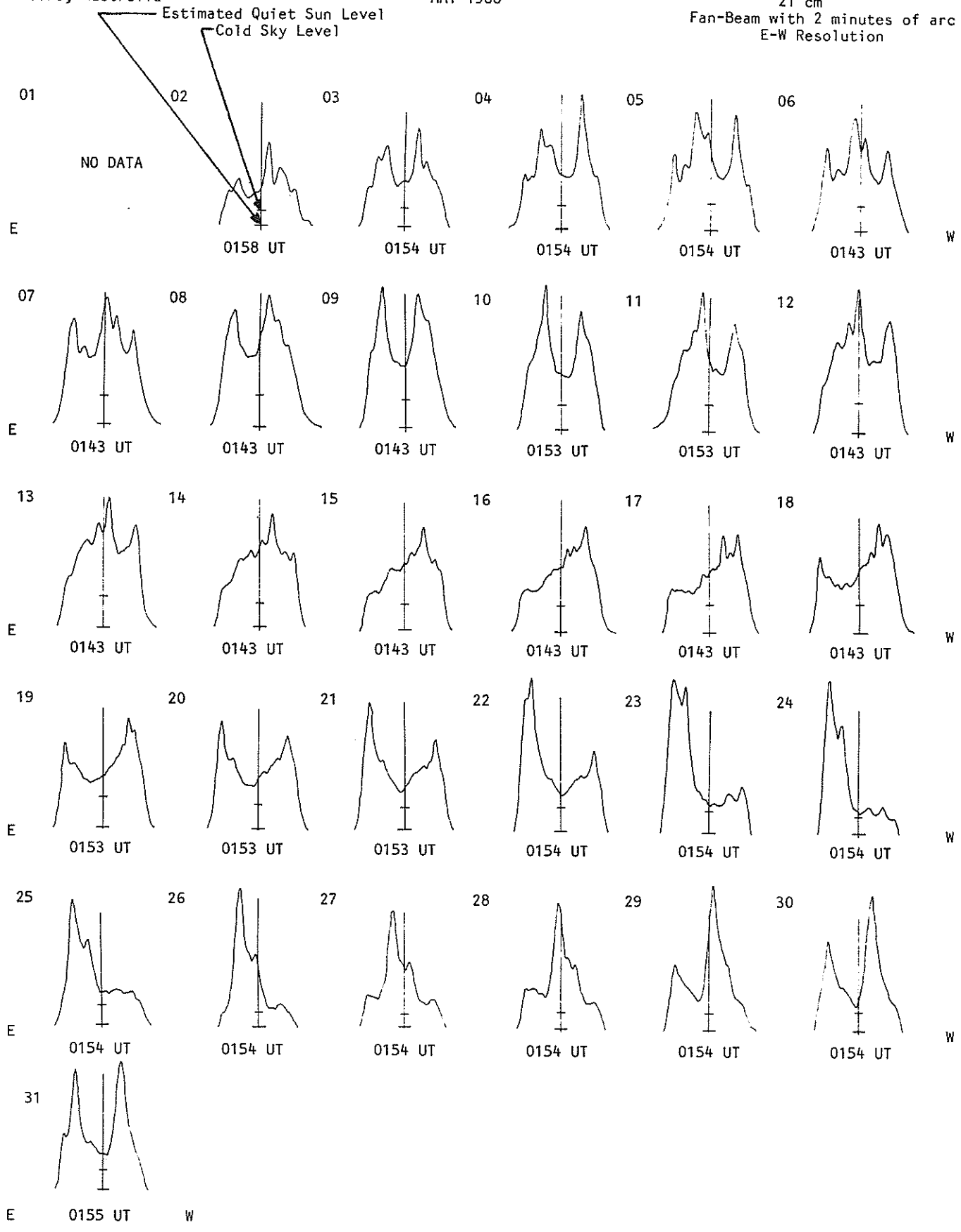


EAST-WEST SOLAR SCANS

Fleurs, Australia

MAY 1988

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

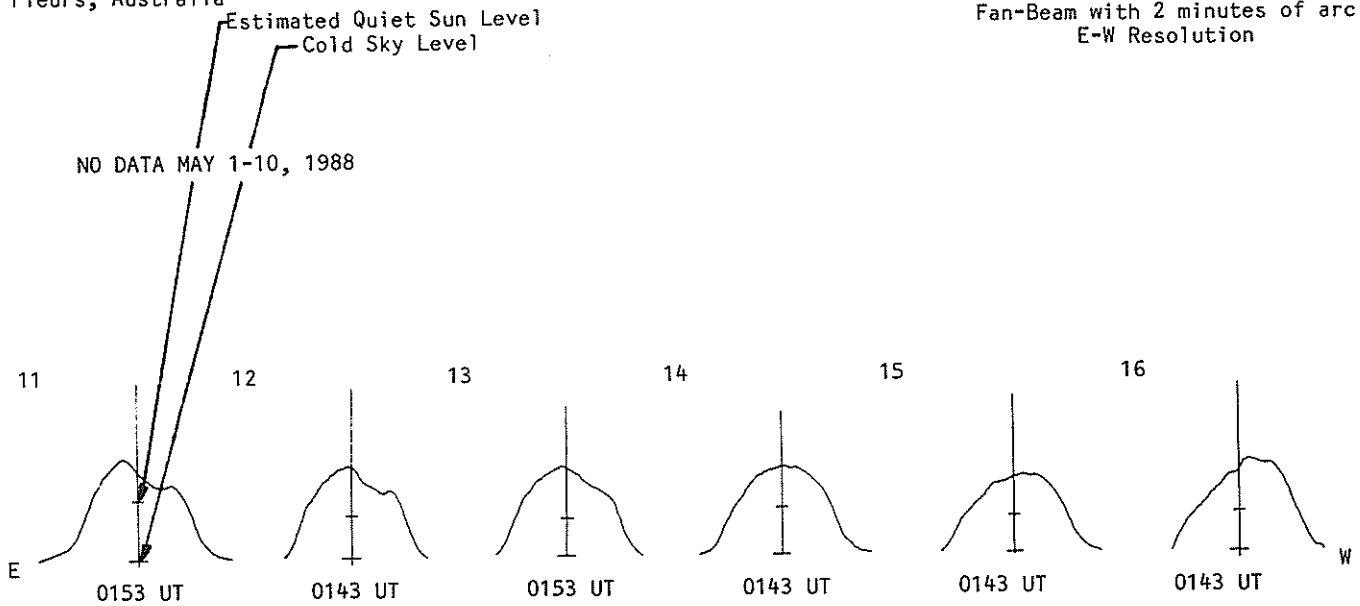


E A S T - W E S T S O L A R S C A N S

MAY 1988

Fleurs, Australia

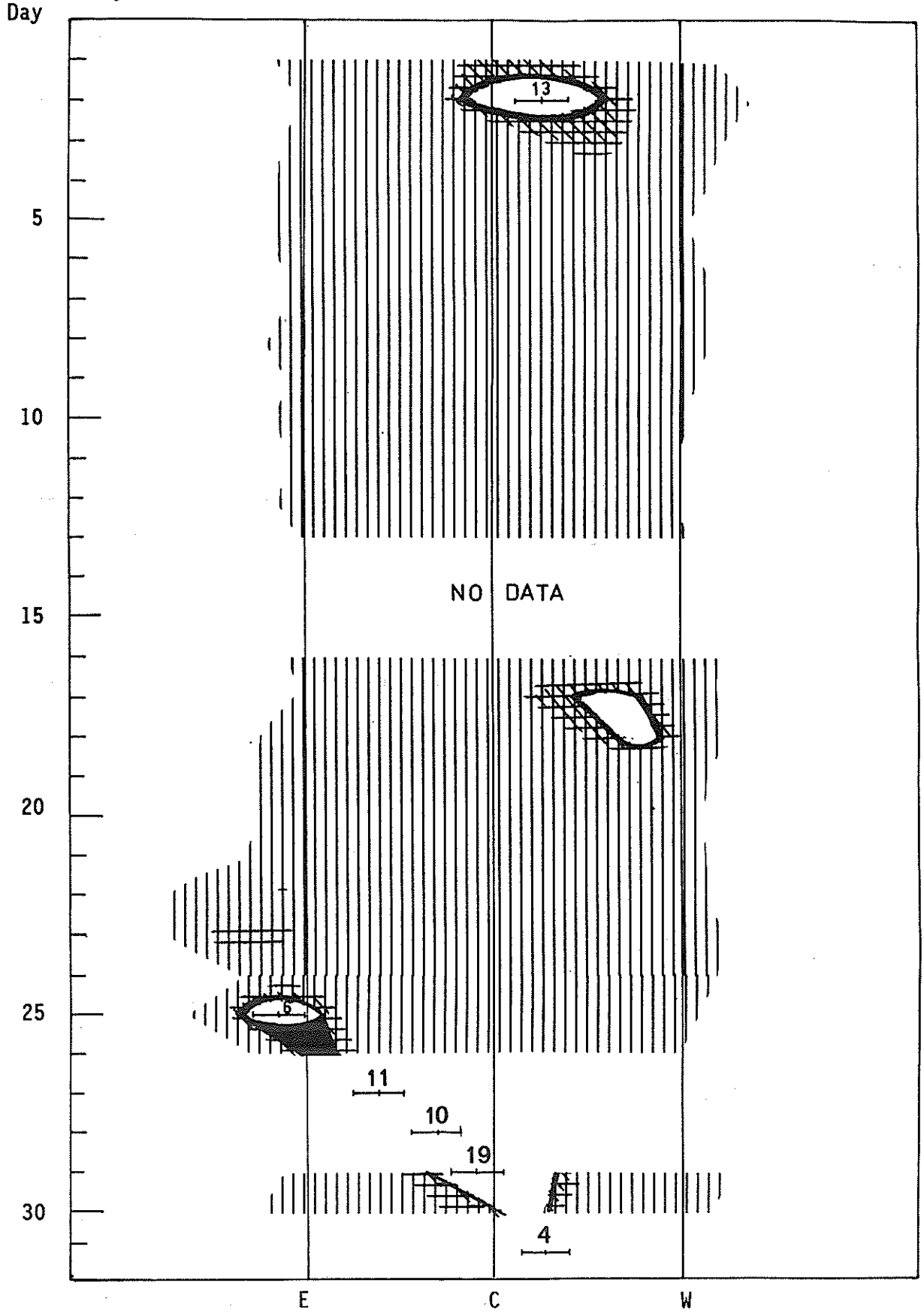
43 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



NO DATA MAY 17-31, 1988

SOLAR INTERFEROMETRIC OBSERVATIONS

Nancay MAY 1988 164 MHz



SOLAR RADIO EMISSION--SELECTED FIXED FREQUENCY EVENTS

MAY 1988

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remark
02	2800	OTTA	22	GRF	1605.0	1642.0	150.0	4.2	2.0		
03	2800	OTTA	22	GRF	1505.0	1645.0	185.0	11.9	6.0		
	2800	OTTA	22	GRF	1845.0	2120.0	240.0	10.2	5.0		
04	2695	LEAR	8	S	0211.0	0213.0	13.0	92.0			QL=1 ST=2 TYP=5
05	2800	OTTA	24	R	1855.0	1905.0	48.0	2.2	1.0		
	2800	OTTA	22	GRF	1943.0	1946.0	110.0	7.7	3.0		
17	2800	OTTA	42	SER	2002.0	2027.0	41.0	197.0	80.0		
	2800	OTTA	29	PBI	2043.0	2043.0	180.0	27.6	13.0		
20	2695	LEAR	8	S	0611.0	0612.0	5.0	88.0			QL=5 ST=2 TYP=5
	8800	LEAR	8	S	0612.0	0612.0		170.0			QL=5 ST=1 TYP=5
23	8400	BERN	46	C	1205.0	1206.3	20.0	56.0			
	2800	OTTA	46	C	1506.0	1507.2	2.8	10.4	5.0		
	2800	OTTA	29	PBI	1509.0	1509.0	28.0	5.3	2.0		
	8400	BERN	3	S	1615.0	1617.0	8.0	54.0			
	2800	OTTA	46	C	1728.5	1733.5	6.5	10.6	5.0		
	2800	OTTA	29	PBI	1735.0	1735.0	9.3	2.8	1.0		
25	2695	LEAR	8	S	0611.0	0612.0	5.0	23.0			QL=5 ST=3 TYP=3
	8400	BERN	3	S	0927.0	0929.0	80.0	44.0			
	8400	BERN	3	S	1355.1	1355.3	1.5	175.0			
	2800	OTTA	3	S	1355.2	1355.9	4.3	39.4	12.0		
	2800	OTTA			1510.0	1553.0	275.0	5.8			
26	2695	LEAR	8	S	0100.0	0103.0	6.0	74.0			QL=5 ST=2 TYP=5
	8800	LEAR	8	S	0102.0	0103.0	4.0	91.0			QL=5 ST=2 TYP=5
27	2800	OTTA	22	GRF	1122.0	1135.0	95.0	18.0			
	2800	OTTA	20	GRF	1343.0	1351.0	66.0	16.0			
	2695	LEAR	8	S	2345.0	2345.0	1.0	80.0			QL=5 ST=2 TYP=5
	8800	LEAR	8	S	2345.0	2345.0		220.0			QL=5 ST=2 TYP=5
28	8800	LEAR	8	S	0759.0	0800.0	3.0	29.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0820.0	0822.0	5.0	84.0			QL=5 ST=2 TYP=5
	2695	LEAR	8	S	0859.0	0859.0	1.0	12.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0859.0	0859.0	1.0	47.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0909.0	0909.0	1.0	85.0			QL=5 ST=2 TYP=5
29	8800	LEAR	8	S	0537.0	0538.0	2.0	60.0			QL=5 ST=2 TYP=5
30	2800	OTTA	42	SER	1500.0	1510.0	13.0	21.0			
	2800	OTTA	22	GRF	1940.0		80.0				
31	2800	OTTA	22	GRF	1357.0			4.6			
	2800	OTTA	22	GRF	1419.0E	1419.0	83.0D	15.7			

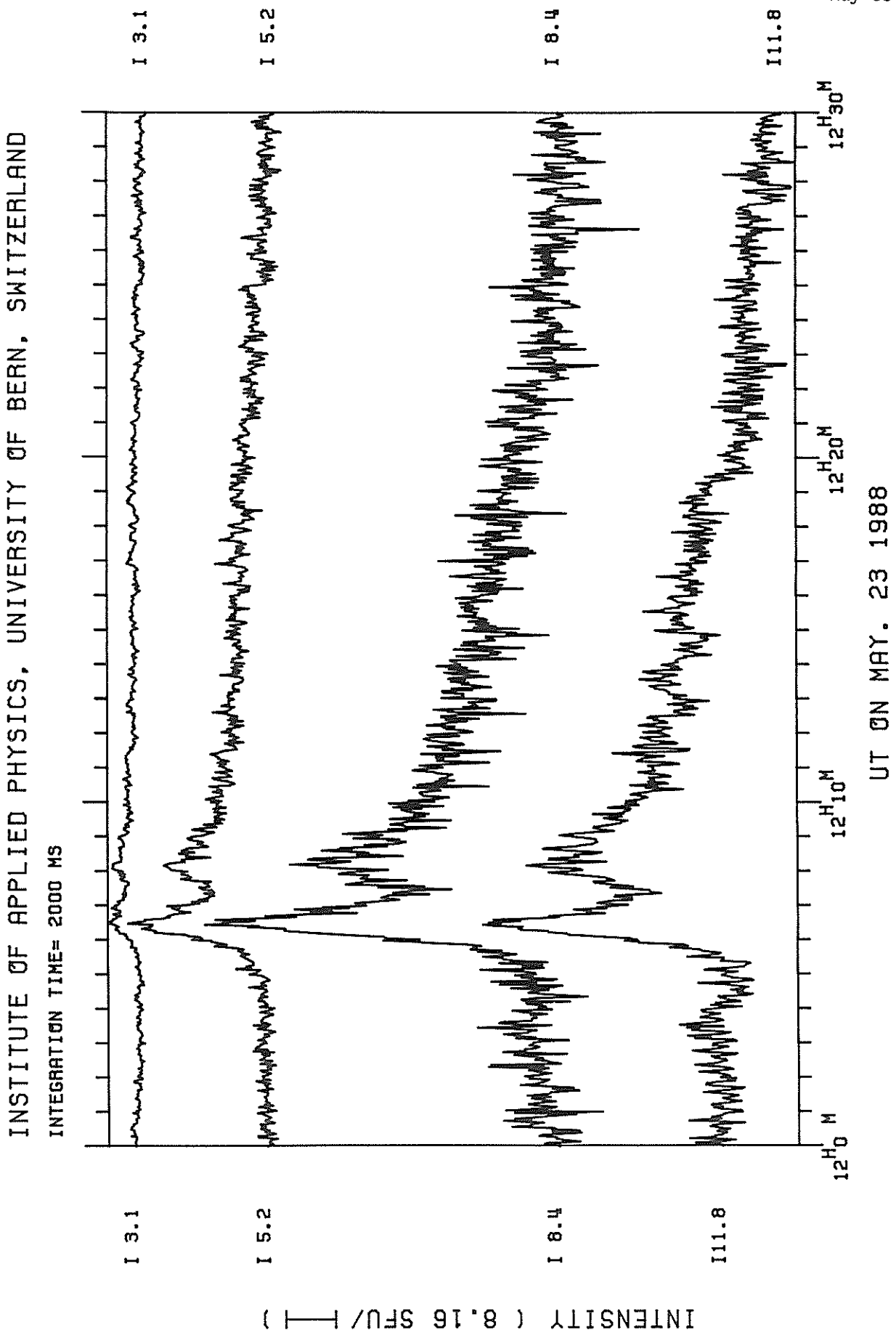
Reports are received routinely from the following observatories:
LEAR = Learmonth OTTA = Ottawa PALE = Palehua SGMR = Sagamore Hill SVTO = San Vito

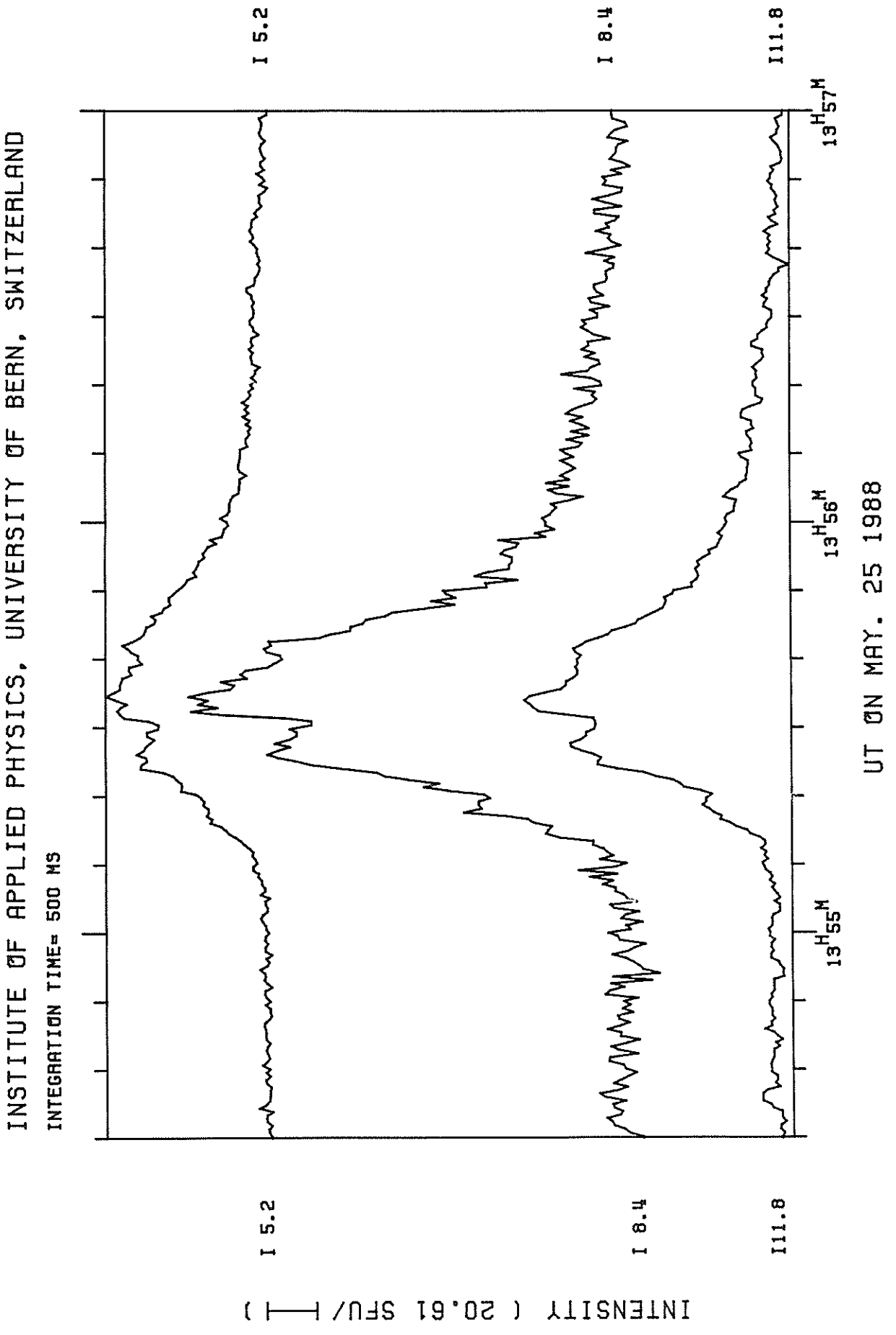
Explanation of Type Code:

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

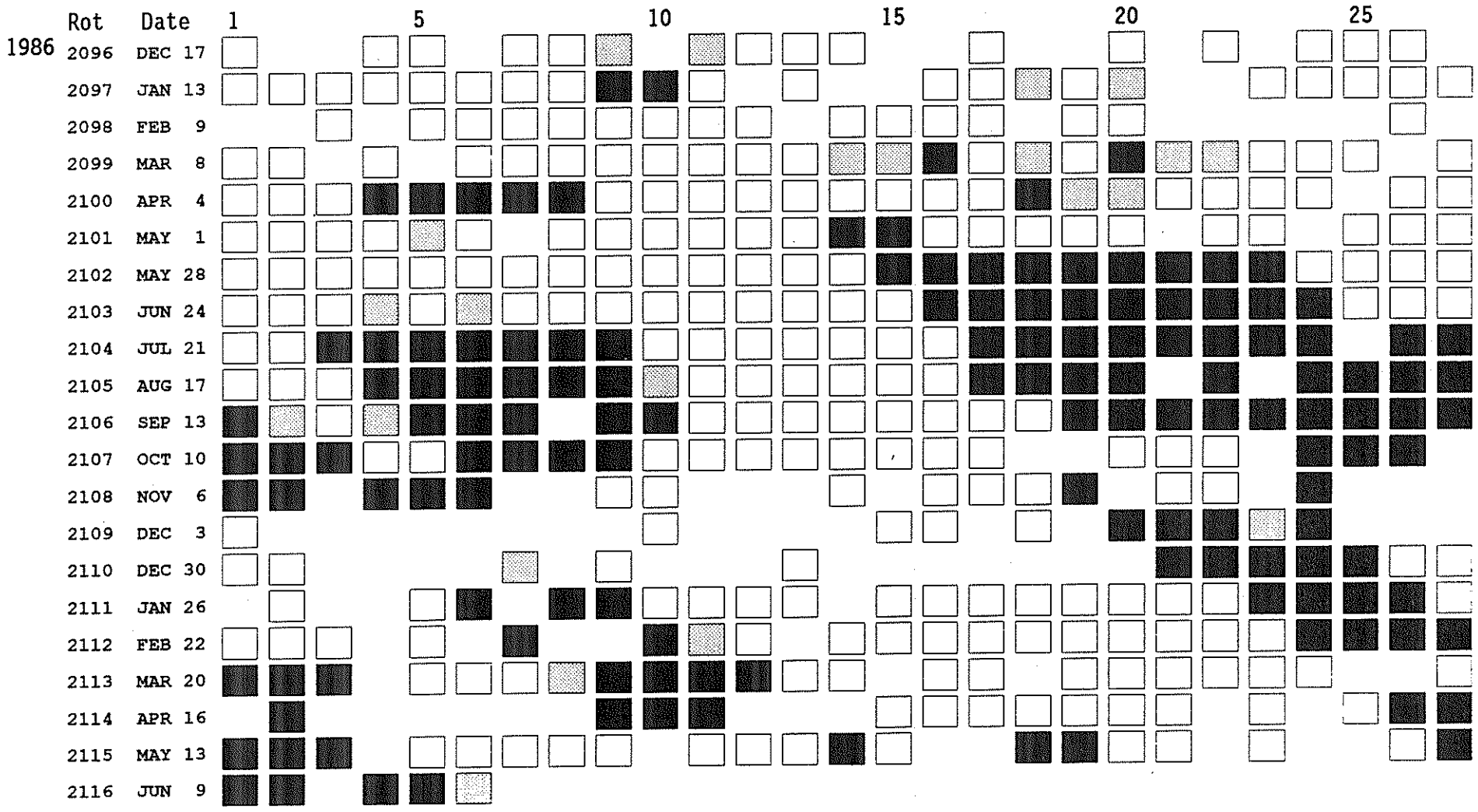
1A Simple 1A	4A Simple 2AF	24PF Post Rise F	27F Rise and Fall F
3A Simple 2A	40 Rise Only	16A Fall A	27AF Rise and Fall AF
21A Simple 3A GRF	40F Rise Only F	260 Fall Only	31A Post Burst Decrease A
2A Simple 1AF	4P Post Rise	26F Fall F	32A Absorption A
			46F Complex F

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; Ottawa, Canada 2800 MHz; Hiraiso, Japan 500 and 200 MHz; and Toyokawa, Japan 9400, 3750, 2000 and 1000 MHz.


INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND
INTEGRATION TIME= 2000 MS
I 3.1
I 5.2
I 8.4
I11.8
12H 0 M
12H10M
12H20M
12H30M
UT ON MAY. 23 1988
INTENSITY (8.16 SFU/ ⊢—⊣)


INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND
INTEGRATION TIME= 500 MS
I 5.2
I 8.4
I11.8
13H55M
13H56M
13H57M
UT ON MAY. 25 1988
INTENSITY (20.61 SFU/)

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 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	1987 Jun	Jul	Aug	Sep	Oct	Nov	Dec	1988 Jan	Feb	Mar	Apr	May
1	2	11	39	12	-3	.	.	.	.	.	12	13
2	3	20	43	-3	-4	-20	.	.	-16	-16	21	12
3	12	26	27	-16	-3	-19	2	.	-5	1	.	28
4	23	33	14	-19	-17	-24	.	.	16	22	35	29
5	27	33	4	-31	-28	.	.	0	25	.	42	25
6	24	32	-10	.	-35	-10	.	.	42	49	.	37
7	29	17	-16	-49	-28	-12	.	20	40	50	45	.
8	38	2	-29	.	-24	.	.	.	.	49	41	39
9	31	-10	-37	-50	-20	-28	.	.	62	44	53	.
10	8	-13	-38	-39	-16	-28	.	.	56	53	47	6
11	-8	-19	-36	-24	-6	-20	.	29	58	52	43	-8
12	-17	-29	-43	-18	-3	.	19	.	58	49	36	-11
13	-19	-24	-32	-10	6	.	.	.	48	36	.	-22
14	-21	-22	.	-1	7	4	.	.	47	35	.	-29
15	-21	-18	-19	4	-11	5	.	.	23	21	8	-25
16	-16	-15	-7	-1	-9	.	.	.	16	-13	.	.
17	-12	-9	2	-5	-10	.	22	.	-13	-9	-25	10
18	-16	4	6	-5	-6	.	30	.	-22	-13	.	17
19	-6	9	3	-8	5	18	.	-12	-25	-9	.	15
20	9	11	-13	.	6	.	20	-22	-13	-20	.	12
21	13	7	-15	-10	9	21	.	-35	11	-14	.	22
22	12	11	-18	-5	12	30	-10	-28	14	-8	.	.
23	7	-5	-22	7	23	3	-17	-15	35	.	.	5
24	7	-12	-25	14	25	-10	-18	4	37	18	-6	5
25	11	-11	-18	19	21	.	-1	15	.	21	-20	4
26	6	-10	-2	21	23	4	-3	.	17	12	-26	-6
27	-1	-10	12	22	.	4	.	23	.	-1	.	7
28	4	-5	26	20	.	.	.	.	-14	-13	.	.
29	-1	-10	33	15	15	-5	.	.	.	-43	.	.
30	5	6	22	5	2	.	24	3		-40	18	-19
31		27	16		4		24	-15		-11		-13

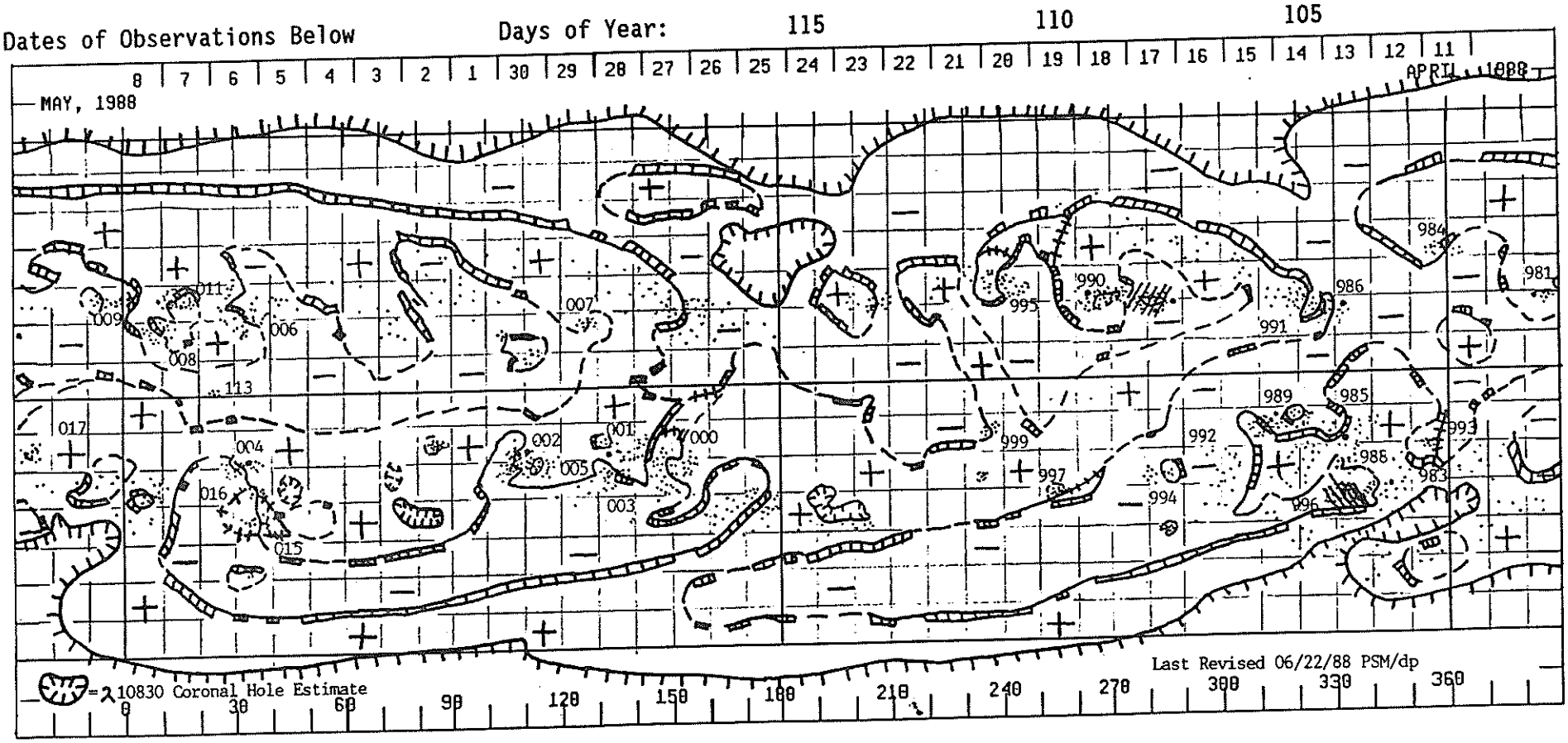
Dot symbol indicates no data available for the day.

CONTENTS

Prompt Reports DATA FOR **APRIL 1988** Number 526 Part I

PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1801
(11 April to 8 May 1988)

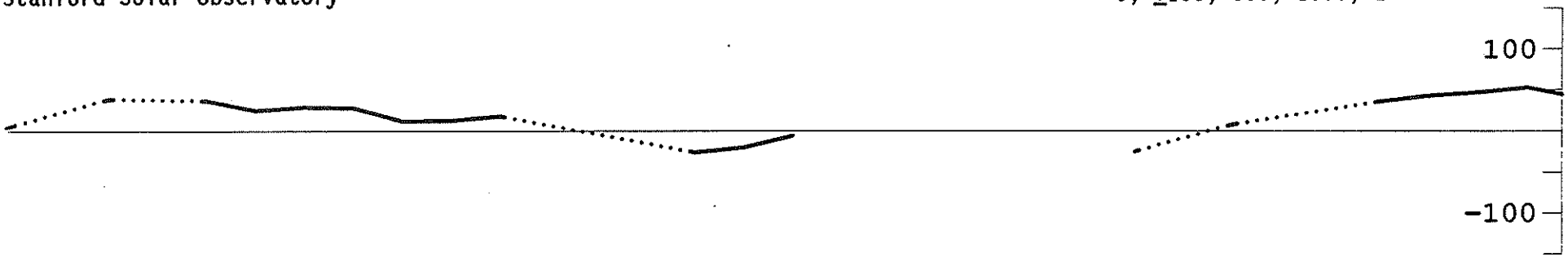


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1801
(11 April to 8 May 1988)

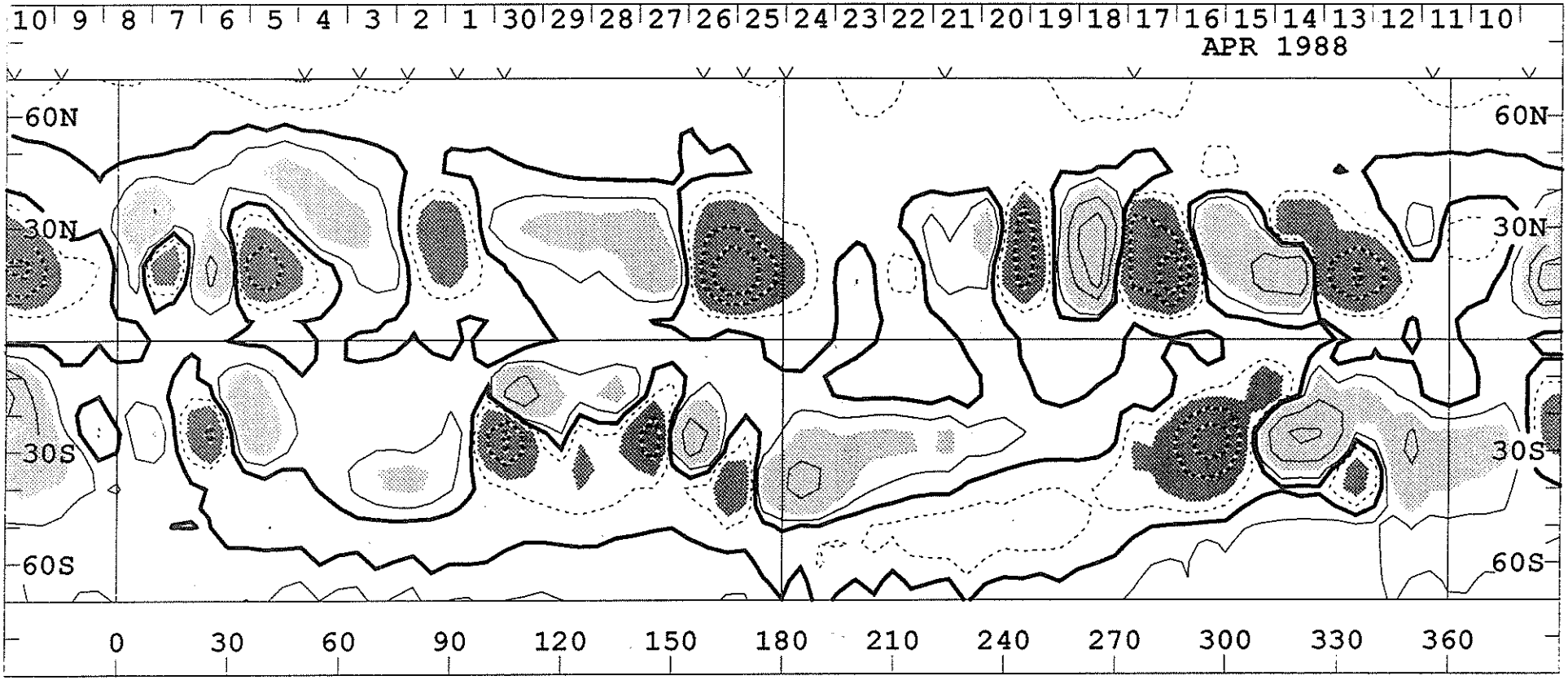
Stanford Solar Observatory

0, ±100, 500, 1000, 2000 microTesla



Photospheric Magnetic Field

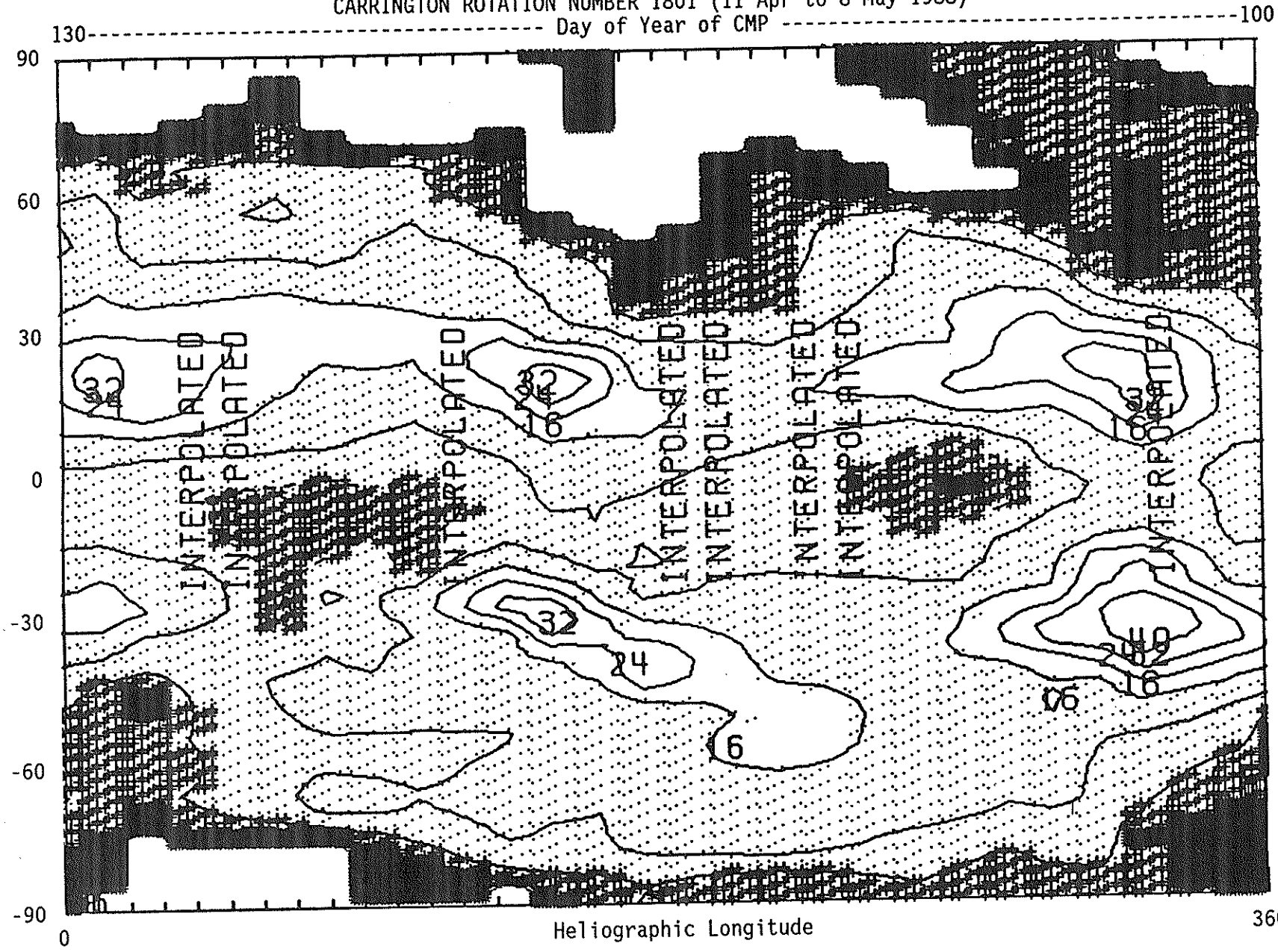
0, ±100, 500, 1000, 2000 MicroTesla



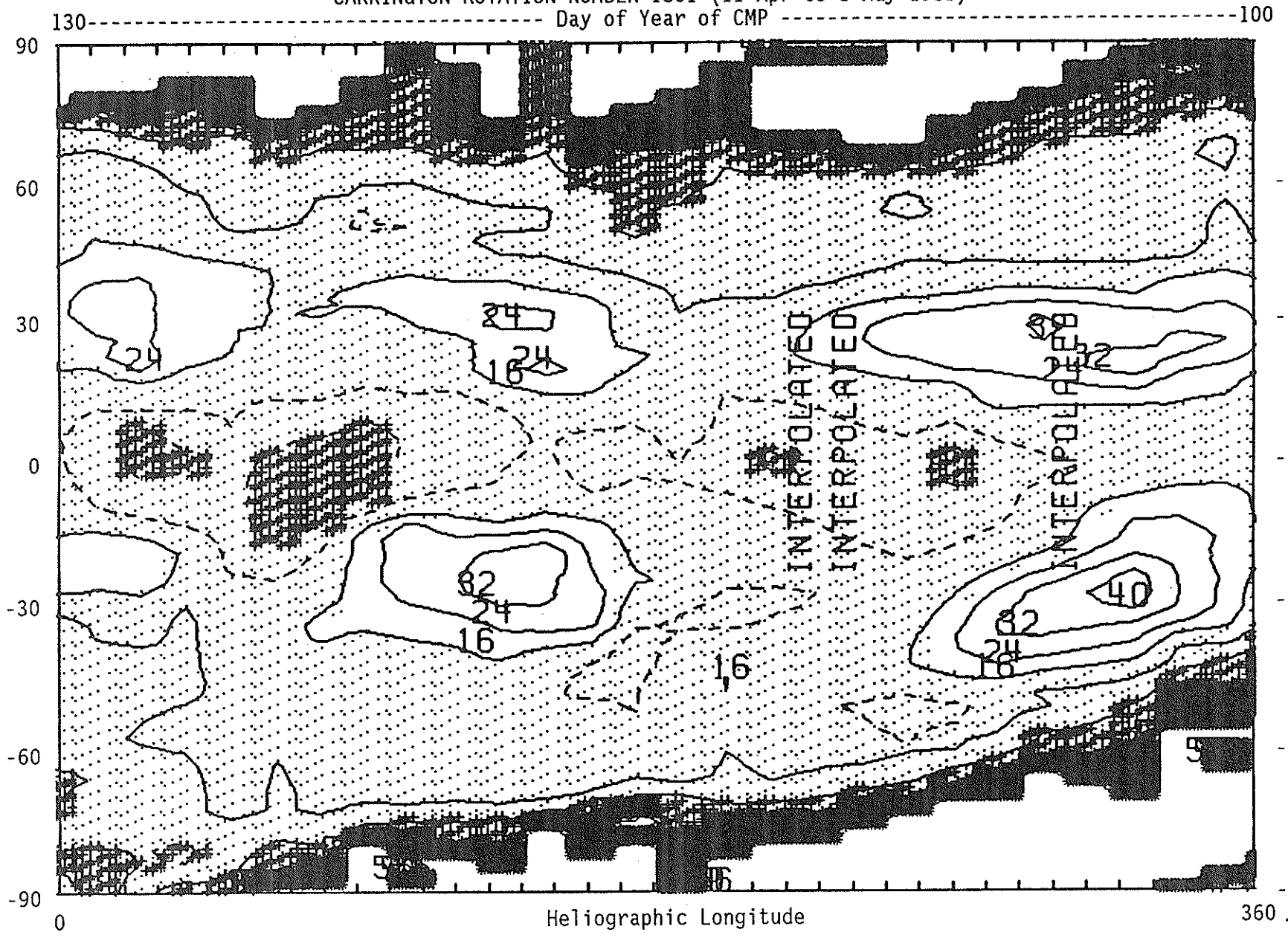
Heliographic Longitude

37
Apr 88

SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1801 (11 Apr to 8 May 1988)

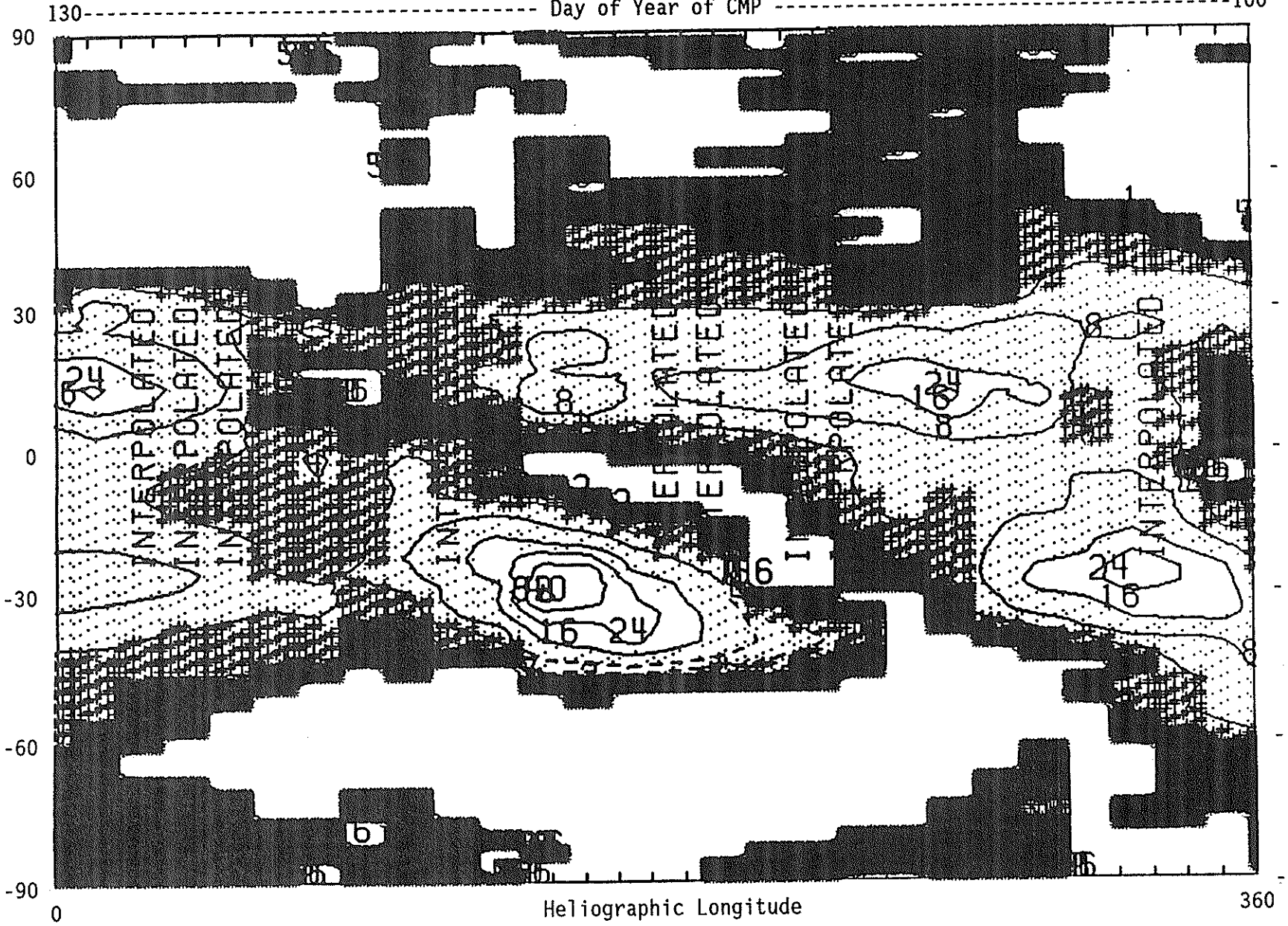


SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1801 (11 Apr to 8 May 1988)

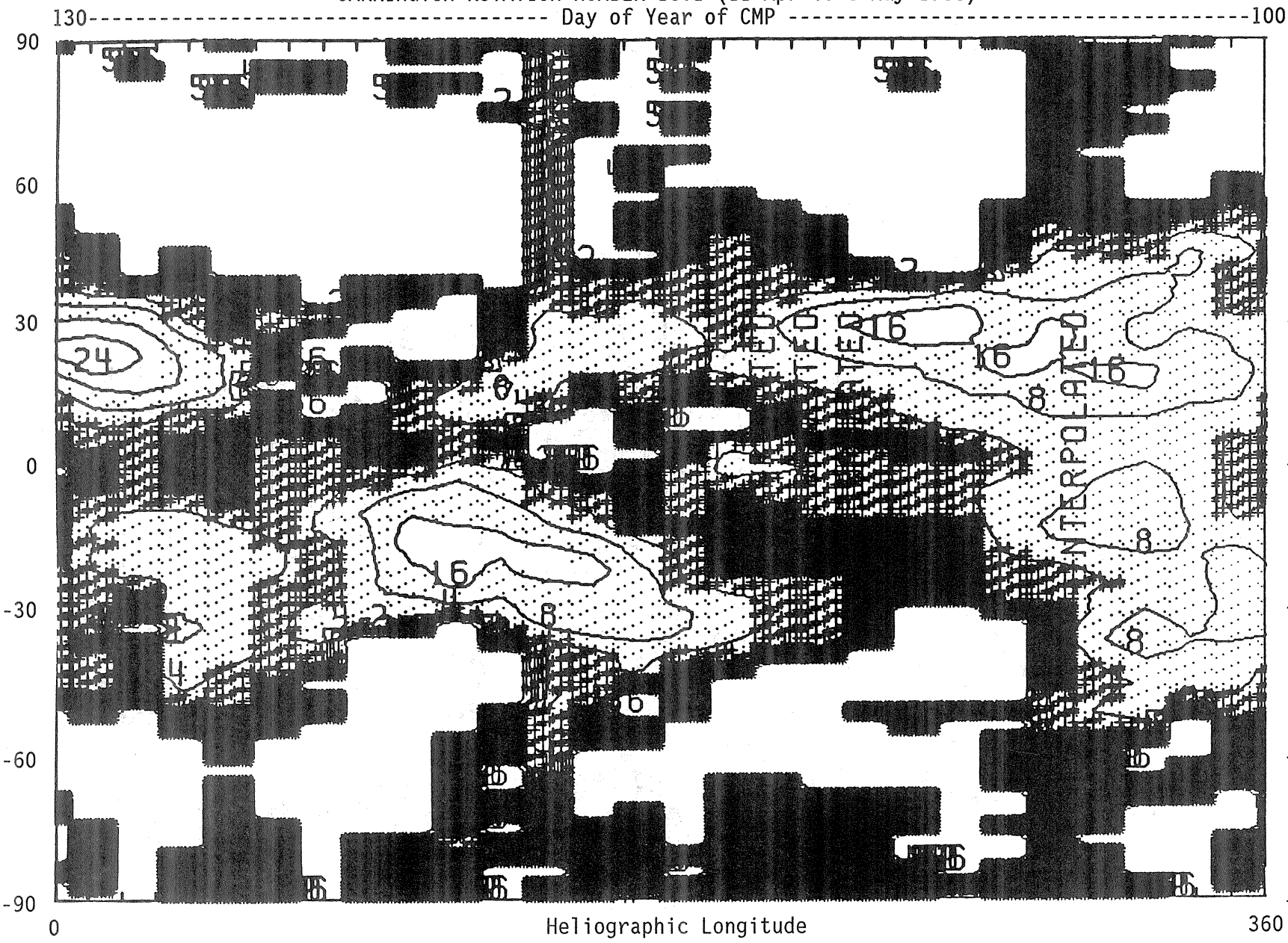


39
Apr 88

SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1801 (11 Apr to 8 May 1988)



SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1801 (11 Apr to 8 May 1988)



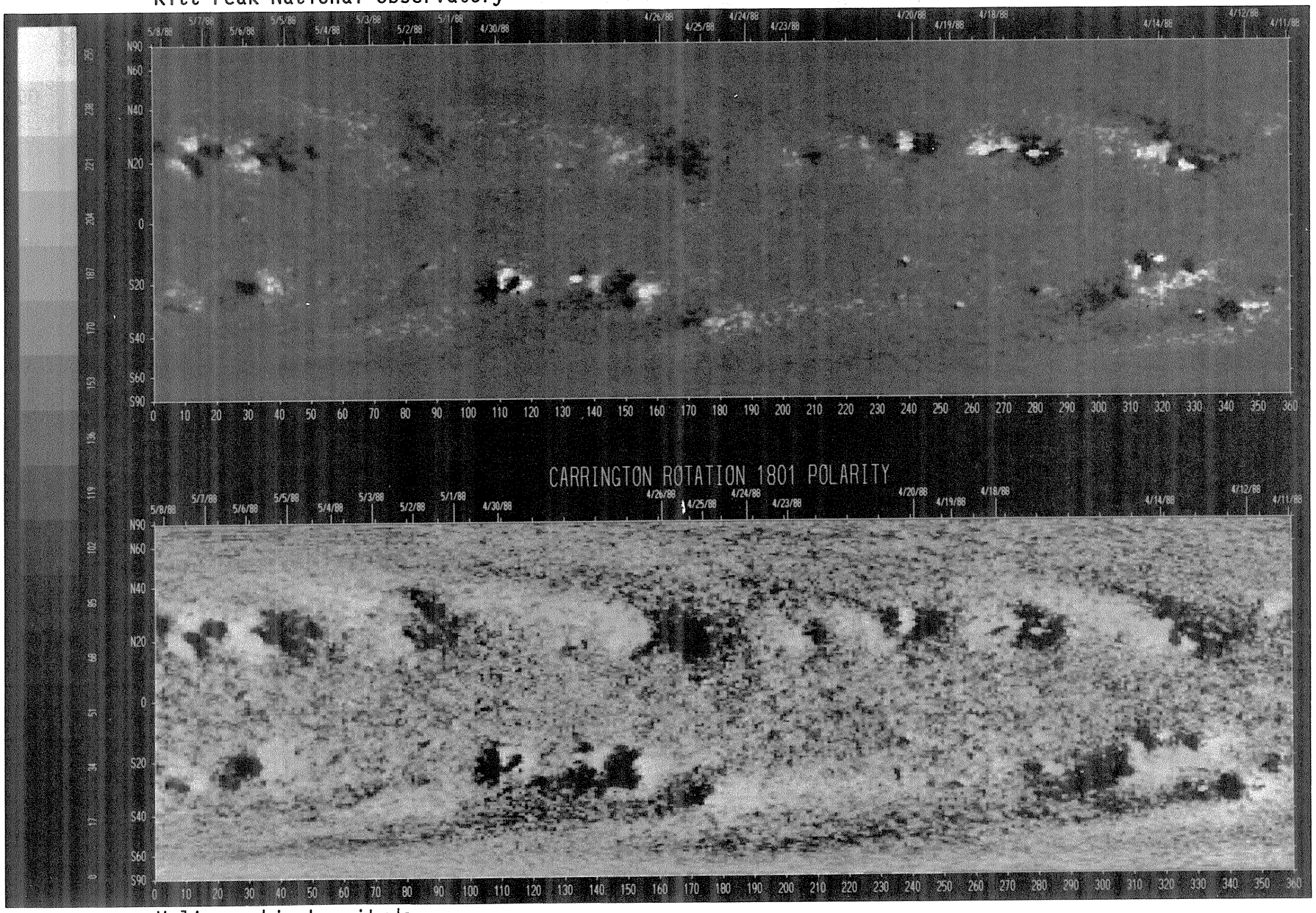
41
Apr 88

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1801
(11 April to 8 May 1988)

Kitt Peak National Observatory

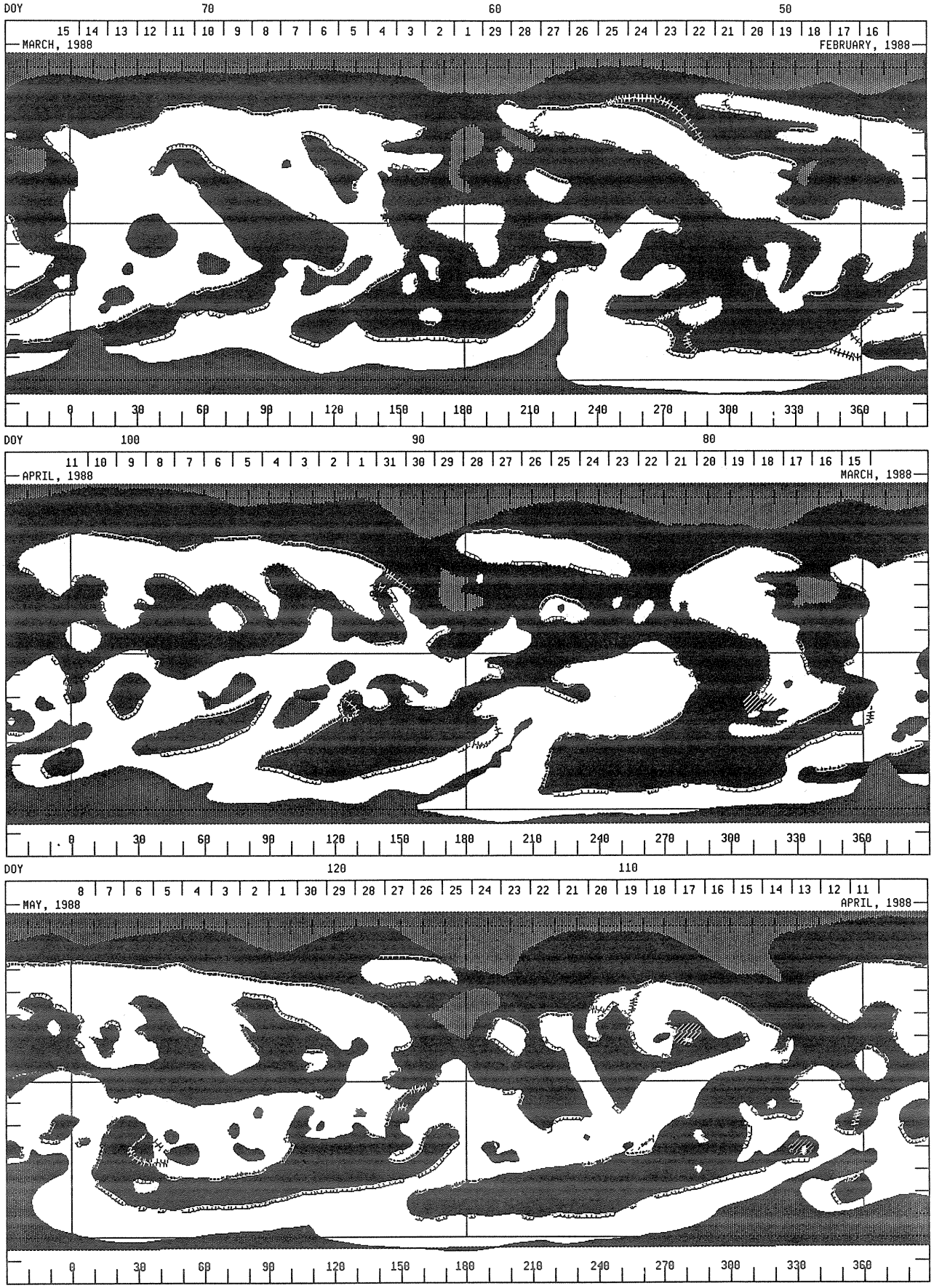
Dates of Observation



Heliographic Longitude

SHADED H-ALPHA SOLAR SYNOPTIC CHARTS

Carrington Rot. 1799-1801 — 16 February to 8 May 1988

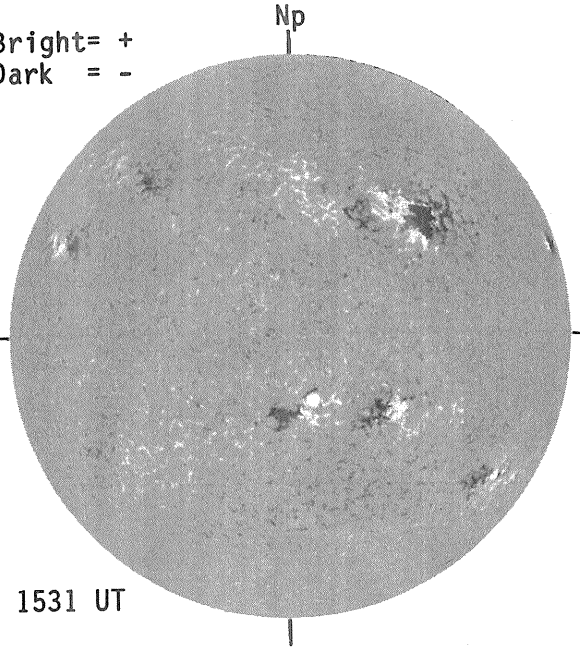


□ = Positive Polarity ■ = Negative Polarity ■ = 10830 Coronal Hole Estimate ▨ = X-Ray Flares > M1

Heliographic Longitude

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

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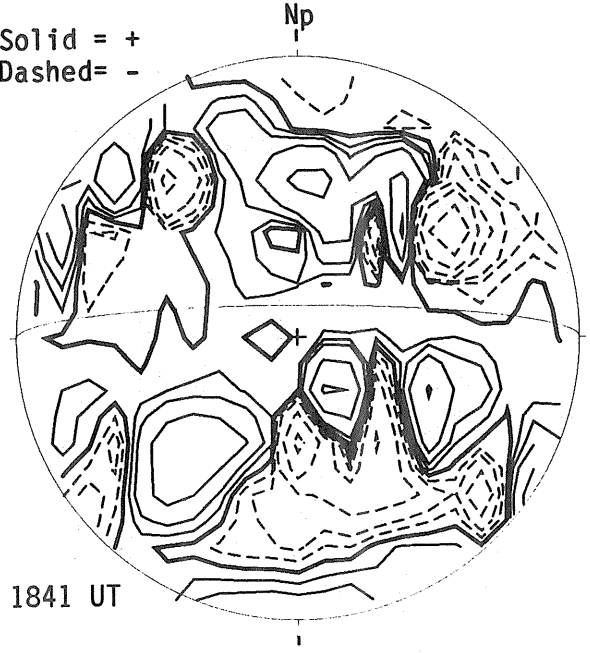
Dashed= -



MT. WILSON MAGNETOGRAM

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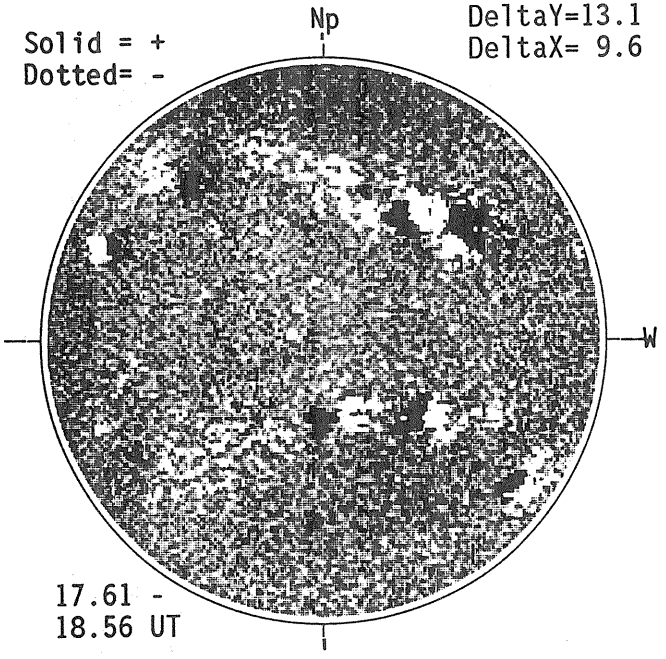
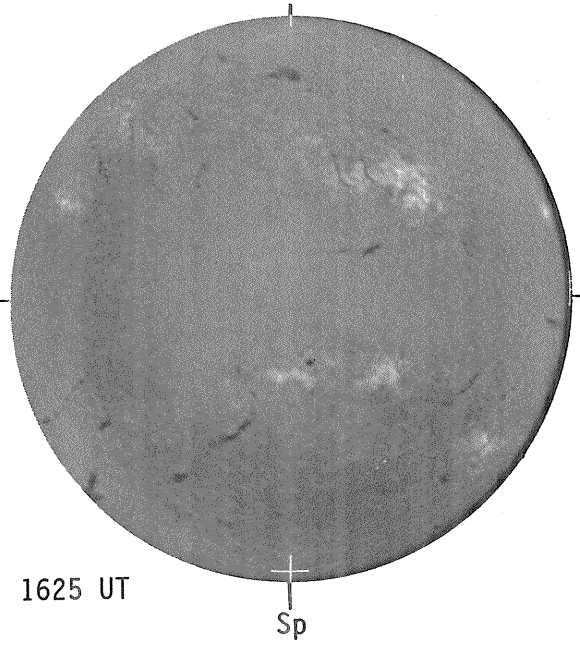
Dotted= -

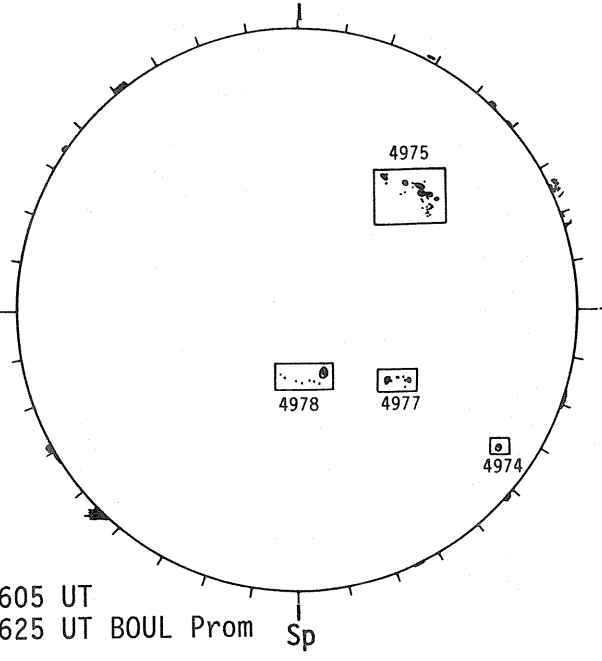
DeltaY=13.1
DeltaX= 9.6



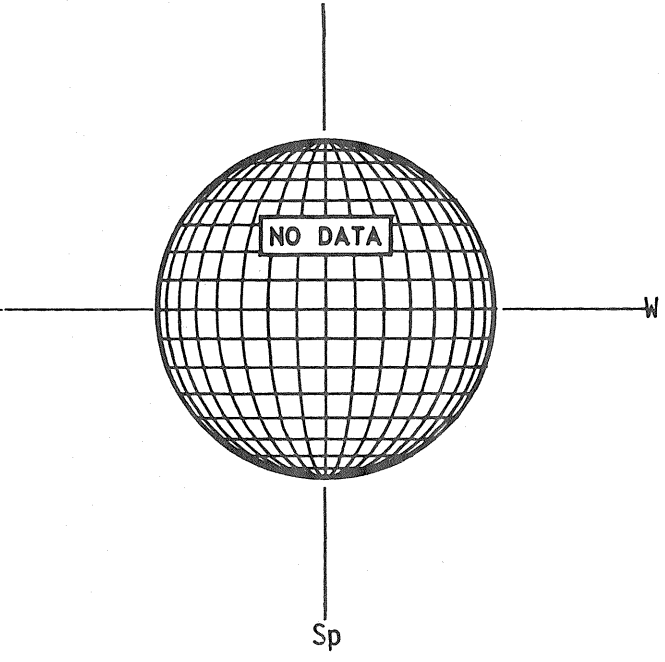
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 01, 1988 (P=-26.19, B_o=-6.51, L_o= 139.62)

KITT PEAK MAGNETOGRAM

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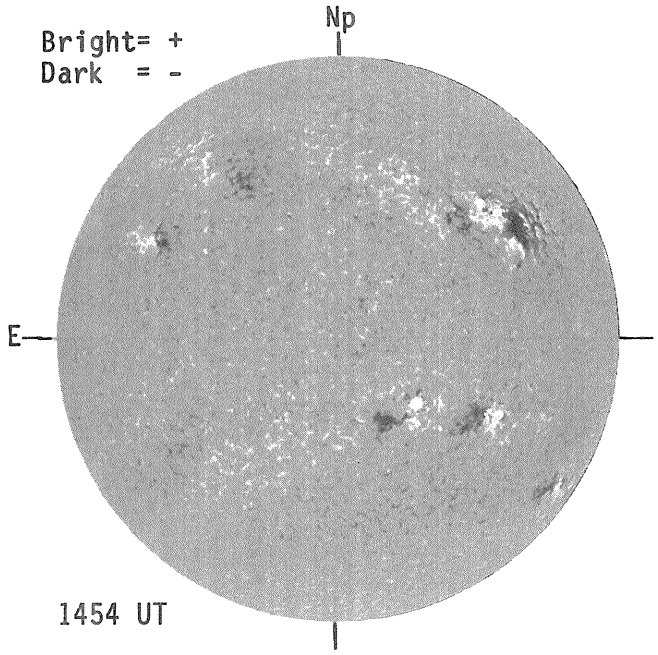
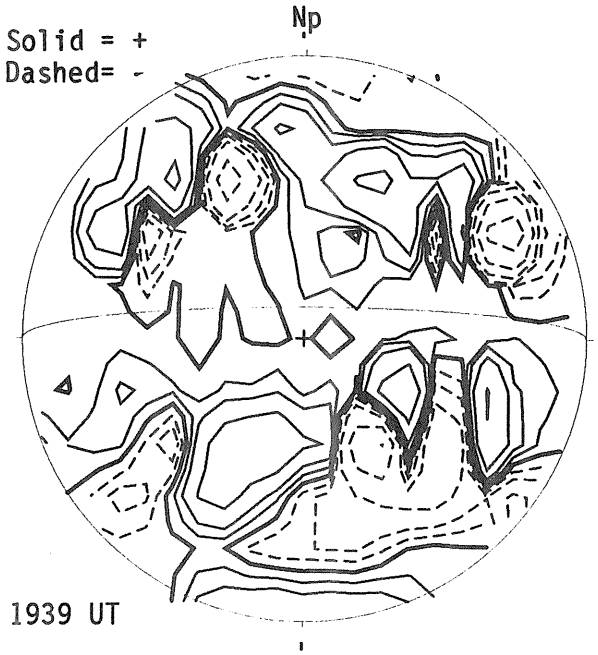
Dark = -



STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

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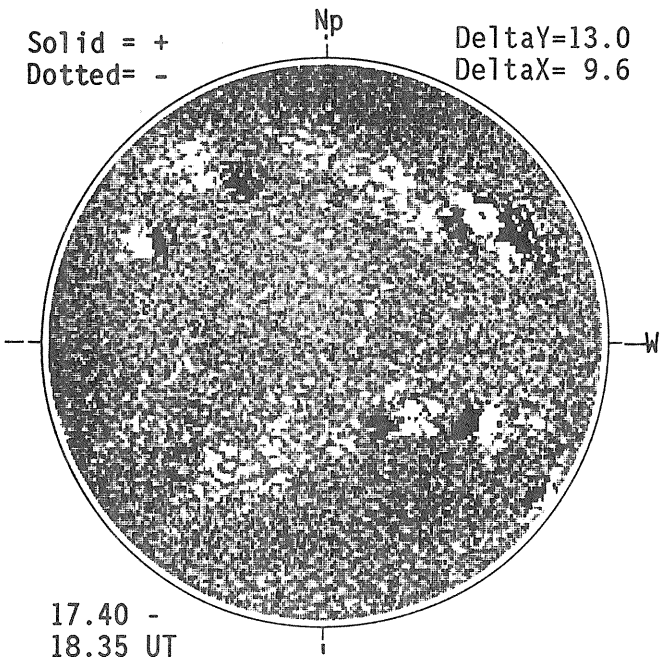
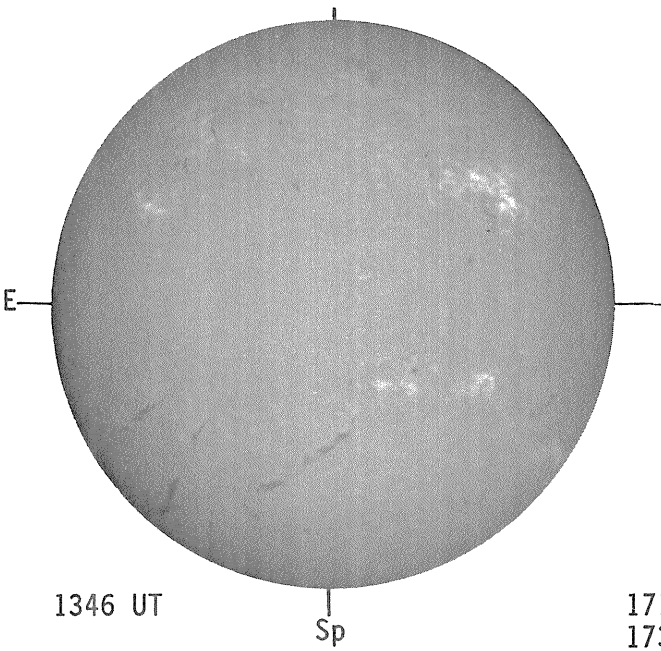
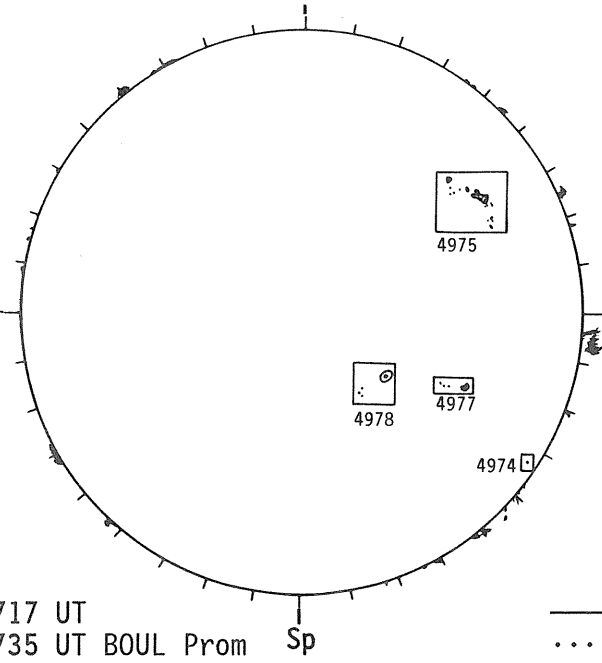
Dotted= -
DeltaY=13.0
DeltaX= 9.6



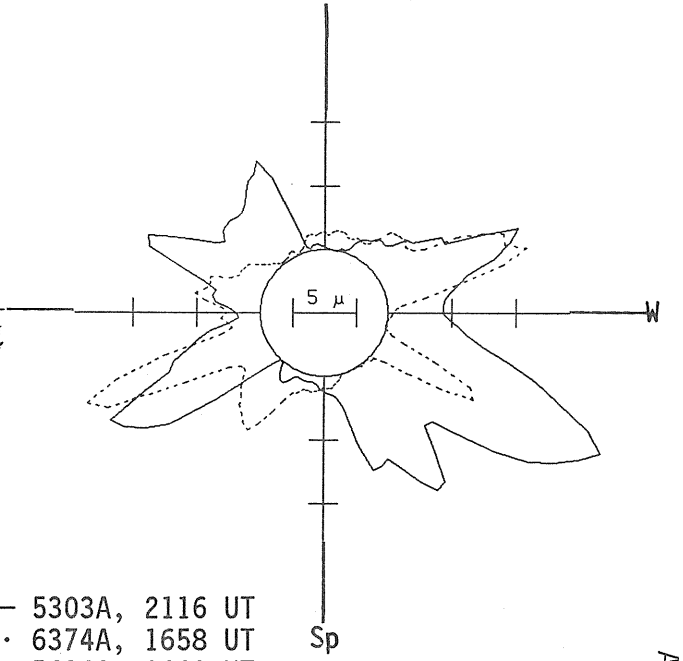
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 2116 UT
···· 6374A, 1658 UT
xxxx 5694A, 1648 UT
NO 5694A ACTIVITY TODAY

APRIL 02, 1988 (P=-26.23, B_o=-6.45, L_o= 126.42)

KITT PEAK MAGNETOGRAM

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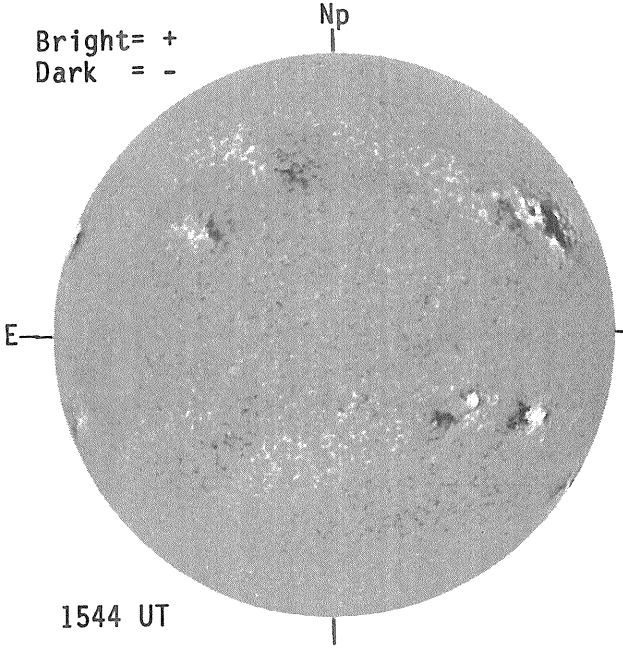
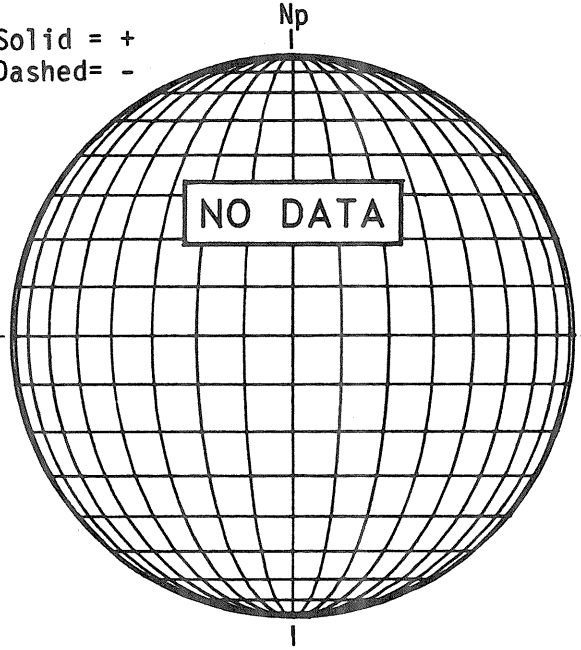


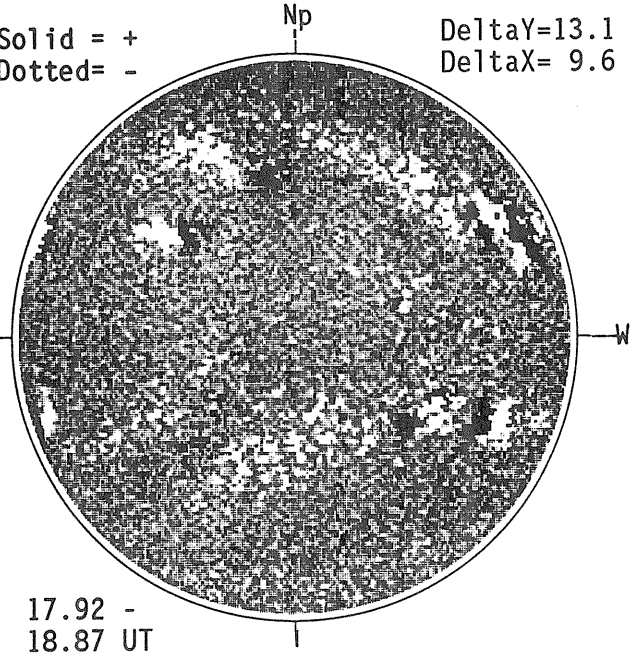
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

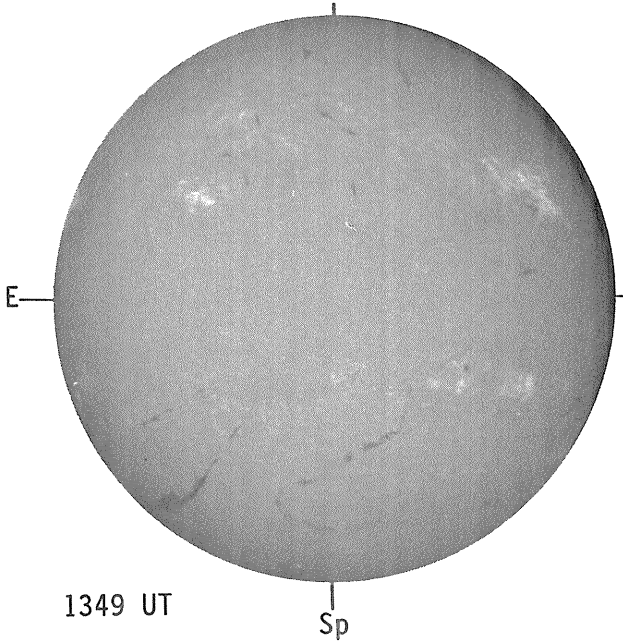


MT. WILSON MAGNETOGRAM

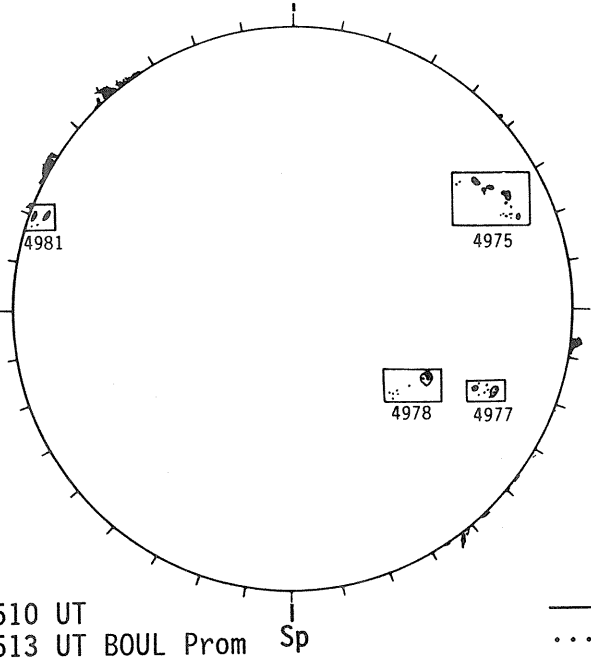
Solid = +
Dotted= -
DeltaY=13.1
DeltaX= 9.6



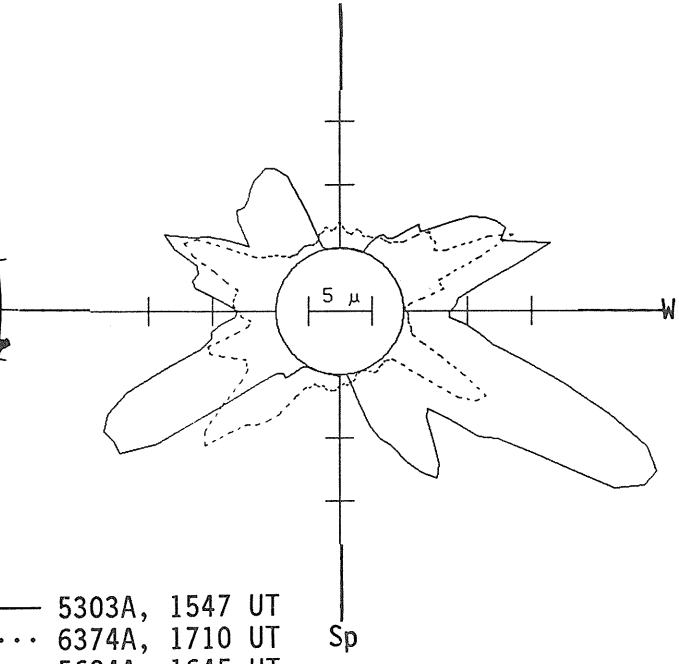
SACRAMERNTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

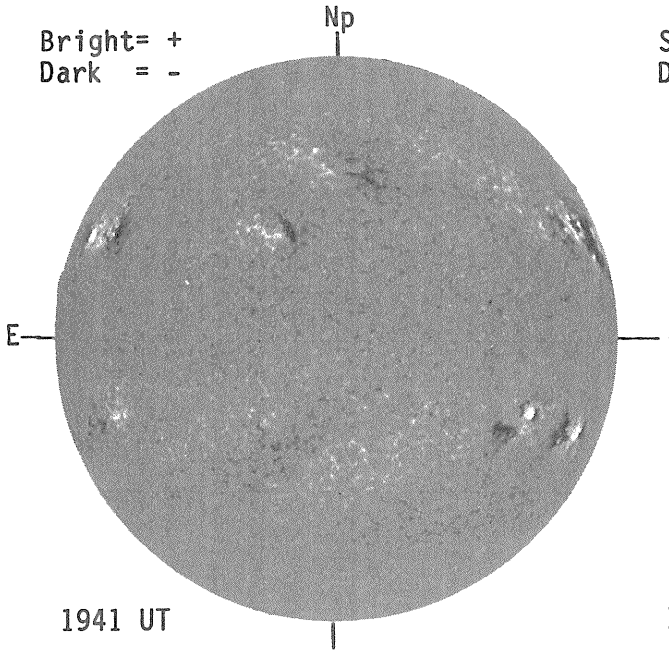


—— 5303A, 1547 UT
···· 6374A, 1710 UT
xxxx 5694A, 1645 UT
NO 5694A ACTIVITY TODAY

APRIL 03, 1988 (P=-26.26, B_o=-6.39, L_o= 113.23)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

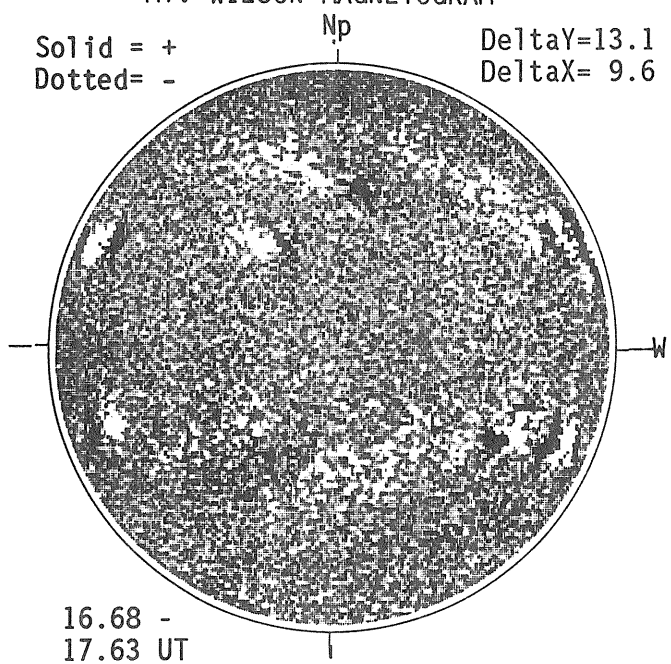


STANFORD MAGNETOGRAM

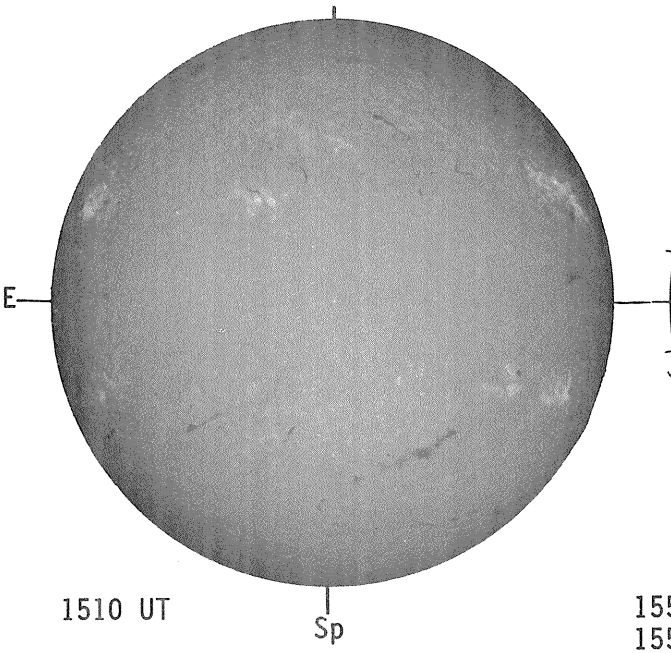
Solid = +
Dashed=

MT. WILSON MAGNETOGRAM

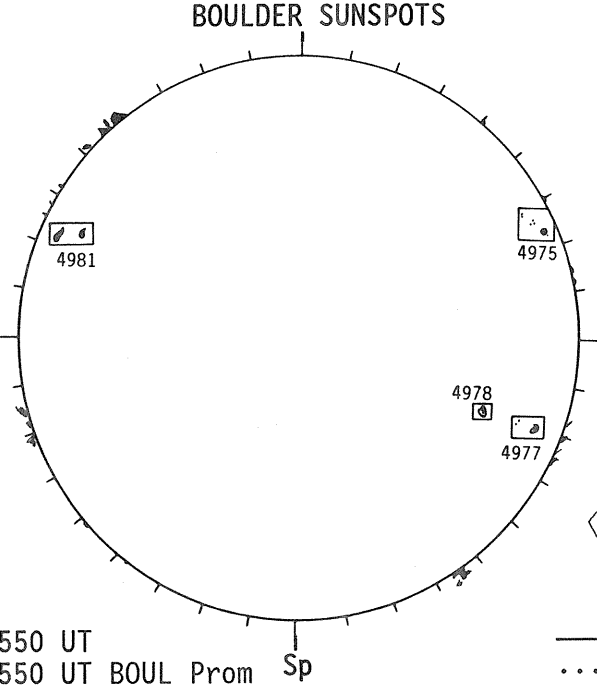
Solid = +
Dotted= -
DeltaY=13.1
DeltaX= 9.6



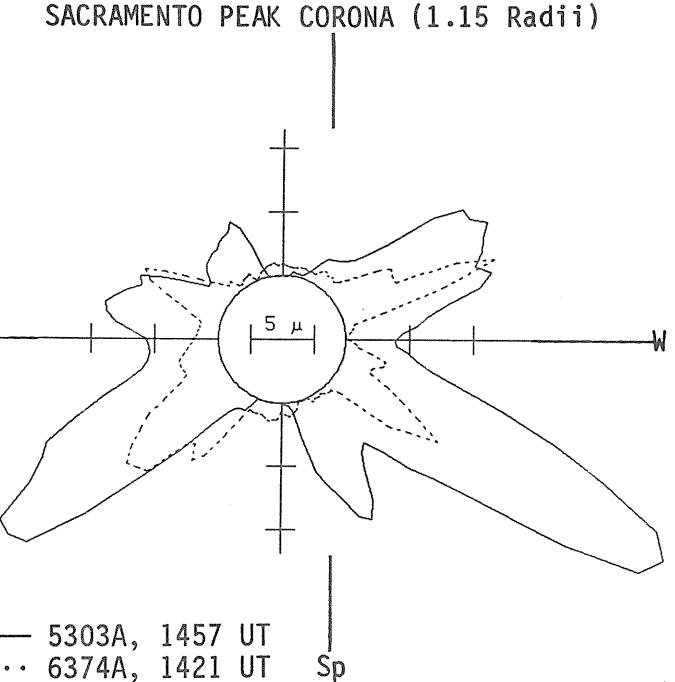
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



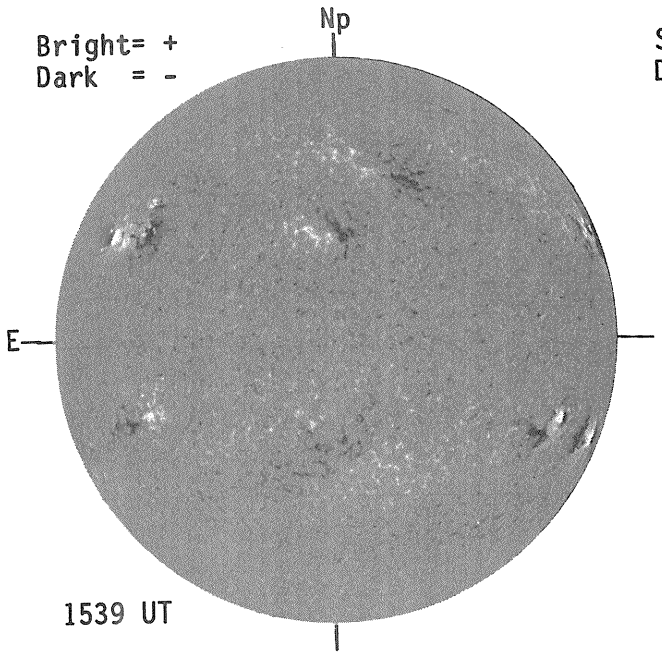
SACRAMENTO PEAK CORONA (1.15 Radii)



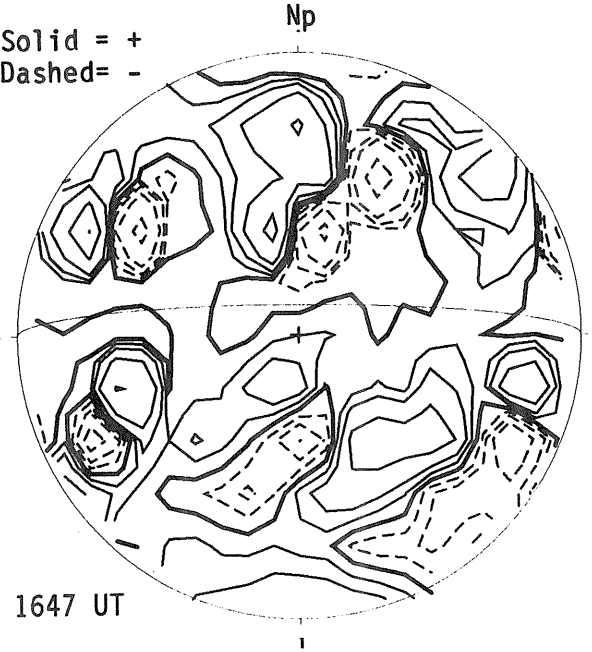
—— 5303A, 1457 UT
···· 6374A, 1421 UT
xxxx 5694A, 1436 UT
NO 5694A ACTIVITY TODAY

APRIL 04, 1988 (P=-26.28, B_o=-6.34, L_o= 100.03)

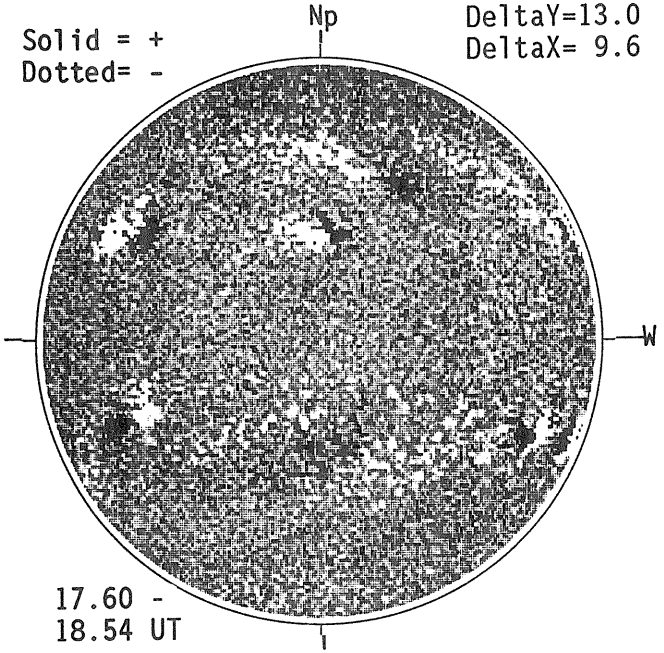
KITT PEAK MAGNETOGRAM



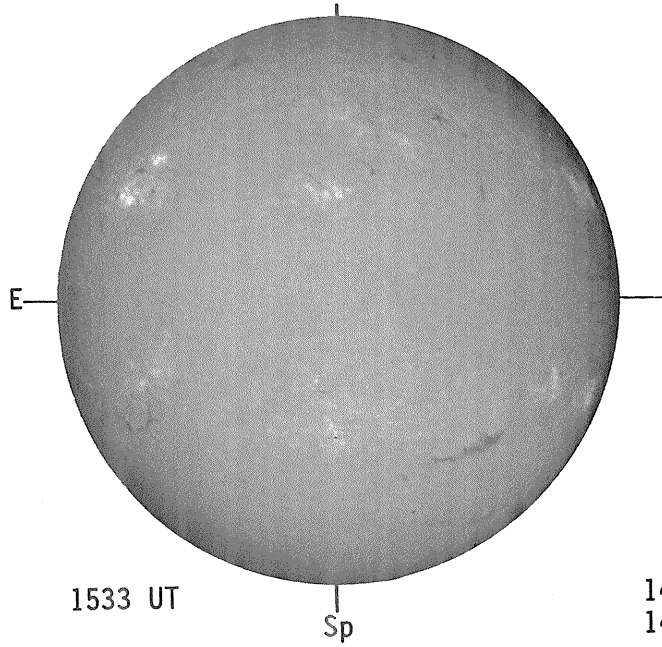
STANFORD MAGNETOGRAM



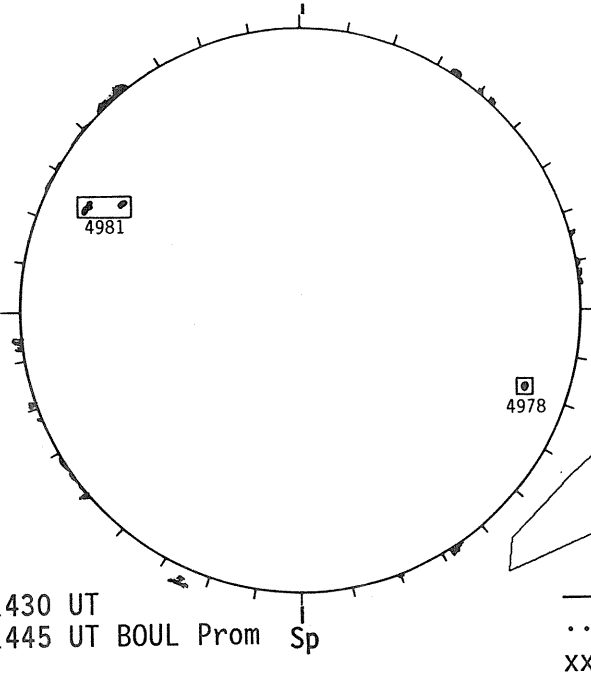
MT. WILSON MAGNETOGRAM



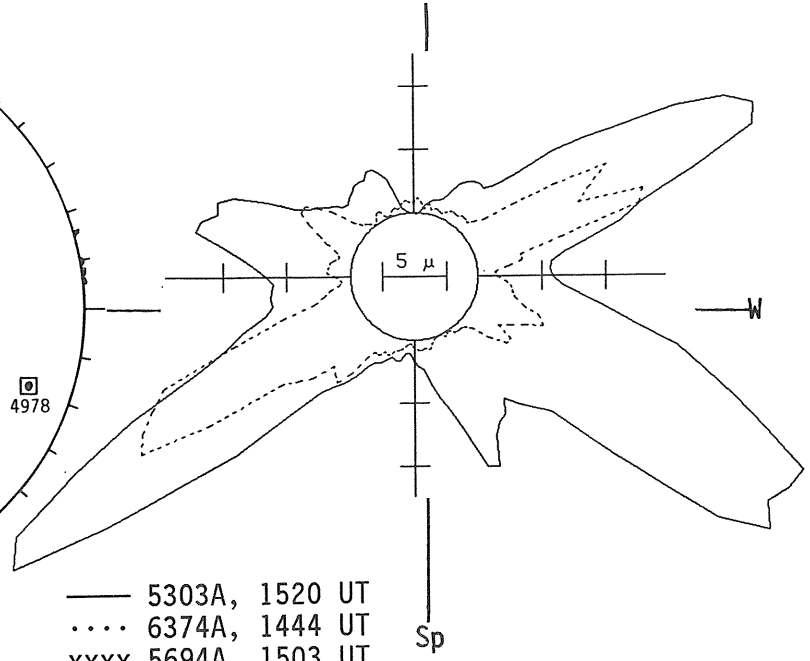
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

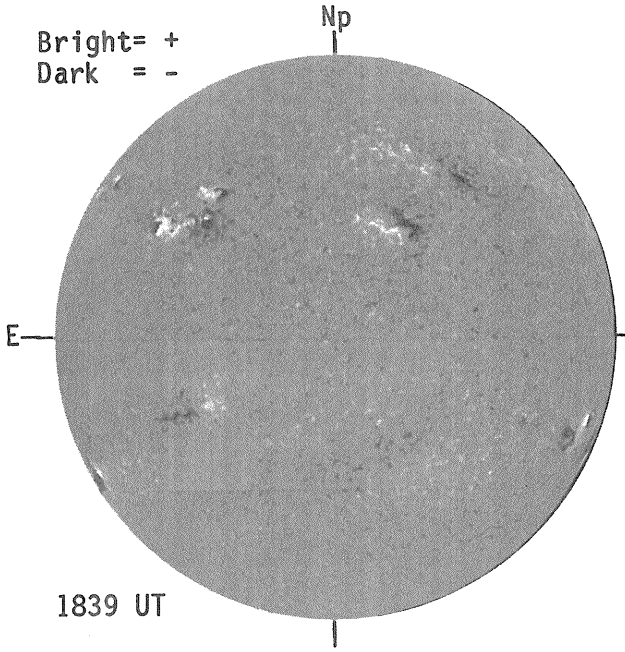


—— 5303A, 1520 UT
···· 6374A, 1444 UT
xxxx 5694A, 1503 UT
NO 5694A ACTIVITY TODAY

APRIL 05, 1988 (P=-26.30, B_o=-6.27, L_o= 86.84)

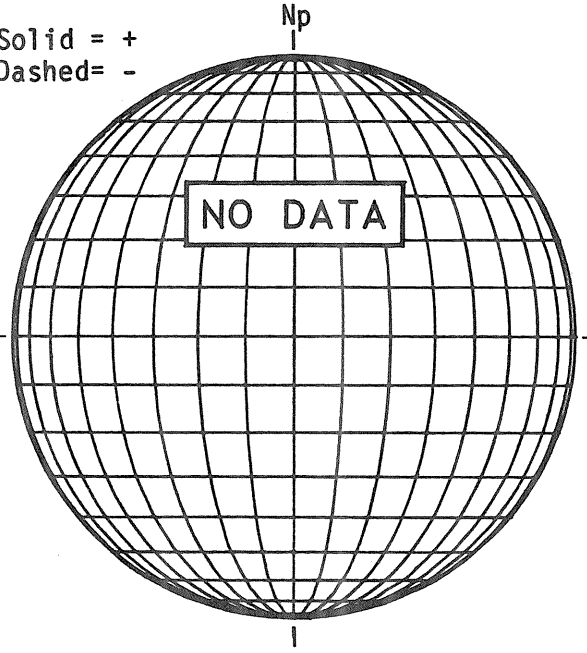
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



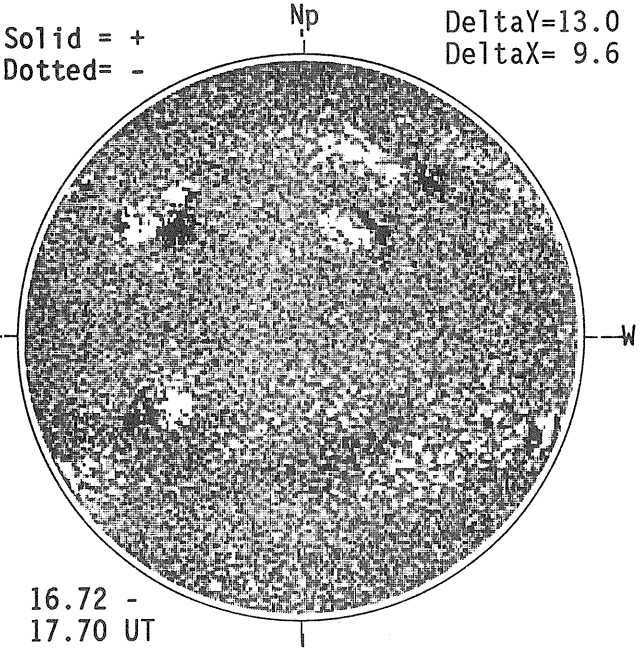
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

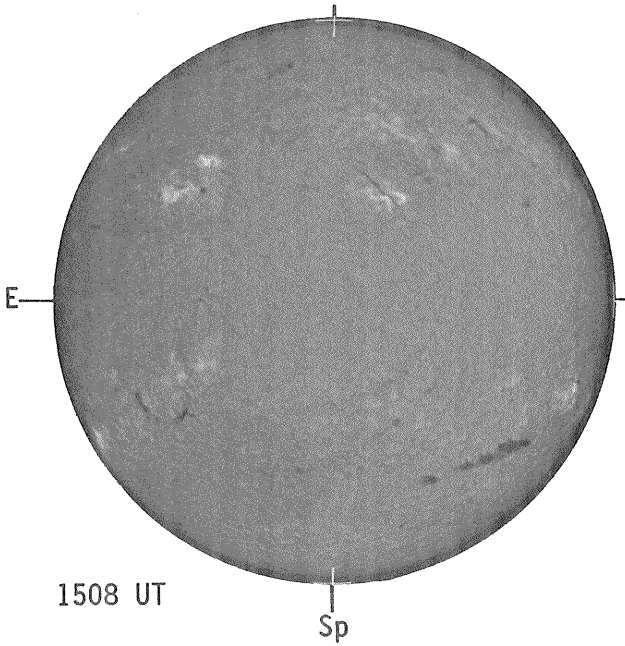


MT. WILSON MAGNETOGRAM

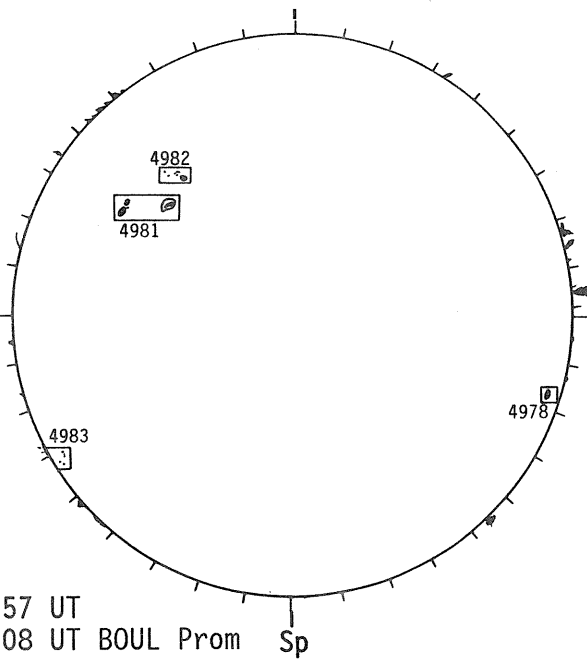
Solid = +
Dotted= -
DeltaY=13.0
DeltaX= 9.6



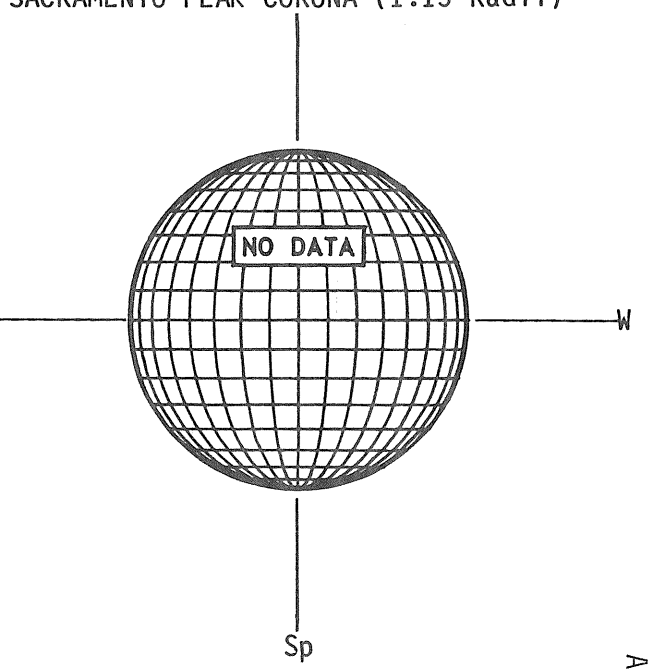
BOULDER H-ALPHA



BOULDER SUNSPOTS

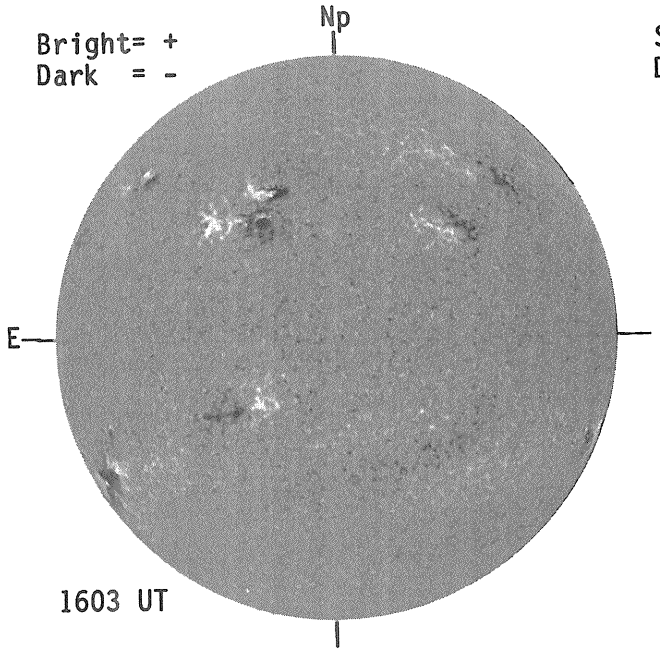


SACRAMENTO PEAK CORONA (1.15 Radii)

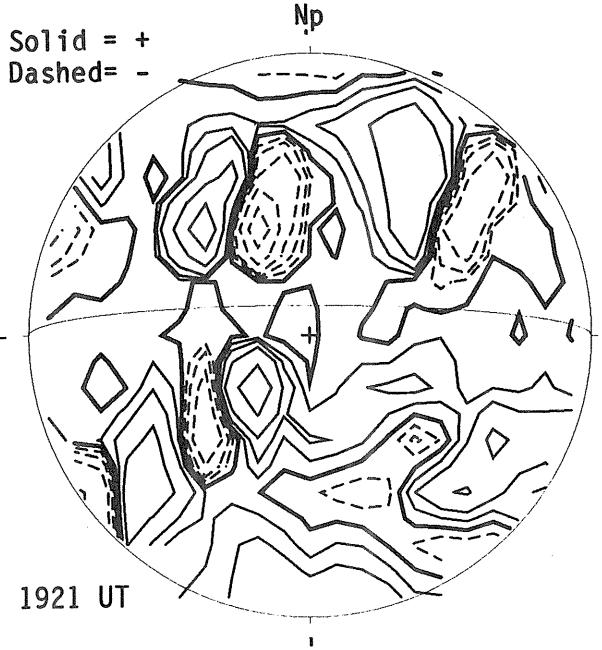


APRIL 06, 1988 (P=-26.30, B_o=-6.21, L_o= 73.64)

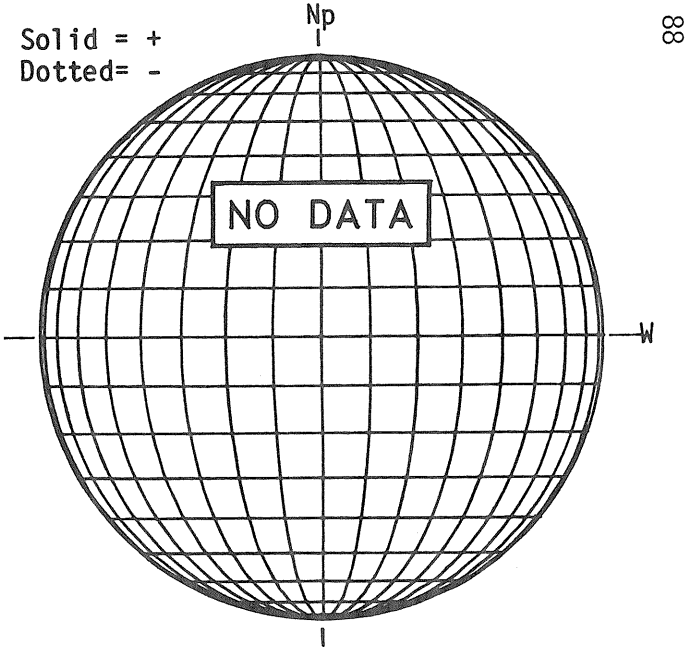
KITT PEAK MAGNETOGRAM



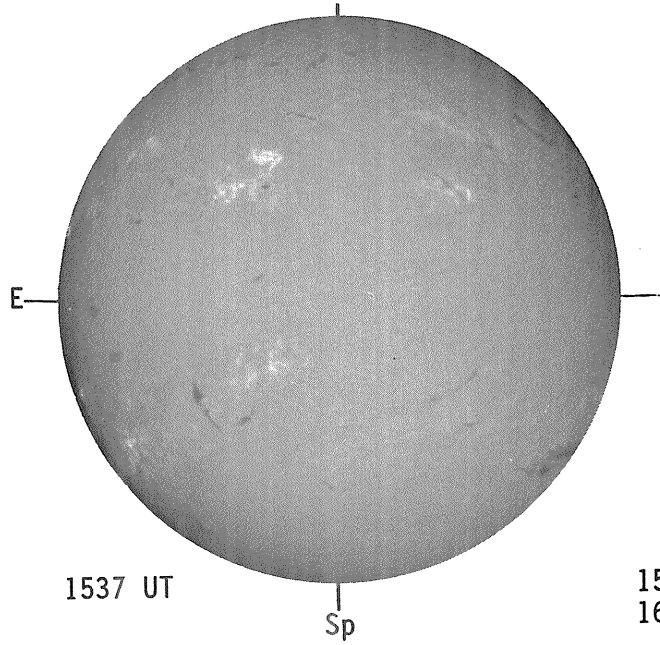
STANFORD MAGNETOGRAM



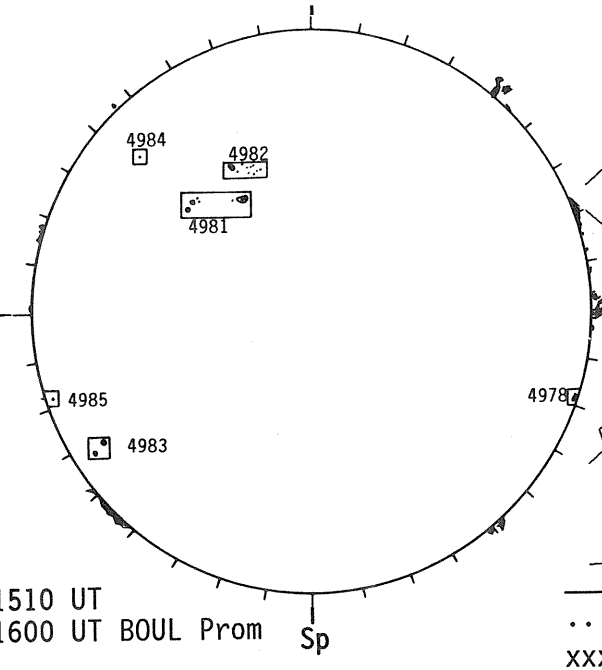
MT. WILSON MAGNETOGRAM



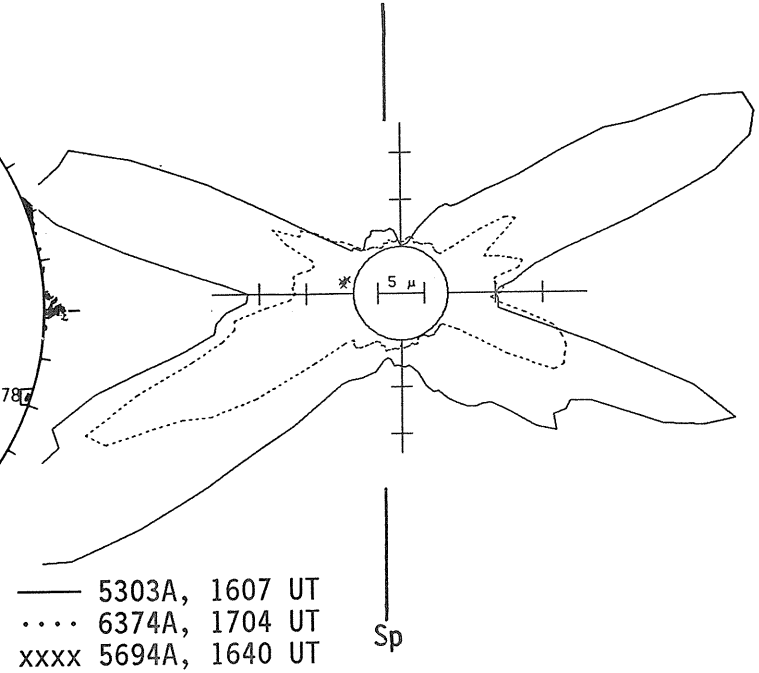
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



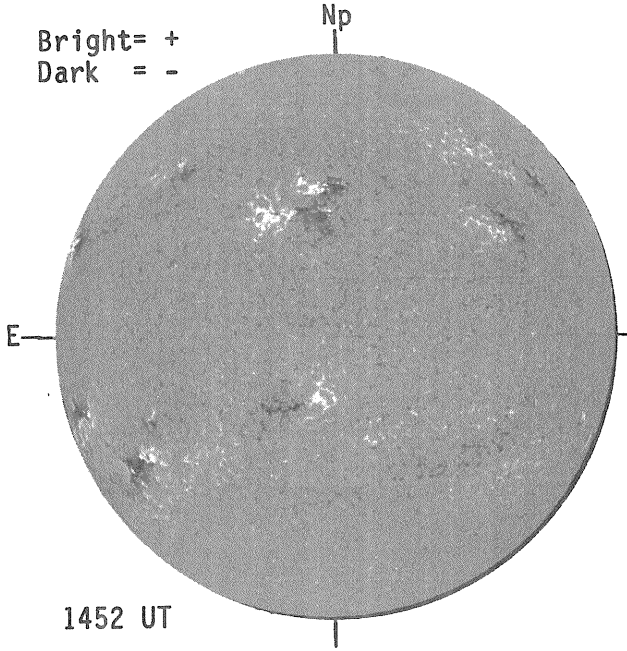
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 07, 1988 (P=-26.30, B_o=-6.15, L_o= 60.44)

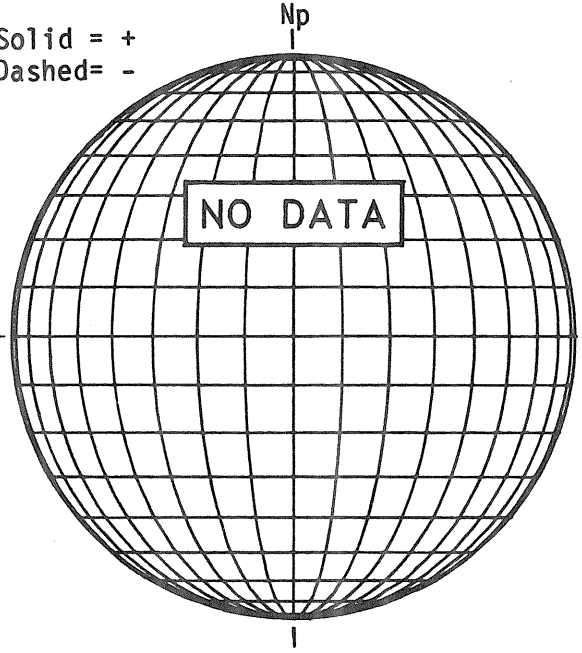
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



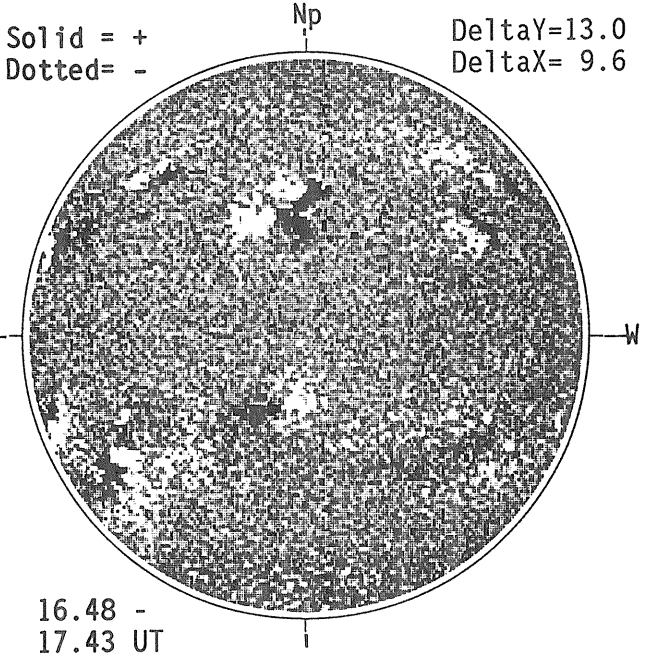
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

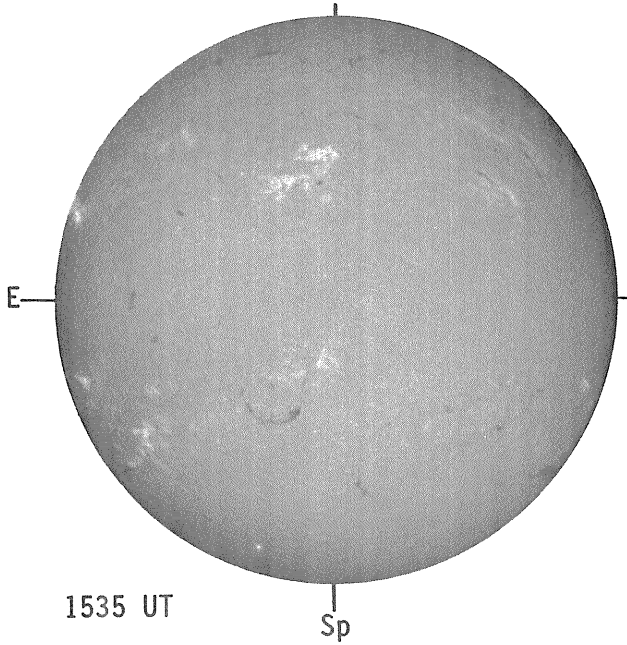


MT. WILSON MAGNETOGRAM

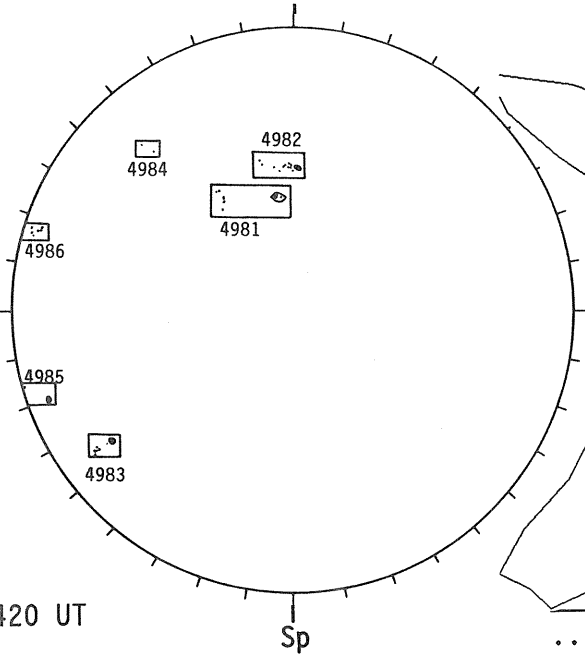
Solid = +
Dotted= -
DeltaY=13.0
DeltaX= 9.6



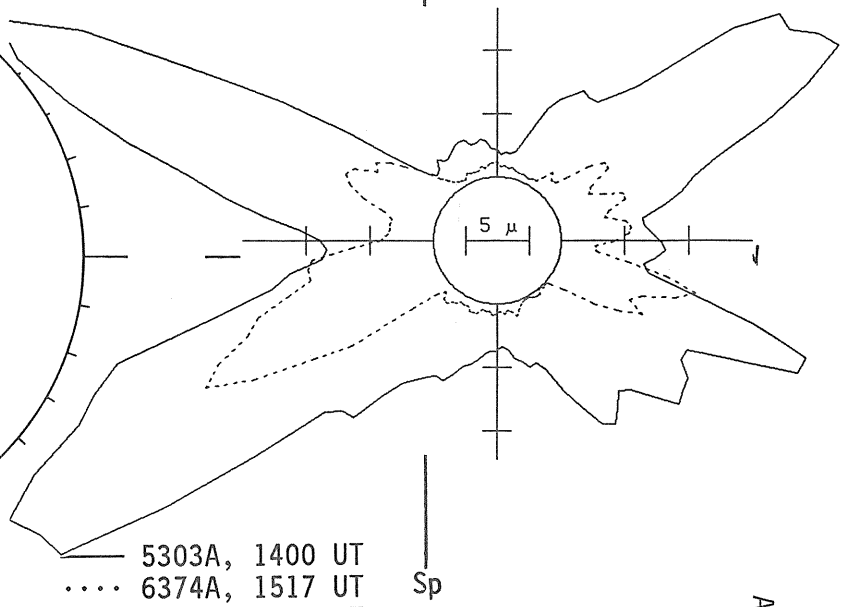
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



5303A, 1400 UT
···· 6374A, 1517 UT
xxxx 5694A 1453 UT
NO 5694A ACTIVITY TODAY

APRIL 08, 1988 (P=-26.30, B_o=-6.08, L_o= 47.25)

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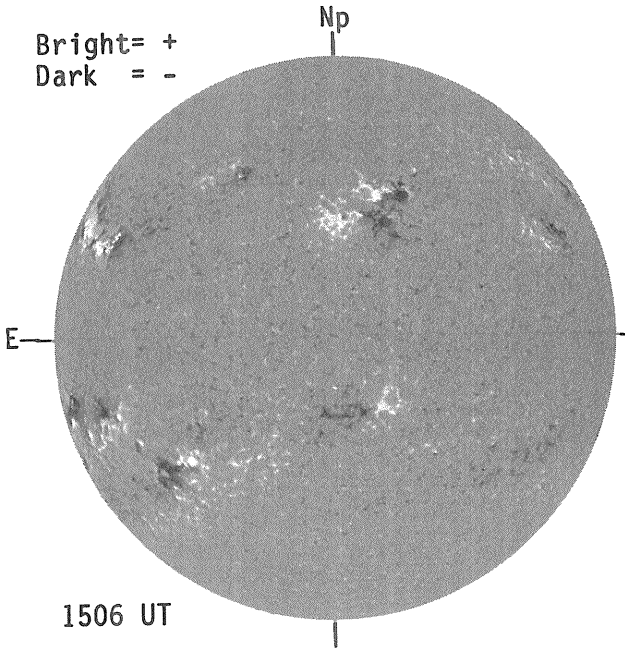
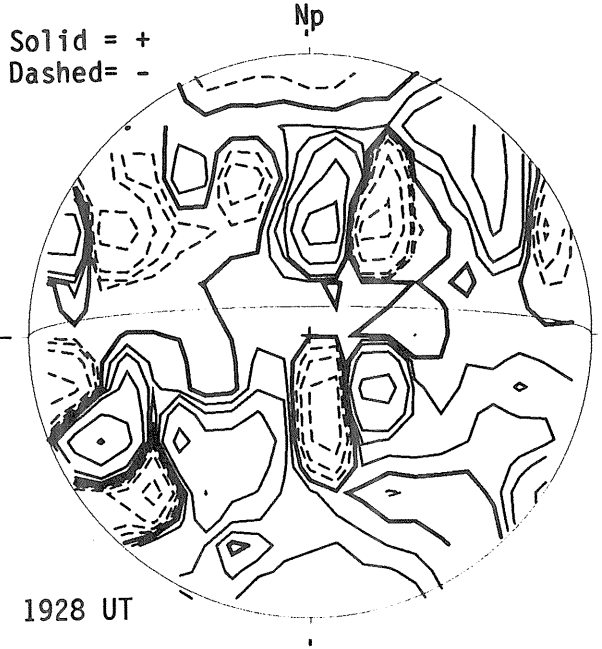
Apr 88

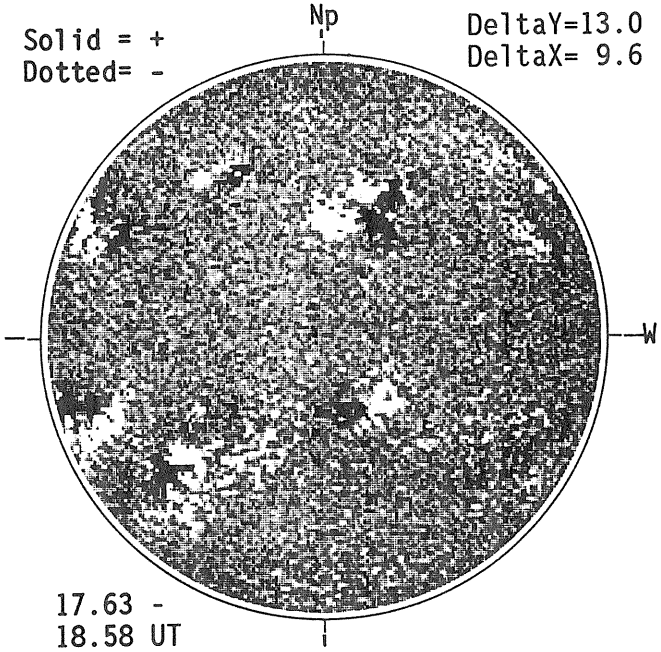
KITT PEAK MAGNETOGRAM



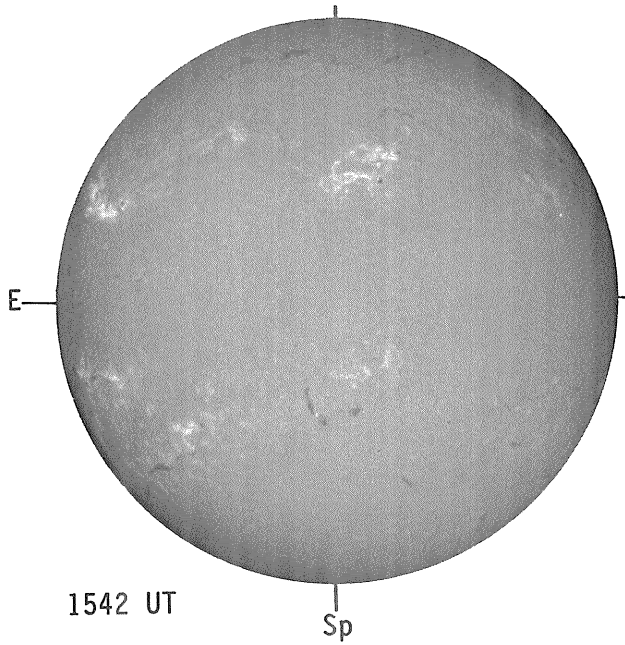
STANFORD MAGNETOGRAM



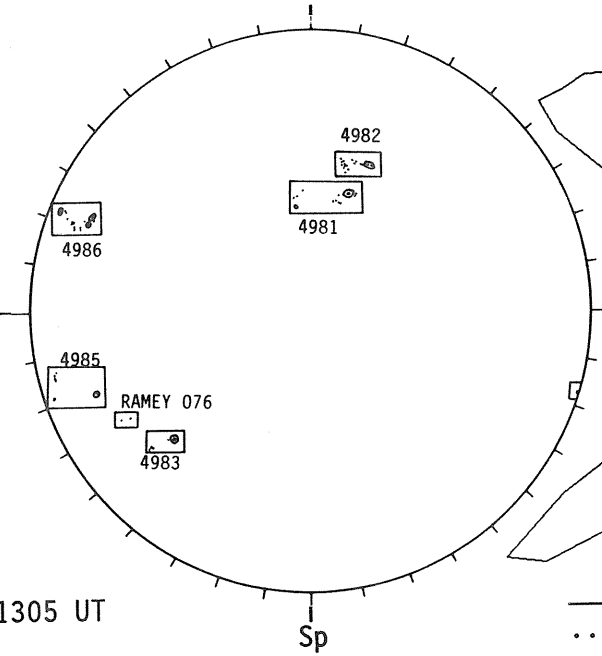
MT. WILSON MAGNETOGRAM



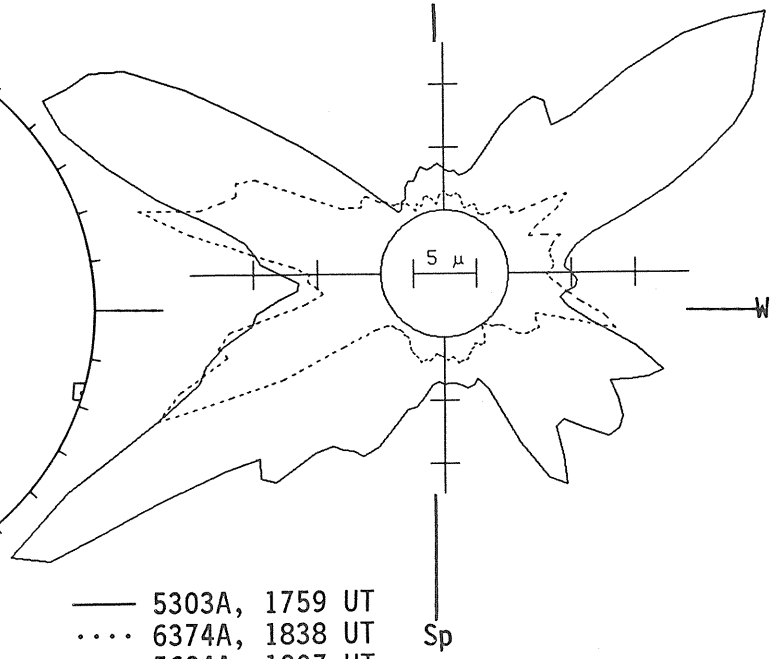
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

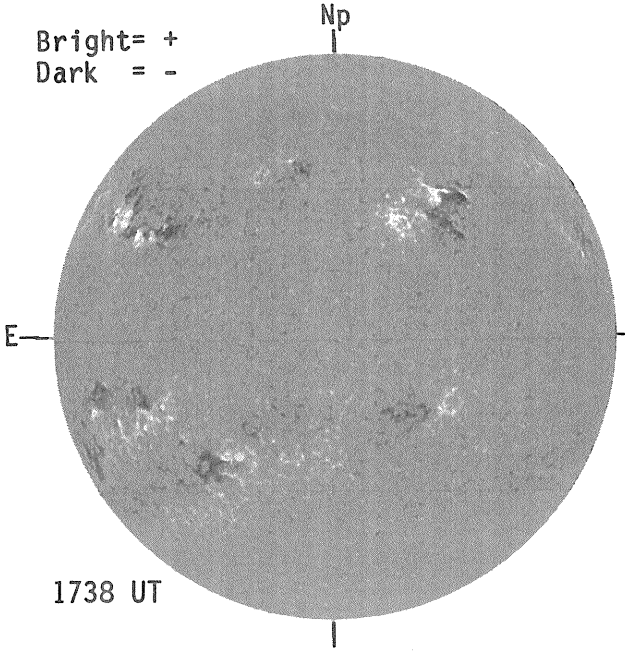


—— 5303A, 1759 UT
···· 6374A, 1838 UT
xxxx 5694A, 1907 UT
NO 5694A ACTIVITY TODAY

APRIL 09, 1988 (P=-26.28, B_o=-6.01, L_o= 34.05)

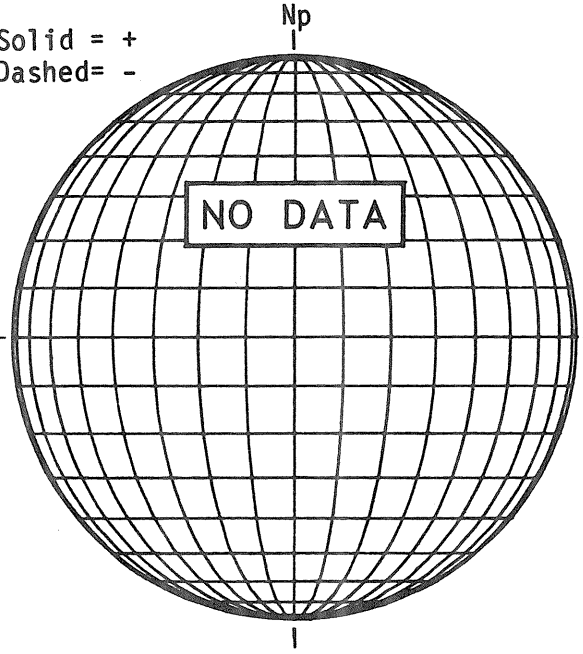
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



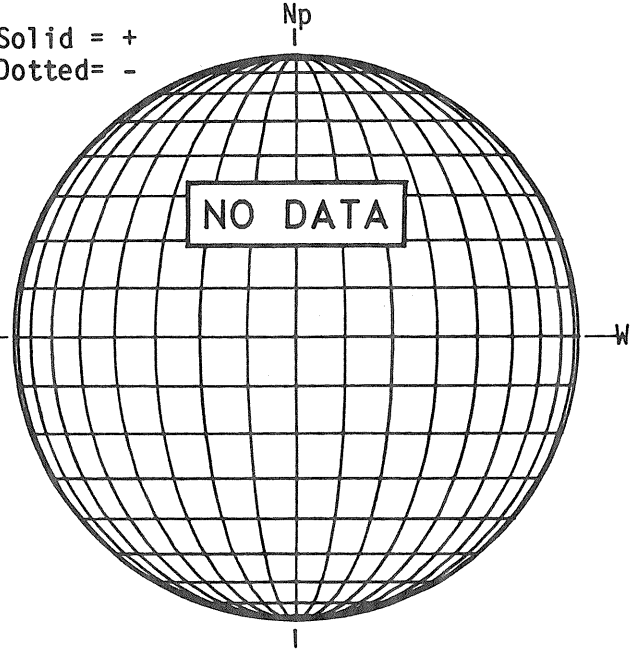
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

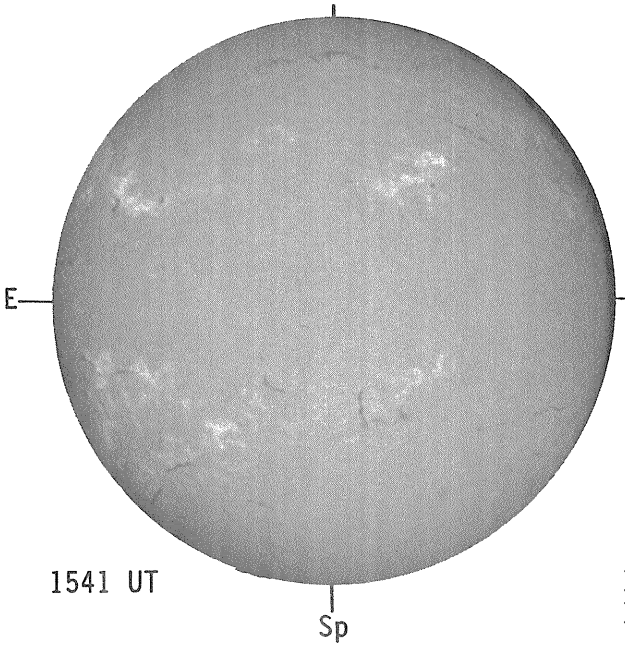


MT. WILSON MAGNETOGRAM

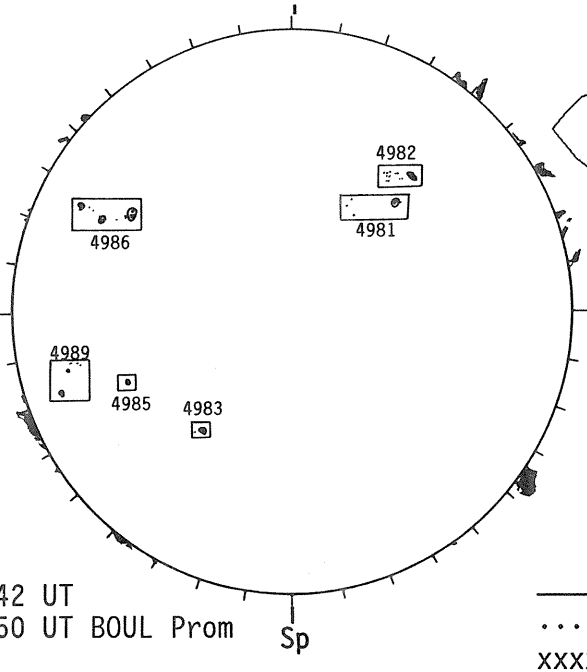
Solid = +
Dotted= -



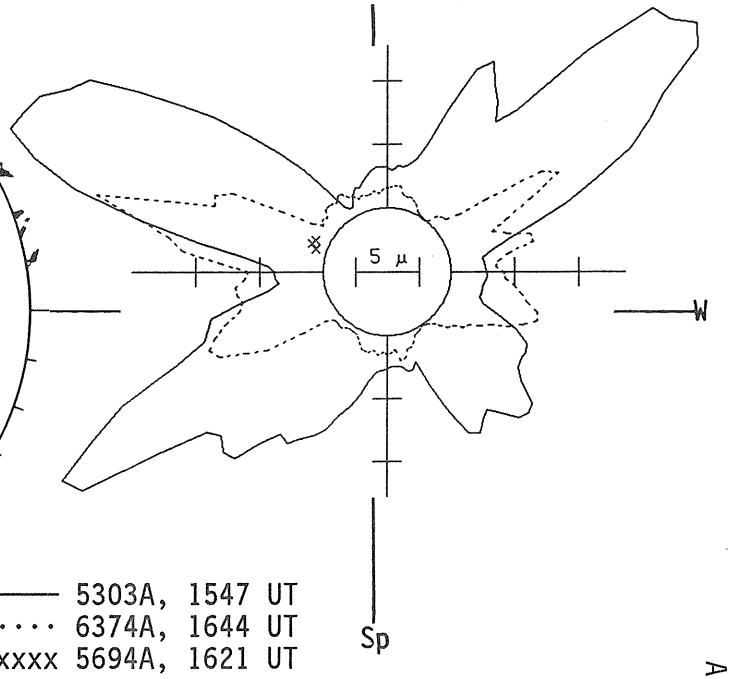
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

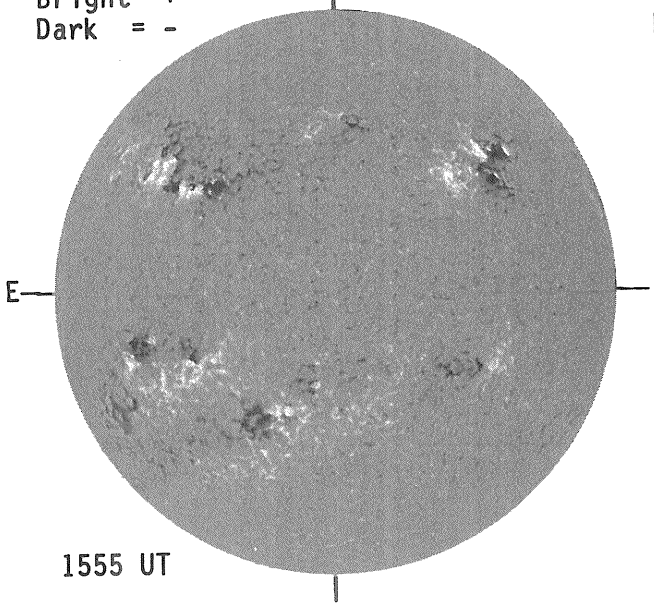


—— 5303A, 1547 UT
···· 6374A, 1644 UT
xxxx 5694A, 1621 UT

APRIL 10, 1988 (P=-26.26, B_o=-5.94, L_o= 20.85)

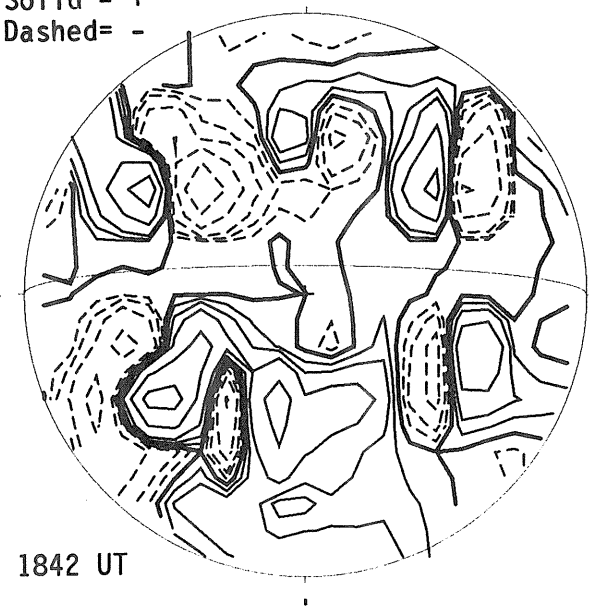
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



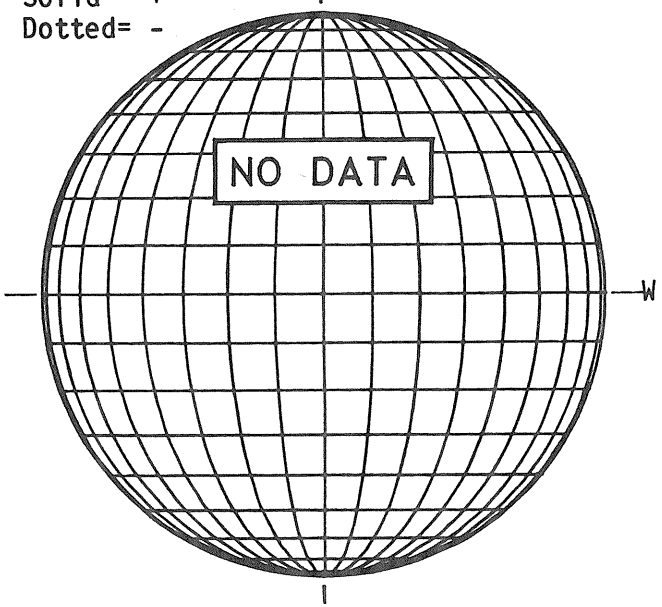
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

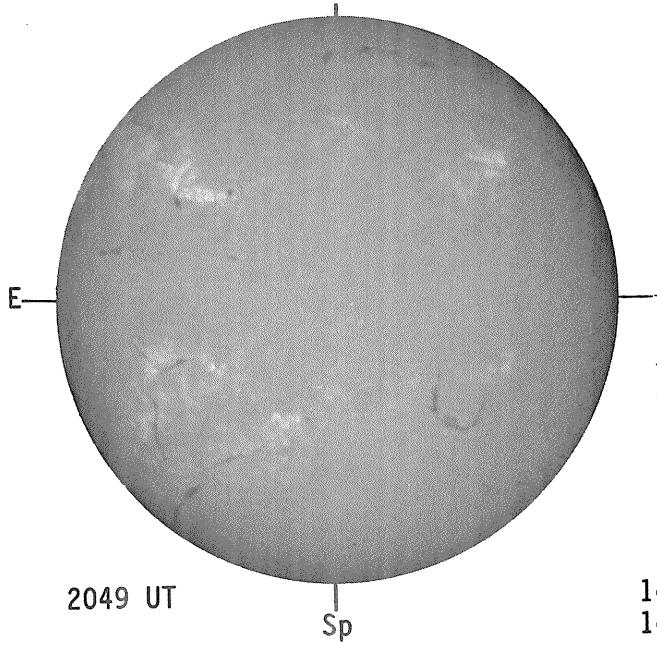


MT. WILSON MAGNETOGRAM

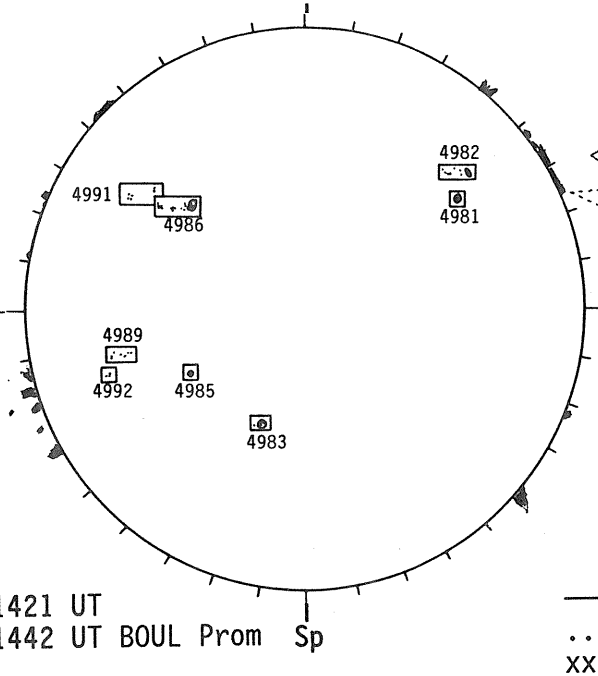
Solid = +
Dotted= -



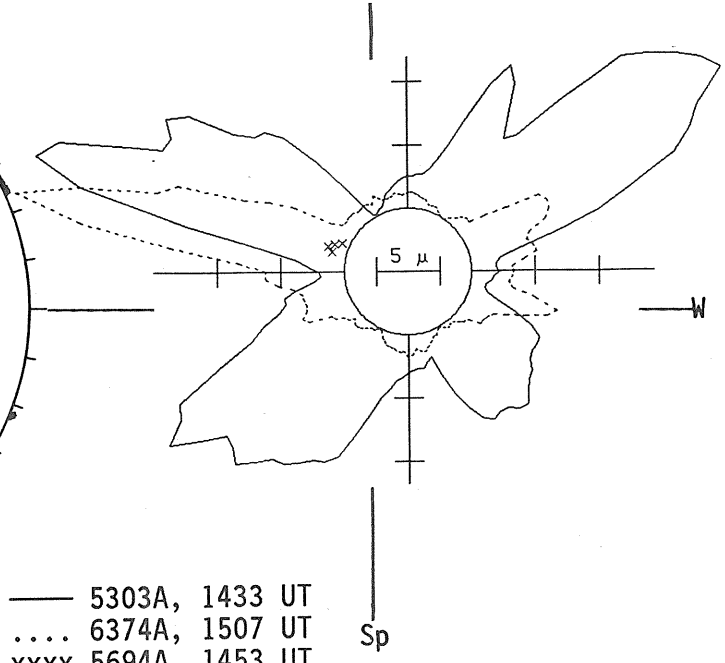
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

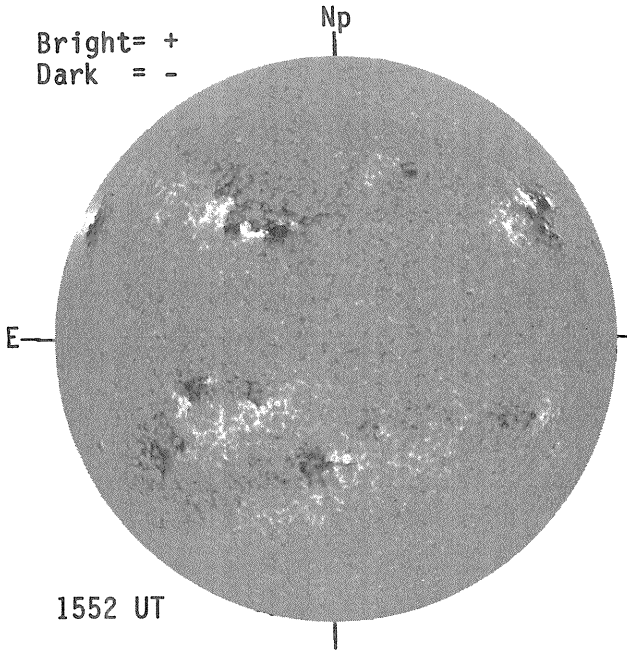


—— 5303A, 1433 UT
.... 6374A, 1507 UT
xxxx 5694A, 1453 UT

APRIL 11, 1988 (P=-26.23, B_o=-5.87, L_o= 7.65)

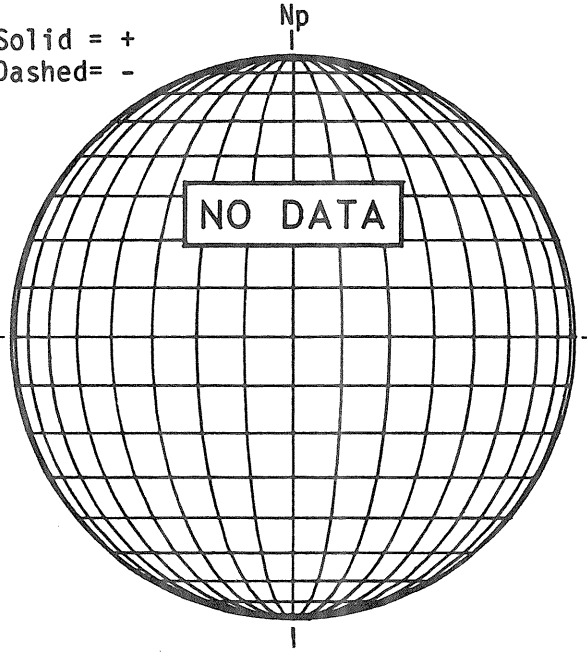
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



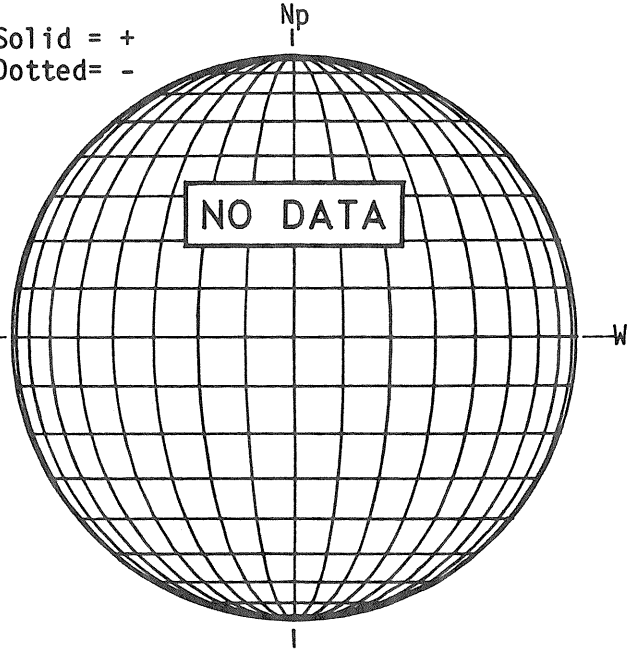
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

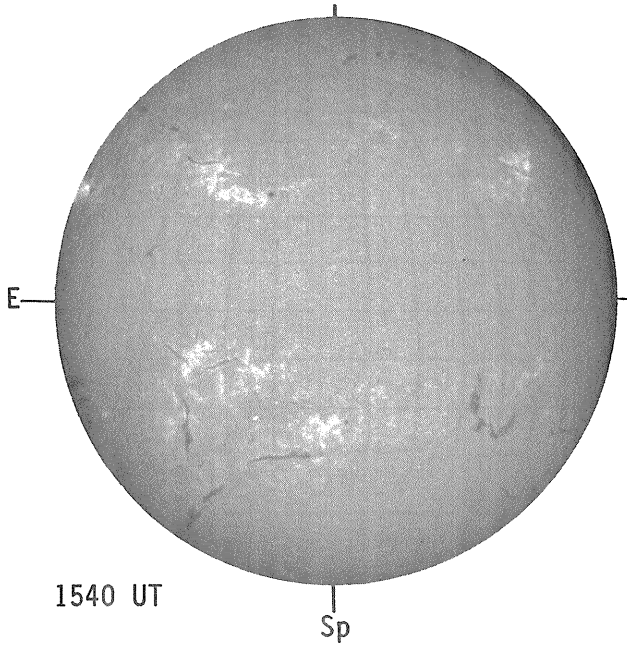


MT. WILSON MAGNETOGRAM

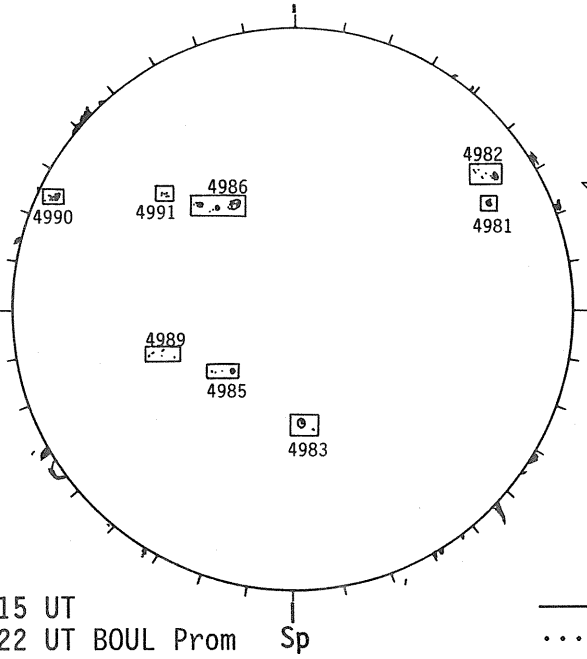
Solid = +
Dotted= -



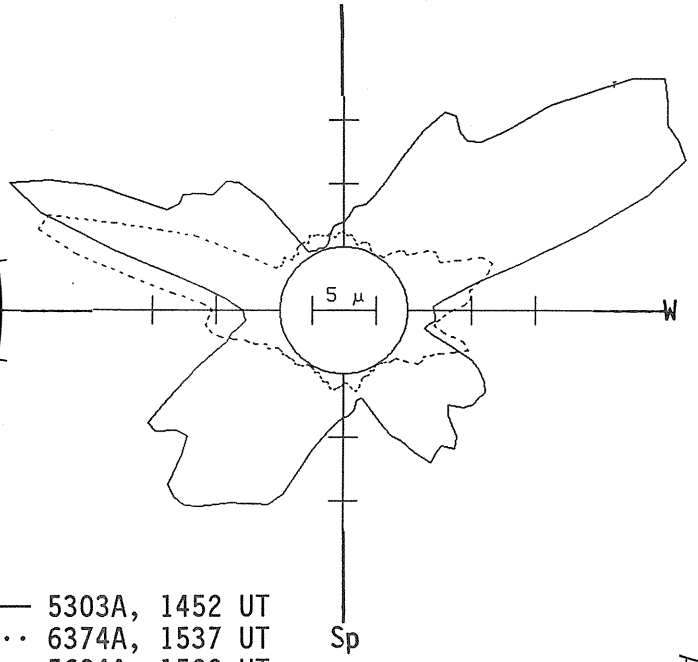
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

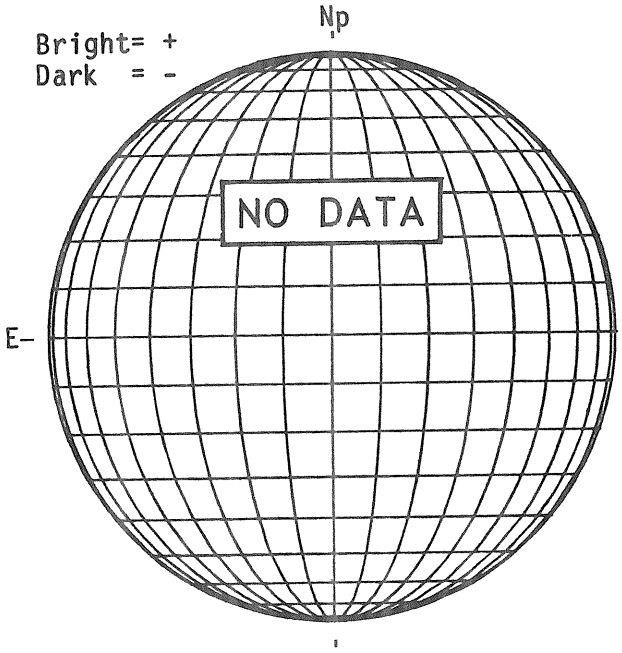


—— 5303A, 1452 UT
···· 6374A, 1537 UT
xxxx 5694A, 1522 UT
NO 5694A ACTIVITY TODAY

APRIL 12, 1988 (P=-26.20, B_o=-5.80, L_o= 354.45)

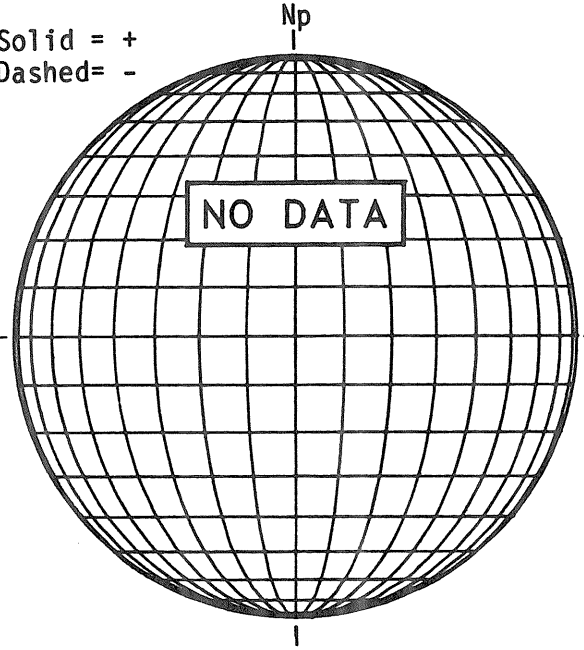
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



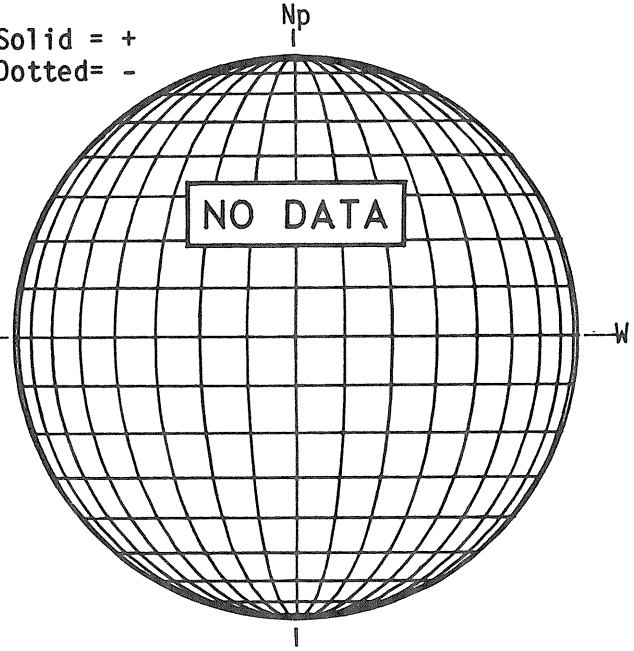
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

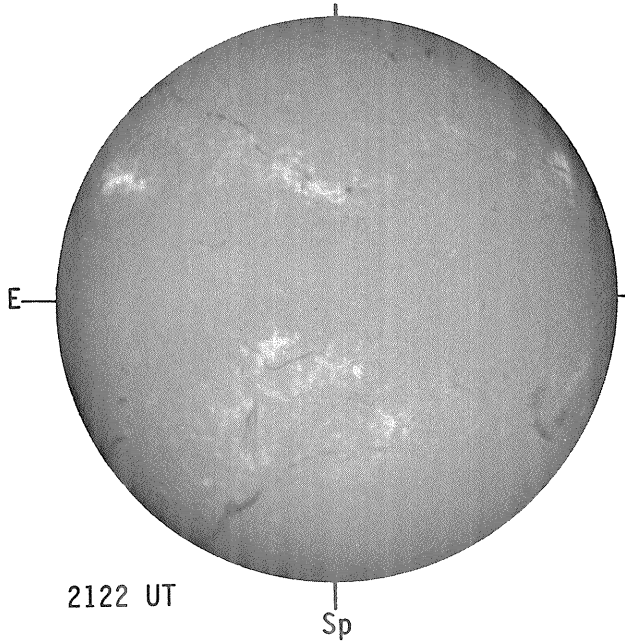


MT. WILSON MAGNETOGRAM

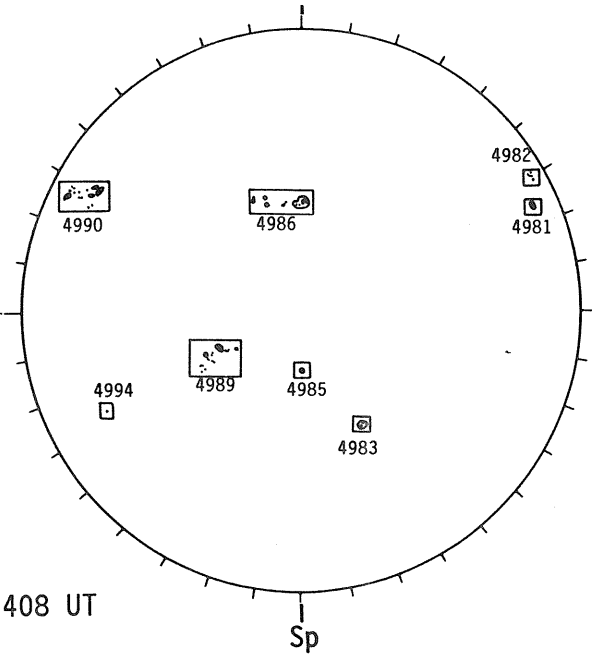
Solid = +
Dotted= -



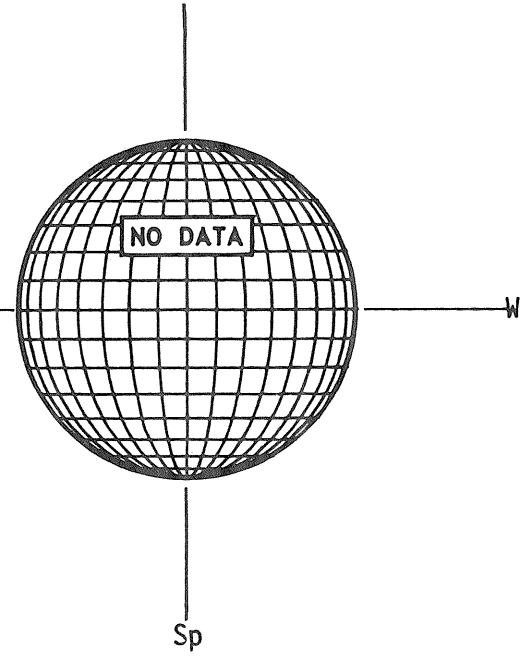
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



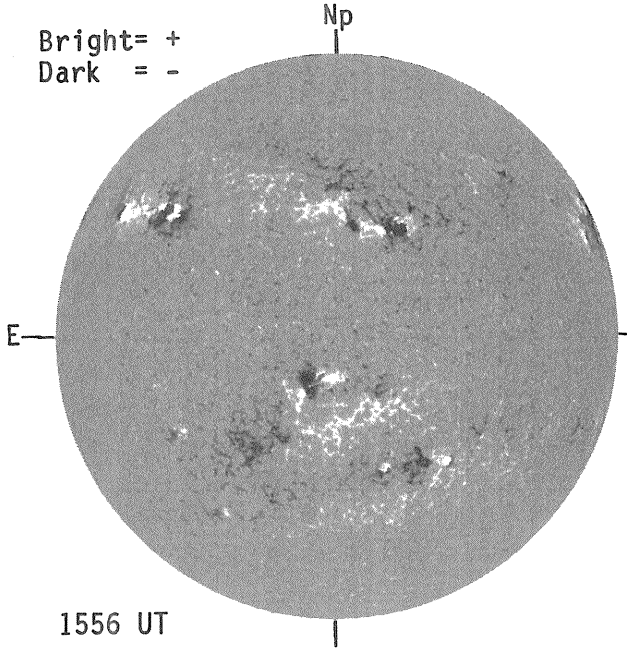
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 13, 1988 (P=-26.15, B_o=-5.72, L_o= 341.24)

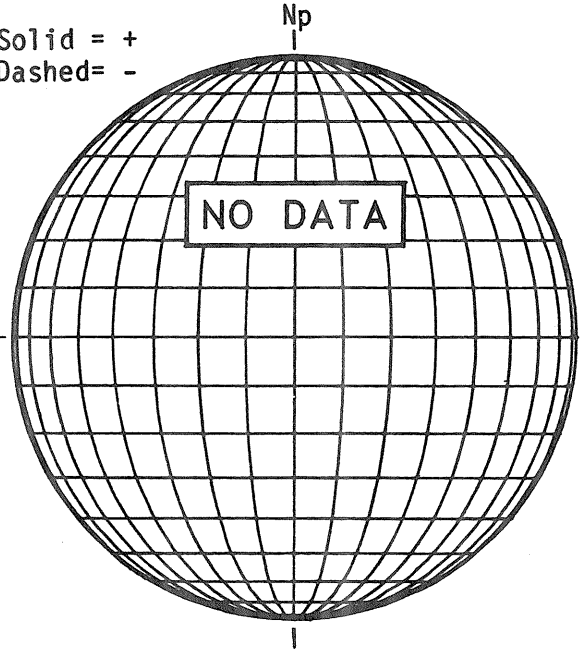
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



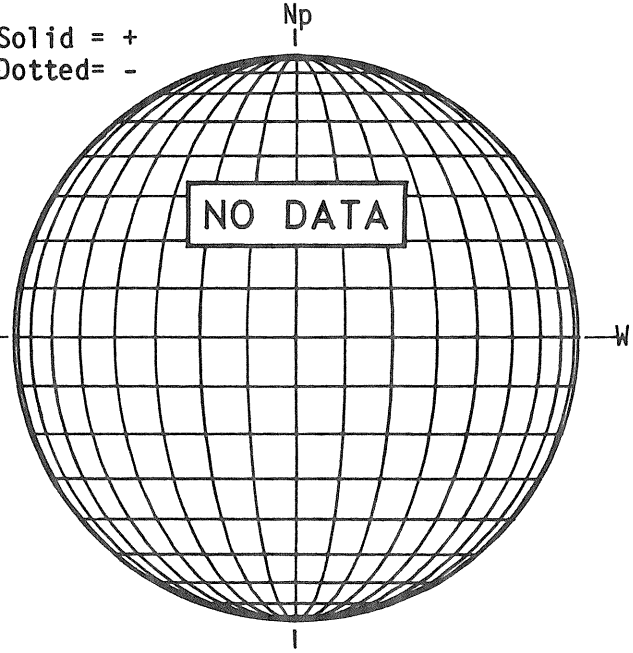
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

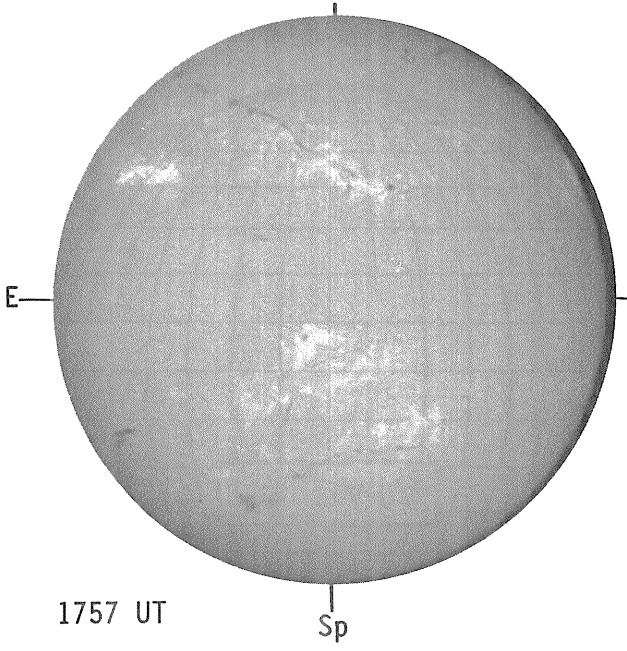


MT. WILSON MAGNETOGRAM

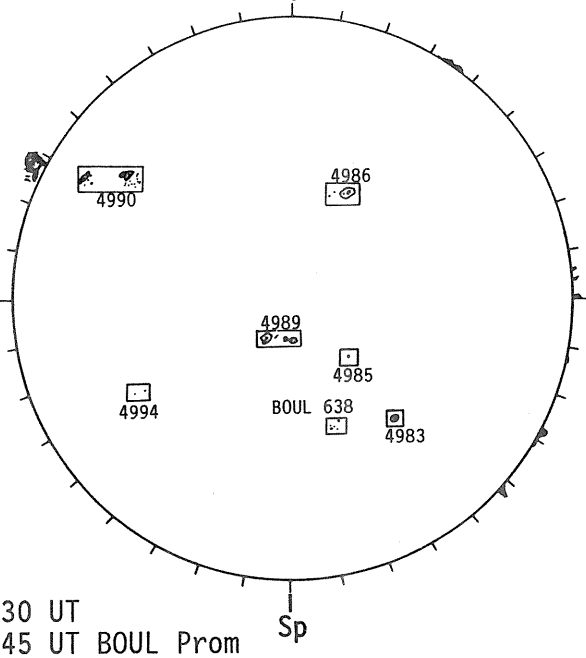
Solid = +
Dotted= -



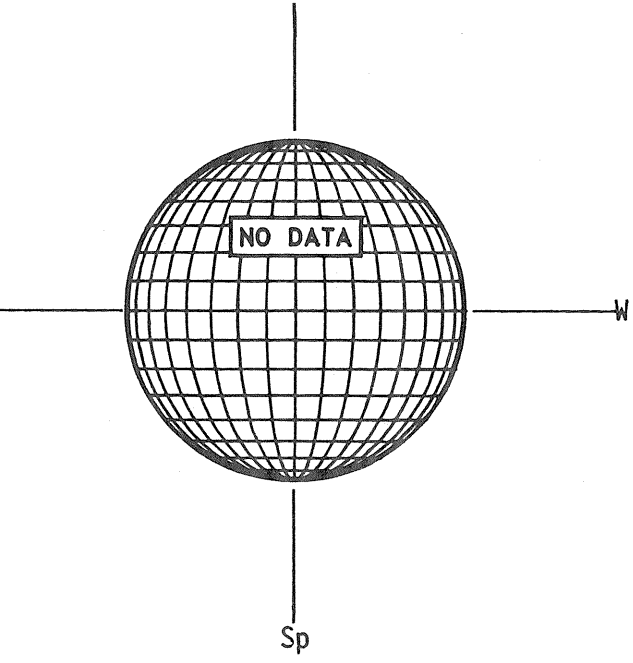
SACRAMENTO PEAK H-ALPHA



BOULDER, SUNSPOTS



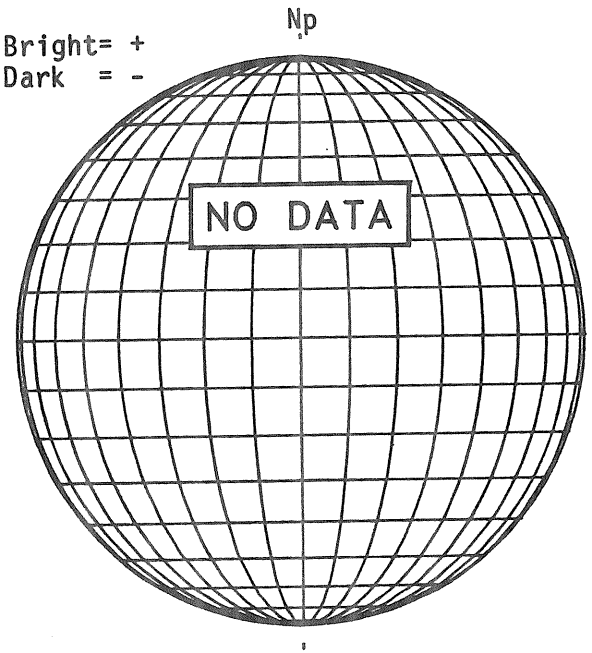
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 14, 1988 (P=-26.10, B_o=-5.65, L_o= 328.04)

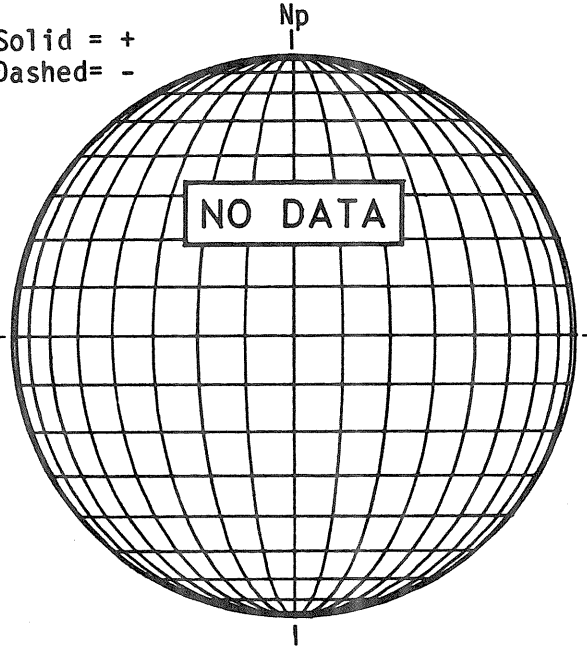
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



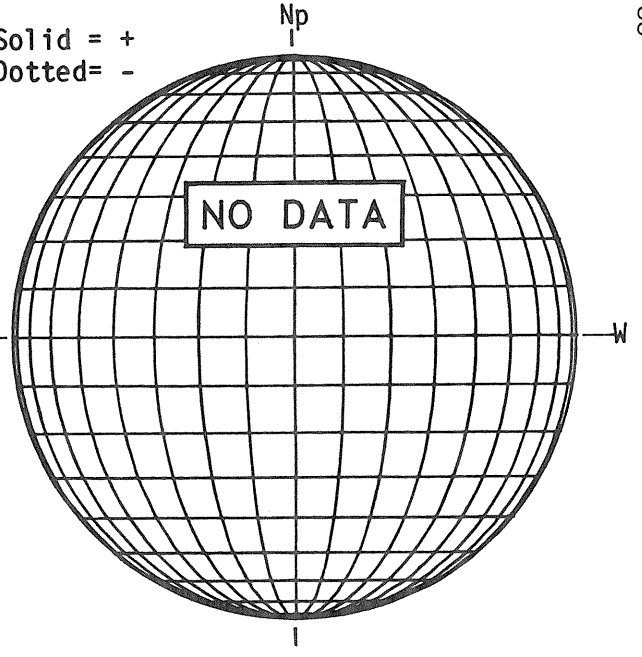
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

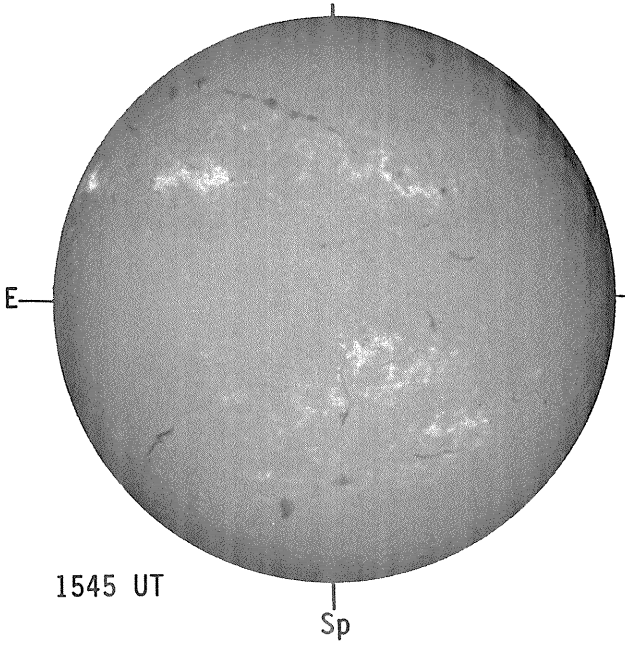


MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

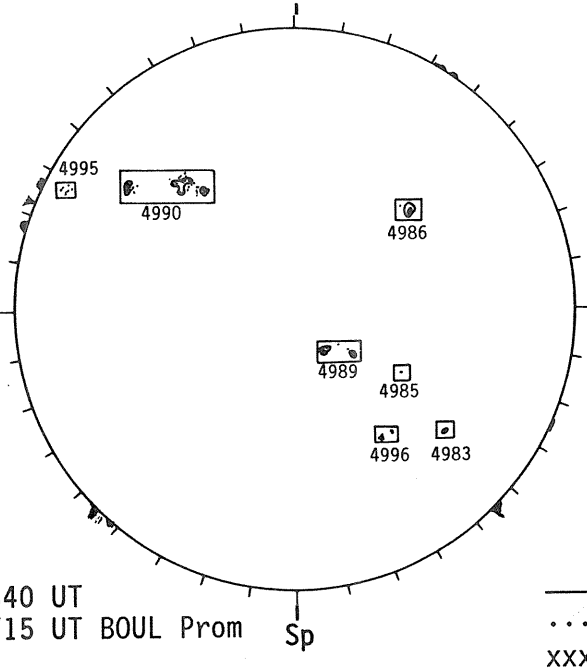


SACRAMENTO PEAK H-ALPHA



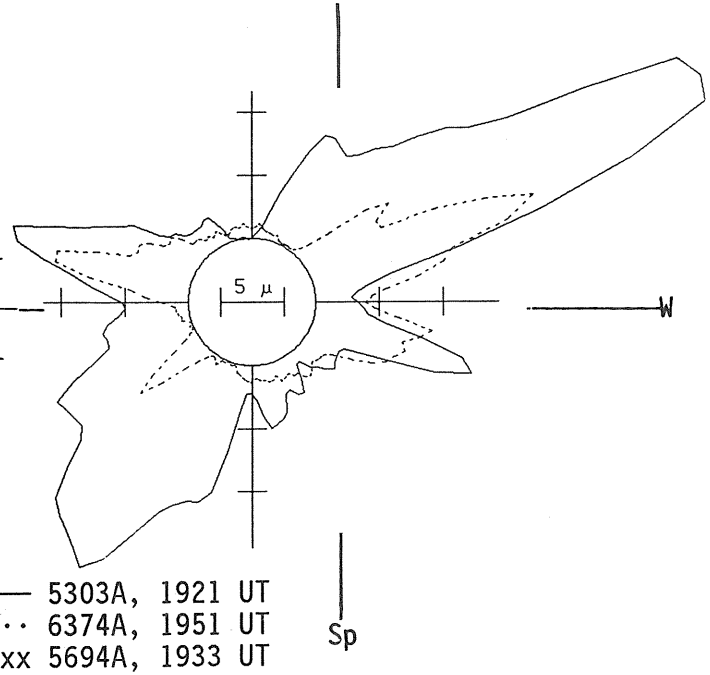
1545 UT

BOULDER SUNSPOTS



1340 UT
1715 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

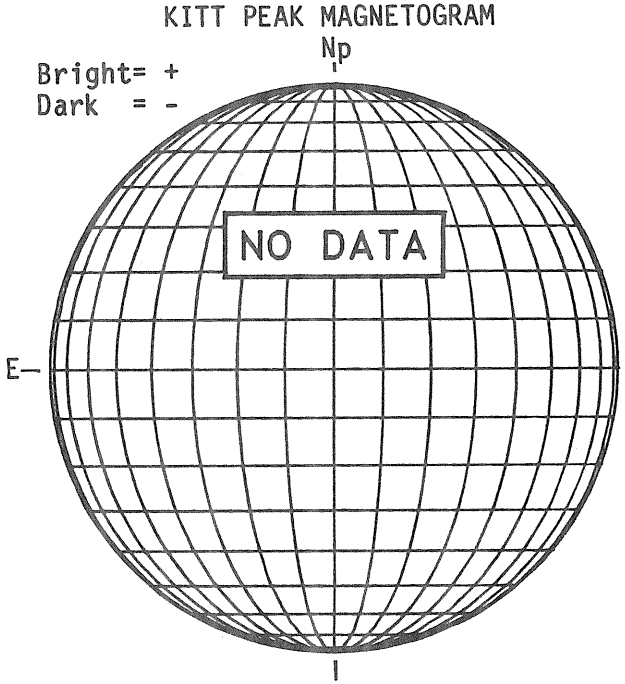


—— 5303A, 1921 UT
···· 6374A, 1951 UT
xxxx 5694A, 1933 UT
NO 5694A ACTIVITY TODAY

APRIL 15, 1988 (P=-26.04, B_o=-5.57, L_o= 314.84)

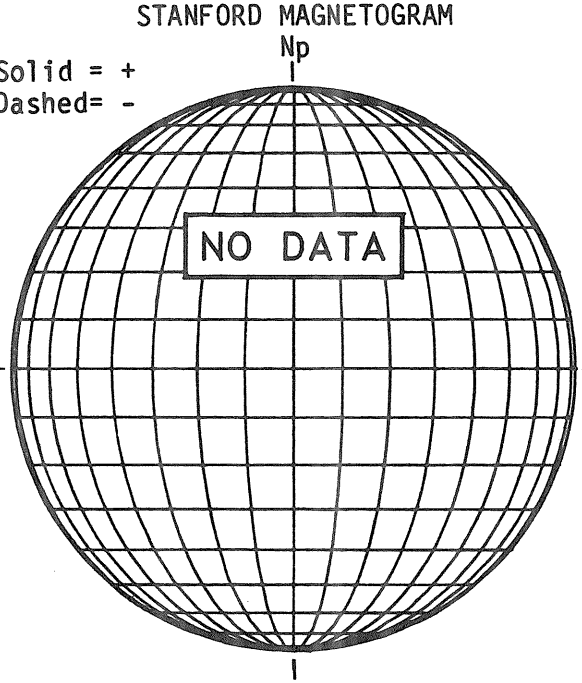
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



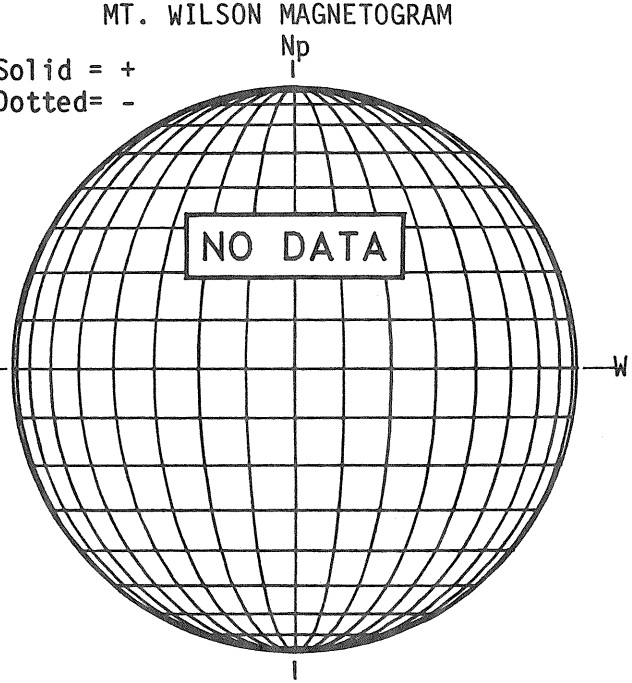
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

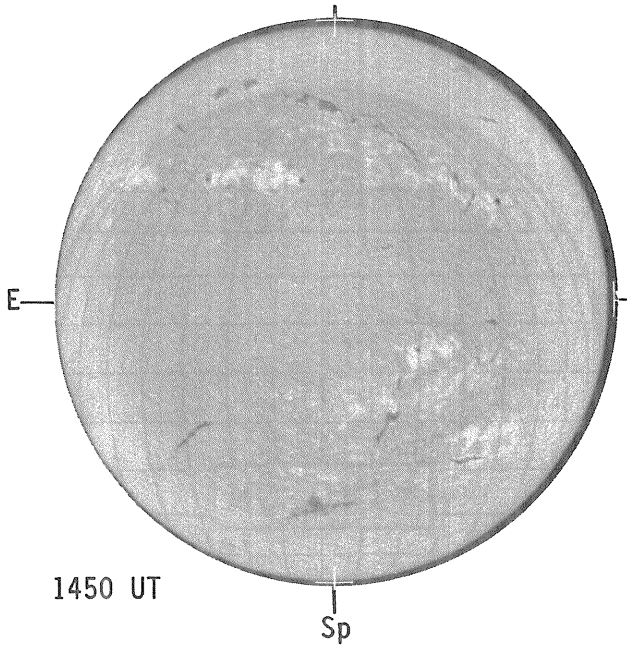


MT. WILSON MAGNETOGRAM

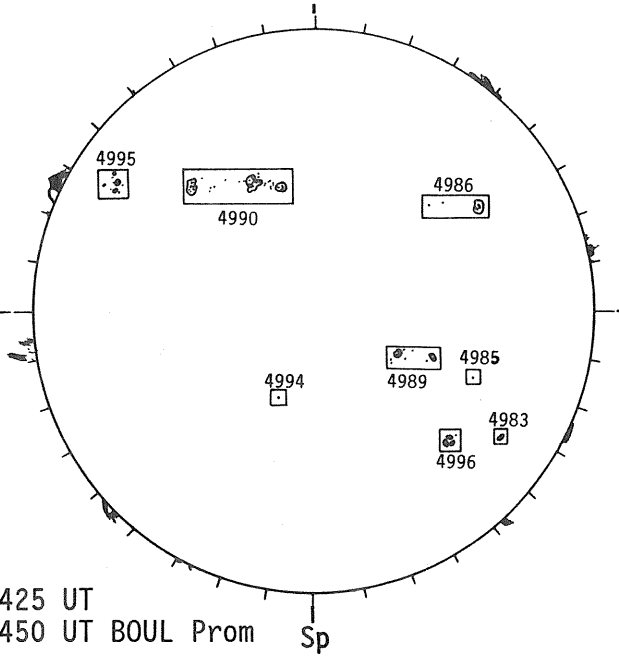
Solid = +
Dotted= -



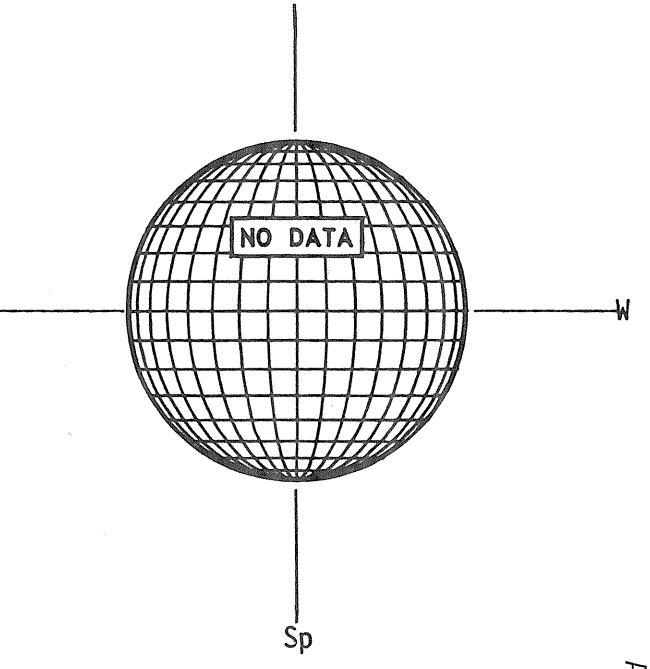
BOULDER H-ALPHA



BOULDER SUNSPOTS



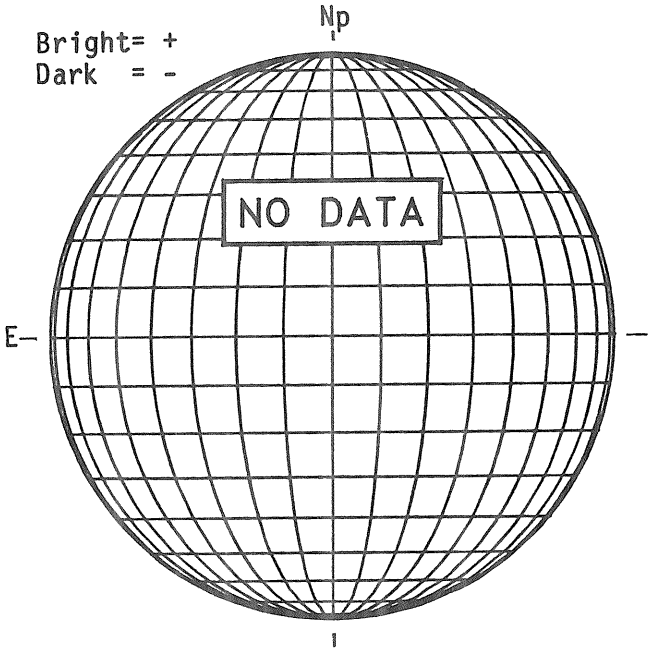
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 16, 1988 (P=-25.98, B_o=-5.49, L_o= 301.64)

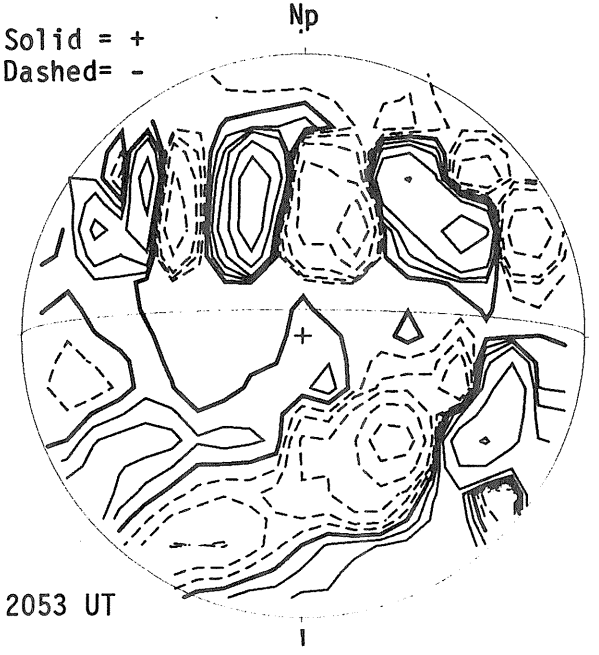
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



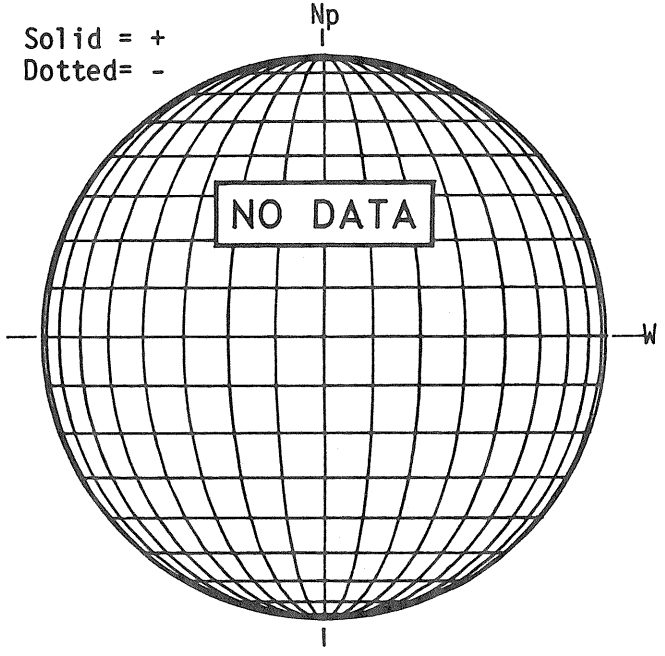
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

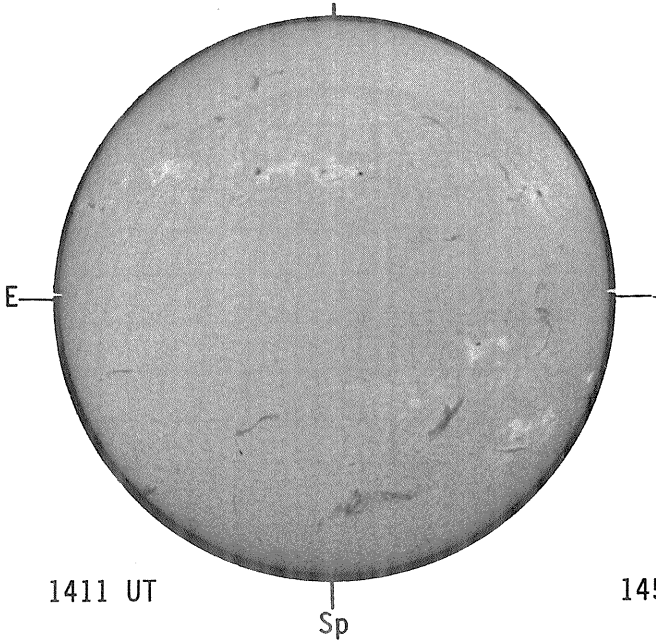


MT. WILSON MAGNETOGRAM

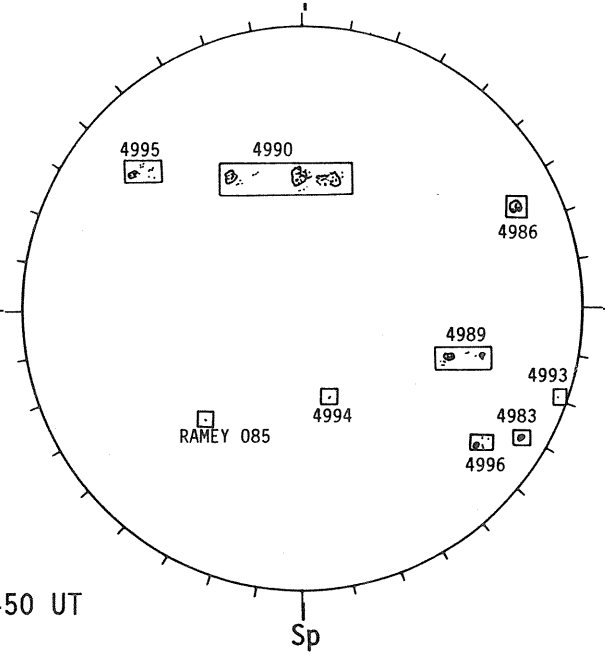
Solid = +
Dotted= -



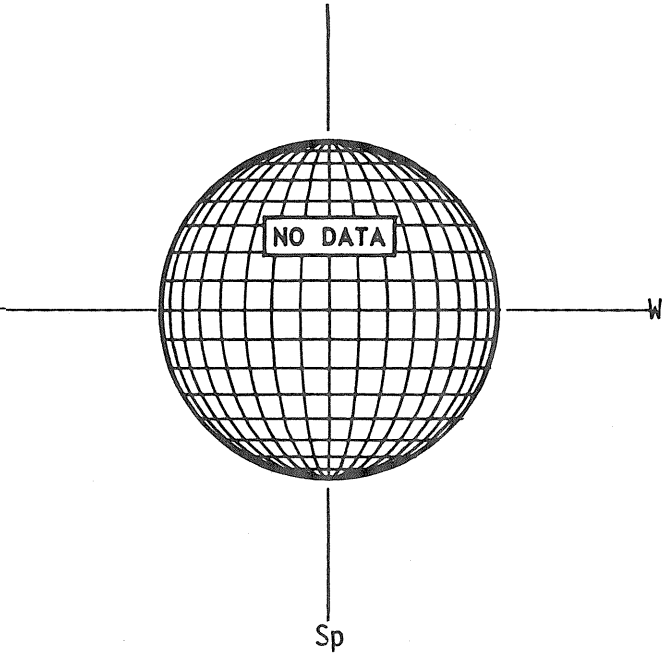
HOLLOMAN H-ALPHA



RAMEY SUNSPOTS



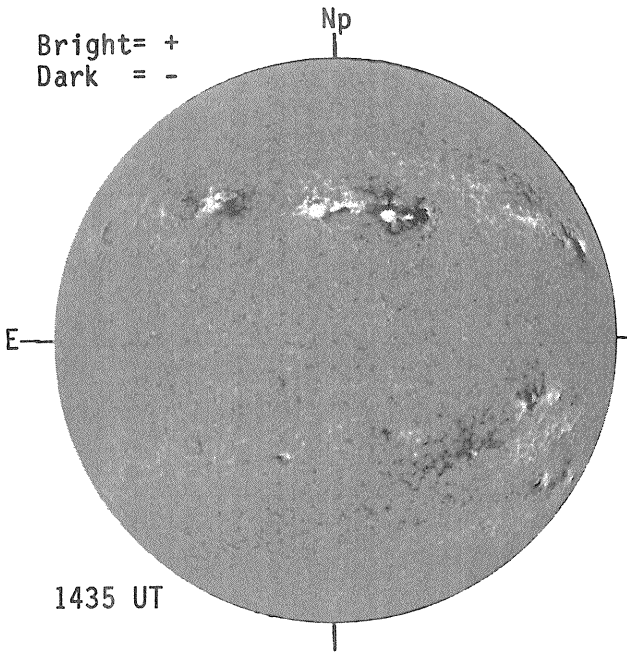
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 17, 1988 (P=-25.71, B_o=-5.41, L_o= 288.43)

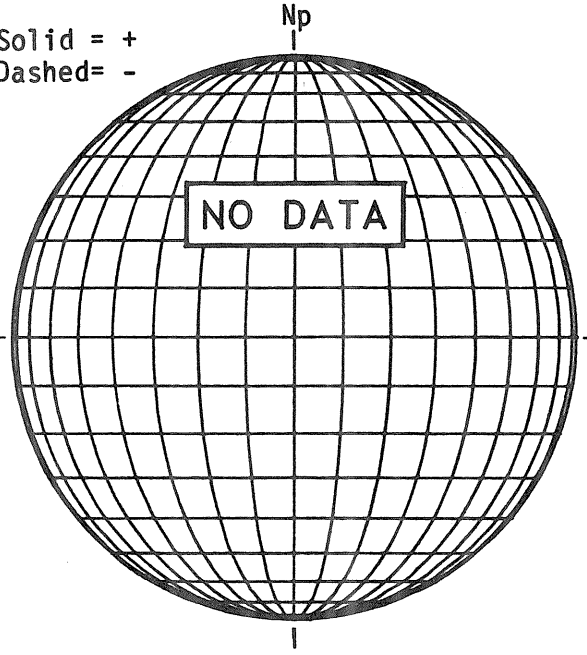
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



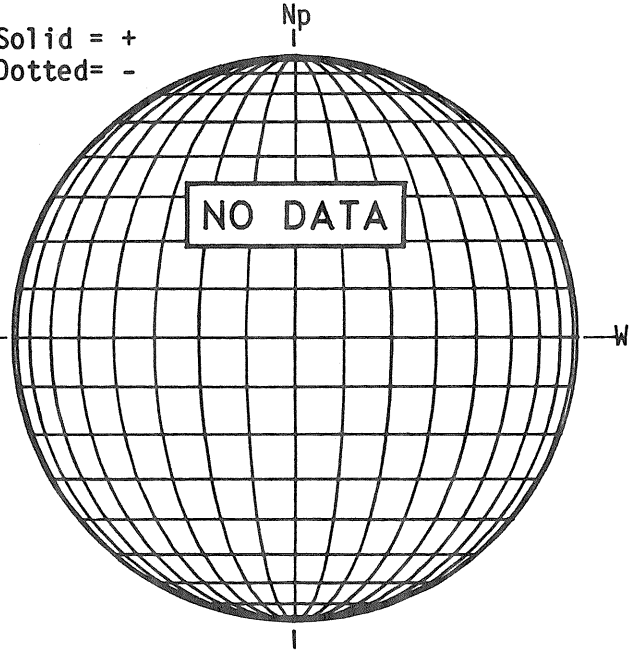
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

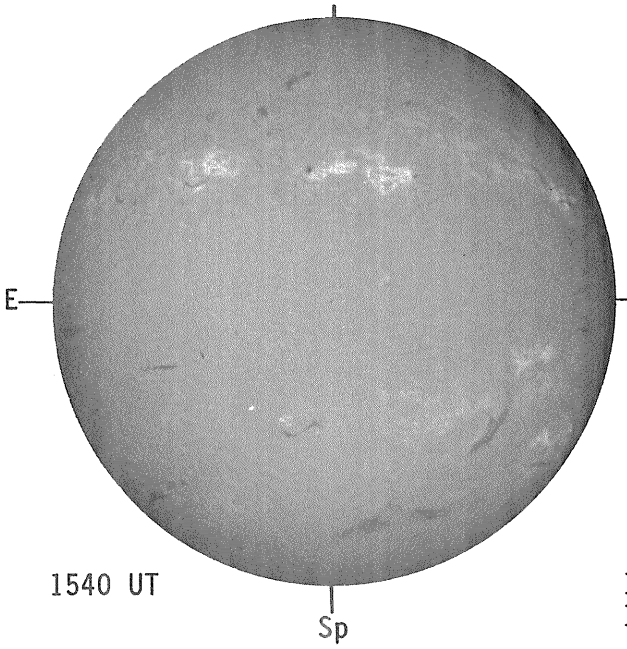


MT. WILSON MAGNETOGRAM

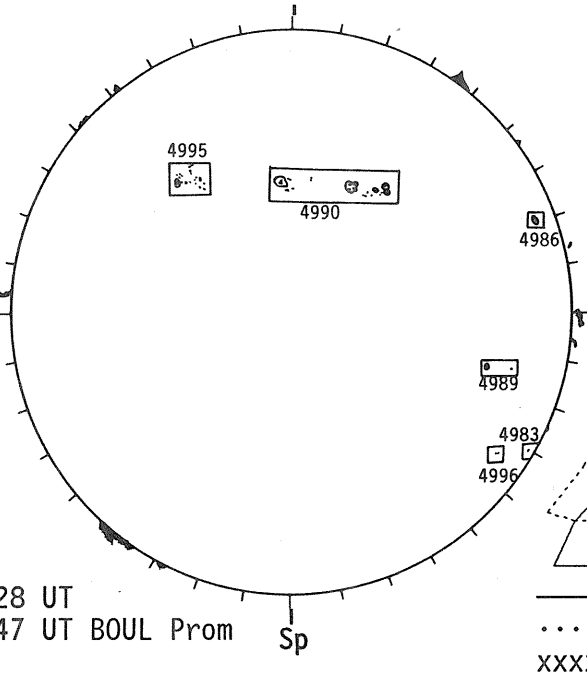
Solid = +
Dotted= -



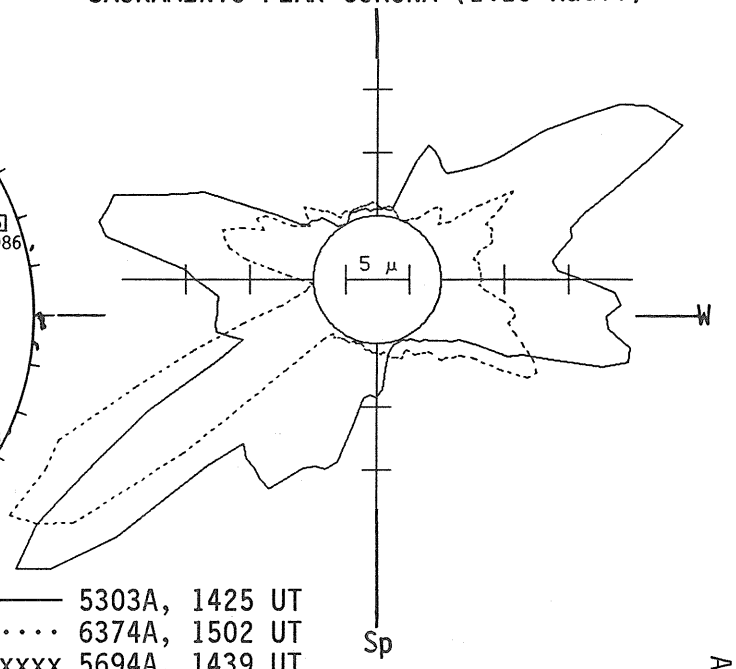
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

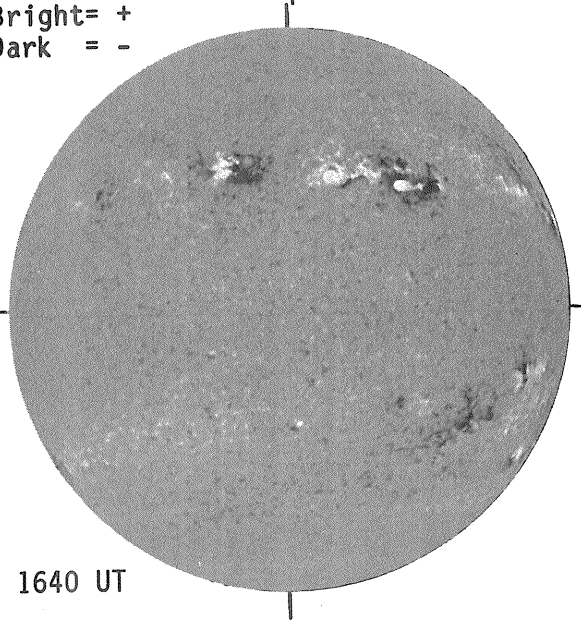


—— 5303A, 1425 UT
···· 6374A, 1502 UT
xxxx 5694A, 1439 UT
NO 5694A ACTIVITY TODAY

APRIL 18, 1988 (P=-25.82, B_o=-5.32, L_o= 275.22)

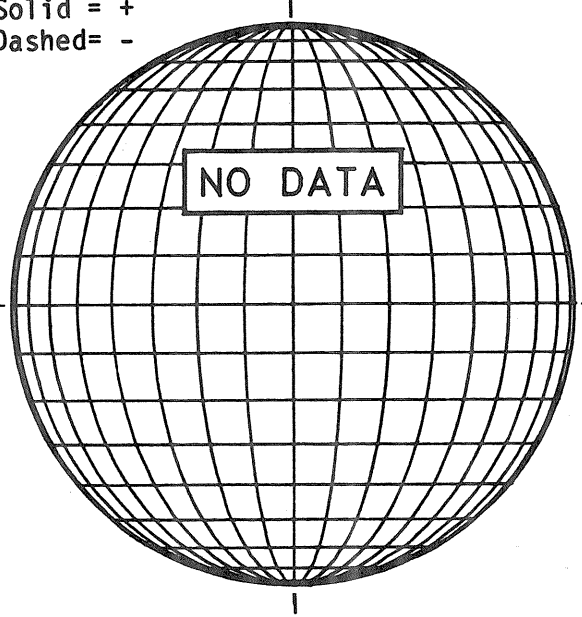
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



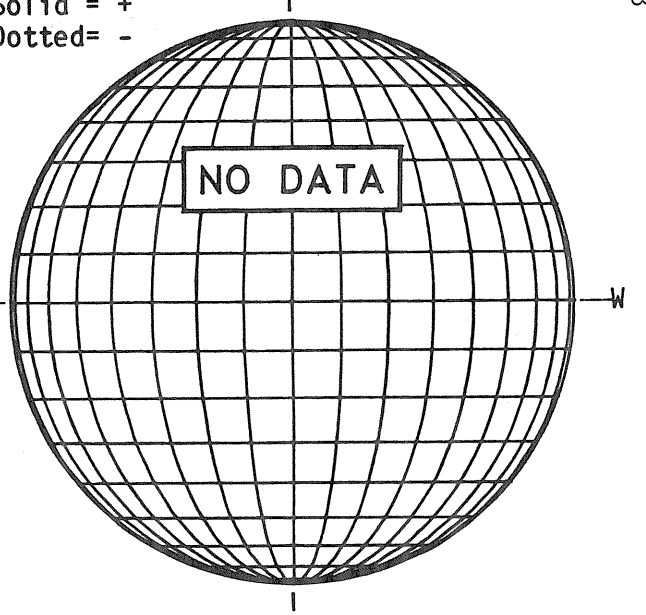
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

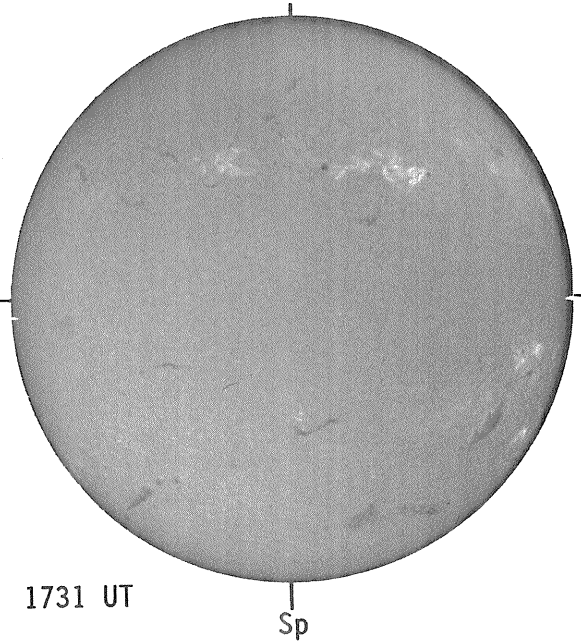


MT. WILSON MAGNETOGRAM

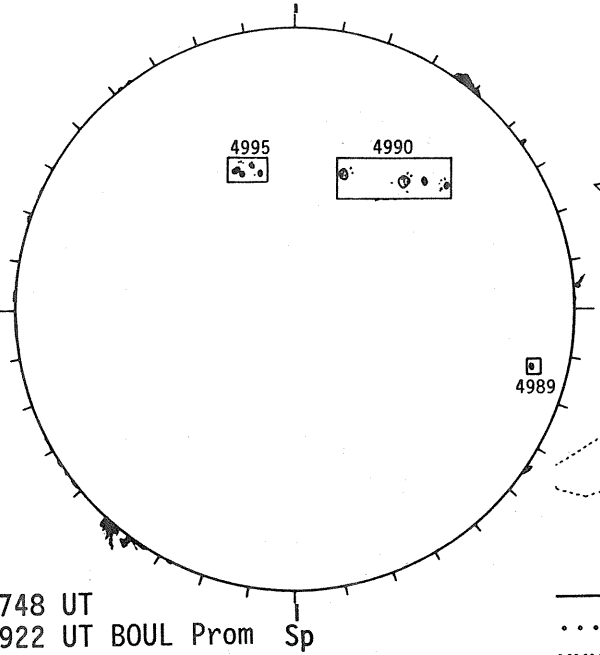
Solid = +
Dotted= -



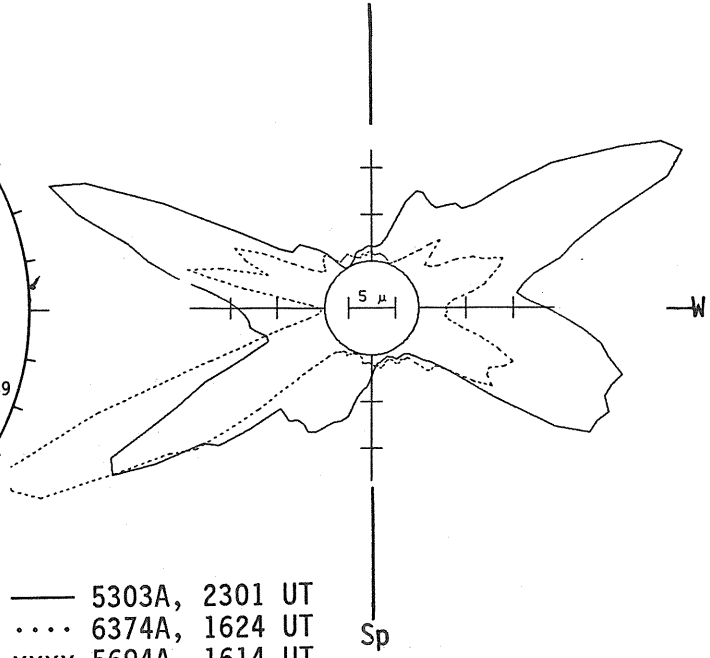
HOLLOMAN H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

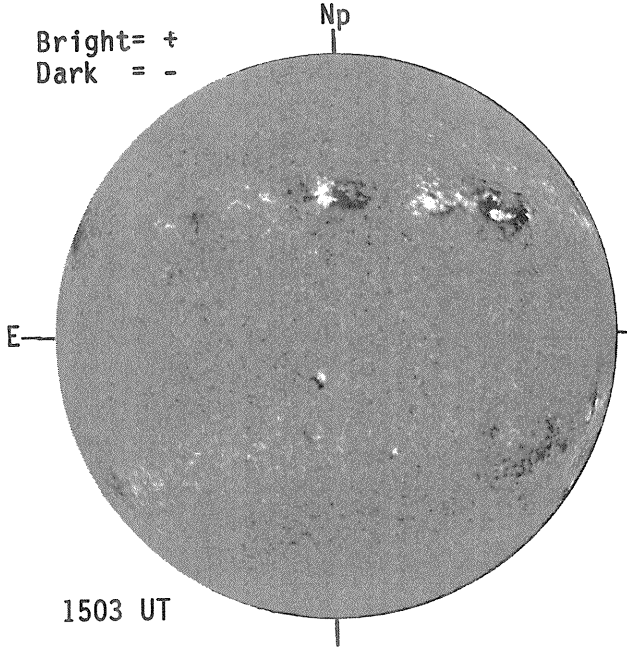


—— 5303A, 2301 UT
···· 6374A, 1624 UT
xxxx 5694A, 1614 UT
NO 5694A ACTIVITY TODAY

APRIL 19, 1988 (P=-25.74, B_o=-5.24, L_o= 262.02)

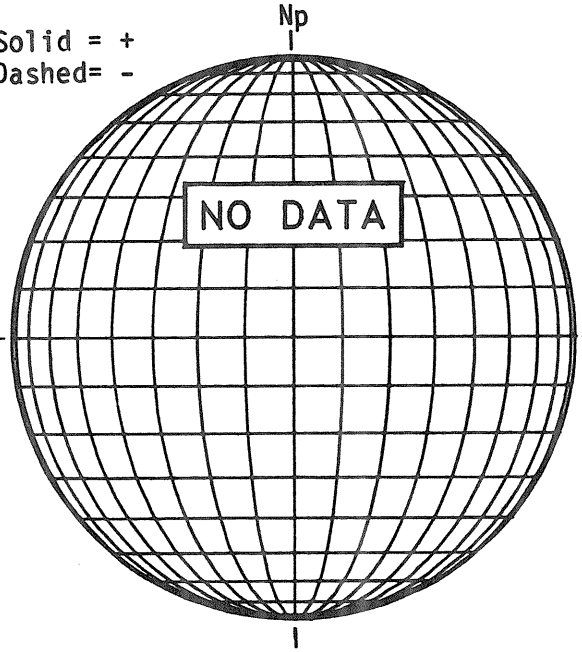
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



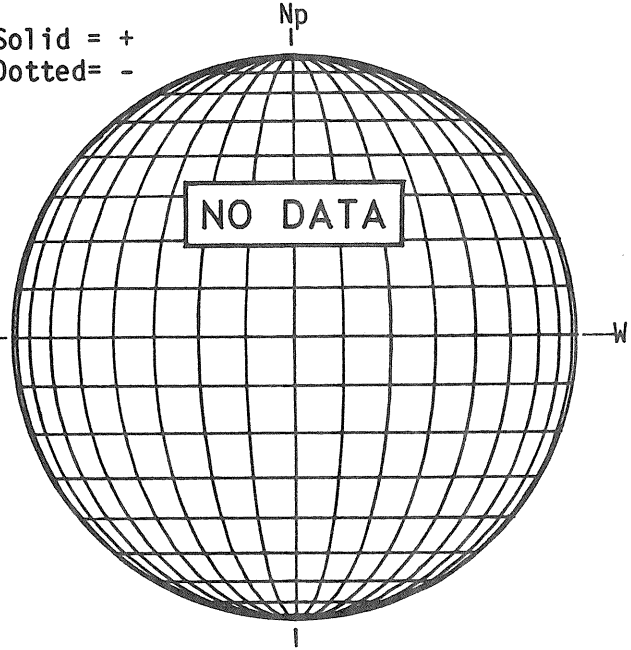
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

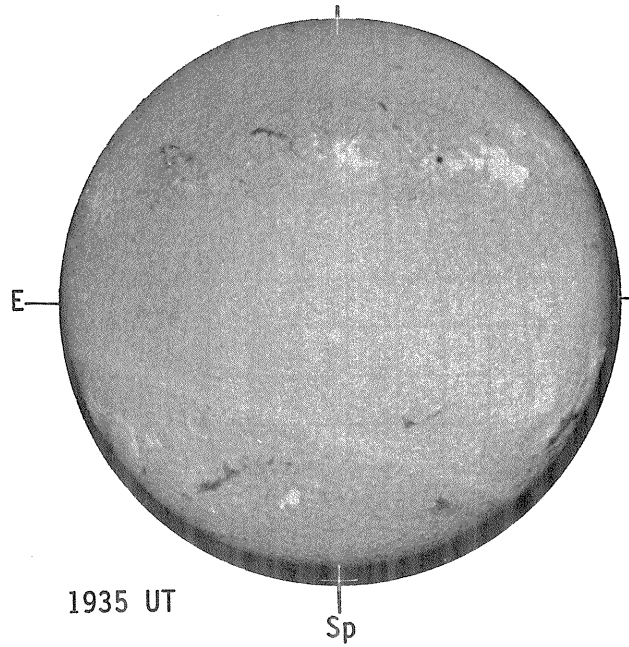


MT. WILSON MAGNETOGRAM

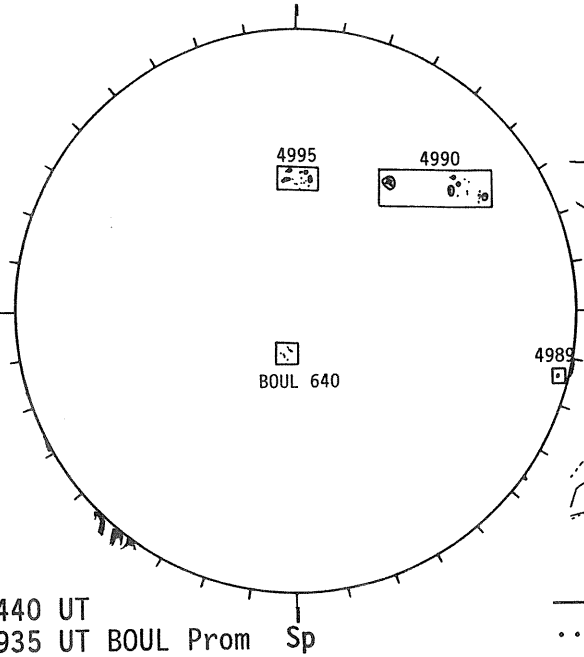
Solid = +
Dotted= -



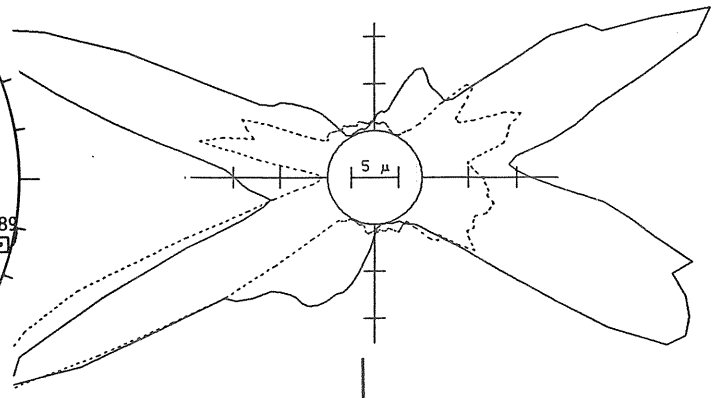
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1509 UT
···· 6374A, 1556 UT
xxxx 5694A, 1536 UT
NO 5694A ACTIVITY TODAY

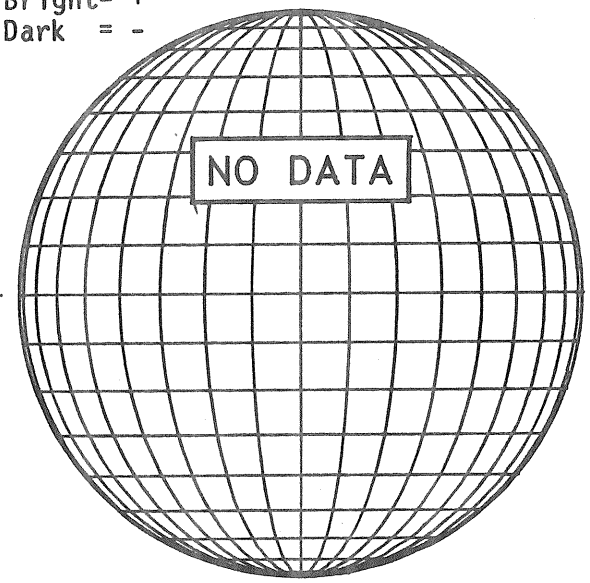
Sp

APRIL 20, 1988 (P=-25.64 B_o=-5.15, L_o= 248.81)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

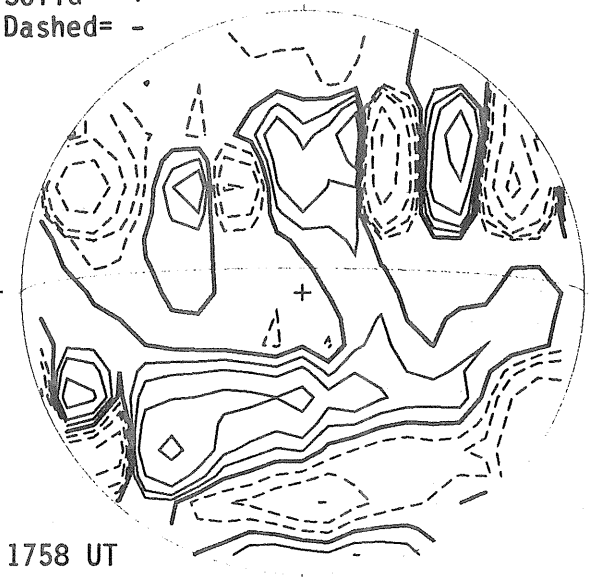


E

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

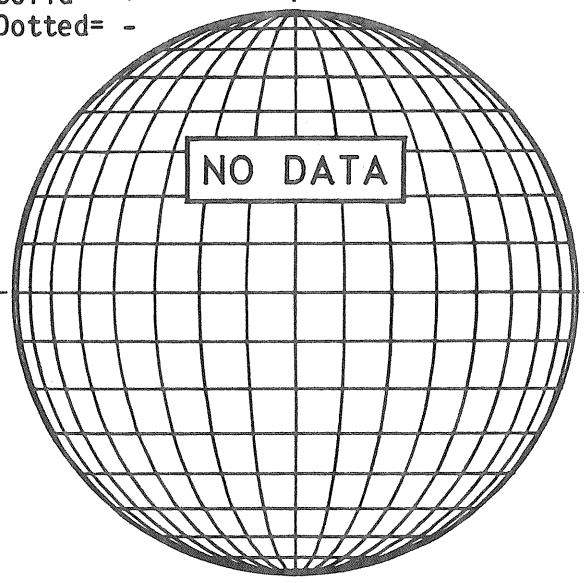


1758 UT

MT. WILSON MAGNETOGRAM

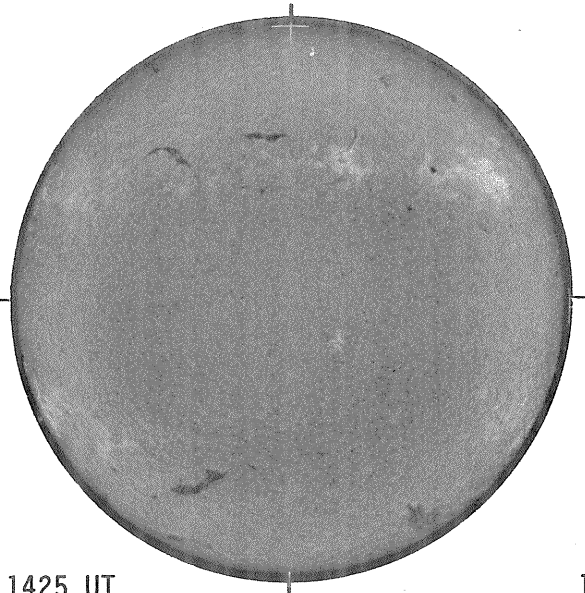
Np

Solid = +
Dotted= -



W

BOULDER H-ALPHA

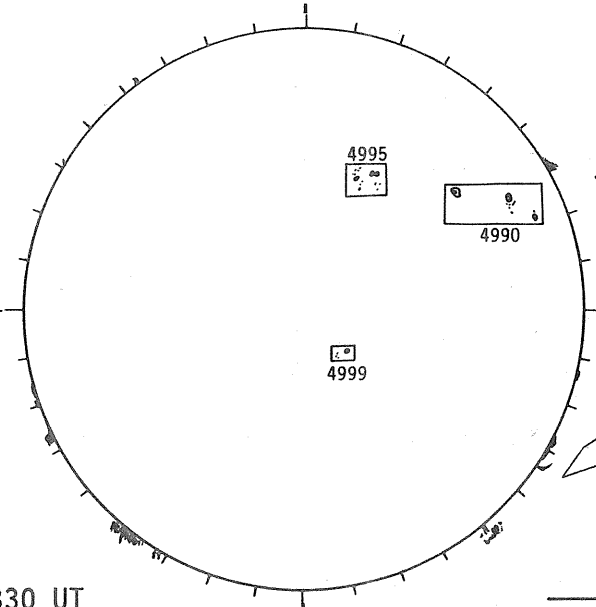


E

1425 UT

Sp

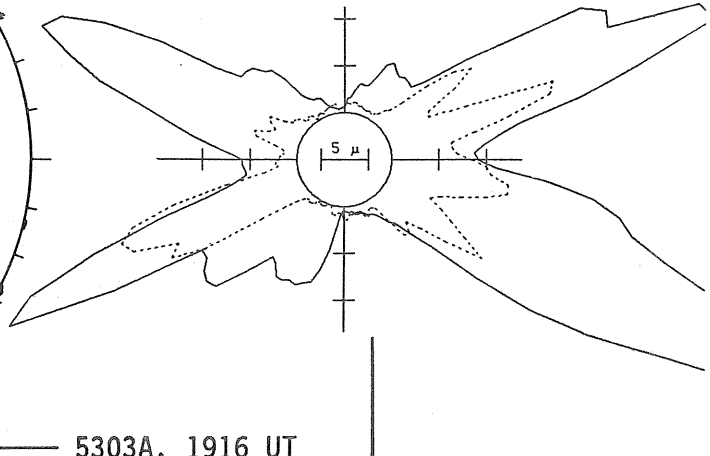
BOULDER SUNSPOTS



1330 UT
1425 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1916 UT
···· 6374A, 2002 UT
xxxx 5694A, 1950 UT
NO 5694A ACTIVITY TODAY

Sp

APRIL 21, 1988 (P=-25.54, B_o=-5.07, L_o= 235.60)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

Np

NO DATA

E-

Sp

STANFORD MAGNETOGRAM

Solid = +
Dashed= -

Np

NO DATA

MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

Np

NO DATA

-W

SACRAMENTO PEAK H-ALPHA

E-

2152 UT

Sp

RAMEY SUNSPOTS

4995

4990

4999

RAMEY 089

5000

1315 UT

Sp

SACRAMENTO PEAK CORONA (1.15 Radii)

NO DATA

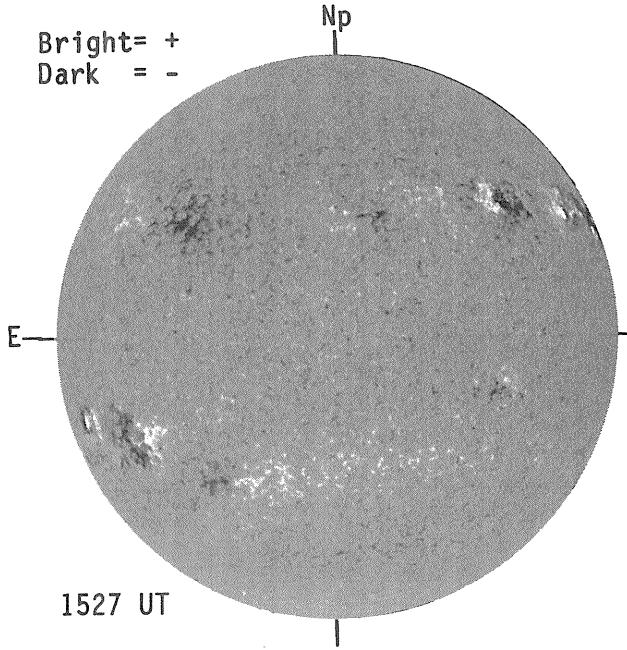
-W

Sp

APRIL 22, 1988 (P=-25.43, B_o=-4.98, L_o= 222.39)

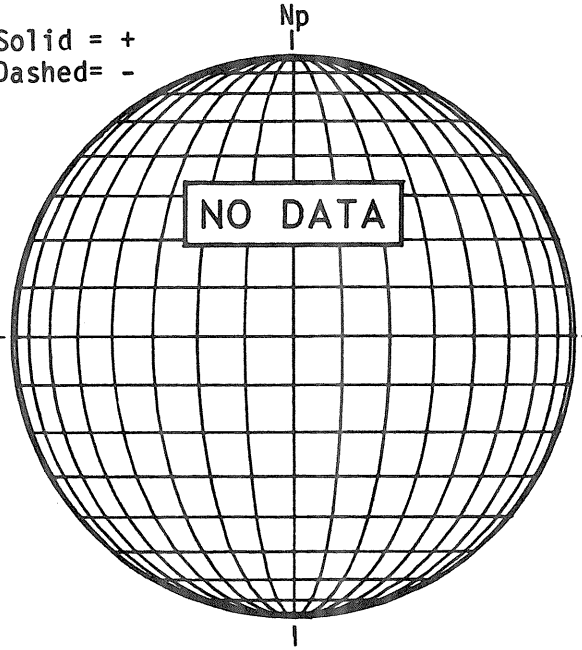
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



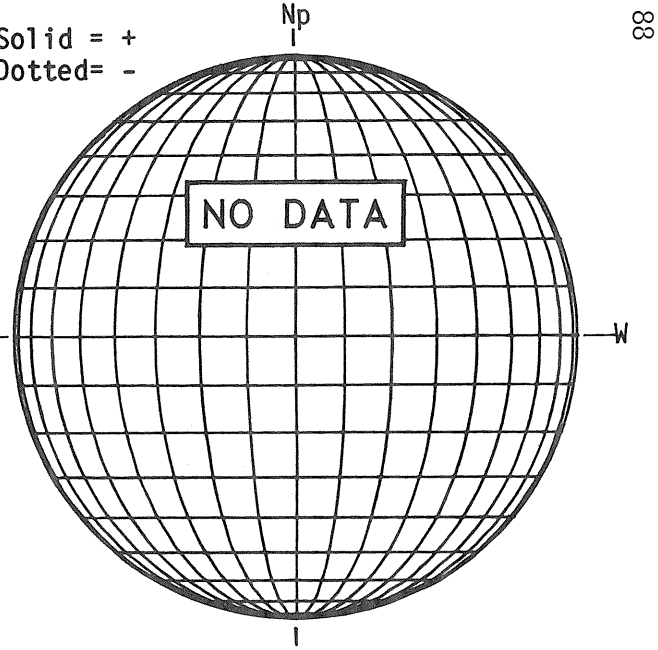
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

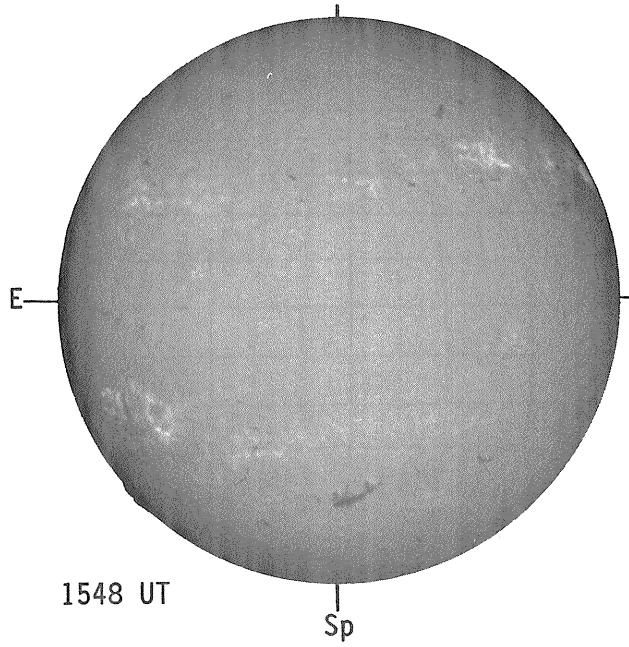


MT. WILSON MAGNETOGRAM

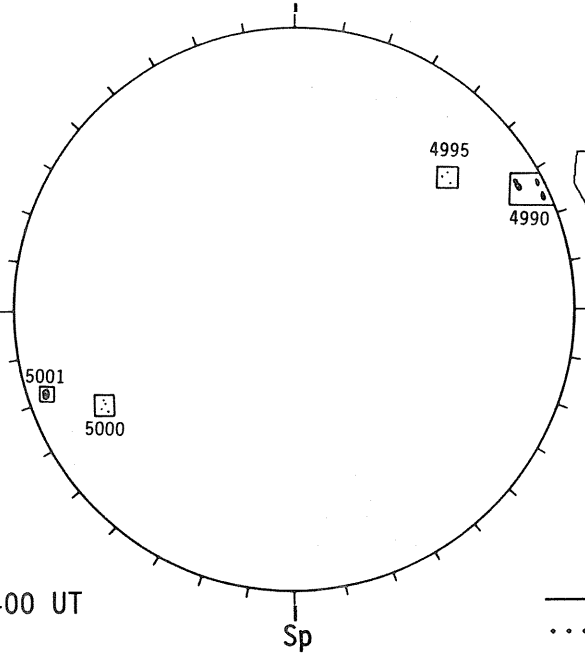
Solid = +
Dotted= -



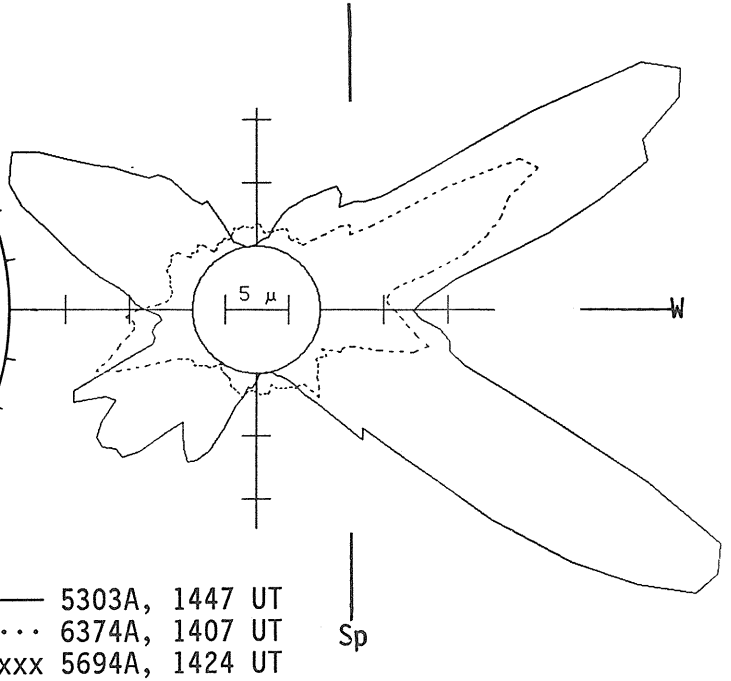
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



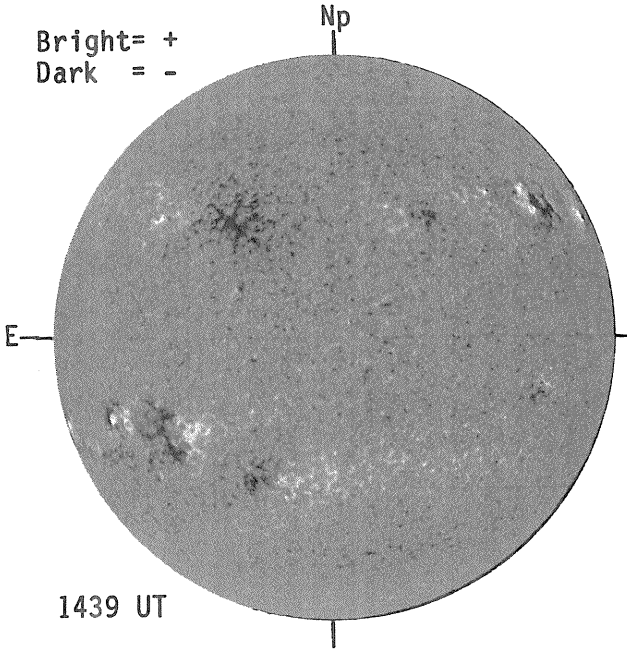
SACRAMENTO PEAK CORONA (1.15 Radii)



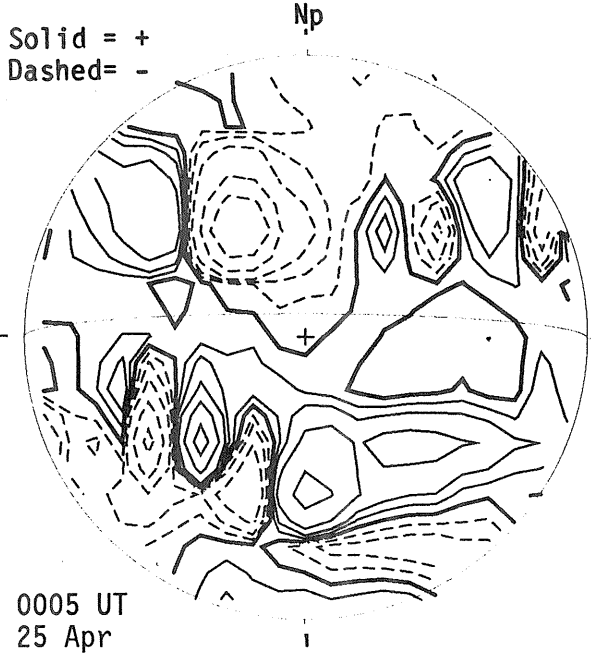
—— 5303A, 1447 UT
···· 6374A, 1407 UT
xxxx 5694A, 1424 UT
NO 5694A ACTIVITY TODAY

APRIL 23, 1988 (P=-25.31, B_o=-4.89, L_o= 209.18)

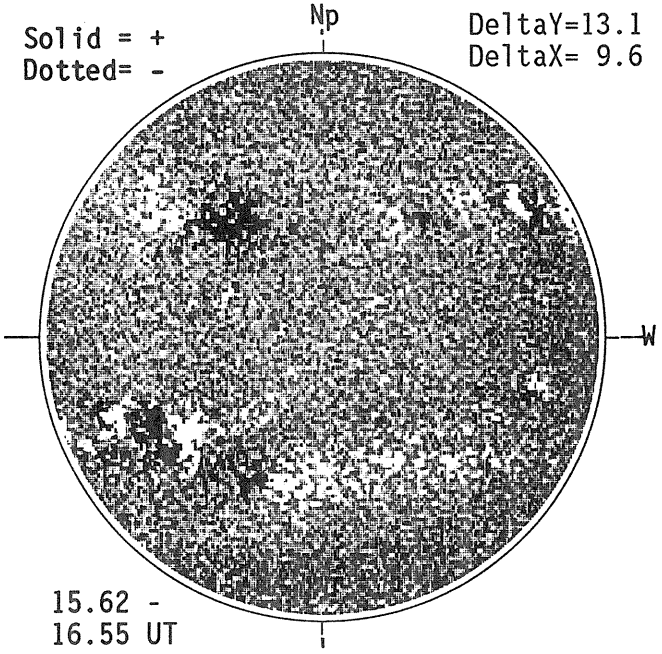
KITT PEAK MAGNETOGRAM



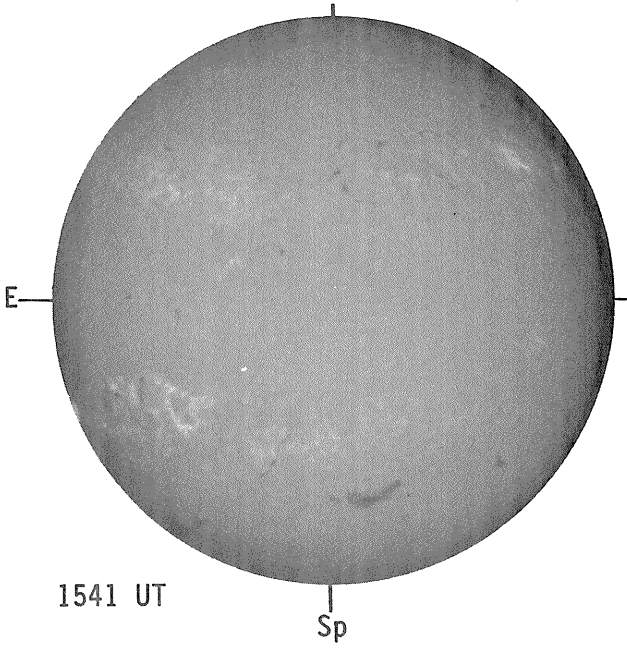
STANFORD MAGNETOGRAM



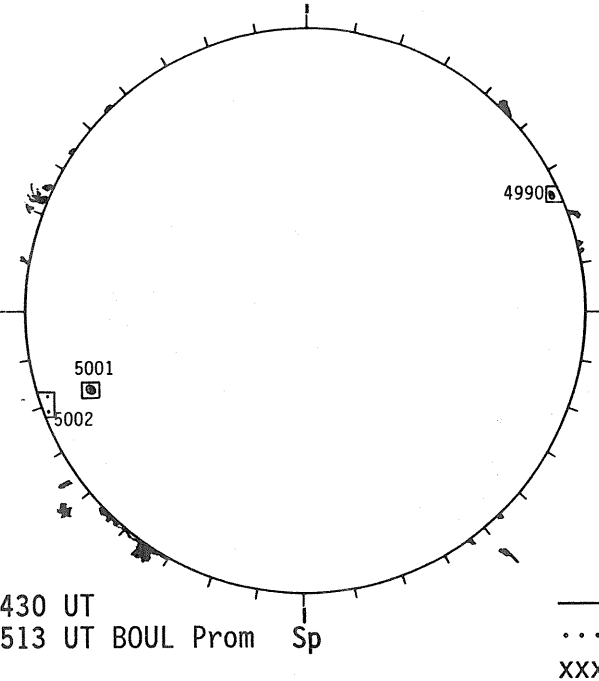
MT. WILSON MAGNETOGRAM



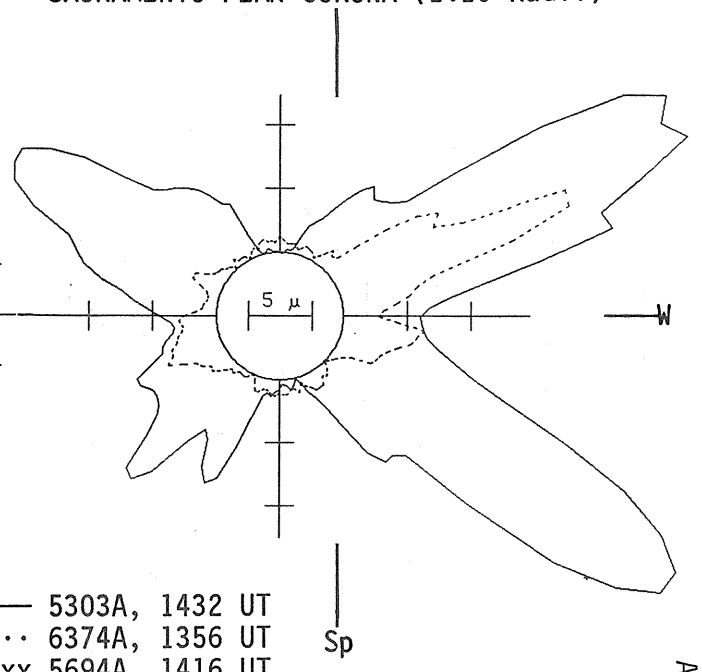
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



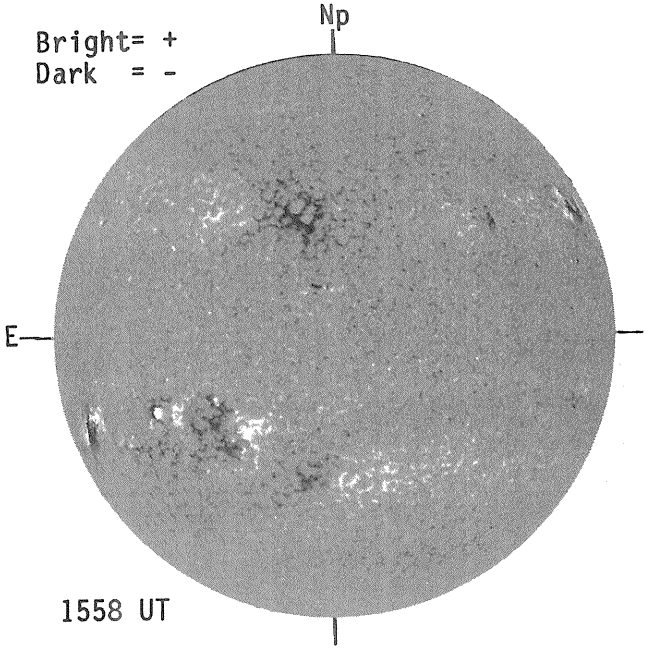
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 24, 1988 (P=-25.19, B_o=-4.80, L_o= 195.97)

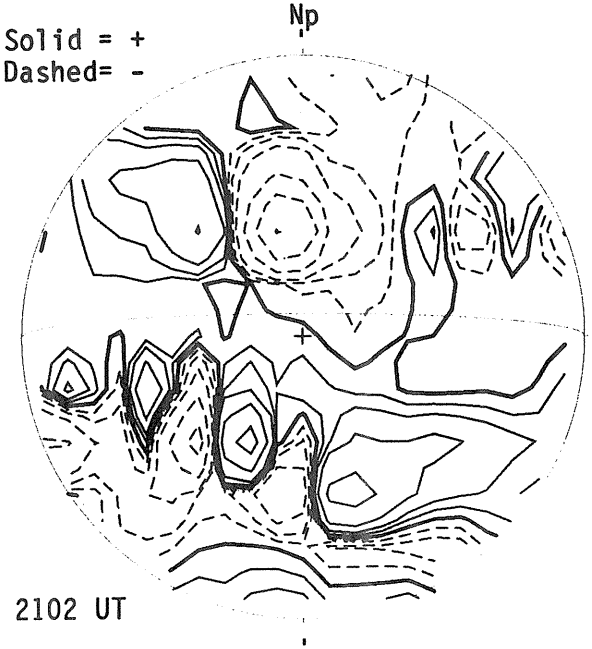
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

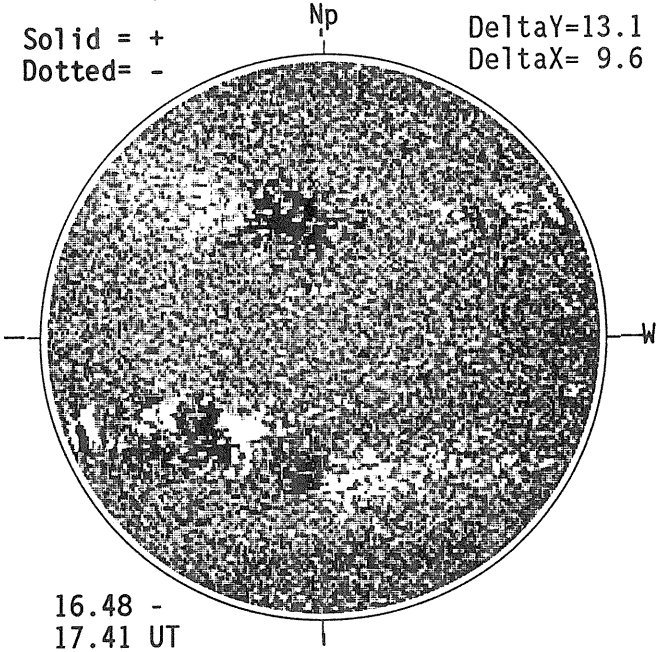
Solid = +
Dashed= -



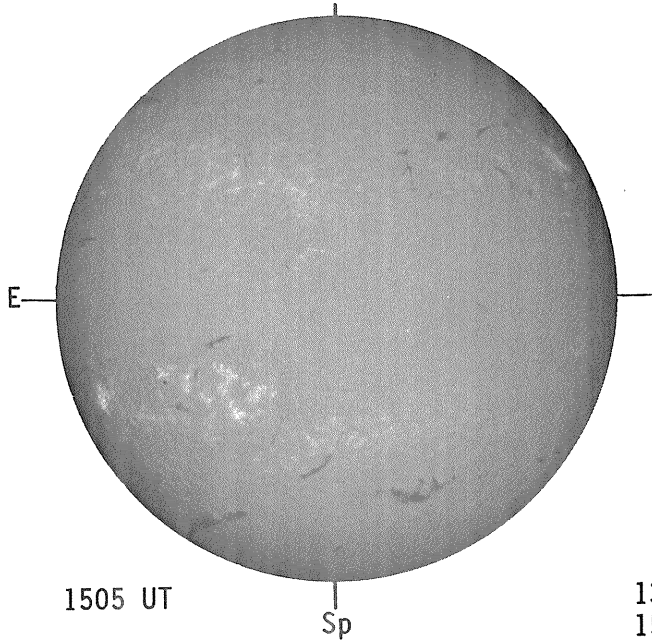
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

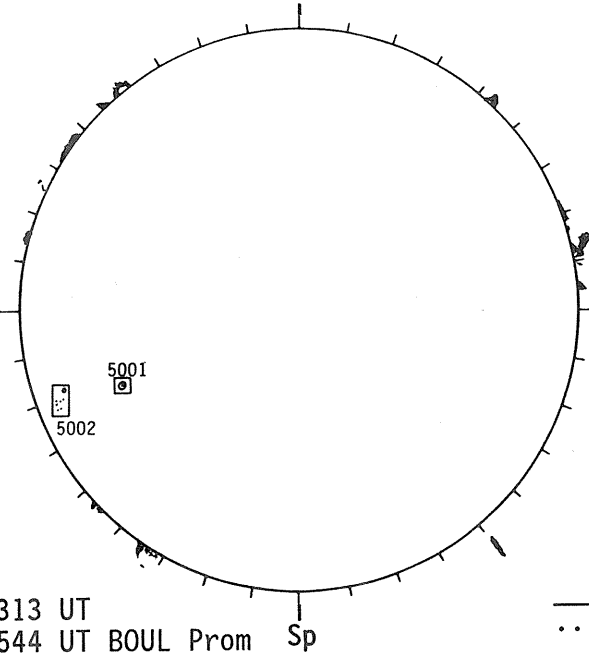
DeltaY=13.1
DeltaX= 9.6



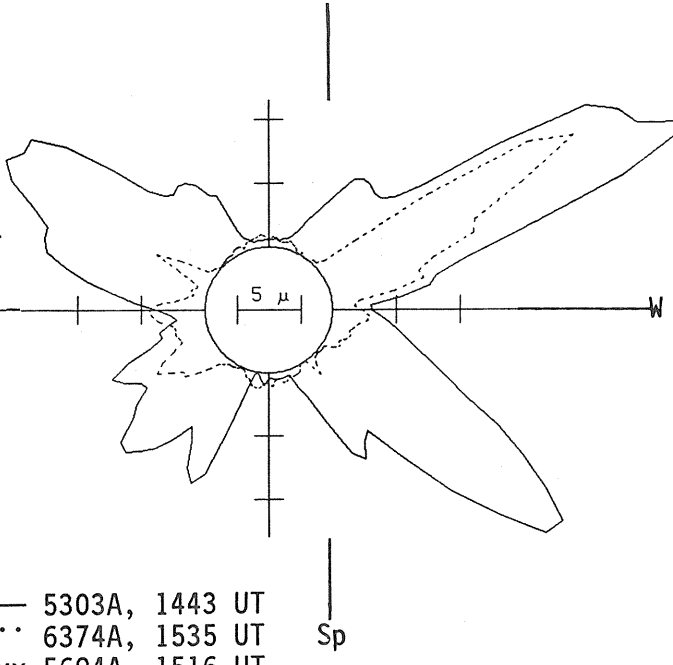
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



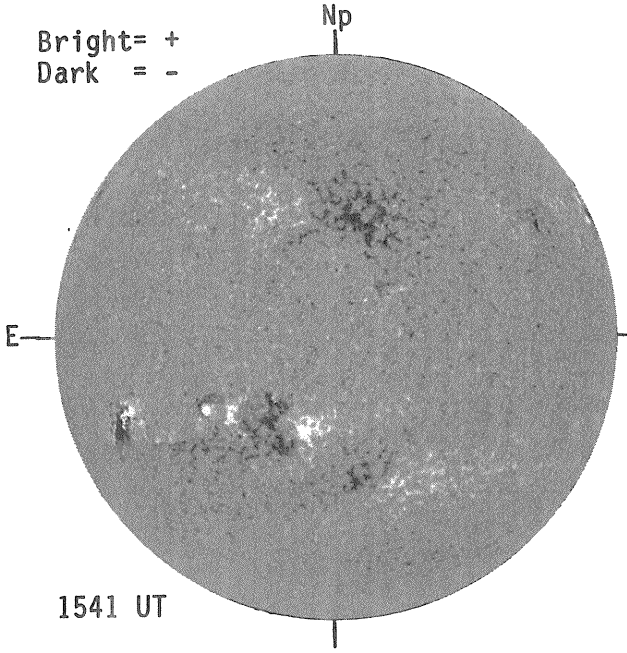
SACRAMENTO PEAK CORONA (1.15 Radii)



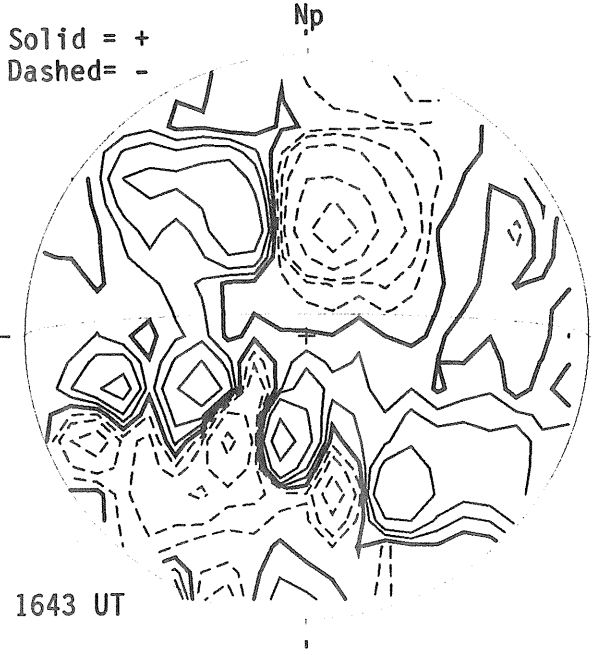
—— 5303A, 1443 UT
···· 6374A, 1535 UT
xxxx 5694A, 1516 UT
NO 5694A ACTIVITY TODAY

APRIL 25, 1988 (P=-25.06, B_o=-4.70, L_o= 182.76)

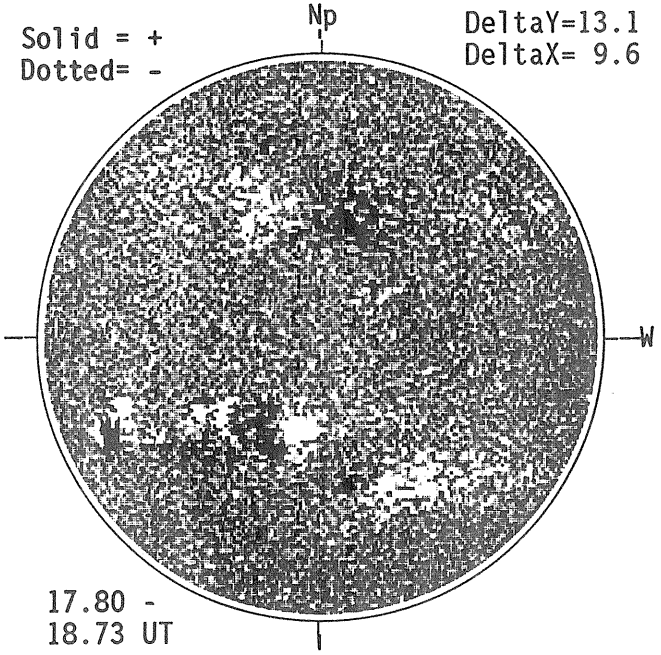
KITT PEAK MAGNETOGRAM



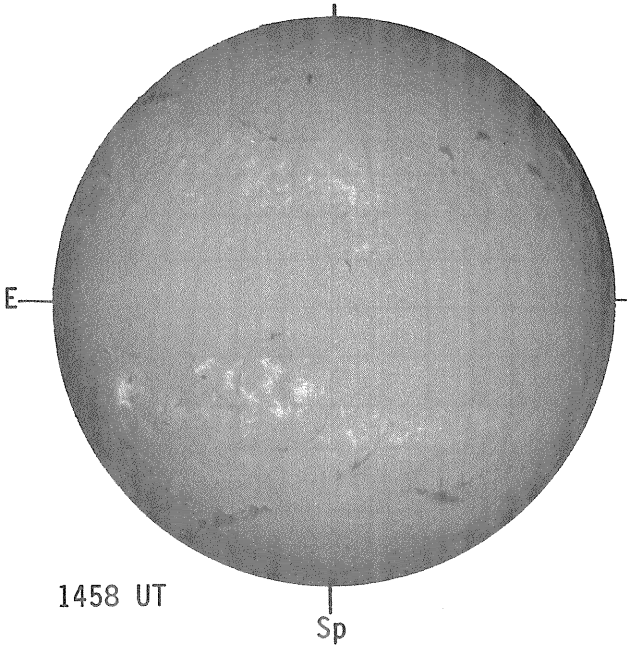
STANFORD MAGNETOGRAM



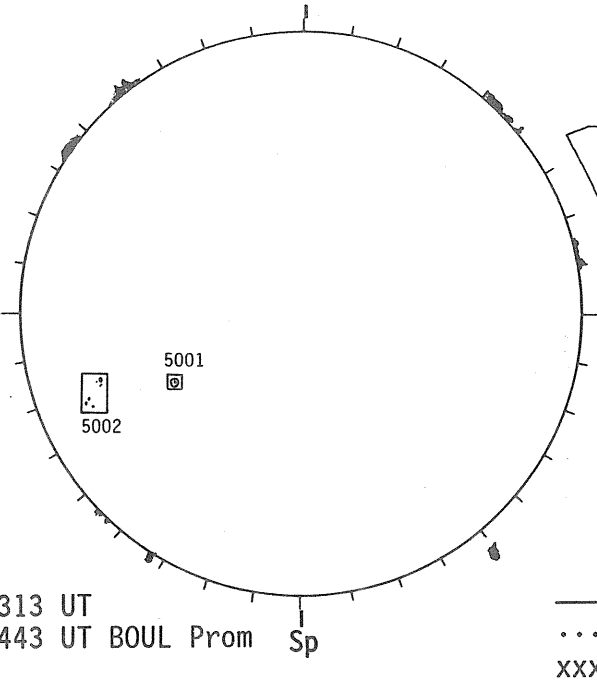
MT. WILSON MAGNETOGRAM



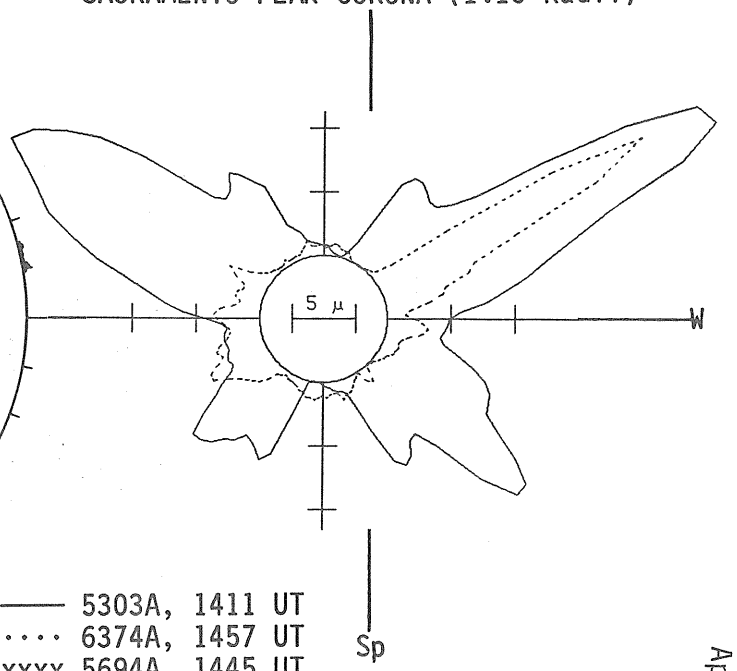
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

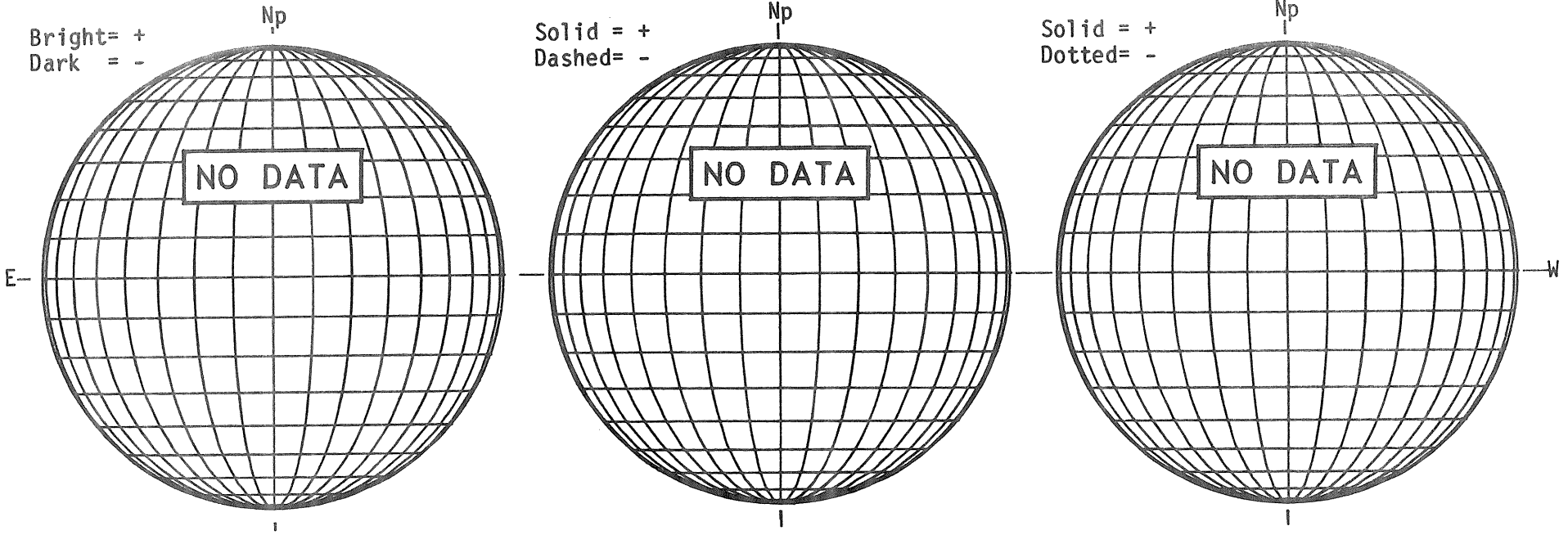


—— 5303A, 1411 UT
···· 6374A, 1457 UT
xxxx 5694A, 1445 UT
NO 5694A ACTIVITY TODAY

APRIL 26, 1988 (P=-24.92, B_o=-4.61, L_o= 169.55)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



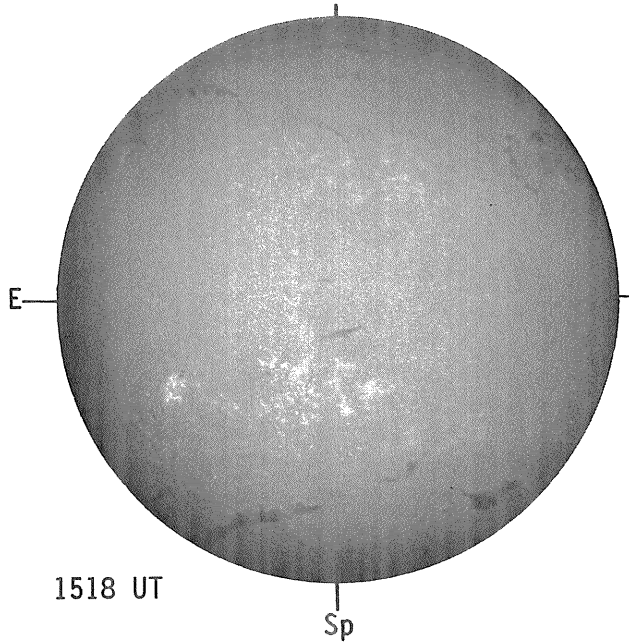
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

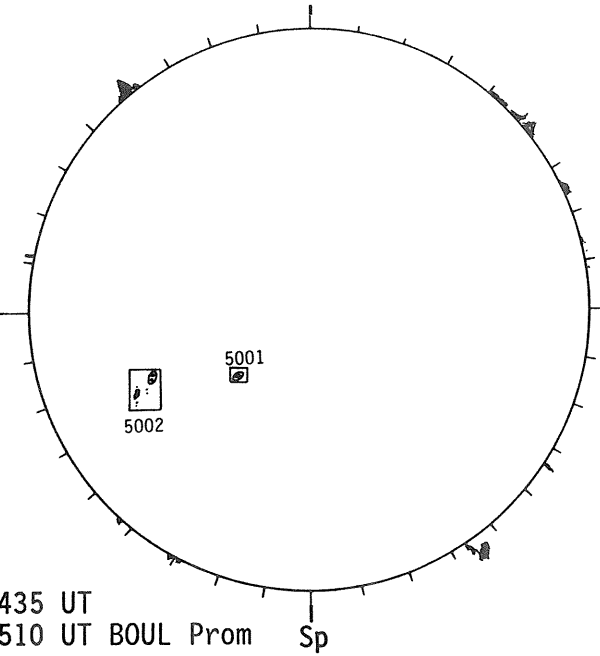
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

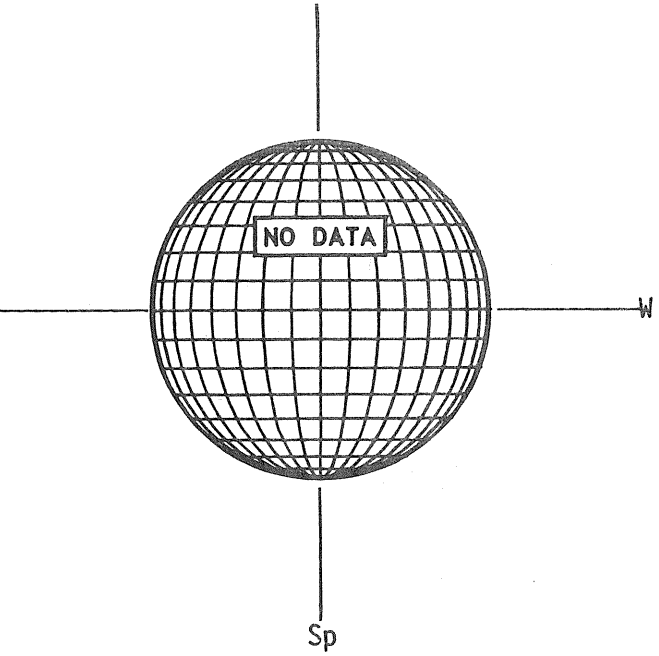
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



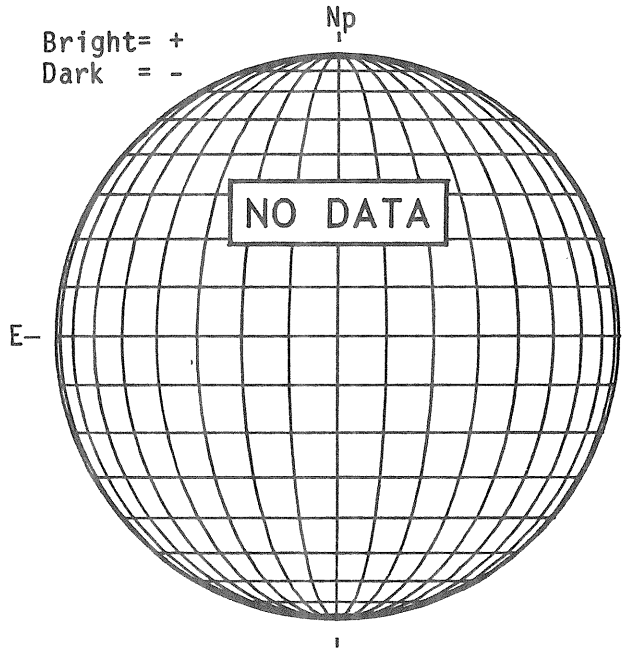
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 27, 1988 (P=-24.77, B_o=-4.51, L_o= 156.34)

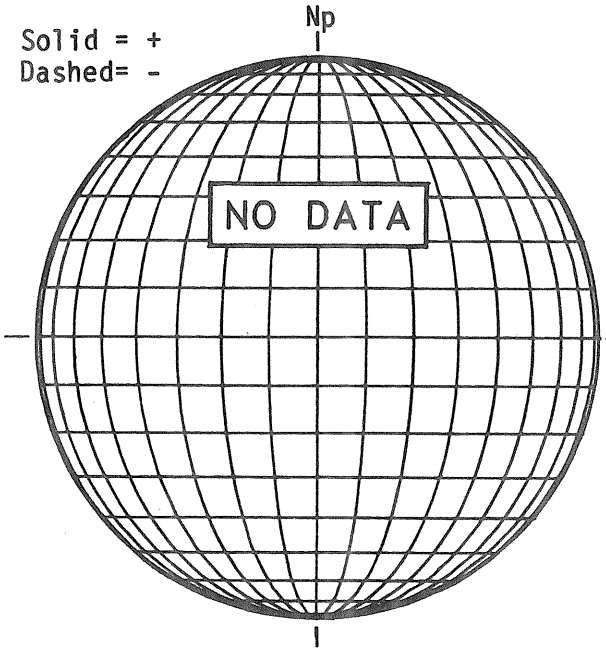
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



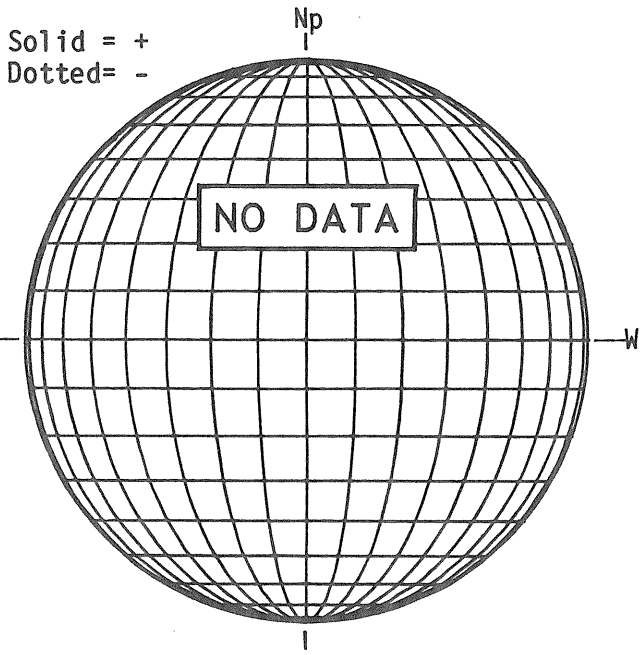
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

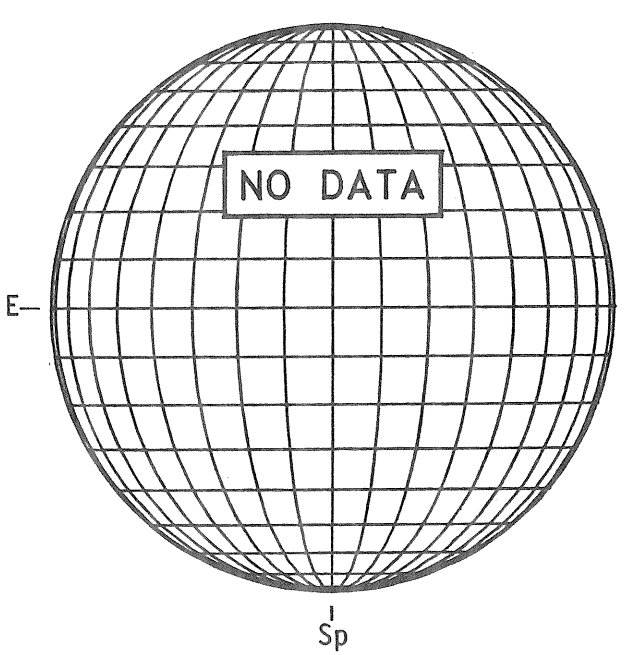


MT. WILSON MAGNETOGRAM

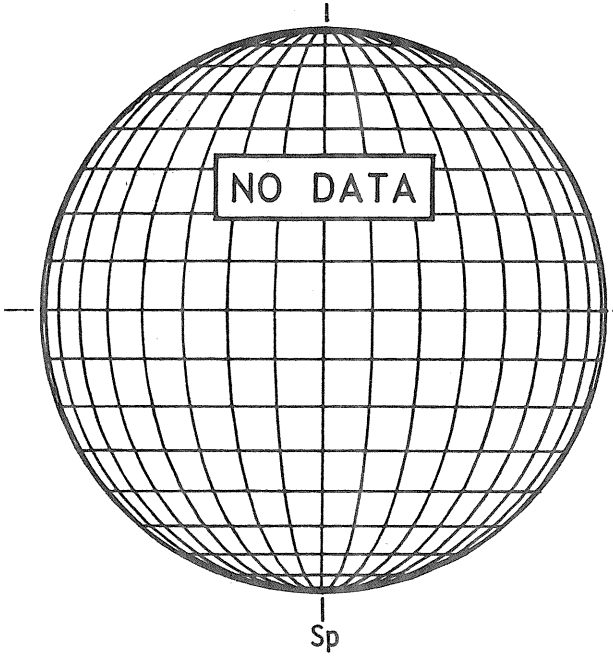
Solid = +
Dotted= -



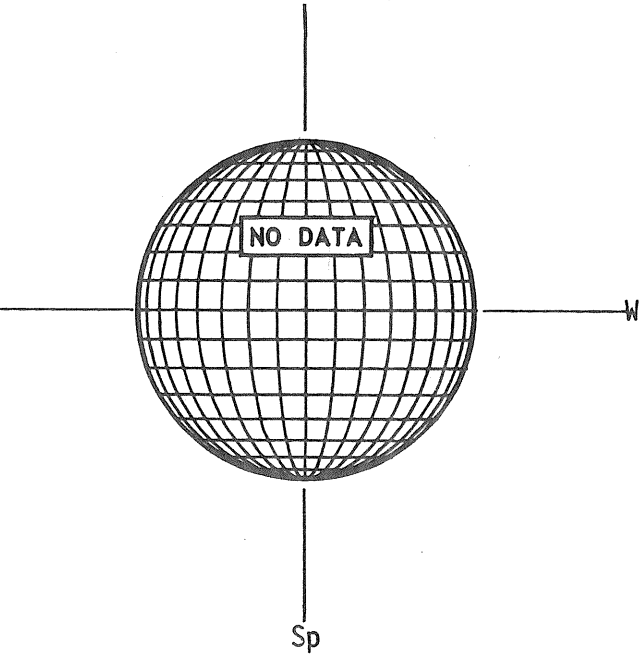
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



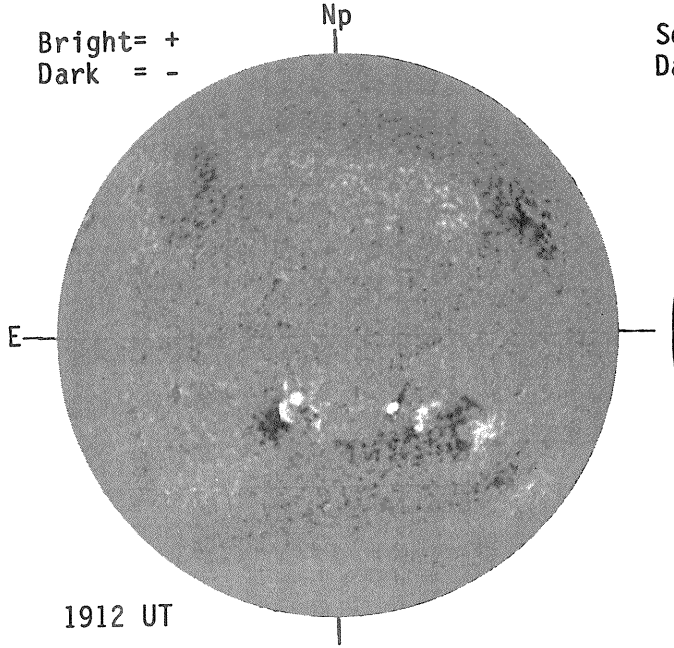
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 28, 1988 (P=-24.62, B_o=-4.42, L_o= 143.12)

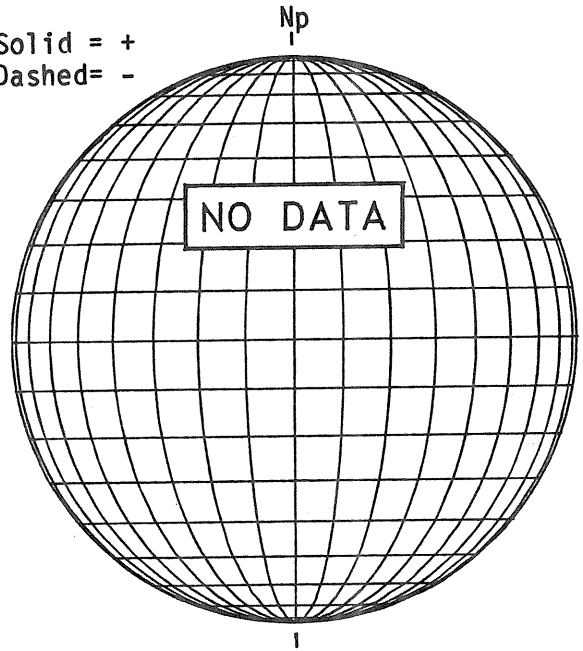
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



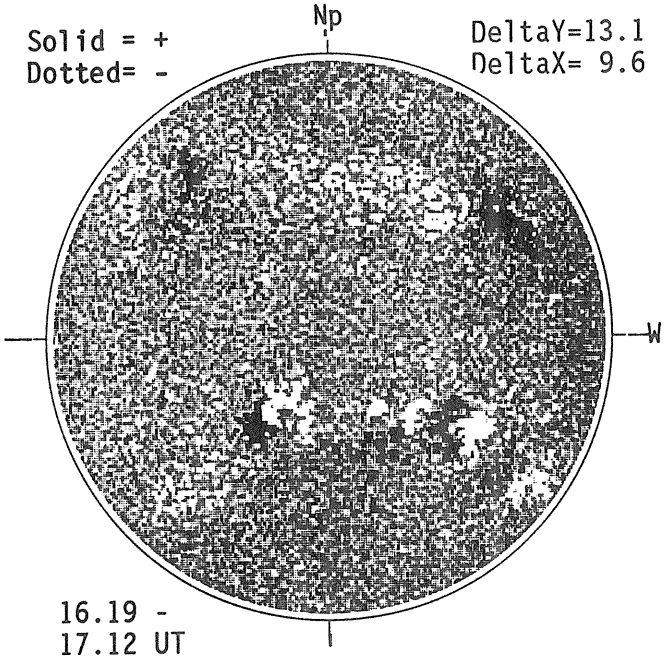
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

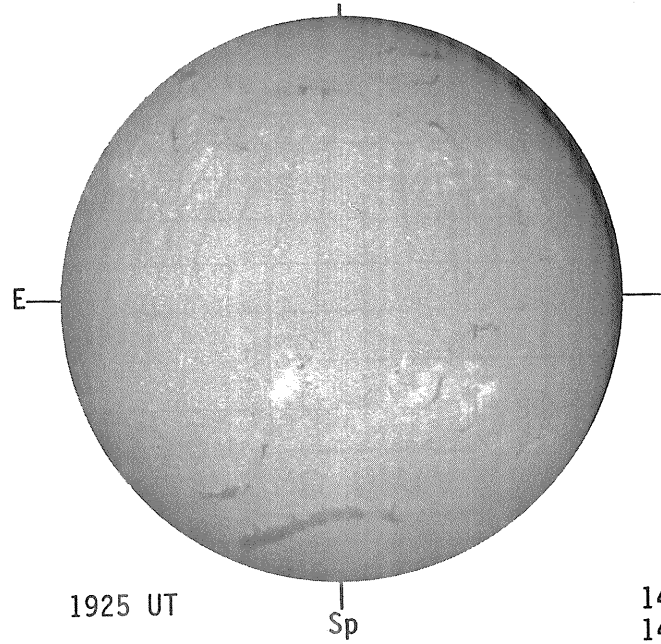


MT. WILSON MAGNETOGRAM

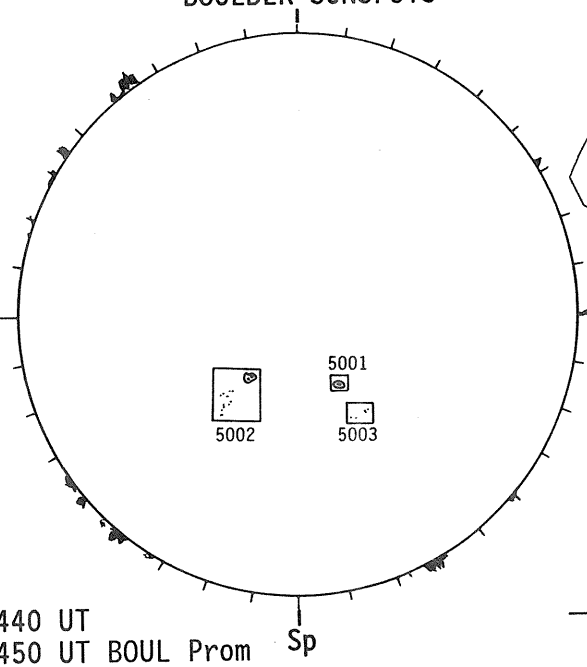
Solid = +
Dotted= -
DeltaY=13.1
DeltaX= 9.6



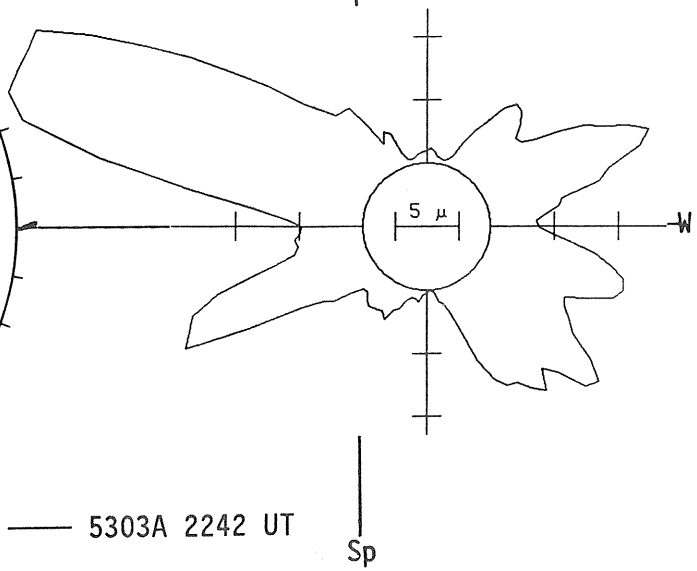
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

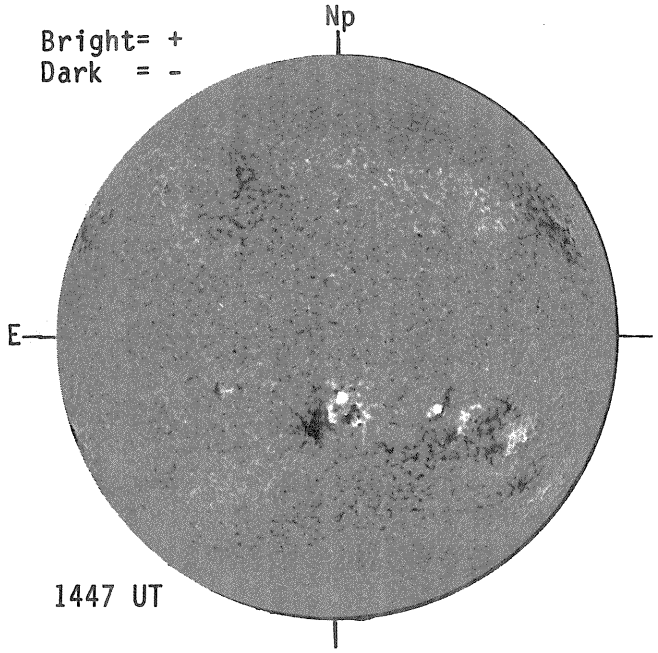


SACRAMENTO PEAK CORONA (1.15 Radii)

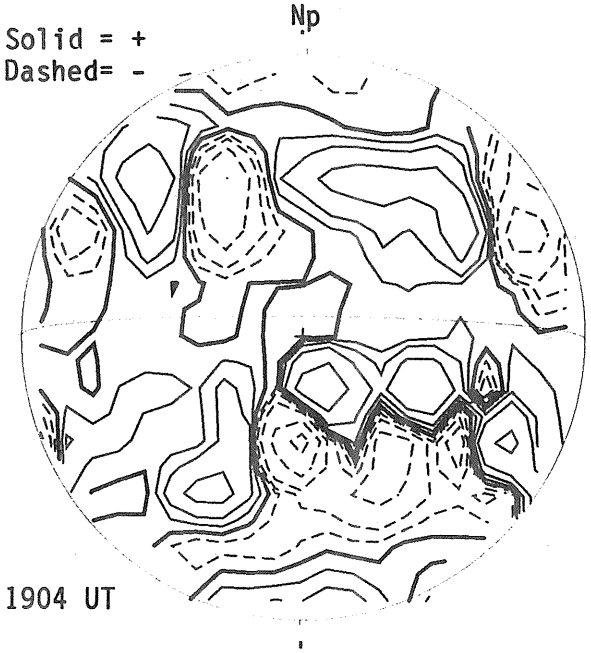


APRIL 29, 1988 (P=-24.46, B_o=-4.32, L_o= 129.91)

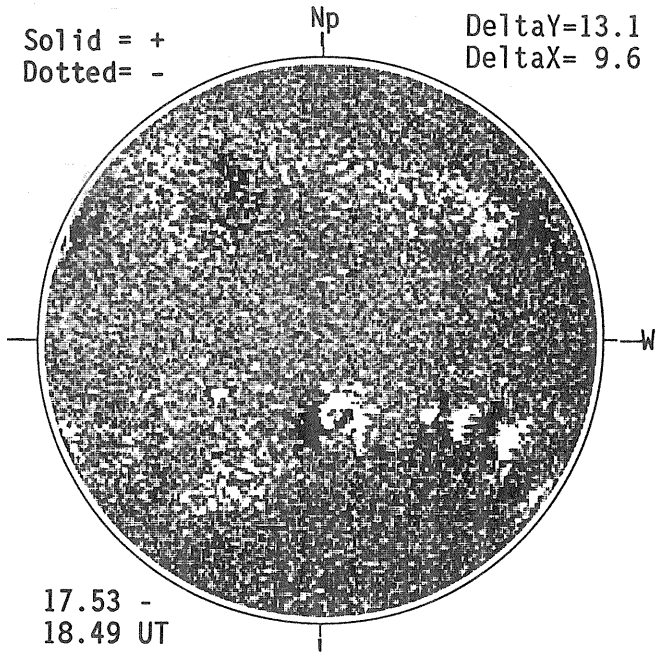
KITT PEAK MAGNETOGRAM



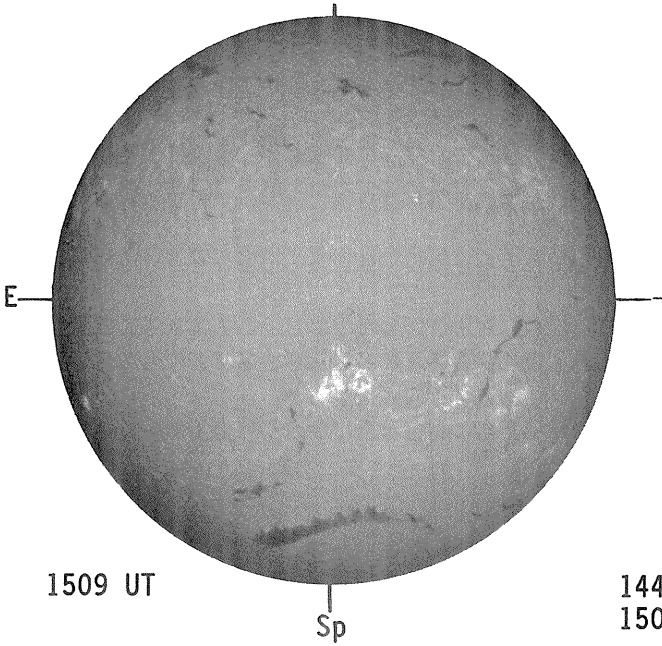
STANFORD MAGNETOGRAM



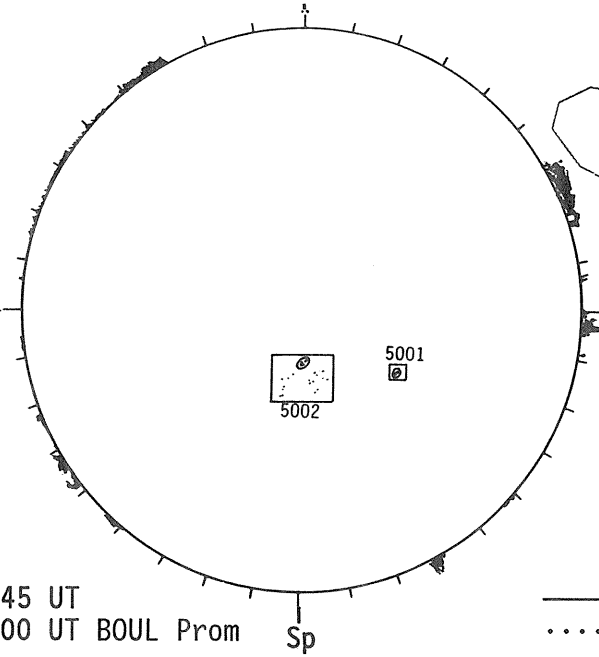
MT. WILSON MAGNETOGRAM



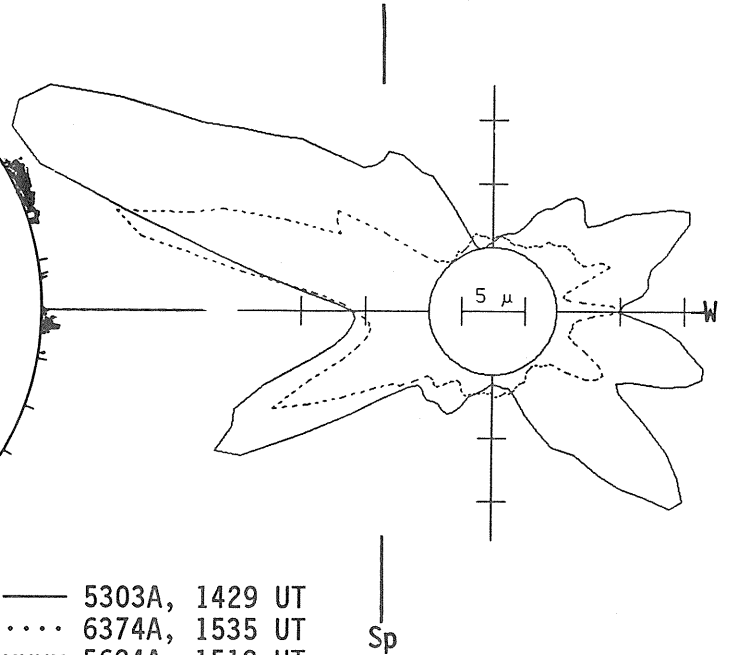
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1429 UT
···· 6374A, 1535 UT
xxxx 5694A, 1519 UT
NO 5694A ACTIVITY TODAY

APRIL 30, 1988 (P=-24.29, B_o=-4.22, L_o= 116.69)

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

APRIL 1988

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
4978	24555	MWIL	03 25 1445	S20 E88	04 1.3	3	AP					
4978		HOLL	03 25 1610	S19 E88	04 1.4		A	HA	60	1	2	3
4978		PALE	03 25 2005	S20 E88	04 1.6		A	HA	30	3	4	3
4978		LEAR	03 26 0032	S20 E79	04 1.1		B	CAO	110	3	8	4
4978		CULG	03 26 0430	S20 E78	04 1.1		A	HS	70	1	2	3
4978		SVTO	03 26 0946	S19 E79	04 1.4		A	HA	110	1	2	3
4978		RAMY	03 26 1232	S22 E78	04 1.5		B	DAO	260	5	8	3
4978	24555	MWIL	03 26 1445	S22 E76	04 1.4	5	(B)					
4978		BOUL	03 26 1522	S20 E76	04 1.4		B	CSO	150	2	9	1
4978		HOLL	03 26 1530	S21 E77	04 1.5		B	DSO	240	2	8	3
4978		PALE	03 26 1800	S22 E73	04 1.4		B	DSO	200	4	10	3
4978		CULG	03 27 0410	S21 E67	04 1.3		B	DSO	110	3	8	2
4978		SVTO	03 27 0630	S21 E68	04 1.5		B	DSO	210	6	8	3
4978		RAMY	03 27 1323	S23 E65	04 1.6		B	DSO	250	10	9	3
4978	24555	MWIL	03 27 1445	S22 E63	04 1.4	5	(B)					
4978		BOUL	03 27 1515	S21 E64	04 1.5		B	DAO	200	6	10	2
4978		HOLL	03 27 1700	S22 E63	04 1.5		B	DSO	200	12	10	2
4978		PALE	03 27 1835	S21 E62	04 1.5		B	DSO	200	10	10	3
4978		CULG	03 28 0450	S21 E55	04 1.4		B	DSI	160	9	9	1
4978		SVTO	03 28 0720	S22 E53	04 1.4		B	DSI	230	16	9	4
4978		LEAR	03 28 0812	S21 E54	04 1.5		B	DSI	340	23	9	3
4978	24555	MWIL	03 28 1500	S22 E50	04 1.5	5	(B)					
4978		HOLL	03 28 1620	S21 E50	04 1.5		B	DSO	140	13	10	4
4978		PALE	03 28 1820	S21 E50	04 1.6		B	DSI	270	13	9	4
4978		LEAR	03 29 0140	S23 E44	04 1.4		B	DSO	310	23	10	2
4978		CULG	03 29 0440	S21 E44	04 1.6		B	DSO	170	11	9	3
4978		SVTO	03 29 0800	S21 E41	04 1.5		B	DSO	230	9	10	1
4978		RAMY	03 29 1325	S23 E38	04 1.5		B	DSO	230	14	8	3
4978		BOUL	03 29 1425	S21 E35	04 1.3		B	DAI	230	12	10	2
4978		HOLL	03 29 1443	S21 E36	04 1.4		B	DKO	290	9	10	3
4978	24555	MWIL	03 29 1545	S21 E35	04 1.3	5	(B)					
4978		PALE	03 29 1810	S21 E36	04 1.5		B	DSI	240	12	9	3
4978		HOLL	03 29 1843	S21 E36	04 1.5		B	DKO	290	9	10	3
4978		LEAR	03 30 0055	S22 E32	04 1.5		B	ESI	290	18	11	3
4978		SVTO	03 30 0730	S22 E29	04 1.5		B	ESI	230	14	11	3
4978		RAMY	03 30 1425	S22 E26	04 1.6		B	DHI	270	20	10	3
4978		HOLL	03 30 1430	S22 E25	04 1.5		B	DHO	40	5	9	3
4978	24555	MWIL	03 30 1545	S21 E23	04 1.4	5	(B)					
4978		PALE	03 30 1902	S21 E23	04 1.5		B	DSI	220	15	10	2
4978		LEAR	03 31 0105	S21 E20	04 1.6		B	DSI	240	18	10	3
4978		RAMY	03 31 1335	S22 E13	04 1.6		B	DSI	240	20	10	4
4978		HOLL	03 31 1617	S21 E12	04 1.6		B	EHO	260	13	11	3
4978	24555	MWIL	03 31 1800	S22 E08	04 1.4	5	(B)					
4978		PALE	03 31 1920	S21 E11	04 1.6		B	CSO	230	13	10	2
4978		LEAR	04 01 0023	S20 E07	04 1.5		B	DSO	240	15	9	3
4978		SVTO	04 01 0706	S20 E03	04 1.5		B	CHO	210	13	11	3
4978	24555	MWIL	04 01 1500	S21 W03	04 1.4	5	(B)					
4978		HOLL	04 01 1517	S20 W01	04 1.6		B	DHO	250	13	10	3
4978		BOUL	04 01 1605	S20 W02	04 1.5		B	CSO	130	7	10	2
4978		PALE	04 01 2050	S21 W05	04 1.5		B	CHO	210	6	10	2
4978		LEAR	04 02 0112	S20 W08	04 1.4		B	DSO	280	11	9	3
4978		SVTO	04 02 0703	S19 W12	04 1.4		B	CHO	240	6	7	3
4978	24555	MWIL	04 02 1500	S20 W16	04 1.4	5	(B)					
4978		HOLL	04 02 1520	S21 W15	04 1.5		B	CSO	220	9	10	4
4978		BOUL	04 02 1717	S21 W15	04 1.6		B	CSO	160	4	9	1
4978		PALE	04 02 1900	S21 W17	04 1.5		B	DSO	220	6	8	3
4978		LEAR	04 03 0006	S21 W19	04 1.5		B	CSO	160	6	9	4
4978		HOLL	04 03 1508	S22 W26	04 1.6		B	CSO	180	7	10	4
4978		BOUL	04 03 1510	S21 W27	04 1.6		B	CSO	240	7	11	3
4978	24555	MWIL	04 03 1515	S20 W28	04 1.5	5	(B)					
4978		LEAR	04 04 0015	S22 W33	04 1.5		B	CSO	160	15	12	3
4978		SVTO	04 04 0822	S20 W39	04 1.4		B	CSO	90	8	10	1
4978	24555	MWIL	04 04 1445	S20 W43	04 1.3	5	(B)					
4978		BOUL	04 04 1550	S19 W42	04 1.4		A	HA	140	3	2	2
4978		HOLL	04 04 1759	S22 W42	04 1.5		B	CSO	130	7	9	2
4978		PALE	04 04 1820	S21 W43	04 1.5		B	CSO	140	6	9	3
4978		RAMY	04 04 1822	S20 W41	04 1.6		B	CAO	170	5	9	3
4978		LEAR	04 05 0123	S19 W47	04 1.5		B	ESO	100	9	11	4
4978		SVTO	04 05 0916	S17 W55	04 1.2		A	HS	100	2	2	2

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

APRIL 1988

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
4978		RAMY	04	05	1300	S18	W57	04	1.2		A	HS	180	3	3	3
4978		BOUL	04	05	1430	S19	W57	04	1.2		A	HA	120	1	2	1
4978	24555	MWIL	04	05	1530	S19	W58	04	1.2	5	(AP)					
4978		HOLL	04	05	1545	S19	W58	04	1.2		A	HS	150	1	2	4
4978		PALE	04	05	1817	S19	W61	04	1.1		A	HS	120	1	2	2
4978		LEAR	04	06	0013	S17	W61	04	1.4		B	CSO	140	3	3	3
4978		SVTO	04	06	0558	S18	W66	04	1.2		A	HS	120	1	2	2
4978		RAMY	04	06	1423	S18	W69	04	1.3		A	HS	100	1	2	3
4978	24555	MWIL	04	06	1445	S18	W70	04	1.3	5	(AP)					
4978		BOUL	04	06	1457	S18	W72	04	1.1		A	HS	180	1	2	3
4978		HOLL	04	06	1805	S19	W71	04	1.3		A	HA	120	1	2	3
4978		PALE	04	06	1936	S19	W73	04	1.2		A	HS	180	1	2	4
4978		LEAR	04	07	0016	S18	W74	04	1.4		B	CSO	200	2	6	3
4978		SVTO	04	07	0841	S21	W77	04	1.4		A	HA	110	1	2	2
4978		RAMY	04	07	1438	S18	W79	04	1.6		A	HS	70	1	2	3
4978	24555	MWIL	04	07	1445	S19	W82	04	1.3	3	(AP)					
4978		BOUL	04	07	1510	S19	W80	04	1.5		A	HS	30	1	2	3
4978		HOLL	04	07	1533	S19	W87	04	1.0		A	HS	120	1	2	3
4978		PALE	04	07	1820	S20	W88	04	1.0		A	HS	40	1	3	3
4987	24557	MWIL	04	03	1515	S22	W03	04	3.4	2	(AP)					
4987	24557	MWIL	04	08	1430	S20	W70	04	3.2	3	(AP)					
4987		HOLL	04	08	1521	S20	W70	04	3.3		A	AX	10	1	1	4
4987		PALE	04	08	1745	S20	W74	04	3.1		A	AX	10	1	1	3
4987		LEAR	04	09	0158	S19	W80	04	3.0		A	HS	30	1	1	2
4987		CULG	04	09	0415	S18	W80	04	3.1		A	AX	10	1	1	/
4987		SVTO	04	09	0712	S19	W78	04	3.3		A	HS	50	1	2	4
4987		RAMY	04	09	1305	S18	W89	04	2.8		A	HR	60	1	2	3
4987	24557	MWIL	04	09	1430	S19	W85	04	3.1	2	AP					
4987		HOLL	04	09	1545	S20	W85	04	3.1		A	HS	40	1	2	3
4980	24556	MWIL	04	02	1500	N16	E40	04	5.6	3	(AP)					
4980		HOLL	04	02	1520	N16	E39	04	5.6		A	AX	10	2	1	4
4980		PALE	04	02	1900	N15	E38	04	5.7		A	AX		3	2	3
4980		PALE	04	04	1820	N18	E11	04	5.6		B	BXO	10	2	4	3
4980		RAMY	04	04	1822	N16	E11	04	5.6		B	BXO		2	3	3
4982		RAMY	04	05	1300	N25	E42	04	8.8		A	AX		1	1	3
4982	24559	MWIL	04	05	1530	N26	E42	04	8.9	2	(B)					
4982		HOLL	04	05	1545	N26	E41	04	8.8		B	BXO	50	4	5	4
4982		PALE	04	05	1817	N27	E41	04	8.9		B	BXO	10	3	4	2
4982		SVTO	04	06	0558	N27	E36	04	9.0		B	BXI	20	10	5	2
4982		RAMY	04	06	1423	N25	E29	04	8.8		B	BXO	40	9	6	3
4982	24559	MWIL	04	06	1445	N25	E30	04	8.9	4	(B)					
4982		BOUL	04	06	1457	N25	E28	04	8.8		B	CRO	30	8	7	3
4982		HOLL	04	06	1805	N26	E26	04	8.8		B	BXO	80	12	7	3
4982		PALE	04	06	1936	N27	E27	04	8.9		B	CRO	30	8	6	4
4982		LEAR	04	07	0016	N25	E25	04	8.9		B	DAO	80	13	8	3
4982		SVTO	04	07	0841	N26	E19	04	8.8		B	DAI	110	12	8	2
4982		RAMY	04	07	1438	N25	E15	04	8.8		B	DAO	90	11	8	3
4982	24559	MWIL	04	07	1445	N25	E16	04	8.8	5	(B)					
4982		BOUL	04	07	1510	N25	E16	04	8.9		B	DRI	40	8	7	3
4982		HOLL	04	07	1533	N25	E14	04	8.7		B	CSO	160	19	9	3
4982		PALE	04	07	1820	N26	E13	04	8.8		B	DAO	70	13	9	3
4982		LEAR	04	08	0144	N25	E09	04	8.8		B	DAI	80	19	9	3
4982		SVTO	04	08	0823	N26	E06	04	8.8		B	DSI	140	23	10	4
4982		RAMY	04	08	1420	N25	E04	04	8.9		B	DAI	140	14	10	3
4982	24559	MWIL	04	08	1430	N24	E02	04	8.7	4	(B)					
4982		HOLL	04	08	1521	N25	E02	04	8.8		B	DAO	110	13	10	4
4982		PALE	04	08	1745	N25	E00	04	8.7		B	CSO	40	7	10	3
4982		LEAR	04	09	0158	N25	W03	04	8.8		B	EAI	100	19	11	2
4982		CULG	04	09	0415	N23	W05	04	8.8		B	DSO	70	7	9	/
4982		SVTO	04	09	0712	N25	W08	04	8.7		B	DSO	200	8	10	4
4982		RAMY	04	09	1305	N25	W10	04	8.8		B	DAI	140	17	9	3
4982	24559	MWIL	04	09	1430	N24	W12	04	8.7	5	(B)					
4982		HOLL	04	09	1545	N25	W12	04	8.7		B	CAO	110	11	9	3
4982		PALE	04	09	1810	N25	W14	04	8.7		B	CSO	170	11	8	3
4982		CULG	04	10	0250	N24	W19	04	8.6		B	DAO	120	9	9	2
4982		SVTO	04	10	0725	N25	W23	04	8.5		B	DAI	140	17	8	3

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

APRIL 1988

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
4982		LEAR	04	10	0910	N22	W23	04	8.6		B	DSO	210	13	8	3
4982		RAMY	04	10	1400	N25	W25	04	8.6		B	CAI	150	18	8	3
4982	24559	MWIL	04	10	1430	N24	W24	04	8.8	5	(B)					
4982		BOUL	04	10	1442	N23	W24	04	8.8		B	CAI	100	15	8	3
4982		HOLL	04	10	1526	N25	W25	04	8.7		B	CAO	130	15	8	3
4982		PALE	04	10	1910	N25	W28	04	8.6		B	DSI	120	16	8	3
4982		CULG	04	11	0100	N25	W30	04	8.7		B	CAI	120	18	9	3
4982		LEAR	04	11	0100	N25	W30	04	8.7		B	CAI	120	18	9	3
4982		SVTO	04	11	0828	N25	W35	04	8.6		B	DAI	120	13	7	3
4982		BOUL	04	11	1421	N23	W37	04	8.7		B	CSI	80	11	8	3
4982		RAMY	04	11	1430	N25	W37	04	8.7		B	DAI	160	14	8	3
4982	24559	MWIL	04	11	1500	N25	W36	04	8.8	5	(B)					
4982		HOLL	04	11	1502	N24	W37	04	8.8		B	DAO	130	10	8	3
4982		PALE	04	11	1935	N24	W41	04	8.6		B	DAO	150	9	8	3
4982		LEAR	04	12	0022	N24	W42	04	8.8		B	DSO	130	11	9	3
4982		CULG	04	12	0335	N24	W44	04	8.7		B	DAO	50	6	9	1
4982		SVTO	04	12	0726	N25	W45	04	8.8		B	DAI	130	13	9	3
4982		RAMY	04	12	1340	N25	W50	04	8.7		B	DAI	90	9	8	3
4982		BOUL	04	12	1415	N23	W49	04	8.8		B	CSI	100	10	8	3
4982		HOLL	04	12	1550	N25	W50	04	8.8		B	DAO	130	12	7	3
4982		PALE	04	12	1927	N25	W54	04	8.6		B	DSO	60	8	8	4
4982	24559	MWIL	04	12	2100	N25	W52	04	8.8	4	(B)					
4982		LEAR	04	13	0213	N26	W57	04	8.7		B	CSO	120	9	9	2
4982		CULG	04	13	0240	N24	W60	04	8.5		B	DSO	50	4	7	2
4982		SVTO	04	13	1343	N24	W59	04	9.0		A	AX		2	1	2
4982		BOUL	04	13	1408	N26	W66	04	8.5		A	HS	50	3	2	2
4982		HOLL	04	13	1510	N23	W65	04	8.6		B	CRO	40	6	7	4
4982		RAMY	04	13	1555	N27	W68	04	8.4		A	AX	20	2	2	2
4982	24559	MWIL	04	13	1730	N25	W67	04	8.5	4	AP					
4982		PALE	04	13	1815	N25	W70	04	8.3		A	HS	30	2	2	3
4982		LEAR	04	14	0000	N26	W69	04	8.6		B	BXO	30	4	7	3
4982		CULG	04	14	0600	N26	W75	04	8.4		A	AX	10	1	1	4
4981		PALE	04	02	1900	N20	E87	04	9.4		A	HS	120	1	2	3
4981		LEAR	04	03	0006	N19	E78	04	8.9		A	HS	90	3	9	4
4981		HOLL	04	03	1508	N19	E74	04	9.3		B	ESO	170	6	13	4
4981		BOUL	04	03	1510	N19	E75	04	9.3		B	ESO	260	5	12	3
4981	24558	MWIL	04	03	1515	N17	E72	04	9.1	5	(B					
4981		LEAR	04	04	0015	N17	E67	04	9.1		B	DSO	340	9	10	3
4981		SVTO	04	04	0822	N16	E61	04	9.0		B	ESO	170	11	13	1
4981	24558	MWIL	04	04	1445	N18	E60	04	9.2	5	(B)					
4981		BOUL	04	04	1550	N19	E60	04	9.2		B	ESO	220	8	14	2
4981		HOLL	04	04	1759	N18	E58	04	9.2				270	6	13	2
4981		PALE	04	04	1820	N20	E60	04	9.3		B	EKO	220	7	13	3
4981		RAMY	04	04	1822	N18	E60	04	9.3		B	EAO	360	9	11	3
4981		LEAR	04	05	0123	N18	E57	04	9.4		B	FSO	260	9	12	4
4981		SVTO	04	05	0916	N17	E51	04	9.3		B	EAO	230	7	14	2
4981		RAMY	04	05	1300	N18	E49	04	9.3		B	ESO	380	9	14	3
4981		BOUL	04	05	1430	N18	E48	04	9.2		B	EAO	250	5	11	1
4981	24558	MWIL	04	05	1530	N18	E47	04	9.2	5	(BG)					
4981		HOLL	04	05	1545	N18	E45	04	9.1		B	EAO	280	11	13	4
4981		PALE	04	05	1817	N20	E46	04	9.3		B	EAO	240	7	12	2
4981		LEAR	04	06	0013	N21	E42	04	9.2		B	EAO	400	16	13	3
4981		SVTO	04	06	0558	N18	E41	04	9.4		B	EKI	320	12	14	2
4981		RAMY	04	06	1423	N18	E37	04	9.4		B	EAI	360	11	15	3
4981	24558	MWIL	04	06	1445	N18	E35	04	9.3	6	(B)					
4981		BOUL	04	06	1457	N18	E33	04	9.1		B	EAO	320	6	13	3
4981		HOLL	04	06	1805	N19	E33	04	9.3		B	EAO	350	14	13	3
4981		PALE	04	06	1936	N20	E32	04	9.3		B	ESO	290	14	13	4
4981		LEAR	04	07	0016	N18	E30	04	9.3		BG	EAO	350	18	13	3
4981		SVTO	04	07	0841	N18	E25	04	9.3		B	EKO	130	11	14	2
4981		RAMY	04	07	1438	N18	E24	04	9.4		B	EAO	230	9	14	3
4981	24558	MWIL	04	07	1445	N18	E22	04	9.3	5	(B)					
4981		BOUL	04	07	1510	N17	E22	04	9.3		B	ESO	130	6	14	3
4981		HOLL	04	07	1533	N19	E22	04	9.3		B	EAO	140	21	14	3
4981		PALE	04	07	1820	N18	E19	04	9.2		B	EHO	280	9	15	3
4981		LEAR	04	08	0144	N18	E16	04	9.3		B	FAO	170	11	16	3
4981		SVTO	04	08	0823	N18	E12	04	9.3		B	EHO	200	12	14	4
4981		RAMY	04	08	1420	N18	E09	04	9.3		B	EAO	240	8	14	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
4981	24558	MWIL	04	08	1430	N18	E08	04	9.2	5	(BG)					
4981		HOLL	04	08	1521	N18	E08	04	9.2		B	EAO	210	11	15	4
4981		PALE	04	08	1745	N18	E07	04	9.3		B	CHO	220	5	13	3
4981		LEAR	04	09	0158	N17	E02	04	9.2		B	FAO	140	11	16	2
4981		CULG	04	09	0415	N19	E01	04	9.2		B	EAO	160	5	14	/
4981		SVTO	04	09	0712	N18	W01	04	9.2		B	ESO	80	12	12	4
4981		RAMY	04	09	1305	N18	W04	04	9.2		B	EAO	180	11	14	3
4981	24558	MWIL	04	09	1430	N18	W05	04	9.2	5	(B)					
4981		HOLL	04	09	1545	N18	W05	04	9.3		B	CAO	190	10	13	3
4981		PALE	04	09	1810	N18	W07	04	9.2		B	CHO	190	7	12	3
4981		CULG	04	10	0250	N19	W13	04	9.1		B	ESO	90	3	11	2
4981		SVTO	04	10	0725	N18	W17	04	9.0		B	EAO	120	4	12	3
4981		LEAR	04	10	0910	N17	W14	04	9.3		B	ESO	90	5	11	3
4981		RAMY	04	10	1400	N18	W17	04	9.3		B	CAO	90	8	13	3
4981	24558	MWIL	04	10	1430	N18	W18	04	9.2	5	(B)					
4981		BOUL	04	10	1442	N17	W17	04	9.3		B	CSO	110	5	12	3
4981		HOLL	04	10	1526	N17	W17	04	9.3		B	CAO	90	5	13	3
4981		PALE	04	10	1910	N18	W20	04	9.3		B	CSO	140	7	12	3
4981		CULG	04	11	0100	N17	W24	04	9.2		B	CSO	100	3	11	3
4981		LEAR	04	11	0100	N17	W24	04	9.2		B	CSO	100	3	11	3
4981		SVTO	04	11	0828	N19	W30	04	9.1		B	CSO	110	2	11	3
4981		BOUL	04	11	1421	N17	W34	04	9.0		A	HA	80	3	3	3
4981		RAMY	04	11	1430	N18	W36	04	8.9		A	HA	130	1	2	3
4981	24558	MWIL	04	11	1500	N18	W35	04	8.9	5	(AP)					
4981		HOLL	04	11	1502	N17	W30	04	9.3		B	CSO	80	3	13	3
4981		PALE	04	11	1935	N19	W39	04	8.8		A	HS	80	1	2	3
4981		LEAR	04	12	0022	N19	W41	04	8.9		A	HS	100	4	2	3
4981		CULG	04	12	0335	N19	W44	04	8.8		A	HS	20	1	1	1
4981		SVTO	04	12	0726	N18	W45	04	8.9		B	CSO	100	6	4	3
4981		RAMY	04	12	1340	N18	W48	04	8.9		A	HA	100	3	2	3
4981		BOUL	04	12	1415	N18	W47	04	9.0		A	HA	80	3	3	3
4981		HOLL	04	12	1550	N18	W49	04	8.9		A	HA	100	2	2	3
4981		PALE	04	12	1927	N18	W52	04	8.8		A	HS	40	3	2	4
4981	24558	MWIL	04	12	2100	N18	W51	04	9.0	5	(AP)					
4981		LEAR	04	13	0213	N18	W56	04	8.8		A	HS	80	3	3	2
4981		CULG	04	13	0240	N19	W57	04	8.8		A	HS	20	1	1	2
4981		SVTO	04	13	1343	N18	W64	04	8.7		A	HS	50	1	2	2
4981		BOUL	04	13	1408	N19	W60	04	9.0		A	HS	80	2	1	2
4981		HOLL	04	13	1510	N18	W60	04	9.1		A	HS	90	1	1	4
4981		RAMY	04	13	1555	N19	W63	04	8.8		A	HA	40	1	2	2
4981	24558	MWIL	04	13	1730	N18	W62	04	9.0	4	AP					
4981		PALE	04	13	1815	N18	W65	04	8.8		A	HS	20	1	2	3
4981		LEAR	04	14	0000	N18	W61	04	9.3		B	CSO	40	3	8	3
4981		CULG	04	14	0600	N19	W70	04	8.9		A	AX	10	1	1	4
4981		SVTO	04	14	1345	N18	W75	04	8.9		A	AX	20	1	1	3
4981		HOLL	04	14	1650	N18	W74	04	9.1		A	HR	30	1	1	3
4984		PALE	04	06	1936	N32	E60	04	11.6		A	AX		1		4
4984		LEAR	04	07	0016	N30	E57	04	11.5		B	BXO	10	5	3	3
4984		SVTO	04	07	0841	N32	E51	04	11.4		A	HR	10	2	2	2
4984		RAMY	04	07	1438	N30	E49	04	11.5		B	BXO	20	2	2	3
4984	24561	MWIL	04	07	1445	N30	E48	04	11.4	4	(B)					
4984		BOUL	04	07	1510	N30	E46	04	11.2		A	AX	10	1	1	3
4984		HOLL	04	07	1533	N31	E48	04	11.4		A	AX	20	2	3	3
4984		PALE	04	07	1820	N32	E46	04	11.4		A	AX		1	1	3
4984		LEAR	04	08	0144	N32	E43	04	11.5		B	CRO	20	4	6	3
4984		SVTO	04	08	0823	N32	E37	04	11.3		B	BXO		3	4	4
4984		RAMY	04	08	1420	N31	E36	04	11.4		B	BXO	20	2	4	3
4984	24561	MWIL	04	08	1430	N32	E36	04	11.4	4	(B)					
4984		HOLL	04	08	1521	N31	E35	04	11.4		B	BXO	10	2	5	4
4984		PALE	04	08	1745	N31	E32	04	11.3		A	AX		1	1	3
4984		LEAR	04	09	0158	N31	E27	04	11.2		A	AX	10	1	1	2
4984		SVTO	04	09	0712	N31	E24	04	11.2		A	AX		1		4
4984	24561	MWIL	04	09	1430	N30	E21	04	11.2	3	(AP)					
4984		HOLL	04	09	1545	N30	E20	04	11.2		A	AX	10	1	1	3
4993		HOLL	04	11	1709	S25	E03	04	11.9		A	AX	10	2	1	4
4993		PALE	04	11	1935	S25	E01	04	11.9		A	AX		1		3
4993		CULG	04	12	0335	S23	W06	04	11.7		B	BXO	10	2	3	1

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4993		SVTO	04 12 0726	S25 W05	04 11.9		A	AX		1		3
4993		RAMY	04 12 1340	S22 W05	04 12.2		A	AX		1	1	3
4993		RAMY	04 17 1450	S22 W72	04 12.1		A	AX	10	1	1	3
4993		HOLL	04 17 1500	S20 W76	04 11.8		A	AX	10	2	2	3
4993		PALE	04 17 1915	S21 W78	04 11.8		A	AX	30	1	1	4
4983		LEAR	04 06 0013	S33 E80	04 12.4		B	BXO	60	5	2	3
4983		SVTO	04 06 0558	S30 E80	04 12.5		B	BXO		4	5	2
4983		RAMY	04 06 1423	S33 E78	04 12.8		B	CRO	60	6	8	3
4983	24560	MWIL	04 06 1445	S32 E78	04 12.8	4	(B)					
4983		BOUL	04 06 1457	S32 E77	04 12.7		B	BXO	60	5	9	3
4983		HOLL	04 06 1805	S30 E75	04 12.6		B	BXO	90	8	9	3
4983		PALE	04 06 1936	S31 E76	04 12.8		B	DSO	80	4	7	4
4983		LEAR	04 07 0016	S32 E69	04 12.5		B	DRO	100	9	7	3
4983		SVTO	04 07 0841	S32 E67	04 12.7		B	DAO	130	4	7	2
4983		RAMY	04 07 1438	S32 E64	04 12.7		B	DAO	100	5	8	3
4983	24560	MWIL	04 07 1445	S32 E65	04 12.8	4	(B)					
4983		BOUL	04 07 1510	S31 E65	04 12.8		B	DRO	60	2	8	3
4983		HOLL	04 07 1533	S31 E63	04 12.6		B	DSO	200	7	8	3
4983		PALE	04 07 1820	S30 E63	04 12.7		B	DSO	130	6	10	3
4983		LEAR	04 08 0144	S32 E60	04 12.8		B	DAO	100	9	9	3
4983		SVTO	04 08 0823	S32 E56	04 12.8		B	DSI	110	12	9	4
4983		RAMY	04 08 1420	S32 E52	04 12.7		B	DSO	100	6	9	3
4983	24560	MWIL	04 08 1430	S31 E52	04 12.7	4	(B)					
4983		HOLL	04 08 1521	S30 E52	04 12.7		B	DSO	110	10	10	4
4983		PALE	04 08 1745	S30 E51	04 12.7		B	CSO	80	5	10	3
4983		LEAR	04 09 0158	S30 E46	04 12.7		B	DAO	120	11	8	2
4983		CULG	04 09 0415	S32 E47	04 12.9		B	CSO	80	4	90	/
4983		SVTO	04 09 0712	S30 E42	04 12.6		B	CSO	90	5	9	4
4983		RAMY	04 09 1305	S32 E40	04 12.7		B	DSO	100	5	9	3
4983	24560	MWIL	04 09 1430	S31 E39	04 12.7	5	(B)					
4983		HOLL	04 09 1545	S31 E40	04 12.8		B	CSO	100	7	10	3
4983		PALE	04 09 1810	S30 E35	04 12.5		B	CSO	80	3	3	3
4983		CULG	04 10 0250	S30 E29	04 12.4		A	HS	60	2	2	2
4983		SVTO	04 10 0725	S30 E27	04 12.4		A	HS	100	5	3	3
4983		LEAR	04 10 0910	S31 E27	04 12.5		B	CSO	80	4	3	3
4983		RAMY	04 10 1400	S30 E23	04 12.4		A	HS	120	4	3	3
4983	24560	MWIL	04 10 1430	S30 E23	04 12.4	5	(AP)					
4983		BOUL	04 10 1442	S30 E22	04 12.3		A	HS	80	2	2	3
4983		HOLL	04 10 1526	S31 E24	04 12.5		A	HS	70	2	3	3
4983		PALE	04 10 1910	S31 E22	04 12.5		A	HS	120	2	2	3
4983		CULG	04 11 0100	S31 E22	04 12.8		B	CSO	90	5	7	3
4983		LEAR	04 11 0100	S31 E22	04 12.8		B	CSO	90	5	7	3
4983		SVTO	04 11 0828	S30 E14	04 12.4		A	HS	110	2	3	3
4983		BOUL	04 11 1421	S30 E11	04 12.5		B	CSO	90	4	3	3
4983		RAMY	04 11 1430	S32 E06	04 12.1		B	CSO	110	5	10	3
4983	24560	MWIL	04 11 1500	S31 E11	04 12.5	5	(AP)					
4983		HOLL	04 11 1502	S31 E12	04 12.6		A	HS	90	2	3	3
4983		PALE	04 11 1935	S31 E09	04 12.5		B	CSO	100	2	3	3
4983		LEAR	04 12 0022	S32 E08	04 12.6		B	CSO	120	7	7	3
4983		CULG	04 12 0335	S30 E02	04 12.3		A	HS	70	1	2	1
4983		SVTO	04 12 0726	S30 E01	04 12.4		B	CSO	110	3	4	3
4983		RAMY	04 12 1340	S31 W01	04 12.5		A	HS	80	2	2	3
4983		BOUL	04 12 1415	S30 W03	04 12.3		B	CSO	110	3	5	3
4983		HOLL	04 12 1550	S31 W01	04 12.6		A	HA	70	1	2	3
4983		PALE	04 12 1927	S31 W04	04 12.5		A	HS	110	1	2	4
4983	24560	MWIL	04 12 2100	S31 W06	04 12.4	5	(AP)					
4983		LEAR	04 13 0213	S31 W08	04 12.5		A	HS	90	2	2	2
4983		CULG	04 13 0240	S30 W09	04 12.4		A	HS	70	1	1	2
4983		SVTO	04 13 1343	S31 W15	04 12.4		A	HS	70	1	2	2
4983		BOUL	04 13 1408	S29 W13	04 12.6		A	HS	110	2	2	2
4983		HOLL	04 13 1510	S31 W13	04 12.6		A	HA	110	1	2	4
4983		RAMY	04 13 1555	S30 W14	04 12.6		A	HS	80	1	2	2
4983	24560	MWIL	04 13 1730	S31 W14	04 12.6	5	AP					
4983		PALE	04 13 1815	S32 W16	04 12.5		A	HS	90	1	2	3
4983		LEAR	04 14 0000	S31 W20	04 12.4		B	CSO	100	8	3	3
4983		CULG	04 14 0600	S32 W22	04 12.5		A	HS	50	1	1	4
4983		SVTO	04 14 1345	S34 W28	04 12.3		B	CSO	80	5	17	3
4983		BOUL	04 14 1430	S31 W25	04 12.6		A	HS	60	1	2	4

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4983		HOLL	04	14	1650	S31	W27	04	12.6		A	HS	100	2	2	3
4983		PALE	04	14	1755	S32	W28	04	12.5		A	HS	90	1	2	3
4983		LEAR	04	15	0053	S31	W28	04	12.8		B	CSO	110	6	7	3
4983		CULG	04	15	0510	S32	W34	04	12.5		A	HS	50	3	1	4
4983		SVTO	04	15	0725	S31	W35	04	12.5		A	HS	100	2	2	3
4983		BOUL	04	15	1340	S31	W38	04	12.6		A	HS	50	2	1	3
4983		HOLL	04	15	1445	S32	W38	04	12.6		B	CAO	40	4	5	3
4983		LEAR	04	16	0138	S30	W45	04	12.5		B	CSO	60	2	2	4
4983		CULG	04	16	0500	S29	W50	04	12.3		A	HS	30	1	1	3
4983		SVTO	04	16	0625	S30	W48	04	12.5		A	HS	60	2	2	3
4983		BOUL	04	16	1425	S30	W51	04	12.6		A	HS	30	1	1	4
4983	24560	MWIL	04	16	1430	S30	W51	04	12.6	5	(AP)					
4983		HOLL	04	16	1706	S31	W51	04	12.7		A	HS	30	1	1	2
4983		PALE	04	16	1745	S32	W53	04	12.5		A	HS	70	1	2	4
4983		CULG	04	17	0510	S28	W63	04	12.3		A	HS	20	1	1	3
4983		SVTO	04	17	1131	S29	W61	04	12.7		B	CAO	30	2	3	2
4983		RAMY	04	17	1450	S30	W63	04	12.7		A	HA	70	1	2	3
4983		HOLL	04	17	1500	S31	W64	04	12.6		A	HS	40	1	1	3
4983		PALE	04	17	1915	S31	W68	04	12.4		A	HS	50	1	1	4
4983		CULG	04	18	0420	S30	W72	04	12.5		A	AX	10	1		1
4983		LEAR	04	18	0710	S32	W72	04	12.6		A	HS	20	2	2	3
4983		HOLL	04	18	1440	S32	W75	04	12.7		A	HS	30	1	1	4
4983		RAMY	04	18	1536	S30	W77	04	12.6		A	HA	30	1	2	2
4983		BOUL	04	18	1728	S31	W79	04	12.5		A	AX	20	1	1	2
4983	24560	MWIL	04	18	1730	S30	W81	04	12.3	3	AP					
4983		PALE	04	18	1912	S32	W85	04	12.1		A	AX	20	1	1	4
4983		LEAR	04	19	0014	S31	W80	04	12.7		A	HS	20	1	1	3
4983A		SVTO	04	09	0712	S25	E54	04	13.5		A	AX		1		4
4983A		RAMY	04	09	1305	S26	E50	04	13.4		B	BXO	10	2	2	3
4983A		HOLL	04	09	1545	S24	E49	04	13.4		B	BXO	10	2	3	3
4985		SVTO	04	07	0841	S17	E80	04	13.4		A	HS	60	2	2	2
4985		RAMY	04	07	1438	S19	E79	04	13.6		B	CRO	50	2	3	3
4985	24562	MWIL	04	07	1445	S18	E80	04	13.7	3	(AP)					
4985		BOUL	04	07	1510	S18	E78	04	13.6		A	AX	20	1	2	3
4985		HOLL	04	07	1533	S19	E79	04	13.7		B	CRO	30	6	5	3
4985		PALE	04	07	1820	S17	E79	04	13.8		A	HS	30	1	2	3
4985		LEAR	04	08	0144	S18	E77	04	13.9		B	CAO	40	3	6	3
4985		SVTO	04	08	0823	S18	E69	04	13.6		A	HR	70	1	2	4
4985		RAMY	04	08	1420	S17	E73	04	14.1		B	FAO	90	2	17	3
4985	24562	MWIL	04	08	1430	S19	E67	04	13.7	4	(AP)					
4985		HOLL	04	08	1521	S16	E72	04	14.1		B	FSO	140	3	20	4
4985		PALE	04	08	1745	S16	E72	04	14.2		B	FSO	100	2	17	3
4985		LEAR	04	09	0158	S17	E70	04	14.4		B	FAO	100	7	20	2
4985		CULG	04	09	0415	S17	E69	04	14.4		B	FSO	110	3	17	/
4985		SVTO	04	09	0712	S17	E65	04	14.2		B	FSO	140	3	21	4
4985		RAMY	04	09	1305	S18	E63	04	14.3		B	FAO	90	3	20	3
4985	24562	MWIL	04	09	1430	S20	E54	04	13.7	5	(AP)					
4985		HOLL	04	09	1545	S17	E63	04	14.4		B	FSO	120	4	22	3
4985		PALE	04	09	1810	S17	E62	04	14.5		B	FSO	140	4	22	3
4985		CULG	04	10	0250	S17	E51	04	14.0		B	FSO	80	5	21	2
4985		SVTO	04	10	0725	S18	E44	04	13.6		A	HS	30	1	1	3
4985		LEAR	04	10	0910	S19	E42	04	13.6		A	CS	70	1	2	3
4985		RAMY	04	10	1400	S18	E40	04	13.6		A	HS	50	1	2	3
4985	24562	MWIL	04	10	1430	S19	E40	04	13.6	5	(AP)					
4985		BOUL	04	10	1442	S18	E38	04	13.5		A	HS	30	1	1	3
4985		HOLL	04	10	1526	S18	E40	04	13.7		A	HS	30	1	2	3
4985		PALE	04	10	1910	S18	E38	04	13.7		A	HS	20	1	1	3
4985		CULG	04	11	0100	S21	E41	04	14.2		B	CSO	40	5	11	3
4985		LEAR	04	11	0100	S21	E41	04	14.2		B	CSO	40	5	11	3
4985		SVTO	04	11	0828	S18	E30	04	13.6		A	HS	20	1	1	3
4985		BOUL	04	11	1421	S18	E25	04	13.5		A	HS	20	2	1	3
4985		RAMY	04	11	1430	S18	E27	04	13.7		A	HS	40	1	2	3
4985	24562	MWIL	04	11	1500	S19	E27	04	13.7	5	(AP)					
4985		HOLL	04	11	1502	S19	E27	04	13.7		A	HS	20	1	1	3
4985		PALE	04	11	1935	S19	E24	04	13.6		A	HS	20	1	2	3
4985		LEAR	04	12	0022	S19	E21	04	13.6		A	HS	20	4	2	3
4985		CULG	04	12	0335	S18	E19	04	13.6		A	HS	30	1	1	1

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

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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
4985		SVTO	04 12 0726	S19 E18	04 13.7		A	HS	20	3	3	3
4985		RAMY	04 12 1340	S19 E17	04 13.9		B	CRO	20	4	5	3
4985		BOUL	04 12 1415	S18 E14	04 13.6		B	CSO	20	4	5	3
4985		HOLL	04 12 1550	S19 E20	04 14.2		B	CSO	30	4	6	3
4985		PALE	04 12 1927	S18 E12	04 13.7		A	HR	20	1	1	4
4985	24562	MWIL	04 12 2100	S19 E10	04 13.6	4	(AP)					
4985		LEAR	04 13 0213	S19 E11	04 13.9		B	CSO	30	4	7	2
4985		CULG	04 13 0240	S19 E08	04 13.7		A	HS	20	1	1	2
4985		SVTO	04 13 1343	S18 E00	04 13.6		A	HR	40	1	1	2
4985		BOUL	04 13 1408	S18 E01	04 13.7		A	HS	20	1	1	2
4985		HOLL	04 13 1510	S19 E00	04 13.6		A	HS	200	1	2	4
4985		RAMY	04 13 1555	S18 W01	04 13.6		A	HR	40	1	2	2
4985	24562	MWIL	04 13 1730	S19 W01	04 13.6	4	AP					
4985		PALE	04 13 1815	S19 W02	04 13.6		A	HS	20	1	1	3
4985		LEAR	04 14 0000	S18 W04	04 13.7		B	CSO	30	3	3	3
4985		CULG	04 14 0600	S19 W07	04 13.7		B	BXO	10	2	2	4
4985		SVTO	04 14 1345	S19 W11	04 13.7		B	BXO	10	2	3	3
4985		BOUL	04 14 1430	S18 W11	04 13.8		A	AX	10	1	1	4
4985		HOLL	04 14 1650	S19 W13	04 13.7		A	HS	20	1	1	3
4985		PALE	04 14 1755	S18 W14	04 13.7		A	HS	20	1	1	3
4985		LEAR	04 15 0053	S18 W18	04 13.7		A	HS	20	2	1	3
4985		CULG	04 15 0510	S20 W20	04 13.7		A	AX	10	1	1	4
4985		SVTO	04 15 0725	S19 W21	04 13.7		B	CSO	20	3	1	3
4985		BOUL	04 15 1340	S18 W24	04 13.7		A	AX	10	1	1	3
4985		HOLL	04 15 1445	S20 W23	04 13.8		B	BXO	10	3	5	3
4985		LEAR	04 16 0138	S17 W31	04 13.7		A	AX	10	1	1	4
4985		PALE	04 16 0224	S19 W32	04 13.6		A	HS	20	1	1	2
4985		CULG	04 16 0500	S17 W34	04 13.6		A	AX	10	1		3
4985		SVTO	04 16 0625	S17 W34	04 13.7		A	AX	10	1	1	3
4985		BOUL	04 16 1425	S18 W38	04 13.7		A	AX	10	1	1	4
4985	24562	MWIL	04 16 1430	S18 W39	04 13.6	4	(AP)					
4985		HOLL	04 16 1706	S18 W38	04 13.8		A	AX	10	1	1	2
4985		PALE	04 16 1745	S19 W40	04 13.7		A	AX		1		4
4985		CULG	04 17 0510	S16 W48	04 13.6		A	AX	10	1		3
4985		SVTO	04 17 1131	S17 W50	04 13.7		A	AX	10	1	1	.2
4996		CULG	04 14 0600	S34 W07	04 13.7		A	AX	10	1	1	4
4996		BOUL	04 14 1430	S33 W10	04 13.8		B	BXO	10	5	4	4
4996		HOLL	04 14 1650	S34 W11	04 13.8		B	CSO	20	6	3	3
4996		PALE	04 14 1755	S35 W13	04 13.7		B	CSI	20	8	4	3
4996		LEAR	04 15 0053	S33 W17	04 13.7		B	DAO	70	9	4	3
4996		CULG	04 15 0510	S34 W18	04 13.8		B	DSO	90	5	3	4
4996		SVTO	04 15 0725	S33 W19	04 13.8		B	DAO	60	8	4	3
4996		BOUL	04 15 1340	S32 W22	04 13.8		B	DSO	90	7	3	3
4996		HOLL	04 15 1445	S33 W23	04 13.8		B	DSO	110	9	5	3
4996		LEAR	04 16 0138	S33 W29	04 13.8		B	DAO	110	10	5	4
4996		PALE	04 16 0224	S33 W30	04 13.7		B	DAO	70	5	4	2
4996		CULG	04 16 0500	S32 W34	04 13.5		B	CAO	90	4	4	3
4996		SVTO	04 16 0625	S32 W32	04 13.7		B	CSO	100	8	3	3
4996		BOUL	04 16 1425	S32 W36	04 13.7		B	DAO	100	5	5	4
4996	24568	MWIL	04 16 1430	S33 W37	04 13.7	4	(BF)					
4996		HOLL	04 16 1706	S33 W34	04 14.0		B	CSO	100	5	5	2
4996		PALE	04 16 1745	S33 W38	04 13.7		B	DSI	100	9	4	4
4996		CULG	04 17 0510	S31 W46	04 13.6		B	CSO	10	4	2	3
4996		SVTO	04 17 1131	S32 W46	04 13.8		B	DAO	60	6	3	2
4996		RAMY	04 17 1450	S33 W47	04 13.9		B	CAI	70	9	6	3
4996		HOLL	04 17 1500	S33 W48	04 13.8		B	CSO	50	4	4	3
4996		PALE	04 17 1915	S33 W51	04 13.7		B	BXO	30	4	3	4
4996		CULG	04 18 0420	S29 W56	04 13.8		A	AX	10	1	1	1
4996		LEAR	04 18 0710	S34 W56	04 13.8		B	CRO	10	3	3	3
4996		HOLL	04 18 1440	S33 W60	04 13.8		B	CSO	40	4	6	4
4996		RAMY	04 18 1536	S32 W60	04 13.9		B	BXO	20	2	4	2
4996		BOUL	04 18 1728	S33 W60	04 14.0		A	AX	20	2	2	2
4996	24568	MWIL	04 18 1730	S33 W62	04 13.8	4	AF					
4996		PALE	04 18 1912	S35 W64	04 13.7		A	AX	40	2	2	4
4996		LEAR	04 19 0014	S33 W65	04 13.8		B	CRI	10	5	5	3
4996		SVTO	04 19 0626	S34 W69	04 13.8		A	AX	10	4	2	3
4996		RAMY	04 19 1330	S32 W70	04 14.0		A	HR	40	2	1	3
4996		HOLL	04 19 1515	S33 W72	04 13.9		A	AX	10	2	2	3

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4986		SVTO	04	08	0823	N17	E74	04	14.0		B	CRI	50	7	7	4
4986		RAMY	04	08	1420	N15	E69	04	13.8		B	BSO	110	6	6	3
4986	24563	MWIL	04	08	1430	N16	E73	04	14.1	4	(B)					
4986		HOLL	04	08	1521	N16	E70	04	13.9		B	EAO	200	11	15	4
4986		PALE	04	08	1745	N18	E71	04	14.1		B	CAO	110	7	19	3
4986		LEAR	04	09	0158	N16	E66	04	14.1		B	FAI	200	16	16	2
4986		CULG	04	09	0415	N17	E60	04	13.7		B	CAO	90	3	18	/
4986		SVTO	04	09	0712	N18	E61	04	13.9		B	FSI	190	13	16	4
4986		RAMY	04	09	1305	N16	E60	04	14.1		B	FAI	320	16	18	3
4986	24563	MWIL	04	09	1430	N16	E58	04	14.0	5	(B)					
4986		HOLL	04	09	1545	N17	E58	04	14.1		B	FAI	210	17	19	3
4986		PALE	04	09	1810	N18	E61	04	14.4		B	FSO	70	13	18	3
4986		CULG	04	10	0250	N18	E52	04	14.1		B	FAO	260	7	16	2
4986		SVTO	04	10	0725	N18	E45	04	13.7		B	FAI	260	20	19	3
4986		LEAR	04	10	0910	N19	E49	04	14.1		B	FAO	310	13	18	3
4986		RAMY	04	10	1400	N18	E46	04	14.1		BG	FKI	410	17	19	3
4986	24563	MWIL	04	10	1430	N17	E47	04	14.2	5	(D)					
4986		BOUL	04	10	1442	N17	E44	04	13.9		B	FAI	320	15	18	3
4986		HOLL	04	10	1526	N18	E47	04	14.2		BG	FKO	200	12	19	3
4986		PALE	04	10	1910	N19	E45	04	14.2		BG	FAI	320	20	18	3
4986		CULG	04	11	0100	N20	E40	04	14.1		B	FKI	350	28	18	3
4986		LEAR	04	11	0100	N20	E40	04	14.1		B	FKI	350	28	18	3
4986		SVTO	04	11	0828	N18	E32	04	13.8		B	ESO	270	12	11	3
4986		BOUL	04	11	1421	N16	E26	04	13.6		B	CAI	190	16	6	3
4986		RAMY	04	11	1430	N20	E33	04	14.1		BG	FKI	440	29	19	3
4986	24563	MWIL	04	11	1500	N17	E32	04	14.0	5	(B)					
4986		HOLL	04	11	1502	N18	E34	04	14.2		BG	FKO	360	15	18	3
4986		PALE	04	11	1935	N18	E27	04	13.9		BG	EAI	260	16	11	3
4986		LEAR	04	12	0022	N16	E25	04	13.9		BG	ESO	300	20	11	3
4986		CULG	04	12	0335	N17	E23	04	13.9		B	ESI	210	9	11	1
4986		SVTO	04	12	0726	N17	E21	04	13.9		B	EHO	360	18	11	3
4986		RAMY	04	12	1340	N17	E18	04	13.9		B	DSI	360	13	10	3
4986		BOUL	04	12	1415	N16	E16	04	13.8		B	ESO	280	18	11	3
4986		HOLL	04	12	1550	N17	E15	04	13.8		B	EKI	440	19	11	3
4986		PALE	04	12	1927	N18	E14	04	13.9		BG	EAI	320	14	11	4
4986	24563	MWIL	04	12	2100	N17	E15	04	14.0	6	(D)					
4986		LEAR	04	13	0213	N17	E10	04	13.8		BG	ESI	400	22	11	2
4986		CULG	04	13	0240	N19	E09	04	13.8		BG	EAI	230	13	11	2
4986		SVTO	04	13	1343	N17	E05	04	13.9		B	DKI	300	18	10	2
4986		BOUL	04	13	1408	N17	E06	04	14.0		B	EKI	310	10	12	2
4986		HOLL	04	13	1510	N17	E04	04	13.9		B	EAI	270	8	12	4
4986		RAMY	04	13	1555	N18	E05	04	14.0		B	EKI	300	11	12	2
4986	24563	MWIL	04	13	1730	N17	E04	04	14.0	6	BP					
4986		PALE	04	13	1815	N17	E02	04	13.9		B	EHO	300	14	11	3
4986		LEAR	04	14	0000	N17	W01	04	13.9		B	ESO	240	17	13	3
4986		CULG	04	14	0600	N17	W03	04	14.0		B	CSI	140	10	11	4
4986		SVTO	04	14	1345	N17	W08	04	14.0		B	CAO	260	15	13	3
4986		BOUL	04	14	1430	N16	W10	04	13.8		B	CSO	220	3	6	4
4986		HOLL	04	14	1650	N17	W08	04	14.1		B	CAO	240	12	12	3
4986		PALE	04	14	1755	N16	W12	04	13.8		B	CHO	270	7	7	3
4986		LEAR	04	15	0053	N17	W17	04	13.7		B	CAO	210	9	4	3
4986		CULG	04	15	0510	N16	W17	04	13.9		B	CSO	220	6	10	4
4986		SVTO	04	15	0725	N17	W19	04	13.9		B	CHO	370	12	15	3
4986		BOUL	04	15	1340	N16	W26	04	13.6		B	CAO	230	3	3	3
4986		HOLL	04	15	1445	N17	W21	04	14.0		B	CSO	240	8	10	3
4986		LEAR	04	16	0138	N18	W27	04	14.0		B	ESO	280	8	13	4
4986		PALE	04	16	0224	N18	W29	04	13.9		B	CSO	180	5	12	2
4986		CULG	04	16	0500	N18	W28	04	14.1		B	CSO	200	4	11	3
4986		SVTO	04	16	0625	N18	W30	04	14.0		B	CHO	210	5	12	3
4986		BOUL	04	16	1425	N18	W32	04	14.2		B	CAO	220	5	14	4
4986	24563	MWIL	04	16	1430	N18	W38	04	13.7	5	(AP)					
4986		HOLL	04	16	1706	N18	W34	04	14.1		B	CSO	140	2	11	2
4986		PALE	04	16	1745	N18	W38	04	13.8		B	CHO	290	3	11	4
4986		CULG	04	17	0510	N19	W48	04	13.5		A	HS	240	2	3	3
4986		SVTO	04	17	1131	N18	W45	04	14.0		B	CKO	150	9	12	2
4986		RAMY	04	17	1450	N17	W52	04	13.7		A	HK	270	9	4	3
4986		HOLL	04	17	1500	N18	W51	04	13.7		A	HA	140	2	2	3
4986		PALE	04	17	1915	N17	W57	04	13.5		A	HS	200	2	3	4
4986		CULG	04	18	0420	N21	W63	04	13.3		A	HS	140	2	3	1

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4986		LEAR	04 18 0710	N16 W60	04 13.7		A	HH	140	7	4	3
4986		HOLL	04 18 1440	N16 W64	04 13.7		A	HS	130	4	3	4
4986		RAMY	04 18 1536	N17 W67	04 13.5		A	HS	140	3	2	2
4986		BOUL	04 18 1728	N19 W66	04 13.7		A	HA	100	2	5	2
4986	24563	MWIL	04 18 1730	N18 W68	04 13.5	5	AP					
4986		PALE	04 18 1912	N17 W70	04 13.5		A	HS	120	1	3	4
4986		LEAR	04 19 0014	N17 W69	04 13.8		A	HS	140	3	3	3
4986		SVTO	04 19 0626	N17 W76	04 13.5		A	HH	180	1	3	3
4986		RAMY	04 19 1330	N17 W79	04 13.5		A	HS	90	1	2	3
4986		HOLL	04 19 1515	N16 W78	04 13.7		A	HA	90	3	2	3
4991		BOUL	04 11 1421	N19 E37	04 14.4		B	BXI	40	14	9	3
4991		HOLL	04 11 1709	N20 E38	04 14.6		B	CSO	30	3	6	4
4991		PALE	04 11 1935	N21 E37	04 14.6		B	CSO	40	3	8	3
4991		LEAR	04 12 0022	N20 E34	04 14.6		B	BXO	20	9	9	3
4991		CULG	04 12 0335	N20 E36	04 14.9		A	AX	10	3	1	1
4991		SVTO	04 12 0726	N21 E32	04 14.8		B	CRO	10	8	5	3
4991		RAMY	04 12 1340	N20 E31	04 14.9		B	BXO	10	5	3	3
4991		BOUL	04 12 1415	N19 E29	04 14.8		B	BXI	10	5	3	3
4991		HOLL	04 12 1550	N20 E29	04 14.9		A	AX	20	4	2	3
4991		PALE	04 12 1927	N20 E25	04 14.7		B	CSO	10	3	7	4
4991		HOLL	04 15 1445	N20 W11	04 14.8		A	AX	10	2	1	3
4989	24564	MWIL	04 08 1430	S15 E85	04 15.0	3	AP					
4989	24564	MWIL	04 09 1430	S14 E70	04 14.9	4	(B)					
4989		SVTO	04 10 0725	S15 E61	04 14.9		B	DAO	80	8	6	3
4989		LEAR	04 10 0910	S16 E61	04 15.0		B	EAO	160	11	11	3
4989		RAMY	04 10 1400	S15 E58	04 15.0		B	DAO	80	10	8	3
4989	24564	MWIL	04 10 1430	S14 E57	04 14.9	4	(BF)					
4989		BOUL	04 10 1442	S17 E57	04 14.9		B	ESO	70	9	13	3
4989		HOLL	04 10 1526	S15 E59	04 15.1		B	DSO	70	8	7	3
4989		PALE	04 10 1910	S17 E57	04 15.1		B	DRO	30	10	8	3
4989		CULG	04 11 0100	S15 E55	04 15.2		B	ESO	60	11	11	3
4989		LEAR	04 11 0100	S15 E55	04 15.2		B	ESO	60	11	11	3
4989		SVTO	04 11 0828	S15 E48	04 15.0		B	DRO	30	8	7	3
4989		BOUL	04 11 1421	S13 E43	04 14.8		B	BXI	30	8	6	3
4989		RAMY	04 11 1430	S16 E46	04 15.1		B	BXO	20	6	8	3
4989	24564	MWIL	04 11 1500	S14 E43	04 14.9	4	(B)					
4989		HOLL	04 11 1502	S16 E46	04 15.1		B	BXO	40	7	8	3
4989		PALE	04 11 1935	S13 E41	04 14.9		B	BXO	10	7	6	3
4989		LEAR	04 12 0022	S14 E38	04 14.9		B	BXO	20	13	8	3
4989		CULG	04 12 0335	S12 E38	04 15.0		B	BXO	10	3	4	1
4989		SVTO	04 12 0726	S14 E35	04 14.9		B	CRO	20	10	8	3
4989		RAMY	04 12 1340	S13 E31	04 14.9		B	BXO	10	5	5	3
4989		BOUL	04 12 1415	S13 E29	04 14.8		B	BXI	20	7	6	3
4989		HOLL	04 12 1550	S14 E30	04 14.9		B	DRO	60	9	9	3
4989		PALE	04 12 1927	S14 E28	04 14.9		B	CSI	30	12	7	4
4989	24564	MWIL	04 12 2100	S14 E27	04 14.9	4	(BP)					
4989		LEAR	04 13 0213	S14 E24	04 14.9		B	DSO	30	8	8	2
4989		CULG	04 13 0240	S14 E22	04 14.8		B	DRO	30	4	8	2
4989		SVTO	04 13 1343	S14 E19	04 15.0		B	CSI	80	14	9	2
4989		BOUL	04 13 1408	S15 E19	04 15.0		B	EAI	150	17	11	2
4989		HOLL	04 13 1510	S13 E17	04 14.9		B	DAI	90	9	6	4
4989		RAMY	04 13 1555	S14 E18	04 15.0		B	DSO	100	10	7	2
4989	24564	MWIL	04 13 1730	S14 E16	04 14.9	5	B					
4989		PALE	04 13 1815	S15 E16	04 15.0		B	DAI	180	20	9	3
4989		LEAR	04 14 0000	S15 E13	04 15.0		B	DSI	190	30	8	3
4989		CULG	04 14 0600	S14 E09	04 14.9		B	DSI	100	16	6	4
4989		SVTO	04 14 1345	S15 E05	04 14.9		B	DAO	170	17	7	3
4989		BOUL	04 14 1430	S15 E04	04 14.9		B	DAI	190	9	8	4
4989		HOLL	04 14 1650	S14 E04	04 15.0		B	DAI	210	15	8	3
4989		PALE	04 14 1755	S14 E03	04 15.0		B	DAI	160	21	10	3
4989		LEAR	04 15 0053	S14 W02	04 14.9		B	DAO	250	26	8	3
4989		CULG	04 15 0510	S14 W04	04 14.9		B	DAO	140	9	7	4
4989		SVTO	04 15 0725	S14 W05	04 14.9		B	DAO	210	14	8	3
4989		BOUL	04 15 1340	S14 W09	04 14.9		B	DAO	150	14	8	3
4989		HOLL	04 15 1445	S14 W09	04 14.9		B	DKO	200	11	10	3
4989		LEAR	04 16 0138	S13 W15	04 14.9		B	DAO	180	13	8	4
4989		PALE	04 16 0224	S15 W17	04 14.8		B	DSO	160	12	9	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
4989		CULG	04	16	0500	S15	W19	04	14.8		B	DAO	190	6	10	3
4989		SVTO	04	16	0625	S14	W18	04	14.9		B	DAO	130	10	10	3
4989		BOUL	04	16	1425	S13	W22	04	14.9		B	DAO	110	12	10	4
4989	24564	MWIL	04	16	1430	S14	W22	04	14.9	5	(B					
4989		HOLL	04	16	1706	S15	W21	04	15.1		B	DAO	140	9	10	2
4989		PALE	04	16	1745	S15	W24	04	14.9		B	DSO	130	13	10	4
4989		CULG	04	17	0510	S14	W32	04	14.8		B	DSO	140	4	12	3
4989		SVTO	04	17	1131	S14	W34	04	14.9		B	DSO	110	10	10	2
4989		RAMY	04	17	1450	S14	W36	04	14.9		B	EAO	160	18	12	3
4989		HOLL	04	17	1500	S16	W34	04	15.0		B	DAO	100	7	11	3
4989		PALE	04	17	1915	S16	W37	04	15.0		B	DSO	210	7	10	4
4989		CULG	04	18	0420	S12	W45	04	14.8		B	CSO	70	3	10	1
4989		LEAR	04	18	0710	S15	W45	04	14.9		B	EAO	70	5	10	3
4989		HOLL	04	18	1440	S15	W49	04	14.9		B	DSO	120	5	10	4
4989		RAMY	04	18	1536	S14	W50	04	14.9		B	CSO	100	4	8	2
4989		BOUL	04	18	1728	S14	W50	04	14.9		B	CSO	60	4	8	2
4989	24564	MWIL	04	18	1730	S14	W51	04	14.9	5	B					
4989		PALE	04	18	1912	S16	W54	04	14.7		B	CSO	140	2	11	4
4989		LEAR	04	19	0014	S14	W55	04	14.8		B	ESO	90	6	11	3
4989		SVTO	04	19	0626	S15	W58	04	14.9		B	ESO	130	3	9	3
4989		RAMY	04	19	1330	S15	W64	04	14.7		B	CAO	80	3	10	3
4989		HOLL	04	19	1515	S16	W59	04	15.2		A	HS	80	2	2	3
4989		BOUL	04	19	1748	S14	W61	04	15.1		A	HS	40	1	2	1
4989		LEAR	04	20	0025	S15	W65	04	15.1		A	HS	20	2	2	3
4989		SVTO	04	20	0730	S15	W70	04	15.0		A	HS	30	1	2	3
4989		RAMY	04	20	1352	S15	W71	04	15.2		A	HA	50	2	2	3
4989		BOUL	04	20	1440	S14	W76	04	14.9		A	HS	60	1	2	2
4989		HOLL	04	20	1520	S15	W71	04	15.3		A	HS	30	1	1	4
4989		PALE	04	20	1658	S16	W76	04	14.9		A	HS	40	1	2	2
4989		LEAR	04	21	0440	S17	W79	04	15.2		A	HS	60	1	2	2
4989		SVTO	04	21	0823	S16	W85	04	14.9		A	HS	20	1	2	4
4992	24565	MWIL	04	09	1430	S18	E75	04	15.3	4	(AP)					
4992	24565	MWIL	04	10	1430	S18	E62	04	15.3	4	(BP)					
4992		BOUL	04	11	1421	S17	E48	04	15.2		A	AX	10	3	2	3
4992	24565	MWIL	04	11	1500	S18	E48	04	15.3	3	(AP)					
4992		HOLL	04	11	1709	S18	E47	04	15.3		A	AX	30	3	3	4
4992		PALE	04	11	1935	S17	E47	04	15.4		A	AX		2	2	3
4992		LEAR	04	12	0022	S18	E44	04	15.4		A	AX	10	3	2	3
4992		SVTO	04	12	0726	S18	E40	04	15.3		A	AX	10	2	1	3
4992		RAMY	04	12	1340	S18	E37	04	15.4		A	AX		1	1	3
4992		HOLL	04	13	1510	S18	E21	04	15.2		B	BXO	20	10	2	4
4992A		HOLL	04	18	1440	N24	W42	04	15.4		A	AX	10	1	1	4
4998		CULG	04	18	0420	S25	W29	04	15.9		B	BXO	10	2	2	1
4998		LEAR	04	18	0710	S27	W28	04	16.1		B	CRO	10	2	2	3
4998		HOLL	04	18	1440	S28	W33	04	16.0		B	BXO	10	3	4	4
4998		RAMY	04	18	1536	S26	W34	04	16.0		B	BXO	10	2	3	2
4998	24571	MWIL	04	18	1730	S26	W32	04	16.2	3	X					
4998		LEAR	04	19	0014	S27	W39	04	16.0		A	AX	10	1	1	3
4994		PALE	04	12	1927	S23	E63	04	17.7		B	BXO		3	3	4
4994		LEAR	04	13	0213	S24	E57	04	17.5		A	AX	10	1	1	2
4994		SVTO	04	13	1343	S23	E51	04	17.5		A	AX		1	1	2
4994		BOUL	04	13	1408	S24	E50	04	17.4		A	AX	10	1	1	2
4994		HOLL	04	13	1510	S23	E51	04	17.6		A	AX	10	1	1	4
4994		RAMY	04	13	1555	S23	E50	04	17.5		A	AX	10	1	1	2
4994	24567	MWIL	04	13	1730	S24	E49	04	17.5	3	AP					
4994		PALE	04	13	1815	S23	E49	04	17.5		A	AX	10	1	1	3
4994		LEAR	04	14	0000	S24	E43	04	17.3		A	AX	10	3	1	3
4994		CULG	04	14	0600	S24	E42	04	17.5		B	BXO	10	2	3	4
4994		SVTO	04	14	1345	S24	E38	04	17.5		B	BXO	10	3	4	3
4994		BOUL	04	14	1430	S24	E38	04	17.5		B	BXO	10	2	3	4
4994		HOLL	04	14	1650	S24	E37	04	17.6		B	CRO	20	2	4	3
4994		PALE	04	14	1755	S23	E37	04	17.6		B	DSO	20	2	5	3
4994		LEAR	04	15	0053	S24	E32	04	17.5		B	BXO	10	2	4	3
4994		CULG	04	15	0510	S23	E28	04	17.4		A	AX	10	1		4
4994		SVTO	04	15	0725	S24	E29	04	17.5		B	BXO		2	4	3

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4994		HOLL	04	15	1445	S24	E22	04	17.3		A	AX	10	1	1	3
4994		LEAR	04	16	0138	S23	E16	04	17.3		A	AX	10	1	1	4
4994		PALE	04	16	0224	S24	E15	04	17.2		A	AX		1		2
4994		CULG	04	16	0500	S26	E11	04	17.1		A	AX	10	1		3
4994		SVTO	04	16	0625	S23	E13	04	17.3		A	AX		1		3
4994		BOUL	04	16	1425	S23	E08	04	17.2		A	AX	10	1	1	4
4994	24567	MWIL	04	16	1430	S24	E08	04	17.2	4	(AP)					
4994		HOLL	04	16	1706	S24	E08	04	17.3		A	AX	10	1	1	2
4994		PALE	04	16	1745	S23	E07	04	17.3		A	AX		1		4
4994		CULG	04	17	0510	S24	W01	04	17.1		A	AX	10	1		3
4994		SVTO	04	17	1131	S23	W04	04	17.2		A	AX		1		2
4994		RAMY	04	17	1450	S23	W06	04	17.1		A	AX		1	1	3
4994		HOLL	04	17	1500	S24	W05	04	17.2		A	AX	10	1	1	3
4990		SVTO	04	11	0828	N23	E81	04	17.6		A	HS	80	1	1	3
4990		RAMY	04	11	1430	N23	E78	04	17.6		A	HS	90	2	2	3
4990		HOLL	04	11	1502	N23	E80	04	17.8		B	CSO	90	2	4	3
4990		PALE	04	11	1935	N24	E84	04	18.3		B	DSO	180	2	10	3
4990		LEAR	04	12	0022	N22	E77	04	17.9		B	DAO	180	8	6	3
4990		CULG	04	12	0335	N22	E76	04	18.0		B	DSO	120	2	9	1
4990		SVTO	04	12	0726	N23	E72	04	17.8		B	DKI	270	8	5	3
4990		RAMY	04	12	1340	N23	E72	04	18.1		B	EAI	420	6	14	3
4990		BOUL	04	12	1415	N22	E66	04	17.7		B	DSI	250	9	8	3
4990		HOLL	04	12	1550	N23	E66	04	17.7		B	DAO	170	11	7	3
4990		PALE	04	12	1927	N24	E71	04	18.3		B	FAI	600	18	16	4
4990	24566	MWIL	04	12	2100	N22	E68	04	18.1	4	(B					
4990		LEAR	04	13	0213	N23	E67	04	18.2		B	EAI	420	21	13	2
4990		CULG	04	13	0240	N23	E66	04	18.2		B	FAO	310	11	18	2
4990		SVTO	04	13	1343	N24	E60	04	18.2		B	FSI	330	18	16	2
4990		BOUL	04	13	1408	N22	E59	04	18.1		B	FAI	350	14	19	2
4990		HOLL	04	13	1510	N22	E60	04	18.2		B	FAI	370	21	17	4
4990		RAMY	04	13	1555	N24	E60	04	18.3		B	FAI	350	13	19	2
4990	24566	MWIL	04	13	1730	N22	E57	04	18.1	5	B					
4990		PALE	04	13	1815	N23	E59	04	18.3		B	EAO	400	19	15	3
4990		LEAR	04	14	0000	N22	E53	04	18.1		BG	FAI	420	29	17	3
4990		CULG	04	14	0600	N23	E53	04	18.3		B	FSO	170	12	16	4
4990		SVTO	04	14	1345	N22	E45	04	18.0		B	FAO	290	36	22	3
4990		BOUL	04	14	1430	N22	E46	04	18.1		B	FAI	340	28	21	4
4990		HOLL	04	14	1650	N22	E45	04	18.1		B	FAI	450	31	17	3
4990		PALE	04	14	1755	N23	E45	04	18.2		B	FAI	500	36	17	3
4990		LEAR	04	15	0053	N23	E39	04	18.0		BG	FAI	500	67	21	3
4990		CULG	04	15	0510	N22	E36	04	18.0		B	FAO	280	22	21	4
4990		SVTO	04	15	0725	N22	E37	04	18.1		B	FAI	450	31	21	3
4990		BOUL	04	15	1340	N23	E30	04	17.9		B	FKI	750	38	22	3
4990		HOLL	04	15	1445	N21	E32	04	18.1		BG	FKI	630	54	22	3
4990		LEAR	04	16	0138	N23	E25	04	18.0		BGD	FKI	410	51	23	4
4990		PALE	04	16	0224	N23	E24	04	17.9		BGD	FKI	420	36	24	2
4990		CULG	04	16	0500	N20	E24	04	18.0		B	FAO	600	23	22	3
4990		SVTO	04	16	0625	N22	E23	04	18.0		BG	FKO	640	28	24	3
4990		BOUL	04	16	1425	N23	E17	04	17.9		B	FKI	590	34	24	4
4990	24566	MWIL	04	16	1430	N22	E17	04	17.9	5	(B					
4990		HOLL	04	16	1706	N22	E18	04	18.1		BG	FKI	630	30	23	2
4990		PALE	04	16	1745	N23	E16	04	18.0		BGD	FKI	800	44	25	4
4990		CULG	04	17	0510	N21	E11	04	18.0		B	FAO	580	18	26	3
4990		SVTO	04	17	0605	N22	E10	04	18.0		BGD	FKI	680	27	25	3
4990		RAMY	04	17	1450	N24	E06	04	18.1		BGD	FKI	1050	59	27	3
4990		HOLL	04	17	1500	N22	E03	04	17.8		BG	FKI	1000	30	26	3
4990		PALE	04	17	1915	N23	E03	04	18.0		BGD	FKI	1000	35	26	4
4990		CULG	04	18	0420	N22	W01	04	18.1		BG	FKI	660	28	25	1
4990		LEAR	04	18	0710	N22	W04	04	18.0		BGD	FKI	670	56	25	3
4990		HOLL	04	18	1440	N22	W07	04	18.1		BG	FKO	1010	38	25	4
4990		RAMY	04	18	1536	N23	W07	04	18.1		BGD	FKI	900	36	26	2
4990		BOUL	04	18	1728	N23	W09	04	18.0		B	FKI	500	34	25	2
4990	24566	MWIL	04	18	1730	N22	W16	04	17.5	5	B					
4990		PALE	04	18	1912	N23	W10	04	18.0		BGD	FKI	980	27	27	4
4990		LEAR	04	19	0014	N23	W13	04	18.0		BGD	FKI	690	53	28	3
4990		SVTO	04	19	0626	N22	W14	04	18.2		BGD	FKI	730	40	27	3
4990		RAMY	04	19	1330	N23	W21	04	17.9		BGD	FKI	750	39	26	3
4990		HOLL	04	19	1515	N22	W21	04	18.0		BG	FHI	670	37	26	3

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4990		BOUL	04 19 1748	N23 W22	04 18.0		BGD	FKI	480	22	26	1
4990		LEAR	04 20 0025	N23 W25	04 18.1		BGD	FKI	360	41	27	3
4990		SVTO	04 20 0730	N25 W30	04 18.0		BG	FHI	500	30	29	3
4990		RAMY	04 20 1352	N23 W32	04 18.1		B	FKI	650	31	27	3
4990		BOUL	04 20 1440	N23 W34	04 18.0		B	FKI	560	21	28	2
4990		HOLL	04 20 1520	N24 W35	04 17.9		BG	FHI	580	23	18	4
4990		PALE	04 20 1658	N24 W35	04 18.0		BG	FKO	350	14	25	2
4990		LEAR	04 21 0440	N22 W41	04 18.0		GD	FHO	740	20	28	2
4990		SVTO	04 21 0823	N24 W43	04 18.0		BG	FHI	160	13	27	4
4990		BOUL	04 21 1330	N19 W45	04 18.1		B	FSI	290	14	28	2
4990		RAMY	04 21 1330	N24 W45	04 18.1		B	FKI	580	19	27	3
4990		HOLL	04 21 1530	N23 W44	04 18.2		BG	FSO	360	12	18	2
4990		PALE	04 21 1755	N22 W50	04 17.9		B	FHO	380	11	28	3
4990		LEAR	04 22 0019	N23 W51	04 18.1		BG	FKI	400	19	19	4
4990		CULG	04 22 0245	N23 W56	04 17.8		BG	FSI	440	17	20	2
4990		SVTO	04 22 0832	N22 W52	04 18.3		B	FHO	220	14	25	3
4990		RAMY	04 22 1315	N24 W58	04 18.1		B	FKO	440	24	30	4
4990		HOLL	04 22 1518	N23 W63	04 17.8		BG	EAI	300	11	25	3
4990		PALE	04 22 1755	N23 W65	04 17.7		B	FHO	340	8	29	3
4990		LEAR	04 23 0022	N23 W62	04 18.2		GD	FKO	490	14	26	2
4990		CULG	04 23 0425	N23 W67	04 18.0		B	FSO	130	6	19	3
4990		SVTO	04 23 0802	N24 W63	04 18.5		B	FHO	270	9	21	3
4990		RAMY	04 23 1400	N25 W68	04 18.3		B	FAO	290	5	21	4
4990		HOLL	04 23 1527	N23 W70	04 18.2		BG	EAI	130	7	18	3
4990		PALE	04 23 1915	N22 W75	04 18.0		B	ESO	140	3	18	3
4990		LEAR	04 24 0005	N22 W74	04 18.3		B	ESO	180	4	15	3
4990		CULG	04 24 0440	N24 W76	04 18.3		A	HS	50	2	1	3
4990		SVTO	04 24 1002	N24 W78	04 18.4		A	HS	90	1	2	2
4990		RAMY	04 24 1316	N25 W81	04 18.3		A	HS	70	2	2	4
4990		BOUL	04 24 1430	N23 W82	04 18.3		A	HS	90	1	2	3
4990		HOLL	04 24 1500	N24 W84	04 18.1		A	HS	60	1	3	4
4990		PALE	04 24 1858	N23 W85	04 18.2		A	HS	120	1	1	3
4990		LEAR	04 25 0350	N23 W87	04 18.4		A	HS	30	1	1	2
4990		CULG	04 25 0414	N23 W87	04 18.5		A	HK	30	1	1	2
4990		SVTO	04 25 0703	N24 W88	04 18.5		A	HS	30	1	1	3
4990A		HOLL	04 12 1550	N23 E76	04 18.5		A	HR	30	2	3	3
4990A	24569	MWIL	04 16 1430	N23 E28	04 18.8	5	(B					
4990A	24569	MWIL	04 18 1730	N23 W01	04 18.6	6	BF					
4990A	24569	MWIL	04 24 1430	N23 W74	04 18.9	3	(AP)					
4997		RAMY	04 17 1450	S27 E23	04 19.4		A	AX		1	1	3
4997		HOLL	04 17 1500	S28 E23	04 19.4		A	AX	10	1	1	3
4997		PALE	04 17 1915	S27 E21	04 19.4		A	AX		1	1	4
4997		LEAR	04 18 0710	S28 E17	04 19.6		B	BXO	10	2	2	3
4995		LEAR	04 15 0053	N25 E70	04 20.4		B	BXO	20	5	10	3
4995		CULG	04 15 0510	N25 E70	04 20.6		A	AX	10	7	3	4
4995		SVTO	04 15 0725	N24 E69	04 20.6		B	DRO	80	6	4	3
4995		BOUL	04 15 1340	N24 E63	04 20.4		B	CSO	100	7	6	3
4995		HOLL	04 15 1445	N24 E66	04 20.7		B	DAI	100	14	8	3
4995		LEAR	04 16 0138	N25 E60	04 20.7		B	DAI	170	7	6	4
4995		PALE	04 16 0224	N26 E60	04 20.8		B	DSI	70	13	5	2
4995		CULG	04 16 0500	N25 E57	04 20.6		B	CSI	40	11	7	3
4995		SVTO	04 16 0625	N25 E57	04 20.7		B	DSI	110	13	6	3
4995		BOUL	04 16 1425	N24 E51	04 20.5		B	DSO	90	10	8	4
4995	24570	MWIL	04 16 1430	N24 E52	04 20.6	4	(B					
4995		HOLL	04 16 1706	N24 E53	04 20.8		B	DAI	160	11	8	2
4995		PALE	04 16 1745	N27 E51	04 20.7		B	DAO	160	12	9	4
4995		CULG	04 17 0510	N24 E46	04 20.8		B	DSI	60	11	8	3
4995		SVTO	04 17 0605	N25 E44	04 20.7		B	DSI	100	11	8	3
4995		RAMY	04 17 1450	N25 E38	04 20.6		B	DAI	150	17	9	3
4995		HOLL	04 17 1500	N24 E40	04 20.7		B	DAO	140	13	10	3
4995		PALE	04 17 1915	N27 E37	04 20.7		B	DSO	40	17	7	4
4995		CULG	04 18 0420	N23 E33	04 20.7		B	DAI	60	16	9	1
4995		LEAR	04 18 0710	N25 E28	04 20.5		B	DAI	90	26	8	3
4995		HOLL	04 18 1440	N26 E25	04 20.5		B	DAI	160	29	9	4
4995		RAMY	04 18 1536	N27 E25	04 20.6		B	DAI	130	21	8	2
4995		BOUL	04 18 1728	N24 E23	04 20.5		B	DSI	130	25	8	2

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4995	24570	MWIL	04	18	1730	N25	E24	04	20.6	5	B					
4995		PALE	04	18	1912	N27	E24	04	20.7		B	DAI	40	23	8	4
4995		LEAR	04	19	0014	N26	E21	04	20.6		B	DAI	130	28	8	3
4995		SVTO	04	19	0626	N27	E17	04	20.6		B	DSI	210	23	8	3
4995		RAMY	04	19	1330	N26	E14	04	20.6		B	DAI	150	20	8	3
4995		HOLL	04	19	1515	N25	E13	04	20.6		B	DAI	110	19	8	3
4995		BOUL	04	19	1748	N24	E11	04	20.6		B	DSI	130	10	7	1
4995		LEAR	04	20	0025	N26	E08	04	20.6		B	DAI	100	31	9	3
4995		SVTO	04	20	0730	N25	E05	04	20.7		B	CAI	120	24	7	3
4995		RAMY	04	20	1352	N26	E01	04	20.6		B	DAI	130	28	7	3
4995		BOUL	04	20	1440	N24	W01	04	20.5		B	DAI	120	18	8	2
4995		HOLL	04	20	1520	N25	E00	04	20.6		B	DAI	110	21	7	4
4995		PALE	04	20	1658	N25	E00	04	20.7		B	DSO	80	15	8	2
4995		LEAR	04	21	0440	N24	W08	04	20.6		B	DAI	120	22	7	2
4995		SVTO	04	21	0823	N26	W09	04	20.6		B	DRI	30	20	7	4
4995		BOUL	04	21	1330	N23	W13	04	20.6		B	DRI	50	13	7	2
4995		RAMY	04	21	1330	N25	W12	04	20.6		B	DRO	130	26	7	3
4995		HOLL	04	21	1530	N24	W13	04	20.6		B	CAI	40	14	7	2
4995		PALE	04	21	1755	N24	W16	04	20.5		B	BXO	60	18	7	3
4995		LEAR	04	22	0019	N24	W18	04	20.6		B	DRO	40	22	6	4
4995		CULG	04	22	0245	N25	W20	04	20.6		B	CSI	60	13	7	2
4995		SVTO	04	22	0832	N25	W22	04	20.6		B	BXI	20	9	6	3
4995		RAMY	04	22	1315	N25	W25	04	20.6		B	BXI	40	16	8	4
4995		HOLL	04	22	1518	N24	W27	04	20.5		B	CSO	60	9	8	3
4995		PALE	04	22	1755	N25	W29	04	20.5		B	BXO	20	8	7	3
4995		LEAR	04	23	0022	N24	W32	04	20.5		B	DRO	40	7	6	2
4995		CULG	04	23	0425	N24	W34	04	20.5		A	AX	10	1		3
4995		SVTO	04	23	0802	N23	W34	04	20.7		A	AX	10	1		3
4995		RAMY	04	23	1400	N23	W37	04	20.7		B	BXO	10	3	3	4
4995		HOLL	04	23	1527	N24	W37	04	20.8		A	BXO	70	6	10	3
4995		PALE	04	23	1915	N23	W43	04	20.5		A	AX	10	1	1	3
4995		LEAR	04	24	0005	N23	W47	04	20.4		B	BXO	30	5	5	3
4995		SVTO	04	24	1002	N25	W45	04	20.9		A	AX		1		2
4995		HOLL	04	24	1500	N26	W50	04	20.7		A	AX		1		4
4995		HOLL	04	25	1425	N24	W69	04	20.3		B	BXO	60	4	7	3
4999		SVTO	04	20	0730	S14	E07	04	20.8		B	BXO	10	5	2	3
4999		RAMY	04	20	1352	S14	E03	04	20.8		B	CRO	30	5	2	3
4999		BOUL	04	20	1440	S13	E02	04	20.8		B	BXO	20	8	3	2
4999		HOLL	04	20	1520	S13	E02	04	20.8		B	CAO	20	8	3	4
4999		PALE	04	20	1658	S15	E02	04	20.8		B	CSO	30	6	3	2
4999		LEAR	04	21	0440	S13	W05	04	20.8		B	CRO	40	7	4	2
4999		SVTO	04	21	0823	S13	W06	04	20.9		B	DRO	20	5	3	4
4999		BOUL	04	21	1330	S13	W09	04	20.9		B	CRO	20	4	3	2
4999		RAMY	04	21	1330	S13	W10	04	20.8		B	CRO	20	5	3	3
4999		HOLL	04	21	1530	S14	W12	04	20.7		B	BXO	20	5	3	2
4999		PALE	04	21	1755	S13	W12	04	20.8		B	BXO	10	4	3	3
4999		LEAR	04	22	0019	S13	W16	04	20.8		B	CRO	20	3	3	4
4999		CULG	04	22	0245	S13	W18	04	20.7		B	CSO	30	4	3	2
4999		SVTO	04	22	0832	S17	W19	04	20.9		B	BXO		2	3	3
4999		RAMY	04	22	1315	S13	W23	04	20.8		B	BXO	10	4	3	4
4999		HOLL	04	22	1518	S14	W25	04	20.7		A	AX	10	2	1	3
4999		PALE	04	22	1755	S13	W27	04	20.7		A	AX		2	2	3
4999		LEAR	04	23	0022	S14	W23	04	21.3		B	BXO	20	5	2	2
4999A		PALE	04	23	1915	S29	W34	04	21.1		A	AX		1	1	3
4999B	24575	MWIL	04	25	1430	N05	E04	04	25.9	3	(B)					
4999B		LEAR	04	27	0050	N09	W10	04	26.3		B	BXO	10	6	2	3
4999C		PALE	04	27	1850	N21	W20	04	26.2		A	AX	10	3	1	4
5000		HOLL	04	20	1520	S25	E84	04	27.1		B	BXO	10	2	3	4
5000		LEAR	04	21	0440	S24	E78	04	27.2		B	BXO	30	2	1	2
5000		SVTO	04	21	0823	S26	E74	04	27.1		A	AX		2		4
5000		RAMY	04	21	1330	S27	E72	04	27.2		B	BXO	20	5	2	3
5000		HOLL	04	21	1530	S26	E70	04	27.1		B	BXO	20	3	5	2
5000		PALE	04	21	1755	S25	E69	04	27.1		A	AX	20	3	1	3
5000		LEAR	04	22	0019	S24	E65	04	27.0		A	AX	10	2	2	4

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5000		CULG	04	22	0245	S23	E65	04	27.1		A	AX	10	1	1	2
5000		SVTO	04	22	0832	S22	E62	04	27.1		B	CSO	60	3	28	3
5000		RAMY	04	22	1315	S26	E57	04	27.0		A	AX	10	2	2	4
5000		HOLL	04	22	1518	S25	E57	04	27.0		A	AX	30	1	1	3
5000		PALE	04	22	1755	S26	E57	04	27.2		A	AX	10	2	2	3
5000		LEAR	04	23	0022	S23	E55	04	27.2		B	BXO	30	5	4	2
5000		SVTO	04	23	0802	S23	E47	04	26.9		A	AX	20	5	7	3
5000		RAMY	04	23	1400	S23	E46	04	27.1		B	BXO	10	4	3	4
5000		HOLL	04	23	1527	S23	E45	04	27.1		A	BXO	90	6	10	3
5000		LEAR	04	24	0005	S21	E41	04	27.1		B	BXO	30	5	4	3
5000		RAMY	04	24	1316	S22	E35	04	27.2		A	AX	10	1	1	4
5000	24572	MWIL	04	24	1430	S22	E33	04	27.1	3	(AP)					
5000		HOLL	04	24	1500	S23	E34	04	27.2		A	AX		1		4
5000		LEAR	04	25	0350	S24	E26	04	27.2		A	AX	10	3	2	2
5000		SVTO	04	25	0703	S27	E25	04	27.2		A	AX	10	6	2	3
5000		RAMY	04	25	1249	S22	E25	04	27.4		B	BXO	10	7	8	4
5000		HOLL	04	25	1425	S23	E19	04	27.1		B	BXO	10	4	4	3
5000	24572	MWIL	04	25	1430	S24	E21	04	27.2	3	(AP)					
5000		SVTO	04	26	0625	S25	E08	04	26.9		A	AX	10	1	1	3
5000		RAMY	04	26	1352	S22	E11	04	27.4		B	BXO	10	4	7	4
5000	24572	MWIL	04	26	1445	S25	E07	04	27.1	3	(AP)					
5000		HOLL	04	26	1450	S24	E07	04	27.1		A	AX	10	3	2	3
5000		PALE	04	26	2315	S25	E03	04	27.2		A	AX		1		2
5000		LEAR	04	27	0050	S25	E03	04	27.3		B	BXO	10	4	3	3
5000		SVTO	04	27	0830	S25	W03	04	27.1		A	AX	70	1	1	3
5000A		PALE	04	23	1915	N22	E50	04	27.6		A	AX	10	1	1	3
5000A		LEAR	04	24	0005	N23	E47	04	27.6		A	AX	10	1	1	3
5000B	24576	MWIL	04	25	1430	S18	E28	04	27.7	3	(AF)					
5000B		PALE	04	27	1850	S18	W02	04	27.6		A	AX		1		4
5003		PALE	04	26	2315	S22	E18	04	28.3		A	AX	10	3	2	2
5003		PALE	04	27	1850	S22	E10	04	28.5		A	AX		1		4
5003		RAMY	04	28	1350	S22	W02	04	28.4		B	BXO	10	4	3	4
5003		HOLL	04	28	1627	S23	W03	04	28.4		B	BXO	20	4	3	3
5003		PALE	04	28	2320	S24	W07	04	28.4		A	AX	30	5	3	3
5003		LEAR	04	29	0230	S24	W08	04	28.5		B	CRO	20	3	4	4
5003		SVTO	04	29	1149	S23	W13	04	28.5		B	BXO	10	4	3	2
5003		RAMY	04	29	1411	S23	W15	04	28.4		B	BXO	10	4	4	4
5003	24577	MWIL	04	29	1430	S24	W15	04	28.4	3	(BP)					
5003		BOUL	04	29	1440	S25	W14	04	28.5		B	BXO	20	4	4	4
5003		HOLL	04	29	1619	S22	W17	04	28.4		B	BXO	20	3	5	3
5003		PALE	04	29	1810	S23	W17	04	28.4		A	AX		3	2	3
5003		CULG	04	30	0416	S23	W24	04	28.3		A	AX	10	1		3
5003	24577	MWIL	04	30	1500	S23	W29	04	28.4	2	(AP)					
5003		HOLL	04	30	1930	S22	W31	04	28.4		A	AX	10	1	1	4
5003		HOLL	05	01	1500	S22	W42	04	28.5		A	AX	10	1	1	4
5001		RAMY	04	22	1315	S18	E78	04	28.5		A	HA	90	1	2	4
5001		HOLL	04	22	1518	S17	E78	04	28.6		A	HS	40	1	2	3
5001		PALE	04	22	1755	S18	E79	04	28.8		A	HS	120	1	2	3
5001		LEAR	04	23	0022	S18	E77	04	28.9		A	HK	120	1	2	2
5001		CULG	04	23	0425	S18	E70	04	28.5		A	HS	50	1	1	3
5001		SVTO	04	23	0802	S19	E72	04	28.8		A	HH	170	1	2	3
5001		RAMY	04	23	1400	S18	E67	04	28.7		A	HS	190	1	2	4
5001		HOLL	04	23	1527	S18	E65	04	28.6		A	HS	100	1	2	3
5001		PALE	04	23	1915	S18	E67	04	28.9		A	HS	100	1	2	3
5001		LEAR	04	24	0005	S18	E62	04	28.7		A	HS	130	1	2	3
5001		CULG	04	24	0440	S18	E60	04	28.8		A	HS	40	1	1	3
5001		SVTO	04	24	1002	S20	E58	04	28.8		A	HS	120	1	2	2
5001		RAMY	04	24	1316	S20	E57	04	28.9		A	HS	100	1	2	4
5001		BOUL	04	24	1430	S19	E54	04	28.7		A	HS	130	1	2	3
5001	24573	MWIL	04	24	1430	S20	E55	04	28.8	5	(AP)					
5001		HOLL	04	24	1500	S19	E55	04	28.8		A	HS	100	1	2	4
5001		PALE	04	24	1858	S19	E54	04	28.9		A	HS	100	1	2	3
5001		LEAR	04	25	0350	S18	E48	04	28.8		A	HS	60	1	2	2
5001		CULG	04	25	0414	S18	E48	04	28.8		A	HK	100	1	2	2
5001		SVTO	04	25	0703	S20	E46	04	28.8		A	HS	110	1	2	3

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5001		RAMY	04	25	1249	S19	E43	04	28.8		A	HS	100	1	2	4
5001		BOUL	04	25	1313	S19	E41	04	28.7		A	HS	130	1	2	2
5001		HOLL	04	25	1425	S19	E42	04	28.8		B	CSO	80	2	5	3
5001	24573	MWIL	04	25	1430	S20	E42	04	28.8	5	(AP)					
5001		PALE	04	25	1703	S19	E40	04	28.8		A	HS	100	1	2	3
5001		CULG	04	26	0300	S18	E35	04	28.8		A	HS	50	1	1	2
5001		SVTO	04	26	0625	S20	E34	04	28.9		A	HS	70	1	2	3
5001		BOUL	04	26	1313	S19	E28	04	28.7		A	HS	100	1	2	2
5001		RAMY	04	26	1352	S19	E30	04	28.9		A	HS	120	1	2	4
5001	24573	MWIL	04	26	1445	S19	E29	04	28.8	5	(AP)					
5001		HOLL	04	26	1450	S18	E28	04	28.7		A	HS	110	1	2	3
5001		PALE	04	26	2315	S19	E25	04	28.9		A	HS	110	1	2	2
5001		LEAR	04	27	0050	S19	E20	04	28.6		B	CSO	120	5	8	3
5001		SVTO	04	27	0830	S19	E20	04	28.9		A	HS	90	1	2	3
5001		RAMY	04	27	1400	S19	E18	04	28.9		A	HS	110	1	2	4
5001		BOUL	04	27	1435	S18	E15	04	28.7		A	HS	100	1	2	1
5001	24573	MWIL	04	27	1445	S20	E16	04	28.8	5	(AP)					
5001		HOLL	04	27	1532	S18	E17	04	28.9		A	HS	110	1	2	3
5001		PALE	04	27	1850	S18	E14	04	28.8		A	HS	140	1	2	4
5001		LEAR	04	28	0158	S20	E08	04	28.7		B	CSO	110	3	7	2
5001		RAMY	04	28	1350	S17	E03	04	28.8		A	HS	110	1	2	4
5001		SVTO	04	28	1437	S19	E04	04	28.9		A	HS	80	1	2	2
5001		HOLL	04	28	1627	S18	E02	04	28.8		A	HS	90	1	2	3
5001		PALE	04	28	2320	S18	W01	04	28.9		A	HS	150	1	2	3
5001		LEAR	04	29	0230	S19	W03	04	28.9		A	HS	100	2	2	4
5001		SVTO	04	29	1149	S19	W08	04	28.9		A	HA	100	1	2	2
5001		RAMY	04	29	1411	S18	W09	04	28.9		A	HS	100	1	2	4
5001	24573	MWIL	04	29	1430	S18	W10	04	28.8	5	(AP)					
5001		BOUL	04	29	1440	S18	W09	04	28.9		A	HS	90	1	2	4
5001		HOLL	04	29	1619	S18	W09	04	29.0		A	HS	70	1	2	3
5001		PALE	04	29	1810	S18	W11	04	28.9		A	HS	130	1	2	3
5001		CULG	04	30	0416	S19	W18	04	28.8		A	HS	60	1	1	3
5001		BOUL	04	30	1445	S18	W21	04	29.0		A	HS	90	1	2	4
5001	24573	MWIL	04	30	1500	S18	W23	04	28.9	5	(AP)					
5001		PALE	04	30	1735	S19	W24	04	28.9		A	HS	100	1	2	4
5001		HOLL	04	30	1930	S19	W25	04	28.9		A	HS	90	1	2	4
5001		LEAR	05	01	0015	S18	W26	04	29.1		A	HS	70	2	1	4
5001		CULG	05	01	0330	S17	W31	04	28.9		A	HS	30	1	1	2
5001		SVTO	05	01	0736	S17	W32	04	29.0		A	HA	70	1	2	2
5001		RAMY	05	01	1328	S18	W35	04	29.0		A	HS	70	1	2	3
5001		BOUL	05	01	1415	S18	W35	04	29.0		A	HS	100	1	2	4
5001	24573	MWIL	05	01	1445	S18	W36	04	29.0	4	(AP)					
5001		HOLL	05	01	1500	S19	W37	04	28.9		A	HS	50	1	2	4
5001		PALE	05	01	1735	S19	W36	04	29.1		A	HS	50	1	2	4
5001		LEAR	05	02	0115	S21	W41	04	29.0		A	HS	50	2	2	4
5001		CULG	05	02	0435	S17	W44	04	28.9		A	HS	70	1	1	2
5001		SVTO	05	02	0619	S17	W43	04	29.1		A	HS	80	1	2	3
5001		RAMY	05	02	1324	S19	W49	04	28.9		A	HA	80	1	2	4
5001		HOLL	05	02	1430	S18	W48	04	29.0		A	HS	60	1	2	3
5001	24573	MWIL	05	02	1530	S18	W50	04	28.9	5	(AP)					
5001		PALE	05	02	1705	S19	W50	04	29.0		A	HS	40	1	2	4
5001		LEAR	05	03	0201	S19	W55	04	29.0		A	HS	70	1	2	4
5001		CULG	05	03	0330	S18	W56	04	29.0		A	HS	40	1	2	3
5001		SVTO	05	03	0702	S17	W58	04	29.0		A	HS	40	1	2	2
5001		BOUL	05	03	1332	S18	W59	04	29.2		A	HS	60	1	2	2
5001		RAMY	05	03	1340	S19	W61	04	29.0		A	HA	40	1	2	3
5001		HOLL	05	03	1515	S17	W61	04	29.1		A	HS	70	1	2	3
5001	24573	MWIL	05	03	1515	S18	W63	04	28.9	5	(AP)					
5001		LEAR	05	04	0029	S19	W67	04	29.0		A	HS	30	1	2	4
5001		CULG	05	04	0412	S19	W69	04	29.0		A	HS	20	1	2	3
5001		BOUL	05	04	1425	S21	W76	04	28.9		A	HA	60	1	2	4
5001	24573	MWIL	05	04	1530	S18	W79	04	28.7	4	AP					
5001		HOLL	05	04	1545	S17	W75	04	29.0		A	HS	60	1	1	3
5001		LEAR	05	05	0015	S18	W77	04	29.2		A	HS	60	3	2	3
5001		CULG	05	05	0400	S16	W80	04	29.2		A	HS	20	1	1	3
5007		CULG	05	01	0330	N18	W27	04	29.2		B	BXO	10	5	4	2
5007		RAMY	05	01	1328	N18	W33	04	29.1		B	CRO	20	4	5	3
5007		BOUL	05	01	1415	N17	W31	04	29.3		B	CRO	10	3	4	4

S U N S P O T G R O U P S
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

APRIL 1988

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
5007	24579	MWIL	05 01 1445	N18 W33	04 29.2	3	(B)					
5007		HOLL	05 01 1500	N17 W34	04 29.1		B	BXO	10	3	4	4
5007		PALE	05 01 1735	N18 W35	04 29.2		B	CSO	20	3	5	4
5007		LEAR	05 02 0115	N15 W40	04 29.1		B	BXO	20	6	5	4
5007		CULG	05 02 0435	N19 W41	04 29.2		B	BXO	10	4	5	2
5007		SVTO	05 02 0619	N17 W41	04 29.2		B	BXO	30	3	5	3
5007		RAMY	05 02 1324	N18 W46	04 29.1		B	BXO	20	3	6	4
5007		HOLL	05 02 1430	N17 W47	04 29.1		B	BXO	20	4	5	3
5007	24579	MWIL	05 02 1530	N18 W49	04 29.0	3	(B)					
5007		PALE	05 02 1705	N18 W45	04 29.4		B	CSO	20	3	5	4
5007		LEAR	05 03 0201	N17 W53	04 29.1		B	BXO	20	4	6	4
5007		CULG	05 03 0330	N18 W53	04 29.2		B	BXO	10	3	5	3
5007		SVTO	05 03 0702	N17 W53	04 29.4		B	BXO	10	3	3	2
5007		RAMY	05 03 1340	N19 W58	04 29.2		A	AX	10	1	1	3
5007		LEAR	05 04 0029	N18 W63	04 29.3		B	CRO	20	3	5	4
5007	24579	MWIL	05 04 1530	N17 W74	04 29.1	2	AP					
5005	24578	MWIL	04 30 1500	S21 W03	04 30.4	3	(B)					
5005		HOLL	04 30 1930	S20 W06	04 30.3		B	CRO	50	13	5	4
5005		CULG	05 01 0330	S21 W13	04 30.1		B	DSO	30	7	5	2
5005		SVTO	05 01 0736	S20 W13	04 30.3		B	CSO	30	7	6	2
5005		RAMY	05 01 1328	S22 W18	04 30.2		B	DAO	80	13	6	3
5005		BOUL	05 01 1415	S20 W18	04 30.2		B	DSO	100	11	7	4
5005	24578	MWIL	05 01 1445	S21 W18	04 30.2	4	(B)					
5005		HOLL	05 01 1500	S21 W17	04 30.3		B	DAO	50	13	6	4
5005		PALE	05 01 1735	S22 W16	04 30.5		B	EAO	100	15	11	4
5005		LEAR	05 02 0115	S23 W23	04 30.3		B	DAI	90	20	9	4
5005		CULG	05 02 0435	S20 W26	04 30.2		B	DSO	70	9	8	2
5005		SVTO	05 02 0619	S22 W25	04 30.3		B	DSI	90	23	7	3
5005		RAMY	05 02 1324	S23 W31	04 30.2		B	DAI	130	17	8	4
5005		HOLL	05 02 1430	S22 W30	04 30.3		B	DAI	130	12	10	3
5005	24578	MWIL	05 02 1530	S23 W33	04 30.1	5	(AP)					
5005		PALE	05 02 1705	S23 W32	04 30.2		B	DAO	110	15	10	4
5005		LEAR	05 03 0201	S22 W37	04 30.2		B	DAO	140	22	9	4
5005		CULG	05 03 0330	S21 W38	04 30.2		B	DSI	70	12	9	3
5005		SVTO	05 03 0702	S23 W38	04 30.4		B	DSI	100	15	8	2
5005		BOUL	05 03 1332	S22 W43	04 30.2		B	DSO	100	12	8	2
5005		RAMY	05 03 1340	S23 W45	04 30.1		B	DAI	100	20	10	3
5005	24578	MWIL	05 03 1515	S22 W46	04 30.1	5	(BG)					
5005		HOLL	05 03 1515	S24 W42	04 30.4		B	DAO	110	18	9	3
5005		LEAR	05 04 0029	S20 W48	04 30.3		B	EAI	60	27	11	4
5005		CULG	05 04 0412	S21 W51	04 30.3		B	DSI	90	19	10	3
5005		BOUL	05 04 1425	S23 W57	04 30.2		B	EAI	380	21	11	4
5005	24578	MWIL	05 04 1530	S22 W60	04 30.0	5	BG					
5005		HOLL	05 04 1545	S20 W56	04 30.4		BG	EAC	220	29	12	3
5005		LEAR	05 05 0015	S20 W61	04 30.3		BG	EAI	180	32	13	3
5005		CULG	05 05 0400	S20 W65	04 30.2		B	ESI	90	23	12	3
5005		BOUL	05 05 1320	S21 W71	04 30.1		B	EAI	390	15	15	3
5005		HOLL	05 05 1537	S20 W68	04 30.4		BG	EAI	290	13	15	3
5005		LEAR	05 06 0015	S21 W73	04 30.4		B	EAI	320	15	15	3
5005		CULG	05 06 0358	S21 W75	04 30.4		BG	ESI	90	9	12	2
5005		SVTO	05 06 0903	S19 W81	04 30.2		B	DSI	110	11	8	2
5005		BOUL	05 06 1320	S21 W79	04 30.5		B	CAO	140	2	2	2
5005		RAMY	05 06 1430	S20 W78	04 30.6		B	CKI	110	6	9	3
5005		HOLL	05 06 1500	S22 W80	04 30.5		B	CAO	30	4	2	3
5002		SVTO	04 24 1002	S21 E85	04 30.9		B	DRO	20	2	5	2
5002		RAMY	04 24 1316	S21 E80	04 30.7		B	BXO	50	4	6	4
5002		BOUL	04 24 1430	S20 E79	04 30.6		B	DSO	70	2	5	3
5002	24574	MWIL	04 24 1430	S20 E80	04 30.7	3	(B)					
5002		HOLL	04 24 1500	S20 E79	04 30.7		B	DSO	60	3	5	4
5002		PALE	04 24 1858	S19 E80	04 30.9		B	DRO	90	2	7	3
5002		LEAR	04 25 0350	S20 E72	04 30.7		B	ERI	130	8	14	2
5002		CULG	04 25 0414	S19 E72	04 30.7		B	DSI	70	9	7	2
5002		SVTO	04 25 0703	S21 E71	04 30.7		B	DRI	150	13	8	3
5002		RAMY	04 25 1249	S21 E68	04 30.7		B	DAI	240	20	7	4
5002		BOUL	04 25 1313	S21 E65	04 30.5		B	CSI	70	9	12	2
5002		HOLL	04 25 1425	S20 E66	04 30.6		B	DAO	120	14	9	3
5002	24574	MWIL	04 25 1430	S20 E66	04 30.6	5	(BF)					

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

APRIL 1988

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
5002		PALE	04	25	1703	S20	E65	04	30.7		B	DSO	180	15	9	3
5002		CULG	04	26	0300	S19	E57	04	30.5		B	DAI	140	11	7	2
5002		SVTO	04	26	0625	S21	E57	04	30.6		B	DSI	120	16	8	3
5002		BOUL	04	26	1313	S20	E52	04	30.5		B	CSI	60	9	11	2
5002		RAMY	04	26	1352	S21	E55	04	30.8		B	DAI	310	16	8	4
5002	24574	MWIL	04	26	1445	S20	E53	04	30.7	5	(B)					
5002		HOLL	04	26	1450	S20	E53	04	30.7		B	DAI	200	19	10	3
5002		PALE	04	26	2315	S19	E49	04	30.7		B	DHI	260	22	9	2
5002		LEAR	04	27	0050	S20	E48	04	30.7		B	FAI	240	25	10	3
5002		SVTO	04	27	0830	S22	E45	04	30.8		B	DSI	210	21	8	3
5002		RAMY	04	27	1400	S20	E40	04	30.6		B	DKI	390	22	10	4
5002		BOUL	04	27	1435	S20	E38	04	30.5		B	DSO	180	9	9	1
5002	24574	MWIL	04	27	1445	S20	E39	04	30.6	5	(B)					
5002		HOLL	04	27	1532	S19	E42	04	30.8		B	DAI	290	17	11	3
5002		PALE	04	27	1850	S19	E38	04	30.7		B	DSO	230	13	7	4
5002		LEAR	04	28	0158	S19	E34	04	30.7		B	DAO	250	15	10	2
5002		RAMY	04	28	1350	S18	E27	04	30.6		B	DHI	280	19	10	4
5002		SVTO	04	28	1437	S21	E28	04	30.7		B	DAI	1050	15	8	2
5002		HOLL	04	28	1627	S21	E27	04	30.7		B	DHO	180	15	10	3
5002		PALE	04	28	2320	S20	E23	04	30.7		B	CSO	250	13	11	3
5002		LEAR	04	29	0230	S19	E20	04	30.6		B	DSO	170	11	10	4
5002		SVTO	04	29	1149	S21	E17	04	30.8		B	DAO	130	8	7	2
5002		RAMY	04	29	1411	S20	E16	04	30.8		B	CAO	150	12	11	4
5002	24574	MWIL	04	29	1430	S18	E12	04	30.5	5	(B)					
5002		BOUL	04	29	1440	S21	E12	04	30.5		B	CAI	210	14	8	4
5002		HOLL	04	29	1619	S22	E15	04	30.8		B	CAO	120	9	10	3
5002		PALE	04	29	1810	S18	E12	04	30.7		B	CSO	190	13	11	3
5002		CULG	04	30	0416	S19	E04	04	30.5		B	CSO	160	14	10	3
5002		BOUL	04	30	1445	S18	W01	04	30.5		B	CSI	130	18	10	4
5002	24574	MWIL	04	30	1500	S16	W02	04	30.5	5	(BP)					
5002		PALE	04	30	1735	S19	W03	04	30.5		BG	CSI	210	21	10	4
5002		HOLL	04	30	1930	S19	W01	04	30.7		B	CAO	160	11	8	4
5002		LEAR	05	01	0015	S18	W07	04	30.5		B	EAI	190	23	12	4
5002		CULG	05	01	0330	S16	W09	04	30.5		A	HS	100	1	2	2
5002		SVTO	05	01	0736	S17	W08	04	30.7		B	CAO	200	2	3	2
5002		RAMY	05	01	1328	S18	W13	04	30.6		B	CAO	200	5	5	3
5002		BOUL	05	01	1415	S16	W12	04	30.7		B	CAO	200	3	6	4
5002	24574	MWIL	05	01	1445	S17	W15	04	30.5	4	(AP)					
5002		HOLL	05	01	1500	S18	W13	04	30.6		B	CAO	150	3	6	4
5002		PALE	05	01	1735	S20	W19	04	30.3		B	DHO	190	6	9	4
5002		LEAR	05	02	0115	S18	W21	04	30.4		B	CAO	110	3	5	4
5002		CULG	05	02	0435	S16	W22	04	30.5		A	HS	160	1	2	2
5002		SVTO	05	02	0619	S16	W23	04	30.5		A	HH	120	4	3	3
5002		RAMY	05	02	1324	S18	W25	04	30.6		B	CAO	110	6	5	4
5002		HOLL	05	02	1430	S17	W27	04	30.5		B	CSO	120	6	4	3
5002	24574	MWIL	05	02	1530	S17	W28	04	30.5	5	(AP)					
5002		PALE	05	02	1705	S18	W31	04	30.3		B	CKO	160	6	7	4
5002		LEAR	05	03	0201	S18	W33	04	30.6		BG	DAI	90	9	5	4
5002		CULG	05	03	0330	S17	W34	04	30.6		A	HS	80	5	3	3
5002		SVTO	05	03	0702	S16	W35	04	30.6		B	DSO	40	6	5	2
5002		BOUL	05	03	1332	S17	W36	04	30.8		B	DSO	40	4	5	2
5002		RAMY	05	03	1340	S18	W40	04	30.5		A	HA	70	3	3	3
5002		HOLL	05	03	1515	S16	W37	04	30.8		A	HA	60	3	5	3
5002	24574	MWIL	05	03	1515	S17	W41	04	30.5	5	(AP)					
5002		LEAR	05	04	0029	S16	W45	04	30.6		B	DAI	40	12	7	4
5002		CULG	05	04	0412	S17	W47	04	30.6		.A	HS	20	4	3	3
5002	24574	MWIL	05	04	1530	S17	W55	04	30.5	5	AP					
5002A		CULG	05	01	0330	S24	W03	04	30.9		A	AX	10	1		2

Stations reporting:

BOUL = Boulder
CULG = Culgoora
HOLL = Holloman
LEAR = Learmonth
MWIL = Mt. Wilson
PALE = Palehua
RAMY = Ramey
SVTO = San Vito

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1988

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF SPA	SES	Known Flare	X-ray Class	NOAA Region
02	0532	0549	0611	1-	1			1			0538 UT	C1.3	4977
02	0629	0634	0648	1-	1			1			0627 UT	C1.0	
04	1055	1124	1220	1	3	1	1		1	2	1054 UT	C3.8	
04	1735	1739	1810	2	3	1			1		No flare		
05	0640	0643	0657	1	1		1				0637 UT		4977
06	1209	1220	1230	1-	3	1			1		1208 UT	C1.7	4983
06	1527	1532	1540	1-	1				1		1524 UT	C1.4	
06	2236	2254	0005	1-	3			1		2	2232 UT	C4.3	
07	0043	0051	0113	1-	1			1			0040 UT		4982
07	1312	1316	1350	2	5	3	5	1	1	8	1307 UT	C7.4	
07	1616	1622	1647	1+	3					4	1611 UT	C2.6	
07	1848	1850	1900	1	3					2	1845 UT	C2.7	4978
07	2308	2322	2351	1-	1			1			2311 UT	C3.9	4982
08	0019	0024	0138	1+	3	1		1	1		0023 UT	C7.8	4985
08	0610	0619	0736	1+	3			1	2	2	0614 UT	C6.0	4982
09	0323	0325	0346	1-	3			1	1		0322 UT	C1.3	
09	1110	1111	1140	1-	3		1	1		2	1108 UT	C1.6	4983
09	2117	2122	2207	1-	3			1		3	2115 UT	C3.7	4985
09	2337	2343	0005	1-	3			1	1		2322 UT	C1.4	
11	1028	1033	1050	1	3		2	1		2	1024E UT	C2.1	4986
11	1228	1230	1240	1-	3		2			2	No flare		
11	1343	1352	1430	1	5	1	3		1	6	1344 UT	C5.0	4990
11	2150	2156	2234	1-	1			1			2151E UT	C3.2	4990
12	0011	0020	0041	1-	3			1	1		0015 UT	C1.9	4990
12	0246	0252	0340	1-	3			1	1		No flare		
12	0418	0429	0443	1-	3			1	1		0401 UT	C2.9	
12	0641	0649	0716	1-	1			1			0640 UT		4986
12	0836	0842	0701	1-	3			1	1	1	0837 UT	C1.8	4985
12	1500	1507	1530	1-	5	1	2		1	7	1502 UT	C3.3	4990
12	1708	1713	1750	1	5	3	1		1	11	1707E UT	M1.4	4990
12	1830	1832	1900	1	3					3	1829 UT	C2.4	4990
12	2228	2234	2309	1-	1			1			2223 UT	C2.6	4990
13	0016	0024	0100	1-	1			1			0012 UT	C1.3	4990
13	0418	0422	0512	1	3	1		1	1		0413 UT	C6.1	4990
13	0520	0529	0555	1-	3			1	1		0519 UT	C1.5	
13	0716	0725	0740	1-	3		1	1	1		0716 UT	C1.9	
13	0920	0924	0940	1-	3	1			1		0917 UT	C1.3	
13	1832	1835	1857	1+	3			1		6	1830 UT	C4.6	4995
13	2004	2019	2134	1+	3			1		6	1948 UT	C7.1	4989
13	2255	2258	2325	1-	1			1			2252 UT	C2.6	
14	0014	0023	0054	1-	3			1	1		0013 UT	C3.7	4990
14	0130	0140	0216	1-	3			1	1		0118 UT	C1.7	
14	0329	0336	0420	2	3			1	1		0325E UT	C6.5	4990
14	0421	0438	0545	1	3			1	1		No flare		
14	0924	0931	0945	1-	3	1			1		0922 UT	C1.5	
14	1214	1218	1230	1-	3	1			1	1	1212 UT	C1.8	
14	1457	1505	1525	1-	3		1		1	4	1458 UT	C2.6	4989
14	1725	1728	1755	1+	1					1	1718 UT	C1.7	4990
14	1913	1917	1932	1-	3					5	1911 UT	C3.0	
14	1938	1945	2034	3+	5	2		1		8	1934 UT	X1.2	4990
14	2218	2229	2251	1-	1			1			2216 UT	C4.9	
14	2251	2300	2333	1-	1			1			2254 UT	C1.6	4989
15	0242	0249	0350	1	3	1		1	1		0238 UT	C3.9	4995
15	0426	0440	0510	1-	1				1		0425 UT	C1.6	
15	2003	2020	2046	2	5	1		1		7	2000 UT	M1.5	4992
15	2113	2127	2208	2+	5	1		1		8	2112 UT	M2.0	4990
16	1109	1118	1130	1-	3	1			1	2	No flare		
16	1241	1249	1300	1-	3	1	1	1		1	1237 UT	C2.0	4990

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1988

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF SPA	SES	Known Flare	X-ray Class	NOAA Region
16	1305	1321	1345	1-	3	1			1		1259 UT		4995
16	1616	1621	1640	1-	3	1			1	2	1614 UT	C2.1	
16	1807	1811	1900	2	3					6	1805 UT	C6.3	4990
16	1954	2011	2048	1-	3			1		1	1944 UT	C9.1	4990
16	2122	2129	2156	1+	5	1		1		7	2122 UT	M1.2	4990
16	2212	2217	2345	1+	3	1		1		3	2209 UT	C9.0	
17	0103	0109	0156	1+	3			1	1		0100 UT	C5.3	
17	0126	0133	0146	1-	1				1		0121E UT		4990
17	0156	0159	0256	1-	3			1	1		0153 UT	C4.6	
17	0315	0321	0351	1-	3			1	1		0313 UT	C1.3	
17	0427	0437	0558	2+	3	1		1	1		0429 UT	M1.2	4990
17	0553	0653	0745	1	1		1				0559 UT	C1.5	
17	0646	0652	0739	1-	3	1	1	1	2	2	0645 UT	C2.7	
17	0815	0900	0945	2+	3		1			1	0814 UT	C6.9	
17	0848	0920	1041	2	3	2	2	1	1	1	0814 UT	C6.9	
17	1715	1721	1803	1+	3					6	1716 UT	C2.5	4990
17	2203	2216	2241	1-	3	1		1		4	2205 UT	C7.9	4990
18	0100	0108	0236	2+	3	2		1	1		0107 UT	M3.1	
18	0302	0329	0405	1-	3			1	1		0300 UT	C3.7	
18	0405	0421	0505	2	3			1	1		0407 UT	C4.9	
18	0505	0534	0730	3	5	2	3	1	2		0509 UT	M1.7	4990
18	1114	1127	1131	1	3		2				1106 UT		4995
19	0235	0245	0500	1	3	1		1	1		0231 UT	C5.5	4990
19	0843	0846	0914	1+	1		1				0841 UT		4989
19	1150	1216	1250	1+	3	1	5		1		1153 UT		4990
19	1330	1332	1400	1	3		2				1330 UT	C1.6	4990
19	1901	1907	2003	2+	3					8	1858 UT	C8.1	
19	2040	2046	2112	1-	3			1		4	2040 UT	C4.7	4990
20	0125	0143	0240	1-	3			1	1		0117 UT	C2.2	4990
20	0958	1032	1139	2	3	2	2	1	1		1002 UT	M1.0	4990
20	1017	1037	1147	2	1	1	1			1	1019E UT	M1.0	
20	1308	1317	1350	1+	5	3	3		1	10	1304 UT	C5.8	4990
20	1409	1426	1435	1	3		2				1416 UT		4990
21	0007	0013	0045	1-	3			1	1		0007 UT	C1.3	4990
21	0409	0418	0519	1-	3			1	1		0407 UT	C2.0	
21	0715	0726	0750	1-	3	1	1	1	1		0721 UT	C2.1	4990
21	0755	0805	0826	1-	3	1	1	1	1	2	0758 UT	C3.0	4990
21	0921	0955	1114	2+	5	4	3	1	1	3	0916 UT	M2.3	4990
21	1419	1434	1500	1+	5	2			1	9	1417 UT	C4.2	4990
22	1408	1420	1430	2+	5	3	3		1	11	1407 UT	M1.0	4990
22	1935	1942	2025	1+	3					6	1932 UT	C2.7	
23	1648	1656	1705	1+	3	1			1	7	1647 UT	C2.9	4990
24	0113	0122	0314	2+	3	2		1	1		0108 UT	M1.7	
24	0337	0345	0424	1-	1			1			0336 UT	C2.3	
24	0747	0752	0835	1-	3		1	1	1	3	0734 UT	C3.0	
24	1433	1442	1510	1	3				1	2	1431 UT	C1.3	
25	0116	0128	0238	1-	3			1	1		0114 UT	C2.2	
26	0955	1037	1055	1	3	2	1		1	2	0956 UT	C2.2	5002
30	1011	1014	1030	1-	1			1			1007 UT	C2.0	
30	1306	1315	1348	1	1		1				1255E UT		

SUDDEN IONOSPHERIC DISTURBANCES

OBSERVATORIES REPORTING FOR APRIL 1988

Amherst, New Hampshire, USA	SES	Latrobe, Pennsylvania, USA	SES
Ayrshire, Scotland	SES	Lintong, Peoples Republic of China	SPA
Darmstadt, German Federal Republic	SWF	Louisville, Kentucky, USA	SEA
Farsta, Sweden	SES	Maui, Hawaii, USA	SWF
Hiraiso, Japan	SWF	Panska Ves, Czechoslovakia	SES, SEA, SWF
Houston, Texas, USA	SES	Rimavska Sobota, Czechoslovakia	SEA
Huancayo, Peru	SWF	Somesworth, New Hampshire, USA	SES
Inubo, Japan	SPA	Tavares, Florida, USA	SES
Juliusruh, German Democratic Rep.	SWF	Upice, Czechoslovakia	SEA
Kandilli, Turkey	SEA	Valley Cottage, New York, USA	SEA
Kuhlungsborn, German Democratic Rep.	SEA, SPA	Zilina, Czechoslovakia	SEA

SIDs BY NOAA/SESC REGIONS
April 1988

Day :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Reg No.																														
4977		1			1																									
4978							1																							
4982							2	1																						
4983						1			1																					
4985								1	1			1																		
4986											1	1																		
4989													1	2					1											
4990											2	5	2	4	1	4	4	1	4	4	5	1	1							
4992															1															
4995													1		1	1		1												
5002																										1				
Number of events with X-Ray flares																														
		2		1		3	4	2	4		3	7	8	11	4	6	10	4	4	4	6	2	1	4	1	1				1
Number of events with no flare patrol																														
Number of events with no flare reported																														
				1							1	1		1		1														
Total SID events																														
		2		2	1	3	5	2	4		4	9	8	12	4	8	11	5	6	5	6	2	1	4	1	1				2

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

APRIL 1988

Observation Day	Start (UT)	End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
01	0000	0736	CULG				0000.0	0736.0	1				IIIIS
			LEAR				0147.0	0147.0	2				III
			PALE				0147.0	0147.0	2				III
			CULG				0147.5	0147.5	1	0147.5	0148.0	1	IIIB
			CULG				0229.0	0229.0	1				IIIB
			LEAR				0244.0	0245.0	2				III
			CULG				0245.0	0245.0	1	0245.0	0245.5	1	IIIB
			CULG				0424.5	0425.0	1				IIIB
			CULG				0504.5	0504.5	1				IIIB
	0545	1731	WEIS				0719.0	1619.0	2				IN,DC
			WEIS				0757.0	1653.0	2				IIIN
			LEAR				0815.0	0816.0	2				III
			SVTO				0815.0	0815.0	2				III
			WEIS				0815.2	0816.1	3				IIIG
			LEAR				0932.0	0932.0	2				III
			WEIS				0932.2	0932.9	3				IIIG
			WEIS				1019.4	1020.3	3				IIIG
			SGMR				1137.0	2249.0	1				CONT
			SVTO				1309.0	1653.0	2				CONT
			WEIS				1328.7	1329.3	3				IIIG
			SGMR				1505.0	1506.0	2				V
			WEIS				1505.8	1506.3	3				IIIG
			SVTO				1519.0	1520.0	2				V
			WEIS				1519.9	1521.9	3				IIIGG
			SGMR				1520.0	1522.0	2				V
			SGMR				1547.0	1553.0	3				V
			SVTO				1547.0	1549.0	2				III
			WEIS				1547.2	1553.3	3				IIIGG
			PALE				1824.0	1825.0	3				V
			SGMR				1824.0	1825.0	2				V
			PALE				1915.0	1916.0	1				III
			PALE				1956.0	1957.0	3				V
			SGMR				1956.0	1957.0	2				V
			PALE				2005.0	2355.0	1				CONT
	2036	2400	CULG				2036.0	2400.0	1				IIIS
			PALE				2036.0	2038.0	3				V
			SGMR				2036.0	2038.0	2				V
			CULG				2037.5	2037.5	2				IIIB
			CULG				2038.5	2038.5	2				IIIB
			CULG				2312.0	2319.0	3	2312.0	2319.0	3	IIIGG
			LEAR				2312.0	2315.0	2				III
			PALE				2312.0	2318.0	3				V
			LEAR				2315.0	2317.0	3				III
			LEAR				2318.0	2318.0	2				III
			PALE				2334.0	2334.0	1				III
02	0000	0735	CULG				0000.0	0735.0	1				IS
			CULG				0003.5	0009.0					IIIG
			LEAR				0004.0	0004.0	1				III
			PALE				0004.0	0004.0	1				III
			CULG				0029.0	0029.0	1	0029.0	0029.0	1	IIIB
			LEAR				0029.0	0029.0	2				III
			PALE				0029.0	0029.0	1				III
			CULG				0052.0	0053.0	3	0052.0	0053.5	3	IIIVG
			LEAR				0052.0	0056.0	3				V
			PALE				0052.0	0122.0	3				S
			CULG				0058.5	0058.5	1				IIIN
			LEAR				0101.0	0112.0	2				III
			LEAR				0114.0	0122.0	3				III
			CULG				0115.0	0122.0	3	0115.0	0122.0	3	IIIVGG
			LEAR				0122.0	1006.0	1				CONT
			CULG				0214.0	0215.0	2				IIIB
			LEAR				0214.0	0215.0	3				III
			PALE				0214.0	0214.0	2				III
			LEAR				0302.0	0326.0	2				S
			CULG				0312.0	0314.5	1				IIIG

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

APRIL 1988

Observation Day	Start (UT)	End (UT)	Sta	Decimetric Band Start (UT)	End (UT)	Int (1-3)	Metric Band Start (UT)	End (UT)	Int (1-3)	Dekametric Band Start (UT)	End (UT)	Int (1-3)	Spectral Type
02			PALE				0325.0	0329.0	3				V
			CULG				0326.0	0326.0	1				IIIB
			LEAR				0327.0	0330.0	3				V
			CULG				0328.0	0400.0	3	0328.0	0400.0	3	IIIVG
			PALE				0520.0	0122.0	3				S
			CULG				0527.0	0528.0	2				IIIB
			LEAR				0527.0	0536.0	3				V
			CULG				0536.0	0536.5	1	0536.0	0536.5	1	IIIG
			CULG				0550.0	0552.0	3	0550.0	0552.5	3	IIIVB
			LEAR				0550.0	0555.0	3				V
			SVTO				0550.0	0552.0	2				V
	0537	0616	WEIS				0550.2	0554.9	3				IIIGG
			CULG				0553.5	0611.0	1				II
			LEAR				0558.0	0606.0	1				II
			LEAR				0606.0	0617.0	2				S
	0821	1731	WEIS				0607.0	1522.0	3				IIIN
			CULG				0616.5	0617.0	1				IIIB
			CULG				0628.0	0628.0	1				IIIB
			LEAR				0628.0	0628.0	2				III
			SGMR				1120.0	2249.0	1				CONT
			PALE				1733.0	1735.0	2				V
			SGMR				1733.0	1735.0	2				V
			PALE				1811.0	1812.0	1				III
			PALE				1820.0	1823.0	3				V
			SGMR				1820.0	1822.0	2				V
			PALE				2016.0	2025.0	1				III
			PALE				2045.0	2048.0	3				V
	2035	2400	CULG				2046.0	2047.0	3	2046.0	2047.5	3	IIIG
			SGMR				2046.0	2047.0	2				V
			PALE				2149.0	2150.0	1				III
			CULG				2150.0	2151.0	1				IIIG
			CULG				2150.0	2216.0	1				IIIN
			PALE				2334.0	2334.0	1				III
			LEAR				2353.0	2353.0	2				III
			PALE				2353.0	2353.0	1				III
			CULG				2353.5	2353.5	2	2353.5	2354.0	2	IIIB
03	0000	0735	CULG				0107.0	0107.0	1	0107.0	0107.5	1	IIIB
			LEAR				0107.0	0107.0	1				III
			PALE				0107.0	0107.0	1				III
			CULG				0119.0	0122.0	1	0119.0	0122.5	1	IIIG
			LEAR				0121.0	0122.0	2				III
			PALE				0121.0	0122.0	1				III
			LEAR				0212.0	0212.0	1				III
			PALE				0212.0	0212.0	1				III
			CULG				0213.0	0213.0	1	0213.0	0213.5	1	IIIB
			CULG				0234.0	0235.0	3	0234.0	0235.5	3	IIIG
			CULG				0236.5	0236.5	1				IIIB
			LEAR				0248.0	0252.0	3				III
			PALE				0248.0	0250.0	3				III
			CULG				0354.0	0354.5	1				IIIB
			LEAR				0454.0	0454.0	2				III
			SVTO				0458.0	0458.0	2				III
			CULG				0506.0	0507.0	1				IIIG
			CULG				0530.0	0549.5	1				IIIGG
			LEAR				0530.0	0530.0	1				III
			LEAR				0548.0	0549.0	1				III
			CULG				0554.0	0554.5	1				IIIG
	0537	1733	WEIS				1054.7	1054.9	3				IIIB
			WEIS				1259.2	1259.3	2				IIIB
			WEIS				1320.6	1320.7	1				IIIB
			WEIS				1331.6	1331.7	2				IIIB
	2035	2400	CULG				2049.0	2102.0	1				IIIG
			CULG				2308.5	2309.0	1	2308.5	2309.0	1	IIIG

SOLAR RADIO EMISSION--SPECTRAL OBSERVATIONS

APRIL 1988

Observation Day	Start (UT)	End (UT)	Sta	Decimetric Band Start (UT)	End (UT)	Int (1-3)	Metric Band Start (UT)	End (UT)	Int (1-3)	Dekametric Band Start (UT)	End (UT)	Int (1-3)	Spectral Type
03			PALE				2338.0	2339.0	2				III
04			LEAR				0630.0	0630.0	2				III
			SVTO				0630.0	0630.0	2				III
	0533	1735	WEIS				0630.1	0630.3	2				IIIG
			LEAR				0747.0	0748.0	2				III
			SVTO				0747.0	0748.0	2				III
			WEIS				0747.3	0748.7	2				IIIG
			LEAR				0936.0	0937.0	1				III
			SVTO				0936.0	0937.0	2				III
			WEIS				0936.8	0938.4	2				IIIG
			WEIS				1602.1	1603.6	2				IIIG,U
			SVTO				1606.0	1608.0	2				V
			WEIS				1606.7	1609.9	3				IIIGG
			SGMR				1628.0	2252.0	1				CONT
			WEIS				1630.9	1634.9	1				IIIGG
			WEIS				1643.2	1644.7	1				IIIG
	2035	2400	CULG				2151.0	2151.5	1				IIIB
05			LEAR				0109.0	0110.0	2				III
			PALE				0109.0	0110.0	2				V
	0000	0735	CULG				0110.0	0110.5	1				IIIB
			LEAR				0652.0	0652.0	1				III
			CULG				0652.5	0653.0	1				IIIU
	0533	0818	WEIS				0825.2	0826.6	2				IIIGG
	0823	1736	WEIS				0829.2	0830.3	3				IIIG
			WEIS				1210.7	1210.9	1				IIIB
			SGMR				1427.0	1428.0	1				V
			WEIS				1427.8	1427.9	1				IIIB
			WEIS				1627.3	1627.4	1				IIIB
			SGMR				1734.0	1735.0	1				V
	2035	2400	CULG				2313.0	2313.0	1				IIIB
06	0000	0735	CULG										
	0530	1737	WEIS										
	2034	2400	CULG										
07			LEAR				0051.0	0052.0	2				III
	0000	0734	CULG				0052.0	0052.5	1				IIIB
			PALE				0052.0	0052.0	1				III
			LEAR				0211.0	0213.0	2				V
			PALE				0211.0	0213.0	2				V
			CULG				0211.5	0213.5	3	0211.5	0214.0	3	IIIG
	0529	1739	WEIS										
	2034	2400	CULG										
08	0000	0734	CULG				0019.0	0022.0	2	0019.0	0022.0	2	IIIG
			PALE				0019.0	0021.0	2				V
			PALE				0100.0	0101.0	1				III
			LEAR				0523.0	0524.0	1				III
			CULG				0523.5	0524.5	1	0523.5	0524.5	1	IIIG
	0526	0754	WEIS										
			SVTO				0915.0	0915.0	2				III
			WEIS				1119.4	1120.2	2				IIIG,U
	0802	1739	WEIS				1121.1	1127.7	1				IIIG
			SGMR				1354.0	1357.0	3				V
			WEIS				1354.8	1356.8	3				IIIGG
			SVTO				1355.0	1356.0	3				III
			SGMR				1419.0	1419.0	1				V
			WEIS				1419.1	1419.6	2				IIIG
			SGMR				1449.0	1449.0	1				III
			SGMR				1708.0	2236.0	1				CONT
			SGMR				1849.0	1850.0	2				V

APRIL 1988

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
08			PALE				1850.0	1850.0	2				III
			PALE				2114.0	2115.0	2				III
	2033	2400	CULG				2120.0	2121.0	2	2120.0	2121.0	2	IIIG
			CULG				2125.0	2208.0	1				IIIB,N
			CULG				2125.0	2208.0	1				S
			PALE				2149.0	2154.0	2				III
			SGMR				2149.0	2151.0	2				V
09	0000	0733	CULG				0308.5	0311.0	2				IIIG
			CULG				0309.0	0311.0	2				III
			LEAR				0313.0	0314.0	1				III
			SVTO				0639.0	0639.0	2				III
			LEAR				0657.0	0659.0	3				V
			CULG				0657.5	0659.0	2	0657.5	0659.0	2	IIIG
	0525	1231	WEIS				0657.6	0758.9	3				IIIG
			SVTO				0658.0	0659.0	2				V
			LEAR				0812.0	0812.0	2				III
			SVTO				0812.0	0812.0	2				III
	1250	1741	WEIS				0812.4	0812.6	2				IIIB
			LEAR				0945.0	0945.0	2				III
			SVTO				0945.0	0945.0	2				III
			WEIS				0945.1	0945.4	3				IIIG
			SVTO				1005.0	1005.0	2				III
			WEIS				1005.4	1005.8	3				IIIG
			WEIS				1015.6	1015.8	1				IIIG
			SGMR				1023.0	1025.0	1				V
			SVTO				1023.0	1026.0	2				V
			WEIS				1023.7	1026.2	3				IIIGG
			WEIS				1027.4	1027.5	1				IIIB
			SGMR				1249.0	1250.0	2				V
			WEIS	1429.4	1430.8	2							IIIG
			PALE				1734.0	1734.0	1				III
			SGMR				1734.0	1734.0	2				V
			PALE				2021.0	2021.0	1				III
			SGMR				2021.0	2021.0	1				V
	2033	2400	CULG				2055.5	2139.0	2	2055.5	2139.0	2	IIIB,N
			PALE				2116.0	2117.0	1				III
			SGMR				2116.0	2117.0	1				V
			SGMR				2122.0	2123.0	1				V
			CULG				2150.5	2154.0	2	2150.5	2154.0	2	IIIG
			CULG				2328.0	2358.5	2	2328.0	2358.5	2	IIIB,N
			PALE				2331.0	2336.0	1				III
10	0000	0733	CULG				0623.5	0733.0	1				IIIB,N
			LEAR				0627.0	0628.0	1				III
			SGMR				1250.0	1257.0	1				V
			SGMR				1250.0	2258.0	1				CONT
	2033	2400	CULG				2043.0	2208.5	1				IIIB,N
11	0000	0733	CULG				0023.5	0024.0	1	0023.5	0024.0	1	IIIB
			LEAR				0057.0	0057.0	1				III
			PALE				0057.0	0058.0	1				III
			CULG				0058.0	0058.5	1	0058.0	0058.5	1	IIIB
			CULG				0309.0	0309.0	1				IIIB
			CULG				0326.0	0559.0	1	0326.0	0559.0	1	IIIB,N
	0626	0704	WEIS										
	0920	0937	WEIS										
	1355	1431	WEIS										
	1500	1744	WEIS										
	2033	2400	CULG										
12			PALE				0018.0	0018.0	1				III
	0000	0733	CULG				0024.0	0024.5	1	0024.0	0024.5	1	IIIB

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12		CULG				0326.0	0559.0	1	0326.0	0559.0	1	IIIB,N
		SGMR				1334.0	1335.0	1				V
		SGMR				1344.0	1345.0	1				V
		SGMR				1354.0	1355.0	1				V
0518	1745	WEIS				1354.7	1355.0	2				IIIG
		SGMR				1411.0	1411.0	1				III
		WEIS				1411.7	1411.8	2				IIIB
		SGMR				1431.0	1431.0	1				V
		WEIS				1431.1	1431.3	2				IIIG
		SGMR				1455.0	1455.0	1				III
		WEIS				1455.5	1455.7	1				IIIB
		SGMR				1512.0	1524.0	1				S
		WEIS				1512.6	1514.3	2				IIIG
		WEIS				1521.3	1524.3	3				IIIG
		SVTO				1523.0	1524.0	2				III
		SGMR				1559.0	1559.0	1				III
		SGMR				1605.0	2300.0	1				CONT
		WEIS				1631.9	1632.1	1				IIIB
		WEIS				1700.4	1701.2	2				IIIG
		PALE				1911.0	1911.0	1				III
2032	2400	CULG				2032.0	2400.0	1				IS
		PALE				2043.0	2043.0	2				III
13	0000	0732	CULG				0000.0	0200.0	1	0000.0	0200.0	1	IIIB,N
			CULG				0000.0	0300.0	1				IS
			LEAR				0147.0	0730.0	2				CONT
			CULG				0200.0	0300.0	1	0000.0	0300.0	1	IIIS
			LEAR				0251.0	0254.0	2				V
			PALE				0252.0	0434.0	2				CONT
			CULG				0300.0	0530.0	2	0300.0	0530.0	2	IS
			CULG				0530.0	0732.0	1	0330.0	0732.0	1	IIIB,N
0609	0629	WEIS				0645.0	1552.0	1				IIIN,DP
		SGMR				1214.0	1214.0	1				III
		SGMR				1244.0	1244.0	1				III
0641	1747	WEIS				1244.6	1244.9	3				IIIB
		SGMR				1405.0	2302.0	1				CONT
		PALE				1830.0	1831.0	2				V
		SGMR				1831.0	1832.0	2				V
		PALE				2006.0	2009.0	2				V
		SGMR				2006.0	2009.0	2				V
		PALE				2202.0	2202.0	1				III
		PALE				2358.0	0001.0	2				III
		LEAR				2359.0	0002.0	2				III
14			PALE				0106.0	0106.0	1				III
			LEAR				0107.0	0202.0	2				S
			PALE				0124.0	0150.0	1				S
			PALE				0206.0	0208.0	1				III
			LEAR				0207.0	0210.0	2				III
0400	0732	CULG				0400.0	0732.0	1				IIIN,G
			LEAR				0530.0	0536.0	2				III
0514	1428	WEIS				0609.0	1724.0	1				IIIN,DP
			LEAR				0610.0	0610.0	2				III
			LEAR				0652.0	0654.0	2				III
			SGMR				1134.0	1144.0	1				S
			SGMR				1155.0	2303.0	1				CONT
1435	1748	WEIS				1203.0	1203.3	3				IIIB
			PALE				1937.0	2004.0	3				IV
			SGMR				1937.0	2004.0	3				IV
2032	2400	CULG				2032.0	2400.0	1				IIIN,G
			PALE				2119.0	2120.0	1				III
15			LEAR				0012.0	0013.0	3				III
			PALE				0012.0	0012.0	3				III
0000	0732	CULG	0013.5	0013.5	1	0013.5	0014.0	3	0013.5	0014.0	3	IIIB

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15			LEAR				0054.0	0054.0	1				III
			PALE				0054.0	0054.0	2				III
			CULG				0055.0	0055.0	1	0055.0	0055.5	1	IIIB
			CULG							0316.0	0317.0	1	III
			CULG				0316.0	0316.5	1				IIIG
	0514	1750	WEIS				0721.7	0721.9	1				IIIB
			LEAR				0722.0	0722.0	2				III
			WEIS				0742.7	0742.8	1				IIIB
			WEIS				0813.5	0814.3	1				IIIG
			SGMR				1023.0	2304.0	1				CONT
			WEIS	1442.1	1442.3	3							IIIG
			WEIS	1525.0	1425.2	2							IIIG
			WEIS	1611.6	1611.7	1							IIIB
			WEIS				1633.6	1633.7	1				IIIB
			PALE				1835.0	1835.0	1				III
			PALE				2005.0	2008.0	3				V
			SGMR				2005.0	2008.0	3				V
			SGMR				2011.0	2016.0	1				II
			PALE				2016.0	2027.0	3				IV
			SGMR				2016.0	2027.0	2				IV
	2032	2400	CULG				2032.0	2122.0	1				IV G
			PALE				2051.0	2114.0	1				CONT
			PALE				2121.0	2135.0	3				II
			CULG				2122.0	2136.0	3	2127.0	2132.0	3	II
			SGMR				2122.0	2135.0	2				II
			CULG				2142.0	2400.0	1				IIIB,N
16	0000	0732	CULG				0000.0	0732.0	1				IIIB,N
			LEAR				0029.0	0030.0	2				III
			PALE				0029.0	0029.0	2				III
			LEAR				0144.0	0144.0	1				III
			LEAR				0155.0	0156.0	2				III
			PALE				0155.0	0155.0	2				III
			LEAR				0235.0	0954.0	1				CONT
			LEAR				0332.0	0333.0	2				III
	0511	1751	WEIS				0613.0	1627.0	1				IIIN
			SGMR				1200.0	2305.0	1				CONT
			SGMR				1649.0	1649.0	2				V
			PALE				1901.0	0013.0	2				CONT
			SGMR				2131.0	2134.0	1				II
			PALE				2132.0	2136.0	2				II
	2141	2400	CULG				2141.0	2400.0	1				IIII,C
			LEAR				2349.0	0953.0	1				CONT
17	0000	0732	CULG				0000.0	0340.0	1				IC,DC
			CULG				0000.0	0110.0	1				IIIS
			PALE				0100.0	0102.0	2				V
			CULG				0100.5	0102.0	2	0100.5	0102.0	2	IIIG
			LEAR				0106.0	0107.0	2				III
			CULG	0430.0	0432.0	2							S
			CULG	0431.0	0431.5	1	0430.0	0432.0	2	0430.0	0431.5	2	IIIG
			LEAR				0435.0	0442.0	3				III
			CULG				0436.5	0436.5	2				IIIB
			CULG				0448.0	0651.0	1				IIIS
			CULG				0448.0	0732.0	1				IDC
			SGMR				1442.0	1931.0	1				CONT
			PALE				1726.0	0318.0	2				CONT
			SGMR				1931.0	2306.0	2				CONT
	2032	2400	CULG				2032.0	2238.0					IIIISC
			PALE				2210.0	2224.0	3				S
			CULG				2210.5	2224.5	2	2105.0	2224.5	3	IIIGG
			CULG				2238.0	2400.0	2				IIIIC,DC
			LEAR				2300.0	0952.0	1				CONT
18	0000	0526	CULG				0000.0	0526.0	1				IIIIS,C
			PALE				0057.0	0102.0	2				V

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18			CULG				0058.0	0058.0	2	0058.0	0058.5	2	IIIB
			LEAR				0058.0	0103.0	2				III
			LEAR				0522.0	0529.0	3				V
			SVTO				0522.0	0528.0	2				V
			CULG				0525.0	0526.0	3	0525.0	0526.0	3	IIIG
	0507	1752	WEIS				0525.0	1606.0	1				IIIN,DP
	0532	0732	CULG				0532.0	0732.0	1				IIIIS,C
			SVTO				0543.0	0657.0	2				CONT
			SGMR				1018.0	0000.0	1				CONT
			SGMR				1227.0	1858.0	2				CONT
			SGMR				1858.0	1958.0	1				CONT
			PALE							1911.0	0000.0	2	CONT
			PALE				1911.0	0325.0	2				CONT
			SGMR				1934.0	1934.0	2				III
			SGMR				1950.0	1950.0	2				III
			SGMR				1958.0	2307.0	2				CONT
	2031	2400	CULG				2031.0	2400.0	1				IIIIS,C
19	0000	0731	CULG				0000.0	0612.0	1				IIIIS,C
			CULG				0017.0	0017.0	1	0017.0	0017.5	1	IIIB
			LEAR				0018.0	0018.0	2				III
			LEAR				0022.0	0951.0	1				CONT
			CULG				0211.0	0211.5	1	0211.0	0211.5	1	IIIG
			LEAR				0211.0	0212.0	2				III
			CULG				0414.0	0415.0	1	0415.0	0415.5	1	IIIB
			LEAR				0415.0	0415.0	2				III
			CULG				0602.0	0606.0	2	0602.0	0606.0	2	IIIGG
			LEAR				0602.0	0604.0	3				III
	0507	1100	WEIS				0602.0	1659.0	2				IIIN,P
			CULG				0612.0	0700.0	1				IIIIS,C,DC
			SVTO				0631.0	0726.0	2				CONT
			SGMR				1017.0	1228.0	1				CONT
	1108	1755	WEIS										
			SGMR				1228.0	2308.0	2				CONT
			SVTO				1401.0	1428.0	2				CONT
			PALE				1833.0	0100.0	1				CONT
	2031	2400	CULG				2031.0	2200.0	2				IC
			CULG				2031.0	2400.0	1				IC,DC
			CULG				2058.0	2400.0	1				IIIS
			CULG				2200.0	2400.0	1				IC,DC
20	0000	0731	CULG				0000.0	0731.0	1				IIIIS
			PALE				0102.0	0135.0	1				S
			LEAR				0148.0	0950.0	1				CONT
			PALE				0158.0	0159.0	2				III
			LEAR				0221.0	0228.0	2				III
	0503	1756	WEIS				1009.9	1010.0	1				IIIB
			WEIS				1014.6	1014.7	3				IIIG
			SGMR				1015.0	1216.0	1				CONT
			WEIS				1019.0	1019.1	1				IIIB
			SGMR				1026.0	1029.0	1				V
			SVTO				1026.0	1029.0	1				V
			WEIS				1026.4	1031.9	2				IIIGG
			SGMR				1216.0	1540.0	2				CONT
			WEIS				1238.9	1239.3	1				IIIB
			WEIS				1308.9	1309.0	1				IIIB
			WEIS				1311.7	1312.2	2				IIIG
			SGMR				1540.0	2309.0	1				CONT
			PALE				1838.0	1838.0	1				III
			PALE				1913.0	1957.0	2				S
	2031	2400	CULG				2031.0	2130.0	1				I
			CULG				2203.0	2203.5	1	2203.0	2203.5	1	IIIB
			CULG				2242.5	2243.0	1				IIIB
			CULG				2320.0	2400.0	1				I
21	0000	0731	CULG				0000.0	0730.0	1				I

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21			CULG				0406.5	0412.5	2	0406.5	0412.5	2	IIIGG
			LEAR				0407.0	0414.0	2				V
			SVTO				0723.0	0724.0	2				III
	0503	1758	WEIS				0735.5	0736.3	1				IIIG
			WEIS				0938.0	0939.3	2				IIIG
			WEIS				0945.3	0951.8	3				IIIGG
			SVTO				0946.0	0949.0	2				V
			WEIS				0953.7	0953.8	1				IIIB
			SGMR				1200.0	2310.0	1				CONT
			WEIS				1255.2	1255.4	3				IIIG,U
	2030	2400	CULG										
			PALE				2145.0	2200.0	2				S
22	0000	0730	CULG				0613.5	0613.5	1				IIIB
			LEAR				0735.0	0736.0	3				III
			SVTO				0735.0	0735.0	2				III
	0500	0852	WEIS				0735.6	0736.1	3				IIIG
			SGMR				1410.0	1419.0	3				V
			SVTO				1410.0	1414.0	2				V
	0942	1505	WEIS				1410.9	1414.5	3				IIIGG,DP
	1636	1759	WEIS										
			SGMR				1957.0	1957.0	1				V
	2030	2400	CULG										
23	0000	0730	CULG				0255.0	0415.0	1				I
	0500	1801	WEIS										
24	0740	1801	WEIS										
			SGMR				1009.0	1241.0	1				CONT
			SGMR							1319.0	1319.0	1	V
25	0551	0804	WEIS										
	0821	1118	WEIS				1037.4	1037.7	3				IIIG,U
			SGMR				1517.0	1517.0	1				III
			WEIS				1517.3	1517.7	1				IIIG
26			LEAR				0257.0	0259.0	1				V
			PALE				0257.0	0259.0	1				III
	0556	1357	WEIS										
			LEAR				0648.0	0648.0	1				III
			SGMR				1820.0	1823.0	2				V
			PALE				1821.0	1822.0	2				III
			PALE				1901.0	1901.0	1				III
			SGMR				1901.0	1902.0	1				III
27			LEAR				0134.0	0134.0	1				III
			PALE				0134.0	0134.0	1				III
			SVTO				0622.0	0623.0	2				III
			LEAR				0623.0	0623.0	3				III
			SGMR				1305.0	2317.0	1				CONT
	1202	1806	WEIS				1321.8	1322.1	1				IIIG
	2145	2400	CULG				2214.0	2214.0	1				IIIB
28	0000	0729	CULG				0210.0	0210.0	1				IIIB
			LEAR				0210.0	0210.0	1				III
			CULG				0344.0	0344.0	1				IIIB
			CULG				0348.0	0348.0	1				IIIB
	0450	1254	WEIS										
			CULG				0518.0	0657.0	1				IIIB,N
			SGMR				1319.0	1319.0	1				III
			SGMR				1349.0	2318.0	1				CONT
	2030	2210	CULG				2118.0	2210.0	1				IIIS
29			LEAR				0055.0	0057.0	1				III
			LEAR				0118.0	0122.0	1				III
			PALE				0118.0	0122.0	1				III

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29			LEAR				0133.0	0133.0	1				III
			LEAR				0143.0	0943.0	1				CONT
	0325	0729	CULG				0325.0	0437.0	1				IIIB,N
	0948	1732	WEIS				0949.0	1619.0	1				IIIN,DP
			SGMR				1219.0	1219.0	1				III
			SGMR				1221.0	1251.0	1				CONT
			SGMR				1251.0	1334.0	2				CONT
			SGMR				1334.0	2319.0	1				CONT
			SGMR				1419.0	1419.0	1				III
			PALE				1712.0	1713.0	1				III
	1737	1803	WEIS										
			PALE				1944.0	1944.0	1				III
			PALE				1949.0	2009.0	2				S
			PALE				2029.0	2029.0	1				III
	2029	2400	CULG				2113.0	2400.0	1				IIIS
			PALE				2122.0	2124.0	2				III
30	0000	0729	CULG				0000.0	0700.0	1				IIIS
			LEAR				0113.0	0115.0	1				III
			PALE				0113.0	0113.0	1				III
			LEAR				0144.0	0145.0	2				III
			PALE				0145.0	0145.0	1				III
			CULG				0145.5	0145.5	1	0145.5	0145.5	1	IIIB
			LEAR				0149.0	0943.0	1				CONT
			LEAR				0219.0	0234.0	2				S
			PALE				0219.0	0220.0	2				III
			PALE				0249.0	0250.0	2				III
			LEAR				0642.0	0642.0	2				III
	0447	1659	WEIS				0642.0	1724.0	1				IIIN
			SGMR				1205.0	2320.0	2				CONT
	1703	1810	WEIS										
	2029	2400	CULG				2029.0	2400.0	1				IIIS
			PALE				2102.0	2102.0	1				III
			CULG				2235.0	2400.0	1				IDC
			LEAR				2314.0	2317.0	2				V
			PALE				2343.0	2347.0	2				V
			CULG				2344.0	2344.5	2	2344.5	2345.0	2	IIIB
			LEAR				2344.0	2347.0	2				V
			CULG				2348.0	2348.0	1				IIIB

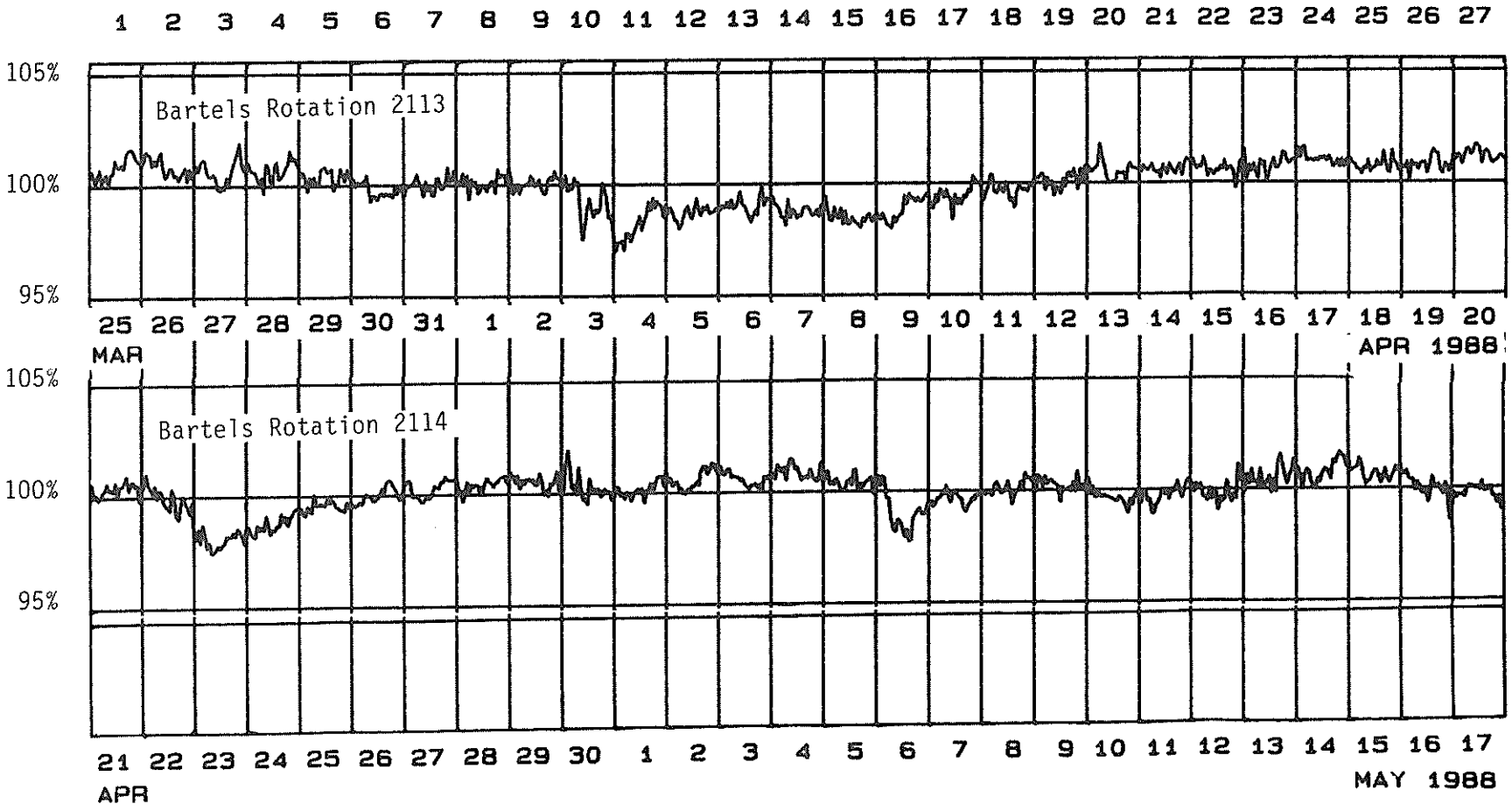
The symbols used under the column heading SPECTRAL TYPE have the following definitions:

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

Stations Reporting:

BLEN = Bleien CULG = Culgoora LEAR = Learmonth PALE = Palehua SGMR = Sagamore Hill
SVTO = San Vito WEIS = Weissenau

THULE NEUTRON MONITOR



COSMIC RAY INDICES
(Neutron Monitor)

APRIL 1988

Day	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	PREDIGTSTUHL Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	4309			6035.6				
2	4306			6013.9				
3	4269			5975.9				
4	4229			5946.7				
5	4249			5970.1				
6	4262			5973.2				
7	4251			5956.1				
8	4239			5943.8				
9	4255			5954.9				
10	4281			5987.4				
11	4291			5989.9				
12	4310			6024.4				
13	4328			6056.0				
14	4331			6068.7				
15	4329			6079.8				
16	4338			6058.3				
17	4349			6050.8				
18	4336			6058.3				
19	4338			6055.8				
20	4355			6070.2				
21	4357			6082.9				
22	4335			6054.6				
23	4258			6003.0				
24	4288			6020.2				
25	4321			6060.0				
26	4342			6070.4				
27	4354			6080.0				
28	4360			6082.9				
29	4364			6088.5				
30	4353			6071.2				
Mean	4310			6029.4				

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

GEOMAGNETIC ACTIVITY INDICES

April 1988

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	aa Provisional Am	N	S	M	
1		3-	3-	3	2	2+	3	3+	3+	22+	13	0.8	2	2	3-	3-	2+	3-	3+	4-	25	27	23	21	29	
2		3	4-	4	4+	4-	3-	3-	3-	27-	19	1.0	3-	3	3+	4+	4-	2+	2+	3-	33	38	36	45	30	
3	D	3	3-	5	5-	2-	4+	8	4+	33+	48	1.6	3-	2+	4	4+	1+	4-	7+	4	71	69	75	41	104	
4	D1	5-	5+	6-	6+	6+	6+	7+	4-	46-	78	1.8	4-	4-	4	5+	6-	6-	6	4-	91	97	60	52	105	
5	D5	5	4-	3+	2	2+	2-	3+	6-	27	24	1.2	4+	3	3	2-	2-	1+	3+	5-	35	45	25	36	34	
6	D2	6	6+	5-	6	5-	4+	3	2+	37+	48	1.6	5+	5	4	5	3+	4-	3-	2	59	66	46	72	41	
7		2	4-	4-	3	3	3+	3-	2	23+	15	0.8	2-	3+	3+	3-	2+	3	3-	2-	24	25	19	22	22	
8		2-	1-	2-	1	2+	3	2	2-	14	7	0.4	2-	1-	1+	1-	2-	3-	2	1+	11	16	10	8	19	K
9		4+	2	2-	2+	2-	2+	1+	2+	18	10	0.6	4-	2-	1+	3-	2	2	1+	2	17	24	14	25	13	
10		2-	2+	3+	4	4+	3-	2+	3-	23+	16	0.9	1+	2+	3+	3+	4-	2+	2-	3-	25	30	21	23	28	
11		3	2	2-	1+	3	3	2-	2-	17+	9	0.5	2+	2+	1+	1+	2+	3	2-	1+	15	20	14	14	20	
12		3	3-	2	3	4-	4-	3-	2+	23	14	0.8	2+	2+	2-	3-	3	3	3-	2	21	31	18	23	26	
13		2	2+	2-	3-	3-	2-	2	3+	18+	10	0.5	2-	2	1+	2	2	1+	2	3+	16	25	13	15	23	
14		2+	3-	2+	2+	3-	1+	2	2+	18	9	0.5	2-	2+	2	2	2+	1	2-	2	14	20	13	16	17	
15	Q5	1-	1	0+	1	3-	2	2-	2	11+	6	0.3	1	1-	0+	1	2+	2-	1+	2-	9	12	10	6	16	CK
16	Q3	2-	1-	1+	1-	2+	2	1-	1-	10	5	0.2	2-	0+	2-	1+	2+	2+	1-	1-	10	12	14	9	16	KK
17	Q1	2-	1	1+	1-	1-	2-	1-	2	10-	5	0.2	1+	1	2-	0+	0+	1+	1-	2+	8	14	7	10	11	C
18	Q8A	2	3-	2+	1+	1+	1+	1	2-	14-	7	0.3	2-	2+	3-	1+	1	1	1	1+	11	20	12	19	13	
19		2	3	2+	3	3-	2	1+	1+	18-	9	0.5	2	3	3-	3-	2+	2	1+	1	19	23	18	24	17	
20	Q9A	1-	0+	1	1	1+	3	2+	3-	12+	7	0.3	0+	0	1+	1	1+	3	3-	3-	12	17	12	8	21	
21		2	2	2-	1+	2-	2	1	3+	15	8	0.4	1+	1+	2	1+	1+	1+	1	3	12	21	11	15	17	
22	D4	4	5+	5	5-	4+	5+	5	5	39-	44	1.5	4	5	4+	5-	4	5-	4	4	65	60	64	58	66	
23		5	5-	4-	2+	4-	2-	3-	2	26-	21	1.1	5	4	3+	3-	3-	1+	2	2	35	40	28	49	19	
24	Q10A	2	1+	2-	1+	1+	1+	2+	3-	14	7	0.3	1+	1	1+	1	1-	1	2+	2	10	18	8	11	15	CK
25	Q4	1-	0+	1	1+	2-	3-	2	1+	11	6	0.2	1-	1-	1-	2-	1+	2+	2+	2-	10	16	11	7	20	KK
26	Q2	2-	2+	1+	1-	1+	1-	1-	1	10-	5	0.2	1+	2+	1+	1	1	1-	1-	1	9	13	7	11	9	CK
27	Q7K	1+	2	0	0+	1+	2-	3-	3-	12	6	0.3	1	2-	0+	0+	1+	2-	2+	3-	11	17	9	8	18	C
28		3-	3-	2+	3-	3-	2	3-	2+	20	11	0.6	2+	3	3-	3+	3-	2-	2+	2+	22	28	20	27	21	
29	Q6K	3-	2	3	2-	0+	0+	0+	1-	11	6	0.3	3-	2-	3	2	0+	0+	0+	1-	11	15	7	18	4	C
30		2-	2	3-	2+	1+	1	2-	2+	15	7	0.4	2-	2	3-	2+	1	1-	1+	2	14	19	10	16	13	C
Mean											16	0.67									24.2	29.2	21.3		25.2	

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	2	2	3-	3-	3-	3-	3	3	23	2+	2	3	3-	2	3-	3+	4	26	127.2	110	108	75	-
2	2+	3+	3+	4+	4	3-	3-	3-	34	3-	3	3+	4+	4-	2+	2+	3-	32	126.5	96	105	75	-
3	3-	2+	4+	4	2-	4	7	4	70	3	2	4-	4+	1+	4-	7+	4-	71	127.6	94	96	76	-
4	4-	4	4+	6-	6-	5+	6	4-	97	4-	3+	4-	5	5+	6	6	3+	85	122.6	74	80	70	-
5	4+	3+	3+	2	2+	1+	4-	5-	37	5-	3	3	2-	1	1+	3	5-	33	114.6	66	69	62	-
6	5	5	4+	5	4-	4	3-	2+	60	6-	5	4-	5-	3+	3+	3	2-	59	116.8	62	69	64	-
7	1+	3+	4-	3-	3-	3+	3-	2	26	2	3+	3+	2+	2	3-	2+	2-	22	120.0	84	86	68	-
8	1+	1-	2-	1-	2	3	2+	2-	13	2-	1-	1-	0+	1+	3-	2-	1	9	121.8*	92	98	70	-
9	4-	2-	2-	3-	2	2	2-	2+	19	4-	2-	1+	2+	2-	2	1-	2-	16	121.8*	115	110	70	-
10	1+	2	3+	4-	4	3-	2+	3-	28	1+	2+	3	3	3+	2-	1+	2+	21	127.2	107	112	75	-
11	2+	2+	2-	2-	3-	3	2-	1+	17	2+	2+	1+	1+	2-	3	2-	1+	14	128.0*	115	123	76	-
12	2+	2	2-	3-	4-	3+	3-	2	23	2+	3-	2-	3-	3-	3-	3-	2-	20	130.6*	118	125	79	-
13	2	2	1+	2+	2+	2-	2+	3	17	1+	2	2-	2-	2-	1	2-	4-	15	134.6	120	136	83	-
14	2-	2+	2+	2	2+	1+	2+	2+	16	2-	2+	2-	2-	2+	0+	1	1+	12	146.3	138	139	96	-
15	1+	1	1-	1+	2+	2	2-	2	11	1-	0+	0	0+	2+	1+	1-	1+	6	143.5	145	142	93	-
16	2-	1-	2	2-	2+	2+	1	1+	12	2-	0+	1+	1-	2+	2	1-	0	8	147.6	148	144	97	-
17	1+	1	2	1	1-	2	1	2+	10	1	1	2-	0	0	1-	0+	2+	7	145.5	144	144	95	-
18	1+	2	2+	2-	2-	2-	1+	2-	13	2-	3-	3-	1	0+	0+	1-	1+	10	145.3	137	135	95	-
19	2+	3+	3	3	3-	2+	2-	1+	23	2-	3	3-	2+	2-	2-	1	1-	15	138.5	108	118	88	-
20	0+	0	2-	1	2-	3	3	3-	14	0	0	1	1	1	3	2	2+	10	134.9	88	89	84	-
21	2-	1+	2	2-	2	2	1	3	15	1+	2-	2-	1-	0+	0+	1	3	9	127.6	79	79	76	-
22	4-	5-	4+	5-	4	5-	4+	4	65	4+	5	4+	4+	4-	5-	4-	4	65	120.1	72	66	68	-
23	5-	4	4-	3-	3	2	2+	2+	37	5+	4+	3	2	2	1	2	1+	33	111.5	48	46	58	-
24	1+	1	2	1+	1+	1+	3-	2+	12	2-	1+	1	1	0+	0+	2+	2-	8	105.6	30	38	52	-
25	1-	1-	1-	2	2-	3-	2+	2-	12	1	0+	0+	1+	1+	2	2	2-	9	106.7	44	50	53	-
26	2-	2+	2-	1+	1+	1	1+	1+	11	1+	2+	1+	0+	1-	0+	0+	1-	7	103.8	44	46	50	-
27	1+	2-	0+	1-	2-	2-	3-	3	13	1-	1+	0+	0+	1	1+	2-	2+	8	101.9	36	40	48	-
28	2+	3-	2+	3+	3	2	3-	2+	23	2	3	3-	3+	2+	2-	2	2+	21	101.6	43	40	48	-
29	3-	2-	3+	2	1-	0+	1-	1+	13	3-	1+	3-	2	0	0	0	0	9	102.1	39	41	48	-
30	2-	2	3	3-	2-	1+	2	3-	17	2-	2+	3-	2-	0+	0	1-	2-	10	104.8	44	54	51	-
									26.0									22.3	123.6	88.0	90.9	71.5	

D A I L Y A V E R A G E I N D I C E S Ap

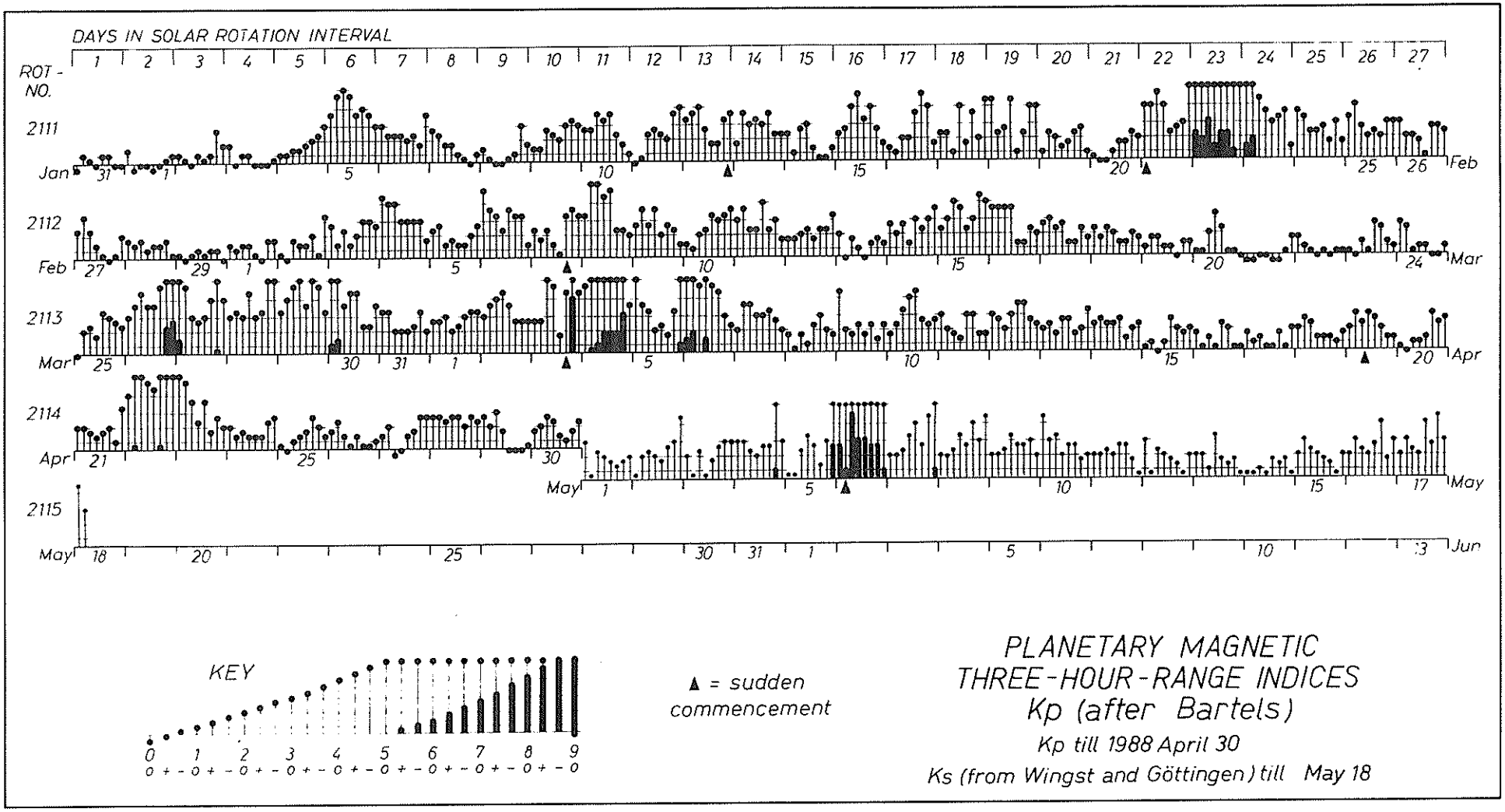
May 1987 to April 1988

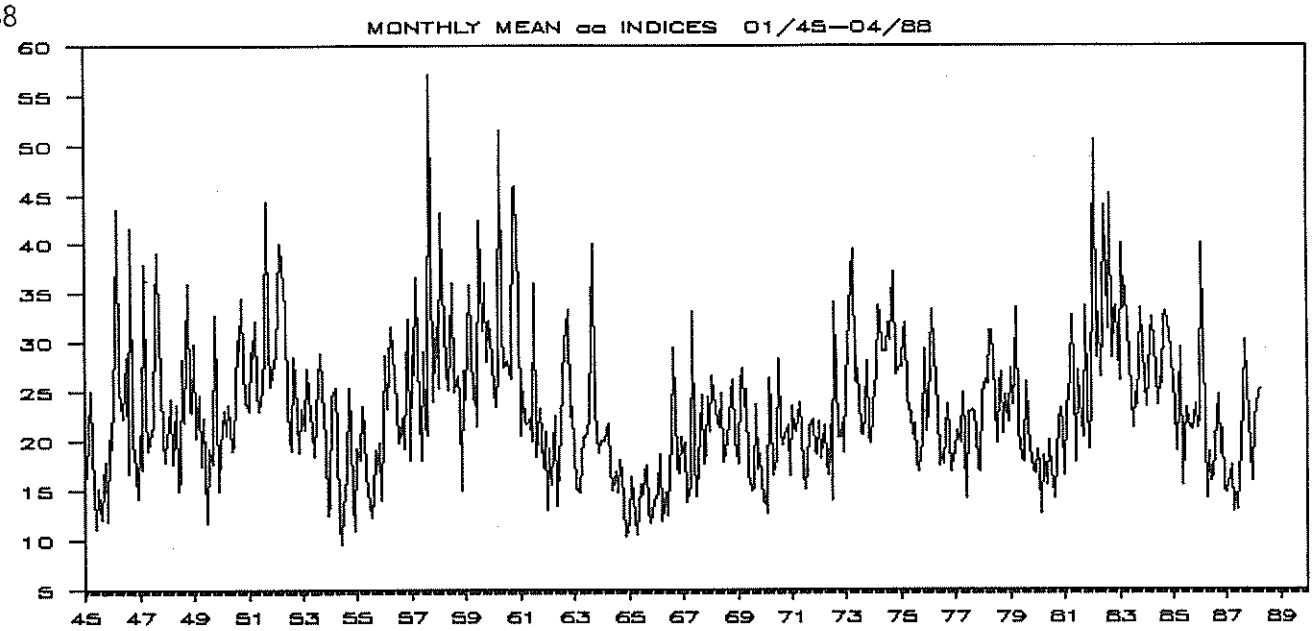
DAY	1987 MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1988 JAN	FEB	MAR	APR
1	7	8	2	10	34	13	7	5	5	2	4	13
2	6	8	3	5	12	9	23	4	29	5	6	19
3	6	4	9	12	4	36	27	12	7	3	10	48
4	5	6	8	7	6	14	9	10	14	7	19	78
5	4	7	6	13	6	6	10	17	14	29	8	24
6	5	25	5	8	9	5	9	8	31	11	19	48
7	8	9	4	4	11	8	5	4	24	6	11	15
8	4	4	10	10	10	8	4	1	19	5	26	7
9	4	3	9	8	10	3	10	6	7	11	13	10
10	10	4	11	4	38	7	11	28	4	13	12	16
11	6	7	7	7	40	28	14	15	11	11	14	9
12	2	13	7	16	22	8	20	9	21	16	9	14
13	6	6	4	23	23	24	27	4	7	14	5	10
14	9	6	5	16	26	31	22	4	48	7	12	9
15	4	4	24	19	29	26	14	11	63	19	20	6
16	4	8	20	12	19	13	8	39	5	15	14	5
17	4	6	14	11	17	18	3	16	7	14	9	5
18	2	6	10	6	7	5	5	8	12	19	7	7
19	2	17	8	9	3	6	12	7	10	7	4	9
20	4	8	9	8	11	8	10	4	12	5	6	7
21	3	6	6	5	10	13	6	10	9	26	2	8
22	7	4	8	7	29	5	7	22	7	97	3	44
23	8	3	6	10	17	11	35	10	2	36	5	21
24	20	7	12	11	14	19	24	6	5	12	5	7
25	25	7	17	39	46	28	12	7	6	14	10	6
26	9	9	4	40	20	11	17	4	8	9	49	5
27	14	5	5	21	11	35	20	1	12	7	34	6
28	10	4	26	15	22	44	9	2	6	5	26	11
29	21	5	52	12	30	19	3	5	4	3	32	6
30	9	3	9	14	43	13	3	3	3		34	7
31	11		14	34		11		4	3		11	
MEAN	8	7	11	14	19	16	13	9	13	15	14	16

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

University of Göttingen

Kp through April 30, 1988





Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1945	16.1	16.4	25.0	19.1	15.4	11.1	15.3	12.1	15.6	17.9	12.0	20.2	16.3
1946	19.2	30.2	43.5	25.0	24.1	22.3	28.6	16.7	41.7	19.6	19.3	14.3	25.4
1947	20.6	17.1	37.9	23.3	19.1	21.1	21.4	32.9	39.1	31.3	20.7	17.9	25.2
1948	20.8	21.0	24.2	17.7	23.7	15.0	16.2	28.3	22.0	36.1	23.1	23.0	22.6
1949	29.8	20.4	24.7	17.6	22.4	17.9	11.8	19.2	17.8	32.7	24.6	15.1	21.2
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									23.9

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

APRIL 1988

Sta	Geomag Lat	Commencement Day	Commencement Time (UT)	Type	SC Amplitudes D (Min)	SC Amplitudes H (Gamma)	SC Amplitudes Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	Ranges H (Gamma)	Ranges Z (Gamma)	End Day	End Hour (UT)
HYB	07.6N	01	0300	..	..	..	..	02(4)	5	4	131	29	02	23
GUA	04.0N	02	0300	..	..	..	..	02(4)	5	--	120	10	02	17
ETT	00.6S	02	0130	..	..	..	..		-	7	288	120	05	12
PMG	18.6S	02	05--	..	..	..	..	03(7)	6	6	160	70	06	18
COL	64.6N	03	16--	..	..	..	..	04(4)	9	509	2990	1280	05	13
SIT	60.0N	03	07--	..	..	..	..	04(5)	8	--	--	--	05	07
BJI	28.5N	03	1600	..	..	..	..	03(7)	7	18	271	45	05	09
JAI	17.3N	03	06--	..	..	..	..			7	221	46	05	12
SHL	14.7N	03	06--	..	..	..	..		-	8	227	41	05	12
UJJ	13.5N	03	06--	..	..	..	..		-	7	215	42	05	12
ABG	09.5N	03	06--	..	..	..	..	03(7)	7	7	214	45	05	12
HYB	07.6N	03	0500	..	..	..	..	03(7)	7	5	233	36	05	09
GUA	04.0N	03	1622	..	..	..	..	03(7)	6	10	150	40	04	06
GUA	04.0N	03	0609	..	..	..	..	03(3)	5	--	70	10	03	14
TRD	01.1S	03	06--	..	..	..	..		-	4	296	173	05	12
HER	33.7S	03	16--	..	..	..	..	03(7)	7	62	145	230	05	09
GNA	43.2S	03	16--	..	..	..	..	03(7)	8	51	220	300	05	10
KGL	56.5S	03	1600	..	..	..	..	03(7) 04(6)	9	87	1280	520	05	06
GUA	04.0N	04	0907	..	..	..	..	04(5)	-	10	90	20	04	22
GUA	04.0N	04	23--	..	..	..	..	05(1)	6	10	120	30	05	10
COL	64.6N	05	18--	..	..	..	..	06(4)	8	307	2140	1340	06	20
SIT	60.0N	05	18--	..	..	..	..	06(4)	7	--	--	730	06	17
HYB	07.6N	05	1800	..	..	..	..	06(4)	5	4	73	34	07	22
GUA	04.0N	05	23--	..	..	..	..	06(3)	5	10	100	40	06	18
ETT	00.6S	05	1800	..	..	..	..		-	5	170	50	07	22
HER	33.7S	05	18--	..	..	..	..	05(8) 06(1)	5	24	99	94	06	19
KGL	56.5S	05	1800	..	..	..	..	06(1)	7	47	328	240	06	21
GUA	04.0N	19	0230	..	..	..	..	19(1)	5	--	90	40	19	14
HYB	07.6N	21	0900	..	..	..	..	22(4)	6	8	155	36	23	15
ETT	00.6S	21	2130	..	..	..	..		-	9	218	55	23	16
KGL	56.5S	21	2300	..	..	..	..	22(6) 23(1)	6	44	376	358	23	09
COL	64.6N	22	01--	..	..	..	..	22(3,4,6)	6	168	1360	980	23	08
SIT	60.0N	22	02--	..	..	..	..	22(4)	6	--	--	--	23	08
BJI	28.5N	22	0200	..	..	..	..	22(3)	6	15	144	41	23	15
SHL	14.7N	22	00--	..	..	..	..		-	9	150	48	23	17
ABG	09.5N	22	00--	..	..	..	..	22(3,6) 23(1)	5	9	154	60	23	17
GUA	04.0N	22	02--	..	..	..	..	22(3)	6	--	210	40	23	14
TRD	01.1S	22	00--	..	..	..	..		-	8	222	101	23	17
PMG	18.6S	22	0222	SC	..	8	9	22(3,4)	5	6	190	70	23	16
HER	33.7S	22	12--	..	..	..	..	23(1)	5	27	118	111	23	04
GNA	43.2S	22	00--	..	..	..	..	22(5,6,8) 23(1)	5	20	120	130	23	14

Stations Reporting:

ABG = ALIBAG
BJI = BEIJING
COL = COLLEGE
ETT = ETAIYAPURAM
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS
HON = HONOLULU
HYB = HYDERABAD
JAI = JAIPUR
KGL = KERGUELEN
PMG = PORT MORESBY
SHL = SHILLONG
SIT = SITKA
TRD = TRIVANDRUM
UJJ = UJJAIN

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

APRIL 1988

Storm Sudden Commencements (ssc) Day	Time	Quality: Station Group*
03	1637	B: SOD WNG* MMB* SPT* C: NGK* CLF* EBR*
19	0902	A: BJI B: WNG* C: GCK SPT* (see SFE)

Solar Flare Effects (sfe) Day	Begin-End	Station(s)
13	1144-1208	EBR
17	0428-0442	MMB KAK KNY
18	0058-0130	KNY
	0521-0550	MMB KAK KNY
19	0900-0911	CLF (see SSC)
	1252-1309	NAG EBR (SSC:BJI)
21	0919-0952	WNG
23	1020-1032	NAG
24	0114-0117	LNP

Reporting Observatories: (up to the 31st of May)

SOD COL DOM NUR WNG NGK CLF NAG GCK MMB AQU EBR COI BJI
SPT FRD KAK KNY TEN LNP GNA AMS CZT KGL DUM
Beijing: symbol BJI (instead of PEK)

Three-letter codes identify each observatory. Reporting stations have been grouped by the character of the observed event. The letter A means very remarkable; B means fair, ordinary, but unmistakable; and C means very poor, doubtful.

C O N T E N T S

Prompt Reports **LATE DATA** Number 526 Part I

112
Late
Nov 87

PIONEER VENUS ORBITER
ONE HOUR MAGNETIC FIELD AVERAGES AT APOAPSIS
VENUS SOLAR ORBITAL COORDINATES

UNIVERSAL TIME	BXvso	BYvso	BZvso	BT	REGION W=WAKE
	NANOTESLAS				
87 305 NOV 1 13:30:00	5.56	-2.28	3.48	10.29	
87 306 NOV 2 13:30:00	9.70	-1.21	-1.85	10.37	
87 307 NOV 3 13:30:00	-1.04	-11.66	-8.51	15.07	
87 308 NOV 4 13:30:00	2.92	-9.23	-1.84	14.67	
87 309 NOV 5 13:30:00	3.87	5.06	.72	7.12	
87 310 NOV 6 13:30:00	2.16	-1.32	3.41	7.28	
87 311 NOV 7 13:30:00	-13.01	4.41	2.33	15.24	
87 312 NOV 8 13:30:00	-5.23	10.49	4.28	12.79	
87 313 NOV 9 13:30:00	-.70	12.72	7.70	15.40	
87 314 NOV 10 13:30:00	-4.33	13.32	3.14	14.68	
87 315 NOV 11 13:30:00	-9.88	2.77	.58	11.11	
87 316 NOV 12 13:30:00	-2.08	10.92	1.31	11.29	
87 317 NOV 13 13:30:00	6.74	4.59	13.39	16.20	
87 318 NOV 14 13:30:00					
87 319 NOV 15 13:30:00	6.40	3.56	9.95	13.01	
87 320 NOV 16 13:30:00	-6.26	12.11	-8.56	16.92	
87 321 NOV 17 13:30:00	-10.83	5.08	-5.13	14.01	
87 322 NOV 18 13:30:00	-13.96	1.19	-6.53	16.31	
87 323 NOV 19 13:30:00	4.81	-2.55	-2.46	6.24	
87 324 NOV 20 13:30:00	3.31	-6.31	.58	8.62	
87 325 NOV 21 13:40:00	-2.70	-.78	.83	5.24	
87 326 NOV 22 13:40:00	8.54	-3.57	6.48	11.70	
87 327 NOV 23 13:40:00	3.70	-19.26	5.49	20.81	
87 328 NOV 24 13:40:00	2.93	-2.05	-16.10	17.51	
87 329 NOV 25 13:40:00	7.70	.06	-4.41	10.89	
87 330 NOV 26 13:40:00	1.22	-4.41	.28	7.17	
87 331 NOV 27 13:40:00	4.69	-4.11	3.55	8.39	
87 332 NOV 28 13:40:00	1.53	-7.01	1.79	8.38	
87 333 NOV 29 13:40:00	13.85	-5.81	.06	15.64	
87 334 NOV 30 13:40:00	11.16	-3.83	4.38	13.85	

Source: Institute of Geophysics and Planetary Physics, UCLA

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

MARCH 1988

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
07	1726	A: DOM* NUR WNG* DOU HRB*	05	0850-0908	QUE
		NAG AQU PEK SPT ALM	07	0645-0657	MPO
		QUE LNP MPO GNA	08	0155-0208	NAG (si: HRB(B))
		B: NGK BDV* CLF* GCK MMB		0715-0745	MPO
		EBR* COI FRD* KAK KNY TEN	10	1141-1221	EBR ALM MPO (see SSC)
		C: KGL TEN	15	0500-0507	DOU
10	1145	B: WNG		1118-1150	WNG
		C: DOU BDV* (see SFE)	16	1404-1417	WNG
27	1347	B: DOM	20	1128-1142	NAG MPO
		C: KGL	22	1336-1357	TEN
		si?: HRB(B) (see SFE)	24	0302-0306	LNP
				0800-0811	NAG
				1020-1045	WNG
			25	1118-1127	MPO
			27	1344-1355	CLF NAG SPT (see SSC)
			31	0134-0138	LNP

Reporting Observatories: (up to the 30th of April)

SOD COL DOM NUR WNG NGK DOU BDV CLF HRB NAG GCK MMB AGU EBR COI PEK
SPT FRD ALM KAK KNY QUE TEN LNP MPO GNA AMS CZT KGL DUM

Three-letter codes identify each observatory. Reporting stations have been grouped by the character of the observed event. The letter A means very remarkable; B means fair, ordinary, but unmistakable; and C means very poor, doubtful.

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."