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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
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Data for April, March 1989, and Late Data

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NATIONAL GEOPHYSICAL DATA CENTER
Michael A. Chinnery, Director
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S O L A R - G E O P H Y S I C A L D A T A

NUMBER 537

(Issued in Two Parts)

Editor: Helen E. Coffey

Chief: Joe H. Allen
Solar-Terrestrial Physics Division

Staff: Daniel C. Wilkinson
Carol Weathers
John A. McKinnon

C O N T E N T S

PART I (PROMPT REPORTS)

PART II (COMPREHENSIVE REPORTS)

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages APRIL 1989

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
01	01	31	127	170	033	S26 W64	0	0	0	01	S26 W64	Q	Solquiet,
						N13 W55	0	0	0		N13 W55	Q	Magalert 01/XX.
						N22 W28	0	0	0		N22 W28	Q	
						N18 E24	3	0	0		N18 E24	Q	
						S19 E54	9	0	0		S19 E54	E	
						S28 E11	0	0	0		S28 E11	Q	
						N37 E56	0	0	0		N37 E56	Q	
						S27 E60	0	0	0		S27 E60	Q	
02	02	01	170	176	030	S26 W82	0	0	0	02	S26 W82	Q	Solalert 02/XX,
						N14 W70	0	0	0		N14 W70	Q	Magalert 02/XX.
						N23 W45	2	0	0		N23 W45	Q	
						N18 E13	1	0	0		N18 E13	Q	
						S20 E40	6	0	0		S20 E40	E	
						S24 E02	0	0	0		S24 E02	Q	
						N37 E45	0	0	0		N37 E45	Q	
						S27 E48	0	0	0		S27 E48	Q	
						N12 E58	0	0	0		N12 E58	Q	
						S23 E71	2	0	0		S23 E71	Q	
03	03	02	178	184	033	S27 W89	0	0	0	03	S27 W89	Q	Solalert 03/XX,
						N13 W82	0	0	0		N13 W82	Q	Magnil.
						N21 W61	1	0	0		N21 W61	Q	
						N16 E01	1	0	0		N16 E01	Q	
						S18 E27	2	0	0		S18 E27	E	
						N38 E31	0	0	0		N38 E31	Q	
						S29 E38	0	0	0		S29 E38	Q	
						S22 E61	0	0	0		S22 E61	Q	
						N24 W54	2	0	0		N24 W54	Q	
						S27 E07	0	0	0		S27 E07	Q	
04	04	03	198	191	014	N22 W72	0	0	0	04	N22 W72	Q	Solalert 04/XX,
						N18 W16	1	0	0		N18 W16	Q	Magquiet.
						S19 E14	7	1	0		S19 E14	E	
						N38 E17	0	0	0		N38 E17	Q	
						S23 E49	0	0	0		S23 E49	Q	
						N22 W67	0	0	0		N22 W67	Q	
						S27 W06	0	0	0		S27 W06	Q	
						N38 W56	0	0	0		N38 W56	Q	
						S15 E71	0	0	0		S15 E71	Q	
						S12 E29	1	0	0		S12 E29	Q	
05	05	04	193	186	024	N22 W81	0	0	0	05	N22 W81	Q	Solalert 05/XX,
						S18 W00	4	0	0		S18 W00	E	Magalert Minor
						N37 E03	0	0	0		N37 E03	Q	05.
						S16 E26	0	0	0		S16 E26	Q	
						S19 E34	0	0	0		S19 E34	Q	
						N22 W81	0	0	0		N22 W81	Q	
						N36 W70	0	0	0		N36 W70	Q	
						S15 E59	0	0	0		S15 E59	Q	
						S12 E15	0	0	0		S12 E15	E	
						N34 E76	1	0	0		N34 E76	Q	
06	06	05	116	193	038	S18 W13	9	1	0	06	S18 W13	E	Solalert 06/XX,
						N17 E12	0	0	0		N17 E12	Q	Magalert 06.
						S20 E24	0	0	0		S20 E24	Q	
						S13 E45	1	0	0		S13 E45	Q	
						S12 E02	0	0	0		S12 E02	E	
						N36 E61	4	1	0		N36 E61	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages APRIL 1989

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
07	07	06	191	198	016	N17 W48	0	0	0	07	N17 W48	Q	Solnil, Magnil.
						S18 W26	5	0	0		S18 W26	E	
						N18 W01	0	0	0		N18 W01	Q	
						S16 E13	1	0	0		S16 E13	Q	
						S16 E32	0	0	0		S16 E32	Q	
						S12 W12	0	0	0		S12 W12	Q	
						N28 E21	0	0	0		N28 E21	Q	
						N35 E52	3	0	0		N35 E52	E	
						N30 W28	0	0	0		N30 W28	Q	
						N09 W37	0	0	0		N09 W37	Q	
						N19 E74	0	0	0		N19 E74	Q	
08	08	07	209	200	020	N18 W64	2	0	0	08	N18 W64	Q	Solquiet, Magquiet.
						S19 W39	2	0	0		S19 W39	E	
						N18 W15	0	0	0		N18 W15	Q	
						S23 W05	3	0	0		S23 W05	Q	
						S17 E19	2	0	0		S17 E19	Q	
						S12 W24	0	0	0		S12 W24	Q	
						N28 E07	0	0	0		N28 E07	Q	
						N35 E35	5	0	0		N35 E35	E	
						N32 W42	0	0	0		N32 W42	Q	
						N20 E63	0	0	0		N20 E63	Q	
						N29 W55	0	0	0		N29 W55	Q	
						S17 W00	1	0	0		S17 W00	Q	
09	09	08	230	204	015	N18 W79	5	0	0	09	N18 W79	Q	Solalert 09/XX,
						S18 W52	2	0	0		S18 W52	E	Magquiet.
						N18 W29	0	0	0		N18 W29	Q	
						S21 W17	0	0	0		S21 W17	Q	
						S16 E05	0	0	0		S16 E05	Q	
						S11 W39	0	0	0		S11 W39	Q	
						N28 W10	0	0	0		N28 W10	Q	
						N35 E22	8	0	0		N35 E22	E	
						N32 W57	0	0	0		N32 W57	Q	
						N22 E50	0	0	0		N22 E50	Q	
						N28 W70	1	0	0		N28 W70	Q	
						S16 W14	0	0	0		S16 W14	Q	
		Presto:[2] Boulder				X-ray event X3/4B N35 E29 09/0042 UT duration 78 minutes.							
						Tenflare 1100 flux units began 09/0044 UT duration 74 minutes.							
		Sydney				Culgoora Intense group of Type III bursts within 22–200 MHz							
						began 09/0045 UT, in progress.							
10	10	09	195	191	010	N17 W92	1	0	0	10	N17 W92	Q	Solalert 10/XX,
						S18 W64	0	0	0		S18 W64	Q	Magquiet.
						N17 W42	0	0	0		N17 W42	Q	
						S23 W30	0	0	0		S23 W30	Q	
						S17 W09	2	1	0		S17 W09	E	
						S11 W52	0	0	0		S11 W52	Q	
						N36 E08	2	0	1		N36 E08	E	
						N31 W71	0	0	0		N31 W71	Q	
						N21 E38	0	0	0		N21 E38	Q	
						N28 W82	0	0	0		N28 W82	Q	
						S16 W27	0	0	0		S16 W27	Q	
						N31 W31	0	0	0		N31 W31	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages **APRIL 1989**

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
11	11	10	153	179	004	S18 W78	0	0	0	11	S18 W78	Q	Solnil, Magquiet.
						N17 W58	0	0	0		N17 W58	Q	
						S23 W47	0	0	0		S23 W47	Q	
						S16 W24	2	0	0		S16 W24	E	
						S11 W66	0	0	0		S11 W66	Q	
						N35 W05	1	0	0		N35 W05	E	
						N21 E25	1	0	0		N21 E25	Q	
						N26 W93	0	0	0		N26 W93	Q	
						S17 W40	0	0	0		S17 W40	Q	
12	12	11	150	181	012	S19 W89	0	0	0	12	S19 W89	Q	Solquiet,
						N17 W72	0	0	0		N17 W72	Q	Magalert 12 Flare.
						S23 W60	0	0	0		S23 W60	Q	
						S16 W36	0	0	0		S16 W36	E	
						S10 W80	0	0	0		S10 W80	Q	
						N34 W15	0	0	0		N34 W15	E	
						N21 E13	0	0	0		N21 E13	Q	
						S17 W53	0	0	0		S17 W53	Q	
						S28 W30	0	0	0		S28 W30	Q	
						S20 E58	4	0	0		S20 E58	Q	
						N14 E76	0	0	0		N14 E76	Q	
		Presto:[2] Boulder Proton event began 11/1455 UT, maximum of 12 particles/cm²-s-ster at greater than 10 MeV 11/1510 UT, in progress.											
		Kakioka Magstorm began 11/1436 UT.											
13	13	12	110	180	007	S17 W48	1	0	0	13	S17 W48	E	Solquiet, Magnil.
						N34 W27	1	0	0		N34 W27	E	
						N21 W01	0	0	0		N21 W01	Q	
						S17 W66	0	0	0		S17 W66	Q	
						S29 W46	0	0	0		S29 W46	Q	
						S20 E44	1	0	0		S20 E44	E	
						N15 E62	0	0	0		N15 E62	E	
14	14	13	094	185	015	S15 W64	1	0	0	14	S15 W64	Q	Solquiet, Magquiet.
						N34 W39	0	0	0		N34 W39	Q	
						N19 W14	1	0	0		N19 W14	Q	
						S21 E29	1	0	0		S21 E29	E	
						N14 E48	1	0	0		N14 E48	Q	
						N09 E65	8	1	0		N09 E65	E	
15	15	14	128	196	014	S15 W77	1	0	0	15	S15 W77	Q	Solquiet, Magquiet.
						N34 W51	0	0	0		N34 W51	Q	
						N17 W27	2	0	0		N17 W27	Q	
						S28 W73	1	0	0		S28 W73	Q	
						S20 E15	2	0	0		S20 E15	E	
						N15 E35	0	0	0		N15 E35	Q	
						N09 E52	3	0	0		N09 E52	E	
16	16	15	166	198	020	S16 W89	0	0	0	16	S16 W89	Q	Solquiet, Magquiet.
						N35 W63	0	0	0		N35 W63	Q	
						N16 W42	3	0	0		N16 W42	Q	
						S28 W83	0	0	0		S28 W83	Q	
						S21 E03	6	0	0		S21 E03	E	
						N13 E21	0	0	0		N13 E21	E	
						N09 E38	2	0	0		N09 E38	E	
						S16 E77	0	0	0		S16 E77	Q	

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages APRIL 1989

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast[1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
17	17	16	178	205	015	N37 W75	0	0	0	17	N37 W75	Q	Solquiet, Magquiet.
						N16 W54	2	0	0		N16 W54	Q	
						S38 W92	0	0	0		S38 W92	Q	
						S20 W09	4	0	0		S20 W09	E	
						N14 E09	0	0	0		N14 E09	Q	
						N10 E25	5	0	0		N10 E25	E	
						S17 E67	0	0	0		S17 E67	E	
						N19 E67	0	0	0		N19 E67	Q	
						S23 E83	0	0	0		S23 E83	Q	
						N20 E12	0	0	0		N20 E12	Q	
18	18	17	194	205	009	N17 W68	0	0	0	18	N17 W68	Q	Solquiet, Magquiet.
						S20 W21	3	0	0		S20 W21	E	
						N16 W02	0	0	0		N16 W02	Q	
						N10 E10	3	0	0		N10 E10	E	
						S17 E55	2	0	0		S17 E55	E	
						N19 E57	1	0	0		N19 E57	Q	
						S22 E70	0	0	0		S22 E70	Q	
						N23 W01	0	0	0		N23 W01	Q	
19	19	18	170	202	005	N16 W80	1	0	0	19	N16 W80	Q	Solquiet, Magquiet.
						S19 W33	8	0	0		S19 W33	E	
						N16 W16	1	0	0		N16 W16	Q	
						N10 W02	0	0	0		N10 W02	E	
						S17 E42	2	0	0		S17 E42	E	
						N19 E44	0	0	0		N19 E44	Q	
						S22 E57	5	0	0		S22 E57	Q	
		Presto:[2] Sydney Culgoora Type II began 18/0635 UT in progress.											
20	20	19	200	206	008	N17 W90	0	0	0	20	N17 W90	Q	Solalert 20/XX,
						S21 W47	1	0	0		S21 W47	E	Magquiet.
						N16 W29	0	0	0		N16 W29	Q	
						N10 W16	5	0	0		N10 W16	E	
						S17 E29	4	0	0		S17 E29	E	
						N19 E30	2	0	0		N19 E30	E	
						S22 E46	1	0	0		S22 E46	Q	
						N32 E66	1	0	0		N32 E66	Q	
						N28 W38	1	0	0		N28 W38	Q	
21	21	20	225	189	014	S21 W60	5	0	0	21	S21 W60	E	Solalert 21/XX,
						N16 W42	1	0	0		N16 W42	Q	Magquiet.
						N10 W29	9	1	0		N10 W29	E	
						S17 E17	1	0	0		S17 E17	Q	
						N19 E17	0	0	0		N19 E17	Q	
						S22 E32	3	0	0		S22 E32	Q	
						N33 E54	0	0	0		N33 E54	Q	
						N28 W51	2	0	0		N28 W51	Q	
						N07 W67	0	0	0		N07 W67	Q	
						S11 W24	3	0	0		S11 W24	Q	
						S19 E67	0	0	0		S19 E67	Q	
22	22	21	201	193	006	S20 W75	5	1	0	22	S20 W75	E	Solalert 22/XX,
						N15 W56	3	0	0		N15 W56	Q	Magquiet.
						N11 W42	8	0	0		N11 W42	E	
						S18 E03	0	0	0		S18 E03	Q	
						N18 E04	1	0	0		N18 E04	Q	
						S22 E18	1	0	0		S22 E18	E	
						N32 E41	2	0	0		N32 E41	Q	
						N29 W64	1	0	0		N29 W64	Q	
						S09 W38	1	0	0		S09 W38	Q	
						S19 E50	0	0	0		S19 E50	Q	
						S27 E03	0	0	0		S27 E03	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages **APRIL 1989**

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
23	23	22	211	185	006	S20 W86	3	0	0	23	S20 W86	E	Solalert 23/XX,
						N15 W70	2	0	0		N15 W70	Q	Magalert 23/23.
						N11 W55	9	1	0		N11 W55	A	
						S17 W12	0	0	0		S17 W12	Q	
						N18 W11	1	0	0		N18 W11	Q	
						S22 E07	0	0	0		S22 E07	Q	
						N33 E29	1	0	0		N33 E29	Q	
						N29 W75	0	0	0		N29 W75	Q	
						S09 W52	3	0	0		S09 W52	Q	
						S18 E39	3	0	0		S18 E39	Q	
						S26 W10	0	0	0		S26 W10	Q	
						S12 W42	0	0	0		S12 W42	Q	
		Presto:[2]	Sydney		Culgoora	Type II began 22/0346 UT in progress.							
24	24	23	169	193	011	N15 W84	0	0	0	24	N15 W84	Q	Solalert 24/XX,
						N12 W68	2	0	0		N12 W68	A	Magalert 24/XX.
						S15 W27	0	0	0		S15 W27	Q	
						N18 W25	3	0	0		N18 W25	Q	
						S21 W06	1	1	0		S21 W06	Q	
						N33 E17	0	0	0		N33 E17	Q	
						S08 W66	0	0	0		S08 W66	Q	
						S19 E25	0	0	0		S19 E25	Q	
		Presto:[2]	Sydney		Culgoora	Type II began 23/2153 UT in progress.							
25	25	24	167	187	009	N11 W81	9	0	0	25	N11 W81	E	Solalert 25/XX,
						S18 W37	0	0	0		S18 W37	Q	Magnil.
						N18 W40	2	0	0		N18 W40	Q	
						S21 W19	4	0	0		S21 W19	A	
						N33 E04	1	0	0		N33 E04	Q	
						S08 W80	0	0	0		S08 W80	Q	
						S19 E11	1	0	0		S19 E11	Q	
						N12 E69	0	0	0		N12 E69	Q	
26	26	25	178	177	021	N12 W91	0	0	0	26	N12 W91	E	Solalert 26,
						S19 W48	0	0	0		S19 W48	Q	Magalert 26/28,
						N18 W53	1	0	0		N18 W53	Q	Recurrence.
						S20 W32	7	0	0		S20 W32	E	
						N33 W08	0	0	0		N33 W08	Q	
						S09 W91	0	0	0		S09 W91	Q	
						S19 W02	0	0	0		S19 W02	Q	
						N13 E59	1	0	0		N13 E59	Q	
						S19 E70	5	0	0		S19 E70	Q	
						S12 W32	0	0	0		S12 W32	Q	
27	27	26	171	173	038	N16 W67	1	0	0	27	N16 W67	Q	Solnil,
						S20 W47	6	0	0		S20 W47	E	Magalert 27/28,
						N33 W20	1	0	0		N33 W20	Q	Recurrence.
						S19 W16	0	0	0		S19 W16	Q	
						N12 E45	2	0	0		N12 E45	Q	
						S19 E61	5	0	0		S19 E61	E	
						S13 W44	1	0	0		S13 W44	Q	
						S31 W22	0	0	0		S31 W22	Q	
						N28 E58	0	0	0		N28 E58	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages APRIL 1989

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
28	28	27	183	172	031	N17 W83	0	0	0	28	N17 W83	Q	Solquiet,
						S19 W60	8	0	0		S19 W60	E	Magalert 28
						N34 W33	1	0	0		N34 W33	Q	Recurrence.
						S19 W29	1	0	0		S19 W29	E	
						N13 E33	0	0	0		N13 E33	Q	
						S19 E49	5	0	0		S19 E49	E	
						S12 W58	0	0	0		S12 W58	Q	
						S32 W33	0	0	0		S32 W33	Q	
						N28 E44	0	0	0		N28 E44	Q	
29	29	28	157	179	027	S20 W73	4	0	0	29	S20 W73	E	Solquiet, Magnil.
						N34 W46	0	0	0		N34 W46	Q	
						S18 W42	1	0	0		S18 W42	E	
						N13 E20	1	0	0		N13 E20	Q	
						S19 E34	4	0	0		S19 E34	E	
						S11 W72	0	0	0		S11 W72	Q	
						N27 E01	4	0	0		N27 E01	Q	
						S36 W15	0	0	0		S36 W15	Q	
30	30	29	150	184	020	S21 W85	1	0	0	30	S21 W85	E	Solalert 30,
						N35 W58	0	0	0		N35 W58	Q	Magquiet.
						S18 W57	4	0	0		S18 W57	E	
						N13 E03	0	0	0		N13 E03	Q	
						S18 E20	2	0	0		S18 E20	E	
						N27 W12	0	0	0		N27 W12	Q	
						N29 E73	2	0	0		N29 E73	Q	
01	01	30	134	175	020	N34 W69	0	0	0	01	N34 W69	Q	Solalert 01/XX,
						S19 W70	1	0	0		S19 W70	Q	Magquiet.
						N13 W11	1	0	0		N13 W11	Q	
						S19 E07	4	0	0		S19 E07	E	
						N27 W25	0	0	0		N27 W25	Q	
						S40 W36	0	0	0		S40 W36	Q	
						N29 E59	2	0	0		N29 E59	E	

Presto:[2] Boulder Tenflare 200 flux units began 01/0056 UT duration 42 minutes.

[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	May 88	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan†89	Feb†	Mar†	Apr†
01	69	95	139	142	137	109	126	128	148	141	127	104
02	84	96	145	143	144	117	114	114	173	144	107	122
03	76	100	142	146	129	129	121	139	146	164	103	140
04	101	105	129	135	148	128	104	122	120	133	98	126
05	103	125	119	120	128	130	129	149	155	127	90	94
06	77	145	108	123	93	123	124	149	142	127	103	139
07	50	141	103	144	97	128	114	144	157	132	98	170
08	63	151	106	160	88	131	95	111	135	161	109	185
09	74	173	82	171	74	125	110	122	165	172	133	153
10	87	144	78	152	76	146	131	133	190	192	163	122
11	65	108	102	135	81	148	155	152	200	190	155	106
12	56	77	109	133	88	169	159	175	229	216	140	96
13	44	47	103	122	91	150	147	187	233	210	154	92
14	37	53	121	128	94	131	139	213	201	208	181	98
15	44	65	121	121	89	109	156	225	177	185	165	120
16	53	81	111	91	89	108	181	226	164	195	187	130
17	57	76	124	67	79	125	196	232	155	201	177	144
18	44	67	136	47	97	134	175	222	160	163	164	137
19	20	70	105	57	113	133	147	223	140	157	148	151
20	20	77	106	57	153	119	112	218	126	169	158	155
21	25	95	103	40	168	117	145	210	114	149	155	161
22	30	92	106	21	168	109	131	255	165	142	155	167
23	40	91	116	26	190	104	117	235	159	134	145	128
24	48	93	81	43	172	121	116	199	142	153	150	135
25	54	111	76	76	149	124	89	183	144	189	131	132
26	63	107	76	93	151	119	73	174	152	176	117	116
27	66	111	101	142	157	120	69	175	167	147	102	126
28	70	116	117	146	143	119	86	196	172	128	89	109
29	74	121	157	164	111	128	86	194	169		95	107
30	83	121	161	163	106	115	107	178	157		70	114
31	86		146	151		111		172	154		91	
Mean	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	161.6	164.5	131.0	129.3

† = preliminary. The yearly mean sunspot number equals 100.2 for 1988.

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

Day	May 88	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 89	Feb	Mar	Apr
01	108.8	149.3*	194.4*	180.9	191.3	179.4	157.2*	150.5	179.5*	184.8	168.8*	173.8*
02	113.1*	147.6	198.9	187.6	178.9	197.0	156.5*	149.4	193.7	171.2	173.7	183.5
03	116.4*	149.5	190.2	172.2*	177.3	200.4	164.0	147.3	189.2	185.8*	169.0	196.5*
04	127.4	150.9	181.0	163.6	165.9	189.2	159.7	142.7	195.7*	183.4	163.6	188.9
05	121.1	151.2	171.2	159.2	166.3	191.0	163.8	154.6*	201.6	195.1	183.5	191.1
06	116.5	159.0	156.7	163.4	152.4	193.4	161.2	157.7	198.7	205.3*	201.1J	196.5
07	112.9	164.6	152.4	170.4	145.4	182.4	151.6	152.9*	239.5	210.5	190.3*	199.8
08	116.7	168.3	142.4	186.9	138.9	172.6	143.5	164.1	260.2	243.9	202.6	207.1
09	121.9	165.9*	137.7	182.4	128.0	176.5	152.4	165.2	251.3	259.3	204.2*	194.0
10	116.4	149.8	138.3	181.8	117.6	177.8	147.7	161.2*	250.0	269.8	212.4*	182.3
11	114.6	137.8	137.7*	178.2	121.9	168.2	153.8	176.4	254.7*	257.0	232.4*	180.7
12	111.6	125.9	137.9	161.2	127.0	148.4	150.6*	173.9	263.2	257.3	237.6*	181.3
13	105.9	115.0	141.3*	159.7	124.8	157.5	157.8*	181.1	291.7*	258.4	253.0	185.3*
14	105.2	111.7	150.1	151.6	130.2	150.4	173.2*	204.4*	274.9	260.7	263.8J	198.1
15	103.4	113.5	150.7	144.0	126.1	149.1	161.1*	212.0	280.1	241.3	255.8J	199.5
16	103.3	121.7	153.3*	137.8	128.5	152.3	186.1*	232.1	292.1	241.1	261.6J	203.9
17	103.7	124.8	152.8*	145.6	135.3	175.0	175.6	241.7	266.7*	233.9*	240.7	210.6*
18	106.7	125.7	152.3	128.5	139.5	162.3	161.8	243.5	271.2	213.8	234.2	204.1
19	104.8	119.4	142.1	123.9	138.6	164.0	151.2	240.2	241.6	214.0	221.1	209.7
20	106.1	118.5	141.3	118.1	151.4	166.0	146.6	238.8	222.0*	202.2*	218.2*	192.5
21	112.6	122.8*	145.8	116.1	157.8	165.9	152.9	245.2	198.2*	217.8	213.5*	196.1
22	114.0	124.4*	141.2	114.9	178.6	166.2	153.1	246.6	203.6	213.9	222.5	193.6*
23	122.2	129.3	144.6	121.7A	177.8*	171.1	135.7	234.8	205.6	214.7*	216.1*	183.1*
24	119.8	135.7*	138.6	133.7	178.6	168.4	138.0	221.6	211.0	213.4	193.2*	189.0
25	123.8*	153.7	140.9	144.3	177.4	162.1	137.5	210.5	227.3	203.8*	186.2*	179.7
26	127.8	157.6*	149.7	157.1	172.0	155.4	137.4	193.0	206.3	190.3*	171.6*	176.9
27	130.0	160.5	161.5	166.8	179.6*	161.8	140.9	201.9	211.1	168.6*	162.6	176.9
28	130.1	183.2	175.4	174.0	171.0	156.0	138.8	201.6	207.1	163.5	157.3	183.2
29	140.2	189.5	185.9	189.0	172.0	155.9	137.6	196.7	200.5		155.8	189.5
30	142.8	187.4*	188.3	190.0	173.1	154.2*	135.8	179.5	187.3		159.8	180.6
31	153.6*		192.5	194.5		160.4		177.6	187.5		167.5	
Mean	117.9	143.8	157.6	158.0	154.1	168.7	152.8	193.5	227.8	217.0	203.0	190.9

* = corrected for burst in progress; A = interpolation - interference during calibration; J = no calibration due to burst. The yearly mean flux equaled 141.1 in 1988.

DAILY SOLAR INDICES

April 1989

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	91	22	104	117	174.0*	524	298	211	173.8*	158	130	81	54	55
02	92	23	122	131	183.6	529	306	222	183.5	164	137	79	45	36
03	93	24	140	148	196.5*	501	309	231	196.5*	173	147	--	50	50
04	94	25	126	132	188.8	453	301	223	188.9	174	152	69	47	68
05	95	26	94	100	190.8	511	310	228	191.1	181	158	72	43	25
06	96	27	139	145	196.1	502	294	215	196.5	178	164	--	78	--
07	97	1	170	163	199.3	534	314	228	199.8	184	161	84	49	28
08	98	2	185	175	206.5	522	313	231	207.1	185	166	89	46	21
09	99	3	153	146	193.3	523	300	223	194.0	174	159	85	47	44
10	100	4	122	118	181.5	512	297	210	182.3	166	152	86	44	20
11	101	5	106	107	179.8	526	295	207	180.7	166	151	93	45	20
12	102	6	96	92	180.3	521	295	204	181.3	164	151	85	46	22
13	103	7	92	85	184.2*	534	311	219	185.3*	171	153	82	52	79
14	104	8	98	101	196.8	532	320	228	198.1	177	152	94	45	59
15	105	9	120	120	198.1	524	314	230	199.5	181	151	89	49	--
16	106	10	130	138	202.3	465	269	206	203.9	179	152	91	66	--
17	107	11	144	151	208.9*	537	322	242	210.6*	188	155	91	--	--
18	108	12	137	134	202.3	528	314	232	204.1	187	151	88	50	52
19	109	13	151	159	207.8	449	315	232	209.7	185	152	82	46	82
20	110	14	155	168	190.6	531	312	226	192.5	176	145	83	44	86
21	111	15	161	159	194.1	535	315	231	196.1	178	143	78	38	24
22	112	16	167	163	191.5*	530	311	224	193.6*	172	142	73	42	33
23	113	17	128	134	181.0*	534	315	231	183.1*	179	148	87	42	42
24	114	18	135	130	186.8	534	312	222	189.0	169	139	79	45	34
25	115	19	132	133	177.5	531	305	218	179.7	160	126	69	35	25
26	116	20	116	134	174.6	528	293	211	176.9	159	124	74	35	28
27	117	21	126	133	174.5	528	302	219	176.9	168	124	64	34	25
28	118	22	109	118	180.7	522	303	218	183.2	162	129	72	35	16
29	119	23	107	109	186.8	523	303	220	189.5	170	133	80	35	19
30	120	24	114	105	177.9	476	297	209	180.6	161	131	--	15	15
Mean			129.3	126.5	189.6	517	306	222	190.9	173	146	81	45	39

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

The observed and the adjusted Ottawa fluxes tabulated here are the "Series C" daily values reported by the Algonquin Radio Observatory, 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 in the Air Weather Service's Sagamore Hill (SGMR) observations.

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	70	66	66	68	68	67	64
1984	60	56	53	50	48	46	44	40	34	29	25	22
1985	20	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	26	28	31	35	39	44	47	51
1988	58	65	71	78	84	94	104	114	121	125	132 (4)	137 (8)
1989	140 (9)	144 (9)	151 (10)	158 (13)	163 (15)	169 (20)	171 (25)	174 (30)	180 (34)	185 (36)	187 (39)	188 (40)
1990	189 (41)	190 (42)	189 (43)	184 (42)	178 (39)	174 (35)	172 (33)	170 (34)	163 (33)	155 (33)	147 (30)	143 (27)

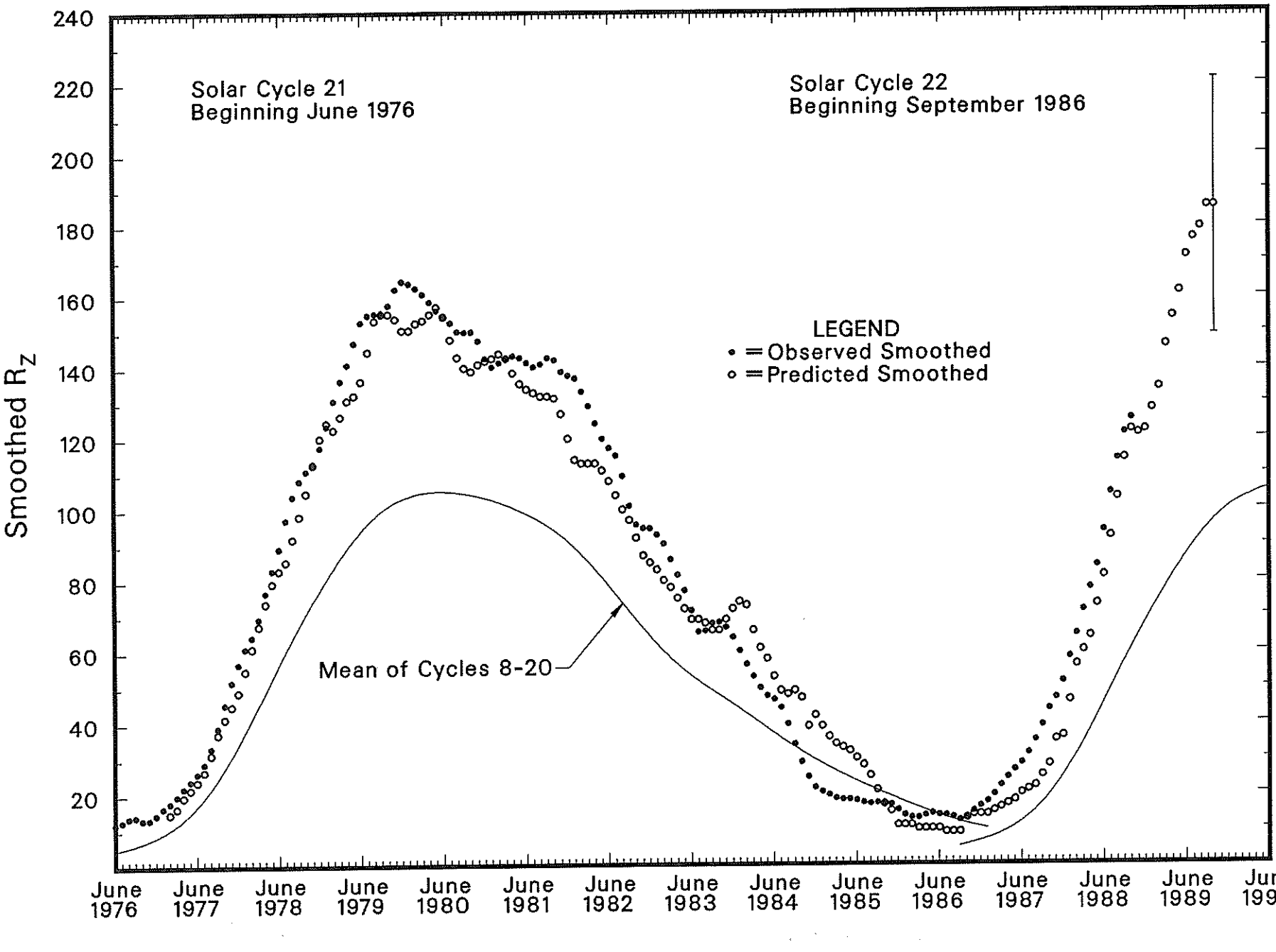
*September 1986 marks the onset of Sunspot Cycle 22.

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 December 1988 and on provisional numbers thereafter.

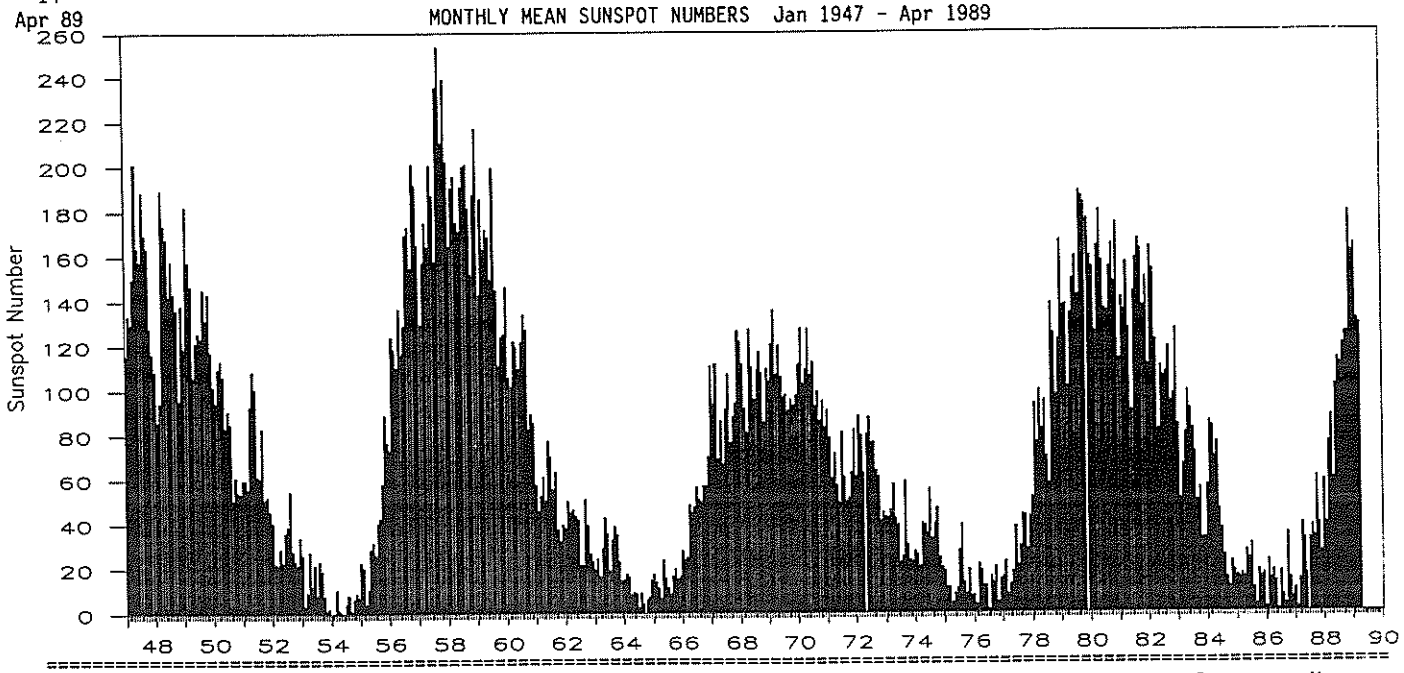
Table entries, with numbers in parentheses below them, denote predictions by the McNish-Lincoln method. (See page 9 in the July 1987 supplement to *Solar-Geophysical Data*.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number from the predicted value generates the lower limit. Consider, for example, the October 1989 prediction. There exists a 90% chance that in October 1989 the actual smoothed sunspot number will fall somewhere between 149 and 221.

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 13 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 1947 - Apr 1989



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
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	29.4
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	100.2
1989	161.6*	164.5*	131.0*	129.3*									146.6*

*Preliminary

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

Hα SOLAR FLARES

APRIL 1989

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
PALE	01	0059E	0101	0104	S16	E56	5428	04	5.3	5D	SF		3	E		67		F
PALE		0108	0118	0207D	S18	E56	5428	04	5.3	59D	SF		3	E		61		F
RAMY		1123	1126	1139D	N22	W34	5422	03	30.0	16D	SF		2	E		14		
HOLL		1402	1403	1407	S22	E86		04	8.2	5	SF		3	E		19		
RAMY		1615	1617	1623	S18	E45	5428	04	5.1	8	SF		3	E		12		
HOLL		1621	1626	1657	N21	W36	5422	03	30.0	36	SF		3	E		60		
RAMY		1625	1626	1648	N22	W37	5422	03	29.9	23	SF		3	E		34		F
HOLL		1743	1752	1824	N17	E18	5427	04	3.1	41	SF	C 1.7	3	E		53		
HOLL		1743	1758	1824	N17	E18	5427			41	SF	C 1.7		E		46		K
PALE		1746	1751	1816	N17	E17	5427	04	3.0	30	SF	C 1.7	3	E		40		F
HOLL		1832	1832	1837	S27	W71	5423	03	27.3	5	SF		3	E		13		
HOLL		1832	1833	1839	S20	E44	5428	04	5.1	7	SF		3	E		34		
HOLL		2001	2001	2039	S22	E45	5428	04	5.3	38	SF		3	E		13		
GOES		2100	2200	2240						100		C 2.0						
HOLL		2119	2124	2219	S26	E31	5428	04	4.3	60	SF		3	E		61		
PALE		2259	2300	2312	S24	E75	5434	04	7.7	13	SF	C 2.1	2	E		21		
HOLL		2259	2302	2310	S24	E78	5434	04	8.0	11	SF	C 2.1	3	E		19		
PALE	02	0020	0021	0027	N24	W46	5422	03	29.6	7	SF		2	E		15		
GOES		0456	0505	0554						58		C 2.4						
HOLL		1315E	1317U	1350	S20	E35	5428	04	5.2	35D	SF		2	E		50		F
SVTO		1355E	1356U	1427D	S18	E36	5428	04	5.3	32D	SF		2	E		40		
HOLL		1423	1429	1444	N16	E05	5427	04	3.0	21	SF		3	E		75		
SVTO		1541E	1541U	1559D	N34	E77		04	8.8	18D	SB	M 1.6	2	E		55		
HOLL		1907E	1908U	1919	N25	E59		04	7.4	12D	SF		4	E		27		
HOLL		2114	2115	2126	N17	W25	5426	04	1.0	12	SF		4	E		26		F
PALE		2220	2220	2227	N22	W54	5435	03	29.9	7	SF		3	E		13		
HOLL		2326	2328	2332	N32	E90		04	10.1	6	SF	M 1.0	4	E		18		
HOLL		2336	2337	2352	N21	W55	5435	03	29.9	16	SF		3	E		14		
PALE		2338	2409	2415	S18	E27	5428	04	5.0	37	SF		3	E		30		
GOES	03	0609	0613	0615						6		C 3.7						
SVTO		0800	0801	0806	S21	E19	5428	04	4.8	6	SF		3	E		19		
SVTO		0809	0812U	0901D	S09	E38		04	6.2	52D	SF		2	E		15		
GOES		0914	0922	0931						17		C 3.4						
HOLL		1408	1409	1445	S20	E17	5428			37	SF			E		17		K
HOLL		1408	1443	1445	S20	E17	5428	04	4.9	37	SF		3	E		17		
RAMY		1410E	1410U	1457D	S19	E19	5428	04	5.0	47D	SF		1	E		36		F
HOLL		1449	1452	1507	N17	W08	5427	04	3.0	18	SF		3	E		36		
RAMY		1451E	1451U	1504	N17	W08	5427	04	3.0	13D	SF		2	E		19		F
HOLL		1517	1520	1526	S23	E24	5428	04	5.5	9	1N	C 5.2	3	E		122		FH
RAMY		1521E	1521U	1530	S23	E24	5428	04	5.5	9D	SN	C 5.2	2	E		80		F
HOLL		1531	1537	1545	S21	E20	5428	04	5.2	14	SF		3	E		20		
RAMY		1531E	1538U	1545	S21	E20	5428	04	5.2	14D	SF		3	E		14		F
HOLL		1920	1926	2041	S23	E05	5428	04	4.2	81	1N	C 6.9	3	E		113		EH
RAMY		2148	2157U	2158D	S18	E13	5428	04	4.9	10D	SF		2	E		13		F
HOLL		2201E	2207U	2256	S17	E13	5428	04	4.9	55D	SN	M 1.2	3	E		45		F
GOES	04	0146	0151	0154						8		C 2.9						
LEAR		0257	0258	0305	S23	E18	5428	04	5.5	8	SF		3	E		48		H
LEAR		0423	0427	0429	N31	E65	5440	04	9.3	6	SF		3	E		44		H
GOES		0559E	0602	0610D	S29	E06				11D	SF	C 2.3						
SVTO		1019	1019	1029	S19	E07	5428	04	5.0	10	SF		3	E		14		F
SVTO		1401	1403	1420	S18	E06	5428	04	5.0	19	SF		3	E		19		
HOLL		1721	1721	1724	S15	W02	5428	04	4.6	3	SF		3	E		17		
HOLL	05	0017	0020	0028	N30	E57	5440	04	9.5	11	SF		3	E		20		
HOLL		0030	0032	0036	S22	E01	5428	04	5.1	6	SF		3	E		34		
LEAR		0247	0247	0251	N34	E73	5441	04	10.9	4	SF		3	E		12		
LEAR		0342	0344	0356	N34	E70	5441	04	10.7	14	SF	C 7.1	3	E		35		
GOES		0752	0756	0802						10		C 2.1						
LEAR		0855	0905	0919	N34	E70	5441	04	10.9	24	SF	M 1.4	2	E		32		
SVTO		0914E	0915	0934	S21	W07	5428	04	4.8	20D	SF		2	E		30		
SVTO		1014	1034U	1109	S22	E01	5428	04	5.5	55	SF		2	E		44		F
SVTO		1155	1200	1519D	S19	W09	5428	04	4.8	204D	1N	M 4.3	3	E		124		F
RAMY		1254	1259	1341	S19	E59	5438	04	10.0	47	1F	C 4.5	3	E		100		F
HOLL		1305E	1307U	1337	S20	E60	5438	04	10.1	32D	SF		1	E		92		F
RAMY		1619	1621	1647	S21	W14	5428	04	4.6	28	SF		3	E		22		F

Hα SOLAR FLARES

APRIL 1989

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
HOLL	05	1632E	1635U	1704D	S20	W17	5428	04	4.4	32D	SF		3	E		29		
HOLL		1939	1940	1952	S19	W11	5428	04	5.0	13	SF		3	E		36		
HOLL		2043E	2050U	2107D	S17	W08	5428	04	5.2	24D	SF	C 1.9	3	E		40		
HOLL		2147E	2158U	2254	S18	W10	5428	04	5.1	67D	SN		3	E		44		F
HOLL		2305	2309	2345	N34	E63	5441	04	11.0	40	SF		3	E		80		F
HOLL		2306	2311	2350	S19	W12	5428	04	5.0	44	SF	C 7.0	3	E		40		F
HOLL	06	0027	0030	0058	S16	E25		04	7.9	31	SF		3	E		18		F
LEAR		0501	0503	0506	S18	W17	5428	04	4.9	5	SF	C 2.0	3	E		14		F
LEAR		0529	0534	0543	S21	W19	5428	04	4.8	14	SF	C 4.5	3	E		49		F
SVTO		0530	0534	0547	S21	W18	5428	04	4.8	17	SF	C 4.5	3	E		48		F
LEAR		0626	0627	0630	S21	W19	5428	04	4.8	4	SF		3	E		18		
LEAR		0713	0713	0718	S21	W20	5428	04	4.8	5	SF		3	E		20		
SVTO		1005	1006	1039D	N36	E58	5441	04	11.1	34D	SF	C 5.0	2	E		79		F
RAMY		1803	1807	1813	S19	W22	5428	04	5.1	10	SF	C 1.7	3	E		43		
PALE		1803	1807	1814	S20	W23	5428	04	5.0	11	SF	C 1.7	2	E		30		
RAMY		1824	1831	1858	N34	E54	5441	04	11.1	34	SF		3	E		23		
PALE		2042	2042	2107	N34	E51	5441	04	10.9	25	SF	C 1.9	3	E		10		F
RAMY		2053E	2055U	2135D	N34	E52	5441	04	11.0	42D	SF		2	E		18		
LEAR	07	0439	0439	0445	S17	W28	5428	04	5.1	6	SF	C 1.5	3	E		20		H
LEAR		0832	0833	0840	S20	E26	5438	04	9.3	8	SF	C 2.5	3	E		46		H
RAMY		1056	1056	1101	S21	W36	5428	04	4.7	5	SF		3	E		13		
SVTO		1303	1315	1450	N36	E45	5441			107	1F			E		178		K
SVTO		1303	1344	1450	N36	E45	5441	04	11.1	107	1F	C 9.4	3	E		122		FH
RAMY		1306	1345	1457	N34	E46	5441	04	11.2	111	1F	C 9.4	3	E		122		F
RAMY		1309	1311	1350	S23	E05	5434	04	7.9	41	SF	C 3.5	3	E		13		
HOLL		1341E	1352	1447	N34	E45	5441	04	11.1	66D	1N		2	E		207		UF
HOLL		1448	1448	1454	N32	E43	5441	04	11.0	6	SF		3	E		13		
HOLL		1452	1452	1502	S19	E24	5438	04	9.4	10	SF		3	E		39		
RAMY		1452	1452	1505	S19	E25	5438	04	9.5	13	SF		3	E		24		
SVTO		1452	1452	1506	S18	E24	5438	04	9.4	14	SF		3	E		16		
RAMY		1523	1526	1536	N33	E43	5441	04	11.0	13	1N	C 8.3	3	E		113		
SVTO		1524	1525	1539	N35	E40	5441	04	10.8	15	SF	C 8.3	3	E		24		
HOLL		1528E	1528U	1535	N32	E42	5441	04	11.0	7D	SF	C 8.3	3	E		51		
SVTO		1531	1534	1544	S24	E04	5434	04	7.9	13	SF		3	E		32		
HOLL		1532	1533	1539	S24	E04	5434	04	7.9	7	SF		3	E		15		
RAMY		1532	1534	1543	S24	E03	5434	04	7.9	11	SF		3	E		19		
RAMY		1852E	1858U	1904D	N34	E45	5441	04	11.4	12D	SF		2	E		91		
RAMY		1941E	1944U	2001D	S25	W01	5434	04	7.7	20D	SF		2	E		14		
HOLL		1949	1950	1952	S16	E01	5446	04	7.9	3	SF	C 4.7	3	E		10		
HOLL		2004	2004	2027	N18	W62	5427	04	3.1	23	SF		3	E		14		
HOLL		2023	2023	2029	N34	E41	5441	04	11.1	6	SF		3	E		12		
HOLL		2049E	2053	2116	N21	W62	5427	04	3.1	27D	SF		3	E		29		
HOLL	08	0004	0014	0036	N34	E39	5441	04	11.1	32	SF		3	E		32		
HOLL		0007	0007	0023	N18	W65	5427	04	3.0	16	SF		3	E		10		
LEAR		0148	0151	0217	N19	W66	5427	04	3.0	29	SF		3	E		22		
LEAR		0153	0201	0211	N33	E39	5441	04	11.2	18	SF	C 2.1	3	E		18		
LEAR		0315	0323	0330	N34	E39	5441	04	11.2	15	SF	C 2.9	3	E		53		
LEAR		0450	0450	0503	N31	W58	5445	04	3.6	13	SF		3	E		14		
LEAR		0738	0739	0752	S20	W48	5428	04	4.6	14	SF		3	E		31		
LEAR		0800	0805	0819	N33	E36	5441	04	11.2	19	SF		3	E		24		
SVTO		0801	0814	0827	N35	E32	5441	04	10.9	26	SF		3	E		28		
SVTO		1053	1059	1116	S24	W50	5428	04	4.6	23	SF		3	E		30		
RAMY		1054E	1058U	1115	S21	W50	5428	04	4.6	21D	SF		2	E		59		H
SVTO		1127	1129	1155	N36	E31	5441	04	11.0	28	SF	C 3.4	3	E		46		F
RAMY		1129	1131	1158D	N34	E36	5441	04	11.3	29D	SF	C 3.4	2	E		25		
SVTO		1219	1228	1239	N35	E33	5441	04	11.1	20	SF		3	E		24		
RAMY		1317	1317	1323	N34	E32	5441	04	11.1	6	SF		2	E		10		
RAMY		1328	1334	1357	N17	W74	5427	04	2.9	29	SF		3	E		21		
RAMY		1532	1543	1554D	N18	W78	5427	04	2.7	22D	SF		3	E		26		
RAMY		1545	1545	1600	N34	E30	5441	04	11.0	15	SF		3	E		12		F
RAMY		1613	1627	1712D	N18	W73	5427	04	3.1	59D	SF	C 2.5	3	E		31		
GOES		1732	1737	1739						7		C 2.5						
GOES		1740	1743	1746						6		C 4.1						
GOES		2112	2126	2148						36		C 5.5						
GOES		2317	2320	2324						7		C 3.0						

Hα S O L A R F L A R E S

APRIL 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	09	0044	0059	0239	N35	E29	5441	04	11.3	115	4B	X 3.5	3	E		979		UF
HOLL		0100E	0100U	0104D	N34	E25	5441	04	11.0	4D	3F	X 3.5	3	E		844		UF
LEAR		0202	0207	0233	S20	E04	5438	04	9.4	31	1F	M 1.6	3	E		112		F
LEAR		0439	0443	0451	N22	W88	5427	04	2.4	12	SF		3	E		68		
RAMY		1404	1406	1414	S14	E00	5438	04	9.6	10	SF		4	E		21		H
HOLL		1407E	1408U	1414	S14	W01	5438	04	9.5	7D	SF		3	E		24		H
HOLL		1729	1738	1759	N34	E17	5441	04	11.1	30	SF		4	E		27		F
SVTO	10	1435	1437	1453	S20	W15	5438	04	9.5	18	SF		3	E		12		
HOLL		1653	1707	1716	N34	E04	5441	04	11.0	23	SF		3	E		19		
HOLL		1753	1757	1804	N20	E33	5444	04	13.3	11	SF		3	E		23		
GOES		1810	1830	1915						65		C 1.8						
HOLL		1838E	1842U	1925	N37	W12		04	9.8	47D	SF		3	E		65		
HOLL		1838E	1847	1925	N37	W12				47D	SN			E		80		K
GOES		2134	2323	2357D	N40	W08				143D		M 1.2						
PALE		2318E	2323U	2347	S19	W21	5438	04	9.4	29D	SF		3	E		93		F
LEAR		2318	2324	2338	S17	W23	5438	04	9.2	20	SF		3	E		54		
HOLL	11	1458	1500	1510	S20	E65		04	16.6	12	SF		3	E		15		
RAMY		1500	1501	1507	S21	E64		04	16.5	7	SF		3	E		10		
RAMY		1713	1738U	1910D	S22	E66		04	16.8	117D	SF		3	E		27		
PALE		1736	1738	1743	S21	E65		04	16.7	7	SF		3	E		11		
HOLL		1815	1815	1849	S20	E63		04	16.6	34	SF		3	E		22		
HOLL		1815	1838	1849	S20	E63				34	SN			E		33		K
PALE		1816	1817	1822	S21	E65		04	16.7	6	SF		3	E		13		
HOLL		2042	2042	2059	S21	E60	5449	04	16.5	17	SF		3	E		14		
SVTO	12	0603	0606U	0633D	S18	W37	5438	04	9.4	30D	1F	C 4.5	2	E		102		F
GOES		1017	1021	1023						6		C 2.0						
RAMY		1048E	1350U	1623D	N11	E89		04	19.1	335D	SF	C 1.9	2	E		98		T
GOES		1134	1138	1143						9		C 1.9						
HOLL		1342	1346	1540	N10	E83		04	18.8	118	1F	C 1.9	3	E		134		
HOLL		1433	1434	1453	N35	W20	5441	04	11.0	20	SF		3	E		35		F
HOLL		1615	1621	1642	S16	E47	5449	04	16.2	27	SF		3	E		43		
RAMY		1620E	1628U	1650D	S18	E46	5449	04	16.2	30D	SF		2	E		23		
GOES	13	0057	0105	0120						23		C 1.5						
LEAR		0413	0420	0425	N08	E76	5451	04	18.9	12	SF		2	E		47		
GOES		0516		0523	S20	E41				7	SN	C 3.0						
RAMY		1219	1230	1248D	S17	W54	5438	04	9.4	29D	SF	C 3.8	3	E		29		
SVTO		1457E	1458U	1650	N12	E78	5451	04	19.5	113D	SF		2	E		89		H
RAMY		1551	1554	1617	N07	E67	5451	04	18.7	26	SF		3	E		29		F
HOLL		1553	1554	1612	N10	E70	5451	04	18.9	19	SF		3	E		23		
HOLL		1609	1610	1615	S20	E31	5449	04	16.0	6	SF		3	E		18		
RAMY		1622	1622	1637	N07	E66	5451	04	18.6	15	SF		3	E		16		
HOLL		1622	1624	1628	N10	E69	5451	04	18.9	6	SF		3	E		16		
RAMY		1741	1742	1756	N07	E66	5451	04	18.7	15	SF	C 4.5	3	E		33		
HOLL		1741	1751	1756	N10	E69	5451	04	18.9	15	SF	C 4.5	3	E		21		
GOES		1759	1805	1821						22		C 3.2						
RAMY		1818E	1818U	1856D	N18	W13	5444	04	12.8	38D	SF		2	E		13		
HOLL		1825	1826	1845	N10	E69	5451	04	18.9	20	SF	C 3.7	3	E		23		
RAMY		2053E	2059U	2121D	N09	E66	5451	04	18.8	28D	SF	C 4.7	2	E		44		F
HOLL		2133	2135	2151	N12	E67	5451	04	18.9	18	SN	M 1.5	3	E		72		
PALE		2146	2147	2158	N11	E70	5451	04	19.2	12	SF		2	E		49		F
HOLL		2300E	2300U	2342	N13	E49	5450	04	17.6	42D	SF	C 5.8	3	E		87		
RAMY	14	1119E	1120U	1145D	S30	W67	5448	04	9.2	26D	SF		3	E		29		F
RAMY		1302	1302	1314	N14	W22	5444	04	12.9	12	SF		3	E		11		
RAMY		1424	1424	1427	N12	E59	5451	04	19.0	3	SF		3	E		19		
HOLL		1617	1619	1634	S16	W70	5438	04	9.4	17	SF		3	E		14		
RAMY		1617	1620	1631	S19	W68	5438	04	9.5	14	SF		3	E		12		
HOLL		1752	1755	1800	N21	E45		04	18.2	8	SF		3	E		13		
HOLL		1757	1759	2005	S20	E16	5449	04	16.0	128	SF		3	E		16		
PALE		1758	1802	1815	S20	E21	5449	04	16.3	17	SF		2	E		14		
HOLL		2028E	2028	2102	N10	E61	5451	04	19.4	34D	SF		3	E		14		H
HOLL		2204	2205	2225	N18	W28	5444	04	12.8	21	SF		3	E		13		
HOLL		2326	2335	2423	S18	E06		04	15.4	57	SF		3	E		42		F
HOLL	15	0031	0033	0042	S20	E12	5449	04	15.9	11	SF		4	E		30		

Hα SOLAR FLARES

APRIL 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	15	0031	0034	0039	S20	E12	5449	04	15.9	8	SF		3	E		22		
PALE		0124	0125	0138	N10	E45	5451	04	18.4	14	SF		2	E		16		
PALE		0353E	0356U	0403D	N10	E43	5451	04	18.4	10D	SF		1	E		63		F
SVTO		0517	0518	0522	N13	W31	5444	04	12.9	5	SF		3	E		15		
SVTO		0859	0903	0905	N13	W33	5444	04	12.9	6	SF		3	E		56		F
LEAR		0901	0902	0908	N16	W32	5444	04	12.9	7	SF		3	E		18		
RAMY		1148	1150	1157	S21	E13	5449	04	16.5	9	SF		3	E		30		F
SVTO		1148	1150	1201	S19	E13	5449	04	16.5	13	SF		3	E		37		
RAMY		1206	1208	1247D	N15	W35	5444	04	12.8	41D	SF		2	E		41		F
SVTO		1209	1211	1218	N11	E48	5451	04	19.1	9	SF		3	E		23		
SVTO		1211	1217	1225D	N14	W36	5444	04	12.8	14D	SF		3	E		40		
SVTO		1307E	1307U	1319D	N14	E50	5451	04	19.3	12D	SF		1	E		18		
HOLL		1453	1506	1512	N10	E42	5451	04	18.8	19	SF		3	E		16		
RAMY		1543	1550	1605	N15	W38	5444	04	12.8	22	SF		3	E		13		
HOLL		1546	1552	1556	N16	W37	5444	04	12.8	10	SF		3	E		17		
HOLL		1604	1605	1613	S19	E06	5449	04	16.1	9	SF		3	E		13		
RAMY		1604	1605	1622	S21	E05	5449	04	16.0	18	SF		2	E		14		
HOLL		1852	1858	1901	S19	E04	5449	04	16.1	9	SF		3	E		10		
HOLL		2100	2106	2118	S19	E03	5449	04	16.1	18	SF		3	E		33		
PALE		2102	2106	2110	S19	E03	5449	04	16.1	8	SF		3	E		14		
PALE	16	0032	0034	0054	N09	E45	5451	04	19.4	22	SF		3	E		44		
PALE		0124	0125	0138	N10	E45	5451	04	19.4	14	SF		2	E		16		
PALE		0353E	0356U	0403D	N10	E43	5451	04	19.4	10D	SF	C 2.9	1	E		63		F
SVTO		0550	0552	0604	N13	E34	5451	04	18.8	14	SF		3	E		31		F
LEAR		0942	0943	0948	N12	E38	5451	04	19.3	6	1F	C 5.7	3	E		147		
HOLL		1730	1739	1748	N16	W52	5444	04	12.8	18	SF		4	E		13		
PALE		1738E	1738U	1750D	N16	W55	5444	04	12.6	12D	SF		2	E		16		
HOLL		1927	1928	1934	S21	W07	5449	04	16.3	7	SF		3	E		13		
HOLL		1947	1951	2003	N16	W53	5444	04	12.8	16	SF		3	E		14		
HOLL		2153	2156	2201	N12	E28	5451	04	19.0	8	SF		4	E		36		H
HOLL		2215	2216	2225	S20	W05	5449	04	16.5	10	SF	C 2.2	4	E		52		F
PALE		2215	2216	2229	S20	W06	5449	04	16.5	14	SF	C 2.2	3	E		30		F
HOLL		2306	2310	2316	S21	W09	5449	04	16.3	10	SF		4	E		13		
HOLL	17	0011	0012	0022	N10	E23	5451	04	18.7	11	SF		3	E		22		
HOLL		0041	0041	0048	S18	W09	5449	04	16.3	7	SF		3	E		15		F
LEAR		0330	0331	0338	N11	E28	5451	04	19.2	8	SF	C 3.0	3	E		28		
LEAR		0409	0411	0429	S20	W09	5449	04	16.5	20	SF		3	E		26		F
HOLL		1351	1358	1401	S18	E61	5452	04	22.2	10	SF		3	E		12		
HOLL		1419	1419	1506	S19	W17	5449	04	16.3	47	SF		3	E		10		
HOLL		1419	1441	1506	S19	W17	5449			47	SF			E		11		K
HOLL		1529	1531	1545	N09	E18	5451	04	19.0	16	SF		3	E		26		F
SVTO		1530	1532	1544	N09	E14	5451	04	18.7	14	SF		2	E		20		F
RAMY		1531E	1531U	1545	N09	E18	5451	04	19.0	14D	SF		2	E		21		F
RAMY		1734	1741	1816D	S19	E60	5452	04	22.3	42D	1F	C 5.6	3	E		102		F
HOLL		1736	1745	1802	S19	E61	5452	04	22.4	26	SN	C 5.6	3	E		94		F
PALE		1740	1745	1757	S20	E62	5452	04	22.5	17	SF	C 5.6	2	E		68		F
HOLL		2021	2035	2042	N19	E60	5453	04	22.4	21	SF		3	E		14		
LEAR	18	0212	0224	0245	N13	W07	5450	04	17.6	33	SF		3	E		40		F
PALE		0215	0223	0233	N14	W07	5450	04	17.6	18	SF		3	E		35		F
LEAR		0249	0251	0259	N15	W69	5444	04	12.9	10	SF		3	E		22		F
LEAR		0430	0432	0438	S22	E68	5454	04	23.4	8	SF		3	E		46		
LEAR		0535	0536	0540	S22	E67	5454	04	23.4	5	SF		3	E		45		
LEAR		0629	0640	0658	S20	E55	5452	04	22.5	29	SF	C 3.8	3	E		62		
RAMY		1108	1109	1122	S24	W28	5449	04	16.3	14	SF	C 2.6	2	E		48		F
SVTO		1111	1113	1118D	S26	W26	5449	04	16.4	7D	SF		2	E		75		F
HOLL		1313	1313	1324	S19	W30	5449	04	16.3	11	SF		3	E		10		
RAMY		1313	1330	1356	S19	W30	5449	04	16.3	43	SF		4	E		30		
HOLL		1322	1336	1346	S21	E60	5454	04	23.1	24	SN		3	E		47		
HOLL		1325	1328	1340	S18	W31	5449	04	16.2	15	SF		3	E		35		
SVTO		1335	1336	1342	S20	E65	5454	04	23.5	7	SF		2	E		41		
RAMY		1335	1338	1344	S22	E60	5454	04	23.2	9	SF		4	E		39		
HOLL		1450	1453	1501	S19	W31	5449	04	16.2	11	SF		3	E		20		
RAMY		1451	1456	1505	S20	W30	5449	04	16.3	14	SF		3	E		16		
SVTO		1513	1518	1529	S20	E63	5454	04	23.4	16	SF		2	E		44		
HOLL		1514	1515	1521	S20	E61	5454	04	23.3	7	SF		3	E		38		

Hα S O L A R F L A R E S

APRIL 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
RAMY	18	1514	1525	1540	S21	E60	5454	04	23.2	26	SF		3	E		20		
HOLL		1523	1526	1528	S20	E61	5454	04	23.3	5	SF		3	E		13		
HOLL		1551	1552	1556	S19	W33	5449	04	16.1	5	SF		3	E		16		
RAMY		1551	1553	1558	S19	W34	5449	04	16.1	7	SF		3	E		21		
HOLL		1713	1727	1745	S19	W33	5449	04	16.2	32	SF		3	E		30		F
RAMY		1719	1727U	1740	S19	W33	5449	04	16.2	21	SF		2	E		19		
HOLL		1759E	1759	1831D	S19	E34	5449	04	21.3	32D	SF		3	E		44		F
HOLL		1759E	1813	1831D	S19	E34	5449			32D	SN			E		10		K
PALE		1832	1838	1856	S20	W33	5449	04	16.2	24	SF		3	E		34		F
GOES		2054	2110	2121						27		C 7.9						
PALE		2315E	2318U	2326	S20	E46	5452	04	22.5	11D	SF		3	E		36		F
PALE		2346	2349	2352	S19	W36	5449	04	16.2	6	SF		3	E		11		F
GOES	19	0032E	0036	0045D	N33	E84				13D	SF	C 4.7						
LEAR		0259	0259	0312	S20	E43	5452	04	22.4	13	SF		3	E		15		
PALE		0259	0300	0315	S18	E40	5452	04	22.2	16	SF		3	E		29		
PALE		0420	0422	0437D	S18	E40	5452	04	22.2	17D	SF		2	E		54		F
GOES		0420E	0423	0440D	S18	W43				20D	1N	C 5.1						
LEAR		0436E	0439	0455	S20	E42	5452	04	22.4	19D	SF		3	E		38		F
SVTO		0533	0539	0554	S21	W38	5449	04	16.3	21	SF	C 3.8	3	E		22		F
LEAR		0537	0543	0553	S18	W37	5449	04	16.4	16	SF	C 3.8	3	E		19		F
SVTO		0931	0935	0950	N20	E37	5453	04	22.2	19	SF		3	E		19		
SVTO		0931	0942	0950	N20	E37	5453			19	SB			E		16		K
GOES		0938	0951	1012						34		C 3.6						
SVTO		1001	1005	1032	S21	E51	5454	04	23.3	31	SF		3	E		36		
RAMY		1427	1428	1441	N10	W07	5451	04	19.1	14	SF		3	E		14		
SVTO		1454	1456	1508	N21	E39	5453	04	22.6	14	SF		3	E		19		
PALE		1731	1734	1749	N10	W09	5451	04	19.0	18	SF	C 1.7	3	E		26		
PALE		1734	1742	1745	S19	E36	5452	04	22.5	11	SF		3	E		18		
RAMY		1735E	1735U	1746D	N08	W12	5451	04	18.8	11D	SF		2	E		15		
RAMY		1807E	1812U	2011D	N11	W14	5451	04	18.7	124D	SF		1	E		20		F
PALE		2052	2056	2116	N10	W10	5451	04	19.1	24	SF	C 2.7	3	E		26		
HOLL		2056	2058	2107	N10	W14	5451	04	18.8	11	SF	C 2.7	3	E		31		
HOLL		2249	2252	2257	N10	W11	5451	04	19.1	8	SF		3	E		11		
HOLL		2349	2351	2359	N28	W38	5457	04	17.0	10	SF		3	E		25		
PALE	20	0203	0205	0214	S20	E31	5452	04	22.4	11	SF		3	E		24		
PALE		0220	0221	0231	N11	W17	5451	04	18.8	11	SF	C 1.9	3	E		51		FE
LEAR		0220	0222	0228	N11	W13	5451	04	19.1	8	SF	C 1.9	3	E		40		
LEAR		0506	0525	0602	N10	W15	5451	04	19.1	56	1N	M 1.4	3	E		195		F
SVTO		0546E	0551U	0553	N08	W18	5451	04	18.9	7D	SF		2	E		20		F
LEAR		0612	0614	0626	S21	W55	5449	04	16.0	14	SF		3	E		44		
LEAR		0659	0700	0704	S22	E44	5454	04	23.7	5	SF		3	E		30		
LEAR		0802	0804	0813	N10	W17	5451	04	19.0	11	SF	C 2.1	3	E		14		
RAMY		1218	1220	1235	S21	W57	5449	04	16.1	17	SF		3	E		18		F
RAMY		1311	1314	1339	N09	W22	5451	04	18.9	28	SF		3	E		26		F
RAMY		1342	1344	1349	N08	W22	5451	04	18.9	7	SF		3	E		26		
RAMY		1403	1412	1438	N09	W23	5451	04	18.8	35	SF	C 4.4	3	E		99		F
HOLL		1405E	1415U	1433D	N10	W23	6451	04	18.8	28D	SN		2	E		60		F
HOLL		1448	1452	1456	S10	W19		04	19.2	8	SF		3	E		15		
RAMY		1457	1501	1515	N27	W48	5457	04	16.9	18	SF		3	E		12		
RAMY		1512	1513	1552	S21	W55	5449	04	16.4	40	SF	C 2.8	3	E		36		F
RAMY		1550E	1550U	1559D	S11	W19		04	19.2	9D	SF		2	E		10		F
PALE		1712E	1717U	1729	S10	W20		04	19.2	17D	SF		3	E		16		
HOLL		1734	1735	1750	N10	W24	5451	04	18.9	16	SF		3	E		20		
PALE		1800	1800	1810	N28	W48	5457	04	17.0	10	SF		3	E		19		
RAMY		1816	1817	1820D	N10	W22	5451	04	19.1	4D	SF	C 1.3	2	E		62		F
HOLL		1816	1817	1825	N10	W21	5451	04	19.2	9	SF	C 1.3	3	E		52		
PALE		1816	1817	1827	N10	W22	5451	04	19.1	11	SF	C 1.3	3	E		36		F
HOLL		1913	1914	1934	N13	W41	5450	04	17.7	21	SF		3	E		21		
HOLL		2045	2100U	2121	N08	W26	5451	04	18.9	36	SF		3	E		36		
HOLL		2046	2047	2049D	S21	W59	5449	04	16.3	3D	SF		3	E		40		
PALE		2054	2054	2115	N10	W23	5451	04	19.1	21	SF		3	E		29		F
PALE		2112	2123U	2125D	S21	E33	5454	04	23.4	13D	SF		3	E		26		F
PALE		2121E	2123U	2125D	S21	E33	5454	04	23.4	4D	SF		3	E		26		F
PALE		2200	2204	2218D	S21	W60	5449	04	16.3	18D	SF		3	E		16		
PALE		2203	2206	2218D	S20	E32	5454	04	23.4	15D	SF		3	E		42		
PALE	21	0021E	0021U	0100D	N15	W44	5450	04	17.7	39D	SF		3	E		43		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	21	0021	0034	0047	N14	W45	5450	04	17.6	26	SF		3	E		21		F
PALE		0313E	0317U	0324D	N19	E10	5453	04	21.9	11D	SF		3	E		21		F
LEAR		0317	0320	0326	N19	E11	5453	04	22.0	9	SF		3	E		12		F
LEAR		0431	0435	0438	N10	W27	5451	04	19.1	7	SF		3	E		27		
LEAR		0436	0438	0501	S19	W66	5449			25	SF			E		62		K
LEAR		0436	0447	0501	S19	W66	5449	04	16.1	25	SF	M 1.0	3	E		36		F
LEAR		0655	0656	0705	S20	W67	5449	04	16.2	10	SF	C 2.4	3	E		23		
RAMY		1052	1056	1114	S25	E30	5454	04	23.8	22	SF	C 2.9	1	E		21		
GOES		1346	1350	1354						8		C 1.7						
RAMY		1423	1424	1447D	S22	W67	5449	04	16.4	24D	SF	C 4.8	2	E		66		H
HOLL		1426E	1428U	1441D	S21	W63	5449	04	16.8	15D	SF		2	E		62		
HOLL		1546	1546	1603	S22	W72	5449	04	16.1	17	SF		3	E		12		
HOLL		1624	1628	1641	S21	W68	5449	04	16.5	17	SF		3	E		20		
HOLL		1713	1720	1743	N14	W53	5450	04	17.7	30	1F	C 3.3	3	E		113		FE
RAMY		1721E	1722U	1727D	N14	W54	5450	04	17.6	6D	SF	C 3.3	2	E		79		F
HOLL		1737	1737	1743	N08	W38	5451	04	18.9	6	SF		3	E		12		
RAMY		1737E	1739U	1748D	N10	W37	5451	04	18.9	11D	SF		2	E		12		F
RAMY		1741E	1757U	1809D	N26	W58	5457	04	17.2	28D	SF		2	E		11		
HOLL		1910	1910	1920	N10	W39	5451	04	18.9	10	SF		3	E		13		
RAMY		2047E	2056U	2100	N12	W34	5451	04	19.3	13D	SF		2	E		23		
HOLL		2210	2217	2222	N13	W34	5451	04	19.3	12	SF	C 2.0	3	E		29		EH
PALE		2214E	2216U	2226D	N12	W34	5451	04	19.4	12D	SF	C 2.0	3	E		32		F
HOLL		2233	2237	2242	N08	W41	5451	04	18.9	9	SF		3	E		47		
HOLL		2252	2258	2302	N12	W34	5451	04	19.4	10	SF		3	E		25		
PALE		2253	2254U	2305D	N12	W34	5451	04	19.4	12D	SF		3	E		37		
PALE		2339	2341	2414	N29	E43	5456	04	25.3	35	SF		3	E		26		F
PALE		2341E	2342	2431D	S10	W40	5459	04	19.0	50D	SF		3	E		21		
HOLL		2345	2345	2413D	N27	E44	5456	04	25.4	28D	SF		3	E		13		FS
HOLL		2349	2355	2413D	N12	W40	5451	04	19.0	24D	SF	C 4.2	3	E		63		FE
PALE		2353E	2353U	2420	N11	W39	5451	04	19.1	27D	SF	C 4.2	3	E		75		F
GOES	22	0107	0111	0115						8		C 2.2						
GOES		0132	0137	0140						8		C 5.2						
PALE		0140E	0140U	0158	N10	W40	5451	04	19.1	18D	SF		3	E		32		FH
PALE		0147	0148	0156	S20	W75	5449	04	16.3	9	SF		3	E		22		
PALE		0200	0202	0234	S11	W39	5459	04	19.1	34	1N		3	E		108		FE
LEAR		0201E		0207	S10	W39	5459	04	19.1	6D	SF	C 4.2	3	E		41		F
PALE		0226	0227	0231	S23	W73	5449	04	16.5	5	SF		3	E		23		
GOES		0247	0252	0255						8		C 3.7						
LEAR		0332	0334	0346	N13	W37	5451	04	19.3	14	SN	M 1.2	3	E		85		F
PALE		0334	0336	0345	N12	W38	5451	04	19.3	11	SN	M 1.2	3	E		63		FE
PALE		0335	0336	0348	S21	W75	5449	04	16.4	13	SF		3	E		19		
PALE		0337	0340	0345	S11	W39	5459	04	19.2	8	SF		3	E		65		
GOES		0514	0521	0526						12		C 6.3						
GOES		0545E	0546	0607D	N12	W40				22D	1N	C 6.0						
GOES		0713	0716	0722						9		C 2.8						
SVTO		0831E	0831U	0847	N08	W46	5451	04	18.9	16D	SB	C 8.6	2	E		45		F
RAMY		1142E	1144U	1221	S19	E46	5460	04	26.0	39D	SF		2	E		25		
RAMY		1212	1214	1243	N30	E37	5456	04	25.4	31	SF	C 2.5	2	E		42		F
RAMY		1255	1256	1316	N12	W44	5451	04	19.2	21	SF	C 9.4	3	E		60		F
SVTO		1256	1256	1317	N11	W44	5451	04	19.2	21	SF	C 9.4	3	E		18		H
RAMY		1325	1331	1346	S09	W49	5459	04	18.9	21	SF		2	E		11		
RAMY		1341	1343	1347	S18	E45	5460	04	26.0	6	SF		2	E		12		
RAMY		1350E	1358U	1409D	N11	W45	5451	04	19.2	19D	SF		2	E		41		
RAMY		1427E	1433U	1455D	N09	W52	5451	04	18.7	28D	SF		2	E		14		
RAMY		1539E	1541U	1547	N12	W45	5451	04	19.3	8D	SF		2	E		13		H
RAMY		1719E	1722U	2112D	N13	W69	5450	04	17.5	233D	SF		2	E		22		T
HOLL		1721	1722	1737	S18	E43	5460	04	26.0	16	SF		3	E		23		
RAMY		1721	1727U	2112D	S19	E43	5460	04	26.0	231D	SF		2	E		24		T
HOLL		1721	1730	1735	N13	W69	5450	04	17.5	14	SF		3	E		28		
PALE		1933	1934	1939	N11	W47	5451	04	19.3	6	SF		3	E		21		
PALE		2022	2022	2033	N13	W47	5451	04	19.3	11	SF		3	E		82		
PALE		2052	2059	2127	N23	E43		04	26.2	35	SF		3	E		26		F
RAMY		2111E	2114U	2156D	N22	E42		04	26.1	45D	SF		2	E		20		
GOES		2309	2313	2315						6		C 1.9						
PALE		2334	2337	2349	N18	W10	5453	04	22.2	15	SF	C 2.8	3	E		19		
PALE	23	0047	0055	0059	N18	W11	5453	04	22.2	12	SF	C 1.6	3	E		23		

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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
PALE	23	0217	0224	0231	N17	W12	5453	04	22.2	14	SF		3	E		29		
GOES		0524	0530	0537						13		C 1.9						
GOES		0632	0636	0642						10		C 3.3						
RAMY		1205	1223	1234	N17	W18	5453	04	22.1	29	SF		2	E		20		
SVTO		1350E	1357U	1402	N14	E90		04	30.4	12D	SF		2	E		32		
RAMY		1631	1721	1735	N11	W64	5451	04	18.9	64	SF		3	E		17		
RAMY		1823E	1836U	1855D	N10	W66	5451	04	18.8	32D	SF		2	E		31		
GOES		2144	2155	2232						48		M 1.4						
HOLL		2355	2405	2444D	S21	W07	5454	04	23.4	49D	1B	M 1.0	3	E		137		F
PALE	24	0033E	0045U	0129	S20	W04	5454	04	23.7	56D	2F	C 5.1	3	E		252		UF
PALE		0104	0112	0131	N11	W68	5451	04	18.9	27	SF		3	E		69		
LEAR		0337	0339	0358	N28	E16	5456	04	25.4	21	SF	C 2.7	3	E		63		
PALE		0338	0338	0419	N31	E17	5456	04	25.5	41	SF		3	E		83		F
LEAR		0349	0349	0357	N19	W30	5453	04	21.9	8	SF	C 3.0	3	E		12		
LEAR		0514	0528	0606	S24	W05	5454	04	23.8	52	SF	C 6.0	3	E		90		U
SVTO		0516	0527U	0645	S20	W08	5454	04	23.6	89	SF	C 6.0	2	E		88		UH
LEAR		0620	0623	0631	N12	W68	5451	04	19.1	11	SN	C 7.7	3	E		99		
SVTO		0622	0624	0635	N09	W68	5451	04	19.2	13	SF	C 7.7	3	E		59		
RAMY		1141	1150	1159	N10	W76	5451	04	18.8	18	SF		3	E		24		
GOES		1253	1259	1309						16		C 3.2						
HOLL		1326	1328	1333	S21	E83		04	30.9	7	SF	C 4.8	3	E		22		
HOLL		1427	1428	1432	N12	W73	5451	04	19.1	5	SF		3	E		32		
RAMY		1547E	1605	1613	N10	W76	5451	04	18.9	26D	SF		3	E		15		H
HOLL		1645	1650	1655	N10	W75	5451	04	19.1	10	SF		3	E		10		
RAMY		1705	1706	1711	S18	E13	5460	04	25.7	6	SF		3	E		15		
HOLL		1705	1707	1711	S18	E12	5460	04	25.6	6	SF		3	E		18		
HOLL		1711	1712	1716	N11	W75	5451	04	19.1	5	SF		3	E		20		
RAMY		1726	1727	1748	S21	W15	5454	04	23.6	22	SF		3	E		34		
HOLL		1727	1729	1742	S21	W16	5454	04	23.5	15	SF		3	E		24		
HOLL		1909	1911	1920	N18	W34	5453	04	22.2	11	SF		3	E		16		
HOLL		1936	1937	1943	S20	W19	5454	04	23.4	7	SF		3	E		15		
RAMY		1936	1938	1948	S20	W19	5454	04	23.4	12	SF		3	E		20		
RAMY		2014	2015	2020	N10	W76	5451	04	19.1	6	SF		3	E		31		
HOLL		2127	2128	2131	N11	W77	5451	04	19.1	4	SF		3	E		50		
LEAR	25	0116	0118	0125	N10	E66	5463	04	30.0	9	SF		3	E		92		
PALE		0408	0409	0418	S22	W19	5454	04	23.7	10	SF	C 2.1	3	E		44		F
LEAR		0408	0409	0419	S21	W19	5454	04	23.7	11	SF	C 2.1	3	E		18		F
RAMY		1206	1206	1221	S23	W24	5454	04	23.6	15	SF		3	E		17		
HOLL		1730	1733U	1807	S20	E75	5464	05	1.5	37	SF	C 2.0	2	E		76		
RAMY		1731	1733	1804	S17	E75	5464	05	1.4	33	SF	C 2.0	3	E		80		
RAMY		1814	1840	1855	S20	W28	5454	04	23.6	41	SF		3	E		21		
RAMY		1815	1818	1849	S21	E76	5464	05	1.6	34	SF	C 3.4	3	E		52		
HOLL		1815	1822	1843	S20	E74	5464	05	1.4	28	SF	C 3.4	3	E		54		F
HOLL		1900	1900	1910	N17	W52	5453	04	21.8	10	SF		3	E		14		
RAMY		1926	1935	1945	S20	W29	5454	04	23.6	19	SF		3	E		18		F
RAMY		2006	2007	2011	S17	W34	5454	04	23.2	5	SF	C 2.2	3	E		20		
HOLL		2013	2023	2031	S20	E74	5464	05	1.5	18	SF		3	E		49		
HOLL		2108E	2108U	2116	S17	W35	5454	04	23.2	8D	SN	C 5.0	3	E		25		E
HOLL		2141	2141	2149	S19	W31	5454	04	23.5	8	SF		3	E		30		F
RAMY		2141	2141	2153	S20	W31	5454	04	23.5	12	SF		3	E		23		F
HOLL		2256	2300	2320	S21	E71	5464	05	1.4	24	SF	C 2.0	3	E		97		
HOLL		2357	2401	2406	S20	E70	5464	05	1.3	9	SF		3	E		29		
HOLL	26	0012	0021	0054	S21	E68	5464	05	1.2	42	SF		3	E		46		
HOLL		0017	0018	0026	N10	E52	5463	04	29.9	9	SF	C 2.0	3	E		33		
LEAR		0017	0019	0024	N15	E59	5463	04	30.5	7	SF	C 2.0	3	E		36		
LEAR		0019	0021	0023	S20	E69	5464	05	1.3	4	SF		3	E		12		
LEAR		0057	0058	0110	S20	E74	5464	05	1.7	13	SF	C 3.6	3	E		30		
HOLL		0057	0059	0109	S21	E68	5464	05	1.2	12	SF	C 3.6	3	E		28		
PALE		0058	0059	0111	S19	E77	5464	05	1.9	13	SF	C 3.6	4	E		42		FH
GOES		0150	0155	0159						9		C 2.8						
LEAR		0300	0304	0312	S21	E70	5464	05	1.5	12	SF	C 2.1	3	E		68		
SVTO		0858	0913	0932	S17	W54	5452	04	22.3	34	SF		3	E		22		
RAMY		1318	1320	1327	N19	W58	5453	04	22.1	9	SF		4	E		44		F
HOLL		1318E	1320	1327	N18	W64	5453	04	21.7	9D	SF		3	E		51		
SVTO		1319	1320	1330	N16	W62	5453	04	21.8	11	SF		3	E		42		

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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
RAMY	26	1429	1432	1435	S17	W57	5452	04	22.3	6	SF		3	E		20		
HOLL		1430	1433	1435	S17	W45	5454	04	23.2	5	SF		3	E		12		
HOLL		1445	1445	1453	N34	W12	5456	04	25.6	8	SF		3	E		23		
RAMY		1621	1621	1628	S20	E61	5464	05	1.3	7	SF		4	E		11		
HOLL		1637	1641	1644	N13	E50	5463	04	30.5	7	SF		3	E		22		
RAMY		1939	1944	2002	S13	W43	5465	04	23.6	23	SF		3	E		14		F
HOLL		1947E	1948U	1956	S14	W43	5465	04	23.6	9D	SF		3	E		18		
HOLL		1947E	1950	2004	S23	W42	5454	04	23.6	17D	SF		3	E		27		
RAMY		2011	2014	2017	S20	E63	5464	05	1.6	6	SF		3	E		12		
RAMY		2017	2038	2050	S20	E62	5464	05	1.6	33	SF		2	E		20		
RAMY		2043E	2054U	2117D	S19	W45	5454	04	23.4	34D	SF		2	E		46		
HOLL		2044	2054	2117	S19	W45	5454	04	23.4	33	SF		3	E		57		
HOLL		2155	2156	2205	S19	W45	5454	04	23.5	10	SF		3	E		14		
HOLL		2304	2305	2322	S19	W47	5454	04	23.4	18	SF	C 2.4	3	E		38		
LEAR	27	0028	0030	0051	S19	W46	5454			23	SF			E		19		K
LEAR		0028	0044	0051	S19	W46	5454	04	23.5	23	SF	C 1.3	3	E		15		F
LEAR		0103	0110	0116	S23	E67	5464	05	2.2	13	SF	C 1.3	3	E		23		
LEAR		0120	0130	0201	S19	E63	5464	05	1.9	41	SF	C 1.5	3	E		83		
GOES		0649	0653	0656						7		C 1.1						
RAMY		1049E	1050	1119	S20	W54	5454	04	23.3	30D	SF		3	E		48		F
RAMY		1049E	1056	1102	S18	E54	5464	05	1.6	13D	SF		3	E		14		
HOLL		1426	1437	1450	S19	W55	5454	04	23.4	24	SF	C 1.9	3	E		19		F
RAMY		1427	1431U	1445	S19	W55	5454	04	23.4	18	SF	C 1.9	3	E		21		F
SVTO		1428	1436	1447	S21	W56	5454	04	23.3	19	SF	C 1.9	2	E		32		F
RAMY		1501	1506	1518	S22	E57	5464	05	2.0	17	SF		3	E		39		
RAMY		1519	1522	1533	S18	E56	5464	05	1.9	14	SF		3	E		16		
HOLL		1552	1625	1651	S21	W56	5454	04	23.4	59	SF		3	E		39		
RAMY		1624	1626	1633D	S18	W57	5454	04	23.3	9D	SF		3	E		13		
HOLL		1652	1714	1755	S18	W57	5454	04	23.4	63	1N	C 2.7	3	E		111		FE
HOLL		1652	1726	1755	S18	W57	5454			63	1F	C 2.7		E		68		K
RAMY		1716E	1716U	1736	S18	W57	5454	04	23.4	20D	SF	C 2.7	2	E		40		F
HOLL		1725	1727	1748	N30	W31	5456	04	25.3	23	1F		3	E		156		
RAMY		1726	1727	1739	N29	W30	5456	04	25.4	13	SF		3	E		70		
HOLL		1837	1838	1845	S19	W56	5454	04	23.5	8	SF	C 1.0	3	E		36		
RAMY		1837	1839	1845	S19	W56	5454	04	23.5	8	SF	C 1.0	3	E		17		
HOLL		1900	1901	1909	S19	W57	5454	04	23.4	9	SF	C 1.4	3	E		33		
RAMY		1901E	1902U	1910D	S19	W58	5454	04	23.4	9D	SF	C 1.4	2	E		15		F
GOES		2101	2105	2122						21		C 1.4						
HOLL		2334	2336	2340	S18	W60	5454	04	23.4	6	SF		3	E		15		
HOLL		2339	2340	2352	S19	W37	5460	04	25.2	13	SF	C 1.1	3	E		22		
LEAR		2340	2340	2345	S21	W36	5460	04	25.2	5	SF	C 1.1	3	E		12		
HOLL	28	0002	0003	0014	N23	W29		04	25.8	12	SF		3	E		19		
GOES		0955	1005	1010						15		C 1.6						
RAMY		1047	1050	1055	N22	W23		04	26.7	8	SF		3	E		10		
HOLL		1336	1337	1348	S19	W38	5460	04	25.7	12	SF		3	E		12		
RAMY		1337	1337	1341	S22	W39	5460	04	25.6	4	SF		3	E		13		F
HOLL		1353	1357	1414	S22	E45	5464	05	2.0	21	SF		3	E		29		F
SVTO		1356	1357	1414	S20	E45	5464	05	2.0	18	SF		3	E		22		
RAMY		1438	1443	1455	S21	W67	5454	04	23.5	17	SF		3	E		14		
HOLL		1506	1506	1531	S17	E38	5464	05	1.5	25	SF	C 3.1	3	E		18		F
RAMY		1508	1508	1524	S18	E39	5464	05	1.6	16	SF	C 3.1	3	E		12		
HOLL		1510	1522	1641	S20	W65	5454	04	23.7	91	SF		3	E		16		
RAMY		1510	1527U	1623	S19	W65	5454	04	23.7	73	SF		2	E		28		
PALE		1745	1746	1748D	N12	E25	5463	04	30.6	3D	SF	C 2.8	3	E		44		
RAMY		1745	1746	1759	N12	E24	5463	04	30.5	14	SF	C 2.8	3	E		22		
HOLL		1745	1746	1817	N13	E22	5463	04	30.4	32	SF	C 2.8	3	E		36		F
HOLL		1829	1833	1841	S22	E46	5464	05	2.3	12	SF		3	E		23		
PALE		1938	1942	1949	N26	E04	5468	04	29.1	11	SF		3	E		13		
PALE		2002	2008	2016	N26	E03	5468	04	29.1	14	SF		3	E		26		
HOLL		2004	2006	2015	N25	E03	5468	04	29.1	11	SF		3	E		16		
HOLL		2047	2049	2056	S20	W72	5454	04	23.3	9	SF		3	E		17		
HOLL		2101	2116	2129	S20	W72	5454	04	23.4	28	SN	C 2.2	3	E		72		
HOLL		2110	2122	2135	N25	E02	5468	04	29.0	25	SF	C 2.0	3	E		15		
PALE		2112	2115	2123	S22	W71	5454	04	23.4	11	SF		3	E		60		
HOLL		2128	2130	2149	S22	E38	5464	05	1.8	21	SF		3	E		18		
HOLL		2139	2141	2144	N29	E88		05	5.8	5	SF		3	E		19		

Hα S O L A R F L A R E S

APRIL 1989

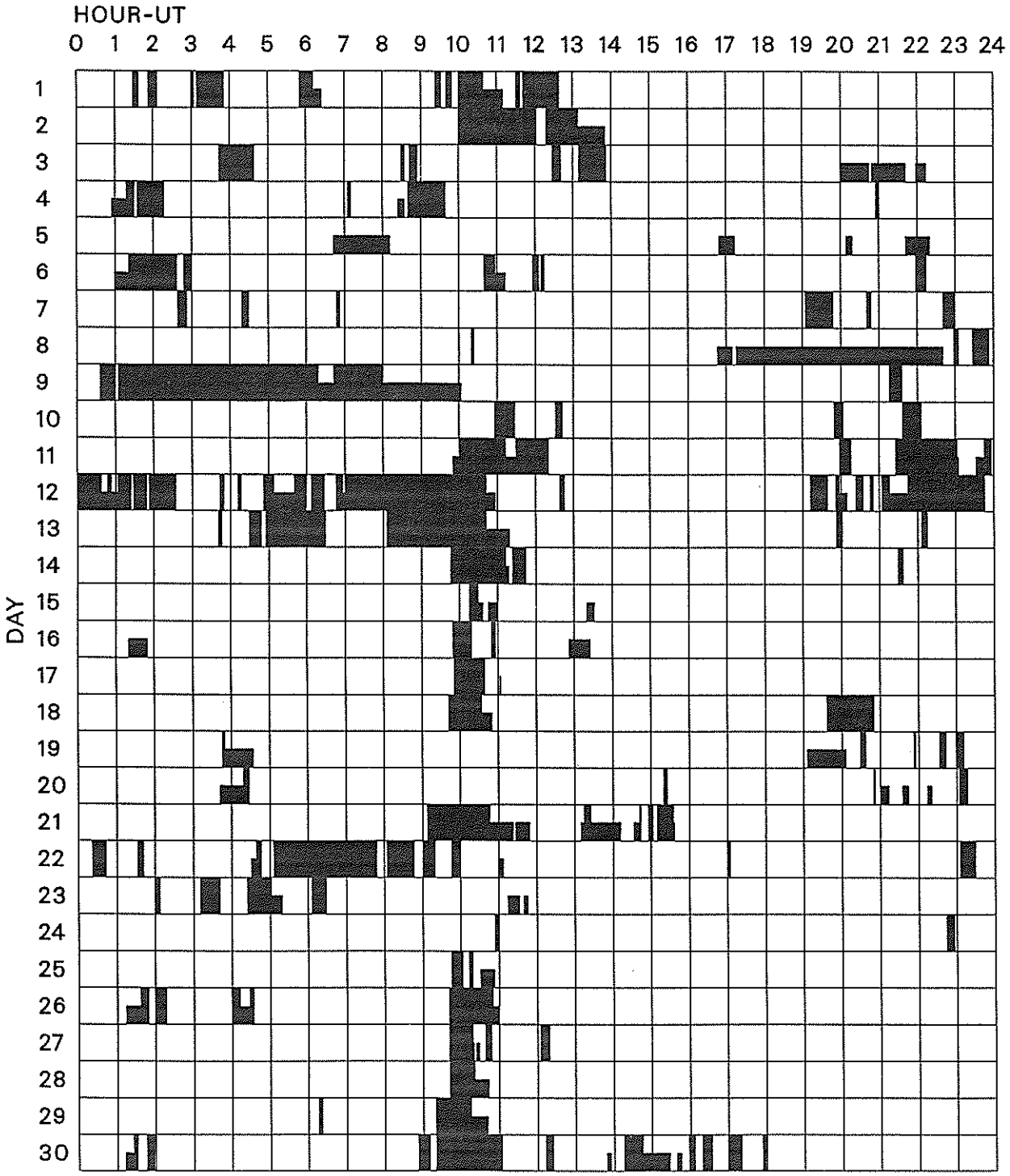
Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	28	2338E	2341	2353D	S19	W29				15D	SF	C 2.0						
HOLL		2346	2347	2357	N25	E00	5468	04	29.0	11	SF		3	E		26		
GOES	29	0112	0120	0136						24		C 4.1						
RAMY		1221	1221	1234	S20	W52	5460	04	25.5	13	SF		3	E		17		F
RAMY		1510	1514	1528	S20	W46	5460	04	26.1	18	SF		3	E		15		
HOLL		1619	1620	1626	N30	E83		05	6.2	7	SF		3	E		16		
RAMY		1629	1646	1653	S12	W74	5454	04	24.1	24	SF		3	E		42		
HOLL		1631	1635	1646	S17	W60	5460	04	25.1	15	SF		3	E		12		
HOLL		1720	1723	1728	N30	E81	5470	05	6.1	8	SF		3	E		39		
RAMY		1723E	1723U	1731D	N29	E78	5470	05	5.8	8D	SF		3	E		31		
HOLL		1922	1922	1926	S22	E33	5464	05	2.3	4	SF		3	E		13		
HOLL		1939	1939	1946	S20	W52	5460	04	25.8	7	SF		3	E		12		
HOLL		2300	2301	2304	S19	E26	5464	05	1.9	4	SF		3	E		25		
PALE	30	0331	0336	0340	S23	W86	5454	04	23.5	9	SF		3	E		24		
RAMY		1347	1356U	1402	S24	E19	5464	05	2.0	15	SF		2	E		24		
HOLL		2035	2037	2056	N20	W04	5463	04	30.5	21	SF		3	E		17		
HOLL		2206	2211	2215	S21	E13	5464	05	1.9	9	SF		4	E		24		
HOLL		2208	2209	2217	S20	W68	5460	04	25.7	9	SF		4	E		13		
HOLL		2218	2220	2228	N28	E64	5470	05	5.9	10	SF		4	E		27		
HOLL		2232	2232	2238	S21	E13	5464	05	1.9	6	SF		4	E		18		
HOLL		2254	2309	2331	S22	E11	5464	05	1.8	37	SF		4	E		40		F
HOLL		2329	2335	2343	N28	E61	5470	05	5.7	14	SF		4	E		28		

"Remarks"

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

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

APRIL 1989



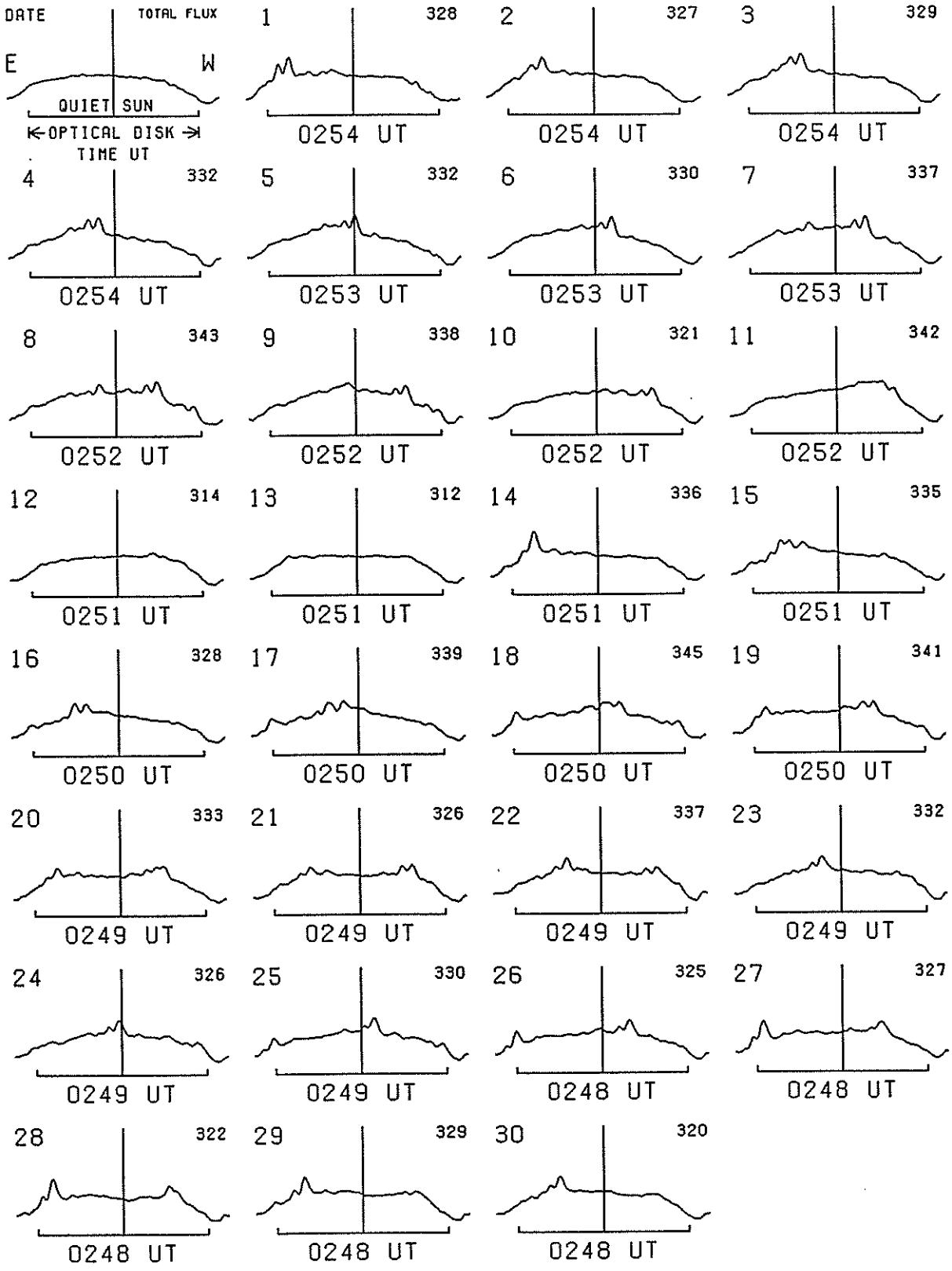
Times of no flare patrol, shown here as shaded areas, combine reports from the observatories listed below. Portions of a panel completely shaded mark dates and times of no patrol of any kind, that is, of neither visual nor cinematographic; portions of a panel with only the bottom half shaded mark times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

Holloman Learmonth Palehua Ramey San Vito

EAST-WEST SOLAR SCANS
APRIL 1989

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



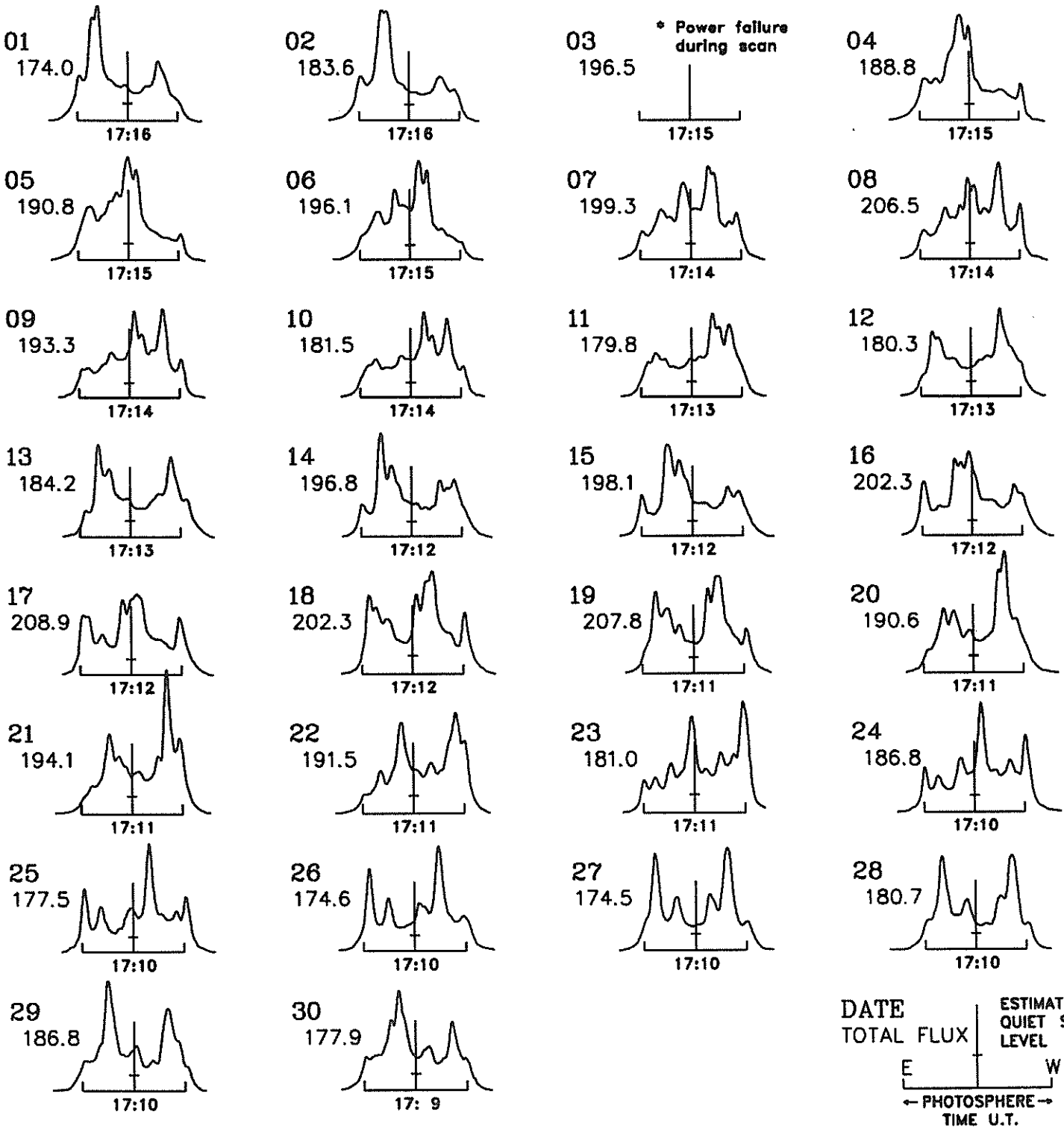
26
Apr 89

Note: All scans taken with 3 dB attenuation. This means all scans are one-half normal height.

EAST – WEST SOLAR SCANS
APRIL 1989

ALGONQUIN RADIO OBSERVATORY
CANADA

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

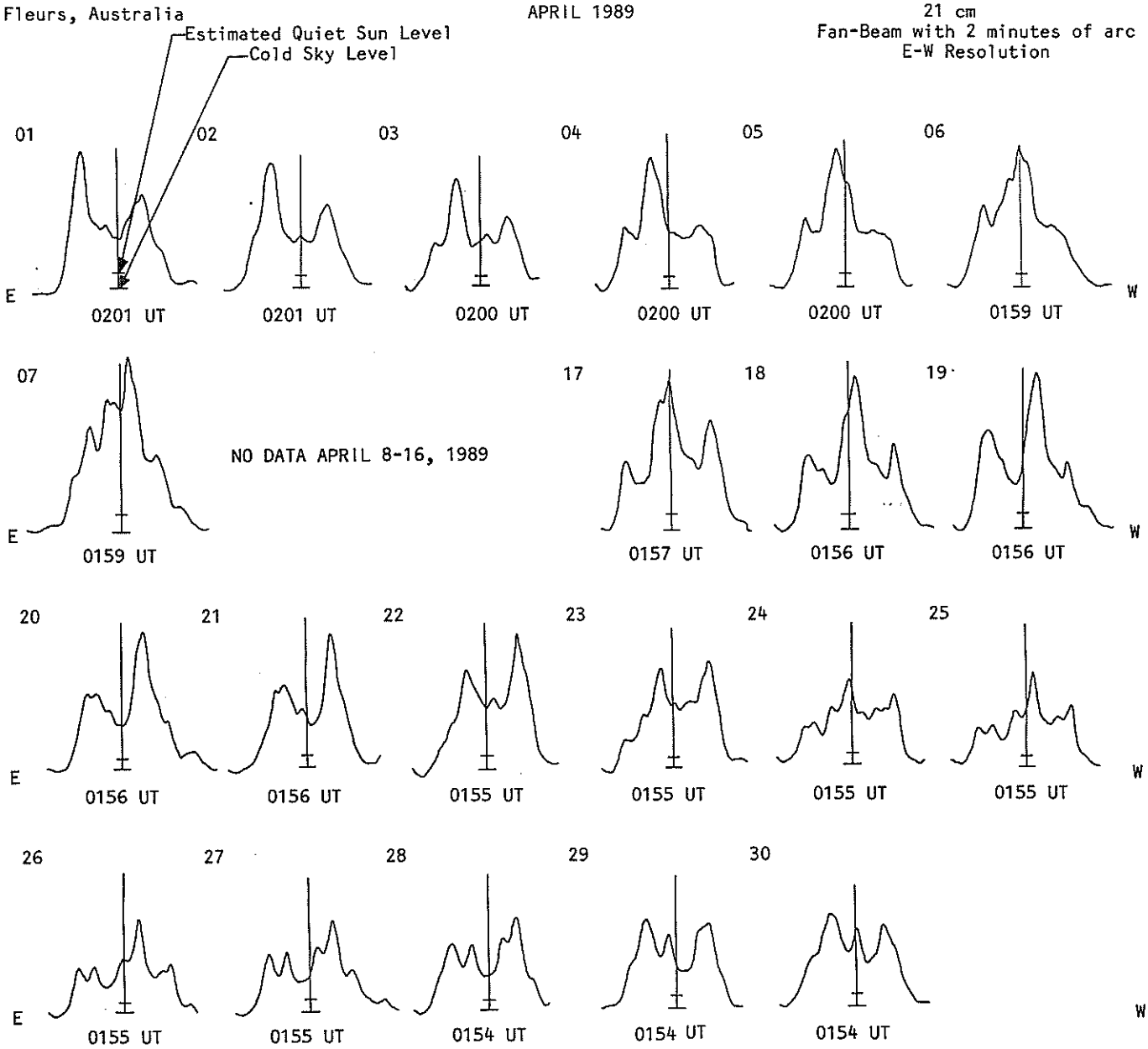


E A S T - W E S T S O L A R S C A N S

Fleurs, Australia

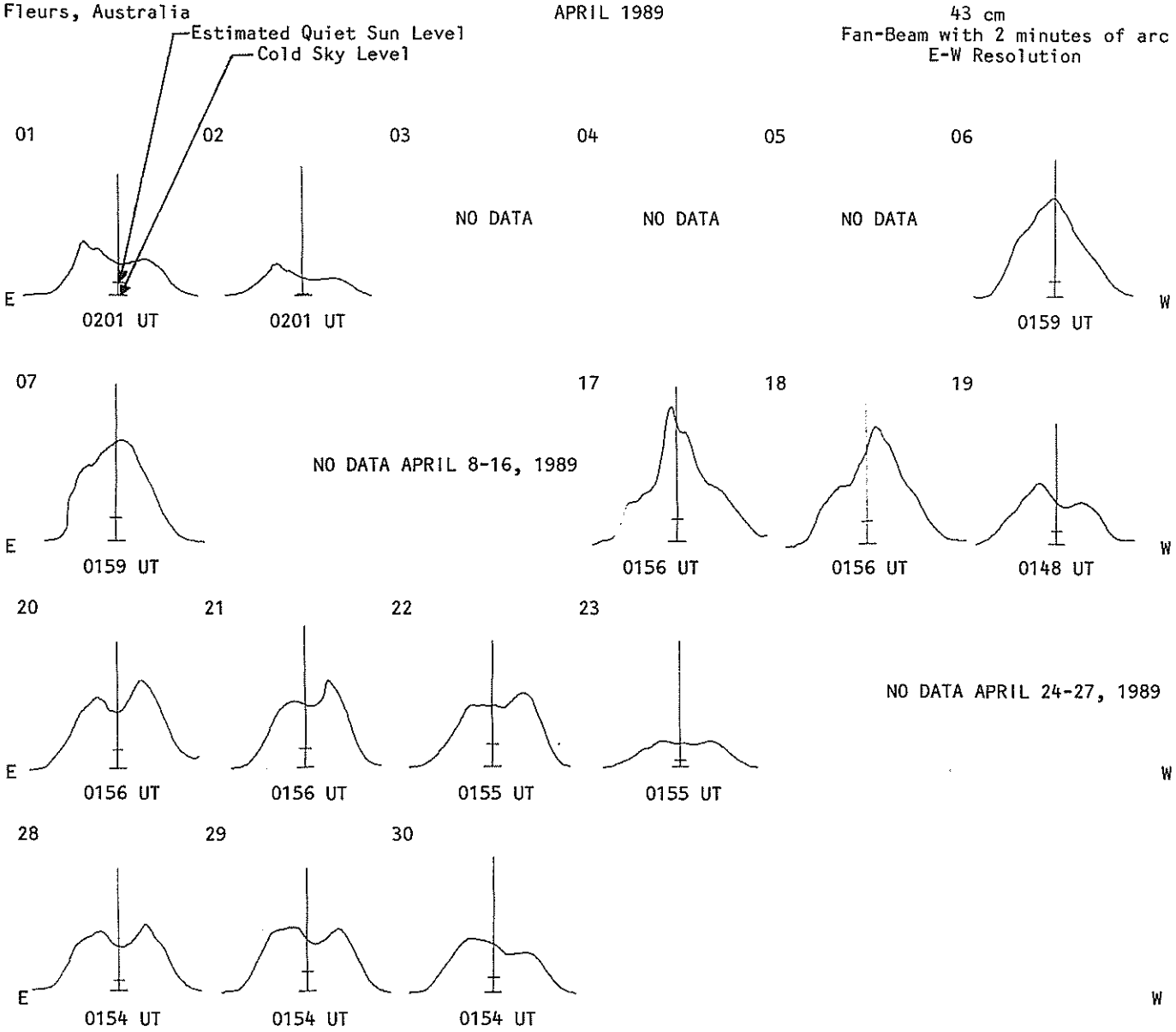
APRIL 1989

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

Fleurs, Australia — APRIL 1989 — 43 cm Fan-Beam with 2 minutes of arc E-W Resolution



SOLAR INTERFEROMETRIC OBSERVATIONS

Nancay APRIL 1989 164 MHz

Day

5

DATA UNVAILABLE AT TIME OF PUBLICATION.

10

15

20

25

30

E C W

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

APRIL 1989

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
01	2800	OTTA	20	GRF	1620.0	1639.0	50.0	3.5	1.0		
	2800	OTTA	20	GRF	1738.0	1751.0	45.0	3.9	2.0		
	2800	OTTA	22	GRF	2010.0	2200.0	270.0	11.0	5.0		
02	2800	OTTA	22	GRF	1307.0	1320.0	96.0	9.1	4.0		
	2800	OTTA	3	S	1534.0	1535.3	3.0	21.0	6.0		
	8800	LEAR	8	S	2325.0E	2325.0	U	22.0			QL=1 ST=2 TYP=3
03	2800	OTTA	4	S/F	1517.3	1518.0	5.0	8.7	3.0		
	2800	OTTA	32	ABS	1604.0	1650.0	81.0	-5.2	2.0		
	2800	OTTA	22	GRF	1911.0	1940.0	152.0	29.0	14.0		
05	2695	LEAR	4	S/F	0846.0E	0850.0	14.0D	120.0			QL=1 ST=2 TYP=3
	2695	SVTO	4	S/F	0848.0E	0850.0	4.0D	98.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	0850.0E	0853.0	910.0D	26.0			QL=1 ST=1 TYP=3
	8800	SGMR	8	S	1156.0E	1156.0	2.0D	80.0			QL=1 ST=3 TYP=3
	2695	SGMR	4	S/F	1156.0E	1156.0	4.0D	140.0			QL=1 ST=3 TYP=3
	8800	SVTO	8	S	1156.0E	1156.0	2.0D	120.0			QL=1 ST=2 TYP=3
	2695	SVTO	8	S	1156.0E	1156.0	1.0D	120.0			QL=1 ST=2 TYP=3
	2800	OTTA	3	S	1631.0	1633.8	5.0	24.2	7.0		
06	8800	SVTO	8	S	1320.0E	1321.0	2.0D	75.0			QL=1 ST=2 TYP=3
	2800	OTTA	4	S/F	1825.4	1825.5	1.6	12.8	3.0		
	2800	OTTA	22	GRF	1900.0	2000.0	160.0	3.3	1.0		
07	2800	OTTA	22	GRF	1306.0	1331.0	180.0	24.4	12.0		
	8800	SGMR	8	S	1307.0E	1308.0	1.0D	58.0			QL=1 ST=2 TYP=3
	2800	OTTA	4	S/F	1415.0	1423.5	23.0	24.4	8.0		
08	2695	PENT	3	S	0014.0		44.0	250.0D			
	2695	PENT	29	PBI	0125.0	0125.0		47.6			
	2695	LEAR	8	S	0738.0E	0738.0	1.0D	60.0			QL=1 ST=2 TYP=3
	2695	SVTO	8	S	0738.0E	0739.0	1.0D	65.0			QL=1 ST=2 TYP=3
09	8800	LEAR	49	GB	0042.0E	0058.0	82.0D	3300.0			QL=1 ST=2 TYP=7
	2695	LEAR	49	GB	0044.0E	0103.0	74.0D	1100.0			QL=1 ST=2 TYP=7
	2800	OTTA	3	S	2041.0	2044.5	13.0	7.7	2.0		
10	2800	OTTA	22	GRF	1810.0	1855.0	110.0	5.1	2.0		
	2695	PENT	24	R	2120.0	2440.0	280.0	30.7	15.0		
	8800	SGMR	8	S	2234.0E	2234.0	1.0D	100.0			QL=1 ST=2 TYP=3
13	2800	OTTA	20	GRF	1450.0	1522.0	150.0	4.8	2.0		
	2800	OTTA	22	GRF	2045.0	2134.5	380.0D	34.1	13.0		
16	2695	LEAR	8	S	0942.0E	0943.0	1.0D	58.0			QL=1 ST=2 TYP=3
	2695	SVTO	8	S	0943.0E	0943.0	U	53.0			QL=1 ST=2 TYP=3
18	2695	PENT	4	S/F	0010.0	0019.0	45.0	31.2	9.0		
19	8800	LEAR	8	S	0028.0E	0028.0	1.0D	29.0			QL=1 ST=2 TYP=3
	2695	LEAR	8	S	0028.0E	0028.0	1.0D	35.0			QL=1 ST=2 TYP=3
20	2800	OTTA	3	S	1216.0	1220.0	9.0	42.6	12.0		
	2695	SGMR	8	S	1219.0E	1219.0	1.0D	41.0			QL=1 ST=2 TYP=3
	8800	SGMR	8	S	1219.0E	1219.0	1.0D	20.0			QL=1 ST=2 TYP=3
	2800	OTTA	4	S/F	1310.0	1313.5	10.0	7.1	2.0		
	2695	SGMR	8	S	1338.0E	1338.0	U	60.0			QL=1 ST=2 TYP=3
	2800	OTTA	3	S	1412.5E	1412.5	15.0D	15.8	4.0		
	2800	OTTA	3	S	1506.0	1513.5	12.0	7.5	2.0		
	2695	SGMR	8	S	1640.0E	1640.0	U	65.0			QL=1 ST=2 TYP=3
	2800	OTTA	3	S	1816.0	1816.5	3.0	9.1	3.0		
	2800	OTTA	3	S	2043.0	2045.5	11.0	9.5	3.0		
21	2695	PENT	3	S	0133.0	0134.0	4.0	23.2	8.0		
	8800	LEAR	8	S	0435.0E	0436.0	2.0D	56.0			QL=1 ST=2 TYP=3
	2800	OTTA	3	S	1421.5	1423.0	10.5	42.1	12.0		
	2695	SGMR	8	S	1422.0E	1422.0	1.0D	41.0			QL=1 ST=3 TYP=3
	8800	SGMR	8	S	1422.0E	1422.0	U	28.0			QL=1 ST=3 TYP=3

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

APRIL 1989

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
21	2695	PENT	3	S	2349.0	2350.0	4.5	21.0	7.0		
	2695	LEAR	8	S	2349.0E	2349.0	U	25.0			QL=1 ST=2 TYP=3
22	8800	LEAR	8	S	0107.0E	0108.0	1.0D	48.0			QL=1 ST=2 TYP=3
	8800	PALE	8	S	0108.0E	0108.0	U	56.0			QL=1 ST=2 TYP=3
	2695	LEAR	8	S	0133.0E	0133.0	1.0D	29.0			QL=1 ST=2 TYP=3
	8800	LEAR	8	S	0133.0E	0134.0	1.0D	19.0			QL=1 ST=2 TYP=3
	8800	LEAR	8	S	0248.0E	0248.0	1.0D	93.0			QL=1 ST=2 TYP=3
	2695	LEAR	8	S	0248.0E	0248.0	1.0D	16.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0330.0E	0332.0	4.0D	53.0			QL=1 ST=2 TYP=3
	8800	LEAR	8	S	0331.0E	0332.0	2.0D	39.0			QL=1 ST=2 TYP=3
	2695	PALE	8	S	0332.0E	0332.0	U	55.0			QL=1 ST=2 TYP=3
	8800	LEAR	8	S	0516.0E	0517.0	2.0D	26.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0544.0E	0546.0	3.0D	67.0			QL=1 ST=2 TYP=3
	2695	SVTO	8	S	0546.0E	0546.0	U	61.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0824.0E	0825.0	6.0D	100.0			QL=1 ST=2 TYP=3
	2695	SVTO	8	S	0825.0E	0825.0	1.0D	95.0			QL=1 ST=2 TYP=3
	8800	SVTO	8	S	0825.0E	0825.0	2.0D	97.0			QL=1 ST=2 TYP=5
	2800	OTTA	32	ABS	1445.0	1700.0	195.0	-5.1	2.0		
23	2800	OTTA	22	GRF	1440.0	1650.0	390.0	12.9	6.0		
	2800	OTTA	3	S	2147.0	2150.0	7.0	12.4	4.0		
24	2800	OTTA	20	GRF	1905.0	1915.0	45.0	2.7	1.0		
27	2800	OTTA	3	S	1726.0	1726.7	2.0	12.1	3.0		
30	2800	OTTA	45	C	0054.0	0109.0	52.0D	171.9	51.0		

Reports are received routinely from the following observatories:

BERN = Berne	LEAR = Learmonth	PALE = Palehua	SGMR = Sagamore Hill
	OTTA = Ottawa	PENT = Penticton	SVTO = San Vito

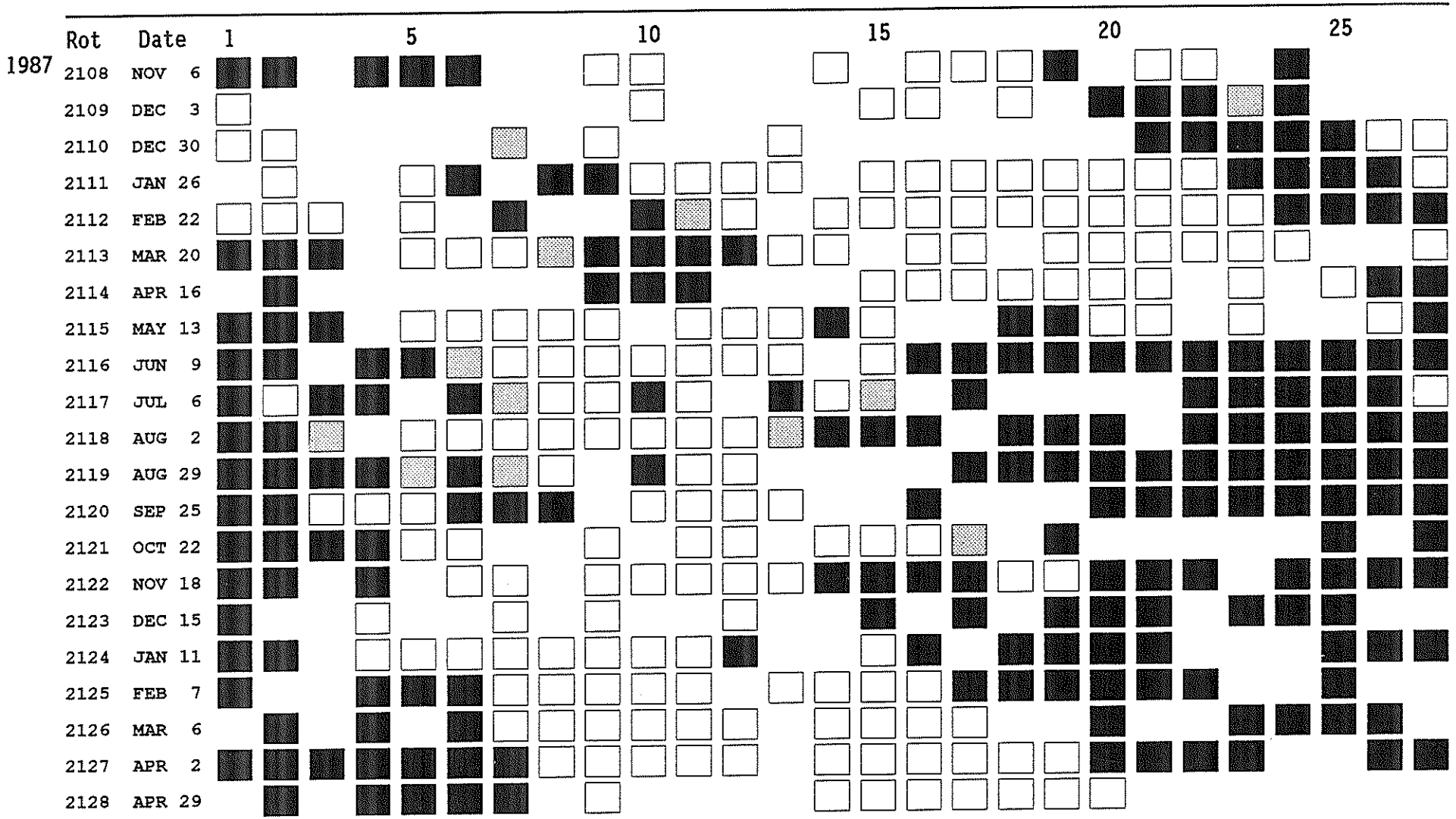
Explanation of Type Code:

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

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

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

STANFORD MEAN SOLAR MAGNETIC FIELD



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

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

Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates 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	1988 May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1989 Jan	Feb	Mar	Apr
1	13	14	-35	5	-27	-15	23	-3	.	.	.	.
2	12	7	-51	-22	-2	-19	24	-5	-19	.	.	-97
3	28	.	-29	-14	-4	.	.	-4	-22	.	-66	-114
4	29	33	-9	1	-2	8	40	-12	-41	-65	.	-86
5	25	.	-13	.	16	12	19	2	.	-46	.	-76
6	37	.	-39	5	.	15	3	4	-65	-4	.	-62
7	.	12	39	18	-22	10	0	-24	-85	-13	-10	-28
8	39	-14	-18	43	43	.	.	-27	-101	.	.	-15
9	.	-25	-29	48	45	.	-9	-33	.	.	-58	25
10	6	-17	.	51	.	-8	.	.	.	-16	.	71
11	-8	.	-16	22	.	.	.	-62	-16	-6	-16	101
12	-11	-14	-1	25	.	.	.	-47	-23	-18	37	78
13	-22	-11	14	23	.	.	.	-53	.	23	39	54
14	-29	-1	15	1	-30	-36	.	-38	10	34	61	.
15	-25	13	-6	-14	-44	-33	-35	-30	24	55	63	44
16	.	22	2	-15	-50	-43	.	.	23	73	40	11
17	10	28	.	-20	-54	-39	-46	.	16	66	32	15
18	17	27	-3	.	-46	-52	-43	34	74	.	.	19
19	15	30	3	-36	-49	-53	-46	.	101	116	64	29
20	12	37	-1	-38	-64	-40	.	.	120	131	73	27
21	22	35	.	-49	-67	-37	-19	56	119	94	14	-21
22	.	.	-16	.	-64	-34	.	.	-29	40	12	-68
23	5	15	.	-57	-57	-38	29	61	.	-13	.	-6
24	5	-3	.	-79	-36	-36	31	.	.	-7	.	-110
25	4	-35	.	-91	-29	-17	.	.	22	-35	-50	.
26	-6	-67	.	-77	-8	14	30	65	-37	-64	.	.
27	7	-75	-49	-57	6	15	31	.	.	-108	.	-80
28	.	-80	-79	-24	34	.	24	.	-50	-93	-110	-77
29	.	-57	-51	-10	13	.	26	-5	-64		-105	.
30	-19	-29	-15	-20	-6	15	18	.	-91		-106	-64
31	-13		-3	-20		.		-24	-101		-100	

Dot symbol indicates no data available for the day.

C O N T E N T S

Prompt Reports DATA FOR **MARCH 1989** Number 537 Part I

SOLAR MAGNETIC FIELD SYNOPTIC CHART

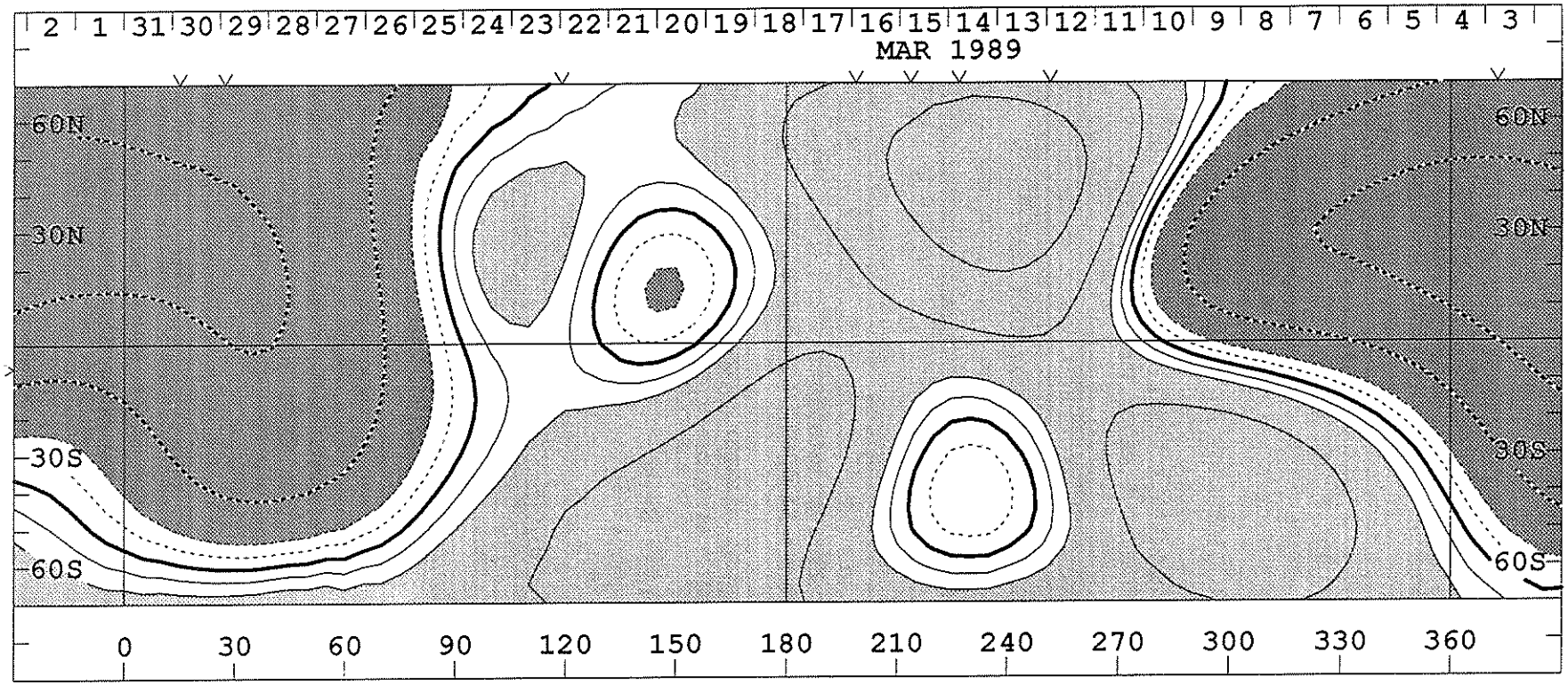
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1813

(4 March to 1 April 1989)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla



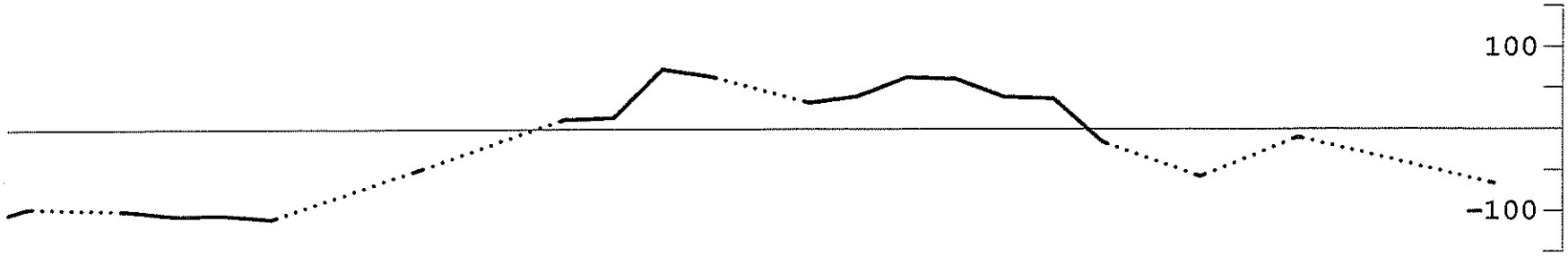
NOTE: THE PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART CARRINGTON ROTATION NUMBER 1813 IS UNAVAILABLE AT TIME OF PUBLICATION.

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1813
(4 March to 1 April 1989)

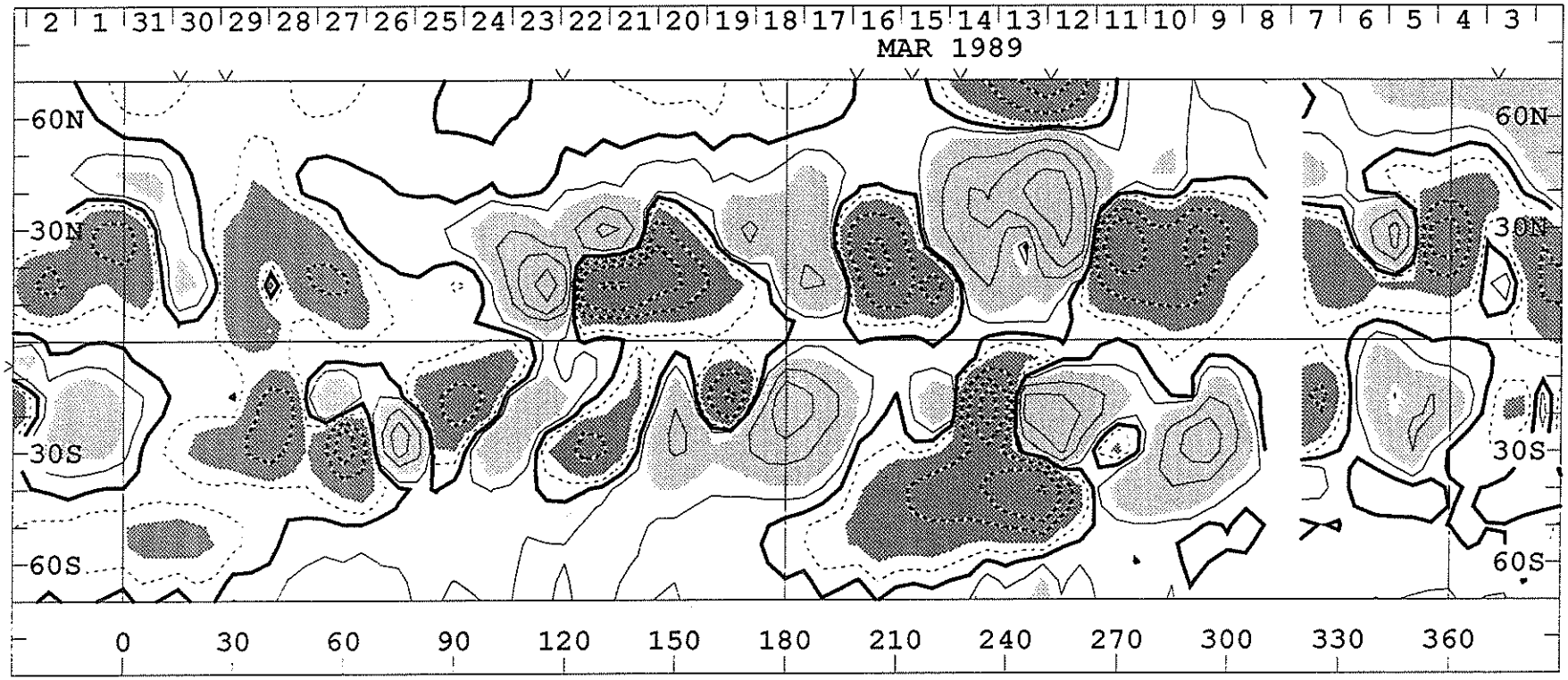
WILCOX SOLAR OBSERVATORY

0, ±100, 500, 1000, 2000 microTesla



Photospheric Magnetic Field

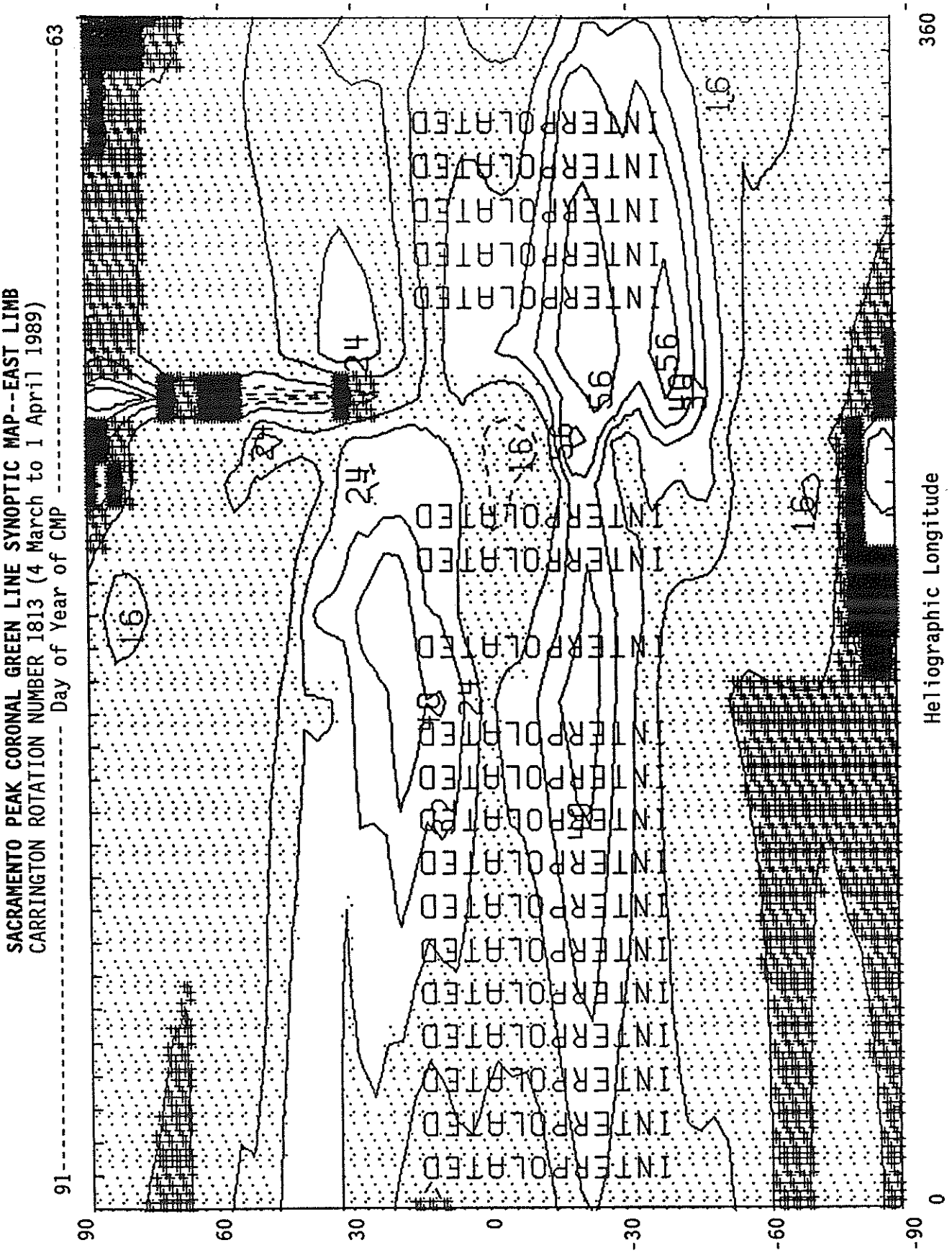
0, ±100, 500, 1000, 2000 MicroTesla



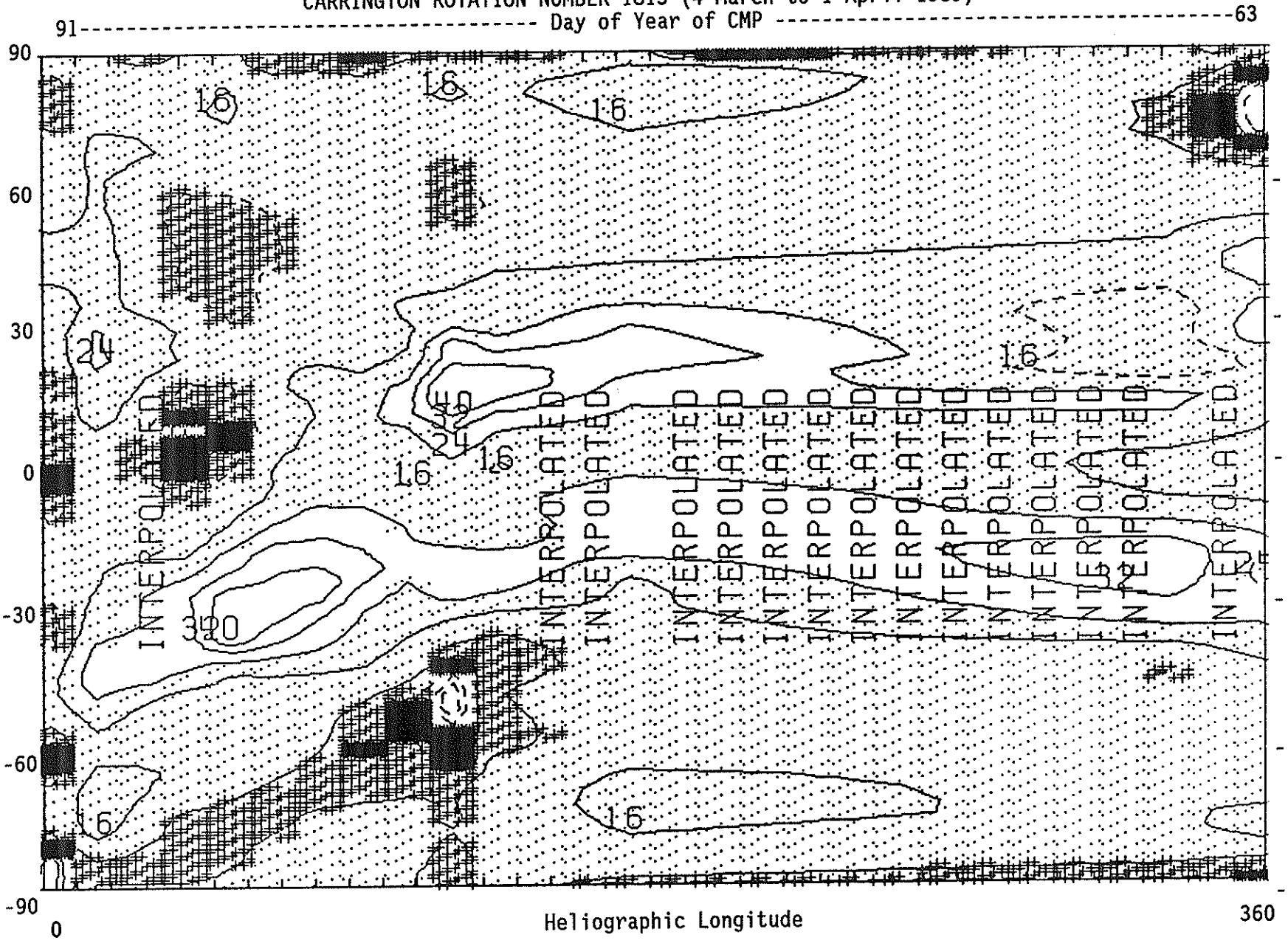
Heliographic Longitude

1813

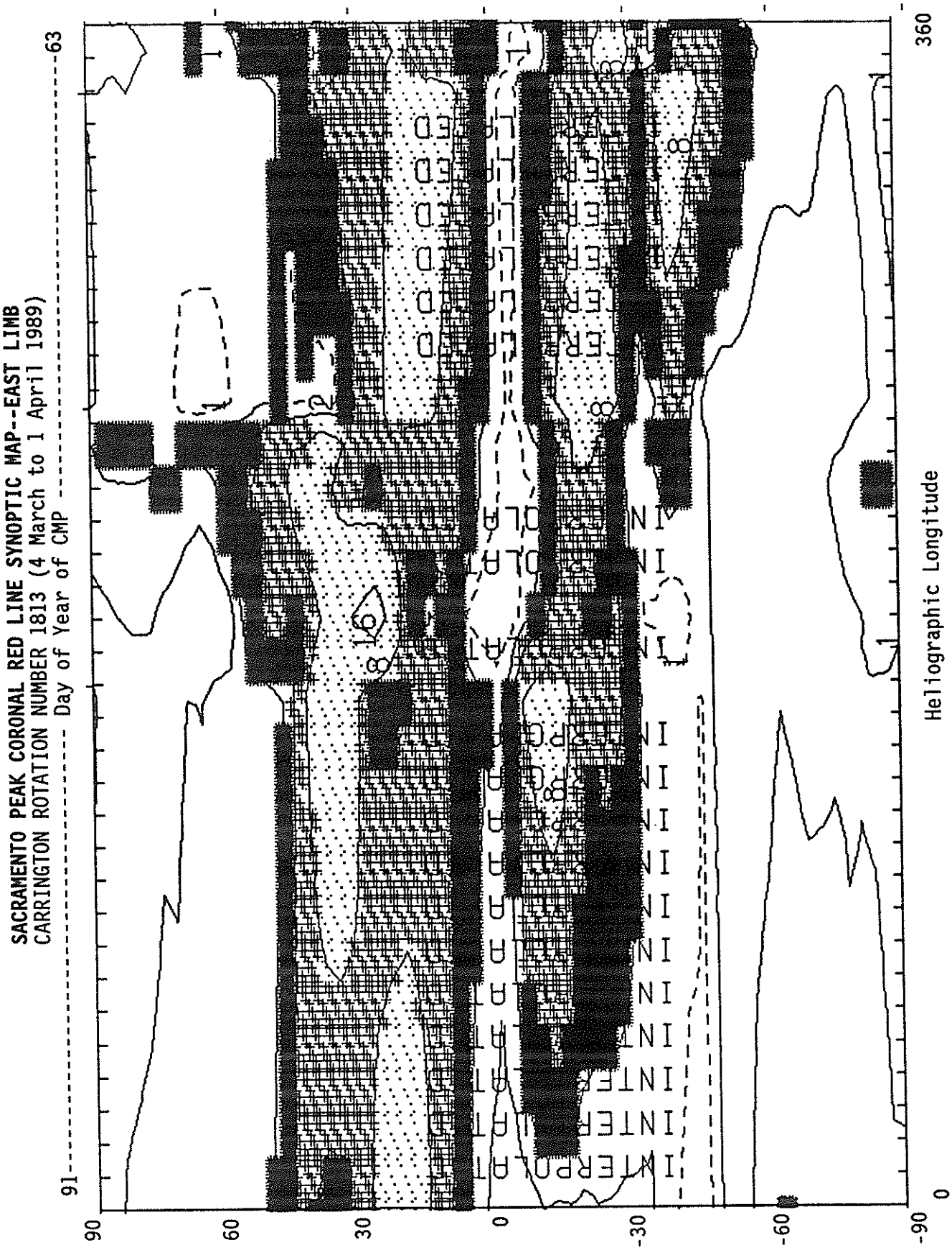
37
Mar 89


SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1813 (4 March to 1 April 1989)
91---------- Day of Year of CMP ----------63
INTERPOLATED
90
60
30
0
-30
-60
-90
360
Heliographic Longitude

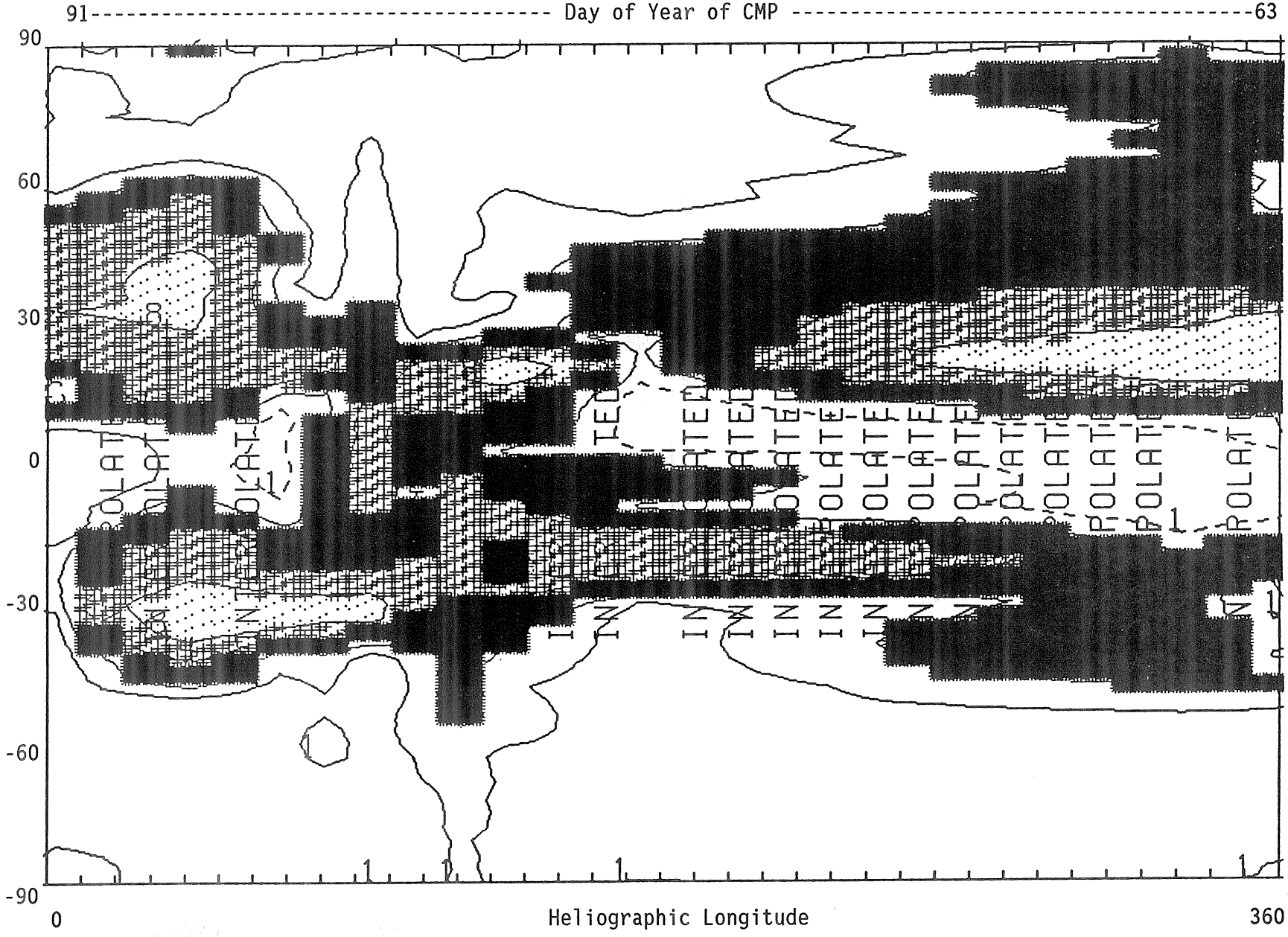
SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1813 (4 March to 1 April 1989)



39
Mar 89


SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1813 (4 March to 1 April 1989)
91---------- Day of Year of CMP ----------63
90
60
30
0
-30
-60
-90
360
0
Heliographic Longitude

SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1813 (4 March to 1 April 1989)

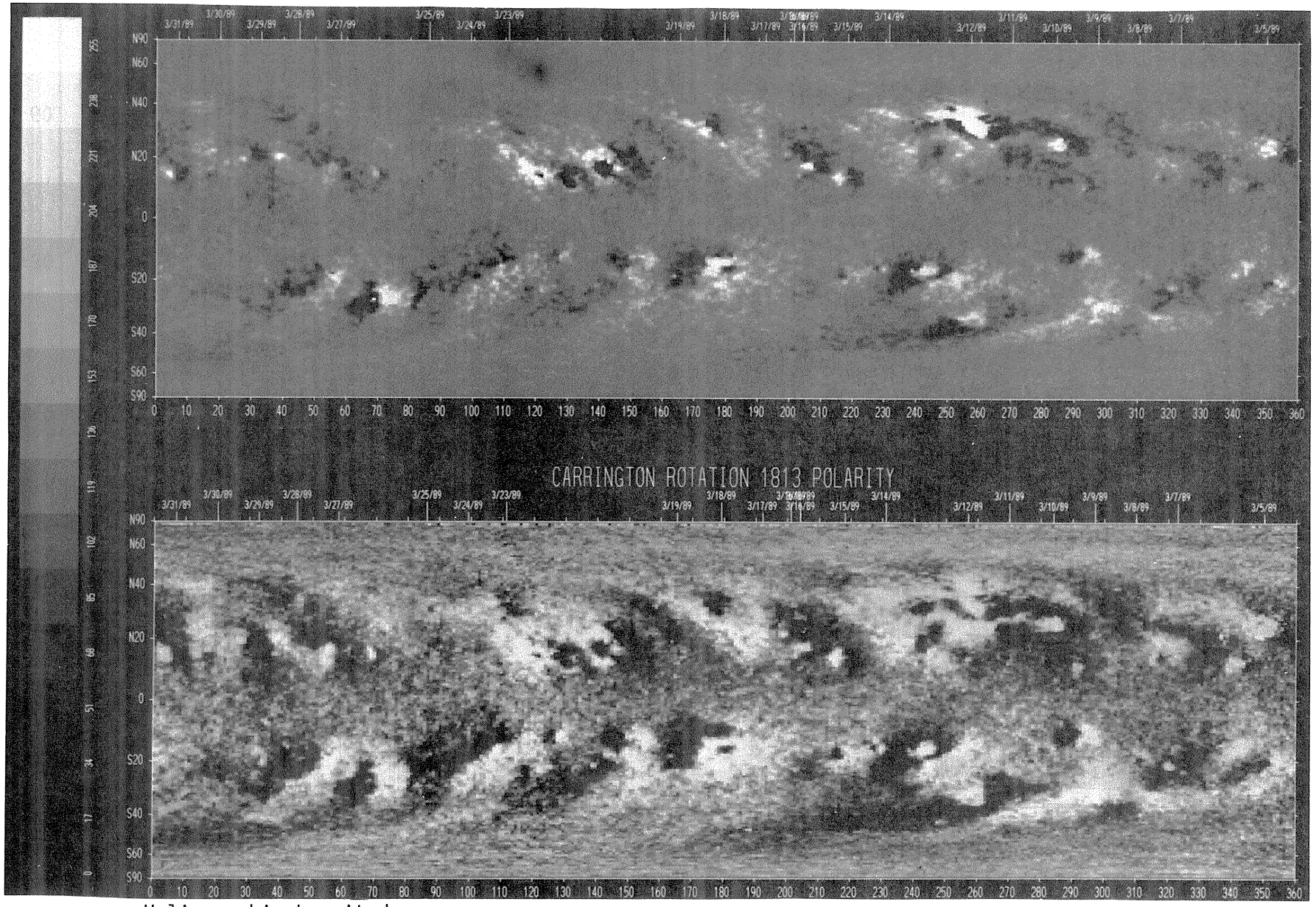


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1813
(4 March to 1 April 1989)

Kitt Peak National Observatory

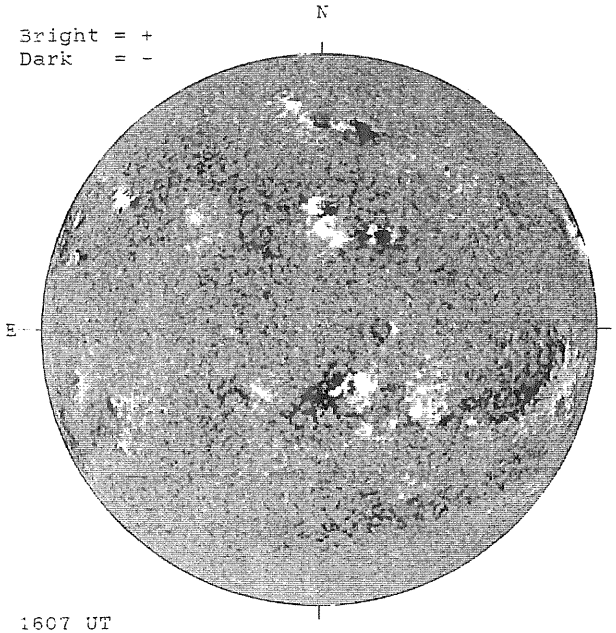
Dates of Observation



Heliographic Longitude

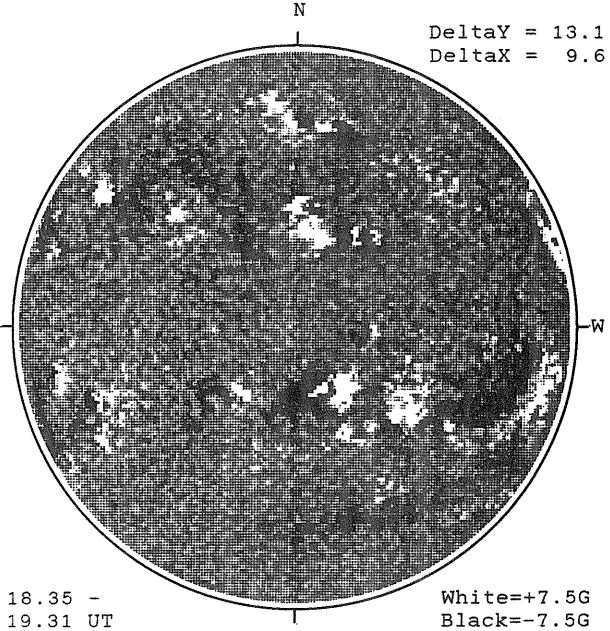
MARCH 1, 1989 (P=-21.55, B_o =-7.20, L_o = 50.69)

KITT PEAK MAGNETOGRAM

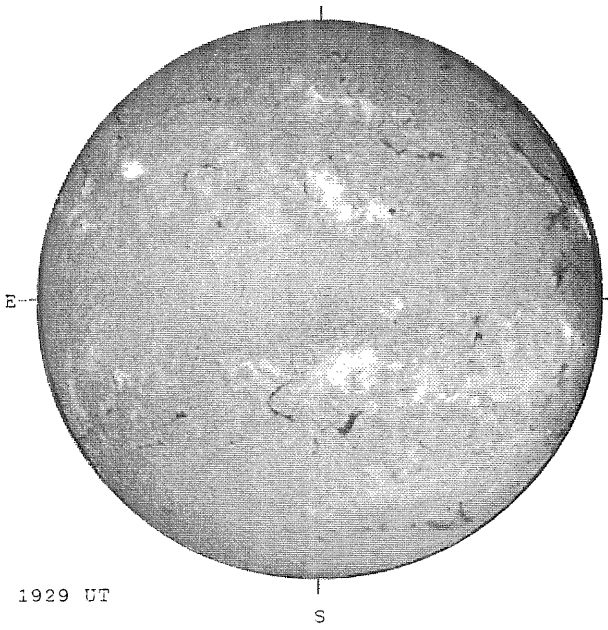


STANFORD MAGNETOGRAM

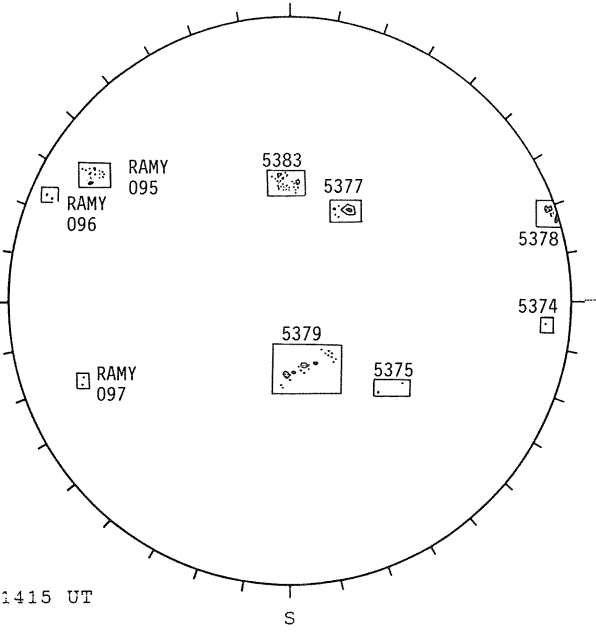
MT. WILSON MAGNETOGRAM



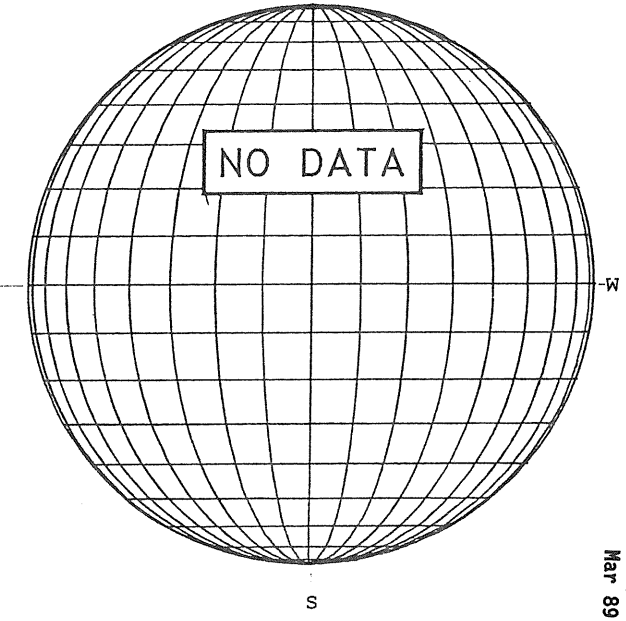
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT

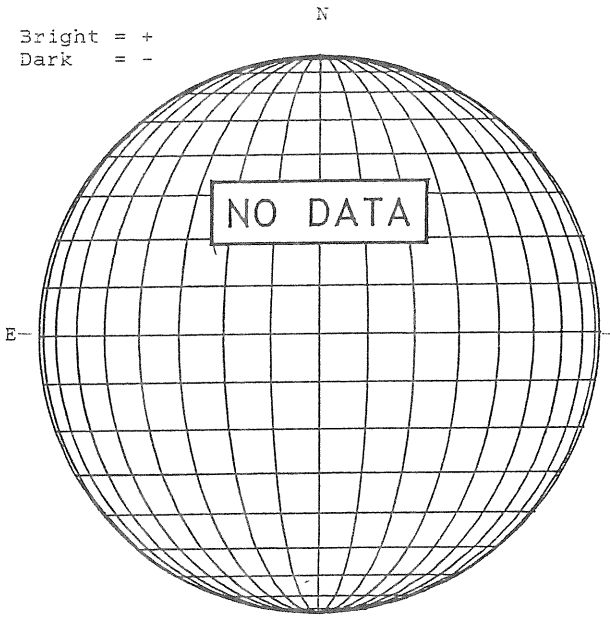


SACRAMENTO PEAK CORONA (1.15 Radii)

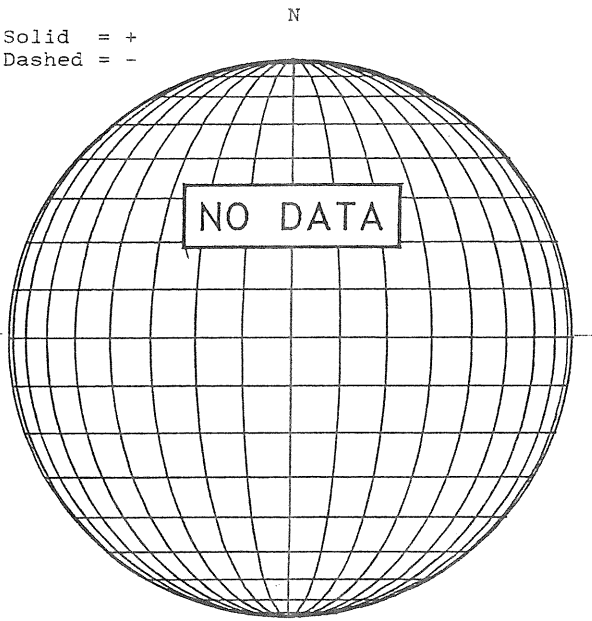


MARCH 2, 1989 (P=-21.80, B_O =-7.21, L_O = 37.51)

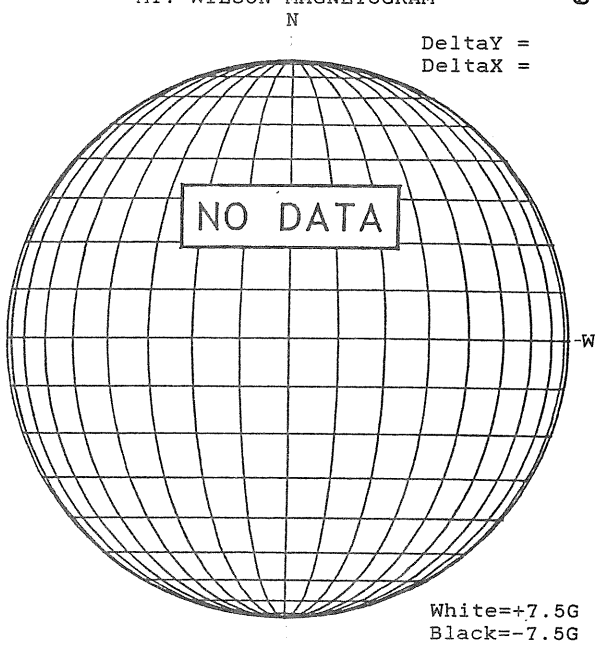
KITT PEAK MAGNETOGRAM



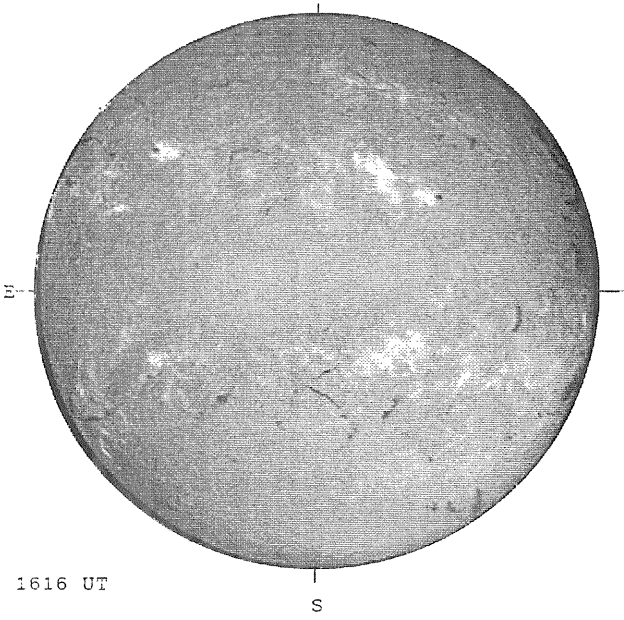
STANFORD MAGNETOGRAM



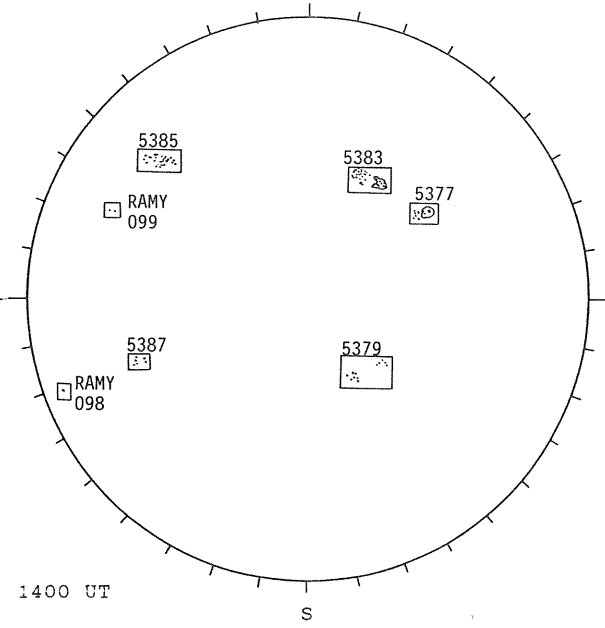
MT. WILSON MAGNETOGRAM



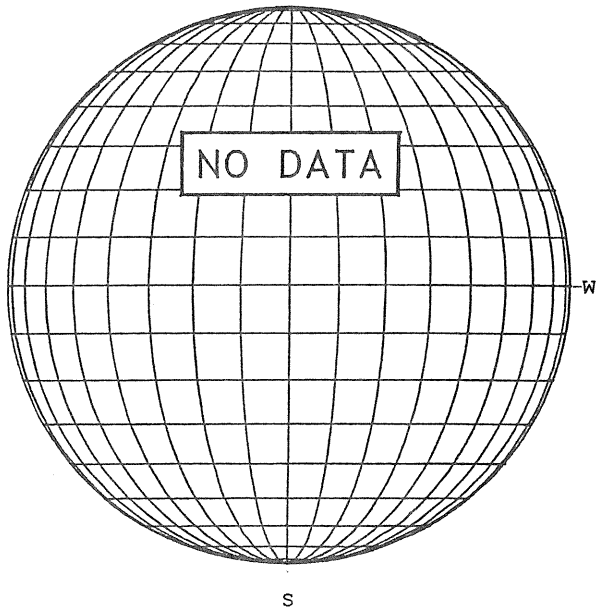
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT

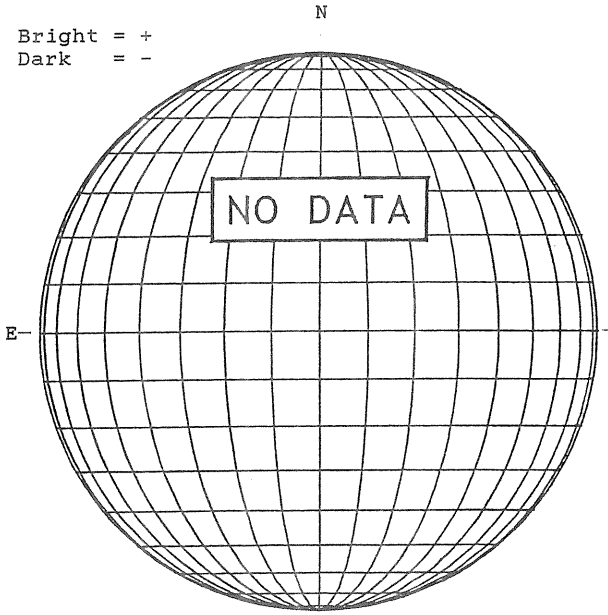


SACRAMENTO PEAK CORONA (1.15 Radii)



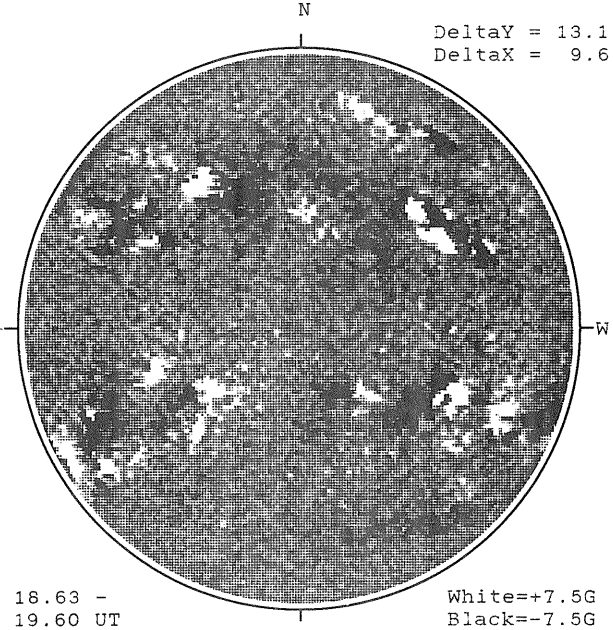
MARCH 3, 1989 (P=-22.04, B_O =-7.22, L_O = 24.34)

KITT PEAK MAGNETOGRAM

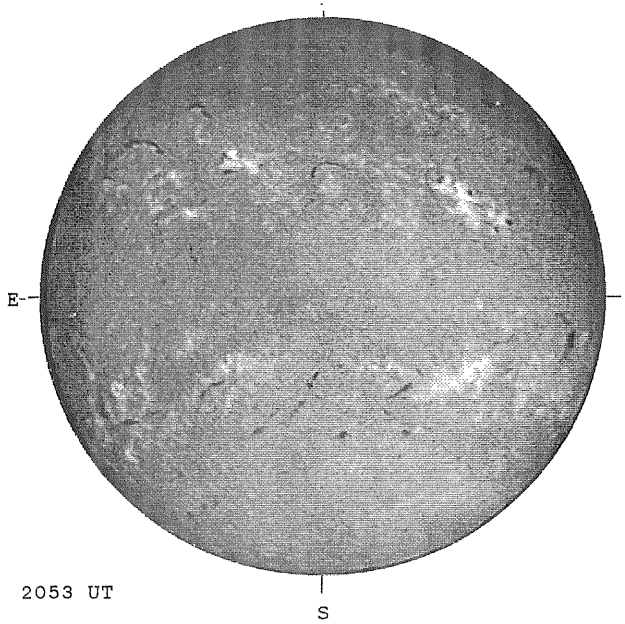


STANFORD MAGNETOGRAM

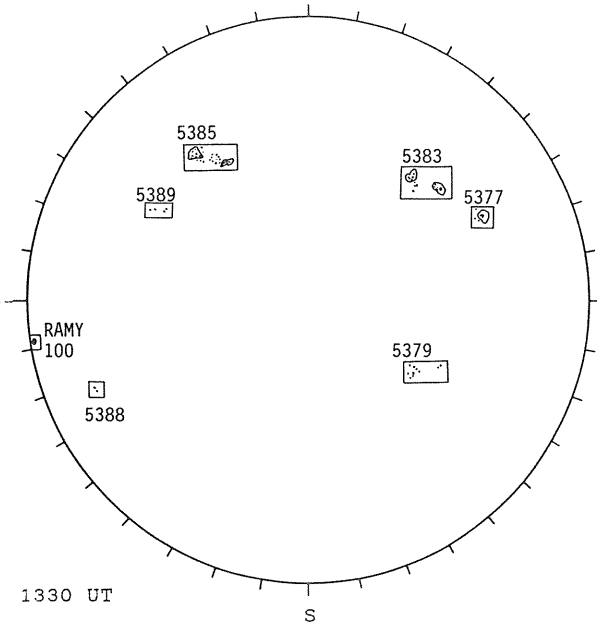
MT. WILSON MAGNETOGRAM



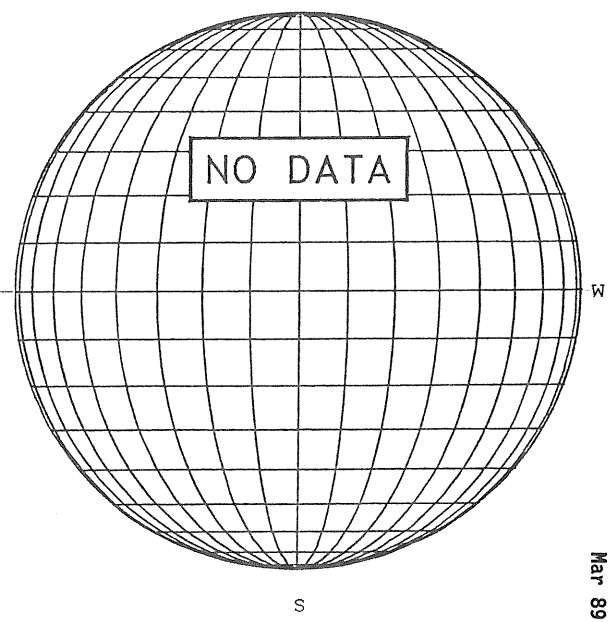
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



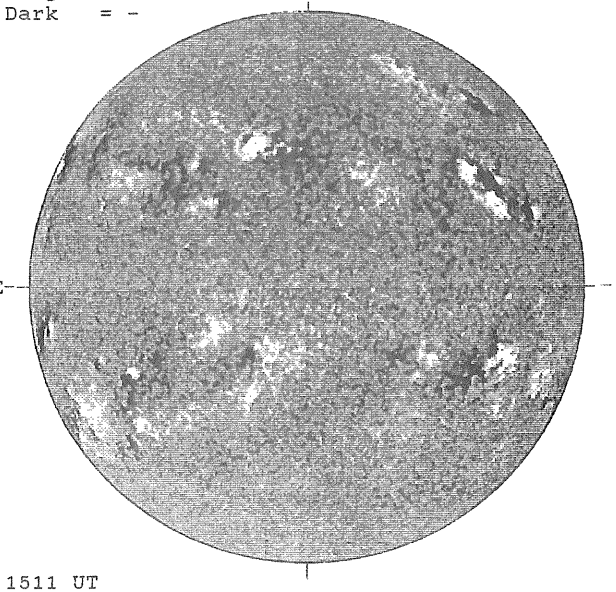
45
Mar 89

MARCH 4, 1989 (P=-22.28, B_o =-7.23, L_o = 11.17)

KITT PEAK MAGNETOGRAM

N

Bright = +
Dark = -



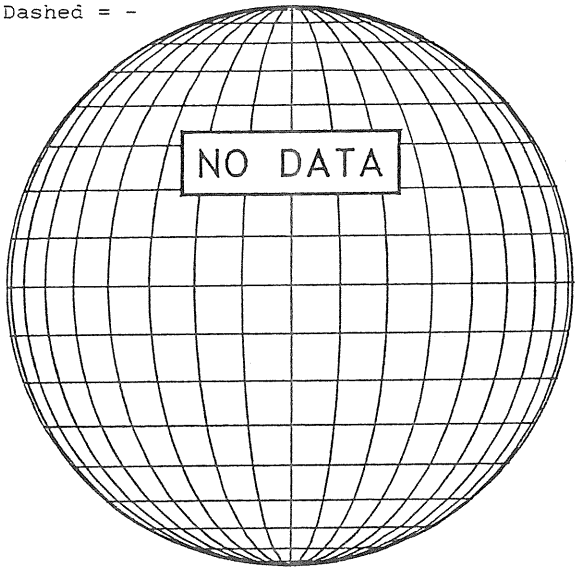
E

1511 UT

STANFORD MAGNETOGRAM

N

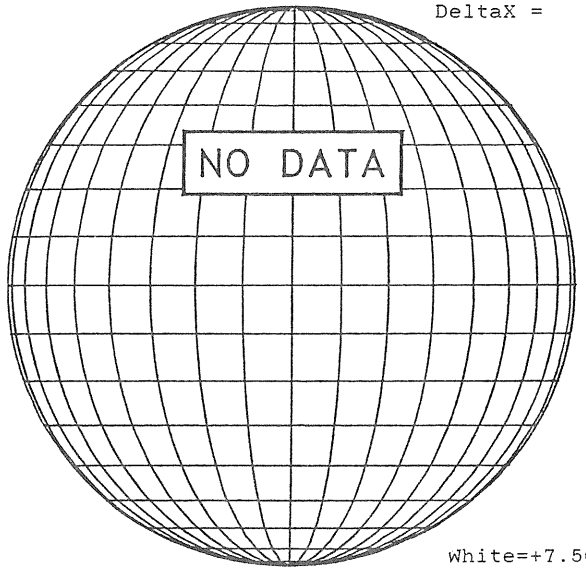
Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

N

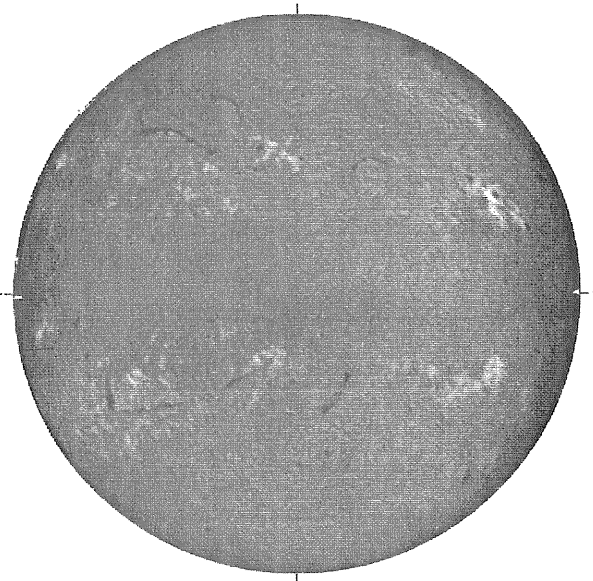
DeltaY =
DeltaX =



W

White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA

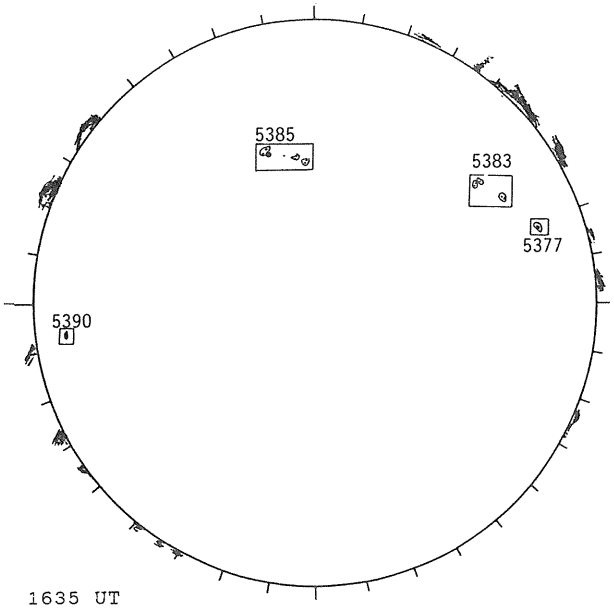


E

2240 UT

S

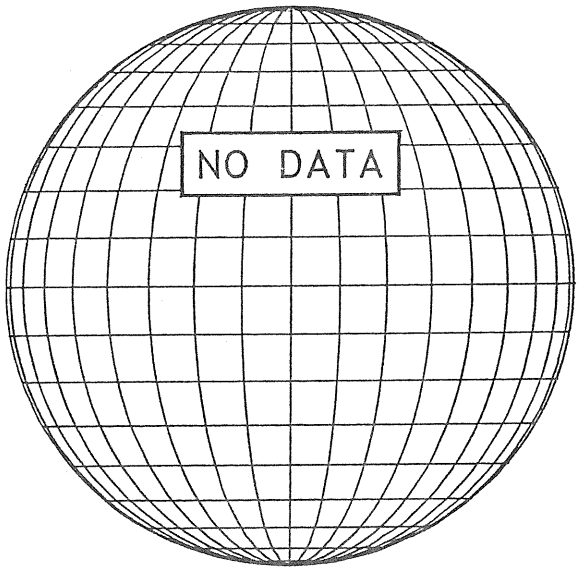
BOULDER SUNSPOT



1635 UT
1704 UT BOUL Prom

S

SACRAMENTO PEAK CORONA (1.15 Radii)

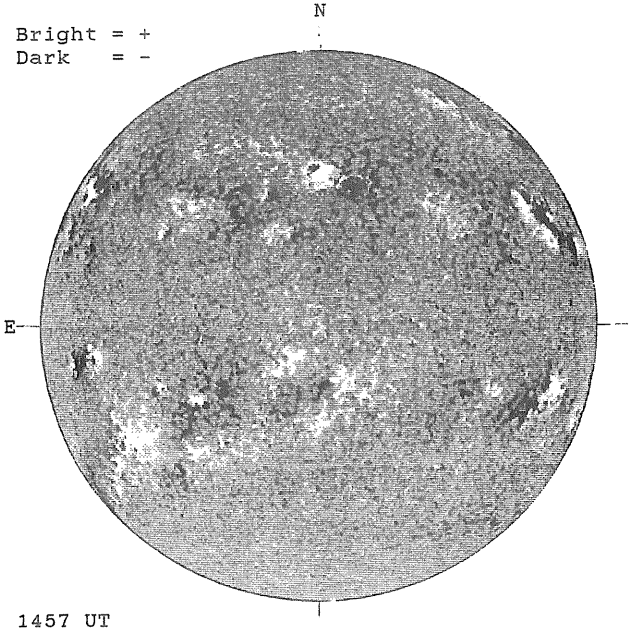


W

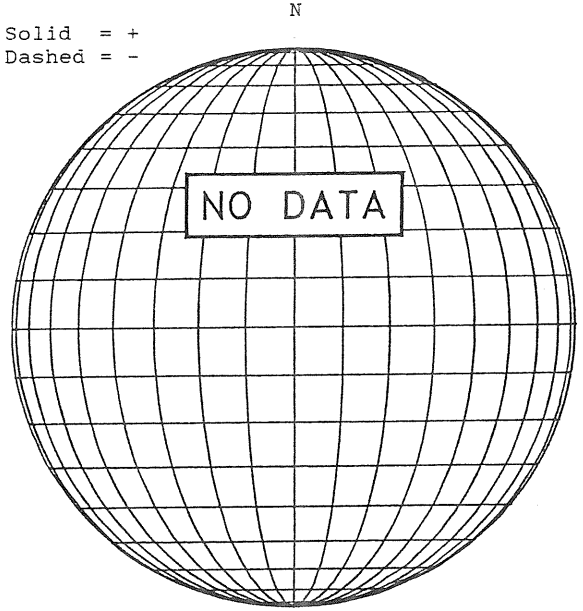
S

MARCH 5, 1989 (P=-22.51, B_o =-7.23, L_o = 357.99)

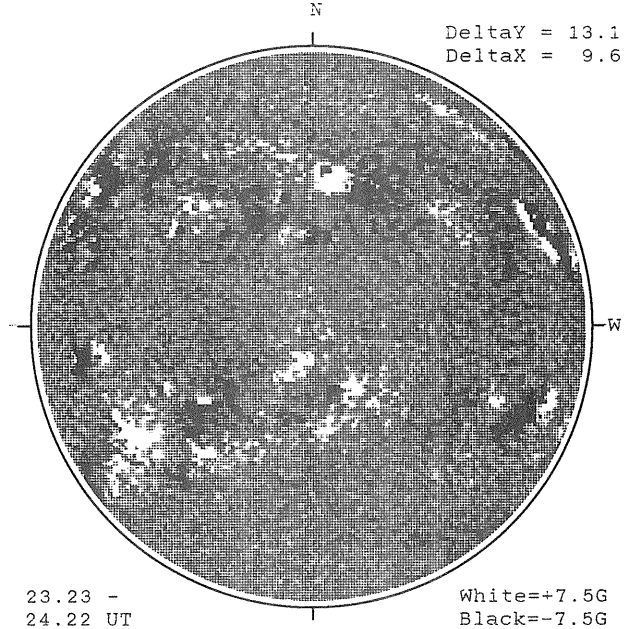
KITT PEAK MAGNETOGRAM



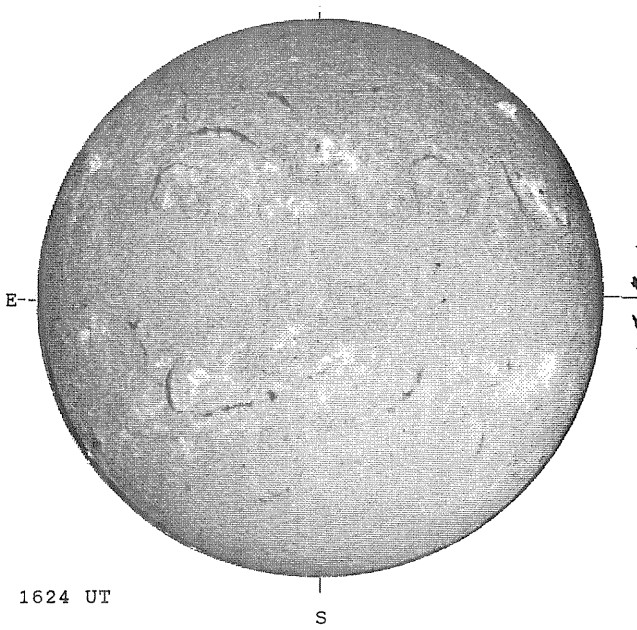
STANFORD MAGNETOGRAM



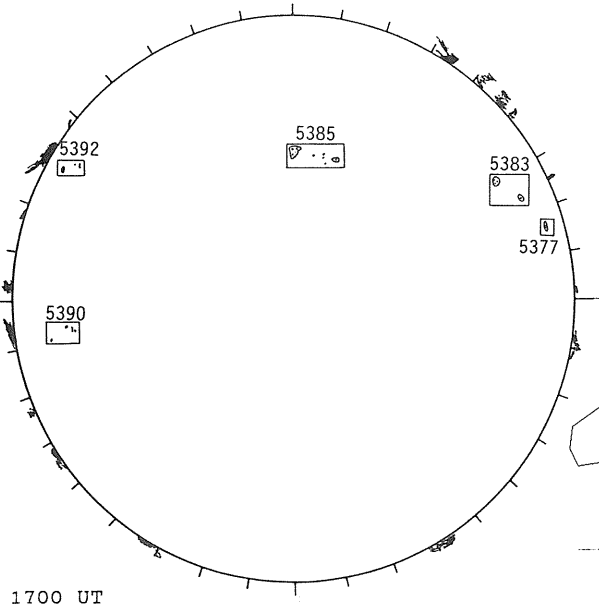
MT. WILSON MAGNETOGRAM



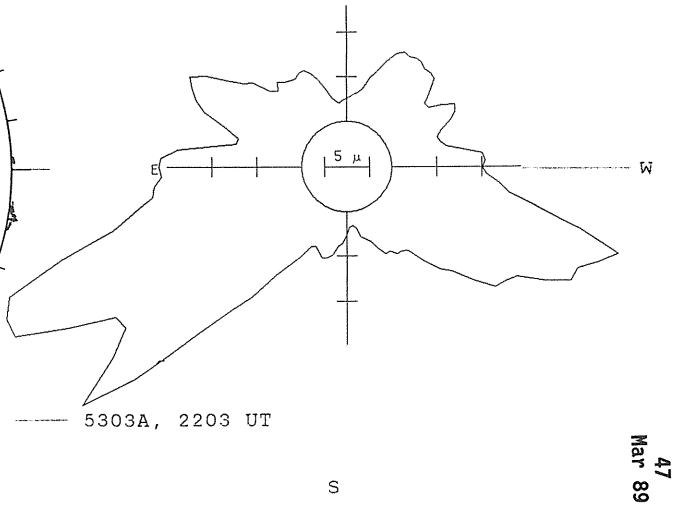
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT

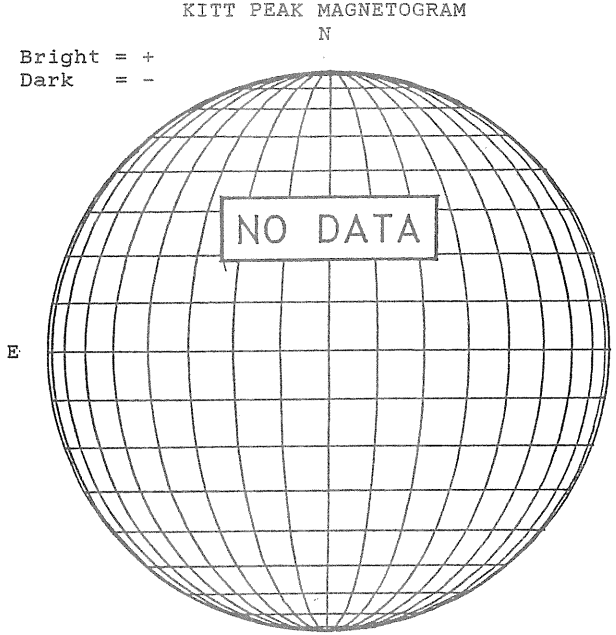


SACRAMENTO PEAK CORONA (1.15 Radii)

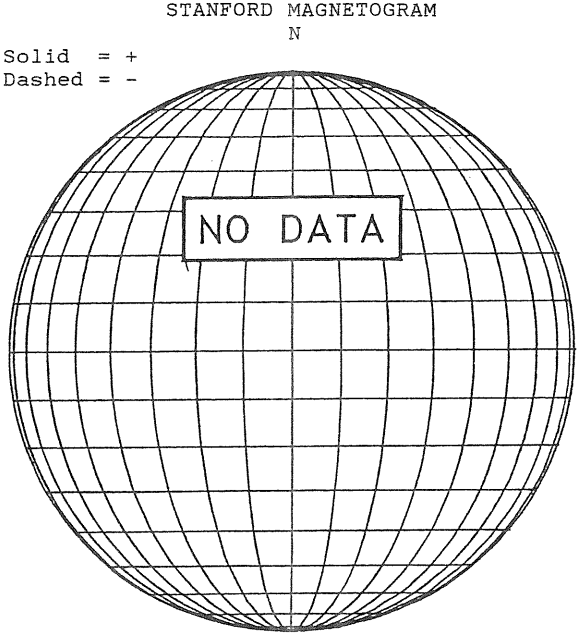


MARCH 6, 1989 (P=-22.73, B_o =-7.24, L_o = 344.82)

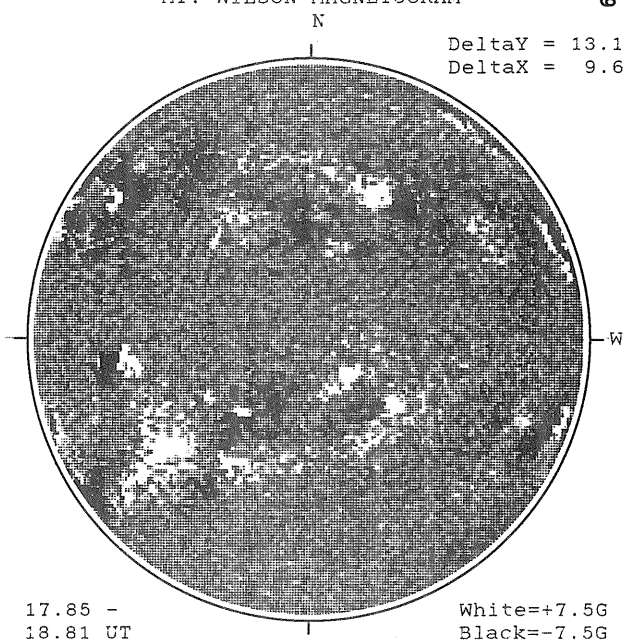
KITT PEAK MAGNETOGRAM



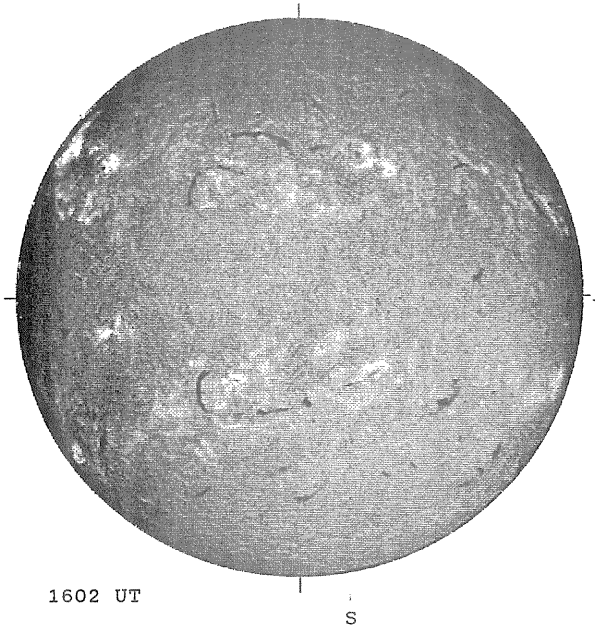
STANFORD MAGNETOGRAM



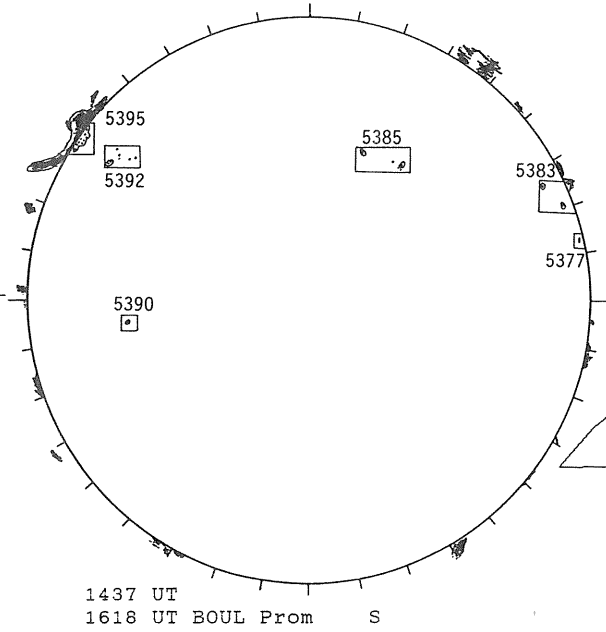
MT. WILSON MAGNETOGRAM



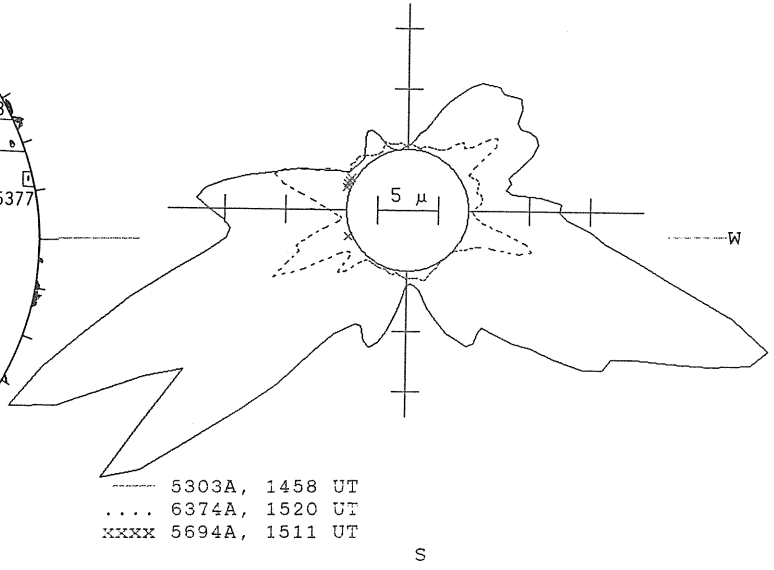
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT

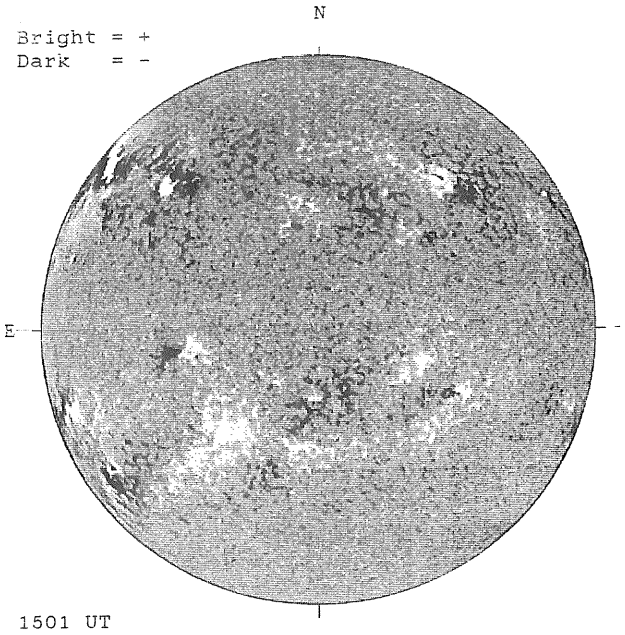


SACRAMENTO PEAK CORONA (1.15 Radii)

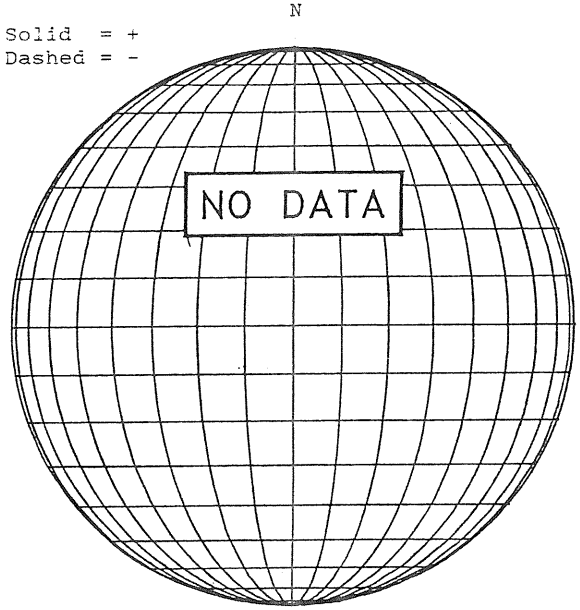


MARCH 7, 1989 (P=-22.95, B_o =-7.23, L_o = 331.64)

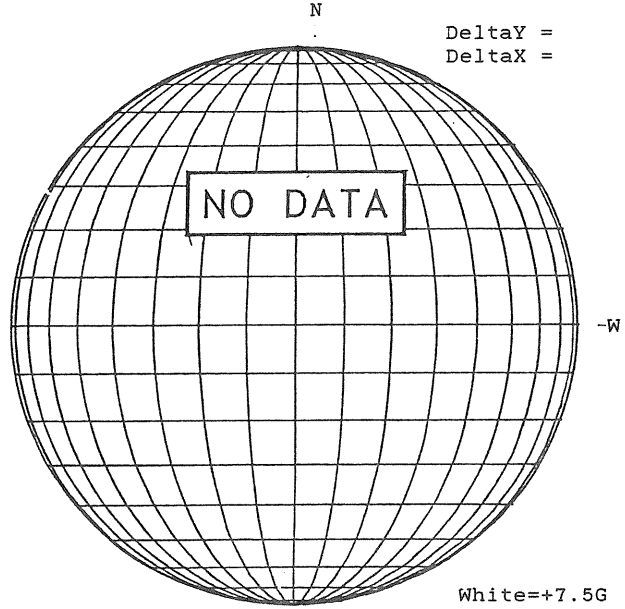
KITT PEAK MAGNETOGRAM



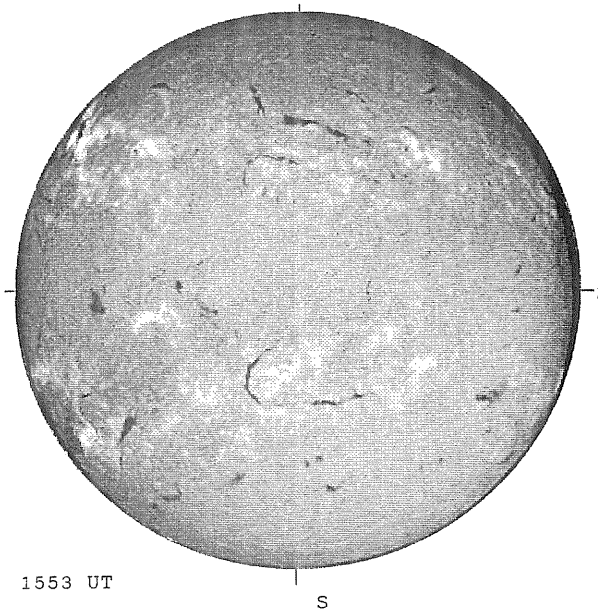
STANFORD MAGNETOGRAM



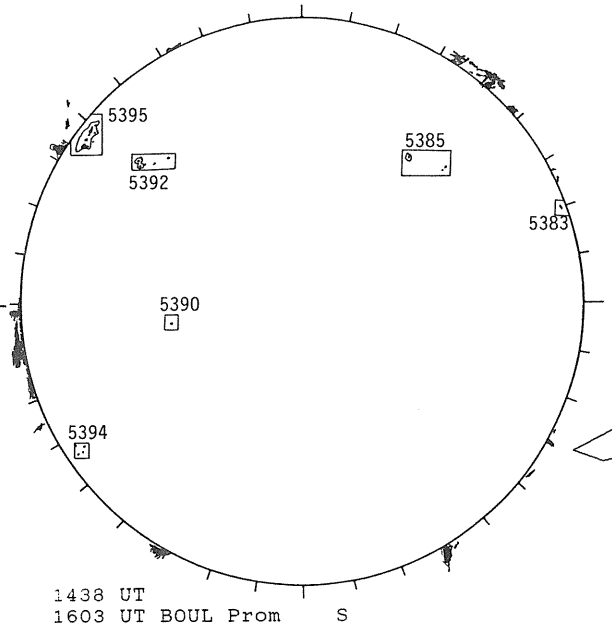
MT. WILSON MAGNETOGRAM



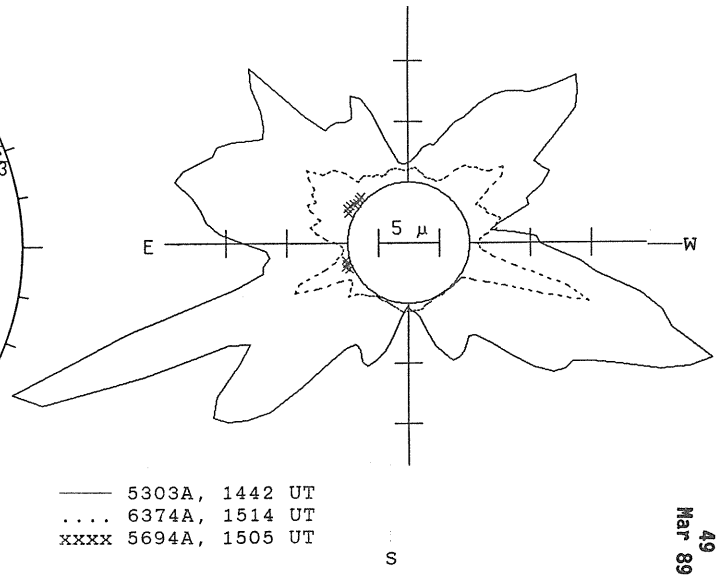
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT

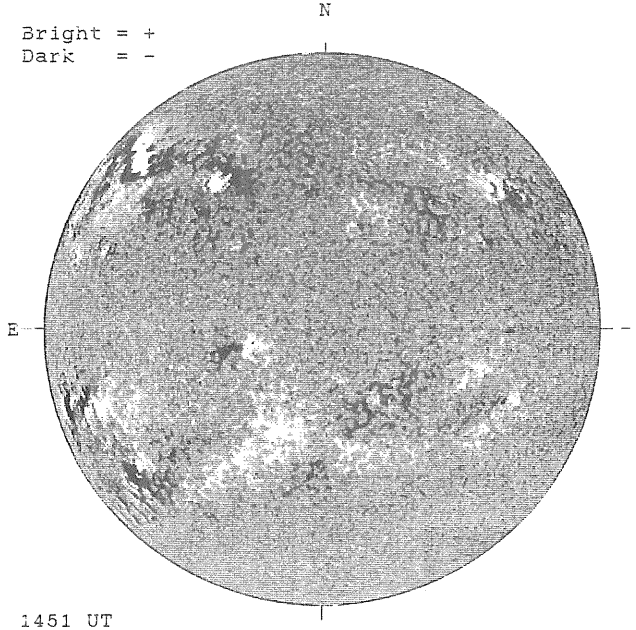


SACRAMENTO PEAK CORONA (1.15 Radii)

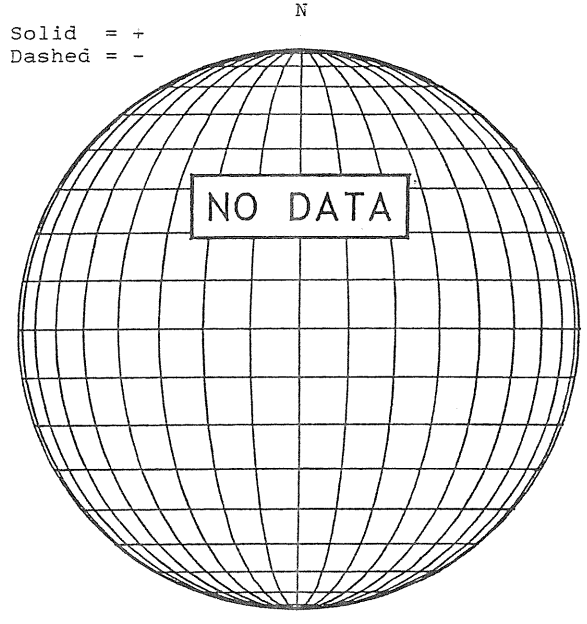


MARCH 8, 1989 (P=-23.16, B_o =-7.23, L_o = 318.47)

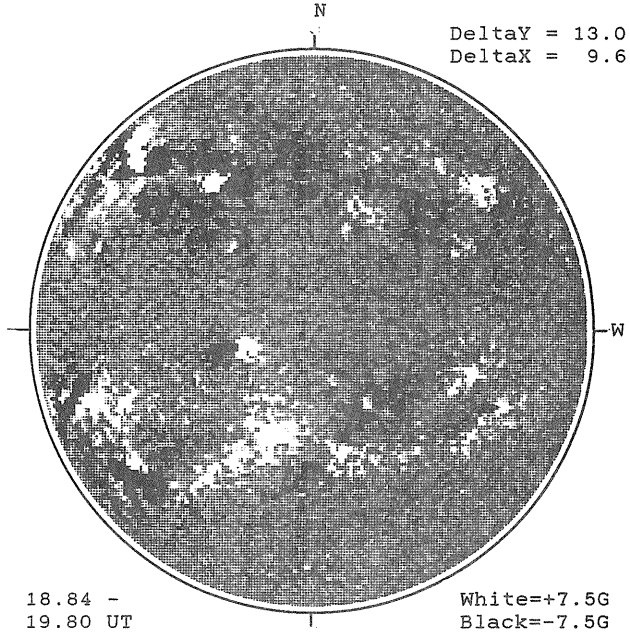
KITT PEAK MAGNETOGRAM



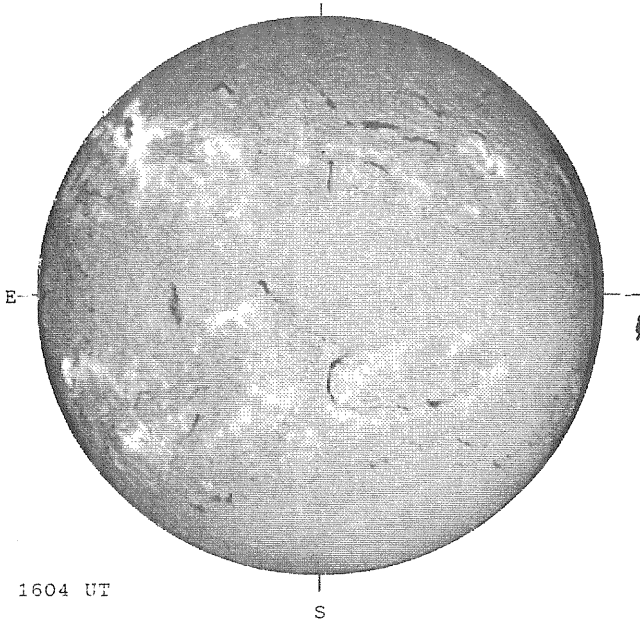
STANFORD MAGNETOGRAM



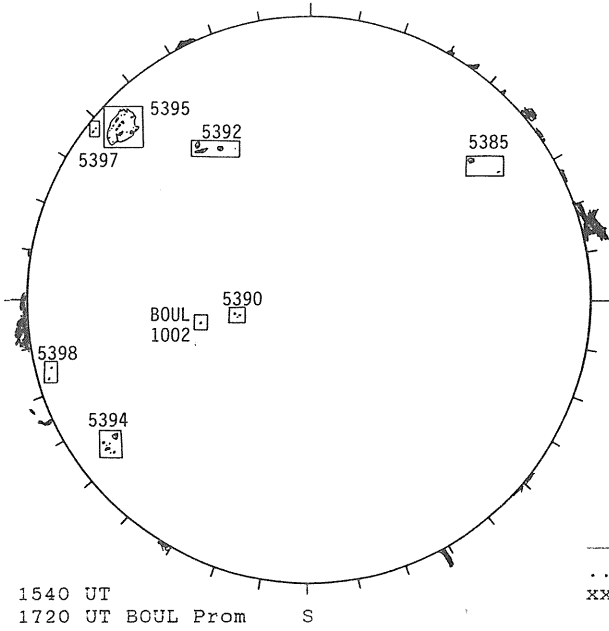
MT. WILSON MAGNETOGRAM



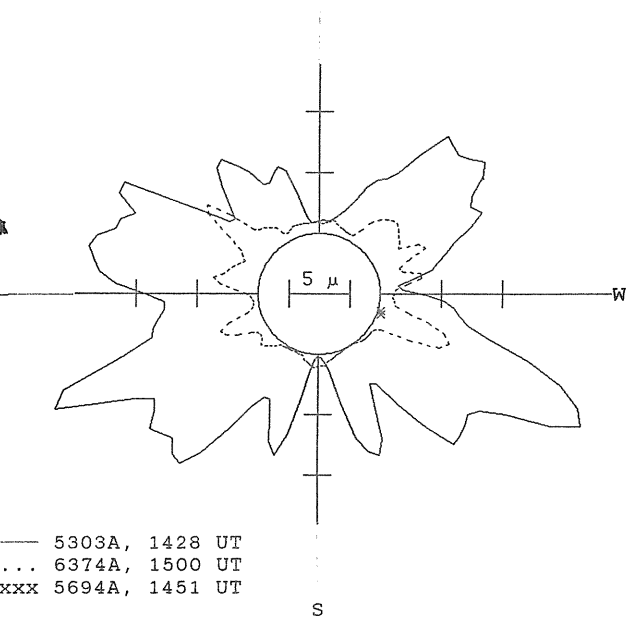
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT

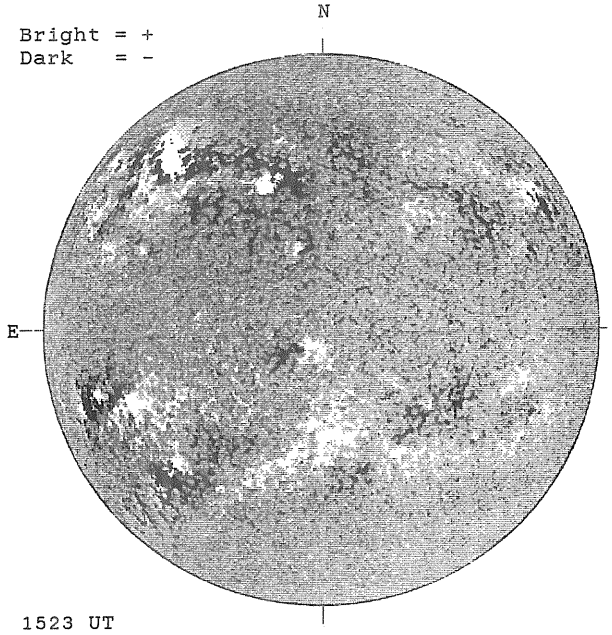


SACRAMENTO PEAK CORONA (1.15 Radii)

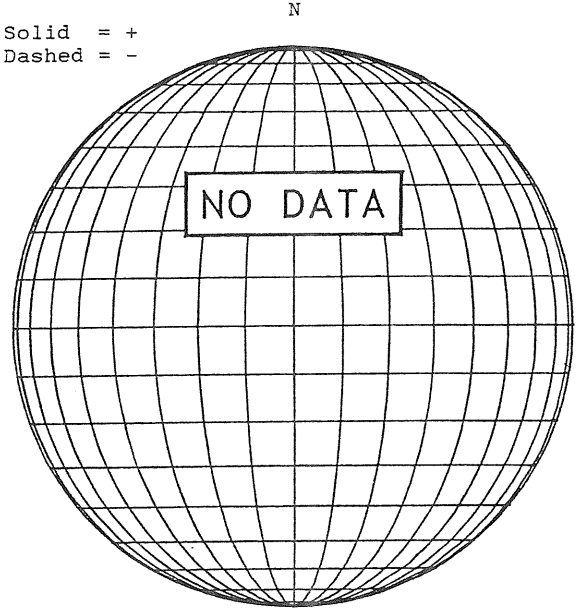


MARCH 9, 1989 (P=-23.36, B_o =-7.23, L_o = 305.29)

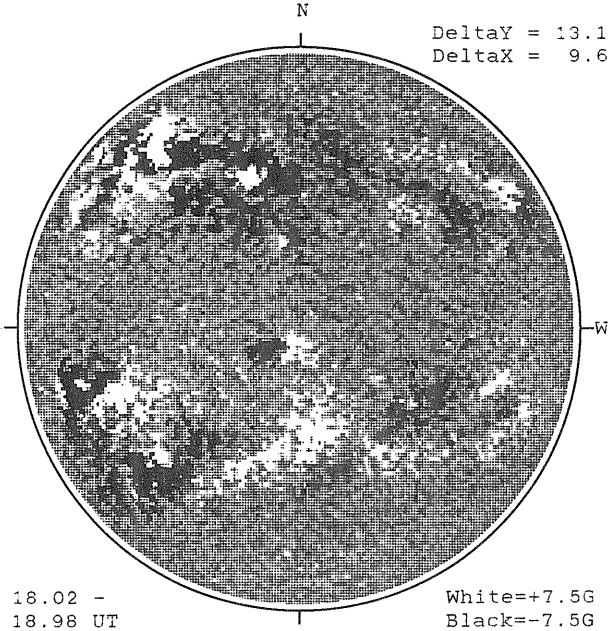
KITT PEAK MAGNETOGRAM



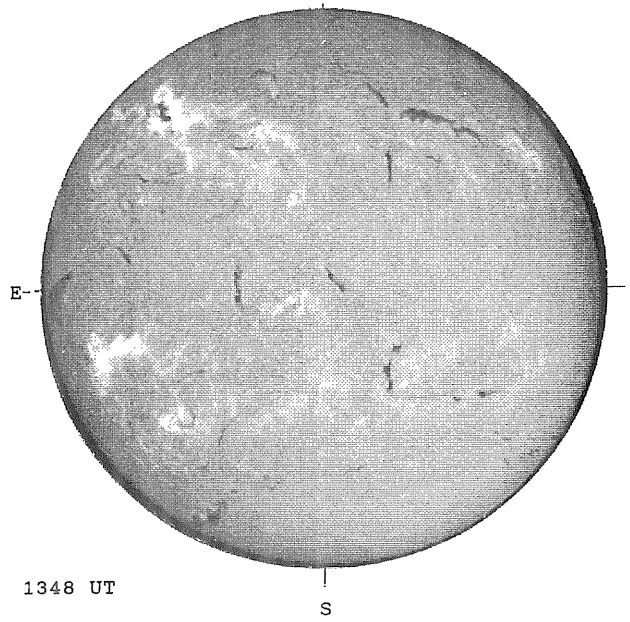
STANFORD MAGNETOGRAM



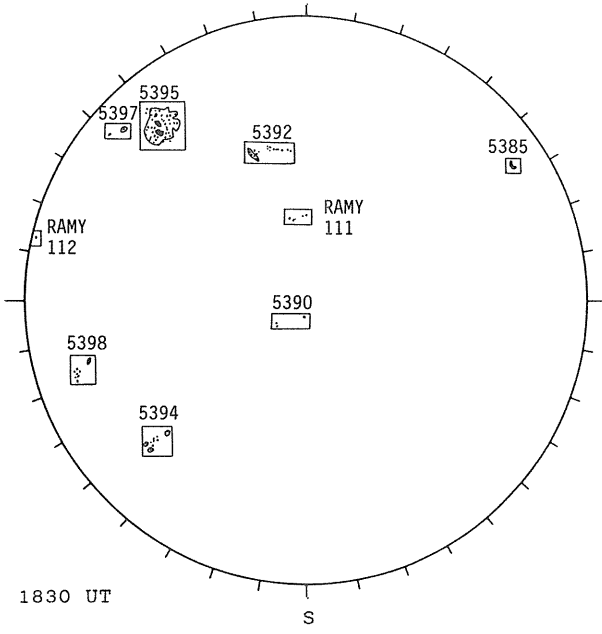
MT. WILSON MAGNETOGRAM



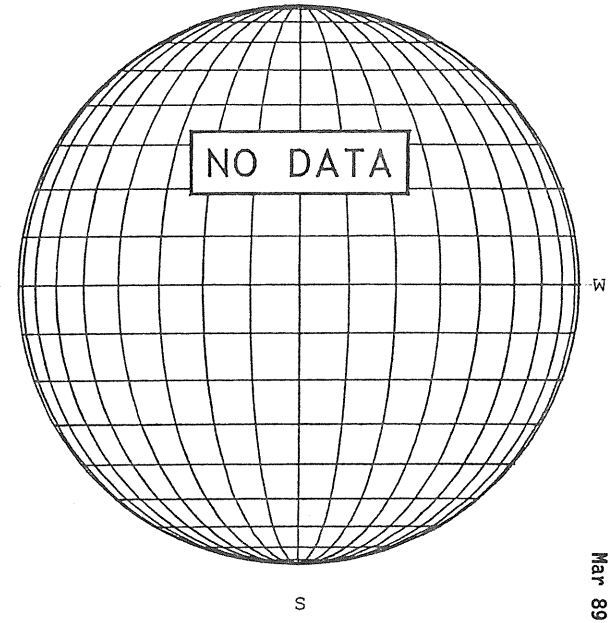
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT

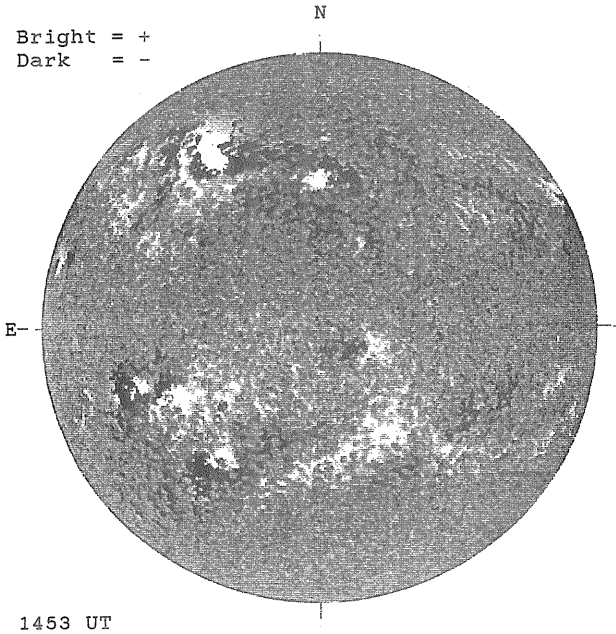


SACRAMENTO PEAK CORONA (1.15 Radii)

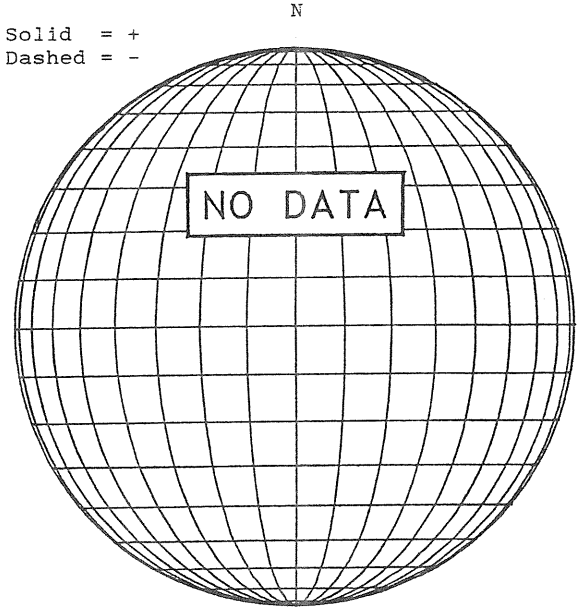


MARCH 10, 1989 (P=-23.56, B_o =-7.22, L_o = 292.12)

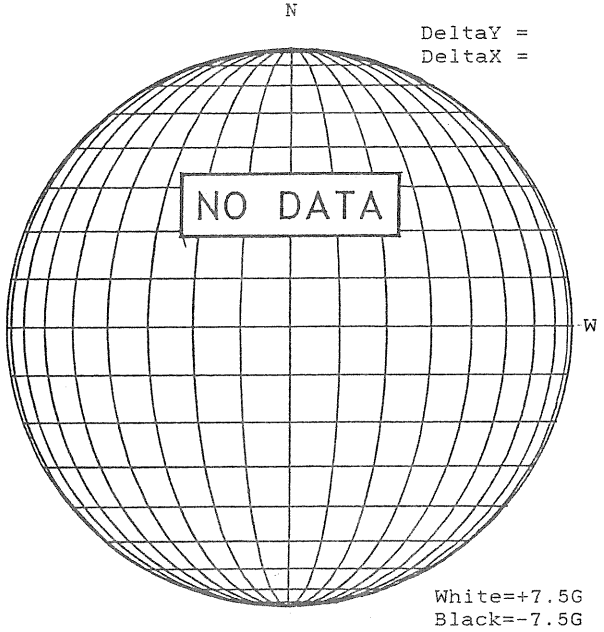
KITT PEAK MAGNETOGRAM



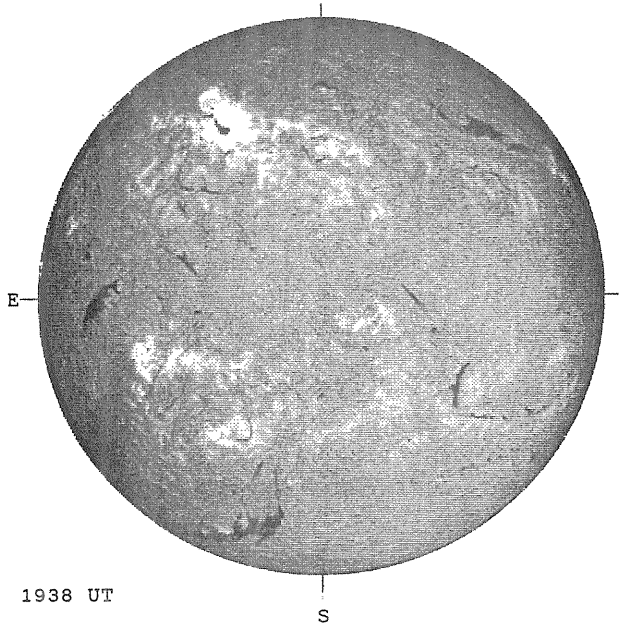
STANFORD MAGNETOGRAM



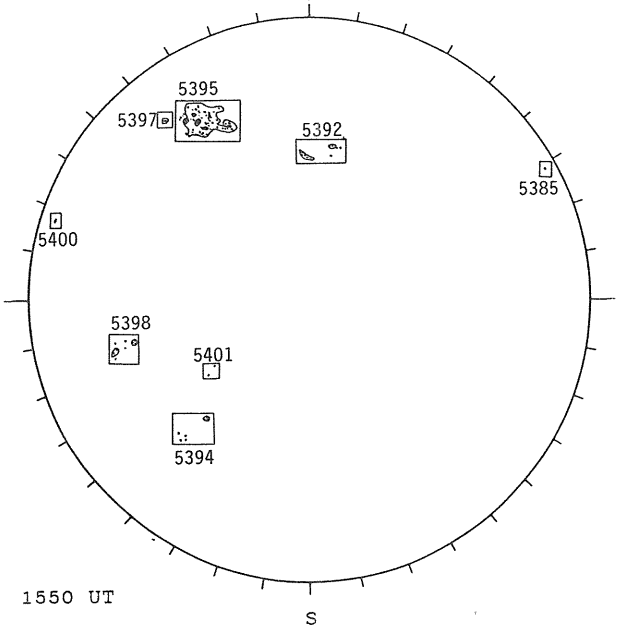
MT. WILSON MAGNETOGRAM



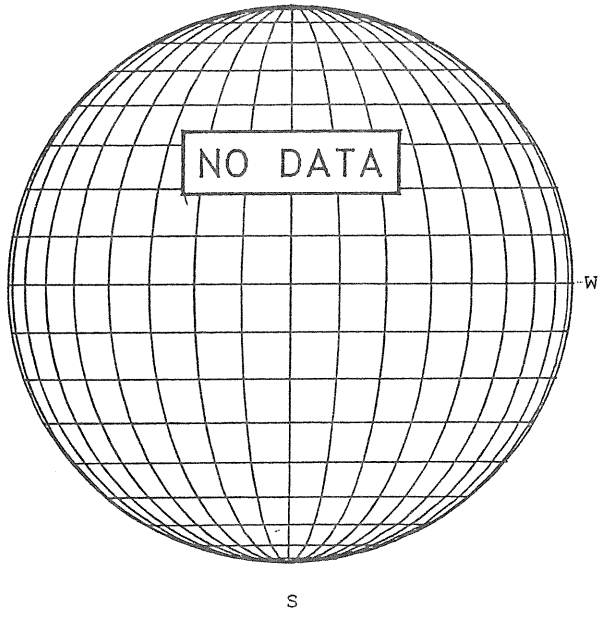
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT

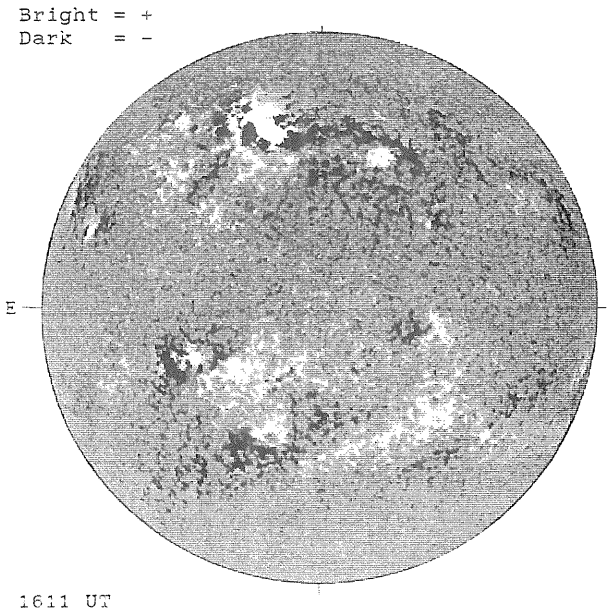


SACRAMENTO PEAK CORONA (1.15 Radii)

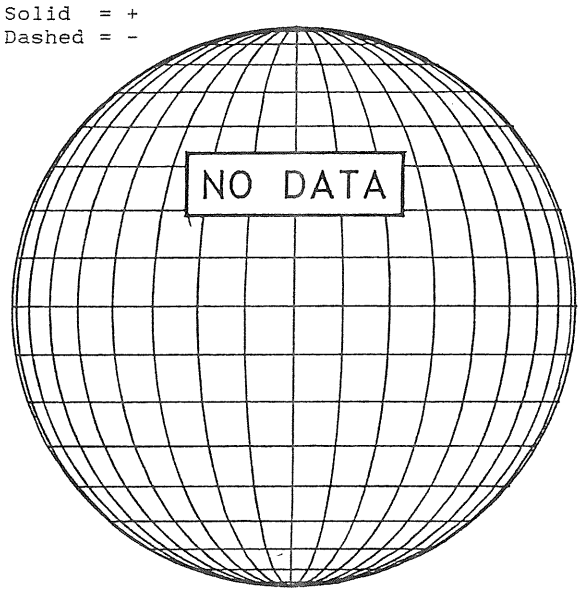


MARCH 11, 1989 (P=-23.75, B_o =-7.21, L_o = 278.94)

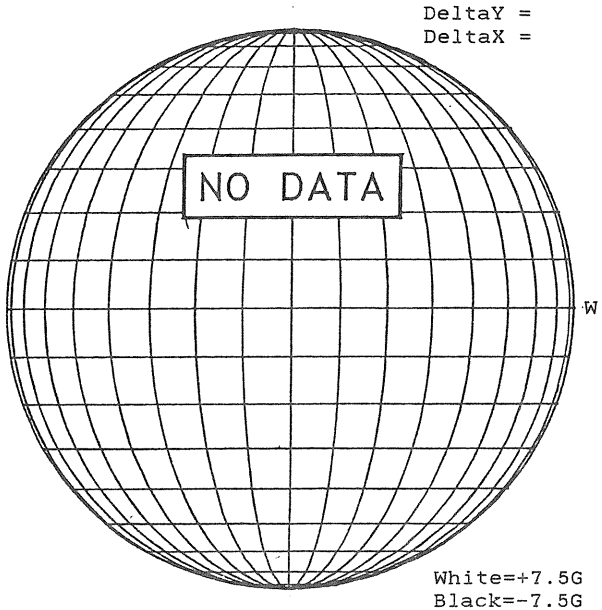
KITT PEAK MAGNETOGRAM



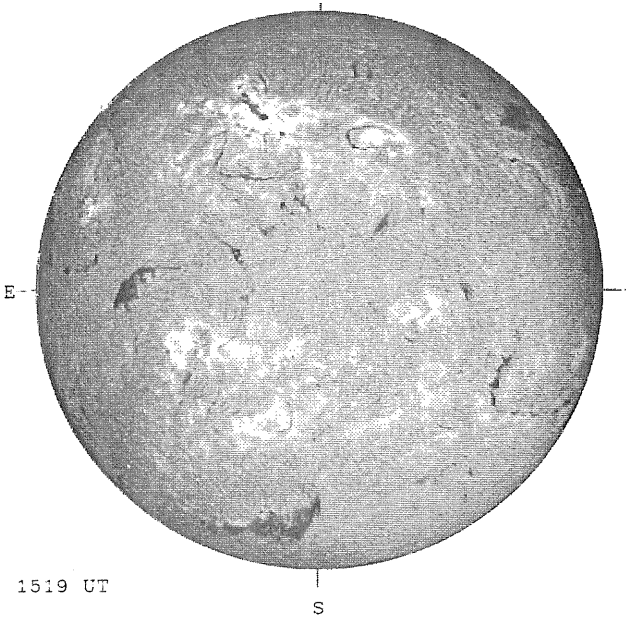
STANFORD MAGNETOGRAM



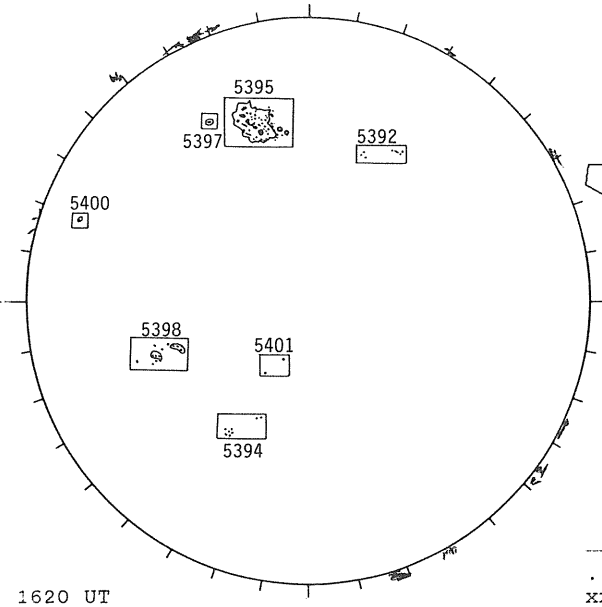
MT. WILSON MAGNETOGRAM



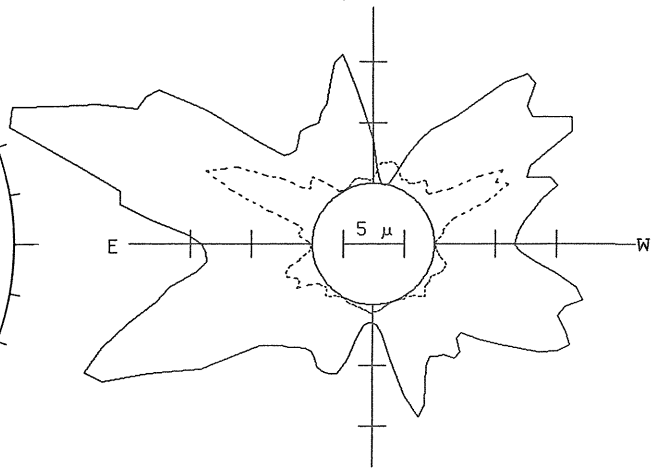
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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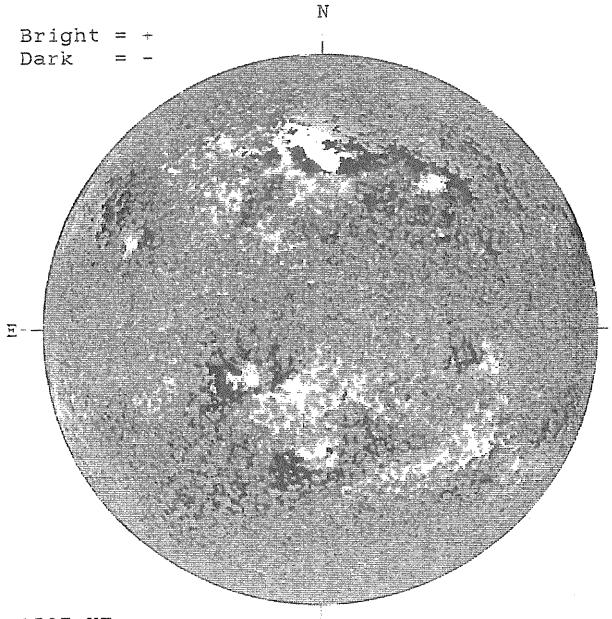
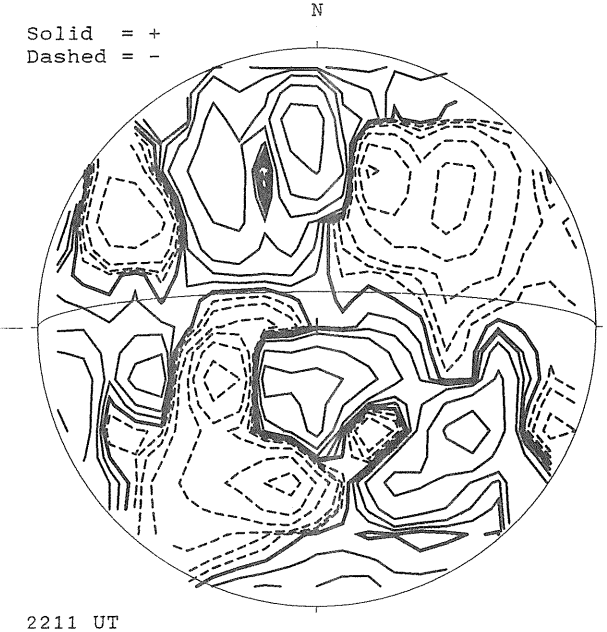
MARCH 12, 1989 (P=-23.94, B_o =-7.20, L_o = 265.76)

KITT PEAK MAGNETOGRAM



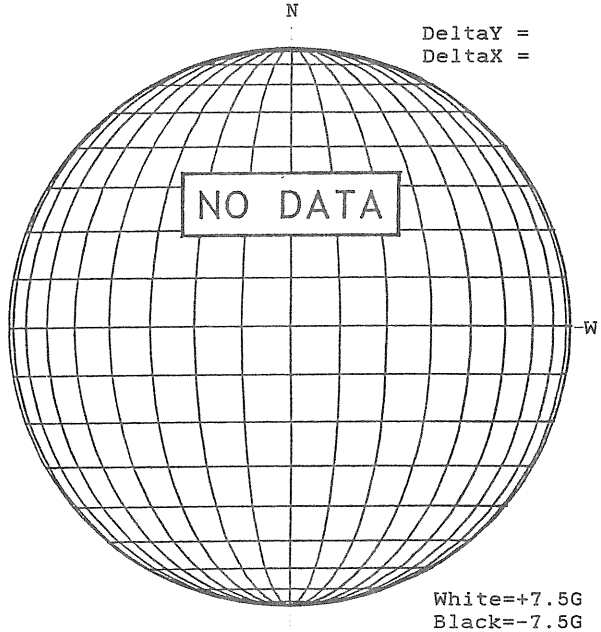
1507 UT

STANFORD MAGNETOGRAM



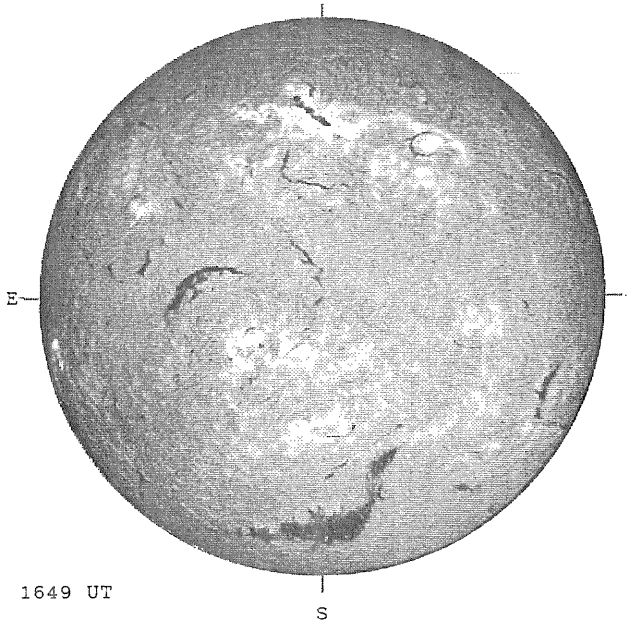
2211 UT

MT. WILSON MAGNETOGRAM



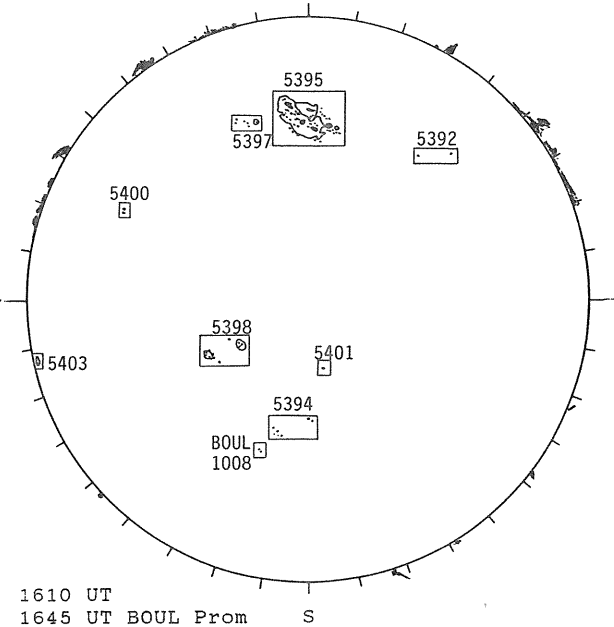
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



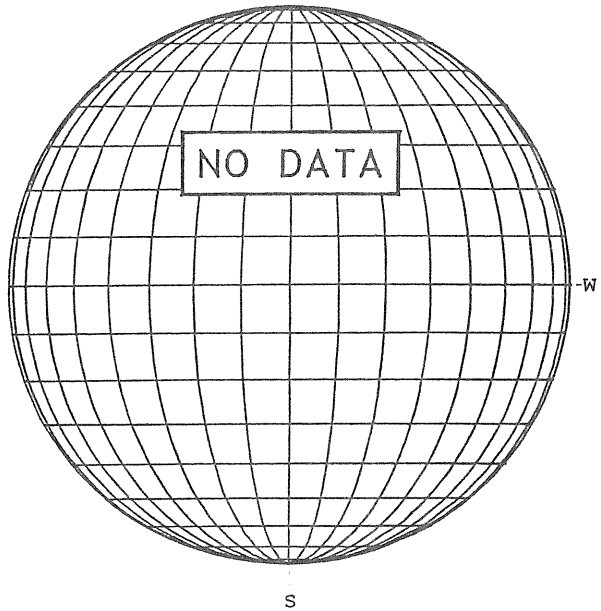
1649 UT

BOULDER SUNSPOT



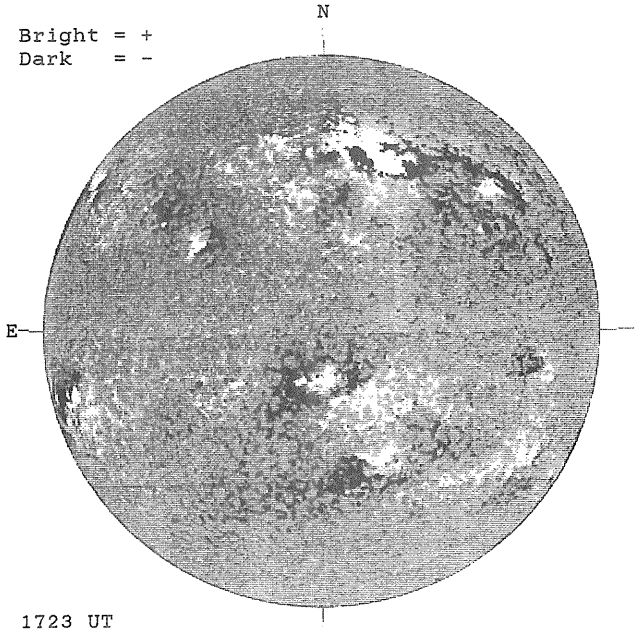
1610 UT
1645 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

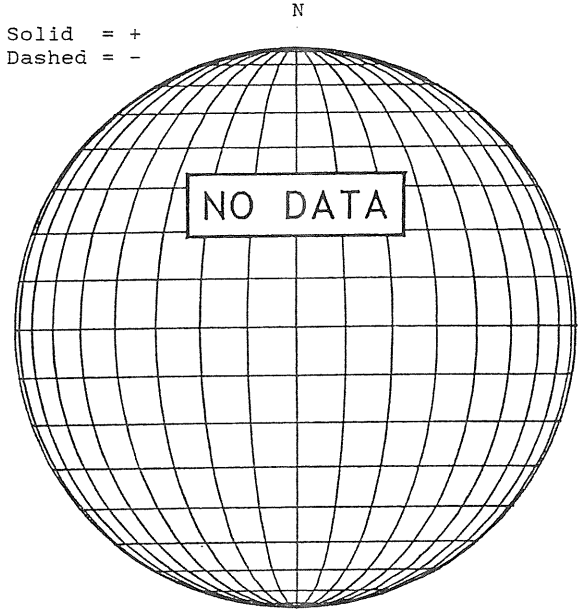


MARCH 13, 1989 (P=-24.11, B_o =-7.18, L_o = 252.58)

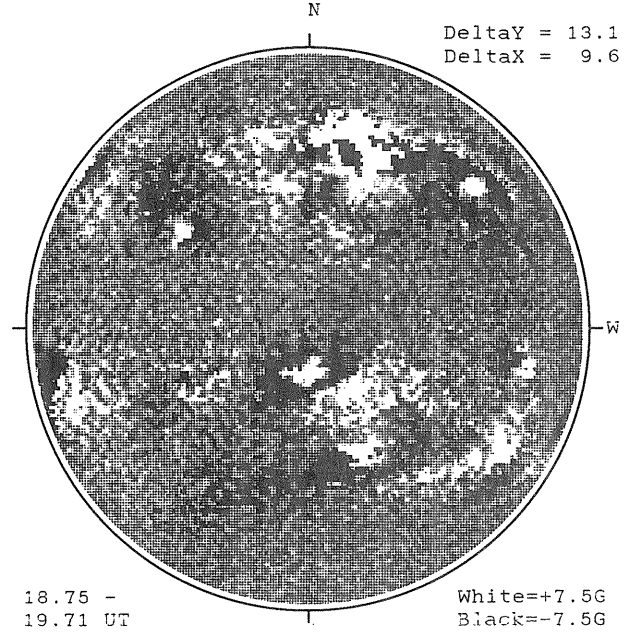
KITT PEAK MAGNETOGRAM



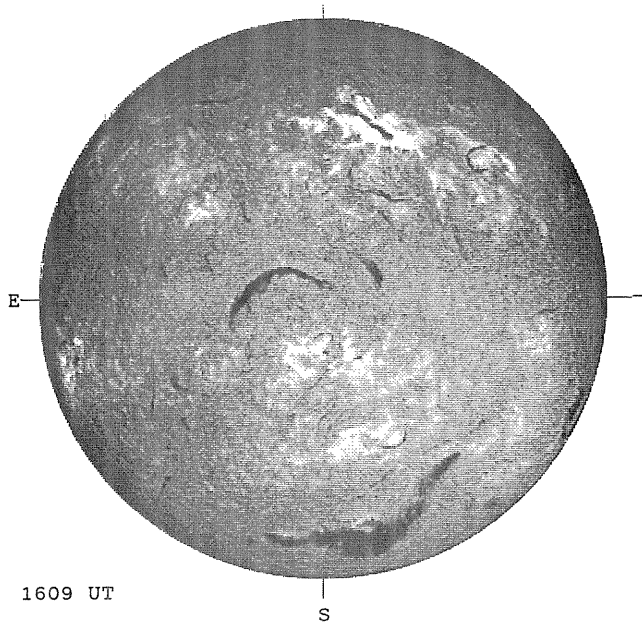
STANFORD MAGNETOGRAM



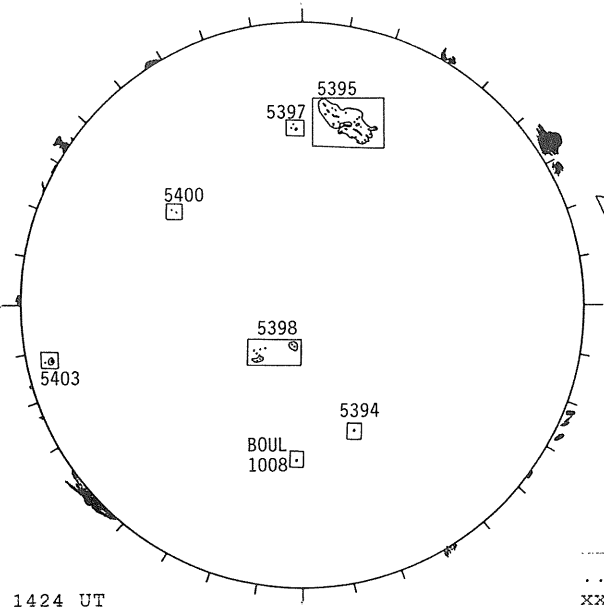
MT. WILSON MAGNETOGRAM



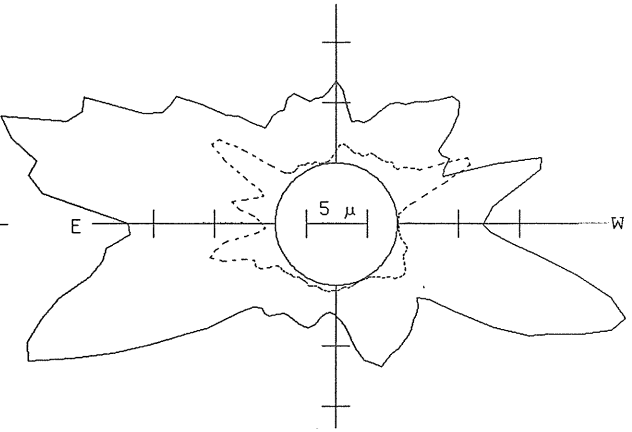
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



5303A, 1435 UT
6374A, 1555 UT
xxxx 5694A, 1542 UT
NO 5694A ACTIVITY TODAY

S

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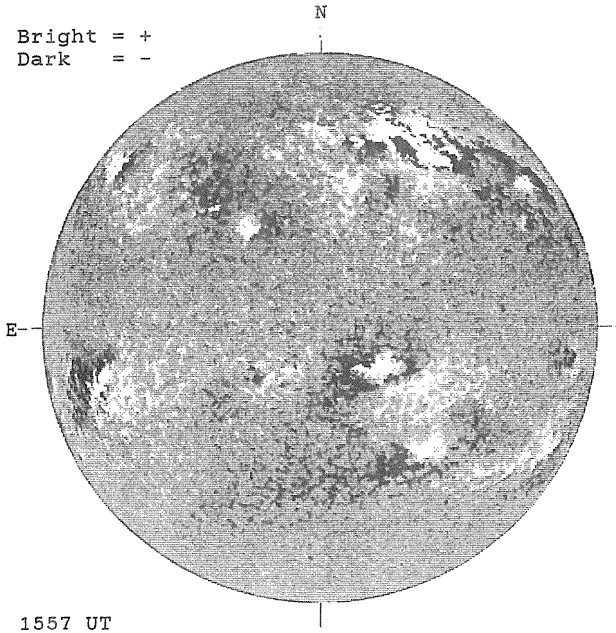
Mar 89

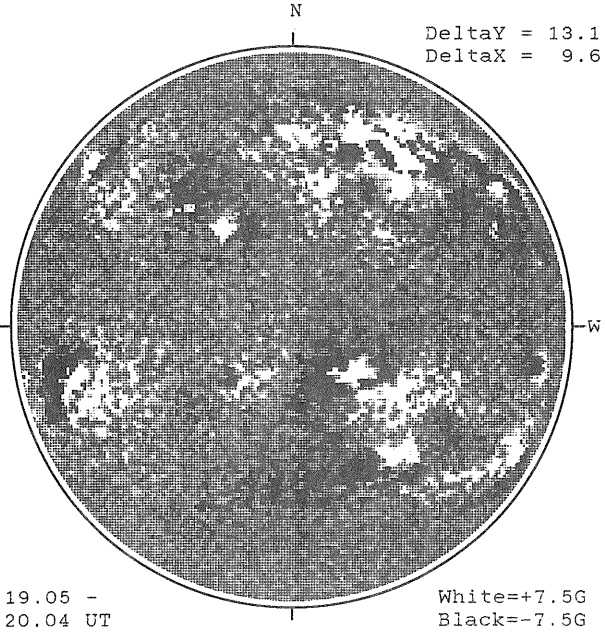
MARCH 14, 1989 (P=-24.28, B_o =-7.17, L_o = 239.40)

KITT PEAK MAGNETOGRAM

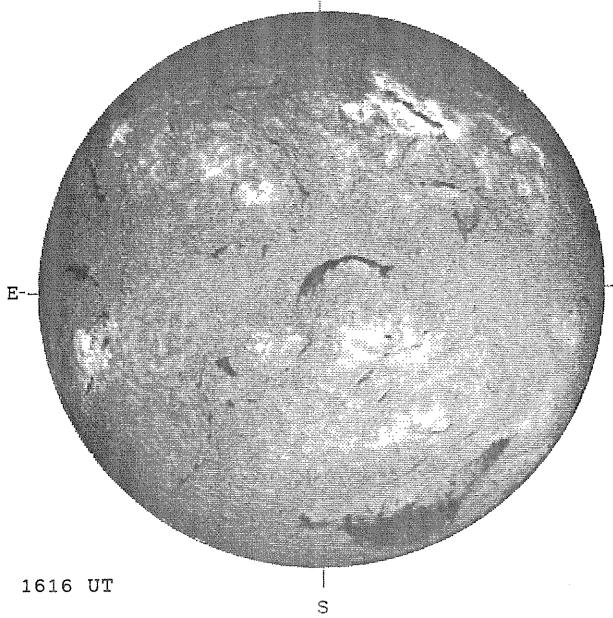


STANFORD MAGNETOGRAM

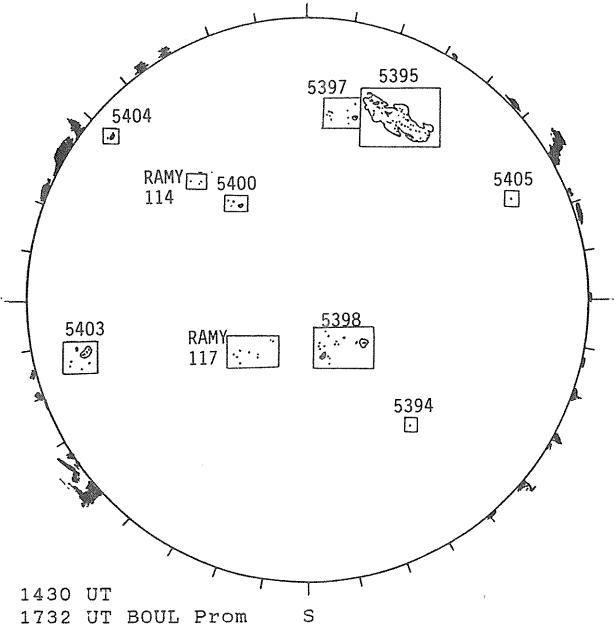
MT. WILSON MAGNETOGRAM



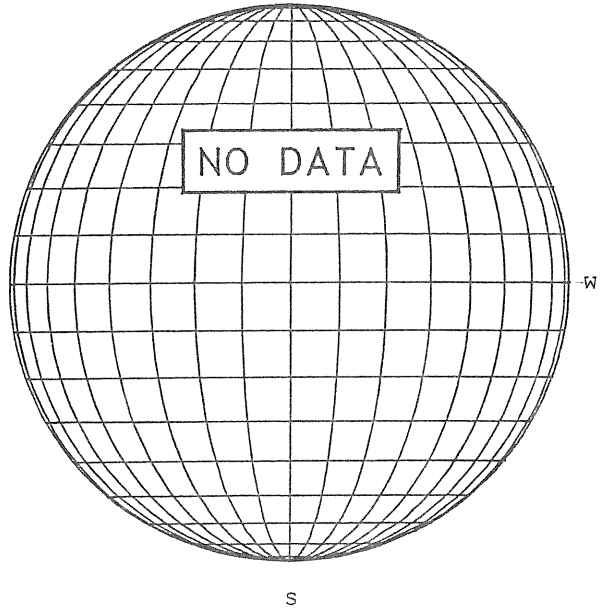
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT

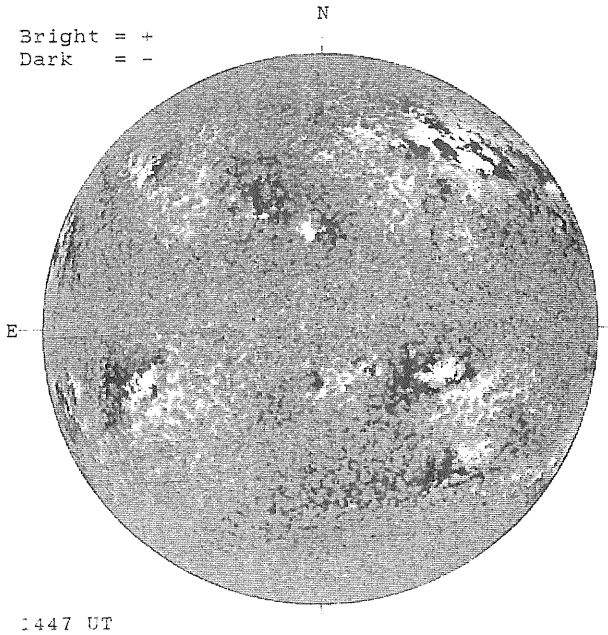


SACRAMENTO PEAK CORONA (1.15 Radii)



MARCH 15, 1989 (P=-24.45, B_o =-7.15, L_o = 226.22)

KITT PEAK MAGNETOGRAM

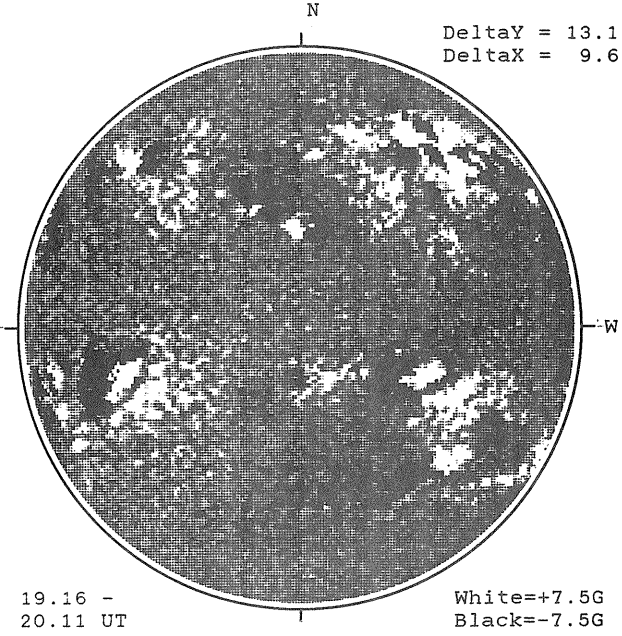


1447 UT

STANFORD MAGNETOGRAM

1842 UT

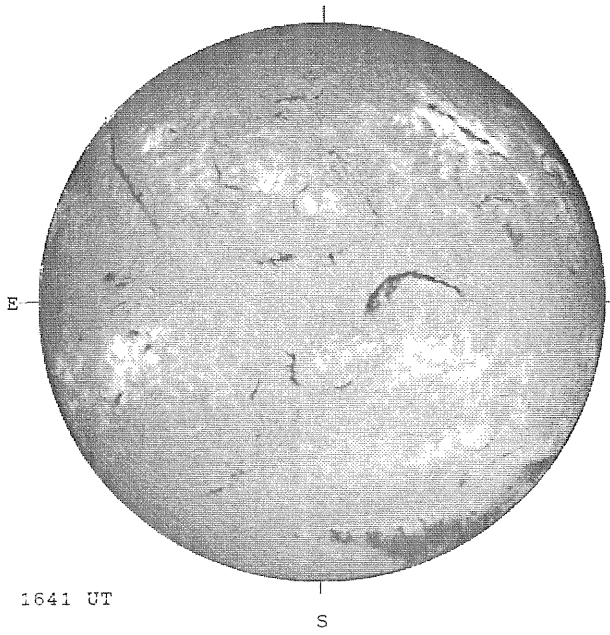
MT. WILSON MAGNETOGRAM



19.16 -
20.11 UT

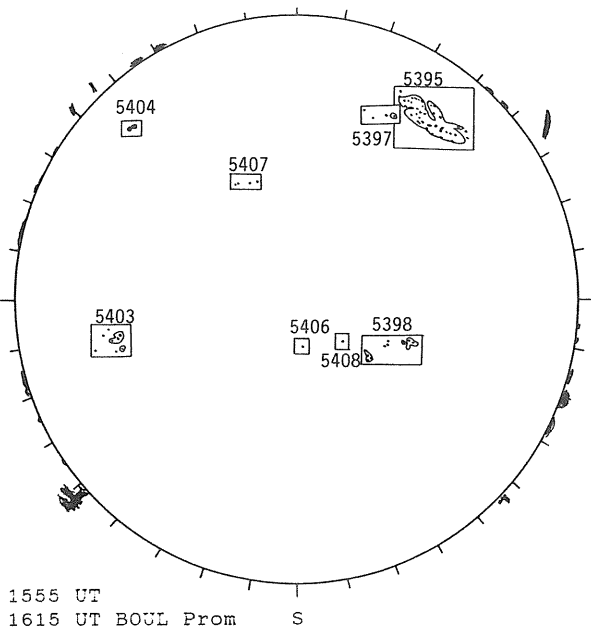
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



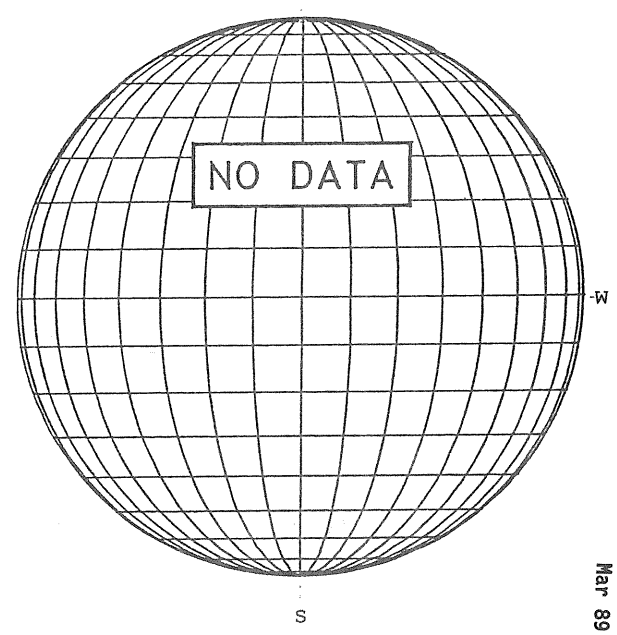
1641 UT

BOULDER SUNSPOT



1555 UT
1615 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



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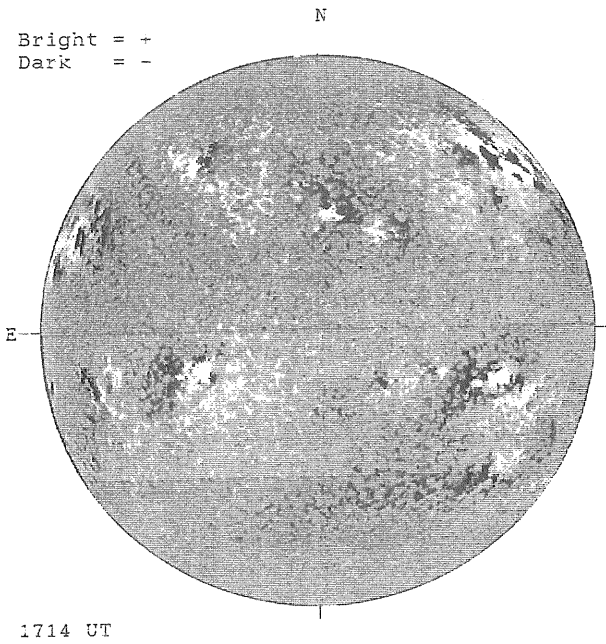
MARCH 16, 1989 (P=-24.61, B_o =-7.13, L_o = 213.04)

KITT PEAK MAGNETOGRAM

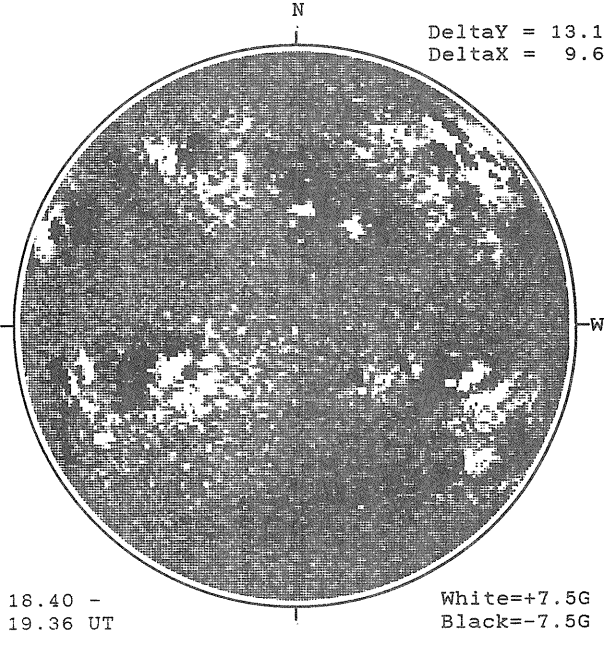


1714 UT

STANFORD MAGNETOGRAM

2152 UT

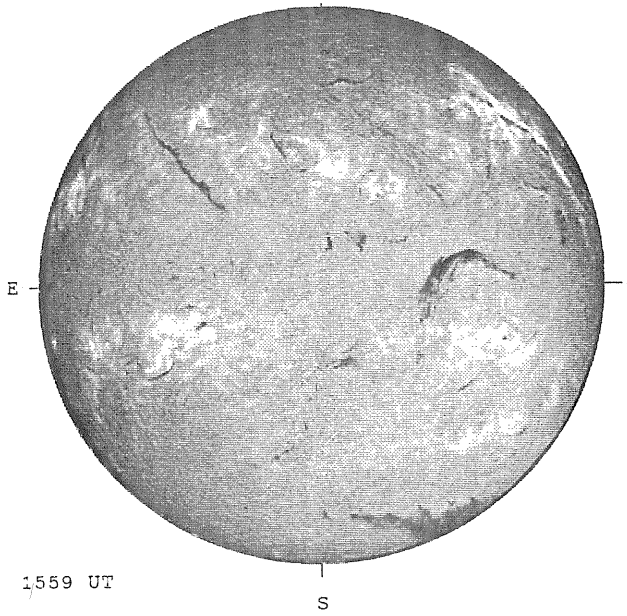
MT. WILSON MAGNETOGRAM



18.40 -
19.36 UT

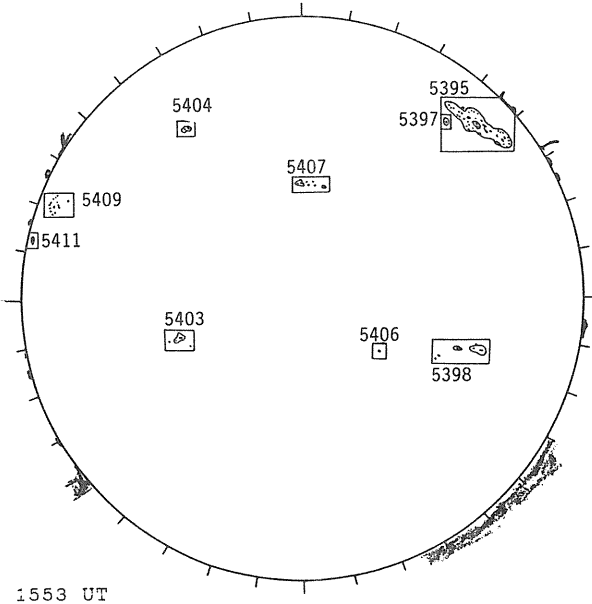
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



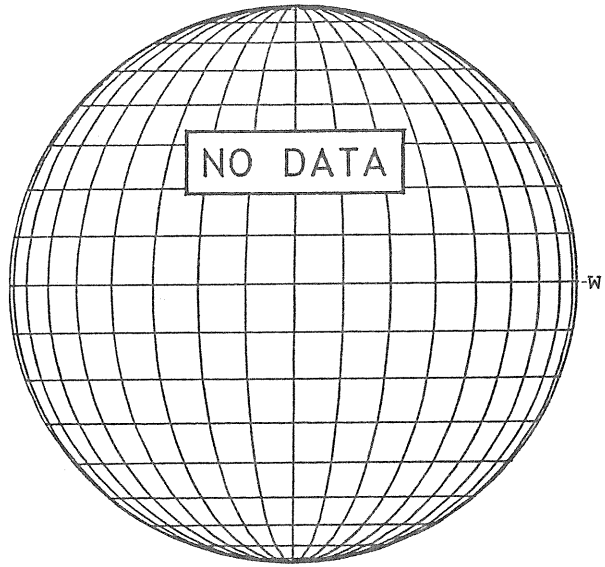
1559 UT

BOULDER SUNSPOT



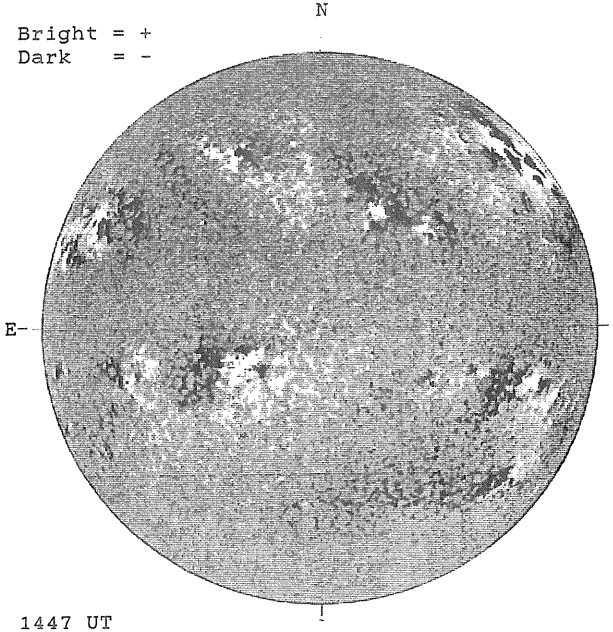
1553 UT
1535 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

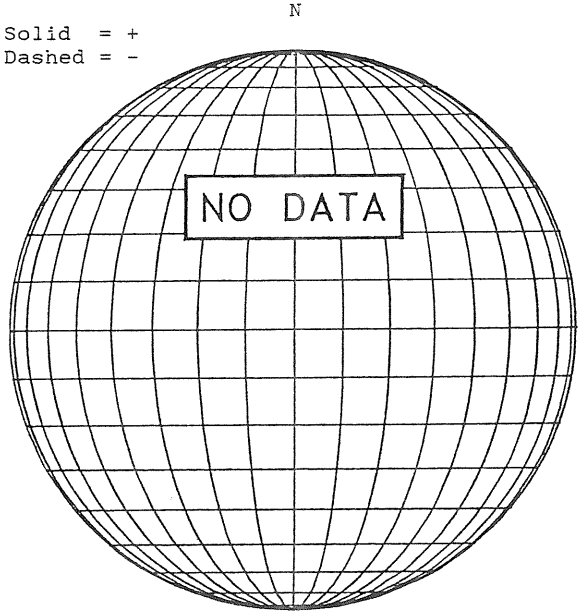


MARCH 17, 1989 (P=-24.76, B_o =-7.11, L_o = 199.86)

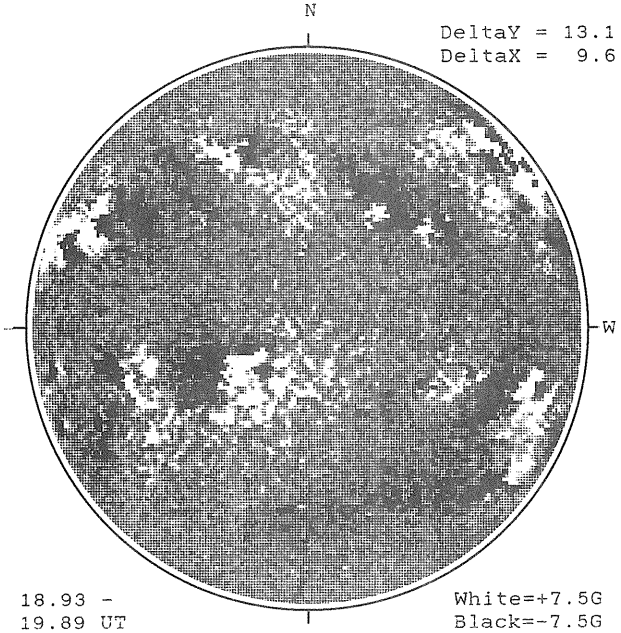
KITT PEAK MAGNETOGRAM



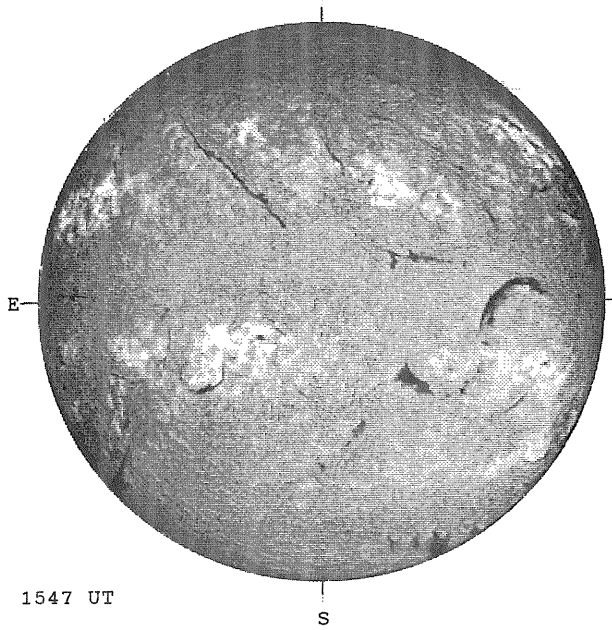
STANFORD MAGNETOGRAM



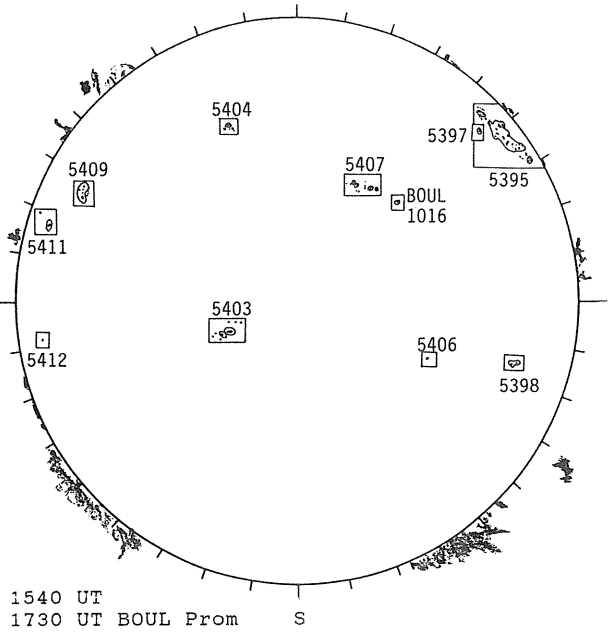
MT. WILSON MAGNETOGRAM



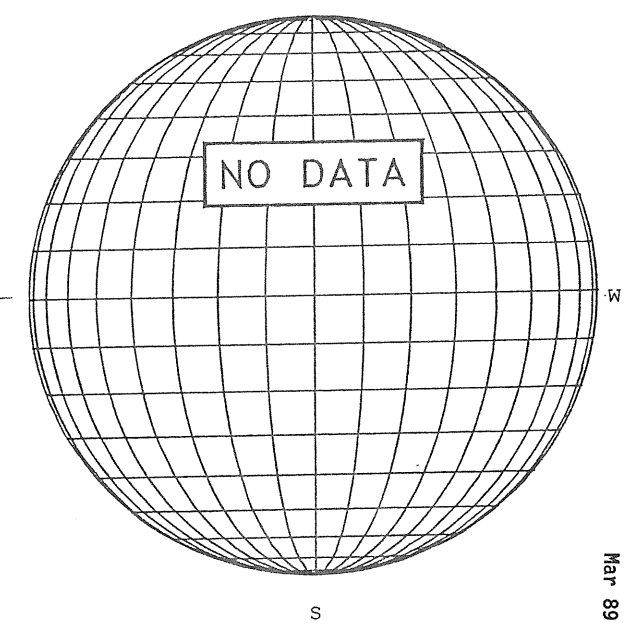
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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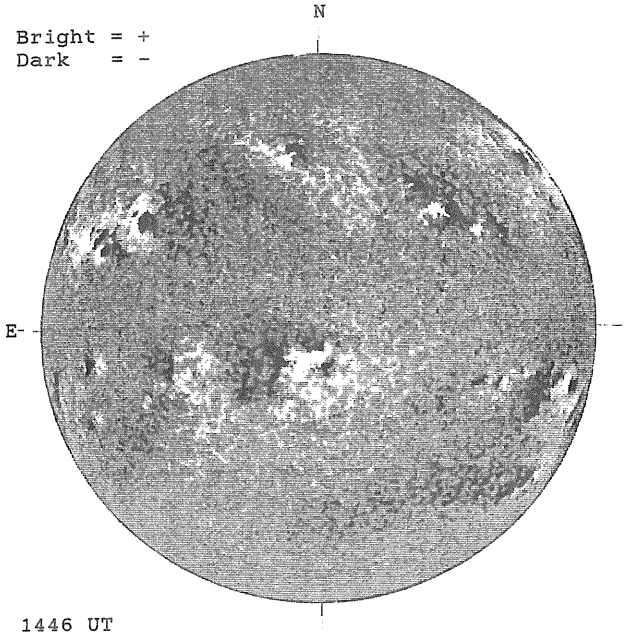
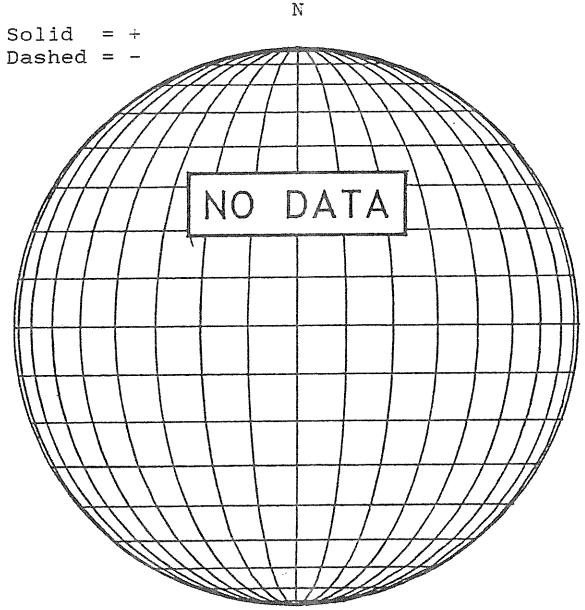
MARCH 18, 1989 (P=-24.90, B_o =-7.08, L_o = 186.68)

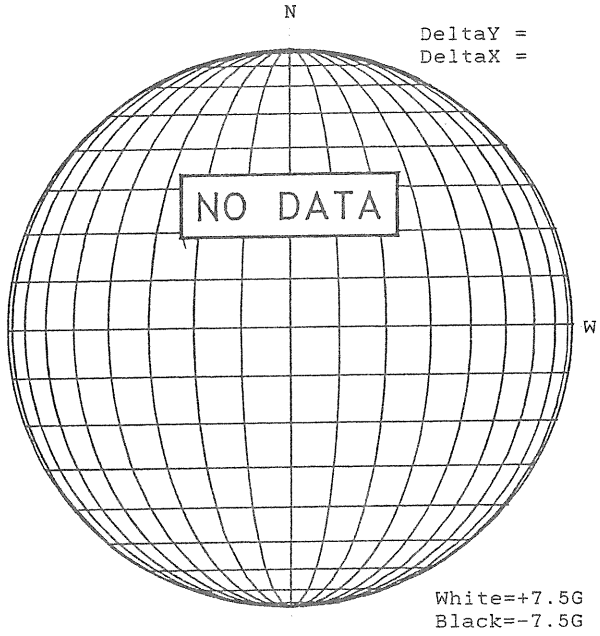
KITT PEAK MAGNETOGRAM



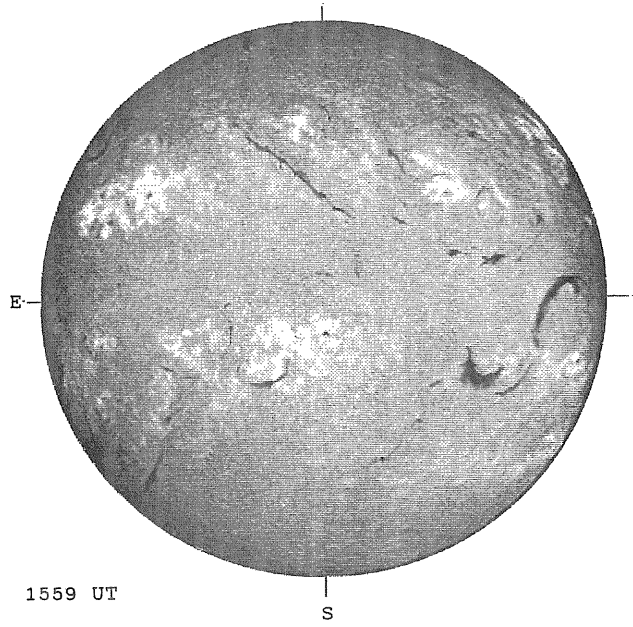
STANFORD MAGNETOGRAM



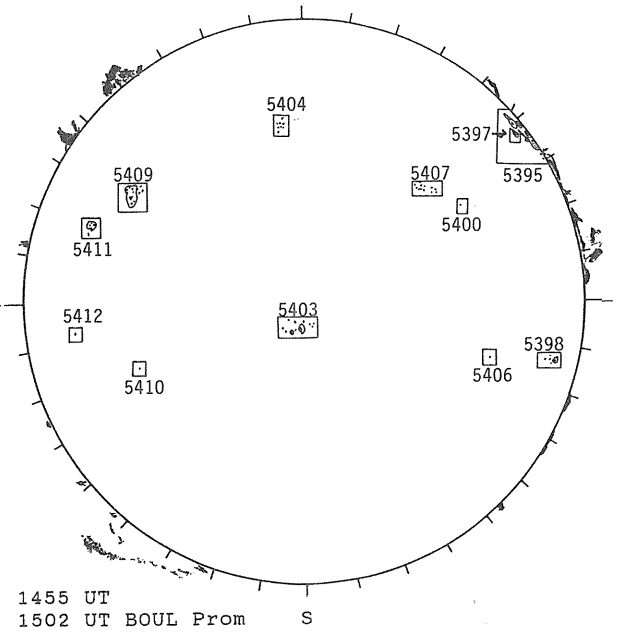
MT. WILSON MAGNETOGRAM



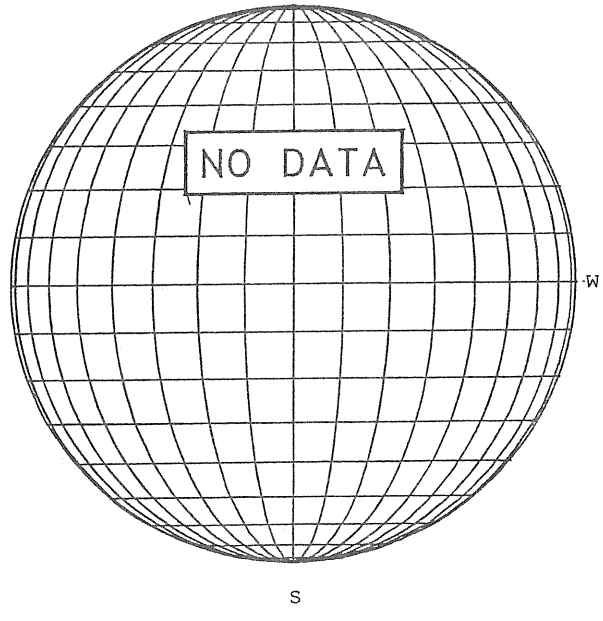
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT

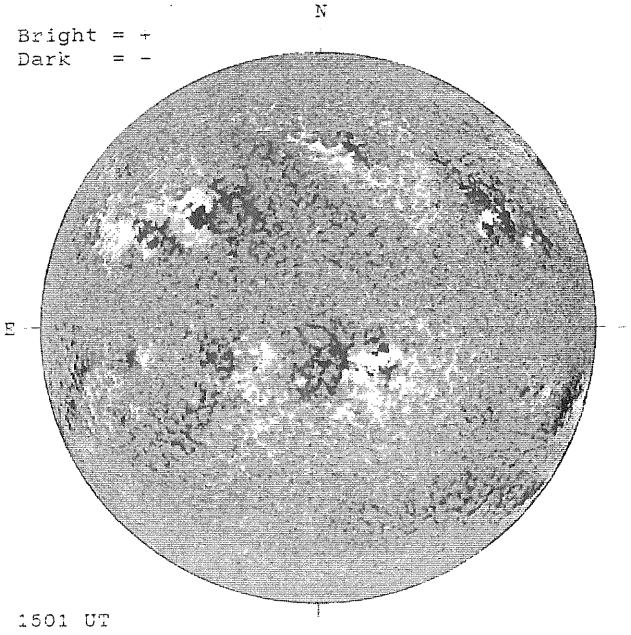


SACRAMENTO PEAK CORONA (1.15 Radii)

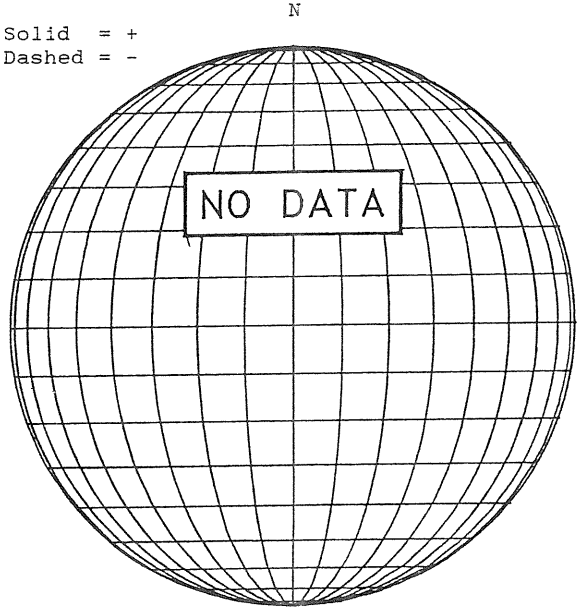


MARCH 19, 1989 (P=-25.04, B_o =-7.06, L_o = 173.49)

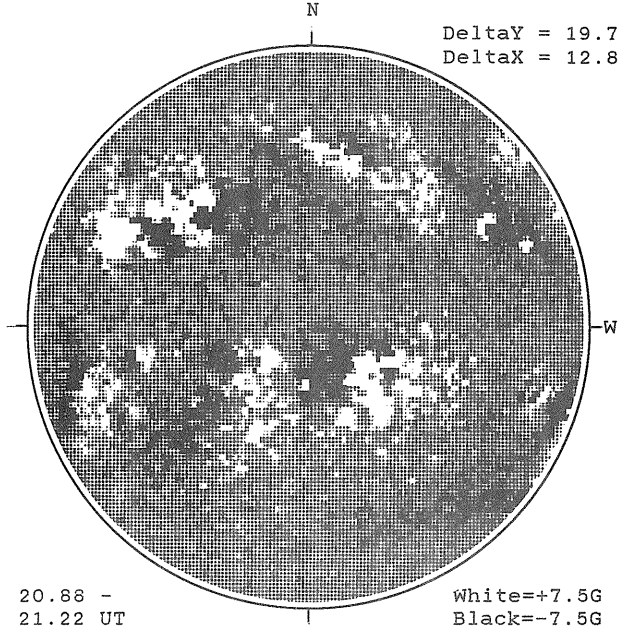
KITT PEAK MAGNETOGRAM



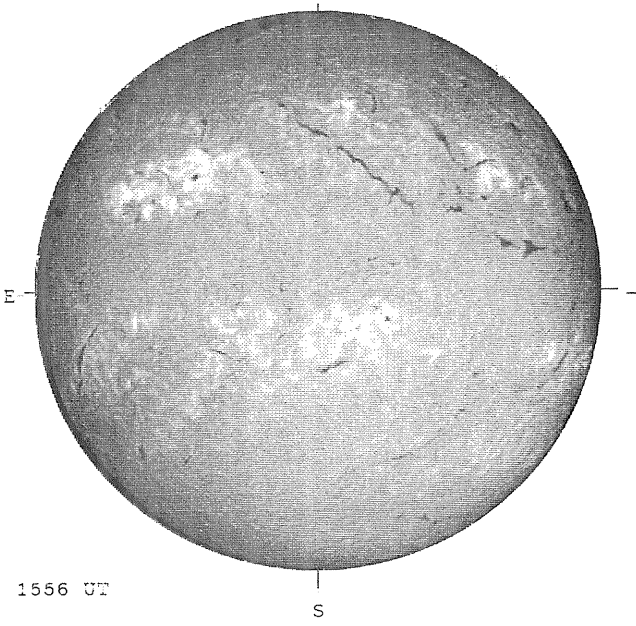
STANFORD MAGNETOGRAM



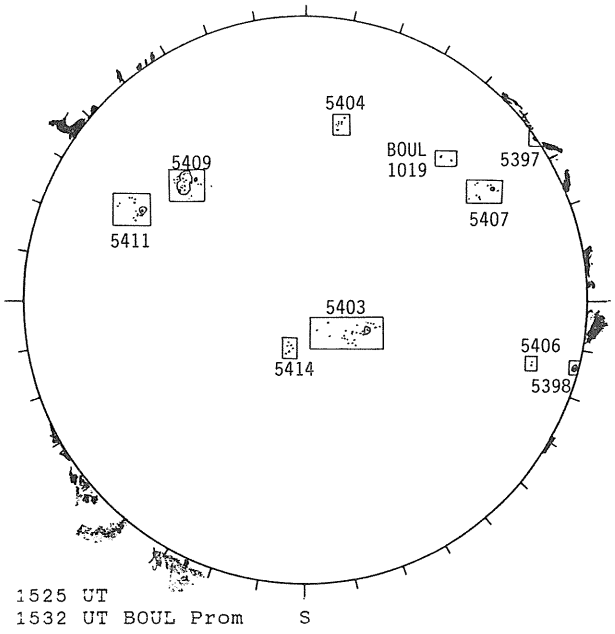
MT. WILSON MAGNETOGRAM



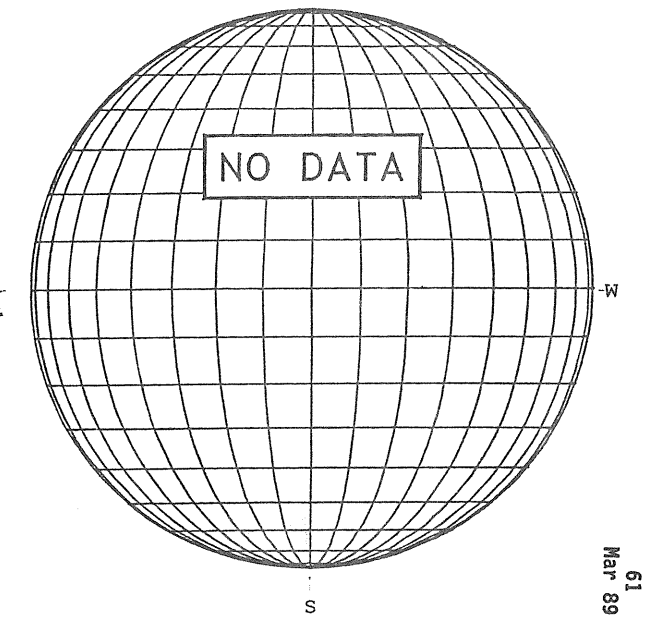
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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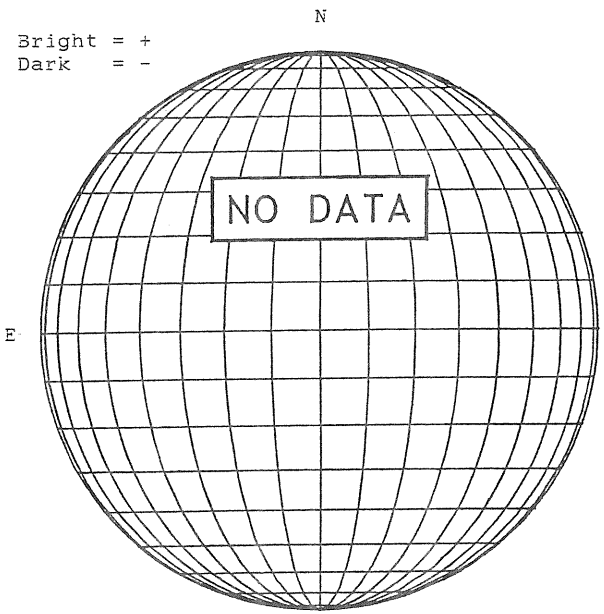
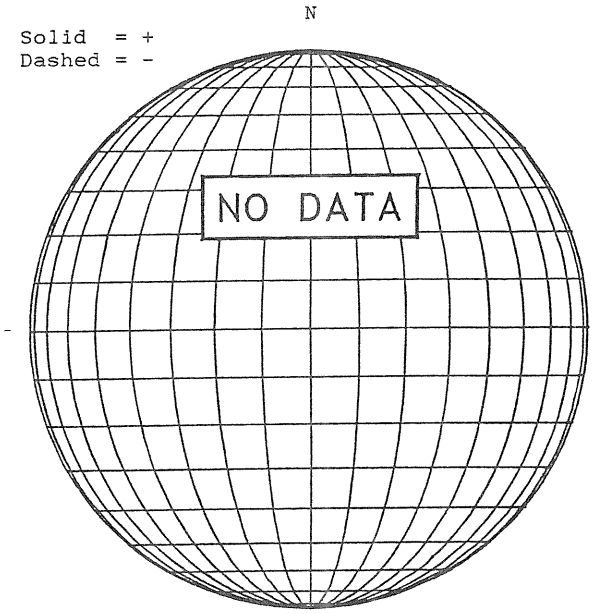
MARCH 20, 1989 (P=-25.17, B_o =-7.03, L_o = 160.31)

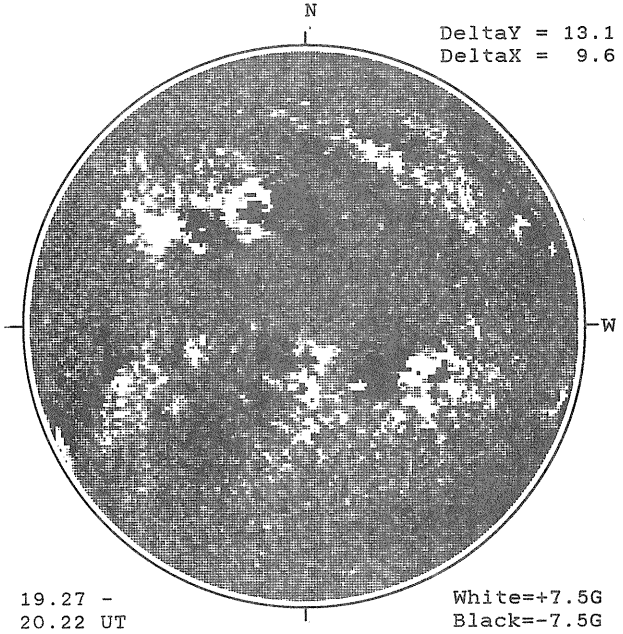
KITT PEAK MAGNETOGRAM



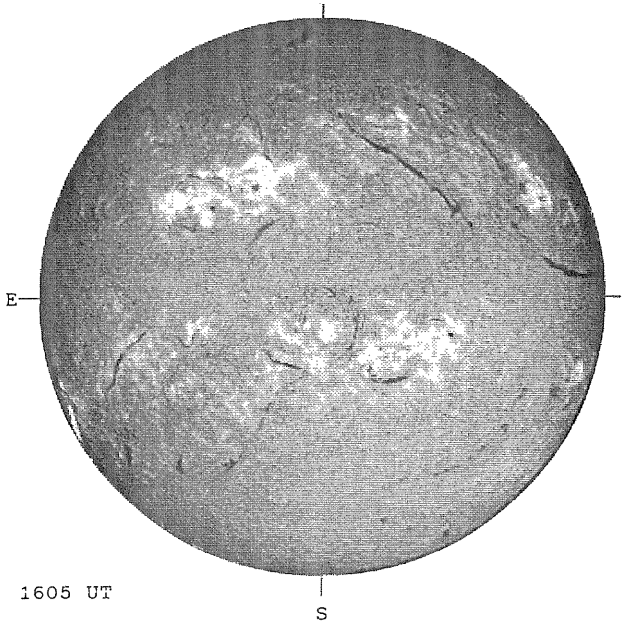
STANFORD MAGNETOGRAM



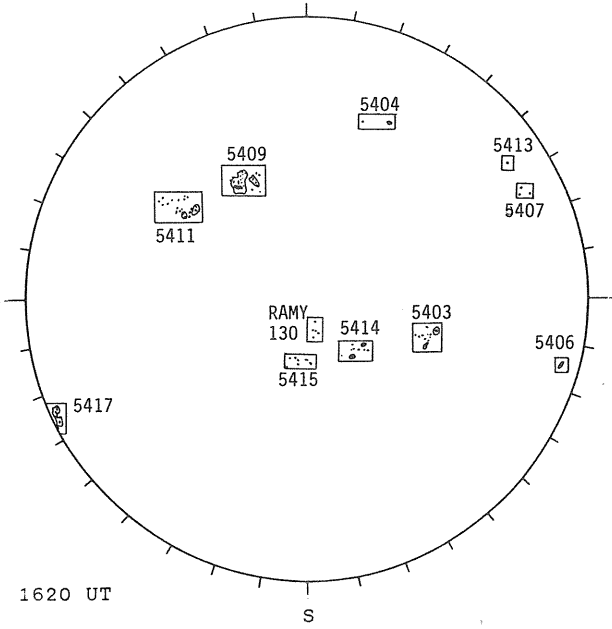
MT. WILSON MAGNETOGRAM



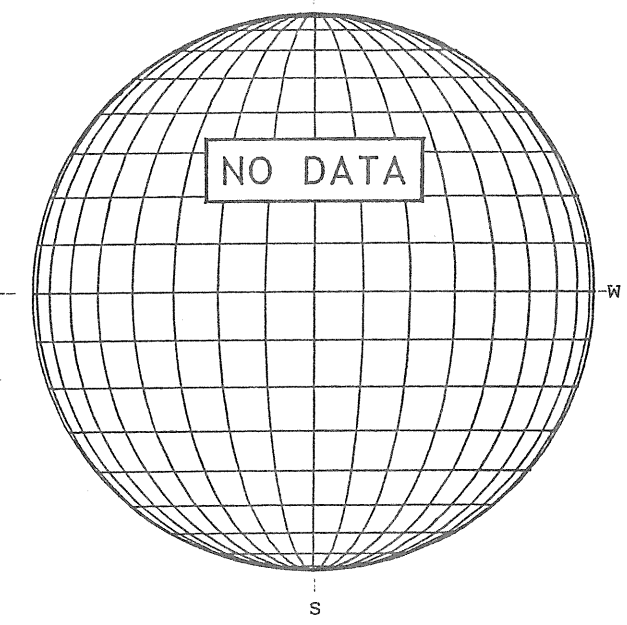
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT

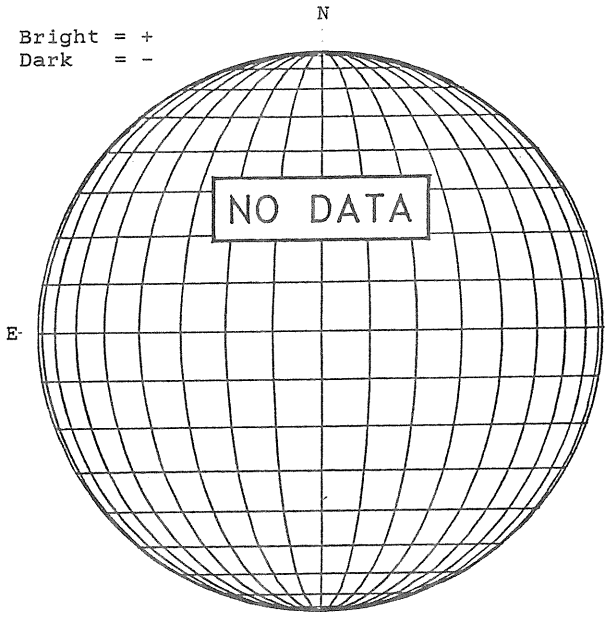


SACRAMENTO PEAK CORONA (1.15 Radii)

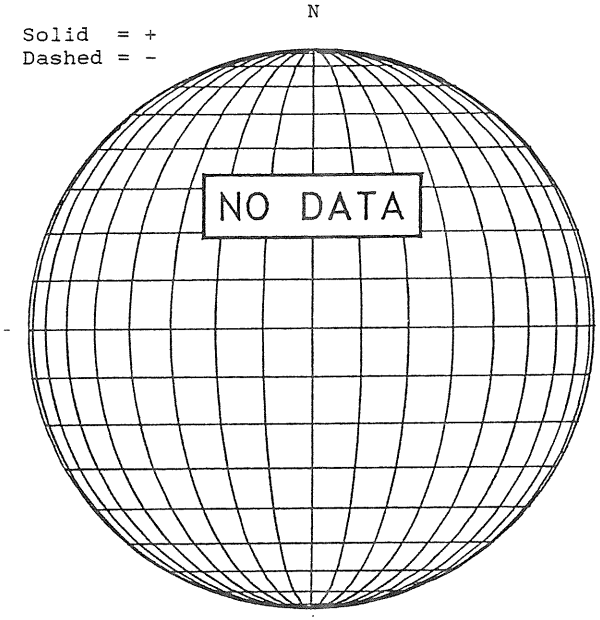


MARCH 21, 1989 (P=-25.29, B_o =-7.00, L_o = 147.13)

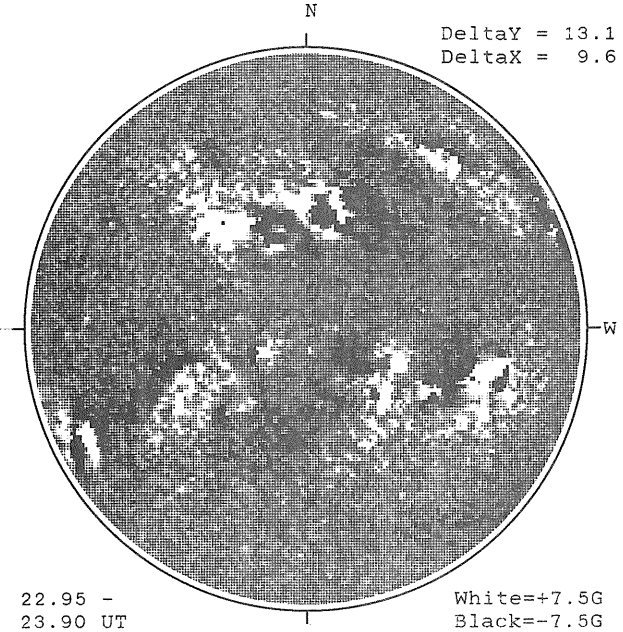
KITT PEAK MAGNETOGRAM



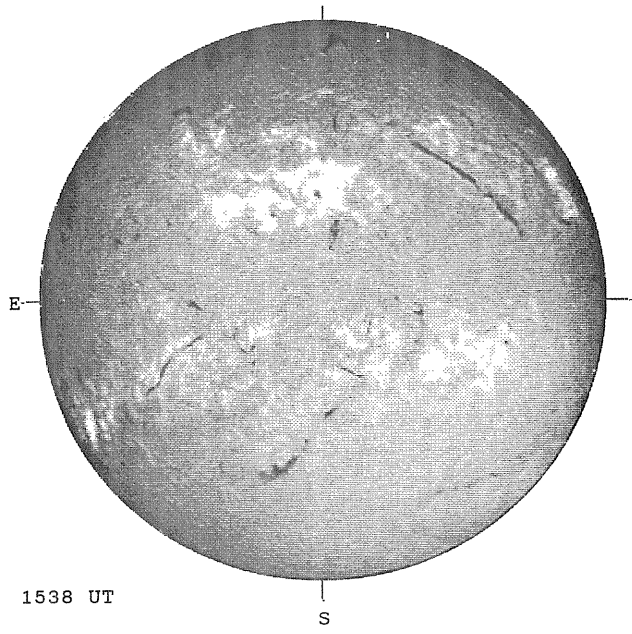
STANFORD MAGNETOGRAM



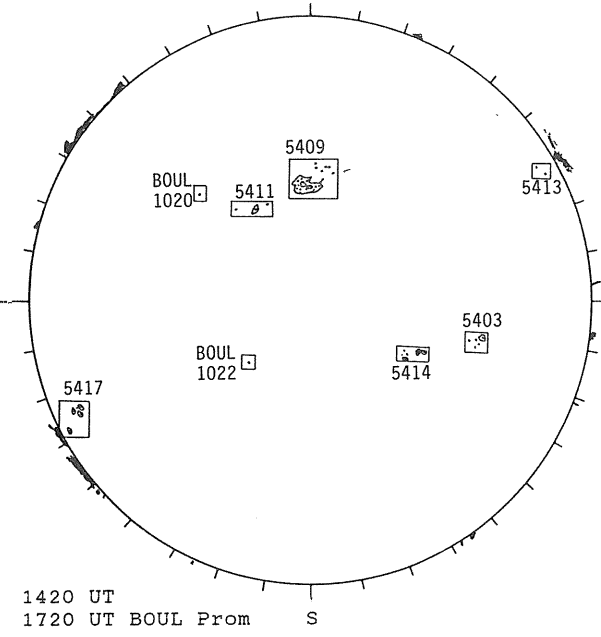
MT. WILSON MAGNETOGRAM



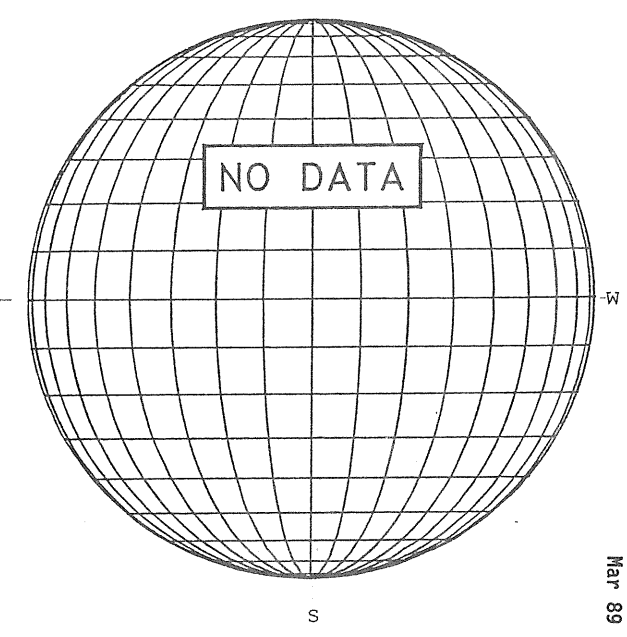
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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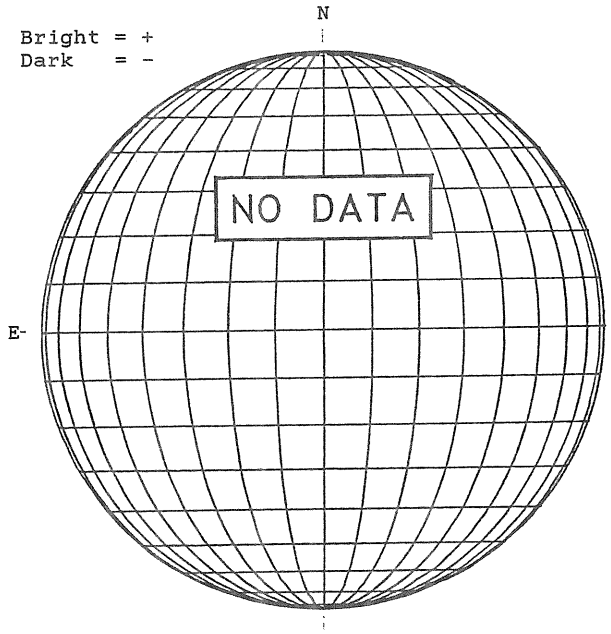
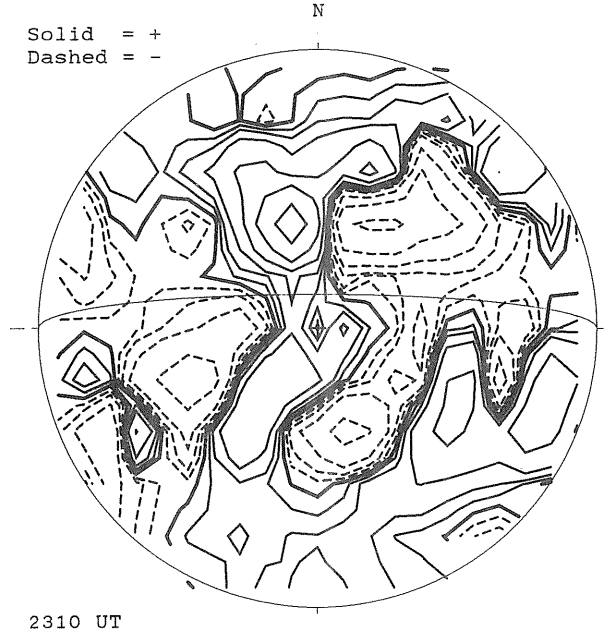
MARCH 22, 1989 (P=-25.41, B_o =-6.96, L_o = 133.94)

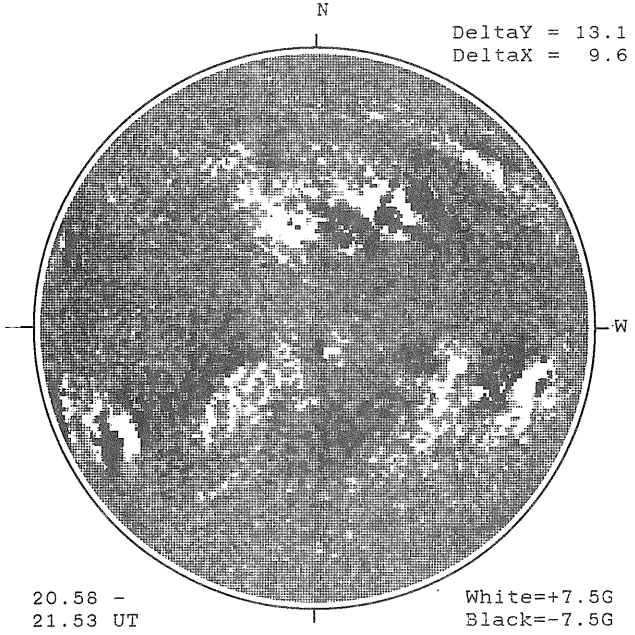
KITT PEAK MAGNETOGRAM



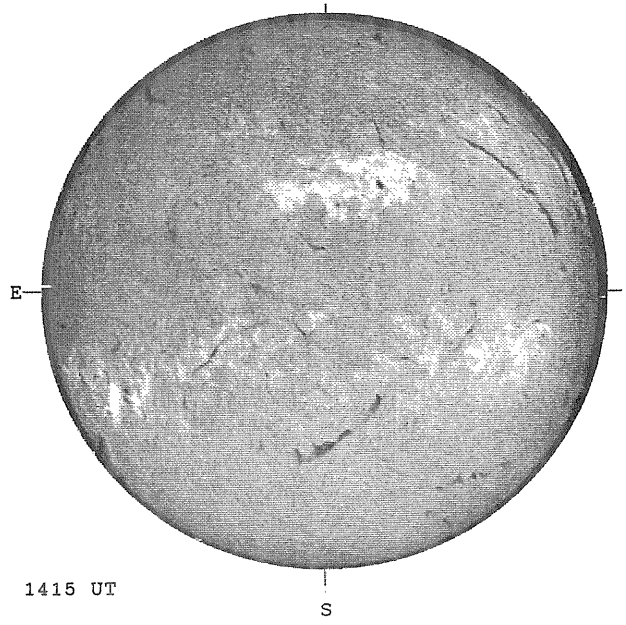
STANFORD MAGNETOGRAM



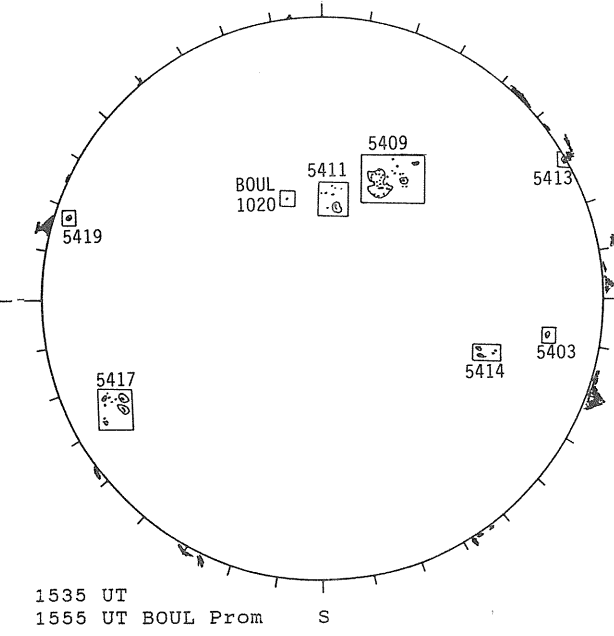
MT. WILSON MAGNETOGRAM



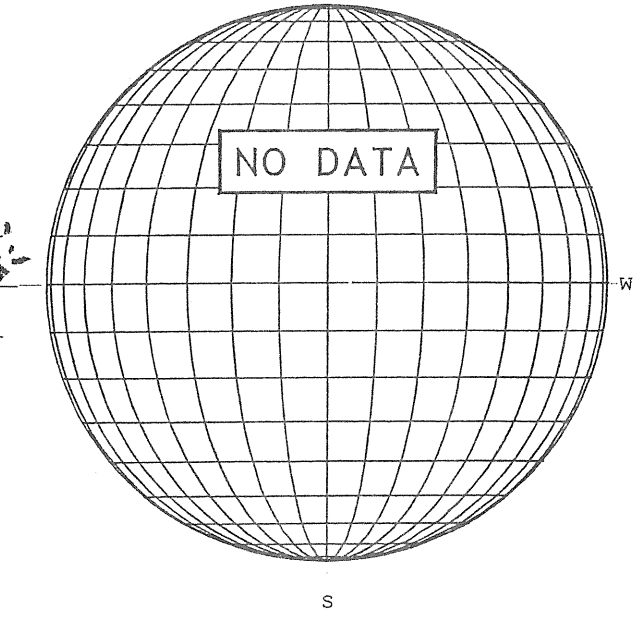
HOLLOMAN H-ALPHA



BOULDER SUNSPOT

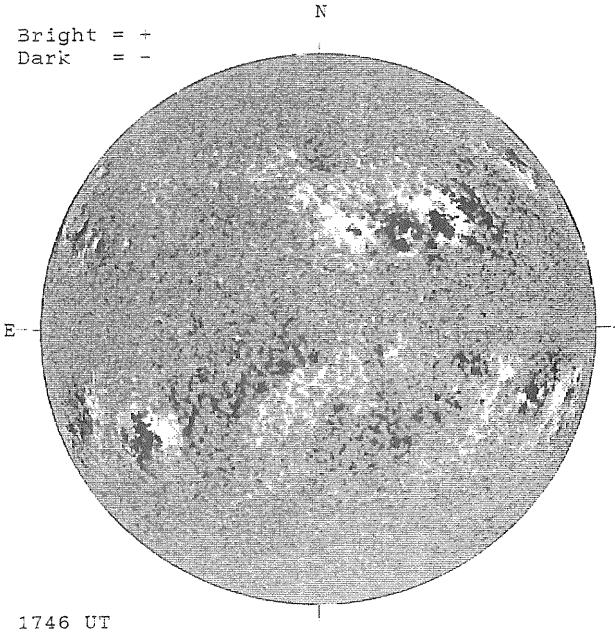


SACRAMENTO PEAK CORONA (1.15 Radii)

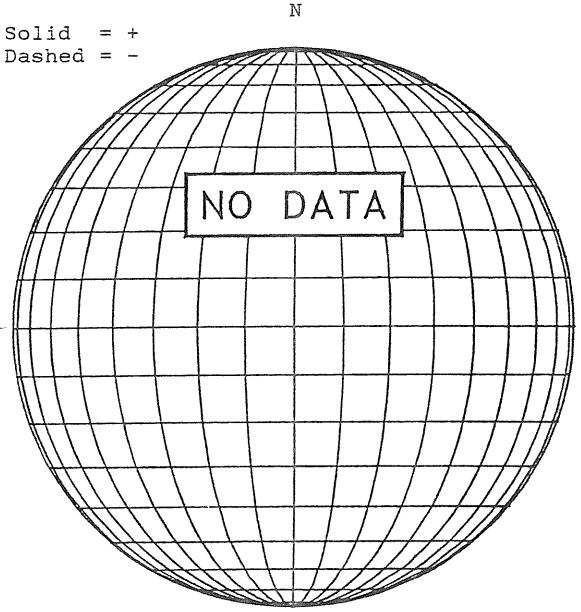


MARCH 23, 1989 (P=-25.51, B_o =-6.93, L_o = 120.76)

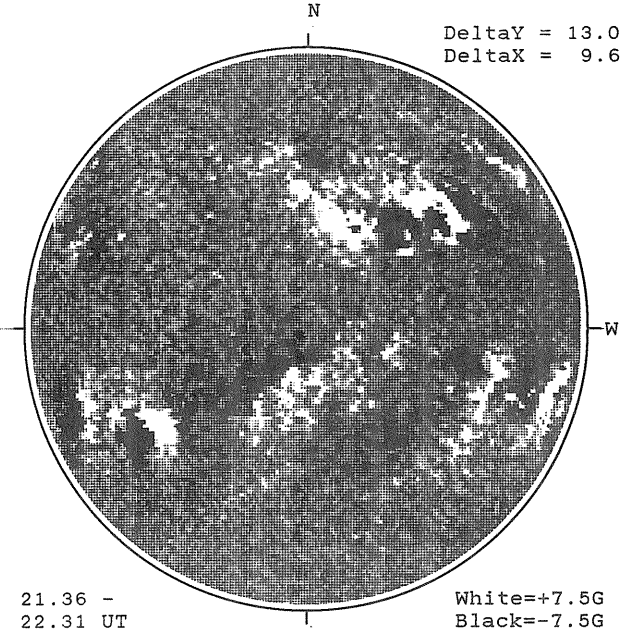
KITT PEAK MAGNETOGRAM



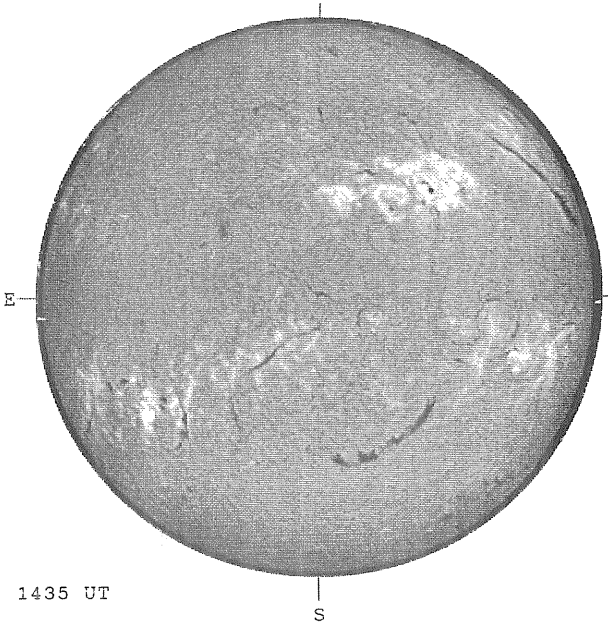
STANFORD MAGNETOGRAM



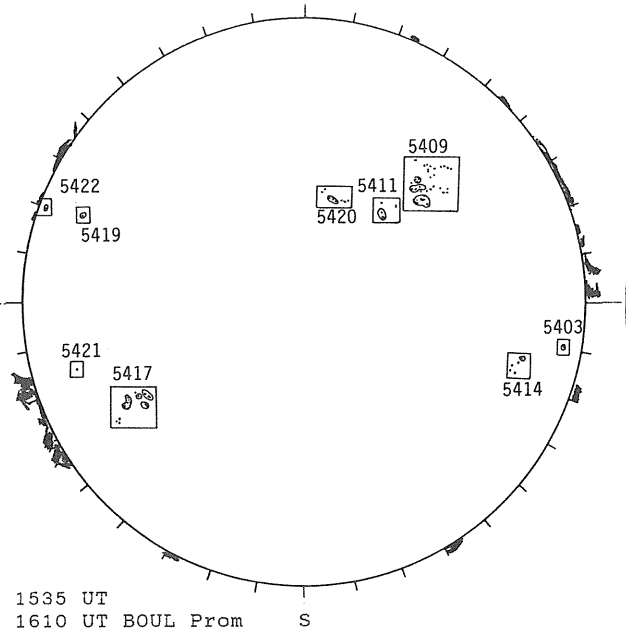
MT. WILSON MAGNETOGRAM



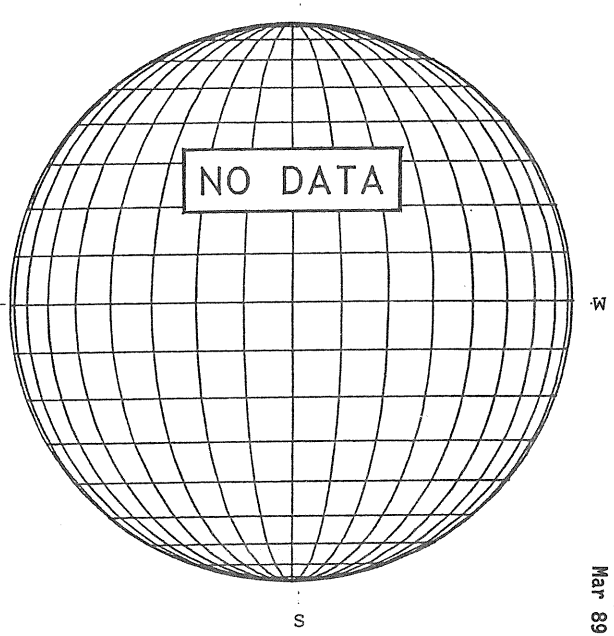
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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MARCH 24, 1989 (P=-25.62, B_o =-6.89, L_o = 107.57)

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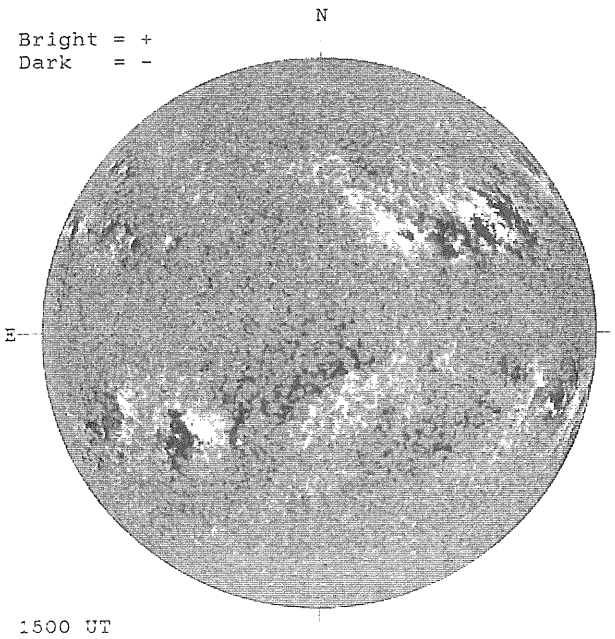
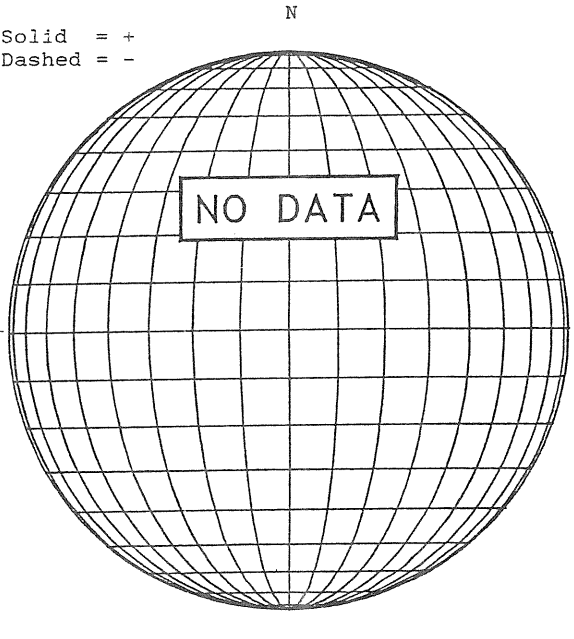
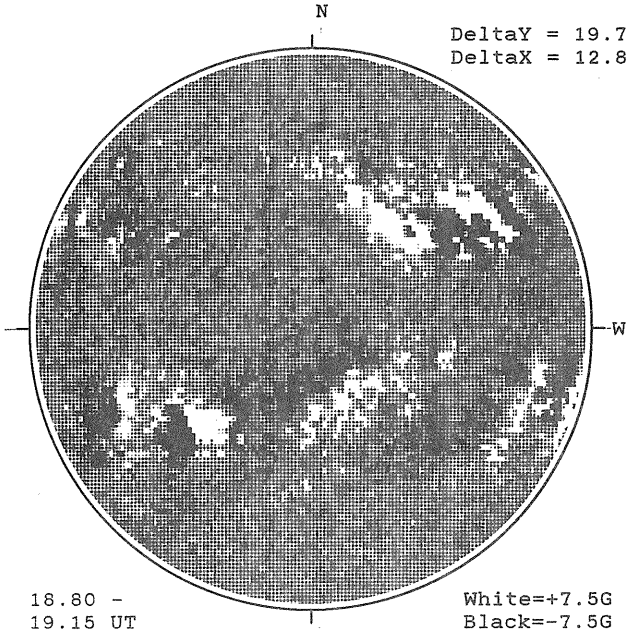
KITT PEAK MAGNETOGRAM



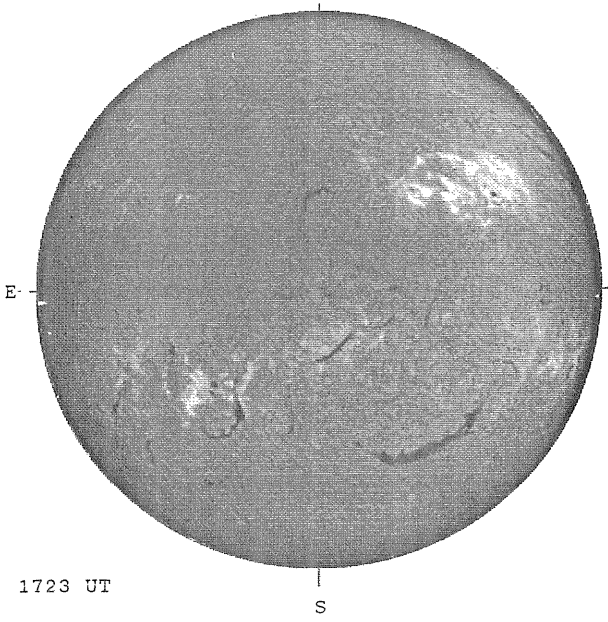
STANFORD MAGNETOGRAM



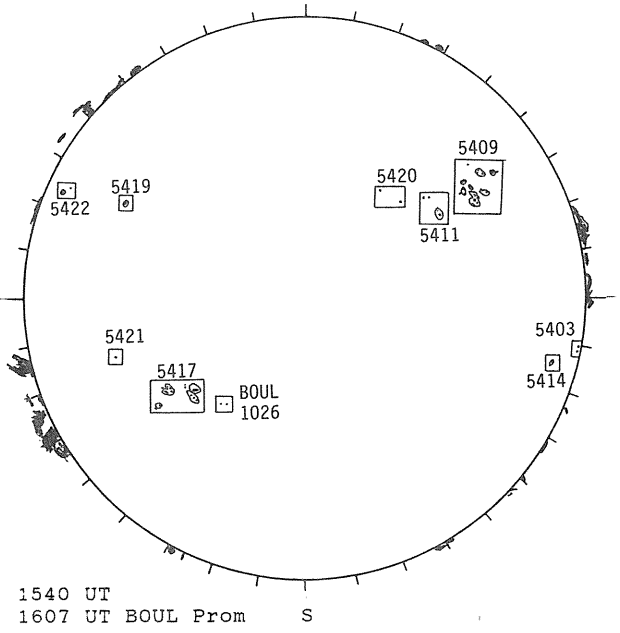
MT. WILSON MAGNETOGRAM



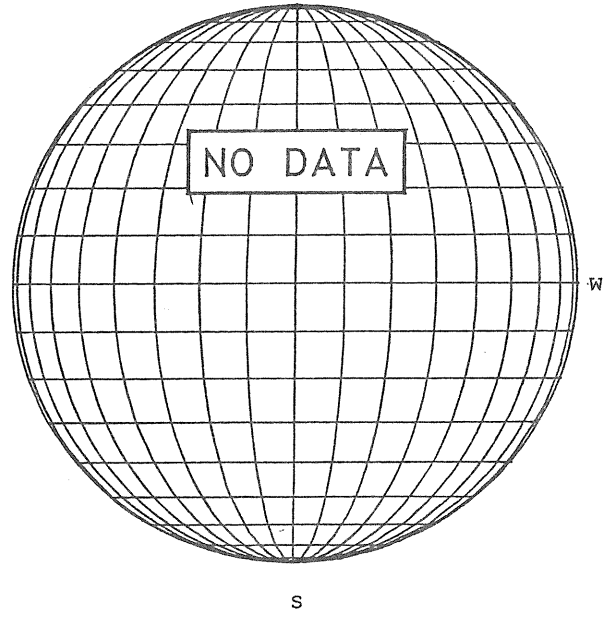
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



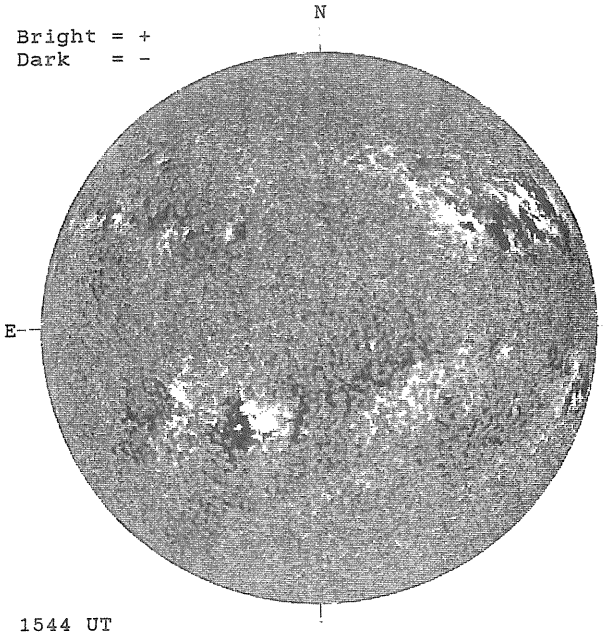
SACRAMENTO PEAK CORONA (1.15 Radii)



MARCH 25, 1989 (P=-25.71, B_o =-6.85, L_o = 94.38)

KITT PEAK MAGNETOGRAM

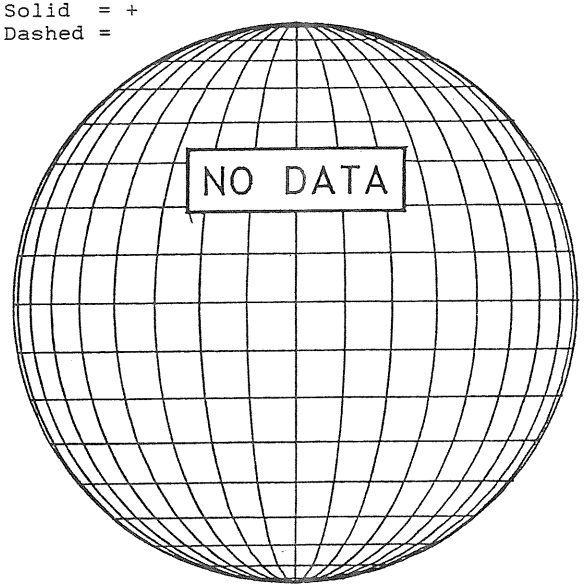
Bright = +
Dark = -



1544 UT

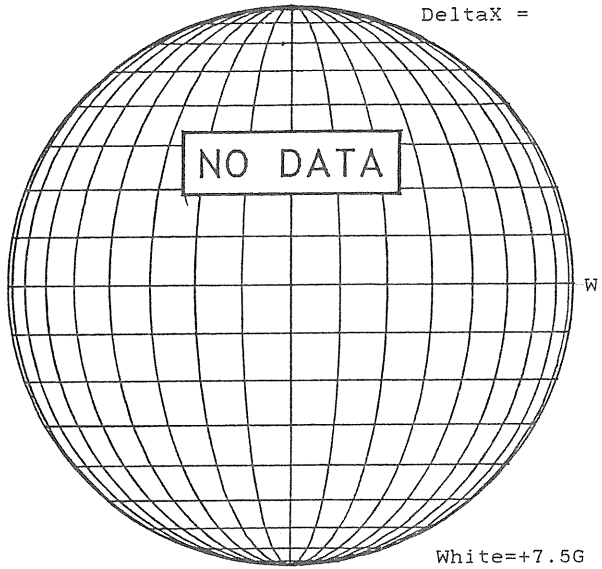
STANFORD MAGNETOGRAM

Solid = +
Dashed =



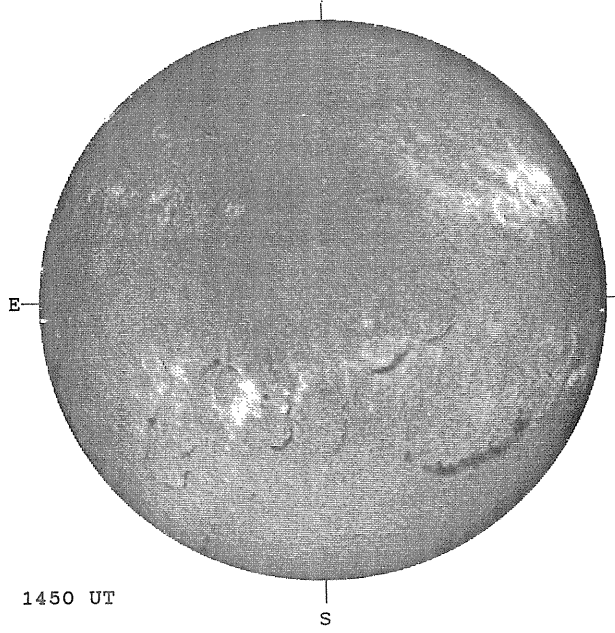
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



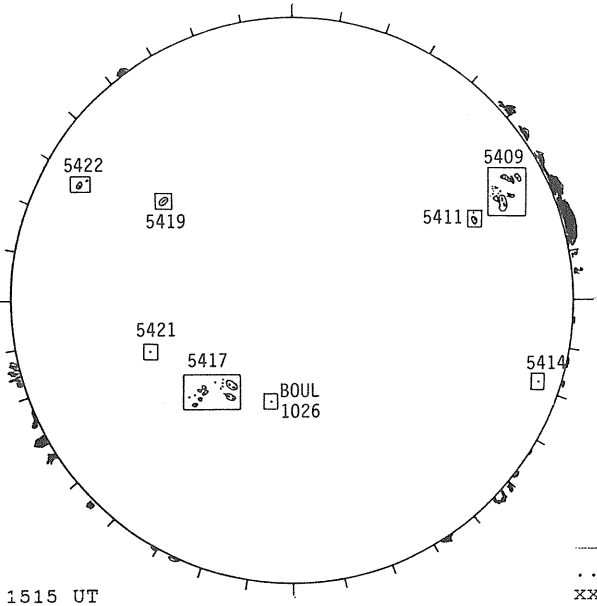
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



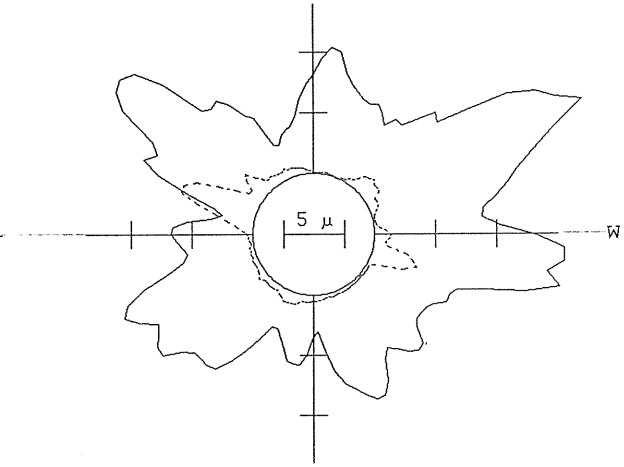
1450 UT

BOULDER SUNSPOT



1515 UT
1520 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 2034 UT
.... 6374A, 2105 UT
xxxx 5694A, 2052 UT
NO 5694A ACTIVITY TODAY

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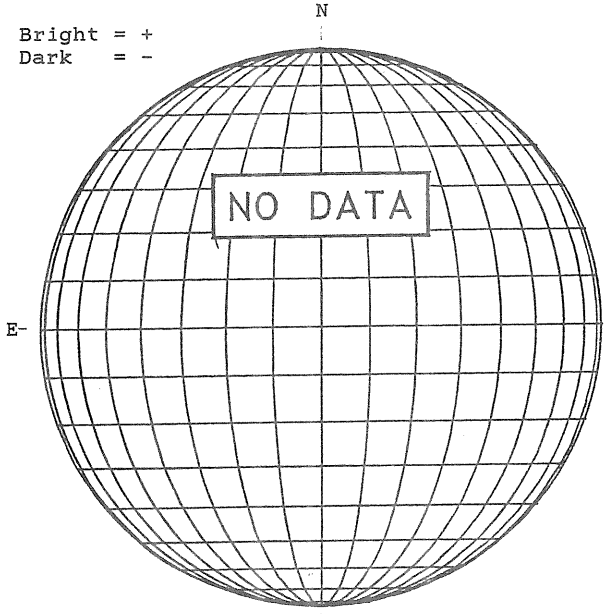
MARCH 26, 1989 (P=-25.80, B_o =-6.81, L_o = 81.19)

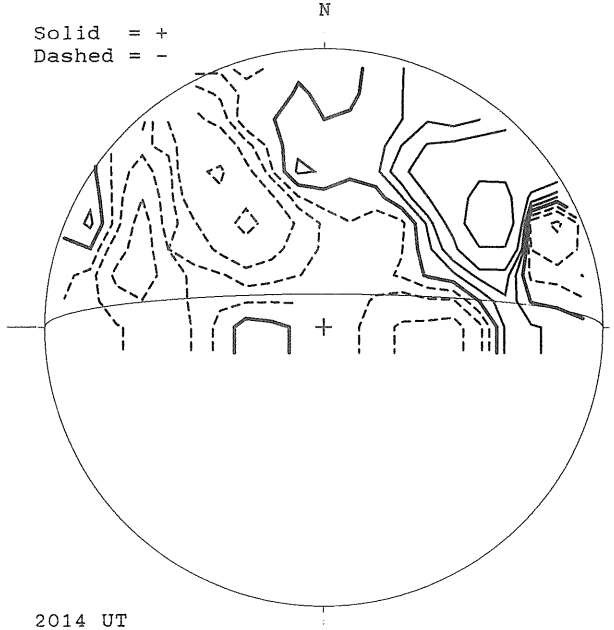
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



STANFORD MAGNETOGRAM

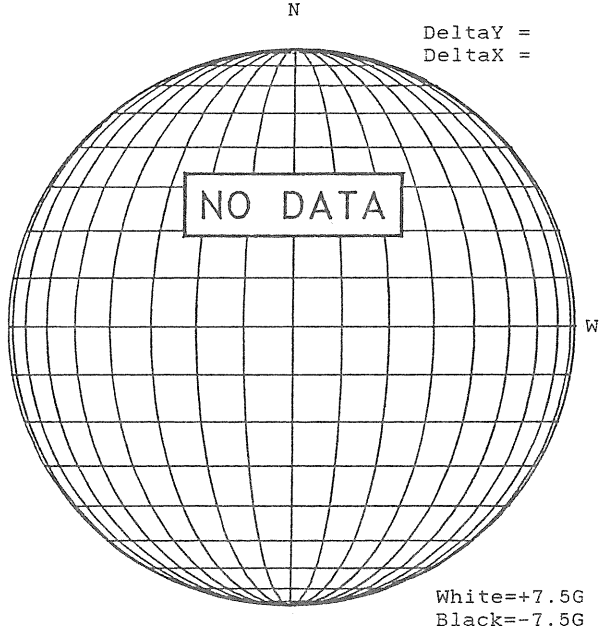
Solid = +
Dashed = -



2014 UT

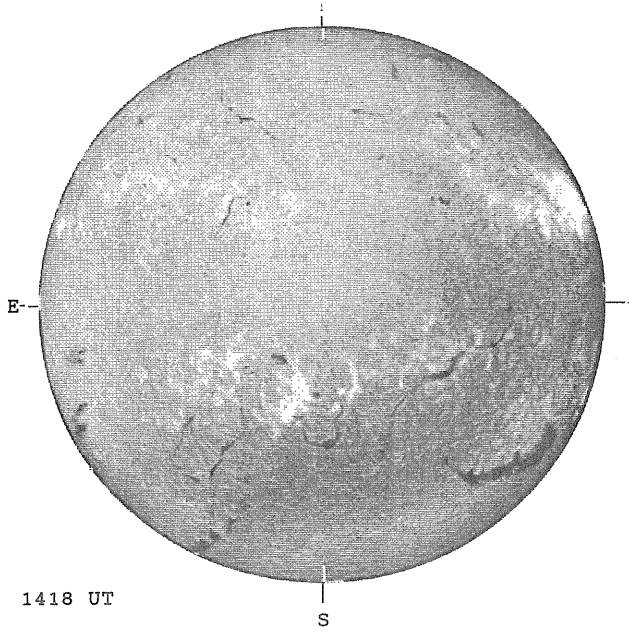
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



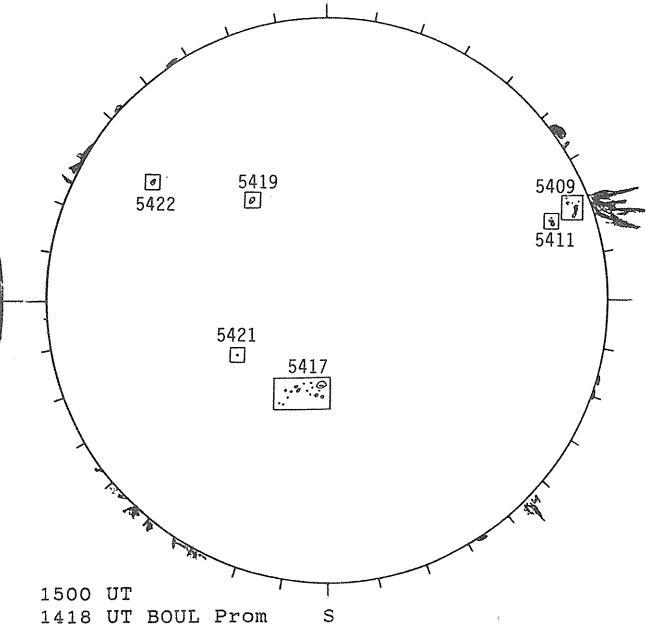
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



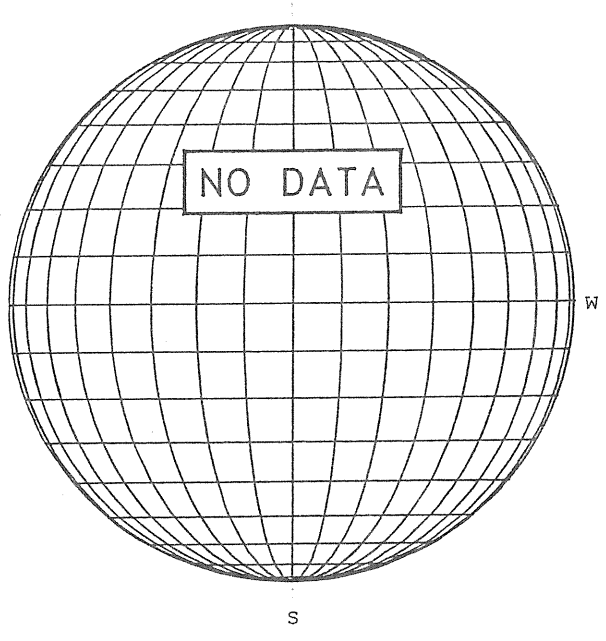
1418 UT

BOULDER SUNSPOT



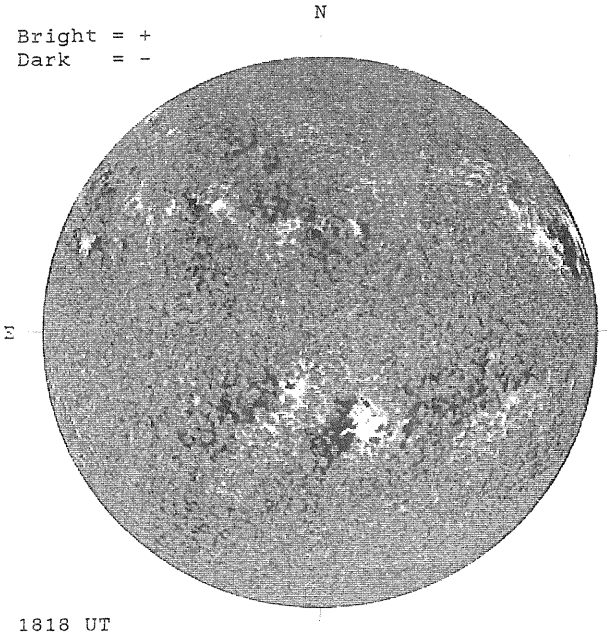
1500 UT
1418 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

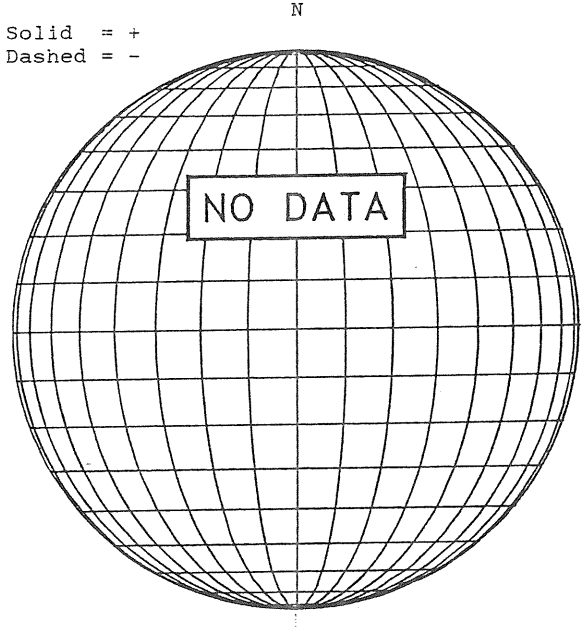


MARCH 27, 1989 (P=-25.88, B_o =-6.77, L_o = 68.01)

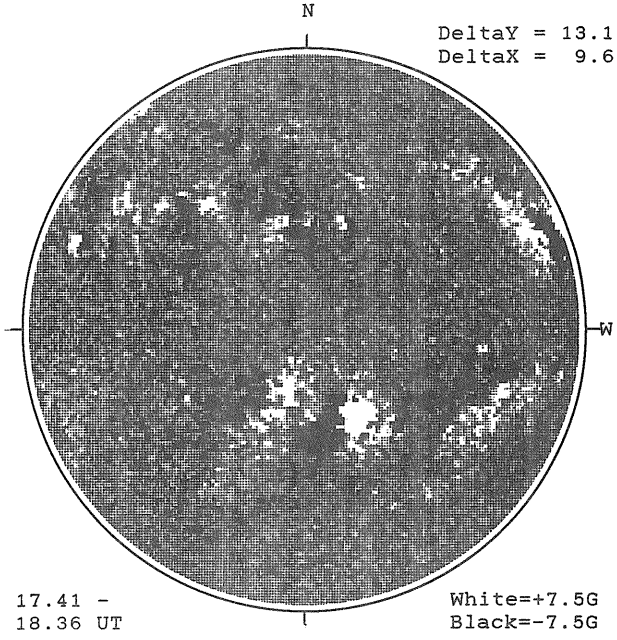
KITT PEAK MAGNETOGRAM



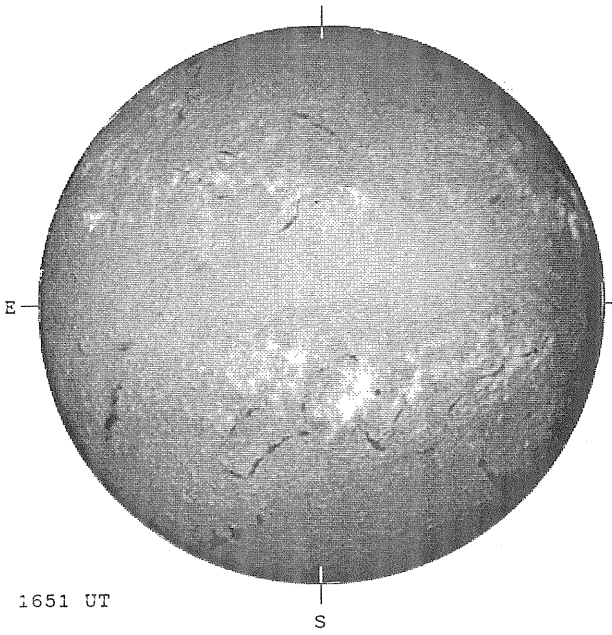
STANFORD MAGNETOGRAM



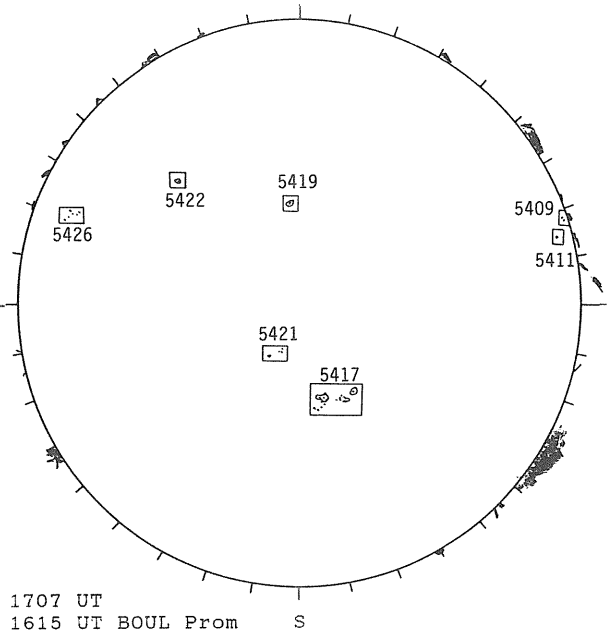
MT. WILSON MAGNETOGRAM



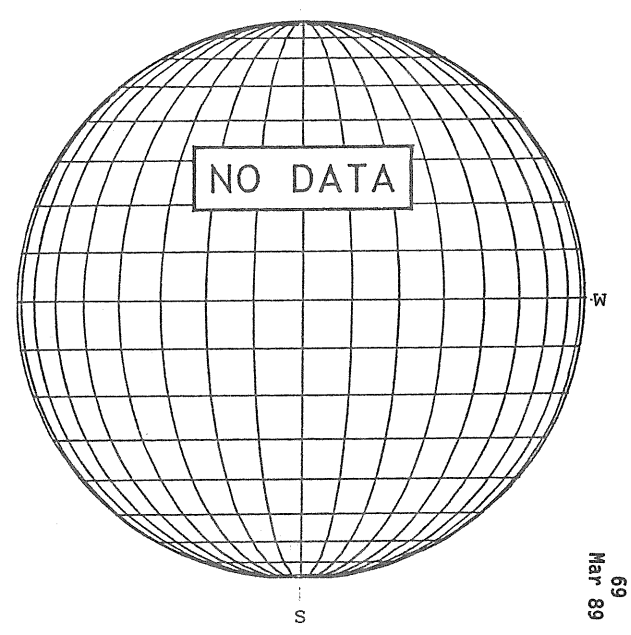
BOULDER H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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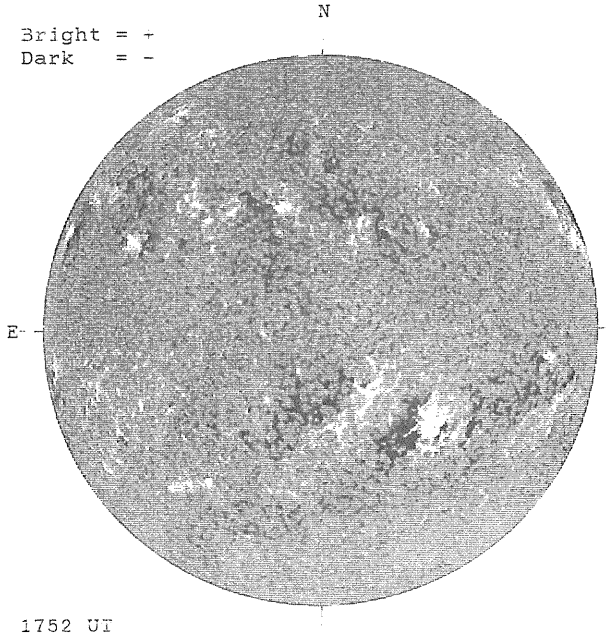
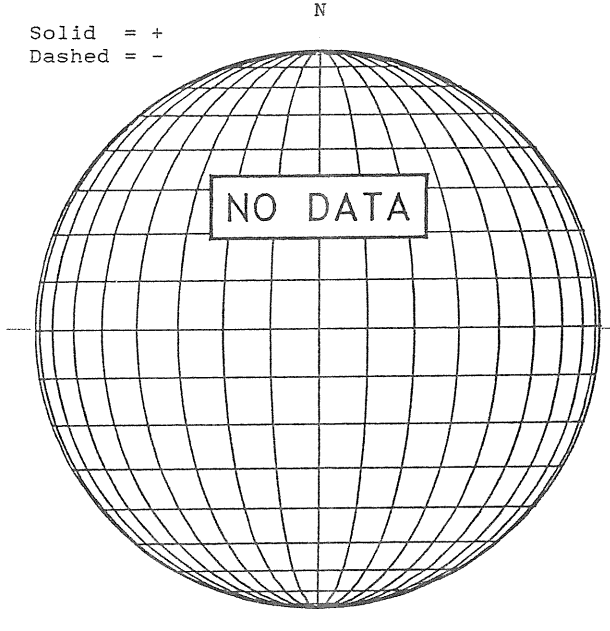
Mar 89

MARCH 28, 1989 (P=-25.95, B_o =-6.72, L_o = 54.82)

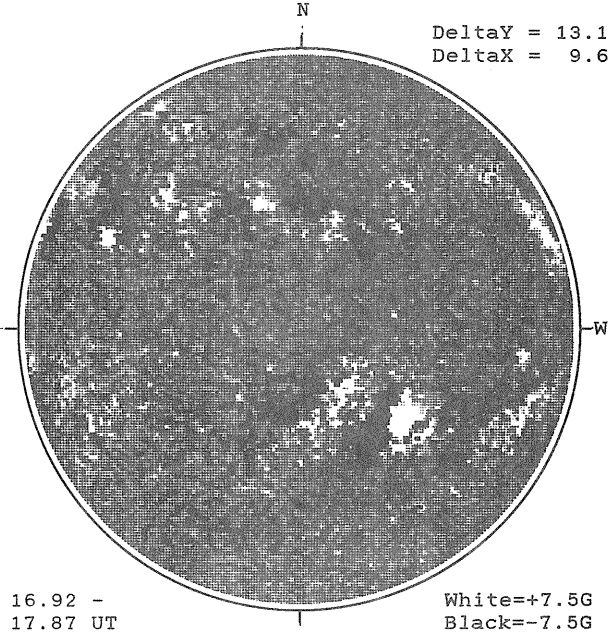
KITT PEAK MAGNETOGRAM



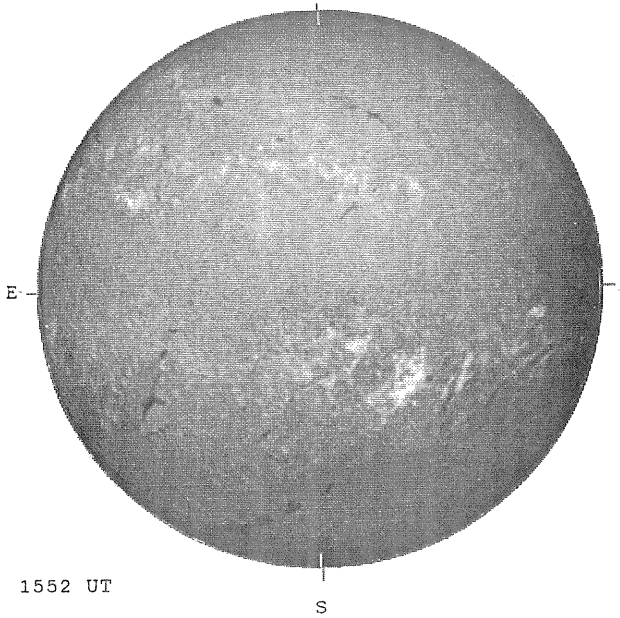
STANFORD MAGNETOGRAM



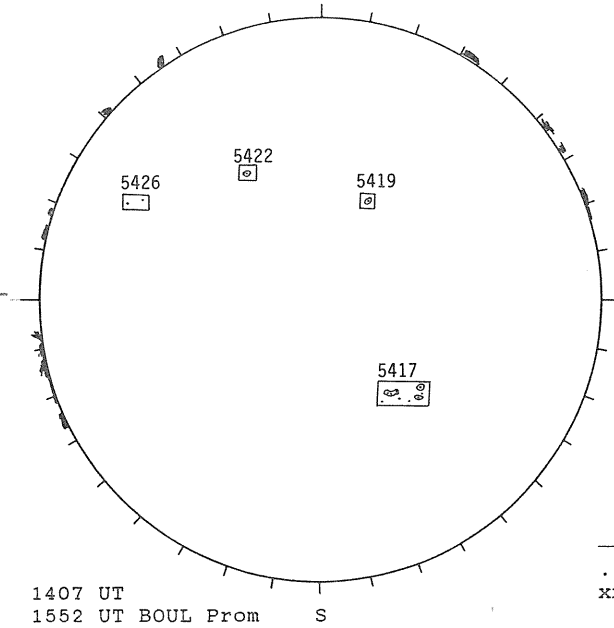
MT. WILSON MAGNETOGRAM



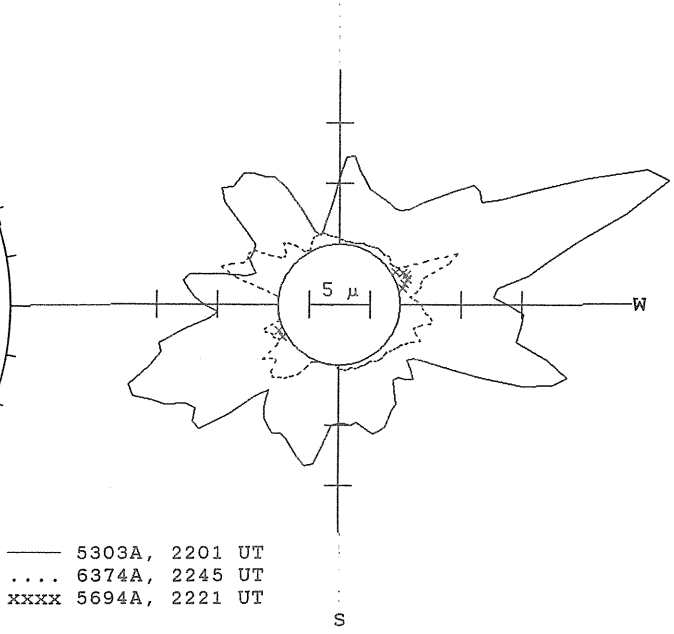
BOULDER H-ALPHA



BOULDER SUNSPOT

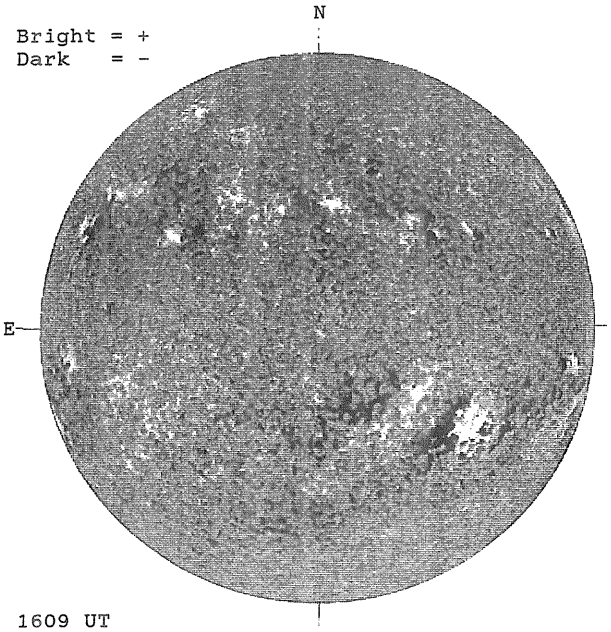


SACRAMENTO PEAK CORONA (1.15 Radii)

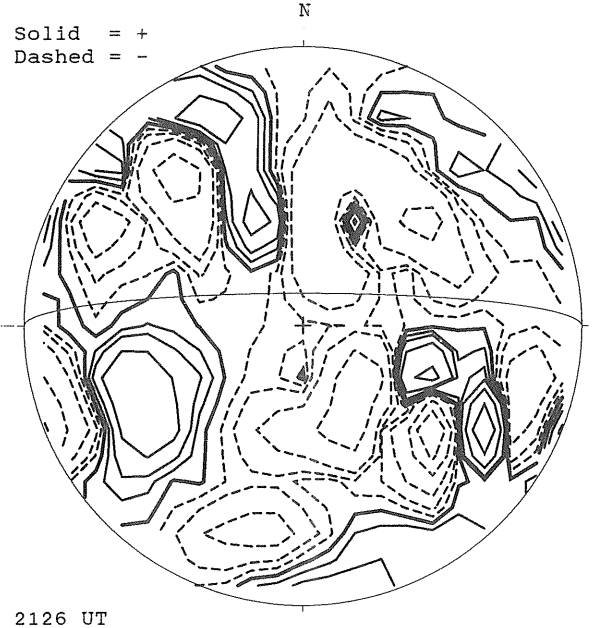


MARCH 29, 1989 (P=-26.02, B_o =-6.68, L_o = 41.63)

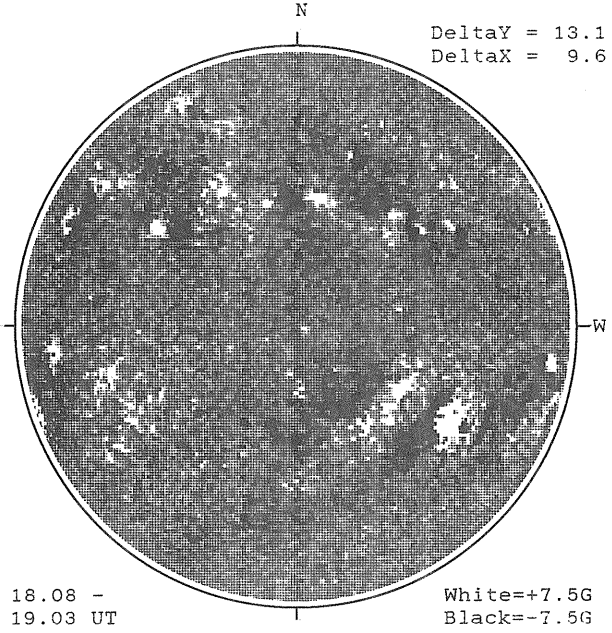
KITT PEAK MAGNETOGRAM



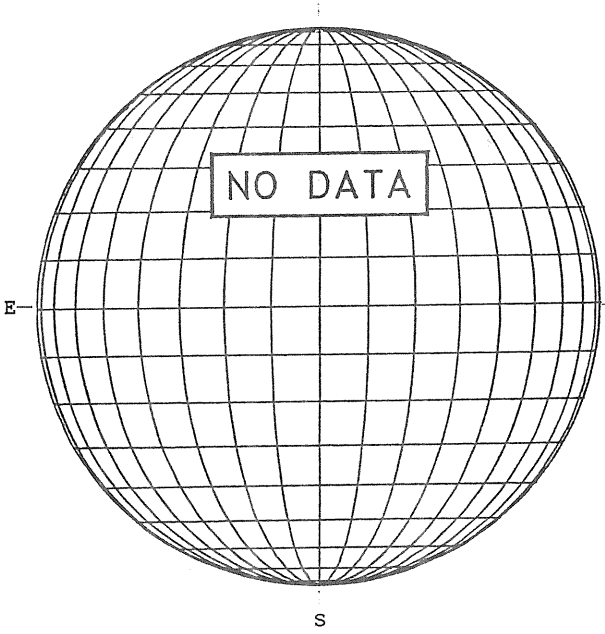
STANFORD MAGNETOGRAM



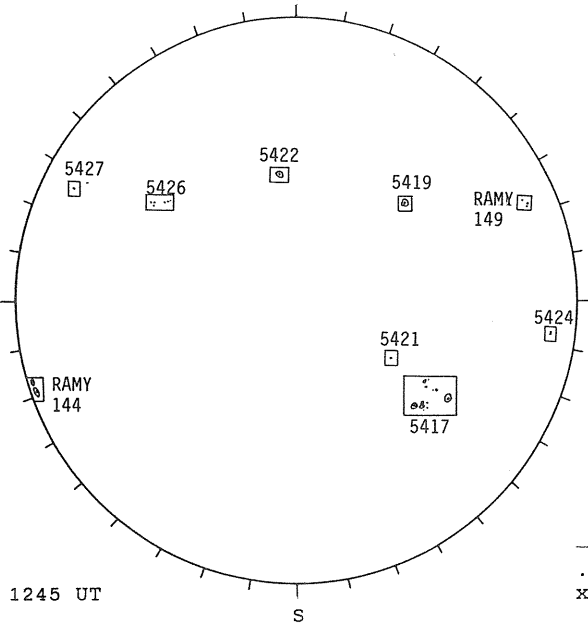
MT. WILSON MAGNETOGRAM



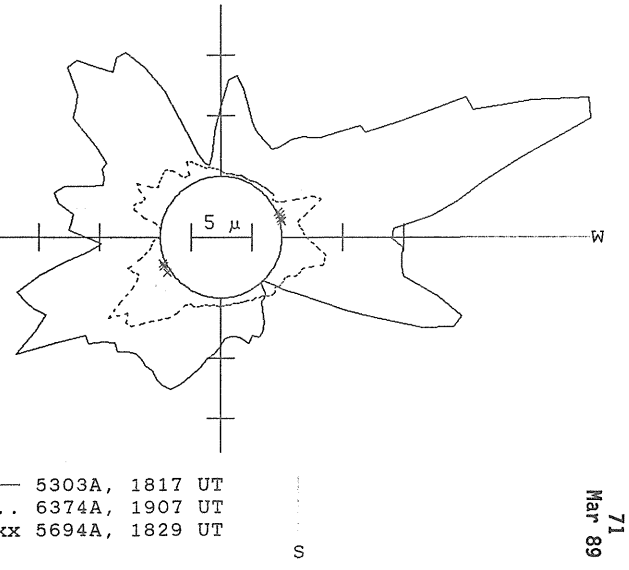
BOULDER H-ALPHA



RAMEY SUNSPOT

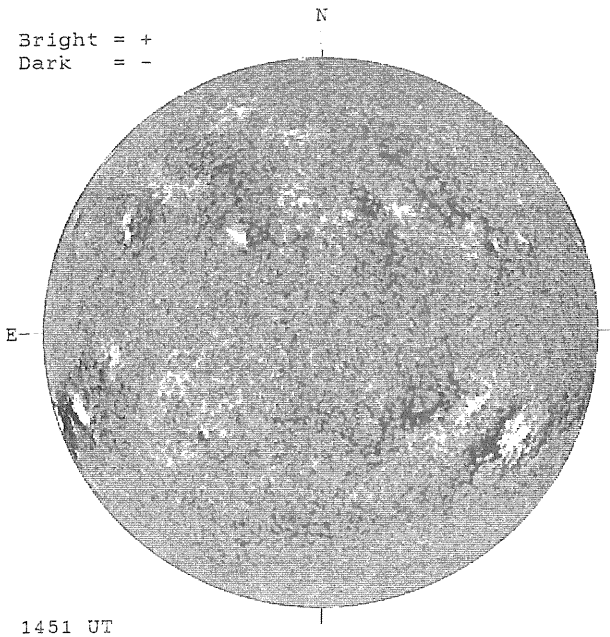


SACRAMENTO PEAK CORONA (1.15 Radii)

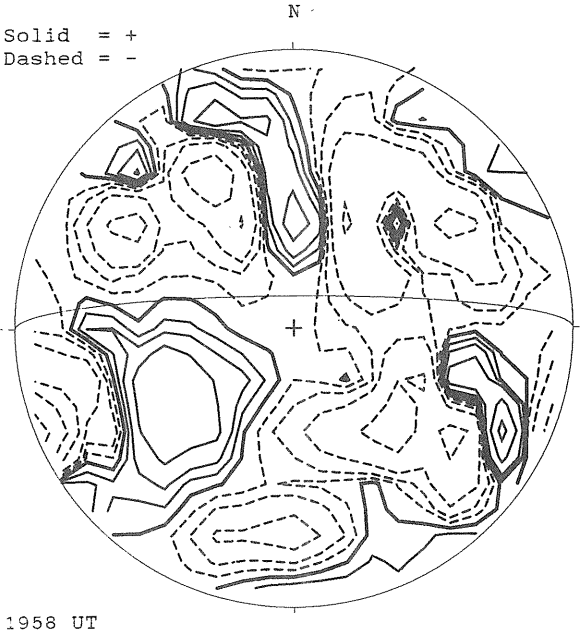


MARCH 30, 1989 (P=-26.08, B_o =-6.63, L_o = 28.44)

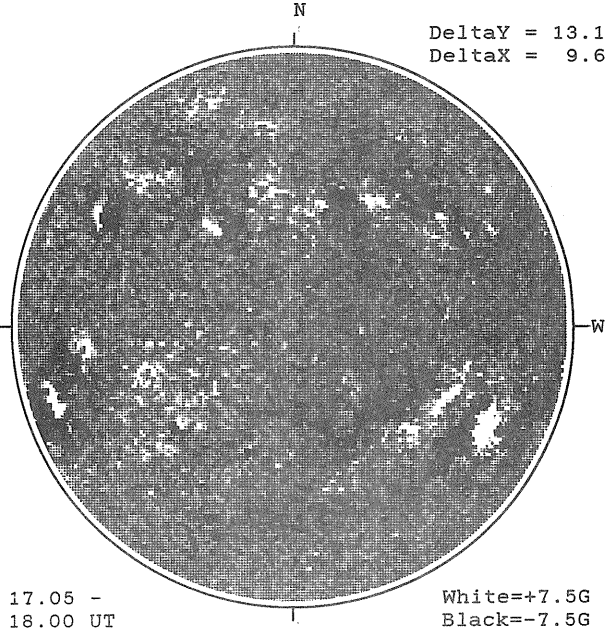
KITT PEAK MAGNETOGRAM



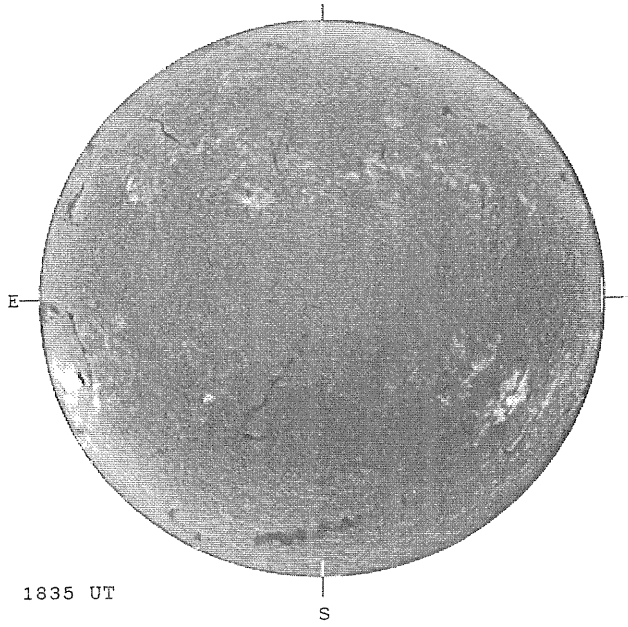
STANFORD MAGNETOGRAM



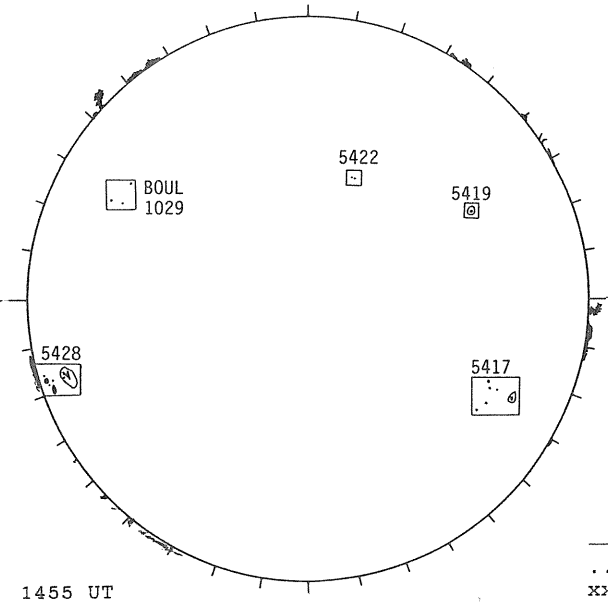
MT. WILSON MAGNETOGRAM



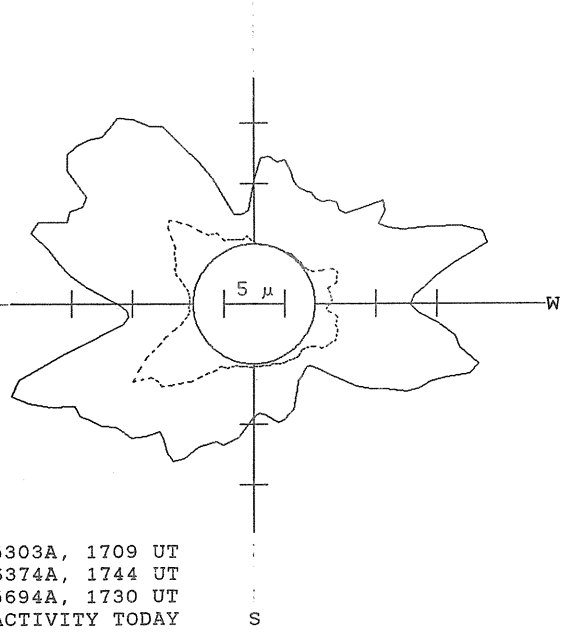
BOULDER H-ALPHA



BOULDER SUNSPOT

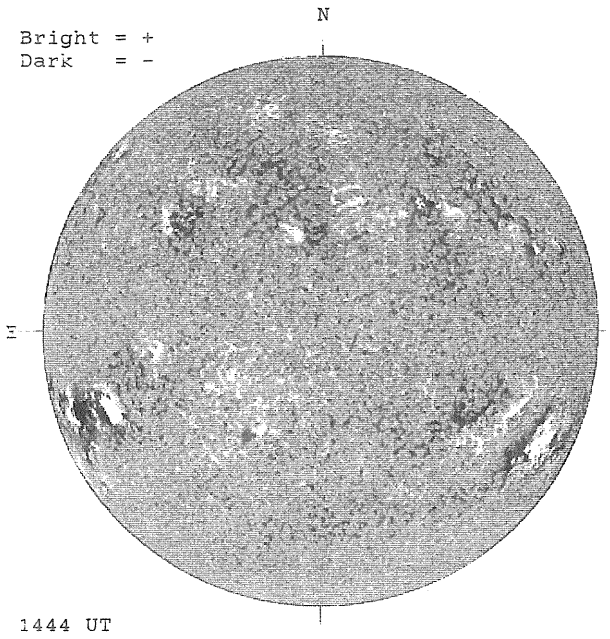


SACRAMENTO PEAK CORONA (1.15 Radii)

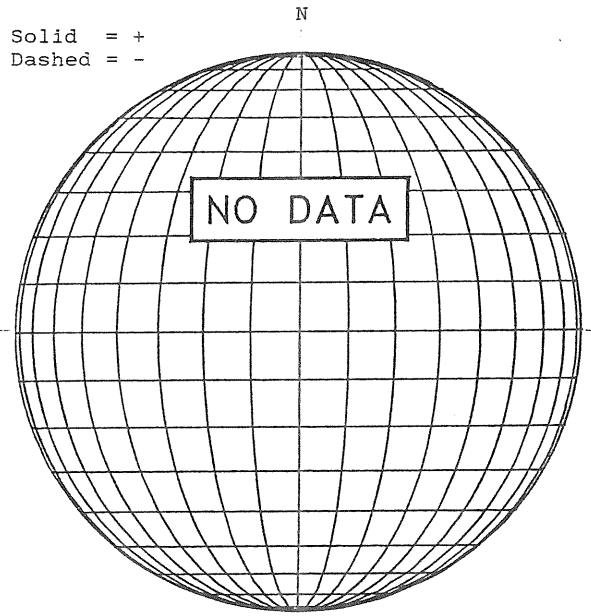


MARCH 31, 1989 (P=-26.13, B_o =-6.57, L_o = 15.24)

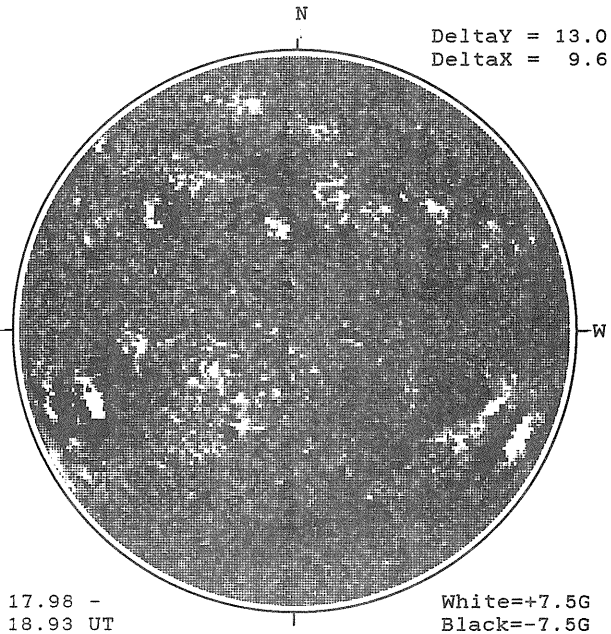
KITT PEAK MAGNETOGRAM



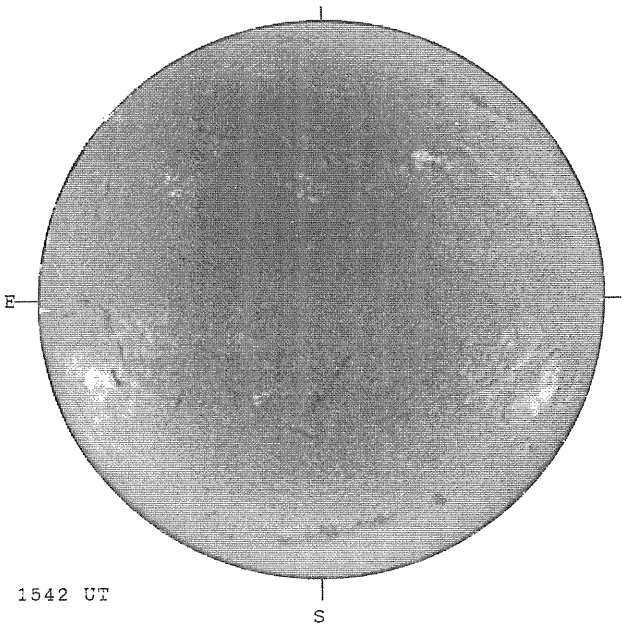
STANFORD MAGNETOGRAM



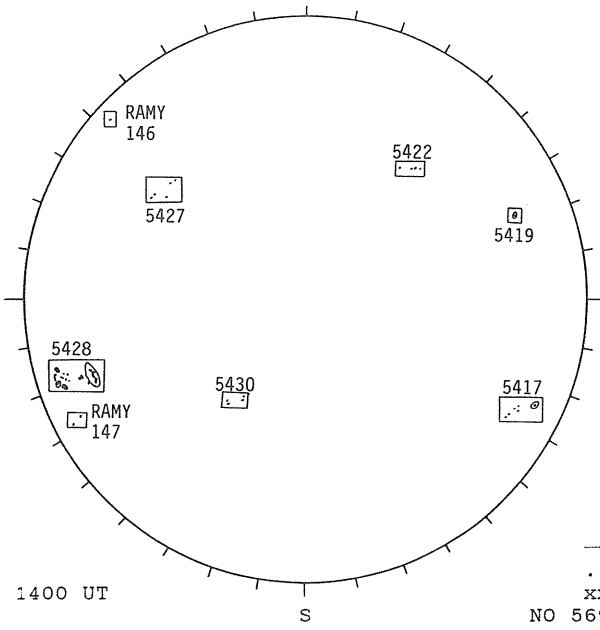
MT. WILSON MAGNETOGRAM



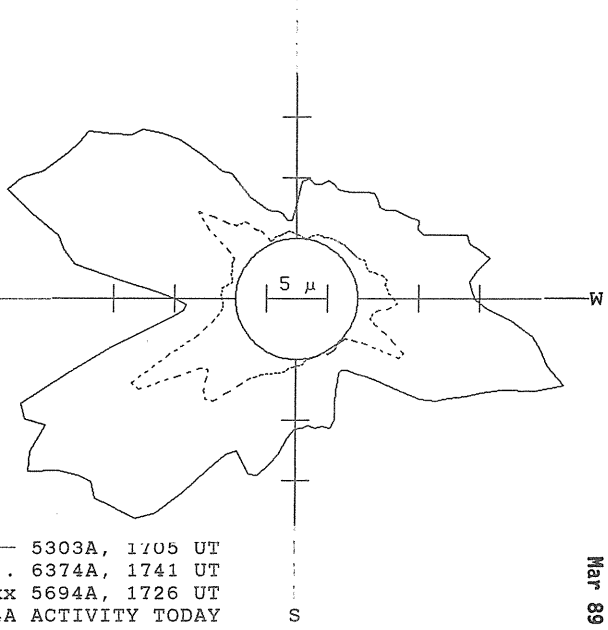
HOLLOMAN H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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Mar 89

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

MARCH 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5379		HOLL	02	23	1518	S21	E77	03	1.5		B	BXO	20	3	3	3
5379	25061	MWIL	02	23	1540	S19	E76	03	1.4	3	AP					
5379		PALE	02	23	2010	S22	E78	03	1.8		B	BXO	20	4	4	3
5379		LEAR	02	24	0111	S17	E70	03	1.4		B	BXO	10	5	6	2
5379		CULG	02	24	0500	S19	E67	03	1.3		A	AX	20	3	4	2
5379		SVTO	02	24	0854	S20	E67	03	1.5		B	CRO	50	5	5	1
5379		RAMY	02	24	1415	S17	E61	03	1.2		B	CRO	50	10	6	4
5379		HOLL	02	24	1549	S19	E61	03	1.3		B	BXO	30	13	5	4
5379		BOUL	02	24	1647	S19	E61	03	1.3		B	CRO	40	3	4	1
5379	25061	MWIL	02	24	1800	S19	E60	03	1.3	5	B					
5379		PALE	02	24	2025	S19	E58	03	1.3		B	BXO	10	5	6	3
5379		LEAR	02	25	0049	S19	E54	03	1.1		B	DAO	60	15	8	4
5379		CULG	02	25	0320	S16	E53	03	1.1		B	CRO	10	6	7	3
5379		SVTO	02	25	1220	S20	E50	03	1.3		B	CSO	20	7	8	2
5379		RAMY	02	25	1345	S19	E48	03	1.2		B	CRI	50	15	7	3
5379		BOUL	02	25	1600	S19	E47	03	1.2		B	CSO	20	4	8	2
5379		HOLL	02	25	1640	S19	E47	03	1.3		B	BXO	110	19	11	3
5379		PALE	02	25	1945	S20	E44	03	1.2		B	CAI	30	6	8	3
5379		LEAR	02	26	0015	S18	E44	03	1.4		B	CRO	40	10	9	4
5379		CULG	02	26	0315	S17	E40	03	1.2		B	CAO	10	6	9	2
5379		SVTO	02	26	0731	S19	E38	03	1.2		B	CAO	60	7	9	2
5379	25061	MWIL	02	26	1550	S20	E35	03	1.3	5	(BG)					
5379		PALE	02	26	1834	S20	E32	03	1.2		B	DSO	70	18	10	3
5379		HOLL	02	26	1855	S19	E34	03	1.4		B	BXO	190	38	12	3
5379		LEAR	02	27	0045	S20	E30	03	1.3		BG	CRO	70	28	10	3
5379		CULG	02	27	0306	S20	E28	03	1.3		BG	EAI	30	12	10	2
5379		SVTO	02	27	0743	S19	E26	03	1.3		B	DRO	50	15	10	2
5379		RAMY	02	27	1448	S20	E22	03	1.3		B	DAO	90	25	9	2
5379	25061	MWIL	02	27	1530	S20	E21	03	1.2	4	(BG)					
5379		HOLL	02	27	1632	S19	E23	03	1.4		B	ESI	120	33	12	3
5379		BOUL	02	27	1727	S19	E21	03	1.3		B	BXI	60	10	9	1
5379		LEAR	02	28	0145	S21	E18	03	1.4		BG	ESI	210	34	12	3
5379		CULG	02	28	0322	S20	E16	03	1.4		BG	EAI	50	22	11	2
5379		SVTO	02	28	1038	S20	E12	03	1.4		BG	EAI	120	15	12	2
5379		RAMY	02	28	1510	S19	E09	03	1.3		G	EAI	180	24	12	3
5379	25061	MWIL	02	28	1600	S20	E08	03	1.3	5	(BG)					
5379		PALE	02	28	2233	S20	E05	03	1.3		B	EAI	60	14	12	3
5379		LEAR	03	01	0050	S19	E04	03	1.3		BG	EAI	150	27	12	3
5379		CULG	03	01	0318	S19	E03	03	1.4		BG	EAI	50	17	11	2
5379		SVTO	03	01	0727	S19	E01	03	1.4		BG	EAO	120	15	11	2
5379		RAMY	03	01	1415	S19	W03	03	1.4		BG	EAI	130	23	13	4
5379	25061	MWIL	03	01	1615	S20	W04	03	1.4	5	(BG)					
5379		HOLL	03	01	1805	S20	W05	03	1.4		BG	ERI	150	23	14	3
5379		LEAR	03	02	0122	S19	W09	03	1.4		BG	EAO	50	17	11	3
5379		CULG	03	02	0310	S19	W09	03	1.4		B	DAO	40	15	10	2
5379		SVTO	03	02	1325	S20	W16	03	1.3		BG	DAI	30	8	10	2
5379		RAMY	03	02	1400	S21	W16	03	1.3		B	CRO	30	14	11	4
5379		HOLL	03	02	1550	S20	W18	03	1.3		B	BXO	20	10	12	3
5379		LEAR	03	03	0024	S21	W19	03	1.6		B	DRO	30	14	10	3
5379		CULG	03	03	0330	S21	W20	03	1.6		B	CSO	10	7	5	1
5379		SVTO	03	03	0847	S20	W25	03	1.4		B	CRO	20	4	6	2
5379		RAMY	03	03	1330	S21	W26	03	1.6		B	CRO	30	10	7	4
5379		HOLL	03	03	1658	S21	W31	03	1.3		A	AX	10	1	1	2
5379	25061	MWIL	03	03	1715	S20	W32	03	1.3	3	(AP)					
5379		LEAR	03	04	0015	S22	W32	03	1.5		B	BXO	10	2	5	3
5379		CULG	03	04	0455	S22	W33	03	1.7		B	BXO		2	7	1
5379		RAMY	03	04	1239	S20	W43	03	1.2		A	AX		1		3
5379	25061	MWIL	03	04	1545	S17	W44	03	1.3	4	(AP)					
5379		HOLL	03	04	2231	S17	W47	03	1.4		A	AX	10	3	2	3
5379		LEAR	03	05	0109	S18	W48	03	1.4		A	AX	10	1	1	3
5379		CULG	03	05	0256	S18	W49	03	1.4		A	AX		2	1	2
5379		SVTO	03	05	0725	S15	W54	03	1.2		B	BXO	10	3	5	3
5379		LEAR	03	06	0025	S19	W60	03	1.4		A	AX	10	2	2	3
5383		RAMY	02	25	1345	N18	E55	03	1.8		A	AX		1		3
5383		LEAR	02	26	0015	N19	E49	03	1.7		B	BXO	10	5	3	4
5383		RAMY	02	26	1315	N18	E42	03	1.7		A	AX	20	4	2	1
5383	25072	MWIL	02	26	1550	N17	E40	03	1.7	4	(B)					
5383		PALE	02	26	1834	N18	E40	03	1.8		B	BXO	20	4	3	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

MARCH 1989

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
5383		HOLL	02	26	1855	N18	E38	03	1.7		A	AX	10	2	1	3
5383		LEAR	02	27	0045	N17	E36	03	1.8		B	CSO	20	5	3	3
5383		CULG	02	27	0306	N18	E32	03	1.6		B	CSO	10	2	3	2
5383		SVTO	02	27	0743	N19	E30	03	1.6		B	BXO	10	3	2	2
5383		RAMY	02	27	1448	N16	E26	03	1.6		B	BXO	10	4	4	2
5383	25072	MWIL	02	27	1530	N17	E25	03	1.5	4	(BP)					
5383		LEAR	02	28	0145	N13	E19	03	1.5		A	AX	10	2	2	3
5383		RAMY	02	28	1510	N18	E14	03	1.7		B	BXO	30	8	6	3
5383	25072	MWIL	02	28	1600	N17	E14	03	1.7	4	(B)					
5383		PALE	02	28	2233	N19	E08	03	1.5		B	CRO	20	6	4	3
5383		LEAR	03	01	0050	N19	E07	03	1.6		B	DAO	80	8	8	3
5383		CULG	03	01	0318	N18	E07	03	1.7		B	DAO	20	8	3	2
5383		SVTO	03	01	0727	N18	E03	03	1.5		B	DAO	80	9	4	2
5383		RAMY	03	01	1415	N18	E02	03	1.7		B	DAO	130	26	6	4
5383	25072	MWIL	03	01	1615	N17	W02	03	1.5	5	(B)					
5383		HOLL	03	01	1805	N18	W03	03	1.5		B	DAI	240	22	7	3
5383		CULG	03	02	0310	N18	W07	03	1.6		B	DAI	120	21	6	2
5383		SVTO	03	02	1325	N18	W14	03	1.5		B	DAO	300	18	8	2
5383		RAMY	03	02	1400	N18	W13	03	1.6		B	DKI	360	41	8	4
5383		HOLL	03	02	1550	N19	W13	03	1.7		B	DAO	250	24	8	3
5383		LEAR	03	03	0024	N19	W19	03	1.6		B	DAI	300	20	8	3
5383		CULG	03	03	0330	N17	W22	03	1.5		B	DAI	210	15	8	1
5383		SVTO	03	03	0847	N19	W23	03	1.6		B	DAO	500	16	8	2
5383		RAMY	03	03	1330	N18	W26	03	1.6				430	21	9	4
5383		HOLL	03	03	1658	N18	W28	03	1.6		B	DAO	280	12	9	2
5383	25072	MWIL	03	03	1715	N18	W27	03	1.7	5	(B)					
5383		LEAR	03	04	0015	N19	W33	03	1.5		B	DAO	240	11	9	3
5383		CULG	03	04	0455	N17	W34	03	1.6		B	DAO	210	8	8	1
5383		SVTO	03	04	1147	N20	W38	03	1.6		B	DAO	310	6	10	1
5383		RAMY	03	04	1239	N19	W38	03	1.6		B	DHO	310	9	9	3
5383	25072	MWIL	03	04	1545	N18	W40	03	1.6	6	(B)					
5383		BOUL	03	04	1635	N19	W41	03	1.6		B	DAO	200	5	8	1
5383		HOLL	03	04	2231	N18	W45	03	1.5		B	DSO	310	6	10	3
5383		LEAR	03	05	0109	N18	W45	03	1.6		B	DAO	250	8	8	3
5383		CULG	03	05	0256	N19	W45	03	1.7		B	DAO	270	5	9	2
5383		SVTO	03	05	0725	N21	W50	03	1.5		B	DAO	380	10	9	3
5383		RAMY	03	05	1255	N19	W50	03	1.7		B	DAO	310	6	10	3
5383	25072	MWIL	03	05	1530	N18	W53	03	1.6	5	(B)					
5383		BOUL	03	05	1700	N18	W54	03	1.6		B	DAO	200	5	10	2
5383		HOLL	03	05	1710	N19	W55	03	1.5		B	DSO	210	4	10	2
5383		PALE	03	05	1815	N19	W56	03	1.5		B	DSO	320	4	10	3
5383		LEAR	03	06	0025	N18	W58	03	1.6		BG	EKO	230	5	11	3
5383		CULG	03	06	0257	N19	W57	03	1.8		B	DAO	180	4	9	2
5383		SVTO	03	06	0758	N21	W64	03	1.4		B	DSO	260	2	9	3
5383		BOUL	03	06	1437	N18	W69	03	1.3		B	DAO	180	2	10	1
5383	25072	MWIL	03	06	1600	N20	W65	03	1.7	5	(B)					
5383		RAMY	03	06	1628	N19	W65	03	1.7		B	DSO	220	6	9	3
5383		HOLL	03	06	2010	N16	W67	03	1.7		B	EHO	360	3	11	3
5383		PALE	03	06	2340	N18	W71	03	1.6		B	DAO	100	3	8	2
5383		LEAR	03	07	0025	N18	W70	03	1.7		B	EKO	240	3	11	3
5383		CULG	03	07	0315	N15	W69	03	1.9		B	DSO	120	3	9	2
5383		SVTO	03	07	0725	N18	W75	03	1.6		B	DSO	1200	3	10	4
5383		RAMY	03	07	1400	N18	W78	03	1.6		B	DAO	100	5	8	4
5383		BOUL	03	07	1438	N18	W79	03	1.6		A	HS	50	1	2	1
5383	25072	MWIL	03	07	1545	N19	W78	03	1.7	5	(B					
5383		HOLL	03	07	1559	N18	W81	03	1.5		B	EAO	120	2	11	3
5383		PALE	03	07	1830	N20	W79	03	1.7		A	HA	60	2	2	2
5383		LEAR	03	08	0047	N19	W85	03	1.5		A	HA	60	2	1	3
5380	25059	MWIL	02	23	1540	N40	E72	03	1.5	2	AP					
5380		PALE	02	23	2010	N37	E63	02	28.9		B	BXO	20	2	3	3
5380		LEAR	02	24	0111	N38	E61	03	1.0		B	BXO	10	4	3	2
5380		RAMY	02	24	1415	N40	E56	03	1.1		B	BXO	20	4	10	4
5380		HOLL	02	24	1549	N39	E56	03	1.2		B	BXO	10	2	9	4
5380	25059	MWIL	02	24	1800	N39	E54	03	1.1	4	B					
5380		PALE	02	24	2025	N38	E55	03	1.3		B	BXO	20	5	11	3
5380		LEAR	02	25	0049	N39	E48	02	28.9		B	BXO	10	7	8	4
5380		RAMY	02	25	1345	N38	E43	03	1.0		B	BXO	20	5	7	3
5380		HOLL	02	25	1640	N37	E39	02	28.8		B	BXO	70	6	9	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5380		PALE	02	25	1945	N38	E39	03	1.0		A	AX		2	1	3
5380		LEAR	02	26	0015	N38	E39	03	1.2		B	BXO	10	3	10	4
5380		CULG	02	26	0315	N37	E31	02	28.6		A	AX		2		2
5380		RAMY	02	26	1315	N38	E33	03	1.2		B	BXO	30	4	13	1
5380	25059	MWIL	02	26	1550	N39	E37	03	1.7	2	(AP)					
5380		PALE	02	26	1834	N38	E37	03	1.8		B	BXO	30	4	3	3
5380		HOLL	02	26	1855	N38	E29	03	1.1		B	BXO	30	4	16	3
5380		LEAR	02	27	0045	N38	E23	02	28.9		B	BXO	20	3	2	3
5380	25059	MWIL	02	27	1530	N39	E25	03	1.7	4	(AP)					
5380		HOLL	02	27	1632	N39	E25	03	1.7		A	AX	20	5	2	3
5380		BOUL	02	27	1727	N39	E25	03	1.7		A	AX	10	1		1
5380		LEAR	02	28	0145	N38	E19	03	1.6		B	BXO	30	6	7	3
5380		CULG	02	28	0322	N38	E19	03	1.7		B	BXO	10	2	4	2
5380		SVTO	02	28	1038	N39	E15	03	1.7		B	CAO	20	4	5	2
5380		RAMY	02	28	1510	N39	E13	03	1.7		B	BXO	10	3	5	3
5380	25059	MWIL	02	28	1600	N39	E13	03	1.7	4	(B)					
5380		PALE	02	28	2233	N39	E11	03	1.8		B	BXO	10	2	6	3
5380		LEAR	03	01	0050	N40	E08	03	1.7		B	CRO	40	6	7	3
5380		CULG	03	01	0318	N38	E06	03	1.6		A	AX		1		2
5380		SVTO	03	01	0727	N38	E02	03	1.5		A	AX		1		2
5380		HOLL	03	01	1805	N42	E03	03	2.0		A	AX	10	1	1	3
5380		LEAR	03	02	0122	N40	W01	03	2.0		A	AX	10	1	1	3
5380B		LEAR	03	03	0024	N08	W07	03	2.5		A	AX	10	2	1	3
5380A		HOLL	02	24	1549	S19	E79	03	2.7		B	BXO	10	3	4	4
5380A	25069	MWIL	02	24	1800	S19	E77	03	2.6	2	X					
5380A		PALE	02	24	2025	S19	E75	03	2.6		A	AX		1		3
5380A		LEAR	02	25	0049	S17	E73	03	2.6		B	BXO	10	4	3	4
5385		PALE	02	28	2233	N23	E60	03	5.6		A	AX		1		3
5385		LEAR	03	01	0050	N25	E57	03	5.4		B	CRO	40	5	8	3
5385		CULG	03	01	0318	N23	E53	03	5.2		B	CAO	10	3	6	2
5385		SVTO	03	01	0727	N23	E51	03	5.2		B	CRI	40	12	7	2
5385		RAMY	03	01	1415	N23	E49	03	5.4		B	DAI	130	17	9	4
5385	25074	MWIL	03	01	1615	N23	E46	03	5.2	5	(B)					
5385		HOLL	03	01	1805	N24	E46	03	5.3		B	EAI	220	12	7	3
5385		CULG	03	02	0310	N25	E38	03	5.1		B	DAI	60	12	7	2
5385		SVTO	03	02	1325	N23	E35	03	5.2		BG	DHI	180	13	8	2
5385		RAMY	03	02	1400	N25	E35	03	5.3		B	DAO	270	31	10	4
5385		HOLL	03	02	1550	N24	E35	03	5.4		B	DAO	170	20	8	3
5385		LEAR	03	03	0024	N24	E29	03	5.2		B	EAI	320	26	11	3
5385		CULG	03	03	0330	N25	E26	03	5.2		B	DAI	160	15	9	1
5385		SVTO	03	03	0847	N23	E26	03	5.4		B	EAO	240	19	11	2
5385		RAMY	03	03	1330	N23	E23	03	5.3		B	EKI	400	31	11	4
5385		HOLL	03	03	1658	N23	E21	03	5.3		B	DAO	220	12	11	2
5385	25074	MWIL	03	03	1715	N23	E21	03	5.3	5	(B)					
5385		LEAR	03	04	0015	N23	E16	03	5.2		B	EAI	200	17	11	3
5385		CULG	03	04	0455	N25	E11	03	5.0		B	DAO	100	16	10	1
5385		SVTO	03	04	1147	N23	E12	03	5.4		B	EAO	260	10	12	1
5385		RAMY	03	04	1239	N24	E12	03	5.4		B	EKI	280	15	11	3
5385	25074	MWIL	03	04	1545	N23	E08	03	5.3	5	(BG)					
5385		BOUL	03	04	1635	N24	E08	03	5.3		B	DAI	210	9	10	1
5385		HOLL	03	04	2231	N24	E05	03	5.3		B	DSO	210	13	12	3
5385		LEAR	03	05	0109	N23	E04	03	5.3		B	EAO	240	10	12	3
5385		CULG	03	05	0256	N25	E02	03	5.3		B	EAI	230	12	11	2
5385		SVTO	03	05	0725	N24	E01	03	5.4		B	EAO	260	16	12	3
5385		RAMY	03	05	1255	N23	W03	03	5.3		B	EKO	240	12	12	3
5385	25074	MWIL	03	05	1530	N24	W04	03	5.3	5	(B)					
5385		BOUL	03	05	1700	N24	W05	03	5.3		B	EAO	180	11	11	2
5385		HOLL	03	05	1710	N24	W06	03	5.2		B	EAO	190	11	11	2
5385		PALE	03	05	1815	N23	W06	03	5.3		B	EAO	240	15	11	3
5385		LEAR	03	06	0025	N24	W11	03	5.2		B	EHO	230	4	12	3
5385		CULG	03	06	0257	N24	W10	03	5.3		B	EAO	200	8	11	2
5385		SVTO	03	06	0758	N24	W13	03	5.3		B	EAO	260	11	12	3
5385		BOUL	03	06	1437	N24	W17	03	5.3		B	DAO	110	5	9	1
5385	25074	MWIL	03	06	1600	N24	W16	03	5.4	5	(B)					
5385		RAMY	03	06	1628	N24	W18	03	5.3		B	EAO	190	13	11	3
5385		HOLL	03	06	2010	N23	W18	03	5.4		B	ESO	250	20	12	3

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5385		PALE	03 06	2340	N23 W24	03 5.1		B	DAO	100	7	10	2
5385		LEAR	03 07	0025	N24 W24	03 5.2		B	EAO	130	12	11	3
5385		CULG	03 07	0315	N23 W26	03 5.1		B	DAO	120	5	10	2
5385		SVTO	03 07	0725	N23 W26	03 5.3		B	CAO	80	11	10	4
5385		RAMY	03 07	1400	N24 W30	03 5.3		B	EAO	130	14	11	4
5385		BOUL	03 07	1438	N24 W30	03 5.3		B	DAO	90	4	9	1
5385	25074	MWIL	03 07	1545	N24 W28	03 5.5	5	(B)					
5385		HOLL	03 07	1559	N25 W31	03 5.3		B	CSO	110	11	12	3
5385		PALE	03 07	1830	N23 W33	03 5.2		B	DSO	70	4	10	2
5385		LEAR	03 08	0047	N23 W37	03 5.2		B	DAO	90	6	10	3
5385		CULG	03 08	0250	N22 W37	03 5.3		B	CSO	70	5	9	2
5385		SVTO	03 08	0745	N24 W40	03 5.2		B	CSO	60	5	10	3
5385		HOLL	03 08	1525	N23 W43	03 5.3		B	CSO	50	6	11	3
5385		BOUL	03 08	1540	N24 W43	03 5.3		B	CAO	70	5	9	3
5385	25074	MWIL	03 08	1545	N24 W43	03 5.3	5	(BF)					
5385		RAMY	03 08	1616	N23 W44	03 5.3		B	CAO	90	5	9	2
5385		LEAR	03 09	0048	N23 W50	03 5.2		B	CAO	90	6	9	3
5385		CULG	03 09	0440	N22 W47	03 5.6		A	HS	30	1	1	3
5385	25074	MWIL	03 09	1520	N25 W52	03 5.6	5	(AF)					
5385		HOLL	03 09	1610	N25 W55	03 5.4		B	CSO	40	3	3	4
5385		RAMY	03 09	1830	N25 W55	03 5.5		A	HS	40	2	1	2
5385		PALE	03 09	2236	N25 W58	03 5.4		A	HS	40	2	1	3
5385		LEAR	03 10	0020	N23 W56	03 5.7		A	HS	20	2	2	3
5385		CULG	03 10	0425	N21 W60	03 5.6		A	AX	10	2	1	1
5385		SVTO	03 10	0925	N27 W66	03 5.2		B	BXO	10	4	5	3
5385		RAMY	03 10	1208	N25 W62	03 5.7		A	AX	20	2	1	3
5385		HOLL	03 10	1500	N23 W65	03 5.6		B	BXO	10	3	3	4
5385	25074	MWIL	03 10	1515	N24 W65	03 5.6	4	(AF)					
5385		PALE	03 10	1945	N24 W70	03 5.4		A	AX		1		3
5385		LEAR	03 11	0335	N24 W70	03 5.7		A	AX	50	2	2	2
5385		SVTO	03 11	0824	N25 W88	03 4.5		B	BXO	10	2	4	1
5387		RAMY	03 01	1415	S19 E52	03 5.6		B	BXO	10	2	2	4
5387	25075	MWIL	03 01	1615	S19 E50	03 5.5	4	(B)					
5387		HOLL	03 01	1805	S18 E50	03 5.6		B	BXO	30	4	5	3
5387		CULG	03 02	0310	S16 E45	03 5.5		B	BXO		3	2	2
5387		SVTO	03 02	1325	S22 E38	03 5.5		B	DRO	30	3	3	2
5387		RAMY	03 02	1400	S18 E38	03 5.5		B	BXO	20	7	4	4
5387		HOLL	03 02	1550	S19 E37	03 5.5		B	BXO	10	7	4	3
5387		LEAR	03 03	0024	S19 E33	03 5.5		B	CRO	10	4	5	3
5387		SVTO	03 03	0847	S19 E27	03 5.4		A	HR	20	2	2	2
5387		LEAR	03 04	0015	S19 E22	03 5.7		A	AX	10	1	1	3
5387		SVTO	03 04	1147	S20 E14	03 5.6		A	HR	10	1	1	1
5387		RAMY	03 04	1239	S20 E14	03 5.6		A	AX		1		3
5387		LEAR	03 05	0109	S18 E07	03 5.6		A	AX	10	1	1	3
5386	25076	MWIL	03 01	1615	N21 E64	03 6.6	4	(AF)					
5386		HOLL	03 01	1805	N22 E65	03 6.7		A	AX	10	1	1	3
5386		CULG	03 02	0310	N23 E56	03 6.4		A	AX		1		2
5386		HOLL	03 02	1550	N22 E45	03 6.1		A	AX	10	2	1	3
5386		LEAR	03 03	0024	N19 E45	03 6.4		A	AX	10	2	1	3
5386		HOLL	03 03	1658	N23 E29	03 5.9		A	AX	10	1	1	2
5389		RAMY	03 02	1400	N13 E45	03 6.0		B	BXO	10	2	2	4
5389		LEAR	03 03	0024	N13 E40	03 6.0		B	CRO	20	6	4	3
5389		CULG	03 03	0330	N15 E37	03 5.9		B	CRO		2	2	1
5389		SVTO	03 03	0847	N12 E37	03 6.1		B	CRO	20	3	4	2
5389		RAMY	03 03	1330	N13 E32	03 6.0		B	CRO	10	4	4	4
5389		LEAR	03 04	0015	N13 E25	03 5.9		A	AX	10	1	1	3
5389		CULG	03 04	0455	N13 E22	03 5.9		A	AX		1		1
5389		RAMY	03 04	1239	N12 E19	03 5.9		A	AX		1		3
5389A		SVTO	03 01	0727	N21 E69	03 6.6		A	AX		1		2
5389A		RAMY	03 01	1415	N20 E66	03 6.6		A	AX	10	2	4	4
5389B		SVTO	03 05	0725	S03 E21	03 6.9		A	AX	10	1		3
5388		RAMY	03 02	1400	S23 E68	03 7.8		A	AX		1	1	4
5388		HOLL	03 02	1550	S23 E69	03 8.0		A	AX		1		3

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5388		SVTO	03	03	0847	S24	E58	03	7.8		A	AX	20	2	1	2
5388		RAMY	03	03	1330	S23	E54	03	7.7		A	AX	10	2	1	4
5388		HOLL	03	03	1658	S23	E53	03	7.8		A	AX		1		2
5388		LEAR	03	04	0015	S22	E51	03	7.9		B	BXO	10	2	3	3
5388		SVTO	03	04	1147	S22	E42	03	7.7		A	AX	10	1	1	1
5388		RAMY	03	04	1239	S23	E42	03	7.8		A	AX		1		3
5388	25078	MWIL	03	04	1545	S22	E41	03	7.8	4	(AP)					
5388		HOLL	03	04	2231	S22	E37	03	7.8		A	AX		1		3
5388		LEAR	03	05	0109	S22	E35	03	7.7		A	AX	10	2	1	3
5388A	25087	MWIL	03	10	1515	S23	W35	03	7.9	2	X					
5389C		LEAR	03	06	0025	N25	E26	03	8.0		A	AX	10	1	1	3
5391		LEAR	03	04	0015	S18	E58	03	8.4		A	AX	10	2	1	3
5391		SVTO	03	04	1147	S19	E52	03	8.4		B	CRO	20	2	3	1
5391		RAMY	03	04	1239	S19	E53	03	8.6		A	AX	10	3	2	3
5391	25079	MWIL	03	04	1545	S18	E51	03	8.5	4	(B)					
5391		HOLL	03	04	2231	S17	E47	03	8.5		A	AX		1	1	3
5391		LEAR	03	05	0109	S17	E44	03	8.4		A	AX	10	1	1	3
5391		CULG	03	05	0256	S17	E43	03	8.4		A	AX		1		2
5391		SVTO	03	05	0725	S18	E42	03	8.5		A	AX	10	2		3
5391		RAMY	03	05	1255	S18	E38	03	8.4		A	AX		1	1	3
5391	25079	MWIL	03	05	1530	S18	E37	03	8.5	4	(AP)					
5391		HOLL	03	05	1710	S18	E35	03	8.4		A	AX		2	1	2
5391		PALE	03	05	1815	S18	E35	03	8.4		A	AX		1	1	3
5391		CULG	03	06	0257	S18	E30	03	8.4		A	AX		1		2
5393		SVTO	03	05	0725	N13	E39	03	8.2		A	AX	10	3	3	3
5393		RAMY	03	05	1255	N13	E35	03	8.2		B	BXO	10	2	2	3
5393		HOLL	03	05	1710	N14	E30	03	8.0		A	AX		1		2
5393		PALE	03	05	1815	N13	E31	03	8.1		A	AX		1		3
5393		SVTO	03	06	0758	N13	E23	03	8.1		A	AX		1		3
5393		HOLL	03	06	2010	N17	E22	03	8.5		B	BXO	30	5	8	3
5393		LEAR	03	12	0145	N17	W40	03	9.0		A	AX	10	1	1	3
5393A	25088	MWIL	03	10	1515	N30	W23	03	8.8	3	(B)					
5393B		RAMY	03	07	1400	N23	E17	03	8.9		A	AX		1		4
5393B	25083	MWIL	03	07	1545	N22	E17	03	9.0	4	(AP)					
5396		RAMY	03	06	1628	S31	E36	03	9.5		B	BXO	10	4	2	3
5396		HOLL	03	06	2010	S32	E33	03	9.4		A	AX	10	2	2	3
5396		HOLL	03	09	1610	S29	W04	03	9.3		A	AX	20	8	2	4
5396	25089	MWIL	03	10	1515	S28	W12	03	9.7	4	(AP)					
5390		RAMY	03	03	1330	S09	E80	03	9.6		A	HS	60	1	2	4
5390		HOLL	03	03	1658	S10	E81	03	9.8		A	HS	30	1	1	2
5390	25077	MWIL	03	03	1715	S10	E80	03	9.7	3	AP					
5390		LEAR	03	04	0015	S09	E73	03	9.5		A	HS	90	1	1	3
5390		CULG	03	04	0455	S06	E72	03	9.6		B	CSO	60	2	3	1
5390		SVTO	03	04	1147	S10	E68	03	9.6		A	HA	50	1	2	1
5390		RAMY	03	04	1239	S10	E69	03	9.7		A	HS	50	2	2	3
5390	25077	MWIL	03	04	1545	S09	E67	03	9.7	5	(AP)					
5390		BOUL	03	04	1635	S09	E66	03	9.6		A	HS	40	1	1	1
5390		HOLL	03	04	2231	S09	E64	03	9.7		A	HS	90	2	2	3
5390		LEAR	03	05	0109	S10	E62	03	9.7		A	HS	60	2	2	3
5390		CULG	03	05	0256	S09	E59	03	9.5		A	HS	30	1	1	2
5390		SVTO	03	05	0725	S11	E59	03	9.7		A	HR	40	6	2	3
5390		RAMY	03	05	1255	S11	E58	03	9.9		B	CAO	50	3	8	3
5390	25077	MWIL	03	05	1530	S10	E54	03	9.7	4	(AP)					
5390		BOUL	03	05	1700	S10	E56	03	9.9		B	CSO	30	4	9	2
5390		HOLL	03	05	1710	S10	E57	03	10.0		B	CSO	20	4	9	2
5390		PALE	03	05	1815	S10	E52	03	9.7		B	CSO	40	5	9	3
5390		LEAR	03	06	0025	S08	E52	03	9.9		B	CAO	70	6	9	3
5390		CULG	03	06	0257	S10	E47	03	9.6		A	HA	20	2	1	2
5390		SVTO	03	06	0758	S11	E45	03	9.7		A	HS	40	2	2	3
5390		BOUL	03	06	1437	S10	E40	03	9.6		B	CSO	30	2	1	1
5390	25077	MWIL	03	06	1600	S11	E40	03	9.7	5	(AP)					

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5390		RAMY	03	06	1628	S11	E40	03	9.7		A	HR	20	4	1	3
5390		HOLL	03	06	2010	S09	E39	03	9.8		A	HR	40	3	2	3
5390		PALE	03	06	2340	S10	E37	03	9.8		A	HA	10	2	1	2
5390		LEAR	03	07	0025	S09	E36	03	9.7		A	HA	20	2	1	3
5390		CULG	03	07	0315	S07	E34	03	9.7		A	HR	10	2	1	2
5390		SVTO	03	07	0725	S09	E32	03	9.7		B	BXO	10	5	4	4
5390		RAMY	03	07	1400	S08	E28	03	9.7		A	HR	20	1	2	4
5390		BOUL	03	07	1438	S10	E28	03	9.7		A	AX	10	1		1
5390	25077	MWIL	03	07	1545	S10	E28	03	9.8	5	(AP)					
5390		HOLL	03	07	1559	S10	E27	03	9.7		A	AX	10	1	1	3
5390		PALE	03	07	1830	S10	E26	03	9.7		A	HR	10	1	1	2
5390		LEAR	03	08	0047	S09	E23	03	9.7		A	HS	10	1	1	3
5390		CULG	03	08	0250	S09	E21	03	9.7		A	AX		1		2
5390		SVTO	03	08	0745	S10	E19	03	9.7		A	AX	10	3	3	3
5390		HOLL	03	08	1525	S10	E16	03	9.8		B	CSO	20	7	8	3
5390	25077	MWIL	03	08	1545	S10	E17	03	9.9	5	(BP)					
5390		RAMY	03	08	1616	S11	E17	03	9.9		B	CRO	20	5	8	2
5390		LEAR	03	09	0048	S09	E11	03	9.8		B	CAO	30	5	9	3
5390		CULG	03	09	0440	S10	E11	03	10.0		B	BXO	10	2	7	3
5390	25077	MWIL	03	09	1520	S10	E05	03	10.0	4	(B)					
5390		HOLL	03	09	1610	S12	E04	03	10.0		B	BXO	10	5	7	4
5390		RAMY	03	09	1830	S11	E04	03	10.1		B	CRO	10	2	6	2
5390		PALE	03	09	2236	S12	E03	03	10.2		A	AX		2	2	3
5390		LEAR	03	10	0020	S11	W01	03	9.9		B	DSO	20	9	7	3
5390		CULG	03	10	0425	S11	W03	03	9.9		B	BXO	10	4	7	1
5390		SVTO	03	10	0925	S11	W07	03	9.9		B	BXO	10	5	7	3
5390		RAMY	03	10	1208	S11	W08	03	9.9		B	CRO	20	5	7	3
5390		HOLL	03	10	1500	S10	W08	03	10.0		B	BXO	10	4	6	4
5390	25077	MWIL	03	10	1515	S10	W09	03	9.9	4	(B)					
5390		PALE	03	10	1945	S10	W13	03	9.8		A	AX		2	2	3
5390		LEAR	03	11	0335	S14	W11	03	10.3		B	BXO	60	8	10	2
5390	25077	MWIL	03	11	1600	S12	W30	03	9.4	3	AP					
5390		LEAR	03	12	0145	S12	W25	03	10.2		B	BXO	10	3	2	3
5390	25077	MWIL	03	12	1530	S12	W42	03	9.5	3	X					
5390A		HOLL	03	06	2010	S15	E41	03	9.9		A	AX		1		3
5399		LEAR	03	09	0048	N11	E11	03	9.9		B	CAO	20	8	4	3
5399		CULG	03	09	0440	N10	E09	03	9.9		B	CRO	20	4	3	3
5399	25086	MWIL	03	09	1520	N10	E04	03	9.9	4	(B)					
5399		HOLL	03	09	1610	N09	E04	03	10.0		B	BXO	20	4	4	4
5399		RAMY	03	09	1830	N10	E02	03	9.9		B	BXO	10	4	4	2
5399		LEAR	03	10	0020	N10	W02	03	9.9		B	BXO	10	5	4	3
5399		CULG	03	10	0425	N11	W06	03	9.7		A	AX	10	2	2	1
5399		SVTO	03	10	0925	N12	W08	03	9.8		A	AX		3	2	3
5399		RAMY	03	10	1208	N10	W09	03	9.8		A	AX		2	2	3
5392		RAMY	03	04	1239	N26	E72	03	10.1		A	AX	10	1	1	3
5392	25080	MWIL	03	04	1545	N25	E73	03	10.3	4	(AP					
5392		HOLL	03	04	2231	N26	E70	03	10.4		B	CSO	50	2	8	3
5392		LEAR	03	05	0109	N25	E66	03	10.2		B	CRO	60	2	7	3
5392		CULG	03	05	0256	N25	E64	03	10.1		B	BXO	10	2	7	2
5392		SVTO	03	05	0725	N25	E68	03	10.6		B	CRO	50	5	8	3
5392		RAMY	03	05	1255	N24	E60	03	10.2		B	DAO	100	8	7	3
5392	25080	MWIL	03	05	1530	N25	E60	03	10.3	4	(B)					
5392		BOUL	03	05	1700	N24	E59	03	10.3		B	DSO	30	3	9	2
5392		HOLL	03	05	1710	N26	E58	03	10.2		B	DAO	50	3	8	2
5392		PALE	03	05	1815	N25	E59	03	10.3		B	EAO	150	9	14	3
5392		CULG	03	06	0257	N25	E55	03	10.4		B	DAO	50	6	8	2
5392		SVTO	03	06	0758	N25	E54	03	10.5		B	DAO	160	12	9	3
5392		BOUL	03	06	1437	N24	E46	03	10.2		B	DAO	110	7	9	1
5392	25030	MWIL	03	06	1600	N25	E48	03	10.4	6	(B)					
5392		RAMY	03	06	1628	N25	E47	03	10.3		B	DAO	220	19	9	3
5392		HOLL	03	06	2010	N29	E47	03	10.5		B	CAI	340	25	13	3
5392		PALE	03	06	2340	N26	E44	03	10.4		B	CAO	110	13	9	2
5392		LEAR	03	07	0025	N27	E42	03	10.3		B	DAO	180	13	10	3
5392		CULG	03	07	0315	N27	E38	03	10.1		B	DAO	90	10	9	2
5392		SVTO	03	07	0725	N26	E39	03	10.3		B	DAO	80	19	9	4
5392		RAMY	03	07	1400	N27	E35	03	10.3		B	DAI	180	19	10	4

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5392		BOUL	03	07	1438	N24	E34	03	10.2		B	DAO	120	5	9	1
5392	25080	MWIL	03	07	1545	N25	E36	03	10.4	6	(B)					
5392		HOLL	03	07	1559	N26	E36	03	10.5		B	CSO	200	19	10	3
5392		PALE	03	07	1830	N25	E33	03	10.3		B	CAO	110	7	10	2
5392		LEAR	03	08	0047	N27	E29	03	10.3		B	DAO	170	14	10	3
5392		CULG	03	08	0250	N27	E27	03	10.2		B	CAO	80	8	10	2
5392		SVTO	03	08	0745	N26	E27	03	10.4		B	DAO	130	12	10	3
5392		HOLL	03	08	1525	N26	E23	03	10.4		B	CSO	110	10	10	3
5392	25080	MWIL	03	08	1545	N25	E23	03	10.4	5	(B)					
5392		RAMY	03	08	1616	N25	E21	03	10.3		B	DAO	150	14	10	2
5392		LEAR	03	09	0048	N26	E17	03	10.3		B	DAO	170	15	11	3
5392		CULG	03	09	0440	N26	E13	03	10.2		B	DAO	150	10	6	3
5392	25080	MWIL	03	09	1520	N25	E11	03	10.5	4	(B)					
5392		HOLL	03	09	1610	N25	E09	03	10.4		B	CAI	200	27	12	4
5392		RAMY	03	09	1830	N25	E09	03	10.5		B	DAI	90	21	9	2
5392		PALE	03	09	2236	N26	E07	03	10.5		B	DAO	130	10	10	3
5392		LEAR	03	10	0020	N27	E05	03	10.4		B	DAO	130	16	10	3
5392		CULG	03	10	0425	N26	W01	03	10.1		B	DAO	50	11	7	1
5392		SVTO	03	10	0925	N26	E01	03	10.5		B	DAO	100	20	9	3
5392		RAMY	03	10	1208	N25	W01	03	10.4		B	DSO	90	15	9	3
5392		HOLL	03	10	1500	N25	W02	03	10.5		B	CSO	50	19	10	4
5392	25080	MWIL	03	10	1515	N25	W03	03	10.4	4	(B)					
5392		PALE	03	10	1945	N25	W06	03	10.3		B	DAO	40	20	10	3
5392		CULG	03	11	0005	N26	W10	03	10.2		B	CSO	40	6	7	1
5392		LEAR	03	11	0335	N25	W10	03	10.4		B	DAO	80	17	10	2
5392		SVTO	03	11	0824	N26	W13	03	10.3		B	CRO	40	14	9	1
5392		RAMY	03	11	1240	N25	W16	03	10.3		B	CRO	30	15	9	4
5392		HOLL	03	11	1435	N25	W15	03	10.4		B	BXO	20	11	10	3
5392	25080	MWIL	03	11	1600	N25	W18	03	10.3	4	B					
5392		BOUL	03	11	1620	N25	W16	03	10.4		B	BXO	10	10	10	3
5392		PALE	03	11	1820	N25	W18	03	10.4		B	CXO	10	8	10	3
5392		LEAR	03	12	0145	N28	W21	03	10.4		B	BXO	50	13	14	3
5392		CULG	03	12	0335	N23	W25	03	10.2		B	BXO	10	2	7	2
5392		SVTO	03	12	0735	N26	W26	03	10.3		B	CRO	20	5	9	2
5392	25080	MWIL	03	12	1530	N25	W30	03	10.3	3	(B					
5392		HOLL	03	12	1600	N26	W30	03	10.3		B	BXO	20	5	7	3
5392		BOUL	03	12	1610	N25	W30	03	10.3		B	BXO		2	10	3
5392		PALE	03	12	1850	N28	W35	03	10.0		B	BXO	10	3	3	3
5392		LEAR	03	13	0102	N24	W40	03	9.9		B	BXO	40	6	14	3
5392		PALE	03	13	1845	N27	W48	03	10.0		B	BXO	10	3	3	4
5392A	25094	MWIL	03	11	1600	N20	W12	03	10.7	4	X					
5392B	25096	MWIL	03	12	1530	N14	W26	03	10.7	2	(AP)					
5392D		HOLL	03	06	2010	S35	E50	03	10.8		B	BXO	30	5	8	3
5402	25090	MWIL	03	10	1515	N33	E04	03	10.9	4	(B)					
5402		HOLL	03	11	1435	N32	W09	03	10.9		B	BXO	10	5	5	3
5402	25090	MWIL	03	11	1600	N32	W11	03	10.8	3	B					
5402		PALE	03	11	1820	N33	W10	03	11.0		B	BXO	10	4	5	3
5402		SVTO	03	12	0735	N31	W21	03	10.6		A	AX		1		2
5402	25090	MWIL	03	12	1530	N30	W23	03	10.8	4	(AP)					
5402		HOLL	03	12	1600	N31	W23	03	10.8		A	AX	10	2	1	3
5402		PALE	03	12	1850	N32	W25	03	10.8		A	AX	10	2	1	3
5392C		CULG	03	13	0433	N12	W28	03	11.1		B	BXO	10	2	2	2
5392C	25100	MWIL	03	13	1700	N12	W38	03	10.8	3	(AP)					
5405		RAMY	03	13	1650	N17	W34	03	11.1		B	BXO	10	3	3	3
5405	25101	MWIL	03	13	1700	N16	W35	03	11.0	4	(B)					
5405		HOLL	03	13	1735	N17	W36	03	11.0		B	BXO	10	2	3	3
5405		PALE	03	13	1845	N15	W36	03	11.0		B	BXO	10	3	3	4
5405		SVTO	03	14	0805	N17	W46	03	10.8		A	AX	10	1	1	2
5405		RAMY	03	14	1430	N16	W48	03	11.0		A	AX	20	1	1	3
5405		HOLL	03	14	1545	N17	W50	03	10.8		A	AX		1		3
5405	25101	MWIL	03	14	1600	N16	W50	03	10.9	4	(AP)					
5405		PALE	03	14	1920	N16	W51	03	10.9		A	AX		1		3

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5405A	25091	MWIL	03	10	1515	N20	E14	03	11.7	4	(AP)					
5401		SVTO	03	10	0925	S23	E24	03	12.2		A	AX		3	2	3
5401		RAMY	03	10	1208	S22	E23	03	12.3		B	BXO	10	3	3	3
5401		HOLL	03	10	1500	S21	E21	03	12.2		B	BXO		2	3	4
5401	25092	MWIL	03	10	1515	S21	E21	03	12.2	4	(B)					
5401		PALE	03	10	1945	S21	E19	03	12.3		A	AX	20	2	1	3
5401		SVTO	03	11	0824	S20	E09	03	12.0		A	HS	10	1	1	1
5401		RAMY	03	11	1240	S19	E09	03	12.2		B	BXO	10	3	3	4
5401		HOLL	03	11	1435	S21	E08	03	12.2		B	BXO	10	3	5	3
5401	25092	MWIL	03	11	1600	S21	E06	03	12.1	4	B					
5401		BOUL	03	11	1620	S20	E07	03	12.2		B	BXO	10	2	5	3
5401		PALE	03	11	1820	S19	E03	03	12.0		A	HS	10	1	1	3
5401		LEAR	03	12	0145	S22	E03	03	12.3		B	CRO	30	4	7	3
5401		SVTO	03	12	0735	S19	W04	03	12.0		A	AX		1		2
5401	25092	MWIL	03	12	1530	S21	W04	03	12.3	3	(AP)					
5401		HOLL	03	12	1600	S21	W04	03	12.3		A	AX	10	1	1	3
5401		BOUL	03	12	1610	S21	W03	03	12.4		A	AX		1		3
5401		PALE	03	12	1850	S21	W07	03	12.2		A	AX	10	1	1	3
5401		LEAR	03	13	0102	S21	W09	03	12.3		A	AX	10	1	1	3
5401		CULG	03	13	0433	S21	W11	03	12.3		A	AX		1		2
5401		LEAR	03	14	0117	S18	W14	03	13.0		A	AX	10	1	1	3
5401		SVTO	03	14	0805	S18	W19	03	12.9		A	AX		4	1	2
5401		LEAR	03	15	0053	S18	W27	03	13.0		B	CXO	10	4	3	3
5394		SVTO	03	06	0758	S36	E88	03	13.4		A	AX	10	1		3
5394	25082	MWIL	03	06	1600	S36	E80	03	13.1	3	X					
5394		RAMY	03	06	1628	S36	E80	03	13.1		A	HS	30	2	1	3
5394		HOLL	03	06	2010	S35	E75	03	12.8		A	AX	20	1	1	3
5394		PALE	03	06	2340	S35	E79	03	13.3		A	AX	10	1	1	2
5394		LEAR	03	07	0025	S35	E75	03	13.0		B	BXO	70	3	3	3
5394		CULG	03	07	0315	S31	E73	03	12.9		A	AX		2		2
5394		SVTO	03	07	0725	S34	E69	03	12.8		B	BXO	20	8	6	4
5394		RAMY	03	07	1400	S33	E67	03	12.9		B	CRI	50	15	5	4
5394		BOUL	03	07	1438	S33	E70	03	13.2		B	BXO	50	3	6	1
5394	25082	MWIL	03	07	1545	S35	E68	03	13.1	5	(BP)					
5394		HOLL	03	07	1559	S34	E68	03	13.1		B	BXO	50	11	6	3
5394		PALE	03	07	1830	S34	E68	03	13.2		B	BXO	30	9	5	2
5394		LEAR	03	08	0047	S32	E63	03	13.0		B	BXO	40	8	8	3
5394		CULG	03	08	0250	S32	E62	03	13.0		B	DRO	20	6	4	2
5394		SVTO	03	08	0745	S35	E60	03	13.1		B	DAI	80	11	7	3
5394		HOLL	03	08	1525	S33	E55	03	13.0		B	CSO	60	15	6	3
5394	25082	MWIL	03	08	1545	S34	E56	03	13.1	5	(B)					
5394		RAMY	03	08	1616	S33	E54	03	13.0		B	DAI	100	13	8	2
5394		LEAR	03	09	0048	S32	E49	03	12.9		B	DAO	190	10	7	3
5394		CULG	03	09	0440	S32	E48	03	13.0		B	DSO	40	6	8	3
5394	25082	MWIL	03	09	1520	S34	E41	03	12.9	5	(B)					
5394		HOLL	03	09	1610	S35	E42	03	13.0		B	EAI	210	28	11	4
5394		RAMY	03	09	1830	S34	E40	03	12.9		B	DSI	150	10	9	2
5394		PALE	03	09	2236	S34	E37	03	12.9		B	DAO	130	16	9	3
5394		LEAR	03	10	0020	S34	E37	03	13.0		B	DAO	130	13	8	3
5394		CULG	03	10	0425	S31	E36	03	13.0		B	DSO	50	10	8	1
5394		SVTO	03	10	0925	S36	E32	03	13.0		B	CSO	80	24	10	3
5394		RAMY	03	10	1208	S35	E30	03	12.9		B	DAO	80	12	10	3
5394		HOLL	03	10	1500	S33	E28	03	12.8		B	CSO	40	19	11	4
5394	25082	MWIL	03	10	1515	S34	E29	03	12.9	4	(B)					
5394		PALE	03	10	1945	S33	E25	03	12.8		B	DAO	50	10	10	3
5394		CULG	03	11	0005	S31	E26	03	13.0		B	CSO	30	5	9	1
5394		LEAR	03	11	0335	S34	E22	03	12.9		B	DAO	80	14	10	2
5394		SVTO	03	11	0824	S34	E20	03	12.9		B	DAO	60	10	10	1
5394		RAMY	03	11	1240	S33	E19	03	13.0		B	DRI	60	17	10	4
5394		HOLL	03	11	1435	S33	E16	03	12.9		B	BXO	20	13	9	3
5394	25082	MWIL	03	11	1600	S34	E15	03	12.9	5	B					
5394		BOUL	03	11	1620	S34	E16	03	12.9		B	BXO	10	8	10	3
5394		PALE	03	11	1820	S33	E14	03	12.9		B	CSO	40	10	11	3
5394		LEAR	03	12	0145	S34	E12	03	13.0		B	DAO	40	10	15	3
5394		CULG	03	12	0335	S32	E12	03	13.1		B	CRO	10	5	9	2
5394		SVTO	03	12	0735	S34	E08	03	12.9		B	ESO	30	9	11	2
5394	25082	MWIL	03	12	1530	S34	E03	03	12.9	4	(B)					

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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
5394		HOLL	03 12 1600	S33 E03	03 12.9		B	BXO	30	9	11	3
5394		BOUL	03 12 1610	S34 E04	03 13.0		B	BXO		7	10	3
5394		PALE	03 12 1850	S33 W01	03 12.7		B	BXO	30	10	11	3
5394		LEAR	03 13 0102	S34 W01	03 13.0		B	CRO	80	10	10	3
5394		CULG	03 13 0433	S32 W07	03 12.6		B	BXO	10	5	4	2
5394		SVTO	03 13 0753	S33 W12	03 12.4		A	HR	10	3	3	1
5394		BOUL	03 13 1424	S33 W13	03 12.6		A	AX	10	1		1
5394		RAMY	03 13 1650	S36 W09	03 13.0		B	CRO	10	5	18	3
5394	25082	MWIL	03 13 1700	S34 W14	03 12.6	5	(B)					
5394		HOLL	03 13 1735	S35 W10	03 12.9		B	BXO	40	8	15	3
5394		PALE	03 13 1845	S36 W09	03 13.0		B	CRO	20	4	14	4
5394		LEAR	03 14 0117	S35 W13	03 13.0		B	BXO	10	3	13	3
5394		SVTO	03 14 0803	S33 W15	03 13.1		B	BXO	10	2	4	2
5394		RAMY	03 14 1430	S33 W26	03 12.5		A	AX	10	1	1	3
5394		HOLL	03 14 1545	S32 W27	03 12.5		A	AX		1		3
5394	25082	MWIL	03 14 1600	S33 W26	03 12.6	4	(AP)					
5394		PALE	03 14 1920	S29 W33	03 12.2		A	AX		1		3
5394	25082	MWIL	03 15 1615	S33 W39	03 12.6	3	(AP)					
5395		SVTO	03 06 0758	N31 E79	03 12.6		A	HK	800	5	5	3
5395		BOUL	03 06 1437	N33 E75	03 12.6		BD	EKC	830	10	11	1
5395	25081	MWIL	03 06 1600	N32 E75	03 12.6	5	B)					
5395		RAMY	03 06 1628	N31 E75	03 12.6		BGD	EKC	1140	17	12	3
5395		HOLL	03 06 2010	N35 E77	03 13.0		BGD	EKC	1410	13	12	3
5395		PALE	03 06 2340	N34 E75	03 13.0		BGD	EKC	1260	9	12	2
5395		LEAR	03 07 0025	N34 E69	03 12.5		B	EKC	1110	13	12	3
5395		CULG	03 07 0315	N36 E65	03 12.3		B	DKC	750	11	9	2
5395		SVTO	03 07 0725	N34 E65	03 12.5		BGD	EKC	1950	13	13	4
5395		RAMY	03 07 1400	N34 E64	03 12.7		BGD	EKC	3000	38	15	4
5395		BOUL	03 07 1438	N33 E65	03 12.8		BD	EKC	1000	7	11	1
5395	25081	MWIL	03 07 1545	N34 E62	03 12.6	6	(D)					
5395		HOLL	03 07 1559	N34 E63	03 12.7				2460	21	13	3
5395		PALE	03 07 1830	N34 E62	03 12.7		BGD	EKC	2070	20	13	2
5395		LEAR	03 08 0047	N35 E57	03 12.6		BGD	EKC	1770	24	11	3
5395		CULG	03 08 0250	N35 E54	03 12.4			EKC	1920	17	11	2
5395		SVTO	03 08 0745	N33 E56	03 12.8		BGD	EKC	2420	27	13	3
5395		HOLL	03 08 1525	N35 E51	03 12.7		BGD	FKC	2840	20	17	3
5395	25081	MWIL	03 08 1545	N34 E50	03 12.6	5	(D)					
5395		RAMY	03 08 1616	N34 E49	03 12.6		BD	EKI	2360	36	12	2
5395		LEAR	03 09 0048	N33 E44	03 12.5		BGD	EKC	2500	34	13	3
5395		CULG	03 09 0440	N35 E42	03 12.5		BGD	EKC	2100	17	11	3
5395	25081	MWIL	03 09 1520	N33 E40	03 12.8	6	(D)					
5395		HOLL	03 09 1610	N33 E38	03 12.7		BGD	EKC	3400	72	15	4
5395		RAMY	03 09 1830	N33 E38	03 12.8		BGD	EKC	2370	48	14	2
5395		PALE	03 09 2236	N32 E35	03 12.7		BGD	EKC	2210	31	14	3
5395		LEAR	03 10 0020	N33 E33	03 12.6		BGD	EKC	2510	39	13	3
5395		CULG	03 10 0425	N34 E28	03 12.4		BGD	EKC	2700	31	13	1
5395		SVTO	03 10 0925	N34 E30	03 12.8		BGD	FKC	2700	46	16	3
5395		RAMY	03 10 1208	N33 E28	03 12.7		BGD	EKC	2550	68	14	3
5395		HOLL	03 10 1500	N34 E27	03 12.8		BGD	EKI	2570	52	15	4
5395	25081	MWIL	03 10 1515	N33 E27	03 12.8	6	(D)*					
5395		PALE	03 10 1945	N33 E21	03 12.5		BGD	EKC	1750	52	14	3
5395		CULG	03 11 0005	N35 E18	03 12.4		BGD	EKC	2200	24	13	1
5395		LEAR	03 11 0335	N33 E19	03 12.6		BGD	EKC	2200	59	15	2
5395		SVTO	03 11 0824	N35 E18	03 12.8		BGD	FKC	2940	50	16	1
5395		RAMY	03 11 1240	N34 E14	03 12.6		BGD	EKC	2730	92	15	4
5395		HOLL	03 11 1435	N34 E15	03 12.8		BGD	EKC	2450	63	15	3
5395	25081	MWIL	03 11 1600	N33 E14	03 12.8	6	(D)*					
5395		BOUL	03 11 1620	N33 E13	03 12.7		B	EKC	2310	65	15	3
5395		PALE	03 11 1820	N33 E13	03 12.8		BGD	EKC	2640	58	15	3
5395		LEAR	03 12 0145	N34 E08	03 12.7		BGD	FKC	2830	62	18	3
5395		CULG	03 12 0335	N33 E04	03 12.5		BGD	EKC	2200	21	14	2
5395		SVTO	03 12 0735	N35 E04	03 12.6		BGD	FKC	3640	57	17	2
5395	25081	MWIL	03 12 1530	N33 E02	03 12.8	6	(D)*					
5395		HOLL	03 12 1600	N34 E02	03 12.8		BGD	FKC	2960	44	15	3
5395		BOUL	03 12 1610	N35 E00	03 12.7		BGD	FKC	2420	70	16	3
5395		PALE	03 12 1850	N33 E00	03 12.8		BGD	FKC	2860	60	20	3
5395		LEAR	03 13 0102	N34 W05	03 12.6		BGD	FKC	2400	57	16	3
5395		CULG	03 13 0433	N34 W07	03 12.6		BGD	EKC	3000	48	14	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5395		SVTO	03	13	0753	N35	W09	03	12.6		BGD	FKC	3320	43	17	1
5395		BOUL	03	13	1424	N35	W12	03	12.6		BGD	FKC	2600	29	15	1
5395		RAMY	03	13	1650	N34	W11	03	12.8		BGD	FKC	3630	94	19	3
5395	25081	MWIL	03	13	1700	N33	W11	03	12.8	6	(D)*					
5395		HOLL	03	13	1735	N33	W13	03	12.7		BGD	FKC	3900	88	22	3
5395		PALE	03	13	1845	N33	W13	03	12.7		BGD	FKC	2990	79	26	4
5395		LEAR	03	14	0117	N34	W16	03	12.8		BGD	FKC	2800	62	17	3
5395		SVTO	03	14	0805	N35	W20	03	12.7		BGD	FKC	3780	1	18	2
5395		RAMY	03	14	1430	N34	W23	03	12.8		BGD	FKC	4000	54	17	3
5395		HOLL	03	14	1545	N33	W24	03	12.7		BGD	FKC	3360	58	20	3
5395	25081	MWIL	03	14	1600	N33	W24	03	12.8	6	(D)*					
5395		PALE	03	14	1920	N33	W26	03	12.7		BGD	FKC	3290	51	17	3
5395		LEAR	03	15	0053	N36	W29	03	12.7		BGD	FKC	2970	89	23	3
5395		SVTO	03	15	0929	N35	W35	03	12.6		BGD	FKC	3560	40	17	1
5395		RAMY	03	15	1320	N33	W38	03	12.5		BGD	FKC	3680	93	17	3
5395		BOUL	03	15	1555	N33	W37	03	12.7		BD	FKC	3900	49	19	2
5395	25081	MWIL	03	15	1615	N33	W37	03	12.7	6	(D)*					
5395		HOLL	03	15	1741	N32	W36	03	12.9		BGD	FKC	4600	61	25	3
5395		PALE	03	15	1920	N33	W39	03	12.7		BGD	FKC	2790	35	19	3
5395		LEAR	03	16	0041	N34	W42	03	12.7		BGD	FKC	3600	51	27	4
5395		SVTO	03	16	0855	N34	W46	03	12.7		BGD	FKC	2660	52	20	1
5395		RAMY	03	16	1400	N33	W50	03	12.6		BGD	FKC	3510	82	17	3
5395		HOLL	03	16	1521	N32	W59	03	12.0		BGD	FKC	4080	45	22	3
5395		BOUL	03	16	1553	N33	W59	03	12.0		BGD	FKC	3300	57	19	3
5395	25081	MWIL	03	16	1600	N33	W49	03	12.8	6	(D)*					
5395		PALE	03	16	2205	N32	W59	03	12.2		BGD	FKC	3600	36	20	2
5395		LEAR	03	17	0010	N35	W55	03	12.6		BGD	FKC	3080	40	28	3
5395		SVTO	03	17	0850	N34	W60	03	12.6		BGD	FKC	3330	40	29	1
5395		BOUL	03	17	1540	N33	W64	03	12.6		BGD	FKC	2850	53	16	2
5395		HOLL	03	17	1615	N33	W66	03	12.4		BGD	FKC	4500	40	22	3
5395	25081	MWIL	03	17	1630	N33	W62	03	12.8	6	(D)*					
5395		RAMY	03	17	1720	N33	W64	03	12.6		BGD	FKC	3900	42	20	2
5395		LEAR	03	18	0040	N32	W67	03	12.7		BGD	FKC	1410	26	17	4
5395		CULG	03	18	0335	N31	W67	03	12.9		B	FKC	2000	14	16	1
5395		SVTO	03	18	0805	N34	W72	03	12.6		BGD	FKI	1420	13	20	2
5395		RAMY	03	18	1420	N35	W70	03	13.0		BGD	FKC	1530	27	20	4
5395		BOUL	03	18	1455	N34	W73	03	12.8		BGD	FKC	920	12	18	3
5395	25081	MWIL	03	18	1545	N33	W72	03	12.9	4	B)					
5395		PALE	03	18	1830	N33	W75	03	12.8		BGD	EKC	1500	15	13	4
5395		HOLL	03	18	1910	N35	W71	03	13.1		BGD	FKC	770	14	22	2
5395		LEAR	03	19	0030	N34	W74	03	13.1		BGD	FKC	480	10	12	4
5395		CULG	03	19	0330	N32	W75	03	13.2		B	FKC	1000	6	16	3
5395		SVTO	03	19	1030	N38	W82	03	12.8		BGD	DAC	90	3	6	1
5395		RAMY	03	19	1247	N36	W80	03	13.1		BGD	FKC	300	3	16	2
5395A	25097	MWIL	03	12	1530	S15	E06	03	13.1	3	X					
5395A		CULG	03	13	0433	S14	W05	03	12.8		A	AX		1		2
5395B	25102	MWIL	03	13	1700	S18	W08	03	13.1	3	(AP)					
5395D		PALE	03	14	1920	S23	W20	03	13.3		A	AX		2	2	3
5395D	25106	MWIL	03	15	1615	S21	W27	03	13.6	4	(AP)					
5395C	25103	MWIL	03	13	1700	N24	W02	03	13.5	4	(AP)					
5395C	25103	MWIL	03	14	1600	N24	W17	03	13.3	3	(AP)					
5395E	25095	MWIL	03	11	1600	S40	E21	03	13.4	4	AF					
5395E		SVTO	03	12	0735	S40	E16	03	13.6		A	AX		2	1	2
5395E	25095	MWIL	03	12	1530	S40	E10	03	13.5	3	(AF)					
5395E		BOUL	03	12	1610	S39	E13	03	13.7		A	AX		2	1	3
5395E		BOUL	03	13	1424	S40	E01	03	13.7		A	AX	10	1		1
5395E	25095	MWIL	03	13	1700	S40	W01	03	13.6	3	(AF)					
5395E		HOLL	03	14	1545	S40	W11	03	13.8		A	AX		1		3
5395E	25095	MWIL	03	14	1600	S40	W13	03	13.6	4	(AF)					
5395E		PALE	03	14	1920	S40	W11	03	13.9		A	AX		1		3
5395E	25095	MWIL	03	15	1615	S40	W24	03	13.7	3	(AP)					
5397		RAMY	03	07	1400	N34	E79	03	13.9		A	AX	30	2	2	4
5397		LEAR	03	08	0047	N35	E71	03	13.7		B	CAO	30	3	3	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5397		CULG	03 08	0250	N36 E69	03 13.6		B	CSO	20	2	2	2
5397		SVTO	03 08	0745	N34 E70	03 13.9		B	DAO	30	2	5	3
5397		HOLL	03 08	1525	N36 E66	03 13.9		A	HS	60	1	1	3
5397	25084	MWIL	03 08	1545	N34 E65	03 13.8	4	(AP)					
5397		RAMY	03 08	1616	N35 E65	03 13.9		A	HS	30	2	2	2
5397		LEAR	03 09	0048	N36 E61	03 13.9		B	CAO	140	3	3	3
5397		CULG	03 09	0440	N37 E57	03 13.8		A	HS	50	1	1	3
5397	25084	MWIL	03 09	1520	N33 E53	03 13.8	5	(AP)					
5397		HOLL	03 09	1610	N34 E50	03 13.6		A	HA	90	1	2	4
5397		RAMY	03 09	1830	N34 E43	03 13.2		B	CSO	80	2	7	2
5397		PALE	03 09	2236	N33 E48	03 13.7		A	HS	40	1	2	3
5397		LEAR	03 10	0020	N34 E50	03 14.0		B	CSO	40	2	7	3
5397		CULG	03 10	0425	N36 E41	03 13.5		A	HS	30	1	1	1
5397		SVTO	03 10	0925	N33 E43	03 13.8		A	HR	60	2	2	3
5397		RAMY	03 10	1208	N32 E40	03 13.7		A	HS	70	1	2	3
5397		HOLL	03 10	1500	N34 E39	03 13.7		A	HS	30	1	1	4
5397	25084	MWIL	03 10	1515	N33 E38	03 13.6	5	(AP)					
5397		PALE	03 10	1945	N33 E36	03 13.7		A	HS	60	1	2	3
5397		CULG	03 11	0005	N35 E34	03 13.7		A	HS	30	1	1	1
5397		LEAR	03 11	0335	N34 E33	03 13.8		A	HS	60	1	2	2
5397		SVTO	03 11	0824	N34 E30	03 13.7		A	HS	60	1	2	1
5397		RAMY	03 11	1240	N33 E26	03 13.6		A	HS	80	1	2	4
5397		HOLL	03 11	1435	N33 E26	03 13.7		A	HS	30	1	2	3
5397	25084	MWIL	03 11	1600	N33 E24	03 13.6	5	(AP)					
5397		BOUL	03 11	1620	N33 E25	03 13.7		A	HS	70	1	2	3
5397		PALE	03 11	1820	N32 E24	03 13.7		B	CSO	60	2	4	3
5397		LEAR	03 12	0145	N34 E20	03 13.7		B	CSO	70	2	4	3
5397		CULG	03 12	0335	N34 E17	03 13.5		A	HS	40	1	1	2
5397		SVTO	03 12	0735	N34 E18	03 13.7		B	CSO	60	3	5	2
5397	25084	MWIL	03 12	1530	N33 E14	03 13.7	5	(BP)					
5397		HOLL	03 12	1600	N34 E16	03 13.9		B	CSO	70	7	7	3
5397		BOUL	03 12	1610	N32 E14	03 13.8		B	CAO	50	6	6	3
5397		PALE	03 12	1850	N32 E13	03 13.8		B	CSO	110	9	7	3
5397		LEAR	03 13	0102	N34 E10	03 13.8		B	DSO	110	12	7	3
5397		CULG	03 13	0433	N34 E06	03 13.7		B	CSO	40	5	7	2
5397		SVTO	03 13	0753	N35 E07	03 13.9		B	CAO	90	5	9	1
5397		BOUL	03 13	1424	N32 E03	03 13.8		B	CSO	30	3	2	1
5397		RAMY	03 13	1650	N34 E03	03 13.9		B	DSO	110	9	8	3
5397	25084	MWIL	03 13	1700	N33 E02	03 13.9	5	(B)					
5397		HOLL	03 13	1735	N35 E01	03 13.8		B	CAO	140	9	8	3
5397		PALE	03 13	1845	N32 E01	03 13.9		B	DSO	80	7	7	4
5397		LEAR	03 14	0117	N33 W03	03 13.8		B	DSO	130	8	8	3
5397		SVTO	03 14	0803	N34 W06	03 13.8		B	DSO	120	7	8	2
5397		RAMY	03 14	1430	N34 W08	03 14.0		B	CSO	200	10	7	3
5397		HOLL	03 14	1545	N33 W10	03 13.9		B	CAO	90	11	8	3
5397	25084	MWIL	03 14	1600	N33 W11	03 13.8	5	(BG)					
5397		PALE	03 14	1920	N33 W12	03 13.8		B	CAO	90	8	8	3
5397		LEAR	03 15	0053	N33 W16	03 13.8		B	DAO	100	7	8	3
5397		SVTO	03 15	0929	N33 W21	03 13.7		B	CAO	80	3	9	1
5397		RAMY	03 15	1320	N34 W24	03 13.6		B	CSO	70	5	8	3
5397		BOUL	03 15	1555	N33 W21	03 14.0		B	CSO	80	4	8	2
5397	25084	MWIL	03 15	1615	N33 W24	03 13.8	5	(B)					
5397		HOLL	03 15	1741	N33 W24	03 13.8		B	CAO	60	5	8	3
5397		PALE	03 15	1920	N33 W25	03 13.8		B	DAO	60	5	8	3
5397		LEAR	03 16	0041	N33 W27	03 13.9		B	DSO	100	4	9	4
5397		SVTO	03 16	0855	N34 W35	03 13.6		A	HS	400	3	3	1
5397		RAMY	03 16	1400	N34 W39	03 13.5		B	CSO	70	3	4	3
5397		HOLL	03 16	1521	N34 W38	03 13.6		B	CAO	70	2	5	3
5397		BOUL	03 16	1553	N33 W37	03 13.7		A	HA	100	1	2	3
5397	25084	MWIL	03 16	1600	N34 W32	03 14.1	5	(AP)					
5397		PALE	03 16	2205	N33 W44	03 13.4		A	HS	40	1	2	2
5397		LEAR	03 17	0010	N33 W43	03 13.6		B	CSO	70	2	3	3
5397		BOUL	03 17	1540	N33 W52	03 13.5		A	HS	90	1	2	2
5397		HOLL	03 17	1615	N33 W51	03 13.6		A	HA	90	1	3	3
5397	25084	MWIL	03 17	1630	N33 W51	03 13.6	5	(AP)					
5397		RAMY	03 17	1720	N33 W51	03 13.7		A	HA	90	1	2	2
5397		LEAR	03 18	0040	N33 W57	03 13.5		A	HA	90	1	2	4
5397		CULG	03 18	0335	N31 W56	03 13.7		A	HS	50	1	2	1
5397		RAMY	03 18	1420	N33 W63	03 13.6		B	CAO	120	3	3	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5397		BOUL	03	18	1455	N34	W65	03	13.4		A	HS	60	1	2	3
5397	25084	MWIL	03	18	1545	N33	W64	03	13.6	5	(AP)					
5397		PALE	03	18	1830	N34	W66	03	13.5		A	HS	30	2	2	4
5397		HOLL	03	18	1910	N33	W66	03	13.5		A	HS	50	1	2	2
5397		LEAR	03	19	0030	N32	W67	03	13.7		A	HS	60	1	2	4
5397		CULG	03	19	0330	N29	W68	03	13.8		A	HX	40	1	1	3
5397		RAMY	03	19	1247	N35	W76	03	13.4		A	HA	90	1	3	2
5397		BOUL	03	19	1525	N34	W80	03	13.3		A	HS	40	1	2	3
5397		HOLL	03	19	1600	N33	W79	03	13.4		A	HS	30	1	2	3
5397		PALE	03	19	2110	N33	W80	03	13.5		A	HA	60	1	2	3
5398		LEAR	03	08	0047	S16	E79	03	14.0		A	AX	20	2	2	3
5398		SVTO	03	08	0745	S17	E76	03	14.1		B	CRO	30	2	4	3
5398		HOLL	03	08	1525	S16	E73	03	14.2		B	BXO	30	6	4	3
5398	25085	MWIL	03	08	1545	S17	E73	03	14.2	4	(B)					
5398		RAMY	03	08	1616	S16	E71	03	14.1		B	CRI	40	9	5	2
5398		LEAR	03	09	0048	S14	E65	03	13.9		B	DAO	170	5	5	3
5398		CULG	03	09	0440	S14	E67	03	14.2		A	AX	10	2	1	3
5398	25085	MWIL	03	09	1520	S18	E58	03	14.0	4	(B)					
5398		HOLL	03	09	1610	S18	E58	03	14.1		B	CSO	130	13	7	4
5398		RAMY	03	09	1830	S17	E56	03	14.0		B	CRO	50	8	7	2
5398		PALE	03	09	2236	S18	E53	03	14.0		B	CSO	90	9	8	3
5398		LEAR	03	10	0020	S17	E53	03	14.0		B	DAO	60	9	6	3
5398		CULG	03	10	0425	S15	E52	03	14.1		B	CSO	60	10	7	1
5398		RAMY	03	10	1208	S18	E46	03	14.0		B	DAI	170	12	7	3
5398		HOLL	03	10	1500	S15	E45	03	14.0		B	CAO	60	17	8	4
5398	25085	MWIL	03	10	1515	S17	E45	03	14.0	4	(B)					
5398		PALE	03	10	1945	S17	E42	03	14.0		B	CAO	100	22	9	3
5398		CULG	03	11	0005	S13	E40	03	14.0		B	DSO	80	5	6	1
5398		LEAR	03	11	0335	S17	E39	03	14.1		B	DAI	220	29	7	2
5398		SVTO	03	11	0824	S17	E36	03	14.1		B	DAI	310	25	9	1
5398		RAMY	03	11	1240	S16	E33	03	14.0		B	DKI	190	29	8	4
5398		HOLL	03	11	1435	S16	E31	03	13.9		B	DKI	240	20	8	3
5398	25085	MWIL	03	11	1600	S17	E30	03	13.9	5	(B)					
5398		BOUL	03	11	1620	S17	E33	03	14.2		B	EAO	230	15	13	3
5398		PALE	03	11	1820	S17	E32	03	14.2		B	DKI	330	16	12	3
5398		LEAR	03	12	0145	S17	E26	03	14.0		B	DKO	390	23	9	3
5398		CULG	03	12	0335	S14	E26	03	14.1		B	DAO	160	4	8	2
5398		SVTO	03	12	0735	S17	E24	03	14.1		B	DKO	460	19	10	2
5398	25085	MWIL	03	12	1530	S17	E18	03	14.0	5	(B)					
5398		HOLL	03	12	1600	S16	E18	03	14.0		B	DKO	260	12	9	3
5398		BOUL	03	12	1610	S16	E17	03	14.0		B	DAO	180	12	9	3
5398		PALE	03	12	1850	S17	E15	03	13.9		B	DKO	350	7	10	3
5398		LEAR	03	13	0102	S16	E14	03	14.1		B	DKO	200	20	10	3
5398		CULG	03	13	0433	S16	E10	03	13.9		B	DAO	240	14	10	2
5398		SVTO	03	13	0753	S17	E09	03	14.0		B	EAO	260	14	11	1
5398		BOUL	03	13	1424	S17	E05	03	14.0		B	DAO	160	8	9	1
5398		RAMY	03	13	1650	S16	E05	03	14.1		B	EHI	340	42	12	3
5398	25085	MWIL	03	13	1700	S17	E05	03	14.1	5	(B)					
5398		HOLL	03	13	1735	S16	E05	03	14.1		B	EKI	430	52	12	3
5398		PALE	03	13	1845	S16	E04	03	14.1		B	DSI	270	34	10	4
5398		LEAR	03	14	0117	S16	E00	03	14.0		B	EAO	250	34	12	3
5398		SVTO	03	14	0805	S16	W04	03	14.0		B	EAI	230	23	11	2
5398		RAMY	03	14	1430	S16	W07	03	14.1		B	EHI	330	19	11	3
5398		HOLL	03	14	1545	S18	W09	03	14.0		B	DAO	200	22	10	3
5398	25085	MWIL	03	14	1600	S17	W07	03	14.1	5	(B)					
5398		PALE	03	14	1920	S17	W10	03	14.0		B	EAI	130	26	11	3
5398		LEAR	03	15	0053	S16	W12	03	14.1		B	CKI	300	35	12	3
5398		SVTO	03	15	0929	S17	W19	03	13.9		B	EAO	170	29	12	1
5398		RAMY	03	15	1320	S15	W20	03	14.0		B	CSO	130	21	3	3
5398		BOUL	03	15	1555	S17	W21	03	14.1		B	EAO	250	9	12	2
5398	25085	MWIL	03	15	1615	S17	W21	03	14.1	5	(BG)					
5398		HOLL	03	15	1741	S18	W25	03	13.8		B	CAI	160	34	12	3
5398		PALE	03	15	1920	S17	W24	03	14.0		B	EAI	220	20	12	3
5398		LEAR	03	16	0041	S17	W28	03	13.9		B	EAI	110	28	12	4
5398		SVTO	03	16	0855	S16	W32	03	13.9		B	EAO	120	18	13	1
5398		RAMY	03	16	1400	S17	W34	03	14.0		B	CAI	220	28	12	3
5398		HOLL	03	16	1521	S18	W36	03	13.9		B	CAI	130	21	13	3
5398		BOUL	03	16	1553	S17	W36	03	13.9		B	EAI	240	11	14	3

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5398	25085	MWIL	03	16	1600	S17	W35	03	14.0	5	(B)					
5398		PALE	03	16	2205	S16	W39	03	14.0		B	CAI	220	15	13	2
5398		LEAR	03	17	0010	S17	W40	03	14.0		B	CAO	160	19	15	3
5398		SVTO	03	17	0850	S18	W47	03	13.8		B	ERO	110	8	14	1
5398		BOUL	03	17	1540	S16	W55	03	13.5		A	HA	130	2	3	2
5398		HOLL	03	17	1615	S15	W55	03	13.5		B	DSI	120	6	3	3
5398	25085	MWIL	03	17	1630	S16	W52	03	13.7	5	(BP)					
5398		RAMY	03	17	1720	S14	W55	03	13.6		A	HA	100	2	3	2
5398		LEAR	03	18	0040	S16	W58	03	13.6		B	CAO	130	3	4	4
5398		CULG	03	18	0335	S16	W58	03	13.7		A	HA	90	3	3	1
5398		RAMY	03	18	1420	S14	W67	03	13.5		A	HA	180	3	2	4
5398		BOUL	03	18	1455	S15	W66	03	13.6		B	CAO	50	6	7	3
5398	25085	MWIL	03	18	1545	S16	W68	03	13.5	5	(BP)					
5398		PALE	03	18	1830	S14	W69	03	13.5		B	CAO	90	6	4	4
5398		HOLL	03	18	1910	S15	W65	03	13.9		B	CSO	60	5	3	2
5398		LEAR	03	19	0030	S17	W69	03	13.8		B	CSO	180	9	6	4
5398		CULG	03	19	0330	S16	W70	03	13.8		B	CSO	60	3	2	3
5398		SVTO	03	19	1030	S14	W75	03	13.8		B	CAO	90	3	10	1
5398		RAMY	03	19	1247	S14	W80	03	13.5		A	HA	120	1	2	2
5398		BOUL	03	19	1525	S14	W85	03	13.2		A	HS	60	1	2	3
5398		HOLL	03	19	1600	S15	W80	03	13.6		A	HS	110	3	2	3
5398	25085	MWIL	03	19	1600	S15	W81	03	13.5	4	AP					
5398		PALE	03	19	2110	S15	W82	03	13.7		A	HA	60	1	2	3
5398		LEAR	03	20	0032	S14	W86	03	13.5		A	HS	20	1	3	4
5398A		RAMY	03	15	1320	S17	W20	03	14.0		B	BXO	10	2	11	3
5408		BOUL	03	15	1555	S16	W11	03	14.8		A	AX	10	1	1	2
5408	25107	MWIL	03	15	1615	S15	W11	03	14.8	4	(BP)					
5408		HOLL	03	15	1741	S15	W12	03	14.8		B	BXO	10	5	3	3
5408	25107	MWIL	03	16	1600	S15	W25	03	14.8	4	(AP)					
5400		RAMY	03	09	1830	N13	E80	03	15.8		A	AX	20	1	1	2
5400		LEAR	03	10	0020	N13	E76	03	15.7		A	AX	10	1	1	3
5400		CULG	03	10	0425	N16	E75	03	15.9		A	HS	20	1	1	1
5400		SVTO	03	10	0925	N11	E75	03	16.0		B	CAO	30	2	6	3
5400		RAMY	03	10	1208	N12	E71	03	15.8		A	HS	60	1	2	3
5400		HOLL	03	10	1500	N13	E68	03	15.7		B	CSO	30	2	6	4
5400	25093	MWIL	03	10	1515	N12	E68	03	15.7	4	(B)					
5400		PALE	03	10	1945	N13	E68	03	15.9		A	AX		2		3
5400		CULG	03	11	0005	N17	E63	03	15.8		A	AX	10	1	1	1
5400		LEAR	03	11	0335	N14	E63	03	15.9		B	CSO	60	5	5	2
5400		SVTO	03	11	0824	N13	E62	03	16.0		B	CSO	40	4	4	1
5400		RAMY	03	11	1240	N15	E57	03	15.8		B	CSO	20	2	3	4
5400		HOLL	03	11	1435	N13	E55	03	15.7		B	CSO	20	3	3	3
5400	25093	MWIL	03	11	1600	N13	E55	03	15.8	5	BF					
5400		BOUL	03	11	1620	N13	E56	03	15.9		A	HS	20	1	1	3
5400		PALE	03	11	1820	N12	E55	03	15.9		B	CSO	40	3	3	3
5400		LEAR	03	12	0145	N14	E50	03	15.8		A	HR	30	1	1	3
5400		CULG	03	12	0335	N14	E47	03	15.7		A	AX	10	1	1	2
5400		SVTO	03	12	0735	N14	E48	03	15.9		A	AX	20	2	1	2
5400	25093	MWIL	03	12	1530	N13	E43	03	15.9	4	(AF)					
5400		HOLL	03	12	1600	N13	E43	03	15.9		A	AX	10	2	1	3
5400		BOUL	03	12	1610	N14	E43	03	15.9		A	AX		2		3
5400		PALE	03	12	1850	N12	E41	03	15.9		A	AX	10	3	1	3
5400		LEAR	03	13	0102	N15	E38	03	15.9		A	HR	10	3	1	3
5400		CULG	03	13	0433	N15	E33	03	15.7		A	AX	10	4	1	2
5400		BOUL	03	13	1424	N13	E28	03	15.7		B	BXO	10	2	3	1
5400		RAMY	03	13	1650	N13	E28	03	15.8		B	CRI	30	8	4	3
5400	25093	MWIL	03	13	1700	N13	E27	03	15.7	4	(B)					
5400		HOLL	03	13	1735	N13	E27	03	15.8		B	BXI	30	5	4	3
5400		PALE	03	13	1845	N13	E28	03	15.9		B	BXO	10	8	4	4
5400		LEAR	03	14	0117	N14	E24	03	15.9		B	CAO	20	6	3	3
5400		SVTO	03	14	0805	N13	E17	03	15.6		B	CRO	20	6	6	2
5400		RAMY	03	14	1430	N13	E15	03	15.7		B	CRI	60	5	3	3
5400		HOLL	03	14	1545	N14	E13	03	15.6		B	CRO	20	8	4	3
5400	25093	MWIL	03	14	1600	N14	E14	03	15.7	4	(B)					
5400		PALE	03	14	1920	N13	E13	03	15.8		B	CRO	10	6	4	3
5400		LEAR	03	15	0053	N13	E08	03	15.6		B	BXO	10	4	5	3

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5400		SVTO	03	15	0929	N18	E13	03	16.4		B	DAO	30	4	6	1
5400		RAMY	03	15	1320	N19	E10	03	16.3		B	BXO	10	5	5	3
5400		SVTO	03	17	0850	N17	W13	03	16.4		B	FSO	110	24	16	1
5400		HOLL	03	17	1615	N10	W23	03	15.9		B	BXO	20	2	7	3
5400		RAMY	03	17	1720	N15	W23	03	16.0		A	HR	20	1	2	2
5400		CULG	03	18	0335	N14	W29	03	15.9		A	AX		1		1
5400		RAMY	03	18	1420	N15	W38	03	15.7		B	BXO	20	3	7	4
5400		BOUL	03	18	1455	N14	W35	03	16.0		A	AX		1		3
5400		PALE	03	18	1830	N15	W41	03	15.7		B	BXO	10	2	6	4
5400		SVTO	03	19	1030	N17	W43	03	16.2		B	CAO	80	11	8	1
5400		SVTO	03	20	0820	N19	W53	03	16.3		B	CRO	50	7	7	2
5406		RAMY	03	13	1650	S16	E23	03	15.4		B	BXO	10	4	10	3
5406	25104	MWIL	03	13	1700	S14	E26	03	15.7	3	(AP)					
5406		HOLL	03	13	1735	S14	E27	03	15.8		A	AX	10	2	1	3
5406		PALE	03	13	1845	S15	E26	03	15.7		A	AX		2	1	4
5406		SVTO	03	14	0805	S18	E18	03	15.7		B	CRO	10	4	3	2
5406		RAMY	03	14	1430	S18	E12	03	15.5		B	BXI	70	9	9	3
5406		HOLL	03	14	1545	S18	E12	03	15.6		B	BXO	10	6	6	3
5406	25104	MWIL	03	14	1600	S18	E12	03	15.6	5	(BG)					
5406		PALE	03	14	1920	S18	E11	03	15.6		B	BXO	10	6	6	3
5406		LEAR	03	15	0053	S17	E08	03	15.6		B	CAO	30	5	5	3
5406		SVTO	03	15	0929	S18	E03	03	15.6		B	CRO	20	2	4	1
5406		RAMY	03	15	1320	S17	E02	03	15.7		B	BXO	10	4	5	3
5406		BOUL	03	15	1555	S17	W03	03	15.4		A	AX	10	1	1	2
5406	25104	MWIL	03	15	1615	S17	W03	03	15.4	4	(AP)					
5406		HOLL	03	15	1741	S18	W02	03	15.6		B	BXO	10	3	5	3
5406		PALE	03	15	1920	S17	W09	03	15.1		B	BXO		2	9	3
5406		LEAR	03	16	0041	S16	W12	03	15.1		B	BXO	40	5	7	4
5406		SVTO	03	16	0855	S16	W16	03	15.1		B	BXO	10	6	11	1
5406		RAMY	03	16	1400	S17	W15	03	15.4		B	BXO		2	3	3
5406		HOLL	03	16	1521	S18	W15	03	15.5		A	AX	10	2	2	3
5406		BOUL	03	16	1553	S17	W16	03	15.4		A	AX	10	1	1	3
5406	25104	MWIL	03	16	1600	S17	W16	03	15.4	4	(B)					
5406		PALE	03	16	2205	S18	W21	03	15.3		A	AX		1	1	2
5406		LEAR	03	17	0010	S18	W22	03	15.3		A	BX	10	2	1	3
5406		SVTO	03	17	0850	S17	W28	03	15.2		A	HR	10	1	1	1
5406		BOUL	03	17	1540	S17	W31	03	15.3		A	AX	10	1	1	2
5406		HOLL	03	17	1615	S18	W31	03	15.3		A	AX	10	1	1	3
5406	25104	MWIL	03	17	1630	S17	W31	03	15.3	4	(AP)					
5406		RAMY	03	17	1720	S16	W31	03	15.4		A	AX	10	1	1	2
5406		LEAR	03	18	0040	S17	W35	03	15.4		A	AX	10	1	1	4
5406		CULG	03	18	0335	S19	W37	03	15.3		A	AX		1		1
5406		RAMY	03	18	1420	S16	W42	03	15.4		B	BXO	10	3	2	4
5406		BOUL	03	18	1455	S17	W43	03	15.3		A	AX		1		3
5406	25104	MWIL	03	18	1545	S17	W45	03	15.2	4	(B)					
5406		PALE	03	18	1830	S17	W46	03	15.3		A	AX		2	1	4
5406		HOLL	03	18	1910	S18	W47	03	15.2		A	AX		1		2
5406		LEAR	03	19	0030	S18	W49	03	15.3		A	HS	30	1	1	4
5406		CULG	03	19	0330	S18	W51	03	15.3		A	AX		1		3
5406		SVTO	03	19	1030	S16	W58	03	15.0		A	AX		1		1
5406		RAMY	03	19	1247	S16	W58	03	15.1		A	HR	10	1	1	2
5406		BOUL	03	19	1525	S16	W57	03	15.3		A	AX		2	1	3
5406		HOLL	03	19	1600	S16	W59	03	15.2		A	AX	10	3	2	3
5406	25104	MWIL	03	19	1600	S17	W59	03	15.2	4	(AP)					
5406		PALE	03	19	2110	S17	W62	03	15.2		A	AX	20	2	2	3
5406		LEAR	03	20	0032	S17	W63	03	15.2		B	CRO	30	3	4	4
5406		CULG	03	20	0440	S17	W64	03	15.3		A	HR	40	4	3	3
5406		SVTO	03	20	0820	S17	W72	03	14.9		A	HA	50	1	2	2
5406		RAMY	03	20	1620	S16	W71	03	15.3		A	HA	40	1	2	4
5406		HOLL	03	20	1620	S17	W71	03	15.3		A	HS	50	1	2	3
5406	25104	MWIL	03	20	1730	S17	W75	03	15.0	4	(AP)					
5406		PALE	03	20	1805	S16	W76	03	15.0		A	HA	30	1	1	3
5406		LEAR	03	21	0008	S18	W75	03	15.3		A	HS	60	1	3	3
5406		CULG	03	21	0525	S17	W80	03	15.1		A	HS	20	1	1	2
5406		RAMY	03	21	1230	S15	W85	03	15.1		A	AX	10	1	1	3
5406		HOLL	03	21	1524	S16	W89	03	14.9		A	AX		1		3
5406A		BOUL	03	17	1540	N14	W22	03	16.0		A	HS	20	1	1	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
5406A	25112	MWIL	03 17 1630	N15 W24	03 15.9	5	(AF)					
5406A	25112	MWIL	03 18 1545	N15 W40	03 15.6	4	(B)					
5407		RAMY	03 13 1650	N17 E37	03 16.5		A	AX		1		3
5407	25105	MWIL	03 13 1700	N17 E36	03 16.4	4	(AP)					
5407		PALE	03 13 1845	N18 E36	03 16.5		A	AX		1		4
5407		LEAR	03 14 0117	N19 E32	03 16.5		A	AX	10	1	1	3
5407		SVTO	03 14 0805	N19 E28	03 16.5		A	AX	10	1	1	2
5407		RAMY	03 14 1430	N20 E24	03 16.4		B	BXO	40	3	2	3
5407		HOLL	03 14 1545	N20 E23	03 16.4		B	BXO	10	3	3	3
5407	25105	MWIL	03 14 1600	N18 E23	03 16.4	5	(AP)					
5407		PALE	03 14 1920	N19 E22	03 16.5		B	BXO	10	3	4	3
5407		LEAR	03 15 0053	N18 E18	03 16.4		B	CAO	40	6	5	3
5407		SVTO	03 15 0929	N18 E13	03 16.4		B	DAO	30	4	6	1
5407		RAMY	03 15 1320	N19 E10	03 16.3		B	BXO	10	5	5	3
5407		BOUL	03 15 1555	N17 E10	03 16.4		B	CAO	30	4	5	2
5407	25105	MWIL	03 15 1615	N18 E08	03 16.3	4	(B)					
5407		HOLL	03 15 1741	N18 E09	03 16.4		B	BXO	30	14	7	3
5407		PALE	03 15 1920	N20 E09	03 16.5		B	DAI	70	15	8	3
5407		LEAR	03 16 0041	N18 E06	03 16.5		B	DRO	110	22	7	4
5407		SVTO	03 16 0855	N18 E03	03 16.6		B	DSI	60	21	9	1
5407		RAMY	03 16 1400	N18 W03	03 16.3		B	DRI	70	23	8	3
5407		HOLL	03 16 1521	N18 W02	03 16.5		B	BXO	50	23	7	3
5407		BOUL	03 16 1553	N17 W02	03 16.5		B	DAO	110	9	7	3
5407	25105	MWIL	03 16 1600	N18 W02	03 16.5	5	(B)					
5407		PALE	03 16 2205	N18 W06	03 16.5		B	DSO	110	15	8	2
5407		LEAR	03 17 0010	N16 W10	03 16.2		B	ESO	100	30	13	3
5407		BOUL	03 17 1540	N18 W14	03 16.6		B	DAO	170	11	7	2
5407		HOLL	03 17 1615	N16 W16	03 16.5		B	BXI	80	24	10	3
5407	25105	MWIL	03 17 1630	N18 W16	03 16.5	5	(B)					
5407		RAMY	03 17 1720	N19 W18	03 16.3		B	DAO	90	10	7	2
5407		LEAR	03 18 0040	N18 W21	03 16.4		B	CRO	140	18	18	4
5407		CULG	03 18 0335	N17 W22	03 16.5		B	DRO	20	10	8	1
5407		RAMY	03 18 1420	N18 W28	03 16.5		B	DRI	90	21	6	4
5407		BOUL	03 18 1455	N18 W26	03 16.6		B	BXO	10	11	6	3
5407	25105	MWIL	03 18 1545	N18 W28	03 16.5	5	(B)					
5407		PALE	03 18 1830	N18 W29	03 16.6		B	CSI	20	21	7	4
5407		HOLL	03 18 1910	N18 W30	03 16.5		B	CAO	40	13	6	2
5407		LEAR	03 19 0030	N16 W35	03 16.4		B	DAO	70	18	12	4
5407		CULG	03 19 0330	N16 W35	03 16.5		B	DRO	30	10	6	3
5407		RAMY	03 19 1247	N18 W39	03 16.6		B	DAI	70	13	8	2
5407		BOUL	03 19 1525	N17 W42	03 16.4		B	CAO	30	10	8	3
5407		HOLL	03 19 1600	N17 W40	03 16.6		B	CAO	40	9	6	3
5407	25105	MWIL	03 19 1600	N17 W41	03 16.5	5	(B)					
5407		PALE	03 19 2110	N17 W44	03 16.5		B	CAO	20	4	8	3
5407		LEAR	03 20 0032	N16 W44	03 16.7		B	CAO	20	6	8	4
5407		CULG	03 20 0440	N17 W51	03 16.3		A	AX	10	1	1	3
5407		HOLL	03 20 1620	N18 W58	03 16.3		A	AX	10	1	1	3
5407		RAMY	03 20 1620	N19 W55	03 16.5		B	CRO	30	3	6	4
5407	25105	MWIL	03 20 1730	N18 W58	03 16.3	4	(AP)					
5407		PALE	03 20 1805	N18 W58	03 16.3		A	AX		1		3
5407		LEAR	03 21 0008	N18 W61	03 16.4		A	AX	20	1	1	3
5407		RAMY	03 21 1230	N19 W69	03 16.2		A	AX	10	1		3
5407	25105	MWIL	03 21 1600	N17 W70	03 16.3	4	(AP)					
5407A	25109	MWIL	03 16 1600	N14 E02	03 16.8	3	(BP)					
5407A	25109	MWIL	03 17 1630	N14 W11	03 16.8	3	(AF)					
5413		CULG	03 18 0335	N23 W17	03 16.8		B	BXO		2	3	1
5413		RAMY	03 18 1420	N23 W24	03 16.7		B	BXO	20	4	3	4
5413	25115	MWIL	03 18 1545	N23 W23	03 16.9	4	(B)					
5413		PALE	03 18 1830	N24 W25	03 16.8		B	BXO		2	3	4
5413		SVTO	03 19 1030	N25 W34	03 16.8		A	AX		1		1
5413		RAMY	03 19 1247	N24 W34	03 16.9		B	BXO	10	2	3	2
5413		BOUL	03 19 1525	N24 W33	03 17.1		B	BXO		2	3	3
5413		HOLL	03 19 1600	N23 W36	03 16.9		B	BXO		2	3	3
5413	25115	MWIL	03 19 1600	N23 W36	03 16.9	3	(B)					
5413		PALE	03 19 2110	N24 W41	03 16.7		A	AX		1	1	3
5413		LEAR	03 20 0032	N23 W42	03 16.8		A	AX	10	2	1	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5413		SVTO	03	20	0820	N26	W51	03	16.4		A	AX	20	1	1	2
5413		RAMY	03	20	1620	N25	W51	03	16.7		A	AX	20	1	1	4
5413		HOLL	03	20	1620	N25	W53	03	16.6		A	HS	20	1	1	3
5413	25115	MWIL	03	20	1730	N24	W54	03	16.5	5	(AP)					
5413		PALE	03	20	1805	N25	W52	03	16.7		B	BXO	20	2	3	3
5413		LEAR	03	21	0008	N24	W56	03	16.7		B	BXO	70	5	5	3
5413		CULG	03	21	0525	N21	W56	03	16.9		B	BXO	10	2	4	2
5413		RAMY	03	21	1230	N25	W63	03	16.6		B	DAO	80	5	6	3
5413		HOLL	03	21	1524	N25	W66	03	16.5		B	DAO	150	3	7	3
5413	25115	MWIL	03	21	1600	N24	W65	03	16.6	5	(B)					
5413		LEAR	03	22	0044	N24	W70	03	16.6		B	DAO	210	5	10	3
5413		CULG	03	22	0315	N23	W68	03	16.9		B	DSO	40	2	4	2
5413		SVTO	03	22	0755	N24	W80	03	16.1		B	DSO	90	2	8	2
5413		RAMY	03	22	1222	N26	W77	03	16.5		B	DSO	140	2	8	4
5413		HOLL	03	22	1509	N24	W78	03	16.6		B	DAO	120	2	6	3
5413		BOUL	03	22	1535	N27	W80	03	16.4		A	HA	60	1	3	2
5413	25115	MWIL	03	22	1630	N24	W78	03	16.7	4	B					
5413		PALE	03	22	1957	N26	W78	03	16.8		A	AX	30	1	2	3
5413A		SVTO	03	14	0805	N23	E37	03	17.2		A	AX		1		2
5413A		HOLL	03	14	1545	N23	E31	03	17.0		B	BXO		2	4	3
5403		LEAR	03	12	0145	S13	E82	03	18.3		A	HA	60	1	3	3
5403		SVTO	03	12	0735	S13	E88	03	18.9		A	HS	160	1	2	2
5403	25099	MWIL	03	12	1530	S14	E80	03	18.7	5	AP					
5403		HOLL	03	12	1600	S12	E80	03	18.7		A	HS	180	1	2	3
5403		BOUL	03	12	1610	S13	E80	03	18.7		A	HA	160	2	2	3
5403		PALE	03	12	1850	S13	E78	03	18.7		A	HS	240	1	2	3
5403		LEAR	03	13	0102	S11	E76	03	18.8		B	CHO	240	5	8	3
5403		CULG	03	13	0433	S11	E70	03	18.4		A	HS	210	2	2	2
5403		SVTO	03	13	0753	S13	E73	03	18.8		B	CAO	250	3	7	1
5403		BOUL	03	13	1424	S13	E67	03	18.6		B	CAO	170	2	6	1
5403		RAMY	03	13	1650	S16	E68	03	18.8		B	CKO	420	9	11	3
5403	25099	MWIL	03	13	1700	S14	E66	03	18.7	5	(B)					
5403		HOLL	03	13	1735	S16	E67	03	18.8		B	DKO	360	7	12	3
5403		PALE	03	13	1845	S14	E70	03	19.1		B	CAO	260	6	10	4
5403		LEAR	03	14	0117	S14	E64	03	18.9		B	CHO	220	8	8	3
5403		SVTO	03	14	0805	S15	E65	03	19.2		B	DAO	400	7	10	2
5403		RAMY	03	14	1430	S15	E57	03	18.9		B	CKO	300	10	7	3
5403		HOLL	03	14	1545	S13	E55	03	18.8		B	CKO	320	13	9	3
5403	25099	MWIL	03	14	1600	S14	E54	03	18.7	5	(BP)					
5403		PALE	03	14	1920	S14	E55	03	19.0		B	CKO	310	11	9	3
5403		LEAR	03	15	0053	S13	E51	03	18.9		B	DKI	400	19	9	3
5403		SVTO	03	15	0929	S16	E47	03	18.9		B	DAO	440	12	9	1
5403		RAMY	03	15	1320	S13	E44	03	18.9		B	CHI	300	20	9	3
5403		BOUL	03	15	1555	S14	E41	03	18.8		B	DAO	160	9	9	2
5403	25099	MWIL	03	15	1615	S14	E41	03	18.8	5	(BG)					
5403		HOLL	03	15	1741	S13	E41	03	18.8		B	CKO	310	23	9	3
5403		PALE	03	15	1920	S15	E41	03	18.9		B	DKI	230	16	10	3
5403		LEAR	03	16	0041	S14	E38	03	18.9		B	EAO	330	24	11	4
5403		SVTO	03	16	0855	S14	E33	03	18.9		B	CAO	230	19	9	1
5403		RAMY	03	16	1400	S14	E27	03	18.6		B	CHI	340	17	8	3
5403		HOLL	03	16	1521	S13	E28	03	18.7		B	CAO	250	15	6	3
5403		BOUL	03	16	1553	S14	E27	03	18.7		B	CAO	140	4	5	3
5403	25099	MWIL	03	16	1600	S14	E27	03	18.7	5	(BG)					
5403		PALE	03	16	2205	S13	E24	03	18.7		B	CAI	250	11	6	2
5403		LEAR	03	17	0010	S14	E23	03	18.7		B	DAO	220	21	7	3
5403		SVTO	03	17	0850	S15	E22	03	19.0		B	EKI	210	32	13	1
5403		BOUL	03	17	1540	S13	E14	03	18.7		B	DAO	220	9	6	2
5403		HOLL	03	17	1615	S13	E15	03	18.8		B	CKI	290	19	10	3
5403	25099	MWIL	03	17	1630	S14	E14	03	18.7	6	(BG)					
5403		RAMY	03	17	1720	S14	E14	03	18.8		B	DHI	220	17	8	2
5403		LEAR	03	18	0040	S15	E12	03	18.9		BG	DAI	170	24	11	4
5403		CULG	03	18	0335	S12	E08	03	18.7		B	DAI	140	9	7	1
5403		RAMY	03	18	1420	S13	E02	03	18.7		B	DAI	220	27	7	4
5403		BOUL	03	18	1455	S13	E01	03	18.7		B	DAO	80	15	7	3
5403	25099	MWIL	03	18	1545	S14	E01	03	18.7	6	(BG)					
5403		PALE	03	18	1830	S13	W01	03	18.7		B	DAI	180	19	7	4
5403		HOLL	03	18	1910	S13	W01	03	18.7		B	DSI	190	15	9	2

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5403		LEAR	03	19	0030	S13	W04	03	18.7		BG	DSO	180	17	8	4
5403		CULG	03	19	0330	S12	W06	03	18.7		B	DAI	130	17	7	3
5403		SVTO	03	19	1030	S12	W08	03	18.8		B	EAI	50	20	12	1
5403		RAMY	03	19	1247	S14	W09	03	18.8		BG	EAI	160	32	12	2
5403		BOUL	03	19	1525	S14	W09	03	19.0		B	CAO	70	27	14	3
5403		HOLL	03	19	1600	S13	W09	03	19.0		B	CAO	100	22	15	3
5403	25099	MWIL	03	19	1600	S14	W13	03	18.7	5	(BG)					
5403		PALE	03	19	2110	S13	W14	03	18.8		B	CSO	50	6	6	3
5403		LEAR	03	20	0032	S13	W18	03	18.7		B	DSO	80	16	9	4
5403		CULG	03	20	0440	S13	W19	03	18.8		B	DSO	60	9	9	3
5403		SVTO	03	20	0820	S13	W23	03	18.6		B	DAO	70	11	7	2
5403		RAMY	03	20	1620	S14	W26	03	18.7		B	DAO	90	12	6	4
5403		HOLL	03	20	1620	S14	W26	03	18.7		B	DSI	100	15	5	3
5403	25099	MWIL	03	20	1730	S14	W27	03	18.7	5	(BP)					
5403		PALE	03	20	1805	S13	W28	03	18.6		B	DSI	90	11	6	3
5403		LEAR	03	21	0008	S14	W30	03	18.7		B	DSO	170	17	8	3
5403		CULG	03	21	0525	S13	W33	03	18.7		B	CSO	30	7	7	2
5403		RAMY	03	21	1230	S13	W38	03	18.6		B	CSO	60	10	6	3
5403		HOLL	03	21	1524	S14	W39	03	18.7		B	CSO	70	8	6	3
5403	25099	MWIL	03	21	1600	S14	W40	03	18.6	6	(BG)					
5403		LEAR	03	22	0044	S13	W46	03	18.5		B	CAO	150	9	7	3
5403		CULG	03	22	0315	S15	W46	03	18.6		B	CSO	20	4	7	2
5403		SVTO	03	22	0755	S15	W53	03	18.3		B	CSO	50	2	3	2
5403		RAMY	03	22	1222	S13	W54	03	18.4		B	CSO	100	3	4	4
5403		HOLL	03	22	1509	S13	W55	03	18.5		A	HS	30	1	1	3
5403		BOUL	03	22	1535	S12	W56	03	18.4		A	HS	30	1	2	2
5403	25099	MWIL	03	22	1630	S14	W55	03	18.5	5	(AP)					
5403		PALE	03	22	1957	S12	W59	03	18.4		A	HA	70	1	2	3
5403		LEAR	03	23	0043	S13	W60	03	18.5		B	CSO	100	5	4	3
5403		CULG	03	23	0400	S14	W61	03	18.5		A	HS	20	1	1	3
5403		SVTO	03	23	1025	S13	W68	03	18.3		A	HS	30	1	2	1
5403		RAMY	03	23	1400	S12	W68	03	18.5		A	HS	50	1	2	4
5403		BOUL	03	23	1535	S12	W70	03	18.4		A	HS	70	1	2	3
5403	25099	MWIL	03	23	1600	S12	W68	03	18.5	5	(AP)					
5403		PALE	03	23	1900	S12	W69	03	18.6		A	HS	50	1	2	3
5403		LEAR	03	24	0255	S13	W73	03	18.6		A	HS	60	1	2	2
5403		CULG	03	24	0650	S14	W77	03	18.5		A	HS	20	1	1	3
5403		RAMY	03	24	1220	S13	W78	03	18.6		A	HS	40	1	2	3
5403		HOLL	03	24	1500	S13	W81	03	18.5		A	HS	60	1	2	3
5403		BOUL	03	24	1540	S11	W85	03	18.2		A	HA	60	2	2	2
5403	25099	MWIL	03	24	1545	S12	W81	03	18.5	4	AP					
5403		PALE	03	24	2200	S12	W89	03	18.2		A	HA	30	1	1	2
5404	25098	MWIL	03	12	1530	N30	E78	03	18.8	4	AP					
5404		HOLL	03	12	1600	N33	E79	03	18.9		B	BXO	40	4	4	3
5404		PALE	03	12	1850	N32	E80	03	19.1		B	BXO	20	2	3	3
5404		LEAR	03	13	0102	N33	E75	03	19.0		B	DAO	70	4	4	3
5404		CULG	03	13	0433	N34	E69	03	18.7		B	BXO	10	2	3	2
5404		SVTO	03	13	0753	N32	E68	03	18.7		B	BRO	40	4	5	1
5404		RAMY	03	13	1650	N31	E66	03	18.9		B	BXI	50	9	6	3
5404	25098	MWIL	03	13	1700	N31	E65	03	18.8	4	(AP)					
5404		HOLL	03	13	1735	N33	E66	03	19.0		B	BXO	80	6	6	3
5404		PALE	03	13	1845	N32	E68	03	19.2		B	DAO	60	5	5	4
5404		LEAR	03	14	0117	N33	E63	03	19.0		B	DAO	120	3	5	3
5404		SVTO	03	14	0805	N33	E62	03	19.3		G	CA	120	4	4	2
5404		RAMY	03	14	1430	N31	E55	03	18.9		B	CRO	70	3	4	3
5404		HOLL	03	14	1545	N33	E55	03	19.0		B	CRO	30	5	5	3
5404	25098	MWIL	03	14	1600	N32	E54	03	18.9	5	(AP)					
5404		PALE	03	14	1920	N31	E52	03	18.9		B	CAO	30	5	4	3
5404		LEAR	03	15	0053	N32	E49	03	18.9		B	DAO	120	5	5	3
5404		SVTO	03	15	0929	N32	E44	03	18.9		B	CRO	40	5	4	1
5404		RAMY	03	15	1320	N33	E41	03	18.8		B	DSI	50	7	4	3
5404		BOUL	03	15	1555	N31	E42	03	19.0		A	HA	100	2	3	2
5404	25098	MWIL	03	15	1615	N32	E41	03	18.9	5	(AP)					
5404		HOLL	03	15	1741	N32	E41	03	19.0		B	CAO	110	9	4	3
5404		PALE	03	15	1920	N32	E43	03	19.2		B	CAI	80	10	5	3
5404		LEAR	03	16	0041	N32	E38	03	19.0		B	DSO	110	5	4	4
5404		SVTO	03	16	0855	N32	E33	03	19.0		A	HA	60	6	3	1
5404		RAMY	03	16	1400	N32	E29	03	18.9		B	DRI	40	11	3	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5404		HOLL	03	16	1521	N32	E30	03	19.0		B	CAO	50	9	3	3
5404		BOUL	03	16	1553	N31	E28	03	18.9		A	HA	60	2	2	3
5404	25098	MWIL	03	16	1600	N32	E29	03	19.0	4	(AP)					
5404		PALE	03	16	2205	N32	E26	03	19.0		B	BXO	30	9	3	2
5404		LEAR	03	17	0010	N32	E25	03	19.0		B	CAO	80	10	3	3
5404		SVTO	03	17	0850	N32	E20	03	18.9		B	CAO	60	6	2	1
5404		BOUL	03	17	1540	N31	E17	03	19.0		B	DAO	80	6	3	2
5404		HOLL	03	17	1615	N32	E18	03	19.1		B	BXO	50	10	6	3
5404	25098	MWIL	03	17	1630	N32	E17	03	19.0	5	(BP)					
5404		RAMY	03	17	1720	N31	E14	03	18.8		B	DAO	50	12	5	2
5404		LEAR	03	18	0040	N34	E15	03	19.2		B	CRO	50	14	11	4
5404		CULG	03	18	0335	N32	E08	03	18.8		B	CAI	30	5	3	1
5404		RAMY	03	18	1420	N32	E05	03	19.0		B	CAO	40	13	3	4
5404		BOUL	03	18	1455	N32	E05	03	19.0		B	BXO		8	2	3
5404	25098	MWIL	03	18	1545	N32	E04	03	19.0	5	(BG)					
5404		PALE	03	18	1830	N32	E04	03	19.1		B	CAI	30	15	3	4
5404		HOLL	03	18	1910	N32	E03	03	19.0		B	BXO	20	9	4	2
5404		LEAR	03	19	0030	N31	W02	03	18.9		B	CAO	50	11	5	4
5404		CULG	03	19	0330	N32	W03	03	18.9		B	CAI	30	7	2	3
5404		SVTO	03	19	1030	N35	W07	03	18.9		B	CAO	50	8	3	1
5404		RAMY	03	19	1247	N32	W08	03	18.9		B	CAO	60	6	4	2
5404		BOUL	03	19	1525	N31	W09	03	18.9		B	BXO	10	8	3	3
5404		HOLL	03	19	1600	N31	W08	03	19.0		B	CAO	30	7	4	3
5404	25098	MWIL	03	19	1600	N32	W07	03	19.1	5	(B)					
5404		PALE	03	19	2110	N32	W11	03	19.0		B	CAO	20	7	3	3
5404		LEAR	03	20	0032	N32	W13	03	19.0		B	CRO	30	9	5	4
5404		CULG	03	20	0440	N31	W17	03	18.8		A	HS	30	1	1	3
5404		SVTO	03	20	0820	N33	W19	03	18.8		B	CRO	20	3	2	2
5404		RAMY	03	20	1620	N32	W19	03	19.2		B	CRO	20	3	8	4
5404	25098	MWIL	03	20	1730	N33	W23	03	18.9	4	(AP)					
5404	25098	MWIL	03	22	1630	N33	W46	03	19.0	3	(AF)					
5414		SVTO	03	19	1030	S17	E06	03	19.9		B	BXO		2	1	1
5414		RAMY	03	19	1247	S17	E04	03	19.8		B	BXO	10	4	3	2
5414		BOUL	03	19	1525	S17	E03	03	19.9		B	BXO		5	2	3
5414	25117	MWIL	03	19	1600	S17	E03	03	19.9	4	(BP)					
5414		HOLL	03	19	1600	S18	E03	03	19.9		B	BXO	10	12	4	3
5414		PALE	03	19	2110	S18	E00	03	19.9		B	CRO	10	6	4	3
5414		LEAR	03	20	0032	S18	W02	03	19.9		B	DAO	30	13	6	4
5414		SVTO	03	20	0820	S18	W07	03	19.8		B	DAO	50	9	4	2
5414		HOLL	03	20	1620	S18	W10	03	19.9		B	DAI	70	15	7	3
5414		RAMY	03	20	1620	S18	W11	03	19.8		B	DAI	40	11	6	4
5414	25117	MWIL	03	20	1730	S17	W11	03	19.9	5	(B)					
5414		PALE	03	20	1805	S18	W13	03	19.8		B	DAI	80	16	6	3
5414		LEAR	03	21	0008	S17	W16	03	19.8		B	DAO	140	14	6	3
5414		CULG	03	21	0525	S18	W19	03	19.8		B	DSI	50	4	5	2
5414		RAMY	03	21	1230	S18	W22	03	19.8		B	DAI	150	19	6	3
5414		HOLL	03	21	1524	S18	W23	03	19.9		B	DAO	150	14	6	3
5414	25117	MWIL	03	21	1600	S17	W24	03	19.8	5	(B)					
5414		LEAR	03	22	0044	S18	W29	03	19.8		B	DAO	200	14	7	3
5414		CULG	03	22	0315	S18	W31	03	19.8		B	DSI	80	4	4	2
5414		SVTO	03	22	0755	S19	W35	03	19.6		B	DAO	190	10	6	2
5414		RAMY	03	22	1222	S18	W37	03	19.7		B	DAI	130	13	4	4
5414		HOLL	03	22	1509	S18	W37	03	19.8		B	DAO	120	7	5	3
5414		BOUL	03	22	1535	S17	W37	03	19.8		B	DAO	150	6	6	2
5414	25117	MWIL	03	22	1630	S17	W38	03	19.8	5	(BG)					
5414		PALE	03	22	1957	S18	W42	03	19.6		B	CAI	70	9	6	3
5414		LEAR	03	23	0043	S18	W42	03	19.8		B	DAO	170	16	6	3
5414		CULG	03	23	0400	S19	W42	03	20.0		B	DAO	40	7	5	3
5414		SVTO	03	23	1025	S18	W50	03	19.6		B	DAO	700	9	5	1
5414		RAMY	03	23	1400	S17	W50	03	19.8		B	DAI	100	15	7	4
5414		BOUL	03	23	1535	S17	W52	03	19.7		B	DAO	110	5	4	3
5414	25117	MWIL	03	23	1600	S18	W52	03	19.7	4	(B					
5414		LEAR	03	24	0255	S18	W57	03	19.8		B	CAO	50	8	7	2
5414		CULG	03	24	0650	S19	W59	03	19.8		B	CRO	10	4	4	3
5414		RAMY	03	24	1220	S17	W60	03	19.9		B	CAO	50	7	5	3
5414		HOLL	03	24	1500	S17	W64	03	19.8		B	BXI	90	11	7	3
5414		BOUL	03	24	1540	S16	W67	03	19.6		B	CSO	60	2	2	2
5414	25117	MWIL	03	24	1545	S17	W64	03	19.8	4	BP					

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5414		PALE	03 24 2200	S17 W67	03 19.8		B	BXO	10	5	7	2
5414		LEAR	03 25 0025	S16 W68	03 19.9		B	BXO	40	4	7	3
5414		SVTO	03 25 0753	S15 W69	03 20.1		A	HR	20	1	2	2
5414		RAMY	03 25 1330	S18 W68	03 20.4		B	BXO	10	3	1	4
5414		HOLL	03 25 1400	S19 W69	03 20.3		B	BXO	10	3	5	3
5414		BOUL	03 25 1515	S19 W69	03 20.4		A	AX		1		3
5414		PALE	03 25 1820	S19 W71	03 20.3		B	BXO	10	4	4	2
5414		LEAR	03 26 0015	S20 W75	03 20.3		B	BXO	30	2	5	3
5418		PALE	03 14 1920	S12 E78	03 20.7		A	AX		1		3
5418		RAMY	03 16 1400	S14 E57	03 20.9		A	AX	10	2	1	3
5418	25113	MWIL	03 17 1630	S15 E37	03 20.5	5	(AP)					
5418		SVTO	03 19 1030	S15 E15	03 20.6		B	BXO	10	3	1	1
5418		RAMY	03 19 1247	S15 E14	03 20.6		B	BXO	10	2	2	2
5418		CULG	03 20 0440	S13 E06	03 20.6		A	AX	10	1	1	3
5418		SVTO	03 20 0820	S14 E04	03 20.6		B	CRO	20	5	2	2
5418		HOLL	03 20 1620	S12 W02	03 20.5		B	BXO	10	5	3	3
5418	25120	MWIL	03 21 1600	S13 W16	03 20.4	3	(AP)					
5418	25120	MWIL	03 22 1630	S13 W28	03 20.6	4	(AP)					
5418		PALE	03 22 1957	S12 W31	03 20.5		B	BXO		6	3	3
5418		LEAR	03 23 0043	S14 W33	03 20.5		B	BXO	10	3	3	3
5418		LEAR	03 24 0255	S15 W49	03 20.4		B	BXO	20	4	3	2
5415		PALE	03 19 2110	S20 E11	03 20.7		A	AX		2	2	3
5415		LEAR	03 20 0032	S19 E09	03 20.7		B	BXO	10	5	3	4
5415		CULG	03 20 0440	S18 E07	03 20.7		B	CSO	20	4	3	3
5415		SVTO	03 20 0820	S20 E05	03 20.7		B	BXO	20	9	3	2
5415		RAMY	03 20 1620	S20 E01	03 20.7		B	DAO	30	5	4	4
5415		HOLL	03 20 1620	S20 E02	03 20.8		B	CSO	20	8	4	3
5415	25118	MWIL	03 20 1730	S20 W00	03 20.7	4	(B)					
5415		PALE	03 20 1805	S20 E00	03 20.7		B	CAO	30	8	4	3
5415		LEAR	03 21 0008	S20 W03	03 20.8		B	BXO	70	8	4	3
5415		CULG	03 21 0525	S20 W06	03 20.8		B	BXO	10	2	3	2
5415		RAMY	03 21 1230	S20 W12	03 20.6		A	AX		2	1	3
5415		HOLL	03 21 1524	S20 W13	03 20.6		A	AX	10	1	1	3
5415	25118	MWIL	03 21 1600	S20 W13	03 20.7	4	(B)					
5415		LEAR	03 22 0044	S20 W18	03 20.6		B	BXO	10	4	3	3
5415		RAMY	03 22 1222	S20 W23	03 20.7		B	BXO	10	3	3	4
5415		HOLL	03 22 1509	S20 W24	03 20.8		B	BXO	10	4	4	3
5415	25118	MWIL	03 22 1630	S20 W24	03 20.8	4	(BP)					
5415		PALE	03 22 1957	S20 W29	03 20.6		A	AX		3	2	3
5415		LEAR	03 23 0043	S21 W31	03 20.6		B	BXO	10	4	3	3
5415A		SVTO	03 16 0855	S16 E62	03 21.1		B	BXO	10	5	4	1
5415A	25110	MWIL	03 16 1600	S17 E57	03 21.0	4	(BP)					
5416		CULG	03 19 0330	N22 E27	03 21.2		A	AX		1		3
5416		SVTO	03 20 0820	N18 E13	03 21.3		B	CAO	70	10	3	2
5416	25121	MWIL	03 21 1600	N22 W05	03 21.3	5	(B)					
5416	25121	MWIL	03 22 1630	N21 W18	03 21.3	5	(BG)					
5416	25121	MWIL	03 23 1600	N22 W31	03 21.3	4	(BP)					
5416	25121	MWIL	03 24 1545	N22 W45	03 21.2	5	B					
5409		RAMY	03 15 1320	N21 E80	03 21.7		B	BXO	20	2	3	3
5409	25108	MWIL	03 15 1615	N17 E78	03 21.6	3	(AP					
5409		LEAR	03 16 0041	N18 E71	03 21.4		B	DAO	210	7	10	4
5409		SVTO	03 16 0855	N19 E70	03 21.7		A	HK	900	11	9	1
5409		RAMY	03 16 1400	N19 E63	03 21.4		B	DAI	180	12	7	3
5409		HOLL	03 16 1521	N18 E65	03 21.6		B	DSI	100	16	7	3
5409		BOUL	03 16 1553	N17 E64	03 21.5		B	CKI	280	14	9	3
5409	25108	MWIL	03 16 1600	N17 E66	03 21.7	4	(B)					
5409		PALE	03 16 2205	N17 E63	03 21.7		B	CAO	290	22	7	2
5409		LEAR	03 17 0010	N17 E59	03 21.5		B	DAO	480	10	8	3
5409		SVTO	03 17 0850	N17 E53	03 21.4		B	CKO	310	11	8	1
5409		BOUL	03 17 1540	N18 E53	03 21.7		A	HK	510	7	3	2
5409		HOLL	03 17 1615	N18 E50	03 21.5		B	DKI	560	25	9	3
5409	25108	MWIL	03 17 1630	N17 E52	03 21.6	6	(D)					
5409		RAMY	03 17 1720	N18 E49	03 21.4		B	CKO	580	12	9	2
5409		LEAR	03 18 0040	N19 E47	03 21.6		B	DKO	350	14	6	4

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5409		CULG	03	18	0335	N18	E47	03	21.7		A	HK	240	6	4	1
5409		RAMY	03	18	1420	N18	E38	03	21.5		BD	EKC	560	22	11	4
5409		BOUL	03	18	1455	N17	E39	03	21.6		B	CKO	410	11	5	3
5409	25108	MWIL	03	18	1545	N17	E39	03	21.6	5	(D)					
5409		PALE	03	18	1830	N18	E39	03	21.7		B	CKO	420	21	5	4
5409		HOLL	03	18	1910	N18	E38	03	21.7		B	CKO	440	14	5	2
5409		LEAR	03	19	0030	N19	E32	03	21.5		B	DKO	480	17	8	4
5409		CULG	03	19	0330	N19	E32	03	21.6		B	DKO	910	14	4	3
5409		SVTO	03	19	1030	N20	E27	03	21.5		B	EKO	900	20	11	1
5409		RAMY	03	19	1247	N18	E29	03	21.7		BG	EKC	670	26	11	2
5409		BOUL	03	19	1525	N17	E26	03	21.6		B	DKO	430	23	7	3
5409	25108	MWIL	03	19	1600	N17	E27	03	21.7	5	(D)					
5409		HOLL	03	19	1600	N18	E27	03	21.7		BD	DKI	570	33	10	3
5409		PALE	03	19	2110	N18	E25	03	21.8		BD	DKI	600	29	7	3
5409		LEAR	03	20	0032	N18	E21	03	21.6		BG	DKI	670	26	8	4
5409		CULG	03	20	0440	N18	E18	03	21.6		B	DKO	600	11	5	3
5409		SVTO	03	20	0820	N18	E17	03	21.6		B	DKO	680	12	4	2
5409		RAMY	03	20	1620	N16	E13	03	21.7		BG	EKC	640	30	8	4
5409		HOLL	03	20	1620	N19	E13	03	21.7		BG	DKI	630	39	9	3
5409	25108	MWIL	03	20	1730	N17	E13	03	21.7	5	(D)					
5409		PALE	03	20	1805	N19	E11	03	21.6		BG	DKI	580	35	9	3
5409		LEAR	03	21	0008	N17	E07	03	21.5		BG	DKI	720	47	7	3
5409		CULG	03	21	0525	N18	E03	03	21.4		B	DKI	380	10	6	2
5409		RAMY	03	21	1230	N19	E00	03	21.5				1050	44	10	3
5409		HOLL	03	21	1524	N18	W01	03	21.6		BGD	CKO	1300	25	11	3
5409	25108	MWIL	03	21	1600	N17	E00	03	21.7	5	(BG)					
5409		LEAR	03	22	0044	N18	W07	03	21.5		BG	EKC	1040	55	12	3
5409		CULG	03	22	0315	N18	W12	03	21.2		B	DKI	680	17	9	2
5409		SVTO	03	22	0755	N18	W12	03	21.4		BGD	EKI	940	67	13	2
5409		RAMY	03	22	1222	N18	W14	03	21.4		BGD	EKC	1010	56	12	4
5409		HOLL	03	22	1509	N18	W14	03	21.6		BGD	EKO	1260	45	11	3
5409		BOUL	03	22	1535	N18	W16	03	21.4		BGD	EKC	1240	36	12	2
5409	25108	MWIL	03	22	1630	N17	W13	03	21.7	5	(BG)					
5409		PALE	03	22	1957	N18	W18	03	21.5		BG	EKI	710	55	12	3
5409		LEAR	03	23	0043	N17	W21	03	21.4		BG	EKC	1180	54	14	3
5409		CULG	03	23	0400	N17	W23	03	21.4		BGD	EKI	400	25	11	3
5409		SVTO	03	23	1025	N20	W26	03	21.4		BGD	EKI	850	71	13	1
5409		RAMY	03	23	1400	N19	W28	03	21.4		BG	EKI	960	73	14	4
5409		BOUL	03	23	1535	N19	W29	03	21.4		BG	EAI	810	38	12	3
5409	25108	MWIL	03	23	1600	N16	W28	03	21.5	5	(B)					
5409		PALE	03	23	1900	N18	W28	03	21.6		BG	EKI	780	32	14	3
5409		LEAR	03	24	0255	N17	W36	03	21.4		BG	EKI	610	48	13	2
5409		CULG	03	24	0650	N16	W33	03	21.8		B	EKI	180	16	11	3
5409		RAMY	03	24	1220	N19	W39	03	21.5		BG	EKI	1300	53	12	3
5409		HOLL	03	24	1500	N19	W42	03	21.4		BGD	FKI	860	48	16	3
5409		BOUL	03	24	1540	N18	W41	03	21.5		B	EAI	640	25	13	2
5409	25108	MWIL	03	24	1545	N16	W39	03	21.7	6	BF+					
5409		PALE	03	24	2200	N19	W45	03	21.5		BG	EKI	530	40	12	2
5409		LEAR	03	25	0025	N18	W47	03	21.4		BG	EKI	630	35	14	3
5409		SVTO	03	25	0753	N19	W55	03	21.1		BG	EAO	570	19	14	2
5409		RAMY	03	25	1330	N19	W54	03	21.4		BG	EKI	700	32	13	4
5409		HOLL	03	25	1400	N20	W55	03	21.4		BG	EKI	600	27	13	3
5409		BOUL	03	25	1515	N18	W54	03	21.5		B	EKI	440	34	14	3
5409		PALE	03	25	1820	N18	W56	03	21.5		BG	EKI	340	23	11	2
5409		LEAR	03	26	0015	N18	W60	03	21.4		BG	EKI	550	26	12	3
5409		SVTO	03	26	0713	N19	W68	03	21.1		B	EKO	750	20	15	2
5409		RAMY	03	26	1346	N19	W69	03	21.3		BG	EKI	720	25	12	3
5409		HOLL	03	26	1450	N19	W67	03	21.5		BG	EAI	300	20	12	3
5409		BOUL	03	26	1500	N16	W65	03	21.7		B	DAO	140	7	8	1
5409		PALE	03	26	1935	N18	W70	03	21.5		BG	DKI	260	13	10	3
5409		LEAR	03	27	0110	N18	W73	03	21.5		BG	EKI	220	21	12	2
5409		SVTO	03	27	0654	N19	W81	03	21.1		BG	FAI	360	13	16	2
5409		RAMY	03	27	1258	N15	W77	03	21.7		BG	DAO	120	5	6	4
5409	25108	MWIL	03	27	1545	N15	W78	03	21.7	4	B					
5409		BOUL	03	27	1707	N16	W80	03	21.6		A	AX	10	2	2	1
5409		PALE	03	27	1745	N16	W80	03	21.7		BG	DAO	120	2	6	3
5409A	25116	MWIL	03	18	1545	S20	E39	03	21.6	4	(AF)					

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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
5410		LEAR	03 16 0041	S16 E66	03 21.0		B	BXO	70	4	4	4
5410		HOLL	03 16 1521	S15 E56	03 20.9		A	AX	10	2	1	3
5410		LEAR	03 17 0010	S15 E52	03 20.9		B	BXO	30	3	4	3
5410		HOLL	03 17 1615	S16 E45	03 21.1		B	BXO	40	5	5	3
5410		BOUL	03 18 1455	S19 E39	03 21.6		A	AX		1		3
5410		PALE	03 18 1830	S21 E40	03 21.8		B	BXO		2	3	4
5410		HOLL	03 18 1910	S19 E36	03 21.5		A	AX		1		2
5410		LEAR	03 19 0030	S19 E33	03 21.5		B	BXO	10	3	3	4
5410		CULG	03 19 0330	S17 E32	03 21.6		A	AX		1		3
5412		LEAR	03 17 0010	S12 E76	03 22.7		A	AX	60	2	2	3
5412		BOUL	03 17 1540	S12 E64	03 22.5		A	AX	10	1	1	2
5412		RAMY	03 17 1720	S11 E64	03 22.5		B	BXO	30	4	5	2
5412		LEAR	03 18 0040	S10 E61	03 22.6		B	BXO	30	5	6	4
5412		CULG	03 18 0335	S10 E58	03 22.5		B	BXO		2	3	1
5412		RAMY	03 18 1420	S12 E53	03 22.6		B	BXO	20	4	5	4
5412		BOUL	03 18 1455	S10 E56	03 22.8		A	AX		1		3
5412		PALE	03 18 1830	S12 E53	03 22.8		B	BXO	10	5	6	4
5410A		HOLL	03 16 1521	S11 E80	03 22.6		A	AX		1		3
5410A		SVTO	03 17 0850	S11 E72	03 22.8		B	BXO	10	3	5	1
5410A		HOLL	03 17 1615	S12 E65	03 22.6		B	BXO	40	3	4	3
5410A	25114	MWIL	03 17 1630	S12 E67	03 22.7	5	(B)					
5410A	25114	MWIL	03 18 1545	S11 E54	03 22.7	4	(B)					
5411		SVTO	03 16 0855	N12 E80	03 22.4		A	HS	80	2	2	1
5411		RAMY	03 16 1400	N14 E77	03 22.4		A	HS	120	1	2	3
5411		HOLL	03 16 1521	N13 E78	03 22.5		A	HA	120	1	2	3
5411		BOUL	03 16 1553	N12 E78	03 22.5		A	HA	120	1	2	3
5411	25111	MWIL	03 16 1600	N11 E77	03 22.4	5	(AP)					
5411		PALE	03 16 2205	N12 E72	03 22.3		A	HS	180	1	3	2
5411		LEAR	03 17 0010	N12 E71	03 22.3		A	HA	120	2	2	3
5411		SVTO	03 17 0850	N13 E68	03 22.5		A	HR	100	1	2	1
5411		BOUL	03 17 1540	N12 E63	03 22.4		B	CAO	250	2	8	2
5411		HOLL	03 17 1615	N14 E65	03 22.6		B	CAO	210	2	7	3
5411	25111	MWIL	03 17 1630	N12 E63	03 22.4	5	(BP)					
5411		RAMY	03 17 1720	N15 E65	03 22.6		B	CAO	190	4	10	2
5411		LEAR	03 18 0040	N14 E61	03 22.6		B	CSO	190	7	11	4
5411		CULG	03 18 0335	N13 E56	03 22.4		B	CAO	150	4	3	1
5411		RAMY	03 18 1420	N13 E54	03 22.7		B	CAO	190	11	10	4
5411		BOUL	03 18 1455	N11 E49	03 22.3		B	CAO	110	6	3	3
5411	25111	MWIL	03 18 1545	N12 E50	03 22.4	5	(BP)					
5411		PALE	03 18 1830	N14 E54	03 22.8		B	CAO	200	9	11	4
5411		HOLL	03 18 1910	N13 E52	03 22.7		B	CSO	180	6	11	2
5411		LEAR	03 19 0030	N14 E48	03 22.6		B	CAO	210	16	13	4
5411		CULG	03 19 0330	N14 E42	03 22.3		B	CAO	130	5	3	3
5411		SVTO	03 19 1030	N16 E43	03 22.7		B	EAO	180	11	11	1
5411		RAMY	03 19 1247	N13 E42	03 22.7		B	DAO	280	16	10	2
5411		BOUL	03 19 1525	N14 E39	03 22.6		B	CAO	110	13	7	3
5411	25111	MWIL	03 19 1600	N12 E37	03 22.4	5	(B)					
5411		HOLL	03 19 1600	N14 E40	03 22.7		B	CAO	170	16	10	3
5411		PALE	03 19 2110	N13 E38	03 22.7		B	CAO	140	11	8	3
5411		LEAR	03 20 0032	N13 E35	03 22.7		B	CAO	140	12	9	4
5411		CULG	03 20 0440	N14 E32	03 22.6		B	CSO	90	10	11	3
5411		SVTO	03 20 0820	N13 E33	03 22.8		B	DAO	190	15	10	2
5411		HOLL	03 20 1620	N14 E26	03 22.6		B	CAO	130	21	8	3
5411		RAMY	03 20 1620	N14 E27	03 22.7		B	DAO	200	21	10	4
5411	25111	MWIL	03 20 1730	N13 E23	03 22.5	5	(BG)					
5411		PALE	03 20 1805	N12 E25	03 22.6		B	CAO	130	21	10	3
5411		LEAR	03 21 0008	N14 E22	03 22.7		B	EAO	190	21	11	3
5411		CULG	03 21 0525	N13 E17	03 22.5		B	CAO	60	5	13	2
5411		HOLL	03 21 1524	N14 E15	03 22.8		B	CAO	200	13	16	3
5411	25111	MWIL	03 21 1600	N13 E10	03 22.4	5	(BP)					
5411		LEAR	03 22 0044	N15 E07	03 22.6		B	EKO	240	20	11	3
5411		CULG	03 22 0315	N15 E03	03 22.4		B	CSO	90	8	3	2
5411		SVTO	03 22 0755	N13 E07	03 22.8		B	FSO	320	32	18	2
5411		RAMY	03 22 1222	N14 E03	03 22.7		B	DSI	150	16	14	4
5411		HOLL	03 22 1509	N15 E02	03 22.8		B	CSO	130	13	12	3
5411		BOUL	03 22 1535	N14 W02	03 22.5		B	DAO	190	7	4	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5411	25111	MWIL	03	22	1630	N13	W04	03	22.4	5	(BP)					
5411		PALE	03	22	1957	N13	W04	03	22.5		B	CKI	170	16	4	3
5411		LEAR	03	23	0043	N13	W09	03	22.3		B	DHO	220	22	9	3
5411		CULG	03	23	0400	N13	W10	03	22.4		B	CSI	50	11	4	3
5411		SVTO	03	23	1025	N14	W08	03	22.8		BG	FAI	170	29	16	1
5411		RAMY	03	23	1400	N15	W16	03	22.4		A	HH	170	17	8	4
5411		BOUL	03	23	1535	N13	W18	03	22.3		B	CAO	130	4	4	3
5411	25111	MWIL	03	23	1600	N12	W18	03	22.3	5	(AP)					
5411		PALE	03	23	1900	N13	W18	03	22.4		B	CAO	170	7	5	3
5411		LEAR	03	24	0255	N13	W23	03	22.4		B	CHO	140	8	6	2
5411		CULG	03	24	0650	N19	W23	03	22.5		A	HS	30	1	1	3
5411		RAMY	03	24	1220	N14	W25	03	22.6		A	HS	140	6	5	3
5411		HOLL	03	24	1500	N11	W29	03	22.4		B	CKO	190	4	6	3
5411		BOUL	03	24	1540	N13	W28	03	22.5		B	CAO	130	3	4	2
5411	25111	MWIL	03	24	1545	N13	W29	03	22.5	5	AP					
5411		PALE	03	24	2200	N13	W31	03	22.6		B	CAO	70	5	5	2
5411		LEAR	03	25	0025	N13	W33	03	22.5		B	CSO	80	5	5	3
5411		SVTO	03	25	0753	N11	W40	03	22.3		A	HA	80	1	2	2
5411		RAMY	03	25	1330	N12	W41	03	22.5		A	HS	70	3	2	4
5411		HOLL	03	25	1400	N11	W42	03	22.4		A	HS	60	3	2	3
5411		BOUL	03	25	1515	N12	W42	03	22.5		A	HA	70	3	2	3
5411		PALE	03	25	1820	N11	W44	03	22.4		A	HS	60	1	2	2
5411		LEAR	03	26	0015	N11	W48	03	22.4		B	CSO	60	3	2	3
5411		SVTO	03	26	0713	N11	W53	03	22.3		A	HS	70	1	2	2
5411		RAMY	03	26	1346	N12	W55	03	22.4		A	HA	70	2	2	3
5411		HOLL	03	26	1450	N11	W55	03	22.5		A	HA	50	3	2	3
5411		BOUL	03	26	1500	N12	W54	03	22.5		A	HA	30	3	2	1
5411		PALE	03	26	1935	N12	W59	03	22.4		B	CRO	50	2	1	3
5411		LEAR	03	27	0110	N11	W63	03	22.3		A	HA	30	3	1	2
5411		SVTO	03	27	0654	N12	W68	03	22.2		A	HA	50	2	2	2
5411		RAMY	03	27	1258	N10	W68	03	22.4		A	HR	20	1	1	4
5411	25111	MWIL	03	27	1545	N12	W69	03	22.4	4	(AP)					
5411		BOUL	03	27	1707	N12	W70	03	22.4		A	HA	30	1	1	1
5411		PALE	03	27	1745	N11	W71	03	22.4		A	HS	20	1	1	3
5411		LEAR	03	28	0040	N12	W72	03	22.6		A	AX	30	2	1	2
5411		CULG	03	28	0315	N11	W80	03	22.1		A	HR	10	1	1	2
5411A		LEAR	03	18	0040	S21	E65	03	23.0		A	AX	10	1	1	4
5420		CULG	03	22	0315	N18	E15	03	23.3		B	BXO	10	4	5	2
5420		BOUL	03	22	1535	N14	E07	03	23.2		A	HR	20	1	1	2
5420		PALE	03	22	1957	N15	E04	03	23.1		B	CAO	10	4	5	3
5420		CULG	03	23	0400	N16	W01	03	23.1		B	BXO	10	3	3	3
5420		RAMY	03	23	1400	N16	W06	03	23.1		B	DAI	80	26	7	4
5420		BOUL	03	23	1535	N15	W07	03	23.1		B	DAO	80	9	6	3
5420		PALE	03	23	1900	N15	W07	03	23.3		B	DSO	90	15	7	3
5420		CULG	03	24	0650	N12	W13	03	23.3		B	CRO	10	4	6	3
5420		RAMY	03	24	1220	N16	W18	03	23.1		B	DAO	80	12	7	3
5420		HOLL	03	24	1500	N15	W18	03	23.3		B	BXO	60	11	11	3
5420		BOUL	03	24	1540	N15	W18	03	23.3		B	CSO	30	2	5	2
5420		PALE	03	24	2200	N15	W21	03	23.3		B	BXO	10	8	8	2
5420		SVTO	03	25	0753	N16	W29	03	23.1		B	CRO	30	6	7	2
5420		RAMY	03	25	1330	N15	W29	03	23.4		B	BXO	20	7	8	4
5420		HOLL	03	25	1400	N15	W30	03	23.3		B	BXO		3	8	3
5420		PALE	03	25	1820	N15	W33	03	23.3		B	BXO		2	6	2
5420		SVTO	03	26	0713	N14	W44	03	23.0		A	AX		1		2
5420		RAMY	03	26	1346	N14	W45	03	23.2		A	AX		1	1	3
5420		HOLL	03	26	1450	N15	W45	03	23.2		B	BXO		2	3	3
5420		PALE	03	26	1935	N15	W50	03	23.0		A	AX		2		3
5420A		LEAR	03	22	0044	N17	E18	03	23.4		B	B	10	5	5	3
5420A		LEAR	03	23	0043	N15	E02	03	23.2		B	CAO	40	14	8	3
5420A		LEAR	03	24	0255	N14	W13	03	23.1		B	CRO	60	9	7	2
5420A		LEAR	03	25	0025	N13	W24	03	23.2		A	AX	10	1	1	3
5420A		LEAR	03	25	0025	N16	W22	03	23.3		B	CRO	40	11	8	3
5420A		LEAR	03	26	0015	N15	W40	03	23.0		A	AX	20	3	3	3
5420B		LEAR	03	19	0030	N23	E56	03	23.3		A	AX	10	1	1	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5420C		RAMY	03	19	1247	S25	E50	03	23.4		A	AX	10	1	1	2
5420D	25124	MWIL	03	22	1630	S20	E20	03	24.2	3	(AP)					
5420E		LEAR	03	24	0255	N18	E03	03	24.4		B	BXO	10	4	6	2
5420E		SVTO	03	30	1130	N20	W80	03	24.4		A	AX	10	1		3
5420G		RAMY	03	26	1346	S23	W21	03	24.9		A	AX		1	1	3
5424		RAMY	03	25	1330	S11	W09	03	24.9		B	BXO	10	2	2	4
5424		HOLL	03	25	1400	S11	W09	03	24.9		A	AX	10	2	2	3
5424		PALE	03	25	1820	S11	W11	03	24.9		B	BXO	10	4	3	2
5424		LEAR	03	26	0015	S11	W15	03	24.9		B	BXO	20	4	3	3
5424		SVTO	03	26	0713	S10	W20	03	24.8		A	AX		1		2
5424		RAMY	03	26	1346	S10	W23	03	24.8		A	AX		1	1	3
5424		PALE	03	26	1935	S11	W26	03	24.8		A	AX		2	2	3
5424		LEAR	03	27	0110	S08	W30	03	24.8		A	AX	10	2	1	2
5424		SVTO	03	28	0807	S10	W49	03	24.6		B	CRO	20	4	4	2
5424		HOLL	03	28	1510	S09	W53	03	24.6		A	AX		1	1	3
5424	25131	MWIL	03	28	1545	S09	W54	03	24.6	3	(AP)					
5424		RAMY	03	28	1630	S11	W55	03	24.5		A	AX	20	1	1	3
5424		PALE	03	28	1920	S09	W56	03	24.6		A	AX	10	1	1	3
5424		LEAR	03	29	0008	S10	W58	03	24.6		B	BXO	20	3	3	3
5424		RAMY	03	29	1245	S08	W67	03	24.5		A	AX	10	2	2	3
5424	25131	MWIL	03	29	1530	S09	W68	03	24.5	4	(AP)					
5424		PALE	03	29	1825	S09	W69	03	24.6		B	BXO	10	2	3	3
5424		LEAR	03	30	0017	S11	W71	03	24.7		B	BXO	30	3	2	3
5424A		RAMY	03	29	1245	N17	W58	03	25.1		B	BXO	10	3	3	3
5424A	25133	MWIL	03	29	1530	N16	W61	03	25.0	4	(AP)					
5424A		PALE	03	29	1825	N17	W61	03	25.1		A	AX	10	1	1	3
5424B		BOUL	03	27	1707	N15	W24	03	25.9		B	BXI	20	6	6	1
5423		RAMY	03	24	1220	S29	E20	03	26.1		B	BXO	10	2	2	3
5423		BOUL	03	24	1540	S28	E19	03	26.1		B	BXO	20	2	2	2
5423	25127	MWIL	03	24	1545	S29	E19	03	26.1	4	B					
5423		PALE	03	24	2200	S29	E17	03	26.2		B	BXO	10	3	3	2
5423		LEAR	03	25	0025	S29	E14	03	26.1		B	BXO	10	3	3	3
5423		SVTO	03	25	0753	S29	E09	03	26.0		B	CRO	20	2	3	2
5423		RAMY	03	25	1330	S29	E05	03	25.9		A	AX		1	1	4
5423		HOLL	03	25	1400	S29	E05	03	26.0		A	AX		2	2	3
5423		BOUL	03	25	1515	S28	E05	03	26.0		A	AX		1		3
5423		LEAR	03	26	0015	S29	E00	03	26.0		A	AX	10	1	1	3
5423		SVTO	03	26	0713	S29	W05	03	25.9		A	AX		1		2
5423		LEAR	03	27	0110	S30	W20	03	25.5		A	AX	10	2	1	2
5423		SVTO	03	27	0654	S27	W16	03	26.0		A	AX		1		2
5423	25129	WIL	03	27	1545	S26	W20	03	26.1	3	(AF)					M
5423A		RAMY	03	24	1220	N13	E32	03	26.9		B	BXO	10	2	2	3
5423A		PALE	03	24	2200	N14	E28	03	27.0		B	BXO	10	3	4	2
5417		LEAR	03	20	0032	S25	E84	03	26.5		B	DAO	90	6	5	4
5417		SVTO	03	20	0820	S24	E84	03	26.8		B	DAO	200	8	7	2
5417		HOLL	03	20	1620	S25	E82	03	27.0		B	EAI	360	12	14	3
5417		RAMY	03	20	1620	S27	E77	03	26.7		B	DKO	450	6	10	4
5417	25119	MWIL	03	20	1730	S26	E78	03	26.8	4	(AP					
5417		PALE	03	20	1805	S27	E80	03	27.0		B	EKI	450	12	15	3
5417		LEAR	03	21	0008	S26	E76	03	26.9		B	EKO	600	13	14	3
5417		CULG	03	21	0525	S23	E69	03	26.5		B	DSI	140	5	9	2
5417		RAMY	03	21	1230	S26	E71	03	27.0		B	EKI	530	23	14	3
5417		HOLL	03	21	1524	S25	E69	03	27.0		B	EAO	550	10	8	3
5417	25119	MWIL	03	21	1600	S26	E67	03	26.9	5	(B)					
5417		LEAR	03	22	0044	S25	E63	03	26.9		B	EKC	770	22	14	3
5417		CULG	03	22	0315	S22	E60	03	26.7		B	DAI	200	11	9	2
5417		SVTO	03	22	0755	S27	E61	03	27.1		B	EKI	600	27	13	2
5417		RAMY	03	22	1222	S27	E57	03	26.9		B	EKI	680	29	13	4
5417		HOLL	03	22	1509	S26	E57	03	27.0		B	EKO	610	15	14	3
5417		BOUL	03	22	1535	S26	E57	03	27.1		B	EKO	690	12	12	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
5417	25119	MWIL	03 22 1630	S26 E54	03 26.9	5	(B)					
5417		PALE	03 22 1957	S28 E55	03 27.1		B	EKI	600	23	13	3
5417		LEAR	03 23 0043	S25 E50	03 26.9		B	EAO	600	31	13	3
5417		CULG	03 23 0400	S23 E51	03 27.1		B	EAI	250	8	13	3
5417		SVTO	03 23 1025	S26 E46	03 27.0		BG	EKI	570	33	13	1
5417		RAMY	03 23 1400	S26 E43	03 26.9		B	EKI	560	37	13	4
5417		BOUL	03 23 1535	S26 E43	03 27.0		B	EAI	620	14	13	3
5417	25119	MWIL	03 23 1600	S26 E42	03 26.9	5	(B)					
5417		PALE	03 23 1900	S28 E40	03 26.9		B	EAI	660	22	13	3
5417		LEAR	03 24 0255	S27 E37	03 27.0		B	EKI	680	35	14	2
5417		CULG	03 24 0650	S26 E37	03 27.1		B	EAO	180	7	12	3
5417		RAMY	03 24 1220	S26 E32	03 27.0		B	EKI	650	35	13	3
5417		HOLL	03 24 1500	S27 E27	03 26.7		B	FKI	670	39	20	3
5417		BOUL	03 24 1540	S26 E30	03 27.0		B	EAI	460	16	13	2
5417	25119	MWIL	03 24 1545	S26 E30	03 27.0	6	B					
5417		PALE	03 24 2200	S28 E26	03 26.9		B	EAI	500	21	13	2
5417		LEAR	03 25 0025	S26 E26	03 27.0		B	ESO	410	36	12	3
5417		SVTO	03 25 0753	S26 E23	03 27.1		B	EAO	510	28	13	2
5417		RAMY	03 25 1330	S26 E19	03 27.0		B	EAI	340	31	13	4
5417		HOLL	03 25 1400	S27 E19	03 27.1		B	FAI	320	25	15	3
5417		BOUL	03 25 1515	S26 E17	03 26.9		B	EAI	300	23	12	3
5417		PALE	03 25 1820	S28 E16	03 27.0		B	EAI	300	23	13	2
5417		LEAR	03 26 0015	S26 E15	03 27.2		B	ESO	310	40	12	3
5417		SVTO	03 26 0713	S27 E10	03 27.1		B	EKO	400	20	14	2
5417		RAMY	03 26 1346	S26 E06	03 27.0		B	EAI	350	32	13	3
5417		HOLL	03 26 1450	S27 E05	03 27.0		B	EKI	300	31	13	3
5417		BOUL	03 26 1500	S26 E06	03 27.1		B	DSI	180	16	11	1
5417		PALE	03 26 1935	S26 E03	03 27.0		B	EAI	360	34	12	3
5417		LEAR	03 27 0110	S25 E01	03 27.1		B	EAO	320	33	11	2
5417		SVTO	03 27 0654	S26 W03	03 27.0		B	EAI	400	38	13	2
5417		RAMY	03 27 1258	S27 W07	03 27.0		B	ESI	340	34	11	4
5417	25119	MWIL	03 27 1545	S26 W08	03 27.0	5	(D)					
5417		BOUL	03 27 1707	S26 W08	03 27.1		B	EAI	290	21	11	1
5417		PALE	03 27 1745	S26 W10	03 27.0		B	EAI	350	28	11	3
5417		LEAR	03 28 0040	S25 W14	03 26.9		B	DAI	380	45	10	2
5417		CULG	03 28 0315	S26 W14	03 27.0		B	DAI	280	27	10	2
5417		SVTO	03 28 0807	S26 W15	03 27.2		B	EAO	420	31	12	2
5417		BOUL	03 28 1407	S26 W20	03 27.0		B	ESI	230	9	9	1
5417		HOLL	03 28 1510	S27 W21	03 27.0		B	EKI	290	18	11	3
5417	25119	MWIL	03 28 1545	S26 W22	03 26.9	5	(D)					
5417		RAMY	03 28 1630	S26 W21	03 27.0		B	EAI	320	18	11	3
5417		PALE	03 28 1920	S26 W24	03 26.9		B	EAI	210	31	11	3
5417		LEAR	03 29 0008	S26 W25	03 27.1		B	EAI	350	27	11	3
5417		CULG	03 29 0100	S26 W27	03 26.9		B	ESI	250	18	11	2
5417		SVTO	03 29 0805	S25 W31	03 26.9		B	EAO	230	15	11	2
5417		RAMY	03 29 1245	S24 W32	03 27.0		B	EAI	240	29	11	3
5417	25119	MWIL	03 29 1530	S26 W35	03 26.9	5	(B)					
5417		PALE	03 29 1825	S26 W34	03 27.1		B	ESO	180	18	11	3
5417		LEAR	03 30 0017	S26 W38	03 27.0		B	EAO	200	18	10	3
5417		CULG	03 30 0300	S25 W40	03 27.0		B	ESO	100	9	12	2
5417		SVTO	03 30 1130	S26 W45	03 27.0		B	EAI	160	11	12	3
5417		RAMY	03 30 1330	S25 W46	03 27.0		B	CSI	160	14	12	3
5417		BOUL	03 30 1455	S26 W48	03 26.9		B	CSO	170	7	11	1
5417		HOLL	03 30 1520	S25 W45	03 27.1		B	CSO	180	10	14	3
5417	25119	MWIL	03 30 1615	S26 W49	03 26.9	5	(BG)					
5417		PALE	03 30 1823	S24 W48	03 27.0		B	CSO	50	6	12	2
5417		LEAR	03 31 0347	S27 W52	03 27.1		B	CAO	90	8	13	4
5417		SVTO	03 31 0655	S26 W55	03 27.0		B	ESO	120	9	12	3
5417		RAMY	03 31 1400	S27 W59	03 27.0		B	CSO	170	6	10	4
5417		HOLL	03 31 1410	S26 W60	03 26.9		B	CSO	70	6	14	3
5417	25119	MWIL	03 31 1530	S26 W65	03 26.6	5	(B)					
5417		PALE	03 31 1919	S25 W61	03 27.1		B	CSO	160	7	11	3
5417		LEAR	04 01 0025	S27 W66	03 27.0		B	CSO	90	5	12	2
5417		SVTO	04 01 0820	S27 W71	03 26.9		B	CSO	120	6	13	1
5417	25119	MWIL	04 01 1530	S29 W78	03 26.6	4	(B)					
5417		RAMY	04 01 1535	S25 W79	03 26.6		B	CSO	150	9	13	3
5417		HOLL	04 01 1715	S26 W71	03 27.3		B	CSO	220	10	18	3
5417		PALE	04 01 1735	S25 W78	03 26.8		B	CSO	150	3	10	3
5417		LEAR	04 02 0010	S27 W75	03 27.3		B	CSO	90	4	10	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
5417		SVTO	04	02	0955	S26	W81	03	27.2		B	BXO	30	2	10	1
5417		HOLL	04	02	1415	S28	W78	03	27.6		A	AX	10	1	1	3
5417	25119	MWIL	04	02	1545	S28	W80	03	27.5	3	AF					
5417		RAMY	04	02	1700	S27	W80	03	27.6		A	AX	20	1	1	3
5417		PALE	04	02	2100	S25	W80	03	27.8		A	AX		1	1	3
5417A		RAMY	03	26	1346	N15	E08	03	27.2		B	BXO	20	2	2	3
5417A		HOLL	03	26	1450	N17	E07	03	27.2		A	AX	10	3	2	3
5417A		PALE	03	26	1935	N16	E04	03	27.1		B	BXO		2	3	3
5419		HOLL	03	21	1524	N15	E83	03	27.9		A	HS	60	1	2	3
5419	25123	MWIL	03	21	1600	N14	E81	03	27.8	3	AP					
5419		CULG	03	22	0315	N17	E70	03	27.4		A	HS	20	1	1	2
5419		SVTO	03	22	0755	N14	E74	03	27.9		A	HS	90	1	2	2
5419		RAMY	03	22	1222	N14	E70	03	27.8		A	HS	110	1	2	4
5419		HOLL	03	22	1509	N15	E68	03	27.8		A	HA	60	1	2	3
5419		BOUL	03	22	1535	N15	E68	03	27.8		A	HA	120	1	2	2
5419	25123	MWIL	03	22	1630	N15	E67	03	27.7	5	(AP)					
5419		PALE	03	22	1957	N12	E65	03	27.7		A	HA	50	1	2	3
5419		LEAR	03	23	0043	N15	E62	03	27.7		A	HS	140	1	3	3
5419		CULG	03	23	0400	N17	E59	03	27.6		A	HS	20	1	1	3
5419		SVTO	03	23	1025	N15	E59	03	27.9		A	HS	30	1	1	1
5419		RAMY	03	23	1400	N15	E55	03	27.7		A	HS	110	1	2	4
5419		BOUL	03	23	1535	N14	E54	03	27.7		A	HS	70	1	2	3
5419	25123	MWIL	03	23	1600	N15	E55	03	27.8	5	(AP)					
5419		PALE	03	23	1900	N15	E53	03	27.8		A	HS	140	1	2	3
5419		LEAR	03	24	0255	N16	E51	03	28.0		B	CSO	140	2	14	2
5419		CULG	03	24	0650	N16	E45	03	27.7		A	HS	30	1	1	3
5419		RAMY	03	24	1220	N14	E43	03	27.8		A	HS	60	1	2	3
5419		HOLL	03	24	1500	N15	E42	03	27.8		A	HS	140	1	3	3
5419		BOUL	03	24	1540	N15	E41	03	27.7		A	HS	70	1	2	2
5419	25123	MWIL	03	24	1545	N14	E41	03	27.7	5	AP					
5419		PALE	03	24	2200	N13	E39	03	27.8		A	HS	80	1	2	2
5419		LEAR	03	25	0025	N15	E32	03	27.4		B	CSO	100	2	9	3
5419		SVTO	03	25	0753	N17	E32	03	27.8		A	HA	100	1	2	2
5419		RAMY	03	25	1330	N15	E30	03	27.8		A	HS	400	2	3	4
5419		HOLL	03	25	1400	N15	E29	03	27.8		A	HS	50	1	1	3
5419		BOUL	03	25	1515	N15	E28	03	27.7		A	HA	90	2	2	3
5419		PALE	03	25	1820	N14	E28	03	27.9		A	HS	70	2	2	2
5419		LEAR	03	26	0015	N15	E23	03	27.7		A	HS	60	3	2	3
5419		SVTO	03	26	0713	N15	E19	03	27.7		A	HS	90	1	2	2
5419		RAMY	03	26	1346	N15	E16	03	27.8		A	HS	90	1	2	3
5419		HOLL	03	26	1450	N15	E15	03	27.7		A	HS	70	1	2	3
5419		BOUL	03	26	1500	N15	E15	03	27.8		A	HS	40	1	2	1
5419		PALE	03	26	1935	N15	E13	03	27.8		A	HS	70	1	2	3
5419		LEAR	03	27	0110	N15	E09	03	27.7		A	HS	40	3	1	2
5419		SVTO	03	27	0654	N15	E06	03	27.7		A	HS	70	1	2	2
5419		RAMY	03	27	1258	N14	E02	03	27.7		A	HS	60	1	2	4
5419	25123	MWIL	03	27	1545	N14	E02	03	27.8	5	(AP)					
5419		BOUL	03	27	1707	N15	E02	03	27.9		A	HS	40	1	1	1
5419		PALE	03	27	1745	N13	E01	03	27.8		A	HS	80	1	2	3
5419		LEAR	03	28	0040	N13	W03	03	27.8		A	HS	40	1	3	2
5419		CULG	03	28	0315	N15	W06	03	27.7		A	HS	60	2	2	2
5419		SVTO	03	28	0807	N15	W09	03	27.6		A	HA	80	1	2	2
5419		BOUL	03	28	1407	N14	W10	03	27.8		A	HS	40	1	1	1
5419		HOLL	03	28	1510	N13	W12	03	27.7		A	HS	90	1	2	3
5419	25123	MWIL	03	28	1545	N14	W12	03	27.7	5	(AP)					
5419		RAMY	03	28	1630	N13	W13	03	27.7		A	HS	80	1	2	3
5419		PALE	03	28	1920	N15	W13	03	27.8		A	HS	60	1	2	3
5419		LEAR	03	29	0008	N13	W17	03	27.7		A	HS	70	1	3	3
5419		CULG	03	29	0100	N14	W18	03	27.7		A	HS	50	1	1	2
5419		SVTO	03	29	0805	N14	W21	03	27.7		A	HA	80	1	2	2
5419		RAMY	03	29	1245	N14	W23	03	27.8		A	HA	70	1	2	3
5419	25123	MWIL	03	29	1530	N14	W25	03	27.7	5	(AP)					
5419		PALE	03	29	1825	N14	W27	03	27.7		A	HS	70	1	2	3
5419		LEAR	03	30	0017	N13	W29	03	27.8		A	HS	70	1	2	3
5419		CULG	03	30	0300	N13	W32	03	27.7		A	HS	50	1	1	2
5419		SVTO	03	30	1130	N15	W37	03	27.7		A	HS	80	1	2	3
5419		RAMY	03	30	1330	N13	W37	03	27.8		A	HS	80	1	2	3

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5419		BOUL	03 30 1455	N13 W37	03 27.8		A	HA	80	1	2	1
5419		HOLL	03 30 1520	N14 W38	03 27.8		A	HH	100	1	3	3
5419	25123	MWIL	03 30 1615	N14 W38	03 27.8	5	(AP)					
5419		PALE	03 30 1823	N13 W39	03 27.8		A	HS	50	1	2	2
5419		LEAR	03 31 0347	N13 W43	03 27.9		A	HS	70	2	3	4
5419		SVTO	03 31 0655	N14 W46	03 27.8		A	HS	60	1	2	3
5419		RAMY	03 31 1400	N14 W49	03 27.9		A	HS	60	1	2	4
5419		HOLL	03 31 1410	N12 W50	03 27.8		A	HS	30	1	1	3
5419	25123	MWIL	03 31 1530	N13 W52	03 27.7	5	(AP)					
5419		PALE	03 31 1919	N14 W52	03 27.9		A	HS	70	4	2	3
5419		LEAR	04 01 0025	N14 W57	03 27.8		A	HS	40	2	1	2
5419		SVTO	04 01 0820	N13 W61	03 27.8		A	HS	60	1	2	1
5419	25123	MWIL	04 01 1530	N08 W65	03 27.9	5	(AP)					
5419		RAMY	04 01 1535	N15 W65	03 27.8		A	HS	50	1	1	3
5419		HOLL	04 01 1715	N13 W65	03 27.9		A	HS	50	1	3	3
5419		PALE	04 01 1735	N14 W66	03 27.8		A	HS	50	1	2	3
5419		LEAR	04 02 0010	N13 W69	03 27.9		A	HS	60	1	2	3
5419		SVTO	04 02 0955	N14 W72	03 28.1		A	HS	60	1	2	1
5419		HOLL	04 02 1415	N13 W76	03 27.9		A	HS	30	1	2	3
5419		BOUL	04 02 1420	N14 W77	03 27.9		A	HS	30	1	1	1
5419	25123	MWIL	04 02 1545	N13 W78	03 27.9	4	(AP)					
5419		RAMY	04 02 1700	N14 W78	03 27.9		A	HS	50	1	2	3
5419		PALE	04 02 2100	N15 W83	03 27.7		A	HS	10	1	3	3
5421		HOLL	03 22 1509	S17 E72	03 28.1		A	AX		1		3
5421	25125	MWIL	03 22 1630	S16 E70	03 28.0	3	(AP)					
5421		PALE	03 22 1957	S18 E67	03 27.9		A	AX		1	1	3
5421		LEAR	03 23 0043	S16 E65	03 27.9		A	AX	10	2	2	3
5421		SVTO	03 23 1025	S17 E61	03 28.1		A	AX		1		1
5421		RAMY	03 23 1400	S17 E67	03 28.7		A	AX		1		4
5421		BOUL	03 23 1535	S17 E58	03 28.0				20	1	1	3
5421		PALE	03 23 1900	S18 E58	03 28.2		A	AX	10	1	1	3
5421		LEAR	03 24 0255	S16 E50	03 27.9		B	BXO	20	2	2	2
5421		RAMY	03 24 1220	S17 E46	03 28.0		A	AX		1	1	3
5421		HOLL	03 24 1500	S16 E45	03 28.0		A	AX	10	1	1	3
5421		BOUL	03 24 1540	S17 E44	03 28.0		A	AX	10	1	1	2
5421	25128	MWIL	03 24 1545	S17 E45	03 28.1	4	X					
5421		PALE	03 24 2200	S19 E42	03 28.1		A	AX	10	1	1	2
5421		LEAR	03 25 0025	S16 E40	03 28.0		A	AX	10	1	1	3
5421		SVTO	03 25 0753	S16 E36	03 28.0		A	HR	50	1	1	2
5421		RAMY	03 25 1330	S17 E32	03 28.0		A	AX	10	1	1	4
5421		HOLL	03 25 1400	S17 E32	03 28.0		A	AX		1		3
5421		BOUL	03 25 1515	S16 E31	03 28.0		A	AX		1		3
5421		PALE	03 25 1820	S18 E31	03 28.1		A	AX		1		2
5421		LEAR	03 26 0015	S17 E28	03 28.1		A	AX	10	2	2	3
5421		SVTO	03 26 0713	S18 E24	03 28.1		A	AX	10	2	2	2
5421		RAMY	03 26 1346	S18 E19	03 28.0		A	AX		1	1	3
5421		HOLL	03 26 1450	S17 E19	03 28.1		A	AX		1		3
5421		BOUL	03 26 1500	S18 E19	03 28.1		A	AX		1		1
5421		PALE	03 26 1935	S18 E17	03 28.1		B	CRI	20	9	3	3
5421		LEAR	03 27 0110	S17 E14	03 28.1		B	CRO	30	7	4	2
5421		SVTO	03 27 0654	S18 E11	03 28.1		B	DAO	20	9	4	2
5421		RAMY	03 27 1258	S18 E08	03 28.1		B	CSO	20	8	4	4
5421	25128	MWIL	03 27 1545	S18 E05	03 28.0	4	(BP)					
5421		BOUL	03 27 1707	S17 E04	03 28.0		B	CRO	20	4	3	1
5421		PALE	03 27 1745	S18 E04	03 28.0		B	CSO	20	5	4	3
5421		LEAR	03 28 0040	S18 E01	03 28.1		B	BXO	40	9	3	2
5421		CULG	03 28 0315	S18 W01	03 28.0		B	BXO	10	5	4	2
5421		SVTO	03 28 0807	S18 W05	03 27.9		B	CRO	20	4	3	2
5421		HOLL	03 28 1510	S17 W09	03 27.9		B	BXO	10	3	3	3
5421	25128	MWIL	03 28 1545	S18 W09	03 28.0	3	(BP)					
5421		RAMY	03 28 1630	S18 W09	03 28.0		B	BXO	20	3	2	3
5421		PALE	03 28 1920	S17 W10	03 28.0		B	BXO	10	2	3	3
5421		LEAR	03 29 0008	S18 W13	03 28.0		B	BXO	20	2	2	3
5421		CULG	03 29 0100	S17 W12	03 28.1		A	AX		4	2	2
5421		SVTO	03 29 0805	S19 W19	03 27.9		A	HR	10	1	1	2
5421		RAMY	03 29 1245	S17 W21	03 27.9		A	AX		1		3
5421		RAMY	03 30 1330	S24 W19	03 29.1		A	AX		1		3
5421		LEAR	03 31 0347	S23 W27	03 29.1		B	BXO	10	2	4	4

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

MARCH 1989

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
5421		PALE	04 02 2100	S19 W65	03 29.0		A	AX		2		3
5422A	25137	MWIL	03 31 1530	N15 W28	03 29.5	3	(AP)					
5422		SVTO	03 23 1025	N21 E80	03 29.6		A	HS	20	1	1	1
5422		RAMY	03 23 1400	N21 E77	03 29.5		B	CSO	60	4	6	4
5422	25126	MWIL	03 23 1600	N20 E80	03 29.8	4	AP					
5422		PALE	03 23 1900	N19 E78	03 29.7		A	HA	60	2	2	3
5422		LEAR	03 24 0255	N20 E69	03 29.4		B	CSO	140	2	4	2
5422		CULG	03 24 0650	N21 E67	03 29.4		A	HS	20	1	1	3
5422		RAMY	03 24 1220	N19 E65	03 29.5		B	CSO	110	2	5	3
5422		HOLL	03 24 1500	N22 E65	03 29.6		B	CSO	130	3	7	3
5422		BOUL	03 24 1540	N20 E64	03 29.5		B	CSO	100	2	4	2
5422	25126	MWIL	03 24 1545	N20 E65	03 29.6	5	AP					
5422		PALE	03 24 2200	N19 E61	03 29.6		B	CSO	100	2	4	2
5422		LEAR	03 25 0025	N21 E59	03 29.5		B	CSO	90	3	4	3
5422		SVTO	03 25 0753	N23 E57	03 29.7		B	CSO	100	2	4	2
5422		RAMY	03 25 1330	N20 E53	03 29.6		B	CSO	110	4	5	4
5422		HOLL	03 25 1400	N20 E52	03 29.6		B	CSO	20	3	3	3
5422		BOUL	03 25 1515	N20 E52	03 29.6		B	CSO	50	2	3	3
5422		PALE	03 25 1820	N19 E51	03 29.6		B	CSO	70	3	4	2
5422		LEAR	03 26 0015	N21 E48	03 29.7		B	CSO	70	4	4	3
5422		SVTO	03 26 0713	N21 E45	03 29.7		B	CAO	60	3	4	2
5422		RAMY	03 26 1346	N19 E41	03 29.7		B	CSO	60	3	3	3
5422		HOLL	03 26 1450	N20 E41	03 29.7		A	HS	30	2	2	3
5422		BOUL	03 26 1500	N20 E42	03 29.8		A	HS	40	2	1	1
5422		PALE	03 26 1935	N20 E39	03 29.8		A	HA	40	1	2	3
5422		LEAR	03 27 0110	N20 E36	03 29.8		B	CAO	30	3	1	2
5422		SVTO	03 27 0654	N21 E33	03 29.8		A	HA	60	3	2	2
5422		RAMY	03 27 1258	N21 E28	03 29.7		A	HS	50	2	2	4
5422	25126	MWIL	03 27 1545	N19 E27	03 29.7	5	(AP)					
5422		BOUL	03 27 1707	N20 E27	03 29.8		A	HS	40	2	1	1
5422		PALE	03 27 1745	N19 E27	03 29.8		A	HS	50	2	2	3
5422		LEAR	03 28 0040	N20 E23	03 29.8		B	CSO	70	3	2	2
5422		CULG	03 28 0315	N21 E21	03 29.7		A	HS	30	2	1	2
5422		SVTO	03 28 0807	N21 E19	03 29.8		A	HA	60	3	2	2
5422		BOUL	03 28 1407	N20 E16	03 29.8		A	HS	40	2	1	1
5422		HOLL	03 28 1510	N19 E15	03 29.8		A	HA	40	1	2	3
5422	25126	MWIL	03 28 1545	N19 E14	03 29.7	4	(AP)					
5422		RAMY	03 28 1630	N20 E14	03 29.7		A	HS	40	2	2	3
5422		PALE	03 28 1920	N19 E13	03 29.8		A	HS	40	2	2	3
5422		LEAR	03 29 0008	N19 E10	03 29.8		B	CSO	20	3	2	3
5422		CULG	03 29 0100	N20 E10	03 29.8		A	HS	10	2	1	2
5422		SVTO	03 29 0805	N20 E06	03 29.8			HA	40	2	1	2
5422		RAMY	03 29 1245	N20 E04	03 29.8		A	HS	20	2	2	3
5422	25126	MWIL	03 29 1530	N19 E02	03 29.8	5	(AP)					
5422		PALE	03 29 1825	N19 E01	03 29.8		A	HS	20	1	2	3
5422		LEAR	03 30 0017	N19 W03	03 29.8		A	AX	20	2	1	3
5422		CULG	03 30 0300	N20 W04	03 29.8		A	HR	10	2	1	2
5422		SVTO	03 30 1130	N21 W08	03 29.9		B	BXO	10	3	2	3
5422		RAMY	03 30 1330	N19 W09	03 29.9		A	AX		2	2	3
5422		BOUL	03 30 1455	N19 W09	03 29.9		A	AX	10	2	1	1
5422		HOLL	03 30 1520	N19 W10	03 29.9		A	AX	20	2	2	3
5422	25126	MWIL	03 30 1615	N21 W09	03 30.0	4	(AP)					
5422		PALE	03 30 1823	N23 W11	03 29.9		B	BXO	10	4	3	2
5422		LEAR	03 31 0347	N21 W17	03 29.8		B	BXO	20	4	4	4
5422		RAMY	03 31 1400	N22 W23	03 29.8		B	BXO	20	4	6	4
5422		HOLL	03 31 1410	N21 W23	03 29.8		B	BXO	10	5	5	3
5422	25126	MWIL	03 31 1530	N22 W24	03 29.8	5	(BP)					
5422		PALE	03 31 1919	N22 W25	03 29.9		B	BXO	20	8	6	3
5422		LEAR	04 01 0025	N22 W30	03 29.8		B	CRO	20	8	6	2
5422		SVTO	04 01 0820	N22 W35	03 29.7		B	BXO	30	6	6	1
5422	25140	MWIL	04 01 1530	N18 W43	03 29.5	5	(AP)					
5422		RAMY	04 01 1535	N23 W41	03 29.6		A	AX	10	2	1	3
5422		HOLL	04 01 1715	N22 W42	03 29.6		A	AX	20	2	2	3
5422		PALE	04 01 1735	N23 W42	03 29.6		A	AX	10	2	1	3
5422		LEAR	04 02 0010	N22 W44	03 29.7		B	DSO	30	4	8	3
5422		HOLL	04 02 1415	N21 W52	03 29.7		B	BXO	20	7	13	3
5422		BOUL	04 02 1420	N26 W58	03 29.2		A	HS	30	1	1	1

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

MARCH 1989

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
5422	25140	MWIL	04 02 1545	N20 W58	03 29.3	5	(B)					
5422		RAMY	04 02 1700	N22 W59	03 29.3		B	BXO	20	5	4	3
5422		PALE	04 02 2100	N23 W61	03 29.3		B	BXO	30	7	8	3
5422		LEAR	04 03 0025	N21 W60	03 29.5		B	BXO	120	11	13	2
5422		SVTO	04 03 0726	N23 W65	03 29.4		B	CRO	40	7	13	1
5422		HOLL	04 03 1600	N22 W68	03 29.5		B	BXO	90	10	14	3
5422		RAMY	04 03 1700	N19 W69	03 29.5		B	BXO	20	3	2	2
5422	25140	MWIL	04 03 1745	N20 W75	03 29.1	4	(AF)					
5422		PALE	04 03 1815	N23 W68	03 29.6		B	BXO	30	7	10	3
5422		CULG	04 04 0344	N21 W74	03 29.6		B	CSO	80	3	9	1
5422		SVTO	04 04 0631	N21 W72	03 29.8		B	CSO	90	5	15	1
5422		BOUL	04 04 1410	N23 W73	03 30.1		A	AX		1	1	2
5422		HOLL	04 04 1540	N22 W76	03 29.9		B	BXO	90	7	10	3
5422		PALE	04 04 2000	N23 W86	03 29.3		B	BXO	10	3	5	3
5435		BOUL	04 02 1420	N22 W49	03 29.9		B	CSO	60	2	4	1
5435	25142	MWIL	04 02 1545	N23 W50	03 29.9	4	(B)					
5435		RAMY	04 02 1700	N24 W51	03 29.9		B	BXO	10	3	5	3
5435		PALE	04 02 2100	N27 W53	03 29.8		B	BXO	30	3	6	3
5435		RAMY	04 03 1700	N22 W63	03 30.0		B	BXO	40	8	7	2
5435	25142	MWIL	04 03 1745	N23 W65	03 29.8	4	(B)					
5435		BOUL	04 04 1410	N21 W80	03 29.5		B	CSO	40	2	2	2
5435	25142	MWIL	04 04 1545	N22 W77	03 29.8	5	(BF)					
5435		RAMY	04 04 1620	N22 W74	03 30.1		B	BXO	40	8	7	2
5437		PALE	04 02 2100	N40 W40	03 30.7		B	BXO	10	3	3	3
5437		LEAR	04 03 0025	N37 W42	03 30.7		B	BXO	40	3	4	2
5437		SVTO	04 03 0726	N39 W48	03 30.5		B	CRO	30	2	5	1
5437		HOLL	04 03 1600	N37 W52	03 30.6		B	BXO	30	2	6	3
5437		RAMY	04 03 1700	N37 W50	03 30.8		B	BXO	20	2	5	2
5437	25145	MWIL	04 03 1745	N37 W52	03 30.6	5	(B)					
5437		PALE	04 03 1815	N39 W53	03 30.5		B	BXO	20	2	8	3
5437		SVTO	04 04 0631	N37 W60	03 30.5		B	BXO	10	3	5	1
5437		HOLL	04 04 1540	N36 W65	03 30.5		A	AX	10	1	1	3
5437	25145	MWIL	04 04 1545	N37 W67	03 30.3	4	(AP)					
5437		PALE	04 04 2000	N38 W75	03 29.9		B	BXO	10	2	4	3
5426		RAMY	03 26 1346	N13 E69	03 31.8		A	AX	10	2	1	3
5426		HOLL	03 26 1450	N14 E69	03 31.8		A	AX	10	2	2	3
5426		LEAR	03 27 0110	N15 E66	04 1.0		B	BXO	20	5	5	2
5426		SVTO	03 27 0654	N15 E64	04 1.1		B	CRO	20	7	6	2
5426		RAMY	03 27 1258	N16 E57	03 31.9		B	BXO	20	8	5	4
5426	25130	MWIL	03 27 1545	N14 E57	04 1.0	4	(BP)					
5426		PALE	03 27 1745	N15 E55	03 31.9		B	BXO	20	5	6	3
5426		LEAR	03 28 0040	N15 E51	03 31.9		B	BXO	50	8	6	2
5426		CULG	03 28 0315	N17 E49	03 31.8		B	BXO	10	5	5	2
5426		SVTO	03 28 0807	N17 E48	04 1.0		B	CRO	30	6	6	2
5426		BOUL	03 28 1407	N15 E43	03 31.8		B	BXO	10	2	4	1
5426		HOLL	03 28 1510	N15 E43	03 31.9		B	BXO	10	4	5	3
5426	25130	MWIL	03 28 1545	N14 E43	03 31.9	3	(B)					
5426		RAMY	03 28 1630	N16 E41	03 31.8		B	BXO	30	4	7	3
5426		PALE	03 28 1920	N14 E41	03 31.9		B	BXO	20	5	5	3
5426		LEAR	03 29 0008	N14 E38	03 31.9		B	BXO	30	5	6	3
5426		CULG	03 29 0100	N16 E37	03 31.8		B	BXO	10	4	4	2
5426		RAMY	03 29 1245	N14 E31	03 31.9		B	BXO	10	6	7	3
5426		LEAR	03 30 0017	N15 E25	03 31.9		B	BXO	20	5	7	3

Stations reporting:

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

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
01	0110	0116	0134	1-	1			1			0110		5378
01	0212	0218	0235D	1-	1				1		No flare		
01	0235	0241	0255D	1-	1				1		No flare		
01	0312	0321	0336	1-	1				1		No flare		
01	0347	0416	0536	1+	3			1	1		*		
01	0547	0559	0612D	1-	3			1	1		*		
01	0614	0622	0702	1	5			1	1	1	0607	C5.2	5378
01	0843	0849	0900	1-	1				1		No flare		
01	0939	0941	1012	1	3		2				No flare		
01	1016	1031	1123	2	5	3	4	1	1	3	1012	M1.0	
01	1019	1023	1045	1+	1					1	1012	M1.0	
01	1043	1053	1123	1+	1		1				*		
01	1153	1155	1213	1	3		2				*		
01	1207	1219	1420	3	5	4	4	1	1	3	1205	M2.3	5378
01	1740	1742	1821	2	3					5	1741E	C3.8	5377
01	2119	2123	2145	1-	5			1		4	2114	C4.9	5378
01	2227	2230	2310	1-	3			1		1	2224	C3.7	
02	0003	0011	0021	1-	1			1			2352	C5.8	5378
02	0020	0028	0038	1-	1				1		No flare		
02	0158	0212	0252D	1-	3			1	1		0211	C2.7	5378
02	0258	0328	0334D	2-	3			1	1		0312		5378
02	0334E	0349	0413D	3+	5			1	1	1	0331	M2.4	
02	0413E	0420	0549	3-	5			1	1	1	0411		5378
02	0616	0623	0721D	3-	5			1	1	1	0612	M1.2	
02	0720E	0724	0800D	1-	1			1			No flare		
02	0804	0830	0852D	1-	5			1	2		No flare		
02	0852E	0911	1003	3	5	4	2	1	2	3	0900	M2.4	5383
02	0931	0935	1006D	1	1				1		No flare		
02	1012	1016	1020	1-	3	1			1	1	No flare		
02	1043	1053	1133	2-	1		1				No flare		
02	1149	1200	1350	2+	5	4	3	1	1	2	1147	M1.7	5378
02	1433	1453	1516	1-	1		1				1440		5378
02	1839	1846	1906	1-	5			1		6	1830	C8.5	
02	2147	2149	2210	1	1					1	2153E	C3.3	
02	2155	2202	2224	1-	1			1			*		
02	2250	2255	2313	1-	1			1			*		
02	2358	0009	0116	1-	3			1	1		0011	C3.0	5385
03	0037E	0043	0116	1-	3			1	1		0011	C3.0	5385
03	0337	0340	0404	1-	3			1			No flare		
03	0409	0412	0427	1-	1			1			No flare		
03	0546	0550	0608	1-	1			1			0540		5377
03	0702	0717	0823	2+	5		1	1	2	1	No flare		
03	0744E	0754	0826D	3+	1			1			No flare		
03	0826E	0849	0923D	3+	5	1	1	1	1		No flare		
03	0916	0920	0947	1+	5		1			2	No flare		
03	0923E	0932	1044	3	5	1	1	1	1		0922	M1.8	
03	1221	1231	1246	1	1					1	No flare		
03	1800	1805	1900	2+	1					1	1755	C2.1	5377
03	2124	2151	2300	1-	1			1			2135	C2.1	
04	0156	0200	0214	1-	3			1	1		0154	C1.3	
04	0457	0506	0620	1+	3			1	1		0455	C5.9	
04	1043	1056	1118	1	1		1				*		
04	1630	1632	1701	1+	5					4	1631	C1.8	
04	2105	2110	2124	1-	1			1			*		
04	2212	2218	2300	1-	3			1		1	2210	C3.2	
05	0123	0133	0159D	1-	3			1	1		0123E	C3.3	
05	0201	0228	0341	3-	3			1	1		0215	M1.0	
05	0632	0645	0727	1-	3			1	1		No flare		
05	0751	0804	0834	1-	5	1		1	2		0754	C2.2	
05	0832E	0836	0903	1-	5	1	2	1	2	2	0834	C3.7	
05	0835	0842	0915D	1	3			1		1	No flare		

* = No flare patrol

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
05	0915E	0933	1052	2	5	2	2	1	2	2	0912	C7.7	
05	1040	1055	1126	1+	5	3	2	1	1	1	1036	C6.9	
05	1205	1214	1230	1-	3	2			1		No flare		
05	1431	1434	1445	1-	3				1	1	1418	C2.5	
05	1542	1544	1550	1-	3				1	1	No flare		
05	1828	1832	1900	2-	1					2	1828	C4.0	
05	1915	1919	1943	1+	3					3	1911	C7.5	
05	1949	1958	2004	1-	5	1				4	1945	C7.6	
05	2046	2053	2112D	1-	5			1		5	2045E	C5.8	
05	2133E	2138	2228	2	5	1		1		4	2132	M1.5	
05	2237	2242	2256	1-	1			1			*		
05	2314	2318	2354D	1-	1			1			2312	C4.8	
05	2352E	0000	0017	1-	1			1			2356	C5.2	5379
06	0017E	0022	0035D	1-	3			1	1		0017E	C5.1	
06	0035E	0040	0047D	1	3			1	1		0034	C7.1	
06	0047E	0059	0230	3-	5	1		1	1		0054	M3.0	5395
06	0314	0326	0400D	3+	3			1	1		0311	M2.5	
06	0400	0408	0430D	1+	1			1			No flare		
06	0430E	0500	0600D	2	3			1	1		0430	C4.6	
06	0600E	0638	0815	2+	5		1	1	1		0558	C9.7	
06	0854	0907	0930	1-	3		1	1			No flare		
06	0952	0959	0959D	1-	3	1			1		No flare		
06	1012	1019	1049	1-	3			1	1		No flare		
06	1135	1150	1221	2-	5	4	2	1	1	2	1134	C8.2	
06	1214	1216	1230	1	1		1				1211E		5395
06	1229	1235	1300	1-	3	1	1		1	1	1228	C4.9	5395
06	1315	1322	1322D	1-	3	1	1		1		No flare		
06	1358	1410	1500	1-	5	5	3	1	1	7	1354	X15.0	5395
06	2051	2058	2116	1-	5	1		1		6	No flare		
06	2215	2226	2325	1-	5	1		1		2	No flare		
06	2351	0011	0104	1-	3			1	1		2350		5395
07	0103	0114	0130	1-	1			1			No flare		
07	0138	0150	0150D	1-	3			1	1		No flare		
07	0221	0223	0243	1-	3			1	1		No flare		
07	0332	0335	0351	1-	3			1	1		No flare		
07	0528	0605	0627D	3	3			1	1		0519	M2.0	5395
07	0629E	0637	0720D	3-	1			1			No flare		
07	0720E	0731	0820D	2-	5		2	1	1		0720		5395
07	0820E	0827	0852	1-	3			1	1		No flare		
07	0902	0919	0929	1-	3			1	1		0900		5395
07	0954	1035	1254	3+	1		1				No flare		
07	1111	1127	1200	1-	1		1		1		1109	C6.5	
07	1318	1328	1420	3+	5	4	4		1	6	1319	M4.1	5395
07	1342	1346	1355	2	5	3	2			5	1340	M2.4	
07	1451	1459	1620	3+	5	4	4		1	9	1447	X1.8	5395
07	1653	1706	1807	1+	5		2	1	1	7	1653	M3.8	5395
07	1810	1817	1900	2	3					5	1809	C8.9	
07	2000	2003	2020	1-	3					3	2003	C2.5	
07	2123	2128	2153	1-	5	1				6	2120E	C9.2	
07	2224	2248	2316	1+	5	1				4	2223	M4.2	5395
08	0117	0123	0135D	1	1				1		0115	C5.7	5395
08	0135	0138	0143	1-	1				1		No flare		
08	0148	0152	0158	1-	1				1		0146	C3.5	5395
08	0201	0203	0212	1-	1				1		0202		5395
08	0214	0217	0234	1-	1				1		0212	C2.9	5395
08	0304	0315	0327D	2+	3			1	1		0303	C7.6	5395
08	0327E	0332	0425	2	3			1	1		No flare		
08	0447	0502	0524D	2-	3			1	1		0456	C7.6	5395
08	0524E	0534	0622D	1+	3			1	1		0522		5395
08	0617	0629	0700D	1-	3			1	1		0628	C4.1	5395
08	0700E	0705	0723D	1-	5			1	2		0654	C5.4	5395
08	0723E	0728	0750	1-	5			1	2		0720	C4.6	
08	0801	0810	0823	1-	1			1			0757		5395
08	0828	0840	1047	3+	5	4	2	1	2	3	0826	M5.7	5395
08	0904	0912	1012	2	1		1				No flare		

*No flare patrol.

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08	1032	1052	1212	3-	1		1				No flare		
08	1226	1230	1235	1-	3	1	1		1		No flare		
08	1240	1245	1300	1	5	1	2	1	1	4	No flare		
08	1303	1308	1308D	1-	3	1			1		1303	C9.0	5395
08	1314	1325	1420	1	5	2	2	1	1		No flare		
08	1413	1415	1420	1-	3	1	1		1		1413E	M1.2	
08	1432	1435	1435D	1	3	1	1		1	1	No flare		
08	1445	1453	1520	3-	3	2	3		1	1	No flare		
08	1728	1731	1750	1	3					2	1714E	C3.7	5395
08	1806	1812	1835	1+	3					2	1801	C4.4	5395
08	1853	1856	1902	1+	5	2				7	1850	M4.6	
08	2115	2118	2148	1+	3					2	2109		5398
09	0041	0052	0118	1-	3			1	1		No flare		
09	0154	0200	0227	1-	3			1	1		0152		5395
09	0226	0229	0238D	1-	3			1	1		0228		5395
09	0241	0251	0312D	3-	3			1	1		0239	M1.8	5395
09	0312E	0322	0359	2-	1			1			0303	C5.8	5395
09	0408	0414	0452D	1	3			1	1		0406	C7.1	5395
09	0452E	0508	0545D	2-	5			1	1	1	0449	C6.9	5395
09	0545E	0549	0704D	1-	1			1			No flare		
09	0704	0715	0726	1-	1			1			No flare		
09	0750	0758	0806D	1-	5			1	2	2	0750	C4.4	
09	0805E	0812	0833D	1-	5			1	2	1	No flare		
09	0835E	0840	0908D	1-	5		1	1	2	3	0836E	C4.4	
09	0910	0915	0928	1-	5	1		1	2	1	No flare		
09	1006	1015	1048	3+	5	4	4	1	1	3	1003	M7.6	
09	1210	1217	1230	1-	3		3		1		1215		5395
09	1306	1314	1336D	2	5	4	4	1	1	6	1256	M2.4	5395
09	1336E	1350	1444	1+	5	2	1	1	1		1334E		5398
09	1431	1433	1521	2-	1		1				1400E		5395
09	1510	1519	1519D	1-	1				1		1515	X4.0	5395
09	1525	1541	1706	3+	5	4	2	1	1	9	1515	X4.0	5395
09	1657	1701	1715	1	3					3	1652		5395
09	1755	1802	1910	2+	1					1	1744		5395
09	1921	1935	2011	1+	5			1		5	1913	M1.2	5395
09	2219	2223	2258	1-	1			1			2226		5395
09	2306	2324	2336D	2	3	1		1			2304	M1.3	5395
09	2333E	2354	0056	2+	1			1			2334	M1.6	
10	0059	0119	0200	1	3			1	1		0107	C6.4	5395
10	0203	0214	0236D	1-	3			1	1		0201	C3.2	
10	0236	0247	0343D	3-	5			1	1	1	No flare		
10	0315	0317	0325	1-	1					1	0300E	M1.4	
10	0328	0340	0344D	1+	1				1		No flare		
10	0343E	0403	0516	2	3			1	1		0345	C7.5	5395
10	0524	0543	0611D	1-	5			1	1	1	No flare		
10	0611	0641	0702D	1	3			1	1		0610	C9.5	5395
10	0702E	0713	0720D	1-	5	1		1	2		0703	C4.9	5395
10	0720E	0723	0736	1-	5		1	1	2		0719		5395
10	0733	0736	0743D	1-	1				1		No flare		
10	0743	0800	0858	3+	5	2	3	1	2	1	0744		5395
10	0838	0840	0848	1-	1				1		No flare		
10	0850	0853	0905	1-	1				1		No flare		
10	0932E	0943	1025	2	5	2		1	2	1	0915	C9.3	5395
10	0946	0957	1034D	3+	3	1			1		0941		5395
10	1012	1016	1025	1-	1				1		No flare		
10	1039	1046	1106	2-	5			1	1	1	No flare		
10	1106E	1141	1253	3+	5	4	1	1		2	1109E	M4.5	5395
10	1303	1321	1400	1+	5	2	2	1	1	7	1304	C6.2	5395
10	1400	1407	1420	1-	1		1		1		No flare		
10	1434	1453	1526D	1-	3			1		2	1433		5395
10	1526E	1534	1626	1+	5	2	4	1	1	7	1524	M1.1	5395
10	1645	1658	1720	2	3					3	1651E		5395

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10	1732	1734	1815	1+	5					6	1732	M1.1	5395
10	1901	1920	2020	3	5	2				7	1848	X4.5	5395
10	2030	2039	2119	1-	1			1			No flare		
10	2146	2156	2231	1-	1			1			No flare		
11	0010	0015	0029D	1-	1			1			No flare		
11	0031E	0041	0104D	1-	3			1	1		0036		5395
11	0103	0114	0130	1-	3			1	1		No flare		
11	0150	0209	0253	2-	3			1	1		0154	M1.6	5395
11	0331	0347	0455	3	5			1	1	1	0330	M2.0	5395
11	0507	0508	0514D	1-	1				1		0503		5395
11	0515	0520	0610	2+	1					1	0514	M2.3	5395
11	0517	0535	0634	3+	3			1	1		0514	M2.3	5395
11	0639	0653	0747	2	5		1	1	1	1	0642	M1.2	5395
11	0756E	0810	0823D	1-	3			1	1		No flare		
11	0823E	0851	0905	1-	5		2	1	2		0829	M9.7	5395
11	0901E	0907	0945D	3+	5	4	4	1	2	3	0829	M9.7	5395
11	0945E	0953	1013D	2-	5	1	2	1	2	1	No flare		
11	1013E	1016	1047	1+	5	1	2	1	1	1	1010E	C8.3	5395
11	1055	1104	1123D	1-	3		1	1	1		No flare		
11	1125	1130	1140	1-	3	1	1		1		No flare		
11	1226	1238	1315	2	5	4	4	1	1	4	1220	C9.9	5395
11	1402	1415	1502	2	5	4	4	1	1	9	1402	M1.0	5395
11	1518	1520	1530	1-	3					2	1520E		5395
11	1536	1550	1703	3-	5	4	4	1	1	7	1535	X1.2	5395
11	1638	1643	1700	1	3					2	1633E		5395
11	1729	1730	1745	1-	3					4	1727		5395
11	1830	1836	1856	1	3					2	1818E	M1.2	5395
11	1934	1940	2046	2+	5	2		1		6	1933	X1.3	5395
11	2301	2321	2341D	1+	5	1		1		1	2300	C8.6	
11	2341E	2346	0017D	1-	1			1			No flare		
12	0017E	0031	0144D	3+	5	1		1	1		0016	M7.3	5395
12	0147E	0153	0241D	1-	5			1	1	1	No flare		
12	0241E	0249	0301D	1-	3			1	1		No flare		
12	0301E	0305	0358	1-	3			1	1		No flare		
12	0524	0534	0607D	2	5			1	1	1	0523	C7.5	5395
12	0552	0555	0603D	1-	3				1	1	No flare		
12	0607E	0615	0653	2	5		1	1	2	1	0605	C8.5	5395
12	0617	0623	0630	1-	5				2	1	0605	C8.5	5395
12	0658E	0706	0729	1-	5		1	1	1		No flare		
12	0736	0749	0818D	2-	5			1	1	1	0736		5395
12	0819E	0830	1012	3+	5	4	3	1	2	3	0816	M6.7	
12	0842	0858	0930	1+	3	1	1			1	0824		5395
12	1227	1234	1320D	1-	5	1	1	1	1	1	1223	C4.5	
12	1320E	1326	1404	1-	5	1	4	1	1	4	No flare		
12	1458	1513	1606	2+	5	4	4	1	1	9	1456	M2.5	5395
12	1538	1541	1603D	1	1					1	1538	C4.7	
12	1604	1607	1618D	1-	1					1	1603	M1.8	
12	1618	1620	1632	1-	3					4	1603	M1.8	
12	1624	1628	1651	1-	5	1	3	1	1	2	1632	C5.4	
12	1815	1817	1830	1-	1					1	1816	C3.6	
12	1900	1903	1941	2	3					3	1901	C6.0	5395
12	2030	2037	2145	2+	3					6	2028	M6.3	5395
12	2032	2103	2207D	3	5	2		1		2	2032		5397
12	2207E	2232	2335D	2	3	1		1			2206		5395
12	2335E	2341	0024D	2	3	1		1			2335	M1.4	5395
13	0025E	0031	0111D	1-	3			1	1		0024		5395
13	0111E	0139	0230D	2+	5	1		1	1		No flare		
13	0230E	0235	0248D	1-	3			1	1		0229	C4.3	
13	0250E	0328	0447D	3+	5	1		1	1		0259		5395
13	0447E	0452	0507D	2	1			1			0448		5395
13	0507E	0512	0551D	1	1			1			No flare		

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13	0521E	0554	0625	1-	3			1	1		0533		5395
13	0607E	0614	0625D	1	3			1	1		No flare		
13	0627E	0636	0704D	3	5	1	3	1	2		0621		5395
13	0704E	0718	0801D	3+	5	1	2	1	1		0712E		5395
13	0801E	0805	0918D	2+	3		1	1	1		No flare		
13	0825	0829	0835	1-	1		1		1		No flare		
13	0844	0853	0910	1	3	1			1		0836		5395
13	0918E	0955	1040	1+	5	1		1	1		0933	C5.2	
13	1004	1010	1020	1+	3	1		1			0942E	C7.0	
13	1034	1040	1050	1-	3	1	1		1		No flare		
13	1108	1152	1305D	3-	5	1	1	1	1		1145		5395
13	1305E	1325	1411	3-	5	4	4	1	1	7	1300	M1.7	5395
13	1518	1524	1524D	1-	5	2	2		1		1521E		5395
13	1559	1602	1610	1+	1	1					No flare		
13	1708	1719	1750	1-	3			1	1		No flare		
13	1724	1735	1750	1-	5	1			1	6	1731	M1.5	5395
13	2251	2300	2357D	1+	3	1		1			2211	M1.2	5395
14	0002	0021	0058D	1-	5	1		1	1		0002	C9.4	
14	0046E	0103	0149	2	5	1		1	1		No flare		
14	0120	0124	0145	1-	1				1		No flare		
14	0128	0202	0223D	1+	3			1	1		No flare		
14	0225E	0235	0240D	2	3			1	1		No flare		
14	0240E	0309	0431D	3+	3			1	1		0219	M2.0	5395
14	0431E	0436	0511D	1-	1			1			No flare		
14	0511E	0533	0605	1-	1			1			0509E	C3.7	
14	0618	0654	0753D	3	5	1	1	1			0618	C9.3	5395
14	0753E	0809	0837D	1	5	1		1	2		0759		5395
14	0837	0846	0927D	1+	5	1	1	1	2		0835	M1.6	5395
14	0927E	0932	1022	2	5	3	3	1	2	2	0926		5395
14	1021	1027	1050	1-	3	1			1		No flare		
14	1049	1059	1121	1-	1			1			No flare		
14	1210	1214	1220	1-	3	1			1		No flare		
14	1242E	1254	1358	2+	3		2				No flare		
14	1303	1311	1350	1-	5	1	3	1	1		1259	C6.6	5395
14	1341	1344	1350	1-	1		1		1		No flare		
14	1351	1436	1514	2	5	1	3	1	1	1	1350		5404
14	1550	1605	1635	1-	1			1			1600E		5395
14	1644	1658	1830	2+	5		1			4	1646		5395
14	1648	1722	1753	1+	5	2	1	1		3	1646	X1.1	5395
14	1936	1950	2030D	1+	5	1		1		6	1928	M1.4	5395
14	2028	2030	2049	2+	5					4	No flare		
14	2030E	2103	2216	2+	1			1			No flare		
14	2240	2246	2302	1-	1			1			No flare		
14	2357E	0020	0047	1+	3			1	1		No flare		
15	0102	0107	0115	1-	1				1		No flare		
15	0122	0140	0200	1-	3			1	1		No flare		
15	0245	0316	0356D	1+	3			1	1		No flare		
15	0400E	0414	0442D	1-	1			1			No flare		
15	0459E	0506	0549	1-	3			1	1		0457	C5.8	5395
15	0622	0652	0822D	3+	5	2	2	1	1	1	0624	M4.8	5395
15	0745	0747	0818D	2	1					1	No flare		
15	0822E	0838	1020	3+	5	3	1	1	1	2	0837E		5395
15	1200	1222	1315	2+	5	4	4	1	1	3	1227	M1.4	5395
15	1333	1348	1430D	3-	5	4	4	1	1	5	1333	M1.1	5395
15	1430	1434	1450	1-	1		1		1		1424	C4.5	5404
15	1430E	1459	1539D	1+	1			1			No flare		
15	1539E	1544	1619	1-	1			1			No flare		
15	1652	1701	1813	2+	5	3	3	1	1	7	1650	M8.4	5395
15	2054	2100	2110D	1-	1			1			No flare		
15	2110E	2124	2245	1	3	1		1			2121	C8.0	5395
16	0139	0145	0154D	1-	1				1		0140		5398
16	0155	0219	0614D	3	5	1		1	1		0154	M3.1	5395
16	0614E	0624	0652D	1	5			1	1	1	No flare		
16	0648E	0658	0754	1-	3			1	1		No flare		
16	0835	0856	0924	1-	5	2		1	1	1	No flare		
16	0954	1008	1134	2	5	4	3	1	2	3	0951	M1.0	

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
16	1041	1044	1100	1-	3	1	1		1		No flare		
16	1058	1059	1108	1-	1					1	No flare		
16	1218	1235	1328	1	5	1	2	1	1	1	1222E	C6.2	5395
16	1256	1259	1300	1-	3	1				1	No flare		
16	1419	1444U	1501	2	3		2				No flare		
16	1524	1530	1630	1-	5	4	4		1	9	1524		5395
16	1752	1802	1830	1	5			1		5	1732	M2.4	5395
16	1914E	1926	2000	2+	5	1		1		6	No flare		
16	2037	2042	2348	2+	5	1				6	2035	X1.4	5395
16	2206	2218	2315D	2-	5			1		2	2203	M1.6	5407
16	2315E	2322	0000	1	3			1		1	2314	C8.2	
17	0017	0024	0036	1-	3			1	1		No flare		
17	0103	0118	0147	1-	1			1			0107		5395
17	0157	0200	0215D	1	3			1	1		0150	C7.6	5395
17	0221	0251	0322D	3	3			1	1		0220		5395
17	0322E	0336	0425D	2	3			1	1		0257		5395
17	0425E	0432	0530	1-	3			1	1		No flare		
17	0519	0537	0559D	1-	3			1	1		0532	C6.6	5395
17	0559E	0603	0643	1+	5			1	1	1	0556	C7.5	5395
17	0716	0722	1017	3+	5	4	3	1	1	3	0715	M6.8	5395
17	0802	0807	0812D	1-	5	1			2		0807		5395
17	0918	0933	1010	1	3	1	1		1		No flare		
17	1106	1123	1230	3-	5	4	5	1	1	3	1107	M4.1	5395
17	1513	1532	1602	2	5	1				2	1546	C4.0	
17	1610	1615	1640	1+	1					1	1601	C3.9	5395
17	1724	1746	1920	2+	5	1	1	1		3	1729	X6.5	5395
17	1736	1820	1846	2+	1	1					1729	X6.5	5395
17	2002	2020	2107	1+	5	1		1		3	2007	M1.4	5403
17	2109	2109	2111	1-	1					1	No flare		
17	2118	2121	2139D	1-	1			1			No flare		
17	2139E	2147	2211D	1-	1			1			2137	C4.4	5395
17	2211E	2247	2310D	1-	3	1		1			2229		5395
17	2310E	2318	0127	2+	3			1		2	2311	M2.4	5395
18	0206	0214	0313	1	3			1	1		0205	C7.6	5403
18	0334	0342	0406	1-	1			1			No flare		
18	0409	0426	0450	1-	3			1	1		No flare		
18	0453E	0510	0603	1-	3			1	1		No flare		
18	0737	0746	0757	1-	5	1	1	1	1		0739		5403
18	0839	0853	0900	1-	3	1			1		No flare		
18	0934	0940	1003	1-	5			1		1	0931	C3.3	
18	1010	1017	1032	1-	1			1			No flare		
18	1127	1137	1158D	1-	1			1			No flare		
18	1158E	1209	1244D	1	1			1			1200	C2.8	
18	1244E	1251	1358	2+	5	4	3	1	1	4	1243	C9.2	5395
18	1430	1433	1440	1-	3	1	1		1		No flare		
18	1443	1452	1510	1-	3	1	1		1		No flare		
18	1553	1601	1622D	1-	5	1	3	1	1	5	1550	C8.7	
18	1622E	1633	1728	1-	1			1			No flare		
18	1730	1733	1802	2-	5					5	1734	M4.4	5395
18	1734	1747	1810	1-	5			1		3	1734	M4.4	5395
18	1859	1900	1913D	1-	1					1	No flare		
18	1921	1927	2000	1+	3					3	No flare		
18	2029	2036	2148	2	5	1		1		5	2030	M3.3	
18	2151	2208	2259D	2+	5	1		1		3	2154	M3.1	
18	2259E	2303	2328	1-	1			1			2308		5403
19	0015	0043	0133D	1	3			1	1		No flare		
19	0131E	0147	0232D	1-	3			1	1		No flare		
19	0232	0241	0250D	1-	3			1	1		No flare		
19	0235	0302	0341D	1-	3			1	1		No flare		
19	0326E	0352	0402D	2+	3			1	1		No flare		
19	0402E	0407	0527D	2+	1			1			0420	M1.4	5409
19	0527E	0536	0621D	1	3			1	1		No flare		
19	0621E	0636	0705D	2	5	1	3	1	2	1	0620	M1.2	

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
19	0652E	0718	0740D	3+	5	1	3	1	2	2	0702	M1.6	
19	0740E	0825	0935	3	5	1	2	1	1	1	0738	M1.3	5395
19	0815E	0826	0945D	3-	5	1	1	1	1	1	0809	M1.7	
19	0945E	1003	1046	1	5	1	1	1	1	1	0943	C8.6	
19	1127	1142	1202D	1	5			1	1	1	1124	C7.4	
19	1202E	1214	1319D	2-	5	1		1	1		*		
19	1319E	1326	1348	1+	5	1	2	1	1	7	1315	C9.5	
19	1355	1357	1357D	1-	3	1		1			No flare		
19	1419	1430	1456D	1	3		1	1	1		No flare		
19	1456E	1516	1552	1	5	1	1	1	1	2	1459	C6.9	
19	1754	1757	1808	1-	5					5	1816	C9.2	5407
19	1917	1925	1934	1-	3	1		1			No flare		
19	1939	1945	2042	1-	3	1		1			1944	M1.7	5409
19	2105	2123	2238	2+	5	1		1		3	2104	M2.4	
19	2230	2346	0116	2	3	1		1			2329	C9.2	
20	0249	0312	0351	1-	3			1	1		No flare		
20	0400	0410	0526	3+	3			1	1		0359	M2.5	
20	0604	0629	0756	1-	1			1			0616E		5416
20	0917	0939	1002	1	1		1				No flare		
20	1014	1019	1025	1-	1				1		1014	C5.0	5403
20	1043	1048	1106D	1-	1			1			1033		5407
20	1106E	1112	1133D	1-	1			1			1103E		5407
20	1133E	1142	1152D	1-	5	1	1	1	1		No flare		
20	1152E	1205	1246	2	5	4	3	1	1	2	No flare		
20	1250	1257	1310	1-	1				1		1252		5403
20	1353	1405	1418D	1	5		2	1	1	1	No flare		
20	1408E	1430	1520	2	5	2	4	1	1	6	1427	M1.2	5417
20	1545	1558	1653	2	5	3	3	1	1	6	1541	M2.4	5417
20	1854	1914	1948	1	3			1		1	1902		5414
20	2045	2114	2226	2	5	1		1		6	2038	M3.1	5417
20	2321	2330	2341	1-	1			1			No flare		
20	2344	0023	0055D	1	1			1			No flare		
21	0051E	0113	0148D	2	3			1	1		0051	M1.3	
21	0148E	0213	0405D	3	5	1		1	1		0202	M2.9	
21	0232	0238	0300D	1-	1				1		No flare		
21	0406	0413	0451	1-	3			1	1		0402		5409
21	0451	0508	0524	1-	3			1	1		No flare		
21	0543	0552	0620	1-	3			1	1		0541		5409
21	0631	0642	0730D	2+	5		3	1	2	1	0625	M1.4	5409
21	0730E	0746	0823	1-	5	1	1	1	2	1	0739	C5.1	5417
21	0907	0915	1008	1	5	2	3	1	2	1	0858	C9.0	5409
21	0939	0941	1000	1-	1					1	0928		5411
21	1055	1058	1110	1-	3	1			1		1056E	C4.6	5409
21	1502	1510	1531D	1-	5		3	1			1435	C8.7	5409
21	1531E	1541	1602	1-	1			1			No flare		
21	2130	2132	2155	1	1					1	No flare		
21	2354	0018	0052D	2+	1				1		No flare		
22	0512	0520	0635	1	3			1	1		0513	C5.6	5409
22	0723	0733	0756	1-	5		1	1	1		No flare		
22	0840	0848	0856	1-	5	1			2		0840	C2.7	
22	0936	1039	1207	2	5	2	1	1			No flare		
22	1112	1117	1155	1	3	1	1		1	2	1113	M1.2	5409
22	1242	1245	1330	1+	3		2				No flare		
22	1536	1600	1757	2	5	1		1	1		1537		5409
22	1804	1822	1840	1	3	1			1		1800		5417
22	1825	1854	1934	1-	3			1		1	1853		5409
22	1949	2006	2044	2-	5	1		1		4	1949	M1.0	5409
22	2058	2107	2200	2+	5					4	2058		5417
22	2255	2236	2259	2	5					2	No flare		
23	0151	0201	0217	1-	1			1			No flare		
23	0221	0236	0256	1-	1			1			No flare		
23	0537	0548	0622	1-	1			1			0531		5409

* = No flare patrol

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
23	0757	0840U	0904	1	3		2				No flare		
23	0852	0911	0946	1-	1			1			No flare		
23	1102	1132	1422	2	3		2				No flare		
23	1356	1408	1508	2-	5	1	4	1	1	7	1354	C9.8	5409
23	1715	1750	1900	3	5					4	No flare		
23	1929	2005	2124D	3	5	2		1		6	1925E	X1.5	5409
23	2124E	2135	2304	2	5			1		2	*		
23	2218	2221	2300	1+	3					2	No flare		
24	0023	0030	0050D	1-	1				1		No flare		
24	0046	0058	0142	1-	1			1			No flare		
24	0230	0237	0245	1-	3			1	1		0226		5409
24	0248	0251	0306	1-	1			1			*		
24	0804	0808	0820	1-	3		1		1		*		
24	0950	0959	1008	1-	1			1			*		
24	1422		1522D	2	1		1				No flare		
24	1611	1627	1702D	1-	1			1			1602		5411
24	1702E	1713	1751	1-	1			1			No flare		
24	2028	2043	2207	2-	5	1		1		4	2027E	M1.2	5409
24	2241	2245	2305	1-	1			1			2238E	C2.7	5409
25	0242	0248	0315	1-	3			1	1		0242	C2.0	
25	1022	1121U	1302	1	1		1				No flare		
25	1209	1220	1314	1-	1			1			No flare		
25	1546	1552	1610	1-	5	1	1	1	1	4	1532	C6.5	5409
25	1801	1810	1836	1-	1			1			No flare		
26	0046	0056	0129D	1-	3			1	1		0048	C3.9	5409
26	0129	0134	0215	1-	3			1	1		0130	C3.9	5409
26	0522	0530	0556	1-	3			1	1		0519	C2.0	
26	0604	0610	0631	1-	3			1	1		0602	C1.8	5417
26	0854	0903	0939	1-	5			1	2	1	0856	C2.1	5409
26	1308	1319	1404D	3-	5	4	4	1	1	10	1303E	M6.6	5409
26	1404E	1413	1506	2	5		2	1	1		1418E		5409
26	2248	2251	2303	1-	3					2	2241		5417
27	0011	0018	0100	1-	1			1			0009	C2.5	5417
27	0222	0229	0314D	1-	3			1	1		0217	C3.6	5417
27	0315	0321	0502	3	3			1	1		0306	M3.5	5417
27	0724	0734	0753	1-	1			1			No flare		
27	0920	0939	1028	1	3		2				No flare		
27	1046	1052	1110	1-	3		1		1		1046	C2.0	
27	1149	1154	1210	1-	3				1	1	1149		5409
27	1153	1225U	1309	1	1		1				No flare		
27	1448	1457	1533	1-	5	2	4	1	1	4	1446	C5.8	5417
27	1605	1605	1617	1-	1					1	No flare		
27	1625	1629	1640	1-	1				1		1626	C2.9	5409
27	1656	1702	1710	1-	1				1		No flare		
27	1728	1731	1740	1-	1					1	1728	C5.5	5409
27	1932	1952	2026	2	3			1		1	1943E	C4.9	5409
27	2037	2048	2102D	1+	5	1		1		2	2047E	C8.3	5417
27	2102E	2110	2159	1-	1			1			2054E	C3.4	5409
27	2213	2213	2228	1-	1					1	2213	C1.9	
27	2300	2308	2328	1-	3			1		1	*		
28	0002	0017	0042	1-	3			1	1		0007E	C4.3	5417
28	0041	0043	0058	1-	1				1		No flare		
28	0058E	0103	0149	1-	3			1	1		0055	C3.6	
28	0150	0156	0227	1-	3			1	1		0148	C2.3	
28	0233	0237	0318	1-	3			1	1		2228E	C4.7	
28	0323	0328	0352	1-	3			1	1		0318		5417
28	0417	0423	0442	1-	1				1		No flare		
28	0610	0614	0648	1	1		1				0559E	C2.3	5421
28	0754	0809	0907	2	5	3	2	1	2	2	0744	C9.3	5417
28	1032	1042	1127	2+	5	4	3	1	1	3	1016	M4.4	
28	1225	1252	1349	2-	5		1	1	1		1232	C5.1	5417
28	1305	1313	1325	1	3		2		1		1232	C5.1	5417

* = No flare patrol

SUDDEN IONOSPHERIC DISTURBANCES
MARCH 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
28	1630	1635	1707	1-	1			1			No flare		
28	1939	1958	2058	1+	5	1		1		2	1935	M1.5	5411
28	2118E	2125	2155	1-	1			1			No flare		
29	0109	0125	0230	1	3			1	1		No flare		
29	0252	0257	0318	1	3			1	1		0236	C1.9	
29	0334	0347	0453	1	3			1	1		0333	C3.4	
29	0538	0550	0634	1-	1			1			No flare		
29	0702	0714	0738	1-	1			1			0653	C2.8	
29	1043	1108	1204	1	1			1			1121	C2.3	
29	1744	1747	1800	1	5					6	1744	C4.3	
30	0345	0359	0420D	1-	3			1	1		0350E	C1.8	
30	0420E	0431	0446	1-	1			1			0356	C2.0	
30	0812	0816	0853	1-	5	1	1	1	1	1	0809	C3.9	
30	1302	1309	1407	1	5	3	3	1	1	6	1259	C6.8	5428
30	1400	1432U	1510	1	1		1				No flare		
30	1826	1827	1845	1	5					5	1825	C4.3	5428
30	2244	2245	2300U	1-	1					1	No flare		
31	0458	0504	0610	2-	3			1		1	0458	C6.4	5428
31	0909	0918	0940	1-	1			1			No flare		
31	1615	1616	1630	1-	1					1	1609	C1.9	5428

OBSERVATORIES REPORTING FOR MARCH 1989 (Observations are not necessarily continuous.)

Amherst, New Hampshire, USA	SES	Lintong, People's Rep of China	SPA
Bayonne, New Jersey, USA	SES	Louisville, Kentucky, USA	SES
Darmstadt, German Fed Rep	SWF	Maui, Hawaii, USA	SWF
Edenvale, Rep of S. Africa	SES	Panska Ves, Czechoslovakia	SES, SWF
Farsta, Sweden	SES	Paterson, New Jersey, USA	SES
Houston, Texas, USA	SES	Somesworth, New Hampshire, USA	SES
Hurbanova, Czechoslovakia	SWF	Tavares, Florida, USA	SES
Inubo, Japan	SPA	Tucson, Arizona, USA	SES
Juliusruh, German Dem Rep	SWF	Uccle, Belgium	SEA
Kandilli, Turkey	SEA	Upice, Czechoslovakia	SEA
Kuhlungsborn, German Dem Rep	SEA, SPA	Valley Cottage, New York, USA	SES
Latrobe, Pennsylvania	SES	Vlasim, Czechoslovakia	SEA

MARCH 1989 SIDs BY NOAA/SESC REGIONS

Reg. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
5377	1		2																												
5378	4	6																													
5379					1																										
5383		1																													
5385		1	1																												
5395						5	7	14	16	15	18	11	12	10	7	5	15	3	1												
5397												1																			
5398								1	1							1															
5403																	1	3		2											
5404														1	1																
5407																1			1	2											
5409																			2		6	5	3	3	1	5	5				
5411																					1			1				1			
5414																				1											
5416																				1											
5417																				3	1	2				2	5	5			
5421																												1			
5428																														2	2
Number of events with X-Ray flares	7	9	4	4	14	9	10	14	13	12	14	15	6	8	7	7	12	9	13	5	7	4	2	2	2	6	11	10	5	5	2
Number of events with no flare reported	5	6	7		4	7	7	9	5	11	7	6	8	14	8	8	5	11	9	7	5	4	7	4	3		5	4	2	2	1
Number of events with no flare patrol	4	2		2	1														1				1	3			1				
Total SID events	17	20	12	6	19	18	19	27	26	28	26	25	23	27	16	17	22	22	23	17	15	12	11	11	5	8	18	15	7	7	3

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

MARCH 1989

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
01			LEAR				0219.0	0219.0	2				III
			LEAR				0235.0	1036.0	2				CONT
			LEAR				0609.0	0611.0	3				III
	0642	0836	WEIS										
	0841	1645	WEIS				1157.0	1645.0	2				IIIN
			WEIS				1221.0	1525.0	2				IN
			SGMR				1352.0	2045.0	1				CONT
			PALE				1908.0	1917.0	2				V
			SGMR				1908.0	1919.0	2				S
			PALE				1927.0	1927.0	1				III
02			PALE				0000.0	0001.0	3				V
			LEAR				0124.0	0124.0	2				III
			LEAR				0242.0	0242.0	1				III
			LEAR				0346.0	0347.0	1				III
			LEAR				0407.0	0407.0	2				III
			LEAR				0410.0	0415.0	2				V
			LEAR				0614.0	0614.0	1				III
			LEAR				0734.0	0735.0	1				III
			LEAR				0744.0	0745.0	2				III
	0643	1647	WEIS				0744.8	0745.2	2				IIIG
			LEAR				0903.0	0903.0	1				III
			WEIS				0907.6	0910.3	2				Spikes,RS
			WEIS				1241.8	1243.1	2				Spikes,RS
			WEIS				1248.2	1248.4	2				IIIG
			WEIS				1257.2	1257.5	1				IIIG
			SGMR				1358.0	1401.0	2				V
			WEIS				1358.4	1400.0	3				IIIG
			SGMR				1409.0	1409.0	1				III
			WEIS				1409.2	1409.5	1				IIIB
			WEIS				1441.8	1441.9	2				IIIG
			SGMR				1628.0	1628.0	1				III
			SGMR				1750.0	1750.0	1				III
			SGMR				1852.0	1852.0	1				III
			PALE				2109.0	2110.0	2				III
			SGMR				2109.0	2110.0	2				III
03			LEAR				0035.0	0037.0	1				III
			LEAR				0131.0	0131.0	2				III
			LEAR				0147.0	0147.0	1				III
			LEAR				0243.0	0244.0	1				III
			LEAR				0307.0	0310.0	2				V
			LEAR				0320.0	0320.0	2				III
			LEAR				0338.0	0338.0	1				III
			LEAR				0433.0	0443.0	2				III
			LEAR				0550.0	0601.0	3				III
			SVTO				0551.0	0601.0	3				S
			LEAR				0612.0	0613.0	2				III
			LEAR				0645.0	0646.0	2				III
			LEAR				0708.0	0709.0	1				III
	0638	0831	WEIS				0805.0	0805.8	1				IIIG
			LEAR				0822.0	1000.0	2				CONT
	0840	1648	WEIS				0828.0	1628.0	2				IIIN
			SVTO				0829.0	0846.0	2				S
			WEIS				0845.1	0846.0	2				IIIG
			WEIS				0845.1	0846.4	2				Spikes
			SGMR				1401.0	1402.0	1				III
			WEIS	1418.3	1420.2	2							Spikes,blobs
			SGMR				1434.0	1435.0	1				III
			SGMR				1515.0	1519.0	2				V
			SGMR				1613.0	1618.0	2				III
			PALE				1821.0	1837.0	1				S
			SGMR				1821.0	1838.0	1				S
			PALE				1859.0	1909.0	1				S
			SGMR				1859.0	1910.0	1				S
			PALE				2100.0	2100.0	1				III
			LEAR				2319.0	2319.0	1				III
			LEAR				2344.0	0430.0	1				CONT

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04		LEAR				0011.0	0011.0	2				III
		LEAR				0036.0	0036.0	2				III
		LEAR				0136.0	0137.0	2				III
		LEAR				0154.0	0155.0	2				III
		LEAR				0329.0	0330.0	2				III
		LEAR				0353.0	0400.0	2				III
		LEAR				0419.0	0426.0	2				III
		LEAR				0445.0	0446.0	2				III
		LEAR				0506.0	0507.0	3				III
		LEAR				0523.0	0529.0	2				III
		LEAR				0637.0	0639.0	3				V
		LEAR				0824.0	0832.0	3				III
		SVTO				0824.0	0828.0	3				III
		WEIS				0824.7	0829.1	3				IIIG
	0636 1648	WEIS				0831.0	1640.0	2				IIIN
		WEIS				1246.8	1247.5	2				Spikes
		WEIS				1253.0	1258.5	1				Spikes,DCIM
		WEIS				1256.2	1256.7	2				IIIG
		SGMR				1332.0	1334.0	1				III
		WEIS				1508.2	1508.3	2				IIIG
		WEIS	1537.2	1537.3	2							Spikes
		WEIS				1553.6	1554.3	3				IIIG
		SGMR				1557.0	1558.0	2				V
		SGMR				1639.0	1639.0	1				III
		SGMR				1758.0	1759.0	1				III
		SGMR				1830.0	1830.0	1				III
		PALE				1844.0	1844.0	2				V
		SGMR				1844.0	1845.0	2				V
		PALE				1935.0	1936.0	2				III
		SGMR				1935.0	1936.0	2				III
		SGMR				2006.0	2009.0	2				V
		PALE				2007.0	2009.0	2				V
		SGMR				2016.0	2017.0	2				V
		LEAR				2358.0	0012.0	1				S
05		LEAR				0051.0	0053.0	3				III
		PALE				0053.0	0053.0	2				V
		LEAR				0123.0	0128.0	3				III
		PALE				0123.0	0127.0	2				III
		LEAR				0140.0	0140.0	2				III
		LEAR				0230.0	0235.0	1				III
		LEAR				0253.0	0254.0	3				III
		PALE				0253.0	0253.0	1				III
		LEAR				0319.0	0340.0	3				S
		LEAR				0405.0	0406.0	1				III
		LEAR				0410.0	0411.0	3				III
		LEAR				0434.0	0436.0	2				III
		LEAR				0502.0	0505.0	3				III
		LEAR				0521.0	0525.0	3				III
		LEAR				0537.0	0547.0	2				III
		LEAR				0600.0	0604.0	2				III
		LEAR				0621.0	0624.0	2				III
		LEAR				0655.0	0705.0	3				S
	0636 1651	WEIS				0655.0	1621.0	2				IIIN
		LEAR				0731.0	0732.0	2				III
		WEIS	0756.0	0844.0	2							I,DC
		LEAR				0758.0	0805.0	2				III
		LEAR				0824.0	0852.0	3				S
		WEIS				0833.7	0836.3	3				Spikes
		SVTO				0850.0	0851.0	3				III
		WEIS				0850.6	0852.3	3				IIIG
		LEAR				0917.0	0919.0	3				III
		SVTO				0917.0	0917.0	2				V
		LEAR				0937.0	0940.0	3				III
		SVTO				0937.0	0938.0	2				V
		LEAR				1003.0	1004.0	2				III
		SVTO				1003.0	1004.0	2				V
		WEIS				1003.6	1004.8	3				IIIG
		SGMR				1244.0	1248.0	2				III

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05		SGMR				1310.0	1310.0	1				III
		SGMR				1336.0	1342.0	2				V
		SGMR				1420.0	1428.0	2				V
		WEIS				1426.3	1427.4	2				IIIG
		SGMR				1457.0	1458.0	1				III
		SGMR				1517.0	1617.0	2				S
		WEIS				1604.7	1605.0	3				IIIG
		SGMR				1615.0	1632.0	2				S
		SGMR				1805.0	1819.0	2				S
		PALE				1813.0	1819.0	1				III
		PALE				1837.0	1837.0	1				III
		SGMR				1855.0	1855.0	1				III
		SGMR				1907.0	1907.0	1				III
		PALE				1946.0	1950.0	2				V
		SGMR				1946.0	1950.0	2				V
		SGMR				2033.0	2034.0	1				III
		SGMR				2044.0	2047.0	3				V
		SGMR				2049.0	2118.0	2				S
		PALE				2134.0	2139.0	3				V
		SGMR				2134.0	2134.0	2				III
		LEAR				2245.0	2246.0	2				III
		PALE				2245.0	2246.0	1				III
		LEAR				2307.0	2311.0	1				III
		PALE				2307.0	2311.0	1				III
		LEAR				2324.0	2327.0	2				III
		PALE				2326.0	2327.0	2				III
		LEAR				2330.0	1032.0	1				CONT
		LEAR				2339.0	0007.0	3				S
		PALE				2339.0	2341.0	2				III
		PALE				2355.0	0006.0	2				S
06		LEAR				0043.0	0046.0	3				III
		PALE				0043.0	0126.0	2				S
		LEAR				0056.0	0126.0	3				S
		LEAR				0200.0	0236.0	2				S
		PALE				0209.0	0209.0	1				III
		PALE				0232.0	0236.0	1				III
		LEAR				0251.0	0257.0	2				III
		PALE				0254.0	0256.0	1				III
		LEAR				0313.0	0315.0	2				III
		LEAR				0329.0	0339.0	2				III
		LEAR				0354.0	0359.0	2				III
		LEAR				0428.0	0511.0	3				S
		SVTO				0552.0	0552.0	1				III
		LEAR				0628.0	0637.0	2				III
		WEIS				0654.6	0655.0	3				IIIG
		LEAR				0655.0	0702.0	3				III
		LEAR				0707.0	0708.0	2				V
0632	1352	WEIS				0707.0	1650.0	3				IIIN
		LEAR				0822.0	0831.0	2				V
		WEIS				0836.0	1537.0	1				IN
		WEIS				1013.1	1013.4	2				IIIB,blobs
		LEAR				1015.0	1016.0	3				III
		SVTO				1015.0	1015.0	3				III
		SVTO				1028.0	1028.0	3				III
		SGMR				1133.0	1136.0	1				V
		WEIS				1141.1	1143.1	2				Spikes
		SGMR				1218.0	1222.0	1				V
		SVTO				1219.0	1221.0	3				III
		SVTO				1251.0	1251.0	3				III
		SGMR				1310.0	1340.0	3				S
		SVTO				1315.0	1321.0	2				III
		SVTO				1315.0	1339.0	3				S
		WEIS				1315.1	1317.9	3				IIIGG
		WEIS				1320.3	1321.2	3				Spikes,blobs
		WEIS				1327.8	1328.2	3				IIIG
		WEIS				1338.5	1338.7	3				Spikes,blobs
		SGMR				1348.0	1359.0	1				S
		SGMR				1403.0	1414.0	3				II

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06		SVTO				1403.0	1410.0	3				II
		SVTO				1403.0	1427.0	3				IV
		SGMR				1407.0	1414.0	3				IV
1413	1653	WEIS				1413.0	1427.0	3				II H,patchy
		SGMR				1417.0	1630.0	2				CONT
		SGMR				1441.0	1457.0	3				II
		WEIS				1442.1	1450.5	2				II H
		WEIS				1458.0	1536.0	3				IV dm
		SGMR				1639.0	1651.0	3				S
		SGMR				1724.0	0000.0	1				CONT
		SGMR				1747.0	1749.0	2				III
		PALE				1748.0	1748.0	2				III
		PALE				1800.0	1809.0	3				III
		SGMR				1800.0	1801.0	2				V
		SGMR				1807.0	1809.0	3				III
		PALE				1829.0	1829.0	1				III
		PALE				1849.0	1924.0	2				S
		SGMR				1903.0	1909.0	2				V
		LEAR				2304.0	2305.0	1				III
07		LEAR				0008.0	0009.0	3				V
		LEAR				0100.0	0103.0	3				V
		LEAR				0124.0	0125.0	3				V
		PALE				0124.0	0124.0	1				III
		LEAR				0216.0	0222.0	3				III
		PALE				0221.0	0221.0	1				III
		LEAR				0257.0	0303.0	3				V
		PALE				0257.0	0301.0	2				V
		LEAR				0328.0	0333.0	3				V
		PALE				0329.0	0330.0	1				III
		LEAR				0357.0	0358.0	3				III
		LEAR				0550.0	0557.0	3				III
		LEAR				0554.0	0615.0	1				II
0630	1653	WEIS				0640.0	1644.0	2				III
		WEIS				0703.0	1550.0	2				IS,DC
		SVTO				0708.0	0708.0	3				III
		LEAR				0723.0	0727.0	3				V
		SVTO				0723.0	0726.0	3				V
		LEAR				0830.0	0832.0	3				III
		LEAR				0909.0	0917.0	3				V
		WEIS				0909.5	0914.5	3				IIIGG
		SVTO				0910.0	0914.0	3				V
		WEIS				0938.0	1440.0	2				Cont
		WEIS				0952.2	0952.4	2				DCIM,RS,blob
		WEIS				1109.2	1109.8	2				IIIG
		SGMR				1128.0	1225.0	1				S
		SVTO				1147.0	1159.0	3				S
		WEIS				1148.4	1150.6	3				IIIGG
		WEIS				1155.2	1155.5	3				IIIG
		SGMR				1305.0	1316.0	1				S
		SGMR				1317.0	1326.0	3				V
		SVTO				1317.0	1326.0	3				S
		WEIS				1317.5	1326.6	3				IIIGG,RS,blobs
		SGMR				1330.0	1332.0	2				V
		SGMR				1336.0	1340.0	2				II
		SGMR				1404.0	1448.0	1				S
		SGMR				1448.0	2120.0	1				CONT
		SGMR				1451.0	1459.0	3				V
		WEIS				1451.8	1456.5	3				IIIGG/V
		SGMR				1537.0	1538.0	3				V
		SGMR				1659.0	1711.0	2				S
		PALE				1746.0	1750.0	1				V
		SGMR				1750.0	1750.0	2				III
		PALE				1818.0	1830.0	1				V
		PALE				1947.0	1948.0	1				III
		PALE				2017.0	2025.0	2				V
		SGMR				2024.0	2025.0	2				III
		SGMR				2144.0	2144.0	1				III
		PALE				2230.0	2248.0	3				IV

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07		LEAR				2239.0	2311.0	2				S
		LEAR				2251.0	2252.0	3				III
		PALE				2251.0	2311.0	3				V
		LEAR				2313.0	1030.0	2				CONT
		PALE				2334.0	2341.0	1				V
		LEAR				2336.0	2341.0	2				III
08		LEAR				0001.0	0009.0	2				III
		PALE				0003.0	0009.0	1				V
		LEAR				0019.0	0026.0	3				III
		PALE				0022.0	0025.0	1				V
		LEAR				0038.0	0045.0	2				III
		PALE				0038.0	0045.0	1				V
		LEAR				0116.0	0133.0	3				S
		PALE				0116.0	0133.0	2				V
		PALE				0148.0	0158.0	2				V
		LEAR				0201.0	0214.0	2				S
		LEAR				0218.0	0219.0	3				III
		PALE				0219.0	0219.0	1				III
		PALE				0304.0	0306.0	2				V
		LEAR				0326.0	0334.0	2				III
		LEAR				0335.0	0347.0	3				S
		PALE				0336.0	0336.0	1				III
		PALE				0349.0	0349.0	1				III
		LEAR				0409.0	0411.0	3				III
		PALE				0409.0	0409.0	1				III
		LEAR				0455.0	0456.0	3				III
		LEAR				0511.0	0535.0	3				S
		SVTO				0522.0	0526.0	3				V
		LEAR				0538.0	0550.0	3				S
		LEAR				0601.0	0603.0	3				III
		LEAR				0628.0	0632.0	3				III
		SVTO				0628.0	0629.0	2				V
		LEAR				0648.0	0700.0	3				S
	0630	1318 WEIS				0649.0	1656.0	2				IIIS
	1347	1656 WEIS				0700.0	1545.0	2				IS,DCIM
		LEAR				0714.0	0718.0	3				III
		LEAR				0733.0	0735.0	3				III
		WEIS				0736.0	1552.0	2				Cont
		LEAR				0754.0	0802.0	3				III
		SVTO				0800.0	0802.0	2				V
		LEAR				0813.0	0831.0	3				S
		WEIS				0818.1	0819.2	2				IIIG
		SVTO				0835.0	0852.0	3				S
		LEAR				0843.0	0852.0	3				III
		SVTO				1011.0	1012.0	2				III
		SGMR				1152.0	1152.0	1				III
		SGMR				1206.0	1209.0	2				III
		SGMR				1220.0	1243.0	1				S
		SGMR				1302.0	1350.0	2				S
		SVTO				1321.0	1344.0	2				S
		SVTO				1424.0	1446.0	3				S
		WEIS	1432.3	1448.6	3							IIIGG,F
		SGMR				1436.0	1443.0	3				IV
		WEIS				1623.4	1624.7	3				IIIG
		SGMR				2057.0	2058.0	1				III
		SGMR				2118.0	2119.0	2				III
		SGMR				2121.0	0000.0	1				S
		PALE				2208.0	2209.0	1				III
		PALE				2234.0	2254.0	2				S
		LEAR				2247.0	2253.0	1				III
		LEAR				2313.0	2314.0	1				III
		LEAR				2341.0	0013.0	2				S
		PALE				2343.0	0013.0	2				S
09		LEAR				0014.0	1029.0	2				CONT
		LEAR				0036.0	0037.0	2				III
		LEAR				0042.0	0045.0	3				III
		LEAR				0047.0	0117.0	2				S

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09		PALE				0145.0	0158.0	2				S
		LEAR				0146.0	0158.0	3				S
		PALE				0233.0	0323.0	3				S
		LEAR				0238.0	0244.0	3				III
		LEAR				0259.0	0323.0	3				S
		LEAR				0405.0	0407.0	3				III
		PALE				0405.0	0405.0	2				III
		LEAR				0448.0	0450.0	3				III
		LEAR				0458.0	0502.0	3				III
		SVTO				0537.0	0545.0	2				S
		SVTO				0606.0	0606.0	2				III
		SVTO				0620.0	0638.0	3				S
		LEAR				0621.0	0625.0	3				III
0626	1657	WEIS				0629.0	1651.0	3				IIIS
		WEIS				0638.2	0639.3	2				IIIG
		WEIS				0659.0	1631.0	2				IN
		LEAR				0703.0	0704.0	3				III
		SVTO				0703.0	0703.0	2				III
		LEAR				0719.0	0720.0	3				III
		SVTO				0720.0	0720.0	3				III
		LEAR				0724.0	0809.0	3				S
		WEIS				0730.0	1542.0	1				Cont
		SVTO				0743.0	0809.0	3				S
		WEIS				0752.6	0754.7	2				IIIGG
		LEAR				0831.0	0926.0	3				S
		SVTO				0831.0	0836.0	3				V
		WEIS				0831.8	0835.4	3				IIIGG
		SVTO				0839.0	1003.0	2				CONT
		LEAR				0932.0	0933.0	3				III
		LEAR				0957.0	1017.0	3				S
		SVTO				1003.0	1017.0	3				IV
		WEIS				1003.1	1010.9	3				IIIGG
		WEIS				1014.3	1017.4	3				IIIGG
		WEIS				1030.7	1031.7	2				IIIGG
		WEIS				1039.6	1039.8	2				IIIG
		SGMR				1136.0	1137.0	2				III
		SGMR				1144.0	1151.0	1				S
		SGMR				1158.0	1204.0	1				III
		SGMR				1207.0	1307.0	3				S
		SGMR				1215.0	1221.0	1				S
		SGMR				1237.0	1307.0	3				S
		WEIS				1256.4	1256.9	2				IIIG
		WEIS				1258.4	1259.9	2				IIIG
		WEIS				1300.9	1308.3	3				IIIGG,U
		WEIS				1303.1	1308.6	2				Spikes,DCIM
		SGMR				1307.0	1407.0	2				S
		SGMR				1345.0	2221.0	1				CONT
		SGMR				1429.0	1430.0	2				III
		WEIS				1446.8	1457.3	3				IIIGG,F
		SGMR				1450.0	1500.0	2				III
		SGMR				1519.0	1537.0	3				V
		SVTO				1528.0	1541.0	3				S
		WEIS				1528.7	1541.3	3				IIIGG,RS,F
		SGMR				1541.0	1541.0	2				III
		WEIS				1642.5	1643.4	2				IIIG,U
		SGMR				1742.0	1748.0	3				V
		SGMR				1804.0	1805.0	2				V
		SGMR				1815.0	1817.0	3				V
		PALE				1816.0	1817.0	2				III
		SGMR				1832.0	1930.0	2				S
		PALE				1839.0	1856.0	2				S
		PALE				1857.0	2014.0	3				S
		SGMR				1858.0	1908.0	3				III
		SGMR				2005.0	2114.0	2				III
		PALE				2014.0	2253.0	3				S
		SGMR				2019.0	2019.0	3				III
		LEAR				2244.0	2321.0	2				S
		PALE				2303.0	0011.0	3				CONT

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10		PALE				0014.0	0015.0	3				III
		LEAR				0026.0	0036.0	3				III
		PALE				0026.0	0043.0	2				S
		PALE				0059.0	0116.0	3				S
		LEAR				0100.0	0117.0	3				S
		LEAR				0134.0	0146.0	3				S
		PALE				0135.0	0146.0	2				S
		LEAR				0157.0	0202.0	3				III
		PALE				0157.0	0201.0	3				III
		LEAR				0214.0	0317.0	3				III
		PALE				0220.0	0230.0	1				S
		LEAR				0224.0	0225.0	3				III
		LEAR				0238.0	0241.0	3				III
		PALE				0238.0	0241.0	3				V
		LEAR				0256.0	0259.0	3				V
		PALE				0256.0	0303.0	1				III
		PALE				0313.0	0423.0	3				S
		LEAR				0314.0	0317.0	3				III
		SVTO				0608.0	0609.0	2				III
	0624	1658 WEIS				0633.0	1658.0	3				IIIS,DP,RS
		SVTO				0634.0	0635.0	2				III
		SVTO				0651.0	0704.0	2				S
		WEIS				0654.0	1554.0	3				IS
		WEIS				0726.0	1543.0	2				Cont
		SVTO				0734.0	0735.0	2				III
		SVTO				0751.0	0804.0	2				S
		SVTO				0802.0	0850.0	2				S
		WEIS				0815.2	0815.7	3				IIIG
		WEIS				0822.2	0824.1	2				IIIG,Spikes
		WEIS				0830.0	0847.6	3				IIIGG,Spikes
		WEIS				1021.2	1021.4	3				IIIG
		WEIS				1041.7	1042.1	2				IIIG
		SGMR				1115.0	1135.0	3				S
		SGMR				1125.0	2222.0	1				CONT
		WEIS				1135.4	1135.7	3				IIIG
		SGMR				1244.0	1244.0	2				III
		WEIS				1339.2	1355.7	2				IIIGG,RS,DP
		SVTO				1341.0	1350.0	3				S
		SGMR				1342.0	1352.0	3				V
		SGMR				1352.0	1410.0	2				S
		WEIS				1414.3	1445.7	2				F
		SGMR				1426.0	1427.0	2				III
		SGMR				1449.0	1549.0	2				S
		WEIS				1452.3	1457.5	1				F
		WEIS				1504.8	1505.3	3				IIIG
		SGMR				1505.0	1505.0	3				V
		SGMR				1547.0	1550.0	3				III
		SGMR				1549.0	1649.0	2				S
		SGMR				1649.0	1749.0	2				S
		PALE				1722.0	1755.0	2				S
		SGMR				1749.0	1849.0	3				S
		PALE				1813.0	1815.0	2				V
		SGMR				1849.0	1918.0	3				S
		PALE				1855.0	1901.0	3				IV
		PALE				1918.0	2119.0	3				IV
		PALE				1920.0	2119.0	3				II
		PALE				2133.0	2228.0	3				CONT
		SGMR				2133.0	2222.0	3				S
		PALE				2238.0	0423.0	3				CONT
		LEAR				2241.0	1027.0	3				CONT
		LEAR				2331.0	2334.0	3				III
11		SVTO				0515.0	1547.0	3				CONT
		WEIS				0624.0	1700.0	3				Cont
	0624	1700 WEIS				0624.0	1635.0	3				IIIS
		WEIS				0654.7	0654.9	3				IIIG
		WEIS				0705.6	0709.3	3				IIIG
		WEIS				0713.3	0713.6	3				IIIG
		WEIS				0714.0	1633.0	2				IS

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11		WEIS				0724.9	0726.7	3				IIIG
		WEIS				0809.7	0810.3	3				IIIG
		WEIS				0900.2	0906.3	3				IIIGG,Spikes
		WEIS				0908.9	0909.9	3				IIIG
		WEIS				1001.5	1001.7	3				IIIGG
		WEIS				1008.2	1008.4	3				IIIG
		WEIS				1014.5	1015.8	2				IIIG
		WEIS				1035.8	1041.8	3				IIIGG
		SGMR				1115.0	1130.0	1				S
		WEIS				1123.5	1128.3	3				IIIGG,short time
		SGMR				1141.0	1212.0	1				S profile
		SGMR				1202.0	1209.0	3				III
		WEIS				1202.3	1203.6	3				IIIGG,blob
		WEIS				1206.3	1206.6	2				IIIG
		SGMR				1212.0	0000.0	1				CONT
		SGMR				1234.0	1235.0	2				III
		SGMR				1305.0	1306.0	2				III
		SGMR				1356.0	1409.0	2				S
		WEIS				1356.8	1409.6	3				IIIGG
		SGMR				1404.0	1406.0	3				III
		SGMR				1500.0	2224.0	2				CONT
		WEIS				1534.3	1555.9	3				IIIGG,short time
		PALE				1653.0	0301.0	3				CONT profile
		SGMR				1847.0	1848.0	3				III
		SGMR				1933.0	1937.0	3				V
		LEAR				2241.0	0016.0	2				CONT
		LEAR				2319.0	2344.0	3				S
12		LEAR				0010.0	0010.0	3				III
		LEAR				0016.0	1026.0	3			IV	
		PALE				0018.0	0030.0	3			IV	
		PALE				0328.0	0342.0	2				S
		PALE				0404.0	0413.0	2				III
		SVTO				0528.0	0000.0	3				CONT
		WEIS				0621.0	1657.0	3				IIIS
	0620	1702 WEIS				0621.0	1702.0	3				Cont
		WEIS				0639.0	1651.0	3				IS
		WEIS				0658.0	0743.0	3				Spikes,DCIM
		WEIS				0803.1	0809.3	3				IIIG
		WEIS				0822.0	0848.0	3				Spikes,RS,DCIM
		WEIS				0824.9	0826.0	3				IIIGG
		SGMR				1120.0	1125.0	1			II	
		WEIS				1120.0	1152.0	3				Spikes
		SGMR				1121.0	1230.0	1				CONT
		WEIS				1214.1	1214.7	3				IIIG
		SGMR				1230.0	1619.0	2				CONT
		WEIS				1431.0	1526.0	3				Spikes,DCIM
		WEIS				1605.0	1636.0	3				Spikes,DCIM
		SGMR				1619.0	2225.0	3				CONT
		PALE				1759.0	0424.0	3				CONT
		LEAR				2241.0	0000.0	3				CONT
13		SVTO				0523.0	1632.0	2				CONT
		WEIS				0619.0	1535.0	3				Cont
	1557	1703 WEIS				0625.0	1623.0	3				IIIS
		WEIS				0636.3	0636.6	2				Spikes
		WEIS				0640.4	0640.7	2				IIIG
		WEIS				0647.0	0716.0	3				Spikes
	0618	1552 WEIS				0659.0	1702.0	3				IS
		WEIS				0754.4	0754.9	3				IIIG
		WEIS				0756.7	0757.7	3				IIIG
		WEIS				0803.1	0806.2	2				IIIG
		WEIS				0825.1	0825.4	3				IIIG
		WEIS				0917.3	0918.3	3				Spikes,DCIM
		WEIS				0946.7	0948.2	3				IIIG
		WEIS				1010.7	1011.5	2				Spikes
		WEIS				1029.1	1031.4	3				IIIGG
		WEIS				1052.2	1052.4	2				IIIG
		WEIS				1142.2	1143.4	3				IIIG

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13		WEIS				1152.3	1155.4	2				IIIG,Spikes
		SGMR				1207.0	1515.0	2				CONT
		SGMR				1220.0	1207.0	1				CONT
		WEIS				1222.4	1222.9	3				IIIG
		WEIS				1224.3	1225.5	2				IIIG
		WEIS				1230.7	1240.5	3				Spikes
		WEIS				1255.0	1257.3	3				Spikes
		WEIS				1313.7	1315.4	3				IIIG
		WEIS				1342.3	1345.2	3				IIIGG
		WEIS				1350.7	1351.6	3				IIIGG
		WEIS				1439.0	1439.2	3				IIIG
		WEIS				1443.7	1444.5	3				IIIG
		WEIS				1456.7	1457.9	3				IIIG
		SGMR				1501.0	1503.0	3				V
		WEIS				1505.5	1508.8	3				IIIG
		WEIS				1510.2	1512.3	3				IIIG
		WEIS				1514.1	1525.9	3				IIIGG
		SGMR				1515.0	1630.0	3				CONT
		WEIS				1629.2	1630.7	3				IIIG
		SGMR				1630.0	2226.0	2				CONT
		PALE				1731.0	0424.0	3				CONT
		PALE				1838.0	1839.0	3				III
		SGMR				1838.0	1840.0	3				III
		LEAR				2242.0	1024.0	3				CONT
		LEAR				2303.0	2304.0	3				III
14		LEAR				0014.0	0014.0	3				III
		SVTO				0532.0	1633.0	2				CONT
	0618	1705 WEIS				0626.0	1705.0	2				IIIN
		WEIS				0632.0	1703.0	2				IS,DC,F
		WEIS				0638.2	0638.9	1				IIIG
		WEIS				0740.6	0742.0	2				IIIG
		WEIS				0822.3	0824.3	3				IIIG,Spikes
		WEIS				0832.7	0833.1	3				IIIB
		WEIS				0850.3	0850.7	1				Spikes
		WEIS				0855.0	1603.0	2				Cont
		WEIS				0911.7	0912.0	2				IIIB
		WEIS				0919.2	0919.7	2				IIIG
		WEIS				0920.9	0921.6	2				Spikes
		WEIS				0938.7	0941.8	2				Spikes
		WEIS				0945.8	0947.0	2				IIIG
		WEIS				0956.2	0956.3	2				IIIB
		WEIS				1012.4	1012.6	3				IIIG
		WEIS				1107.6	1108.1	2				IIIG
		SGMR				1145.0	2227.0	2				CONT
		WEIS				1303.6	1304.7	1				IIIG
		WEIS				1352.3	1352.7	2				IIIG
		SGMR				1555.0	1559.0	3				III
		PALE				1703.0	1728.0	2				S
		LEAR				2242.0	1023.0	2				CONT
15		LEAR				0123.0	0123.0	3				III
		PALE				0123.0	0157.0	2				S
		LEAR				0142.0	0157.0	3				S
		LEAR				0217.0	0223.0	3				III
		SVTO				0523.0	0526.0	1				III
		SVTO				0542.0	1414.0	2				CONT
	1428	1706 WEIS				0615.0	1706.0	3				IS,DC
		LEAR				0641.0	0645.0	3				III
	0614	1423 WEIS				0641.0	1706.0	2				IIIS,F
		WEIS				0652.0	1602.0	3				Cont
		LEAR				0757.0	0758.0	3				III
		SVTO				0757.0	0758.0	3				III
		LEAR				0827.0	0827.0	3				III
		SVTO				0827.0	0828.0	3				III
		WEIS				0939.7	0940.2	3				IIIG
		SVTO				0951.0	0951.0	3				III
		SGMR				1116.0	1131.0	1				CONT
		SGMR				1131.0	2115.0	2				CONT

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15		SGMR				1341.0	1341.0	3				III
		SVTO				1341.0	1342.0	3				III
		WEIS				1341.4	1342.6	3				IIIG
		PALE				1848.0	0243.0	2				CONT
		SGMR				2115.0	2228.0	1				CONT
		LEAR				2255.0	1023.0	2				CONT
16		LEAR				0144.0	0146.0	3				III
		LEAR				0525.0	0528.0	3				III
		SVTO				0605.0	0605.0	2				III
		SVTO				0855.0	0855.0	2				III
		SVTO				0935.0	0956.0	2				S
		WEIS				0935.0	1348.0	3				IS,DC
0934	1707	WEIS				0935.0	1704.0	3				IIIN
		LEAR				0940.0	0941.0	3				III
		WEIS				0940.3	0941.1	3				IIIG
		WEIS				0957.1	0957.6	2				IIIG
		WEIS				1014.3	1014.5	2				IIIG
		WEIS				1023.6	1024.3	2				IIIG
		SVTO				1040.0	1042.0	2				V
		WEIS				1040.1	1042.0	3				IIIGG,narrow-band
		SGMR				1109.0	1109.0	1				III
		SGMR				1133.0	1137.0	1				III
		SGMR				1204.0	2230.0	1				CONT
		SGMR				1836.0	1837.0	2				V
		PALE				1952.0	0205.0	2				CONT
		LEAR				2243.0	1022.0	1				CONT
		LEAR				2246.0	2247.0	2				III
		LEAR				2304.0	2304.0	2				III
		LEAR				2328.0	2334.0	2				III
		LEAR				2357.0	2357.0	2				III
17		LEAR				0029.0	0030.0	3				III
		LEAR				0053.0	0140.0	2				S
		LEAR				0142.0	0205.0	2				S
		LEAR				0331.0	0343.0	3				III
		PALE				0331.0	0333.0	2				V
		LEAR				0426.0	0436.0	2				S
		SVTO				0532.0	0532.0	2				III
		LEAR				0640.0	0640.0	2				III
0611	1002	WEIS				0640.0	1602.0	2				IIIN
		LEAR				0714.0	0729.0	2				S
		SVTO				0715.0	0715.0	3				III
		SVTO				0758.0	0813.0	3				S
		LEAR				0802.0	0811.0	3				III
		LEAR				0852.0	0855.0	3				III
		SVTO				0852.0	0854.0	3				III
		LEAR				0923.0	0923.0	2				III
		SVTO				0923.0	0923.0	3				III
		LEAR				1020.0	1021.0	2				III
		SVTO				1020.0	1021.0	3				III
1030	1136	WEIS										
		SGMR				1113.0	1807.0	1				CONT
		SGMR				1157.0	1159.0	2				V
		SVTO				1201.0	1202.0	3				III
1339	1358	WEIS				1201.3	1202.3	3				IIIG
		SVTO				1247.0	1637.0	3				CONT
1417	1709	WEIS										
		SGMR				1555.0	1601.0	2				V
		SGMR				1731.0	1749.0	3				IV
		PALE				1734.0	1758.0	3				IV
		SGMR				1749.0	1807.0	3				II
		PALE				1750.0	1756.0	3				II
		PALE				1758.0	1919.0	2				CONT
		SGMR				1807.0	1902.0	2				CONT
		PALE				1823.0	1824.0	2				V
		SGMR				1902.0	2231.0	1				CONT
		SGMR				1906.0	1911.0	2				V
		PALE				1907.0	1908.0	2				V

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18		LEAR				0144.0	0146.0	2				III
		PALE				0144.0	0145.0	2				III
		LEAR				0203.0	0218.0	3				S
		PALE				0204.0	0215.0	3				V
		LEAR				0218.0	0412.0	1				CONT
		LEAR				0324.0	0324.0	2				III
		LEAR				0534.0	0534.0	1				III
		LEAR				0637.0	0638.0	1				III
		LEAR				0654.0	0703.0	2				III
		LEAR				0713.0	0718.0	1				III
		LEAR				0733.0	0734.0	3				III
	0608 1711	WEIS				0733.0	1700.0	2				IIIN
		LEAR				0747.0	0801.0	2				S
		WEIS				0759.0	0759.1	1				IIIG
		LEAR				0803.0	1021.0	1				CONT
		LEAR				0832.0	0832.0	2				III
		LEAR				0853.0	0913.0	2				S
		SVTO				0900.0	0909.0	2				III
		LEAR				0909.0	0910.0	3				III
		WEIS				0932.4	0933.4	3				IIIG
		LEAR				0935.0	0936.0	2				III
		SVTO				0936.0	0936.0	2				III
		LEAR				1009.0	1011.0	3				III
		SVTO				1009.0	1012.0	3				V
		WEIS				1009.6	1011.3	3				IIIG
		WEIS				1041.9	1043.7	3				IIIG
		SVTO				1042.0	1043.0	3				III
		SGMR				1117.0	1117.0	1				III
		SGMR				1240.0	1250.0	1				S
		SGMR				1316.0	1346.0	2				S
		SVTO				1329.0	1339.0	2				S
		SVTO				1451.0	1554.0	2				CONT
		SGMR				1538.0	1543.0	2				V
		SGMR				1642.0	1655.0	2				S
		PALE				1802.0	1805.0	2				III
		SGMR				1802.0	1803.0	2				III
		SGMR				2026.0	2037.0	3				IV
		PALE				2137.0	2142.0	1				III
		PALE				2201.0	2201.0	1				III
		PALE				2217.0	2218.0	1				III
19		LEAR				0007.0	0007.0	2				III
		LEAR				0009.0	0325.0	1				CONT
		LEAR				0135.0	0135.0	3				III
		PALE				0135.0	0135.0	2				III
		LEAR				0158.0	0201.0	2				III
		LEAR				0431.0	0439.0	1				III
		LEAR				0455.0	0457.0	2				III
		LEAR				0615.0	0618.0	1				III
		LEAR				0658.0	0659.0	1				III
		LEAR				0739.0	0739.0	1				III
	0606 1712	WEIS				0944.4	0944.5	1				IIIB
		LEAR				0948.0	0949.0	1				III
		WEIS				0948.2	0950.0	1				IIIG
		SGMR				1435.0	1458.0	1				S
		WEIS				1436.9	1437.6	1				IIIB
		WEIS				1447.3	1447.5	2				IIIG
		WEIS				1457.2	1457.7	1				IIIG
		SGMR				1524.0	1524.0	1				III
		WEIS				1524.5	1524.8	1				IIIG
		SGMR				1531.0	0000.0	1				CONT
		SGMR				1602.0	1602.0	2				V
		WEIS				1602.6	1602.8	3				IIIB
		WEIS				1628.8	1629.9	2				IIIG
		PALE				2009.0	2015.0	3				V
		SGMR				2009.0	2013.0	3				III
		LEAR				2329.0	2345.0	2				S
		PALE				2329.0	2345.0	2				S

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20		LEAR				0121.0	0122.0	2				III
		PALE				0121.0	0122.0	1				III
		LEAR				0153.0	0154.0	3				III
		PALE				0153.0	0154.0	2				III
		LEAR				0210.0	0210.0	2				III
		LEAR				0519.0	0521.0	1				III
		LEAR				0525.0	0533.0	2				III
		LEAR				0624.0	0624.0	2				III
		LEAR				0630.0	0639.0	1				III
		LEAR				0641.0	0645.0	2				III
	0606	1545 WEIS				0641.0	1706.0	2				IIIN
		LEAR				0655.0	0711.0	2				S
		LEAR				0721.0	0731.0	2				III
		LEAR				0747.0	0747.0	1				III
		LEAR				0811.0	0812.0	2				III
		SVTO				0812.0	0812.0	2				III
		LEAR				0826.0	0832.0	2				III
		LEAR				0856.0	0916.0	1				S
		LEAR				0958.0	1000.0	2				III
		WEIS				0958.7	1000.0	3				IIIG
		SVTO				0959.0	1000.0	2				III
		LEAR				1011.0	1019.0	2				III
		WEIS				1011.3	1020.6	3				IIIGG
		SGMR				1223.0	1224.0	2				III
		SVTO				1223.0	1224.0	2				III
		SGMR				1306.0	1306.0	1				III
		SGMR				1339.0	1351.0	1				III
		SGMR				1408.0	1409.0	1				III
		SGMR				1420.0	1427.0	2				V
		SVTO				1422.0	1422.0	2				III
		SGMR				1445.0	1447.0	2				III
		SGMR				1541.0	1544.0	1				III
	1554	1714 WEIS										
		SGMR				1604.0	1605.0	2				V
		PALE				1755.0	1755.0	1				III
		PALE				1855.0	1901.0	2				III
		PALE				2045.0	2100.0	1				II
		SGMR				2045.0	0000.0	1				II
		SGMR				2058.0	2234.0	1				CONT
		PALE				2130.0	2219.0	1				CONT
		PALE				2251.0	2251.0	1				III
		PALE				2329.0	2345.0	2				S
21		PALE				0100.0	0101.0	1				III
		LEAR				0137.0	0144.0	1				III
		LEAR				0200.0	0204.0	2				III
		LEAR				0329.0	0329.0	1				III
		LEAR				0404.0	0413.0	2				III
		LEAR				0453.0	0456.0	1				III
		SVTO				0500.0	0501.0	2				III
		LEAR				0501.0	0507.0	3				III
		LEAR				0520.0	0520.0	1				III
		LEAR				0537.0	1018.0	1				CONT
		SVTO				0540.0	0542.0	2				V
		LEAR				0541.0	0542.0	3				III
		LEAR				0623.0	0625.0	2				III
		SVTO				0623.0	0624.0	3				V
	0602	1715 WEIS				0623.0	1614.0					IIIN
		LEAR				0631.0	0636.0	3				III
		WEIS				0632.6	0635.4	3				IIIGG,Spikes
		SVTO				0633.0	0635.0	3				V
		LEAR				0730.0	0731.0	2				III
		SGMR				1139.0	2235.0	1				CONT
		SVTO				1330.0	1342.0	2				S
		SGMR				1331.0	1335.0	2				V
		SGMR				1529.0	1531.0	2				V
		SGMR				1612.0	1613.0	2				III
22		LEAR				0241.0	0242.0	1				III

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22			LEAR				0402.0	0402.0	1				III
	0600	1327	WEIS				0731.9	0732.3	1				IIIG
			LEAR				0822.0	0824.0	2				III
			WEIS				0823.3	0824.1	2				IIIG
			SVTO				0824.0	0824.0	2				III
			PALE				0830.0	0830.0	1				III
			WEIS				1055.1	1055.7	1				IIIG
			SGMR				1254.0	1254.0	1				III
			WEIS				1254.6	1254.9	2				IIIB
	1337	1715	WEIS										
			SGMR				1515.0	2237.0	1				CONT
			SGMR				1830.0	1830.0	2				V
			LEAR				2349.0	2350.0	1				III
23			LEAR				0209.0	0210.0	2				III
			LEAR				0442.0	0443.0	2				III
			WEIS	0716.3	0716.4	1							IIIB
			LEAR				0731.0	0735.0	2				III
	0559	1718	WEIS				0731.0	1537.0	2				IIIN
			WEIS	0826.3	0827.3	1							Spikes
			LEAR				0857.0	0858.0	2				III
			WEIS	0858.6	0900.3	1							Spikes
			LEAR				0913.0	0913.0	3				III
			SVTO				0913.0	0913.0	3				III
			SGMR				1058.0	1058.0	1				III
			SGMR				1103.0	1104.0	1				III
			SGMR				1128.0	1128.0	1				III
			SGMR				1245.0	1927.0	1				CONT
			WEIS	1401.8	1405.3	1							Spikes
			SGMR				1724.0	1726.0	2				V
			SGMR				1822.0	1822.0	2				V
			SGMR				1852.0	1854.0	2				III
			SGMR				1918.0	1921.0	2				V
			PALE				1919.0	1926.0	3				V
			SGMR				1922.0	1927.0	3				IV
			PALE				1931.0	2005.0	3				IV
			SGMR				1939.0	1950.0	3				II
			PALE				1940.0	2005.0	3				II
			PALE				2005.0	2210.0	2				CONT
			SGMR				2026.0	2032.0	3				V
			PALE				2103.0	2133.0	3				S
			SGMR				2103.0	2113.0	2				III
			SGMR				2130.0	2238.0	1				CONT
			LEAR				2302.0	1015.0	2				CONT
			LEAR				2340.0	2341.0	2				III
			LEAR				2357.0	0003.0	3				III
24			LEAR				0020.0	0021.0	2				III
			LEAR				0142.0	0143.0	2				III
			LEAR				0231.0	0234.0	3				III
			PALE				0243.0	0245.0	2				III
			LEAR				0422.0	0423.0	2				III
			LEAR				0530.0	0530.0	3				III
			SVTO				0530.0	0531.0	2				III
			SVTO				0539.0	0540.0	2				III
			LEAR				0559.0	0601.0	2				III
	0556	1054	WEIS				0559.2	0600.7	2				IIIG
			WEIS				0635.8	0640.0	3				IIIG
			LEAR				0637.0	0640.0	2				III
			SVTO				0637.0	0638.0	3				III
			WEIS				0710.9	0711.3	1				IIIB
			LEAR				0711.0	0711.0	2				III
			WEIS				0758.9	0759.7	3				IIIG
			LEAR				0759.0	0801.0	2				III
			SVTO				0759.0	0800.0	2				V
			WEIS				0843.3	0843.5	3				IIIG
			LEAR				0846.0	0847.0	3				III
			LEAR				0847.0	0848.0	3				III
			WEIS				0847.2	0848.1	3				IIIG

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24			SVTO				0848.0	0849.0	3				III
			WEIS				0950.2	0950.3	1				IIIB
			WEIS				0956.1	0958.6	3				IIIGG,RS
			SGMR				1249.0	1250.0	1				III
	1123	1719	WEIS				1249.8	1250.1	1				IIIG
			SGMR				1300.0	2239.0	1				CONT
			SGMR				1453.0	1507.0	2				S
			WEIS				1454.8	1457.8	3				IIIG,F
			WEIS				1500.2	1500.3	1				IIIB
			WEIS				1503.2	1503.4	2				IIIG
			WEIS				1507.1	1508.2	3				IIIG
			WEIS				1550.7	1550.9	2				IIIG
			PALE				2018.0	2022.0	3				III
			SGMR				2020.0	2022.0	2				V
			PALE				2026.0	2034.0	3				IV
			SGMR				2026.0	2037.0	3				IV
			SGMR				2032.0	0000.0	3				II
			PALE				2036.0	2042.0	3				II
			SGMR				2048.0	2049.0	2				V
25			LEAR				0021.0	0022.0	2				III
			PALE				0022.0	0023.0	2				III
			LEAR				0353.0	0356.0	2				III
	0554	1719	WEIS				0627.0	1543.0	2				IIIN
			LEAR				0630.0	0633.0	2				III
			SVTO				0631.0	0633.0	2				III
			LEAR				0827.0	0834.0	2				III
			SVTO				0857.0	0948.0	2				CONT
			SGMR				1528.0	1553.0	2				S
			WEIS				1544.1	1550.3	3				IIIGG
			SVTO				1548.0	1549.0	3				III
			WEIS				1550.7	1554.7	2				II H,HB,split-
			SGMR				1615.0	1616.0	3				V band
			WEIS				1615.4	1616.3	3				IIIGG
			SVTO				1616.0	1616.0	3				III
			PALE				1929.0	1929.0	1				III
			SGMR				1929.0	1929.0	1				III
			PALE				1948.0	1948.0	1				III
			SGMR				1948.0	1948.0	1				III
			PALE				2151.0	2153.0	1				III
26	0553	0826	WEIS										
			LEAR				0710.0	0714.0	1				III
			LEAR				0740.0	0740.0	1				III
			LEAR				0808.0	0808.0	1				III
			LEAR				0820.0	1013.0	1				CONT
	0831	1722	WEIS				1047.2	1047.3	1				IIIB
			SGMR				1251.0	2241.0	1				CONT
			WEIS				1252.7	1259.4	2				Spikes
			SGMR				1308.0	1327.0	3				II
			SGMR				1308.0	1327.0	3				IV
			SVTO				1308.0	1326.0	3				IV
			WEIS				1308.3	1312.7	3				IIIGG
			WEIS				1309.7	1328.3	3				II H,HB,patchy
			SGMR				1348.0	1408.0	2				S
			WEIS				1348.6	1349.8	1				IIIG
			WEIS				1355.3	1355.9	1				IIIB
			SVTO				1401.0	1407.0	3				V
			WEIS				1402.6	1407.8	3				IIIGG,Spikes
			SGMR				1403.0	1406.0	3				V
			WEIS				1427.2	1427.6	1				IIIG
27			LEAR				0322.0	0325.0	2				III
			LEAR				0830.0	0832.0	1				III
	0549	1709	WEIS				1014.2	1015.6	3				DCIM
			WEIS				1032.9	1033.3	1				IIIG
			WEIS				1119.2	1120.3	2				IIIG,DCIM
			WEIS				1208.3	1210.9	1				DCIM
			WEIS				1349.9	1350.1	3				IIIG

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27		WEIS				1625.3	1626.9	2				IIIGG
		PALE				1943.0	1944.0	2				III
		SGMR				1943.0	1944.0	2				III
		PALE				2101.0	2103.0	2				V
		SGMR				2101.0	2102.0	2				III
		PALE				2223.0	2223.0	2				V
		SGMR				2224.0	2224.0	1				III
		PALE				2238.0	2238.0	2				III
		SGMR				2238.0	2238.0	1				III
		LEAR				2258.0	2258.0	1				III
		PALE				2258.0	2258.0	1				III
		LEAR				2317.0	2320.0	2				III
		PALE				2317.0	2320.0	2				III
		LEAR				2345.0	2346.0	1				III
28		LEAR				0010.0	0010.0	1				III
		PALE				0010.0	0017.0	2				III
		LEAR				0017.0	0025.0	2				III
		LEAR				0044.0	0045.0	2				III
		PALE				0044.0	0044.0	2				III
		LEAR				0111.0	0115.0	2				III
		PALE				0113.0	0116.0	1				III
		LEAR				0139.0	0141.0	2				III
		LEAR				0204.0	0204.0	1				III
		PALE				0213.0	0216.0	1				III
		LEAR				0229.0	0235.0	3				III
		PALE				0229.0	0235.0	2				III
		PALE				0240.0	0241.0	2				III
		PALE				0329.0	0335.0	2				III
		LEAR				0439.0	0440.0	2				III
		LEAR				0601.0	0609.0	2				II
		LEAR				0602.0	0610.0	2				II
		SVTO				0602.0	0604.0	3				III
		LEAR				0716.0	0717.0	2				III
	0553	1724 WEIS				0716.2	0717.3	2				IIIG
		LEAR				0751.0	0752.0	1				III
		WEIS				1030.8	1031.9	2				Spikes
		SVTO				1031.0	1049.0	2				IV
		WEIS				1031.2	1035.9	2				IIIG
		WEIS				1033.9	1048.8	2				II H,HB,patchy
		SVTO				1041.0	1044.0	3				V
		WEIS				1042.0	1043.0	2				IIIG
		SGMR				1045.0	1046.0	2				V
		WEIS				1048.9	1050.1	3				IIIG,U
		SGMR				1049.0	1049.0	1				III
		SGMR				1106.0	1107.0	1				III
		WEIS				1106.7	1108.1	2				IIIG
		SGMR				1149.0	1149.0	1				III
		SGMR				1254.0	1255.0	1				III
		SGMR				1340.0	1630.0	1				CONT
29		SGMR				1404.0	1404.0	1				III
		SVTO				1404.0	1404.0	2				III
	0547	1417 WEIS				1404.0	1404.6	1				IIIG
		SGMR				1428.0	1428.0	1				III
	1432	1726 WEIS				1551.8	1551.9	1				IIIB
		WEIS	1613.8	1614.0	1							IIIG
		SGMR				1730.0	1733.0	1				V
		SGMR				1946.0	1946.0	1				III
30		LEAR				0203.0	0204.0	1				III
		PALE				0204.0	0204.0	1				III
		LEAR				0218.0	0221.0	2				V
		PALE				0218.0	0219.0	2				III
		LEAR				0404.0	0410.0	2				III
		LEAR				0535.0	0535.0	2				III
		LEAR				0816.0	0828.0	2				S
	0543	1728 WEIS				0816.1	0818.3	3				IIIG
		SVTO				0817.0	0818.0	2				V

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30		LEAR				0853.0	0858.0	1				III
		WEIS				0855.8	0856.2	1				IIIG
		WEIS				1002.4	1002.7	1				IIIB
		SGMR				1236.0	1236.0	1				III
		SVTO				1236.0	1236.0	1				III
		WEIS				1236.7	1236.8	2				IIIB
		PALE				2219.0	2219.0	1				III
		SGMR				2219.0	2219.0	1				III
		PALE				2229.0	2230.0	1				III
		LEAR				2332.0	2332.0	1				III
		PALE				2332.0	2332.0	2				III
31		LEAR				0129.0	0134.0	1				III
		LEAR				0241.0	0241.0	2				III
		LEAR				0458.0	0458.0	2				III
		LEAR				0648.0	0650.0	2				III
0541	1105	WEIS				0648.9	0651.8	2				IIIG
		LEAR				0717.0	0727.0	1				III
		WEIS				0717.7	0717.8	1				IIIG
		WEIS				0727.7	0727.8	1				IIIG
		SGMR				1450.0	1450.0	1				III
		SGMR				1516.0	1517.0	1				III
1114	1729	WEIS				1549.0	1710.0	1				IIIN
		SGMR				1559.0	1624.0	1				S
		SGMR				1601.0	2109.0	1				CONT

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

C O S M I C R A Y I N D I C E S
(Neutron Monitor)

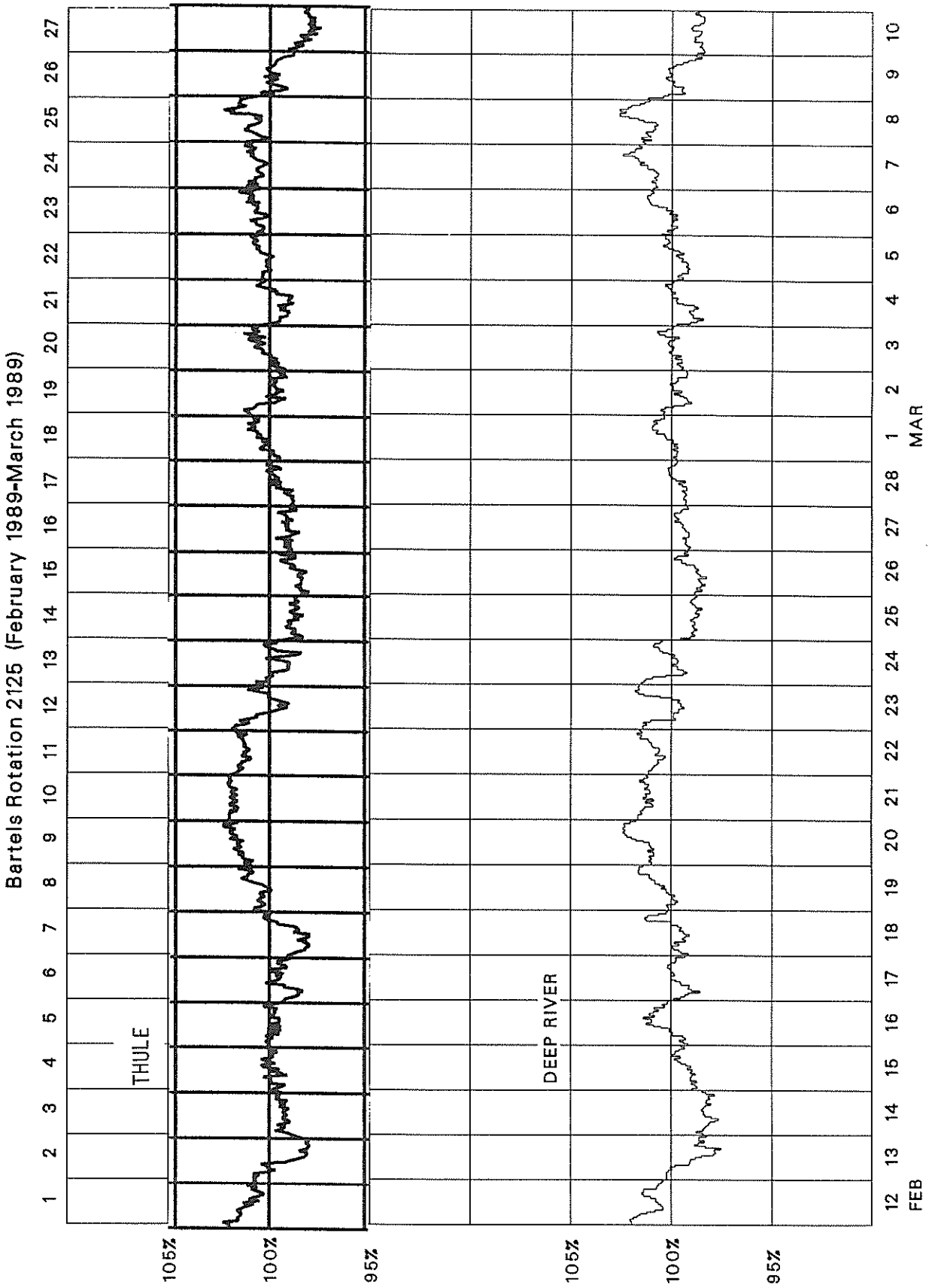
MARCH 1989

Day	THULE Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	4054	6351.5	5679.8		3505.2	
2	4035	6316.7	5643.7		3491.0	
3	4053	6331.7	5658.8		3489.5	
4	4020	6303.7	5613.6		3479.2	
5	4055	6317.2	5639.0		3501.0	
6	4067	6362.1	5660.1		3511.8	
7	4069	6417.8	5690.9		3523.6	
8	4083	6433.3	5701.7		3522.8	
9	4025	6322.8	5624.2		3524.7	
10	3958	6250.1	5552.7		3508.7	
11	3991	6283.9	5594.0		3516.7	
12	3976	6270.4	5575.9		3514.3	
13	3721	5879.7	5228.5		3449.5	
14	3458	5456.9	4901.9		3303.1	
15	3474	5459.6	4923.4		3289.3	
16	3479	5523.5	4963.5		3291.9	
17	3515	5560.4	5001.5		3331.5	
18	3596	5654.9	5080.6		3345.3	
19	3595	5656.1	5050.9		3344.4	
20	3674	5759.7	5137.2		3369.9	
21	3770	5895.7	5289.7		3419.6	
22	3804	5874.3	5317.6		3433.3	
23	3807	5986.0	5352.0		3437.5	
24	3846	6055.3	5404.5		3453.2	
25	3876	6058.4	5407.8		3435.8	
26	3912	6096.8	5443.1		3442.5	
27	3811	5898.6	5288.9		3399.5	
28	3772	5866.0	5271.2		3411.5	
29	3812	5990.7	5364.9		3444.6	
30	3864	6077.2	5426.6		3457.3	
31	3886	6103.5	5456.3		3467.8	
Mean	3841	6029.5	5385.3		3439.1	

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.

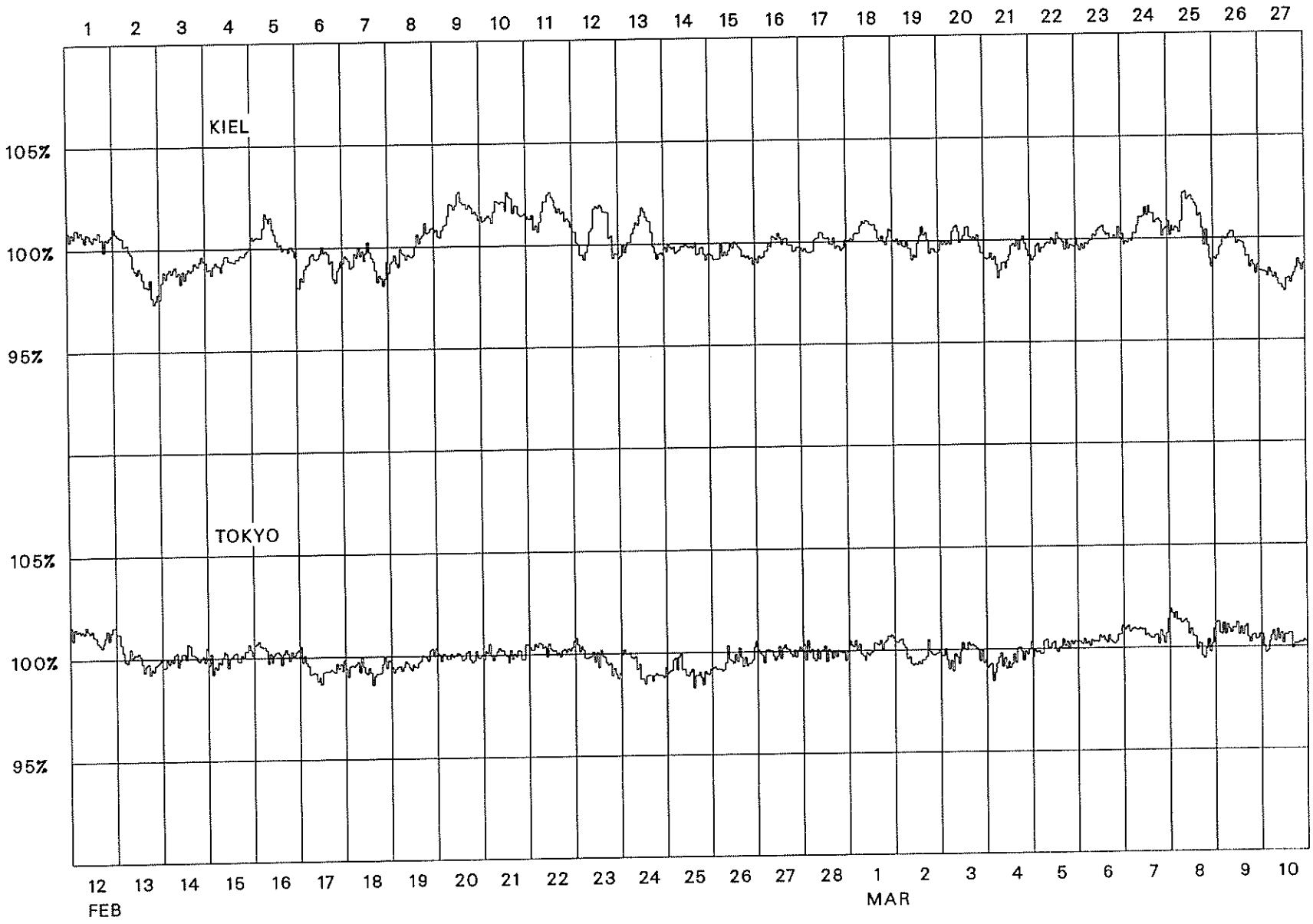
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2125 (February 1989-March 1989)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2125 (February 1989-March 1989)



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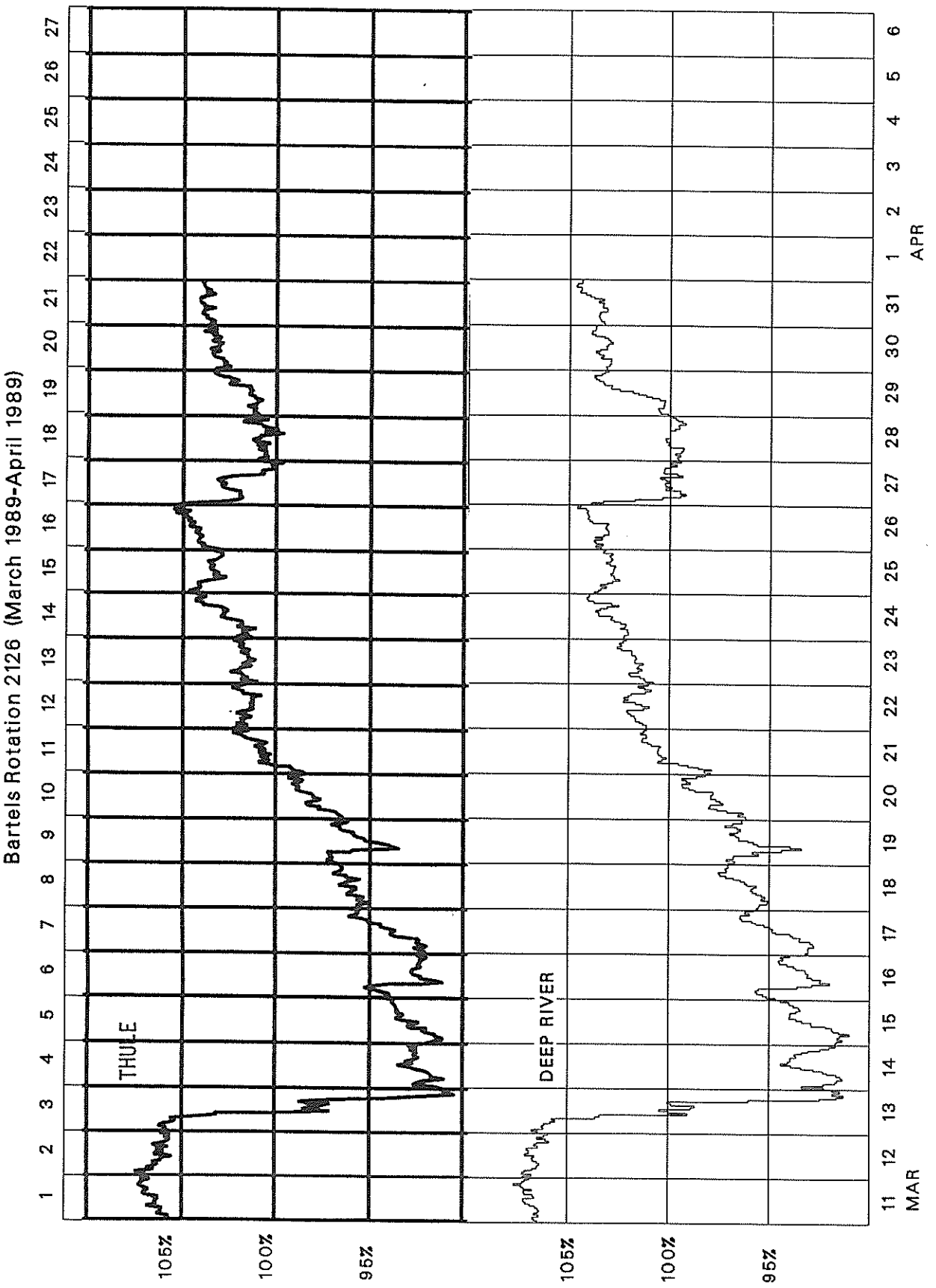
Mar 89

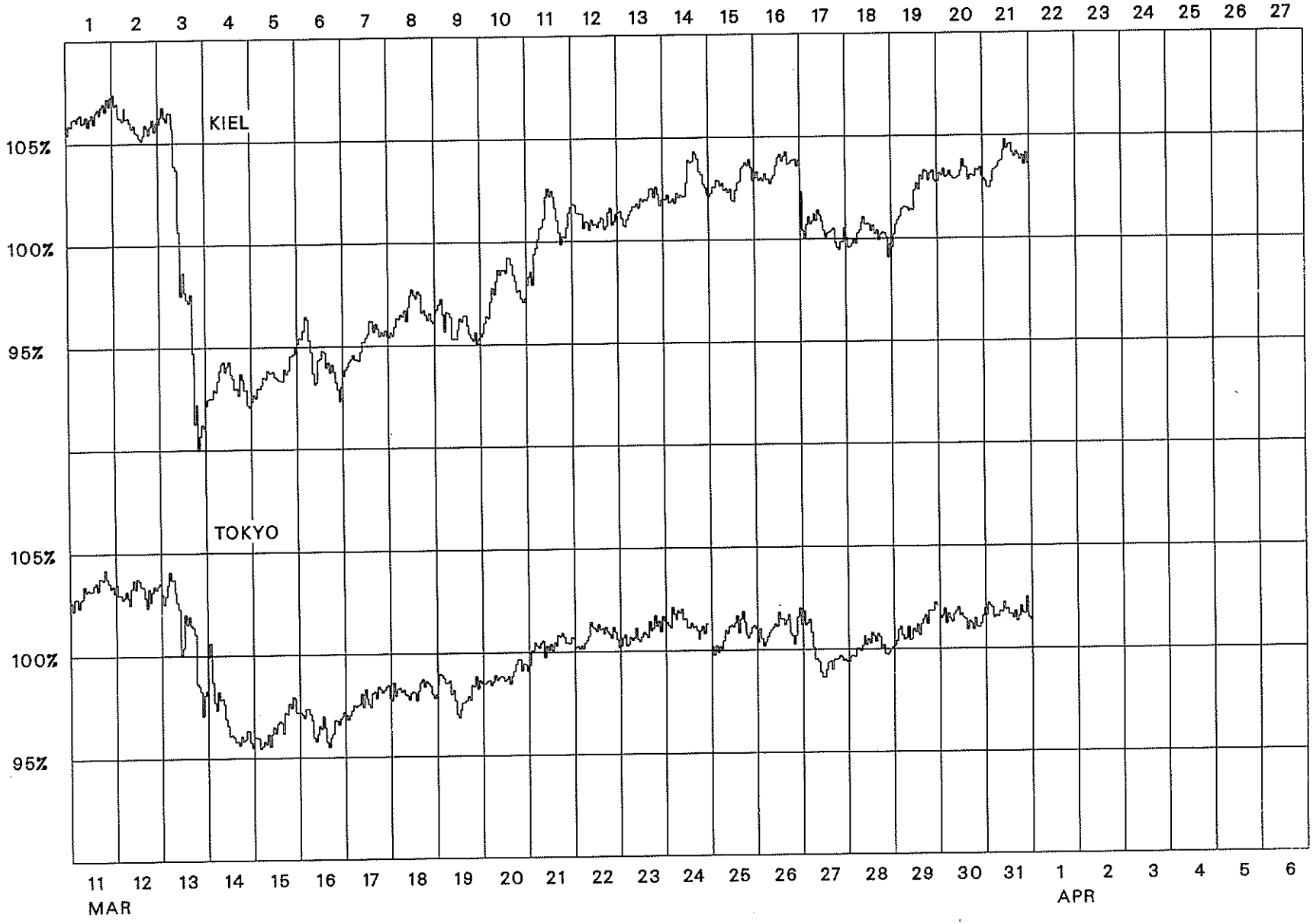
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2126 (March 1989-April 1989)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2126 (March 1989-April 1989)



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Mar 89

GEOMAGNETIC ACTIVITY INDICES

March 1989

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	Q2A	3+	3	2	3-	3+	3-	2	2+	21+	12	0.7	3	3-	2-	2+	3+	3-	2+	3-	24	24	30	24 30
2		3+	6-	4-	3+	4	3+	3	3+	30-	25	1.2	3+	5	4-	3+	4-	3	3+	3-	44	44	51	53 42
3		3	5	6-	5-	5-	5	4	3	35	37	1.4	3-	4-	5-	4	4+	4+	4	3-	52	42	55	48 49
4	Q3A	3+	2+	2	3+	4+	3	1	1-	20	13	0.8	3	1+	2-	3	4	3-	1-	1	22	25	23	24 25
5		3-	4	5	5+	5-	3+	4-	3+	32	30	1.3	2+	3+	4-	5-	4+	3	3	3	43	54	42	54 41
6		4	3	3+	4-	5-	4	4	3+	30	24	1.2	3+	3	3	3+	4	3+	4-	3	37	42	28	31 39
7	Q9A	4	4+	3+	3	3-	3	2	3	25+	18	1.0	4-	4-	3-	3-	3-	3-	2	3-	27	40	21	35 26
8		2+	2+	3-	0+	1-	4+	5+	6-	24-	24	1.1	2	2	2+	1-	1-	4-	5+	5	38	51	35	13 73
9		5+	5	3+	3+	4-	4	4-	5-	33	31	1.3	5-	4	3-	4-	3+	4-	4-	4+	48	52	51	46 58
10	Q10A	4+	4	4-	3-	3-	3	3	3+	27-	19	1.0	4-	4-	3	3-	2+	3	3	3	32	31	28	31 28
11	Q8A	3-	3	3	4-	3	3	3-	4	25	17	0.9	2+	3-	3-	4-	3	3-	3	4-	30	32	29	33 28
12		5	3	3	3-	3	5-	4	3	28+	23	1.1	4+	3-	3-	3-	3	4	4-	3	37	40	36	37 39
13	D1	6	8-	9-	8+	8+	8+	9-	9	65	246	2.2	6-	6+	8-	8+	8	8	9-	9	393	357	340	244 452
14	D2	9	8-	8-	6-	5	5+	8-	7+	55+	158	2.0	9	7	7	5	4	5-	7-	7-	229	214	201	307 108
15		7-	6	5-	5	4+	5-	4	3	38+	49	1.6	6-	5-	4+	5-	5-	4	4-	3-	69	71	78	103 45
16	D5	2	5	5+	7-	5+	5	5	4-	38	50	1.6	2+	5-	4+	6	5	5-	4+	3+	76	69	71	78 63
17		4+	5+	5+	4+	4+	4+	4-	3-	34+	34	1.4	4-	4-	5-	4+	4+	4	4-	3-	52	48	47	58 38
18	Q4A	1	2	2	2	4	5+	1+	2	20-	15	0.8	1+	2-	2	2+	4-	5-	2-	2-	24	17	33	11 39
19		1	4	6+	6+	7-	6	3+	3-	36+	55	1.6	1+	4	5+	5	6	5	4-	2+	75	61	88	78 72
20	Q5A	2+	4-	3+	2+	2+	2+	2-	4	22	14	0.8	2	3	3-	2	2+	2+	2-	3+	21	27	16	19 24
21		4	4	4+	4-	4-	3-	3	4-	29	22	1.1	4-	3	4	3+	3	2	3-	3	34	35	28	37 26
22		3	3	5-	4	4+	5-	6	6-	35+	39	1.4	3-	3-	4	4-	3+	4-	5-	5-	50	69	42	34 77
23		4+	3	3	4+	5	6-	5-	5-	35-	36	1.4	3	2+	2+	4-	5-	5+	5-	4+	56	48	58	33 74
24	Q7A	5	4+	3+	2+	2-	2-	1	1	20+	16	0.9	4	4-	3	3-	2-	2-	1+	1+	25	24	25	37 12
25	Q1A	1+	1	1+	2+	1+	3-	4	3	17	10	0.6	2-	1+	1+	2	1+	3-	4-	3	19	20	20	12 28
26	Q6A	3-	3	2-	3	4-	2+	2	4	22+	14	0.8	2+	2	1+	3	3	2	2	4	24	30	24	20 34
27		3+	3-	4+	4-	6-	6+	5	5+	36+	44	1.5	3	3-	4+	3+	4+	6-	4+	5	62	74	60	40 94
28		4+	3+	4+	6-	6-	5	4	4-	36	39	1.4	4	3+	4	5	5-	4	4-	3+	59	52	57	46 63
29	D3	6+	6	5+	4+	5-	5+	7	6	45	71	1.8	5	5-	5-	4-	4	4	6	5	82	85	72	74 84
30		4+	5+	5+	4-	3	3+	6-	7-	37+	47	1.5	4-	5-	5-	4-	3-	3-	5	6-	64	56	67	58 65
31	D4	5+	5+	4+	4+	5	6-	6-	5+	41	52	1.6	5-	4+	4-	4	5-	5-	5	4+	71	59	72	54 77
Mean											41	1.26									61.9	61.1	59.2	60.1

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	3	2+	2	2+	3+	3	2+	3-	23	3	3-	2-	2+	3+	3-	2+	3-	24	168.8*	127	135	120	
2	3	5	3+	4-	4-	3	3	3	43	3+	5+	4	3+	3+	3	3+	2+	45	173.7	107	125	126	
3	3-	4-	5-	4	5-	4+	4-	3-	50	3-	4	5-	4	4+	4+	4	3-	53	169.0	103	113	121	
4	3-	2	2	3	4-	3-	1	1	21	3+	1	2-	3	4	2+	1-	1	22	163.6	98	99	115	
5	2+	3+	4	5	5-	3+	3+	3	48	3-	3+	3+	5-	4	3	3	3-	38	183.5	90	92	136	
6	3+	3	3+	3+	4	3+	4-	3	38	3+	3	3	3+	4	3+	3+	3-	36	201.1A	103	112	155	
7	4-	4-	3-	3	3-	3-	2-	3-	28	3+	3+	3-	2+	3-	2	2+	3-	25	190.3*	98	99	144	
8	2-	2+	3-	1-	1-	4	5+	5-	40	2	2	2-	1	0+	4-	5	5	36	202.6	109	118	157	
9	5-	4+	3-	4-	4-	4-	3+	4	48	5-	4-	3-	3+	3+	3+	4-	5-	49	204.2*	133	143	159	
10	4-	4-	3+	2+	2+	3	3	3	31	4	3+	3	3-	2+	3-	3	3	32	212.4*	163	160	167	
11	2	2+	3-	4-	3-	3-	3-	3+	27	3-	3-	3-	4-	3	3-	3	4+	33	232.4*	155	161	189	
12	4	3-	3-	3-	3	4	4-	3	35	5-	3	3-	3-	3-	4	3+	3	39	237.6*	140	158	195	
13	6-	6	8	9-	8	8	9-	9	397	6-	7-	7+	8+	8	8-	9-	9	390	253.0	154	179	211	
14	9	7	7	5	4+	5-	6+	7-	230	9-	7+	7-	5+	4-	4+	7	7-	228	263.8A	181	185	223	
15	5+	5	5-	5-	4+	4	3+	3	70	6-	5-	4	4+	5-	4	4-	3-	67	255.8A	165	201	214	
16	2	5-	5-	6	5-	5	5-	3+	79	2+	5-	4+	6	5	4+	4+	3+	72	261.6A	187	191	221	
17	3+	4-	4+	4+	5-	4	3+	3-	51	4-	4	5-	4+	4	4-	4-	3-	53	240.7	177	193	198	
18	1	2-	2	2+	3+	5-	1+	2	23	1+	2-	2	2	4	5-	2-	2-	25	234.2	164	183	191	
19	1	4-	5+	5	6	5	4-	3-	72	1+	4	5+	5-	6	5+	4	2+	77	221.1	148	162	177	
20	2	3	3-	2	2+	3-	2	4-	23	2	3	2	2+	2	2-	2-	3	18	218.2*	158	164	174	
21	4	3	4	3+	3	2+	3-	3	36	4-	3	4	3+	3	2-	3-	3	32	213.5*	155	150	169	
22	3-	3-	4+	3+	3+	4	5-	5-	50	3-	3	4-	4	3+	3+	5-	5	49	222.5	155	152	178	
23	3+	2+	2+	4-	5	5	5-	4+	56	3	2	2	4-	5-	6-	5-	4	56	216.1*	145	171	171	
24	4	4-	3+	3	2-	2	2	2-	27	4	4-	3-	2+	2	2-	1+	1+	23	193.2*	150	146	147	
25	2-	1+	1+	2	1+	3-	4-	3	19	2-	1	2-	2	1+	3-	3+	3	18	186.2*	131	136	139	
26	2+	2+	2-	3	3+	2+	2+	4+	27	3-	2	1	3	3	2-	2-	4-	22	171.6*	117	127	123	
27	3	3-	4+	3	5	6	4+	5	69	3	3-	4	3+	4-	5	4	5	55	162.6	102	107	114	
28	4	4-	4+	5+	5	4	4-	3+	64	4+	3	4	5-	5-	4-	4-	3+	54	157.3	89	94	108	
29	5	5	5-	4-	4	4	6-	5-	81	5	4+	4+	4-	4	4	6	6-	84	155.8	95	96	106	
30	4-	4+	5-	4-	3-	3	5	5+	62	4	5-	5-	4-	3	2	5	6-	67	159.8	70	79	111	
31	4+	4+	4-	4	4+	5-	5	4+	64	5	4+	4-	4+	5-	5-	5+	5-	77	167.5	91	102	119	
Mean									62.3									61.3	203.0	131.0	139.8	157.2	

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

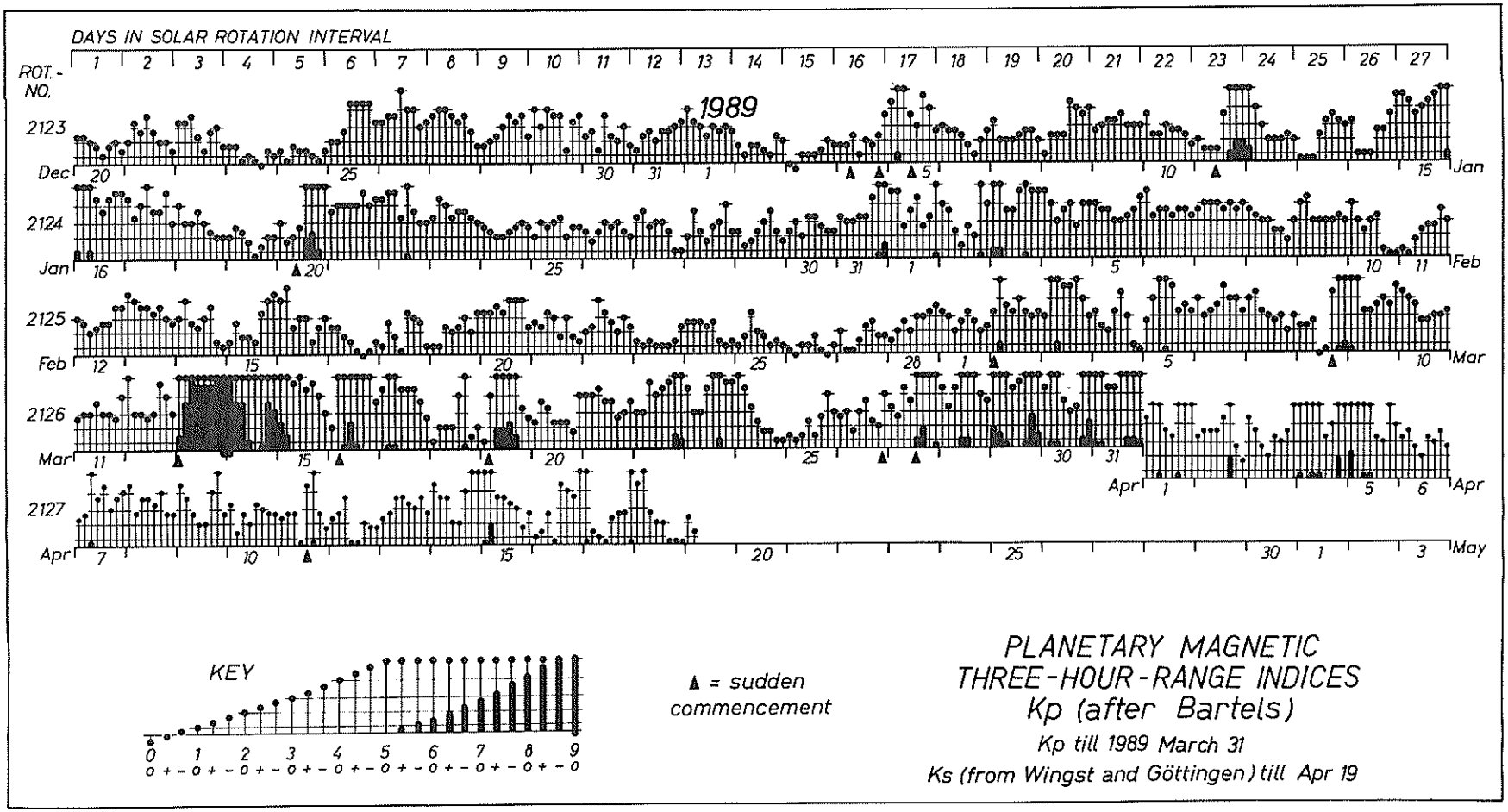
April 1988 to March 1989

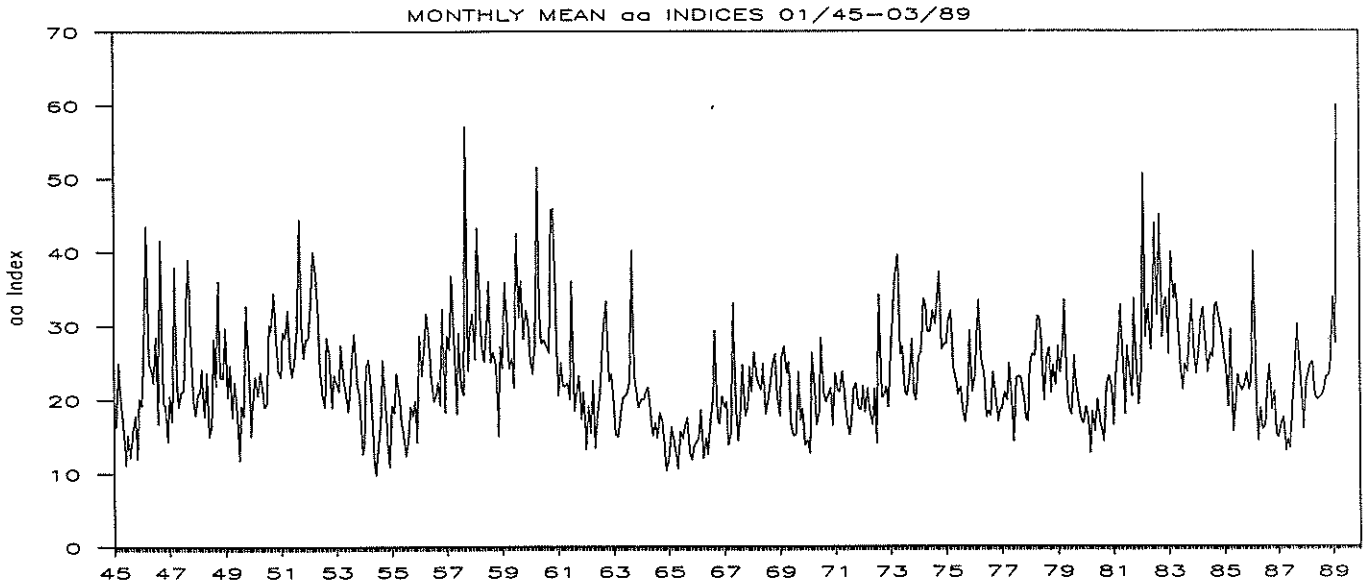
DAY	APR 88	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN 89	FEB	MAR
1	13	5	6	14	8	21	11	7	5	15	29	12
2	19	7	5	10	5	12	5	30	15	6	21	25
3	48	7	2	7	6	8	3	26	18	4	44	37
4	78	13	3	4	2	7	9	8	10	9	24	13
5	24	20	10	5	6	4	18	10	4	33	22	30
6	48	106	8	11	5	3	38	13	3	10	23	24
7	15	13	6	8	5	5	6	17	3	10	25	18
8	7	13	6	10	3	6	7	18	5	17	14	24
9	10	10	8	3	13	4	17	12	4	16	19	31
10	16	11	9	7	9	7	85	14	8	12	12	19
11	9	6	7	21	8	51	13	10	17	37	10	17
12	14	5	4	15	16	20	6	18	14	20	14	23
13	10	5	6	5	17	10	6	8	20	11	21	246
14	9	4	20	7	21	11	6	11	13	14	14	158
15	6	6	9	11	16	12	6	13	10	38	14	49
16	5	11	6	22	8	6	10	18	25	43	17	50
17	5	24	10	6	5	20	15	11	35	28	5	34
18	7	18	14	9	8	34	30	8	25	15	9	15
19	9	6	21	9	8	23	12	4	20	7	9	55
20	7	6	13	3	17	11	18	2	7	45	21	14
21	8	10	5	26	7	11	7	6	11	28	11	22
22	44	8	12	27	24	20	3	4	13	30	13	39
23	21	6	8	12	10	11	6	2	4	22	5	36
24	7	8	17	7	11	8	6	4	4	10	9	16
25	6	6	27	6	15	12	4	7	22	12	7	10
26	5	8	17	16	9	8	7	20	25	10	4	14
27	6	3	9	12	15	5	8	12	20	12	6	44
28	11	3	10	11	9	5	9	9	14	13	13	39
29	6	7	26	7	13	4	3	8	20	10		71
30	7	12	22	6	12	8	5	37	11	12		47
31		9		8	13		10		12	32		52
MEAN	16	12	11	10	10	12	13	12	13	19	15	41

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

University of Göttingen

Kp through March 31, 1989





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	20.5	20.0	20.2	20.6	21.4	23.2	23.3	25.5	22.5
1989	33.9	27.5	60.1										40.5

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

MARCH 1989

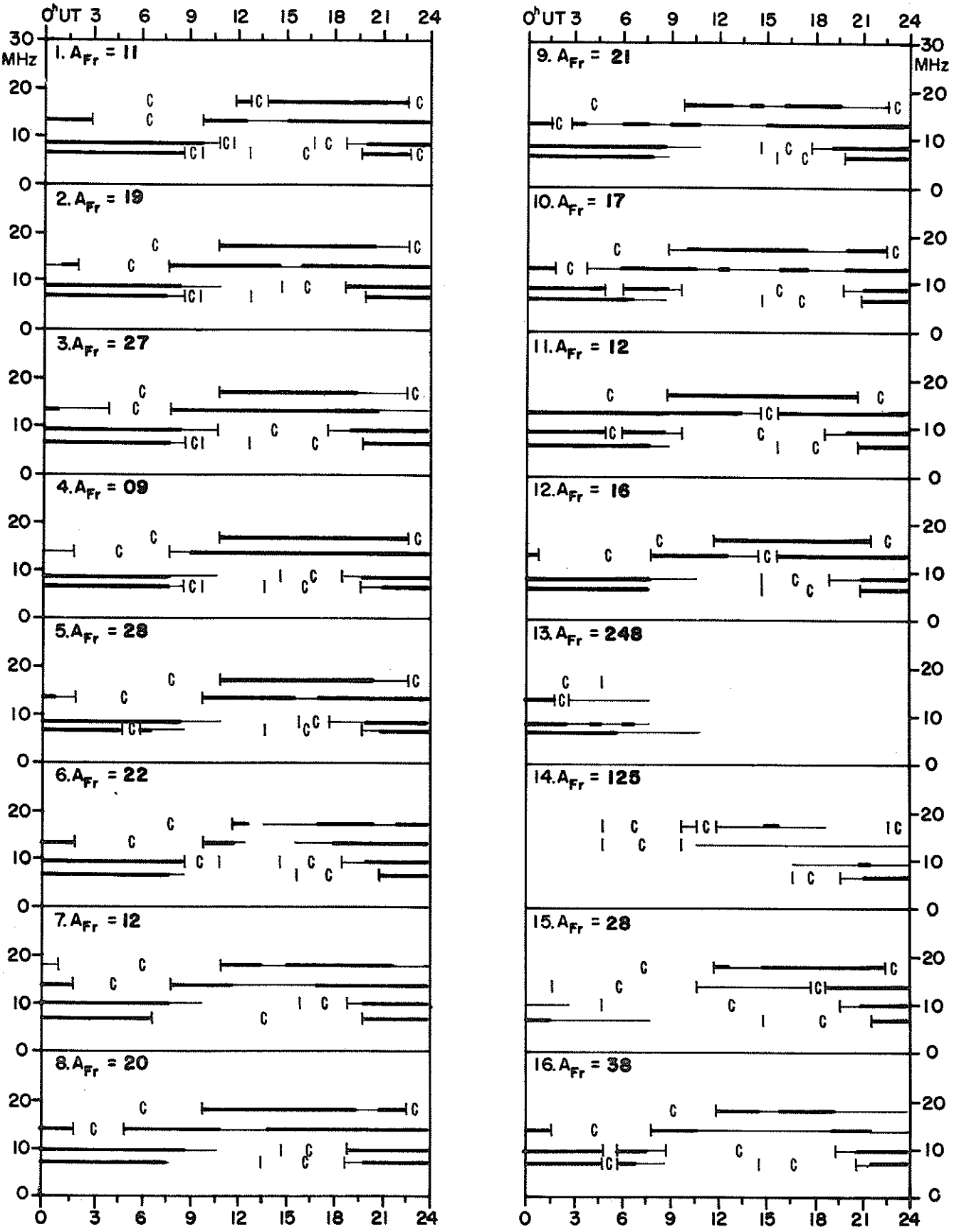
Sta	Geomag Lat	Commencement Day	Time (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
HYB	07.6N	01	0300	..	..	..	..	03(3,4,7)	5	5	172	32	03	22
SIT	60.0N	02	04--	..	..	..	..	02(2)	7	--	--	560	03	20
FRD	49.6N	02	00--	..	..	..	..	02(2) 03(3,5)	5	20	152	61	03	20
ABG	09.5N	02	0200	..	..	..	..		-	7	139	40	05	19
GUA	04.0N	02	0120	..	..	..	..	02(2)	6	--	180	30	02	19
ANN	01.5N	02	0200	..	..	..	..		-	4	206	106	05	19
ETT	00.6S	02	0252	SC	- 0.8	18	14		-	6	255	86	03	21
HER	33.7S	02	0246	SC	1	12	11	02(2)	5	28	91	68	02	15
KGL	56.5S	02	0247	SC	2	18	8	02(2)	5	24	204	176	02	21
COL	64.6N	03	05--	..	..	..	..	03(3,4,5,6)	6	224	1165	760	03	20
GUA	04.0N	03	06--	..	..	..	..	03(3)	5	--	100	10	03	21
KGL	56.5S	03	0100	..	..	..	..	03(5,6)	6	57	368	244	04	03
COL	64.6N	05	04--	..	..	..	..	05(4,5)	7	276	1835	830	05	17
FRD	49.6N	05	03--	..	..	..	..	05(3,4,5) 06(5)	5	19	126	46	07	06
KRC	16.4N	05	02--	..	..	..	..	05(4)	6	5	98	40	07	17
GUA	04.0N	05	10--	..	..	..	..	05(5)	5	--	60	10	05	20
ETT	00.6S	05	0100	..	..	..	..		-	7	201	63	07	12
HER	33.7S	05	06--	..	..	..	..	05(4)	5	17	81	47	05	16
HER	33.7S	06	06--	..	..	..	..	06(5)	6	52	88	66	06	18
COL	64.6N	08	1754	SC*	- 23	72	- 23	09(4)	7	135	1440	660	09	24
FRD	49.6N	08	1754	SC*	3.6	41	- 4.5	08(7,8) 09(1)	5	27	132	101	10	06
BJI	28.5N	08	1755	SC	0.9	55	4	08(7)	7	9	166	28	09	10
KRC	16.4N	08	1753	SC	- 3.4	64	35	08(7)	7	8	150	63	09	--
ABG	09.5N	08	1756	SC	- 1.2	41	- 10	08(7)	6	7	134	40	11	24
HYB	07.6N	08	1755	SC	- 0.6	41	- 2	08(7)	6	5	126	28	10	04
GUA	04.0N	08	1755	SC	.1	26	- 8	08(7)	6	--	110	40	09	10
ANN	01.5N	08	1756	SC	- 1.8	143	32		-	5	172	90	11	24
ETT	00.6S	08	1755	SC	- 0.8	31	34		-	4	178	68	10	15
HER	33.7S	08	1755	SC*	2	33 *	20	08(7)	6	20	99	108	09	06
KGL	56.5S	08	1754	SC	6	64	24	08(7,8)	7	73	432	345	10	12
GUA	04.0N	09	21--	..	..	..	..	10(1)	5	--	100	20	10	08
GUA	04.0N	10	22--	..	..	..	..	11(2)	5	--	150	30	11	14
GUA	04.0N	11	22--	..	..	..	..	12(1)	5	--	130	40	12	15
KGL	56.5S	11	2100	..	..	..	..	11(8) 12(1)	6	28	284	340	12	21
HER	33.7S	12	0800	..	..	..	..	12(6)	5	30	106	84	12	21
COL	64.6N	13	0127	SC*	- 36	358	- 77	13(6)	9	642	3590	2945	15	21
SIT	60.0N	13	0127	SC*	- 10 *	87.*	- 11	13(3)	9	--	--	--	15	20
FRD	49.6N	13	0127	SC*	2.6	94	- 13	13(4,7,8) 14(1)	9	155	2315	1362	15	23
BJI	28.5N	13	0128	SC*	6.5	48	4	14(1)	9	46	741	136	15	22
KRC	16.4N	13	0127	SC	- 2	60	28	13(4)	9	25	465	253	15	22
ABG	09.5N	13	0127	SC	- 0.4	44	- 5	13(4)	9	22	--	120	15	24
HYB	07.6N	13	0128	SC	0.4	46	- 4	13(4,6,7,8) 14(1)	9	15	719	88	15	22
GUA	04.0N	13	02--	..	..	..	..	13(4)	9	10	570	100	13	19
GUA	04.0N	13	19--	..	..	..	..	14(1)	9	20	440	120	14	15
ANN	01.5N	13	0127	SC	- 1.5	18	6		-	-	- --	274	15	24
ETT	00.6S	13	0125	SC	- 0.6	41	41		-	18	838	415	15	22
HER	33.7S	13	0127	SC	8 *	47	41	13(4,8) 14(1)	9	131	679	587	15	22
GNA	43.2S	13	0128	SC*	- 17.2*	25	- 58 *	13(7,8)	9	111	7380	700	15	22
CNB	43.9S	13	0127	SC*	- 7.0*	43	24	13(8) 14(1)	9	114	1015	367	15	19
KGL	56.5S	13	0743	SC	95	450	68	13(4,5,6,7,8) 14(1,7)	9	352	3300	1190	15	23
GUA	04.0N	14	18--	..	..	..	..	14(8)	7	10	170	70	15	17
GNA	43.2S	15	0532	SC*	4.4*	66 *	33 *	16(4)	6	25	160	250	17	23
COL	64.6N	16	0534	SC	- 22	89	-216	16(4) 17(4)	7	399	1750	1185	17	23
SIT	60.0N	16	0133	SC	- 7	66	17	16(4)	7	--	--	--	17	19
FRD	49.6N	16	0532	SC	1.6	63	- 9.2	16(4)	6	22	168	99	17	19
BJI	28.5N	16	0532	SC*	1.7	63	3	16(4)	7	11	208	41	16	23

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

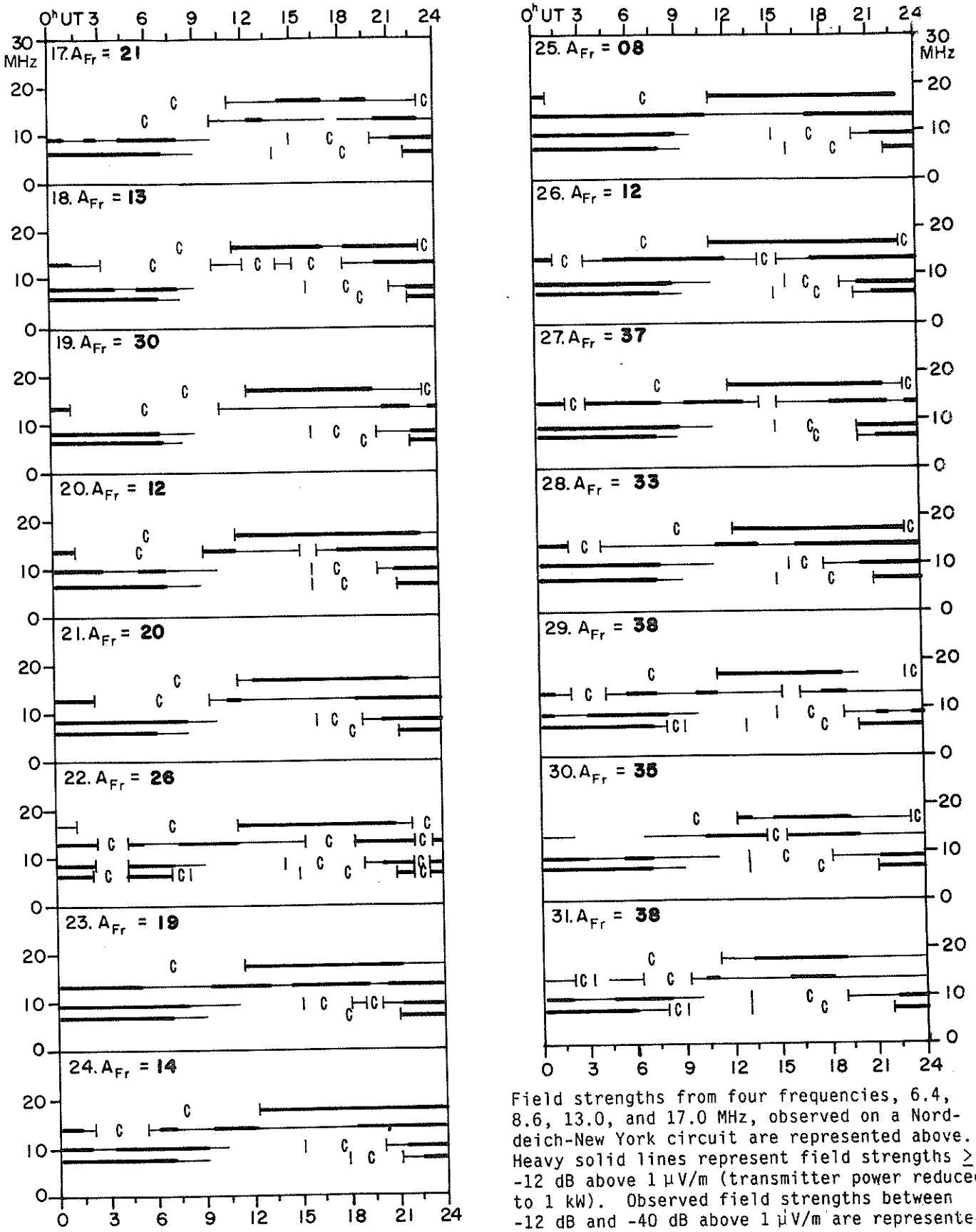
MARCH 1989

Sta	Geomag Lat	Commencement Day	Time (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges K	D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
KRC	16.4N	16	0312	..	..	..	..	16(4)	7	10	230	69	17	23
ABG	09.5N	16	0530	SC	- 1.0	50	- 13	16(4)	6	10	258	41	17	24
HYB	07.6N	16	0534	SC	- 0.3	56	- 9	16(5)	7	8	263	30	17	23
GUA	04.0N	16	08--	..	..	..	..	16(4)	7	--	170	20	16	23
ETT	00.6S	16	0533	SC	- 2.5	102	75		-	11	351	143	17	21
HER	33.7S	16	0532	SC	4	9	15	16(4,5)	5	32	171	106	17	19
CNB	43.9S	16	0532	SC*	2.6	86 *	16 *	16(4)	6	21	176	68	17	19
KGL	56.5S	16	0532	SC	14	32	8	16(4)	7	85	432	200	17	04
GUA	04.0N	17	00--	..	..	..	..	17(3)	5	--	160	30	17	17
KGL	56.5S	17	0658	SC	9	72	8	17(6)	6	48	240	112	18	01
COL	64.6N	19	0423	SC*	- 12	498	- 78	19(5,6)	7	276	1450	1175	19	23
SIT	60.0N	19	0408	SC	..	..	..	19(5)	7	--	--	--	19	22
FRD	49.6N	19	0423	SC*	- 3.0	36	- 4.8	19(5)	6	28	156	76	20	07
BJI	28.5N	19	0423	SC	2.2	27	2	19(3)	6	11	141	44	19	23
KRC	16.4N	19	0408	SC	- 1	29	10	19(2)	6	8	172	80	20	06
ABG	09.5N	19	0421	SC	..	19	..	19(2,3)	6	8	243	75	19	24
HYB	07.6N	19	0424	SC	- 0.1	23	..	19(3,4,5,6)	6	6	318	46	20	03
GUA	04.0N	19	0420	SC*	.1	29	- 13	19(3)	6	--	190	40	19	20
ETT	00.6S	19	0422	SC*	- 1.2	41	30		-	11	450	151	20	18
HER	33.7S	19	0422	SC*	2 *	9	6	19(3)	6	39	170	85	19	23
GNA	43.2S	19	0423	SC*	- 4.5*	38 *	- 10 *	19(5)	6	26	120	200	19	23
CNB	43.9S	19	0423	SC*	- 0.9	53 *	10 *	19(3,5)	6	24	184	59	19	19
KGL	56.5S	19	0423	SC	6	20	4	19(5,6,7)	7	85	560	260	20	01
FRD	49.6N	20	21--	..	..	..	..	22(8) 24(1)	5	29	139	100	24	06
HYB	07.6N	20	2100	..	..	..	..	23(6)	6	5	198	23	24	04
GUA	04.0N	20	23--	..	..	..	..	21(1)	6	10	140	30	21	15
KRC	16.4N	22	03--	..	..	..	..	23(6)	6	5	115	60	24	09
ABG	09.5N	22	0500	..	..	..	..	23(6)	6	6	179	32	25	24
ETT	00.6S	22	0000	..	..	..	..		-	7	271	69	24	14
HER	33.7S	22	06--	..	..	..	..	22(6,7,8)	5	26	59	106	23	03
GUA	04.0N	23	13--	..	..	..	..	23(5)	5	--	60	20	23	21
GUA	04.0N	23	22--	..	..	..	..	23(8)	5	--	140	30	24	11
GNA	43.2S	23	10--	..	..	..	..	23(6)	7	29	100	160	24	10
CNB	43.9S	23	10--	..	..	..	..	23(5,6,7)	5	17	146	46	24	05
KGL	56.5S	23	0900	..	..	..	..	23(6)	7	71	512	424	24	09
SIT	60.0N	26	2249	SC	2	- 26	..	29(3)	7	--	--	540	03	05
FRD	49.6N	26	2249	SC*	- 1.3	47.5	- 6.7	27(6) 30(8)	6	38	183	114	03	06
KRC	16.4N	26	2244	SC	- 2.8	42	28	27(6)	7	9	230	90	--	--
ABG	09.5N	26	2245	SC	- 1.0	34	- 10		-	--	--	--	01	24
GUA	04.0N	26	2249	SC*	..	53	- 17	26(8)	5	--	160	30	27	13
ETT	00.6S	26	2249	SC	- 0.9	22	20		-	10	298	110	30	12
HER	33.7S	26	2250	SC	2	35	23	27(3,5)	5	38	117	96	27	14
GNA	43.2S	26	2240	SC*	- 4.9*	12	- 19 *	29(7) 30(8)	6	29	180	170	03	05
CNB	43.9S	26	2250	SC*	- 6.5*	15	20	27(3,6) 28(4,5) 29(1,3,7) 30(3,7,8) 31(4,5,7) 01(3)	5	24	194	70	02	19
BJI	28.5N	27	1343	SC	0.9	73	6	27(6)	7	13	189	40	30	13
HYB	07.6N	27	2249	SC	- 0.5	28	- 1	27(6)	7	7	277	27	28	01
GUA	04.0N	27	2209	..	..	..	..	27(8)	6	--	120	40	28	21
GUA	04.0N	27	1342	SC	.3	36	- 10	27(6)	6	--	80	20	27	21
ETT	00.6S	27	1343	SC	- 1.4	40	43		-	--	--	--	30	12
HER	33.7S	27	1342	SC*	8	26	48	27(6) 28(4) 29(7,8)	6	28	175	173	30	14
KGL	56.5S	27	1342	SC	4	40	10	29(7)	8	117	752	408	02	19
HYB	07.6N	28	0400	..	..	..	..	28(4,5) 31(3)	6	7	214	30	31	23
GUA	04.0N	28	23--	..	..	..	..	29(1)	6	--	130	30	29	12
GUA	04.0N	29	22--	..	..	..	..	30(3)	5	10	120	30	30	15
GUA	04.0N	30	18--	..	..	..	..	31(1)	5	10	130	30	31	08

TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH
MARCH 1989



TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH
MARCH 1989



Field strengths from four frequencies, 6.4, 8.6, 13.0, and 17.0 MHz, observed on a Norddeich-New York circuit are represented above. Heavy solid lines represent field strengths ≥ -12 dB above 1 μV/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB and -40 dB above 1 μV/m are represented by the fine line.

RADIO PROPAGATION QUALITY INDICES
MARCH 1989

Day	For Circuits from Norddeich to: Bracknell England	Rome Italy	Teheran Iran	New York USA (East)	Tokyo Japan	Canberra Australia
1.	6.4	6.9	7.8	6.5	6.3	6.4
2.	5.8	7.0	7.4	5.5	6.1	5.9
3.	6.0	7.1	5.3	4.6	3.7	5.4
4.	6.3	7.0	4.5	5.5	4.3	5.9
5.	7.2	7.3	5.3	5.3	5.3	6.3
6.	6.3	6.6	6.8	4.3	5.3	5.1
7.	4.7	5.8	6.4	5.4	5.8	5.0
8.	6.2	5.8	4.4	5.2	5.8	5.1
9.	5.9	5.0	4.7	3.6	4.9	4.7
10.	6.8	5.7	5.7	5.3	6.0	4.9
11.	6.4	5.7	5.9	5.6	6.0	5.4
12.	6.6	5.4	5.2	4.5	5.6	5.8
13.	2.1	3.0	2.6	0.4	1.6	2.0
14.	2.7	4.4	4.7	0.8	2.5	3.3
15.	5.7	5.0	5.2	2.9	4.8	5.2
16.	5.4	4.5	3.2	2.2	3.7	3.5
17.	4.2	4.9	5.3	1.6	3.9	4.7
18.	5.1	5.3	6.6	3.6	3.9	4.7
19.	4.2	4.1	4.9	2.6	3.5	4.8
20.	4.9	3.8	6.0	5.0	5.4	5.0
21.	5.2	4.6	6.8	4.9	6.4	5.8
22.	4.5	4.8	5.5	4.8	5.4	5.4
23.	5.0	5.4	5.9	4.0	6.0	5.8
24.	3.7	5.6	6.7	5.0	6.2	6.0
25.	6.0	6.7	7.4	6.4	8.1	6.8
26.	5.3	6.1	6.8	6.8	8.3	6.7
27.	6.2	6.5	7.0	6.3	6.8	7.7
28.	5.8	6.0	5.2	4.3	6.6	6.5
29.	5.8	6.0	4.0	4.4	5.5	5.1
30.	5.5	5.9	6.1	3.2	4.1	4.8
31.	5.7	6.1	5.4	2.9	5.0	5.8
MEAN:	5.4	5.6	5.6	4.3	5.3	5.3

CALCULATION OF QUALITY INDICES (Q):
From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$Q = 6.0 + 20 \log (FD/FA)/3.0$

The quality indices vary from 0.1 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they respond to the average of the preceeding 27 days.

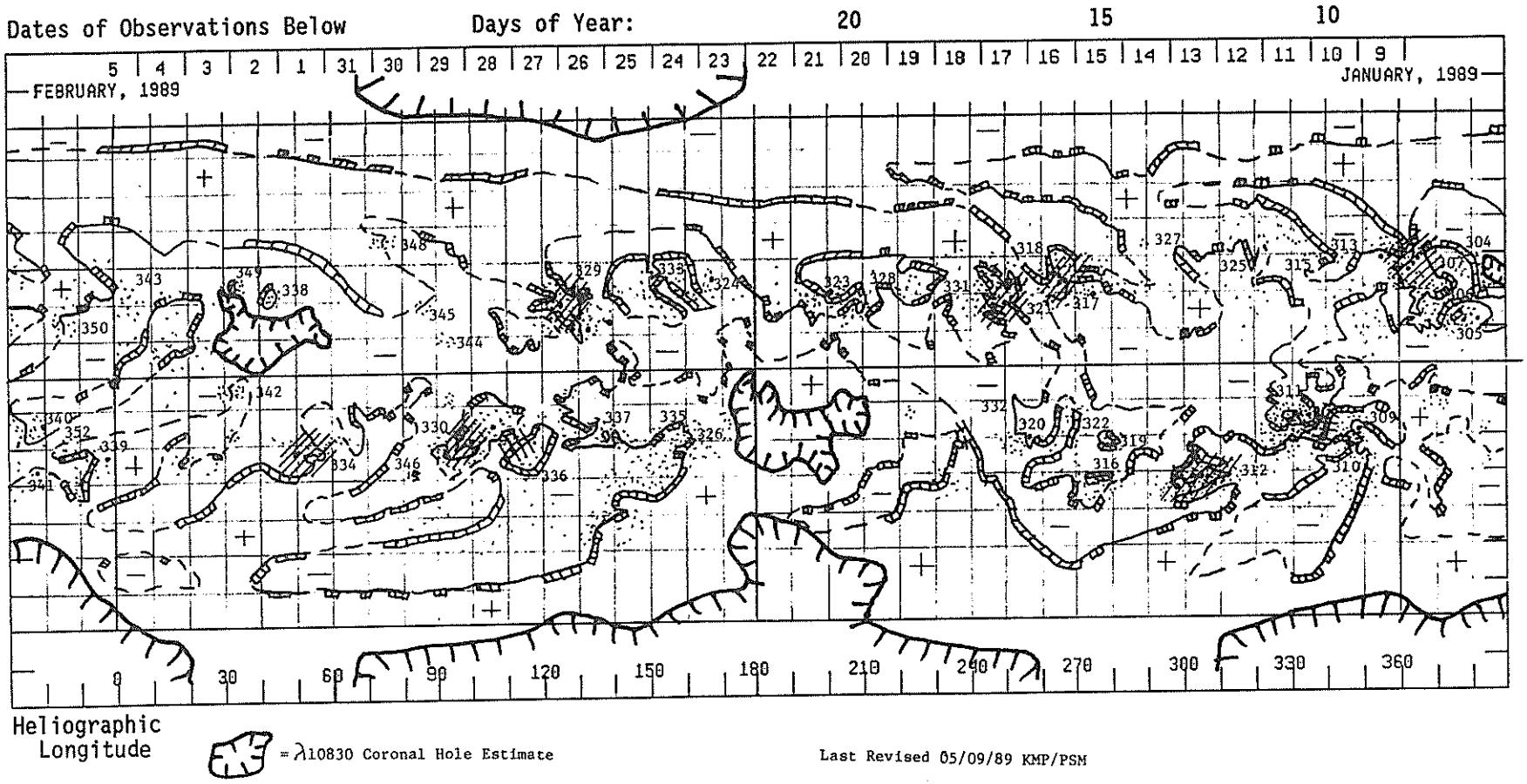
SCALE FOR QUALITY INDICES:
0.1 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 = normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

C O N T E N T S

Prompt Reports **LATE DATA** Number 537 Part I

PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1811
(9 January to 5 February 1989)



SOLAR MAGNETIC FIELD SYNOPTIC CHART

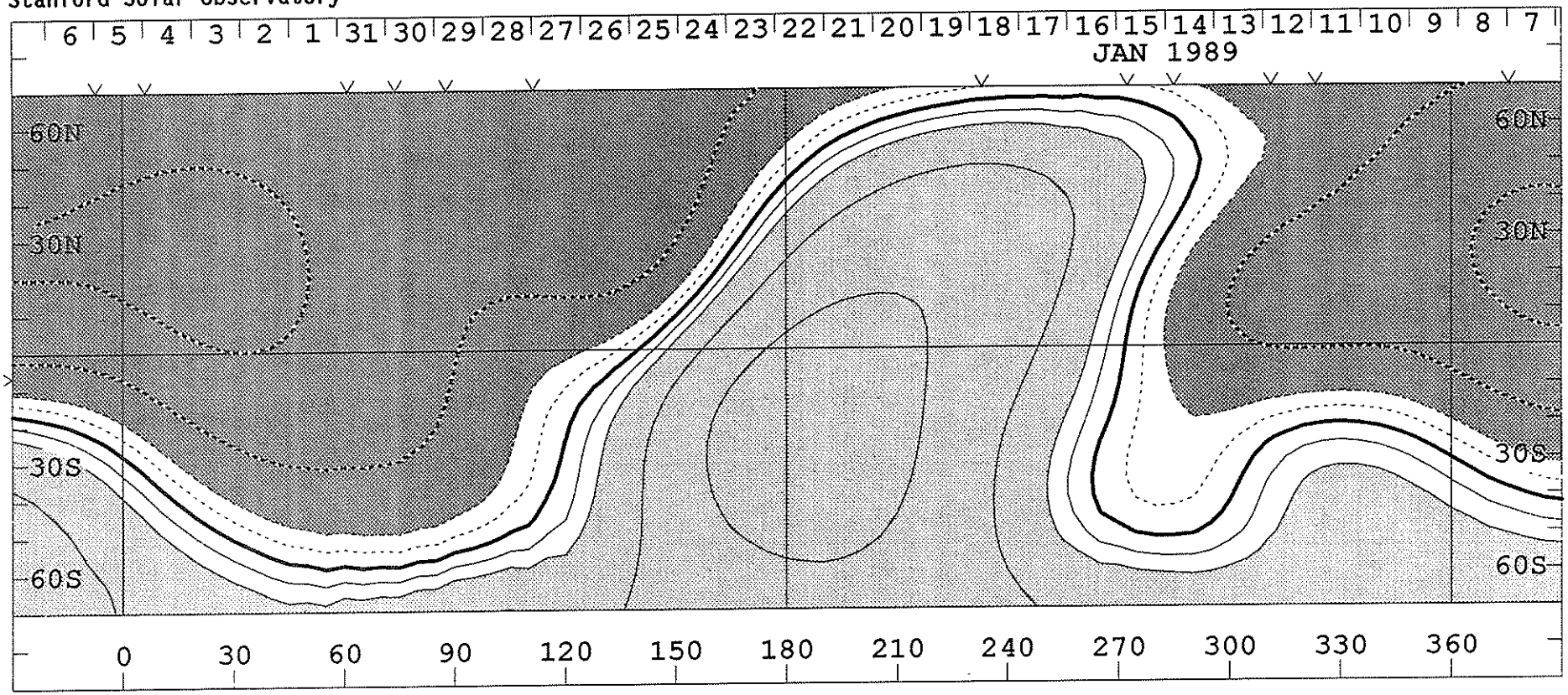
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1811

(9 January to 5 February 1989)

Stanford Solar Observatory

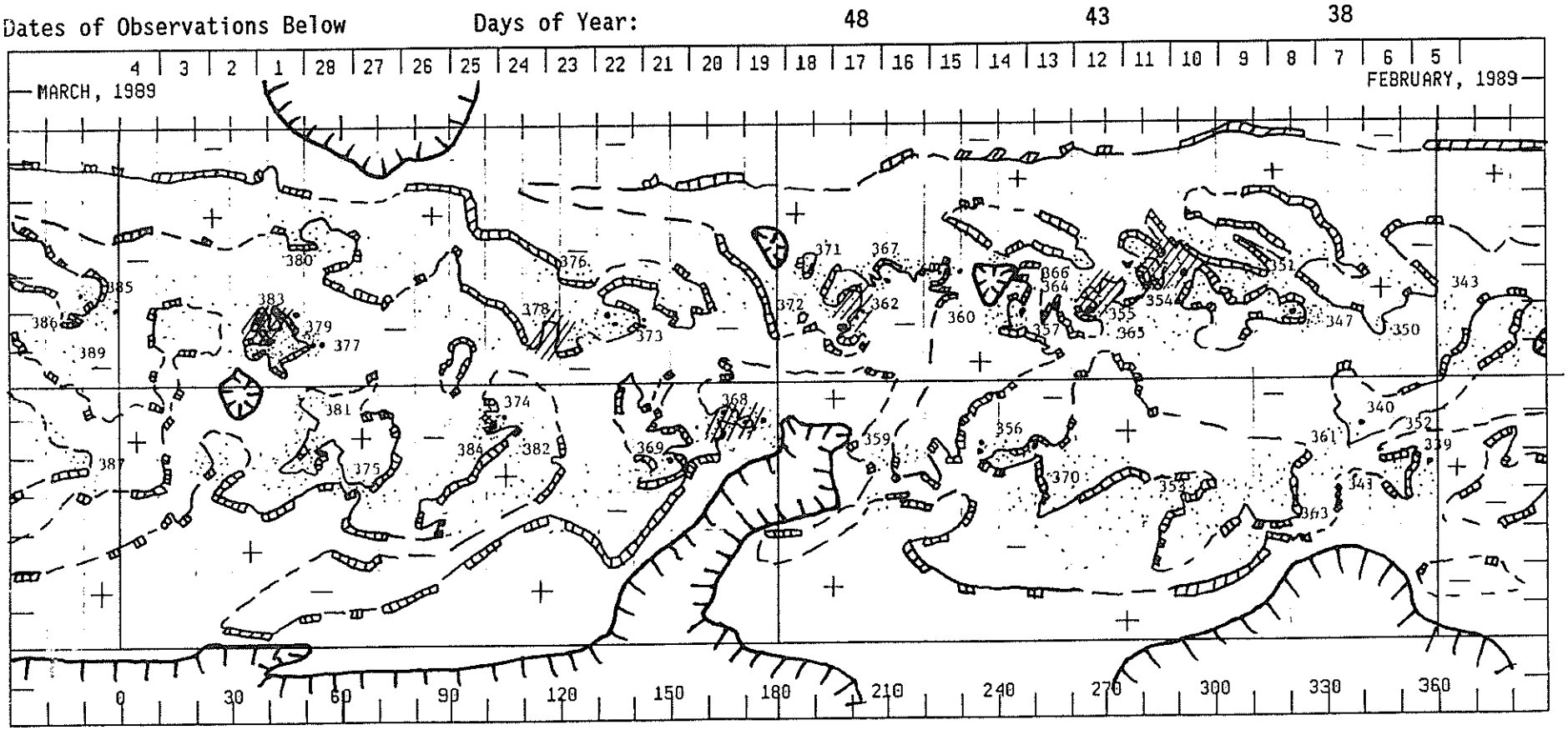
0, ±1, 2, 5, 10, 20 microTesla



1811

PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1812
(5 February to 4 March 1989)



SOLAR MAGNETIC FIELD SYNOPTIC CHART

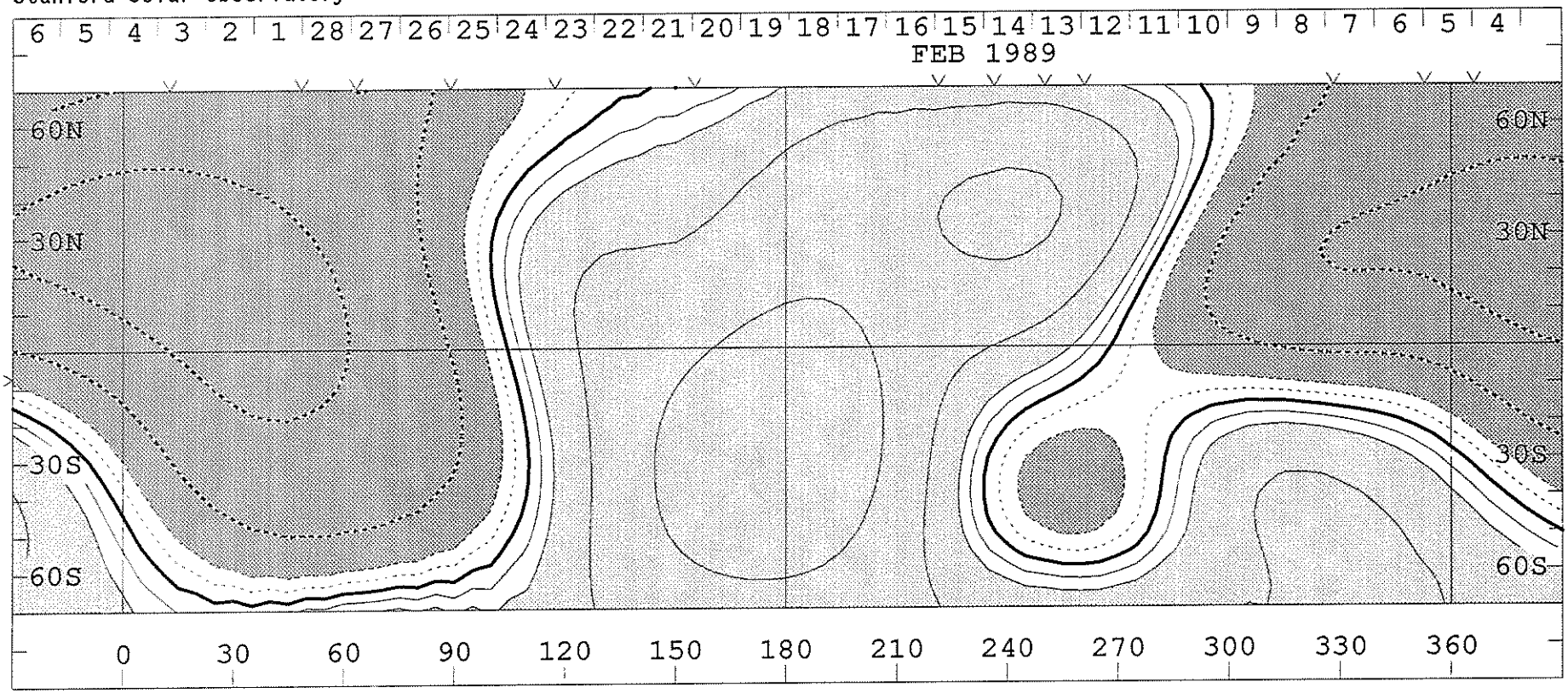
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1812

(5 February to 4 March 1989)

Stanford Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla



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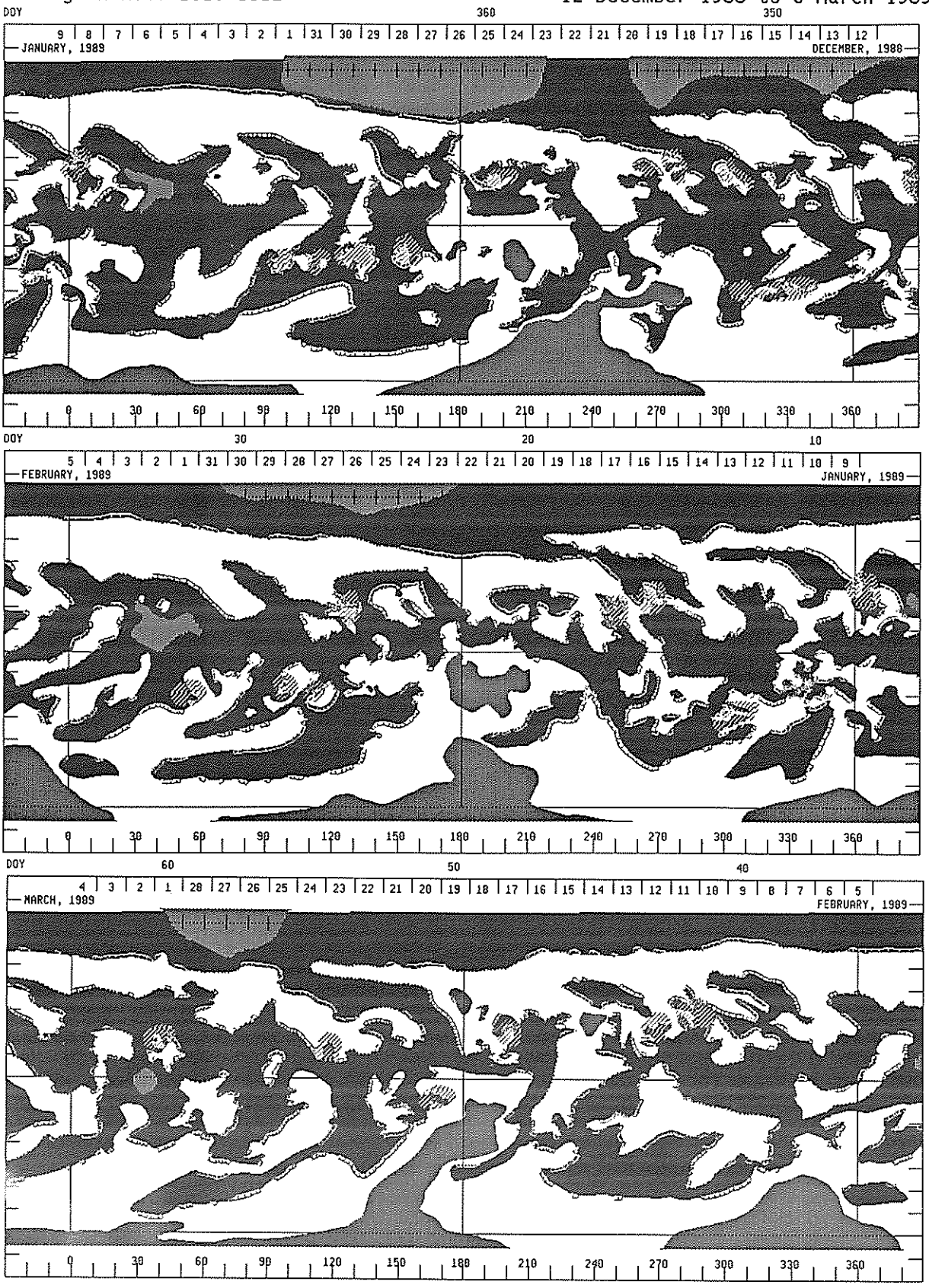
Late
Feb 89

SHADED H-ALPHA SOLAR SYNOPTIC CHARTS

Carrington Rot. 1810-1812 — 12 December 1988 to 5 March 1989



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

Heliographic Longitude

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."