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ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages MAY 1989

Julian Day	Date of Issue	Date of Observation	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		
01	01	30	134	175	020	N34	W69	0	0	0	01	N34	W69	Q	Solalert 01/XX, Magquiet.
						S19	W70	1	0	0		S19	W70	Q	
						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.									
02	02	01	160	178	011	N34	W82	0	0	0	02	N34	W82	Q	Solalert 02/XX, Magquiet.
						S18	W84	1	0	0		N18	W84	Q	
						N14	W22	1	0	0		N14	W22	Q	
						S18	W04	2	0	0		S18	W04	E	
						N27	W39	0	0	0		N27	W39	Q	
						S39	W50	0	0	0		S39	W50	Q	
						N29	E47	11	1	0		N29	E47	A	
						S22	E76	0	0	0		S22	E76	Q	
						N22	E20	0	0	0		N22	E20	Q	
03	03	02	177	181	020	N32	W95	0	0	0	03	N32	W95	Q	Solalert 03/XX, Magquiet.
						S21	W87	1	0	0		S21	W87	Q	
						N12	W35	0	0	0		N12	W35	Q	
						S19	W15	3	1	0		S19	W15	E	
						N29	W07	0	0	0		N29	W07	Q	
						N27	W50	4	0	0		N27	W50	Q	
						N30	E35	10	2	0		N30	E35	A	
						S21	E62	2	0	0		S21	E62	Q	
						N21	E05	1	0	0		N21	E05	Q	
						S23	E19	0	0	0		S23	E19	Q	
						Presto: ² Boulder Tenflare 670 flux units began 02/2052 UT duration 1 minute.									
04	04	03	129	186	011	S19	W27	11	1	0	04	S19	W27	E	Solalert 04/XX Magquiet.
						N28	W62	3	0	0		N28	W62	Q	
						N29	E24	11	0	1		N29	E24	A	
						S22	E48	1	0	0		S22	E48	Q	
						S26	E05	0	0	0		S26	E05	Q	
						N15	E66	1	0	0		N15	E66	Q	
						Presto: ² Boulder Tenflare 1100 flux units began 03/0340 UT duration 22 minutes. X-ray event X2/3B N27 E32 03/0324 UT duration 91 minutes.									
05	05	04	149	196	017	S19	W40	21	7	0	05	S19	W40	A	Solalert 05/XX, Magalert 05/06 Flare.
						N28	W77	1	0	0		N28	W77	Q	
						N28	E10	8	1	0		N28	E10	A	
						S22	E35	0	0	0		S22	E35	Q	
						N17	E60	0	0	0		N17	E60	Q	
						Presto: ² Toyokawa Tenflare 2000 flux units began 03/0325 UT duration 120 minutes. Boulder Tenflare 360 flux units began 04/0417 UT duration 7 minutes. Tenflare 430 flux units began 04/0818 UT duration 7 minutes. Tenflare 210 flux units began 04/1115 UT duration 4 minutes.									
06	06	05	131	191	031	S18	W53	12	1	0	06	S18	W53	A	Solalert 06/XX, Magalert 06/07.
						N29	W01	5	0	1		N29	W01	A	
						S22	E19	0	0	0		S22	E19	Q	
						N18	E47	1	0	0		N18	E47	Q	
						S08	W15	0	0	0		S08	W15	Q	
						Presto: ² Toyokawa Tenflare 110 flux units began 05/0525 UT duration 3 minutes. Boulder X-ray event X2/3B N28 E06 05/0721 UT duration 110 minutes. Tenflare 1100 flux units began 05/0722 UT duration 38 minutes. Proton event began 05/0905 UT, maximum of 22 particles/cm ² -s-ster at greater than 10 MeV 05/0945 UT in progress.									

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

5
MAY 89

Summary of the Geoalert Messages MAY 1989

Julian Day	Date of Issue	Date of Observation	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		
07	07	06	151	194	017	S19 W64	10	1	0	07	S19 W64	A	Solalerr 07/XX, Magalert 07/08.		
						N29 W12	3	0	0		N29 W12	A			
						S22 E10	0	0	0		S22 E10	Q			
						N17 E36	1	0	0		N17 E36	Q			
						S08 W28	0	0	0		S08 W28	Q			
						S31 E51	3	2	0		S31 E51	A			
						N09 E41	0	0	0		N09 E41	Q			
						Presto: ² Boulder Proton event began 06/0235 UT, maximum of 19 particles/cm ² -s-ster at greater than 10 MeV 06/0435 UT in progress.									
08	08	07	212	200	035	S19 W78	10	1	0	08	S19 W78	A	Solalert 08/XX, Magalert Minor 08/08.		
						N29 W25	3	0	0		N29 W25	A			
						S21 W04	0	0	0		S21 W04	Q			
						N17 E22	3	0	0		N17 E22	E			
						S08 W41	0	0	0		S08 W41	Q			
						S30 E38	6	0	0		S30 E38	A			
						N10 E26	0	0	0		N10 E26	Q			
						N28 E65	4	0	0		N28 E65	Q			
						N13 E20	0	0	0		N13 E20	E			
						S21 W50	1	0	0		S21 W50	Q			
						S21 E73	0	0	0		S21 E73	Q			
						Presto: ² Kakioka Magstorm began 07/0515 UT.									
09	09	08	254	208	004	S19 W88	2	0	0	09	S19 W88	E	Solalert 09/XX, Magnil.		
						N31 W36	3	1	0		N31 W36	A			
						S19 W18	0	0	0		S19 W18	Q			
						N17 E10	3	0	0		N17 E10	E			
						S30 E25	4	0	0		S30 E25	E			
						N10 E14	0	0	0		N10 E14	Q			
						N27 E52	2	0	0		N27 E52	E			
						N13 E08	0	0	0		N13 E08	E			
						S22 W63	0	0	0		S22 W63	Q			
						S20 E61	6	0	0		S20 E61	E			
						S26 E42	0	0	0		S26 E42	Q			
						N16 E55	0	0	0		N16 E55	Q			
						N09 E86	0	0	0		N09 E86	Q			
10	10	09	196	203	006	N30 W50	1	0	0	10	N30 W50	E	Solalert 10/XX, Magquiet.		
						N16 W04	1	1	0		N16 W04	E			
						S30 E11	6	0	0		S30 E11	E			
						N11 W00	0	0	0		N11 W00	E			
						N27 E37	0	0	0		N27 E37	E			
						N11 W07	0	0	0		N11 W07	E			
						S22 W77	0	0	0		S22 W77	Q			
						S22 E49	2	0	0		S22 E49	E			
						N09 E67	0	0	0		N09 E67	Q			
11	11	10	216	207	003	N28 W66	0	0	0	11	N28 W66	E	Solnil, Magquiet.		
						S21 W39	0	0	0		S21 W39	Q			
						N17 W16	0	0	0		N17 W16	E			
						S29 W04	5	0	0		S29 W04	E			
						N10 W13	0	0	0		N10 W13	Q			
						N28 E23	1	0	0		N28 E23	E			
						N11 W18	0	0	0		N11 W18	Q			
						S22 W92	0	0	0		S22 W92	E			
						S21 E36	1	0	0		S21 E36	E			
						N14 E29	0	0	0		N14 E29	Q			
						N10 E55	0	0	0		N10 E55	Q			
						S21 E01	0	0	0		S21 E01	Q			
						S10 E69	0	0	0		S10 E69	Q			

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geolert Messages MAY 1989

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location		Flares			Date of Forecast	Location		Region Forecast ¹	Geolerts
						°Lat	°Long	Total	M	X		°Lat	°Long		
12	12	11	178	200	007	N28	W82	0	0	0	12	N28	W82	Q	Solquiet, Magquiet.
						N16	W28	0	0	0		N16	W28	Q	
						S30	W16	4	0	0		S30	W16	E	
						N11	W27	0	0	0		N11	W27	Q	
						N28	E07	0	0	0		N28	E07	Q	
						N11	W32	0	0	0		N11	W32	Q	
						S20	E24	0	0	0		S20	E24	Q	
						N09	E41	1	0	0		N09	E41	Q	
						S23	W04	0	0	0		S23	W04	Q	
						S10	E58	0	0	0		S10	E58	Q	
						N18	E66	1	0	0		N18	E66	Q	
13	13	12	159	195	008	N28	W96	0	0	0	13	N28	W96	Q	Solquiet, Magquiet.
						N17	W41	0	0	0		N17	W41	Q	
						S30	W30	6	1	0		S30	W30	E	
						N11	W40	0	0	0		N11	W40	Q	
						N26	W05	2	0	0		N26	W05	E	
						N11	W45	2	0	0		N11	W45	Q	
						S19	E08	0	0	0		S19	E08	Q	
						N09	E26	0	0	0		N09	E26	E	
						S09	E44	0	0	0		S09	E44	Q	
						N17	E60	5	0	0		N17	E60	E	
						14	14	13	127	194		006	S30	W42		2	0	0	14	S30	W42	E	Solquiet, Magquiet.
N27	W17	0	0	0	N27						W17		Q		
S19	W05	0	0	0	S19						W05		Q		
N09	E13	6	0	0	N09						E13		E		
S09	E32	0	0	0	S09						E32		Q		
N17	E43	1	0	0	N17						E43		E		
N16	E65	3	0	0	N16						E65		E		
15	15	14	181	190	006	S31	W56	4	0	0	15	S31	W56	E	Solquiet, Magquiet.
						N26	W29	2	0	0		N26	W29	E	
						S20	W20	5	0	0		S20	W20	E	
						N16	W25	0	0	0		N16	W25	Q	
						N09	W00	3	0	0		N09	W00	E	
						S10	E21	0	0	0		S10	E21	Q	
						N17	E33	0	0	0		N17	E33	E	
						N16	E53	3	0	0		N16	E53	E	
						N18	E24	0	0	0		N18	E24	Q	
						S25	E81	0	0	0		S25	E81	Q	
16	16	15	222	192	008	S31	W70	0	0	0	16	S31	W70	E	Solquiet, Magquiet.
						N26	W42	1	0	0		N26	W42	Q	
						S19	W27	2	0	0		S19	W27	E	
						N16	W38	0	0	0		N16	W38	Q	
						N08	W15	1	0	0		N08	W15	Q	
						S09	E05	0	0	0		S09	E05	Q	
						N17	E24	0	0	0		N17	E24	Q	
						N16	E38	4	0	0		N16	E38	E	
						N18	E10	2	0	0		N18	E10	E	
						S26	E65	0	0	0		S26	E65	Q	
						S12	E51	3	0	0		S12	E51	Q	
						S20	W35	0	0	0		S20	W35	Q	
						N15	W09	0	0	0		N15	W09	Q	

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Gealert Messages

MAY 1989

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location		Flares			Date of Forecast	Location		Region Forecast ¹	Gealerts
						°Lat	°Long	Total	M	X		°Lat	°Long		
21	21	20	303	198	019	S18 W93		0	0	0	21	S18 W93	Q	Solquiet, Magquiet.	
						N09 W81		0	0	0		N09 W81	Q		
						S09 W62		0	0	0		S09 W62	Q		
						N18 W47		0	0	0		N18 W47	Q		
						N17 W27		3	0	0		N17 W27	E		
						N18 W57		0	0	0		N18 W57	Q		
						S26 E04		0	0	0		S26 E04	Q		
						S16 W13		3	0	0		S16 W13	Q		
						S18 E17		0	0	0		S18 E17	Q		
						N22 W25		12	0	0		N22 W25	E		
						N14 W12		0	0	0		N14 W12	Q		
						S20 E31		9	0	0		S20 E31	E		
						N32 E09		0	0	0		N32 E09	Q		
						S06 W00		0	0	0		S06 W00	Q		
						S12 W16		0	0	0		S12 W16	Q		
						N33 E35		0	0	0		N33 E35	Q		
22	22	21	242	213	009	N17 W62		2	0	0	22	N17 W62	Q	Solalert 22/XX, Magquiet.	
						N17 W41		8	0	0		N17 W41	E		
						N17 W69		1	0	0		N17 W69	Q		
						S26 W09		0	0	0		S26 W09	Q		
						S17 W26		5	0	0		S17 W26	E		
						S18 E04		1	0	0		S18 E04	Q		
						N22 W38		14	4	0		N22 W38	A		
						N13 W27		0	0	0		N13 W27	Q		
						S20 E18		3	0	0		S20 E18	A		
						N32 W04		0	0	0		N32 W04	Q		
						N33 E23		0	0	0		N33 E23	Q		
						S07 E15		0	0	0		S07 E15	Q		
23	23	22	230	199	015	N17 W74		0	0	0	23	N17 W74	Q	Solalert 23/XX, Magalert 23/XX Flare and Recurrence.	
						N17 W55		2	0	0		N17 W55	E		
						N17 W83		0	0	0		N17 W83	Q		
						S26 W22		0	0	0		S26 W22	Q		
						S16 W40		2	0	0		S16 W40	E		
						S18 W09		1	0	0		S18 W09	Q		
						N22 W51		11	1	0		N22 W51	E		
						N13 W41		0	0	0		N13 W41	Q		
						S20 E05		16	1	0		S20 E05	A		
						S07 W00		0	0	0		S07 W00	Q		
						S21 E72		0	0	0		S21 E72	Q		
Presto: ² Toyokawa Tenflare 140 flux units began 22/0015 UT in progress.															
Sydney Culgoora Soflare 1B S20 E19, Weak Type II/IV 60-90 MHz began 22/0026 UT.															
24	24	23	270	206	034	N18 W68		4	0	0	24	N18 W68	E	Solalert Major Flare Alert 24/XX S20 W10, Magalert 24/26 Recurrence.	
						S26 W34		1	0	0		S26 W34	Q		
						S17 W54		2	0	0		S17 W54	E		
						S18 W23		2	0	0		S18 W23	Q		
						N23 W64		5	1	0		N23 W64	E		
						N13 W54		0	0	0		N13 W54	Q		
						S20 W10		13	0	0		S20 W10	A		
						S06 W41		0	0	0		S06 W41	Q		
						S18 E56		1	0	0		S18 E56	Q		
						N22 E02		0	0	0		N22 E02	Q		
						S19 E73		0	0	0		S19 E73	Q		
						N21 E82		0	0	0		N21 E82	Q		
Presto: ² Toyokawa Tenflare 140 flux units began 23/0145 duration 8 minutes.															
Kakioka Magstorm began 23/1347 UT.															
Boulder Proton event began 23/1135 UT, maximum of 68 particles/cm ² -s-ster at greater than 10 MeV 23/1350 UT end 23/1655 UT.															

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

9
MAY 89

Summary of the Geoalert Messages

MAY 1989

Julian Day	Date of Issue	Date of Observation	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		
25	25	24	291	202	045	N18 W84	4	0	0	25	N18 W84	Q	Solalert 25/XX, Magalert 25/26.		
						S25 W47	0	0	0		S25 W47	Q			
						S16 W66	1	0	0		S16 W66	E			
						S17 W36	0	0	0		S17 W36	Q			
						N22 W76	7	1	0		N22 W76	E			
						N14 W67	0	0	0		N14 W67	Q			
						S19 W23	7	1	0		S19 W23	A			
						N32 W38	1	0	0		N32 W38	Q			
						S05 W53	0	0	0		S05 W53	Q			
						S13 W71	0	0	0		S13 W71	Q			
						S19 E44	1	0	0		S19 E44	Q			
						N22 W11	0	0	0		N22 W11	Q			
						S21 E61	5	0	0		S21 E61	E			
						N20 E67	2	0	0		N20 E67	Q			
						N28 E69	0	0	0		N28 E69	Q			
						S26 E61	0	0	0		S26 E61	Q			
						Presto: ² Boulder Strong Magstorm in progress 24/0758 UT. Proton event began 24/0730 UT, maximum of 13 particles/cm ² -s-ster at greater than 10 MeV 24/0810 UT in progress.									
26	26	25	251	198	021	N19 W95	1	0	0	26	N19 W95	Q	Solalert 26/XX, Magalert 26.		
						S25 W61	1	0	0		S25 W61	Q			
						S16 W82	2	0	0		S16 W82	Q			
						N23 W88	1	0	0		N23 W88	E			
						N14 W82	0	0	0		N14 W82	Q			
						S18 W37	11	1	0		S18 W37	A			
						N33 W52	8	0	0		N33 W52	E			
						S12 W84	0	0	0		S12 W84	Q			
						S20 E33	1	0	0		S20 E33	Q			
						S20 E48	4	0	0		S20 E48	E			
						N21 E55	3	0	0		N21 E55	Q			
						N29 E58	0	0	0		N29 E58	Q			
						S25 E47	0	0	0		S25 E47	Q			
						S07 W18	0	0	0		S07 W18	Q			
27	27	26	224	184	011	S25 W73	0	0	0	27	S25 W73	Q	Solalert 27/XX, Magnil.		
						N13 W92	0	0	0		N13 W92	Q			
						S19 W50	7	1	0		S19 W50	A			
						N32 W65	1	0	0		N32 W65	Q			
						S20 E19	0	0	0		S20 E19	Q			
						S20 E35	0	0	0		S20 E35	Q			
						N21 E42	1	0	0		N21 E42	Q			
						N28 E44	0	0	0		N28 E44	Q			
						S25 E33	0	0	0		S25 E33	Q			
						S09 W30	1	0	0		S09 W30	Q			
						S16 E16	0	0	0		S16 E16	Q			
						S22 E59	0	0	0		S22 E59	Q			
						Presto: ² Sydney Culgoora Soflare 2B S18 W50 26/2310 UT in progress.									
28	28	27	233	171	015	S25 W87	0	0	0	28	S25 W87	Q	Solalert 28/XX, Magquiet.		
						S19 W64	3	0	0		S19 W64	A			
						N32 W83	0	0	0		N32 W83	Q			
						S19 E06	1	0	0		S19 E06	Q			
						S19 E23	0	0	0		S19 E23	E			
						N22 E29	1	0	0		N22 E29	Q			
						N28 E31	0	0	0		N28 E31	Q			
						S25 E21	0	0	0		S25 E21	Q			
						S08 W48	0	0	0		S08 W48	Q			
						S15 E03	2	0	0		S15 E03	Q			
						S22 E45	2	0	0		S22 E45	Q			
						N11 W52	0	0	0		N11 W52	Q			
						S20 E59	0	0	0		S20 E59	Q			

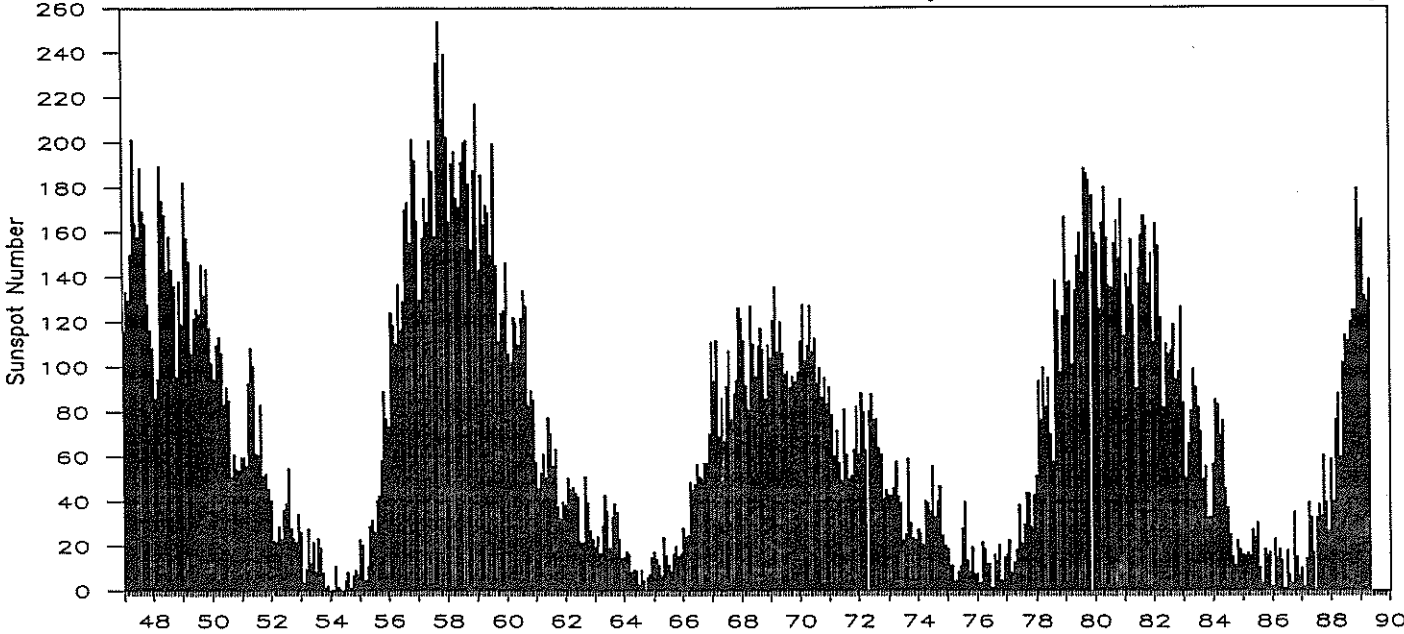
ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geolert Messages MAY 1989

Julian Day	Date of Issue	Date of Observation	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		
29	29	28	189	169	014	S19 W76		5	1	0	29	S19 W76	A	Solalert 29/30, Magquiet.	
						S19 W04		0	0	0		S19 W04	Q		
						S20 E09		2	0	0		S20 E09	E		
						N22 E16		6	1	0		N22 E16	E		
						N29 E18		0	0	0		N29 E18	Q		
						S26 E09		0	0	0		S26 E09	Q		
						S09 W62		1	0	0		S09 W62	Q		
						S16 W10		1	0	0		S16 W10	Q		
						S22 E33		0	0	0		S22 E33	Q		
						N11 W65		0	0	0		N11 W65	Q		
						S19 E44		0	0	0		S19 E44	Q		
Presto: ² Sydney Culgoora Soflare 1B N22 E17 28/2313 UT in progress.															
30	30	29	200	171	014	S20 W87		10	2	0	30	S20 W87	A	Solalert 30/XX, Magquiet.	
						S20 W18		0	0	0		S20 W18	Q		
						S20 W05		0	0	0		S20 W05	E		
						N21 E03		8	1	0		N21 E03	E		
						N28 E06		0	0	0		N28 E06	Q		
						S26 W03		0	0	0		S26 W03	Q		
						S09 W74		0	0	0		S09 W74	Q		
						S18 W19		3	0	0		S18 W19	Q		
						S22 E19		6	0	0		S22 E19	E		
						S18 E29		0	0	0		S18 E29	Q		
						N18 E72		0	0	0		N18 E72	Q		
31	31	30	210	179	014	S22 W31		0	0	0	31	S22 W31	Q	Solalert 31, Magquiet.	
						S19 W15		0	0	0		S19 W15	E		
						N22 W10		1	0	0		N22 W10	E		
						N28 W08		1	0	0		N28 W08	Q		
						S23 W17		0	0	0		S23 W17	Q		
						S09 W86		2	0	0		S09 W86	Q		
						S16 W34		0	0	0		S16 W34	Q		
						S22 E06		3	0	0		S22 E06	E		
						S16 E22		0	0	0		S16 E22	Q		
						N19 E58		0	0	0		N19 E58	Q		
						S22 W01		3	0	0		S22 W01	E		
N14 E56		8	0	0	N14 E56	Q									
01	01	31	149	189	009	S20 W29		0	0	0	01	S20 W29	E	Solnil, Magquiet.	
						N20 W21		1	0	0		N20 W21	Q		
						N28 W20		0	0	0		N28 W20	Q		
						S22 W06		2	0	0		S22 W06	E		
						N18 E45		2	0	0		N18 E45	E		
						S22 W15		0	0	0		S22 W15	E		
						N15 E44		1	0	0		N15 E44	E		
						S19 E79		3	0	0		S19 E79	E		

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

MONTHLY MEAN SUNSPOT NUMBERS Jan 1947 - May 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	161.3	165.1	131.4	129.3*	138.4*								145.1*

*Preliminary

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

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

Day	Jun 88	Jul	Aug	Sep	Oct	Nov	Dec	Jan 89	Feb	Mar	Apr [†]	May [†]
01	95	139	142	137	109	126	128	148	141	127	104	93
02	96	145	143	144	117	114	114	173	144	107	122	94
03	100	142	146	129	129	121	139	146	164	103	140	85
04	105	129	135	148	128	104	122	120	133	98	126	97
05	125	119	120	128	130	129	149	155	127	90	94	83
06	145	108	123	93	123	124	149	142	127	103	139	105
07	141	103	144	97	128	114	144	165	132	98	170	134
08	151	106	160	88	131	95	111	155	161	109	185	149
09	173	82	171	74	125	110	122	165	172	133	153	137
10	144	78	152	76	146	131	133	190	192	163	122	123
11	108	102	135	81	148	155	152	211	190	155	106	115
12	77	109	133	88	169	159	175	229	216	140	96	115
13	47	103	122	91	150	147	187	206	219	162	92	129
14	53	121	128	94	131	139	213	189	208	181	98	123
15	65	121	121	89	109	156	225	177	191	165	120	148
16	81	111	91	89	108	181	226	164	195	187	130	161
17	76	124	67	79	125	196	232	155	209	168	144	161
18	67	136	47	97	134	175	222	160	163	164	137	177
19	70	105	57	113	133	147	223	140	164	148	151	191
20	77	106	57	153	119	112	218	126	169	158	155	195
21	95	103	40	168	117	145	210	114	149	155	161	168
22	92	106	21	168	109	131	255	165	142	155	167	156
23	91	116	26	190	104	117	235	171	134	145	128	180
24	93	81	43	172	121	116	199	142	153	155	135	196
25	111	76	76	149	124	89	183	144	189	131	132	173
26	107	76	93	151	119	73	174	152	163	117	116	157
27	111	101	142	157	120	69	175	157	147	102	126	163
28	116	117	146	143	119	86	196	172	128	89	109	130
29	121	157	164	111	128	86	194	169		95	107	121
30	121	161	163	106	115	107	178	157		78	114	122
31		146	151		111		172	140		91		111
Mean	101.8	113.8	111.6	120.1	125.1	125.1	179.2	161.3	165.1	131.4	129.3	138.4

[†] = preliminary. The yearly mean sunspot number equaled 100.2 for 1988.

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

Day	Jun 88	Jul	Aug	Sep	Oct	Nov	Dec	Jan 89	Feb	Mar	Apr	May
01	149.3*	194.4*	180.9	191.3	179.4	157.2*	150.5	179.5*	184.8	168.8*	173.8*	180.5
02	147.6	198.9	187.6	178.9	197.0	156.5*	149.4	193.7	171.2	173.7	183.5	184.5*
03	149.5	190.2	172.2*	177.3	200.4	164.0	147.3	189.2	185.8*	169.0	196.5*	190.6
04	150.9	181.0	163.6	165.9	189.2	159.7	142.7	195.7*	183.4	163.6	188.9	198.2
05	151.2	171.2	159.2	166.3	191.0	163.8	154.6*	201.6	195.1	183.5	191.1	193.7
06	159.0	156.7	163.4	152.4	193.4	161.2	157.7	198.7	205.3*	201.1J	196.5	195.9*
07	164.6	152.4	170.4	145.4	182.4	151.6	152.9*	239.5	210.5	190.3*	199.8	200.6
08	168.3	142.4	186.9	138.9	172.6	143.5	164.1	260.2	243.9	202.6	207.1	212.4
09	165.9*	137.7	182.4	128.0	176.5	152.4	165.2	251.3	259.3	204.2*	194.0	205.1*
10	149.8	138.3	181.8	117.6	177.8	147.7	161.2*	250.0	269.8	212.4*	182.3	208.7
11	137.8	137.7*	178.2	121.9	168.2	153.8	176.4	254.7*	257.0	232.4*	180.7	198.9
12	125.9	137.9	161.2	127.0	148.4	150.6*	173.9	263.2	257.3	237.6*	181.3	197.2
13	115.0	141.3*	159.7	124.8	157.5	157.8*	181.1	291.7*	258.4	253.0	185.3*	197.5
14	111.7	150.1	151.6	130.2	150.4	173.2*	204.4*	274.9	260.7	263.8J	198.1	193.1*
15	113.5	150.7	144.0	126.1	149.1	161.1*	212.0	280.1	241.3	255.8J	199.5	195.8
16	121.7	153.3*	137.8	128.5	152.3	186.1*	232.1	292.1	241.1	261.6J	203.9	188.6
17	124.8	152.8*	145.6	135.3	175.0	175.6	241.7	266.7*	233.9*	240.7	210.6*	187.0
18	125.7	152.3	128.5	139.5	162.3	161.8	243.5	271.2	213.8	234.2	204.1	184.9
19	119.4	142.1	123.9	138.6	164.0	151.2	240.2	241.6	214.0	221.1	209.7	188.6
20	118.5	141.3	118.1	151.4	166.0	146.6	238.8	222.0*	202.2*	218.2*	192.5	203.1
21	122.8*	145.8	116.1	157.8	165.9	152.9	245.2	198.2*	217.8	213.5*	196.1	211.9*
22	124.4*	141.2	114.9	178.6	166.2	153.1	246.6	203.6	213.9	222.5	193.6*	203.9
23	129.3	144.6	121.7A	177.8*	171.1	135.7	234.8	205.6	214.7*	216.1*	183.1*	212.2
24	135.7*	138.6	133.7	178.6	168.4	138.0	221.6	211.0	213.4	193.2*	189.0	210.0
25	153.7	140.9	144.3	177.4	162.1	137.5	210.5	227.3	203.8*	186.2*	179.7	194.6*
26	157.6*	149.7	157.1	172.0	155.4	137.4	193.0	206.3	190.3*	171.6*	176.9	188.0
27	160.5	161.5	166.8	179.6*	161.8	140.9	201.9	211.1	168.6*	162.6	176.9	176.6
28	183.2	175.4	174.0	171.0	156.0	138.8	201.6	207.1	163.5	157.3	183.2	173.5
29	189.5	185.9	189.0	172.0	155.9	137.6	196.7	200.5		155.8	189.5	173.6
30	187.4*	188.3	190.0	173.1	154.2*	135.8	179.5	187.3		159.8	180.6	183.0
31		192.5	194.5		160.4		177.6	187.5		167.5		194.2
Mean	143.8	157.6	158.0	154.1	168.7	152.8	193.5	227.8	217.0	203.0	190.9	194.4

* = 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

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May 89

May 1989

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers		Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit								
			Int	Amer		SGMR (15400)	SGMR (8800)	SGMR (4995)	Ottawa (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
01	121	25	93	109	177.7	522	308	211	180.5	160	152	28	16	17
02	122	26	94	121	181.6*	405	281	207	184.5*	168	141	73	34	21
03	123	27	85	98	187.5	529	302	233	190.6	170	145	61	40	21
04	124	1	97	109	194.9	545	334	236	198.2	175	139	77	37	17
05	125	2	83	108	190.3	544	325	234	193.7	170	140	78	38	28
06	126	3	105	129	192.4*	575	356	259	195.9*	194	152	85	39	17
07	127	4	134	160	196.9	548	312	236	200.6	181	150	94	45	31
08	128	5	149	178	208.4	536	354	248	212.4	197	166	86	42	17
09	129	6	137	153	201.2*	545	352	240	205.1*	192	161	89	44	19
10	130	7	123	149	204.6	525	338	225	208.7	188	162	80	38	18
11	131	8	115	138	194.9	496	322	218	198.9	184	163	88	39	22
12	132	9	115	124	193.1	527	327	218	197.2	178	166	79	39	18
13	133	10	129	110	193.3	490	337	224	197.5	178	163	82	40	22
14	134	11	123	142	189.0*	531	329	219	193.1*	177	161	81	40	22
15	135	12	148	164	191.5	514	312	219	195.8	177	156	77	41	20
16	136	13	161	174	184.4	512	330	214	188.6	169	152	73	39	21
17	137	14	161	175	182.8	527	311	209	187.0	166	146	71	39	21
18	138	15	177	195	180.6	527	312	210	184.9	167	143	68	40	19
19	139	16	191	217	184.2	524	317	220	188.6	168	139	72	37	26
20	140	17	195	222	198.3	531	333	243	203.1	182	143	68	37	25
21	141	18	168	189	206.8*	535	351	257	211.9*	195	146	75	40	32
22	142	19	156	174	198.9	---	332	241	203.9	183	139	71	37	30
23	143	20	180	198	206.9	542	348	251	212.2	187	137	66	37	32
24	144	21	196	217	204.7	512	340	256	210.0	182	126	64	36	22
25	145	22	173	187	189.6*	550	353	253	194.6*	182	119	63	37	31
26	146	23	157	172	183.1	527	355	230	188.0	164	---	66	38	24
27	147	24	163	178	172.0	526	325	219	176.6	158	122	66	34	18
28	148	25	130	151	168.9	522	318	211	173.5	152	120	67	35	21
29	149	26	121	140	168.9	530	315	208	173.6	156	118	71	36	19
30	150	27	122	142	178.0	522	319	206	183.0	157	129	68	35	24
31	151	1	111	124	188.9	528	332	225	194.2	172	135	71	37	21
Mean			138.4	156.4	190.1	525	328	228	194.4	175	144	73	38	22

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	130	136 (4)
1989	139 (6)	142 (7)	149 (10)	155 (13)	161 (15)	167 (19)	169 (25)	172 (29)	178 (33)	183 (36)	185 (38)	187 (39)
1990	188 (39)	189 (40)	188 (41)	183 (39)	178 (37)	173 (33)	172 (31)	170 (31)	163 (31)	155 (31)	148 (29)	144 (25)

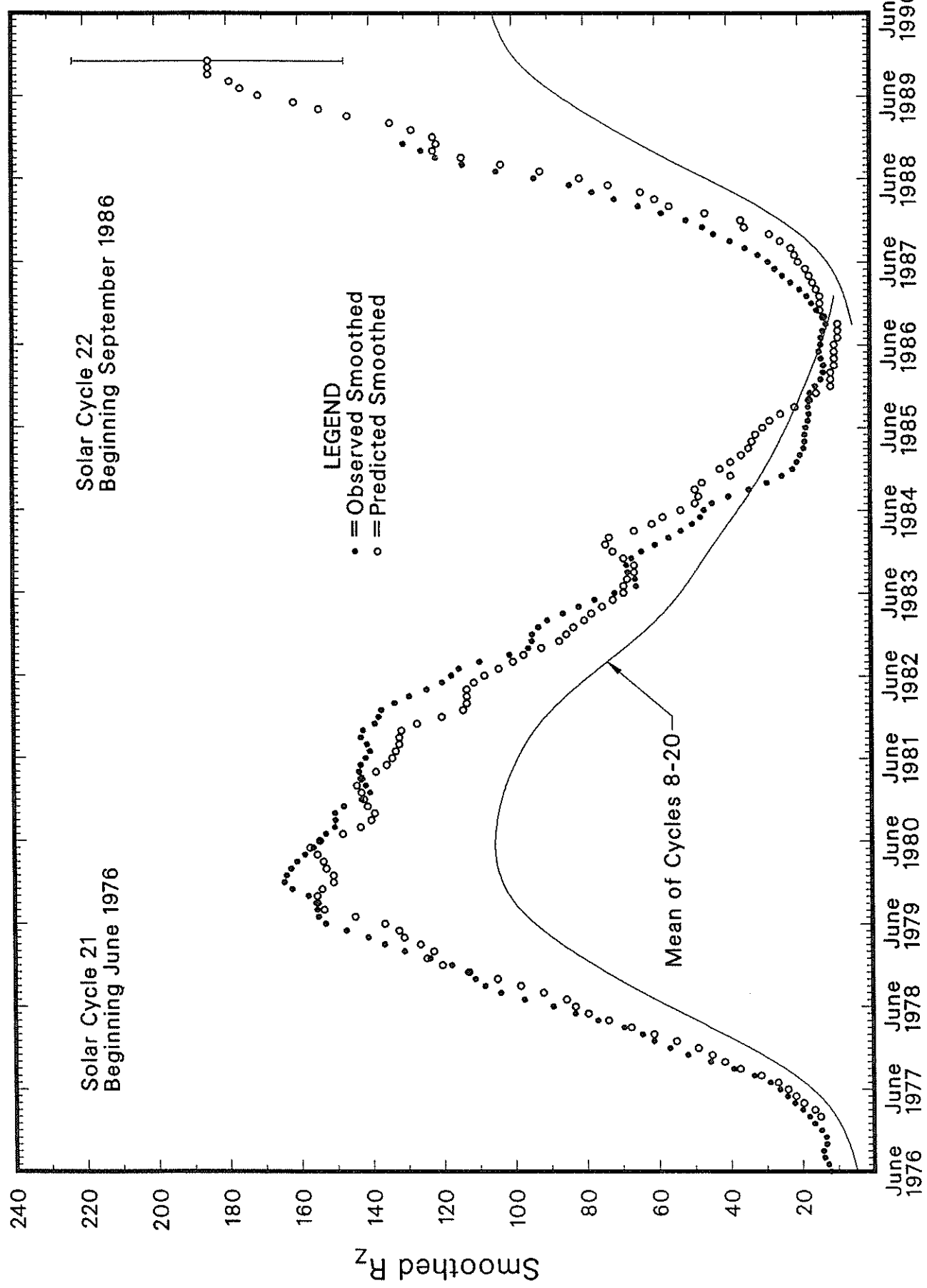
*September 1986 marks the onset of Sunspot Cycle 22.

For the end of Solar Cycle 21, and the beginning of 22, the table gives observed smoothed sunspot numbers up to the one calculated from the most recently available monthly mean. These smoothed observed values are based on final, monthly means through March 1989 and on provisional numbers thereafter.

Table entries, with numbers in parentheses below them, denote predictions by the McNish-Lincoln method. (See page 9 in the July 1987 supplement to *Solar-Geophysical Data*.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number from the predicted value generates the lower limit. Consider, for example, the November 1989 prediction. There exists a 90% chance that in November 1989 the actual smoothed sunspot number will fall somewhere between 147 and 223.

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



Solar Cycle 22
Beginning September 1986

Solar Cycle 21
Beginning June 1976

LEGEND
• = Observed
○ = Predicted

Mean of Cycles 8-20

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May 89

H α SOLAR FLARES

MAY 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Imp (Min)	Opt	Xray	Imp See	Obs Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
HOLL	01	0108E	0110U	0115D	N28	E60	5470	05	5.7	7D	SN	M	5.5	2	E	76		FE
LEAR		0206	0206	0210	S19	E09	5464	05	1.8	4	SF			3	E	16		
PALE		0303E	0323	0333	N28	E61	5470	05	5.9	30D	SF			3	E	37		FH
RAMY		1038E	1038U	1056	S18	E05	5464	05	1.8	18D	SF	C	1.7	2	E	32		
GOES		1057	1117	1126						29			C	1.9				
HOLL		1315	1318	1334	N29	E56	5470	05	5.9	19	SF	C	1.8	3	E	75		
RAMY		1317	1318	1326	N28	E53	5470	05	5.7	9	SF	C	1.8	3	E	53		
HOLL		1433	1525	1532	N29	E52	5470	05	5.7	59	SF	C	3.0	3	E	64		F
RAMY		1701E	1707	1745	N27	E53	5470	05	5.8	44D	SF			3	E	22		F
HOLL		1820	1823	1829	S23	W79	5460	04	25.8	9	SF			3	E	44		
HOLL		1930	1930	1937	N28	E51	5470	05	5.8	7	SF	C	2.1	3	E	10		
RAMY		1957E	2011U	2014D	N28	E49	5470	05	5.7	17D	SF	C	1.9	2	E	44		F
HOLL		2012	2014	2016	N29	E49	5470	05	5.7	4	SF			3	E	12		
HOLL		2045	2048	2058	N28	E51	5470	05	5.8	13	SN	C	2.8	3	E	44		
HOLL		2058	2100	2116	N19	W16	5463	04	30.6	18	SF			3	E	33		
HOLL		2109	2110	2142	N27	E49	5470			33	SF	C	5.5		E	51		K
HOLL		2109	2119	2142	N27	E49	5470	05	5.7	33	SF	C	5.5	3	E	36		
HOLL		2144	2146	2150	N28	E50	5470	05	5.8	6	SF			3	E	14		
HOLL		2245	2248	2330	N29	E51	5470	05	5.9	45	SF	C	3.5	3	E	43		
HOLL		2245	2312	2330	N29	E51	5470			45	SF	C	3.5		E	17		K
LEAR	02	0052	0055	0058	N30	E49	5470	05	5.9	6	SF			3	E	30		F
LEAR		0115	0116	0120	N29	E51	5470	05	6.0	5	SF	C	4.4	3	E	33		
LEAR		0127	0129	0135	S21	W80	5460	04	26.0	8	SF			3	E	29		
PALE		0154E	0208	0229D	N30	E49	5470	05	5.9	35D	SF	C	9.0	3	E	71		F
PALE		0344	0344	0354	N31	E48	5470	05	5.9	10	SF			3	E	19		H
LEAR		0407	0414	0456	N29	E49	5470	05	6.0	49	1N	M	2.1	3	E	114		F
GOES		0616	0619	0624						8			C	3.2				
GOES		0750E	0752	0823D	S10	E70				33D	1F	C	3.5					
GOES		0825	0829	0838						13			C	2.7				
RAMY		1021E	1026U	1048	N29	E43	5470	05	5.8	27D	SF			2	E	45		F
RAMY		1123	1126	1141	N25	W43	5468	04	29.2	18	SF	C	2.1	3	E	19		
RAMY		1140	1140	1150	N30	E45	5470	05	6.0	10	SF			3	E	13		F
RAMY		1148	1149	1206	S25	E73	5471	05	8.1	18	SF			3	E	30		F
HOLL		1400	1403	1441	N30	E43	5470	05	6.0	41	1N	C	7.4	3	E	185		F
RAMY		1400	1404	1445	N30	E42	5470	05	5.9	45	1F	C	7.4	3	E	196		F
HOLL		1438	1444	1452	S17	W07	5464	05	2.1	14	SF			3	E	18		F
RAMY		1438	1444	1453	S18	W06	5464	05	2.1	15	SF			3	E	41		F
HOLL		1554	1604	1612	S22	E65	5471	05	7.6	18	SF			4	E	22		
RAMY		1557	1605	1618	S23	E65	5471	05	7.7	21	SF			3	E	48		
RAMY		1602	1628	1805	N29	E39	5470			123	1N	M	1.4		E	112		K
RAMY		1602	1634	1805	N29	E39	5470	05	5.7	123	1N	M	1.4	3	E	134		FE
HOLL		1604	1611	1805	N27	E38	5470			121	1N	M	1.4		E	92		K
HOLL		1604	1635	1805	N27	E38	5470	05	5.6	121	1N	M	1.4	4	E	101		FE
PALE		1630E	1643	1712	N27	E38	5470			42D	SF				E	61		K
PALE		1630E	1650U	1712	N27	E38	5470	05	5.6	42D	SF			3	E	49		F
HOLL		1640	1642	1646	S20	W10	5464	05	1.9	6	SF			3	E	11		
RAMY		1827	1856	2134D	S23	W14	5464	05	1.7	187D	2N	M	3.0	3	E	458		YF
HOLL		1828	1855	2139	S21	W12	5464	05	1.8	191	2B	M	3.0	4	E	400		UY
HOLL		1836	1836	1841	N22	E08	5472	05	3.4	5	SF			4	E	11		
PALE		1841	1859	2027	S25	W11	5464	05	1.9	106	2N			3	E	412		UY
RAMY		1922	1927	1939D	N28	E39	5470	05	5.8	17D	SF			2	E	89		
HOLL		1923	1927	1936	N30	E41	5470	05	6.0	13	SN			4	E	79		F
PALE		1924	1925	1933	N30	E41	5470	05	6.0	9	SF			3	E	39		
HOLL		2137	2138	2212	N26	W49	5468			35	SF				E	25		K
HOLL		2137	2157	2212	N26	W49	5468	04	29.2	35	SF			4	E	18		
PALE		2247	2307	2321	N27	W49	5468	04	29.2	34	SF	C	2.1	3	E	74		F
HOLL		2301	2308	2346	N27	W50	5468	04	29.2	45	SF	C	2.1	4	E	56		
PALE		2344	2350	2405	N26	W48	5468	04	29.3	21	SF	C	1.5	3	E	46		F
HOLL		2347	2350	2407	N26	W50	5468	04	29.2	20	SF	C	1.5	4	E	31		
HOLL	03	0041	0042	0047	N27	W50	5468	04	29.2	6	SF			3	E	14		
LEAR		0041	0043	0046	N28	W49	5468	04	29.3	5	SF			2	E	16		
PALE		0116	0116	0120	N27	W51	5468	04	29.2	4	SF			3	E	12		
PALE		0148	0150	0153	N26	W51	5468	04	29.2	5	SF			3	E	15		
PALE		0156	0156	0208	S21	W13	5464	05	2.1	12	SF			3	E	16		F
PALE		0156	0159	0215	N29	E34	5470	05	5.7	19	SF			3	E	27		F
PALE		0312	0313	0317	S16	W14	5464	05	2.1	5	SF			3	E	15		

H α SOLAR FLARES

MAY 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
[PALE	03	0326	0354	0451D	N27	E32	5470	05	5.6	85D	3B	X	2.3	3	E	732		MU
LEAR		0353E	0355U	0433	N29	E33	5470	05	5.7	40D	2B	X	2.3	2	E	398		ZU
LEAR		0434	0442U	0455	N29	E33	5470	05	5.8	21	SF			3	E	33		
RAMY		1018E	1021U	1038	N27	E26	5470	05	5.4	20D	SF			1	E	15		F
[SVTO		1058	1132	1203D	N29	E30	5470	05	5.8	65D	2N			2	E	408		FH
RAMY		1123	1133	1219	N28	E27	5470	05	5.6	56	1F	C	5.3	3	E	153		FH
[SVTO		1202	1207	1231D	S20	E53	5471	05	7.5	29D	SF	C	2.7	2	E	91		F
RAMY		1203	1209	1239	S21	E53	5471	05	7.6	36	SF	C	2.7	3	E	52		F
RAMY		1258	1307	1350	N28	E25	5470	05	5.5	52	SF	C	2.9	3	E	44		F
HOLL		1305	1310	1339	N29	E37	5470	05	6.4	34	SF			2	E	22		
RAMY		1425	1425	1431	N29	E27	5470	05	5.7	6	SF			3	E	11		
RAMY		1440	1443	1450	N28	E30	5470	05	5.9	10	SF			3	E	21		
RAMY		1451	1451	1456	S18	W18	5464	05	2.2	5	SF			3	E	13		
[RAMY		1544	1545	1558	N14	E74		05	9.2	14	SF	C	2.7	3	E	68		
HOLL		1544	1545	1601	N17	E78		05	9.6	17	SF	C	2.7	3	E	91		
[SVTO		1546	1556	1606D	N20	E74		05	9.3	20D	SF			2	E	45		F
RAMY		1637	1639	1644	N28	E23	5470	05	5.5	7	SF			3	E	14		
[HOLL		1637	1639	1650	N30	E23	5470	05	5.5	13	SF			3	E	16		
HOLL		1726	1732	1748	S20	W21	5464	05	2.1	22	SF	C	2.0	3	E	76		F
[RAMY		1726	1734	1744	S21	W22	5464	05	2.0	18	SF	C	2.0	3	E	57		
PALE		1727	1732	1745	S20	W22	5464	05	2.0	18	SF	C	2.0	3	E	36		
RAMY		1830	1830	1839	S21	W24	5464	05	1.9	9	SF			3	E	10		
RAMY		1910	1910	1922	S22	W26	5464	05	1.8	12	SF			3	E	24		
[RAMY		1927	1936U	2130D	S19	W26	5464	05	1.8	123D	1N	M	1.4	3	E	148		FE
PALE		1932	1937U	1956D	S20	W26	5464	05	1.8	24D	SF	M	1.4	3	E	70		F
HOLL		2001E	2006U	2154	S21	W26	5464	05	1.8	113D	1F			3	E	167		UY
[RAMY		2054	2059U	2130D	N28	E21	5470	05	5.5	36D	1N	M	1.6	2	E	242		FE
HOLL		2054	2106U	2211	N29	E23	5470	05	5.7	77	1N	M	1.6	2	E	163		FE
HOLL		2211	2215	2230	S19	W25	5464	05	2.0	19	SF			3	E	32		
HOLL		2300	2309	2320D	S20	W26	5464	05	2.0	20D	SF	C	3.6	3	E	38		
[HOLL		2344	2353	2423	S20	E47	5471	05	7.6	39	SF			3	E	33		F
LEAR		2349	2353	2403	S22	E47	5471	05	7.6	14	SF			3	E	16		F
[HOLL	04	0100	0102	0115	S19	W30	5464	05	1.7	15	SF	C	3.4	3	E	12		
LEAR		0102	0104	0117	S20	W27	5464	05	2.0	15	SF	C	3.4	3	E	20		F
LEAR		0246	0257	0309	S20	W29	5464	05	1.9	23	SF	C	3.7	3	E	45		F
LEAR		0313	0336	0441	S19	W29	5464			88	2B				E	357		K
LEAR		0313	0422	0441	S19	W29	5464	05	1.9	88	2B	M	4.4	4	E	364		FH
GOES		0335	0335	0428	S19	W27				53	SB	M	1.1					
PALE		0352E	0352U	0434	S19	W20	5464	05	2.6	42D	1B			2	E	129		FH
[LEAR		0521	0530	0540	S16	W29	5464	05	2.0	19	SF	C	3.4	4	E	27		
SVTO		0524	0526	0543	S19	W30	5464	05	1.9	19	SN	C	3.4	2	E	20		H
GOES		0555E	0558	0559	N29	E19				4D	SF	C	2.9					
[SVTO		0621	0639	0650	N25	W65	5468	04	29.3	29	SF			3	E	94		
LEAR		0634	0636	0639D	N27	W65	5468	04	29.3	5D	SF			3	E	66		
GOES		0707E	0716	0739	S19	W31				32D	1F	C	5.2					
[SVTO		0716	0727	0842	S21	W31	5464			86	1F				E	212		K
SVTO		0716	0825	0842	S21	W31	5464	05	1.9	86	1N			3	E	129		F
[LEAR		0722	0725	0731	S18	W31	5464	05	1.9	9	SF			3	E	41		F
LEAR		0738	0739	0744D	S16	W30	5464	05	2.0	6D	SF	C	5.5	3	E	81		
LEAR		0819	0822	0828D	S19	W31	5464	05	2.0	9D	SN	M	2.8	3	E	98		
SVTO		0852	0901	0917	N29	E17	5470	05	5.7	25	SF			3	E	21		
GOES		0954	0958	1001						7		C	5.9					
RAMY		1026E	1029	1205	S20	W32	5464			99D	2N				E	85		K
RAMY		1026E	1113	1205	S20	W32	5464	05	2.0	99D	2N			3	E	313		FE
SVTO		1040	1040	1100	N30	E14	5470	05	5.5	20	SF	C	7.2	2	E	30		
SVTO		1040	1046	1104	S20	W34	5464	05	1.8	24	SF			2	E	77		
RAMY		1047	1049	1052	N28	E12	5470	05	5.4	5	SF			3	E	15		
SVTO		1106E	1131	1140D	S20	W36	5464	05	1.7	34D	2N	M	5.4	2	E	309		H
RAMY		1149	1155	1222	N27	E17	5470	05	5.8	33	SF			3	E	15		F
RAMY		1250	1251	1254	N26	E13	5470	05	5.5	4	SF			3	E	13		
RAMY		1336	1346	1416	S23	W34	5464	05	1.9	40	SF			3	E	20		F
RAMY		1430	1431	1504	S19	W39	5464			34	SF				E	21		K
[RAMY		1430	1438	1504	S19	W39	5464	05	1.6	34	SF			3	E	18		F
RAMY		1508	1512	1533	S22	W35	5464	05	1.9	25	SF			3	E	34		F
RAMY		1516	1517	1526	N27	E17	5470	05	6.0	10	SF	C	4.7	3	E	39		
[HOLL		1607	1615U	1615D	S21	W37	5464	05	1.8	8D	SF	C	8.8	3	E	34		F
HOLL		1607	1616	1643	S19	W34	5464	05	2.1	36	SN	C	8.8	3	E	60		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement	Corr	Remarks
							Region	Region									(10-6 Disk)	(Sq Deg)	
HOLL	04	1607	1634	1643	S19	W34	5464				36	SN			E		31		K
HOLL		1711	1712	1715	S19	W35	5464	05	2.0	4	SF C 2.2	3	E		E		18		
HOLL		1719	1731	1752	S19	W35	5464	05	2.0	33	SN C 9.7	3	E		E		55		
[PALE		1726	1732U	1750	S21	W39	5464	05	1.7	24	1F				E		143		F
[PALE		1838	1841	1857	S19	W33	5464	05	2.2	19	1N M 1.1	3	E		E		216		F
[HOLL		1838	1842	1857	S17	W36	5464	05	2.0	19	1B M 1.1	3	E		E		180		UH
[HOLL		1857	1913	2011	N30	E15	5470	05	6.0	74	SN M 2.3	3	E		E		62		FE
[HOLL		1857	1926	2011	N30	E15	5470			74	SB M 2.3				E		73		K
PALE		1901	1938	2006	N26	E11	5470	05	5.6	65	SF			3	E		88		F
HOLL		1942	1944	2003	S18	W39	5464	05	1.8	21	SF			3	E		20		
[PALE		1943	1948	1957	S21	W40	5464	05	1.7	14	SF			3	E		16		
[HOLL		2007	2007	2024	S17	W40	5464	05	1.8	17	SF			3	E		15		
[PALE		2017	2019	2024	S22	W40	5464	05	1.8	7	SF			3	E		21		
[HOLL		2028	2036	2101	S19	W36	5464	05	2.1	33	SN M 1.1	3	E		E		62		
[HOLL		2028	2056	2101	S19	W36	5464			33	SN M 1.1				E		14		K
PALE		2057	2102	2106	S20	W38	5464	05	2.0	9	SF			3	E		27		U
[HOLL		2220	2223U	2223D	S17	W38	5464	05	2.0	3D	SN M 1.0	3	E		E		93		
[HOLL		2220	2225	2234	S17	W38	5464	05	2.0	14	1N M 1.0	3	E		E		106		H
LEAR		2325	2326	2331	N32	E18	5470	05	6.4	6	SF C 2.4	3	E		E		10		F
GOES	05	0030E	0032	0040D	S18	W39					10D	SF C 3.1							
LEAR		0243	0250	0409	S17	W41	5464	05	2.0	86	SF C 7.5	3	E		E		51		FH
LEAR		0243	0348	0409	S17	W41	5464			86	SF C 7.5				E		45		K
LEAR		0325	0326	0342	N29	E06	5470	05	5.6	17	SF C 3.8	3	E		E		36		F
LEAR		0406	0408	0443	N32	E15	5470	05	6.3	37	SF C 4.8	3	E		E		72		
GOES		0524E	0529	0542D	S18	W33					18D	1B M 1.1							
LEAR		0551	0553	0556	S18	W40	5464	05	2.2	5	SF			3	E		13		F
SVTO		0723E	0739	1035	N30	E01	5470	05	5.4	192D	3B X 2.4	2	E		E		610		UY
LEAR		0747E	0758U	0913	N27	E06	5470	05	5.8	86D	2N	3	E		E		450		UF
SVTO		0757	0802	0826	S11	W52	5464	05	1.4	29	SN	4	E		E		93		FH
LEAR		0801	0801	0814	S17	W44	5464	05	2.0	13	SF			3	E		67		F
SVTO		1046	1046	1057	S22	W48	5464	05	1.7	11	SF			3	E		18		F
SVTO		1208	1209	1248	S18	W46	5464	05	2.0	40	1N C 5.0	3	E		E		128		H
[SVTO		1257	1312	1422	S17	W55	5464			85	SF C 3.5				E		50		K
[SVTO		1257	1327	1422	S17	W55	5464	05	1.4	85	SF C 3.5	3	E		E		36		F
[RAMY		1303	1313	1346	S16	W52	5464	05	1.6	43	SF C 3.5	3	E		E		36		
[RAMY		1325	1325	1341	N23	W03	5470	05	5.3	16	SF			3	E		13		
[HOLL		1354	1356	1358	S17	W43	5464	05	2.3	4	SF			3	E		54		
[RAMY		1355	1355U	1458D	S21	W50	5464	05	1.7	63D	SF			3	E		25		
[HOLL		1554	1554	1559	S18	W48	5464	05	2.0	5	SF C 1.7	3	E		E		14		
[RAMY		1555	1555	1601	S20	W49	5464	05	1.9	6	SF C 1.7	3	E		E		22		
[HOLL		1718	1720	1730	N32	E07	5470	05	6.3	12	SN C 3.4	3	E		E		65		EH
[RAMY		1719	1721	1731D	N30	E08	5470	05	6.3	12D	SF C 3.4	3	E		E		70		EH
[HOLL		1747	1804	1821	S18	W50	5464			34	SN C 3.4				E		45		K
[HOLL		1747	1811	1821	S18	W50	5464	05	1.9	34	SF C 3.4	3	E		E		35		FH
[RAMY		1750E	1813U	1825	S19	W51	5464	05	1.8	35D	SF C 3.4	3	E		E		36		FH
HOLL		1837	1838	1853	S21	W51	5464	05	1.9	16	SF			3	E		25		
HOLL		1911	1912	1928	S19	W46	5464	05	2.3	17	SF			3	E		18		
GOES		2023	2028	2034								C 2.0							
HOLL		2241	2247	2252	N15	E50	5474	05	9.7	11	SF			3	E		13		
HOLL	06	0034	0034	0038	S20	W51	5464	05	2.1	4	SF			3	E		11		
LEAR		0127	0127	0131	S21	W49	5464	05	2.3	4	SF			3	E		19		F
GOES		0444	0448	0450								C 1.8							
[SVTO		0520E	0524	0554	S27	E60		05	10.9	34D	SN M 2.0	2	E		E		69		F
[SVTO		0520E	0535	0554	S27	E60				34D	SN M 2.0				E		115		K
[SVTO		0643	0654	0658	S27	W06		05	5.8	15	SF			3	E		12		U
[SVTO		0654	0655	0657	N11	W78	5463	04	30.4	3	SF C 2.6	3	E		E		13		
[LEAR		0843	0845	0901	S17	W52	5464	05	2.4	18	SF C 2.9	3	E		E		29		F
[SVTO		0843	0845	0909	S19	W52	5464	05	2.4	26	SF C 2.9	3	E		E		28		F
[RAMY		1105E	1108U	1117D	S23	W63	5464	05	1.6	12D	SF			2	E		25		F
[RAMY		1112E	1114U	1147	N13	E43	5474	05	9.7	35D	SF			2	E		21		
[RAMY		1119	1120	1140	N28	W15	5470	05	5.3	21	SF			3	E		17		
[SVTO		1147	1147	1155	S23	W54	5464	05	2.3	8	SF			3	E		12		F
[RAMY		1254	1254	1320	S20	W60	5464	05	1.9	26	SF			3	E		33		F
[RAMY		1442	1445	1542	S19	W64	5464			60	SF M 1.7				E		53		K
[RAMY		1442	1451	1542	S19	W64	5464	05	1.7	60	SF M 1.7	3	E		E		91		F
[SVTO		1443	1451	1520	S22	W67	5464	05	1.5	37	SN M 1.7	3	E		E		84		FH

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement		Remarks
							Region	Mo Day						Time (UT)	Apparent (10 ⁻⁶ Disk)		Corr (Sq Deg)
		RAMY 06	1626	1627	1645	S19 W60	5464	05	2.1	19	SF	3	E		23	F
		RAMY	1655	1702	1745D	S31 E59	5476	05	11.3	50D	2B M 4.2	2	E		344	F
		HOLL	1659	1702	1725D	S28 E63	5476	05	11.6	26D	2B M 4.2	2	E		276	F
		RAMY	1705	1744U	1849D	S23 W56	5464	05	2.4	104D	SF C 6.4	2	E		68	F
		RAMY	1859E	1948U	2109D	S19 W57	5464	05	2.4	130D	SF	2	E		68	
		HOLL	1925	1938	2010	N28 W13	5470	05	5.8	45	SF C 6.0	3	E		17	
		HOLL	2127	2128	2135	S32 E54	5476	05	11.2	8	SF	3	E		17	
		GOES	2243	2303	2321					38	C 3.4					
		HOLL	2348	2419	2459	N30 W19	5470	05	5.5	71	SF C 8.9	3	E		62	F
		LEAR	2356	2359	2410	N32 W12	5470	05	6.0	14	SF C 8.9	3	E		18	
		LEAR 07	0012	0017	0039	N31 W12	5470	05	6.1	27	SF C 8.9	3	E		23	F
		HOLL	0117	0120	0131D	S28 E52	5476	05	11.1	14D	SF	2	E		44	FE
		LEAR	0117	0121	0129	S29 E56	5476	05	11.4	12	SF	3	E		23	F
		LEAR	0348	0356	0403	S21 W64	5464	05	2.2	15	SF	3	E		22	
		GOES	0454	0555	0637					103	C 4.3					
		LEAR	0651	0704	0724	S30 E52	5476	05	11.4	33	1F C 9.6	3	E		114	F
		GOES	0823	0832	0836					13	C 2.0					
		LEAR	0855	0856	0903	S21 W71	5464	05	1.9	8	SF	3	E		28	
		SVTO	0858	0859	0908	S23 W70	5464	05	2.0	10	SF	2	E		19	
		GOES	0936	0940	0945					9	C 2.7					
		RAMY	1300	1304U	1309	S21 W71	5464	05	2.1	9	SF	2	E		13	
		RAMY	1424	1435U	1539D	S21 W72	5464	05	2.1	75D	SF C 2.7	2	E		39	FH
		HOLL	1425	1437	1500	S21 W72	5464	05	2.1	35	SF C 2.7	3	E		54	F
		HOLL	1502	1504	1512	N26 E71	5478	05	13.1	10	SF	3	E		18	
		HOLL	1653	1656	1706	S21 W73	5464	05	2.1	13	SN C 2.6	3	E		43	
		SVTO	1654	1656	1702	S21 W73	5464	05	2.1	8	SF C 2.6	3	E		33	
		HOLL	1705	1706	1718	N26 E70	5478	05	13.1	13	SF	4	E		14	
		HOLL	1749	1749	1759	S31 E44	5476	05	11.2	10	SF	4	E		11	
		HOLL	1752	1758	1802	S21 W75	5464	05	2.0	10	SF C 5.0	4	E		35	
		PALE	1756	1759	1803	S21 W75	5464	05	2.0	7	SF C 5.0	3	E		24	H
		HOLL	1846	1854	1857	N26 E70	5478	05	13.2	11	SF	3	E		13	
		PALE	1850	1854	1857	N27 E70	5478	05	13.2	7	SF	3	E		12	
		HOLL	1854	1907	1927	N26 W28	5470	05	5.6	33	SF	4	E		17	F
		PALE	1902	1907	1913	N25 W29	5470	05	5.5	11	SF	3	E		10	
		HOLL	1910	1912	1922	S21 W78	5464	05	1.8	12	SN C 6.8	4	E		62	E
		PALE	1910	1912	1923	S21 W71	5464	05	2.3	13	SF C 6.8	3	E		47	FE
		HOLL	1921	1931	1944	N26 E67	5478	05	13.0	23	SF	4	E		24	
		PALE	1922	1932	1946	N26 E74	5478	05	13.5	24	SF	3	E		18	
		PALE	1933	1935	1947	S21 W74	5464	05	2.1	14	SF C 7.0	3	E		36	
		HOLL	1933	1935	1953	S21 W83	5464	05	1.4	20	SF C 7.0	4	E		28	
		HOLL	2010	2011	2033	N29 W25	5470	05	5.9	23	SF C 6.6	4	E		12	F
		HOLL	2112	2115	2119	S30 E44	5476	05	11.3	7	SF	4	E		29	F
		HOLL	2113	2118	2130	S21 W77	5464	05	2.0	17	1B M 2.0	4	E		110	
		HOLL	2129	2131	2136	S30 E43	5476	05	11.3	7	SF	4	E		11	F
		HOLL	2131	2139	2152	N17 E24	5474	05	9.7	21	SF	4	E		28	F
		HOLL	2208	2209	2222	S29 E35	5476	05	10.7	14	SF	4	E		41	F
		HOLL	2216	2225	2317	S21 W48	5480	05	4.2	61	1F C 4.3	4	E		133	F
		HOLL	2250	2252	2258	N17 E24	5474	05	9.8	8	SF	4	E		13	F
		LEAR	2340	2340	2345	S20 W76	5464	05	2.2	5	SF	3	E		21	
		LEAR	2344	2344	2411	N29 W27	5470	05	5.9	27	SF C 4.3	3	E		42	F
		HOLL	2344	2345	2345D	N30 W27	5470	05	5.9	1D	SN C 4.3	4	E		57	FE
		LEAR 08	0110	0149	0322	N30 W27	5470	05	5.9	132	1F M 1.2	3	E		159	
		LEAR	0110	0227	0322	N30 W27	5470			132	1F M 1.2		E		174	K
		LEAR	0118	0120	0131	S21 W78	5464	05	2.1	13	SF	4	E		74	
		HOLL	0123E	0124U	0128D	N29 W26	5470	05	6.0	5D	SF	2	E		25	F
		LEAR	0133	0135	0138	S32 E41	5476	05	11.3	5	SF	4	E		24	
		LEAR	0153	0155	0158	S16 W76	5464	05	2.3	5	SF	3	E		54	
		GOES	0221	0230	0257					36	M 1.1					
		LEAR	0348	0351	0359	S29 E35	5476	05	10.9	11	SF	3	E		24	
		LEAR	0517	0517U	0518D	N14 E21		05	9.8	1D	1F	3	E		139	
		LEAR	0517	0525	0608	N12 E20	5474	05	9.7	51	1F C 5.2	3	E		203	F
		SVTO	0520	0522U	0605	N14 E21	5474	05	9.8	45	1N C 5.2	2	E		190	F
		GOES	0728	0732	0737					9	C 2.5					
		SVTO	0816E	0817	0845	S22 E76	5481			29D	SN		E		78	K
		SVTO	0816E	0823U	0845	S22 E76	5481	05	14.2	29D	SF C 2.8	2	E		35	
		LEAR	0819	0822	0835	S22 E74	5481	05	14.0	16	SF C 2.8	3	E		38	

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Time (UT)	Measurement Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
SVTO	08	0856	0856	0916	S23	W88	5464	05	1.6	20	SF			E		19		
GOES		1010	1015	1022						12		C 3.9						
[SVTO		1251	1253	1304	S27	E29	5476	05	10.8	13	SF			E		37		F
RAMY		1252E	1254U	1313D	S29	E28	5476	05	10.7	21D	SF			E		25		
HOLL		1257	1300	1306	S28	E27	5476	05	10.6	9	SF			E		10		
RAMY		1301E	1302U	1312D	N16	E19	5474	05	10.0	11D	SF			E		11		
HOLL		1401	1406	1417	N25	E53	5478	05	12.7	16	SF			E		45		FE
HOLL		1448	1449	1453	S25	E71	5481	05	14.1	5	SF			E		24		
[SVTO		1526	1530	1547	S21	E71	5481	05	14.1	21	SF			E		26		
RAMY		1527	1530	1538	S22	E68	5481	05	13.9	11	SF			E		70		F
HOLL		1722	1725	1735	N30	W28	5470	05	6.5	13	SF			E		35		
[SVTO		1724E	1726U	1728	N35	W25	5470	05	6.7	4D	SF			E		30		
PALE		1724	1726	1733	N31	W29	5470	05	6.4	9	SF			E		17		
HOLL		1903	1903	1911	S24	E66	5481	05	13.9	8	SF			E		12		
[HOLL		2057	2059	2110	N30	W31	5470	05	6.4	13	SF			E		23		
PALE		2102E	2102U	2114D	N31	W31	5470	05	6.4	12D	SF			E		19		
HOLL		2102	2110	2155	N19	E13	5474	05	9.9	53	SF	C 4.9		E		93		FE
HOLL		2143	2144	2152	S29	E24	5476	05	10.8	9	SF			E		35		F
HOLL		2216	2219	2240	S23	E64	5481	05	13.8	24	SF			E		29		
HOLL		2336	2337	2346	S25	E66	5481	05	14.1	10	SF			E		15		F
HOLL	09	0021	0021	0030	S28	E23	5476	05	10.8	9	SF			E		22		
GOES		0453	0505	0517						24		C 5.6						
LEAR		0806	0807	0818	S24	E60	5481	05	14.0	12	SF			E		22		
GOES		0822	0826	0828						6		C 2.6						
RAMY		1104	1105	1116	S28	E74	5481	05	15.2	12	SF			E		18		
[SVTO		1116	1121	1225	S31	E16	5476	05	10.7	69	SF	C 5.4		E		58		
RAMY		1117	1119	1151	S29	E17	5476	05	10.8	34	SF	C 5.4		E		43		F
HOLL		1353	1354	1404	S29	E16	5476	05	10.8	11	SF			E		25		
[SVTO		1509	1510	1522	S27	E16	5476	05	10.9	13	SF	C 2.4		E		33		
HOLL		1509	1510	1542	S29	E14	5476	05	10.7	33	SF	C 2.4		E		74		
GOES		1610	1615	1619						9		C 2.1						
[SVTO		1653	1654	1703	N19	E04	5474	05	10.0	10	SF	M 1.0		E		17		
HOLL		1653	1655	1710	N17	E05	5474	05	10.1	17	SF	M 1.0		E		22		
RAMY		1946	1947	1952	S34	E16	5476	05	11.1	6	SF			E		13		
RAMY		2033	2035	2038	N31	W41	5470	05	6.6	5	SF			E		11		
HOLL		2136E	2138U	2200	S28	E11	5476	05	10.7	24D	SF	C 2.1		E		56		
GOES	10	0026	0032	0037						11		C 3.4						
LEAR		0204	0205	0216	S30	E08	5476	05	10.7	12	SF	C 3.3		E		36		F
GOES		0228	0233	0238						10		C 3.4						
LEAR		0257	0301	0307	S28	E09	5476	05	10.8	10	SF			E		16		
[LEAR		0348	0352	0415	N25	E33	5478	05	12.7	27	SF	C 2.2		E		68		F
PALE		0348	0354	0423	N28	E32	5478	05	12.6	35	SF	C 2.2		E		92		F
GOES		0419	0426	0439						20		M 1.4						
LEAR		0523	0525	0533	S29	E07	5476	05	10.8	10	SF			E		16		F
GOES		1221	1224	1230						9		C 2.3						
[HOLL		1631E	1632U	1638	S31	E02	5476	05	10.8	7D	SF	C 2.5		E		24		
SVTO		1631	1632	1642	S31	E04	5476	05	11.0	11	SF	C 2.5		E		39		
PALE		1934	1934U	1941	S20	E35	5481	05	13.5	7	SF			E		32		
HOLL		2137	2143	2152	S32	E00	5476	05	10.9	15	SF			E		25		
GOES	11	0023	0035	0050						27		C 3.9						
HOLL		0026E	0036	0055	S31	W02	5476	05	10.9	29D	SF			E		67		F
HOLL		0047	0049	0057	S29	E53		05	15.2	10	SF			E		24		
GOES		0122	0127	0202						40		C 2.6						
LEAR		0223	0223	0232	N14	E80		05	17.1	9	SF			E		18		
LEAR		0522	0530	0604	S31	W06	5476	05	10.7	42	SF			E		48		F
GOES		0629	0635	0642						13		C 4.8						
[SVTO		0729	0755	0851	S30	W08	5476	05	10.7	82	2N	C 8.2		E		269		FH
LEAR		0749	0753	0811	S31	W06	5476	05	10.8	22	1F	C 8.2		E		135		FH
LEAR		0851	0853	0857	S20	W60	5480	05	6.8	6	SF			E		35		
[SVTO		0852	0853	0908	S23	W60	5480	05	6.7	16	SF			E		38		
RAMY		1055	1103	1114	S31	W08	5476	05	10.8	19	SF			E		25		FH
RAMY		1106E	1107U	1115	N18	E86		05	18.0	9D	SF			E		85		
GOES		1328	1331	1333						5		C 1.5						
GOES		1740	1745	1752						12		C 2.6						
HOLL		2316	2317	2337	S24	E02	5482	05	12.1	21	SF	C 2.1		E		29		

Ha SOLAR FLARES

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo Day	Dur (Min)	Imp Opt Xray	Obs See	Type	Area Measurement			Remarks	
													Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
[	LEAR	12	0254	0255	0300	S31 W17	5476	05 10.8	6	SF		3	E		24		F
	PALE		0255E	0255U	0302D	S30 W16	5476	05 10.9	7D	SF		3	E		23		F
	GOES		0639	0643	0646				7		C 2.6						
	GOES		0720	0724	0728				8		C 2.5						
	RAMY		1119E	1119U	1159	S29 W22	5476	05 10.7	40D	SF M	1.2	3	E		53		F
	RAMY		1215	1216	1222	N15 E72	5487	05 18.0	7	SF		3	E		40		
	RAMY		1215	1216	1223	N15 E84		05 18.9	8	SF		3	E		52		
	RAMY		1225	1228	1252D	S32 W24	5476	05 10.6	27D	1F C	4.2	3	E		110		F
[	HOLL		1228E	1233U	1258	S31 W22	5476	05 10.8	30D	1F		2	E		108		F
	RAMY		1234	1236	1249	N15 E81		05 18.6	15	SF		3	E		22		
	GOES		1303	1308	1314				11		C 3.6						
[	HOLL		1402	1413	1610D	S29 W24	5476	05 10.7	128D	1F C	3.6	3	E		104		
	HOLL		1402	1456	1610D	S29 W24	5476		128D	1F C	3.6		E		231		K
	HOLL		1436	1438	1443	N16 E70	5487	05 17.9	7	SF		3	E		21		
	HOLL		1532	1536	1552	N27 E06	5478	05 13.1	20	SN		3	E		87		
	HOLL		1627	1630	1655	N12 W43	5479	05 9.4	28	SF		3	E		34		
	SVTO		1640E	1642U	1646D	N17 E17	5484	05 14.0	6D	SF		2	E		40		
[	PALE		1743	1754	1807	S28 W26	5476	05 10.7	24	SF		3	E		42		
	HOLL		1746	1753	1804	S29 W26	5476	05 10.7	18	SF		3	E		45		
	HOLL		1752	1756	1802	N28 E04	5478	05 13.0	10	SF		3	E		20		
	HOLL		1952	1954	2004	N16 E68	5487	05 18.0	12	SF		3	E		19		F
[	HOLL		2308	2313	2347	N11 W45	5479	05 9.6	39	1F		3	E		115		F
	PALE		2313E	2316U	2347	N13 W46	5479	05 9.5	34D	1F		3	E		107		
	HOLL		2315	2317	2335	N17 E63	5487	05 17.7	20	SF		3	E		68		
	HOLL	13	0009	0009	0015	N07 E25	5484	05 14.9	6	SF		3	E		13		
	LEAR		0721	0732	0742	N15 E73		05 18.8	21	SF		3	E		31		
	HOLL		1412	1412	1416	N16 E68		05 18.7	4	SF		3	E		11		
[	HOLL		1448	1459U	1459D	N15 E68	5488	05 18.8	11D	1N C	4.4	3	E		100		
	RAMY		1455	1501	1546	N17 E67		05 18.7	51	1N C	4.4	2	E		162		
[	SVTO		1455	1504	1530	N20 E69	5488	05 18.9	35	1F C	4.4	2	E		105		
	RAMY		1455	1518	1546	N17 E67			51	1N			E		81		K
[	HOLL		1514	1517	1542	N19 E48	5487	05 17.3	28	SF		3	E		47		F
	RAMY		1514	1517	1544	N17 E48	5487	05 17.3	30	SF		2	E		53		
[	SVTO		1515	1518	1542	N21 E47	5487	05 17.2	27	SF		2	E		37		F
	HOLL		1638	1642	1649	N07 E18	5484	05 15.0	11	SF C	3.3	3	E		62		
	SVTO		1640E	1642U	1646D	N17 E17	5484	05 15.0	6D	SF		2	E		40		
	HOLL		1812	1813	1818	S32 W34	5476	05 11.1	6	SF		3	E		28		
	PALE		2011	2011	2017	N07 E15	5484	05 15.0	6	SF		3	E		19		F
[	HOLL		2043	2044	2117	S24 W48	5476		34	SF			E		24		K
	HOLL		2043	2056	2117	S24 W48	5476	05 10.1	34	SF		3	E		19		
	HOLL		2201	2207	2210	N07 E14	5484	05 15.0	9	SF		3	E		12		
	HOLL		2213	2213	2235	N07 E13	5484	05 14.9	22	SF		3	E		16		
	HOLL		2339	2340	2343	N07 E13	5484	05 14.9	4	SF		3	E		14		
	HOLL		2354	2409	2435	N29 E13		05 15.0	41	SF		3	E		18		
	PALE	14	0021	0023	0033	N19 E67	5488	05 19.1	12	SF		3	E		36		F
	PALE		0030	0031	0039	N30 E10		05 14.8	9	SF		3	E		14		F
	LEAR		0130	0130	0133	S21 W09	5481	05 13.4	3	SF		3	E		16		
	LEAR		0441	0443	0502	N06 E10	5484	05 14.9	21	SF		3	E		16		
	LEAR		0543	0544	0600	N15 E62	5488	05 18.9	17	SF		3	E		30		
	LEAR		0548	0553	0618	N19 W54	5474	05 10.1	30	SF C	3.4	3	E		74		F
	LEAR		0654	0654	0708	N07 E09	5484	05 15.0	14	SF C	4.9	3	E		72		F
	SVTO		0853	0855	0858	N18 E61	5488	05 19.0	5	SF		3	E		29		
[	HOLL		1511	1515	1521	S31 W59	5476	05 10.0	10	SF		3	E		50		
	RAMY		1513	1515	1519	S33 W60	5476	05 9.9	6	SF		3	E		34		
[	HOLL		1522	1523	1533	S23 W09	5481	05 13.9	11	SF		3	E		17		F
	RAMY		1523	1525	1532	S23 W18	5481	05 13.2	9	SF		3	E		29		
	HOLL		1600	1602	1607	S31 W51	5476	05 10.6	7	SF		3	E		18		
	HOLL		1623	1625	1653	S23 W09	5481	05 14.0	30	SF		3	E		16		
[	HOLL		1641	1643	1725	N07 E04	5484	05 15.0	44	1N		4	E		133		FE
	PALE		1642	1646U	1721	N07 E04	5484	05 15.0	39	SF		3	E		76		F
[	HOLL		1643	1648	1712	N26 W24	5478	05 12.8	29	SF C	5.7	3	E		44		F
	PALE		1648E	1649	1712	N27 W23	5478	05 12.9	24D	SF C	5.7	3	E		26		F
	RAMY		1700E	1700U	1709	N26 W20	5478	05 13.1	9D	SF		2	E		12		
	HOLL		1832	1834	1840	S21 W20	5481	05 13.2	8	SF		4	E		35		
	HOLL		1907	1907	1914	N26 W25	5478	05 12.8	7	SF		4	E		14		F
	HOLL		2109	2113	2159	S21 W21	5481		50	SF			E		32		K

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Sta	Day	Start (UT)	Max (UT)	End (UT)	NOAA/USAF			CMP Mo	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
					Lat	CMD	Region							Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
HOLL	14	2109	2142	2159	S21	W21	5481	05	13.3	50	SF	3	E		31		
HOLL		2229	2230	2241	S29	W62	5476	05	10.1	12	SN C 2.4	3	E		80		
LEAR	15	0045	0047	0051	N17	E50	5488	05	18.8	6	SF	3	E		12		
PALE		0326	0330	0347	S20	W25	5481	05	13.2	21	SF	3	E		21		
LEAR		0338	0339	0349	S14	E71		05	20.5	11	SF	3	E		36		
PALE		0339	0340	0345	S14	E70		05	20.4	6	SF	3	E		16		
PALE		0347	0351	0400	N18	E22	5489	05	16.8	13	SF	3	E		12		
LEAR		0348	0351	0400	N17	E23	5489	05	16.9	12	SF	3	E		16		
SVTO		0531E	0536	0603	S21	W26	5481	05	13.2	32D	SF C 6.5	3	E		91	F	
LEAR		0531	0536	0611	S20	W26	5481	05	13.2	40	SN C 6.5	3	E		96	F	
SVTO		0701E	0703	0716	N19	E47	5488	05	18.9	15D	SF	2	E		20	F	
LEAR		0746	0746	0756	N14	E48	5488	05	18.9	10	SF	3	E		12		
LEAR		0859	0903	0910	S13	E63		05	20.1	11	SF	3	E		24		
SVTO		1340	1340	1351	N20	E19	5489	05	17.0	11	SF	3	E		18		
HOLL		1340	1343	1356	N19	E20	5487	05	17.1	16	SF	3	E		55		
SVTO		1354	1354	1359	N24	W35	5478	05	12.9	5	SF	3	E		14		
HOLL		1354	1354	1402	N26	W33	5478	05	13.0	8	SF	3	E		16		
HOLL		1646	1647	1712	N17	E44	5488	05	19.0	26	SF	3	E		16		
HOLL		1710	1720	1727	S12	E62		05	20.4	17	SF	3	E		21		
HOLL		2127	2128	2135	N08	W10	5484	05	15.1	8	SF	3	E		12	F	
PALE	16	0257	0300	0315	S20	W38	5492	05	13.2	18	SF	3	E		29	F	
GOES		0305	0430	0530						145	C 3.7						
PALE		0316	0320	0331	N19	E28	5487	05	18.3	15	SF	3	E		31	F	
PALE		0414	0415	0433D	N18	E36	5488	05	18.9	19D	SF	3	E		23		
PALE		0421	0428	0448D	N18	E22	5487	05	17.8	27D	SF	3	E		64	F	
SVTO		1047	1056	1119	N23	E34	5488	05	19.1	32	SF	3	E		30	F	
RAMY		1336	1336	1350	S21	W44	5492	05	13.2	14	SF	3	E		44	F	
SVTO		1434	1434	1443	S15	E49	5491	05	20.3	9	SF	3	E		19		
RAMY		1435	1435	1442	S19	E50	5491	05	20.4	7	SF	3	E		15		
SVTO		1627	1632U	1633D	N18	E14	5487	05	17.7	60	SF	2	E		33	F	
RAMY		1627	1632	1655	N16	E16	5487	05	17.9	28	SF	2	E		25	F	
HOLL		1630E	1630U	1644D	N18	E20	5487	05	18.2	14D	SF	3	E		47	F	
HOLL		1837	1841U	1856D	S16	E45	5491	05	20.2	19D	SF	3	E		82		
RAMY		1839	1841	1901	S12	E45	5491	05	20.2	22	SF	3	E		70	F	
PALE		1840	1842	1900	S13	E48	5491	05	20.4	20	SF	3	E		40		
PALE		1908	1908	1918	N17	E13	5487	05	17.8	10	SF	3	E		19	F	
LEAR	17	0908	0918	0926	S17	E36	5491	05	20.1	18	SF C 3.7	3	E		31		
SVTO		0915E	0918	1039	S19	E37	5491	05	20.2	84D	1F C 3.7	3	E		227	UF	
RAMY		1158	1202	1214	N18	W11	5489	05	16.7	16	SF	3	E		35	UF	
SVTO		1201E	1203	1236	N18	W11	5489	05	16.7	35D	SF	2	E		53	F	
RAMY		1614	1615	1629	N18	W14	5489	05	16.6	15	SF	3	E		26		
SVTO		1614	1616	1629	N18	W14	5489	05	16.6	15	SF	3	E		16	F	
HOLL		1912E	1947U	2006	S20	W59	5492	05	13.3	54D	SF	2	E		64		
RAMY		1932	1947	1958	S21	W60	5492	05	13.2	26	SF	3	E		56		
LEAR	18	0051	0052	0056	S20	W64	5492	05	13.1	5	SF	3	E		26		
LEAR		0419	0420	0423	S17	E26	5491	05	20.1	4	SF C 1.6	3	E		18		
SVTO		0555	0556	0604	N16	W02	5487	05	18.1	9	SF	3	E		13		
LEAR		0753	0755	0808	N21	E11	5488	05	19.2	15	SF	3	E		20	F	
SVTO		0753	0759	0814D	N25	E12	5495	05	19.2	21D	SF	3	E		50		
LEAR		0855	0857	0919	S21	W64	5492	05	13.5	24	SF	3	E		48		
HOLL		1339	1339	1343	N16	E05	5488	05	18.9	4	SF	3	E		19		
RAMY		1339	1341	1345	N16	E05	5488	05	18.9	6	SF	3	E		19	F	
HOLL		1441E	1442U	1443D	N16	E04	5488	05	18.9	2D	SF	3	E		26		
HOLL		1622E	1623U	1627	S18	E19	5491	05	20.1	5D	SF	3	E		51		
HOLL		1757	1801	1810	N17	E08	5488	05	19.3	13	SF	3	E		25	F	
RAMY		1759	1801	1810	N17	E00	5488	05	18.7	11	SF	3	E		21		
HOLL		1812	1813	1828	N18	E02	5488	05	18.9	16	SN C 3.1	3	E		49		
PALE		1812	1814	1819	N17	E02	5488	05	18.9	7	SF C 3.1	3	E		43	F	
HOLL		2054	2057	2107	N17	E02	5488	05	19.0	13	SF	3	E		37		
HOLL		2322	2329	2435	N07	W53	5484	05	15.0	73	1N C 2.2	3	E		196	FE	
PALE		2326	2334	2410	N07	W52	5484	05	15.1	44	1F	3	E		114	FH	
LEAR		2351	2352	2359	N08	W52	5484	05	15.1	8	SF	3	E		11		
LEAR	19	0143	0145	0148	N11	W55	5484	05	14.9	5	SF	3	E		31		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		CMP Mo	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
							Region	Day							Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
LEAR	19	0611	0614	0621	S22	E55	5497	05	23.5	10	SF		3	E		30		
RAMY		1253E	1253U	1309D	N16	W07	5488	05	19.0	160	SF		2	E		30		
RAMY		1356E	1450U	1517D	N16	W11	5488	05	18.7	81D	SF		2	E		61	F	
SVTO		1443	1448	1500	N18	W14	5488	05	18.5	17	SF C 1.8		3	E		72	F	
HOLL		1443	1448	1503	N16	W11	5488	05	18.8	20	SF C 1.8		3	E		78	F	
SVTO		1607	1610	1624	S17	E46	5497	05	23.2	17	SF		3	E		12	F	
HOLL		1627	1629	1730	N19	W08	5488			63	1F C 1.6			E		48	K	
HOLL		1627	1657	1730	N19	W08	5488	05	19.1	63	1F C 2.2		3	E		122	FE	
HOLL		1629	1631	1637	N21	W06	5495	05	19.2	8	SF C 1.6		3	E		10		
HOLL		1756	1802	1814	N22	W10	5495	05	19.0	18	SF		3	E		14	H	
HOLL		1824	1824	1831	N26	W05	5495	05	19.4	7	SF		3	E		11		
HOLL		1855	1900	1920	S22	E48	5497	05	23.5	25	SF C 1.5		3	E		21		
PALE		1900	1901	1918	S21	E49	5497	05	23.5	18	SF C 1.5		3	E		67		
HOLL		2052	2101	2116	N15	W16	5495	05	18.6	24	SF C 1.4		3	E		25	FH	
HOLL		2322	2329	2435	N07	W53	5484	05	16.0	73	1N		3	E		196	FE	
PALE	20	0006	0007	0013	S20	E49	5497	05	23.7	7	SF		3	E		19	F	
HOLL		0006	0007	0024	S19	E47	5497	05	23.6	18	SF		3	E		26	F	
HOLL		0049	0050	0056	N18	W17	5488	05	18.7	7	SF		3	E		25	F	
LEAR		0258	0303	0308	N21	W15	5495	05	19.0	10	SF		3	E		24		
LEAR		0424	0428	0504	N22	W13	5495			40	SF C 3.3			E		86	K	
LEAR		0424	0434	0504	N22	W13	5495	05	19.2	40	SF C 3.3		3	E		83		
PALE		0432	0434	0437D	N21	W15	5495	05	19.0	5D	SF C 3.3		3	E		77	F	
SVTO		0433	0435U	0522	N21	W14	5495	05	19.1	49	1F C 3.3		3	E		225	F	
LEAR		0525	0544	0556	N22	W14	5495			31	SF			E		34	K	
LEAR		0525	0552	0556	N22	W14	5495	05	19.1	31	SF		3	E		33		
LEAR		0623	0623	0632	S17	W02	5491	05	20.1	9	SF		3	E		15		
LEAR		0630	0631	0635	N22	W15	5495	05	19.1	5	SF		3	E		20		
LEAR		0819	0828	0835	N22	W15	5495	05	19.2	16	SF		3	E		13		
GOES		0919	0924	0929						10	C 1.9							
GOES		0929	1155	1308						219	C 5.2							T
RAMY		1126	1144	1229	N20	W20	5495			63	SF			E		48	K	
RAMY		1126	1201	1229	N20	W20	5495	05	18.9	63	SF		3	E		46	F	
RAMY		1127	1145	1224	S21	E39	5497	05	23.5	57	SF		3	E		29	F	
SVTO		1136	1137	1144	S22	E58		05	24.9	8	SF		3	E		16		
RAMY		1305	1309	1316	N17	W22	5488	05	18.9	11	SF C 4.3		3	E		51	F	
HOLL		1307	1309	1321	N18	W23	5488	05	18.8	14	SF C 4.3		3	E		34		
RAMY		1307	1328	1331	N19	W21	5488	05	18.9	24	SF		3	E		30	F	
SVTO		1310	1312	1316	N18	W22	5488	05	18.9	6	SF		3	E		13	U	
HOLL		1423	1423	1432	S16	W07	5491	05	20.1	9	SF		3	E		10		
HOLL		1450	1450	1457	N17	W28	5495	05	18.5	7	SF		3	E		18	F	
HOLL		1500	1505	1517	N14	W75	5483	05	14.9	17	SF C 3.5		3	E		29		
HOLL		1554	1556	1607	N14	W75	5483	05	15.0	13	SF		3	E		20		
HOLL		1602	1638	1646	N20	W22	5495	05	19.0	44	SF		3	E		14	F	
HOLL		1715	1717	1724	N17	W24	5488	05	18.9	9	SF		3	E		15	F	
HOLL		1743	1743	1747	S19	E32	5497	05	23.2	4	SF		3	E		11	F	
HOLL		1750	1752	1801	S20	E34	5497	05	23.3	11	SF		3	E		35		
PALE		1825	1825	1829	S20	E39	5497	05	23.7	4	SF		3	E		10	F	
PALE		1831	1831	1836	N22	W26	5495	05	18.8	5	SF		3	E		11		
HOLL		1831	1831	1836	N22	W25	5495	05	18.8	5	SF		3	E		19		
PALE		1917	1919	1925	S21	E31	5497	05	23.2	8	SF		3	E		12		
HOLL		1934	1937	1942	S19	E34	5497	05	23.4	8	SF		3	E		22		
PALE		1959	2045U	2108	S21	E34	5497	05	23.4	69	SF C 3.8		3	E		20	F	
HOLL		2006	2008	2017	S20	E32	5497	05	23.3	11	SF		3	E		16	F	
GOES		2120	2130	2140						20	C 4.0							
HOLL		2121	2121	2143	N22	W23	5495	05	19.1	22	SF		3	E		22	F	
HOLL		2123	2126	2144	S16	W09	5491	05	20.2	21	SF		3	E		31	F	
HOLL		2126	2126	2143	N22	W23	5495	05	19.1	17	SF		3	E		22	F	
GOES	21	0318	0322	0335						17	C 2.7							
LEAR		0447	0447	0453	N20	W45	5487	05	17.7	6	SF		3	E		18		
SVTO		0447E	0447U	0504	N16	W46	5487	05	17.7	17D	SF		3	E		58	F	
LEAR		0638	0639	0651	N23	W26	5495	05	19.3	13	1F C 5.8		3	E		119	F	
SVTO		0638	0641	0651	N22	W28	5495	05	19.1	13	SF C 5.8		3	E		90		
SVTO		0651	0651	0726	S19	E21	5497	05	22.9	35	SF		3	E		13		
LEAR		0651	0708	0739	S20	E23	5497	05	23.0	48	SF		3	E		29		
LEAR		0657	0659	0711	S17	E17	5494	05	22.6	14	SF		3	E		16	F	
LEAR		0821	0836	0848	N17	W63	5489	05	16.6	27	SF		3	E		35		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Dur Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks
															Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
SVTO	21	0822E	0836U	0847	N18	W63	5489	05	16.5	250	SF		2	E		18		
SVTO		0822E	0836U	0901	N16	W80	5493	05	15.3	390	SF		2	E		57		
LEAR		0838	0840	0843	N18	W48	5487	05	17.7	5	SF		3	E		42		
SVTO		0840E	0841U	0846	N16	W35	5488	05	18.7	60	SF		2	E		11		
SVTO		0840E	0841U	0846	N16	W47	5487	05	17.8	60	SF		2	E		18		
SVTO		0842E	0907U	0917	S16	W21	5491	05	19.8	350	SF		2	E		19		
SVTO		0903E	0907U	0913	N15	W72	5493	05	15.9	100	SF		2	E		14		
GOES		0934	0938	0940						6		C 2.6						
SVTO		1010E	1021U	1029	N21	W31	5488	05	19.0	190	SF		2	E		12		
SVTO		1133	1149	1153	N21	W34	5495	05	18.9	20	SF	C 3.3	3	E		32		
SVTO		1201	1205	1221	N21	W35	5495	05	18.8	20	SF	C 4.0	3	E		28		F
SVTO		1228	1230	1238	N16	W38	5488	05	18.6	10	SF		3	E		15		
SVTO		1323	1323	1334	N18	W39	5488	05	18.6	11	SF		3	E		14		
SVTO		1324	1332	1340	N21	W36	5495	05	18.8	16	SF		3	E		19		F
RAMY		1401	1408	1429	S18	W21	5491	05	20.0	28	SF		3	E		22		F
HOLL		1407	1407	1419	S17	W18	5491	05	20.2	12	SF		3	E		12		F
RAMY		1427	1428	1433	N21	W34	5495	05	19.0	6	SF		3	E		15		
RAMY		1434	1505	1549	N23	W38	5495			75	1F			E		37		K
RAMY		1434	1514	1549	N23	W38	5495	05	18.7	75	1F	M 1.1	3	E		117		H
RAMY		1442	1449	1516	N13	W40	5488	05	18.6	34	SF		3	E		46		F
HOLL		1443	1454U	1512	N20	W37		05	18.8	29	SF		3	E		50		
SVTO		1509E	1515	1624	N20	W39	5495	05	18.6	750	1F		3	E		146		F
HOLL		1512E	1515U	15200	N21	W37		05	18.8	80	2B		3	E		336		
RAMY		1516	1522	1531	N16	W37	5488	05	18.8	15	SF		3	E		33		
RAMY		1519	1519	1527	S18	W16	5491	05	20.4	8	SF		3	E		19		
HOLL		1531	1532	1549	S16	W23	5491	05	19.9	18	SF		3	E		57		
RAMY		1531	1532	1551	S17	W20	5491	05	20.1	20	SF		3	E		24		
HOLL		1531	1538	1542	N20	W37	5495	05	18.8	11	SF		3	E		19		FE
RAMY		1554	1600	1619	S18	W22	5491	05	20.0	25	SF		3	E		67		F
HOLL		1558	1600	16200	S16	W24	5491	05	19.8	220	SF		3	E		50		
RAMY		1642	1700U	1710	N20	W34	5495	05	19.1	28	SF		3	E		24		F
HOLL		1702	1702	1710	N21	W35	5495	05	19.0	8	SF		2	E		16		F
PALE		1733	1801	1829	N22	W32	5495	05	19.3	56	SB	M 3.0	3	E		95		E
RAMY		1734	1739	1820	N20	W32	5495			46	SF	M 1.9		E		94		K
RAMY		1734	1801	1820	N20	W32	5495	05	19.3	46	SB	M 3.0	3	E		85		F
PALE		1738	1801	1829	N22	W32	5495	05	19.3	51	SB	M 3.0	3	E		95		F
RAMY		1757	1804	1828	N17	W40	5488	05	18.7	31	SF		3	E		42		F
PALE		1802	1803	1829	N13	W42	5488	05	18.6	27	SF		3	E		12		
HOLL		1835	1847	1919	N21	W36	5495			44	1N			E		97		K
HOLL		1835	1855	1919	N21	W36	5495	05	19.0	44	1N	M 1.0	3	E		103		
RAMY		1842	1847U	18530	N19	W33	5495	05	19.3	110	SF	M 1.0	2	E		60		F
PALE		1855	1858	1923	N21	W33	5495	05	19.2	28	SF	M 1.0	3	E		80		
HOLL		2109E	2112U	2118	N21	W35	5495	05	19.2	90	SF		3	E		20		E
HOLL		2109E	2116U	21260	N15	W43	5488	05	18.6	170	SF		3	E		48		
HOLL		2134	2135	2137	S20	E19	5497	05	23.3	3	SF		3	E		23		
PALE		2222	2247U	2319	S20	E20	5497	05	23.5	57	SF		3	E		56		F
HOLL		2231E	2236U	2314	S21	E17	5497	05	23.2	430	SN		3	E		68		
PALE		2247	2248	2326	N21	W39	5495	05	18.9	39	SF	C 8.3	3	E		47		F
HOLL		2247	2249	2418	N21	W38	5495	05	19.0	91	SN	C 8.3	3	E		72		
HOLL		2247	2310	2418	N21	W38	5495			91	SN			E		96		K
GOES		2311	2314	2317						6		C 4.2						
PALE		2336	2338	2344	N20	W39	5495	05	19.0	8	SF		3	E		11		
PALE		2352	2352	2408	N23	W38	5495	05	19.1	16	SF		3	E		21		F
PALE	22	0002	0024	0213	S21	E16	5497	05	23.2	131	2B	M 5.7	3	E		421		FE
HOLL		0002	0035	01500	S22	E17	5497	05	23.3	1080	2B	M 5.7	3	E		397		UF
LEAR		0005	0024	0210	S20	E16	5497	05	23.2	125	2N	M 5.7	3	E		349		FE
HOLL		0028	0034	0054	S16	W27	5491	05	20.0	26	SF		3	E		40		
PALE		0028	0042	0059	S19	W26	5491	05	20.0	31	SF		3	E		23		
PALE		0111	0112	0114	N22	W39	5495	05	19.0	3	SF		3	E		13		
LEAR		0238	0241	0245	S20	E13	5497	05	23.1	7	SF		3	E		15		F
PALE		0241	0242	0244	S21	E17	5497	05	23.4	3	SF		3	E		20		
PALE		0431	0436	0439	N21	W38	5495	05	19.3	8	SF	C 5.7	2	E		36		F
LEAR		0546	0546	0611	S19	E12	5497	05	23.1	25	SF	C 5.6	3	E		35		
LEAR		0628	0628	0638	N14	W49	5488	05	18.6	10	SF	C 3.7	3	E		49		
SVTO		0655E	0703	0735	S19	E14	5497	05	23.3	400	SF		2	E		78		
SVTO		0801E	0806	0818	S19	E13	5497	05	23.3	170	SF	C 4.5	2	E		40		
SVTO		0835	0852	0907	N23	W43	5495	05	19.0	32	SF		2	E		40		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement			Remarks	
							Region	Mo Day						Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)		
SVTO	22	1016	1018	1028	S19	E10	5497	05	23.2	12	SF	C 5.8	3	E		32		F
GOES		1123E	1146	1150D	S21	E09				27D	SF	C 3.7						
SVTO		1206	1224	1247	S22	E10	5497	05	23.3	41	SF	C 5.2	3	E		37		F
RAMY		1215E	1215U	1247	S23	E03	5497	05	22.7	32D	SF		2	E		28		F
SVTO		1307	1309	1332	S18	W35	5491	05	19.9	25	SF		3	E		42		F
RAMY		1308	1309	1326	S19	W37	5491	05	19.7	18	SF		3	E		35		F
SVTO		1325	1325	1332	N19	W45	5495	05	19.1	7	SF		3	E		12		
RAMY		1413E	1524	1608	N19	W48	5495	05	18.9	115D	1N		3	E		128		FE
RAMY		1432	1524	1608	N19	W48	5495	05	18.9	96	1N		3	E		128		FE
RAMY		1452	1453	1500	S22	E08	5497	05	23.2	8	SF		3	E		22		
RAMY		1501	1503	1539	S22	E07	5497			38	SF			E		50		K
RAMY		1501	1522	1539	S22	E07	5497	05	23.2	38	SF		3	E		50		F
SVTO		1510	1523	1602	S21	E06	5497	05	23.1	52	SF		3	E		84		F
HOLL		1515	1523	1615D	N22	W49	5495	05	18.9	60D	SN	M 1.6	3	E		98		
HOLL		1518	1521	1536	S21	E08	5497	05	23.2	18	SN		3	E		43		FE
RAMY		1651	1651	1656	S22	E07	5497	05	23.2	5	SN		3	E		15		F
PALE		1654	1656	1704	N21	W47	5495	05	19.1	10	SF		2	E		42		F
RAMY		1655	1656	1706	N20	W48	5495	05	19.0	11	SF		3	E		27		
RAMY		1752	1754	1822	S23	E07	5497	05	23.3	30	SF		3	E		57		
HOLL		1752	1810	1821	S20	E05	5497	05	23.1	29	SF		3	E		18		F
RAMY		1810	1823	1909	N18	W52	5495	05	18.8	59	SF		3	E		31		
PALE		1819	1822	1825	N22	W46	5495	05	19.2	6	SF		3	E		25		
PALE		1847	1854U	1913	S23	E09	5497	05	23.5	26	SF	C 3.9	3	E		49		F
RAMY		1847	1900	1915	S23	E07	5497	05	23.3	28	1F	C 3.9	3	E		179		FE
HOLL		1852E	1854	1917	S20	E09	5497	05	23.5	25D	1N	C 3.9	3	E		132		FE
HOLL		1935	1938	1959	S20	E03	5497	05	23.0	24	SF	C 4.0	3	E		39		FE
RAMY		1937	1938	1950	S22	E01	5497	05	22.9	13	SF	C 4.0	3	E		38		F
RAMY		1938	1941	1953	S21	W04	5494	05	22.5	15	SF	C 4.0	3	E		21		
HOLL		1942	1947	2027	N22	W50	5495			45	SB			E		12		K
HOLL		1942	2009	2027	N22	W50	5495	05	19.0	45	SN		3	E		77		F
RAMY		1942	2011U	2036	N19	W52	5495	05	18.8	54	SF		3	E		95		F
RAMY		2032E	2035	2052	S22	E07	5497	05	23.4	20D	SF		3	E		62		
HOLL		2035E	2042	2046	S20	E07	5497	05	23.4	11D	SF		3	E		73		F
HOLL		2124	2129	2157	N22	W49	5495	05	19.1	33	SF		3	E		27		FE
HOLL		2124	2147	2157	N22	W49	5495			33	SF			E		21		K
HOLL		2151	2159	2222	N16	W56	5488	05	18.7	31	SF		3	E		31		
HOLL		2201	2203	2212	N19	W54	5495	05	18.8	11	SF		3	E		25		F
HOLL		2232E	2335U	2340	S18	E02	5497	05	23.1	68D	SF		3	E		49		F
LEAR		2339	2408	2425	S17	W01	5497	05	22.9	46	SF		3	E		60		F
HOLL	23	0001E	0009	0037	S20	E05	5497	05	23.4	36D	SN		3	E		89		FE
GOES		0001	0010	0015						14		C 4.0						
HOLL		0057	0058U	0107	N22	W52	5495	05	19.0	10	SF		3	E		18		F
LEAR		0058	0058	0103	N23	W51	5495	05	19.1	5	SF		3	E		16		F
LEAR		0106	0108	0135	N23	W53	5495	05	19.0	29	SF		3	E		22		
LEAR		0107	0108	0142	S18	E02	5497	05	23.2	35	SF		3	E		12		F
HOLL		0126E	0128U	0132D	S20	E88		05	29.8	6D	SF		2	E		29		
LEAR		0129	0129	0135	S22	E80	5503	05	29.2	6	SF		3	E		16		
LEAR		0146	0147	0156	N24	W49	5495	05	19.3	10	SN	M 2.5	3	E		82		
LEAR		0156	0202	0258	S19	E02	5497			62	SF			E		41		K
LEAR		0156	0246	0258	S19	E02	5497	05	23.2	62	SF		3	E		41		F
LEAR		0300	0325	0406	S19	E03	5497	05	23.3	66	SF	C 7.4	3	E		61		UF
GOES		0441	0500	0524						43		C 9.0						
SVTO		0523	0539	0620	S20	E03	5497	05	23.4	57	1F	C 7.5	4	E		184		F
LEAR		0536	0540	0606	S19	E00	5497	05	23.2	30	SF	C 7.5	3	E		54		
LEAR		0707	0708	0719	S22	W08	5497	05	22.7	12	SF	C 8.6	3	E		44		
SVTO		0723	0738	0746	N23	W56	5495	05	19.0	23	SF		3	E		16		
SVTO		0732	0735	0747	S20	E00	5497	05	23.3	15	SF	C 8.9	3	E		23		
LEAR		0733	0734	0748	S19	W01	5497	05	23.2	15	SF	C 8.9	3	E		19		
SVTO		0750	0750	0754	S20	W01	5497	05	23.2	4	SF		3	E		15		
GOES		0800	0809	0853						53		M 1.0						
SVTO		1140	1145	1153	S20	W49	5491	05	19.7	13	SF		3	E		18		F
SVTO		1253	1255	1308	S19	W02	5497	05	23.4	15	SF		3	E		31		F
RAMY		1302	1313	1325	N18	W63	5488	05	18.7	23	SF		3	E		15		
RAMY		1305	1308	1323	S17	W15	5494	05	22.4	18	SF	C 6.2	3	E		30		F
HOLL		1305	1308	1328	S17	W16	5494			23	SF	C 6.2		E		23		K
SVTO		1305	1310	1322	S18	W18	5494	05	22.2	17	SF	C 6.2	3	E		29		
HOLL		1305	1313	1328	S17	W16	5494	05	22.3	23	SF	C 6.2	3	E		22		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement		Remarks
															Time (UT)	Apparent (10-6 Disk)		Corr (Sq Deg)
RAMY	23	1325	1333	1351	S19	W03	5497	05	23.3	26	SF		3	E		24	F
HOLL		1438	1451U	1520D	N18	W63	5488	05	18.8	42D	SF C	7.4	3	E		62	
RAMY		1438	1451	1539	N18	W64	5488	05	18.7	61	SF C	7.4	3	E		89	F
SVTO		1443	1445	1521	N16	W65	5488	05	18.7	38	SF C	7.4	3	E		22	
SVTO		1444	1444	1501	N23	W60	5495	05	19.0	17	SF		3	E		16	
RAMY		1446	1448	1514	N20	W58	5495	05	19.2	28	SF		3	E		13	
RAMY		1606	1609	1624	S18	W17	5494	05	22.4	18	SF C	4.2	3	E		33	
HOLL		1606	1615	1625D	S17	W18	5494	05	22.3	19D	SF C	4.2	3	E		30	
GOES		1720	1725	1730						10		C 4.5					
RAMY		1819	1833	1835	N19	W66	5488	05	18.7	16	SF		3	E		23	
RAMY		1820	1829	1835	N20	W62	5495	05	19.0	15	SF C	5.0	3	E		13	
HOLL		1820	1830	1833	N19	W62	5495	05	19.0	13	SF C	5.0	3	E		10	
PALE		1823	1830	1835	N20	W65	5495	05	18.8	12	SF C	5.0	3	E		10	
HOLL		2003	2005	2021	S20	W03	5497	05	23.6	18	SN		3	E		98	FE
PALE		2003	2006	2027	S19	W04	5497	05	23.5	24	SF C	7.8	3	E		89	FH
RAMY		2009E	2010U	2014D	S19	W05	5497	05	23.4	5D	SF		3	E		49	
HOLL		2105	2109	2209	S19	W08	5497			64	SN			E		66	K
HOLL		2105	2126	2209	S19	W08	5497	05	23.3	64	SN C	9.2	3	E		89	FE
PALE		2109E	2126	2215	S20	W07	5497	05	23.3	66D	SF C	9.2	3	E		91	FH
HOLL		2207	2208	2214	S20	W47	5491	05	20.3	7	SF		3	E		12	F
PALE		2207	2214	2218	S19	W51	5491	05	20.0	11	SF		3	E		25	H
HOLL		2224	2226	2233	S24	W35	5490	05	21.2	9	SF		3	E		43	
HOLL		2227	2230	2238	S18	W06	5497	05	23.5	11	SF		3	E		36	
HOLL		2316	2320	2329	N23	W64	5495	05	19.0	13	SF		3	E		30	
HOLL	24	0006	0010	0035	S21	E66	5505	05	29.1	29	SF		3	E		31	
PALE		0012	0021	0026	S21	E76	5505	05	29.8	14	SF		3	E		12	
PALE		0021	0021	0032	N20	W66	5495	05	19.0	11	SF		3	E		10	
PALE		0301	0302	0309	S21	E74	5505	05	29.8	8	SF		3	E		12	
SVTO		0609E	0614U	0637D	N16	W73	5488	05	18.7	28D	SF		2	E		28	
LEAR		0749	0756	0811	N25	W76	5495	05	18.4	22	1N C	5.7	3	E		207	
GOES		0847	0850	0854						7		C 4.0					
RAMY		1113E	1117U	1126	S18	W18	5497	05	23.1	13D	SF		2	E		22	F
HOLL		1334	1344	1351	S22	E69	5505	05	29.9	17	SF		3	E		29	
RAMY		1338	1343	1401	S21	E67	5505	05	29.7	23	SF		3	E		16	
HOLL		1346	1349	1433	S21	W20	5497	05	23.0	47	1N M	1.2	3	E		103	UF
HOLL		1349	1353	1424	N18	W74	5488			35	SF			E		19	K
HOLL		1349	1400	1424	N18	W74	5488	05	18.9	35	SF		3	E		42	F
HOLL		1553	1556	1625	N22	W78	5495	05	18.7	32	SF		3	E		49	F
HOLL		1553	1620	1625	N22	W78	5495			32	SF			E		58	K
HOLL		1555	1603	1622	S19	E51	5503	05	28.5	27	SF		3	E		34	
HOLL		1715	1718	1735	N21	W77	5488	05	18.8	20	SF		3	E		42	
RAMY		1721	1722	1726	N19	W75	5488	05	19.0	5	SF		3	E		29	F
HOLL		1748	1749	1755	N31	W11	5501	05	23.9	7	SF		3	E		24	F
RAMY		1801	1802	1805	N20	W71	5495	05	19.3	4	SF C	2.7	3	E		52	
HOLL		1804E	1805U	1815	S19	W17	5497	05	23.4	11D	SF		3	E		38	F
HOLL		1827	1843	1930	S20	E67	5505	05	29.9	63	SF		3	E		46	
HOLL		1831	1832	1926	S18	W62	5491	05	20.0	55	SF		3	E		74	
HOLL		1831	1852	1926	S18	W62	5491			55	SN			E		46	K
HOLL		1844	1846	1849	N16	W83	5488	05	18.5	5	SF		3	E		23	
HOLL		1922	1927	2011	S21	W22	5497	05	23.1	49	1N		3	E		101	FE
PALE		1926	1926	1952	S20	W22	5497	05	23.1	26	SF C	7.4	3	E		37	
PALE		1931	1942	1949	S20	E68	5505	05	30.0	18	SF		3	E		35	
RAMY		1938E	1938U	1939D	S17	W18	5497	05	23.4	1D	SF		1	E		89	F
HOLL		1954	1955	2000	N20	E77	5506	05	30.7	6	SF		3	E		53	
HOLL		2045	2045	2050	N22	W80	5495	05	18.7	5	SF		3	E		17	
HOLL		2052E	2109U	2118	N21	E78	5506	05	30.8	26D	SF		3	E		34	
GOES		2127	2131	2134						7		C 4.8					
GOES		2134	2150	2237						63		M 2.8					
PALE		2216E	2222U	2247	N32	W38	5498	05	21.9	31D	SF		3	E		23	H
PALE		2216E	2231U	2237D	S17	W28	5497	05	22.8	21D	SF		3	E		11	
HOLL		2224	2232	2240	S17	W28	5497	05	22.8	16	SN		3	E		26	E
HOLL		2323	2323	2327	N19	W78	5495	05	19.0	4	SF C	6.1	3	E		17	
HOLL		2339	2341	2343	N20	W75	5495	05	19.2	4	SN		3	E		42	
PALE	25	0031	0040	0052	S19	W27	5497	05	23.0	21	SF		3	E		27	
HOLL		0032	0032	0042	S22	E59	5505	05	29.5	10	SF		3	E		18	
HOLL		0032	0041	0103	S19	W28	5497	05	22.9	31	SF		3	E		28	

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		CMP Mo	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement		Remarks
							Region	Day							Time (UT)	Apparent (10-6 Disk)		Corr (Sq Deg)
L	LEAR	25	0039	0042	0052	S19 W25	5497	05	23.1	13	SF		3	E		14	F
	LEAR		0130	0132	0136	N33 W40	5498	05	21.9	6	SF		3	E		21	
	PALE		0202	0203	0211	S17 W69	5491	05	19.8	9	SF		3	E		36	
	LEAR		0217	0217	0223	S16 W42	5494	05	21.9	6	SF		3	E		23	
	PALE		0217	0217	0224	S16 W41	5494	05	22.0	7	SF		3	E		20	
	SVTO		0408E	0411	0428	N35 W40	5498	05	22.0	200	SF		2	E		10	
	LEAR		0409	0422	0429	N33 W43	5498	05	21.7	20	SF		3	E		22	
	SVTO		0453	0459	0557	N30 W43	5498	05	21.8	64	SF		3	E		21	
	SVTO		0513	0516	0531	S19 E44	5503	05	28.6	18	SF		3	E		22	
	SVTO		0513	0523	0558	S21 W30	5497	05	22.9	45	SF		3	E		31	F
	SVTO		0522	0525	0547	S18 E62	5505	05	29.9	25	SF		3	E		25	F
	LEAR		0524	0524	0534	S20 E61	5505	05	29.9	10	SF		3	E		23	
	LEAR		0603	0605	0609	N21 W83	5488	05	18.9	6	SF		3	E		42	
	SVTO		0634	0637	0712	S26 W52	5490	05	21.2	38	SF		3	E		26	F
	SVTO		0638	0639	0649	S17 W41	5494	05	22.2	11	SF		3	E		25	
	SVTO		0750	0751	0803	N30 W45	5498	05	21.8	13	SF		3	E		23	
	LEAR		0751	0753U	0803	N33 W44	5498	05	21.8	12	SF		3	E		36	
	GOES		0838	0841	0845					7		C 2.7					
	SVTO		1040	1041	1048	S19 W29	5497	05	23.2	8	SF	C 8.8	3	E		30	F
	RAMY		1040E	1043	1122	S19 W33	5497			42D	SF	C 8.8		E		39	
	RAMY		1040E	1052	1122	S19 W33	5497	05	22.9	42D	SF	C 8.8	2	E		26	FH
	SVTO		1051	1052	1054	S19 W29	5497	05	23.2	3	SF		3	E		22	F
	SVTO		1108E	1110U	1121	S17 W34	5497	05	22.9	13D	SF		2	E		38	F
	HOLL		1318	1324	1351	N17 E66	5506	05	30.6	33	SF		2	E		35	F
	HOLL		1444	1445	1452	N20 E69	5506	05	30.9	8	SF		3	E		28	F
	HOLL		1520	1522	1741	S19 W31	5497			141	1B			E		95	
	HOLL		1520	1531	1741	S19 W31	5497	05	23.3	141	1B	M 1.9	3	E		219	UF
	RAMY		1521	1522	1639D	S19 W32	5497			78D	1B			E		87	
	RAMY		1521	1530U	1639D	S19 W32	5497	05	23.2	78D	1B	M 1.9	2	E		109	FE
	SVTO		1535E	1540U	1656	S20 W28	5497	05	23.5	81D	1B	M 1.9	1	E		125	UF
	HOLL		1614	1630	1650	N20 E64	5506	05	30.6	36	SF		3	E		29	F
	HOLL		1615	1617	1623	N23 W89	5495	05	18.8	8	SF		3	E		69	
	SVTO		1626	1626	1637	N23 E65	5506	05	30.7	11	SF		3	E		11	
	PALE		1644	1649	1652	S19 W33	5497	05	23.2	8	SF		3	E		15	
	RAMY		1652E	1657U	1731	N32 W46	5498	05	22.1	39D	SF		2	E		17	
	HOLL		1655	1658	1729	N32 W49	5498	05	21.8	34	SF		3	E		16	
	HOLL		1800	1802	1810	S18 W45	5497	05	22.3	10	SF		3	E		27	
	HOLL		1822	1822	1838	N32 W50	5498	05	21.8	16	SF		3	E		10	
	RAMY		1829E	1829U	1841	N32 W47	5498	05	22.0	12D	SF		2	E		14	
	RAMY		1847E	1904U	1907	N32 W47	5498	05	22.1	20D	SF		2	E		10	
	PALE		1854	1856	1911	S19 W31	5497	05	23.4	17	SF		3	E		37	F
	HOLL		1856	1856	1900	S20 W30	5497	05	23.5	4	SF		3	E		16	
	HOLL		1918	1926	1939	N32 W50	5498	05	21.8	21	SN		3	E		90	
	RAMY		1918E	1926U	1939D	N33 W48	5498	05	22.0	21D	SF		2	E		87	
	PALE		1919	1926	1937	N34 W49	5498	05	21.9	18	SF		3	E		87	F
	PALE		2031	2033	2042	S19 W35	5497	05	23.2	11	SF		3	E		22	
	HOLL		2158	2200	2203	S17 W43	5497	05	22.6	5	SF		3	E		13	
	HOLL		2237	2240	2255	S18 W36	5497	05	23.2	18	SF		3	E		41	
	HOLL		2245	2248	2255	S22 E68		05	31.2	10	SF		3	E		80	
	HOLL		2255	2257	2312	S20 E53	5505	05	30.0	17	SF	C 2.5	3	E		46	F
	PALE		2258	2302	2312	S22 E52	5505	05	29.9	14	SF		3	E		17	F
	HOLL		2320	2330	2406	S19 W37	5497	05	23.1	46	1F	C 4.0	3	E		112	F
	PALE		2329	2330	2345	S19 W36	5497	05	23.2	16	SF	C 4.0	3	E		45	F
	HOLL		2333	2335	2338	N33 W53	5498	05	21.8	5	SF		3	E		16	
	HOLL		2356	2359	2411	S20 E52	5505	05	30.0	15	SF		3	E		27	
	LEAR	26	0321	0323	0331	N34 W54	5498	05	21.8	10	SF		3	E		25	
	LEAR		0353	0355U	0416	N16 E55	5506	05	30.3	23	1F	C 3.4	3	E		103	UF
	SVTO		0559E	0559U	0605	S20 W44	5497	05	22.9	6D	SF	C 3.0	2	E		35	
	GOES		0726	0731	0734					8		C 2.6					
	GOES		0824	0830	0833					9		C 2.5					
	SVTO		0842E	0845U	0849	S20 W46	5497	05	22.8	7D	SF	C 2.3	2	E		15	
	GOES		1136	1142	1148					12		C 2.1					
	SVTO		1257	1259	1307	S08 W25	5509	05	24.7	10	SF		3	E		28	F
	HOLL		1258	1259	1304	S08 W26	5509	05	24.6	6	SF		3	E		22	
	HOLL		1440	1447	1456	S20 W48	5497	05	22.9	16	SF		3	E		37	
	SVTO		1442	1445	1454	S21 W47	5497	05	23.0	12	SF	C 2.3	3	E		39	
	HOLL		1753	1758	1806	N20 E54	5506	05	30.9	13	SF		4	E		33	

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	NOAA/ USAF Region	CMP Mo Day	Dur (Min)	Imp Opt Xray	Obs See Type	Area Measurement			Remarks
											Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	
HOLL	26	1849	1854	1905	S19 W51	5497	05 22.9	16	SF C 3.8	3	E	24		FE
[PALE		1940	1943	1949	S20 W50	5497	05 23.0	9	SF	3	E	14		
HOLL		1940	1944	1951	S21 W49	5497	05 23.1	11	SF	4	E	11		F
[HOLL		2047	2054	2140	S19 W45	5497	05 23.4	53	SN C 4.0	3	E	57		FE
PALE		2048	2051	2138	S19 W44	5497	05 23.5	50	SF C 4.0	3	E	30		
HOLL		2218	2226	2409	S19 W47	5497	05 23.3	111	SN M 1.6	3	E	87		UF
PALE		2309	2313	2342	S18 W49	5497	05 23.2	33	SF	3	E	51		
HOLL	27	0111	0115	0117	N20 E46	5506	05 30.6	6	SF	3	E	22		
SVTO		0534	0538U	0606	S21 W50	5497	05 23.4	32	SF C 1.7	2	E	26		F
SVTO		1236	1237	1244	S21 E14	5503	05 28.6	8	SF	3	E	24		
HOLL		1438	1440	1443	S18 W56	5497	05 23.3	5	SF	2	E	26		F
HOLL		1617	1621	1629	S16 E10	5510	05 28.4	12	SF	3	E	26		F
HOLL		2035	2038	2048	S17 E07	5510	05 28.4	13	SF	3	E	32		F
HOLL		2255	2307	2318	S22 E47	5511	05 31.6	23	SF C 1.6	3	E	31		F
HOLL		2319	2319	2328	S22 E46	5511	05 31.5	9	SF	3	E	12		
HOLL	28	0016	0017U	0022	S16 E25	5505	05 29.9	6	SF	3	E	48		FE
HOLL		0028	0030	0037	S18 W63	5497	05 23.2	9	SF	3	E	14		F
LEAR		0159	0200	0206	S20 W69	5497	05 22.8	7	SF	3	E	47		F
SVTO		0616	0616	0625	N24 E25	5506	05 30.2	9	SF C 1.1	3	E	33		
SVTO		0737E	0739U	0802	S18 W62	5497	05 23.6	25D	SF C 1.9	2	E	14		
[RAMY		1048	1108	1145D	S19 W71	5497	05 23.0	57D	SF C 2.1	2	E	49		FH
SVTO		1107E	1110	1133	S20 W71	5497	05 23.0	26D	SF C 2.1	3	E	53		F
SVTO		1146	1146	1157	S11 W55	5509	05 24.3	11	SF	3	E	11		
SVTO		1209	1226	1250	S19 W75	5497	05 22.8	41	1N M 4.0	3	E	232		
RAMY		1218	1227	1248	S17 W77	5497	05 22.7	30	1B M 4.0	2	E	183		H
[SVTO		1308	1310	1318	N23 E21	5506	05 30.2	10	SF C 1.7	3	E	22		F
RAMY		1309	1310	1318	N22 E22	5506	05 30.2	9	SF C 1.7	2	E	21		
[SVTO		1358	1401	1417	S16 E14	5505	05 29.6	19	SF C 1.4	3	E	58		F
RAMY		1412E	1412U	1415	S17 E15	5505	05 29.7	3D	SF	2	E	15		
SVTO		1418	1418	1423	N21 E23	5506	05 30.3	5	SF	3	E	11		
SVTO		1524	1528	1559	S16 W04	5510	05 28.3	35	SF	3	E	27		
SVTO		1556	1556	1602	N20 E20	5506	05 30.2	6	SF C 2.4	3	E	12		F
HOLL		2044	2047	2054	S22 E63		06 2.7	10	SF	3	E	15		
[PALE		2208E	2214U	2307	N21 E20	5506	05 30.4	59D	1F M 1.0	3	E	232		FE
HOLL		2209E	2212U	2301D	N21 E19	5506	05 30.4	52D	1N M 1.0	3	E	145		FE
PALE		2258	2303	2313	S17 W74	5497	05 23.3	15	SF C 8.1	3	E	36		F
LEAR		2348	2356	2412	N19 E25	5506	05 30.9	24	SF	3	E	10		
PALE	29	0124	0131	0203	S15 W10	5510	05 28.3	39	SF	3	E	27		F
[LEAR		0248	0252	0309	N22 E15	5506	05 30.3	21	1N M 1.2	3	E	101		F
PALE		0248	0253	0309	N22 E15	5506	05 30.3	21	SN M 1.2	3	E	94		FE
LEAR		0313	0322	0325	N22 E14	5506	05 30.2	12	SF	3	E	17		F
[PALE		0329	0348	0401	S18 W78	5497	05 23.2	32	SF	3	E	32		F
LEAR		0337	0432	0536	S18 W77	5497	05 23.3	119	1N M 2.1	3	E	214		F
PALE		0350	0351	0357	N23 E16	5506	05 30.4	7	SF	3	E	52		F
[SVTO		0426E	0428U	0504	S21 W78	5497	05 23.2	38D	SN M 3.3	2	E	80		FH
PALE		0427	0430	0434D	S17 W76	5497	05 23.4	7D	1F M 3.3	2	E	143		F
SVTO		0520	0523	0532	S21 W77	5497	05 23.3	12	SF	3	E	15		
SVTO		0638	0648	0701	N22 E11	5506	05 30.1	23	SF	3	E	16		
SVTO		0646	0646	0652	S21 W80	5497	05 23.1	6	SF	3	E	27		
GOES		0716	0719	0721				5	C 1.9					
[SVTO		0726	0746	0801	N23 E10	5506	05 30.1	35	SF C 3.5	3	E	45		
LEAR		0727	0746	0801	N22 E10	5506	05 30.1	34	SF C 3.5	3	E	50		
SVTO		0835	0841	0845	N23 E10	5506	05 30.1	10	SF	3	E	14		
GOES		0859	0908	0924				25	C 2.3					
SVTO		0929	0934	0940	S22 W90	5497	05 22.5	11	SN C 3.3	3	E	76		F
[SVTO		1053	1058	1110	N22 E08	5506	05 30.1	17	SF	3	E	59		F
GOES		1056E	1058	1106	N22 E10			10D	C 4.9					
SVTO		1118	1119	1124	S17 W15	5510	05 28.3	6	SF	3	E	16		F
GOES		1139	1142	1147				8	C 1.2					
SVTO		1150	1151	1158	S17 W16	5510	05 28.3	8	SF	3	E	15		F
SVTO		1243	1247	1250	S22 W90	5497	05 22.6	7	SF	3	E	24		FE
SVTO		1325	1325	1333	S23 W90	5497	05 22.6	8	SF C 5.3	3	E	28		
SVTO		1352	1356	1403	S19 E24	5511	05 31.4	11	SF	3	E	16		F
HOLL		1419E	1421U	1423	S19 W80	5497	05 23.5	4D	SF	2	E	12		
SVTO		1434	1434	1444	S21 E25	5511	05 31.5	10	SF	3	E	14		

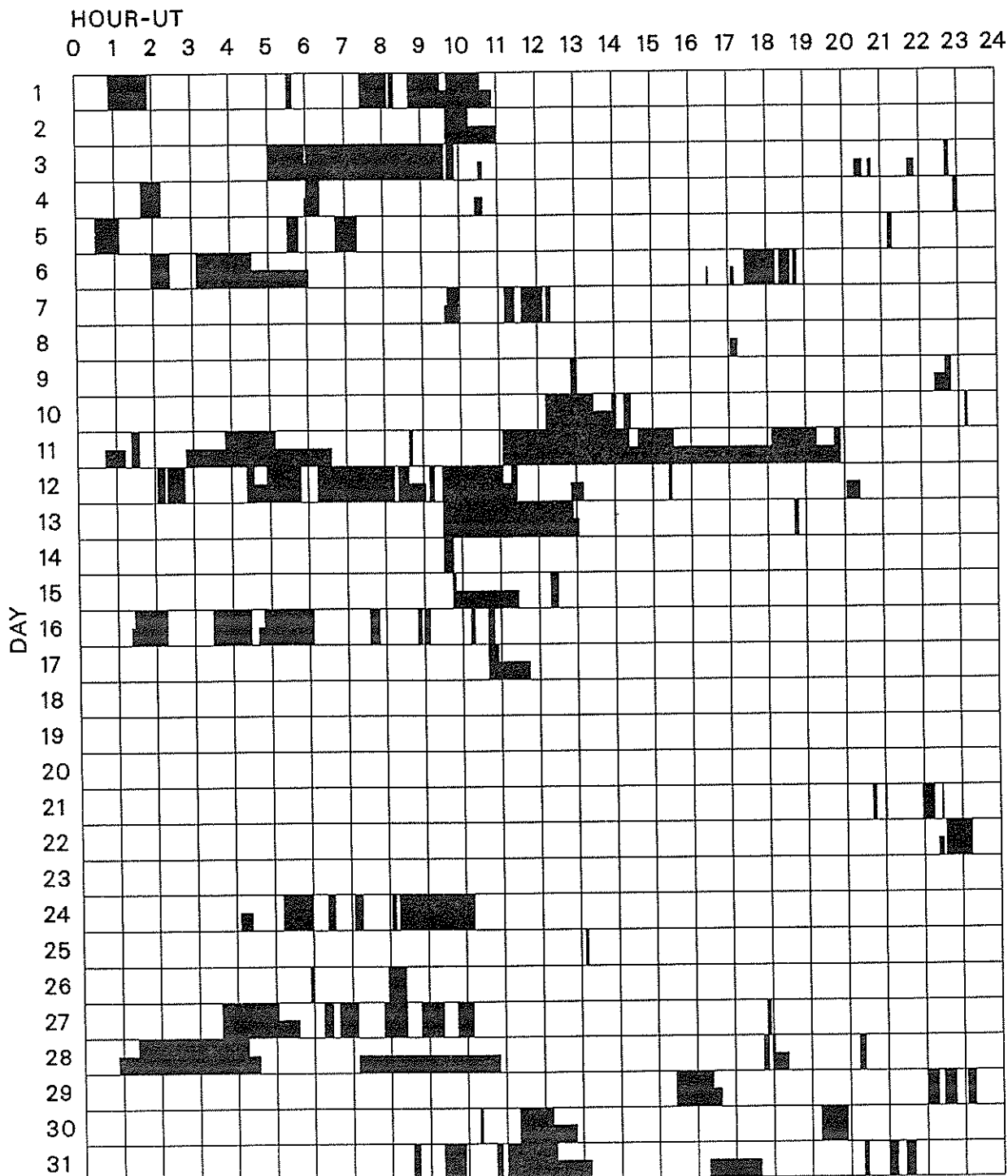
H α SOLAR FLARES

MAY 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		CMP Mo	Dur (Min)	Imp Opt	Xray	Obs See	Type	Area Measurement		Remarks	
							Region	Region							Time (UT)	Apparent (10-6 Disk)		Corr (Sq Deg)
[	SVTO	29	1456	1501	1514	S20	E26	5511	05	31.6	18	SF		3	E	31	F
	HOLL		1502E	1505U	1517	S21	E25	5511	05	31.5	15D	SF		2	E	18	F	
	HOLL		1531	1534	1558	N25	E06	5506	05	30.1	27	SF		3	E	43	FE	
[	SVTO		1534E	1534U	1544D	N22	E08	5506	05	30.3	10D	SF		2	E	20	
	GOES		1644	1648	1652						8	C	1.8					
	HOLL		1803	1807U	1820	S19	E23	5511	05	31.5	17	SF		3	E	48	F	
	GOES		1830	1837	1842						12	C	5.0					
	HOLL		1906	1906	1930	S22	E16	5511	05	31.0	24	SF		3	E	25		
[PALE		2040	2046	2048	S22	E14	5511	05	30.9	8	SF	C	1.4	3	E	19	
	HOLL		2041E	2043U	2056	S22	E15	5511	05	31.0	15D	SF	C	1.4	3	E	34	F
	GOES		2216	2220	2225						9	C	1.5					
[	PALE		2331	2347	2410	S23	E21	5511			39	SF			E	39	K
	PALE		2331	2404	2410	S23	E21	5511	05	31.6	39	SF		3	E	37	F	
	GOES	30	0028	0050	0059						31	C	2.5					
	HOLL		0111	0114	0120D	S20	W79	5497	05	24.0	9D	SF	M	6.6	2	E	13	F
	PALE		0207	0207	0218	S23	E19	5511	05	31.5	11	SF		3	E	44	F	
	LEAR		0251	0251	0257	S22	E19	5511	05	31.6	6	SF		3	E	11		
	LEAR		0254	0257	0304	S09	W79	5509	05	24.2	10	SF		3	E	33		
	PALE		0330	0332	0401	N30	E11	5507	05	31.0	31	SF	C	2.3	3	E	45	
	LEAR		0418	0420	0424	S09	W78	5509	05	24.3	6	SF		3	E	19		
	GOES		0429	0434	0439						10	C	1.4					
	GOES		0519	0523	0527						8	C	1.8					
	GOES		0531	0536	0544						13	C	1.8					
	GOES		0712	0721	0758						46	M	3.8					
	GOES		0918	0924	0933						15	C	3.5					
	HOLL		1308	1313	1318	S23	E08		05	31.2	10	SF		3	E	22		
	GOES		1310	1318	1341						31	M	2.7					
[	HOLL		1350	1351	1503	S22	E07				73	SN			E	30	K
	HOLL		1350	1425	1503	S22	E07		05	31.1	73	SN	C	2.1	4	E	57	E
	HOLL		1437	1438	1450	N15	E62		06	4.3	13	SF		4	E	10		
	SVTO		1505	1505	1524	N15	E61		06	4.2	19	SF		3	E	14		
	HOLL		1515	1527	1543	S21	E06		05	31.1	28	SF		4	E	22		
[HOLL		1732	1736	1749	S21	E03	5515	05	31.0	17	SN	C	4.4	4	E	67	E
	PALE		1732	1736	1756	S22	E04	5515	05	31.0	24	SN	C	4.4	3	E	65	F
	PALE		1738	1740	1745	N12	E61	5516	06	4.3	7	SF		3	E	18		
	HOLL		1759	1803	1832	S20	E10	5511	05	31.5	33	SF		3	E	24		
	HOLL		1819	1820	1835	N24	W08	5506	05	30.1	16	SF		3	E	21		
	PALE		1909	1912	1922	N14	E59	5516	06	4.2	13	SF	C	3.9	3	E	24	
	GOES		1938	1945	1954						16	C	5.0					
	HOLL		2020E	2022	2032	N14	E59	5516	06	4.3	12D	SF		3	E	15		
[	PALE		2158	2201	2212	N14	E57	5516	06	4.2	14	SF		3	E	41	F
	HOLL		2158	2201	2251	N13	E56	5516	06	4.1	53	SF		3	E	42		
	HOLL		2158	2228	2251	N13	E56	5516			53	SF			E	21	K	
	PALE		2300	2306	2317	N13	E58	5516	06	4.3	17	SF		3	E	27		
	PALE		2351	2351	2404	N17	E62	5514	06	4.7	13	SF		3	E	41		
	GOES	31	0017	0039	0102						45	M	1.1					
	LEAR		0407	0409	0435	S22	E03	5511	05	31.4	28	SF	C	2.1	3	E	20	
	LEAR		0718	0723	0736	N14	E51	5516	06	4.1	18	SF	C	2.2	3	E	72	F
	LEAR		0727	0729	0754	N19	W09	5506	05	30.6	27	SF		3	E	26	FH	
	LEAR		0807	0808	0819	N18	E59	5514	06	4.8	12	SF	C	2.5	3	E	39	
	GOES		1115	1119	1124						9	C	1.9					
	HOLL		1629E	1631U	1646	N18	E54	5514	06	4.8	17D	SN		3	E	10		
	PALE		1842E	1843U	1855	S18	W72		05	26.3	13D	SF		2	E	49		
	HOLL		1842E	1844U	1859	S20	E89		06	7.6	17D	1F	C	3.0	4	E	241	FE
	HOLL		2002	2003	2012	S18	E85	5517	06	7.3	10	SF		3	E	34		
	HOLL		2010	2012	2020	S21	W04	5511	05	31.5	10	SF		3	E	35		

INTERVALS OF NO FLARE PATROL OBSERVATION FOR PRECEDING SOLAR FLARE TABLE

MAY 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

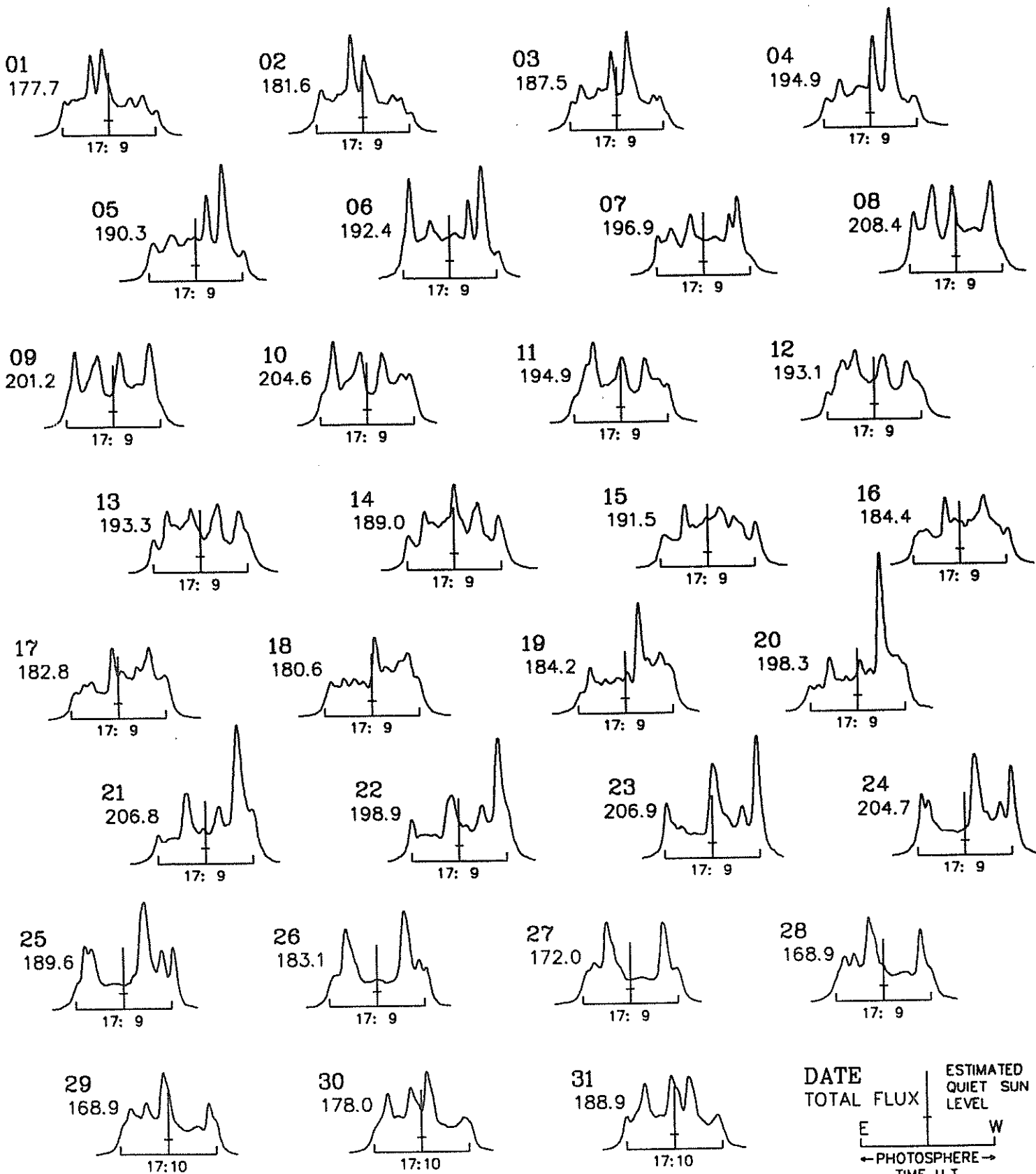
32
May 89

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

EAST - WEST SOLAR SCANS MAY 1989

ALGONQUIN RADIO OBSERVATORY
CANADA

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



DATE TOTAL FLUX | ESTIMATED QUIET SUN LEVEL
E | W
← PHOTOSPHERE →
TIME U.T.

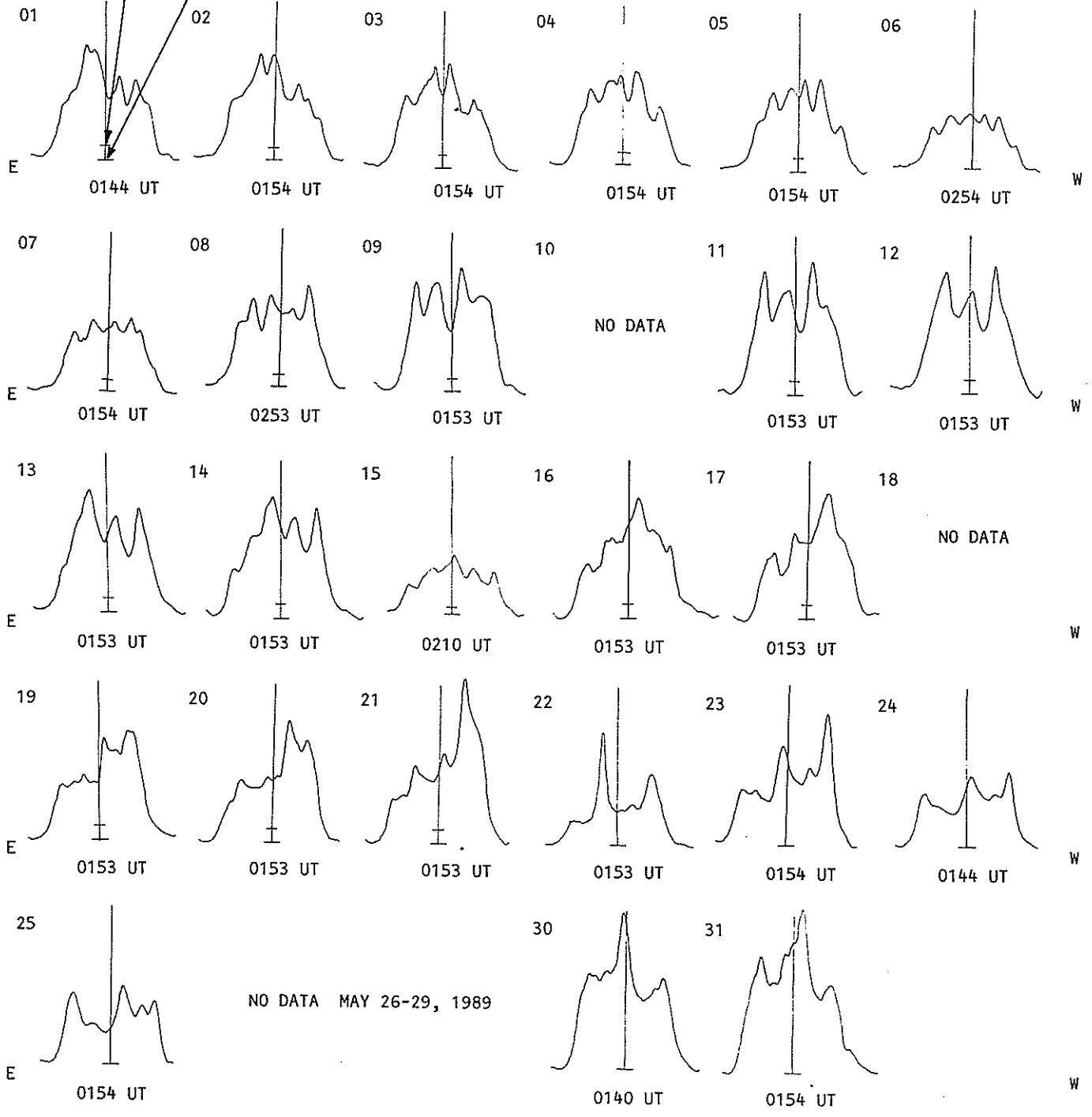
EAST - WEST SOLAR SCANS

Fleurs, Australia

MAY 1989

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

Estimated Quiet Sun Level
Cold Sky Level



34
May 89

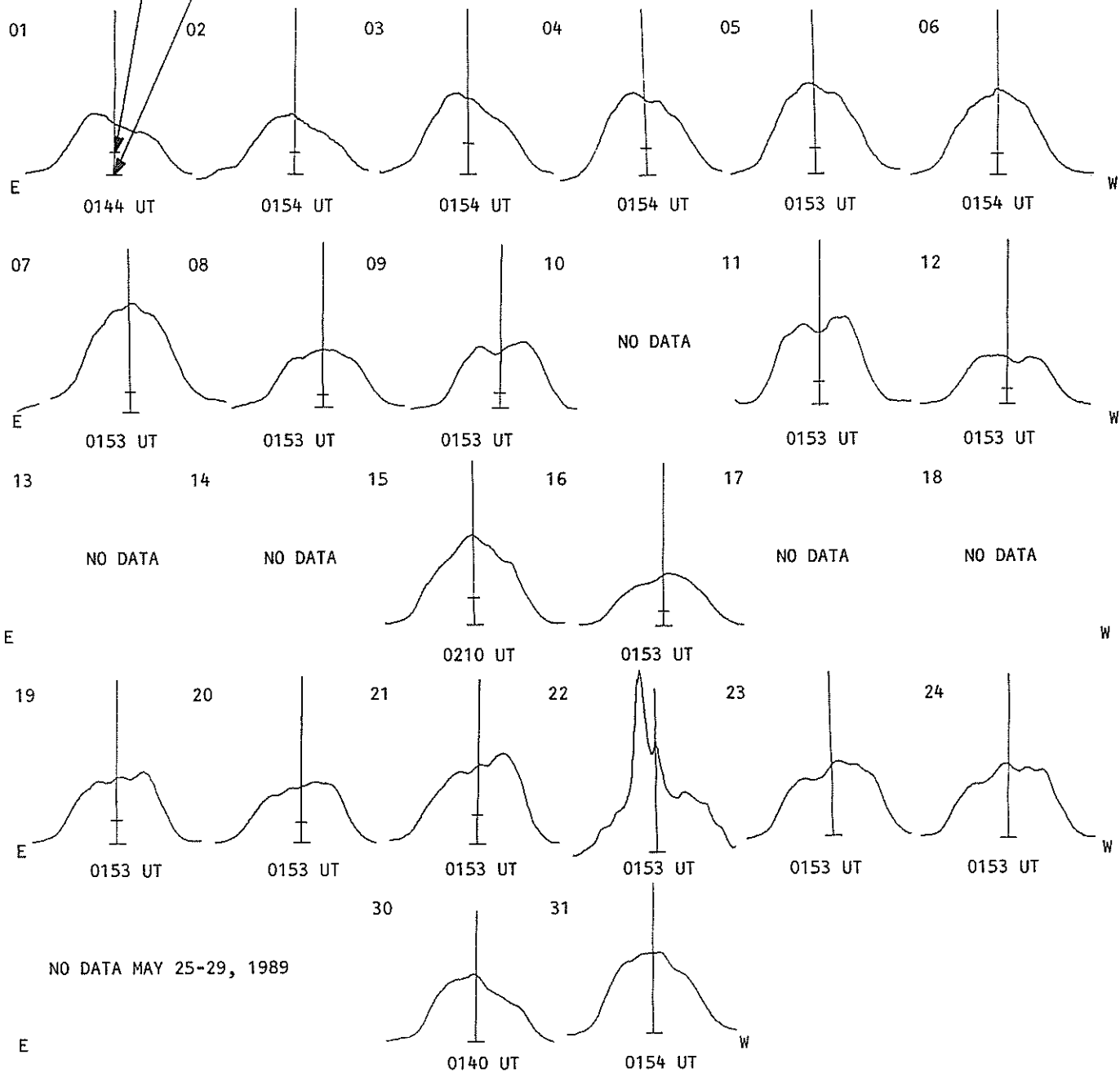
EAST - WEST SOLAR SCANS

MAY 1989

Fleurs, Australia

Estimated Quiet Sun Level
Cold Sky Level

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



SOLAR INTERFEROMETRIC OBSERVATIONS
MAY 1989

35
May 89
164 MHz

Nancay
Day

5

Chart unavailable at time of publication.

10

15

20

25

30

E

C

W

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May 89

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

MAY 1989

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 ⁻²² W/m ² Hz)	Mean	Int	Remarks
01	8800 PALE	20 GRF	0057.0E	0059.0	18.0D	340.0			QL=1 ST=2 TYP=2
	2695 LEAR	4 S/F	0058.0E	0108.0	42.0D	170.0			QL=1 ST=2 TYP=5
	8800 LEAR	4 S/F	0058.0E	0059.0	42.0D	380.0			QL=1 ST=2 TYP=5
	2695 PALE	4 S/F	0058.0E	0109.0	1382.0D	170.0			QL=1 ST=1 TYP=5
02	2800 OTTA	22 GRF	1400.0	1403.0	45.0	15.7	4.0		
	8800 SGMR	8 S	1402.0E	1403.0	1.0D	55.0			QL=1 ST=3 TYP=3
	2800 OTTA	22 GRF	1546.0	1610.0	146.0	47.6	14.0		
	2695 SVTO	20 GRF	1606.0E	1610.0	6.0D	46.0			QL=1 ST=2 TYP=2
	8800 SVTO	20 GRF	1610.0E	1610.0	U	22.0			QL=1 ST=2 TYP=2
	2800 OTTA	22 GRF	1820.0	1903.5	242.0	108.4	22.0		
	2695 SGMR	20 GRF	1851.0E	1903.0	20.0D	110.0			QL=1 ST=2 TYP=2
	2695 PALE	20 GRF	1857.0E	1903.0	14.0D	110.0			QL=1 ST=2 TYP=2
	8800 SGMR	4 S/F	1858.0E	1902.0	6.0D	47.0			QL=1 ST=2 TYP=5
	2695 SGMR	4 S/F	1915.0E	1916.0	4.0D	90.0			QL=1 ST=2 TYP=3
	8800 SGMR	8 S	1916.0E	1916.0	1.0D	58.0			QL=1 ST=2 TYP=3
	2800 OTTA	47 GB	2051.7	2053.7	2.5	897.0	440.0		
	2695 PALE	49 GB	2052.0E	2053.0	2.0D	670.0			QL=1 ST=2 TYP=6
	2695 SGMR	49 GB	2052.0E	2053.0	2.0D	690.0			QL=1 ST=2 TYP=6
8800 PALE	8 S	2115.0E	2116.0	1.0D	410.0			QL=1 ST=2 TYP=3	
03	2695 PENT	3 S	0100.0	0100.7	2.5	33.6	13.0		
	2695 LEAR	49 GB	0337.0E	0356.0	36.0D	1100.0			QL=1 ST=2 TYP=7
	8800 LEAR	49 GB	0338.0E	0356.0	58.0D	4800.0			QL=1 ST=2 TYP=7
	2695 PALE	49 GB	0340.0E	0356.0	22.0D	1100.0			QL=1 ST=2 TYP=7
	8800 PALE	49 GB	0340.0E	0352.0	1220.0D	1500.0			QL=1 ST=1 TYP=7
	2800 OTTA	40 F	1300.0		240.0	4.4			
	8800 PALE	8 S	1833.0E	1833.0	1.0D	280.0			QL=1 ST=2 TYP=3
	2800 OTTA	4 S/F	1923.5	1937.0	23.0	111.7	45.0		
	2695 SGMR	4 S/F	1928.0E	1936.0	15.0D	150.0			QL=1 ST=2 TYP=3
	8800 SGMR	4 S/F	1928.0E	1935.0	10.0D	42.0			QL=1 ST=2 TYP=3
	2695 PALE	4 S/F	1930.0E	1936.0	9.0D	110.0			QL=1 ST=2 TYP=5
	2800 OTTA	29 PBI	1946.0	1946.0	194.0	18.0	9.0		
	2800 OTTA	3 S	2014.0	2016.0	4.0	24.7	9.0		
	2800 OTTA	28 PRE	2042.0	2049.0	10.5	4.0	2.0		
	2800 OTTA	4 S/F	2052.5	2057.0	8.0	47.8	19.0		
	2800 OTTA	29 PBI	2100.0	2100.0	48.0	7.2	3.0		
	2800 OTTA	3 S	2210.0	2210.5	1.3	35.9	14.0		
8800 SGMR	8 S	2210.0E	2210.0	U	91.0			QL=1 ST=2 TYP=3	
04	2695 LEAR	8 S	0100.0E	0100.0	1.0D	31.0			QL=1 ST=2 TYP=3
	8800 LEAR	8 S	0100.0E	0100.0	1.0D	62.0			QL=1 ST=2 TYP=3
	8800 LEAR	4 S/F	0243.0E	0246.0	5.0D	46.0			QL=1 ST=2 TYP=3
	2695 LEAR	4 S/F	0244.0E	0246.0	4.0D	23.0			QL=1 ST=2 TYP=3
	8800 LEAR	4 S/F	0332.0E	0334.0	7.0D	280.0			QL=1 ST=2 TYP=3
	2695 LEAR	4 S/F	0333.0E	0334.0	3.0D	61.0			QL=1 ST=2 TYP=3
	8800 PALE	8 S	0333.0E	0334.0	2.0D	260.0			QL=1 ST=2 TYP=3
	2695 PALE	8 S	0334.0E	0334.0	U	61.0			QL=1 ST=2 TYP=3
	8800 SVTO	49 GB	0417.0E	0417.0	9.0D	1500.0			QL=1 ST=2 TYP=6
	2695 SVTO	4 S/F	0417.0E	0417.0	7.0D	340.0			QL=1 ST=3 TYP=3
	2695 PALE	8 S	0421.0E	0422.0	2.0D	90.0			QL=1 ST=2 TYP=3
	8800 PALE	8 S	0421.0E	0422.0	2.0D	120.0			QL=1 ST=2 TYP=3
	8800 LEAR	49 GB	0818.0E	0819.0	9.0D	1700.0			QL=1 ST=2 TYP=7
	2695 SVTO	49 GB	0818.0E	0818.0	8.0D	430.0			QL=1 ST=2 TYP=7
	8800 SVTO	49 GB	0818.0E	0819.0	8.0D	1800.0			QL=1 ST=2 TYP=7
	2695 LEAR	49 GB	0818.0E	0818.0	10.0D	440.0			QL=1 ST=2 TYP=7
	8400 BERN	47 GB	0818.3	0819.2	6.0	2835.0			
	3200 BERN	47 GB	0818.3	0818.5	6.0	405.0			
	8800 SVTO	8 S	0956.0E	0956.0	1.0D	190.0			QL=1 ST=2 TYP=3
	3200 BERN	46 C	0956.0	0956.3	1.5	29.0			
	8400 BERN	46 C	0956.0	0956.3	1.5	185.0			
	8800 SGMR	4 S/F	1106.0E	1115.0	10.0D	130.0			QL=1 ST=2 TYP=3
	2695 SVTO	4 S/F	1107.0E	1107.0	3.0D	26.0			QL=1 ST=2 TYP=3
8800 SVTO	8 S	1107.0E	1107.0	2.0D	91.0			QL=1 ST=2 TYP=5	
8400 BERN	46 C	1113.0	1114.0	4.0	425.0				
3200 BERN	46 C	1113.0	1114.0	4.0	352.0				
2695 SVTO	4 S/F	1113.0E	1114.0	4.0D	360.0			QL=1 ST=2 TYP=3	
8800 SVTO	4 S/F	1113.0E	1113.0	3.0D	480.0			QL=1 ST=2 TYP=3	
2695 SGMR	8 S	1115.0E	1115.0	2.0D	210.0			QL=1 ST=2 TYP=3	

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

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May 89

MAY 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 -22 W/m ² Hz)	Mean		
04	2800	OTTA	22 GRF	1249.5	1254.0	30.0	6.9	3.0		
	2800	OTTA	22 GRF	1342.0	1400.0	37.0	6.1	3.0		
	2800	OTTA	3 S	1514.0	1515.5	2.5	17.8	7.0		
	8800	SGMR	8 S	1514.0E	1515.0	1.0D	80.0			QL=1 ST=2 TYP=3
	8800	SVTO	8 S	1514.0E	1515.0	1.0D	88.0			QL=1 ST=2 TYP=3
	2800	OTTA	3 S	1524.0	1525.0	3.0	24.7	10.0		
	8800	SGMR	8 S	1524.0E	1524.0	U	66.0			QL=1 ST=2 TYP=3
	8800	SVTO	8 S	1524.0E	1524.0	1.0D	67.0			QL=1 ST=3 TYP=3
	2800	OTTA	3 S	1613.0	1615.5	4.5	27.1	11.0		
	8800	SGMR	4 S/F	1613.0E	1615.0	4.0D	130.0			QL=1 ST=2 TYP=3
	8800	SVTO	8 S	1614.0E	1615.0	2.0D	120.0			QL=1 ST=2 TYP=3
	2695	SGMR	8 S	1615.0E	1615.0	U	25.0			QL=1 ST=2 TYP=3
	2800	OTTA	29 PBI	1617.5	1624.0	42.0	8.1	4.0		
	2800	OTTA	42 SER	1720.0	1727.5	12.0	17.4	5.0		
	2800	OTTA	28 PRE	1826.0	1902.0	36.0	12.2	6.0		
	2800	OTTA	3 S	1839.0	1840.0	4.5	93.2	28.0		
	2695	SGMR	8 S	1839.0E	1840.0	1.0D	72.0			QL=1 ST=2 TYP=3
	2800	OTTA	4 S/F	1902.0	1908.0	14.5	93.6	28.0		
	2695	SGMR	4 S/F	1905.0E	1907.0	9.0D	99.0			QL=1 ST=2 TYP=3
	8800	SGMR	20 GRF	1906.0E	1907.0	8.0D	94.0			QL=1 ST=2 TYP=2
	2800	OTTA	29 PBI	1916.5	1920.0	116.0	44.1	22.0		
	8800	SGMR	8 S	2028.0E	2028.0	1.0D	70.0			QL=1 ST=2 TYP=3
	2800	OTTA	3 S	2219.0	2221.0	4.5	151.9	46.0		
8800	PALE	8 S	2220.0E	2220.0	U	70.0			QL=1 ST=2 TYP=3	
2695	PALE	8 S	2220.0E	2220.0	U	110.0			QL=1 ST=2 TYP=3	
05	2695	LEAR	8 S	0248.0E	0248.0	U	63.0			QL=1 ST=2 TYP=3
	8800	LEAR	8 S	0248.0E	0248.0	U	32.0			QL=1 ST=2 TYP=3
	2695	LEAR	8 S	0526.0E	0526.0	1.0D	36.0			QL=1 ST=2 TYP=3
	8800	LEAR	4 S/F	0526.0E	0526.0	3.0D	59.0			QL=1 ST=2 TYP=3
	8800	SVTO	8 S	0526.0E	0526.0	1.0D	55.0			QL=1 ST=2 TYP=3
	2695	LEAR	49 GB	0722.0E	0731.0	35.0D	1100.0			QL=1 ST=2 TYP=6
	2695	SVTO	49 GB	0724.0E	0731.0	38.0D	1000.0			QL=1 ST=2 TYP=7
	8800	SVTO	49 GB	0724.0E	0730.0	51.0D	3500.0			QL=1 ST=2 TYP=7
	8800	LEAR	49 GB	0725.0E	0730.0	33.0D	3100.0			QL=1 ST=2 TYP=6
	3200	BERN	47 GB	0726.0	0731.0	14.0	640.0			
	8400	BERN	47 GB	0726.0	0731.0	14.0	4780.0			
	8400	BERN	4 S/F	1042.5	1043.3	1.5	36.0			
	8800	SGMR	8 S	1043.0E	1043.0	U	55.0			QL=1 ST=2 TYP=3
	2800	OTTA	3 S	1208.0	1209.5	3.5	31.3	9.0		
	2800	OTTA	3 S	1718.0	1719.0	3.0	80.6	24.0		
	8800	PALE	8 S	1718.0E	1718.0	U	74.0			QL=1 ST=2 TYP=3
	2695	SGMR	8 S	1718.0E	1718.0	1.0D	69.0			QL=1 ST=3 TYP=3
8800	SGMR	8 S	1718.0E	1718.0	U	60.0			QL=1 ST=3 TYP=3	
2800	OTTA	3 S	1801.0	1801.5	2.0	28.1	8.0			
06	2800	OTTA	32 ABS	1350.0	1424.0	51.0	4.0	2.0		
	2800	OTTA	45 C	1441.0	1500.0	25.0	119.0	36.0		
	3200	BERN	46 C	1445.0	1451.2	13.0	91.0			
	8400	BERN	46 C	1445.0	1451.2	13.0	56.0			
	2695	SVTO	4 S/F	1448.0E	1500.0	14.0D	110.0			QL=1 ST=2 TYP=5
	8800	SVTO	4 S/F	1449.0E	1500.0	12.0D	51.0			QL=1 ST=2 TYP=5
	2695	SGMR	4 S/F	1450.0E	1459.0	14.0D	110.0			QL=1 ST=2 TYP=5
	2800	OTTA	29 PBI	1506.0	1506.0	115.0	8.0	4.0		
	2800	OTTA	3 S	1701.0	1702.2	3.0	136.7	41.0		
	8400	BERN	46 C	1701.0	1702.0	3.0	480.0			
	8800	PALE	8 S	1701.0E	1702.0	2.0D	430.0			QL=1 ST=2 TYP=3
	2695	PALE	8 S	1701.0E	1701.0	1.0D	150.0			QL=1 ST=2 TYP=3
	8800	SGMR	4 S/F	1701.0E	1702.0	3.0D	350.0			QL=1 ST=2 TYP=3
	2695	SGMR	4 S/F	1701.0E	1702.0	3.0D	150.0			QL=1 ST=2 TYP=3
	2695	SVTO	8 S	1701.0E	1702.0	2.0D	110.0			QL=1 ST=2 TYP=3
	8800	SVTO	4 S/F	1701.0E	1702.0	3.0D	420.0			QL=1 ST=2 TYP=3
	3200	BERN	46 C	1701.0	1702.2	3.0	137.0			
2800	OTTA	29 PBI	1704.0	1720.0	275.0	20.5	10.0			
07	8800	LEAR	8 S	0523.0E	0524.0	2.0D	85.0			QL=1 ST=2 TYP=3
	8800	SVTO	8 S	0523.0E	0524.0	1.0D	69.0			QL=1 ST=2 TYP=3
	8400	BERN	4 S/F	0523.0	0524.3	3.0	71.0			
	2800	OTTA	22 GRF	1928.0	2016.5	280.0	30.6	15.0		

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

MAY 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	Int	Remarks
08	2695	LEAR	8 S	0138.0E	0138.0	2.0D	39.0			QL=1 ST=2 TYP=3
	8800	LEAR	4 S/F	0138.0E	0138.0	4.0D	41.0			QL=1 ST=2 TYP=3
	2695	LEAR	8 S	0522.0E	0522.0	U	40.0			QL=1 ST=2 TYP=3
09	2800	OTTA	45 C	1639.0	1650.0	15.0	44.3	13.0		
	2800	OTTA	45 C	1639.0	1655.0	30.0	44.8	18.0		
	8400	BERN	46 C	1642.0	1655.0	22.0	88.0			
	3200	BERN	46 C	1642.0	1655.0	22.0	48.0			
	8800	SVTO	4 S/F	1647.0E	1650.0	5.0D	61.0			QL=1 ST=2 TYP=5
	8800	SGMR	4 S/F	1647.0E	1654.0U	11.0D	110.0			QL=1 ST=2 TYP=5
	2800	OTTA	45 C	1654.0	1655.0	15.0	44.8	13.0		
	8800	PALE	8 S	1654.0E	1654.0	1.0D	72.0			QL=1 ST=2 TYP=3
10	2695	LEAR	4 S/F	0346.0E	0349.0	7.0D	25.0			QL=1 ST=2 TYP=3
12	2800	OTTA	3 S	1314.0	1314.0	1.0	11.0	5.0		
13	8800	SGMR	8 S	1501.0E	1502.0	1.0D	160.0			QL=1 ST=2 TYP=3
	2800	OTTA	4 S/F	1812.0	1812.0	2.0	17.7	7.0		
14	3200	BERN	3 S	0653.0	0653.4	1.5	20.0			
	8400	BERN	3 S	0653.0	0653.4	1.5	48.0			
	2800	OTTA	3 S	1640.0	1644.0	7.0	56.4	21.0		
	2695	PALE	8 S	1643.0E	1644.0	2.0D	100.0			QL=1 ST=2 TYP=3
	2800	OTTA	29 PBI	1646.0	1647.0	51.0	14.2	5.0		
	2800	OTTA	1 S	1647.0	1648.0	2.0	8.1	3.0		
	8800	SVTO	8 S	1720.0E	1721.0	2.0D	67.0			QL=1 ST=2 TYP=3
	2695	SVTO	4 S/F	1721.0E	1722.0	4.0D	52.0			QL=1 ST=2 TYP=3
20	3200	BERN	4 S/F	0919.0	0921.3	26.0	88.0			
	8400	BERN	4 S/F	0919.0	0921.3	26.0	22.0			
	2695	LEAR	4 S/F	0920.0E	0921.0	4.0D	110.0			QL=1 ST=2 TYP=3
	2695	SVTO	4 S/F	0920.0E	0921.0	4.0D	120.0			QL=1 ST=2 TYP=3
	2695	LEAR	4 S/F	0928.0E	0929.0	4.0D	59.0			QL=1 ST=2 TYP=3
	3200	BERN	3 S	1307.0	1309.0	12.0	21.0			
	2800	OTTA	20 GRF	1308.0	1309.0	36.0	17.0	8.0		
	2800	OTTA	20 GRF	1308.0	1309.0	36.0	17.0	8.0		
21	2695	PENT	45 C	0020.0	0020.4	6.2	168.1	50.0		
	2695	PENT	45 C	0026.6	0029.0	3.3	179.9	54.0		
	2695	PENT	45 C	0032.3	0034.1	3.1	101.6	30.0		
	2695	PENT	45 C	0037.2	0045.3	18.7	125.0	37.0		
	2695	PENT	45 C	0104.0	0110.1	9.9	81.9	25.0		
	2695	PENT	45 C	0120.0	0124.3	24.0	50.6	15.0		
	3200	BERN	46 C	0634.3	0639.5	8.0	68.0			
	8800	SVTO	8 S	0636.0E	0636.0	1.0D	75.0			QL=1 ST=2 TYP=3
	8400	BERN	46 C	0636.0	0639.3	5.0	96.0			
	2695	SVTO	8 S	0639.0E	0639.0	1.0D	79.0			QL=1 ST=2 TYP=3
	8800	SVTO	8 S	0639.0E	0639.0	1.0D	87.0			QL=1 ST=2 TYP=3
	2800	OTTA	22 GRF	1408.0	1449.0	200.0	18.3	5.0		
	2800	OTTA	3 S	1511.5	1514.0	4.0	33.6	10.0		
	2695	SVTO	8 S	1513.0E	1514.0	2.0D	50.0			QL=1 ST=3 TYP=3
	3200	BERN	4 S/F	1513.3	1514.0	2.5	27.0			
	8400	BERN	4 S/F	1513.3	1513.5	2.5	49.0			
	2800	OTTA	3 S	1653.5	1654.7	2.8	12.8	3.0		
	2800	OTTA	3 S	1736.0	1737.0	4.0	14.9	5.0		
	2800	OTTA	3 S	1757.0	1802.0	8.0	128.0	48.0		
	2695	PALE	8 S	1800.0E	1800.0	2.0D	140.0			QL=1 ST=2 TYP=3
	8800	PALE	8 S	1800.0E	1800.0	1.0D	250.0			QL=1 ST=2 TYP=3
8800	SGMR	8 S	1800.0E	1800.0	2.0D	300.0			QL=1 ST=2 TYP=3	
2695	SGMR	4 S/F	1800.0E	1800.0	360.0D	130.0			QL=1 ST=1 TYP=3	
2800	OTTA	29 PBI	1804.0	1845.0	120.0	12.8	4.0			
2800	OTTA	3 S	1852.0	1853.0	6.0	45.9	17.0			
2695	SGMR	8 S	1853.0E	1853.0	U	45.0			QL=1 ST=3 TYP=3	
2800	OTTA	3 S	2246.0	2247.0	5.0	47.2	17.0			
2695	SGMR	8 S	2247.0E	2247.0	1.0D	59.0			QL=1 ST=2 TYP=3	
2695	PENT	45 C	2351.0	2429.0	105.0D	179.9	54.0			
22	2695	LEAR	4 S/F	0015.0E	0029.0	43.0D	160.0			QL=1 ST=2 TYP=5
	8800	LEAR	20 GRF	0015.0E	0042.0	54.0D	78.0			QL=1 ST=2 TYP=2

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

39
May 89

MAY 1989

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks	
							Peak (10 ⁻²² W/m ² Hz)	Mean (10 ⁻²² W/m ² Hz)			
22	2695	PALE	20 GRF	0017.0E	0020.0	18.0D	160.0			QL=1 ST=2 TYP=2	
	8800	PALE	20 GRF	0018.0E	0043.0	46.0D	98.0			QL=1 ST=2 TYP=2	
	2695	LEAR	4 S/F	0111.0E	0111.0	4.0D	58.0			QL=1 ST=2 TYP=3	
	2695	LEAR	8 S	0626.0E	0628.0	2.0D	39.0			QL=1 ST=2 TYP=3	
	8400	BERN	4 S/F	0626.2	0628.0	3.0	66.0				
	3200	BERN	4 S/F	0626.2	0628.0	3.0	42.0				
	8400	BERN	3 S	1015.0	1017.3	10.0	27.0				
	3200	BERN	3 S	1015.0	1016.5	10.0	9.0				
	2800	OTTA	20 GRF	1506.0	1515.5	125.0	8.4	4.0			
	2800	OTTA	3 S	1519.5	1523.5	9.0	134.7	40.0			
	8800	SGMR	4 S/F	1520.0E	1523.0	13.0D	170.0				QL=1 ST=2 TYP=3
	2695	SGMR	4 S/F	1521.0E	1523.0	6.0D	130.0				QL=1 ST=2 TYP=3
	8400	BERN	3 S	1521.0	1524.2	6.0	136.0				
	2800	OTTA	29 PBI	1528.5	1528.5	96.0	17.7	8.0			
2800	OTTA	40 F	1830.0		300.0	8.0					
23	2695	LEAR	4 S/F	0145.0E	0146.0	4.0D	130.0			QL=1 ST=2 TYP=3	
	8800	LEAR	4 S/F	0145.0E	0146.0	3.0D	140.0			QL=1 ST=2 TYP=3	
	8800	PALE	8 S	0145.0E	0146.0	1.0D	160.0			QL=1 ST=2 TYP=3	
	2695	PALE	4 S/F	0145.0E	0146.0	3.0D	130.0			QL=1 ST=2 TYP=3	
	2800	OTTA	40 F	1200.0	2600.0		8.0				
	24	2800	OTTA	22 GRF	1341.0	1349.0	210.0	16.2	8.0		
3200		BERN	4 S/F	1345.0	1349.0	60.0	16.0				
8400		BERN	4 S/F	1345.0	1349.0	60.0	27.0				
8800		SGMR	8 S	1542.0E	1542.0	U	81.0			QL=/ ST=2 TYP=3	
2800		OTTA	40 F	1750.0	1923.0	180.0	15.8	6.0			
2800		OTTA	4 S/F	2123.0	2130.0	9.0	20.3	8.0			
2800		OTTA	4 S/F	2136.0	2139.0	22.0	57.5	17.0			
2695		PALE	8 S	2138.0E	2138.0	U	53.0			QL=1 ST=2 TYP=3	
8800		PALE	8 S	2138.0E	2138.0	1.0D	61.0			QL=1 ST=2 TYP=3	
8800		SGMR	4 S/F	2138.0E	2138.0	4.0D	89.0			QL=1 ST=2 TYP=3	
25		8800	SGMR	8 S	1037.0E	1038.0	1.0D	81.0			QL=1 ST=2 TYP=3
	8800	SVTO	8 S	1037.0E	1038.0	1.0D	94.0			QL=1 ST=2 TYP=3	
	3200	BERN	3 S	1037.5	1038.0	1.5	34.0				
	8400	BERN	3 S	1037.5	1038.0	1.5	85.0				
	2800	OTTA	22 GRF	1514.0	1620.0	185.0	16.4	8.0			
	2800	OTTA	4 S/F	1519.0	1521.5	9.0	23.9	9.0			
	2800	OTTA	4 S/F	1528.0	1531.0	16.0	50.7	15.0			
	3200	BERN	46 C	1528.0	1531.0	6.0	54.0				
	8400	BERN	46 C	1528.0	1530.4	6.0	144.0				
	8800	SGMR	8 S	1529.0E	1530.0	2.0D	63.0			QL=1 ST=3 TYP=3	
	2695	SVTO	8 S	1529.0E	1531.0	2.0D	56.0			QL=1 ST=2 TYP=3	
8800	SVTO	8 S	1529.0E	1530.0	2.0D	85.0			QL=1 ST=2 TYP=3		
2695	PENT	4 S/F	2320.0	2323.5	22.0	14.0	4.0				
26	2695	LEAR	8 S	0557.0E	0558.0	2.0D	82.0			QL=1 ST=2 TYP=3	
	2695	SVTO	8 S	0558.0E	0558.0	1.0D	78.0			QL=1 ST=3 TYP=3	
	2800	OTTA	20 GRF	1841.0	1849.0	48.0	5.1	2.0			
	2800	OTTA	20 GRF	2045.0	2054.0	70.0	8.3	4.0			
	2800	OTTA	20 GRF	2212.0	2228.5	180.0	23.3	11.0			
28	2800	OTTA	3 S	1212.0	1221.0	18.0	127.1	38.0			
	8800	SVTO	49 GB	1218.0E	1221.0	5.0D	890.0			QL=1 ST=2 TYP=6	
	8800	SGMR	49 GB	1218.0E	1221.0	702.0D	1100.0			QL=1 ST=1 TYP=6	
	8400	BERN	46 C	1218.4	1221.0	3.5	740.0				
	3200	BERN	46 C	1218.4	1221.0	3.5	180.0				
	2695	SGMR	8 S	1220.0E	1221.0	2.0D	110.0			QL=1 ST=2 TYP=3	
	2695	SVTO	8 S	1220.0E	1221.0	1.0D	110.0			QL=1 ST=2 TYP=3	
	2695	SGMR	4 S/F	2205.0E	2207.0	7.0D	84.0			QL=1 ST=2 TYP=5	
	2695	PALE	8 S	2206.0E	2207.0	1.0D	95.0			QL=1 ST=2 TYP=3	
	2800	OTTA	29 PBI	2215.0	2221.0	40.0D	15.2	7.0			
	2800	OTTA	4 S/F	2305.0	2308.0	10.0	92.2	27.0			
29	2695	PENT	3 S	0105.0	0107.0	16.0	58.4	17.0			
	2695	PALE	8 S	0349.0E	0350.0	2.0D	65.0			QL=1 ST=2 TYP=3	
	2695	SVTO	8 S	0349.0E	0350.0	2.0D	83.0			QL=1 ST=2 TYP=3	
	8400	BERN	4 S/F	0932.0	0933.1	3.0	90.0				

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

MAY 1989

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
						Peak (10 ⁻²² W/m ² Hz)	Mean		
29	3200 BERN	4 S/F	0932.0	0933.1	3.0	68.0			
	8800 SVTO	8 S	0933.0E	0933.0	U	75.0			QL=1 ST=2 TYP=3
30	8800 LEAR	4 S/F	0104.0E	0105.0	6.0D	99.0			QL=1 ST=2 TYP=3
	8800 PALE	8 S	0105.0E	0105.0	1.0D	120.0			QL=1 ST=2 TYP=3
	2695 PALE	8 S	0105.0E	0106.0	1.0D	58.0			QL=1 ST=2 TYP=3
	8800 LEAR	4 S/F	0713.0E	0714.0	3.0D	240.0			QL=1 ST=2 TYP=3
	8800 SVTO	8 S	0715.0E	0716.0	2.0D	250.0			QL=1 ST=2 TYP=3
	2800 OTTA	3 S	1311.0	1312.0	13.0	45.4	13.0		
	8400 BERN	3 S	1311.2	1311.4	3.0	31.0			
	3200 BERN	3 S	1311.2	1311.4	3.0	42.0			
31	2800 OTTA	3 S	1320.0	1323.5	7.0	34.5	10.0		
	3200 BERN	3 S	1322.0	1323.0	2.5	30.0			

Reports are received routinely from the following observatories:

BERN = Berne

LEAR = Learmonth

PALE = Palehua

SGMR = Sagamore Hill

OTTA = Ottawa

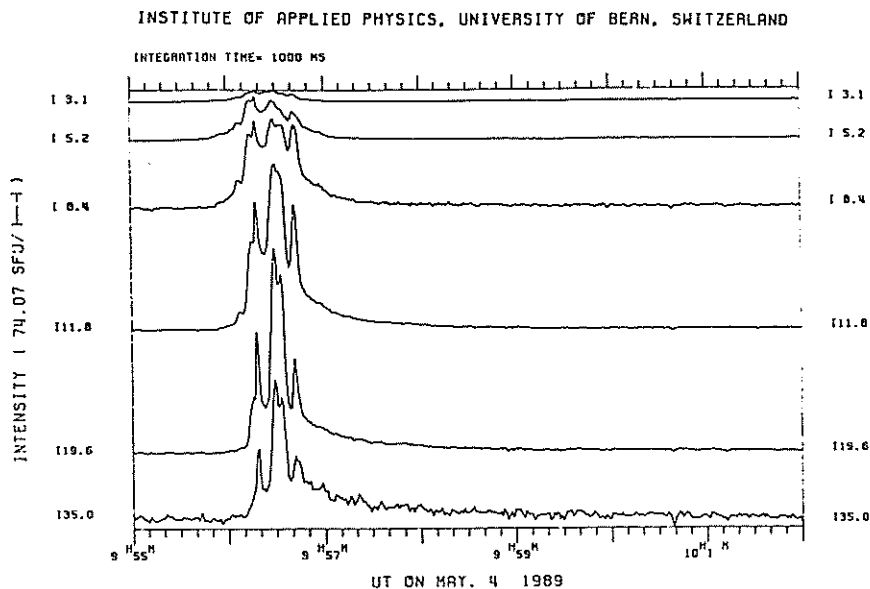
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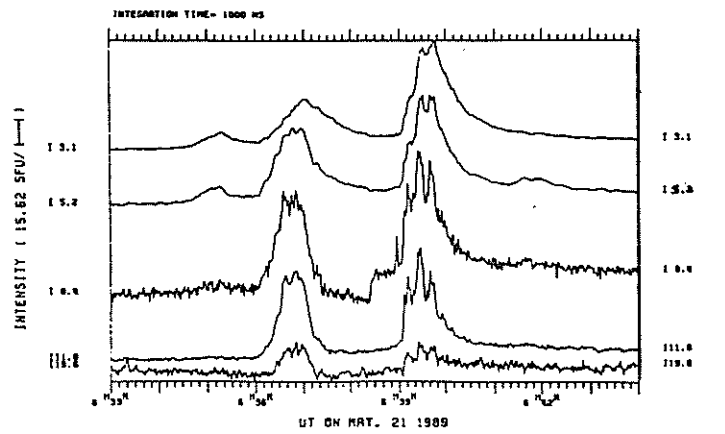
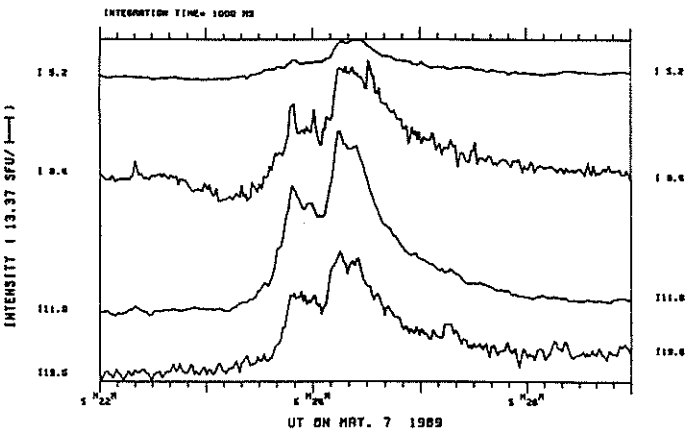
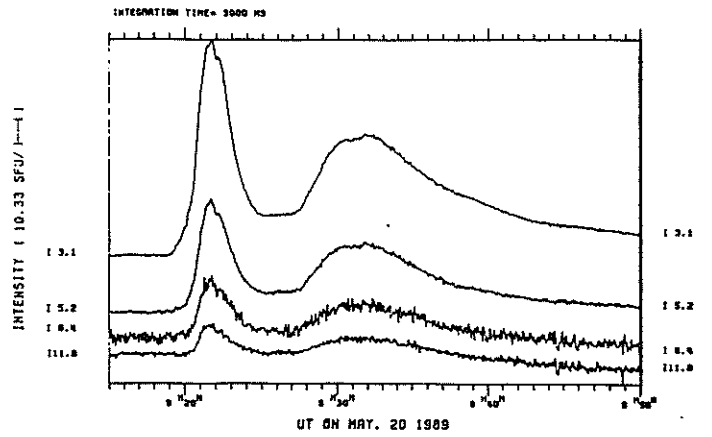
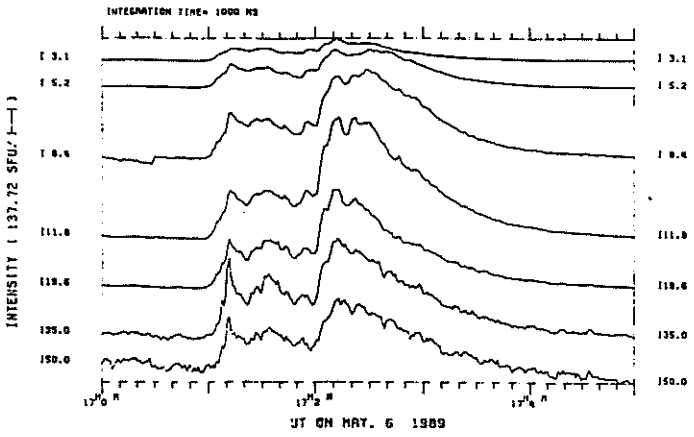
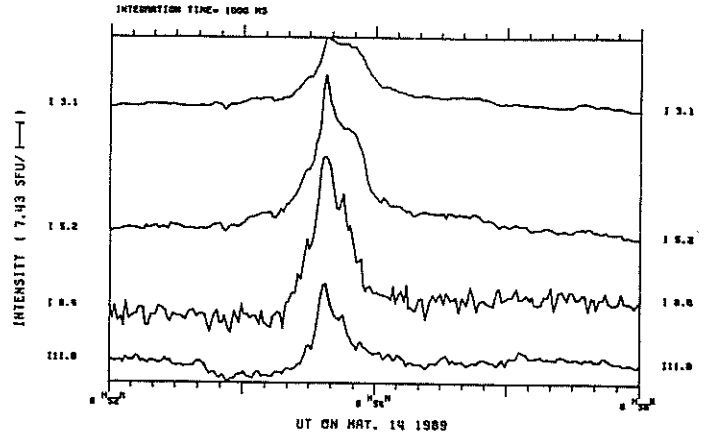
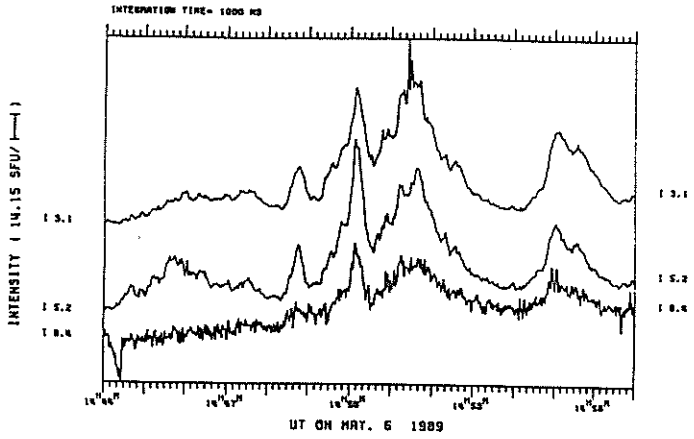
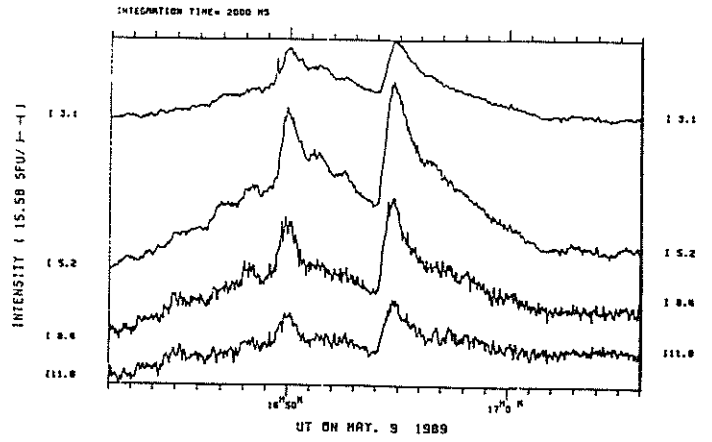
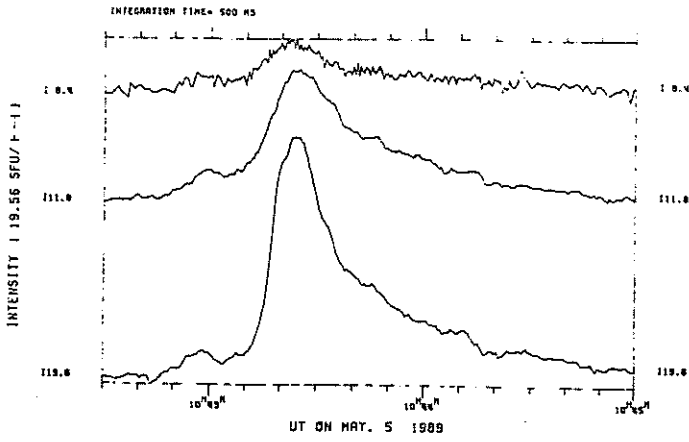
SVTO = San Vito

Explanation of Type Code:

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

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



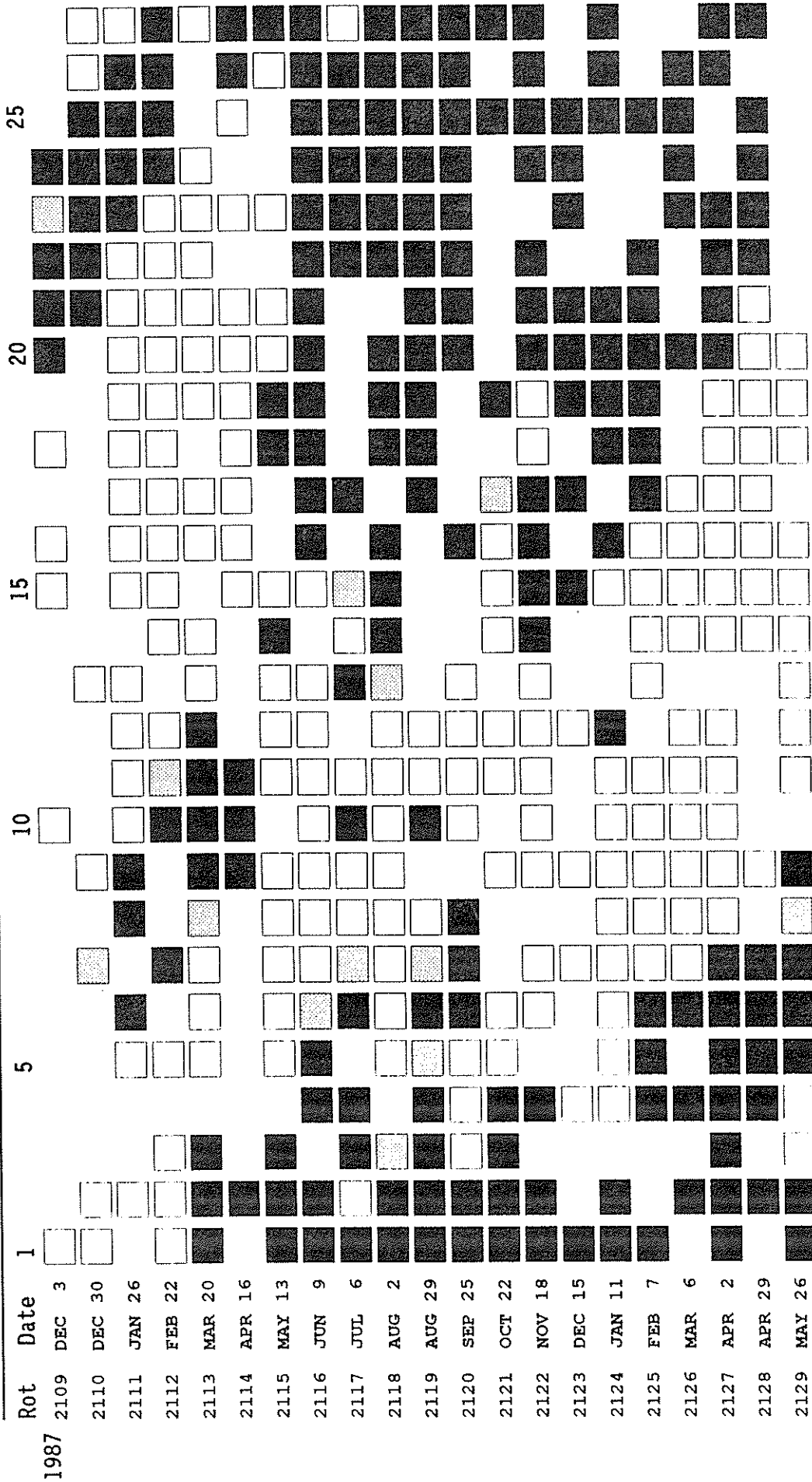


STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1988						1989					
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1	14	-35	5	-27	-15	23	-3	.	.	.	.	.
2	7	-51	-22	-2	-19	24	-5	-19	.	.	-97	-47
3	.	-29	-14	-4	.	.	-4	-22	.	-66	-114	-31
4	33	-9	1	-2	8	40	-12	-41	-65	.	-86	-22
5	.	-13	.	16	12	19	2	.	-46	.	-76	-22
6	.	-39	5	.	15	3	4	-65	-4	.	-62	.
7	12	39	18	-22	10	0	-24	-85	-13	-10	-28	65
8	-14	-18	43	43	.	.	-27	-101	.	.	-15	.
9	-25	-29	48	45	.	-9	-33	.	.	-58	25	.
10	-17	.	51	.	-8	.	.	.	-16	.	71	.
11	.	-16	22	.	.	.	-62	-16	-6	-16	101	.
12	-14	-1	25	.	.	.	-47	-23	-18	37	78	73
13	-11	14	23	.	.	.	-53	.	23	39	54	87
14	-1	15	1	-30	-36	.	-38	10	34	61	.	75
15	13	-6	-14	-44	-33	-35	-30	24	55	63	44	76
16	22	2	-15	-50	-43	.	.	23	73	40	11	73
17	28	.	-20	-54	-39	-46	.	16	66	32	15	59
18	27	-3	.	-46	-52	-43	34	74	.	.	19	53
19	30	3	-36	-49	-53	-46	.	101	116	64	29	22
20	37	-1	-38	-64	-40	.	.	120	131	73	27	-37
21	35	.	-49	-67	-37	-19	56	119	94	14	-21	-44
22	.	-16	.	-64	-34	.	.	-29	40	12	-68	-48
23	15	.	-57	-57	-38	29	61	.	-13	.	-6	-54
24	-3	.	-79	-36	-36	31	.	.	-7	.	-110	.
25	-35	.	-91	-29	-17	.	.	22	-35	-50	.	-44
26	-67	.	-77	-8	14	30	65	-37	-64	.	.	-14
27	-75	-49	-57	6	15	31	.	.	-108	.	-80	-13
28	-80	-79	-24	34	.	24	.	-50	-93	-110	-77	1
29	-57	-51	-10	13	.	26	-5	-64	.	-105	.	7
30	-29	-15	-20	-6	15	18	.	-91	.	-106	-64	-12
31	.	-3	-20	.	.	.	-24	-101	.	-100	.	-5

Dot symbol indicates no data available for the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



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

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

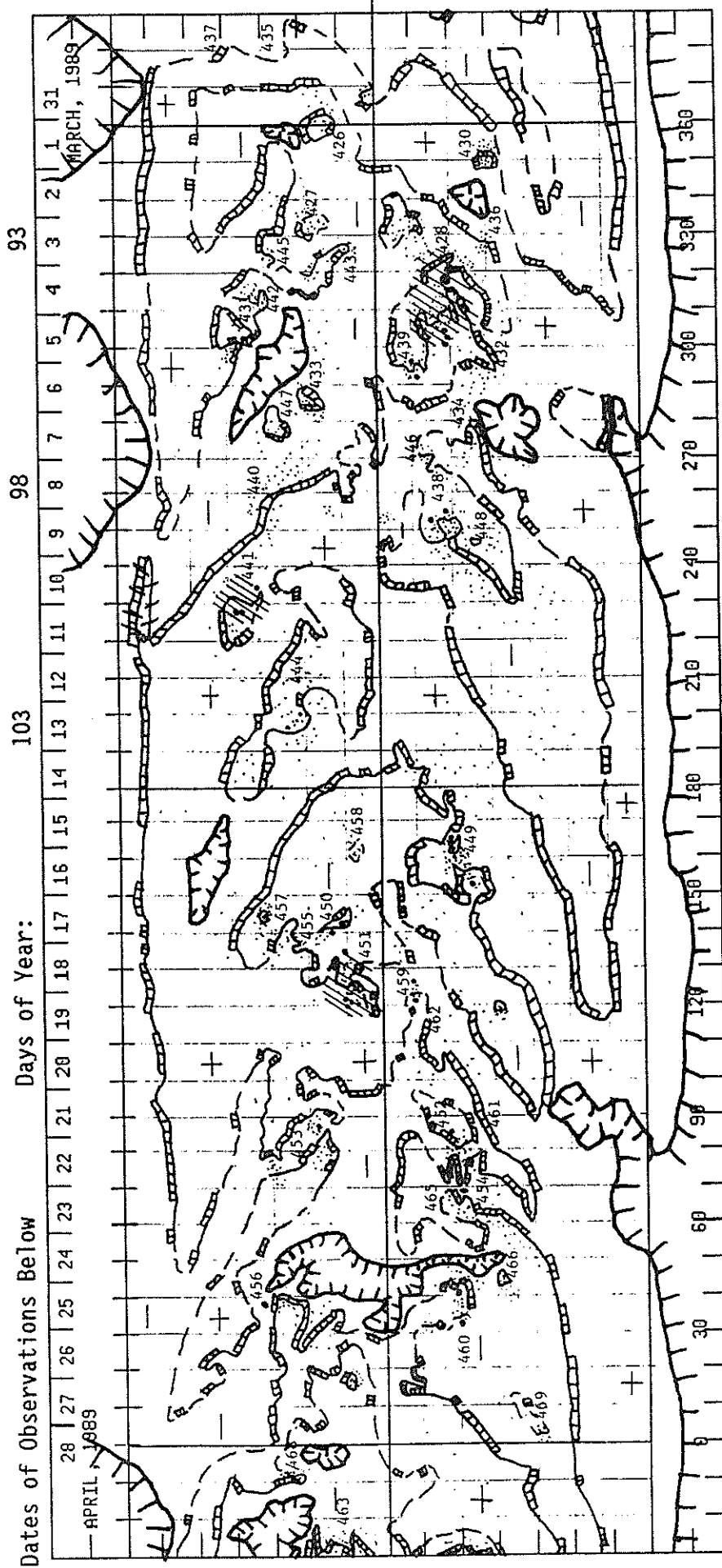
Observations are taken at 2000 UT. Rotation numbers given are the Bartels series, but the dates are not; these dates mark times of occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

C O N T E N T S

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PRELIMINARY H - ALPHA SOLAR SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 1814
(1 April to 28 April 1989)



APRIL 1989

Days of Year: 93 98 103

Dates of Observations Below

28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 31 MARCH, 1989

0 30 60 90 120 150 180 210 240 270 300 330 360

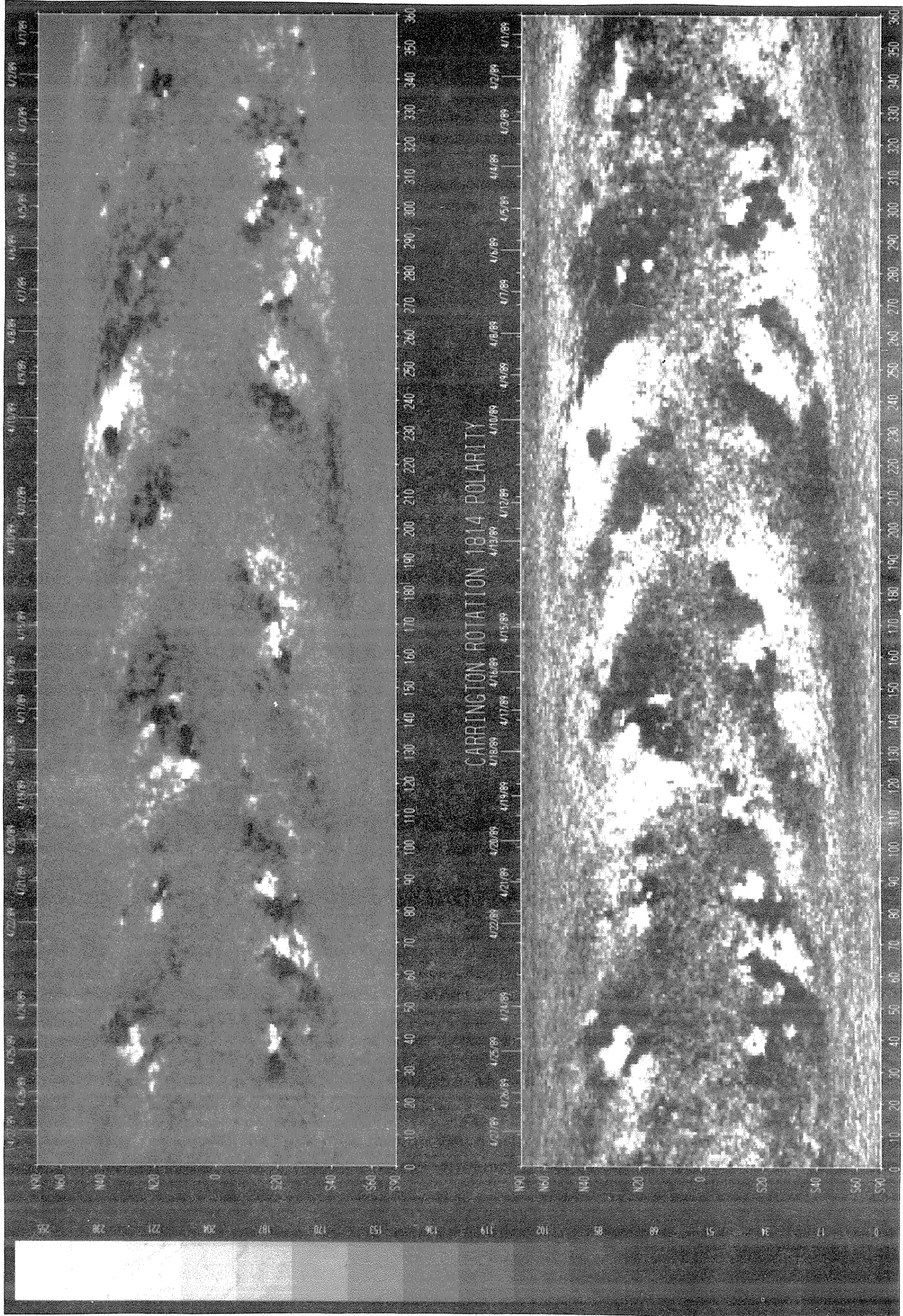
Heliographic Longitude ϕ = λ 10830 Coronal Hole Estimate

Last Revised 06/02/89 KMP/FSM

S O L A R M A G N E T I C F I E L D S Y N O P T I C C H A R T
CARRINGTON ROTATION NUMBER 1814
(1 April to 28 April 1989)

Kitt Peak National Observatory

Dates of Observation

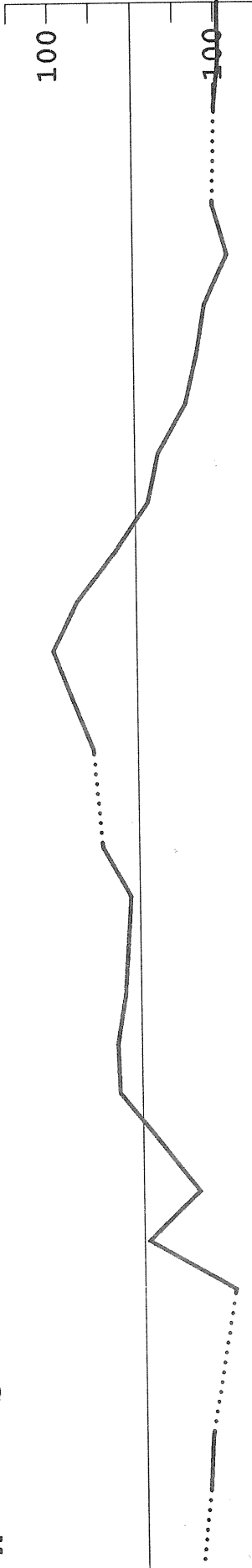


Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 1814
(1 April to 28 April 1989)

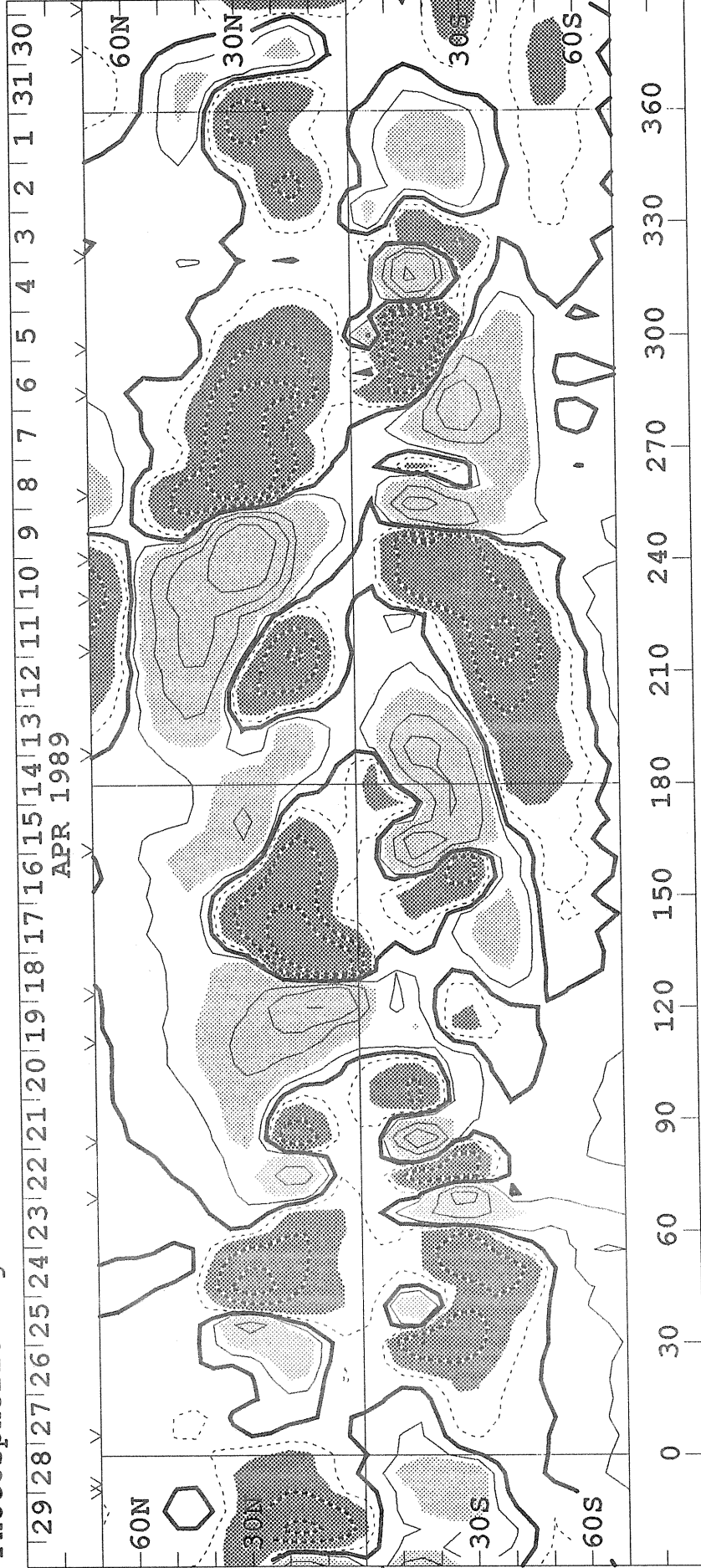
WILCOX SOLAR OBSERVATORY

Mean Field



0, +100, 500, 1000, 2000 MicroTesla

Photospheric Magnetic Field



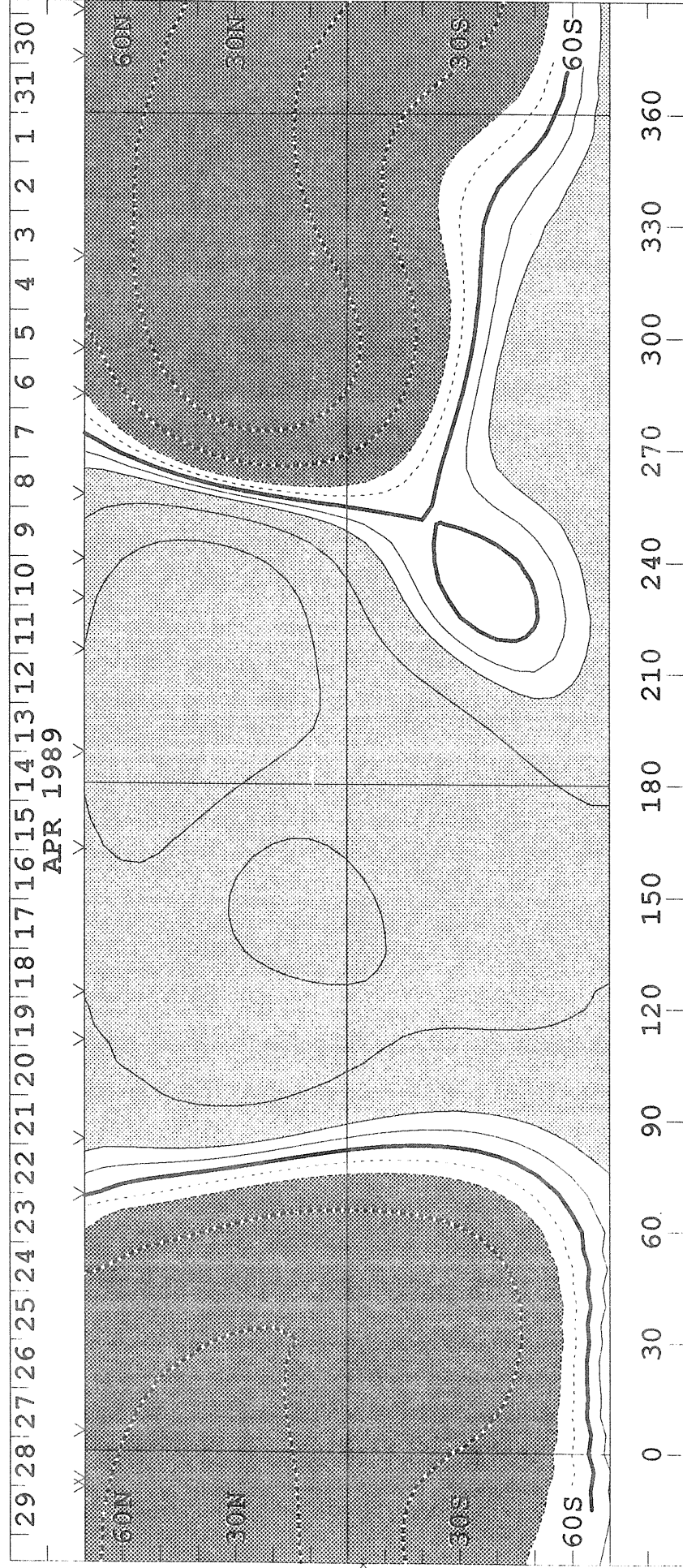
Heliographic Longitude

1814

SOLAR MAGNETIC FIELD SYNOPSIS CHART
SOURCE SURFACE FIELD
CARRINGTON ROTATION NUMBER 1814
(1 April to 28 April 1989)

Wilcox Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla

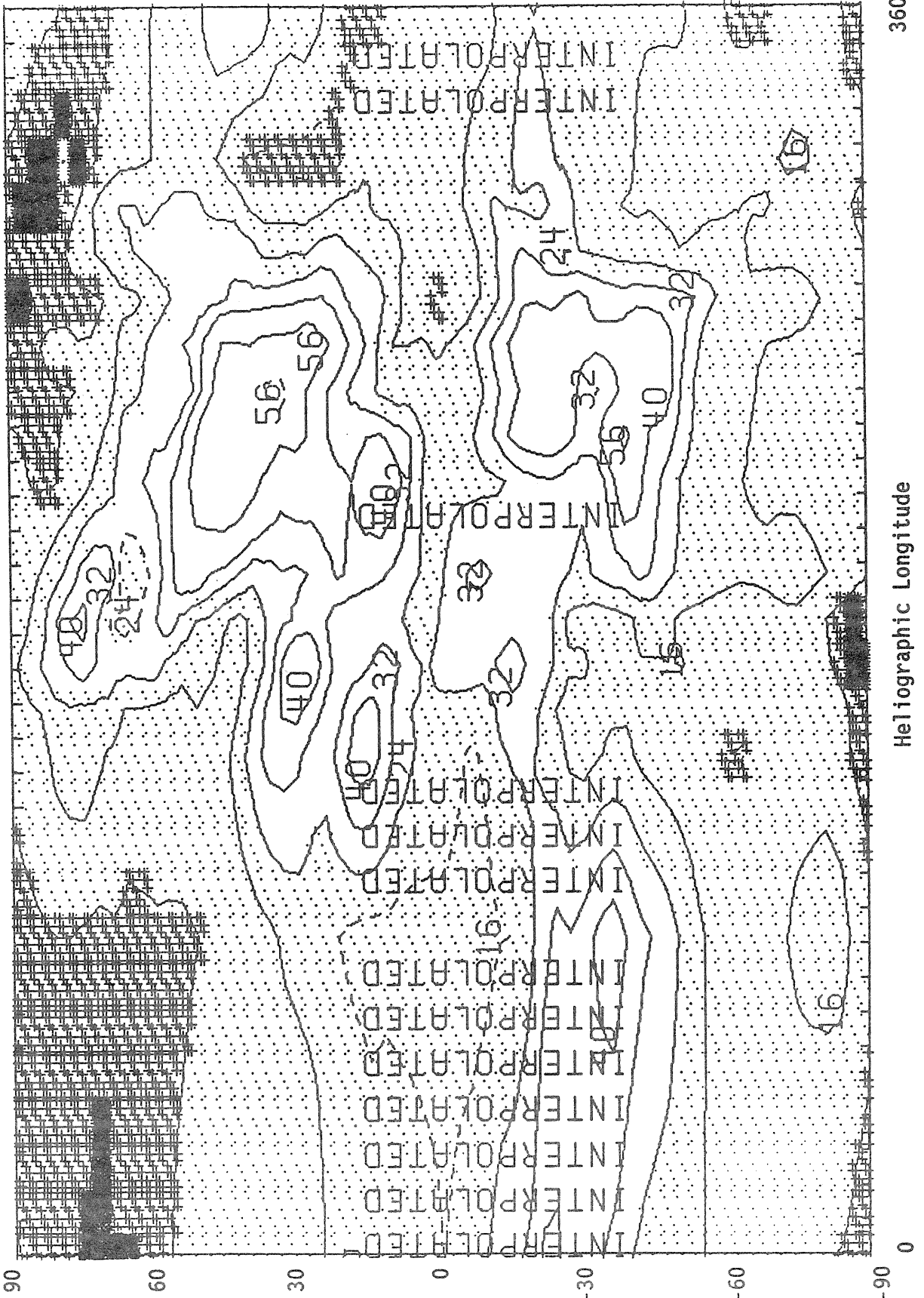


Heliographic Longitude

1814

SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1814 (1 April to 28 April 1989)

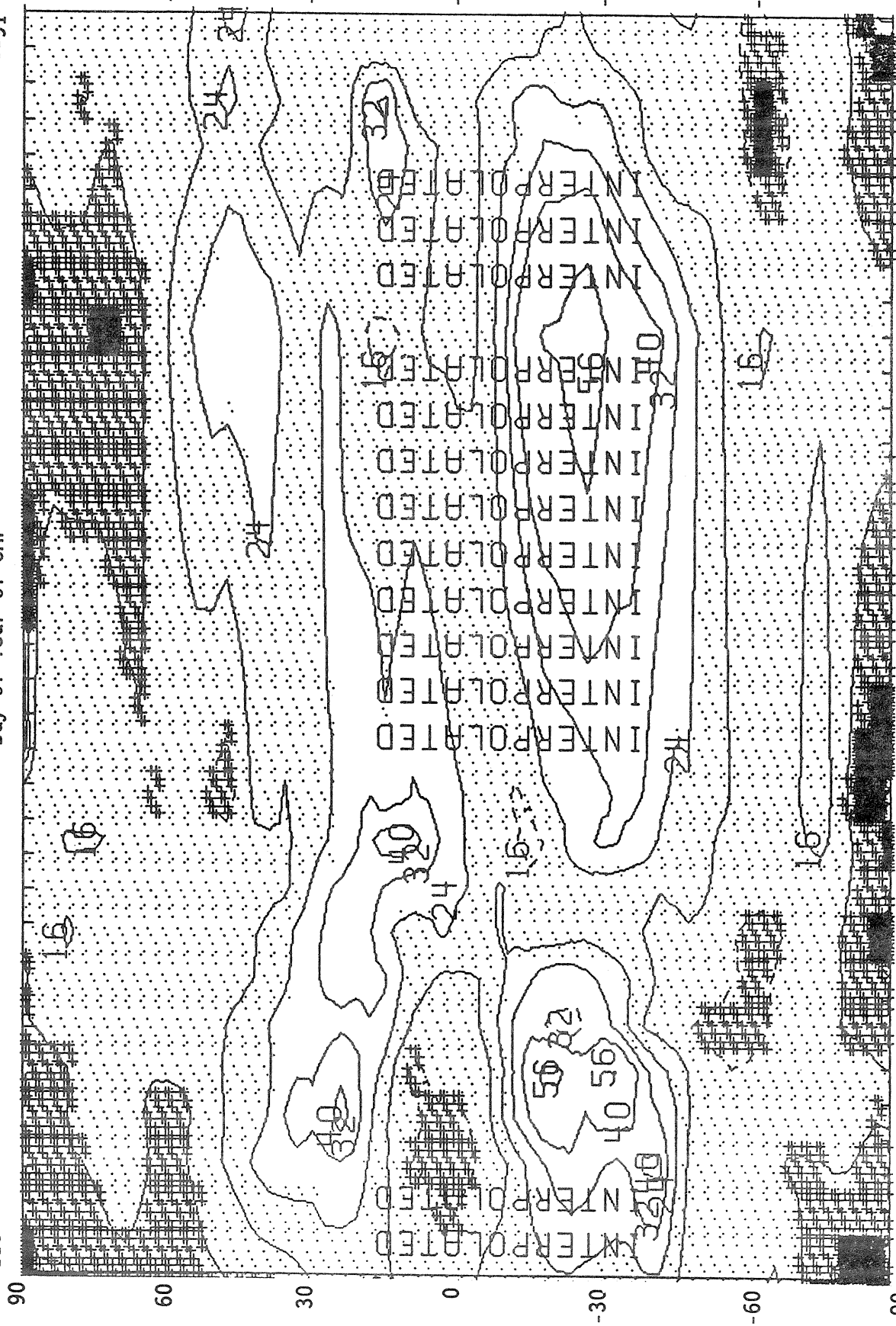
118----- Day of Year of CMP -----91



Heliographic Longitude 360

SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1814 (1 April to 28 April 1989)

118----- Day of Year of CMP -----91

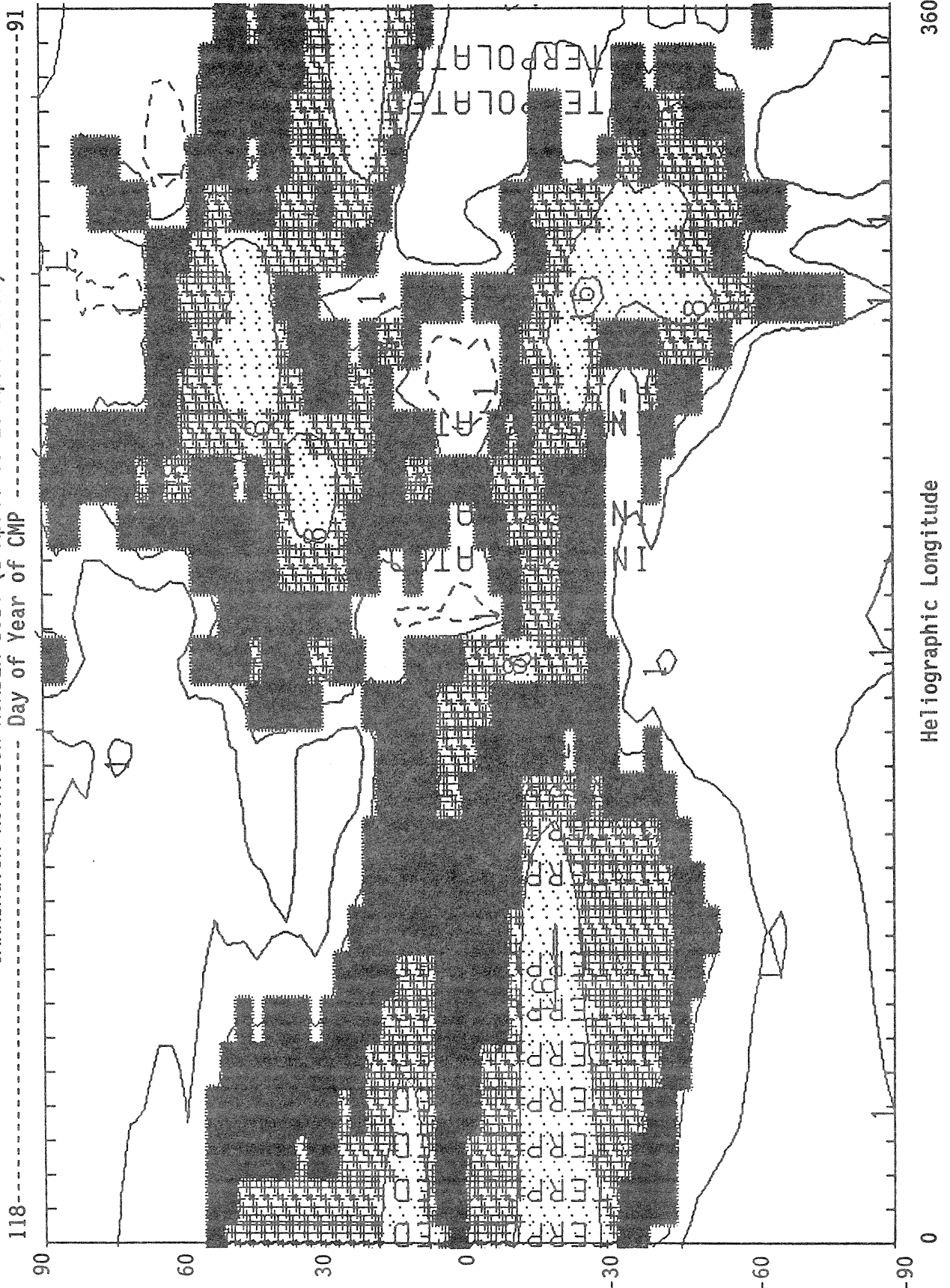


Heliographic Longitude

360

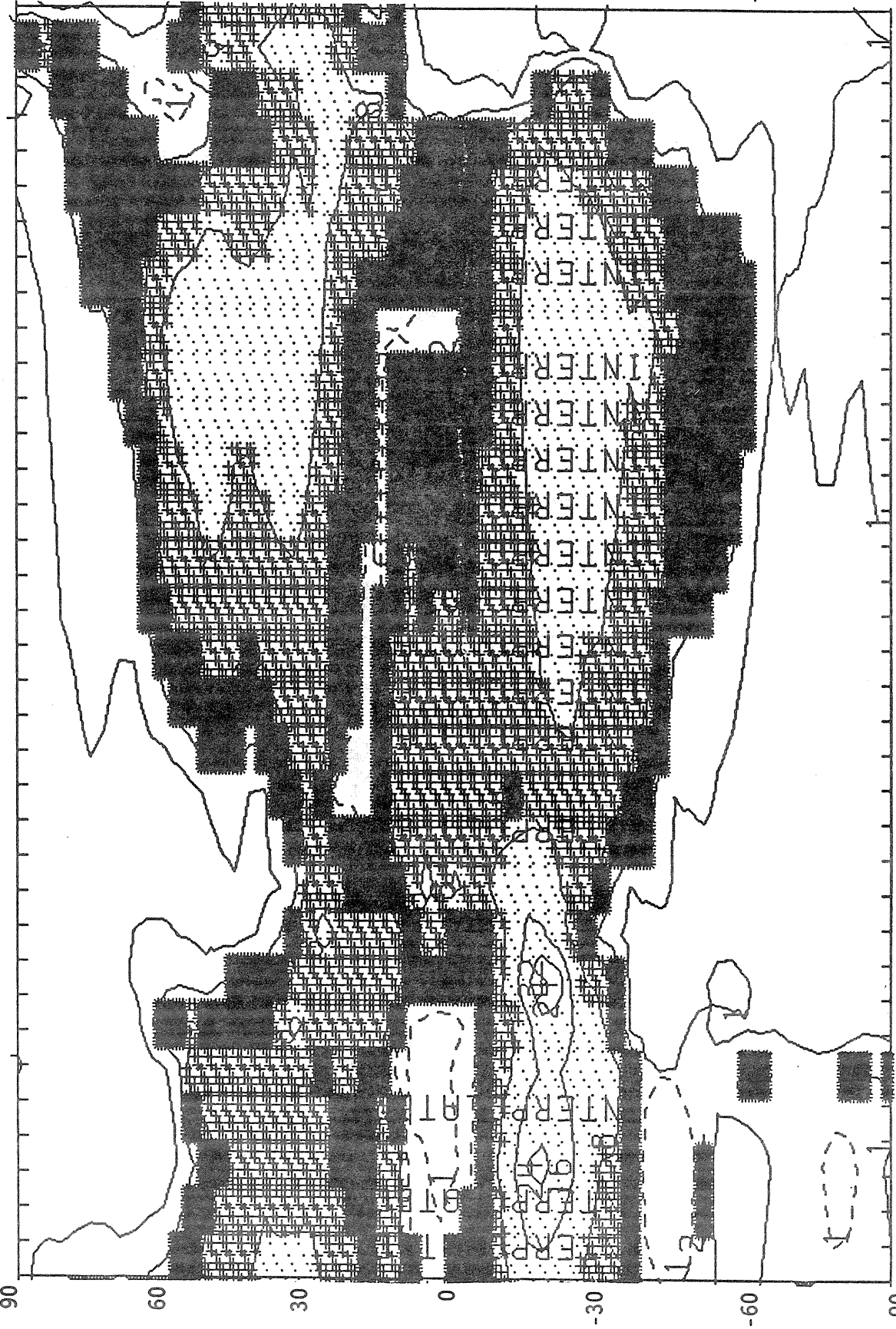
0

SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1814 (1 April to 28 April 1989)
----- Day of Year of CMP -----



SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1814 (1 April to 28 April 1989)

118----- Day of Year of CMP -----91



Heliographic Longitude

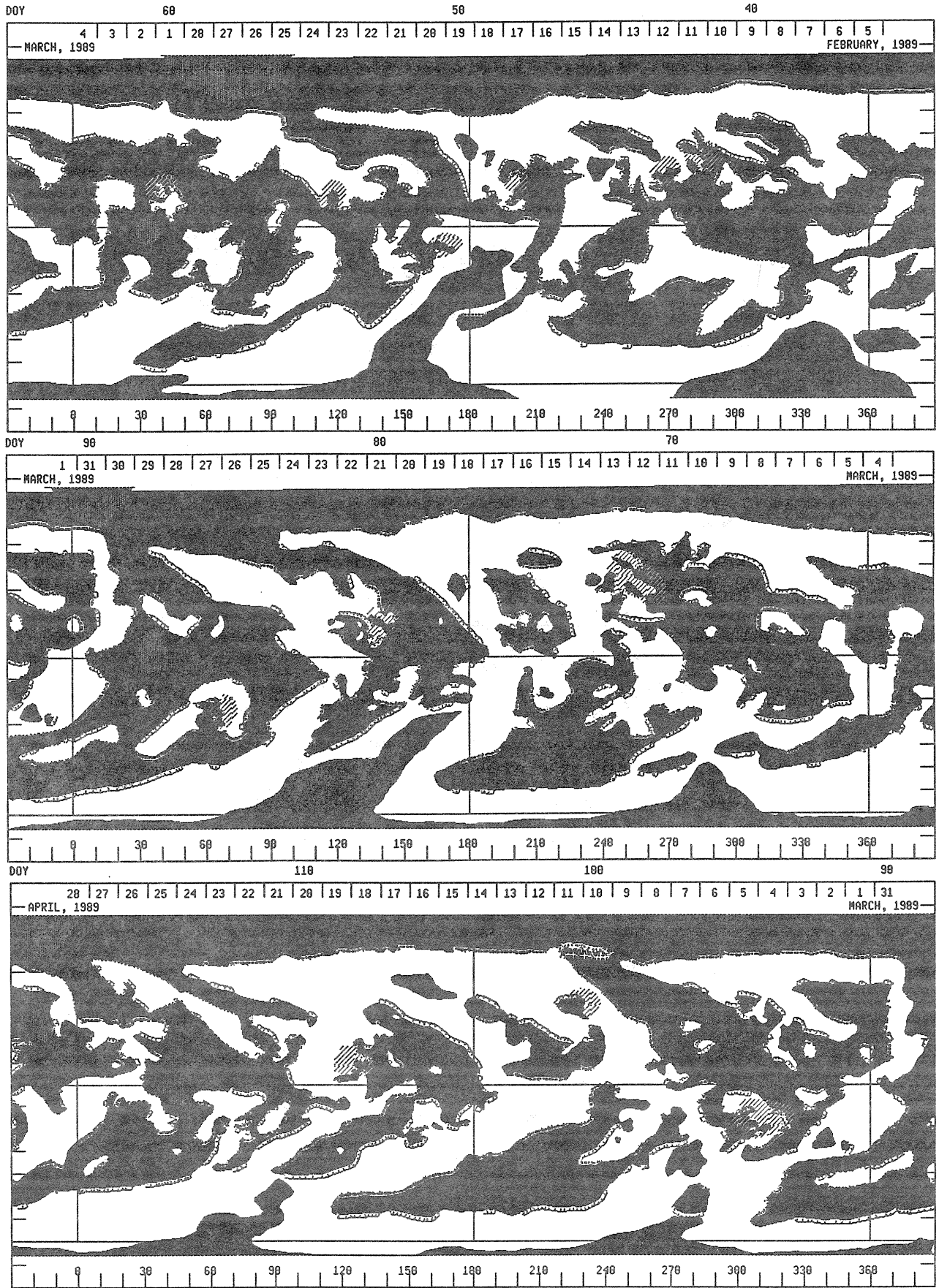
360

0

SHADED H-ALPHA SOLAR SYNOPTIC CHARTS

Carrington Rot. 1812-1814

5 February to 28 April 1989



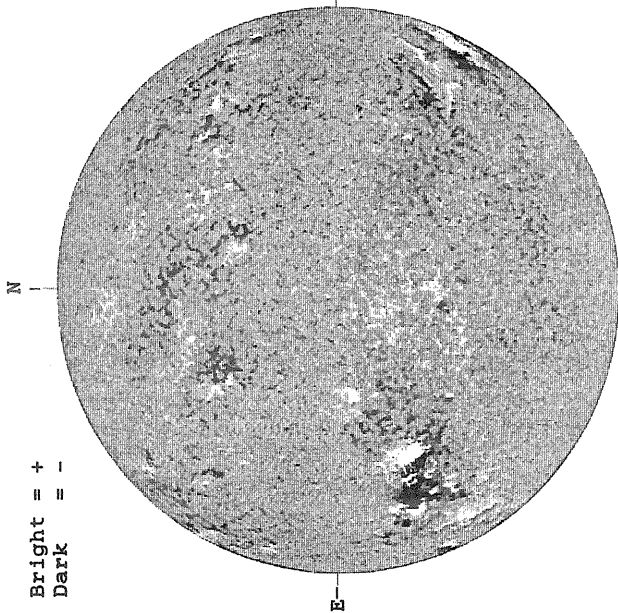
= Positive Polarity
 = Negative Polarity
 = 10830 Coronal Hole Estimate
 = X-Ray Flares > M1

Heliographic Longitude

APRIL 1, 1989 (P=-26.18, B₀ = -6.52, L₀ = 2.05)

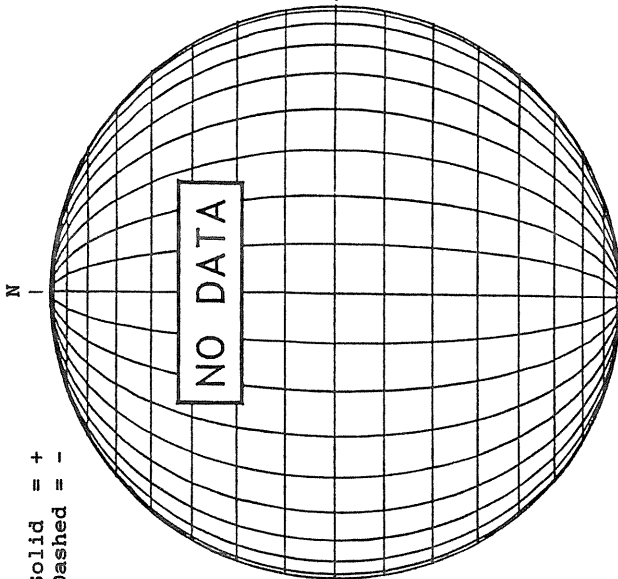
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



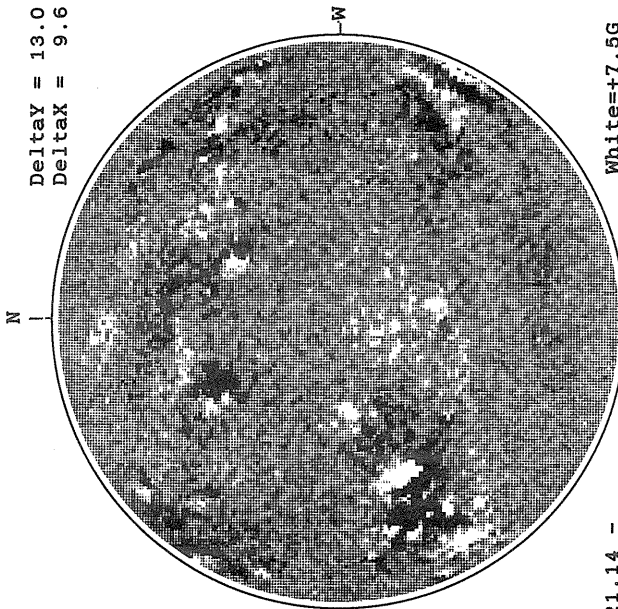
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



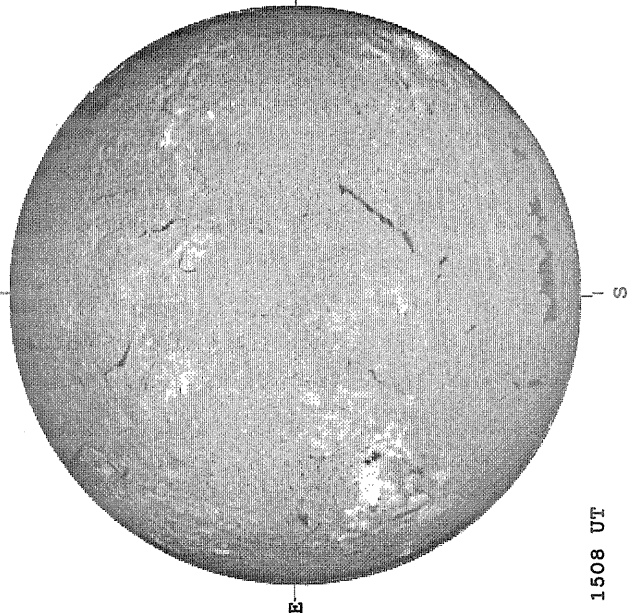
MT. WILSON MAGNETOGRAM

Delta_Y = 13.0
Delta_X = 9.6

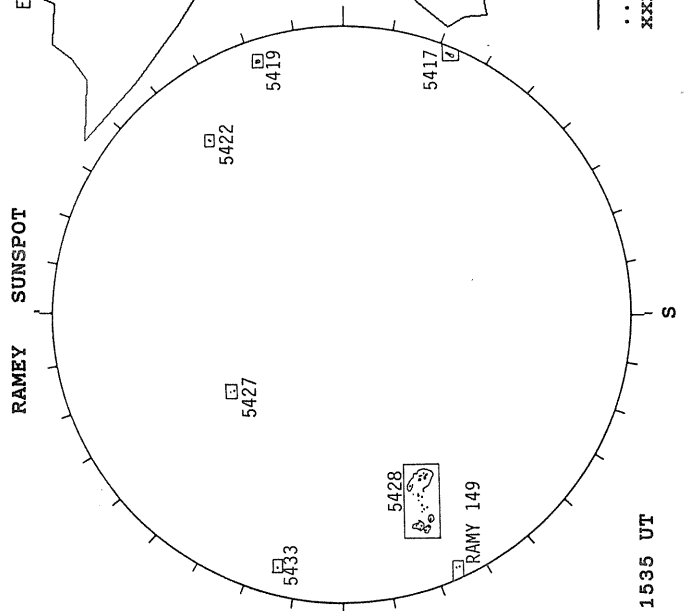


White = +7.5G
Black = -7.5G

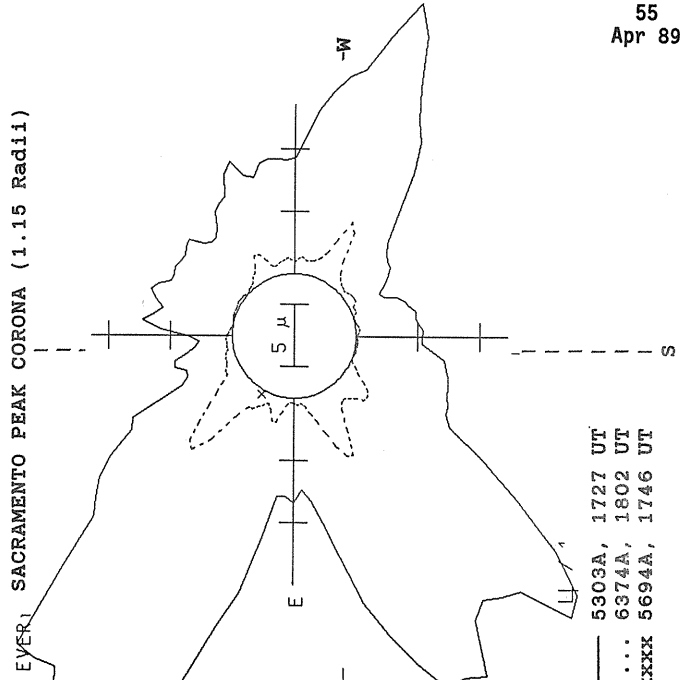
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



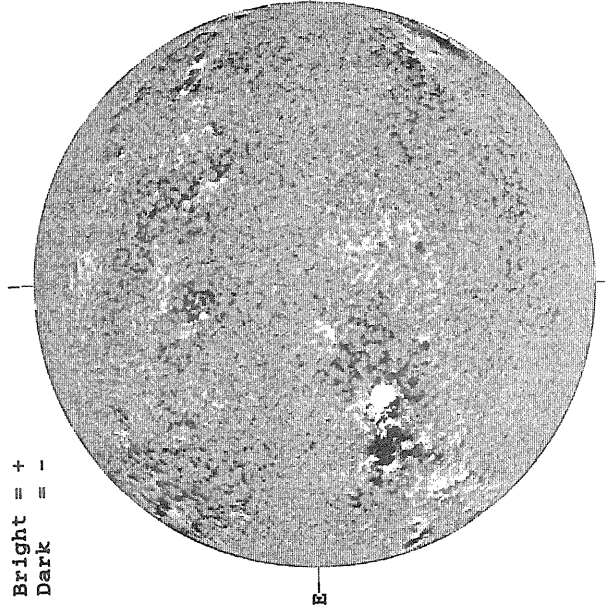
EVERETT SACRAMENTO PEAK CORONA (1.15 Radii)



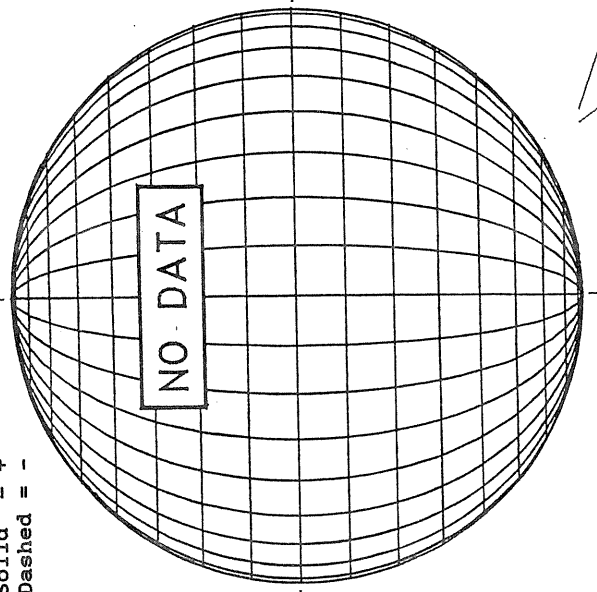
— 5303A, 1727 UT
... 6374A, 1802 UT
xxxx 5694A, 1746 UT

APRIL 2, 1989 (P=-26.22, B₀ =-6.47, L₀ = 348.86)

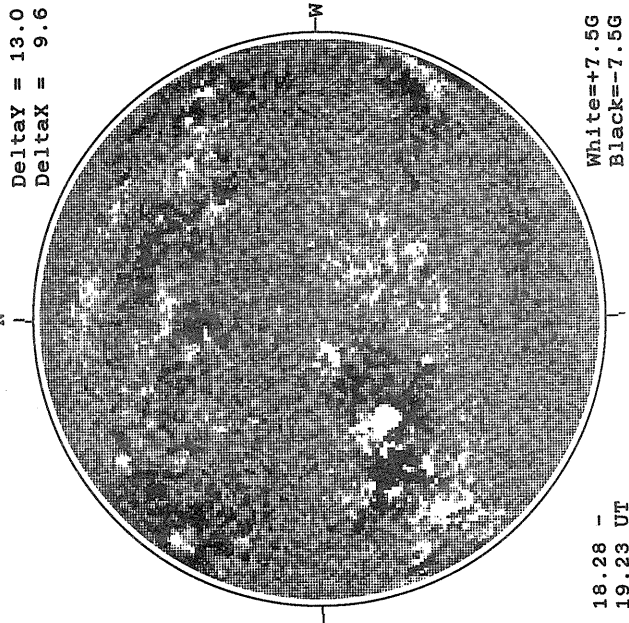
KITT PEAK MAGNETOGRAM



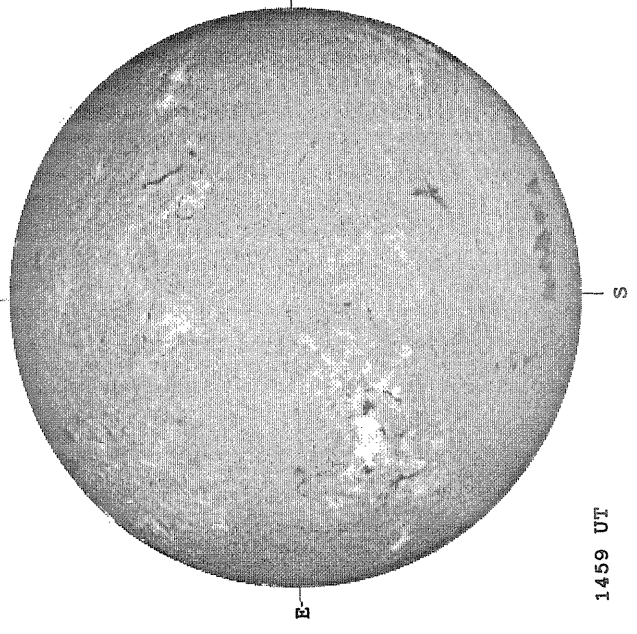
STANFORD MAGNETOGRAM



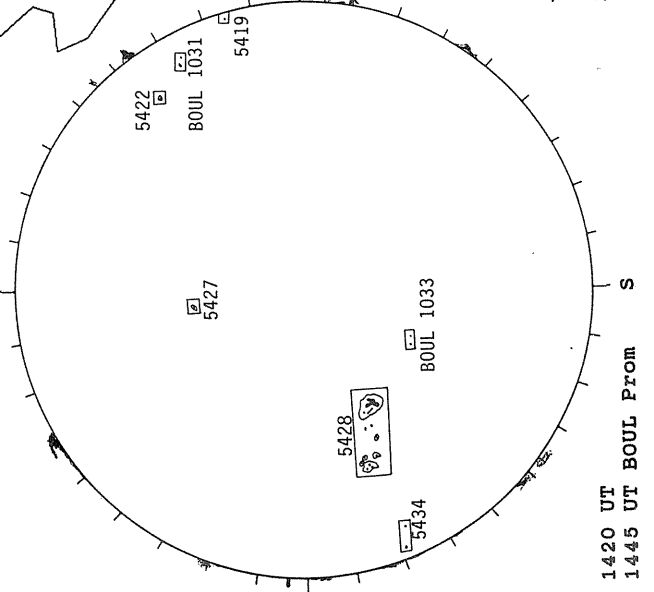
MT. WILSON MAGNETOGRAM



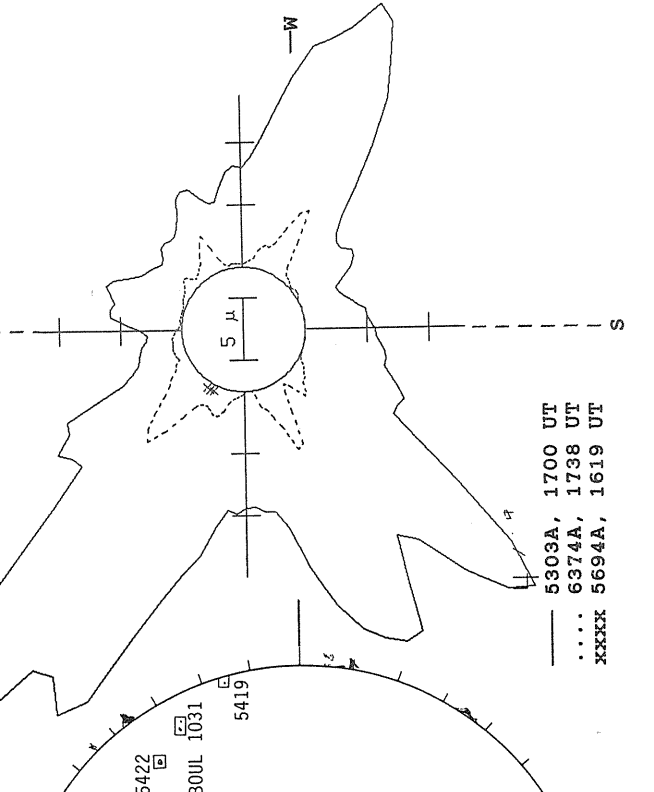
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



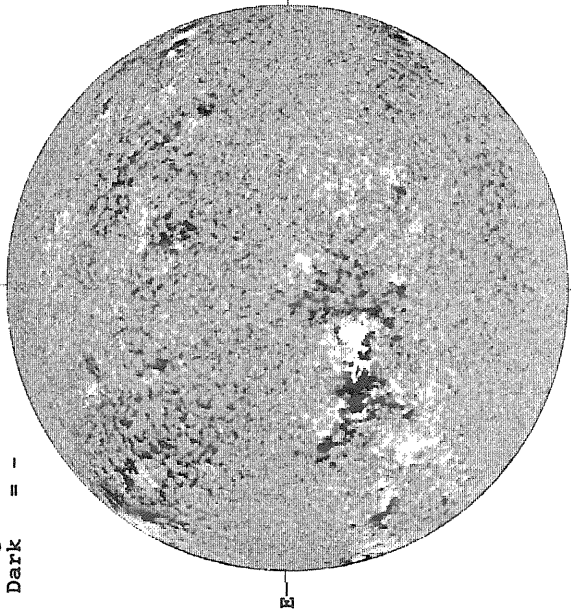
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 3, 1989 (P=-26.25, B₀ = -6.41, I₀ = 335.67)

KITT PEAK MAGNETOGRAM

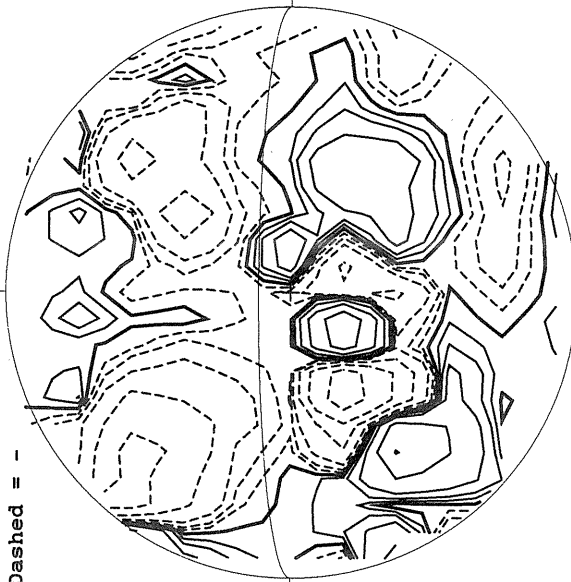
Bright = +
Dark = -



1549 UT

STANFORD MAGNETOGRAM

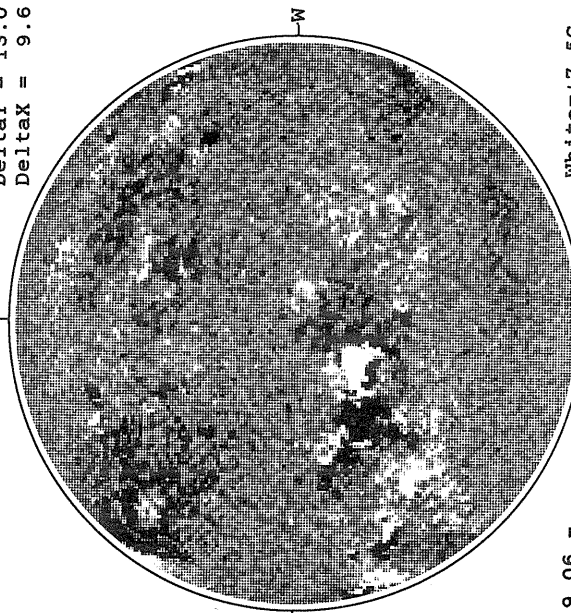
Solid = +
Dashed = -



2132 UT

MT. WILSON MAGNETOGRAM

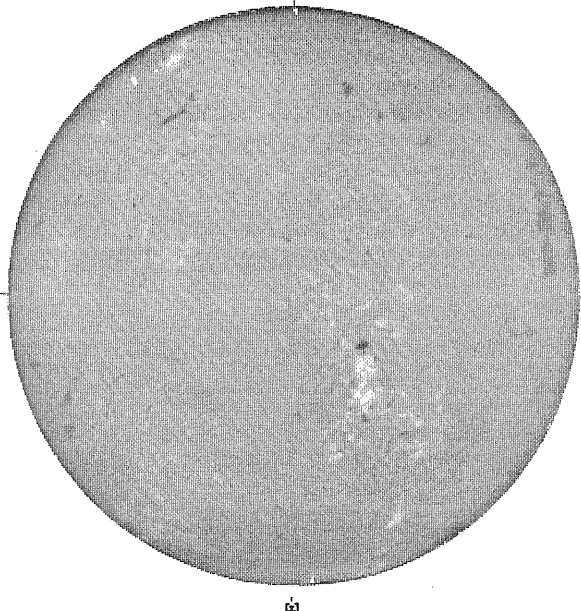
Delta Y = 13.0
Delta X = 9.6



19.06 -
20.01 UT

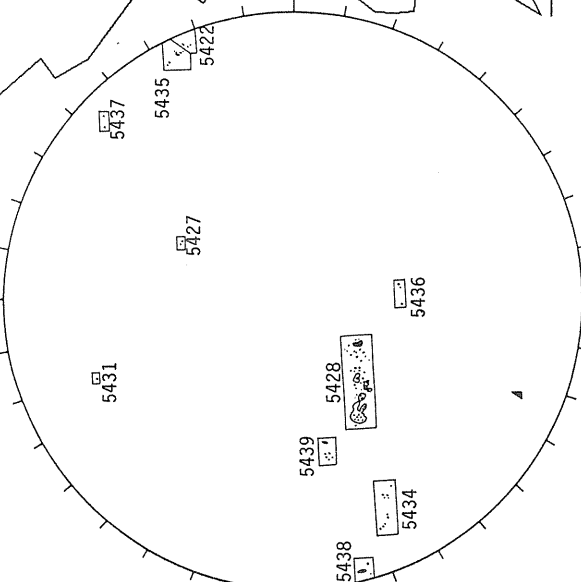
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



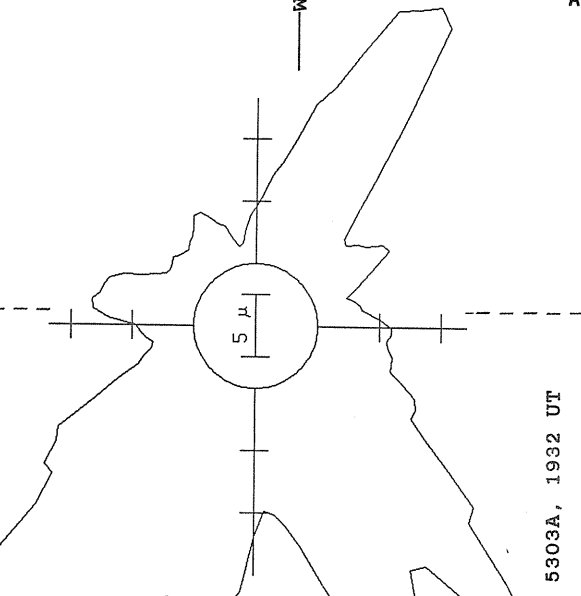
1435 UT

RAMEY SUNSPOT



1700 UT

1/2 SACRAMENTO PEAK
MARKS EVERY 10 SACRAMENTO PEAK CORONA (1.15 Rad11)

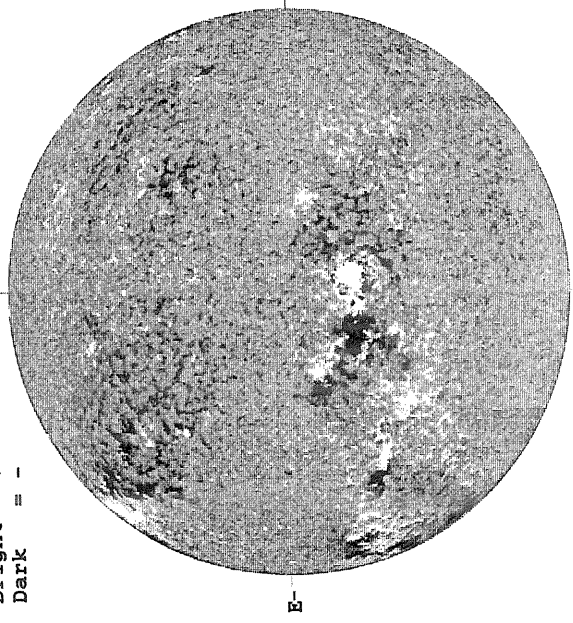


5303A, 1932 UT

APRIL 4, 1989 (P=-26.27, B₀ = -6.35, L₀ = 322.47)

KITT PEAK MAGNETOGRAM

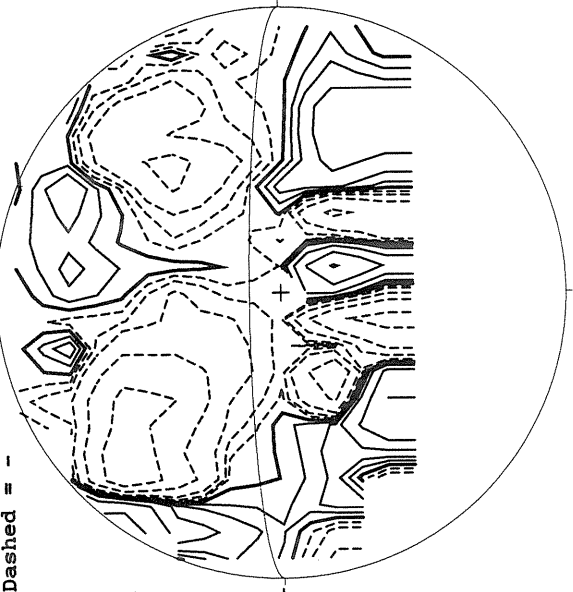
Bright = +
Dark = -



1648 UT

STANFORD MAGNETOGRAM

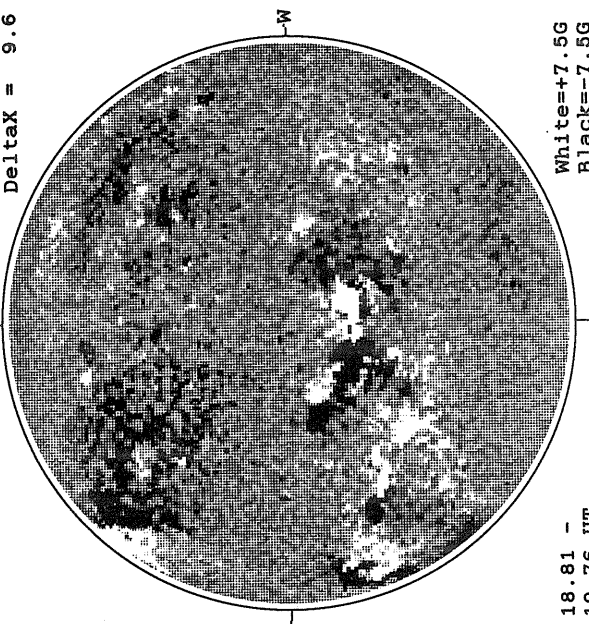
Solid = +
Dashed = -



1818 UT

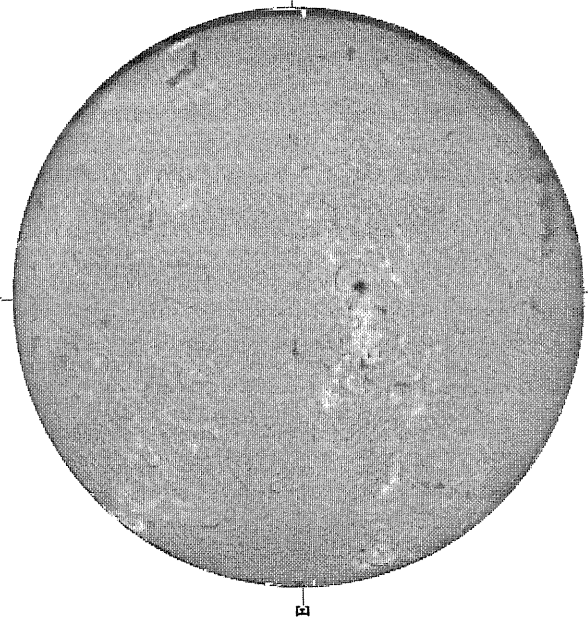
MT. WILSON MAGNETOGRAM

Delta_γ = 13.0
Delta_X = 9.6



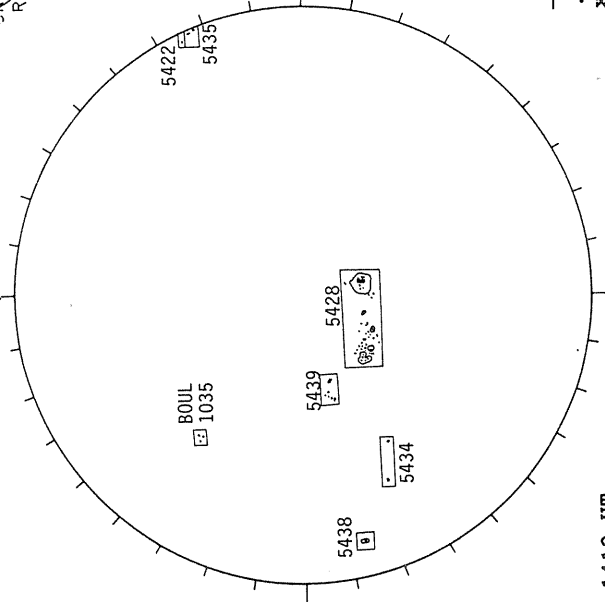
White = +7.5G
Black = -7.5G

HULLOMAN H-ALPHA



1440 UT

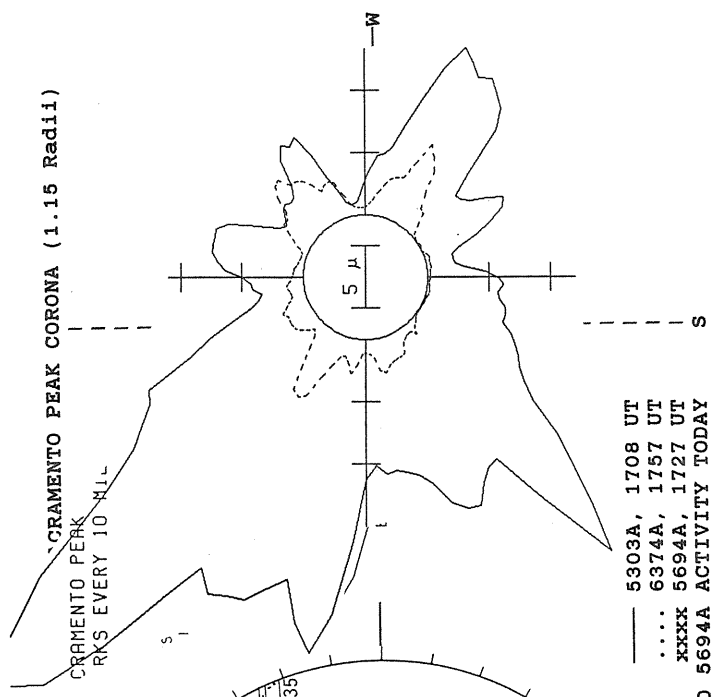
BOULDER SUNSPOT



1410 UT

CRAMENTO PEAK CORONA (1.15 Radii)

18.81 -
19.76 UT



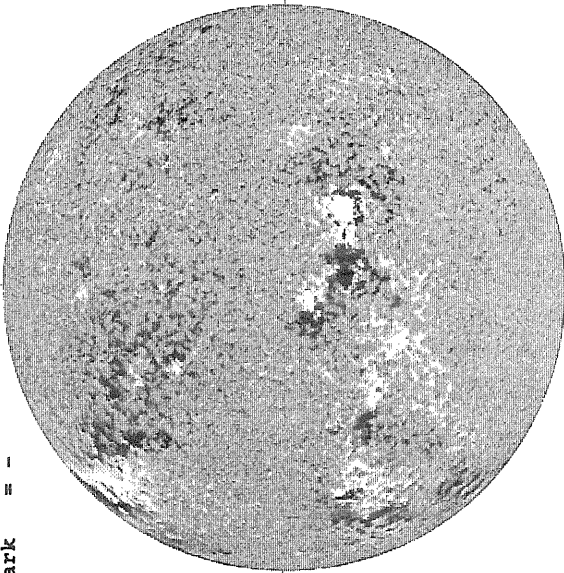
— 5303A, 1708 UT
.... 6374A, 1757 UT
XXXX 5694A, 1727 UT
NO 5694A ACTIVITY TODAY

APRIL 5, 1989 (P=-26.29, B₀ = -6.29, L₀ = 309.28)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -

N



1557 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

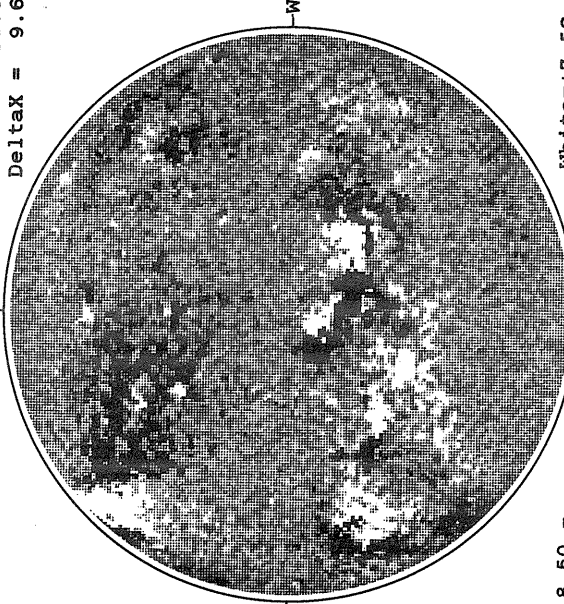


1814 UT

MT. WILSON MAGNETOGRAM

Delta_Y = 13.0
Delta_X = 9.6

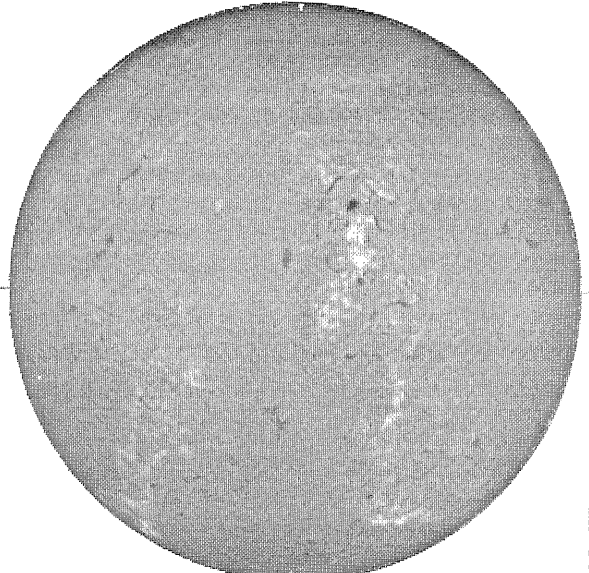
N



18.50 -
19.45 UT

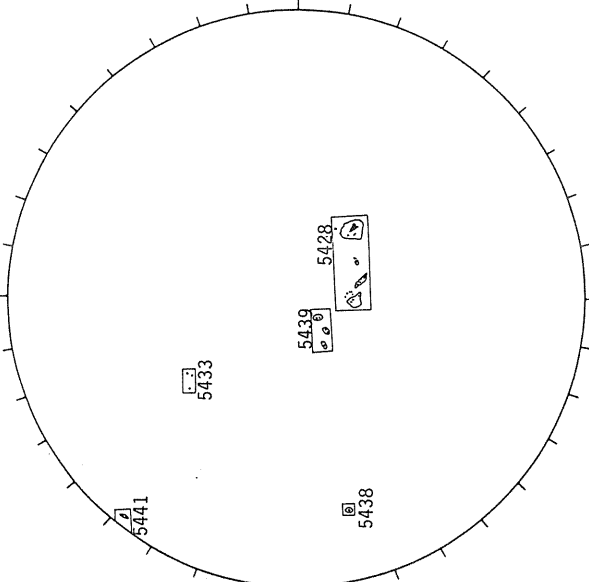
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



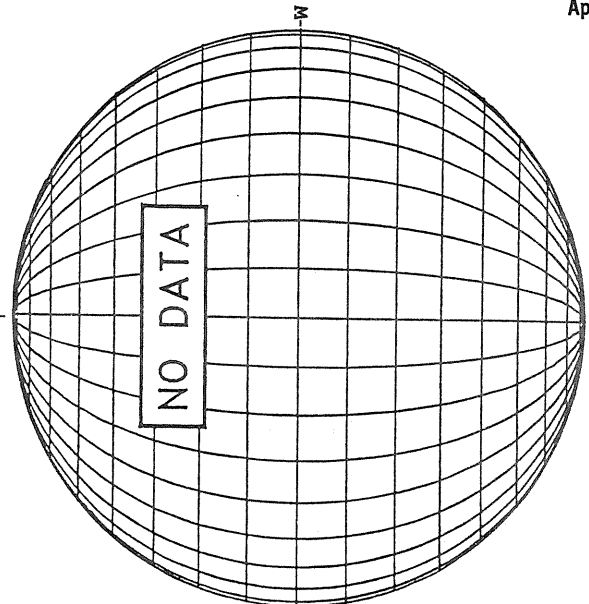
1735 UT

BOULDER SUNSPOT



1432 UT

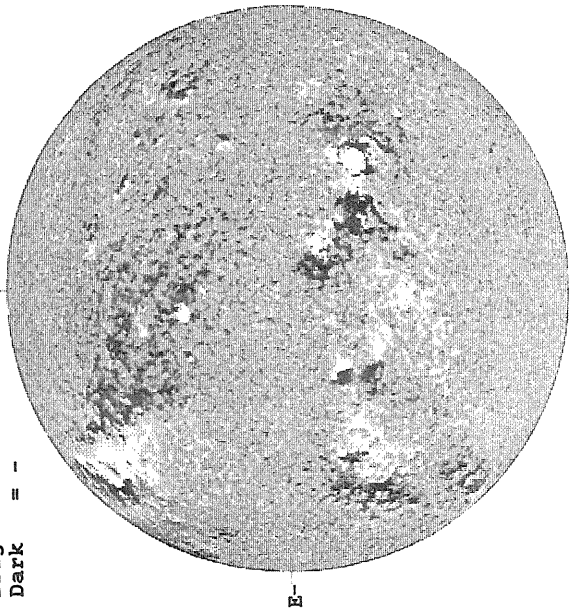
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 6, 1989 (P=-26.30, B₀ = -6.23, L₀ = 296.08)

KITT PEAK MAGNETOGRAM

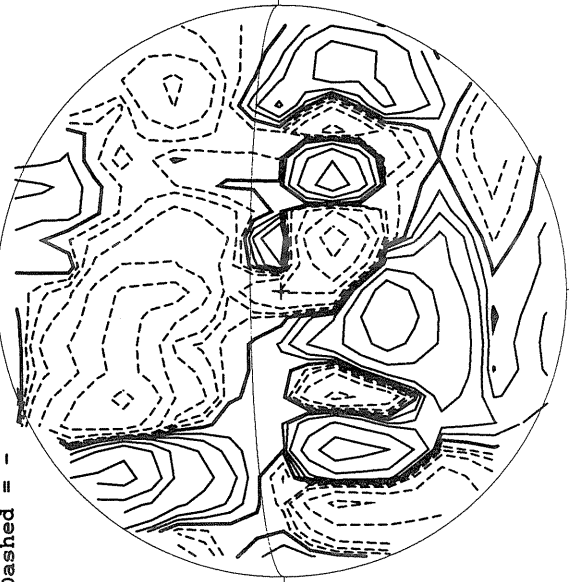
Bright = +
Dark = -



1615 UT

STANFORD MAGNETOGRAM

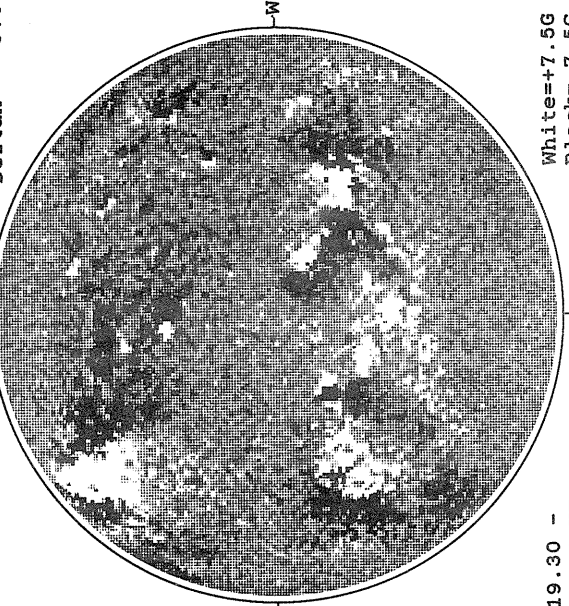
Solid = +
Dashed = -



1627 UT

MT. WILSON MAGNETOGRAM

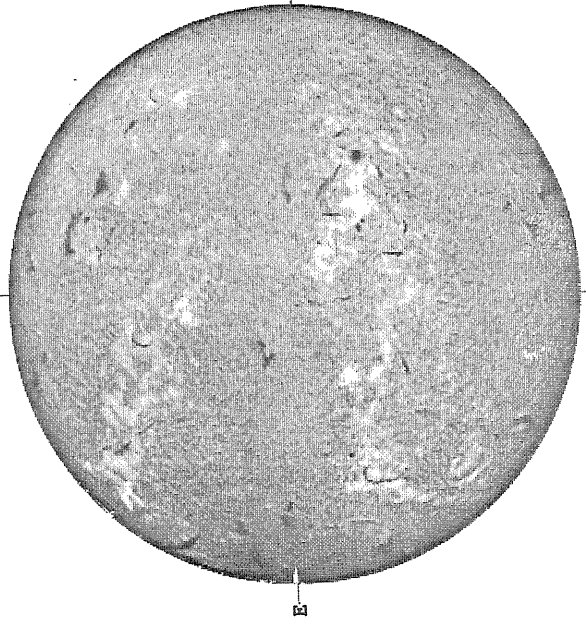
DeltaY = 12.9
DeltaX = 9.6



19.30 -
20.25 UT

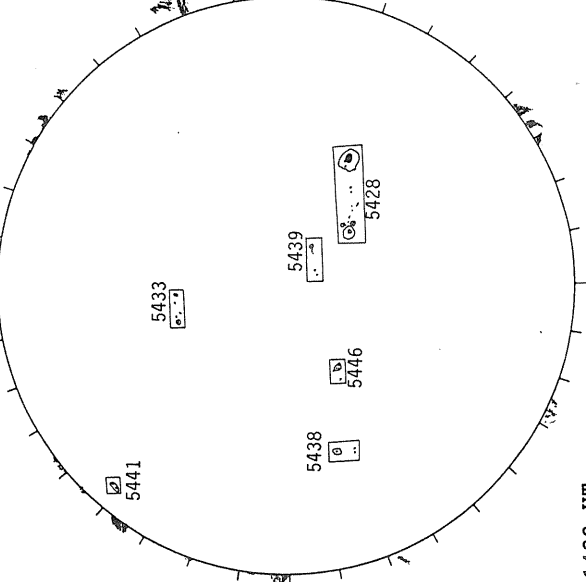
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



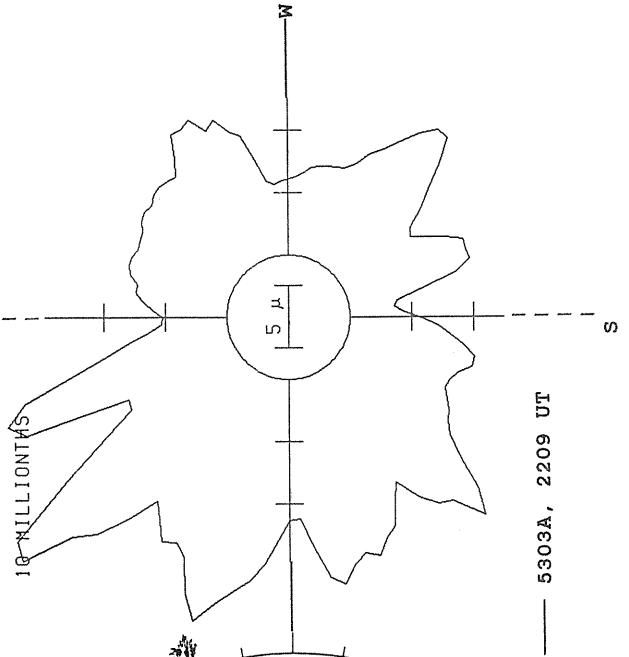
1531 UT

BOULDER SUNSPOT



1422 UT
1715 UT BOUL FROM

SACRAMENTO PEAK CORONA (1.15 Radii)

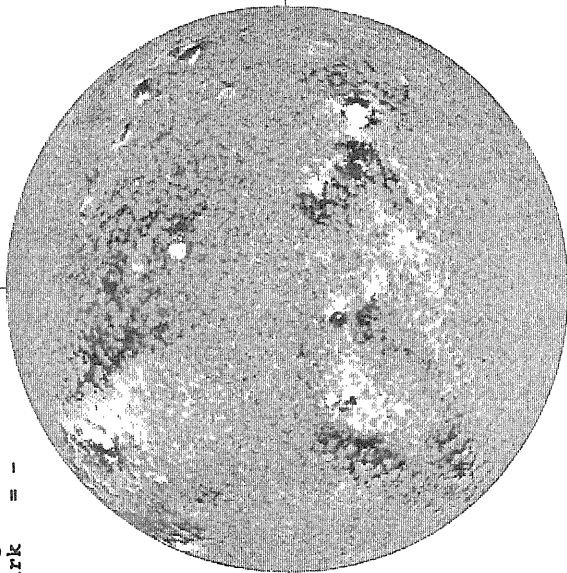


5303A, 2209 UT

APRIL 7, 1989 (P=-26.30, B₀ = -6.16, L₀ = 282.88)

KITT PEAK MAGNETOGRAM

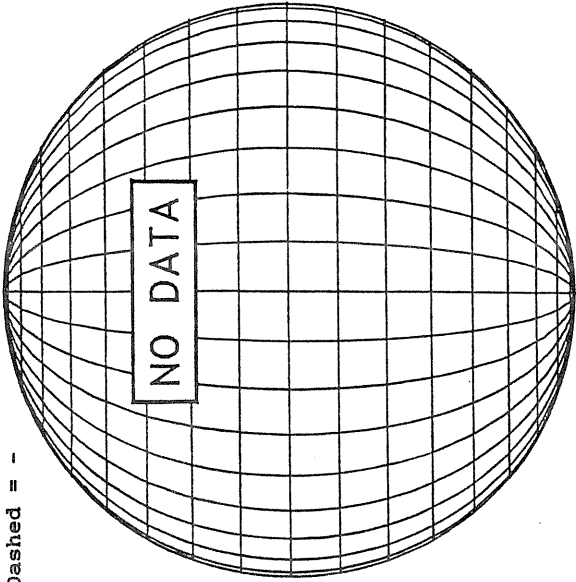
Bright = +
Dark = -



1606 UT

STANFORD MAGNETOGRAM

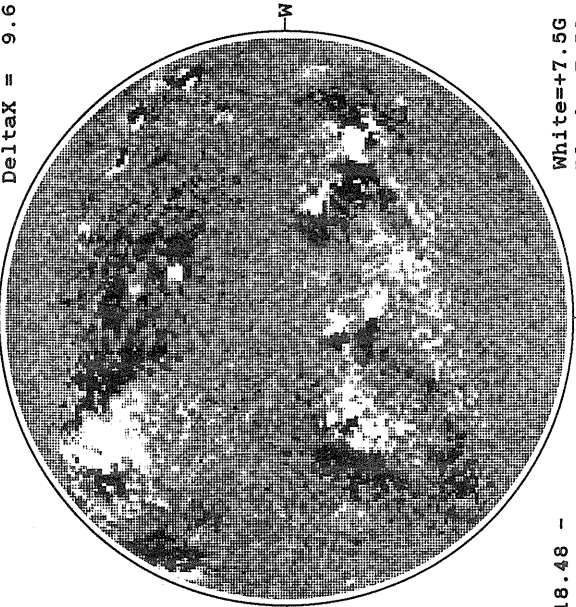
Solid = +
Dashed = -



18.48 -
19.43 UT

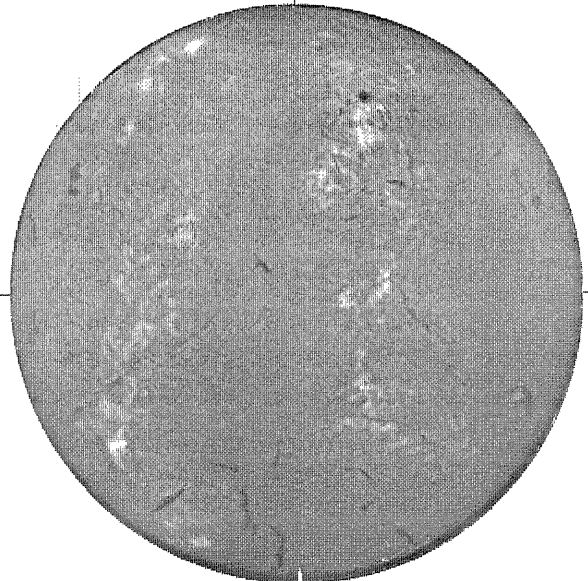
MT. WILSON MAGNETOGRAM

DeltaY = 13.0
DeltaX = 9.6



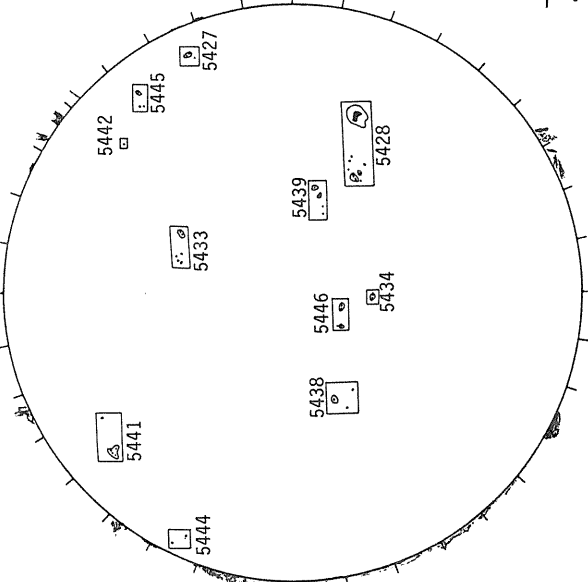
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



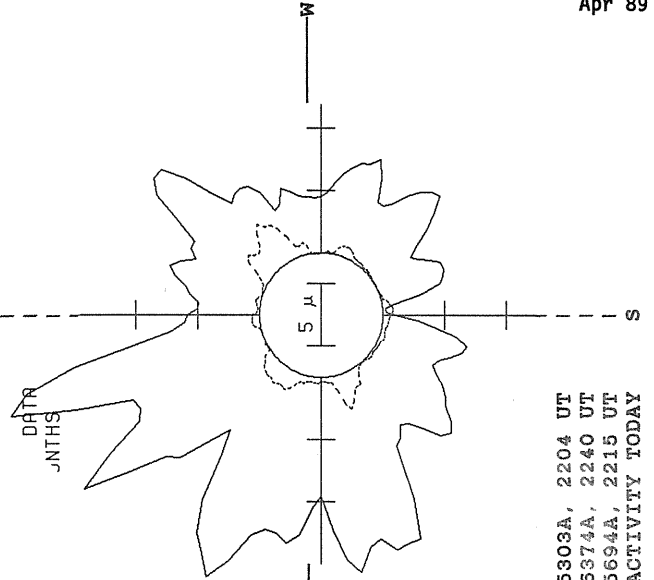
1949 UT

BOULDER SUNSPOT



1450 UT
1540 UT BOUL FROM

SACRAMENTO PEAK CORONA (1.15 Radii)

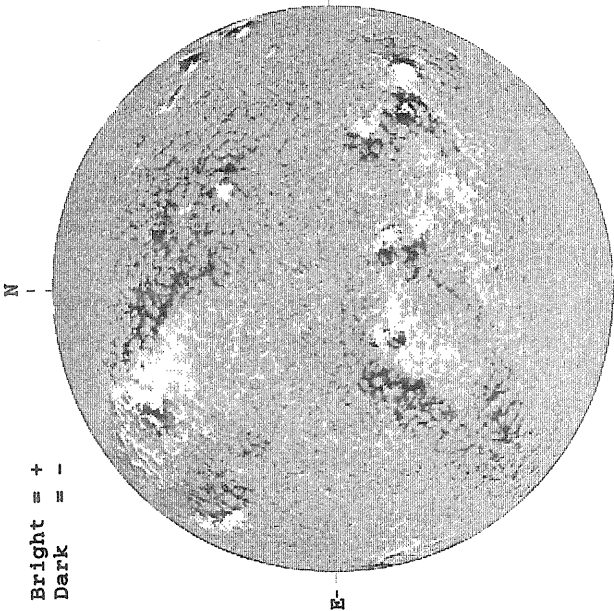


— 5303A, 2204 UT
... 6374A, 2240 UT
- - - 5694A, 2215 UT
NO 5694A ACTIVITY TODAY

APRIL 8, 1989 (P=-26.30, B₀ = -6.10, L₀ = 269.69)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1531 UT

STANFORD MAGNETOGRAM

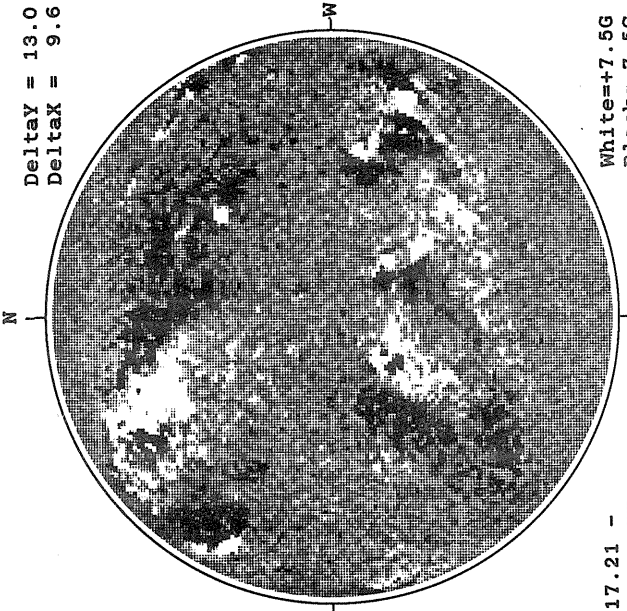
Solid = +
Dashed = -



1731 UT

MT. WILSON MAGNETOGRAM

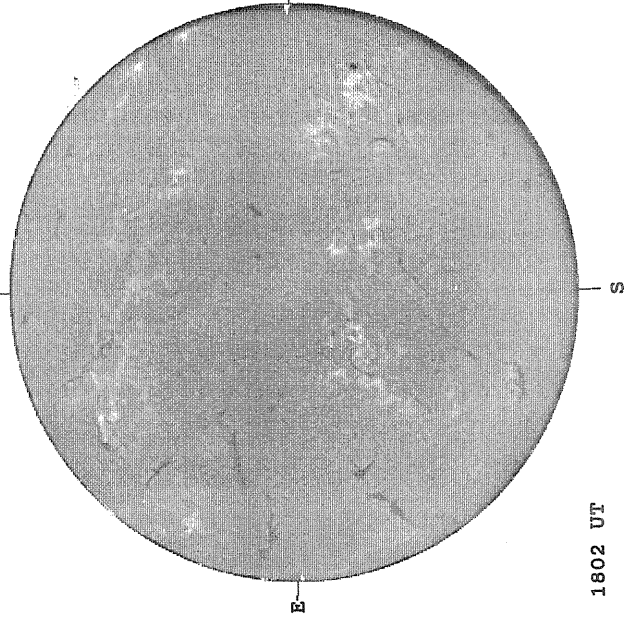
Delta Y = 13.0
Delta X = 9.6



17.21 -
18.16 UT

White = +7.5G
Black = -7.5G

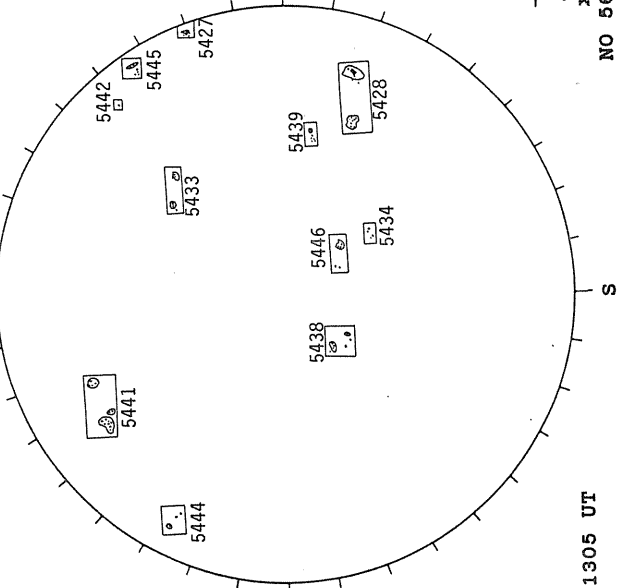
HOLLOMAN H-ALPHA



1802 UT

RAMEY SUNSPOT

SACRAMENTO PEAK CORONA (1.15 Radii)



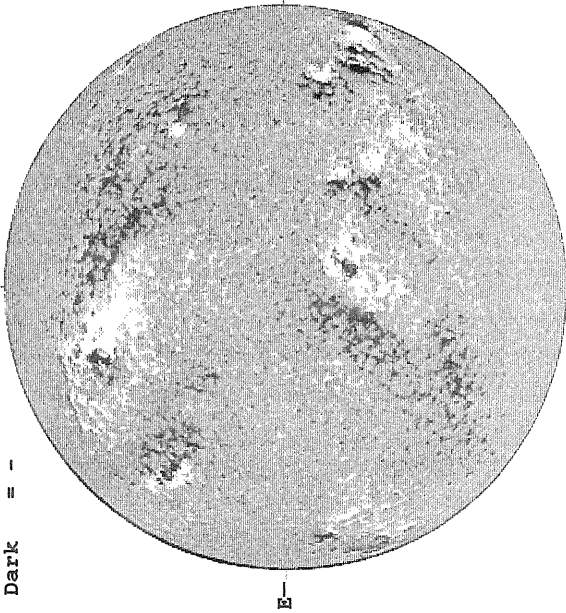
1305 UT

— 5303A, 1500 UT
.... 6374A, 1544 UT
- - - 5694A, 1519 UT
NO 5694A ACTIVITY TODAY

APRIL 9, 1989 (P=-26.28, B₀ = -6.03, L₀ = 256.49)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1507 UT

STANFORD MAGNETOGRAM

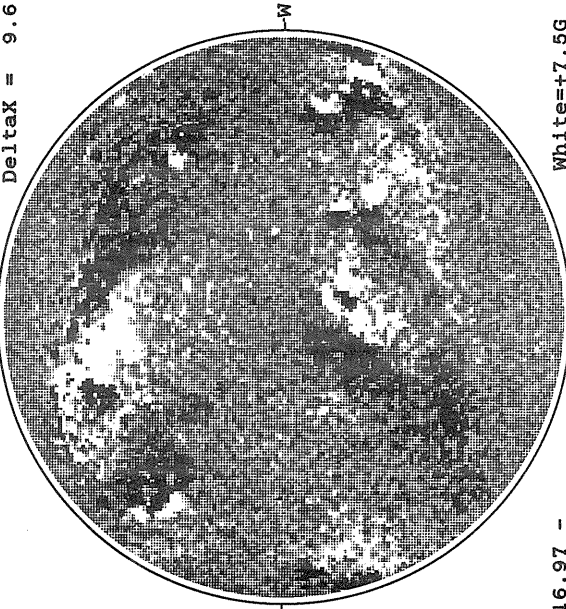
Solid = +
Dashed = -



0047 UT
April 10

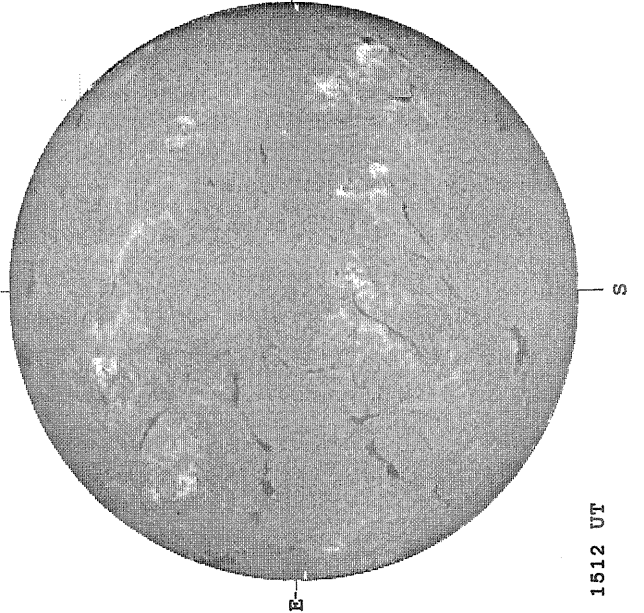
MT. WILSON MAGNETOGRAM

Delta_y = 12.9
Delta_x = 9.6



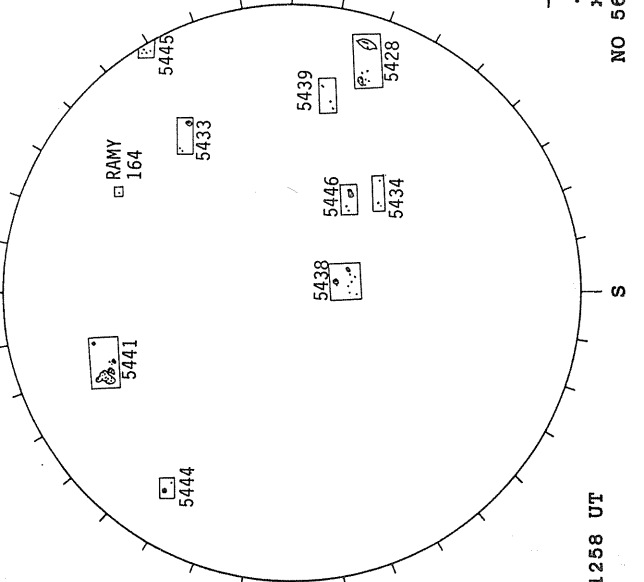
White = +7.5G
Black = -7.5G
16.97 -
17.93 UT

HOLLOMAN H-ALPHA



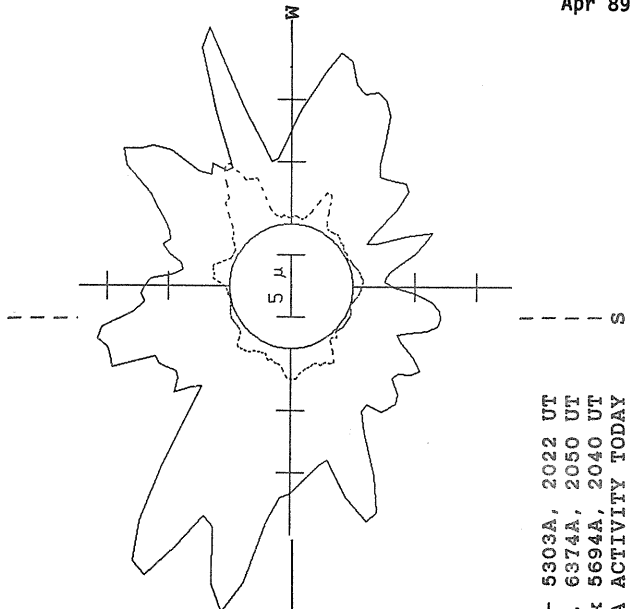
1512 UT

RAMEY SUNSPOT



1258 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

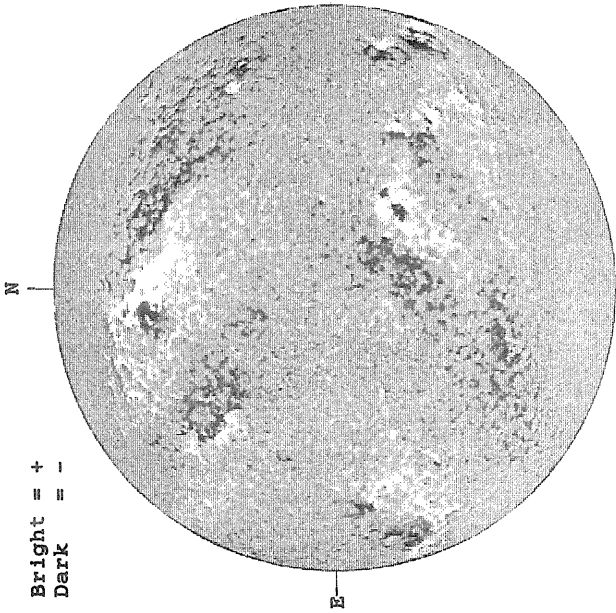


— 5303A, 2022 UT
... 6374A, 2050 UT
xxxx 5694A, 2040 UT
NO 5694A ACTIVITY TODAY

APRIL 10, 1989 (P=-26.26, B₀ = -5.96, L₀ = 243.29)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1605 UT

STANFORD MAGNETOGRAM

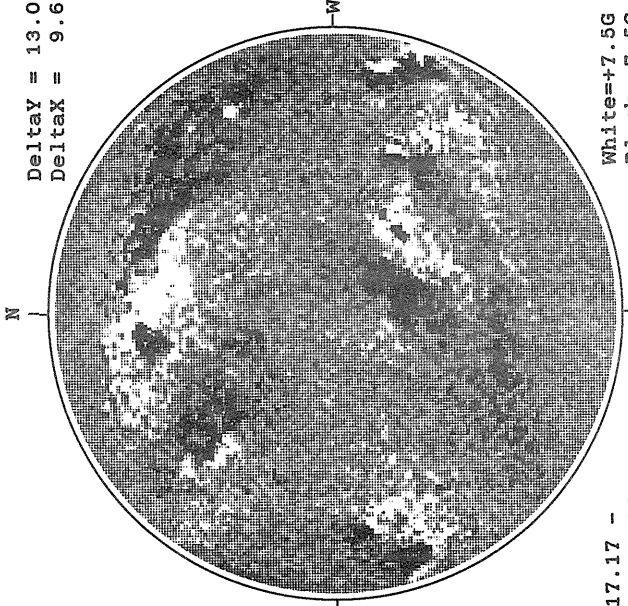
Solid = +
Dashed = -



2003 UT

MT. WILSON MAGNETOGRAM

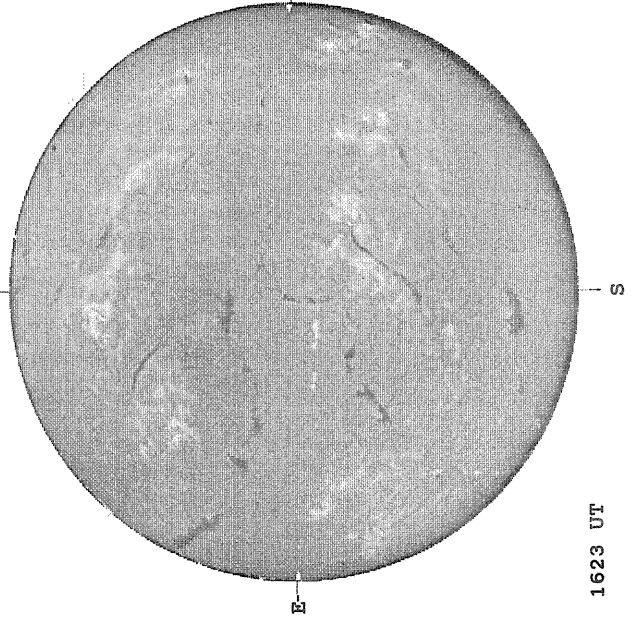
Delta γ = 13.0
Delta α = 9.6



17.17 -
18.13 UT

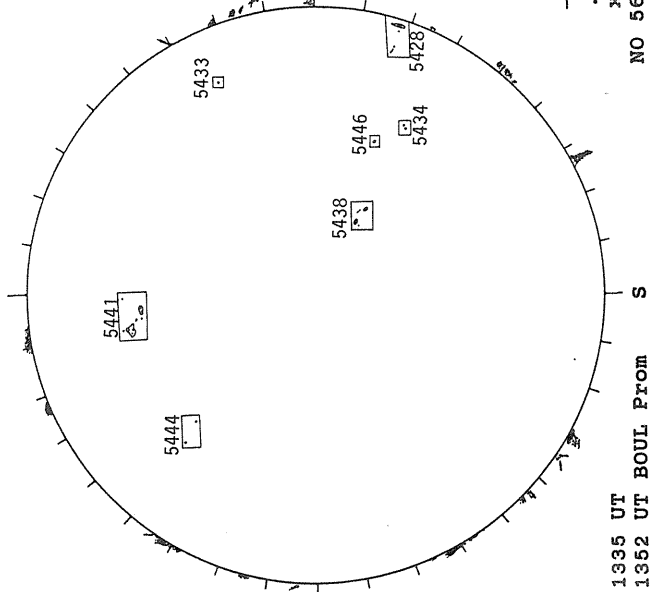
White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA



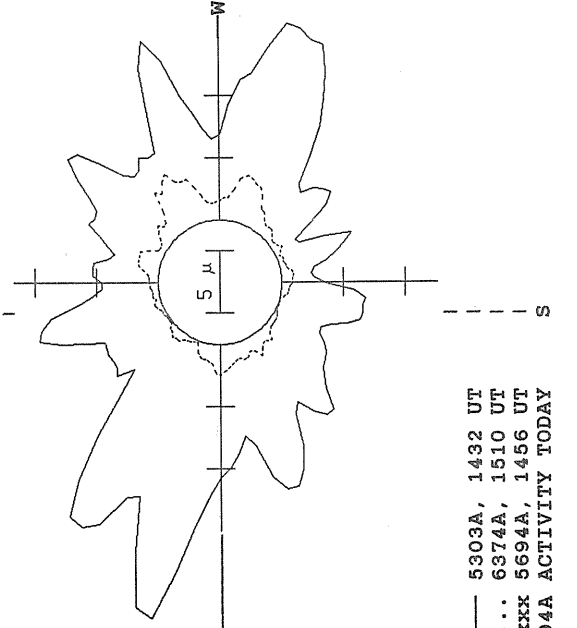
1623 UT

BOULDER SUNSPOT



1335 UT BOUL Prom
1352 UT BOUL From

SACRAMENTO PEAK CORONA (1.15 Radii)

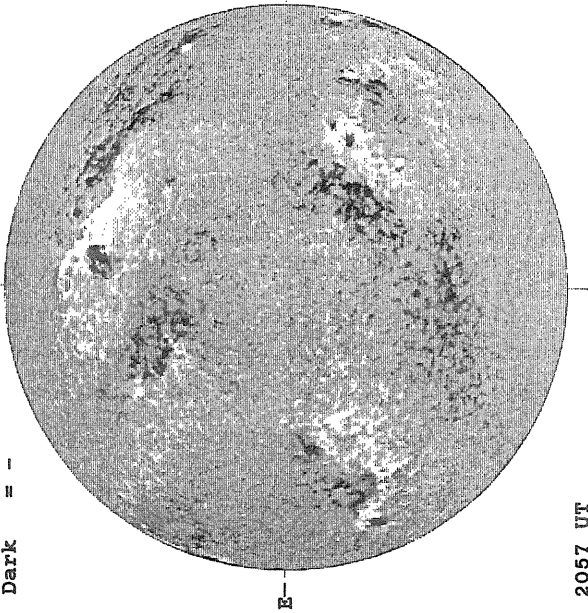


— 5303A, 1432 UT
.... 6374A, 1510 UT
XXXX 5694A, 1456 UT
NO 5694A ACTIVITY TODAY

APRIL 11, 1989 (P=-26.24, B₀ =-5.89, I₀ = 230.09)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



2057 UT

STANFORD MAGNETOGRAM

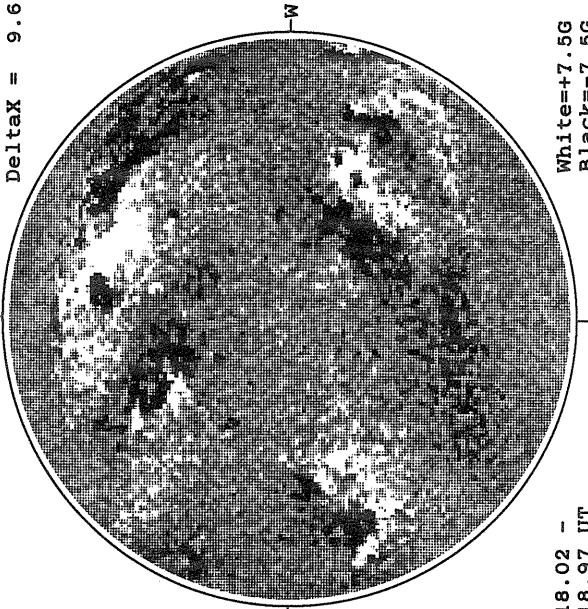
Solid = +
Dashed = -



2122 UT

MT. WILSON MAGNETOGRAM

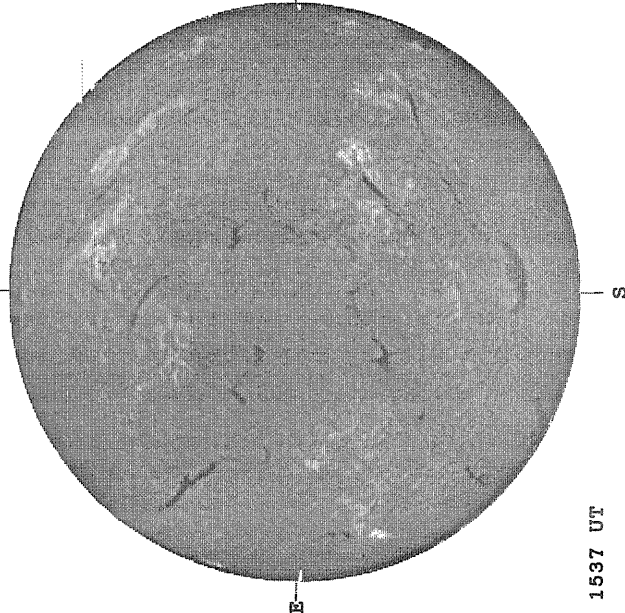
DeltaY = 13.0
DeltaX = 9.6



18.02 -
18.97 UT

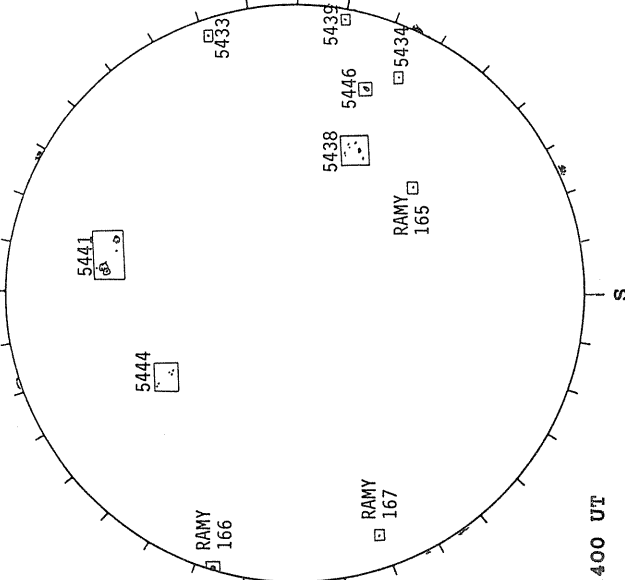
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



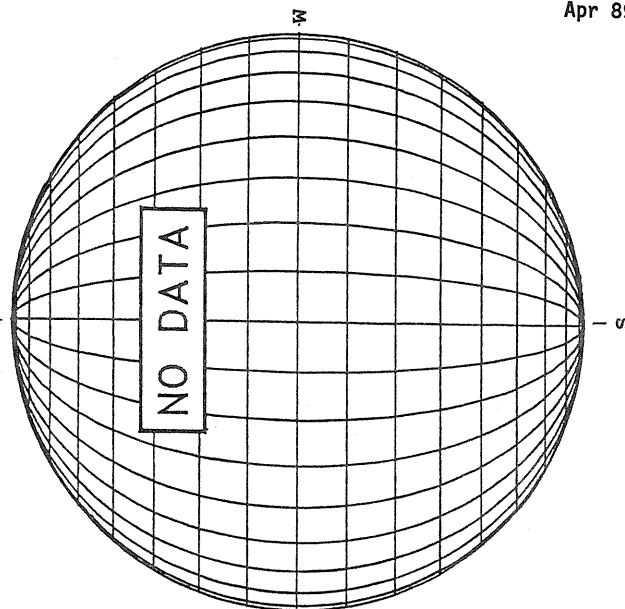
1537 UT

RAMEY SUNSPOT



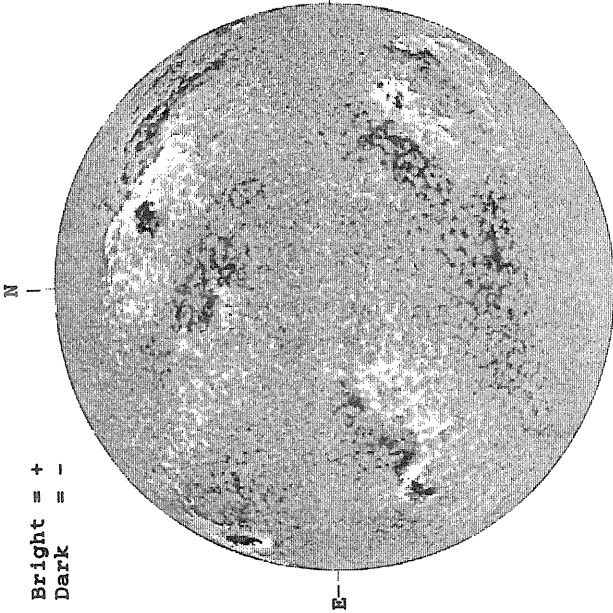
1400 UT

SACRAMENTO PEAK CORONA (1.15 Rad11)

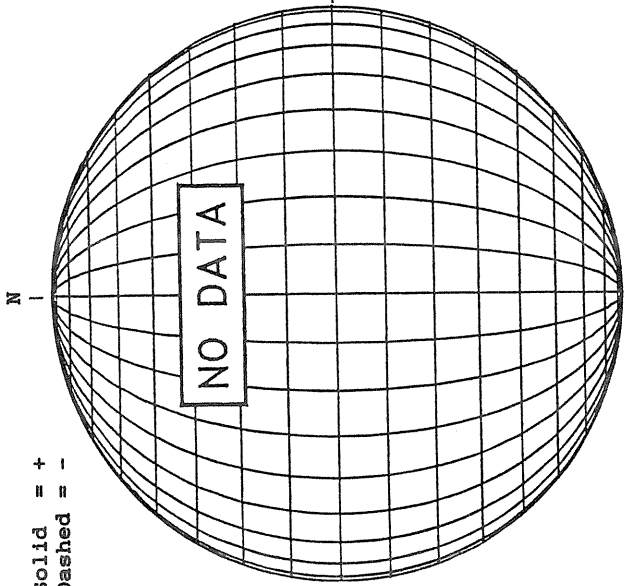


APRIL 12, 1989 (P=-26.20, B₀ =-5.82, L₀ = 216.89)

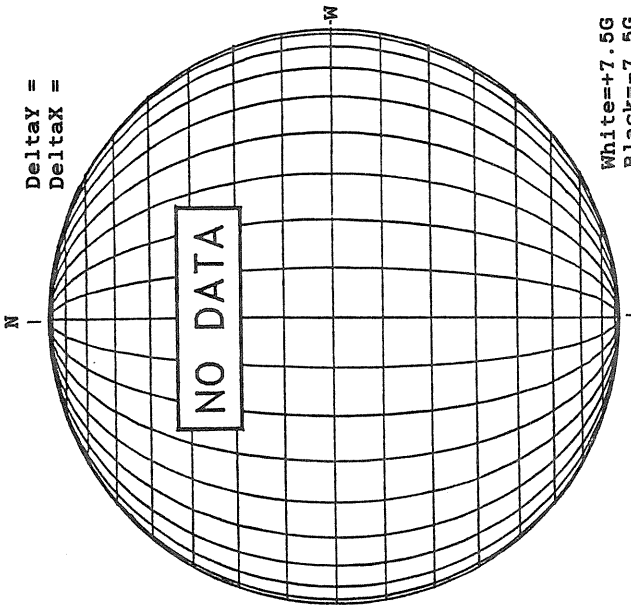
KITT PEAK MAGNETOGRAM



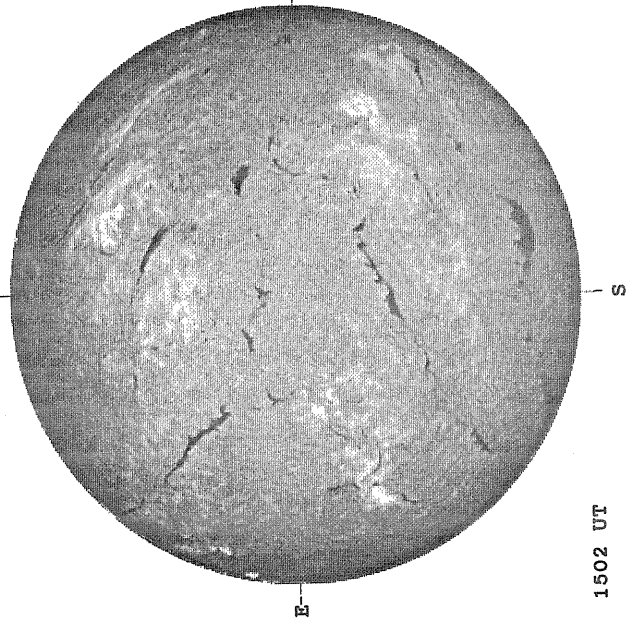
STANFORD MAGNETOGRAM



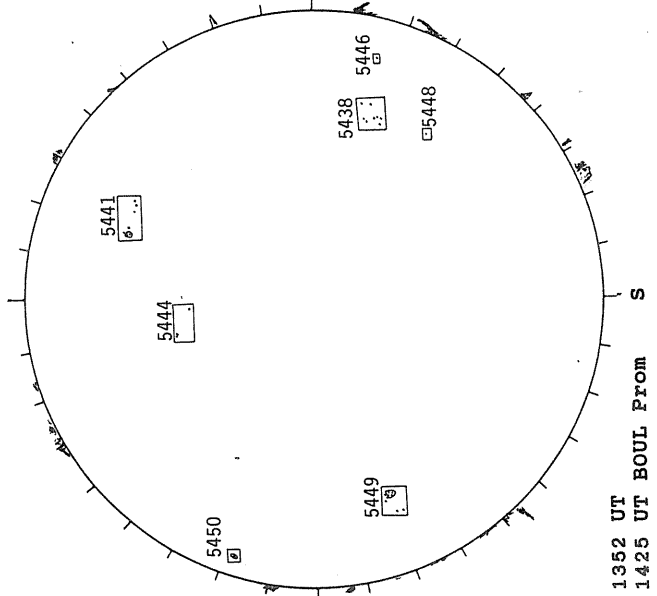
MT. WILSON MAGNETOGRAM



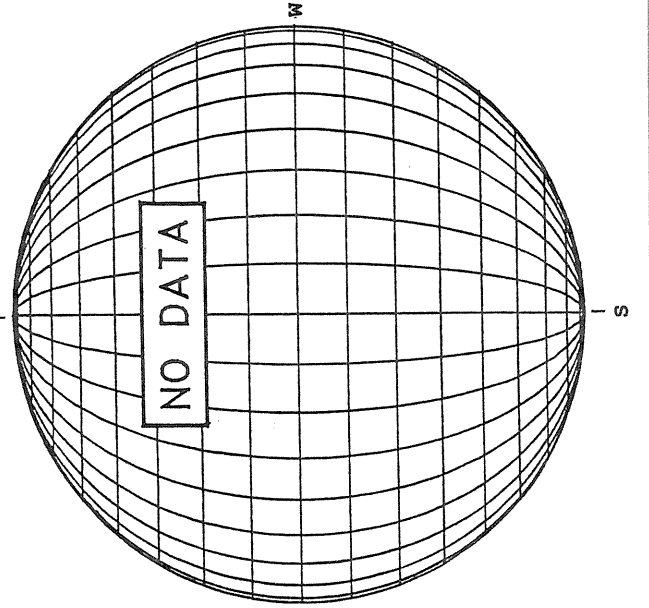
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



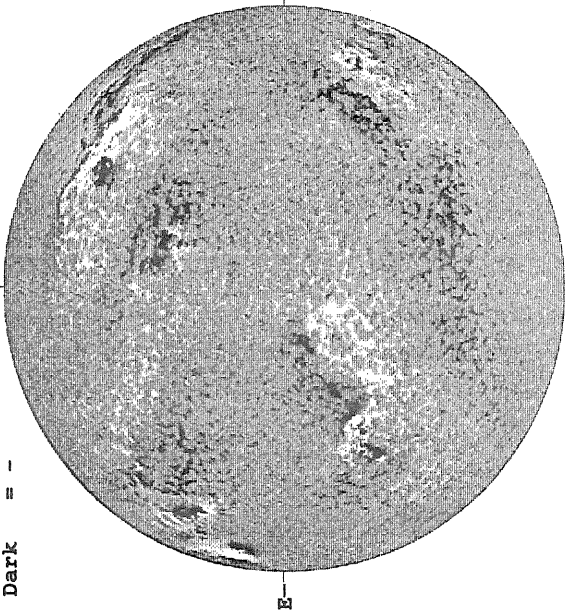
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 13, 1989 (P=-26.16, B₀ = -5.74, L₀ = 203.69)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1400 UT

STANFORD MAGNETOGRAM

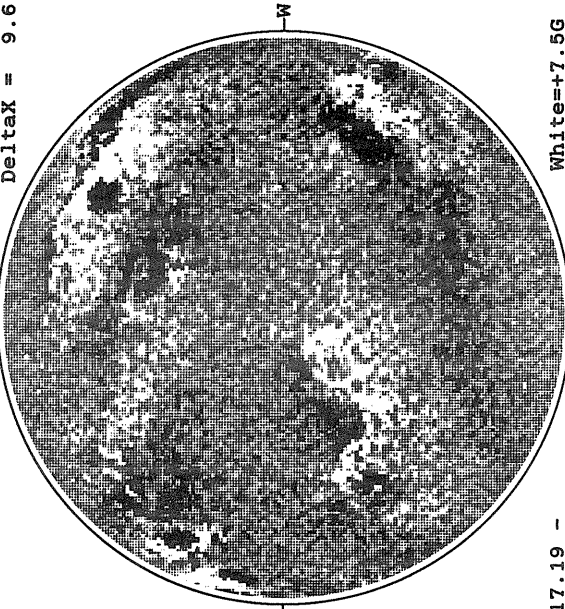
Solid = +
Dashed = -



2336 UT

MT. WILSON MAGNETOGRAM

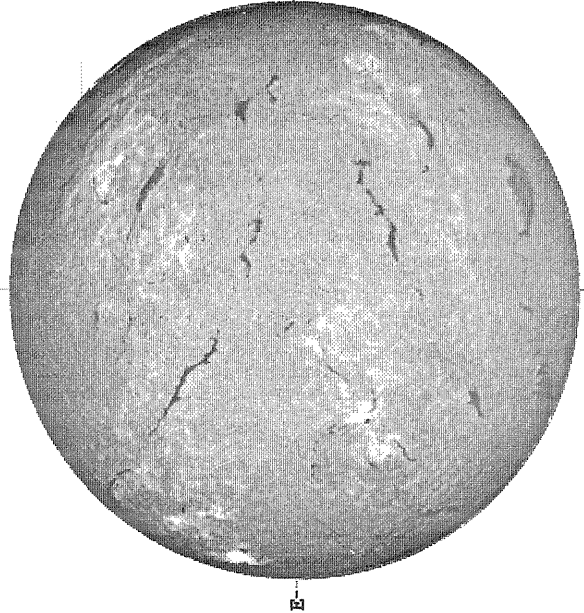
DeltaY = 13.0
DeltaX = 9.6



17.19 -
18.14 UT

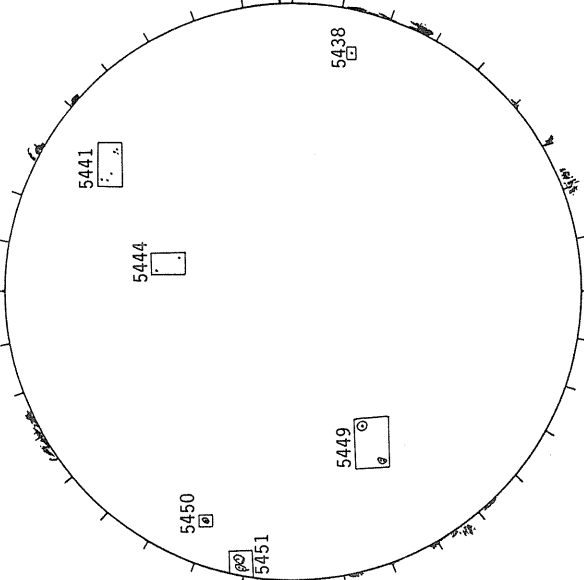
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



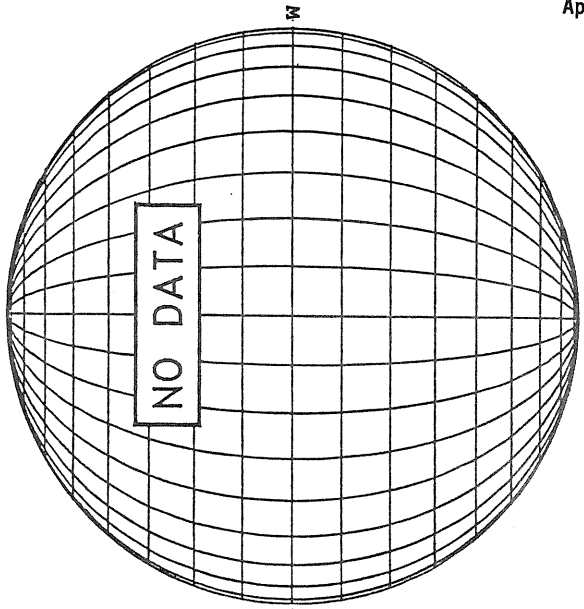
1618 UT

BOULDER SUNSPOT



1345 UT
1400 UT BOUL Prom

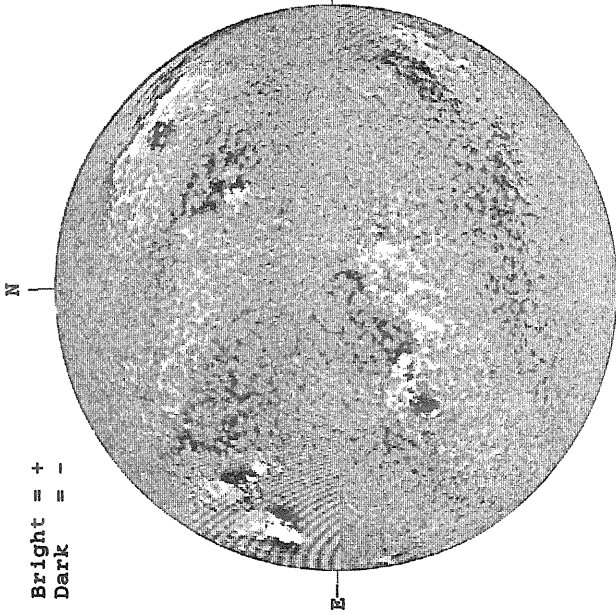
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 14, 1989 (P=-26.11, B₀ =-5.67, L₀ = 190.48)

KITT PEAK MAGNETOGRAM

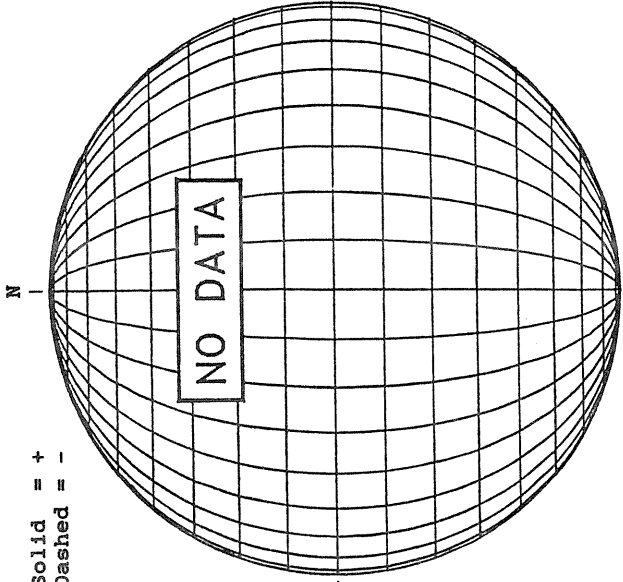
Bright = +
Dark = -



1436 UT

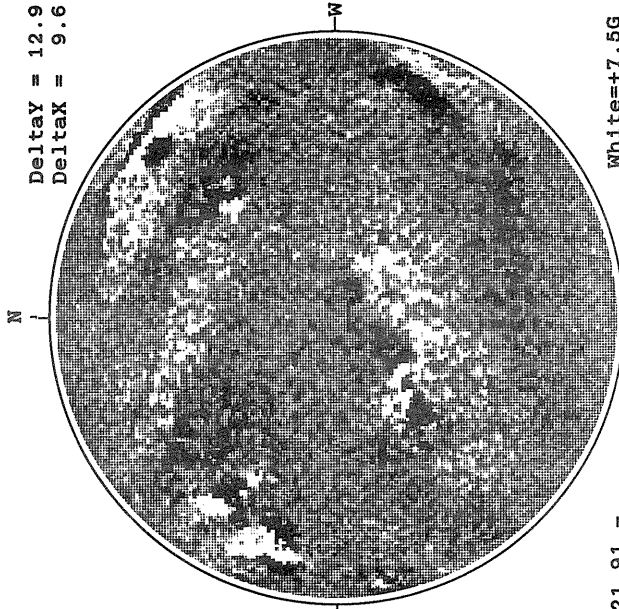
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

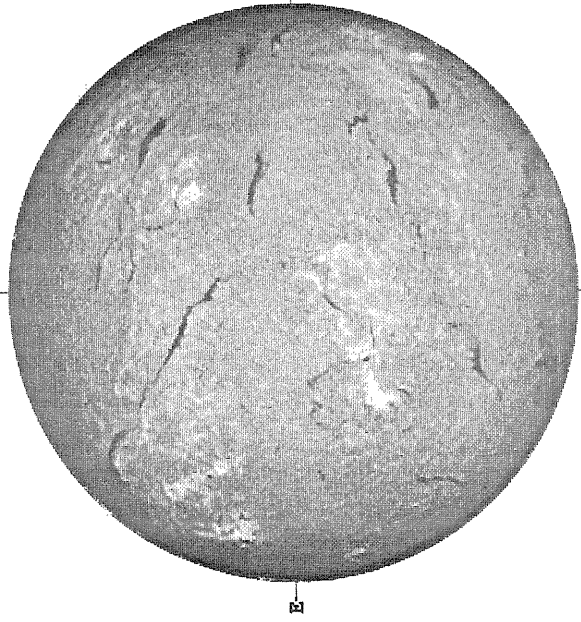
DeltaY = 12.9
DeltaX = 9.6



21.91 -
22.87 UT

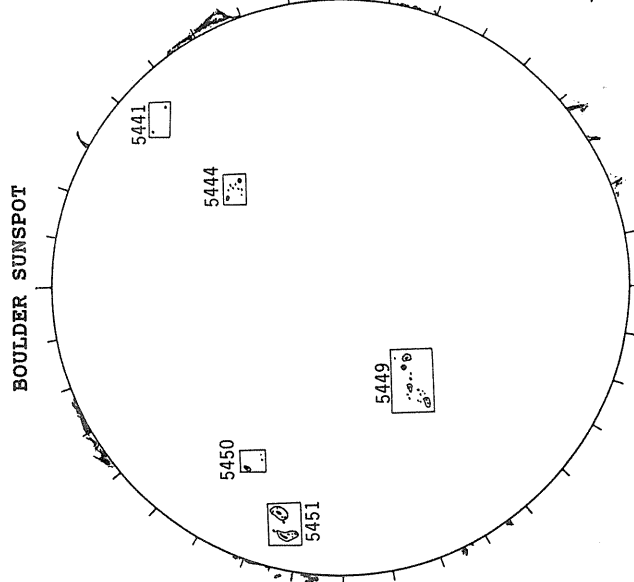
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



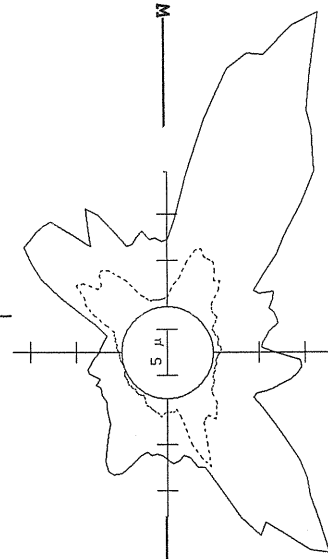
1540 UT

BOULDER SUNSPOT



1448 UT
1555 UT BOUL PROM

SACRAMENTO PEAK CORONA (1.15 Radii)

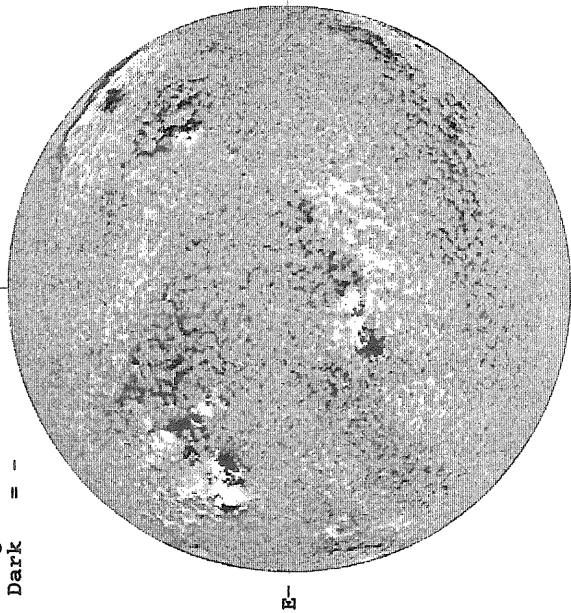


— 5303A, 1427 UT
... 6374A, 1502 UT
XXXX 5694A, 1447 UT
NO 5694A ACTIVITY TODAY

APRIL 15, 1989 (P=-26.06, B₀ = -5.59, L₀ = 177.28)

KITT PEAK MAGNETOGRAM

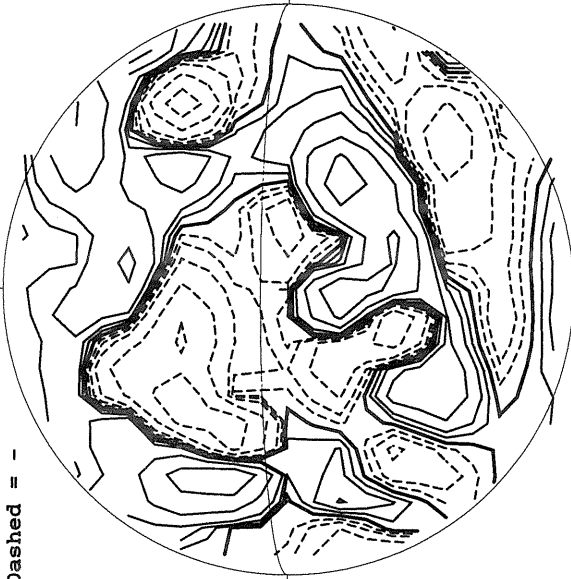
Bright = +
Dark = -



1503 UT

STANFORD MAGNETOGRAM

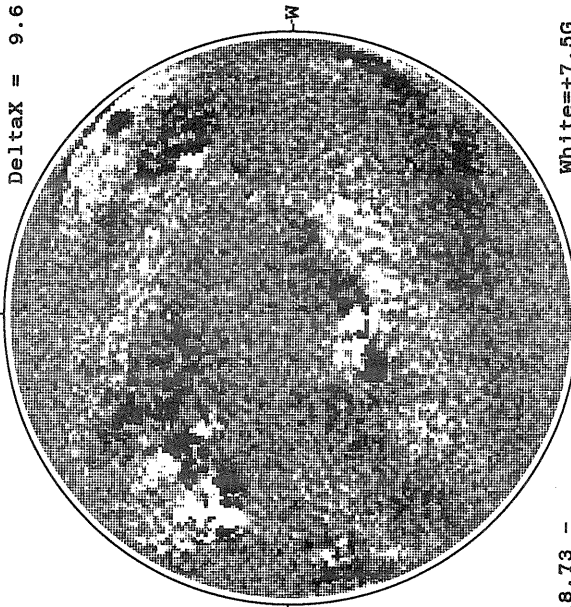
Solid = +
Dashed = -



2236 UT

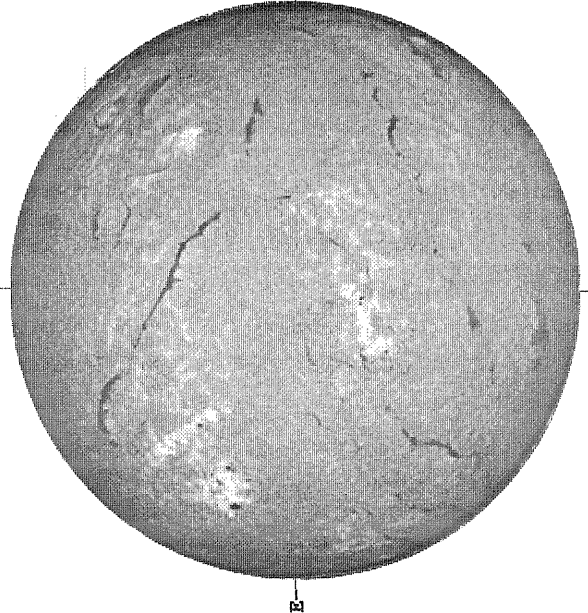
MT. WILSON MAGNETOGRAM

Delta α = 13.0
Delta λ = 9.6



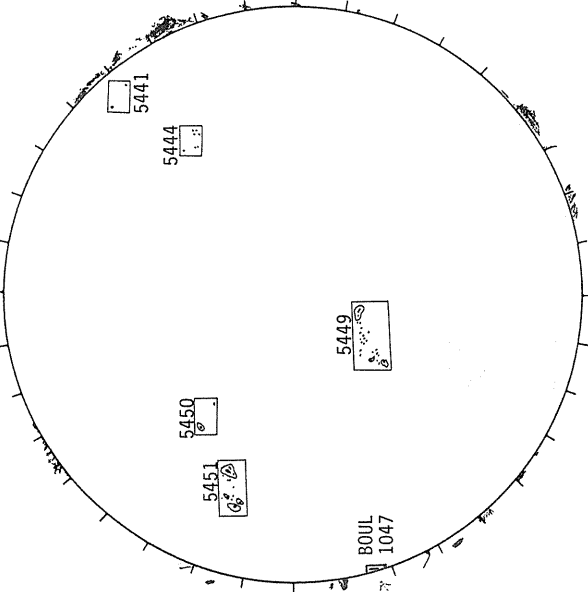
18.73 -
19.68 UT

SACRAMENTO PEAK H-ALPHA



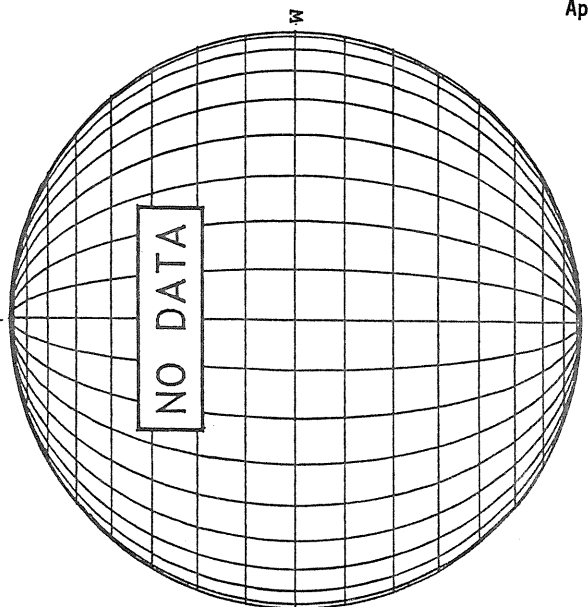
1515 UT

BOULDER SUNSPOT



1325 UT
1335 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

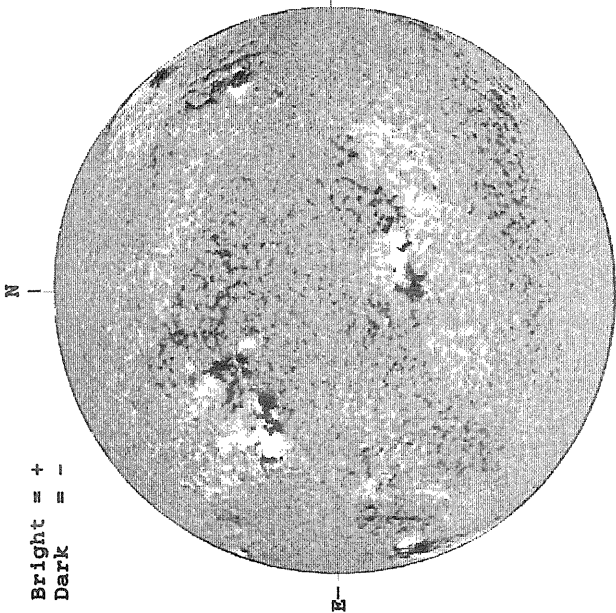


70
Apr 89

APRIL 16, 1989 (P=-25.99, B₀ =-5.51, L₀ = 164.08)

KITT PEAK MAGNETOGRAM

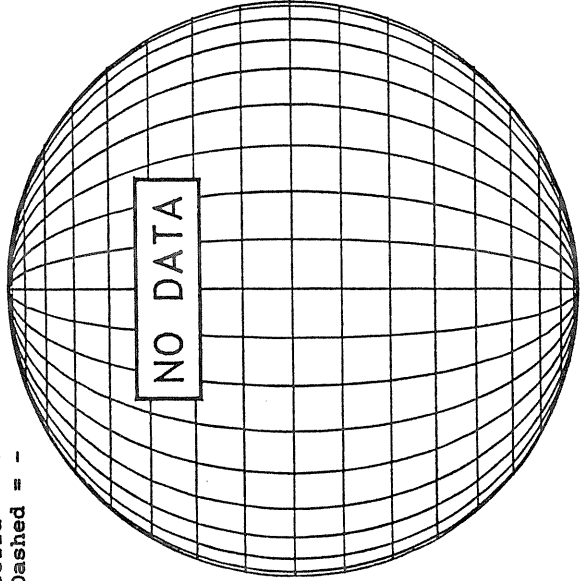
Bright = +
Dark = -



1554 UT

STANFORD MAGNETOGRAM

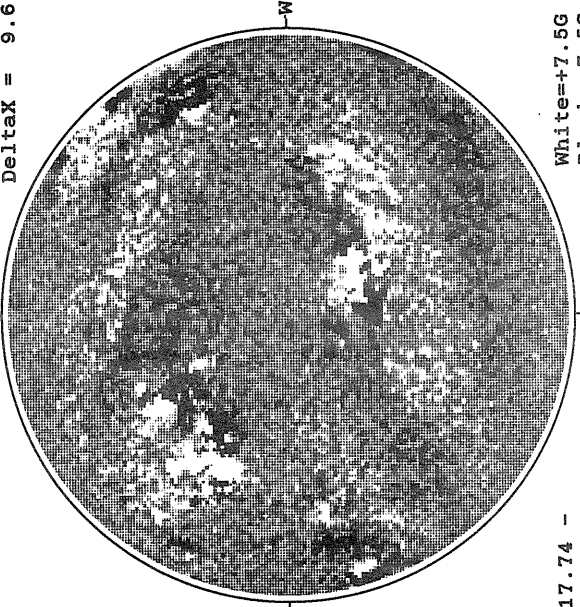
Solid = +
Dashed = -



17.74 -
18.68 UT

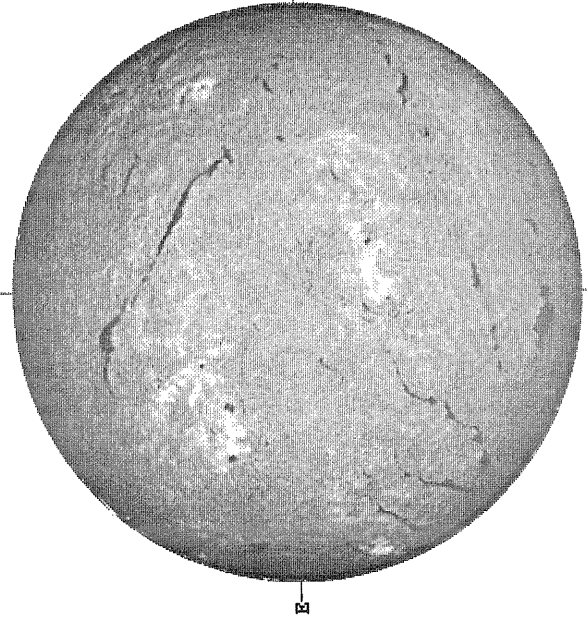
MT. WILSON MAGNETOGRAM

DeltaY = 13.0
DeltaX = 9.6



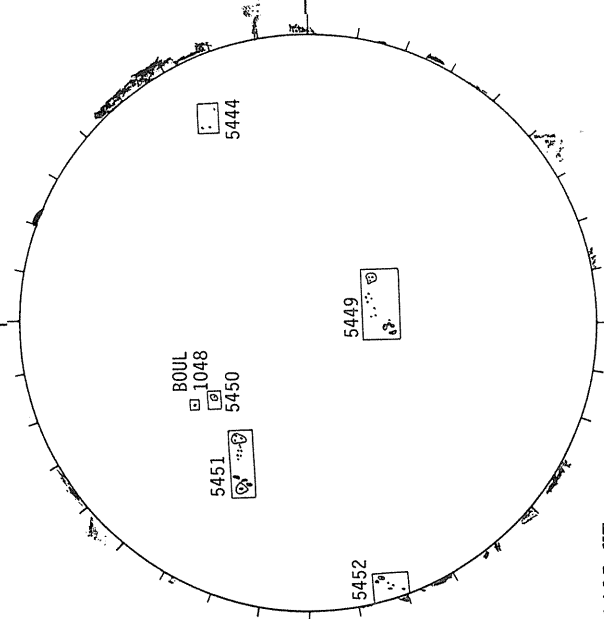
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



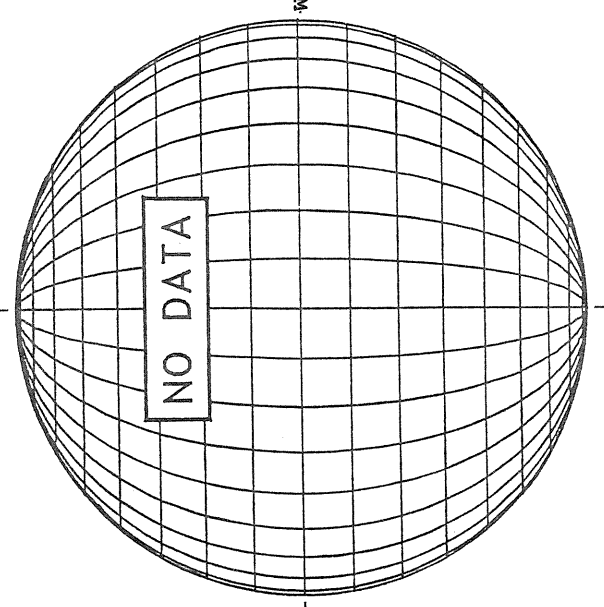
1503 UT

BOULDER SUNSPOT



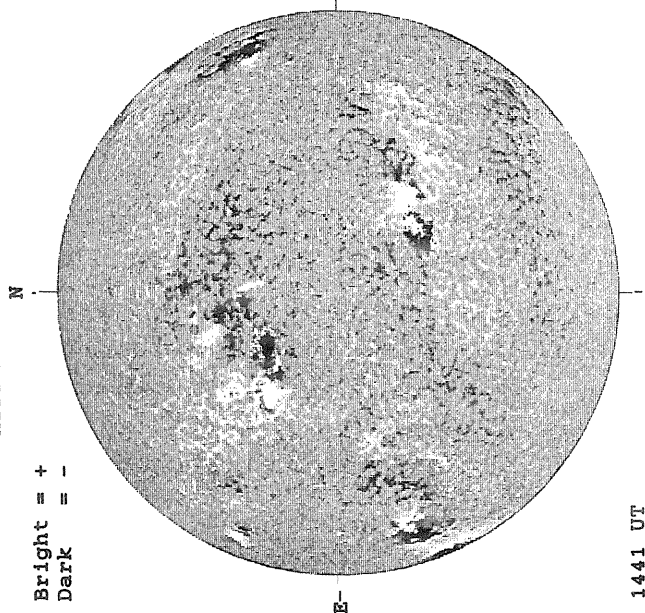
1405 UT
1400 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

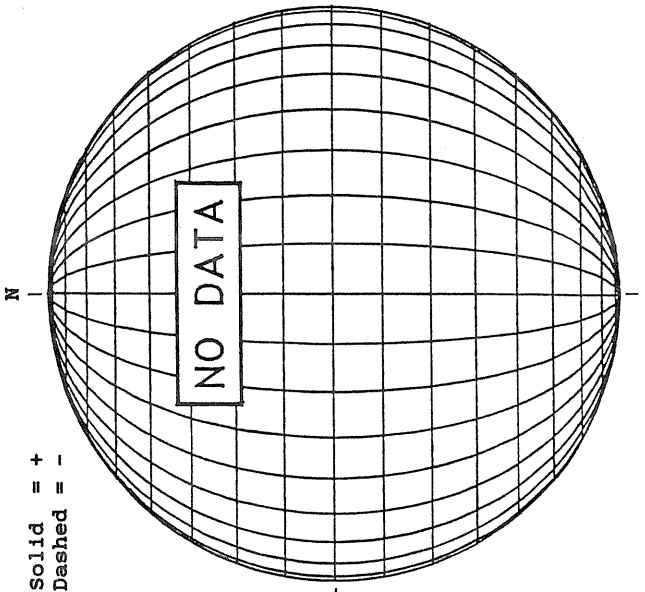


APRIL 17, 1989 (P=-25.92, B₀ = -5.43, L₀ = 150.87)

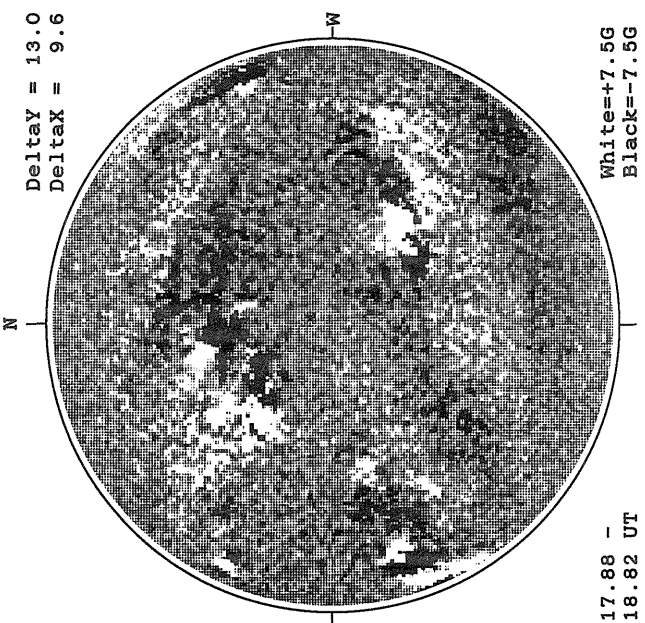
KITT PEAK MAGNETOGRAM



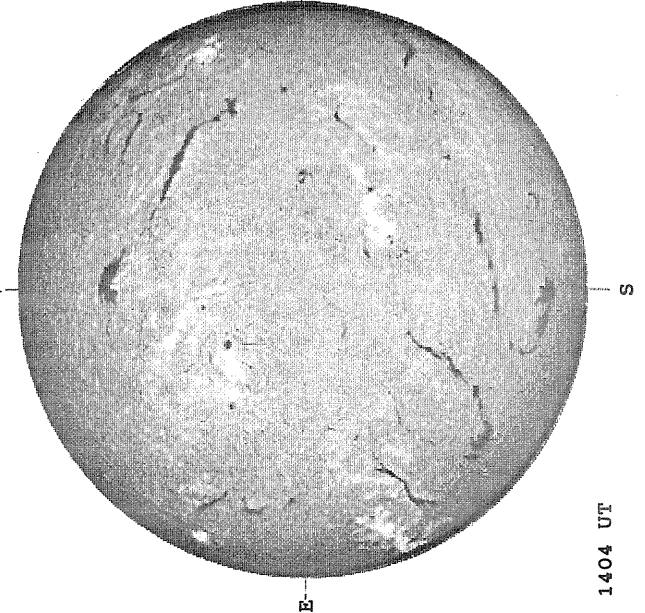
STANFORD MAGNETOGRAM



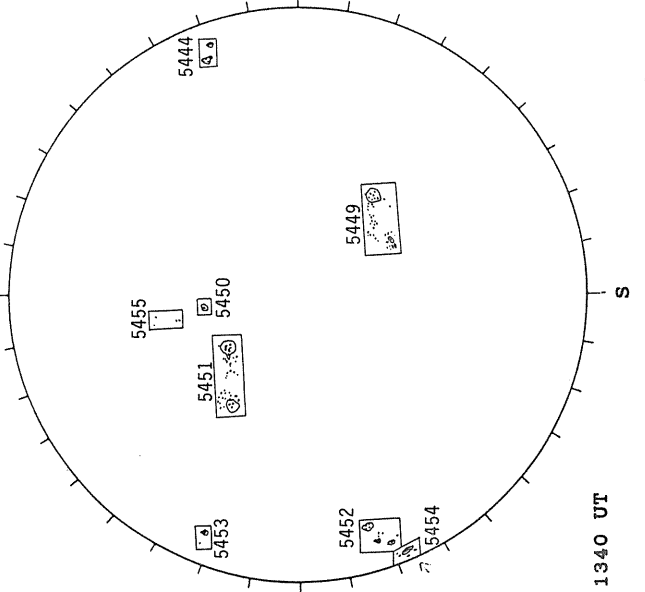
MT. WILSON MAGNETOGRAM



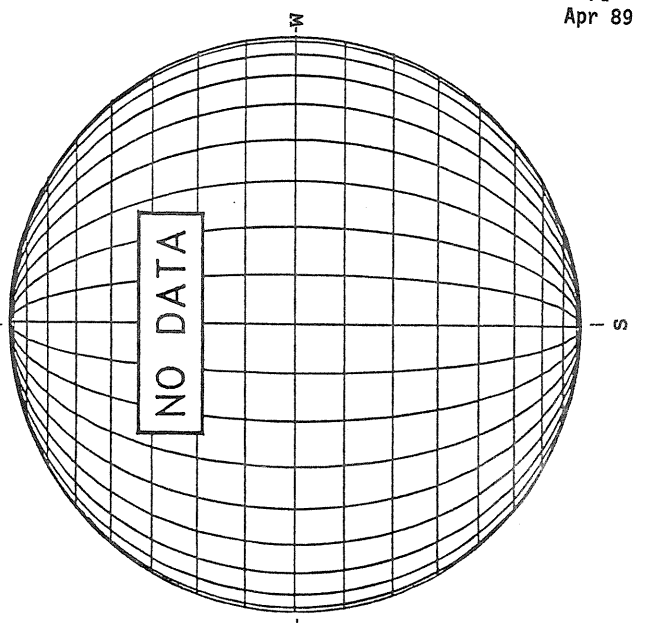
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOT



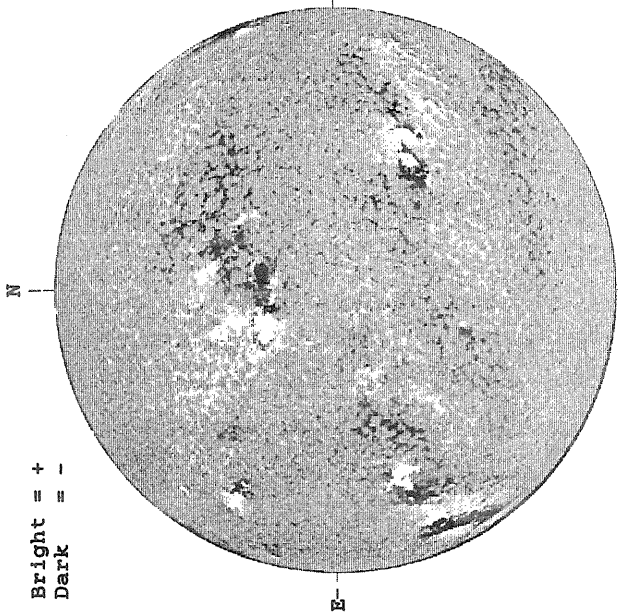
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 18, 1989 ($P = -25.84$, $B_0 = -5.35$, $L_0 = 137.66$)

KITT PEAK MAGNETOGRAM

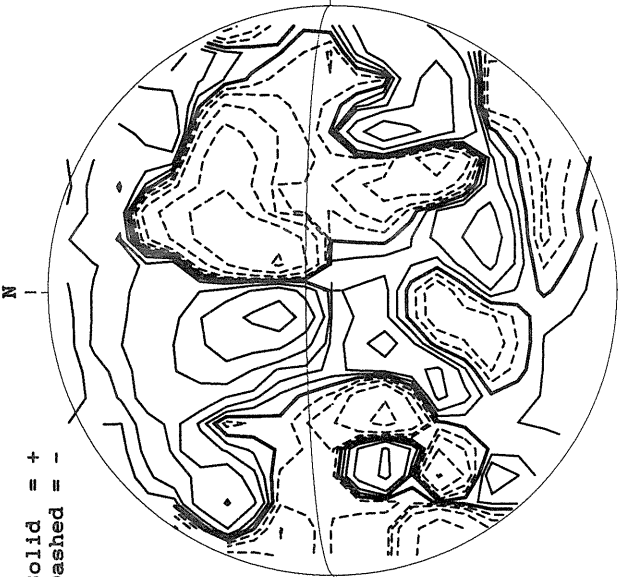
Bright = +
Dark = -



1349 UT

STANFORD MAGNETOGRAM

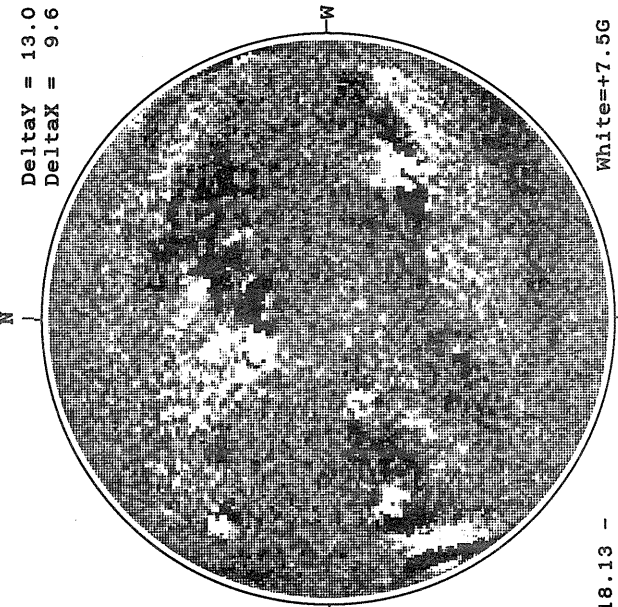
Solid = +
Dashed = -



2046 UT

MT. WILSON MAGNETOGRAM

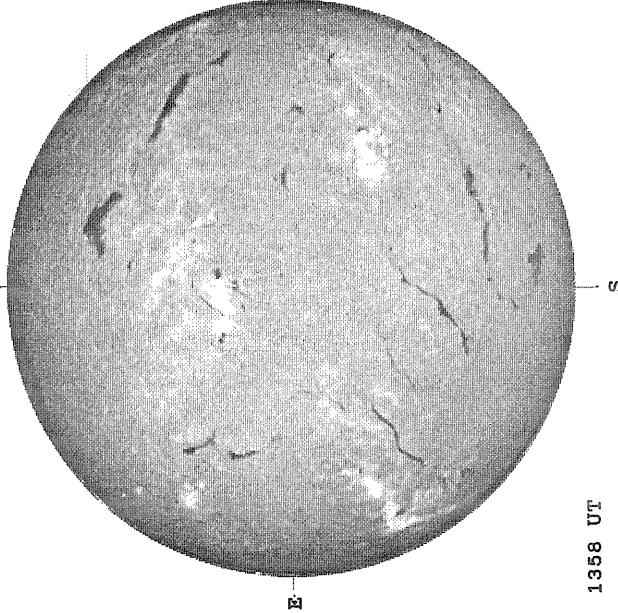
Delta γ = 13.0
Delta α = 9.6



18.13 -
19.08 UT

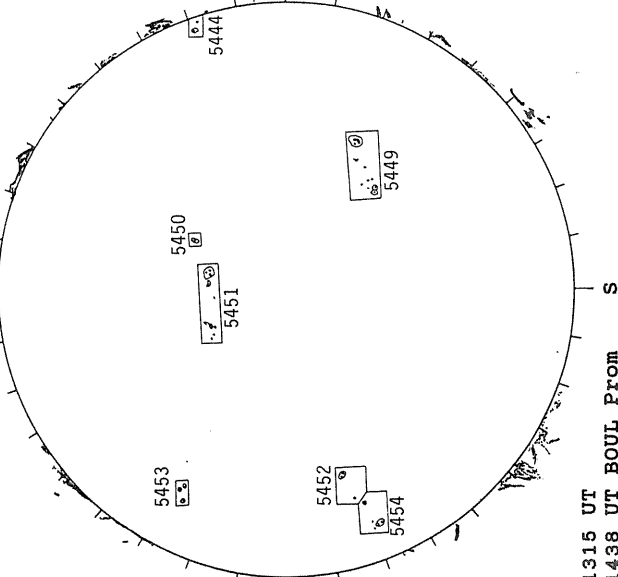
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



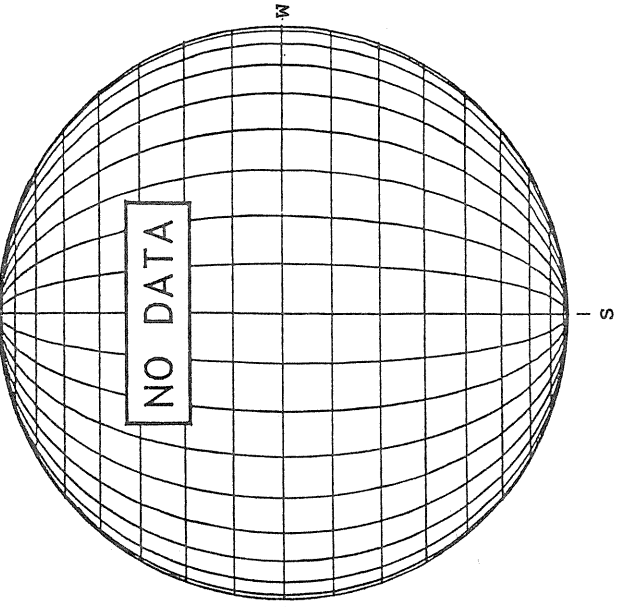
1358 UT

BOULDER SUNSPOT



1315 UT
1438 UT BOUL Prom

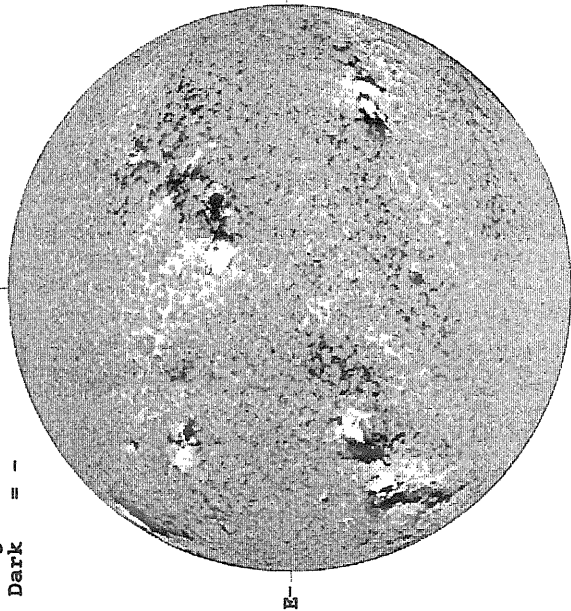
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 19, 1989 (P=-25.76, B₀ = -5.26, L₀ = 124.46)

KITT PEAK MAGNETOGRAM

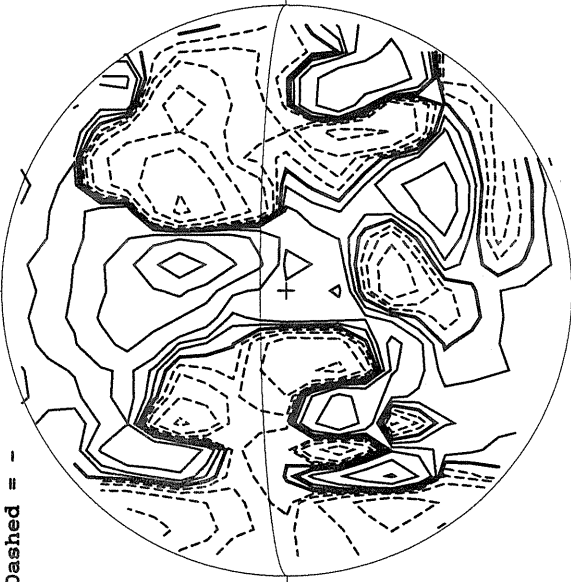
Bright = +
Dark = -



1545 UT

STANFORD MAGNETOGRAM

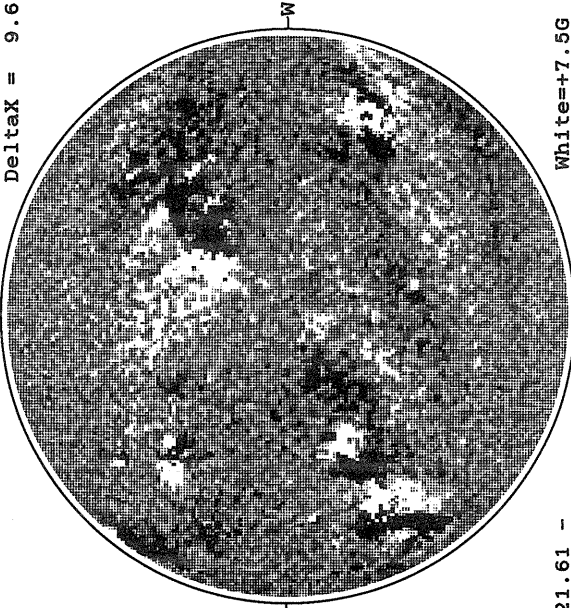
Solid = +
Dashed = -



2024 UT

MT. WILSON MAGNETOGRAM

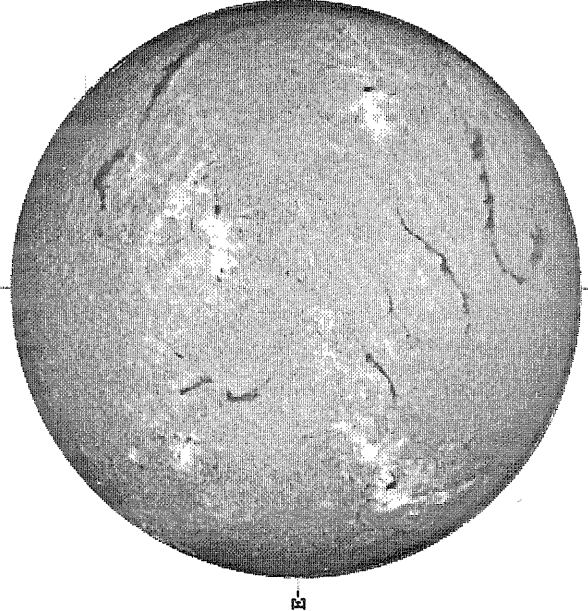
DeltaY = 13.0
DeltaX = 9.6



21.61 --
22.55 UT

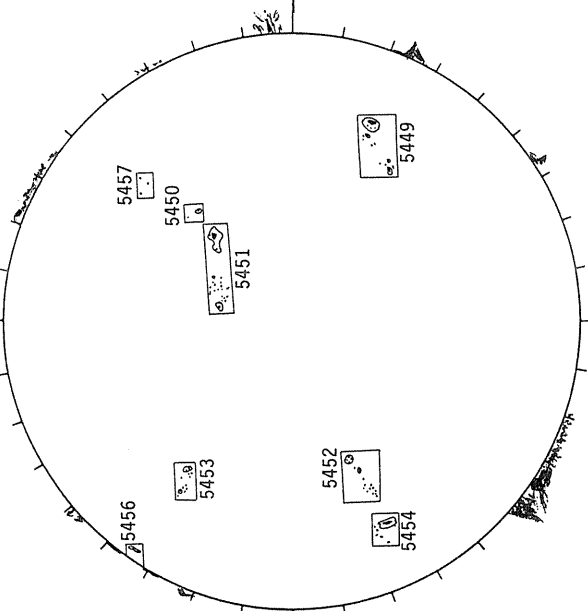
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



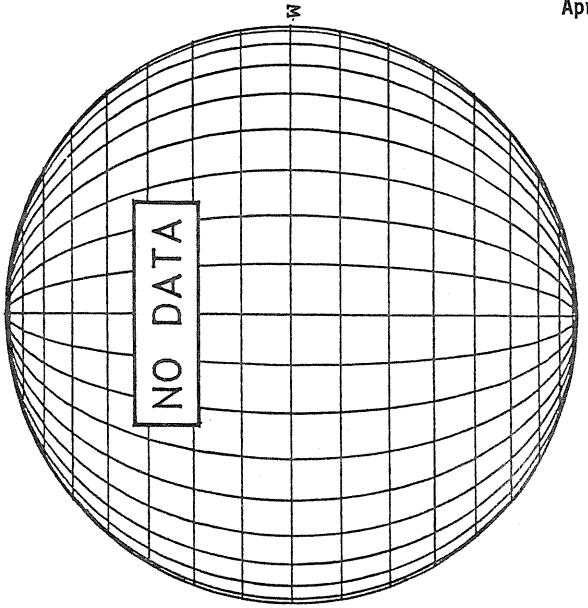
1342 UT

BOULDER SUNSPOT



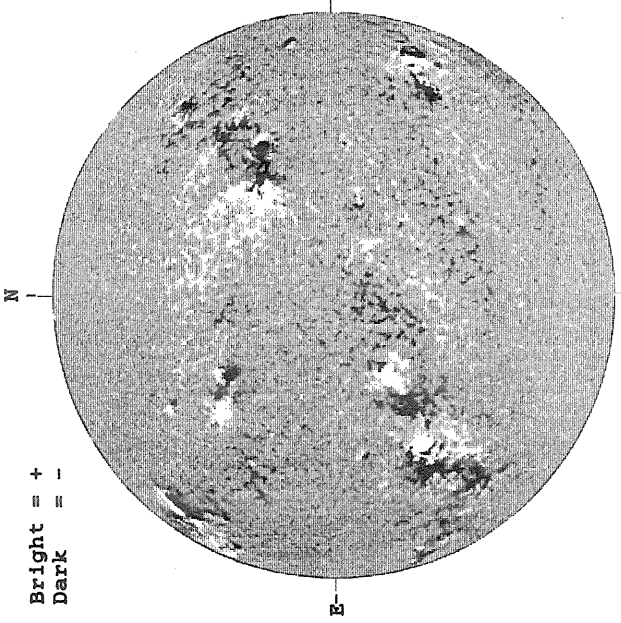
1415 UT
1435 UT BOUL FROM

SACRAMENTO PEAK CORONA (1.15 Radii)

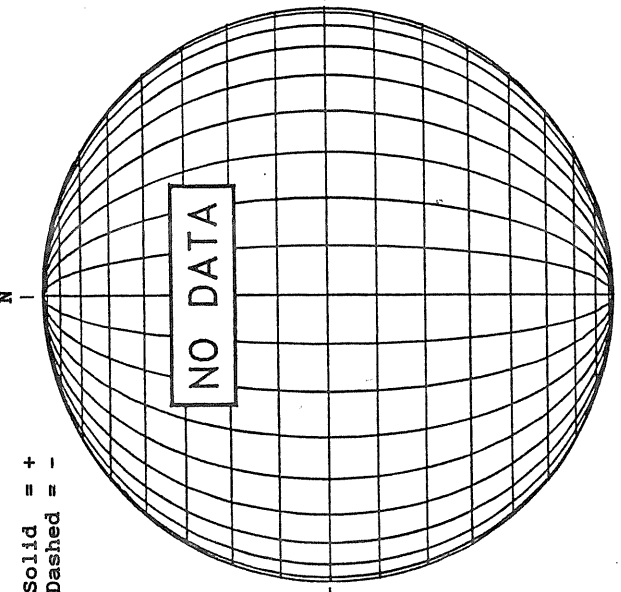


APRIL 20, 1989 (P=-25.66, B₀ =-5.18, L₀ = 111.25)

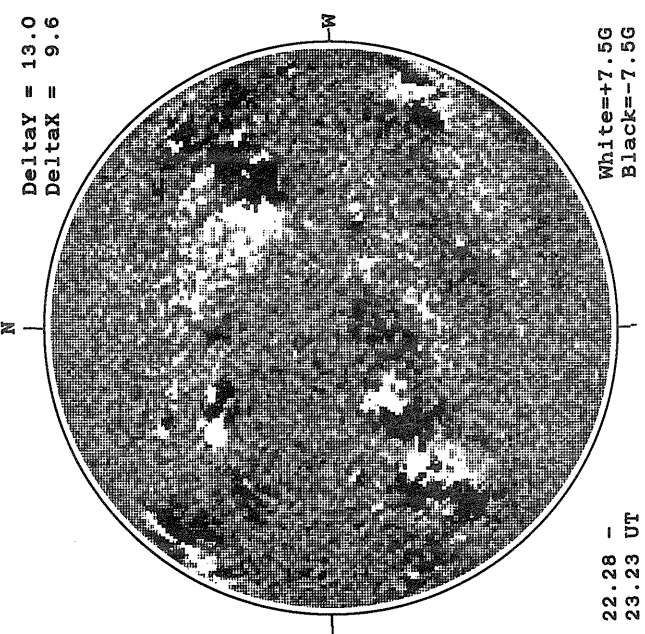
KITT PEAK MAGNETOGRAM



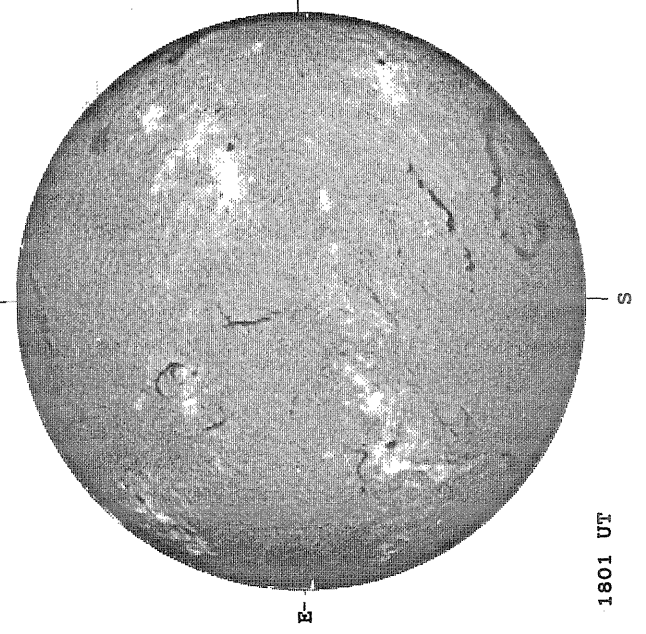
STANFORD MAGNETOGRAM



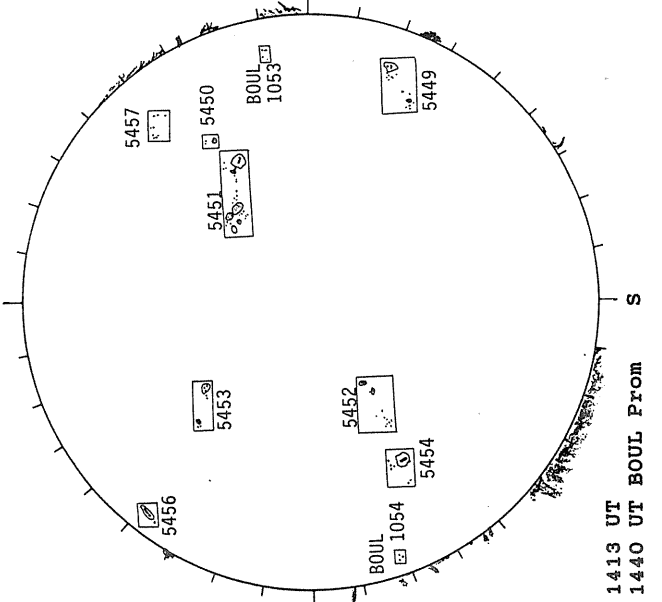
MT. WILSON MAGNETOGRAM



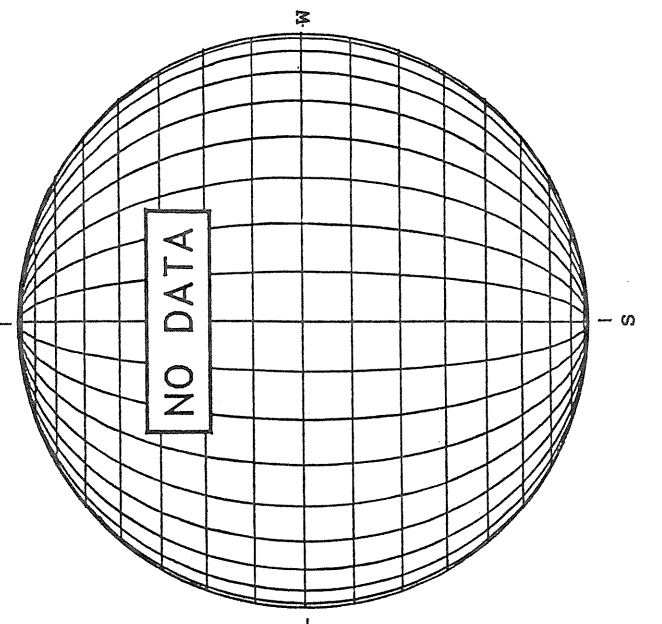
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



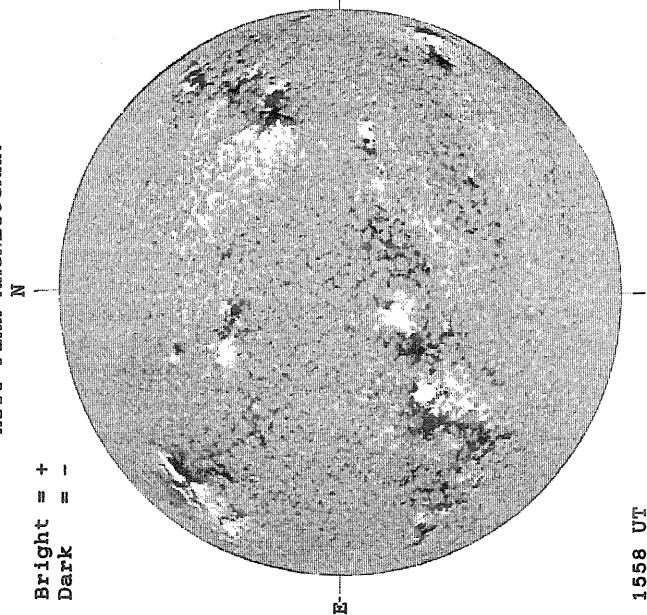
SACRAMENTO PEAK CORONA (1.15 Rad11)



APRIL 21, 1989 (P=-25.56, B₀ = -5.09, L₀ = 98.04)

KITT PEAK MAGNETOGRAM

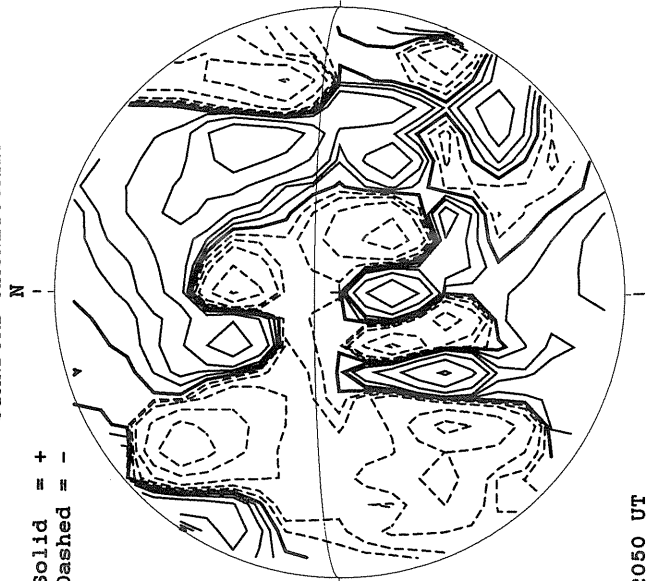
Bright = +
Dark = -



1558 UT

STANFORD MAGNETOGRAM

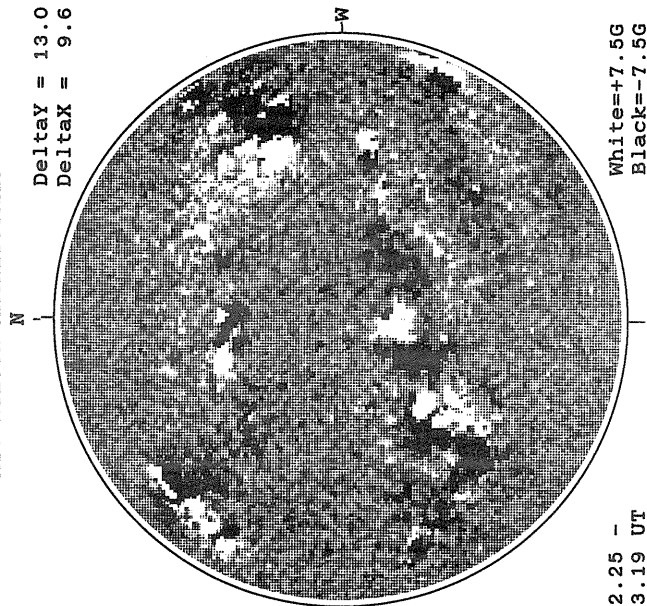
Solid = +
Dashed = -



2050 UT

MT. WILSON MAGNETOGRAM

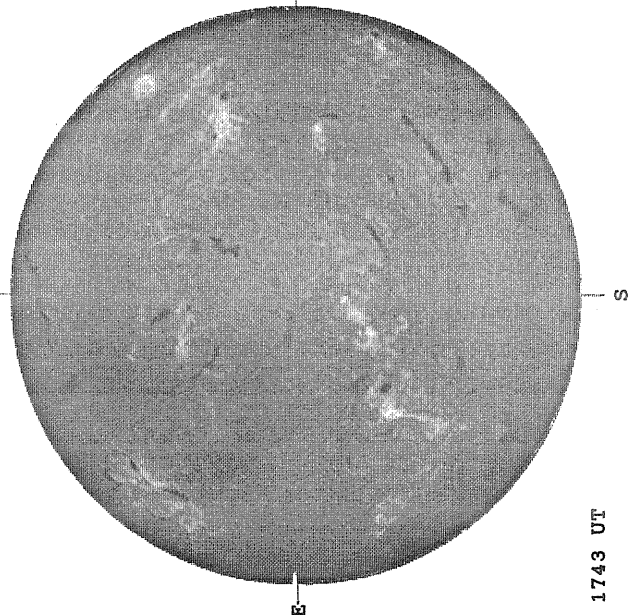
DeltaY = 13.0
DeltaX = 9.6



22.25 -
23.19 UT

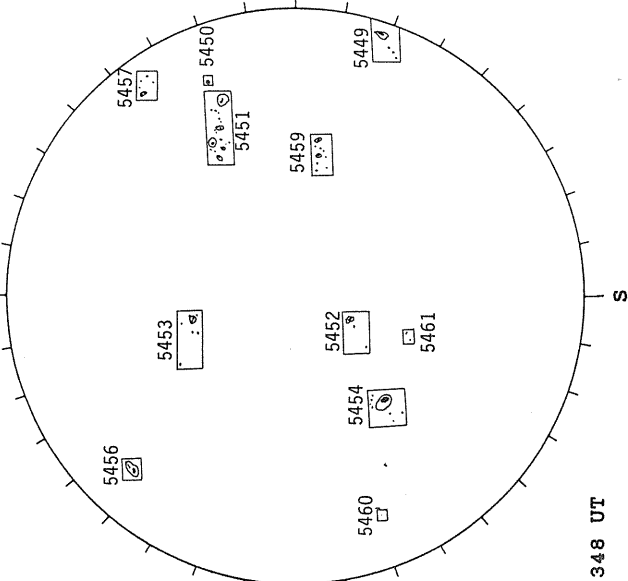
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



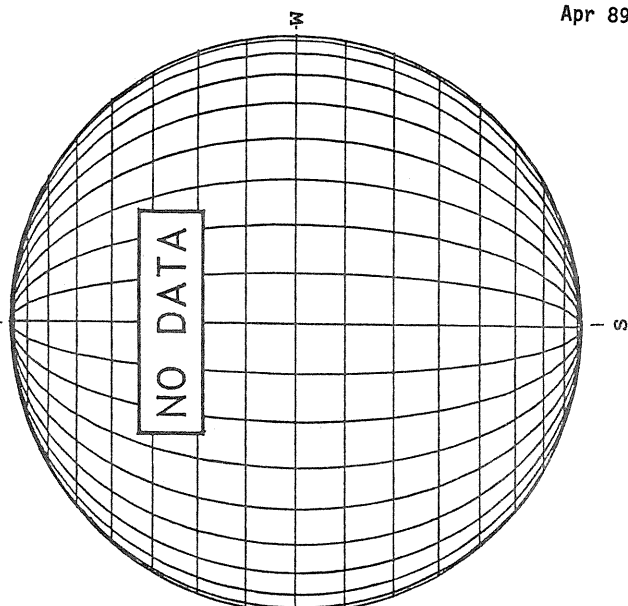
1743 UT

BOULDER SUNSPOT



1348 UT

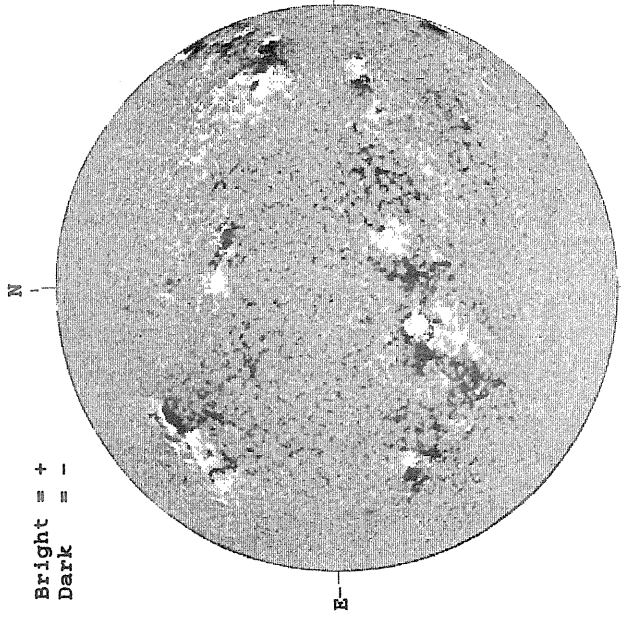
SACRAMENTO PEAK CORONA (1.15 Radii)



NO DATA

APRIL 22, 1989 (P=-25.46, B₀ = -5.00, L₀ = 84.83)

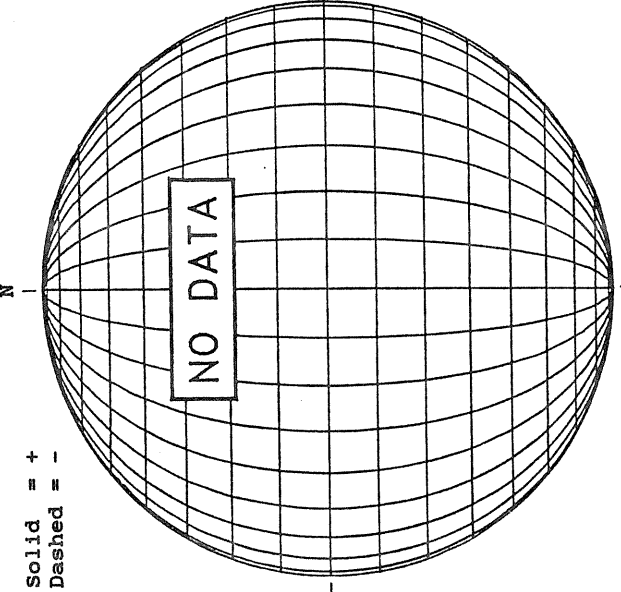
KITT PEAK MAGNETOGRAM



Bright = +
Dark = -

1559 UT

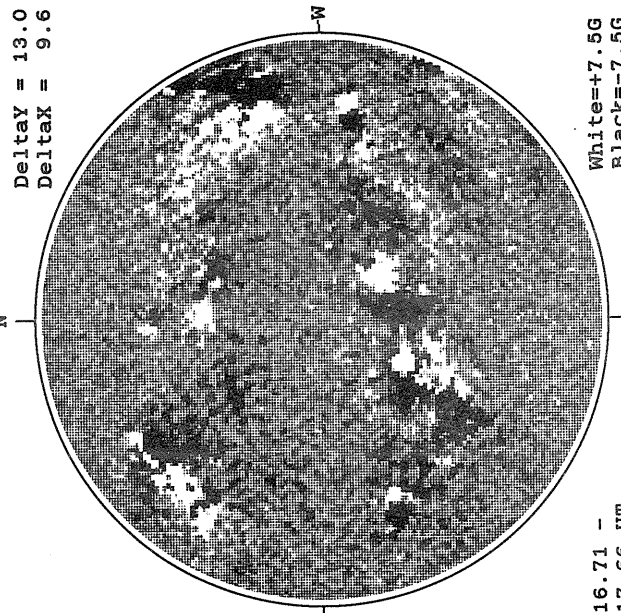
STANFORD MAGNETOGRAM



Solid = +
Dashed = -

16.71 -
17.66 UT

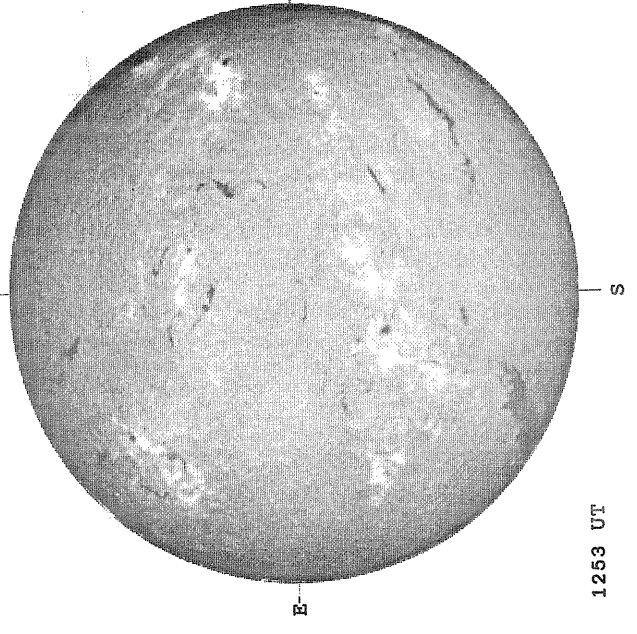
MT. WILSON MAGNETOGRAM



DeltaY = 13.0
DeltaX = 9.6

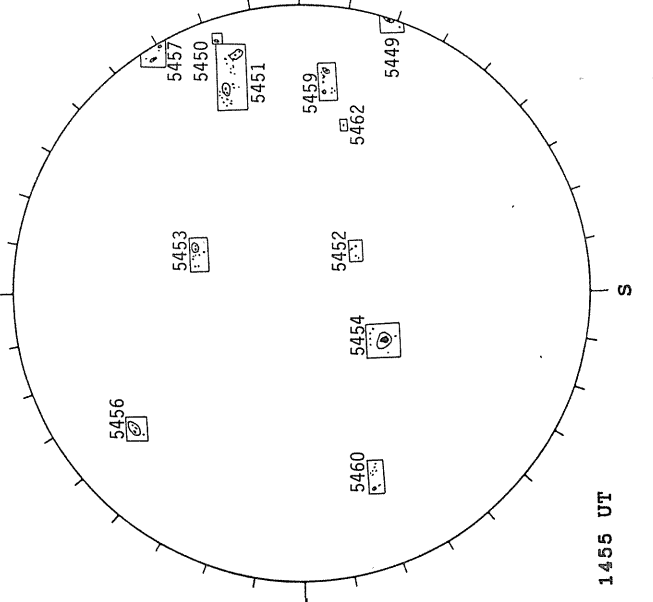
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



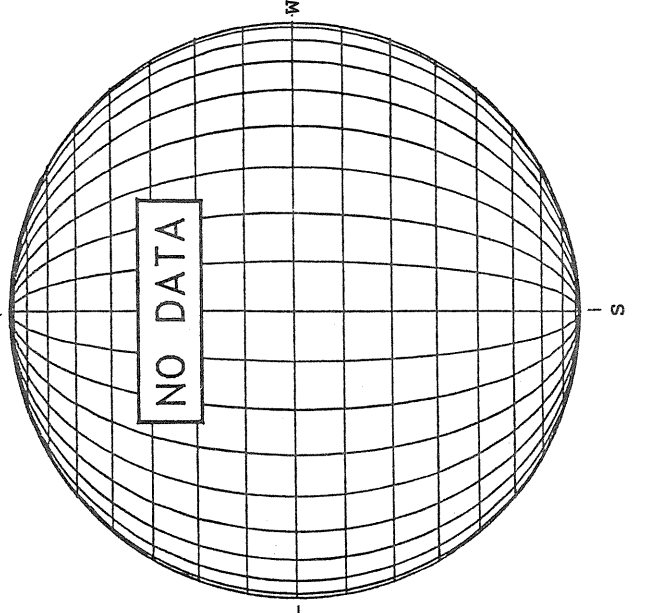
1253 UT

BOULDER SUNSPOT



1455 UT

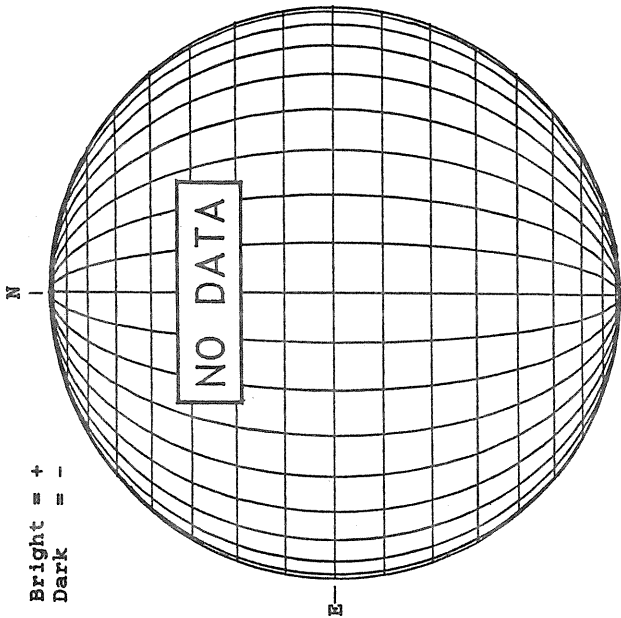
SACRAMENTO PEAK CORONA (1.15 RadII)



APRIL 23, 1989 (P=-25.34, B₀ =-4.91, L₀ = 71.62)

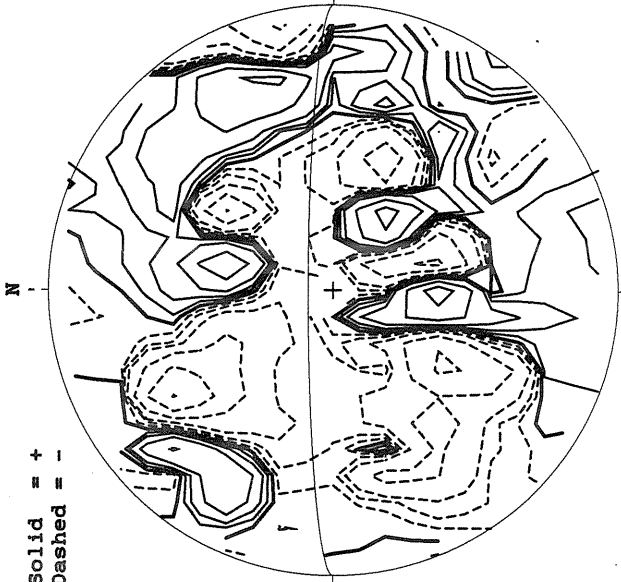
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



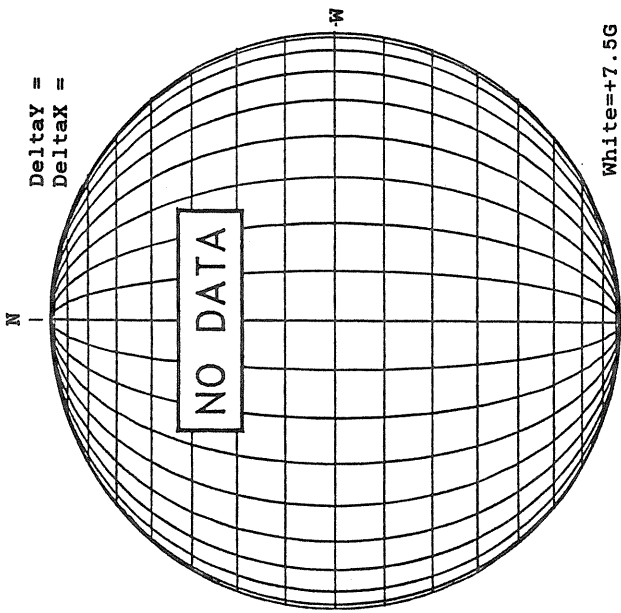
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



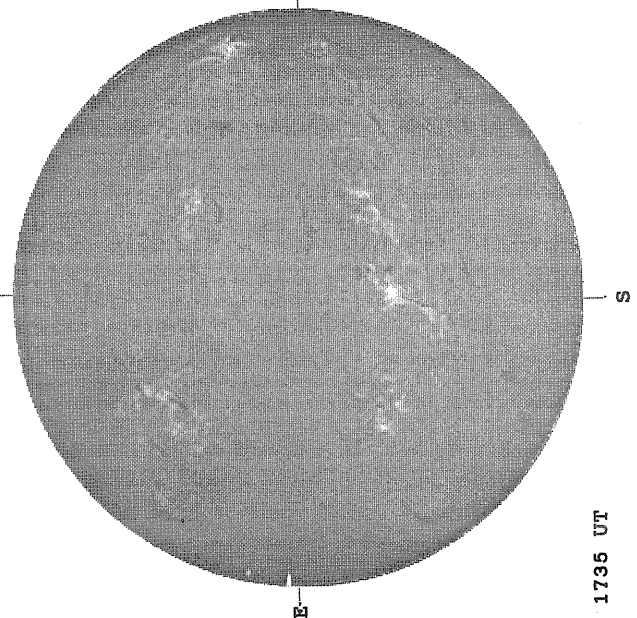
MT. WILSON MAGNETOGRAM

Delta_Y =
Delta_X =



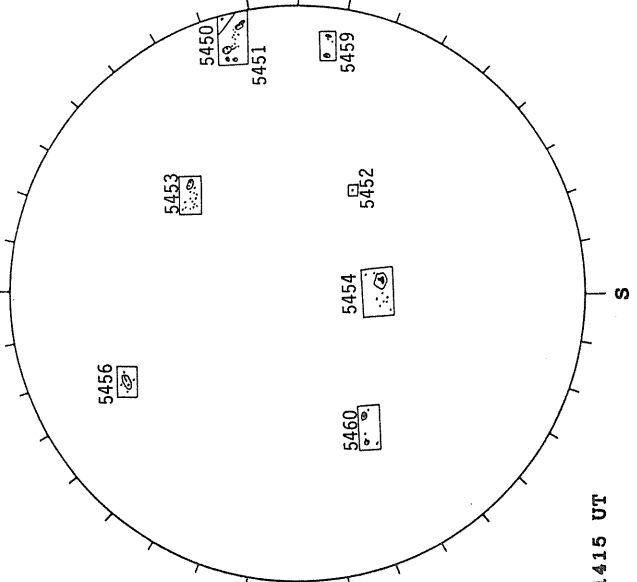
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



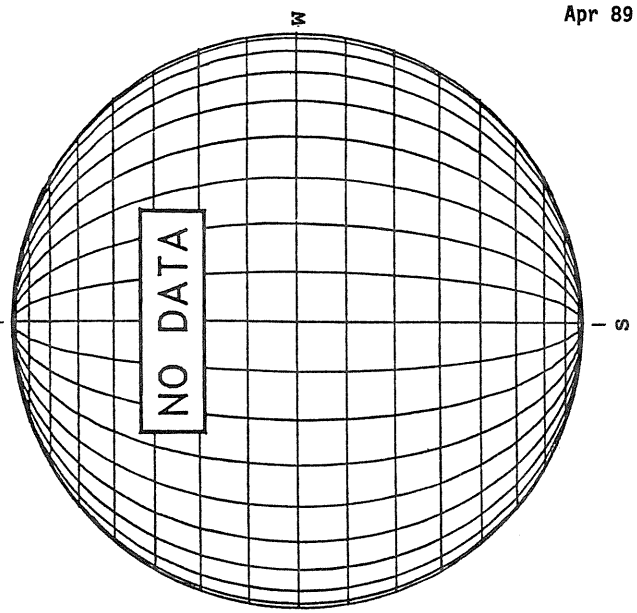
1735 UT

BOULDER SUNSPOT



1415 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

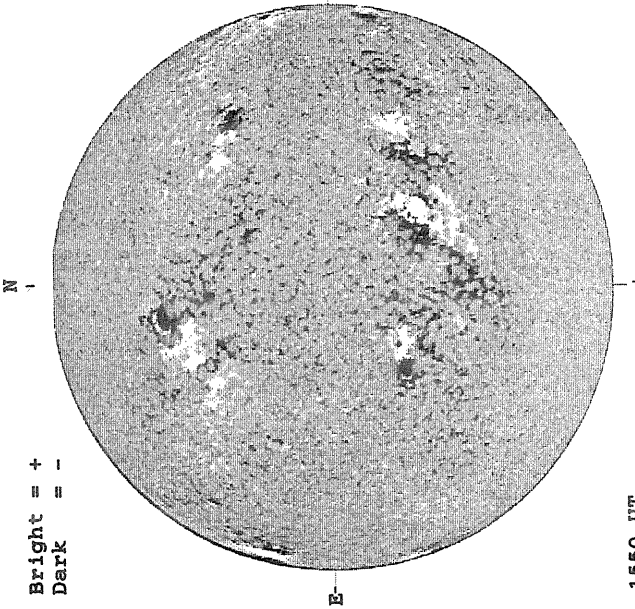


1735 UT

APRIL 24, 1989 (P=-25.22, B₀ = -4.82, L₀ = 58.41)

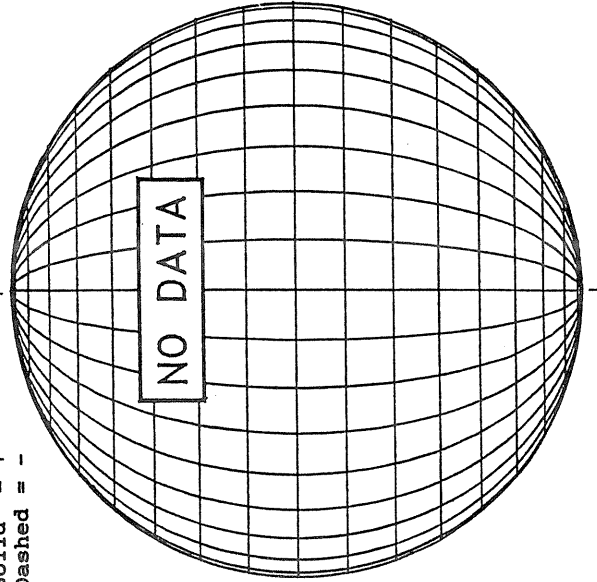
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



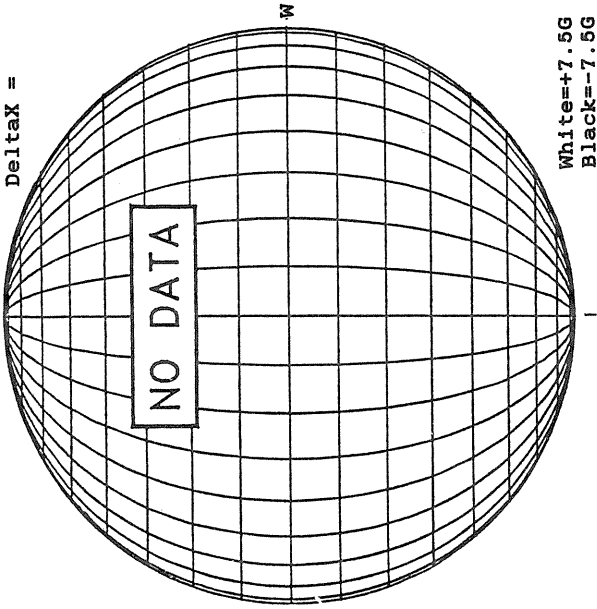
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

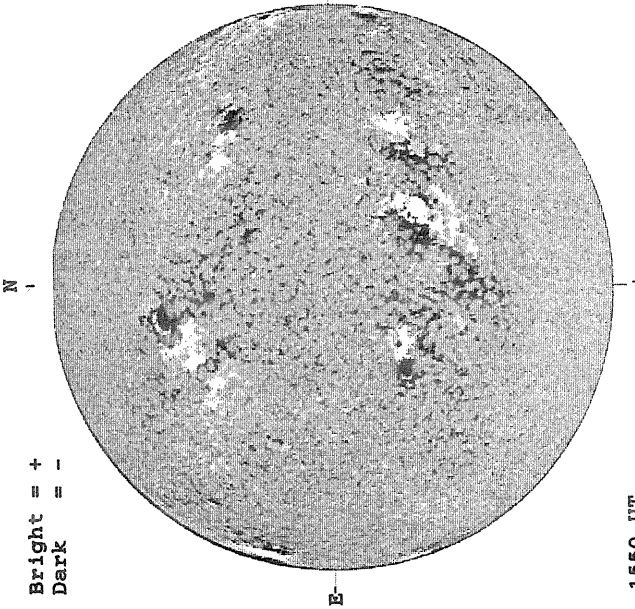
Delta_y =
Delta_x =



White = +7.5G
Black = -7.5G

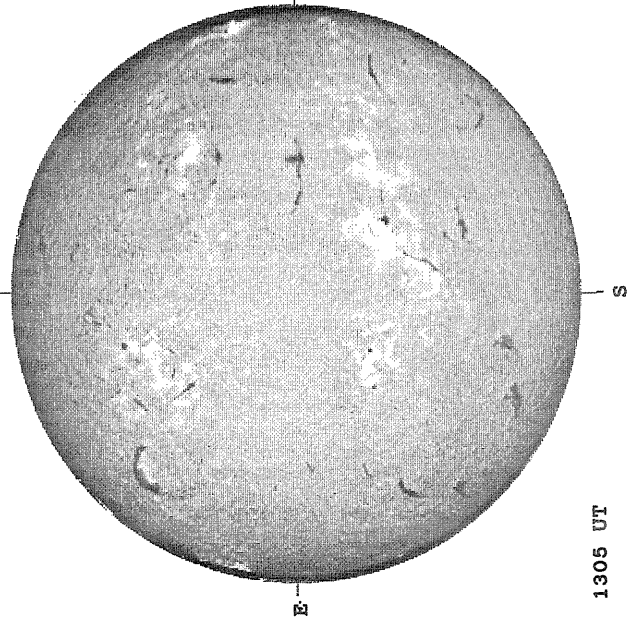
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



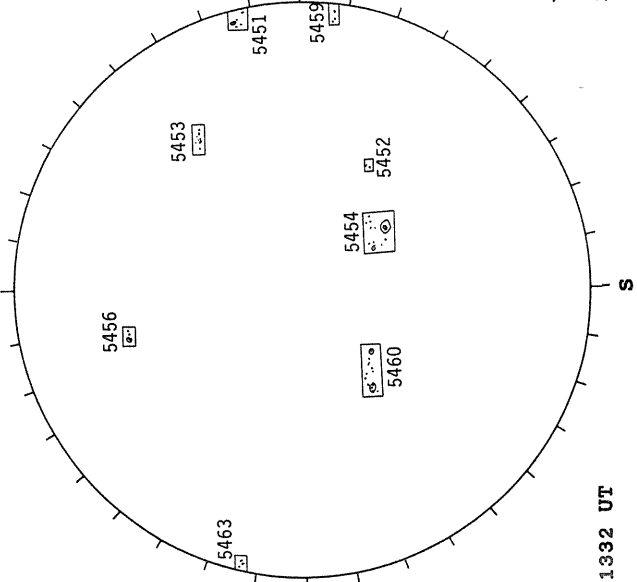
1550 UT

SACRAMENTO PEAK H-ALPHA



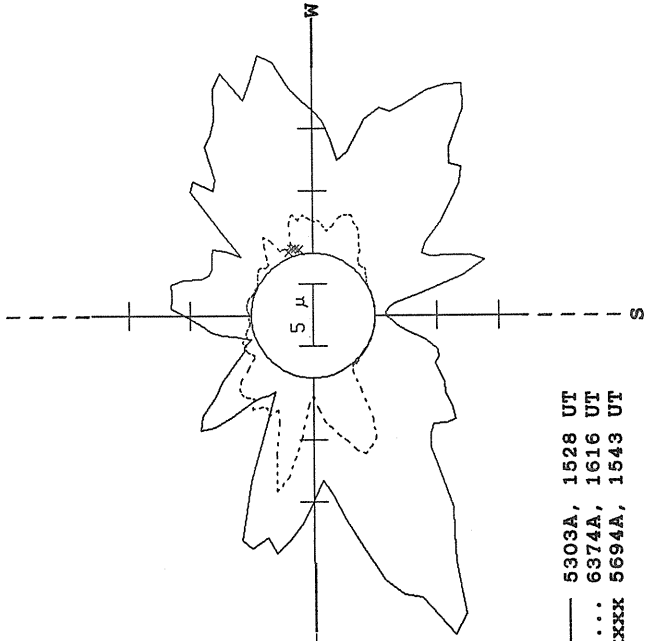
1305 UT

BOULDER SUNSPOT



1332 UT

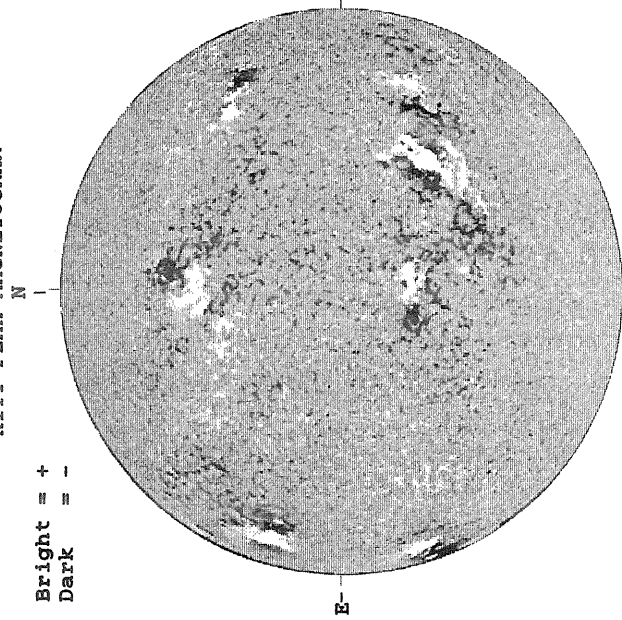
SACRAMENTO PEAK CORONA (1.15 Radii)



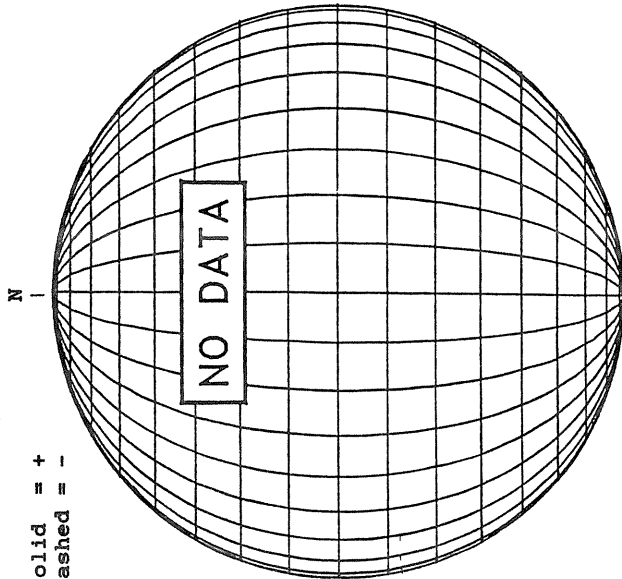
— 5303A, 1528 UT
... 6374A, 1616 UT
XXXX 5694A, 1543 UT

APRIL 25, 1989 (P=-25.09, B₀ = -4.73, I₀ = 45.20)

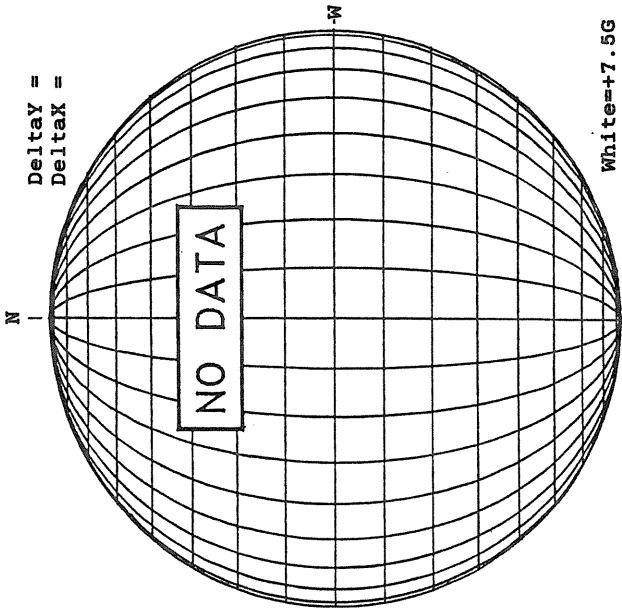
KITT PEAK MAGNETOGRAM



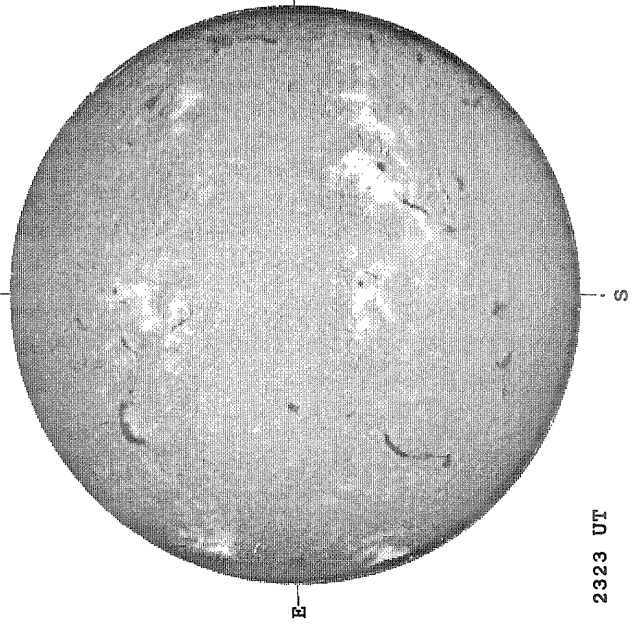
STANFORD MAGNETOGRAM



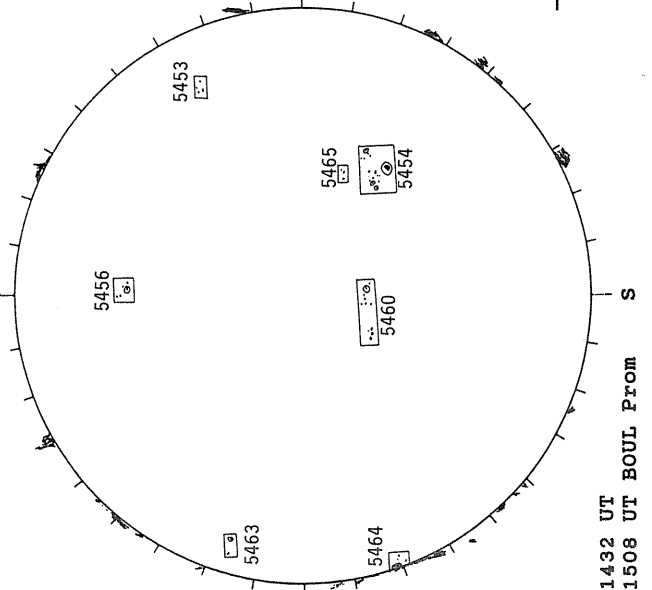
MT. WILSON MAGNETOGRAM



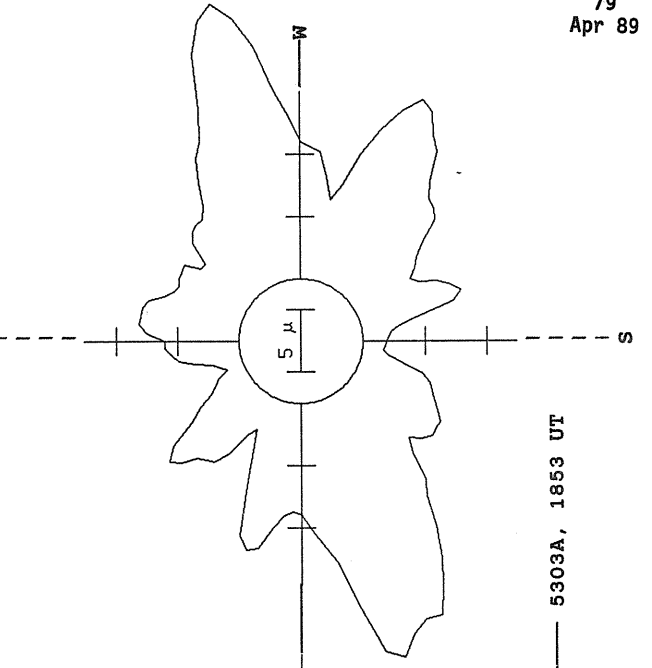
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



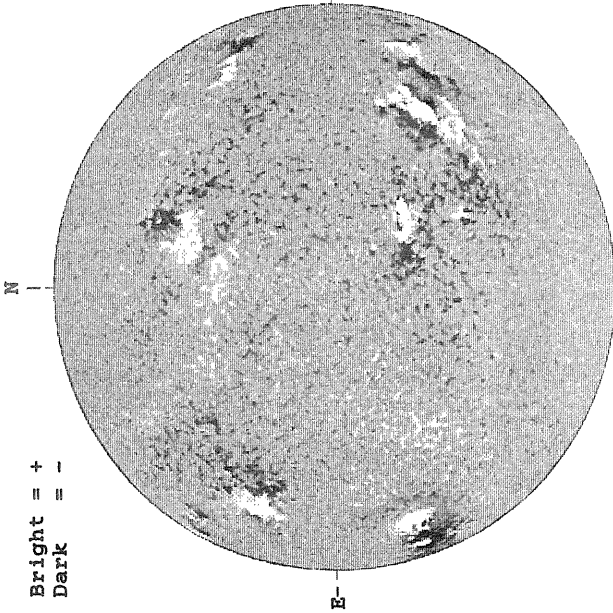
SACRAMENTO PEAK CORONA (1.15 Radii)



APRIL 26, 1989 (P=-24.95, B₀ = -4.63, I₀ = 31.99)

KITT PEAK MAGNETOGRAM

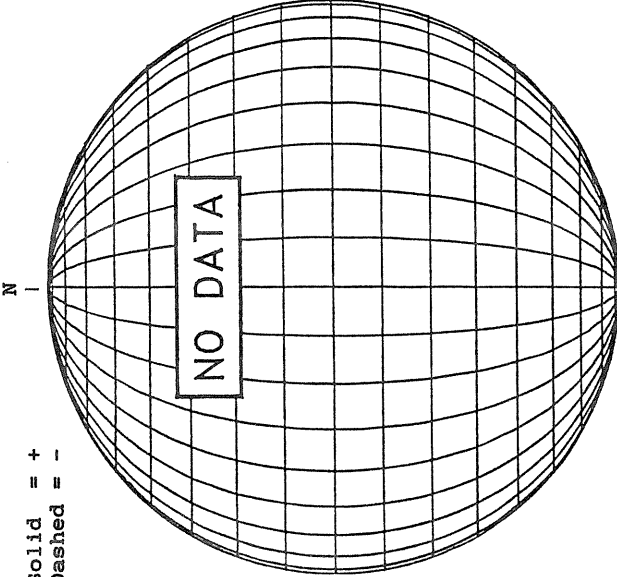
Bright = +
Dark = -



1544 UT

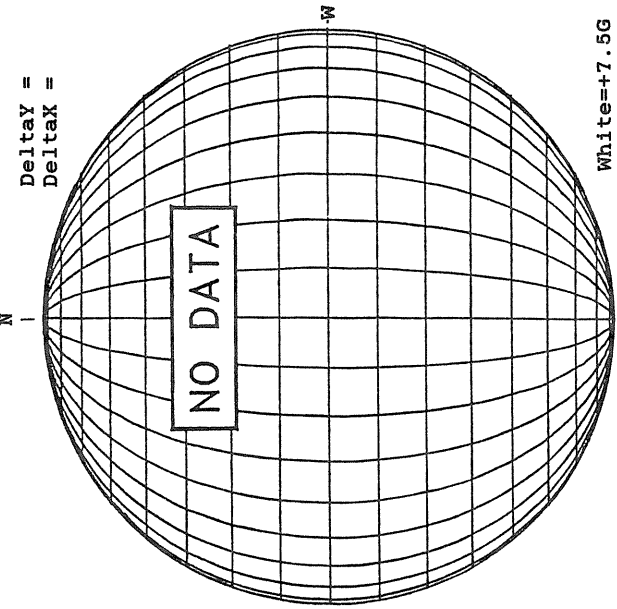
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



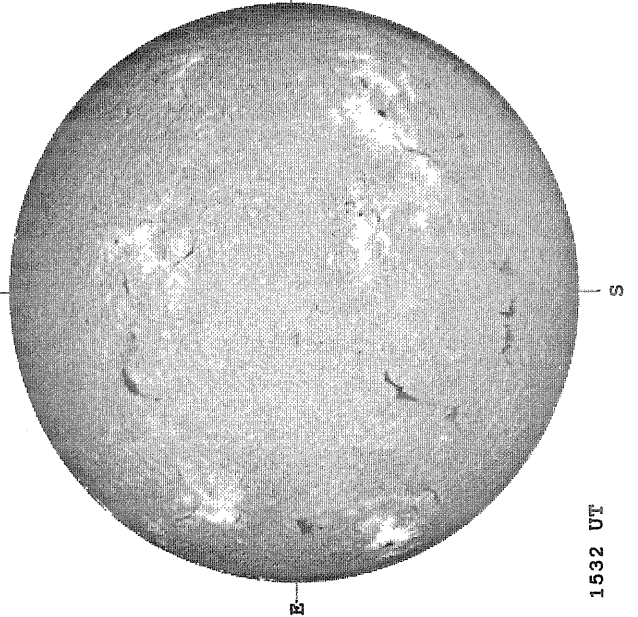
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



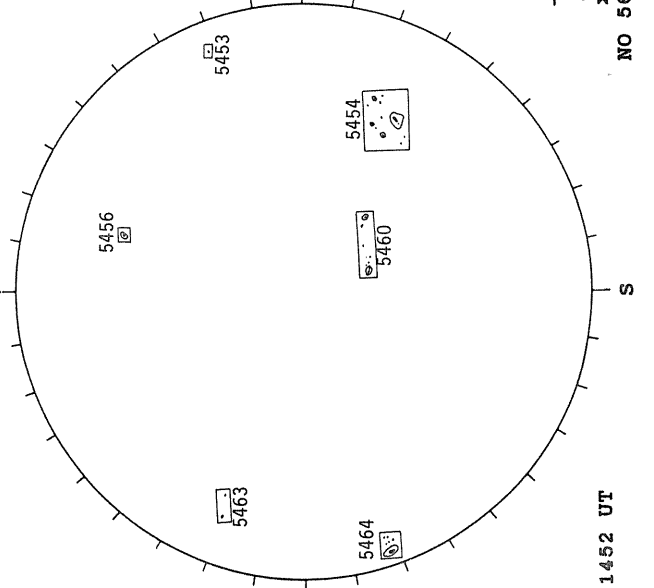
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



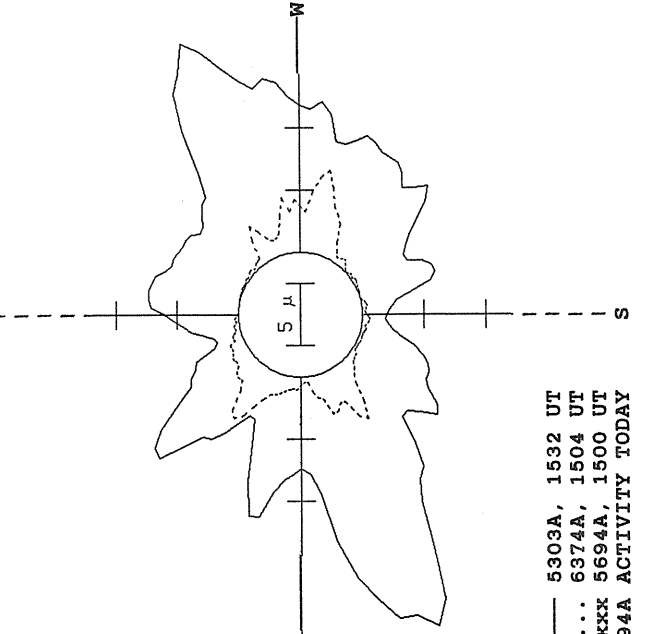
1532 UT

BOULDER SUNSPOT



1452 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

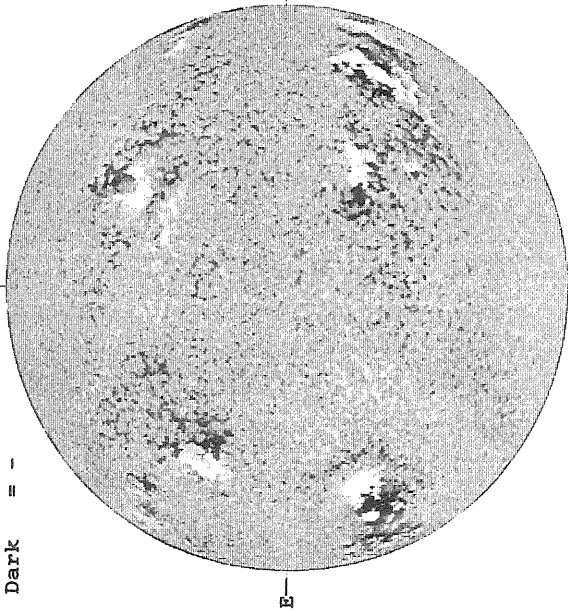


— 5303A, 1532 UT
.... 6374A, 1504 UT
XXXX 5694A, 1500 UT
NO 5694A ACTIVITY TODAY

APRIL 27, 1989 (P=-24.81, B₀ = -4.54, L₀ = 18.77)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1420 UT

STANFORD MAGNETOGRAM

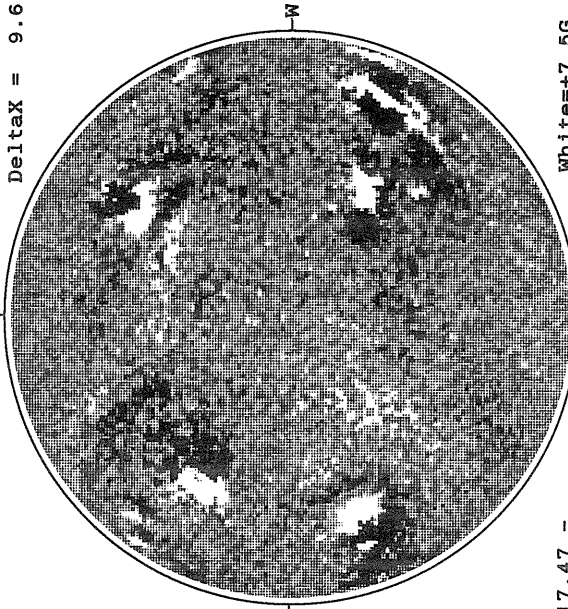
Solid = +
Dashed = -



2026 UT

MT. WILSON MAGNETOGRAM

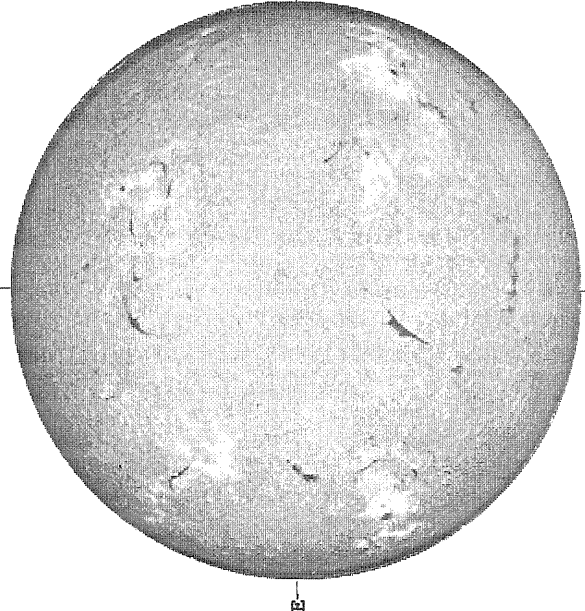
Delta γ = 13.1
Delta α = 9.6



17.47 -
18.41 UT

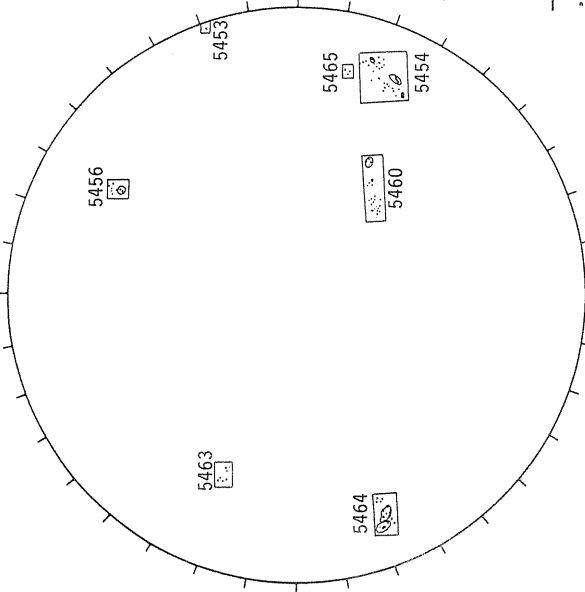
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



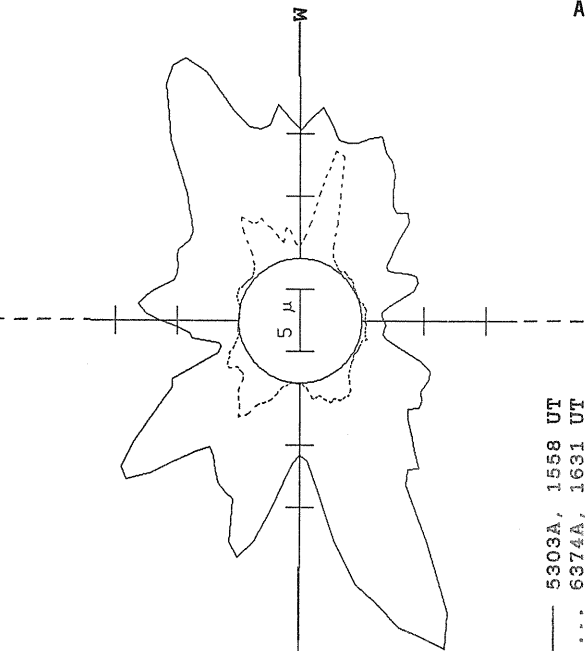
1449 UT

RAMEY SUNSPOT



1320 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

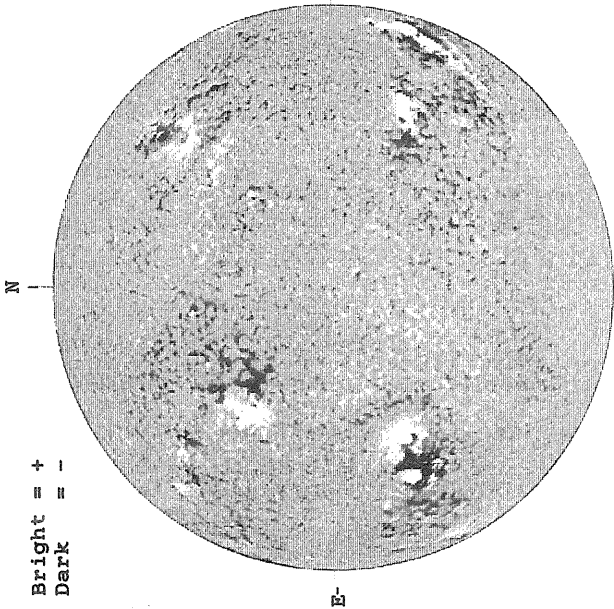


— 5303A, 1558 UT
... 6374A, 1631 UT
xxxx 5694A, 1617 UT
NO 5694A ACTIVITY TODAY

APRIL 28, 1989 (P=-24.66, B₀ =-4.44, I₀ = 5.56)

KITT PEAK MAGNETOGRAM

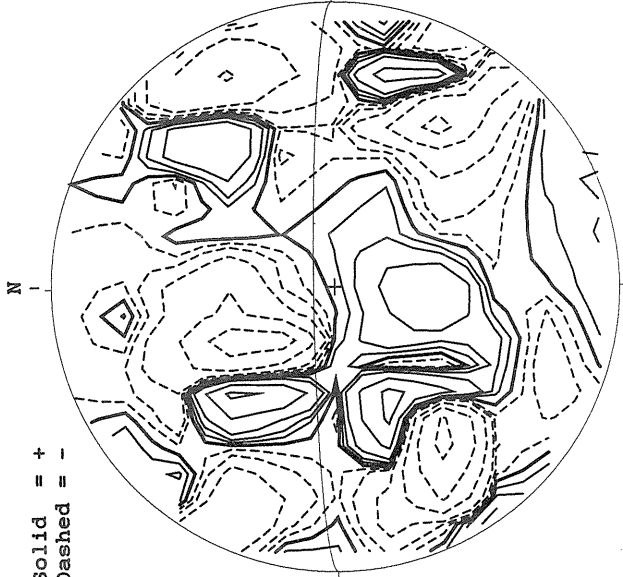
Bright = +
Dark = -



1415 UT

STANFORD MAGNETOGRAM

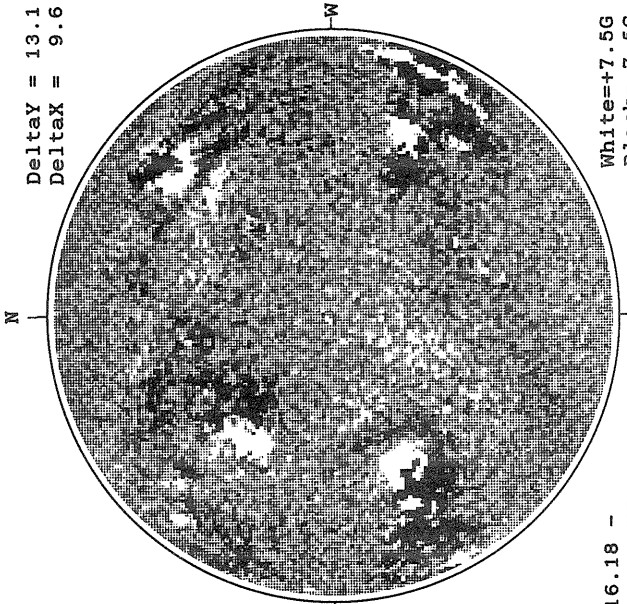
Solid = +
Dashed = -



2344 UT

MT. WILSON MAGNETOGRAM

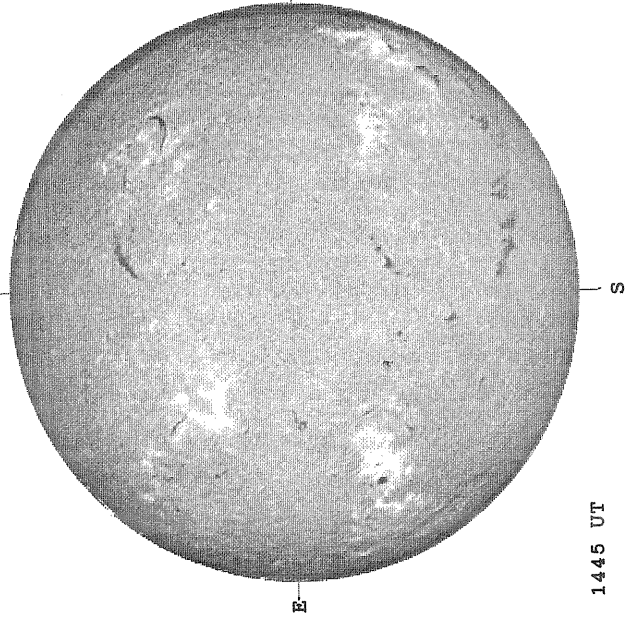
Delta λ = 13.1
Delta λ K = 9.6



16.18 -
17.12 UT

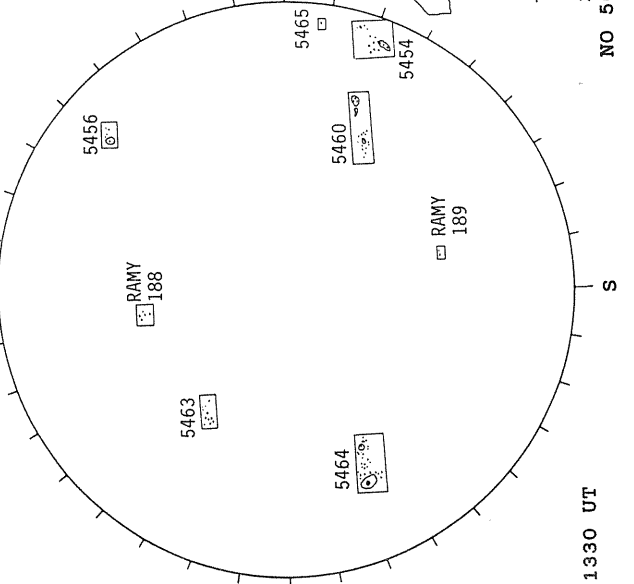
White = +7.5G
Black = -7.5G

SACRAMENTO PEAK H-ALPHA



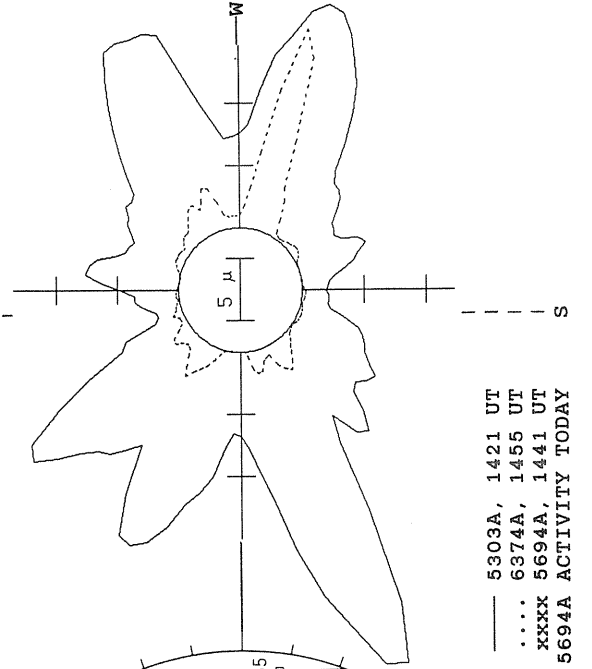
1445 UT

RAMEY SUNSPOT



1330 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

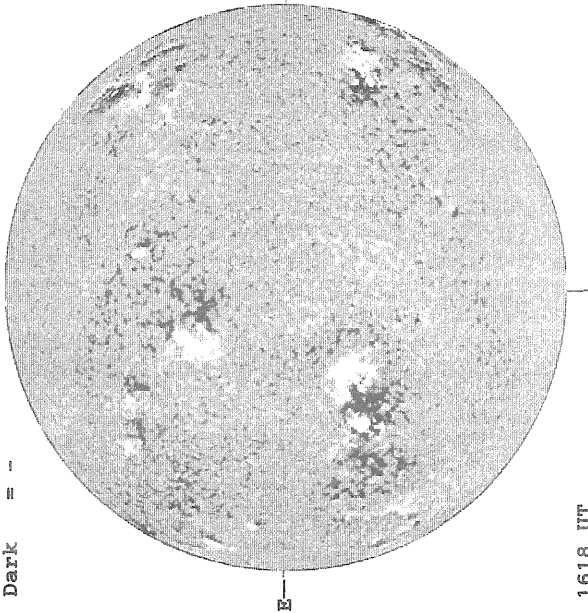


— 5303A, 1421 UT
... 6374A, 1455 UT
XXXX 5694A, 1441 UT
NO 5694A ACTIVITY TODAY

APRIL 29, 1989 (P=-24.50, B₀ = -4.35, L₀ = 352.34)

KITT PEAK MAGNETOGRAM

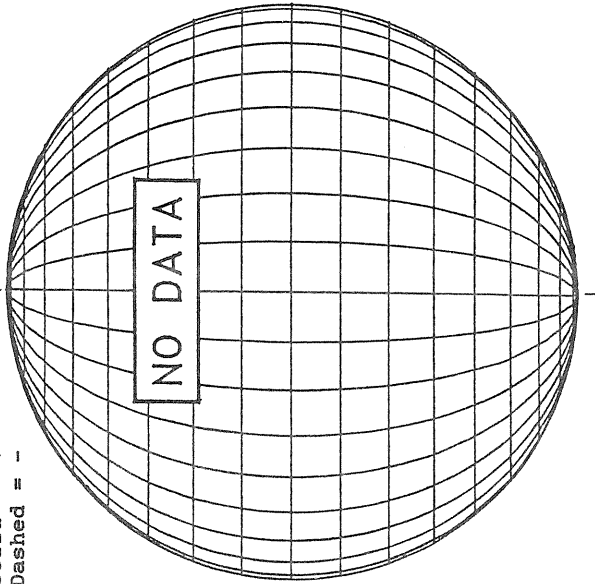
Bright = +
Dark = -



1618 UT

STANFORD MAGNETOGRAM

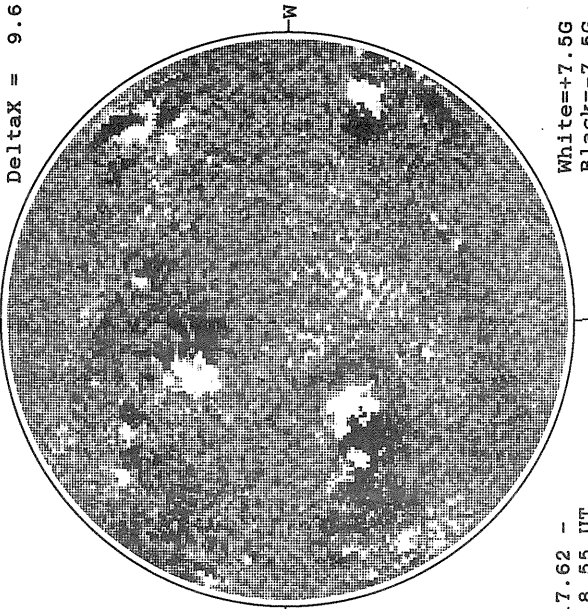
Solid = +
Dashed = -



17.62 -
18.55 UT

MT. WILSON MAGNETOGRAM

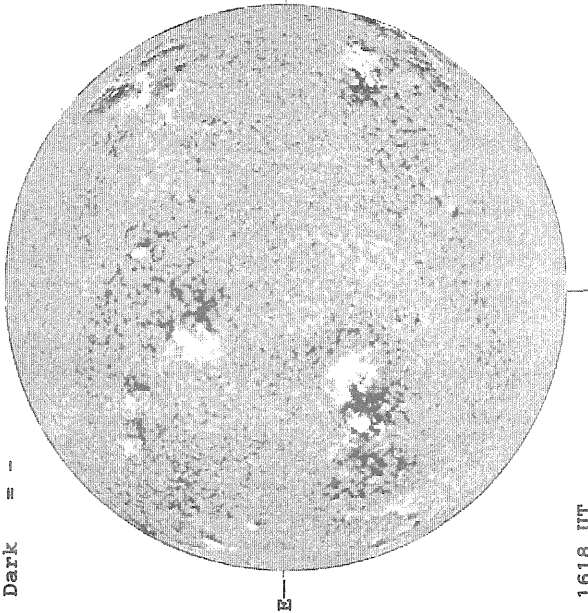
Delta_y = 13.1
Delta_x = 9.6



White = +7.5G
Black = -7.5G

HOLLOMAN H-ALPHA

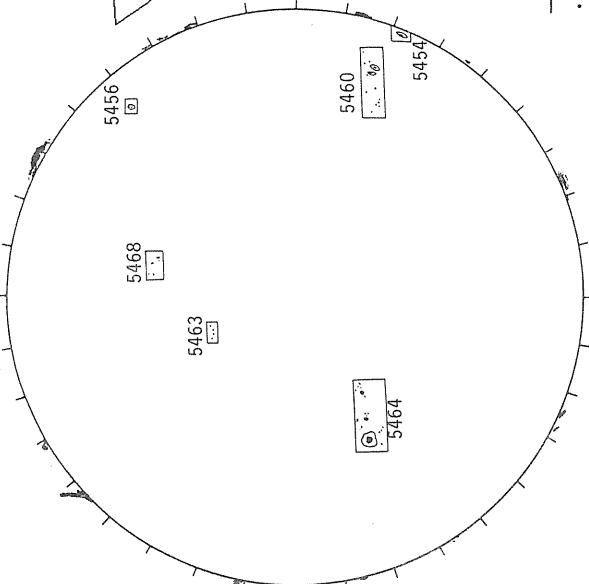
Bright = +
Dark = -



1438 UT

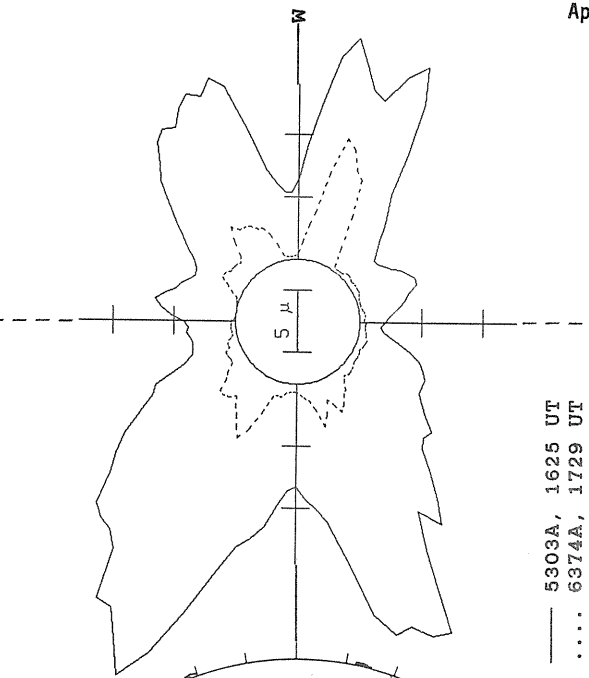
HOLLOMAN H-ALPHA

BOULDER SUNSPOT



1438 UT
1432 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

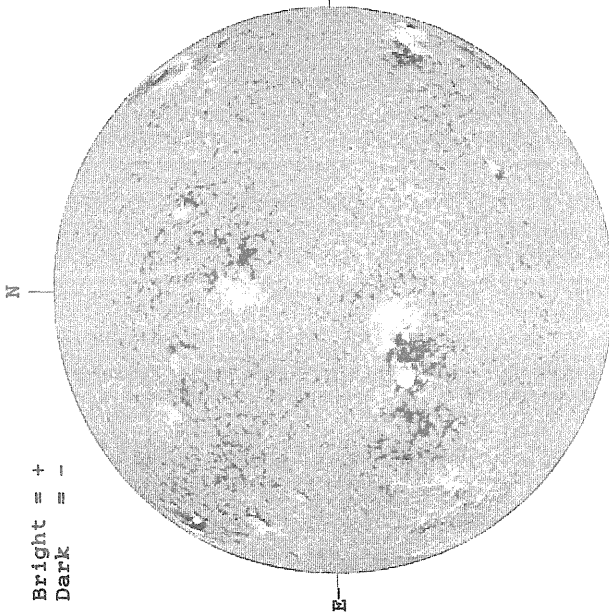


— 5303A, 1625 UT
.... 6374A, 1729 UT
XXXX 5694A, 1714 UT
NO 5694A ACTIVITY TODAY

APRIL 30, 1989 (P=-24.33, B₀ = -4.25, L₀ = 339.13)

KITT PEAK MAGNETOGRAM

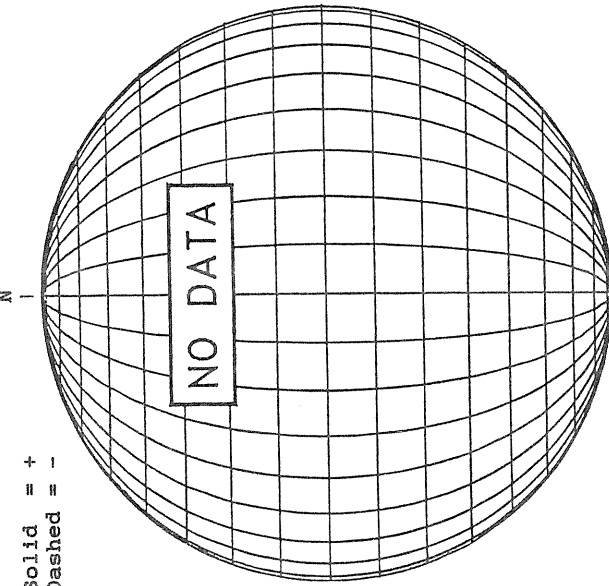
Bright = +
Dark = -



1356 UT

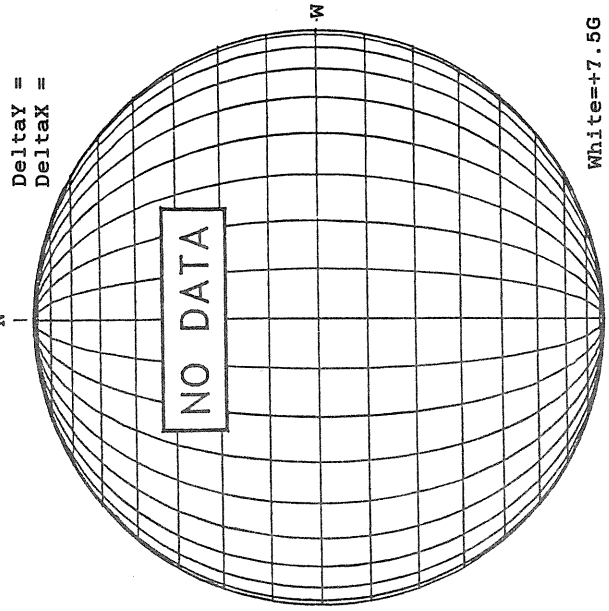
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



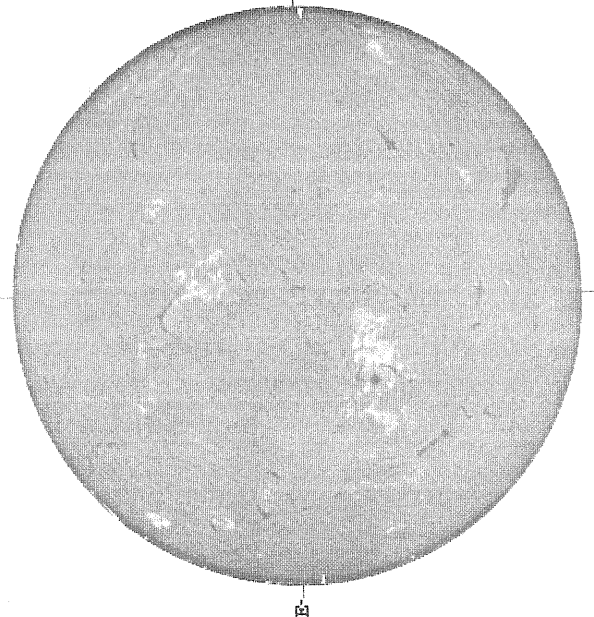
MT. WILSON MAGNETOGRAM

Deltay =
Deltax =



White = +7.5G
Black = -7.5G

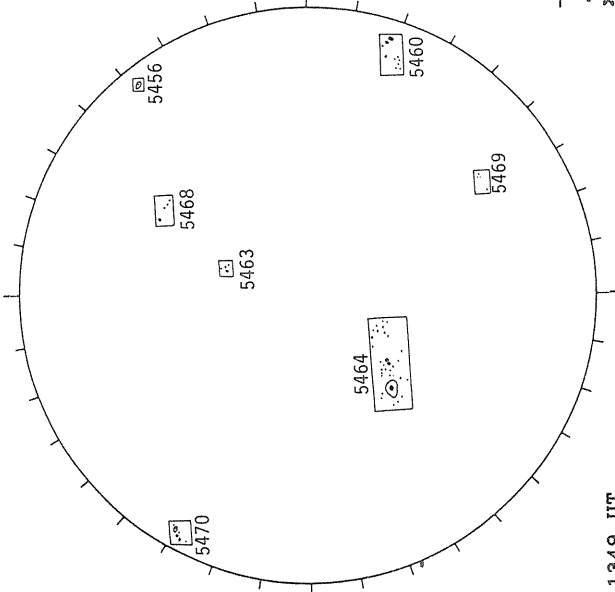
HOLLOMAN H-ALPHA



1616 UT

RAMEY SUNSPOT

SACRAMENTO PEAK CORONA (1.15 Radii)



1349 UT

— 5303A, 1915 UT
 ... 6374A, 1955 UT
 XXXX 5694A, 1935 UT
 NO 5694A ACTIVITY TODAY

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

85
Apr 89

APRIL 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
5429A		LEAR	03 31 0347	N24 E26	04 2.2		A	AX	10	1	1	4
5430	25135	MWIL	03 30 1615	S26 E28	04 1.8	4	(BP)					
5430		PALE	03 30 1823	S27 E27	04 1.9		B	BXO	10	4	3	2
5430		LEAR	03 31 0347	S27 E22	04 1.9		B	BXO	20	5	4	4
5430		SVTO	03 31 0655	S27 E19	04 1.8		B	BXO	20	6	4	3
5430		RAMY	03 31 1400	S28 E16	04 1.8		B	BXO	20	4	4	4
5430		HOLL	03 31 1410	S27 E15	04 1.7		B	BXO	10	3	4	3
5430	25135	MWIL	03 31 1530	S27 E14	04 1.7	4	(BP)					
5430		PALE	03 31 1919	S28 E13	04 1.8		B	BXO		5	4	3
5430		HOLL	04 01 1715	S24 E06	04 2.2		B	BXO	10	3	4	3
5427		HOLL	03 28 1510	N20 E70	04 3.0		A	AX	10	1	1	3
5427	25132	MWIL	03 28 1545	N20 E69	04 2.9	4	(AP)					
5427		RAMY	03 28 1630	N22 E67	04 2.8		A	AX	30	1	1	3
5427		PALE	03 28 1920	N20 E67	04 2.9		A	AX	10	1	1	3
5427		LEAR	03 29 0008	N20 E63	04 2.8		B	CSO	50	3	3	3
5427		CULG	03 29 0100	N21 E65	04 3.0		A	AX		1		2
5427		SVTO	03 29 0805	N22 E62	04 3.1		A	HR	30	1	2	2
5427		RAMY	03 29 1245	N20 E57	04 2.9		A	AX	10	1	1	3
5427	25132	MWIL	03 29 1530	N20 E56	04 2.9	4	(AP)					
5427		PALE	03 29 1825	N20 E53	04 2.8		A	HS	10	1	2	3
5427		LEAR	03 30 0017	N17 E53	04 3.0		B	CRO	50	7	6	3
5427		CULG	03 30 0300	N18 E52	04 3.1		B	BXO		3	2	2
5427		SVTO	03 30 1130	N19 E48	04 3.1		B	DRO	40	6	6	3
5427		RAMY	03 30 1330	N18 E45	04 3.0		B	BXO	30	8	6	3
5427		BOUL	03 30 1455	N17 E44	04 3.0		B	BXO	30	3	5	1
5427		HOLL	03 30 1520	N17 E45	04 3.0		B	BXO	50	6	9	3
5427	25132	MWIL	03 30 1615	N19 E42	04 2.9	4	(AP)					
5427		PALE	03 30 1823	N17 E42	04 2.9		B	BXO	10	4	5	2
5427		LEAR	03 31 0347	N18 E37	04 3.0		B	BXO	30	4	6	4
5427		SVTO	03 31 0655	N18 E30	04 2.6		B	BXO	20	3	5	3
5427		RAMY	03 31 1400	N17 E31	04 2.9		B	BXO	30	5	5	4
5427		HOLL	03 31 1410	N18 E31	04 2.9		B	BXO	10	4	6	3
5427		PALE	03 31 1919	N17 E21	04 2.4		B	BXO	20	5	6	3
5427		LEAR	04 01 0025	N17 E26	04 3.0		B	CRO	10	4	5	2
5427		SVTO	04 01 0820	N16 E22	04 3.0		B	BXO	20	6	4	1
5427	25136	MWIL	04 01 1530	N17 E15	04 2.8	6	(B)					
5427		RAMY	04 01 1535	N18 E18	04 3.0		B	CRO	10	2	3	3
5427		HOLL	04 01 1715	N18 E16	04 2.9		B	BXO	60	9	7	3
5427		PALE	04 01 1735	N18 E18	04 3.1		B	BXO	10	6	4	3
5427		LEAR	04 02 0010	N13 E17	04 3.3		B	BXO	20	4	5	3
5427		SVTO	04 02 0955	N18 E09	04 3.1		B	BXO	10	2	4	1
5427		HOLL	04 02 1415	N18 E05	04 3.0		B	BXO	10	2	4	3
5427		BOUL	04 02 1420	N17 E03	04 2.8		A	HA	40	1	2	1
5427	25136	MWIL	04 02 1545	N17 E03	04 2.9	5	(BP)					
5427		RAMY	04 02 1700	N17 E03	04 2.9		A	AX	10	2	2	3
5427		PALE	04 02 2100	N18 E00	04 2.9		B	BXO		3	3	3
5427		LEAR	04 03 0025	N18 W03	04 2.8		B	BXO	10	2	4	2
5427		SVTO	04 03 0726	N18 W08	04 2.7		A	HR	10	1	1	1
5427		HOLL	04 03 1600	N17 W13	04 2.7		A	AX	10	1	1	3
5427		RAMY	04 03 1700	N17 W12	04 2.8		A	AX		2	1	2
5427	25136	MWIL	04 03 1745	N17 W13	04 2.7	4	(AP)					
5427		PALE	04 03 1815	N18 W13	04 2.8		A	AX	10	1	1	3
5427		CULG	04 04 0344	N17 W20	04 2.6		A	AX	10	1		1
5427		LEAR	04 06 0845	N17 W40	04 3.3		A	AX	10	2	1	3
5427		RAMY	04 06 1420	N17 W42	04 3.4		A	AX		1		4
5427		HOLL	04 06 1432	N18 W43	04 3.3		A	AX		1		3
5427	25155	MWIL	04 06 1630	N17 W43	04 3.4	3	(AP)					
5427		PALE	04 06 1815	N16 W45	04 3.3		A	AX		1		2
5427		LEAR	04 07 0028	N18 W50	04 3.2		B	BXO	20	4	3	3
5427		SVTO	04 07 1158	N18 W59	04 3.0		B	BXO	10	4	4	2
5427		RAMY	04 07 1430	N18 W58	04 3.2		B	CAO	100	6	6	4
5427		BOUL	04 07 1450	N18 W59	04 3.1		B	CAO	100	3	3	1
5427	25155	MWIL	04 07 1630	N17 W59	04 3.2	5	(B)					
5427		LEAR	04 08 0017	N18 W65	04 3.1		B	CAO	70	7	5	3
5427		CULG	04 08 0245	N17 W69	04 2.9		B	DAO	30	4	4	2
5427		SVTO	04 08 1002	N18 W73	04 2.8		B	DAO	60	5	7	1
5427		HOLL	04 08 1150	N18 W72	04 3.0		B	CHO	150	6	10	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

APRIL 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP		Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day			Mo	Day							
5427		RAMY	04	08	1305	N19 W72	04	3.0		B	CAO	120	6	4	2
5427	25155	MWIL	04	08	1415	N17 W73	04	3.0	4	(AP)					
5427		LEAR	04	09	0034	N16 W79	04	3.0		A	HS	30	1	4	3
5427A	25136	MWIL	03	30	1615	N16 E45	04	3.1	5	(B)					
5427A	25136	MWIL	03	31	1530	N17 E32	04	3.1	4	(BP)					
5436		HOLL	04	02	1415	S27 E13	04	3.6		A	AX	10	3	2	3
5436		BOUL	04	02	1420	S27 E12	04	3.5		B	CRO	20	2	2	1
5436	25143	MWIL	04	02	1545	S27 E12	04	3.6	4	(B)					
5436		RAMY	04	02	1700	S27 E11	04	3.6		B	BXO	10	4	3	3
5436		PALE	04	02	2100	S29 E10	04	3.6		B	CAO	30	3	3	3
5436		LEAR	04	03	0025	S28 E08	04	3.6		B	BXO	20	4	4	2
5436		SVTO	04	03	0726	S28 E03	04	3.5		B	BXO	10	6	5	1
5436		HOLL	04	03	1600	S27 W01	04	3.6		B	BXO	20	3	6	3
5436		RAMY	04	03	1700	S27 W03	04	3.5		B	BXO	10	3	4	2
5436	25143	MWIL	04	03	1745	S27 W03	04	3.5	3	(BP)					
5436		PALE	04	03	1815	S27 W03	04	3.5		B	BXO		3	5	3
5445	25156	MWIL	04	06	1630	N28 W38	04	3.7	3	(AP)					
5445		PALE	04	06	1815	N27 W40	04	3.6		A	AX		1		2
5445		LEAR	04	07	0028	N29 W43	04	3.6		B	CRO	20	7	5	3
5445		SVTO	04	07	1158	N28 W50	04	3.6		B	DAO	80	3	5	2
5445		RAMY	04	07	1430	N29 W49	04	3.8		B	DAO	90	3	4	4
5445		BOUL	04	07	1450	N28 W49	04	3.8		B	DSO	70	3	5	1
5445	25156	MWIL	04	07	1630	N28 W51	04	3.7	4	(B)					
5445		LEAR	04	08	0017	N28 W56	04	3.6		B	CAO	60	8	7	3
5445		CULG	04	08	0245	N27 W60	04	3.4		B	EA1	50	8	11	2
5445		SVTO	04	08	1002	N28 W64	04	3.4		B	DAO	90	6	10	1
5445		HOLL	04	08	1150	N28 W62	04	3.6		B	CHI	180	13	10	3
5445		RAMY	04	08	1305	N29 W62	04	3.7		B	DAO	110	8	7	2
5445	25156	MWIL	04	08	1415	N28 W63	04	3.7	4	(B)					
5445		LEAR	04	09	0034	N28 W68	04	3.7		B	DAO	220	4	7	3
5445		CULG	04	09	0305	N29 W75	04	3.2		B	DSO	40	4	10	2
5445		SVTO	04	09	1010	N28 W79	04	3.2		B	DAO	80	3	7	2
5445		RAMY	04	09	1258	N29 W75	04	3.7		B	DSO	110	4	10	4
5445	25156	MWIL	04	09	1440	N28 W76	04	3.7	3	B					
5445		HOLL	04	09	1445	N28 W75	04	3.7		B	CSO	40	4	10	3
5445		PALE	04	09	1950	N28 W80	04	3.6		A	AX		1		3
5445		LEAR	04	10	0032	N26 W80	04	3.8		B	BXO	10	2	3	3
5436A		PALE	04	05	2025	N10 W22	04	4.2		A	AX		1		2
5436A		SVTO	04	06	0738	N09 W29	04	4.1		B	CRO	10	3	3	1
5436A		RAMY	04	06	1420	N09 W32	04	4.2		A	AX	10	2	1	4
5436A		HOLL	04	06	1432	N09 W32	04	4.2		A	AX		1		3
5436A	25157	MWIL	04	06	1630	N08 W32	04	4.3	4	(AP)					
5436A		PALE	04	06	1815	N09 W33	04	4.3		A	AX		1		2
5442		LEAR	04	06	0845	N30 W21	04	4.7		A	AX	10	2	1	3
5442		RAMY	04	06	1420	N31 W23	04	4.8		B	BXO	60	3	3	4
5442		HOLL	04	06	1432	N31 W24	04	4.7		B	BXO	10	2	3	3
5442	25158	MWIL	04	06	1630	N30 W24	04	4.8	3	(AF)					
5442		PALE	04	06	1815	N29 W26	04	4.7		B	BXO	10	2	3	2
5442		LEAR	04	07	0028	N30 W31	04	4.6		A	AX	10	2	1	3
5442		SVTO	04	07	1158	N33 W36	04	4.6		B	BXO	10	2	4	2
5442		RAMY	04	07	1430	N32 W34	04	4.9		B	BXO	30	5	5	4
5442		BOUL	04	07	1450	N31 W37	04	4.7		A	AX	10	1	1	1
5442	25158	MWIL	04	07	1630	N32 W38	04	4.7	4	(BP)					
5442		LEAR	04	08	0017	N32 W43	04	4.6		B	BXO	40	3	5	3
5442		CULG	04	08	0245	N32 W46	04	4.5		B	BXO	10	3	2	2
5442		SVTO	04	08	1002	N32 W50	04	4.4		A	HR	20	2	2	1
5442		HOLL	04	08	1150	N31 W51	04	4.5		A	AX	10	1	1	3
5442		RAMY	04	08	1305	N31 W50	04	4.6		A	AX		1		2
5442	25158	MWIL	04	08	1415	N31 W50	04	4.6	2	(B)					
5442		LEAR	04	09	0034	N30 W58	04	4.5		A	AX	20	1	2	3
5442		CULG	04	09	0305	N31 W61	04	4.3		A	AX		1		2
5442		HOLL	04	09	1445	N30 W65	04	4.5		A	AX	10	1		3
5431		LEAR	03	31	0347	N37 E67	04	5.5		B	BXO	30	2	5	4

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

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APRIL 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
5431		SVTO	03 31 0655	N37	E67	04 5.7		B	BXO	10	2	6	3
5431		RAMY	03 31 1400	N36	E59	04 5.3		A	AX	10	1	1	4
5431		HOLL	03 31 1410	N37	E60	04 5.4		A	AX	10	1		3
5431		PALE	03 31 1919	N37	E61	04 5.7		A	AX		1		3
5431		LEAR	04 01 0025	N38	E57	04 5.6		B	BXO	20	3	4	2
5431		SVTO	04 01 0820	N37	E53	04 5.6		B	BXO	10	2	7	1
5431		PALE	04 01 1735	N37	E49	04 5.7		B	BXO	10	2	4	3
5431		LEAR	04 02 0010	N39	E45	04 5.6		B	CRO	20	3	7	3
5431		SVTO	04 02 0955	N40	E41	04 5.7				10	2	6	1
5431		HOLL	04 02 1415	N38	E35	04 5.4		A	AX		1		3
5431	25138	MWIL	04 02 1545	N37	E33	04 5.3	4	(AP)					
5431		RAMY	04 02 1700	N37	E34	04 5.4		A	AX		1		3
5431		PALE	04 02 2100	N37	E33	04 5.5		A	AX		1		3
5431		LEAR	04 03 0025	N38	E29	04 5.4		A	AX	20	1	1	2
5431		SVTO	04 03 0726	N39	E28	04 5.6		A	HR	10	1	1	1
5431		HOLL	04 03 1600	N38	E21	04 5.4		A	AX	10	1		3
5431		RAMY	04 03 1700	N37	E20	04 5.3		A	AX		1		2
5431	25138	MWIL	04 03 1745	N37	E20	04 5.3	4	(AP)					
5431		PALE	04 03 1815	N38	E22	04 5.5		A	AX	10	1	1	3
5431		CULG	04 04 0344	N39	E13	04 5.2		A	AX	10	1		1
5431		SVTO	04 04 0631	N38	E13	04 5.3		A	AX		1	1	1
5431		HOLL	04 04 1540	N38	E08	04 5.3		A	AX	10	1	1	3
5431	25138	MWIL	04 04 1545	N37	E08	04 5.3	4	(AP)					
5431		RAMY	04 04 1620	N36	E08	04 5.3		A	AX		1		2
5431		PALE	04 04 2000	N37	E06	04 5.3		A	AX	10	1		3
5431		LEAR	04 05 0030	N38	W02	04 4.8		A	AX	10	1	1	3
5428		SVTO	03 29 0805	S18	E86	04 4.9		B	DRO	110	2	5	2
5428		RAMY	03 29 1245	S18	E78	04 4.5		BD	DKC	380	4	5	3
5428	25134	MWIL	03 29 1530	S18	E78	04 4.6	5	(AP)					
5428		PALE	03 29 1825	S19	E82	04 5.0		B	EKI	510	3	14	3
5428		LEAR	03 30 0017	S17	E75	04 4.7		B	EKO	600	6	11	3
5428		CULG	03 30 0300	S16	E82	04 5.3		B	EKO	700	4	15	2
5428		SVTO	03 30 1130	S17	E76	04 5.2		B	FKI	930	11	22	3
5428		RAMY	03 30 1330	S18	E71	04 5.0		B	FKI	1440	16	17	3
5428		BOUL	03 30 1455	S18	E71	04 5.0		B	FKI	1210	7	18	1
5428		HOLL	03 30 1520	S18	E73	04 5.2		B	FKI	1230	16	17	3
5428	25134	MWIL	03 30 1615	S18	E69	04 4.9	6	((B					
5428		PALE	03 30 1823	S20	E70	04 5.1		B	FKI	960	11	18	2
5428		LEAR	03 31 0347	S18	E65	04 5.1		B	FKI	1250	21	16	4
5428		SVTO	03 31 0655	S19	E63	04 5.1		BD	FKO	1130	21	16	3
5428		RAMY	03 31 1400	S20	E59	04 5.1		B	FKI	1330	18	19	4
5428		HOLL	03 31 1410	S19	E60	04 5.2		B	FHO	1280	26	17	3
5428	25134	MWIL	03 31 1530	S19	E56	04 4.9	6	(BG)					
5428		PALE	03 31 1919	S20	E57	04 5.2		B	FKI	1010	23	19	3
5428		LEAR	04 01 0025	S20	E55	04 5.2		BG	FKO	950	30	18	2
5428	25134	SVTO	04 01 0820	S20	E50	04 5.2		BG	FKO	1440	45	19	1
5428		MWIL	04 01 1530	S17	E43	04 4.9	5	(B)					
5428		RAMY	04 01 1535	S20	E45	04 5.1		BG	FKI	1050	34	17	3
5428		HOLL	04 01 1715	S19	E44	04 5.1		B	FKI	1330	82	18	3
5428		PALE	04 01 1735	S20	E43	04 5.0		BG	FKI	1240	33	17	3
5428		LEAR	04 02 0010	S18	E40	04 5.0		BG	FKI	1120	41	19	3
5428		SVTO	04 02 0955	S19	E37	04 5.2		BG	FKI	1130	54	20	1
5428		HOLL	04 02 1415	S19	E32	04 5.0		BG	FKI	1230	54	19	3
5428		BOUL	04 02 1420	S18	E32	04 5.0		B	FKI	1030	17	19	1
5428	25134	MWIL	04 02 1545	S18	E30	04 4.9	6	(D)					
5428		RAMY	04 02 1700	S18	E30	04 5.0		BG	FHI	1380	83	19	3
5428		PALE	04 02 2100	S20	E27	04 4.9		BG	FKI	1120	51	21	3
5428		LEAR	04 03 0025	S18	E27	04 5.1		BG	FKI	1100	62	18	2
5428		SVTO	04 03 0726	S19	E23	04 5.1		BG	FKI	1560	64	20	1
5428		HOLL	04 03 1600	S19	E17	04 5.0		BG	FKI	1350	63	20	3
5428		RAMY	04 03 1700	S18	E17	04 5.0		BG	FKI	1270	59	19	2
5428	25134	MWIL	04 03 1745	S18	E14	04 4.8	5	(D)					
5428		PALE	04 03 1815	S19	E17	04 5.0		BG	FKI	1400	56	20	3
5428		CULG	04 04 0344	S18	E11	04 5.0		BG	FKI	950	43	19	1
5428		SVTO	04 04 0631	S18	E09	04 4.9		BG	FKI	1100	55	20	1
5428		BOUL	04 04 1410	S17	E05	04 5.0		B	FKI	760	54	19	2
5428		HOLL	04 04 1540	S18	E05	04 5.0		BG	FKI	1330	75	21	3
5428	25134	MWIL	04 04 1545	S18	E03	04 4.9	6	(BG)					

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

APRIL 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5428		RAMY	04 04	1620	S20	E06	04 5.1		BG	FKI	1010	58	19	2
5428		PALE	04 04	2000	S19	E02	04 5.0		BG	FKI	1050	33	20	3
5428		LEAR	04 05	0030	S17	E01	04 5.1		BG	FHC	970	45	19	3
5428		CULG	04 05	0300	S18	W02	04 5.0		B	FKI	880	34	21	1
5428		SVTO	04 05	0835	S19	W04	04 5.0		BG	FKI	870	27	20	2
5428		HOLL	04 05	1413	S19	W07	04 5.0		BG	FHI	1070	30	19	3
5428		BOUL	04 05	1432	S17	W07	04 5.1		B	FKI	1060	27	19	2
5428	25134	MWIL	04 05	1515	S18	W09	04 4.9	6	(BG)					
5428		PALE	04 05	2025	S18	W13	04 4.9		BG	FKI	1050	26	20	2
5428		LEAR	04 06	0040	S19	W14	04 4.9		BG	FKI	940	43	20	2
5428		CULG	04 06	0230	S18	W15	04 5.0		B	FKI	760	13	19	1
5428		SVTO	04 06	0738	S19	W19	04 4.9		BG	FKO	1080	32	21	1
5428		RAMY	04 06	1420	S18	W21	04 5.0		BG	FHI	1060	49	19	4
5428		BOUL	04 06	1422	S18	W20	04 5.1		B	FKI	860	13	19	2
5428		HOLL	04 06	1432	S18	W21	04 5.0		BG	FKI	910	31	19	3
5428	25134	MWIL	04 06	1630	S19	W20	04 5.2	6	(B)					
5428		PALE	04 06	1815	S19	W22	04 5.1		BG	FKI	990	21	20	2
5428		LEAR	04 07	0028	S19	W28	04 4.9		BG	FKI	860	33	18	3
5428		SVTO	04 07	1158	S20	W31	04 5.1		B	FKO	800	29	18	2
5428		RAMY	04 07	1430	S19	W34	04 5.0		BG	FHI	900	28	19	4
5428		BOUL	04 07	1450	S18	W33	04 5.1		B	FKI	800	14	18	1
5428	25134	MWIL	04 07	1630	S19	W33	04 5.2	6	(BG)					
5428		LEAR	04 08	0017	S19	W40	04 4.9		BG	FKO	640	17	20	3
5428		CULG	04 08	0245	S20	W40	04 5.0		BG	FKI	680	13	20	2
5428		SVTO	04 08	1002	S19	W42	04 5.2		BG	FKO	660	16	20	1
5428		HOLL	04 08	1150	S17	W45	04 5.1		BG	FKO	770	26	21	3
5428		RAMY	04 08	1305	S18	W46	04 5.0		BG	EKO	900	19	17	2
5428	25134	MWIL	04 08	1415	S18	W45	04 5.2	6	(B)					
5428		LEAR	04 09	0034	S18	W50	04 5.2		B	FKO	450	14	19	3
5428		CULG	04 09	0305	S19	W54	04 5.0		B	FKO	630	11	19	2
5428		SVTO	04 09	1010	S19	W59	04 4.9		B	FKO	690	9	20	2
5428		RAMY	04 09	1258	S18	W58	04 5.1		B	FHO	640	13	18	4
5428	25134	MWIL	04 09	1440	S18	W59	04 5.1	6	(B)					
5428		HOLL	04 09	1445	S18	W56	04 5.3		B	FHO	450	15	19	3
5428		PALE	04 09	1950	S17	W63	04 5.0		BG	FKI	570	13	18	3
5428		LEAR	04 10	0032	S19	W66	04 5.0		B	FKO	730	16	21	3
5428		CULG	04 10	0150	S18	W66	04 5.0		B	FKO	390	7	19	1
5428		SVTO	04 10	0528	S18	W70	04 4.9		B	FKO	620	10	22	2
5428		BOUL	04 10	1335	S18	W70	04 5.2		B	FKO	320	6	18	1
5428		HOLL	04 10	1500	S18	W75	04 4.9		B	EHO	320	5	23	3
5428	25134	MWIL	04 10	1545	S18	W76	04 4.9	6	(B)					
5428		PALE	04 10	1800	S18	W70	04 5.4		B	CHO	370	3	14	3
5428		CULG	04 11	0015	S19	W77	04 5.1		B	FKO	300	3	16	2
5428		LEAR	04 11	0042	S19	W75	04 5.3		B	CHO	120	3	10	3
5428A	25138	MWIL	03 31	1530	N37	E60	04 5.5	4	(AP)					
5432		LEAR	03 31	0347	S27	E70	04 5.6		B	BXO	30	2	5	4
5432		SVTO	03 31	0655	S27	E69	04 5.7		B	BXO	10	2	6	3
5432		RAMY	03 31	1400	S28	E65	04 5.7		B	BXO	20	2	8	4
5432		HOLL	03 31	1410	S27	E64	04 5.6		B	BXO	10	2	7	3
5432	25139	MWIL	03 31	1530	S27	E64	04 5.6	5	(B)					
5432		PALE	03 31	1919	S28	E65	04 5.9		B	BXO		2	8	3
5432		LEAR	04 01	0025	S27	E59	04 5.6		B	BXO	10	2	8	2
5432		SVTO	04 01	0820	S28	E60	04 6.0		A	AX		2		1
5432		HOLL	04 01	1715	S28	E50	04 5.6		B	BXO	20	3	3	3
5432		LEAR	04 02	0010	S29	E51	04 6.0		A	AX	10	1	1	3
5432		HOLL	04 02	1415	S30	E43	04 6.0		A	AX		1		3
5432		RAMY	04 02	1700	S29	E42	04 6.0		A	AX		1		3
5439		SVTO	04 03	0726	S12	E38	04 6.2		B	BXO	20	4	4	1
5439		HOLL	04 03	1600	S11	E33	04 6.1		B	BXO	30	5	5	3
5439		RAMY	04 03	1700	S12	E32	04 6.1		B	CAO	30	7	5	2
5439	25146	MWIL	04 03	1745	S12	E31	04 6.1	5	(B)					
5439		PALE	04 03	1815	S12	E32	04 6.2		B	BXO	10	5	3	3
5439		SVTO	04 04	0631	S11	E23	04 6.0		B	DSO	40	8	5	1
5439		BOUL	04 04	1410	S11	E20	04 6.1		B	DSO	20	11	5	2
5439		HOLL	04 04	1540	S12	E19	04 6.1		B	DSO	90	16	7	3
5439	25146	MWIL	04 04	1545	S12	E19	04 6.1	5	(B)					

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

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APRIL 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
5439		RAMY	04 04 1620	S11 E19	04 6.1		B	DAO	40	11	6	2
5439		PALE	04 04 2000	S12 E17	04 6.1		B	CAI	120	13	6	3
5439		LEAR	04 05 0030	S11 E15	04 6.1		B	DAO	70	12	7	3
5439		CULG	04 05 0300	S11 E13	04 6.1		B	DAO	60	9	6	1
5439		SVTO	04 05 0835	S11 E10	04 6.1		B	DAO	100	6	7	2
5439		RAMY	04 05 1248	S12 E08	04 6.1		B	DAI	130	17	6	3
5439		HOLL	04 05 1413	S13 E07	04 6.1		B	DSO	130	10	7	3
5439		BOUL	04 05 1432	S11 E07	04 6.1		B	DAO	130	8	7	2
5439	25146	MWIL	04 05 1515	S12 E06	04 6.1	5	(B)					
5439		PALE	04 05 2025	S11 E03	04 6.1		B	BXO	60	8	7	2
5439		LEAR	04 06 0040	S11 E01	04 6.1		B	DAO	70	16	7	2
5439		CULG	04 06 0230	S11 E01	04 6.2		B	DSO	30	4	7	1
5439		SVTO	04 06 0738	S12 W03	04 6.1		B	DAO	60	13	7	1
5439		RAMY	04 06 1420	S12 W07	04 6.1		B	DAO	70	13	7	4
5439		BOUL	04 06 1422	S12 W06	04 6.1		B	DSO	70	8	6	2
5439		HOLL	04 06 1432	S11 W07	04 6.1		B	DSO	60	10	7	3
5439	25146	MWIL	04 06 1630	S11 W06	04 6.2	5	(B)					
5439		PALE	04 06 1815	S11 W08	04 6.1		B	DSO	50	7	5	2
5439		LEAR	04 07 0028	S11 W13	04 6.0		B	CSO	50	8	7	3
5439		SVTO	04 07 1158	S12 W18	04 6.1		B	CAO	20	9	9	2
5439		RAMY	04 07 1430	S12 W18	04 6.2		B	CAO	60	11	9	4
5439		BOUL	04 07 1450	S11 W19	04 6.2		B	DAO	70	4	6	1
5439	25146	MWIL	04 07 1630	S11 W19	04 6.2	5	(B)					
5439		LEAR	04 08 0017	S11 W25	04 6.1		B	CAO	40	9	8	3
5439		CULG	04 08 0245	S12 W26	04 6.1		B	CSO	20	9	7	2
5439		SVTO	04 08 1002	S12 W29	04 6.2		B	BXO	10	6	6	1
5439		HOLL	04 08 1150	S11 W34	04 5.9		B	BXO	40	6	7	3
5439		RAMY	04 08 1305	S10 W34	04 6.0		B	CSO	20	6	3	2
5439	25146	MWIL	04 08 1415	S11 W33	04 6.1	4	(BP)					
5439		LEAR	04 09 0034	S11 W40	04 6.0		A	AX	10	1	2	3
5439		CULG	04 09 0305	S11 W41	04 6.0		B	CRO	10	2	3	2
5439		SVTO	04 09 1010	S12 W46	04 5.9		B	CRO	40	3	6	2
5439		RAMY	04 09 1258	S10 W46	04 6.1		B	BXO	10	3	4	4
5439	25146	MWIL	04 09 1440	S10 W49	04 5.9	4	(AP)					
5439		HOLL	04 09 1445	S11 W45	04 6.2		B	BXO	10	4	5	3
5439		PALE	04 09 1950	S10 W50	04 6.1		B	BXO	10	2	5	3
5439		LEAR	04 10 0032	S11 W53	04 6.0		A	AX	10	2	1	3
5439		CULG	04 10 0150	S11 W53	04 6.1		A	AX	10	1	1	1
5439		SVTO	04 10 0528	S12 W56	04 6.0		B	BXO	10	3	6	2
5439		HOLL	04 10 1500	S11 W61	04 6.0		B	BXO	20	2	5	3
5439	25146	MWIL	04 10 1545	S12 W60	04 6.1	4	(B)					
5439		PALE	04 10 1800	S09 W65	04 5.9		B	BXO	10	2	3	3
5439		HOLL	04 11 1400	S09 W75	04 5.9		A	AX	10	1	1	3
5439		RAMY	04 11 1400	S11 W75	04 5.9		A	AX	10	1	1	3
5439	25146	MWIL	04 11 1545	S11 W76	04 5.9	4	(AP)					
5439		PALE	04 11 1740	S11 W78	04 5.9		A	AX	10	1	1	3
5439A	25141	MWIL	04 01 1530	N16 E62	04 6.3	4	(AP)					
5433		LEAR	04 01 0025	N13 E71	04 6.4		A	AX	30	2	1	2
5433		SVTO	04 01 0820	N12 E68	04 6.5		A	AX	10	1	1	1
5433		RAMY	04 01 1535	N11 E63	04 6.4		A	AX	10	1	1	3
5433		HOLL	04 01 1715	N12 E61	04 6.3		A	AX	20	1	1	3
5433		PALE	04 01 1735	N12 E62	04 6.4		A	AX	10	1	1	3
5433		LEAR	04 02 0010	N13 E59	04 6.4		A	AX	20	1	1	3
5433		BOUL	04 04 1410	N16 E31	04 6.9		B	BXO	20	3	3	2
5433		HOLL	04 04 1540	N17 E32	04 7.1		B	BXO	20	4	3	3
5433	25148	MWIL	04 04 1545	N16 E31	04 7.0	5	(B)					
5433		RAMY	04 04 1620	N15 E30	04 6.9		B	BXO	10	5	3	2
5433		PALE	04 04 2000	N17 E28	04 7.0		B	BXO	10	6	3	3
5433		LEAR	04 05 0030	N18 E23	04 6.8		B	BXO	20	4	3	3
5433		CULG	04 05 0300	N17 E24	04 6.9		B	BXO	20	6	4	1
5433		SVTO	04 05 0835	N18 E22	04 7.0		B	DRO	10	4	3	2
5433		RAMY	04 05 1248	N17 E18	04 6.9		B	CRO	30	7	4	3
5433		HOLL	04 05 1413	N17 E17	04 6.9		B	BXO	40	4	4	3
5433		BOUL	04 05 1432	N16 E18	04 7.0		B	BXO	20	3	4	2
5433	25148	MWIL	04 05 1515	N16 E17	04 6.9	5	(B)					
5433		PALE	04 05 2025	N18 E13	04 6.8		B	BXO	20	5	5	2
5433		LEAR	04 06 0040	N17 E12	04 6.9		B	CRO	30	12	6	2

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SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5433		CULG	04 06 0230	N18 E08	04 6.7		B	CSO	10	4	5	1
5433		SVTO	04 06 0738	N18 E07	04 6.8		B	DAO	40	8	6	1
5433		LEAR	04 06 0845	N13 E01	04 6.4		A	AX	10	1	1	3
5433		RAMY	04 06 1420	N18 E04	04 6.9		B	DAO	50	11	7	4
5433		BOUL	04 06 1422	N17 E04	04 6.9		B	DSO	50	5	6	2
5433		HOLL	04 06 1432	N18 E04	04 6.9		B	DSO	40	11	6	3
5433	25148	MWIL	04 06 1630	N17 E04	04 7.0	5	(B)					
5433		PALE	04 06 1815	N17 E03	04 7.0		B	DSO	100	5	7	2
5433		LEAR	04 07 0028	N17 W03	04 6.8		B	DAO	30	10	7	3
5433		SVTO	04 07 1158	N18 W07	04 7.0		B	DAO	40	10	7	2
5433		RAMY	04 07 1430	N13 W09	04 6.9		B	DAO	90	11	7	4
5433		BOUL	04 07 1450	N17 W09	04 6.9		B	DAO	90	6	7	1
5433	25148	MWIL	04 07 1630	N17 W09	04 7.0	4	(B)					
5433		LEAR	04 08 0017	N18 W16	04 6.8		B	CAO	30	14	8	3
5433		CULG	04 08 0245	N18 W17	04 6.8		B	DAO	40	10	7	2
5433		SVTO	04 08 1002	N19 W20	04 6.9		B	DAO	60	13	7	1
5433		HOLL	04 08 1150	N18 W23	04 6.7		B	DSO	100	17	8	3
5433		RAMY	04 08 1305	N18 W22	04 6.9		B	DSO	50	11	8	2
5433	25148	MWIL	04 08 1415	N17 W23	04 6.8	4	(B)					
5433		LEAR	04 09 0034	N17 W29	04 6.8		B	DAO	70	8	7	3
5433		CULG	04 09 0305	N17 W31	04 6.8		B	DAO	30	6	7	2
5433		SVTO	04 09 1010	N18 W36	04 6.7		B	DAO	50	3	9	2
5433		RAMY	04 09 1258	N17 W35	04 6.9		B	CSO	20	5	9	4
5433	25148	MWIL	04 09 1440	N17 W38	04 6.7	4	(B)					
5433		HOLL	04 09 1445	N17 W35	04 6.9		B	CRO	20	3	8	3
5433		PALE	04 09 1950	N18 W43	04 6.5		A	HS	30	1	1	3
5433		LEAR	04 10 0032	N16 W46	04 6.5		B	CSO	80	3	3	3
5433		CULG	04 10 0150	N17 W48	04 6.4		A	HS	10	1	1	1
5433		SVTO	04 10 0528	N17 W49	04 6.5		A	HA	30	2	1	2
5433		BOUL	04 10 1335	N17 W50	04 6.8		A	HS	20	1	1	1
5433	25148	MWIL	04 10 1545	N17 W54	04 6.5	4	(AP)					
5433		PALE	04 10 1800	N17 W55	04 6.6		A	HS	40	1	2	3
5433		CULG	04 11 0015	N17 W61	04 6.4		A	AX		1		2
5433		LEAR	04 11 0042	N17 W58	04 6.6		A	HX	20	1	1	3
5433		RAMY	04 11 1400	N17 W67	04 6.5		A	AX		1		3
5433	25148	MWIL	04 11 1545	N17 W67	04 6.6	4	(AP)					
5433B	25150	MWIL	04 05 1515	S31 E13	04 6.7	4	(AP)					
5433C	25151	MWIL	04 05 1515	N25 E23	04 7.4	3	(AP)					
5433A		PALE	04 02 2100	N30 E60	04 7.6		B	BXO	20	3	4	3
5433A	25149	MWIL	04 04 1545	N32 E40	04 7.8	3	(AP)					
5433A		RAMY	04 09 1258	N31 W25	04 7.6		A	AX		1	1	4
5433A	25165	MWIL	04 09 1440	N31 W26	04 7.5	4	(AP)					
5433A		HOLL	04 09 1445	N32 W26	04 7.5		A	AX		1		3
5433A		PALE	04 09 1950	N32 W28	04 7.6		A	AX		1		3
5434		SVTO	04 01 0820	S23 E80	04 7.5		A	AX		1		1
5434		RAMY	04 01 1535	S24 E75	04 7.4		A	HR	20	2	1	3
5434		HOLL	04 01 1715	S23 E75	04 7.5		B	BXO	50	2	3	3
5434		PALE	04 01 1735	S23 E72	04 7.3		A	HR	20	1	1	3
5434		LEAR	04 02 0010	S22 E74	04 7.7		B	BXO	40	5	8	3
5434		HOLL	04 02 1415	S21 E65	04 7.6		B	CSO	30	4	10	3
5434		BOUL	04 02 1420	S23 E67	04 7.7		B	BXO	30	2	10	1
5434	25144	MWIL	04 02 1545	S23 E66	04 7.7	5	(B)					
5434		RAMY	04 02 1700	S23 E65	04 7.7		B	CRO	40	5	11	3
5434		PALE	04 02 2100	S24 E64	04 7.8		B	BXO	10	4	10	3
5434		LEAR	04 03 0025	S22 E62	04 7.8		B	CSO	90	8	12	2
5434		SVTO	04 03 0726	S23 E59	04 7.8		B	CAO	40	7	12	1
5434		HOLL	04 03 1600	S23 E54	04 7.8		B	BXO	90	10	11	3
5434		RAMY	04 03 1700	S23 E51	04 7.6		B	BXO	30	10	10	2
5434	25144	MWIL	04 03 1745	S23 E52	04 7.7	5	(B)					
5434		PALE	04 03 1815	S23 E53	04 7.8		B	BXO	20	6	12	3
5434		CULG	04 04 0344	S21 E47	04 7.7		B	CSO	10	4	5	1
5434		SVTO	04 04 0631	S22 E45	04 7.7		B	ERO	20	6	12	1
5434		BOUL	04 04 1410	S21 E38	04 7.5		B	BXO		2	11	2
5434		HOLL	04 04 1540	S22 E39	04 7.6		B	BXO	10	2	10	3
5434	25144	MWIL	04 04 1545	S22 E40	04 7.7	5	(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
5434		RAMY	04 04 1620	S21 E38	04 7.6		B	BXO	10	2	10	2
5434		LEAR	04 05 0030	S18 E35	04 7.7		B	BXO	20	3	11	3
5434		CULG	04 05 0300	S20 E40	04 8.2		A	AX		1		1
5434		SVTO	04 05 0835	S21 E36	04 8.1		A	AX		1		2
5434		RAMY	04 05 1248	S22 E31	04 7.9		B	BXO	20	5	5	3
5434		HOLL	04 05 1413	S21 E32	04 8.0		A	AX	10	1	1	3
5434	25144	MWIL	04 05 1515	S22 E30	04 7.9	3	(B)					
5434		HOLL	04 06 1432	S24 E09	04 7.3		A	AX		1		3
5434		SVTO	04 07 1158	S24 E02	04 7.6		A	AX		3	3	2
5434		RAMY	04 07 1430	S23 E00	04 7.6		B	BXO	20	7	4	4
5434		BOUL	04 07 1450	S22 E01	04 7.7		A	HA	40	2	2	1
5434	25162	MWIL	04 07 1630	S23 E00	04 7.7	4	(AP)					
5434		LEAR	04 08 0017	S24 W04	04 7.7		B	BXO	30	5	5	3
5434		CULG	04 08 0245	S23 W05	04 7.7		B	BXO	10	5	4	2
5434		SVTO	04 08 1002	S23 W08	04 7.8		B	BXO	10	7	5	1
5434		RAMY	04 08 1305	S22 W11	04 7.7		B	BXO	110	4	7	2
5434	25162	MWIL	04 08 1415	S23 W11	04 7.7	4	(B)					
5434		LEAR	04 09 0034	S23 W16	04 7.8		B	BXO	50	7	6	3
5434		CULG	04 09 0305	S23 W19	04 7.7		B	BXO		4	7	2
5434		SVTO	04 09 1010	S23 W23	04 7.6		B	BXO		3	6	2
5434		RAMY	04 09 1258	S22 W23	04 7.8		B	BXO	10	3	7	4
5434	25162	MWIL	04 09 1440	S22 W25	04 7.7	5	(B)					
5434		HOLL	04 09 1445	S23 W23	04 7.8		B	BXO	10	6	9	3
5434		PALE	04 09 1950	S23 W31	04 7.4		B	BXO	10	5	3	3
5434		LEAR	04 10 0032	S23 W33	04 7.5		B	BXO	10	3	3	3
5434		CULG	04 10 0150	S22 W32	04 7.6		B	BXO		3	3	1
5434		SVTO	04 10 0528	S24 W37	04 7.4		B	CRO	10	5	5	2
5434		BOUL	04 10 1335	S23 W39	04 7.6		B	BXO	20	2	1	1
5434		HOLL	04 10 1500	S22 W43	04 7.3		B	BXO	20	3	8	3
5434	25162	MWIL	04 10 1545	S23 W43	04 7.3	5	(AP)					
5434		PALE	04 10 1800	S23 W44	04 7.3		B	CSO	30	2	3	3
5434		CULG	04 11 0015	S24 W47	04 7.4		A	AX		1		2
5434		LEAR	04 11 0042	S24 W48	04 7.3		A	HX	30	2	2	3
5434		HOLL	04 11 1400	S22 W55	04 7.3		A	AX		1		3
5434		RAMY	04 11 1400	S23 W55	04 7.3		A	AX		1		3
5434	25162	MWIL	04 11 1545	S23 W56	04 7.3	4	(AP)					
5434		PALE	04 11 1740	S24 W58	04 7.2		A	AX		1		3
5446		LEAR	04 06 0040	S17 E26	04 8.0		B	BXO	20	6	3	2
5446		CULG	04 06 0230	S15 E25	04 8.0		B	BXO		3	3	1
5446		SVTO	04 06 0738	S16 E22	04 8.0		B	CRO	20	6	3	1
5446		RAMY	04 06 1420	S16 E18	04 8.0		B	DAI	60	15	4	4
5446		BOUL	04 06 1422	S16 E18	04 8.0		B	DAO	50	5	4	2
5446		HOLL	04 06 1432	S16 E18	04 8.0		B	DSI	60	13	4	3
5446	25159	MWIL	04 06 1630	S16 E18	04 8.0	4	(B)					
5446		PALE	04 06 1815	S17 E17	04 8.0		B	DSI	50	7	4	2
5446		LEAR	04 07 0028	S16 E13	04 8.0		B	CAO	50	9	5	3
5446		SVTO	04 07 1158	S18 E07	04 8.0		B	CRO	20	8	5	2
5446		RAMY	04 07 1430	S17 E06	04 8.1		B	DAO	90	7	5	4
5446		BOUL	04 07 1450	S16 E05	04 8.0		B	DAO	70	4	5	1
5446	25159	MWIL	04 07 1630	S17 E05	04 8.1	4	(B)					
5446		LEAR	04 08 0017	S16 E01	04 8.1		B	DAO	50	11	6	3
5446		CULG	04 08 0245	S16 W02	04 8.0		B	DAO	60	7	6	2
5446		SVTO	04 08 1002	S17 W05	04 8.0		B	DAO	60	10	6	1
5446		HOLL	04 08 1150	S16 W08	04 7.9		B	CKO	110	10	7	3
5446		RAMY	04 08 1305	S16 W08	04 7.9		B	CAO	50	6	6	2
5446	25159	MWIL	04 08 1415	S17 W08	04 8.0	4	(B)					
5446		LEAR	04 09 0034	S17 W13	04 8.0		B	DSO	50	7	6	3
5446		CULG	04 09 0305	S16 W16	04 7.9		B	DAO	60	4	6	2
5446		SVTO	04 09 1010	S18 W20	04 7.9		B	CAO	50	5	5	2
5446		RAMY	04 09 1258	S16 W21	04 7.9		B	CSO	50	5	5	4
5446	25159	MWIL	04 09 1440	S17 W22	04 7.9	4	(BP)					
5446		HOLL	04 09 1445	S16 W21	04 8.0		B	CAO	30	5	5	3
5446		PALE	04 09 1950	S16 W25	04 7.9		B	CAI	80	7	4	3
5446		LEAR	04 10 0032	S17 W28	04 7.9		B	CAO	80	7	5	3
5446		CULG	04 10 0150	S16 W28	04 7.9		B	CAO	50	7	5	1
5446		SVTO	04 10 0528	S17 W30	04 7.9		B	CAO	50	7	4	2
5446		BOUL	04 10 1335	S16 W33	04 8.1		A	HS	20	1	1	1
5446		HOLL	04 10 1500	S17 W34	04 8.0		B	CSO	60	9	3	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

APRIL 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Observation Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5446	25159	MWIL	04	10	1545	S17	W36	04	7.9	5	(BP)					
5446		PALE	04	10	1800	S16	W38	04	7.9		B	CSO	60	7	4	3
5446		CULG	04	11	0015	S17	W41	04	7.9		A	HS	30	4	1	2
5446		LEAR	04	11	0042	S17	W40	04	8.0		A	HS	30	1	1	3
5446		HOLL	04	11	1400	S16	W49	04	7.9		A	HA	20	2	1	3
5446		RAMY	04	11	1400	S17	W48	04	7.9		A	HS	30	2	2	3
5446	25159	MWIL	04	11	1545	S17	W49	04	7.9	5	(AP)					
5446		PALE	04	11	1740	S17	W50	04	7.9		A	HS	20	2	1	3
5446		LEAR	04	12	0341	S17	W56	04	7.9		A	HS	20	1	1	2
5446		SVTO	04	12	0554	S17	W59	04	7.8		A	HR	20	1	1	1
5446		RAMY	04	12	1257	S17	W60	04	8.0		A	HR	40	3	2	2
5446		BOUL	04	12	1352	S16	W60	04	8.0		A	AX	10	1	1	4
5446	25159	MWIL	04	12	1500	S17	W61	04	8.0	4	(AP)					
5446		PALE	04	12	1900	S17	W63	04	8.0		A	AX		1		2
5440	25152	MWIL	04	05	1515	N28	E38	04	8.6	4	(AP)					
5440		LEAR	04	06	0845	N28	E28	04	8.5		A	AX	10	1	1	3
5440		RAMY	04	06	1420	N28	E26	04	8.6		A	AX		1		4
5440		HOLL	04	06	1432	N29	E28	04	8.8		B	BXO	10	2	4	3
5440	25152	MWIL	04	06	1630	N28	E25	04	8.6	3	(AP)					
5440		PALE	04	06	1815	N28	E25	04	8.7		A	AX		1		2
5440		LEAR	04	07	0028	N28	E19	04	8.5		A	AX	10	2	1	3
5440	25152	MWIL	04	07	1630	N27	E11	04	8.5	3	(AP)					
5440		LEAR	04	08	0017	N27	E05	04	8.4		A	AX	10	1	1	3
5440		HOLL	04	08	1150	N28	W06	04	8.0		A	AX	10	2	1	3
5440		LEAR	04	09	0034	N31	W18	04	7.6		A	AX	10	1	1	3
5440		LEAR	04	10	0032	N31	W32	04	7.5		A	AX	10	1	1	3
5440A		RAMY	04	07	1430	N21	E12	04	8.5		B	BXO	10	3	3	4
5438		PALE	04	02	2100	S17	E88	04	9.6		A	AX	10	1	2	3
5438		LEAR	04	03	0025	S15	E81	04	9.1		A	HS	120	1	5	2
5438		SVTO	04	03	0726	S16	E81	04	9.4		A	HA	70	1	2	1
5438		HOLL	04	03	1600	S15	E75	04	9.3		B	CHO	120	2	10	3
5438	25147	MWIL	04	03	1745	S15	E74	04	9.3	5	(AP)					
5438		PALE	04	03	1815	S15	E75	04	9.4		B	CAO	130	2	5	3
5438		CULG	04	04	0344	S13	E72	04	9.6		A	HS	60	1	2	1
5438		SVTO	04	04	0631	S16	E69	04	9.5		B	CSO	100	5	9	1
5438		BOUL	04	04	1410	S15	E63	04	9.3		A	HS	80	1	2	2
5438		HOLL	04	04	1540	S16	E65	04	9.6		B	CSO	150	4	8	3
5438	25147	MWIL	04	04	1545	S15	E63	04	9.4	5	(BP)					
5438		PALE	04	04	2000	S14	E59	04	9.3		B	BXO	180	2	3	3
5438		LEAR	04	05	0030	S10	E58	04	9.4		B	CSO	80	2	7	3
5438		CULG	04	05	0300	S12	E58	04	9.5		A	HS	70	1	2	1
5438		SVTO	04	05	0835	S14	E52	04	9.3		A	HA	100	1	2	2
5438		RAMY	04	05	1248	S17	E58	04	9.9		B	CSO	130	4	12	3
5438		HOLL	04	05	1413	S14	E49	04	9.3		A	HS	100	1	2	3
5438		BOUL	04	05	1432	S14	E49	04	9.3		A	HA	90	1	2	2
5438	25147	MWIL	04	05	1515	S15	E50	04	9.4	6	(BP)					
5438		PALE	04	05	2025	S14	E47	04	9.4		A	HS	60	1	2	2
5438		LEAR	04	06	0040	S17	E45	04	9.4		A	HS	70	5	2	2
5438		CULG	04	06	0230	S13	E45	04	9.5		A	HS	60	1	2	1
5438		SVTO	04	06	0738	S17	E40	04	9.3		B	CAO	110	2	3	1
5438		RAMY	04	06	1420	S17	E37	04	9.4		B	CSO	110	7	7	4
5438		BOUL	04	06	1422	S16	E36	04	9.3		B	CSO	80	3	2	2
5438		HOLL	04	06	1432	S16	E36	04	9.3		B	CSO	100	10	5	3
5438	25147	MWIL	04	06	1630	S15	E36	04	9.4	5	(AP)					
5438	25160	MWIL	04	06	1630	S18	E36	04	9.4	3	(BP)					
5438		PALE	04	06	1815	S17	E35	04	9.4		B	CSO	110	5	5	2
5438		LEAR	04	07	0028	S17	E31	04	9.4		B	CSO	80	9	3	3
5438		SVTO	04	07	1158	S18	E27	04	9.5		B	CSO	70	7	5	2
5438		RAMY	04	07	1430	S17	E24	04	9.4		B	CSO	100	6	4	4
5438		BOUL	04	07	1450	S16	E22	04	9.3		B	CSO	70	3	4	1
5438	25147	MWIL	04	07	1630	S15	E23	04	9.4	5	(AP)					
5438	25160	MWIL	04	07	1630	S17	E24	04	9.5	4	(B)					
5438		LEAR	04	08	0017	S17	E18	04	9.4		B	CSO	70	11	4	3
5438		CULG	04	08	0245	S16	E17	04	9.4		B	DAO	70	10	5	2
5438		SVTO	04	08	1002	S16	E14	04	9.5		BG	DAI	80	14	5	1
5438		HOLL	04	08	1150	S16	E10	04	9.2		B	DAO	200	19	6	3

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(Ordered by Central Meridian Passage Date)

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APRIL 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Observation Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5438		RAMY	04	08	1305	S17	E13	04	9.5		B	DSO	150	9	6	2
5438	25147	MWIL	04	08	1415	S14	E10	04	9.3	5	(BP)					
5438	25160	MWIL	04	08	1415	S19	E10	04	9.3	5	(B)					
5438		LEAR	04	09	0034	S17	E05	04	9.4		B	DAO	110	10	7	3
5438		CULG	04	09	0305	S16	E03	04	9.3		B	DAO	50	8	5	2
5438		SVTO	04	09	1010	S17	W02	04	9.3		B	DAI	80	10	6	2
5438		RAMY	04	09	1258	S17	W03	04	9.3		B	DSO	80	10	6	4
5438	25147	MWIL	04	09	1440	S15	W04	04	9.3	4	(AP)					
5438	25160	MWIL	04	09	1440	S17	W07	04	9.1	4	(BP)					
5438		HOLL	04	09	1445	S17	W03	04	9.4		B	CSO	50	12	7	3
5438		PALE	04	09	1950	S17	W06	04	9.4		B	DAO	80	8	8	3
5438		LEAR	04	10	0032	S17	W11	04	9.2		B	DAO	100	15	7	3
5438		CULG	04	10	0150	S16	W11	04	9.2		B	DAO	50	5	5	1
5438		SVTO	04	10	0528	S17	W13	04	9.2		B	DAO	70	9	5	2
5438		BOUL	04	10	1335	S15	W17	04	9.3		B	CAO	40	6	4	1
5438		HOLL	04	10	1500	S16	W19	04	9.2		B	CSI	70	20	9	3
5438	25147	MWIL	04	10	1545	S15	W18	04	9.3	4	(BG)					
5438		PALE	04	10	1800	S16	W21	04	9.1		B	DSI	100	13	7	3
5438		CULG	04	11	0015	S15	W23	04	9.3		B	DAI	20	11	3	2
5438		LEAR	04	11	0042	S17	W24	04	9.2		B	CSO	40	7	5	3
5438		HOLL	04	11	1400	S15	W31	04	9.2		B	CSO	20	6	5	3
5438		RAMY	04	11	1400	S16	W32	04	9.1		B	CRO	20	7	5	3
5438	25147	MWIL	04	11	1545	S16	W32	04	9.2	5	(BG)					
5438		PALE	04	11	1740	S16	W33	04	9.2		B	CAO	30	8	5	3
5438		LEAR	04	12	0341	S16	W37	04	9.3		B	CAO	50	12	6	2
5438		SVTO	04	12	0554	S16	W39	04	9.3		B	DRO	40	9	6	1
5438		RAMY	04	12	1257	S17	W43	04	9.3		B	CRO	50	9	6	2
5438		BOUL	04	12	1352	S16	W42	04	9.4		B	BXI	40	8	5	4
5438	25147	MWIL	04	12	1500	S16	W45	04	9.2	4	(B)					
5438		HOLL	04	12	1550	S18	W44	04	9.3		BG	BXO	80	14	8	3
5438		PALE	04	12	1900	S16	W46	04	9.3		B	BXO	10	5	4	2
5438		LEAR	04	13	0013	S16	W49	04	9.3		B	CRO	50	7	6	2
5438		CULG	04	13	0141	S16	W50	04	9.3		B	BXO	20	4	5	2
5438		RAMY	04	13	1245	S15	W56	04	9.3		B	BXO	40	5	6	3
5438		BOUL	04	13	1345	S15	W59	04	9.1		A	AX	20	1	1	3
5438		SVTO	04	13	1451	S14	W59	04	9.1		A	HR	10	1	1	1
5438	25147	MWIL	04	13	1500	S15	W58	04	9.2	4	(AP)					
5438		HOLL	04	13	1510	S16	W60	04	9.1		A	AX	10	1	1	2
5438		PALE	04	13	1925	S15	W64	04	9.0		A	AX	10	1	1	2
5438		LEAR	04	14	0025	S14	W64	04	9.2		B	BXO	20	2	3	4
5438		CULG	04	14	0329	S16	W67	04	9.1		A	AX	10	1	1	3
5438		RAMY	04	14	1227	S14	W72	04	9.1		A	AX	10	1	1	3
5438	25147	MWIL	04	14	1515	S15	W74	04	9.0	4	(AP)					
5438		HOLL	04	14	1540	S15	W72	04	9.2		A	AX	10	1	1	4
5438		PALE	04	14	1800	S15	W73	04	9.2		A	AX		1	1	2
5438		LEAR	04	15	0017	S16	W76	04	9.2		A	AX	30	1	2	3
5838		RAMY	04	03	1700	S16	E76	04	9.5		B	CSO	70	3	8	2
5838		RAMY	04	04	1620	S14	E62	04	9.4		B	CSO	90	4	9	2
5448		RAMY	04	11	1400	S28	W25	04	9.6		A	AX		2	1	3
5448		HOLL	04	11	1400	S28	W25	04	9.6		A	AX		3	2	3
5448	25166	MWIL	04	11	1545	S29	W26	04	9.6	5	(BP)					
5448		PALE	04	11	1740	S29	W27	04	9.6		B	BXO	10	3	3	3
5448		LEAR	04	12	0341	S29	W34	04	9.5		A	AX	10	2	1	2
5448		SVTO	04	12	0554	S29	W36	04	9.4		A	HR	20	2	2	1
5448		RAMY	04	12	1257	S29	W40	04	9.4		A	AX	10	2	1	2
5448		BOUL	04	12	1352	S28	W40	04	9.4		A	AX		1	1	4
5448	25166	MWIL	04	12	1500	S29	W41	04	9.4	4	(AP)					
5448		HOLL	04	12	1550	S31	W41	04	9.4		A	AX	10	2	1	3
5448		PALE	04	12	1900	S29	W44	04	9.3		A	AX		1		2
5448		LEAR	04	13	0013	S29	W44	04	9.5		B	BXO	20	3	3	2
5448		RAMY	04	14	1227	S28	W68	04	9.2		A	AX		1		3
5448	25166	MWIL	04	14	1515	S29	W67	04	9.4	4	(B)					
5448		HOLL	04	14	1540	S28	W68	04	9.3		B	BXO	10	3	4	4
5448		PALE	04	14	1800	S28	W69	04	9.3		B	BXO	10	3	3	2
5448		LEAR	04	15	0017	S28	W68	04	9.7		B	BXO	60	2	1	3
5448		SVTO	04	15	0545	S29	W77	04	9.2		B	CRO	40	3	7	2
5448		RAMY	04	15	1400	S27	W77	04	9.6		B	BXO	20	3	5	2

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

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual	
			Mo	Day											(UT)
5448	25166	MWIL	04	15	1530	S29 W77	04 9.6	3	(AP)						
5448		LEAR	04	16	0155	S28 W80	04 9.8		A	AX	30	1	1	2	
5448A	25164	RAMY	04	07	1430	N34 E39	04 10.7	3	B	CKO	380	14	10	4	
5448A		MWIL	04	08	1415	N31 E17	04 9.9		(AF)						
5448A		PALE	04	09	1950	N33 E05	04 10.2		B	BXO	20	13	6	3	
5448A		LEAR	04	13	0013	N31 W41	04 9.8		B	BXO	20	5	5	2	
5448B		SVTO	04	08	1002	N37 E24	04 10.3		B	CAO	40	7	6	1	
5448B		SVTO	04	09	1010	N36 E11	04 10.3		B	CAO	20	3	9	2	
5448C	25153	MWIL	04	05	1515	S18 E62	04 10.3	4	(AF)						
5441		HOLL	04	04	1540	N34 E81	04 11.1	5	A	AX	60	1	4	3	
5441		RAMY	04	04	1620	N35 E79	04 11.0		A	HS	30	1	1	2	
5441		PALE	04	04	2000	N34 E79	04 11.1		A	HS	60	1	3	3	
5441		LEAR	04	05	0030	N40 E71	04 10.8		A	HH	180	1	5	3	
5441		CULG	04	05	0300	N37 E75	04 11.2		B	DSO	30	2	6	1	
5441		SVTO	04	05	0835	N35 E68	04 10.8		B	CAO	600	2	5	2	
5441		RAMY	04	05	1248	N34 E66	04 10.8		B	CAO	140	4	7	3	
5441		HOLL	04	05	1413	N35 E66	04 10.9		A	HA	80	2	2	3	
5441		BOUL	04	05	1432	N34 E68	04 11.0		A	HA	120	2	2	2	
5441		25154	MWIL	04	05	1515	N34 E69		04 11.1	(BF)					
5441			PALE	04	05	2025	N35 E66		04 11.1	B	CAO	120	2	5	2
5441			LEAR	04	06	0040	N35 E63		04 11.1	B	CKO	180	6	6	2
5441			CULG	04	06	0230	N37 E66		04 11.4	A	HS	60	1	2	1
5441		SVTO	04	06	0738	N35 E60	04 11.1		B	CAO	160	5	4	1	
5441		RAMY	04	06	1420	N35 E56	04 11.1		A	HA	190	5	3	4	
5441		BOUL	04	06	1422	N34 E57	04 11.1		A	HA	120	2	2	2	
5441		HOLL	04	06	1432	N35 E57	04 11.2		A	HH	150	5	3	3	
5441		25154	MWIL	04	06	1630	N34 E56		04 11.1	(BF)					
5441			PALE	04	06	1815	N35 E56		04 11.2	A	HH	240	4	3	2
5441			LEAR	04	07	0028	N35 E47		04 10.8	B	CAO	160	5	10	3
5441	SVTO	04	07	1158	N36 E48	04 11.3	B	DAI	150	3	5	2			
5441	BOUL	04	07	1450	N35 E37	04 10.6	B	CAO	160	6	10	1			
5441	25154	MWIL	04	07	1630	N34 E39	04 10.8	5	(D)						
5441		LEAR	04	08	0017	N36 E35	04 10.8	B	DKO	290	12	11	3		
5441		CULG	04	08	0245	N37 E32	04 10.7	BGD	CKO	330	12	5	2		
5441		SVTO	04	08	1002	N37 E35	04 11.2	BD	DKC	230	10	7	1		
5441	RAMY	04	08	1305	N38 E23	04 10.4	B	CAO	20	4	4	2			
5441	25154	MWIL	04	08	1415	N36 E27	04 10.8	5	(D)						
5441		LEAR	04	09	0034	N36 E20	04 10.6	B	DKO	450	15	12	3		
5441		CULG	04	09	0305	N36 E21	04 10.8	B	DKO	230	13	10	2		
5441		SVTO	04	09	1010	N36 E20	04 11.0	BGD	DKC	330	13	8	2		
5441	RAMY	04	09	1258	N34 E14	04 10.6	B	EHO	360	23	15	4			
5441	25154	MWIL	04	09	1440	N36 E16	04 10.9	5	(D)						
5441		HOLL	04	09	1445	N36 E14	04 10.7	BGD	DKI	210	21	10	3		
5441		PALE	04	09	1950	N36 E12	04 10.8	BD	EKI	350	29	12	3		
5441		LEAR	04	10	0032	N34 E06	04 10.5	B	FKO	330	23	17	3		
5441		CULG	04	10	0150	N36 E09	04 10.8	B	DAO	190	9	10	1		
5441		SVTO	04	10	0528	N36 E05	04 10.6	BGD	FKI	340	23	16	2		
5441		BOUL	04	10	1335	N35 E05	04 11.0	B	EAI	220	11	10	1		
5441		HOLL	04	10	1500	N35 W01	04 10.5	BG	DKI	220	23	14	3		
5441	25154	MWIL	04	10	1545	N35 E03	04 10.9	5	(BG)						
5441		PALE	04	10	1800	N34 W02	04 10.6	BG	FKI	250	19	16	3		
5441		CULG	04	11	0015	N35 W02	04 10.8	B	DAO	90	9	9	2		
5441		LEAR	04	11	0042	N33 W06	04 10.5	B	EAO	180	14	15	3		
5441	RAMY	04	11	1400	N34 W08	04 10.9	B	DAO	170	16	9	3			
5441	HOLL	04	11	1400	N35 W09	04 10.9	BG	EAO	90	12	12	3			
5441	25154	MWIL	04	11	1545	N34 W08	04 11.0	5	(BP)						
5441		PALE	04	11	1740	N33 W09	04 11.0	B	DAO	120	10	9	3		
5441		LEAR	04	12	0341	N33 W16	04 10.9	B	DAO	50	7	10	2		
5441		SVTO	04	12	0554	N36 W17	04 10.9	B	DAO	80	7	9	1		
5441		RAMY	04	12	1257	N33 W21	04 10.9	B	DAO	130	9	8	2		
5441		BOUL	04	12	1352	N34 W19	04 11.1	B	CAO	70	9	8	4		
5441		25154	MWIL	04	12	1500	N34 W21	04 10.9	5	(BP)					
5441			HOLL	04	12	1550	N35 W24	04 10.7	B	BXO	120	17	11	3	
5441	PALE		04	12	1900	N34 W24	04 10.9	B	DAO	60	10	9	2		
5441	LEAR		04	13	0013	N33 W27	04 10.9	B	DAO	60	14	10	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
5441		CULG	04 13 0141	N36	W29	04 10.7		B	CSO	40	6	9	2
5441		RAMY	04 13 1245	N33	W34	04 10.8		B	CAO	80	6	9	3
5441		BOUL	04 13 1345	N35	W32	04 11.0		B	BXO	40	6	8	3
5441		SVTO	04 13 1451	N36	W33	04 11.0		B	DAO	40	4	8	1
5441	25154	MWIL	04 13 1500	N34	W35	04 10.8	4	(B)					
5441		HOLL	04 13 1510	N34	W35	04 10.8		B	BXO	50	6	10	2
5441		PALE	04 13 1925	N35	W36	04 10.9		B	CAO	40	4	9	2
5441		LEAR	04 14 0025	N34	W38	04 11.0		B	CSO	50	6	8	4
5441		CULG	04 14 0329	N34	W42	04 10.8		B	BXO	20	3	6	3
5441		RAMY	04 14 1227	N35	W45	04 10.9		B	CRO	20	2	7	3
5441		BOUL	04 14 1448	N35	W46	04 10.9		B	BXO	20	2	7	2
5441	25154	MWIL	04 14 1515	N34	W47	04 10.9	4	(B)					
5441		HOLL	04 14 1540	N34	W45	04 11.1		B	BXO	20	5	13	4
5441		PALE	04 14 1800	N35	W46	04 11.1		B	CSO	50	3	6	2
5441		LEAR	04 15 0017	N34	W51	04 10.9		B	CSO	40	4	7	3
5441		SVTO	04 15 0545	N34	W56	04 10.8		B	CAO	40	2	8	2
5441		BOUL	04 15 1325	N34	W56	04 11.1		B	BXO	10	2	8	2
5441		RAMY	04 15 1400	N36	W57	04 11.0		B	CRO	30	2	6	2
5441	25154	MWIL	04 15 1530	N35	W59	04 10.9	5	(BF)					
5441		HOLL	04 15 1545	N35	W58	04 11.0		B	BXO	60	3	12	3
5441		PALE	04 15 1910	N37	W60	04 11.0		A	HS	30	1	1	2
5441		LEAR	04 16 0155	N37	W62	04 11.1		A	AX	30	1	1	2
5441		CULG	04 16 0310	N37	W66	04 10.8		A	AX	30	1	1	2
5441		SVTO	04 16 0607	N37	W68	04 10.8		A	HA	30	1	1	2
5441		RAMY	04 16 1230	N36	W68	04 11.1		A	HR	30	1	1	2
5441	25154	MWIL	04 16 1530	N35	W69	04 11.1	4	(AP)					
5441A		HOLL	04 08 1150	N14	E29	04 10.7		B	BXO	50	8	4	3
5441B	25167	MWIL	04 11 1545	S11	W09	04 11.0	3	(AF)					
5441C		PALE	04 09 1950	S05	E19	04 11.2		A	BX		1		3
5441D		PALE	04 09 1950	S12	E38	04 12.7		A	AX		1		3
5444		RAMY	04 06 1420	N19	E78	04 12.5		A	AX	10	1	1	4
5444		HOLL	04 06 1432	N20	E80	04 12.7		A	AX		1		3
5444	25161	MWIL	04 06 1630	N19	E78	04 12.6	3	(AP)					
5444		PALE	04 06 1815	N20	E79	04 12.8		A	AX		1		2
5444		LEAR	04 07 0028	N20	E73	04 12.6		A	AX	10	1	1	3
5444		SVTO	04 07 1158	N22	E75	04 13.3		A	AX	10	2	10	2
5444		RAMY	04 07 1430	N20	E68	04 12.8		B	CAO	60	2	4	4
5444		BOUL	04 07 1450	N22	E66	04 12.7		B	BXO	30	2	8	1
5444	25161	MWIL	04 07 1630	N19	E66	04 12.7	4	(AP)					
5444	25163	MWIL	04 07 1630	N23	E72	04 13.2	4	(AP)					
5444		LEAR	04 08 0017	N21	E63	04 12.8		B	CAO	40	3	5	3
5444		CULG	04 08 0245	N24	E64	04 13.0		B	BXO	20	2	9	2
5444		SVTO	04 08 1002	N24	E61	04 13.1		B	CSO	30	2	8	1
5444		HOLL	04 08 1150	N21	E55	04 12.7		B	CSO	60	4	7	3
5444		RAMY	04 08 1305	N21	E56	04 12.8		B	CSO	60	3	7	2
5444	25161	MWIL	04 08 1415	N19	E53	04 12.6	4	(AP)					
5444	25163	MWIL	04 08 1415	N22	E59	04 13.1	4	(AP)					
5444		LEAR	04 09 0034	N22	E50	04 12.9		B	DSO	50	3	8	3
5444		CULG	04 09 0305	N22	E49	04 12.9		B	DSO	30	4	6	2
5444		SVTO	04 09 1010	N22	E46	04 12.9		B	CAO	40	4	9	2
5444		RAMY	04 09 1258	N21	E44	04 12.9		B	CSO	40	3	8	4
5444	25161	MWIL	04 09 1440	N19	E40	04 12.7	5	(AP)					
5444	25163	MWIL	04 09 1440	N22	E46	04 13.1	4	(AP)					
5444		HOLL	04 09 1445	N20	E43	04 12.9		B	CSO	20	4	9	3
5444		PALE	04 09 1950	N21	E40	04 12.9		B	BXO	30	4	9	3
5444		LEAR	04 10 0032	N21	E37	04 12.8		B	DAO	60	6	7	3
5444		CULG	04 10 0150	N22	E37	04 12.9		B	CAO	20	3	6	1
5444		SVTO	04 10 0528	N22	E36	04 13.0		B	CRO	30	5	8	2
5444		BOUL	04 10 1335	N22	E30	04 12.9		B	CSO	20	2	7	1
5444		HOLL	04 10 1500	N20	E28	04 12.8		B	BXO	40	7	7	3
5444	25163	MWIL	04 10 1545	N21	E30	04 12.9	5	(BP)					
5444		PALE	04 10 1800	N20	E29	04 13.0		B	BXO	20	6	7	3
5444		CULG	04 11 0015	N22	E24	04 12.8		B	CRO	10	4	7	2
5444		LEAR	04 11 0042	N21	E25	04 12.9		B	DSO	40	4	9	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Observation Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5444		HOLL	04	11	1400	N21	E18	04	13.0		B	BXO	20	5	7	3
5444		RAMY	04	11	1400	N22	E17	04	12.9		B	CRO	20	8	9	3
5444	25163	MWIL	04	11	1545	N21	E17	04	12.9	5	(BF)					
5444		PALE	04	11	1740	N21	E17	04	13.0		B	DSO	40	6	6	3
5444		LEAR	04	12	0341	N22	E09	04	12.8		B	DSO	50	4	7	2
5444		SVTO	04	12	0554	N21	E09	04	12.9		B	DAO	30	4	7	1
5444		RAMY	04	12	1257	N20	E05	04	12.9		B	CAO	30	7	8	2
5444		BOUL	04	12	1352	N21	E06	04	13.0		B	BXO	20	3	6	4
5444	25163	MWIL	04	12	1500	N21	E05	04	13.0	5	(AP)					
5444		HOLL	04	12	1550	N21	E03	04	12.9		B	BXO	70	11	7	3
5444		PALE	04	12	1900	N22	E03	04	13.0		B	BXO	10	3	6	2
5444		LEAR	04	13	0013	N20	W01	04	12.9		B	CRO	30	19	9	2
5444		CULG	04	13	0141	N21	W02	04	12.9		B	BXO	20	7	7	2
5444		RAMY	04	13	1245	N19	W09	04	12.8		B	BXO	40	8	6	3
5444		BOUL	04	13	1345	N19	W06	04	13.1		B	BXO	20	2	3	3
5444		SVTO	04	13	1451	N18	W08	04	13.0		B	CAO	10	3	4	1
5444	25163	MWIL	04	13	1500	N20	W07	04	13.1	4	(BP)					
5444		HOLL	04	13	1510	N19	W09	04	12.9		B	BXO	40	5	8	2
5444		PALE	04	13	1925	N18	W12	04	12.9		B	BXO	10	5	4	2
5444		LEAR	04	14	0025	N17	W13	04	13.0		B	BXO	30	11	9	4
5444		CULG	04	14	0329	N17	W16	04	12.9		B	BXO	20	6	4	3
5444		RAMY	04	14	1227	N18	W21	04	12.9		B	DAI	70	19	5	3
5444		BOUL	04	14	1448	N16	W21	04	13.0		B	DAO	70	10	5	2
5444	25163	MWIL	04	14	1515	N17	W23	04	12.9	4	(B)					
5444		HOLL	04	14	1540	N18	W22	04	13.0		B	BXI	30	19	6	4
5444		PALE	04	14	1800	N18	W23	04	13.0		B	CSO	80	15	7	2
5444		LEAR	04	15	0017	N16	W27	04	13.0		B	DSO	80	15	6	3
5444		SVTO	04	15	0545	N16	W30	04	13.0		B	DAO	40	12	6	2
5444		BOUL	04	15	1325	N16	W33	04	13.0		B	BXO	10	7	5	2
5444		RAMY	04	15	1400	N17	W35	04	12.9		B	CRI	30	12	6	2
5444	25163	MWIL	04	15	1530	N16	W36	04	12.9	5	(BP)					
5444		PALE	04	15	1910	N17	W38	04	12.9		B	BXO	10	6	5	2
5444		LEAR	04	16	0155	N16	W42	04	12.9		B	BXO	60	9	5	2
5444		CULG	04	16	0310	N17	W43	04	12.9		B	BXO	10	10	6	2
5444		SVTO	04	16	0607	N16	W45	04	12.8		B	DAO	60	9	6	2
5444		RAMY	04	16	1230	N16	W47	04	12.9		B	DAO	70	8	6	2
5444	25163	MWIL	04	16	1530	N16	W48	04	13.0	5	(B)					
5444		PALE	04	16	1800	N16	W50	04	12.9		B	BXO	20	5	6	2
5444		LEAR	04	17	0025	N15	W54	04	12.9		B	CAO	70	8	8	3
5444		CULG	04	17	0215	N17	W58	04	12.7		B	CRO	30	8	8	2
5444		SVTO	04	17	0833	N17	W60	04	12.8		B	DAO	70	8	10	2
5444		RAMY	04	17	1340	N17	W61	04	12.9		B	DAO	160	15	8	3
5444		HOLL	04	17	1443	N17	W64	04	12.7		B	DAO	310	10	10	3
5444	25163	MWIL	04	17	1530	N16	W62	04	12.9	5	(B)					
5444		PALE	04	17	1825	N17	W65	04	12.8		B	DAO	200	7	10	2
5444		LEAR	04	18	0020	N14	W65	04	13.1		B	DAO	140	8	8	3
5444		CULG	04	18	0310	N17	W70	04	12.8		B	EAO	210	3	11	2
5444		SVTO	04	18	1110	N17	W80	04	12.4		B	DAO	140	3	11	2
5444		BOUL	04	18	1315	N17	W75	04	12.8		B	CAO	150	2	9	1
5444		HOLL	04	18	1425	N17	W75	04	12.9		B	DHO	210	3	10	3
5444		RAMY	04	18	1430	N17	W74	04	13.0		B	DAO	150	2	10	3
5444	25163	MWIL	04	18	1515	N16	W74	04	13.0	4	(AF)					
5444		PALE	04	18	1933	N17	W75	04	13.1		B	CAO	70	2	10	3
5444		LEAR	04	19	0032	N17	W79	04	13.0		B	DAO	120	2	3	2
5444		CULG	04	19	0310	N16	W80	04	13.1		B	DAO	40	1	1	2
5444		SVTO	04	19	0720	N17	W79	04	13.3		A	HA	30	1	2	3
5444A		PALE	04	09	1950	N41	E40	04	13.1		A	AX		1		3
5444B		PALE	04	12	1900	S17	E14	04	13.8		A	AX		1		2
5444C		PALE	04	11	1740	S12	E32	04	14.1		B	BXO		2	4	3
5444C		RAMY	04	12	1257	S14	E20	04	14.0		A	AX		2	1	2
5444C	25170	MWIL	04	12	1500	S14	E18	04	14.0	4	(AP)					
5444C		CULG	04	13	0141	S14	E13	04	14.0		A	AX		2	1	2
5444D		LEAR	04	14	0025	S26	E16	04	15.3		A	AX	10	3	2	4
5444D	25172	MWIL	04	14	1515	S23	E07	04	15.2	4	(AP)					
5444D		HOLL	04	14	1540	S24	E07	04	15.2		B	BXO		2	5	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time			CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day	(UT)									Lat	CMD
5444D		PALE	04	14	1800	S23 E05	04 15.1	A	AX		1	1	2
5444D		HOLL	04	15	1545	S22 W07	04 15.1	A	AX	20	5	2	3
5444D	25172	MWIL	04	16	1530	S23 W18	04 15.2	(AP)					
5444D		HOLL	04	16	1538	S23 W20	04 15.1	B	BXO	10	3	6	3
5444E	25173	MWIL	04	14	1515	S27 E09	04 15.3	4	(AP)				
5458	25175	MWIL	04	15	1530	N08 E02	04 15.8	4	(B)				
5458		RAMY	04	20	1201	N07 W61	04 15.9	B	BXO	10	3	4	3
5458		BOUL	04	20	1413	N07 W61	04 16.0	B	BXO	10	4	3	3
5458	25185	MWIL	04	20	1730	N06 W64	04 15.9	3	(B)				
5458		PALE	04	20	2030	N07 W67	04 15.8	B	BXO	10	3	4	3
5458		LEAR	04	21	0035	N06 W67	04 16.0	B	BXO	50	2	3	3
5458A		HOLL	04	20	1732	N16 W63	04 15.9	B	BXO		2	4	3
5449		RAMY	04	11	1400	S19 E61	04 16.2	A	AX		1		3
5449		HOLL	04	11	1400	S21 E62	04 16.3	A	AX	10	2	1	3
5449	25168	MWIL	04	11	1545	S21 E61	04 16.3	5	(BP)				
5449		PALE	04	11	1740	S21 E63	04 16.6	B	CSO	20	7	4	3
5449		LEAR	04	12	0341	S21 E56	04 16.4	B	CAO	40	7	7	2
5449		SVTO	04	12	0554	S21 E54	04 16.4	B	DAO	120	9	7	1
5449		RAMY	04	12	1257	S21 E49	04 16.3	B	DAO	140	9	7	2
5449		BOUL	04	12	1352	S19 E48	04 16.2	B	DAO	130	10	7	4
5449	25168	MWIL	04	12	1500	S21 E48	04 16.3	5	(B)				
5449		HOLL	04	12	1550	S20 E48	04 16.3	B	DAO	170	17	9	3
5449		PALE	04	12	1900	S21 E48	04 16.5	B	DAO	170	7	9	2
5449		LEAR	04	13	0013	S20 E44	04 16.4	B	DAO	200	17	10	2
5449		CULG	04	13	0141	S20 E43	04 16.3	B	DAO	130	6	10	2
5449		RAMY	04	13	1245	S20 E34	04 16.1	B	EAO	220	12	13	3
5449		BOUL	04	13	1345	S21 E34	04 16.2	B	EAO	180	4	12	3
5449		SVTO	04	13	1451	S22 E35	04 16.3	B	EAO	130	5	11	1
5449	25168	MWIL	04	13	1500	S22 E35	04 16.3	6	(B)				
5449		HOLL	04	13	1510	S21 E34	04 16.2	B	EAO	210	17	12	2
5449		PALE	04	13	1925	S22 E31	04 16.2	B	EAO	200	6	13	2
5449		LEAR	04	14	0025	S20 E28	04 16.1	B	EAO	180	10	12	4
5449		CULG	04	14	0329	S18 E27	04 16.2	B	ESO	200	10	14	3
5449		RAMY	04	14	1227	S21 E22	04 16.2	BG	ESI	250	24	13	3
5449		BOUL	04	14	1448	S20 E20	04 16.1	B	EAO	190	21	12	2
5449	25168	MWIL	04	14	1515	S23 E22	04 16.3	5	(BG)				
5449		HOLL	04	14	1540	S21 E20	04 16.2	BG	EAI	230	38	12	4
5449		PALE	04	14	1800	S21 E19	04 16.2	B	ESI	280	16	14	2
5449		LEAR	04	15	0017	S20 E17	04 16.3	BG	ESI	270	42	15	3
5449		SVTO	04	15	0545	S21 E15	04 16.4	BG	EAI	290	29	14	2
5449		BOUL	04	15	1325	S22 E09	04 16.2	B	EAI	200	26	13	2
5449		RAMY	04	15	1400	S21 E09	04 16.3	BG	EAI	290	30	14	2
5449	25168	MWIL	04	15	1530	S22 E07	04 16.2	5	(BG)				
5449		HOLL	04	15	1545	S19 E05	04 16.0	BG	FKI	490	51	18	3
5449		PALE	04	15	1910	S22 E06	04 16.2	BG	EKI	160	12	14	2
5449		LEAR	04	16	0155	S20 E03	04 16.3	BG	EAI	330	32	13	2
5449		CULG	04	16	0310	S21 E02	04 16.3	B	EAI	280	22	13	2
5449		SVTO	04	16	0607	S20 E00	04 16.2	BG	EKI	350	38	15	2
5449		RAMY	04	16	1230	S20 W03	04 16.3	BG	EAI	300	33	13	2
5449		BOUL	04	16	1405	S20 W04	04 16.3	B	EAO	170	16	13	2
5449	25168	MWIL	04	16	1530	S20 W05	04 16.3	5	(BG)				
5449		PALE	04	16	1800	S20 W06	04 16.3	BG	EAI	320	22	14	2
5449		LEAR	04	17	0025	S21 W09	04 16.3	BG	EKI	330	35	13	3
5449		CULG	04	17	0215	S20 W09	04 16.4	B	EAI	270	28	13	2
5449		SVTO	04	17	0833	S19 W12	04 16.4	BG	EKI	350	27	14	2
5449		RAMY	04	17	1340	S20 W16	04 16.3	B	EKI	470	49	13	3
5449		HOLL	04	17	1443	S19 W16	04 16.4	BG	EKI	360	38	14	3
5449	25168	MWIL	04	17	1530	S20 W16	04 16.4	6	(BG)				
5449		PALE	04	17	1825	S20 W18	04 16.4	BG	EKI	470	35	14	2
5449		LEAR	04	18	0020	S22 W20	04 16.5	BG	EKI	410	35	13	3
5449		CULG	04	18	0310	S19 W22	04 16.4	BG	EKI	430	29	13	2
5449		SVTO	04	18	1110	S21 W28	04 16.3	BG	EKO	370	27	14	2
5449		BOUL	04	18	1315	S20 W27	04 16.5	B	EKO	490	12	14	1
5449		HOLL	04	18	1425	S21 W28	04 16.4	BG	EKI	540	31	15	3
5449		RAMY	04	18	1430	S19 W28	04 16.5	BG	EHI	570	28	14	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMP	Max	Mag	Spot	Corrected	Spot	Long.	Qual		
			Mo	Day	CMD	Mo	H	Class	Class	Area (10-6 Hemi)	Count	Extent (Deg)			
5449	25168	MWIL	04	18	1515	S20 W29	04	16.4	5	(BG)					
5449		PALE	04	18	1933	S20 W31	04	16.4		BG	EKI	540	24	14	3
5449		LEAR	04	19	0032	S22 W34	04	16.4		BG	EKO	500	25	14	2
5449		CULG	04	19	0310	S21 W35	04	16.4		BG	EKI	340	24	14	2
5449		SVTO	04	19	0720	S21 W38	04	16.4		B	EKO	490	23	14	3
5449		RAMY	04	19	1350	S21 W41	04	16.4		BG	EHO	480	28	13	4
5449		BOUL	04	19	1415	S21 W41	04	16.4		B	EKI	600	23	14	3
5449		HOLL	04	19	1500	S21 W42	04	16.4		BG	CKI	600	31	17	3
5449	25168	MWIL	04	19	1515	S20 W43	04	16.3	5	(BG)					
5449		PALE	04	19	1904	S20 W44	04	16.4		BG	EKI	460	21	14	2
5449		LEAR	04	20	0001	S22 W47	04	16.4		BG	EKO	370	19	14	3
5449		CULG	04	20	0323	S22 W48	04	16.4		BG	EKI	330	12	14	2
5449		SVTO	04	20	0700	S21 W49	04	16.5		B	EKO	260	11	12	2
5449		RAMY	04	20	1201	S21 W55	04	16.3		BG	EKO	410	15	14	3
5449		BOUL	04	20	1413	S21 W54	04	16.4		B	EKI	480	19	14	3
5449	25168	MWIL	04	20	1730	S21 W57	04	16.3	5	(BP)					
5449		HOLL	04	20	1732	S21 W56	04	16.4		B	EHO	320	16	11	3
5449		PALE	04	20	2030	S21 W58	04	16.4		BG	EKO	350	8	12	3
5449		LEAR	04	21	0035	S22 W59	04	16.5		BG	EKO	500	11	14	3
5449		CULG	04	21	0320	S20 W62	04	16.4		B	CKO	280	6	14	2
5449		SVTO	04	21	1107	S18 W71	04	16.0		A	HK	240	4	3	2
5449		RAMY	04	21	1230	S20 W69	04	16.2		B	CKO	160	8	11	3
5449		BOUL	04	21	1348	S20 W69	04	16.3		B	CKO	410	8	11	3
5449		HOLL	04	21	1555	S19 W72	04	16.2		A	HK	450	1	5	4
5449	25168	MWIL	04	21	1730	S19 W75	04	16.0	5	(BP)					
5449		PALE	04	21	2035	S19 W72	04	16.4		B	CKO	210	4	8	2
5449		CULG	04	22	0210	S17 W77	04	16.2		B	CHO	250	2	8	2
5449		LEAR	04	22	0210	S18 W75	04	16.4		A	HK	180	1	9	1
5449		SVTO	04	22	0901	S19 W79	04	16.3		B	DAO	290	2	7	2
5449		RAMY	04	22	1255	S20 W80	04	16.4		B	CKO	210	3	11	2
5449	25168	MWIL	04	22	1430	S20 W82	04	16.3	4	BP					
5449		BOUL	04	22	1455	S20 W82	04	16.3		B	CSO	120	2	9	3
5449		HOLL	04	22	1617	S21 W79	04	16.6		B	CAO	150	4	7	3
5449		PALE	04	22	1905	S21 W79	04	16.7		B	BXO	10	2	2	3
5457		RAMY	04	19	1350	N28 W32	04	17.1		A	AX	10	2	2	4
5457		BOUL	04	19	1415	N27 W32	04	17.1		B	BXO	20	3	4	3
5457		HOLL	04	19	1500	N28 W33	04	17.0		B	BXO	60	7	7	3
5457	25183	MWIL	04	19	1515	N28 W33	04	17.0	4	(B)					
5457		PALE	04	19	1904	N29 W35	04	17.0		B	BXO	20	4	6	2
5457		LEAR	04	20	0001	N28 W39	04	16.9		B	BXO	20	7	7	3
5457		CULG	04	20	0323	N28 W40	04	17.0		B	BXO	20	7	7	2
5457		SVTO	04	20	0700	N28 W40	04	17.2		B	BXO	10	7	7	2
5457		RAMY	04	20	1201	N29 W45	04	17.0		B	BXO	20	8	8	3
5457		BOUL	04	20	1413	N28 W45	04	17.1		B	BXO	30	9	8	3
5457	25183	MWIL	04	20	1730	N29 W48	04	17.0	3	(B)					
5457		HOLL	04	20	1732	N29 W47	04	17.0		B	BXO	40	10	7	3
5457		PALE	04	20	2030	N29 W50	04	16.9		B	DAO	60	5	10	3
5457		LEAR	04	21	0035	N28 W53	04	16.9		B	CAO	100	10	9	3
5457		CULG	04	21	0320	N30 W55	04	16.8		B	CRO	20	6	8	2
5457		SVTO	04	21	1107	N30 W57	04	17.0		B	CRO	70	7	10	2
5457		RAMY	04	21	1230	N30 W58	04	16.9		B	DSO	100	6	8	3
5457		BOUL	04	21	1348	N28 W57	04	17.1		B	CAO	120	6	8	3
5457		HOLL	04	21	1555	N29 W58	04	17.1		B	CSO	270	6	10	4
5457	25183	MWIL	04	21	1730	N29 W60	04	17.0	4	(B)					
5457		PALE	04	21	2035	N29 W60	04	17.1		B	DKI	130	5	8	2
5457		LEAR	04	22	0210	N28 W66	04	16.9		B	CSO	140	3	10	1
5457		CULG	04	22	0210	N30 W64	04	17.0		B	CSO	50	2	8	2
5457		SVTO	04	22	0901	N31 W65	04	17.2		B	CAO	70	4	8	2
5457		RAMY	04	22	1255	N29 W68	04	17.2		B	DSO	90	5	7	2
5457	25183	MWIL	04	22	1430	N28 W68	04	17.3	4	(B)					
5457		BOUL	04	22	1455	N28 W71	04	17.1		B	DSO	90	4	9	3
5457		HOLL	04	22	1617	N30 W69	04	17.2		B	CRO	80	3	5	3
5457		PALE	04	22	1905	N29 W71	04	17.2		B	CAO	130	3	11	3
5457		SVTO	04	23	1338	N30 W80	04	17.3		A	AX	20	1	1	3
5457	25183	MWIL	04	23	1430	N29 W80	04	17.3	2	B					
5450		HOLL	04	11	1400	N14 E81	04	17.7		A	HS	50	1	2	3
5450		RAMY	04	11	1400	N15 E78	04	17.5		A	HS	60	1	2	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Observation Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5450	25169	MWIL	04	11	1545	N14	E79	04	17.6	4	AP					
5450		PALE	04	11	1740	N14	E81	04	17.8		A	HA	60	2	3	3
5450		LEAR	04	12	0341	N16	E70	04	17.5		A	HS	90	1	2	2
5450		SVTO	04	12	0554	N16	E71	04	17.6		A	HS	60	2	2	1
5450		RAMY	04	12	1257	N14	E68	04	17.7		A	HS	100	2	2	2
5450		BOUL	04	12	1352	N15	E67	04	17.6		A	HA	80	1	2	4
5450	25169	MWIL	04	12	1500	N14	E67	04	17.7	5	(AP)					
5450		HOLL	04	12	1550	N16	E67	04	17.7		A	HS	110	1	4	3
5450		PALE	04	12	1900	N15	E67	04	17.9		A	HS	60	2	2	2
5450		LEAR	04	13	0013	N13	E60	04	17.5		B	CSO	100	2	6	2
5450		CULG	04	13	0141	N17	E61	04	17.7		A	HS	70	1	2	2
5450		RAMY	04	13	1245	N13	E54	04	17.6		A	HR	70	1	2	3
5450		BOUL	04	13	1345	N15	E54	04	17.7		A	HS	110	1	2	3
5450		SVTO	04	13	1451	N13	E56	04	17.8		A	HA	40	1	1	1
5450	25169	MWIL	04	13	1500	N14	E54	04	17.7	5	(AP)					
5450		HOLL	04	13	1510	N15	E54	04	17.7		A	HS	40	1	2	2
5450		PALE	04	13	1925	N13	E52	04	17.7		A	HS	70	1	2	2
5450		LEAR	04	14	0025	N16	E50	04	17.8		B	CAO	70	3	5	4
5450		CULG	04	14	0329	N17	E48	04	17.8		A	HS	80	1	2	3
5450		RAMY	04	14	1227	N13	E41	04	17.6		B	CSO	90	3	4	3
5450		BOUL	04	14	1448	N14	E38	04	17.5		B	CAO	70	3	5	2
5450	25174	MWIL	04	14	1515	N12	E38	04	17.5	4	(B)					
5450	25169	MWIL	04	14	1515	N14	E41	04	17.7	6	(AP)					
5450		HOLL	04	14	1540	N13	E38	04	17.5		B	CSO	50	3	5	4
5450		PALE	04	14	1800	N13	E38	04	17.6		B	CSO	80	2	5	2
5450		LEAR	04	15	0017	N13	E35	04	17.6		B	CSO	90	4	5	3
5450		SVTO	04	15	0545	N13	E32	04	17.6		B	CSO	60	4	6	2
5450		BOUL	04	15	1325	N13	E26	04	17.5		B	CSO	70	2	7	2
5450		RAMY	04	15	1400	N12	E27	04	17.6		B	CSO	70	3	6	2
5450	25174	MWIL	04	15	1530	N12	E23	04	17.4	5	(AP)					
5450	25169	MWIL	04	15	1530	N14	E27	04	17.7	5	(AP)					
5450		HOLL	04	15	1545	N13	E25	04	17.5		B	CSO	80	3	7	3
5450		PALE	04	15	1910	N12	E23	04	17.5		B	CSO	60	2	6	2
5450		CULG	04	16	0310	N14	E18	04	17.5		B	CSO	70	2	8	2
5450		SVTO	04	16	0607	N14	E17	04	17.5		B	CSO	60	3	7	2
5450		RAMY	04	16	1230	N14	E16	04	17.7		A	HS	70	1	2	2
5450		BOUL	04	16	1405	N13	E15	04	17.7		A	HS	60	1	1	2
5450	25169	MWIL	04	16	1530	N15	E14	04	17.7	5	(AP)					
5450		PALE	04	16	1800	N16	E14	04	17.8		A	HA	60	1	2	2
5450		LEAR	04	17	0025	N17	E11	04	17.8		B	CSO	100	9	11	3
5450		CULG	04	17	0215	N16	E09	04	17.8		A	HS	70	2	2	2
5450		SVTO	04	17	0833	N16	E07	04	17.9		A	HA	30	1	2	2
5450		RAMY	04	17	1340	N16	E03	04	17.8		A	HS	80	2	2	3
5450		HOLL	04	17	1443	N15	E02	04	17.8		A	HS	60	1	1	3
5450	25169	MWIL	04	17	1530	N15	E02	04	17.8	5	(AP)					
5450		PALE	04	17	1825	N15	E01	04	17.8		A	HS	80	1	2	2
5450		LEAR	04	18	0020	N18	W03	04	17.8		B	CSO	60	3	3	3
5450		CULG	04	18	0310	N16	W05	04	17.7		A	HS	40	1	1	2
5450		SVTO	04	18	1110	N15	W09	04	17.8		A	HS	50	1	2	2
5450		BOUL	04	18	1315	N13	W11	04	17.7		A	HS	40	1	1	1
5450		HOLL	04	18	1425	N15	W11	04	17.8		A	HS	70	1	2	3
5450		RAMY	04	18	1430	N15	W11	04	17.8		A	HS	60	1	2	3
5450	25169	MWIL	04	18	1515	N15	W12	04	17.7	5	(AP)					
5450		PALE	04	18	1933	N16	W13	04	17.8		A	HS	80	1	2	3
5450		LEAR	04	19	0032	N15	W17	04	17.7		B	CAO	40	3	2	2
5450		CULG	04	19	0310	N16	W19	04	17.7		A	HS	50	2	1	2
5450		SVTO	04	19	0720	N15	W20	04	17.8		A	HS	40	1	2	3
5450		RAMY	04	19	1350	N16	W23	04	17.8		A	HS	70	5	3	4
5450		BOUL	04	19	1415	N16	W23	04	17.8		B	CSO	40	2	3	3
5450		HOLL	04	19	1500	N15	W25	04	17.7		A	HS	70	1	2	3
5450	25169	MWIL	04	19	1515	N15	W25	04	17.7	5	(BF)					
5450		PALE	04	19	1904	N16	W26	04	17.8		B	CSO	50	4	4	2
5450		LEAR	04	20	0001	N15	W29	04	17.8		B	CAO	30	5	1	3
5450		CULG	04	20	0323	N16	W31	04	17.8		A	HS	40	2	1	2
5450		SVTO	04	20	0700	N15	W33	04	17.8		A	HS	50	5	2	2
5450		RAMY	04	20	1201	N15	W36	04	17.8		B	CSO	70	5	4	3
5450		BOUL	04	20	1413	N16	W36	04	17.9		B	CAO	60	5	3	3
5450	25169	MWIL	04	20	1730	N15	W39	04	17.8	4	(AP)					
5450		HOLL	04	20	1732	N16	W38	04	17.8		B	CRO	40	3	3	3

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SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5450		PALE	04 20 2030	N16 W41	04 17.7		B	CSO	60	3	3	3
5450		LEAR	04 21 0035	N14 W45	04 17.6		B	CSO	60	4	4	3
5450		CULG	04 21 0320	N16 W45	04 17.7		A	HS	20	2	2	2
5450		SVTO	04 21 1107	N17 W49	04 17.7		A	HR	20	1	1	2
5450		RAMY	04 21 1230	N15 W50	04 17.7		A	HS	30	1	1	3
5450		BOUL	04 21 1348	N15 W50	04 17.8		A	HS	30	1	1	3
5450		HOLL	04 21 1555	N15 W52	04 17.7		A	HS	50	1	2	4
5450	25169	MWIL	04 21 1730	N15 W53	04 17.7	4	(AP)					
5450		PALE	04 21 2035	N15 W55	04 17.7		A	HS	40	1	2	2
5450		LEAR	04 22 0210	N14 W58	04 17.7		A	AX	40	1	2	1
5450		CULG	04 22 0210	N16 W59	04 17.6		A	HS	20	1	2	2
5450		SVTO	04 22 0901	N15 W61	04 17.7		A	HS	40	1	1	2
5450		RAMY	04 22 1255	N15 W63	04 17.8		A	HS	20	1	1	2
5450	25169	MWIL	04 22 1430	N15 W64	04 17.7	4	(AP)					
5450		BOUL	04 22 1455	N15 W65	04 17.7		A	HS	40	1	1	3
5450		HOLL	04 22 1617	N16 W65	04 17.7		A	AX	10	1	1	3
5450		PALE	04 22 1905	N16 W67	04 17.7		A	HS	30	1	1	3
5450		SVTO	04 23 1338	N15 W77	04 17.7		A	AX	10	1	1	3
5450		BOUL	04 23 1415	N15 W80	04 17.5		A	HS	30	1	1	3
5450	25169	MWIL	04 23 1430	N15 W77	04 17.8	2	AP					
5450		PALE	04 23 1923	N10 W75	04 18.2		A	HS	30	1	1	3
5455		RAMY	04 13 1245	N19 E58	04 17.9		A	AX	20	4	2	3
5455		SVTO	04 15 0545	N21 E36	04 18.0		A	AX		1		2
5455		RAMY	04 15 1400	N22 E32	04 18.0		B	BXO		2	4	2
5455	25176	MWIL	04 15 1530	N24 E32	04 18.1	4	(B)					
5455		SVTO	04 16 0607	N21 E22	04 17.9		A	AX		2	2	2
5455		RAMY	04 16 1230	N20 E19	04 18.0		B	BXO	20	5	2	2
5455		BOUL	04 16 1405	N18 E17	04 17.9		A	AX		1		2
5455	25178	MWIL	04 16 1530	N20 E16	04 17.9	4	(AP)					
5455		CULG	04 17 0215	N21 E11	04 17.9		A	AX		1		2
5455		SVTO	04 17 0833	N22 E08	04 18.0		A	AX		2	1	2
5455		RAMY	04 17 1340	N23 E05	04 17.9		B	BXO	10	4	6	3
5455		HOLL	04 17 1443	N23 E03	04 17.8		B	BXO	10	3	5	3
5455	25178	MWIL	04 17 1530	N20 E04	04 17.9	4	(AP)					
5455		PALE	04 17 1825	N24 E03	04 18.0		B	BXO	10	2	4	2
5455A	25182	MWIL	04 17 1530	N26 E04	04 17.9	4	(B)					
5451		PALE	04 12 1900	N10 E81	04 18.9		A	HA	60	2	2	2
5451		LEAR	04 13 0013	N09 E74	04 18.6		B	DSO	180	4	8	2
5451		CULG	04 13 0141	N10 E79	04 19.0		B	DAO	90	2	10	2
5451		RAMY	04 13 1245	N09 E71	04 18.9		BD	EKO	580	9	11	3
5451		BOUL	04 13 1345	N09 E71	04 18.9		B	DAO	530	10	8	3
5451		SVTO	04 13 1451	N09 E69	04 18.8		B	DAO	170	7	8	1
5451	25171	MWIL	04 13 1500	N08 E70	04 18.9	5	(B)					
5451		HOLL	04 13 1510	N11 E70	04 18.9		B	DKI	670	15	10	2
5451		PALE	04 13 1925	N09 E68	04 18.9		B	DKI	770	10	9	2
5451		LEAR	04 14 0025	N09 E65	04 18.9		B	EKI	820	9	11	4
5451		CULG	04 14 0329	N12 E65	04 19.0		B	EKO	810	12	12	3
5451		RAMY	04 14 1227	N09 E59	04 18.9		BGD	EKI	1100	15	13	3
5451		BOUL	04 14 1448	N08 E56	04 18.8		B	EKI	810	18	12	2
5451	25171	MWIL	04 14 1515	N08 E57	04 18.9	6	(B)					
5451		HOLL	04 14 1540	N09 E56	04 18.8		B	EKI	960	19	11	4
5451		PALE	04 14 1800	N09 E56	04 18.9		B	EKO	1080	9	14	2
5451		LEAR	04 15 0017	N10 E52	04 18.9		B	EKO	920	14	12	3
5451		SVTO	04 15 0545	N10 E49	04 18.9		B	EKI	1420	21	14	2
5451		BOUL	04 15 1325	N08 E42	04 18.7		B	EKI	630	15	14	2
5451		RAMY	04 15 1400	N09 E44	04 18.9		BGD	EKI	870	22	14	2
5451	25171	MWIL	04 15 1530	N08 E43	04 18.9	5	(BG)					
5451		HOLL	04 15 1545	N09 E44	04 18.9		BG	EKI	1020	80	14	3
5451		PALE	04 15 1910	N09 E41	04 18.9		BD	EAI	740	17	13	2
5451		LEAR	04 16 0155	N10 E37	04 18.9		BG	EKI	800	22	14	2
5451		CULG	04 16 0310	N11 E37	04 18.9		B	EKO	720	19	15	2
5451		SVTO	04 16 0607	N10 E35	04 18.9		BD	EKO	980	22	15	2
5451		RAMY	04 16 1230	N09 E31	04 18.8		BGD	EKI	1100	20	14	2
5451		BOUL	04 16 1405	N09 E29	04 18.8		B	EKO	500	15	14	2
5451	25171	MWIL	04 16 1530	N09 E28	04 18.7	6	(BG)					
5451		PALE	04 16 1800	N10 E27	04 18.8		BG	EKI	670	23	15	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Observation Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5451		LEAR	04	17	0025	N10	E24	04	18.8		B	EKI	670	30	15	3
5451		CULG	04	17	0215	N11	E23	04	18.8		B	EKI	580	22	15	2
5451		SVTO	04	17	0833	N11	E22	04	19.0		BG	FKI	670	35	16	2
5451		RAMY	04	17	1340	N10	E17	04	18.8		BG	FKI	890	58	16	3
5451		HOLL	04	17	1443	N10	E16	04	18.8		BG	EKI	840	51	14	3
5451	25171	MWIL	04	17	1530	N09	E15	04	18.8	6	(B)					
5451		PALE	04	17	1825	N10	E14	04	18.8		B	FKI	900	41	15	2
5451		LEAR	04	18	0020	N10	E11	04	18.8		B	FKO	600	34	16	3
5451		CULG	04	18	0310	N11	E09	04	18.8		BG	FKI	700	29	16	2
5451		SVTO	04	18	1110	N10	E04	04	18.8		BG	FKO	630	28	17	2
5451		BOUL	04	18	1315	N10	E03	04	18.8		B	EKO	420	11	15	1
5451		HOLL	04	18	1425	N09	E03	04	18.8		BG	FKO	860	38	16	3
5451		RAMY	04	18	1430	N10	E03	04	18.8		B	FKO	470	24	17	3
5451	25171	MWIL	04	18	1515	N09	E02	04	18.8	6	(B)					
5451		PALE	04	18	1933	N10	W01	04	18.7		B	FKI	600	39	16	3
5451		LEAR	04	19	0032	N09	W02	04	18.9		B	FKO	520	28	18	2
5451		CULG	04	19	0310	N10	W05	04	18.7		B	FKO	550	25	16	2
5451		SVTO	04	19	0720	N10	W06	04	18.8		B	FKO	470	35	17	3
5451		RAMY	04	19	1350	N10	W09	04	18.9		B	FKO	440	29	15	4
5451		BOUL	04	19	1415	N11	W11	04	18.8		B	FKI	550	33	17	3
5451		HOLL	04	19	1500	N10	W12	04	18.7		B	FKO	790	35	17	3
5451	25171	MWIL	04	19	1515	N10	W11	04	18.8	6	(BG)					
5451		PALE	04	19	1904	N11	W13	04	18.8		B	FKI	600	23	18	2
5451		LEAR	04	20	0001	N10	W15	04	18.9		B	FKO	410	27	16	3
5451		CULG	04	20	0323	N11	W18	04	18.8		B	FKO	440	40	17	2
5451		SVTO	04	20	0700	N10	W19	04	18.9		BG	FKO	640	49	17	2
5451		RAMY	04	20	1201	N10	W23	04	18.8		B	FKI	610	47	17	3
5451		BOUL	04	20	1413	N11	W24	04	18.8		B	FKC	670	58	17	3
5451	25171	MWIL	04	20	1730	N10	W25	04	18.8	5	(B)					
5451		HOLL	04	20	1732	N10	W24	04	18.9		BG	FHI	460	52	16	3
5451		PALE	04	20	2030	N10	W27	04	18.8		B	FKI	460	26	17	3
5451		LEAR	04	21	0035	N10	W30	04	18.8		B	FKI	620	36	17	3
5451		CULG	04	21	0320	N12	W31	04	18.8		B	FAI	360	36	18	2
5451		SVTO	04	21	1107	N12	W35	04	18.8		B	FAI	480	35	26	2
5451		RAMY	04	21	1230	N11	W36	04	18.8		B	FHI	430	37	17	3
5451		BOUL	04	21	1348	N12	W37	04	18.8		B	FAI	560	22	17	3
5451		HOLL	04	21	1555	N10	W37	04	18.9		BG	FHI	530	24	18	4
5451	25171	MWIL	04	21	1730	N10	W38	04	18.9	6	(B)					
5451		PALE	04	21	2035	N10	W40	04	18.8		BG	FHI	470	11	17	2
5451		LEAR	04	22	0210	N10	W43	04	18.8		BG	FKI	490	22	20	1
5451		CULG	04	22	0210	N12	W43	04	18.8		B	FAI	300	20	17	2
5451		SVTO	04	22	0901	N12	W45	04	19.0		BG	FAI	410	23	17	2
5451		RAMY	04	22	1255	N11	W48	04	18.9		B	FHO	440	16	18	2
5451	25171	MWIL	04	22	1430	N10	W50	04	18.8	5	(BG)					
5451		BOUL	04	22	1455	N10	W49	04	18.9		B	FAI	380	33	18	3
5451		HOLL	04	22	1617	N11	W52	04	18.8		BG	EAO	480	23	13	3
5451		PALE	04	22	1905	N11	W53	04	18.8		B	FAO	450	12	16	3
5451		SVTO	04	23	1338	N12	W62	04	18.9		BG	FKI	330	23	18	3
5451		BOUL	04	23	1415	N12	W63	04	18.8		B	FAI	290	24	18	3
5451	25171	MWIL	04	23	1430	N10	W62	04	18.9	5	(D)					
5451		HOLL	04	23	1737	N12	W64	04	18.9		BG	FAI	380	19	20	3
5451		PALE	04	23	1923	N11	W64	04	19.0		BG	EKI	330	19	13	3
5451		LEAR	04	24	0130	N09	W73	04	18.6		BG	FAI	210	15	18	2
5451		SVTO	04	24	0715	N10	W70	04	19.0		BG	EKO	260	12	15	3
5451		BOUL	04	24	1332	N12	W74	04	19.0		B	EAI	170	5	11	1
5451		RAMY	04	24	1412	N13	W74	04	19.0		B	FAI	300	9	16	2
5451		HOLL	04	24	1525	N12	W75	04	19.0		B	CAI	300	21	21	3
5451		PALE	04	24	2045	N12	W81	04	18.8		B	EAI	170	7	15	2
5451		LEAR	04	25	0018	N11	W78	04	19.1		B	CSO	210	7	3	2
5451		CULG	04	25	0320	N12	W81	04	19.0		B	EAI	30	1	11	2
5451A		HOLL	04	24	1525	N19	W73	04	19.1		B	BXO	40	4	5	3
5459		SVTO	04	16	0607	S10	E41	04	19.3		A	AX		1		2
5459	25186	MWIL	04	20	1730	S09	W20	04	19.2	3	(B)					
5459		HOLL	04	20	1732	S11	W20	04	19.2		B	BXO	10	5	4	3
5459		PALE	04	20	2030	S09	W22	04	19.2		B	BXO	10	6	5	3
5459		LEAR	04	21	0035	S10	W24	04	19.2		B	BXO	50	6	6	3
5459		CULG	04	21	0320	S10	W26	04	19.2		B	CRO	10	5	6	2

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SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMP	Max	Mag	Spot	Corrected	Spot	Long.	Qual	
			Mo	Day	Cmd	Mo	H	Class	Class	Area (10-6 Hemi)	Count	Extent (Deg)		
				(UT)		Day								
5459		SVTO	04	21	1107	S08 W31	04	19.1	B	CRO	30	6	4	2
5459		RAMY	04	21	1230	S08 W33	04	19.0	B	DRO	190	6	4	3
5459		BOUL	04	21	1348	S09 W30	04	19.3	B	DSO	70	10	8	3
5459		HOLL	04	21	1555	S09 W34	04	19.1	B	CAI	150	11	8	4
5459	25186	MWIL	04	21	1730	S09 W35	04	19.1	5	(B)				
5459		PALE	04	21	2035	S10 W36	04	19.1	B	DKO	110	8	7	2
5459		CULG	04	22	0210	S08 W39	04	19.2	B	DAI	50	10	9	2
5459		LEAR	04	22	0210	S09 W41	04	19.0	B	DSO	80	7	7	1
5459		SVTO	04	22	0901	S09 W43	04	19.1	B	DAO	80	13	8	2
5459		RAMY	04	22	1412	S09 W42	04	19.4	B	DSO	100	5	9	2
5459	25186	MWIL	04	22	1430	S09 W48	04	19.0	5	(B)				
5459		BOUL	04	22	1455	S09 W47	04	19.1	B	DSO	40	15	7	3
5459		HOLL	04	22	1617	S08 W47	04	19.1	B	CAO	140	12	5	3
5459		PALE	04	22	1905	S08 W50	04	19.0	B	DSO	120	11	7	3
5459		SVTO	04	23	1338	S08 W60	04	19.1	B	DAO	60	5	8	3
5459		BOUL	04	23	1415	S08 W59	04	19.2	B	DSO	80	5	10	3
5459	25186	MWIL	04	23	1430	S09 W61	04	19.0	5	(B)				
5459		HOLL	04	23	1737	S07 W64	04	18.9	B	DSO	150	6	8	3
5459		PALE	04	23	1923	S08 W65	04	18.9	B	DSO	130	8	10	3
5459		LEAR	04	24	0130	S10 W69	04	18.9	B	DSO	100	5	10	2
5459		SVTO	04	24	0715	S08 W70	04	19.0	B	DRO	80	2	9	3
5459		BOUL	04	24	1332	S07 W74	04	19.0	B	BXO	20	3	9	1
5459		RAMY	04	24	1412	S07 W73	04	19.1	B	DAO	90	2	8	2
5459		HOLL	04	24	1525	S07 W74	04	19.1	B	BXO	80	7	10	3
5459		PALE	04	24	2045	S07 W80	04	18.9	B	BXO	40	5	9	2
5459		LEAR	04	25	0018	S10 W78	04	19.1	B	BXO	60	2	2	2
5459		CULG	04	25	0320	S08 W80	04	19.1	B	BXO	10	1	4	2
5462		SVTO	04	22	0901	S11 W32	04	20.0			20	0	6	2
5462		RAMY	04	22	1255	S10 W34	04	20.0	B	BXO	10	3	6	2
5462	25191	MWIL	04	22	1430	S13 W36	04	19.9	3	(AF)				
5462		BOUL	04	22	1455	S13 W36	04	19.9	A	AX		1		3
5462		HOLL	04	22	1617	S13 W37	04	19.9	A	AX		1	1	3
5462		PALE	04	22	1905	S13 W40	04	19.8	A	AX		1	1	3
5462		SVTO	04	23	1338	S17 W47	04	20.0	A	AX	10	2	2	3
5462	25193	MWIL	04	23	1430	S18 W49	04	19.9	3	(AF)				
5462A	25192	MWIL	04	22	1430	S09 W32	04	20.2	4	(B)				
5462B	25189	MWIL	04	21	1730	S15 W11	04	20.9	2	(AF)				
5453		RAMY	04	16	1230	N18 E72	04	22.0	A	HR	30	1	2	2
5453	25180	MWIL	04	16	1530	N17 E75	04	22.3	4	(B)				
5453		HOLL	04	16	1538	N19 E72	04	22.1	A	AX	30	1	1	3
5453		PALE	04	16	1800	N18 E74	04	22.4	A	AX		1		2
5453		LEAR	04	17	0025	N18 E69	04	22.3	B	CSO	50	2	4	3
5453		CULG	04	17	0215	N19 E70	04	22.4	A	AX	10	1	1	2
5453		SVTO	04	17	0833	N20 E68	04	22.5	B	CRO	30	3	6	2
5453		RAMY	04	17	1340	N18 E62	04	22.3	B	CAO	60	6	8	3
5453		HOLL	04	17	1443	N19 E62	04	22.3	B	CAO	110	8	6	3
5453	25180	MWIL	04	17	1530	N18 E61	04	22.3	5	(B)				
5453		PALE	04	17	1825	N19 E61	04	22.4	B	CAO	80	12	7	2
5453		LEAR	04	18	0020	N19 E56	04	22.3	B	CSO	40	10	7	3
5453		CULG	04	18	0310	N21 E56	04	22.4	B	CSO	20	8	8	2
5453		SVTO	04	18	1110	N18 E50	04	22.3	B	CAO	100	14	10	2
5453		BOUL	04	18	1315	N19 E48	04	22.2	B	DSO	80	3	6	1
5453		HOLL	04	18	1425	N19 E51	04	22.5	B	ESO	170	14	11	3
5453		RAMY	04	18	1430	N18 E49	04	22.3	B	DAO	160	11	9	3
5453	25180	MWIL	04	18	1515	N18 E47	04	22.2	5	(B)				
5453		PALE	04	18	1933	N18 E47	04	22.4	B	DAI	120	14	10	3
5453		LEAR	04	19	0032	N19 E44	04	22.4	B	DAO	100	11	10	2
5453		CULG	04	19	0310	N20 E41	04	22.3	B	DSO	40	7	8	2
5453		SVTO	04	19	0720	N18 E38	04	22.2	B	DAO	110	13	7	3
5453		RAMY	04	19	1350	N18 E36	04	22.3	B	DAO	130	9	7	4
5453		BOUL	04	19	1415	N18 E37	04	22.4	B	DAO	190	16	8	3
5453		HOLL	04	19	1500	N19 E35	04	22.3	B	CAO	200	16	10	3
5453	25180	MWIL	04	19	1515	N18 E34	04	22.2	5	(B)				
5453		PALE	04	19	1904	N20 E33	04	22.3	B	CK1	130	11	8	2
5453		LEAR	04	20	0001	N19 E30	04	22.3	B	DAO	90	11	8	3

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

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NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Observation Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5453		CULG	04	20	0323	N20	E27	04	22.2		B	DAO	80	10	8	2
5453		SVTO	04	20	0700	N18	E26	04	22.3		B	DAO	100	11	8	2
5453		RAMY	04	20	1201	N19	E24	04	22.3		B	DSO	120	9	9	3
5453		BOUL	04	20	1413	N18	E22	04	22.3		B	DAO	150	11	10	3
5453	25180	MWIL	04	20	1730	N18	E20	04	22.2	5	(B)					
5453		HOLL	04	20	1732	N19	E20	04	22.2		B	DSO	140	9	10	3
5453		PALE	04	20	2030	N19	E18	04	22.2		B	CSO	80	10	10	3
5453		LEAR	04	21	0035	N19	E16	04	22.2		B	CAO	120	14	11	3
5453		CULG	04	21	0320	N19	E16	04	22.3		B	EAO	90	11	11	2
5453		SVTO	04	21	1107	N19	E12	04	22.4		B	CAO	110	12	13	2
5453		RAMY	04	21	1230	N19	E11	04	22.4		B	CSO	100	8	11	3
5453		BOUL	04	21	1348	N17	E09	04	22.2		B	CAO	100	7	10	3
5453		HOLL	04	21	1555	N18	E08	04	22.3		B	EAI	150	12	13	4
5453	25180	MWIL	04	21	1730	N17	E07	04	22.3	4	(BP)					
5453		PALE	04	21	2035	N18	E02	04	22.0		B	CAI	160	5	4	2
5453		LEAR	04	22	0210	N18	W03	04	21.9		B	DSO	100	3	4	1
5453		CULG	04	22	0210	N19	E02	04	22.2		B	CSO	80	7	12	2
5453		SVTO	04	22	0901	N18	W05	04	22.0		B	DAO	90	12	5	2
5453		RAMY	04	22	1255	N18	W07	04	22.0		B	DSI	100	6	6	2
5453	25180	MWIL	04	22	1430	N17	W08	04	22.0	5	(B)					
5453		BOUL	04	22	1455	N17	W08	04	22.0		B	CAO	70	14	6	3
5453		HOLL	04	22	1617	N19	W04	04	22.4		B	CSO	120	15	13	3
5453		PALE	04	22	1905	N18	W05	04	22.4		B	CSO	190	15	14	3
5453		SVTO	04	23	1338	N18	W18	04	22.2		B	EAI	90	21	12	3
5453		BOUL	04	23	1415	N17	W21	04	22.0		B	CAO	90	18	7	3
5453	25180	MWIL	04	23	1430	N17	W21	04	22.0	4	(B)					
5453		HOLL	04	23	1737	N18	W22	04	22.0		B	CRI	140	17	8	3
5453		PALE	04	23	1923	N18	W23	04	22.0		B	CAI	90	19	7	3
5453		LEAR	04	24	0130	N18	W28	04	21.9		B	CSO	60	9	8	2
5453		SVTO	04	24	0715	N17	W31	04	21.9		B	DAO	60	9	7	3
5453		BOUL	04	24	1332	N17	W35	04	21.9		B	DSI	60	8	6	1
5453		RAMY	04	24	1412	N18	W34	04	22.0		B	DAI	120	10	8	2
5453		HOLL	04	24	1525	N18	W35	04	22.0		B	CSO	100	19	9	3
5453		PALE	04	24	2045	N20	W40	04	21.8		B	DAO	70	12	10	2
5453		LEAR	04	25	0018	N18	W40	04	22.0		B	CAO	70	10	6	2
5453		CULG	04	25	0320	N18	W43	04	21.9		B	DAO	20	3	8	2
5453		SVTO	04	25	0751	N17	W42	04	22.1		B	CRO	30	2	3	2
5453		RAMY	04	25	1348	N18	W47	04	22.0		B	DAI	90	12	8	4
5453		BOUL	04	25	1432	N18	W48	04	21.9		B	BXO	20	4	3	2
5453		HOLL	04	25	1505	N18	W47	04	22.0		B	CAO	110	7	12	3
5453	25180	MWIL	04	25	1530	N17	W48	04	22.0	5	(B)					
5453		PALE	04	25	2047	N19	W53	04	21.8		B	CAO	40	6	9	2
5453		LEAR	04	26	0010	N16	W55	04	21.8		B	CSO	40	3	3	2
5453		RAMY	04	26	1225	N17	W61	04	21.9		A	AX	10	1	1	4
5453		BOUL	04	26	1452	N17	W62	04	21.9		A	AX	10	1	1	1
5453		PALE	04	26	1810	N16	W65	04	21.8		A	HR	20	1	1	4
5453		HOLL	04	26	1840	N16	W63	04	22.0		B	CRO	30	2	4	2
5453		LEAR	04	27	0004	N16	W68	04	21.8		A	AX	30	1	2	2
5453		RAMY	04	27	1320	N18	W78	04	21.6		A	AX	10	1	1	3
5452		BOUL	04	15	1325	S16	E85	04	22.0		A	HS	30	1	1	2
5452		RAMY	04	15	1400	S17	E80	04	21.7		A	HS	60	1	1	2
5452	25177	MWIL	04	15	1530	S15	E78	04	21.5	4	AP					
5452		HOLL	04	15	1545	S16	E80	04	21.7		B	BXO	60	4	4	3
5452		PALE	04	15	1910	S16	E81	04	21.9		A	HS	60	1	1	2
5452		LEAR	04	16	0155	S17	E75	04	21.8		B	DKO	240	5	9	2
5452		CULG	04	16	0310	S15	E80	04	22.2		B	DAO	110	3	8	2
5452		SVTO	04	16	0607	S17	E80	04	22.3		B	CAO	130	6	12	2
5452		RAMY	04	16	1230	S17	E72	04	22.0		B	DAO	230	10	10	2
5452		BOUL	04	16	1405	S18	E72	04	22.1		B	ESO	140	6	12	2
5452	25177	MWIL	04	16	1530	S16	E74	04	22.2	5	(B)					
5452		HOLL	04	16	1538	S17	E71	04	22.0		B	FKI	300	10	18	3
5452		PALE	04	16	1800	S17	E70	04	22.1		B	DSO	160	5	11	2
5452		LEAR	04	17	0025	S17	E68	04	22.2		B	DAO	190	12	10	3
5452		CULG	04	17	0215	S16	E69	04	22.3		B	EAO	150	7	13	2
5452		SVTO	04	17	0833	S16	E66	04	22.4		B	DAO	130	6	9	2
5452		RAMY	04	17	1340	S17	E60	04	22.1		B	DAI	150	19	10	3
5452		HOLL	04	17	1443	S17	E60	04	22.2		B	EAI	250	17	11	3
5452	25177	MWIL	04	17	1530	S16	E61	04	22.3	5	(B)					

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SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5452		PALE	04 17 1825	S17 E58	04 22.2		B	DAI	250	14	9	2
5452		LEAR	04 18 0020	S16 E53	04 22.0		B	DAO	140	15	9	3
5452		CULG	04 18 0310	S15 E54	04 22.2		B	EAI	120	11	11	2
5452		SVTO	04 18 1110	S18 E50	04 22.3		B	EAO	140	13	11	2
5452		BOUL	04 18 1315	S16 E45	04 22.0		B	CSO	110	4	9	1
5452		HOLL	04 18 1425	S18 E48	04 22.2		B	EAO	190	22	12	3
5452		RAMY	04 18 1430	S17 E47	04 22.2		B	DAI	170	13	9	3
5452	25177	MWIL	04 18 1515	S16 E48	04 22.3	5	(B)					
5452		PALE	04 18 1933	S17 E45	04 22.2		B	EAI	180	25	11	3
5452		LEAR	04 19 0032	S17 E41	04 22.1		B	DAO	90	14	10	2
5452		CULG	04 19 0310	S17 E41	04 22.2		B	EAO	60	13	11	2
5452		SVTO	04 19 0720	S18 E37	04 22.1		B	DAI	120	19	10	3
5452		RAMY	04 19 1350	S18 E35	04 22.2		B	CAO	110	11	11	4
5452		BOUL	04 19 1415	S17 E34	04 22.2		B	EAI	200	20	12	3
5452		HOLL	04 19 1500	S17 E35	04 22.3		BG	CSO	140	26	12	3
5452	25177	MWIL	04 19 1515	S16 E34	04 22.2	5	(B)					
5452		PALE	04 19 1904	S17 E33	04 22.3		B	CAI	110	21	11	2
5452		LEAR	04 20 0001	S17 E30	04 22.3		B	DAO	40	16	11	3
5452		CULG	04 20 0323	S17 E28	04 22.3		B	CAO	40	13	11	2
5452		SVTO	04 20 0700	S18 E26	04 22.3		B	CAO	110	15	11	2
5452		RAMY	04 20 1201	S18 E23	04 22.2		B	CAO	80	13	12	3
5452		BOUL	04 20 1413	S17 E22	04 22.3		B	EAI	80	17	11	3
5452	25177	MWIL	04 20 1730	S18 E20	04 22.2	4	(B)					
5452		HOLL	04 20 1732	S17 E22	04 22.4		B	CSO	80	25	12	3
5452		PALE	04 20 2030	S18 E18	04 22.2		B	CSO	50	10	11	3
5452		LEAR	04 21 0035	S17 E16	04 22.2		B	CSO	120	19	12	3
5452		CULG	04 21 0320	S17 E15	04 22.3		B	CAO	40	13	12	2
5452		SVTO	04 21 1107	S16 E06	04 21.9		A	HA	50	6	3	2
5452		RAMY	04 21 1230	S20 E10	04 22.3		B	CSO	90	10	10	3
5452		BOUL	04 21 1348	S17 E07	04 22.1		B	CAO	70	7	7	3
5452		HOLL	04 21 1555	S18 E07	04 22.2		B	CSI	400	20	15	4
5452	25177	MWIL	04 21 1730	S18 E05	04 22.1	4	(B)					
5452		PALE	04 21 2035	S17 E05	04 22.2		B	CAO	40	12	10	2
5452		CULG	04 22 0210	S17 E01	04 22.2		B	CAO	20	8	7	2
5452		LEAR	04 22 0210	S17 E03	04 22.3		B	CSO	90	9	12	1
5452		SVTO	04 22 0901	S18 W02	04 22.2		B	CAO	40	16	10	2
5452		RAMY	04 22 1255	S15 W09	04 21.8		A	HS	20	3	1	2
5452	25177	MWIL	04 22 1430	S17 W08	04 22.0	4	(AP)					
5452		BOUL	04 22 1455	S16 W08	04 22.0		B	CRO	20	4	3	3
5452		HOLL	04 22 1617	S17 W07	04 22.1		B	BXO	30	12	8	3
5452		PALE	04 22 1905	S17 W08	04 22.2		B	CSO	20	7	9	3
5452		SVTO	04 23 1338	S15 W21	04 22.0		B	CRO	10	5	3	3
5452		BOUL	04 23 1415	S12 W22	04 21.9		A	HR	10	1	1	3
5452	25177	MWIL	04 23 1430	S17 W21	04 22.0	4	(AP)					
5452		HOLL	04 23 1737	S16 W23	04 22.0		B	BXO	20	2	4	3
5452		PALE	04 23 1923	S17 W24	04 22.0		B	BXO	10	3	4	3
5452		LEAR	04 24 0130	S17 W29	04 21.8		A	AX	10	1	1	2
5452		SVTO	04 24 0715	S18 W28	04 22.2		B	DRO	10	7	8	3
5452		BOUL	04 24 1332	S17 W27	04 22.5		A	AX	10	2	1	1
5452		RAMY	04 24 1412	S19 W29	04 22.4		B	BXO	20	6	6	2
5452		HOLL	04 24 1525	S18 W34	04 22.0		B	BXO	50	12	9	3
5452		PALE	04 24 2045	S17 W36	04 22.1		B	BXO	20	4	7	2
5452		LEAR	04 25 0018	S19 W33	04 22.5		B	BXO	10	2	2	2
5452		CULG	04 25 0320	S19 W35	04 22.5		B	BXO	10	2	2	2
5453A		HOLL	04 24 1525	S07 W32	04 22.2		A	AX	10	1	1	3
5461		BOUL	04 21 1348	S27 E09	04 22.3		B	BXO	10	2	2	3
5461	25190	MWIL	04 21 1730	S27 E07	04 22.3	3	(B)					
5461		PALE	04 21 2035	S27 E05	04 22.2		B	BXO	10	2	2	2
5461		CULG	04 22 0210	S26 E02	04 22.2		B	BXO	2	2	2	2
5461		SVTO	04 22 0901	S26 W03	04 22.1		B	BXO	10	2	3	2
5461	25190	MWIL	04 22 1430	S26 W04	04 22.3	3	(B)					
5461A	25187	MWIL	04 20 1730	N32 E26	04 22.8	3	(AP)					
5461A		RAMY	04 21 1230	N30 E15	04 22.7		A	AX		1		3
5461B		PALE	04 23 1923	N20 W15	04 22.7		A	AX		2	1	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Mo	Day	Observation Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5461C		PALE	04	23	1923	S06	W15	04	22.7		B	BXO		4	3	3
5461D		HOLL	04	22	1617	S38	E07	04	23.2		A	AX		1	1	3
5465		SVTO	04	25	0751	S13	W25	04	23.4		B	CRO	10	3	3	2
5465		RAMY	04	25	1348	S13	W26	04	23.6		B	DAO	30	3	3	4
5465		BOUL	04	25	1432	S13	W26	04	23.6		B	BXO	20	2	3	2
5465		HOLL	04	25	1505	S12	W27	04	23.6		B	BXO	50	5	4	3
5465		PALE	04	25	2047	S11	W29	04	23.7		B	CAO	10	4	2	2
5465		LEAR	04	26	0010	S13	W31	04	23.7		B	CRO	20	5	3	2
5465		RAMY	04	26	1225	S12	W39	04	23.6		B	BXO	10	2	3	4
5465		PALE	04	26	1810	S13	W41	04	23.7		B	BXO	10	3	3	4
5465		HOLL	04	26	1840	S13	W41	04	23.7		A	AX		2	2	2
5465		LEAR	04	27	0004	S13	W43	04	23.7		A	AX	10	1	1	2
5465		RAMY	04	27	1320	S12	W53	04	23.6		B	BXO	10	3	3	3
5465		HOLL	04	27	1507	S12	W53	04	23.6		B	BXO	10	2	3	3
5465		LEAR	04	28	0020	S13	W58	04	23.6		A	AX	20	1	1	3
5465		RAMY	04	28	1330	S08	W68	04	23.5		A	AX		1		3
5454		RAMY	04	16	1230	S24	E88	04	23.3		A	HR	30	1	2	2
5454	25181	MWIL	04	16	1530	S23	E88	04	23.4	4	AP					
5454		HOLL	04	16	1538	S23	E88	04	23.4		A	HK	60	1	3	3
5454		PALE	04	16	1800	S23	E85	04	23.3		A	HA	120	1	3	2
5454		LEAR	04	17	0025	S22	E82	04	23.3		B	CHO	180	3	6	3
5454		CULG	04	17	0215	S22	E85	04	23.6		B	DAO	210	3	6	2
5454		SVTO	04	17	0833	S22	E79	04	23.4		B	CAO	120	2	3	2
5454		RAMY	04	17	1340	S23	E74	04	23.3		B	CHO	250	7	5	3
5454		HOLL	04	17	1443	S22	E74	04	23.3		A	HK	410	8	8	3
5454	25181	MWIL	04	17	1530	S23	E73	04	23.3	6	(AP)					
5454		PALE	04	17	1825	S23	E72	04	23.3		B	CHO	300	6	8	2
5454		LEAR	04	18	0020	S23	E68	04	23.2		B	CKO	260	4	4	3
5454		CULG	04	18	0310	S20	E67	04	23.2		A	HK	360	5	4	2
5454		SVTO	04	18	1110	S23	E67	04	23.6		B	DKO	480	11	6	2
5454		BOUL	04	18	1315	S20	E66	04	23.6		B	CAO	200	6	12	1
5454		HOLL	04	18	1425	S23	E62	04	23.4		B	CHO	400	14	10	3
5454		RAMY	04	18	1430	S23	E63	04	23.4		B	CHO	350	13	8	3
5454	25181	MWIL	04	18	1515	S22	E62	04	23.4	6	(BP)					
5454		PALE	04	18	1933	S22	E59	04	23.3		B	CKI	360	10	6	3
5454		LEAR	04	19	0032	S22	E56	04	23.3		B	CKO	320	8	7	2
5454		CULG	04	19	0310	S20	E57	04	23.5		B	CHO	340	7	6	2
5454		SVTO	04	19	0720	S23	E54	04	23.5		B	DKI	370	20	7	3
5454		RAMY	04	19	1350	S22	E53	04	23.6		B	CKI	340	10	9	4
5454		BOUL	04	19	1415	S23	E51	04	23.5		B	CHO	410	7	8	3
5454		HOLL	04	19	1500	S22	E53	04	23.7		B	CHO	430	16	10	3
5454	25181	MWIL	04	19	1515	S23	E48	04	23.3	6	(BP)					
5454		PALE	04	19	1904	S22	E48	04	23.5		B	CKI	430	14	8	2
5454		LEAR	04	20	0001	S22	E44	04	23.4		B	DAO	210	4	3	3
5454		CULG	04	20	0323	S20	E45	04	23.6		B	CHO	400	6	8	2
5454		SVTO	04	20	0700	S22	E40	04	23.4		B	CKO	310	7	4	2
5454		RAMY	04	20	1201	S23	E41	04	23.6		B	CHO	380	8	8	3
5454		BOUL	04	20	1413	S22	E38	04	23.5		B	CKO	280	8	8	3
5454	25181	MWIL	04	20	1730	S22	E34	04	23.3	6	(BP)					
5454		HOLL	04	20	1732	S23	E34	04	23.3		BG	CHI	380	7	5	3
5454		PALE	04	20	2030	S22	E33	04	23.4		B	CHO	360	5	5	3
5454		LEAR	04	21	0035	S22	E33	04	23.6		B	DHO	420	9	8	3
5454		CULG	04	21	0320	S21	E30	04	23.4		B	CHO	540	8	5	2
5454		SVTO	04	21	1107	S22	E24	04	23.3		B	CKO	350	7	6	2
5454		RAMY	04	21	1230	S21	E24	04	23.4		B	CHO	340	7	7	3
5454		BOUL	04	21	1348	S23	E25	04	23.5		B	CHO	350	8	8	3
5454		HOLL	04	21	1555	S23	E22	04	23.3		B	CHI	470	15	8	4
5454	25181	MWIL	04	21	1730	S23	E22	04	23.4	6	(BP)					
5454		PALE	04	21	2035	S23	E20	04	23.4		B	CHO	450	7	6	2
5454		LEAR	04	22	0210	S22	E20	04	23.6		B	CHO	350	7	8	1
5454		CULG	04	22	0210	S22	E20	04	23.6		B	CHO	330	9	10	2
5454		SVTO	04	22	0901	S23	E15	04	23.5		B	CAO	400	17	9	2
5454		RAMY	04	22	1255	S22	E11	04	23.4		B	CHO	400	5	6	2
5454	25181	MWIL	04	22	1430	S22	E10	04	23.4	5	(BG)					
5454		BOUL	04	22	1455	S21	E11	04	23.5		B	CHO	320	7	5	3
5454		HOLL	04	22	1617	S22	E12	04	23.6		BG	CSI	350	15	10	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time		Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day											(UT)
5454		PALE	04	22	1905	S22 E08	04 23.4		BG	CKI	430	16	11	3
5454		SVTO	04	23	1338	S21 E01	04 23.6		B	CKI	330	17	12	3
5454		BOUL	04	23	1415	S21 W01	04 23.5		B	CHO	280	10	9	3
5454	25181	MWIL	04	23	1430	S22 W03	04 23.4	5	(BP)					
5454		HOLL	04	23	1737	S22 W04	04 23.4		BG	CHI	140	13	8	3
5454		PALE	04	23	1923	S22 W03	04 23.6		BG	CKI	300	16	8	3
5454		LEAR	04	24	0130	S23 W08	04 23.4		B	CHO	300	6	6	2
5454		SVTO	04	24	0715	S20 W10	04 23.5		B	DKI	360	22	8	3
5454		BOUL	04	24	1332	S20 W12	04 23.6		B	DAI	200	13	7	1
5454		RAMY	04	24	1412	S21 W13	04 23.6		B	DHO	350	14	9	2
5454		HOLL	04	24	1525	S22 W15	04 23.5		B	DHO	470	29	10	3
5454		PALE	04	24	2045	S22 W17	04 23.5		B	DKI	430	18	10	2
5454		LEAR	04	25	0018	S22 W18	04 23.6		B	EHI	460	25	11	2
5454		CULG	04	25	0320	S18 W21	04 23.5		B	DHO	450	19	9	2
5454		SVTO	04	25	0751	S22 W23	04 23.5		B	EHI	520	22	13	2
5454		RAMY	04	25	1348	S20 W25	04 23.7		B	EHI	450	29	14	4
5454		BOUL	04	25	1432	S20 W27	04 23.5		B	DKI	310	17	8	2
5454		HOLL	04	25	1505	S20 W27	04 23.6		BG	FHI	660	30	16	3
5454	25181	MWIL	04	25	1530	S22 W28	04 23.5	6	(B)					
5454		PALE	04	25	2047	S19 W32	04 23.4		B	DKI	420	16	10	2
5454		LEAR	04	26	0010	S20 W34	04 23.4		B	EHI	360	17	11	2
5454		RAMY	04	26	1225	S19 W41	04 23.4		BG	EHI	360	36	13	4
5454		BOUL	04	26	1452	S21 W41	04 23.5		B	EKO	490	14	11	1
5454		PALE	04	26	1810	S20 W44	04 23.4		BG	EKI	380	25	11	4
5454		HOLL	04	26	1840	S21 W42	04 23.5		B	FHI	410	22	18	2
5454		LEAR	04	27	0004	S20 W46	04 23.5		BG	EHI	390	24	12	2
5454		CULG	04	27	0308	S19 W48	04 23.5		BG	EHI	310	16	11	1
5454		SVTO	04	27	1025	S19 W51	04 23.5		B	EKI	230	20	11	1
5454		RAMY	04	27	1320	S19 W55	04 23.3		BG	EHI	440	29	12	3
5454	25181	MWIL	04	27	1500	S23 W55	04 23.4	6	(BG)					
5454		HOLL	04	27	1507	S19 W55	04 23.4		BG	FHI	430	24	19	3
5454		LEAR	04	28	0020	S22 W60	04 23.4		BG	EKI	500	20	12	3
5454		CULG	04	28	0327	S20 W63	04 23.3		BG	EHI	260	11	13	2
5454		RAMY	04	28	1330	S18 W67	04 23.5		BG	EKI	380	16	13	3
5454		SVTO	04	28	1347	S20 W68	04 23.4		BG	EKO	340	10	13	2
5454		HOLL	04	28	1500	S20 W69	04 23.3		BG	FHO	240	14	18	3
5454	25181	MWIL	04	28	1500	S23 W68	04 23.4	5	(BG)					
5454		PALE	04	28	1740	S21 W70	04 23.4		BG	EHO	310	9	12	3
5454		LEAR	04	29	0015	S21 W73	04 23.4		B	CKO	330	10	10	3
5454		CULG	04	29	0300	S21 W73	04 23.5		B	CSO	250	3	2	3
5454		SVTO	04	29	1010	S22 W75	04 23.6		B	CKO	150	4	7	2
5454		RAMY	04	29	1345	S21 W78	04 23.6		B	CKI	220	5	6	3
5454		BOUL	04	29	1438	S20 W78	04 23.6		A	HA	120	1	2	2
5454	25181	MWIL	04	29	1500	S23 W80	04 23.5	5	(BF)					
5454		HOLL	04	29	1635	S23 W83	04 23.3		A	HX	210	1	4	3
5454A	25194	MWIL	04	25	1530	S13 W26	04 23.7	4	(B)					
5454B	25179	MWIL	04	22	1430	S30 E20	04 24.2	3	(AF)					
5466		RAMY	04	26	1225	S31 W16	04 25.2		B	BXO	10	5	4	4
5466		PALE	04	26	1810	S31 W20	04 25.2		A	AX		3	2	4
5466		HOLL	04	26	1840	S31 W20	04 25.2		A	AX		1		2
5466		LEAR	04	27	0004	S32 W20	04 25.4		B	BXO	10	2	3	2
5456		LEAR	04	19	0032	N33 E78	04 25.2		B	DKC	180	2	6	2
5456		CULG	04	19	0310	N33 E80	04 25.5		A	HK	130	2	6	2
5456		SVTO	04	19	0720	N32 E75	04 25.2		A	HK	200	2	5	3
5456		RAMY	04	19	1350	N31 E70	04 25.1		A	HH	300	2	2	4
5456		BOUL	04	19	1415	N32 E70	04 25.1		A	HK	180	2	2	3
5456		HOLL	04	19	1500	N33 E70	04 25.2		B	DHO	240	2	6	3
5456	25184	MWIL	04	19	1515	N33 E70	04 25.2	5	(AP)					
5456		PALE	04	19	1904	N32 E70	04 25.3		B	CAO	220	5	9	2
5456		LEAR	04	20	0001	N34 E68	04 25.4		A	HK	300	2	4	3
5456		CULG	04	20	0323	N34 E67	04 25.5		A	HK	180	2	3	2
5456		SVTO	04	20	0700	N32 E62	04 25.2		A	HK	290	3	5	2
5456		RAMY	04	20	1201	N32 E60	04 25.2		A	HH	400	3	4	3
5456		BOUL	04	20	1413	N33 E61	04 25.4		B	CKO	390	3	5	3
5456	25184	MWIL	04	20	1730	N33 E57	04 25.2	5	(AP)					

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation			CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day	Time (UT)									Lat	CMD
5456		HOLL	04	20	1732	N32 E57	04 25.2	BG	CKI	350	5	5	3
5456		PALE	04	20	2030	N32 E57	04 25.4	A	HH	330	3	4	3
5456		LEAR	04	21	0035	N33 E53	04 25.2	A	HK	330	4	5	3
5456		CULG	04	21	0320	N33 E53	04 25.3	A	HK	250	3	4	2
5456		SVTO	04	21	1107	N32 E48	04 25.3	A	HA	320	3	3	2
5456		RAMY	04	21	1230	N32 E48	04 25.3	A	HH	360	4	4	3
5456		BOUL	04	21	1348	N32 E46	04 25.2	A	HK	360	3	4	3
5456		HOLL	04	21	1555	N32 E46	04 25.3	A	HK	360	2	4	4
5456	25184	MWIL	04	21	1730	N33 E45	04 25.3	5	(AP)				
5456		PALE	04	21	2035	N33 E45	04 25.4	B	CHO	320	4	4	2
5456		LEAR	04	22	0210	N33 E40	04 25.3	A	HK	260	2	4	1
5456		CULG	04	22	0210	N33 E41	04 25.3	A	HA	170	2	4	2
5456		SVTO	04	22	0901	N33 E37	04 25.3	A	HA	320	4	4	2
5456		RAMY	04	22	1412	N33 E33	04 25.2	B	CHO	280	8	5	2
5456	25184	MWIL	04	22	1430	N32 E34	04 25.3	5	(AP)				
5456		BOUL	04	22	1455	N32 E33	04 25.2	B	CKO	220	5	3	3
5456		HOLL	04	22	1617	N33 E35	04 25.4	B	CAI	310	5	5	3
5456		PALE	04	22	1905	N32 E32	04 25.3	B	CKI	300	7	4	3
5456		SVTO	04	23	1338	N34 E23	04 25.4	A	HH	150	10	5	3
5456		BOUL	04	23	1415	N32 E22	04 25.3	B	CAO	200	8	5	3
5456	25184	MWIL	04	23	1430	N32 E22	04 25.3	5	(AP)				
5456		HOLL	04	23	1737	N33 E21	04 25.4	B	CKI	230	7	4	3
5456		PALE	04	23	1923	N32 E19	04 25.3	B	CKO	260	7	4	3
5456		LEAR	04	24	0130	N34 E15	04 25.2	B	DSO	130	5	5	2
5456		SVTO	04	24	0715	N32 E13	04 25.3	B	DKO	160	6	4	3
5456		BOUL	04	24	1332	N32 E10	04 25.3	B	CAO	60	4	3	1
5456		RAMY	04	24	1412	N32 E10	04 25.4	BG	CAO	140	8	4	2
5456		HOLL	04	24	1525	N33 E11	04 25.5	BG	CAO	140	9	5	3
5456		PALE	04	24	2045	N33 E05	04 25.3	B	CSO	100	7	4	2
5456		LEAR	04	25	0018	N32 E04	04 25.3	B	CSO	130	7	3	2
5456		CULG	04	25	0320	N34 E02	04 25.3	B	CAO	120	3	4	2
5456		SVTO	04	25	0751	N33 W03	04 25.1	B	CAO	130	4	3	2
5456		RAMY	04	25	1348	N32 W02	04 25.4	B	CSO	140	9	4	4
5456		BOUL	04	25	1432	N32 W03	04 25.4	B	CAO	100	3	3	2
5456		HOLL	04	25	1505	N34 W02	04 25.5	A	HS	80	1	2	3
5456	25184	MWIL	04	25	1530	N33 W03	04 25.4	5	(AP)				
5456		PALE	04	25	2047	N33 W06	04 25.4	B	CKI	110	9	8	2
5456		LEAR	04	26	0010	N31 W06	04 25.5	B	CSO	60	5	4	2
5456		RAMY	04	26	1225	N34 W13	04 25.5	B	CSO	130	4	3	4
5456		BOUL	04	26	1452	N34 W14	04 25.5	A	HS	80	1	2	1
5456		PALE	04	26	1810	N33 W18	04 25.3	B	CSO	100	5	5	4
5456		HOLL	04	26	1840	N33 W17	04 25.4	B	CSO	80	2	3	2
5456		LEAR	04	27	0004	N32 W21	04 25.3	B	CSO	90	4	4	2
5456		CULG	04	27	0308	N33 W22	04 25.4	A	HS	100	2	2	1
5456		SVTO	04	27	1025	N32 W24	04 25.5	A	HA	80	2	2	1
5456		RAMY	04	27	1320	N35 W27	04 25.4	B	CSO	150	8	5	3
5456	25184	MWIL	04	27	1500	N33 W27	04 25.5	6	(AP)				
5456		HOLL	04	27	1507	N35 W29	04 25.3	B	CSO	110	8	5	3
5456		LEAR	04	28	0020	N33 W33	04 25.4	B	CSO	100	5	4	3
5456		CULG	04	28	0327	N35 W34	04 25.4	B	CSO	70	3	5	2
5456		RAMY	04	28	1330	N36 W40	04 25.3	B	CSO	150	6	5	3
5456		SVTO	04	28	1347	N34 W40	04 25.4	B	CAO	80	5	4	2
5456	25184	MWIL	04	28	1500	N34 W41	04 25.3	5	(AP)				
5456		HOLL	04	28	1500	N35 W43	04 25.2	B	CSO	100	5	9	3
5456		PALE	04	28	1740	N33 W40	04 25.5	B	CHO	240	2	5	3
5456		LEAR	04	29	0015	N34 W46	04 25.3	B	CSO	130	5	4	3
5456		CULG	04	29	0300	N36 W47	04 25.3	A	HS	60	1	1	3
5456		SVTO	04	29	1010	N34 W51	04 25.3	B	CAO	80	4	4	2
5456		RAMY	04	29	1345	N36 W52	04 25.4	B	CSO	130	3	3	3
5456		BOUL	04	29	1438	N33 W50	04 25.6	A	HA	50	2	1	2
5456	25184	MWIL	04	29	1500	N34 W54	04 25.3	5	(AP)				
5456		HOLL	04	29	1635	N34 W54	04 25.4	A	HX	170	2	3	3
5456		LEAR	04	30	0021	N33 W56	04 25.6	A	HS	60	1	2	3
5456		CULG	04	30	0350	N36 W59	04 25.4	A	HS	30	1	1	2
5456		RAMY	04	30	1349	N35 W62	04 25.6	A	HS	120	1	2	2
5456	25184	MWIL	04	30	1530	N34 W66	04 25.4	5	(AP)				
5456		HOLL	04	30	1618	N33 W65	04 25.5	A	HS	40	1	2	2
5456		PALE	04	30	2053	N34 W68	04 25.4	B	CSO	110	2	3	3
5456		LEAR	05	01	0011	N33 W69	04 25.6	B	CSO	200	2	3	3

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(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5456		CULG	05 01 0230	N34 W71	04 25.5		A	HS	40	1	1	3
5456		RAMY	05 01 1318	N35 W73	04 25.8		A	HS	90	1	2	4
5456		BOUL	05 01 1320	N33 W79	04 25.4		A	HS	60	1	3	1
5456	25184	MWIL	05 01 1515	N33 W77	04 25.6	5	(AP)					
5456		HOLL	05 01 1600	N34 W78	04 25.5		A	HH	30	1	3	3
5456		PALE	05 01 2006	N34 W80	04 25.6		A	HS	60	1	2	3
5456		LEAR	05 02 0045	N32 W74	04 26.3		A	HS	30	1	2	4
5460		BOUL	04 20 1413	S19 E69	04 25.8		B	BXO	10	3	2	3
5460	25188	MWIL	04 20 1730	S19 E68	04 25.9	3	(AP)					
5460		HOLL	04 20 1732	S18 E75	04 26.4		A	AX		1	1	3
5460		PALE	04 20 2030	S19 E67	04 26.0		A	AX		1		3
5460		LEAR	04 21 0035	S18 E64	04 25.9		A	AX	20	1	2	3
5460		CULG	04 21 0320	S18 E62	04 25.9		A	AX		1		2
5460		SVTO	04 21 1107	S18 E58	04 25.9		A	AX	10	1	1	2
5460		RAMY	04 21 1230	S19 E56	04 25.8		A	AX	10	1	1	3
5460		BOUL	04 21 1348	S19 E56	04 25.8		A	AX	10	1	1	3
5460		HOLL	04 21 1555	S19 E53	04 25.7		A	AX	20	1	1	4
5460	25188	MWIL	04 21 1730	S19 E55	04 25.9	4	(BP)					
5460		PALE	04 21 2035	S19 E52	04 25.8		B	CSO	50	5	8	2
5460		LEAR	04 22 0210	S18 E50	04 25.9		B	BXO	50	5	6	1
5460		CULG	04 22 0210	S18 E51	04 26.0		B	CRO	10	4	6	2
5460		SVTO	04 22 0901	S18 E47	04 25.9		B	DAO	40	9	7	2
5460		RAMY	04 22 1412	S20 E41	04 25.7		B	DAI	130	16	10	2
5460	25188	MWIL	04 22 1430	S18 E44	04 25.9	5	(B)					
5460		BOUL	04 22 1455	S18 E43	04 25.9		B	DSO	30	8	7	3
5460		HOLL	04 22 1617	S18 E43	04 25.9		B	BXI	60	12	5	3
5460		PALE	04 22 1905	S19 E41	04 25.9		B	DAI	90	15	6	3
5460		SVTO	04 23 1338	S18 E32	04 26.0		B	DAO	130	17	10	3
5460		BOUL	04 23 1415	S18 E28	04 25.7		B	DAO	70	11	9	3
5460	25188	MWIL	04 23 1430	S18 E30	04 25.9	5	(B)					
5460		HOLL	04 23 1737	S19 E29	04 25.9		B	DAO	150	8	7	3
5460		PALE	04 23 1923	S20 E28	04 25.9		B	DAI	160	21	9	3
5460		LEAR	04 24 0130	S18 E25	04 26.0		B	DSO	120	13	9	2
5460		SVTO	04 24 0715	S19 E21	04 25.9		B	DAO	180	15	9	3
5460		BOUL	04 24 1332	S18 E16	04 25.8		B	DAI	120	15	9	1
5460		RAMY	04 24 1412	S19 E17	04 25.9		B	DAI	210	14	10	2
5460		HOLL	04 24 1525	S19 E15	04 25.8		B	EAI	210	35	12	3
5460		PALE	04 24 2045	S19 E12	04 25.8		B	EAI	210	20	11	2
5460		LEAR	04 25 0018	S19 E11	04 25.8		B	ESO	210	19	12	2
5460		CULG	04 25 0320	S19 E09	04 25.8		B	EAI	150	16	12	2
5460		SVTO	04 25 0751	S19 E07	04 25.9		B	ESO	170	12	13	2
5460		RAMY	04 25 1348	S19 E04	04 25.9		B	EAO	170	24	12	4
5460		BOUL	04 25 1432	S18 E03	04 25.8		B	DAO	180	12	9	2
5460		HOLL	04 25 1505	S19 E02	04 25.8		B	DAO	260	10	13	3
5460	25188	MWIL	04 25 1530	S18 E03	04 25.9	5	(B)					
5460		PALE	04 25 2047	S17 E00	04 25.9		B	EAI	190	16	13	2
5460		LEAR	04 26 0010	S19 W03	04 25.8		B	ESO	150	13	13	2
5460		RAMY	04 26 1225	S19 W10	04 25.7		B	ESI	120	20	12	4
5460		BOUL	04 26 1452	S18 W11	04 25.8		B	EAO	160	9	13	1
5460		PALE	04 26 1810	S19 W13	04 25.8		B	ESI	120	18	14	4
5460		HOLL	04 26 1840	S19 W12	04 25.9		B	ESI	130	21	13	2
5460		LEAR	04 27 0004	S19 W16	04 25.8		B	EAO	230	18	12	2
5460		CULG	04 27 0308	S19 W17	04 25.8		B	EAI	100	22	14	1
5460		SVTO	04 27 1025	S20 W22	04 25.7		B	EAO	100	17	12	1
5460		RAMY	04 27 1320	S19 W23	04 25.8		B	ESI	130	27	13	3
5460	25188	MWIL	04 27 1500	S20 W24	04 25.8	5	(BG)					
5460		HOLL	04 27 1507	S18 W24	04 25.8		B	ESI	180	32	13	3
5460		LEAR	04 28 0020	S18 W29	04 25.8		B	EAO	210	21	12	3
5460		CULG	04 28 0327	S18 W32	04 25.7		B	EAI	140	14	14	2
5460		RAMY	04 28 1330	S17 W37	04 25.7		B	ESO	230	22	14	3
5460		SVTO	04 28 1347	S18 W36	04 25.8		B	EAO	200	16	15	2
5460	25188	MWIL	04 28 1500	S18 W37	04 25.8	5	(BG)					
5460		HOLL	04 28 1500	S18 W38	04 25.7		B	EAO	120	23	14	3
5460		PALE	04 28 1740	S20 W38	04 25.8		B	FAO	180	14	16	3
5460		LEAR	04 29 0015	S18 W44	04 25.6		B	EAI	220	20	14	3
5460		CULG	04 29 0300	S17 W45	04 25.7		B	CSI	80	15	14	3
5460		SVTO	04 29 1010	S18 W46	04 25.9		B	EAO	160	18	15	2
5460		RAMY	04 29 1345	S17 W52	04 25.6		BG	FAI	170	23	16	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5460		BOUL	04 29 1438	S18	W51	04 25.7		B	FAO	140	14	19	2
5460	25188	MWIL	04 29 1500	S18	W52	04 25.7	5	(BG)					
5460		HOLL	04 29 1635	S18	W53	04 25.6		B	CSO	270	34	15	3
5460		LEAR	04 30 0021	S19	W55	04 25.8		B	ESO	160	12	16	3
5460		CULG	04 30 0350	S18	W60	04 25.6		B	CSI	40	10	14	2
5460		RAMY	04 30 1349	S19	W63	04 25.8		B	EAO	190	10	13	2
5460	25188	MWIL	04 30 1530	S18	W65	04 25.7	4	(BG)					
5460		HOLL	04 30 1618	S21	W67	04 25.5		B	CSO	90	9	12	2
5460		PALE	04 30 2053	S19	W71	04 25.4		B	FAI	110	10	17	3
5460		LEAR	05 01 0011	S18	W70	04 25.8		B	FAO	170	8	16	3
5460		CULG	05 01 0230	S19	W70	04 25.9		B	CSO	60	3	14	3
5460		RAMY	05 01 1318	S18	W75	04 25.9		B	EAO	120	4	12	4
5460	25188	MWIL	05 01 1515	S20	W84	04 25.3	3	BG					
5460		HOLL	05 01 1600	S19	W79	04 25.7		A	AX	30	1	2	3
5460		PALE	05 01 2006	S21	W77	04 26.0		A	AX	10	2	2	3
5460		LEAR	05 02 0045	S21	W74	04 26.4		B	BXO	30	3	3	4
5460A		RAMY	04 26 1225	S12	W06	04 26.1		B	BXO		2	2	4
5469		RAMY	04 28 1330	S35	W08	04 27.9		B	BXO		2	3	3
5469		SVTO	04 28 1347	S37	W09	04 27.8		A	AX		1		2
5469		HOLL	04 28 1500	S37	W11	04 27.7		A	AX		1		3
5469		CULG	04 30 0350	S39	W26	04 28.0		B	BXO	10	2	3	2
5469	25199	MWIL	04 30 1530	S41	W32	04 28.0	4	(BP)					
5469		PALE	04 30 2053	S40	W34	04 28.1		B	BXO	10	3	4	3
5469		LEAR	05 01 0011	S39	W35	04 28.3		B	BXO	10	3	4	3
5469		CULG	05 01 0230	S39	W39	04 28.0		A	AX	10	1	1	3
5469		RAMY	05 01 1318	S39	W45	04 28.0		A	AX	10	2	1	4
5469	25199	MWIL	05 01 1515	S40	W45	04 28.1	4	(AP)					
5469		HOLL	05 01 1600	S39	W45	04 28.1		A	AX	30	3	1	3
5469		PALE	05 01 2006	S40	W49	04 27.9		A	AX	10	3	2	3
5468		RAMY	04 28 1330	N27	E07	04 29.1		B	BXO	10	5	3	3
5468		SVTO	04 28 1347	N27	E06	04 29.0		B	CRO	10	3	3	2
5468	25197	MWIL	04 28 1500	N26	E04	04 28.9	4	(AP)					
5468		HOLL	04 28 1500	N27	E06	04 29.1		B	BXO	10	4	4	3
5468		PALE	04 28 1740	N23	E03	04 29.0		A	AX		1		3
5468		LEAR	04 29 0015	N28	E00	04 29.0		B	BXO	30	3	3	3
5468		CULG	04 29 0300	N27	W01	04 29.0		B	BXO	10	2	3	3
5468		SVTO	04 29 1010	N27	W04	04 29.1		B	CRO	10	3	3	2
5468		RAMY	04 29 1345	N27	W06	04 29.1		B	CRO	20	7	5	3
5468		BOUL	04 29 1438	N26	W06	04 29.1		B	CRO	10	5	4	2
5468	25197	MWIL	04 29 1500	N26	W07	04 29.1	4	(B)					
5468		HOLL	04 29 1635	N27	W08	04 29.1		B	BXO	40	10	4	3
5468		LEAR	04 30 0021	N27	W12	04 29.1		B	CSO	50	10	5	3
5468		CULG	04 30 0350	N27	W17	04 28.8		A	AX	10	1	1	2
5468		RAMY	04 30 1349	N27	W19	04 29.1				20	0	5	2
5468	25197	MWIL	04 30 1530	N26	W21	04 29.0	5	(B)					
5468		HOLL	04 30 1618	N27	W21	04 29.0		B	BXO	10	6	6	2
5468		PALE	04 30 2053	N27	W23	04 29.1		B	CAO	20	5	4	3
5468		LEAR	05 01 0011	N27	W26	04 29.1		B	BXO	10	3	6	3
5468		CULG	05 01 0230	N27	W28	04 29.0		A	AX	10	1	1	3
5468		RAMY	05 01 1318	N28	W32	04 29.1		B	BXO	10	4	4	4
5468	25197	MWIL	05 01 1515	N26	W34	04 29.1	4	(B)					
5468		HOLL	05 01 1600	N27	W34	04 29.1		B	BXO	30	6	7	3
5468		LEAR	05 02 0045	N26	W38	04 29.2		B	BXO	20	4	6	4
5468		CULG	05 02 0415	N28	W41	04 29.1		B	BXO	10	2	1	3
5468		RAMY	05 02 1140	N28	W43	04 29.2		B	CAO	50	8	5	3
5468		HOLL	05 02 1320	N26	W46	04 29.1		B	CSO	30	6	8	3
5468		BOUL	05 02 1326	N27	W43	04 29.3		B	BXO	30	3	3	1
5468	25197	MWIL	05 02 1430	N27	W44	04 29.3	4	(B)					
5468		PALE	05 02 1745	N27	W44	04 29.4		B	CSO	50	8	6	3
5468		LEAR	05 03 0050	N27	W50	04 29.2		B	CAO	60	10	8	2
5468		CULG	05 03 0230	N28	W51	04 29.2		B	CSO	30	5	2	3
5468		RAMY	05 03 1213	N28	W56	04 29.2		B	DAO	70	6	4	4
5468		BOUL	05 03 1425	N28	W55	04 29.4		B	DAO	80	6	6	2
5468	25197	MWIL	05 03 1500	N27	W58	04 29.2	5	(BP)					
5468		HOLL	05 03 1515	N28	W59	04 29.1		B	DSO	50	6	10	3
5468		PALE	05 03 1745	N27	W57	04 29.4		B	CHO	60	5	7	4

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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
5468		LEAR	05 04 0008	N26 W67	04 28.9		B	BXO	100	5	3	4
5468		CULG	05 04 0305	N29 W65	04 29.1		B	CAO	30	3	8	2
5468		SVTO	05 04 0900	N28 W68	04 29.2		B	CAO	30	5	7	2
5468		RAMY	05 04 1330	N28 W69	04 29.3		B	BXO	20	3	7	4
5468	25197	MWIL	05 04 1500	N26 W76	04 28.8	4	X					
5468		HOLL	05 04 1500	N29 W71	04 29.1		B	BXO	60	7	7	3
5463		SVTO	04 24 0715	N12 E76	04 30.0		A	AX		3	3	3
5463		BOUL	04 24 1332	N13 E79	04 30.5		B	BXO	20	3	6	1
5463		RAMY	04 24 1412	N13 E75	04 30.2		B	DRO	120	4	10	2
5463		HOLL	04 24 1525	N12 E75	04 30.3		B	BXO	90	6	10	3
5463		PALE	04 24 2045	N11 E71	04 30.2		B	BXO	30	3	5	2
5463		LEAR	04 25 0018	N13 E70	04 30.3		B	CAO	80	5	11	2
5463		CULG	04 25 0320	N14 E70	04 30.4		B	CSO	30	3	9	2
5463		SVTO	04 25 0751	N13 E64	04 30.1		B	DAO	50	6	8	2
5463		RAMY	04 25 1348	N13 E65	04 30.5		B	DAO	70	6	9	4
5463		BOUL	04 25 1432	N13 E64	04 30.4		B	BXO	20	2	8	2
5463		HOLL	04 25 1505	N12 E64	04 30.4		B	BXO	40	2	7	3
5463	25195	MWIL	04 25 1530	N13 E63	04 30.4	5	(B)					
5463		PALE	04 25 2047	N15 E59	04 30.3		B	BXO	40	3	10	2
5463		LEAR	04 26 0010	N13 E58	04 30.4		B	CRO	30	3	6	2
5463		RAMY	04 26 1225	N12 E51	04 30.3		B	CSO	30	5	8	4
5463		BOUL	04 26 1452	N13 E49	04 30.3		B	BXO	20	2	7	1
5463		PALE	04 26 1810	N12 E48	04 30.4		B	DSO	50	8	8	4
5463		HOLL	04 26 1840	N13 E46	04 30.2		B	CSO	40	10	9	2
5463		LEAR	04 27 0004	N12 E45	04 30.4		B	BXO	60	9	8	2
5463		CULG	04 27 0308	N13 E42	04 30.3		B	CAO	20	7	9	1
5463		SVTO	04 27 1025	N12 E42	04 30.6		A	HA	20	4	1	1
5463		RAMY	04 27 1320	N13 E38	04 30.4		B	BXO	10	9	8	3
5463	25195	MWIL	04 27 1500	N13 E39	04 30.6	5	(AP)					
5463		HOLL	04 27 1507	N13 E40	04 30.6		A	AX	10	4	2	3
5463		LEAR	04 28 0020	N13 E32	04 30.4		B	BXO	50	7	8	3
5463		CULG	04 28 0327	N14 E31	04 30.5		B	BXO	10	5	6	2
5463		RAMY	04 28 1330	N13 E25	04 30.4		B	CRO	20	13	8	3
5463		SVTO	04 28 1347	N13 E25	04 30.5		B	CRO	10	8	7	2
5463		HOLL	04 28 1500	N13 E25	04 30.5		B	BXO	10	7	5	3
5463	25195	MWIL	04 28 1500	N13 E25	04 30.5	4	(B)					
5463		PALE	04 28 1740	N13 E25	04 30.6		B	BXO	10	4	4	3
5463		LEAR	04 29 0015	N13 E18	04 30.4		B	BXO	20	6	6	3
5463		SVTO	04 29 1010	N14 E09	04 30.1		B	BXO	10	6	4	2
5463		RAMY	04 29 1345	N13 E08	04 30.2		B	BXO	10	5	3	3
5463		BOUL	04 29 1438	N13 E07	04 30.1		B	BXO		4	2	2
5463	25195	MWIL	04 29 1500	N14 E10	04 30.4	4	(B)					
5463		HOLL	04 29 1635	N13 E07	04 30.2		A	AX	20	6	2	3
5463		LEAR	04 30 0021	N13 E02	04 30.2		B	BXO	20	4	2	3
5463		RAMY	04 30 1349	N14 W05	04 30.2		B	BXO	10	4	2	2
5463	25195	MWIL	04 30 1530	N14 W04	04 30.3	4	(BP)					
5463		HOLL	04 30 1618	N13 W08	04 30.1		A	AX		3	1	2
5463		LEAR	05 01 0011	N14 W12	04 30.1		B	BXO	10	4	3	3
5463		RAMY	05 01 1318	N14 W16	04 30.3		B	BXO	20	4	5	4
5463	25195	MWIL	05 01 1515	N14 W18	04 30.3	4	(B)					
5463		HOLL	05 01 1600	N14 W17	04 30.4		B	BXO	40	14	12	3
5463		PALE	05 01 2006	N12 W20	04 30.3		B	BXO	10	5	9	3
5463		LEAR	05 02 0045	N12 W22	04 30.4		B	BXO	10	7	10	4
5463		LEAR	05 03 0050	N13 W34	04 30.5		B	BXO	10	2	2	2
5463A	25200	MWIL	04 30 1530	N20 W04	04 30.3	4	(AP)					

Stations reporting:

BOUL = Boulder
CULG = Culgoora

HOLL = Holloman
LEAR = Learmonth

MWIL = Mt. Wilson
PALE = Palehua

RAMY = Ramey
SVTO = San Vito

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APRIL 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
01	0038	0041	0102	1-	1			1			No flare		
01	0109	0120	0136	1-	3			1	1		0108		5428
01	0552	0606	0644	2	3		2				*		
01	0812	0814	0829	1-	1					1	No flare		
02	0110	0114	0123	1-	1				1		No flare		
02	0502	0517	0550	1-	3			1	1		0456	C2.4	
02	0739	0744	0846	1-	1			1			No flare		
02	0950	1030U	1154	1	1		1				*		
02	1123	1132	1147	1-	1			1			*		
02	1321	1329	1428	1-	5		3	1	1		1315E		5428
02	1530	1538	1618	2	5		1			4	1541E	M1.6	
02	1536	1549	1715	2+	5	3	2	1	1	10	1541E	M1.6	
02	2324	2334	0109	3-	5			1		2	2326	M1.0	
03	0613	0616	0640	1-	5			1	2		0609	C3.7	
03	0917	0926	1018	1	5	1		1	2	1	0914	C3.4	
03	1208	1218	1233D	1-	1			1			No flare		
03	1233E	1241	1255	1-	1			1			*		
03	1303	1330U	1425D	1	3		2				*		
03	1518	1522	1535	1-	5	1			1	6	1517	C5.2	5428
03	1521	1530	1553	1	5		2			1	1517	C5.2	5428
03	1610	1612	1621	1-	1					1	No flare		
03	1915	1932	2010	2	3					3	1920	C6.9	5428
03	1932	1945	2017	1-	1			1			1920	C6.9	5428
03	2045	2055	2111	1-	1			1			No flare		
03	2205	2213	2324	2-	5			1		8	2201E	M1.2	5428
03	2323	2333	0117	2+	3			1	1		No flare		
04	0126	0131	0145	1-	1				1		*		
04	0148	0152	0221	1-	3			1	1		0146	C2.9	
04	0317	0321	0330	1-	1				1		No flare		
04	0424	0432	0504	1-	3			1	1		0423		5440
04	0547	0604	0631	1-	1			1			0559E	C2.3	
04	1202	1212U	1312	1	1		1				No flare		
05	0246	0249	0301U	1-	1				1		0247		5441
05	0343	0355	0520	2	3	1		1	1		0342	C7.1	5441
05	0500	0521	0637	1-	1				1		No flare		
05	0754	0800	0824	1-	1				1		0752	C2.1	
05	0803	0816	0850	1	1		1				No flare		
05	0851	0917	1044D	3	5	3	4	1	2	2	0855	M1.4	5441
05	1044E	1049	1111	1-	1				1		1014		5428
05	1157	1207	1300D	2+	5	3	6	1	1	9	1155	M4.3	5428
05	1300E	1307	1342	1-	5	1	1	1	1	1	1254	C4.5	5438
05	1421	1422	1443	1	1					1	No flare		
05	2031	2044	2109	1-	1			1			2043	C1.9	5428
05	2306	2314	0049	1-	5			1	1	2	2306	C7.0	5428
06	0500	0505	0521	1-	3			1	1		0501	C2.0	5428
06	0530	0541	0620	1-	5			1	1	1	0529	C4.5	5428
06	1001	1013	1121	1-	5	1	1	1	1	2	1005	C5.0	5441
06	2039	2046	2113	1-	5			1		1	2042	C1.9	5441
06	2200	2200	2204U	1-	1				1		*		
07	0440	0443	0505	1-	1			1			0439	C1.5	5428
07	0520	0528	0550	1-	1				1		No flare		
07	0822	0836	0919	1-	5	2	1	1	1	1	0832	C2.5	5438
07	1212	1223	1233	1	1		1				No flare		
07	1306	1314	1314D	1-	5	1			1	2	1309	C3.5	5434
07	1319	1348	1455	2	3	2			1		1306	C9.4	5441
07	1321	1400	1500	2	1		1				1341E		5441
07	1526	1533	1600	1-	5	2	4	1		12	1523	C8.3	5441
07	1949	1953	2020	1-	5			1		5	1949	C4.7	5446
07	2212	2223	2235	1-	1			1			No flare		
07	2304	2313	0003	1-	1			1			No flare		

* = No flare patrol.

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APRIL 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
08	0158	0204	0250	1-	3			1	1		0153	C2.1	5441
08	0318	0322	0418	1-	3			1	1		0315	C2.9	5441
08	1127	1135	1145	1-	3	1	1		1	1	1127	C3.4	5441
08	1335	1338	1350	1-	1				1		1328		5427
08	1624	1627	1645	1	1					1	1613	C2.5	5427
08	1739	1742	1756	1-	3					6	1740	C4.1	
08	1830	1833	1911	2-	3					3	No flare		
08	2113	2130	2240	1-	5			1		6	2112	C5.5	
08	2316	2325	2344	1-	5			1		1	2317	C3.0	
09	0043	0103	0349	3	5	1		1	1	1	0044	X3.5	5441
09	0537	0539	0547	1-	1					1	*		
09	0930	0953	1004	1	1		1				No flare		
09	1316	1317	1325	1-	1					1	No flare		
10	0959	1026U	1124	1	1		1				No flare		
10	1223	1227	1235	1-	1					1	No flare		
10	1242	1245	1253	1-	1					1	No flare		
10	1434	1439U	1517	1	1		2				1435		5438
10	1809	1811	1822	1-	1					1	1810	C1.8	
10	2124	2127	2337U	3+	1					1	2134	M1.2	
10	2318	2330	0057	1-	1			1			2134	M1.2	
11	0540E	0555	0625	2-	1		1				No flare		
11	1031	1043	1119	1+	3		2				*		
11	1204	1225	1309	1-	5		1	1			No flare		
11	1255	1331	1437	1+	3		2				No flare		
11	1437	1451	1600	1	1			1			No flare		
11	1720	1731	1750	1-	3	1				1	1713		
12	0102	0109	0116	1-	1					1	*		
12	0606	0615	0718	1-	5		1	1	2		0603	C4.5	5438
12	0643	0647	0716	1	1		1				*		
12	0724	0747	0829	1	1		1				*		
12	1129	1131	1133	1-	1		1				1134	C1.9	
12	1237	1248	1313	1	3		2				No flare		
12	1405	1409	1425	1-	3					3	No flare		
13	0100	0108	0148	1-	1			1			0057	C1.5	
13	0330	0336	0355	1-	1					1	*		
13	0502	0525	0607	1-	3			1	1		0516	C3.0	5438
13	0642	0646	0716	1-	1			1			No flare		
13	0729	0745	0826	1	1		1				No flare		
13	1222	1234	1300	1-	3	1	1			1	1219	C3.8	5438
13	1742	1745	1759	1-	3					6	1741	C4.5	5451
13	1804	1806	1825	1	1					1	1759	C3.2	
13	1826	1830	1900	2-	3					4	1825	C3.7	5451
13	2048	2105	2128D	1-	5			1		6	2053E	C4.7	5451
13	2128E	2148	2257D	2	5	1		1		7	2133	M1.5	5451
13	2253	2316	2347	1-	1			1			2300E	C5.8	5450
14	0918	1638	0956	1	3		2				No flare		
14	0925	0939	1028	1	1		1				*		
14	0953	1023	1205	3+	1		1				*		
15	0033	0038	0057	1-	3			1	1		0031		5449
15	0356	0357	0426	1+	1					1	0353E		5451
15	0532	0538	0602	1-	1			1			No flare		
16	0206	0208	0230	1-	1					1	No flare		
16	0351	0357	0455	1-	3			1	1		0353E	C2.9	5451
16	0939	0951	1020	1-	5	1	3	1	1	1	0942	C5.7	5451
16	1346	1347	1356	1-	1					1	No flare		
16	1418	1419	1426	1-	1					1	No flare		
16	1551	1605	1628	1	3		2				No flare		

* = No flare patrol.

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Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
17	0327	0334	0408	1-	3			1	1		0330	C3.0	5451
17	0410	0413	0428	1-	1			1			0409		5449
17	1742	1745	1750	1-	5		1		1	5	1736	C5.6	5452
18	0158	0210	0220U	1-	1				1		0212		5450
18	0247	0257	0331	1-	5			1	1	1	0249		5444
18	0630	0643	0715	1-	5			1	2		0629	C3.8	5452
18	0835	0837U	1026	1	1		1				No flare		
18	2028	2041	2057D	1-	1			1			*		
18	2055	2111	2202	2-	5		1	1		9	2054	C7.9	
18	2130	2131	2135	1-	1					1	No flare		
19	0021	0040	0136	1-	3			1	1		0032E	C4.7	
19	0421	0431	0528	1-	5			1	1		0420E	C5.1	
19	0537	0545		1-	5	1	1	1	2	1	0537	C3.8	5449
19	0729	0752	0826	1	1		1				No flare		
19	0846	0849	0921	1	1		1				No flare		
19	0937	0953	1041	1	5	2	2	1	1	2	0938	C3.6	
19	1605	1605	1614	1-	1		1				No flare		
19	2055	2102	2121	1-	5			1		6	2052	C2.7	5451
20	0118	0128	0149	1-	1			1			No flare		
20	0221	0224	0243	1-	3			1	1		0220	C1.9	5451
20	0522	0530	0653	3-	5	3	2	1	2	3	0506	M1.4	5451
20	0800	0808	0835	1-	5			1	1		0802	C2.1	5451
20	0922	0945U	1008	1	1		1				No flare		
20	1040	1056	1114	1	1		1				No flare		
20	1206	1223	1249	1-	5		1			1	1218		5449
20	1317	1340U	1359	1	1		1				1311		5451
20	1407	1417	1430	1-	5	1	3		1	4	1403	C4.4	5451
20	1514	1525	1550	1-	5		3		1	4	1512	C2.8	5449
20	2347	2357	0112	1-	3			1	1		No flare		
21	0428	0448	0633	2+	5	1		1	1	1	0436	M1.0	5449
21	0632	0636	0825	1	1		1				No flare		
21	0656	0703	0734	1-	5		1	1	1		0655	C2.4	5449
21	1055	1101	1107	0	3	1				1	1052	C2.9	5454
21	1423	1439	1519	1	5	1	1	1	1	7	1423	C4.8	5449
21	1717	1722	1742	1	3					5	1713	C3.3	5450
21	2212	2218	2247D	1-	1			1			2210	C2.0	5451
21	2247E	2259	2330	1-	1			1			2252		5451
21	2345	2359	0033	1-	1			1			2353E	C4.2	5451
22	0107	0118	0133	1-	3			1	1		0107	C2.2	
22	0133	0139	0200D	1-	3			1	1		0132	C5.2	
22	0200E	0203	0240	1-	3			1	1		0201E	C4.2	5459
22	0248	0251	0323	1-	3			1	1		0247	C3.7	
22	0332	0343	0459	2	3	1		1	1		0332	M1.2	5451
22	0355	0358	0415	1	1					1	No flare		
22	0517	0523	0546D	1+	5	1		1	2	1	0514	C6.3	
22	0547	0556	0654	1+	5	1	1	1	2	2	0545E	C6.0	
22	0714	0720	0738	1-	5			1	2	1	0713	C2.8	
22	0827	0834	0948	2-	5	3	2	1	2	3	0831E	C8.6	5451
22	1237	1239	1300	1	5		1			1	1212E	C2.5	5456
22	1257	1307	1342	1	5	3	2	1	1	8	1255	C9.4	5451
22	1726	1726	1744	1-	1		1				1721		5460
22	1738	1746	1803	1	3		1			1	No flare		
22	2007	2007	2016	1-	1					1	No flare		
22	2217	2218	2230	1-	1		1				No flare		
22	2309	2315	2322	1-	1			1			2309	C1.9	
22	2325	2330	0002	1-	1			1			2334	C2.8	5453
22	2349	2355	0020	1	1				1		No flare		
23	0247	0257	0333	1-	1			1			No flare		
23	0524	0532	0603	1-	5		1	1			0524	C1.9	
23	0635	0648	0711	1	5		2	1	2	2	0632	C3.3	

* = No flare patrol.

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APRIL 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type					Flare (UT)	X-ray Class	NOAA Region
						SWF	SEA	SPA	LF-SPA	SES			
23	0958	1003	1030	1+	1					1	No flare		
23	1037	1040	1100	1	1					1	No flare		
23	1248	1252	1310	1-	5	1			1	4	No flare		
23	1819	1821	1854	1+	1					1	1823E		5451
23	2140	2159	2346	2	5		1	1		8	2144	M1.4	
23	2323	2331	0003	1-	1			1			2355	M1.0	5454
24	0001	0010	0036	1-	1			1			No flare		
24	0041E	0053	0148	1-	3			1	1		0033E	C5.1	5454
24	0335	0359	0434	1-	3			1	1		0337	C2.7	5456
24	0517	0538	0621D	2-	5			1	2		0514	C6.0	5454
24	0621E	0629	0743	2	5	2	2	1	2	2	0620	C7.7	5451
24	1255	1300	1310	1-	5				1	4	1253	C3.2	
24	1330	1337	1356	1-	5		2	1	1	5	1326	C4.8	
24	1530	1531	1548	1-	1					1	No flare		
24	2147	2200	2257	2-	1			1			No flare		
24	2355	0007	0041D	2	3			1	1		No flare		
25	0408	0414	0433	1-	1			1			0408	C2.1	5454
25	0617	0623U	0728	1	1		1				No flare		
25	0903	0908	0913	1-	1		1				No flare		
25	1213	1213	1323	2	1		1				1206		5454
25	1816	1820	1832	1-	3					3	1815	C3.4	5464
25	2108	2112	2130	1-	5			1		2	2108E	C5.0	5454
25	2201	2206	2231	1+	3					2	No flare		
25	2231	2233	2315	2-	3					2	No flare		
25	2301	2305	2338	1-	5		1	1		1	2256	C2.0	5464
26	0053	0104	0139	1-	1			1			0057	C3.6	5464
26	0150	0159	0221	1-	1			1			0150	C2.8	
26	0300	0311	0334	1-	3			1	1		0300	C2.1	5464
26	0552	0553	0601	1-	1		1				No flare		
26	0606	0610	0613	1-	1		1				No flare		
26	0631	0642U	0727	1	1		1				No flare		
26	1651	1655	1706	1-	1		1				No flare		
26	2304	2309	2328	1-	1			1			2304	C2.4	5454
27	0125	0133	0200	1-	1			1			0120	C1.5	5464
27	0458	0509	0525	1-	1			1			No flare		
27	1425	1434	1500	1-	5				1	1	1426	C1.9	5454
27	1714	1719	1730	1-	5	1	1		1	5	1716E	C2.7	5454
27	2104	2109	2150	1-	1			1			2104	C1.4	
28	0817	0820	0825	1-	1		1				No flare		
28	1243	1245	1256	1-	5			2			No flare		
28	1455	1458	1505	1	1	1					1438		5454
28	1506	1524	1555	1	5				1		1506	C3.1	5464
29	0109	0119	0240	1-	3			1	1		0111	C4.1	
30	0422	0436	0458	1-	1				1		No flare		
30	0510	0516	0536	1	1					1	No flare		
30	0913	0926	1005	1+	3		2				No flare		

OBSERVATORIES REPORTING FOR APRIL 1989

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

Observations are not necessarily continuous.

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 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		
5427								2																								
5428	1	1	5	4	2	1																										
5434							1																									
5438				1	1				1			1	2																			
5440			1																													
5441				3	2	3	3	1																								
5444																																
5446							1																									
5449														1		1		1	2	3												
5450													1							1		1										
5451												4		1	2	1		1	5	3	3	1	1									
5452																	1	1														
5453																							1									
5454																						1		1	2	3	1	2	1			
5456																							1		1							
5459																							1									
5460																							1									
5464																							1									
																											2	2	1	1		

Number of events with X-Ray flares																																
	4	7	2	7	4	6	7	1	3			2	9			2	2	2	5	5	7	13	4	6	4	4	4	1	1			

Number of events with no flare reported																																
	2	2	4	2	3		4	1	2	3	4	2	2	1	1	4		2	3	4	1	5	4	4	4	4	4	1	2		3	

Number of events with no flare patrol																																
	1	2	2	1		1			1		1	3	1	2						1												

Total SID events																																
	4	9	13	6	12	5	11	9	4	7	6	7	12	3	3	6	3	7	8	11	9	19	9	10	9	8	5	4	1	3		

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Spectral Observations

APRIL 1989

Observation Start End Day (UT) (UT) Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
01 0541 1730	LEAR			0041.0	0041.0	2				III
	LEAR			0122.0	0122.0	1				III
	LEAR			0225.0	0226.0	1				III
	LEAR			0244.0	0258.0	1				S
	LEAR			0515.0	0525.0	1				III
	LEAR			0554.0	0558.0	1				III
	LEAR			0607.0	0614.0	1				III
	LEAR			0651.0	0651.0	1				III
	WEIS			0722.0	1656.0	2				IIIS
	LEAR			0836.0	0836.0	1				III
	SGMR			1120.0	1127.0	1				III
	SGMR			1251.0	1252.0	1				III
	SGMR			1320.0	1329.0	1				III
	SGMR			1427.0	1429.0	2				III
	SVTO			1446.0	1530.0	2				CONT
	SGMR			1504.0	1509.0	2				III
	PALE			1942.0	0120.0	2				CONT
SGMR			1942.0	2248.0	2				CONT	
LEAR			2248.0	0219.0	2				CONT	
02 0537 1729	LEAR			0555.0	0555.0	1				III
	LEAR			0636.0	0645.0	2				III
	WEIS			0636.1	0636.2	1				IIIB
	WEIS			0640.5	0640.6	1				IIIB
	WEIS			0658.8	0658.9	1				IIIB
	WEIS			1005.9	1006.0	1				IIIB
	WEIS			1051.6	1052.6	1				IIIG
	WEIS			1057.7	1058.2	1				IIIG
	SGMR			1229.0	1229.0	1				III
	WEIS			1229.4	1229.5	1				IIIG
	SGMR			1239.0	1239.0	1				III
	WEIS			1239.4	1239.6	1				IIIB
	SGMR			1351.0	1454.0	1				CONT
	WEIS	1533.5	1533.7	2						IIIG
	SGMR			1534.0	1534.0	1				III
	SGMR			1638.0	1638.0	1				III
	SGMR			1654.0	1655.0	1				III
	WEIS			1654.2	1654.8	1				IIIG
	SGMR			1756.0	1756.0	1				III
	PALE			1858.0	1907.0	1				III
SGMR			1858.0	1859.0	1				V	
SGMR			1907.0	1907.0	1				III	
03 0537 1134 1143 1733	LEAR			0122.0	0124.0	1				III
	LEAR			0136.0	0140.0	2				III
	PALE			0137.0	0139.0	1				III
	LEAR			0213.0	0213.0	1				III
	LEAR			0238.0	0239.0	1				III
	LEAR			0257.0	0303.0	1				III
	LEAR			0653.0	0656.0	1				III
	WEIS			0656.3	0656.4	1				IIIB
	WEIS			1443.7	1451.7	2				IIIGG
	SGMR			1445.0	1451.0	2				V
	SGMR			1451.0	2250.0	1				CONT
	WEIS			1458.0	1557.0	2				IS
	WEIS			1520.9	1521.1	1				IIIB
	WEIS			1531.7	1531.9	1				IIIB
	PALE			1914.0	1927.0	2				S
	PALE			1929.0	0000.0	2				CONT
	SGMR			1929.0	2030.0	2				IV
LEAR			2249.0	1005.0	2				CONT	
04 0533 1733	WEIS			0628.9	0629.0	1				IIIB
	WEIS			0654.0	0936.0	1				IN
	WEIS			0839.4	0839.5	1				IIIB
	WEIS			1044.9	1045.2	1				IIIG
	SGMR			1324.0	1324.0	1				III
	WEIS			1324.3	1324.5	1				IIIB
	SGMR			1336.0	1342.0	1				III

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

APRIL 1989

Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
10			LEAR				0826.0	0828.0	1				III
			SVTO				0826.0	0828.0	2				III
	0722	1742	WEIS				0826.8	0828.0	2				IIIIG
			LEAR				0858.0	0902.0	2				III
			SVTO				0858.0	0902.0	3				III
			WEIS				0858.8	0859.1	2				IIIIG,DP
			WEIS				0901.8	0902.3	3				IIIIG
			SGMR				1059.0	1059.0	1				III
			WEIS				1059.0	1059.4	2				IIIIG,H
	11			LEAR				0007.0	0958.0	1			
			PALE				0007.0	0045.0	1				CONT
0521		1501	WEIS				0727.4	0727.8	2				RS
			WEIS				1252.6	1252.8	2				I
			SGMR				1300.0	2115.0	1				CONT
1507		1745	WEIS										
12	0518	1744	WEIS				0812.0	0812.6	1				IIIIG
			SGMR				1211.0	1214.0	1				S
			WEIS				1221.0	1235.0	2				IIIN,RS
			WEIS				1244.0	1244.2	1				IIIB
			SGMR				1433.0	1916.0	1				CONT
			WEIS				1550.8	1550.9	2				IIIB
13	0518	1014	WEIS				0602.5	0602.7	1				IIIB
			WEIS				0614.8	0614.9	1				IIIB
			WEIS				0622.0	0622.1	2				IIIB
			WEIS				0641.7	0642.5	2				IIIIG
			SGMR				1219.0	1221.0	2				III
	1153	1747	WEIS				1219.7	1221.1	2				IIIIG
			PALE				1954.0	1956.0	1				V
			SGMR				1954.0	1956.0	1				V
			SGMR				2007.0	2008.0	1				III
			PALE				2154.0	2154.0	1				III
			SGMR				2154.0	2154.0	1				III
14	0514	1747	SGMR				1640.0	1643.0	1				V
			WEIS				1640.3	1643.4	1				IIIIG
			SGMR				1745.0	1746.0	1				III
			SGMR				1811.0	1812.0	1				V
			PALE				1911.0	1912.0	1				III
			SGMR				1911.0	1912.0	2				V
			PALE				1942.0	1942.0	1				III
			SGMR				1943.0	1944.0	2				V
			PALE				2028.0	2029.0	2				V
			SGMR				2028.0	2029.0	2				III
			PALE				2112.0	2112.0	1				III
			SGMR				2112.0	2113.0	2				V
			SGMR				2122.0	2123.0	2				V
			SGMR				2126.0	2127.0	1				III
			SGMR				2139.0	2139.0	1				III
			PALE				2224.0	2225.0	1				III
			SGMR				2224.0	2225.0	2				III
			LEAR				2312.0	2314.0	1				III
		LEAR				2324.0	2335.0	1				S	
15			LEAR				0023.0	0024.0	1				III
			LEAR				0115.0	0119.0	1				III
			LEAR				0354.0	0354.0	1				III
			SVTO				0812.0	0815.0	2				III
	0514	1750	WEIS				0813.2	0814.8	1				IIIB
			WEIS				0947.0	0949.9	1				IIIIG
			WEIS				1044.4	1046.7	2				IIIIG
			SGMR				1221.0	1227.0	2				III
			WEIS				1221.4	1223.8	3				IIIIG
			WEIS				1226.8	1227.4	1				IIIIG
			SGMR				1410.0	1411.0	1				III
			SGMR				1443.0	1447.0	1				III
			WEIS				1446.2	1446.3	1				IIIB

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

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APRIL 1989

Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)		
15			SGMR				1455.0	1455.0	1				III	
			SGMR				1500.0	2303.0	1				CONT	
			WEIS				1541.0	1554.0	1				I	
			WEIS				1637.0	1656.0	2				I	
			PALE				2011.0	2012.0	1				III	
			SGMR				2011.0	2012.0	2				III	
			PALE				2328.0	2328.0	1				III	
			LEAR				2347.0	2348.0	1				III	
			PALE				2347.0	2348.0	1				III	
16			LEAR				0014.0	0018.0	2				III	
			PALE				0018.0	0018.0	1				III	
			LEAR				0026.0	0031.0	2				III	
			PALE				0027.0	0031.0	2				III	
			LEAR				0048.0	0048.0	1				III	
			LEAR				0057.0	0101.0	2				III	
			PALE				0059.0	0101.0	2				V	
			LEAR				0115.0	0132.0	2				S	
			PALE				0115.0	0131.0	1				S	
			LEAR				0143.0	0152.0	1				III	
			LEAR				0248.0	0248.0	1				III	
			LEAR				0337.0	0339.0	2				III	
			PALE				0339.0	0339.0	1				III	
			LEAR				0346.0	0347.0	1				III	
			LEAR				0410.0	0428.0	2				S	
			LEAR				0439.0	0443.0	2				III	
			LEAR				0455.0	0501.0	2				III	
			LEAR				0520.0	0520.0	2				III	
			LEAR				0551.0	0551.0	2				III	
	0510	1012	WEIS				0551.0	0551.3	3				III	
			LEAR				0616.0	0624.0	1				III	
			WEIS				0616.0	1739.0	1				IIIN	
			LEAR				0637.0	0638.0	2				III	
			LEAR				0709.0	0710.0	1				III	
			LEAR				0730.0	0743.0	3				S	
			WEIS				0735.1	0737.5	3				III	
			WEIS				0740.0	0743.3	3				III	
			WEIS				0855.3	0856.3	2				III	
			WEIS	0942.0	0943.2	2							III	
			SGMR				1054.0	1055.0	1				III	
1106	1750	WEIS	1216.1	1218.6	2							Spikes		
		SGMR				1217.0	1218.0	1				III		
		SGMR				1251.0	1251.0	1				III		
		WEIS				1251.3	1251.5	1				III		
		WEIS				1253.4	1257.3	3				III		
		SGMR				1254.0	1257.0	2				V		
		SGMR				1257.0	2305.0	1				CONT		
		WEIS				1316.0	1711.0	1				IN		
		SGMR				1539.0	1540.0	2				V		
		WEIS				1539.6	1540.5	3				III		
		PALE				1942.0	1948.0	3				V		
		SGMR				1943.0	1949.0	3				V		
		PALE				2040.0	2124.0	1				CONT		
		LEAR				2254.0	0953.0	2				CONT		
17			LEAR				0524.0	0524.0	2				III	
	0510	1753	WEIS				0550.0	1735.0	2				IIIS,DP,RS	
			SVTO				0552.0	0652.0	1				CONT	
			LEAR				0600.0	0613.0	2				S	
			SVTO				0625.0	1203.0	2				CONT	
			WEIS				1038.0	1634.0	1				IN	
			SGMR				1147.0	1148.0	1				III	
			SGMR				1218.0	2306.0	1				CONT	
			SGMR				1703.0	1704.0	2				III	
			PALE				1819.0	1819.0	2				III	
			PALE				1920.0	2144.0	1				CONT	
	18			LEAR				0053.0	0642.0	1				CONT
				LEAR				0221.0	0224.0	2				III

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

APRIL 1989

Observation			Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
Day	Start (UT)	End (UT)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)		
18						0403.0	0403.0	2				III	
						0417.0	0417.0	2				III	
						0433.0	0434.0	2				III	
						0444.0	0445.0	2				III	
						0542.0	0542.0	2				III	
	0507	1753				0542.0	1644.0	1				IIIS	
						0634.0	0801.0	3				CONT	
						0636.0	0642.0	2				II	
						0642.0	0952.0	2				IV	
				0716.0	1247.0	1							IN
							0944.0	0945.0	2				III
							1036.0	1202.0	2				CONT
							1105.0	1215.0	1				CONT
							1215.0	1345.0	2				CONT
							1415.0	1814.0	1				CONT
19						0037.0	0037.0	1				III	
						0037.0	0037.0	1				III	
						0213.0	0214.0	1				III	
						0426.0	0427.0	2				III	
						0428.0	0428.0	2				III	
						0520.0	0520.0	1				III	
	0507	0919				0543.0	0938.0	1				I	
						0717.9	0718.0	1				IIIB	
						0725.8	0725.9	1				IIIB	
	0930	1755				0957.6	0957.7	1				DP	
						1115.2	1116.2	1				IIIG	
						1400.0	1430.0	1				CONT	
						1500.0	1522.0	1				S	
						1507.0	1507.3	1				IIIB	
					1616.0	1616.0	1				III		
					1616.2	1616.8	2				IIIG,U		
20						1255.0	1255.0	1				III	
	0503	1637				1255.0	1637.0	1				IIIN	
						1302.0	1308.0	1				III	
						1345.0	2309.0	1				CONT	
	1743	1755											
21						0023.0	0024.0	1				III	
						0023.0	0024.0	1				III	
						0053.0	0054.0	1				III	
						0129.0	0129.0	2				III	
						0129.0	0129.0	2				III	
						0229.0	0229.0	2				III	
	0503	1758				0618.7	0618.8	1				IIIB	
						0620.0	0622.0	2				III	
						0621.0	0622.0	2				III	
						0621.1	0622.1	1				IIIG	
						0800.0	0801.0	2				III	
						0800.0	0801.0	2				III	
						1029.4	1030.0	1				IIIG	
						1118.9	1119.0	2				IIIB	
						1222.0	1222.0	1				III	
						1222.0	1222.0	2				IIIB	
						1223.3	1223.4	1				IIIB	
						1324.0	1325.0	1				V	
						1324.8	1325.8	2				IIIG	
						1432.0	1432.0	1				III	
						1432.2	1432.4	1				IIIB	
						1446.0	1447.0	1				III	
						1534.0	1534.0	1				III	
						1558.0	1559.0	1				V	
						1558.8	1559.0	2				IIIG	
						1627.3	1627.5	1				U	
					1657.0	1658.0	1				V		
					1657.7	1657.9	1				IIIB,U		
					1712.9	1713.4	3				IIIG		
					1713.0	1725.0	2				S		

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

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APRIL 1989

Observation Day	Start End		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	(UT)	(UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
21			WEIS				1715.9	1724.7	2				IIIG
			SGMR				1753.0	1754.0	1				III
			LEAR				2314.0	2315.0	1				III
			PALE				2314.0	2315.0	2				V
			LEAR				2349.0	2349.0	1				III
22			LEAR				0143.0	0143.0	2				III
			PALE				0143.0	0143.0	1				III
			LEAR				0330.0	0331.0	2				III
			PALE				0331.0	0332.0	1				V
			LEAR				0347.0	0351.0	2				II
			LEAR				0544.0	0552.0	3				V
	0500	1152	WEIS				0544.9	0547.7	3				IIIG
			LEAR				0553.0	0555.0	1				III
			LEAR				0600.0	0605.0	1				II
			LEAR				0618.0	0623.0	2				V
			SVTO				0622.0	0623.0	3				III
			WEIS				0622.0	0623.0	3				IIIG
			SVTO				0623.0	0624.0	3				III
			LEAR				0824.0	0827.0	3				III
			WEIS				0824.7	0828.4	3				IIIGG,U
			SVTO				0825.0	0828.0	3				V
			LEAR				0835.0	0836.0	1				III
			LEAR				0917.0	0923.0	2				III
			WEIS				0917.6	0918.7	2				IIIG
			SVTO				0921.0	0923.0	3				V
			WEIS				0921.0	0923.2	3				IIIG,Spikes
			SGMR				1120.0	1121.0	2				III
			SGMR				1144.0	1144.0	2				III
			SGMR				1259.0	1300.0	1				V
	1204	1758	WEIS				1259.2	1300.0	2				IIIG
		PALE				2022.0	2024.0	3				V	
		SGMR				2022.0	2024.0	3				V	
		LEAR				2354.0	2355.0	1				III	
		PALE				2354.0	2355.0	1				III	
23			LEAR				0127.0	0132.0	1				III
			LEAR				0157.0	0159.0	2				III
			PALE				0158.0	0159.0	1				III
			LEAR				0237.0	0238.0	1				III
			LEAR				0318.0	0318.0	1				III
			LEAR				0517.0	0518.0	2				V
	0500	1805	WEIS				0517.0	0804.0	2				IIIN
			LEAR				0616.0	0617.0	2				III
			LEAR				0710.0	0717.0	2				III
			LEAR				0711.0	0948.0	1				CONT
			SVTO				0747.0	0756.0	3				III
			LEAR				0755.0	0756.0	2				III
			WEIS				1420.0	1613.0	2				IIIN
			SGMR				1532.0	1600.0	1				S
			SGMR				1600.0	1800.0	1				CONT
			PALE				1943.0	1943.0	1				III
			SGMR				1943.0	1943.0	2				III
			PALE				2155.0	2156.0	1				II
		SGMR				2155.0	2156.0	1				II	
24			LEAR				0805.0	0809.0	2				III
			SVTO				0805.0	0812.0	3				III
	0456	1801	WEIS				0805.3	0805.5	1				IIIB
			WEIS				0808.9	0809.6	1				IIIG
			LEAR				0827.0	0827.0	1				III
			SVTO				0827.0	0827.0	2				III
			WEIS				0827.0	0827.2	1				IIIB
			SGMR				1218.0	1219.0	1				III
			WEIS				1218.7	1219.8	1				IIIG
			SGMR				1442.0	1442.0	1				III
			WEIS				1442.0	1442.3	1				IIIG
			SGMR				1601.0	1602.0	1				III
			SGMR				1808.0	1815.0	1				III

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Apr 89

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

APRIL 1989

Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
24			SGMR				1918.0	1918.0	1				III
25			LEAR				0042.0	0043.0	1				III
			PALE				0042.0	0043.0	1				III
			LEAR				0242.0	0243.0	1				III
	0457	0849	WEIS										
	0858	1804	WEIS										
26	0453	1550	WEIS										
			SVTO				0512.0	0555.0	2				S
	1602	1803	WEIS										
			PALE				2153.0	2154.0	1				III
			SGMR				2153.0	2154.0	2				V
			PALE				2237.0	2237.0	1				III
			LEAR				2252.0	2252.0	2				III
			PALE				2252.0	2252.0	2				III
		SGMR				2252.0	2252.0	2				III	
27	0453	1806	WEIS										
28	0450	0934	WEIS										
			SGMR				1207.0	1208.0	1				V
	0943	1806	WEIS				1207.2	1208.3	1				III G
			SGMR				1416.0	1417.0	2				III
			WEIS				1416.5	1417.2	2				III G
			SGMR				1534.0	1544.0	1				V
			WEIS				1535.3	1535.8	2				III G, RS
			WEIS				1543.6	1544.4	1				III G
			PALE				2003.0	2005.0	2				V
			SGMR				2003.0	2006.0	2				V
29	0450	1624	WEIS				0621.8	0621.9	1				III B
			WEIS				0633.1	0633.2	1				III B
			WEIS	0742.0	1507.0	1							IN
	1636	1809	WEIS										
		PALE				2017.0	2018.0	2				III	
30			SGMR				1631.0	1657.0	1				S
	0447	1808	WEIS				1633.3	1647.6	1				III G

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

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

Stations Reporting:

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

COSMIC RAY INDICES
(Neutron Monitor)

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Apr 89

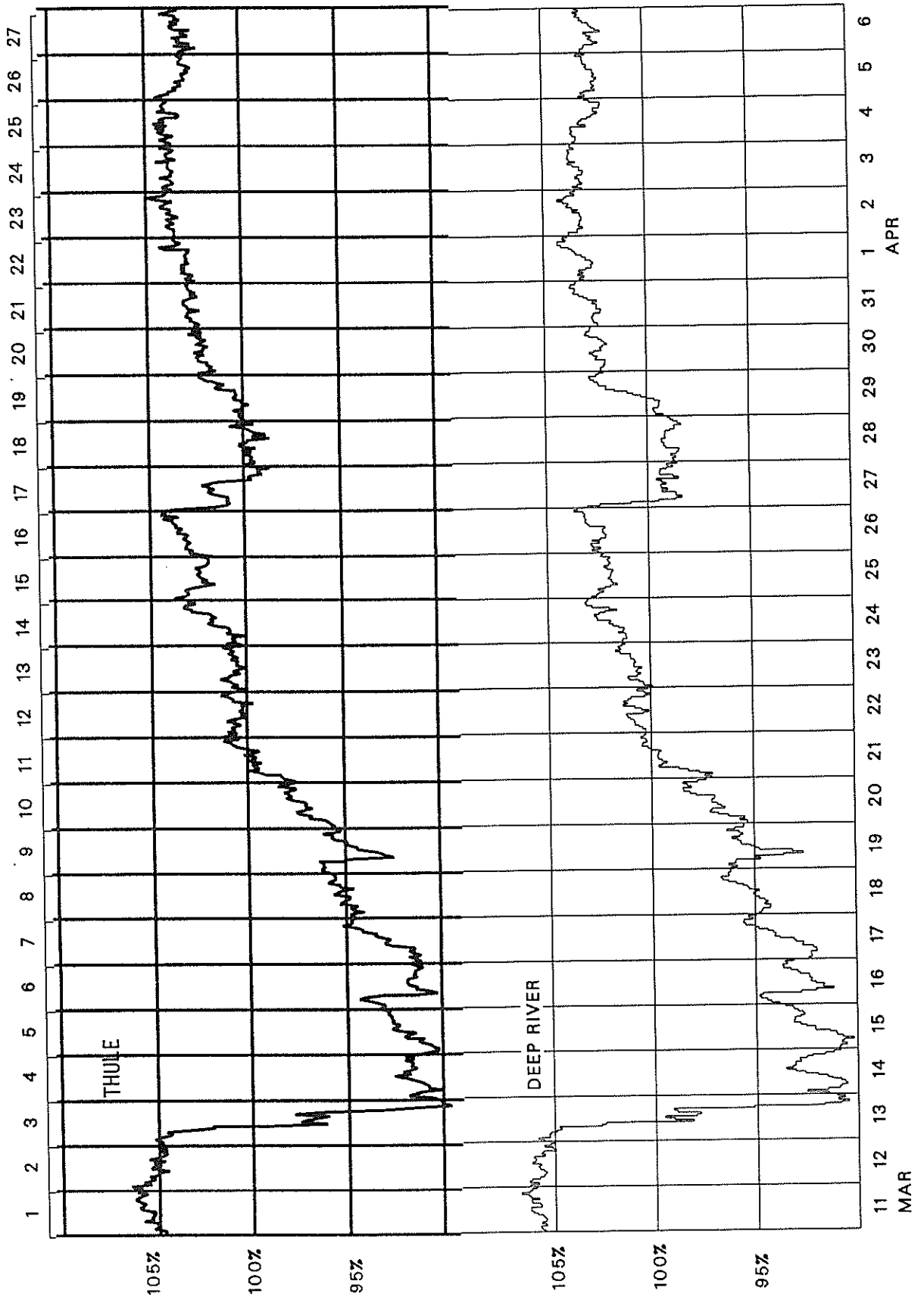
APRIL 1989

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	3900	6132.0	5488.7	3523.8	3465.0	1654.4
2	3927	6141.5	5505.0	3528.4	3461.1	1652.9
3	3925	6137.2	5504.1	3529.8	3470.9	1658.0
4	3930	6109.0	5501.4	3522.4	3472.2	1662.4(14)
5	3902	6095.4	5453.3	3505.3	3473.4	1659.4
6	3904	6100.2	5457.6	3479.8	3464.2	1664.3(22)
7	3916	6124.7	5463.3	3498.2	3471.3	1661.3
8	3891	6119.7	5446.8	3495.0	3459.0	1660.6
9	3905	6140.3	5474.6	3508.8	3465.8	1665.2
10	3935	6187.8	5496.4	3529.2	3476.7	1671.1
11	3944	6229.3	5524.0	3552.8	3487.9	1672.8(30)
12	3822	6063.2	5363.2	3449.8	3448.1	1640.6
13	3864	6041.9	5410.2	3444.3	3439.5	1650.0
14	3798	5969.9	5310.1	3384.3	3432.0	1641.7
15	3768	5928.5	5322.4	3392.5	3414.2	1649.6
16	3843	6033.4	5402.8	3447.0	3435.7	1650.0
17	3849	6022.5	5411.5	3441.3	3438.9	1646.8
18	3859	6048.2	5415.4	3438.7	3436.2	1649.8(32)
19	3830	6024.2	5388.6	3411.8	3422.0	1636.3
20	3844	6038.8	5394.5	3431.7	3426.2	1638.6
21	3844	6041.3	5386.6	3429.2	3420.3	1634.3
22	3859	6085.4	5409.4	3454.5	3416.4	1638.8
23	3891	6110.2	5457.0	3484.3	3420.8	1643.8
24	3913	6128.3	5471.6	3509.7	3437.2	1650.4
25	3888	6102.5	5441.1	3501.9	3439.9	1647.4(30)
26	3907	6133.7	5489.9	3562.3	3450.8	1650.8
27	3915	6131.0	5482.7	3553.1	3443.0	1652.8(38)
28	3891	6122.9	5461.2	3535.1	3446.3	1651.9(22)
29	3878	6101.2	5448.6	3513.7	3442.0	1649.0
30	3860	6073.7	5434.1	3492.3	3429.2	1647.1
Mean	3880	6090.6	5440.5	3485.0	3446.8	1651.0

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.

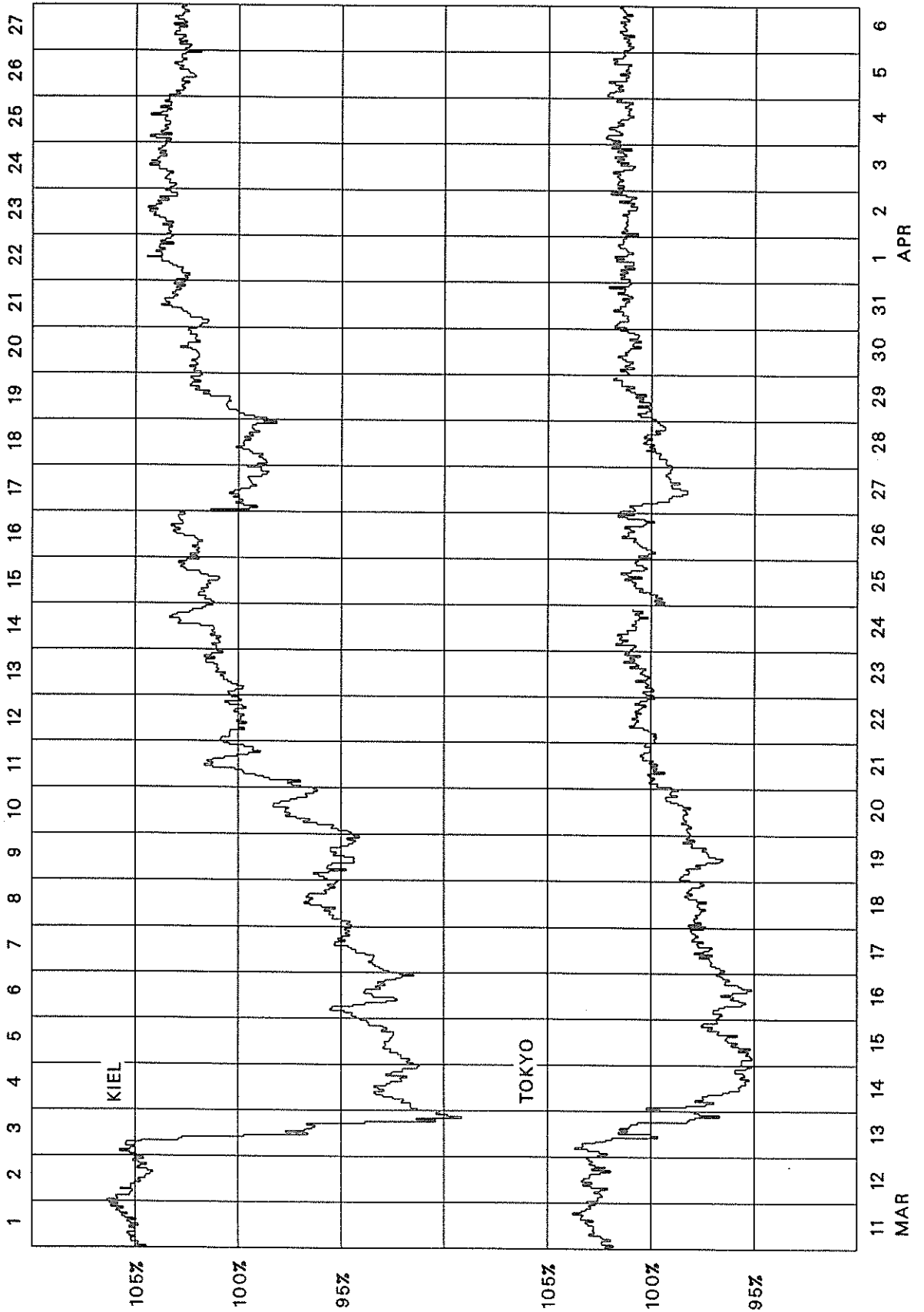
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2126 (March 1989-April 1989)



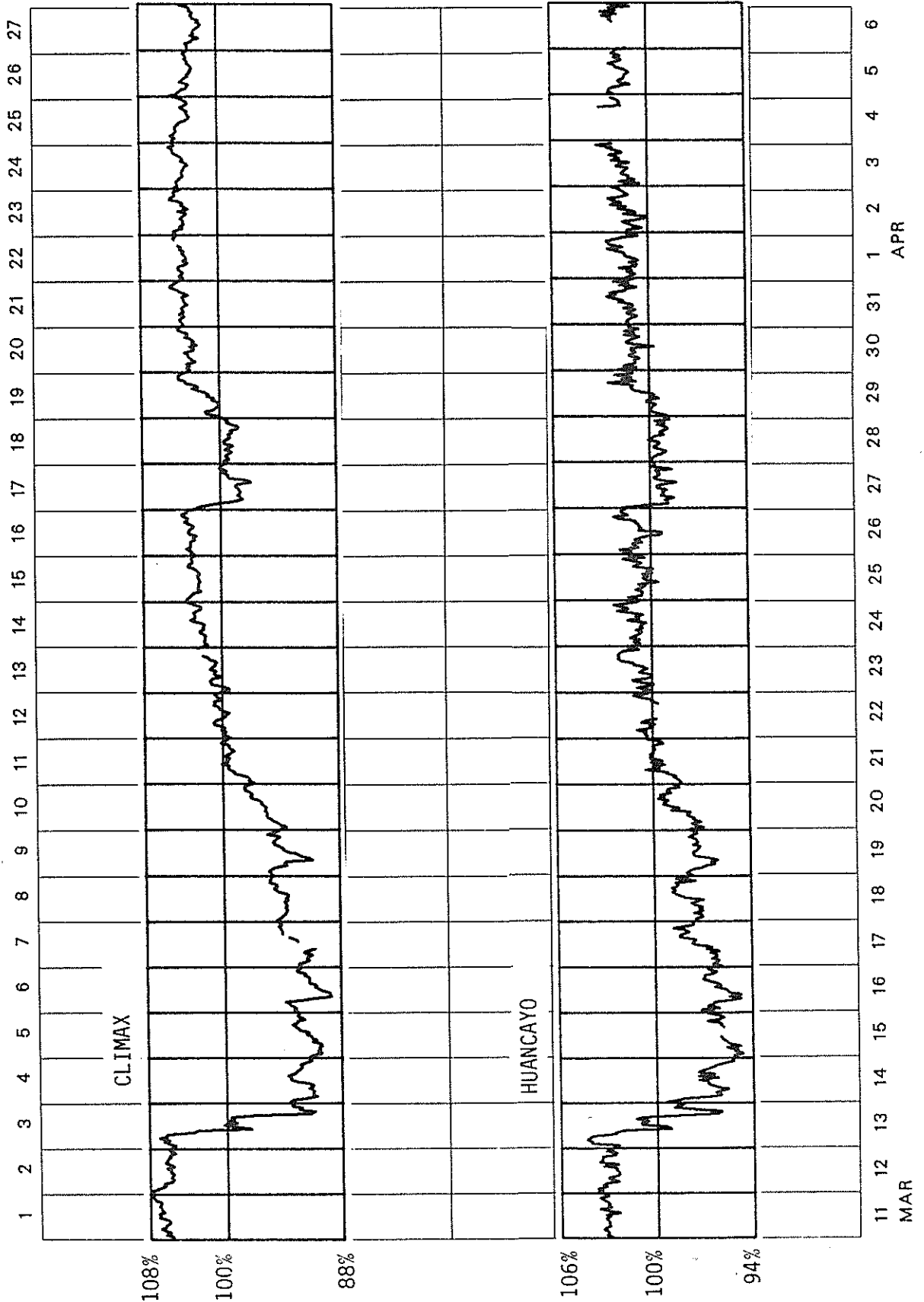
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2126 (March 1989-April 1989)



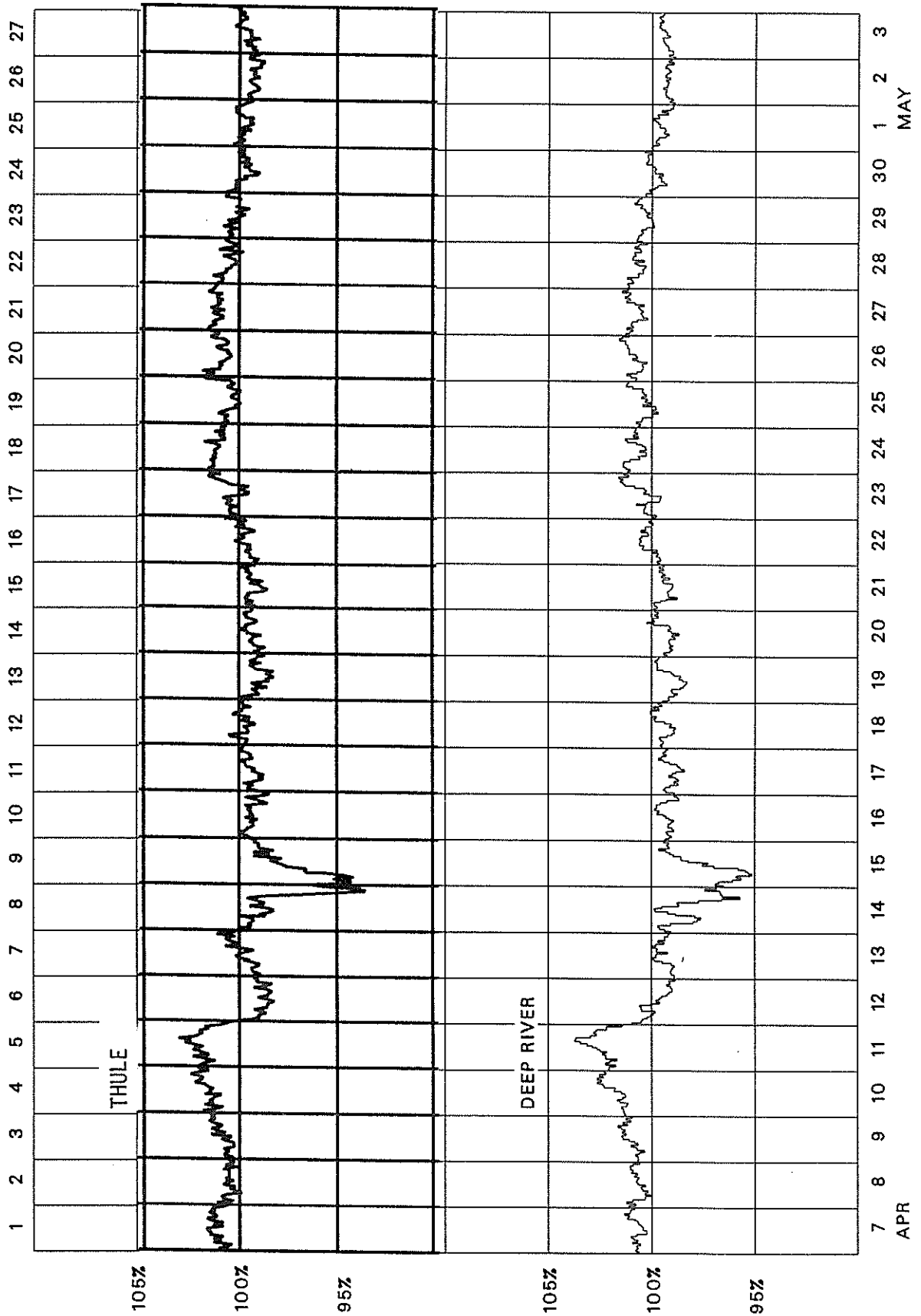
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2126 (March 1989-April 1989)



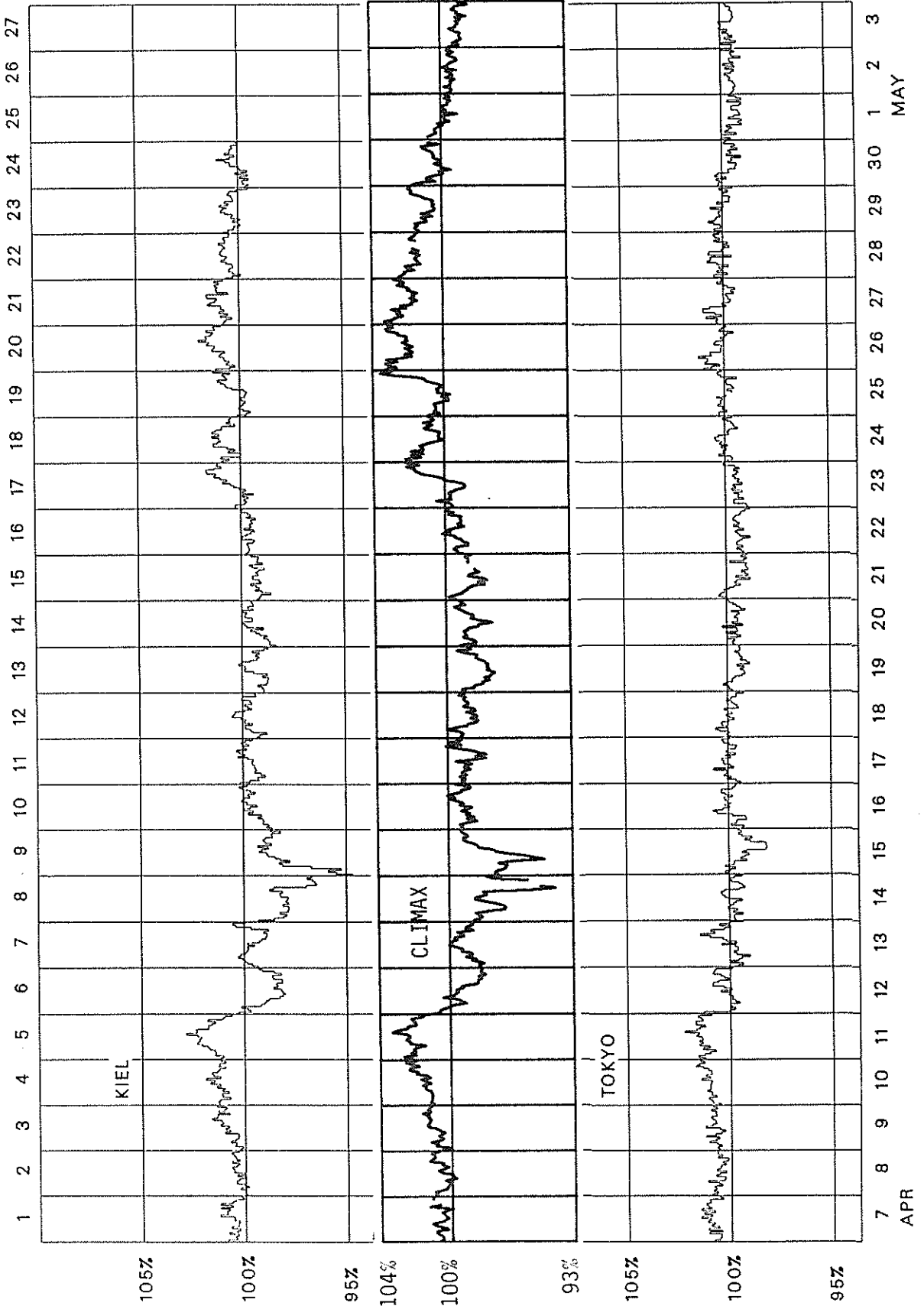
COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2127 (April 1989-May 1989)



COSMIC RAY INDICES (Neutron Monitor)

Bartels Rotation 2127 (April 1989-May 1989)



GEOMAGNETIC ACTIVITY INDICES

April 1989

Day	Kp Three-Hourly Indices								Sum	Ap	Cp	Km Three-Hourly Indices								aa Provisional							
	1	2	3	4	5	6	7	8				1	2	3	4	5	6	7	8	Am	N	S	M				
1	D4	5-	5+	6-	4	4	4+	5	5-	38-	42	1.5	4+	4	5-	4-	4-	4-	5-	4	59	54	53	49	58		
2		4-	4+	3+	4-	5-	5	3+	3-	31-	26	1.2	4-	4-	3	4	4	4	3	3-	41	42	42	37	47		
3		4	4-	2+	2-	4-	3+	4-	5-	27	21	1.1	3+	3-	2	2	4-	3-	4-	4-	31	34	30	22	42		
4	D3	5-	5-	4+	5-	4+	5	6	5+	39	46	1.5	4	4+	4	5-	4	4	5	5	64	64	58	58	64		
5	D5	6	5+	5+	4+	4	3+	5-	4+	37+	42	1.5	5+	4-	4+	4	3+	3-	4	4-	56	59	39	58	40		
6		4+	3	2	2-	2+	3-	3+	3	22+	14	0.8	4-	3-	2	2	2	2	3	2+	22	25	13	18	20		
7		2	3-	5-	4	5-	4+	5-	4-	31-	27	1.2	2	3-	4	4	4-	4	4	3+	42	42	45	32	56		
8		4+	3+	4-	3	3	4	3+	3-	27+	20	1.0	4-	3-	3	3	3	3+	3	3-	31	33	28	28	33		
9		4	3	2+	2	2	4-	4	2+	23+	15	0.9	3+	2+	2+	2	2-	3+	4	2+	25	30	20	20	31		
10	Q5A	3-	2-	1+	1+	2+	2	2	2+	16-	8	0.4	2	1	1+	1+	2+	2	2	2	12	19	10	11	18		
11		2	3	2+	1+	4+	4+	2+	2	22-	14	0.8	1+	2-	2-	2-	3+	3+	2+	2+	19	35	21	14	41		
12	Q2	2	2	2	1-	2-	2	2-	2	14	6	0.3	2-	2-	2+	1-	1+	2-	2-	2-	11	15	11	13	13 C		
13		2+	2+	4-	4	3+	3	3+	3+	25+	17	0.9	2	2+	4-	4-	3	2+	3	3	28	25	32	30	27		
14		4-	3	3-	2	3-	4-	5-	6-	28	24	1.2	3	3-	3-	2	3	3	4+	5-	37	44	28	23	49		
15		5	5+	4+	3+	3+	3+	3-	3-	30	27	1.2	4	4+	4-	4-	3-	3-	2+	2+	37	42	32	48	26		
16		1+	1	1+	1-	4	4+	4+	5	22	20	1.0	1+	1+	2-	1-	3+	4-	4-	4+	27	38	26	7	57		
17	Q9A	4+	1	1	1+	2-	2	2	3+	17-	10	0.6	4-	1-	1-	1+	2-	2	2-	3	16	22	14	15	21		
18	Q7A	3+	4+	2	2-	1+	1-	1-	1	15	10	0.5	3-	3-	2	2	1+	1	1-	1-	12	24	7	24	8		
19	Q1K	1+	1-	1-	1+	3-	3-	1+	2	13-	6	0.3	1	1-	1	2-	2	2+	2-	2-	10	16	10	8	18 CK		
20	Q8A	2+	4-	3	1+	2	2+	2	2	19-	10	0.6	2	3	3	1+	2-	2-	2	2-	16	21	10	17	14		
21	Q3A	3-	2+	2+	1	1+	2	1	1	14-	7	0.3	2	2+	3-	1+	2-	2-	1	1	12	14	17	21	10		
22	Q4A	3+	1+	0+	1-	3-	2-	1	2+	13+	7	0.4	3	2-	1-	1-	2	2-	1+	2	12	18	13	15	15		
23	Q10A	2+	1	2	2-	3+	4	3+	2+	20	12	0.7	2+	1	3-	2-	4-	3+	4-	2+	25	23	30	16	37		
24	Q6A	3	2-	1	2-	2-	2+	2-	3-	16-	8	0.4	3-	1+	1	2	2	2	2-	2+	14	22	11	15	18		
25		2+	3-	3-	3	4+	5	6-	6	32-	34	1.4	2	3-	3-	3	4-	4	5+	6	56	46	44	22	68		
26	D1	7-	7-	6	5	4	5+	6+	6	46	76	1.8	6	6	5	4+	4-	4+	5-	5	94	90	58	75	73		
27	D2	6-	5+	5-	4+	4	5+	6-	5	40	49	1.6	5	5-	4	4	4-	4+	4+	4+	67	62	53	52	63		
28		5	5-	5-	4	5	4+	5	4+	37	39	1.4	5-	4-	4	4-	4-	4	4-	4-	53	66	49	49	66		
29		3	4	4-	4-	4-	4+	5	4+	32-	28	1.2	3-	4-	3+	4-	4-	4-	4+	4-	43	42	36	29	49		
30		5-	3+	3+	3-	3+	2+	3	2+	25	17	0.9	4	3	4-	3-	3	3-	3-	3-	32	29	30	33	26		
Mean											23	0.95												33.9	36.6	29.1	32.8
Day	Kn Three-Hourly Indices								An	Ks Three-Hourly Indices								Prov									
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	As	Sa	Ri	Ra	Rs	IMF				
1	4	4+	5-	4	4-	4-	4+	4	4	57	5-	4	5	4-	4-	4	5-	4+	63	173.8*	104	117	126	--			
2	4-	4-	3+	4-	4	4	3	3-	3-	43	4-	4-	2+	4	4	4	3-	2+	41	183.5	122	131	136	--			
3	3	3	2	2	3+	3	4-	4-	4-	30	4-	3-	2	2	4-	3-	4-	4	33	196.5*	140	148	150	--			
4	4-	4-	4-	5-	4-	4	5	4+	4+	61	4	4-	4+	5-	4	4	5-	5+	68	188.9	126	132	142	--			
5	5	4	5-	4-	4-	3-	4	4-	4-	54	6	4-	4	4	3+	3-	4	4	59	191.1	94	100	144	--			
6	3+	3-	2	2	2+	2+	3	3-	3-	24	4-	3-	2+	2-	2	2-	3	2	21	196.5	139	145	150	--			
7	2	3-	4+	4	4-	4	4	3+	3+	45	2-	2+	4	4-	4-	4	3+	4	40	199.8	170	163	154	--			
8	4-	3-	3+	3	3+	3+	3	3-	3-	32	4-	3	3	3	3	3+	3+	2+	31	207.1	185	175	162	--			
9	3+	3-	2+	2+	2	3+	4	2	2	27	3+	2+	2	2	1+	3+	4	2+	25	194.0	153	146	148	--			
10	2	1+	1+	1+	3-	2	2	2+	2+	13	2	1	1+	1+	2	2	2	2-	12	182.3	122	118	135	--			
11	1+	2	2-	2	4-	4-	3-	2+	2+	23	1+	1+	2-	2-	3+	3	2	2	17	180.7	106	107	133	--			
12	2	2	2+	1	1+	2	2	2	2	14	2-	2-	2	1-	1+	1+	1	2-	9	181.3	96	92	134	--			
13	2	2+	4	4-	3	3-	3	3	3	30	2-	2+	4-	4-	3+	2-	3-	3-	27	185.3*	92	85	138	--			
14	3+	3-	3-	2+	3	3+	4+	5-	5-	40	3-	3-	2+	2-	3-	3-	4+	5-	35	198.1	98	101	152	--			
15	4	4+	4	4-	3	3-	2+	3-	3-	40	4+	4+	3+	4-	3-	2+	2	2	35	199.5	120	120	153	--			
16	2-	1+	2	1	3+	4	4-	4	4	29	1+	1	1+	0+	3	3+	3+	4+	25	203.9	130	138	158	--			
17	3+	1	1	2-	2-	2	2-	3	3	16	4	0+	0+	1+	1+	2	2	3-	16	210.6*	144	151	165	--			
18	3	3	2	2	2	1+	1	1+	1+	16	3-	3-	2-	2-	1	1-	0+	0	10	204.1	137	134	158	--			
19	1+	1-	1-	2-	3-	3-	2-	2	2	13	1	1-	1-	1+	1	2-	1+	1+	8	209.7	151	159	164	--			
20	2+	3	3	2-	2	2-	2-	2	2	18	2	3-	3	1+	2-	1+	2	1	15	192.5	155	168	146	--			
21	2	2	3-	2-	2-	2	1+	1+	1+	14	2+	3-	3-	1	1+	1+	1	0+	12	196.1	161	159	150	--			
22	3	1+	1	1	2+	2	2-	2+	2+	15	3	2-	1-	0+	2-	1+	1-	2-	11	193.6*	167	163	147	--			
23	2	1	3-	2	4-	3+	3+	2+	2+	25	3-	1	3-	1+	3+	3	4	2+	25	183.1*	128	134	136	--			
24	3-	1+	1+	2	2	2+	2	3-	3-	17	3-	2-	1	2	2-	1+	1+	2+	13	189.0	135	130	142	--			
25	2	3-	3-	3+	4	4	6-	5+	5+	56	2	2+	3-	3	3	4-	5	6+	57	179.7	132	133	132	--			
26	6	6	5-	4+	4-	5-	5-	5	5	92	6	6	5	4+	4-	4	5-	5-	96	176.9	116	134	129	--			
27	5-	5-	4	4	4-	4	5-	4-	4-	62	5	5	4+	4+	3+	4+	4+	5-	72	176.9	126	133	129	--			
28	5-	4-	4+	3+	4-	4	4	4-	4-	53	5	4	4-	4-	4	4-	4-	4	55	183.2	109	118	136	--			
29	3-	4	3+	4-	4-	4	4	3+	3+	43	3-	3	3+	4-	4-	4-	4+	4	43	189.5	107	109	143	--			
30	4	3+	3+	3-	3+	2+	3-	2+	2+	31	4	3	4-	3	3	3-	3-	3-	34	180.6	114	105	133	--			
Mean											34.4												33.6	190.9	129.3	131.6	144.2

DAILY AVERAGE INDICES Ap

May 1988 to April 1989

DAY	MAY 88	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN 89	FEB	MAR	APR
1	5	6	14	8	21	11	7	5	15	29	12	42
2	7	5	10	5	12	5	30	15	6	21	25	26
3	7	2	7	6	8	3	26	18	4	44	37	21
4	13	3	4	2	7	9	8	10	9	24	13	46
5	20	10	5	6	4	18	10	4	33	22	30	42
6	106	8	11	5	3	38	13	3	10	23	24	14
7	13	6	8	5	5	6	17	3	10	25	18	27
8	13	6	10	3	6	7	18	5	17	14	24	20
9	10	8	3	13	4	17	12	4	16	19	31	15
10	11	9	7	9	7	85	14	8	12	12	19	8
11	6	7	21	8	51	13	10	17	37	10	17	14
12	5	4	15	16	20	6	18	14	20	14	23	6
13	5	6	5	17	10	6	8	20	11	21	246	17
14	4	20	7	21	11	6	11	13	14	14	158	24
15	6	9	11	16	12	6	13	10	38	14	49	27
16	11	6	22	8	6	10	18	25	43	17	50	20
17	24	10	6	5	20	15	11	35	28	5	34	10
18	18	14	9	8	34	30	8	25	15	9	15	10
19	6	21	9	8	23	12	4	20	7	9	55	6
20	6	13	3	17	11	18	2	7	45	21	14	10
21	10	5	26	7	11	7	6	11	28	11	22	7
22	8	12	27	24	20	3	4	13	30	13	39	7
23	6	8	12	10	11	6	2	4	22	5	36	12
24	8	17	7	11	8	6	4	4	10	9	16	8
25	6	27	6	15	12	4	7	22	12	7	10	34
26	8	17	16	9	8	7	20	25	10	4	14	76
27	3	9	12	15	5	8	12	20	12	6	44	49
28	3	10	11	9	5	9	9	14	13	13	39	39
29	7	26	7	13	4	3	8	20	10		71	28
30	12	22	6	12	8	5	37	11	12		47	17
31	9		8	13		10		12	32		52	
MEAN	12	11	10	10	12	13	12	13	19	15	41	23

PRINCIPAL MAGNETIC STORMS

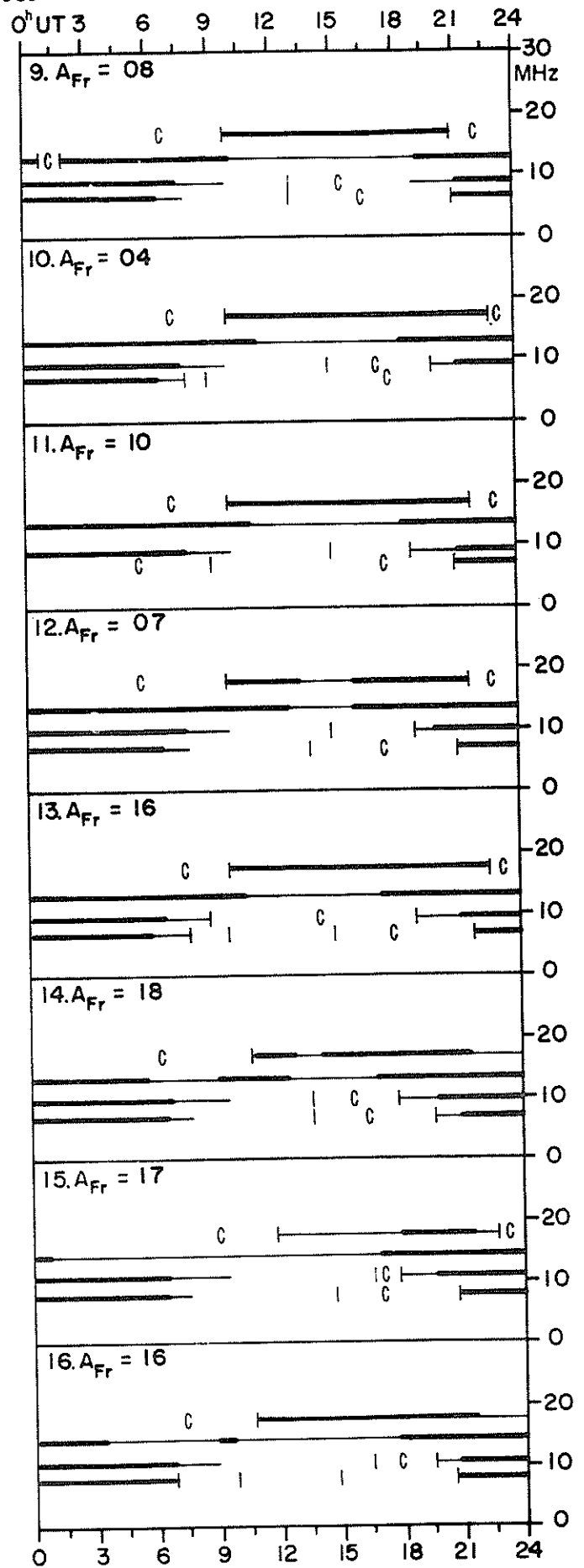
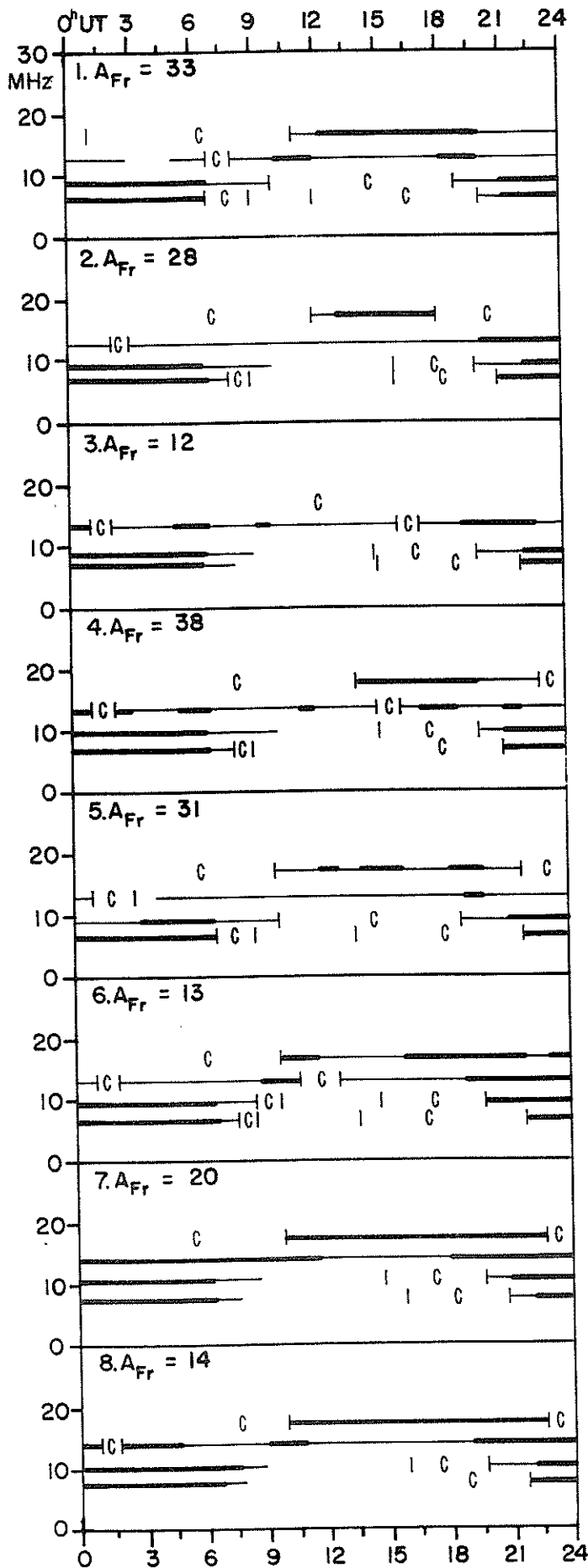
APRIL 1989

Sta	Geomag Lat	Commencement		SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges			End		
		Day (UT)	Time (UT) Type	D (Min)	H (Gamma)	Z (Gamma)		D (Min)	H (Gamma)	Z (Gamma)	Day (UT)	Hour	
HER 33.7S		Mar 30	17-- ..	..	..	..	01(1,7)	5	32	114	105	02	19
COL 64.6N		03	13-- ..	..	..	..	05(3)	7	192	1440	785	06	04
SIT 60.0N		03	02-- ..	..	..	..	05(3)	7	120	--	760	06	03
FRD 49.6N		03	20-- ..	..	..	..	05(1)		30	168	68	06	04
KRC 16.4N		03	18-- ..	..	..	..	04(3,4,6,7) 05(3,5)	5	4	85	55	06	04
HYB 07.6N		03	0900 ..	..	..	..	04(3,4) 05(3)	5	6	134	47	05	22
ETT 00.6S		03	1600 ..	..	..	..	..	-	6	229	103	05	22
HER 33.7S		03	19-- ..	..	..	..	04(4,5,8) 05(1,7)	5	24	102	96	06	05
KGL 56.5S		03	1800 ..	..	..	..	04(7,8) 05(1)	7	65	531	321	06	05
GUA 04.0N		04	21-- ..	..	..	..	05(3)	5	10	140	40	05	15
GUA 04.0N		04	00-- ..	..	..	..	04(3)		10	160	40	04	17
HYB 07.6N		06	1600 ..	..	..	..	07(3,4)	5	6	185	34	08	21
BJI 28.5N		10	17-- SC*	.8	20	0	25(7)	6	15	199	42	28	23
KRC 16.4N		11	1437 SC	- 1.4	38	20	11(6)	5	3	60	20	12	07
HYB 07.6N		11	1435 SC	- 0.1	29	- 2	11(6)	5	4	113	46	12	23
ETT 00.6S		11	1435 SC	- .5	24	25	..	-	--	--	--	--	--
HER 33.7S		11	1435 SC*	3 *	26	23	11(5,6)	4	13	48	54	12	07
KGL 56.5S		11	1436 SC	2	16	6	11(6)	3	24	87	86	12	03
FRD 49.6N		13	2223 SC*	1.4	32.8	- 5.7	14(8)		23	117	95	15	--
KRC 16.4N		13	2212 SC	- 1.0	20	8	14(7,8)	5	6	125	46	16	00
HYB 07.6N		13	2223 SC	- 0.3	13	- 1	14(7,8)	5	7	183	37	15	22
GUA 04.0N		13	04-- ..	..	..	..	13(3)	5	--	120	20	13	16
ETT 00.6S		13	2222 SC	- .2	7	9	..	-	8	252	77	15	21
HER 33.7S		13	2223 SC	1	12	8	14(7,8) 15(2)	5	23	140	138	15	13
KGL 56.5S		13	2223 SC	3	16	4	14(8)	7	53	54	274	15	09
GUA 04.0N		14	21-- ..	..	..	..	15(1)	5	--	140	40	15	16
HER 33.7S		16	08-- ..	..	..	..	16(7)	5	23	72	76	17	03
KGL 56.5S		16	1400 ..	..	..	..	26(8) 17(1)	5	31	229	232	17	03
GUA 04.0N		21	23-- ..	..	..	..	22(1)	5	10	60	20	22	06
GUA 04.0N		23	13-- ..	..	..	..	23(5)	5	--	50	10	23	21
KGL 56.5S		24	2307 SC	2	..	..	25(8)	9	198	1104	500	30	15
COL 64.6N		25	16-- ..	..	..	..	28(3)	7	221	1790	975	28	21
SIT 60.0N		25	15-- ..	..	..	..	26(3)	8	--	--	720	30	15
FRD 49.6N		25	10-- ..	..	..	..	26(1,2) 28(1)	6	32	169	134	30	--
KRC 16.4N		25	1017 SC	- 1.0	25	14	25(6,7)	6	10	173	50	30	--
HYB 07.6N		25	0000 ..	..	..	..	25(7)	6	8	219	33	28	19
GUA 04.0N		25	16-- ..	..	..	..	26(1)	6	10	170	30	26	18
ETT 00.6S		25	0000 ..	..	..	..	..	-	11	283	72	28	19
HER 33.7S		25	06-- ..	..	..	..	27(1)	6	41	138	152	27	14
GNA 43.2S		25	17-- ..	..	..	..	25(8) 26(2)	6	22	190	120	28	17
CNB 43.9S		25	10-- ..	..	..	..	25(7,8) 26(4) 25(5)	5	20	208	75	28	22
KRC 16.4N		26	2244 SC	- 2.8	42	28	27(6)	7	9	230	90	02	22
GUA 04.0N		26	21-- ..	..	..	..	27(1)	5	10	120	40	27	18
GUA 04.0N		27	19-- ..	..	..	..	28(1)	5	--	110	20	28	17
ETT 00.6S		29	0100 ..	..	..	..	..	-	6	176	58	30	15

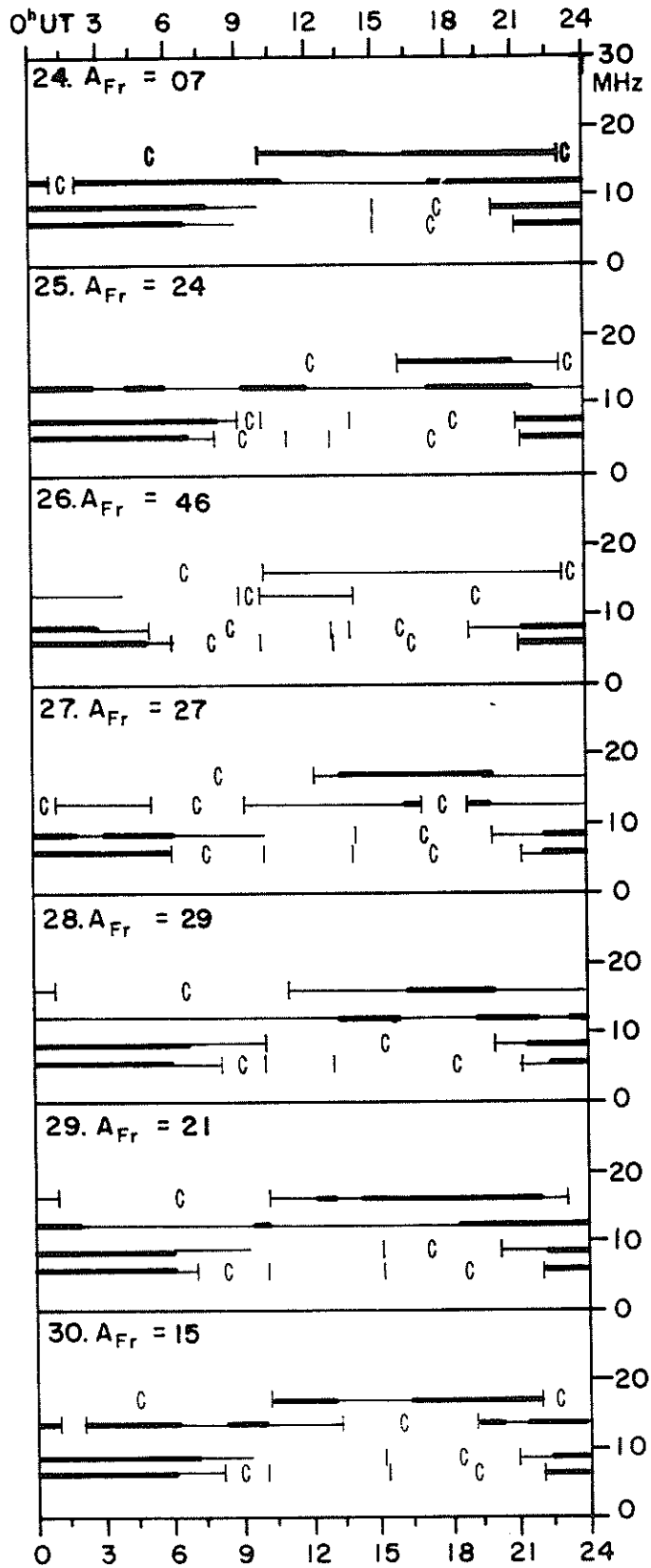
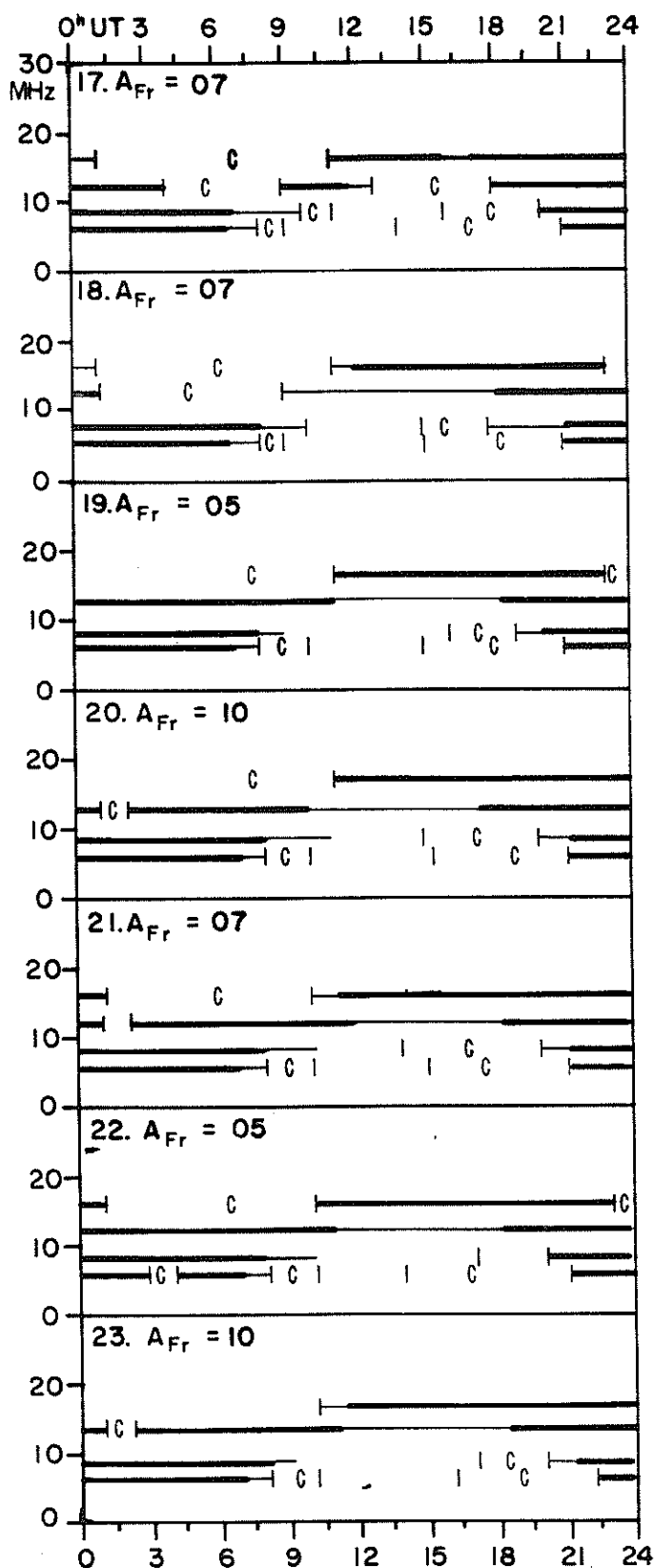
Stations:

- | | | | |
|----------------------|----------------------|-----------------|--------------------|
| ABG = ALIBAG | ETT = ETAIYAPURAM | HON = HONOLULU | PMG = PORT MORESBY |
| ANN = ANNAMALAINAGAR | FRD = FREDERICKSBURG | HYB = HYDERABAD | SHL = SHILLONG |
| API = APIA | GNA = GNANGARA | JAI = JAIPUR | SIT = SITKA |
| BJI = BEIJING | GUA = GUAM | KGL = KERGUELEN | TRD = TRIVANDRUM |
| CNB = CANBERRA | HER = HERMANUS | KRC = KARACHI | UJJ = UJJAIN |
| COL = COLLEGE | | | WIT = WITTEVEEN |

TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH
APRIL 1989



TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH
APRIL 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 $1 \mu\text{V/m}$ (transmitter power reduced to 1 kW). Observed field strengths between -12 dB and -40 dB above $1 \mu\text{V/m}$ are represented by the fine line.

RADIO PROPAGATION QUALITY INDICES
APRIL 1989

Day	For Circuits from Norddeich to:					
	Bracknell England	Rome Italy	Teheran Iran	New York USA (East)	Tokyo Japan	Canberra Australia
1.	5.9	6.2	5.9	4.1	6.0	4.8
2.	5.3	5.7	5.4	4.8	5.8	5.8
3.	6.5	6.1	5.2	5.1	6.6	5.2
4.	5.2	5.6	4.9	3.7	6.1	6.0
5.	4.3	4.9	5.9	3.3	5.6	5.2
6.	5.8	6.2	6.2	5.6	7.5	6.2
7.	6.8	6.4	7.5	6.3	7.5	7.7
8.	7.1	6.6	7.3	6.7	6.6	7.0
9.	7.0	6.9	7.6	7.2	7.6	7.1
10.	6.3	6.3	7.0	7.0	7.9	7.1
11.	6.7	5.1	7.0	7.4	7.5	6.8
12.	7.2	5.0	7.4	6.9	8.3	6.9
13.	6.5	5.1	6.4	6.2	6.6	7.1
14.	6.6	4.7	2.9	5.3	6.4	5.9
15.	7.0	5.0	5.5	4.4	5.3	6.4
16.	6.8	5.2	6.2	5.6	5.9	6.1
17.	5.2	4.2	5.6	4.9	5.6	6.0
18.	6.0	6.0	6.7	5.9	7.1	6.1
19.	6.3	5.9	6.9	7.4	8.1	6.8
20.	6.0	6.1	6.9	7.1	6.9	6.6
21.	5.7	5.7	5.9	7.5	7.7	6.2
22.	5.6	5.4	6.6	7.3	8.4	6.3
23.	6.3	6.0	5.6	6.5	6.8	6.3
24.	5.0	4.7	5.7	5.7	6.3	5.6
25.	5.6	5.4	5.8	4.4	5.7	5.5
26.	5.5	3.8	5.6	2.0	3.2	4.3
27.	5.4	4.6	4.2	2.8	3.6	4.9
28.	5.3	5.2	5.4	3.1	4.3	5.7
29.	6.1	6.3	6.1	3.8	4.7	6.0
30.	5.1	4.4	6.4	4.6	4.5	5.8
MEAN:	6.0	5.5	6.1	5.4	6.3	6.1

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 preceding 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 preceding 27 days.

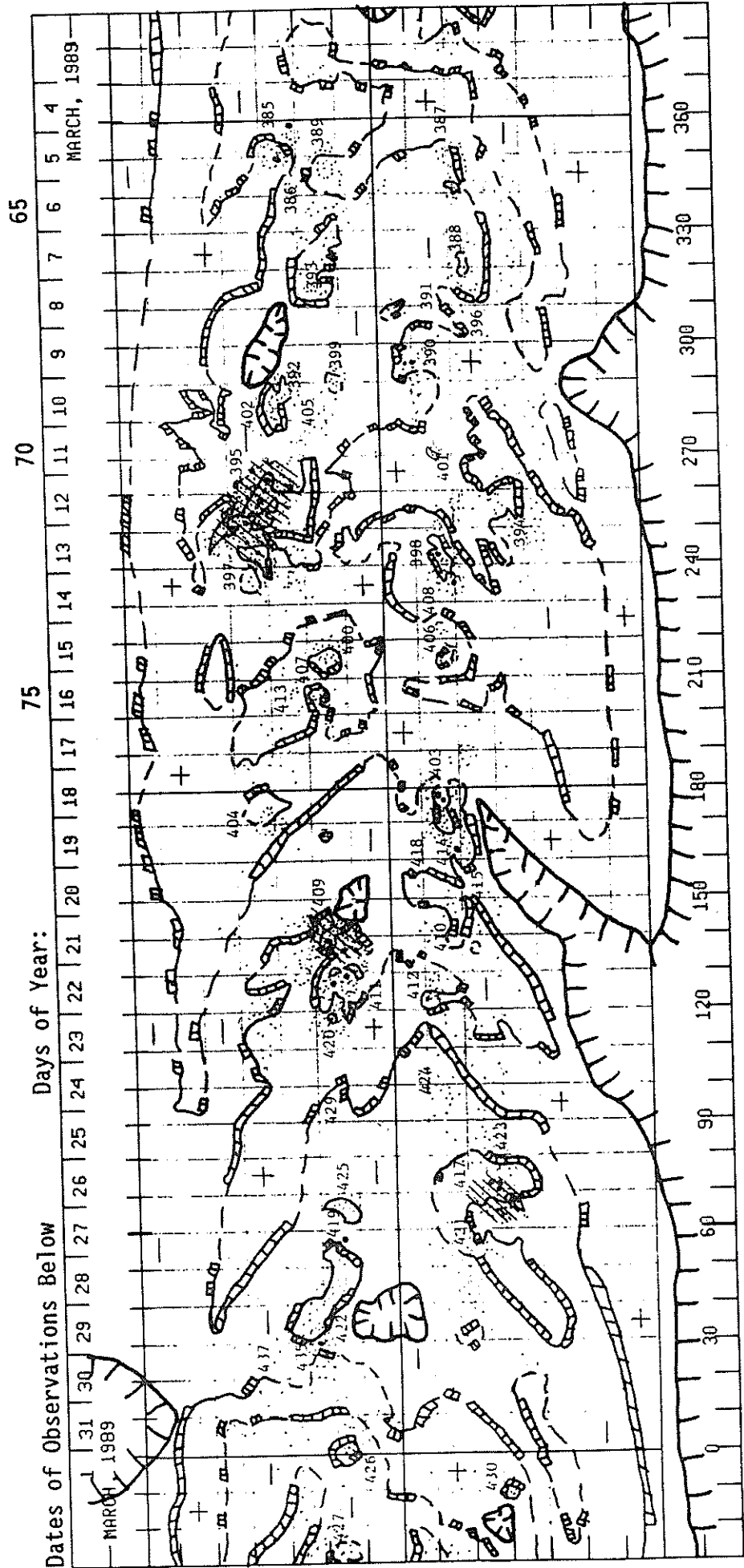
SCALE FOR QUALITY INDICES:

- 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 538	Part I	Page
SOLAR ACTIVE REGIONS				
	H-alpha Synoptic Charts 1813	March 1989 . . . . .		.138-139
SOLAR RADIO EMISSION				
	Nancay 169 MHz Solar Interferometric Chart	April 1989 . . . . .		.140
COSMIC RAYS Climax and Huancayo March 1989				
	Daily Count Rates. . . . .			.141
	Chart of Variations. . . . .			.142
GEOMAGNETIC INDICES				
	Sudden Commencements/Solar flare Effects	February 1989. . . . .		.143

PRELIMINARY H - ALPHA SOLAR SYNOPTIC CHART
CARRINGTON ROTATION NUMBER 1813
(4 March to 1 April 1989)

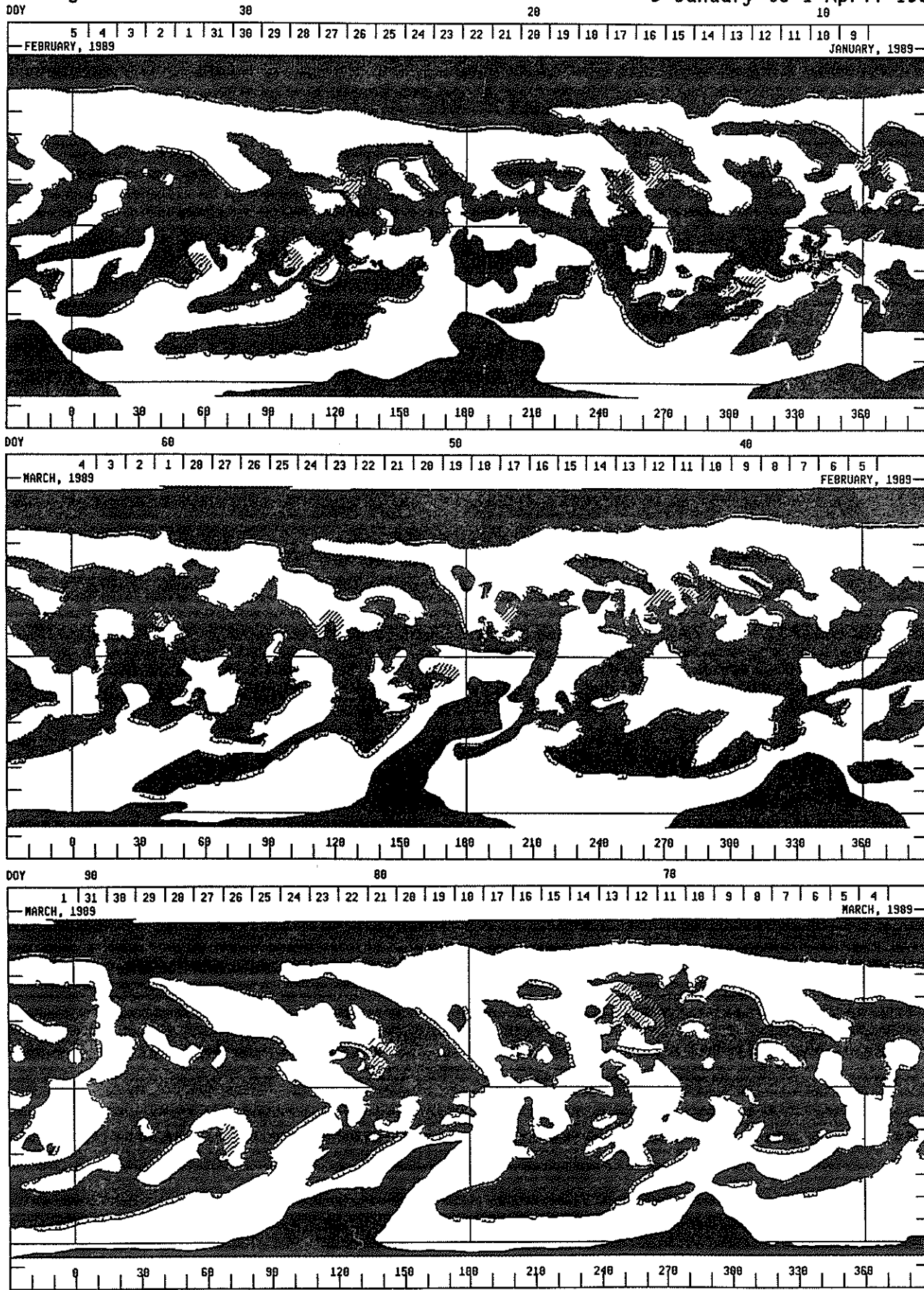


Heliographic Longitude = λ 10830 Coronagraph Hole Estimate
Last Revised 05/25/89 KMP/PSM

SHADED H-ALPHA SOLAR SYNOPTIC CHARTS

Carrington Rot. 1811-1813

9 January to 1 April 1989

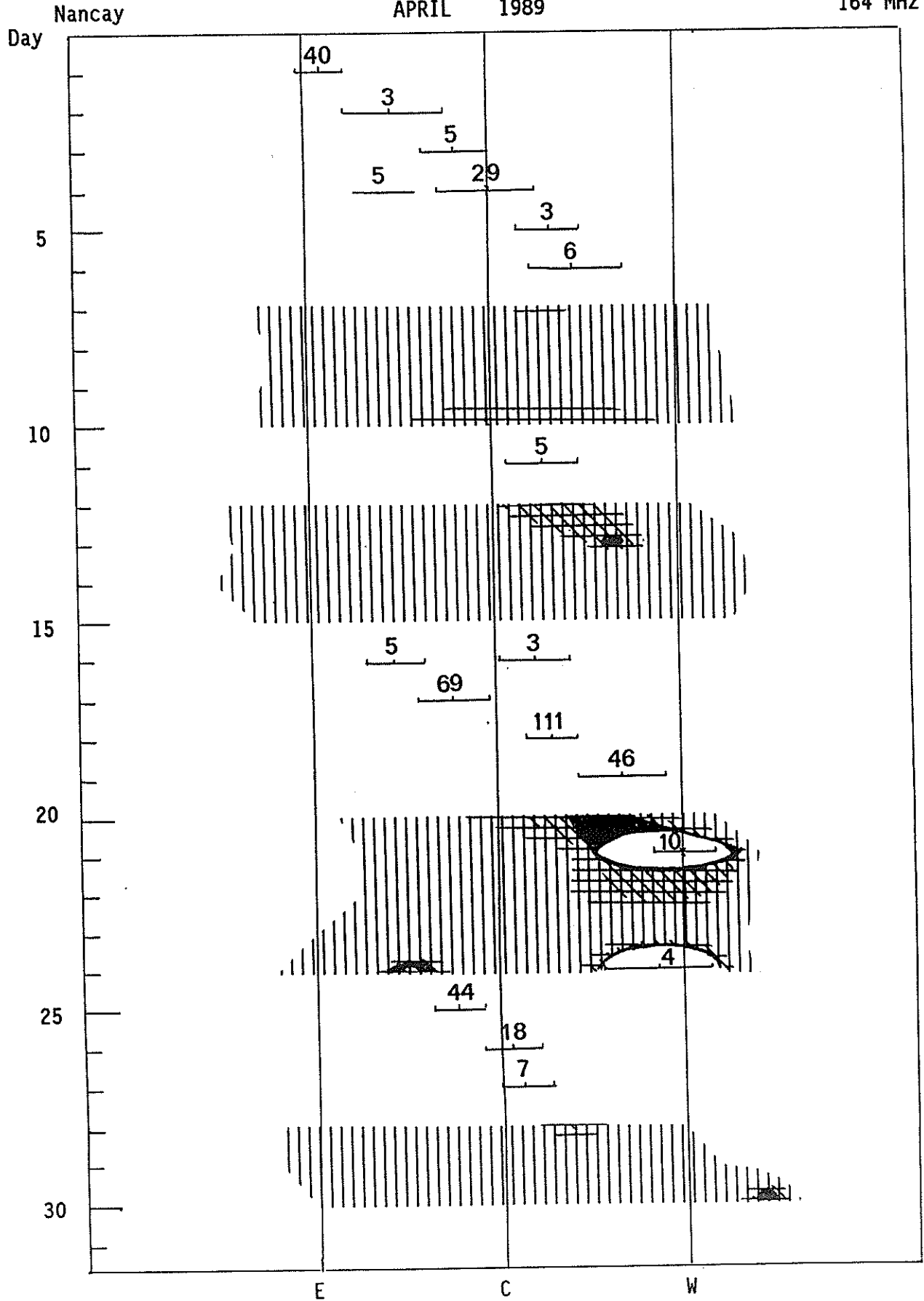


= Positive Polarity
 = Negative Polarity
 = 10830 Coronal Hole Estimate
 = X-Ray Flares > M1
 Heliographic Longitude

140
Late
Apr 89

SOLAR INTERFEROMETRIC OBSERVATIONS
APRIL 1989

164 MHz



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

141
Late
Mar 89

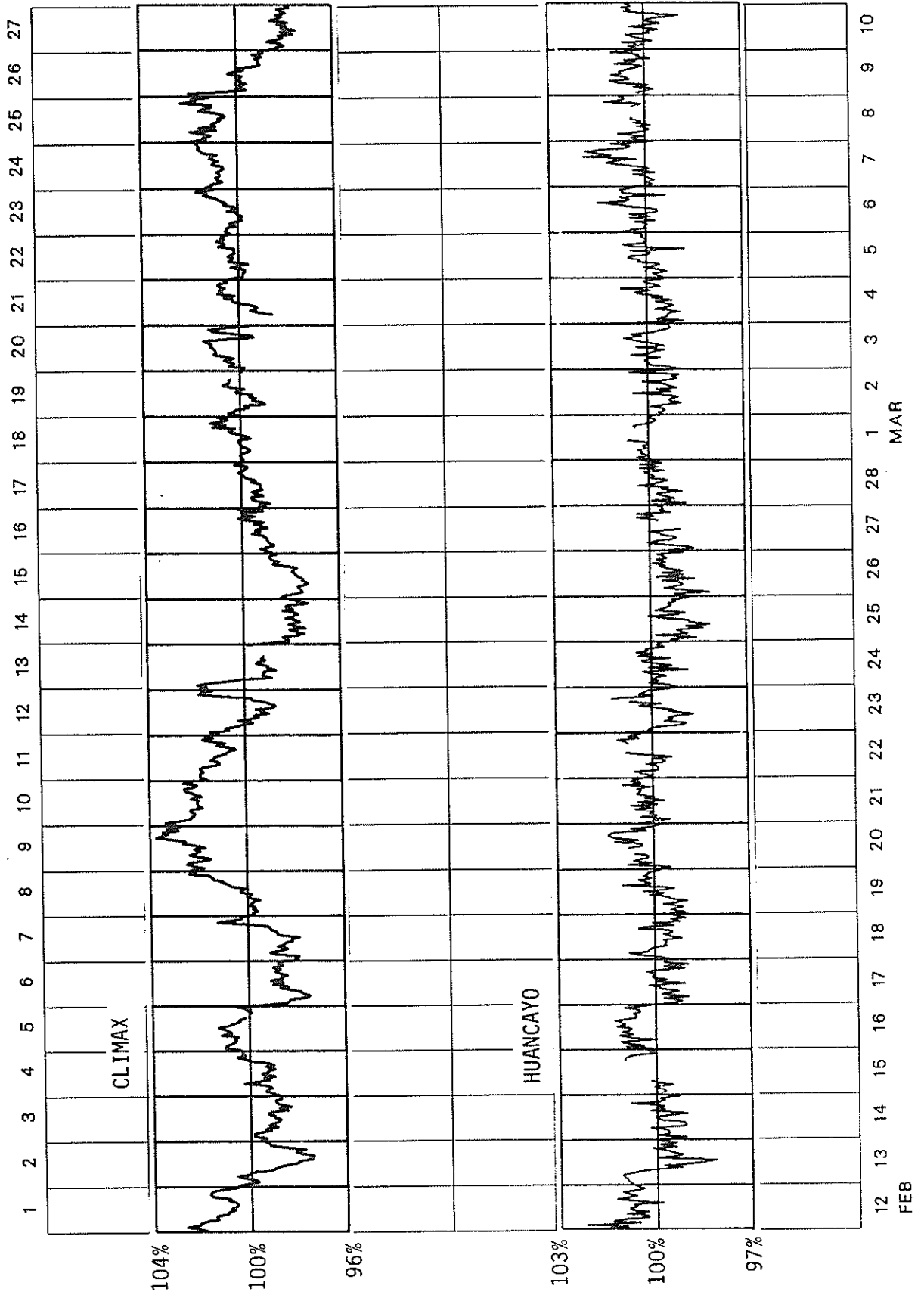
MARCH 1989

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	3662.3	3505.2	1676.6(34)
2	4035	6316.7	5643.7	3652.4	3491.0	1665.8
3	4053	6331.7	5658.8	3675.8	3489.5	1672.0
4	4020	6303.7	5613.6	3658.7(38)	3479.2	1669.0
5	4055	6317.2	5639.0	3663.5	3501.0	1674.0
6	4067	6362.1	5660.1	3672.2	3511.8	1679.9
7	4069	6417.8	5690.9	3692.7	3523.6	1683.6
8	4083	6433.3	5701.7	3699.7	3522.8	1680.6(38)
9	4025	6322.8	5624.2	3645.9	3524.7	1681.2
10	3958	6250.1	5552.7	3585.5	3508.7	1676.0
11	3991	6283.9	5594.0	3623.3	3516.7	1681.9
12	3976	6270.4	5575.9	3605.1	3514.3	1680.1
13	3721	5879.7	5228.5	3395.1	3449.5	1644.3
14	3458	5456.9	4901.9	3127.0	3303.1	1577.0
15	3474	5459.6	4923.4	3107.5	3289.3	1560.3
16	3479	5523.5	4963.5	3107.6	3291.9	1568.5
17	3515	5560.4	5001.5	3145.8	3331.5	1584.9
18	3596	5654.9	5080.6	3196.1	3345.3	1596.1
19	3595	5656.1	5050.9	3190.6	3344.4	1586.0
20	3674	5759.7	5137.2	3256.9	3369.9	1604.9
21	3770	5895.7	5289.7	3359.3	3419.6	1622.9
22	3804	5974.3	5317.6	3400.8	3433.3	1635.9(34)
23	3807	5986.0	5352.0	3420.2	3437.5	1646.5
24	3846	6055.3	5404.5	3469.8	3453.2	1648.0
25	3876	6058.4	5407.8	3487.2	3435.8	1640.9
26	3912	6096.8	5443.1	3502.8	3442.5	1647.1
27	3811	5898.6	5288.9	3362.9	3399.5	1621.1
28	3772	5866.0	5271.2	3362.9	3411.5	1621.2
29	3812	5990.7	5364.9	3454.3	3444.6	1638.4
30	3864	6077.2	5426.6	3500.3	3457.3	1647.3
31	3886	6103.5	5456.3	3525.1	3467.8	1654.3
Mean	3841	6029.5	5385.3	3457.7	3439.1	1640.7

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)



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

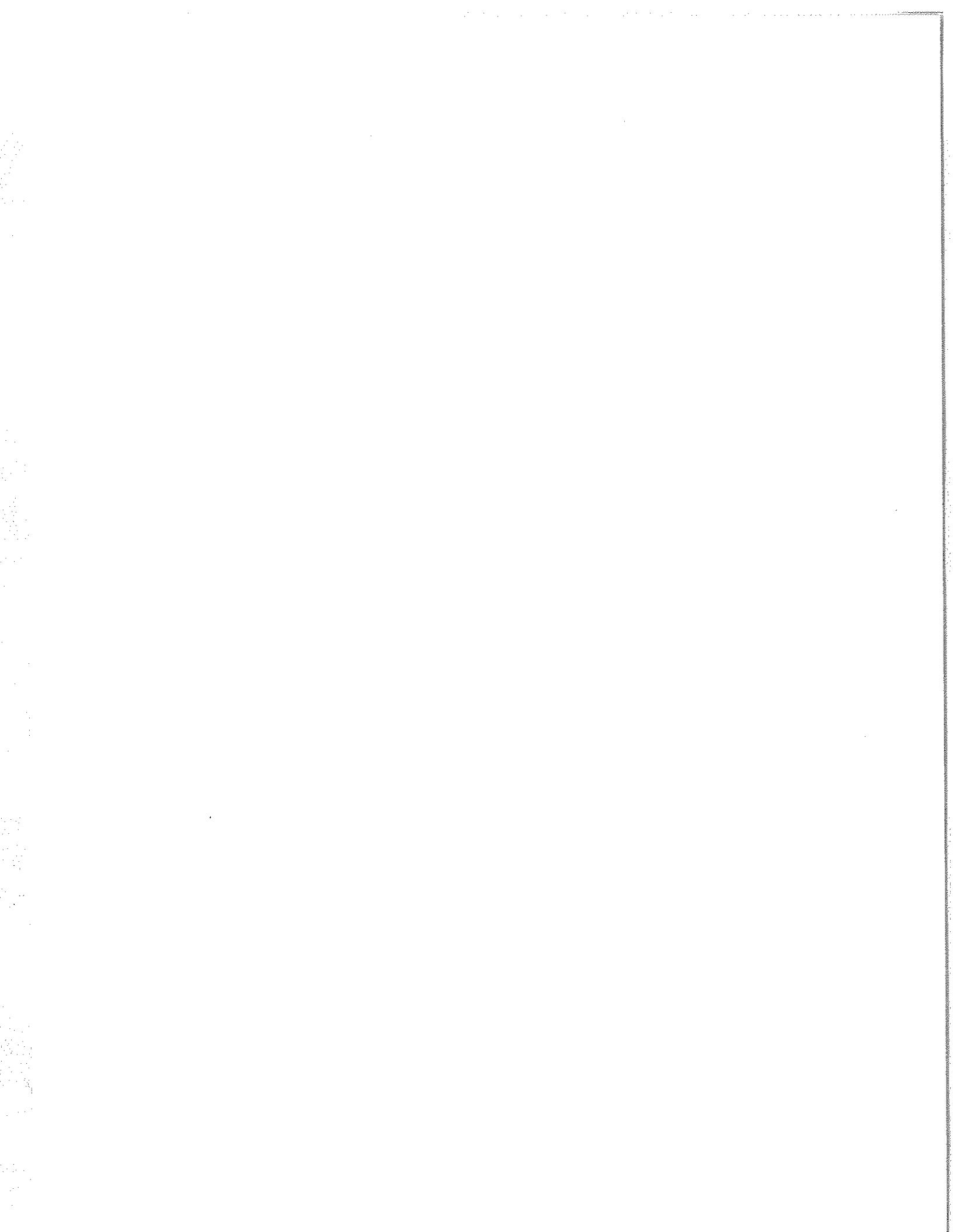
FEBRUARY 1989

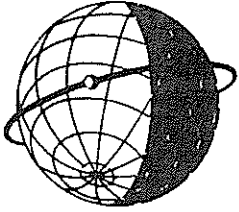
Storm Sudden Commencements (ssc)				Solar Flare Effects (sfe)		
Day	Time	Quality:	Station Group*	Day	Begin-End	Station(s)
11	1600	B:	SOD BJI HYD	01	0953-1015	BDV
		C:	BDV QUE LNP	02	0134-0145	HTY
					1122-1148	WNG
					1320-1340	CLF (ssc: QUE TEN)
				05	0506-0510	LNP
				06	0213-0219	LNP
				07	0211-0219	LNP
				09	1255-1337	WNG NGK BDV
				10	0432-0535	MMB BJI KAK KNY LNP
				13	0328-0333	LNP
				14	0446-0449	LNP
					1519- xx	CLF (si: WNG)
				22	0553-0555	LNP
				27	0137-0145	LNP

Reporting Observatories: (up to the 1st of April 1989)

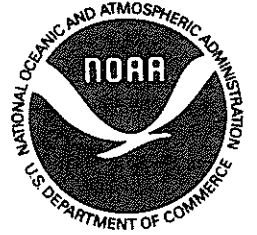
SOD DOB NUR WNG NGK BDV CLF NAG GCK MMB AQU EBR COI BJI SPT
FRD KAK HTY KNY QUE TEN LNP HYD GNA AMS CZT KGL DUM

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





WORLD DATA CENTER A
FOR
SOLAR-TERRESTRIAL PHYSICS



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

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