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Data for April, March 1990, and Late Data

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S O L A R - G E O P H Y S I C A L D A T A

NUMBER 549

(Issued in Two Parts)

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C O N T E N T S

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PART II (COMPREHENSIVE REPORTS)

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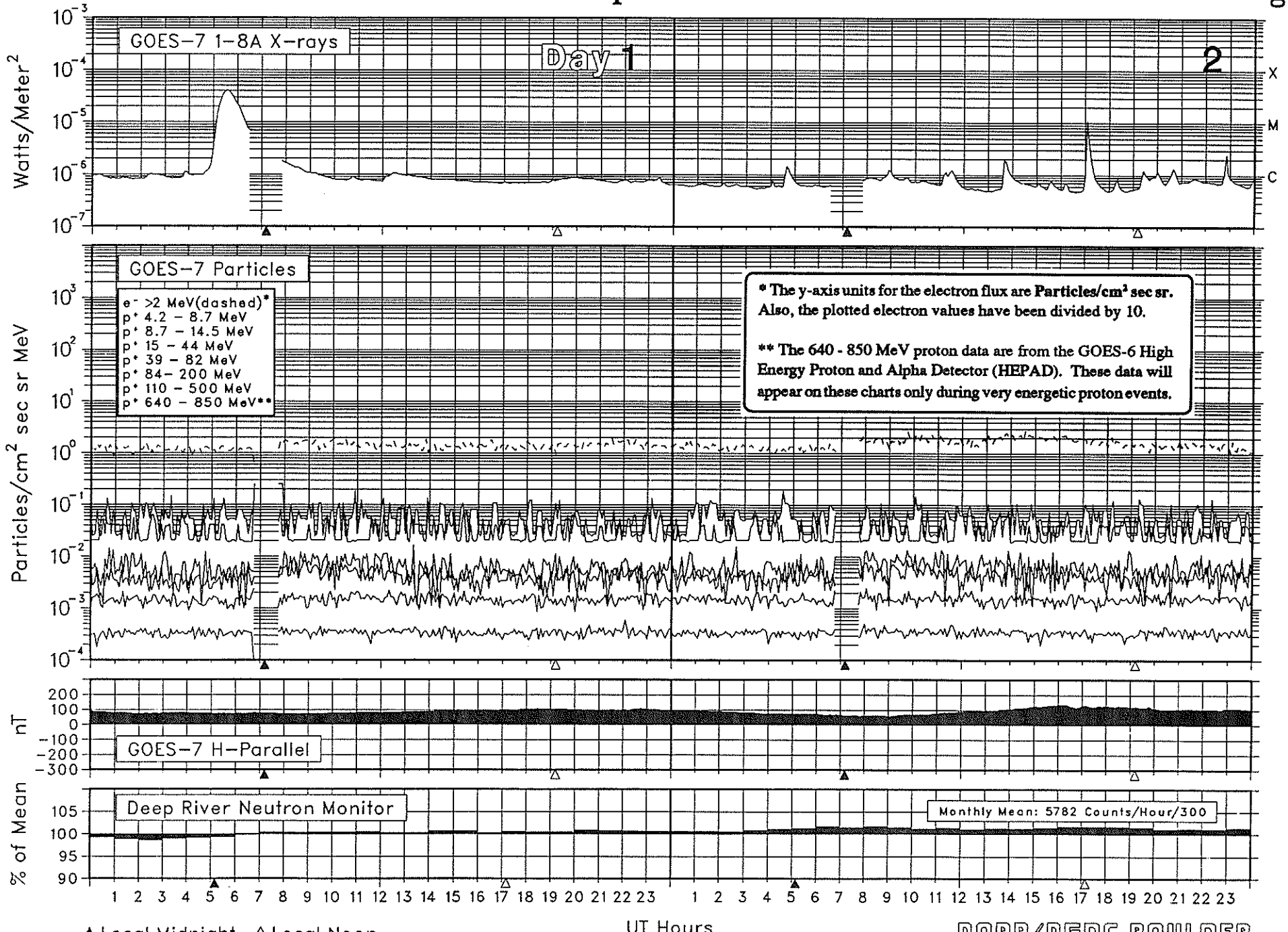

NOAA/NGDC BOULDER

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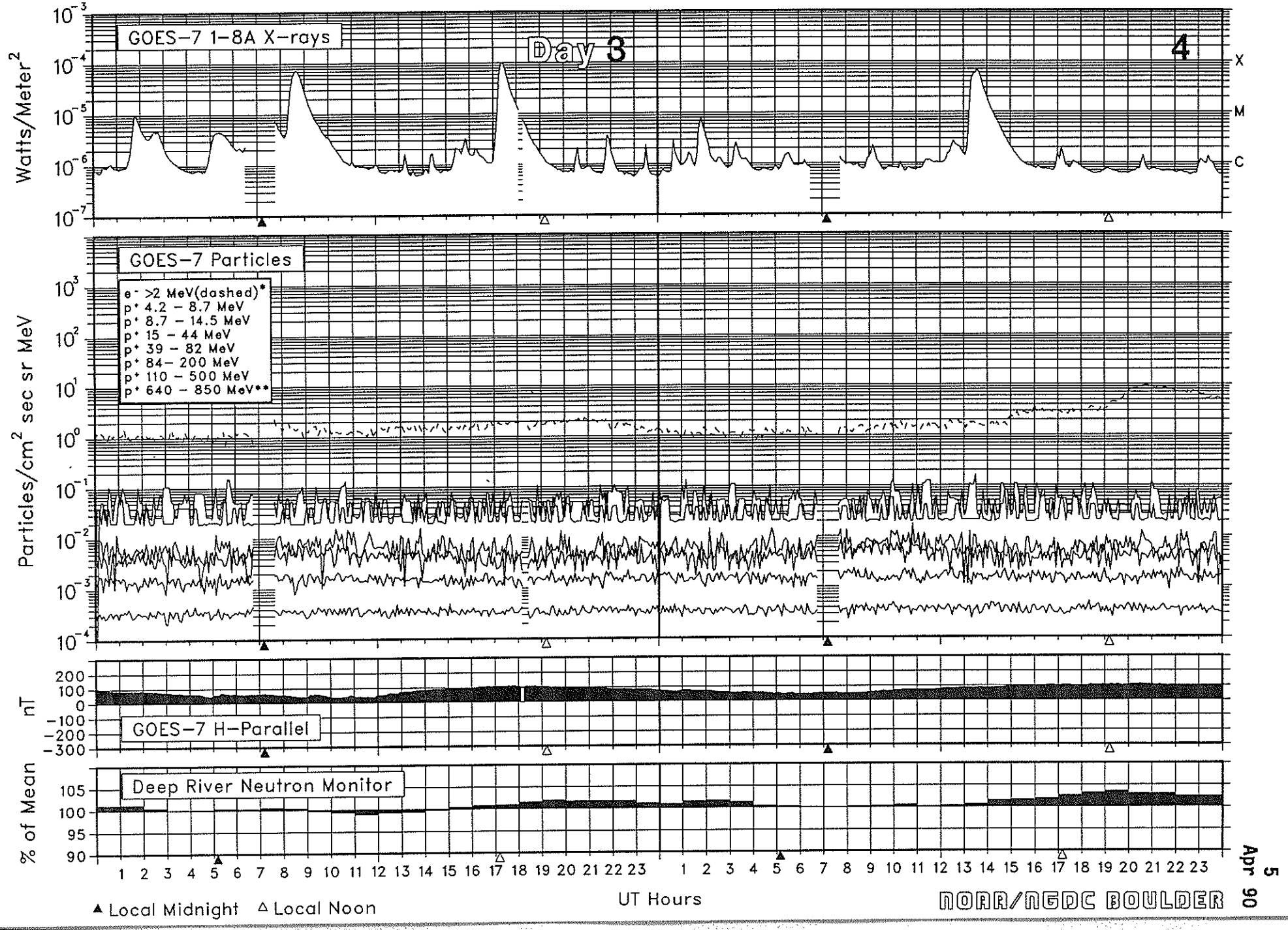

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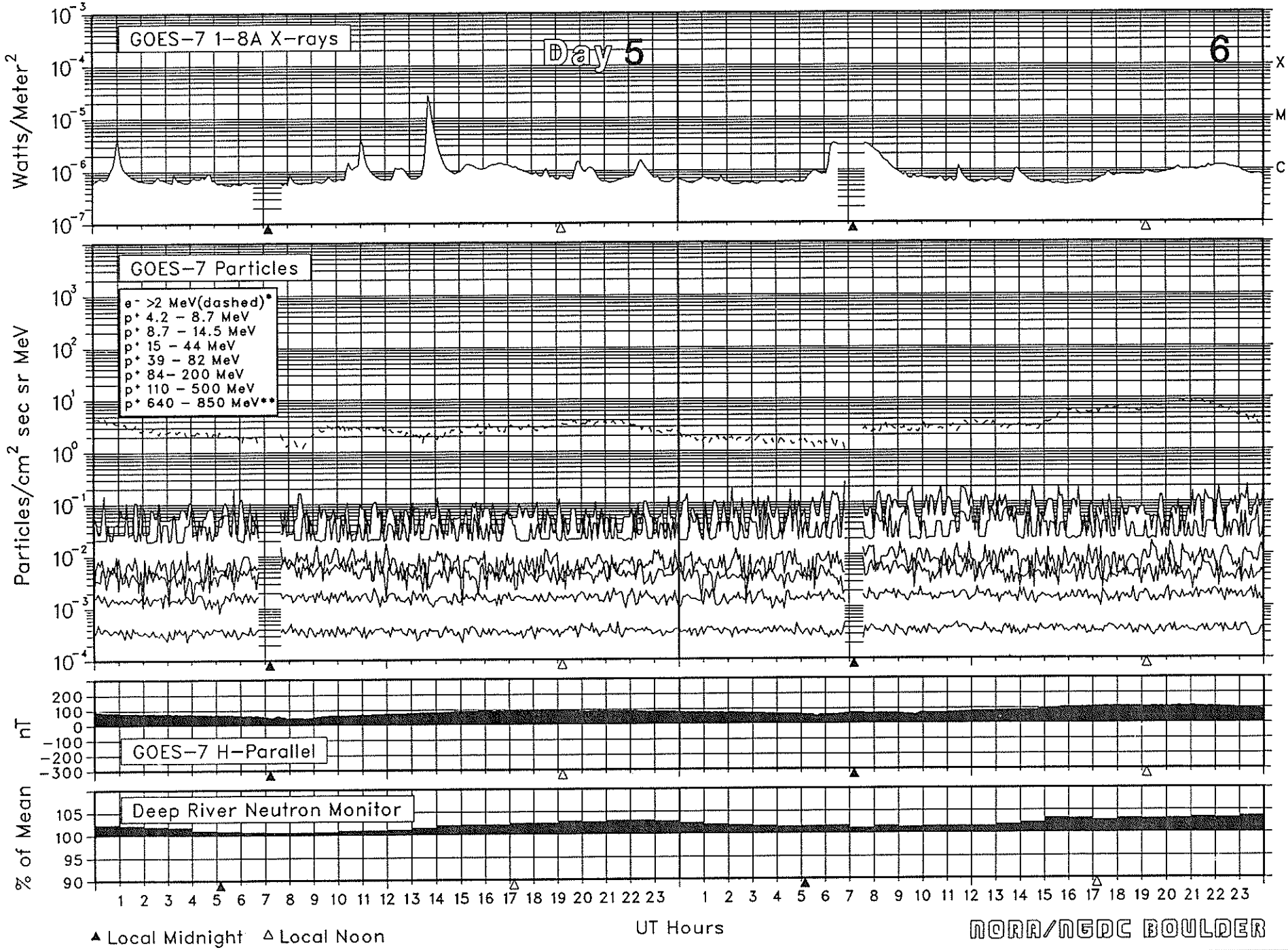

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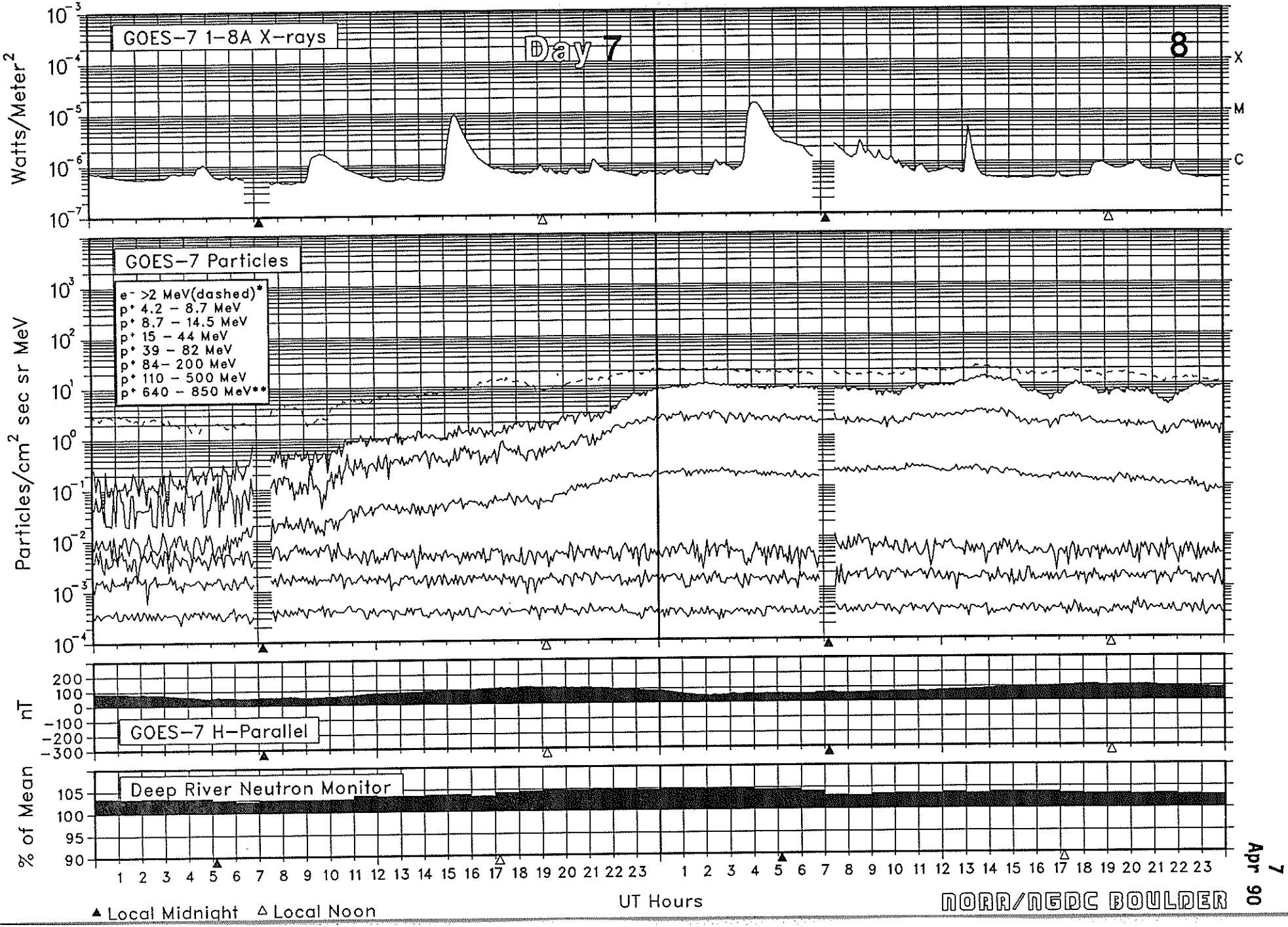

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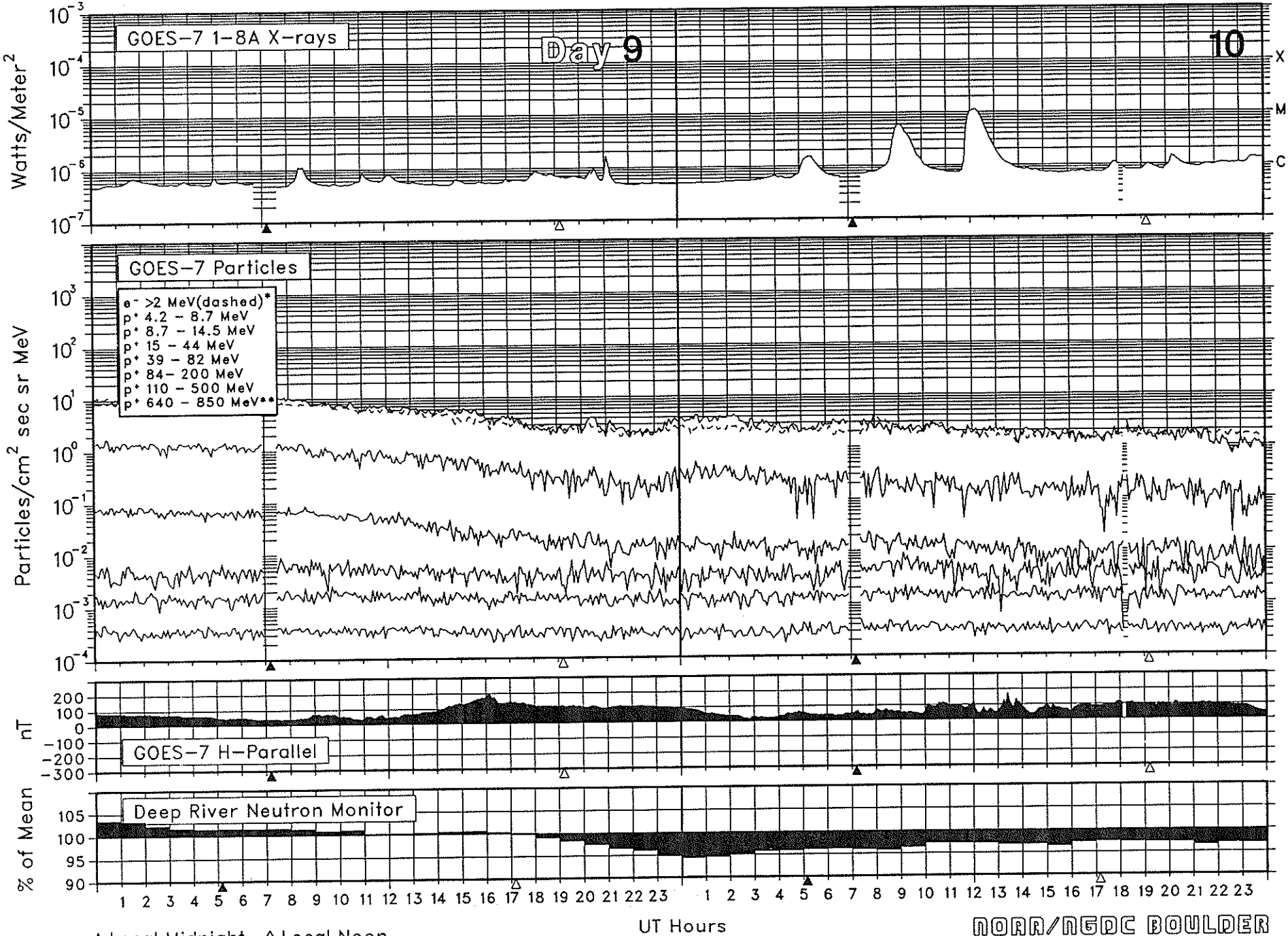

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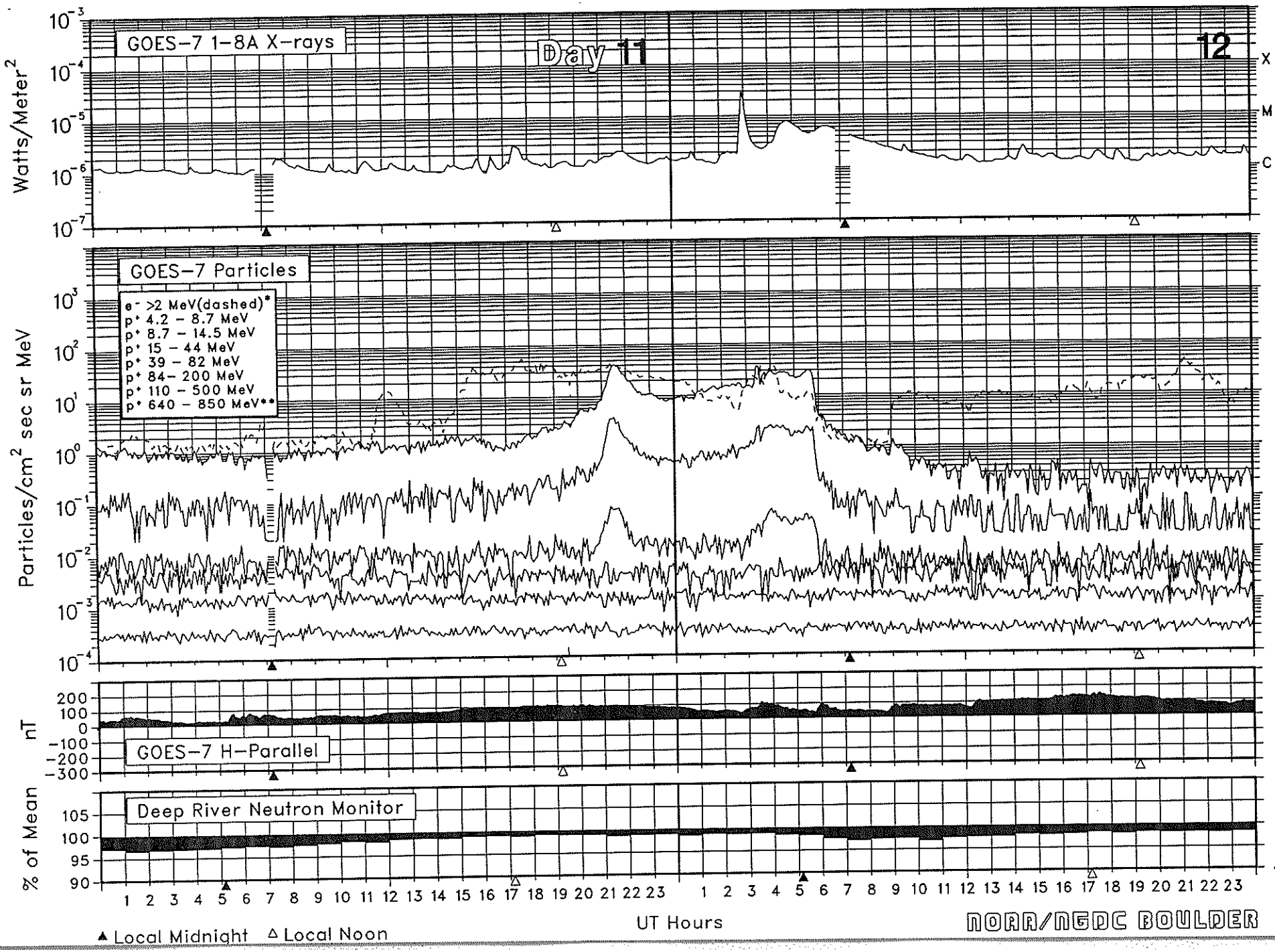

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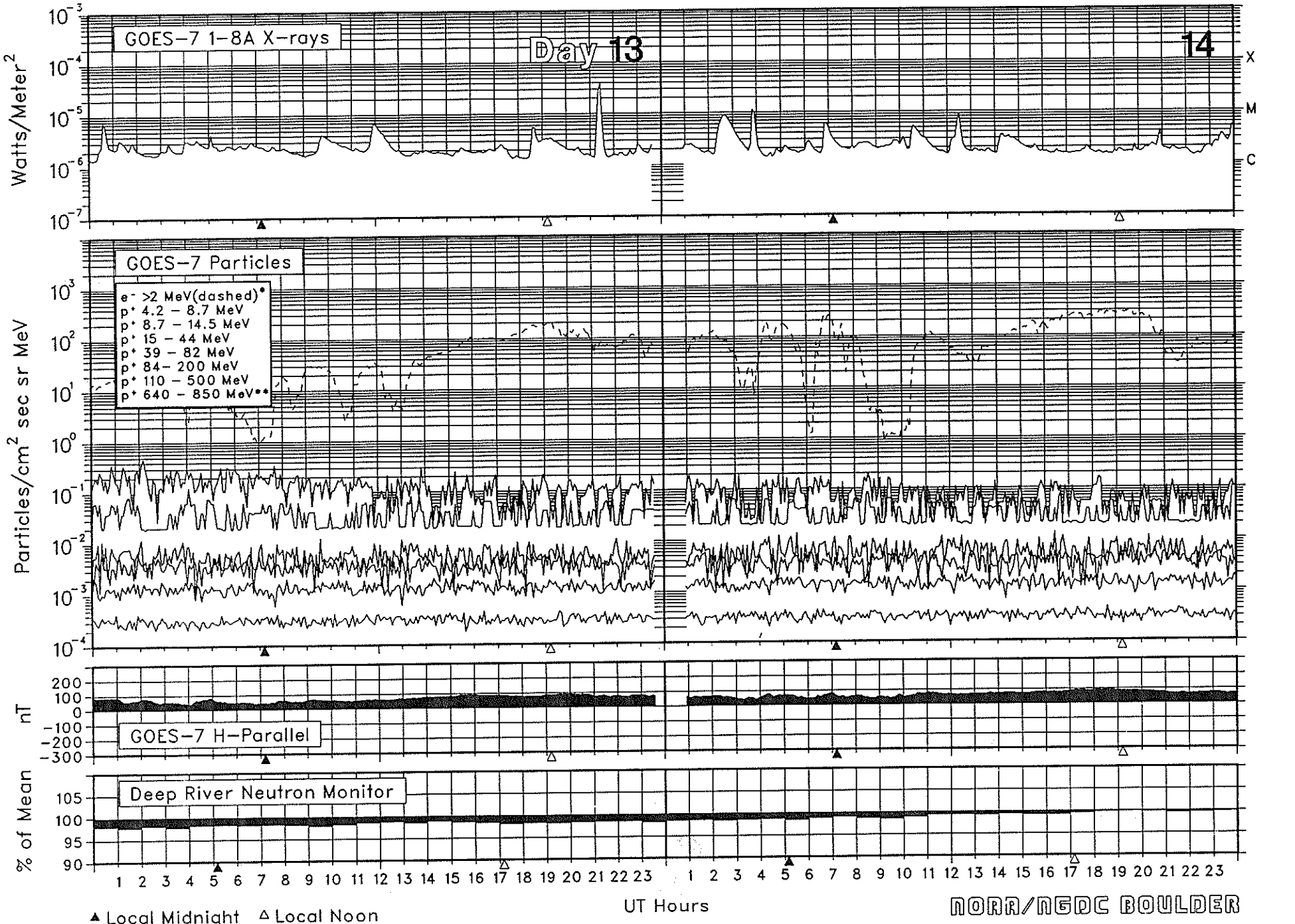

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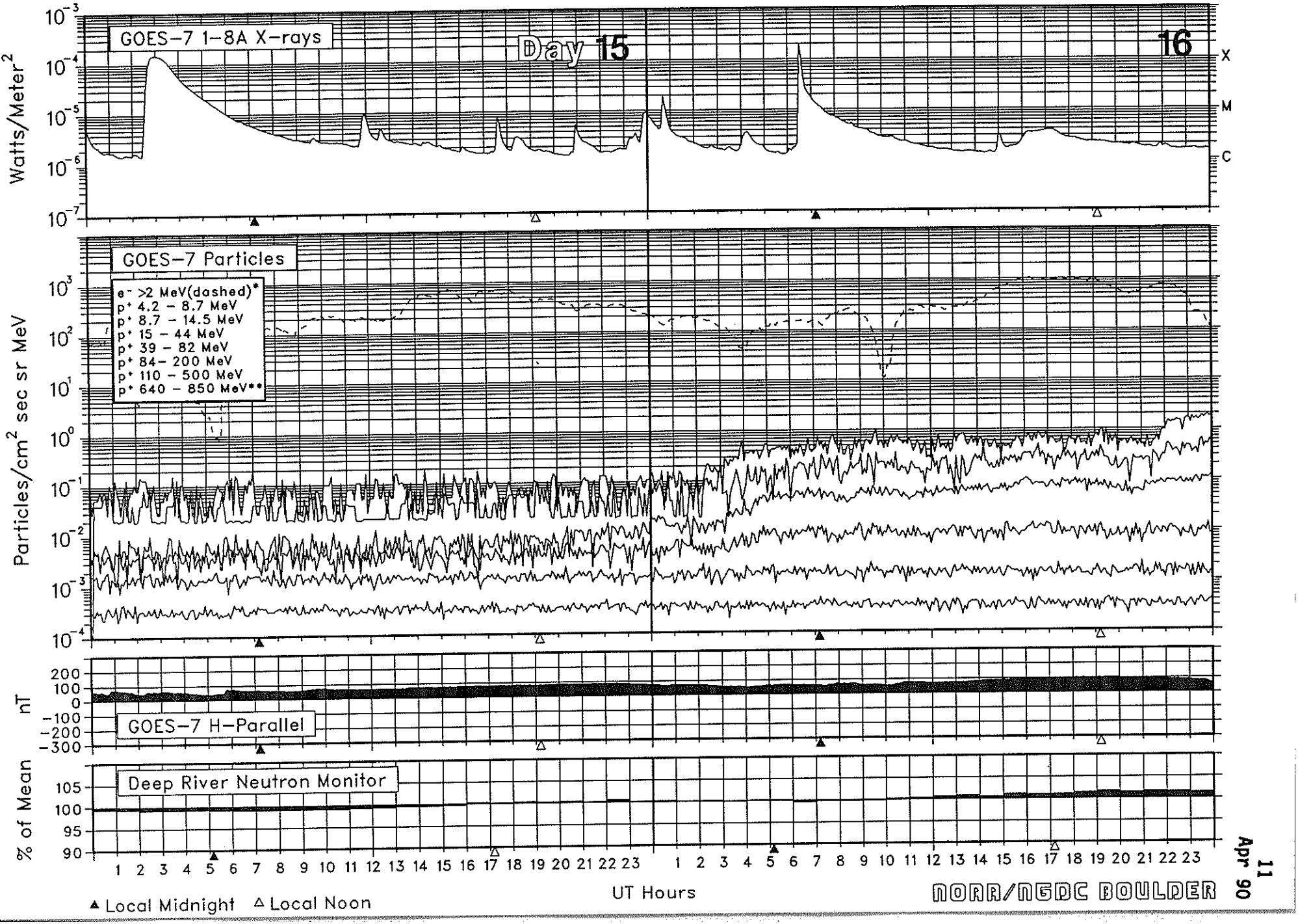

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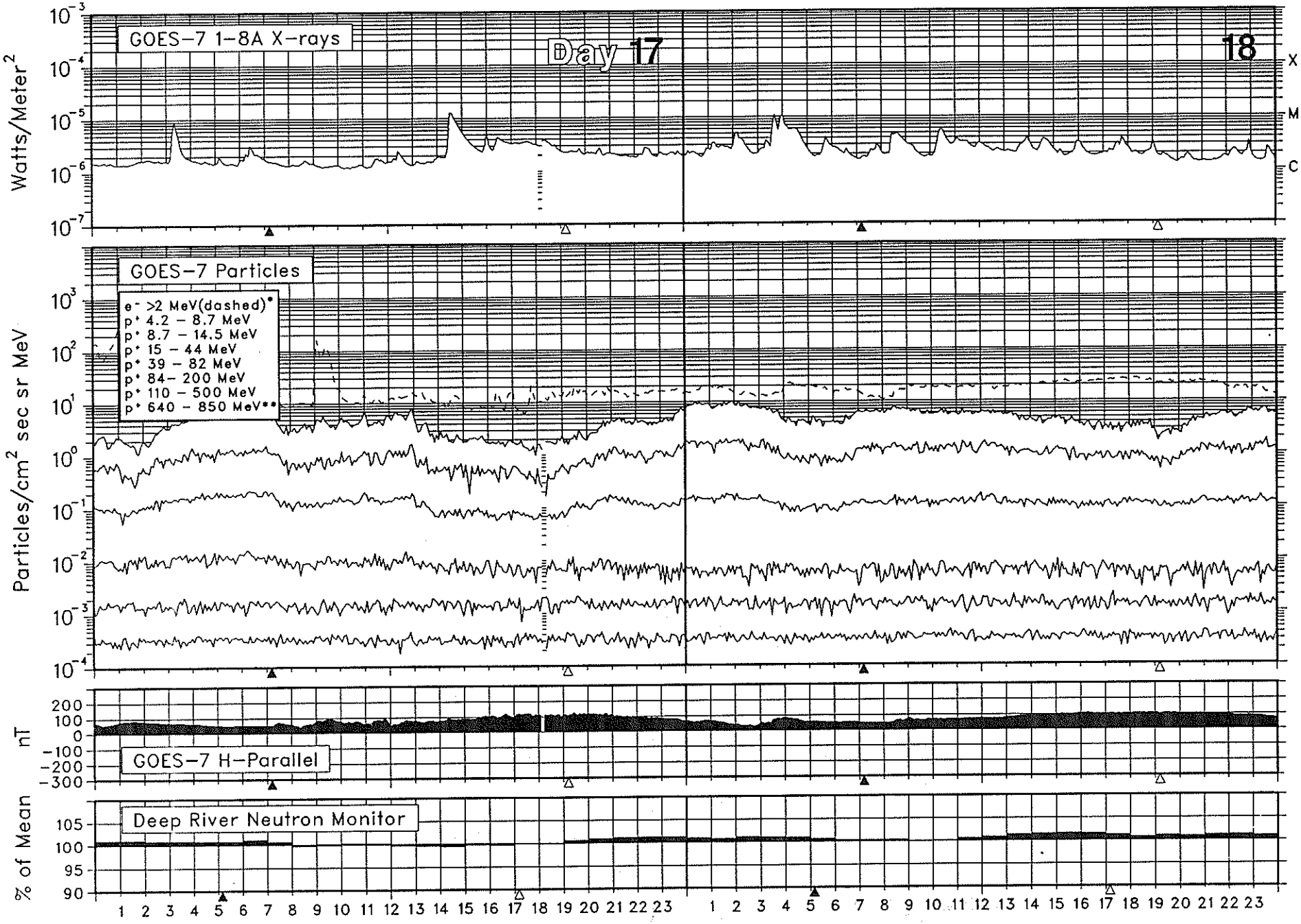

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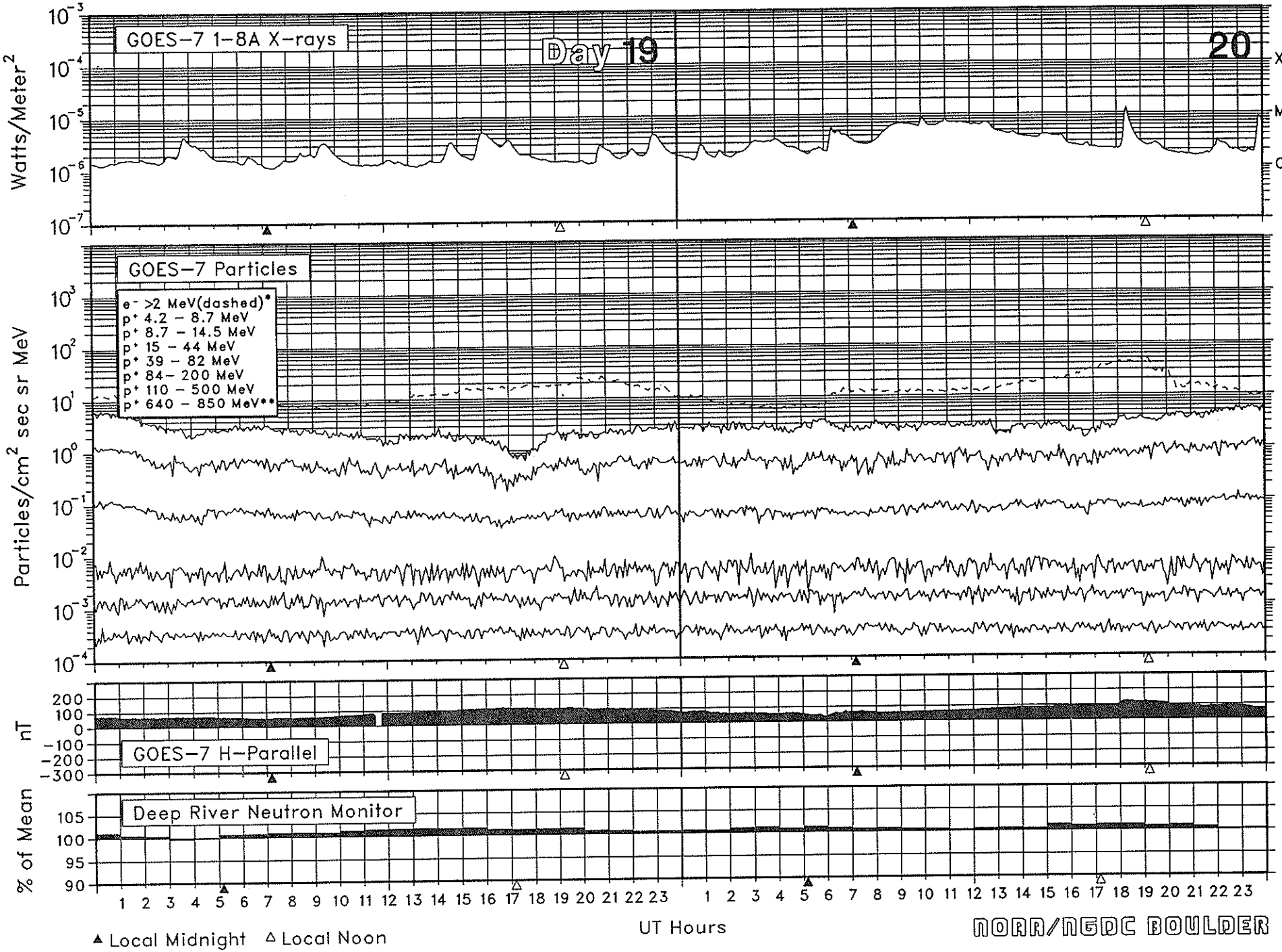

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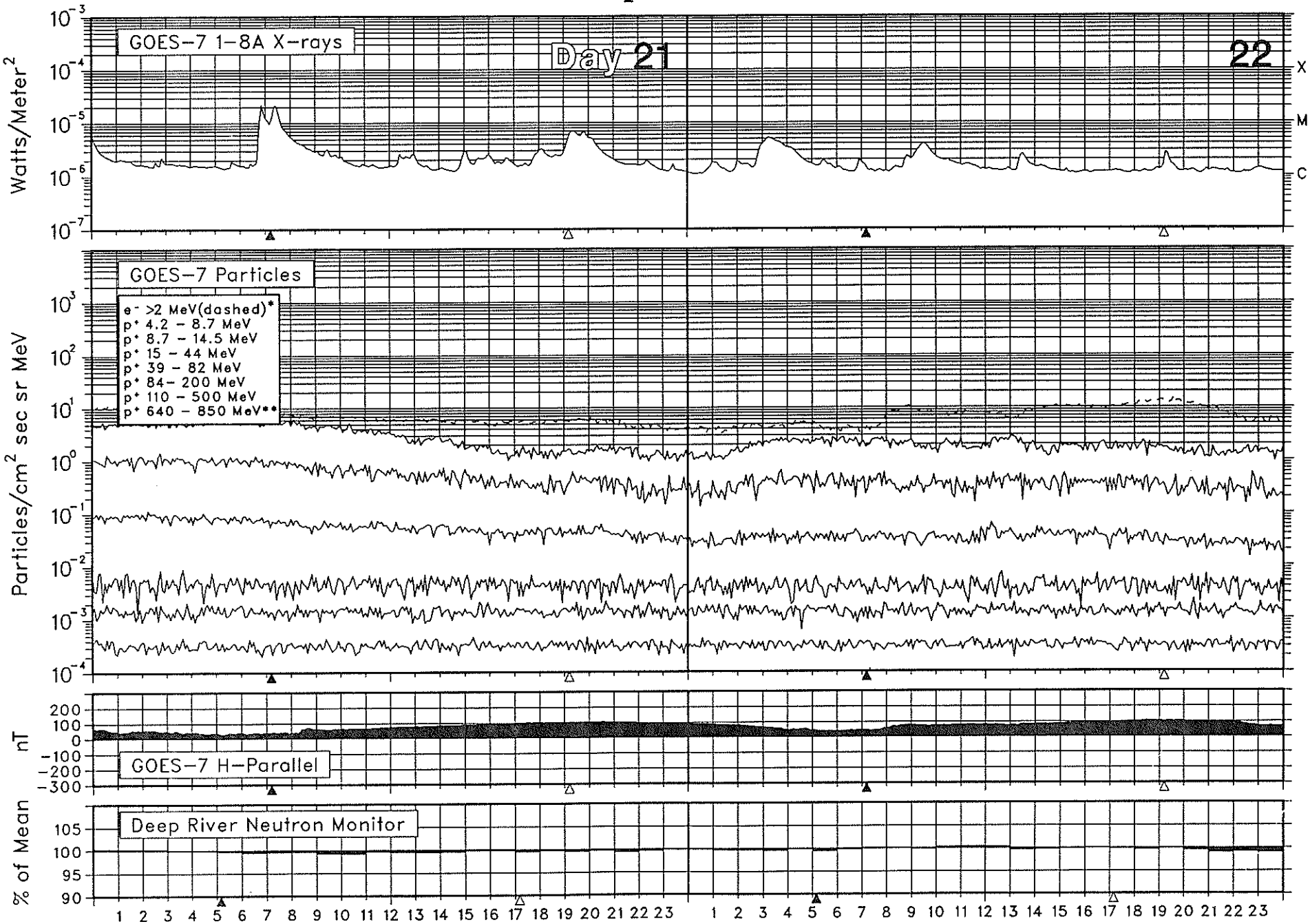

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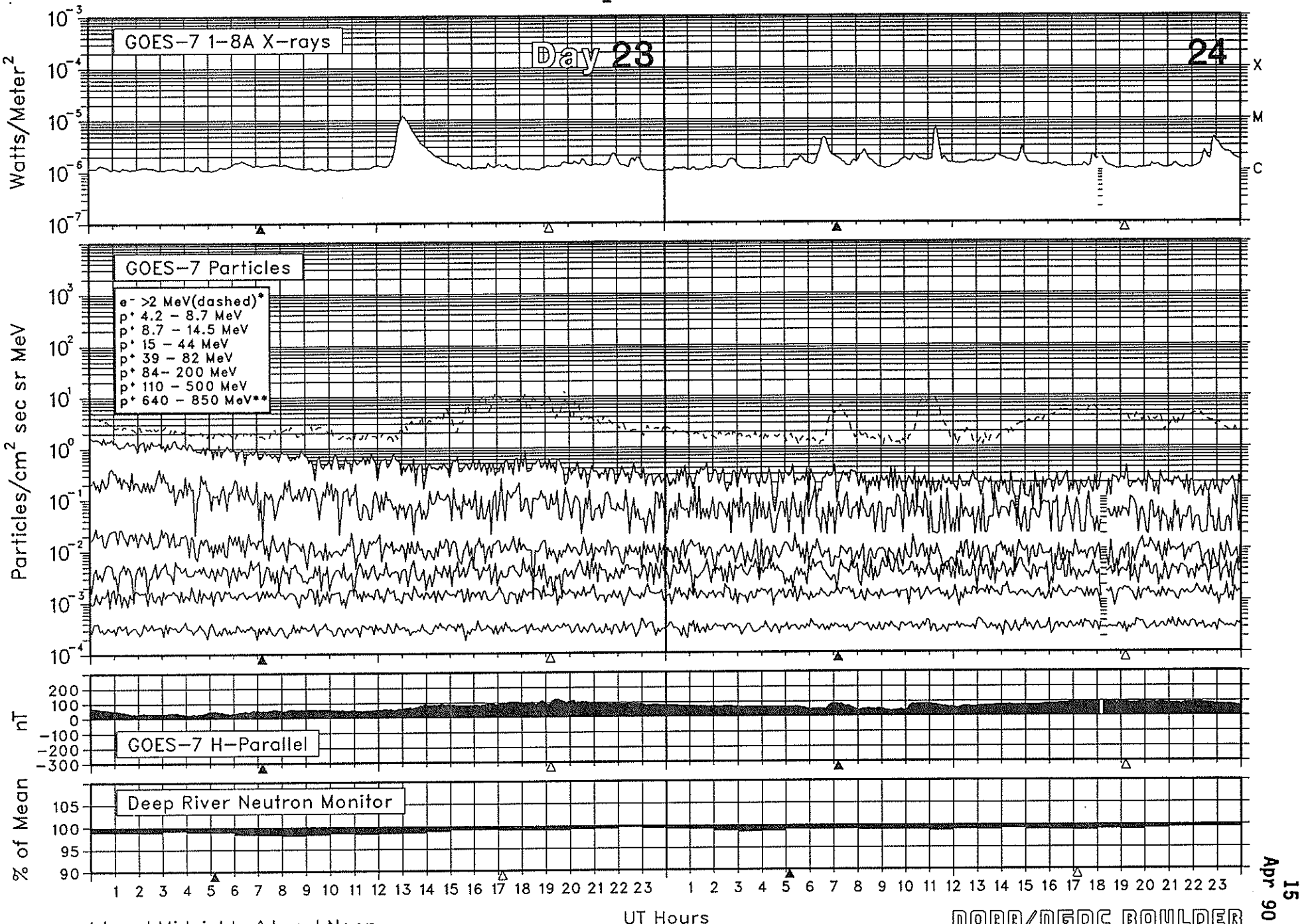

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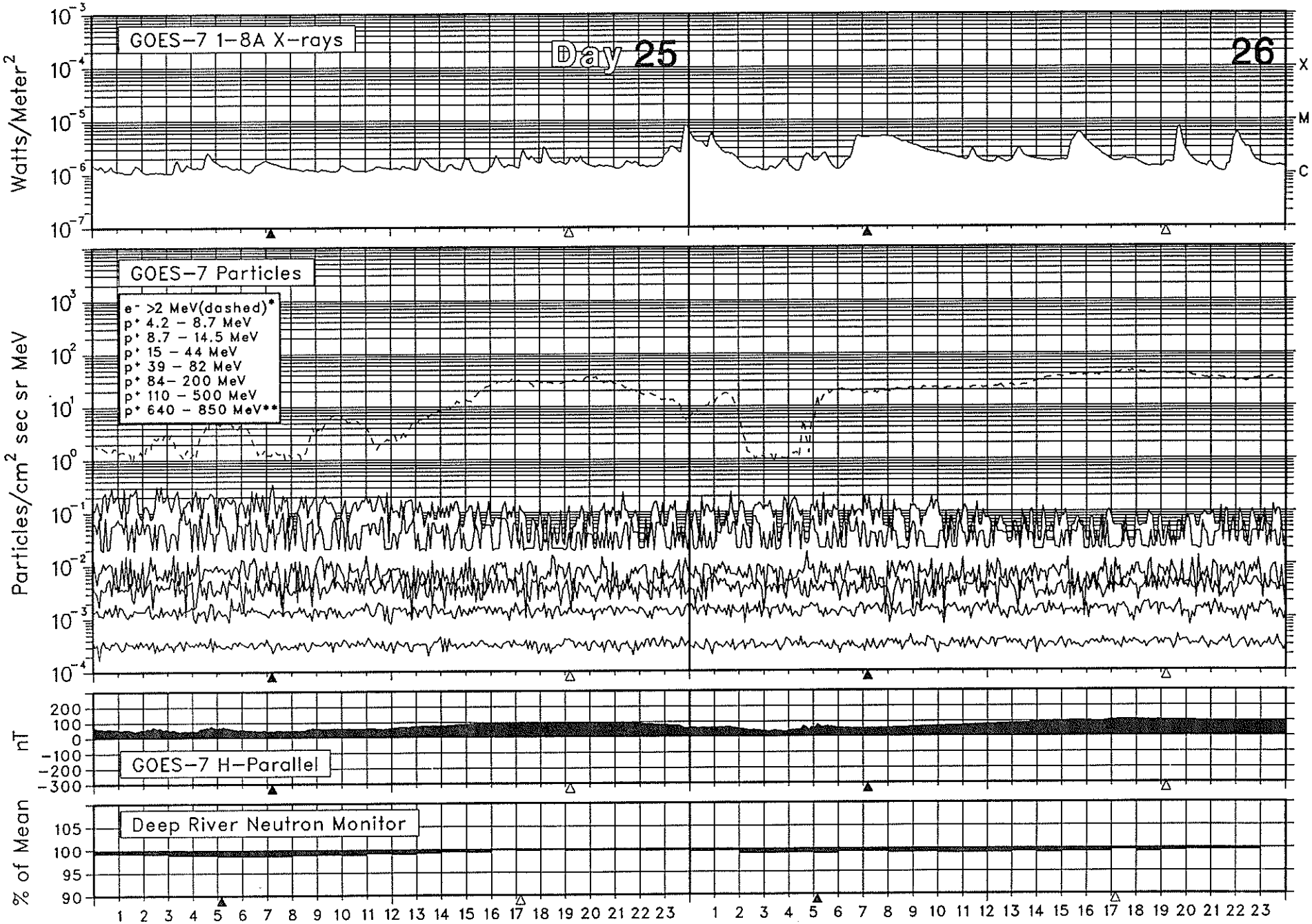

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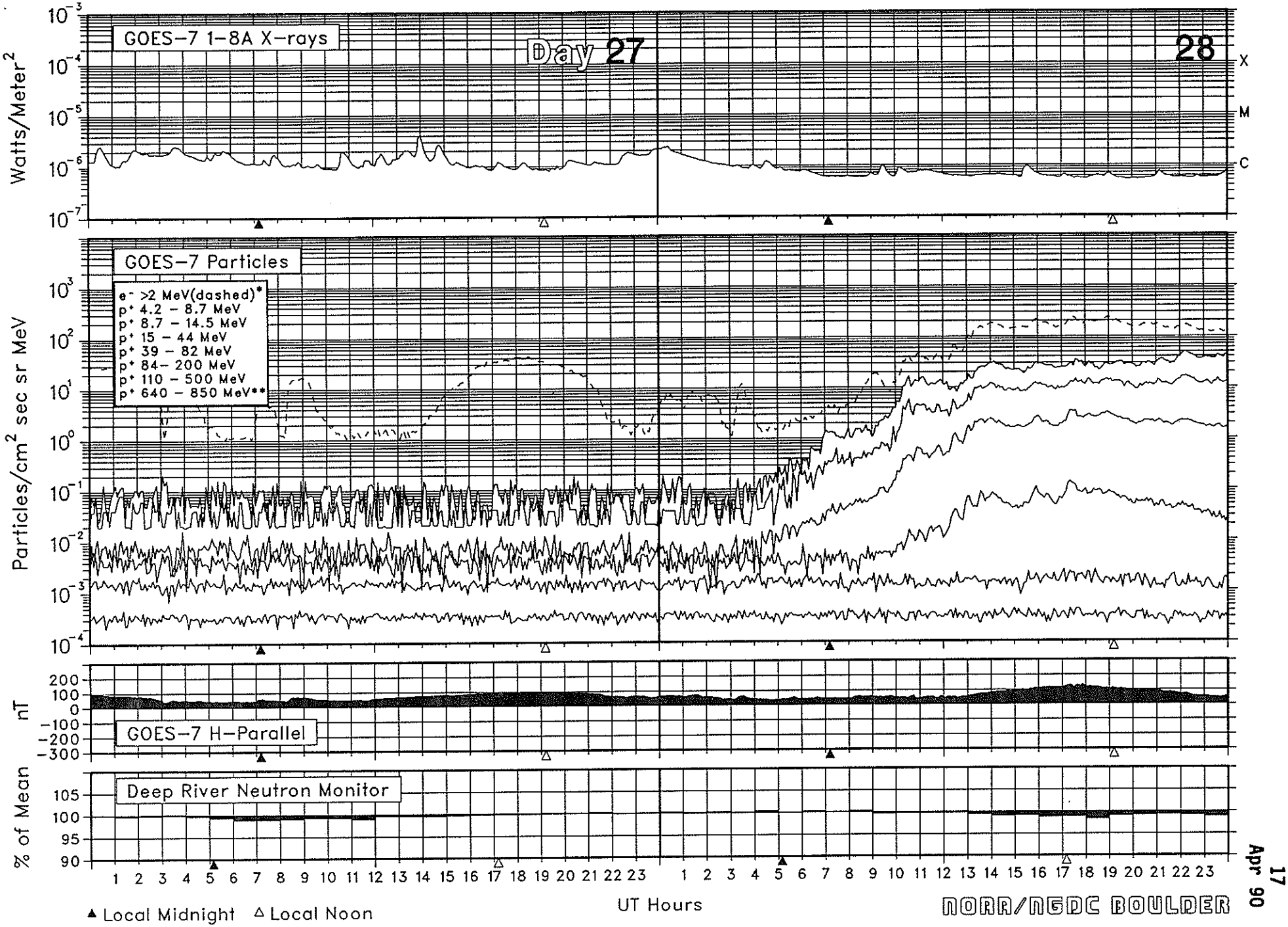

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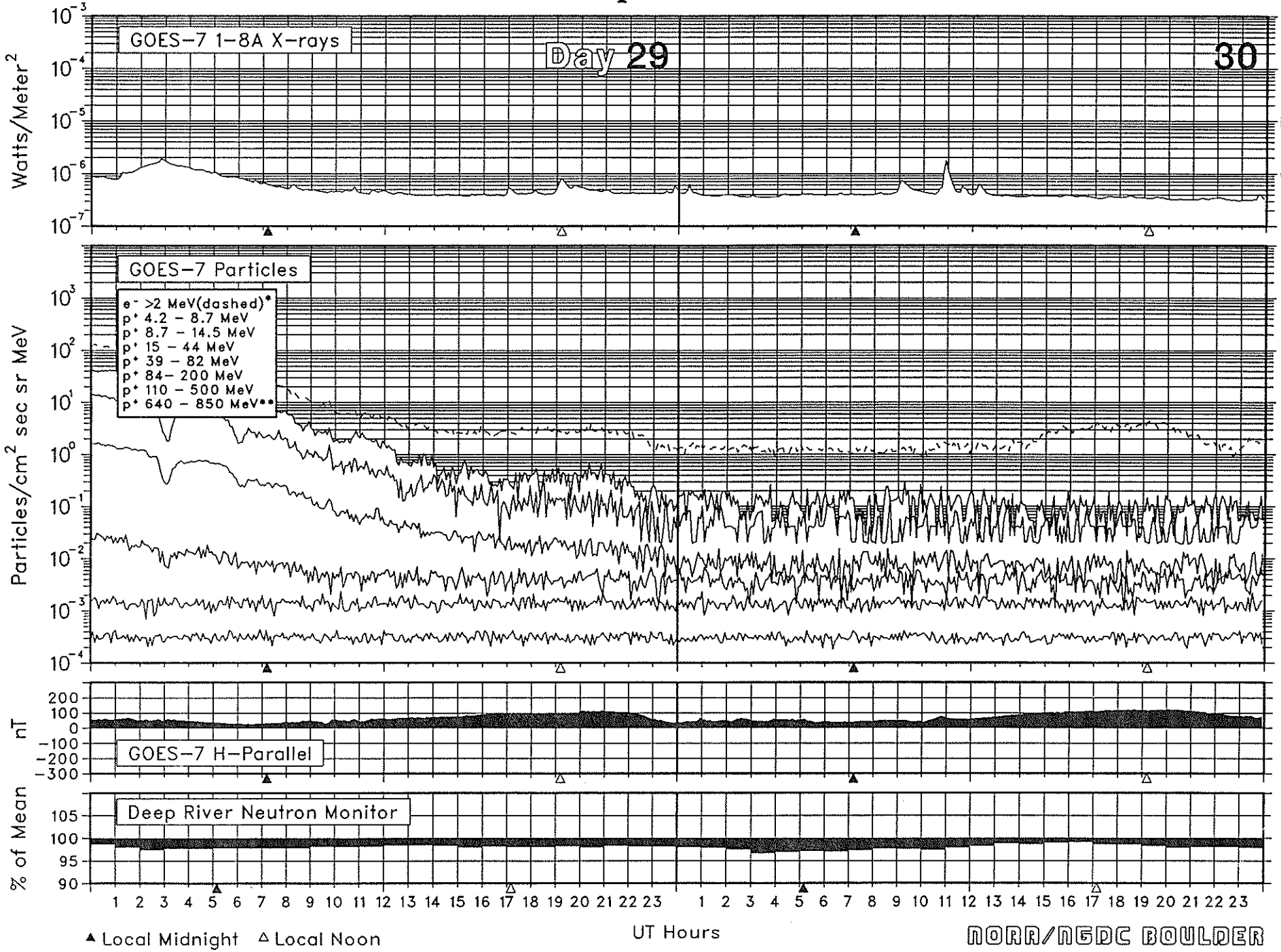

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages **APRIL 1990**

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat	Location °Long	Flares Total	Flares M	Flares X	Date of Forecast	Location °Lat	Location °Long	Region Forecast [1]	Geoalerts
091	01	31	149	172	007	S30	W93	0	0	0	01	S30	W93	Q	Solnil, Magnil.
						S17	W91	0	0	0		S17	W91	Q	
						S04	W88	2	0	0		S04	W88	E	
						N25	W20	0	0	0		N25	W20	Q	
						S12	W04	0	0	0		S12	W04	Q	
						S15	W27	0	0	0		S15	W27	E	
						S10	E43	0	0	0		S10	E43	Q	
						N20	W49	0	0	0		N20	W49	Q	
						N20	E60	0	0	0		N20	E60	E	
						S26	E72	0	0	0		S26	E72	Q	
092	02	01	145	159	004	N26	W33	0	0	0	02	N26	W33	Q	Solquiet, Magquiet.
						S11	W17	0	0	0		S11	W17	Q	
						S15	W40	0	0	0		S15	W40	E	
						S09	E30	0	0	0		S09	E30	Q	
						N22	W62	1	0	0		N22	W62	Q	
						N21	E47	0	0	0		N21	E47	E	
						S25	E59	0	0	0		S25	E59	Q	
						N18	W35	0	0	0		N18	W35	Q	
						S17	E63	0	0	0		S17	E63	Q	
093	03	02	146	153	009	N26	W46	0	0	0	03	N26	W46	Q	Solquiet, Magquiet.
						S11	W30	0	0	0		S11	W30	Q	
						S15	W54	1	0	0		S15	W54	E	
						S09	E17	1	0	0		S09	E17	Q	
						N22	W76	1	0	0		N22	W76	Q	
						N21	E35	6	1	0		N21	E35	A	
						S24	E47	0	0	0		S24	E47	Q	
						S17	E50	0	0	0		S17	E50	Q	
						N31	E14	0	0	0		N31	E14	Q	
094	04	03	153	151	014	N26	W58	0	0	0	04	N26	W58	Q	Major Flare Alert 04/XX 18828, Magquiet.
						S11	W43	0	0	0		S11	W43	Q	
						S14	W67	1	0	0		S14	W67	E	
						S09	E03	0	0	0		S09	E03	Q	
						N22	W83	0	0	0		N22	W83	Q	
						N21	E23	3	0	0		N21	E23	E	
						S25	E33	0	0	0		S25	E33	Q	
						S17	E38	0	0	0		S17	E38	Q	
						N31	E02	0	0	0		N31	E02	Q	
						S08	E22	0	0	0		S08	E22	Q	
						N28	E88	9	1	1		N28	E88	A	
		Presto:	Boulder	Tenflare 830 flux units 03/0817 UT duration 30 minutes.											
			Toyokawa	Tenflare 1500 flux units 03/1117 UT duration 30 minutes.											
			Boulder	X-ray event X1/1N N23 E82 03/1703 UT duration 75 minutes.											
			Boulder	Tenflare 03/1715 UT duration 21 minutes.											
095	05	04	180	150	008	N26	W70	0	0	0	05	N26	W70	Q	Solalert 05/XX, Magquiet.
						S11	W56	0	0	0		S11	W56	Q	
						S14	W80	1	0	0		S14	W80	Q	
						S09	W10	1	0	0		S09	W10	Q	
						N21	E10	6	0	0		N21	E10	E	
						S25	E18	0	0	0		S25	E18	Q	
						S18	E24	0	0	0		S18	E24	Q	
						N31	W12	2	0	0		N31	W12	E	
						N23	E67	7	1	0		N23	E67	A	
						S07	E09	0	0	0		S07	E09	Q	
		Presto:	Boulder	Tenflare 950 flux units 04/1315 UT duration 28 minutes.											

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — APRIL 1990

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast [1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
096	06	05	184	156	011	N27 W83	1	0	0	06	N27 W83	Q	Solalert 06/XX,
						S11 W70	0	0	0		S11 W70	Q	Magalert.
						S17 W91	0	0	0		S17 W91	Q	
						S08 W21	0	0	0		S08 W21	Q	
						N21 W03	4	0	0		N21 W03	E	
						S25 E06	0	0	0		S25 E06	Q	
						S19 E12	0	0	0		S19 E12	Q	
						N31 W24	4	0	0		N31 W24	E	
						N23 E53	2	1	0		N23 E53	A	
						S41 E72	2	0	0		S41 E72	Q	
						N19 E64	0	0	0		N19 E64	Q	
097	07	06	177	149	008	S11 W83	0	0	0	07	S11 W83	Q	Solalert 07/XX,
						S07 W36	0	0	0		S07 W36	Q	Magnil.
						N21 W15	3	0	0		N21 W15	E	
						S25 W07	0	0	0		S25 W07	Q	
						S19 W01	0	0	0		S19 W01	Q	
						N31 W38	4	0	0		N31 W38	E	
						N23 E40	2	0	0		N23 E40	E	
						S42 E58	0	0	0		S42 E58	Q	
						N19 E52	0	0	0		N19 E52	Q	
						S15 W32	0	0	0		S15 W32	Q	
						N30 E67	0	0	0		N30 E67	Q	
098	08	07	178	155	009	S08 W49	0	0	0	08	S08 W49	Q	Solalert 08/XX,
						N21 W28	0	0	0		N21 W28	E	Magquiet.
						S24 W19	0	0	0		S24 W19	Q	
						S19 W15	0	0	0		S19 W15	Q	
						N31 W51	1	0	0		N31 W51	E	
						N24 E27	0	0	0		N24 E27	E	
						S42 E46	0	0	0		S42 E46	Q	
						N19 E39	0	0	0		N19 E39	Q	
						N30 E54	1	0	0		N30 E54	E	
						S09 W02	0	0	0		S09 W02	Q	
						N15 E50	0	0	0		N15 E50	Q	
		Presto:	Boulder	Tenflare 230 flux units 07/1521 UT duration 14 minutes.									
			Boulder	Proton event began 07/2240 UT, maximum of 14 particles/cm²-s-ster at greater than 10 MeV 07/2355 UT.									
099	09	08	146	151	006	S08 W61	0	0	0	09	S08 W61	Q	Solalert 09/XX,
						N21 W40	4	0	0		N21 W40	E	Magquiet.
						S24 W30	0	0	0		S24 W30	Q	
						N30 W61	1	0	0		N30 W61	Q	
						N23 E16	2	1	0		N23 E16	E	
						S42 E37	0	0	0		S42 E37	Q	
						N30 E41	0	0	0		N30 E41	Q	
						S09 W16	0	0	0		S09 W16	Q	
						N15 E36	0	0	0		N15 E36	Q	
100	10	09	136	144	030	S07 W72	0	0	0	10	S07 W42	Q	Solnil,
						N21 W53	3	0	0		N21 W53	E	Magalert 10/11.
						S24 W45	2	0	0		S24 W45	Q	
						N32 W73	0	0	0		N32 W73	Q	
						N24 E04	0	0	0		N24 E04	E	
						S42 E24	0	0	0		S42 E24	Q	
						N30 E29	3	0	0		N30 E29	Q	
						S10 W29	0	0	0		S10 W29	Q	
						N15 E23	0	0	0		N15 E23	Q	
						S18 E34	0	0	0		S18 E34	Q	
		Presto:	Kakioka	Magstorm begins 09/0844 UT.									

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — APRIL 1990

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast [1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
101	11	10	116	147	067	S06 W90	0	0	0	11	S06 W90	Q	Solquiet,
						N22 W71	2	0	0		N22 W71	E	Magalert 11/XX.
						N33 W90	1	0	0		N33 W90	Q	
						N24 W09	3	1	0		N24 W09	E	
						S41 E12	0	0	0		S41 E12	Q	
						N30 E17	0	0	0		N30 E17	E	
						N15 E09	0	0	0		N15 E09	Q	
						N21 E31	0	0	0		N21 E31	Q	
						S32 E77	0	0	0		S32 E77	Q	
		Presto:	Kakioka	Magstorm begins 10/0035 UT.									
			Boulder	Strong magstorm in progress 10/1500 UT.									
102	12	11	130	159	067	N21 W86	0	0	0	12	N21 W86	E	Solquiet,
						N24 W18	0	0	0		N24 W18	E	Magalert 12/12.
						S41 W01	0	0	0		S41 W01	Q	
						N31 E05	0	0	0		N31 E05	Q	
						N15 W02	0	0	0		N15 W02	Q	
						N22 E18	8	0	0		N22 E18	E	
						S32 E66	0	0	0		S32 E66	Q	
						N33 W62	0	0	0		N33 W62	Q	
						N04 E15	0	0	0		N04 E15	Q	
		Presto:	Boulder	Proton event began 11/2120 UT, maximum of 12 particles/cm²-s-ster at greater than 10 MeV 11/2140 UT.									
103	13	12	129	168	055	N22 W27	0	0	0	13	N22 W27	E	Solquiet,
						S40 W14	0	0	0		S40 W14	Q	Magalert 13/XX.
						N31 W09	0	0	0		N31 W09	Q	
						N15 W18	0	0	0		N15 W18	Q	
						N21 E04	2	0	0		N21 E04	E	
						S32 E54	0	0	0		S32 E54	Q	
						S15 E76	0	0	0		S15 E76	Q	
						N28 E72	0	0	0		N28 E72	E	
						N18 E10	1	0	0		N18 E10	Q	
		Presto:	Kakioka	Magstorm begins 12/0326 UT.									
			Meudon	Magstorm begins with very marked SSC 12/0326 UT at Chambon-La-Foret.									
			Boulder	Strong Magstorm in progress 12/1500 UT.									
104	14	13	159	196	030	N31 W21	0	0	0	14	N31 W21	Q	Solalert 14/XX,
						N15 W30	0	0	0		N15 W30	Q	Magalert 14/14.
						N22 W08	1	0	0		N22 W08	E	
						S34 E42	4	1	0		S34 E42	Q	
						S15 E68	3	0	0		S15 E68	E	
						N30 E67	3	0	0		N30 E67	A	
						N18 W02	0	0	0		N18 W02	Q	
						S08 E33	0	0	0		S08 E33	Q	
105	15	14	201	211	029	N31 W33	0	0	0	15	N31 W33	Q	Solalert 15/XX,
						N14 W43	0	0	0		N14 W43	Q	Magalert 15/XX.
						N22 W22	0	0	0		N22 W22	E	
						S33 E29	14	2	0		S33 E29	A	
						S16 E57	6	0	0		S16 E57	E	
						N29 E53	11	0	0		N29 E53	A	
						N18 W15	0	0	0		N18 W15	Q	
						S08 E20	0	0	0		S08 E20	Q	
						N13 E35	0	0	0		N13 E35	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — APRIL 1990

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast [1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
106	16	15	224	218	022	N31 W47	1	0	0	16	N31 W47	Q	Solalert 16/XX,
						N2 W36	0	0	0		N22 W36	Q	Magalert 16/XX.
						S32 E18	8	1	0		S32 E18	A	
						S14 E44	7	0	0		S14 E44	A	
						N31 E41	3	0	1		N31 E41	P	
						N17 W28	1	0	0		N17 W28	Q	
						S08 E07	0	0	0		S08 E07	Q	
						N14 E23	0	0	0		N14 E23	Q	
						N11 W05	0	0	0		N11 W05	Q	
						N13 E08	0	0	0		N13 E08	Q	
		Presto:	Boulder	X-ray event X1/2B N32 E57 15/0228 UT duration 167 minutes.									
			Boulder	Tenflare 11000 flux units 15/0231 UT duration 123 minutes.									
			Sydney	Culgoora Short-wave fade began 15/0238 UT, poorly defined Type II with Type IV continuum began 15/0245 UT.									
107	17	16	256	232	011	N31 W60	0	0	0	17	N31 W60	E	Major Flare Alert
						N21 W52	1	0	0		N21 W52	Q	17/XX 12731,
						S32 E06	3	1	0		S32 E06	E	Magalert 17/XX.
						S14 E32	5	0	1		S14 E32	A	
						N31 E27	4	0	0		N31 E27	A	
						N17 W42	1	0	0		N17 W42	Q	
						S08 W06	0	0	0		S08 W06	Q	
						N15 E09	0	0	0		N15 E09	Q	
						N11 W18	1	0	0		N11 W18	Q	
						S08 E24	0	0	0		S08 E24	Q	
						N25 E76	0	0	0		N25 E76	Q	
		Presto:	Moscow	5900 MHz radio burst 1374 flux units 16/0626 UT in progress.									
			Boulder	X-ray event X2/2B S13 E41 16/0627 UT duration 10 minutes.									
			Toyokawa	Tenflare 1100 flux units 16/0627 UT duration 17 minutes.									
			Boulder	Tenflare 1200 flux units 16/0628 UT duration 21 minutes.									
			Sydney	Culgoora Intensity 3 Type II fundamental and harmonic 220-35 MHz began 16/0633 UT. Very weak short-wave fade began 16/0632 UT.									
108	18	17	314	240	025	N31 W73	0	0	0	18	N31 W73	Q	Major Flare Alert
						N22 W66	0	0	0		N22 W66	Q	18/XX 11331,
						S32 W08	8	0	0		S32 W08	E	Magalert 18/XX.
						S13 E19	3	0	0		S13 E19	E	
						N31 E14	1	1	0		N31 E14	A	
						N21 W58	0	0	0		N21 W58	Q	
						S08 W20	1	0	0		S08 W20	Q	
						N15 W04	0	0	0		N15 W04	Q	
						N12 W32	0	0	0		N12 W32	Q	
						S07 E12	0	0	0		S07 E12	Q	
						N25 E60	0	0	0		N25 E60	Q	
						N22 E33	0	0	0		N22 E33	Q	
						S19 E45	0	0	0		S19 E45	Q	
		Presto:	Boulder	Proton event began 17/0500 UT, maximum of 12 particles/cm^2-s-ster at greater than 10 MeV 17/0655 UT.									
			Kakioka	Magstorm begins 17/0720 UT.									
109	19	18	304	236	027	N21 W81	0	0	0	19	N21 W81	Q	Major Flare Alert
						S32 W22	5	1	0		S32 W22	E	19/XX 10231,
						S14 E06	7	1	0		S14 E06	E	Magalert 19/XX,
						N31 E02	1	0	0		N31 E02	A	
						S08 W35	0	0	0		S08 W35	Q	
						N17 W17	0	0	0		N17 W17	Q	
						N14 W47	0	0	0		N14 W47	Q	
						S08 W00	0	0	0		S08 W00	Q	
						N26 E52	0	0	0		N26 E52	E	
						N22 E20	0	0	0		N22 E20	Q	
						S19 E33	11	0	0		S19 E33	E	
						S11 E28	0	0	0		S11 E28	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — APRIL 1990

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast [1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
110	20	19	310	247	008	S32 W32	1	0	0	20	S32 W32	E	Solalert 20/XX,
						S14 W05	4	0	0		S14 W05	E	Magnil.
						N31 W09	3	0	0		N31 W09	E	
						N14 W61	0	0	0		N14 W61	Q	
						N17 W45	1	0	0		N17 W45	Q	
						N25 E44	0	0	0		N25 E44	Q	
						N21 E06	0	0	0		N21 E06	Q	
						S19 E22	1	0	0		S19 E22	E	
						S12 E14	2	0	0		S12 E14	Q	
						N11 E67	0	0	0		N11 E67	Q	
						S08 E76	0	0	0		S08 E76	Q	
111	21	20	327	249	012	S32 W43	3	1	0	21	S32 W43	E	Solalert 21/XX,
						S13 W19	5	0	0		S13 W19	E	Magquiet.
						N32 W22	2	0	0		N32 W22	E	
						N17 W58	0	0	0		N17 W58	Q	
						N27 E32	0	0	0		N27 E32	Q	
						N22 W09	0	0	0		N22 W09	Q	
						S19 E08	3	0	0		S19 E08	E	
						S12 E01	3	0	0		S12 E01	Q	
						N11 E55	1	0	0		N11 E55	E	
						S08 E65	0	0	0		S08 E65	Q	
						N16 W03	0	0	0		N16 W03	Q	
						S27 E65	0	0	0		S27 E65	Q	
						N27 E69	0	0	0		N27 E69	Q	
112	22	21	279	236	010	S31 W57	5	0	0	22	S31 W57	E	Solalert 22/XX,
						S13 W31	4	2	0		S13 W31	E	Magquiet.
						N32 W34	3	0	0		N32 W34	E	
						N18 W72	1	0	0		N18 W72	Q	
						N25 E19	0	0	0		N25 E19	Q	
						N21 W19	0	0	0		N21 W19	Q	
						S18 W06	1	0	0		S18 W06	E	
						S12 W13	2	0	0		S12 W13	E	
						N11 E40	2	0	0		N11 E40	E	
						S08 E51	0	0	0		S08 E51	Q	
						S26 E50	0	0	0		S26 E50	Q	
						N27 E57	0	0	0		N27 E57	Q	
						N16 E39	1	0	0		N16 E39	E	
		Presto:	Toyokawa	Tenflare	200	flux units	21/0644	UT	duration	12	minutes		
113	23	22	261	227	011	S31 W72	3	0	0	23	S31 W72	E	Solalert 23/XX,
						S13 W43	1	0	0		S13 W43	E	Magquiet.
						N33 W46	3	0	0		N33 W46	E	
						N25 E05	2	0	0		N25 E05	Q	
						N20 W32	5	0	0		N20 W32	Q	
						S19 W20	3	0	0		S19 W20	E	
						S13 W26	1	0	0		S13 W26	E	
						N11 E27	0	0	0		N11 E27	Q	
						S09 E38	1	0	0		S09 E38	E	
						S28 E39	0	0	0		S28 E39	Q	
						N28 E44	0	0	0		N28 E44	E	
						N16 E25	1	0	0		N16 E25	E	

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Summary of the Geoalert Messages — APRIL 1990

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast [1]	Geoalerts
114	24	23	251	219	029	S31 W83	0	0	0	24	S31 W83	E	Solalert 24/XX,
						S13 W53	3	0	0		S13 W53	E	Magquiet.
						N33 W55	1	0	0		N33 W55	E	
						N28 W05	2	0	0		N28 W05	Q	
						N21 W46	0	0	0		N21 W46	E	
						S19 W32	2	0	0		S19 W32	E	
						S13 W41	1	1	0		S13 W41	E	
						N11 E09	0	0	0		N11 E09	Q	
						S09 E25	2	0	0		S09 E25	Q	
						N26 E31	0	0	0		N26 E31	E	
						N15 E15	0	0	0		N15 E15	E	
						S06 E67	0	0	0		S06 E67	E	
						N11 E65	0	0	0		N11 E65	Q	
		Presto:	Kakioka			Magstorm begins 23/0336 UT.							
115	25	24	208	212	027	S12 W67	3	0	0	25	S12 W67	E	Solalert, Magalert.
						N34 W69	9	0	0		N34 W69	E	
						N22 W59	3	0	0		N22 W59	E	
						S19 W44	0	0	0		S19 W44	E	
						S12 W54	0	0	0		S12 W54	E	
						N12 W04	0	0	0		N12 W04	Q	
						S08 E12	0	0	0		S08 E12	Q	
						N27 E19	0	0	0		N27 E19	E	
						N15 E02	4	0	0		N15 E02	E	
						S06 E55	2	0	0		S06 E55	E	
						N11 E52	0	0	0		N11 E52	Q	
						S40 W42	0	0	0		S40 W42	Q	
116	26	25	209	193	028	S12 W80	2	0	0	26	S12 W80	E	Solnil, Magnil.
						N34 W80	5	0	0		N34 W80	E	
						N22 W73	0	0	0		N22 W73	Q	
						S18 W58	0	0	0		S18 W58	Q	
						S12 W68	0	0	0		S12 W68	E	
						N12 W16	1	0	0		N12 W16	Q	
						S08 W01	0	0	0		S08 W01	Q	
						N27 E06	0	0	0		N27 E06	Q	
						N15 W12	4	0	0		N15 W12	E	
						S06 E42	0	0	0		S06 E42	E	
						N11 E38	1	0	0		N11 E38	Q	
						S40 W54	0	0	0		S40 W54	Q	
117	27	26	214	187	015	S12 W92	0	0	0	27	S12 W92	E	Solquiet, Magquiet.
						N34 W93	2	0	0		N34 W93	E	
						N21 W83	8	0	0		N21 W83	E	
						S18 W71	0	0	0		S18 W71	Q	
						S12 W82	0	0	0		S12 W82	Q	
						N12 W29	0	0	0		N12 W29	Q	
						S08 W17	0	0	0		S08 W17	Q	
						N27 W06	0	0	0		N27 W06	Q	
						N15 W25	1	0	0		N15 W25	E	
						S06 E28	1	0	0		S06 E28	E	
						N11 E26	0	0	0		N11 E26	Q	
						S41 W65	0	0	0		S41 W65	Q	
						S20 W22	2	0	0		S20 W22	Q	
						S19 W06	0	0	0		S19 W06	Q	

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Summary of the Geoalert Messages — APRIL 1990

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast [1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
118	28	27	176	167	016	S19 W85	0	0	0	28	W19 W85	Q	Solquiet, Magquiet.
						S13 W93	0	0	0		S13 W93	Q	
						S08 W26	0	0	0		S08 W26	Q	
						N26 W18	2	0	0		N26 W18	E	
						N16 W38	2	0	0		N16 W38	E	
						S06 E15	0	0	0		S06 E15	Q	
						N11 E14	0	0	0		N11 E14	Q	
						S19 W35	7	0	0		S19 W35	E	
						S18 W20	0	0	0		S18 W20	Q	
						N03 W27	2	0	0		N03 W27	Q	
						N19 E64	0	0	0		N19 E64	Q	
119	29	28	121	148	018	N27 W31	0	0	0	29	N27 W31	Q	Solquiet,
						N17 W51	4	0	0		N17 W51	E	Magalert 29/XX.
						S05 E02	1	0	0		S05 E02	Q	
						N12 E03	0	0	0		N12 E03	Q	
						S19 W48	4	0	0		S19 W48	E	
						S18 W34	0	0	0		S18 W34	Q	
						N20 E52	0	0	0		N20 E52	Q	
		Presto:	Boulder	Proton event began 28/1005 UT, maximum of 150 particles/cm²-s-ster at greater than 10 MeV 28/1735 UT.									
120	30	29	144	138	026	S08 W55	0	0	0	30	S08 W55	Q	Solquiet,
						N28 W45	0	0	0		N29 W45	Q	Magalert 30/30.
						N18 W64	0	0	0		N18 W64	Q	
						S04 W13	0	0	0		S04 W13	Q	
						N13 W11	0	0	0		N13 W11	Q	
						S19 W62	4	0	0		S19 W62	E	
						S18 W48	0	0	0		S18 W48	Q	
						N20 E39	1	0	0		N20 E39	Q	
						S10 E54	1	0	0		S10 E54	Q	
						N24 E27	0	0	0		N24 E27	Q	
121	01	30	121	133	017	N27 W54	0	0	0	01	N27 W54	Q	Solquiet, Magnil.
						N17 W77	1	0	0		N17 W77	Q	
						S04 W26	0	0	0		S04 W26	Q	
						N14 W26	0	0	0		S04 W26	Q	
						S19 W73	1	0	0		S19 W73	E	
						S17 W61	0	0	0		S17 W61	Q	
						N20 E26	1	0	0		N20 E26	Q	
						S09 E40	0	0	0		S09 E40	Q	
						S15 E74	0	0	0		S15 E74	Q	

[1] Q = quiet, E = eruptive, A = active, P = proton.

[2] Presto message is a rapid report of a major event.

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

Day	May 89	Jun	Jul	Aug	Sep	Oct†	Nov†	Dec†	Jan 90†	Feb†	Mar†	Apr†
01	93	136	128	171	147	129	153	198	186	171	165	100
02	94	148	149	196	171	143	160	196	166	161	164	114
03	85	158	129	193	180	159	191	203	166	124	163	113
04	97	157	120	213	204	186	216	182	174	119	126	127
05	85	171	101	227	212	209	228	192	164	97	98	132
06	105	145	120	220	230	189	236	177	144	80	104	138
07	134	130	149	215	267	168	233	217	129	82	105	128
08	149	143	141	218	261	166	204	167	138	95	88	116
09	137	168	116	218	296	187	214	161	125	103	71	88
10	123	192	104	200	270	178	203	138	134	79	80	77
11	120	203	136	202	280	191	173	104	164	75	77	83
12	115	218	111	188	264	154	173	105	172	80	85	77
13	129	253	116	207	248	148	153	113	179	85	83	123
14	123	251	116	197	215	159	140	100	147	75	90	142
15	148	264	92	203	207	189	132	77	157	78	110	171
16	154	265	91	177	180	209	124	106	152	64	129	170
17	161	233	99	192	159	206	124	126	174	57	123	190
18	177	216	113	189	155	184	134	108	177	77	173	203
19	191	235	138	202	152	159	124	131	199	107	202	213
20	195	232	149	209	137	140	141	127	236	134	217	206
21	168	187	170	203	111	152	170	111	217	159	211	212
22	156	174	197	160	109	158	162	157	208	191	195	214
23	180	196	195	133	103	145	157	189	219	239	206	174
24	196	215	168	129	75	131	160	183	191	249	230	157
25	173	227	132	105	80	121	175	190	228	245	186	160
26	157	237	111	82	93	109	184	208	227	213	198	118
27	163	206	99	57	101	97	183	240	211	200	168	124
28	130	187	75	50	111	116	183	249	193	156	129	103
29	121	182	112	70	134	131	179	213	185		132	94
30	122	156	125	94	150	156	182	264	198		133	126
31	111		132	116		144		186	201		123	
Mean	138.5	196.2	126.9	168.9	176.7	158.5	173.0	165.1	179.4	128.4	140.8	139.8

† = preliminary. The preliminary yearly mean sunspot number equaled 157.7 for 1989.

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

Day	May 89	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 90	Feb	Mar	Apr
01	180.5	191.6*	204.0	198.5	223.8	198.4	211.4	223.7*	209.3	200.8	200.0	159.2
02	184.5*	208.2*	193.4	201.7	233.3	208.5	216.0	213.7	208.6	177.8	192.7	153.3
03	190.6	203.3*	192.5*	220.2	243.0*	222.4	217.6	205.6	192.5	157.9	176.3*	151.6
04	198.2	221.3*	189.8	225.7	245.0	234.1	223.9	212.9	189.2*	154.8	168.9	148.6*
05	193.7	213.2*	183.4*	241.5	273.3	223.2	235.4	209.7	187.1	150.9	161.7	156.5
06	195.9*	212.2*	192.3	240.3	288.4	220.5	255.3	209.7	180.9	147.5	163.8*	150.2
07	200.6	205.3	193.5	240.6	303.4	225.7	207.3*	221.5	177.1	144.3	168.1	155.0
08	212.4	222.9	188.9	233.6	302.1	210.1	270.9	203.6	170.9	142.2	157.1*	152.3
09	205.1*	241.9	188.1	233.9*	311.5	201.9	257.2	194.6	160.6	142.0	150.9*	146.8
10	208.7	250.9*	184.1	232.6	303.3	195.5	246.3*	177.1	167.2	148.5	149.0	149.3
11	198.9	270.3	193.2	243.6	299.3	191.5	249.1	171.7	169.5	134.9	142.5	160.8
12	197.2	285.8*	190.7	256.1*	292.2	203.2	253.5	164.9	170.0	140.0	146.1	169.9
13	197.5	319.2	184.0*	263.9	249.3	224.2	240.3	163.2	167.0	142.8	146.3	195.5*
14	193.1*	327.2	183.9	271.3	244.9	225.9	243.0	161.8	165.9	149.5	149.8*	215.7
15	195.8	334.7*	185.7	281.7	226.0	225.4	216.5	165.5	184.9	148.8	164.2*	222.9
16	188.6	320.9*	183.9	259.8	233.7	237.0	216.2	164.1	187.6	148.8	178.1	226.3*
17	187.0	303.7*	184.1	262.9	216.2	225.3	215.0	176.0	186.8	151.6	182.0	236.7*
18	184.9	271.5	189.2	265.0	208.6	221.3*	221.6J	185.9	217.2	161.1	196.4	243.0
19	188.6	270.6	193.7	249.1	197.0*	214.7J	229.2	188.2	233.1	180.3	216.3	244.2*
20	203.1	249.3*	192.4	236.4	173.1	205.4	223.7	189.3	238.2	189.5	223.9*	257.1
21	211.9*	242.8	195.0	225.7	161.8	206.2	229.4	189.9	250.8*	211.9	227.6	239.6
22	203.9	233.1	200.9	205.4	159.3	217.8	222.0	199.9	233.7	215.7	243.1*	232.8
23	212.2	238.7	196.5	191.3	157.5	210.4	213.4	213.8	233.6	216.6	245.3	226.3
24	210.0	227.6	191.1	182.0	157.0	214.2	208.8	231.0	239.8	231.5	231.3	217.4
25	194.6*	221.6	180.4	159.7	166.8	183.3*	216.0	248.0*	234.6	225.3	223.9*	198.3
26	188.0	233.0	169.8	161.0	182.2*	171.7	234.3	252.6	238.8	213.3	226.9	188.9*
27	176.6	227.5	172.8	159.6	199.4	176.9	239.4	274.8	232.2	224.1	215.1	169.8
28	173.5	227.4	170.7	174.1	194.3	173.0	231.3	246.4	230.1	222.0	206.0	152.7
29	173.6	223.0	180.9	180.3*	204.7*	172.0	215.1	242.7*	227.8		184.1	140.9
30	183.0	217.4	185.1	192.0*	202.0	186.3	240.9	258.2*	211.4		186.5E	136.9
31	194.2		188.2	208.9*		202.0*		236.7	209.3		172.8	
Mean	194.4	247.2	187.8	222.5	228.4	207.4	230.0	206.3	203.4	174.1	187.0	186.6

* = corrected for burst in progress; E = corrected for snow on antenna; J = no calibration due to burst

DAILY SOLAR INDICES

April 1990

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers Int	Amer	Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit — PALE (15400)	PALE (8800)	PALE (4995)	Ottawa (2800)	PALE (2695)	PALE (1415)	PALE (610)	PALE (410)	PALE (245)
01	91	9	100	107	159.4	548	291	212	159.2	157	110	65	36	20
02	92	10	114	114	153.4	544	285	207	153.3	154	102	64	34	22
03	93	11	113	118	151.7	533	285	207	151.6	148	98	60	33	24
04	94	12	127	129	148.5*	542	284	207	148.6*	149	101	63	34	20
05	95	13	132	131	156.3	550	283	205	156.5	153	112	69	38	26
06	96	14	138	133	149.9	550	289	202	150.2	155	117	63	33	20
07	97	15	128	132	154.7	545	273	198	155.0	145	97	62	32	22
08	98	16	116	110	151.9	535	276	192	152.3	144	98	59	33	22
09	99	17	88	98	146.3	538	266	181	146.8	138	90	59	33	29
10	100	18	77	85	148.7	545	279	196	149.3	150	99	73	44	24
11	101	19	83	93	160.1	562	292	214	160.8	158	103	74	47	38
12	102	20	77	93	169.1	579	273	214	169.9	163	112	77	45	20
13	103	21	123	123	194.4*	567	302	238	195.5*	182	118	79	48	16
14	104	22	142	152	214.4	586	330	271	215.7	218	137	79	50	30
15	105	23	171	166	221.4	583	329	268	222.9	218	143	85	46	19
16	106	24	170	184	224.6*	565	318	252	226.3*	209	157	89	53	30
17	107	25	190	224	234.9*	589	361	296	236.7*	237	161	95	52	23
18	108	26	203	218	240.9	588	357	294	243.0	235	182	91	48	21
19	109	27	213	215	242.0*	584	358	291	244.2*	237	---	93	51	22
20	110	1	206	215	254.7	587	354	292	257.1	241	160	94	48	19
21	111	2	212	209	237.2	596	347	282	239.6	235	224	94	48	22
22	112	3	214	196	230.4	579	323	260	232.8	217	160	90	50	22
23	113	4	174	189	223.7	578	327	259	226.3	211	156	90	49	21
24	114	5	157	171	214.9	545	294	247	217.4	200	127	85	44	17
25	115	6	160	155	195.8	556	272	225	198.3	184	152	84	45	17
26	116	7	118	152	186.5*	---	---	---	188.9*	---	---	--	--	--
27	117	8	124	128	167.6	538	292	214	169.8	162	136	88	43	18
28	118	9	103	97	150.6	510	276	189	152.7	144	122	74	42	21
29	119	10	94	99	138.9	524	276	186	140.9	139	---	72	40	19
30	120	11	126	92	134.8	535	273	180	136.9	129	88	80	39	17
Mean			139.8	144.3	185.3	539	302	230	186.6	180	128	78	43	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 Palehua (PALE) 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	138
1989	142	145	150	153	157	158	158	158	157	157	160	162
											(3)	(7)
1990	163	164	163	160	157	154	152	150	145	140	135	132
	(10)	(14)	(17)	(19)	(19)	(17)	(19)	(23)	(25)	(26)	(25)	(23)
1991	131	129	126	126	126	124	122	118	115	114	115	115
	(24)	(24)	(26)	(30)	(31)	(28)	(25)	(22)	(19)	(17)	(18)	(19)

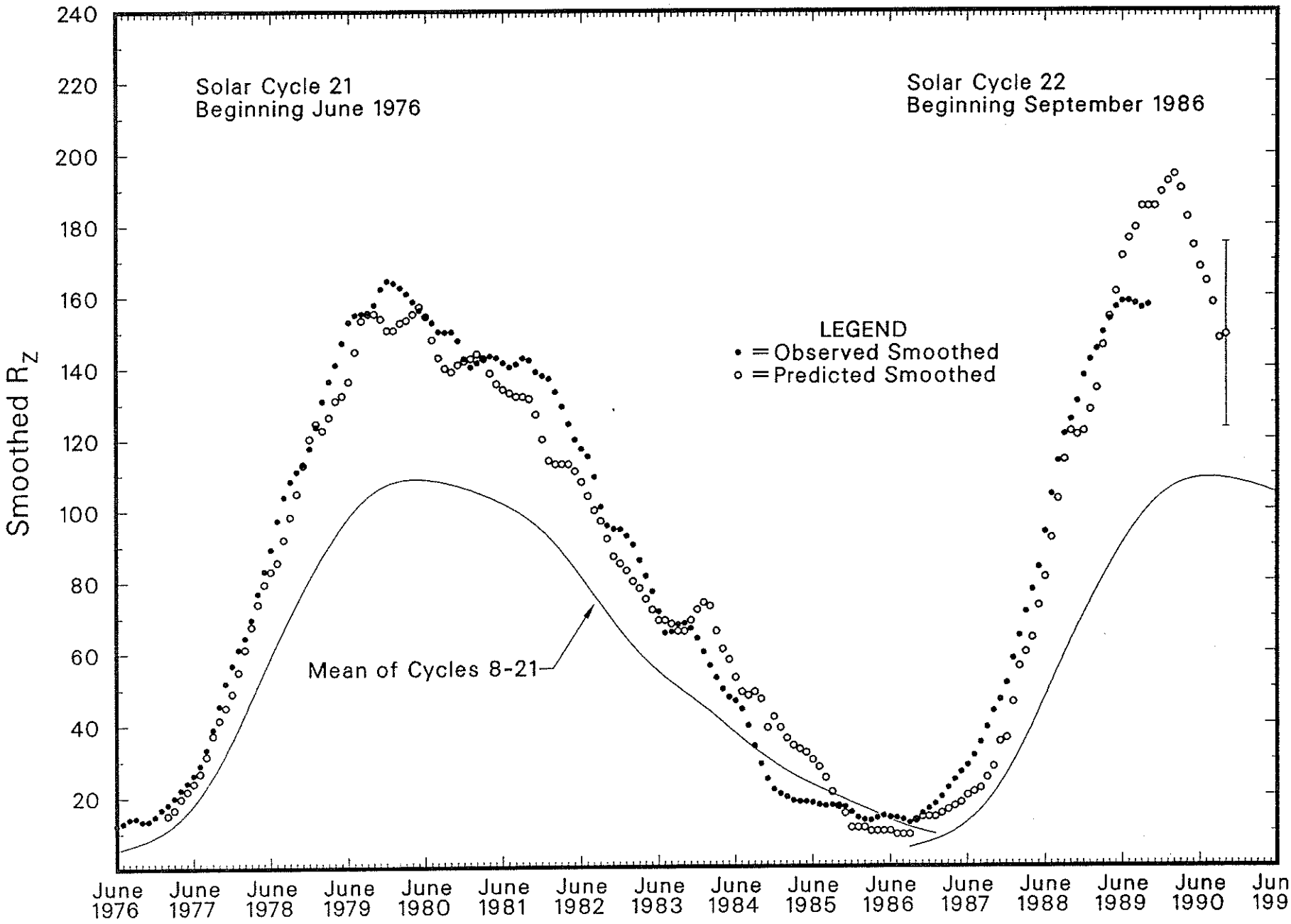
*September 1986 marks the onset of Sunspot Cycle 22.

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 September 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 October 1990 prediction. There exists a 90% chance that in October 1990 the actual smoothed sunspot number will fall somewhere between 114 and 166.

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.

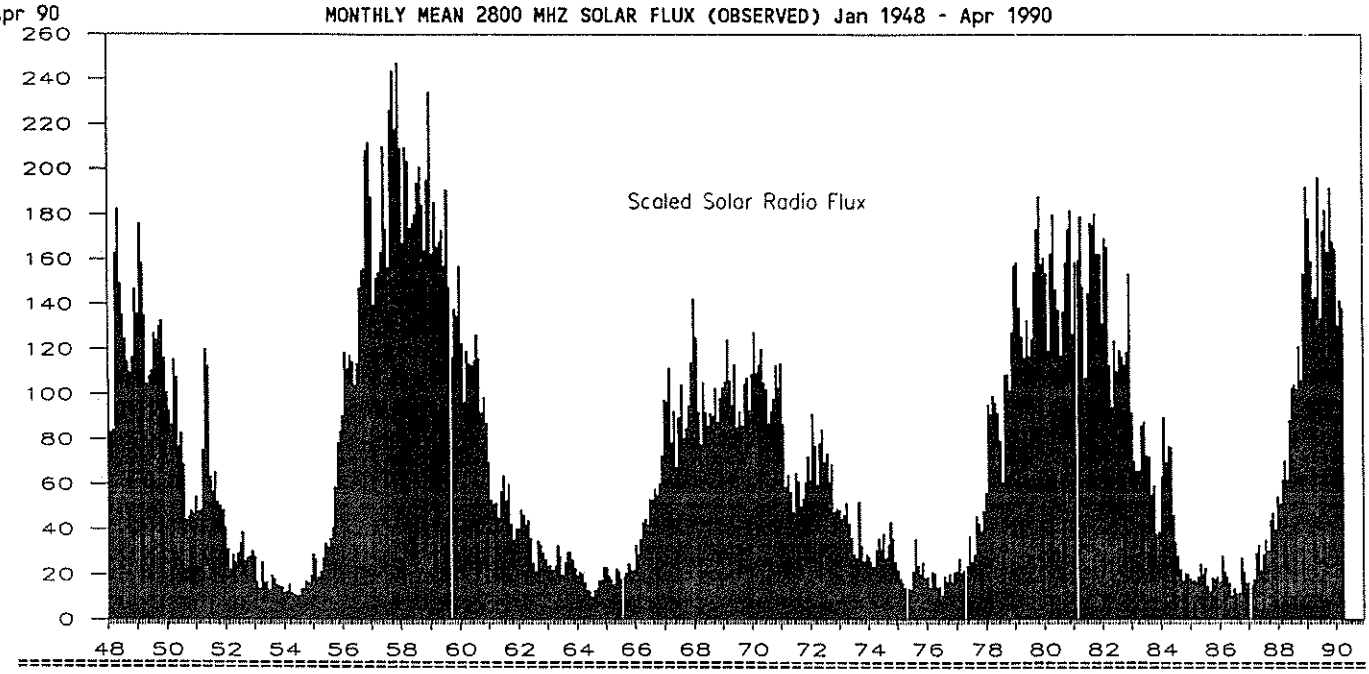
OBSERVED AND ONE-YEAR-AHEAD PREDICTED SUNSPOT NUMBERS



29 Apr 90

30
Apr 90

MONTHLY MEAN 2800 MHZ SOLAR FLUX (OBSERVED) Jan 1948 - Apr 1990



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1948	155.7	134.3	135.5	208.1	226.5	195.5	182.8	172.8	163.7	159.1	165.4	193.3	174.4
1949	183.5	220.2	203.9	182.5	154.9	157.5	159.9	175.2	172.5	178.2	180.4	165.2	177.8
1950	150.7	143.3	137.8	164.3	157.1	128.7	134.1	120.9	98.6	99.9	101.9	101.1	128.2
1951	107.9	101.9	102.5	127.1	168.6	161.7	116.3	109.8	117.8	106.0	104.4	102.4	118.9
1952	95.4	86.2	78.5	84.0	80.9	84.8	88.8	93.3	81.5	82.8	83.4	85.7	85.4
1953	83.2	72.8	70.4	81.0	72.5	73.0	69.8	75.5	74.3	71.9	71.4	70.8	73.9
1954	68.7	69.2	71.9	68.7	68.0	67.3	67.7	69.9	70.1	73.2	72.6	75.5	70.2
1955	84.3	82.0	74.8	77.3	82.8	88.8	87.3	90.7	91.1	111.8	130.0	134.6	95.0
1956	141.2	167.2	160.6	165.9	163.4	154.0	162.8	193.8	200.9	201.6	250.4	253.7	184.6
1957	231.2	186.7	197.8	200.0	208.5	252.1	218.0	202.3	267.1	283.1	259.2	286.5	232.7
1958	251.5	212.2	251.5	245.9	218.6	220.5	224.1	237.0	243.5	228.0	209.2	238.2	231.7
1959	274.5	207.9	229.2	210.6	212.7	217.5	203.0	234.2	194.3	165.1	184.8	182.2	209.7
1960	202.6	170.9	146.8	167.6	162.7	161.9	163.9	174.4	164.5	142.3	148.9	138.1	162.0
1961	122.0	106.4	104.8	105.0	99.3	109.9	116.5	106.2	112.7	96.7	90.3	94.8	105.4
1962	94.9	102.2	100.3	96.2	97.9	91.0	80.7	77.3	89.5	87.8	84.9	82.0	90.4
1963	79.5	79.7	77.8	79.5	87.8	83.5	75.9	80.9	85.1	85.1	81.7	78.4	81.2
1964	75.4	76.8	75.9	72.6	69.5	69.0	67.0	69.3	70.2	73.4	73.7	78.8	72.6
1965	78.6	75.2	74.1	72.0	78.2	77.0	74.3	74.8	76.6	80.2	77.7	77.8	76.4
1966	87.9	84.2	90.3	97.2	98.5	96.3	106.7	106.6	110.9	108.6	113.3	124.6	102.1
1967	147.7	147.0	160.6	129.9	143.0	120.2	140.3	153.7	132.1	136.1	145.3	163.0	143.2
1968	189.1	173.2	142.6	129.5	154.9	142.3	137.2	142.2	141.0	152.5	138.5	148.4	149.3
1969	152.7	155.2	172.3	155.5	145.4	162.2	136.6	143.0	137.3	154.0	156.7	143.6	151.2
1970	158.3	175.4	158.4	162.0	168.4	154.9	152.0	138.2	143.2	148.3	162.0	152.8	156.2
1971	162.6	137.8	111.9	116.7	109.9	101.7	117.4	114.1	104.0	107.2	114.0	124.5	118.5
1972	114.8	141.8	128.5	112.9	129.6	135.4	122.0	125.7	113.6	121.1	101.6	102.9	120.8
1973	102.2	98.7	100.4	105.0	97.0	91.2	84.5	82.9	105.6	87.7	81.5	84.2	93.4
1974	83.1	80.9	79.2	86.1	90.6	86.3	92.5	83.0	87.8	97.6	90.3	81.1	86.5
1975	77.5	74.2	72.4	70.7	70.1	69.7	77.2	90.4	79.6	75.7	80.8	74.6	76.1
1976	74.7	70.5	76.7	76.3	70.6	70.6	67.5	74.8	73.1	75.9	72.9	76.7	73.4
1977	77.4	82.3	76.6	77.6	79.6	91.5	81.1	84.3	99.9	96.9	93.7	102.1	86.9
1978	109.6	145.4	141.8	149.4	146.5	142.2	131.1	114.0	157.9	158.2	151.5	175.5	143.6
1979	203.0	204.1	185.8	173.8	165.2	180.3	165.9	172.7	200.2	217.9	231.7	203.5	192.0
1980	206.2	200.0	168.1	207.9	224.0	193.2	184.8	166.2	183.9	204.2	218.1	225.8	198.5
1981	174.6	204.5	205.3	223.2	194.6	156.9	191.9	220.6	219.5	224.3	207.8	207.8	202.6
1982	179.0	214.2	210.5	161.8	144.7	171.9	159.6	167.9	165.3	161.9	167.4	199.4	175.3
1983	142.3	122.6	118.6	118.9	137.1	138.6	125.0	124.4	109.0	112.4	92.5	93.4	119.6
1984	116.1	140.6	122.0	128.7	128.3	100.3	89.3	83.7	78.1	73.5	76.3	75.9	101.1
1985	74.5	73.7	73.3	75.1	80.2	76.1	78.7	71.5	69.5	74.7	74.2	74.8	74.7
1986	73.2	83.6	77.0	75.1	72.6	67.6	70.2	68.4	68.7	83.0	77.1	72.6	74.1
1987	72.5	71.5	74.0	84.9	87.8	77.9	84.2	90.0	86.1	98.1	101.2	94.4	85.3
1988	108.0	105.0	114.9	122.7	115.2	139.4	152.7	154.2	152.5	169.8	156.2	199.8	141.0
1989	235.4	222.4	205.1	189.6	190.1	239.6	181.9	217.1	225.9	208.7	235.1	213.0	231.7
1990	210.1	178.3	188.8	185.3									190.6*

*Preliminary Graph shows EFFECTIVE sunspot numbers--fluxes scaled by linear regression equation (1.08Flux - 62).

Hα SOLAR FLARES

APRIL 1990

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	01	0416	0417	0423	N19	W52	6000	03	28.3	7	SF		3	E		16		
SVTO		0555	0602	0614	S17	W90	5987	03	25.5	19	SF	M 4.1	2	E		80		Y
GOES	02	0441E	0443	0450D						9D		C 1.5						
SVTO		1100E	1102U	1121D	S17	W47	5998	03	30.0	21D	SF		3	E		26		F
RAMY		1107	1111	1131	S17	W47	5998	03	30.0	24	SF		3	E		33		F
RAMY		1113	1116	1144	N23	E39	6001	04	5.5	31	SF	C 1.3	3	E		29		
RAMY		1341	1341	1355	N21	E42	6001	04	5.8	14	SF	C 2.2	3	E		20		F
RAMY		1536	1540	1544	N21	W76	6000	03	27.9	8	SF		3	E		18		
RAMY		1610	1611	1615	N21	E42	6001	04	5.9	5	SF		3	E		17		
RAMY		1704	1706	1739	N21	E39	6001	04	5.7	35	1N	M 1.8	3	E		122		FE
PALE		1705E	1707U	1742	N21	E38	6001	04	5.6	37D	1N		3	E		103		FE
RAMY		1915	1928U	2000D	N21	E38	6001	04	5.7	45D	SF	C 1.3	3	E		63		F
PALE		1929E	1929U	1959D	N22	E43	6001	04	6.1	30D	SF		3	E		29		F
GOES		2036	2043	2048						12		C 1.3						
HOLL		2111	2113	2119	S09	E20	5999	04	4.4	8	SF		2	E		18		F
HOLL		2248E	2251U	2306	N21	E37	6001	04	5.8	18D	1N		2	E		117		E
PALE		2251E	2251U	2256D	N22	E42	6001	04	6.2	5D	SF	C 3.1	3	E		81		F
LEAR		2251E	2251U	2259	N21	E36	6001	04	5.7	8D	SF		2	E		92		F
HOLL	03	0027	0032	0039	S16	W55	5998	03	29.9	12	SF		3	E		33		F
GOES		0139	0149	0207						28		M 1.0						
LEAR		0235	0237	0248	N23	E35	6001	04	5.8	13	SF	C 5.1	3	E		13		F
GOES		0501	0523	0553						52		C 4.5						
LEAR		0705	0723	0825	N22	E32	6001	04	5.7	80	SF	C 7.9	3	E		98		
GOES		0816	0842	0945						89		M 7.3						
RAMY		1305	1314	1323	N23	E88		04	10.3	18	SN		3	E		31		Y
SVTO		1308E	1316	1324	N24	E90		04	10.5	16D	SF	C 2.1	3	E		58		Y
HOLL		1310E	1310U	1448D	N22	E90		04	10.5	98D	SF		2	E		31		
SVTO		1405	1410	1416	N25	E90		04	10.5	11	SF		3	E		29		
HOLL		1410E	1410U	1448D	N22	E90		04	10.5	38D	SF		2	E		31		
SVTO		1422	1424	1432	N25	E90		04	10.6	10	SN	C 3.0	3	E		75		
HOLL		1515	1517	1528	N23	E80		04	9.8	13	SF	C 2.1	3	E		15		
HOLL		1548	1550	1634	N23	E81	6007	04	9.9	46	SN	C 4.5	3	E		48		
HOLL		1548	1559	1634	N23	E81	6007			46	SN			E		39		K
HOLL		1705	1716	1818	N23	E82	6007			73	SF			E		88		K
HOLL		1705	1722	1818	N23	E82	6007	04	10.0	73	1N	X 1.0	3	E		103		YE
RAMY		1707	1715	1753	N22	E79	6007			46	SF			E		44		K
RAMY		1707	1722	1753	N22	E79	6007	04	9.8	46	SN		3	E		46		Y
PALE		1709	1712	1733	N25	E87	6007			24	SF			E		34		K
PALE		1709	1722	1733	N25	E87	6007	04	10.4	24	SF		3	E		89		
HOLL		1910E	1910U	1948D	N22	E90		04	10.7	38D	SF		2	E		31		
RAMY		2033	2035	2042	N22	E76	6007	04	9.7	9	SF		3	E		37		
HOLL		2033	2035	2055	N24	E82	6007	04	10.2	22	SF	C 2.9	4	E		60		
HOLL		2145	2149	2206	N22	E23	6001	04	5.7	21	SF		4	E		39		F
HOLL		2146	2153	2212	N23	E80	6007	04	10.1	26	1B	C 4.5	4	E		108		
HOLL		2307	2331	2339	N23	E81	6007	04	10.2	32	SF	C 3.4	3	E		35		
LEAR		2330	2330	2339	N25	E87	6007	04	10.7	9	SF		3	E		27		
LEAR	04	0038	0041	0047	N25	E87	6007	04	10.8	9	SF	C 3.7	3	E		53		
LEAR		0114	0127	0140	N19	E22	6001	04	5.7	26	SF	C 1.7	3	E		44		
LEAR		0144	0146	0200	N23	E76	6007	04	9.9	16	SF	C 8.3	3	E		45		
LEAR		0204	0209	0212	N23	E76	6007	04	9.9	8	SF		3	E		26		
LEAR		0317	0317	0342	N22	E21	6001	04	5.7	25	SF	C 2.9	3	E		38		
LEAR		0523	0527	0531	N24	E81	6007	04	10.5	8	SF		3	E		26		
GOES		0615	0618	0620						5		C 1.4						
LEAR		0742	0743	0800	N20	E19	6001	04	5.8	18	SF	C 1.9	3	E		41		F
GOES		0908	0911	0915						7		C 2.4						
GOES		1020	1024	1026						6		C 1.2						
RAMY		1054E	1121	1133	N21	E71	6007	04	9.9	39D	SF		2	E		24		
RAMY		1315	1318U	1521D	N22	E72	6007	04	10.1	126D	SF	M 7.1	3	E		31		
HOLL		1316E	1320U	1425	N24	E74	6007	04	10.3	69D	SB		2	E		68		YF
SVTO		1325E	1330U	1444D	N24	E71	6007	04	10.0	79D	1B		2	E		156		YF
HOLL		1649	1700	1737	N21	E13	6001	04	5.7	48	SF	C 1.7	4	E		86		FE
HOLL		1649	1713	1737	N21	E13	6001			48	1F			E		125		K
PALE		1658	1714	1730	N24	E12	6001	04	5.6	32	SF		3	E		30		U
RAMY		1659	1712	1733	N20	E13	6001	04	5.7	34	SF		3	E		59		F
HOLL		1706	1708	1718	S07	W03	5999	04	4.5	12	SF		4	E		39		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	04	1725	1727	1740	N30	W08	6006	04	4.1	15	SF		4	E		16		F
PALE		1727	1727	1734	N31	W10	6006	04	3.9	7	SF		3	E		11		F
RAMY		1727	1728	1737	N29	W07	6006	04	4.2	10	SF		3	E		18		F
HOLL		1743	1750	1800	N31	W08	6006	04	4.1	17	SF		3	E		16		
RAMY		1745	1747	1754	N30	W07	6006	04	4.2	9	SF		3	E		11		F
HOLL		1827	1828	1835	N22	E11	6001	04	5.6	8	SF		3	E		13		
HOLL		2043E	2043U	2051	S15	W77	5998	03	30.1	8D	SF	C 1.6	3	E		49		
GOES		2300	2309	2323						23		C 1.1						
HOLL		2324	2325	2331	N22	E72	6007	04	10.5	7	SF	C 1.6	3	E		22		
HOLL		2327	2335	2354	N22	E10	6001	04	5.7	27	SF		3	E		25		F
HOLL	05	0003	0006	0020	N30	W11	6006	04	4.1	17	SF		3	E		25		F
LEAR		0058	0101	0120	N21	E10	6001	04	5.8	22	SF	C 5.0	3	E		64		
GOES		0319	0323	0328						9		B 9.4						
SVTO		0547	0553	0621	S42	E90		04	12.6	34	SF		3	E		40		
LEAR		0728	0729	0735	N31	W15	6006	04	4.1	7	SF	C 1.0	3	E		21		
SVTO		0730	0757	0813	N28	W74	5995	03	30.6	43	SF		4	E		20		H
LEAR		0807	0808	0820	N31	W15	6006	04	4.1	13	SF		3	E		70		
SVTO		0807	0809	0818	N31	W16	6006	04	4.1	11	SN	C 1.9	4	E		79		
GOES		1026	1031	1036						10		C 1.7						
RAMY		1104	1104	1120	N31	W17	6006	04	4.1	16	SF	C 4.4	3	E		34		F
HOLL		1335	1345	1435	N23	E62	6007	04	10.3	60	1N	M 3.2	3	E		236		FE
RAMY		1336	1345	1422	N24	E63	6007	04	10.4	46	1N		3	E		155		F
HOLL		1338	1339	1349	N20	E03	6001	04	5.8	11	SF		3	E		30		F
SVTO		1403E	1403U	1427	N22	E59	6007	04	10.1	24D	SF		2	E		88		F
HOLL		1835	1836	1840	N20	W01	6001	04	5.7	5	SF		3	E		15		
RAMY		1948	1955	2003	S42	E77	6009	04	12.1	15	SF		3	E		17		
RAMY		2017	2023	2041	N22	W03	6001	04	5.6	24	SF		3	E		38		
RAMY		2029	2034	2046	N23	E58	6007	04	10.3	17	SF		3	E		15		
LEAR	06	0406	0412	0421	N20	W06	6001	04	5.7	15	SF		3	E		20		
GOES		0610	0628	0820						130		C 3.2						
LEAR		0749	0757	0804	N23	E51	6007	04	10.2	15	SF		3	E		10		F
LEAR		0759	0807	0824	N29	W29	6006	04	4.0	25	SF		3	E		15		
LEAR		0807	0808	0825	N23	E51	6007	04	10.3	18	SF		3	E		16		
LEAR		0921	0922	0925	N20	W06	6001	04	5.9	4	SF		3	E		27		
GOES		1130	1135	1137						7		C 1.7						
RAMY		1350	1356	1417	N30	W30	6006	04	4.2	27	SF		3	E		21		F
RAMY		1738	1741	1750	N30	W34	6006	04	4.1	12	SF		3	E		12		
HOLL		1740	1745	1747	N30	W34	6006	04	4.1	7	SF		3	E		18		F
HOLL		1815	1815	1818	N24	E47	6007	04	10.4	3	SF		3	E		19		
HOLL		2027	2028	2035	N19	W12	6001	04	5.9	8	SF		3	E		20		
RAMY		2028	2030	2033	N21	W14	6001	04	5.8	5	SF		3	E		15		F
HOLL		2130	2135	2151	N29	W37	6006	04	4.0	21	SF		3	E		30		
GOES	07	0917	0951	1039						82		C 1.8						
SVTO		1511	1532	1620	N32	E62	6012	04	12.5	69	1N	C 9.5	3	E		120		F
RAMY		1512	1524	1615	N30	E62	6012	04	12.5	63	SF		3	E		66		FH
HOLL		1553E	1553U	1620D	N32	E62	6012	04	12.6	27D	SF		2	E		70		
RAMY		1738	1742	1748	N31	W45	6006	04	4.2	10	SF		3	E		28		
GOES		2118	2123	2135						17		C 1.2						
LEAR	08	0012	0017	0020	N31	W49	6006	04	4.1	8	SF		3	E		28		
LEAR		0344	0402	0514	N24	E29	6007	04	10.4	90	2N	M 1.5	3	E		318		UF
LEAR		0344	0441	0514	N24	E29	6007			90	1N			E		155		K
SVTO		0547	0549	0556	N21	W31	6001	04	5.9	9	SF		3	E		81		F
LEAR		0655	0657	0740	N23	W33	6001	04	5.7	45	SF	C 2.5	3	E		16		F
SVTO		0700E	0700U	0723D	N21	E41	6001	04	11.4	23D	SF		3	E		44		F
LEAR		0731	0735	0755	N23	E31	6007	04	10.7	24	SF		3	E		20		F
LEAR		0827	0839	0903	N22	W33	6001	04	5.8	36	SF	C 2.7	3	E		29		F
SVTO		0841E	0841U	0902D	N21	W31	6001	04	6.0	21D	SB		3	E		52		F
HOLL		1310E	1314U	1325D	N21	W34	6001	04	5.9	15D	SB		2	E		53		F
RAMY		1310	1314	1358	N20	W36	6001	04	5.8	48	1N	C 5.3	3	E		145		F
SVTO		1312	1314	1350	N19	W37	6001	04	5.7	38	1N		3	E		132		F
HOLL		1702	1705	1716	S20	W24	6005	04	6.9	14	SF		3	E		16		
GOES		2155	2200	2204						9		C 1.0						
GOES	09	0827	0841	0847						20		C 1.2						

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	09	1102	1109	1124	N19	W48	6001	04	5.8	22	SF	B 9.2	3	E		53		F
HOLL		1452	1456	1527	N30	E35	6012	04	12.4	35	SF		3	E		19		F
RAMY		1456	1457	1516	N30	E35	6012	04	12.4	20	SF		3	E		13		
HOLL		1654	1700	1712	N30	E35	6012	04	12.4	18	SF		3	E		27		F
RAMY		1657	1659	1706	N29	E36	6012	04	12.5	9	SF		3	E		11		
HOLL		1922	1922	1939	N29	E32	6012	04	12.3	17	SF		3	E		15		
RAMY		2021	2024	2040	N21	W55	6001	04	5.6	19	SF		3	E		21		H
HOLL		2023	2027	2041	N20	W54	6001	04	5.7	18	SF		3	E		37		F
RAMY		2034	2035	2051	S23	W40	6003	04	6.8	17	SF		3	E		54		F
HOLL		2100	2105	2128	N20	W54	6001	04	5.7	28	SF		3	E		92		F
RAMY		2105	2105	2126	N21	W55	6001	04	5.7	21	SF	C 1.8	3	E		49		
GOES	10	0850	0908	0925						35		C 6.1						
RAMY		1144	1150	1316	N24	W04	6007	04	10.2	92	1N	M 1.1	3	E		174		
HOLL		1325	1329	1334	N23	W06	6007	04	10.1	9	SF		2	E		26		F
RAMY		1543	1544	1552	N30	W82	6006	04	4.2	9	SF		3	E		31		
HOLL		1730	1731	1742	N21	W66	6001	04	5.7	12	SF		3	E		16		
HOLL		1836	1837	1842	N19	W67	6001	04	5.7	6	SF		3	E		26		
HOLL		2012	2017	2035	N25	W07	6007	04	10.3	23	SF		3	E		61		F
RAMY		2014	2017	2033	N26	W07	6007	04	10.3	19	SF		3	E		28		F
RAMY	11	1056	1122	1147	N21	E26	6017	04	13.4	51	SF		3	E		35		F
RAMY		1220	1229	1242	N22	E25	6017	04	13.4	22	SF		3	E		24		F
HOLL		1441	1446	1457	N22	E23	6017	04	13.4	16	SF		3	E		32		F
RAMY		1444	1448	1451	N22	E24	6017	04	13.4	7	SF		3	E		23		F
HOLL		1550	1555	1616	N22	E22	6017	04	13.3	26	SF	C 2.1	3	E		69		F
HOLL		1550	1602	1616	N22	E22	6017			26	SF			E		57		K
SVTO		1605E	1606U	1617D	N24	E22	6017	04	13.4	12D	SF		2	E		35		F
RAMY		1628	1628	1635	N22	E24	6017	04	13.5	7	SF	C 1.9	3	E		16		F
RAMY		1642	1642	1654	N22	E23	6017	04	13.5	12	SF		3	E		15		
RAMY		1713	1714	1718	N22	E23	6017	04	13.5	5	SF		3	E		16		F
GOES		1720	1728	1747						27		C 3.1						
HOLL		2352E	2354U	2358	N22	E18	6017	04	13.4	6D	SF		2	E		21		F
GOES	12	0249	0259	0315						26		M 3.2						
SVTO		0821E	0826U	0847	N24	E13	6017	04	13.3	26D	SF		2	E		32		
GOES		1431	1436	1446						15		C 2.7						
HOLL		1552	1557	1602	N18	E15		04	13.8	10	SF		3	E		11		
HOLL		1838	1838	1851	N22	E09	6017	04	13.5	13	SF	C 2.0	3	E		19		F
HOLL		1854	1858	1903	N22	E08	6017	04	13.4	9	SF		3	E		25		F
GOES		2345	2348	2355						10		C 2.5						
GOES	13	0037E	0038	0044D						7D		C 9.5						
GOES		0146	0150	0155						9		C 3.3						
GOES		0318	0323	0327						9		C 3.2						
GOES		0359	0433	0449						50		C 3.4						
GOES		0503	0508	0510						7		C 5.2						
SVTO		1136	1139	1145	N19	W04	6017	04	13.2	9	SF		3	E		21		
RAMY		1137	1140	1147	N20	W03	6017	04	13.2	10	SF		3	E		26		
SVTO		1142	1143	1212	S33	E57	6018			30	SF			E		18		K
SVTO		1142	1156	1212	S33	E57	6018	04	18.0	30	SF	C 7.0	3	E		12		
RAMY		1142	1156U	1408	S34	E50	6018	04	17.5	146	SF		3	E		13		
RAMY		1148	1149	1152	N20	W03	6017	04	13.3	4	SF		3	E		14		
SVTO		1155	1156	1208	S16	E80	6021	04	19.6	13	SF		3	E		16		
SVTO		1220	1221	1232	N30	E67	6022	04	18.8	12	SF		3	E		15		
SVTO		1500	1515	1530	N34	E72	6022	04	19.4	30	SF		3	E		12		
HOLL		1639	1652	1658	S36	E59	6018	04	18.4	19	SF		3	E		33		F
HOLL		1711	1722	1739	S34	E46	6018	04	17.4	28	SF		3	E		28		
HOLL		1729	1729	1736	S19	E78	6021	04	19.7	7	SF		3	E		14		
HOLL		1831	1833	1859	N27	E66	6022			28	1N			E		108		K
HOLL		1831	1840	1859	N27	E66	6022	04	18.9	28	2F	C 6.4	3	E		285		EH
PALE		1832	1840	1909	N30	E77	6022	04	19.8	37	1F		3	E		137		F
HOLL		2116	2124	2145	S34	E43	6018	04	17.3	29	1B	M 4.9	4	E		171		F
PALE		2119E	2119U	2135D	S33	E46	6018	04	17.5	16D	1N		3	E		129		FE
GOES		2241	2244	2246						5		C 2.2						
HOLL		2337E	2338U	2338D	S18	E70	6021	04	19.3	1D	SF		1	E		25		F
LEAR	14	0226	0226	0233	N25	W56	6007	04	9.8	7	SF	C 9.0	2	E		55		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	14	0248	0257	0301	N25	W51	6007	04	10.2	13	SF		2	E		61		UF
LEAR		0308	0311	0313	N25	W51	6007	04	10.2	5	SF		2	E		19		U
PALE		0353E	0353U	0408D	S32	E41	6018	04	17.4	15D	SN	M 1.3	3	E		93		F
GOES		0447	0452	0501						14		C 2.0						
SVTO		0530	0607	0636	N32	E86	6022	04	21.0	66	SF		3	E		63		F
LEAR		0607E		0640	N30	E62	6022	04	19.1	33D	SF		1	E		42		F
SVTO		0649	0650	0705	S13	E77	6021	04	20.1	16	SF		4	E		51		F
SVTO		0652	0653	0704	S34	E38	6018	04	17.3	12	SF	C 6.3	4	E		28		
SVTO		0754	0800	0815	S31	E38	6018	04	17.3	21	SN		4	E		59		F
LEAR		0800E		0804	S31	E37	6018	04	17.2	4D	SF		2	E		94		F
SVTO		0818	0831	0902	N30	E62	6022	04	19.2	44	SF		4	E		32		F
SVTO		0910	1105	1129	S31	E36	6018	04	17.2	139	SF	C 3.5	3	E		55		F
SVTO		1027	1036	1114	N28	E51	6022	04	18.4	47	1N	C 5.4	3	E		103		F
RAMY		1041E	1041U	1139	N24	E56	6022	04	18.8	58D	1F		3	E		117		F
RAMY		1108	1112	1124	S33	E35	6018	04	17.2	16	SF		3	E		19		F
RAMY		1207	1212	1234	N27	E59	6022	04	19.1	27	SF		3	E		37		
SVTO		1210	1210	1225	N30	E60	6022	04	19.2	15	SF		4	E		23		F
SVTO		1210	1212	1229	S14	E70	6021	04	19.8	19	SF		4	E		51		F
RAMY		1210	1212	1231	S16	E69	6021	04	19.7	21	SF		3	E		33		
SVTO		1220	1221	1250	S32	E35	6018			30	SN			E		71		K
SVTO		1220	1232	1250	S32	E35	6018	04	17.3	30	SN	M 1.0	4	E		51		F
RAMY		1221	1231	1253	S33	E37	6018	04	17.4	32	SN		3	E		72		
SVTO		1235	1242	1247	S13	E73	6021	04	20.0	12	SF		4	E		32		
RAMY		1248	1251	1257	N31	E64	6022	04	19.6	9	SF		3	E		12		
SVTO		1313	1314	1319	S30	E35	6018	04	17.3	6	SF		4	E		23		F
RAMY		1313	1315	1320	S33	E36	6018	04	17.4	7	SF		3	E		17		F
HOLL		1412	1417	1423	S16	E73	6021	04	20.1	11	SF	C 3.5	4	E		30		
RAMY		1415	1421	1425	S15	E79	6021	04	20.6	10	SF		3	E		18		H
HOLL		1422	1429	1434	N34	E60	6022	04	19.4	12	SF		4	E		15		
HOLL		1436	1437	1444	S33	E33	6018	04	17.2	8	SF		4	E		50		F
RAMY		1436	1437	1446	S35	E34	6018	04	17.3	10	SF		3	E		30		F
SVTO		1539	1539	1545	S29	E34	6018	04	17.3	6	SF		3	E		21		
RAMY		1539	1540	1545	S31	E34	6018	04	17.3	6	SF		3	E		28		
HOLL		1540	1540	1546	S31	E32	6018	04	17.2	6	SF		4	E		45		
RAMY		1635	1636	1641	S31	E32	6018	04	17.2	6	SF		3	E		27		F
HOLL		1635	1636	1643	S31	E31	6018	04	17.1	8	SF		4	E		36		F
PALE		1733	1739	1743	N28	E57	6022	04	19.2	10	SF		3	E		12		
HOLL		1739	1739	1745	N28	E54	6022	04	18.9	6	SF		3	E		13		
HOLL		1739	1741	1749	S16	E64	6021	04	19.6	10	SF		3	E		22		
HOLL		1740	1741	1749	S32	E32	6018	04	17.3	9	SF		3	E		36		
PALE		1810	1816	1833	N28	E57	6022	04	19.2	23	SF		3	E		20		
HOLL		1815	1816	1820	N30	E55	6022	04	19.1	5	SF		3	E		18		
RAMY		1820	1828	1834	N29	E56	6022	04	19.1	14	SF		3	E		12		
RAMY		1857	1914	1949D	N27	E54	6022	04	19.0	52D	SF		3	E		24		
PALE		1906	1912	1939	N28	E57	6022	04	19.2	33	SF		3	E		27		
HOLL		1912	1916	1932	N27	E52	6022	04	18.8	20	SF		4	E		47		
PALE		1945	1953	1958	S31	E33	6018	04	17.4	13	SF		3	E		28		
RAMY		1945	1953	1958	S31	E33	6018	04	17.4	13	SF		3	E		25		
HOLL		1945	1953	1959	S31	E30	6018	04	17.2	14	SF	C 2.4	4	E		38		H
RAMY		2031	2049	2100	N29	E48	6022	04	18.6	29	SF		2	E		23		
RAMY		2051	2055U	2107	S33	E32	6018	04	17.4	16	1N		2	E		199		FE
HOLL		2051	2056	2108	S33	E29	6018	04	17.2	17	1N	C 5.7	4	E		125		FE
PALE		2052	2054U	2127D	S33	E33	6018	04	17.5	35D	1F		3	E		102		
HOLL		2258	2259	2305	S30	E29	6018	04	17.2	7	SF		4	E		32		
HOLL		2311	2317	2329	N30	E52	6022	04	19.0	18	SF		3	E		51		
HOLL		2323	2330	2340	S14	E59	6021	04	19.4	17	SF	C 3.7	3	E		20		
GOES		2354	2401	2408						14		C 5.7						
PALE	15	0255E	0255U	0345D	N32	E57	6022	04	19.6	50D	2B	X 1.4	3	E		379		ZU
LEAR		0309E	0309U	0526D	N30	E50	6022	04	19.1	137D	2B		1	E		525		ZF
SVTO		0440E	0450U	0556	N31	E55	6022	04	19.5	76D	1F		2	E		167		Y
SVTO		0940	0945	1004	S15	E55	6021	04	19.6	24	SN		4	E		53		
RAMY		1147	1151	1213	S15	E61	6021	04	20.1	26	SF	M 1.0	2	E		48		F
RAMY		1150	1153	1213	S31	E25	6018	04	17.5	23	SF		2	E		67		FE
RAMY		1234	1238	1320	S32	E23	6018	04	17.3	46	SF	C 5.4	3	E		73		F
RAMY		1333	1334	1343	S32	E22	6018	04	17.3	10	SF		3	E		17		
RAMY		1424	1426	1442	S32	E22	6018	04	17.3	18	SF		3	E		26		
HOLL		1428E	1429	1449D	S32	E22	6018	04	17.3	21D	SF		2	E		42		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	15	1434	1439	1452	N31	E45	6022	04	19.1	18	SF		3	E		24		F
HOLL		1508E	1508	1514	S16	E52	6021	04	19.6	6D	SF		3	E		16		
RAMY		1523	1529	1546	S31	E21	6018	04	17.3	23	SF		3	E		16		F
RAMY		1717	1723U	1859D	S31	E21	6018	04	17.4	102D	SF		3	E		19		F
HOLL		1718	1721	1733	S31	E20	6018	04	17.3	15	SF		3	E		19		U
PALE		1718	1736	1807	S30	E20	6018	04	17.3	49	1F		3	E		111		
HOLL		1734	1738	1802	S31	E20	6018	04	17.3	28	1N	C 9.4	4	E		127		UE
PALE		1815	1816	1848	S32	E21	6018	04	17.4	33	SF		3	E		29		F
HOLL		1818E	1824	1840	S31	E19	6018	04	17.3	22D	SN	C 3.2	3	E		71		E
PALE		1830	1842	1856	N30	E45	6022	04	19.3	26	SF		3	E		28		F
HOLL		1918	1920	1933	S31	E18	6018	04	17.2	15	SF		3	E		18		
HOLL		1923	1925	1936	S13	E54	6021	04	19.9	13	SF		3	E		30		
PALE		1930	1940	1948	S14	E59	6021	04	20.3	18	SF		3	E		15		
HOLL		1938	1939	1955	S16	E57	6021	04	20.1	17	SF		3	E		18		
HOLL		1941	1941	1946	N17	W25	6023	04	13.9	5	SF		3	E		11		
HOLL		2055	2056	2111	S14	E52	6021	04	19.8	16	SN	C 6.0	3	E		93		
HOLL		2327	2329	2342	S12	E47	6021	04	19.5	15	SF		3	E		47		
HOLL		2340	2355	2447	N30	W43	6012	04	12.6	67	SF	C 9.6	3	E		54		F
LEAR		2346	2348	2451	S13	E52	6021	04	19.9	65	SF		3	E		67		F
HOLL		2346	2349	2448	S14	E51	6021	04	19.8	62	SF		3	E		94		FE
PALE		2347E	2354U	2446D	S13	E53	6021	04	20.0	59D	SF		3	E		65		
LEAR		2351	2357	2441	N31	W45	6012			50	SF			E		20		K
LEAR		2351	2423	2441	N31	W45	6012	04	12.4	50	SF		3	E		14		F
PALE		2353E	2356U	2447D	N31	W46	6012	04	12.4	54D	SF		3	E		33		
LEAR	16	0039	0039	0106	S32	E18	6018	04	17.4	27	1B		3	E		168		F
HOLL		0039	0041	0049	S29	E30		04	18.4	10	1F		3	E		105		F
LEAR		0039	0041	0051	S38	E35		04	18.8	12	SF		3	E		70		
HOLL		0039	0041	0100	S31	E17	6018	04	17.4	21	2B	M 2.0	3	E		277		F
LEAR		0139	0139	0143	N23	E60		04	20.7	4	SF		3	E		16		
LEAR		0326	0329	0336	N21	W37	6017	04	13.3	10	SF		3	E		15		F
PALE		0401	0404	0436	N27	E31	6022	04	18.6	35	SF	C 3.7	3	E		96		F
LEAR		0416E	0423	0452	N31	E36	6022	04	19.0	36D	2F		3	E		311		F
LEAR		0630E	0636U	0732D	S13	E41	6021	04	19.4	62D	2B	X 2.2	3	E		403		F
SVTO		0708E	0708U	0826D	S13	E47	6021	04	19.8	78D	2N		2	E		273		F
SVTO		0708E	0716U	0826D	N17	W32	6023	04	13.9	78D	SF		2	E		36		
SVTO		1041	1049	1112	N31	E34	6022	04	19.1	31	SF		2	E		69		F
HOLL		1345	1346	1355	N11	W12	6026	04	15.7	10	SF		3	E		13		
HOLL		1421	1421	1426	S15	E47	6021	04	20.1	5	SF		3	E		25		
HOLL		1431	1431	1443	S32	E11	6018	04	17.5	12	SF		3	E		16		
HOLL		1440	1441	1447	S15	E39	6021	04	19.6	7	SF		3	E		19		
RAMY		1459	1500	1521	S31	E08	6018	04	17.2	22	SF		3	E		55		F
HOLL		1459	1500	1524	S31	E07	6018	04	17.2	25	SF	C 3.4	3	E		76		
HOLL		1540	1543	1548	S13	E47	6021	04	20.2	8	SF		3	E		10		
HOLL		1607	1622	1637	N32	E36	6022	04	19.5	30	SF		3	E		50		
HOLL		1610	1611	1618	S16	E38	6021	04	19.5	8	SF		3	E		24		
HOLL		1640	1650	1727D	N32	E33	6022	04	19.3	47D	SF		3	E		24		F
RAMY		1650	1719	1730	N32	E34	6022	04	19.4	40	SF		3	E		28		F
GOES		2152	2155	2158						6		C 2.3						
GOES	17	0313	0322	0330						17		C 9.6						
SVTO		0403	0626	0629D	S31	E03	6018	04	17.4	146D	1F		3	E		114		
GOES		0601	0605	0608						7		C 2.2						
SVTO		0603	0626	0629D	S31	E03	6018	04	17.5	26D	1F	C 3.3	3	E		114		
RAMY		1128	1134	1152	S15	E35	6021	04	20.1	24	SF		3	E		25		F
SVTO		1207	1209	1216	S09	W14	6024	04	16.4	9	SF		3	E		16		
RAMY		1213	1215	1231	S33	E01	6018	04	17.6	18	SF	C 2.5	3	E		12		F
RAMY		1334	1336	1341	S33	E00	6018	04	17.6	7	SF		3	E		14		
RAMY		1418	1430	1553	N26	E16	6022	04	18.8	95	2N	M 1.4	3	E		271		UF
RAMY		1438	1501	1521	N23	W52	6018	04	13.6	43	SF		3	E		19		F
RAMY		1554	1601	1617	S33	W01	6018	04	17.6	23	SF	C 5.9	3	E		84		F
SVTO		1600	1601	1635D	S32	W03	6018	04	17.4	35D	SF		2	E		42		F
RAMY		1623	1624	1629	S13	E32	6021	04	20.1	6	SF	C 4.4	3	E		28		F
RAMY		1701	1705	1708	S32	W02	6018	04	17.5	7	SF		3	E		20		F
PALE		1741	1741	1753	S33	W03	6018	04	17.5	12	SF		3	E		14		
RAMY		1817	1818	1827	S33	W02	6018	04	17.6	10	SF		3	E		14		F
RAMY		1944	1944	1956	S15	E27	6021	04	19.9	12	SF		3	E		17		F
PALE		2206E		2230D	S20	E50		04	21.7	24D	SF		3	E		27		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	18	0010	0015	0051	S33	W04	6018	04	17.7	41	SF		3	E		20		
LEAR		0021	0023	0029	S15	E28	6021	04	20.1	8	SF		3	E		18		
LEAR		0049	0106	0137	S19	E48	6031	04	21.7	48	SF	C 2.8	3	E		57		
GOES		0110	0114	0119						9		C 4.3						
LEAR		0206	0209	0216	S18	E46	6031	04	21.6	10	SF	C 5.5	3	E		39		
LEAR		0216	0229	0238	N28	E08	6022	04	18.7	22	SF		3	E		18		
LEAR		0218	0221	0245	S14	E17	6021	04	19.4	27	SF		3	E		20		
LEAR		0250	0309	0418	S13	E16	6021			88	1F			E		106		K
LEAR		0250	0337U	0418	S13	E16	6021	04	19.3	88	1F	M 1.1	3	E		102		
LEAR		0258	0307	0316	S32	W08	6018	04	17.5	18	SF		3	E		17		
PALE		0316	0323	0336	S20	E48	6031	04	21.8	20	SF		3	E		49		
LEAR		0317	0323	0330	S19	E44	6031	04	21.5	13	SF		3	E		24		
LEAR		0332	0339	0501	S32	W09	6018			89	1N			E		116		K
LEAR		0332	0401	0501	S32	W09	6018	04	17.4	89	1N	M 1.5	3	E		113		
PALE		0336	0337	0349	S15	E28	6021	04	20.3	13	SF		3	E		46		UE
PALE		0353	0359	0420	S34	W07	6018	04	17.6	27	SF		3	E		52		F
LEAR		0424	0425	0452	S19	E44	6031	04	21.5	28	SF		3	E		13		
LEAR		0538	0538	0544	S30	W09	6018	04	17.5	6	SF		3	E		20		
SVTO		0538	0538	0551	S33	W10	6018	04	17.4	13	SF	C 4.2	3	E		28		
SVTO		0734	0734	0744	S18	E44	6031	04	21.7	10	SF	C 3.1	3	E		13		
LEAR		0826	0827	0842	S19	E44	6031	04	21.7	16	SF		3	E		22		
SVTO		0826	0827	0901D	S18	E44	6031	04	21.7	35D	SN	C 5.4	3	E		37		
GOES		1021	1026	1037						16		C 6.1						
RAMY		1101	1107	1125	S14	E14	6021	04	19.5	24	SF		3	E		55		F
RAMY		1105	1131	1214	S20	E41	6031	04	21.6	69	SF		3	E		43		F
RAMY		1109	1122	1135	S33	W13	6018	04	17.4	26	SF		3	E		56		FH
RAMY		1345	1347	1407	S20	E39	6031			22	SF			E		19		K
RAMY		1345	1358	1407	S20	E39	6031	04	21.5	22	SF		3	E		25		F
SVTO		1352E	1359U	1412D	S18	E38	6031	04	21.5	20D	SF		2	E		41		
RAMY		1445	1446	1449	S14	E13	6021	04	19.6	4	SF		3	E		13		
RAMY		1716	1716	1721	S11	E16	6021	04	19.9	5	SF		3	E		16		F
RAMY		1735	1735	1740	S19	E37	6031	04	21.5	5	SF		3	E		12		F
PALE		1740	1746	1804	S20	E38	6031	04	21.6	24	SF	C 4.0	3	E		37		F
PALE		1857	1904	1915	S14	E10	6021	04	19.5	18	SF	C 3.5	3	E		31		FH
HOLL		2026	2035	2051	S16	E32	6031	04	21.3	25	SF		3	E		52		F
GOES		2253	2257	2300						7		C 3.6						
HOLL		2341	2346	2403	S19	E34	6031	04	21.6	22	SF	C 2.9	3	E		27		F
LEAR	19	0337	0345	0411	S14	E13	6021	04	20.1	34	SF	C 4.9	3	E		48		
LEAR		0418	0420	0429	S13	E02	6021	04	19.3	11	SF		3	E		31		
LEAR		0429	0435	0457	S34	W18	6018	04	17.7	28	SF		3	E		27		
GOES		0918	0935	0951						33		C 3.5						
GOES		1432	1446	1511						39		C 3.6						
HOLL		1541	1550U	1738	N26	W11	6022	04	18.8	117	1F	C 5.2	3	E		137		UF
HOLL		1647	1653	1742	S16	W02	6021	04	19.5	55	SF	C 3.9	3	E		86		F
HOLL		1745	1757	1812	N16	W41	6027	04	16.6	27	SF		3	E		37		
HOLL		2030E	2030U	2043	S22	E21	6031	04	21.5	13D	SF		3	E		20		
HOLL		2045	2048	2128	S14	W06	6021	04	19.4	43	1N	C 2.9	3	E		103		F
RAMY		2111E	2111U	2116	S11	W03	6021	04	19.6	5D	SF		2	E		25		F
RAMY		2111E	2115U	2137D	S11	E16	6032	04	21.1	26D	SF		2	E		27		F
HOLL		2114E	2117	2214	S12	E16	6032	04	21.1	60D	SF		2	E		73		
HOLL		2154	2217	2242	N27	W12	6022	04	19.0	48	SF	C 2.5	3	E		87		F
HOLL		2245	2252	2259	S14	E15	6032	04	21.1	14	SF		3	E		43		
HOLL		2245	2311	2346	N28	W12	6022	04	19.0	61	1F	C 4.6	3	E		236		F
PALE		2302E	2302U	2344D	N28	W14	6022	04	18.9	42D	SF		3	E		26		
LEAR		2323	2324	2335	N28	W13	6022	04	18.9	12	SF		3	E		18		
PALE	20	0055	0101	0110	S12	W05	6021	04	19.7	15	SF	C 2.8	3	E		21		
PALE		0142	0148	0204	S34	W32	6018	04	17.5	22	SF	C 2.2	3	E		23		
GOES		0257	0401	0419						82		C 3.6						
LEAR		0402	0406	0413	N17	W83	6023	04	13.9	11	SF		3	E		16		F
LEAR		0615	0619	0715	S11	W08	6021	04	19.6	60	SF	C 6.1	3	E		71		
LEAR		0633	0636	0645	N28	W16	6022	04	19.0	12	SF		3	E		28		
GOES		0800	0912	1000						120		C 6.8						
LEAR		0825	0826	0835	S15	W09	6021	04	19.7	10	SF		3	E		31		
LEAR		0853	0902	0907	S34	E22	6031	04	22.1	14	SF		3	E		76		
GOES		1000	1004	1013						13		C 9.1						
GOES		1059	1101	1111						12		C 9.7						

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	20	1131	1139	1212	N09	E62	6033	04	25.1	41	1F		3	E		104		
RAMY		1143	1148	1208	S13	E08	6032	04	21.1	25	SF		3	E		25		
RAMY		1208	1212	1220	S13	E08	6032	04	21.1	12	SF	C 6.6	3	E		19		
RAMY		1221	1240	1315	S13	E06	6032	04	21.0	54	SF		3	E		96		
HOLL		1249E	1251U	1311	S13	E06	6032	04	21.0	22D	SF		2	E		42		F
HOLL		1528	1531	1544	S19	E11	6031	04	21.5	16	SF		3	E		30		
HOLL		1535	1536	1604	N11	W69	6026	04	15.4	29	SF		3	E		60		F
HOLL		1552	1553	1559	S11	W10	6021	04	19.9	7	SF		3	E		32		F
HOLL		1646	1649	1653	N30	W21	6022	04	19.0	7	SF		3	E		31		
HOLL		1649	1649	1655	S19	E11	6031	04	21.5	6	SF		3	E		20		FE
RAMY		1817	1818U	1852D	S33	W39	6018	04	17.7	35D	SF		2	E		72		FH
PALE		1818E	1822U	1852	S32	W43	6018	04	17.3	34D	SF	M 1.5	3	E		85		
HOLL		2205	2212	2228	S15	W13	6021	04	19.9	23	SF		3	E		87		F
PALE		2207	2211	2228	S15	W13	6021	04	19.9	21	SF	C 3.2	3	E		40		F
HOLL		2324	2326	2455D	S33	W43	6018			91D	SF			E		25		K
HOLL		2324	2357	2455D	S33	W43	6018	04	17.5	91D	2B	C 9.4	3	E		301		F
LEAR		2349	2406U	2426	S34	W46	6018	04	17.3	37	SF		2	E		93		
PALE		2354	2354	2421	S34	W45	6018	04	17.4	27	1F		3	E		140		F
GOES	21	0251	0254	0256						5		C 2.8						
LEAR		0540	0542	0553	S32	W45	6018	04	17.7	13	SF	C 2.1	3	E		21		
LEAR		0644	0649	0811	S14	W20	6021	04	19.8	87	1N	M 2.3	3	E		200		FE
LEAR		0701	0701	0708	N34	W24	6022	04	19.4	7	SF		3	E		30		
GOES		0716	0726	0811D						55D		M 2.3						
RAMY		1120	1125	1131	N14	E48	6033	04	25.1	11	SF		2	E		15		
RAMY		1220	1224	1231	S13	W07	6032	04	21.0	11	SF		3	E		18		
RAMY		1223	1224	1256	S17	W25	6021	04	19.6	33	SF	C 2.7	3	E		30		F
RAMY		1256	1258	1311	N16	W64	6027	04	16.7	15	1F	C 2.9	3	E		102		
HOLL		1448	1448	1457	S20	E00	6031	04	21.6	9	SF		4	E		13		
HOLL		1452	1508	1522	S32	W52	6018	04	17.5	30	1F	C 3.3	4	E		107		F
RAMY		1453	1504	1615	S33	W55	6018	04	17.2	82	SF		3	E		52		F
RAMY		1746	1747	1801	S32	W56	6018	04	17.3	15	SF	C 3.3	3	E		24		F
PALE		1752	1752	1759	S33	W51	6018	04	17.7	7	SF		3	E		14		
RAMY		1858	1923U	2006	S12	W10	6032	04	21.0	68	SF	C 7.1	3	E		91		UF
HOLL		1901	1932	2029	N30	W37	6022			88	SB			E		64		K
HOLL		1901	1956	2029	N30	W37	6022	04	18.9	88	SF		3	E		46		F
PALE		1913E	1916U	2006	S12	W07	6032	04	21.3	53D	SF		3	E		67		UF
RAMY		1918	1926U	2010	N30	W34	6022	04	19.1	52	SF		3	E		21		F
HOLL		1929E	1929U	2037	S12	W09	6032	04	21.1	68D	SN		3	E		87		FE
HOLL		1930	1932	1936	S32	W58	6018	04	17.2	6	SF		3	E		16		
HOLL		1941	1950	2011	S17	W29	6021	04	19.6	30	SF	C 7.2	4	E		62		FE
RAMY		1944	1945U	2006	S17	W28	6021	04	19.7	22	SF		3	E		23		FH
PALE		1946E	1947U	2003	S15	W30	6021	04	19.5	17D	SF		3	E		29		H
HOLL		1949	1955	2019	S32	W58	6018			30	SB			E		25		K
HOLL		1949	2009	2019	S32	W58	6018	04	17.2	30	SF		4	E		34		F
HOLL		2016	2024	2031	N15	E45	6038	04	25.2	15	SF		4	E		11		
HOLL		2048	2051	2059	N10	E45	6033	04	25.2	11	SF		4	E		17		
HOLL		2052	2056	2102	N30	W36	6022	04	19.0	10	SF		4	E		17		
GOES		2220	2223	2228						8		C 2.0						
GOES		2326	2327	2328						2		C 1.9						
GOES	22	0057	0102	0115						18		C 1.9						
GOES		0156	0204	0212						16		C 1.9						
LEAR		0248		0353D	S32	W59	6018	04	17.4	65D	SF		3	E				
PALE		0252	0257U	0321	S32	W59	6018	04	17.4	29	SF	C 5.3	3	E		25		F
LEAR		0526	0526	0534	S16	W35	6021	04	19.6	8	SF	C 2.0	3	E		15		
LEAR		0528	0530	0534	N16	W73	6027	04	16.7	6	SF		3	E		12		
LEAR		0544	0544	0549	N16	W74	6027	04	16.6	5	SF		3	E		15		
LEAR		0606	0607	0615	N21	W24	6030	04	20.4	9	SF		3	E		14		
LEAR		0649	0655U	0700D	S34	W58	6018	04	17.7	11D	SF	C 2.1	2	E		82		
LEAR		0920	0932	0956D	N25	E08	6029	04	23.0	36D	1F	C 4.0	3	E		110		U
RAMY		1039E	1040U	1058D	N19	W26	6030	04	20.4	19D	SF		2	E		21		F
RAMY		1039E	1040U	1100D	N25	E06	6029	04	22.9	21D	SF		2	E		30		
HOLL		1322E	1323U	1350D	S33	W68	6018	04	17.1	28D	SF	C 2.5	3	E		33		F
RAMY		1323E	1323U	1336	S33	W69	6018	04	17.1	13D	SF		3	E		14		
RAMY		1328	1329	1333	N21	W25	6030	04	20.6	5	SF		3	E		12		
HOLL		1425	1436	1444	S19	W16	6031	04	21.4	19	SF		3	E		13		
HOLL		1518	1519	1522	N34	W39	6022	04	19.5	4	SF		3	E		16		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	22	1532	1533	1537	S13	W22	6032	04	21.0	5	SF		4	E		14		
HOLL		1607	1607	1616	S19	W16	6031	04	21.4	9	SF		4	E		12		
HOLL		1724	1729	1733	N21	W30	6030	04	20.4	9	SF		4	E		14		
HOLL		1857	1905	1911	S19	W17	6031	04	21.5	14	SF		3	E		15		
HOLL		1912	1918	2019D	N40	W32	6022	04	20.2	67D	SN		3	E		83		FE
HOLL		1912	1936	2019D	N40	W32	6022			67D	SB			E		99		K
RAMY		1915	1918	1922	N29	W46	6022	04	19.2	7	SF	C 2.8	3	E		24		
HOLL		1932	1936	1939	N21	W31	6030	04	20.4	7	SF		3	E		15		
HOLL		2048	2051	2054	S09	E37	6034	04	25.6	6	SF		3	E		27		F
HOLL		2051	2052	2109	N15	E32	6038	04	25.3	18	SF		3	E		19		F
HOLL		2053	2057	2100	N34	W41	6022	04	19.6	7	SF		3	E		34		F
GOES	23	0436	0436	0500D						24D		C 1.4						
LEAR		0918	0919	0927	N25	W05	6029	04	23.0	9	SF		3	E		14		F
RAMY		1122	1127	1134	S12	W49	6021	04	19.8	12	SF		3	E		30		F
RAMY		1203	1303	1349	S11	W50	6021	04	19.7	106	SF		3	E		59		F
RAMY		1235	1303	1408	S11	W33	6032	04	21.0	93	2N	M 1.2	3	E		292		FH
RAMY		1235	1303	1408	S11	W33	6032			93	1N			E		170		K
SVTO		1248E	1309U	1334	S12	W33	6032	04	21.0	46D	1F		2	E		148		F
HOLL		1308E	1314U	1408D	S14	W32	6032	04	21.1	60D	1N		1	E		131		F
SVTO		1309	1309U	1311D	S12	W33	6032	04	21.1	2D	1F		1	E		148		
HOLL		1608	1608	1614	S13	E35	6034	04	26.3	6	SF		3	E		29		F
HOLL		1639	1642	1702	N26	W08	6029	04	23.1	23	SF		4	E		99		
RAMY		1640	1641	1650	N26	W11	6029	04	22.8	10	SF		3	E		23		F
PALE		1656	1704	1711	S13	W49	6021	04	20.0	15	SF		3	E		24		F
HOLL		1703	1704	1710	S11	W49	6021	04	20.0	7	SF		3	E		42		
HOLL		1707	1709	1719	S22	E24	6036	04	25.5	12	SF		3	E		17		F
HOLL		1723	1725	1731	S18	W29	6031	04	21.5	8	SF		3	E		12		
GOES		2139E	2147	2210D						31D		C 2.3						
GOES		2236E	2238	2250D						14D		C 2.2						
LEAR	24	0025	0025	0032	S15	W56	6021	04	19.8	7	SF		3	E		13		
LEAR		0105	0111	0132	N14	E14	6038	04	25.1	27	SF		4	E		52		F
LEAR		0113	0115	0122	N20	W45	6030	04	20.6	9	SF		3	E		21		F
LEAR		0233	0239	0250	N36	W52	6022	04	19.9	17	SF	C 1.7	4	E		16		
LEAR		0434	0450	0514	N15	E12	6038	04	25.1	40	SF		3	E		29		F
LEAR		0622	0639	0718	S14	W63	6021	04	19.5	56	1F	C 4.6	3	E		126		F
LEAR		0812	0820	0902	N29	W60	6022	04	19.6	50	SF	C 2.6	3	E		58		
GOES		1115	1120	1126						11		C 9.7						
HOLL		1443	1455	1542D	N22	W53	6030	04	20.5	59D	SF	C 3.3	3	E		80		
RAMY		1452	1455	1507	N21	W53	6030	04	20.5	15	SF		3	E		40		F
HOLL		1608	1608	1628D	N38	W59	6022	04	19.9	20D	SF		3	E		22		F
HOLL		1653	1653	1702	N35	W63	6022	04	19.7	9	SF		3	E		21		F
HOLL		1728	1731	1741	N41	W61	6022	04	19.7	13	SF		3	E		44		H
HOLL		1748	1749	1809D	S06	E56	6039	04	28.9	21D	SF		3	E		36		
PALE		1752	1752	1801	S06	E60	6039	04	29.2	9	SF		3	E		20		F
HOLL		1753	1756	1800	N40	W60	6022	04	19.8	7	SF	C 2.1	3	E		35		F
HOLL		1801	1802	1805	N23	W55	6030	04	20.5	4	SF		3	E		12		
HOLL		1914	1916	1921	N14	E05	6038	04	25.2	7	SF		3	E		24		
HOLL		2011	2012	2014	N39	W60	6022	04	20.0	3	SF		3	E		28		
HOLL		2019	2021	2030	N11	E06	6038	04	25.3	11	SF		3	E		26		
HOLL		2019	2025	2059	N38	W60	6022	04	20.0	40	SF		3	E		52		
RAMY		2024E	2026U	2029	N38	W63	6022	04	19.7	5D	SF		2	E		26		
GOES		2227	2232	2240						13		C 2.5						
PALE		2251	2253	2300	N35	W69	6022	04	19.4	9	SF	C 4.7	3	E		32		F
LEAR		2301E	2309	2320	N36	W60	6022	04	20.1	19D	SF		3	E		31		
PALE		2305	2305	2311	N35	W65	6022	04	19.8	6	SF		3	E		32		
LEAR		2333	2335	2339	S12	W66	6021	04	20.0	6	SF		3	E		17		
LEAR	25	0001	0022	0029	S13	W67	6021	04	19.9	28	SF		3	E		22		
PALE		0023	0027	0030	S12	W67	6021	04	20.0	7	SF		3	E		28		
LEAR		0033	0033	0038	N24	W18	6029	04	23.6	5	SF		3	E		12		
LEAR		0042	0043	0050	N15	E01	6038	04	25.1	8	SF		3	E		16		
LEAR		0144	0144	0152	N35	W64	6022	04	19.9	8	SF		3	E		10		
LEAR		0319	0322	0345	N15	E01	6038	04	25.2	26	SF		3	E		17		
GOES		0433	0443	0453						20		C 2.6						
LEAR		0645	0652	0658	S13	W70	6021	04	20.0	13	SF	C 1.8	3	E		84		
RAMY		1312	1314	1350	N11	W04	6038	04	25.2	38	SF		3	E		24		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	25	1312	1314	1403D	N12	W04	6033	04	25.2	51D	SN	C 1.9	2	E		45		F
HOLL		1456	1458	1520	N30	W79	6022	04	19.4	24	SF	C 2.1	3	E		86		
RAMY		1457	1459	1512	N28	W82	6022	04	19.2	15	SF		3	E		78		
RAMY		1603	1608	1617	N29	W85	6022	04	19.0	14	SF		3	E		80		
HOLL		1644	1650	1657	N24	W29	6029	04	23.4	13	SF		3	E		40		
HOLL		1716	1722	1735	N30	W77	6022	04	19.7	19	SF	C 2.9	2	E		86		
RAMY		1719	1722	1730	N31	W78	6022	04	19.6	11	SF		2	E		62		
PALE		1813	1813	1830	N17	W09	6038	04	25.1	17	SF	C 3.6	3	E		20		
HOLL		1817E	1817U	1858D	N17	W07	6038	04	25.2	41D	SF		1	E		83		F
GOES		1937	1941	1944						7		C 2.5						
HOLL		2300	2313	2347	N18	W09	6038	04	25.3	47	SF		3	E		37		F
HOLL		2309	2311	2323	N09	E37	6040	04	28.7	14	SF		3	E		43		
LEAR		2310	2312	2316	N12	E41	6040	04	29.0	6	SF		3	E		23		
HOLL		2347	2354	2401	N36	W75	6022	04	20.0	14	SF	C 8.3	3	E		38		F
HOLL	26	0007	0009	0016	N41	W86	6022	04	19.0	9	SF		3	E		41		
HOLL		0052E	0053U	0056	N30	W81	6022	04	19.7	4D	SF	C 6.1	2	E		51		
GOES		0429	0448	0506						37		C 2.4						
GOES		0511	0530	0537						26		C 2.5						
GOES		0609	0651	0917						188		C 5.2						
GOES		1115	1126	1132						17		C 3.1						
HOLL		1255E	1304U	1440	N24	W75	6030	04	20.7	105D	SF		2	E		90		
HOLL		1255E	1343	1440	N24	W75	6030			105D	SF			E		24		K
RAMY		1320E	1337U	1402	N22	W75	6030	04	20.8	42D	SF		3	E		28		
SVTO		1448	1502	1507	N21	W78	6030	04	20.6	19	SF		3	E		18		
RAMY		1450	1503	1512	N22	W75	6030	04	20.8	22	SF		3	E		22		
GOES		1519	1545	1607						48		C 5.9						
RAMY		1549E	1606U	1617	N21	W77	6030	04	20.7	28D	SF		2	E		16		H
HOLL		1907	1931	2002	N24	W78	6030			55	SB			E		75		K
HOLL		1907	1939	2002	N24	W78	6030	04	20.8	55	1N	C 8.1	4	E		120		E
RAMY		1912E	1935U	2001	N25	W80	6030	04	20.6	49D	SN		2	E		82		H
HOLL		1919	1922	1924	S06	E31	6039	04	29.1	5	SF		3	E		12		F
RAMY		2003	2004U	2042	S19	W19		04	25.4	39	SF		2	E		18		F
HOLL		2009E	2010U	2035	S18	W19		04	25.4	26D	SF		3	E		26		F
HOLL		2051	2057	2104	N24	W79	6030	04	20.8	13	SF		3	E		43		
HOLL		2113	2128	2256	N24	W80	6030			103	SF			E		35		K
HOLL		2113	2153	2256	N24	W80	6030	04	20.7	103	1N	C 6.0	4	E		142		E
RAMY		2114	2144	2159D	N21	W79	6030			45D	SF			E		41		K
RAMY		2114	2153	2159D	N21	W79	6030	04	20.8	45D	1F		2	E		136		
HOLL		2216	2221	2232	S18	W20	6042	04	25.4	16	SF		3	E		54		F
HOLL		2220E	2222	2303	N24	W31		04	24.5	43D	SF		3	E		95		F
LEAR		2307	2308	2504	N24	W81	6030	04	20.7	117	SF		3	E		40		
HOLL	27	0008	0016	0029	S19	W20	6042	04	25.5	21	SF		3	E		14		
LEAR		0125	0134	0138	N21	W80	6030	04	20.9	13	SF		3	E		36		
LEAR		0318	0352	0357	N16	W27	6038	04	25.1	39	SF		3	E		12		F
LEAR		0505	0513	0519	N13	W25	6038	04	25.3	14	SF		3	E		25		
SVTO		0539	0542	0550	N02	W17		04	26.0	11	SF		3	E		16		
GOES		0724	0728	0731						7		C 1.5						
SVTO		0742	0750	0814	N27	W12	6037	04	26.4	32	SF	C 1.8	3	E		62		F
SVTO		0850	0853	0908	N02	W19		04	25.9	18	SF	C 1.4	3	E		41		
LEAR		0851	0852	0859	N03	W19		04	25.9	8	SF		3	E		35		
GOES		1037	1044	1101						24		C 2.1						
HOLL		1328	1328	1336	N27	W11	6037	04	26.7	8	SF		3	E		13		F
HOLL		1334	1337	1352	S20	W28	6042	04	25.4	18	SF		3	E		28		
GOES		1352	1359	1408						16		C 4.4						
RAMY		1447	1449	1456D	S20	W29	6042	04	25.4	9D	SF		3	E		13		F
HOLL		1449	1458	1507	S18	W31	6042	04	25.2	18	SF	C 2.8	3	E		60		F
HOLL		1858	1859	1905	S17	W33	6042	04	25.3	7	SF		3	E		34		
HOLL		1916	1919	1930	S19	W32	6042	04	25.4	14	SF		3	E		35		
HOLL		2053	2054	2103	S17	W33	6042	04	25.4	10	SF		3	E		18		
HOLL		2119	2121	2129	S18	W34	6042	04	25.3	10	SF		3	E		18		
GOES		2227	2426	2438						131		C 2.4						
HOLL	28	0004	0005	0012	N17	W40	6038	04	25.0	8	SF		3	E		19		
HOLL		0023	0024	0038	N18	W38	6038	04	25.1	15	SF		3	E		29		
LEAR		0423	0429	0453	N16	W42	6038	04	25.0	30	SF	C 1.2	3	E		25		
SVTO		0926	0926	0944	N19	W45	6038	04	24.9	18	SF	C 1.1	3	E		14		

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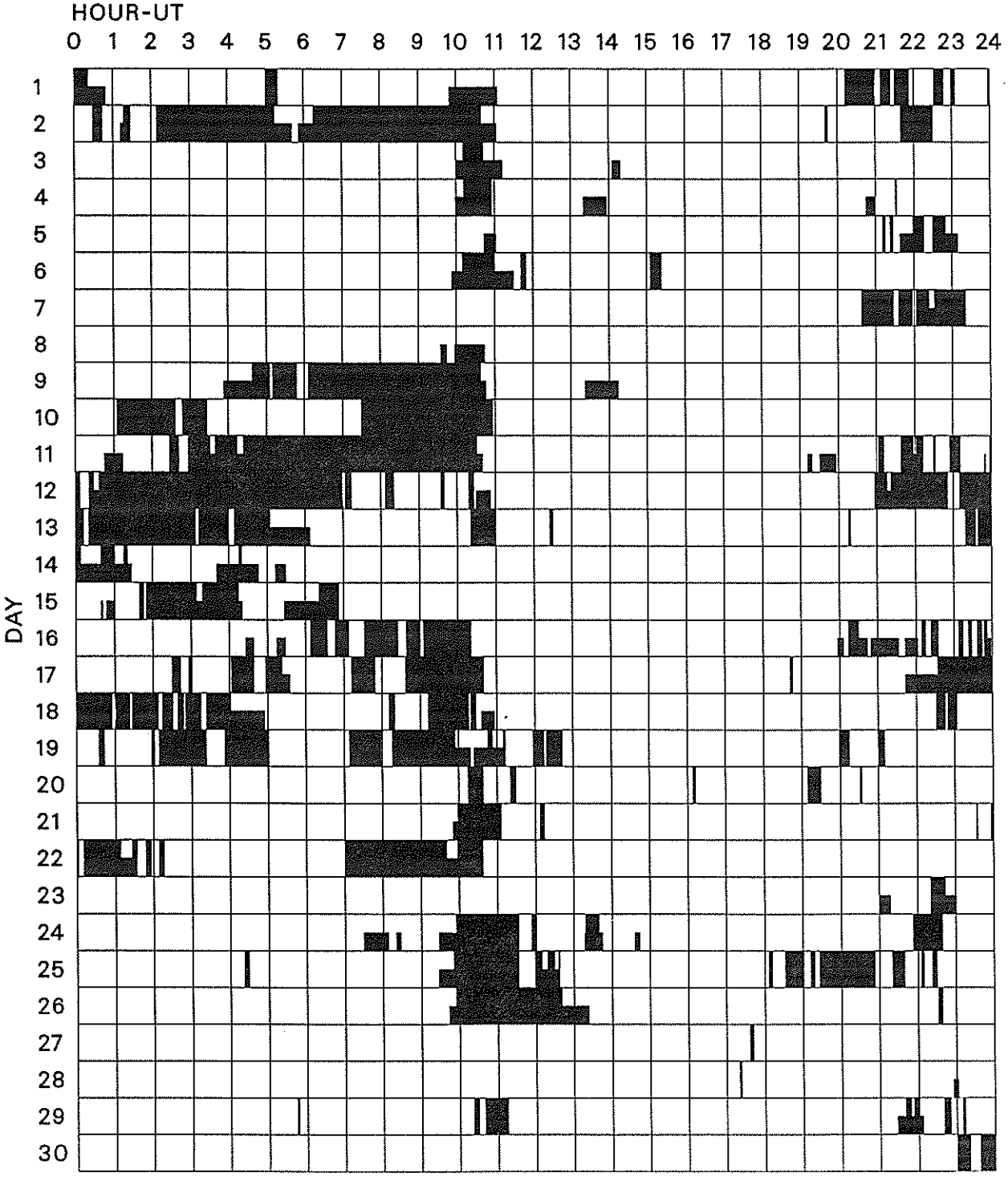
Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	28	0928	0929	0940	N15	W44	6038	04	25.1	12	SF		2	E		17		F
RAMY		1538	1540	1543	S21	W40	6042	04	25.6	5	SF		2	E		12		
HOLL		1538	1540	1550	S19	W40	6042	04	25.6	12	SF		3	E		34		F
HOLL		1707	1710	1715	S19	W44	6042	04	25.3	8	SF		3	E		22		
HOLL		1858	1859	1907	S19	W44	6042	04	25.4	9	SF		3	E		24		F
HOLL		2058	2110	2137	S04	E02	6039	04	29.0	39	SF		3	E		62		F
LEAR		2336	2401	2425	S19	W46	6042	04	25.5	49	SF		3	E		25		
GOES	29	0112	0251	0359						167		C 1.9						
LEAR		0113	0115	0132	S20	W47	6042	04	25.4	19	SF		3	E		21		
LEAR		0640	0641	0648	S21	W48	6042	04	25.6	8	SF		3	E		36		
SVTO		0846	0850	0904	S21	W54	6042	04	25.2	18	SF		3	E		21		
SVTO		0946	0949	0959	S08	E61		05	4.0	13	SF		3	E		24		
SVTO		1529	1529	1540	N23	E46	6045	05	3.2	11	SF		3	E		22		F
GOES	30	0024	0027	0030						6		B 6.8						
SVTO		0859	0905	0935	N24	E37	6045	05	3.2	36	SF		3	E		35		
SVTO		1038	1055	1118	N16	W72	6038	04	25.0	40	SF	C 1.9	3	E		79		
RAMY		1045	1055	1106	N16	W69	6038	04	25.2	21	SF		3	E		33		H

"Remarks"

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

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

APRIL 1990



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

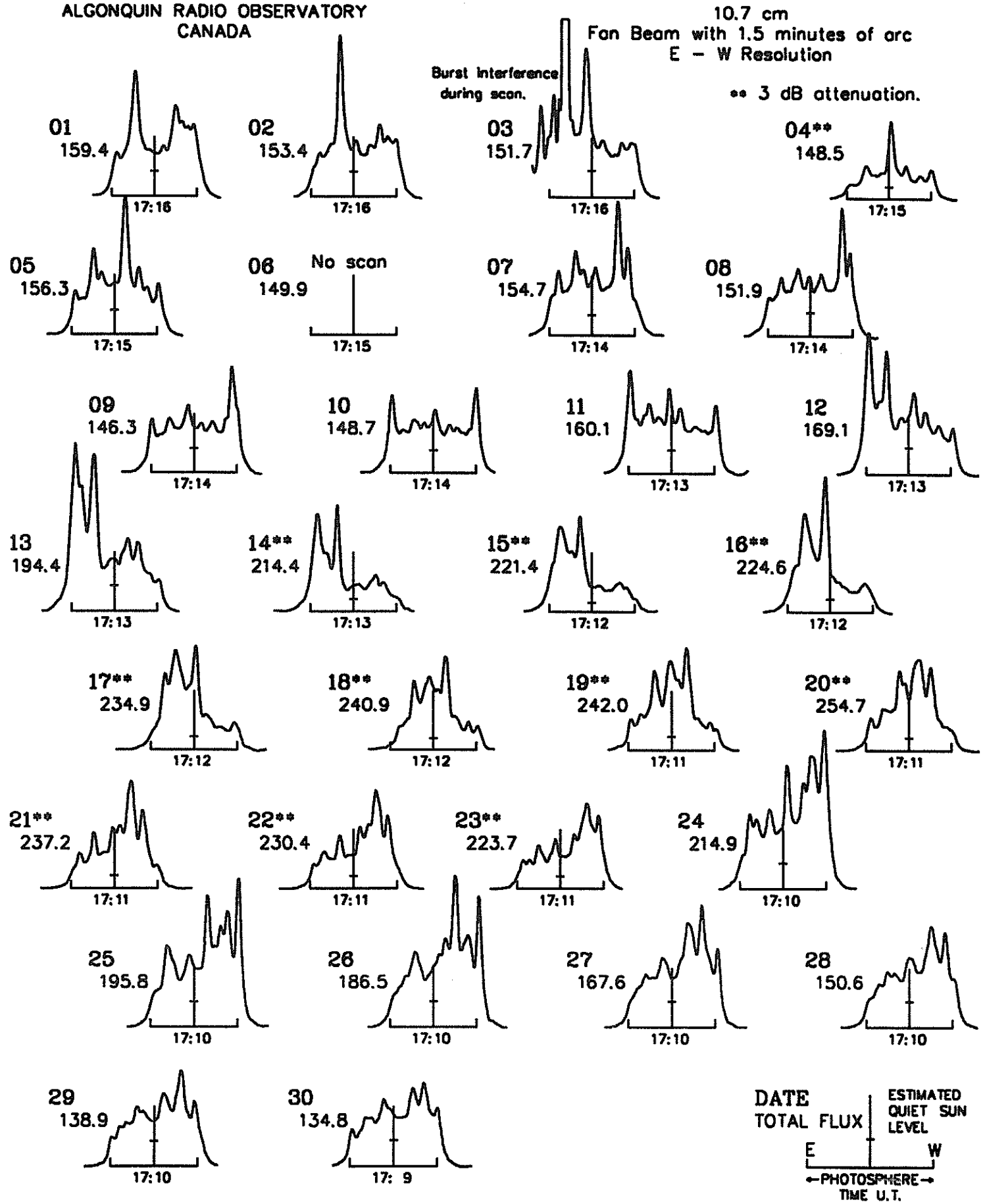
Holloman Learmonth Palehua Ramey San Vito

EAST - WEST SOLAR SCANS
APRIL 1990

ALGONQUIN RADIO OBSERVATORY
CANADA

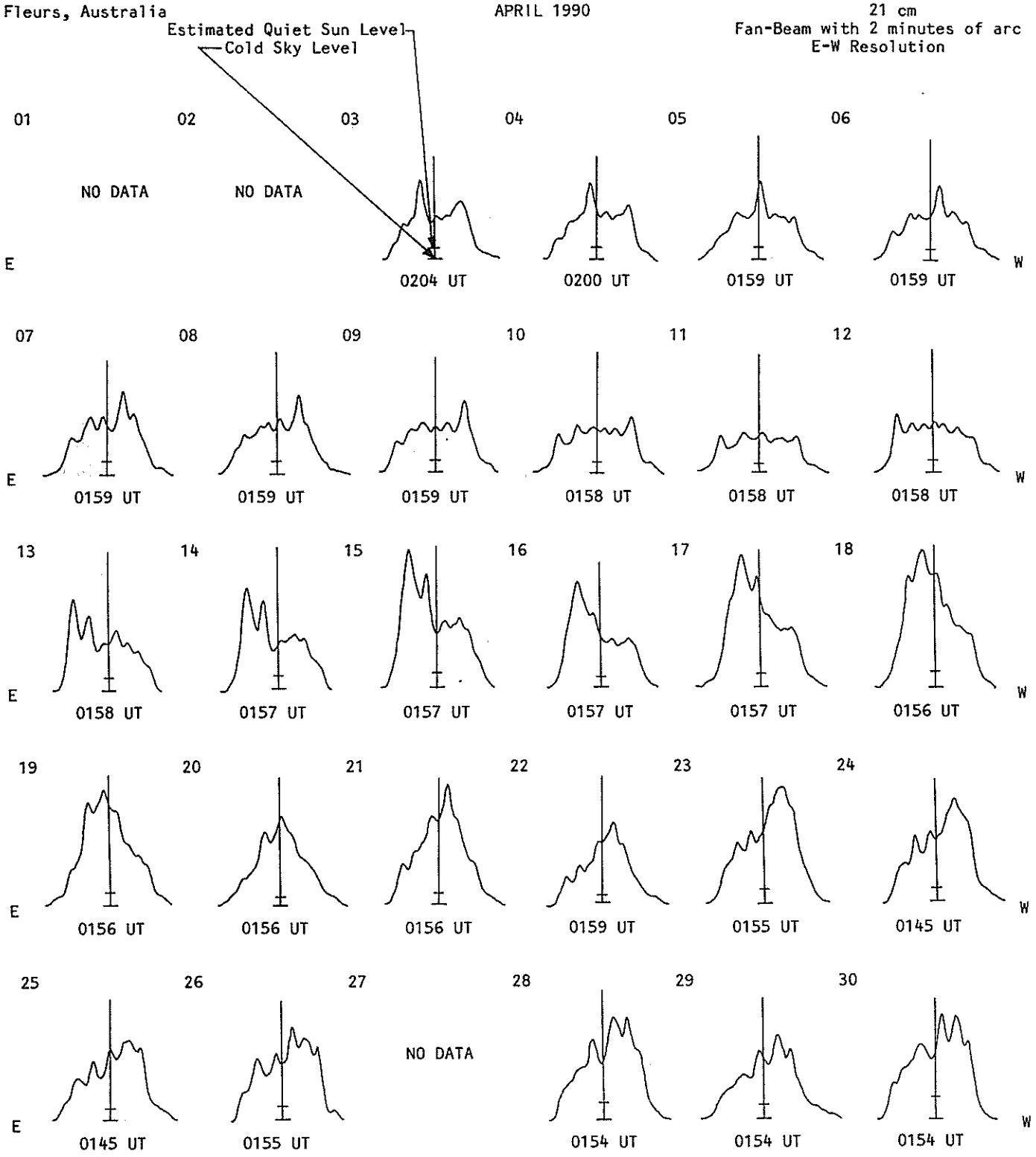
10.7 cm
Fan Beam with 1.5 minutes of arc
E - W Resolution

** 3 dB attenuation.



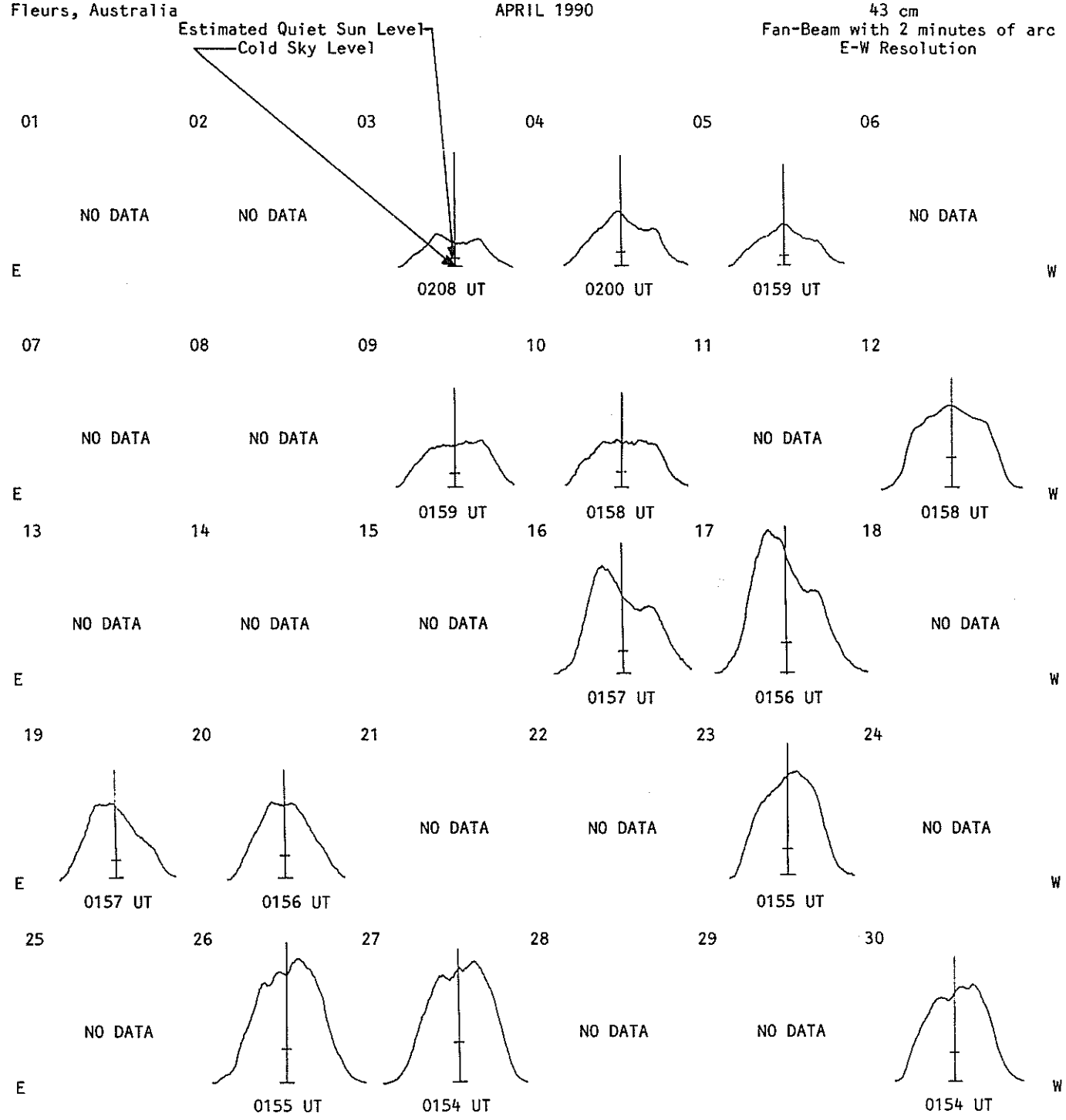
E A S T - W E S T S O L A R S C A N S

Fleurs, Australia — APRIL 1990 — 21 cm Fan-Beam with 2 minutes of arc E-W Resolution



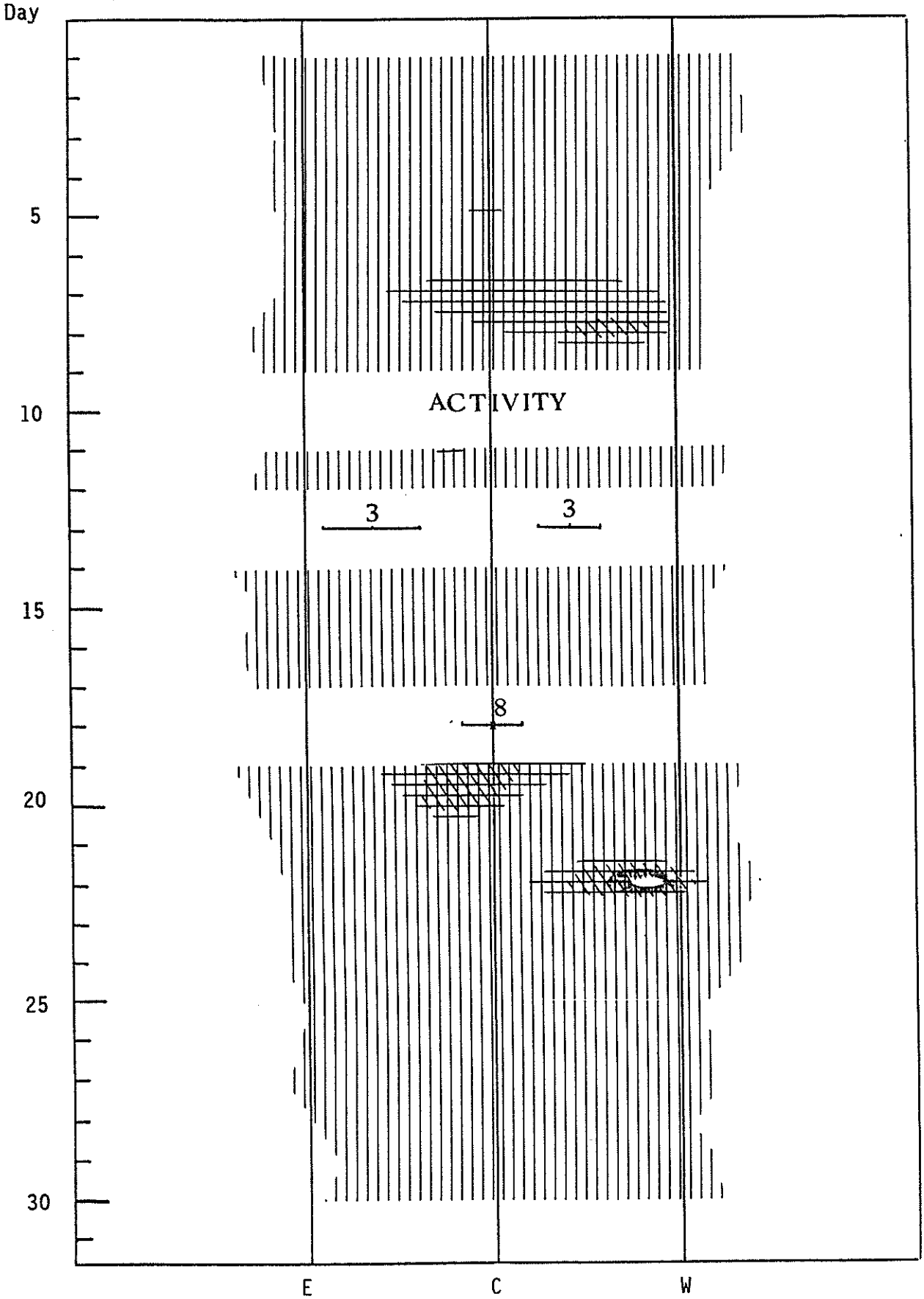
E A S T - W E S T S O L A R S C A N S

Fleurs, Australia — APRIL 1990 — 43 cm
Fan-Beam with 2 minutes of arc E-W Resolution



SOLAR INTERFEROMETRIC OBSERVATIONS

Nancay
APRIL 1990
164 MHz



SOLAR RADIO EMISSION
Selected Fixed Frequency Events

APRIL 1990

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
02	3200	BERN	3	S	0703.8	0705.8	3.0	14.9			
	8400	BERN	3	S	0703.8	0705.8	3.0	6.4			
	3200	BERN	3	S	1339.0	1341.0	4.0	0.8			
	8400	BERN	3	S	1339.0	1341.0	4.0	5.6			
	2800	OTTA	3	S	1703.0	1705.8	18.9	68.2	13.0		
	2695	PALE	8	S	1705.0E	1705.0	1.0D	57.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1705.0E	1705.0	1.0D	330.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1705.0E	1705.0	1.0D	65.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1705.0E	1706.0	1.0D	350.0			QL=4 ST=2 TYP=3
	2800	OTTA	20	GRF	1920.2	1922.3	55.0	10.2	4.0		
	8800	PALE	8	S	2248.0E	2249.0	1.0D	78.0			QL=4 ST=2 TYP=3
03	2695	LEAR	49	GB	0817.0E	0828.0	31.0D	850.0			QL=4 ST=2 TYP=7
	8800	LEAR	49	GB	0817.0E	0828.0	31.0D	4400.0			QL=4 ST=2 TYP=7
	8800	SVTO	49	GB	0817.0E	0828.0	39.0D	5000.0			QL=4 ST=2 TYP=7
	2695	SVTO	49	GB	0817.0E	0828.0	30.0D	830.0			QL=4 ST=2 TYP=7
	8400	BERN	47	GB	0821.0	0838.0	25.0	473.5			
	3200	BERN	47	GB	0821.0	0838.0	25.0	68.8			
	2695	SVTO	8	S	0906.0E	0906.0	1.0D	320.0			QL=4 ST=3 TYP=3
	2800	OTTA	4	S/F	1709.0	1717.1	62.1	427.0	128.0		
	8400	BERN	46	C	1715.0	1717.0	15.0	7.6			
	3200	BERN	46	C	1715.0	1717.0	15.0	42.2			
	2695	PALE	49	GB	1715.0E	1717.0	21.0D	510.0			QL=4 ST=2 TYP=6
	2695	SGMR	4	S/F	1715.0E	1717.0	21.0D	490.0			QL=4 ST=2 TYP=3
	8800	PALE	49	GB	1716.0E	1717.0	22.0D	2300.0			QL=4 ST=2 TYP=6
	8800	SGMR	49	GB	1716.0E	1718.0	21.0D	1500.0			QL=2 ST=2 TYP=6
04	8800	LEAR	8	S	0316.0E	0317.0	2.0D	41.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0316.0E	0317.0	1.0D	24.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0317.0E	0317.0	U	49.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0634.0E	0634.0	2.0D	74.0			QL=4 ST=2 TYP=3
	3200	BERN	4	S/F	0740.6	0742.3	6.0	2.6			
	2800	OTTA	47	GB	1312.0	1336.8	33.0	978.0	290.0		
	8800	SGMR	49	GB	1315.0E	1335.0	29.0D	1100.0			QL=2 ST=2 TYP=7
	2695	SGMR	49	GB	1315.0E	1336.0	28.0D	590.0			QL=4 ST=2 TYP=7
	8800	SVTO	49	GB	1315.0E	1335.0	28.0D	1900.0			QL=4 ST=2 TYP=7
	2695	SVTO	49	GB	1315.0E	1336.0	28.0D	570.0			QL=4 ST=2 TYP=7
	3200	BERN	47	GB	1315.0	1335.0	30.0	67.6			
	8400	BERN	47	GB	1315.0	1335.0	30.0	135.2			
	2800	OTTA	29	PBI	1344.3	1344.3	111.0	14.0	7.0		
05	2800	OTTA	3	S	1343.0	1345.3	5.3	130.7	39.0		
	2695	SGMR	4	S/F	1343.0E	1345.0	4.0D	110.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1343.0E	1343.0	617.0D	320.0			QL=4 ST=1 TYP=3
	8400	BERN	46	C	1343.5	1343.8	3.0	46.2			
	3200	BERN	46	C	1343.5	1343.8	3.0	15.1			
	2800	OTTA	29	PBI	1348.3	1348.3	60.0	7.9	4.0		
07	2800	OTTA	4	S/F	1505.0	1523.3	38.0	264.0	80.0		
	2695	SGMR	4	S/F	1521.0E	1523.0	14.0D	230.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	1521.0E	1523.0	18.0D	200.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1521.0E	1523.0	17.0D	210.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1522.0E	1523.0	2.0D	100.0			QL=4 ST=2 TYP=3
	2800	OTTA	29	PBI	1543.0	1543.0	140.0	16.7	8.0		
08	2695	PALE	4	S/F	0352.0E	0400.0	12.0D	110.0			QL=4 ST=2 TYP=5
	2695	LEAR	4	S/F	0354.0E	0355.0	11.0D	89.0			QL=4 ST=2 TYP=3
	2800	OTTA	3	S	1310.5	1312.6	9.5	14.6	4.0		
10	2695	SVTO	4	S/F	1149.0E	1150.0	5.0D	42.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1155.0E	1155.0	U	22.0			QL=2 ST=2 TYP=3
12	2695	PENT	3	S	0034.0	0036.6	10.0	22.7	6.0		
13	8800	SVTO	4	S/F	1148.0E	1151.0	9.0D	180.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1151.0E	1151.0	2.0D	110.0			QL=4 ST=2 TYP=3
	2800	OTTA	20	GRF	1528.0	1654.0	140.0	6.6	3.0		
	2800	OTTA	3	S	1716.5	1717.0	4.9	20.7	6.0		
	2800	OTTA	4	S/F	2116.0	2125.4	19.0	198.0	40.0		

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

APRIL 1990

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
13	2695	SGMR	4	S/F	2116.0E	2125.0	14.0D	170.0			QL=4 ST=3 TYP=3
	8800	SGMR	49	GB	2116.0E	2125.0	15.0D	1200.0			QL=2 ST=2 TYP=7
	8800	PALE	49	GB	2122.0E	2125.0	9.0D	990.0			QL=4 ST=2 TYP=6
	2695	PALE	8	S	2126.0E	2126.0	1.0D	100.0			QL=4 ST=2 TYP=3
14	2695	LEAR	4	S/F	0219.0E	0222.0	5.0D	36.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0348.0E	0348.0	2.0D	57.0			QL=2 ST=2 TYP=3
	8800	PALE	4	S/F	0348.0E	0349.0	5.0D	37.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	0348.0E	0348.0	2.0D	50.0			QL=4 ST=2 TYP=3
15	8800	LEAR	49	GB	0229.0E	0300.0	223.0D	22000.0			QL=2 ST=3 TYP=7
	8800	PALE	49	GB	0230.0E	0300.0	121.0D	23000.0			QL=4 ST=3 TYP=7
	2695	LEAR	49	GB	0230.0E	0337.0	294.0D	12000.0			QL=2 ST=3 TYP=7
	2695	PALE	49	GB	0231.0E	0335.0	123.0D	11000.0			QL=4 ST=3 TYP=7
	8800	SVTO	4	S/F	0430.0E	0439.0	117.0D	540.0			QL=2 ST=2 TYP=3
	2695	SVTO	49	GB	0430.0E	0431.0	113.0D	1700.0			QL=2 ST=2 TYP=6
	2800	OTTA	3	S	2055.1	2056.1	6.1	31.9	9.0		
	2695	PENT	4	S/F	2345.9	2350.1	8.1	31.5	9.0		
16	8800	LEAR	4	S/F	0038.0E	0039.0	4.0D	170.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	0038.0E	0039.0	3.0D	100.0			QL=4 ST=2 TYP=3
	2695	PENT	4	S/F	0038.5	0039.5	10.5	94.5	20.0		
	2695	LEAR	8	S	0039.0E	0039.0	2.0D	120.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	0039.0E	0039.0	25.0D	210.0			QL=4 ST=2 TYP=5
	2695	LEAR	49	GB	0628.0E	0631.0	21.0D	1200.0			QL=4 ST=2 TYP=6
	8800	LEAR	49	GB	0629.0E	0631.0	20.0D	1200.0			QL=4 ST=2 TYP=6
	8800	SVTO	49	GB	0629.0E	0631.0	23.0D	1300.0			QL=2 ST=2 TYP=6
	2695	SVTO	49	GB	0629.0E	0631.0	23.0D	1100.0			QL=2 ST=2 TYP=6
	2800	OTTA	22	GRF	1537.0	1604.5	275.0	10.5	5.0		
17	2800	OTTA	3	S	1427.5	1430.0	5.2	143.0	30.0		
	2695	SGMR	4	S/F	1428.0E	1430.0	4.0D	130.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1428.0E	1429.0	4.0D	130.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1429.0E	1430.0	2.0D	49.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1430.0E	1430.0	U	37.0			QL=4 ST=2 TYP=3
	2800	OTTA	29	PBI	1432.7	1432.7	75.0	14.3	7.0		
	2800	OTTA	22	GRF	1622.0	1728.0	170.0	8.6	3.0		
	2800	OTTA	4	S/F	2030.6	2033.2	8.1	18.6	5.0		
18	2695	LEAR	8	S	0336.0E	0336.0	1.0D	48.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0336.0E	0336.0	2.0D	69.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	0336.0E	0336.0	1.0D	58.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0336.0E	0336.0	1.0D	90.0			QL=4 ST=2 TYP=3
19	2800	OTTA	20	GRF	1541.0	1603.0	210.0	10.9	5.0		
20	2695	LEAR	8	S	0921.0E	0921.0	2.0D	31.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0921.0E	0923.0	3.0D	31.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0942.0E	0943.0	2.0D	28.0			QL=4 ST=2 TYP=3
	2695	LEAR	20	GRF	0942.0E	0943.0	4.0D	46.0			QL=4 ST=2 TYP=2
	8800	SGMR	8	S	1100.0E	1100.0	1.0D	72.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1100.0E	1100.0	1.0D	69.0			QL=4 ST=2 TYP=3
21	2695	SVTO	4	S/F	0646.0E	0649.0	9.0D	120.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0646.0E	0649.0	18.0D	120.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0647.0E	0648.0	16.0D	82.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0716.0E	0718.0	3.0D	45.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0716.0E	0718.0	2.0D	44.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0716.0E	0718.0	18.0D	56.0			QL=2 ST=2 TYP=3
	8800	LEAR	8	S	0717.0E	0718.0	1.0D	27.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0942.0E	0944.0	2.0D	97.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0943.0E	0943.0	1.0D	120.0			QL=4 ST=2 TYP=3
	2800	OTTA	22	GRF	1850.0	1945.0	150.0	21.3	10.0		
25	2800	OTTA	3	S	1806.5	1810.2	17.5	22.5	5.0		
	2695	PENT	4	S/F	2344.2	2348.8	22.5	45.1	9.0		
	8800	LEAR	4	S/F	2346.0E	2348.0	7.0D	190.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	2347.0E	2350.0	4.0D	49.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2350.0E	2350.0	1.0D	86.0			QL=2 ST=2 TYP=3

SOLAR RADIO EMISSION
Selected Fixed Frequency Events

APRIL 1990

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
26	2800	OTTA	22 GRF	1514.0	1538.0	160.0	19.8	7.0		
27	2695	PENT	3 S	0017.0	0019.2	10.0	59.8	17.0		
28	2695	LEAR	4 S/F	0017.0E	0019.0	3.0D	58.0			QL=4 ST=2 TYP=3
	2695	PALE	8 S	0019.0E	0019.0	U	60.0			QL=4 ST=2 TYP=3

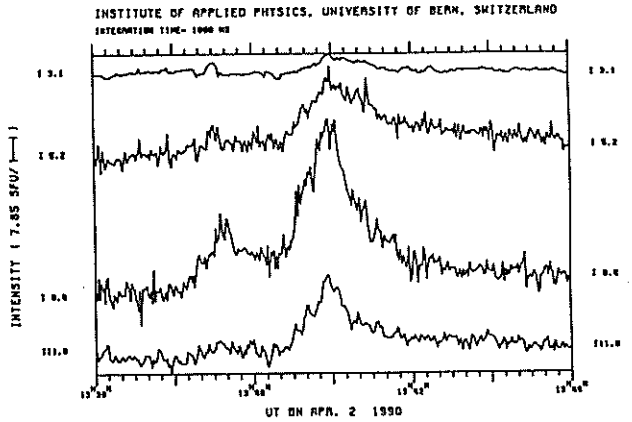
Reports are received routinely from the following observatories:
BERN = Berne LEAR = Learmonth PALE = Palehua SGMR = Sagamore Hill
OTTA = Ottawa PENT = Penticton SVTO = San Vito

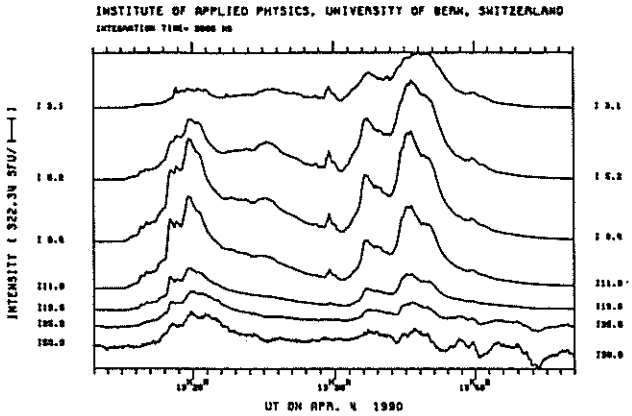
Explanation of Type Code:

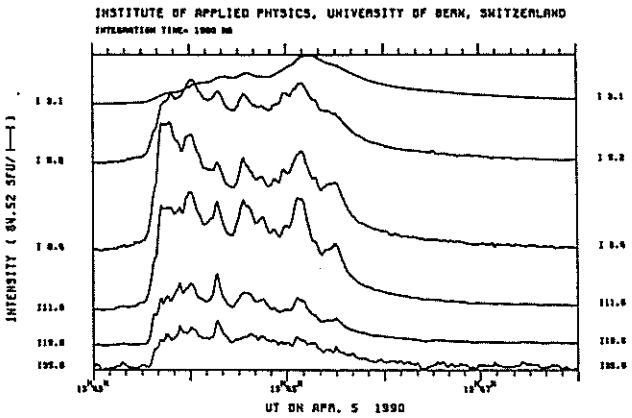
1 Simple 1	7 Minor +	24 Rise	30 Post Burst Increase A	43 Onset of Noise Storm
2 Simple 1F	8 Spike	25 Rise A	31 Post Burst Decrease	44 Noise Storm in Progress
3 Simple 2	20 Simple 3	26 Fall	33 Absorption	45 Complex
4 Simple 2F	21 Simple 3A	27 Rise and Fall	40 Fluctuation	46 Complex F
5 Simple	22 Simple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

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

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





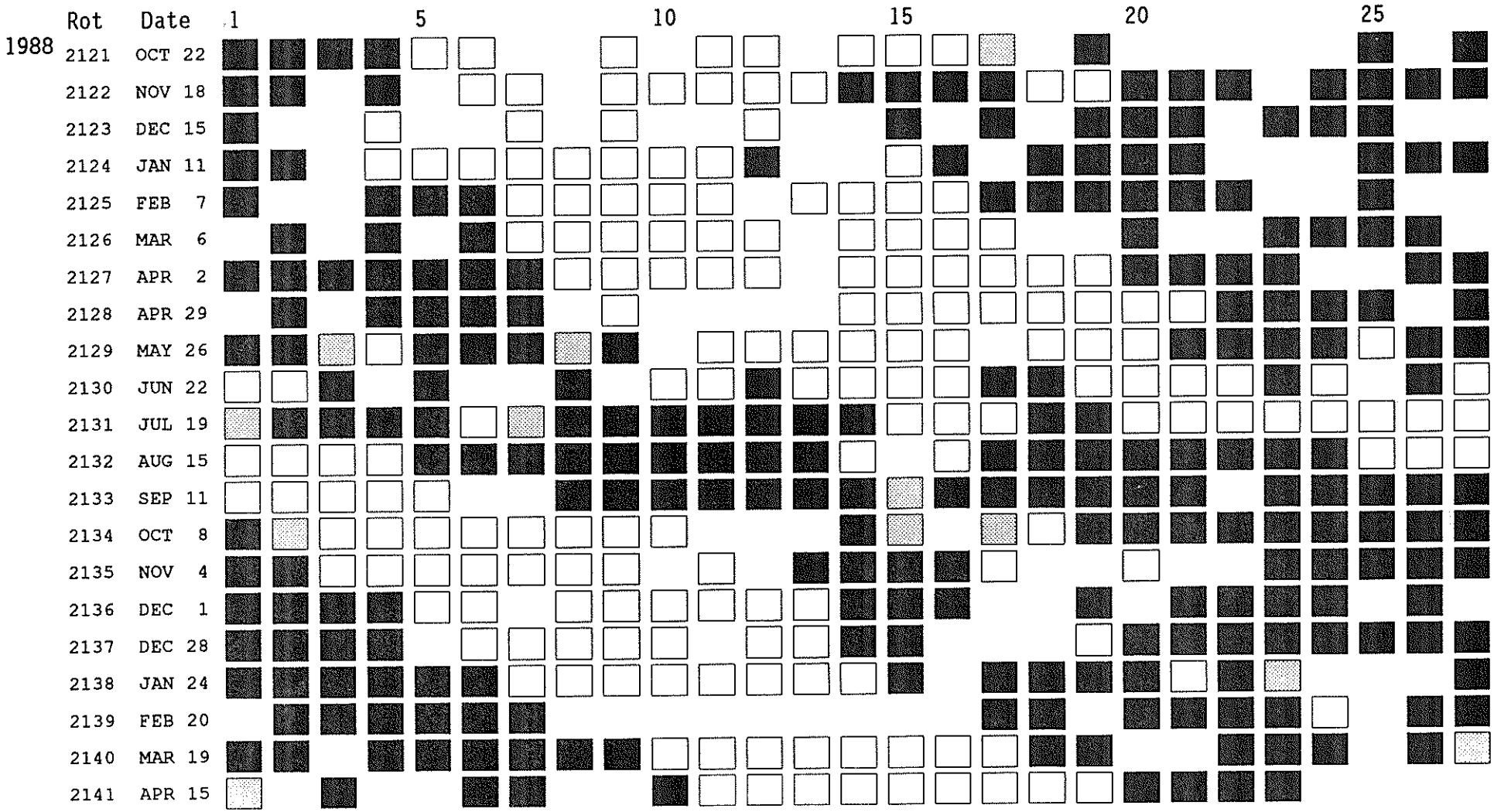


STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1989 May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1990 Jan	Feb	Mar	Apr
1	.	-5	4	-145	-58	-43	-111	-113	.	128	.	84
2	-47	-1	51	80	-46	.	-125	-79	22	150	.	47
3	-31	-22	-19	121	-37	-87	-111	-46	70	344	.	33
4	-22	.	3	14	-37	-84	-75	-11	106	99	.	4
5	-22	2	71	-51	-46	-35	-11	43	132	69	.	-8
6	.	56	69	-65	-30	-22	44	60	129	23	.	-29
7	65	74	25	9	-5	-13	54	.	.	-11	.	.
8	.	120	-90	145	22	-5	86	84	58	.	-28	.
9	.	145	-79	86	25	0	97	126	23	-15	-23	-29
10	.	142	106	82	12	2	103	115	-7	-8	.	-36
11	.	.	115	59	23	10	107	79	-41	-14	-25	-34
12	73	37	84	43	23	38	95	47	.	-9	-23	.
13	87	34	73	43	43	33	.	7	.	4	-11	-8
14	75	24	-55	55	44	26	13	-35	.	-12	-15	0
15	76	-58	22	57	25	31	.	-59	5	-2	2	-2
16	73	-26	.	66	.	17	-70	-62	-11	.	.	.
17	59	-91	-49	33	.	5	-79	.	-14	.	-10	-20
18	53	-6	6	2	-13	.	-86	.	-58	.	-45	.
19	22	4	0	-10	-22	.	-38	-4	-86	-78	-63	.
20	-37	-67	-138	-20	-20	.	4	.	-84	.	-108	-105
21	-44	-18	-126	-35	-21	-88	.	-32	-76	-142	.	-99
22	-48	35	-57	-41	-26	0	.	-70	-88	-193	-150	.
23	-54	15	-25	-29	-31	.	17	-101	-124	-167	-124	.
24	.	-15	10	-15	-21	1	.	-103	-152	-133	-113	-21
25	-44	.	-2	-13	-1	5	.	.	-184	-102	-74	23
26	-14	-24	-15	-15	-8	-19	-52	-103	-203	-41	-62	57
27	-13	.	-52	-7	-19	-56	-78	.	-200	.	-34	75
28	1	.	-27	4	-16	-70	-76	-130	-140	.	9	65
29	7	-30	-12	.	-24	-100	-92	-108	-62		45	50
30	-12	.	-44	3	-26	-110	-110	-106	3		103	50
31	-5		-144	-29		-104		-94	46		94	

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.

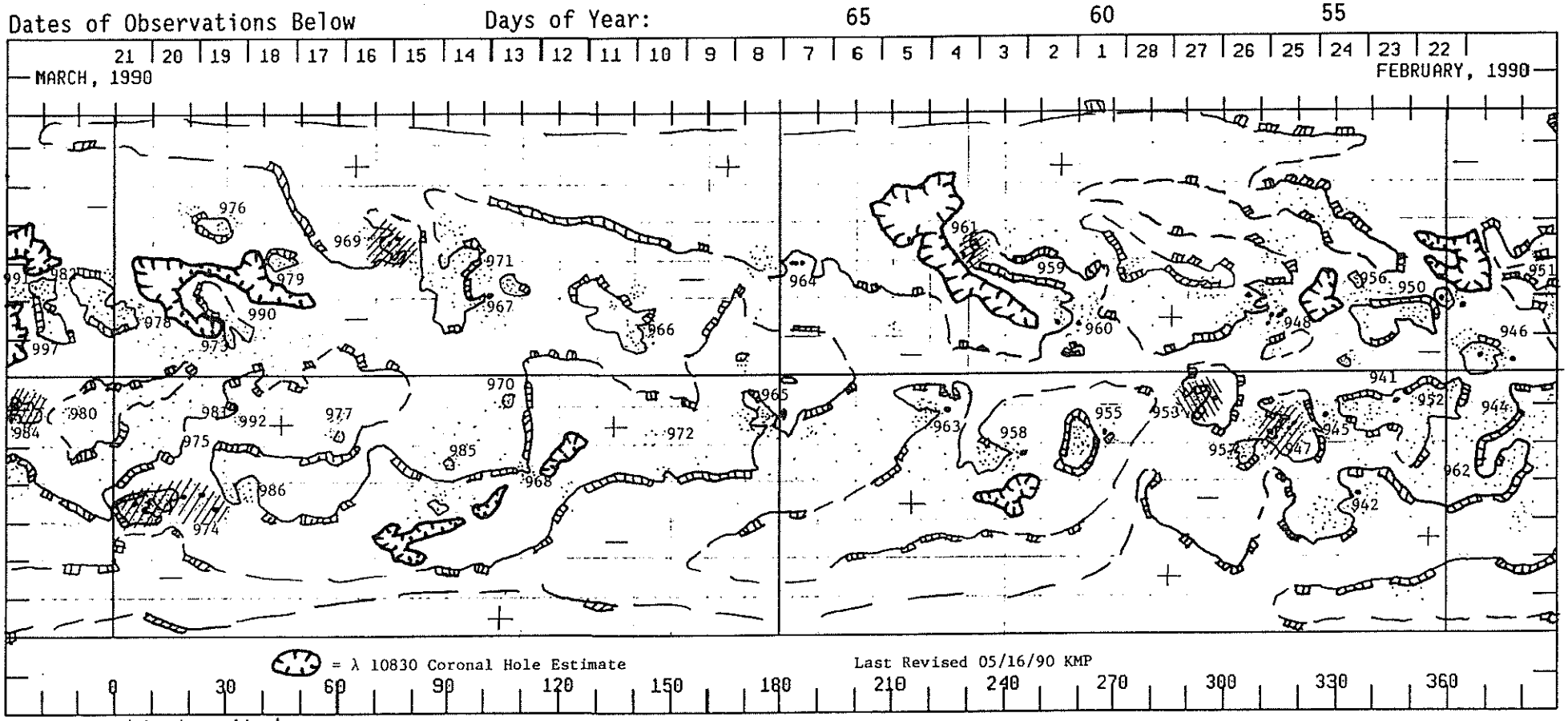
C O N T E N T S

Prompt Reports DATA FOR **MARCH 1990** Number 549 Part I

*** Data no longer available in SGD because of extremely low usage. Please contact the data center for further information on data availability.

PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1826
(22 February to 21 March 1990)



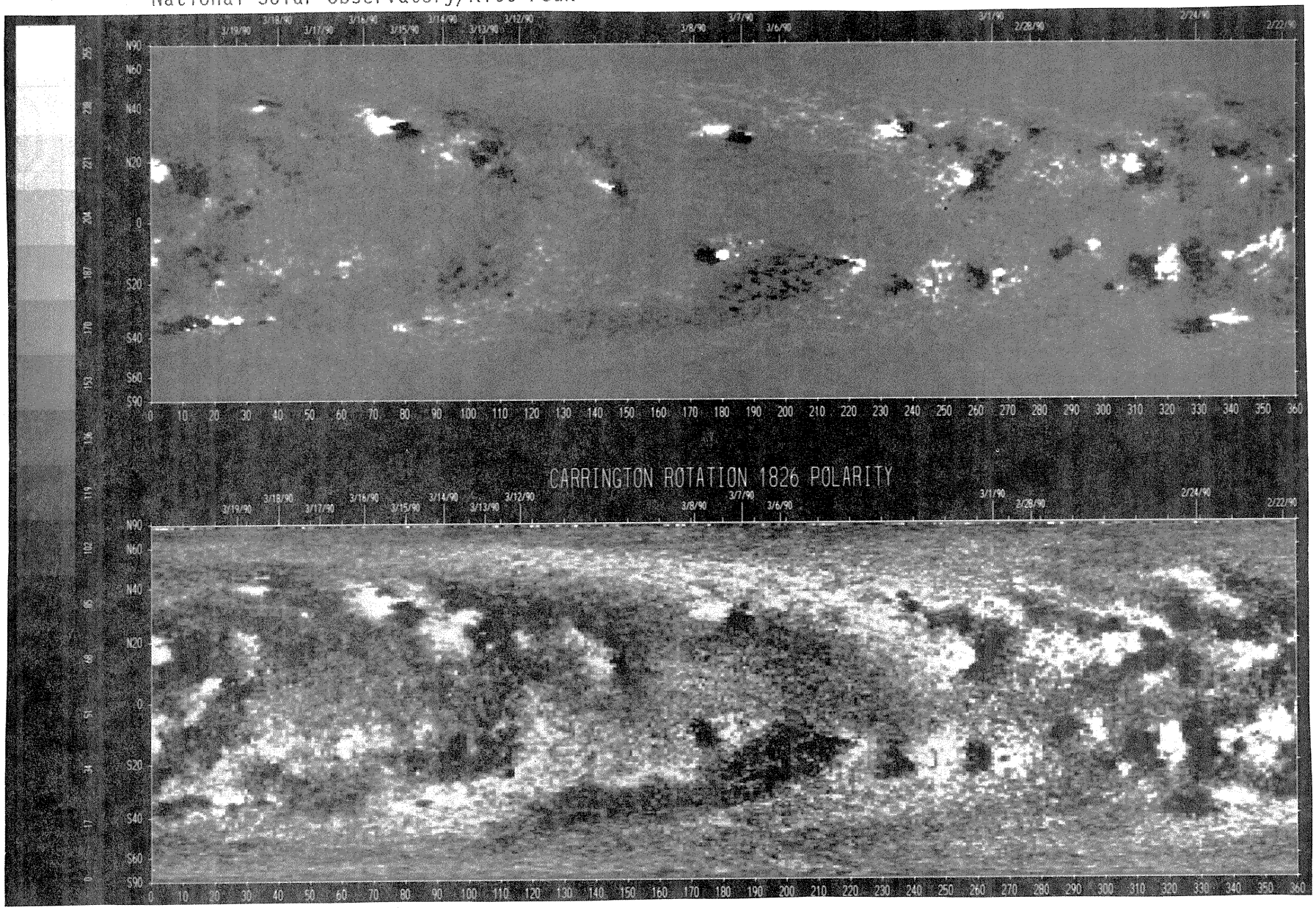
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1826

(22 February to 21 March 1990)

National Solar Observatory/Kitt Peak

Dates of Observation

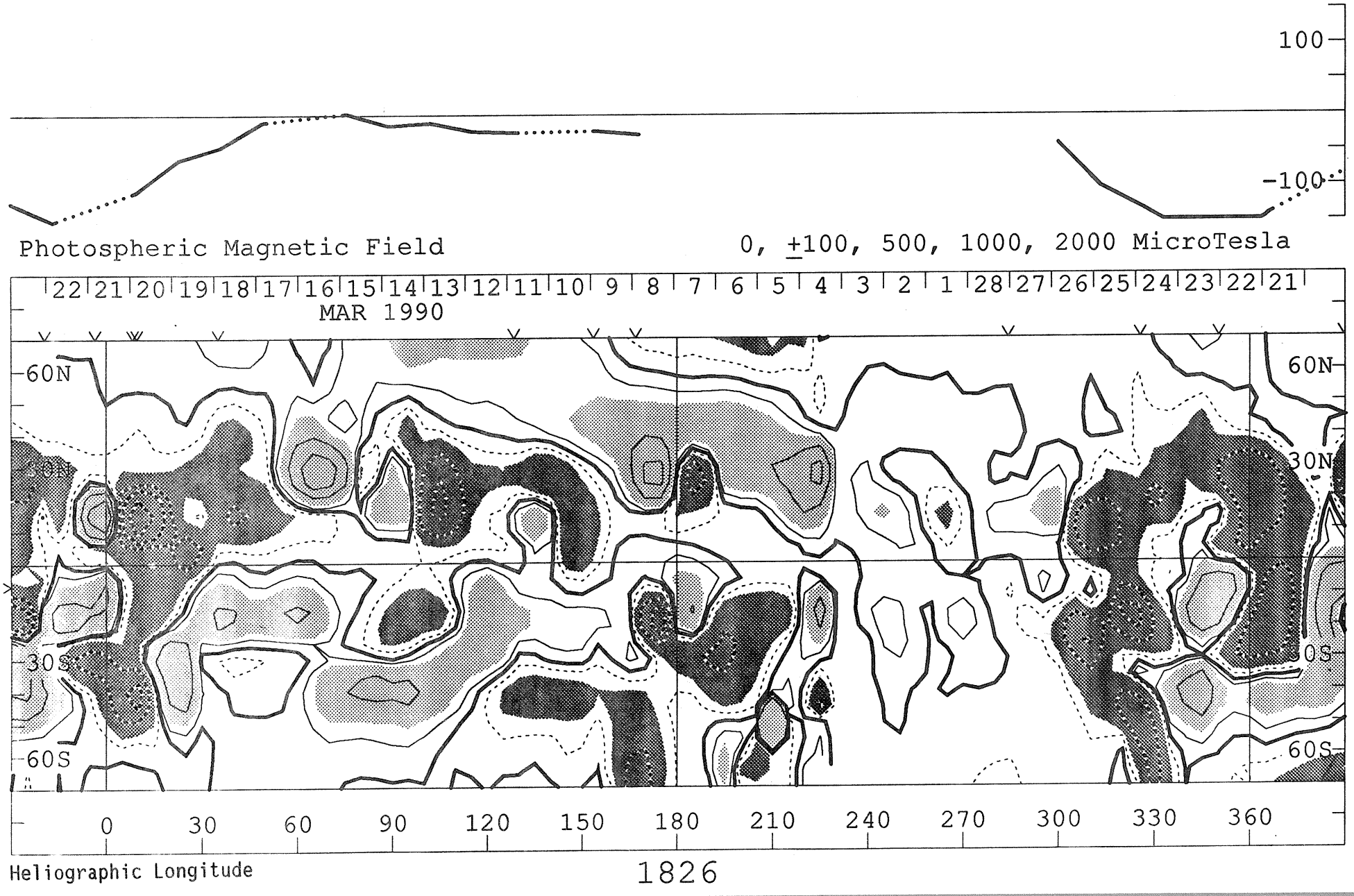


Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1826
(22 February to 21 March 1990)

WILCOX SOLAR OBSERVATORY



SOLAR MAGNETIC FIELD SYNOPTIC CHART

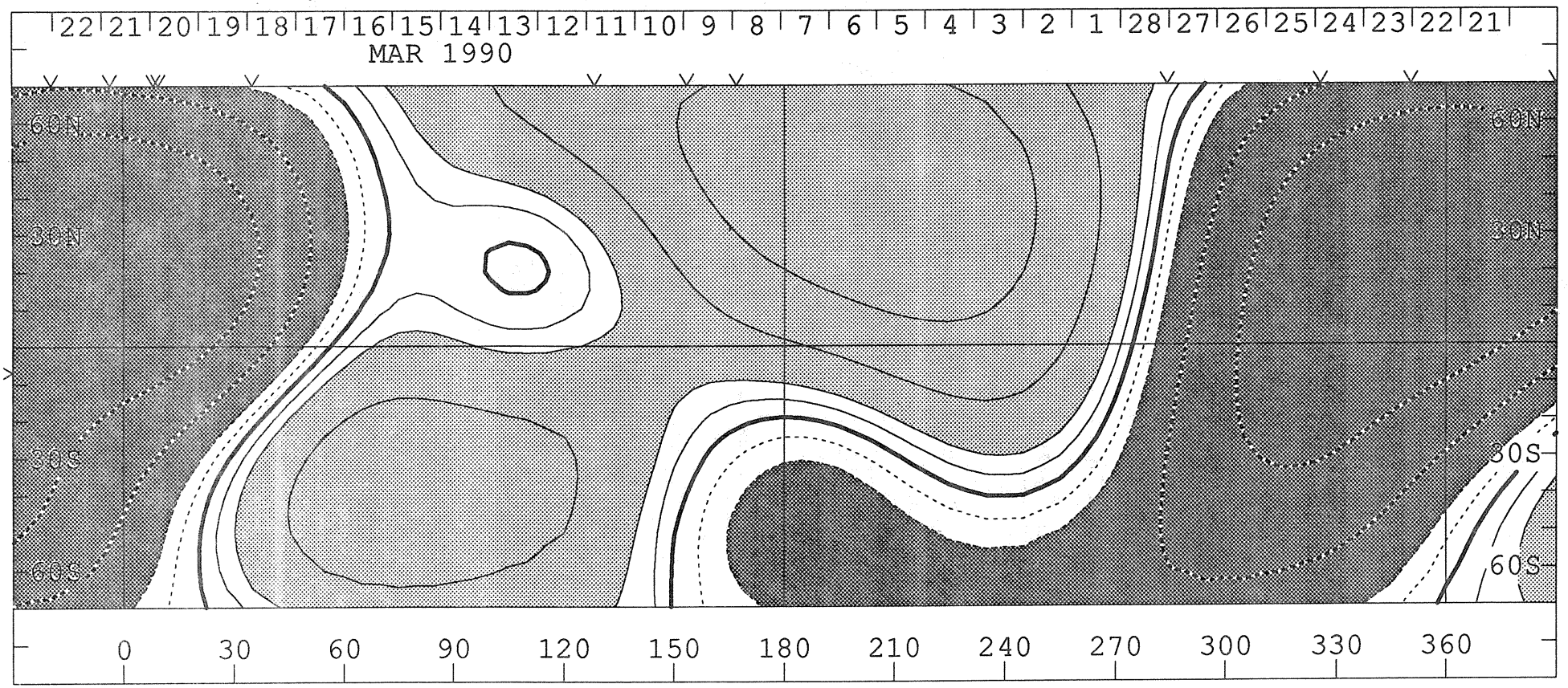
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1826

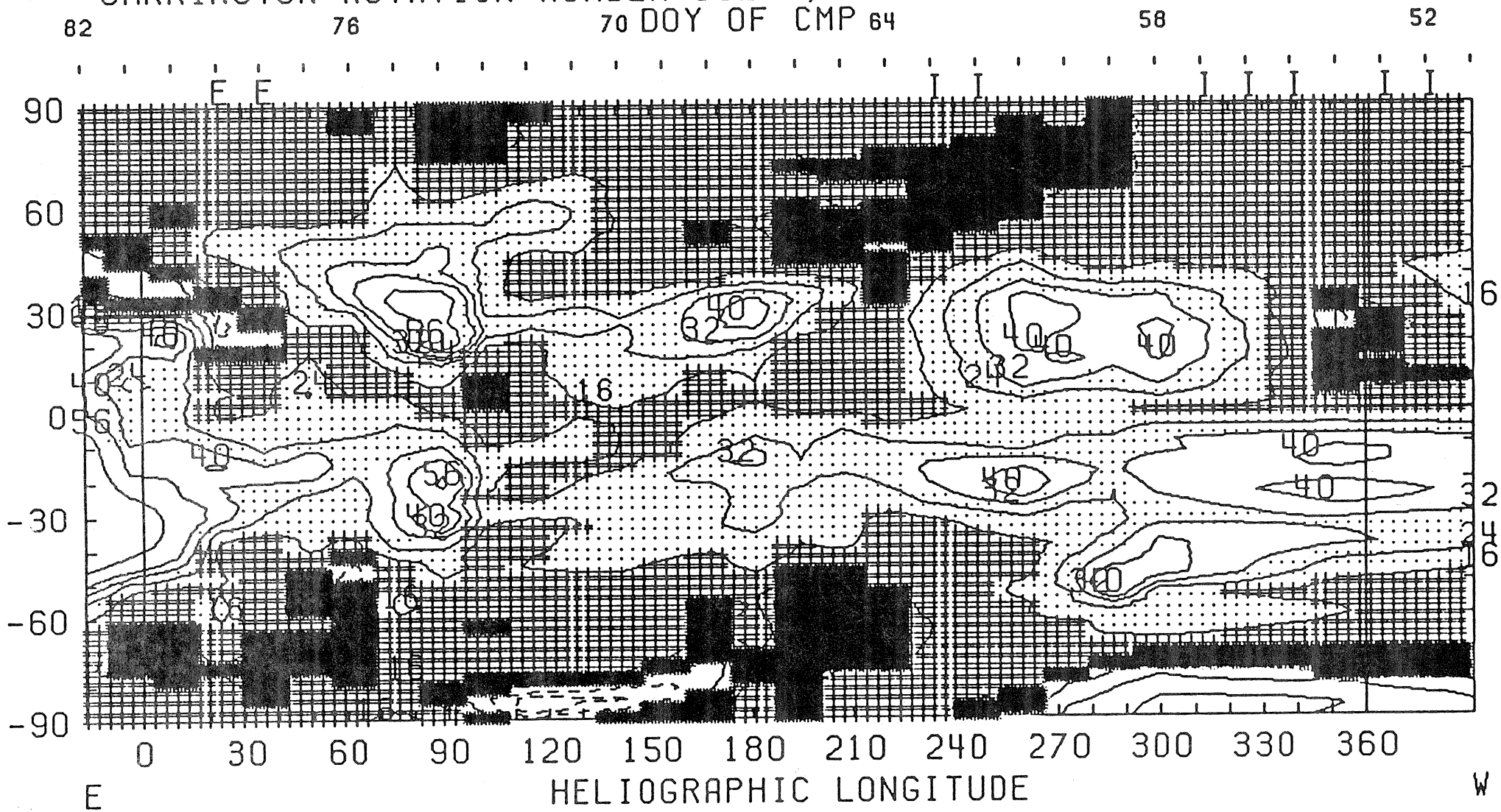
(22 February to 21 March 1990)

Wilcox Solar Observatory

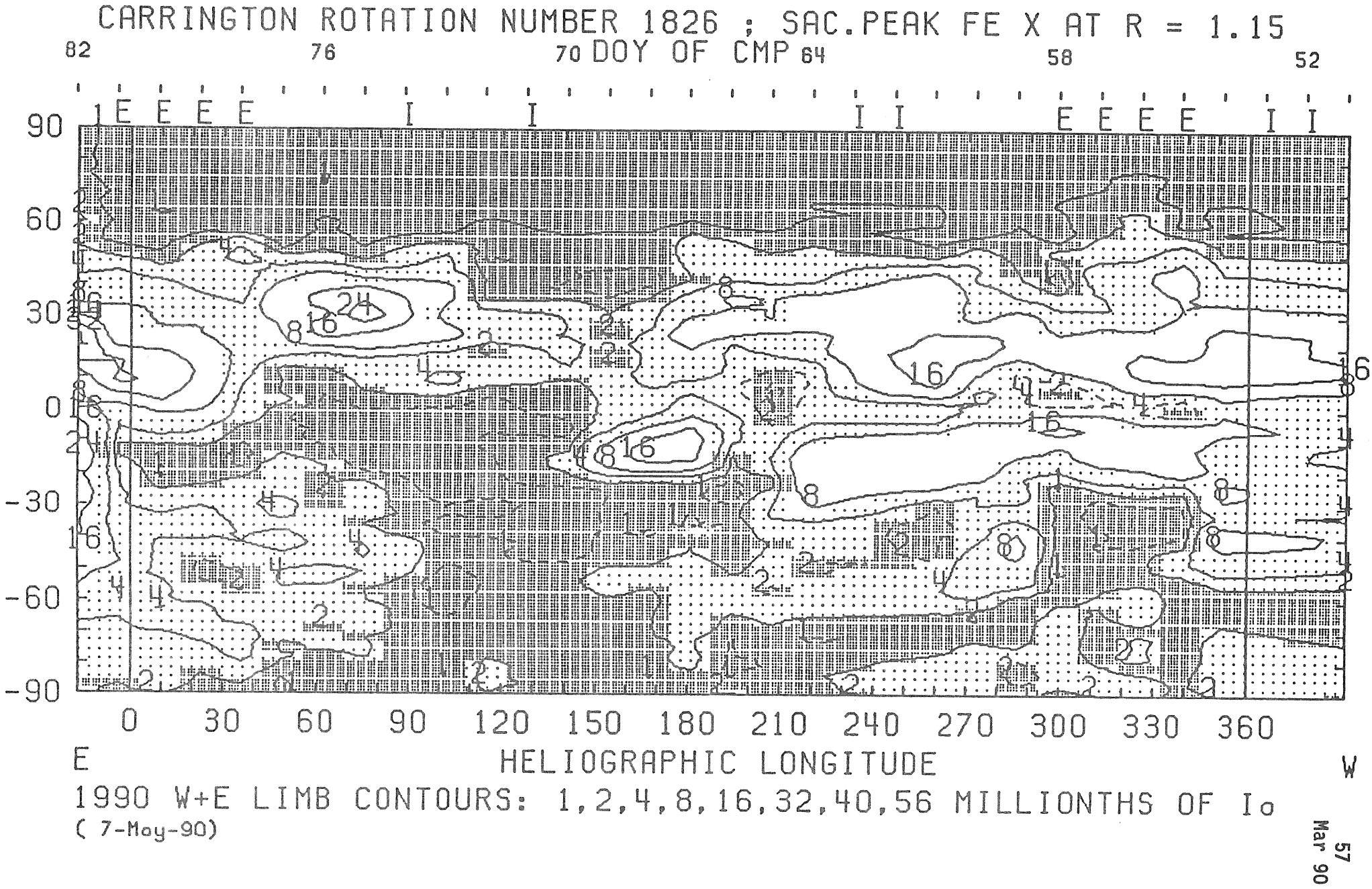
0, ±1, 2, 5, 10, 20 microTesla



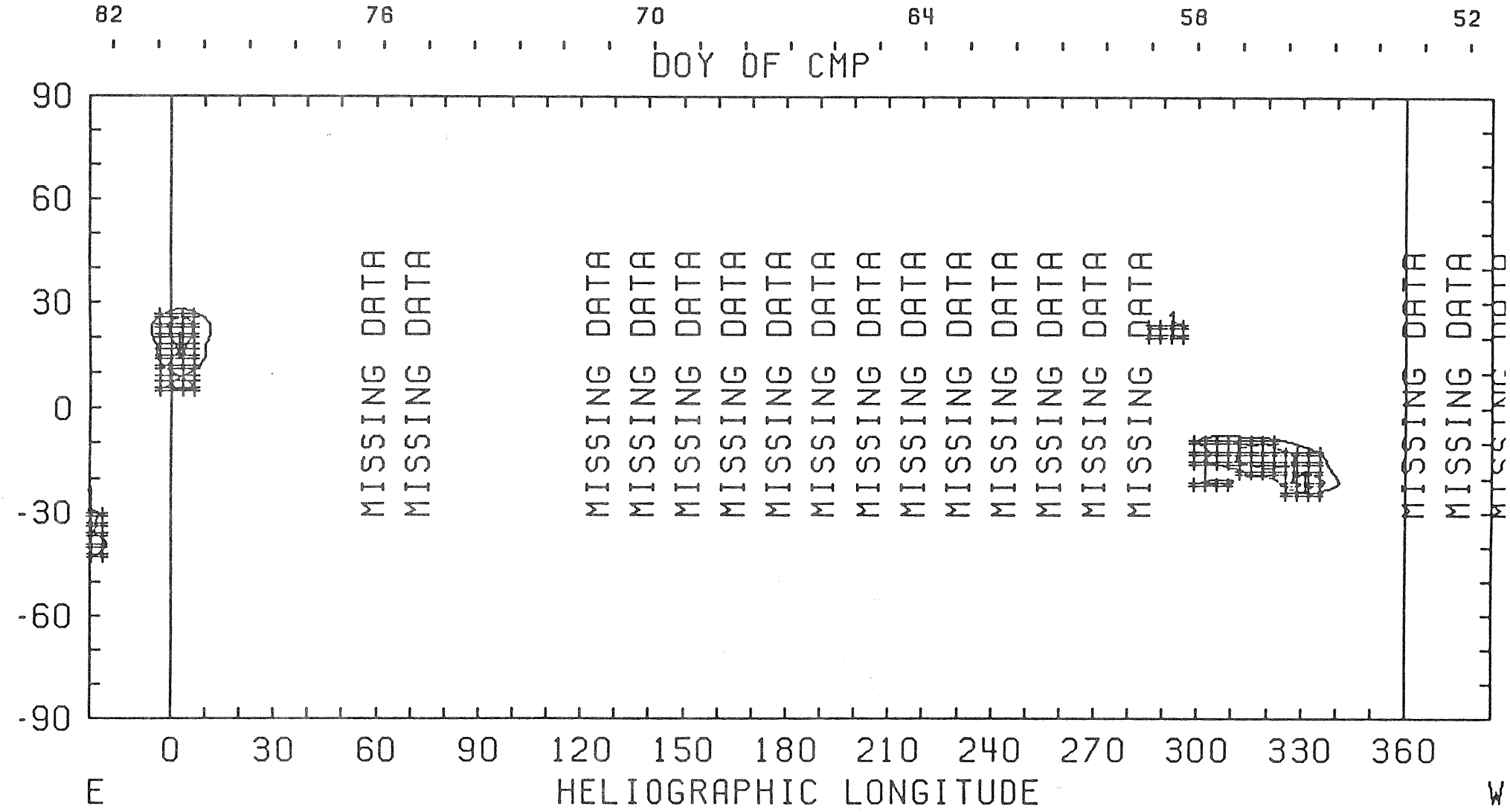
CARRINGTON ROTATION NUMBER 1826 ; SAC.PEAK FE XIV AT R = 1.15



1990 W+E LIMB CONTOURS: 1,2,4,8,16,32,40,56 MILLIONTHS OF Io
(7-May-90) CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK

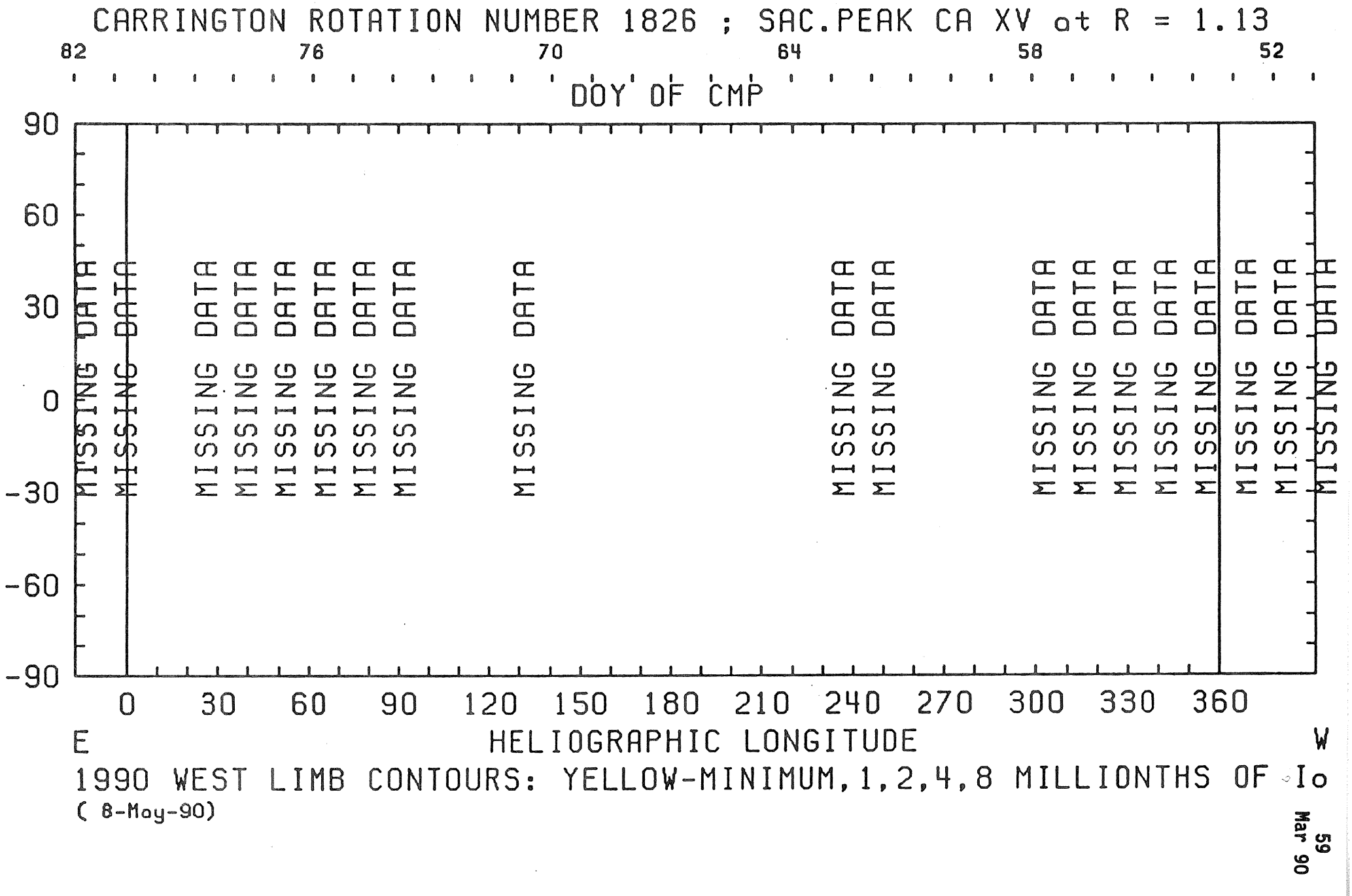

CARRINGTON ROTATION NUMBER 1826 ; SAC.PEAK FE X AT R = 1.15
82
76
70 DOY OF CMP 64
58
52
90
60
30
0
-30
-60
-90
0
30
60
90
120
150
180
210
240
270
300
330
360
E
HELIOGRAPHIC LONGITUDE
W
1990 W+E LIMB CONTOURS: 1,2,4,8,16,32,40,56 MILLIONTHS OF Io
(7-May-90)
57
Mar 90

CARRINGTON ROTATION NUMBER 1826 ; SAC.PEAK CA XV at R = 1.13



1990 EAST LIMB CONTOURS: YELLOW-MINIMUM,1,2,4,8 MILLIONTHS OF Io

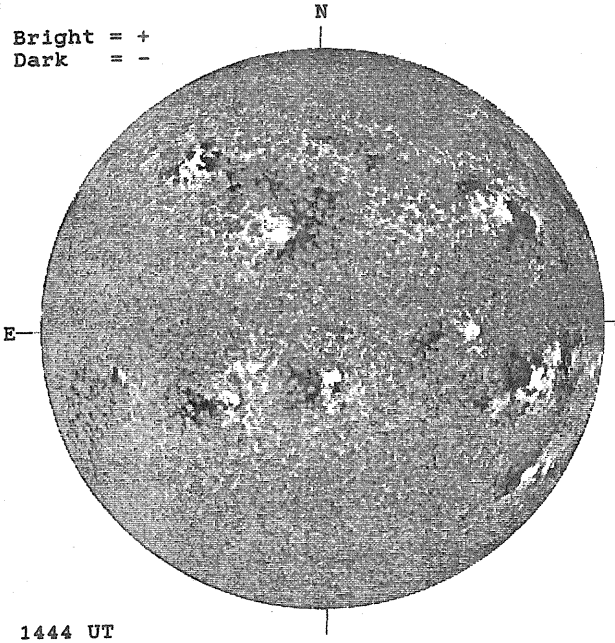
(8-May-90)


CARRINGTON ROTATION NUMBER 1826 ; SAC.PEAK CA XV at R = 1.13
82
76
70
64
58
52
DOY OF CMP
90
60
30
0
-30
-60
-90
MISSING DATA
0
30
60
90
120
150
180
210
240
270
300
330
360
E
HELIOGRAPHIC LONGITUDE
W
1990 WEST LIMB CONTOURS: YELLOW-MINIMUM,1,2,4,8 MILLIONTHS OF Io
(8-May-90)
59
Mar 90

MARCH 1, 1990 (P=-21.49, B_o =-7.20, L_o = 273.12)

KITT PEAK MAGNETOGRAM

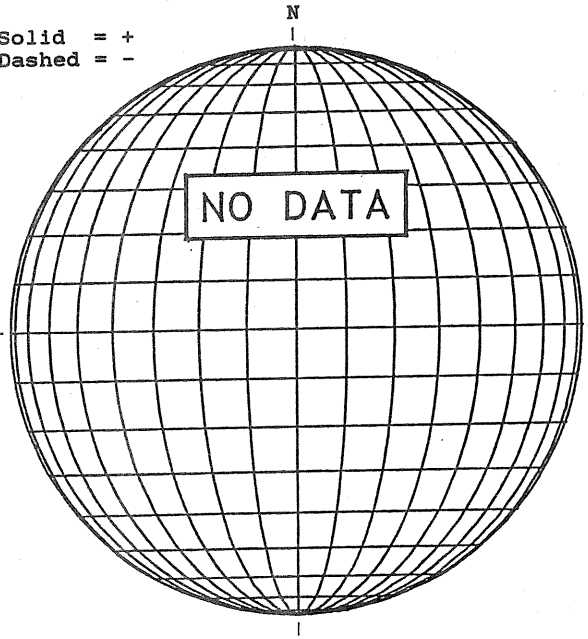
Bright = +
Dark = -



1444 UT

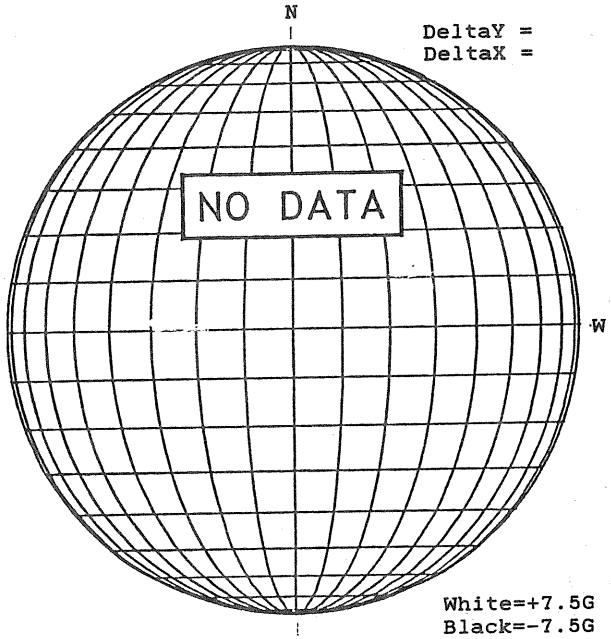
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



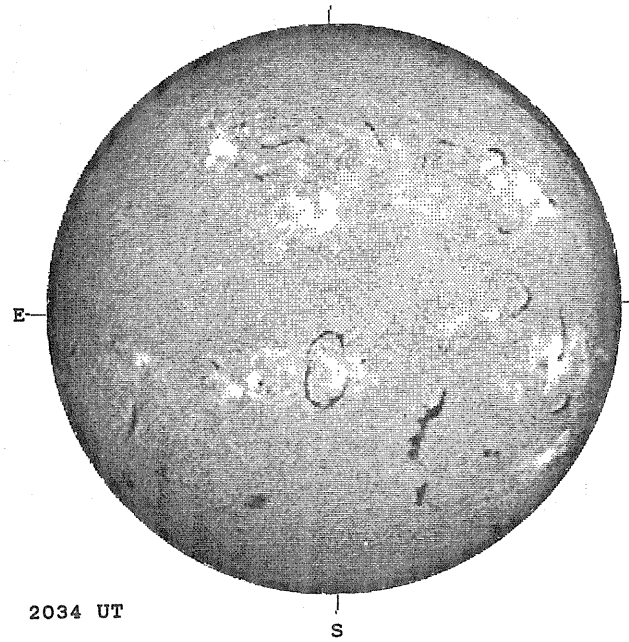
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



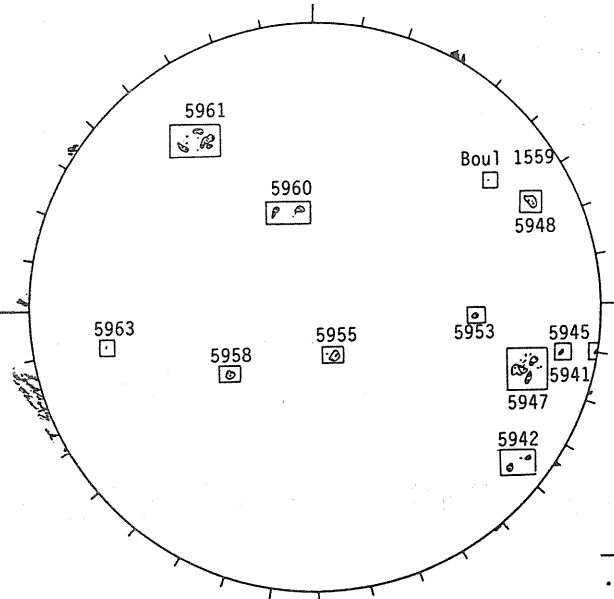
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



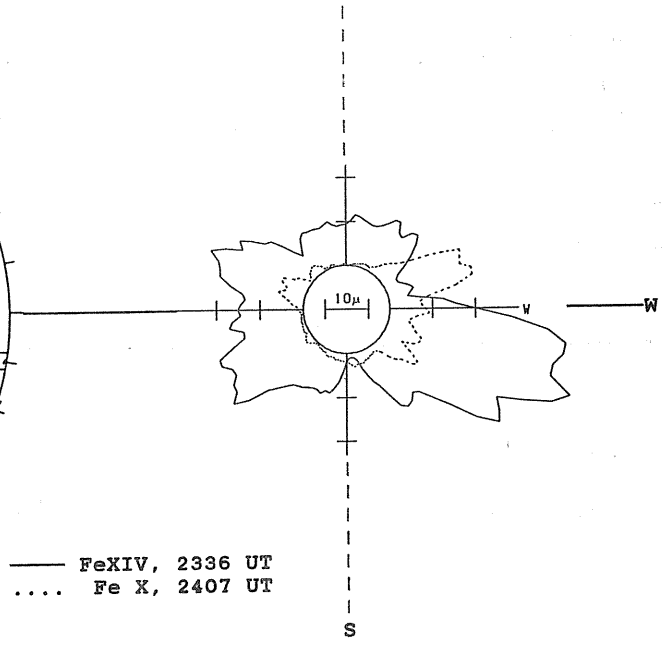
2034 UT

BOULDER SUNSPOT



1546 UT
1607 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

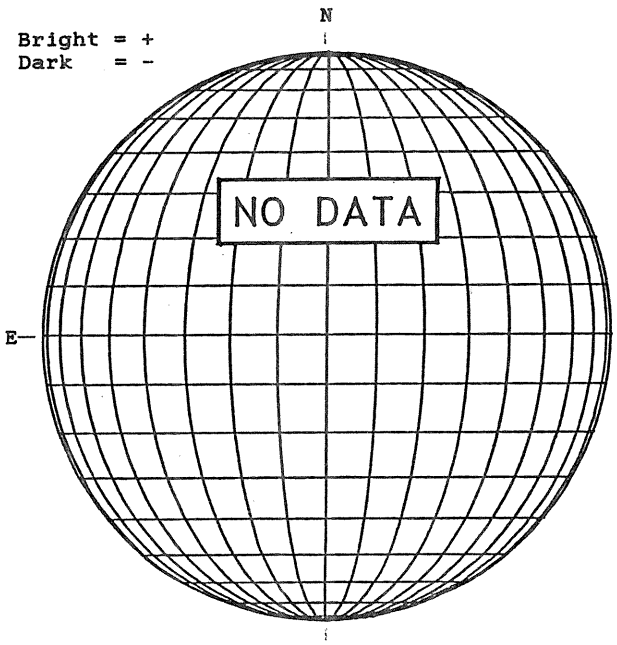


—— FeXIV, 2336 UT
.... Fe X, 2407 UT

MARCH 2, 1990 (P=-21.74, B_o =-7.21, L_o = 259.95)

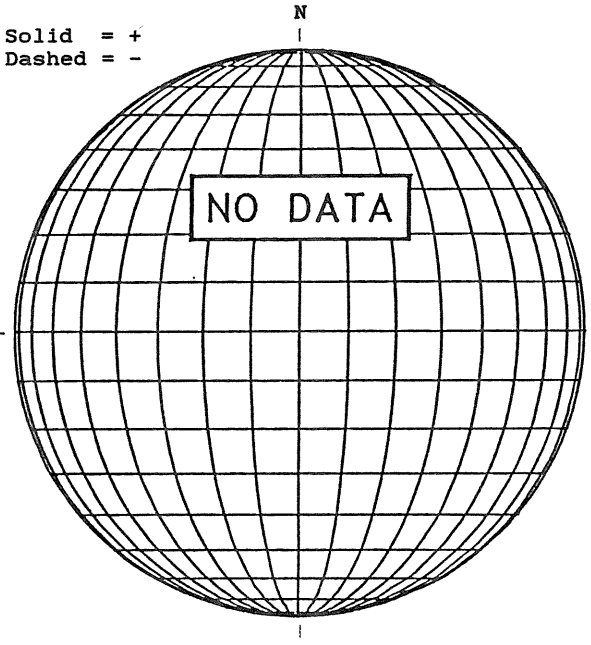
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



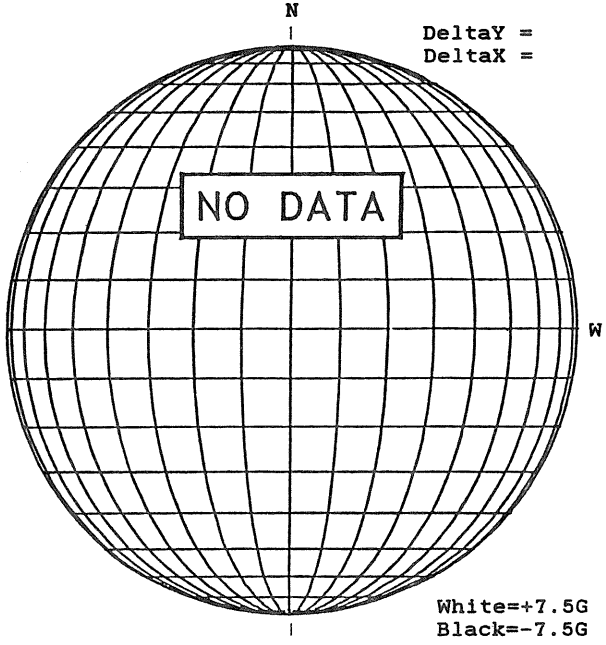
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



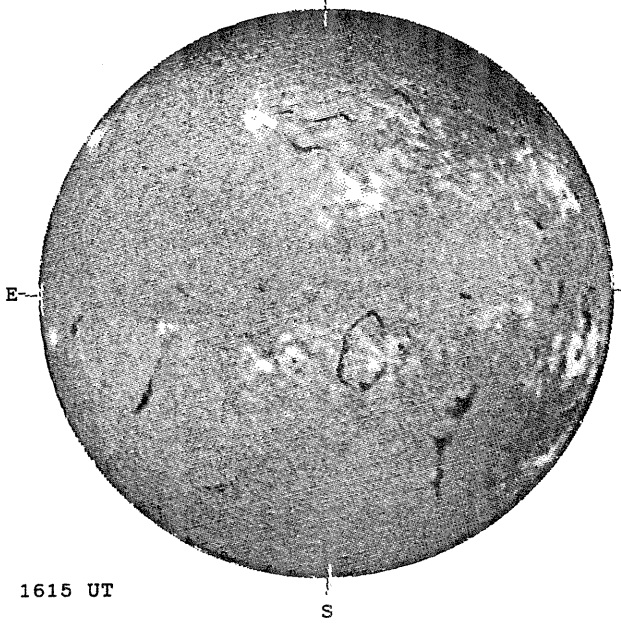
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



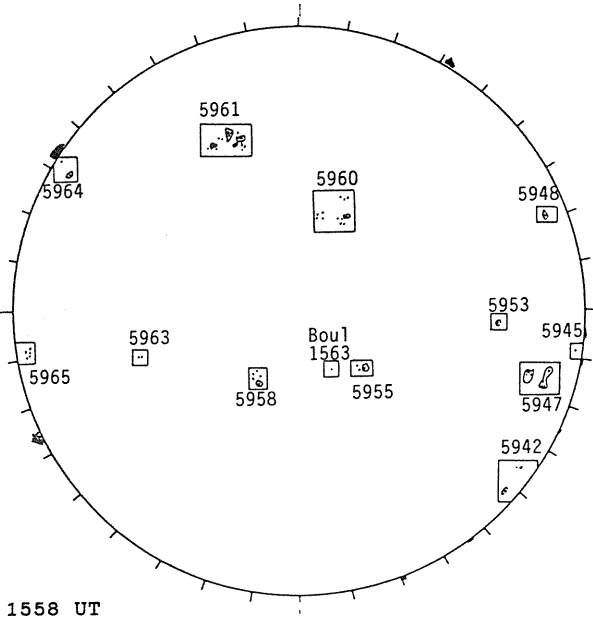
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



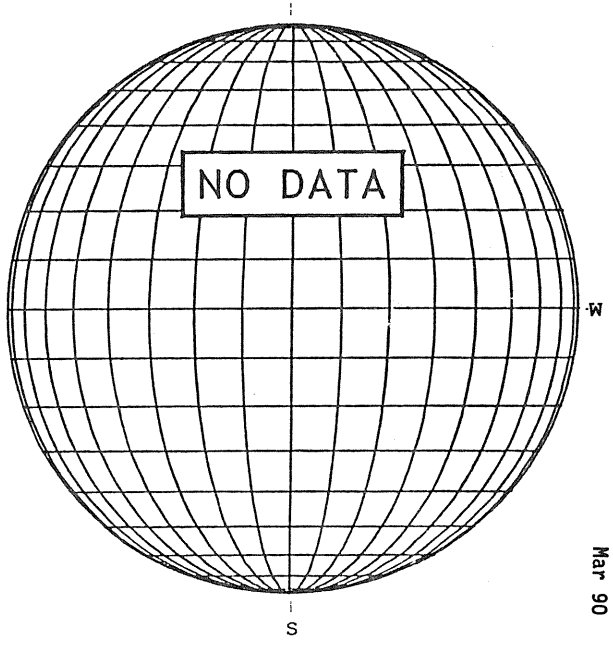
1615 UT

BOULDER SUNSPOT



1558 UT
1615 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

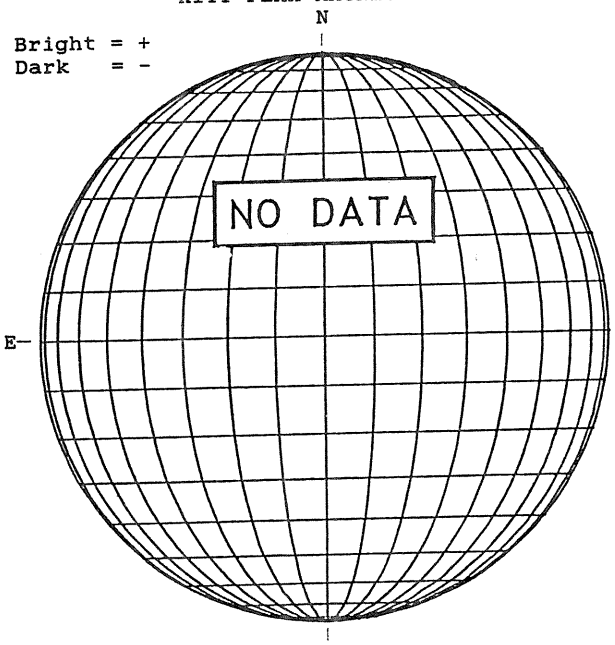


61
Mar 90

MARCH 3, 1990 (P=-21.98, B_o =-7.22, L_o = 246.78)

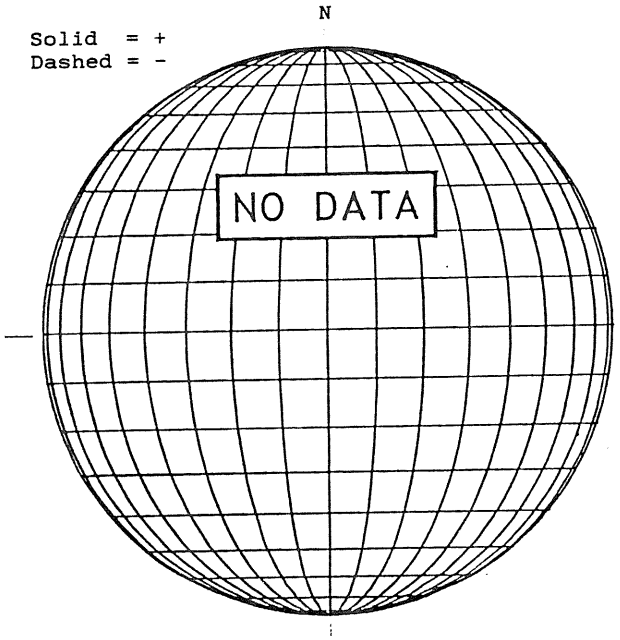
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



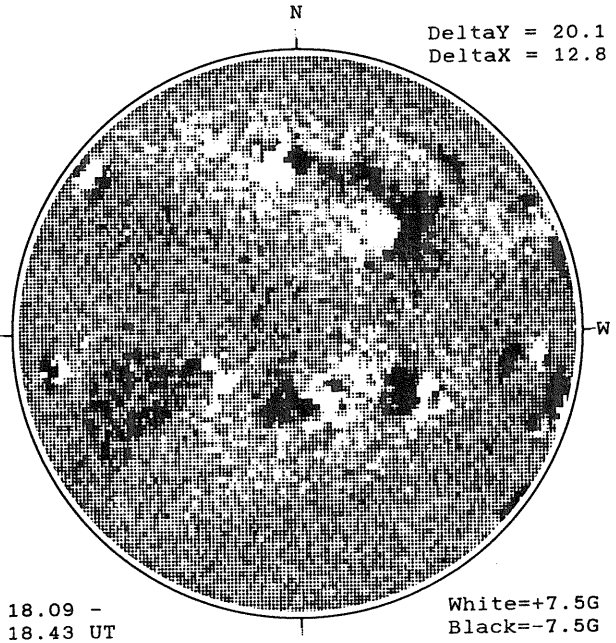
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

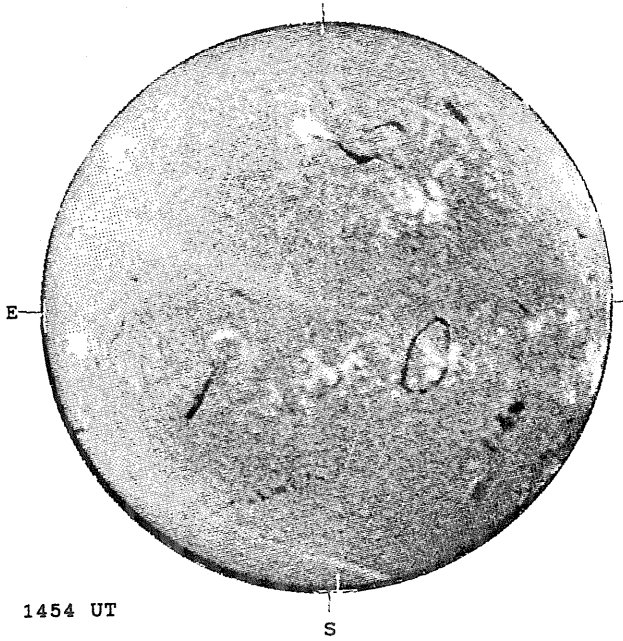
DeltaY = 20.1
DeltaX = 12.8



18.09 -
18.43 UT

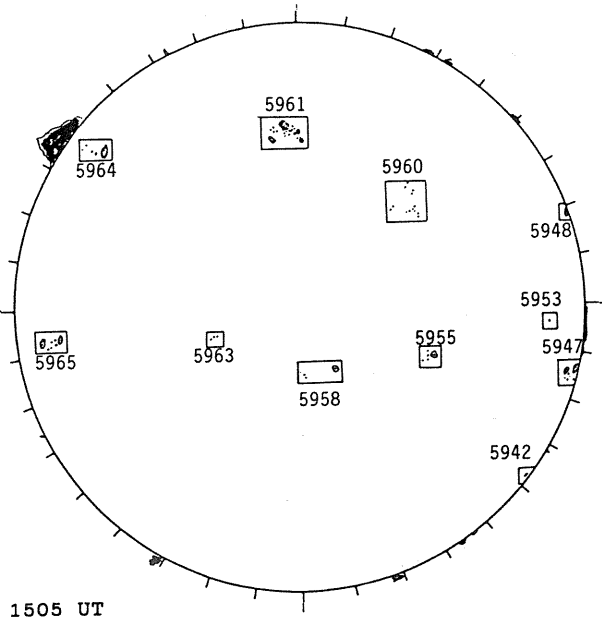
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



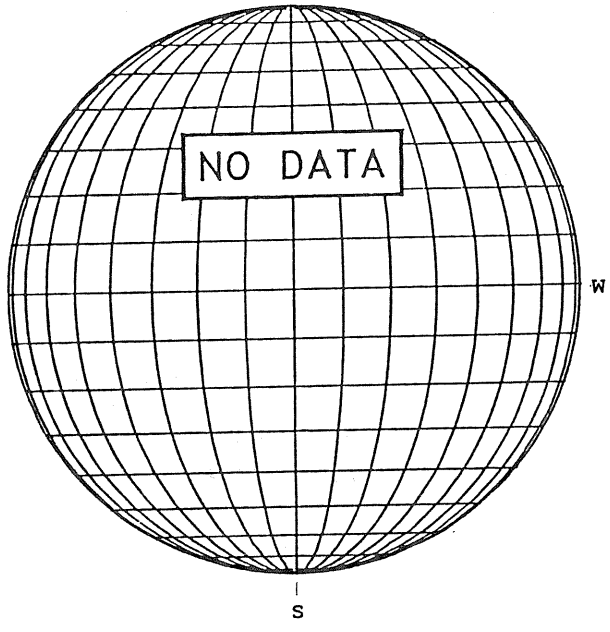
1454 UT

BOULDER SUNSPOT



1505 UT
1454 UT BOUL Prom

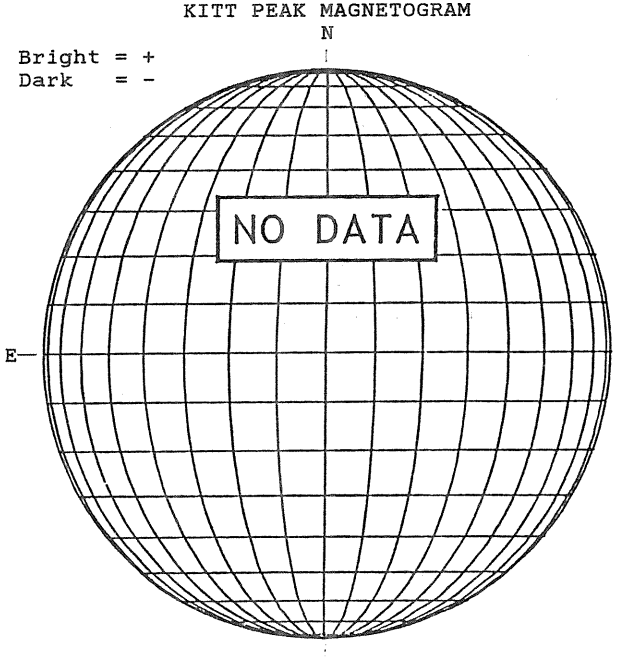
SACRAMENTO PEAK CORONA (1.15 Radii)



MARCH 4, 1990 (P=-22.22, B_o =-7.23, L_o = 233.60)

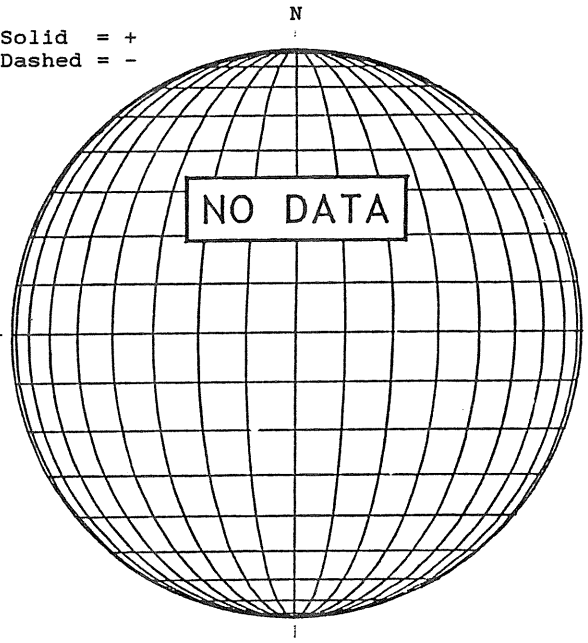
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



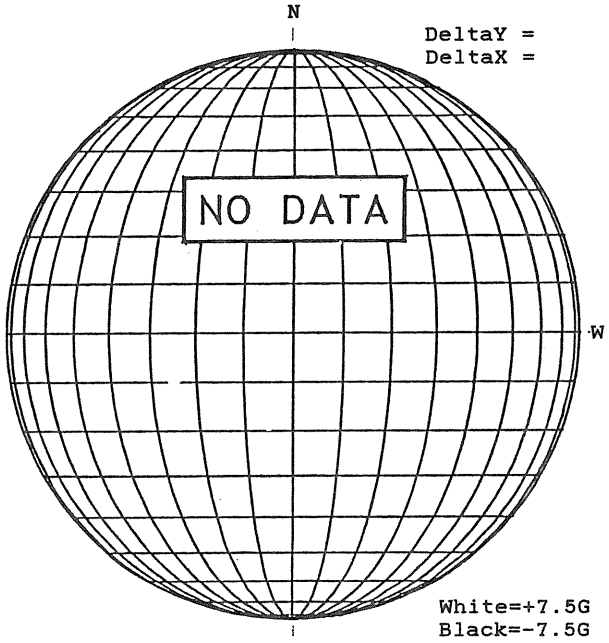
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



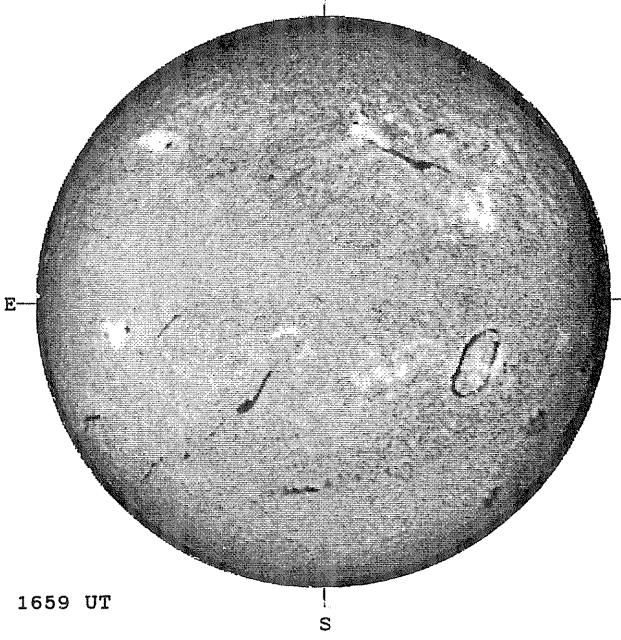
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



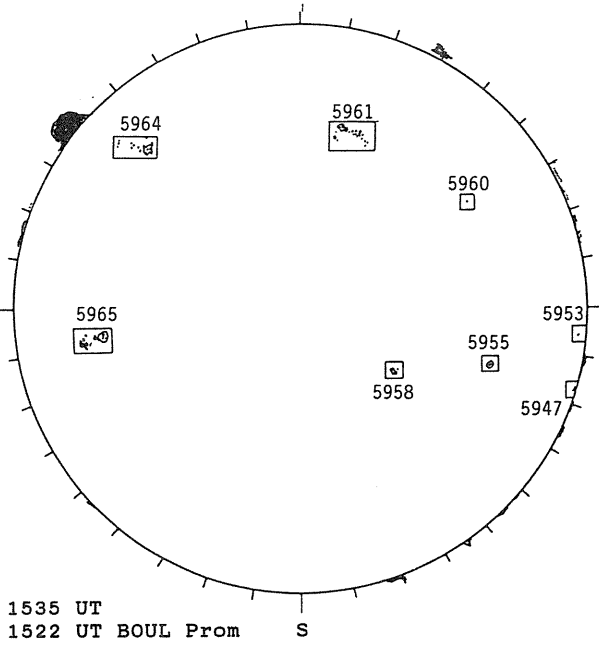
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



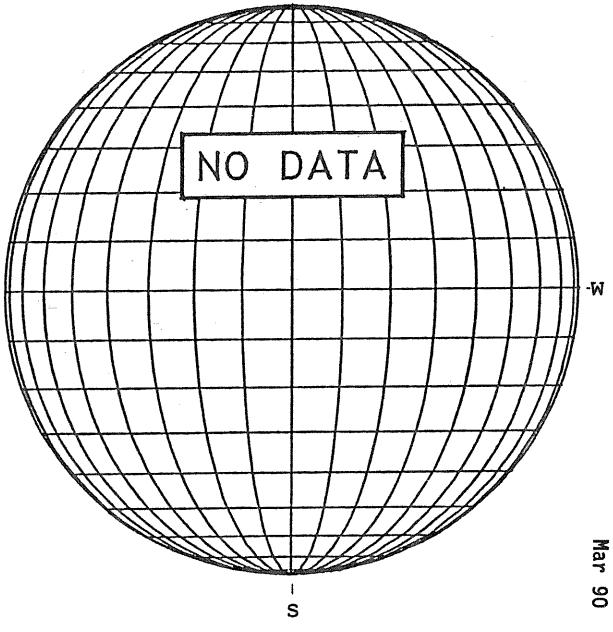
1659 UT

BOULDER SUNSPOT



1535 UT
1522 UT BOUL Prom

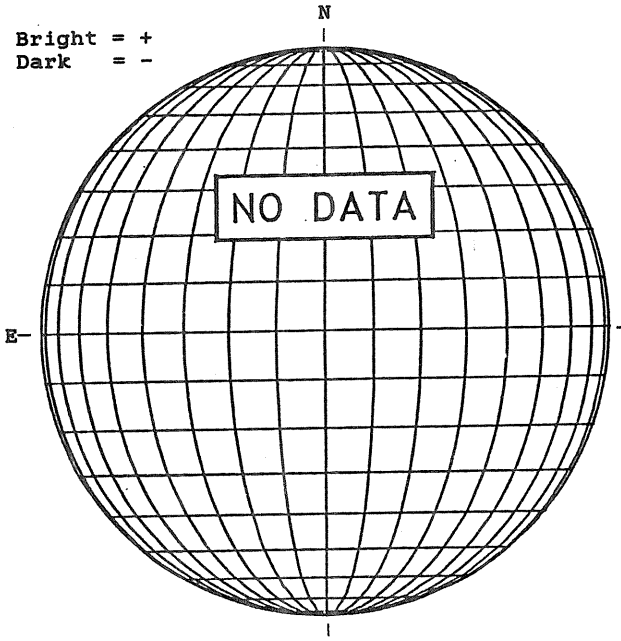
SACRAMENTO PEAK CORONA (1.15 Radii)



MARCH 5, 1990 (P=-22.45, B_o =-7.23, L_o = 220.43)

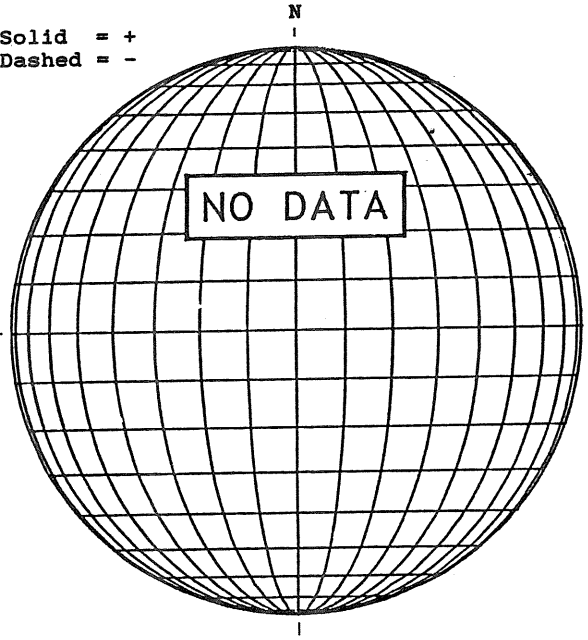
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



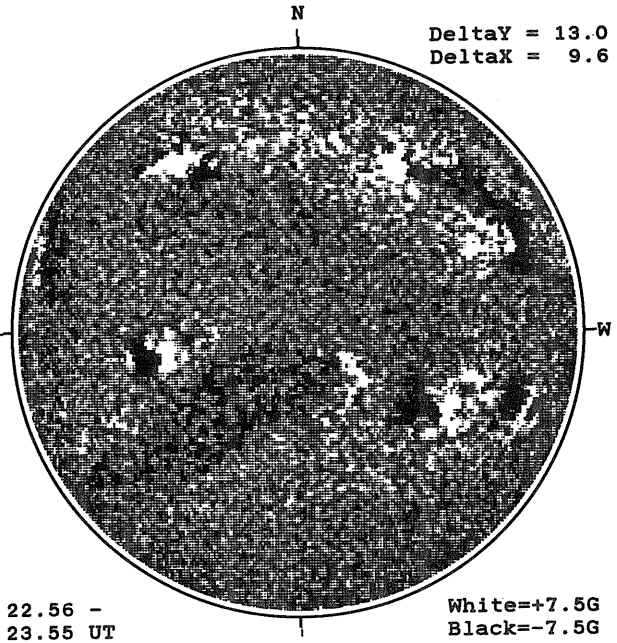
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

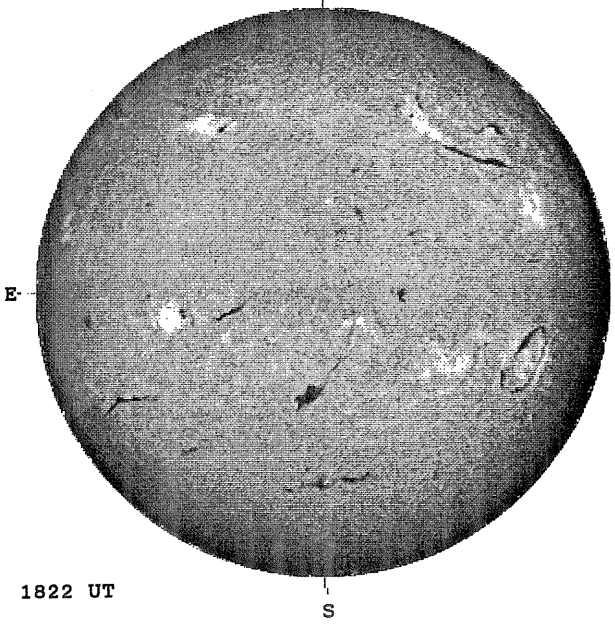
DeltaY = 13.0
DeltaX = 9.6



22.56 -
23.55 UT

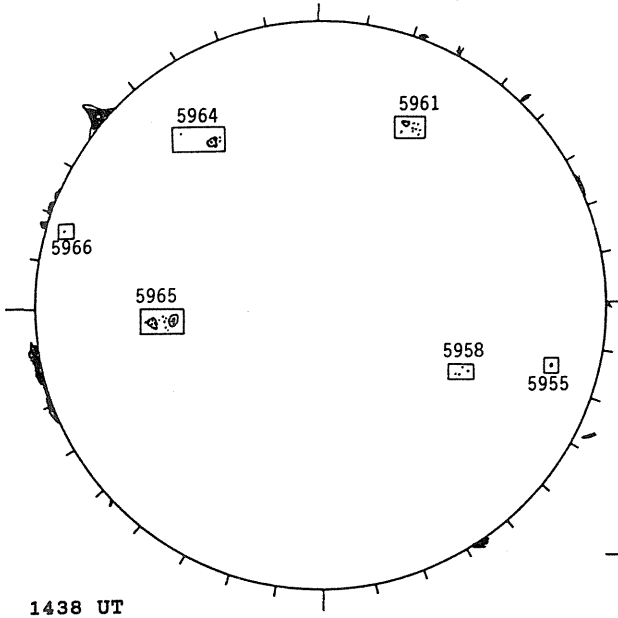
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



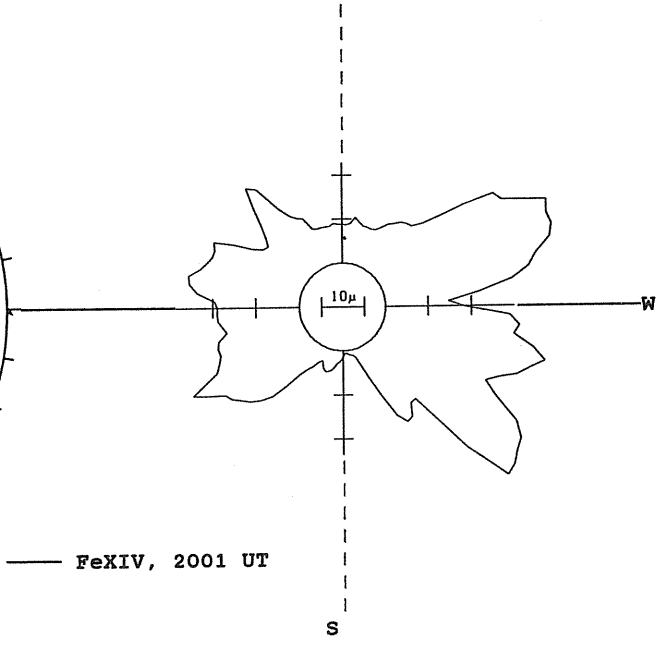
1822 UT

BOULDER SUNSPOT



1438 UT
1423 UT BOUL Prom

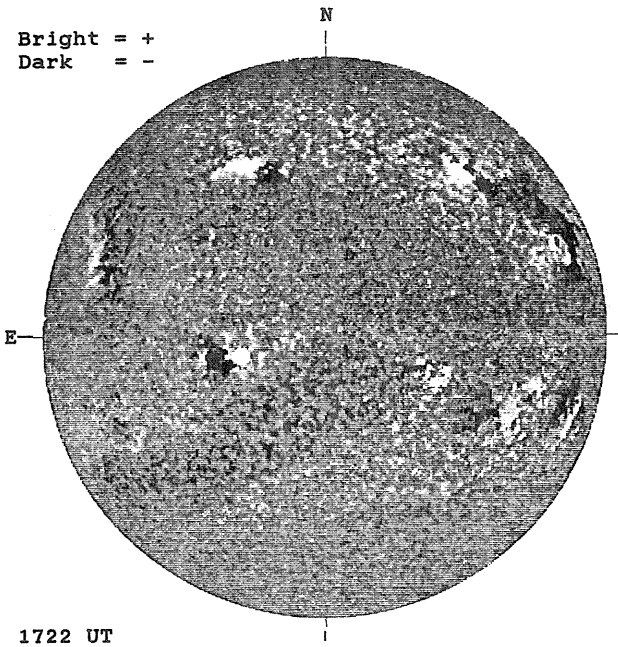
SACRAMENTO PEAK CORONA (1.15 Radii)



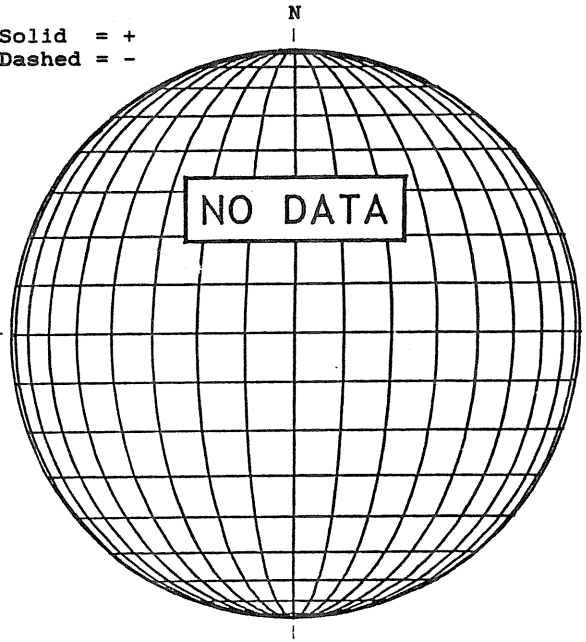
—— FeXIV, 2001 UT

MARCH 6, 1990 (P=-22.68, B_o =-7.23, L_o = 207.26)

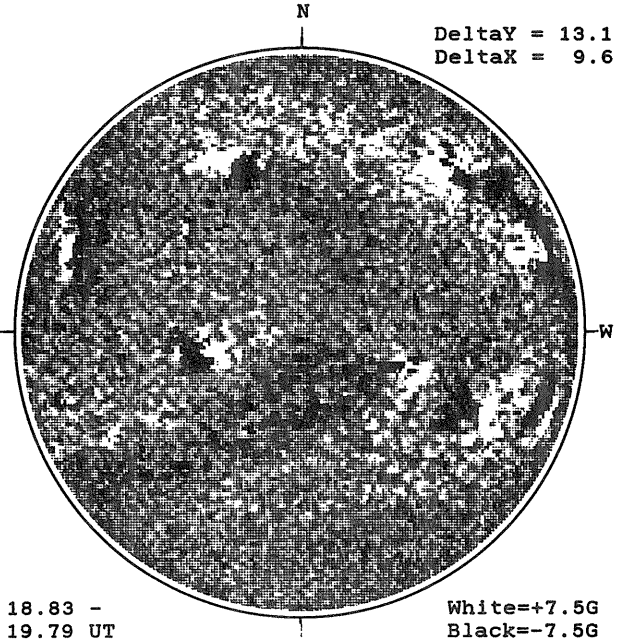
KITT PEAK MAGNETOGRAM



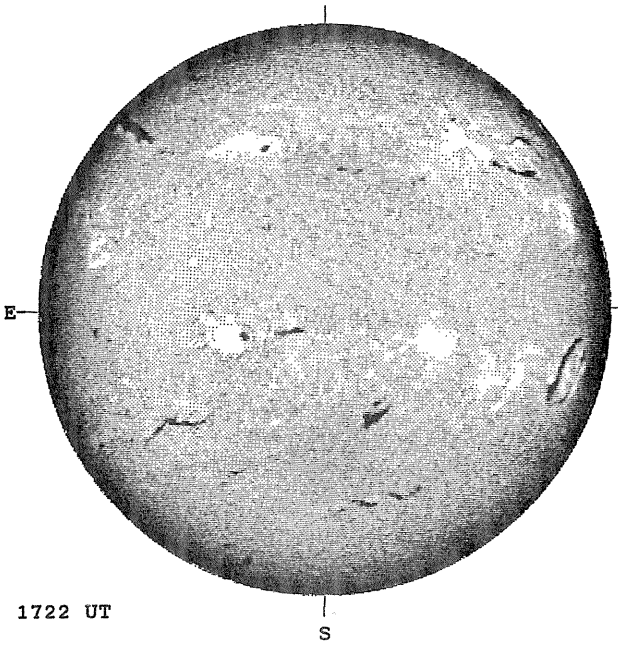
STANFORD MAGNETOGRAM



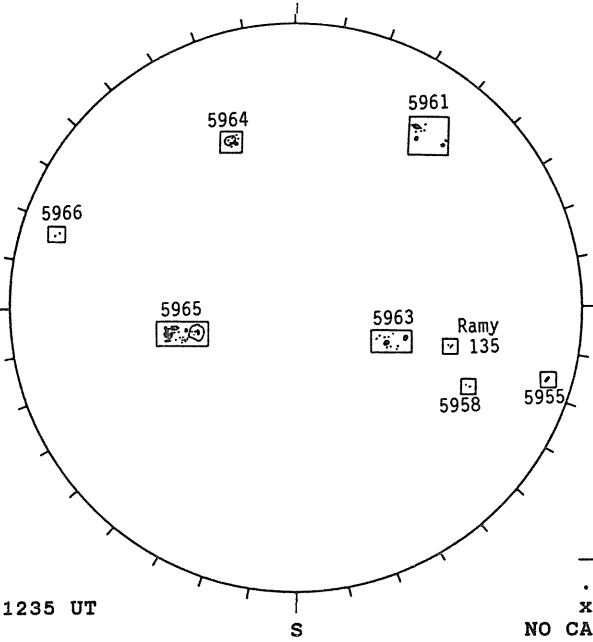
MT. WILSON MAGNETOGRAM



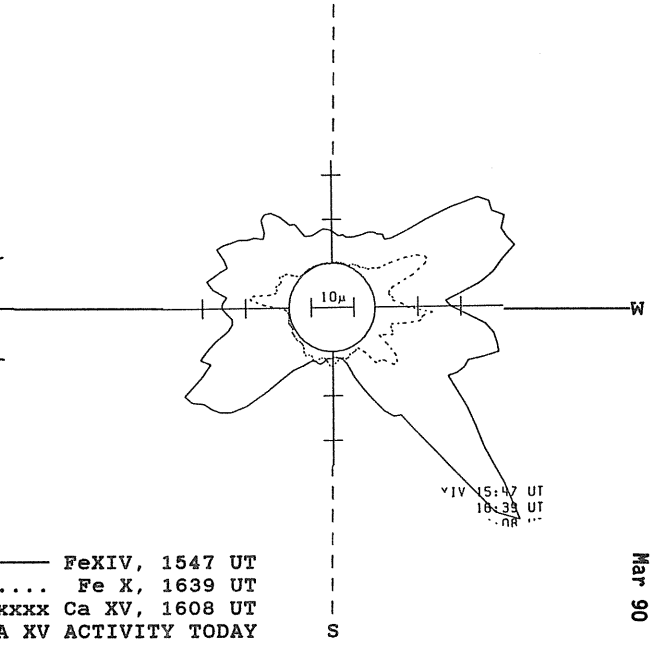
HOLLOMAN H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



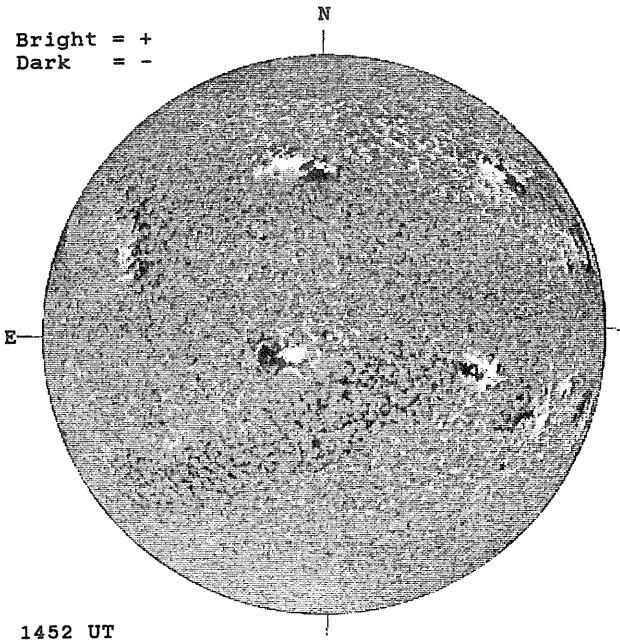
65
Mar 90

MARCH 7, 1990 (P=-22.90, B_o =-7.23, L_o = 194.08)

Mar 90

KITT PEAK MAGNETOGRAM

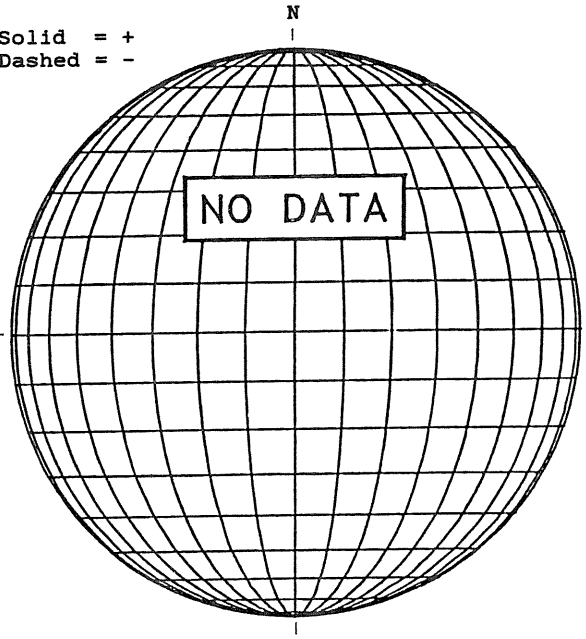
Bright = +
Dark = -



1452 UT

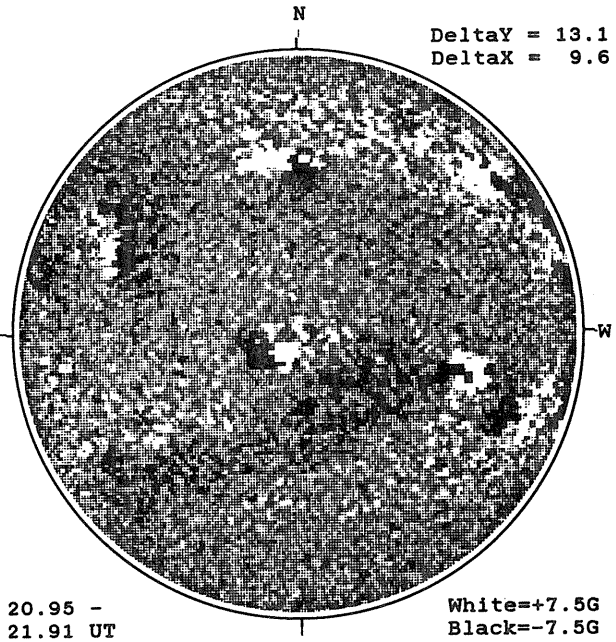
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

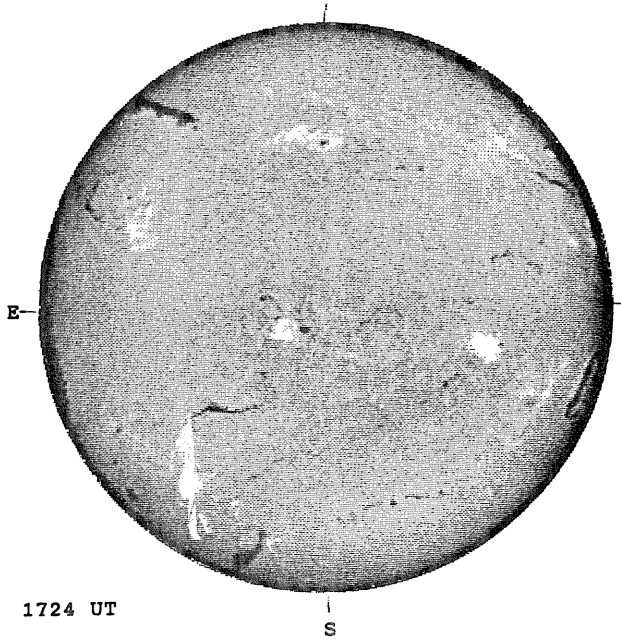
DeltaY = 13.1
DeltaX = 9.6



20.95 -
21.91 UT

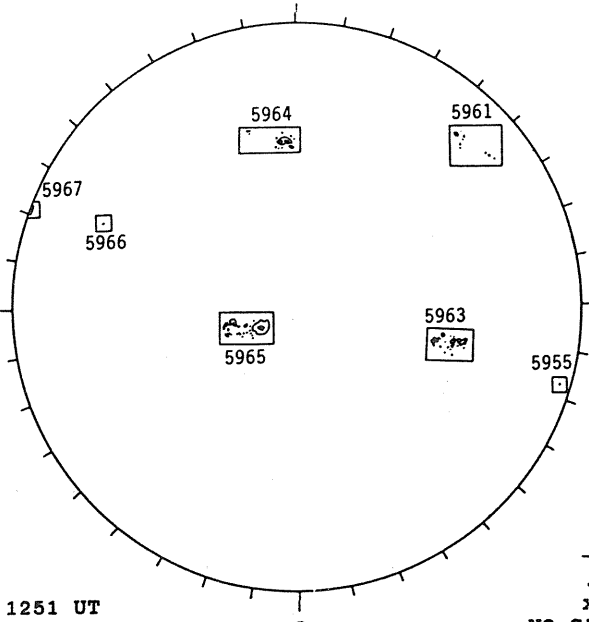
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



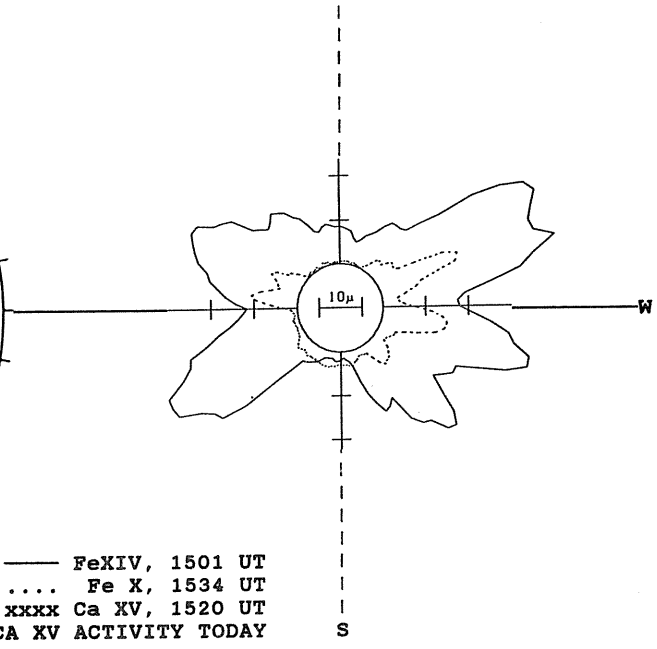
1724 UT

RAMEY SUNSPOT



1251 UT

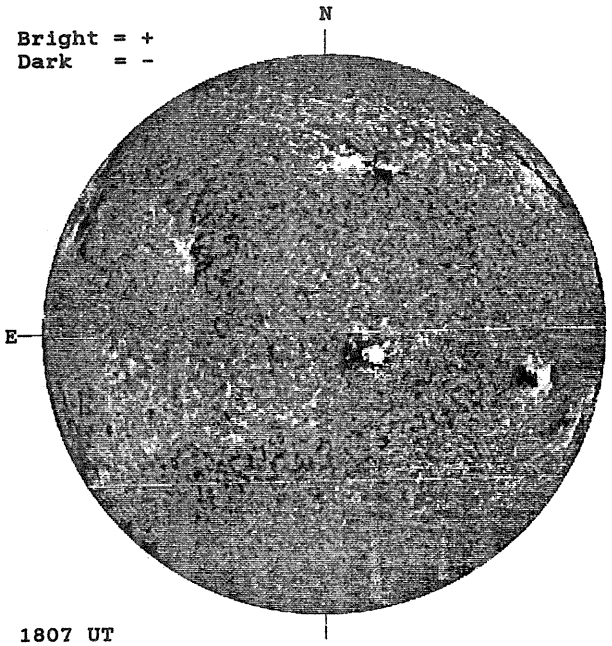
SACRAMENTO PEAK CORONA (1.15 Radii)



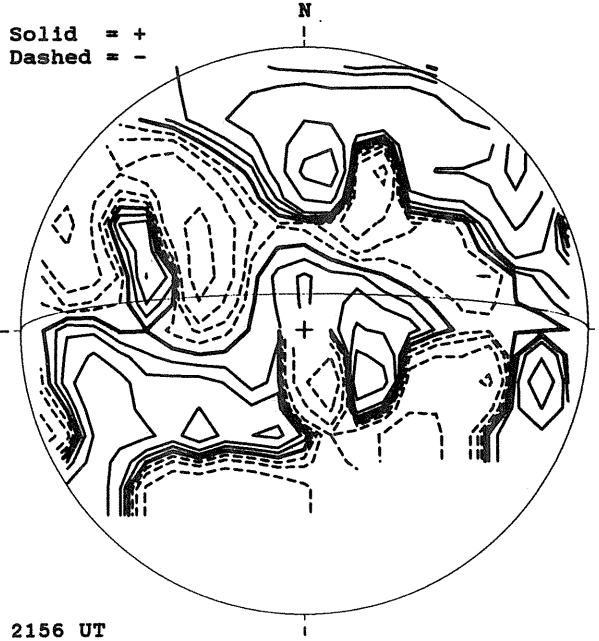
—— FeXIV, 1501 UT
.... Fe X, 1534 UT
xxxx Ca XV, 1520 UT
NO CA XV ACTIVITY TODAY

MARCH 8, 1990 (P=-23.11, B_o =-7.23, L_o = 180.90)

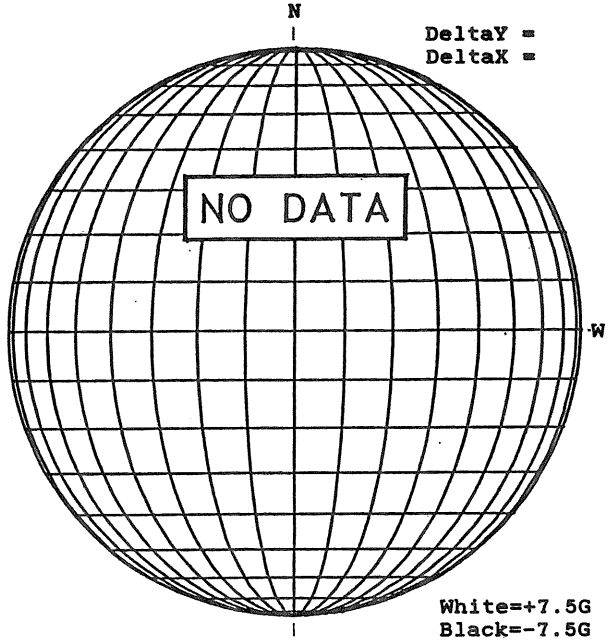
KITT PEAK MAGNETOGRAM



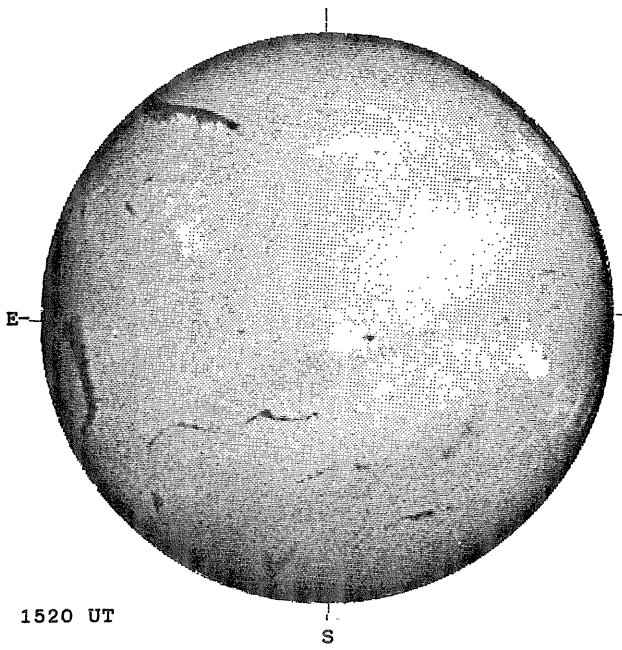
STANFORD MAGNETOGRAM



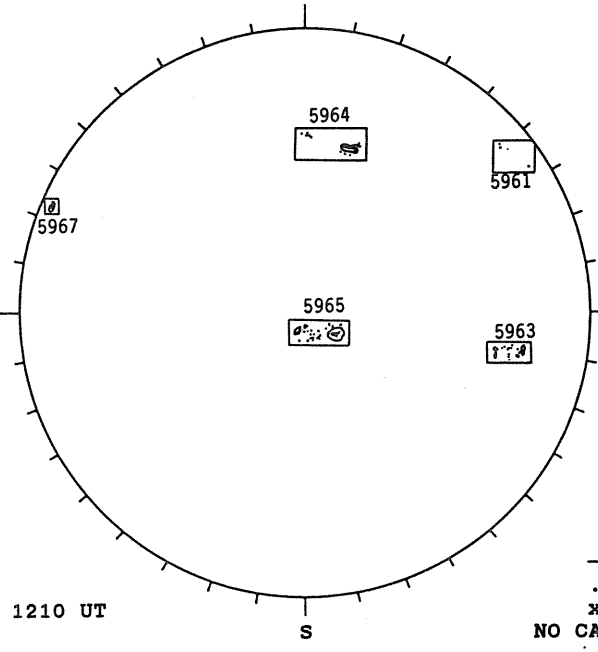
MT. WILSON MAGNETOGRAM



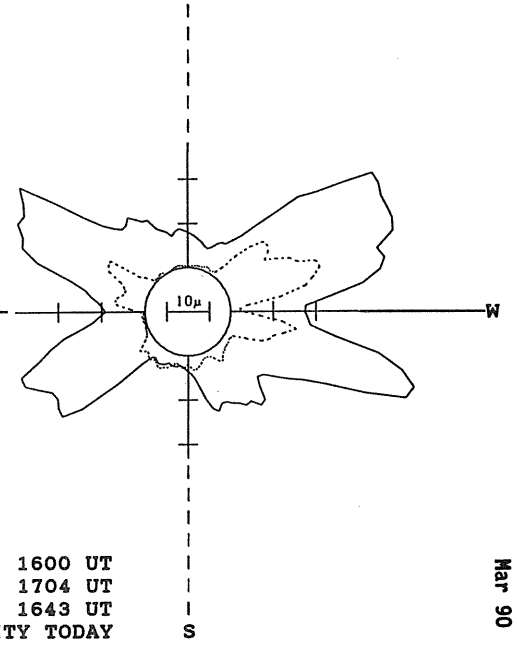
HOLLOMAN H-ALPHA



RAMEY SUNSPOT



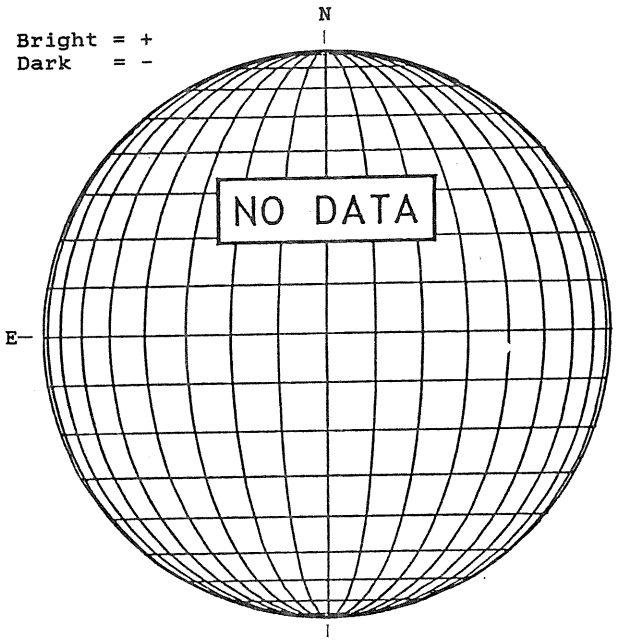
SACRAMENTO PEAK CORONA (1.15 Radii)



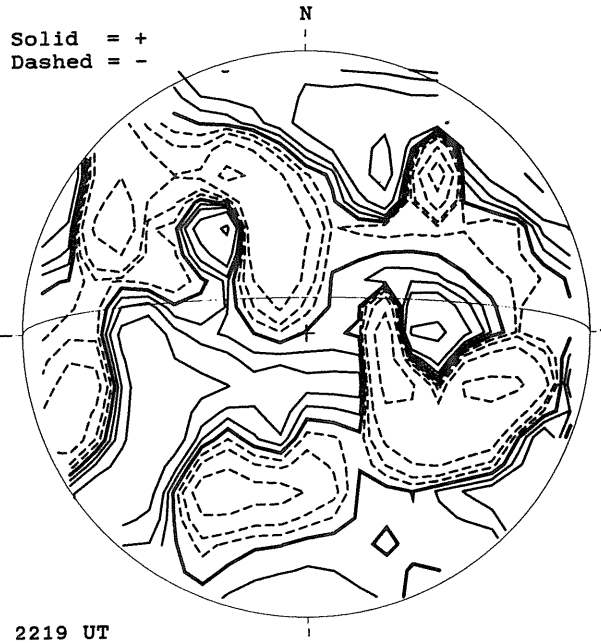
67
Mar 90

MARCH 9, 1990 (P=-23.31, B_o =-7.23, L_o = 167.73)

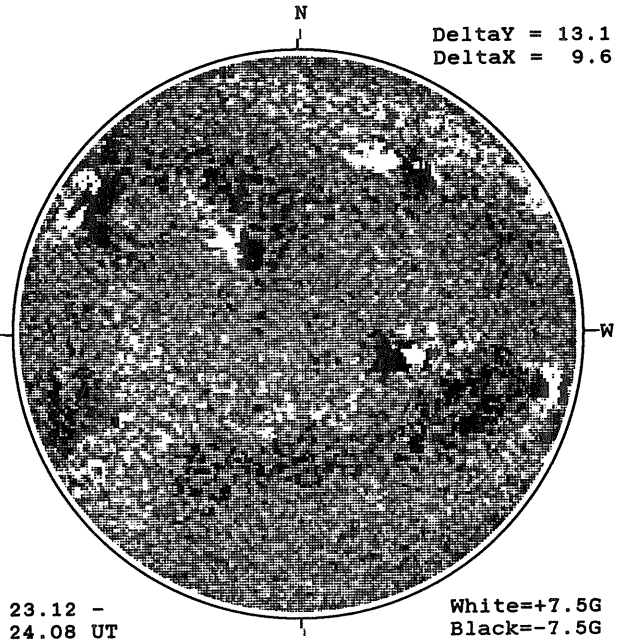
KITT PEAK MAGNETOGRAM



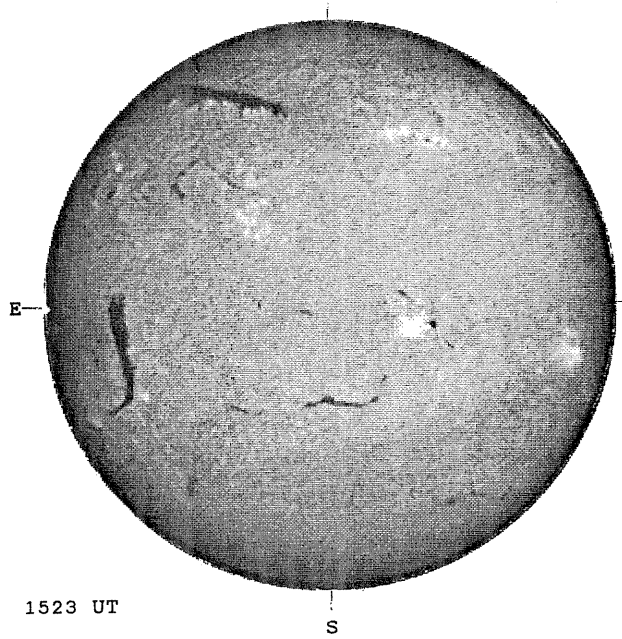
STANFORD MAGNETOGRAM



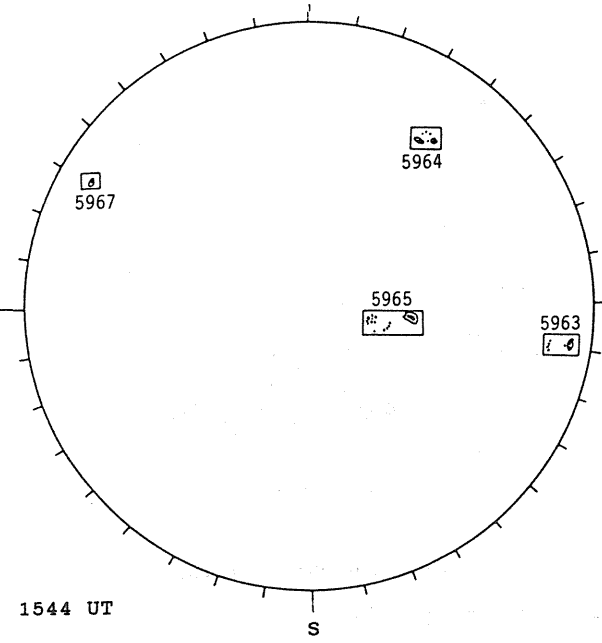
MT. WILSON MAGNETOGRAM



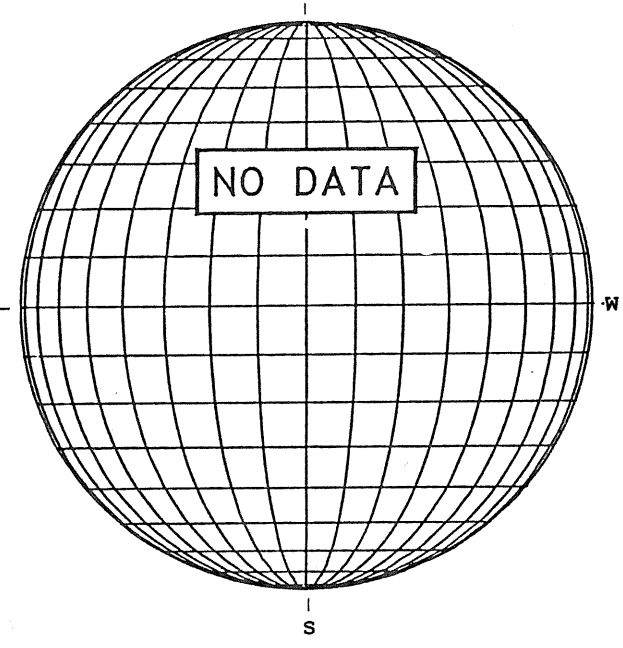
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



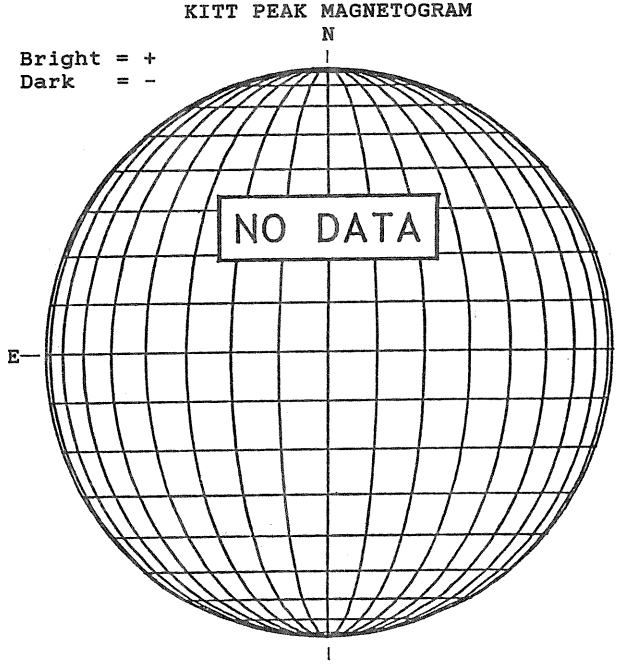
SACRAMENTO PEAK CORONA (1.15 Radii)



MARCH 10, 1990 (P=-23.51, B_o =-7.22, L_o = 154.55)

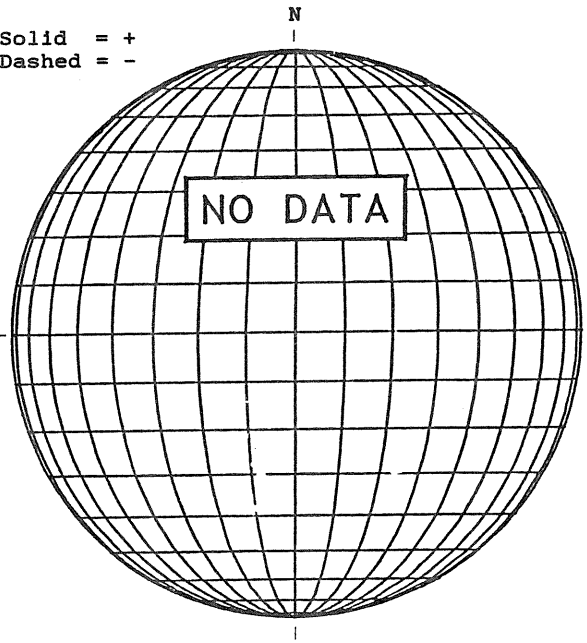
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



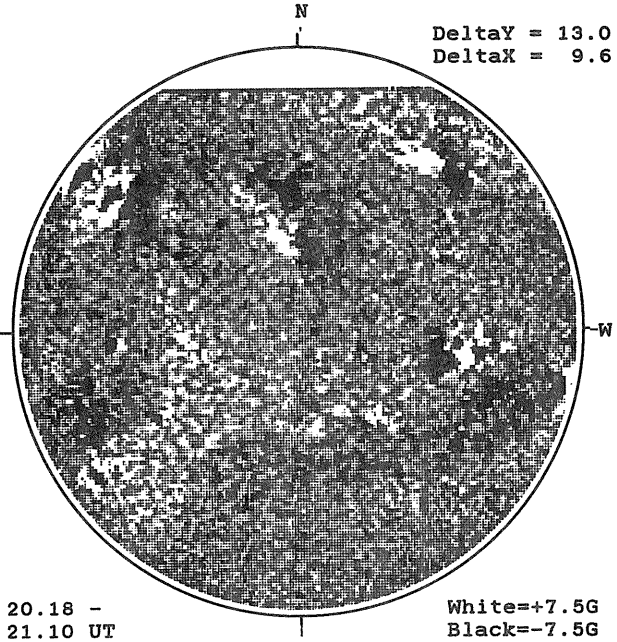
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

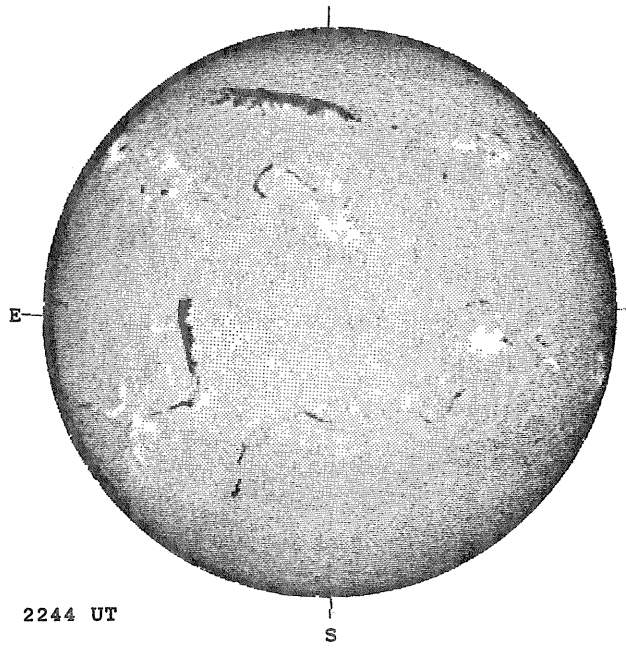
DeltaY = 13.0
DeltaX = 9.6



20.18 -
21.10 UT
DATA INCOMPLETE

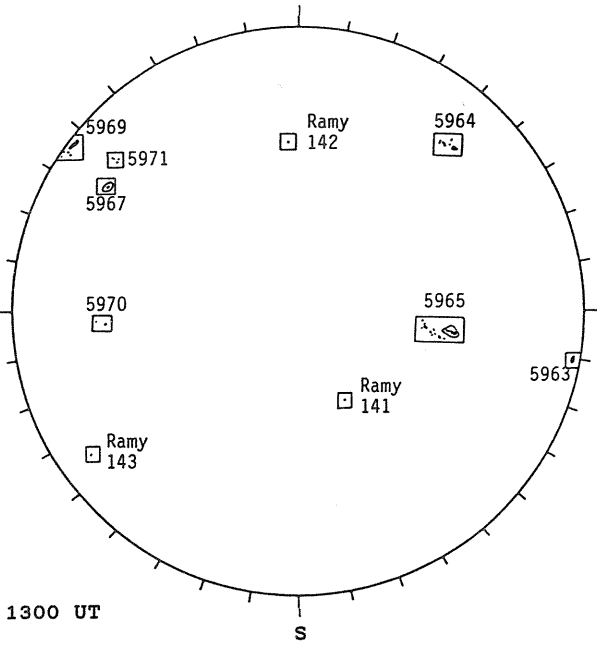
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



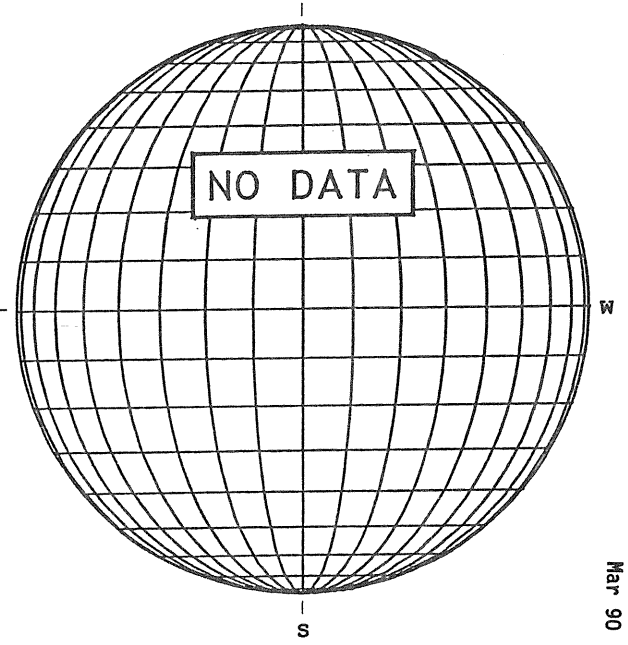
2244 UT

RAMEY SUNSPOT



1300 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



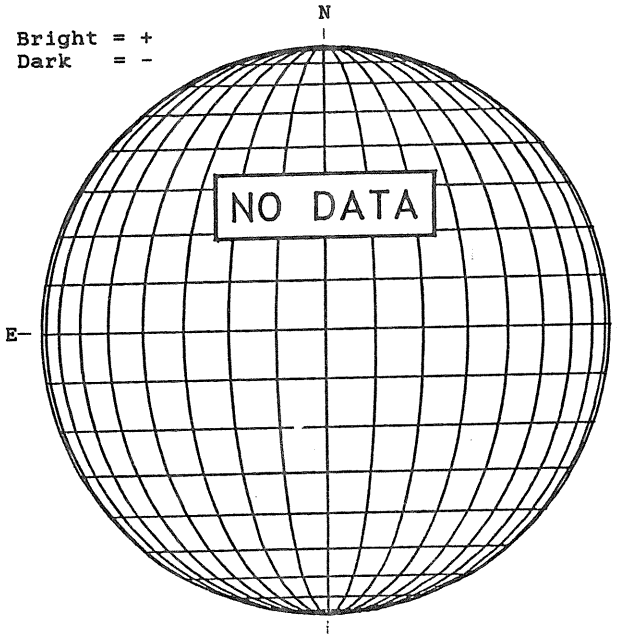
69
Mar 90

MARCH 11, 1990 (P=-23.70, B_o =-7.21, L_o = 141.37)

Mar 90

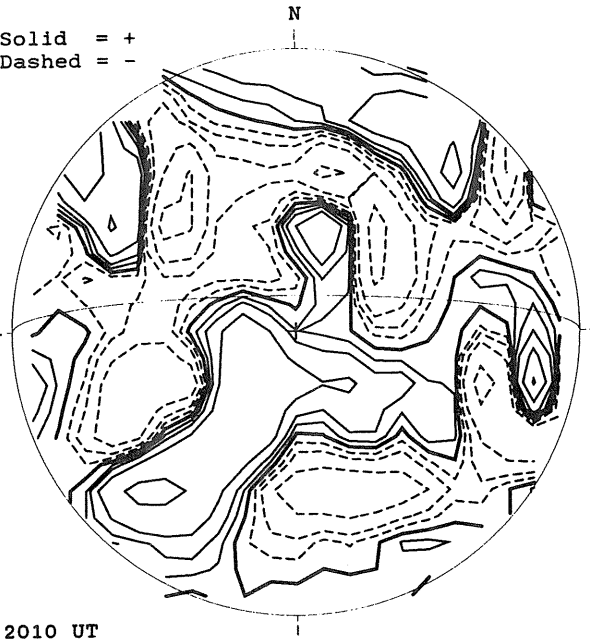
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



STANFORD MAGNETOGRAM

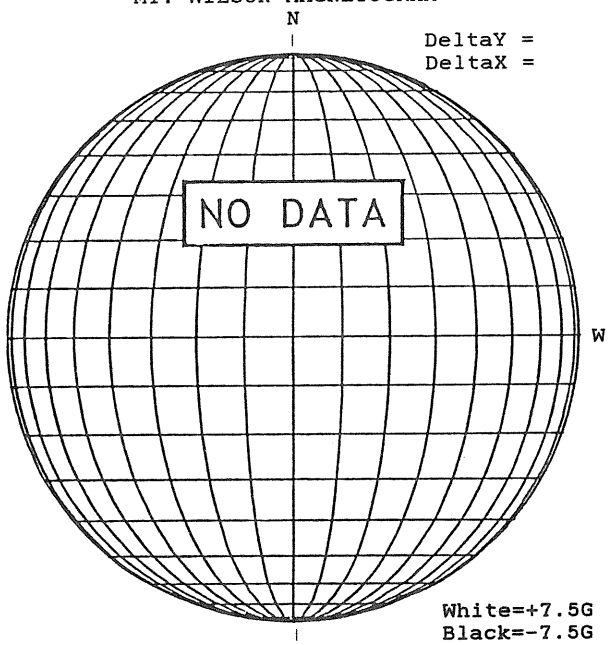
Solid = +
Dashed = -



2010 UT

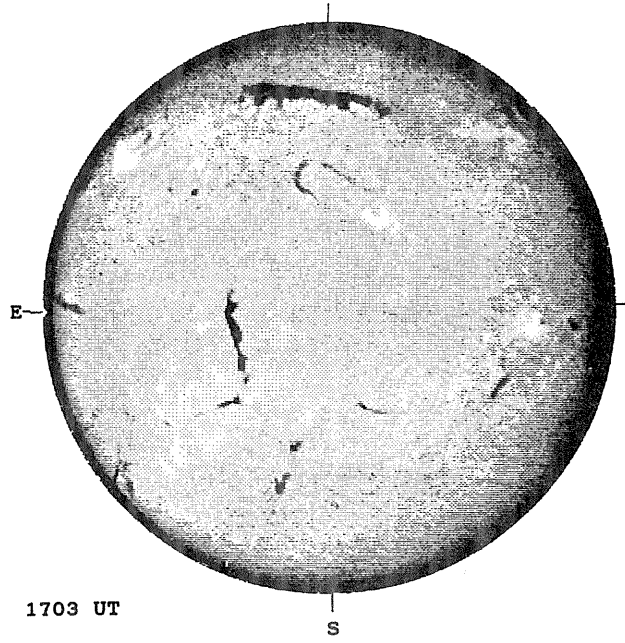
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



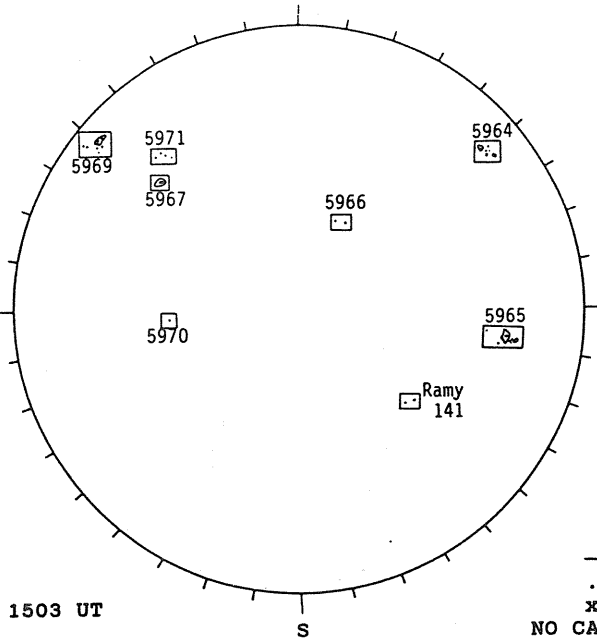
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



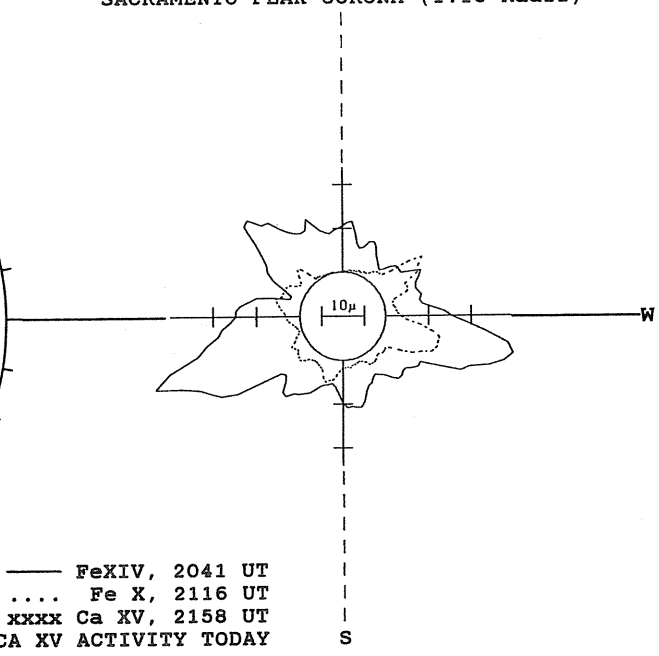
1703 UT

RAMEY SUNSPOT



1503 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

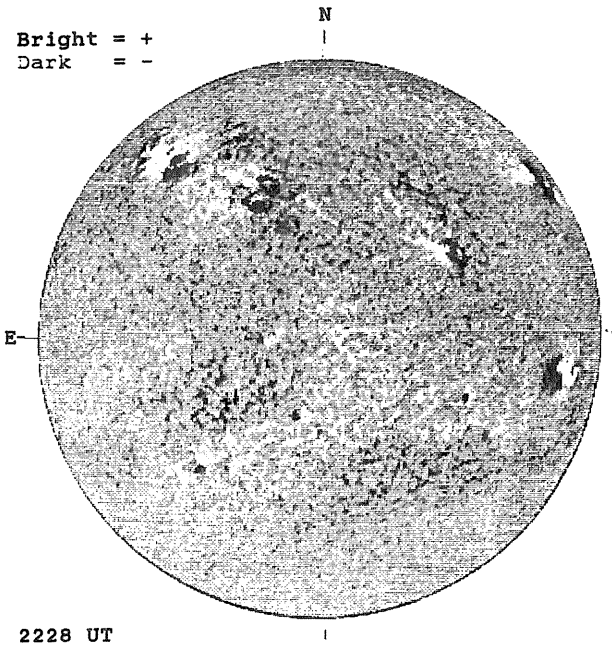


—— FeXIV, 2041 UT
.... Fe X, 2116 UT
xxxx Ca XV, 2158 UT
NO CA XV ACTIVITY TODAY

MARCH 12, 1990 (P=-23.89, B_o =-7.20, L_o = 128.19)

KITT PEAK MAGNETOGRAM

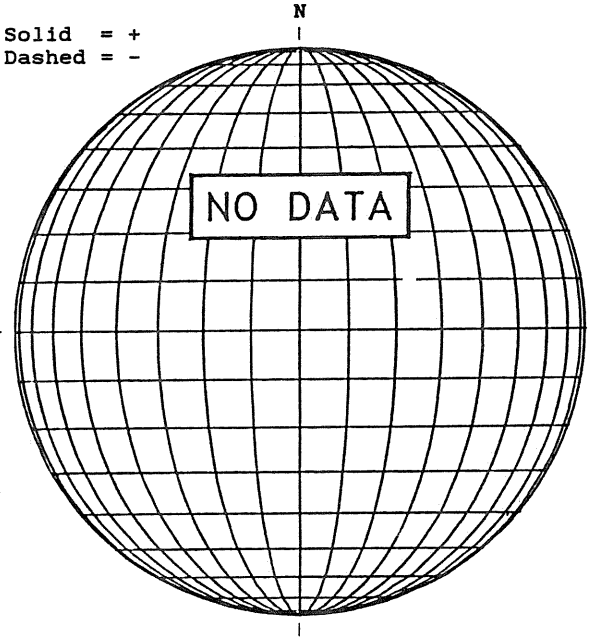
Bright = +
Dark = -



2228 UT

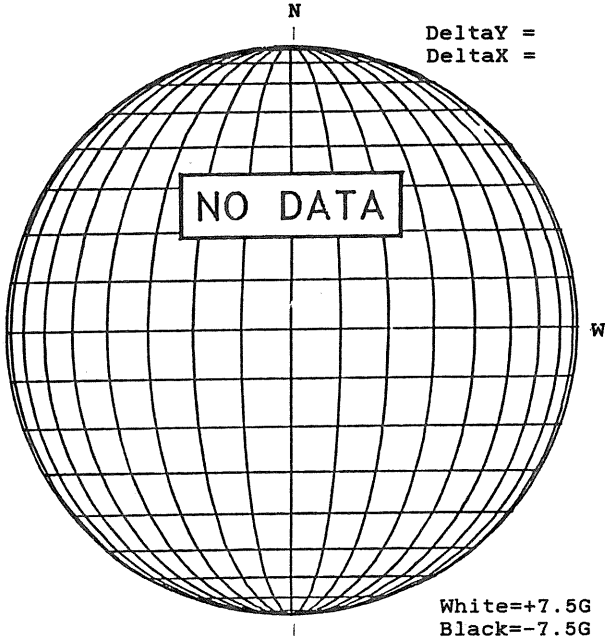
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



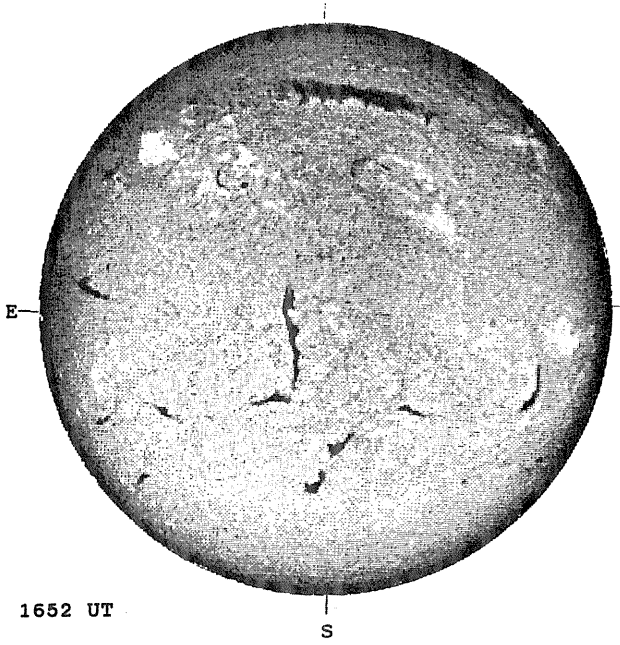
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



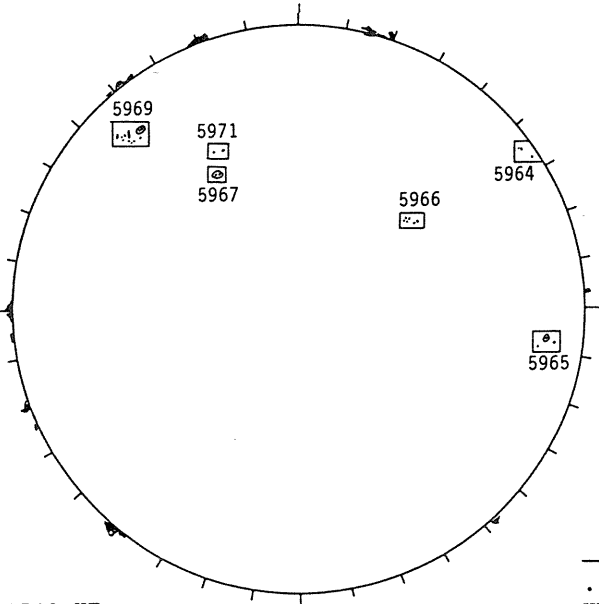
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



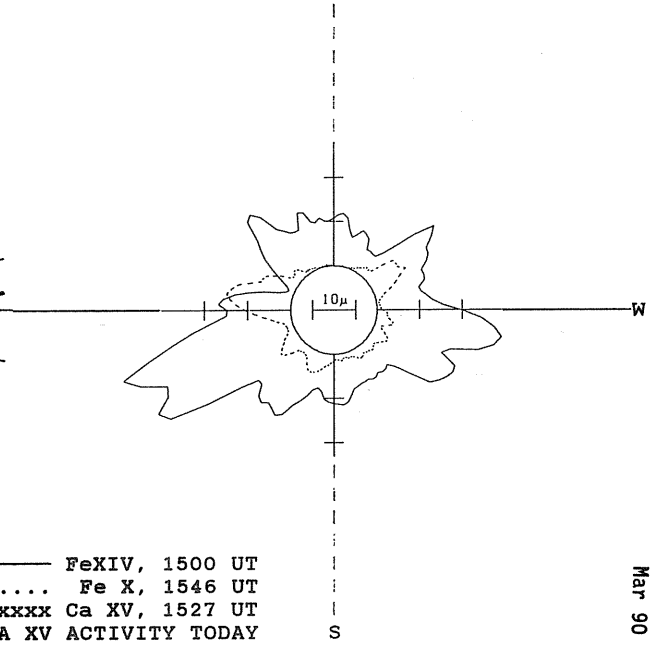
1652 UT

BOULDER SUNSPOT



1549 UT
1553 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



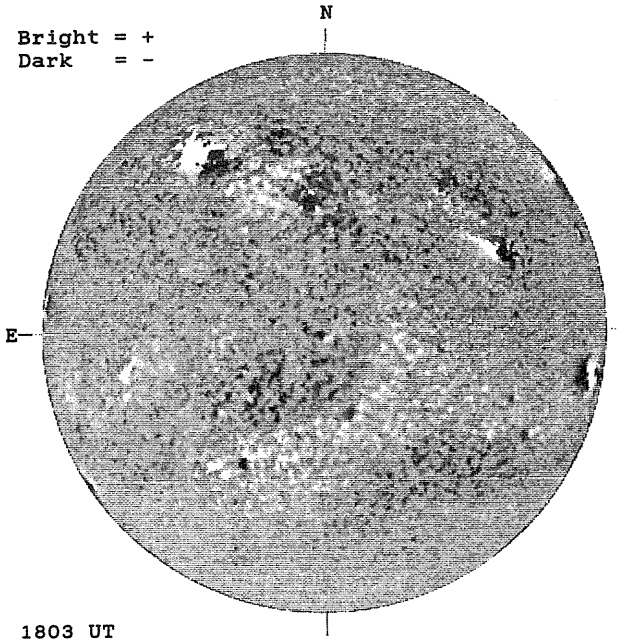
—— FeXIV, 1500 UT
.... Fe X, 1546 UT
xxxx Ca XV, 1527 UT
NO CA XV ACTIVITY TODAY

71
Mar 90

MARCH 13, 1990 (P=-24.07, B_o =-7.19, L_o = 115.01)

KITT PEAK MAGNETOGRAM

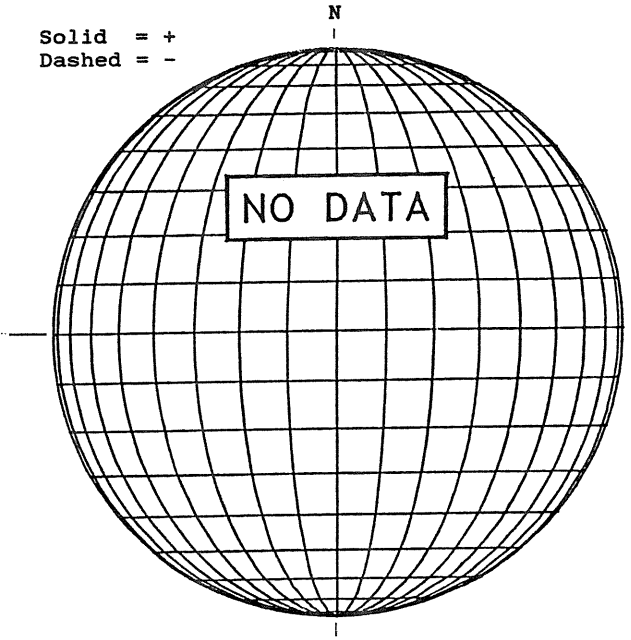
Bright = +
Dark = -



1803 UT

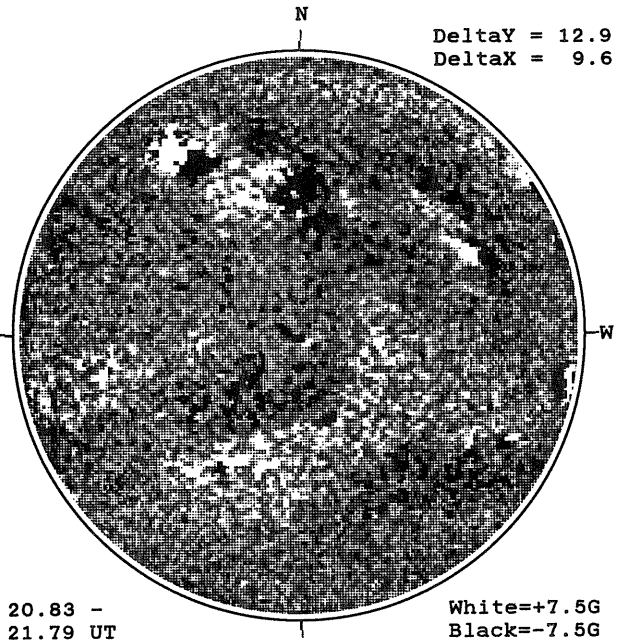
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

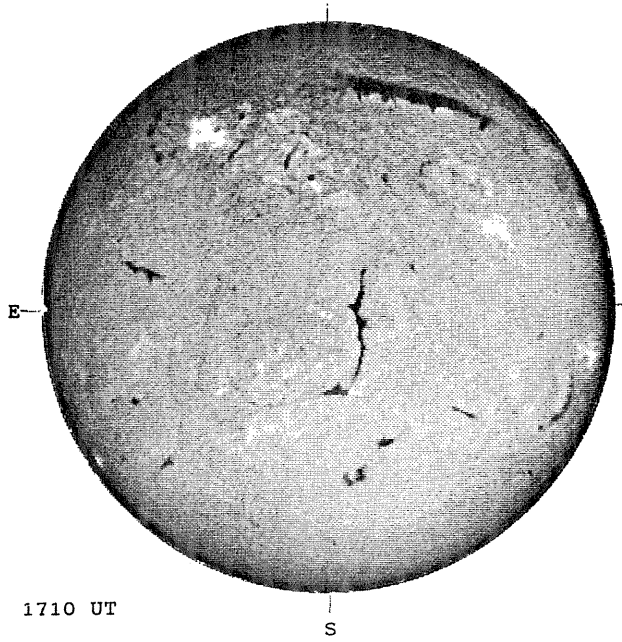
DeltaY = 12.9
DeltaX = 9.6



20.83 -
21.79 UT

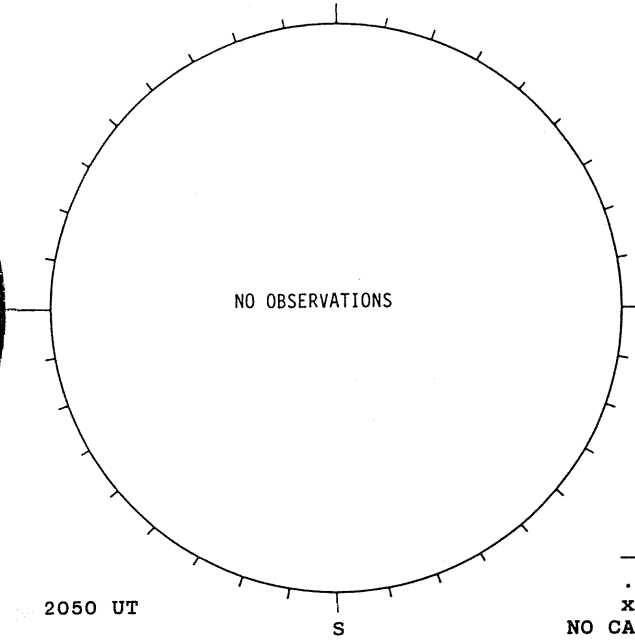
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



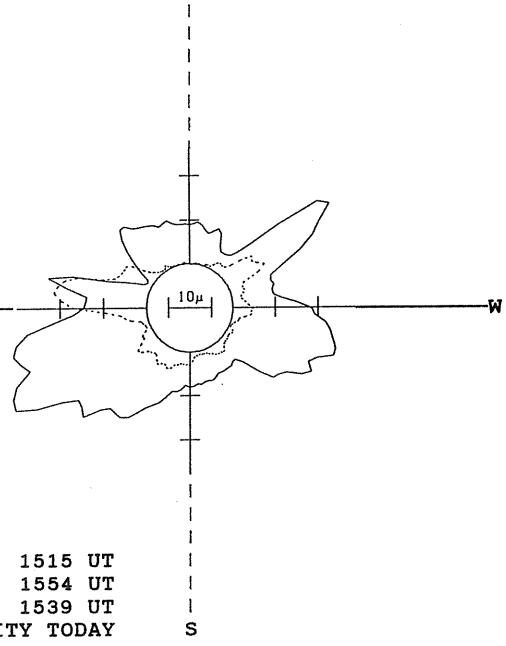
1710 UT

RAMEY SUNSPOT



2050 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

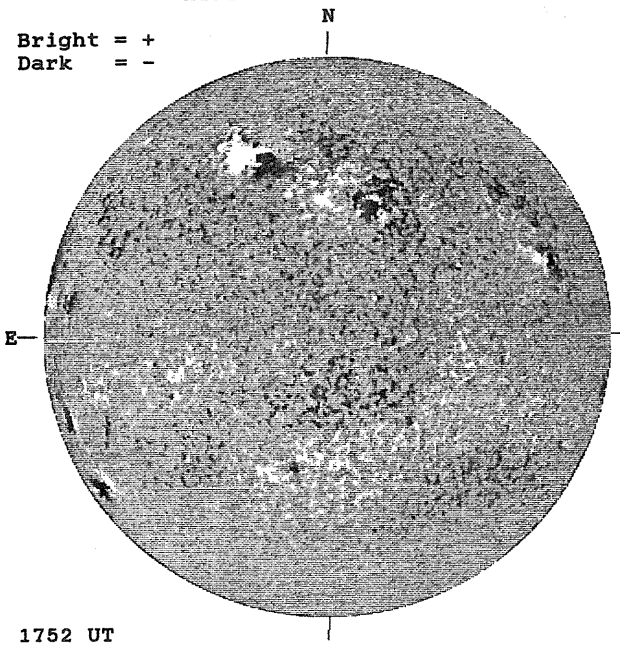


—— FeXIV, 1515 UT
.... Fe X, 1554 UT
xxxx Ca XV, 1539 UT
NO CA XV ACTIVITY TODAY

MARCH 14, 1990 (P=-24.24, B_o =-7.17, L_o = 101.84)

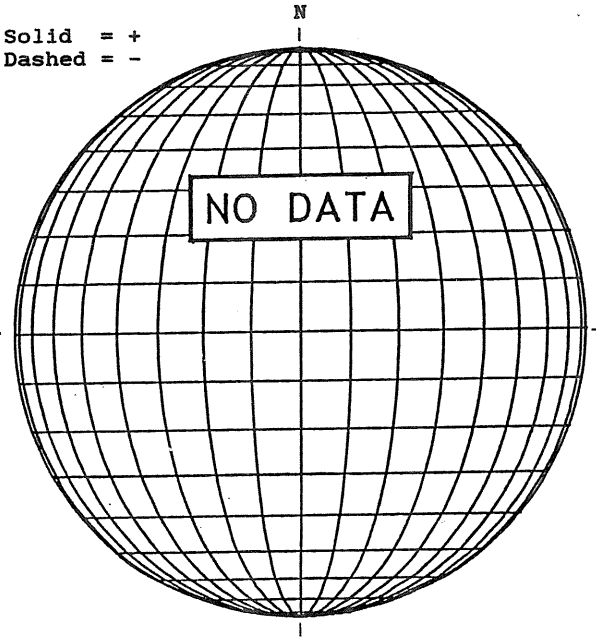
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



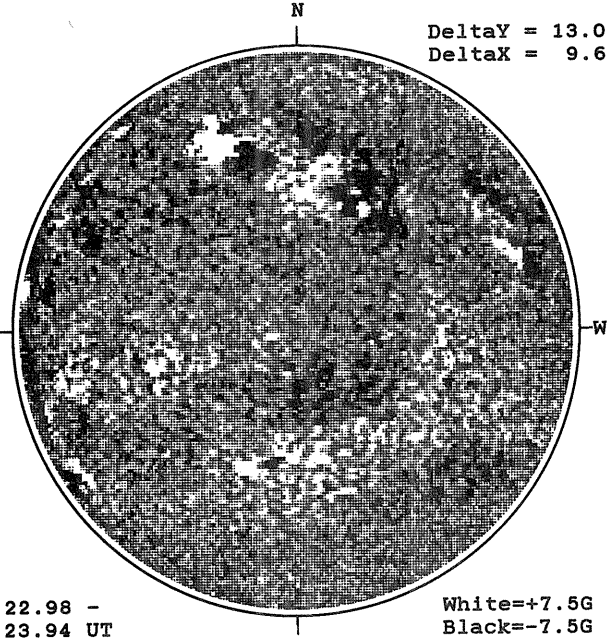
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

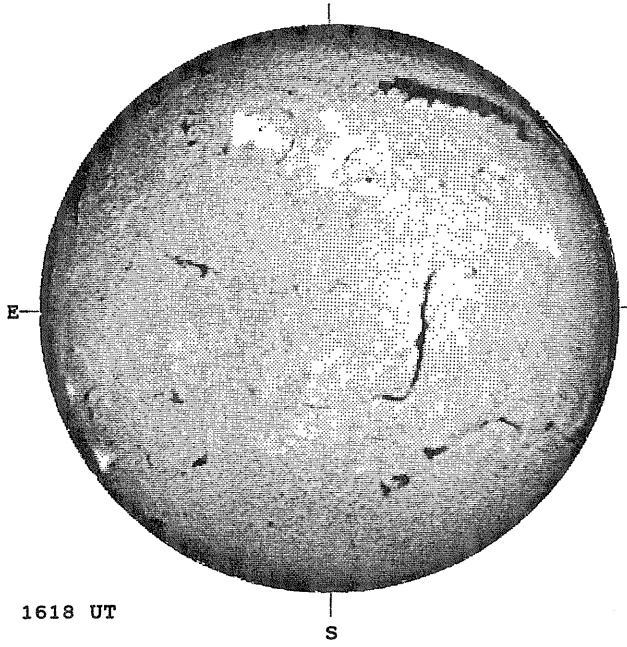


MT. WILSON MAGNETOGRAM

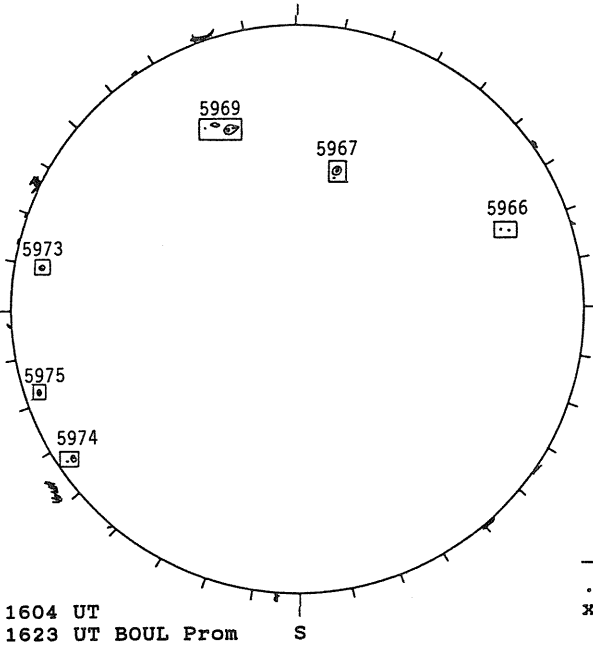
DeltaY = 13.0
DeltaX = 9.6



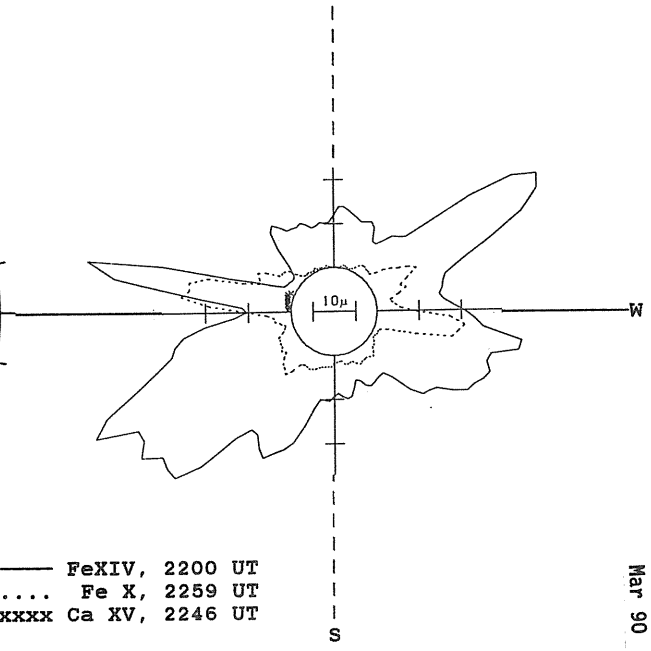
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



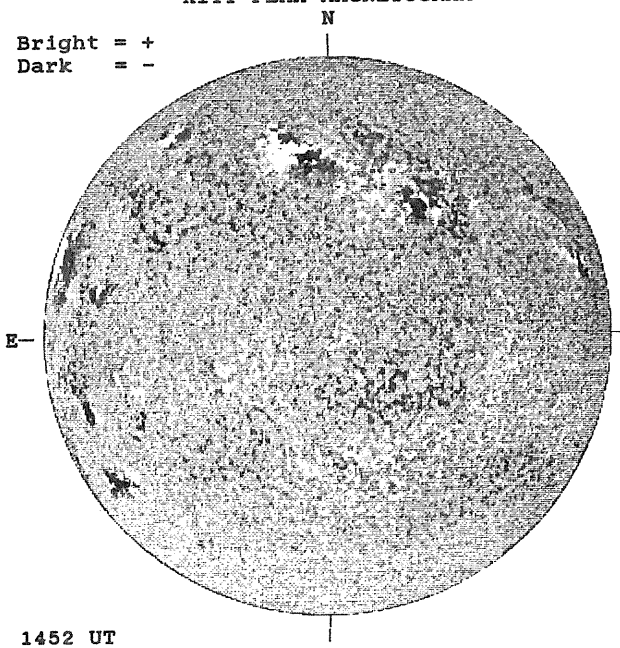
—— FeXIV, 2200 UT
.... Fe X, 2259 UT
xxxx Ca XV, 2246 UT

73
Mar 90

MARCH 15, 1990 (P=-24.41, B_o =-7.16, L_o = 88.65)

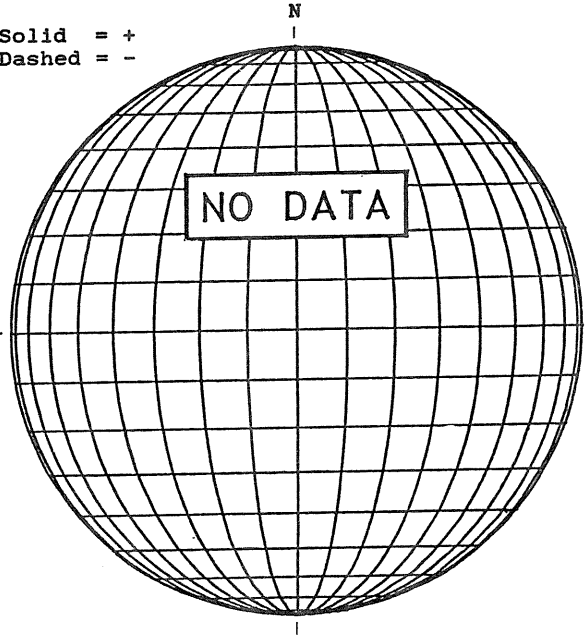
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



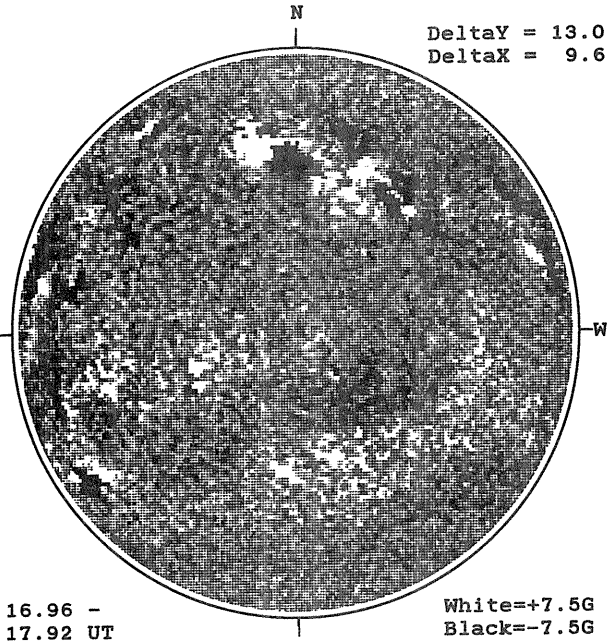
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

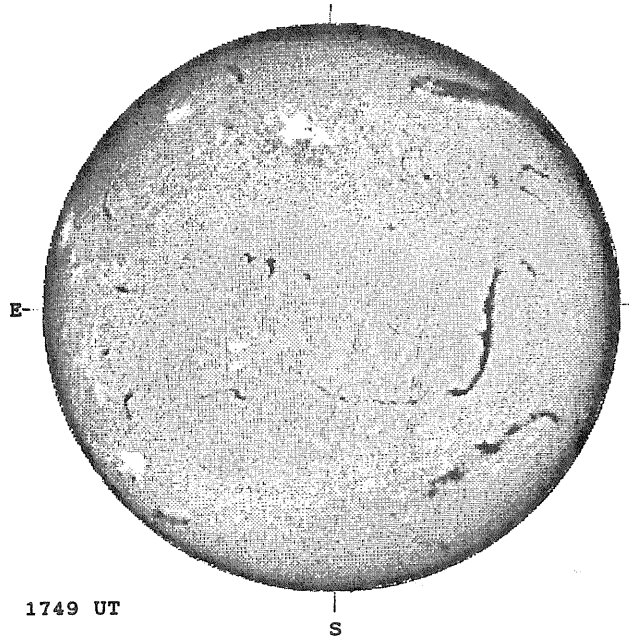


MT. WILSON MAGNETOGRAM

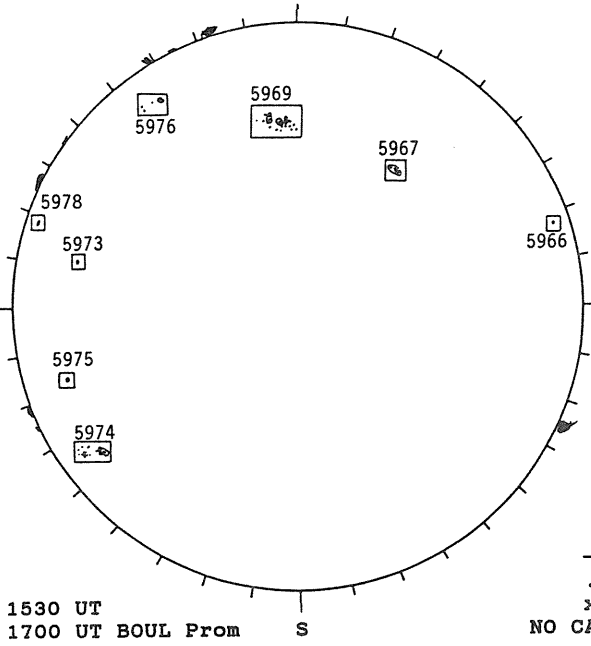
DeltaY = 13.0
DeltaX = 9.6



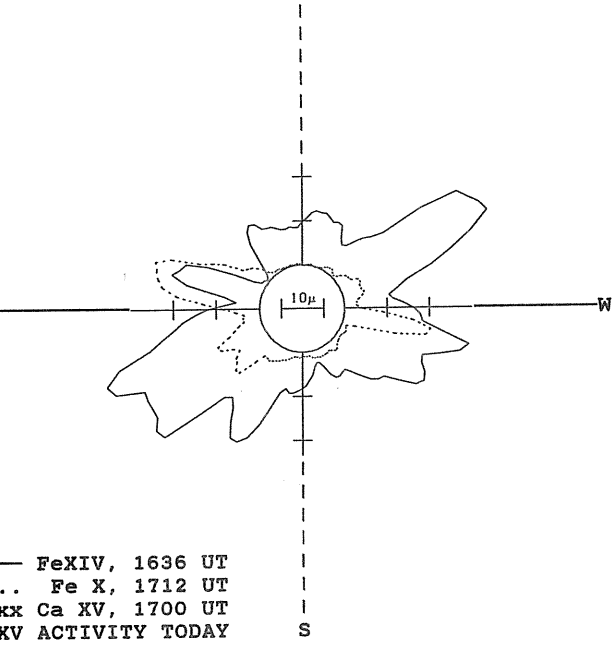
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

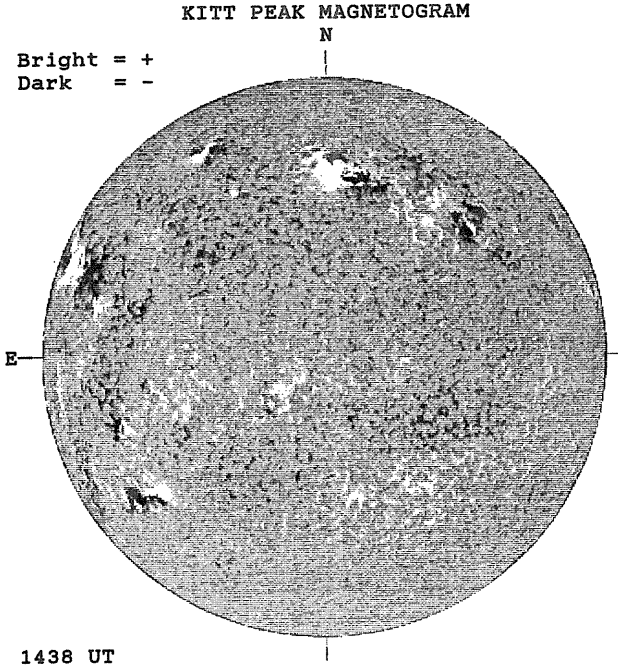


—— FeXIV, 1636 UT
.... Fe X, 1712 UT
xxxx Ca XV, 1700 UT
NO CA XV ACTIVITY TODAY

MARCH 16, 1990 (P=-24.57, B_o =-7.14, L_o = 75.47)

KITT PEAK MAGNETOGRAM

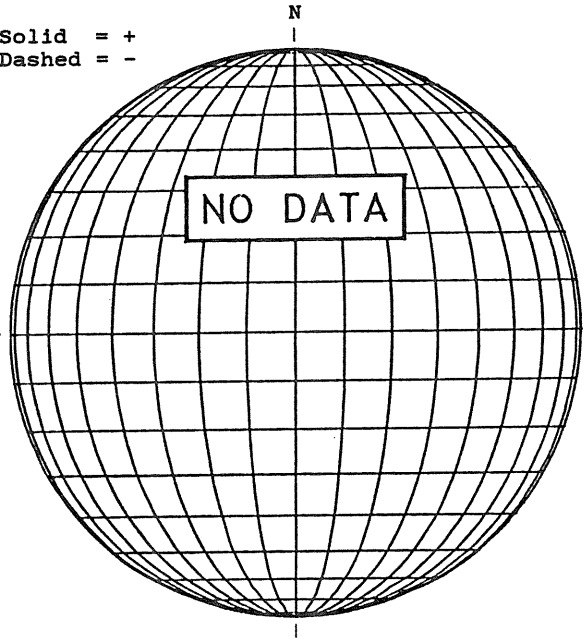
Bright = +
Dark = -



1438 UT

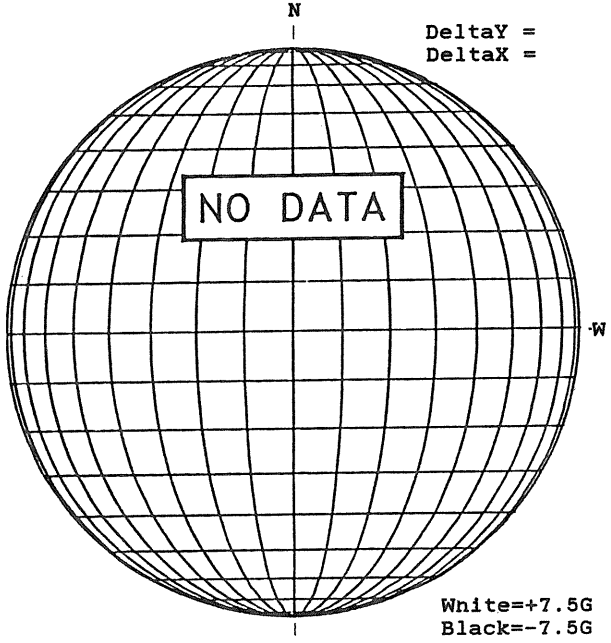
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



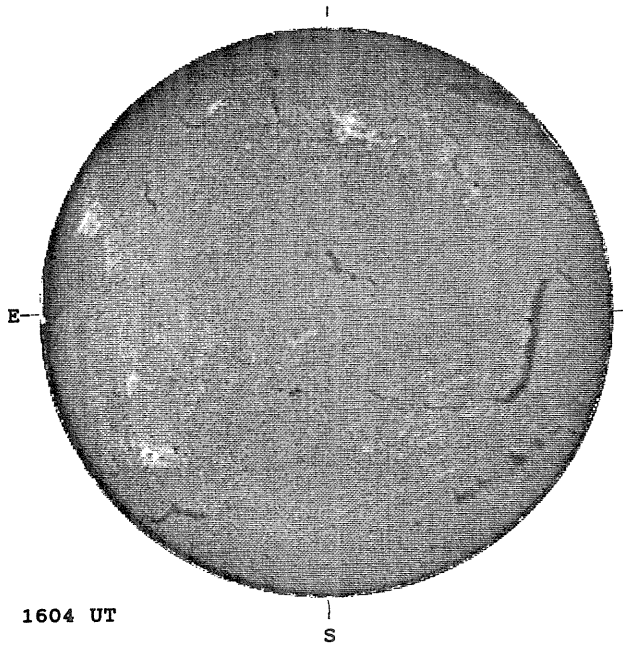
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



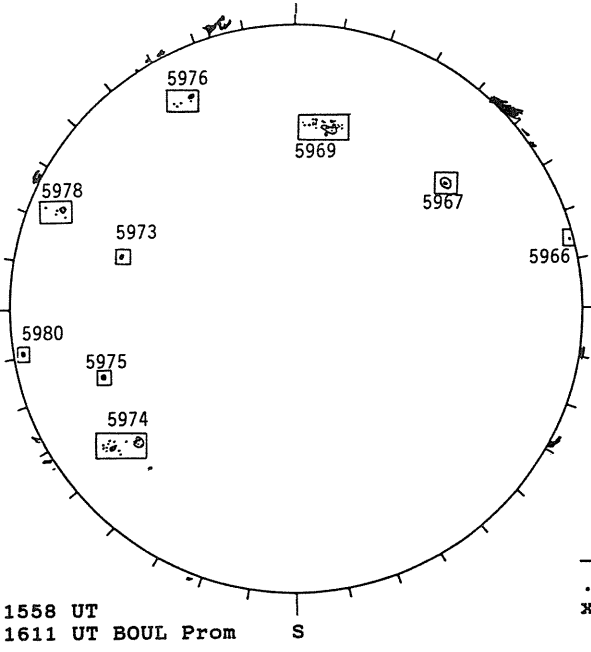
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



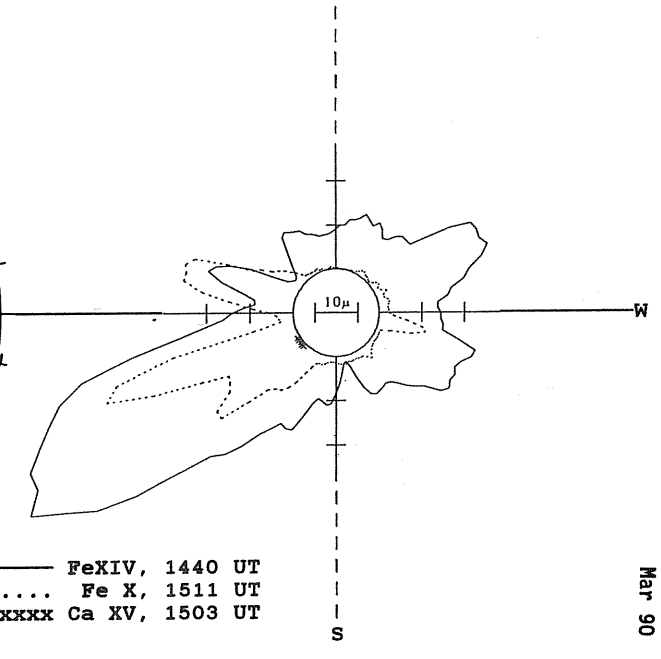
1604 UT

BOULDER SUNSPOT



1558 UT
1611 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



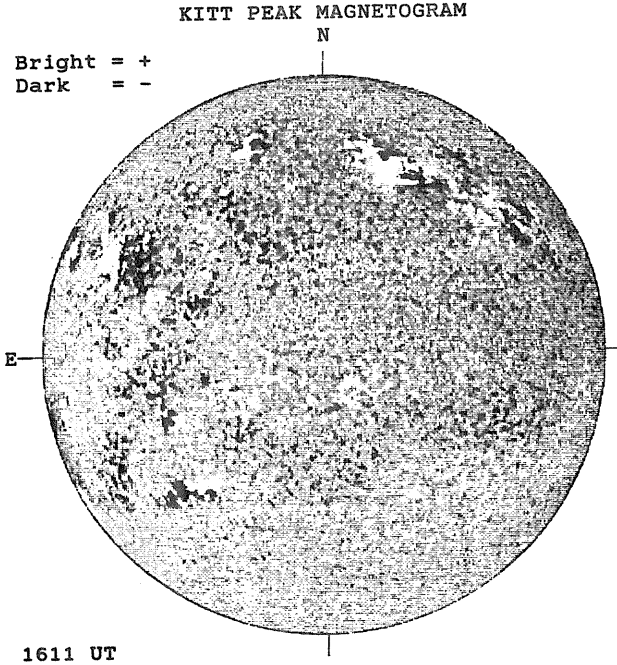
—— FeXIV, 1440 UT
.... Fe X, 1511 UT
xxxx Ca XV, 1503 UT

75
Mar 90

MARCH 17, 1990 (P=-24.72, B_o =-7.11, L_o = 62.29)

KITT PEAK MAGNETOGRAM

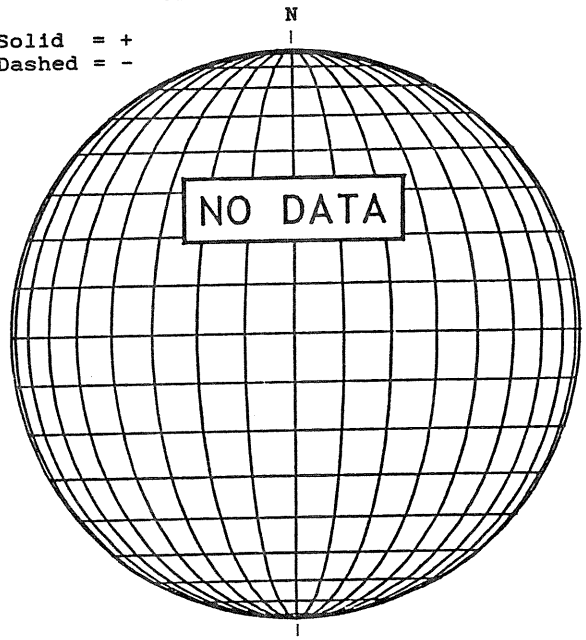
Bright = +
Dark = -



1611 UT

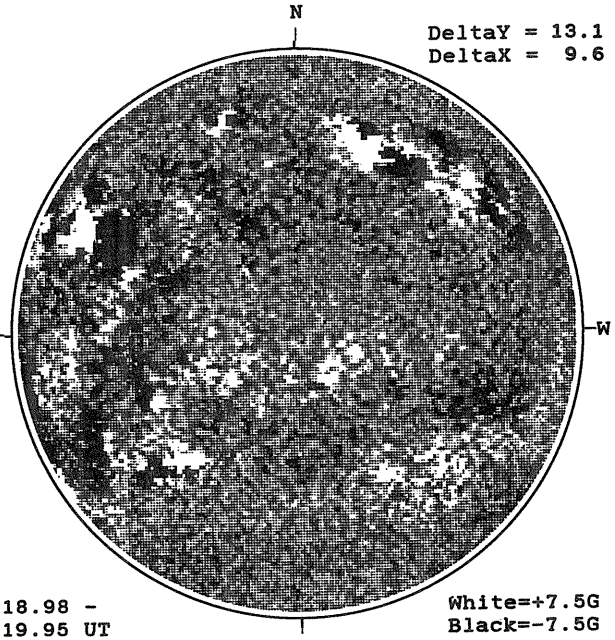
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

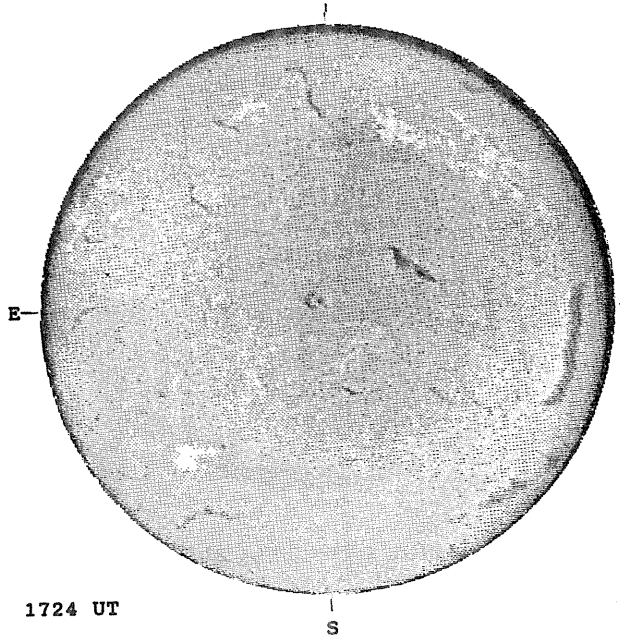
DeltaY = 13.1
DeltaX = 9.6



18.98 -
19.95 UT

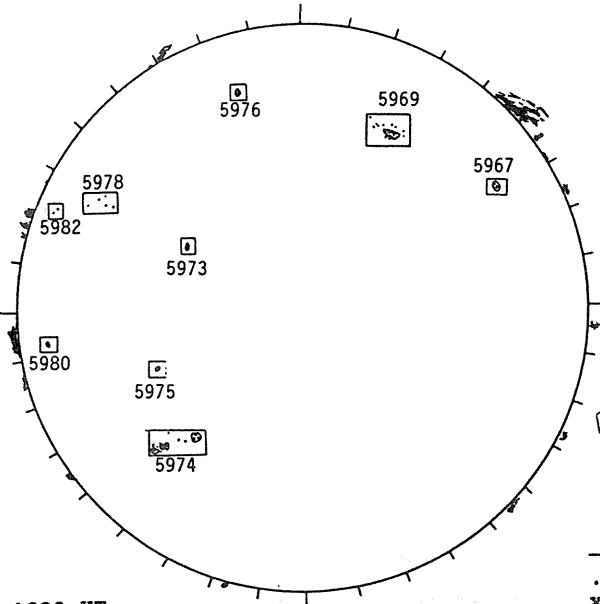
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



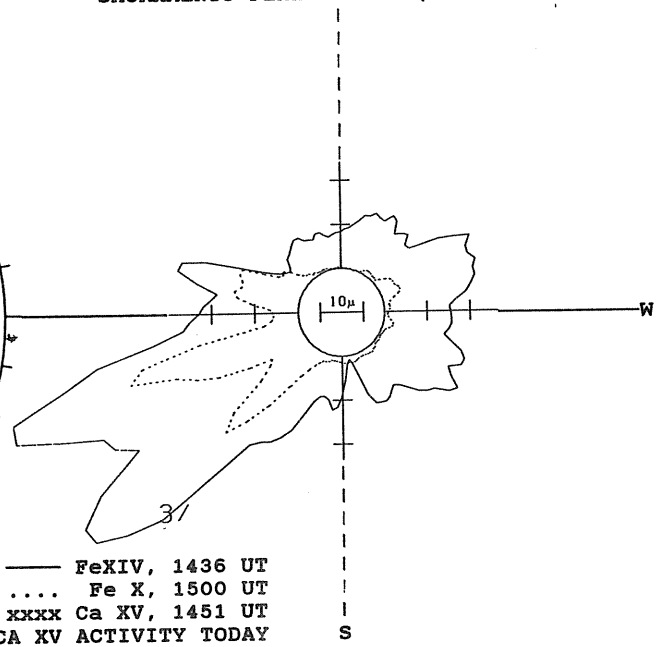
1724 UT

BOULDER SUNSPOT



1600 UT
1605 UT BOUL Prom

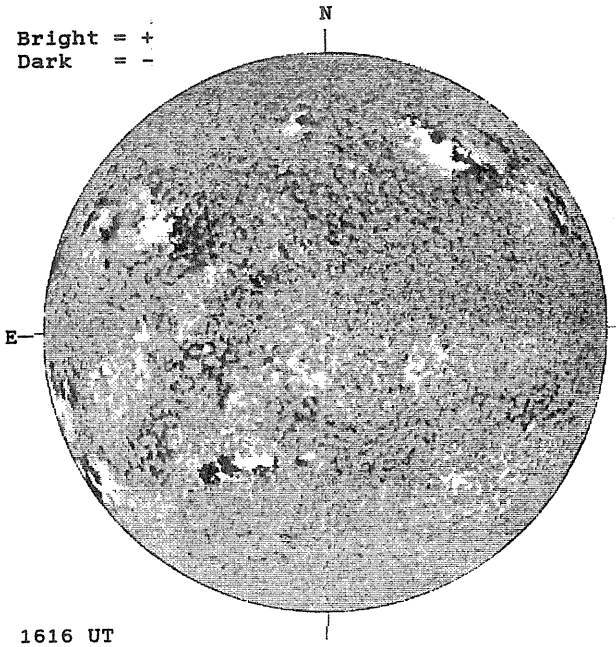
SACRAMENTO PEAK CORONA (1.15 Radii)



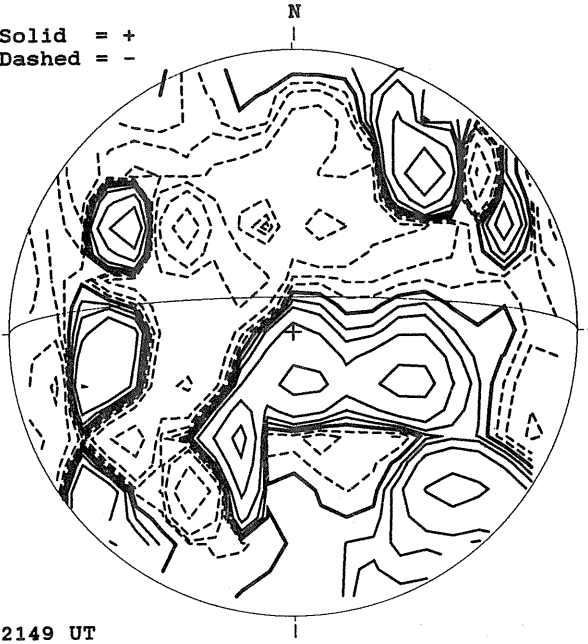
—— FeXIV, 1436 UT
.... Fe X, 1500 UT
xxxx Ca XV, 1451 UT
NO CA XV ACTIVITY TODAY

MARCH 18, 1990 (P=-24.86, B_o =-7.09, L_o = 49.11)

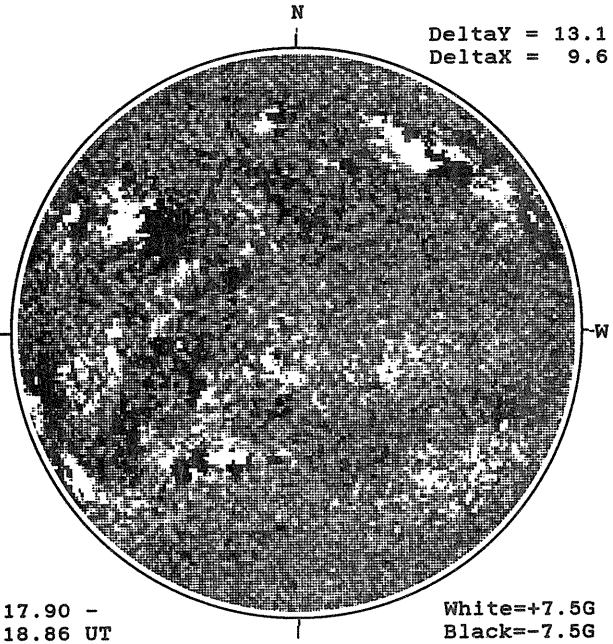
KITT PEAK MAGNETOGRAM



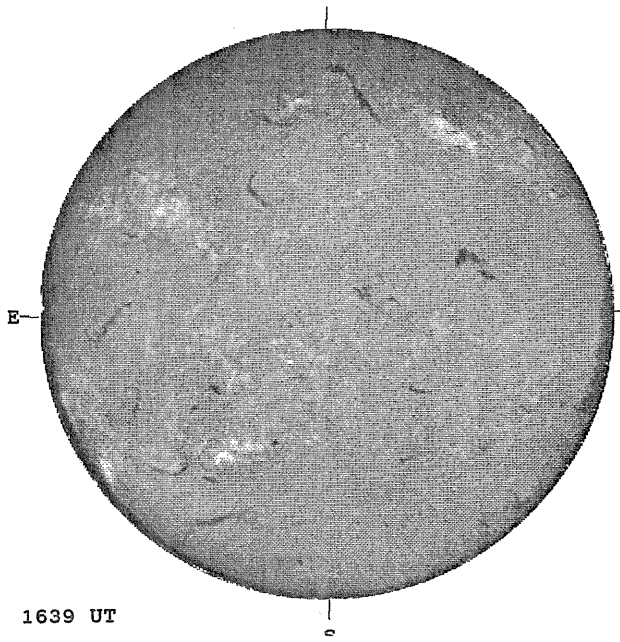
STANFORD MAGNETOGRAM



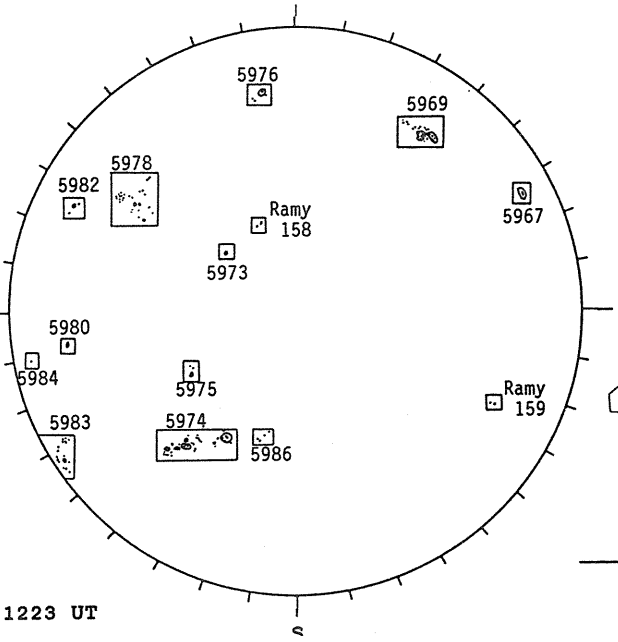
MT. WILSON MAGNETOGRAM



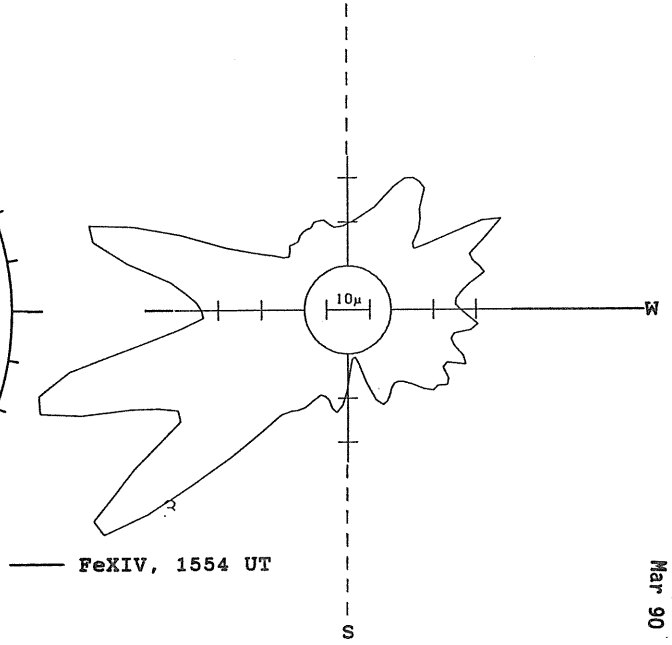
HOLLOMAN H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

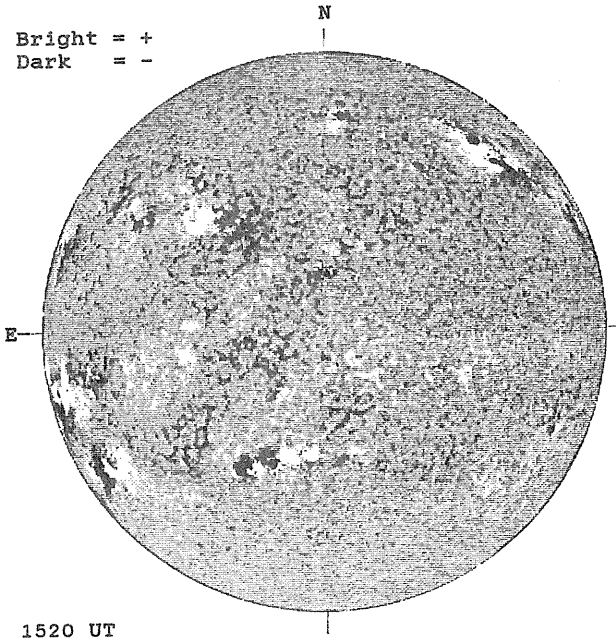


77
Mar 90

MARCH 19, 1990 (P=-25.00, B_o =-7.06, L_o = 35.93)

KITT PEAK MAGNETOGRAM

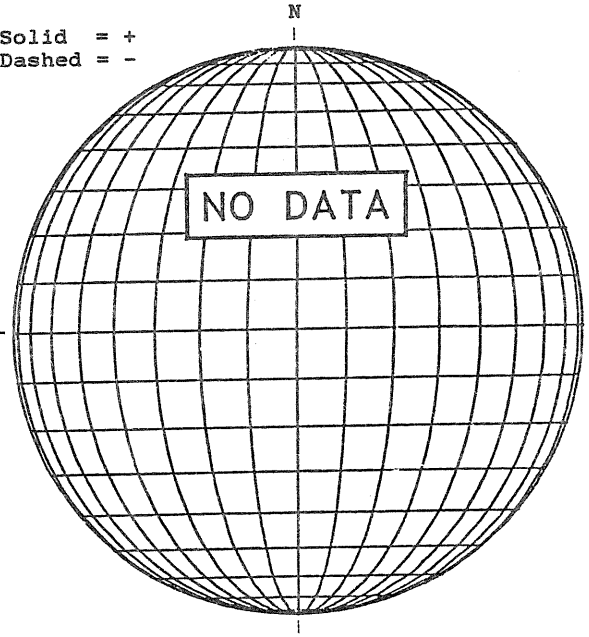
Bright = +
Dark = -



1520 UT

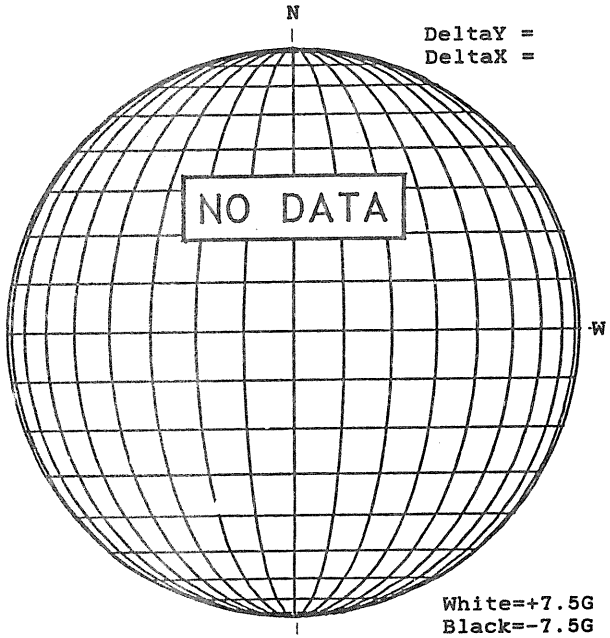
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



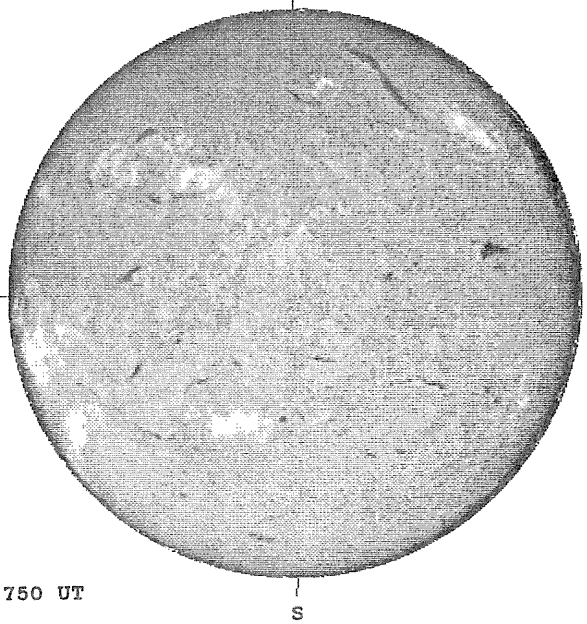
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



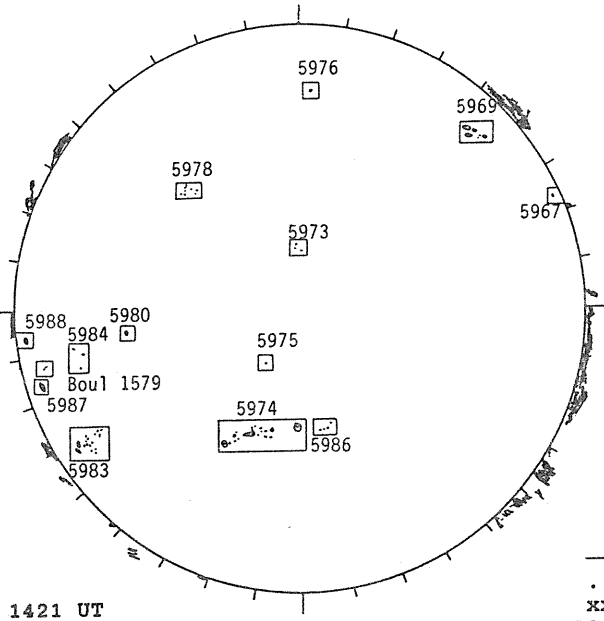
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



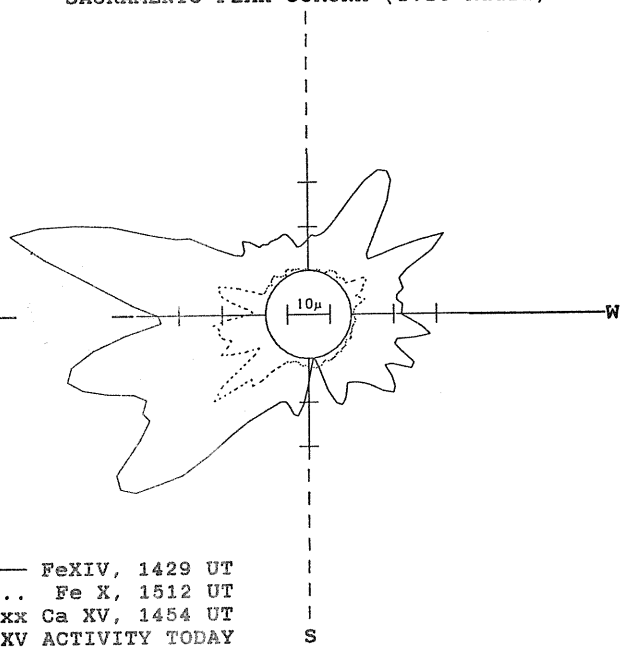
1750 UT

BOULDER SUNSPOT



1421 UT
1531 UT BOUL Prom

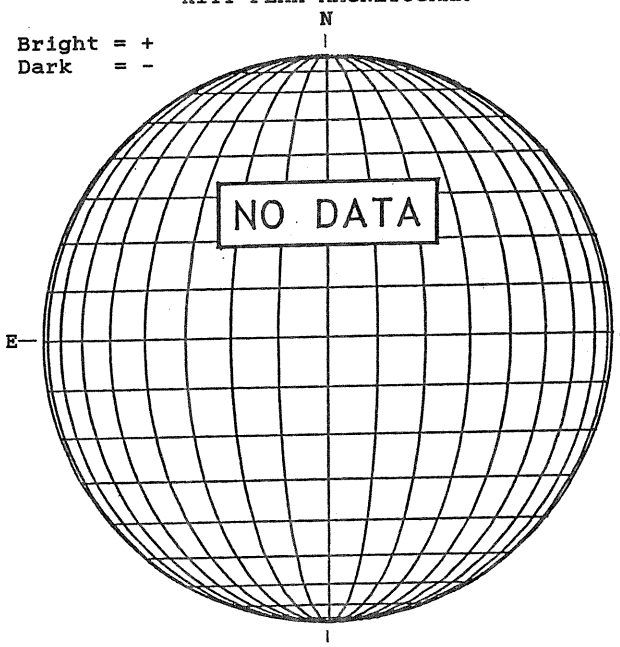
SACRAMENTO PEAK CORONA (1.15 Radii)



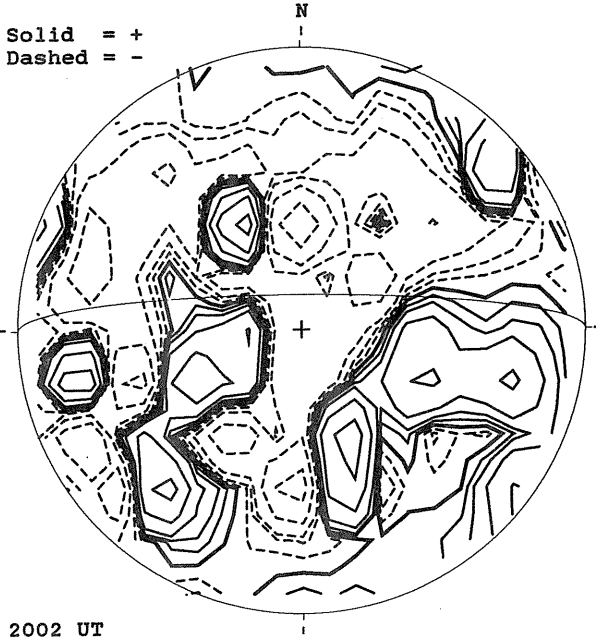
—— FeXIV, 1429 UT
.... Fe X, 1512 UT
xxxx Ca XV, 1454 UT
NO CA XV ACTIVITY TODAY

MARCH 20, 1990 (P=-25.13, B_o =-7.04, L_o = 22.75)

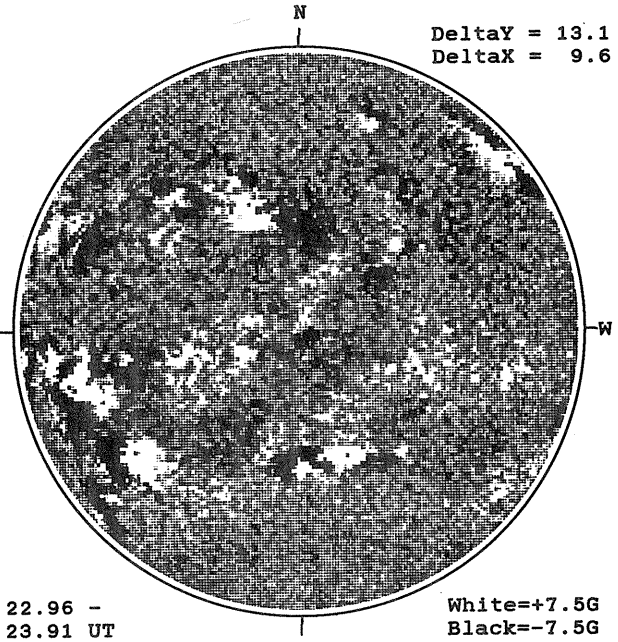
KITT PEAK MAGNETOGRAM



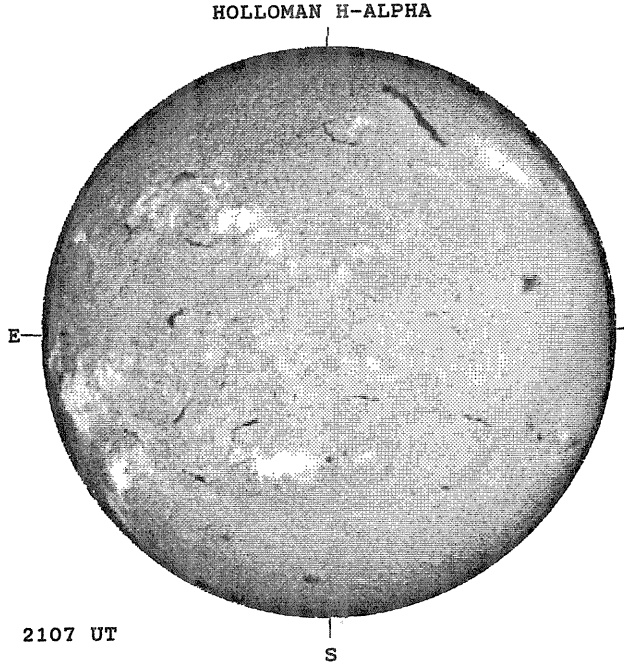
STANFORD MAGNETOGRAM



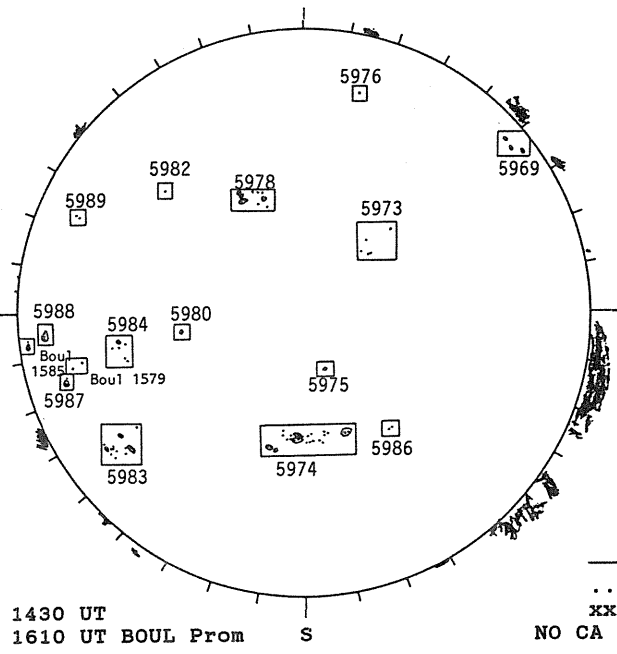
MT. WILSON MAGNETOGRAM



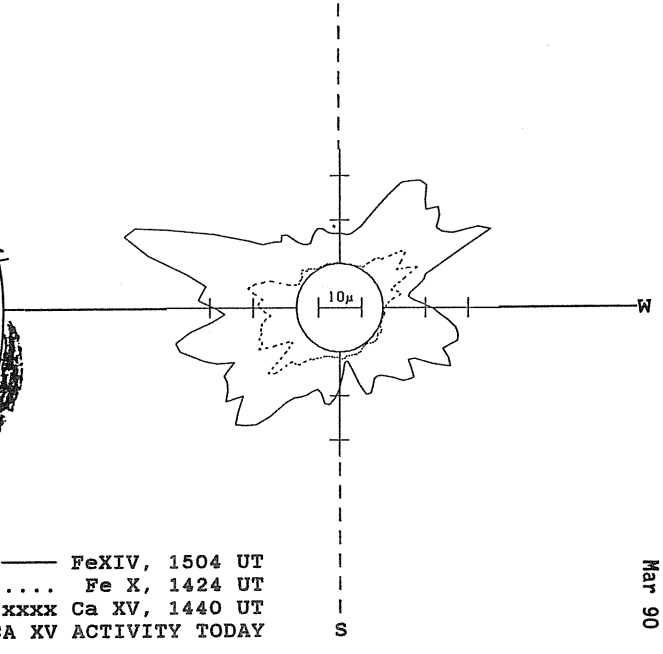
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

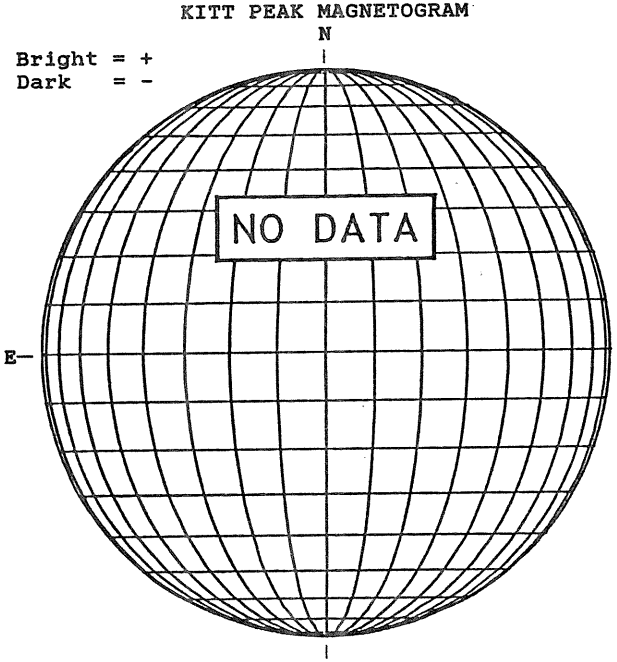


79
Mar 90

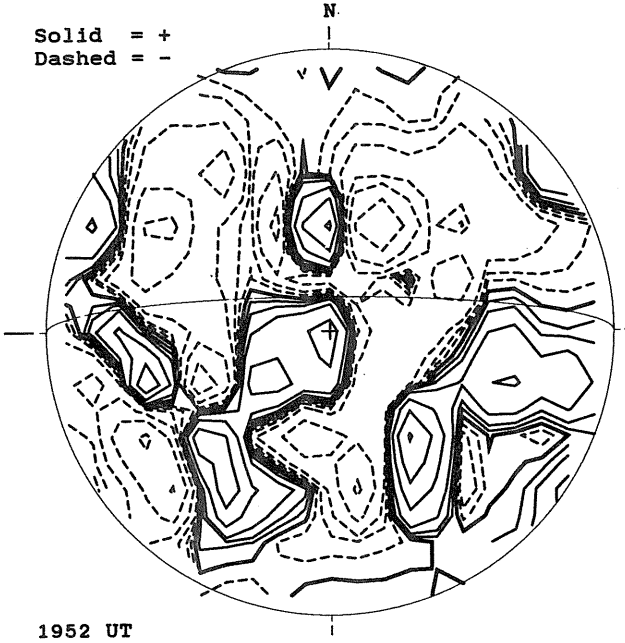
MARCH 21, 1990 (P=-25.26, B_o =-7.00, L_o = 9.56)

80
Mar 90

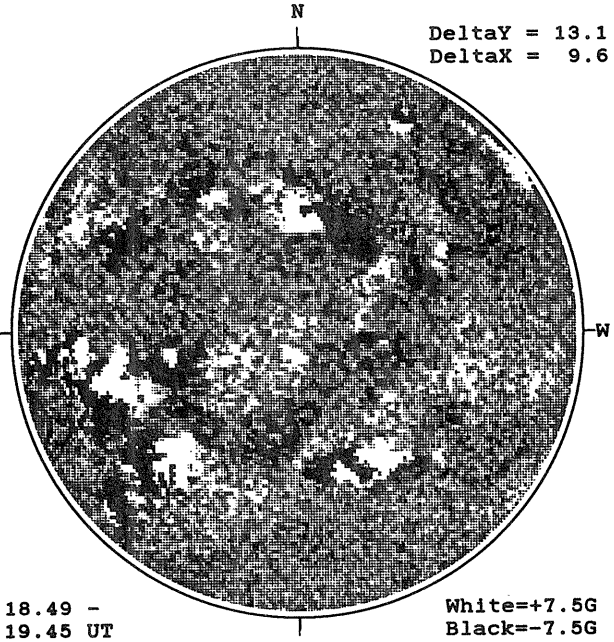
KITT PEAK MAGNETOGRAM



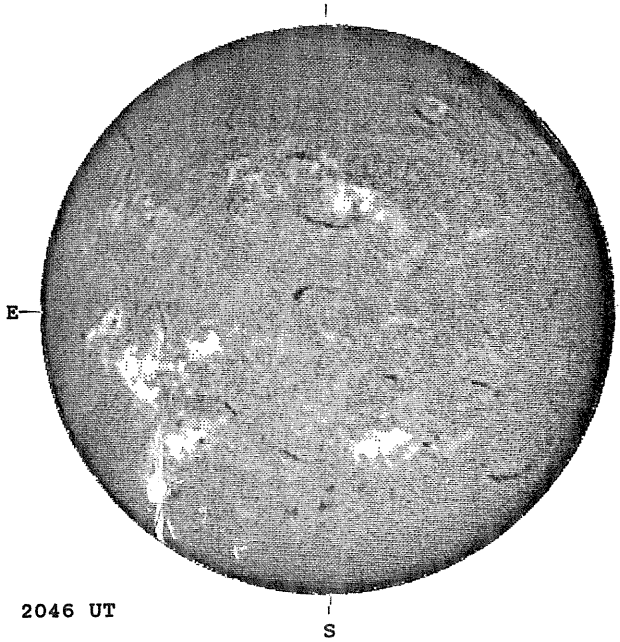
STANFORD MAGNETOGRAM



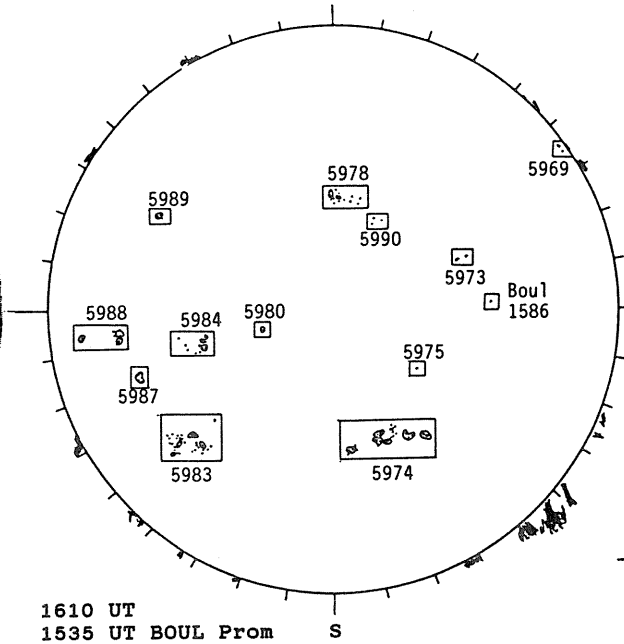
MT. WILSON MAGNETOGRAM



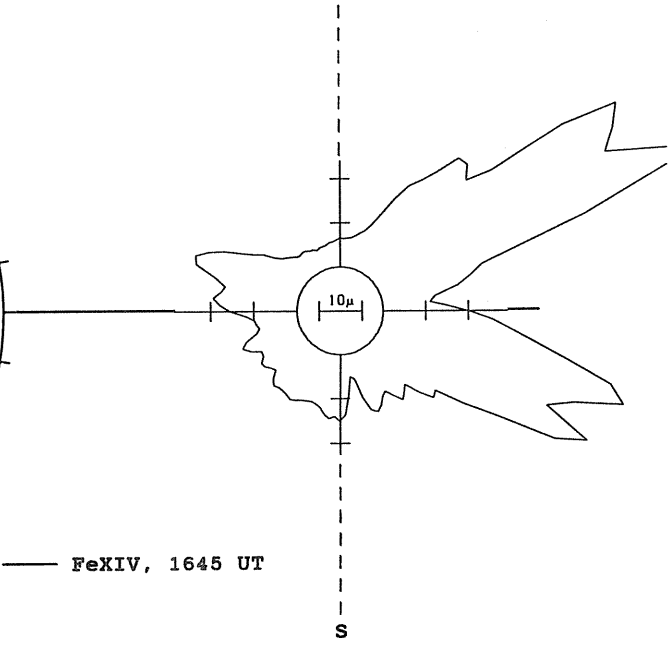
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



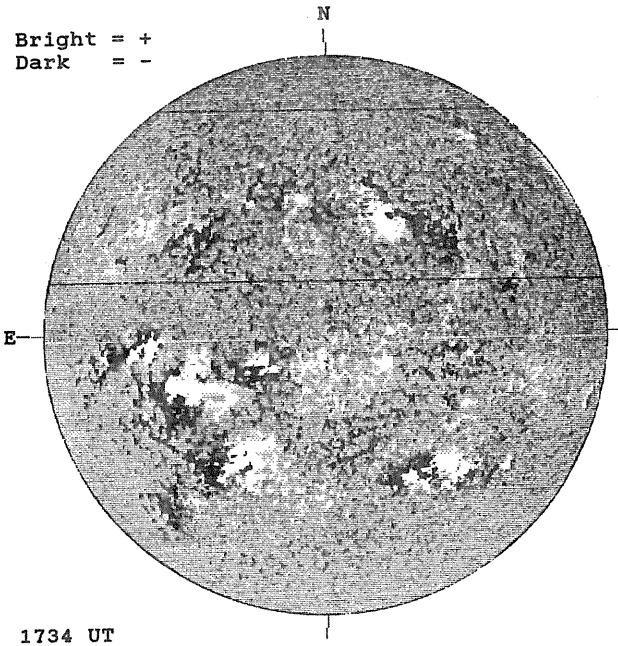
SACRAMENTO PEAK CORONA (1.15 Radii)



MARCH 22, 1990 (P=-25.38, B_o =-6.97, L_o = 356.38)

KITT PEAK MAGNETOGRAM

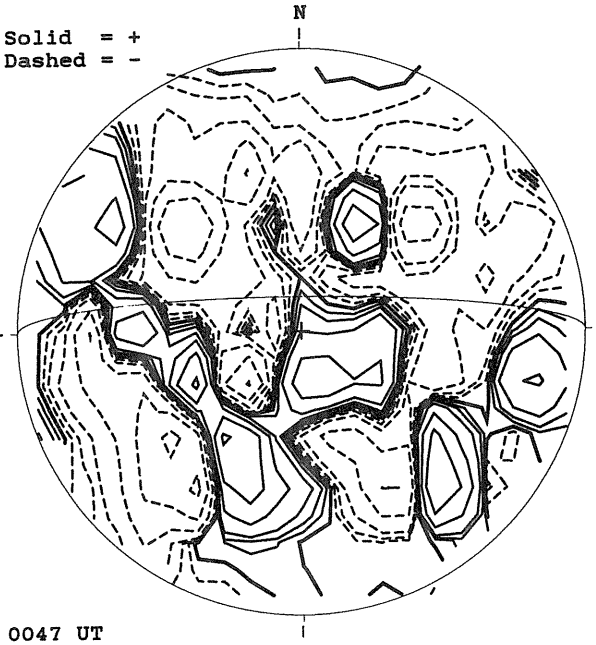
Bright = +
Dark = -



1734 UT

STANFORD MAGNETOGRAM

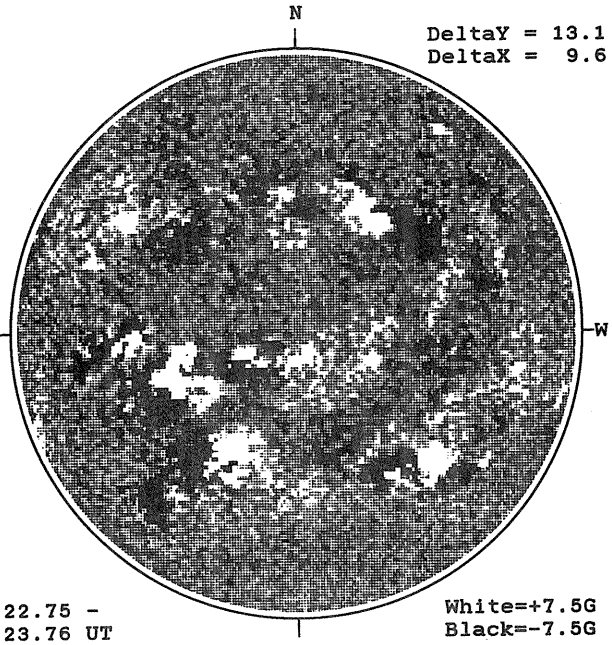
Solid = +
Dashed = -



0047 UT
Mar 23

MT. WILSON MAGNETOGRAM

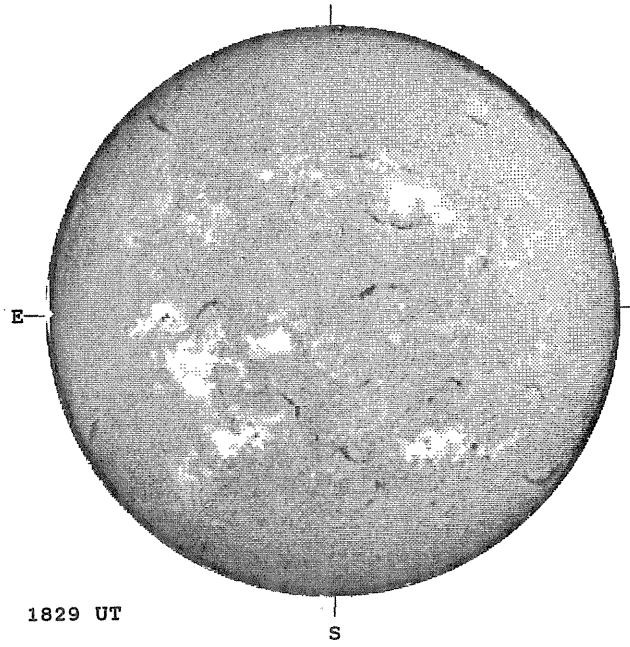
DeltaY = 13.1
DeltaX = 9.6



22.75 -
23.76 UT

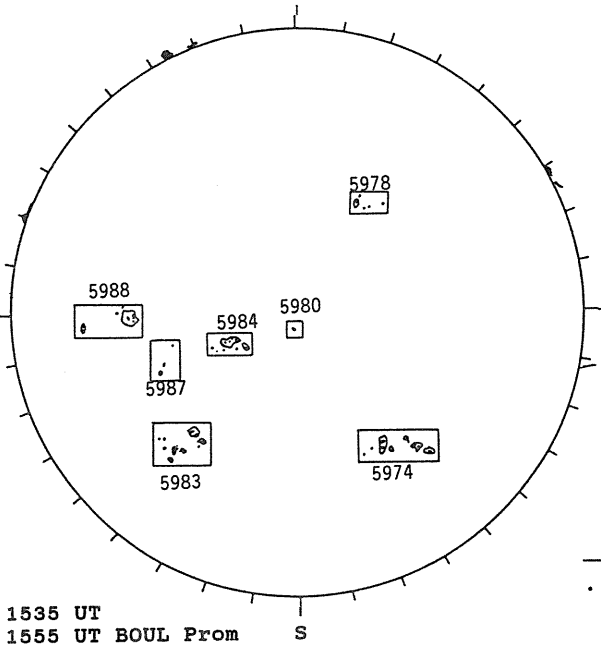
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



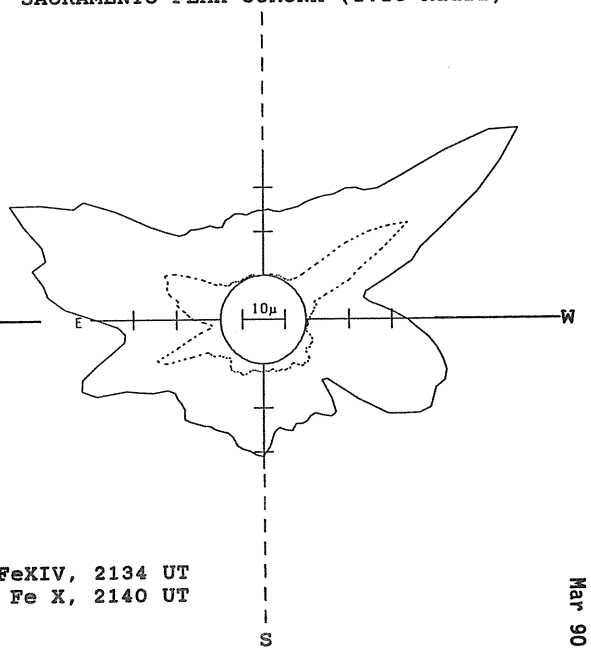
1829 UT

BOULDER SUNSPOT



1535 UT
1555 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



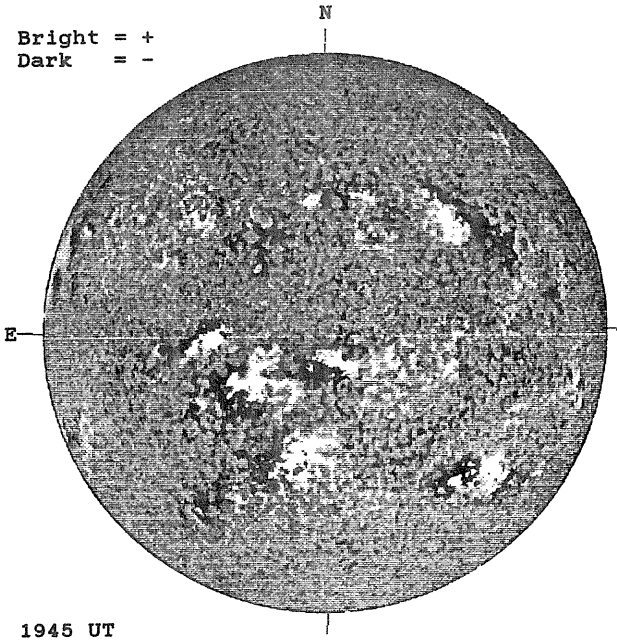
—— FeXIV, 2134 UT
.... Fe X, 2140 UT

81
Mar 90

MARCH 23, 1990 (P=-25.49, B_o =-6.94, L_o = 343.19)

KITT PEAK MAGNETOGRAM

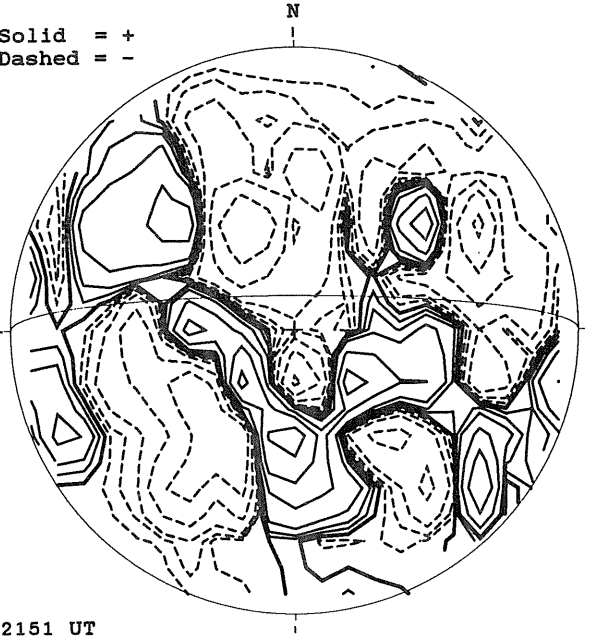
Bright = +
Dark = -



1945 UT

STANFORD MAGNETOGRAM

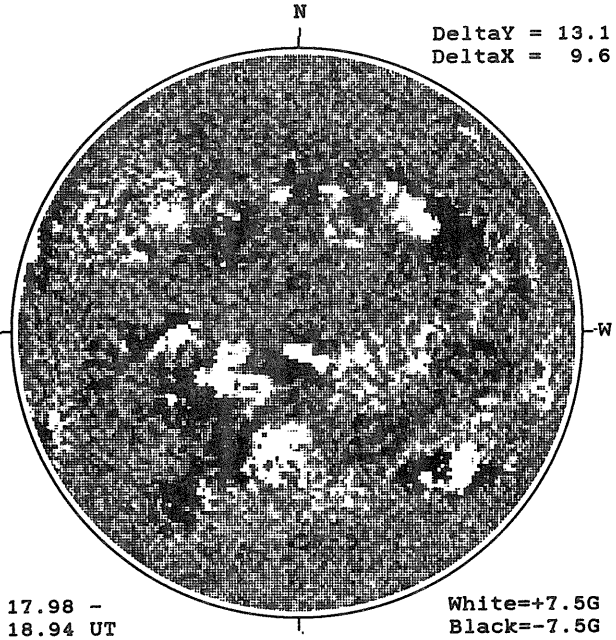
Solid = +
Dashed = -



2151 UT

MT. WILSON MAGNETOGRAM

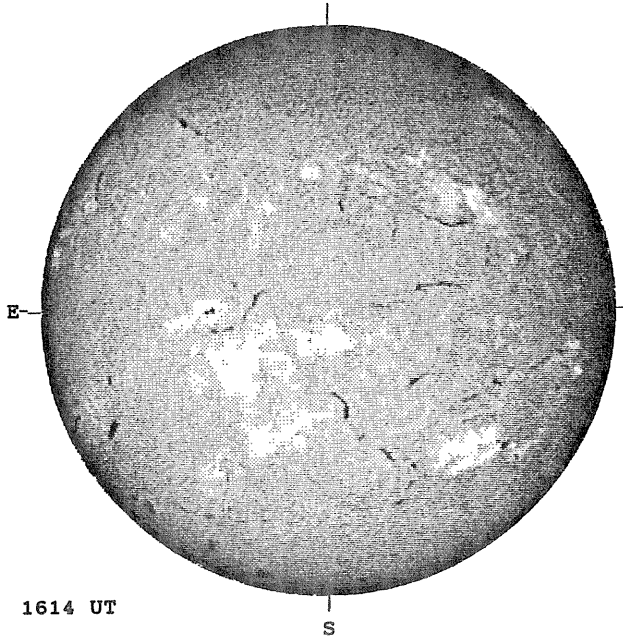
DeltaY = 13.1
DeltaX = 9.6



17.98 -
18.94 UT

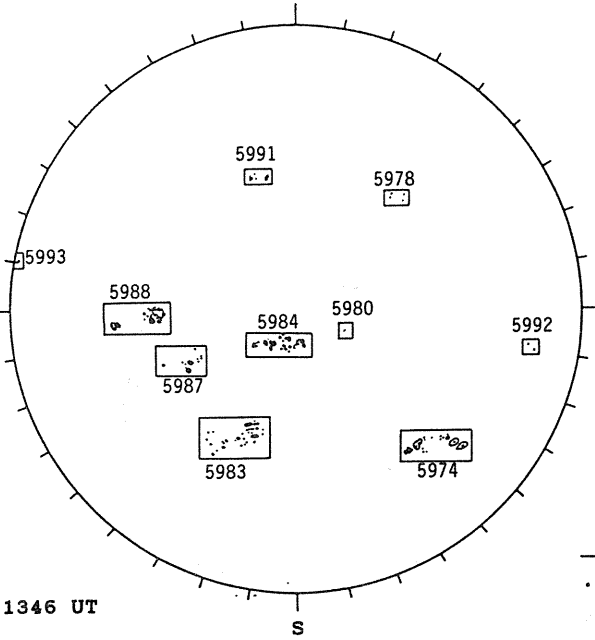
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



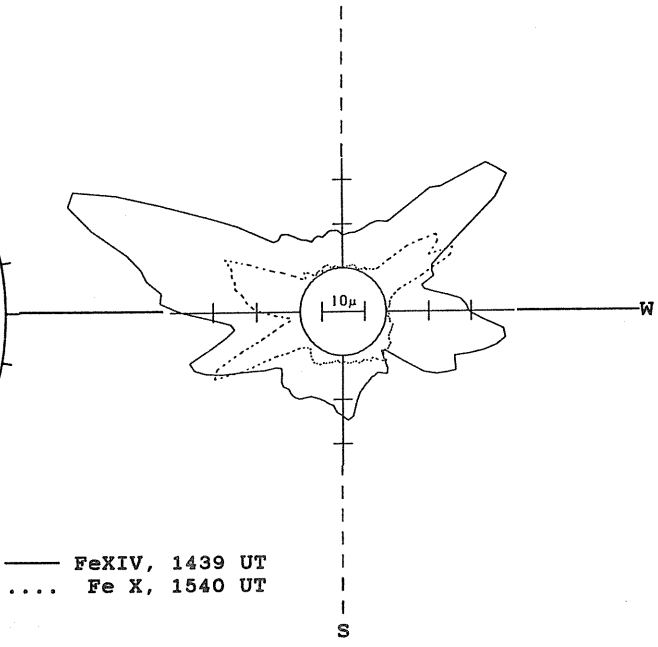
1614 UT

RAMEY SUNSPOT



1346 UT

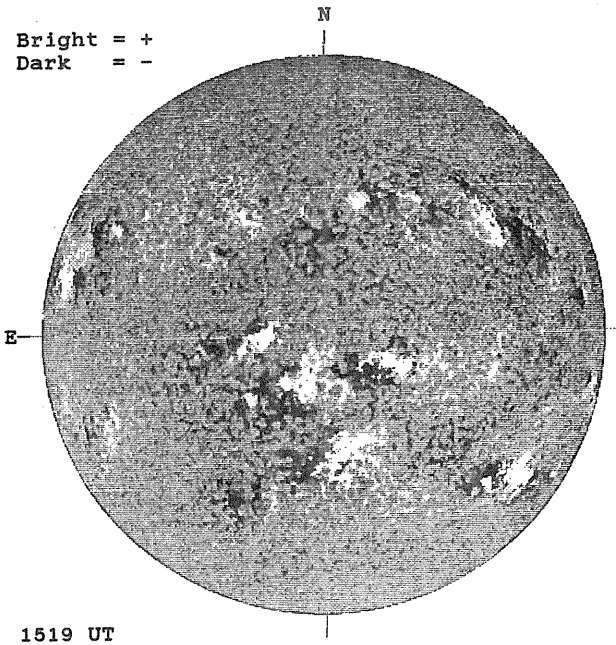
SACRAMENTO PEAK CORONA (1.15 Radii)



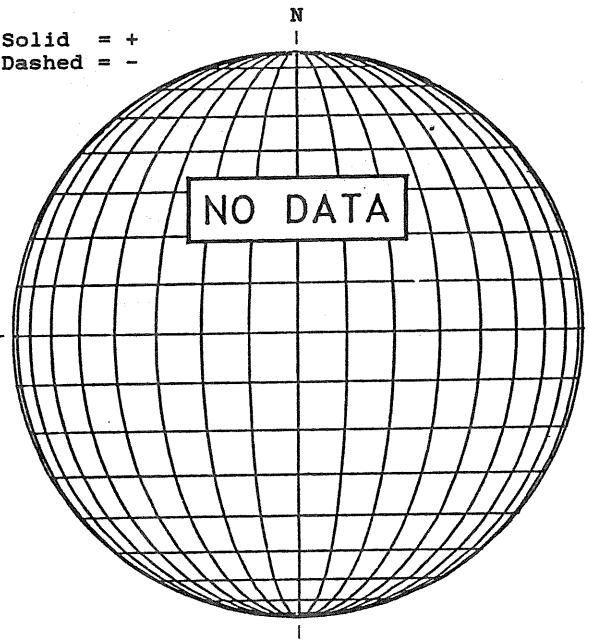
—— FeXIV, 1439 UT
.... Fe X, 1540 UT

MARCH 24, 1990 (P=-25.59 B_o =-6.90, L_o = 330.01)

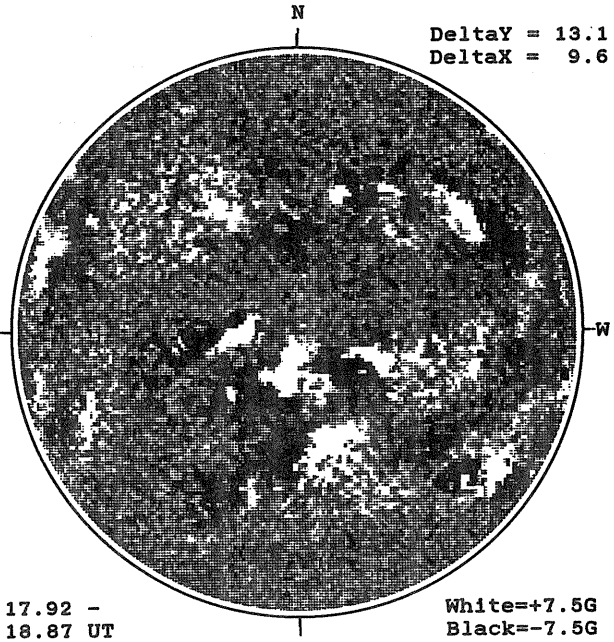
KITT PEAK MAGNETOGRAM



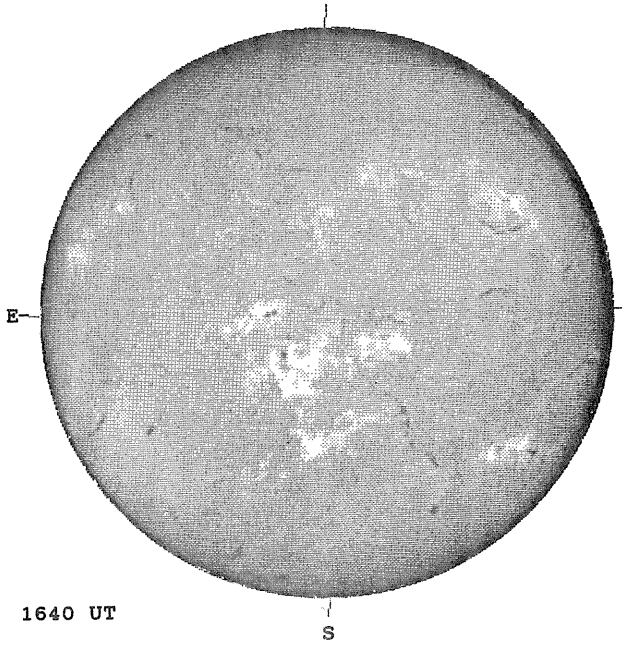
STANFORD MAGNETOGRAM



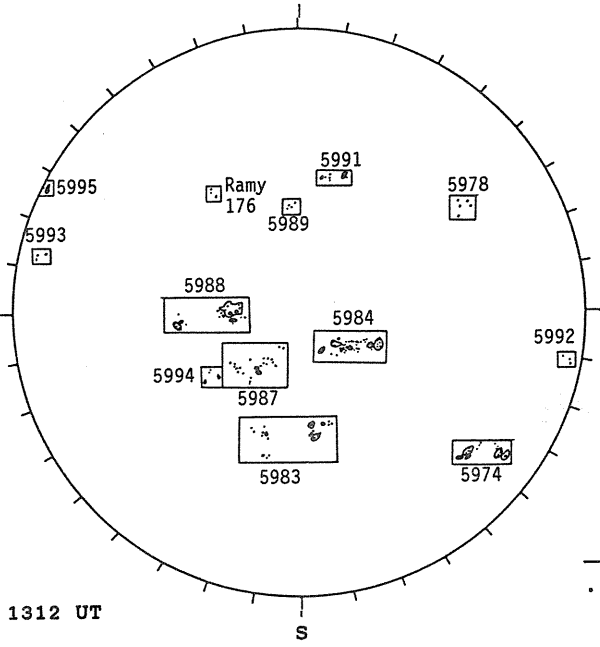
MT. WILSON MAGNETOGRAM



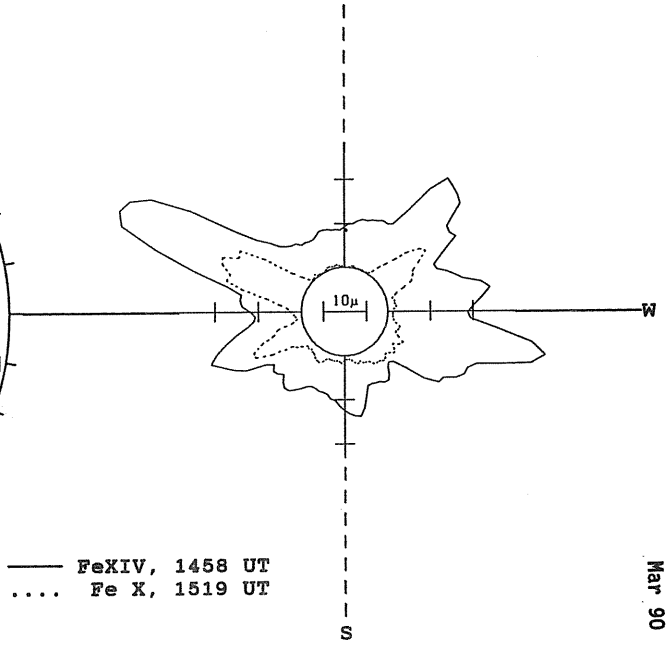
HOLLOMAN H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

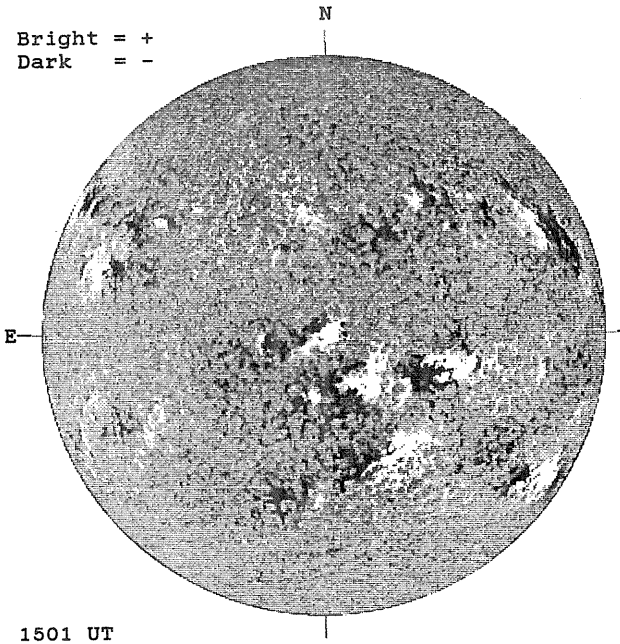


83
Mar 90

MARCH 25, 1990 (P=-25.69, B_o =-6.86, L_o = 316.82)

KITT PEAK MAGNETOGRAM

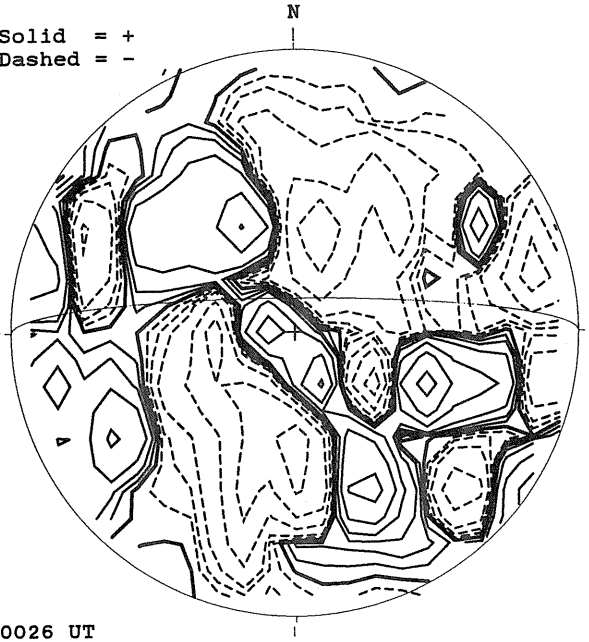
Bright = +
Dark = -



1501 UT

STANFORD MAGNETOGRAM

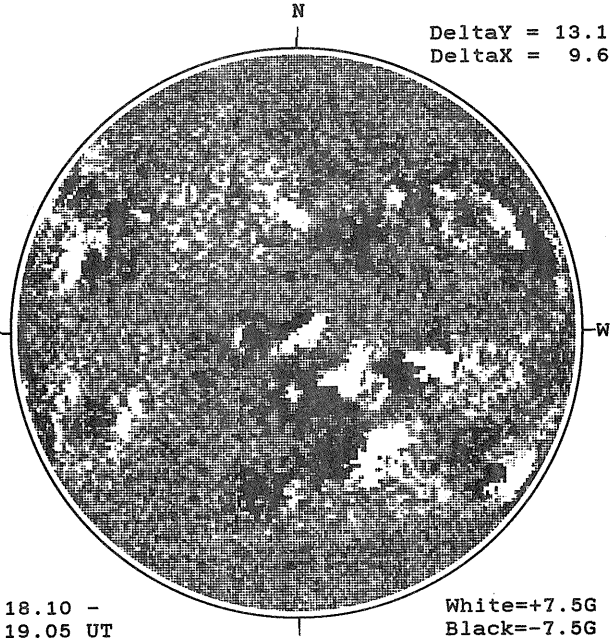
Solid = +
Dashed = -



0026 UT

MT. WILSON MAGNETOGRAM

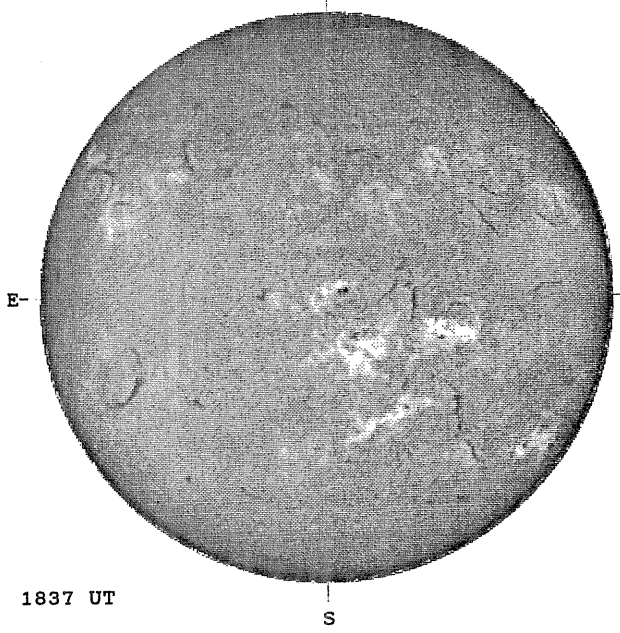
DeltaY = 13.1
DeltaX = 9.6



18.10 -
19.05 UT

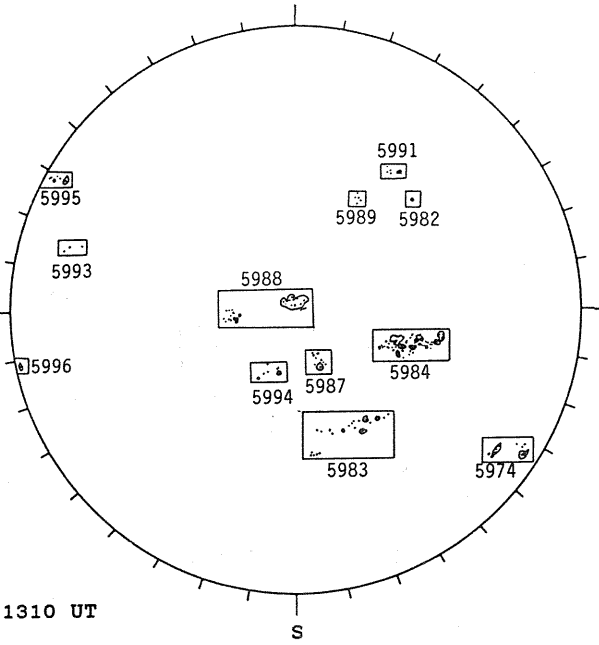
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



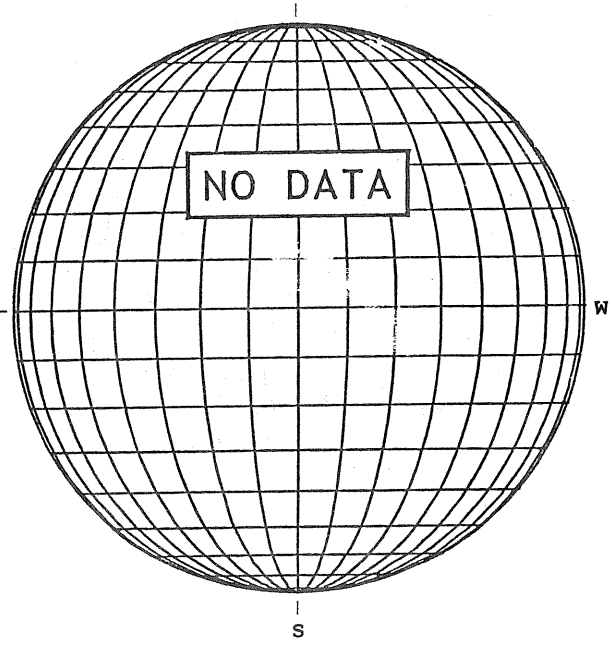
1837 UT

RAMEY SUNSPOT



1310 UT

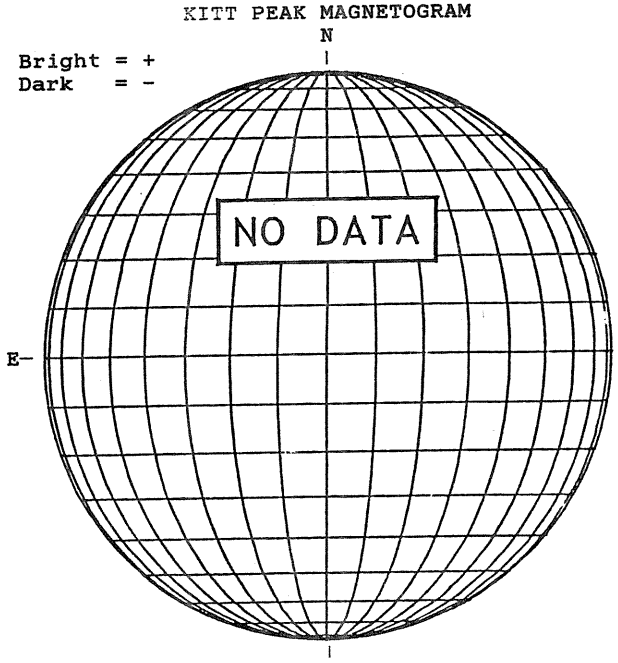
SACRAMENTO PEAK CORONA (1.15 Radii)



MARCH 26, 1990 (P=-25.78, B_o =-6.82, L_o = 303.63)

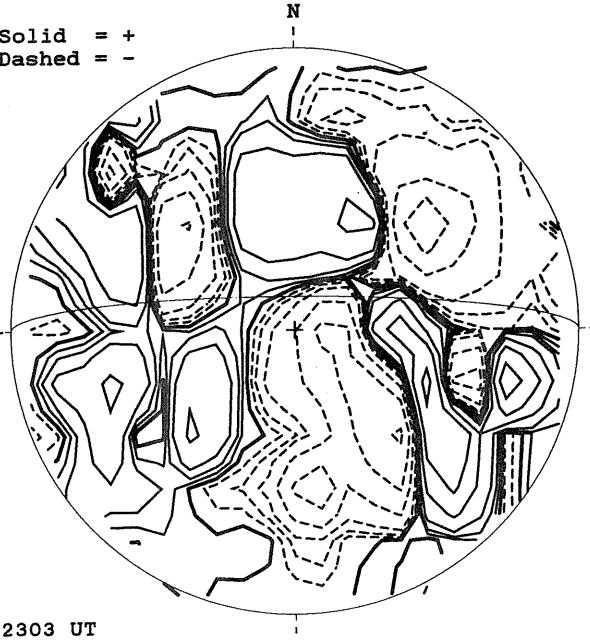
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



STANFORD MAGNETOGRAM

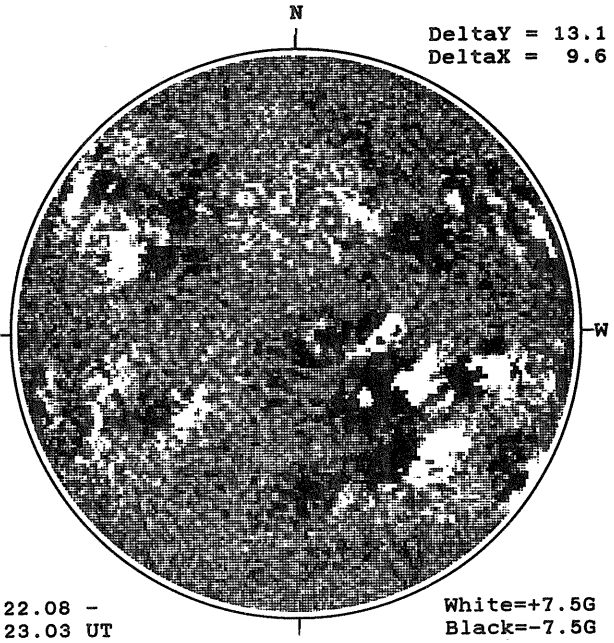
Solid = +
Dashed = -



2303 UT

MT. WILSON MAGNETOGRAM

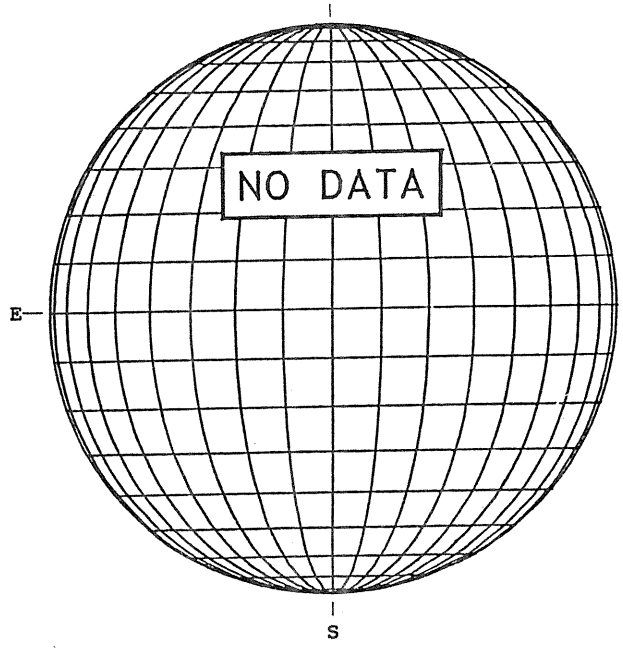
DeltaY = 13.1
DeltaX = 9.6



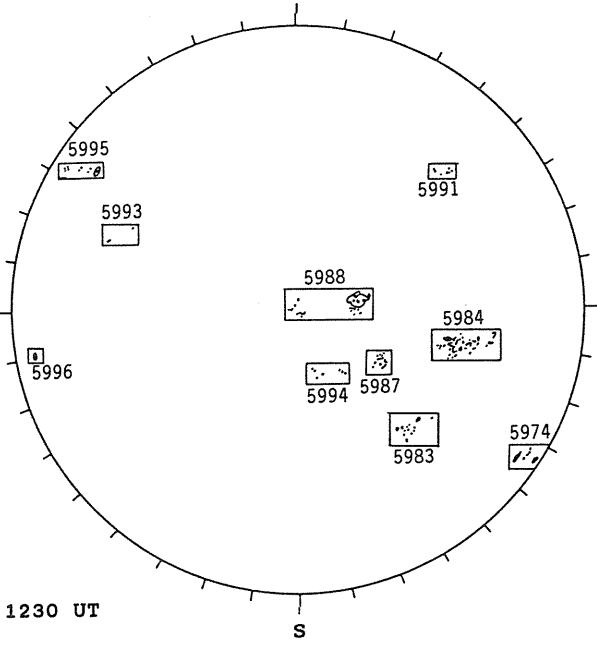
22.08 -
23.03 UT

White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA

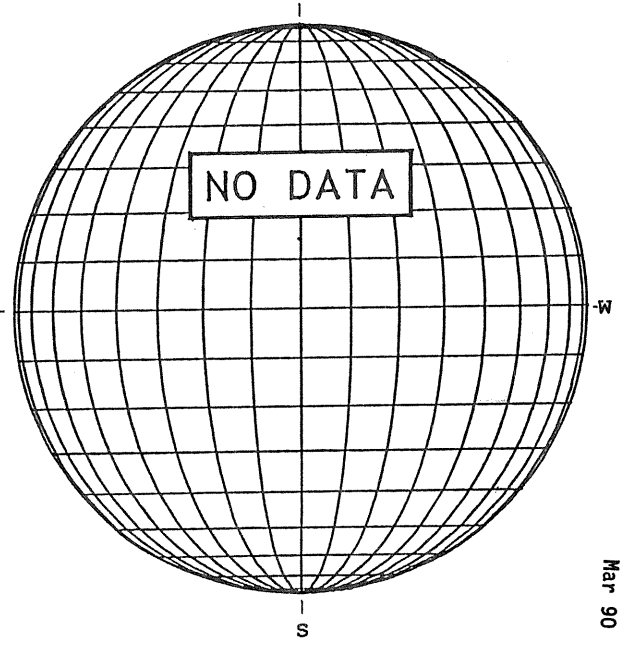


RAMEY SUNSPOT



1230 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



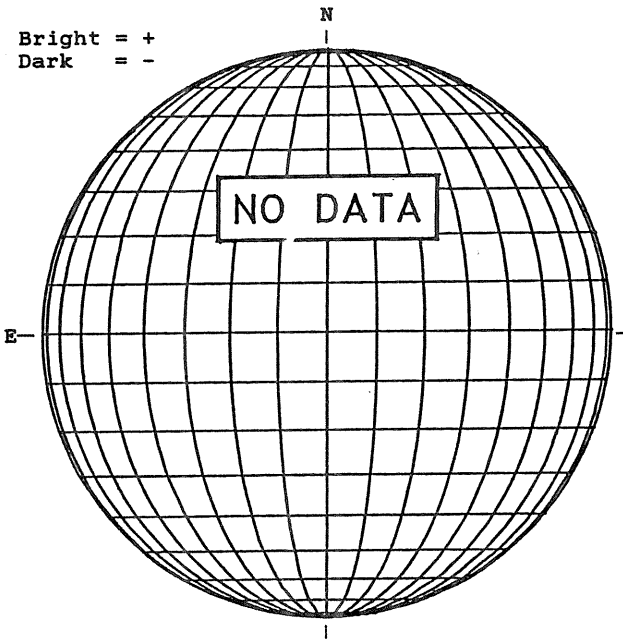
85
Mar 90

MARCH 27, 1990 (P=-25.86, B_o =-6.78, L_o = 290.45)

86
Mar 90

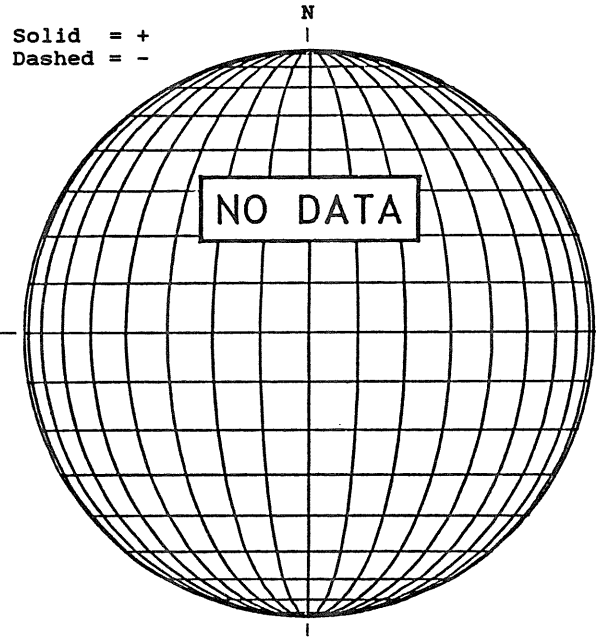
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



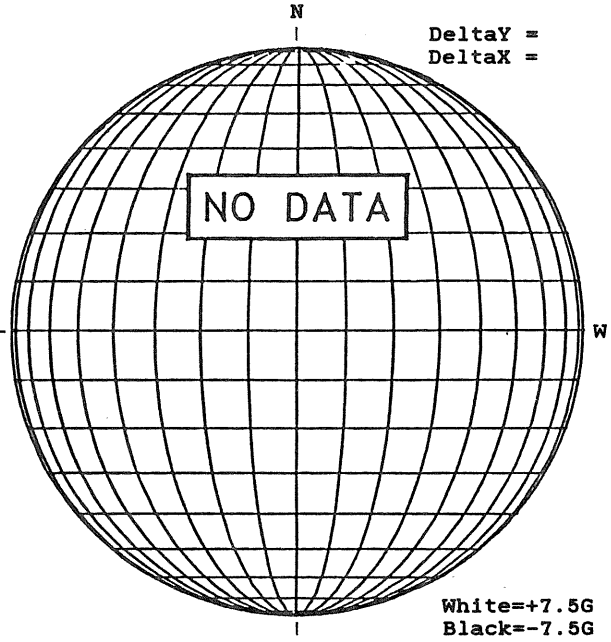
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



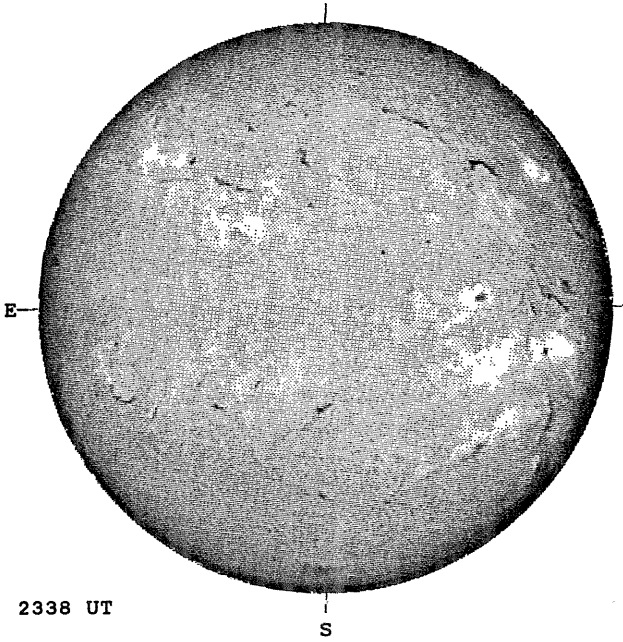
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



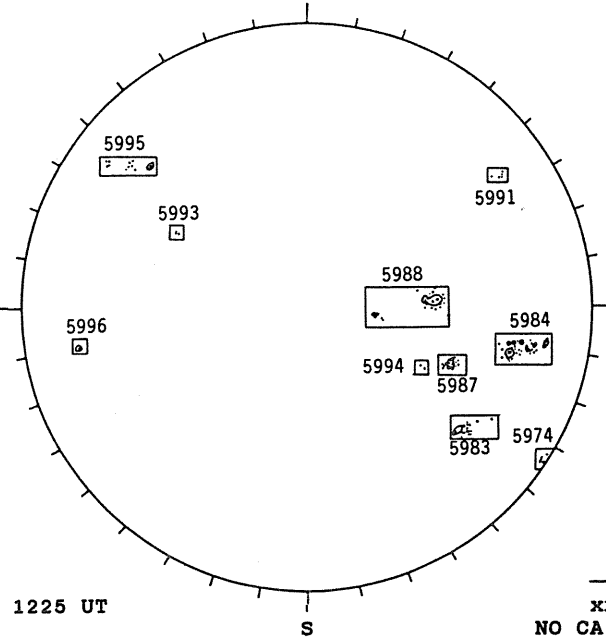
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



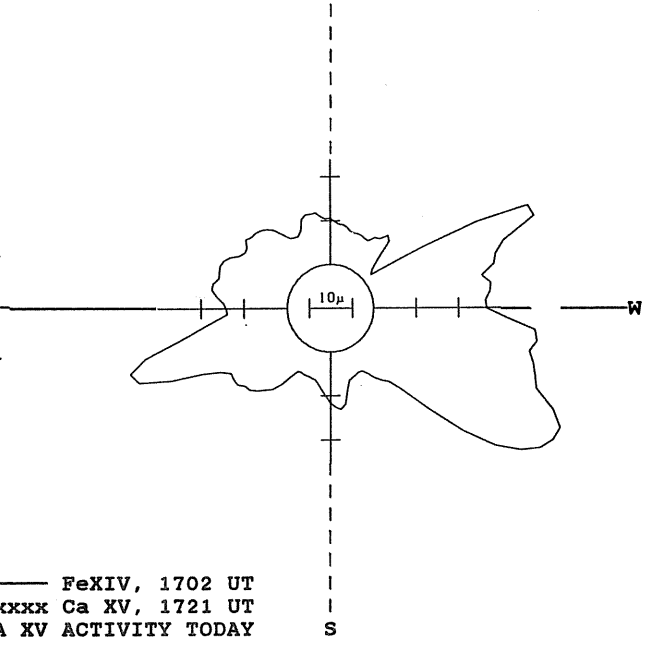
2338 UT

RAMEY SUNSPOT



1225 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

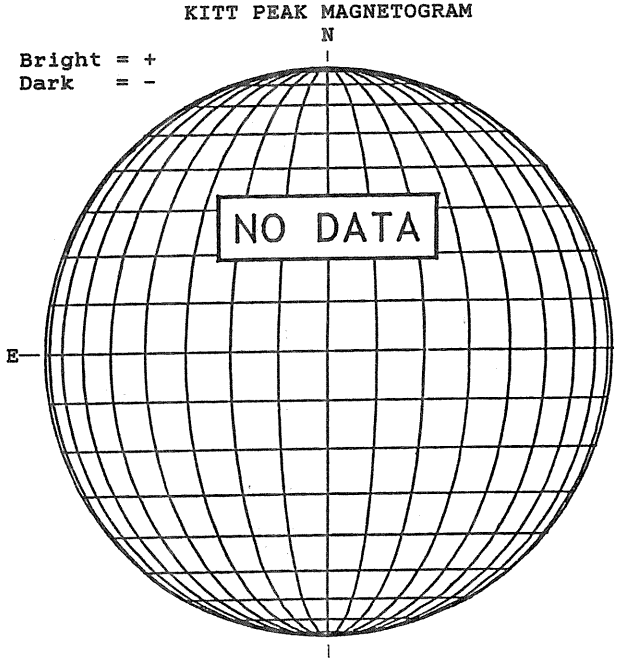


—— FeXIV, 1702 UT
xxxx Ca XV, 1721 UT
NO CA XV ACTIVITY TODAY

MARCH 28, 1990 (P=-25.94, B_o =-6.73, L_o = 277.26)

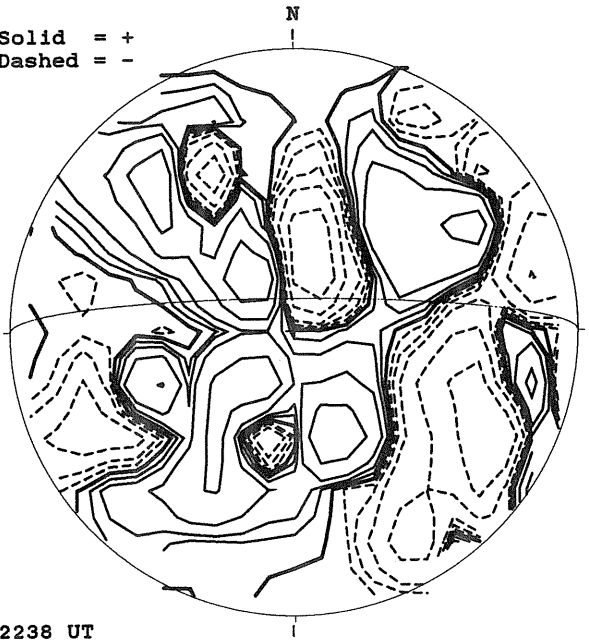
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



STANFORD MAGNETOGRAM

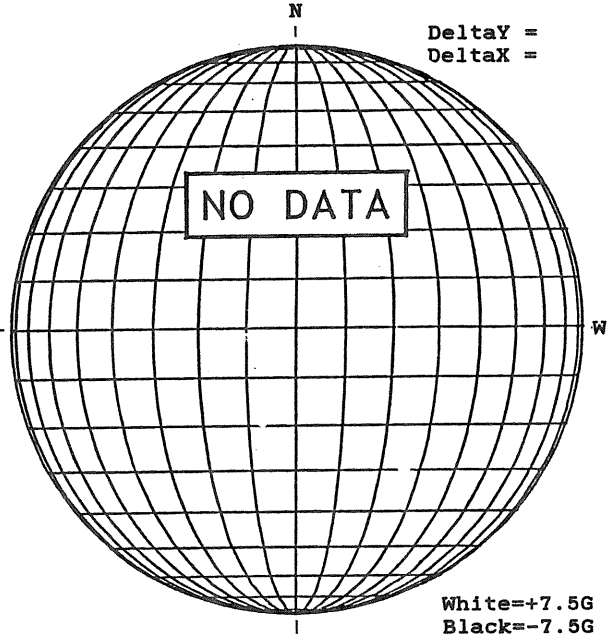
Solid = +
Dashed = -



2238 UT

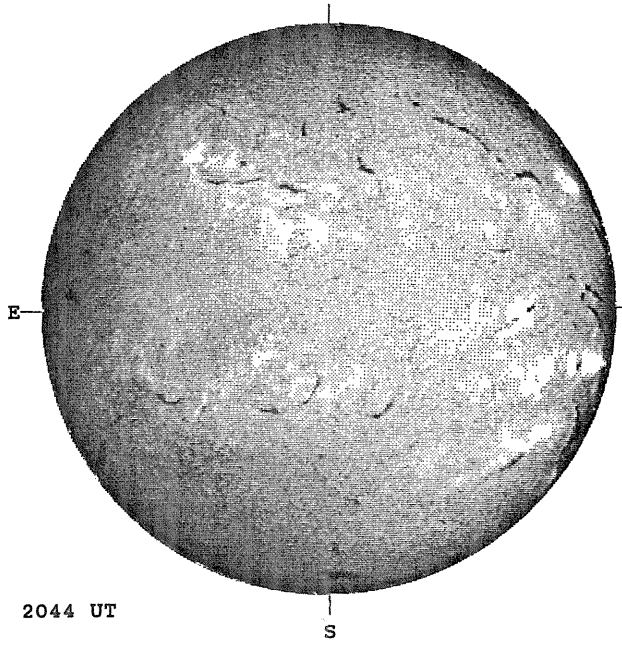
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



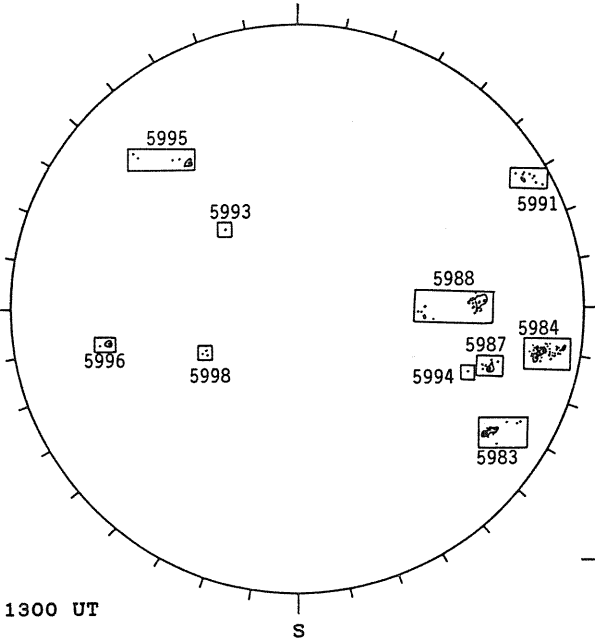
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



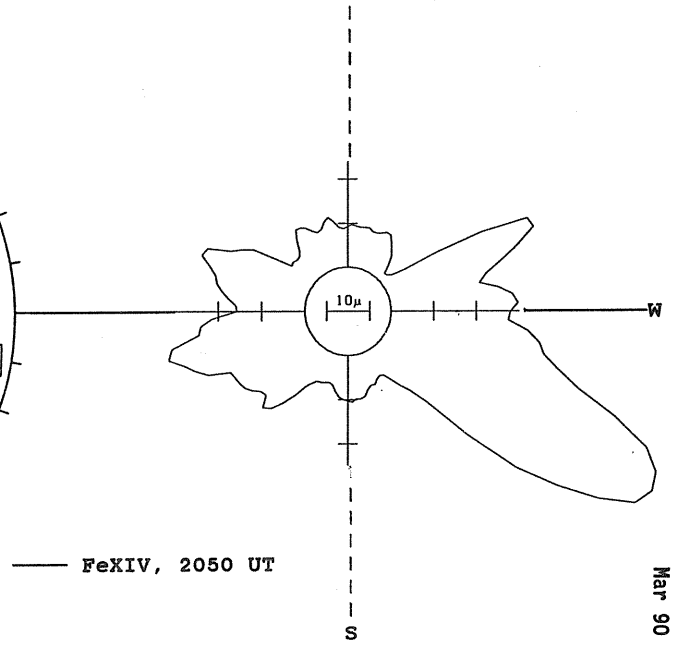
2044 UT

RAMEY SUNSPOT



1300 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 2050 UT

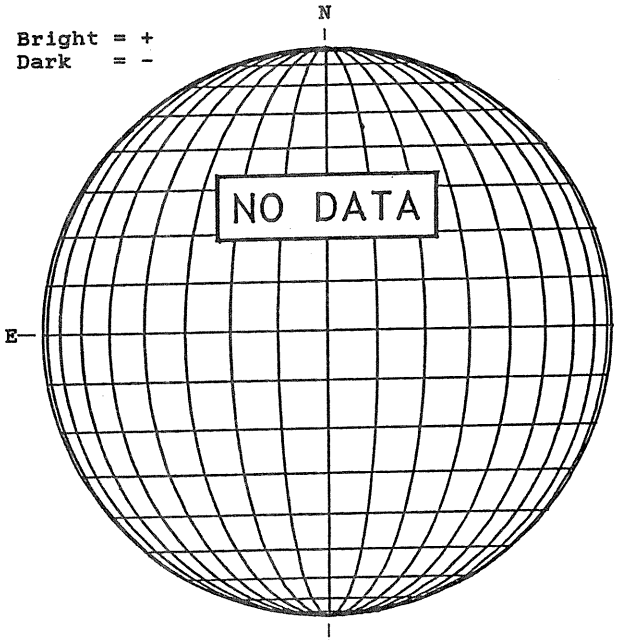
87
Mar 90

MARCH 29, 1990 (P=-26.00, B_o =-6.69, L_o = 264.07)

88
Mar 90

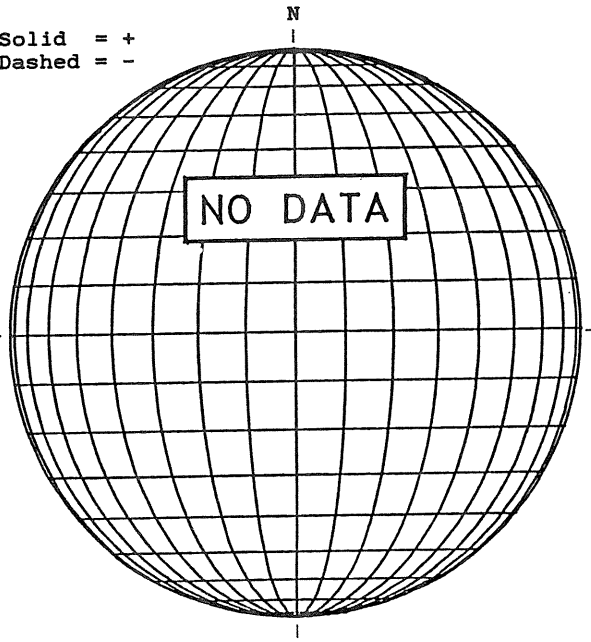
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



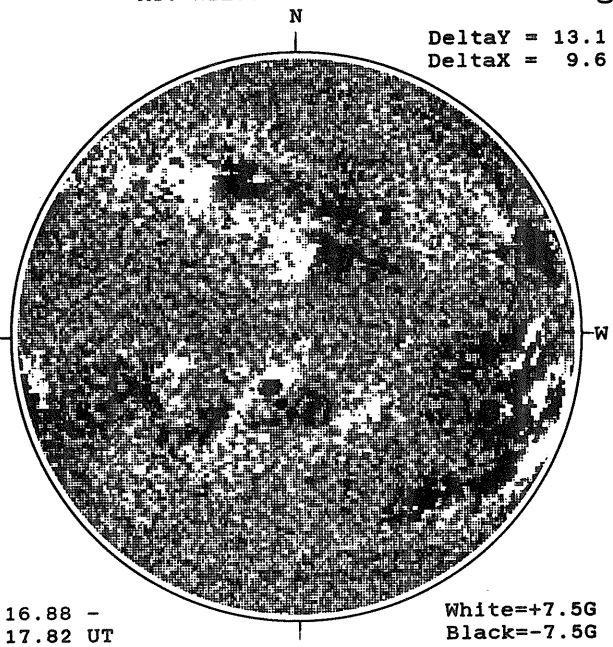
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

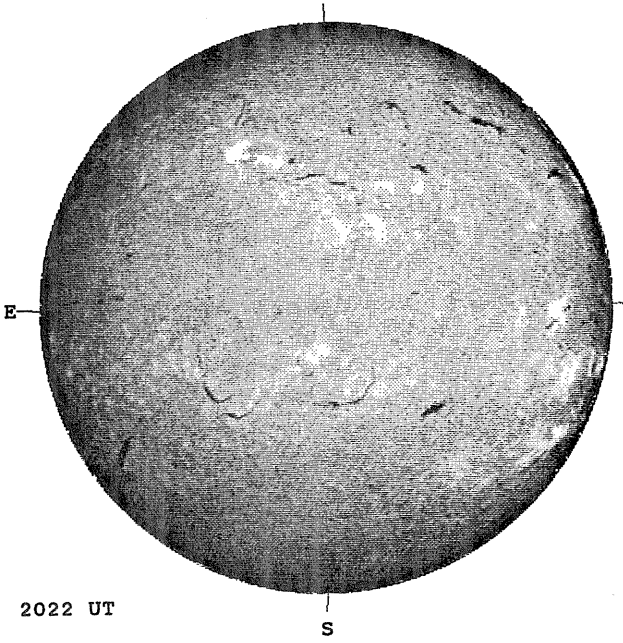
DeltaY = 13.1
DeltaX = 9.6



16.88 -
17.82 UT

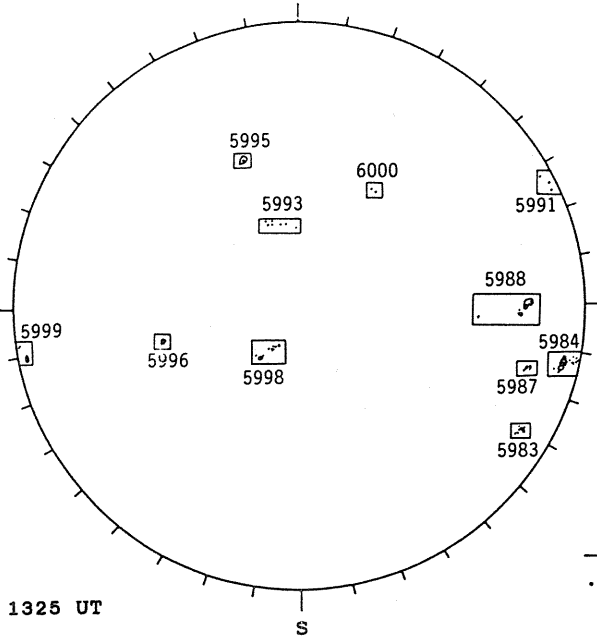
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



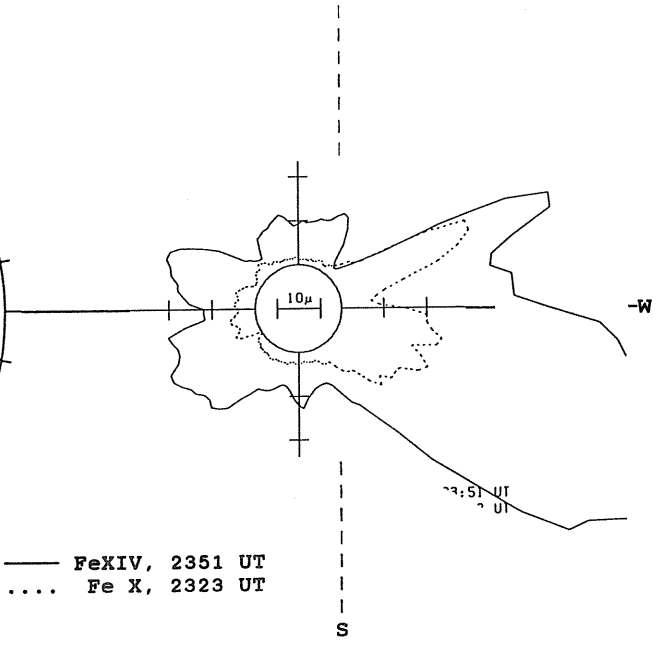
2022 UT

RAMEY SUNSPOT



1325 UT

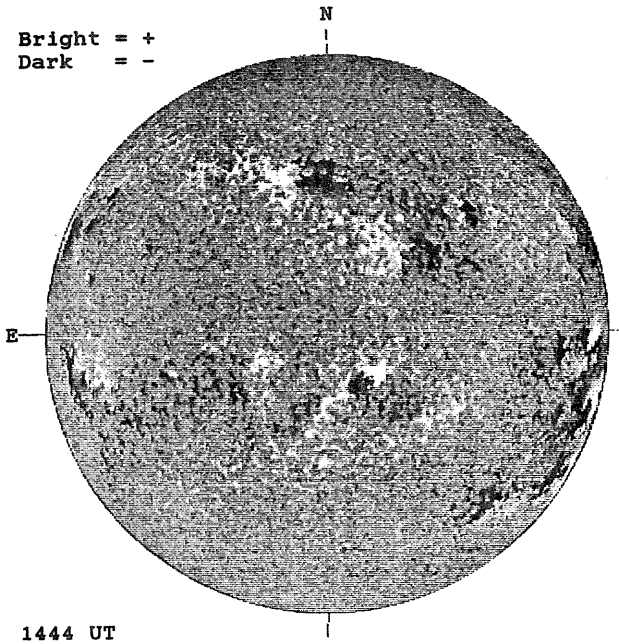
SACRAMENTO PEAK CORONA (1.15 Radii)



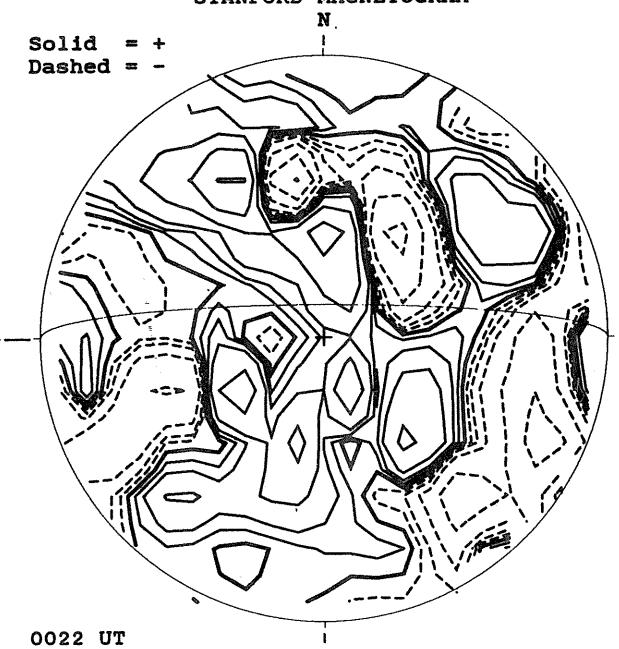
—— FeXIV, 2351 UT
.... Fe X, 2323 UT

MARCH 30, 1990 (P=-26.07, B_o =-6.64, L_o = 250.88)

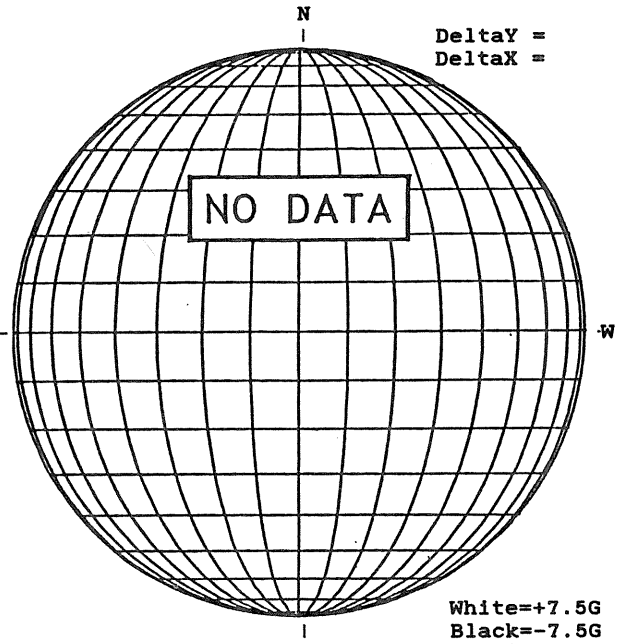
KITT PEAK MAGNETOGRAM



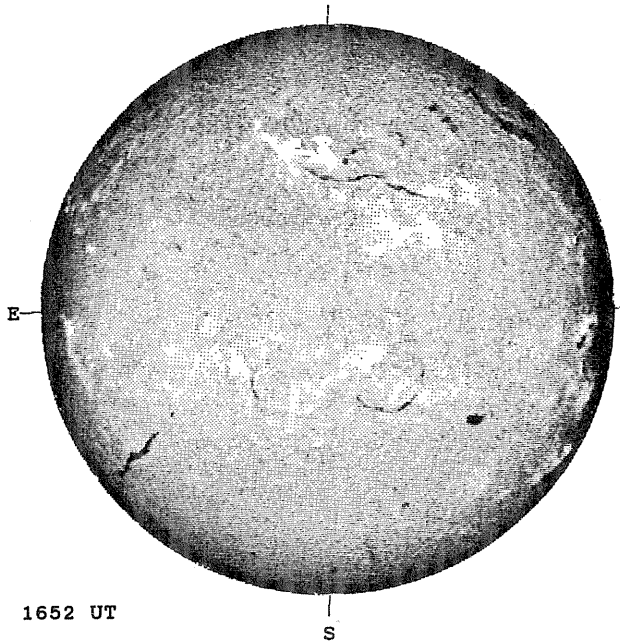
STANFORD MAGNETOGRAM



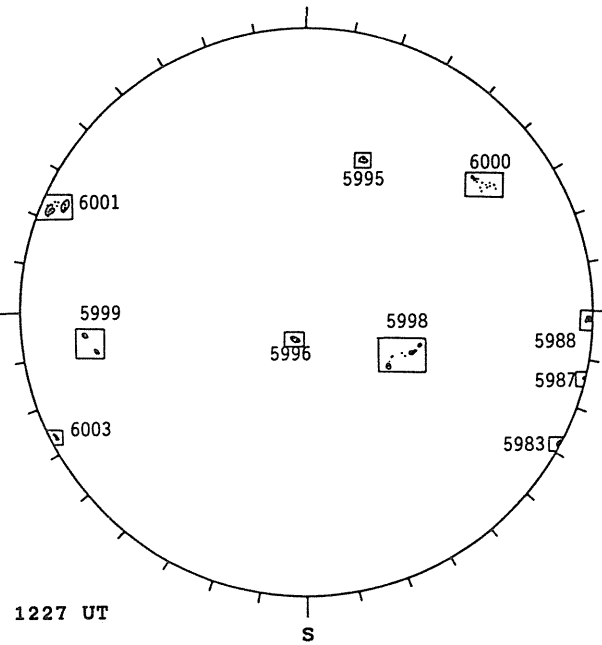
MT. WILSON MAGNETOGRAM



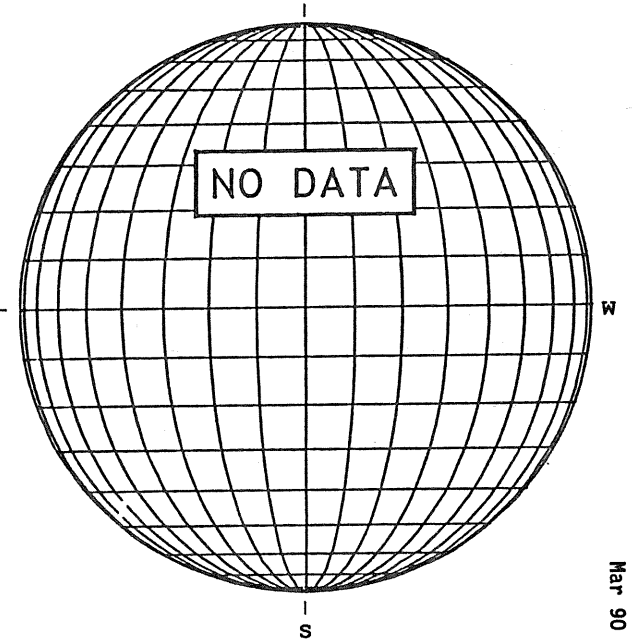
HOLLOMAN H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



89
Mar 90

MARCH 31, 1990 (P=-26.12, B_o =-6.59, L_o = 237.69)

Mar 90

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -

N

E

NO DATA

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

2206 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.1
DeltaX = 9.6

W

17.54 -
18.49 UT

White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA

E

1623 UT

S

BOULDER SUNSPOT

5995
6001
6000
Boul
1595
5999
5988
5996
5998
6003

1446 UT
1500 UT BOUL Prom

S

SACRAMENTO PEAK CORONA (1.15 Radii)

10μ

W

W

15:32 UT

—— FeXIV, 1532 UT
.... Fe X, 1832 UT

S

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

MARCH 1990

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5953C		RAMY	03	05	1226	S30	W55	03	1.2		A	AX	10	1	1	4
5955		HOLL	02	22	1600	S19	E88	03	1.4		A	HS	30	1	2	3
5955		LEAR	02	23	0025	S18	E80	03	1.1		B	CSO	60	3	4	3
5955		CULG	02	23	0220	S14	E79	03	1.1		A	HS	120	1	2	2
5955		SVTO	02	23	1005	S18	E80	03	1.5		A	HA	30	3	2	3
5955		RAMY	02	23	1230	S18	E77	03	1.4		B	DAO	180	2	4	3
5955		BOUL	02	23	1540	S17	E75	03	1.3		B	DAO	150	4	2	3
5955		HOLL	02	23	1755	S17	E76	03	1.5		B	CAO	90	3	8	2
5955		PALE	02	23	1958	S17	E73	03	1.4		A	HA	110	2	2	3
5955		LEAR	02	24	0150	S18	E72	03	1.5		B	DAO	130	6	8	4
5955		CULG	02	24	0220	S13	E66	03	1.1		A	HS	90	2	2	2
5955		SVTO	02	24	0815	S17	E66	03	1.3		A	HA	150	4	7	3
5955		RAMY	02	24	1255	S18	E66	03	1.6		B	CAO	150	6	9	4
5955		BOUL	02	24	1535	S16	E65	03	1.6		B	CSO	90	4	9	2
5955		HOLL	02	24	1750	S17	E65	03	1.7		B	CAO	120	6	10	4
5955		LEAR	02	25	0050	S18	E60	03	1.6		B	CSO	90	4	9	3
5955		CULG	02	25	0150	S13	E57	03	1.4		A	HA	80	3	2	2
5955		SVTO	02	25	0830	S17	E53	03	1.4		A	HA	140	3	2	3
5955		RAMY	02	25	1425	S18	E50	03	1.4		B	CAO	240	9	4	3
5955		BOUL	02	25	1538	S17	E49	03	1.4		A	HA	170	6	3	2
5955		HOLL	02	25	1819	S18	E49	03	1.5		BD	DKC	220	5	3	2
5955		CULG	02	26	0150	S14	E45	03	1.5		A	HA	110	3	2	3
5955		LEAR	02	26	0300	S17	E45	03	1.5		B	CAO	90	4	7	3
5955		SVTO	02	26	0745	S17	E42	03	1.5		A	HS	80	3	3	3
5955		RAMY	02	26	1330	S18	E38	03	1.4		B	CAO	140	5	5	2
5955		HOLL	02	26	1936	S17	E34	03	1.4		B	DAI	170	3	3	2
5955		CULG	02	27	0020	S16	E33	03	1.5		A	HA	130	3	3	3
5955		LEAR	02	27	0045	S18	E31	03	1.4		B	DHO	170	3	3	2
5955		SVTO	02	27	1045	S19	E28	03	1.6		B	CAO	130	3	7	3
5955		RAMY	02	27	1338	S19	E26	03	1.5		B	CAO	110	5	6	2
5955		HOLL	02	27	1620	S18	E22	03	1.3		A	HA	100	4	2	3
5955		CULG	02	28	0125	S16	E19	03	1.5		B	DSO	100	4	3	3
5955		LEAR	02	28	0245	S17	E20	03	1.6		B	CKO	180	8	8	3
5955		SVTO	02	28	0912	S18	E17	03	1.7		B	CAO	130	10	7	3
5955		RAMY	02	28	1620	S18	E12	03	1.6		B	CAO	160	23	8	3
5955		HOLL	02	28	2300	S18	E07	03	1.5		A	HA	110	2	2	1
5955		LEAR	03	01	0040	S18	E06	03	1.5		B	CAO	60	3	3	3
5955		CULG	03	01	0238	S16	E04	03	1.4		B	DAO	110	4	3	2
5955		SVTO	03	01	0900	S16	W01	03	1.3		B	CSO	70	4	1	3
5955		BOUL	03	01	1546	S16	W04	03	1.3		B	CAO	110	3	3	3
5955		HOLL	03	01	1730	S19	E00	03	1.7		B	CAO	70	12	8	3
5955		RAMY	03	01	1858	S17	W03	03	1.6		B	CAO	100	6	5	3
5955		CULG	03	02	0150	S17	W07	03	1.5		B	DAO	70	7	3	3
5955		LEAR	03	02	0724	S17	W11	03	1.5		B	CAO	90	6	3	2
5955		SVTO	03	02	0920	S16	W12	03	1.5		B	CSO	50	2	3	3
5955		RAMY	03	02	1325	S18	W14	03	1.5		B	CAO	120	5	3	3
5955		HOLL	03	02	1430	S18	W13	03	1.6		B	CAO	60	8	8	3
5955		BOUL	03	02	1558	S18	W13	03	1.7		B	CAO	90	3	3	3
5955		CULG	03	03	0120	S17	W20	03	1.5		B	CAO	70	3	3	2
5955		SVTO	03	03	0845	S17	W24	03	1.5		B	CAO	70	3	4	2
5955		RAMY	03	03	1215	S17	W29	03	1.3		B	CAO	130	12	11	3
5955		BOUL	03	03	1505	S16	W28	03	1.5		B	CAO	60	8	3	3
5955		CULG	03	04	0100	S17	W34	03	1.4		B	CAO	40	4	4	2
5955		SVTO	03	04	0840	S18	W35	03	1.7		B	CSO	60	4	4	3
5955		RAMY	03	04	1250	S15	W38	03	1.6		B	CAO	70	2	3	2
5955		HOLL	03	04	1530	S17	W41	03	1.5		A	HS	80	1	2	2
5955		BOUL	03	04	1535	S17	W43	03	1.4		A	HA	40	2	2	2
5955		LEAR	03	05	0005	S17	W46	03	1.5		A	HS	30	1	2	3
5955		CULG	03	05	0110	S17	W47	03	1.5		B	HAO	60	2	2	3
5955		SVTO	03	05	1116	S16	W54	03	1.4		A	HS	40	1	1	3
5955		RAMY	03	05	1226	S17	W52	03	1.6		A	HA	60	1	2	4
5955		BOUL	03	05	1438	S17	W57	03	1.3		A	HA	30	1	1	1
5955		HOLL	03	05	1730	S17	W57	03	1.4		A	HS	60	1	2	2
5955		CULG	03	06	0135	S17	W60	03	1.5		A	HA	20	3	3	2
5955		LEAR	03	06	0140	S18	W60	03	1.5		A	HS	20	2	1	3
5955		SVTO	03	06	0710	S15	W65	03	1.4		A	HA	40	1	2	4
5955		RAMY	03	06	1255	S17	W68	03	1.4		A	HA	80	1	2	2
5955		HOLL	03	06	1530	S17	W69	03	1.4		A	HS	20	1	1	4

S U N S P O T G R O U P S
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MARCH 1990

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
5955		PALE	03	06	1935	S16	W70	03	1.5		A	HS	20	1	1	2
5955		CULG	03	07	0100	S17	W73	03	1.5		A	HR	10	1	1	2
5955		SVTO	03	07	0805	S16	W77	03	1.5		A	AX		1		3
5955		RAMY	03	07	1251	S17	W78	03	1.6		A	AX		1		3
5955A		BOUL	03	02	1558	S19	W07	03	2.1		A	AX	10	1	1	3
5955B		CULG	03	03	0120	N16	W13	03	2.1		A	AX		3	2	2
5960		RAMY	02	24	1255	N12	E75	03	2.2		B	BXO	20	2	3	4
5960		HOLL	02	24	1750	N12	E70	03	2.0		A	AX		1		4
5960		LEAR	02	25	0050	N12	E63	03	1.8		A	AX	10	1	1	3
5960		SVTO	02	25	0830	N12	E61	03	1.9		A	AX	20	3	6	3
5960		RAMY	02	25	1425	N12	E60	03	2.1		B	BXO	20	4	8	3
5960		BOUL	02	25	1538	N13	E62	03	2.3		A	AX	20	1	1	2
5960		HOLL	02	25	1819	N12	E60	03	2.3		A	AX	10	1	1	2
5960		CULG	02	26	0150	N16	E52	03	2.0		B	BXO		4	4	3
5960		LEAR	02	26	0300	N12	E53	03	2.1		B	BXO	30	11	5	3
5960		SVTO	02	26	0745	N11	E53	03	2.3		B	BXO	30	10	5	3
5960		RAMY	02	26	1330	N12	E48	03	2.2		B	DAO	100	14	5	2
5960		HOLL	02	26	1936	N13	E46	03	2.3		B	DAO	120	14	5	2
5960		CULG	02	27	0020	N13	E41	03	2.1		B	DRO	60	19	6	3
5960		LEAR	02	27	0045	N11	E42	03	2.2		B	DSO	150	18	6	2
5960		SVTO	02	27	1045	N12	E36	03	2.2		B	DSO	70	12	7	3
5960		RAMY	02	27	1338	N12	E35	03	2.2		B	DAO	140	17	6	2
5960		HOLL	02	27	1620	N12	E33	03	2.2		B	DAO	80	21	7	3
5960		CULG	02	28	0125	N13	E27	03	2.1		B	DAO	70	26	7	3
5960		LEAR	02	28	0245	N12	E27	03	2.1		B	DAO	230	26	8	3
5960		SVTO	02	28	0912	N12	E23	03	2.1		B	DAI	130	19	7	3
5960		RAMY	02	28	1620	N12	E21	03	2.3		B	DAO	150	29	8	3
5960		HOLL	02	28	2300	N12	E16	03	2.2		B	DAO	60	13	9	1
5960		LEAR	03	01	0040	N13	E15	03	2.1		B	DSO	70	12	7	3
5960		CULG	03	01	0238	N13	E12	03	2.0		B	DAO	50	21	10	2
5960		SVTO	03	01	0900	N12	E12	03	2.3		B	DAI	90	7	7	3
5960		BOUL	03	01	1546	N13	E06	03	2.1		B	DAO	90	8	6	3
5960		HOLL	03	01	1730	N12	E07	03	2.2		B	DAO	60	24	10	3
5960		RAMY	03	01	1858	N14	E04	03	2.1		B	EAO	70	27	11	3
5960		CULG	03	02	0150	N13	E01	03	2.1		B	DAO	20	12	9	3
5960		LEAR	03	02	0724	N13	W03	03	2.1		B	BXO	140	28	8	2
5960		SVTO	03	02	0920	N13	W04	03	2.1		B	DAO	40	7	7	3
5960		RAMY	03	02	1325	N13	W05	03	2.2		B	DAO	70	25	10	3
5960		HOLL	03	02	1430	N12	W06	03	2.1		B	CRO	40	15	8	3
5960		BOUL	03	02	1558	N13	W07	03	2.1		B	CAO	60	14	7	3
5960		CULG	03	03	0120	N13	W12	03	2.1		B	CRO	20	12	8	2
5960		SVTO	03	03	0845	N14	W18	03	2.0		B	DSO	60	8	8	2
5960		RAMY	03	03	1215	N13	W19	03	2.1		B	BXO	60	28	10	3
5960		BOUL	03	03	1505	N15	W23	03	1.9		B	BXO	10	14	6	3
5960		CULG	03	04	0100	N14	W26	03	2.1		B	BXO	10	9	7	2
5960		SVTO	03	04	0840	N14	W29	03	2.2		B	BXO	20	9	6	3
5960		RAMY	03	04	1250	N15	W32	03	2.1		B	BXO	10	2	4	2
5960		HOLL	03	04	1530	N17	W36	03	1.9		A	AX	10	1		2
5960		BOUL	03	04	1535	N15	W37	03	1.8		A	AX		1		2
5960		LEAR	03	05	0005	N16	W42	03	1.8		A	AX	10	1	1	3
5960		CULG	03	05	0110	N16	W42	03	1.9		A	AX		1		3
5959		RAMY	02	24	1255	N26	E72	03	2.1		A	AX	20	1	1	4
5959		HOLL	02	24	1750	N26	E72	03	2.3		A	AX		1		4
5959		LEAR	02	25	0050	N24	E64	03	2.0		A	AX	10	1	1	3
5959		SVTO	02	25	0830	N24	E62	03	2.1		A	AX	10	1	1	3
5959		RAMY	02	25	1425	N24	E59	03	2.1		A	AX	10	1	1	3
5959		BOUL	02	25	1538	N25	E58	03	2.1		A	AX	10	1	1	2
5959		HOLL	02	25	1819	N24	E57	03	2.2		A	AX	10	1	1	2
5959		CULG	02	26	0150	N27	E50	03	2.0		A	AX		1		3
5959		LEAR	02	26	0300	N25	E51	03	2.1		A	AX	10	1	1	3
5959		SVTO	02	26	0745	N25	E51	03	2.3		A	AX		1		3
5959		RAMY	02	26	1330	N25	E48	03	2.3		A	AX	10	1	1	2
5959A		HOLL	02	27	1620	N07	E40	03	2.7		A	AX	10	2	2	3

S U N S P O T G R O U P S
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MARCH 1990

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
5960A		RAMY	03 05 1226	S13 W32	03 3.1		A	AX	10	1	1	4
5958		RAMY	02 24 1255	S21 E88	03 3.3		A	HR	30	1	1	4
5958		BOUL	02 24 1535	S19 E86	03 3.2		A	HS	30	1	1	2
5958		HOLL	02 24 1750	S20 E87	03 3.4		A	HS	60	1	2	4
5958		LEAR	02 25 0050	S21 E79	03 3.1		A	HS	50	1	2	3
5958		CULG	02 25 0150	S17 E77	03 2.9		A	HS	70	1	1	2
5958		SVTO	02 25 0830	S21 E76	03 3.2		A	HA	70	1	2	3
5958		RAMY	02 25 1425	S20 E72	03 3.1		A	HA	80	1	2	3
5958		BOUL	02 25 1538	S20 E71	03 3.1		A	HA	120	1	2	2
5958		HOLL	02 25 1819	S21 E73	03 3.3		A	HS	60	1	2	2
5958		CULG	02 26 0150	S17 E66	03 3.1		A	HS	70	1	2	3
5958		LEAR	02 26 0300	S21 E65	03 3.1		A	HS	40	1	2	3
5958		SVTO	02 26 0745	S20 E65	03 3.3		A	HS	50	1	2	3
5958		RAMY	02 26 1330	S20 E60	03 3.1		A	HS	120	1	2	2
5958		HOLL	02 26 1936	S21 E56	03 3.1		A	HS	70	1	2	2
5958		CULG	02 27 0020	S18 E56	03 3.3		A	HS	100	1	2	3
5958		LEAR	02 27 0045	S21 E55	03 3.2		A	HH	100	1	3	2
5958		SVTO	02 27 1045	S21 E50	03 3.3		B	CSO	60	2	8	3
5958		RAMY	02 27 1338	S22 E53	03 3.6		B	CSO	140	4	12	2
5958		HOLL	02 27 1620	S21 E46	03 3.2		A	HS	50	1	2	3
5958		CULG	02 28 0125	S20 E41	03 3.2		A	HS	80	1	2	3
5958		LEAR	02 28 0245	S20 E40	03 3.2		A	HS	80	1	2	3
5958		SVTO	02 28 0912	S21 E37	03 3.2		A	HS	100	1	2	3
5958		RAMY	02 28 1620	S21 E36	03 3.4		B	CAO	100	5	9	3
5958		HOLL	02 28 2300	S22 E29	03 3.2		B	CSO	80	2	3	1
5958		LEAR	03 01 0040	S22 E28	03 3.2		B	CSO	30	3	2	3
5958		CULG	03 01 0238	S20 E27	03 3.2		B	CSO	70	3	3	2
5958		SVTO	03 01 0900	S21 E25	03 3.3		A	HS	70	1	1	3
5958		BOUL	03 01 1546	S20 E18	03 3.0		A	HA	80	3	2	3
5958		HOLL	03 01 1730	S20 E19	03 3.2		B	CSO	80	6	3	3
5958		RAMY	03 01 1858	S20 E19	03 3.2		B	CSO	90	6	3	3
5958		CULG	03 02 0150	S20 E15	03 3.2		B	CSO	40	6	3	3
5958		LEAR	03 02 0724	S20 E12	03 3.2		B	CSO	120	9	3	2
5958		SVTO	03 02 0920	S21 E10	03 3.1		B	CSO	90	9	1	3
5958		RAMY	03 02 1325	S21 E11	03 3.4		B	CAO	130	14	7	3
5958		HOLL	03 02 1430	S20 E08	03 3.2		B	CSO	60	8	3	3
5958		BOUL	03 02 1558	S21 E09	03 3.3		B	CAO	100	5	2	3
5958		CULG	03 03 0120	S21 E02	03 3.2		B	CSO	80	5	3	2
5958		SVTO	03 03 0845	S20 W03	03 3.1		B	CSO	40	5	3	2
5958		RAMY	03 03 1215	S21 W01	03 3.4		B	CAO	70	19	9	3
5958		BOUL	03 03 1505	S20 W04	03 3.3		B	CAO	40	6	7	3
5958		CULG	03 04 0100	S21 W09	03 3.3		B	CAO	40	6	4	2
5958		SVTO	03 04 0840	S20 W12	03 3.4		B	CAO	30	5	7	3
5958		RAMY	03 04 1250	S21 W14	03 3.5		B	CAO	40	6	7	2
5958		HOLL	03 04 1530	S20 W19	03 3.2		A	BR	30	5	2	2
5958		BOUL	03 04 1535	S19 W20	03 3.1		A	HA	20	3	2	2
5958		LEAR	03 05 0005	S21 W23	03 3.2		B	BXO	20	3	2	3
5958		CULG	03 05 0110	S21 W24	03 3.2		A	AX		3	2	3
5958		SVTO	03 05 1116	S20 W30	03 3.2		B	CRO	10	4	3	3
5958		RAMY	03 05 1226	S21 W28	03 3.4		B	BXO	20	5	4	4
5958		BOUL	03 05 1438	S20 W31	03 3.2		B	BXO	10	4	3	1
5958		HOLL	03 05 1730	S22 W33	03 3.2		A	AX	10	2	2	2
5958		LEAR	03 06 0140	S23 W34	03 3.4		A	AX	10	2	1	3
5958		SVTO	03 06 0710	S20 W38	03 3.4		A	AX	10	1	1	4
5958		RAMY	03 06 1255	S21 W41	03 3.4		A	AX	10	3	2	2
5958		HOLL	03 06 1530	S21 W42	03 3.4		A	AX		1	1	4
5961		SVTO	02 26 0745	N26 E69	03 3.7		B	BXO	10	2	10	3
5961		RAMY	02 26 1330	N29 E69	03 4.0		B	DAO	60	2	3	2
5961		HOLL	02 26 1936	N30 E68	03 4.2		B	CSO	150	7	5	2
5961		CULG	02 27 0020	N32 E61	03 3.8		B	DSO	140	6	7	3
5961		LEAR	02 27 0045	N30 E61	03 3.8		B	DAO	180	7	8	2
5961		SVTO	02 27 1045	N29 E59	03 4.1		B	DAI	240	14	7	3
5961		RAMY	02 27 1338	N29 E55	03 4.7		B	DAO	320	10	6	2
5961		HOLL	02 27 1620	N29 E53	03 3.8		B	DAO	230	14	8	3
5961		CULG	02 28 0125	N30 E49	03 3.9		B	DAO	210	22	7	3
5961		LEAR	02 28 0245	N30 E49	03 4.0		B	DKI	570	26	8	3
5961		SVTO	02 28 0912	N29 E47	03 4.1		B	DAI	320	25	7	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

MARCH 1990

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
5961		RAMY	02	28	1620	N29	E43	03	4.0		B	DKO	410	36	9	3
5961		HOLL	02	28	2300	N30	E40	03	4.1		B	DKO	380	18	10	1
5961		LEAR	03	01	0040	N30	E38	03	4.0		B	DKO	360	16	8	3
5961		CULG	03	01	0238	N31	E36	03	3.9		B	DKO	230	24	9	2
5961		SVTO	03	01	0900	N30	E36	03	4.2		B	DAI	200	15	8	3
5961		BOUL	03	01	1546	N29	E28	03	3.8		B	DAO	380	28	9	3
5961		HOLL	03	01	1730	N30	E29	03	4.0		BD	DAI	270	33	10	3
5961		RAMY	03	01	1858	N30	E27	03	3.9		B	DAO	340	30	10	3
5961		CULG	03	02	0150	N30	E25	03	4.0		B	DAO	130	26	9	3
5961		LEAR	03	02	0724	N30	E21	03	3.9		B	DKO	330	27	8	2
5961		SVTO	03	02	0920	N30	E21	03	4.0		B	DAI	190	8	8	3
5961		RAMY	03	02	1325	N31	E19	03	4.0		B	DKO	310	33	9	3
5961		HOLL	03	02	1430	N29	E19	03	4.1		BD	DAI	200	26	8	3
5961		BOUL	03	02	1558	N30	E17	03	4.0		B	DKO	300	20	8	3
5961		CULG	03	03	0120	N30	E13	03	4.1		B	DAO	240	26	8	2
5961		SVTO	03	03	0845	N29	E08	03	4.0		B	DAO	200	16	8	2
5961		RAMY	03	03	1215	N30	E06	03	4.0		B	DAO	230	46	8	3
5961		BOUL	03	03	1505	N31	E02	03	3.8		B	DAI	180	40	7	3
5961		CULG	03	04	0100	N30	W02	03	3.9		BD	DAO	180	35	9	2
5961		SVTO	03	04	0840	N29	W04	03	4.0		BD	DAI	200	30	8	3
5961		RAMY	03	04	1250	N32	W07	03	4.0		B	DAO	260	16	8	2
5961		HOLL	03	04	1530	N30	W07	03	4.1		BD	DAO	170	21	8	2
5961		BOUL	03	04	1535	N30	W12	03	3.7		B	DAO	90	18	7	2
5961		LEAR	03	05	0005	N30	W13	03	4.0		B	DAO	130	23	9	3
5961		CULG	03	05	0110	N30	W13	03	4.0		BD	DAO	70	21	8	3
5961		SVTO	03	05	1116	N29	W19	03	4.0		B	DAO	90	11	7	3
5961		RAMY	03	05	1226	N31	W19	03	4.0		B	DAO	180	17	6	4
5961		BOUL	03	05	1438	N31	W22	03	3.9		B	DAI	120	11	5	1
5961		HOLL	03	05	1730	N29	W22	03	4.0		B	DAO	160	12	9	2
5961		CULG	03	06	0135	N30	W27	03	3.9		B	DAO	50	9	9	2
5961		LEAR	03	06	0140	N28	W28	03	3.9		B	DAO	80	12	6	3
5961		SVTO	03	06	0710	N30	W30	03	3.9		B	DAO	100	2	7	4
5961		RAMY	03	06	1255	N32	W33	03	3.9		B	DAO	120	11	9	2
5961		HOLL	03	06	1530	N30	W35	03	3.9		B	DAO	90	12	10	4
5961		PALE	03	06	1935	N30	W36	03	4.0		B	DAO	80	7	9	2
5961		CULG	03	07	0100	N31	W39	03	4.0		B	DAO	40	7	9	2
5961		SVTO	03	07	0805	N30	W45	03	3.8		B	DAO	40	4	8	3
5961		RAMY	03	07	1251	N30	W47	03	3.8		B	CAO	660	9	12	3
5961		HOLL	03	07	1550	N29	W50	03	3.7		B	DAO	60	4	10	4
5961		SVTO	03	08	0910	N30	W58	03	3.8		B	CAO	40	4	10	3
5961		RAMY	03	08	1210	N29	W59	03	3.9		B	BXO	20	4	10	4
5961		HOLL	03	08	1650	N30	W60	03	4.0		B	BXO	30	2	14	2
5961		CULG	03	09	0025	N29	W65	03	3.9		B	BXO		2	8	3
5961		LEAR	03	09	0240	N30	W60	03	4.4		B	BXO	10	2	3	3
5961A		RAMY	03	06	1255	S13	W33	03	4.0		A	AX	10	3	2	2
5963		HOLL	02	28	2300	S13	E58	03	5.3		A	AX	10	2	2	1
5963		LEAR	03	01	0040	S13	E56	03	5.2		B	BXO	20	4	3	3
5963		CULG	03	01	0238	S12	E55	03	5.2		A	AX		3	3	2
5963		BOUL	03	01	1546	S12	E48	03	5.3		A	AX	10	1	1	3
5963		HOLL	03	01	1730	S13	E48	03	5.3		A	AX		1		3
5963		RAMY	03	01	1858	S12	E48	03	5.4		A	AX	10	1	1	3
5963		CULG	03	02	0150	S13	E42	03	5.2		B	BXO	10	5	4	3
5963		LEAR	03	02	0724	S13	E39	03	5.2		B	BXO	40	5	3	2
5963		RAMY	03	02	1325	S12	E36	03	5.3		B	CRO	10	3	3	3
5963		HOLL	03	02	1430	S13	E35	03	5.2		A	AX		3	2	3
5963		BOUL	03	02	1558	S15	E35	03	5.3		A	AX	20	2	1	3
5963		CULG	03	03	0120	S13	E29	03	5.2		A	AX		3	1	2
5963		RAMY	03	03	1215	S12	E22	03	5.2		A	AX	10	3	1	3
5963		BOUL	03	03	1505	S12	E18	03	5.0		A	AX		3	1	3
5963		HOLL	03	04	1530	S13	E03	03	4.9		A	AX	10	2	1	2
5963		SVTO	03	05	1116	S13	W02	03	5.3		A	AX		2	3	3
5963		RAMY	03	05	1226	S13	W04	03	5.2		B	BXO	20	3	3	4
5963		CULG	03	06	0135	S13	W12	03	5.2		B	BXO	10	5	3	2
5963		LEAR	03	06	0140	S14	W12	03	5.2		B	BXO	20	10	6	3
5963		SVTO	03	06	0710	S12	W17	03	5.0		B	DAI	70	15	7	4
5963		RAMY	03	06	1255	S12	W20	03	5.0		B	DAO	100	15	7	2
5963		HOLL	03	06	1530	S12	W22	03	5.0		B	DAI	40	22	8	4

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5963		PALE	03	06	1935	S13	W24	03	5.0		B	CAO	40	17	8	2
5963		CULG	03	07	0100	S12	W27	03	5.0		B	DAO	80	15	9	2
5963		SVTO	03	07	0805	S12	W32	03	4.9		B	DAI	150	20	8	3
5963		RAMY	03	07	1251	S13	W35	03	4.9		B	DAO	180	26	8	3
5963		HOLL	03	07	1550	S13	W35	03	5.0		B	DAI	280	36	9	4
5963		SVTO	03	08	0910	S13	W46	03	4.9		B	DAI	200	19	9	3
5963		RAMY	03	08	1210	S13	W48	03	4.9		B	DAO	150	22	9	4
5963		HOLL	03	08	1650	S13	W49	03	5.0		B	DKO	270	16	10	2
5963		CULG	03	09	0025	S14	W52	03	5.1		B	DAO	180	8	9	3
5963		LEAR	03	09	0240	S13	W53	03	5.1		B	DAO	160	18	10	3
5963		SVTO	03	09	0845	S12	W59	03	4.9		B	DSO	100	12	9	2
5963		RAMY	03	09	1333	S14	W60	03	5.0		B	CAO	130	9	10	1
5963		HOLL	03	09	1530	S13	W60	03	5.1		B	CSO	200	9	8	3
5963		BOUL	03	09	1554	S12	W64	03	4.8		B	CAO	310	8	11	1
5963		PALE	03	09	2105	S11	W65	03	5.0		B	CAO	100	5	10	1
5963		LEAR	03	10	0005	S13	W68	03	4.9		B	CSO	180	7	10	3
5963		CULG	03	10	0120	S13	W67	03	5.0		B	CAO	70	6	9	3
5963		SVTO	03	10	1030	S11	W78	03	4.6		A	HS	60	2	2	2
5963		RAMY	03	10	1300	S12	W78	03	4.7		A	HS	80	1	2	2
5963		PALE	03	10	1800	S12	W79	03	4.8		A	HA	50	3	2	3
5963		HOLL	03	10	2330	S12	W82	03	4.8		A	HS	50	1	2	4
5963		LEAR	03	11	0050	S12	W80	03	5.0		A	HS	60	1	2	3
5963		CULG	03	11	0055	S12	W82	03	4.9		A	HA	80	2	2	2
5963A		HOLL	03	06	1530	S21	W08	03	6.0		A	AX		1		4
5963B		LEAR	03	06	0140	S29	E22	03	7.8		A	AX	10	2	2	3
5964		HOLL	03	01	1730	N27	E75	03	7.6		A	HS	90	3	2	3
5964		RAMY	03	01	1858	N28	E74	03	7.6		A	HS	120	2	2	3
5964		CULG	03	02	0150	N28	E70	03	7.5		A	HA	50	3	2	3
5964		LEAR	03	02	0724	N27	E66	03	7.4		B	CAO	180	6	3	2
5964		SVTO	03	02	0920	N27	E68	03	7.7		A	HA	100	4	2	3
5964		RAMY	03	02	1325	N29	E68	03	7.9		B	EAO	170	8	12	3
5964		HOLL	03	02	1430	N27	E69	03	8.0		B	EAO	160	8	12	3
5964		BOUL	03	02	1558	N28	E67	03	7.9		B	CAO	140	3	10	3
5964		CULG	03	03	0120	N28	E68	03	8.4		B	CAO	120	5	10	2
5964		SVTO	03	03	0845	N27	E58	03	7.9		B	DAO	150	6	9	2
5964		RAMY	03	03	1215	N30	E59	03	8.1		B	CAO	280	16	12	3
5964		BOUL	03	03	1505	N30	E55	03	7.9		B	CAO	150	9	12	3
5964		CULG	03	04	0100	N28	E51	03	8.0		B	CAO	200	10	11	2
5964		SVTO	03	04	0840	N28	E50	03	8.3		B	DKO	270	15	11	3
5964		RAMY	03	04	1250	N31	E49	03	8.4		B	CAO	270	17	12	2
5964		HOLL	03	04	1530	N28	E44	03	8.1		B	CAO	240	16	13	2
5964		BOUL	03	04	1535	N29	E42	03	7.9		B	EAO	200	13	11	2
5964		LEAR	03	05	0005	N29	E39	03	8.1		B	EKO	340	14	11	3
5964		CULG	03	05	0110	N28	E38	03	8.0		B	CKO	210	13	12	3
5964		SVTO	03	05	1116	N28	E31	03	7.9		B	EAO	180	17	13	3
5964		RAMY	03	05	1226	N29	E33	03	8.1		B	CAO	380	24	14	4
5964		BOUL	03	05	1438	N29	E29	03	7.9		B	EAO	190	8	11	1
5964		HOLL	03	05	1730	N28	E29	03	8.0		B	CAO	220	14	13	2
5964		CULG	03	06	0135	N29	E20	03	7.6		B	CAO	180	7	5	2
5964		LEAR	03	06	0140	N28	E24	03	7.9		B	EAO	180	11	13	3
5964		SVTO	03	06	0710	N27	E20	03	7.8		B	CAI	190	6	3	4
5964		RAMY	03	06	1255	N29	E17	03	7.9		B	DKO	210	9	5	2
5964		HOLL	03	06	1530	N29	E18	03	8.0		B	CAO	170	8	12	4
5964		PALE	03	06	1935	N28	E14	03	7.9		B	CAO	160	11	6	2
5964		CULG	03	07	0100	N29	E13	03	8.1		B	CAO	130	7	12	2
5964		SVTO	03	07	0805	N29	E10	03	8.1		B	EAO	170	7	12	3
5964		RAMY	03	07	1251	N30	E07	03	8.1		B	CKO	270	16	12	3
5964		HOLL	03	07	1550	N29	E05	03	8.0		B	CAO	140	23	13	4
5964		SVTO	03	08	0910	N29	W05	03	8.0		B	EAO	190	13	13	3
5964		RAMY	03	08	1210	N29	W05	03	8.1		BG	CKO	220	29	14	4
5964		HOLL	03	08	1650	N28	W12	03	7.8		B	DAO	200	15	5	2
5964		CULG	03	09	0025	N29	W18	03	7.6		A	HK	120	14	5	3
5964		LEAR	03	09	0240	N28	W18	03	7.7		B	DAO	120	17	5	3
5964		SVTO	03	09	0845	N29	W23	03	7.6		B	DAI	170	8	5	2
5964		RAMY	03	09	1333	N29	W22	03	7.8		B	DAO	170	17	6	1
5964		HOLL	03	09	1530	N29	W25	03	7.7		B	DSI	120	11	5	3

SUNSPOT GROUPS
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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
5964		BOUL	03	09	1554	N29	W28	03	7.5		B	DAO	100	6	7	1
5964		PALE	03	09	2105	N29	W27	03	7.8		B	DAO	80	6	5	1
5964		LEAR	03	10	0005	N28	W29	03	7.7		B	DSO	150	8	6	3
5964		CULG	03	10	0120	N29	W31	03	7.6		B	DAO	100	5	5	3
5964		SVTO	03	10	1030	N29	W36	03	7.6		B	DAO	110	4	4	2
5964		RAMY	03	10	1300	N30	W38	03	7.5		B	DAO	160	4	5	2
5964		PALE	03	10	1800	N29	W39	03	7.7		B	DAO	80	6	5	3
5964		HOLL	03	10	2330	N28	W43	03	7.6		B	DSO	140	5	6	4
5964		LEAR	03	11	0050	N28	W39	03	8.0		B	ESO	90	7	11	3
5964		CULG	03	11	0055	N29	W44	03	7.6		B	DAO	110	5	5	2
5964		SVTO	03	11	0710	N30	W47	03	7.6		B	CSO	130	7	5	4
5964		RAMY	03	11	1503	N29	W50	03	7.7		B	DAO	140	6	5	2
5964		HOLL	03	11	1800	N28	W51	03	7.8		B	DAO	110	5	7	3
5964		PALE	03	11	1818	N30	W51	03	7.7		B	DAO	120	4	7	3
5964		CULG	03	12	0137	N29	W55	03	7.7		B	DSO	50	2	6	2
5964		LEAR	03	12	0221	N31	W55	03	7.7		B	DSO	70	3	4	2
5964		SVTO	03	12	0747	N28	W59	03	7.7		B	DAO	110	4	5	4
5964		HOLL	03	12	1425	N29	W60	03	7.9		B	CAO	70	4	9	3
5964		BOUL	03	12	1549	N29	W66	03	7.5		B	CAO	60	3	7	1
5964		PALE	03	12	1809	N34	W61	03	7.9		B	CAO	60	2	6	3
5964		LEAR	03	13	0040	N30	W70	03	7.5		B	DRO	60	2	7	2
5964		CULG	03	13	0228	N29	W68	03	7.8		B	DSO	30	2	6	3
5964		HOLL	03	13	1620	N30	W74	03	7.9		A	AX	20	1		3
5964		PALE	03	13	1800	N30	W73	03	8.0		A	HR	30	1	1	4
5964		CULG	03	14	0135	N30	W74	03	8.2		A	AX	10	1	1	3
5964A		LEAR	03	14	0105	N18	W75	03	8.3		A	AX	20	2	1	3
5965		CULG	03	02	0150	S11	E81	03	8.2		A	AX	10	1	1	3
5965		LEAR	03	02	0724	S12	E77	03	8.1		B	BXO	90	5	4	2
5965		SVTO	03	02	0920	S11	E76	03	8.1		B	CRO	40	2	2	3
5965		RAMY	03	02	1325	S11	E76	03	8.3		B	CAO	60	7	7	3
5965		HOLL	03	02	1430	S13	E76	03	8.3		B	BXO	20	5	6	3
5965		BOUL	03	02	1558	S10	E75	03	8.3		B	BXO	50	5	5	3
5965		CULG	03	03	0120	S11	E69	03	8.2		B	DAO	60	7	6	2
5965		SVTO	03	03	0845	S12	E65	03	8.3		B	DAO	180	9	7	2
5965		RAMY	03	03	1215	S10	E63	03	8.2		B	DAO	170	14	8	3
5965		BOUL	03	03	1505	S09	E61	03	8.2		B	DAO	100	10	9	3
5965		CULG	03	04	0100	S11	E55	03	8.2		B	DAO	290	13	9	2
5965		SVTO	03	04	0840	S10	E55	03	8.5		B	DKO	410	14	9	3
5965		RAMY	03	04	1250	S10	E51	03	8.4		B	DKO	480	12	9	2
5965		HOLL	03	04	1530	S11	E50	03	8.4		B	DSO	420	24	10	2
5965		BOUL	03	04	1535	S11	E47	03	8.2		B	DAI	280	12	8	2
5965		LEAR	03	05	0005	S10	E44	03	8.3		B	DHO	420	22	9	3
5965		CULG	03	05	0110	S11	E42	03	8.2		B	DKO	530	23	9	3
5965		SVTO	03	05	1116	S11	E39	03	8.4		B	DKO	460	28	8	3
5965		RAMY	03	05	1226	S11	E38	03	8.4		B	DKI	600	28	10	4
5965		BOUL	03	05	1438	S09	E34	03	8.2		B	DAI	280	19	8	1
5965		HOLL	03	05	1730	S12	E35	03	8.4		B	DHO	560	16	10	2
5965		CULG	03	06	0135	S10	E30	03	8.3		B	DKO	490	18	9	2
5965		LEAR	03	06	0140	S10	E30	03	8.3		B	DKI	470	28	9	3
5965		SVTO	03	06	0710	S10	E26	03	8.2		B	DAI	470	18	8	4
5965		RAMY	03	06	1255	S11	E23	03	8.3		B	DKI	670	31	9	2
5965		HOLL	03	06	1530	S11	E22	03	8.3		B	DHI	530	25	10	4
5965		PALE	03	06	1935	S11	E20	03	8.3		B	DHO	500	28	9	2
5965		CULG	03	07	0100	S10	E16	03	8.2		B	DKO	420	19	9	2
5965		SVTO	03	07	0805	S11	E13	03	8.3		B	DKI	620	18	9	3
5965		RAMY	03	07	1251	S11	E11	03	8.4		B	DKI	610	36	9	3
5965		HOLL	03	07	1550	S11	E09	03	8.3		B	DKI	500	46	10	4
5965		SVTO	03	08	0910	S12	W01	03	8.3		B	DHI	390	28	10	3
5965		RAMY	03	08	1210	S11	W02	03	8.3		B	DKO	420	39	10	4
5965		HOLL	03	08	1650	S11	W06	03	8.2		B	DHO	520	25	10	2
5965		CULG	03	09	0025	S12	W08	03	8.4		B	DKO	370	14	9	3
5965		LEAR	03	09	0240	S11	W11	03	8.3		B	DKO	370	20	9	3
5965		SVTO	03	09	0845	S10	W16	03	8.2		B	DKO	330	19	9	2
5965		RAMY	03	09	1333	S11	W16	03	8.4		B	DKO	400	23	10	1
5965		HOLL	03	09	1530	S11	W18	03	8.3		B	DHI	360	23	9	3
5965		BOUL	03	09	1554	S10	W16	03	8.5		B	CHI	270	17	11	1
5965		PALE	03	09	2105	S10	W20	03	8.4		B	CHO	300	8	10	1

S U N S P O T G R O U P S
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5965		LEAR	03	10	0005	S12	W21	03	8.4		B	DHO	360	22	10	3
5965		CULG	03	10	0120	S11	W23	03	8.3		B	DKO	370	24	9	3
5965		SVTO	03	10	1030	S11	W30	03	8.2		B	DKO	280	10	10	2
5965		RAMY	03	10	1300	S11	W29	03	8.3		B	DKO	330	11	9	2
5965		PALE	03	10	1800	S11	W34	03	8.2		B	CKO	320	14	9	3
5965		HOLL	03	10	2330	S11	W37	03	8.2		B	CKO	300	12	9	4
5965		LEAR	03	11	0050	S10	W35	03	8.4		B	CHO	270	8	8	3
5965		CULG	03	11	0055	S11	W36	03	8.3		B	CKO	290	11	9	2
5965		SVTO	03	11	0710	S09	W42	03	8.1		B	DKI	210	10	8	4
5965		RAMY	03	11	1503	S11	W45	03	8.2		B	DAO	200	8	10	2
5965		HOLL	03	11	1800	S10	W49	03	8.1		A	HK	260	3	5	3
5965		PALE	03	11	1818	S09	W50	03	8.0		B	DAO	330	2	5	3
5965		CULG	03	12	0137	S10	W53	03	8.1		B	DKO	160	6	6	2
5965		LEAR	03	12	0221	S10	W50	03	8.3		B	DAO	160	6	6	2
5965		SVTO	03	12	0747	S10	W56	03	8.1		B	DAO	170	9	7	4
5965		HOLL	03	12	1425	S10	W60	03	8.1		B	DAO	160	5	5	3
5965		BOUL	03	12	1549	S10	W60	03	8.1		B	CAO	130	3	7	1
5965		PALE	03	12	1809	S10	W62	03	8.1		B	CAO	100	7	7	3
5965		LEAR	03	13	0040	S11	W65	03	8.1		B	CAO	120	7	6	2
5965		CULG	03	13	0228	S09	W66	03	8.1		B	DAO	80	7	6	3
5965		HOLL	03	13	1620	S11	W73	03	8.2		B	CHO	140	5	4	3
5965		PALE	03	13	1800	S11	W74	03	8.2		B	DAO	80	3	5	4
5965		LEAR	03	14	0105	S11	W79	03	8.1		B	CAO	60	3	1	3
5965		CULG	03	14	0135	S11	W79	03	8.1		A	HS	40	1	3	3
5965		SVTO	03	14	1320	S09	W88	03	7.9		A	HA	30	1	2	2
5965A		HOLL	03	06	1530	N16	E32	03	9.1		A	AX		1		4
5965B		RAMY	03	10	1300	S25	W10	03	9.8		A	AX		1	1	2
5965B		RAMY	03	11	1503	S24	W25	03	9.7		B	BXO	10	2	3	2
5965C		SVTO	03	12	0747	S17	W24	03	10.5		A	AX		2	1	4
5965C		HOLL	03	12	1425	S18	W29	03	10.4		A	AX		1		3
5965D		BOUL	03	05	1438	N16	E65	03	10.5		A	AX	10	1		1
5965F		RAMY	03	10	1300	N29	E03	03	10.8		A	AX		1	1	2
5966		SVTO	03	05	1116	N11	E70	03	10.7		A	AX		1		3
5966		RAMY	03	05	1226	N11	E69	03	10.7		A	AX	10	1	1	4
5966		HOLL	03	05	1730	N12	E68	03	10.8		A	AX	10	1	1	2
5966		CULG	03	06	0135	N12	E62	03	10.7		A	AX		1		2
5966		LEAR	03	06	0140	N13	E63	03	10.8		A	AX	10	1	1	3
5966		SVTO	03	06	0710	N12	E60	03	10.8		A	AX	20	1	1	4
5966		RAMY	03	06	1255	N12	E59	03	11.0		B	BXO	10	3	3	2
5966		HOLL	03	06	1530	N13	E55	03	10.8		A	AX		1		4
5966		PALE	03	06	1935	N10	E53	03	10.8		A	AX	10	1	1	2
5966		CULG	03	07	0100	N12	E49	03	10.7		A	AX		1		2
5966		SVTO	03	07	0805	N12	E47	03	10.9		A	AX		1		3
5966		RAMY	03	07	1251	N13	E46	03	11.0		A	AX	10	2	1	3
5966		HOLL	03	07	1550	N12	E42	03	10.8		A	AX	10	2	1	4
5966		RAMY	03	11	1503	N11	W09	03	11.0		B	BXO	10	2	3	2
5966		HOLL	03	11	1800	N11	W11	03	10.9		B	BXO	10	3	3	3
5966		PALE	03	11	1818	N13	W09	03	11.1		B	BXO	10	3	5	3
5966		CULG	03	12	0137	N12	W15	03	10.9		B	BXO	10	7	5	2
5966		LEAR	03	12	0221	N13	W14	03	11.0		B	BXO	40	8	4	2
5966		SVTO	03	12	0747	N12	W18	03	11.0		B	DSO	40	19	6	4
5966		HOLL	03	12	1425	N11	W22	03	10.9		B	CSO	50	6	4	3
5966		BOUL	03	12	1549	N11	W23	03	10.9		B	BXO	30	6	3	1
5966		PALE	03	12	1809	N14	W23	03	11.0		B	DSO	70	6	5	3
5966		LEAR	03	13	0040	N13	W28	03	10.9		B	DAO	50	6	3	2
5966		CULG	03	13	0228	N12	W30	03	10.8		B	DAO	30	7	4	3
5966		HOLL	03	13	1620	N12	W37	03	10.9		B	DAO	70	5	3	3
5966		PALE	03	13	1800	N11	W38	03	10.9		B	DSO	40	6	5	4
5966		LEAR	03	14	0105	N12	W44	03	10.7		B	DRO	40	4	4	3
5966		CULG	03	14	0135	N13	W43	03	10.8		B	DAO	30	3	4	3
5966		SVTO	03	14	1320	N12	W49	03	10.9		B	DAO	50	2	4	2
5966		BOUL	03	14	1604	N12	W47	03	11.1		B	BXO	20	2	4	3
5966		RAMY	03	14	1605	N13	W49	03	11.0		B	DAO	50	3	4	1

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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
5966		HOLL	03 14 1741	N12 W51	03 10.9		B	DSO	50	2	4	2
5966		PALE	03 14 1925	N09 W53	03 10.8		B	DSO	40	4	4	4
5966		CULG	03 15 0020	N12 W55	03 10.9		B	DAO	40	3	4	3
5966		LEAR	03 15 0050	N12 W55	03 10.9		B	BXO	50	4	3	3
5966		RAMY	03 15 1240	N12 W60	03 11.0		A	HA	20	1	1	3
5966		BOUL	03 15 1530	N13 W66	03 10.7		A	AX	20	1	1	2
5966		HOLL	03 15 1535	N13 W63	03 10.9		A	HS	40	1	1	4
5966		PALE	03 15 1908	N13 W66	03 10.8		A	HS	50	1	1	4
5966		CULG	03 16 0010	N12 W68	03 10.9		A	HA	30	2	1	3
5966		LEAR	03 16 0012	N11 W67	03 11.0		B	CSO	30	2	2	4
5966		RAMY	03 16 1258	N12 W72	03 11.1		A	AX		1	1	2
5966		BOUL	03 16 1558	N12 W77	03 10.9		A	AX	20	1	1	3
5966		HOLL	03 16 1604	N12 W77	03 10.9		A	AX	10	1	1	4
5968		RAMY	03 09 1333	S22 E49	03 13.3		A	AX	10	2	2	1
5968		HOLL	03 09 1530	S23 E46	03 13.2		B	BXO	10	2	3	3
5968		PALE	03 09 2105	S26 E43	03 13.2		B	BXO	10	3	3	1
5968		LEAR	03 10 0005	S23 E42	03 13.2		B	BXO	30	3	4	3
5968		CULG	03 10 0120	S23 E41	03 13.2		B	BXO		3	3	3
5968		PALE	03 10 1800	S23 E31	03 13.1		A	AX		1		3
5968		HOLL	03 10 2330	S23 E29	03 13.2		B	BXO	10	3	3	4
5968		LEAR	03 11 0050	S22 E29	03 13.3		B	BXO	20	2	2	3
5968		CULG	03 11 0055	S23 E29	03 13.3		A	AX		3	2	2
5968		SVTO	03 11 0710	S24 E26	03 13.3		A	AX	10	4	2	4
5970		SVTO	03 10 1030	S09 E46	03 13.9		B	BXO	10	3	3	2
5970		RAMY	03 10 1300	S08 E44	03 13.8		B	BXO	10	2	3	2
5970		PALE	03 10 1800	S08 E41	03 13.8		B	BXO	10	2	4	3
5970		HOLL	03 10 2330	S08 E37	03 13.7		B	CRO	20	3	5	4
5970		LEAR	03 11 0050	S08 E36	03 13.7		B	BXO	20	2	4	3
5970		CULG	03 11 0055	S08 E37	03 13.8		B	BXO		2	4	2
5970		SVTO	03 11 0710	S08 E32	03 13.7		A	AX		1		4
5970		RAMY	03 11 1503	S08 E28	03 13.7		A	AX	10	1	1	2
5970		HOLL	03 11 1800	S08 E23	03 13.5		A	AX	10	1	1	3
5970		PALE	03 11 1818	S09 E24	03 13.6		A	AX		1	1	3
5970		CULG	03 12 0137	S08 E19	03 13.5		B	BXO		2	3	2
5970		LEAR	03 12 0221	S07 E21	03 13.7		A	AX	10	1	1	2
5970		SVTO	03 12 0747	S08 E17	03 13.6		B	BXO		2	2	4
5967		RAMY	03 07 1251	N21 E89	03 14.3		A	HS	90	1	2	3
5967		HOLL	03 07 1550	N20 E80	03 13.8		A	HS	90	1	2	4
5967		SVTO	03 08 0910	N19 E74	03 14.0		A	HA	120	1	3	3
5967		RAMY	03 08 1210	N19 E71	03 13.9		A	HA	160	1	2	4
5967		HOLL	03 08 1650	N19 E68	03 13.9		A	HS	180	1	2	2
5967		CULG	03 09 0025	N21 E64	03 13.9		A	HS	150	1	3	3
5967		LEAR	03 09 0240	N20 E62	03 13.8		A	HS	140	1	2	3
5967		SVTO	03 09 0845	N20 E61	03 14.0		A	HS	140	1	2	2
5967		RAMY	03 09 1333	N20 E58	03 14.0		A	HA	220	2	5	1
5967		HOLL	03 09 1530	N20 E57	03 14.0		A	HH	190	1	3	3
5967		BOUL	03 09 1554	N22 E56	03 14.0		A	HS	160	1	4	1
5967		PALE	03 09 2105	N18 E55	03 14.1		A	HH	150	1	3	1
5967		CULG	03 10 0120	N20 E51	03 13.9		A	HH	170	1	3	3
5967		SVTO	03 10 1030	N19 E47	03 14.0		A	HS	240	1	3	2
5967		RAMY	03 10 1300	N21 E45	03 14.0		A	HS	180	1	2	2
5967		PALE	03 10 1800	N21 E42	03 14.0		A	HS	210	1	3	3
5967		HOLL	03 10 2330	N19 E38	03 13.9		A	HS	180	1	2	4
5967		CULG	03 11 0055	N21 E38	03 13.9		B	CHO	140	3	4	2
5967		SVTO	03 11 0710	N20 E36	03 14.0		A	HA	180	1	2	4
5967		RAMY	03 11 1503	N21 E31	03 14.0		A	HS	140	1	2	2
5967		HOLL	03 11 1800	N19 E28	03 13.9		A	HS	50	1	2	3
5967		PALE	03 11 1818	N19 E30	03 14.0		A	HH	240	1	3	3
5967		CULG	03 12 0137	N21 E25	03 14.0		A	HS	170	2	3	2
5967		LEAR	03 12 0221	N25 E27	03 14.2		B	CHO	200	5	7	2
5967		SVTO	03 12 0747	N20 E22	03 14.0		A	HS	150	1	2	4
5967		HOLL	03 12 1425	N20 E19	03 14.0		A	HS	190	1	2	3
5967		BOUL	03 12 1549	N22 E17	03 14.0		A	HS	120	3	3	1
5967		PALE	03 12 1809	N19 E19	03 14.2		A	HS	110	3	2	3
5967		LEAR	03 13 0040	N22 E13	03 14.0		A	HH	180	3	3	2
5967		CULG	03 13 0228	N20 E12	03 14.0		B	CSO	150	4	4	3

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MARCH 1990

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
5967		HOLL	03	13	1620	N19	E05	03	14.1		B	CAO	170	6	4	3
5967		PALE	03	13	1800	N20	E04	03	14.0		B	CSO	190	7	4	4
5967		LEAR	03	14	0105	N19	W01	03	14.0		B	CSO	180	10	3	3
5967		CULG	03	14	0135	N20	E00	03	14.1		B	CAO	140	9	5	3
5967		SVTO	03	14	1320	N20	W08	03	13.9		B	CAO	200	5	5	2
5967		BOUL	03	14	1604	N22	W08	03	14.0		B	CSO	90	2	3	3
5967		RAMY	03	14	1605	N19	W09	03	14.0		B	CAO	220	6	5	1
5967		HOLL	03	14	1741	N20	W08	03	14.1		B	CSO	180	2	4	2
5967		PALE	03	14	1925	N19	W10	03	14.0		B	CHI	190	9	5	4
5967		CULG	03	15	0020	N20	W13	03	14.0		B	CAO	170	6	6	3
5967		LEAR	03	15	0050	N19	W13	03	14.0		B	CSO	190	6	5	3
5967		RAMY	03	15	1240	N21	W18	03	14.1		A	HA	170	2	2	3
5967		BOUL	03	15	1530	N22	W21	03	14.0		A	HA	140	2	3	2
5967		HOLL	03	15	1535	N21	W20	03	14.1		A	HS	180	1	2	4
5967		PALE	03	15	1908	N22	W23	03	14.0		A	HS	100	1	2	4
5967		CULG	03	16	0010	N21	W24	03	14.2		A	HA	120	4	2	3
5967		LEAR	03	16	0012	N20	W25	03	14.1		A	HS	140	2	2	4
5967		RAMY	03	16	1258	N22	W32	03	14.1		A	HS	130	1	2	2
5967		BOUL	03	16	1558	N21	W33	03	14.1		A	HA	160	1	3	3
5967		HOLL	03	16	1604	N21	W33	03	14.1		A	HS	100	2	2	4
5967		PALE	03	16	1903	N21	W35	03	14.1		A	HS	140	1	2	3
5967		LEAR	03	17	0120	N21	W38	03	14.1		A	HS	30	1	2	3
5967		SVTO	03	17	0716	N22	W42	03	14.1		A	HS	120	1	2	4
5967		RAMY	03	17	1250	N21	W44	03	14.2		A	HA	160	1	2	3
5967		BOUL	03	17	1600	N20	W47	03	14.1		A	HA	100	2	2	2
5967		HOLL	03	17	1615	N21	W47	03	14.1		A	HS	130	1	2	3
5967		PALE	03	17	1810	N21	W48	03	14.1		A	HA	240	1	2	4
5967		RAMY	03	18	1223	N20	W58	03	14.1		A	HK	220	1	3	3
5967		HOLL	03	18	1700	N21	W59	03	14.2		A	HS	130	1	2	4
5967		PALE	03	18	1805	N21	W60	03	14.1		A	HA	180	1	2	4
5967		LEAR	03	19	0040	N19	W62	03	14.3		A	HS	120	1	2	3
5967		CULG	03	19	0140	N19	W66	03	14.0		A	HS	80	1	2	3
5967		RAMY	03	19	1249	N20	W69	03	14.2		A	HK	240	1	3	3
5967		BOUL	03	19	1421	N21	W73	03	14.0		A	HS	60	1	2	1
5967		HOLL	03	19	1625	N21	W70	03	14.3		A	HS	120	1	2	4
5967		LEAR	03	20	0016	N20	W76	03	14.2		A	HS	120	1	2	4
5967		CULG	03	20	0110	N20	W76	03	14.2		A	HS	100	1	2	2
5967		PALE	03	20	0152	N23	W77	03	14.1		A	HS	60	1	1	3
5967		SVTO	03	20	0803	N21	W80	03	14.2		A	HA	40	1	1	3
5971		LEAR	03	10	0005	N24	E51	03	13.9		B	CSO	170	3	5	3
5971		SVTO	03	10	1030	N25	E47	03	14.1		B	BXO	10	2	2	2
5971		RAMY	03	10	1300	N29	E46	03	14.1		B	BXO	20	3	2	2
5971		PALE	03	10	1800	N27	E42	03	14.0		B	BXO	10	2	3	3
5971		HOLL	03	10	2330	N26	E39	03	14.0		B	BXO	10	3	3	4
5971		LEAR	03	11	0050	N25	E38	03	14.0		B	CSO	140	3	8	3
5971		CULG	03	11	0055	N27	E39	03	14.1		B	BXO		5	3	2
5971		SVTO	03	11	0710	N26	E36	03	14.1		B	BXO	10	3	3	4
5971		RAMY	03	11	1503	N28	E33	03	14.2		B	BXO	20	4	4	2
5971		HOLL	03	11	1800	N27	E32	03	14.2		A	AX	10	2	2	3
5971		CULG	03	12	0137	N27	E26	03	14.1		B	BXO		3	2	2
5971		SVTO	03	12	0747	N26	E23	03	14.1		B	DAO	30	5	3	4
5971		HOLL	03	12	1425	N27	E20	03	14.1		B	BXO	10	2	3	3
5971		BOUL	03	12	1549	N27	E18	03	14.1		B	BXO	10	2	3	1
5971		PALE	03	12	1809	N25	E20	03	14.3		B	BXO	10	2	3	3
5971		LEAR	03	13	0040	N27	E15	03	14.2		B	BXO	10	2	5	2
5971		CULG	03	13	0228	N26	E13	03	14.1		B	BXO		2	3	3
5971		HOLL	03	13	1620	N26	E08	03	14.3		A	AX		1		3
5971		PALE	03	13	1800	N28	E08	03	14.4		A	AX		2	2	4
5971		RAMY	03	16	1258	N27	W33	03	14.0		A	AX		1	1	2
5985		RAMY	03	18	1223	S23	W49	03	14.7		A	AX	10	3	2	3
5985		HOLL	03	18	1700	S23	W50	03	14.8		B	BXO	20	4	3	4
5985		PALE	03	18	1805	S23	W52	03	14.7		A	AX	180	2	2	4
5985		LEAR	03	19	0040	S24	W55	03	14.8		B	BXO	10	2	4	3
5985		CULG	03	19	0140	S25	W56	03	14.7		B	BXO		2	3	3
5985		RAMY	03	19	1249	S23	W62	03	14.7		B	BXO	10	2	3	3
5985		PALE	03	20	0152	S22	W70	03	14.7		A	AX		1		3

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MARCH 1990

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
5985A		CULG	03	13	0228	S23	E32	03	15.6		B	BXO		2	2	3
5969		RAMY	03	09	1333	N31	E85	03	16.3		A	HA	80	1	2	1
5969		HOLL	03	09	1530	N32	E78	03	15.8		A	HS	120	1	2	3
5969		PALE	03	09	2105	N29	E79	03	16.1		A	HA	60	1	2	1
5969		LEAR	03	10	0005	N31	E70	03	15.5		A	HS	60	2	5	3
5969		CULG	03	10	0120	N31	E74	03	15.9		A	HS	100	1	2	3
5969		SVTO	03	10	1030	N31	E69	03	15.9		A	HS	60	3	1	2
5969		RAMY	03	10	1300	N33	E71	03	16.2		B	CAO	150	6	10	2
5969		PALE	03	10	1800	N32	E69	03	16.2		B	CKO	180	5	7	3
5969		HOLL	03	10	2330	N32	E63	03	16.0		B	CSO	180	4	8	4
5969		LEAR	03	11	0050	N32	E62	03	15.9		A	HS	210	6	6	3
5969		CULG	03	11	0055	N32	E62	03	15.9		B	CAO	160	5	8	2
5969		SVTO	03	11	0710	N32	E61	03	16.1		A	HA	200	5	6	4
5969		RAMY	03	11	1503	N33	E59	03	16.3		B	DAO	280	6	10	2
5969		HOLL	03	11	1800	N31	E55	03	16.1		B	DSO	290	8	7	3
5969		PALE	03	11	1818	N29	E55	03	16.1		B	DAO	280	6	8	3
5969		CULG	03	12	0137	N32	E50	03	16.0		B	DAO	240	8	9	2
5969		LEAR	03	12	0221	N33	E54	03	16.4		B	DAO	290	9	9	2
5969		SVTO	03	12	0747	N31	E50	03	16.3		B	DAO	230	22	9	4
5969		HOLL	03	12	1425	N31	E45	03	16.1		B	DSI	230	14	8	3
5969		BOUL	03	12	1549	N33	E44	03	16.1		B	DAI	270	13	9	1
5969		PALE	03	12	1809	N27	E47	03	16.4		B	CKI	220	19	8	3
5969		LEAR	03	13	0040	N33	E41	03	16.3		B	EAO	390	17	11	2
5969		CULG	03	13	0228	N32	E38	03	16.1		B	DAI	240	15	9	3
5969		HOLL	03	13	1620	N31	E32	03	16.2		B	CKI	390	34	10	3
5969		PALE	03	13	1800	N32	E33	03	16.4		B	DAI	330	23	10	4
5969		LEAR	03	14	0105	N33	E28	03	16.3		B	DAO	290	27	10	3
5969		CULG	03	14	0135	N32	E27	03	16.2		B	DAI	240	26	9	3
5969		SVTO	03	14	1320	N33	E21	03	16.2		B	DAI	330	11	10	2
5969		BOUL	03	14	1604	N33	E20	03	16.2		B	DKO	220	6	7	3
5969		RAMY	03	14	1605	N33	E24	03	16.6		B	DKO	380	9	9	1
5969		HOLL	03	14	1741	N32	E18	03	16.2		B	EKO	480	8	11	2
5969		PALE	03	14	1925	N34	E13	03	15.8		B	DKI	320	34	10	4
5969		CULG	03	15	0020	N33	E14	03	16.1		B	DKI	290	16	9	3
5969		LEAR	03	15	0050	N33	E15	03	16.2		B	EKO	750	26	11	3
5969		RAMY	03	15	1240	N32	E09	03	16.2		B	DAO	310	35	10	3
5969		BOUL	03	15	1530	N33	E05	03	16.0		B	DAI	280	17	9	2
5969		HOLL	03	15	1535	N33	E07	03	16.2		B	EAI	290	35	11	4
5969		PALE	03	15	1908	N34	E04	03	16.1		B	DKI	210	22	8	4
5969		CULG	03	16	0010	N33	E03	03	16.2		B	DKO	180	17	9	3
5969		LEAR	03	16	0012	N32	E02	03	16.2		B	DAI	260	34	10	4
5969		RAMY	03	16	1258	N34	W05	03	16.1		B	EKI	390	32	11	2
5969		BOUL	03	16	1558	N32	W06	03	16.2		B	DKI	310	28	10	3
5969		HOLL	03	16	1604	N33	W07	03	16.1		B	DAI	210	17	9	4
5969		PALE	03	16	1903	N34	W09	03	16.1		B	DKI	180	19	8	3
5969		LEAR	03	17	0120	N33	W12	03	16.1		B	DKO	220	15	9	3
5969		SVTO	03	17	0716	N33	W14	03	16.2		B	EKI	300	27	9	4
5969		RAMY	03	17	1250	N34	W18	03	16.1		B	DKO	290	26	10	3
5969		BOUL	03	17	1600	N33	W22	03	15.9		B	DAO	240	19	7	2
5969		HOLL	03	17	1615	N33	W21	03	16.0		B	CKI	350	42	8	3
5969		PALE	03	17	1810	N33	W18	03	16.3		B	CKI	500	23	7	4
5969		SVTO	03	18	0705	N34	W28	03	16.1		B	DKI	230	13	10	2
5969		RAMY	03	18	1223	N33	W31	03	16.0		B	DKI	330	31	9	3
5969		HOLL	03	18	1700	N32	W33	03	16.1		B	DAI	320	29	10	4
5969		PALE	03	18	1805	N33	W33	03	16.1		B	DKI	440	15	9	4
5969		LEAR	03	19	0040	N32	W39	03	15.9		B	DKI	250	11	7	3
5969		CULG	03	19	0140	N31	W42	03	15.7		B	DAI	190	8	5	3
5969		RAMY	03	19	1249	N32	W43	03	16.1		B	DAI	480	29	10	3
5969		BOUL	03	19	1421	N33	W47	03	15.9		B	DAI	200	12	6	1
5969		HOLL	03	19	1625	N33	W46	03	16.0		B	DAO	210	18	8	4
5969		LEAR	03	20	0016	N32	W50	03	16.0		B	EAO	340	16	12	4
5969		CULG	03	20	0110	N32	W52	03	15.9		B	DAI	210	12	9	2
5969		SVTO	03	20	0803	N34	W55	03	15.9		B	DAI	180	8	10	3
5969		RAMY	03	20	1240	N31	W58	03	15.9		B	DAO	130	14	10	4
5969		BOUL	03	20	1430	N33	W60	03	15.8		B	DAO	140	3	7	1
5969		HOLL	03	20	1753	N33	W60	03	16.0		B	DSO	340	7	10	3
5969		PALE	03	20	1815	N33	W60	03	16.0		B	DAO	70	6	8	3
5969		CULG	03	21	0030	N32	W65	03	15.9		B	DAO	120	7	9	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5969		LEAR	03 21 0031	N30 W62	03 16.1		B	DSO	200	4	9	3
5969		SVTO	03 21 0720	N32 W68	03 15.9		B	DAO	150	8	8	4
5969		RAMY	03 21 1340	N32 W69	03 16.1		B	BXO	50	3	3	3
5969		HOLL	03 21 1530	N33 W72	03 15.9		B	BXO	60	4	16	4
5969		BOUL	03 21 1610	N33 W70	03 16.1		B	BXO	50	2	1	3
5969		PALE	03 21 1923	N32 W73	03 16.0		A	AX	10	3	1	4
5969		LEAR	03 22 0130	N35 W75	03 16.1		B	BXO	60	2	4	3
5969A		CULG	03 15 0020	S18 E30	03 17.3		A	AX		1		3
5969A		LEAR	03 15 0050	S17 E29	03 17.2		A	AX	10	1	1	3
5969A		RAMY	03 15 1240	S18 E22	03 17.2		A	AX	10	2	1	3
5969A		HOLL	03 15 1535	S16 E22	03 17.3		A	AX		2	2	4
5979		CULG	03 16 0010	N29 E28	03 18.2		A	AX		1		3
5979		LEAR	03 16 0012	N28 E26	03 18.0		A	AX	10	1	1	4
5979		RAMY	03 16 1258	N29 E19	03 18.0		A	AX		1	1	2
5979		HOLL	03 16 1604	N28 E16	03 17.9		A	AX	10	2	1	4
5979		PALE	03 16 1903	N29 E15	03 18.0		A	AX		1		3
5979A		HOLL	03 23 1450	S16 W63	03 18.8		B	BXO	10	2	3	4
5979A		LEAR	03 24 0035	S16 W70	03 18.7		A	AX	10	1	1	4
5976		CULG	03 15 0020	N40 E55	03 19.5		B	BXO		3	4	3
5976		RAMY	03 15 1240	N39 E49	03 19.5			DR	80	8	8	3
5976		BOUL	03 15 1530	N40 E43	03 19.1		B	CAO	80	4	9	2
5976		HOLL	03 15 1535	N39 E45	03 19.3		B	DAO	120	11	9	4
5976		PALE	03 15 1908	N40 E46	03 19.5		B	DAO	70	8	7	4
5976		CULG	03 16 0010	N40 E41	03 19.3		B	DAO	100	6	8	3
5976		LEAR	03 16 0012	N40 E39	03 19.2		B	DAO	110	13	8	4
5976		RAMY	03 16 1258	N41 E35	03 19.4		B	DAO	140	9	6	2
5976		BOUL	03 16 1558	N41 E31	03 19.2		B	CSO	70	5	5	3
5976		HOLL	03 16 1604	N41 E33	03 19.4		B	CAO	50	7	6	4
5976		PALE	03 16 1903	N42 E31	03 19.3		B	CAO	80	6	6	3
5976		LEAR	03 17 0120	N41 E27	03 19.3		B	DSO	50	6	6	3
5976		SVTO	03 17 0716	N40 E26	03 19.4		B	CSO	80	6	5	4
5976		RAMY	03 17 1250	N41 E23	03 19.4		B	CAO	80	4	4	3
5976		BOUL	03 17 1600	N43 E16	03 19.0		A	HA	30	2	1	2
5976		HOLL	03 17 1615	N41 E21	03 19.4		B	CAO	80	3	6	3
5976		PALE	03 17 1810	N42 E19	03 19.3		A	HA	100	1	2	4
5976		SVTO	03 18 0705	N41 E13	03 19.3		B	CAO	80	4	4	2
5976		RAMY	03 18 1223	N42 E11	03 19.4		B	CAO	110	6	4	3
5976		HOLL	03 18 1700	N41 E10	03 19.5		B	CSO	60	3	5	4
5976		PALE	03 18 1805	N43 E06	03 19.2		A	HS	60	1	1	4
5976		LEAR	03 19 0040	N43 E02	03 19.2		A	HS	10	2	1	3
5976		CULG	03 19 0140	N44 E01	03 19.1		A	HS	20	1	1	3
5976		SVTO	03 19 0815	N42 E01	03 19.4		A	HA	30	2	1	3
5976		RAMY	03 19 1249	N41 W02	03 19.4		B	CAO	100	4	3	3
5976		BOUL	03 19 1421	N44 W04	03 19.3		A	HS	20	1	1	1
5976		HOLL	03 19 1625	N43 W04	03 19.3		A	HR	20	1	1	4
5976		LEAR	03 20 0016	N43 W08	03 19.3		A	AX	30	2	1	4
5976		CULG	03 20 0110	N43 W10	03 19.2		A	HR	20	3	1	2
5976		PALE	03 20 0152	N44 W08	03 19.4		A	AX		1		3
5976		SVTO	03 20 0803	N43 W12	03 19.3		A	AX	10	2	1	3
5976		RAMY	03 20 1240	N44 W17	03 19.1		A	AX	20	3	2	4
5976		BOUL	03 20 1430	N44 W17	03 19.2		A	HA	20	1	1	1
5976		HOLL	03 20 1753	N43 W16	03 19.4		A	AX	10	1		3
5976		PALE	03 20 1815	N45 W14	03 19.6		A	AX	20	3	2	3
5976		PALE	03 21 1923	N42 W32	03 19.2		A	AX		1		4
5986		RAMY	03 18 1223	S32 E08	03 19.1		B	BXO	10	6	4	3
5986		HOLL	03 18 1700	S33 E07	03 19.3		B	BXO	10	6	4	4
5986		PALE	03 18 1805	S33 E05	03 19.1		B	BXO	10	5	4	4
5986		LEAR	03 19 0040	S32 E01	03 19.1		B	BXO	10	3	3	3
5986		CULG	03 19 0140	S33 E02	03 19.2		B	BXO	10	3	3	3
5986		SVTO	03 19 0815	S33 W04	03 19.0		B	BXO	10	4	5	3
5986		RAMY	03 19 1249	S31 W06	03 19.1		B	CAO	30	4	4	3
5986		BOUL	03 19 1421	S32 W06	03 19.1		B	BXO	20	4	3	1
5986		HOLL	03 19 1625	S32 W07	03 19.1		B	CRO	20	4	5	4
5986		LEAR	03 20 0016	S33 W11	03 19.1		B	BXO	30	6	6	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5986		CULG	03	20	0110	S33	W11	03	19.2		B	BXO		5	3	2
5986		SVTO	03	20	0803	S32	W16	03	19.1		B	CSO	10	2	3	3
5986		RAMY	03	20	1240	S30	W20	03	18.9		A	AX	10	2	1	4
5986		BOUL	03	20	1430	S31	W20	03	19.0		A	AX	10	2	1	1
5986		HOLL	03	20	1753	S31	W23	03	18.9		A	HS	30	2	1	3
5986		PALE	03	20	1815	S30	W23	03	18.9		A	AX	20	2	1	3
5986		CULG	03	21	0030	S32	W25	03	19.0		A	AX		2		2
5986		LEAR	03	21	0031	S32	W26	03	19.0		A	AX	10	1	1	3
5986		PALE	03	21	1923	S31	W36	03	19.0		A	AX		1		4
5986		CULG	03	22	0120	S32	W39	03	19.0		A	AX		1		2
5986		PALE	03	22	1857	S32	W50	03	18.8		A	AX		1		3
5986A		RAMY	03	21	1340	S03	W34	03	19.0		A	AX		1	1	3
5986A		BOUL	03	21	1610	S03	W33	03	19.2		A	AX	10	1	1	3
5992		HOLL	03	22	2115	S11	W49	03	19.2		A	AX		1		4
5992		LEAR	03	23	0050	S12	W51	03	19.2		B	BXO	20	3	3	3
5992		SVTO	03	23	0735	S10	W55	03	19.2		B	CRO	20	3	4	3
5992		RAMY	03	23	1346	S11	W56	03	19.4		B	BXO	10	2	3	1
5992		HOLL	03	23	1450	S11	W59	03	19.2		B	CRO	30	4	3	4
5992		PALE	03	23	1850	S14	W60	03	19.2		B	CAO	20	6	4	3
5992		LEAR	03	24	0035	S12	W65	03	19.1		B	BXO	20	7	4	4
5992		RAMY	03	24	1320	S11	W71	03	19.2		B	BXO	10	3	7	3
5981		RAMY	03	16	1258	S11	E41	03	19.6		A	AX		1	1	2
5981		HOLL	03	16	1604	S12	E39	03	19.6		A	AX	10	2	1	4
5981		RAMY	03	17	1250	S12	E24	03	19.3		A	AX	10	3	1	3
5992A		SVTO	03	20	0803	N12	W12	03	19.4				10	3	2	3
5992A		RAMY	03	20	1240	N12	W16	03	19.3		B	BXO	10	7	5	4
5992A		HOLL	03	20	1753	N12	W19	03	19.3		A	AX		1		3
5973		HOLL	03	13	1620	N04	E78	03	19.5		A	HS	60	1	1	3
5973		PALE	03	13	1800	N04	E80	03	19.7		A	HA	30	1	1	4
5973		LEAR	03	14	0105	N08	E75	03	19.7		A	HA	60	2	2	3
5973		CULG	03	14	0135	N04	E73	03	19.5		A	HS	10	1	2	3
5973		SVTO	03	14	1320	N05	E68	03	19.6		A	HA	50	1	1	2
5973		BOUL	03	14	1604	N05	E63	03	19.4		A	HS	40	1	2	3
5973		RAMY	03	14	1605	N03	E65	03	19.5		A	HA	50	1	2	1
5973		HOLL	03	14	1741	N04	E64	03	19.5		A	HS	70	1	3	2
5973		PALE	03	14	1925	N07	E62	03	19.4		A	HS	40	2	2	4
5973		CULG	03	15	0020	N05	E61	03	19.6		A	HS	40	1	2	3
5973		LEAR	03	15	0050	N05	E60	03	19.5		B	CSO	40	1	2	3
5973		RAMY	03	15	1240	N03	E55	03	19.6		A	HA	30	2	2	3
5973		BOUL	03	15	1530	N05	E51	03	19.5		A	HS	20	1	1	2
5973		HOLL	03	15	1535	N06	E52	03	19.5		A	HS	40	1	1	4
5973		PALE	03	15	1908	N06	E51	03	19.6		A	HS	30	1	1	4
5973		CULG	03	16	0010	N05	E47	03	19.5		A	HS	20	1	1	3
5973		LEAR	03	16	0012	N06	E48	03	19.6		B	CSO	40	4	4	4
5973		RAMY	03	16	1258	N05	E41	03	19.6		A	HS	30	1	2	2
5973		BOUL	03	16	1558	N05	E38	03	19.5		A	HS	20	1	1	3
5973		HOLL	03	16	1604	N05	E38	03	19.5		A	HS	30	2	2	4
5973		PALE	03	16	1903	N06	E37	03	19.6		A	HS	20	1	1	3
5973		LEAR	03	17	0120	N06	E33	03	19.5		A	HS	20	1	2	3
5973		SVTO	03	17	0716	N05	E31	03	19.6		A	HS	40	1	1	4
5973		RAMY	03	17	1250	N05	E27	03	19.5		A	HA	40	1	2	3
5973		BOUL	03	17	1600	N06	E23	03	19.4		A	HS	20	1	1	2
5973		HOLL	03	17	1615	N05	E25	03	19.5		A	HS	30	2	2	3
5973		PALE	03	17	1810	N05	E24	03	19.5		A	HS	20	1	2	4
5973		RAMY	03	18	1223	N05	E13	03	19.5		A	HA	20	1	2	3
5973		HOLL	03	18	1700	N05	E13	03	19.7		B	BXO	20	3	3	4
5973		PALE	03	18	1805	N04	E11	03	19.6		A	HS	20	1	1	4
5973		LEAR	03	19	0040	N05	E07	03	19.5		A	HS	10	1	1	3
5973		CULG	03	19	0140	N07	E06	03	19.5		B	CSO	20	2	3	3
5973		SVTO	03	19	0815	N06	E04	03	19.6		B	CSO	20	3	4	3
5973		RAMY	03	19	1249	N05	E02	03	19.7		B	CAO	60	5	4	3
5973		BOUL	03	19	1421	N06	E01	03	19.7		B	BXO	20	3	2	1
5973		HOLL	03	19	1625	N06	E00	03	19.7		B	CSO	20	5	4	4
5973		LEAR	03	20	0016	N05	W05	03	19.6		B	CSO	70	10	5	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
5973		CULG	03	20	0110	N06	W05	03	19.7		B	CSO	20	4	3	2
5973		SVTO	03	20	0803	N06	W09	03	19.7		B	CAO	20	4	3	3
5973		RAMY	03	20	1240	N06	W12	03	19.6		B	BXO	10	5	3	4
5973		BOUL	03	20	1430	N07	W14	03	19.5		B	BXO	20	5	6	1
5973		HOLL	03	20	1753	N07	W14	03	19.7		B	CSO	20	3	3	3
5973		PALE	03	20	1815	N09	W15	03	19.6		B	EAO	80	6	8	3
5973		CULG	03	21	0030	N06	W18	03	19.7		B	BXO		4	3	2
5973		LEAR	03	21	0031	N05	W18	03	19.7		B	BXO	30	4	4	3
5973		SVTO	03	21	0720	N06	W22	03	19.6		B	BXO	10	6	4	4
5973		RAMY	03	21	1340	N05	W26	03	19.6		B	BXO	10	3	3	3
5973		HOLL	03	21	1530	N06	W26	03	19.7		B	BXO	10	4	3	4
5973		BOUL	03	21	1610	N05	W27	03	19.6		B	BXO	20	2	3	3
5973		PALE	03	21	1923	N05	W28	03	19.7		B	BXO	10	2	3	4
5973		SVTO	03	22	0830	N05	W35	03	19.7		A	AX		1		3
5973		RAMY	03	22	1355	N04	W36	03	19.9		A	AX	10	2	1	3
5973		HOLL	03	24	1447	N06	W63	03	19.9		A	AX		1		4
5973A		HOLL	03	23	1450	N33	W48	03	19.8		A	AX		1		4
5975		LEAR	03	14	0105	S18	E79	03	20.1		A	AX	20	2	1	3
5975		CULG	03	14	0135	S22	E79	03	20.1		A	HS	10	1	2	3
5975		SVTO	03	14	1320	S19	E73	03	20.1		A	HA	60	1	1	2
5975		BOUL	03	14	1604	S19	E71	03	20.1		A	HS	60	1	2	3
5975		RAMY	03	14	1605	S22	E70	03	20.0		B	CAO	80	4	6	1
5975		HOLL	03	14	1741	S20	E71	03	20.2		B	CSO	110	2	9	2
5975		PALE	03	14	1925	S18	E70	03	20.1		B	CSO	30	3	4	4
5975		CULG	03	15	0020	S19	E67	03	20.1		B	CAO	20	3	4	3
5975		LEAR	03	15	0050	S18	E65	03	20.0		B	CSO	70	2	4	3
5975		RAMY	03	15	1240	S21	E62	03	20.3		B	CAO	50	4	6	3
5975		BOUL	03	15	1530	S18	E59	03	20.1		A	HS	30	1	1	2
5975		HOLL	03	15	1535	S18	E59	03	20.1		B	CSO	40	3	4	4
5975		PALE	03	15	1908	S21	E58	03	20.2		A	AX	20	1	1	4
5975		CULG	03	16	0010	S20	E53	03	20.1		A	HA	20	1	1	3
5975		LEAR	03	16	0012	S18	E54	03	20.1		B	CSO	40	4	5	4
5975		RAMY	03	16	1258	S19	E49	03	20.3		B	CAO	40	3	3	2
5975		BOUL	03	16	1558	S19	E44	03	20.0		A	HS	30	1	1	3
5975		HOLL	03	16	1604	S20	E46	03	20.2		A	HS	30	2	2	4
5975		PALE	03	16	1903	S20	E45	03	20.2		A	HS	30	1	1	3
5975		LEAR	03	17	0120	S19	E41	03	20.2		A	HS	20	1	2	3
5975		SVTO	03	17	0716	S21	E38	03	20.2		A	HS	50	2	1	4
5975		RAMY	03	17	1250	S19	E35	03	20.2		A	HA	30	1	2	3
5975		BOUL	03	17	1600	S17	E32	03	20.1		A	HA	20	2	1	2
5975		HOLL	03	17	1615	S20	E33	03	20.2		A	HS	50	3	1	3
5975		PALE	03	17	1810	S20	E32	03	20.2		A	HS	20	1	2	4
5975		SVTO	03	18	0705	S21	E26	03	20.3		A	HS	20	1	1	2
5975		RAMY	03	18	1223	S17	E22	03	20.2		B	CAO	60	4	3	3
5975		HOLL	03	18	1700	S20	E20	03	20.2		A	HA	10	2	1	4
5975		PALE	03	18	1805	S20	E19	03	20.2		A	HS	40	1	1	4
5975		LEAR	03	19	0040	S19	E16	03	20.2		A	HS	10	1	1	3
5975		CULG	03	19	0140	S19	E17	03	20.4		A	HR	10	1	1	3
5975		SVTO	03	19	0815	S19	E12	03	20.2		A	HS	10	1	1	3
5975		RAMY	03	19	1249	S19	E09	03	20.2		A	HA	20	1	2	3
5975		BOUL	03	19	1421	S17	E07	03	20.1		A	HS	10	1	1	1
5975		HOLL	03	19	1625	S19	E07	03	20.2		A	HR	10	1	2	4
5975		LEAR	03	20	0016	S19	E03	03	20.2		A	AX	10	1	1	4
5975		CULG	03	20	0110	S19	E03	03	20.3		A	AX		1		2
5975		SVTO	03	20	0803	S18	W02	03	20.2		A	HS	10	1	1	3
5975		RAMY	03	20	1240	S19	W03	03	20.3		A	HR	10	1	1	4
5975		BOUL	03	20	1430	S18	W05	03	20.2		A	HA	20	1	1	1
5975		HOLL	03	20	1753	S19	W07	03	20.2		A	AX	10	1		3
5975		PALE	03	20	1815	S19	W08	03	20.1		A	HA	20	2	1	3
5975		CULG	03	21	0030	S19	W10	03	20.2		A	AX		1		2
5975		LEAR	03	21	0031	S19	W09	03	20.3		A	AX	10	1	1	3
5975		SVTO	03	21	0720	S19	W15	03	20.2		A	HR	10	1	1	4
5975		RAMY	03	21	1340	S19	W17	03	20.3		A	AX	10	1	1	3
5975		HOLL	03	21	1530	S18	W18	03	20.3		A	AX	10	1		4
5975		BOUL	03	21	1610	S18	W18	03	20.3		A	AX	10	1	1	3
5975		PALE	03	21	1923	S19	W20	03	20.3		A	AX		1		4
5975		CULG	03	22	0120	S19	W23	03	20.3		A	AX		1		2

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

MARCH 1990

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
5975		LEAR	03	22	0130	S19	W22	03	20.4		A	AX	10	1	1	3
5975		SVTO	03	22	0830	S18	W28	03	20.2		A	AX	10	2	1	3
5975		RAMY	03	22	1355	S19	W30	03	20.3		A	AX		1	1	3
5975		PALE	03	22	1857	S19	W33	03	20.3		A	AX		1		3
5973B		SVTO	03	22	0830	S08	W26	03	20.4		A	AX		1		3
5974		HOLL	03	13	1620	S34	E80	03	20.0		A	AX	10	1		3
5974		PALE	03	13	1800	S35	E85	03	20.5		B	BXO	10	2	8	4
5974		LEAR	03	14	0105	S33	E78	03	20.2		B	DAO	90	3	6	3
5974		CULG	03	14	0135	S35	E75	03	20.1		B	CSO	20	2	7	3
5974		SVTO	03	14	1320	S34	E72	03	20.3		B	DAO	80	2	10	2
5974		BOUL	03	14	1604	S34	E71	03	20.3		B	CAO	120	2	7	3
5974		RAMY	03	14	1605	S38	E71	03	20.4		B	DAO	100	3	10	1
5974		HOLL	03	14	1741	S35	E70	03	20.3		B	CAO	150	3	10	2
5974		PALE	03	14	1925	S33	E67	03	20.1		B	ESO	130	8	11	4
5974		CULG	03	15	0020	S34	E65	03	20.2		B	EAO	150	10	11	3
5974		LEAR	03	15	0050	S35	E66	03	20.3		B	DSO	230	14	5	3
5974		RAMY	03	15	1240	S35	E60	03	20.3		B	EAO	140	13	14	3
5974		BOUL	03	15	1530	S34	E61	03	20.5		B	EAO	270	13	13	2
5974		HOLL	03	15	1535	S34	E59	03	20.3		B	ESO	200	17	12	4
5974		PALE	03	15	1908	S35	E49	03	19.7		B	CAO	170	12	11	4
5974		CULG	03	16	0010	S34	E54	03	20.3		B	EAO	240	17	13	3
5974		LEAR	03	16	0012	S33	E56	03	20.4		B	EAO	230	25	13	4
5974		RAMY	03	16	1258	S34	E49	03	20.4		B	EAO	320	26	13	2
5974		BOUL	03	16	1558	S34	E47	03	20.4		B	EAI	250	15	13	3
5974		HOLL	03	16	1604	S34	E48	03	20.5		B	EAI	160	23	14	4
5974		PALE	03	16	1903	S33	E46	03	20.4		B	EAI	190	18	14	3
5974		LEAR	03	17	0120	S33	E42	03	20.4		B	ESI	240	16	14	3
5974		SVTO	03	17	0716	S35	E40	03	20.5		B	EAI	280	19	14	4
5974		RAMY	03	17	1250	S33	E36	03	20.4		B	EAO	350	16	14	3
5974		BOUL	03	17	1600	S34	E31	03	20.1		B	EAO	220	14	15	2
5974		HOLL	03	17	1615	S33	E35	03	20.4		B	FAO	430	23	16	3
5974		PALE	03	17	1810	S34	E34	03	20.5		B	FAO	340	12	16	4
5974		SVTO	03	18	0705	S34	E28	03	20.5		B	FSI	310	19	18	2
5974		RAMY	03	18	1223	S33	E25	03	20.5		B	FAI	520	42	20	3
5974		HOLL	03	18	1700	S33	E24	03	20.6		B	FAI	310	47	18	4
5974		PALE	03	18	1805	S33	E22	03	20.5		B	FKI	550	21	20	4
5974		LEAR	03	19	0040	S33	E19	03	20.5		B	FHI	260	24	19	3
5974		CULG	03	19	0140	S33	E20	03	20.6		B	FSO	200	23	19	3
5974		SVTO	03	19	0815	S34	E16	03	20.6		B	FAI	380	38	19	3
5974		RAMY	03	19	1249	S34	E11	03	20.4		B	FKI	640	33	21	3
5974		BOUL	03	19	1421	S33	E10	03	20.4		B	FAI	370	25	19	1
5974		HOLL	03	19	1625	S33	E12	03	20.6		B	FAI	530	43	22	4
5974		LEAR	03	20	0016	S34	E07	03	20.6		BG	FKI	650	42	22	4
5974		CULG	03	20	0110	S33	E07	03	20.6		B	FAI	330	31	21	2
5974		SVTO	03	20	0803	S33	E02	03	20.5		B	FAI	360	41	19	3
5974		RAMY	03	20	1240	S32	E00	03	20.5		BG	FAI	450	58	21	4
5974		BOUL	03	20	1430	S33	W02	03	20.4		B	FKI	390	23	21	1
5974		HOLL	03	20	1753	S35	W03	03	20.5		BG	FKI	800	38	20	3
5974		PALE	03	20	1815	S33	W03	03	20.5		BG	FKI	590	29	19	3
5974		CULG	03	21	0030	S34	W06	03	20.5		BG	FKI	540	36	21	2
5974		LEAR	03	21	0031	S34	W06	03	20.5		BG	FKO	620	33	22	3
5974		SVTO	03	21	0720	S33	W11	03	20.4		BG	FAI	570	42	21	4
5974		RAMY	03	21	1340	S34	W11	03	20.7		BG	FAI	520	50	21	3
5974		HOLL	03	21	1530	S34	W14	03	20.5		BG	FKI	700	56	21	4
5974		BOUL	03	21	1610	S33	W13	03	20.6		B	FAI	560	27	20	3
5974		PALE	03	21	1923	S32	W15	03	20.6		BG	FKI	510	43	22	4
5974		CULG	03	22	0120	S34	W18	03	20.6		BG	FKI	470	39	21	2
5974		LEAR	03	22	0130	S31	W21	03	20.4		BG	FKO	700	46	21	3
5974		SVTO	03	22	0830	S33	W21	03	20.7		BG	FKI	610	57	22	3
5974		RAMY	03	22	1355	S34	W25	03	20.6		BG	FKI	610	32	21	3
5974		BOUL	03	22	1535	S35	W26	03	20.6		B	FKC	530	9	20	1
5974		PALE	03	22	1857	S33	W27	03	20.6		BG	FKI	600	42	22	3
5974		HOLL	03	22	2115	S34	W29	03	20.6		BG	FKI	570	56	20	4
5974		LEAR	03	23	0050	S34	W30	03	20.6		BG	FKI	510	30	21	3
5974		SVTO	03	23	0735	S33	W35	03	20.5		BG	FAI	540	39	19	3
5974		RAMY	03	23	1346	S34	W36	03	20.7		BG	FKO	490	18	18	1
5974		HOLL	03	23	1450	S34	W39	03	20.5		BG	FAI	460	28	19	4

S U N S P O T G R O U P S
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MARCH 1990

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5974		PALE	03	23	1850	S33	W40	03	20.6		BG	FAI	610	24	19	3
5974		LEAR	03	24	0035	S34	W44	03	20.5		BG	FKO	440	23	17	4
5974		CULG	03	24	0250	S33	W46	03	20.5		B	FKO	300	9	18	2
5974		RAMY	03	24	1320	S34	W50	03	20.6		BG	FKO	560	24	19	3
5974		HOLL	03	24	1447	S34	W51	03	20.5		B	FHO	360	13	19	4
5974		PALE	03	24	1905	S33	W54	03	20.5		B	FKO	430	17	18	4
5974		LEAR	03	25	0045	S33	W56	03	20.6		BG	FKO	380	14	17	3
5974		CULG	03	25	0240	S35	W58	03	20.5		B	FAO	140	9	17	3
5974		RAMY	03	25	1310	S33	W62	03	20.6		BG	FKO	440	18	16	2
5974		HOLL	03	25	1730	S33	W65	03	20.6		B	EAO	410	19	11	3
5974		PALE	03	25	2055	S33	W68	03	20.5		B	EAO	410	15	15	3
5974		LEAR	03	26	0105	S33	W69	03	20.6		BG	FKI	450	9	17	3
5974		SVTO	03	26	0815	S32	W70	03	20.8		BG	FKI	520	7	17	3
5974		RAMY	03	26	1230	S33	W72	03	20.8		BG	FAO	220	10	16	3
5974		PALE	03	26	1919	S33	W78	03	20.6		B	FAO	300	15	16	3
5974		LEAR	03	27	0044	S33	W76	03	21.0		B	DAO	270	7	9	3
5974		RAMY	03	27	1225	S33	W85	03	20.8		B	CAO	80	3	7	2
5974		HOLL	03	27	1750	S34	W82	03	21.2		A	AX	120	1	2	3
5974		PALE	03	27	2024	S34	W85	03	21.1		A	AX	20	1	1	3
5974A		RAMY	03	21	1340	S08	W11	03	20.7		A	AX		1	1	3
5974A		PALE	03	21	1923	S07	W12	03	20.9		A	AX		4	2	4
5974A		PALE	03	22	1857	S09	W23	03	21.1		A	FX		1		3
5974B		CULG	03	21	0030	N05	W03	03	20.8		A	AX		3	2	2
5990		CULG	03	19	0140	N13	E26	03	21.0		A	AX		1		3
5990		HOLL	03	19	1625	N13	E18	03	21.0		A	AX		2	2	4
5990		HOLL	03	20	1753	N13	E03	03	21.0		A	AX	10	3	2	3
5990		CULG	03	21	0030	N12	W23	03	19.3		A	AX		1		2
5990		LEAR	03	21	0031	N11	W23	03	19.3		B	BXO	10	2	3	3
5990		HOLL	03	21	1530	N13	W08	03	21.0		B	BXO	10	7	4	4
5990		BOUL	03	21	1610	N12	W09	03	21.0		B	BXO	20	3	2	3
5978		LEAR	03	15	0050	N15	E75	03	20.7		A	AX	10	1	1	3
5978		RAMY	03	15	1240	N14	E76	03	21.3				50	5	9	3
5978		BOUL	03	15	1530	N17	E71	03	21.0		A	HA	30	1	2	2
5978		HOLL	03	15	1535	N17	E74	03	21.3		B	DSO	90	7	8	4
5978		PALE	03	15	1908	N16	E70	03	21.1		A	AX		1		4
5978		CULG	03	16	0010	N17	E69	03	21.2		B	CAO	50	5	7	3
5978		LEAR	03	16	0012	N16	E69	03	21.2		B	CAO	90	9	9	4
5978		RAMY	03	16	1258	N18	E65	03	21.5		B	DAO	90	10	10	2
5978		BOUL	03	16	1558	N17	E62	03	21.4		B	CAO	70	7	10	3
5978		HOLL	03	16	1604	N16	E62	03	21.4		B	CRO	70	8	9	4
5978		PALE	03	16	1903	N17	E62	03	21.5		B	CAO	60	6	12	3
5978		LEAR	03	17	0120	N16	E56	03	21.3		B	DSO	50	8	10	3
5978		SVTO	03	17	0716	N16	E54	03	21.4		B	EAI	80	13	11	4
5978		RAMY	03	17	1250	N18	E50	03	21.3		B	EAO	120	14	11	3
5978		BOUL	03	17	1600	N18	E47	03	21.2		B	BXO		5	7	2
5978		HOLL	03	17	1615	N15	E45	03	21.1		B	BXO	90	24	15	3
5978		PALE	03	17	1810	N16	E47	03	21.3		B	BXO	40	13	12	4
5978		SVTO	03	18	0705	N15	E40	03	21.3		B	CRI	60	14	10	2
5978		RAMY	03	18	1223	N17	E34	03	21.1		B	EAO	70	24	11	3
5978		HOLL	03	18	1700	N16	E35	03	21.4		B	BXO	70	18	11	4
5978		PALE	03	18	1805	N17	E32	03	21.2		B	BXO	40	14	9	4
5978		LEAR	03	19	0040	N18	E29	03	21.2		B	BXO	20	15	8	3
5978		CULG	03	19	0140	N18	E30	03	21.3		B	BXO	10	7	6	3
5978		SVTO	03	19	0815	N16	E26	03	21.3		B	DSO	50	26	9	3
5978		RAMY	03	19	1249	N16	E23	03	21.3		B	DAO	50	18	9	3
5978		BOUL	03	19	1421	N19	E24	03	21.4		B	BXI	20	8	4	1
5978		HOLL	03	19	1625	N17	E24	03	21.5		B	BXO	20	10	6	4
5978		LEAR	03	20	0016	N16	E16	03	21.2		B	DSO	140	22	9	4
5978		CULG	03	20	0110	N17	E18	03	21.4		B	CAO	90	16	6	2
5978		SVTO	03	20	0803	N17	E15	03	21.5		B	DAI	80	20	7	3
5978		RAMY	03	20	1240	N18	E10	03	21.3		B	EAO	90	40	14	4
5978		BOUL	03	20	1430	N17	E11	03	21.4		B	DAI	150	12	6	1
5978		HOLL	03	20	1753	N17	E09	03	21.4		B	DAO	230	21	8	3
5978		PALE	03	20	1815	N17	E09	03	21.4		B	DAO	250	24	10	3
5978		CULG	03	21	0030	N18	E05	03	21.4		B	DAO	180	16	9	2

SUNSPOT GROUPS
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MARCH 1990

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
5978		LEAR	03	21	0031	N16	E04	03	21.3		B	EAO	200	19	12	3
5978		SVTO	03	21	0720	N17	E03	03	21.5		B	CAI	130	36	12	4
5978		RAMY	03	21	1340	N17	W02	03	21.4		B	EAO	80	26	12	3
5978		HOLL	03	21	1530	N18	W02	03	21.5		B	CRO	90	34	8	4
5978		BOUL	03	21	1610	N17	W02	03	21.5		B	CAI	130	16	7	3
5978		PALE	03	21	1923	N18	W04	03	21.5		B	CAO	60	13	8	4
5978		CULG	03	22	0120	N18	W07	03	21.5		B	CAO	40	15	8	2
5978		LEAR	03	22	0130	N18	W05	03	21.7		B	DAO	140	9	5	3
5978		SVTO	03	22	0830	N18	W09	03	21.7		B	DAO	30	16	4	3
5978		RAMY	03	22	1355	N18	W14	03	21.5		B	CAO	60	17	9	3
5978		BOUL	03	22	1535	N16	W14	03	21.6		B	CAO	70	5	6	1
5978		PALE	03	22	1857	N18	W17	03	21.5		B	BXI	20	16	8	3
5978		HOLL	03	22	2115	N17	W17	03	21.6		B	BXO	30	14	7	4
5978		LEAR	03	23	0050	N16	W19	03	21.6		B	BXO	30	13	9	3
5978		SVTO	03	23	0735	N19	W22	03	21.6		B	BXO	10	6	6	3
5978		RAMY	03	23	1346	N18	W23	03	21.8		B	BXO	20	4	2	1
5978		HOLL	03	23	1450	N17	W25	03	21.7		B	BXO	10	4	3	4
5978		PALE	03	23	1850	N17	W27	03	21.7		B	BXO	20	7	4	3
5978		LEAR	03	24	0035	N17	W30	03	21.7		B	BXO	20	5	4	4
5978		CULG	03	24	0250	N18	W35	03	21.4		A	AX		1		2
5978		RAMY	03	24	1320	N18	W37	03	21.7		B	BXO	10	5	6	3
5978		HOLL	03	24	1447	N17	W38	03	21.7		B	BXO	10	4	3	4
5978		PALE	03	24	1905	N18	W40	03	21.7		B	BXO	10	3	4	4
5978		LEAR	03	25	0045	N18	W45	03	21.6		B	BXO	20	3	6	3
5978A		SVTO	03	21	0720	N39	E03	03	21.5		B	BXO	10	3	4	4
5978C		SVTO	03	22	0830	S12	W08	03	21.7		A	AX	10	3	1	3
5978C		RAMY	03	22	1355	S12	W11	03	21.7		A	AX		1	1	3
5978B		RAMY	03	20	1240	S05	E16	03	21.7		A	AX		2	1	4
5978B		SVTO	03	21	0720	S05	E07	03	21.8		A	AX		1		4
5980		RAMY	03	16	1258	S11	E78	03	22.4		A	HS	30	1	2	2
5980		BOUL	03	16	1558	S11	E76	03	22.4		A	HS	60	1	1	3
5980		HOLL	03	16	1604	S11	E78	03	22.5		A	HS	40	1	2	4
5980		PALE	03	16	1903	S11	E79	03	22.7		A	HA	30	1	1	3
5980		LEAR	03	17	0120	S11	E73	03	22.5		A	HS	20	1	2	3
5980		SVTO	03	17	0716	S12	E71	03	22.6		A	HS	20	1	1	4
5980		RAMY	03	17	1250	S11	E67	03	22.6		A	HS	40	1	2	3
5980		BOUL	03	17	1600	S09	E64	03	22.5		A	HS	20	1	1	2
5980		HOLL	03	17	1615	S11	E65	03	22.6		A	HS	40	1	1	3
5980		PALE	03	17	1810	S12	E65	03	22.6		A	HS	40	1	2	4
5980		SVTO	03	18	0705	S12	E58	03	22.7		A	HS	40	1	1	2
5980		RAMY	03	18	1223	S11	E53	03	22.5		A	HA	70	1	2	3
5980		HOLL	03	18	1700	S11	E52	03	22.6		A	HS	30	1	1	4
5980		PALE	03	18	1805	S12	E52	03	22.7		A	HS	60	1	1	4
5980		LEAR	03	19	0040	S11	E46	03	22.5		A	HS	10	1	2	3
5980		CULG	03	19	0140	S09	E47	03	22.6		A	HS	30	1	1	3
5980		SVTO	03	19	0815	S11	E43	03	22.6		A	HS	30	1	1	3
5980		RAMY	03	19	1249	S11	E41	03	22.6		A	HA	30	1	2	3
5980		BOUL	03	19	1421	S09	E38	03	22.4		A	HS	20	1	1	1
5980		LEAR	03	20	0016	S11	E34	03	22.6		A	HS	40	1	2	4
5980		CULG	03	20	0110	S10	E35	03	22.7		A	HS	20	1	1	2
5980		SVTO	03	20	0803	S11	E31	03	22.7		A	HS	20	1	1	3
5980		RAMY	03	20	1240	S11	E29	03	22.7		A	HA	20	1	1	4
5980		BOUL	03	20	1430	S09	E25	03	22.5		A	HA	20	1	1	1
5980		HOLL	03	20	1753	S12	E26	03	22.7		A	HS	40	1	2	3
5980		PALE	03	20	1815	S12	E25	03	22.6		B	CAO	60	3	3	3
5980		CULG	03	21	0030	S10	E22	03	22.7		A	HS	20	2	1	2
5980		LEAR	03	21	0031	S12	E22	03	22.7		A	HS	30	2	2	3
5980		SVTO	03	21	0720	S12	E19	03	22.7		A	HS	20	2	1	4
5980		RAMY	03	21	1340	S11	E14	03	22.6		A	HR	10	1	1	3
5980		HOLL	03	21	1530	S12	E14	03	22.7		A	HR	10	2	1	4
5980		BOUL	03	21	1610	S10	E15	03	22.8		A	HS	30	1	1	3
5980		PALE	03	21	1923	S11	E12	03	22.7		A	AX	10	1	1	4
5980		CULG	03	22	0120	S11	E09	03	22.7		A	HR	20	2	1	2
5980		LEAR	03	22	0130	S11	E09	03	22.7		A	HS	40	1	1	3
5980		SVTO	03	22	0830	S11	E06	03	22.8		A	AX	10	1		3

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

MARCH 1990

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
5980		RAMY	03 22 1355	S11 E03	03 22.8		A	HA	20	1	2	3
5980		BOUL	03 22 1535	S10 E01	03 22.7		A	AX	10	1	1	1
5980		PALE	03 22 1857	S11 W01	03 22.7		A	AX		1		3
5980		HOLL	03 22 2115	S11 W02	03 22.7		A	HR	10	1	2	4
5980		LEAR	03 23 0050	S11 W04	03 22.7		A	AX	10	1	1	3
5980		SVTO	03 23 0735	S10 W07	03 22.8		A	AX	10	1	1	3
5980		RAMY	03 23 1346	S11 W09	03 22.9		A	HR	10	1	1	1
5980		HOLL	03 23 1450	S11 W11	03 22.8		A	AX		1		4
5980		PALE	03 23 1850	S11 W13	03 22.8		B	CSO	10	3	2	3
5980		LEAR	03 24 0035	S11 W17	03 22.7		A	AX	10	1	1	4
5980		CULG	03 24 0250	S10 W18	03 22.8		A	AX		1		2
5980		HOLL	03 24 1447	S11 W24	03 22.8		A	AX		1		4
5980		PALE	03 24 1905	S11 W26	03 22.8		A	AX		1		4
5980		HOLL	03 25 1730	S10 W39	03 22.8		A	AX		1		3
5980		PALE	03 25 2055	S10 W40	03 22.9		A	AX		1		3
5997		CULG	03 25 0240	N17 W22	03 23.4		A	AX		1		3
5997		PALE	03 25 2055	N17 W29	03 23.7		A	AX		1	2	3
5997		LEAR	03 26 0105	N17 W31	03 23.7		A	AX	10	1	1	3
5984		RAMY	03 18 1223	S12 E70	03 23.8		A	AX	10	1	1	3
5984		HOLL	03 18 1700	S12 E69	03 23.9		A	AX	20	1		4
5984		PALE	03 18 1805	S13 E67	03 23.8		A	AX	10	2	1	4
5984		LEAR	03 19 0040	S12 E62	03 23.7		B	BXO	10	2	2	3
5984		CULG	03 19 0140	S12 E65	03 24.0		A	AX		1		3
5984		SVTO	03 19 0815	S14 E59	03 23.8		B	BXO	10	2	2	3
5984		RAMY	03 19 1249	S14 E56	03 23.8		B	DAO	510	4	4	3
5984		BOUL	03 19 1421	S13 E53	03 23.6		B	BXO	20	3	3	1
5984		HOLL	03 19 1625	S15 E54	03 23.8		B	CSO	30	4	5	4
5984		LEAR	03 20 0016	S14 E50	03 23.8		B	DSO	100	7	4	4
5984		CULG	03 20 0110	S13 E50	03 23.8		B	CRO	20	4	3	2
5984		SVTO	03 20 0803	S14 E45	03 23.7		B	CRO	30	6	3	3
5984		RAMY	03 20 1240	S12 E45	03 23.9		B	BXO	40	17	5	4
5984		BOUL	03 20 1430	S13 E41	03 23.7		B	CSI	30	6	4	1
5984		HOLL	03 20 1753	S14 E42	03 23.9		B	BXO	30	16	7	3
5984		PALE	03 20 1815	S15 E41	03 23.9		B	CAO	90	12	4	3
5984		CULG	03 21 0030	S13 E39	03 24.0		B	CRO	10	11	5	2
5984		LEAR	03 21 0031	S14 E37	03 23.8		B	BXO	80	15	5	3
5984		SVTO	03 21 0720	S14 E33	03 23.8		B	DAI	60	20	5	4
5984		RAMY	03 21 1340	S13 E30	03 23.8		B	DAO	60	21	5	3
5984		HOLL	03 21 1530	S13 E30	03 23.9		B	CSO	70	21	6	4
5984		BOUL	03 21 1610	S12 E29	03 23.8		B	CSI	110	13	6	3
5984		PALE	03 21 1923	S13 E28	03 23.9		B	CAI	280	19	6	4
5984		CULG	03 22 0120	S13 E24	03 23.9		B	CAO	110	15	7	2
5984		LEAR	03 22 0130	S12 E22	03 23.7		B	DSO	170	19	6	3
5984		SVTO	03 22 0830	S13 E20	03 23.9		B	DAO	100	29	8	3
5984		RAMY	03 22 1355	S14 E16	03 23.8		BG	DAI	280	28	8	3
5984		BOUL	03 22 1535	S13 E14	03 23.7		B	DKO	250	8	8	1
5984		PALE	03 22 1857	S12 E13	03 23.8		B	DAI	180	29	8	3
5984		HOLL	03 22 2115	S13 E12	03 23.8		BG	DAI	190	29	8	4
5984		LEAR	03 23 0050	S13 E10	03 23.8		BG	DAI	180	27	10	3
5984		SVTO	03 23 0735	S12 E06	03 23.8		B	EAI	210	37	12	3
5984		RAMY	03 23 1346	S14 E03	03 23.8		B	EAI	310	28	11	1
5984		HOLL	03 23 1450	S13 E01	03 23.7		B	DAI	160	44	11	4
5984		PALE	03 23 1850	S14 W01	03 23.7		B	EAI	340	37	12	3
5984		LEAR	03 24 0035	S13 W03	03 23.8		B	EAI	280	51	11	4
5984		CULG	03 24 0250	S12 W06	03 23.7		BG	EAI	200	24	12	2
5984		RAMY	03 24 1320	S12 W11	03 23.7		B	FKI	390	57	13	3
5984		HOLL	03 24 1447	S12 W12	03 23.7		B	EAI	330	46	13	4
5984		PALE	03 24 1905	S13 W14	03 23.7		B	EAI	350	54	14	4
5984		LEAR	03 25 0045	S12 W17	03 23.7		BG	EAI	480	55	13	3
5984		CULG	03 25 0240	S13 W19	03 23.7		BG	EAI	270	42	13	3
5984		SVTO	03 25 0720	S13 W22	03 23.6		B	EAI	290	48	13	1
5984		RAMY	03 25 1310	S12 W25	03 23.7		BG	FKC	480	79	19	2
5984		HOLL	03 25 1730	S13 W27	03 23.7		B	EAC	720	87	15	3
5984		PALE	03 25 2055	S13 W28	03 23.7		BG	FKI	430	67	14	3
5984		LEAR	03 26 0105	S13 W32	03 23.6		BG	EKI	510	46	15	3
5984		SVTO	03 26 0815	S12 W36	03 23.6		BG	FKI	720	47	16	3
5984		RAMY	03 26 1230	S13 W37	03 23.7		BG	EKI	490	52	15	3

S U N S P O T G R O U P S
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MARCH 1990

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5984		PALE	03	26	1919	S13	W40	03	23.8		BG	EKI	830	58	15	3
5984		LEAR	03	27	0044	S12	W44	03	23.7		BG	FKI	780	46	16	3
5984		RAMY	03	27	1225	S12	W51	03	23.7		BG	FAI	480	37	16	2
5984		HOLL	03	27	1750	S13	W55	03	23.6		BGD	FKC	580	39	17	3
5984		PALE	03	27	2024	S13	W57	03	23.5		BG	EAI	500	40	15	3
5984		LEAR	03	28	0056	S13	W55	03	23.9		B	EKI	750	31	12	3
5984		SVTO	03	28	0620	S12	W60	03	23.7		B	EAI	360	28	14	3
5984		RAMY	03	28	1300	S13	W64	03	23.7		BG	FKI	600	32	16	3
5984		PALE	03	28	1930	S13	W69	03	23.6		BG	EKI	790	25	15	3
5984		HOLL	03	28	2048	S12	W69	03	23.7		BGD	FKI	540	27	17	3
5984		LEAR	03	29	0015	S14	W69	03	23.8		BG	FKI	460	32	15	3
5984		RAMY	03	29	1325	S13	W76	03	23.8		B	EKI	350	16	15	1
5984		HOLL	03	29	1520	S13	W78	03	23.7		B	DKI	290	12	10	3
5984		PALE	03	29	2020	S13	W79	03	23.9		B	CKO	480	11	8	3
5984		CULG	03	30	0119	S13	W79	03	24.1		A	HK	190	3	5	1
5984		LEAR	03	30	0315	S15	W80	03	24.1		A	HH	240	6	6	3
5984		SVTO	03	30	0845	S13	W88	03	23.7		B	DAO	90	2	5	2
5984		RAMY	03	30	1323	S13	W88	03	23.9		B	CKO	210	5	5	3
5984		HOLL	03	30	1520	S15	W88	03	24.0		A	HS	50	2	2	4
5997A		HOLL	03	19	1625	S29	E53	03	23.8		B	BXO	20	5	3	4
5997A		RAMY	03	20	1240	S29	E43	03	23.9		B	BXO	10	4	3	4
5997A		HOLL	03	20	1753	S30	E41	03	24.0		A	AX	10	3	2	3
5997A		LEAR	03	21	0031	S29	E37	03	23.9		A	AX	10	1	1	3
5997A		HOLL	03	21	1530	S29	E28	03	23.8		A	AX	10	2	1	4
5991		HOLL	03	22	2115	N22	E13	03	23.9		B	BXO	10	4	3	4
5991		LEAR	03	23	0050	N22	E12	03	23.9		B	BXO	10	4	4	3
5991		RAMY	03	23	1346	N21	E08	03	24.2		B	DAO	20	6	4	1
5991		HOLL	03	23	1450	N21	E05	03	24.0		B	CAO	40	10	4	4
5991		LEAR	03	24	0035	N21	W01	03	23.9		B	DAO	80	9	5	4
5991		CULG	03	24	0250	N23	W04	03	23.8		B	CSO	50	4	4	2
5991		RAMY	03	24	1320	N22	W07	03	24.0		B	DAO	100	9	6	3
5991		HOLL	03	24	1447	N21	W08	03	24.0		B	CAO	50	8	5	4
5991		PALE	03	24	1905	N21	W11	03	23.9		B	CAO	50	7	5	4
5991		LEAR	03	25	0045	N22	W15	03	23.9		B	CSO	30	6	7	3
5991		CULG	03	25	0240	N22	W20	03	23.6		A	HA	30	2	1	3
5991		SVTO	03	25	0720	N21	W17	03	24.0		B	CAO	40	6	7	1
5991		RAMY	03	25	1310	N22	W22	03	23.8		B	CAO	40	6	4	2
5991		HOLL	03	25	1730	N22	W25	03	23.8		B	CSO	30	5	4	3
5991		PALE	03	25	2055	N23	W27	03	23.8		A	HA	20	3	2	3
5991		LEAR	03	26	0105	N23	W27	03	24.0		B	BXO	20	5	5	3
5991		SVTO	03	26	0815	N24	W30	03	24.0		B	DAI	130	6	6	3
5991		RAMY	03	26	1230	N22	W33	03	24.0		B	BXO	20	7	4	3
5991		PALE	03	26	1919	N22	W37	03	24.0		B	CAO	20	6	4	3
5991		LEAR	03	27	0044	N22	W40	03	23.9		B	BXO	90	6	5	3
5991		RAMY	03	27	1225	N22	W47	03	23.9		B	BXO	20	5	4	2
5991		HOLL	03	27	1750	N24	W52	03	23.7		B	BXO	20	3	2	3
5991		PALE	03	27	2024	N22	W50	03	24.0		B	BXO	10	4	5	3
5991		LEAR	03	28	0056	N22	W55	03	23.8		B	CSO	70	6	9	3
5991		SVTO	03	28	0620	N24	W59	03	23.7		B	DAO	70	5	8	3
5991		RAMY	03	28	1300	N23	W60	03	23.9		B	DAO	80	8	10	3
5991		PALE	03	28	1930	N22	W62	03	24.0		B	DAO	70	5	7	3
5991		HOLL	03	28	2048	N24	W65	03	23.8		B	BXO	30	8	10	3
5991		LEAR	03	29	0015	N23	W65	03	24.0		B	DSO	100	4	8	3
5991		RAMY	03	29	1325	N23	W73	03	23.9		B	BXO	40	4	4	1
5991		HOLL	03	29	1520	N25	W71	03	24.1		B	BXO	10	3	12	3
5991		PALE	03	29	2020	N24	W84	03	23.3		B	BXO	10	3	4	3
5982		RAMY	03	17	1250	N18	E68	03	22.7		B	BXO	30	3	3	3
5982		BOUL	03	17	1600	N19	E64	03	22.5		B	BXO		2	2	2
5982		HOLL	03	17	1615	N18	E64	03	22.5		A	AX	20	2	2	3
5982		PALE	03	17	1810	N18	E64	03	22.6		B	BXO	10	3	3	4
5982		SVTO	03	18	0705	N17	E58	03	22.7		B	BXO	10	2	3	2
5982		RAMY	03	18	1223	N18	E55	03	22.7		B	CAO	20	3	3	3
5982		HOLL	03	18	1700	N18	E52	03	22.7		A	AX	20	2	2	4
5982		PALE	03	18	1805	N18	E51	03	22.6		B	BXO	20	5	3	4
5982		LEAR	03	19	0040	N18	E47	03	22.6		A	AX	10	1	1	3
5982		CULG	03	19	0140	N18	E47	03	22.6		A	AX		1		3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

MARCH 1990

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5982		SVTO	03	19	0815	N18	E45	03	22.8		B	BXO	10	2	1	3
5982		RAMY	03	19	1249	N18	E41	03	22.6		B	BXO	10	2	3	3
5982		BOUL	03	20	1430	N20	E30	03	22.9		A	AX		1		1
5982		HOLL	03	20	1753	N19	E33	03	23.3		B	BXO	10	5	10	3
5982		PALE	03	20	1815	N18	E34	03	23.3		B	CXO	50	6	9	3
5982		LEAR	03	21	0031	N21	E33	03	23.5		A	AX	30	2	2	3
5982		PALE	03	21	1923	N22	E23	03	23.6		A	AX		3		4
5982		PALE	03	22	1857	N22	E14	03	23.9		A	AX		2		3
5982		SVTO	03	23	0735	N21	E09	03	24.0		B	CRO	40	5	4	3
5982		PALE	03	23	1850	N22	E04	03	24.1		B	DAO	60	12	5	3
5982		RAMY	03	25	1310	N17	W26	03	23.6		A	HA	20	1	2	2
5982		HOLL	03	25	1730	N17	W28	03	23.6		A	AX		1		3
5982		PALE	03	25	2055	N17	W29	03	23.7		A	AX		1		3
5983		SVTO	03	17	0716	S31	E82	03	23.8		A	HS	30	1	2	4
5983		RAMY	03	17	1250	S29	E79	03	23.7		A	HA	30	1	2	3
5983		HOLL	03	17	1615	S31	E79	03	23.9		A	HS	60	1	1	3
5983		PALE	03	17	1810	S30	E80	03	24.0		A	AX	10	2	1	4
5983		SVTO	03	18	0705	S33	E76	03	24.3		B	DSO	90	4	8	2
5983		RAMY	03	18	1223	S32	E74	03	24.4		B	EAO	90	17	13	3
5983		HOLL	03	18	1700	S32	E75	03	24.6		B	CAI	140	31	14	4
5983		PALE	03	18	1805	S33	E71	03	24.4		B	EAO	160	14	14	4
5983		LEAR	03	19	0040	S32	E65	03	24.2		B	ESO	130	14	12	3
5983		CULG	03	19	0140	S30	E69	03	24.5		B	ESO	110	7	14	3
5983		SVTO	03	19	0815	S34	E66	03	24.6		B	EAI	210	39	14	3
5983		RAMY	03	19	1249	S33	E63	03	24.5		B	EAI	200	29	14	3
5983		BOUL	03	19	1421	S30	E60	03	24.3		B	EAI	260	19	12	1
5983		HOLL	03	19	1625	S33	E62	03	24.6		BG	DAO	230	25	7	4
5983		LEAR	03	20	0016	S32	E55	03	24.4		B	EAI	510	32	14	4
5983		CULG	03	20	0110	S32	E56	03	24.5		B	EAI	180	17	17	2
5983		PALE	03	20	0152	S32	E58	03	24.7		B	FAI	250	27	17	3
5983		SVTO	03	20	0803	S35	E51	03	24.4		B	FAI	200	25	15	3
5983		RAMY	03	20	1240	S33	E53	03	24.7		B	EAO	200	37	11	4
5983		BOUL	03	20	1430	S31	E50	03	24.5		B	EAI	210	15	14	1
5983		HOLL	03	20	1753	S33	E51	03	24.8		B	EKO	410	18	12	3
5983		PALE	03	20	1815	S35	E50	03	24.7		B	DAO	390	14	10	3
5983		CULG	03	21	0030	S33	E45	03	24.6		B	FAI	150	31	15	2
5983		LEAR	03	21	0031	S33	E47	03	24.7		B	EAI	430	34	11	3
5983		SVTO	03	21	0720	S34	E42	03	24.6		B	FAI	280	33	16	4
5983		RAMY	03	21	1340	S32	E38	03	24.6		B	FAO	260	37	18	3
5983		HOLL	03	21	1530	S33	E39	03	24.7		B	CAO	330	61	14	4
5983		BOUL	03	21	1610	S32	E37	03	24.6		B	FAI	390	30	17	3
5983		PALE	03	21	1923	S32	E34	03	24.5		B	FAI	70	38	16	4
5983		CULG	03	22	0120	S33	E33	03	24.7		B	FAI	200	39	17	2
5983		LEAR	03	22	0130	S33	E31	03	24.5		B	EKO	520	20	11	3
5983		SVTO	03	22	0830	S32	E28	03	24.6		B	FAO	230	54	17	3
5983		RAMY	03	22	1355	S33	E25	03	24.6		BG	FAI	360	56	16	3
5983		BOUL	03	22	1535	S35	E30	03	25.0		B	EAO	370	11	13	1
5983		PALE	03	22	1857	S32	E23	03	24.6		BG	FKI	290	52	16	3
5983		HOLL	03	22	2115	S32	E22	03	24.6		BG	EAI	300	50	15	4
5983		LEAR	03	23	0050	S33	E21	03	24.7		B	FAI	250	50	16	3
5983		SVTO	03	23	0735	S34	E18	03	24.7		B	EAI	240	47	13	3
5983		RAMY	03	23	1346	S33	E15	03	24.8		B	EAI	330	29	14	1
5983		HOLL	03	23	1450	S34	E14	03	24.7		B	FAI	180	51	16	4
5983		PALE	03	23	1850	S32	E13	03	24.8		B	FAI	330	42	17	3
5983		LEAR	03	24	0035	S33	E09	03	24.7		B	CAO	210	46	18	4
5983		CULG	03	24	0250	S32	E07	03	24.7		B	FAO	110	13	15	2
5983		RAMY	03	24	1320	S32	E02	03	24.7		B	FAO	280	27	18	3
5983		HOLL	03	24	1447	S33	E00	03	24.6		B	CAO	120	28	18	4
5983		PALE	03	24	1905	S33	W01	03	24.7		B	CAO	140	28	16	4
5983		LEAR	03	25	0045	S32	W03	03	24.8		B	CAO	110	24	17	3
5983		CULG	03	25	0240	S33	W06	03	24.6		B	CAO	60	12	16	3
5983		SVTO	03	25	0720	S32	W07	03	24.7		B	CAO	100	25	18	1
5983		RAMY	03	25	1310	S32	W13	03	24.5		B	FAO	140	30	17	2
5983		HOLL	03	25	1730	S31	W15	03	24.5		B	FAI	190	23	17	3
5983		PALE	03	25	2055	S33	W16	03	24.6		B	FAO	90	27	20	3
5983		LEAR	03	26	0105	S30	W22	03	24.3		B	DAO	80	24	13	3
5983		SVTO	03	26	0815	S32	W21	03	24.7		B	DAI	160	22	9	3
5983		RAMY	03	26	1230	S31	W29	03	24.2		B	DAO	70	20	10	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

MARCH 1990

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5983		PALE	03	26	1919	S30	W31	03	24.4		B	CKO	150	17	11	3
5983		LEAR	03	27	0044	S30	W33	03	24.4		B	CKO	200	19	10	3
5983		RAMY	03	27	1225	S30	W41	03	24.3		B	EKO	180	17	11	2
5983		HOLL	03	27	1750	S30	W44	03	24.3		B	CKO	350	16	13	3
5983		PALE	03	27	2024	S30	W46	03	24.2		B	DKO	180	9	10	3
5983		LEAR	03	28	0056	S30	W49	03	24.2		BD	EKO	370	14	12	3
5983		SVTO	03	28	0620	S28	W52	03	24.2		B	EAI	150	9	12	3
5983		RAMY	03	28	1300	S29	W55	03	24.2		B	EKO	360	15	12	3
5983		PALE	03	28	1930	S29	W58	03	24.3		B	DAO	270	13	10	3
5983		HOLL	03	28	2048	S29	W58	03	24.3		B	CAO	210	9	10	3
5983		LEAR	03	29	0015	S32	W55	03	24.6		B	DKO	170	8	7	3
5983		RAMY	03	29	1325	S29	W67	03	24.3		B	DAO	80	7	6	1
5983		HOLL	03	29	1520	S30	W66	03	24.4		B	DAO	110	6	7	3
5983		PALE	03	29	2020	S31	W69	03	24.4		B	DAO	150	7	5	3
5983		CULG	03	30	0119	S30	W71	03	24.5		B	CAO	80	1	6	1
5983		LEAR	03	30	0315	S32	W68	03	24.7		B	DAO	80	5	5	3
5983		SVTO	03	30	0845	S31	W76	03	24.4		B	CAO	70	5	6	2
5983		RAMY	03	30	1323	S30	W74	03	24.7		B	CAO	90	3	5	3
5983		HOLL	03	30	1520	S30	W79	03	24.4		B	DAO	80	3	8	4
5983		PALE	03	30	1929	S32	W79	03	24.5		A	HA	80	2	2	3
5983		LEAR	03	31	0023	S32	W78	03	24.8		B	DAO	300	4	6	3
5983		CULG	03	31	0127	S30	W86	03	24.3		A	HA	20	3	3	2
5983		SVTO	03	31	0750	S31	W83	03	24.8		A	HA	30	1	2	4
5983		RAMY	03	31	1227	S28	W88	03	24.6		A	HA	30	1	2	4
5989		PALE	03	18	1805	N14	E86	03	25.2		A	AX	10	1	1	4
5989		LEAR	03	19	0040	N16	E70	03	24.3		B	BXO	20	2	2	3
5989		RAMY	03	19	1249	N15	E70	03	24.8		B	BXO	10	2	2	3
5989		HOLL	03	19	1625	N14	E67	03	24.7		B	BXO	10	4	3	4
5989		LEAR	03	20	0016	N16	E61	03	24.6		B	BXO	70	6	3	4
5989		CULG	03	20	0110	N14	E62	03	24.7		A	AX		2	2	2
5989		RAMY	03	20	1240	N16	E59	03	25.0		B	BXO	30	11	11	4
5989		BOUL	03	20	1430	N16	E53	03	24.6		B	BXO	20	2	2	1
5989		HOLL	03	20	1753	N15	E53	03	24.7		A	AX	10	2	3	3
5989		PALE	03	20	1815	N13	E52	03	24.7		B	BXO	40	2	4	3
5989		CULG	03	21	0030	N15	E50	03	24.8		A	AX		3	2	2
5989		LEAR	03	21	0031	N15	E49	03	24.7		B	BXO	30	3	3	3
5989		SVTO	03	21	0720	N14	E48	03	24.9		B	BXO	20	6	4	4
5989		RAMY	03	21	1340	N16	E42	03	24.7		B	CRO	20	4	4	3
5989		HOLL	03	21	1530	N15	E41	03	24.7		B	BXO	20	6	3	4
5989		BOUL	03	21	1610	N15	E39	03	24.6		B	CAO	40	4	2	3
5989		PALE	03	21	1923	N16	E39	03	24.8		A	AX		3	1	4
5989		CULG	03	22	0120	N15	E36	03	24.8		B	CRO	10	5	3	2
5989		LEAR	03	22	0130	N15	E35	03	24.7		B	BXO	30	5	4	3
5989		SVTO	03	22	0830	N15	E33	03	24.8		A	AX	10	4	3	3
5989		RAMY	03	22	1355	N15	E28	03	24.7		A	AX		1	1	3
5989		PALE	03	22	1857	N16	E26	03	24.8		A	AX		1		3
5989		HOLL	03	22	2115	N16	E23	03	24.6		A	AX	10	2	1	4
5989		LEAR	03	23	0050	N14	E23	03	24.8		B	BXO	10	3	2	3
5989		HOLL	03	23	1450	N15	E15	03	24.7		A	AX		4	2	4
5989		PALE	03	23	1850	N14	E13	03	24.8		A	AX	10	3	3	3
5989		RAMY	03	24	1320	N17	E03	03	24.8		B	BXO	10	6	3	3
5989		HOLL	03	24	1447	N15	E01	03	24.7		A	AX	10	5	2	4
5989		PALE	03	24	1905	N15	W01	03	24.7		A	AX		5	2	4
5989		LEAR	03	25	0045	N15	W06	03	24.6		B	BXO	10	4	3	3
5989		RAMY	03	25	1310	N17	W12	03	24.6		B	BXO	10	5	3	2
5989		HOLL	03	25	1730	N12	W12	03	24.8		A	AX		2	1	3
5989		PALE	03	25	2055	N13	W13	03	24.9		A	AX		2	1	3
5989		LEAR	03	26	0105	N15	W19	03	24.6		B	BXO	10	3	3	3
5989		PALE	03	26	1919	N14	W30	03	24.5		A	AX		1		3
5987		HOLL	03	18	1700	S19	E85	03	25.2		B	BXO	60	2	3	4
5987		PALE	03	18	1805	S18	E85	03	25.2		A	HK	10	1	4	4
5987		LEAR	03	19	0040	S16	E76	03	24.8		B	DAO	70	7	8	3
5987		CULG	03	19	0140	S15	E80	03	25.1		A	HA	60	2	1	3
5987		SVTO	03	19	0815	S17	E77	03	25.2		B	CAO	150	12	9	3
5987		RAMY	03	19	1249	S17	E70	03	24.8		B	DKO	240	14	8	3
5987		BOUL	03	19	1421	S14	E67	03	24.7		A	AX	10	1	1	1
5987		HOLL	03	19	1625	S17	E69	03	24.9		B	DKO	170	8	5	4

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

MARCH 1990

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo Day	Time (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5987		LEAR	03 20	0016	S16 E64	03 24.9		B	DKO	280	14	8	4
5987		CULG	03 20	0110	S15 E66	03 25.0		B	DAO	120	5	7	2
5987		SVTO	03 20	0803	S16 E64	03 25.2		B	DAO	160	9	8	3
5987		RAMY	03 20	1240	S17 E61	03 25.2		B	CAO	140	17	8	4
5987		BOUL	03 20	1430	S15 E55	03 24.8		B	BXO	20	2	4	1
5987		HOLL	03 20	1753	S17 E56	03 25.0		B	CKO	220	7	11	3
5987		PALE	03 20	1815	S18 E58	03 25.2		B	CAO	220	8	8	3
5987		CULG	03 21	0030	S17 E54	03 25.1		B	CAO	110	10	9	2
5987		LEAR	03 21	0031	S18 E51	03 24.9		B	CAO	180	11	7	3
5987		SVTO	03 21	0720	S17 E48	03 24.9		B	CAO	130	14	8	4
5987		RAMY	03 21	1340	S18 E45	03 25.0		B	CAO	110	15	9	3
5987		HOLL	03 21	1530	S18 E45	03 25.1		B	CAO	140	15	8	4
5987		BOUL	03 21	1610	S18 E45	03 25.1		B	CAO	160	7	3	3
5987		PALE	03 21	1923	S17 E46	03 25.3		B	CAO	140	8	4	4
5987		CULG	03 22	0120	S18 E40	03 25.1		B	CAO	100	8	4	2
5987		LEAR	03 22	0130	S18 E38	03 24.9		B	CAO	160	9	5	3
5987		SVTO	03 22	0830	S15 E36	03 25.1		B	EAO	80	23	12	3
5987		RAMY	03 22	1355	S18 E34	03 25.2		B	DAO	120	17	10	3
5987		BOUL	03 22	1535	S15 E28	03 24.8		B	CHO	30	3	5	1
5987		PALE	03 22	1857	S16 E30	03 25.1		B	CAO	60	15	5	3
5987		HOLL	03 22	2115	S16 E27	03 24.9		B	DAO	60	11	6	4
5987		LEAR	03 23	0050	S15 E26	03 25.0		B	CAO	50	15	9	3
5987		SVTO	03 23	0735	S18 E29	03 25.5		B	EAO	70	16	14	3
5987		RAMY	03 23	1346	S19 E25	03 25.5		B	EAO	70	14	14	1
5987		HOLL	03 23	1450	S17 E21	03 25.2		B	CAO	50	25	12	4
5987		PALE	03 23	1850	S16 E18	03 25.1		B	EAI	100	30	14	3
5987		LEAR	03 24	0035	S18 E14	03 25.1		B	CAO	70	19	14	4
5987		CULG	03 24	0250	S17 E17	03 25.4		B	CRO	200	7	10	2
5987		RAMY	03 24	1320	S17 E09	03 25.2		B	EAO	80	34	12	3
5987		HOLL	03 24	1447	S19 E09	03 25.3		B	CSO	40	22	12	4
5987		PALE	03 24	1905	S17 E05	03 25.2		B	CAO	50	18	12	4
5987		LEAR	03 25	0045	S16 E04	03 25.3		B	CSO	30	10	9	3
5987		CULG	03 25	0240	S18 E06	03 25.6		B	ESO	50	9	13	3
5987		SVTO	03 25	0720	S18 E03	03 25.5		B	FAO	800	13	16	1
5987		RAMY	03 25	1310	S17 W03	03 25.3		B	CAO	90	10	5	2
5987		HOLL	03 25	1730	S18 W08	03 25.1		B	CAO	90	8	3	3
5987		PALE	03 25	2055	S19 W09	03 25.2		B	DAO	100	9	4	3
5987		LEAR	03 26	0105	S18 W07	03 25.5		B	EAO	160	15	10	3
5987		SVTO	03 26	0815	S19 W10	03 25.6		B	EAI	200	23	15	3
5987		RAMY	03 26	1230	S18 W18	03 25.1		B	CAO	160	14	3	3
5987		PALE	03 26	1919	S18 W22	03 25.1		B	CKI	160	15	4	3
5987		LEAR	03 27	0044	S18 W21	03 25.4		B	CKO	180	13	10	3
5987		RAMY	03 27	1225	S18 W32	03 25.1		B	CAO	140	12	4	2
5987		HOLL	03 27	1750	S18 W35	03 25.1		B	CKO	120	15	8	3
5987		PALE	03 27	2024	S18 W34	03 25.3		B	CAI	120	14	4	3
5987		LEAR	03 28	0056	S18 W36	03 25.3		B	CKO	160	12	5	3
5987		SVTO	03 28	0620	S16 W42	03 25.1		B	CKI	130	8	5	3
5987		RAMY	03 28	1300	S17 W45	03 25.1		B	CAO	140	7	4	3
5987		PALE	03 28	1930	S18 W49	03 25.1		B	CAO	90	6	4	3
5987		HOLL	03 28	2048	S16 W49	03 25.1		B	CKO	100	9	3	3
5987		LEAR	03 29	0015	S18 W50	03 25.2		B	DAO	90	7	4	3
5987		RAMY	03 29	1325	S16 W56	03 25.3		B	CAO	60	4	3	1
5987		HOLL	03 29	1520	S17 W60	03 25.1		B	CAO	50	5	3	3
5987		PALE	03 29	2020	S17 W64	03 25.0		B	CAO	80	5	3	3
5987		CULG	03 30	0119	S16 W65	03 25.1		A	HA	30	2	3	1
5987		LEAR	03 30	0315	S18 W65	03 25.2		B	DAO	90	5	5	3
5987		SVTO	03 30	0845	S17 W70	03 25.0		B	CAO	50	4	5	2
5987		RAMY	03 30	1323	S16 W70	03 25.2		B	CAO	60	4	4	3
5987		HOLL	03 30	1520	S16 W73	03 25.1		A	HA	40	1	1	4
5987		PALE	03 30	1929	S16 W75	03 25.1		A	AX		1		3
5987		LEAR	03 31	0023	S17 W78	03 25.1		A	HS	120	1	2	3
5987		CULG	03 31	0127	S17 W80	03 25.0		A	HA	20	2	3	2
5987		RAMY	03 31	1227	S16 W85	03 25.1		B	CAO	120	2	3	4
5988		SVTO	03 19	0815	S08 E86	03 25.8		A	HK	120	1	2	3
5988		RAMY	03 19	1249	S07 E80	03 25.5		A	HK	180	1	4	3
5988		BOUL	03 19	1421	S06 E77	03 25.4		A	HS	120	1	2	1
5988		HOLL	03 19	1625	S08 E77	03 25.4		A	HH	180	2	2	4
5988		LEAR	03 20	0016	S08 E75	03 25.6		B	DKO	360	7	10	4

S U N S P O T G R O U P S
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MARCH 1990

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5988		CULG	03	20	0110	S08	E74	03	25.6		A	HA	200	3	2	2
5988		RAMY	03	20	1240	S07	E68	03	25.6		B	CKO	210	9	7	4
5988		BOUL	03	20	1430	S07	E65	03	25.5		A	HA	180	1	2	1
5988		HOLL	03	20	1753	S08	E65	03	25.6		B	CKO	390	5	3	3
5988		PALE	03	20	1815	S10	E70	03	26.0		B	EKO	440	8	14	3
5988		CULG	03	21	0030	S08	E66	03	26.0		B	EKO	320	9	14	2
5988		LEAR	03	21	0031	S08	E65	03	25.9		B	EKO	510	13	12	3
5988		SVTO	03	21	0720	S09	E62	03	25.9		B	EKO	500	9	11	4
5988		RAMY	03	21	1340	S07	E59	03	26.0		B	EKO	440	19	13	3
5988		HOLL	03	21	1530	S08	E57	03	25.9		B	EKO	450	27	15	4
5988		BOUL	03	21	1610	S10	E54	03	25.7		B	EAO	230	10	4	3
5988		PALE	03	21	1923	S07	E55	03	25.9		B	EKO	320	8	14	4
5988		CULG	03	22	0120	S08	E52	03	25.9		B	EKO	370	10	14	2
5988		LEAR	03	22	0130	S08	E45	03	25.4		B	EKO	290	9	11	3
5988		SVTO	03	22	0830	S08	E49	03	26.0		B	EKO	460	29	14	3
5988		RAMY	03	22	1355	S07	E45	03	25.9		B	EKO	530	17	15	3
5988		BOUL	03	22	1535	S06	E43	03	25.9		B	EKO	560	7	14	1
5988		PALE	03	22	1857	S07	E42	03	25.9		B	EKO	460	17	14	3
5988		HOLL	03	22	2115	S08	E42	03	26.0		BG	EKI	440	26	15	4
5988		LEAR	03	23	0050	S08	E38	03	25.9		B	EKO	370	20	14	3
5988		SVTO	03	23	0735	S08	E35	03	25.9		B	EKO	480	23	14	3
5988		RAMY	03	23	1346	S07	E34	03	26.1		B	EKO	460	14	13	1
5988		HOLL	03	23	1450	S08	E32	03	26.0		BD	EKO	450	29	15	4
5988		PALE	03	23	1850	S07	E30	03	26.0		B	EKO	510	29	15	3
5988		LEAR	03	24	0035	S07	E25	03	25.9		B	EKO	390	31	14	4
5988		CULG	03	24	0250	S05	E23	03	25.8		B	EKO	500	15	14	2
5988		RAMY	03	24	1320	S07	E18	03	25.9		BG	EKO	660	27	14	3
5988		HOLL	03	24	1447	S08	E19	03	26.0		BD	EKO	480	35	15	4
5988		PALE	03	24	1905	S08	E16	03	26.0		BD	EKO	600	33	15	4
5988		LEAR	03	25	0045	S05	E12	03	25.9		BD	EKO	580	29	15	3
5988		CULG	03	25	0240	S06	E11	03	25.9		BD	EKO	350	18	14	3
5988		SVTO	03	25	0720	S08	E09	03	26.0		BD	FAO	450	31	17	1
5988		RAMY	03	25	1310	S07	E07	03	26.1		BD	FKO	710	33	16	2
5988		HOLL	03	25	1730	S07	E04	03	26.0		B	FKO	570	34	17	3
5988		PALE	03	25	2055	S07	E03	03	26.1		B	FKO	490	26	16	3
5988		LEAR	03	26	0105	S07	W01	03	26.0		BD	FKO	430	21	17	3
5988		SVTO	03	26	0815	S05	W04	03	26.0		BD	FKC	410	31	18	3
5988		RAMY	03	26	1230	S06	W07	03	26.0		BD	FKO	420	30	16	3
5988		PALE	03	26	1919	S05	W09	03	26.1		B	FKO	390	29	17	3
5988		LEAR	03	27	0044	S07	W13	03	26.0		BD	FKO	340	24	16	3
5988		RAMY	03	27	1225	S06	W19	03	26.1		BD	EKO	350	22	15	2
5988		HOLL	03	27	1750	S06	W23	03	26.0		B	FSO	360	21	17	3
5988		PALE	03	27	2024	S06	W26	03	25.9		B	EKO	280	22	15	3
5988		LEAR	03	28	0056	S05	W25	03	26.2		B	EKO	370	11	15	3
5988		SVTO	03	28	0620	S07	W23	03	26.5		B	FKO	260	10	16	3
5988		RAMY	03	28	1300	S06	W33	03	26.1		BG	FKO	380	18	18	3
5988		PALE	03	28	1930	S07	W37	03	26.0		B	CKO	280	11	14	3
5988		HOLL	03	28	2048	S06	W37	03	26.1		B	EAO	250	15	14	3
5988		LEAR	03	29	0015	S06	W40	03	26.0		B	FKO	290	9	16	3
5988		RAMY	03	29	1325	S06	W46	03	26.1		B	FKO	210	10	17	1
5988		HOLL	03	29	1520	S07	W48	03	26.0		B	FAO	170	13	17	3
5988		PALE	03	29	2020	S07	W50	03	26.1		B	CAO	170	10	16	3
5988		CULG	03	30	0119	S04	W60	03	25.6		B	DAO	90	4	5	1
5988		LEAR	03	30	0315	S05	W60	03	25.6		B	DAO	130	10	5	3
5988		SVTO	03	30	0845	S05	W64	03	25.6		B	DAO	150	8	5	2
5988		RAMY	03	30	1323	S04	W65	03	25.7		B	DAO	220	7	7	3
5988		HOLL	03	30	1520	S05	W68	03	25.5		B	DAO	120	6	6	4
5988		PALE	03	30	1929	S04	W70	03	25.6		B	DAO	110	7	5	3
5988		LEAR	03	31	0023	S08	W75	03	25.4		B	DAO	290	6	9	3
5988		CULG	03	31	0127	S05	W75	03	25.4		B	DAO	70	5	7	2
5988		RAMY	03	31	1227	S03	W79	03	25.6		B	DAO	120	7	6	4
5988		BOUL	03	31	1446	S02	W85	03	25.3		B	DSO	60	2	8	3
5988		HOLL	03	31	1500	S03	W85	03	25.3		B	CSO	90	2	9	3
5988		PALE	03	31	1921	S04	W86	03	25.4		A	AX	30	1	1	3
5987A		HOLL	03	23	1450	N18	E31	03	26.0		A	AX		1		4
5987A		RAMY	03	24	1320	N19	E20	03	26.1		B	BXO	10	3	3	3
5994		HOLL	03	23	1450	S21	E31	03	26.0		B	BXO	10	4	3	4

S U N S P O T G R O U P S
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MARCH 1990

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
5994		PALE	03 23 1850	S21 E28	03 25.9		B	DSO	20	3	3	3
5994		LEAR	03 24 0035	S21 E25	03 25.9		B	BXO	20	8	4	4
5994		RAMY	03 24 1320	S19 E19	03 26.0		B	DAO	30	6	4	3
5994		HOLL	03 24 1447	S20 E18	03 26.0		B	BXO	10	5	4	4
5994		PALE	03 24 1905	S19 E17	03 26.1		B	DAO	30	6	4	4
5994		LEAR	03 25 0045	S18 E13	03 26.0		B	BXO	20	4	4	3
5994		RAMY	03 25 1310	S19 E06	03 26.0		B	DAO	80	11	6	2
5994		HOLL	03 25 1730	S20 E04	03 26.0		B	BXO	20	8	6	3
5994		PALE	03 25 2055	S21 E03	03 26.1		B	CSO	20	7	6	3
5994		LEAR	03 26 0105	S21 E02	03 26.2		B	BXO	10	4	3	3
5994		RAMY	03 26 1230	S20 W08	03 25.9		B	BXO	10	7	7	3
5994		PALE	03 26 1919	S20 W13	03 25.8		A	AX		3	1	3
5994		LEAR	03 27 0044	S19 W11	03 26.2		A	AX	10	1	1	3
5994		RAMY	03 27 1225	S18 W25	03 25.6		A	AX	10	2	1	2
5994		RAMY	03 28 1300	S18 W38	03 25.6		A	AX		1	1	3
5994A		BOUL	03 20 1430	S17 E75	03 26.3		A	HA	120	2	2	1
5994B		RAMY	03 20 1240	S08 E78	03 26.4		A	HA	90	3	2	4
5994B		HOLL	03 20 1753	S09 E75	03 26.4		A	HS	180	2	2	3
6000		RAMY	03 29 1325	N17 W16	03 28.3		A	AX	10	2	2	1
6000		HOLL	03 29 1520	N18 W18	03 28.3		A	AX		2	2	3
6000		PALE	03 29 2020	N19 W20	03 28.3		B	BXO	20	3	3	3
6000		CULG	03 30 0119	N19 W23	03 28.3		B	BXO	10	2	3	1
6000		LEAR	03 30 0315	N18 W24	03 28.3		B	BXO	20	5	5	3
6000		SVTO	03 30 0845	N18 W26	03 28.4		B	BXO	20	5	4	2
6000		RAMY	03 30 1323	N20 W29	03 28.3		B	DRO	40	10	5	3
6000		HOLL	03 30 1520	N20 W31	03 28.3		B	BXO	20	8	6	4
6000		PALE	03 30 1929	N20 W36	03 28.0		B	CAO	30	7	5	3
6000		LEAR	03 31 0023	N19 W36	03 28.3		B	DSO	140	5	6	3
6000		CULG	03 31 0127	N19 W38	03 28.2		B	CRO	10	5	6	2
6000		SVTO	03 31 0750	N21 W38	03 28.4		B	DAO	60	10	7	4
6000		RAMY	03 31 1227	N21 W43	03 28.2		B	DAO	50	14	8	4
6000		BOUL	03 31 1446	N21 W45	03 28.2		B	CAO	30	16	7	3
6000		HOLL	03 31 1500	N21 W45	03 28.2		B	BXO	30	13	6	3
6000		PALE	03 31 1921	N20 W48	03 28.1		B	CRO	40	6	6	3
6000		LEAR	04 01 0320	N22 W49	03 28.5		B	CSO	90	5	6	3
6000		SVTO	04 01 0745	N21 W53	03 28.3		B	DAO	60	6	6	3
6000		RAMY	04 01 1215	N21 W57	03 28.2		B	CAO	70	9	8	4
6000		BOUL	04 01 1435	N22 W57	03 28.3		B	DAO	30	10	6	3
6000		HOLL	04 01 1500	N22 W58	03 28.3		B	DSO	90	4	6	3
6000		PALE	04 01 2000	N22 W60	03 28.3		B	DSO	40	5	6	3
6000		LEAR	04 02 0047	N21 W61	03 28.4		B	CAO	100	5	8	4
6000		SVTO	04 02 0705	N23 W70	03 28.0		B	DSO	60	6	9	3
6000		RAMY	04 02 1203	N21 W69	03 28.3		B	DAO	80	5	8	3
6000		PALE	04 02 1810	N22 W73	03 28.2		B	CAO	50	4	9	4
6000		HOLL	04 02 2118	N25 W70	03 28.6		A	AX	10	2	1	3
6000		LEAR	04 03 0015	N22 W70	03 28.7		A	AX	30	1	1	3
5993		RAMY	03 23 1346	N09 E79	03 29.5		A	HR	30	1	2	1
5993		HOLL	03 23 1450	N09 E79	03 29.5		A	HS	30	2	2	4
5993		PALE	03 23 1850	N10 E78	03 29.6		A	HS	60	1	3	3
5993		LEAR	03 24 0035	N08 E69	03 29.2		A	HS	30	1	1	4
5993		CULG	03 24 0250	N10 E67	03 29.1		A	AX		1		2
5993		RAMY	03 24 1320	N10 E66	03 29.5		B	BXO	10	3	5	3
5993		HOLL	03 24 1447	N09 E65	03 29.5		B	BXO	10	3	5	4
5993		PALE	03 24 1905	N09 E62	03 29.4		B	BXO	10	4	6	4
5993		LEAR	03 25 0045	N11 E61	03 29.6		B	BXO	20	4	6	3
5993		SVTO	03 25 0720	N08 E57	03 29.6		B	BXO	10	2	3	1
5993		RAMY	03 25 1310	N09 E51	03 29.4		B	BXO	10	3	7	2
5993		PALE	03 25 2055	N08 E50	03 29.6		A	AX		3	2	3
5993		LEAR	03 26 0105	N10 E46	03 29.5		B	BXO	10	2	4	3
5993		SVTO	03 26 0815	N08 E44	03 29.6		A	AX		1		3
5993		RAMY	03 26 1230	N10 E38	03 29.4		B	BXO	10	3	7	3
5993		PALE	03 26 1919	N08 E37	03 29.6		A	AX		2	1	3
5993		LEAR	03 27 0044	N08 E34	03 29.6		B	BXO	20	2	3	3
5993		RAMY	03 27 1225	N09 E28	03 29.6		A	AX	10	3	1	2
5993		HOLL	03 27 1750	N09 E26	03 29.7		A	AX	10	2	1	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

MARCH 1990

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
5993		PALE	03	27	2024	N09	E23	03	29.6		A	AX		3	1	3
5993		LEAR	03	28	0056	N09	E21	03	29.6		B	CSO	30	3	2	3
5993		RAMY	03	28	1300	N09	E14	03	29.6		A	AX		1	1	3
5993		HOLL	03	28	2048	N11	E14	03	29.9		A	AX		1		3
5993		LEAR	03	29	0015	N12	E12	03	29.9		B	BXO	10	2	3	3
5993		RAMY	03	29	1325	N10	E04	03	29.8		B	BXO	20	8	7	1
5993		HOLL	03	29	1520	N09	W01	03	29.6		A	AX		1		3
5998		RAMY	03	28	1300	S16	E19	03	30.0		B	BXO	10	3	2	3
5998		PALE	03	28	1930	S16	E16	03	30.0		B	BXO	10	4	3	3
5998		HOLL	03	28	2048	S16	E15	03	30.0		B	BXO	10	6	4	3
5998		LEAR	03	29	0015	S16	E13	03	30.0		B	DSO	30	6	4	3
5998		RAMY	03	29	1325	S16	E07	03	30.1		B	DAO	50	13	6	1
5998		HOLL	03	29	1520	S16	E05	03	30.0		B	BXO	10	11	6	3
5998		PALE	03	29	2020	S16	E03	03	30.1		B	DRO	40	15	5	3
5998		CULG	03	30	0119	S16	W01	03	30.0		B	DAO	40	13	6	1
5998		LEAR	03	30	0315	S16	W01	03	30.0		B	DSI	50	23	7	3
5998		SVTO	03	30	0845	S16	W05	03	30.0		B	DAO	70	24	7	2
5998		RAMY	03	30	1323	S15	W09	03	29.9		B	DAO	120	17	8	3
5998		HOLL	03	30	1520	S16	W09	03	29.9		B	DAI	110	21	7	4
5998		PALE	03	30	1929	S15	W10	03	30.0		B	DAI	70	22	7	3
5998		LEAR	03	31	0023	S16	W11	03	30.2		B	DAI	190	21	9	3
5998		CULG	03	31	0127	S15	W15	03	29.9		B	DAI	80	19	7	2
5998		SVTO	03	31	0750	S16	W18	03	30.0		B	DAI	100	13	8	4
5998		RAMY	03	31	1227	S15	W22	03	29.8		B	DAO	150	14	8	4
5998		BOUL	03	31	1446	S14	W23	03	29.9		B	DAI	90	20	7	3
5998		HOLL	03	31	1500	S15	W22	03	29.9		B	DAO	140	14	9	3
5998		PALE	03	31	1921	S16	W24	03	30.0		B	DAO	120	9	7	3
5998		LEAR	04	01	0320	S15	W28	03	30.1		B	DSO	140	13	10	3
5998		SVTO	04	01	0745	S15	W32	03	30.0		B	DAO	100	14	8	3
5998		RAMY	04	01	1215	S16	W35	03	29.9		B	DAO	120	18	9	4
5998		BOUL	04	01	1435	S14	W34	03	30.1		B	DAI	60	39	8	3
5998		HOLL	04	01	1500	S15	W35	03	30.1		B	DAO	110	9	8	3
5998		PALE	04	01	2000	S15	W38	03	30.0		B	DSO	120	15	8	3
5998		LEAR	04	02	0047	S16	W40	03	30.1		B	DAO	100	8	8	4
5998		SVTO	04	02	0705	S15	W45	03	30.0		B	DAO	70	16	8	3
5998		RAMY	04	02	1203	S14	W48	03	30.0		B	DAO	100	12	9	3
5998		BOUL	04	02	1450	S16	W49	03	30.0		B	DAO	100	7	8	3
5998		PALE	04	02	1810	S15	W51	03	30.0		B	DSO	60	6	10	4
5998		HOLL	04	02	2118	S15	W52	03	30.0		B	DSO	60	9	9	3
5998		LEAR	04	03	0015	S15	W55	03	29.9		B	DSO	90	3	7	3
5998		SVTO	04	03	1116	S14	W61	03	29.9		B	DRO	40	3	6	3
5998		BOUL	04	03	1344	S14	W62	03	30.0		B	BXO	20	6	6	1
5998		RAMY	04	03	1410	S14	W61	03	30.1		B	DAO	70	5	7	3
5998		HOLL	04	03	1540	S14	W62	03	30.1		B	BXO	40	9	14	3
5998		PALE	04	03	1848	S15	W64	03	30.0		B	BXO	30	8	8	3
5998		LEAR	04	04	0020	S15	W68	03	30.0		B	DSO	40	3	7	3
5998		SVTO	04	04	1030	S13	W73	03	30.0		B	DSO	80	4	8	2
5998		HOLL	04	04	1545	S13	W76	03	30.0		B	CRO	40	5	8	4
5998		RAMY	04	04	1550	S15	W71	03	30.4		B	BXO	10	4	6	2
5998		PALE	04	04	1750	S14	W76	03	30.1		B	BXO	30	4	5	3
5998		LEAR	04	05	0013	S17	W78	03	30.2		B	BXO	30	2	3	3
5995		RAMY	03	24	1320	N25	E78	03	30.6		B	CAO	180	2	5	3
5995		HOLL	03	24	1447	N24	E72	03	30.2		A	HS	110	1	2	4
5995		PALE	03	24	1905	N24	E71	03	30.3		A	HA	120	1	3	4
5995		LEAR	03	25	0045	N26	E67	03	30.2		A	HS	60	1	2	3
5995		CULG	03	25	0240	N27	E65	03	30.2		A	HS	80	1	2	3
5995		SVTO	03	25	0720	N27	E70	03	30.7		B	DAO	180	4	9	1
5995		RAMY	03	25	1310	N26	E68	03	30.8		B	EAO	310	6	13	2
5995		HOLL	03	25	1730	N25	E62	03	30.5		B	CSO	170	4	13	3
5995		PALE	03	25	2055	N24	E62	03	30.7		B	CSO	160	8	13	3
5995		LEAR	03	26	0105	N26	E60	03	30.7		B	CSO	130	9	15	3
5995		SVTO	03	26	0815	N25	E59	03	30.9		B	FAI	170	8	17	3
5995		RAMY	03	26	1230	N27	E58	03	31.0		B	CAO	220	9	16	3
5995		PALE	03	26	1919	N25	E52	03	30.8		B	CSO	110	8	13	3
5995		LEAR	03	27	0044	N26	E49	03	30.8		B	FSO	210	7	16	3
5995		RAMY	03	27	1225	N25	E44	03	30.9		B	CAO	160	10	15	2
5995		HOLL	03	27	1750	N26	E42	03	31.0		B	CSO	170	10	14	3

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MARCH 1990

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5995		PALE	03 27 2024	N25 E41	03 31.0		B	CSO	90	6	16	3
5995		LEAR	03 28 0056	N24 E30	03 30.3		A	HS	80	1	2	3
5995		SVTO	03 28 0620	N24 E28	03 30.4		A	HA	100	1	2	3
5995		RAMY	03 28 1300	N25 E31	03 30.9		B	CAO	120	5	15	3
5995		PALE	03 28 1930	N25 E22	03 30.5		B	CSO	120	3	4	3
5995		HOLL	03 28 2048	N24 E22	03 30.6		B	CAO	100	3	5	3
5995		LEAR	03 29 0015	N25 E18	03 30.4		A	HH	120	3	4	3
5995		RAMY	03 29 1325	N25 E12	03 30.5		A	HS	120	1	2	1
5995		HOLL	03 29 1520	N25 E12	03 30.6		B	CSO	110	2	3	3
5995		PALE	03 29 2020	N25 E09	03 30.5		B	CSO	110	4	6	3
5995		CULG	03 30 0119	N25 E06	03 30.5		A	HS	70	1	2	1
5995		LEAR	03 30 0315	N23 E04	03 30.4		A	HS	90	1	2	3
5995		SVTO	03 30 0845	N25 E01	03 30.4		A	HA	90	1	2	2
5995		RAMY	03 30 1323	N24 W01	03 30.5		A	HS	70	2	2	3
5995		HOLL	03 30 1520	N25 W03	03 30.4		A	HS	110	1	2	4
5995		PALE	03 30 1929	N25 W05	03 30.4		A	HS	90	1	2	3
5995		LEAR	03 31 0023	N26 W09	03 30.3		A	HS	90	1	2	3
5995		CULG	03 31 0127	N25 W08	03 30.4		A	HS	100	1	2	2
5995		SVTO	03 31 0750	N25 W11	03 30.5		A	HS	100	1	2	4
5995		RAMY	03 31 1227	N25 W13	03 30.5		A	HS	70	3	2	4
5995		BOUL	03 31 1446	N25 W16	03 30.4		A	HA	70	4	2	3
5995		HOLL	03 31 1500	N25 W16	03 30.4		A	HS	120	3	2	3
5995		PALE	03 31 1921	N25 W17	03 30.5		A	HS	70	1	1	3
5995		LEAR	04 01 0320	N31 W24	03 30.3		B	CSO	130	2	9	3
5995		SVTO	04 01 0745	N26 W24	03 30.5		A	HS	80	2	2	3
5995		RAMY	04 01 1215	N25 W28	03 30.4		A	HA	100	3	2	4
5995		BOUL	04 01 1435	N26 W28	03 30.5		A	HA	90	8	2	3
5995		HOLL	04 01 1500	N25 W28	03 30.5		A	HS	130	2	2	3
5995		PALE	04 01 2000	N26 W30	03 30.6		A	HS	80	3	2	3
5995		LEAR	04 02 0047	N26 W33	03 30.6		A	HS	80	2	2	4
5995		SVTO	04 02 0705	N26 W38	03 30.4		A	HA	70	2	2	3
5995		RAMY	04 02 1203	N27 W39	03 30.6		A	HS	90	2	2	3
5995		BOUL	04 02 1450	N23 W40	03 30.6		A	HA	70	2	2	3
5995		PALE	04 02 1810	N28 W44	03 30.4		B	CSO	70	3	4	4
5995		HOLL	04 02 2118	N27 W43	03 30.6		A	HS	50	2	2	3
5995		LEAR	04 03 0015	N25 W46	03 30.5		A	HS	90	1	2	3
5995		SVTO	04 03 1116	N27 W51	03 30.6		A	HS	70	1	2	3
5995		BOUL	04 03 1344	N26 W53	03 30.5		A	HA	60	1	2	1
5995		RAMY	04 03 1410	N26 W51	03 30.7		B	CAO	100	2	4	3
5995		HOLL	04 03 1540	N27 W54	03 30.5		A	HS	80	2	2	3
5995		PALE	04 03 1848	N26 W56	03 30.5		A	HS	80	1	1	3
5995		LEAR	04 04 0020	N26 W58	03 30.6		A	HS	40	1	1	3
5995		SVTO	04 04 1030	N27 W65	03 30.5		A	HS	100	1	2	2
5995		BOUL	04 04 1438	N26 W66	03 30.6		A	HR	20	1	1	3
5995		HOLL	04 04 1545	N27 W63	03 30.8		B	CSO	80	3	7	4
5995		RAMY	04 04 1550	N26 W63	03 30.9		A	HS	60	1	2	2
5995		PALE	04 04 1750	N26 W68	03 30.5		A	HA	60	1	1	3
5995		LEAR	04 05 0013	N26 W69	03 30.7		A	HS	60	1	1	3
5995		RAMY	04 05 1224	N27 W77	03 30.6		A	HS	60	1	2	4
6004		BOUL	04 01 1435	N19 W29	03 30.5		A	AX		2	1	3
6004		HOLL	04 01 1500	N18 W30	03 30.4		A	AX	10	1		3
5995A		HOLL	03 30 1520	S33 E02	03 30.8		B	BXO		4	4	4
5995B		BOUL	03 31 1446	N21 W03	03 31.4		A	AX		1		3
5996		RAMY	03 25 1310	S12 E82	03 31.7		A	HA	120	1	3	2
5996		HOLL	03 25 1730	S12 E80	03 31.7		A	HS	60	1	1	3
5996		PALE	03 25 2055	S12 E75	03 31.5		A	HS	90	1	2	3
5996		LEAR	03 26 0105	S11 E71	03 31.4		A	HS	20	1	2	3
5996		SVTO	03 26 0815	S13 E71	03 31.7		A	HA	110	1	2	3
5996		RAMY	03 26 1230	S11 E68	03 31.6		A	HS	90	1	1	3
5996		PALE	03 26 1919	S12 E65	03 31.7		A	HS	80	1	1	3
5996		LEAR	03 27 0044	S12 E61	03 31.6		A	HS	100	1	2	3
5996		RAMY	03 27 1225	S11 E58	03 31.9		A	HS	60	1	1	2
5996		HOLL	03 27 1750	S12 E52	03 31.7		A	HS	60	1	2	3
5996		PALE	03 27 2024	S12 E51	03 31.7		A	HS	60	1	1	3
5996		LEAR	03 28 0056	S12 E48	03 31.6		A	HS	60	1	2	3

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

MARCH 1990

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5996		SVTO	03	28	0620	S13	E46	03	31.7		A	HS	60	1	1	3
5996		RAMY	03	28	1300	S12	E42	03	31.7		B	CSO	80	2	4	3
5996		PALE	03	28	1930	S12	E38	03	31.7		A	HS	70	1	2	3
5996		HOLL	03	28	2048	S12	E37	03	31.6		A	HS	60	1	2	3
5996		LEAR	03	29	0015	S12	E35	03	31.6		A	HS	70	1	2	3
5996		RAMY	03	29	1325	S12	E29	03	31.7		A	HS	40	1	2	1
5996		HOLL	03	29	1520	S12	E28	03	31.7		A	HS	40	2	2	3
5996		PALE	03	29	2020	S12	E24	03	31.6		A	HS	40	2	2	3
5996		CULG	03	30	0119	S12	E22	03	31.7		A	HS	40	1	2	1
5996		LEAR	03	30	0315	S12	E20	03	31.6		A	HS	40	2	2	3
5996		SVTO	03	30	0845	S12	E17	03	31.6		A	HA	60	1	2	2
5996		RAMY	03	30	1323	S12	E15	03	31.7		A	HS	70	3	2	3
5996		HOLL	03	30	1520	S12	E14	03	31.7		A	HS	50	2	1	4
5996		PALE	03	30	1929	S12	E12	03	31.7		A	HS	30	1	1	3
5996		LEAR	03	31	0023	S11	E09	03	31.7		A	HS	60	1	1	3
5996		CULG	03	31	0127	S11	E08	03	31.7		A	HS	40	2	2	2
5996		SVTO	03	31	0750	S12	E05	03	31.7		A	HS	50	1	2	4
5996		RAMY	03	31	1227	S12	E03	03	31.7		A	HS	70	2	2	4
5996		BOUL	03	31	1446	S11	E00	03	31.6		A	HA	20	4	1	3
5996		HOLL	03	31	1500	S11	E01	03	31.7		A	HS	70	1	1	3
5996		PALE	03	31	1921	S12	W02	03	31.6		A	HS	40	1	1	3
5996		LEAR	04	01	0320	S11	W06	03	31.7		A	HS	40	1	1	3
5996		SVTO	04	01	0745	S12	W08	03	31.7		A	HS	60	4	3	3
5996		RAMY	04	01	1215	S11	W11	03	31.7		B	CSO	40	3	3	4
5996		BOUL	04	01	1435	S10	W13	03	31.6		B	CAO	20	10	3	3
5996		HOLL	04	01	1500	S11	W12	03	31.7		A	HS	50	2	2	3
5996		PALE	04	01	2000	S10	W15	03	31.7		B	CSO	50	7	4	3
5996		LEAR	04	02	0047	S11	W18	03	31.7		B	CSO	60	4	4	4
5996		SVTO	04	02	0705	S10	W21	03	31.7		A	HA	40	4	2	3
5996		RAMY	04	02	1203	S10	W23	03	31.8		A	HS	40	1	1	3
5996		BOUL	04	02	1450	S11	W25	03	31.7		A	HA	20	1	1	3
5996		PALE	04	02	1810	S11	W28	03	31.6		B	CSO	50	2	3	4
5996		HOLL	04	02	2118	S12	W28	03	31.8		B	CSO	60	3	2	3
5996		LEAR	04	03	0015	S11	W30	03	31.7		B	CSO	30	2	3	3
5996		SVTO	04	03	1116	S11	W35	03	31.8		A	HS	20	1	1	3
5996		BOUL	04	03	1344	S11	W36	03	31.9		A	HA	20	0	1	1
5996		RAMY	04	03	1410	S11	W38	03	31.7		A	HS	50	1	2	3
5996		HOLL	04	03	1540	S10	W38	03	31.8		A	HS	40	1	2	3
5996		PALE	04	03	1848	S11	W41	03	31.7		A	HS	30	1	1	3
5996		LEAR	04	04	0020	S12	W43	03	31.8		A	HS	10	1	1	3
5996		SVTO	04	04	1030	S10	W48	03	31.8		A	HS	60	1	2	2
5996		BOUL	04	04	1438	S10	W50	03	31.8		A	HR	20	1	1	3
5996		HOLL	04	04	1545	S11	W52	03	31.7		A	HS	30	1	2	4
5996		RAMY	04	04	1550	S11	W51	03	31.8		A	HA	30	1	2	2
5996		PALE	04	04	1750	S11	W53	03	31.7		A	HA	30	1	1	3
5996		LEAR	04	05	0013	S12	W55	03	31.9		A	HS	20	1	1	3
5996		RAMY	04	05	1224	S11	W65	03	31.6		A	HA	40	1	2	4
5996		HOLL	04	05	1600	S10	W65	03	31.8		A	HS	40	1	1	2
5996		PALE	04	05	1850	S11	W66	03	31.8		A	HA	40	1	1	3
5996		LEAR	04	06	0012	S12	W68	03	31.9		A	AX	30	1	1	3
5996		RAMY	04	06	1230	S10	W78	03	31.6		A	HA	30	1	1	3
5996		PALE	04	06	1700	S10	W80	03	31.7		A	AX	20	1	1	3
6004A		RAMY	04	03	1410	N28	W38	03	31.6		A	AX		1	1	3
6004A		HOLL	04	03	1540	N28	W41	03	31.4		A	AX		1		3
5996A		HOLL	03	30	1520	N29	E14	03	31.7		A	AX		1		4

Stations reporting:

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

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1990

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
01	0002	0009	0030	1-	1			1			0002	C3.4	
01	0031	0039	0149	2-	5	1		1			0030	C8.6	5961
01	0305	0314	0325	1-	1			1			0249		5961
01	0336	0349	0402D	3	5	1		1		1	0339	M1.9	5961
01	0402E	0410	0526D	3-	5	1		1		1	0356	M1.7	5947
01	0428	0432	0440	1	1	1					0435		5961
01	0526E	0538	0731D	3	5	1		1		2	0528	M1.8	5961
01	0731E	0740	0808	1-	5			1		2	0718	C2.9	5961
01	0827	0832	0902D	1+	5	1	1	1	1	4	0825	C5.6	5961
01	0902E	0909	1014	2	5	2	3	1	1	4	0908E	C8.7	5961
01	0945	1003	1029	2+	1		1				No flare		
01	1016	1019	1027	1-	1					1	1015	C2.1	5961
01	1502	1510	1532	1-	5		2	1	1	8	1502	C6.0	5961
01	2042	2045	2108D	1+	1					1	2041	C2.8	5947
01	2108	2109	2122	1-	1					1	2107	C3.9	5961
01	2242	2252	2327	1-	1			1			2240	C2.8	5947
02	0035	0038	0043	1-	1	1					No flare		
02	0044	0138	0423	2	1			1			0120E	M1.2	5961
02	0104	0215	0256	2	1	1					*		
02	0303	0313	0334	1-	1	1					*		
02	0503	0517	0539	1-	1			1			*		
02	0819	0840	0923	2-	5		5	1	1	3	0821	C6.3	5961
02	1020	1040	1050	2-	1		1				1019	C1.9	5964
02	2332	2336	2403	1-	1			1			2329	C1.9	
03	0515	0522	0556D	1-	1			1			0516	C1.8	
03	0556E	0618	0732	1-	1			1			0557	C3.4	
03	0742	0803	0837	1-	5			1		2	0748	C3.2	
03	0944	0955	1025	1-	5			1	1	3	0942	C4.5	5958
03	1025	1027	1045	1-	1					1	No flare		
03	1302	1313	1508	2	5	2	4	1	1	8	1302	C8.6	5965
03	1636	1646	1746	1-	5		1	1		6	1634	C8.4	5961
03	2017	2044	2323	2-	5	1		1		6	2017E	M1.1	5945
04	0107	0121	0139	1-	1			1			*		
04	0137	0148	0219	1-	1			1			*		
04	0354	0409	0512	1-	1			1			0352	C3.4	
04	0717	0732	0754	1+	3		2				No flare		
04	1407	1409	1436	1	1					1	No flare		
05	1239	1252	1309	1-	1			1			No flare		
05	2327	2334	2439	1-	1			1			2334E	C2.4	5961
06	0439	0448	0516	1-	1			1			0440	C1.9	
06	0651	0659	0722	1-	1			1			No flare		
06	0758	0813	0839	1-	5			1	1	4	0750		5963
06	1000	1005	1021	1	1		1				No flare		
06	1020	1028	1045	2	3		2				No flare		
06	1121	1130	1207	2	1		1				1056	C1.7	5965
06	1412	1423	1458	1-	5	1	1	1	1	5	1411	C4.3	5963
06	1524	1527	1535	1-	5				1	5	1523	C2.7	5963
06	1715	1719	1745	1+	3					6	1657	C3.3	5963
06	1802	1804	1827	1	3					2	1757		5963
06	1834	1836	1915	2	3					7	1834		5963
06	2152	2159	2235	1-	1			1			2152	C1.8	5963
06	2254	2302	2325	1-	1			1			2310		5963
07	0523	0529	0550	1-	1			1			0519E	C2.2	
07	0645	0652	0717	1-	5			1		1	0651E	C3.2	5963
07	0734	0741	0757	1-	5			1	1	1	0732	C2.7	
07	0803	0806	0806D	1-	1					1	No flare		
07	0821	0831	0853	1	5	1	4	1	1	4	0824	C5.5	
07	0907	0910	0930	1-	3		2		1	1	0902	C2.9	5965
07	0938	0945	1006	1-	3				1	1	0939	C2.4	5964
07	1150	1200	1336	2-	5		1			1	No flare		
07	1944	1946	2008	1	3					3	1944	C2.1	5964

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1990

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	LF-SES	Flare (UT)	X-ray Class	NOAA Region
08	0004	0012	0052	1-	1			1			0003	C4.6	5964
08	0257	0306	0336	1-	1			1			0259E	C2.1	
08	0401	0408	0448	1-	1			1			0347	C2.0	
08	0734	0741	0829	1	5		2	1	1	4	0736E	C4.9	5964
08	0828	0840U	0852	1	1		1				No flare		
08	1654	1705	1747	1-	5			1		7	1655	C9.1	5964
08	1853	1855	1904	1-	1					1	No flare		
08	2345	2439	2508	1	1			1			No flare		
09	0702	0710	0814	1-	1			1			0712E	C1.9	
09	1545	1551	1603	1-	1					1	*		
09	1636	1643	1703	1	3					2	1633	C2.2	
09	2039	2044	2105	1+	1					1	2042	C1.8	
10	0344	0403	0444	1-	1			1			*		
10	0657	0712	0807	1-	5		4	1		2	0655	C2.1	5964
10	1411	1415	1430	1-	5		5		1	7	1412	C2.6	5964
10	1456	1505	1610	1-	5		5	1	1	8	1452	C4.2	
11	0346	0403	0543	2-	5			1		1	0350	C5.3	
11	1959	2001	2022	1	1					1	1958	C2.1	5969
12	0428	0435	0517	1	3	1		1			0428E	C6.5	
12	0525	0539	0603D	1-	1			1			0536	C1.1	5969
12	0605	0611	0628	1-	1			1			0603	C1.1	5969
12	0738	0751	0826	1-	5			1		2	0743	C1.9	5969
12	0832	0844	0914	1	5		1	1	1	3	0830	C4.3	5969
12	0934	0954	1004	1+	3		2				*		
12	1023	1035	1113	1+	5	1	5	1	1	3	1025	C9.1	5969
12	1410	1418	1441	1+	5					2	1411	C1.7	5969
12	1850	1854	1916	1	3					2	1847	C2.1	5969
12	2353	2359	2410	1-	1					1	No flare		
13	0041	0047	0128	1-	1			1			0038		5969
13	0147	0159	0215D	1-	1			1			0216	C4.3	
13	0215E	0228	0434	1-	3	1		1			0216	C4.3	
13	0650	0704	0709D	1	5			1		2	0648	C6.1	5969
13	0709E	0721	0845	2	5		2	1	1	3	0648		5969
13	0757	0800	0813	1-	1					1	No flare		
13	2000	2006	2035	1-	5			1		3	1959	C5.6	5974
13	2045	2059	2119	1+	1	1					No flare		
13	2144	2157	2350	2	5	1		1		3	2137	M1.1	5969
14	0105	0110	0209	1-	3	1		1			0107	C5.5	5969
14	0239	0244	0306	1-	1			1			0238	C1.5	
14	0335	0419	0529D	2+	1			1			0354	C6.4	5969
14	0529E	0537	0649	1+	1			1			0522	C7.3	5974
14	0723	0729	0812	1-	5			1	1	2	0719	C3.9	5974
14	0943	1004	1047	1-	1			1			No flare		
14	1554	1557	1615	1	1					1	1542	C1.8	5969
14	1622	1630	1713	2	3					6	1624		5974
14	2311	2314	2335	1-	1			1			2308	C1.3	
15	0015	0030	0053	1-	1			1			0013	C1.5	
15	0257	0302	0331	1-	1			1			0256	C1.8	
15	0513	0525	0548D	1-	1			1			0513	C2.9	5974
15	0548E	0629	0803	1	1			1			0550	C5.5	
15	0927	0931	0957	1-	5		1	1	1	2	0926	C3.9	
15	1355	1356	1405	0	5	1			1	5	1353	C3.3	5974
15	2119	2129	2143	1-	5			1		5	2125	C3.9	5974
16	0223	0233	0351	1-	1			1			0248	C3.6	5969
16	0409	0414	0445	1-	1			1			0411	C2.7	5974
16	0457	0509	0539	1-	1			1			0456	C2.5	5974
16	0542	0553	0628	1-	1			1			No flare		
16	0634	0640	0655	1-	5			1		2	0632	C3.6	
16	0708	0737	0825D	2	5			1	1	2	0712	C6.4	
16	0825E	0845	0915	1	5		1	1	1	2	0825	C5.5	

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1990

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
16	1112	1115	1125	1-	3				1	2	1110E	C2.9	5969
16	1208	1218	1235	1-	5	1		1	1	2	1210	C3.4	5974
16	1343	1349	1403	1-	5				1	5	1343	C2.1	
16	1445	1450	1450D	1-	5	1	1		1	4	1445	C4.8	5978
16	1457	1508	1520	1-	5				1	4	1509E		5978
16	1631	1636	1703	1+	3					8	1613	C3.5	5974
16	1833	1840	1916	2	3					8	1833	C4.1	
16	2248	2259	2338	1-	1			1			No flare		
17	0047	0119	0255	2	3	1		1			0049	C6.9	
17	0323	0330	0347	1-	1			1			No flare		
17	0912	0915	0923	1-	1					1	0920		5969
17	1257	1300	1309		3				1	1	1257	C1.5	
17	1445	1446	1458	1	1		1				No flare		
17	1454	1505	1534	1-	5		3	1	1	11	1456	C4.5	
17	1605	1609	1627	1	5					7	1605	C2.9	5974
17	1711	1714	1753	2	3					8	1711	C5.9	5974
17	2234	2236	2311	1-	1			1			2233	C2.3	
18	0025	0112	0242	1+	1			1			0104E	C7.2	
18	0355	0400	0414	1-	5			1		1	*		
18	0432	0443	0513D	1-	5			1		2	0436	C3.3	
18	0513E	0527	0636	1-	5			1		1	0518E		5969
18	0602	0632	1000	1	1		1				0624		5978
18	0653	0658U	0723	1	1		1				No flare		
18	0754	0757	0800	1-	3				1	1	*		
18	0829	0837	0909	1-	5			1	1	3	0828	C2.2	5969
18	0915	0930	0950	1+	1		1				No flare		
18	1119	1136	1300	3-	5	4	6	1	1	5	1115	M3.2	5974
18	1315	1317	1328	1-	1					1	No flare		
18	1345	1409	1444	1+	5	1	6	1	1	8	1354		5978
18	1554	1556	1600	1-	5				1	3	1544	C2.9	5983
18	1739	1741	1746	1-	3					2	1734	C2.5	5969
18	1842	1844	1901	1-	3					2	1840	C3.2	
18	2111	2127	2224	1+	1			1			2107		5974
19	0029	0037	0125	1-	1			1			No flare		
19	0332	0351	0435D	3	3	1		1			0334	M1.3	5969
19	0435E	0459	0835	3	5	1		1		2	0439E	X1.5	
19	0852	0903	0920	1-	3		1			1	0858		5984
19	1230	1238	1310D	1-	5	1	3	1	1	3	1234	C5.8	5984
19	1310E	1330	1351D	2	5	3	7	1	1	9	1312	M1.3	5983
19	1351E	1400	1523	3-	5	4	4	1	1	9	1350	M4.2	5983
19	1506	1508	1527	1	5					2	1506		5983
19	1546	1554	1600	1-	1					1	1553		5984
19	1604	1609	1617	1-	1					1	1612		5983
19	1714	1717	1752	2-	3					7	1712	C8.8	
19	1741	1741	1816	2	1					1	1737		5983
19	2359	2437	2630	1-	1			1			No flare		
20	0551	0600	0608D	1-	5			1		1	0551	C2.1	5978
20	0608E	0619	0719	1-	5			1		1	0616	C3.5	5983
20	0732	0739	0752	1-	1					1	No flare		
20	0924	0926	0935	1-	3				1	2	0925	C1.8	5983
20	0952	0954	1005	1-	3		1			1	No flare		
20	1010	1014	1014D	1-	3	1			1	1	1011	C2.4	5988
20	1015	1038	1107	1-	5			1	1	1	1022	C3.6	
20	1439	1446	1508	1-	5		4	1	1	5	1438	C5.3	5988
20	1521	1533	1624	1	5	2	5	1	1	9	1514	M1.2	5983
20	1654	1659	1715	1-	5	1	1		1	5	1653	C6.4	5974
20	2025E	2030	2135	2	5	1		1		6	2025	M2.1	5974
20	2208	2213	2247	1+	1	1					No flare		
20	2258	2311	2423	1+	3	1		1			2302	M1.8	5974
21	0239	0251	0255D	1-	1			1			0225	C6.6	5984
21	0255E	0313	0350D	1	1			1			No flare		
21	0350E	0402	0441	1-	1			1			0341	C4.7	
21	0448	0452	0508	1-	1			1			0447	C4.1	5974

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1990

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
21	0516	0543	0613	1-	1			1			0516	C3.3	5978
21	0746	0751	0755	1-	1					1	No flare		
21	0821	0847	0927	1-	5			1		1	0800	C5.5	5984
21	1114	1122	1140	1-	3	1	2		1	2	1111	C3.4	5988
21	1311	1321U	1338	1	1		1				1320		5974
21	1414	1417	1440	1	5					3	1351	C3.2	5984
21	1747	1753	1814	1+	1					1	1746		5988
21	1833	1835	1848	1-	3					2	1832	C2.3	
21	1859	1901	1916	1-	3					4	1856	C3.4	5983
21	2011	2034	2048	1-	5	1		1		4	2012	C6.3	5974
21	2237	2241	2259	1-	1			1			*		
22	0000	0006	0032	1-	1			1			No flare		
22	0038	0044	0108	1-	1			1			0035		5969
22	0153	0158	0224D	1-	1			1			0151		5984
22	0224E	0232	0318	1-	1			1			0222		5983
22	0321	0324	0359	1-	1			1			0323	C4.4	5983
22	0410	0422	0532D	2-	3	1		1		1	0405	C7.5	5983
22	0532E	0550	0658D	3-	5	1		1		2	0534	M1.1	5984
22	0652E	0718	0737D	2-	5			1		1	0629		5988
22	0737E	0745	0812	1	5			1	1	2	0737	C4.7	5984
22	0816E	0820	0827D	1-	5			1	1	1	0806		5984
22	0826E	0834	0916	1-	5		1	1	1	1	0839	C5.1	5983
22	0919	0925	0954	1-	1			1			0914		5974
22	1026	1034	1144	1+	5	2	4	1	1	5	1023E	C9.6	
22	1148	1150	1201	1-	5					3	1148	C4.4	
22	1249	1253	1310	1-	3		1		1	2	1242		5974
22	1431	1444	1501	1	1					1	1437E		5984
22	1558	1608	1642	1-	5		1	1	1	10	1601	C9.1	5974
22	1836	1845	1908	2-	3					2	1823	C9.6	5984
22	1907	1913	2014	2+	3					3	No flare		
22	2051	2056	2127	1-	1			1			No flare		
23	0018	0034	0155	1	5	2		1			0007	C7.3	5988
23	0315	0322	0406	1-	1			1			0315	C4.0	5983
23	0609	0616	0630	1	3					2	0613	C8.2	5974
23	0615	0630	0733D	2	5			1	1	2	0640E		5974
23	0733E	0746	0829	1	5			1	1	3	0734	C3.5	5988
23	1000	1025	1050	2-	1		1				*		
23	1034	1044	1059	1	1					1	*		
23	1143	1158	1222	1	3		2			1	1140E		5987
23	1251	1300	1408	2-	5	3	5	1	1	9	1252E	M1.2	5988
23	1555	1558	1617	1	1					1	1530		5974
23	1632	1635	1704	1+	3					3	1632	C5.1	5988
23	1647	1658	1705	1-	3					2	1658		5988
23	1838	1840	1900	1	1					1	1838	C2.4	5983
24	0253	0300	0400	2	3	1		1			0254E	M1.5	
24	0453	0512	0557D	3-	5	1		1		3	0442	M1.2	5988
24	0532	0537	0546	1-	1	1					No flare		
24	0559	0614	0633D	1-	5			1		1	0559		5974
24	0634E	0644	0732	1-	5		2	1	1	3	0638	C5.9	5988
24	0742	0751	0810	1-	5		2	1			0747		5984
24	0906	0910	0920	1-	3				1	1	0904		5984
24	1002	1008	1022	1	3					2	0955		5974
24	1014	1031	1105	1	5	2	3	1	1	3	1014	C8.2	
24	1136	1140	1150	1-	3				1	1	1136		5984
24	1534	1537	1608	2	1					1	1535		5988
24	1544	1549	1622	1+	5					3	1542	C2.8	5988
24	1942	1944	1958	1-	3					3	1940	C2.5	5988
24	2123	2124	2215	2+	1					1	2128		5984
24	2153	2158	2218D	1-	1			1			2154	C2.6	5984
24	2218E	2223	2241	1-	1			1			2220	C2.5	5983
24	2256	2257	2315	1	1					1	No flare		
25	0415	0428	0607	2	5	1		1		1	0416	C6.4	5984
25	0643	0653	0749	1-	5			1	1	3	0643	C3.3	5984

* = No flare patrol.

MARCH 1990

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
25	0805	0808	0813	1-	1					1	No flare		
25	0848	0853	0900	1-	1					1	No flare		
25	0907	0916	0955	1	5	1		1	1	4	0904	C5.2	5984
25	1113	1127	1221	2+	5	3	4	1	1	3	1115E	M1.3	5984
25	1359	1403	1418	1-	5		2			6	1355	C2.7	5988
25	1429	1433	1445	1-	5		1			1	1429	C2.2	5984
25	1611	1614	1646	2-	5					3	1613	M1.0	5984
25	1614	1620	1806	1-	5		1	1	1	6	1613	M1.0	5984
25	1756	1800	1837	2-	3					6	1613	M1.0	5984
25	1825	1830	1908	2	1					1	1832		5983
25	1933	2002	2121	3-	5	1		1		6	1932	M2.7	5984
25	2147	2155	2220	1-	1			1			2141	C3.1	5974
26	0011	0022	0048D	1-	1			1			0009	C3.2	5974
26	0047	0057	0114	1-	1			1			0045	C4.8	5974
26	0154	0201	0210D	1-	1			1			0154	C4.7	
26	0210E	0222	0250	1-	1			1			0215E	C4.1	5988
26	0335	0343	0437D	3	3	1		1			0341E	M3.5	5984
26	0437E	0512	0528D	3	3	1		1			0409	M2.6	5984
26	0528E	0538	0741	3	5	1		1	1		0529	M2.3	
26	0612	0617	0631	1	1					1	0611	C6.7	5988
26	0805	0821	0906	1-	5			1	1	2	0811	C4.6	5984
26	0948	0950	0953	1-	1					1	0933	C3.1	
26	1028	1030	1030D	1-	1					1	*		
26	1043	1047	1100	1	1					1	*		
26	1110	1113	1120	1-	3				1	1	1108	C3.5	
26	1158	1217	1245	1-	5	1	2	1	1	2	1219	C4.9	5988
26	1307	1313	1313D	1-	3	1	1		1	1	1307	C9.0	5984
26	1318	1329	1448	1	5	2	6	1	1	8	1318		5991
26	1434	1436U	1457	1	1					1	1445	C3.3	5974
26	1506	1519	1552	2+	3		2				1507		5984
26	1557	1603	1615	1-	5		2		1	5	1555	C6.1	5988
26	1618	1629	1650	2	5	1	2			1	No flare		
26	2110	2117	2153	1-	1			1			*		
27	0145	0149	0233	1-	1			1			0145	C2.5	5983
27	0412	0420	0551	2-	5	1		1		2	0414	M1.1	5974
27	0655	0700	0713	1-	1					1	No flare		
27	0736	0750	0815	1-	5			1		2	0735		5984
27	0822	0824	0842	1-	1					1	No flare		
27	1012	1026	1100	1+	1					1	1012	C6.8	
27	1123	1155	1155D	1+	1					1	No flare		
27	1339	1348	1455	1-	5	1	1	1	1	2	1345E	C6.8	5984
27	1416	1424	1440	1-	5		1		1	2	1414	C5.5	
27	1522	1530	1549	1+	1					1	1521	C3.1	
27	1552	1556	1610	1-	5				1	3	1551	C4.8	
27	1607	1614	1646	2	1					1	1615E		5984
27	1730	1733	1742	1-	1					1	No flare		
27	1744	1750	1818	2	1					1	1743E	C2.8	5984
27	2003	2014	2105	1	5	1		1		6	1959	C9.5	5984
27	2232	2244	2321	1-	5	2		1			2231	C8.2	
28	0137	0156	0228D	1-	1			1			0152E	C4.9	5988
28	0219	0237	0258	1-	1			1			0229	C3.5	5991
28	0346	0356	0432D	1-	1			1			0353		5984
28	0432E	0441	0451D	1-	1			1			No flare		
28	0451E	0456	0516	1-	1			1			0453	C2.8	5984
28	0548	0602	0640	1-	5			1		2	0551	C3.7	5984
28	0613	0615	0615D	1-	1					1	No flare		
28	0631	0634	0634D	1+	1					1	No flare		
28	0654	0703	0732D	1-	5		1	1	1	2	0656	C5.2	5991
28	0732E	0750	0956	3	5	4	4	1	1	5	0731	M4.2	5988
28	0933	0938	1000	1-	3				1	1	0932	M1.4	5991
28	1141	1143	1155	1-	1					1	No flare		
28	1148	1153	1210	1-	3		1		1	1	1147	C7.9	5988
28	1314	1318	1342	1-	1					1	No flare		
28	1557	1604	1615	1-	5				1	5	1549	C5.0	5984
28	1649	1650	1700	1-	1					1	1645	C4.0	5984

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1990

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
28	1712	1716	1731	1	1					1	1703		5984
28	1832	1837	1914	2	3					2	1834	C5.5	
28	2031	2048	2132D	1-	5			1		2	2030	C7.0	5984
28	2132E	2140	2220	1-	1			1		1	2129	C3.1	
28	2308	2311	2325D	1-	1			1			2304	C3.5	
28	2323E	2330	2417	1-	1			1			2323E	C4.0	5984
29	0122	0133	0216	1-	1			1			0121	C2.9	5984
29	0252	0300	0340	1-	3	1		1			0252	C4.5	
29	0830	0844	0910	1-	5		1	1	1	2	0830	C3.8	5983
29	0952	1010	1038	1-	5			1	1	2	0951	C5.5	
29	1224	1227	1240	1-	3		1		1	2	1222	C3.2	
29	1304	1307	1320	1-	3		1		1	1	1302	C2.8	
29	1427	1432	1450	1-	5				1	4	1424	C2.6	
29	1632	1709	1729	2	3		2				1633		5984
29	2004	2017	2049	2	1					1	2021	C2.3	
29	2256	2304	2338	1-	1			1			2255	C2.8	
30	0158	0159	0209D	1-	3	1		1			0158	C4.0	5984
30	0209E	0216	0345	1+	5	1		1		1	0207	C5.9	
30	0727	0736	0811	2-	5		2	1	1	5	0724	C6.9	5984
30	0811	0815	0830	1-	3				1	1	0809	C2.0	
30	1156	1158	1208	1-	1					1	No flare		
30	1555	1602	1614	1	1					1	No flare		
30	1923	1929	2016	1+	5	1		1		5	1922	M1.8	5988
30	1954	1956	2047	2	3					2	No flare		
30	2355	2404	2430	1-	1			1			2355	C2.1	
31	0753	0758	0817	1	1					1	0700	C2.1	
31	0912	0933	1004	2	5	1	2	1	1	5	0916	C7.9	
31	1113	1131	1214	2-	5	3	3	1	1	3	1117	C8.7	5988
31	1225	1239	1343	1	1		1				No flare		
31	2355	2402	2417	1-	1			1			*		

* = No flare patrol.

OBSERVATORIES REPORTING FOR MARCH 1990

Amherst, New Hampshire, USA	SES	Locust Grove, Georgia, USA	SES
Athens, Georgia, USA	SES	Madison, Wisconsin, USA	SES
Boksburg, Rep of S. Africa	SES	Manahawkin, New Jersey, USA	SES
Darmstadt, German Fed Rep	SWF	Maui, Hawaii, USA	SWF
Edenvale, Rep of S. Africa	SES	Nerja, Spain	SES
Farsta, Sweden	SES	Panska Ves, Czechoslovakia	SES, SEA, SWF
Hiraiso, Japan	SWF	Paterson, New Jersey, USA	SES
Houston, Texas, USA	SES	Rimavska Sobota, Czechoslovakia	SEA
Hudson, Ohio, USA	SES	Sofia, Bulgaria	SES
Inubo, Japan	SPA	Somersworth, New Hampshire, USA	SES
Johannesburg, Rep of S. Africa	SES	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	Zilina, Czechoslovakia	SEA
Latrobe, Pennsylvania, USA	SES		

Observations are not necessarily continuous.

EDITOR'S NOTE: We are no longer generating the SIDs by NOAA/SESC Regions table. Please let us know if this part of the SID tabular listing is necessary for your work. Thank you.

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

MARCH 1990

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1–3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1–3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1–3)	Spectral Type
01		LEAR				0110.0	0111.0	2				III
		LEAR				0130.0	0134.0	3				III
		LEAR				0144.0	0143.0	2				III
		LEAR				0235.0	0235.0	2				III
		LEAR				0349.0	0350.0	2				III
		LEAR				0400.0	0402.0	2				III
		LEAR				0411.0	0412.0	2				III
		LEAR				0426.0	0440.0	2				III
		SVTO				0543.0	1142.0	2				CONT
		LEAR				0613.0	0621.0	3				III
		LEAR				0623.0	0632.0	2				III
	0747	ONDR				0747.0	1531.0	1				IN
		SGMR				1140.0	1142.0	1				V
		SGMR				1215.0	1215.0	1				III
		SVTO				1308.0	1313.0	3				V
		SGMR				1310.0	1313.0	3				III
		ONDR	1310.8	1311.9	1	1310.8	1311.9	1				IIIG
		SGMR				1315.0	1315.0	1				III
		SGMR				1358.0	1703.0	1				CONT
		SGMR				1459.0	1514.0	3				S
		ONDR	1502.0	1504.3	2	1502.0	1504.3	2				IIIG
		SVTO				1502.0	1513.0	3				S
		SGMR				1848.0	1940.0	1				S
		SGMR				2020.0	2024.0	3				III
		LEAR				2300.0	1035.0	1				CONT
		LEAR				2351.0	2352.0	2				III
02		LEAR				0056.0	0051.0	2				III
		LEAR				0416.0	0417.0	2				III
		LEAR				0501.0	0505.0	2				III
		LEAR				0515.0	0518.0	2				III
		SVTO				0541.0	0935.0	1				CONT
		LEAR				0621.0	0622.0	2				III
		LEAR				0800.0	0805.0	2				III
	0655	ONDR	0825.1	0825.9	2	0825.1	0825.9	2				IIIG,UG
		LEAR				0903.0	0909.0	2				III
		LEAR				0910.0	0910.0	3				III
		SVTO				0911.0	0911.0	2				III
		LEAR				0928.0	0934.0	3				III
		SVTO				0931.0	0934.0	3				V
		ONDR	0933.8	0934.1	2	0933.8	0934.1	2				IIIG
		SGMR				1324.0	1324.0	1				III
		SGMR				1406.0	1406.0	1				III
		SVTO				1406.0	1406.0	2				III
		SGMR				1435.0	1438.0	1				III
		SVTO				1435.0	1435.0	2				III
		ONDR	1438.0	1438.5	1	1438.0	1438.5	1				IIIG
		SGMR				1506.0	1507.0	2				V
		SVTO				1507.0	1508.0	3				III
		SGMR				1515.0	1533.0	2				S
		SGMR				1714.0	1715.0	1				V
		SGMR				1747.0	1747.0	2				III
03		LEAR				0302.0	0310.0	3				III
		LEAR				0515.0	0517.0	1				III
		LEAR				0753.0	0754.0	1				III
		LEAR				0802.0	0803.0	1				III
		LEAR				0851.0	0852.0	3				III
		SVTO				0852.0	0853.0	3				III
		LEAR				0934.0	0934.0	1				III
		LEAR				0943.0	0949.0	1				III
	0653	ONDR				0945.7	0947.7	1				IIIG
		ONDR	0956.5	1000.5	1	0956.5	1000.5	1				IIIG
		LEAR				0959.0	0959.0	2				III
		SVTO				1000.0	1000.0	3				III
		SVTO				1042.0	1042.0	2				III
		ONDR	1227.3	1228.3	1	1227.3	1228.3	1				IIIG
		SGMR				1444.0	1447.0	2				V
		SVTO				1446.0	1446.0	2				III

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03		SGMR				1458.0	1458.0	2				III
		SGMR				1619.0	1619.0	1				III
		SGMR				1638.0	1713.0	2				S
		SGMR				1940.0	1941.0	2				III
		SGMR				2011.0	2022.0	1				S
04		LEAR				0209.0	0214.0	2				III
		LEAR				0621.0	0621.0	1				III
0650	1537	ONDR										
		LEAR				0814.0	0815.0	1				III
		LEAR				0857.0	0858.0	1				III
		LEAR				0913.0	0917.0	1				III
05		LEAR				0150.0	0150.0	1				III
		LEAR				0404.0	0404.0	1				III
0648	1539	ONDR										
06		LEAR				0317.0	0324.0	2				III
		LEAR				0646.0	0654.0	2				III
		LEAR				0728.0	0734.0	3				III
		SVTO				0729.0	0744.0	2				S
		LEAR				0743.0	0747.0	2				III
0646	1540	ONDR	0743.2	0743.7	1	0743.2	0743.7	1				IIIG
		LEAR				0820.0	0822.0	2				III
		SVTO				0821.0	0821.0	2				III
		LEAR				0837.0	0840.0	3				III
		SVTO				0837.0	0841.0	2				III
		ONDR	0837.8	0838.8	1	0837.8	0838.8	1				IIIG
		LEAR				0929.0	0930.0	1				III
		LEAR				0952.0	0952.0	1				III
		SVTO				0952.0	0952.0	2				III
		SGMR				1259.0	1301.0	1				III
		SVTO				1301.0	1301.0	2				III
1516	1639	BLEN										
07	0643 1542	ONDR										
		LEAR				0808.0	0808.0	2				III
0842	1630	BLEN										
		LEAR				0902.0	0902.0	2				III
		LEAR				0914.0	0915.0	2				III
		LEAR				0923.0	0926.0	2				III
		SVTO				0923.0	0925.0	2				V
		SGMR				1112.0	1112.0	2				III
		SVTO				1112.0	1113.0	3				III
		SGMR				1150.0	1151.0	1				III
		SVTO				1150.0	1151.0	2				III
		SGMR				1209.0	1209.0	1				III
		SGMR				1335.0	1335.0	1				III
		SGMR				1352.0	1352.0	1				III
		SGMR				1439.0	1440.0	2				V
		SVTO				1440.0	1440.0	2				III
		SVTO				1542.0	1542.0	2				III
		SGMR				1848.0	1850.0	1				III
		PALE				1849.0	1850.0	2				V
		SGMR				1912.0	1912.0	1				III
		PALE				1928.0	1931.0	2				V
		SGMR				1928.0	1930.0	1				III
		PALE				1946.0	1947.0	2				V
		SGMR				1946.0	1947.0	1				III
08		LEAR				0221.0	0222.0	1				III
		LEAR				0528.0	0536.0	2				III
		SVTO				0623.0	0623.0	2				III
0700	1630	BLEN										
		LEAR				0711.0	0713.0	2				III
		SVTO				0712.0	0713.0	2				III
		SVTO				0812.0	1053.0	2				CONT
		LEAR				0842.0	0844.0	2				III
0641	1544	ONDR				0847.9	0848.1	1				IIIG

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08		LEAR				0853.0	0857.0	3				III
		ONDR	0924.0	0927.7	2	0924.0	0927.7	2				IIIGG
		ONDR	1152.0	1156.5	1	1152.0	1156.5	1				IIIGG
		SGMR				1314.0	1316.0	1				III
		SVTO				1316.0	1316.0	2				III
		SGMR				1327.0	1329.0	1				III
		SVTO				1328.0	1328.0	2				III
		SVTO				1339.0	1340.0	3				III
		SGMR				1440.0	1451.0	2				S
		ONDR				1516.1	1518.1	1				IIIG
		PALE				2136.0	2136.0	1				III
		SGMR				2136.0	2136.0	1				III
		LEAR				2251.0	2252.0	1				III
		LEAR				2315.0	2318.0	1				III
09		LEAR				0210.0	0217.0	1				III
		LEAR				0517.0	0522.0	2				III
	0639 1546	ONDR				0639.0	1546.0	1				IN
		LEAR				0656.0	0657.0	1				III
	0715 1640	BLEN										
		SVTO				0948.0	0951.0	3				V
		LEAR				0949.0	0952.0	3				III
		SVTO				1158.0	1228.0	2				CONT
		SGMR				1353.0	1443.0	1				CONT
		SVTO				1445.0	1445.0	3				III
		SVTO				1500.0	1500.0	3				III
		SGMR				1706.0	1744.0	1				CONT
10		LEAR				0030.0	0039.0	1				III
		LEAR				0050.0	0101.0	1				S
		LEAR				0237.0	0242.0	2				III
		LEAR				0326.0	0326.0	1				III
		LEAR				0512.0	0513.0	1				III
		LEAR				0537.0	0538.0	1				III
	0658 1640	BLEN										
	0636 1548	ONDR	1147.8	1148.0	1	1147.8	1148.0	1				UNCLF
		SGMR				1234.0	1234.0	1				III
11		LEAR				0016.0	0016.0	1				III
		LEAR				0041.0	0043.0	3				III
		PALE				0042.0	0042.0	2				III
		LEAR				0216.0	0216.0	1				III
		LEAR				0305.0	0305.0	2				III
	0634 1549	ONDR										
	0658 1640	BLEN										
		LEAR				0745.0	0803.0	2				S
		SVTO				0759.0	0801.0	2				III
		LEAR				0822.0	0822.0	3				III
		LEAR				0822.0	0842.0	1				CONT
		SVTO				0823.0	0823.0	2				III
		SGMR				1259.0	1330.0	1				S
		SGMR				1330.0	1730.0	1				CONT
		SVTO				1333.0	1335.0	2				III
		SVTO				1358.0	1629.0	2				CONT
		LEAR				2354.0	2354.0	1				III
12		LEAR				0239.0	0240.0	2				III
		PALE				0240.0	0240.0	2				III
		SVTO				0551.0	0551.0	2				III
	0658 1640	BLEN				0939.8	0939.9	1				IIIB
		SGMR				1238.0	1302.0	1				S
		SVTO				1239.0	1253.0	2				S
	0632 1551	ONDR	1242.3	1242.5	1	1242.3	1242.5	1				IIIG
		SVTO				1558.0	1558.0	2				III
13		LEAR				0101.0	0106.0	2				III
	0658 1600	BLEN										
		SVTO				0910.0	0911.0	1				III
		SVTO				1008.0	1012.0	2				III

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13		LEAR				1012.0	1013.0	2				III
		SVTO				1032.0	1407.0	1				CONT
		SVTO				1035.0	1054.0	2				S
		SGMR				1117.0	1117.0	1				III
		SVTO				1117.0	1124.0	2				III
		SGMR				1154.0	1154.0	1				III
		SVTO				1154.0	1154.0	1				III
0712	1553	ONDR				1248.1	1248.8	1				IIIG
		SGMR				1605.0	2123.0	1				CONT
		SGMR				1631.0	1632.0	2				III
		PALE				2139.0	2147.0	1				V
		SGMR				2146.0	2147.0	1				III
14		LEAR				0000.0	0001.0	2				III
		PALE				0000.0	0001.0	1				V
		LEAR				0116.0	0120.0	2				III
		LEAR				0404.0	0413.0	2				III
		LEAR				0424.0	0653.0	1				CONT
		LEAR				0727.0	0728.0	1				III
		LEAR				0840.0	0854.0	2				S
		SVTO				0842.0	0926.0	1				CONT
		LEAR				0926.0	0937.0	2				S
		SVTO				0926.0	1300.0	2				CONT
1027	1600	BLEN										
		SGMR				1227.0	1227.0	1				III
		SGMR				1332.0	1337.0	1				III
		SGMR				1406.0	1407.0	1				III
0627	1555	ONDR				1406.6	1407.3	1				IIIG
		SGMR				1417.0	1716.0	1				CONT
		SVTO				1511.0	1512.0	2				III
		PALE				1752.0	1752.0	1				III
		SGMR				1752.0	1754.0	2				V
		SGMR				1805.0	2127.0	1				CONT
		PALE				1910.0	1910.0	1				III
		PALE				1921.0	1921.0	1				III
		SGMR				1921.0	1921.0	2				III
		PALE				2015.0	2024.0	2				V
		SGMR				2015.0	2024.0	2				III
15		LEAR				0019.0	0020.0	2				III
		PALE				0019.0	0020.0	1				III
		LEAR				0144.0	0211.0	1				S
		SVTO				0520.0	1634.0	2				CONT
0650	1630	BLEN										
0750	1556	ONDR				0750.0	1556.0	1				I
		SGMR				1301.0	1301.0	2				III
		SGMR				1331.0	1340.0	3				III
		SGMR				1512.0	1513.0	1				V
		PALE				2106.0	2115.0	2				III
		SGMR				2115.0	2115.0	3				III
16		SVTO				0543.0	0549.0	2				III
		LEAR				0633.0	0634.0	2				III
0650	1630	BLEN										
0735	1558	ONDR										
17		SVTO				0556.0	0556.0	2				III
		SVTO				0618.0	0618.0	2				III
0751	1600	ONDR	1544.0	1544.3	1	1544.0	1544.3	1				UNCLF
		SVTO				1610.0	1610.0	2				III
0650	1630	BLEN				1610.2	1610.4	2				III
18		LEAR				0524.0	0524.0	2				III
		LEAR				0557.0	0607.0	1				III
		LEAR				0657.0	0740.0	1				S
0722	1601	ONDR				0722.0	1601.0	1				IN
		SVTO				0819.0	1405.0	2				CONT
		ONDR	1046.4	1046.7	1	1046.4	1046.7	1				U
		SGMR				1105.0	1106.0	1				III

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18			ONDR	1122.1	1128.0	2	1122.1	1128.0	2				II IIIG
	0640	1630	BLEN	1122.2	1122.5	1	1122.2	1122.5	2				IIIG
			BLEN				1125.8	1134.0	2				II
			SGMR				1127.0	1208.0	1				II
			SVTO				1128.0	1143.0	2				II
			SGMR				1315.0	2145.0	1				CONT
			SVTO				1346.0	1346.0	2				III
			SVTO				1400.0	1401.0	2				III
			PALE				2242.0	2243.0	1				III
19			LEAR				0003.0	0008.0	1				III
			LEAR				0157.0	0202.0	1				III
			LEAR				0442.0	0600.0	2				IV
			LEAR				0446.0	0512.0	2				II
	0640	1640	BLEN										
			SVTO				0820.0	1600.0	1				CONT
	0722	1603	ONDR				1430.6	1432.5	1				IIIG
			SGMR				1526.0	1555.0	2				S
20	0635	1640	BLEN										
	0721	1605	ONDR										
			SGMR				1442.0	1443.0	1				III
			SGMR				2011.0	2017.0	2				V
21			LEAR				0836.0	0843.0	2				III
			SVTO				0836.0	0836.0	2				III
	0722	1606	ONDR				1350.0	1606.0	1				I
			ONDR	1400.0	1400.8	2	1400.0	1400.8	2				UNCLF,RS
			ONDR				1433.7	1434.0	2				IIIG
	1604	1650	BLEN										
			PALE				2122.0	2122.0	2				III
			SGMR				2122.0	2122.0	1				III
			PALE				2204.0	2204.0	2				III
			SGMR				2204.0	2204.0	2				III
			PALE				2244.0	2248.0	1				V
			PALE				2300.0	2301.0	1				III
			LEAR				2353.0	2357.0	1				III
22			LEAR				0059.0	0106.0	2				III
			PALE				0059.0	0106.0	1				III
			LEAR				0134.0	0135.0	1				III
			LEAR				0413.0	0420.0	3				III
			PALE				0415.0	0415.0	1				III
			LEAR				0430.0	0437.0	1				II
			LEAR				0553.0	0553.0	2				III
			LEAR				0711.0	0712.0	2				III
			LEAR				0733.0	0733.0	1				III
			LEAR				0803.0	0803.0	2				III
			SVTO				0803.0	0803.0	2				III
			LEAR				0837.0	0845.0	3				III
	0722	1608	ONDR				0837.7	0838.4	1				IIIG
			SVTO				0838.0	0842.0	3				V
			ONDR				0840.3	0841.4	2				IIIG,U
	0630	1212	BLEN				0841.2	0841.4	2				IIIU
			ONDR				0916.0	0918.0	1				I
			LEAR				0919.0	0920.0	2				III
			SVTO				0919.0	0921.0	2				III
			ONDR	0925.5	0931.0	1							P,UNCLF
			LEAR				0933.0	0934.0	2				III
			SVTO				0934.0	0934.0	2				III
			SVTO				1009.0	1018.0	2				III
			BLEN	1023.1	1024.0	2	1023.1	1024.0	1				IIIGG
			SGMR				1211.0	1217.0	1				III
			SVTO				1213.0	1234.0	2				S
			SGMR				1227.0	1324.0	2				S
			SVTO				1234.0	1236.0	2				V
			ONDR	1237.3	1240.8	2	1237.3	1240.8	2				IIIG,U,RS
			SVTO				1239.0	1241.0	2				III
			SVTO				1256.0	1256.0	2				III

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22	1258	1520	BLEN										
			SVTO				1313.0	1323.0	2				III
			SGMR				1410.0	1411.0	2				V
			SVTO				1410.0	1411.0	2				III
			SGMR				1415.0	0000.0	1				CONT
			SVTO				1420.0	1421.0	2				III
			SVTO				1452.0	1459.0	2				III
			SGMR				1524.0	1526.0	2				V
			SVTO				1524.0	1526.0	2				III
			ONDR	1532.3	1532.8	1	1532.3	1532.8	1				IIIG
			SVTO				1551.0	1555.0	2				III
			SGMR				1555.0	1556.0	2				V
	1600	1640	BLEN										
			SGMR				1622.0	1622.0	2				V
			SVTO				1622.0	1622.0	2				III
			SGMR				1701.0	1709.0	3				V
			PALE				1820.0	1825.0	3				V
			PALE				1839.0	1839.0	1				III
			LEAR				2347.0	0430.0	2				CONT
23			LEAR				0043.0	0044.0	2				III
			PALE				0045.0	0045.0	1				III
			LEAR				0105.0	0106.0	2				III
			PALE				0106.0	0106.0	1				III
			LEAR				0145.0	0106.0	2				III
			LEAR				0207.0	0212.0	2				III
			PALE				0207.0	0207.0	1				III
			LEAR				0242.0	0242.0	2				III
	0630	1640	BLEN	0712.5	0712.6	2							III,RS
			SVTO				0735.0	0735.0	3				III
	0735	1610	ONDR				0902.3	0902.8	1				IIIG
			ONDR	0910.3	0911.8	1	0910.3	0911.8	1				IIIGG
			BLEN	1059.8	1059.9	1							III
			ONDR	1059.8	1100.0	2							IIIG
			ONDR				1113.1	1113.5	1				IIIG
			ONDR				1207.1	1207.3	1				IIIG
			BLEN	1251.8	1252.3	2							IIIG
			SGMR				1434.0	1434.0	1				III
24			LEAR				0135.0	0143.0	1				III
			PALE				0135.0	0135.0	1				III
			LEAR				0246.0	0247.0	1				III
			LEAR				0254.0	0257.0	3				V
			PALE				0254.0	0257.0	3				V
			LEAR				0300.0	0305.0	1				II
			LEAR				0626.0	0650.0	2				S
	0625	1640	BLEN	0628.3	0639.6	1	0628.3	0639.6	2				IIIGG
			SVTO				0639.0	0640.0	2				III
	0736	1611	ONDR	0744.7	0745.0	1							UG
			ONDR	1016.2	1016.8	1	1016.2	1016.8	1				UG
			SGMR				1518.0	1518.0	1				V
25	0736	1613	ONDR				0736.0	1613.0	1				IN
	0625	1640	BLEN	0851.3	0852.1	2	0851.3	0852.1	2				IIIG
			ONDR	0851.3	0952.0	2	0851.3	0852.0	2				II IIIG
			LEAR				1007.0	1007.0	1				III
			SVTO				1007.0	1008.0	2				III
			ONDR	1302.0	1302.3	2							UNCLF
			BLEN	1420.0	1420.4	2	1420.0	1420.4	1				IIIG
			ONDR	1421.0	1421.5	3	1421.0	1421.5	3				UG
			ONDR	1428.3	1429.1	2							UG
26			LEAR				0034.0	0035.0	2				III
			PALE				0034.0	0035.0	2				III
			LEAR				0110.0	0114.0	2				III
			PALE				0112.0	0113.0	2				III
			LEAR				0136.0	0137.0	1				III
			LEAR				0525.0	0543.0	2				S
			LEAR				0609.0	0613.0	2				III

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

MARCH 1990

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1–3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1–3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1–3)	Spectral Type
26	0620	1650	BLEN										
			LEAR				0738.0	0738.0	1				III
			SVTO				0840.0	1646.0	2				CONT
	0722	1614	ONDR	1109.0	1111.0	2	1109.0	1111.0	2				IIIGG,U
			SGMR				1109.0	1111.0	1				III
			ONDR	1117.7	1120.3	2	1117.7	1120.3	2				IIIG
			ONDR	1226.5	1227.0	1							RS
			ONDR	1552.2	1557.1	1	1552.2	1557.1	1				IIIG
			PALE				2035.0	2035.0	1				III
			SGMR				2035.0	2036.0	1				III
27			LEAR				0041.0	0042.0	2				III
			PALE				0041.0	0042.0	1				III
			SVTO				0512.0	1647.0	2				CONT
	0620	1650	BLEN										
	0735	1616	ONDR				0735.0	1616.0	1				IN
			SVTO				0940.0	0940.0	2				III
			ONDR	1322.2	1322.4	1							IIIG
			PALE				2240.0	2244.0	3				V
			PALE				2250.0	2253.0	1				III
28			LEAR				0057.0	0057.0	1				III
			LEAR				0226.0	0239.0	2				S
			PALE				0226.0	0239.0	2				S
			LEAR				0257.0	0257.0	1				III
			LEAR				0621.0	0621.0	2				III
			SVTO				0621.0	0621.0	2				III
			LEAR				0653.0	0655.0	1				III
			SVTO				0654.0	0655.0	2				III
			LEAR				0739.0	0800.0	3				S
			SVTO				0739.0	0749.0	2				V
	0616	1655	BLEN	0740.3	0740.8	1							III
	0736	1618	ONDR	0741.0	0752.0	2	0741.0	0752.0	2				IIIG,CONT,P
			BLEN	0749.9	0753.2	2							DCIM,C
			SVTO				0750.0	1051.0	2				CONT
			ONDR				0757.5	0800.5	1				IV
			LEAR				0800.0	1011.0	2				CONT
			SVTO				0955.0	0958.0	2				III
			ONDR	0957.0	0958.5	1	0957.0	0958.5	1				IIIGG
			BLEN	0957.5	0957.8	1	0957.5	0957.8	2				III
			BLEN	1146.7	1147.4	2							IIIG
			ONDR	1146.7	1147.8	2	1146.7	1147.8	2				UNCLF,RS,CONT
			SVTO				1147.0	1157.0	2				III
			SVTO				1336.0	1342.0	2				III
			PALE				2013.0	2013.0	1				III
			PALE				2126.0	2127.0	1				III
29			LEAR				0017.0	0020.0	2				III
			PALE				0018.0	0020.0	1				III
			LEAR				0039.0	0043.0	2				III
			PALE				0039.0	0039.0	1				III
			LEAR				0415.0	0415.0	2				III
	0736	1619	ONDR				0736.0	1619.0	1				IN
			SVTO				0817.0	0821.0	2				III
	0615	1635	BLEN	0914.5	0914.7	1							III
			ONDR				1208.2	1208.7	1				IIIG
			PALE				2024.0	2024.0	1				III
			SGMR				2024.0	2024.0	1				III
30	0735	1621	ONDR				0735.0	1621.0	1				IN
	0615	1700	BLEN	0744.8	0745.4	2							IIIGG
			SGMR				1310.0	1311.0	1				III
			SVTO				1311.0	1311.0	2				III
			SGMR				1508.0	1508.0	1				V
			SVTO				1508.0	1508.0	2				III
			SGMR				1551.0	1553.0	1				V
			SGMR				2148.0	2148.0	1				III
			LEAR				2308.0	2309.0	2				III
			LEAR				2348.0	2353.0	2				III

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

MARCH 1990

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1–3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1–3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1–3)	Spectral Type
31		LEAR				0039.0	0040.0	2				III
		LEAR				0053.0	0056.0	2				III
		PALE				0053.0	0056.0	1				III
		LEAR				0218.0	0219.0	2				III
		PALE				0219.0	0229.0	1				S
		LEAR				0227.0	0229.0	2				III
		SVTO				0642.0	1422.0	1				CONT
	0735	ONDR										
		LEAR				0740.0	0742.0	2				III
		SVTO				0741.0	0742.0	2				V
		LEAR				0801.0	0802.0	1				III
		SVTO				0802.0	0802.0	2				III
	0610	BLEN	0920.4	0920.5	2							IIIB
		SGMR				2033.0	2033.0	1				III
	1700											

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

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

Stations Reporting:

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

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

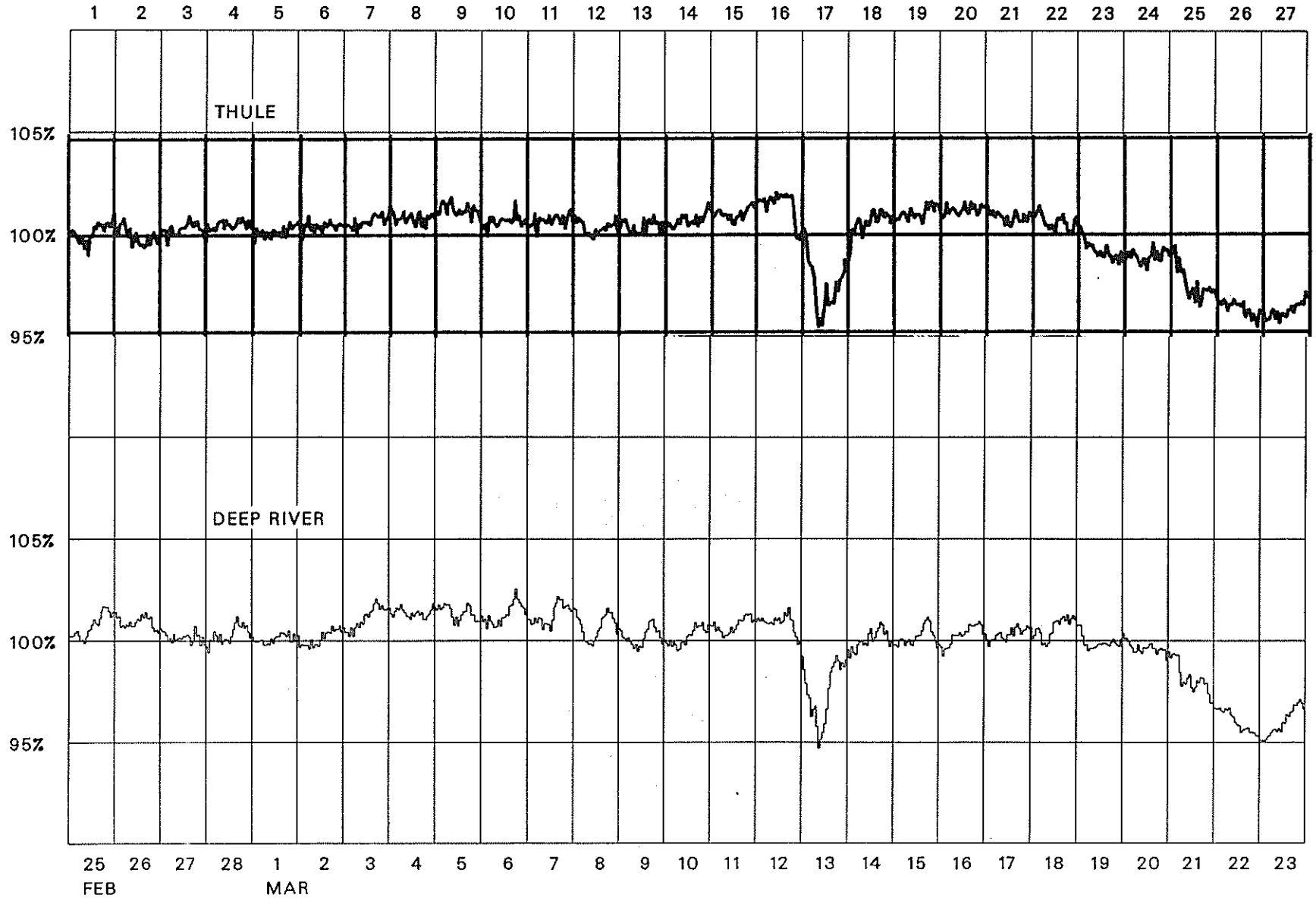
MARCH 1990

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	3745	5988.2	5389.7	3424.9	3418.2	
2	3754	5990.7	5404.8	3449.6	3432.3	
3	3764	6050.2	5420.2	3463.9	3438.9	
4	3771	6065.2	5408.0	3465.3	3439.4	
5	3785	6065.6	5411.5	3469.2	3436.0	
6	3764	6061.2	5394.5	3473.2	3431.8	
7	3764	6058.7	5386.1	3456.5	3425.2	
8	3752	6027.0	5391.6	3438.0	3417.4	
9	3755	5996.5	5387.3	3423.4	3408.8	
10	3766	5995.1	5389.0	3435.3	3414.4	
11	3779	6027.8	5401.0	3467.0	3413.0	
12	3789	6035.2	5435.9	3488.0	3443.4	
13	3642	5836.1	5265.0	3386.3	3412.6	
14	3761	5984.6	5409.5	3460.1	3424.4	
15	3779	5994.2	5399.6	3459.9	3428.4	
16	3784	5998.8	5402.6	3445.2(34)	3438.5	
17	3770	6002.1	5402.8	3436.9	3436.2	
18	3760	6020.5	5413.2	3442.8	3433.0	
19	3705	5979.4	5358.2	3414.8	3420.7	
20	3695	5963.7	5358.7	3397.6	3410.6	
21	3639	5875.7	5248.3	3349.4	3393.7	
22	3593	5747.0	5153.7	3263.1	3347.8	
23	3590	5742.5	5150.7	3248.4(38)	3339.6	
24	3604	5794.2	5159.4	3263.8	3343.6	
25	3604	5805.6	5211.3	3287.0	3374.4	
26	3621	5826.8	5221.1	3302.0	3380.3	
27	3606	5830.3	5215.7	3290.3	3368.8	
28	3622	5824.4	5210.1	3292.1	3353.5	
29	3595	5797.1	5160.0	3280.5	3371.1	
30	3561	5715.6	5109.7	3237.6	3359.8	
31	3456	5577.3	5039.4	3166.2	3315.9	
Mean	3696	5925.1	5313.2	3383.9	3402.2	

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.

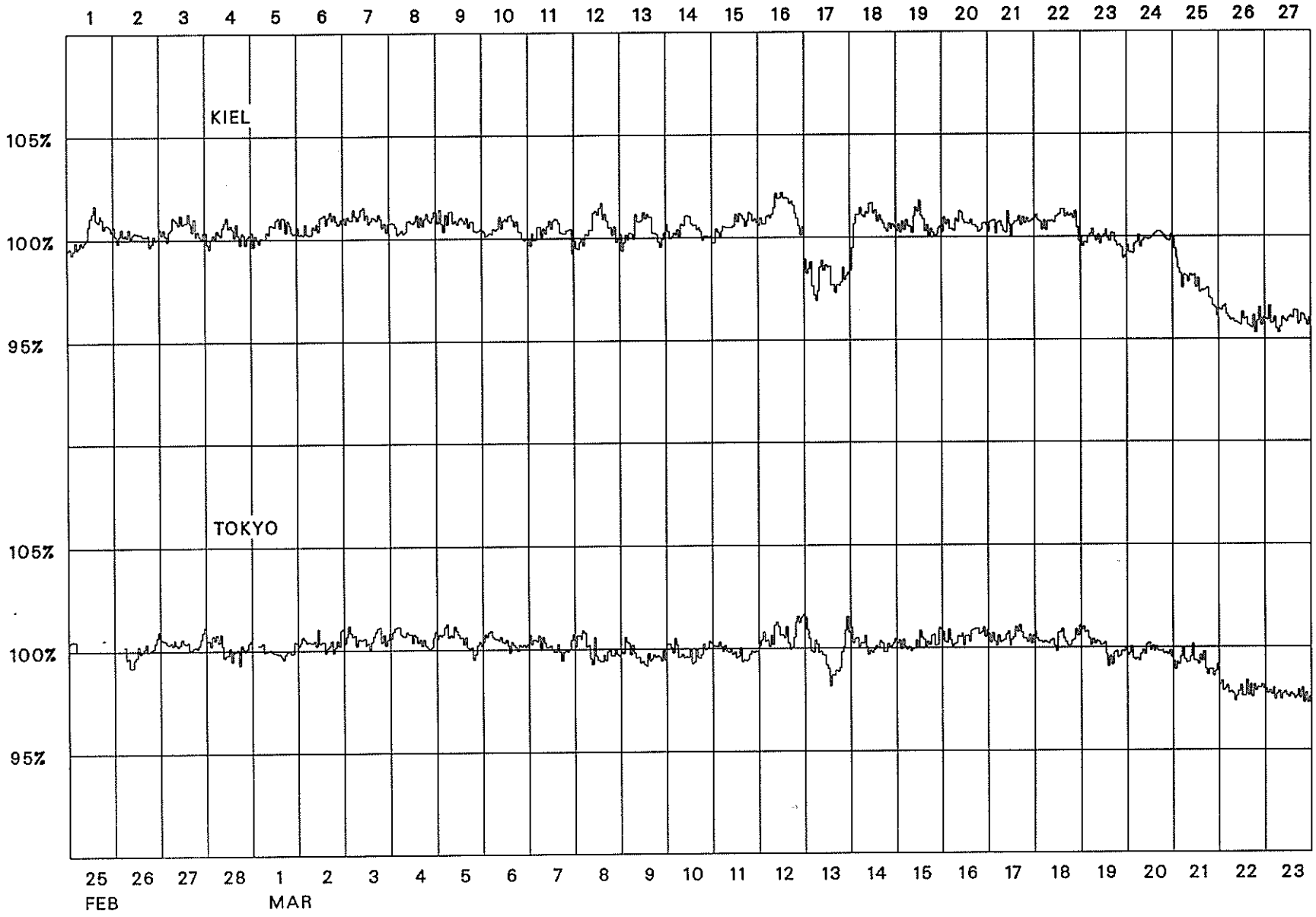
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2139 (February 1990-March 1990)



COSMIC RAY INDICES
(Neutron Monitor)

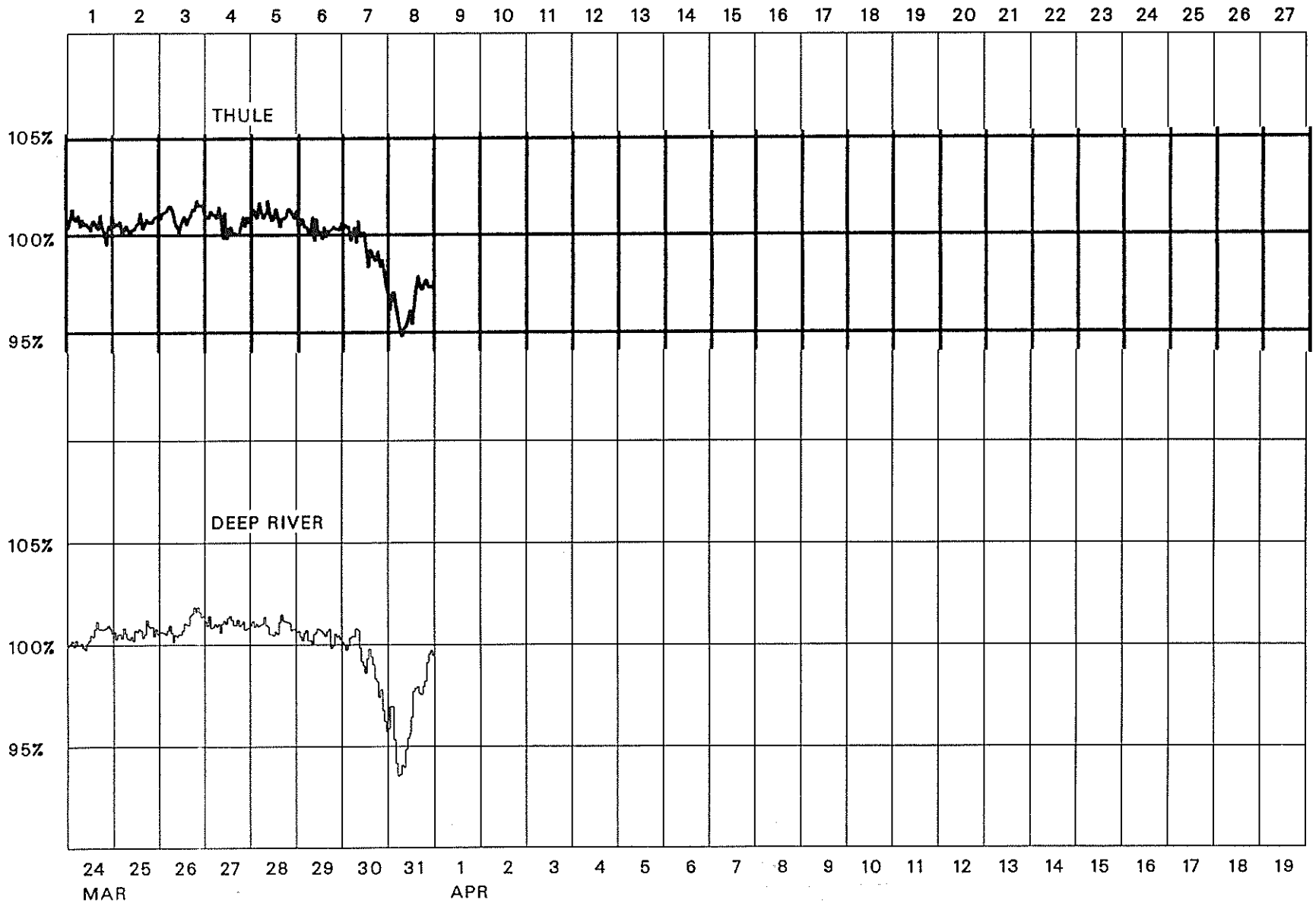
Bartels Rotation 2139 (February 1990-March 1990)



133
Mar 90

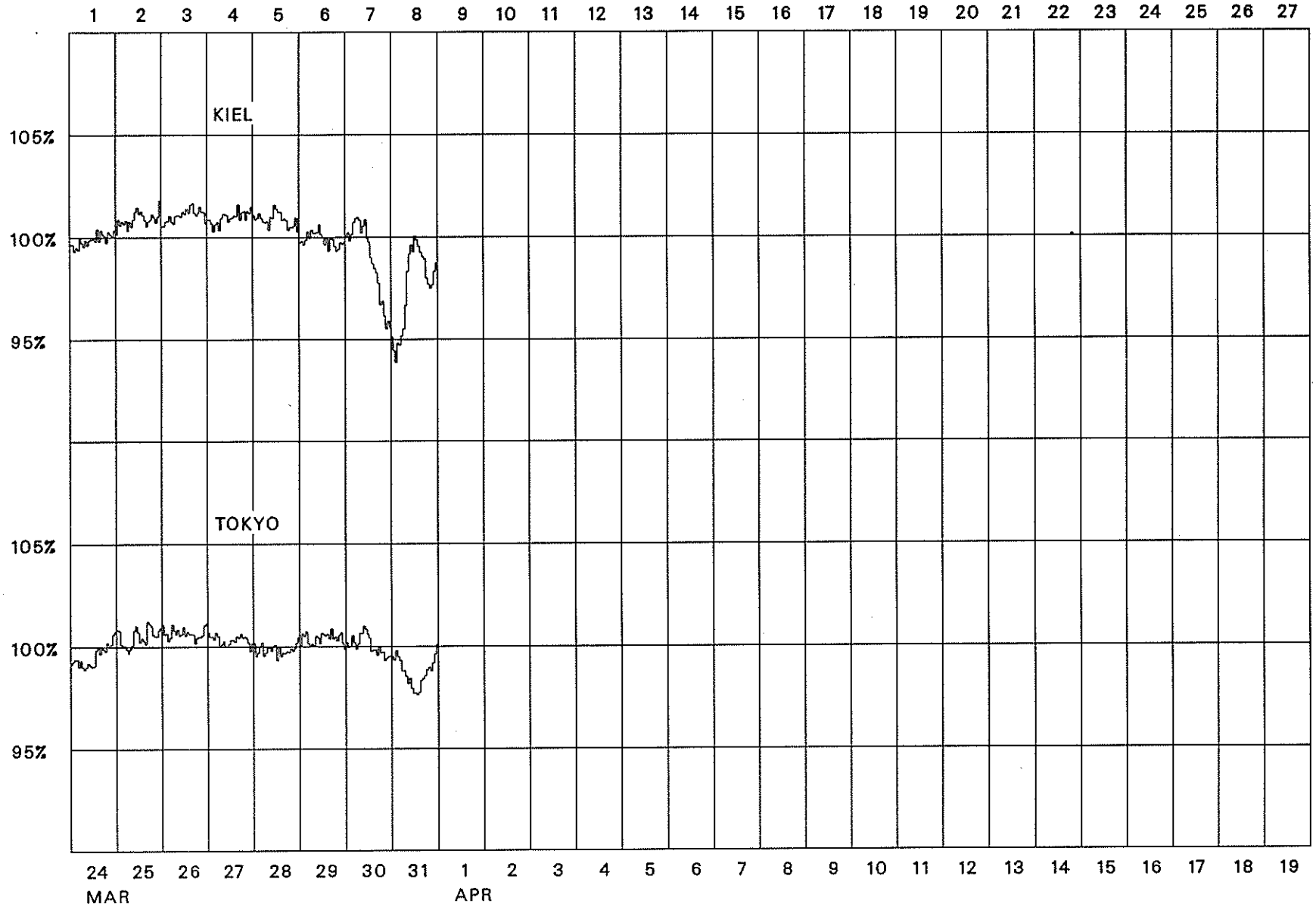
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2140 (March 1990-April 1990)

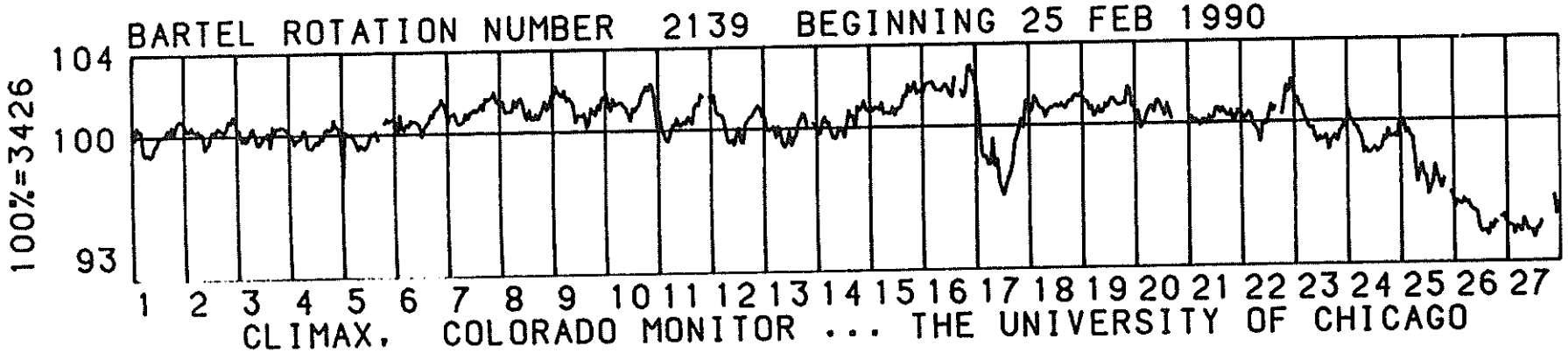


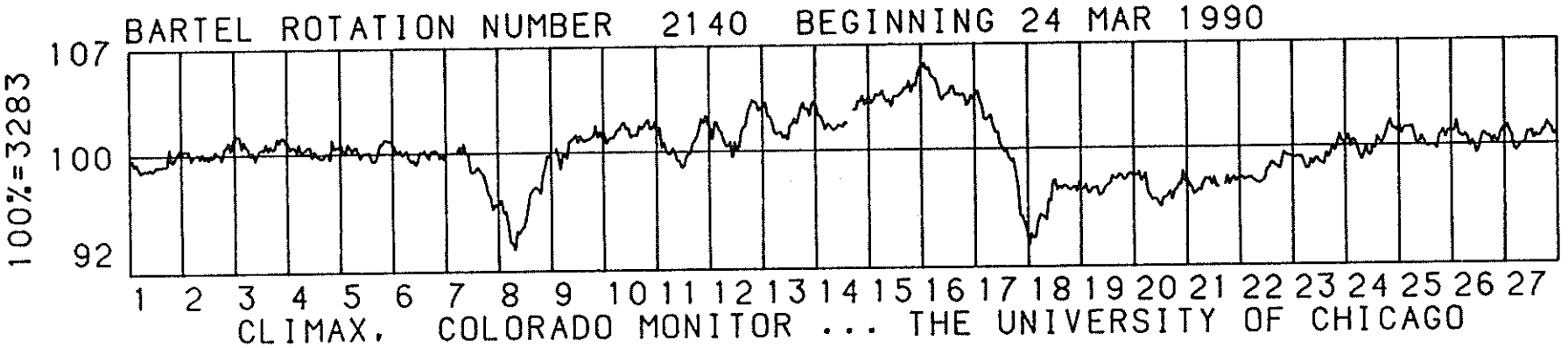
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2140 (March 1990-April 1990)



COSMIC RAY INDICES
(Neutron Monitor)





GEOMAGNETIC ACTIVITY INDICES

March 1990

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	Am	aa Provisional N	S	M
1		4	4-	3	3	3+	4-	3+	4-	28-	20	1.0											
2		3	3+	3-	3+	3-	3-	3-	3	23+	14	0.8											
3	Q8A	3-	2+	2+	2	2	2+	3	2+	19	10	0.5											
4	Q2	1	1	2+	2+	1-	1	2-	3-	13-	6	0.3											
5	Q10A	3	3	2	2-	2-	2+	1+	4-	19-	11	0.6											
6		5	4+	4-	2+	3+	4-	2+	1+	26	21	1.1											
7	Q6A	2-	3-	2	2+	3	2	1	2-	16+	8	0.4											
8	Q9A	3-	3-	2-	3+	3-	3-	1+	2-	19-	10	0.6											
9	Q7A	1+	2	2+	4-	2-	2	1+	2-	16	8	0.5											
10	Q4A	2-	2-	3-	2	3-	2-	2	1	15+	8	0.4											
11		4-	4-	2+	3	3-	3	2+	1+	22	14	0.8											
12	D5	3-	3+	2+	3	2+	5+	6-	7+	32	42	1.5											
13		6+	4	3	3	3+	4-	3-	4+	30+	29	1.3											
14		5+	4	3	4+	5-	3	3-	2+	29+	26	1.2											
15		4-	3	2+	2-	2+	2-	2+	2+	19+	11	0.6											
16	Q5A	3	2+	2-	1+	2-	1	1+	3-	15	8	0.4											
17	Q1	2-	1-	1	0+	1-	1-	0+	0+	6-	3	0.1											
18		1	2-	3+	4-	5+	6-	5+	5-	31-	34	1.3											
19		5+	3	2-	1+	2-	2	1+	3	19+	14	0.8											
20		4-	3-	3-	3+	4-	4-	4-	6+	30-	28	1.2											
21	D2	7	6	6	6	6-	5+	5+	4+	46-	73	1.8											
22		4+	4-	4-	4	4	4+	5-	4+	33	29	1.3											
23		4+	4	4-	4	4	5-	4+	3+	32+	28	1.2											
24		4-	4-	3	3	3+	3-	4-	3+	26+	18	1.0											
25	D4	4+	4	3	4+	5-	6-	5-	6-	36+	40	1.4											
26	D3	6	5	4	4+	4	5	5	4-	37	42	1.5											
27		5-	4+	4-	3+	3	5-	5+	5	34	34	1.3											
28		4-	4	4-	3+	3+	4-	4	4+	30	24	1.1											
29		3+	3	2+	3+	5+	5-	3+	5-	30	26	1.2											
30	D1	4+	5	8-	7-	5+	5+	3+	3-	40+	64	1.7											
31	Q3A	2+	2	2-	1+	2+	2-	2-	2+	15+	7	0.4											
Mean											23	0.95											

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Prov Sa	Ri	Ra	Rs	IMF
1																			200.0	165	169	154	
2																			192.7	164	169	146	
3																			176.3*	163	155	128	
4																			168.9	126	113	120	
5																			161.7	98	105	113	
6																			163.8*	104	98	115	
7																			168.1	105	116	120	
8																			157.1*	88	91	108	
9																			150.9*	71	90	101	
10																			149.0	80	85	99	
11																			142.5	77	87	92	
12																			146.1	85	89	96	
13																			146.3	83	90	96	
14																			149.8*	90	89	100	
15																			164.2*	110	108	115	
16																			178.1	129	125	130	
17																			182.0	123	136	135	
18																			196.4	173	165	150	
19																			216.3	202	203	172	
20																			223.9*	217	228	180	
21																			227.6	211	230	184	
22																			243.1*	195	210	201	
23																			245.3	206	234	203	
24																			231.3	230	234	188	
25																			223.9*	186	215	180	
26																			226.9	198	193	183	
27																			215.1	168	161	170	
28																			206.0	129	135	160	
29																			184.1	132	132	137	
30																			186.5a	133	130	139	
31																			172.8	123	109	125	
Mean																			187.0	140.8	145.0	140.0	

DAILY AVERAGE INDICES Ap

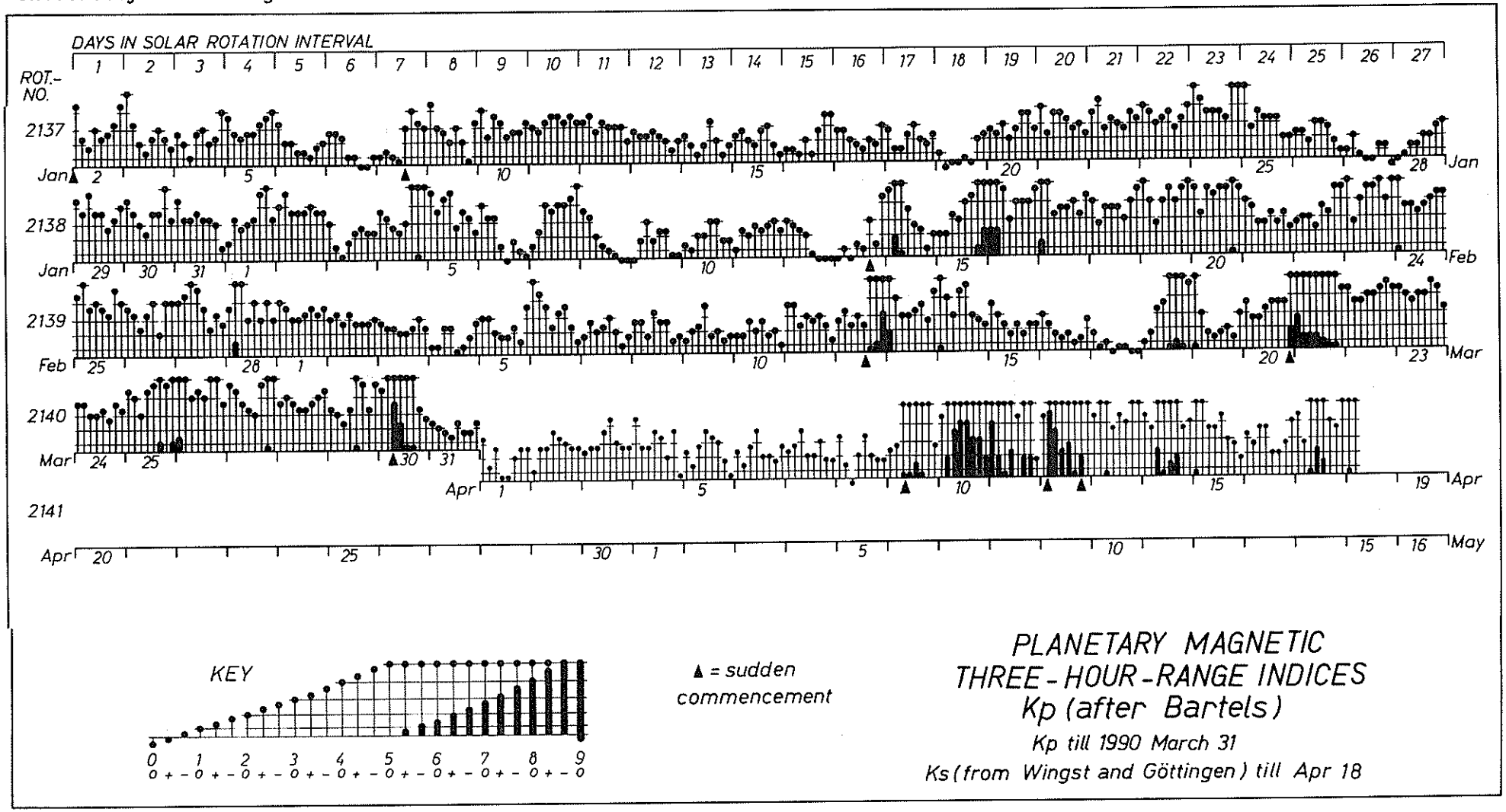
April 1989 to March 1990

DAY	1989 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1990 JAN	FEB	MAR
1	42	10	11	26	6	8	13	8	38	16	22	20
2	26	18	19	5	6	8	9	21	22	17	25	14
3	21	12	14	3	5	8	12	26	26	15	8	10
4	46	20	14	3	8	30	6	28	31	12	28	6
5	42	44	7	15	2	21	5	19	14	17	24	11
6	14	14	11	11	8	12	10	11	5	7	10	21
7	27	46	34	8	9	22	12	19	10	6	25	8
8	20	5	23	4	7	16	9	15	6	11	8	10
9	15	5	34	6	10	11	11	25	4	14	7	8
10	8	4	78	11	41	10	12	10	3	16	8	8
11	14	6	22	4	25	3	7	18	6	18	10	14
12	6	11	12	3	8	12	8	10	8	15	6	42
13	17	9	16	7	9	9	1	43	7	9	9	29
14	24	10	50	4	55	5	1	14	12	8	30	26
15	27	13	37	6	77	42	4	6	10	9	36	11
16	20	7	9	2	26	24	10	5	16	10	50	8
17	10	7	5	13	34	7	12	109	11	9	33	3
18	10	6	5	13	29	52	17	45	7	8	23	34
19	6	6	8	4	14	70	24	8	6	4	33	14
20	10	15	28	4	26	6	112	8	6	14	38	28
21	7	8	4	5	21	8	146	12	8	17	16	73
22	7	12	5	7	12	23	51	6	26	19	21	29
23	12	47	5	11	28	4	22	6	15	20	36	28
24	8	68	10	8	6	7	17	8	20	32	29	18
25	34	24	7	6	5	5	23	2	16	19	29	40
26	76	17	8	13	6	54	24	11	22	10	19	42
27	49	16	6	8	26	8	17	16	25	4	26	34
28	39	14	7	9	22	8	9	28	10	7	31	24
29	28	14	13	10	58	8	13	19	50	24		26
30	17	9	10	7	17	12	23	20	30	24		64
31		13		4	6		14		35	18		7
MEAN	23	16	17	8	20	17	21	19	16	14	23	23

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

University of Göttingen

Kp through March 31, 1990



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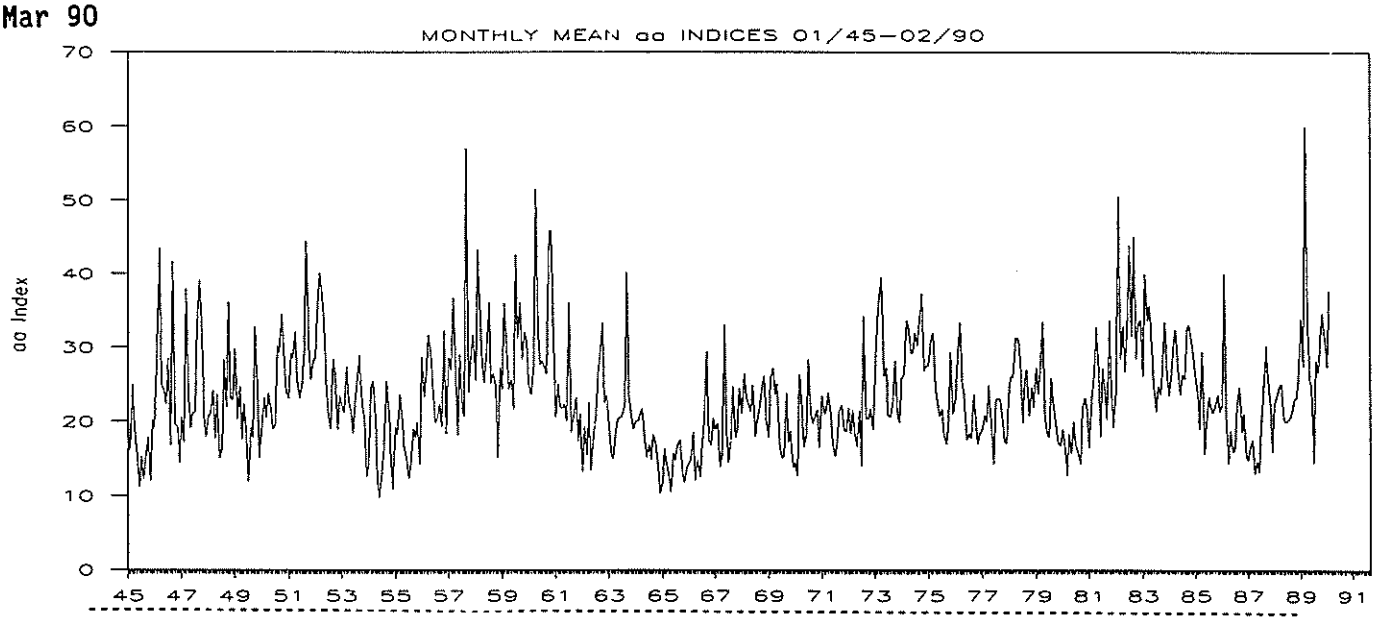
Mar 90



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1945	16.1	16.4	25.0	19.1	15.4	11.1	15.3	12.1	15.6	17.9	12.0	20.2	16.3
1946	19.2	30.2	43.5	25.0	24.1	22.3	28.6	16.7	41.7	19.6	19.3	14.3	25.4
1947	20.6	17.1	37.9	23.3	19.1	21.1	21.4	32.9	39.1	31.3	20.7	17.9	25.2
1948	20.8	21.0	24.2	17.7	23.7	15.0	16.2	28.3	22.0	36.1	23.1	23.0	22.6
1949	29.8	20.4	24.7	17.6	22.4	17.9	11.8	19.2	17.8	32.7	24.6	15.1	21.2
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	22.5	26.1	29.0	22.4	20.2	12.6	22.2
1954	13.9	24.5	25.5	20.6	12.0	9.7	13.1	16.5	25.4	21.1	14.5	10.9	17.3
1955	19.3	18.2	23.6	21.1	16.7	15.1	12.3	14.3	19.1	17.8	19.9	14.1	17.6
1956	28.7	23.3	27.6	31.7	29.3	23.5	19.8	20.7	22.4	19.3	32.3	18.2	24.7
1957	28.7	26.8	36.7	28.8	18.1	29.1	21.7	20.7	57.0	24.0	29.5	31.7	29.4
1958	25.5	43.2	36.1	27.6	25.2	29.7	36.0	25.1	26.5	24.7	15.0	27.2	28.5
1959	24.3	35.9	29.9	24.2	25.7	21.6	42.5	31.2	36.1	28.2	32.1	30.8	30.2
1960	25.2	23.5	27.6	51.5	31.6	27.6	28.1	27.2	26.4	45.6	45.9	34.5	32.9
1961	20.6	25.1	22.0	21.8	22.3	20.1	36.0	18.5	20.7	23.3	17.3	21.1	22.4
1962	13.2	19.2	15.5	22.6	13.4	18.1	21.0	26.2	29.8	33.3	22.5	23.5	21.5
1963	19.3	15.3	14.9	18.2	20.4	20.5	20.8	22.5	40.2	23.5	20.7	18.9	21.3
1964	20.1	20.1	21.0	21.7	17.5	15.1	16.9	14.8	18.2	16.9	13.8	10.3	17.2
1965	11.8	16.3	14.3	12.6	10.5	15.7	14.7	16.8	17.5	13.1	11.7	13.8	14.1
1966	14.2	14.8	18.6	12.0	14.8	12.5	17.1	20.0	29.4	17.5	16.8	20.5	17.3
1967	18.9	19.8	13.8	15.5	33.1	18.6	14.4	17.5	24.7	17.8	18.9	24.5	19.8
1968	21.1	26.5	23.3	22.2	21.4	24.9	18.0	20.1	22.0	24.8	26.2	20.3	22.6
1969	17.8	25.8	27.3	23.6	25.2	16.7	15.0	15.3	23.8	17.2	18.7	13.8	20.0
1970	14.4	12.7	26.4	23.1	16.6	18.3	28.4	21.0	19.7	20.6	21.6	16.5	19.9
1971	23.5	21.2	21.1	23.9	21.1	17.0	15.2	17.1	21.4	22.2	18.8	18.6	20.1
1972	21.9	18.3	21.5	18.1	16.6	21.5	14.0	34.2	20.4	20.4	21.8	18.9	20.6
1973	26.1	32.7	36.9	39.6	26.1	27.3	20.9	20.6	22.8	28.2	20.7	19.9	26.8
1974	25.8	26.4	33.7	32.9	29.2	29.2	32.0	30.2	33.7	37.3	26.8	27.5	30.4
1975	27.6	31.1	32.0	24.3	22.7	20.7	21.7	18.1	16.9	20.2	29.3	21.1	23.8
1976	23.3	28.5	33.4	25.4	23.7	17.5	18.4	17.7	23.7	20.4	16.9	18.6	22.3
1977	18.7	21.0	19.9	24.9	20.1	14.2	22.9	23.2	23.0	20.9	17.3	17.0	20.3
1978	24.6	26.2	25.9	31.3	31.2	28.3	19.9	25.6	27.0	20.8	24.6	22.0	25.6
1979	27.3	23.7	26.9	33.5	21.0	18.3	17.9	26.0	22.0	19.3	17.1	16.8	22.5
1980	19.0	17.3	12.7	18.4	15.6	20.0	17.0	15.9	14.2	21.9	23.3	21.7	18.1
1981	16.5	23.1	26.6	32.8	26.9	18.0	27.2	24.0	20.4	33.7	24.1	19.3	24.4
1982	24.2	50.6	28.5	32.9	26.7	32.1	43.9	31.4	45.1	28.5	33.0	33.8	34.2
1983	26.2	40.0	33.6	35.7	31.6	24.9	21.3	24.9	23.7	28.3	33.5	26.0	29.1
1984	23.5	26.7	30.7	32.5	27.2	23.7	26.4	25.8	32.6	33.1	31.0	29.0	28.5
1985	25.7	24.1	19.0	29.5	15.6	19.9	23.4	22.0	21.2	22.2	23.7	21.4	22.3
1986	22.4	40.0	21.1	14.3	18.8	15.9	16.3	22.3	24.7	18.6	21.2	15.3	20.9
1987	14.8	16.6	17.6	12.9	14.7	13.2	19.3	24.3	30.3	25.8	22.4	16.0	19.0
1988	22.4	23.4	24.8	25.2	20.5	20.0	20.2	20.6	21.4	23.2	23.3	25.5	22.5
1989	33.9	27.5	60.1	32.8	25.7	24.9	14.4	28.4	26.7	31.4	34.7	31.4	31.0
1990	27.4	37.8											32.6

PRINCIPAL MAGNETIC STORMS

MARCH 1990

Sta	Geomag Lat	Commencement Time Day	(UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
HYB	07.6N	05	1100	..	..	..	..	06(5,6)	4	2	94	13	06	23
ETT	00.6S	05	2300	..	..	..	..		-	5	227	45	07	18
GUA	04.0N	06	00--	..	..	..	..	06(1)	5	--	110	20	06	10
HYB	07.6N	08	0300	..	..	..	..	08(4)	4	4	103	24	09	22
COL	64.6N	12	1503	SC	8	102	7	12(6)	7	169	1680	540	13	05
FRD	49.6N	12	1503	SC*	9	21	- 10	12(6,8) 13(1)	6	28	209	194	14	--
BJI	28.5N	12	1503	SC	1.9	65	4	12(8)	6	19	203	30	13	19
KRC	16.4N	12	1501	SC	- 2.3	56	29	12(6,7)	6	6	213	50	15	12
UJJ	13.5N	12	1503	SC	- 0.5	49	- 11		-	6	186	42	14	21
ABG	09.5N	12	1503	SC	- 1.0	42	- 9	12(7)	6	5	183	42	14	21
HYB	07.6N	12	1503	SC	- .3	41	- 3	12(7,8)	6	5	185	31	14	23
GUA	04.0N	12	1503	SC	.3	39	- 11	12(8)	7	10	230	70	13	09
ANN	01.5N	12	1503	SC	- 1.8	55	28		-	7	250	135	14	21
ETT	00.6S	12	1503	SC	- .6	36	36		-	4	298	75	14	22
HER	33.7S	12	1503	SC	4	26	21	12(7,8) 13(1)	6	44	164	219	13	15
CNB	43.9S	12	1504	SC*	2.2*	58	5	12(6,7) 13(1)	5	17	232	90	13	06
KGL	56.5S	12	1503	SC	6	72	24	12(7,8) 13(1)	8	136	752	450	13	05
GUA	04.0N	13	2058	..	..	..	..	13(8)	5	10	60	30	14	09
HER	33.7S	13	20--	..	..	..	..	14(1,4)	5	22	56	88	14	17
KGL	56.5S	13	1051	SC	6	70	16	14(1)	7	46	504	288	15	01
FRD	49.6N	18	08--	..	..	..	..	18(5,6,8) 19(1)	5	30	124	74	19	04
BJI	28.5N	18	02--	..	..	..	..	18(6)	5	10	124	53	19	06
KRC	16.4N	18	05--	..	..	..	..	18(5)	6	6	147	46	19	20
UJJ	13.5N	18	0400	..	..	..	..		-	5	182	39	19	03
ABG	09.5N	18	0400	..	..	..	..	18(6,7)	5	5	203	36	19	03
HYB	07.6N	18	0200	..	..	..	..	18(5,6)	6	4	213	18	19	06
GUA	04.0N	18	10--	..	..	..	..	18(5)	6	--	150	50	19	06
ANN	01.5N	18	0400	..	..	..	..		-	3	241	31	19	03
ETT	00.6S	18	0100	..	..	..	..		-	6	260	84	19	12
HER	33.7S	18	06--	..	..	..	..	18(7,8) 19(1)	5	37	124	134	19	04
CNB	43.9S	18	06--	..	..	..	..	18(6,8) 19(1)	5	18	167	36	19	06
KGL	56.5S	18	13--	..	..	..	..	19(1)	7	60	544	352	19	09
COL	64.6N	20	2243	SC*	..	437	..	21(3,5,6,7)	6	237	1350	910	22	02
FRD	49.6N	20	2243	SC	- 2.2	77	- 9	30(4)	7	38	252	301	31	00
BJI	28.5N	20	2243	SC	3.2	15	3	20(8)	6	14	154	37	24	06
HON	21.1N	20	2245	..	..	..	..	21(24)	9	--	--	--	21	20
KRC	16.4N	20	03--	..	..	..	..	21(1)	6	6	190	60	24	08
UJJ	13.5N	20	2300	..	..	..	..		-	6	137	42	22	02
ABG	09.5N	20	2300	..	..	..	..	21(1)	6	5	136	50	22	02
HYB	07.6N	20	2242	SC	- .2	11	- 1	21(1)	6	5	178	30	23	21
GUA	04.0N	20	2243	SC*	1.2	49	- 17	20(8)	6	10	230	30	21	15
ANN	01.5N	20	2300	..	..	..	..		-	7	174	69	22	02
ETT	00.6S	20	2043	SC	- .1	8	7		-	6	239	103	23	22
HER	33.7S	20	2243	SC	4	28	24	20(8) 21(1)	6	31	191	117	22	03
GNA	43.2S	20	2244	SC*	- 7.9*	- 20 *	- 35 *	21(1)	6	30	160	140	22	03
CNB	43.9S	20	09--	..	..	..	..	20(8) 21(1)	6	31	207	79	22	03
KGL	56.5S	20	2240	SC	6	16	- 8	20(8)	9	141	1361	591	23	06
GUA	04.0N	21	16--	..	..	..	..	21(8)	5	--	80	20	22	05
GUA	04.0N	23	00--	..	..	..	..	23(2)	5	--	130	30	23	17
ETT	00.6S	24	2300	..	..	..	..		-	7	279	72	27	12
COL	64.6N	25	09--	..	..	..	..	26(6)	7	236	1460	860	27	12
KRC	16.4N	25	05--	..	..	..	..	25(4)	6	6	90	55	28	11
UJJ	13.5N	25	0000	..	..	..	..		-	9	97	57	27	23
ABG	09.5N	25	0000	..	..	..	..	25(4) 26(6,7) 27(7)	5	8	168	65	27	23
HYB	07.6N	25	0000	..	..	..	..	25(4)	6	7	181	32	27	22
GUA	04.0N	25	21--	..	..	..	..	25(8)	5	--	60	20	26	09
GUA	04.0N	25	09--	..	..	..	..	25(4)	5	--	70	10	25	19
ANN	01.5N	25	0000	..	..	..	..		-	6	222	113	27	23
HER	33.7S	25	06--	..	..	..	..	26(1) 27(7,8)	5	31	105	119	28	00

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

MARCH 1990

Sta	Geomag Lat	Commencement Time Day	(UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
KGL	56.5S	25	09--	..	..	..	..	25(6,7) 26(1)	7	113	784	416	26	09
GUA	04.0N	26	23--	..	..	..	..	27(1)	5	--	110	30	27	08
GUA	04.0N	28	00--	..	..	..	..	28(1)	5	--	110	20	28	07
GUA	04.0N	29	10--	..	..	..	..	29(5)	5	--	50	10	29	18
GUA	04.0N	29	00--	..	..	..	..	29(1)	5	--	70	20	29	06
HER	33.7S	29	22--	..	..	..	..	29(8)	5	17	56	75	29	01
COL	64.6N	30	03--	..	..	..	..	30(3,4)	8	262	2230	1370	30	20
BJI	28.5N	30	0719	SC	2.4	60	4	30(3)	7	11	268	57	31	18
HON	21.1N	30	0120	..	..	..	..	06(9)	9	--	--	--	30	20
KRC	16.4N	30	0724	..	- 4	60	32	30(3)	7	8	242	75	31	07
UJJ	13.5N	30	0721	SC	- 1.6	51	- 13		-	5	256	49	31	03
ABG	09.5N	30	0721	SC	- 1.9	44	- 21	30(3,4)	7	8	292	56	31	03
HYB	07.6N	30	0721	SC	1.2	47	- 6	30(4)	8	6	320	32	31	22
GUA	04.0N	30	0720	SC	..	50	- 16	30(3)	7	--	300	30	30	19
ANN	01.5N	30	0721	SC	- 3.0	111	32		-	6	410	147	31	03
ETT	00.6S	30	0720	SC*	2.6	119	76		-	9	466	178	31	10
HER	33.7S	30	0720	SC	- 14	40	12	30(3)	6	36	190	77	30	19
GNA	43.2S	30	0721	SC	5.2	48	17	30(4)	6	20	200	210	30	20
CNB	43.9S	30	0721	SC	- 5.5	75	20	30(3)	7	20	272	132	30	18
KGL	56.5S	30	0721	SC	16	152	32	30(4)	7	80	616	184	30	23

Stations:

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

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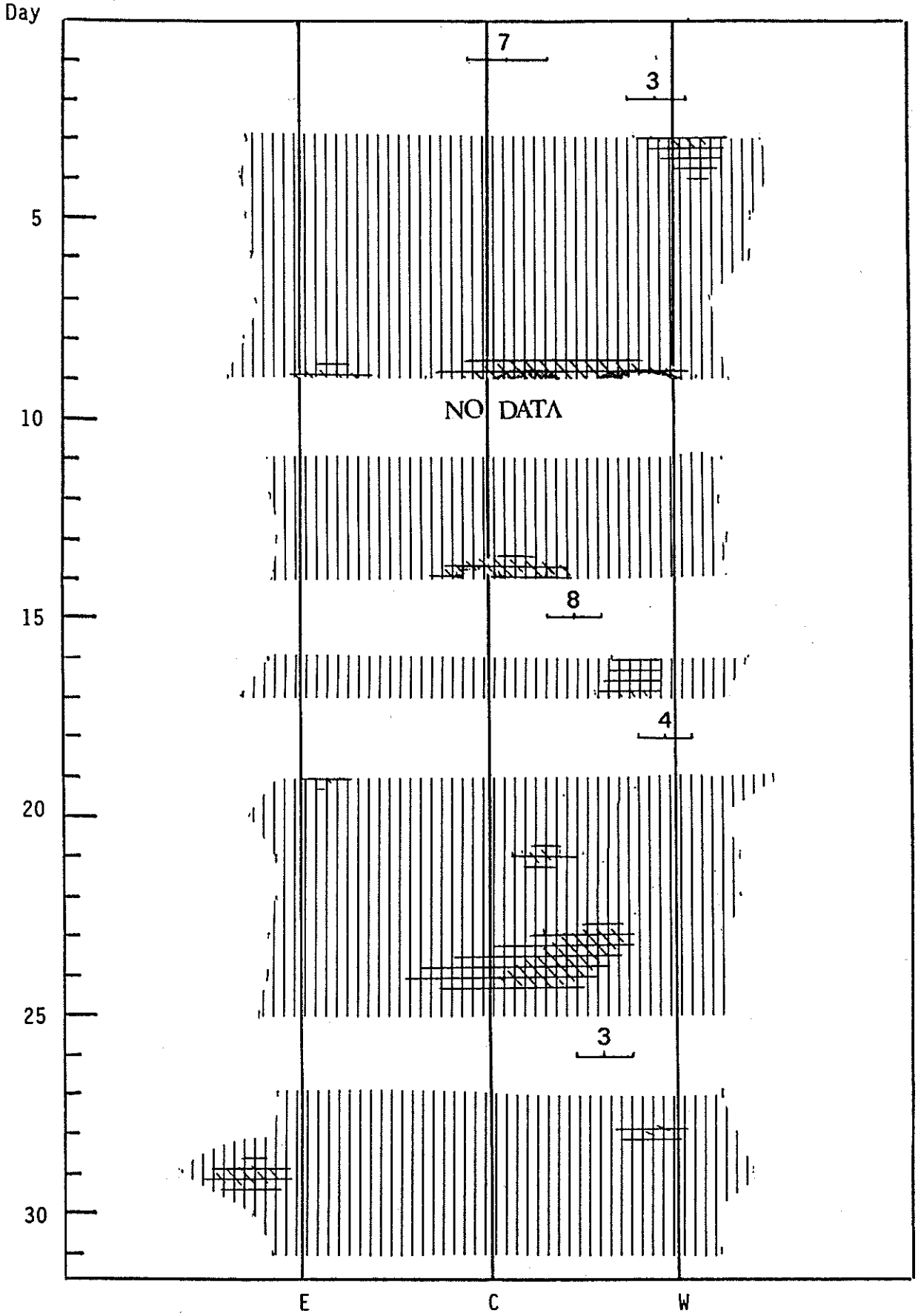
SOLAR INTERFEROMETRIC OBSERVATIONS

Nancay — MARCH 1990 — 164 MHz



GEOMAGNETIC ACTIVITY INDICES

February 1990

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	aa Provisional Am	N	S	M	
1		2-	3+	3-	3	3+	5-	5	3+	27	22	1.1	1+	3-	2	3-	4-	4+	4	3	33	40	38	22	56	
2		4	5-	4-	4-	4-	4	4-	4-	31	25	1.2	4-	4	4-	3+	4-	4	4-	3	44	48	49	51	47	
3	Q6A	3	1+	1-	2-	2+	3-	2+	2+	16+	8	0.5	3-	1+	1-	2	3-	3-	3-	2+	17	20	21	15	26	
4		4-	3+	3-	2+	3	5	5+	5	30+	28	1.2	3	2+	2	2+	3-	5	5+	4+	48	45	41	19	67	
5		5-	4-	4+	5-	3-	4-	3+	2+	29+	24	1.2	4	4-	3+	4+	3	3+	3	2	38	38	39	48	29	
6	Q7A	4	3+	3+	1+	0+	2-	1	1-	16-	10	0.6	3	3-	3-	1	1	2-	1	1+	14	20	13	25	8	
7		1+	2+	4	4-	4	4	4+	5	29-	25	1.2	1	3-	4-	4	4	4-	4	5-	44	46	46	30	63	
8	Q3A	4-	3+	2	1+	1	1-	0+	0+	13-	8	0.4	3	3-	2-	1	1	1	1	1-	11	15	13	22	6	
9	Q2A	0+	2-	3	2-	2+	2+	1-	1-	13-	7	0.3	1-	1+	3-	2-	2	3-	1-	1+	12	12	17	15	13	K
10	Q4A	1+	1	2	2	3	3	2-	2-	16-	8	0.4	1+	1+	2+	2+	3	3-	2-	2-	16	17	24	16	25	
11	Q8A	1	2+	2	3-	2+	3-	3	2+	18+	10	0.5	1+	2	2	2+	3-	3-	3-	2+	18	19	22	17	24	
12	Q1K	3	3-	2+	2	1-	0+	0+	0+	12-	6	0.3	3	2	2-	2	1	1-	0+	0+	11	12	10	19	3	KK
13	Q5A	0+	1	0+	1+	1	3	1+	4+	13-	9	0.5	0+	1	0	2-	1+	3+	1+	4-	15	22	14	8	29	
14		5-	6+	5+	4-	3-	2+	1	2	28	30	1.3	4	6-	5-	4	3-	2	1+	2	47	35	62	81	16	
15		2	2	3+	3	4	4+	6-	7-	31	36	1.4	2	2	3	3+	4	4	5	6	59	69	62	24	106	
16	D1	7-	7-	5-	3	4	4	4	5-	38-	50	1.6	5+	6-	4-	3-	4	4-	4-	4-	65	64	62	67	60	
17	D4	6	5	3+	4-	4-	4	3+	4+	33+	33	1.3	5-	4	3-	4-	4-	4-	3	4-	48	50	58	60	49	
18		4	3-	4-	4-	4-	3	4	5-	29+	23	1.1	3+	2	4-	4-	4-	3	3+	4	37	40	41	35	46	
19	D5	5	4	3-	4	5-	4	5-	5	34	33	1.3	4+	3+	2+	4-	4+	4-	4+	5-	51	50	51	37	65	
20	D2	5-	3+	5-	4+	5-	5-	5+	5-	36+	38	1.4	4	3	4	3+	4+	4-	5	4-	54	81	51	42	91	
21	Q9A	4	4-	3-	3-	3+	3-	3+	2+	25-	16	0.9	3	3	2	3-	3	2+	3	2	24	29	26	29	26	
22		3-	3	3	2+	4-	3+	5-	5-	27+	21	1.1	2+	3-	3-	2+	3+	3	4+	4	34	36	35	22	49	
23	D3	5	3-	4	5-	5-	5	4	5	35	36	1.4	4	2+	3+	4+	4+	5-	4-	5-	54	55	54	45	64	
24		5+	4-	4-	3+	4-	4	4+	4+	32+	29	1.3	5-	3	3+	3+	4-	4-	4	4+	48	43	39	33	49	
25		4+	5	4-	4	4-	3+	5-	4	33-	29	1.3	4	4	3	4+	4-	3	4-	3+	44	47	39	39	48	
26	Q10A	4-	3+	2+	3+	4	2	4	4	27-	19	1.0	3+	3-	2+	3+	4-	2	4-	4-	32	33	37	26	44	
27		4	4+	5	5-	4-	2+	3+	3-	30	26	1.2	3+	4-	4	5-	4-	2	3	2+	41	43	39	53	30	
28		4-	6	5	3	4	3	4	3	32-	31	1.3	3+	5-	4	3	4-	3-	4-	3	43	43	37	46	35	
Mean											23	1.01									35.8	38.4	37.3		37.8	

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	1+	3-	2-	3-	3+	4+	4+	3	33	2-	2+	2+	3	4	4	4	3	34	200.8	171	177	155	
2	3+	4	3+	3+	4-	4	4-	3	45	4-	4	4-	3	4-	4-	4-	3	44	177.8	161	164	130	
3	2+	1+	1-	2-	3-	3	3-	2+	17	3-	2-	1-	2	3-	3-	2+	2+	16	157.9	124	140	109	
4	3	3-	2+	2	3-	5	5	5-	48	3	2+	2	3-	3-	5	6-	4	49	154.8	119	120	105	
5	4	4-	3+	4+	3+	3+	3	2+	40	4	4-	3	4+	3-	3	3-	2	35	150.9	97	90	101	
6	3	3-	3	1+	1	2-	1	1	15	3-	3-	2+	1-	1+	2-	1+	2-	14	147.5	80	77	97	
7	1	2	4-	4-	4-	4	4	5-	42	1+	3	3+	4	4	4-	4	5-	47	144.3	82	91	94	
8	3	2+	2	1	1	1	1-	0+	11	3	3-	2-	1	1-	1	1	1-	11	142.2	95	109	92	
9	0+	1	2+	2-	2	3-	1-	1-	11	1	2-	3-	2	2	2	1-	2-	13	142.0	103	110	91	
10	1	1	2-	2+	3	3	2-	1+	16	1+	2-	3-	2	3	2	2-	2	16	148.5	79	79	98	
11	1-	2	2-	2+	3-	3	3	2	19	2-	2	2	3-	3-	3-	2	3-	18	134.9	75	80	84	
12	3-	2-	2-	2-	1-	1-	0+	0+	9	3+	2	2-	2	1	0+	0+	0+	12	140.0	80	82	89	
13	0	1	0	1+	1+	3+	2-	4-	15	0+	1+	0	2	2-	3	1+	3+	14	142.8	85	100	92	
14	4	6-	4+	4-	2+	2	1	2	44	4	6-	5-	4+	3-	2	2-	2	50	149.5	75	91	99	
15	2+	2-	3	3	4	4+	5+	6-	58	2	2	3+	4-	4-	4	5	6	59	148.8	78	90	99	
16	5+	6-	4	3-	4	4	4-	4-	64	6-	6-	3+	3	4	3+	4-	4	66	148.8	64	65	99	
17	4+	4	3	4-	4-	4-	3+	4-	46	5+	4	3-	4-	4-	3+	3	4-	49	151.6	57	47	102	
18	3+	2+	3+	3+	4-	3	3+	4-	35	3+	2	4-	4-	3+	3-	3	4+	39	161.1	77	88	112	
19	4	3+	2+	4-	4+	4-	4+	4+	49	5-	3+	3-	4-	4+	4-	4	5-	54	180.3	107	123	133	
20	4	3-	4-	4-	4+	4+	5-	4	55	4+	3	4	3+	4+	3	5	4-	53	189.5	134	139	143	
21	3+	3	2	2+	3+	2+	3	2	25	3-	3	2+	3-	3-	2+	3	2	23	211.9	159	158	167	
22	3-	2+	3-	2+	4-	3	4	4-	33	2+	3-	3	2+	3	3	4+	4+	35	215.7	191	181	171	
23	4-	2+	3+	4	4+	5-	4	4	51	4	3-	3+	5-	4	5-	3+	5	57	216.6	239	220	172	
24	4+	3	3+	3+	4-	4	4	4	47	5	3-	3+	3	4-	4-	4	5-	50	231.5	249	269	188	
25	4	4	3	5-	4-	3-	4-	3+	46	4-	4-	3	4	4-	3	4-	3+	42	225.3	245	236	181	
26	3	3-	2	3+	4-	2	4-	3+	31	4-	3	2+	3	3+	2	4-	4-	33	213.3	213	220	168	
27	3+	4-	4	4+	4	2	3	2	40	4-	4-	4	5	4-	2+	3+	2+	42	224.1	200	217	180	
28	3+	5-	4-	3-	4-	3-	4-	3-	40	3+	5-	4+	3	4-	3-	4-	4-	47	222.0	156	205	178	
Mean									35.2									36.5	174.1	128.4	134.6	126.0	

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

DECEMBER 1989

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
01	1749	A: WNG* CLF HRB* NAG* COI* BJI	01	1751-1830	TEN (see SSC)
		HYD ETT LNP GNA CZT* KGL DUM	03	0848-0858	CLF
		B: DOB NGK* BDV* GCK EBR* FRD* CNB	04	0325-0343	LNP
		C: VAL*	14	0206-0255	MMB KAK KNY LNP
		sfe: TEN	26	0529-0534	LNP
			28	0309-0316	LNP
04	1120	B: COI	30	0205-0217	LNP
		C: CLF EBR BJI TEN		0416-0436	LNP
22	0022	B: WNG CLF HRB GCK COI FRD QUE GNA			
		C: BDV MMB* EBR KAK KNY* LNP HYD ETT			
23	0315	B: WNG COI TEN			
		C: BDV CLF EBR*			
29	0655	A: HRB COI BJI QUE TEN* LNP HYD ETT CZT			
		B: WNG BDV CLF GCK EBR FRD KAK KNY GNA			
		CNB			
		C: NUR NGK VAL MMB			

Reporting Observatories: (up to the 3rd of February 1990)

SOD DOB NUR WNG NGK VAL BDV CLF HRB NAG MMB EBR
COI BJI FRD KAK KNY QUE TEN LNP HYD ETT GNA AMS
CZT KGL DUM GCK CNB

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

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

JANUARY 1990

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
02	0035	A: NAG* TAN	05	1149-1221	BDV
		B: WNG BDV TEN	10	0245-0251	LNP
		C: NGK GCK	11	1635-xxxx	TAN
		bps: CLF	16	0939-1000	HYB ETT TAN
			18	0222-0240	MMB KAK HTY KNY LNP
08	1432	A: WNG* BJI SPT* PEN TEN LNP TAN		0432-0434	LNP
		B: SOD* NUR* LER* ESK* HAD* BDV* NAG*	20	1240-1309	WNG BDV
		GCK* EBR* HYB ETT GNA CNB AMS*		2142-xxxx	TAN
		CZT KGL*	21	0440-0450	LNP
		C: NGK*	22	0900-xxxx	TAN
			23	0444-0454	LNP
10	0834	B: WNG	28	1715-xxxx	TAN
		C: BDV CLF SPT KGL	29	1627-xxxx	TAN
			30	0330-xxxx	TAN (ssc: LNP)
				1003-xxxx	TAN

Reporting Observatories: (up to the 3rd of March 1990)

SOD DOB NUR LER ESK WNG NGK HAD BDV CLF NAG GCK
MMB EBR BJI SPT FRD PEN KAK HTY KNY TEN LNP HYB
ETT TAN GNA CNB 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.

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
JAN89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	1217	125.6	606.	48.7	.039
2	1206		603.	9.3	.287
3	—				
4	—				
5	1203		656.	5.9	.278
6	—				
7	1145		699.	3.3	.242
8	1152		613.	39.8	.051
9	1209		438.	14.4	.122
10	1206		396.	11.3	.029
11	1201		532.	25.4	.305
12	1201		403.	11.2	.133
13	1206		394.	33.5	.013
14	1237		370.	17.8	.077
15	1209	133.6	330.	27.5	.065
16	1210		402.	20.2	.399
17	1207		665.	10.3	.318
18	1207		682.	7.9	.265
19	—				
20	—				
21	1212		489.	10.4	.402
22	1208		463.	7.5	.137
23	1208		464.	6.9	.079
24	1248		409.	7.9	.199
25	—				
26	1208		616.	26.8	.100
27	—				
28	1209		379.	13.2	.028
29	1207		388.	52.9	.058
30	1211		429.	5.8	.037
31	1201	142.8	551.	14.1	.384

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
FEB89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	1257	143.3	581.	10.7	.331
2	1201		641.	10.4	.391
3	1206		615.	5.3	.159
4	—				
5	1213		637.	9.3	.134
6	1209		483.	12.7	.109
7	1216		479.	8.9	.136
8	—				
9	—				
10	1206		336.	21.3	.047
11	1157		315.	88.9	.037
12	—				
13	0152		586.	3.1	.416
14	0206		670.	8.7	.498
15	—				
16	—				
17	0154		565.	7.4	.223
18	0209		463.	16.5	.251
19	0146		468.	11.2	.227
20	0142		471.	7.8	.169
21	0002		412.	16.9	.138
22	2240		471.	14.2	.222
23	—				
24	0115		397.	14.8	.486
25	0205		381.	16.9	.135
26	0201		327.	21.3	.090
27	0019		428.	11.9	.130
28	0134		402.	12.3	.255

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
MAR89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	1155	159.1	390.	6.2	.051
2	0925		284.	27.2	.031
3	0906		346.	19.1	.345
4	0826		303.	28.3	.021
5	0220		318.	37.3	.059
6	0041		334.	21.7	.057
7	0138		317.	25.8	.140
8	—				
9	1413		492.	13.6	.184
10	0612		488.	18.7	.033
11	0226		558.	63.2	.253
12	1019		457.	11.5	.166
13	0548		480.	24.9	.137
14	1747		369.	18.9	.162
15	—				
16	—				
17	0217		658.	12.5	.027
18	—				
19	—				
20	—				
21	2054		387.	17.6	.069
22	—				
23	—				
24	—				
25	—				
26	—				
27	—				
28	—				
29	—				
30	—				
31	—				

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
APR89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	—				
2	—				
3	—				
4	—				
5	—				
6	—				
7	—				
8	—				
9	—				
10	—				
11	—				
12	—				
13	—				
14	—				
15	—				
16	—				
17	—				
18	—				
19	—				
20	1349		474.	11.3	.403
21	1223	169.8	443.	1.6	.475
22	1731		396.	19.2	.362
23	—				
24	—				
25	—				
26	1927		426.	22.6	.284
27	0201		433.	25.1	.260
28	2208		399.	6.2	.041
29	1625		404.	20.0	.186
30	1016	164.3	376.	14.2	.195

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
MAY89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	1521	163.7	439.	14.3	.143
2	1515		403.	28.8	.085
3	1558		456.	17.4	.030
4	0058		455.	14.9	.639
5	—				
6	—				
7	—				
8	2118		312.	36.1	.043
9	1843		377.	31.4	.127
10	1347		518.	48.2	.2712
11	1744		683.	10.4	.503
12	2007		669.	8.9	.448
13	2219		635.	7.2	.310
14	—				
15	0305	154.7	484.	12.6	.114
16	0244		400.	11.8	.030
17	1003		663.	19.5	.147
18	0058		509.	8.0	.037
19	1938		447.	9.9	.033
20	0230		449.	13.9	.111
21	0250		417.	11.6	.142
22	0232		651.	11.5	.045
23	2112		546.	11.5	.234
24	1424		541.	9.9	.354
25	—				
26	—				
27	0048		471.	8.2	.319
28	0250		586.	9.7	.006
29	0346		381.	17.9	.476
30	—				
31	1554	144.2	497.	14.0	.085

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
JUN89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	2207	143.1	389.	18.5	.143
2	0213		371.	11.2	.085
3	0219		313.	15.5	.030
4	0006		595.	36.9	.639
5	0211		483.	5.5	.204
6	2054		396.	24.2	.316
7	—				
8	—				
9	0138		447.	11.8	.285
10	1203		410.	6.8	.219
11	1208		434.	9.1	.070
12	1201		331.	31.5	.066
13	1202		322.	15.8	.021
14	—				
15	1204	134.2	375.	20.8	.117
16	1202		353.	46.4	.134
17	1206		345.	12.2	.078
18	1204		410.	23.3	.133
19	—				
20	1202		386.	15.6	.062
21	—				
22	1206		305.	41.3	.029
23	—				
24	1200		483.	28.2	.296
25	1209		658.	3.2	.363
26	1220		673.	3.9	.557
27	1207		681.	2.9	.378
28	1207		555.	2.2	.134
29	1206		502.	2.9	.132
30	1206	124.1	402.	4.2	.129

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
JUL89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	1200	123.4	429.	11.9	.018
2	1211		545.	17.6	.021
3	1200		399.	8.8	.019
4	—				
5	1202		341.	17.1	.037
6	—				
7	1209		321.	15.8	.039
8	—				
9	1207		316.	19.4	.073
10	—				
11	—				
12	1208		336.	29.7	..087
13	—				
14	1200		437.	9.9	.134
15	—				
16	1205	114.1	396.	20.7	.077
17	1216		353.	13.7	.064
18	1203		529.	5.4	.197
19	1209		486.	12.6	.107
20	1209		476.	11.9	.008
21	1209		383.	14.2	.110
22	1209		354.	12.7	.159
23	—				
24	—				
25	1209		522.	11.3	.351
26	1209		444.	9.5	.075
27	1208		331.	17.5	.091
28	1207		282.	16.9	.037
29	—				
30	1206		300.	21.4	.152
31	1200	103.6	294.	22.5	.081

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
AUG89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	1206	102.9	308.	95.5	.018
2	—				
3	1206		324.	70.9	.057
4	1211		329.	85.4	.038
5	1210		444.	12.4	.041
6	1207		384.	12.1	.040
7	1207		395.	10.6	.152
8	—				
9	—				
10	1209		349.	5.7	.056
11	1203		368.	45.3	.087
12	1203		372.	29.2	.073
13	1208		305.	27.4	.032
14	1202		274.	14.3	.033
15	1202		402.	27.8	.021
16	1202	93.3	383.	35.9	.028
17	1209		348.	53.8	.026
18	1201		290.	29.9	.022
19	1205		285.	29.9	.045
20	1203		266.	86.4	.019
21	1158		311.	94.7	.030
22	1203		369.	16.7	.098
23	1159		319.	22.1	.043
24	1203		420.	22.5	.141
25	—				
26	1159		300.	31.5	.077
27	1207		594.	54.9	.161
28	1201		453.	18.7	.057
29	—				
30	1210		346.	6.3	.014
31	1200	83.8	554.	14.4	.022

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
SEP89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	1202	83.2	411.	4.3	.025
2	1201		852.	17.6	.669
3	—				
4	—				
5	—				
6	—				
7	1112		513.	5.3	.187
8	1209		428.	7.2	.037
9	1216		368.	4.4	.191
10	1219		385.	6.6	.213
11	1203				
12	1202		389.	60.7	.079
13	—				
14	1203		359.	11.2	.058
15	1209	74.6	325.	80.0	.056
16	1204		415.	90.3	.063
17	1201		365.	15.1	..067
18	1200		320.	53.9	.019
19	1201		292.	24.6	.054
20	1201		303.	32.0	.119
21	—				
22	—				
23	—				
24	—				
25	—				
26	0219		332.	22.4	.051
27	0227		380.	24.8	.212
28	—				
29	2111		402.	10.9	.163
30	—	65.6			

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
OCT89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	1506	65.0	418.	32.2	.136
2	0208		393.	19.1	.116
3	0205		453.	12.7	.097
4	0233		526.	8.7	.276
5	0206		590.	7.8	.283
6	0236		479.	9.3	.403
7	0229		559.	6.7	.268
8	0302		375.	11.9	.391
9	0230		435.	12.1	.136
10	—				
11	0220		415.	11.6	.085
12	0227		417.	20.6	.028
13	0225		322.	22.4	.045
14	0227		313.	4.6	.075
15	0236	56.7	377.	59.1	.015
16	0216		444.	40.4	.038
17	0125		423.	11.8	.058
18	—				
19	—				
20	—				
21	—				
22	—				
23	—				
24	1104		360.	23.7	.054
25	—				
26	0107		530.	18.0	.399
27	0237		487.	17.4	.135
28	0831		404.	21.7	.418
29	0114		477.	17.1	.316
30	0214		502.	6.8	.455
31	0420	47.9	693.	11.9	.733

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
NOV89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	2121	46.7	619.	8.3	.325
2	—				
3	—				
4	—				
5	0018		444.	13.5	.038
6	0046		413.	6.3	.044
7	—				
8	0306		454.	44.8	.033
9	0125		518.	31.4	.021
10	0427		457.	64.3	.157
11	0008		409.	25.0	.154
12	2309		338.	46.9	.060
13	2350		317.	39.5	.095
14	2326		392.	16.5	.144
15	2247	38.5	394.	32.7	.129
16	1545		391.	32.9	.221
17	2308		368.	27.6	.102
18	2257		347.	28.2	.109
19	2244		325.	54.9	.130
20	—				
21	0108		434.	25.2	.124
22	0324		331.	3.4	.200
23	—				
24	0239		518.	16.5	.569
25	0238		427.	21.8	.131
26	—				
27	0247		383.	25.9	.045
28	0015		933.	13.2	.022
29	2251		624.	1.4	.272
30	0121	29.7	609.	3.9	.302

Pioneer Venus					
DATE	TIME	ESV	Uh+	Nh+	Th+
DEC89	(UT)	(deg)	(km/sec)	(N/cc)	(x10E6 deg/K)
1	0215	29.1	619.	8.3	.325
2	0207		473.	10.6	.073
3	2259		341.	22.7	.052
4	2304		430.	24.6	.257
5	—				
6	2303		325.	39.9	.155
7	—				
8	—				
9	0042		372.	25.9	.108
10	2109		330.	40.5	.148
11	0136		388.	19.6	.144
12	—				
13	2103		404.	20.7	.354
14	2048	21.4	406.	17.4	.118
15	—				
16	—				
17	—				
18	—				
19	—				
20	—				
21	0238		446.	10.7	.184
22	—				
23	—				
24	—				
25	—				
26	0254		709.	6.6	.200
27	0238		624.	4.5.	.138
28	0145		528.	6.5	.430
29	—				
30	0100		572.	6.4	.225
31	0131	11.3	430.	5.7	.034

LIST OF

FORBUSH DECREASES

1954-1990

WITH SUPPLEMENTAL INFORMATION

1 May 1990

J. A. Lockwood
Space Science Center
University of New Hampshire

	A	B	C	D	E
1	YEAR	DATE	DAY	DN/N % #	REMARKS##
2			NUMBER	MT W. NM	
3	1954	NONE			
4					
5	1955	21-Nov	325	3.2	hrly, 5.4%; max rate>1%/hr; Ref 1
6					
7	1956	8-Jan	8	13	to = 28 d.; 1.9 % < predec. level
8					

	A	B	C	D	E
9		2-Mar	61	5	hrly 6.9%; max rate >1.5%/hr; Ref1
10					4 d. to next FD
11		12-Mar	71	4.7	to = 17 d.
12					
13		17-Mar	107	3.2	no recovery before next FD
14					
15		28-Apr	118	4.9	
16					
17		14-May	134	4.5	
18					
19		17-Aug	239	3	
20					
21		31-Aug	243	5.8	hrly 6.5%; max rate 1.7%/hr; Ref 1
22					
23		22-Sep	265	3	
24					
25		8-Nov	312	7.5	hrly 8.3 %; max rate 2.2%/hr;
26					incomplete recovery before next FD;
27					
28		27-Dec	356	4.1	
29					
30	1957	21-Jan	21	15.3	Max. rate 2.5%/h; Ref 1,5
31					
32		10-Mar	69	8.2	
33					
34		15-Apr	105	9.4	
35					
36		23-Jun	174	4.7	
37					
38		5-Aug	217	7	
39					
40		29-Aug	241	13.7	Max rate 2.6%/h; classic FD;
41					precursor; Rigidity Depend.; Ref 1,5

	A	B	C	D	E
42		22-Sep	265	5.2	
43					
44		29-Sep	272	5	
45					
46		23-Oct	296	9.3	Ref 1.
47					
48		23-Nov	327	8.5	
49					
50		17-Dec	351	6.9	
51					
52	1958	17-Jan	17	5.1	
53					
54		11-Feb	42	5.2	Spec. FD; max rate 7%/hr; Ref 1,5
55					
56		26-Mar	85	7.6	Ref 1
57					
58		29-May	149	4.4	
59					
60		29-Jun	180	3.4	
61					
62		9-Jul	190	6.1	hrly 7.8 %; max rate 1.7%/hr; Ref 1.
63					
64		17-Aug	229	5.1	Ref 1
65					
66		24-Aug	236	5.6	Ref 1
67					
68		15-Sep	258	4.4	
69					
70		1-Oct	274	3.3	
71					
72		22-Oct	295	5.3	
73					
74		10-Nov	314	3.9	

FORBUSH DECREASES 1 May 1990

	A	B	C	D	E
75					
76		14-Dec	348	3.7	
77					
78	1959	28-Jan	28	3.3	
79					
80		13-Feb	44	8.4	
81					
82		26-Feb	85	4.5	
83					
84		11-Apr	101	3.2	
85					
86		24-Apr	114	3	
87					
88		12-May	132	12.8	hrly, 14.8%; max rate 5%/hr;rigidity
89					depend; Ref. 1,5.
90		11-Jul	192	8.7	hrly 9.9%; max rate 3.2%/hr; Ref 1,5
91					
92		15-Jul	196	11.6	hrly 14.5%; max rate 6.1%/hr; Ref1
93					
94		17-Jul	198	10.7	hrly13.5 %; max rate 4.5%/hr; Ref1
95					
96		20-Aug	232	6.5	Max rate, 2.5%/hr; Ref 1
97					
98		4-Sep	247	4.3	
99					
100		19-Sep	262	3.8	
101					
102		3-Dec	337	6.4	
103					
104		22-Dec	356	3.3	
105					
106	1960	13-Jan	13	4.3	
107					

	A	B	C	D	E
108		30-Mar	96	10.6	
109					
110		30-Apr	120	7.5	
111					
112		9-May	129	3.9	
113					
114		24-May	144	3.4	
115					
116		30-May	150	3.5	
117					
118		6-Jun	157	3	
119					
120		30-Jun	181	6.1	
121					
122		16-Jul	197	3.4	
123					
124		30-Aug	242	3	
125					
126		7-Oct	280	6.1	
127					
128		25-Oct	298	3.6	
129					
130		16-Nov	320	14.2	
131					
132		27-Dec	361	3.1	
133					
134	1961	17-Feb	48	3.2	
135					
136		13-Apr	103	3.7	
137					
138		12-Jul	193	10.6	
139					
140		18-Jul	199	5.9	

	A	B	C	D	E
141					
142		27-Jul	208	4.6	
143					
144		30-Sep	273	6.6	
145					
146		29-Oct	302	3.1	
147					
148		1-Dec	335	4.4	
149					
150	1962	22-Apr	112	3	
151					
152	1963	3-May	123	3.4	
153					
154		15-Sep	258	3	
155					
156		22-Sep	265	9.4	
157					
158		28-Oct	301	3	
159					
160	1964	NONE			
161					
162	1965	6-Oct	279	3.1	
163					
164	1966	23-Mar	82	5.3	Ref 5.
165					
166		30-Aug	242	7.2	
167					
168		5-Sep	248	3.4	
169					
170		13-Sep	256	4	Ref 5
171					
172		24-Sep	267	3.7	
173					

FORBUSH DECREASES 1 May 1990

	A	B	C	D	E
174		14-Dec	348	3.1	
175					
176	1967	13-Jan	13	3.9	
177					
178		2-May	122	3.1	
179					
180		26-May	146	7.5	
181					
182		7-Jun	158	3	
183					
184		28-Oct	301	5.4	
185					
186	1968	26-Jan	26	4.1	Unusual FD; Ref 3,5
187					
188		5-Apr	95	4.4	slow FD; Ref 7
189					
190		11-Jun	162	4.1	Ref 7
191					
192		12-Jul	193	4.1	
193					
194		22-Aug	234	3	
195					
196		1-Oct	274	3.7	
197					
198		28-Oct	301	11.1	
199					
200		17-Nov	321	3.8	
201					
202		6-Dec	340	4.9	
203					
204	1969	28-Feb	59	6.6	
205					
206		17-Mar	76	3.3	

FORBUSH DECREASES 1 May 1990

	A	B	C	D	E
207					
208		24-Mar	83	6.8	
209					
210		13-Apr	103	5.3	
211					
212		28-Apr	118	3.1	
213					
214		14-May	134	6.1	Ref 7
215					
216		9-Jun	160	4.9	Rigidity depend. 11-yr mod. changed
217					after FD; Ref 4
218		28-Sep	271	6	
219					
220		8-Nov	312	4.1	
221					
222		27-Nov	337	3	
223					
224	1970	28-Jan	28	3.7	
225					
226		4-Apr	94	4.1	
227					
228		6-Jun	152	3.7	
229					
230		17-Jun	168	4.8	
231					
232		24-Jul	205	5.2	
233					
234		16-Aug	228	4.8	
235					
236		9-Sep	252	4.3	
237					
238		6-Nov	310	6.5	
239					

	A	B	C	D	E
240		11-Nov	322	5.7	
241					
242	1971	27-Jan	27	3.2	
243					
244		16-Apr	106	3.3	
245					
246		7-Oct	280	3.6	
247					
248		21-Nov	325	5	
249					
250		15-Dec	349	5.6	
251					
252	1972	17-Jan	17	3	
253					
254		9-Mar	68	3.2	
255					
256		17-May	137	3.9	
257					
258		17-Jun	168	5	Ref 7, 10
259					
260		4-Aug	216	18.7	two phases; 8.8%/5hr & 24.5 %/5 h
261					Ref 6
262					
263		31-Oct	304	7.8	Ref 7,10
264					
265	1973	19-Jan	19	3.2	
266					
267		13-Apr	103	4.8	
268					
269		14-May	134	3.3	
270					
271	1974	7-May	127	5.4	Ref 10
272					

	A	B	C	D	E
273		4-Jul	195	5.6	
274					
275		10-Sep	253	6.3	
276					
277	1975	NONE			
278					
279	1976	30-Mar	89	7.6	
280					
281	1977	11-Sep	254	3.9	
282					
283		21-Sep	264	5.4	
284					
285	1978	3-Jan	3	4.5	
286					
287		30-Jan	30	3.9	
288					
289		14-Feb	45	12.6	20%/10 hr; classic FD; several days
290					IMP data missing; V1 & V2 @ 2.3 AU
291					Ref 10,11
292					
293		6-Mar	65	7.4	Ref 10,11
294					
295		11-Apr	101	3	
296					
297		18-Apr	108	3.6	
298					
299		30-Apr	120	18.1	Large gaps IMP data-solar flares
300					
301		29-May	149	7.5	
302					
303		3-Jun	154	3.3	
304					
305		25-Jun	176	5.6	Ref 10

FORBUSH DECREASES 1 May 1990

	A	B	C	D	E
306					
307		• 13-Jul	194	7.2	relatively slow decrease; 0.4%/hr fo
308					14 hr; Ref 10,11
309					
310		26-Sep	269	7.2	Ref 10
311					
312		10-Nov	314	3.9	Ref 18
313					
314		21-Dec	355	3.3	
315					
316	1979	23-Feb	54	6.2	
317					
318		28-Mar	87	3.4	Ref 11
319					
320		24-Apr	114	5.8	Ref11, 18
321					
322		6-Jun	157	6	Ref 10,11, 18
323					
324		7-Jul	188	7.8	Ref 10,11
325					
326		18-Aug	230	7.8	Ref 18
327					
328		7-Oct	280	5.3	Ref 10
329					
330		10-Nov	314	5.2	Ref 10
331					
332	1980	6-Feb	37	5.3	Ref 10
333					
334		5-Mar	64	3.2	
335					
336		2-Apr	92	6.9	Ref 10, 11, 18
337					
338		6-Jun	157	7.4	Ref 10,11

FORBUSH DECREASES 1 May 1990

	A	B	C	D	E
339					
340		25-Jun	176	4.1	
341					
342		26-Jul	207	3.5	Ref 10
343					
344		27-Oct	300	3.2	Ref 18
345					
346		11-Nov	315	4.5	Ref 10,11, 18
347					
348		• 30-Nov	334	8.3	slow, asymmetrical decrease; Ref
349					Ref 18
350		20-Dec	354	3.5	
351					
352	1981	1-Feb	32	6	Ref 10
353					
354		24-Feb	55	11.3	slow decreasse, U shaped; Ref 11
355					
356		27-Mar	86	4	
357					
358		16-May	136	6.4	Ref 18, large variations this period
359					
360		4-Jun	155	3.5	
361					
362		• 23-Jul	204	9.1	Ref 10,11
363					
364		9-Aug	222	4.1	
365					
366		3-Oct	276	4.2	
367					
368		12-Oct	285	5.7	Ref 11,18
369					
370		11-Nov	315	3.9	
371					

	A	B	C	D	E
372		24-Dec	363	3.2	
373					
374	1982	30-Jan	30	8	Ref 10,18
375					
376		11-Feb	42	5.1	Ref 10
377					
378		28-Feb	59	5	
379					
380		25-Apr	115	3.8	
381					
382		• 6-Jun	157	9.7	slow decrease with incomp. recove
383					Ref 10,11
384					
385		• 10-Jul	191	25	Prelim. decrease: 5%/12 hr; main
386					phase: 23.2%/9 hr; IMP8 ~ 55%; IMP
387					data good; Ref 11, 18
388					
389		8-Aug	220	3.7	
390					
391		5-Sep	248	7	Ref 18
392					
393		• 18-Sep	261	9	Two phases(?); looks like 1//26/68
394					Ref 18
395		24-Nov	328	8.1	Hrly data missing; MW: 2nd decrease
396					~30 Nov 7.8%/9hr
397		• 10-Dec	344	5.1	4.0%/5 hr; no recovery for 12 days
398					
399	1983	10-Jan	10	5.1	Ref 11
400					
401		• 4-Feb	35	7	slow decrease,~ 7% /12 hr; full
402					recovery; Ref 11
403					
404		10-May	130	3.7	

	A	B	C	D	E
405					
406		9-Jun	160	3.6	
407					
408	1984	4-May	124	5.3	
409					
410		3-Jul	184	5.5	
411					
412		12-Sep	255	5.7	
413					
414	1985	25-Apr	115	6.4	slow decrease ~ 24 hr; full recover
415					
416	1986	• 6-Feb	37	9.8	classic FD; seen at all spacecraft; r
417					phase: 8%/7 hr;few days miss. at IM
418		8-Mar	67	3.1	
419					
420		3-Nov	307	4.1	classic FD; IMP data complete; fas
421					phase: 3.7%/ 4 hr;
422					
423	1987	• 24-May	144	2.6*	
424					
425		• 24-Aug	236	4.9	
426					
427	1988	• 4-Jan	4	4.2**	complicated series of decreases into
428					rapid FD: 4.8 %/2 hr.
429					
430		• 20-Feb	50	5.1	classic FD; hrly,8.5%; to= 2.3 days;
431					full recovery
432					
433		20-Jul	201	2.5*	sc ~04 UT on 21 July
434					
435		• 24-Aug	236	4.2	classic FD; 4.4%/5 hr; sc ~10 UT 25
436					
437		• 9-Oct	283	3.7	seen in MW and D hourly data

FORBUSH DECREASES 1 May 1990

	A	B	C	D	E
438					
439		• 17-Dec	352	4.7	hrly, 6.9 %/16 hr = .4 %/hr.
440					
441	1989	4-Jan	4	5.5	Fast FD, < 3 hr.
442					

	A	B	C	D	E
443		11-Feb	42	4.4	Slow FD
444					
445		* 12-Mar	71	15.5	Classic FD; hrly 17.1 % in 2 steps
446					
447		26-Mar	85	3.8	classic FD; 4.4 %/ 2 hr.
448					
449		9-Aug	221	3.7	classic FD, 4.45/2 hr
450					
451		14-Aug	226	5.5	
452					
453		19-Aug	231	4	Small FD during large anisotropies
454					
455		28-Aug	240	4.9	Fast FD, < 2 hr.
456					
457		4-Sep	247	7.2	Slo FD, duration > 2 day
458					
459		6-Sep	249	4.2	A part of slow FD on 4 Sept
460					
461		18-Sep	261	4.2	Slow FD
462					
463		20-Oct	293	13	Slow FD following large GLE
464					
465		17-Nov	321	4.2	
466					
467		28-Nov	332	16	classic 2-step FD
468					

FORBUSH DECREASES 1 May 1990

	A	B	C	D	E
469	1990				No FDs in Jan & Feb
470					
471					
472					
473					
474					#,##, ln N(0)-N (i)
475					* ≤ 3 %, not included
476					** Incomplete recovery
477					• Plots made and file available
478					References listed on separate shee
479					
480					
481					
482					

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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."