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

MARCH 1990 NUMBER 547 - Part I

Solar-Geophysical Data prompt reports

Data for February, January 1990, and Late Data

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

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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 547

(Issued in Two Parts)

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John A. McKinnon

C O N T E N T S

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PART II (COMPREHENSIVE REPORTS)

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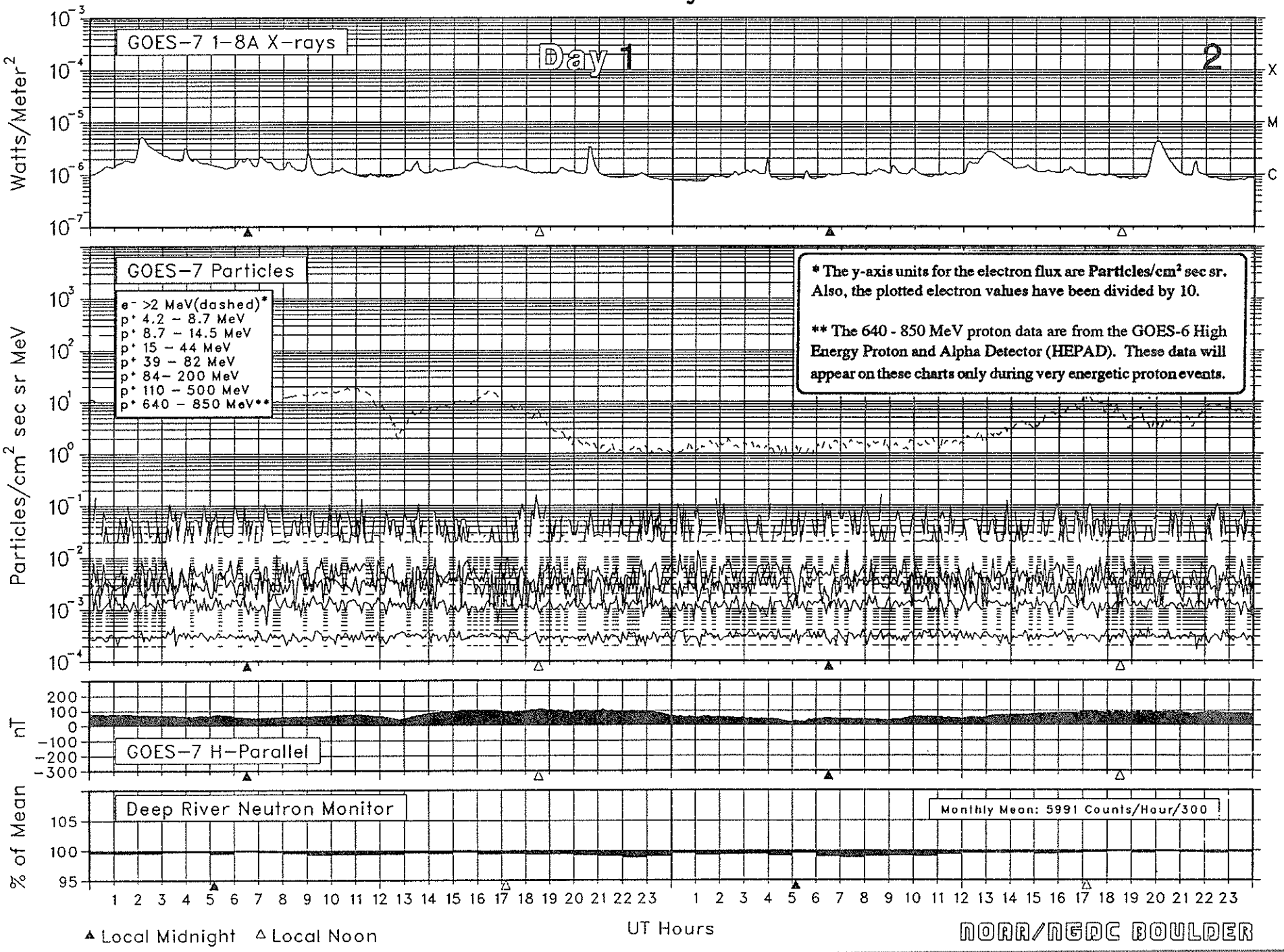
C O N T E N T S

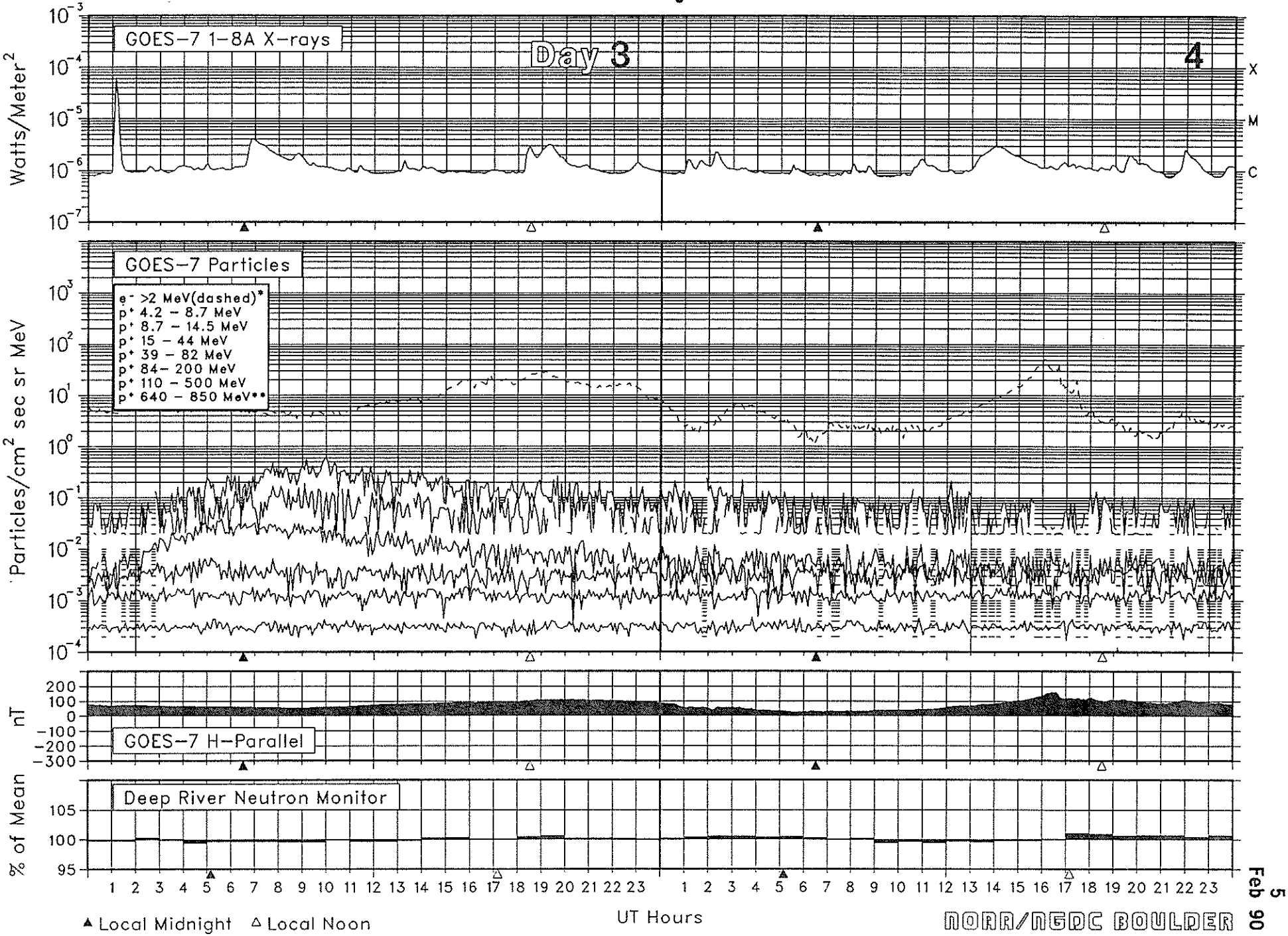
Prompt Reports DATA FOR **FEBRUARY 1990** Number 547 Part I

SOLAR-TERRESTRIAL ENVIRONMENT
February 1990

4 Feb 90

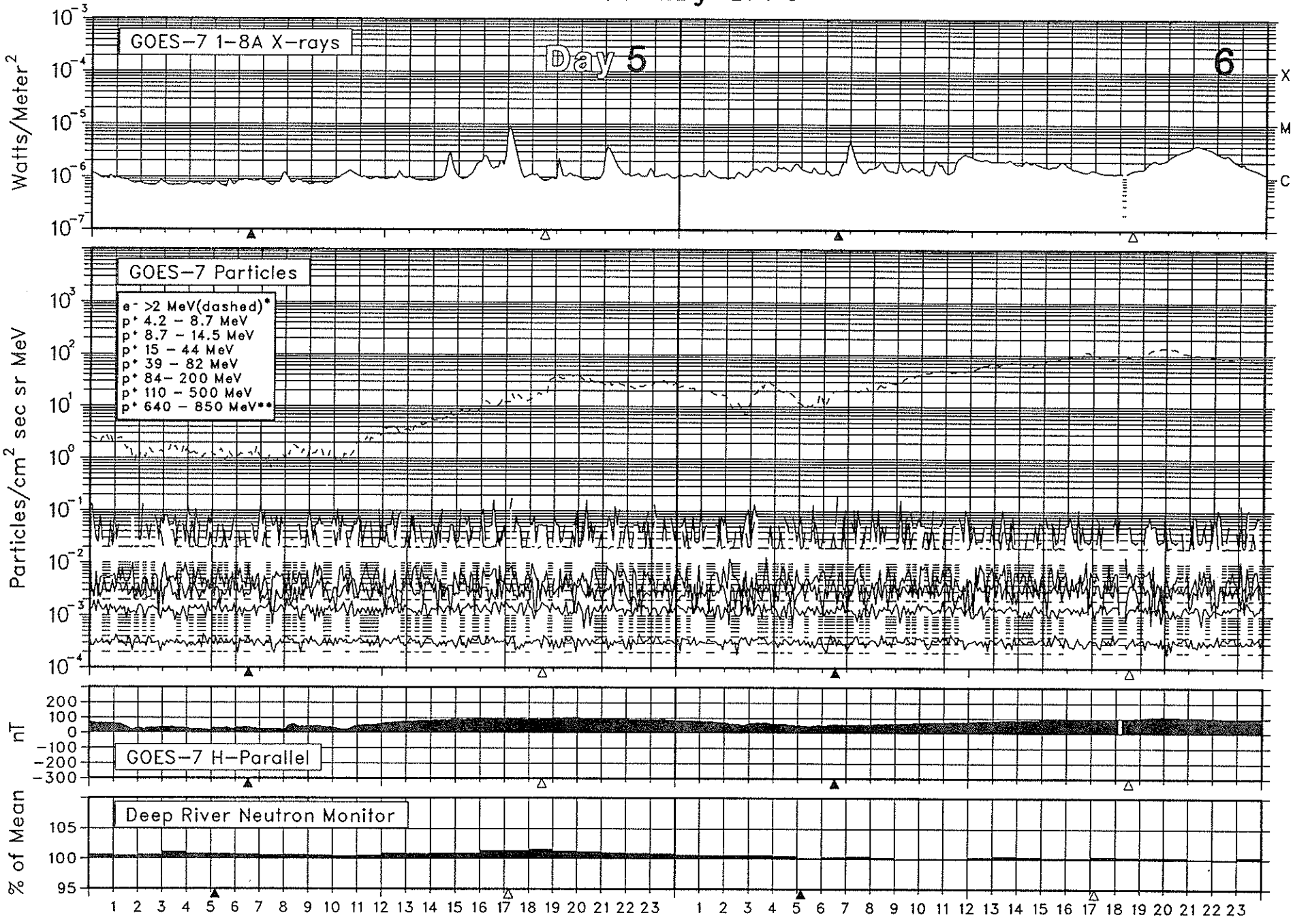


SOLAR-TERRESTRIAL ENVIRONMENT
February 1990

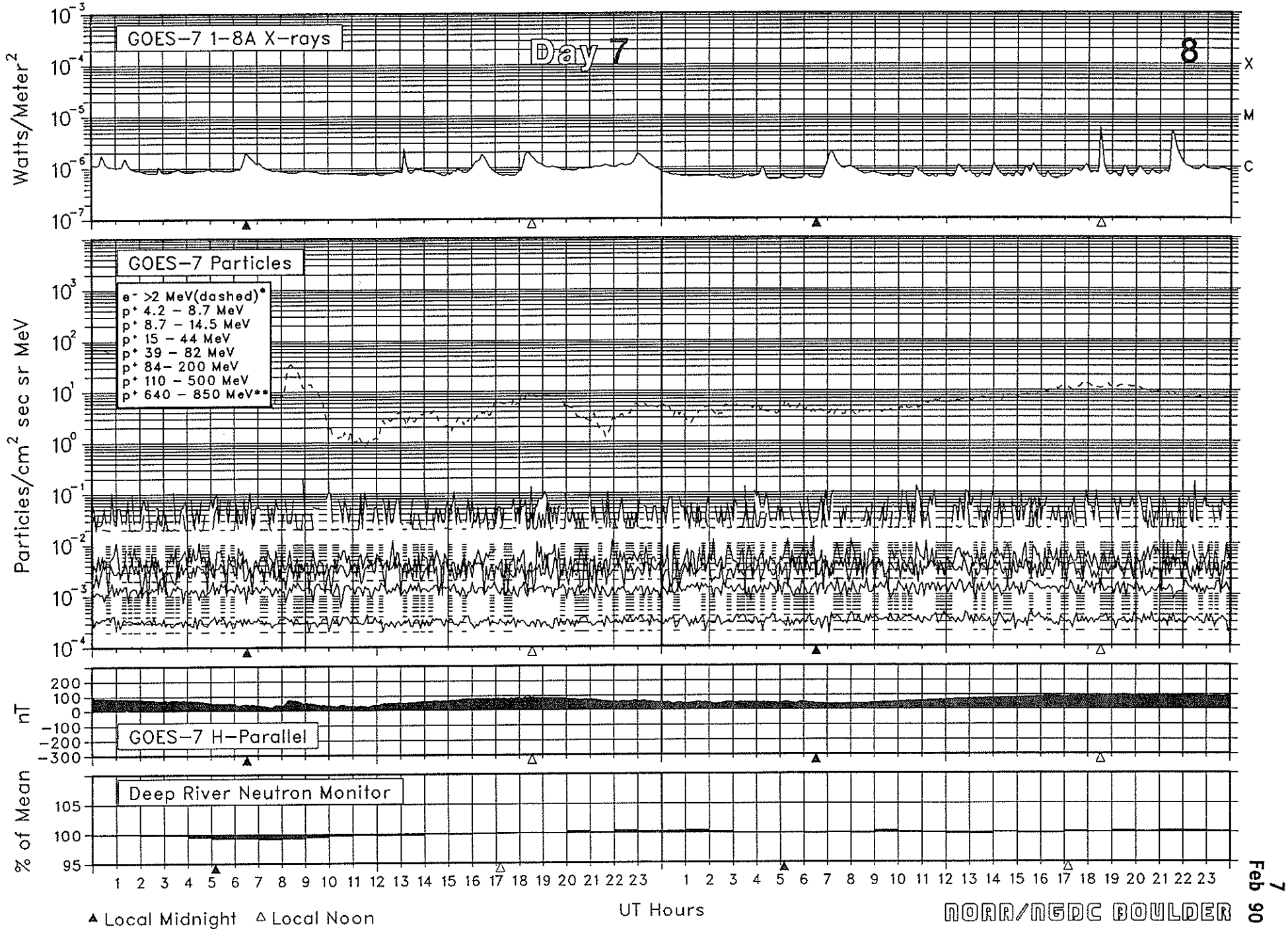


SOLAR-TERRESTRIAL ENVIRONMENT
February 1990

6 Feb 90

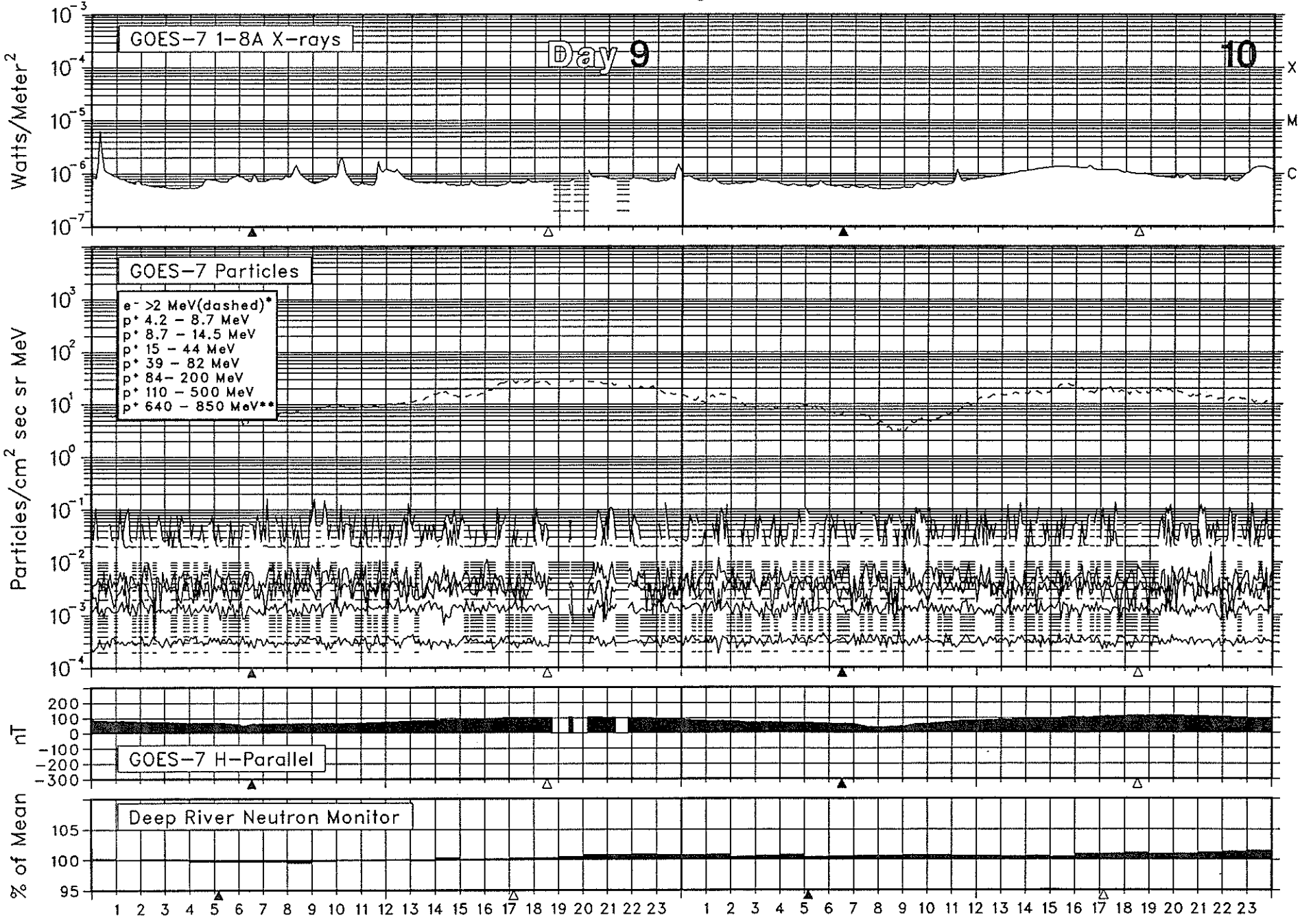


SOLAR-TERRESTRIAL ENVIRONMENT
February 1990



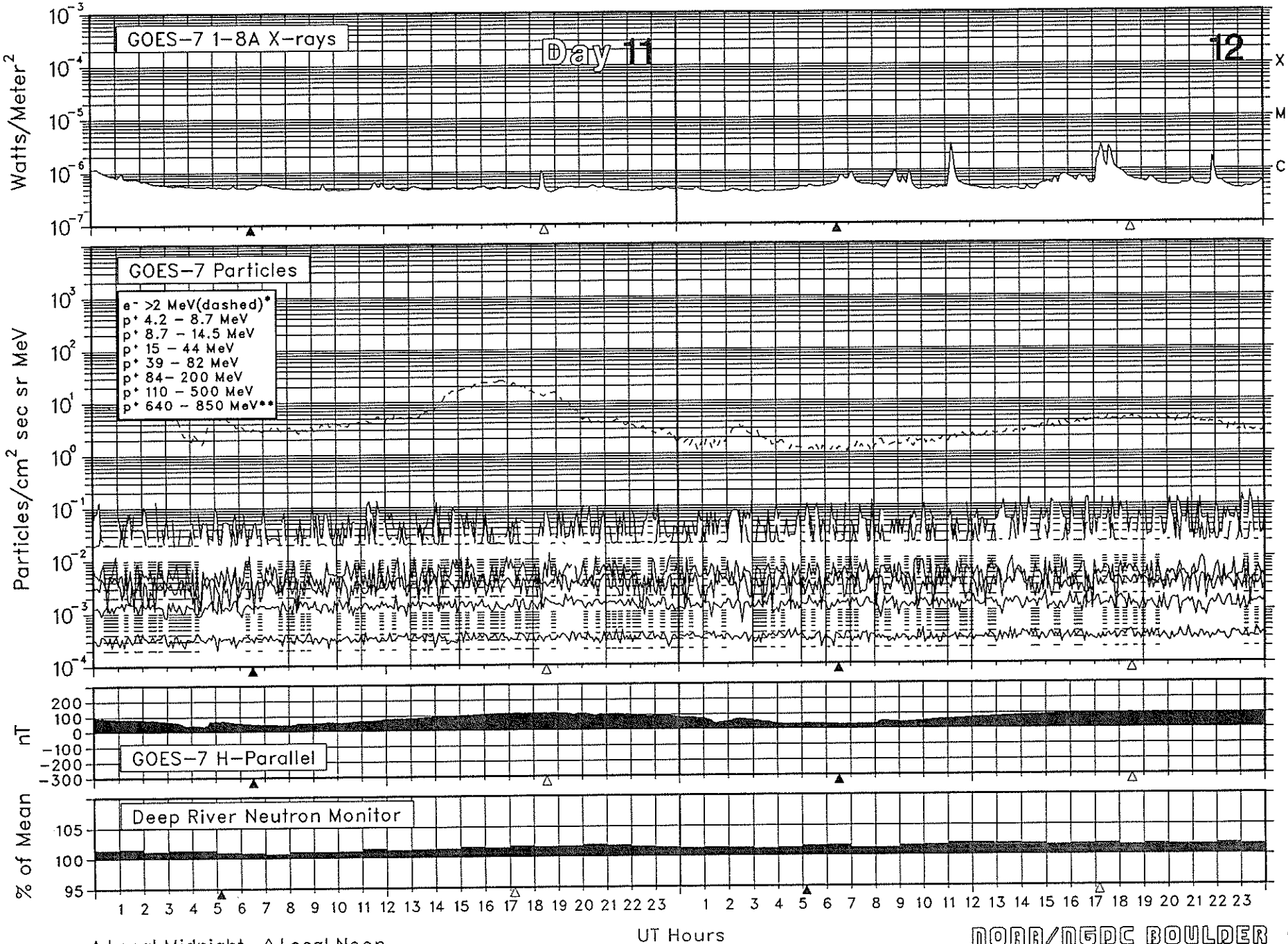
SOLAR-TERRESTRIAL ENVIRONMENT
February 1990

8 Feb 90



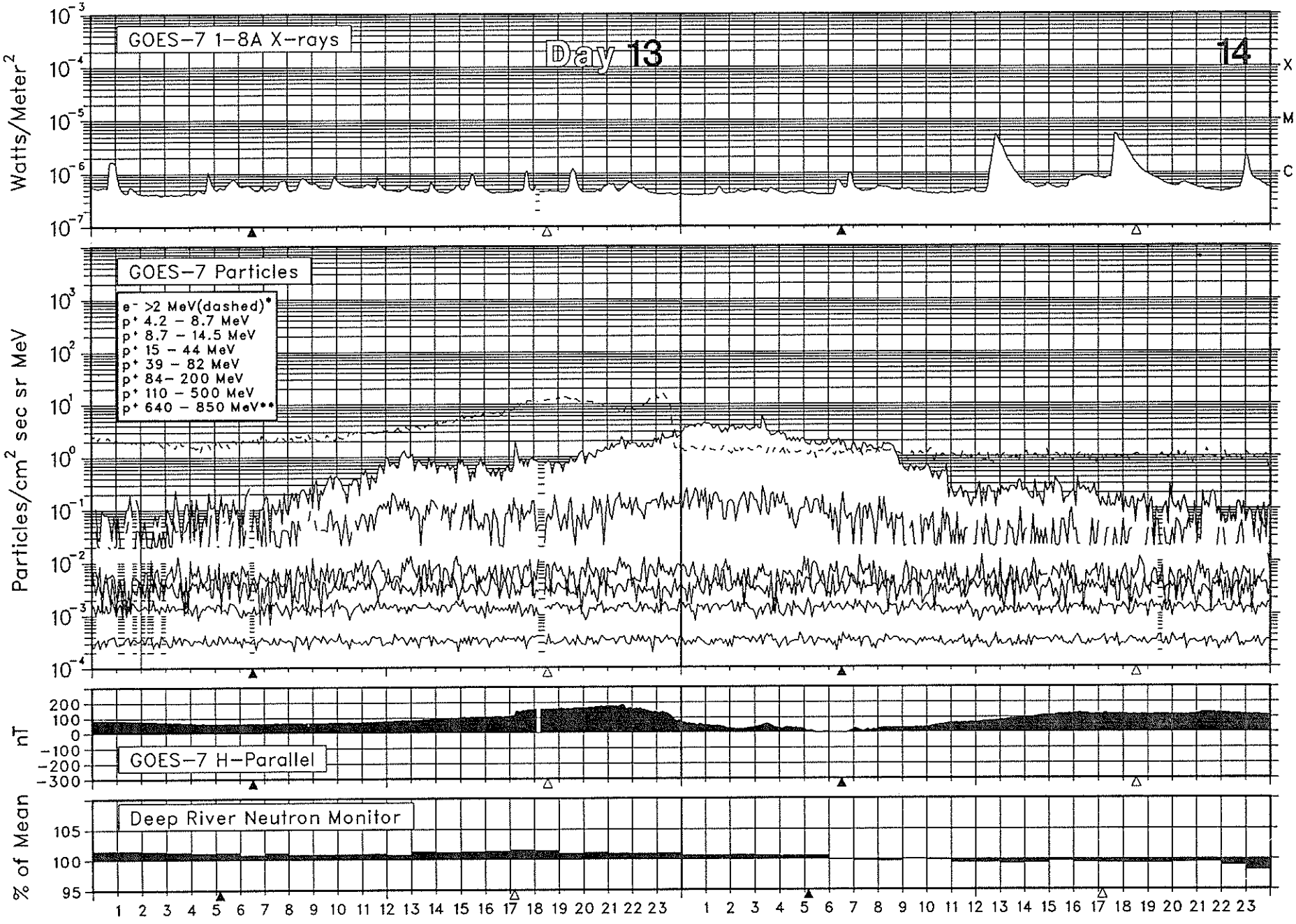
NOAA/NGDC BOULDER

SOLAR-TERRESTRIAL ENVIRONMENT
February 1990



SOLAR-TERRESTRIAL ENVIRONMENT
February 1990

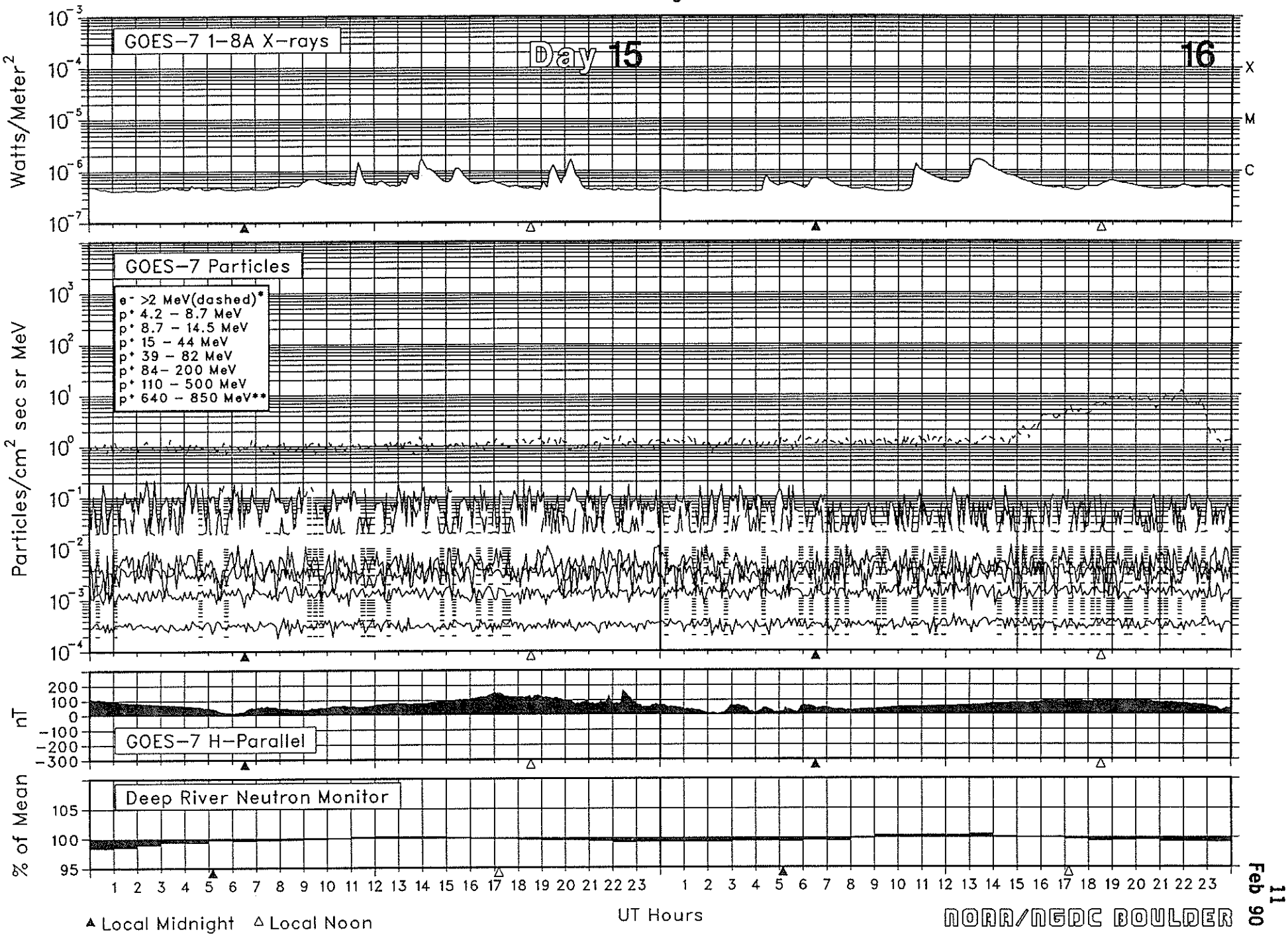
10 Feb 90



▲ Local Midnight △ Local Noon

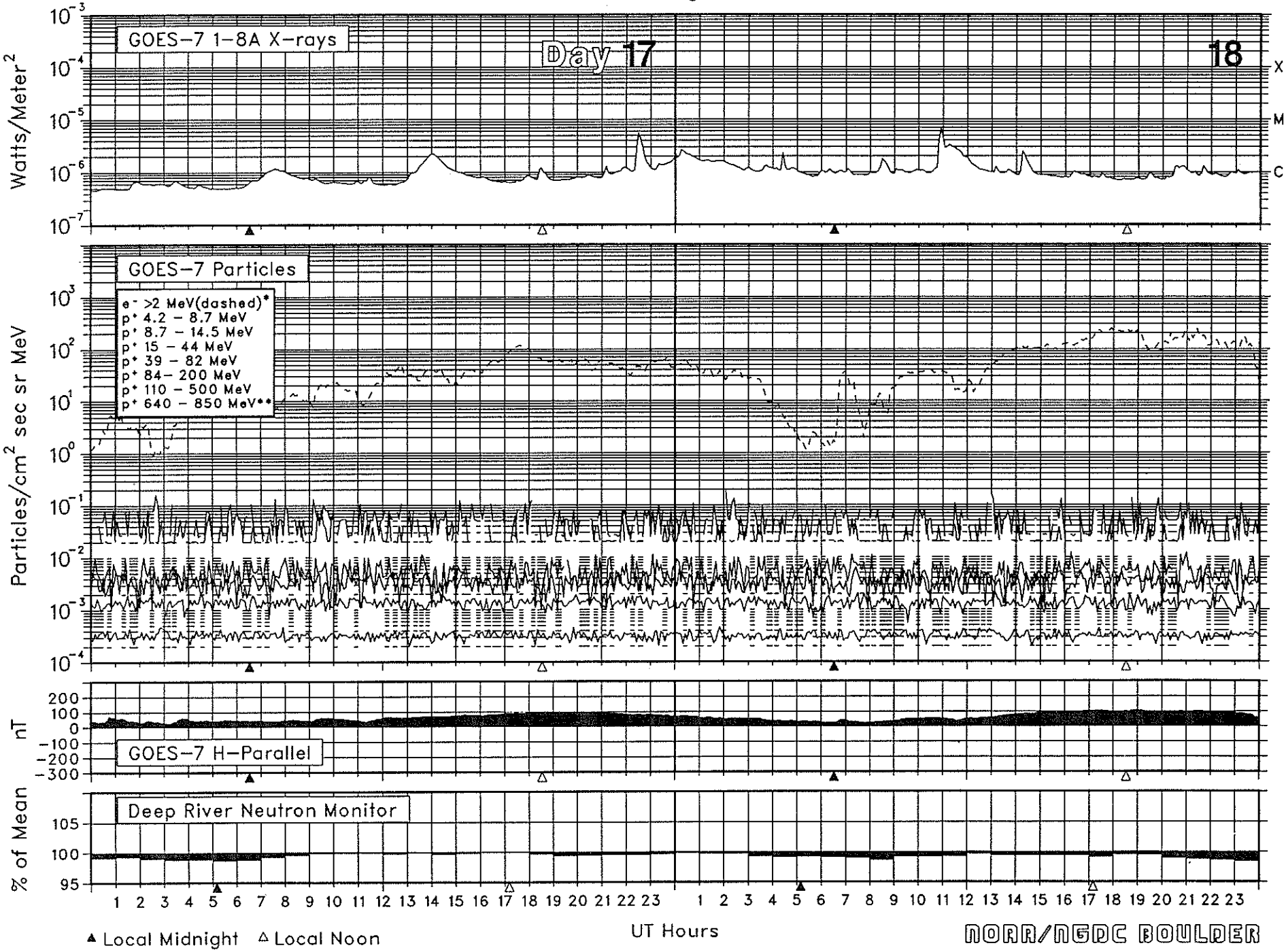
NOAA/NEDC BOULDER

SOLAR-TERRESTRIAL ENVIRONMENT
February 1990



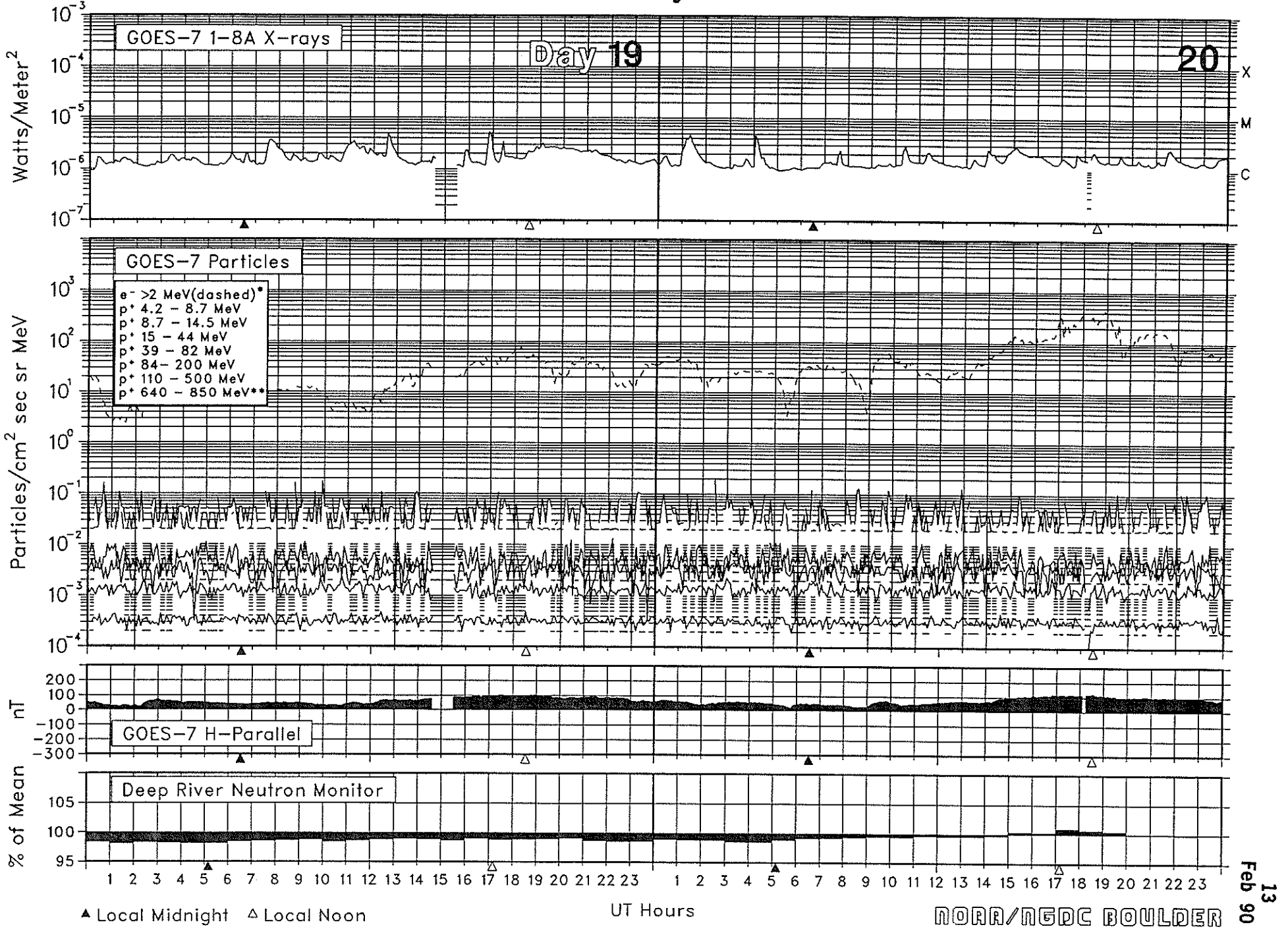
SOLAR-TERRESTRIAL ENVIRONMENT
February 1990

12 Feb 90



NOAA/NGDC BOULDER

SOLAR-TERRESTRIAL ENVIRONMENT
February 1990

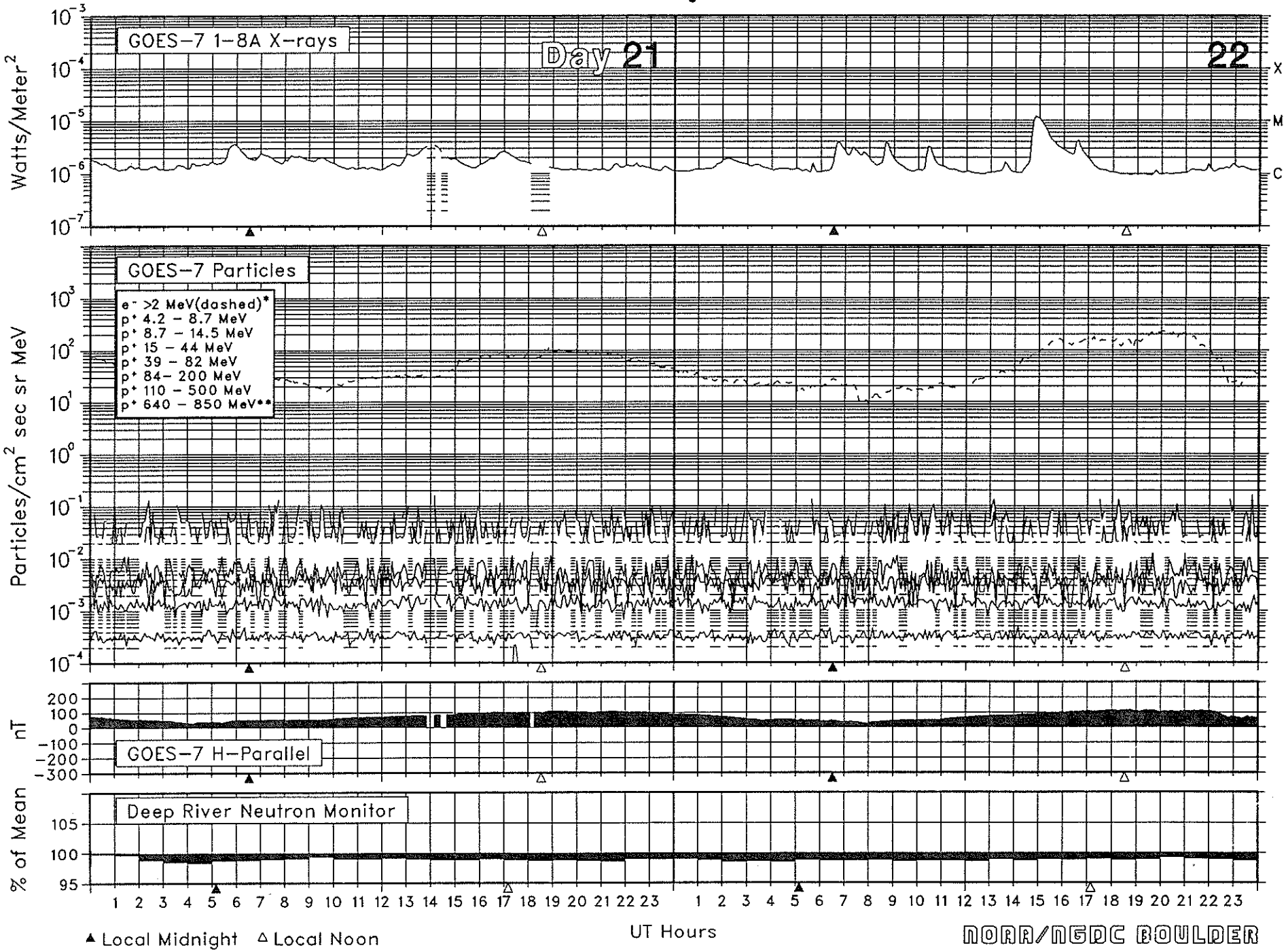


13 Feb 90

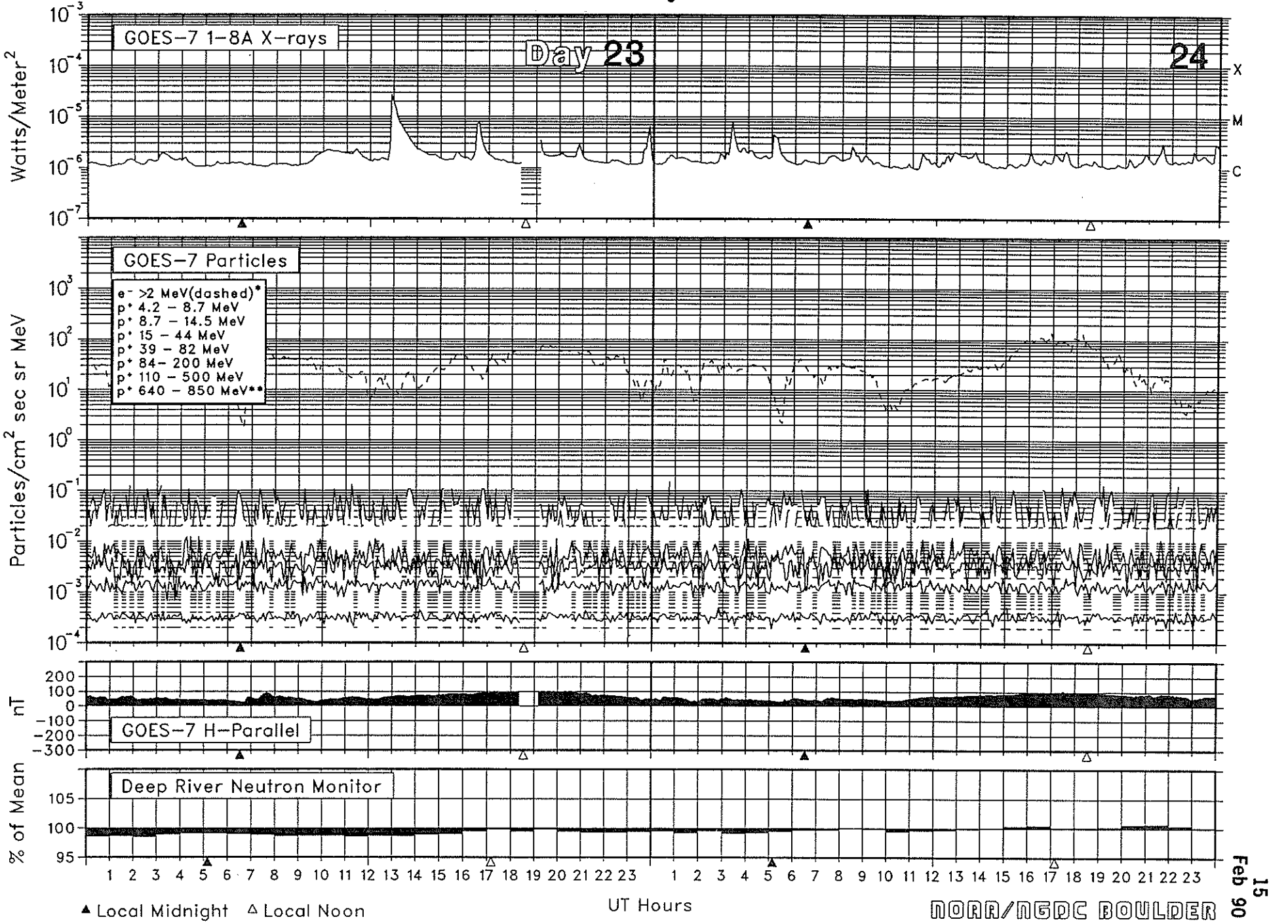
NOAA/NGDC BOULDER

SOLAR-TERRESTRIAL ENVIRONMENT
February 1990

14 Feb 90

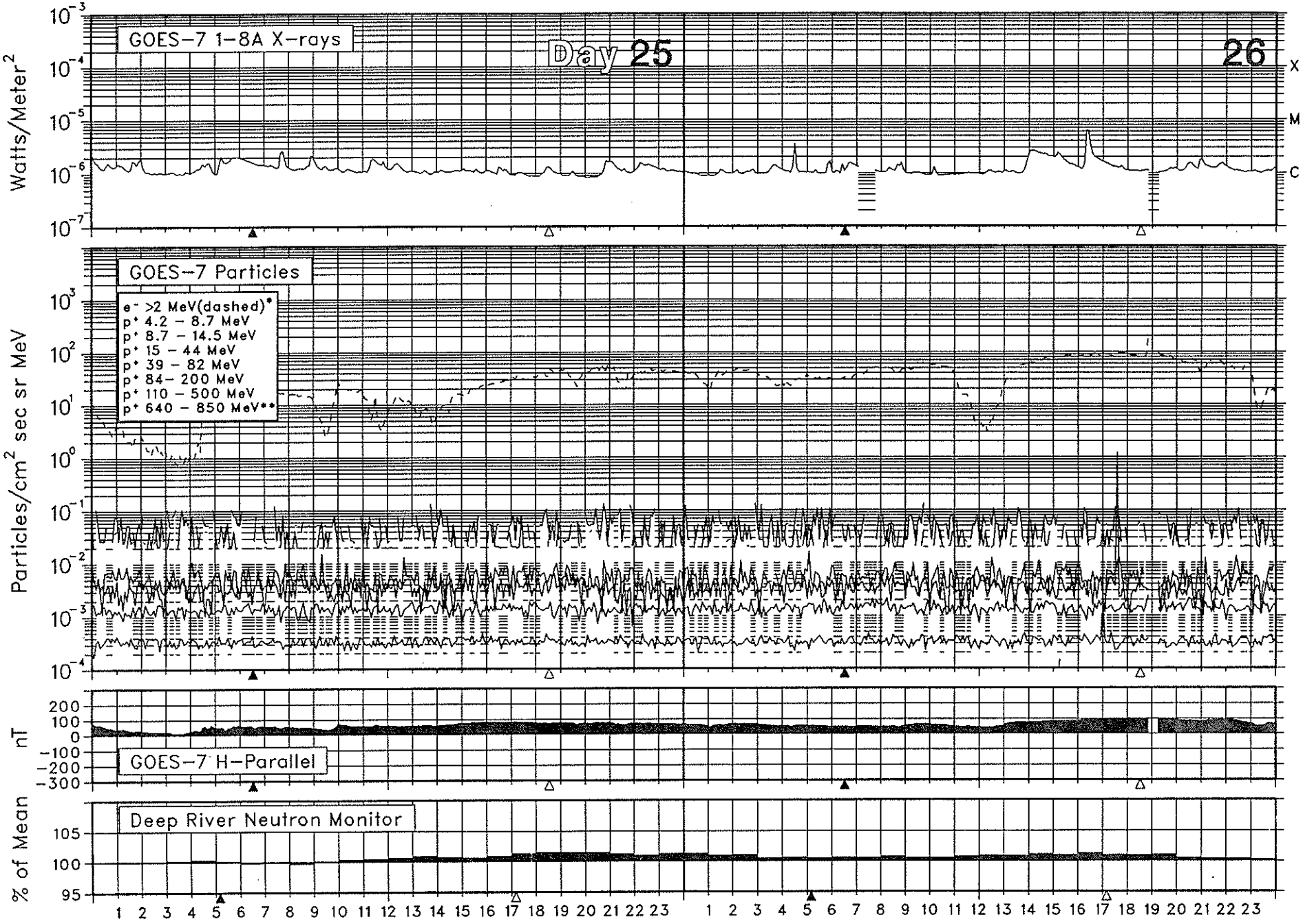


SOLAR-TERRESTRIAL ENVIRONMENT
February 1990



SOLAR-TERRESTRIAL ENVIRONMENT
February 1990

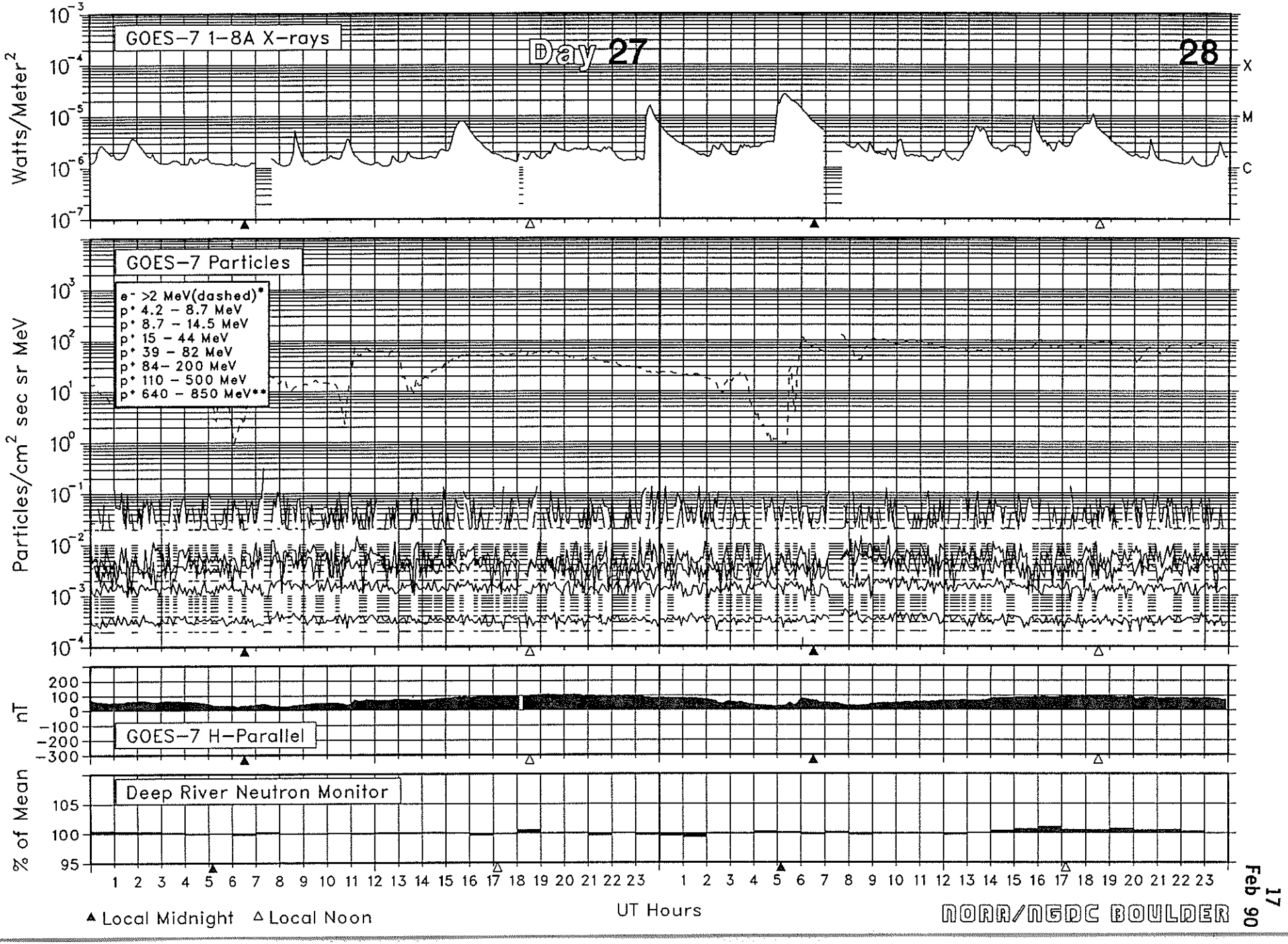
16 Feb 90



▲ Local Midnight △ Local Noon

NOAA/NEDC BOULDER

SOLAR-TERRESTRIAL ENVIRONMENT
February 1990



17 Feb 90

NOAA/NGDC BOULDER

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages **FEBRUARY 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
032	01	31	268	213	015	S10 W57	9	0	0	01	S10 W57	E	Solalert 01/XX,
						N11 W26	0	0	0		N11 W26	Q	Magquiet.
						N12 W65	1	0	0		N12 W65	Q	
						N13 W76	2	0	0		N13 W76	E	
						S15 W35	1	0	0		S15 W35	E	
						N24 W42	1	0	0		N24 W42	E	
						N29 W02	0	0	0		N29 W02	Q	
						N14 W20	1	0	0		N14 W20	Q	
						N24 E18	3	0	0		N24 E18	E	
						N41 W72	0	0	0		N41 W72	Q	
						S12 W43	0	0	0		S12 W43	E	
						S13 E39	0	0	0		S13 E39	Q	
						N09 E33	2	0	0		N09 E33	E	
033	02	01	262	206	022	S10 W70	1	0	0	02	S10 W70	E	Solalert 02/XX,
						N11 W39	1	0	0		N11 W39	E	Magquiet.
						N12 W75	5	0	0		N12 W75	Q	
						N12 W79	0	0	0		N12 W79	Q	
						S15 W46	0	0	0		S15 W46	E	
						N25 W54	0	0	0		N25 W54	E	
						N29 W13	1	0	0		N29 W13	Q	
						N14 W33	2	0	0		N14 W33	Q	
						N23 E04	0	0	0		N23 E04	E	
						S12 W56	0	0	0		S12 W56	E	
						S13 E27	0	0	0		S13 E27	Q	
						N08 E20	0	0	0		N08 E20	E	
						N14 E15	0	0	0		N14 E15	Q	
						S24 E41	0	0	0		S24 E41	Q	
						S09 W14	0	0	0		S09 W14	Q	
034	03	02	239	181	026	S10 W81	2	0	0	03	S10 W81	E	Solalert 03/XX,
						N12 W52	0	0	0		N12 W52	Q	Magquiet.
						N10 W88	0	0	0		N10 W88	Q	
						S15 W58	0	0	0		S15 W58	E	
						N25 W67	1	0	0		N25 W67	E	
						N15 W47	0	0	0		N15 W47	Q	
						N23 W08	0	0	0		N23 W08	Q	
						S12 W69	1	0	0		S12 W69	E	
						S14 E14	0	0	0		S14 E14	Q	
						N08 E06	1	0	0		N08 E06	E	
						N15 E02	2	0	0		N15 E02	E	
						S24 E29	0	0	0		S24 E29	Q	
						S08 W27	0	0	0		S08 W27	Q	
035	04	03	195	163	005	S12 W88	1	1	0	04	S12 W88	E	Solnil, Magquiet.
						N12 W65	0	0	0		N12 W65	Q	
						S15 W71	0	0	0		S15 W71	E	
						N24 W77	1	0	0		N24 W77	Q	
						N14 W59	6	0	0		N14 W59	E	
						N23 W22	0	0	0		N23 W22	Q	
						S11 W84	0	0	0		S11 W84	Q	
						S13 W00	0	0	0		S13 W00	Q	
						N08 W06	4	0	0		N08 W06	E	
						N15 W12	1	0	0		N15 W12	E	
						N07 W67	1	0	0		N07 W67	Q	

Presto:[2] Boulder Tenflare 770 flux units 03/0108 UT duration 14 minutes.

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — FEBRUARY 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		
036	05	04	188	160	023	N12 W80	0	0	0	05	N12 W80	Q	Solquiet,
						S15 W85	0	0	0		S15 W85	Q	Magalert 05/XX.
						N23 W88	0	0	0		N23 W88	Q	
						N15 W74	0	0	0		N15 W74	E	
						N24 W37	0	0	0		N24 W37	E	
						S13 W13	0	0	0		S13 W13	Q	
						N08 W21	0	0	0		N08 W21	E	
						N15 W25	7	0	0		N15 W25	E	
						S23 E01	0	0	0		S23 E01	Q	
						S09 W55	0	0	0		S09 W55	Q	
						N08 W82	2	0	0		N08 W82	Q	
						N20 W62	0	0	0		N20 W62	Q	
037	06	05	134	155	021	N12 W89	6	0	0	06	N12 W89	E	Solquiet,
						N14 W85	2	0	0		N14 W85	Q	Magalert 06/06.
						N25 W51	0	0	0		N25 W51	Q	
						N08 W34	0	0	0		N08 W34	E	
						N15 W38	3	0	0		N15 W38	E	
						S23 W12	2	0	0		S23 W12	Q	
						N20 W75	0	0	0		N20 W75	Q	
038	07	06	100	151	009	N25 W63	1	0	0	07	N25 W63	Q	Solquiet, Magnil.
						N08 W47	2	0	0		N08 W47	E	
						N15 W51	5	0	0		N15 W51	E	
						S22 W24	0	0	0		S22 W24	Q	
						S20 W37	0	0	0		S20 W37	Q	
039	08	07	118	148	025	N26 W75	0	0	0	08	N26 W75	Q	Solquiet, Magquiet.
						N08 W63	1	0	0		N08 W63	E	
						N15 W65	3	0	0		N15 W65	E	
						S22 W40	0	0	0		S22 W40	Q	
						S19 W52	0	0	0		S19 W52	Q	
						S27 E43	0	0	0		S27 E43	Q	
						N19 E75	0	0	0		N19 E75	Q	
040	09	08	140	146	009	N24 W88	0	0	0	09	N24 W88	Q	Solquiet, Magquiet.
						N08 W76	0	0	0		N08 W76	E	
						N15 W79	0	0	0		N15 W79	E	
						S23 W53	0	0	0		S23 W53	Q	
						S20 W64	3	0	0		S20 W64	Q	
						S27 E30	0	0	0		S27 E30	Q	
						N17 E64	0	0	0		N17 E64	Q	
						N26 E49	0	0	0		N26 E49	Q	
						N30 E63	1	0	0		N30 E63	Q	
						N12 E39	0	0	0		N12 E39	Q	
041	10	09	158	145	006	N08 W89	0	0	0	10	N08 W89	Q	Solquiet, Magquiet.
						N14 W88	0	0	0		N14 W88	Q	
						S20 W69	0	0	0		S20 W69	Q	
						S21 W77	2	0	0		S21 W77	E	
						S27 E18	0	0	0		S27 E18	Q	
						N17 E50	0	0	0		N17 E50	E	
						N26 E36	0	0	0		N26 E36	Q	
						N30 E48	0	0	0		N30 E48	Q	
						N12 E24	0	0	0		N12 E24	Q	
						S13 E66	0	0	0		S13 E66	Q	
						N03 E45	0	0	0		N03 E45	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages **FEBRUARY 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		
042	11	10	103	151	006	S27 E05	0	0	0	11	S27 E05	Q	Solquiet, Magquiet.
						N17 E38	2	0	0		N17 E38	E	
						N27 E25	1	0	0		N27 E25	E	
						N31 E38	0	0	0		N31 E38	Q	
						N12 E11	0	0	0		N12 E11	Q	
						S13 E55	1	0	0		S13 E55	E	
						N04 E32	1	0	0		N04 E32	Q	
043	12	11	105	138	008	S26 W10	0	0	0	12	S26 W10	Q	Solquiet, Magquiet.
						N18 E25	5	0	0		N18 E25	E	
						N28 E11	0	0	0		N28 E11	Q	
						N32 E25	0	0	0		N32 E25	Q	
						N12 W02	2	0	0		N12 W02	E	
						S12 E42	0	0	0		S12 E42	E	
						N04 E18	0	0	0		N04 E18	Q	
044	13	12	107	145	005	S26 W24	0	0	0	13	S26 W24	Q	Solquiet, Magquiet.
						N18 E11	5	0	0		N18 E11	E	
						N32 E13	0	0	0		N32 E13	Q	
						N12 W15	3	0	0		N12 W15	E	
						S12 E28	0	0	0		S12 E28	Q	
						N04 E03	0	0	0		N04 E03	Q	
045	14	13	136	146	007	S26 W38	0	0	0	14	S26 W38	Q	Solquiet, Magquiet.
						N18 W02	4	0	0		N18 W02	E	
						N32 W01	0	0	0		N32 W01	Q	
						N12 W29	3	0	0		N12 W29	E	
						S12 E13	0	0	0		S12 E13	Q	
						N05 W09	0	0	0		N05 W09	Q	
						N22 E05	0	0	0		N22 E05	Q	
						N29 E11	0	0	0		N29 E11	Q	
						N16 E17	0	0	0		N16 E17	Q	
		Presto:	Boulder	Tenflare 330 flux units 13/0044UT duration 10 minutes.									
			Toyokawa	Tenflare 330 flux units 13/0044UT duration 2 minutes.									
			Boulder	Tenflare 280 flux units 13/0059 UT duration 1 minutes.									
046	15	14	121	153	015	N17 W15	1	0	0	15	N17 W15	E	Solquiet, Magquiet.
						N31 W13	0	0	0		N13 W13	Q	
						N12 W41	4	0	0		N12 W41	E	
						S13 E01	0	0	0		S13 E01	Q	
						N04 W23	0	0	0		N04 W23	Q	
						N22 W09	0	0	0		N22 W09	Q	
						N15 E65	0	0	0		N15 E65	Q	
						S15 E54	0	0	0		S15 E54	Q	
		Presto:	Boulder	Tenflare 250 flux units 14/0650 UT duration 3 minutes.									
047	16	15	125	152	020	N19 W27	0	0	0	16	N19 W27	E	Solquiet, Magquiet.
						N31 W26	0	0	0		N31 W26	Q	
						N12 W54	5	0	0		N12 W54	E	
						S14 W08	0	0	0		S14 W08	Q	
						N22 W22	1	0	0		N22 W22	Q	
						N14 E52	1	0	0		N14 E52	Q	
						S15 E39	0	0	0		S15 E39	Q	
						S20 W24	0	0	0		S20 W24	Q	
						S27 E38	0	0	0		S27 E38	Q	
		Presto:	Kakioka	Magstorm begins 15/0626 UT.									

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — FEBRUARY 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
048	17	16	094	152	034	N20 W36	0	0	0	17	N20 W36	E	Solquiet,
						N12 W68	0	0	0		N12 W68	E	Magalert 17/XX.
						S13 W21	0	0	0		S13 W21	Q	
						N14 E38	0	0	0		N14 E38	Q	
						S12 E31	1	0	0		S12 E31	Q	
						S18 W37	0	0	0		S18 W37	Q	
						N10 E71	0	0	0		N10 E71	Q	
049	18	17	062	154	021	N20 W51	4	0	0	18	N20 W51	E	Solquiet, Magnil.
						N13 W85	0	0	0		N13 W85	E	
						S13 W36	2	0	0		S13 W36	Q	
						N10 E58	4	0	0		N10 E58	Q	
						S10 E71	2	0	0		S10 E71	Q	
050	19	18	124	164	018	N21 W65	2	0	0	19	N21 W65	E	Solquiet, Magquiet.
						N19 W53	0	0	0		N19 W53	Q	
						S12 W00	0	0	0		S12 W00	Q	
						N10 E44	0	0	0		N10 E44	Q	
						S10 E57	0	0	0		S10 E57	Q	
						S36 E66	5	0	0		S36 E66	Q	
						S36 W00	0	0	0		S36 W00	Q	
						S10 E27	0	0	0		S10 E27	Q	
						S13 E70	1	0	0		S13 E70	E	
						N03 E35	0	0	0		N03 E35	Q	
051	20	19	175	181	030	N21 W77	0	0	0	20	N21 W77	E	Solquiet,
						N18 W66	0	0	0		N18 W66	Q	Magalert 20/XX.
						N16 W00	0	0	0		N16 W00	Q	
						S14 W15	1	0	0		S14 W15	Q	
						N11 E31	1	0	0		N11 E31	Q	
						S11 E45	0	0	0		S11 E45	Q	
						S35 E53	12	0	0		S35 E53	E	
						S35 W14	0	0	0		S35 W14	Q	
						S13 E58	0	0	0		S13 E58	Q	
						N03 E21	0	0	0		N03 E21	Q	
						S16 E71	7	0	0		S16 E71	E	
						N13 E78	0	0	0		N13 E78	Q	
052	21	20	232	191	023	N20 W87	0	0	0	21	N20 W87	Q	Solalert 21/XX,
						N20 W81	0	0	0		N20 W81	Q	Magalert 21/22.
						N17 W14	0	0	0		N17 W14	Q	
						S09 W23	0	0	0		S09 W23	Q	
						N12 E18	0	0	0		N12 E18	Q	
						S10 E33	2	0	0		S10 E33	Q	
						S36 E39	4	0	0		S36 E39	E	
						S36 W26	0	0	0		S36 W26	Q	
						S14 E45	0	0	0		S14 E45	Q	
						N03 E07	0	0	0		N03 E07	Q	
						S18 E61	8	0	0		S18 E61	E	
						N13 E65	0	0	0		N13 E65	Q	
						N25 W16	0	0	0		N25 W16	Q	
						N19 E19	0	0	0		N19 E19	Q	
053	22	21	208	213	013	S10 W38	0	0	0	22	S10 W38	Q	Solalert 22/24.
						S10 E20	0	0	0		S10 E20	Q	Magalert 22/23.
						S35 E28	3	0	0		S35 E28	E	
						S13 E35	1	0	0		S13 E35	Q	
						N03 W07	6	0	0		N03 W07	E	
						S17 E48	3	0	0		S17 E48	E	
						N14 E53	2	0	0		N14 E53	Q	
						N19 E06	0	0	0		N19 E06	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — FEBRUARY 1990

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast [1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
053	22	21				N21 W21	0	0	0		N21 W21	Q	
						S03 E08	0	0	0		S03 E08	Q	
054	23	22	248	217	018	N11 W08	0	0	0	23	N11 W08	Q	Solalert 23/XX,
						S10 E08	0	0	0		S10 E08	Q	Magalert 23/XX.
						S36 E16	1	0	0		S36 E16	E	
						S13 E23	0	0	0		S13 E23	Q	
						N03 W21	2	0	0		N03 W21	E	
						S17 E36	4	1	0		S17 E36	A	
						N16 E41	9	0	0		N16 E41	E	
						N19 W07	4	0	0		N19 W07	Q	
						S03 W06	0	0	0		S03 W06	Q	
						S10 E59	2	0	0		S10 E59	Q	
						S16 W46	0	0	0		S16 W46	Q	
055	24	23	278	219	029	S09 W06	0	0	0	24	S09 W06	Q	Solalert 24/XX,
						S35 E05	0	0	0		S35 E05	E	Magalert 24/XX.
						S12 E09	1	0	0		S12 E09	Q	
						N04 W33	0	0	0		N04 W33	E	
						S15 E23	7	1	0		S15 E23	A	
						N17 E28	8	0	0		N17 E28	E	
						N18 W21	0	0	0		N18 W21	Q	
						S03 W20	1	0	0		S03 W20	Q	
						S09 E47	4	1	0		S09 E47	Q	
						S18 W58	0	0	0		S18 W58	Q	
						S17 E69	0	0	0		S17 E69	Q	
						N21 E03	0	0	0		N21 E03	Q	
056	25	24	384	232	023	S09 W78	0	0	0	25	S09 W78	Q	Solalert 25/XX,
						S10 W20	0	0	0		S10 W20	Q	Magalert 25/XX.
						S36 W09	0	0	0		S36 W09	Q	
						S12 W01	0	0	0		S12 W01	Q	
						N04 W48	5	0	0		N04 W48	Q	
						S16 E09	4	0	0		S16 E09	A	
						N16 E13	14	0	0		N16 E13	E	
						N18 W36	0	0	0		N18 W36	Q	
						S03 W35	0	0	0		S03 W35	Q	
						S09 E33	8	1	0		S09 E33	E	
						S17 W71	0	0	0		S17 W71	Q	
						S17 E59	0	0	0		S17 E59	Q	
						N21 W11	2	0	0		N21 W11	Q	
						S22 E24	0	0	0		S22 E24	Q	
						S20 E83	0	0	0		S20 E83	Q	
						N26 E68	0	0	0		N26 E68	Q	
						N12 E68	0	0	0		N12 E68	Q	
057	26	25	297	224	023	S10 W33	0	0	0	26	S10 W33	Q	Solalert 26/XX,
						S35 W21	0	0	0		S35 W21	Q	Magalert 26/XX.
						S12 W15	0	0	0		S12 W15	Q	
						N04 W61	6	0	0		N04 W61	Q	
						S16 W03	2	0	0		S16 W03	A	
						N16 E01	1	0	0		N16 E01	E	
						N18 W49	1	0	0		N18 W49	Q	
						S03 W48	0	0	0		S03 W48	Q	
						S09 E20	9	0	0		S09 E20	E	
						S17 E46	0	0	0		S17 E46	Q	
						N21 W23	0	0	0		N21 W23	Q	
						S22 E10	3	0	0		S22 E10	Q	
						S20 E67	0	0	0		S20 E67	Q	
						N24 E53	0	0	0		N24 E53	Q	
						N12 E54	0	0	0		N12 E54	Q	

ALERT PERIODS

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						°Lat °Long	Total	M	X		°Lat °Long		
058	27	26	282	218	018	S10 W47	0	0	0	27	S10 W47	Q	Solalert 27/XX,
						S36 W31	0	0	0		S36 W31	Q	Magalert 27/XX.
						S12 W29	0	0	0		S12 W29	Q	
						N04 W75	1	0	0		N04 W75	Q	
						S15 W16	7	0	0		S15 W16	E	
						N17 W13	1	0	0		N17 W13	E	
						N17 W63	0	0	0		N17 W63	Q	
						S04 W61	2	0	0		S04 W61	Q	
						S08 E04	0	0	0		S08 E04	E	
						S16 E33	0	0	0		S16 E33	Q	
						S23 W04	0	0	0		S23 W04	Q	
						S20 E54	0	0	0		S20 E54	Q	
						N25 E41	0	0	0		N25 E41	Q	
						N13 E42	2	0	0		N13 E42	E	
						N28 E63	0	0	0		N28 E63	Q	
059	28	27	288	228	018	S10 W60	0	0	0	28	S10 W60	Q	Solalert 28/XX,
						S37 W42	0	0	0		S37 W42	Q	Magalert 28/XX.
						S12 W41	0	0	0		S12 W41	Q	
						N04 W95	0	0	0		N04 W95	Q	
						S17 W29	12	0	0		S17 W29	E	
						N17 W24	0	0	0		N17 W24	E	
						N16 W81	0	0	0		N16 W81	Q	
						S04 W75	0	0	0		S04 W75	Q	
						S08 W11	0	0	0		S08 W11	Q	
						S16 E19	0	0	0		S16 E19	Q	
						S23 W20	0	0	0		S23 W20	Q	
						S20 E43	0	0	0		S20 E43	Q	
						N12 E29	0	0	0		N12 E29	E	
						N30 E51	11	1	0		N30 E51	E	
						S26 W82	1	0	0		S26 W82	Q	
060	01	28	270	229	026	S09 W73	0	0	0	01	S09 W73	Q	Solalert 01/XX,
						S37 W55	0	0	0		S37 W55	Q	Magalert 01/01.
						S12 W54	0	0	0		S12 W54	Q	
						S16 W42	5	0	0		S16 W42	E	
						N18 W37	1	0	0		N18 W37	E	
						S08 W23	0	0	0		S08 W23	Q	
						S17 E08	1	0	0		S17 E08	Q	
						S22 W33	0	0	0		S22 W33	Q	
						S21 E30	0	0	0		S21 E30	Q	
						N12 E16	0	0	0		N12 E16	E	
						N30 E38	18	3	0		N30 E38	A	
						S27 W93	0	0	0		S27 W93	Q	

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

STRATWARM ALERTS

08 February Stratwarm exists. A very intense warming exists over Siberia, the east Siberian Sea and the Canadian Arctic in the middle and upper stratosphere. Temperature increase of 60° Celsius over central Siberia during the last week at 10 HPA. Development into major warming possible.

09 February Stratwarm exists. Intense warming over Siberia and the Canadian Arctic continues. Development into major warming possible.

10 February Stratwarm exists. Intense warming over Siberia and the polar region continues. Cold center displays to Europe. Temperature gradient between 60° North and the pole reversed in the upper stratosphere down to 10 HPA. Major warming possible.

11 February Stratwarm exists. Intense warming over Siberia and the polar region continues. Temperature gradient between 60° North and the pole reversed in the upper and middle stratosphere down to 30 HPA. Mean zonal wind at 60° North from the east at 1 HPA.

12 February Stratwarm exists. Intense warming over Siberia, the polar region, Alaska – northern Canada, and Greenland continues. Temperature gradient reversed between 60° North and the pole in the upper and middle stratosphere to 30 HPA. Mean zonal wind from the east at 1 HPA.

13 February Stratwarm exists. Intense warming over the polar region, Greenland and eastern Siberia continues, but slowly weakening. Temperature gradient reversed between 60° North and the pole in the upper and middle stratosphere down to 30 HPA. Mean zonal wind at 60° North from the east at 1 HPA.

14 February Stratwarm exists. Intense warming over eastern Siberia, the whole Arctic and Greenland continues, but further weakening. Temperature gradient reversed between 60° North and the pole in the upper and middle stratosphere down to 30 HPA. Mean zonal wind at 60° North from the east at 1 HPA.

15 February Stratwarm exists. Intense warming further dominating the whole polar region, eastern Siberia, northern Canada and Greenland. Temperature gradient reversed between 60° North and the pole in the upper and middle stratosphere down to 30 HPA. Mean zonal wind at 60° North no longer from the east at 1 HPA.

16 February Stratwarm exists. Intense warming further dominating the polar region, eastern Siberia, northern Canada and Greenland. Temperature gradient between 60° North and the pole reversed in the upper and middle stratosphere, but no reversal of the mean zonal wind which is weak westerly at 60° North.

17 February Stratwarm exists. Intense warming continues over the polar region. Temperature gradient reversed between 60° North and the pole down to 10 HPA, but no longer at 30 HPA. Mean zonal wind at 60° North 10 HPA slowly increasing. No wind reversal break down of polar vortex at 10 HPA expected within the next 8 days.

18 February Stratwarm exists. Pronounced warming continues over the polar region. Strong polar vortex remains intact, with center over Kara Sea during the next 8 days.

19 February Stratwarm exists. Minor warming over the polar region, northern Canada and western and central Siberia continues. Temperature gradient reversed between 60° North and the pole from the upper stratosphere down to 10 HPA.

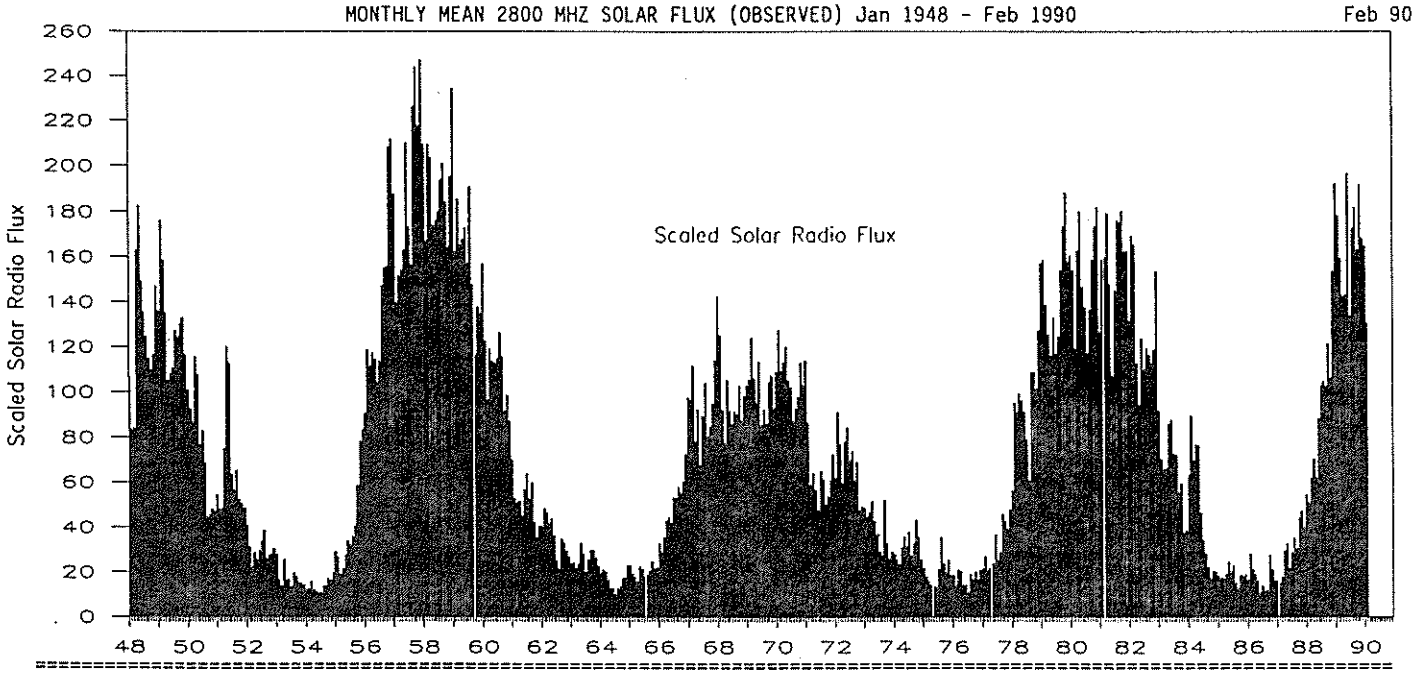
20 February Stratwarm exists. The polar region dominating warming continues. Warm center over western Siberia extending northeastwards. Temperature gradient continuously reversed between 60° North and the pole from the upper stratosphere down to 10 HPA.

21 February Stratwarm exists. Only little change from yesterday. The polar region dominating warming continues. Temperature gradient continuously reversed between 60° North and the pole from the upper stratosphere down to 10 HPA.

22 February Stratwarm exists. The polar region dominating warming continues. Temperature gradient continuously reversed between 60° North and the pole from the upper stratosphere down to 10 HPA. Strong polar vortex exists displaced into the European/Siberian Arctic in the whole stratosphere.

23 February Stratwarm ends. Warm air further governs the polar region in the upper stratosphere, resulting in a reversed temperature gradient between 60° North and the pole down to 10 HPA. The vortex, however, has returned towards the pole.

MONTHLY MEAN 2800 MHZ SOLAR FLUX (OBSERVED) Jan 1948 - Feb 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											194.2*

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

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

Day	Mar 89	Apr	May	Jun	Jul	Aug	Sep	Oct†	Nov†	Dec†	Jan 90†	Feb†
01	127	104	93	136	128	171	147	129	153	198	186	171
02	107	122	94	148	149	196	171	143	160	196	166	161
03	103	140	85	158	129	193	180	159	191	203	166	124
04	98	115	97	157	120	213	204	186	216	182	174	119
05	90	106	85	171	101	227	212	209	228	192	164	97
06	103	139	105	145	120	220	230	189	236	177	144	80
07	98	170	134	130	149	215	267	168	233	217	129	82
08	109	185	149	143	141	218	261	166	204	167	138	95
09	133	153	137	168	116	218	296	187	214	161	125	103
10	163	122	123	192	104	200	270	178	203	138	134	79
11	155	106	120	203	136	202	280	191	173	104	164	75
12	140	96	115	218	111	188	264	154	173	105	172	80
13	162	92	129	253	116	207	248	148	153	113	179	85
14	181	103	123	251	116	197	215	159	140	100	147	75
15	165	120	148	264	92	203	207	189	132	77	157	78
16	187	130	154	265	91	177	180	209	124	106	152	64
17	168	144	161	233	99	192	159	206	124	126	174	57
18	164	137	177	216	113	189	155	184	134	108	177	77
19	148	160	191	235	138	202	152	159	124	131	199	107
20	158	165	195	232	149	209	137	140	141	127	236	134
21	155	175	168	187	170	203	111	152	170	111	217	159
22	155	167	156	174	197	160	109	158	162	157	208	191
23	145	128	180	196	195	133	103	145	157	189	219	239
24	155	135	196	215	168	129	75	131	160	183	191	249
25	131	132	173	227	132	105	80	121	175	190	228	245
26	117	125	157	237	111	82	93	109	184	208	227	213
27	102	118	163	206	99	57	101	97	183	240	211	200
28	89	109	130	187	75	50	111	116	183	249	193	156
29	95	107	121	182	112	70	134	131	179	213	185	
30	78	114	122	156	125	94	150	156	182	264	198	
31	91		111		132	116		144		186	201	
Mean	131.4	130.6	138.5	196.2	126.9	168.9	176.7	158.5	173.0	165.1	179.4	128.4

† = 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	Mar 89	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 90	Feb
01	168.8*	173.8*	180.5	191.6*	204.0	198.5	223.8	198.4	211.4	223.7*	209.3	200.8
02	173.7	183.5	184.5*	208.2*	193.4	201.7	233.3	208.5	216.0	213.7	208.6	177.8
03	169.0	196.5*	190.6	203.3*	192.5*	220.2	243.0*	222.4	217.6	205.6	192.5	157.9
04	163.6	188.9	198.2	221.3*	189.8	225.7	245.0	234.1	223.9	212.9	189.2*	154.8
05	183.5	191.1	193.7	213.2*	183.4*	241.5	273.3	223.2	235.4	209.7	187.1	150.9
06	201.1J	196.5	195.9*	212.2*	192.3	240.3	288.4	220.5	255.3	209.7	180.9	147.5
07	190.3*	199.8	200.6	205.3	193.5	240.6	303.4	225.7	207.3*	221.5	177.1	144.3
08	202.6	207.1	212.4	222.9	188.9	233.6	302.1	210.1	270.9	203.6	170.9	142.2
09	204.2*	194.0	205.1*	241.9	188.1	233.9*	311.5	201.9	257.2	194.6	160.6	142.0
10	212.4*	182.3	208.7	250.9*	184.1	232.6	303.3	195.5	246.3*	177.1	167.2	148.5
11	232.4*	180.7	198.9	270.3	193.2	243.6	299.3	191.5	249.1	171.7	169.5	134.9
12	237.6*	181.3	197.2	285.8*	190.7	256.1*	292.2	203.2	253.5	164.9	170.0	140.0
13	253.0	185.3*	197.5	319.2	184.0*	263.9	249.3	224.2	240.3	163.2	167.0	142.8
14	263.8J	198.1	193.1*	327.2	183.9	271.3	244.9	225.9	243.0	161.8	165.9	149.5
15	255.8J	199.5	195.8	334.7*	185.7	281.7	226.0	225.4	216.5	165.5	184.9	148.8
16	261.6J	203.9	188.6	320.9*	183.9	259.8	233.7	237.0	216.2	164.1	187.6	148.8
17	240.7	210.6*	187.0	303.7*	184.1	262.9	216.2	225.3	215.0	176.0	186.8	151.6
18	234.2	204.1	184.9	271.5	189.2	265.0	208.6	221.3*	221.6J	185.9	217.2	161.1
19	221.1	209.7	188.6	270.6	193.7	249.1	197.0*	214.7J	229.2	188.2	233.1	180.3
20	218.2*	192.5	203.1	249.3*	192.4	236.4	173.1	205.4	223.7	189.3	238.2	189.5
21	213.5*	196.1	211.9*	242.8	195.0	225.7	161.8	206.2	229.4	189.9	250.8*	211.9
22	222.5	193.6*	203.9	233.1	200.9	205.4	159.3	217.8	222.0	199.9	233.7	215.7
23	216.1*	183.1*	212.2	238.7	196.5	191.3	157.5	210.4	213.4	213.8	233.6	216.6
24	193.2*	189.0	210.0	227.6	191.1	182.0	157.0	214.2	208.8	231.0	239.8	231.5
25	186.2*	179.7	194.6*	221.6	180.4	159.7	166.8	183.3*	216.0	248.0*	234.6	225.3
26	171.6*	176.9	188.0	233.0	169.8	161.0	182.2*	171.7	234.3	252.6	238.8	213.3
27	162.6	176.9	176.6	227.5	172.8	159.6	199.4	176.9	239.4	274.8	232.2	224.1
28	157.3	183.2	173.5	227.4	170.7	174.1	194.3	173.0	231.3	246.4	230.1	222.0
29	155.8	189.5	173.6	223.0	180.9	180.3*	204.7*	172.0	215.1	242.7*	227.8	
30	159.8	180.6	183.0	217.4	185.1	192.0*	202.0	186.3	240.9	258.2*	211.4	
31	167.5		194.2		188.2	208.9*		202.0*		236.7	209.3	
Mean	203.0	190.9	194.4	247.2	187.8	222.5	228.4	207.4	230.0	206.3	203.4	174.1

* = corrected for burst in progress; J = no calibration due to burst; the yearly mean flux equaled 213.4 in 1989.

DAILY SOLAR INDICES

February 1990

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers Int	Amer	Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit — LEAR (15400)	LEAR (8800)	LEAR (4995)	Ottawa (2800)	LEAR (2695)	LEAR (1415)	LEAR (610)	LEAR (410)	LEAR (245)
01	32	4	171	177	206.8	569	268	233	200.8	211	139	78	53	36
02	33	5	161	164	183.0	586	287	216	177.8	182	112	75	48	51
03	34	6	124	140	162.5	570	280	202	157.9	166	111	72	45	23
04	35	7	119	120	159.2	572	268	190	154.8	156	106	71	44	23
05	36	8	97	90	155.2	563	267	184	150.9	152	116	70	45	23
06	37	9	80	77	151.7	565	266	183	147.5	144	88	67	43	20
07	38	10	82	91	148.3	546	259	178	144.3	142	95	68	43	23
08	39	11	95	109	146.1	562	247	173	142.2	141	90	61	41	22
09	40	12	103	110	145.8	554	255	172	142.0	136	101	67	42	21
10	41	13	79	79	152.5	553	257	172	148.5	136	92	68	44	49
11	42	14	75	80	138.5	538	224	160	134.9	134	87	68	43	23
12	43	15	80	82	143.7	527	244	166	140.0	136	89	70	46	60
13	44	16	85	100	146.5	563	260	178	142.8	136	96	74	48	32
14	45	17	75	91	153.3	515	261	176	149.5	139	94	72	45	36
15	46	18	78	90	152.2	557	265	182	148.8	143	97	73	44	21
16	47	19	64	65	152.4	560	252	181	148.8	144	95	67	42	21
17	48	20	57	47	155.2	556	265	182	151.6	147	100	70	42	22
18	49	21	77	88	164.8	586	273	190	161.1	152	114	72	43	20
19	50	22	107	123	184.4	556	285	204	180.3	165	114	71	43	23
20	51	23	134	139	193.8	563	293	217	189.5	167	113	78	46	21
21	52	24	159	158	216.6	576	279	224	211.9	189	121	77	47	24
22	53	25	191	181	220.4	550	300	245	215.7	208	141	85	55	35
23	54	26	239	220	221.1	571	291	252	216.6	214	139	83	51	26
24	55	27	249	269	236.2	588	299	269	231.5	225	139	83	52	35
25	56	1	245	236	229.9	576	301	256	225.3	220	153	80	49	33
26	57	2	213	220	217.5	558	292	248	213.3	216	159	72	45	30
27	58	3	200	217	228.4	565	297	257	224.1	204	137	80	51	--
28	59	4	156	205	226.2	563	299	255	222.0	221	138	77	49	57
Mean			128.4	134.6	178.3	561	273	205	174.1	169	113	73	46	30

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:

Equipment problems produced any gaps in the Air Weather Service's Learmonth (LEAR) 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	164 (3)	169 (5)	172 (7)	173 (9)
1990	175 (12)	176 (15)	175 (18)	171 (21)	166 (21)	162 (19)	160 (21)	158 (25)	152 (26)	145 (27)	139 (26)	136 (24)
1991	134 (25)	132 (25)	128 (27)	128 (31)	129 (32)	127 (29)	124 (26)	120 (23)	116 (20)	115 (18)	116 (19)	117 (21)

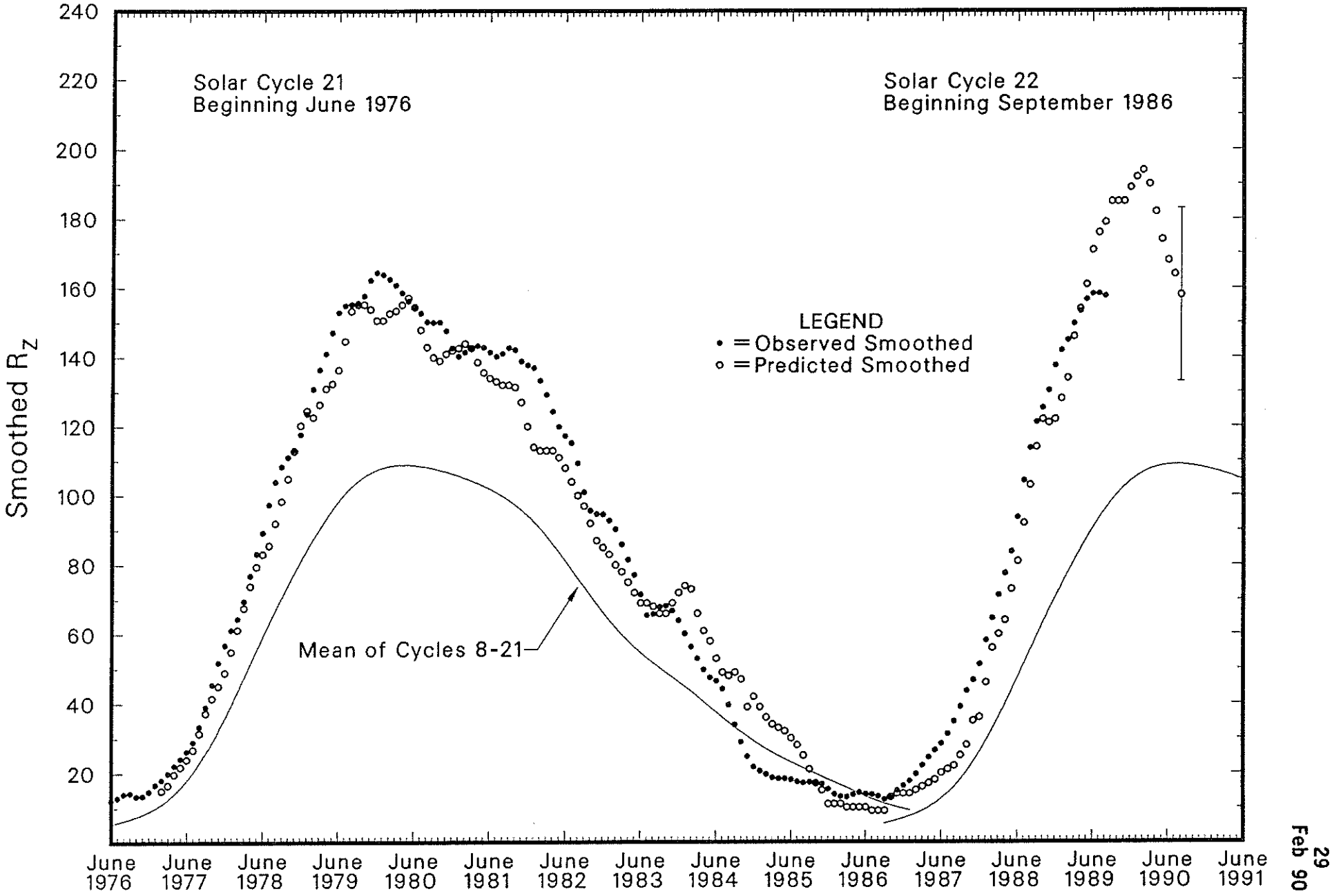
*September 1986 marks the onset of Sunspot Cycle 22.

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 August 1990 prediction. There exists a 90% chance that in August 1990 the actual smoothed sunspot number will fall somewhere between 133 and 183.

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



Hα S O L A R F L A R E S

FEBRUARY 1990

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
PALE	01	0200	0206	0227	S18	W77	5897	01	26.3	27	SF	C 5.4	3	E		53		F
LEAR		0205E	0205U	0218	S16	W77	5900	01	26.3	13D	SF		2	E		44		F
GOES		0353	0358	0406						13		C 3.4						
LEAR		0603	0603	0618	N11	W71	5906	01	27.0	15	SF		3	E		24		
LEAR		0625	0628	0640	N14	W23	5913	01	30.6	15	SF		3	E		26		F
LEAR		0632	0633	0638	N12	W70	5906	01	27.1	6	SF		3	E		30		F
LEAR		0702	0703	0711	N12	W69	5906	01	27.2	9	SF	C 2.4	3	E		41		
GOES		0859	0903	0908						9		C 3.4						
LEAR		0949	0950	0959	N11	W71	5906	01	27.2	10	SF		3	E		27		
RAMY		1322	1329	1353	N09	W29	5904	01	30.5	31	SF	C 2.0	3	E		50		FH
HOLL		1606	1608	1655D	N15	W18	5913	01	31.3	49D	SF		3	E		17		
RAMY		2029	2036	2113	N27	W12	5911	01	31.9	44	1N	C 4.0	3	E		149		FH
RAMY		2033	2033	2038	N11	W76	5906	01	27.2	5	SF		3	E		13		
PALE		2037E	2037U	2059	N28	W12	5911	01	31.9	22D	1F		3	E		111		F
LEAR	02	0255	0255	0301	S12	W59	5917	01	28.8	6	SF		3	E		39		
LEAR		0305	0307	0312	N15	E15	5920	02	3.3	7	SF		3	E		13		
LEAR		0354	0356	0359	S10	W66	5900	01	28.3	5	SF	C 2.4	3	E		33		
GOES		0531	0535	0538						7		C 1.3						
LEAR		0818	0823	0856	N15	E11	5920	02	3.2	38	SF		3	E		16		F
LEAR		0907	0909	0916	N15	E12	5920	02	3.3	9	SF		3	E		10		
LEAR		0915	0915	0920	N27	W68	5909	01	28.2	5	SF		3	E		13		
SVTO		1202	1210	1225	N05	E08	5919	02	3.1	23	SF		3	E		31		
RAMY		1935	1938	1942	S09	W79	5900	01	28.0	7	SF	C 4.4	3	E		49		
HOLL		1936	1938U	1941	S11	W79	5900	01	28.0	5	SF		3	E		29		
GOES		2130	2136	2139						9		C 2.3						
LEAR	03	0108	0109	0123	S13	W80	5900	01	28.1	15	1N	M 6.9	3	E		180		E
PALE		0109	0109	0124	S13	W81	5900	01	28.0	15	2F	M 6.9	3	E		257		
LEAR		0643	0647	0730	N16	W51	5913	01	30.5	47	SF	C 4.1	4	E		65		F
LEAR		0653	0705	0726	N07	E03	5919	02	3.5	33	SF		4	E		17		F
RAMY		1221	1222	1224	N27	W74	5909	01	28.8	3	SF		3	E		12		
RAMY		1316	1319	1323	N05	W06	5919	02	3.1	7	SF	C 1.7	3	E		55		H
RAMY		1341	1346	1356	N13	W55	5913	01	30.5	15	SF		3	E		15		
RAMY		1715	1729	1732	N13	W56	5913	01	30.6	17	SF		3	E		12		
HOLL		1751	1802	1810	N06	W03	5919	02	3.5	19	SF		3	E		20		
HOLL		1820	1823	1826	N14	W57	5913	01	30.5	6	SF	C 3.0	4	E		21		
RAMY		1826	1826	1855D	N13	W56	5913	01	30.6	29D	SF		3	E		14		
HOLL		1927	1929	1950	N14	W57	5913	01	30.6	23	SF	C 3.2	4	E		14		
RAMY		1950	1951	2002	N15	W09	5920	02	3.1	12	SF		3	E		16		
HOLL		2216	2224	2236	N07	W69	5923	01	29.8	20	SF		4	E		13		
HOLL		2300	2301	2312	N06	W07	5919	02	3.4	12	SF	C 1.5	4	E		14		F
GOES	04	0059	0108	0117						18		C 1.8						
GOES		0210	0218	0228						18		C 2.4						
LEAR		0409	0423	0432	N08	W75	5923	01	29.6	23	SF		3	E		20		
GOES		0527	0531	0536						9		C 1.4						
GOES		0800	0805	0811						11		C 1.4						
GOES		1028	1056	1108						40		C 1.7						
RAMY		1215	1232	1431	N14	W19	5920	02	3.1	136	SF	C 3.0	3	E		40		F
RAMY		1537	1544	1601	N14	W19	5920	02	3.2	24	SF		3	E		28		F
HOLL		1605	1610	1624	N13	W20	5920	02	3.2	19	SF		4	E		12		F
HOLL		1650	1655	1702	N09	W77	5923	01	30.0	12	SF		4	E		37		
RAMY		1650	1656	1704	N08	W81	5923	01	29.7	14	SF		3	E		38		
HOLL		1724	1725	1746	N13	W21	5920	02	3.1	22	SF		4	E		18		F
RAMY		1850	1854	1915	N14	W21	5920	02	3.2	25	SF		3	E		18		F
HOLL		1851	1854	1857	N14	W22	5920	02	3.1	6	SF		3	E		11		F
HOLL		1900	1900	1904	N14	W22	5920	02	3.1	4	SF		3	E		12		F
RAMY		1917	1925	1930	N14	W22	5920	02	3.1	13	SF		3	E		16		
HOLL		1938	1945	1948	N12	W24	5920	02	3.0	10	SF	C 2.1	3	E		20		F
RAMY		1938	1945	1955	N12	W24	5920	02	3.0	17	SF	C 2.1	3	E		19		F
GOES		2150	2157	2213						23		C 2.6						
LEAR	05	0049	0049	0053	N14	W72	5913	01	30.7	4	SF		3	E		15		
GOES		0536	0540	0544						8		C 1.0						
LEAR		0733	0733	0739	N13	W29	5920	02	3.1	6	SF		3	E		15		
LEAR		0750	0757	0822	N14	W29	5920	02	3.1	32	SF	C 1.3	3	E		33		
RAMY		1435	1439	1451	N18	W89	5904	01	29.9	16	SF	C 3.3	3	E		21		

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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	05	1557	1557	1601	N14	W84	5904	01	30.4	4	SF	C 2.6	3	E		25		
HOLL		1659	1710	1728	N14	W87	5904	01	30.2	29	SF	C 9.7	3	E		32		
HOLL		1749	1755	1801	N14	W88	5904	01	30.2	12	SF		3	E		63		F
HOLL		1812	1814	1823	N14	W87	5904	01	30.3	11	SF		3	E		13		
GOES		1904	1909	1912						8		C 2.7						
HOLL		1948	1949	1957	S24	W09	5921	02	5.1	9	SF		3	E		25		
HOLL		2113	2118	2123	N15	W88	5904	01	30.3	10	SF	C 3.8	3	E		31		
HOLL		2211	2212	2222	S25	W10	5921	02	5.1	11	SF		3	E		18		F
HOLL		2252	2253	2257	N16	W88	5904	01	30.4	5	SF	C 1.9	3	E		20		
HOLL		2314	2318	2328	N13	W38	5920	02	3.1	14	SF		3	E		23		
LEAR	06	0530	0531	0539	N13	W41	5920	02	3.1	9	SF		3	E		16		F
LEAR		0700	0701	0714	N14	W42	5920	02	3.1	14	SF	C 5.4	3	E		40		F
GOES		0809	0816	0818						9		C 2.3						
SVTO		0908E	0908U	0925D	N13	W88	5904	01	30.8	17D	1F	C 2.7	3	E		200		
GOES		1023	1033	1050						27		C 2.2						
SVTO		1122E	1124U	1251D	N24	W54	5914	02	2.3	89D	SF	C 2.8	3	E		49		F
RAMY		1137	1137	1152	N30	W34	5914	02	3.8	15	SF		2	E		64		
SVTO		1230E	1230U	1352D	N06	W38	5920	02	3.7	82D	SF		3	E		43		F
RAMY		1407	1411	1426	N14	W47	5920	02	3.0	19	SF		3	E		26		
HOLL		1451	1452	1501	N13	W47	5920	02	3.1	10	SF		3	E		17		F
HOLL		1531	1538	1605	N08	W41	5919	02	3.6	34	SF		3	E		27		F
RAMY		1533	1537	1550	N08	W42	5919	02	3.5	17	SF		3	E		13		
GOES		1823	2108	2224						241		C 4.2						T
HOLL		2226	2226	2241	N07	W48	5919	02	3.3	15	SF		3	E		15		F
GOES	07	0024	0028	0033						9		C 1.9						
LEAR		0124E	0125U	0134D	N09	W50	5919	02	3.3	10D	SF	C 1.9	2	E		20		
GOES		0249	0253	0256						7		C 1.1						
GOES		0617	0634	0644						27		C 2.0						
GOES		1309	1313	1316						7		C 3.0						
HOLL		1508	1516	1542	N13	W58	5920	02	3.2	34	SF		4	E		25		FH
HOLL		1549	1551	1556	N14	W59	5920	02	3.2	7	SF		4	E		14		H
GOES		1553	1628	1639						46		C 1.9						
GOES		1753	1822	1845						52		C 2.0						
HOLL		2255	2255	2302	N14	W64	5920	02	3.1	7	SF	C 1.9	3	E		19		
GOES	08	0411	0415	0423						12		C 1.0						
GOES		0647	0715	0735						48		C 1.9						
SVTO		1038	1044	1107D	S19	W58	5925	02	4.0	29D	SF	C 1.0	2	E		35		F
SVTO		1354	1359	1410	N30	E66		02	13.8	16	1F		3	E		101		
SVTO		1358	1401	1413	S20	W57	5925	02	4.2	15	SF	C 1.2	3	E		35		F
GOES		1829	1833	1836						7		M 1.1						
GOES		2037	2041	2046						9		B 9.6						
RAMY		2109E	2113U	2121	S20	W63	5925	02	4.1	12D	SF		2	E		29		F
PALE		2129	2135	2149D	S21	W63	5925	02	4.1	20D	SF	C 7.5	3	E		64		F
LEAR	09	0018	0019	0028	S19	W69	5925	02	3.7	10	SF		3	E		78		F
PALE		0020E	0023U	0030D	S22	W68	5925	02	3.8	10D	SF	C 7.2	2	E		28		
GOES		0152	0155	0157						5		B 9.6						
GOES		0816	0820	0828						12		C 1.4						
GOES		1004	1012	1019						15		C 2.3						
GOES		1136	1143	1147						11		C 1.9						
GOES		1523	1526	1528						5		B 8.9						
HOLL		1740	1747	1755	S21	W72	5925	02	4.2	15	SF		3	E		21		
GOES		2345	2351	2357						12		C 1.6						
HOLL	10	0013	0015	0022	N02	E46	5932	02	13.4	9	SF		3	E		15		F
GOES		1107	1113	1117						10		C 1.2						
RAMY		1632	1634	1640	N26	E30	5928	02	13.0	8	SF		3	E		35		F
HOLL		1633	1635	1644	N26	E29	5928	02	12.9	11	SF		3	E		47		
HOLL		1742	1742	1747	S12	E63	5931	02	15.5	5	SF		3	E		12		
HOLL		2027	2030	2043	N21	E45	5927	02	14.3	16	SF		3	E		12		F
HOLL		2210	2211	2216	N15	E41	5927	02	14.0	6	SF		3	E		18		
LEAR	11	0112	0118	0121	N17	E36	5927	02	13.8	9	SF		3	E		25		
PALE		0114E	0117U	0121D	N20	E35	5927	02	13.7	7D	SF		3	E		24		
SVTO		0931	0933	0940	N18	E30	5927	02	13.7	9	SF	B 6.8	3	E		42		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
SVTO	11	1138	1140	1146	N21	E29	5927	02	13.7	8	SF	B 7.6	3	E		13		
RAMY		1155	1159	1203	N19	E37	5927	02	14.3	8	SF		3	E		43		
HOLL		1528	1529	1543	N11	E04	5930	02	11.9	15	SF		3	E		18		
RAMY		1530	1534	1543	N11	E04	5930	02	11.9	13	SF		3	E		11		
HOLL		1607	1608	1614	N11	E04	5930	02	12.0	7	SF		3	E		17		
HOLL		1827	1827	1842	N18	E28	5927	02	13.9	15	SN	C 1.8	3	E		94		FE
PALE		1829	1829	1836	N21	E26	5927	02	13.8	7	SF		3	E		29		F
PALE	12	0213	0213	0228	N11	W03	5930	02	11.9	15	SF		3	E		12		F
GOES		0855	0858	0902						7		C 1.0						
GOES		0929	0933	0939						10		C 1.0						
GOES		1110	1119	1123						13		C 3.6						
RAMY		1128E		1155D	N18	E18	5927	02	13.8	27D	SF		2	E		20		H
RAMY		1422	1422	1427	N19	E17	5927	02	13.9	5	SF		3	E		25		
HOLL		1528	1531	1540	N19	E16	5927	02	13.9	12	SF	B 8.2	3	E		21		F
HOLL		1538	1546	1612	N10	W11	5930	02	11.8	34	SF	B 8.7	3	E		39		F
RAMY		1642E	1644U	1658	N19	E14	5927	02	13.8	16D	SF		3	E		23		H
RAMY		1704	1712	1802	N19	E14	5927			58	SF			E		57		K
RAMY		1704	1725	1802	N19	E14	5927	02	13.8	58	SN		3	E		62		
PALE		1710E	1721	1748	N18	E15	5927	02	13.8	38D	SN		3	E		52		F
HOLL		1710	1723	1813D	N20	E14	5927	02	13.8	63D	SN	C 3.4	3	E		60		F
RAMY		1730	1744	1827	N10	W13	5930	02	11.7	57	SN	C 3.0	3	E		64		F
PALE		1735	1741	1804	N10	W12	5930	02	11.8	29	SN		3	E		23		FH
GOES		2153	2159	2202						9		C 2.0						
PALE	13	0045	0045	0112	N21	E08	5927	02	13.6	27	SN	C 1.9	3	E		84		FE
GOES		0442	0447	0453						11		C 1.1						
SVTO		0654	0659	0704	N11	W20	5930	02	11.8	10	SF		3	E		26		
GOES		0951	0956	1002						11		B 9.7						
GOES		1138	1142	1145						7		B 9.9						
RAMY		1349	1349	1403	N17	E05	5927	02	13.9	14	SF	B 7.5	3	E		13		
RAMY		1513	1514	1522	N13	E00	5927	02	13.6	9	SF		3	E		16		
RAMY		1513	1529	1535	N11	W26	5930	02	11.7	22	SF	C 1.0	3	E		33		
PALE		1739E	1740	1750	N11	W24	5930	02	11.9	11D	SF	C 1.7	3	E		40		FH
RAMY		1741	1742	1753	N11	W27	5930	02	11.7	12	SF	C 1.7	3	E		20		F
PALE		1929	1931	1955D	N27	W12	5928	02	12.9	26D	SF	C 1.2	3	E		14		F
SVTO	14	0654	0655	0659	N21	W08	5927	02	13.7	5	SF	C 1.2	3	E		17		
SVTO		1250E	1253U	1254D	N12	W39	5930	02	11.6	4D	SF	C 5.5	2	E		32		F
RAMY		1457E	1457U	1505D	S27	W45	5926	02	11.1	8D	SF		2	E		14		
PALE		1737	1743	1756	N09	W41	5930	02	11.6	19	1F	C 6.4	3	E		111		F
HOLL		1743E	1745U	1751D	N12	W58	5930	02	10.4	8D	SB		1	E		77		F
RAMY		1755E	1755U	1817	N12	W40	5930	02	11.7	22D	SF		2	E		92		F
PALE		1808	1811	1819	N10	W41	5930	02	11.7	11	SF		3	E		20		F
RAMY		2023	2042	2048	N10	E42		02	18.0	25	SF		3	E		33		
PALE		2301	2303	2315	N10	W44	5930	02	11.6	14	SF	C 2.2	3	E		16		F
LEAR		2302	2306	2313	N12	W42	5930	02	11.8	11	SF		3	E		15		F
SVTO	15	1119	1121	1144D	N34	W06	5934	02	15.0	25D	1N	C 1.5	3	E		110		
SVTO		1209	1228	1236	N13	W50	5930	02	11.7	27	SF		3	E		24		
RAMY		1211	1225U	1238	N13	W48	5930	02	11.9	27	SF		2	E		27		
RAMY		1310	1310	1320	N12	W52	5930	02	11.6	10	SF		3	E		15		
SVTO		1310	1311	1317	N13	W53	5930	02	11.5	7	SF		3	E		17		
SVTO		1330	1359	1427	N12	W51	5930	02	11.7	57	SF	C 1.9	3	E		53		
RAMY		1332	1358	1430	N12	W52	5930	02	11.6	58	SF	C 1.9	3	E		37		F
RAMY		1356	1356	1404	N24	W13	5933	02	14.6	8	SF		3	E		15		
RAMY		1536E	1539U	1539D	N15	E59	5936	02	20.1	3D	SF		2	E		18		
RAMY		1923	1936U	1952D	N12	W56	5930	02	11.6	29D	SF	C 1.3	3	E		34		F
HOLL		1933	1936	1943	N11	W54	5930	02	11.7	10	SF	C 1.3	3	E		17		F
PALE		1935	1935	1939	N10	W54	5930	02	11.7	4	SF		3	E		11		F
PALE		2006	2006	2013	N10	W57	5930	02	11.5	7	SF		3	E		12		F
GOES	16	0420	0429	0442						22		B 7.7						
LEAR		0529	0530	0533	S12	E40	5937	02	19.2	4	SF		3	E		14		
GOES		1039	1048	1105						26		C 1.3						
GOES	17	0652	0734	0811						79		C 1.2						
LEAR		0728	0728	0735	N25	W36	5927	02	14.5	7	SF		4	E		11		

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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
SVTO	17	1028	1028	1035	S13	E75		02	23.1	7	SF		3	E		17		
SVTO		1134	1134	1144	N09	E69		02	22.7	10	SF		3	E		27		
SVTO		1218	1219	1226	N09	E67		02	22.5	8	SF		3	E		17		
SVTO		1234	1236	1242	N11	E67		02	22.6	8	SF		3	E		20		
SVTO		1320	1325	1331	N12	E66		02	22.5	11	SF		3	E		18		
SVTO		1329	1330	1334	S09	E80		02	23.6	5	SF		3	E		18		
SVTO		1359	1400	1414	N38	W30		02	15.1	15	SF	C 2.3	3	E		15		
HOLL		1754	1755	1809	N21	W43	5927	02	14.4	15	SF		3	E		20		
HOLL		1826	1828	1843	N20	W50	5927	02	13.9	17	SF	C 1.4	3	E		31		F
RAMY		2027	2027	2031	S16	W35	5931	02	15.2	4	SF		3	E		20		
HOLL		2027	2028	2032	S15	W35	5931	02	15.2	5	SF		3	E		39		F
RAMY		2107	2110	2120	S14	W38	5931	02	15.0	13	1F		3	E		110		F
HOLL		2107	2111	2119	S16	W35	5931	02	15.2	12	1N	C 1.5	3	E		125		F
GOES		2224	2232	2241						17		C 5.7						
HOLL		2358	2359	2411	N21	W55	5927	02	13.8	13	SF		3	E		43		F
HOLL		2359		2402	S37	E82		02	24.6	3	SF		3	E		11		F
LEAR		2359	2401	2403	N21	W55	5927	02	13.8	4	SF		3	E		18		
HOLL	18	0017	0019	0023	S37	E80		02	24.4	6	SF		3	E		20		
GOES		0424	0428	0431						7		C 3.2						
LEAR		0531	0535	0545	S35	E83		02	24.9	14	SF		3	E		13		
GOES		0828	0833	0839						11		C 1.9						
SVTO		1051	1100	1134	N21	W63	5927	02	13.6	43	1F	C 6.9	3	E		235		FE
SVTO		1052	1123U	1236	N19	E20	5936	02	20.0	104	2F		3	E		266		
RAMY		1143	1144	1227D	N18	E28	5936	02	20.6	44D	SF		3	E		52		
GOES		1309	1312	1315						6		C 1.4						
RAMY		1415	1416	1421	S15	E79		02	24.6	6	SF		3	E		54		
SVTO		1415	1416	1423	S14	E82		02	24.8	8	SN		2	E		80		
SVTO		1417	1419	1423	N23	W64	5927	02	13.7	6	SF	C 2.7	3	E		13		
RAMY		1535	1535	1540	S36	E73	5942	02	24.5	5	SF		3	E		26		
GOES		2032E	2035	2039D						7D		C 1.3						
GOES		2139	2143	2147						8		C 1.4						
LEAR		2323	2338	2403	S37	E68	5942	02	24.4	40	SF		4	E		50		
GOES	19	0018	0025	0031						13		C 1.8						
PALE		0305	0330	0343D	S33	E68	5942	02	24.5	38D	SF		3	E		66		
LEAR		0329	0332	0335	S36	E67	5942	02	24.5	6	SF		3	E		11		
SVTO		0637	0638	0722	S17	E80		02	25.3	45	SF	C 2.6	3	E		25		
LEAR		0643	0644	0653	S16	E86		02	25.8	10	SF		3	E		23		
SVTO		0709	0809	0930	S35	E64	5942	02	24.4	141	SF		4	E		64		
LEAR		0713	0713	0720	S36	E62	5942	02	24.3	7	SF		3	E		12		
SVTO		0727	0743	0853	S11	W05	5937	02	18.9	86	1F		4	E		190		U
LEAR		0728	0733	0833	S14	W12	5937	02	18.4	65	SF	C 3.7	3	E		75		UF
LEAR		0802	0808	0819	S36	E63	5942	02	24.4	17	SF		3	E		33		F
SVTO		0810	0810	0817	S17	E83		02	25.6	7	SF		4	E		33		
SVTO		0931	0941	1109D	S35	E61	5942			98D	SB			E		65		K
SVTO		0931	1109	1540	S35	E61	5942	02	24.3	369	1N		4	E		131		T
LEAR		0938	0942	0955	S36	E60	5942	02	24.2	17	SF		3	E		35		
SVTO		1034	1051	1228	N12	E44	5940	02	22.7	114	1F		4	E		202		F
SVTO		1135	1235	1259	S16	E80		02	25.5	84	SF	C 5.2	4	E		58		
SVTO		1323	1332	1337	S08	E67		02	24.6	14	SF		4	E		80		
RAMY		1353	1402	1405	S37	E61	5942	02	24.5	12	SF		3	E		26		
RAMY		1412	1416U	1538	S36	E58	5942	02	24.2	86	SF	C 2.6	3	E		61		
RAMY		1551	1554	1603	S35	E56	5942	02	24.1	12	SF	C 4.0	3	E		49		F
RAMY		1621E	1643U	1650D	S36	E57	5942	02	24.2	29D	SF		2	E		64		F
RAMY		1647E	1647U	1652	N21	W76	5927	02	13.9	5D	SF	C 5.7	2	E		25		F
RAMY		1722	1723	1736	S36	E56	5942	02	24.2	14	SF	C 5.0	2	E		28		H
HOLL		1723	1723	1736	S36	E57	5942	02	24.3	13	SF	C 5.0	3	E		40		H
HOLL		1727	1734	1741	S17	E81	5947	02	25.9	14	SF		3	E		39		
RAMY		1734	1734	1738	S18	E75	5947	02	25.4	4	SF		2	E		20		
RAMY		1829E	1851U	1905D	S39	E65	5942	02	25.0	36D	SF		2	E		38		H
PALE		1836E	1852U	1909D	S33	E58	5942	02	24.4	33D	SF	C 3.9	3	E		63		
RAMY		1950	2018U	2118D	S36	E57	5942	02	24.4	88D	SF		2	E		64		F
PALE		2005E	2022	2103	S36	E59	5942	02	24.6	58D	SF		3	E		60		F
HOLL		2118	2118U	2128	S17	E79	5947	02	25.9	10	SF		3	E		26		
PALE		2303	2303	2309	S32	E57	5942	02	24.5	6	SF		3	E		46		F
PALE	20	0013	0022	0026	S13	E75	5947	02	25.7	13	SF	C 2.0	3	E		53		

Hα SOLAR FLARES

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
LEAR	20	0100	0103	0110	S18	E76	5947	02	25.8	10	SF		3	E		38		
PALE		0102	0108	0150	S14	E75	5947			48	1F			E		73		K
PALE		0102	0126	0150	S14	E75	5947	02	25.7	48	1F	C 5.7	3	E		133		
LEAR		0120	0123	0131	S16	E76	5947	02	25.8	11	SF		3	E		55		
LEAR		0206	0207	0213	S11	E39	5941	02	23.0	7	SF		3	E		21		
GOES		0405E	0406	0418D						13D		C 5.1						
LEAR		0425	0426	0431	S35	E50	5942	02	24.2	6	SF		3	E		18		
LEAR		0738	0742	0746	S34	E48	5942	02	24.1	8	SF	C 4.1	3	E		22		
GOES		1020	1026	1028						8		C 4.4						
SVTO		1116E	1119U	1200	S13	E43	5941	02	23.7	44D	SF		3	E		41		
SVTO		1203	1208	1226	S18	E70	5947	02	25.8	23	1F		3	E		110		
RAMY		1319	1320	1330	S37	E48	5942	02	24.4	11	SF		3	E		17		
GOES		1352	1358	1406						14		C 2.6						
SVTO		1424	1426	1437	S18	E63	5947	02	25.4	13	SF		3	E		37		
RAMY		1424	1450	1505	S18	E66	5947	02	25.6	41	SF		3	E		43		F
GOES		1737	1743	1752						15		C 2.2						
HOLL		1757	1757	1803	S16	E66	5947	02	25.7	6	SF		3	E		17		
RAMY		1855	1930	2026D	S38	E46	5942	02	24.5	91D	SF	C 2.1	3	E		16		F
HOLL		1929	1930	1935	S36	E48	5942	02	24.7	6	SF		3	E		17		
HOLL		2058	2106	2115	S15	E60	5947	02	25.4	17	SF		4	E		39		
PALE	21	0137	0139	0144	N18	E69	5948	02	26.3	7	SF		3	E		25		
PALE		0225	0226	0232	S36	E40	5942	02	24.3	7	SF		3	E		30		
PALE		0228	0233	0248	S16	E61	5947	02	25.7	20	SF		3	E		52		F
PALE		0232	0243	0254	N02	E04	5946	02	21.4	22	SF		3	E		62		F
LEAR		0237	0237	0252	S17	E61	5947	02	25.7	15	SF		3	E		23		F
LEAR		0237	0238	0244	S40	E45	5942	02	24.8	7	SF		3	E		18		
PALE		0240	0241	0248	S38	E44	5942	02	24.7	8	SF		3	E		19		
LEAR		0243	0246	0250	N02	E05	5946	02	21.5	7	SF		3	E		10		F
LEAR		0254	0257	0311	N02	E06	5946	02	21.6	17	SF		3	E		14		
LEAR		0413	0414	0418	N13	E61	5948	02	25.8	5	SF		3	E		31		F
LEAR		0454	0503	0519	N02	E05	5946	02	21.6	25	SF		3	E		28		
HOLL		2058	2059	2103	N02	W03	5946	02	21.6	5	SF		3	E		27		
HOLL		2131	2137	2142	S15	E53	5947	02	25.9	11	SF		3	E		10		
HOLL		2222	2226	2230	N01	W04	5946	02	21.6	8	1F		3	E		111		
HOLL		2231	2231	2235	S13	E25	5945	02	23.8	4	SF		3	E		22		
HOLL		2319	2322	2329	S15	E51	5947	02	25.8	10	SF		3	E		19		
HOLL		2333	2337	2340	N02	W07	5946	02	21.4	7	SF		3	E		14		F
HOLL	22	0001	0004	0009	N16	E48	5948	02	25.6	8	SF		3	E		11		
LEAR		0522	0527	0532	S16	E45	5947	02	25.6	10	SF		3	E		12		
LEAR		0540	0544	0554	S15	E48	5947	02	25.9	14	SF	C 1.6	3	E		35		
LEAR		0633	0641	0650D	N02	W10	5946	02	21.5	17D	SF		3	E		55		
LEAR		0738	0750	0809	S39	E30	5942	02	24.7	31	SF		3	E		38		
LEAR		0836	0841	0908	N15	E51	5948	02	26.2	32	SF	C 4.1	3	E		52		
LEAR		0847	0849	0906	N04	W05	5946	02	22.0	19	SF		3	E		21		
LEAR		0847	0855	0906	N04	W05	5946			19	SN			E		25		K
LEAR		1021	1023	1042D	N16	E49	5948	02	26.1	21D	SF	C 3.3	3	E		50		F
SVTO		1021	1029	1048	N16	E48	5948	02	26.1	27	SF		2	E		47		
SVTO		1420	1422	1432	S08	E69		02	27.8	12	SF		2	E		30		
HOLL		1421	1422	1429	S09	E69		02	27.8	8	SF		2	E		22		
SVTO		1424	1441	1453	N15	E48	5948	02	26.2	29	SF		3	E		35		
HOLL		1437E	1438	1500	N16	E49	5948	02	26.3	23D	SF		3	E		25		
SVTO		1439	1446	1559D	S19	E39	5947	02	25.6	80D	1N		3	E		170		F
HOLL		1440	1450	1608	S20	E41	5947	02	25.7	88	1N	M 1.2	3	E		247		FE
RAMY		1440	1510	1609	S19	E40	5947	02	25.7	89	1N		3	E		140		F
HOLL		1440	1540	1608	S20	E41	5947			88	1N			E		93		K
RAMY		1440	1541	1609	S19	E40	5947			89	1N			E		112		K
HOLL		1507	1513	1522	N18	W03	5950	02	22.4	15	SF		3	E		14		
HOLL		1538	1538	1548	N16	E49	5948	02	26.4	10	SF		3	E		26		
HOLL		1613	1630	1715	N16	E45	5948	02	26.1	62	SF	C 4.4	3	E		69		FE
RAMY		1626	1632	1713	N15	E40	5948	02	25.7	47	SF		3	E		44		F
HOLL		1834	1835	1842	N17	W05	5950	02	22.4	8	SF		3	E		17		
HOLL		1943	1947	1955	N17	W06	5950	02	22.4	12	SF		3	E		37		F
RAMY		1945	1946	1956	N17	W06	5950	02	22.4	11	SF		3	E		16		
HOLL		2034	2047	2113	S09	E68	5953	02	28.0	39	SF		3	E		53		F
HOLL		2103	2107	2115	N17	E41	5948	02	26.0	12	SF		3	E		24		FH
HOLL		2116	2122	2129	N18	W06	5950	02	22.4	13	SF		3	E		18		

Hα S O L A R F L A R E S

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Apparent (10-6 Disk)	Corr (Sq Deg)	Remarks
HOLL	22	2152	2156	2202	S17	E32	5947	02	25.3	10	SF	C 1.7	4	E		32		
HOLL		2249	2324	2332	N15	E42	5948	02	26.1	43	SF		3	E		19		
HOLL	23	0008	0009	0013	S14	E22	5945	02	24.7	5	SF		3	E		33		
HOLL		0026	0028	0032	S11	E61	5953	02	27.6	6	SF		2	E		39		
LEAR		0304	0322	0334	S20	E35	5947	02	25.8	30	SF		3	E		22		
PALE		0305	0310	0315	S19	E34	5947	02	25.7	10	SF		3	E		16		F
LEAR		0407	0408	0416	S10	E62	5953	02	27.8	9	SF		3	E		69		
LEAR		0525	0531	0543	S18	E33	5947	02	25.7	18	SF		3	E		34		F
LEAR		0626	0627	0632	N15	E38	5948	02	26.1	6	SF		4	E		14		F
RAMY		1124	1125	1133	S18	E29	5947	02	25.7	9	SF		3	E		33		F
RAMY		1210	1212	1230	N14	E37	5948	02	26.3	20	SF		3	E		28		
SVTO		1212	1212	1219	N15	E37	5948	02	26.3	7	SF		3	E		16		
RAMY		1231	1235	1250	N14	E37	5948	02	26.3	19	SF		3	E		31		
RAMY		1253	1257	1352	S20	E27	5947	02	25.6	59	2B		3	E		297		YF
SVTO		1253	1302	1356	S19	E28	5947	02	25.7	63	2B	M 2.9	3	E		272		
SVTO		1406	1409	1419	S13	W60	5937	02	19.1	13	SF		3	E		63		
HOLL		1542	1542	1546	S08	E55	5953	02	27.8	4	SF		3	E		10		
HOLL		1545	1547	1609	S14	E29	5947	02	25.8	24	SF		3	E		14		
HOLL		1621	1626	1650	S10	E54	5953			29	SF			E		37		K
HOLL		1621	1636	1650	S10	E54	5953	02	27.7	29	SN	M 1.3	3	E		83		
HOLL		1706	1706	1715	N15	E34	5948	02	26.3	9	SF		3	E		14		
HOLL		1859	1909	1940	S17	E25	5947	02	25.7	41	1F		3	E		126		F
PALE		1901	1907	1924	S16	E27	5947	02	25.8	23	SF		3	E		78		F
RAMY		1904	1909	1933	S18	E26	5947	02	25.8	29	SF		3	E		58		F
HOLL		2023	2024	2028	S02	W06	5952	02	23.4	5	SF		3	E		17		
RAMY		2047	2051	2108	S17	E25	5947	02	25.8	21	SF		3	E		32		F
HOLL		2047	2052	2108	S17	E26	5947	02	25.8	21	SF		3	E		34		F
PALE		2055	2055	2102	S16	E26	5947	02	25.8	7	SF		3	E		18		F
PALE		2212	2213	2218	N19	E27	5948	02	26.0	6	SF		3	E		19		
HOLL		2336	2337	2403	N13	E22	5948			27	SF			E		67		K
PALE		2336	2349	2401	N17	E27	5948	02	26.0	25	SF		3	E		95		
HOLL		2336	2349	2403	N13	E22	5948	02	25.6	27	1N	C 9.8	3	E		136		FE
LEAR		2338	2338	2344	N15	E26	5948	02	25.9	6	SF	C 2.7	3	E		11		F
LEAR		2347	2349	2358	N13	E23	5948	02	25.7	11	SN	C 9.8	3	E		81		E
PALE	24	0025	0026	0029	N19	E27	5948	02	26.1	4	SF		3	E		29		
LEAR		0042	0042	0056	N21	E04	5956	02	24.3	14	SF		3	E		16		
LEAR		0305	0306	0317	N16	E25	5948	02	26.0	12	SF	C 2.1	3	E		42		
LEAR		0317	0321	0330	S09	E49	5953	02	27.8	13	SF	M 1.1	3	E		24		E
LEAR		0344	0346	0432	S20	E21	5947	02	25.8	48	SF		3	E		25		F
LEAR		0442	0445	0453	N14	E29	5948	02	26.4	11	SF		3	E		23		
LEAR		0505	0505	0537	N15	E25	5948	02	26.1	32	SF	C 5.0	3	E		67		U
LEAR		0509	0510	0514	S11	E46	5953	02	27.7	5	SF		3	E		15		
LEAR		0622	0625	0634	S10	E47	5953	02	27.8	12	SF		3	E		11		
GOES		0824	0829	0834						10		C 2.7						
LEAR		0852	0902	0912	S14	E20	5947	02	25.9	20	SF		3	E		16		
LEAR		0857	0857	0908	N17	E25	5948	02	26.3	11	SF		3	E		20		
SVTO		1052	1053	1056	N17	E21	5948	02	26.0	4	SF		3	E		18		
SVTO		1122	1126	1154	S08	E45	5953	02	27.8	32	SF	C 2.0	3	E		47		
RAMY		1126	1143U	1148	S10	E44	5953	02	27.8	22	SF		2	E		15		
RAMY		1139	1144	1149	N16	E23	5948	02	26.2	10	SF		2	E		25		F
RAMY		1157	1158	1200	N04	W48	5946	02	20.9	3	SF		3	E		19		
GOES		1216	1219	1221						5		C 1.6						
RAMY		1227	1232	1239	N16	E23	5948	02	26.3	12	SF	C 2.2	3	E		50		F
SVTO		1230	1233	1236	N18	E24	5948	02	26.3	6	SF		3	E		32		
SVTO		1235	1249	1317	S10	E40	5953	02	27.5	42	SF		3	E		34		
RAMY		1237	1241	1305	S10	E43	5953	02	27.7	28	SF		3	E		30		
HOLL		1504	1504	1508	N03	W50	5946	02	20.9	4	SF		3	E		22		
HOLL		1505	1512	1521	N17	E21	5948	02	26.2	16	SF		3	E		18		
HOLL		1531	1536	1540	N17	E18	5948	02	26.0	9	SF		3	E		22		
RAMY		1537	1627	1650	N16	E21	5948	02	26.2	73	SF		3	E		17		F
HOLL		1549	1550	1557	N18	E21	5948	02	26.2	8	SF		3	E		14		H
RAMY		1558	1559	1607	N02	W42	5946	02	21.5	9	SF		3	E		26		
HOLL		1559	1600	1607	N02	W50	5946	02	20.9	8	SF	C 2.5	3	E		30		
RAMY		1700	1708	1725	N17	E20	5948	02	26.2	25	SF		3	E		48		F
HOLL		1703	1708	1712	N18	E21	5948	02	26.3	9	SF		3	E		27		
HOLL		2010	2012	2019	N04	W53	5946	02	20.9	9	SF		3	E		41		

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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	24	2012	2018	2020	S11	E36	5953	02	27.5	8	SF		3	E		10		
HOLL		2025	2028	2038	N20	W08	5956	02	24.2	13	SF		3	E		13		
HOLL		2048	2050	2101	N17	E18	5948	02	26.2	13	SF		3	E		27		F
HOLL		2053	2054	2106	S17	E12	5947	02	25.8	13	SF		3	E		38		F
RAMY		2054	2103	2115	N16	E18	5948	02	26.2	21	SF		3	E		24		F
RAMY		2055	2055	2110	S18	E11	5947	02	25.7	15	SF		3	E		20		F
HOLL		2118	2126	2140	S11	E35	5953	02	27.5	22	SF		3	E		48		F
RAMY		2119	2125	2203D	S12	E33	5953	02	27.4	44D	SF		2	E		40		
HOLL		2131	2134	2149	N02	W52	5946	02	21.0	18	SN	C 3.4	3	E		58		EH
LEAR		2255	2257	2304	S09	E39	5953	02	27.9	9	SF		3	E		22		
HOLL		2256	2257	2330	S10	E35	5953	02	27.6	34	SF	C 2.4	3	E		32		F
HOLL		2256	2314	2330	S10	E35	5953			34	SF			E		29		K
HOLL		2348	2350	2423	S10	E35	5953	02	27.6	35	SF		3	E		72		FE
LEAR		2350	2351	2404	S10	E34	5953	02	27.5	14	SF		3	E		26		
HOLL		2359	2359	2402	S15	E11	5947	02	25.8	3	SF		3	E		21		
LEAR	25	0141	0142	0200	N02	W53	5946	02	21.1	19	SF	C 1.9	3	E		27		
LEAR		0141	0158	0216	S19	E09	5947	02	25.7	35	SF	C 2.3	3	E		48		
LEAR		0324	0324	0332	N18	E16	5948	02	26.4	8	SF		3	E		16		
LEAR		0348	0355	0401	S10	E34	5953	02	27.7	13	SF		3	E		22		
LEAR		0438	0509	0556	S10	E33	5953	02	27.7	78	SF		3	E		30		F
LEAR		0438	0520	0556	S10	E33	5953			78	SF			E		63		K
GOES		0510E	0514	0525D						15D		C 2.4						
LEAR		0529	0554	0639	N01	W48	5946	02	21.6	70	SF		3	E		89		F
LEAR		0626	0627	0630	S09	E35	5953	02	27.9	4	SF		3	E		21		
SVTO		0739	0743	0757	N01	W58	5946	02	21.0	18	SF	C 3.0	4	E		25		
LEAR		0739	0743	0759	N01	W57	5946	02	21.1	20	SF	C 3.0	3	E		38		F
LEAR		0802	0805	0816	S08	E34	5953	02	27.9	14	SF		3	E		13		
LEAR		0824	0824	0833	S09	E33	5953	02	27.8	9	SF		3	E		13		
LEAR		0824	0825	0833	N02	W52	5946	02	21.5	9	SF		3	E		14		
SVTO		0848	0859	0918	S15	E05	5947	02	25.7	30	SF	C 2.4	3	E		51		U
LEAR		0856	0856	0914	S15	E05	5947	02	25.7	18	SF	C 2.4	3	E		23		
LEAR		0927	0927	0945	N02	W53	5946	02	21.4	18	SF		3	E		12		
LEAR		0929	0930	0939	N16	W40	5950	02	22.4	10	SF		3	E		24		
HOLL		1631	1633	1644	N02	W62	5946	02	21.0	13	SF		3	E		21		F
HOLL		1636	1636	1641	S11	E24	5953	02	27.5	5	SF		3	E		15		
HOLL		1822	1838	1850	S10	E27	5953	02	27.8	28	SF		3	E		32		F
RAMY		1829	1835U	1848D	S11	E27	5953	02	27.8	19D	SF		2	E		20		
HOLL		1928	1930	1939	S23	E11	5957	02	26.6	11	SF	C 1.3	3	E		51		
RAMY		1929	1930	1933	S24	E11	5957	02	26.7	4	SF	C 1.3	3	E		27		
RAMY		2049	2051	2120D	S11	E25	5953	02	27.7	31D	SF		2	E		47		
HOLL		2050	2051	2141	S08	E24	5953	02	27.7	51	SF	C 1.7	3	E		75		F
HOLL		2138	2138	2149	S23	E11	5957	02	26.7	11	SF		3	E		27		
HOLL		2212	2216	2219D	S23	E11	5957	02	26.8	7D	SF		3	E		50		
HOLL		2348	2350	2423	S10	E35	5953	02	28.6	35	SF		3	E		72		FE
LEAR	26	0159	0201	0208	N13	E56	5960	03	2.3	9	SF		3	E		13		
LEAR		0333	0340	0404	N16	E03	5948	02	26.4	31	SF		3	E		23		
LEAR		0338	0338	0352	N12	E55	5960	03	2.3	14	SF		3	E		16		
LEAR		0427	0431	0437	S20	W03	5947	02	25.9	10	SF	C 4.1	3	E		72		
LEAR		0430	0433	0437	N03	W66	5946	02	21.2	7	SF		3	E		20		
LEAR		0520	0522	0534	S04	W54	5952	02	22.2	14	SF		3	E		23		
LEAR		0552	0554	0607	S03	W54	5952	02	22.2	15	1F	C 2.4	3	E		111		
LEAR		0625	0626	0633	S20	W04	5947	02	26.0	8	SF	C 1.7	3	E		29		F
SVTO		0716	0725	0735	S19	W02	5947	02	26.1	19	SF	C 2.9	4	E		73		
LEAR		0720	0722	0732	S19	W02	5947	02	26.1	12	SF	C 2.9	3	E		43		
LEAR		0849	0849	0859	S20	W05	5947	02	26.0	10	SF		3	E		21		
GOES		1010	1013	1016						6		C 1.5						
RAMY		1356	1357	1413	S17	W14	5947	02	25.5	17	SF		2	E		18		F
RAMY		1508	1508	1516	S20	W14	5947	02	25.5	8	SF		3	E		26		F
GOES		1617	1625	1630						13		C 8.1						
HOLL		2056	2059	2100D	S21	W16	5947	02	25.6	4D	SF	C 2.1	3	E		28		F
LEAR	27	0029	0032	0051	S20	W14	5947	02	25.9	22	SF		3	E		19		F
GOES		0240	0243	0245						5		C 2.4						
LEAR		0252	0252	0255	S20	W13	5947	02	26.1	3	SF		3	E		16		
LEAR		0332	0333	0338	N29	E64	5961	03	4.2	6	SF		3	E		29		F
LEAR		0347	0352	0356	N30	E63	5961	03	4.1	9	SF		3	E		14		

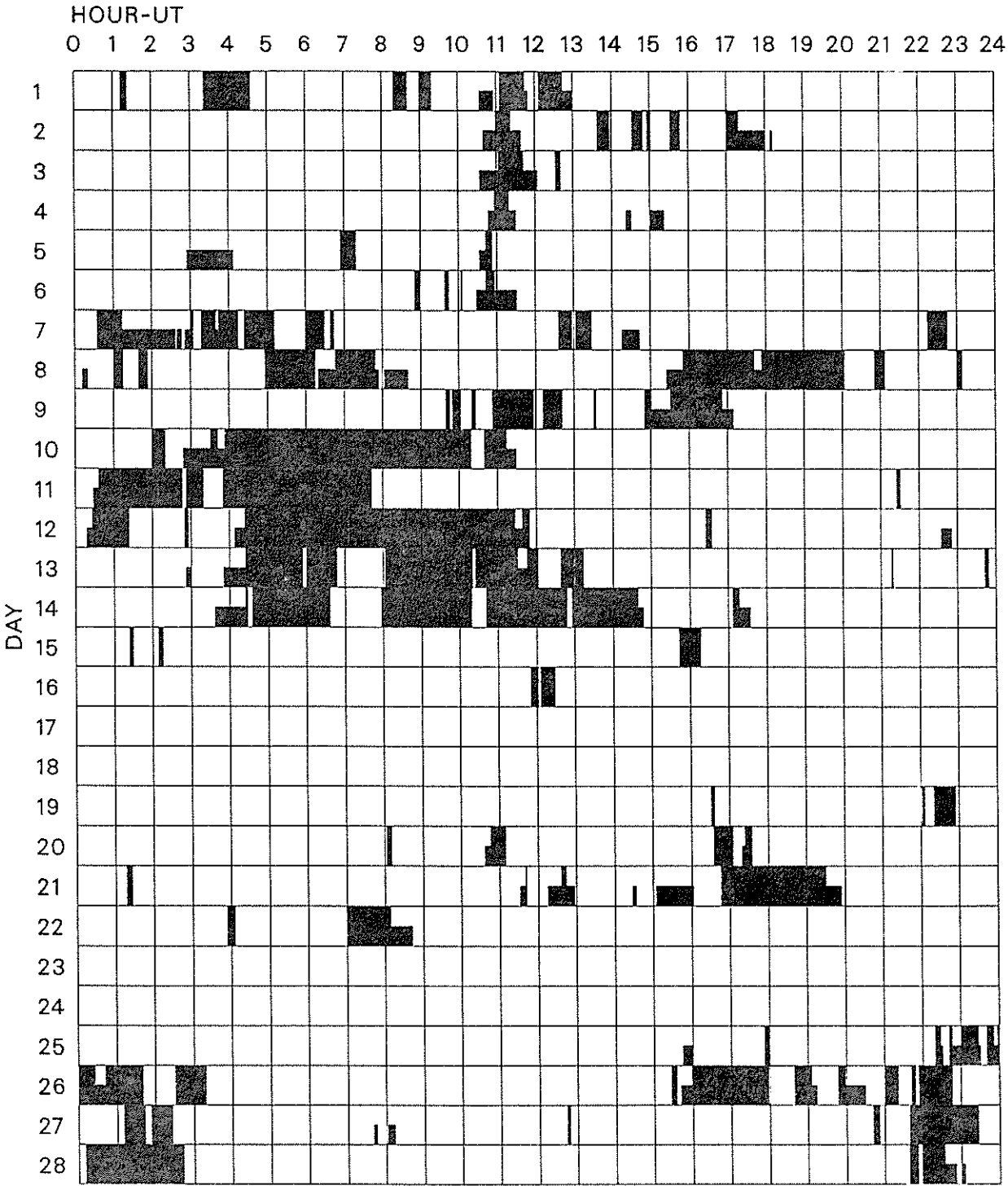
Hα SOLAR FLARES

FEBRUARY 1990

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	27	0411	0416	0428	S20	W14	5947	02	26.1	17	SF		3	E		56		F
LEAR		0415	0416	0420	N30	E61	5961	03	4.0	5	SF		3	E		11		
LEAR		0508	0527	0544	N30	E61	5961	03	4.0	36	SF		3	E		16		
LEAR		0704	0706	0719	S20	W17	5947	02	26.0	15	SF	C 7.4	3	E		83		
SVTO		0704	0710	0719	S20	W17	5947	02	26.0	15	SF		3	E		90		
SVTO		0823	0843	0920	S20	W19	5947	02	25.9	57	1N	C 5.7	3	E		122		
SVTO		1039	1051	1100	N32	E61	5961	03	4.3	21	SF		3	E		72		
SVTO		1054	1058	1110	S20	W19	5947	02	26.0	16	SN		3	E		90		
SVTO		1248E	1250	1259	S20	W21	5947	02	25.9	11D	SN	C 2.1	3	E		67		
RAMY		1320E	1322U	1342D	S20	W20	5947	02	26.0	22D	SF		2	E		27		
SVTO		1323	1328	1335	S19	W19	5947	02	26.1	12	SF		3	E		45		
HOLL		1517E	1519	1613	N31	E63	5961			56D	SF			E		24		K
HOLL		1517E	1543U	1613	N31	E63	5961	03	4.6	56D	SF		3	E		28		FH
RAMY		1528	1547	1612	N27	E55	5961	03	3.9	44	SF		2	E		32		F
HOLL		1611	1627U	1637	S17	W24	5947	02	25.8	26	SF		3	E		53		F
RAMY		1622	1632	1647	S22	W24	5947	02	25.8	25	SF		3	E		21		
RAMY		1659	1709	1716	N25	E54	5961	03	3.9	17	SF		3	E		42		
HOLL		1708E	1710U	1745	N26	E56	5961	03	4.1	37D	SF		2	E		34		FH
HOLL		1758	1804	1811	S19	W22	5947	02	26.1	13	SF		3	E		17		F
HOLL		1806	1808	1834	N29	E59	5961	03	4.4	28	SN	C 2.6	3	E		89		
RAMY		1808	1808	1818	N27	E56	5961	03	4.1	10	SF		3	E		54		
HOLL		1831	1836	1855	S21	W25	5947	02	25.8	24	SF		3	E		29		F
RAMY		1833	1837	1847	S22	W25	5947	02	25.8	14	SF		3	E		21		F
HOLL		1834	1845	1852	S26	W81		02	21.5	18	SF		3	E		34		
HOLL		1844	1845	1850	N31	E55	5961	03	4.1	6	SF		3	E		31		
HOLL		1904	2022U	2245D	N31	E55	5961	03	4.1	221D	SF		3	E		55		FT
RAMY		1930	1937	2001	S20	W22	5947	02	26.1	31	SF	C 3.4	3	E		52		F
RAMY		1939	2022	2138D	N27	E52	5961			119D	SF			E		43		K
RAMY		1939	2111	2138D	N27	E52	5961	03	3.9	119D	1N		3	E		209		F
GOES		2151	2155	2158						7		C 3.0						
LEAR		2328E	2329U	2426	N29	E54	5961	03	4.2	58D	1F	M 1.7	3	E		170		F
GOES	28	0209	0218	0227						18		C 2.8						
LEAR		0235	0245	0252	N28	E47	5961	03	3.8	17	SF		3	E		15		
LEAR		0237	0239	0243	S20	W26	5947	02	26.1	6	SF	C 3.0	3	E		47		
LEAR		0336	0336	0339	N27	E54	5961	03	4.3	3	SF	C 3.5	3	E		32		
LEAR		0435	0435	0440	N29	E48	5961	03	3.9	5	SF		3	E		11		
LEAR		0458	0501	0721	N30	E50	5961			143	SF			E		93		K
LEAR		0458	0512	0721	N30	E50	5961	03	4.1	143	SF	M 2.7	3	E		60		H
SVTO		0847	0852	0855D	N33	E40	5961	03	3.5	8D	1F	C 3.9	3	E		113		
SVTO		0932	1002	1111	N33	E47	5961			99	2F			E		229		K
SVTO		0932	1012	1111	N33	E47	5961	03	4.1	99	2F	C 3.9	3	E		301		YF
GOES		0934	0937	0942						8		C 2.4						
SVTO		1135	1136	1143	N32	E47	5961	03	4.2	8	SF		3	E		20		Y
SVTO		1147	1156	1208	N30	E44	5961	03	3.9	21	SF		3	E		25		Y
RAMY		1157E	1157U	1206	S18	W36	5947	02	25.7	9D	SF	C 2.3	3	E		14		F
RAMY		1157E	1318U	1427D	N29	E44	5961	03	3.9	150D	1F	C 6.6	3	E		155		F
SVTO		1251	1314	1416	N30	E43	5961			85	SF			E		66		K
SVTO		1251	1320	1416	N30	E43	5961	03	3.9	85	1F	C 6.6	3	E		173		Y
SVTO		1336	1346	1356	S21	W33	5947	02	26.0	20	1F		3	E		123		H
RAMY		1428	1432	1531	N28	E41	5961	03	3.8	63	SF		3	E		76		F
SVTO		1430	1432	1614	N31	E41	5961			104	1N			E		91		K
SVTO		1430	1549	1614	N31	E41	5961	03	3.8	104	1N	M 1.0	3	E		152		
RAMY		1534	1546U	1549D	N30	E42	5961	03	3.9	15D	1F		3	E		150		F
RAMY		1534	1809	1816D	N30	E42	5961			162D	1N	M 1.2		E		156		K
RAMY		1645	1646	1709	S21	W39	5947	02	25.7	24	SF		3	E		46		F
RAMY		1751	1755	1813	N14	W30	5948	02	26.5	22	SF	C 7.4	3	E		66		
RAMY		1908	1908	1910	S15	W38	5947	02	25.9	2	SF		3	E		21		F
RAMY		2003	2007	2024	N28	E39	5961	03	3.9	21	SF		3	E		95		
RAMY		2020	2020	2030	S21	E07	5955	03	1.4	10	SF		3	E		28		
RAMY		2028	2039	2157	N29	E39	5961	03	3.9	89	SF	C 3.9	3	E		39		
GOES		2222	2226	2230						8		C 1.8						
LEAR		2327	2328	2330	N26	E42	5961	03	4.2	3	SF		3	E		16		
LEAR		2335	2335	2351	N30	E38	5961	03	4.0	16	SF	C 3.5	3	E		50		

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

FEBRUARY 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.

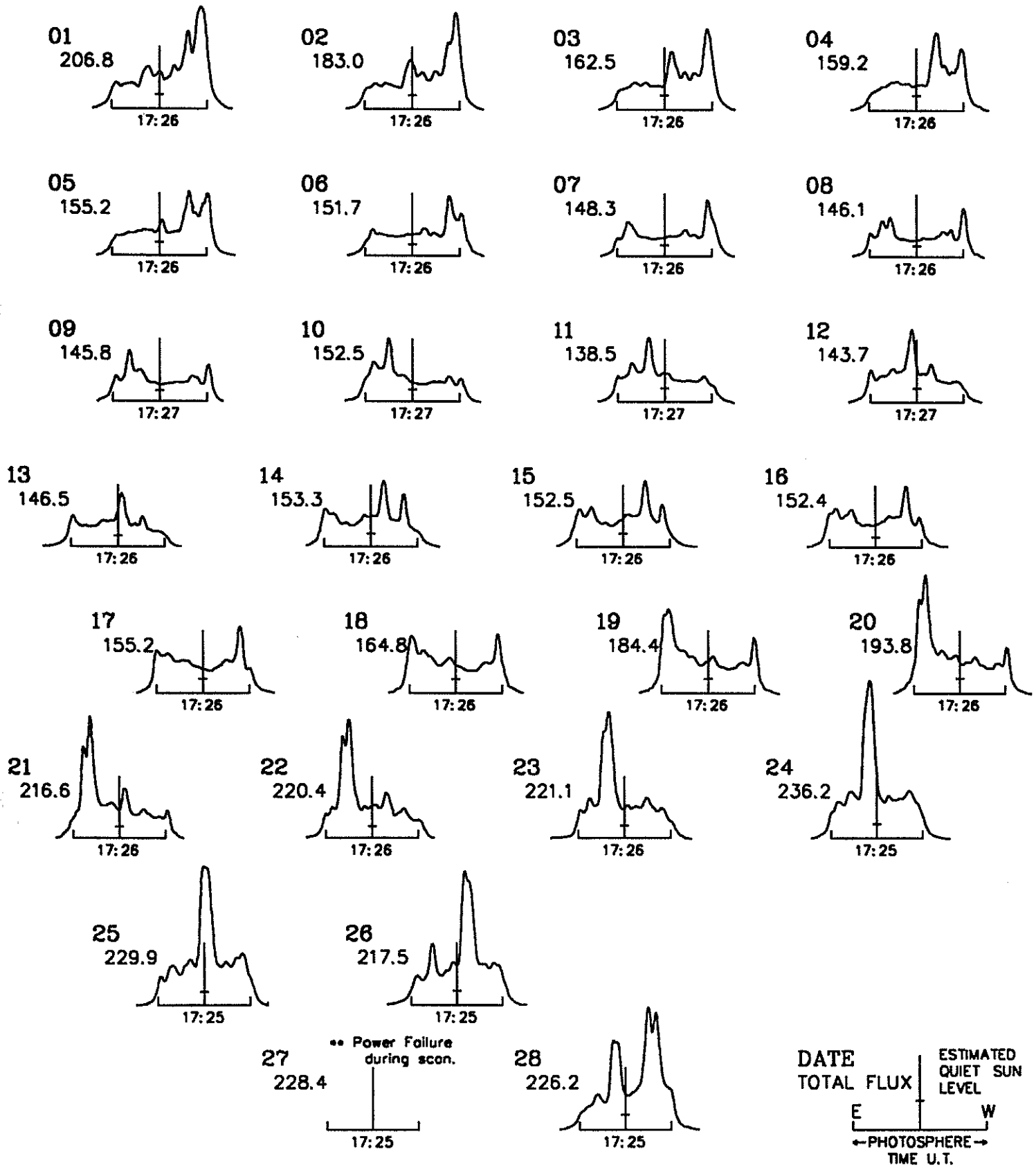
Holloman Learmonth Palehua Ramey San Vito

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

EAST – WEST SOLAR SCANS
FEBRUARY 1990

ALGONQUIN RADIO OBSERVATORY
CANADA

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

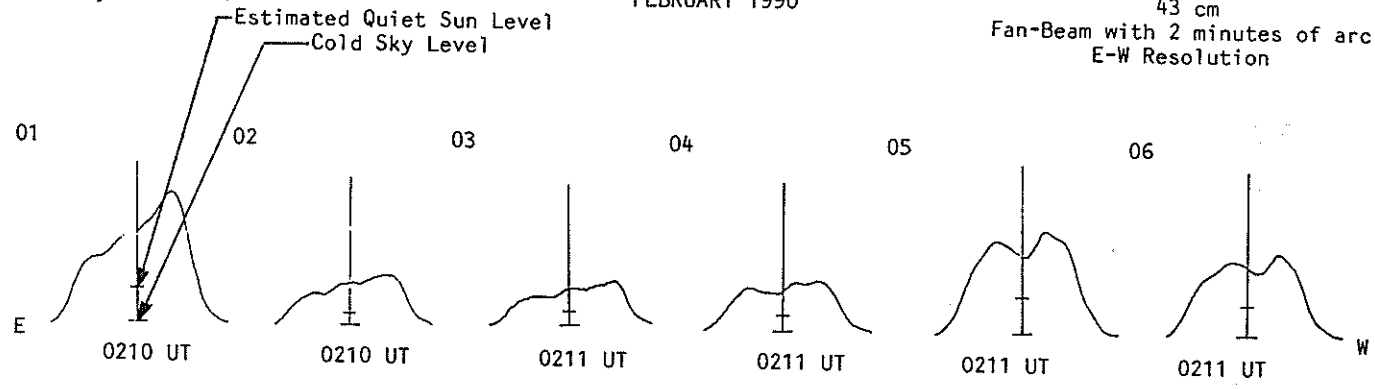


E A S T - W E S T S O L A R S C A N S

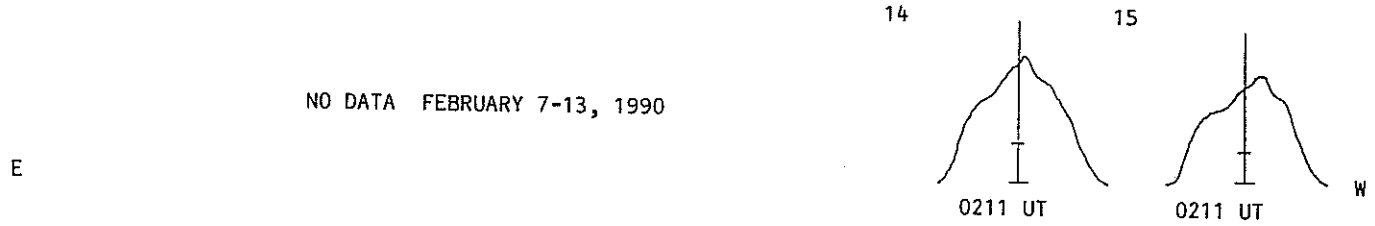
Fleurs, Australia

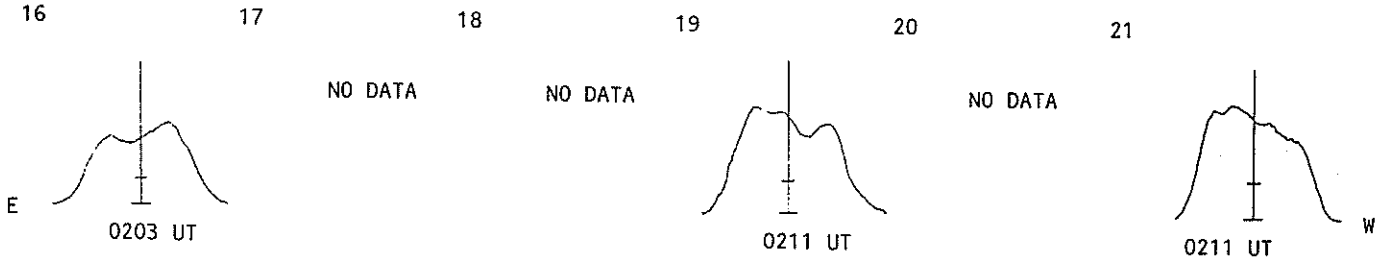
FEBRUARY 1990

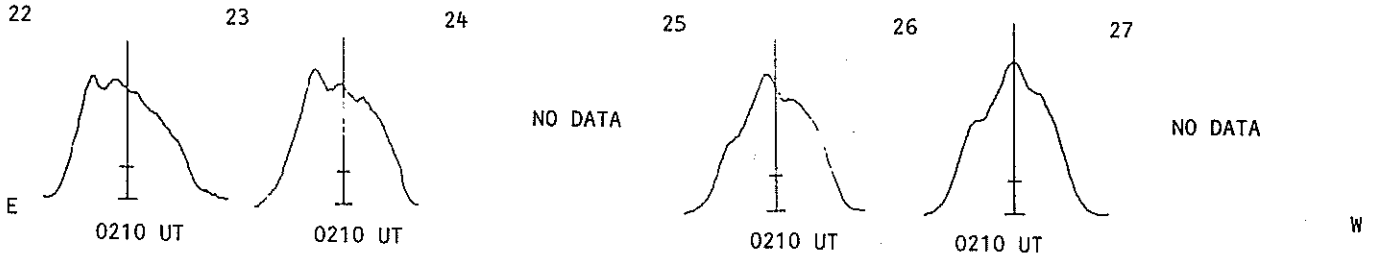
43 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



NO DATA FEBRUARY 7-13, 1990





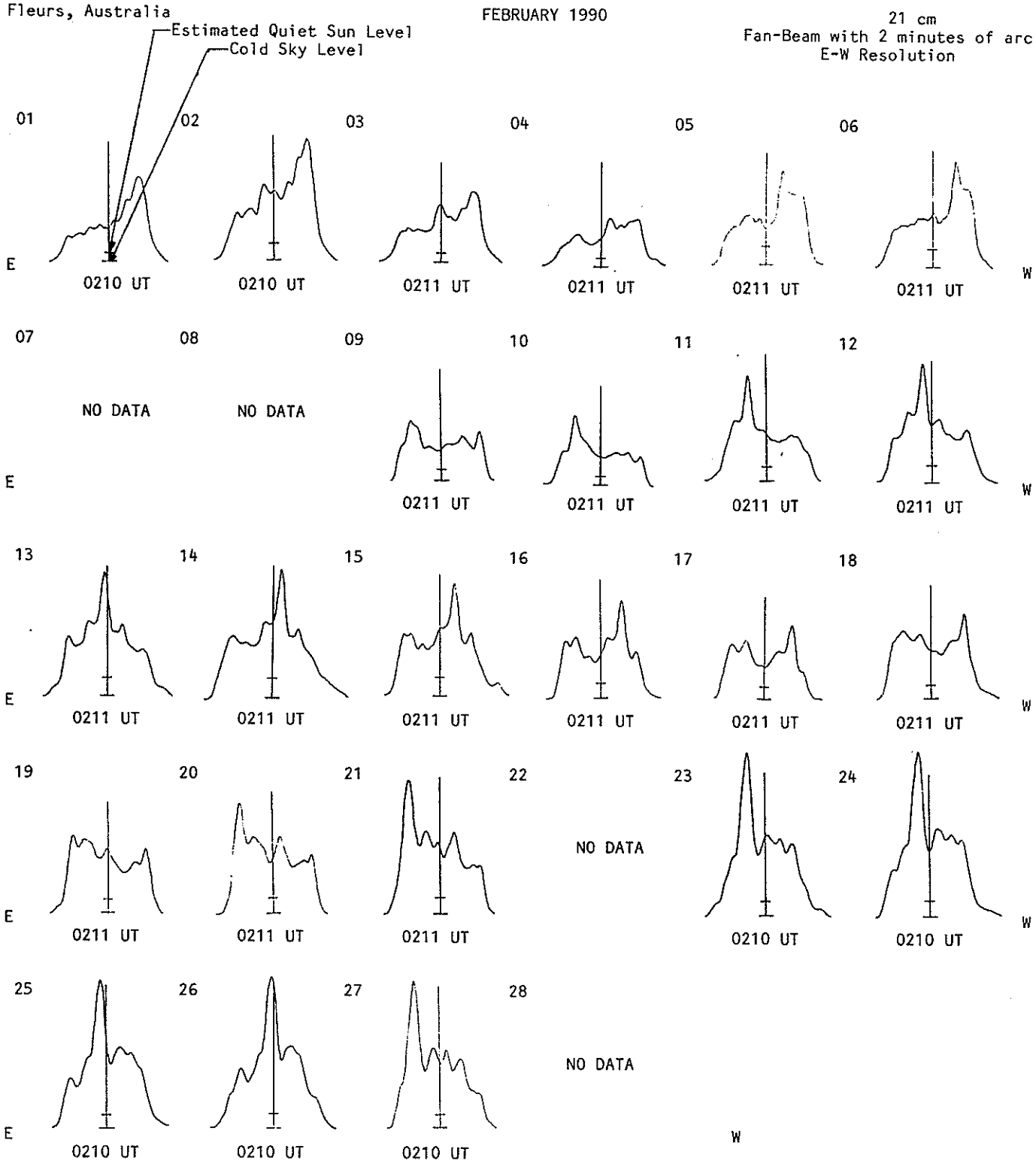


E A S T - W E S T S O L A R S C A N S

Fleurs, Australia

FEBRUARY 1990

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



SOLAR INTERFEROMETRIC OBSERVATIONS

Nancay FEBRUARY 1990 164 MHz

Day

5

CHART NOT AVAILABLE AT TIME OF PUBLICATION.

10

15

20

25

30

E C W

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

FEBRUARY 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
01	2800	OTTA	20	GRF	2031.0	2036.0	30.0	4.3	2.0		
02	2800	OTTA	4	S/F	1936.7	1936.7	1.0	7.1	1.0		
	2800	OTTA	20	GRF	2000.0	2005.0	11.0	5.6	2.0		
03	8800	LEAR	49	GB	0107.0E	0109.0	10.0D	660.0			QL=4 ST=2 TYP=6
	2695	PALE	49	GB	0108.0E	0108.0	4.0D	720.0			QL=4 ST=2 TYP=6
	8800	PALE	49	GB	0108.0E	0109.0	2.0D	670.0			QL=4 ST=2 TYP=6
	2695	LEAR	49	GB	0108.0E	0108.0	14.0D	770.0			QL=4 ST=2 TYP=6
04	2695	PENT	3	S	2150.5	2153.0	9.5	9.9	4.0		
	8800	PALE	8	S	2152.0E	2152.0	1.0D	70.0			QL=4 ST=2 TYP=3
08	2695	PENT	4	S/F	2131.2	2133.0	1.8	7.7	3.0		
11	2800	OTTA	4	S/F	1819.8	1820.2	2.3	27.0	6.0		
	2695	PALE	8	S	1826.0E	1826.0	1.0D	35.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1826.0E	1826.0	1.0D	280.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1826.0E	1826.0	2.0D	250.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1826.0E	1826.0	2.0D	39.0			QL=2 ST=2 TYP=3
	2800	OTTA	4	S/F	1826.2	1826.7	7.5	48.8	10.0		
	2695	PENT	4	S/F	2321.1	2321.2	1.2	13.3	3.0		
12	2800	OTTA	22	GRF	1450.5	1554.0	64.5	4.9	2.0		
	2800	OTTA	4	S/F	1607.5	1608.5	2.0	7.3	2.0		
	2800	OTTA	22	GRF	1622.5	1626.5	38.0	2.7	1.0		
	2800	OTTA	4	S/F	1629.8	1629.9	1.2	25.9	5.0		
	2800	OTTA	4	S/F	1640.9	1641.1	1.2	8.3	2.0		
	8800	SGMR	8	S	1710.0E	1711.0	1.0D	41.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1710.0E	1710.0	1.0D	25.0			QL=2 ST=2 TYP=3
	2800	OTTA	40	F	1716.0	1720.5	17.0	43.9			
13	8800	LEAR	8	S	0044.0E	0045.0	1.0D	58.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0044.0E	0045.0	2.0D	330.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	0044.0E	0045.0	10.0D	320.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0059.0E	0059.0	U	320.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0059.0E	0059.0	U	49.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0137.0E	0137.0	3.0D	140.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	0137.0E	0139.0	3.0D	100.0			QL=4 ST=2 TYP=5
	2800	OTTA	4	S/F	1347.7	1348.9	5.0	46.5	10.0		
	2800	OTTA	3	S	1450.9	1451.3	2.0	10.9	2.0		
	2695	PENT	3	S	2134.0	2134.9	2.0	14.3	3.0		
14	2695	LEAR	4	S/F	0650.0E	0652.0	3.0D	250.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0650.0E	0652.0	3.0D	230.0			QL=4 ST=3 TYP=3
	8800	LEAR	8	S	0651.0E	0652.0	2.0D	65.0			QL=4 ST=2 TYP=3
	2800	OTTA	3	S	1736.5	1741.2	8.0	21.9	6.0		
	2800	OTTA	29	PBI	1744.5	1800.0	75.0	6.0	3.0		
15	2800	OTTA	4	S/F	1744.5	1745.8	3.0	9.7	2.0		
17	2695	LEAR	8	S	0635.0E	0637.0	2.0D	130.0			QL=4 ST=2 TYP=3
19	2695	LEAR	8	S	0046.0E	0047.0	1.0D	33.0			QL=4 ST=2 TYP=3
	2800	OTTA	4	S/F	1645.9	1648.3	6.5	30.9	9.0		
	8800	SGMR	4	S/F	1647.0E	1648.0	4.0D	81.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1648.0E	1648.0	U	21.0			QL=2 ST=2 TYP=3
20	8800	SVTO	8	S	1121.0E	1121.0	U	160.0			QL=4 ST=2 TYP=3
	8800	SGMR	49	GB	1401.0E	1402.0	3.0D	790.0			QL=4 ST=1 TYP=6
22	8800	SVTO	4	S/F	1441.0E	1443.0	7.0D	94.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1441.0E	1443.0	8.0D	150.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1441.0E	1443.0	10.0D	160.0			QL=2 ST=2 TYP=3
	8800	SGMR	4	S/F	1441.0E	1443.0	10.0D	100.0			QL=4 ST=2 TYP=3
23	8800	SGMR	4	S/F	1253.0E	1254.0	7.0D	90.0			QL=2 ST=2 TYP=3
	2695	SGMR	4	S/F	1253.0E	1254.0	7.0D	56.0			QL=2 ST=2 TYP=3
	8800	SVTO	4	S/F	1254.0E	1254.0	9.0D	83.0			QL=4 ST=2 TYP=3

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

FEBRUARY 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
23	2800	OTTA	3	S	1436.0	1444.0	125.0	163.4	32.0		
	2800	OTTA	3	S	1631.5	1633.0	3.0	13.2	3.0		
	8800	PALE	8	S	1908.0E	1908.0	1.0D	56.0			QL=2 ST=2 TYP=3
	8800	PALE	8	S	2046.0E	2047.0	2.0D	62.0			QL=2 ST=2 TYP=3
┌	2695	PENT	3	S	2347.0	2348.7	3.5	41.0	8.0		
├	8800	LEAR	8	S	2347.0E	2348.0	2.0D	62.0			QL=4 ST=2 TYP=3
├	2695	LEAR	8	S	2347.0E	2348.0	2.0D	51.0			QL=4 ST=2 TYP=3
├	2695	PALE	8	S	2347.0E	2348.0	2.0D	39.0			QL=2 ST=2 TYP=3
└	8800	PALE	8	S	2347.0E	2348.0	2.0D	95.0			QL=2 ST=2 TYP=3
24	8800	LEAR	8	S	0504.0E	0505.0	2.0D	110.0			QL=4 ST=2 TYP=3
┌	2800	OTTA	3	S	2131.0	2134.3	6.0	38.8	8.0		
└	8800	PALE	8	S	2134.0E	2134.0	2.0D	59.0			QL=2 ST=2 TYP=3
26	8800	LEAR	8	S	0431.0E	0431.0	U	27.0			QL=4 ST=2 TYP=3
┌	2800	OTTA	3	S	1619.8	1620.6	10.0	20.9	4.0		
└	8800	SGMR	49	GB	1620.0E	1621.0	4.0D	890.0			QL=2 ST=2 TYP=6
27	8800	LEAR	8	S	0705.0E	0705.0	2.0D	140.0			QL=4 ST=2 TYP=3
└	8800	SVTO	4	S/F	0705.0E	0706.0	3.0D	150.0			QL=4 ST=2 TYP=3
┌	8800	SGMR	8	S	1326.0E	1326.0	2.0D	66.0			QL=4 ST=2 TYP=3
└	8800	SVTO	8	S	1326.0E	1326.0	2.0D	100.0			QL=4 ST=2 TYP=3
┌	2800	OTTA	3	S	1929.0	1930.0	4.0	18.3	4.0		
├	8800	PALE	8	S	1929.0E	1929.0	1.0D	52.0			QL=2 ST=2 TYP=3
└	8800	SGMR	8	S	1929.0E	1929.0	1.0D	51.0			QL=4 ST=2 TYP=3
┌	2800	OTTA	4	S/F	1935.5	1936.8	5.0	84.2	17.0		
└	2695	PALE	8	S	1936.0E	1937.0	2.0D	100.0			QL=2 ST=2 TYP=3
┌	2695	PENT	4	S/F	2325.0	2328.6	8.0	50.8	10.0		
├	8800	LEAR	4	S/F	2325.0E	2326.0	9.0D	83.0			QL=4 ST=2 TYP=3
├	8800	PALE	4	S/F	2325.0E	2326.0	21.0D	130.0			QL=4 ST=2 TYP=3
├	2695	LEAR	4	S/F	2326.0E	2328.0	4.0D	50.0			QL=4 ST=2 TYP=3
└	2695	PALE	4	S/F	2326.0E	2328.0	3.0D	51.0			QL=4 ST=2 TYP=3
28	8800	LEAR	4	S/F	0457.0E	0500.0	15.0D	85.0			QL=4 ST=2 TYP=3
└	2695	LEAR	4	S/F	0458.0E	0500.0	3.0D	70.0			QL=4 ST=2 TYP=3
┌	2800	OTTA	3	S	1541.0	1542.1	3.0	78.9	16.0		
├	2695	SGMR	8	S	1541.0E	1542.0	1.0D	68.0			QL=2 ST=2 TYP=3
├	8800	SGMR	8	S	1541.0E	1542.0	1.0D	58.0			QL=4 ST=2 TYP=3
└	2695	SVTO	8	S	1542.0E	1542.0	U	59.0			QL=2 ST=2 TYP=3
	8800	PALE	4	S/F	1815.0E	1822.0	8.0D	270.0			QL=4 ST=2 TYP=5
┌	8800	PALE	8	S	2038.0E	2038.0	U	71.0			QL=4 ST=2 TYP=3
└	8800	SGMR	8	S	2038.0E	2038.0	U	68.0			QL=4 ST=2 TYP=3

Reports are received routinely from the following observatories:

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

Explanation of Type Code:

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

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

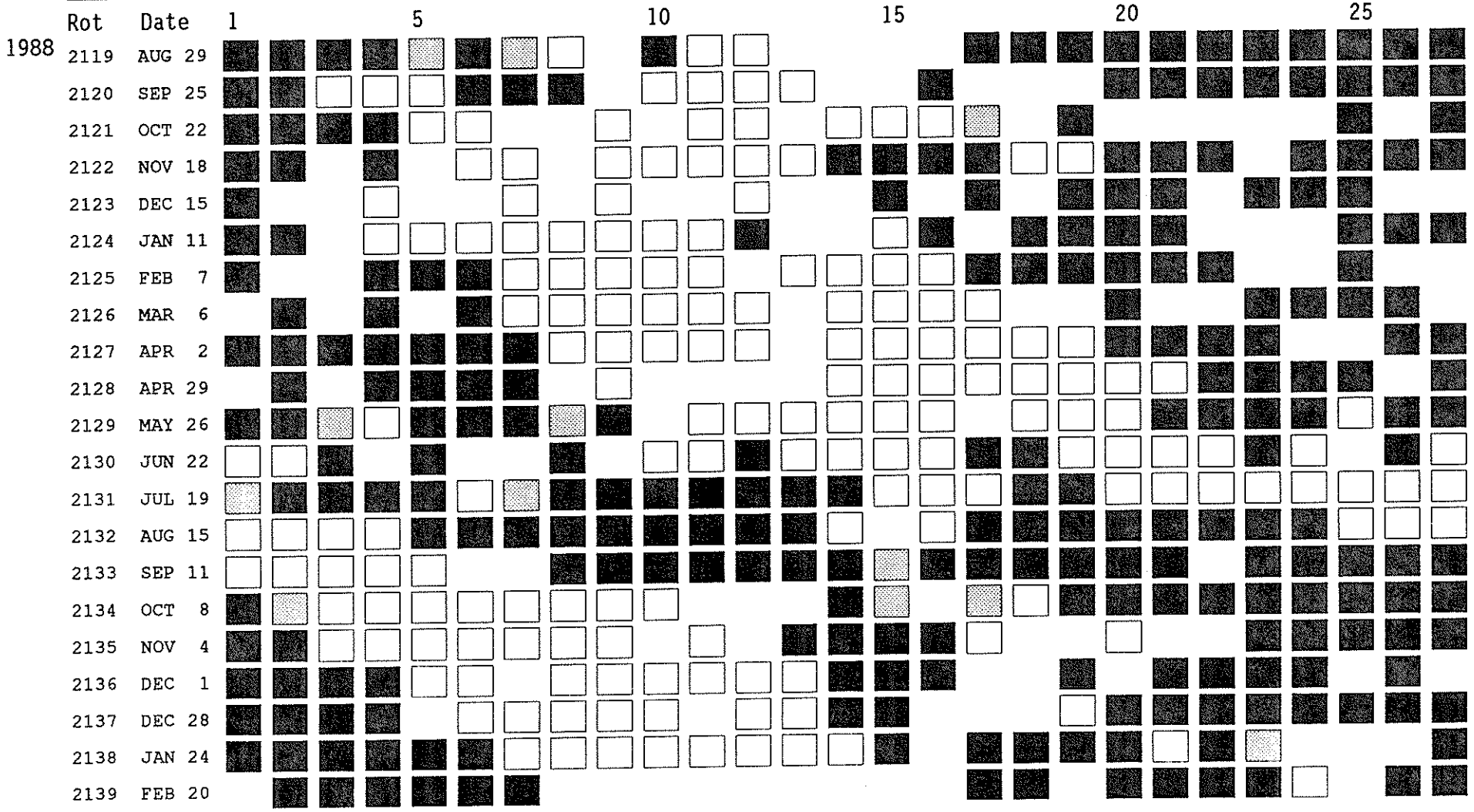
RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Ottawa, Canada 2800 MHz; Hiraiso, Japan 500 and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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1989 Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1990 Jan	Feb
1	.	.	.	-5	4	-145	-58	-43	-111	-113	.	128
2	.	-97	-47	-1	51	80	-46	.	-125	-79	22	150
3	-66	-114	-31	-22	-19	121	-37	-87	-111	-46	70	344
4	.	-86	-22	.	3	14	-37	-84	-75	-11	106	99
5	.	-76	-22	2	71	-51	-46	-35	-11	43	132	69
6	.	-62	.	56	69	-65	-30	-22	44	60	129	23
7	-10	-28	65	74	25	9	-5	-13	54	.	.	-11
8	.	-15	.	120	-90	145	22	-5	86	84	58	.
9	-58	25	.	145	-79	86	25	0	97	126	23	-15
10	.	71	.	142	106	82	12	2	103	115	-7	-8
11	-16	101	.	.	115	59	23	10	107	79	-41	-14
12	37	78	73	37	84	43	23	38	95	47	.	-9
13	39	54	87	34	73	43	43	33	.	7	.	4
14	61	.	75	24	-55	55	44	26	13	-35	.	-12
15	63	44	76	-58	22	57	25	31	.	-59	5	-2
16	40	11	73	-26	.	66	.	17	-70	-62	-11	.
17	32	15	59	-91	-49	33	.	5	-79	.	-14	.
18	.	19	53	-6	6	2	-13	.	-86	.	-58	.
19	64	29	22	4	0	-10	-22	.	-38	-4	-86	-78
20	73	27	-37	-67	-138	-20	-20	.	4	.	-84	.
21	14	-21	-44	-18	-126	-35	-21	-88	.	-32	-76	-142
22	12	-68	-48	35	-57	-41	-26	0	.	-70	-88	-193
23	.	-6	-54	15	-25	-29	-31	.	17	-101	-124	-167
24	.	-110	.	-15	10	-15	-21	1	.	-103	-152	-133
25	-50	.	-44	.	-2	-13	-1	5	.	.	-184	-102
26	.	.	-14	-24	-15	-15	-8	-19	-52	-103	-203	-41
27	.	-80	-13	.	-52	-7	-19	-56	-78	.	-200	.
28	-110	-77	1	.	-27	4	-16	-70	-76	-130	-140	.
29	-105	.	7	-30	-12	.	-24	-100	-92	-108	-62	
30	-106	-64	-12	.	-44	3	-26	-110	-110	-106	3	
31	-100		-5		-144	-29		-104		-94	46	

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

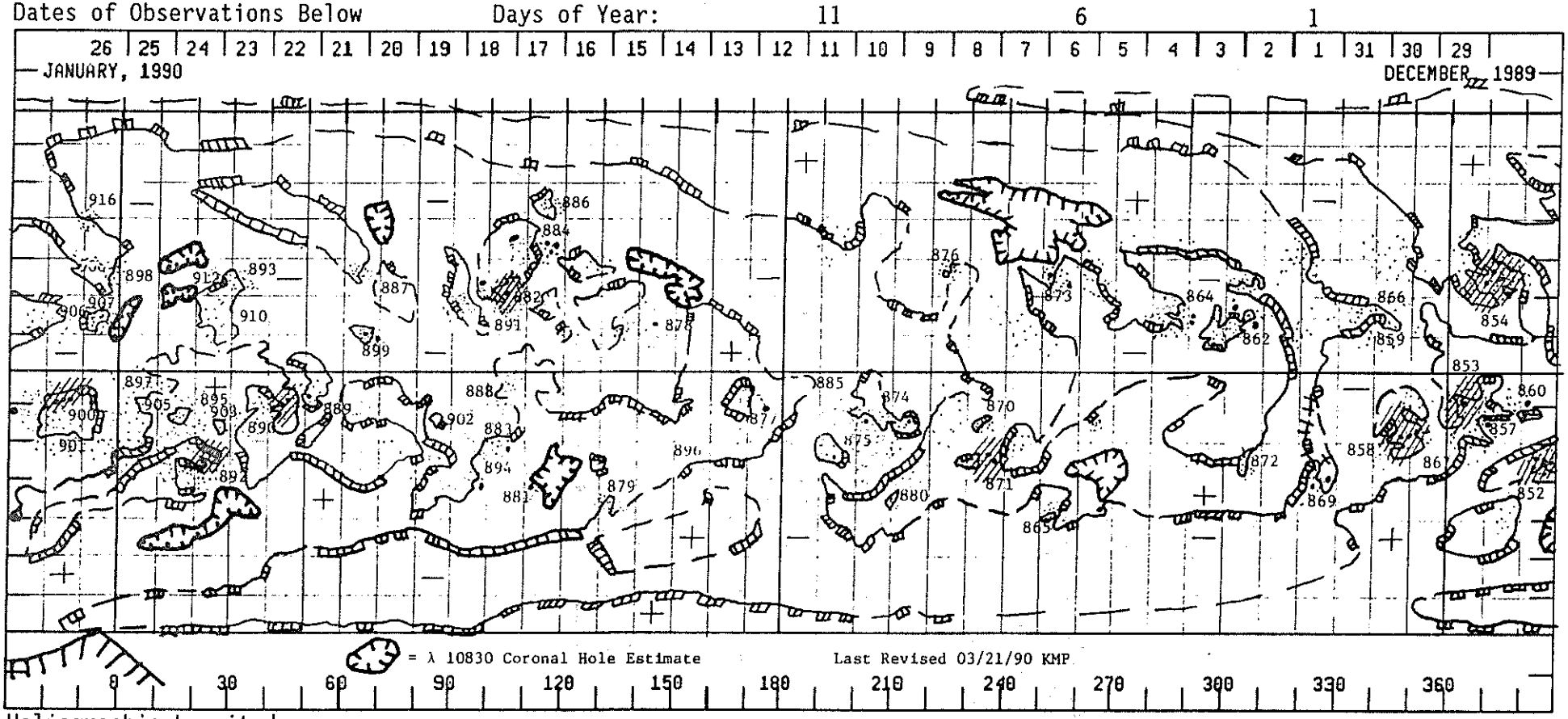
Prompt Reports DATA FOR **JANUARY 1990** Number 547 Part I

*** 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 1824

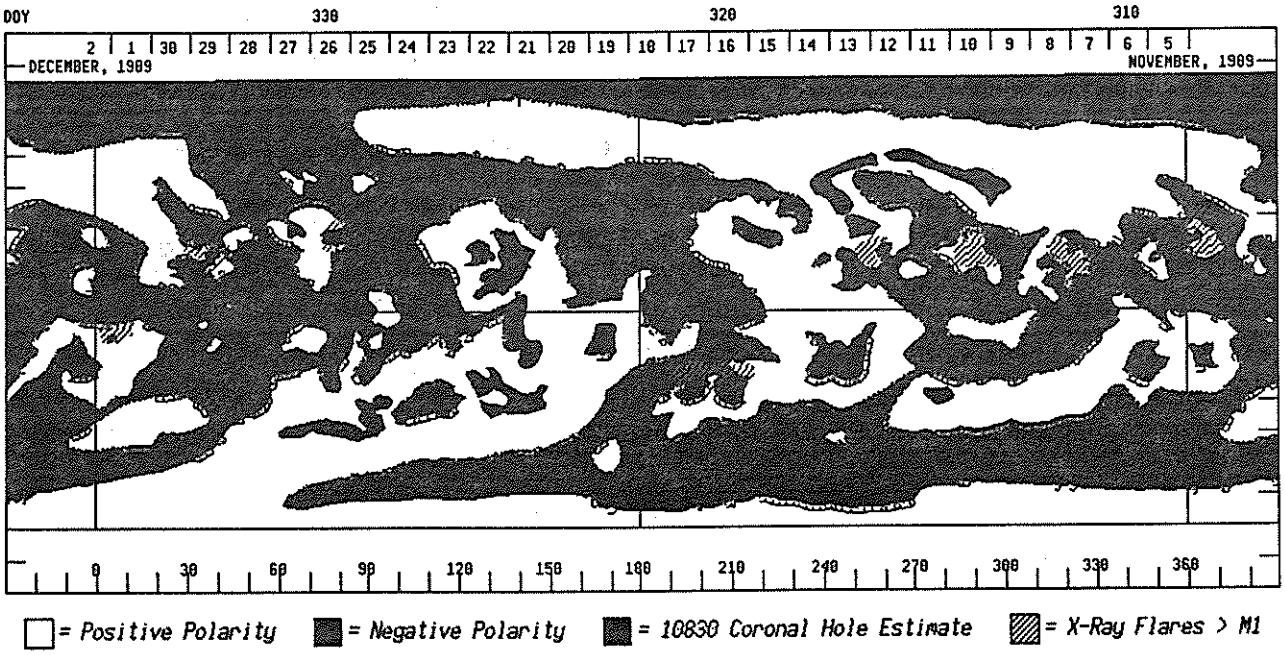
(29 December 1989 to 26 January 1990)



SHADED H-ALPHA SOLAR SYNOPTIC CHARTS

Carrington Rot. 1822-1824 5 November 1989 to 25 January 1990

ROTATION 1822



Carrington Rotations 1823-1824 not available at time of publication.

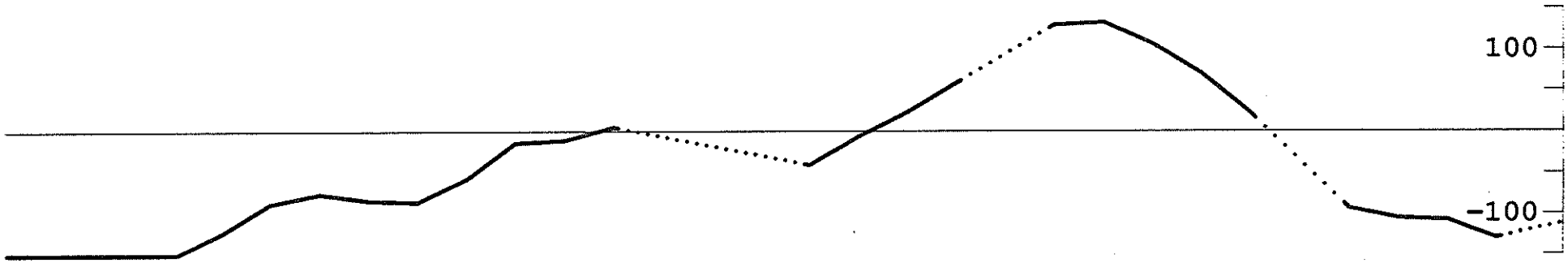
Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1824
(29 December 1989 to 26 January 1990)

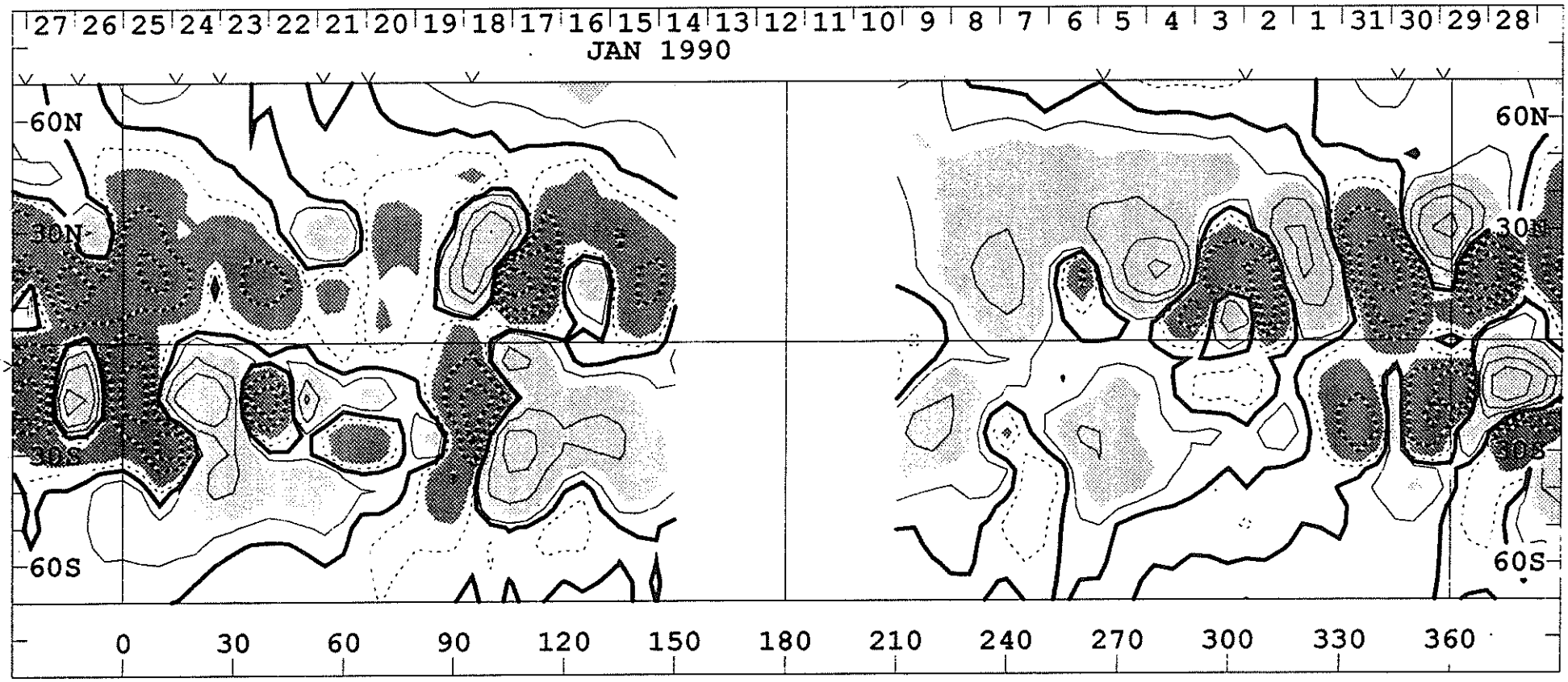
WILCOX SOLAR OBSERVATORY

Mean Field



Photospheric Magnetic Field

0, ±100, 500, 1000, 2000 MicroTesla



Heliographic Longitude

1824

SOLAR MAGNETIC FIELD SYNOPTIC CHART

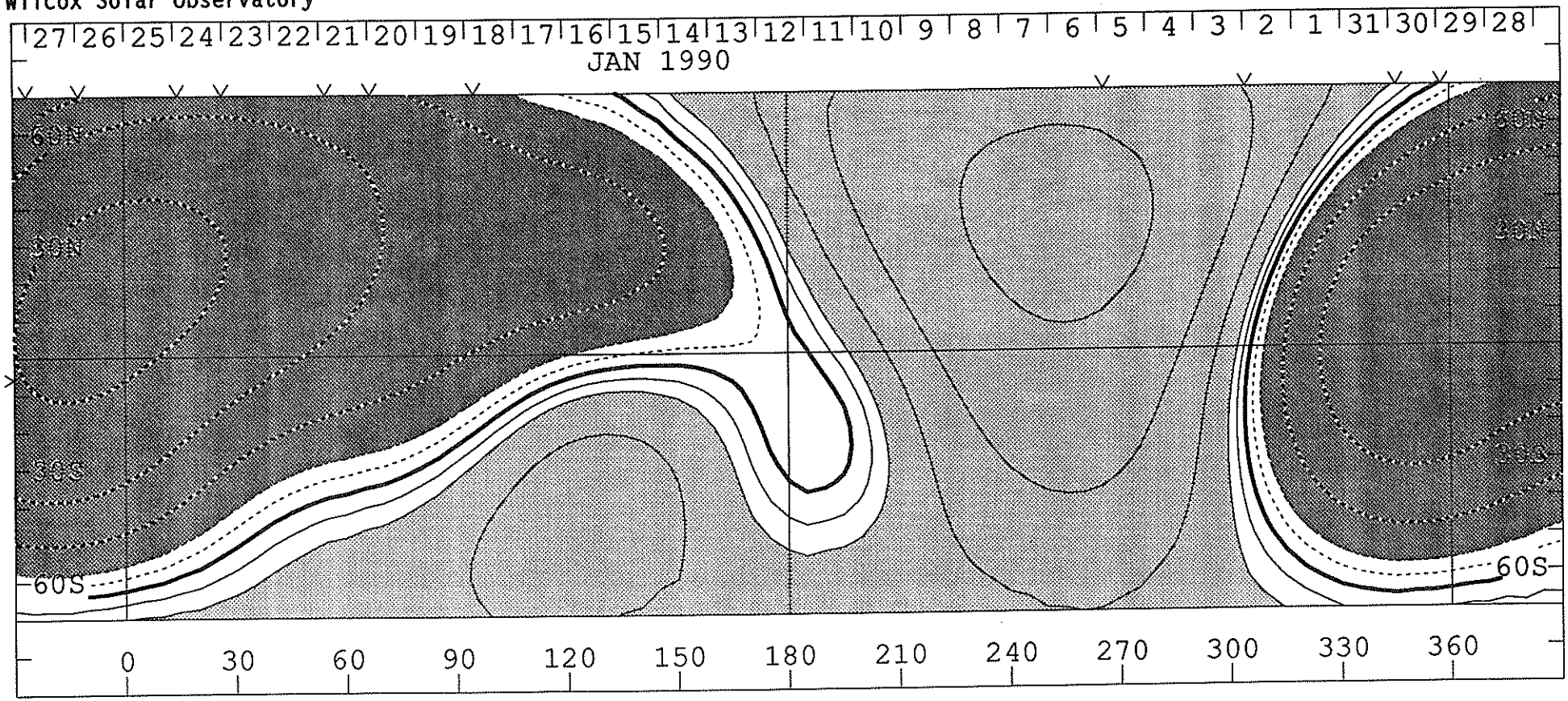
SOURCE SURFACE FIELD

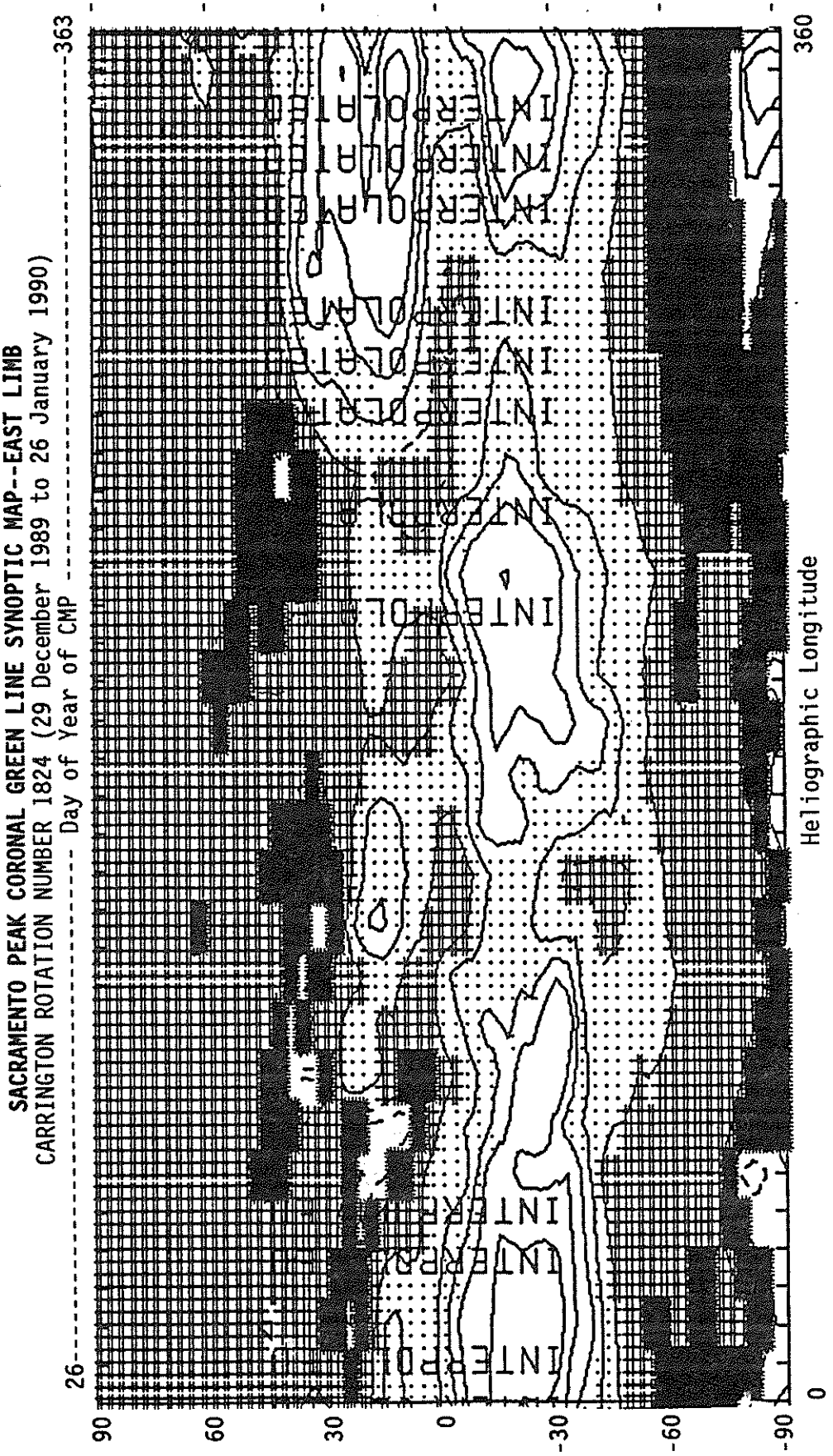
CARRINGTON ROTATION NUMBER 1824

(29 December 1989 to 26 January 1990)

Wilcox Solar Observatory

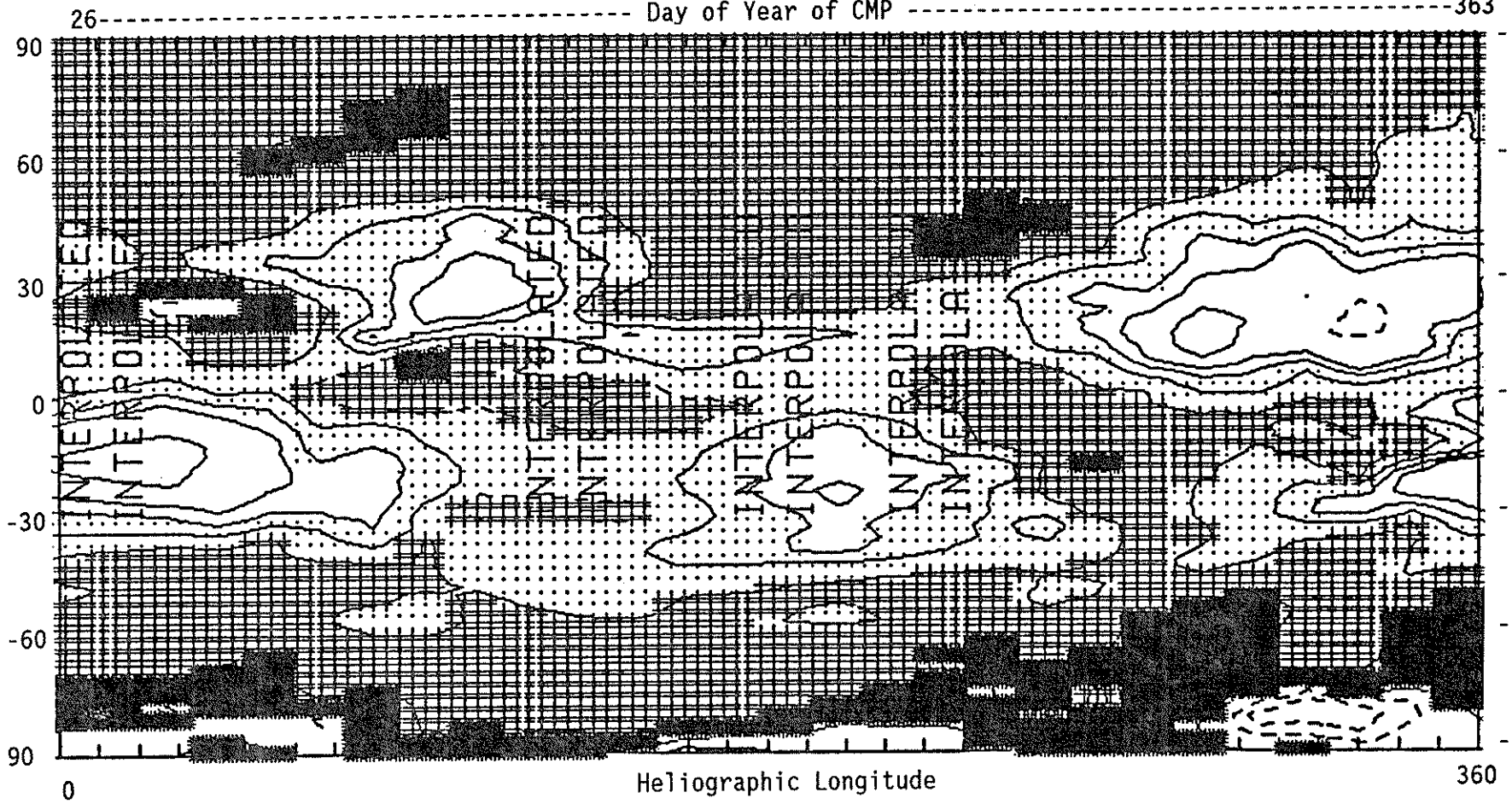
0, ±1, 2, 5, 10, 20 microTesla

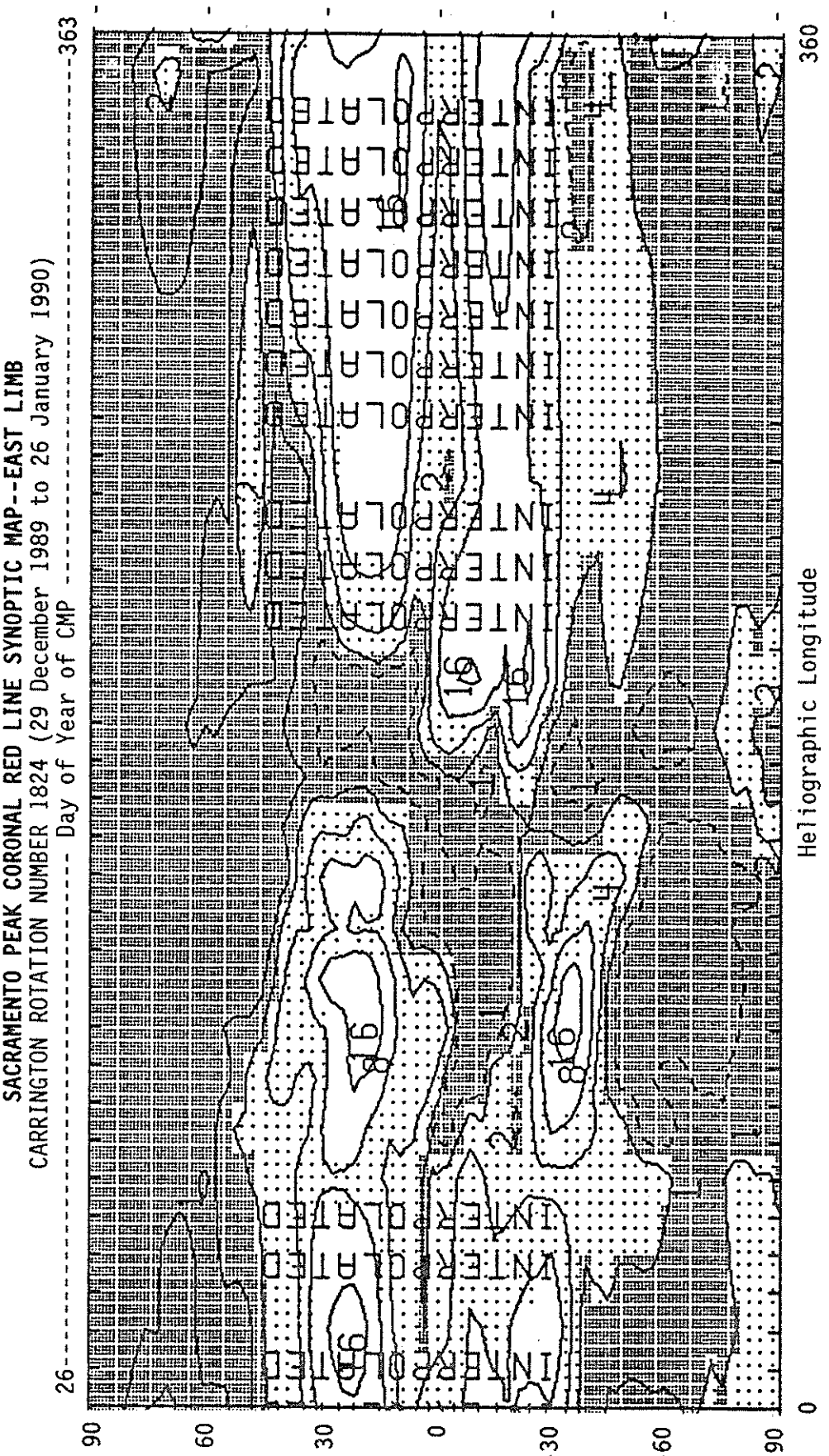



SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1824 (29 December 1989 to 26 January 1990)
26 ---------- Day of Year of CMP ---------- 363
90
60
30
0
-30
-60
-90
0
360
Heliographic Longitude

SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--WEST LIMB

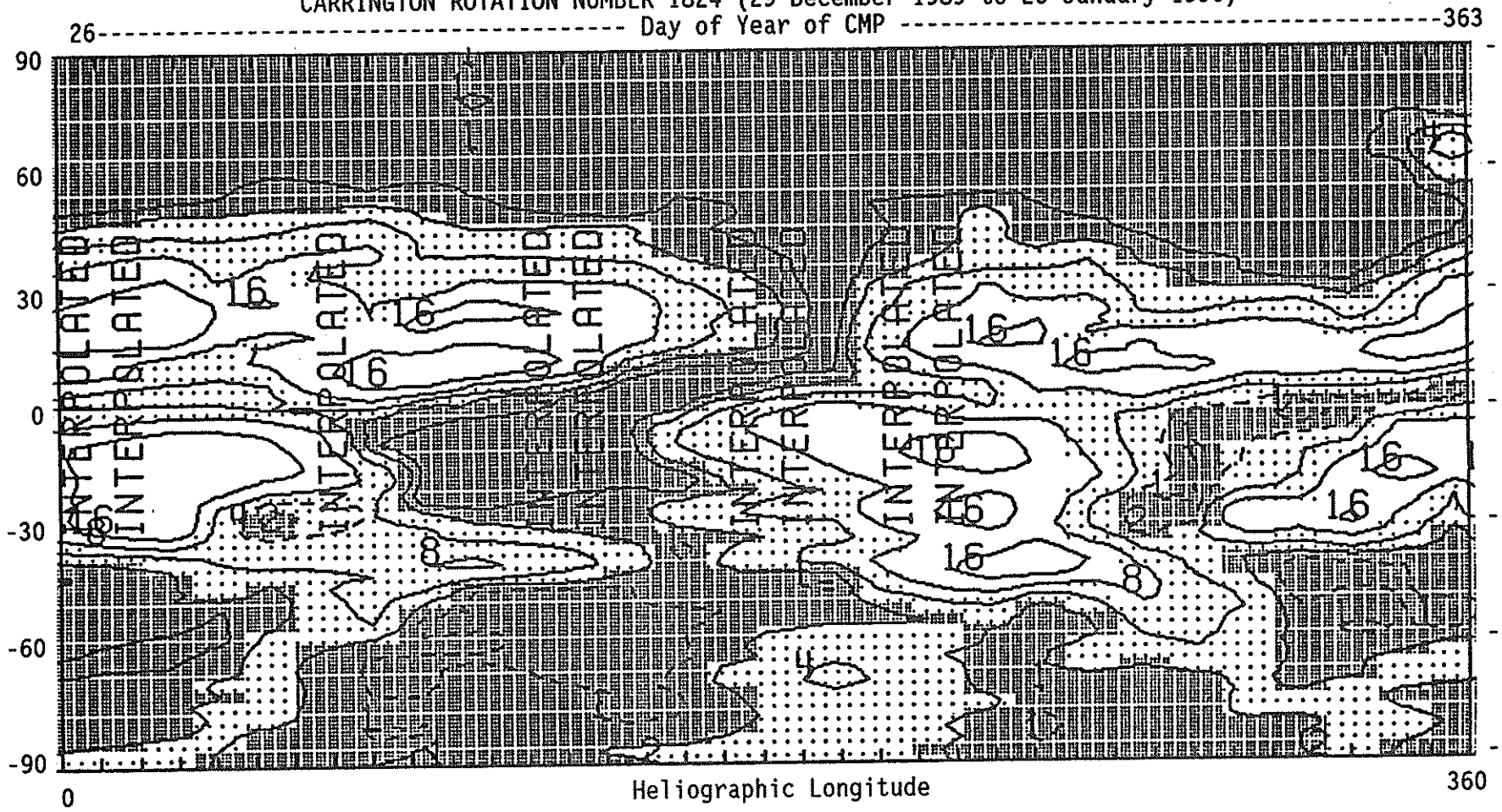
CARRINGTON ROTATION NUMBER 1824 (29 December 1989 to 26 January 1990)

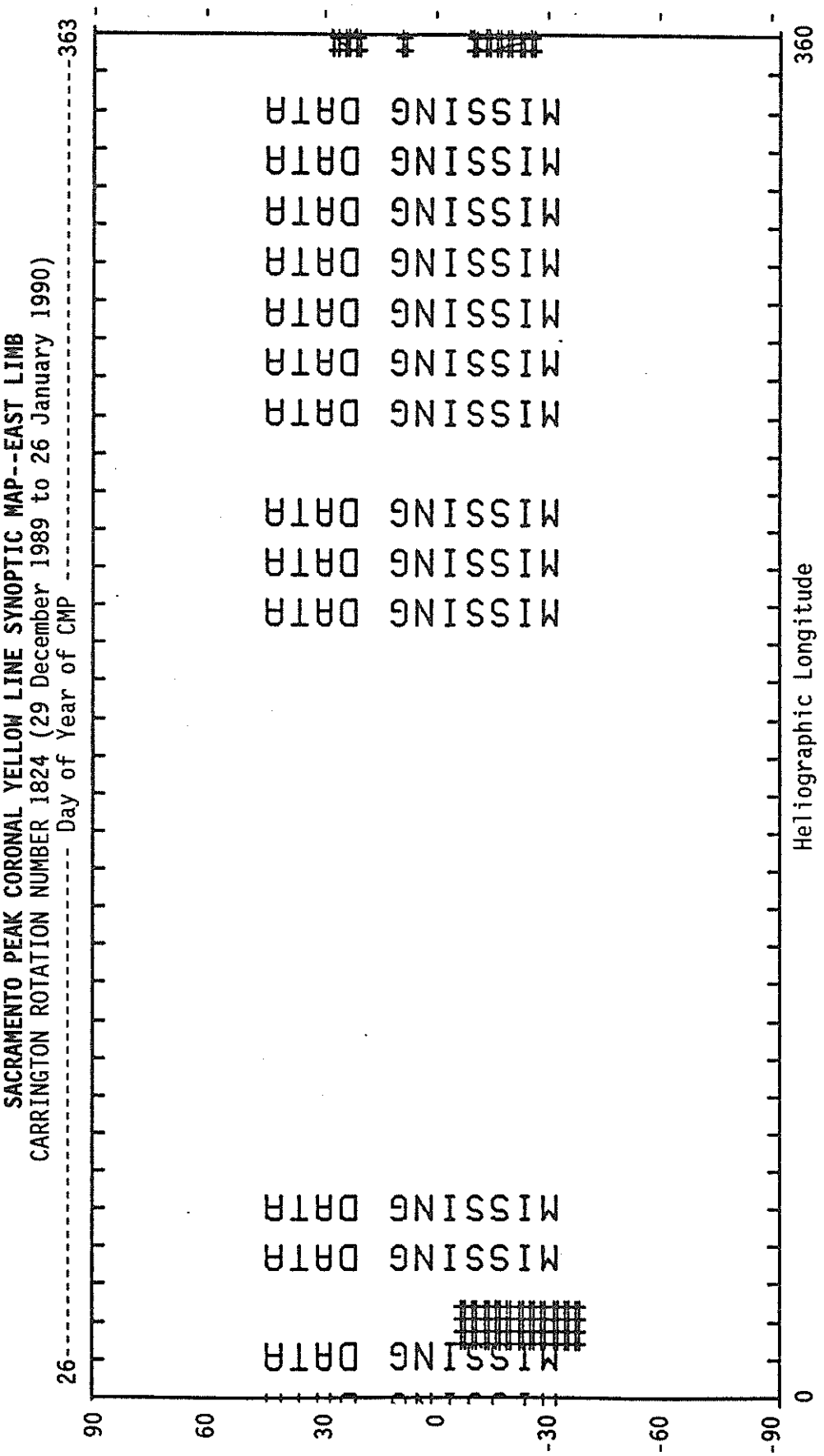


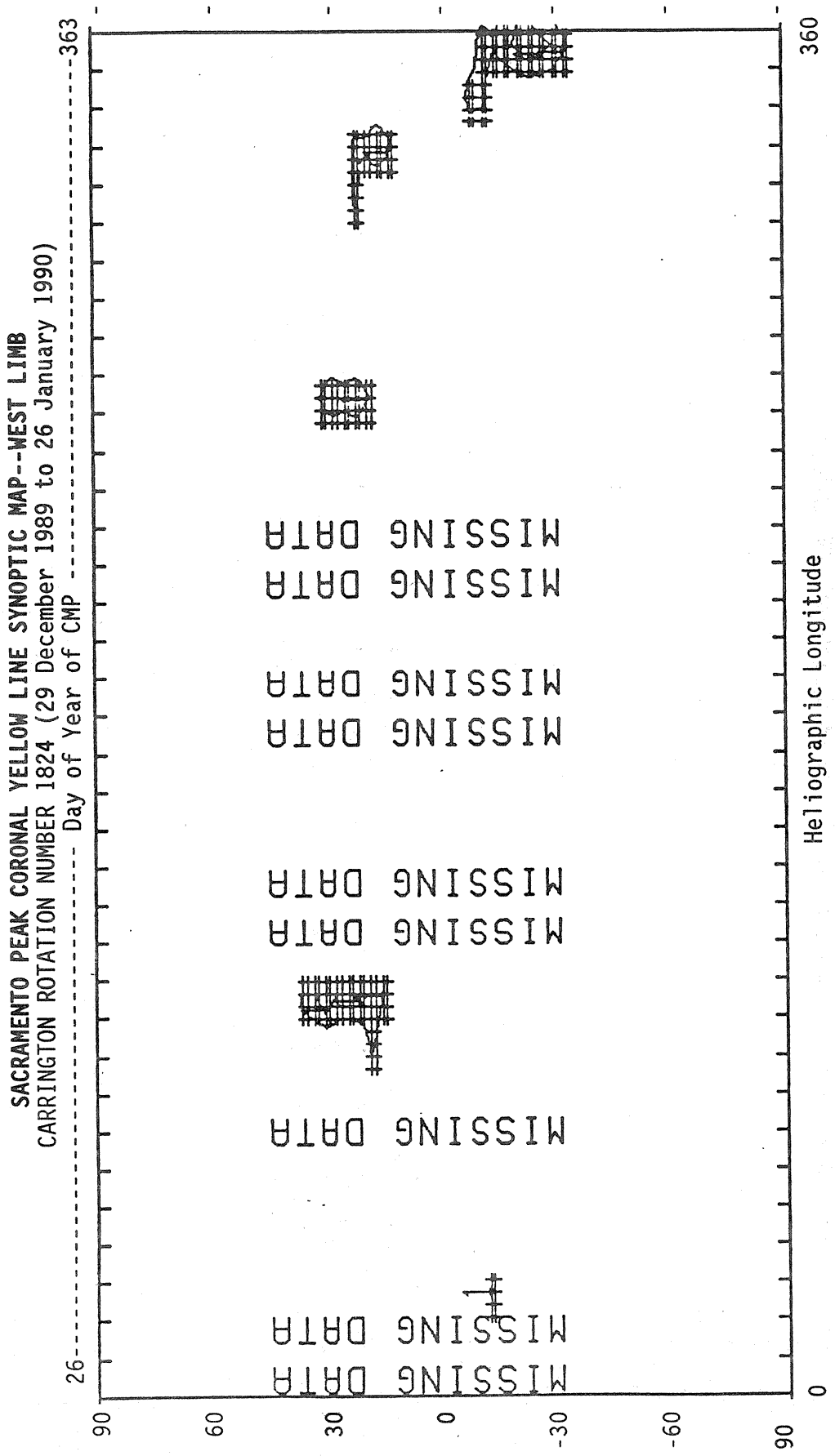

SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1824 (29 December 1989 to 26 January 1990)
Day of Year of CMP
26
363
90
60
30
0
-30
-60
-90
0
360
Heliographic Longitude

SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--WEST LIMB

CARRINGTON ROTATION NUMBER 1824 (29 December 1989 to 26 January 1990)




SACRAMENTO PEAK CORONAL YELLOW LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1824 (29 December 1989 to 26 January 1990)
Day of Year of CMP
363
26
360
0
MISSING DATA
Heliographic Longitude
90
60
30
0
-30
-60
-90


SACRAMENTO PEAK CORONAL YELLOW LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1824 (29 December 1989 to 26 January 1990)
Day of Year of CMP
26
363
MISSING DATA
MISSING DATA
MISSING DATA
MISSING DATA
MISSING DATA
MISSING DATA
MISSING DATA
MISSING DATA
90
60
30
0
-30
-60
-90
0
360
Heliographic Longitude

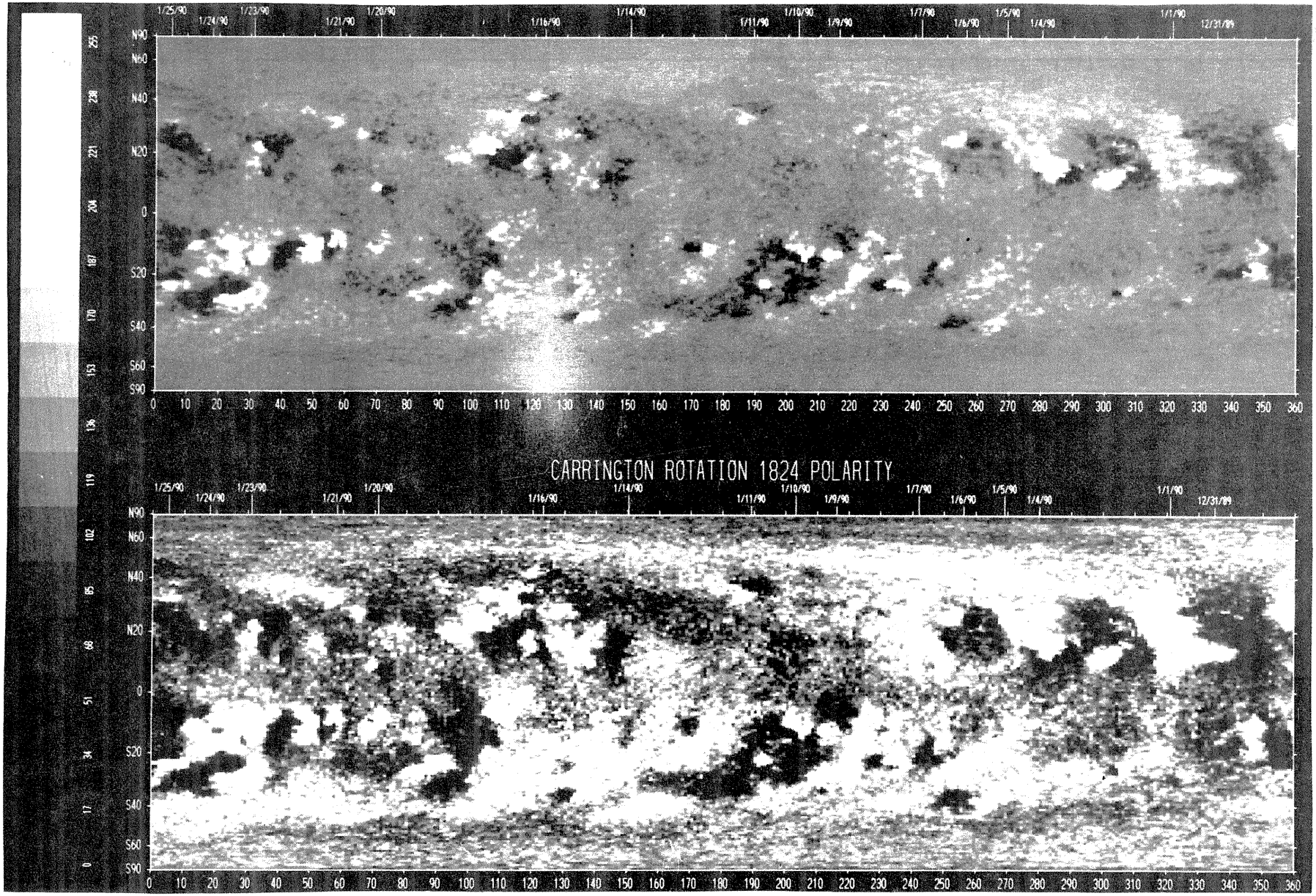
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1824

(29 December 1989 to 26 January 1990)

Kitt Peak National Observatory

Dates of Observation

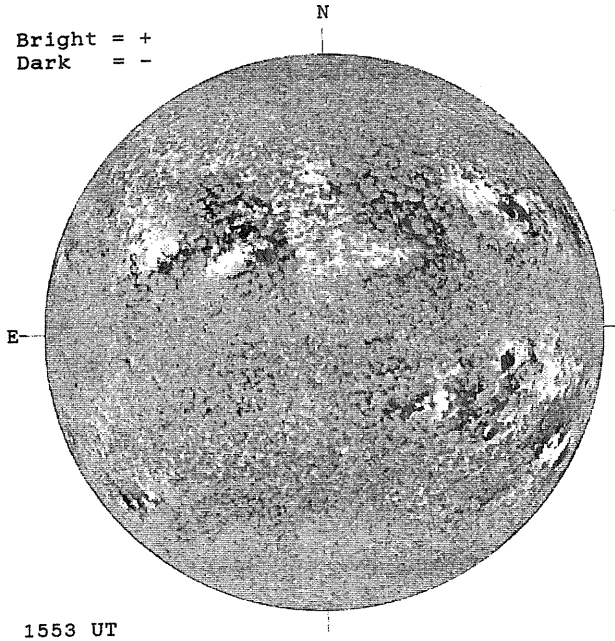


Heliographic Longitude

JANUARY 1, 1990 (P= 2.14, B_o =-3.01, L_o = 330.04)

KITT PEAK MAGNETOGRAM

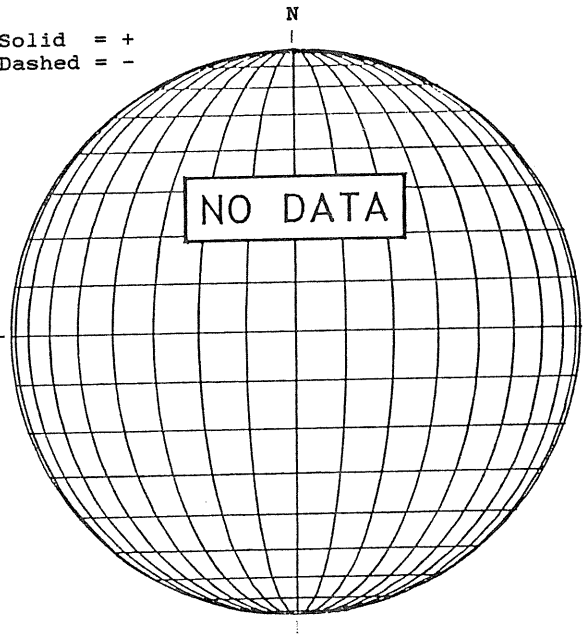
Bright = +
Dark = -



1553 UT

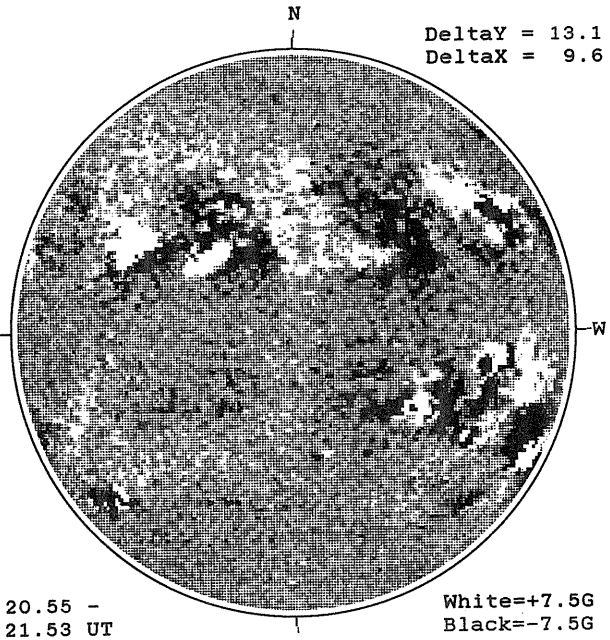
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

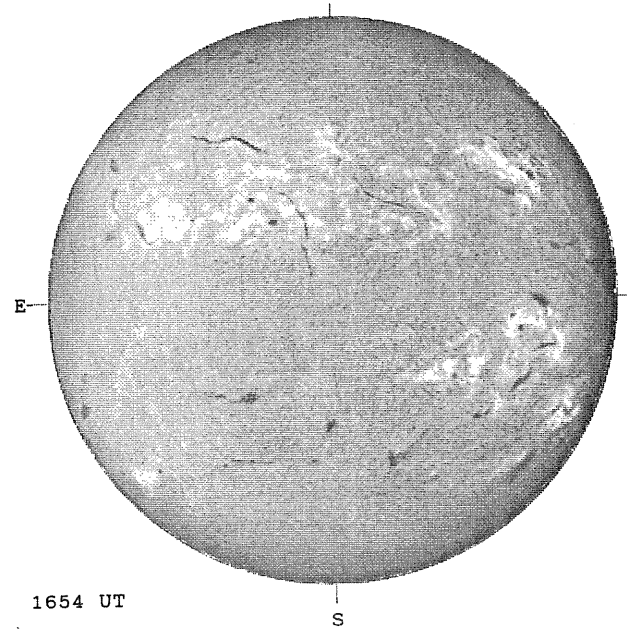
DeltaY = 13.1
DeltaX = 9.6



20.55 -
21.53 UT

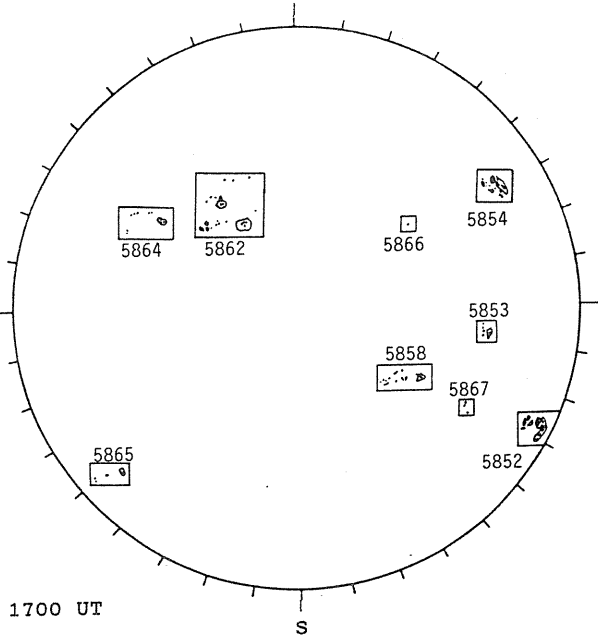
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



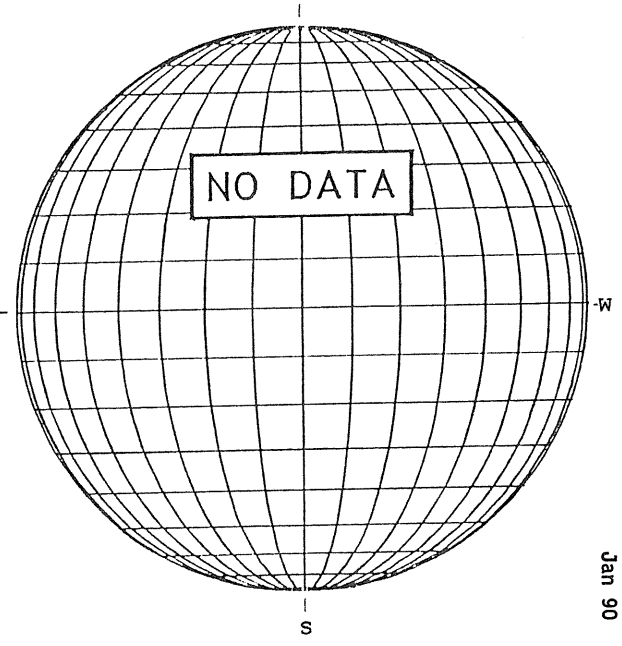
1654 UT

BOULDER SUNSPOT



1700 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 2, 1990 (P= 1.66, B_o =-3.13, L_o = 316.87)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -

N

E

NO DATA

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

N

2259 UT

MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =

N

W

NO DATA

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

E

1544 UT

S

BOULDER SUNSPOT

5862
5864
5854
5853
5858
5867
5869
5852
5865

1630 UT
1645 UT BOUL Prom

S

SACRAMENTO PEAK CORONA (1.15 Radii)

E

10μ

W

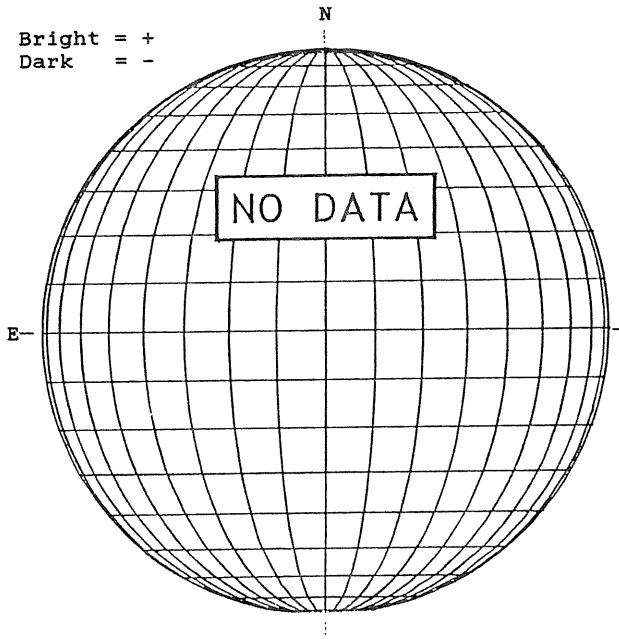
S

FeXIV, 1556 UT

JANUARY 3, 1990 (P= 1.17, B_o =-3.24, L_o = 303.70)

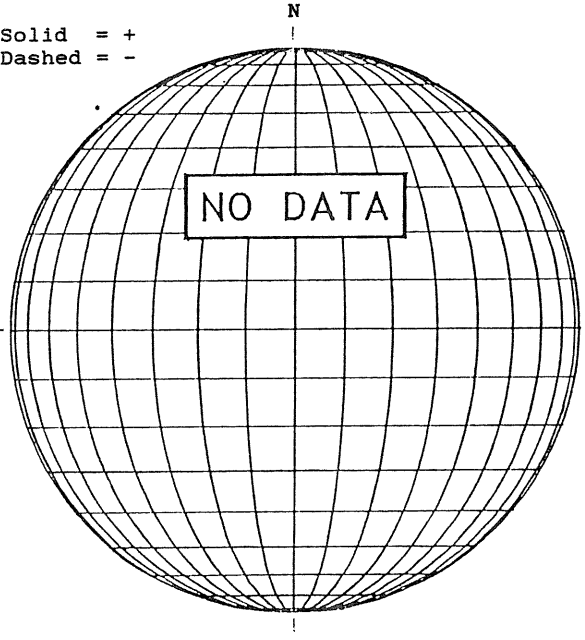
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



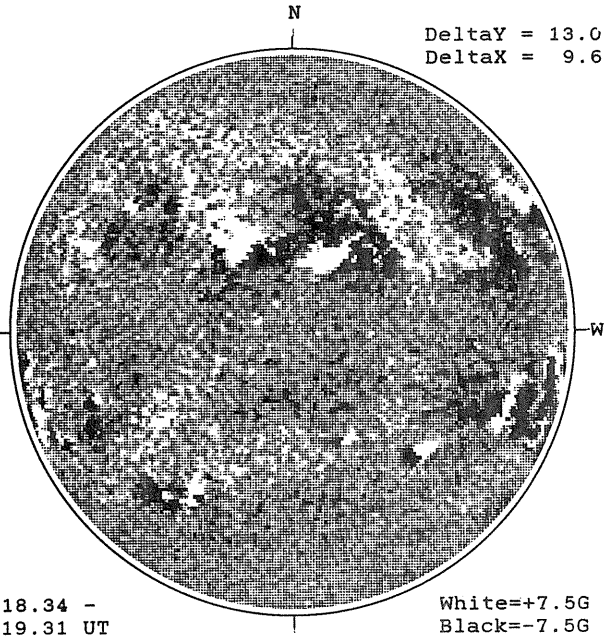
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

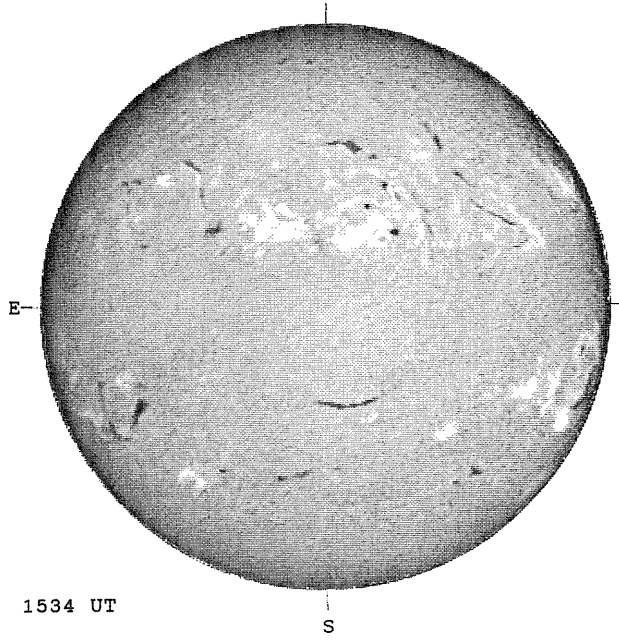
DeltaY = 13.0
DeltaX = 9.6



18.34 -
19.31 UT

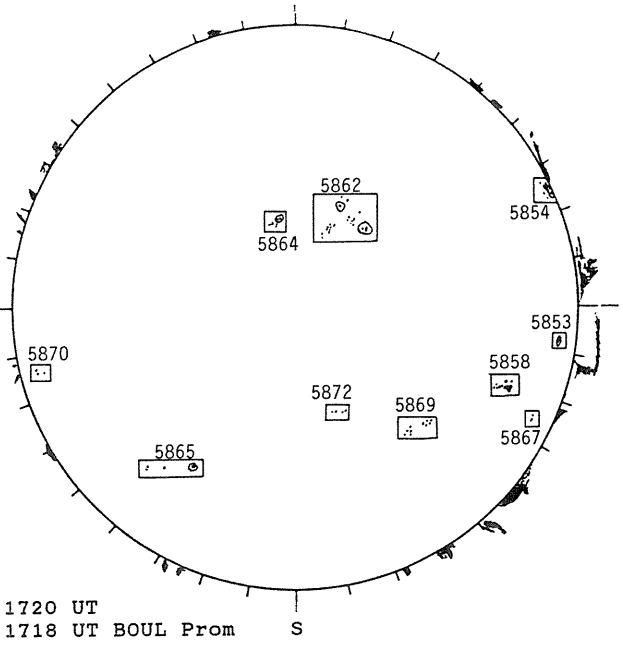
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



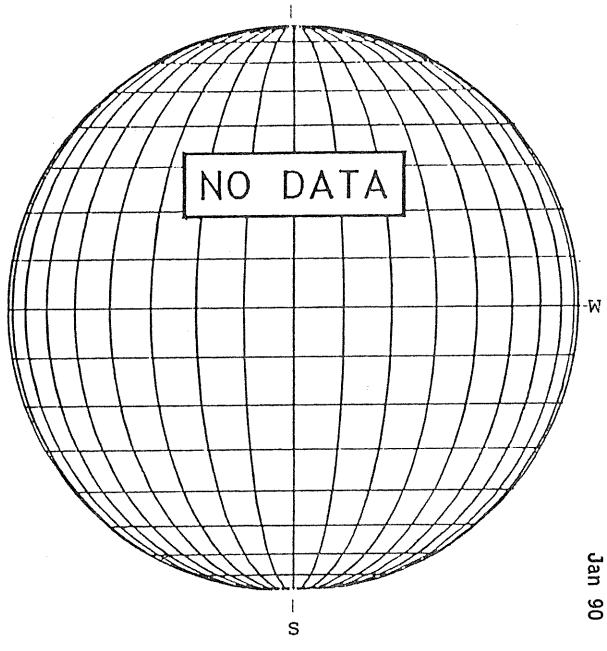
1534 UT

BOULDER SUNSPOT



1720 UT
1718 UT BOUL Prom

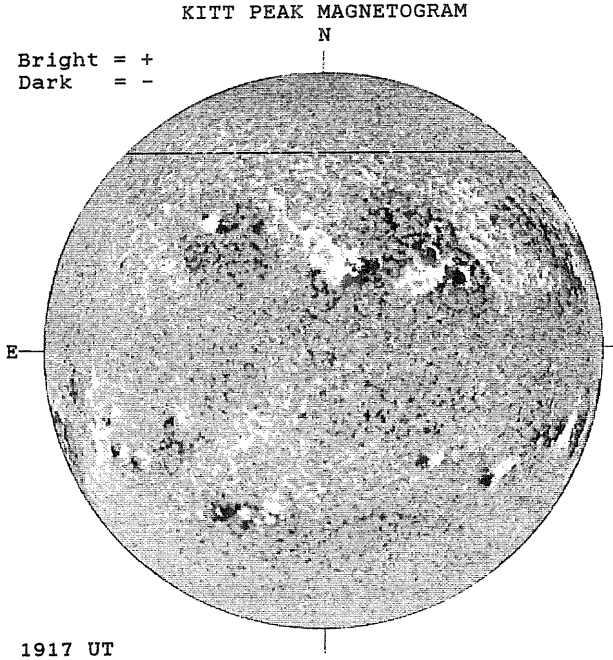
SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 4, 1990 (P= 0.69, B_o =-3.36, L_o = 290.53)

KITT PEAK MAGNETOGRAM

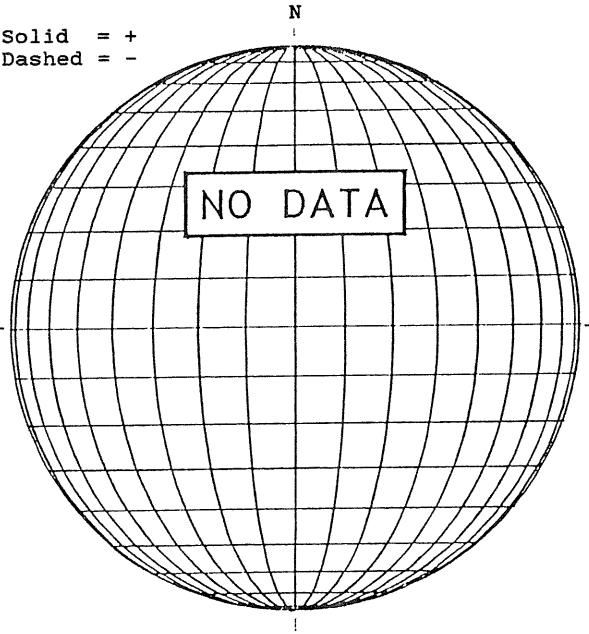
Bright = +
Dark = -



1917 UT

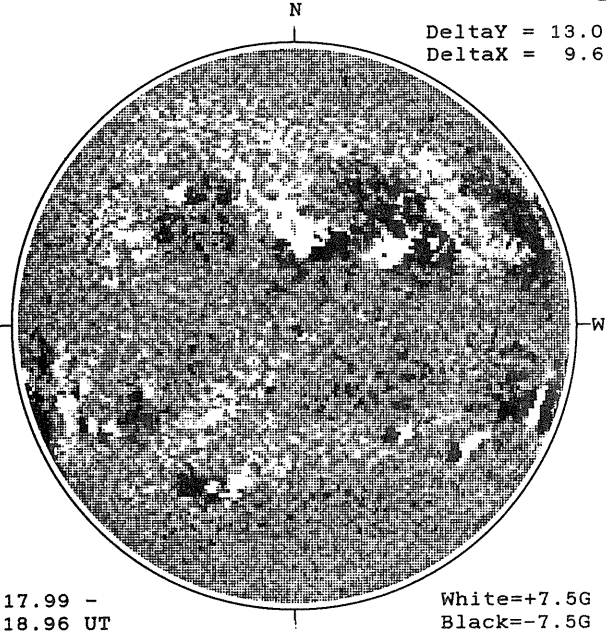
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

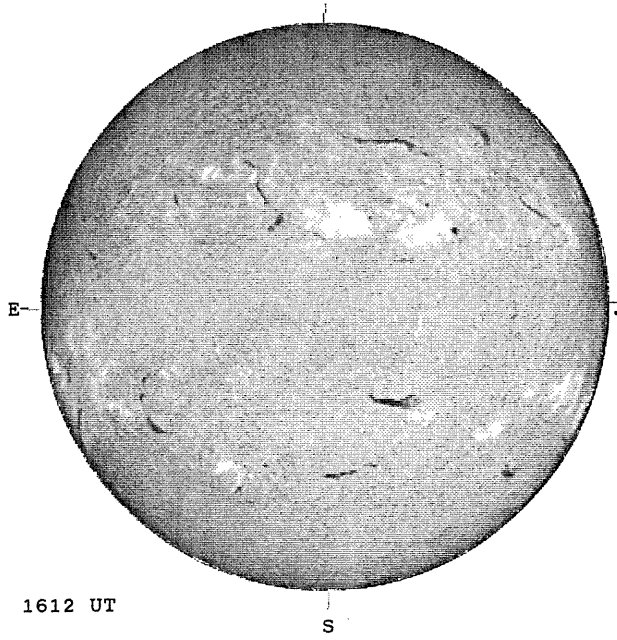
DeltaY = 13.0
DeltaX = 9.6



17.99 -
18.96 UT

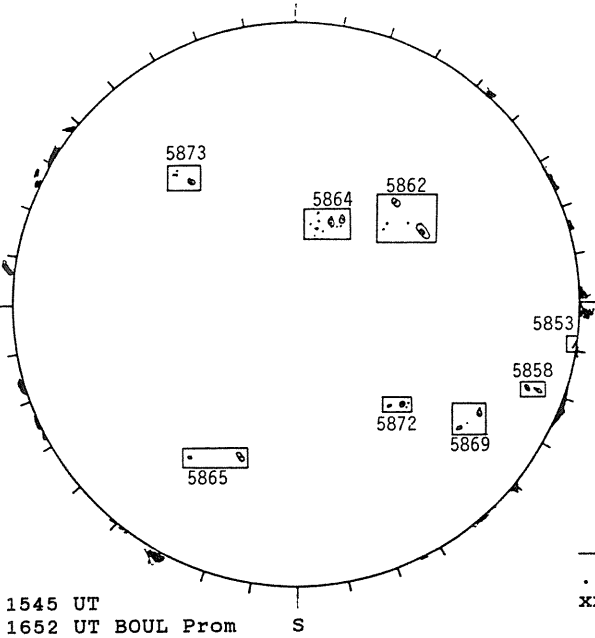
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



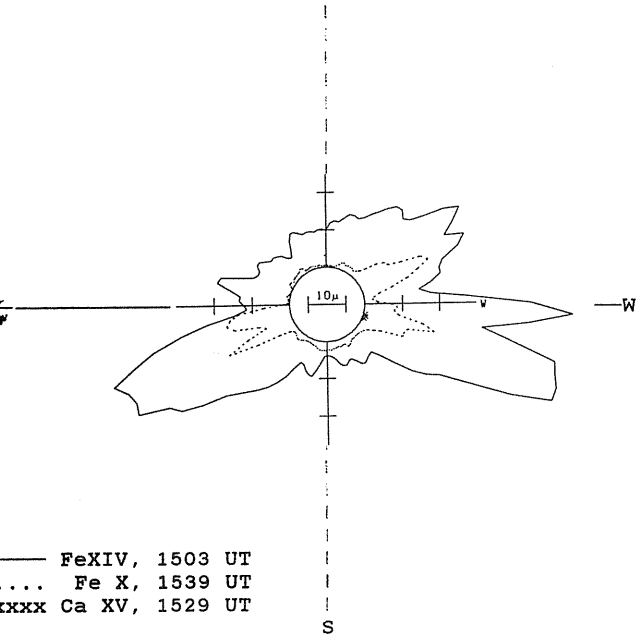
1612 UT

BOULDER SUNSPOT



1545 UT
1652 UT BOUL Prom

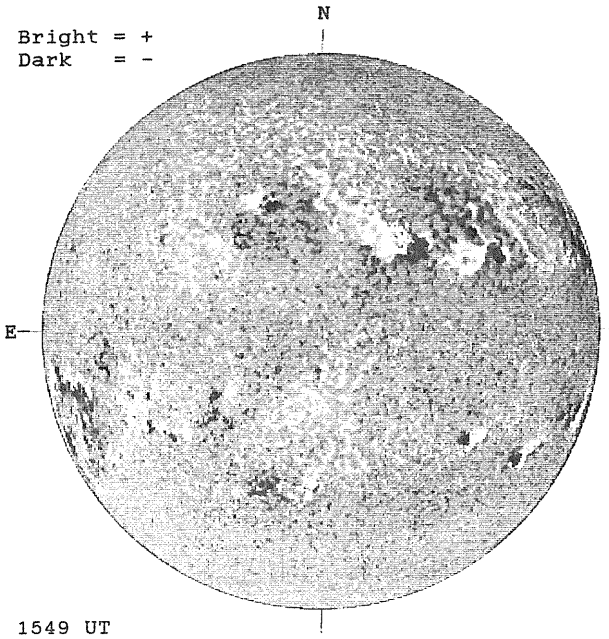
SACRAMENTO PEAK CORONA (1.15 Radii)



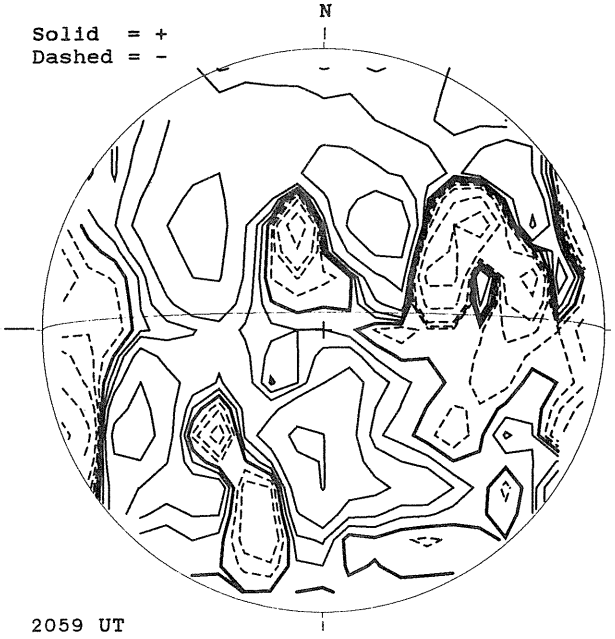
—— FeXIV, 1503 UT
.... Fe X, 1539 UT
xxxx Ca XV, 1529 UT

JANUARY 5, 1990 (P= 0.20, B_o =-3.47, L_o = 277.36)

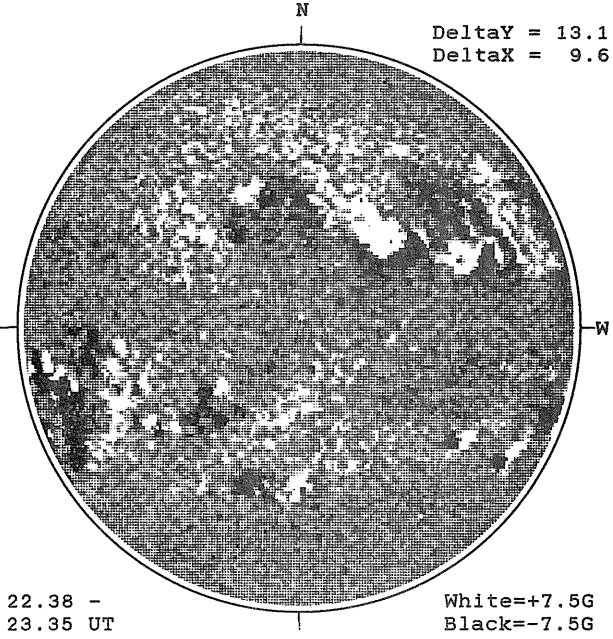
KITT PEAK MAGNETOGRAM



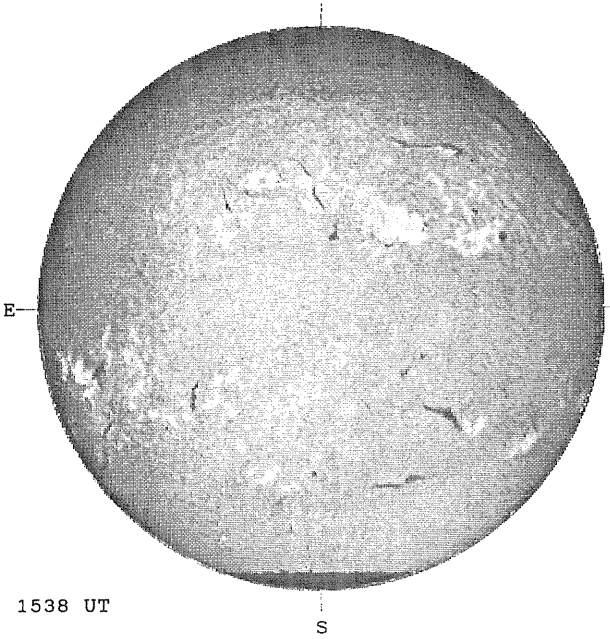
STANFORD MAGNETOGRAM



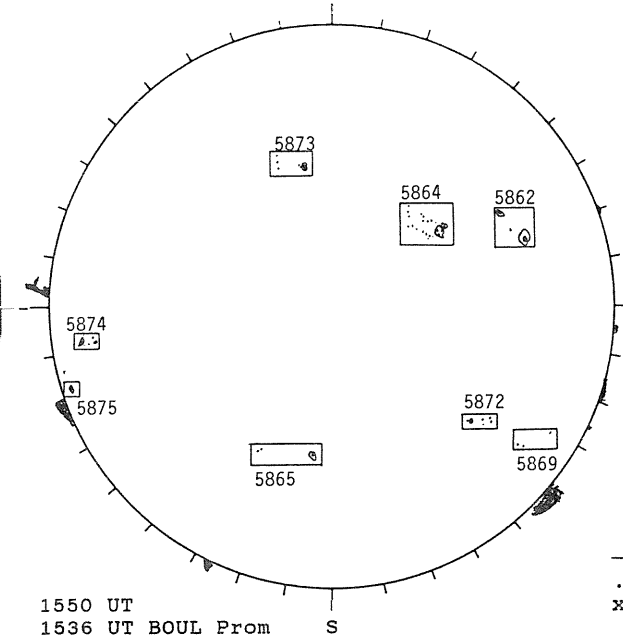
MT. WILSON MAGNETOGRAM



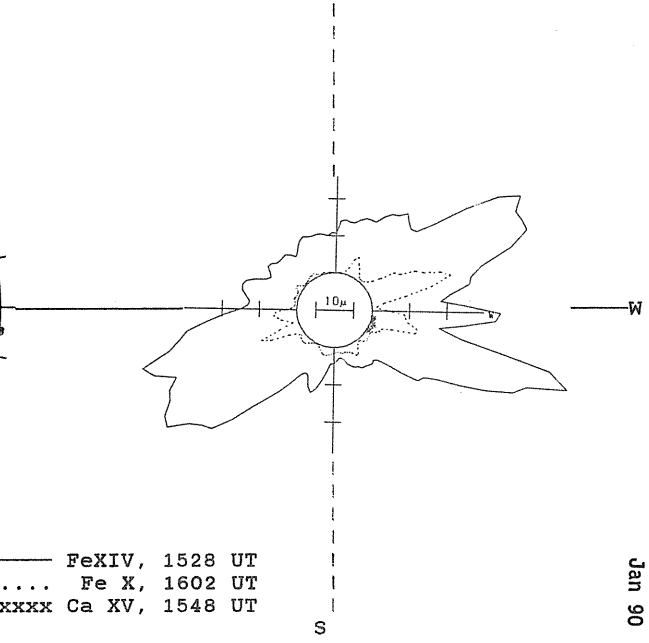
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



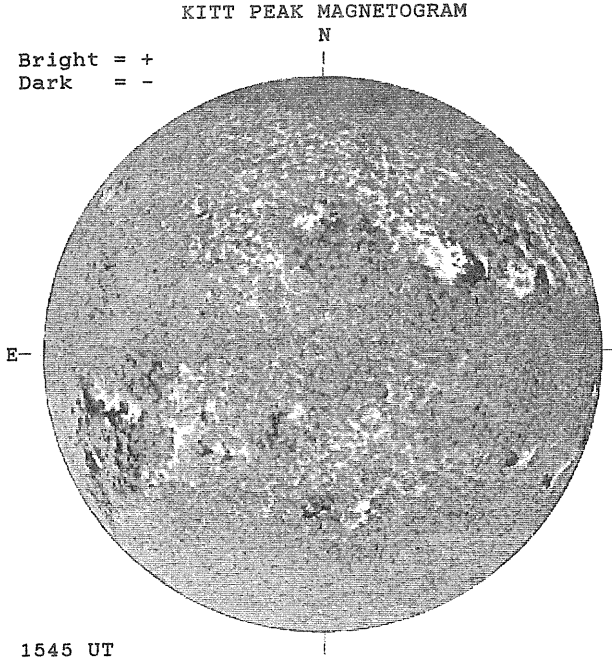
SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 6, 1990 (P= -0.28, B_o =-3.58, L_o = 264.19)

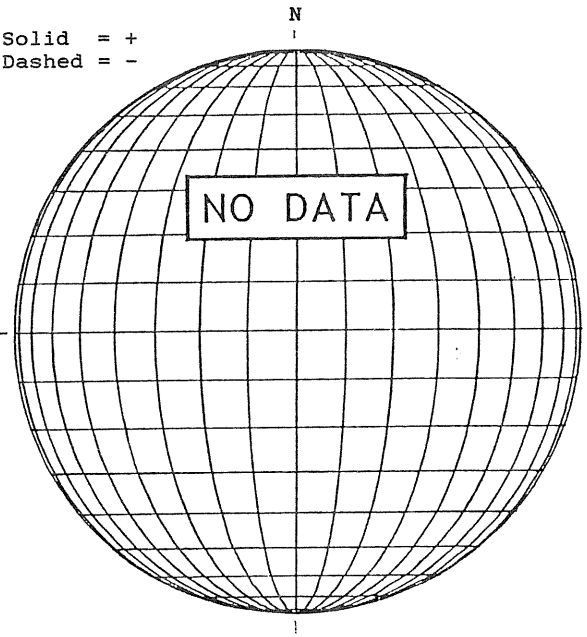
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



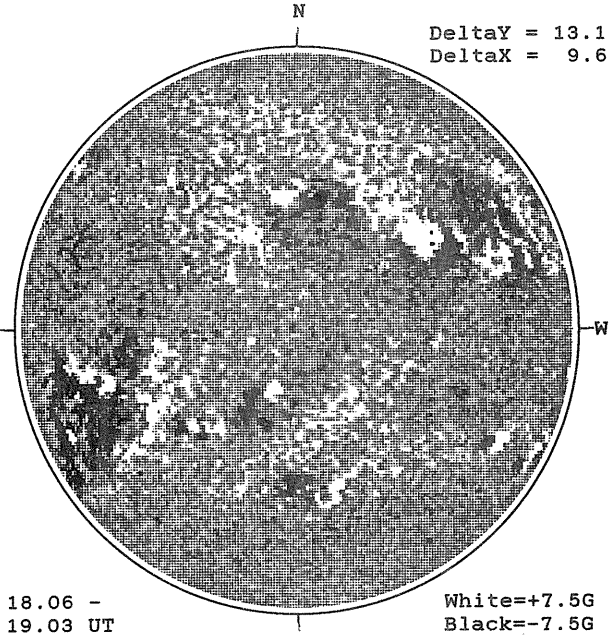
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

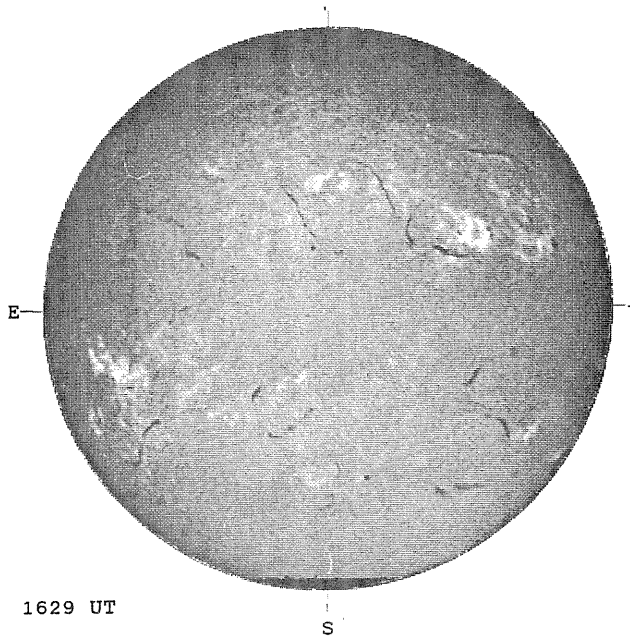


MT. WILSON MAGNETOGRAM

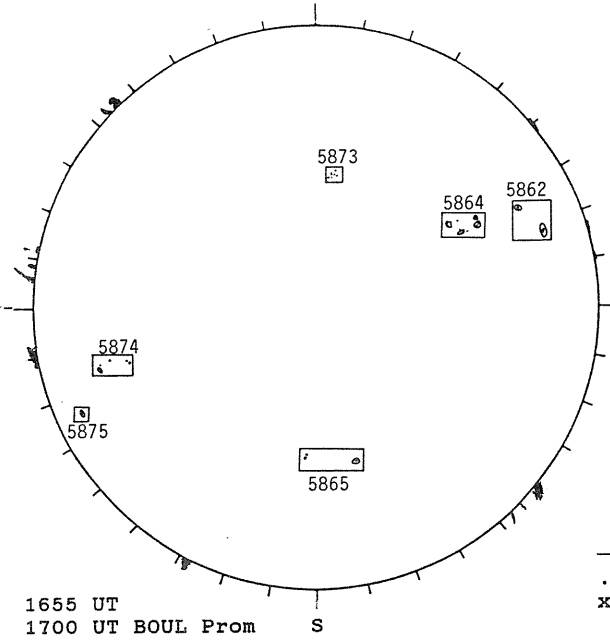
DeltaY = 13.1
DeltaX = 9.6



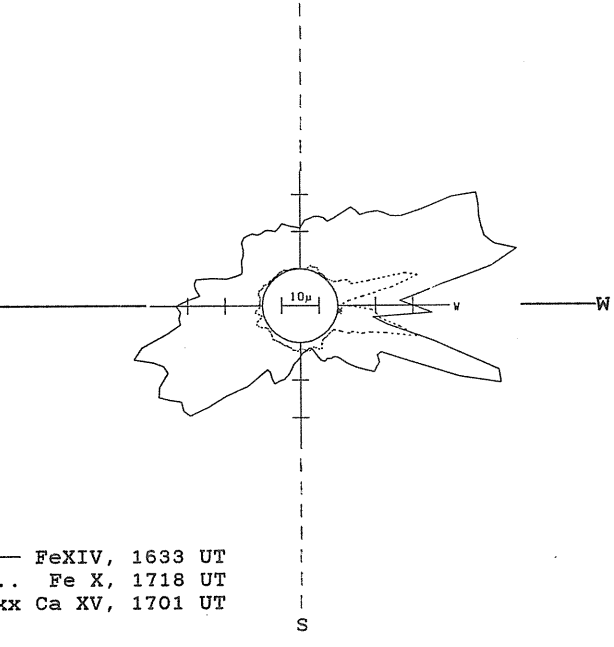
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

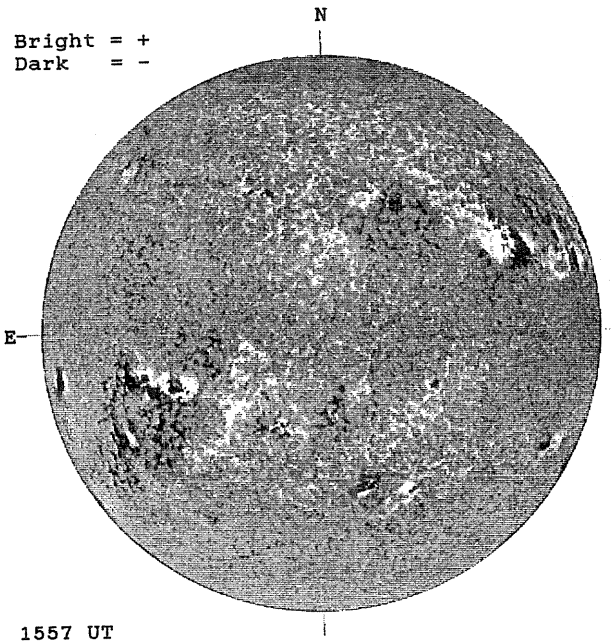


—— FeXIV, 1633 UT
.... Fe X, 1718 UT
xxxx Ca XV, 1701 UT

JANUARY 7, 1990 (P= -0.76, B_o =-3.69, L_o = 251.02)

KITT PEAK MAGNETOGRAM

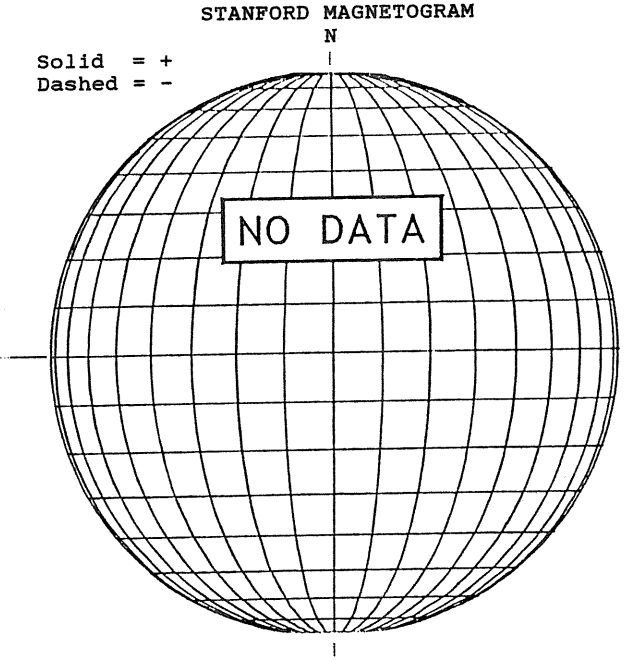
Bright = +
Dark = -



1557 UT

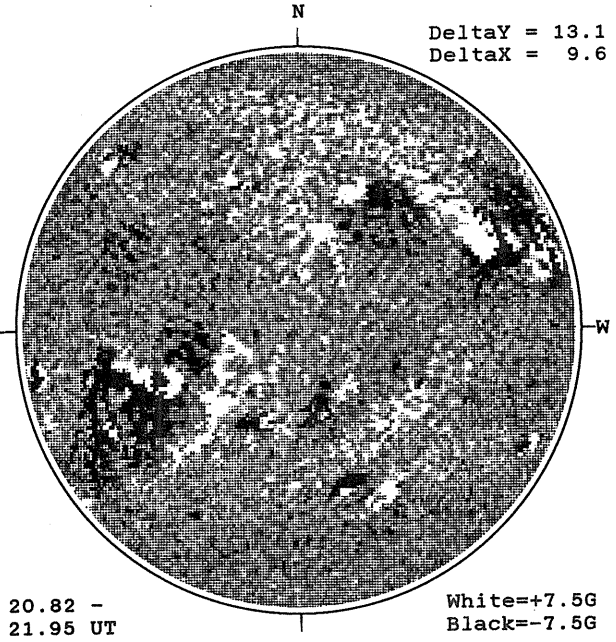
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

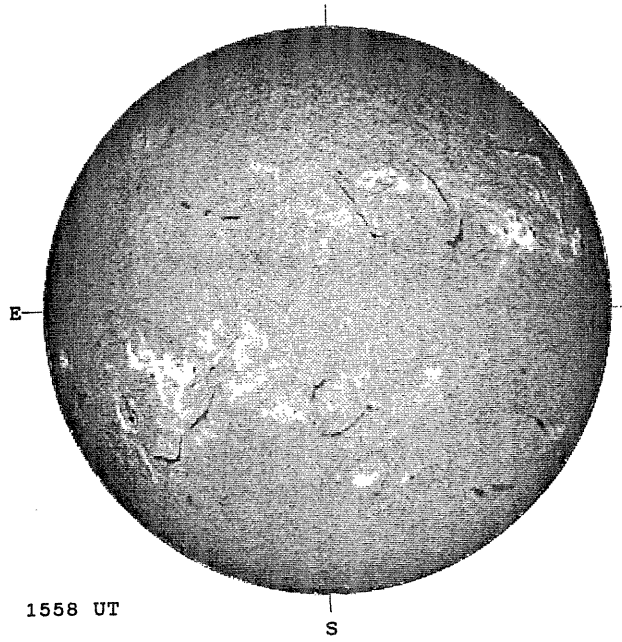
DeltaY = 13.1
DeltaX = 9.6



20.82 -
21.95 UT

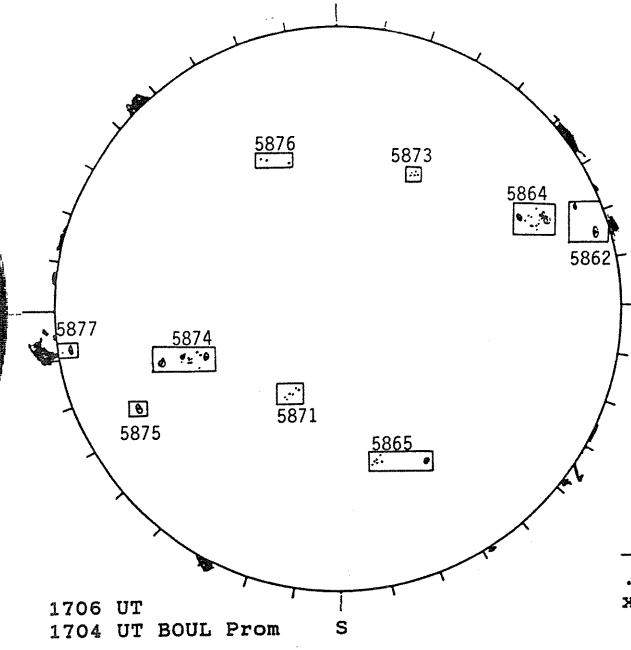
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



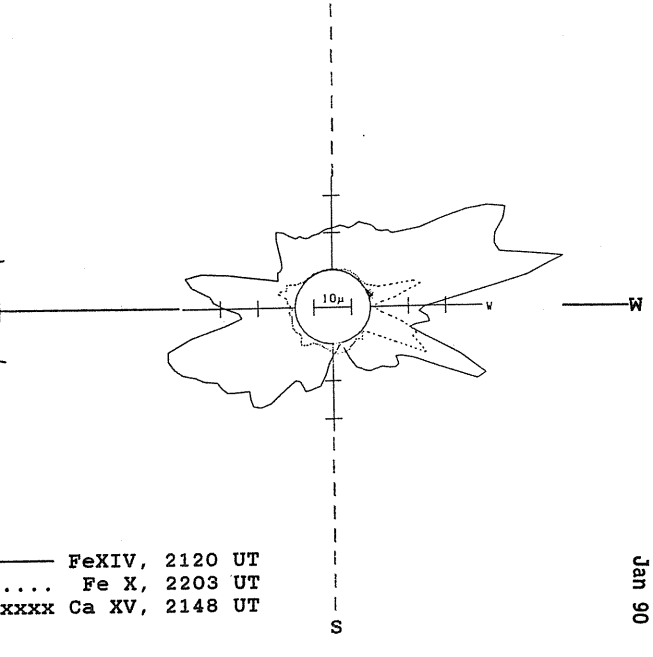
1558 UT

BOULDER SUNSPOT



1706 UT
1704 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



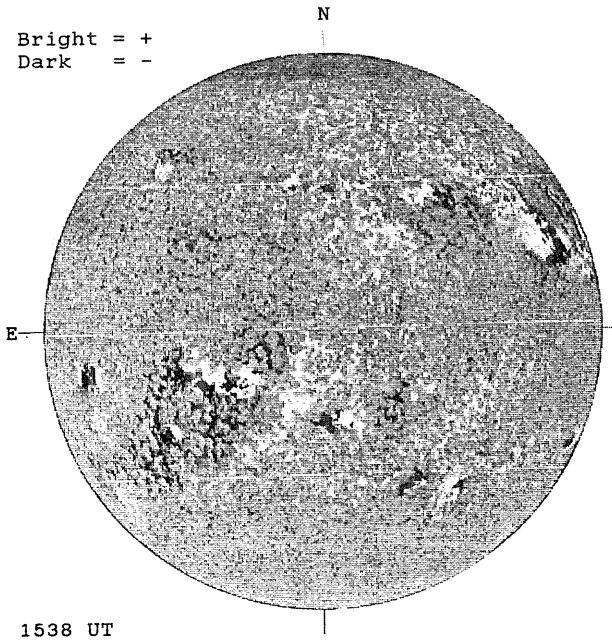
—— FeXIV, 2120 UT
.... Fe X, 2203 UT
xxxx Ca XV, 2148 UT

65
Jan 90

JANUARY 8, 1990 (P= -1.25, B_o =-3.80, L_o = 237.85)

KITT PEAK MAGNETOGRAM

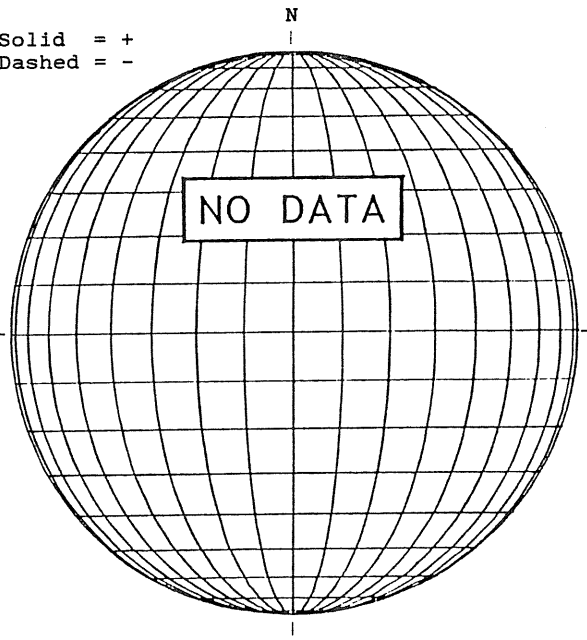
Bright = +
Dark = -



1538 UT

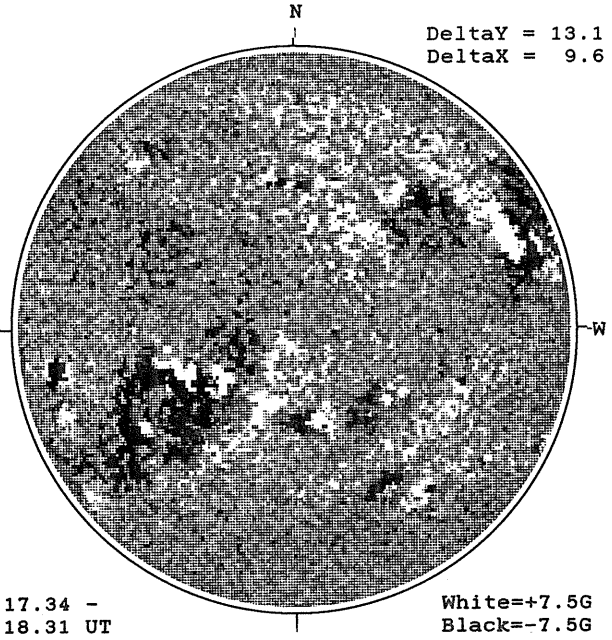
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

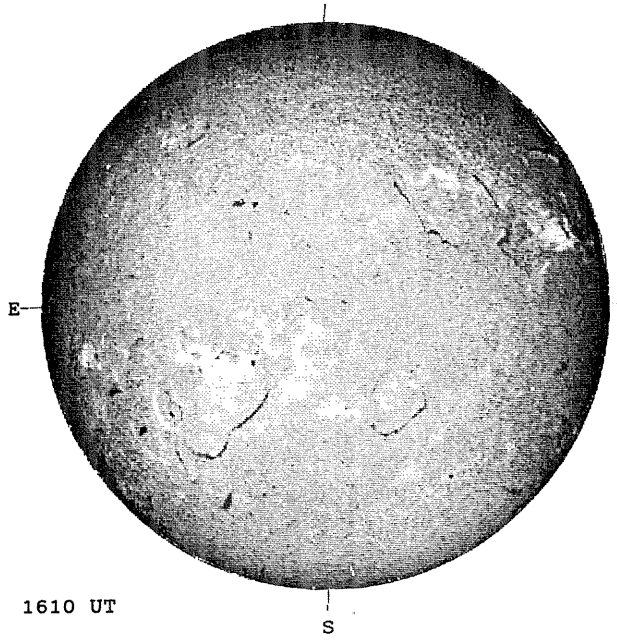
DeltaY = 13.1
DeltaX = 9.6



17.34 -
18.31 UT

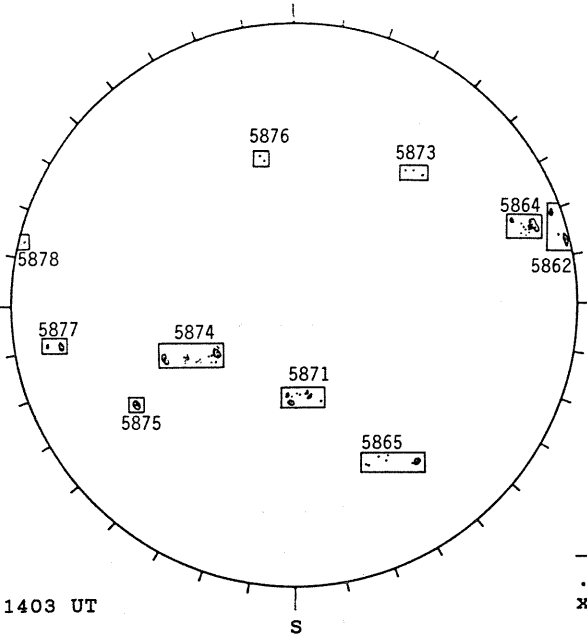
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



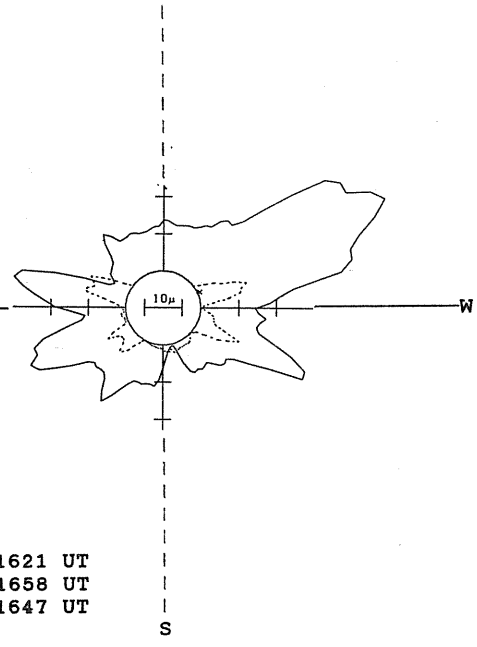
1610 UT

RAMEY SUNSPOT



1403 UT

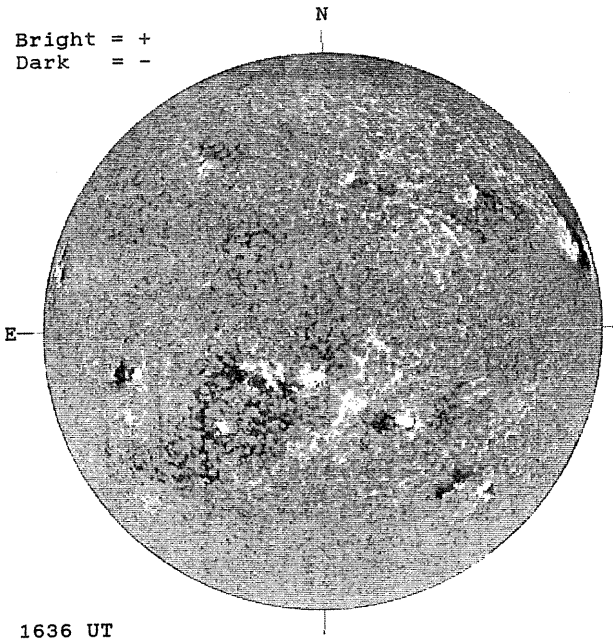
SACRAMENTO PEAK CORONA (1.15 Radii)



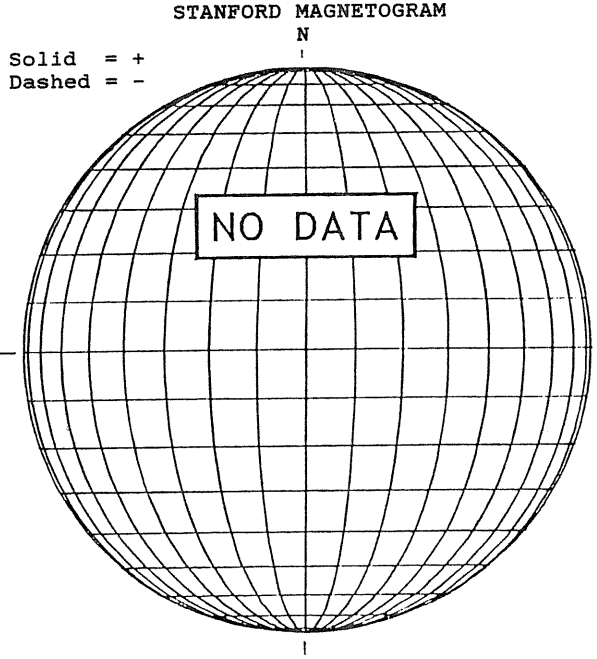
—— FeXIV, 1621 UT
.... Fe X, 1658 UT
xxxx Ca XV, 1647 UT

JANUARY 9, 1990 (P= -1.73, B_o =-3.91, L_o = 224.68)

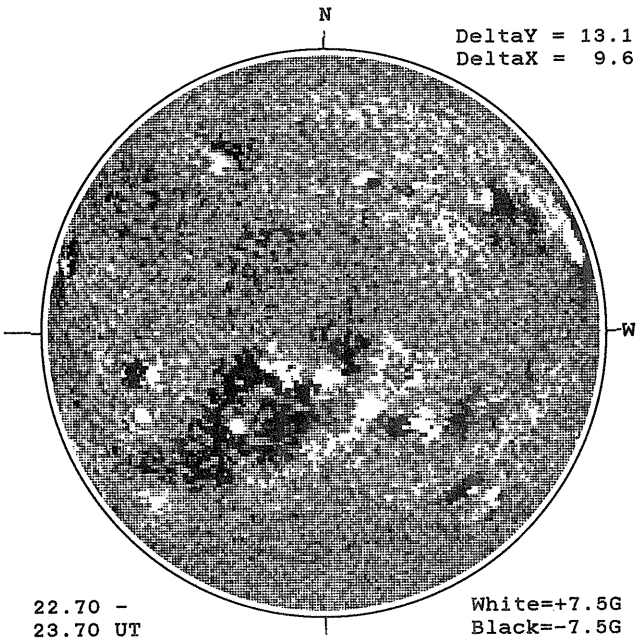
KITT PEAK MAGNETOGRAM



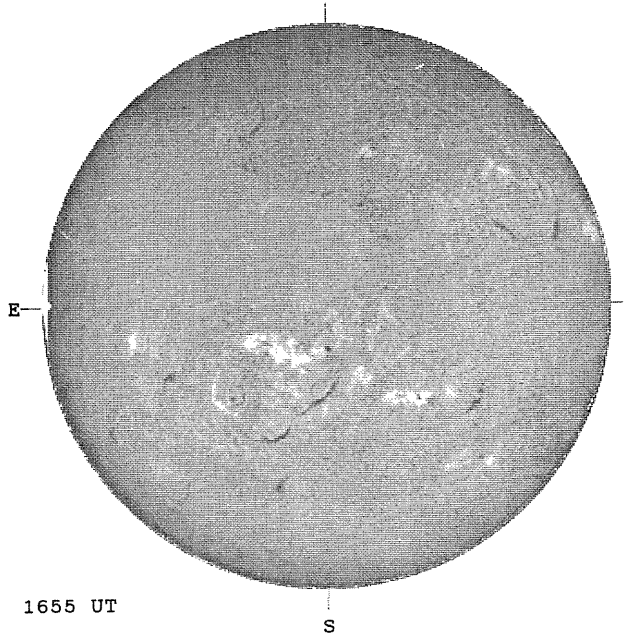
STANFORD MAGNETOGRAM



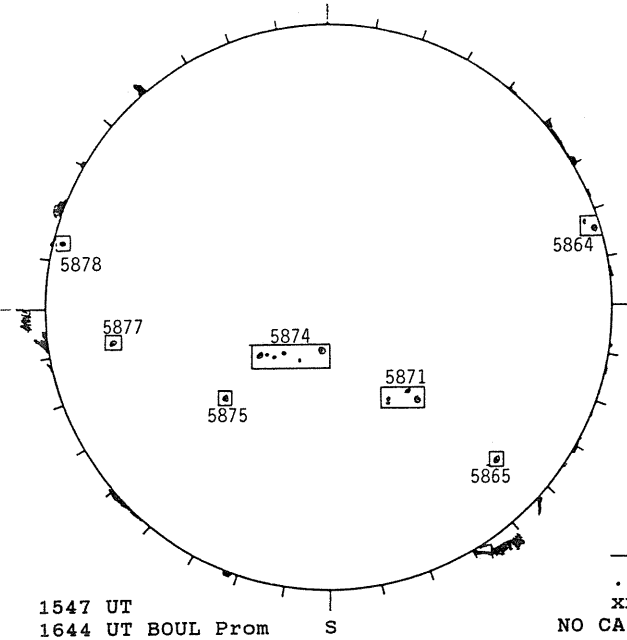
MT. WILSON MAGNETOGRAM



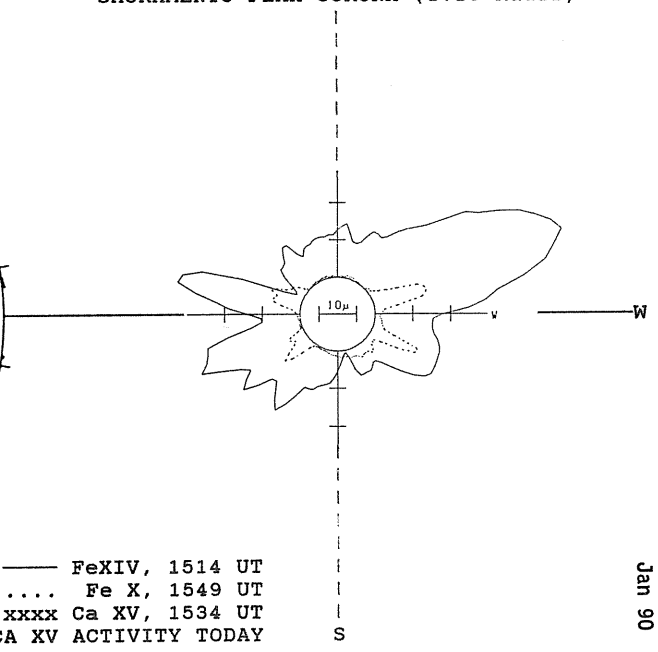
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



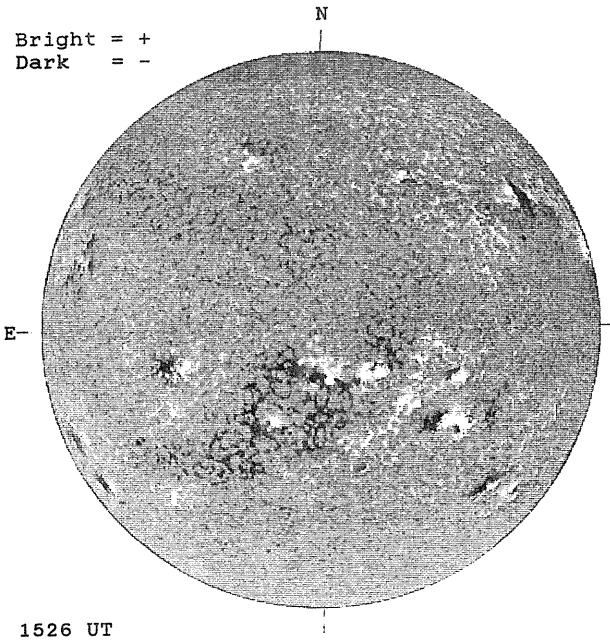
—— FeXIV, 1514 UT
.... Fe X, 1549 UT
xxxx Ca XV, 1534 UT
NO CA XV ACTIVITY TODAY

67
Jan 90

JANUARY 10, 1990 (P= -2.21, B_o =-4.02, L_o = 211.52)

KITT PEAK MAGNETOGRAM

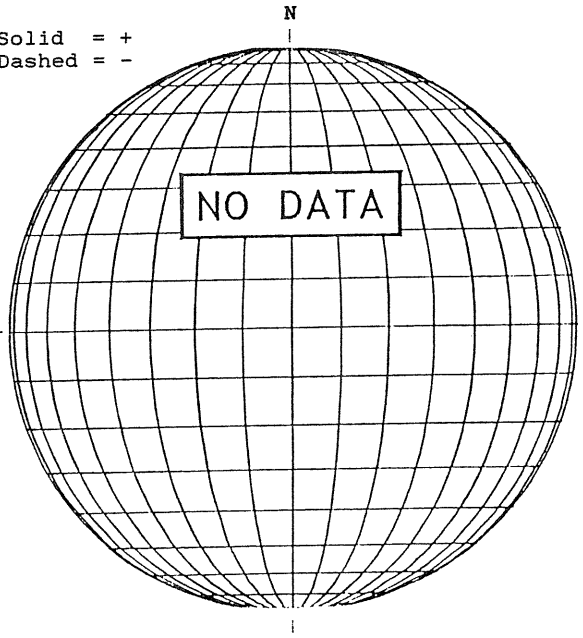
Bright = +
Dark = -



1526 UT

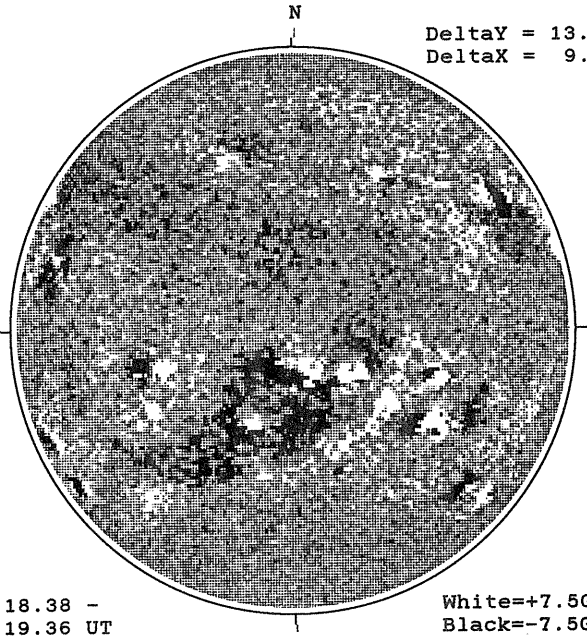
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

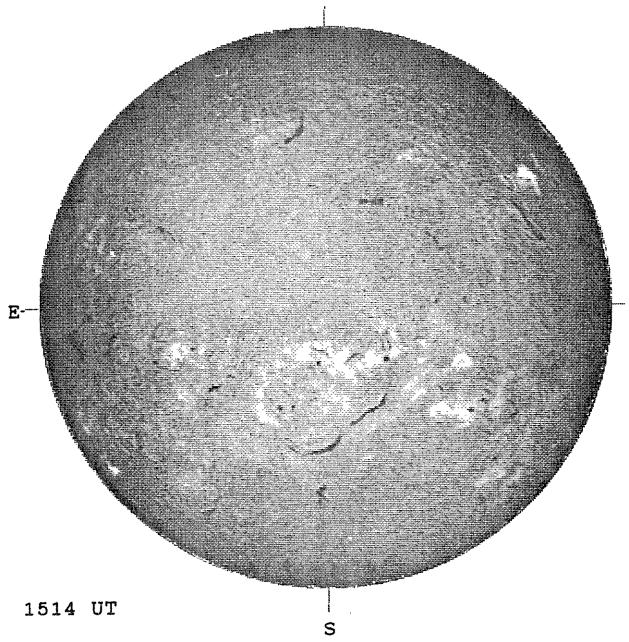
DeltaY = 13.1
DeltaX = 9.6



18.38 -
19.36 UT

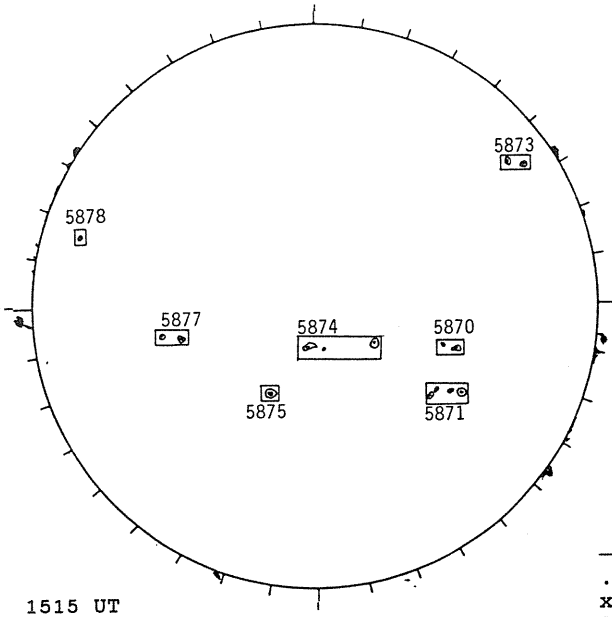
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



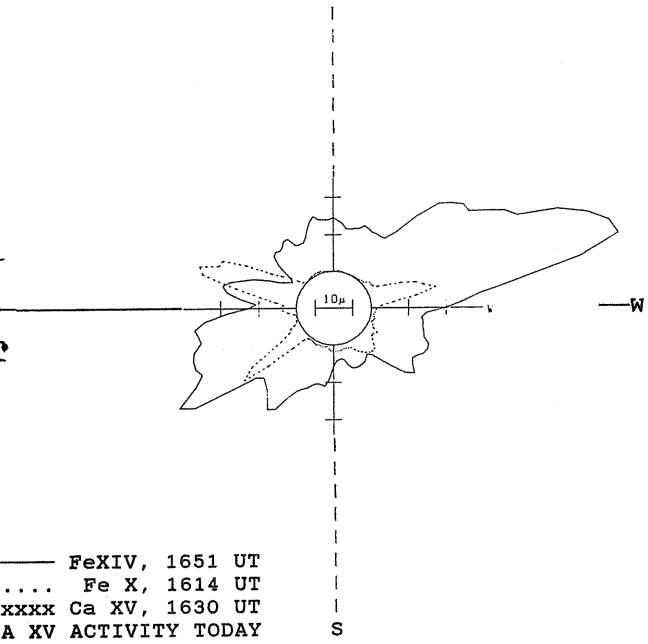
1514 UT

BOULDER SUNSPOT



1515 UT
1524 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

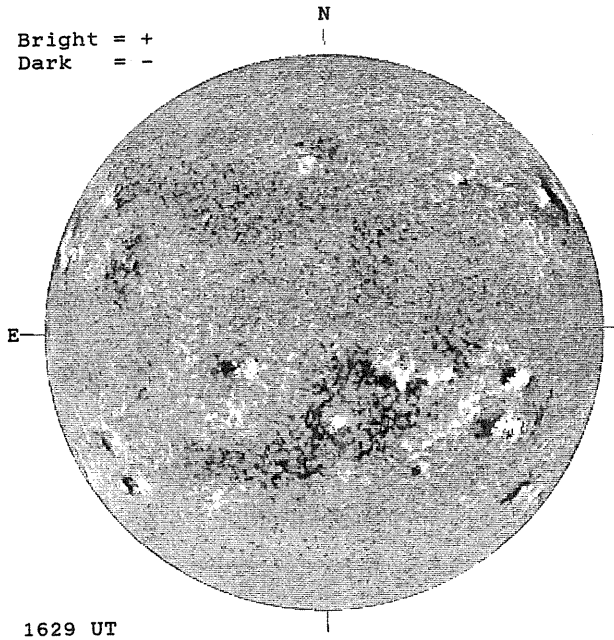


—— FeXIV, 1651 UT
.... Fe X, 1614 UT
xxxx Ca XV, 1630 UT
NO CA XV ACTIVITY TODAY

JANUARY 11, 1990 (P= -2.69, B_o =-4.13, L_o = 198.35)

KITT PEAK MAGNETOGRAM

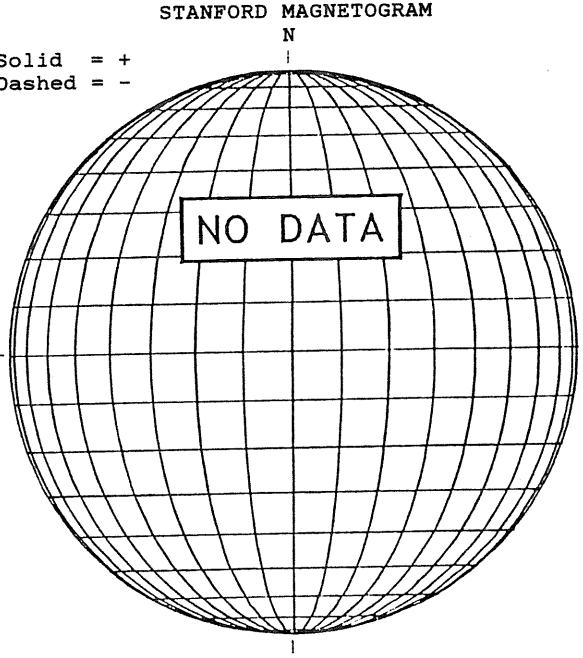
Bright = +
Dark = -



1629 UT

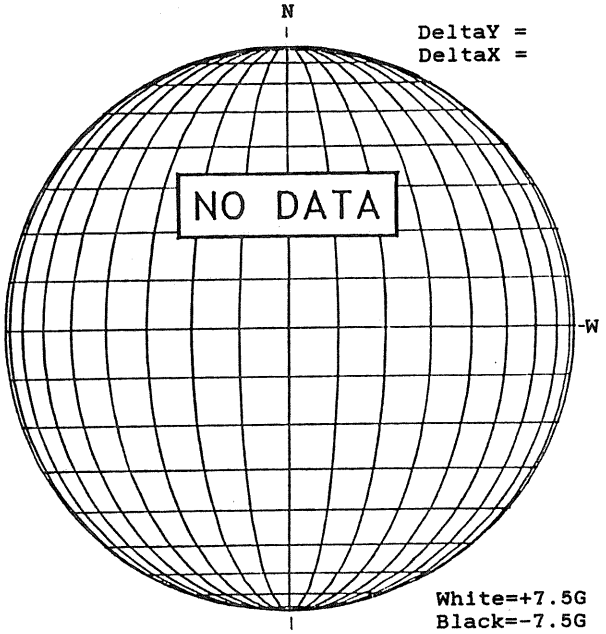
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



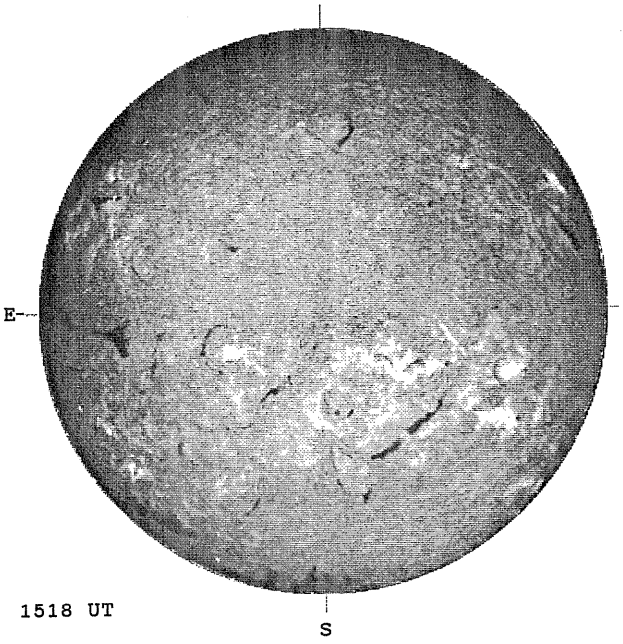
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



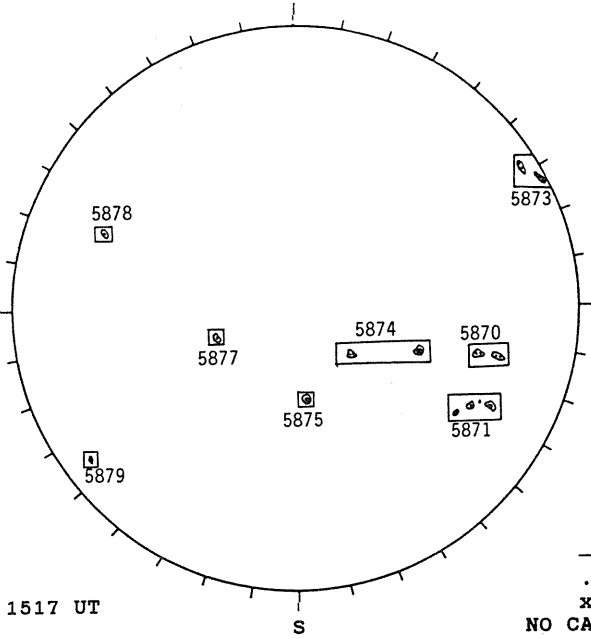
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



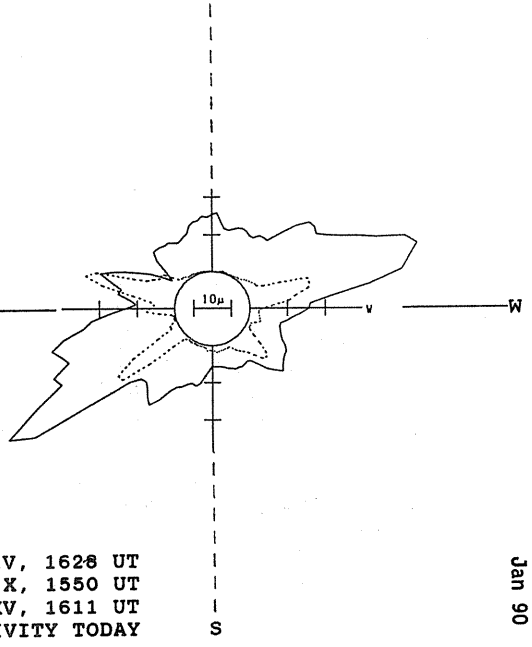
1518 UT

BOULDER SUNSPOT



1517 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



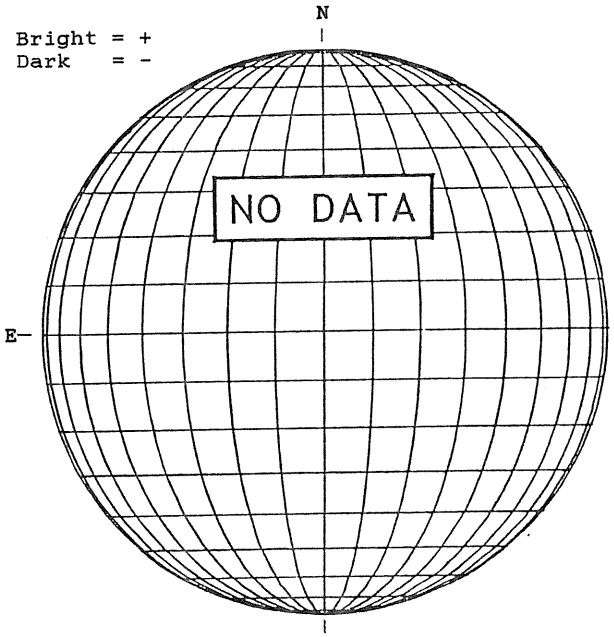
—— FeXIV, 1628 UT
.... Fe X, 1550 UT
xxxx Ca XV, 1611 UT
NO CA XV ACTIVITY TODAY

69
Jan 90

JANUARY 12, 1990 (P= -3.16, B_o =-4.23, L_o = 185.18)

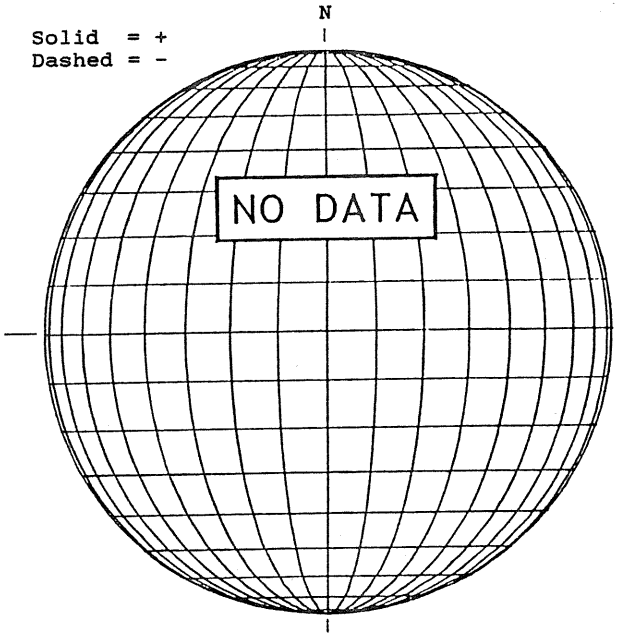
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



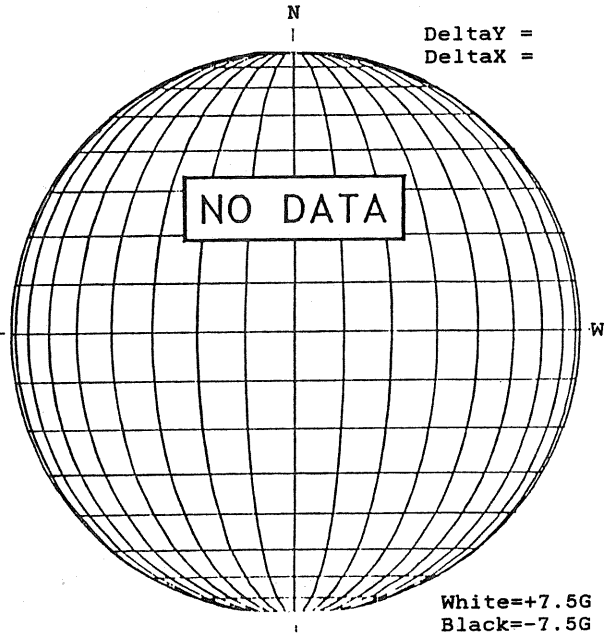
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



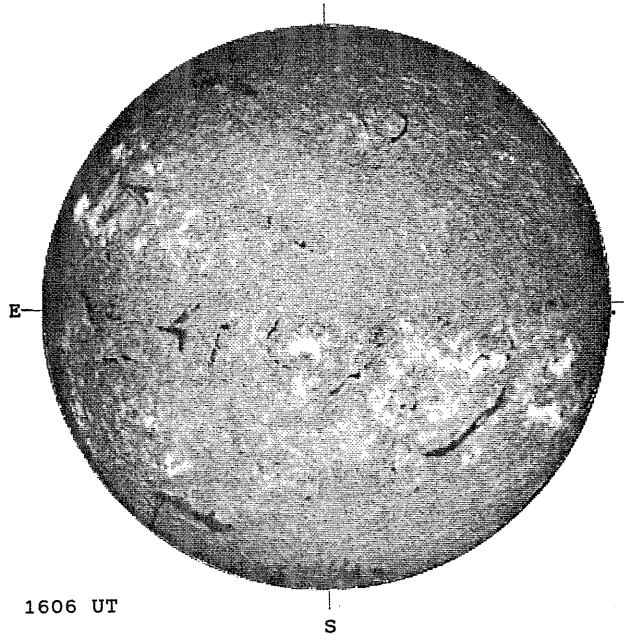
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



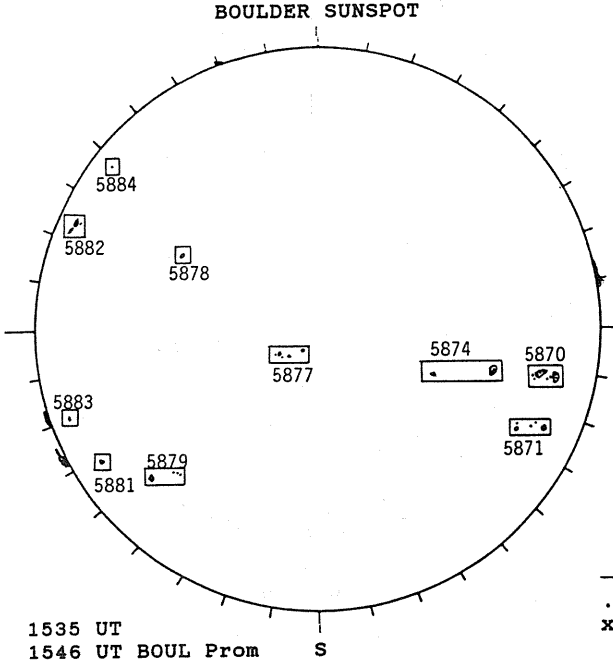
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



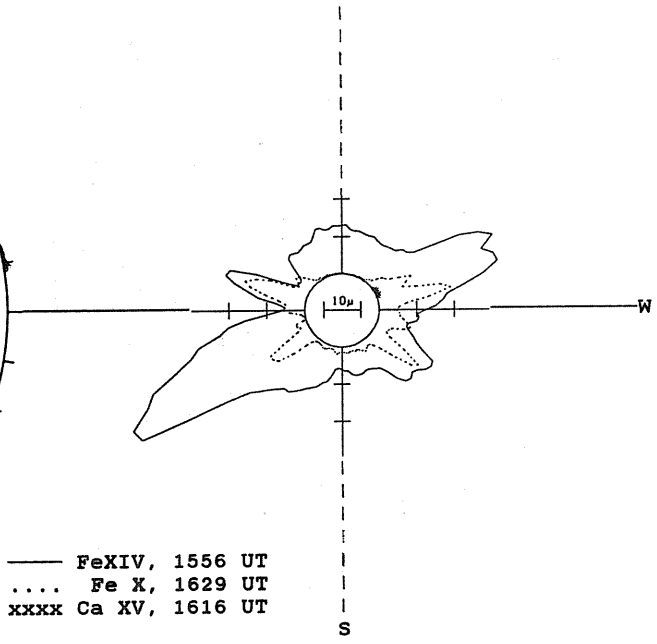
1606 UT

BOULDER SUNSPOT



1535 UT
1546 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

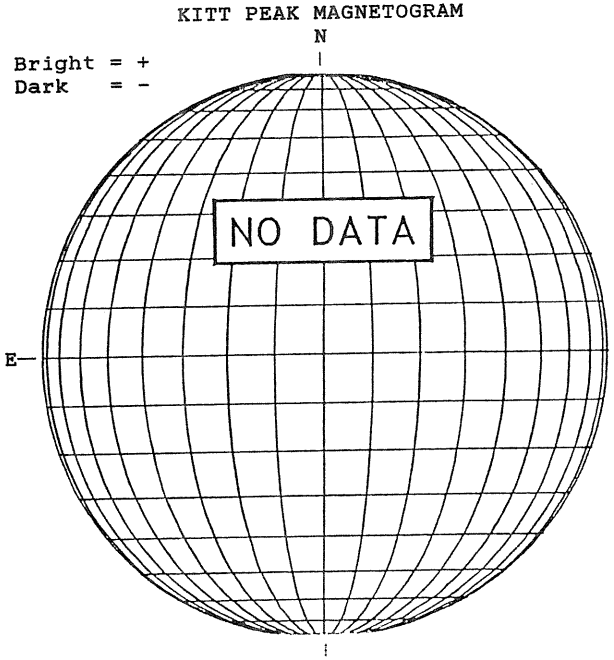


—— FeXIV, 1556 UT
.... Fe X, 1629 UT
xxxx Ca XV, 1616 UT

JANUARY 13, 1990 (P= -3.64, B_o =-4.38, L_o = 172.01)

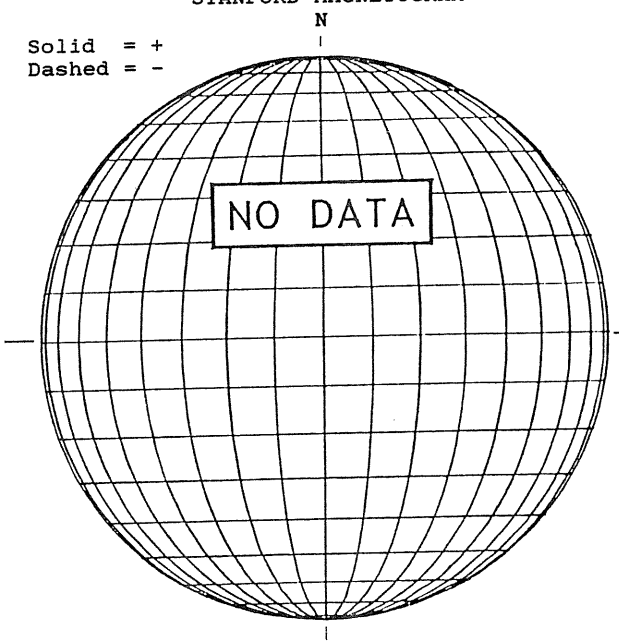
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



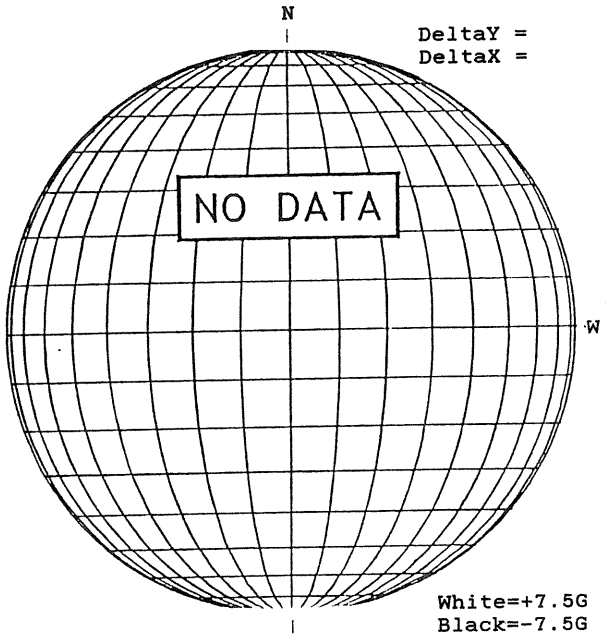
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



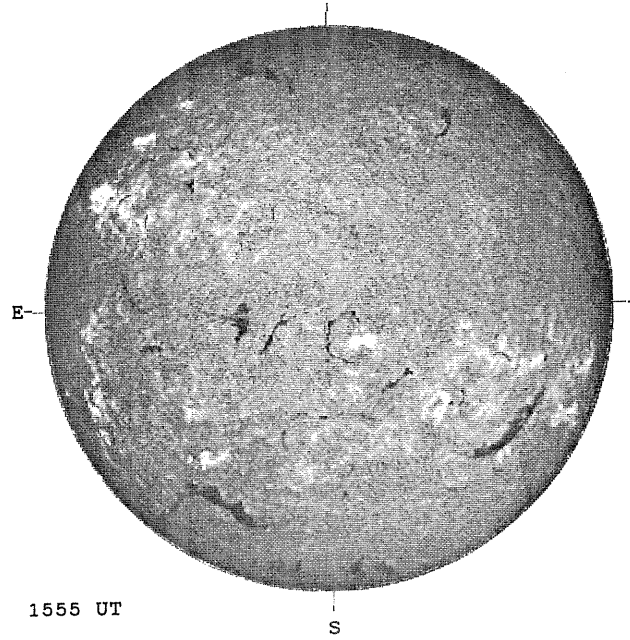
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



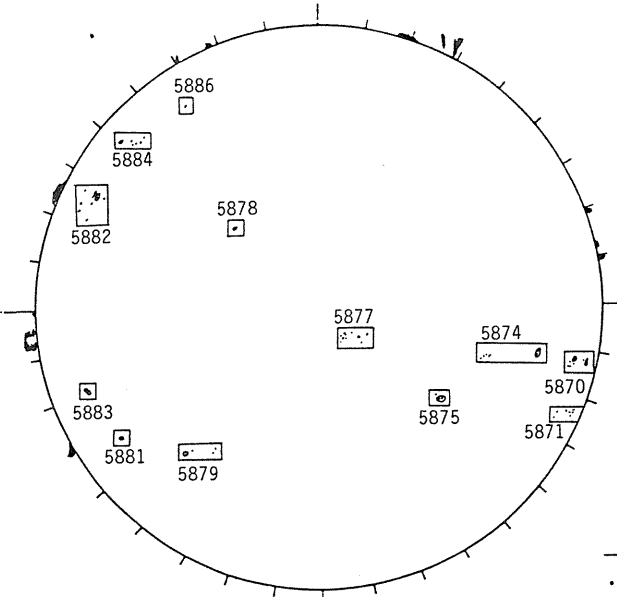
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



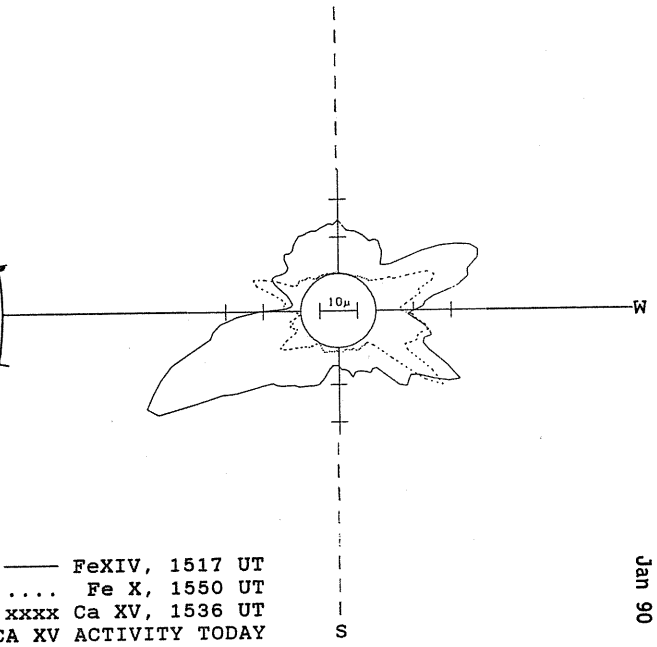
1555 UT

BOULDER SUNSPOT



1642 UT
1704 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1517 UT
.... Fe X, 1550 UT
xxxx Ca XV, 1536 UT
NO CA XV ACTIVITY TODAY

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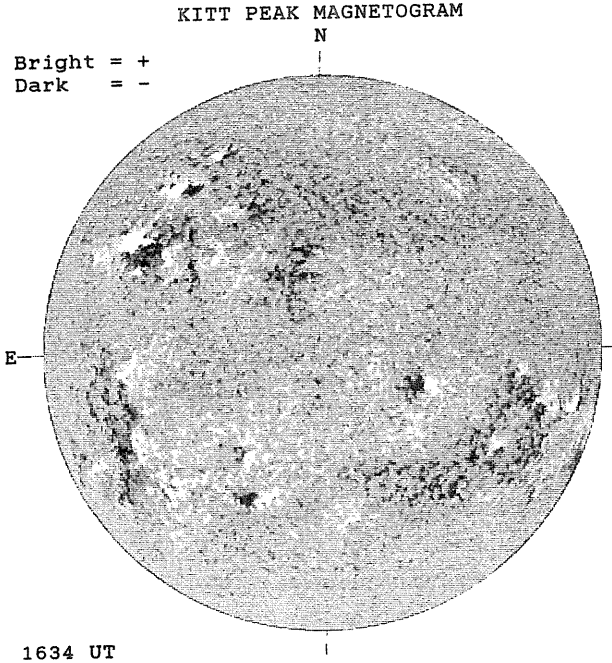
Jan 90

JANUARY 14, 1990 (P= -4.11, B_o =-4.44, L_o = 158.84)

KITT PEAK MAGNETOGRAM

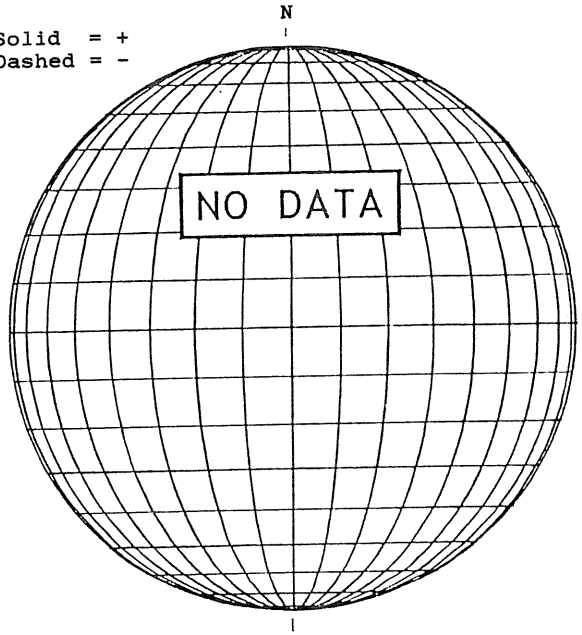
Bright = +
Dark = -



1634 UT

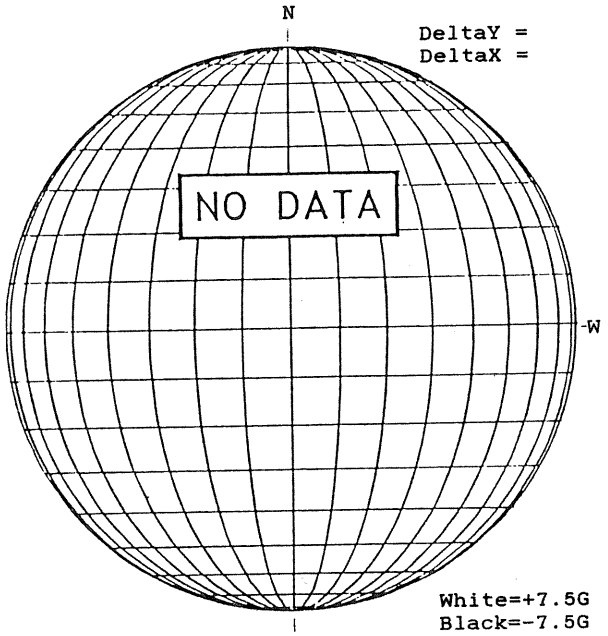
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



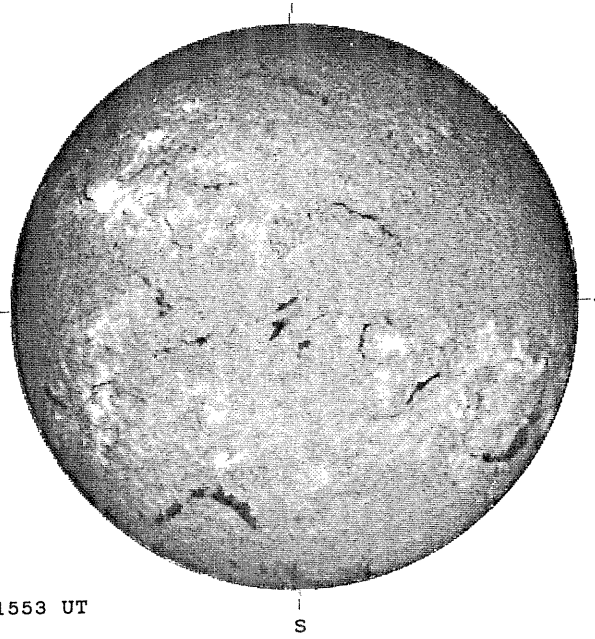
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



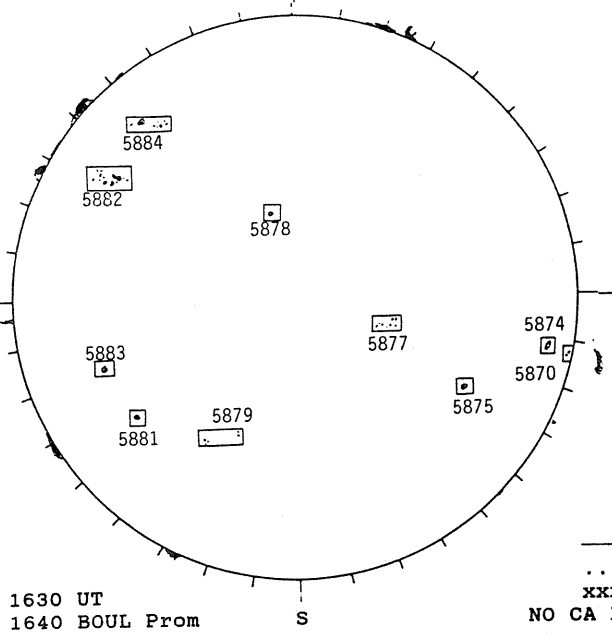
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



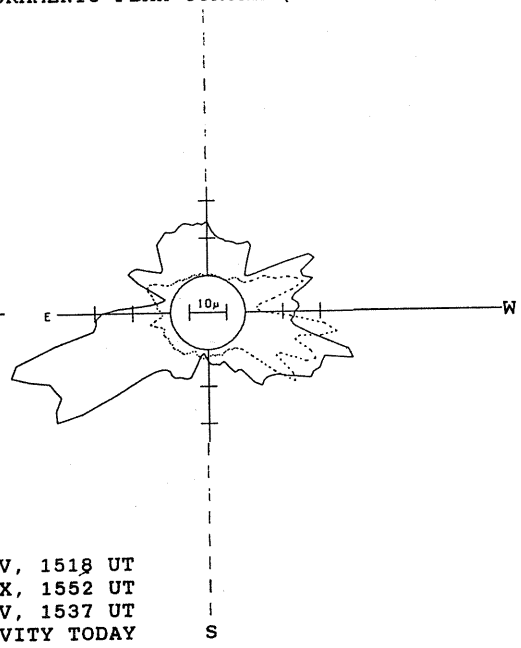
1553 UT

BOULDER SUNSPOT



1630 UT
1640 BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

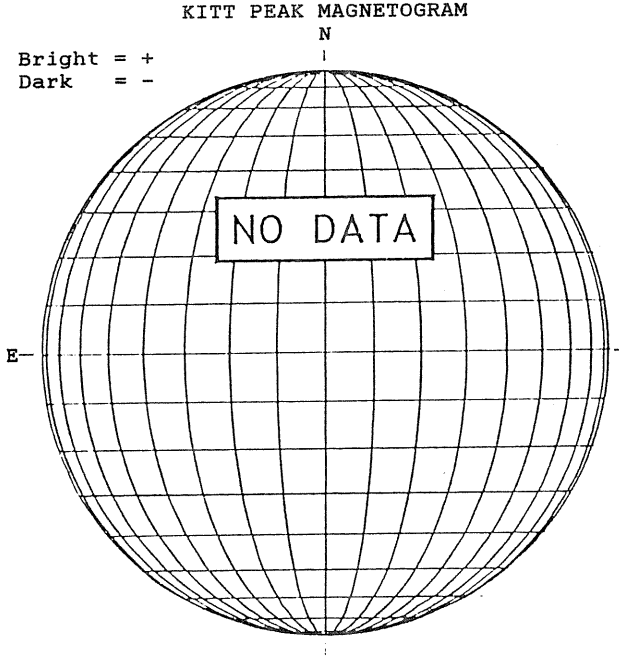


—— FeXIV, 1518 UT
.... Fe X, 1552 UT
xxxx Ca XV, 1537 UT
NO CA XV ACTIVITY TODAY

JANUARY 15, 1990 (P= -4.58, B_o =-4.54, L_o = 145.67)

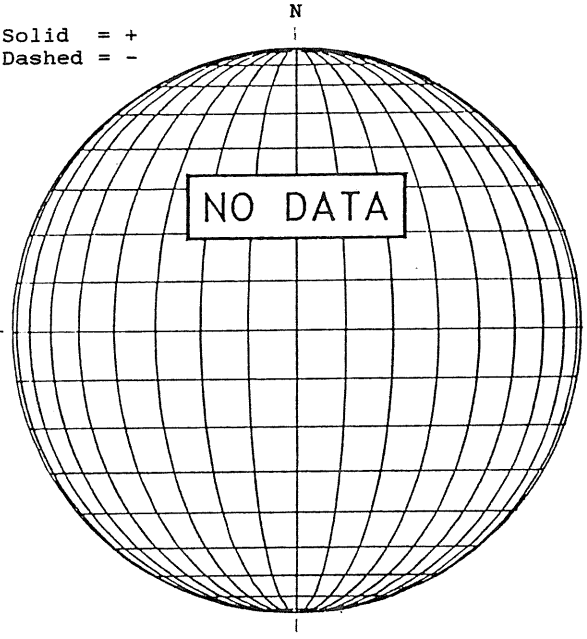
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



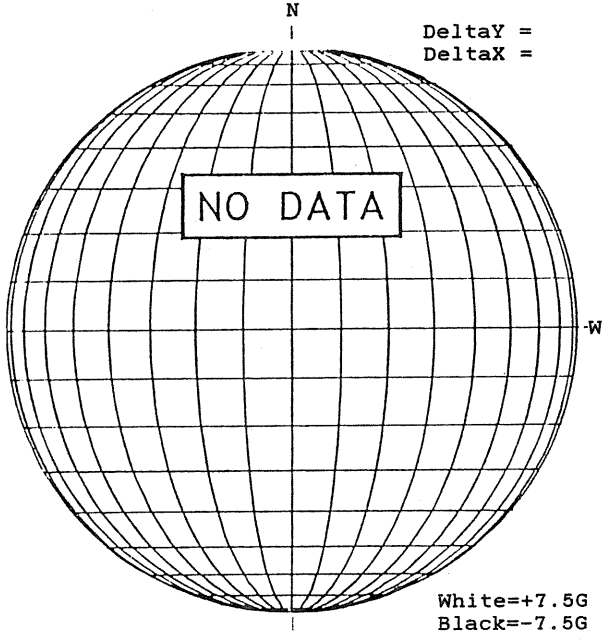
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



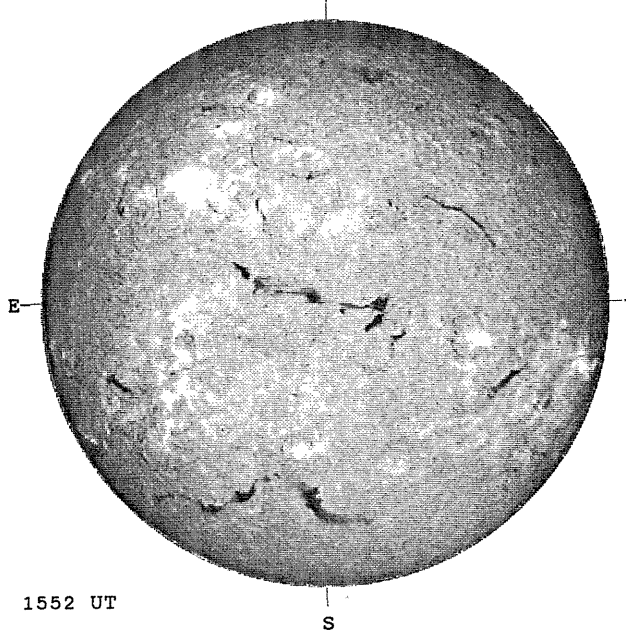
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



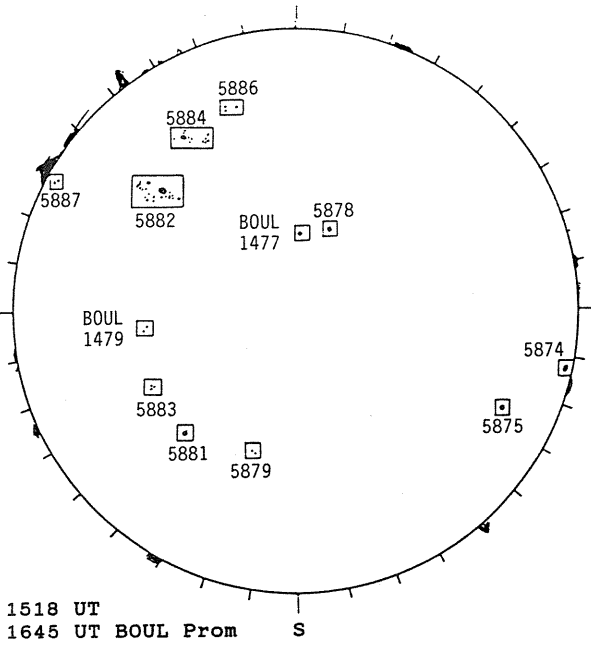
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



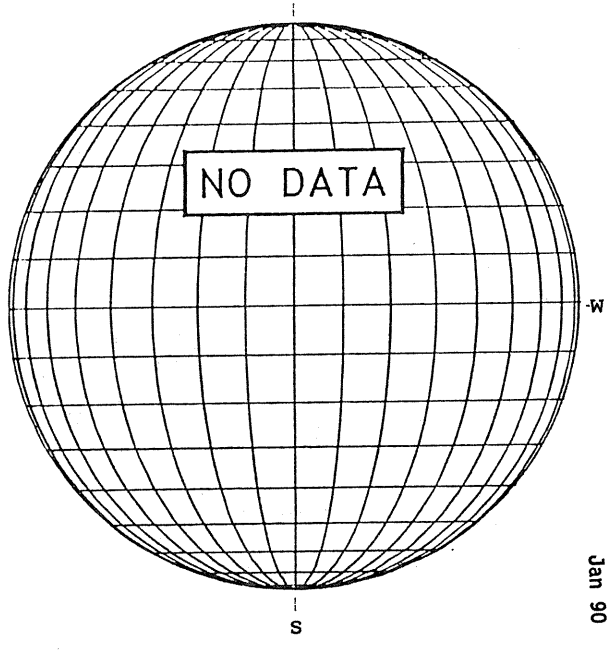
1552 UT

BOULDER SUNSPOT



1518 UT
1645 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



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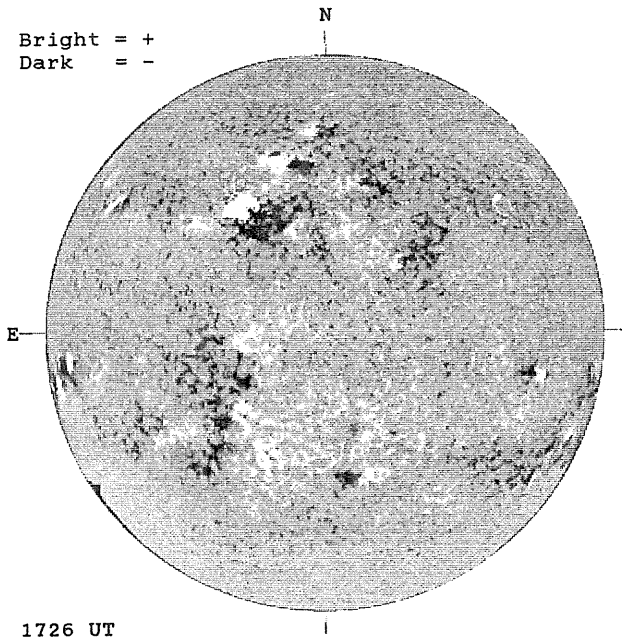
Jan 90

JANUARY 16, 1990 (P= -5.05, B_o =-4.64, L_o = 132.51)

KITT PEAK MAGNETOGRAM

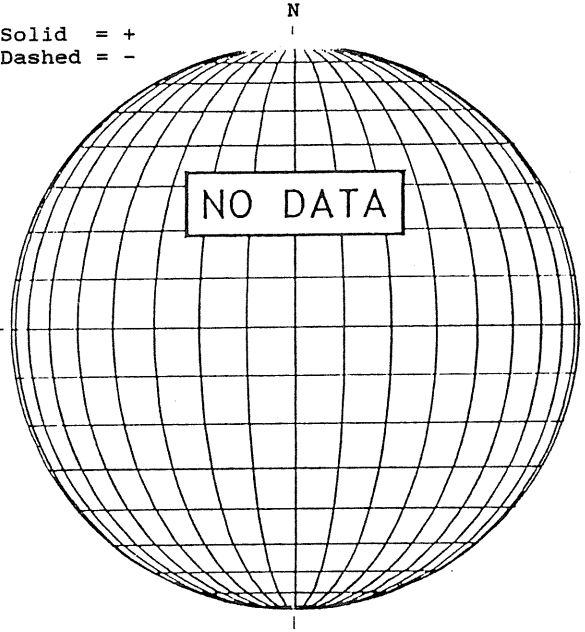
Bright = +
Dark = -



1726 UT

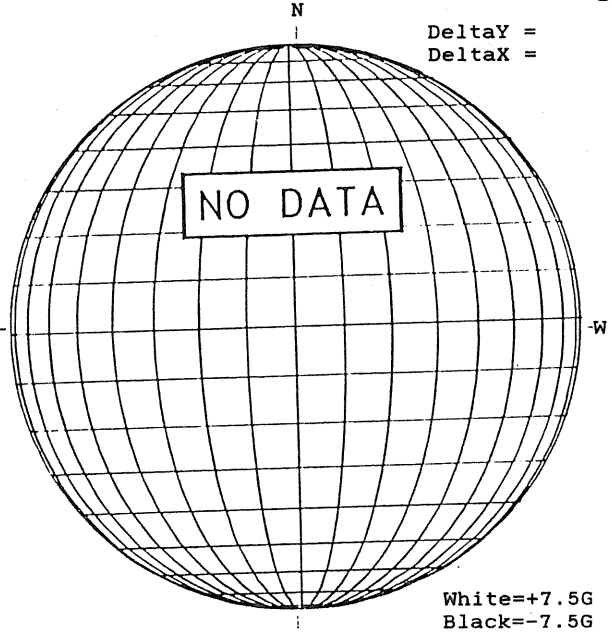
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



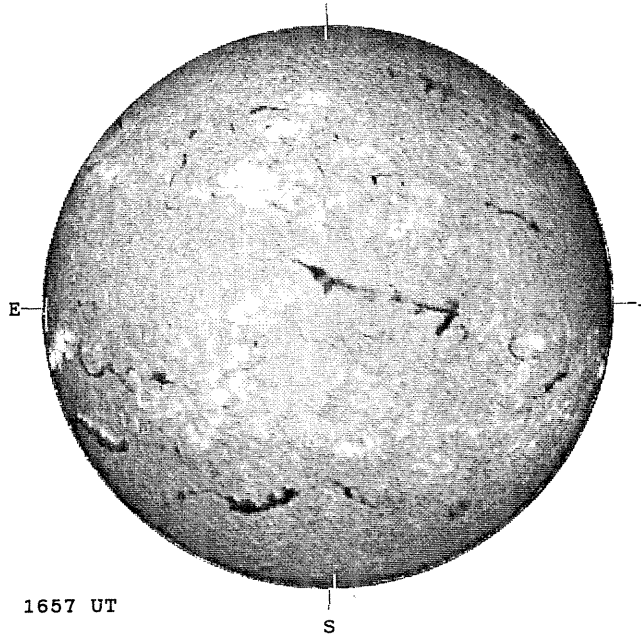
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



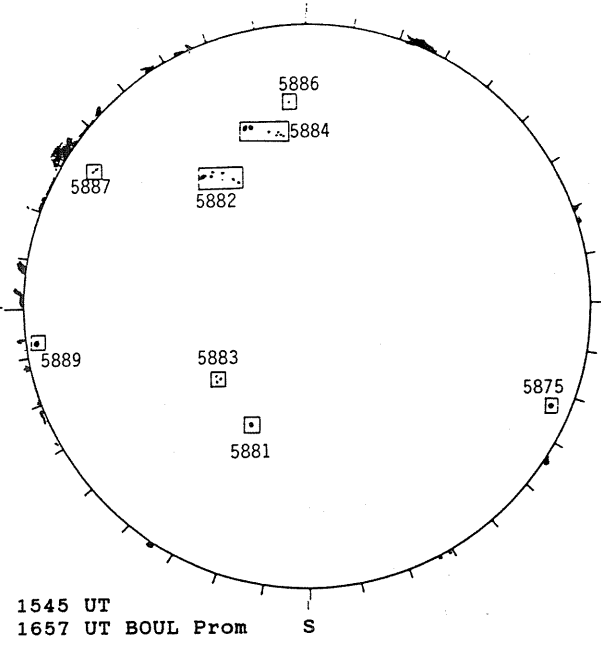
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



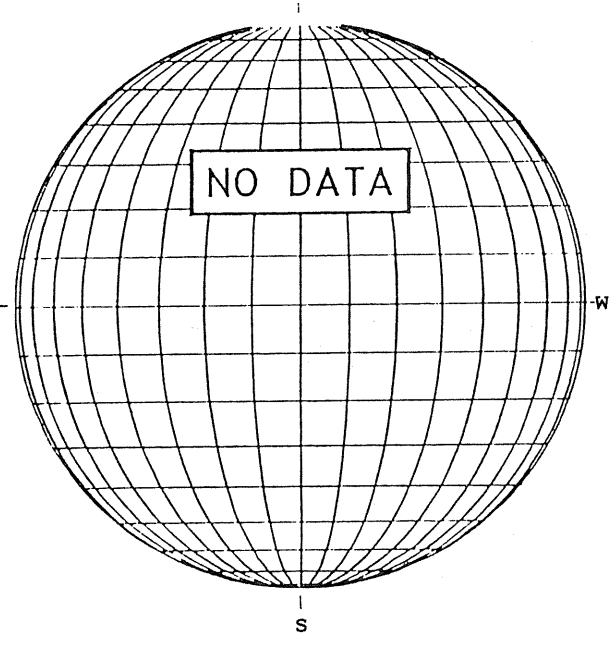
1657 UT

BOULDER SUNSPOT



1545 UT
1657 UT BOUL Prom

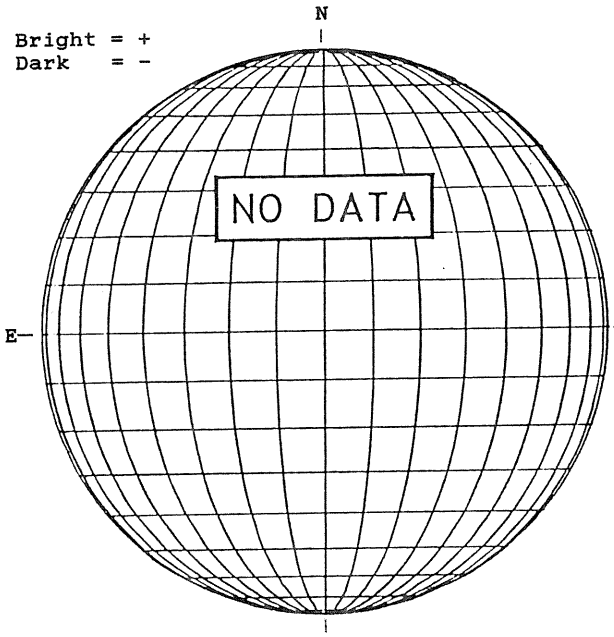
SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 17, 1990 (P= -5.51, B_o =-4.78, L_o = 119.34)

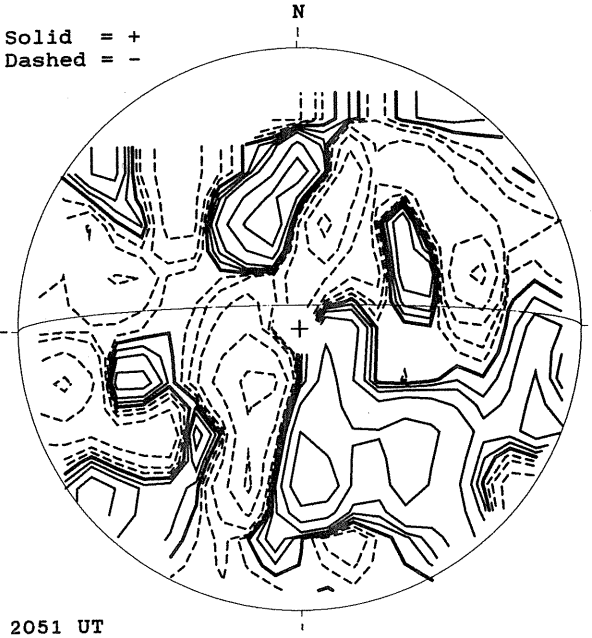
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



STANFORD MAGNETOGRAM

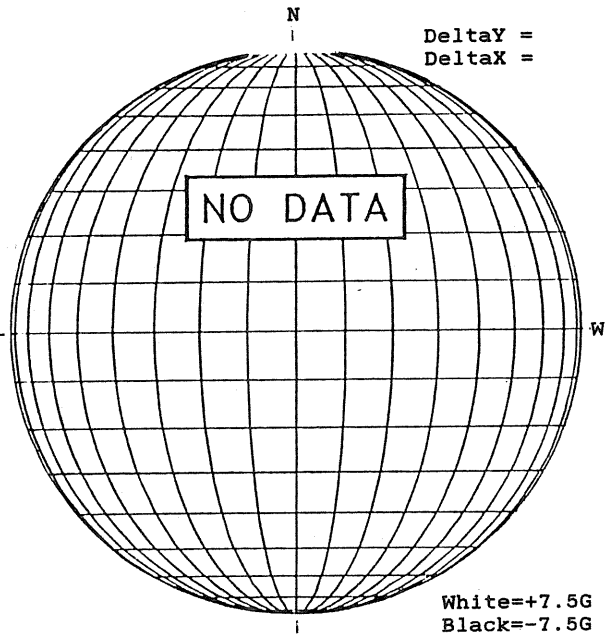
Solid = +
Dashed = -



2051 UT

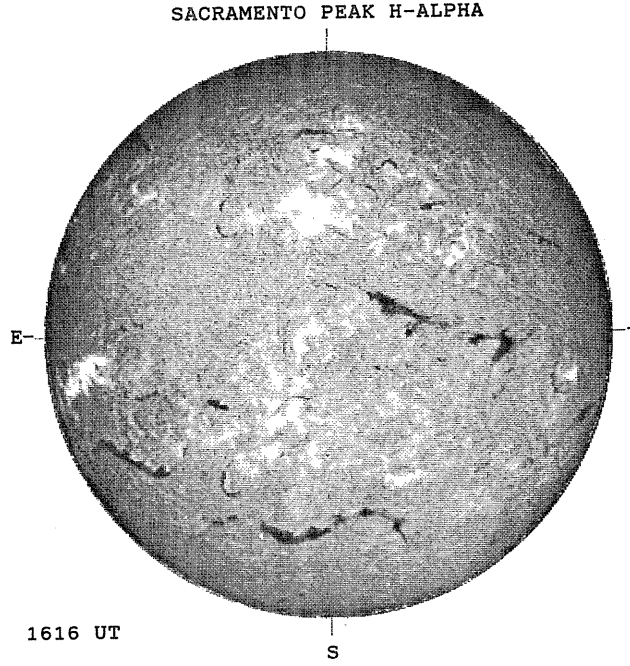
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



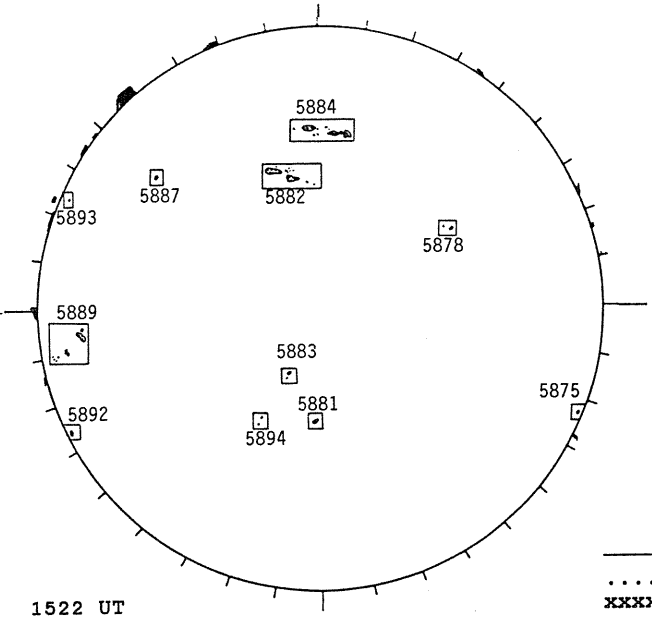
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



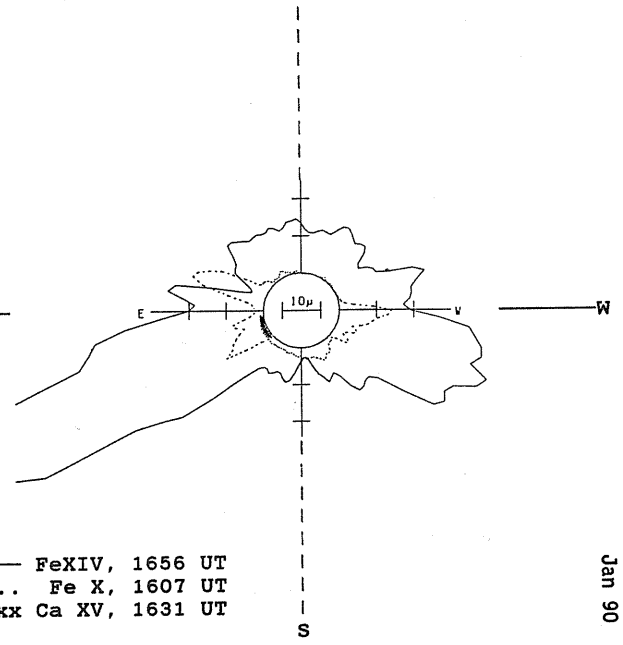
1616 UT

BOULDER SUNSPOT



1522 UT
1552 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1656 UT
.... Fe X, 1607 UT
xxxx Ca XV, 1631 UT

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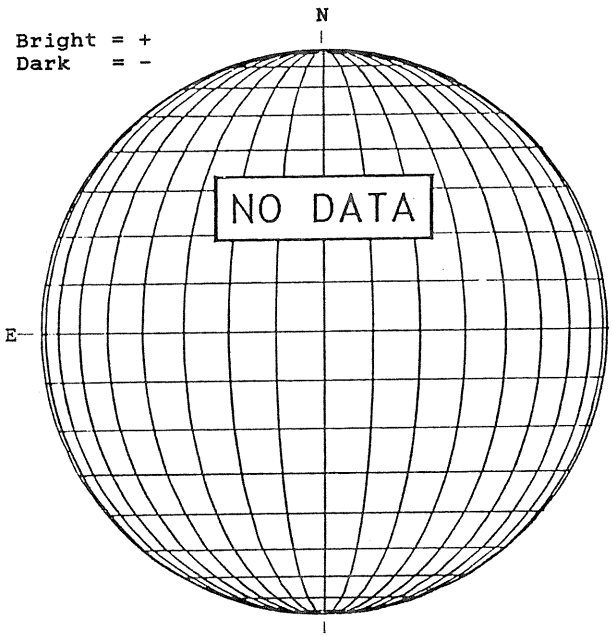
Jan 90

JANUARY 18, 1990 (P= -5.98, B_o =-4.83, L_o = 106.17)

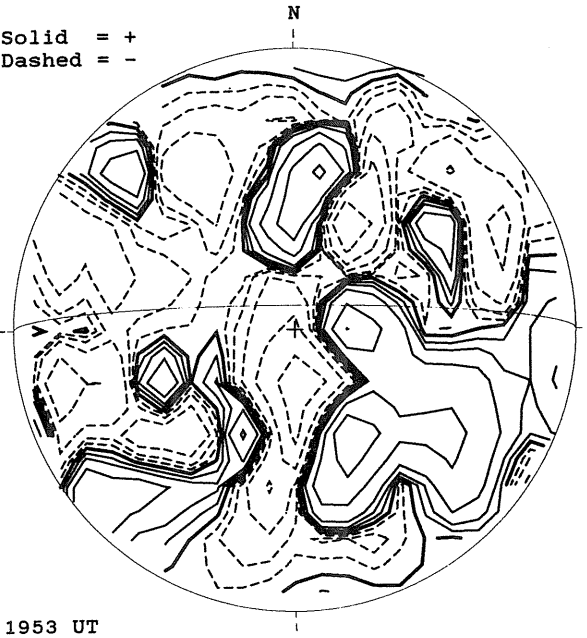
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



STANFORD MAGNETOGRAM

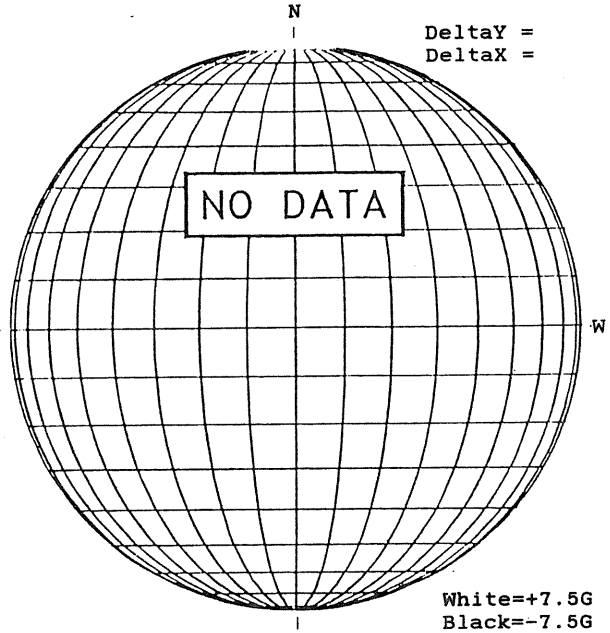
Solid = +
Dashed = -



1953 UT

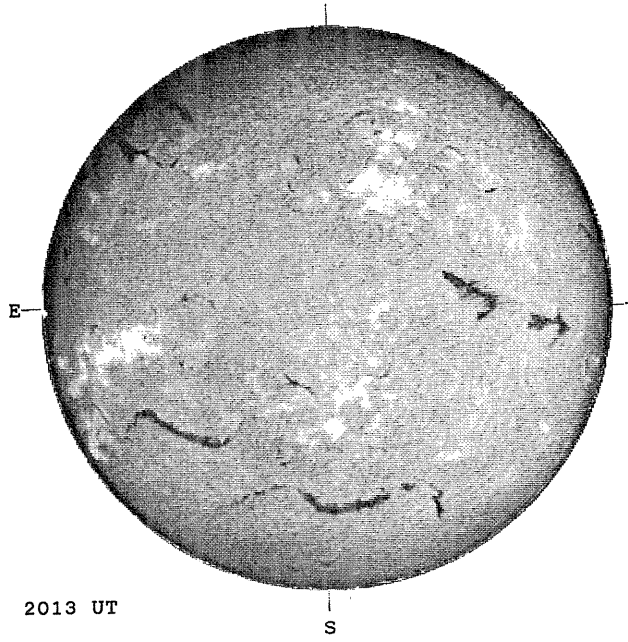
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



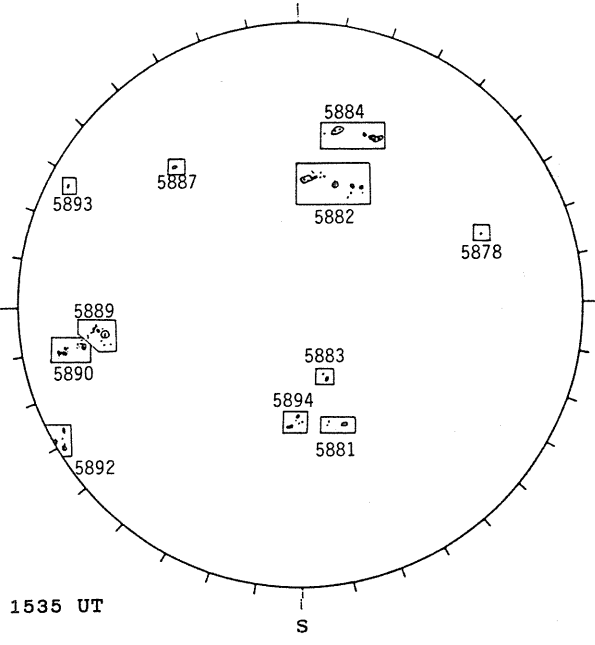
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



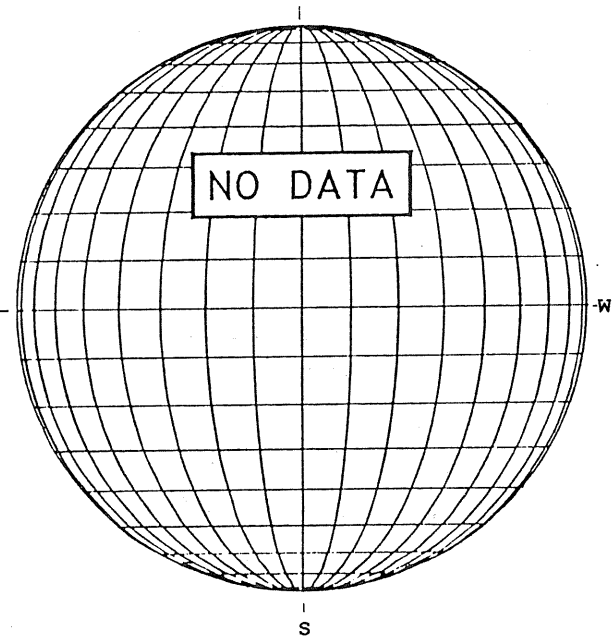
2013 UT

RAMEY SUNSPOT



1535 UT

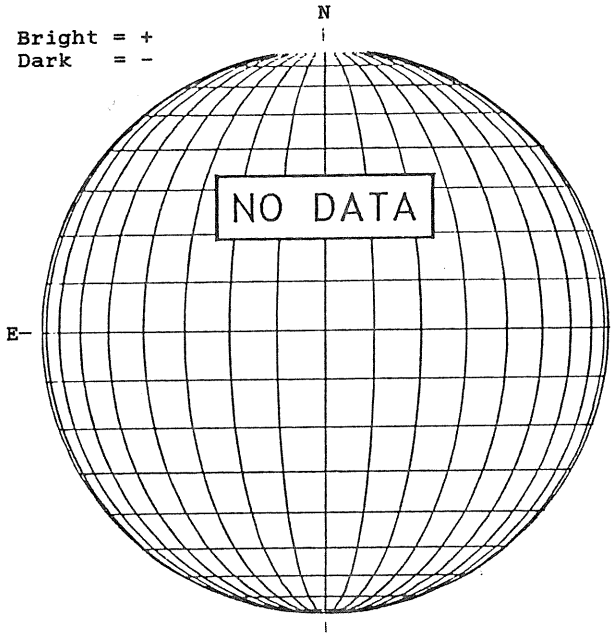
SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 19, 1990 (P= -6.44, B_o =-4.93, L_o = 93.00)

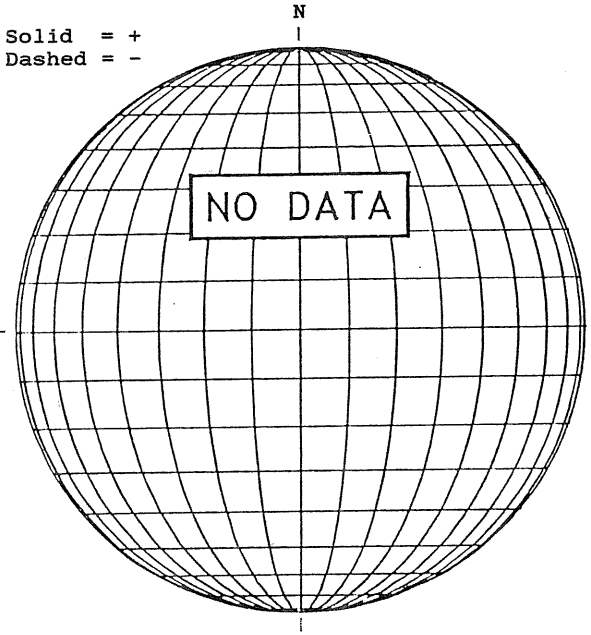
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



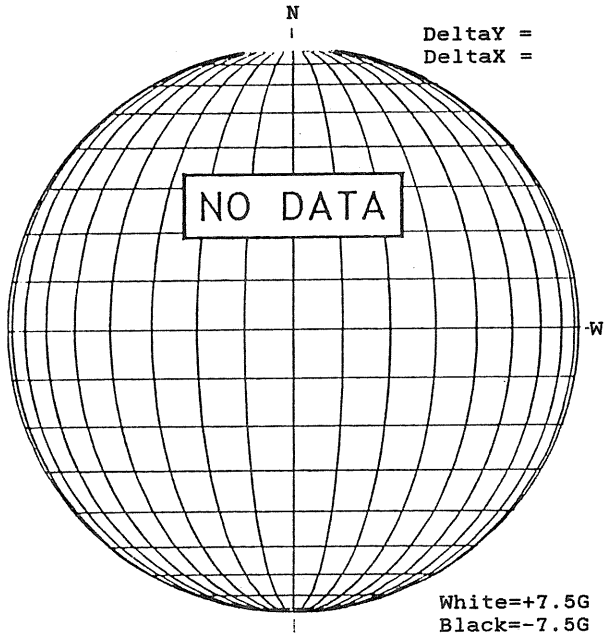
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



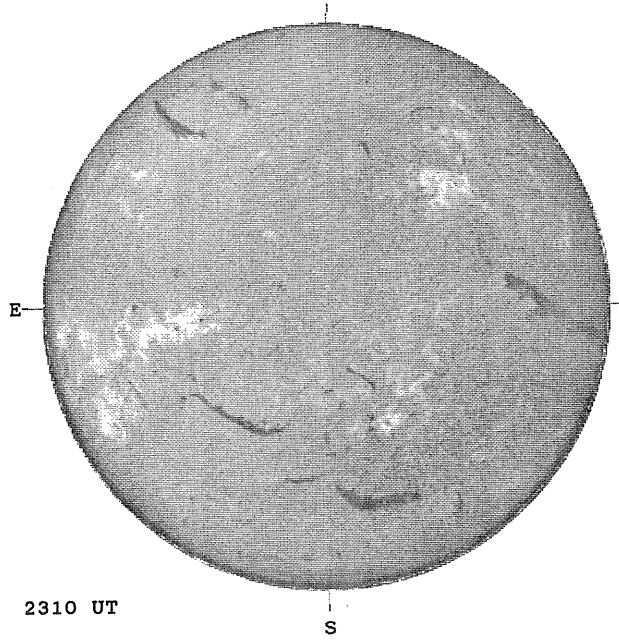
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



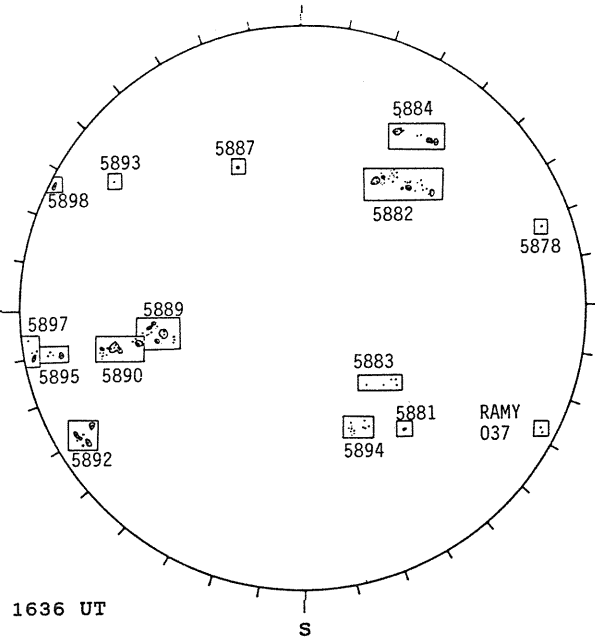
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



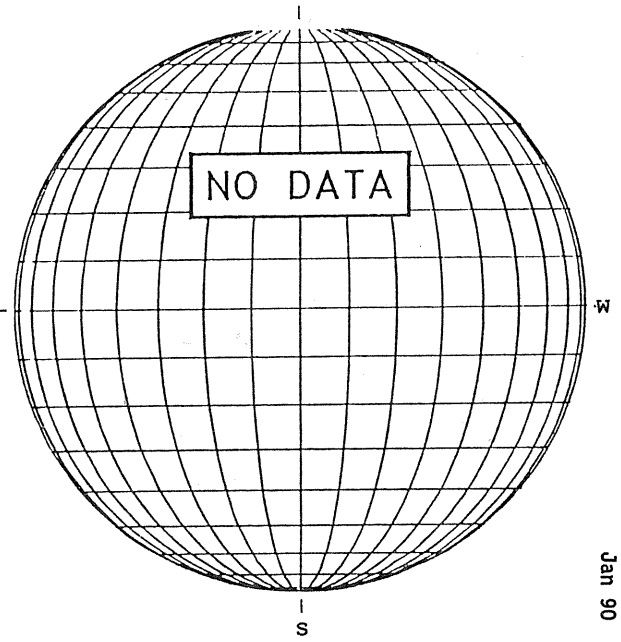
2310 UT

RAMEY SUNSPOT



1636 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



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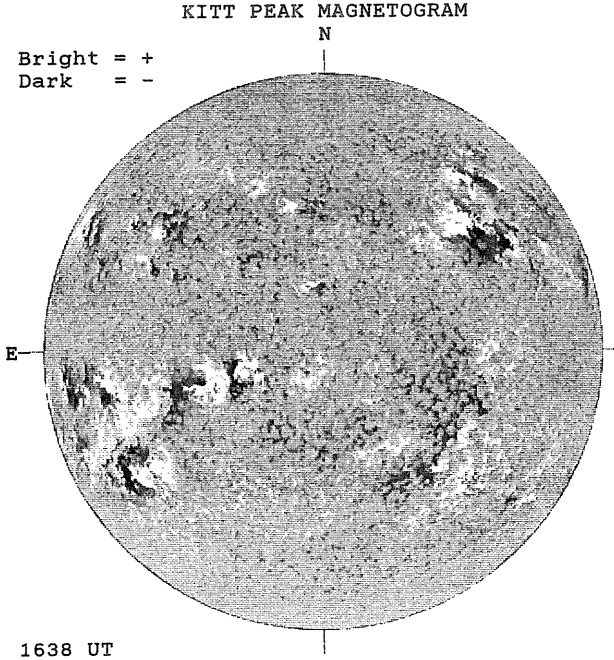
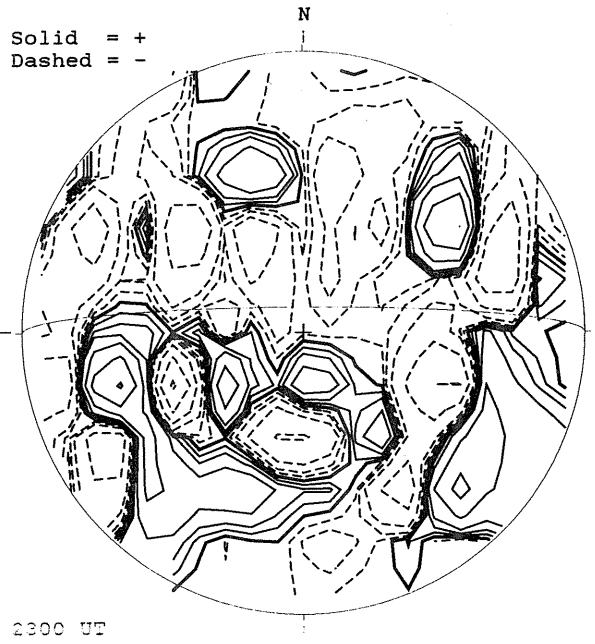
Jan 90

JANUARY 20, 1990 (P= -6.89, B_o =-5.02, L_o = 79.84)

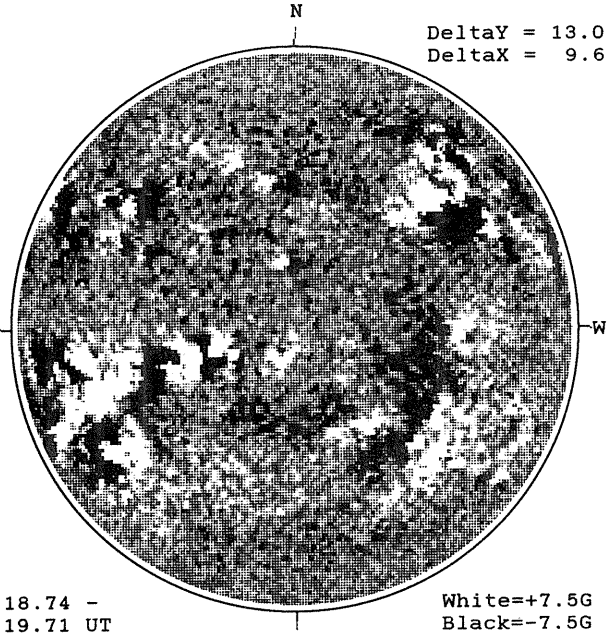
KITT PEAK MAGNETOGRAM



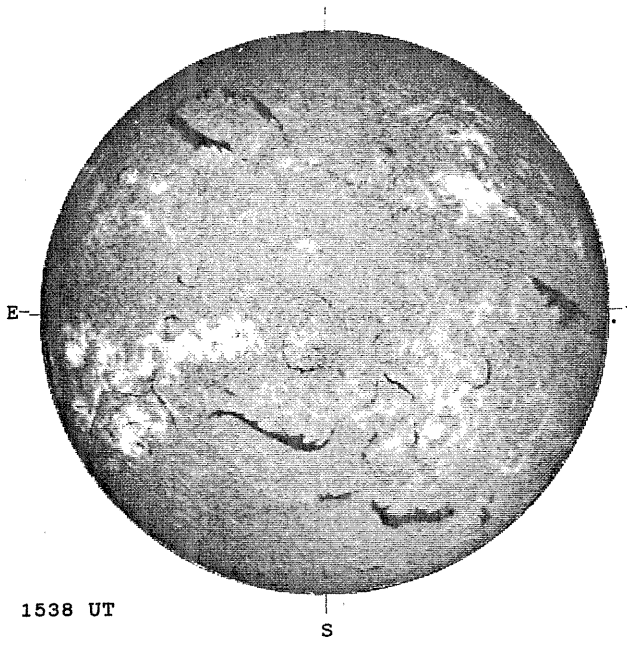
STANFORD MAGNETOGRAM



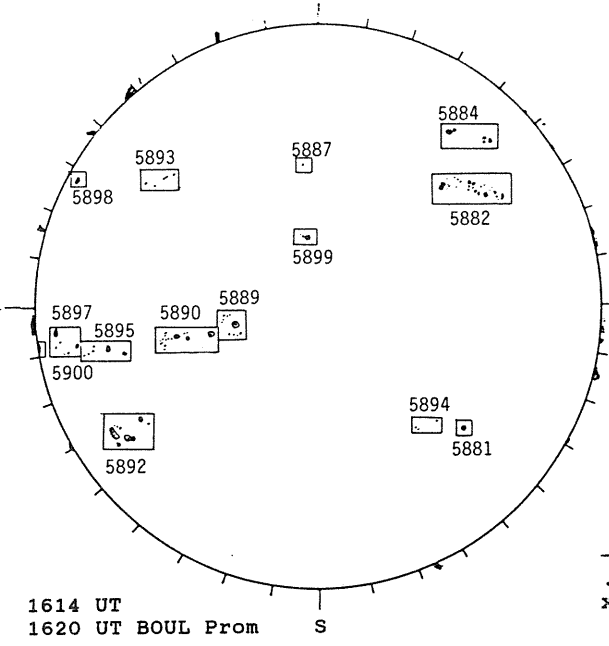
MT. WILSON MAGNETOGRAM



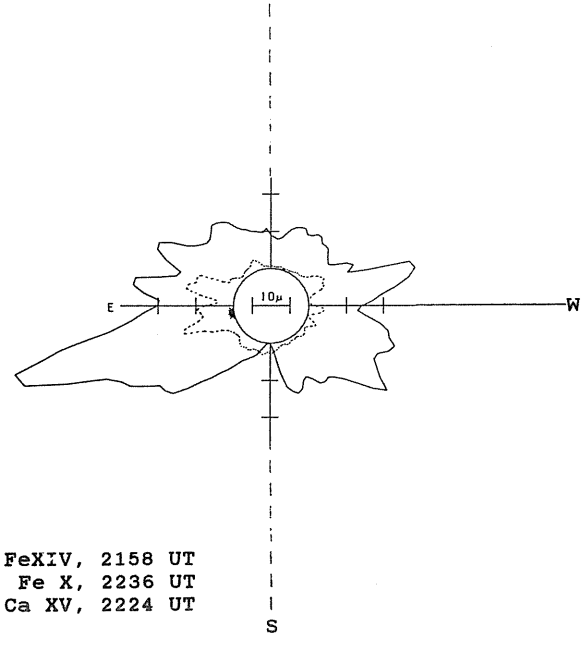
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



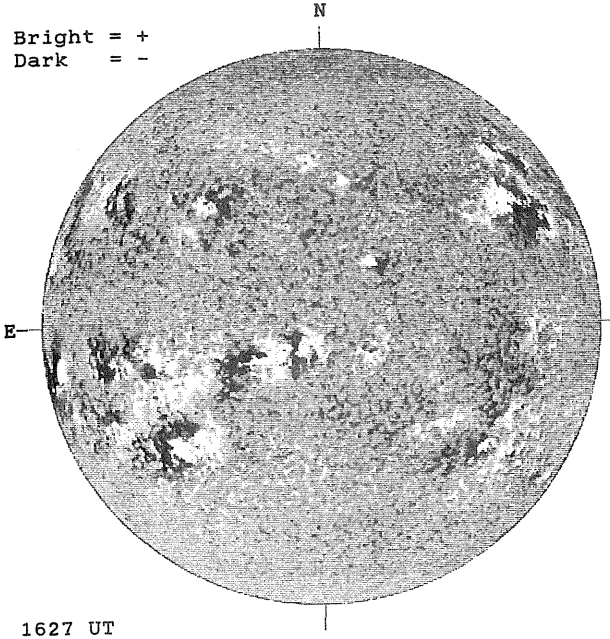
SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 21, 1990 (P= -7.35, B_o =-5.11, L_o = 66.67)

KITT PEAK MAGNETOGRAM

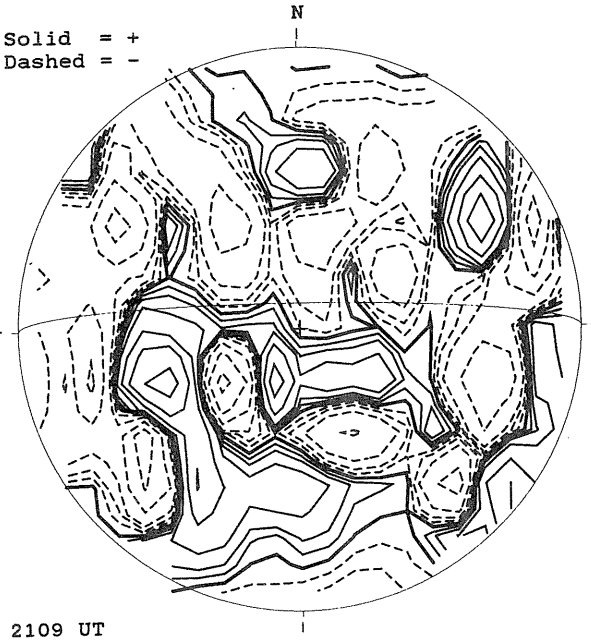
Bright = +
Dark = -



1627 UT

STANFORD MAGNETOGRAM

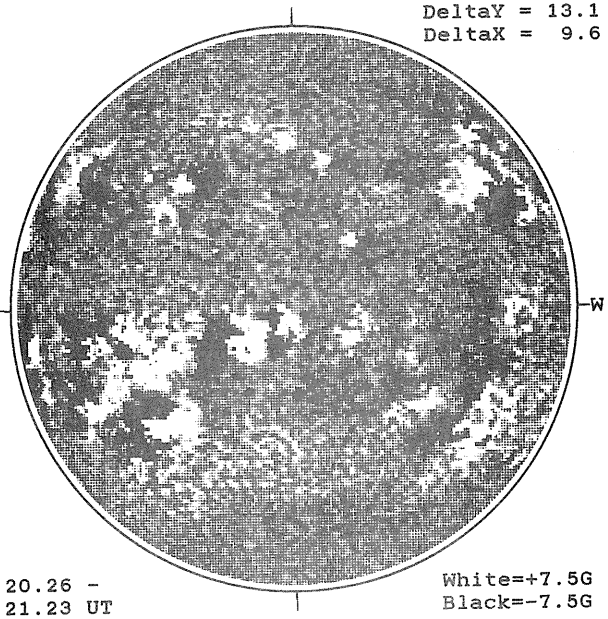
Solid = +
Dashed = -



2109 UT

MT. WILSON MAGNETOGRAM

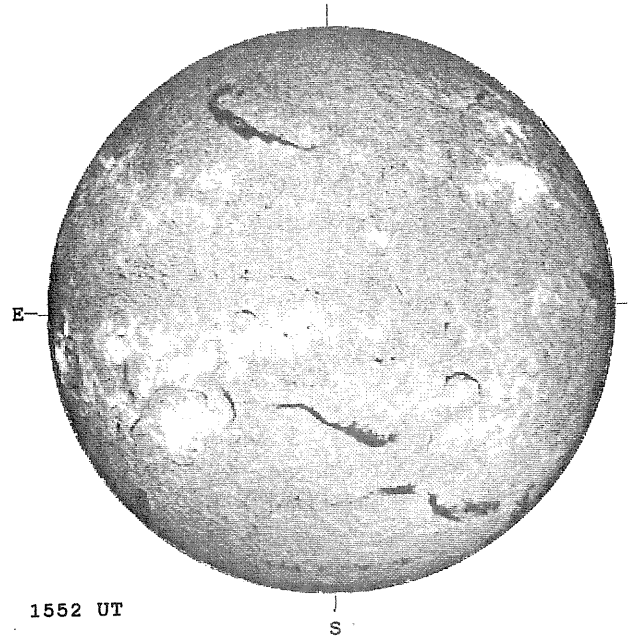
DeltaY = 13.1
DeltaX = 9.6



20.26 -
21.23 UT

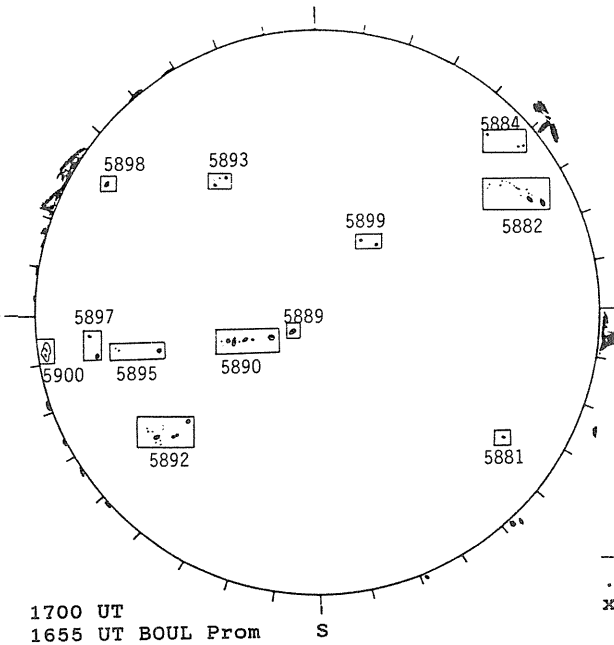
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



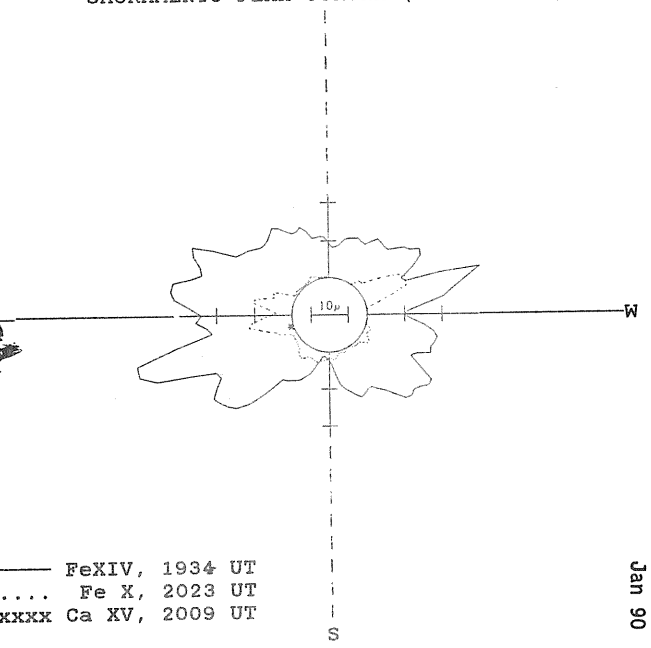
1552 UT

BOULDER SUNSPOT



1700 UT
1655 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



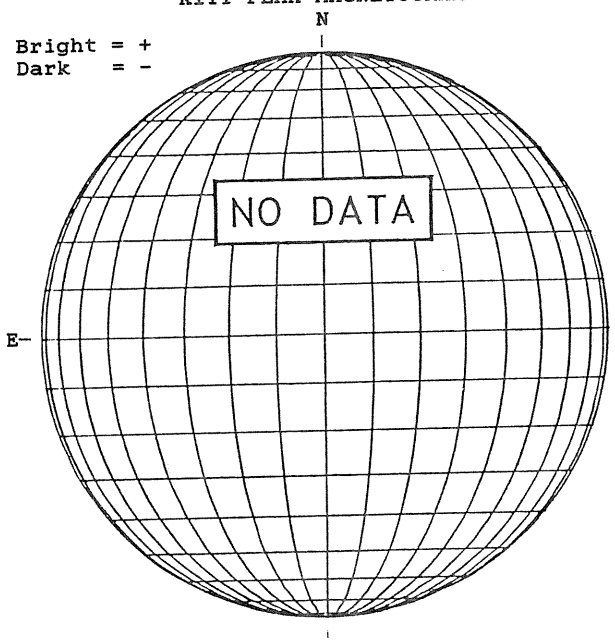
—— FeXIV, 1934 UT
.... Fe X, 2023 UT
xxxx Ca XV, 2009 UT

79
Jan 90

JANUARY 22, 1990 (P= -7.80, B_o =-5.20, L_o = 53.50)

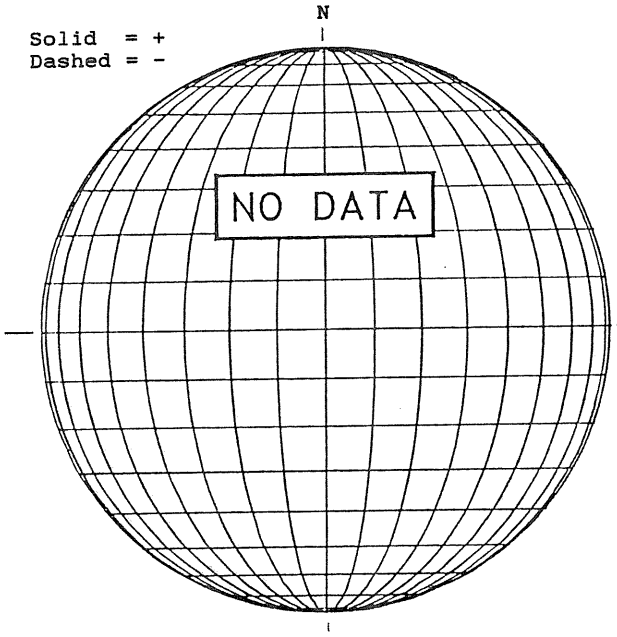
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



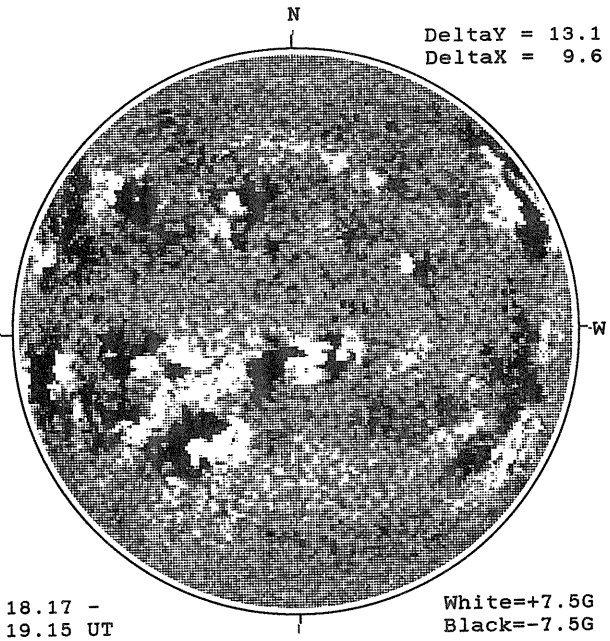
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

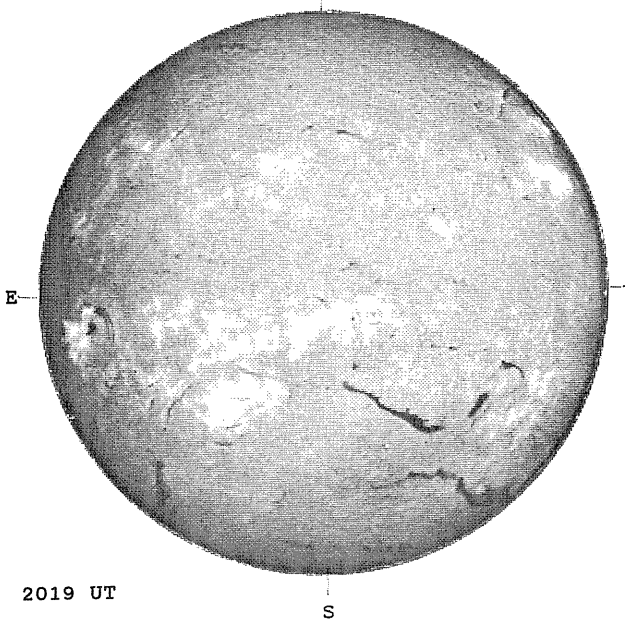
DeltaY = 13.1
DeltaX = 9.6



18.17 -
19.15 UT

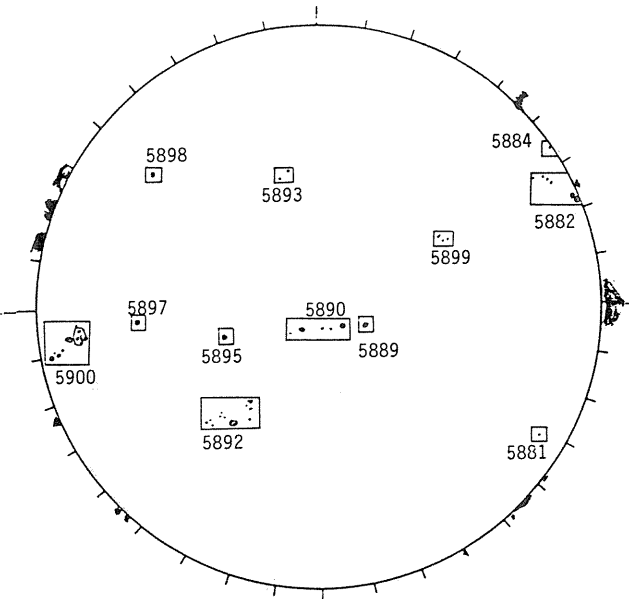
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



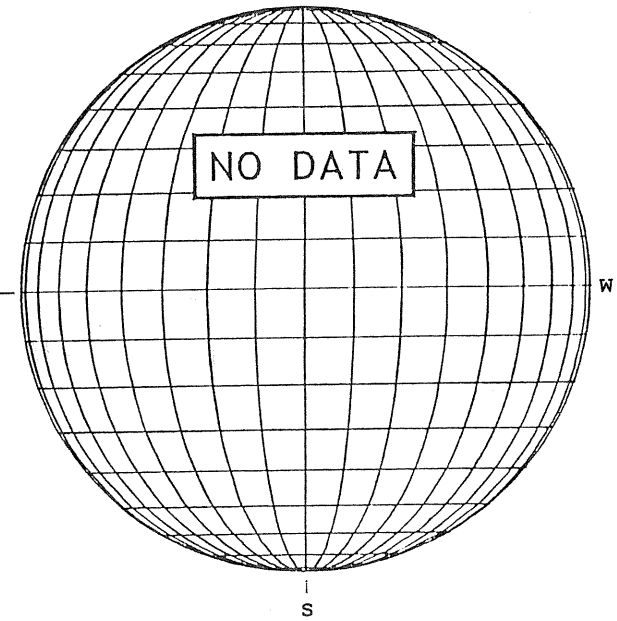
2019 UT

BOULDER SUNSPOT



1642 UT
1723 UT BOUL Prom

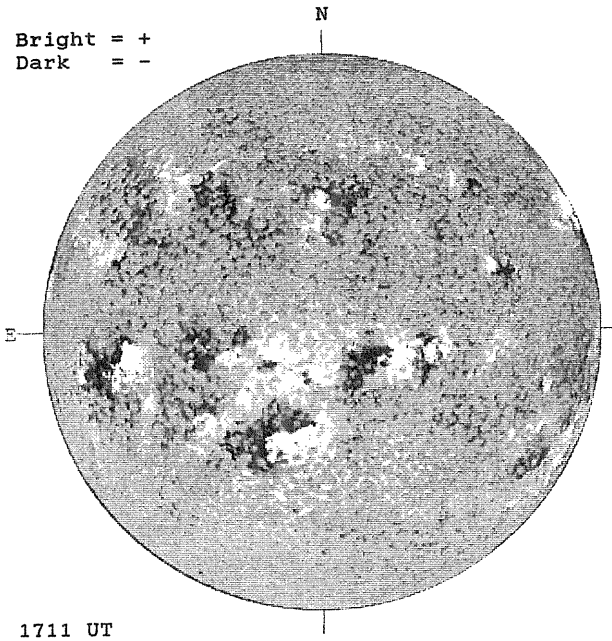
SACRAMENTO PEAK CORONA (1.15 Radii)



JANUARY 23, 1990 (P= -8.25, B_o =-5.29, L_o = 40.34)

KITT PEAK MAGNETOGRAM

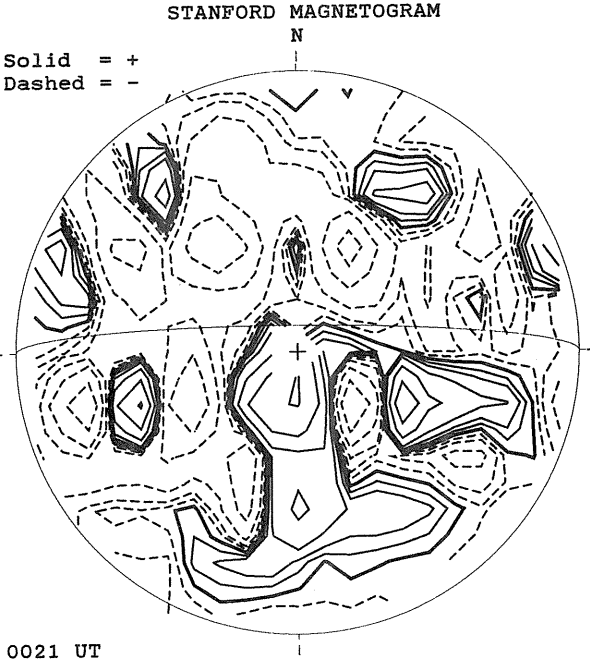
Bright = +
Dark = -



1711 UT

STANFORD MAGNETOGRAM

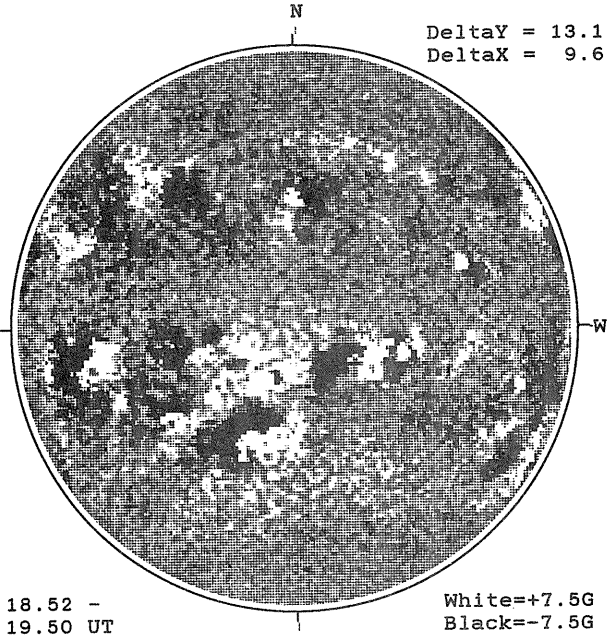
Solid = +
Dashed = -



0021 UT
JAN 24

MT. WILSON MAGNETOGRAM

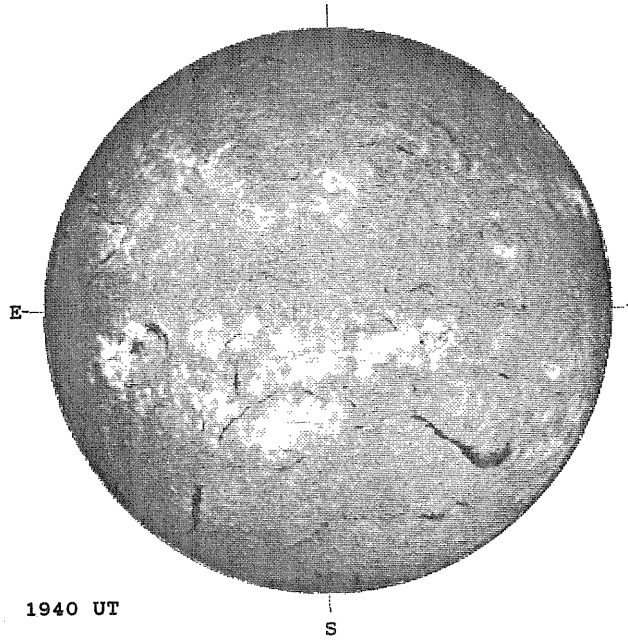
DeltaY = 13.1
DeltaX = 9.6



18.52 -
19.50 UT

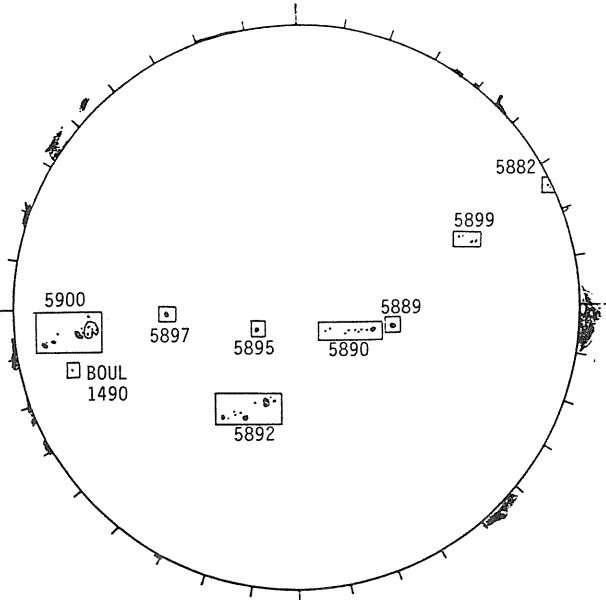
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



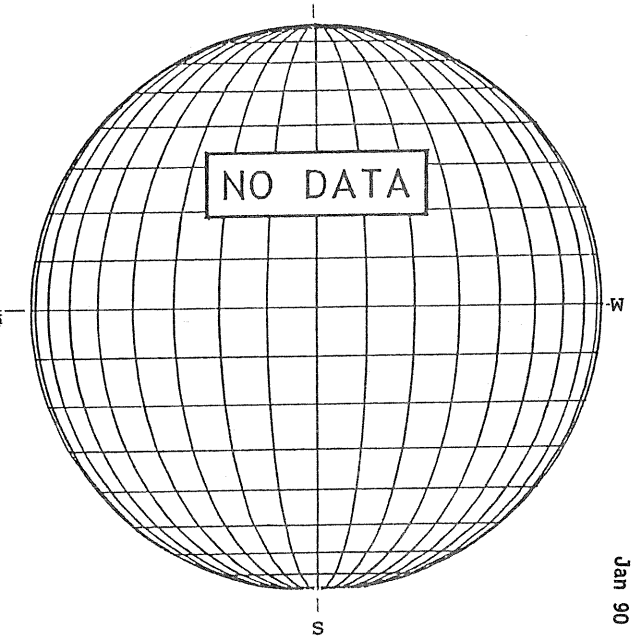
1940 UT

BOULDER SUNSPOT



1508 UT
1614 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

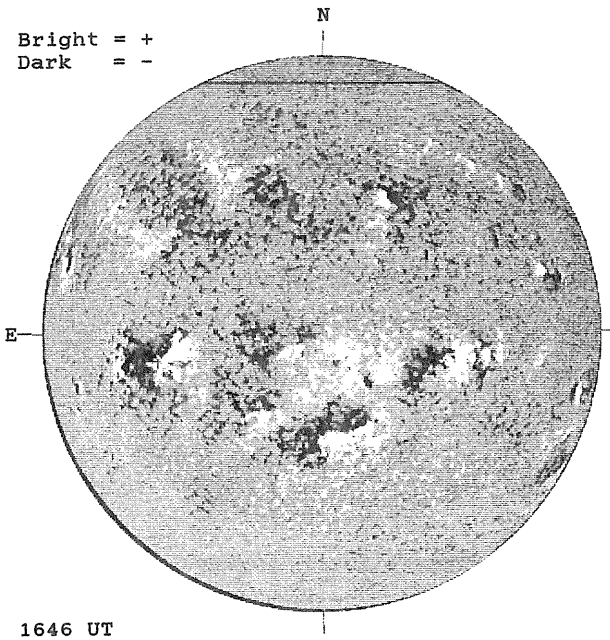


81
Jan 90

JANUARY 24, 1990 (P= -8.69 B_o =-5.38, L_o = 27.17)

KITT PEAK MAGNETOGRAM

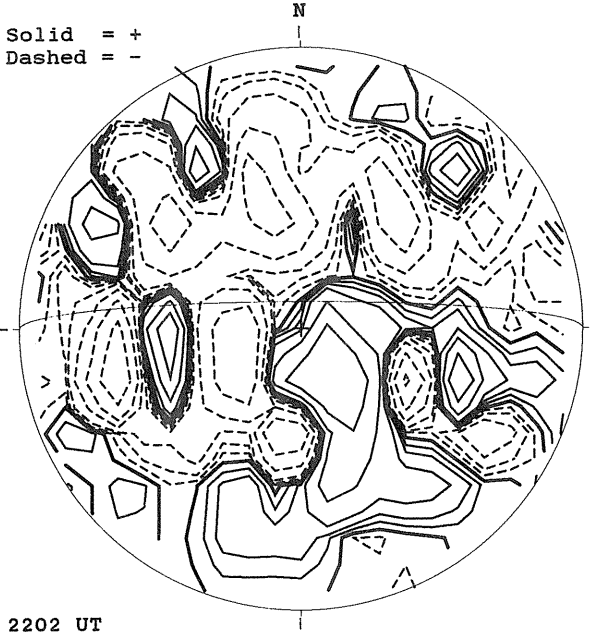
Bright = +
Dark = -



1646 UT

STANFORD MAGNETOGRAM

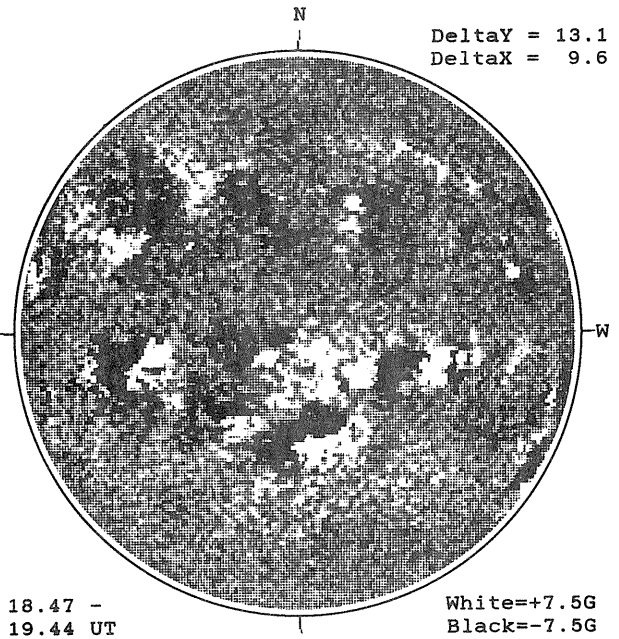
Solid = +
Dashed = -



2202 UT

MT. WILSON MAGNETOGRAM

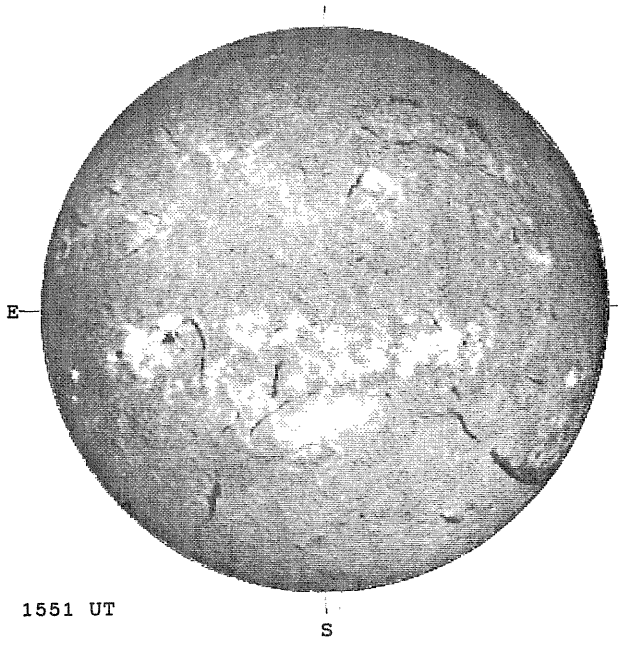
DeltaY = 13.1
DeltaX = 9.6



18.47 -
19.44 UT

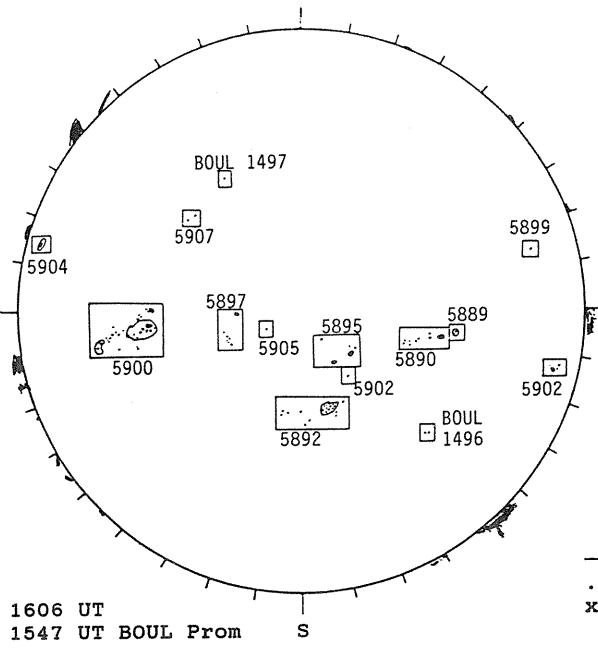
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



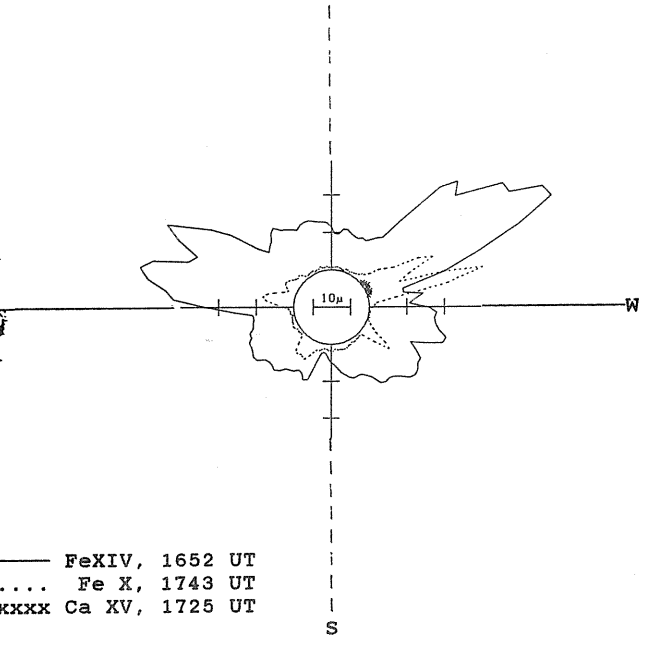
1551 UT

BOULDER SUNSPOT



1606 UT
1547 UT BOUL Prom

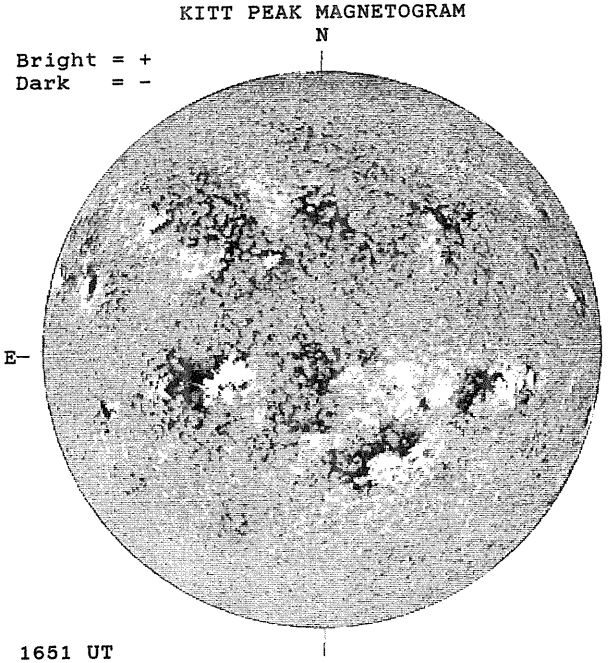
SACRAMENTO PEAK CORONA (1.15 Radii)



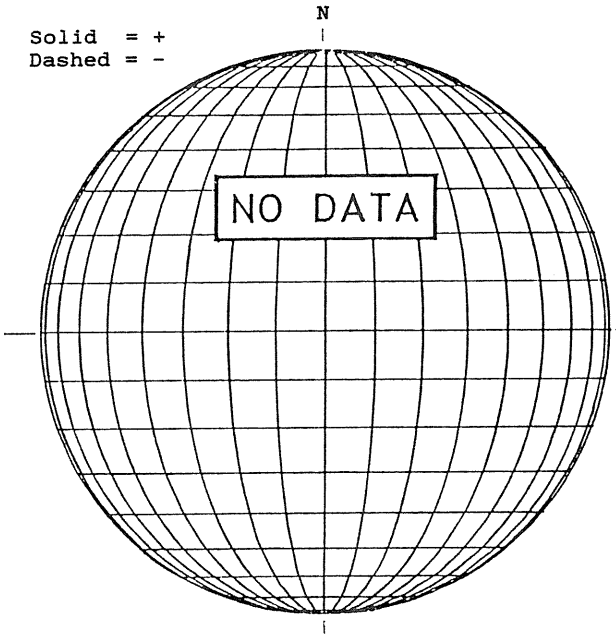
—— FeXIV, 1652 UT
.... Fe X, 1743 UT
xxxx Ca XV, 1725 UT

JANUARY 25, 1990 (P= -9.13, B_o =-5.46, L_o = 14.00)

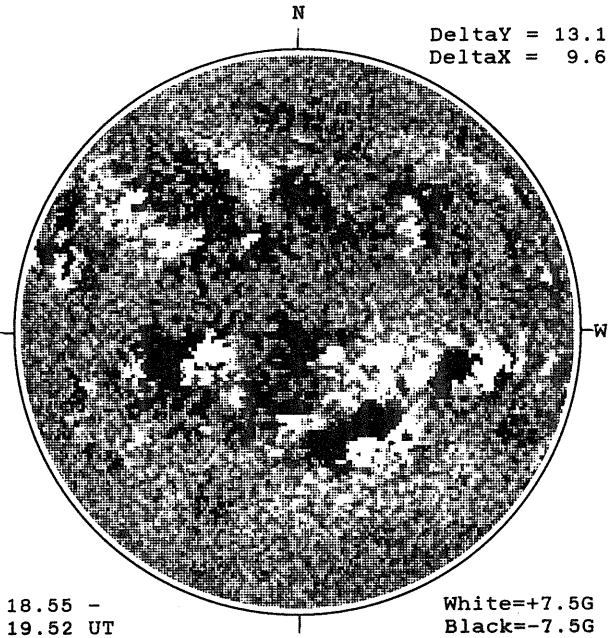
KITT PEAK MAGNETOGRAM



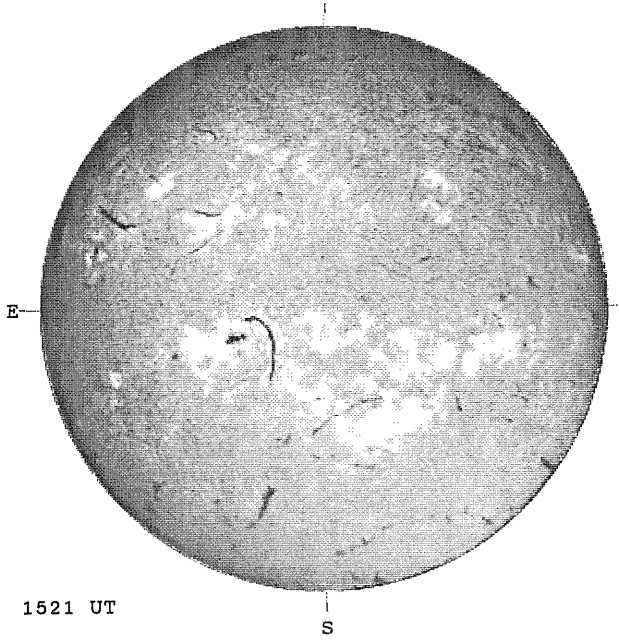
STANFORD MAGNETOGRAM



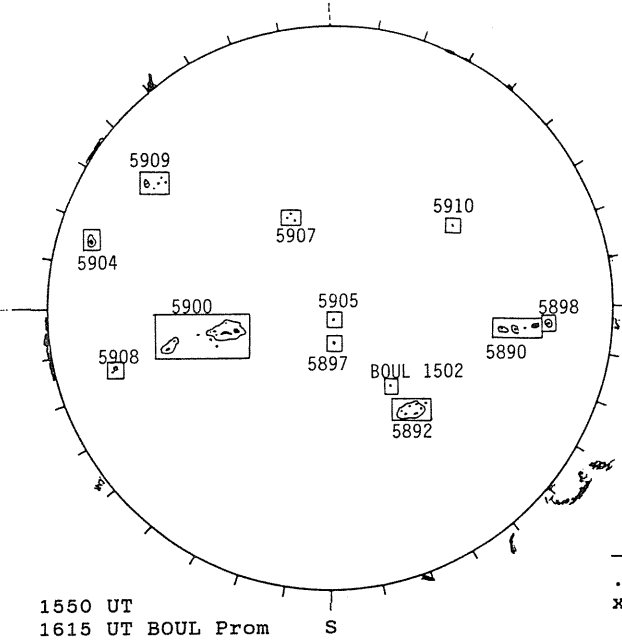
MT. WILSON MAGNETOGRAM



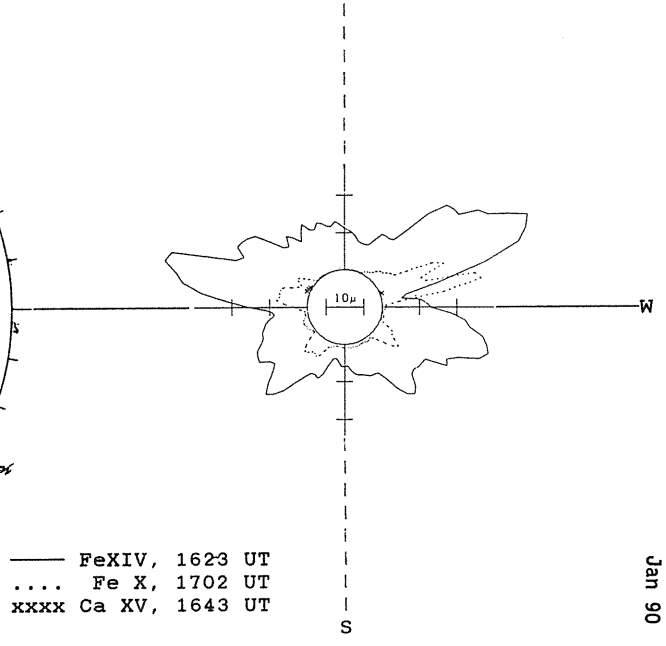
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

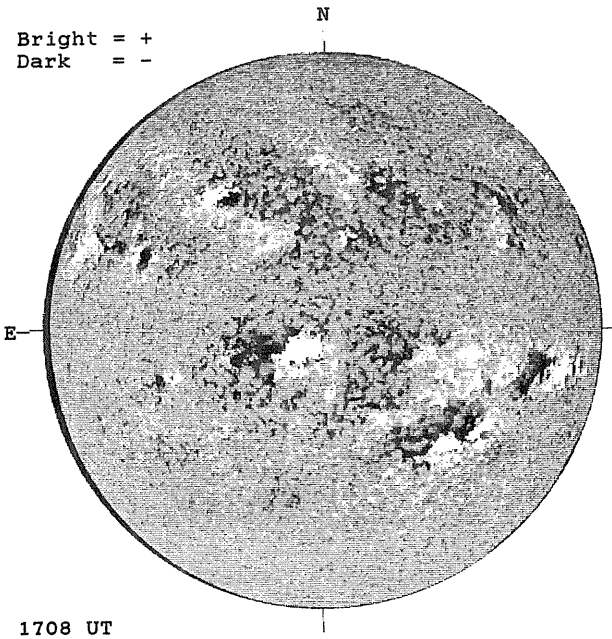


83
Jan 90

JANUARY 26, 1990 (P= -9.57, B_o =-5.55, L_o = 0.84)

KITT PEAK MAGNETOGRAM

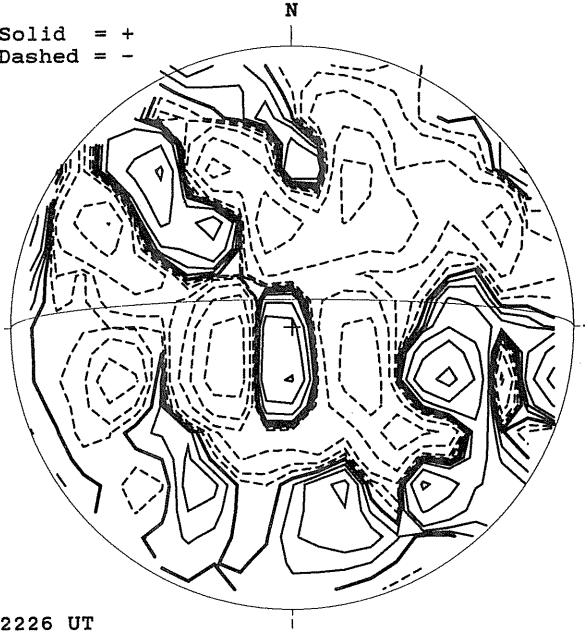
Bright = +
Dark = -



1708 UT

STANFORD MAGNETOGRAM

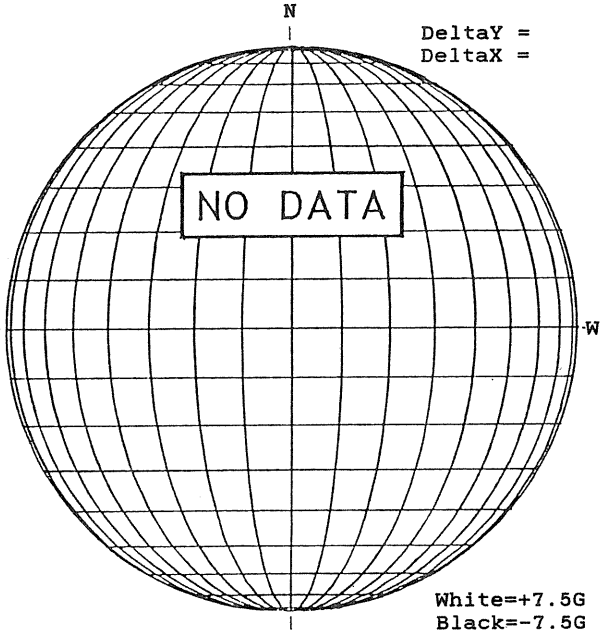
Solid = +
Dashed = -



2226 UT

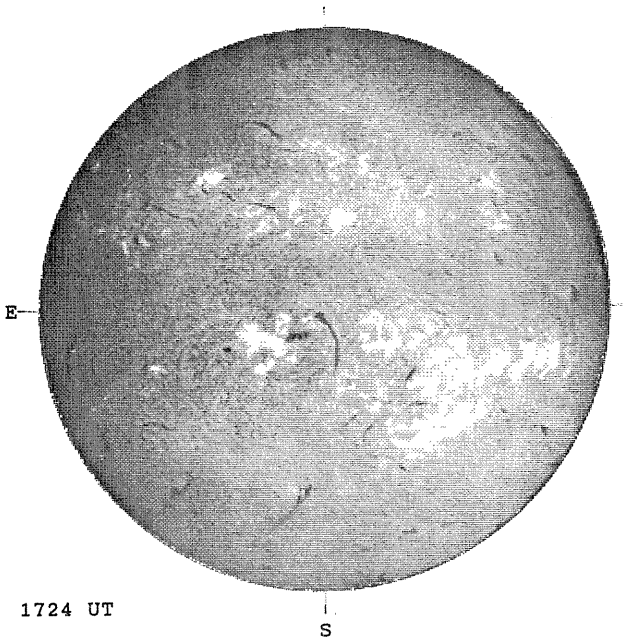
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



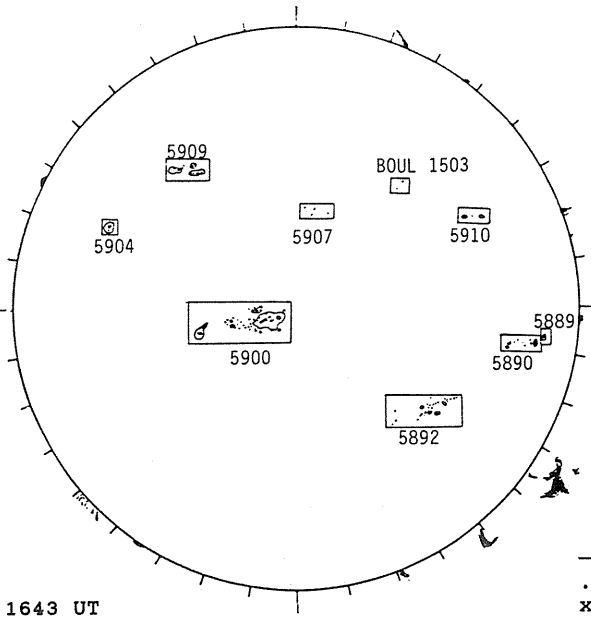
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



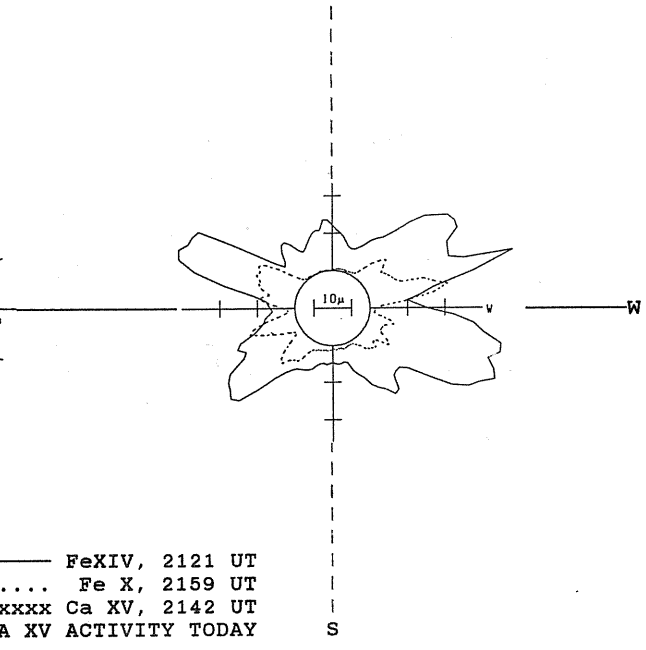
1724 UT

BOULDER SUNSPOT



1643 UT
1627 UT BOUL Prom

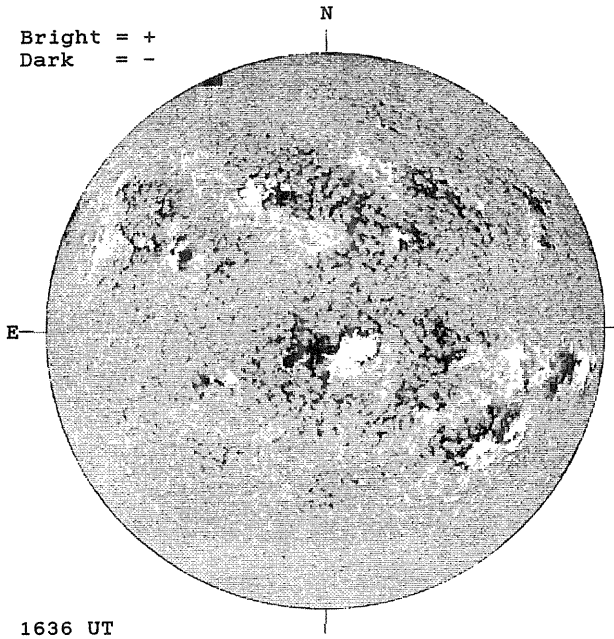
SACRAMENTO PEAK CORONA (1.15 Radii)



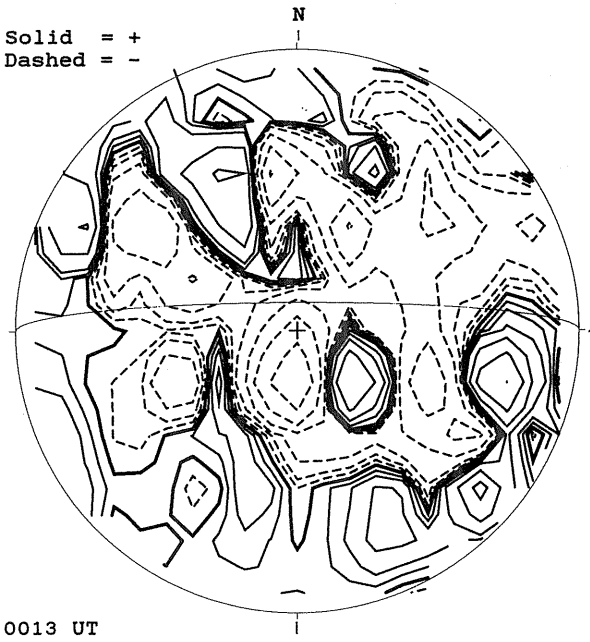
—— FeXIV, 2121 UT
.... Fe X, 2159 UT
xxxx Ca XV, 2142 UT
NO CA XV ACTIVITY TODAY

JANUARY 27, 1990 (P=-10.00, B_o =-5.63, L_o = 347.67)

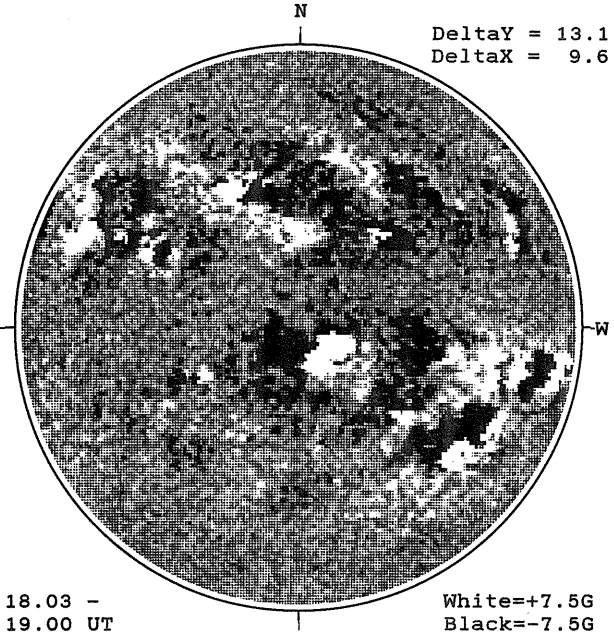
KITT PEAK MAGNETOGRAM



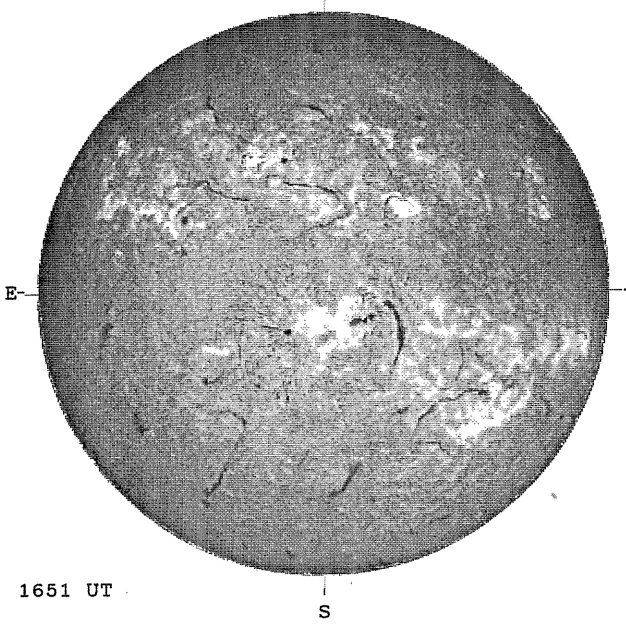
STANFORD MAGNETOGRAM



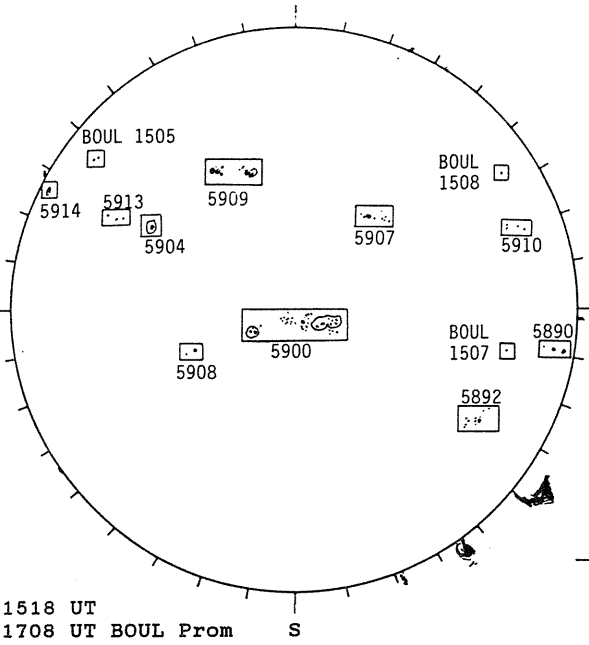
MT. WILSON MAGNETOGRAM



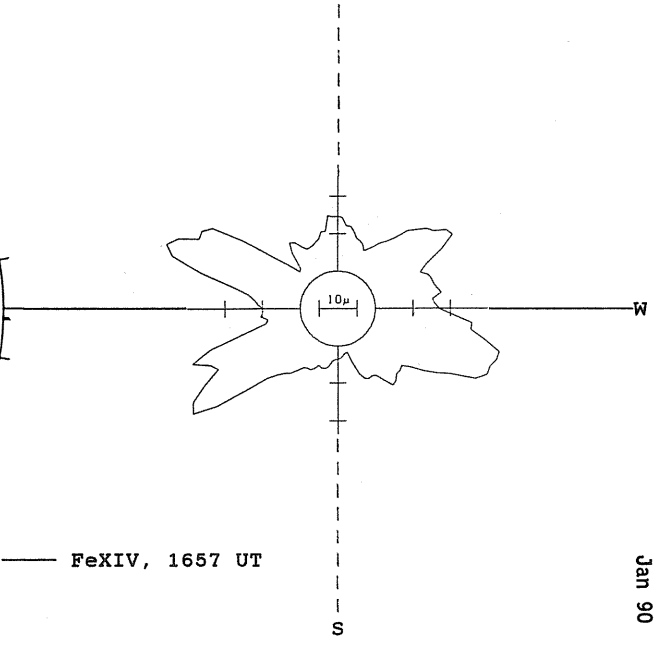
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

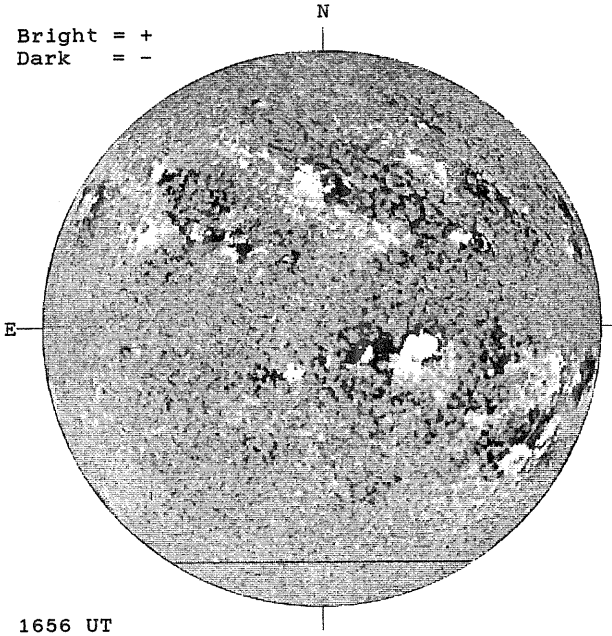


85
Jan 90

JANUARY 28, 1990 (P=-10.43, B_o =-5.71, L_o = 334.51)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1656 UT

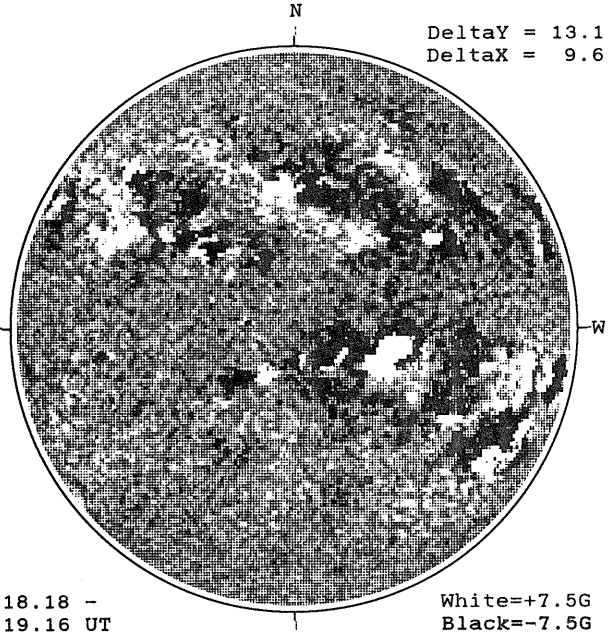
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2252 UT

MT. WILSON MAGNETOGRAM

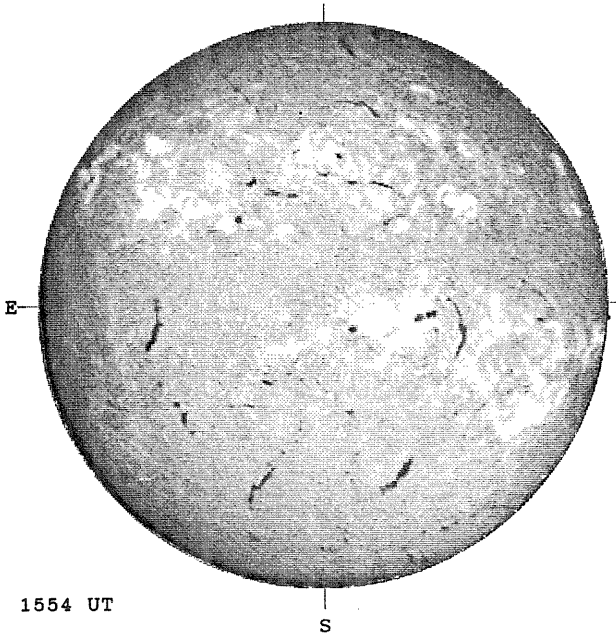
DeltaY = 13.1
DeltaX = 9.6



18.18 -
19.16 UT

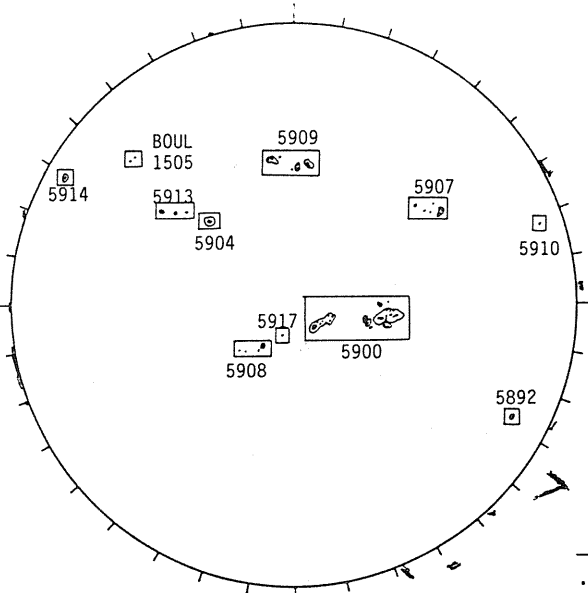
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



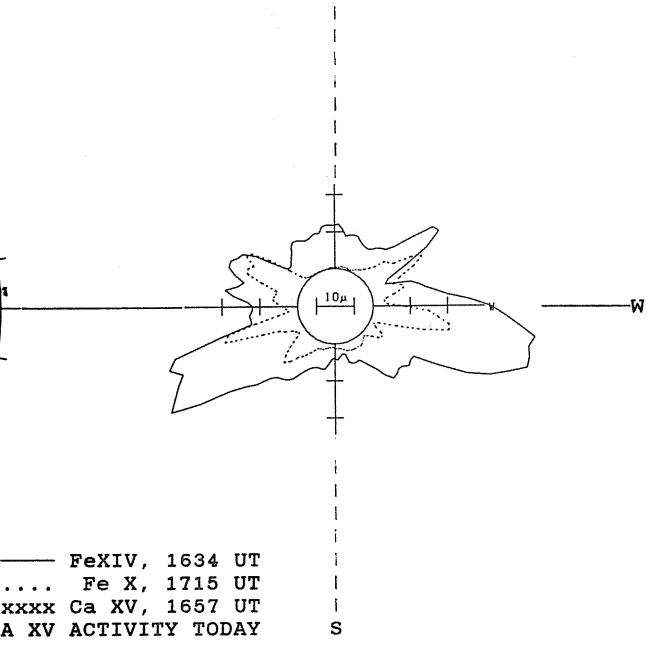
1554 UT

BOULDER SUNSPOT



1549 UT
1607 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

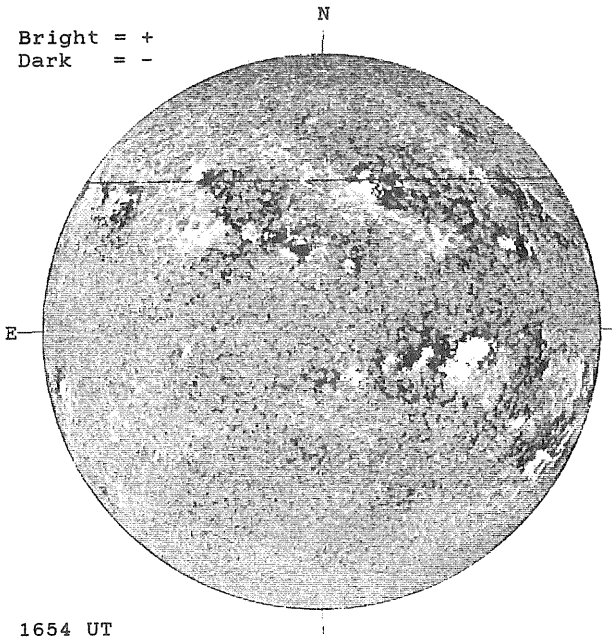


—— FeXIV, 1634 UT
.... Fe X, 1715 UT
xxxx Ca XV, 1657 UT
NO CA XV ACTIVITY TODAY

JANUARY 29, 1990 (P=-10.85, B_o =-5.78, L_o = 321.34)

KITT PEAK MAGNETOGRAM

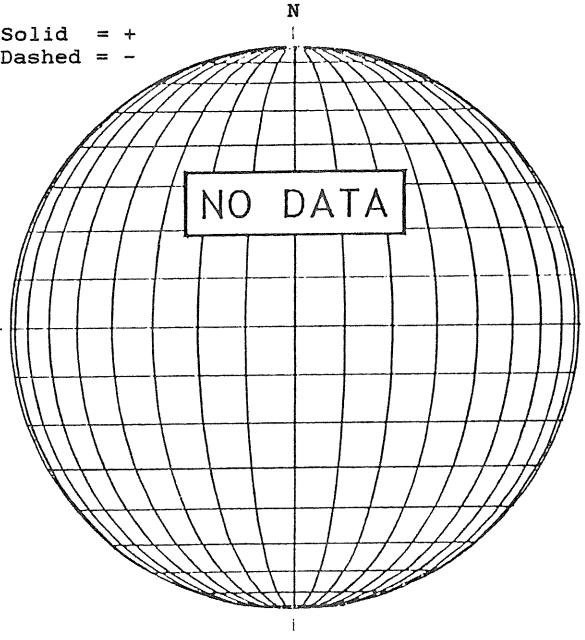
Bright = +
Dark = -



1654 UT

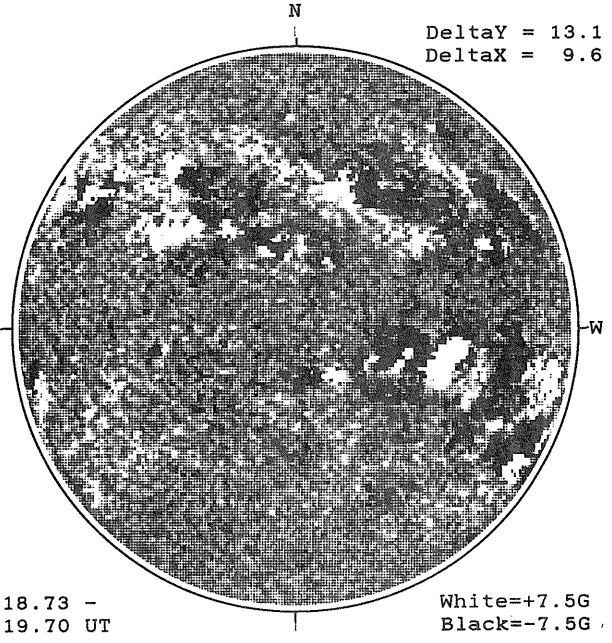
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

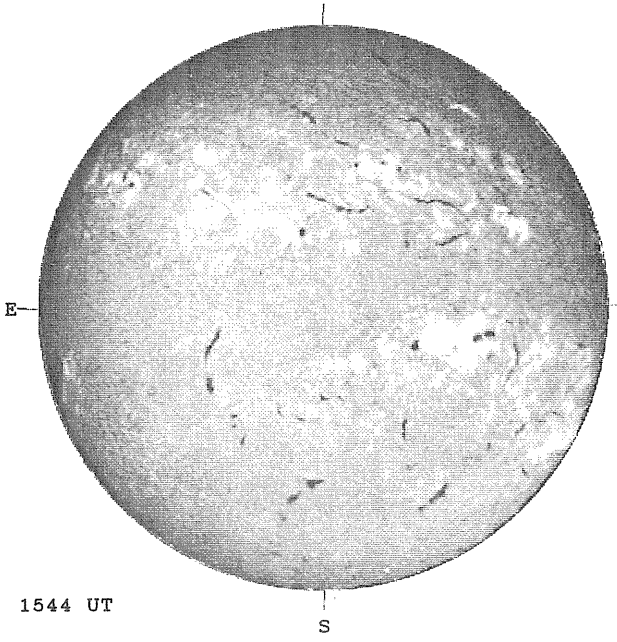
DeltaY = 13.1
DeltaX = 9.6



18.73 -
19.70 UT

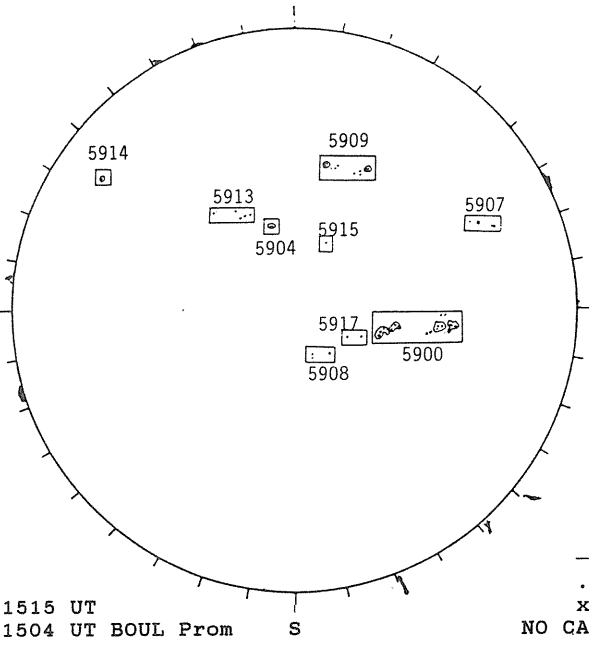
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



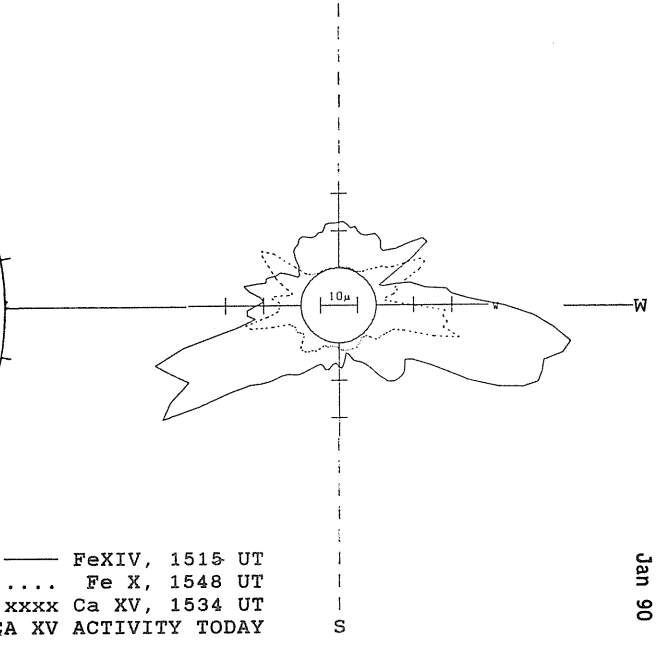
1544 UT

BOULDER SUNSPOT



1515 UT
1504 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



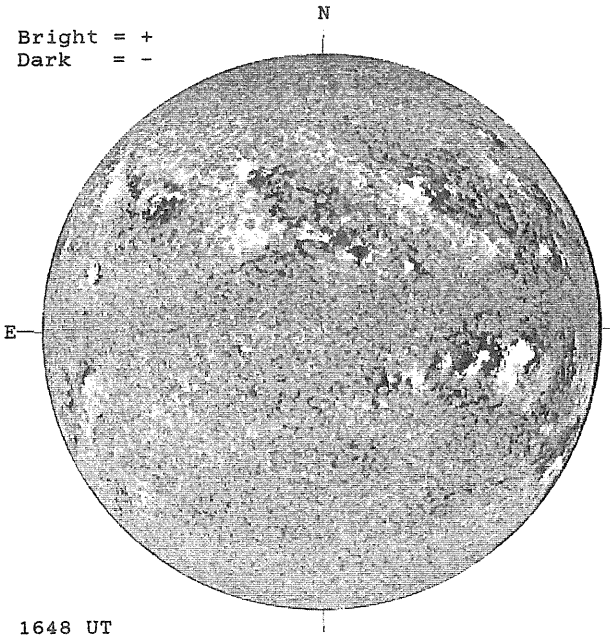
—— FeXIV, 1515 UT
.... Fe X, 1548 UT
xxxx Ca XV, 1534 UT
NO CA XV ACTIVITY TODAY

87
Jan 90

JANUARY 30, 1990 (P=-11.27, B_o =-5.86, L_o = 308.17)

KITT PEAK MAGNETOGRAM

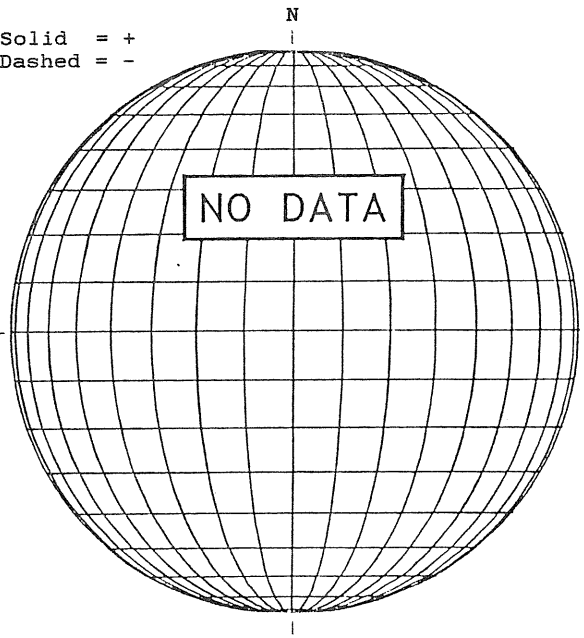
Bright = +
Dark = -



1648 UT

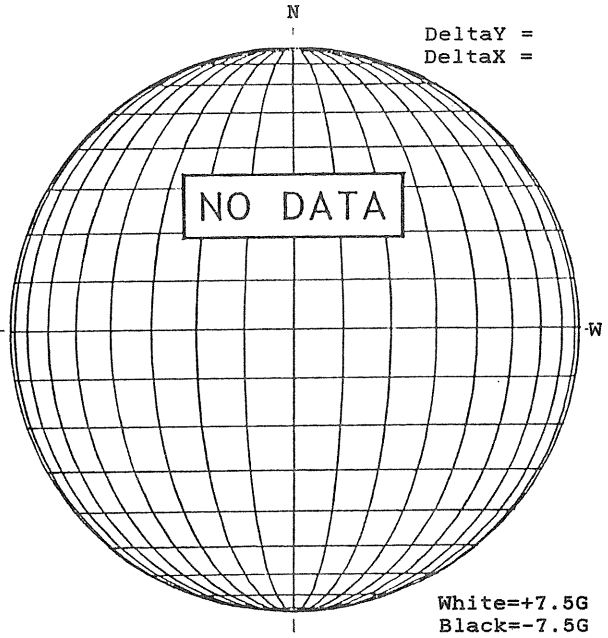
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



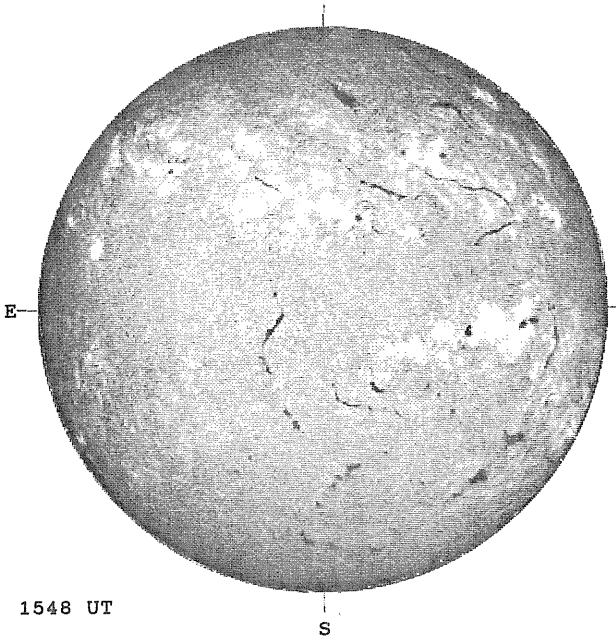
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



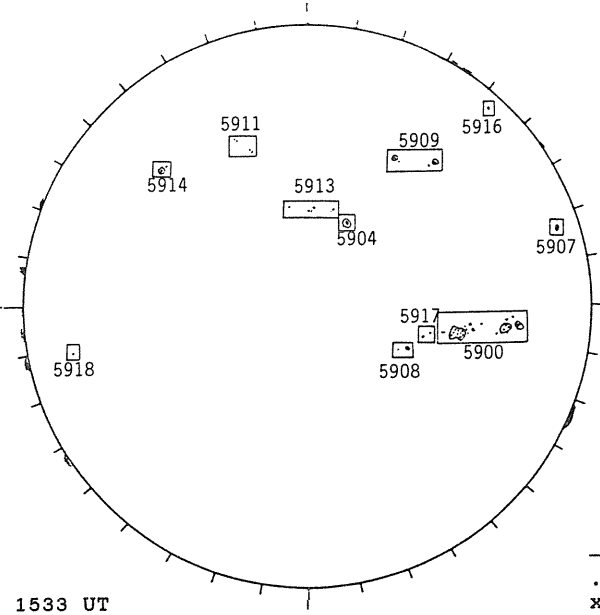
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



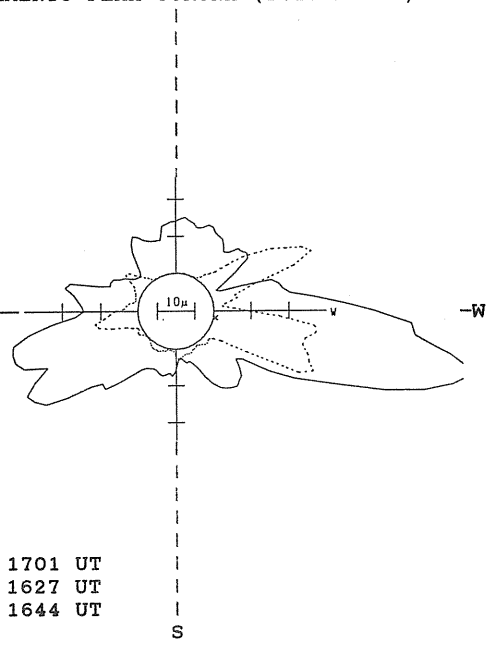
1548 UT

BOULDER SUNSPOT



1533 UT
1643 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

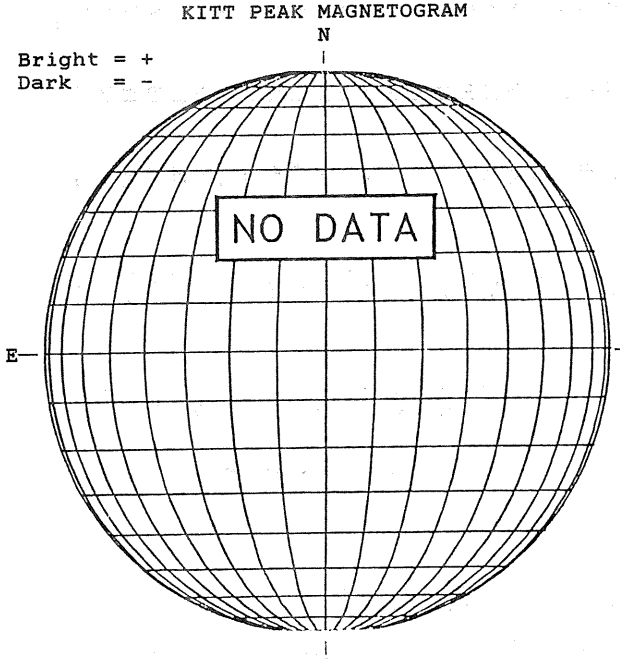


—— FeXIV, 1701 UT
.... Fe X, 1627 UT
xxxx Ca XV, 1644 UT

JANUARY 31, 1990 (P=-11.69, B_o =-5.94, L_o = 295.01)

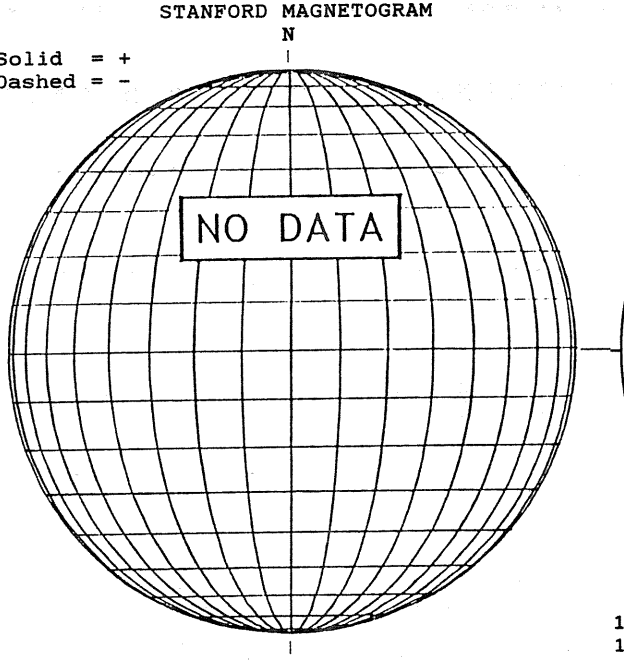
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



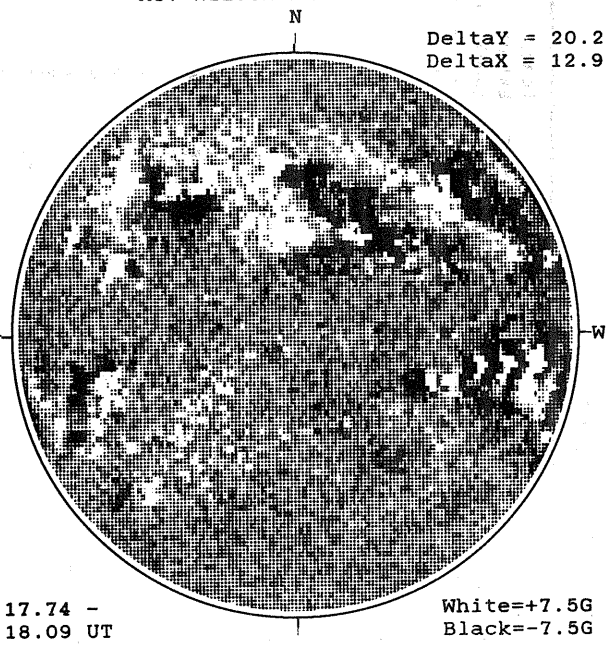
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

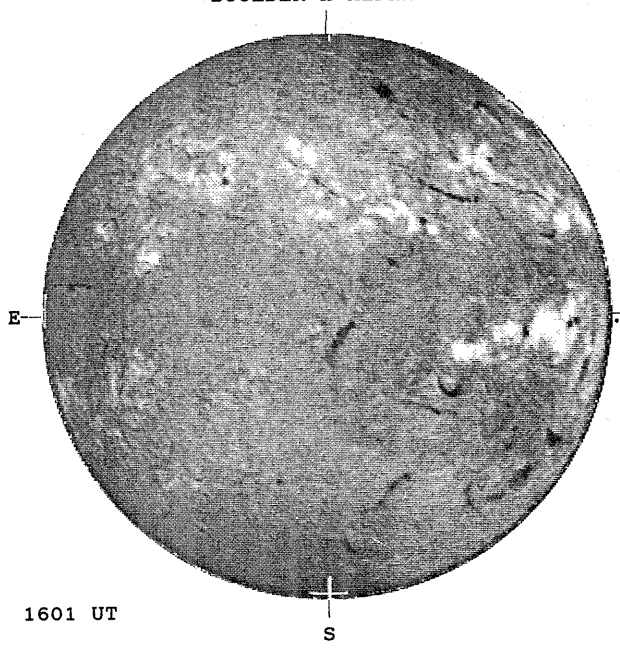
DeltaY = 20.2
DeltaX = 12.9



17.74 -
18.09 UT

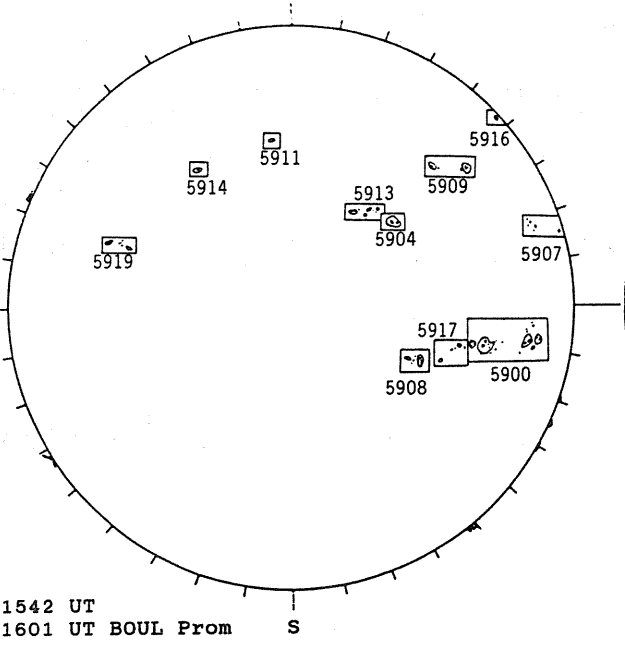
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



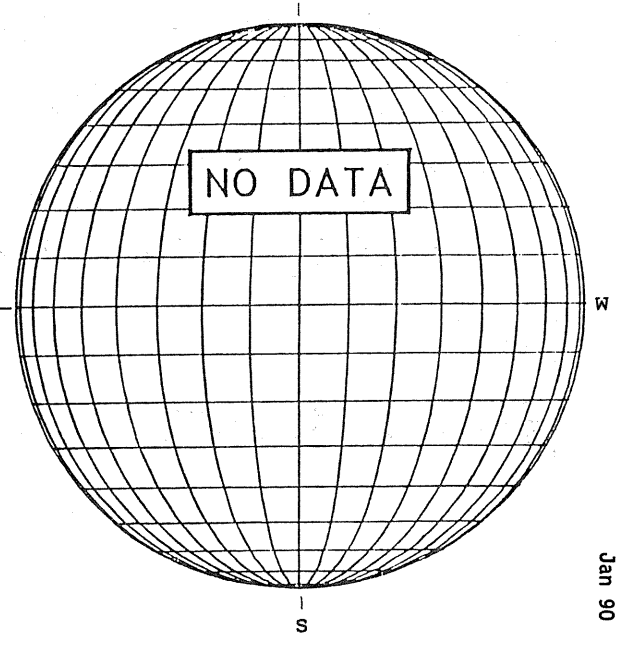
1601 UT

BOULDER SUNSPOT



1542 UT
1601 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



89
Jan 90

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

JANUARY 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
5858B		RAMY	01	06	1245	S09	W69	01	1.3		A	AX	10	2	1	3
5859C		PALE	12	27	1845	N29	E60	01	1.5		A	AX		1		4
5859C		RAMY	12	28	1311	N27	E50	01	1.4		B	BXO	10	2	2	3
5869		LEAR	01	02	0013	S28	W08	01	1.4		A	AX	10	2	2	3
5869		CULG	01	02	0140	S29	W08	01	1.4		B	BXO	10	4	3	3
5869		RAMY	01	02	1329	S28	W16	01	1.3		B	BXO	20	8	5	3
5869		HOLL	01	02	1545	S28	W16	01	1.4		B	BXO	20	10	6	3
5869		BOUL	01	02	1630	S28	W17	01	1.3		B	DSO	40	6	6	2
5869		PALE	01	02	2235	S29	W20	01	1.4		B	DSO	40	8	6	2
5869		LEAR	01	03	0015	S28	W22	01	1.3		B	CRO	20	7	5	2
5869		RAMY	01	03	1329	S28	W28	01	1.4		B	DAO	100	7	7	3
5869		HOLL	01	03	1515	S28	W30	01	1.3		B	DAO	60	6	8	3
5869		BOUL	01	03	1720	S28	W29	01	1.4		B	BXO	10	13	6	3
5869		PALE	01	03	1805	S28	W30	01	1.4		B	DAO	80	6	7	3
5869		LEAR	01	04	0035	S28	W33	01	1.4		B	DSO	80	5	8	2
5869		SVTO	01	04	0908	S28	W40	01	1.2		B	DAO	70	14	7	3
5869		RAMY	01	04	1415	S27	W40	01	1.5		B	DAO	80	12	8	3
5869		BOUL	01	04	1545	S27	W43	01	1.3		B	DSO	200	3	7	2
5869		HOLL	01	04	1655	S27	W43	01	1.3		B	CRO	40	8	11	4
5869		PALE	01	04	1911	S28	W43	01	1.4		B	BXO	20	6	7	3
5869		SVTO	01	05	1005	S27	W53	01	1.3		B	BXO	130	8	10	3
5869		RAMY	01	05	1530	S27	W55	01	1.4		B	CAO	20	3	9	3
5869		BOUL	01	05	1550	S32	W56	01	1.2		B	BXO	40	3	12	3
5869		HOLL	01	05	1752	S27	W58	01	1.2		B	BXO	20	6	12	3
5869		PALE	01	05	1906	S30	W58	01	1.2		B	BXO	10	4	7	3
5869		LEAR	01	06	0037	S28	W61	01	1.2		B	BXO	20	2	10	3
5869		SVTO	01	06	0745	S27	W63	01	1.4		B	BXO	50	2	8	4
5869		RAMY	01	06	1245	S26	W69	01	1.2		A	AX		1		3
5866A		PALE	12	31	1930	N13	E12	01	1.7		A	AX		2	1	2
5867A		HOLL	01	01	1610	N23	E15	01	2.8		B	BXO	10	6	7	4
5862		RAMY	12	27	1315	N19	E89	01	3.3		A	HS	60	1	2	3
5862		BOUL	12	27	1440	N16	E79	01	2.6		B	DSO	120	3	3	3
5862		PALE	12	27	1845	N15	E79	01	2.8		B	DKO	210	6	7	4
5862		LEAR	12	28	0015	N16	E74	01	2.6		B	DHO	300	9	12	3
5862		CULG	12	28	0140	N17	E77	01	2.9		B	CSO	150	6	5	2
5862		RAMY	12	28	1311	N17	E70	01	2.9		B	BXO	10	14	8	3
5862		PALE	12	28	1810	N16	E69	01	3.0		B	DKO	490	15	8	3
5862		HOLL	12	28	2045	N17	E69	01	3.1		B	EKO	380	18	15	2
5862		LEAR	12	29	0015	N15	E65	01	2.9		B	DAO	490	14	10	3
5862		CULG	12	29	0200	N17	E63	01	2.9		B	DKO	350	12	11	3
5862		RAMY	12	29	1319	N17	E60	01	3.1		B	DAO	730	10	8	3
5862		BOUL	12	29	1600	N16	E58	01	3.1		B	EAO	680	8	12	3
5862		PALE	12	29	1955	N16	E56	01	3.1		B	EAO	410	19	11	4
5862		CULG	12	30	0025	N17	E53	01	3.0		B	DKO	560	11	10	3
5862		SVTO	12	30	1133	N18	E44	01	2.8		B	EKO	410	22	12	2
5862		RAMY	12	30	1250	N17	E44	01	2.9		B	EKO	610	19	13	3
5862		LEAR	12	30	1330	N14	E51	01	3.4		B	DKO	500	14	10	3
5862		BOUL	12	30	1646	N18	E44	01	3.0		B	EAI	300	19	11	2
5862		PALE	12	30	1845	N18	E42	01	3.0		B	EKI	660	24	15	3
5862		HOLL	12	30	2130	N15	E38	01	2.8		BG	FKO	650	40	18	3
5862		CULG	12	31	0025	N18	E37	01	2.8		B	FKO	490	41	17	3
5862		LEAR	12	31	0250	N16	E36	01	2.8		B	EHO	520	25	12	3
5862		SVTO	12	31	0807	N18	E35	01	3.0		B	EKO	540	60	14	3
5862		RAMY	12	31	1310	N17	E34	01	3.1		B	EKO	680	38	14	3
5862		BOUL	12	31	1550	N17	E30	01	2.9		B	EAI	400	20	11	2
5862		HOLL	12	31	1715	N16	E30	01	3.0		B	EHO	660	32	15	4
5862		PALE	12	31	1930	N17	E29	01	3.0		B	EKI	570	27	12	2
5862		LEAR	01	01	0105	N18	E25	01	2.9		B	EKO	430	15	12	3
5862		RAMY	01	01	1356	N18	E20	01	3.1		B	EKO	570	36	14	3
5862		HOLL	01	01	1610	N14	E17	01	2.9		B	EKO	590	24	13	4
5862		BOUL	01	01	1700	N19	E15	01	2.8		B	EAI	400	28	11	3
5862		PALE	01	01	1941	N16	E15	01	2.9		B	EKI	480	26	12	3
5862		LEAR	01	02	0013	N17	E12	01	2.9		B	EKO	570	25	12	3

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

JANUARY 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
5862		CULG	01	02	0140	N18	E11	01	2.9		B	EKO	550	40	11	3
5862		RAMY	01	02	1329	N18	E05	01	2.9		B	EKO	570	36	14	3
5862		HOLL	01	02	1545	N16	E04	01	2.9		B	EHI	570	34	12	3
5862		BOUL	01	02	1630	N16	E03	01	2.9		B	EKI	440	22	11	2
5862		PALE	01	02	2235	N15	E00	01	2.9		B	EHI	510	39	12	2
5862		LEAR	01	03	0015	N16	W02	01	2.8		B	EKO	460	23	11	2
5862		RAMY	01	03	1329	N17	W08	01	2.9		B	EKO	150	27	13	3
5862		HOLL	01	03	1515	N15	W09	01	2.9		B	EKI	400	20	12	3
5862		BOUL	01	03	1720	N16	W11	01	2.9		B	EKO	330	22	11	3
5862		PALE	01	03	1805	N16	W10	01	3.0		B	EKO	450	17	11	3
5862		LEAR	01	04	0035	N14	W16	01	2.8		B	EKO	390	17	11	2
5862		SVTO	01	04	0908	N14	W20	01	2.9		B	ESO	390	18	13	3
5862		RAMY	01	04	1415	N18	W25	01	2.7		B	EKO	480	21	11	3
5862		BOUL	01	04	1545	N15	W23	01	2.9		B	DKO	350	5	10	2
5862		HOLL	01	04	1655	N17	W24	01	2.9		B	EHO	440	24	14	4
5862		PALE	01	04	1911	N16	W26	01	2.8		B	EKI	390	22	11	3
5862		SVTO	01	05	1005	N16	W34	01	2.8		B	DHO	470	11	9	3
5862		RAMY	01	05	1530	N18	W38	01	2.7		B	DKO	370	5	8	3
5862		BOUL	01	05	1550	N13	W40	01	2.6		B	DHO	360	3	8	3
5862		HOLL	01	05	1752	N15	W39	01	2.8		B	EHO	450	8	12	3
5862		PALE	01	05	1906	N15	W40	01	2.8		B	DKO	380	13	8	3
5862		LEAR	01	06	0037	N14	W43	01	2.8		B	EHO	340	4	14	3
5862		SVTO	01	06	0745	N16	W46	01	2.8		B	DHO	420	2	8	4
5862		RAMY	01	06	1245	N17	W49	01	2.8		B	DKO	400	4	8	3
5862		BOUL	01	06	1655	N15	W53	01	2.7		B	DHO	290	2	9	2
5862		PALE	01	06	1930	N15	W52	01	2.9		B	EHO	340	4	11	3
5862		LEAR	01	07	0030	N15	W56	01	2.8		B	DHO	280	3	9	3
5862		CULG	01	07	0255	N14	W58	01	2.7		B	DHO	260	2	8	1
5862		SVTO	01	07	0925	N15	W62	01	2.7		B	DHO	340	2	10	2
5862		RAMY	01	07	1435	N17	W65	01	2.7		B	DKO	560	3	9	3
5862		HOLL	01	07	1600	N16	W65	01	2.7		B	DHO	420	2	8	3
5862		BOUL	01	07	1706	N16	W65	01	2.8		B	DSO	190	2	10	2
5872		RAMY	01	03	1329	S26	W08	01	2.9		B	BXO	10	4	3	3
5872		HOLL	01	03	1515	S25	W10	01	2.9		A	AX		2	2	3
5872		BOUL	01	03	1720	S25	W10	01	2.9		B	BXO		4	2	3
5872		PALE	01	03	1805	S24	W12	01	2.8		B	CSO	10	2	3	3
5872		LEAR	01	04	0035	S26	W13	01	3.0		B	DAO	20	2	3	2
5872		SVTO	01	04	0908	S25	W19	01	2.9		B	DAO	30	10	4	3
5872		RAMY	01	04	1415	S25	W23	01	2.8		B	DAO	80	9	5	3
5872		BOUL	01	04	1545	S25	W23	01	2.9		B	DAO	80	4	5	2
5872		HOLL	01	04	1655	S25	W23	01	2.9		B	CRO	40	7	5	4
5872		PALE	01	04	1911	S26	W24	01	2.9		B	BXO	30	4	5	3
5872		SVTO	01	05	1005	S25	W33	01	2.9		B	CRO	40	10	7	3
5872		RAMY	01	05	1530	S25	W36	01	2.8		B	DAO	30	6	7	3
5872		BOUL	01	05	1550	S28	W36	01	2.8		B	CAO	80	6	8	3
5872		HOLL	01	05	1752	S25	W38	01	2.8		B	CRO	30	11	6	3
5872		PALE	01	05	1906	S26	W39	01	2.8		B	BXO	30	9	6	3
5872		LEAR	01	06	0037	S26	W41	01	2.8		B	CAO	30	7	7	3
5872		SVTO	01	06	0745	S25	W45	01	2.8		B	BXO	20	2	6	4
5872		RAMY	01	06	1245	S25	W45	01	3.0		A	AX	10	1	1	3
5872		PALE	01	06	1930	S23	W49	01	3.0		A	AX		2	1	3
5872		RAMY	01	07	1435	S24	W60	01	3.0		A	AX	10	1	1	3
5864		RAMY	12	29	1319	N13	E76	01	4.3		A	AX	10	1	1	3
5864		PALE	12	29	1955	N12	E71	01	4.2		B	BXO	20	3	4	4
5864		CULG	12	30	0025	N15	E70	01	4.3		B	BXO	10	3	4	3
5864		SVTO	12	30	1133	N16	E64	01	4.3		B	CAO	90	12	8	2
5864		RAMY	12	30	1250	N14	E63	01	4.3		B	DAO	90	9	9	3
5864		LEAR	12	30	1330	N13	E69	01	4.8		B	BXO	10	9	5	3
5864		BOUL	12	30	1646	N15	E63	01	4.5		B	CAO	70	5	8	2
5864		PALE	12	30	1845	N13	E60	01	4.3		B	CSO	110	8	6	3
5864		HOLL	12	30	2130	N13	E58	01	4.3		B	DAO	130	15	7	3
5864		CULG	12	31	0025	N15	E58	01	4.4				60	10	8	3
5864		LEAR	12	31	0250	N13	E55	01	4.3		B	DAO	70	7	8	3
5864		SVTO	12	31	0807	N16	E53	01	4.3		B	DAO	90	22	10	3
5864		RAMY	12	31	1310	N14	E51	01	4.4		B	DAO	120	18	10	3
5864		BOUL	12	31	1550	N14	E49	01	4.4		B	DAO	80	12	10	2
5864		HOLL	12	31	1715	N14	E48	01	4.3		B	CRO	50	20	8	4

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

JANUARY 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
5864		PALE	12	31	1930	N15	E47	01	4.4		B	BXO	60	20	9	2
5864		LEAR	01	01	0105	N14	E45	01	4.4		B	CAO	90	16	10	3
5864		RAMY	01	01	1356	N15	E36	01	4.3		B	CAO	110	25	9	3
5864		HOLL	01	01	1610	N15	E34	01	4.2		B	DAO	110	12	10	4
5864		BOUL	01	01	1700	N16	E33	01	4.2		B	CAO	80	11	10	3
5864		PALE	01	01	1941	N14	E33	01	4.3		B	CAO	100	11	10	3
5864		LEAR	01	02	0013	N14	E30	01	4.3		B	CAO	160	10	11	3
5864		CULG	01	02	0140	N16	E28	01	4.2		B	CAO	80	17	10	3
5864		RAMY	01	02	1329	N15	E23	01	4.3		B	CAO	100	8	9	3
5864		HOLL	01	02	1545	N15	E22	01	4.3		B	CSO	70	12	9	3
5864		BOUL	01	02	1630	N16	E21	01	4.3		B	CAO	60	11	9	2
5864		PALE	01	02	2235	N15	E18	01	4.3		B	CAO	90	13	8	2
5864		LEAR	01	03	0015	N15	E16	01	4.2		B	CAO	70	9	9	2
5864		RAMY	01	03	1329	N16	E09	01	4.2		B	DAO	150	12	9	3
5864		HOLL	01	03	1515	N15	E11	01	4.5		B	CAO	70	8	10	3
5864		BOUL	01	03	1720	N15	E04	01	4.0		B	CAO	60	7	3	3
5864		PALE	01	03	1805	N16	E08	01	4.4		B	CAO	150	9	9	3
5864		LEAR	01	04	0035	N15	E04	01	4.3		B	EKO	70	17	11	2
5864		SVTO	01	04	0908	N16	W01	01	4.3		B	CAO	110	34	11	3
5864		RAMY	01	04	1415	N16	W04	01	4.3		B	EAI	280	42	12	3
5864		BOUL	01	04	1545	N13	W06	01	4.2		B	DAI	190	12	8	2
5864		HOLL	01	04	1655	N16	W05	01	4.3		B	CAO	140	41	13	4
5864		PALE	01	04	1911	N15	W07	01	4.3		B	CAI	140	41	9	3
5864		SVTO	01	05	1005	N15	W13	01	4.4		B	DAI	340	36	10	3
5864		RAMY	01	05	1530	N16	W18	01	4.3		B	DAI	270	37	9	3
5864		BOUL	01	05	1550	N13	W18	01	4.3		B	DAC	330	28	9	3
5864		HOLL	01	05	1752	N15	W19	01	4.3		B	DKO	280	50	10	3
5864		PALE	01	05	1906	N14	W19	01	4.3		B	DAI	230	50	10	3
5864		LEAR	01	06	0037	N14	W22	01	4.4		B	DKI	250	31	9	3
5864		SVTO	01	06	0745	N14	W26	01	4.3		B	DKI	400	33	9	4
5864		RAMY	01	06	1245	N16	W29	01	4.3		B	DAI	450	42	10	3
5864		BOUL	01	06	1655	N13	W32	01	4.3		B	DAI	180	15	9	2
5864		PALE	01	06	1930	N13	W34	01	4.2		B	DAI	280	30	10	3
5864		LEAR	01	07	0030	N14	W36	01	4.3		B	DAI	290	18	10	3
5864		CULG	01	07	0255	N13	W39	01	4.2		B	DAI	220	9	7	1
5864		SVTO	01	07	0925	N15	W42	01	4.2		B	DKI	350	19	10	2
5864		RAMY	01	07	1435	N14	W45	01	4.2		B	DAO	300	20	10	3
5864		HOLL	01	07	1600	N15	W45	01	4.2		B	EAI	290	21	11	3
5864		BOUL	01	07	1706	N15	W45	01	4.3		B	DSI	200	16	10	2
5864		BOUL	01	09	1547	N16	W75	01	4.0		B	DAO	180	2	10	1
5864		PALE	01	09	1820	N16	W70	01	4.4		B	DKO	340	3	10	2
5864		LEAR	01	10	0035	N15	W74	01	4.4		B	DKO	300	6	10	3
5864		CULG	01	10	0116	N15	W79	01	4.1		B	EAO	60	2	15	2
5865		SVTO	12	30	1133	S36	E78	01	5.7		A	HA	60	1	2	2
5865		RAMY	12	30	1250	S36	E78	01	5.8		A	HS	120	1	2	3
5865		LEAR	12	30	1330	S38	E78	01	5.9		A	HA	40	1	2	3
5865		BOUL	12	30	1646	S37	E78	01	6.0		A	HS	60	1	2	2
5865		PALE	12	30	1845	S37	E73	01	5.7		A	HS	120	1	4	3
5865		HOLL	12	30	2130	S37	E71	01	5.6		A	HS	80	1	2	3
5865		LEAR	12	31	0250	S38	E67	01	5.5		A	HS	60	1	2	3
5865		SVTO	12	31	0807	S37	E68	01	5.8		A	HS	80	1	2	3
5865		BOUL	12	31	1550	S37	E69	01	6.2		B	CSO	110	2	10	2
5865		HOLL	12	31	1715	S38	E66	01	6.0		B	CSO	100	2	11	4
5865		PALE	12	31	1930	S38	E69	01	6.4		B	CAO	130	2	12	2
5865		LEAR	01	01	0105	S38	E62	01	6.0		B	CSO	80	3	13	3
5865		RAMY	01	01	1356	S37	E59	01	6.3		B	EAO	140	3	13	3
5865		HOLL	01	01	1610	S38	E56	01	6.2		B	ESO	140	2	13	4
5865		BOUL	01	01	1700	S37	E57	01	6.3		B	CSO	120	3	17	3
5865		PALE	01	01	1921	S38	E57	01	6.4		B	CSO	100	2	16	3
5865		LEAR	01	02	0013	S37	E50	01	6.0		B	EAO	140	4	14	3
5865		CULG	01	02	0140	S35	E54	01	6.4		B	CAO	70	6	13	3
5865		RAMY	01	02	1329	S37	E48	01	6.4		B	EAO	210	4	15	3
5865		HOLL	01	02	1545	S38	E46	01	6.4		B	ESO	130	6	13	3
5865		BOUL	01	02	1630	S36	E46	01	6.4		B	CSO	60	4	13	2
5865		PALE	01	02	2235	S38	E43	01	6.4		B	ESO	110	5	14	2
5865		LEAR	01	03	0015	S37	E41	01	6.3		B	ESO	100	5	14	2
5865		RAMY	01	03	1329	S37	E33	01	6.2		B	EAO	150	7	14	3
5865		HOLL	01	03	1515	S36	E33	01	6.3		B	EAO	90	4	14	3

S U N S P O T G R O U P S
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JANUARY 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
5865		BOUL	01	03	1720	S36	E33	01	6.4		B	CSO	80	4	14	3
5865		PALE	01	03	1805	S37	E31	01	6.2		B	FAO	130	3	16	3
5865		LEAR	01	04	0035	S37	E29	01	6.4		B	EHO	100	3	14	2
5865		SVTO	01	04	0908	S37	E25	01	6.4		B	ESO	80	5	14	3
5865		RAMY	01	04	1415	S37	E22	01	6.4		B	EAO	120	2	14	3
5865		BOUL	01	04	1545	S36	E26	01	6.7		B	EAO	140	2	14	2
5865		HOLL	01	04	1655	S37	E20	01	6.3		B	CSO	100	6	14	4
5865		PALE	01	04	1911	S38	E20	01	6.4		B	CAO	80	3	15	3
5865		SVTO	01	05	1005	S37	E12	01	6.4		B	CSO	100	4	14	3
5865		RAMY	01	05	1530	S36	E10	01	6.4		B	EAO	100	3	14	3
5865		BOUL	01	05	1550	S36	E13	01	6.7		B	CAO	80	3	14	3
5865		HOLL	01	05	1752	S37	E07	01	6.3		B	ESO	100	9	15	3
5865		PALE	01	05	1906	S38	E09	01	6.5		B	CSO	90	7	15	3
5865		LEAR	01	06	0037	S38	E05	01	6.4		B	ESO	130	8	14	3
5865		SVTO	01	06	0745	S36	E01	01	6.4		B	DSO	120	5	15	4
5865		RAMY	01	06	1245	S36	W02	01	6.4		B	EAO	130	5	14	3
5865		BOUL	01	06	1655	S36	W04	01	6.4		B	CSO	50	3	13	2
5865		PALE	01	06	1930	S37	W04	01	6.5		B	CSO	80	4	13	3
5865		CULG	01	07	0255	S37	W09	01	6.4		B	CSO	60	6	18	1
5865		SVTO	01	07	0925	S37	W13	01	6.3		B	ESO	40	3	14	2
5865		RAMY	01	07	1435	S38	W16	01	6.3		B	CAO	80	11	16	3
5865		HOLL	01	07	1600	S37	W17	01	6.3		B	CSO	100	16	17	3
5865		BOUL	01	07	1706	S36	W15	01	6.5		B	CSO	50	7	14	2
5865		BOUL	01	09	1547	S36	W47	01	5.9		A	HA	80	1	2	1
5865		PALE	01	09	1820	S37	W48	01	5.9		A	HA	70	1	2	2
5865		LEAR	01	10	0035	S37	W45	01	6.4		B	CSO	60	3	13	3
5865		CULG	01	10	0116	S36	W46	01	6.4		B	CSO	30	6	17	2
5865		RAMY	01	10	1439	S36	W50	01	6.6		B	BXO	170	4	10	3
5865		HOLL	01	10	1730	S36	W53	01	6.5		B	BXO	20	4	11	1
5865		PALE	01	10	2000	S37	W54	01	6.5		B	BXO	10	4	12	3
5865		LEAR	01	11	0305	S37	W58	01	6.4		B	BXO	10	5	10	3
5865		RAMY	01	11	1318	S37	W61	01	6.6		B	BXO	10	4	12	3
5865		LEAR	01	11	1505	S37	W58	01	6.9		B	BXO	10	5	10	3
5865		HOLL	01	11	1525	S36	W63	01	6.6		B	BXO	10	3	12	4
5865		RAMY	01	12	1250	S37	W70	01	6.9		B	BXO	10	3	3	4
5873		RAMY	01	03	1329	N23	E40	01	6.6		B	BXO	10	3	3	3
5873		LEAR	01	04	0035	N24	E35	01	6.7		B	CRO	30	3	3	2
5873		SVTO	01	04	0908	N25	E30	01	6.7		B	DAO	70	6	3	3
5873		RAMY	01	04	1415	N24	E28	01	6.7		B	DAO	90	12	6	3
5873		BOUL	01	04	1545	N24	E26	01	6.7		B	DAO	100	3	5	2
5873		HOLL	01	04	1655	N25	E26	01	6.7		B	BXO	30	11	5	4
5873		PALE	01	04	1911	N25	E26	01	6.8		B	BXO	30	8	6	3
5873		SVTO	01	05	1005	N23	E17	01	6.7		B	DAI	140	17	7	3
5873		RAMY	01	05	1530	N25	E14	01	6.7		B	DAO	50	12	7	3
5873		BOUL	01	05	1550	N26	E09	01	6.3		B	DSO	90	7	7	3
5873		HOLL	01	05	1752	N24	E12	01	6.7		B	BXO	30	17	8	3
5873		PALE	01	05	1906	N24	E11	01	6.6		B	BXO	30	11	8	3
5873		LEAR	01	06	0037	N23	E12	01	6.9		B	CAO	60	13	8	3
5873		SVTO	01	06	0745	N24	E05	01	6.7		B	CRO	70	10	8	4
5873		RAMY	01	06	1245	N25	E03	01	6.8		B	CAO	90	13	8	3
5873		BOUL	01	06	1655	N24	W04	01	6.4		B	BXO	10	6	2	2
5873		PALE	01	06	1930	N23	W06	01	6.3		B	CRO	20	8	4	3
5873		LEAR	01	07	0030	N24	W09	01	6.3		B	CRO	30	6	3	3
5873		CULG	01	07	0255	N24	W11	01	6.3		A	HR	20	4	2	1
5873		SVTO	01	07	0925	N24	W13	01	6.4		A	AX	40	6	2	2
5873		RAMY	01	07	1435	N23	W16	01	6.4		B	CRO	40	7	4	3
5873		HOLL	01	07	1600	N25	W17	01	6.3		B	BXO	20	5	3	3
5873		BOUL	01	07	1706	N24	W17	01	6.4		B	BXO		5	2	2
5873		LEAR	01	10	0035	N27	W43	01	6.7		B	CAO	70	9	4	3
5873		CULG	01	10	0116	N27	W46	01	6.5		B	CAO	40	9	5	2
5873		RAMY	01	10	1439	N28	W51	01	6.6		B	DAI	290	15	8	3
5873		BOUL	01	10	1515	N28	W54	01	6.4		B	DAO	260	2	9	1
5873		HOLL	01	10	1730	N27	W52	01	6.7		B	DSO	250	9	8	1
5873		PALE	01	10	2000	N27	W54	01	6.6		B	DAO	140	7	8	3
5873		LEAR	01	11	0305	N25	W57	01	6.7		B	DAO	270	11	9	3
5873		RAMY	01	11	1318	N26	W62	01	6.7		B	DAO	250	9	10	3
5873		BOUL	01	11	1517	N27	W69	01	6.3		B	EKO	370	3	15	1
5873		HOLL	01	11	1525	N26	W66	01	6.5		B	DSO	180	9	10	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
5873		PALE	01	11	1933	N27	W66	01	6.7		B	DAO	170	6	8	3
5873		CULG	01	12	0055	N26	W71	01	6.5		B	DKO	240	7	10	2
5873		LEAR	01	12	0145	N24	W68	01	6.8		B	DAO	250	6	9	3
5873		RAMY	01	12	1250	N26	W73	01	6.9		B	DAO	210	7	10	4
5873		BOUL	01	12	1535	N29	W79	01	6.4		B	CAO	150	4	7	3
5873		HOLL	01	12	1610	N26	W75	01	6.8		B	CHO	140	4	5	3
5873		PALE	01	12	2205	N26	W76	01	7.0		B	CAO	170	2	6	2
5873		LEAR	01	13	0025	N26	W79	01	6.9		A	HA	60	2	3	3
5873		CULG	01	13	0440	N26	W87	01	6.4		A	HS	150	1	2	2
5873		SVTO	01	13	0843	N26	W86	01	6.7		A	HS	30	1	2	2
5873A		RAMY	01	04	1415	S17	E34	01	7.2		A	AX	10	1	1	3
5873A		PALE	01	04	1911	S16	E32	01	7.2		A	AX		1		3
5870		PALE	01	02	2235	S15	E78	01	8.8		B	BXO	10	3	3	2
5870		RAMY	01	03	1329	S15	E67	01	8.6		B	BXO	10	3	2	3
5870		BOUL	01	03	1720	S14	E67	01	8.8		B	BXO		3	3	3
5870		PALE	01	03	1805	S14	E63	01	8.5		A	AX		1		3
5870		LEAR	01	04	0035	S15	E57	01	8.3		B	BXO	10	5	3	2
5870		SVTO	01	04	0908	S15	E57	01	8.7		A	AX		1		3
5870		RAMY	01	04	1415	S15	E51	01	8.4		A	AX	10	1	1	3
5870		RAMY	01	10	1439	S13	W28	01	8.5		B	DAO	40	6	4	3
5870		BOUL	01	10	1515	S13	W28	01	8.5		B	DAO	90	2	5	1
5870		HOLL	01	10	1730	S12	W30	01	8.5		B	BXO	30	14	5	1
5870		PALE	01	10	2000	S12	W31	01	8.5		B	BXI	30	13	6	3
5870		LEAR	01	11	0305	S13	W37	01	8.3		B	CRO	50	16	7	3
5870		CULG	01	11	0425	S11	W38	01	8.3		B	DSO	110	5	6	1
5870		RAMY	01	11	1318	S13	W41	01	8.5		B	DAI	270	17	7	3
5870		BOUL	01	11	1517	S14	W45	01	8.2		B	DAO	310	4	10	1
5870		HOLL	01	11	1525	S13	W43	01	8.4		B	DAO	230	15	7	4
5870		PALE	01	11	1933	S12	W44	01	8.5		B	DKO	330	15	7	3
5870		CULG	01	12	0055	S13	W48	01	8.4		B	DKO	170	21	8	2
5870		LEAR	01	12	0145	S13	W48	01	8.4		B	DKO	280	14	8	3
5870		RAMY	01	12	1250	S12	W54	01	8.5		B	DAI	270	16	9	4
5870		BOUL	01	12	1535	S13	W56	01	8.4		B	DAI	320	13	9	3
5870		HOLL	01	12	1610	S12	W58	01	8.3		B	DAI	270	13	9	3
5870		PALE	01	12	2205	S13	W58	01	8.5		B	DAO	140	10	9	2
5870		LEAR	01	13	0025	S13	W61	01	8.4		B	DAO	180	16	8	3
5870		CULG	01	13	0440	S13	W67	01	8.1		B	DSO	100	12	9	2
5870		SVTO	01	13	0843	S10	W67	01	8.3		B	DAO	260	13	10	2
5870		RAMY	01	13	1330	S10	W68	01	8.4		B	DAO	240	9	10	4
5870		BOUL	01	13	1642	S13	W71	01	8.3		B	EAO	110	11	12	2
5870		HOLL	01	13	1710	S13	W70	01	8.4		B	EAO	130	14	11	4
5870		PALE	01	13	1820	S12	W71	01	8.4		B	DAO	110	8	10	3
5870		LEAR	01	14	0015	S12	W75	01	8.3		B	DAO	90	6	10	3
5870		CULG	01	14	0255	S13	W78	01	8.2		B	DSO	40	2	7	2
5870		RAMY	01	14	1210	S13	W80	01	8.5		B	DAO	90	5	10	3
5870		SVTO	01	14	1320	S11	W80	01	8.5		A	HS	30	1	1	1
5870		BOUL	01	14	1630	S13	W83	01	8.4		B	DSO	30	2	6	2
5870		HOLL	01	14	1640	S13	W78	01	8.8		B	BXO	30	3	3	2
5871		RAMY	01	03	1329	S24	E64	01	8.5		B	BXO	10	5	8	3
5871		HOLL	01	03	1515	S23	E67	01	8.8		B	BXO	10	2	3	3
5871		LEAR	01	04	0035	S24	E59	01	8.6		B	CSO	20	3	6	2
5871		SVTO	01	04	0908	S23	E58	01	8.8		B	BXO	10	4	4	3
5871		RAMY	01	04	1415	S23	E53	01	8.7		B	BXO	20	3	6	3
5871		HOLL	01	04	1655	S22	E50	01	8.5		A	AX	10	1		4
5871		PALE	01	04	1911	S24	E49	01	8.6		A	AX		1		3
5871		RAMY	01	05	1530	S22	E38	01	8.6		A	AX		1		3
5871		PALE	01	05	1906	S23	E38	01	8.7		B	BXO	10	4	5	3
5871		LEAR	01	06	0037	S23	E35	01	8.7		B	BXO	10	3	5	3
5871		RAMY	01	06	1245	S23	E28	01	8.7		B	BXO	20	3	3	3
5871		PALE	01	06	1930	S23	E24	01	8.7		A	AX		1		3
5871		RAMY	01	07	1435	S22	E11	01	8.4		B	CRO	20	6	4	3
5871		HOLL	01	07	1600	S23	E11	01	8.5		B	BXO	20	10	4	3
5871		BOUL	01	07	1706	S21	E10	01	8.5		B	BXO		6	3	2
5871		BOUL	01	09	1547	S22	W16	01	8.4		B	CAO	110	4	7	1
5871		PALE	01	09	1820	S23	W18	01	8.4		B	CAO	180	5	8	2
5871		LEAR	01	10	0035	S23	W20	01	8.5		B	CKO	240	19	11	3

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5871		CULG	01 10 0116	S23 W23	01 8.3		B	DAO	100	17	10	2
5871		RAMY	01 10 1439	S23 W28	01 8.4		B	DAI	250	28	10	3
5871		BOUL	01 10 1515	S22 W28	01 8.5		B	DAO	260	4	9	1
5871		HOLL	01 10 1730	S22 W30	01 8.4		B	DSO	150	23	10	1
5871		PALE	01 10 2000	S23 W32	01 8.4		B	CAI	140	18	10	3
5871		LEAR	01 11 0305	S24 W36	01 8.3		B	EHO	130	33	11	3
5871		CULG	01 11 0425	S20 W37	01 8.3		B	DAO	110	13	9	1
5871		RAMY	01 11 1318	S24 W41	01 8.4		BG	EAI	150	31	12	3
5871		BOUL	01 11 1517	S24 W42	01 8.4		B	EAO	310	4	11	1
5871		HOLL	01 11 1525	S24 W42	01 8.4		BG	ESI	110	28	12	4
5871		PALE	01 11 1933	S24 W45	01 8.3		BG	EAI	100	20	13	3
5871		CULG	01 12 0055	S23 W48	01 8.3		BG	EAI	90	19	12	2
5871		LEAR	01 12 0145	S24 W47	01 8.4		B	ESO	110	15	11	3
5871		RAMY	01 12 1250	S24 W56	01 8.2		B	EAO	200	13	12	4
5871		BOUL	01 12 1535	S24 W55	01 8.4		B	EAO	110	5	12	3
5871		HOLL	01 12 1610	S23 W56	01 8.3		BG	CAO	100	6	10	3
5871		PALE	01 12 2205	S23 W58	01 8.4		B	DAO	60	4	10	2
5871		LEAR	01 13 0025	S24 W60	01 8.4		B	EAO	50	10	13	3
5871		CULG	01 13 0440	S24 W66	01 8.1		B	CSO	50	5	11	2
5871		SVTO	01 13 0843	S22 W66	01 8.3		B	DRO	90	6	10	2
5871		RAMY	01 13 1330	S21 W68	01 8.3		B	CAO	100	6	10	4
5871		BOUL	01 13 1642	S25 W70	01 8.3		B	BXO	10	6	11	2
5871		HOLL	01 13 1710	S23 W70	01 8.3		B	CSO	40	6	11	4
5871		PALE	01 13 1820	S22 W70	01 8.4		B	CAO	40	5	9	3
5871		LEAR	01 14 0015	S23 W73	01 8.4		B	BXO	40	3	11	3
5871		CULG	01 14 0255	S23 W81	01 7.9		A	AX	10	1	1	2
5876		LEAR	01 06 0037	N28 E39	01 9.1		A	AX	20	1	1	3
5876		SVTO	01 06 0745	N28 E36	01 9.1		A	AX	20	1	5	4
5876		RAMY	01 06 1245	N29 E33	01 9.1		A	AX		1		3
5876		PALE	01 06 1930	N29 E28	01 9.0		B	BXO	10	4	6	3
5876		LEAR	01 07 0030	N27 E23	01 8.8		B	BXO	10	3	3	3
5876		RAMY	01 07 1435	N27 E13	01 8.6		B	BXO	10	4	4	3
5876		HOLL	01 07 1600	N27 E15	01 8.8		B	BXO	20	8	7	3
5876		BOUL	01 07 1706	N28 E14	01 8.8		B	BXO		3	7	2
5876		RAMY	01 10 1439	N30 W19	01 9.1		A	AX		1		3
5876		RAMY	01 11 1318	N29 W31	01 9.1		A	AX	10	1	1	3
5876A		LEAR	01 03 0015	S15 E76	01 8.8		A	AX	10	2	2	2
5876A		HOLL	01 03 1515	S15 E67	01 8.7		A	AX		1		3
5880		RAMY	01 10 1439	S32 W10	01 9.8		A	AX		1		3
5880		RAMY	01 11 1318	S33 W22	01 9.8		A	AX	20	2	1	3
5880		HOLL	01 11 1525	S33 W22	01 9.9		B	BXO	10	2	5	4
5880		PALE	01 11 1933	S33 W23	01 10.0		B	BXO	10	2	4	3
5880		CULG	01 12 0055	S33 W28	01 9.8		B	BXO	10	2	5	2
5880		LEAR	01 12 0145	S34 W27	01 9.9		B	BXO	10	2	4	3
5880		CULG	01 13 0055	S33 W38	01 10.0		B	BXO	10	2	5	2
5874		CULG	01 04 0230	S12 E77	01 9.9		A	AX		1		2
5874		SVTO	01 05 1005	S15 E65	01 10.3		B	CRI	140	13	8	3
5874		RAMY	01 05 1530	S14 E63	01 10.4		B	DAO	140	10	8	3
5874		BOUL	01 05 1550	S14 E67	01 10.7		B	EAO	290	7	15	3
5874		HOLL	01 05 1752	S14 E60	01 10.3		B	CAO	100	16	8	3
5874		PALE	01 05 1906	S12 E61	01 10.4		B	CAO	60	9	7	3
5874		LEAR	01 06 0037	S14 E57	01 10.3		B	DKO	180	13	8	3
5874		SVTO	01 06 0745	S13 E52	01 10.2		B	CAI	160	18	9	4
5874		RAMY	01 06 1245	S14 E50	01 10.3		B	DAO	120	16	8	3
5874		BOUL	01 06 1655	S14 E47	01 10.2		B	DSO	90	5	10	2
5874		PALE	01 06 1930	S14 E47	01 10.4		B	DAI	130	15	11	3
5874		LEAR	01 07 0030	S14 E44	01 10.3		B	DAO	100	22	10	3
5874		CULG	01 07 0255	S13 E40	01 10.1		B	EAO	70	11	11	1
5874		SVTO	01 07 0925	S14 E36	01 10.1		B	EAI	290	16	12	2
5874		RAMY	01 07 1435	S14 E33	01 10.1		B	EAO	200	29	12	3
5874		HOLL	01 07 1600	S15 E35	01 10.3		BGD	EAI	250	32	12	3
5874		BOUL	01 07 1706	S13 E34	01 10.3		B	ESI	140	15	12	2
5874		BOUL	01 09 1547	S13 E08	01 10.3		B	EAI	190	6	13	1
5874		PALE	01 09 1820	S13 E06	01 10.2		BG	EAI	210	10	14	2
5874		LEAR	01 10 0035	S14 E04	01 10.3		BG	EKO	260	11	14	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5874		CULG	01	10	0116	S13	E02	01	10.2		BG	ESI	150	17	15	2
5874		RAMY	01	10	1439	S14	W03	01	10.4		BG	FAO	210	12	16	3
5874		BOUL	01	10	1515	S12	W05	01	10.2		B	FAO	240	3	16	1
5874		HOLL	01	10	1730	S13	W06	01	10.3		BG	FSO	220	19	16	1
5874		PALE	01	10	2000	S12	W06	01	10.4		BG	FAO	250	21	20	3
5874		LEAR	01	11	0305	S14	W11	01	10.3		BG	FKO	160	11	16	3
5874		RAMY	01	11	1318	S15	W17	01	10.3		B	FAO	310	20	15	3
5874		BOUL	01	11	1517	S12	W18	01	10.3		B	FAO	290	3	16	1
5874		HOLL	01	11	1525	S13	W18	01	10.3		BG	FSO	90	20	21	4
5874		PALE	01	11	1933	S14	W18	01	10.4		B	CKO	130	21	17	3
5874		CULG	01	12	0055	S13	W23	01	10.3		BG	FAO	110	16	16	2
5874		LEAR	01	12	0145	S13	W23	01	10.3		BG	FHO	110	14	16	3
5874		RAMY	01	12	1250	S14	W29	01	10.3		B	FAO	160	13	16	4
5874		BOUL	01	12	1535	S13	W32	01	10.2		B	EAO	130	6	14	3
5874		HOLL	01	12	1610	S12	W33	01	10.2		BG	CAO	140	6	15	3
5874		PALE	01	12	2205	S13	W33	01	10.4		B	CAO	90	6	14	2
5874		LEAR	01	13	0025	S13	W35	01	10.4		B	EAO	100	7	15	3
5874		CULG	01	13	0440	S13	W41	01	10.1		B	CSO	150	7	15	2
5874		SVTO	01	13	0843	S12	W42	01	10.2		B	EAO	120	6	15	2
5874		RAMY	01	13	1330	S12	W42	01	10.4		B	EAO	150	5	15	4
5874		BOUL	01	13	1642	S13	W44	01	10.4		B	CAO	100	6	17	2
5874		HOLL	01	13	1710	S13	W45	01	10.3		B	CSO	90	7	15	4
5874		PALE	01	13	1820	S12	W46	01	10.3		B	CAO	110	5	15	3
5874		LEAR	01	14	0015	S13	W48	01	10.4		B	CSO	100	4	18	3
5874		CULG	01	14	0255	S14	W59	01	9.7		A	HS	90	1	9	2
5874		RAMY	01	14	1210	S13	W62	01	9.8		A	HS	80	1	2	3
5874		SVTO	01	14	1320	S11	W65	01	9.7		A	HS	110	1	2	1
5874		BOUL	01	14	1630	S12	W67	01	9.6		A	HA	100	2	2	2
5874		CULG	01	15	0015	S13	W59	01	10.5		B	CAO	80	4	11	3
5874		LEAR	01	15	0257	S13	W68	01	10.0		A	HA	110	1	2	3
5874		SVTO	01	15	1410	S12	W75	01	9.9		A	HA	170	1	3	1
5874		BOUL	01	15	1518	S13	W79	01	9.7		A	HS	120	1	3	1
5874		RAMY	01	15	1550	S13	W73	01	10.1		B	ERO	210	4	12	2
5874		HOLL	01	15	2030	S13	W75	01	10.2		B	CAO	60	5	11	3
5874		LEAR	01	16	0045	S16	W76	01	10.3		B	CAO	120	5	8	3
5874		RAMY	01	16	1239	S14	W80	01	10.5		A	AX	20	3	2	3
5885		HOLL	01	12	1610	S08	W17	01	11.4		A	AX		1		3
5885		PALE	01	12	2205	S07	W19	01	11.5		A	AX		1		2
5885		LEAR	01	13	0025	S07	W21	01	11.4		A	AX	10	2	1	3
5885		SVTO	01	13	0843	S06	W27	01	11.3		A	AX	10	1	1	2
5885		RAMY	01	13	1330	S06	W28	01	11.5		B	BXO	10	2	3	4
5885		HOLL	01	13	1710	S07	W31	01	11.4		A	AX		1		4
5785		CULG	01	12	0055	S05	W07	01	11.5		A	AX	10	2	2	2
5785		CULG	01	13	0440	S08	W23	01	11.5		B	BXO	10	2	3	2
5875		SVTO	01	05	1005	S23	E79	01	11.5		A	HA	90	1	2	3
5875		RAMY	01	05	1530	S23	E74	01	11.3		A	HA	60	1	2	3
5875		HOLL	01	05	1752	S23	E74	01	11.4		A	HS	60	1	2	3
5875		PALE	01	05	1906	S22	E75	01	11.6		A	HA	60	1	1	3
5875		LEAR	01	06	0037	S23	E70	01	11.4		A	HS	80	1	2	3
5875		SVTO	01	06	0745	S22	E66	01	11.4		A	HA	100	1	2	4
5875		RAMY	01	06	1245	S23	E63	01	11.4		A	HS	140	1	2	3
5875		BOUL	01	06	1655	S23	E64	01	11.6		A	HS	90	1	2	2
5875		PALE	01	06	1930	S22	E62	01	11.6		A	HA	80	1	2	3
5875		LEAR	01	07	0030	S23	E58	01	11.5		A	HS	80	1	2	3
5875		CULG	01	07	0255	S23	E57	01	11.5		A	HS	70	1	1	1
5875		SVTO	01	07	0925	S24	E52	01	11.4		A	HS	70	1	2	2
5875		RAMY	01	07	1435	S23	E51	01	11.5		B	CAO	140	3	7	3
5875		HOLL	01	07	1600	S24	E49	01	11.4		A	HS	100	1	2	3
5875		BOUL	01	07	1706	S22	E50	01	11.5		A	HS	70	1	1	2
5875		BOUL	01	09	1547	S22	E23	01	11.4		A	HA	40	1	1	1
5875		PALE	01	09	1820	S23	E22	01	11.4		A	HS	90	1	2	2
5875		LEAR	01	10	0035	S24	E20	01	11.6		B	CSO	80	4	5	3
5875		CULG	01	10	0116	S24	E18	01	11.4		B	CSO	70	2	3	2
5875		RAMY	01	10	1439	S22	E12	01	11.5		A	HS	110	1	2	3
5875		BOUL	01	10	1515	S22	E09	01	11.3		A	HS	130	1	3	1
5875		HOLL	01	10	1730	S23	E09	01	11.4		A	HS	120	4	2	1

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5875		PALE	01	10	2000	S22	E08	01	11.4		A	HS	100	1	2	3
5875		CULG	01	11	0425	S23	E03	01	11.4		A	HS	50	1	1	1
5875		RAMY	01	11	1318	S22	W01	01	11.5		B	CAO	110	4	3	3
5875		LEAR	01	11	1505	S22	E04	01	11.9		A	HH	60	1	3	3
5875		BOUL	01	11	1517	S23	W03	01	11.4		A	HS	120	1	3	1
5875		HOLL	01	11	1525	S23	W02	01	11.5		A	HS	100	3	2	4
5875		PALE	01	11	1933	S22	W04	01	11.5		A	HS	80	1	2	3
5875		CULG	01	12	0055	S22	W06	01	11.6		A	HA	80	3	2	2
5875		LEAR	01	12	0145	S23	W07	01	11.5		A	HH	60	1	3	3
5875		RAMY	01	12	1250	S22	W13	01	11.5		A	HS	110	2	3	4
5875		HOLL	01	12	1610	S23	W16	01	11.4		A	HS	90	1	2	3
5875		PALE	01	12	2205	S23	W17	01	11.6		A	HS	80	1	2	2
5875		LEAR	01	13	0025	S22	W20	01	11.5		A	HS	70	1	2	3
5875		CULG	01	13	0440	S23	W22	01	11.5		A	HS	90	1	2	2
5875		SVTO	01	13	0843	S23	W24	01	11.5		B	CSO	70	3	3	2
5875		RAMY	01	13	1330	S23	W27	01	11.5		B	CSO	70	5	4	4
5875		BOUL	01	13	1642	S23	W27	01	11.6		B	CAO	40	3	3	2
5875		HOLL	01	13	1710	S24	W28	01	11.5		B	CAO	60	2	5	4
5875		PALE	01	13	1820	S22	W30	01	11.4		A	HS	100	2	2	3
5875		LEAR	01	14	0015	S22	W33	01	11.5		A	HS	50	1	2	3
5875		CULG	01	14	0255	S23	W34	01	11.5		A	HS	50	1	1	2
5875		RAMY	01	14	1210	S23	W39	01	11.5		A	HS	50	1	1	3
5875		SVTO	01	14	1320	S21	W40	01	11.5		A	HS	40	1	1	1
5875		BOUL	01	14	1630	S23	W41	01	11.5		A	HS	40	1	1	2
5875		HOLL	01	14	1640	S23	W42	01	11.4		A	HS	50	1	2	2
5875		LEAR	01	15	0257	S23	W46	01	11.6		A	HS	60	1	2	3
5875		SVTO	01	15	1410	S22	W52	01	11.6		A	HS	60	1	2	1
5875		BOUL	01	15	1518	S23	W54	01	11.5		A	HS	30	1	2	1
5875		RAMY	01	15	1550	S23	W53	01	11.6		A	HS	70	1	2	2
5875		HOLL	01	15	2030	S22	W57	01	11.5		A	HS	30	1	2	3
5875		LEAR	01	16	0045	S24	W58	01	11.5		A	HS	60	1	2	3
5875		SVTO	01	16	1010	S22	W64	01	11.5		A	HA	90	1	2	4
5875		RAMY	01	16	1239	S23	W65	01	11.5		A	HS	90	1	2	3
5875		BOUL	01	16	1545	S23	W69	01	11.3		A	HS	70	1	2	1
5875		LEAR	01	17	0150	S23	W71	01	11.6		A	HS	60	1	2	3
5875		SVTO	01	17	0945	S22	W76	01	11.6		A	HA	60	1	2	3
5875		RAMY	01	17	1315	S24	W77	01	11.6		A	HS	30	1	1	3
5875		BOUL	01	17	1522	S24	W80	01	11.4		A	HS	30	1	1	3
5875		HOLL	01	17	1620	S24	W78	01	11.6		A	HS	30	1	1	3
5875		PALE	01	17	1946	S24	W79	01	11.7		A	AX		1		2
5875		CULG	01	18	0022	S26	W88	01	11.2		A	AX	10	1	1	2
5877		PALE	01	06	1930	S09	E87	01	13.3		A	HS	30	2	3	3
5877		LEAR	01	07	0030	S10	E78	01	12.9		B	CAO	30	3	4	3
5877		CULG	01	07	0255	S09	E75	01	12.7		A	HS	50	1	1	1
5877		SVTO	01	07	0925	S10	E76	01	13.1		B	CSO	70	2	6	2
5877		RAMY	01	07	1435	S10	E70	01	12.9		B	DAO	140	5	7	3
5877		HOLL	01	07	1600	S11	E72	01	13.1		B	CAO	120	3	5	3
5877		BOUL	01	07	1706	S09	E76	01	13.4		B	CSO	120	2	8	2
5877		BOUL	01	09	1547	S09	E50	01	13.4		A	HA	40	1	1	1
5877		PALE	01	09	1820	S11	E41	01	12.8		A	HA	50	1	2	2
5877		LEAR	01	10	0035	S11	E40	01	13.0		B	CAO	100	3	5	3
5877		CULG	01	10	0116	S10	E39	01	13.0		B	CSO	60	5	6	2
5877		RAMY	01	10	1439	S11	E33	01	13.1		B	DAO	70	9	6	3
5877		BOUL	01	10	1515	S09	E31	01	13.0		B	DAO	120	2	5	1
5877		HOLL	01	10	1730	S11	E30	01	13.0		B	CRO	60	11	7	1
5877		PALE	01	10	2000	S10	E31	01	13.2		B	DAO	60	8	7	3
5877		LEAR	01	11	0305	S11	E24	01	12.9		B	CSO	30	7	7	3
5877		CULG	01	11	0425	S11	E25	01	13.1		B	CSO	40	2	6	1
5877		RAMY	01	11	1318	S10	E20	01	13.0		B	DAO	60	12	8	3
5877		BOUL	01	11	1517	S09	E16	01	12.8		A	HA	80	1	2	1
5877		HOLL	01	11	1525	S11	E19	01	13.1		B	CSO	40	10	7	4
5877		PALE	01	11	1933	S10	E16	01	13.0		B	BXO	20	9	6	3
5877		CULG	01	12	0055	S09	E14	01	13.1		B	CRO	40	13	7	2
5877		LEAR	01	12	0145	S11	E13	01	13.0		B	CRO	30	13	6	3
5877		RAMY	01	12	1250	S10	E07	01	13.1		B	DAO	60	16	6	4
5877		BOUL	01	12	1535	S09	E05	01	13.0		B	DAO	50	5	5	3
5877		HOLL	01	12	1610	S11	E05	01	13.0		B	DAO	60	15	6	3
5877		PALE	01	12	2205	S11	E04	01	13.2		B	CAO	20	10	6	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5877		LEAR	01	13	0025	S11	E03	01	13.2		B	CRO	20	8	6	3
5877		CULG	01	13	0440	S11	W02	01	13.0		B	DRO	40	10	6	2
5877		SVTO	01	13	0843	S11	W04	01	13.1		B	DAI	70	18	7	2
5877		RAMY	01	13	1330	S10	W06	01	13.1		B	DAO	170	17	6	4
5877		BOUL	01	13	1642	S11	W07	01	13.2		B	BXO		10	6	2
5877		HOLL	01	13	1710	S11	W08	01	13.1		B	CRO	30	19	6	4
5877		PALE	01	13	1820	S10	W09	01	13.1		B	DAO	40	9	6	3
5877		LEAR	01	14	0015	S10	W12	01	13.1		B	CSO	40	8	6	3
5877		CULG	01	14	0255	S09	W13	01	13.1		B	BXO	20	7	6	2
5877		RAMY	01	14	1210	S10	W19	01	13.1		B	DAO	50	16	5	3
5877		SVTO	01	14	1320	S11	W19	01	13.1		B	DAO	30	9	5	1
5877		BOUL	01	14	1630	S10	W19	01	13.2		B	BXO	10	8	4	2
5877		HOLL	01	14	1640	S11	W21	01	13.1		B	BXO	20	14	6	2
5877		LEAR	01	15	0257	S10	W26	01	13.2		B	BXO	30	4	3	3
5877		RAMY	01	15	1550	S10	W33	01	13.2		B	BXO	10	4	4	2
5877A		RAMY	01	12	1250	N17	E21	01	14.1		A	AX	10	1	1	4
5877B		LEAR	01	19	0015	S26	W60	01	14.3		B	BXO	20	2	2	3
5877B		CULG	01	19	0130	S29	W63	01	14.1		A	AX		1	1	1
5877B		RAMY	01	19	1636	S28	W70	01	14.2		B	BXO	10	1	2	2
5878		BOUL	01	09	1547	N13	E75	01	15.3		A	HS	60	1	3	1
5878		PALE	01	09	1820	N12	E68	01	14.9		A	HA	100	1	2	2
5878		LEAR	01	10	0035	N11	E64	01	14.8		A	HS	70	1	2	3
5878		CULG	01	10	0116	N13	E63	01	14.8		A	HS	30	1	1	2
5878		RAMY	01	10	1439	N12	E58	01	15.0		A	HA	40	1	2	3
5878		BOUL	01	10	1515	N13	E58	01	15.0		A	HS	70	1	2	1
5878		HOLL	01	10	1730	N12	E56	01	14.9		A	HR	40	2	1	1
5878		PALE	01	10	2000	N17	E55	01	15.0		A	HA	40	1	1	3
5878		LEAR	01	11	0305	N12	E49	01	14.8		A	HS	20	1	1	3
5878		CULG	01	11	0425	N10	E50	01	14.9		A	HS	30	1	1	1
5878		RAMY	01	11	1318	N12	E43	01	14.8		B	CAO	70	8	4	3
5878		BOUL	01	11	1517	N13	E43	01	14.9		A	HA	80	1	2	1
5878		HOLL	01	11	1525	N12	E44	01	14.9		A	HS	30	2	1	4
5878		PALE	01	11	1933	N12	E42	01	15.0		A	HA	30	1	1	3
5878		CULG	01	12	0055	N14	E38	01	14.9		A	HS	50	1	1	2
5878		LEAR	01	12	0145	N12	E38	01	14.9		A	HS	20	1	1	3
5878		RAMY	01	12	1250	N12	E32	01	14.9		A	HS	50	1	2	4
5878		BOUL	01	12	1535	N12	E29	01	14.8		A	HS	20	1	1	3
5878		HOLL	01	12	1610	N12	E31	01	15.0		A	HS	50	1	1	3
5878		PALE	01	12	2205	N13	E28	01	15.0		A	HA	30	1	1	2
5878		LEAR	01	13	0025	N12	E27	01	15.0		A	HS	20	1	1	3
5878		CULG	01	13	0440	N13	E23	01	14.9		A	HS	50	2	2	2
5878		SVTO	01	13	0843	N11	E22	01	15.0		A	HS	30	2	1	2
5878		RAMY	01	13	1330	N12	E20	01	15.1		A	HA	30	1	2	4
5878		BOUL	01	13	1642	N13	E17	01	15.0		A	HA	20	2	1	2
5878		HOLL	01	13	1710	N12	E18	01	15.1		A	HS	20	1	1	4
5878		PALE	01	13	1820	N12	E17	01	15.0		A	HS	20	1	1	3
5878		LEAR	01	14	0015	N13	E14	01	15.1		A	HS	20	1	1	3
5878		CULG	01	14	0255	N13	E11	01	14.9		A	HS	20	1	1	2
5878		RAMY	01	14	1210	N12	E07	01	15.0		A	HA	20	2	1	3
5878		SVTO	01	14	1320	N13	E08	01	15.1		A	HS	20	1	1	1
5878		BOUL	01	14	1630	N12	E05	01	15.1		A	HA	20	2	1	2
5878		HOLL	01	14	1640	N11	E04	01	15.0		A	HS	20	1	2	2
5878		LEAR	01	15	0257	N12	W01	01	15.0		A	HS	20	1	2	3
5878		SVTO	01	15	1410	N11	W06	01	15.1		B	DAO	60	7	1	1
5878		BOUL	01	15	1518	N12	W07	01	15.1		A	HS	20	1	1	1
5878		RAMY	01	15	1550	N11	W05	01	15.3		B	DAO	40	8	9	2
5878		HOLL	01	15	2030	N11	W07	01	15.3		B	DAO	40	9	9	3
5878		LEAR	01	16	0045	N10	W10	01	15.3		B	CAO	40	5	5	3
5878		SVTO	01	16	1010	N12	W15	01	15.3		B	BXO	20	5	6	4
5878		RAMY	01	16	1239	N11	W17	01	15.2		B	BXO	10	6	6	3
5878		LEAR	01	17	0150	N12	W24	01	15.3		B	CRO	20	6	7	3
5878		SVTO	01	17	0945	N11	W26	01	15.4		B	CSO	50	4	3	3
5878		RAMY	01	17	1315	N10	W27	01	15.5		B	CAO	20	5	3	3
5878		BOUL	01	17	1522	N12	W27	01	15.6		B	CAO	30	2	3	3
5878		HOLL	01	17	1620	N11	W28	01	15.6		B	CSO	10	4	3	3
5878		PALE	01	17	1946	N12	W33	01	15.3		A	AX	10	2	2	2

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5878		CULG	01 18 0022	N10 W36	01 15.3		A	HS	10	1	1	2
5878		LEAR	01 18 0215	N11 W35	01 15.5		A	HS	20	1	1	3
5878		RAMY	01 18 1535	N11 W41	01 15.6		A	HR	10	1	1	1
5878		HOLL	01 18 1545	N12 W43	01 15.4		A	AX	10	1	1	1
5878		PALE	01 18 1928	N10 W45	01 15.4		A	AX	10	1	1	1
5878		RAMY	01 19 1636	N12 W51	01 15.8		A	AX	10	1	1	2
5878A		HOLL	01 11 1525	S24 E55	01 15.9		A	AX		1		4
5879		RAMY	01 10 1439	S34 E69	01 16.1		B	CRO	50	4	5	3
5879		HOLL	01 10 1730	S35 E67	01 16.1		B	BXO	30	4	4	1
5879		PALE	01 10 2000	S34 E67	01 16.2		B	BXO	40	3	5	3
5879		LEAR	01 11 0305	S35 E60	01 15.9		B	CRO	40	4	6	3
5879		CULG	01 11 0425	S40 E60	01 16.1		B	BXO	10	4	7	1
5879		RAMY	01 11 1318	S34 E57	01 16.1		B	DAO	90	6	8	3
5879		HOLL	01 11 1525	S35 E55	01 16.0		B	CSO	50	12	9	4
5879		PALE	01 11 1933	S34 E53	01 16.0		B	CAO	50	8	8	3
5879		CULG	01 12 0055	S33 E51	01 16.1		B	CAO	80	7	9	2
5879		LEAR	01 12 0145	S34 E49	01 16.0		B	CSO	50	7	10	3
5879		RAMY	01 12 1250	S34 E43	01 16.0		B	CAO	110	6	8	4
5879		BOUL	01 12 1535	S34 E42	01 16.0		B	CAO	70	8	10	3
5879		HOLL	01 12 1610	S35 E42	01 16.0		B	CAO	60	6	11	3
5879		PALE	01 12 2205	S35 E40	01 16.1		B	CAO	40	4	10	2
5879		LEAR	01 13 0025	S34 E38	01 16.0		B	CAO	50	7	10	3
5879		CULG	01 13 0440	S33 E35	01 16.0		B	CAO	30	6	9	2
5879		SVTO	01 13 0843	S37 E31	01 15.9		B	DAO	50	8	11	2
5879		RAMY	01 13 1330	S35 E29	01 15.9		B	DAO	70	9	9	4
5879		BOUL	01 13 1642	S34 E30	01 16.1		B	CAO	30	5	10	2
5879		HOLL	01 13 1710	S35 E30	01 16.1		B	CAO	40	9	9	4
5879		PALE	01 13 1820	S35 E27	01 15.9		B	CSO	60	5	9	3
5879		LEAR	01 14 0015	S34 E26	01 16.1		B	CAO	40	6	10	3
5879		CULG	01 14 0255	S33 E28	01 16.3		A	AX	10	3	2	2
5879		RAMY	01 14 1210	S35 E19	01 16.0		B	CAO	30	5	10	3
5879		SVTO	01 14 1320	S36 E18	01 16.0		B	CAO	50	8	10	1
5879		BOUL	01 14 1630	S35 E18	01 16.1		B	BXO	10	5	9	2
5879		HOLL	01 14 1640	S36 E16	01 16.0		B	BXO	20	11	10	2
5879		LEAR	01 15 0257	S35 E16	01 16.4		A	AX	20	4	2	3
5879		SVTO	01 15 1410	S37 E10	01 16.4		B	BXO	30	5	2	1
5879		BOUL	01 15 1518	S35 E09	01 16.3		A	AX	10	2		1
5879		RAMY	01 15 1550	S36 E09	01 16.4		B	CRO	20	4	3	2
5879		HOLL	01 15 2030	S36 E05	01 16.2		B	BXO	10	5	3	3
5879		SVTO	01 16 1010	S36 W03	01 16.2		A	AX	10	1	1	4
5879		RAMY	01 16 1239	S36 W03	01 16.3		A	AX		1		3
5886		SVTO	01 13 0843	N40 E46	01 17.1		B	BXO	20	5	4	2
5886		RAMY	01 13 1330	N41 E44	01 17.2		B	BXO	30	3	3	4
5886		BOUL	01 13 1642	N43 E40	01 17.0		A	AX		1		2
5886		HOLL	01 13 1710	N42 E39	01 16.9		A	AX		1		4
5886		PALE	01 13 1820	N41 E39	01 16.9		A	AX		1		3
5886		CULG	01 15 0015	N42 E21	01 16.7		B	BXO	10	7	6	3
5886		SVTO	01 15 1410	N40 E22	01 17.4		B	BXO	30	7	5	1
5886		BOUL	01 15 1518	N41 E17	01 17.0		B	BXO	30	3	4	1
5886		RAMY	01 15 1550	N41 E17	01 17.0		B	DAO	80	5	6	2
5886		HOLL	01 15 2030	N40 E15	01 17.1		B	CRO	30	8	6	3
5886		LEAR	01 16 0045	N40 E11	01 16.9		B	BXO	40	6	5	3
5886		SVTO	01 16 1010	N42 E08	01 17.1		B	BXO	40	3	6	4
5886		RAMY	01 16 1239	N41 E06	01 17.0		B	BXO	10	4	7	3
5886		BOUL	01 16 1545	N41 E04	01 17.0		A	AX	10	1		1
5886		LEAR	01 17 0150	N42 W02	01 16.9		B	BXO	10	3	7	3
5886		CULG	01 18 0022	N42 W16	01 16.7		A	AX	10	3	2	2
5886		LEAR	01 18 0215	N40 W14	01 16.9		A	AX	10	1	1	3
5886A		RAMY	01 14 1210	N13 E32	01 16.9		B	BXO	10	2	5	3
5884		RAMY	01 12 1250	N33 E67	01 17.8		B	CAO	60	2	5	4
5884		BOUL	01 12 1535	N34 E62	01 17.6		A	AX	10	1	1	3
5884		HOLL	01 12 1610	N33 E65	01 17.8		B	BXO	30	3	6	3
5884		PALE	01 12 2205	N33 E62	01 17.8		B	BXO	20	3	7	2
5884		LEAR	01 13 0025	N34 E60	01 17.8		B	BXO	20	2	5	3

SUNSPOT GROUPS
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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
5884		CULG	01	13	0440	N34	E57	01	17.7		B	DSO	60	5	8	2
5884		SVTO	01	13	0843	N31	E55	01	17.7		B	DRI	60	6	8	2
5884		RAMY	01	13	1330	N32	E55	01	17.9		B	DAO	180	10	10	4
5884		BOUL	01	13	1642	N34	E52	01	17.8		B	ESO	40	6	11	2
5884		HOLL	01	13	1710	N33	E50	01	17.7		B	CRO	40	10	9	4
5884		PALE	01	13	1820	N32	E50	01	17.7		B	CRO	50	11	9	3
5884		LEAR	01	14	0015	N34	E46	01	17.7		B	CRO	80	10	10	3
5884		CULG	01	14	0255	N37	E45	01	17.7		B	EAI	90	7	11	2
5884		RAMY	01	14	1210	N34	E36	01	17.4		B	EAO	140	15	11	3
5884		SVTO	01	14	1320	N33	E42	01	17.9		B	ESO	130	8	12	1
5884		BOUL	01	14	1630	N35	E38	01	17.7		B	ESO	140	8	12	2
5884		HOLL	01	14	1640	N32	E38	01	17.7		B	CSO	180	13	11	2
5884		LEAR	01	15	0257	N34	E32	01	17.7		B	EAO	210	13	11	3
5884		SVTO	01	15	1410	N31	E28	01	17.8		B	ESI	210	20	12	1
5884		BOUL	01	15	1518	N35	E25	01	17.6		B	CAI	80	12	9	1
5884		RAMY	01	15	1550	N33	E23	01	17.5		B	EAI	180	14	13	2
5884		HOLL	01	15	2030	N32	E23	01	17.7		B	EAI	150	24	13	3
5884		LEAR	01	16	0045	N32	E19	01	17.5		B	EAI	230	20	13	3
5884		SVTO	01	16	1010	N34	E15	01	17.6		B	EAI	360	28	12	4
5884		RAMY	01	16	1239	N33	E15	01	17.7		B	EAI	230	25	13	3
5884		BOUL	01	16	1545	N35	E11	01	17.5		B	EAI	160	7	11	1
5884		LEAR	01	17	0150	N33	E06	01	17.5		B	EAI	250	23	13	3
5884		SVTO	01	17	0945	N33	E02	01	17.6		B	EAI	400	17	13	3
5884		RAMY	01	17	1315	N32	E00	01	17.5		B	EAI	370	34	14	3
5884		BOUL	01	17	1522	N35	W01	01	17.6		B	EAI	300	19	14	3
5884		HOLL	01	17	1620	N32	W03	01	17.4		B	EAI	180	26	12	3
5884		PALE	01	17	1946	N33	W06	01	17.3		B	EKO	170	18	12	2
5884		CULG	01	18	0022	N34	W09	01	17.3		B	EAI	140	16	14	2
5884		LEAR	01	18	0215	N32	W07	01	17.5		B	EAI	200	24	13	3
5884		RAMY	01	18	1535	N32	W15	01	17.5		B	EAO	270	13	14	1
5884		HOLL	01	18	1545	N33	W15	01	17.5		B	EAI	300	18	13	1
5884		PALE	01	18	1928	N32	W17	01	17.5		B	EAO	190	12	11	1
5884		LEAR	01	19	0015	N33	W19	01	17.5		B	EKO	230	17	12	3
5884		CULG	01	19	0130	N33	W24	01	17.1		B	EAO	160	11	12	1
5884		RAMY	01	19	1636	N31	W28	01	17.5		B	EAO	230	17	12	2
5884		HOLL	01	19	2255	N33	W30	01	17.6		B	EAO	170	10	12	3
5884		LEAR	01	20	0025	N33	W31	01	17.5		B	EAO	140	14	13	3
5884		CULG	01	20	0215	N32	W35	01	17.3		B	EAO	210	11	14	2
5884		SVTO	01	20	0955	N34	W36	01	17.5		B	EAO	130	14	13	3
5884		BOUL	01	20	1614	N33	W40	01	17.5		B	EAO	110	8	12	2
5884		HOLL	01	20	1715	N33	W40	01	17.5		B	EAO	120	15	13	4
5884		RAMY	01	20	1918	N30	W42	01	17.5		B	EAO	190	4	12	3
5884		CULG	01	21	0145	N33	W48	01	17.3		B	EAO	80	5	13	2
5884		LEAR	01	21	0210	N33	W45	01	17.5		B	EAO	70	7	13	3
5884		SVTO	01	21	0845	N33	W48	01	17.5		B	EAO	100	6	12	3
5884		RAMY	01	21	1235	N33	W49	01	17.6		B	FAO	110	9	16	3
5884		BOUL	01	21	1700	N35	W55	01	17.3		B	ESO	40	3	12	1
5884		HOLL	01	21	1855	N34	W52	01	17.6		B	EAO	120	9	13	2
5884		CULG	01	22	0100	N32	W60	01	17.3		B	ESO	40	4	14	2
5884		LEAR	01	22	0200	N30	W55	01	17.7		B	ESO	40	4	13	3
5884		RAMY	01	22	1315	N33	W60	01	17.8		B	FAO	50	7	16	4
5884		HOLL	01	22	1840	N32	W71	01	17.1		A	HA	30	1	1	2
5884		LEAR	01	23	0012	N31	W70	01	17.5		A	HH	30	1	4	3
5884		CULG	01	23	0100	N32	W78	01	16.9		A	AX	10	1	2	3
5884		RAMY	01	23	1542	N34	W73	01	17.8		B	BXO	10	4	4	3
5881		LEAR	01	11	0305	S30	E80	01	17.4		A	AX	20	1	1	3
5881		HOLL	01	11	1525	S32	E78	01	17.8		B	CRO	20	2	4	4
5881		PALE	01	11	1933	S29	E76	01	17.8		A	AX		1		3
5881		CULG	01	12	0055	S29	E71	01	17.6		A	HS	30	1	1	2
5881		LEAR	01	12	0145	S29	E71	01	17.6		A	HS	20	1	2	3
5881		RAMY	01	12	1250	S29	E66	01	17.7		B	CAO	50	3	6	4
5881		BOUL	01	12	1535	S29	E63	01	17.6		A	HS	20	1	1	3
5881		HOLL	01	12	1610	S31	E65	01	17.8		A	HA	40	1	1	3
5881		PALE	01	12	2205	S29	E61	01	17.7		A	HA	80	1	1	2
5881		LEAR	01	13	0025	S30	E60	01	17.7		A	HS	50	1	1	3
5881		CULG	01	13	0440	S28	E57	01	17.6		A	HS	50	1	1	2
5881		SVTO	01	13	0843	S32	E54	01	17.6		A	HS	40	1	1	2
5881		RAMY	01	13	1330	S32	E52	01	17.7		A	HS	40	1	1	4

S U N S P O T G R O U P S
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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
5881		BOUL	01	13	1642	S29	E53	01	17.8		A	HS	30	1	1	2
5881		HOLL	01	13	1710	S30	E51	01	17.7		A	HS	30	1	1	4
5881		PALE	01	13	1820	S31	E50	01	17.7		B	CSO	40	2	4	3
5881		LEAR	01	14	0015	S29	E48	01	17.8		A	HS	30	1	1	3
5881		CULG	01	14	0255	S28	E46	01	17.7		A	HS	50	1	1	2
5881		SVTO	01	14	1320	S31	E40	01	17.7		A	HS	50	1	1	1
5881		BOUL	01	14	1630	S29	E39	01	17.7		A	HS	30	1	1	2
5881		HOLL	01	14	1640	S31	E38	01	17.7		A	HS	60	1	2	2
5881		LEAR	01	15	0257	S29	E33	01	17.7		A	HS	50	1	2	3
5881		SVTO	01	15	1410	S32	E26	01	17.6		A	HS	40	1	1	1
5881		BOUL	01	15	1518	S29	E26	01	17.7		A	HA	30	1	1	1
5881		RAMY	01	15	1550	S30	E27	01	17.8		A	HS	50	1	2	2
5881		HOLL	01	15	2030	S31	E23	01	17.7		A	HS	40	1	2	3
5881		LEAR	01	16	0045	S31	E22	01	17.8		A	HS	40	1	2	3
5881		SVTO	01	16	1010	S30	E16	01	17.7		A	HS	40	1	1	4
5881		RAMY	01	16	1239	S30	E16	01	17.8		A	HS	40	1	2	3
5881		BOUL	01	16	1545	S29	E13	01	17.7		A	HS	30	1	1	1
5881		LEAR	01	17	0150	S31	E11	01	17.9		B	CSO	40	4	5	3
5881		SVTO	01	17	0945	S32	E05	01	17.8		B	CSO	40	2	3	3
5881		RAMY	01	17	1315	S30	E10	01	18.3		B	CAO	50	5	20	3
5881		BOUL	01	17	1522	S29	E02	01	17.8		A	HA	30	1	1	3
5881		HOLL	01	17	1620	S30	E01	01	17.7		A	HS	20	1	1	3
5881		PALE	01	17	1946	S28	W01	01	17.7		A	HS	30	2	2	2
5881		CULG	01	18	0022	S29	W02	01	17.8		B	CSO	20	2	3	2
5881		LEAR	01	18	0215	S32	W05	01	17.7		B	CSO	60	5	5	3
5881		RAMY	01	18	1535	S30	W09	01	17.9		B	CAO	50	5	4	1
5881		HOLL	01	18	1545	S30	W10	01	17.9		B	CAO	40	3	5	1
5881		PALE	01	18	1928	S31	W10	01	18.0		B	CSO	40	3	4	1
5881		LEAR	01	19	0015	S30	W13	01	18.0		B	DAO	40	6	6	3
5881		CULG	01	19	0130	S30	W14	01	18.0		B	CSO	20	2	4	1
5881		RAMY	01	19	1636	S31	W22	01	17.9		A	HA	20	1	2	2
5881		HOLL	01	19	2255	S29	W26	01	17.9		B	CSO	10	2	4	3
5881		LEAR	01	20	0025	S31	W30	01	17.6		B	CAO	20	3	5	3
5881		CULG	01	20	0215	S31	W27	01	18.0		B	CSO	20	2	4	2
5881		SVTO	01	20	0955	S29	W32	01	17.9		A	HS	30	1	1	3
5881		BOUL	01	20	1614	S30	W36	01	17.8		A	HS	30	1	1	2
5881		HOLL	01	20	1715	S30	W37	01	17.8		A	HS	30	1	2	4
5881		RAMY	01	20	1918	S31	W34	01	18.1		B	CAO	40	3	5	3
5881		CULG	01	21	0145	S32	W41	01	17.8		A	HR	10	1	1	2
5881		LEAR	01	21	0210	S31	W41	01	17.8		A	HS	10	1	1	3
5881		SVTO	01	21	0845	S31	W43	01	18.0		A	HS	30	1	1	3
5881		RAMY	01	21	1235	S30	W42	01	18.2		B	CAO	20	2	8	3
5881		BOUL	01	21	1700	S30	W48	01	17.9		A	HS	20	1	1	1
5881		HOLL	01	21	1855	S30	W50	01	17.8		A	HR	30	1	1	2
5881		CULG	01	22	0100	S32	W51	01	18.0		A	HR	10	1	1	2
5881		LEAR	01	22	0200	S32	W52	01	18.0		A	HS	20	1	1	3
5881		RAMY	01	22	1315	S29	W60	01	17.8		A	HA	20	1	1	4
5881		BOUL	01	22	1642	S30	W63	01	17.7		A	HS	20	1	2	1
5881		HOLL	01	22	1840	S30	W62	01	17.9		A	AX	10	1	1	2
5881		CULG	01	23	0100	S32	W65	01	17.9		A	AX	10	1	1	3
5881		SVTO	01	23	0805	S30	W70	01	17.8		A	AX	20	1	1	3
5881		RAMY	01	23	1542	S30	W71	01	18.1		A	AX	10	2	2	3
5881		HOLL	01	23	1830	S28	W74	01	18.0		A	AX		1		2
5881		RAMY	01	24	1514	S30	W83	01	18.1		A	AX	10	1	1	3
5891		SVTO	01	17	0945	N15	E08	01	18.0		B	BXO	20	4	4	3
5891		HOLL	01	17	1620	N16	E03	01	17.9		B	BXO	10	7	3	3
5891		CULG	01	18	0022	N16	W01	01	17.9		B	BXO	10	3	2	2
5891		HOLL	01	18	1545	N15	W09	01	18.0		B	BXO	10	4	3	1
5891		LEAR	01	19	0015	N16	W13	01	18.0		B	BXO	20	3	3	3
5891		CULG	01	19	0130	N16	W17	01	17.8		A	AX	10	2	1	1
5891		HOLL	01	19	2255	N16	W27	01	17.9		A	AX		2	1	3
5891		LEAR	01	20	0025	N16	W28	01	17.9		B	BXO	10	2	2	3
5891		CULG	01	20	0215	N16	W28	01	18.0		A	AX	10	2	2	2
5882		HOLL	01	11	1525	N20	E82	01	17.9		B	BXO	10	2	4	4
5882		PALE	01	11	1933	N21	E81	01	18.0		A	AX	20	1	1	3
5882		CULG	01	12	0055	N23	E78	01	18.0		B	CAO	40	6	4	2
5882		LEAR	01	12	0145	N21	E77	01	18.0		A	HS	40	1	2	3

S U N S P O T G R O U P S
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JANUARY 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
5882		RAMY	01	12	1250	N21	E70	01	17.9		B	DAO	210	5	5	4
5882		BOUL	01	12	1535	N21	E67	01	17.8		B	DAO	180	6	6	3
5882		HOLL	01	12	1610	N19	E70	01	18.0		B	CAI	80	10	5	3
5882		PALE	01	12	2205	N20	E68	01	18.1		B	CKI	170	6	7	2
5882		LEAR	01	13	0025	N21	E65	01	18.0		B	DAO	110	11	10	3
5882		CULG	01	13	0440	N23	E63	01	18.0		B	DAO	70	8	9	2
5882		SVTO	01	13	0843	N19	E61	01	18.0		B	EAO	130	11	11	2
5882		RAMY	01	13	1330	N18	E61	01	18.2		B	EAO	340	21	11	4
5882		BOUL	01	13	1642	N21	E59	01	18.2		B	DSO	100	10	10	2
5882		HOLL	01	13	1710	N19	E57	01	18.1		B	CAI	140	20	10	4
5882		PALE	01	13	1820	N17	E55	01	17.9		B	CAO	160	20	10	3
5882		LEAR	01	14	0015	N20	E53	01	18.1		B	CSO	110	15	10	3
5882		CULG	01	14	0255	N23	E52	01	18.1		B	CAO	80	12	9	2
5882		RAMY	01	14	1210	N21	E45	01	17.9		B	EAI	210	46	13	3
5882		SVTO	01	14	1320	N20	E46	01	18.1		B	EAI	230	21	12	1
5882		BOUL	01	14	1630	N22	E44	01	18.1		B	ESI	80	17	11	2
5882		HOLL	01	14	1640	N20	E42	01	17.9		B	EAO	170	32	11	2
5882		LEAR	01	15	0257	N20	E37	01	17.9		B	EAI	390	38	11	3
5882		SVTO	01	15	1410	N18	E34	01	18.2		B	ESI	70	38	13	1
5882		BOUL	01	15	1518	N22	E32	01	18.1		B	EAI	130	23	12	1
5882		RAMY	01	15	1550	N21	E31	01	18.0		B	EAI	190	52	12	2
5882		HOLL	01	15	2030	N21	E28	01	18.0		B	EAO	160	49	12	3
5882		LEAR	01	16	0045	N20	E25	01	17.9		B	EAI	320	38	14	3
5882		SVTO	01	16	1010	N23	E23	01	18.2		B	EAI	380	48	11	4
5882		RAMY	01	16	1239	N22	E20	01	18.1		B	EAI	150	35	13	3
5882		BOUL	01	16	1545	N23	E19	01	18.1		B	CAI	140	7	10	1
5882		LEAR	01	17	0150	N21	E14	01	18.1		B	EAI	200	47	11	3
5882		SVTO	01	17	0945	N21	E10	01	18.2		B	EAI	250	32	11	3
5882		RAMY	01	17	1315	N21	E07	01	18.1		B	EAI	240	51	14	3
5882		BOUL	01	17	1522	N23	E06	01	18.1		B	EAC	260	23	11	3
5882		HOLL	01	17	1620	N21	E05	01	18.1		B	EAI	210	37	12	3
5882		PALE	01	17	1946	N23	E02	01	18.0		B	EAI	230	24	12	2
5882		CULG	01	18	0022	N23	W02	01	17.9		B	EAI	130	35	12	2
5882		LEAR	01	18	0215	N22	W01	01	18.0		B	EAI	280	32	11	3
5882		RAMY	01	18	1535	N20	W06	01	18.2		B	EAO	270	23	13	1
5882		HOLL	01	18	1545	N22	W08	01	18.0		B	EAO	290	25	13	1
5882		PALE	01	18	1928	N21	W10	01	18.0		B	EAI	190	17	12	1
5882		LEAR	01	19	0015	N21	W12	01	18.1		B	EKI	260	31	14	3
5882		CULG	01	19	0130	N22	W17	01	17.7		B	EAI	160	22	13	1
5882		RAMY	01	19	1636	N19	W21	01	18.1		B	FAO	280	38	15	2
5882		HOLL	01	19	2255	N22	W25	01	18.0		B	FAI	320	41	16	3
5882		LEAR	01	20	0025	N21	W27	01	17.9		B	FAI	230	53	17	3
5882		CULG	01	20	0215	N21	W28	01	17.9		B	EAI	250	45	14	2
5882		SVTO	01	20	0955	N21	W32	01	17.9		B	FSI	310	54	16	3
5882		BOUL	01	20	1614	N20	W35	01	18.0		B	FSI	270	30	16	2
5882		HOLL	01	20	1715	N22	W36	01	17.9		B	FAI	310	47	18	4
5882		RAMY	01	20	1918	N19	W38	01	17.9		B	FAI	400	36	17	3
5882		CULG	01	21	0145	N19	W44	01	17.7		B	FAI	180	17	16	2
5882		LEAR	01	21	0210	N20	W39	01	18.1		B	FAO	140	26	16	3
5882		SVTO	01	21	0845	N20	W45	01	17.9		B	FSI	510	35	18	3
5882		RAMY	01	21	1235	N21	W46	01	18.0		B	FAO	370	29	19	3
5882		BOUL	01	21	1700	N22	W50	01	17.9		B	FSI	140	14	19	1
5882		HOLL	01	21	1855	N21	W51	01	17.9		B	FKO	470	37	18	2
5882		CULG	01	22	0100	N19	W55	01	17.8		B	FAI	300	13	18	2
5882		LEAR	01	22	0200	N18	W52	01	18.1		BG	FAI	270	20	16	3
5882		RAMY	01	22	1315	N21	W60	01	17.9		B	FKO	410	21	19	4
5882		BOUL	01	22	1642	N25	W68	01	17.4		B	FAI	220	6	24	1
5882		HOLL	01	22	1840	N21	W65	01	17.8		B	FKO	320	13	19	2
5882		LEAR	01	23	0012	N20	W67	01	17.9		B	EAO	220	12	15	3
5882		CULG	01	23	0100	N19	W70	01	17.7		B	FAO	100	6	16	3
5882		SVTO	01	23	0805	N19	W80	01	17.2		B	EKI	180	9	11	3
5882		BOUL	01	23	1508	N24	W79	01	17.5		B	BXO	60	2	4	1
5882		RAMY	01	23	1542	N22	W74	01	18.0		B	FAO	300	6	20	3
5882		HOLL	01	23	1830	N25	W75	01	18.0		B	DAO	60	4	5	2
5883		HOLL	01	11	1525	S20	E86	01	18.2		B	BXO	10	3	3	4
5883		CULG	01	12	0055	S17	E80	01	18.1		A	HS	20	1	1	2
5883		LEAR	01	12	0145	S19	E80	01	18.2		A	HS	20	1	1	3
5883		RAMY	01	12	1250	S20	E70	01	17.9		B	CAO	50	3	2	4

S U N S P O T G R O U P S
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JANUARY 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
5883		BOUL	01	12	1535	S19	E69	01	17.9		A	HS	50	1	1	3
5883		HOLL	01	12	1610	S20	E71	01	18.1		B	CSO	50	3	4	3
5883		PALE	01	12	2205	S19	E67	01	18.0		A	HA	50	2	2	2
5883		LEAR	01	13	0025	S19	E67	01	18.1		B	CAO	50	5	9	3
5883		CULG	01	13	0440	S17	E64	01	18.0		B	CAO	40	4	4	2
5883		SVTO	01	13	0843	S21	E61	01	18.0		B	CAO	40	6	5	2
5883		RAMY	01	13	1330	S22	E62	01	18.3		B	CAO	110	10	10	4
5883		BOUL	01	13	1642	S19	E59	01	18.2		A	HA	40	3	2	2
5883		HOLL	01	13	1710	S21	E52	01	17.7		B	CAO	30	7	8	4
5883		PALE	01	13	1820	S22	E59	01	18.3		B	CAO	40	6	9	3
5883		LEAR	01	14	0015	S19	E55	01	18.2		B	CAO	40	4	8	3
5883		CULG	01	14	0255	S18	E51	01	18.0		A	HS	60	1	2	2
5883		RAMY	01	14	1210	S19	E45	01	17.9		A	HA	40	5	2	3
5883		SVTO	01	14	1320	S21	E46	01	18.1		A	HA	60	3	2	1
5883		BOUL	01	14	1630	S18	E45	01	18.1		A	HA	60	2	1	2
5883		HOLL	01	14	1640	S21	E45	01	18.1		B	CSO	80	5	4	2
5883		LEAR	01	15	0257	S19	E38	01	18.0		A	HA	50	2	2	3
5883		SVTO	01	15	1410	S22	E33	01	18.1		A	HS	40	2	2	1
5883		BOUL	01	15	1518	S19	E32	01	18.1		B	BXO	20	3	2	1
5883		RAMY	01	15	1550	S19	E32	01	18.1		B	DAO	50	6	4	2
5883		HOLL	01	15	2030	S22	E32	01	18.3		B	CAO	50	6	7	3
5883		LEAR	01	16	0045	S21	E28	01	18.2		B	CSO	40	5	3	3
5883		SVTO	01	16	1010	S20	E22	01	18.1		A	CS	40	3	2	4
5883		RAMY	01	16	1239	S19	E22	01	18.2		B	CAO	30	7	3	3
5883		BOUL	01	16	1545	S19	E19	01	18.1		B	BXO	30	3	2	1
5883		LEAR	01	17	0150	S21	E14	01	18.1		B	CAO	30	5	3	3
5883		SVTO	01	17	0945	S21	E09	01	18.1		B	DAO	40	5	2	3
5883		RAMY	01	17	1315	S21	E11	01	18.4		B	CAO	30	10	15	3
5883		BOUL	01	17	1522	S19	E07	01	18.2		B	CAO	30	2	2	3
5883		HOLL	01	17	1620	S20	E07	01	18.2		A	HS	10	3	2	3
5883		PALE	01	17	1946	S20	E05	01	18.2		A	HS	20	2	1	2
5883		CULG	01	18	0022	S20	E02	01	18.2		B	CSO	10	2	2	2
5883		LEAR	01	18	0215	S21	E01	01	18.2		B	CAO	30	2	3	3
5883		RAMY	01	18	1535	S20	W06	01	18.2		B	CAO	30	3	3	1
5883		HOLL	01	18	1545	S20	W07	01	18.1		B	CSO	20	2	3	1
5883		PALE	01	18	1928	S21	W08	01	18.2		A	AX		2	1	1
5883		LEAR	01	19	0015	S20	W11	01	18.2		B	CSO	20	5	2	3
5883		CULG	01	19	0130	S20	W12	01	18.1		B	BXO	10	2	1	1
5883		RAMY	01	19	1636	S21	W15	01	18.5		B	CRO	20	6	8	2
5883		HOLL	01	19	2255	S21	W23	01	18.2		B	CRO	10	2	3	3
5883		LEAR	01	20	0025	S21	W25	01	18.1		A	HS	10	1	1	3
5883		CULG	01	20	0215	S20	W23	01	18.3		B	AX	10	1	1	2
5883		SVTO	01	20	0955	S20	W29	01	18.2		A	AX	10	1	1	3
5883		HOLL	01	20	1715	S21	W33	01	18.2		A	AX		1		4
5883		RAMY	01	20	1918	S22	W32	01	18.3		A	AX	10	1	1	3
5888		SVTO	01	15	1410	S11	E35	01	18.2		B	BXO	20	4	2	1
5888		BOUL	01	15	1518	S07	E33	01	18.1		B	BXO	20	2	1	1
5888		RAMY	01	15	1550	S08	E32	01	18.0		B	CRO	10	2	2	2
5888		HOLL	01	15	2030	S09	E29	01	18.0		B	BXO	10	4	3	3
5888		RAMY	01	16	1239	S09	E23	01	18.2		A	AX		1		3
5888		LEAR	01	17	0150	S08	E13	01	18.0		B	BXO	10	6	4	3
5888		CULG	01	18	0022	S06	E02	01	18.2		A	AX		1		2
5894		BOUL	01	17	1522	S28	E14	01	18.7		B	BXO	10	3	2	3
5894		HOLL	01	17	1620	S31	E17	01	19.0		B	BXO	10	6	8	3
5894		PALE	01	17	1946	S30	E12	01	18.8		B	BXO	10	3	2	2
5894		CULG	01	18	0022	S28	E10	01	18.8		B	BXO	10	7	2	2
5894		LEAR	01	18	0215	S29	E08	01	18.7		B	BXO	20	8	4	3
5894		RAMY	01	18	1535	S30	E06	01	19.1		B	DAO	50	6	3	1
5894		HOLL	01	18	1545	S30	E00	01	18.6		B	DAO	80	7	4	1
5894		PALE	01	18	1928	S30	E00	01	18.8		B	DAO	40	3	4	1
5894		LEAR	01	19	0015	S30	W05	01	18.6		B	DAO	80	11	5	3
5894		CULG	01	19	0130	S29	W04	01	18.7		B	DAO	10	5	4	1
5894		RAMY	01	19	1636	S31	W11	01	18.8		B	BXO	10	11	5	2
5894		LEAR	01	20	0025	S31	W17	01	18.7		B	DAO	40	13	7	3
5894		CULG	01	20	0215	S30	W18	01	18.7		B	BXO	10	9	5	2
5894		SVTO	01	20	0955	S30	W23	01	18.6		B	BXO	40	7	6	3
5894		BOUL	01	20	1614	S30	W26	01	18.6		B	BXO		3	6	2

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

JANUARY 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
5894		HOLL	01	20	1715	S29	W27	01	18.6		B	BXO	30	2	5	4
5894		RAMY	01	20	1918	S31	W27	01	18.7		B	CAO	20	4	6	3
5894		CULG	01	21	0145	S30	W33	01	18.5		A	AX		1		2
5894		LEAR	01	21	0210	S30	W31	01	18.6		B	CAO	10	3	6	3
5894		SVTO	01	21	0845	S28	W37	01	18.5		A	AX	10	1	1	3
5894		HOLL	01	21	1855	S30	W40	01	18.6		B	BXO	10	4	7	2
5902		RAMY	01	23	1542	S14	W51	01	19.8		B	BXO	10	4	4	3
5902		HOLL	01	23	1830	S14	W55	01	19.6		B	BXO	10	4	5	2
5902		CULG	01	24	0040	S18	W58	01	19.6		B	BXO	10	4	4	3
5902		SVTO	01	24	1050	S14	W63	01	19.7		B	DSO	70	5	4	3
5902		RAMY	01	24	1514	S16	W64	01	19.8		B	DAI	60	6	6	3
5902		HOLL	01	24	1600	S15	W66	01	19.7		B	BXO	40	6	5	3
5902		BOUL	01	24	1606	S14	W66	01	19.7		B	CSO	60	5	5	2
5902		CULG	01	25	0020	S16	W70	01	19.7		B	BXO	10	5	5	2
5902		LEAR	01	25	0140	S15	W72	01	19.6		B	BXO	50	3	5	3
5902		SVTO	01	25	1000	S13	W76	01	19.7		B	CRO	60	3	7	2
5902		RAMY	01	25	1525	S15	W78	01	19.7		B	BXO	30	4	5	3
5899		HOLL	01	19	2255	N12	E08	01	20.5		A	AX		2	1	3
5899		LEAR	01	20	0025	N08	E12	01	20.9		A	AX	10	1	1	3
5899		SVTO	01	20	0955	N08	E07	01	20.9		B	BXO	20	4	2	3
5899		BOUL	01	20	1614	N09	E03	01	20.9		B	CAO	10	4	2	2
5899		HOLL	01	20	1715	N08	E02	01	20.9		B	CAO	30	4	3	4
5899		RAMY	01	20	1918	N09	E00	01	20.8		B	CAO	30	2	4	3
5899		CULG	01	21	0145	N08	W04	01	20.8		B	CRO	30	5	3	2
5899		LEAR	01	21	0210	N08	W03	01	20.9		B	DAO	20	6	3	3
5899		SVTO	01	21	0845	N08	W07	01	20.8		B	DSO	50	9	4	3
5899		RAMY	01	21	1235	N09	W09	01	20.8		B	DAO	40	6	4	3
5899		BOUL	01	21	1700	N10	W11	01	20.9		B	DSO	20	2	3	1
5899		HOLL	01	21	1855	N09	W12	01	20.9		B	BXO	20	7	3	2
5899		CULG	01	22	0100	N09	W16	01	20.8		B	CRO	10	9	5	2
5899		LEAR	01	22	0200	N08	W17	01	20.8		B	DAO	20	7	4	3
5899		RAMY	01	22	1315	N09	W22	01	20.9		B	BXO	30	19	5	4
5899		BOUL	01	22	1642	N09	W26	01	20.7		B	BXO	40	4	3	1
5899		HOLL	01	22	1840	N09	W26	01	20.8		B	BXO	10	10	6	2
5899		LEAR	01	23	0012	N08	W28	01	20.9		B	DSO	60	7	5	3
5899		CULG	01	23	0100	N08	W31	01	20.7		B	BXO	10	7	5	3
5899		SVTO	01	23	0805	N08	W33	01	20.9		B	CAO	50	8	5	3
5899		BOUL	01	23	1508	N09	W38	01	20.8		B	BXO	50	4	4	1
5899		RAMY	01	23	1542	N09	W37	01	20.9		B	CRO	30	8	6	3
5899		HOLL	01	23	1830	N08	W40	01	20.8		B	BXO	20	8	6	2
5899		CULG	01	24	0040	N08	W43	01	20.8		B	BXO	10	12	6	3
5899		SVTO	01	24	1050	N09	W50	01	20.7		B	BXO	20	6	5	3
5899		RAMY	01	24	1514	N09	W52	01	20.7		B	BXO	10	6	8	3
5899		HOLL	01	24	1600	N08	W52	01	20.8		B	BXO	20	3	8	3
5899		BOUL	01	24	1606	N09	W55	01	20.5		A	AX	10	1	1	2
5899		CULG	01	25	0020	N08	W60	01	20.5		A	AX	10	1	1	2
5899		LEAR	01	25	0140	N08	W62	01	20.4		A	AX	10	1	1	3
5887		HOLL	01	14	1640	N25	E81	01	21.0		A	AX	30	1	1	2
5887		LEAR	01	15	0257	N27	E73	01	20.8		A	HS	120	2	2	3
5887		SVTO	01	15	1410	N23	E68	01	20.8		A	HA	120	2	2	1
5887		BOUL	01	15	1518	N26	E70	01	21.1		B	BXO	30	2	2	1
5887		RAMY	01	15	1550	N27	E67	01	20.9		A	HA	70	2	2	2
5887		HOLL	01	15	2030	N26	E63	01	20.7		A	HR	50	2	2	3
5887		LEAR	01	16	0045	N25	E61	01	20.7		A	AX	50	2	2	3
5887		SVTO	01	16	1010	N25	E57	01	20.8		A	HA	40	1	1	4
5887		RAMY	01	16	1239	N26	E57	01	20.9		A	HA	40	2	2	3
5887		BOUL	01	16	1545	N26	E57	01	21.1		B	BXO	30	2	2	1
5887		LEAR	01	17	0150	N25	E51	01	21.0		B	CSO	40	5	7	3
5887		SVTO	01	17	0945	N25	E45	01	20.9		A	HA	30	1	1	3
5887		RAMY	01	17	1315	N26	E42	01	20.8		A	HA	10	2	1	3
5887		BOUL	01	17	1522	N25	E39	01	20.7		A	HA	20	1	1	3
5887		HOLL	01	17	1620	N26	E41	01	20.9		A	HA	20	2	1	3
5887		PALE	01	17	1946	N26	E38	01	20.8		A	AX	10	1		2
5887		CULG	01	18	0022	N28	E35	01	20.7		A	HR	10	1	1	2
5887		LEAR	01	18	0215	N25	E38	01	21.0		B	CRO	30	3	6	3
5887		RAMY	01	18	1535	N26	E29	01	20.9		A	HA	10	1	1	1

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JANUARY 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
5887		HOLL	01	18	1545	N25	E28	01	20.8		A	AX	10	1	1	1
5887		PALE	01	18	1928	N26	E26	01	20.8		A	HS	20	1	1	1
5887		LEAR	01	19	0015	N26	E24	01	20.9		A	HH	10	1	1	3
5887		CULG	01	19	0130	N27	E21	01	20.7		A	AX	10	1	1	1
5887		RAMY	01	19	1636	N26	E16	01	20.9		A	HA	20	1	1	2
5887		HOLL	01	19	2255	N24	E13	01	20.9		A	AX		1	1	3
5887		LEAR	01	20	0025	N26	E11	01	20.9		A	HS	10	1	1	3
5887		CULG	01	20	0215	N26	E10	01	20.9		A	AX	10	1	1	2
5887		SVTO	01	20	0955	N26	E06	01	20.9		A	AX	10	1	1	3
5887		BOUL	01	20	1614	N25	E03	01	20.9		A	HR	10	1	1	2
5887		HOLL	01	20	1715	N25	E03	01	20.9		B	CRO	10	2	3	4
5887		RAMY	01	20	1918	N26	E01	01	20.9		B	CAO	10	2	4	3
5887		CULG	01	21	0145	N27	W04	01	20.8		A	AX	10	1	1	2
5887		LEAR	01	21	0210	N26	W03	01	20.8		A	AX	10	2	1	3
5887		SVTO	01	21	0845	N26	W08	01	20.7		B	BXO	10	2	3	3
5887		CULG	01	22	0100	N26	W17	01	20.7		A	AX		1		2
5887		LEAR	01	22	0200	N24	W18	01	20.7		A	AX	10	1	1	3
5899A		HOLL	01	23	1830	N16	W37	01	21.0		A	AX		1		2
5899A		CULG	01	24	0040	N15	W41	01	20.9		A	AX	10	1	1	3
5889		CULG	01	15	0015	S10	E86	01	21.5		A	HS	60	1	2	3
5889		SVTO	01	15	1410	S12	E80	01	21.6		A	HA	120	1	2	1
5889		RAMY	01	15	1550	S09	E81	01	21.7		A	HS	120	1	2	2
5889		HOLL	01	15	2030	S10	E78	01	21.7		A	HS	60	1	2	3
5889		LEAR	01	16	0045	S09	E77	01	21.8		A	HS	60	1	2	3
5889		SVTO	01	16	1010	S09	E72	01	21.8		A	HA	50	1	2	4
5889		RAMY	01	16	1239	S08	E74	01	22.1		B	CSO	110	4	6	3
5889		BOUL	01	16	1545	S08	E74	01	22.2		A	HS	60	1	3	1
5889		LEAR	01	17	0150	S08	E63	01	21.8		B	CKO	130	6	4	3
5889		SVTO	01	17	0945	S09	E60	01	21.9		B	DAI	140	9	3	3
5889		RAMY	01	17	1315	S09	E58	01	21.9		B	CAO	90	29	3	3
5889		BOUL	01	17	1522	S09	E55	01	21.8		B	FAI	260	16	16	3
5889		HOLL	01	17	1620	S09	E58	01	22.0		B	CAI	120	12	4	3
5889		PALE	01	17	1946	S08	E57	01	22.1		B	CAO	130	6	4	2
5889		CULG	01	18	0022	S08	E53	01	22.0		B	DSO	80	6	4	2
5889		LEAR	01	18	0215	S09	E51	01	21.9		B	DAO	140	6	4	3
5889		RAMY	01	18	1535	S09	E45	01	22.0		B	DAO	180	13	8	1
5889		HOLL	01	18	1545	S11	E45	01	22.0		B	DAO	150	9	6	1
5889		PALE	01	18	1928	S09	E45	01	22.2		B	DAO	150	12	10	1
5889		LEAR	01	19	0015	S10	E39	01	21.9		B	DKI	120	21	5	3
5889		CULG	01	19	0130	S06	E39	01	22.0		B	DAO	80	9	6	1
5889		RAMY	01	19	1636	S09	E32	01	22.1		B	DAO	200	22	8	2
5889		HOLL	01	19	2255	S10	E28	01	22.0		BG	DSO	260	18	10	3
5889		LEAR	01	20	0025	S09	E28	01	22.1		B	DAI	140	18	7	3
5889		CULG	01	20	0215	S09	E26	01	22.0		B	DAI	140	23	7	2
5889		SVTO	01	20	0955	S10	E23	01	22.1		B	DSI	230	41	10	3
5889		BOUL	01	20	1614	S09	E18	01	22.0		B	CSO	50	11	4	2
5889		HOLL	01	20	1715	S11	E19	01	22.1		BG	DSO	20	26	9	4
5889		RAMY	01	20	1918	S09	E17	01	22.1		B	DAO	130	21	6	3
5889		CULG	01	21	0145	S08	E14	01	22.1		B	DSO	90	6	6	2
5889		LEAR	01	21	0210	S09	E13	01	22.1		B	DSO	80	10	3	3
5889		SVTO	01	21	0845	S08	E11	01	22.2		B	DSO	160	15	7	3
5889		RAMY	01	21	1235	S08	E07	01	22.0		B	CSO	100	11	4	3
5889		BOUL	01	21	1700	S09	E05	01	22.1		A	HS	40	1	1	1
5889		HOLL	01	21	1855	S09	E04	01	22.1		B	CSO	90	6	4	2
5889		CULG	01	22	0100	S08	E00	01	22.0		B	CSO	60	5	3	2
5889		RAMY	01	22	1315	S09	W07	01	22.0		B	CSO	80	4	3	4
5889		BOUL	01	22	1642	S08	W09	01	22.0		A	HS	30	1	1	1
5889		HOLL	01	22	1840	S09	W10	01	22.0		A	HS	60	1	2	2
5889		LEAR	01	23	0012	S10	W12	01	22.1		B	CSO	60	4	3	3
5889		CULG	01	23	0100	S09	W13	01	22.1		A	HS	60	1	2	3
5889		SVTO	01	23	0805	S10	W15	01	22.2		B	DSO	140	3	6	3
5889		BOUL	01	23	1508	S09	W20	01	22.1		A	HA	30	1	1	1
5889		RAMY	01	23	1542	S09	W21	01	22.1		B	CAO	70	3	3	3
5889		HOLL	01	23	1830	S09	W23	01	22.0		B	CSO	50	4	3	2
5889		CULG	01	24	0040	S09	W26	01	22.1		A	HA	90	3	2	3
5889		SVTO	01	24	1050	S10	W30	01	22.2		B	DSO	110	3	4	3
5889		RAMY	01	24	1514	S09	W33	01	22.1		B	CSO	70	2	2	3

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
5889		HOLL	01	24	1600	S09	W35	01	22.0		A	HS	70	2	2	3
5889		BOUL	01	24	1606	S08	W34	01	22.1		A	HA	50	2	2	2
5889		CULG	01	25	0020	S09	W38	01	22.2		A	HA	70	2	2	2
5889		LEAR	01	25	0140	S09	W39	01	22.1		A	HS	50	2	2	3
5889		SVTO	01	25	1000	S09	W43	01	22.2		B	DSO	100	3	4	2
5889		RAMY	01	25	1525	S09	W48	01	22.0		A	HA	50	3	2	3
5889		BOUL	01	25	1550	S09	W52	01	21.7		A	HA	90	1	2	1
5889		CULG	01	26	0020	S09	W53	01	22.0		A	HS	70	2	2	3
5889		SVTO	01	26	1210	S10	W58	01	22.1		B	DSO	100	3	4	1
5889		RAMY	01	26	1340	S10	W60	01	22.1		A	HA	40	1	1	4
5889		BOUL	01	26	1643	S09	W62	01	22.0		A	HA	40	2	2	1
5889		CULG	01	27	0205	S07	W67	01	22.1		A	HR	10	1	1	3
5889		SVTO	01	27	0905	S08	W68	01	22.3		B	BXO	40	4	4	3
5889		RAMY	01	27	1324	S10	W73	01	22.1		A	AX	10	2	1	3
5889B		HOLL	01	23	1830	N02	W22	01	22.1		B	BXO	20	10	7	2
5889A		BOUL	01	24	1606	S30	W31	01	22.2		B	BXO	10	2	2	2
5890		SVTO	01	17	0945	S12	E69	01	22.6		B	CRO	100	11	6	3
5890		RAMY	01	17	1315	S11	E69	01	22.7		B	CAO	60	13	9	3
5890		HOLL	01	17	1620	S12	E68	01	22.8		B	DAI	70	12	9	3
5890		PALE	01	17	1946	S11	E66	01	22.8		B	BXO	30	10	7	2
5890		CULG	01	18	0022	S12	E64	01	22.8		B	DAO	50	7	9	2
5890		LEAR	01	18	0215	S12	E61	01	22.7		B	DAO	120	19	9	3
5890		RAMY	01	18	1535	S11	E55	01	22.8		B	EAO	200	19	11	1
5890		HOLL	01	18	1545	S12	E55	01	22.8		B	DAO	170	15	8	1
5890		PALE	01	18	1928	S11	E55	01	22.9		B	EAO	180	10	11	1
5890		LEAR	01	19	0015	S12	E50	01	22.8		B	EKI	210	27	12	3
5890		CULG	01	19	0130	S08	E49	01	22.7		B	DAO	80	9	9	1
5890		RAMY	01	19	1636	S11	E41	01	22.8		B	EAO	310	28	12	2
5890		HOLL	01	19	2255	S12	E41	01	23.0		B	DAO	200	22	8	3
5890		LEAR	01	20	0025	S12	E38	01	22.9		B	EAO	140	19	13	3
5890		CULG	01	20	0215	S11	E36	01	22.8		B	EKO	260	31	12	2
5890		SVTO	01	20	0955	S11	E35	01	23.0		B	DSI	220	40	8	3
5890		BOUL	01	20	1614	S11	E28	01	22.8		B	ESO	110	20	12	2
5890		HOLL	01	20	1715	S12	E30	01	23.0		B	BXO	20	5	8	4
5890		RAMY	01	20	1918	S10	E27	01	22.8		B	DAO	300	28	13	3
5890		CULG	01	21	0145	S09	E26	01	23.0		B	DAI	60	15	7	2
5890		LEAR	01	21	0210	S12	E22	01	22.7		B	EAI	130	20	13	3
5890		SVTO	01	21	0845	S10	E22	01	23.0		B	DSI	140	20	8	3
5890		RAMY	01	21	1235	S11	E18	01	22.9		BG	EAO	190	35	13	3
5890		BOUL	01	21	1700	S10	E14	01	22.8		B	ESI	130	10	11	1
5890		HOLL	01	21	1855	S11	E13	01	22.8		B	ESO	210	36	12	2
5890		CULG	01	22	0100	S09	E10	01	22.8		B	EAO	70	22	12	2
5890		LEAR	01	22	0200	S11	E11	01	22.9		B	ESI	140	30	15	3
5890		RAMY	01	22	1315	S11	E03	01	22.8		B	ESO	160	32	12	4
5890		BOUL	01	22	1642	S09	E00	01	22.7		B	EAI	80	6	11	1
5890		HOLL	01	22	1840	S11	E01	01	22.8		B	EAO	90	15	12	2
5890		LEAR	01	23	0012	S12	W01	01	22.9		B	EAO	80	15	12	3
5890		CULG	01	23	0100	S10	W04	01	22.7		B	EAI	70	17	12	3
5890		SVTO	01	23	0805	S11	W07	01	22.8		B	DAI	70	26	10	3
5890		BOUL	01	23	1508	S10	W11	01	22.8		B	EAI	70	9	11	1
5890		RAMY	01	23	1542	S10	W12	01	22.7		B	EAO	150	21	13	3
5890		HOLL	01	23	1830	S11	W13	01	22.8		B	CSO	100	20	14	2
5890		CULG	01	24	0040	S11	W16	01	22.8		B	CAO	70	18	14	3
5890		SVTO	01	24	1050	S11	W23	01	22.7		B	CSO	50	10	8	3
5890		RAMY	01	24	1514	S11	W27	01	22.6		B	EAO	120	11	11	3
5890		HOLL	01	24	1600	S11	W26	01	22.7		B	CSO	110	13	12	3
5890		BOUL	01	24	1606	S11	W26	01	22.7		B	DAO	100	9	9	2
5890		CULG	01	25	0020	S11	W30	01	22.7		B	CSO	60	20	13	2
5890		LEAR	01	25	0140	S11	W30	01	22.8		B	CAO	70	12	10	3
5890		SVTO	01	25	1000	S11	W36	01	22.7		B	DAI	110	15	8	2
5890		RAMY	01	25	1525	S11	W39	01	22.7		B	EAO	120	25	12	3
5890		BOUL	01	25	1550	S08	W44	01	22.4		B	EAC	210	5	12	1
5890		CULG	01	26	0020	S11	W46	01	22.5		B	CSO	60	22	11	3
5890		SVTO	01	26	1210	S10	W50	01	22.8		B	DAO	90	10	9	1
5890		RAMY	01	26	1340	S11	W51	01	22.7		B	EAO	90	16	11	4
5890		BOUL	01	26	1643	S11	W54	01	22.6		B	EAO	150	14	11	1

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(Ordered by Central Meridian Passage Date)

JANUARY 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
5890		CULG	01 27 0205	S10 W60	01 22.6		B	CAO	30	8	11	3
5890		SVTO	01 27 0905	S09 W60	01 22.9		B	BXO	30	3	7	3
5890		RAMY	01 27 1324	S11 W65	01 22.7		B	DAO	90	8	10	3
5890		BOUL	01 27 1518	S10 W68	01 22.5		B	ESO	50	3	12	2
5890		CULG	01 28 0118	S11 W75	01 22.4		B	BXO	30	4	6	2
5890		SVTO	01 28 1305	S08 W79	01 22.6		A	AX	20	1	1	1
5890		HOLL	01 28 1600	S11 W78	01 22.8		A	AX		1	1	4
5890		RAMY	01 28 1817	S11 W78	01 22.9		B	BXO	10	4	6	3
5890A		CULG	01 27 0205	N27 W46	01 23.5		A	AX		1		3
5890A		RAMY	01 27 1324	N25 W53	01 23.4		A	AX	10	1	1	3
5890A		BOUL	01 27 1518	N26 W53	01 23.5		A	AX		1	1	2
5890A		HOLL	01 27 2225	N26 W56	01 23.6		A	AX		1		2
5890A		CULG	01 28 0118	N27 W59	01 23.4		A	AX		1		2
5893		BOUL	01 17 1522	N23 E73	01 23.3		A	AX	10	1	1	3
5893		HOLL	01 17 1620	N22 E75	01 23.4		A	AX	10	1	1	3
5893		CULG	01 18 0022	N23 E70	01 23.4		A	AX	10	1	1	2
5893		LEAR	01 18 0215	N23 E67	01 23.2		A	AX	30	1	1	3
5893		RAMY	01 18 1535	N23 E60	01 23.3		A	HA	20	1	1	1
5893		HOLL	01 18 1545	N23 E61	01 23.3		A	HS	40	1	1	1
5893		PALE	01 18 1928	N24 E60	01 23.4		A	AX	20	1	1	1
5893		LEAR	01 19 0015	N23 E57	01 23.4		A	HH	20	1	1	3
5893		CULG	01 19 0130	N27 E54	01 23.3		A	AX	10	1	1	1
5893		RAMY	01 19 1636	N24 E47	01 23.3		A	AX	10	1	1	2
5893		HOLL	01 19 2255	N23 E43	01 23.3		A	AX		1	1	3
5893		LEAR	01 20 0025	N22 E44	01 23.4		B	CRO	30	2	5	3
5893		CULG	01 20 0215	N24 E42	01 23.3		A	AX	10	1	1	2
5893		SVTO	01 20 0955	N23 E41	01 23.6		B	BXO	80	12	8	3
5893		BOUL	01 20 1614	N23 E36	01 23.4		B	BXO		5	7	2
5893		HOLL	01 20 1715	N22 E37	01 23.6		B	BXO	20	5	8	4
5893		RAMY	01 20 1918	N23 E32	01 23.3		B	BXO	10	5	6	3
5893		CULG	01 21 0145	N24 E28	01 23.2		B	BXO	10	4	4	2
5893		LEAR	01 21 0210	N21 E31	01 23.5		B	CAO	30	11	8	3
5893		SVTO	01 21 0845	N25 E26	01 23.4		B	BXO	80	16	7	3
5893		RAMY	01 21 1235	N23 E27	01 23.6		B	CAO	30	11	8	3
5893		BOUL	01 21 1700	N24 E22	01 23.4		B	DSO	20	4	3	1
5893		HOLL	01 21 1855	N22 E22	01 23.5		B	BXO	20	16	8	2
5893		CULG	01 22 0100	N24 E14	01 23.1		B	BXO	10	8	4	2
5893		LEAR	01 22 0200	N23 E15	01 23.2		B	BXO	10	4	3	3
5893		RAMY	01 22 1315	N22 E10	01 23.3		B	BXO	20	10	6	4
5893		BOUL	01 22 1642	N24 E07	01 23.2		B	BXO	20	2	3	1
5893		HOLL	01 22 1840	N22 E09	01 23.5		B	BXO	10	7	6	2
5893		LEAR	01 23 0012	N22 E06	01 23.5		B	BXO	20	6	8	3
5893		CULG	01 23 0100	N24 E04	01 23.3		B	BXO	10	5	6	3
5893		RAMY	01 23 1542	N22 W02	01 23.5		B	BXO	10	11	6	3
5893		CULG	01 24 0040	N23 W08	01 23.4		B	BXO	10	15	7	3
5893		SVTO	01 27 0905	N26 W50	01 23.5		A	AX	20	1	1	3
5910		RAMY	01 25 1525	N13 W25	01 23.7		B	BXO	10	6	3	3
5910		BOUL	01 25 1550	N12 W26	01 23.7		A	AX	10	1	1	1
5910		CULG	01 26 0020	N15 W32	01 23.6		B	BXO	10	5	4	3
5910		SVTO	01 26 1210	N15 W38	01 23.6		B	BXO	20	3	5	1
5910		RAMY	01 26 1340	N13 W39	01 23.6		B	CRO	10	5	6	4
5910		BOUL	01 26 1643	N14 W41	01 23.6		B	DSO	50	3	5	1
5910		CULG	01 27 0205	N16 W46	01 23.6		B	BXO	10	3	6	3
5910		SVTO	01 27 0905	N15 W50	01 23.6		B	BXO	30	4	6	3
5910		RAMY	01 27 1324	N13 W50	01 23.8		B	BXO	10	6	6	3
5910		BOUL	01 27 1518	N14 W53	01 23.6		B	BXO	10	4	6	2
5910		HOLL	01 27 2225	N14 W57	01 23.6		B	BXO	10	4	7	2
5910		CULG	01 28 0118	N14 W61	01 23.4		B	BXO	10	3	6	2
5910		SVTO	01 28 1305	N16 W65	01 23.6		B	BXO	40	5	7	1
5910		HOLL	01 28 1600	N15 W66	01 23.7		B	BXO	10	4	5	4
5910		RAMY	01 28 1817	N13 W62	01 24.1		B	BXO	10	3	4	3
5910		CULG	01 29 0045	N15 W71	01 23.6		A	AX	10	1		2
5910		LEAR	01 29 0545	N13 W68	01 24.1		A	AX	10	1	1	3
5892A		RAMY	01 17 1315	S26 E82	01 23.9		A	HA	30	1	1	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
5903		RAMY	01 23 1542	S15 E05	01 24.0		B	BXO	10	4	4	3
5903		HOLL	01 23 1830	S15 E03	01 24.0		B	BXO	10	4	3	2
5903		CULG	01 24 0040	S15 E00	01 24.0		B	DRO	60	10	4	3
5903		SVTO	01 24 1050	S16 W08	01 23.8		B	DAO	50	7	5	3
5903		RAMY	01 24 1514	S15 W09	01 23.9		B	CAO	30	7	6	3
5903		HOLL	01 24 1600	S15 W10	01 23.9		B	BXO	20	9	6	3
5903		BOUL	01 24 1606	S18 W10	01 23.9		A	AX		1		2
5903		CULG	01 25 0020	S14 W13	01 24.0		B	BXO	10	11	6	2
5903		LEAR	01 25 0140	S15 W15	01 23.9		B	BXO	20	3	4	3
5903		SVTO	01 25 1000	S15 W20	01 23.9		B	BXO	10	4	6	2
5903		RAMY	01 25 1525	S16 W20	01 24.1		A	AX	10	1	1	3
5903		CULG	01 26 0020	S15 W26	01 24.0		B	BXO	10	4	6	3
5903		RAMY	01 26 1340	S12 W39	01 23.6		A	AX	10	2	1	4
5903		CULG	01 27 0205	S13 W45	01 23.7		A	AX		2	1	3
5903		SVTO	01 27 0905	S12 W48	01 23.8		B	BXO	40	3	3	3
5903		RAMY	01 27 1324	S13 W49	01 23.9		B	BXO	10	2	3	3
5903		BOUL	01 27 1518	S12 W50	01 23.9		A	AX		1	1	2
5903		HOLL	01 27 2225	S12 W55	01 23.8		A	AX		1		2
5903		CULG	01 28 0118	S11 W56	01 23.8		A	AX		1		2
5903		HOLL	01 28 1600	S12 W67	01 23.6		A	AX		1		4
5903		RAMY	01 28 1817	S12 W67	01 23.7		A	AX	10	1	1	3
5903		PALE	01 29 1943	S17 W74	01 24.2		A	AX		2		3
5892		SVTO	01 17 0945	S27 E88	01 24.3		A	HA	60	1	4	3
5892		BOUL	01 17 1522	S27 E79	01 23.8		A	HA	30	1	1	3
5892		HOLL	01 17 1620	S28 E85	01 24.3		B	CSO	40	3	10	3
5892		PALE	01 17 1946	S27 E82	01 24.2		B	CAO	70	6	7	2
5892		CULG	01 18 0022	S28 E79	01 24.2		B	DAO	60	4	6	2
5892		RAMY	01 18 1535	S30 E77	01 24.7		B	EAO	320	9	12	1
5892		HOLL	01 18 1545	S30 E75	01 24.5		B	DAO	300	10	6	1
5892		PALE	01 18 1928	S29 E75	01 24.7		B	EAO	240	8	11	1
5892		LEAR	01 19 0015	S29 E69	01 24.4		B	DHO	260	10	10	3
5892		CULG	01 19 0130	S25 E68	01 24.3		B	EAO	140	8	11	1
5892		RAMY	01 19 1636	S27 E62	01 24.5		B	CAO	430	13	12	2
5892		HOLL	01 19 2255	S28 E57	01 24.4		B	DSO	350	12	10	3
5892		LEAR	01 20 0025	S30 E59	01 24.6		B	DAO	180	20	10	3
5892		CULG	01 20 0215	S27 E56	01 24.4		B	DAO	220	15	10	2
5892		SVTO	01 20 0955	S27 E52	01 24.5		B	FKI	200	30	12	3
5892		BOUL	01 20 1614	S30 E49	01 24.5		B	EAI	240	14	14	2
5892		HOLL	01 20 1715	S28 E48	01 24.5		B	EAO	290	30	12	4
5892		RAMY	01 20 1918	S27 E49	01 24.6		B	EAO	480	31	12	3
5892		CULG	01 21 0145	S26 E46	01 24.6		B	EAI	160	15	11	2
5892		LEAR	01 21 0210	S28 E43	01 24.4		B	EAO	150	19	12	3
5892		SVTO	01 21 0845	S25 E40	01 24.5		B	EAO	200	26	11	3
5892		RAMY	01 21 1235	S28 E39	01 24.6		B	EAO	160	40	11	3
5892		BOUL	01 21 1700	S28 E37	01 24.6		B	EAI	80	11	13	1
5892		HOLL	01 21 1855	S29 E34	01 24.4		B	EAO	170	39	12	2
5892		CULG	01 22 0100	S27 E33	01 24.6		B	EAI	110	35	12	2
5892		LEAR	01 22 0200	S28 E32	01 24.6		B	EAO	130	26	12	3
5892		RAMY	01 22 1315	S29 E23	01 24.3		B	EAO	110	47	13	4
5892		BOUL	01 22 1642	S27 E21	01 24.3		B	EAI	120	15	12	1
5892		HOLL	01 22 1840	S29 E21	01 24.4		B	EAI	70	42	12	2
5892		LEAR	01 23 0012	S27 E19	01 24.5		B	EAO	170	39	13	3
5892		CULG	01 23 0100	S27 E19	01 24.5		B	EAI	50	35	13	3
5892		SVTO	01 23 0805	S28 E13	01 24.3		B	EAO	190	41	14	3
5892		BOUL	01 23 1508	S27 E10	01 24.4		B	EAI	160	15	12	1
5892		RAMY	01 23 1542	S28 E10	01 24.4		B	EAO	170	34	13	3
5892		HOLL	01 23 1830	S28 E08	01 24.4		B	EKI	130	36	14	2
5892		CULG	01 24 0040	S28 E06	01 24.5		B	CKI	170	41	14	3
5892		SVTO	01 24 1050	S27 W02	01 24.3		B	EKO	320	36	13	3
5892		RAMY	01 24 1514	S27 W02	01 24.5		B	EKO	320	26	13	3
5892		HOLL	01 24 1600	S28 W03	01 24.4		B	FKO	250	29	16	3
5892		BOUL	01 24 1606	S26 W02	01 24.5		B	CKO	270	29	13	2
5892		CULG	01 25 0020	S28 W07	01 24.5		BG	CKO	280	31	14	2
5892		LEAR	01 25 0140	S27 W08	01 24.4		B	EKO	220	19	13	3
5892		SVTO	01 25 1000	S27 W14	01 24.3		B	EAO	210	22	14	2
5892		RAMY	01 25 1525	S28 W17	01 24.3		B	EAI	150	30	16	3
5892		BOUL	01 25 1550	S26 W18	01 24.3		B	FKC	670	7	16	1
5892		CULG	01 26 0020	S28 W21	01 24.4		B	CKO	250	38	13	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5892		RAMY	01	26	1340	S28	W30	01	24.2		B	EAO	130	44	14	4
5892		BOUL	01	26	1643	S27	W31	01	24.3		B	EAI	170	29	15	1
5892		CULG	01	27	0205	S27	W40	01	24.0		B	DAO	30	19	6	3
5892		SVTO	01	27	0905	S25	W42	01	24.1		B	CSI	100	17	7	3
5892		RAMY	01	27	1324	S27	W43	01	24.2		B	DAO	60	19	9	3
5892		BOUL	01	27	1518	S27	W46	01	24.0		B	CSO	20	11	6	2
5892		HOLL	01	27	2225	S26	W50	01	24.0		B	CRO	30	12	10	2
5892		CULG	01	28	0118	S27	W53	01	23.9		B	CSO	20	10	6	2
5892		SVTO	01	28	1305	S26	W57	01	24.1		B	CSO	50	6	6	1
5892		BOUL	01	28	1549	S27	W59	01	24.1		A	HS	40	1	1	1
5892		HOLL	01	28	1600	S27	W58	01	24.1		B	BXO	10	4	5	4
5892		RAMY	01	28	1817	S28	W58	01	24.2		B	CRO	40	4	5	3
5892		CULG	01	29	0045	S27	W67	01	23.8		A	AX	10	1		2
5892		LEAR	01	29	0545	S27	W66	01	24.1		A	AX	10	2	1	3
5895		PALE	01	18	1928	S11	E78	01	24.7		B	BXO	20	3	5	1
5895		LEAR	01	19	0015	S12	E71	01	24.3		B	DSO	100	5	8	3
5895		RAMY	01	19	1636	S12	E66	01	24.7		B	DAO	110	6	7	2
5895		HOLL	01	19	2255	S12	E60	01	24.5		B	DAO	80	7	7	3
5895		LEAR	01	20	0025	S12	E60	01	24.5		B	DSO	50	7	8	3
5895		CULG	01	20	0215	S13	E58	01	24.5		B	CAO	50	6	6	2
5895		SVTO	01	20	0955	S11	E55	01	24.5		B	CSO	80	9	7	3
5895		BOUL	01	20	1614	S12	E50	01	24.4		B	ESO	50	7	15	2
5895		HOLL	01	20	1715	S12	E50	01	24.5		B	CSO	30	10	7	4
5895		RAMY	01	20	1918	S11	E48	01	24.4		B	CAO	60	3	8	3
5895		CULG	01	21	0145	S10	E43	01	24.3		A	HS	40	1	1	2
5895		LEAR	01	21	0210	S12	E46	01	24.5		B	CSO	20	9	5	3
5895		SVTO	01	21	0845	S10	E38	01	24.2		B	CAO	40	5	1	3
5895		RAMY	01	21	1235	S11	E39	01	24.4		B	CAO	40	9	6	3
5895		BOUL	01	21	1700	S10	E40	01	24.7		B	CSO	30	3	13	1
5895		HOLL	01	21	1855	S12	E33	01	24.3		B	CRO	20	7	4	2
5895		CULG	01	22	0100	S09	E31	01	24.4		B	CSO	20	6	5	2
5895		LEAR	01	22	0200	S10	E28	01	24.2		B	CAO	20	4	4	3
5895		RAMY	01	22	1315	S11	E22	01	24.2		A	HA	20	4	1	4
5895		BOUL	01	22	1642	S10	E19	01	24.1		A	HS	20	1	1	1
5895		HOLL	01	22	1840	S11	E20	01	24.3		A	HS	20	3	1	2
5895		LEAR	01	23	0012	S13	E17	01	24.3		A	HA	30	4	2	3
5895		CULG	01	23	0100	S09	E18	01	24.4		B	CRO	10	5	6	3
5895		SVTO	01	23	0805	S11	E14	01	24.4		B	CAO	30	7	6	3
5895		BOUL	01	23	1508	S10	E07	01	24.1		A	HS	20	1	1	1
5895		RAMY	01	23	1542	S11	E08	01	24.2		B	CAO	20	3	3	3
5895		HOLL	01	23	1830	S11	E08	01	24.4		B	BXO	10	5	5	2
5895		CULG	01	24	0040	S11	E04	01	24.3		B	BXO	10	5	4	3
5895		SVTO	01	24	1050	S11	W04	01	24.1		A	AX	10	2	1	3
5895		RAMY	01	24	1514	S11	W04	01	24.3		B	CSO	20	5	2	3
5895		HOLL	01	24	1600	S11	W05	01	24.3		A	AX		2	1	3
5895		BOUL	01	24	1606	S13	W11	01	23.8		B	DAO	80	9	8	2
5895		CULG	01	25	0020	S10	W09	01	24.3		B	BXO	10	5	4	2
5895		LEAR	01	25	0140	S11	W11	01	24.2		A	AX	10	1	1	3
5982		SVTO	01	26	1210	S26	W28	01	24.3		B	CAO	140	24	11	1
5982D		SVTO	01	25	1000	N14	W12	01	24.5		B	BXO	10	2	4	2
5982B		BOUL	01	25	1550	S21	W13	01	24.7		A	AX	10	1	1	1
5982B		CULG	01	26	0020	S22	W17	01	24.7		A	AX	10	2	1	3
5982C		RAMY	01	26	1340	N20	W22	01	24.9		B	BXO	10	4	3	4
5982C		CULG	01	27	0205	N22	W28	01	24.9		B	BXO		2	3	3
5982E		SVTO	01	23	0805	N04	E21	01	24.9		B	BXO	10	6	8	3
5897		RAMY	01	19	1636	S09	E77	01	25.5		B	CAO	90	7	5	2
5897		HOLL	01	19	2255	S11	E71	01	25.3		B	CRO	70	8	6	3
5897		LEAR	01	20	0025	S10	E70	01	25.3		B	DAO	80	11	8	3
5897		CULG	01	20	0215	S13	E74	01	25.7		B	BXO	10	9	6	2
5897		SVTO	01	20	0955	S11	E66	01	25.4		B	BXO	100	17	9	3
5897		BOUL	01	20	1614	S09	E65	01	25.5		B	DSO	90	6	10	2
5897		HOLL	01	20	1715	S10	E62	01	25.4		B	DAO	40	10	10	4

SUNSPOT GROUPS
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5897		RAMY	01 20 1918	S09 E61	01 25.4		B	DAO	60	13	9	3
5897		CULG	01 21 0145	S07 E57	01 25.3		B	BXO	10	7	11	2
5897		LEAR	01 21 0210	S10 E57	01 25.4		B	DAO	30	9	9	3
5897		SVTO	01 21 0845	S08 E55	01 25.5		B	DSO	80	12	10	3
5897		RAMY	01 21 1235	S09 E52	01 25.4		B	DAO	60	11	10	3
5897		BOUL	01 21 1700	S08 E54	01 25.7		B	DSO	30	2	3	1
5897		HOLL	01 21 1855	S10 E50	01 25.5		B	CRO	60	15	9	2
5897		CULG	01 22 0100	S06 E44	01 25.3		B	CRO	30	10	10	2
5897		LEAR	01 22 0200	S08 E45	01 25.4		B	CAO	30	8	10	3
5897		RAMY	01 22 1315	S10 E40	01 25.5		B	CAO	30	7	5	4
5897		BOUL	01 22 1642	S06 E39	01 25.6		A	HS	20	1	1	1
5897		HOLL	01 22 1840	S09 E39	01 25.7		B	CRO	30	13	8	2
5897		LEAR	01 23 0012	S08 E35	01 25.6		A	HS	20	2	1	3
5897		CULG	01 23 0100	S06 E36	01 25.7		B	CRO	10	4	3	3
5897		SVTO	01 23 0805	S10 E28	01 25.4		B	CSO	40	10	11	3
5897		BOUL	01 23 1508	S06 E27	01 25.6		A	HS	20	1	1	1
5897		RAMY	01 23 1542	S10 E27	01 25.7		B	CAO	60	9	4	3
5897		HOLL	01 23 1830	S08 E26	01 25.7		B	CSO	20	7	6	2
5897		CULG	01 24 0040	S08 E22	01 25.7		B	CAO	20	5	3	3
5897		SVTO	01 24 1050	S09 E12	01 25.3		B	BXO	10	2	6	3
5897		RAMY	01 24 1514	S09 E13	01 25.6		B	CSO	30	5	4	3
5897		HOLL	01 24 1600	S09 E15	01 25.8		B	BXO	20	8	6	3
5897		BOUL	01 24 1606	S08 E14	01 25.7		B	CSO	30	8	3	2
5897		CULG	01 25 0020	S09 E09	01 25.7		B	BXO	10	5	3	2
5897		LEAR	01 25 0140	S09 E09	01 25.7		B	CRO	20	4	6	3
5897		RAMY	01 25 1525	S10 E02	01 25.8		B	BXO	20	9	6	3
5897		BOUL	01 25 1550	S12 W01	01 25.6		A	AX	10	1	1	1
5897		CULG	01 26 0020	S12 W03	01 25.8		A	AX	10	6	1	3
5897		RAMY	01 26 1340	S12 W10	01 25.8		B	BXO	10	3	3	4
5897		CULG	01 27 0205	S11 W16	01 25.9		A	AX		1		3
5897		RAMY	01 27 1324	S10 W22	01 25.9		B	BXO	10	2	2	3
5897		HOLL	01 28 1600	S13 W36	01 25.9		A	AX		3	2	4
5905		BOUL	01 24 1606	S09 E07	01 25.2		A	AX		1		2
5905		CULG	01 25 0020	S09 E04	01 25.3		A	AX	10	2	1	2
5905		LEAR	01 25 0140	S10 E02	01 25.2		A	AX	10	1	1	3
5905		BOUL	01 25 1550	S08 W01	01 25.6		A	AX	10	1	1	1
5898		RAMY	01 19 1636	N27 E80	01 25.9		B	CAO	120	2	3	2
5898		HOLL	01 19 2255	N23 E72	01 25.5		A	HA	50	2	2	3
5898		LEAR	01 20 0025	N25 E70	01 25.4		A	HS	60	1	2	3
5898		CULG	01 20 0215	N27 E76	01 26.0		A	HS	40	1	1	2
5898		SVTO	01 20 0955	N25 E69	01 25.7		A	HA	60	1	1	3
5898		BOUL	01 20 1614	N26 E70	01 26.1		A	HS	60	1	1	2
5898		HOLL	01 20 1715	N23 E63	01 25.6		A	HA	60	1	2	4
5898		RAMY	01 20 1918	N27 E64	01 25.8		B	CAO	70	3	4	3
5898		CULG	01 21 0145	N27 E59	01 25.7		A	HS	20	1	1	2
5898		LEAR	01 21 0210	N22 E59	01 25.6		A	HS	20	1	1	3
5898		SVTO	01 21 0845	N26 E57	01 25.8		A	HA	40	1	2	3
5898		RAMY	01 21 1235	N25 E55	01 25.8		A	HA	40	1	1	3
5898		BOUL	01 21 1700	N26 E55	01 26.0		A	HS	40	1	1	1
5898		CULG	01 22 0100	N28 E47	01 25.7		A	HR	20	1	1	2
5898		RAMY	01 22 1315	N24 E42	01 25.8		B	HAO	30	3	1	4
5898		BOUL	01 22 1642	N26 E41	01 25.9		A	HA	30	1	1	1
5898		HOLL	01 22 1840	N24 E40	01 25.9		A	AX	10	2	1	2
5898		LEAR	01 23 0012	N24 E37	01 25.9		B	BXO	10	2	2	3
5898		CULG	01 23 0100	N27 E35	01 25.8		B	BXO	10	3	1	3
5898		SVTO	01 23 0805	N23 E32	01 25.8		A	AX	10	2	1	3
5898		HOLL	01 24 1600	N23 E17	01 26.0		A	AX		1		3
5898		BOUL	01 24 1606	N24 E17	01 26.0		A	AX		1		2
5898		LEAR	01 25 0140	N25 E11	01 25.9		A	AX	10	2	1	3
5898		RAMY	01 26 1340	N25 W09	01 25.9		A	AX	10	2	1	4
5907		SVTO	01 24 1050	N16 E37	01 27.2		A	AX	10	2	2	3
5907		RAMY	01 24 1514	N15 E22	01 26.3		A	AX	10	1	1	3
5907		HOLL	01 24 1600	N15 E25	01 26.5		A	AX	10	2	2	3
5907		BOUL	01 24 1606	N15 E23	01 26.4		B	BXO	10	2	2	2
5907		CULG	01 25 0020	N15 E19	01 26.4		B	BXO	10	5	3	2
5907		LEAR	01 25 0140	N15 E18	01 26.4		B	BXO	20	4	4	3

S U N S P O T G R O U P S
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JANUARY 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
5907		SVTO	01	25	1000	N12	E13	01	26.4		B	CRO	30	4	4	2
5907		RAMY	01	25	1525	N13	E10	01	26.4		B	CRO	20	12	5	3
5907		BOUL	01	25	1550	N14	E08	01	26.3		A	AX	30	3	3	1
5907		CULG	01	26	0020	N13	E05	01	26.4		B	BXO	10	8	6	3
5907		SVTO	01	26	1210	N13	W03	01	26.3		B	BXO	10	4	5	1
5907		RAMY	01	26	1340	N13	W02	01	26.4		B	BXO	10	10	8	4
5907		BOUL	01	26	1643	N14	W04	01	26.4		B	BXO	10	5	5	1
5907		CULG	01	27	0205	N14	W10	01	26.3		B	BXO	10	9	7	3
5907		SVTO	01	27	0905	N15	W13	01	26.4		B	CSI	60	20	6	3
5907		RAMY	01	27	1324	N13	W16	01	26.3		B	CAO	60	13	6	3
5907		BOUL	01	27	1518	N14	W16	01	26.4		B	CAO	20	12	6	2
5907		HOLL	01	27	2225	N14	W21	01	26.3		B	CRO	20	10	7	2
5907		CULG	01	28	0118	N13	W24	01	26.2		B	CRO	10	12	7	2
5907		SVTO	01	28	1305	N15	W28	01	26.4		B	DAO	60	12	6	1
5907		BOUL	01	28	1549	N15	W29	01	26.5		B	DAO	120	7	7	1
5907		HOLL	01	28	1600	N15	W31	01	26.3		B	CAO	40	11	8	4
5907		RAMY	01	28	1817	N13	W32	01	26.3		B	DAO	110	14	8	3
5907		CULG	01	29	0045	N13	W36	01	26.3		B	CSO	40	7	8	2
5907		LEAR	01	29	0545	N13	W38	01	26.4		B	DAO	70	12	7	3
5907		BOUL	01	29	1515	N14	W43	01	26.4		B	DSO	80	4	7	1
5907		PALE	01	29	1943	N15	W45	01	26.4		B	CAO	130	11	7	3
5907		CULG	01	30	0115	N13	W50	01	26.3		B	CAO	50	8	9	2
5907		LEAR	01	30	0317	N14	W49	01	26.4		B	DSO	50	5	6	3
5907		RAMY	01	30	1340	N12	W57	01	26.3		B	CAO	60	7	8	4
5907		BOUL	01	30	1533	N13	W64	01	25.8		A	HS	70	1	2	1
5907		HOLL	01	30	1645	N14	W59	01	26.2		B	CSO	50	4	7	3
5907		PALE	01	30	1959	N12	W60	01	26.3		B	BXO	20	2	7	3
5907		LEAR	01	31	0020	N13	W60	01	26.5		B	CAO	40	7	9	4
5907		SVTO	01	31	1132	N13	W73	01	26.0		A	HS	30	2	2	4
5907		RAMY	01	31	1342	N12	W70	01	26.3		B	CAO	90	5	5	3
5907		BOUL	01	31	1542	N14	W69	01	26.4		B	FAO	70	6	20	2
5907		PALE	01	31	2340	N12	W70	01	26.7		B	FAO	80	9	18	3
5907		CULG	02	01	0040	N14	W76	01	26.4		B	CAO	20	3	6	2
5907		BOUL	02	01	1545	N10	W78	01	26.9		B	BXO	30	3	9	2
5907		PALE	02	01	1928	N13	W75	01	27.2		B	CAO	60	4	8	3
5916		HOLL	01	28	1600	N41	W28	01	26.4		B	BXO	10	5	4	4
5916		RAMY	01	28	1817	N40	W28	01	26.5		B	BXO	10	5	4	3
5916		LEAR	01	29	0545	N40	W35	01	26.4		B	BXO	20	3	6	3
5916		PALE	01	29	1943	N40	W45	01	26.1		A	AX		1		3
5916		CULG	01	30	0115	N41	W50	01	26.0		A	AX	10	1	1	2
5916		LEAR	01	30	0317	N39	W45	01	26.5		B	BXO	40	2	4	3
5916		RAMY	01	30	1340	N40	W53	01	26.2		B	BXO	20	4	8	4
5916		SVTO	01	30	1508	N43	W54	01	26.2		B	BXO	30	4	8	1
5916		BOUL	01	30	1533	N41	W59	01	25.8		A	AX	20	1		1
5916		HOLL	01	30	1645	N42	W55	01	26.2		B	BXO	20	4	5	3
5916		PALE	01	30	1959	N40	W55	01	26.3		B	BXO	20	3	7	3
5916		LEAR	01	31	0020	N39	W56	01	26.5		B	CAO	40	5	9	4
5916		SVTO	01	31	1132	N39	W68	01	26.0		A	HS	60	1	2	4
5916		RAMY	01	31	1342	N39	W67	01	26.1		B	CAO	90	5	7	3
5916		BOUL	01	31	1542	N41	W76	01	25.4		A	HS	60	1	2	2
5916		PALE	01	31	2340	N40	W79	01	25.5		A	AX	10	3	2	3
5916		CULG	02	01	0040	N41	W72	01	26.2		B	BXO	10	3	7	2
5901		RAMY	01	22	1315	S13	E70	01	27.8		B	EAO	210	10	12	4
5901		CULG	01	23	0100	S12	E61	01	27.6		A	AX	10	1	1	3
5901		SVTO	01	23	0805	S17	E59	01	27.8		A	HR	20	1	1	3
5901		BOUL	01	23	1508	S16	E54	01	27.7		A	HS	20	1	1	1
5901		RAMY	01	23	1542	S16	E51	01	27.5		B	BXO	10	6	5	3
5901		HOLL	01	23	1830	S16	E54	01	27.9		B	BXO	20	8	9	2
5901		CULG	01	24	0040	S13	E50	01	27.8		B	BXO	10	5	4	3
5901		SVTO	01	24	1050	S17	E43	01	27.7		A	AX	10	2	1	3
5901		RAMY	01	24	1514	S13	E37	01	27.4		B	BXO	10	6	7	3
5901		HOLL	01	24	1600	S15	E38	01	27.5		B	BXO	10	4	7	3
5901		RAMY	01	25	1525	S14	E20	01	27.1		B	BXO	10	3	6	3
5906		RAMY	01	24	1514	N16	E34	01	27.2		B	BXO	10	2	3	3
5906		LEAR	01	29	0545	N16	W27	01	27.2		B	BXO	10	3	3	3
5906		SVTO	01	31	1132	N12	W58	01	27.1		B	CRO	30	7	4	4

SUNSPOT GROUPS
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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
5906		RAMY	01	31	1342	N12	W58	01	27.2		B	DAO	80	7	6	3
5906		CULG	02	01	0040	N11	W67	01	27.1		B	DAO	80	5	7	2
5906		LEAR	02	01	0135	N11	W64	01	27.3		B	DAO	70	8	5	3
5906		RAMY	02	01	1511	N12	W71	01	27.4		B	DAI	190	9	8	3
5906		HOLL	02	01	1620	N12	W69	01	27.6		B	CRO	40	4	7	2
5906		LEAR	02	02	0013	N10	W75	01	27.5		B	CAO	120	4	7	4
5900		BOUL	01	20	1614	S09	E83	01	26.9		A	HS	160	1	2	2
5900		HOLL	01	20	1715	S09	E82	01	26.9		A	HK	240	2	5	4
5900		RAMY	01	20	1918	S07	E84	01	27.1		A	HK	420	3	9	3
5900		CULG	01	21	0145	S07	E79	01	27.0		A	HK	500	3	4	2
5900		LEAR	01	21	0210	S09	E77	01	26.9		A	HK	300	2	5	3
5900		SVTO	01	21	0845	S06	E75	01	27.0		A	HK	600	2	8	3
5900		RAMY	01	21	1235	S08	E75	01	27.1		B	DKO	440	9	8	3
5900		BOUL	01	21	1700	S07	E76	01	27.4		B	DKC	600	3	9	1
5900		HOLL	01	21	1855	S11	E80	01	27.8		B	FKO	980	22	20	2
5900		CULG	01	22	0100	S06	E70	01	27.3		B	FKO	570	11	18	2
5900		LEAR	01	22	0200	S07	E66	01	27.0		B	DKC	480	7	10	3
5900		RAMY	01	22	1315	S09	E62	01	27.2		B	EKO	760	21	12	4
5900		BOUL	01	22	1642	S07	E63	01	27.4		B	EKI	760	11	12	1
5900		HOLL	01	22	1840	S10	E66	01	27.7		B	FKI	1120	33	17	2
5900		LEAR	01	23	0012	S09	E57	01	27.3		B	DKI	580	14	8	3
5900		CULG	01	23	0100	S06	E59	01	27.4		B	FKI	940	22	18	3
5900		SVTO	01	23	0805	S09	E53	01	27.3		B	DKC	1010	21	10	3
5900		BOUL	01	23	1508	S07	E53	01	27.6		B	FKI	760	12	20	1
5900		RAMY	01	23	1542	S09	E50	01	27.4		B	EKI	990	34	12	3
5900		HOLL	01	23	1830	S11	E54	01	27.8		BD	FKI	1140	35	18	2
5900		CULG	01	24	0040	S08	E50	01	27.8		B	FKO	990	40	20	3
5900		SVTO	01	24	1050	S10	E41	01	27.5		B	FKI	1120	52	19	3
5900		RAMY	01	24	1514	S09	E40	01	27.6		B	FKO	1230	39	18	3
5900		HOLL	01	24	1600	S09	E40	01	27.7		BD	FKI	1230	36	19	3
5900		BOUL	01	24	1606	S09	E39	01	27.6		B	FKI	1200	43	18	2
5900		CULG	01	25	0020	S09	E35	01	27.6		B	FKI	1210	49	19	2
5900		LEAR	01	25	0140	S09	E35	01	27.7		B	FKO	1100	43	18	3
5900		SVTO	01	25	1000	S12	E30	01	27.7		B	FKI	1120	40	18	2
5900		RAMY	01	25	1525	S11	E25	01	27.5		B	FKO	1290	68	20	3
5900		BOUL	01	25	1550	S10	E28	01	27.8		B	FKI	1110	12	17	1
5900		CULG	01	26	0020	S10	E22	01	27.7		BG	FKI	1070	62	19	3
5900		SVTO	01	26	1210	S10	E14	01	27.5		B	FKI	1070	47	18	1
5900		RAMY	01	26	1340	S10	E14	01	27.6		B	FKO	1100	72	19	4
5900		BOUL	01	26	1643	S09	E12	01	27.6		B	FKI	1070	58	19	1
5900		CULG	01	27	0205	S10	E07	01	27.6		BG	FKI	870	44	19	3
5900		SVTO	01	27	0905	S10	E04	01	27.7		BG	FKI	1300	52	19	3
5900		RAMY	01	27	1324	S10	E01	01	27.6		BG	FKO	1040	45	20	3
5900		BOUL	01	27	1518	S09	E00	01	27.6		B	FKI	750	48	19	2
5900		HOLL	01	27	2225	S10	W02	01	27.8		BG	FKI	1140	68	21	2
5900		CULG	01	28	0118	S09	W06	01	27.6		BG	FKI	900	60	20	2
5900		SVTO	01	28	1305	S09	W12	01	27.6		BG	FKI	1250	72	20	1
5900		BOUL	01	28	1549	S08	W12	01	27.7		B	FKI	1060	21	20	1
5900		HOLL	01	28	1600	S10	W13	01	27.7		BG	FKI	1090	66	20	4
5900		RAMY	01	28	1817	S10	W14	01	27.7		BG	FKO	1150	62	20	3
5900		CULG	01	29	0045	S10	W18	01	27.7		BG	FKO	980	47	21	2
5900		LEAR	01	29	0545	S10	W22	01	27.6		B	FKI	1140	64	20	3
5900		BOUL	01	29	1515	S10	W25	01	27.7		B	FKI	740	21	19	1
5900		PALE	01	29	1943	S10	W28	01	27.7		BG	FKI	2080	70	20	3
5900		CULG	01	30	0115	S10	W31	01	27.7		BG	FKO	990	48	20	2
5900		LEAR	01	30	0317	S10	W30	01	27.9		B	FKI	1020	39	19	3
5900		RAMY	01	30	1340	S10	W29	01	28.4		BG	FKO	1200	56	22	4
5900		BOUL	01	30	1533	S09	W37	01	27.9		B	FKI	760	26	22	1
5900		HOLL	01	30	1645	S09	W40	01	27.7		BGD	FKI	980	40	22	3
5900		PALE	01	30	1959	S10	W43	01	27.6		BGD	FKI	990	53	20	3
5900		LEAR	01	31	0020	S10	W43	01	27.8		BG	CKI	980	53	20	4
5900		SVTO	01	31	1132	S10	W51	01	27.6		BG	FKO	980	28	20	4
5900		RAMY	01	31	1342	S10	W50	01	27.8		BG	FKO	1060	33	21	3
5900		BOUL	01	31	1542	S10	W51	01	27.8		B	FKO	1020	31	23	2
5900		PALE	01	31	2340	S10	W56	01	27.8		BG	FKO	820	29	22	3
5900		CULG	02	01	0040	S10	W57	01	27.8		BG	FKO	840	23	21	2
5900		LEAR	02	01	0135	S10	W58	01	27.8		BG	FKI	790	29	20	3
5900		RAMY	02	01	1511	S09	W64	01	27.9		BG	FKO	880	16	21	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5900		BOUL	02	01	1545	S13	W68	01	27.6		B	FKO	950	8	30	2
5900		HOLL	02	01	1620	S11	W63	01	28.0		BG	FKI	670	21	19	2
5900		PALE	02	01	1928	S08	W67	01	27.9		B	FKO	690	9	25	3
5900		LEAR	02	02	0013	S11	W70	01	27.8		BG	FKO	600	11	20	4
5900		RAMY	02	02	1245	S10	W78	01	27.8		BG	FKO	400	5	18	3
5900		SVTO	02	02	1319	S10	W76	01	27.9		BG	FKO	390	5	21	2
5900		HOLL	02	02	1925	S10	W76	01	28.2		BG	FKO	470	6	18	4
5900		PALE	02	02	2143	S11	W75	01	28.4		BG	CKO	400	4	7	3
5900		LEAR	02	03	0006	S12	W73	01	28.6		A	HK	300	4	3	4
5900		RAMY	02	03	1255	S11	W85	01	28.2		A	HK	180	2	3	3
5900		SVTO	02	03	1436	S11	W83	01	28.5		A	HK	150	3	3	1
5900		BOUL	02	03	1550	S11	W85	01	28.4		B	DSO	150	3	10	3
5900		HOLL	02	03	1615	S12	W81	01	28.7		A	HK	230	3	4	3
5900A		HOLL	01	28	1600	N21	W14	01	27.6		B	BXO		3	3	4
5901A		LEAR	01	22	0200	S10	E79	01	28.0		B	CKO	90	4	4	3
5901A		LEAR	01	23	0012	S12	E68	01	28.1		B	DKO	120	8	8	3
5901A		RAMY	01	23	1542	S12	E58	01	28.0		B	DAO	210	9	6	3
5900B		SVTO	01	23	0805	S11	E63	01	28.1		B	DAI	220	15	9	3
5909		RAMY	01	24	1514	N23	E53	01	28.7		B	BXO	10	3	3	3
5909		LEAR	01	25	0140	N24	E49	01	28.8		B	BXO	20	3	6	3
5909		SVTO	01	25	1000	N21	E44	01	28.8		B	CRO	50	7	7	2
5909		RAMY	01	25	1525	N22	E40	01	28.7		B	DRO	60	24	9	3
5909		BOUL	01	25	1550	N23	E42	01	28.9		B	CSO	100	5	7	1
5909		CULG	01	26	0020	N23	E35	01	28.7		B	DRO	110	22	10	3
5909		RAMY	01	26	1340	N22	E27	01	28.6		B	DAO	230	31	9	4
5909		BOUL	01	26	1643	N24	E25	01	28.6		B	DAO	320	16	8	1
5909		CULG	01	27	0205	N24	E21	01	28.7		B	DAO	270	12	10	3
5909		SVTO	01	27	0905	N24	E16	01	28.6		B	DAI	350	12	10	3
5909		RAMY	01	27	1324	N23	E15	01	28.7		B	EAO	240	10	11	3
5909		BOUL	01	27	1518	N24	E14	01	28.7		B	ESI	200	12	11	2
5909		HOLL	01	27	2225	N24	E10	01	28.7		B	EAO	210	18	11	2
5909		CULG	01	28	0118	N24	E07	01	28.6		B	EAO	190	18	11	2
5909		BOUL	01	28	1549	N24	E01	01	28.7		B	DAO	290	13	10	1
5909		HOLL	01	28	1600	N25	E01	01	28.7		B	EAI	230	19	11	4
5909		RAMY	01	28	1817	N23	W01	01	28.7		B	EAO	280	28	12	3
5909		CULG	01	29	0045	N25	W05	01	28.6		B	EAO	220	12	12	2
5909		LEAR	01	29	0545	N25	W07	01	28.7		B	EAI	250	30	11	3
5909		BOUL	01	29	1515	N24	W12	01	28.7		B	DAI	180	10	10	1
5909		PALE	01	29	1943	N24	W15	01	28.7		B	EAI	450	26	13	3
5909		CULG	01	30	0115	N25	W18	01	28.6		B	EAO	240	24	12	2
5909		LEAR	01	30	0317	N24	W17	01	28.8		B	EAI	180	21	12	3
5909		RAMY	01	30	1340	N24	W24	01	28.7		B	EAO	290	23	11	4
5909		SVTO	01	30	1508	N26	W22	01	28.9		B	ESI	300	21	12	1
5909		BOUL	01	30	1533	N24	W24	01	28.8		B	EAI	90	4	11	1
5909		HOLL	01	30	1645	N25	W25	01	28.8		B	EAO	240	11	12	3
5909		PALE	01	30	1959	N25	W28	01	28.7		B	EKO	190	16	12	3
5909		LEAR	01	31	0020	N24	W29	01	28.8		B	DAO	210	15	10	4
5909		SVTO	01	31	1132	N25	W35	01	28.8		B	EAO	220	7	11	4
5909		RAMY	01	31	1342	N24	W38	01	28.6		B	EAO	270	9	11	3
5909		BOUL	01	31	1542	N25	W37	01	28.8		B	EAO	260	9	11	2
5909		PALE	01	31	2340	N26	W42	01	28.7		B	DSO	120	8	12	3
5909		CULG	02	01	0040	N25	W44	01	28.7		B	EAO	180	11	12	2
5909		LEAR	02	01	0135	N24	W42	01	28.9		B	EAO	210	8	11	3
5909		RAMY	02	01	1511	N24	W50	01	28.9		B	EAO	140	7	11	3
5909		BOUL	02	01	1545	N24	W51	01	28.8		B	EAO	200	5	13	2
5909		HOLL	02	01	1620	N26	W49	01	29.0		B	DAO	110	3	10	2
5909		PALE	02	01	1928	N26	W52	01	28.9		B	EAO	170	9	13	3
5909		LEAR	02	02	0013	N23	W55	01	28.9		B	DAO	200	9	11	4
5909		RAMY	02	02	1245	N25	W61	01	28.9		B	EAO	170	7	12	3
5909		SVTO	02	02	1319	N26	W60	01	29.0		B	ESO	130	2	11	2
5909		HOLL	02	02	1925	N25	W65	01	28.9		B	EAO	60	4	11	4
5909		PALE	02	02	2143	N25	W66	01	28.9		B	DAO	140	5	10	3
5909		LEAR	02	03	0006	N23	W65	01	29.1		B	DAO	220	4	10	4
5909		RAMY	02	03	1255	N25	W74	01	28.9		B	EAO	90	2	11	3
5909		SVTO	02	03	1436	N26	W69	01	29.3		A	HS	60	1	2	1

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
5909		BOUL	02 03 1550	N25 W76	01 28.9		B	ESO	90	2	12	3
5909		HOLL	02 03 1615	N24 W69	01 29.4		A	HS	140	1	2	3
5909		PALE	02 03 2140	N25 W75	01 29.2		A	HA	120	1	2	2
5909		LEAR	02 04 0045	N23 W75	01 29.3		A	HS	50	1	2	3
5909		CULG	02 04 0110	N25 W83	01 28.7		A	HS	30	1	5	2
5917		BOUL	01 28 1549	S12 E03	01 28.9		A	AX	10	1	1	1
5917		HOLL	01 28 1600	S12 E01	01 28.7		A	AX		3	2	4
5917		RAMY	01 28 1817	S12 W01	01 28.7		B	BXO	10	7	4	3
5917		CULG	01 29 0045	S13 W04	01 28.7		B	BXO	10	4	3	2
5917		LEAR	01 29 0545	S13 W07	01 28.7		B	CRO	20	5	4	3
5917		BOUL	01 29 1515	S12 W13	01 28.6		B	BXO	20	2	4	1
5917		PALE	01 29 1943	S12 W14	01 28.8		B	BXO	30	5	4	3
5917		CULG	01 30 0115	S12 W17	01 28.8		B	BXO	10	4	4	2
5917		LEAR	01 30 0317	S12 W18	01 28.8		B	BXO	20	4	5	3
5917		RAMY	01 30 1340	S12 W25	01 28.7		B	BXO	20	7	4	4
5917		SVTO	01 30 1508	S11 W26	01 28.7		B	BXO	30	5	4	1
5917		BOUL	01 30 1533	S12 W25	01 28.8		B	BXO	20	2	3	1
5917		HOLL	01 30 1645	S11 W26	01 28.7		B	BXO	30	6	5	3
5917		PALE	01 30 1959	S12 W28	01 28.7		B	BXO	40	8	5	3
5917		LEAR	01 31 0020	S12 W30	01 28.7		B	BXO	30	12	5	4
5917		SVTO	01 31 1132	S11 W36	01 28.8		B	DAO	80	11	5	4
5917		RAMY	01 31 1342	S12 W38	01 28.7		B	DAO	130	11	7	3
5917		BOUL	01 31 1542	S13 W34	01 29.1		B	DAO	80	10	8	2
5917		PALE	01 31 2340	S13 W43	01 28.7		BG	DSO	90	10	9	3
5917		CULG	02 01 0040	S12 W44	01 28.8		B	DAO	140	11	6	2
5917		LEAR	02 01 0135	S12 W45	01 28.8		B	CAO	60	12	5	3
5917		RAMY	02 01 1511	S11 W52	01 28.8		B	DAO	140	12	6	3
5917		BOUL	02 01 1545	S14 W52	01 28.8		B	BXO	40	4	7	2
5917		HOLL	02 01 1620	S12 W49	01 29.1		B	BXO	20	13	7	2
5917		LEAR	02 02 0013	S12 W58	01 28.7		B	CSO	140	10	6	4
5917		RAMY	02 02 1245	S10 W65	01 28.7		B	DAO	160	5	6	3
5917		SVTO	02 02 1319	S11 W63	01 28.9		B	DSI	100	5	5	2
5917		HOLL	02 02 1925	S13 W64	01 29.1		B	BXO	10	4	8	4
5917		PALE	02 02 2143	S11 W68	01 28.9		B	CAO	100	4	5	3
5917		LEAR	02 03 0006	S12 W70	01 28.8		B	CAO	170	7	5	4
5917		RAMY	02 03 1255	S11 W79	01 28.7		B	CAO	90	4	3	3
5917		PALE	02 03 2140	S11 W85	01 28.6		A	HA	120	1	2	2
5917		LEAR	02 04 0045	S13 W84	01 28.8		B	CSO	30	2	5	3
5917		CULG	02 04 0110	S12 W88	01 28.5		A	HH	90	1	3	2
5915		CULG	01 28 0118	N08 E16	01 29.2		B	BXO		2	1	2
5915		SVTO	01 28 1305	N08 E10	01 29.3		B	BXO	10	2	3	1
5915		HOLL	01 28 1600	N09 E09	01 29.3		A	AX		2	1	4
5915		RAMY	01 28 1817	N08 E08	01 29.4		A	AX	10	2	1	3
5915		LEAR	01 29 0545	N08 W01	01 29.2		B	BXO	10	4	3	3
5915		BOUL	01 29 1515	N07 W06	01 29.2		A	AX		1		1
5915		PALE	01 29 1943	N07 W07	01 29.3		B	BXO	30	5	3	3
5915		CULG	01 30 0115	N08 W10	01 29.3		B	BXO	10	3	3	2
5915		LEAR	01 30 0317	N08 W12	01 29.2		B	BXO	10	2	1	3
5915		RAMY	01 30 1340	N09 W20	01 29.1		A	AX	10	3	1	4
5915		SVTO	01 30 1508	N09 W19	01 29.2		A	AX	10	2	2	1
5915		HOLL	01 30 1645	N08 W21	01 29.1		A	AX		2	2	3
5915		PALE	01 30 1959	N08 W22	01 29.2		B	BXO		3	3	3
5908		RAMY	01 24 1514	S13 E65	01 29.5		B	BXO	10	3	3	3
5908		HOLL	01 24 1600	S15 E66	01 29.7		B	BXO	10	2	3	3
5908		CULG	01 25 0020	S14 E61	01 29.6		B	BXO	10	5	3	2
5908		LEAR	01 25 0140	S14 E60	01 29.6		B	BXO	20	4	3	3
5908		SVTO	01 25 1000	S16 E55	01 29.6		B	CRO	20	2	4	2
5908		RAMY	01 25 1525	S16 E51	01 29.5		B	BXO	20	5	5	3
5908		BOUL	01 25 1550	S14 E52	01 29.6		A	AX	40	2	2	1
5908		CULG	01 26 0020	S14 E47	01 29.6		B	BXO	10	3	4	3
5908		SVTO	01 26 1210	S15 E38	01 29.4		A	AX	10	2	1	1
5908		RAMY	01 26 1340	S15 E36	01 29.3		A	AX	10	3	1	4
5908		CULG	01 27 0205	S15 E30	01 29.3		B	CRO	10	4	3	3
5908		SVTO	01 27 0905	S15 E25	01 29.3		B	CSO	30	4	4	3
5908		RAMY	01 27 1324	S15 E23	01 29.3		B	CSO	30	4	4	3
5908		BOUL	01 27 1518	S14 E22	01 29.3		B	CSO	10	2	3	2

S U N S P O T G R O U P S
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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
5908		HOLL	01 27 2225	S15 E18	01 29.3		B	CRO	20	6	3	2
5908		CULG	01 28 0118	S15 E17	01 29.3		B	DRO	20	12	5	2
5908		SVTO	01 28 1305	S16 E10	01 29.3		B	CAO	30	10	5	1
5908		BOUL	01 28 1549	S15 E09	01 29.3		B	CAO	40	5	7	1
5908		HOLL	01 28 1600	S15 E09	01 29.3		B	CRO	20	8	6	4
5908		RAMY	01 28 1817	S16 E07	01 29.3		B	CAO	40	9	6	3
5908		CULG	01 29 0045	S15 E05	01 29.4		B	CRO	10	5	7	2
5908		LEAR	01 29 0545	S16 E01	01 29.3		B	CAO	30	5	5	3
5908		BOUL	01 29 1515	S15 W05	01 29.2		B	BXO	20	3	5	1
5908		PALE	01 29 1943	S15 W06	01 29.4		B	CAO	130	9	9	3
5908		CULG	01 30 0115	S15 W09	01 29.4		B	CAO	20	9	9	2
5908		LEAR	01 30 0317	S16 W11	01 29.3		B	CAO	40	4	5	3
5908		RAMY	01 30 1340	S16 W19	01 29.1		B	CAO	30	5	4	4
5908		SVTO	01 30 1508	S15 W21	01 29.0		B	CAO	30	4	4	1
5908		BOUL	01 30 1533	S15 W20	01 29.1		B	BXO	30	2	3	1
5908		HOLL	01 30 1645	S15 W21	01 29.1		B	BXO	20	4	3	3
5908		PALE	01 30 1959	S16 W20	01 29.3		B	CAO	30	9	8	3
5908		LEAR	01 31 0020	S16 W22	01 29.3		B	BXO	30	19	9	4
5908		SVTO	01 31 1132	S15 W28	01 29.4		B	DRO	80	15	8	4
5908		RAMY	01 31 1342	S15 W30	01 29.3		B	DAO	80	8	9	3
5908		BOUL	01 31 1542	S16 W26	01 29.7		B	DAO	110	13	4	2
5908		PALE	01 31 2340	S15 W32	01 29.6		B	DAI	90	16	5	3
5908		CULG	02 01 0040	S16 W35	01 29.5		B	DAO	130	16	9	2
5908		LEAR	02 01 0135	S15 W35	01 29.5		B	DAO	120	20	10	3
5908		RAMY	02 01 1511	S15 W41	01 29.6		B	DAO	140	12	10	3
5908		BOUL	02 01 1545	S15 W39	01 29.8		B	DAO	160	6	7	2
5908		HOLL	02 01 1620	S15 W40	01 29.7		B	DAO	110	11	6	2
5908		PALE	02 01 1928	S14 W44	01 29.6		B	CAO	130	13	5	3
5908		LEAR	02 02 0013	S16 W45	01 29.7		B	CAO	140	14	9	4
5908		RAMY	02 02 1245	S14 W52	01 29.7		B	CAO	110	14	10	3
5908		SVTO	02 02 1319	S15 W53	01 29.6		B	DAI	90	8	7	2
5908		HOLL	02 02 1925	S15 W55	01 29.7		B	CAO	60	8	5	4
5908		PALE	02 02 2143	S15 W56	01 29.8		B	CAO	80	8	5	3
5908		LEAR	02 03 0006	S16 W57	01 29.8		B	CAO	140	8	6	4
5908		RAMY	02 03 1255	S14 W67	01 29.6		B	DAO	90	8	6	3
5908		SVTO	02 03 1436	S14 W66	01 29.7		B	CSO	80	4	7	1
5908		BOUL	02 03 1550	S15 W68	01 29.6		B	CAO	50	4	5	3
5908		HOLL	02 03 1615	S14 W67	01 29.7		B	DSO	90	3	6	3
5908		PALE	02 03 2140	S15 W68	01 29.8		B	CAO	110	3	5	2
5908		LEAR	02 04 0045	S16 W71	01 29.7		B	CSO	60	2	5	3
5908		CULG	02 04 0110	S15 W74	01 29.5		B	CSO	70	2	5	2
5908		SVTO	02 04 0800	S13 W78	01 29.5		A	HA	60	1	2	2
5908		RAMY	02 04 1243	S15 W78	01 29.7		B	CAO	120	4	5	3
5908		HOLL	02 04 1450	S15 W80	01 29.7		B	CAO	50	2	3	4
5908		BOUL	02 04 1540	S15 W82	01 29.5		A	HS	60	1	1	2
5908		PALE	02 04 1935	S14 W82	01 29.7		B	CAO	40	2	3	3
5908A		PALE	01 31 2340	N14 W32	01 29.6		A	AX		2	2	3
5923		RAMY	02 03 1255	N07 W62	01 30.0		B	BXO	10	2	1	3
5923		SVTO	02 03 1436	N08 W62	01 30.0		A	AX	10	1	1	1
5923		BOUL	02 03 1550	N07 W64	01 30.0		A	AX	10	1	1	3
5923		HOLL	02 03 1615	N07 W62	01 30.1		A	AX		1		3
5923		LEAR	02 04 0045	N07 W67	01 30.1		A	AX	10	1	1	3
5923		CULG	02 04 0110	N08 W71	01 29.8		A	AX		1		2
5923		SVTO	02 04 0800	N08 W75	01 29.8		B	BXO	30	2	3	2
5923		RAMY	02 04 1243	N08 W75	01 30.0		B	CSO	60	3	3	3
5923		HOLL	02 04 1450	N08 W76	01 30.0		A	AX	10	2	2	4
5923		BOUL	02 04 1540	N08 W77	01 30.0		A	AX	10	2	1	2
5923		LEAR	02 05 0025	N07 W76	01 30.4		A	HS	30	1	1	4
5904		RAMY	01 23 1542	N12 E83	01 29.9		A	HK	240	1	9	3
5904		HOLL	01 23 1830	N12 E80	01 29.8		A	HH	150	1	3	2
5904		CULG	01 24 0040	N15 E77	01 29.8		A	HH	200	1	3	3
5904		SVTO	01 24 1050	N10 E73	01 29.9		A	HS	180	1	2	3
5904		RAMY	01 24 1514	N12 E70	01 29.9		B	CHO	240	3	3	3
5904		HOLL	01 24 1600	N12 E70	01 29.9		A	HH	220	1	3	3
5904		BOUL	01 24 1606	N13 E70	01 29.9		A	HA	220	1	3	2
5904		CULG	01 25 0020	N12 E65	01 29.9		A	HH	210	1	3	2

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5904		LEAR	01 25 0140	N13 E65	01 30.0		A	HH	130	1	5	3
5904		SVTO	01 25 1000	N10 E61	01 30.0		A	HH	300	1	2	2
5904		RAMY	01 25 1525	N11 E56	01 29.8		A	HS	210	1	2	3
5904		BOUL	01 25 1550	N12 E59	01 30.1		A	HK	200	1	5	1
5904		CULG	01 26 0020	N12 E53	01 30.0		A	HH	250	1	3	3
5904		SVTO	01 26 1210	N10 E46	01 30.0		A	HH	250	1	3	1
5904		RAMY	01 26 1340	N11 E43	01 29.8		A	HS	200	1	2	4
5904		BOUL	01 26 1643	N13 E42	01 29.9		A	HA	210	2	3	1
5904		CULG	01 27 0205	N12 E38	01 29.9		A	HS	200	1	3	3
5904		SVTO	01 27 0905	N11 E36	01 30.1		B	CSO	140	4	4	3
5904		RAMY	01 27 1324	N11 E31	01 29.9		B	CAO	240	2	4	3
5904		BOUL	01 27 1518	N13 E32	01 30.0		A	HS	170	1	2	2
5904		HOLL	01 27 2225	N12 E28	01 30.0		B	CSO	200	3	3	2
5904		CULG	01 28 0118	N11 E27	01 30.1		B	CSO	170	2	3	2
5904		SVTO	01 28 1305	N10 E22	01 30.2		B	CAO	230	2	4	1
5904		BOUL	01 28 1549	N12 E17	01 29.9		A	HA	140	1	2	1
5904		HOLL	01 28 1600	N11 E19	01 30.1		B	CSO	220	4	4	4
5904		RAMY	01 28 1817	N11 E17	01 30.0		B	CSO	300	4	5	3
5904		CULG	01 29 0045	N11 E13	01 30.0		B	CSO	200	3	4	2
5904		LEAR	01 29 0545	N11 E11	01 30.1		B	CSO	200	9	5	3
5904		BOUL	01 29 1515	N12 E05	01 30.0		A	HA	80	1	2	1
5904		PALE	01 29 1943	N13 E06	01 30.3		B	CKO	430	9	7	3
5904		CULG	01 30 0115	N11 E01	01 30.1		B	CSO	200	4	4	2
5904		LEAR	01 30 0317	N13 E03	01 30.4		B	DHO	170	9	7	3
5904		RAMY	01 30 1340	N11 W08	01 30.0		B	CHO	200	4	3	4
5904		SVTO	01 30 1508	N11 W07	01 30.1		B	CSO	210	4	4	1
5904		BOUL	01 30 1533	N12 W08	01 30.0		A	HA	110	1	2	1
5904		HOLL	01 30 1645	N12 W08	01 30.1		B	CHO	240	3	4	3
5904		PALE	01 30 1959	N12 W09	01 30.1		B	CKO	220	6	5	3
5904		LEAR	01 31 0020	N10 W13	01 30.0		B	CSO	150	4	6	4
5904		SVTO	01 31 1132	N11 W18	01 30.1		A	HH	220	2	3	4
5904		RAMY	01 31 1342	N11 W21	01 30.0		B	CHO	220	4	4	3
5904		BOUL	01 31 1542	N12 W21	01 30.1		A	HA	200	2	2	2
5904		PALE	01 31 2340	N11 W26	01 30.0		A	HS	170	2	3	3
5904		CULG	02 01 0040	N12 W30	01 29.9		B	CSO	180	6	9	2
5904		LEAR	02 01 0135	N12 W29	01 30.0		B	CSO	180	3	7	3
5904		RAMY	02 01 1511	N12 W35	01 30.1		B	CAO	360	4	3	3
5904		BOUL	02 01 1545	N09 W35	01 30.1		A	HA	180	1	3	2
5904		HOLL	02 01 1620	N11 W33	01 30.3		A	HS	170	1	2	2
5904		PALE	02 01 1928	N12 W36	01 30.2		A	HA	200	1	2	3
5904		LEAR	02 02 0013	N11 W38	01 30.2		A	HH	180	1	3	4
5904		RAMY	02 02 1245	N11 W47	01 30.1		A	HA	200	4	2	3
5904		SVTO	02 02 1319	N12 W47	01 30.1		A	HH	150	2	3	2
5904		HOLL	02 02 1925	N12 W49	01 30.2		A	HS	160	1	2	4
5904		PALE	02 02 2143	N12 W50	01 30.2		A	HS	100	1	2	3
5904		LEAR	02 03 0006	N11 W52	01 30.2		A	HH	160	2	3	4
5904		RAMY	02 03 1255	N12 W60	01 30.1		A	HS	200	1	2	3
5904		SVTO	02 03 1436	N13 W60	01 30.2		A	HS	160	1	2	1
5904		BOUL	02 03 1550	N12 W62	01 30.1		A	HA	130	2	2	3
5904		HOLL	02 03 1615	N12 W61	01 30.2		A	HS	160	1	2	3
5904		PALE	02 03 2140	N12 W63	01 30.2		A	HA	220	1	2	2
5904		LEAR	02 04 0045	N11 W66	01 30.2		A	HA	140	1	3	3
5904		CULG	02 04 0110	N12 W68	01 30.0		A	HS	150	1	3	2
5904		SVTO	02 04 0800	N12 W72	01 30.0		A	HA	160	1	3	2
5904		RAMY	02 04 1243	N12 W73	01 30.1		A	HS	240	1	2	3
5904		HOLL	02 04 1450	N12 W74	01 30.1		A	HS	90	1	2	4
5904		BOUL	02 04 1540	N12 W75	01 30.1		A	HA	120	2	2	2
5904		PALE	02 04 1935	N12 W78	01 30.0		A	HA	120	1	2	3
5904		LEAR	02 05 0025	N10 W75	01 30.5		A	HA	60	1	2	4
5904		SVTO	02 05 0820	N12 W83	01 30.2		A	HA	120	2	2	2
5904A		CULG	01 30 0115	S20 E05	01 30.4		A	AX	10	2	2	2
5913		CULG	01 27 0205	N15 E51	01 30.9		A	AX		1		3
5913		SVTO	01 27 0905	N14 E43	01 30.6		B	BXO	20	4	4	3
5913		RAMY	01 27 1324	N14 E41	01 30.6		B	BXO	10	3	5	3
5913		BOUL	01 27 1518	N15 E42	01 30.8		B	BXO		3	6	2
5913		HOLL	01 27 2225	N14 E37	01 30.7		B	BXO	10	6	7	2
5913		CULG	01 28 0118	N14 E34	01 30.6		B	CRO	10	8	6	2

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

JANUARY 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
5913		SVTO	01 28 1305	N12 E29	01 30.7		B	CRO	50	11	7	1
5913		BOUL	01 28 1549	N14 E26	01 30.6		B	DSO	60	3	6	1
5913		HOLL	01 28 1600	N14 E26	01 30.6		B	CRO	30	8	7	4
5913		RAMY	01 28 1817	N14 E24	01 30.6		B	DAO	40	12	8	3
5913		CULG	01 29 0045	N15 E21	01 30.6		B	CAO	10	7	8	2
5913		LEAR	01 29 0545	N14 E17	01 30.5		B	DAO	40	14	8	3
5913		BOUL	01 29 1515	N14 E14	01 30.7		B	BXO	70	6	8	1
5913		PALE	01 29 1943	N13 E12	01 30.7		B	BXO	30	4	5	3
5913		CULG	01 30 0115	N16 E06	01 30.5		B	CAO	20	15	9	2
5913		LEAR	01 30 0317	N14 E09	01 30.8		B	BXO	20	5	5	3
5913		RAMY	01 30 1340	N15 E00	01 30.6		B	CAO	50	16	9	4
5913		SVTO	01 30 1508	N13 E01	01 30.7		B	CAO	60	16	10	1
5913		BOUL	01 30 1533	N14 W03	01 30.4		B	BXO	50	6	9	1
5913		HOLL	01 30 1645	N15 W01	01 30.6		B	CSO	50	10	9	3
5913		PALE	01 30 1959	N12 W02	01 30.7		B	BXO	20	15	7	3
5913		LEAR	01 31 0020	N13 W05	01 30.6		B	CAO	40	16	9	4
5913		SVTO	01 31 1132	N14 W14	01 30.4		B	DRI	40	11	6	4
5913		RAMY	01 31 1342	N15 W16	01 30.3		B	DAO	70	13	7	3
5913		BOUL	01 31 1542	N14 W15	01 30.5		B	DAO	70	10	6	2
5913		PALE	01 31 2340	N13 W20	01 30.5		B	CAO	20	16	6	3
5913		CULG	02 01 0040	N15 W21	01 30.5		B	DAO	20	14	7	2
5913		LEAR	02 01 0135	N13 W21	01 30.6		B	CAO	30	11	7	3
5913		RAMY	02 01 1511	N14 W29	01 30.5		B	DAO	80	17	9	3
5913		BOUL	02 01 1545	N12 W28	01 30.6		B	DSO	50	8	7	2
5913		HOLL	02 01 1620	N14 W28	01 30.7		B	CRO	30	12	6	2
5913		PALE	02 01 1928	N15 W30	01 30.6		B	CSO	50	15	7	3
5913		LEAR	02 02 0013	N13 W33	01 30.6		B	BXO	100	16	6	4
5913		RAMY	02 02 1245	N15 W41	01 30.5		B	DAO	50	18	8	3
5913		SVTO	02 02 1319	N17 W42	01 30.5		B	DAO	50	8	7	2
5913		HOLL	02 02 1925	N15 W44	01 30.6		B	BXO	20	10	7	4
5913		PALE	02 02 2143	N14 W44	01 30.7		B	BXO	20	8	7	3
5913		LEAR	02 03 0006	N13 W46	01 30.6		B	BXO	90	10	7	4
5913		RAMY	02 03 1255	N15 W53	01 30.6		B	DAO	100	13	8	3
5913		SVTO	02 03 1436	N17 W54	01 30.6		B	DAO	90	8	6	1
5913		BOUL	02 03 1550	N14 W55	01 30.6		B	DAO	60	11	8	3
5913		HOLL	02 03 1615	N15 W54	01 30.7		B	CSO	100	11	8	3
5913		PALE	02 03 2140	N16 W59	01 30.5		B	CAO	100	9	8	2
5913		LEAR	02 04 0045	N14 W60	01 30.6		B	CAO	110	11	6	3
5913		CULG	02 04 0110	N14 W62	01 30.5		B	CSO	40	8	7	2
5913		SVTO	02 04 0800	N16 W65	01 30.5		B	DSO	80	7	8	2
5913		RAMY	02 04 1243	N15 W67	01 30.5		B	DAO	230	13	6	3
5913		HOLL	02 04 1450	N14 W68	01 30.6		B	DAO	60	7	6	4
5913		BOUL	02 04 1540	N14 W68	01 30.6		B	DSO	60	6	5	2
5913		PALE	02 04 1935	N16 W75	01 30.2		B	CSO	90	6	5	3
5913		LEAR	02 05 0025	N13 W79	01 30.1		B	CAO	80	5	5	4
5913		RAMY	02 05 1222	N14 W81	01 30.5		B	CAO	60	5	9	3
5913		PALE	02 05 1850	N15 W83	01 30.6		A	AX	10	1	1	3
5924		RAMY	02 04 1243	N20 W57	01 31.2		B	BXO	10	2	3	3
5924		HOLL	02 04 1450	N19 W56	01 31.3		A	AX	10	2	2	4
5924		BOUL	02 04 1540	N20 W55	01 31.4		B	BXO		3	3	2
5924		PALE	02 04 1935	N20 W60	01 31.2		A	AX		1		3
5924		LEAR	02 05 0025	N19 W62	01 31.3		A	AX	10	1	1	4
5924		SVTO	02 05 0820	N22 W65	01 31.3		A	AX	10	1	1	2
5924		RAMY	02 05 1222	N20 W70	01 31.2		B	BXO	10	3	3	3
5924		PALE	02 05 1850	N20 W72	01 31.3		A	AX		1		3
5922		RAMY	02 01 1511	S09 W09	01 31.9		B	BXO	10	2	2	3
5922		HOLL	02 01 1620	S08 W09	02 1.0		A	AX		1		2
5922		PALE	02 01 1928	S09 W12	01 31.9		B	BXO	10	4	3	3
5922		LEAR	02 02 0013	S08 W13	02 1.0		B	BXO	20	3	3	4
5922		RAMY	02 02 1245	S09 W22	01 31.9		B	BXO	10	5	3	3
5922		SVTO	02 02 1319	S09 W22	01 31.9		B	CRO	20	4	4	2
5922		HOLL	02 02 1925	S08 W24	02 1.0		A	AX		1		4
5922		PALE	02 02 2143	S08 W25	02 1.0		A	AX		3	1	3
5922		LEAR	02 03 0006	S08 W27	02 1.0		A	AX	10	1	1	4
5922		HOLL	02 04 1450	S09 W50	01 31.9		A	AX		2		4
5922		BOUL	02 04 1540	S09 W49	02 1.0		A	AX		1		2
5922		LEAR	02 05 0025	S10 W55	01 31.9		A	AX	10	1	1	4

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 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	0343	0359	0500	1-	1			1			No flare		
01	0811	0825	0922	1-	5			1		1	0809	C4.9	
01	0844	0855U	0926	1	1		1				0846		5854
01	1008	1015	1100	2+	1					1	1005	C3.6	5854
01	1309	1330	1419	1-	5		1	1			1306	C4.0	
01	1514	1515	1520	1-	3					2	1513	C4.0	5854
01	2120	2132	2232	2	5	2		1		3	2119	M2.1	5854
02	0221	0239	0253D	1	1			1			0224	C5.9	5854
02	0253E	0259	0306D	1-	1			1			0250	C4.0	5858
02	0306E	0323	0430	1	1			1			0304	C5.7	5854
02	0441	0450	0528	1-	1			1			0441	C2.8	
02	0650	0656	0723	1-	1			1			No flare		
02	0904	1024	1034	0	1		1				No flare		
02	1222	1224	1227	1-	1		1				1212E		5854
02	1356	1407	1414	1	1		1				1359	C4.4	5858
02	1425	1428	1432	1-	1					1	1422E		5858
02	1458	1500	1512	1-	3					2	1457	C3.5	
02	1910	1913	1948	1+	3					3	1859	C6.9	5854
03	0106	0117	0147	1-	1			1			0053E	C2.8	
03	0421	0433	0513	1-	1			1			0428	C2.7	5863
03	0617	0628	0802	2	5	1		1		3	0620	M1.3	5854
03	0830	0849U	0929	1	1		1				0818		5867
03	1724	1726	1800	2	1					1	1719	C2.9	5867
03	2008	2030	2046	2	1					1	2002	C2.6	5867
04	0335	0400	0511	1+	5			1		1	0338	C4.3	
04	0521	0533	0627	1-	5			1		1	0520	C4.9	
04	1005	1019U	1045	1	1		1				1018		5867
04	1607	1616	1643	2-	3					6	1611	C4.9	5864
05	0206	0212	0232	1-	1			1			*		
05	0331	0335	0436	1-	1			1			0328	C3.0	
05	0451	0502	0532	1-	1			1			No flare		
05	0542	0547	0600	1-	1			1			0540	C2.0	
05	1142	1146	1204	1-	3					2	1157	M2.0	5867
05	1151	1159	1259	2	5	2	4	1	1	1	1157	M2.0	5867
05	1312	1317U	1348	1	1		1				No flare		
05	1628	1632	1646	1-	1					1	1635		5864
05	1647	1651	1721	1+	3					4	No flare		
05	2003	2008	2100	2+	3					2	2006	C6.0	5874
06	0300	0315	0353	1-	1			1			0300	C2.5	5874
06	2302	2316	2338D	1-	1			1			2246	C3.7	5874
06	2338E	2400	2433	1-	1			1			2338		5874
07	0150	0214	0257	1-	1			1			0205		5874
07	0535	0550	0642	1-	1			1			No flare		
07	0943	0946	1013	1-	1			1			No flare		
08	0317	0323	0357	1-	1			1			0317		5864
08	1301	1317	1359	1-	5	1	5	1	1	2	1156		5874
08	1715	1718	1745	1+	1					1	1712	C2.7	5874
08	1846	1850	1905	1-	3					2	*		
09	0123	0131	0206	1-	1			1			0123	C1.8	
09	0700	0705	0732D	1-	5			1		3	0701E	C5.1	
09	0732E	0737	0809	1-	5			1		3	0730	C2.5	
09	1148	1153	1240	1-	5		1	1	1	1	1146	C6.7	
09	1452	1457	1623	2-	5		3	1	1	7	1451	M2.5	5871
09	2041	2047	2155	1+	5			1		7	2040	M1.2	5871
10	0031	0042	0128	1-	1			1			0030	C1.2	5871
10	0241	0248	0430	3-	5	1		1		2	0240	M2.2	5871
10	0738	0744	0844	1-	1			1			0738	C3.0	5871
10	0850	0852	0900	1-	1					1	No flare		

* = No flare patrol.

JANUARY 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
10	1301	1306	1347	1-	5		1	1	1		1300	C4.6	5871
10	2019	2026	2048	1-	5			1		6	2017	M2.0	5871
10	2222	2223	2235	1-	1	1					2224	C1.8	
11	0026	0033	0059	1-	1			1			0023	C2.2	
11	0553	0609	0715	1-	1			1			0555	C2.7	
11	0836	0841	0911	1-	1			1			0833	C2.7	
11	2030	2050	2106	2	1					1	2044	C2.4	5871
12	0049	0106	0254	2+	3	1		1			0045	M1.1	5871
12	0739	0759	0917	2	5		1	1		3	0741	C8.4	5882
12	2105	2113	2239	2+	5	1		1		6	2116E	M3.5	5882
13	0351	0411	0507	1-	1			1			0336	C3.0	
13	0610	0631	0711	1-	5			1		1	0609E	C2.4	
13	0833	0840	0904	1-	1			1			0831	C2.4	
13	1614	1617	1640	1+	1					1	1612	C3.4	5873
14	0215	0223	0245	1-	1			1			No flare		
14	1005	1016	1129	3	5	2	1	1	1	4	1005	M2.8	5882
14	1606	1608	1618	1	1					1	1611		5882
15	0051	0058	0124	1-	1			1			0050	C1.4	
15	0205	0217	0256	1-	1			1			*		
15	0446	0449	0511	1-	1			1			0447	C1.4	
15	0641	0657	0800	1+	5			1		2	0647	C7.5	5882
15	0834	0850	0907	2	1		1				*		
15	1602	1610	1639	2-	3					6	1603	C4.7	5882
15	2000	2005	2015	1-	1					1	No flare		
15	2345	2352	2441	1-	1			1			2346	C1.8	
16	0659	0712	0720U	1	1					1	*		
16	0742	0818	1002	3-	5		3	1		1	0747	M1.5	
16	1130	1132	1143	1-	1		1				No flare		
17	0027	0036	0126	1-	1			1			0027	C2.4	
17	0222	0225	0249	1-	1			1			No flare		
17	0343	0359	0446	1-	1			1			No flare		
17	0542	0550	0641	1-	5			1		1	0543	C4.7	
17	0720	0726	0819	1+	5			1		3	0716	C7.2	
17	0741	0810	0845	2	1		1				No flare		
17	0856	0901	0938	1-	5			1	1	2	0857	C5.6	
17	1020	1100	1140	2+	1		1				No flare		
17	1954	1959	2014	1-	3					3	1946	C2.9	5882
18	0222	0228	0334	2+	3	1		1			0223	M1.7	5890
18	0410	0425	0729	3-	5	1		1		3	0413	C9.6	
18	1106	1125U	1158	1	1		1				1126	C3.4	
18	1536	1544	1606	1+	3					6	1536	C4.9	
19	0148	0154	0232	1-	1			1			0147	C4.3	
19	0346	0355	0416	1-	1			1			0345	C3.1	
19	0425	0431	0547	1+	5	1		1		1	0425	C7.9	
19	0844	0854	0920D	1-	5			1		2	0845	C5.6	5890
19	0920E	0925	1033	1+	5			1		1	No flare		
19	1156	1205	1223	1-	5		1	1	1		1146	C5.6	5882
19	1529	1603	1545	1	5			1		8	1528	M2.0	5890
19	2025	2035	2050	1	1					1	2018		5890
19	2243	2300	2446	2-	5	1		1			2242	C7.8	
20	0121	0130	0223	1-	1			1			0122		5882
20	0314	0336	0423	1-	1			1			0331	C4.0	
20	0917	0925	1011	1-	1			1			No flare		
20	1143	1152	1237D	2+	5	3	3	1	1	2	1140	M1.7	5882
20	1237E	1254	1325D	3-	5	3	1	1	1	2	1210	M4.2	5890
20	1325E	1333	1428	3-	5	3	4	1	1	8	1323	M5.6	
20	1518	1547	1640	2	1	1					1544		5882

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 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
20	1617	1620	1630	1-	1					1	1619		5882
20	1701	1709	1725	1	3					2	No flare		
20	1718	1728	1752	1+	3					7	1737	C9.3	5882
20	1830U	1830U	1830	1-	1					1	1831E		5882
20	2107	2121	2222	1-	5			1		4	2113	C9.0	5882
20	2251	2305	2413	1	1			1			2246	C6.7	5897
21	0130	0141	0224	1-	1			1			No flare		
21	0244	0257	0415	2	1			1			0244		5890
21	0430	0449	0709	3	5	1		1		3	0429	M6.9	5890
21	0737	0745	0803	1-	1			1			0731	C3.6	
21	1611	1624	1759	1-	5			1		8	1604	M1.6	5892
21	1848	1857	1929	2-	3					4	1829	C7.5	5890
21	1946	1951	2026	2	1					1	1940	C5.9	5882
22	0015	0027	0143	1-	3	1		1			0017	C6.8	5900
22	0216	0221	0245	1-	1			1			No flare		
22	0414	0426	0512	1-	1			1			0421	C4.8	5900
22	0521	0529	0544D	1-	1			1			0521	C3.8	5892
22	0544E	0557	0736	2+	3	1		1			0536	M1.2	5890
22	0826	0832	0845	1-	1			1			0825	C5.0	
22	1057	1105	1138	1-	5			1	1		1057	C7.3	
22	1151	1204	1300	2-	5		3	1	1	1	1155	M1.5	5892
22	1412	1420	1459	1-	5		1	1			1406	C5.0	5882
22	1734	1738	1755	1	3					3	1737	C4.8	5892
23	0501	0507	0715	3	5	1		1		3	0503	M2.3	5900
23	0925	0934	0951	1-	1			1			0909E	C3.4	5900
23	1036	1046	1105	1-	5		2	1	1		1032	C6.4	
23	1249	1253	1315	1-	1			1			1249		5900
23	1430	1437	1449	1	1					1	1425	C4.1	
23	1656	1659	1715	1-	3					3	1654	C3.5	
23	1716	1720	1731	1-	3					2	1718E		5890
23	1827	1830	1854	1	3					4	1822	C5.0	5882
23	1844	1857	1922	1+	3					2	1822	C5.0	5882
24	0408	0423	0455	1-	1			1			*		
24	0643	0650	0704D	1-	5			1		1	0644E	C3.0	
24	0704E	0711	0742	1-	5			1		1	0704	C3.2	5892
24	1216	1225	1245	1-	5			1	1		1222	C6.5	5900
24	1717	1721	1732	1-	3					3	1718		5900
24	2002	2019	2122	1-	5	1		1		8	2001	M1.7	5892
24	2321	2324	2349	1-	1			1			2311	C4.7	5900
25	0052	0103	0121D	1-	1			1			*		
25	0121E	0133	0148	1-	1			1			*		
25	0521	0526	0614	1-	1			1			*		
25	0721	0728	0814	1-	5			1		2	0721	C3.2	
25	0856	0907	0937	1-	1			1			No flare		
25	0947	0952	1019	1-	1			1			*		
25	1455	1505	1535	1	1		1				No flare		
25	2251	2259	2320	1-	1			1			2253		5907
25	2342	2346	2403	1-	1			1			2336		5897
26	0052	0103	0119D	1-	1			1			*		
26	0119E	0133	0213	1-	1			1			*		
26	0519	0526	0631	1-	5			1		1	0518	C3.3	
26	0648	0657	0737	1-	1			1			*		
26	1128	1130	1150	1-	1			1			*		
26	1231	1236	1252	1-	5		1	1	1		1220E		5909
26	1343	1400	1427	1	1		1				1336		5909
26	1616	1618	1625	1-	3					2	1616	C3.3	5909
26	2247	2258	2341	1-	1			1			2251	C5.6	5909
27	0535	0543	0608	1-	1			1			0535	C1.9	
27	0855	0856	0940U	2	1					1	No flare		
27	2205	2213	2233	1-	1			1			2206	C3.3	
27	2348	2401	2522	2-	5	2		1		1	2347	M1.0	

* = No flare patrol.

JANUARY 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	0311	0318	0357	1-	1			1			*		
28	0934	0937	0956	1-	5			1		1	0923E	C2.6	5900
28	1636	1638	1656	1	1					1	1616		5900
28	2218	2226	2243	1-	5			1		1	2218	C2.2	5892
28	2349	2400	2437	1-	1			1			No flare		
29	0048	0054	0144	1-	1			1			0045E	C5.9	
29	0201E	0210	0229	1-	1			1			*		
29	0719	0728	0744	1-	1			1			*		
29	1243	1301	1335	1-	1			1			No flare		
29	1650	1656	1705D	1-	1					1	1653	C2.5	5914
29	1705	1713	1725	1	1					1	*		
29	2030	2045	2108	2	1					1	2046	M1.5	5892
29	2112	2118	2220	1	1	1					2108		5914
29	2333	2343	2417D	1-	1			1			2342E	C6.1	5913
30	0016E	0042	0104D	1-	1			1			No flare		
30	0104E	0112	0159	1-	1			1			0103		5900
30	0356	0415	0502	1-	1			1			No flare		
31	0016	0036	0135	1-	1			1			0024		5900
31	0419	0425	0439	1-	1			1			0419		5900
31	0947	0954	1004	1-	1			1			0945	C3.4	5914
31	1029	1035	1113	1-	5			1	1	1	1024	C6.0	5900
31	1128	1131	1140	1-	1				1		1053E	C4.6	5919
31	1225	1300	1319	1-	5			1	1		1227	C4.4	5900
31	1352	1401	1443	1	1		1				No flare		
31	1507	1547U	1547	2	5	1	1			1	1511		5900
31	2246	2252	2334	1-	1			1			No flare		

* = No flare patrol.

OBSERVATORIES REPORTING FOR JANUARY 1990

Amherst, New Hampshire, USA	SES	Kuhlungsborn, German Dem Rep	SEA, SPA
Boksburg, Rep of S. Africa	SES	Latrobe, Pennsylvania, USA	SES
Darmstadt, German Fed Rep	SWF	Locust Grove, Georgia, USA	SES
Edenvale, Rep of S. Africa	SES	Manahawkin, New Jersey, USA	SES
Gainesville, Florida, USA	SES	Maui, Hawaii, USA	SWF
Hiraiso, Japan	SWF	Nerja, Spain	SES, SEA
Houston, Texas, USA	SES	Panska Ves, Czechoslovakia	SES, SEA, SWF
Hudson, Ohio, USA	SES, SEA	Uccle, Belgium	SEA
Inubo, Japan	SPA	Upice, Czechoslovakia	SEA
Johannesburg, Rep of S. Africa	SES	Valley Cottage, New York, USA	SES
Juliusruh, German Dem Rep	SWF	Vlasim, Czechoslovakia	SEA
Kandilli, Turkey	SEA		

Observations are not necessarily continuous.

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 1990

SIDs BY NOAA/SESC REGIONS

Day :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Reg. No.																															
5854	4	4	1																												
5858		3																													
5863			1		1																										
5864			3	1				1																							
5867				1	2																										
5871									2	5	1	1																			
5873													1																		
5874					1	3	1	2																							
5882												2		2	2		1		1	7	1	1									
5890																		1	3	1	3	1	2								
5892																					1	3	1	2				1	1		
5897																				1					1						
5900																						2	3	3				2		1	5
5907																									1						
5909																										4					
5913																													1		
5914																													2		1
5919																															1

Number of events with X-Ray flares

5	7	5	3	5	2		1	6	6	4	3	4	1	5	1	5	4	7	7	5	9	7	5	1	3	3	2	4		4

Number of events with no flare reported

1	2			3		2			1				1	1	1	4		1	2	1	1			2		1	1	1	2	2

Number of events with no flare patrol

				1			1							2	1									1	4	4		1	3		

Total SID event

7	11	6	4	10	3	3	4	6	7	4	3	4	3	8	3	9	4	9	13	7	10	9	7	9	9	4	5	9	3	9

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

JANUARY 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				0127.0	0555.0	1				CONT
		LEAR				0207.0	0215.0	2				III
		LEAR				0448.0	0449.0	2				III
		LEAR				0508.0	0509.0	2				III
		LEAR				0530.0	0531.0	2				III
		LEAR				0540.0	0542.0	2				III
		LEAR				0624.0	0628.0	1				III
		LEAR				0703.0	0707.0	2				III
		LEAR				0714.0	0714.0	1				III
0837	1333	ONDR				0837.01	1333.0	1				I
0800	1514	WEIS				0844.4	0848.3	2				IIIG
		LEAR				0845.0	0852.0	2				III
		SVTO				0846.0	0851.0	2				III
		WEIS				0850.2	0852.2	2				IIIG
		ONDR	0850.6	0850.91		0850.6	0850.9	1				IIIG
		LEAR				0942.0	0954.0	2				III
		WEIS				0944.2	0945.4	2				IIIG
		WEIS				0948.9	0949.0	1				IIIB
		WEIS				0950.1	0950.3	1				IIIB
		WEIS				0953.4	0953.9	2				IIIG
		SVTO				0955.0	0955.0	2				III
		LEAR				1002.0	1009.0	3				III
		WEIS				1002.6	1006.2	3				IIIGG
		SVTO				1003.0	1010.0	2				V
		WEIS				1003.3	1003.4	2				RS
		WEIS				1008.8	1009.6	2				IIIG
		SVTO				1011.0	1507.0	2				CONT
		WEIS				1116.1	1116.3	1				IIIB
		WEIS				1124.1	1129.4	3				IIIG
		ONDR	1128.0	1128.82		1128.0	1128.8	2				IIIG
		SVTO				1129.0	1130.0	3				V
		WEIS				1141.5	1141.7	1				IIIB
		WEIS				1305.7	1305.8	2				IIIB
		SGMR				1511.0	1524.0	2				S
		WEIS				1511.2	1512.2	2				IIIG
		WEIS				1513.2	1513.4	2				IIIG
		SGMR				1809.0	1814.0	1				III
		PALE				1847.0	1850.0	1				III
		SGMR				1847.0	1850.0	1				III
		PALE				1940.0	1941.0	1				III
		PALE				2010.0	2157.0	1				S
		PALE				2119.0	2134.0	1				S
		LEAR				2215.0	2215.0	1				III
		LEAR				2243.0	2243.0	1				III
		LEAR				2303.0	0207.0	3				III
		LEAR				2318.0	2322.0	2				III
		LEAR				2356.0	0014.0	1				S
02		LEAR				0101.0	0113.0	2				S
		PALE				0101.0	0109.0	1				III
		LEAR				0154.0	0156.0	1				III
		LEAR				0209.0	0245.0	2				S
		LEAR				0302.0	0323.0	2				S
		LEAR				0311.0	0315.0	1				II
		LEAR				0415.0	0416.0	2				III
		LEAR				0517.0	0518.0	1				III
		LEAR				0530.0	0530.0	2				III
		LEAR				0536.0	0536.0	1				III
		LEAR				0546.0	0607.0	2				S
		LEAR				0645.0	0648.0	3				III
		LEAR				0719.0	0722.0	2				III
		LEAR				0724.0	0738.0	1				S
		LEAR				0740.0	0741.0	2				III
		LEAR				0809.0	0812.0	1				III
		LEAR				0850.0	0850.0	2				III
0758	1315	WEIS				1006.6	1006.8	1				IIIB
		WEIS				1100.0	1100.2	1				IIIB
		WEIS				1115.6	1115.9	2				IIIG
		WEIS				1117.8	1117.9	2				IIIB

SOLAR RADIO EMISSION
Spectral Observations

JANUARY 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
02			WEIS				1120.8	1120.9	1				IIIB
	0837	1334	ONDR				1155.8	1157.5	2				IIIG
			WEIS				1159.4	1159.6	2				IIIB
			SVTO				1200.0	1251.0	2				S
			ONDR	1203.5	1205.61		1203.5	1205.6	1				IIIG
			WEIS				1203.9	1204.4	2				IIIG
			ONDR				1210.5	1211.5	1				IIIG
			WEIS				1211.7	1213.1	2				IIIG
	1490	1515	WEIS										
			PALE				2012.0	2012.0	1				III
			PALE				2055.0	2056.0	1				III
			PALE				2104.0	2104.0	2				V
03			LEAR				0213.0	0215.0	1				III
			LEAR				0355.0	0355.0	1				III
			LEAR				0417.0	0421.0	3				III
			LEAR				0421.0	0649.0	2				CONT
	0836	1335	ONDR										
	0758	1515	WEIS				1229.6	1229.7	2				IIIB
04			LEAR				0323.0	0323.0	1				III
			LEAR				0415.0	0416.0	1				III
			LEAR				0721.0	0721.0	2				III
			LEAR				0740.0	0741.0	1				III
			LEAR				0803.0	0804.0	2				III
	0759	1517	WEIS				0803.7	0804.1	2				IIIG
			SVTO				0804.0	0805.0	2				III
	0836	1336	ONDR	1037.0	1336.02		1037.0	1336.0	2				I
			SVTO				1228.0	1231.0	2				III
05	0757	1518	WEIS										
	0835	1338	ONDR	1206.9	1207.31		1206.9	1207.3	1				IIIG
			SGMR				1810.0	1811.0	1				V
			PALE				2122.0	2124.0	2				III
06			LEAR				0124.0	0216.0	1				CONT
			LEAR				0746.0	0747.0	1				III
	0757	1518	WEIS										
	0834	1340	ONDR	0843.0	1340.01		0843.0	1340.0	1				IN
			ONDR	1253.6	1253.71								IIIB
			ONDR	1308.1	1308.51								IIIG
			ONDR	1314.8	1315.91		1314.8	1315.9	1				IIIG
			ONDR	1319.7	1320.01								P
			LEAR				2351.0	2355.0	2				III
07			LEAR				0329.0	0331.0	2				III
			LEAR				0705.0	0708.0	2				III
	0834	1341	ONDR	0834.0	0850.01		0834.0	0850.0	1				I
			LEAR				1029.0	1030.0	1				III
			SVTO				1029.0	1029.0	2				III
	0759	1411	WEIS				1029.4	1029.7	2				U
			WEIS				1147.6	1147.7	2				IIIB
			WEIS				1152.2	1152.3	1				IIIB
	1436	1520	WEIS										
			PALE				1909.0	1910.0	1				III
			SGMR				1910.0	1910.0	1				III
			PALE				2031.0	2039.0	1				V
08			LEAR				0116.0	0117.0	1				III
	0833	1343	ONDR										
			LEAR				0833.0	0833.0	1				III
	0757	1522	WEIS				0833.5	0833.6	2				IIIB
			WEIS				1134.9	1135.1	2				IIIB
			LEAR				2235.0	2235.0	1				III
09			LEAR				0123.0	0123.0	2				III
			PALE				0123.0	0123.0	1				III
			LEAR				0140.0	0142.0	1				III
			LEAR				0143.0	0145.0	3				III

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

JANUARY 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
09		PALE				0143.0	0145.0	2				V
		LEAR				0207.0	0207.0	1				III
		LEAR				0238.0	0239.0	1				III
		LEAR				0352.0	0354.0	2				V
		LEAR				0433.0	0434.0	1				III
		LEAR				0450.0	0451.0	3				III
		LEAR				0456.0	0457.0	2				III
		LEAR				0552.0	0556.0	1				III
		LEAR				0617.0	0619.0	3				III
		LEAR				0624.0	0624.0	1				III
		LEAR				0700.0	0706.0	3				III
		SVTO				0700.0	0702.0	2				V
		LEAR				0723.0	0809.0	3				S
		SVTO				0803.0	0805.0	2				V
	0832 1345	ONDR				0832.0	1345.0	1				IN
		WEIS				0838.7	0839.2	2				IIIB
		LEAR				0840.0	0841.0	2				III
		LEAR				0904.0	0906.0	1				III
	0756 1523	WEIS				0926.4	0926.5	1				IIIB
		WEIS				0954.7	0954.8	1				IIIB
		LEAR				1003.0	1005.0	2				III
		WEIS				1003.8	1004.3	2				IIIG
		SVTO				1004.0	1005.0	2				III
		ONDR				1004.7	1006.3	1				IIIG
		ONDR				1058.2	1059.2	1				IIIG
		WEIS				1058.4	1059.6	1				IIIG
		WEIS				1100.1	1100.2	1				RS
		ONDR				1102.2	1103.3	1				IIIG
		WEIS				1102.4	1102.5	2				IIIB
		WEIS				1102.4	1103.3	1				IIIG
		WEIS				1109.9	1110.2	1				IIIG
		WEIS				1116.5	1117.3	2				IIIG
		SVTO				1117.0	1121.0	2				V
		WEIS				1120.4	1120.7	1				IIIG
		WEIS				1139.8	1140.9	3				IIIG
		SVTO				1140.0	1151.0	3				S
		ONDR	1146.0	1148.12		1146.0	1148.1	2				IIIGG
		WEIS				1146.1	1151.3	3				IIIGG,U
		WEIS				1259.2	1301.9	2				IIIGG,Spikes
		WEIS				1329.4	1329.5	1				IIIB
		WEIS				1348.9	1350.8	3				IIIG
		SGMR				1349.0	1350.0	2				V
		SVTO				1349.0	1350.0	2				III
		WEIS				1412.7	1414.9	3				IIIG,U
		SVTO				1413.0	1420.0	3				V
		SGMR				1416.0	1424.0	3				V
		WEIS				1418.8	1423.8	3				IIIGG
		SGMR				1450.0	1458.0	3				V
		WEIS				1450.7	1502.8	3				IIIGG,U
		WEIS				1506.3	1506.4	1				IIIB
		WEIS				1521.2	1521.4	2				IIIG
		SGMR				1615.0	1615.0	1				III
		SGMR				1647.0	1652.0	1				III
		SGMR				1726.0	1726.0	1				III
		PALE				1754.0	1754.0	1				III
		SGMR				1754.0	1755.0	2				III
		PALE				1916.0	1917.0	1				III
		SGMR				1917.0	1917.0	1				III
		SGMR				2007.0	2014.0	1				III
		PALE				2014.0	2019.0	2				III
		PALE				2031.0	2033.0	1				III
		PALE				2039.0	2043.0	3				V
		SGMR				2041.0	2042.0	2				V
		PALE				2124.0	2128.0	3				V
		PALE				2141.0	2143.0	2				V
10		LEAR				0022.0	0022.0	2				III
		LEAR				0028.0	0030.0	1				III
		LEAR				0038.0	0049.0	2				S

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10			PALE				0039.0	0042.0	1				III
			LEAR				0042.0	0043.0	3				III
			LEAR				0117.0	0121.0	2				III
			LEAR				0122.0	0125.0	3				III
			PALE				0122.0	0124.0	1				V
			LEAR				0150.0	0151.0	1				III
			LEAR				0154.0	0157.0	3				III
			PALE				0154.0	0155.0	2				III
			LEAR				0236.0	0240.0	3				III
			PALE				0238.0	0247.0	2				III
			LEAR				0241.0	0250.0	3				III
			LEAR				0250.0	0815.0	2				CONT
			LEAR				0259.0	0303.0	2				II
			LEAR				0327.0	0328.0	3				III
			LEAR				0349.0	0350.0	3				III
			LEAR				0501.0	0505.0	3				III
			LEAR				0525.0	0526.0	2				III
			LEAR				0541.0	0543.0	2				III
			LEAR				0549.0	0550.0	2				III
			LEAR				0608.0	0609.0	2				III
			LEAR				0735.0	0742.0	3				III
			SVTO				0739.0	0742.0	2				III
			SVTO				0743.0	0834.0	1				CONT
			LEAR				0839.0	0839.0	2				III
			LEAR				0850.0	0851.0	1				III
			SGMR				1259.0	1302.0	2				V
	0831	1347	ONDR	1259.6	1301.81		1259.6	1301.8	1				IIIG,Spike
			ONDR				1336.5	1337.0	1				IIIG
			PALE				2018.0	2021.0	2				V
			SGMR				2018.0	2020.0	1				III
			PALE				2118.0	2121.0	2				V
			PALE				2153.0	2154.0	1				III
			LEAR				2322.0	2323.0	1				III
11			LEAR				0056.0	0056.0	1				III
			LEAR				0556.0	0559.0	1				III
			LEAR				0743.0	0744.0	2				III
			SVTO				0743.0	0743.0	2				III
	0830	1348	ONDR	1038.6	1038.91		1038.6	1038.9	1				IIIG
	0755	1516	WEIS				1310.3	1310.5	1				IIIB
			SGMR				1554.0	1559.0	2				V
12			LEAR				0045.0	0045.0	1				III
			LEAR				0049.0	0103.0	2				S
			PALE				0054.0	0054.0	1				III
			LEAR				0107.0	0116.0	3				II
			LEAR				0116.0	0116.0	3				III
			LEAR				0304.0	0308.0	2				V
			LEAR				0544.0	0545.0	1				III
			LEAR				0601.0	0602.0	1				III
	0754	1526	WEIS										
	0829	1350	ONDR				1056.2	1056.6	1				IIIG
13	0756	1528	WEIS										
	0829	1352	ONDR										
14			LEAR				0055.0	0102.0	2				III
			LEAR				0630.0	0654.0	2				S
			LEAR				0735.0	0738.0	1				III
	0753	1530	WEIS										
			LEAR				0926.0	0926.0	2				III
	0827	1354	ONDR	1151.7	1152.21		1151.7	1152.2	1				IIIG
			SGMR				1907.0	1915.0	2				V
15			LEAR				0037.0	0040.0	2				III
			PALE				0039.0	0040.0	2				III
			LEAR				0101.0	0101.0	2				III
			LEAR				0242.0	0243.0	1				III
			LEAR				0542.0	0548.0	2				III

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15			LEAR				0605.0	0605.0	2				III
			LEAR				0606.0	1011.0	2				CONT
			LEAR				0624.0	0627.0	2				III
	0852	1116	WEIS										
	1124	1530	WEIS										
	0825	1356	ONDR	1325.1	1325.81		1325.1	1325.8	1				IIIG
			SGMR				1813.0	1816.0	1				V
			PALE				1909.0	1909.0	1				III
16			LEAR				0051.0	0052.0	1				III
			LEAR				0139.0	0147.0	3				III
			PALE				0140.0	0141.0	1				III
			LEAR				0329.0	0330.0	1				III
			LEAR				0500.0	0504.0	2				III
			LEAR				0557.0	0558.0	3				III
			LEAR				0609.0	0610.0	1				III
			LEAR				0718.0	0719.0	2				III
			LEAR				0920.0	0925.0	2				III
			SVTO				0921.0	0924.0	2				III
	0753	1533	WEIS				0921.1	0921.2	2				IIIB
	0824	1358	ONDR				1017.8	1018.1	1				IIIG
			WEIS				1039.7	1040.0	1				IIIG
			WEIS				1220.0	1220.2	1				IIIB
			WEIS				1300.7	1301.3	2				IIIG
			SGMR				1323.0	1323.0	1				III
			WEIS				1323.1	1323.3	1				IIIB
17			LEAR				0233.0	0233.0	1				III
			LEAR				0239.0	0241.0	3				III
			LEAR				0252.0	0252.0	1				III
			SVTO				0802.0	0803.0	2				III
	0823	1400	ONDR										
			LEAR				0832.0	0833.0	3				III
			SVTO				0832.0	0833.0	2				III
	0750	1534	WEIS				0832.4	0832.7	2				U
			LEAR				0840.0	0840.0	1				III
			LEAR				0919.0	0924.0	2				III
			SVTO				0919.0	0921.0	2				III
			WEIS				0919.6	0919.7	2				IIIB
			WEIS				0921.0	0921.4	2				IIIG
			WEIS				1056.2	1056.7	2				IIIG
			SGMR				1707.0	1708.0	2				V
			SGMR				1851.0	1852.0	1				III
			PALE				2130.0	2131.0	1				III
			LEAR				2244.0	2245.0	1				III
18			LEAR				0055.0	0055.0	1				III
			LEAR				0113.0	0114.0	1				III
			LEAR				0121.0	0122.0	2				III
			LEAR				0155.0	0156.0	1				III
			LEAR				0319.0	0319.0	2				III
			LEAR				0427.0	0433.0	1				III
			LEAR				0621.0	0622.0	2				III
			LEAR				0639.0	0640.0	2				III
			LEAR				0702.0	0702.0	2				III
	0749	0819	WEIS										
	0821	1402	ONDR										
	0829	1535	WEIS										
			LEAR				0929.0	0929.0	1				III
			LEAR				2306.0	2308.0	2				III
			PALE				2306.0	2306.0	2				III
			LEAR				2327.0	2328.0	1				III
19			LEAR				0035.0	0036.0	3				III
			PALE				0035.0	0036.0	2				III
			LEAR				0128.0	0131.0	2				III
			LEAR				0209.0	0209.0	1				III
			LEAR				0224.0	0237.0	2				S
			LEAR				0447.0	0448.0	2				III

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19		LEAR				0532.0	0535.0	3				III
		LEAR				0542.0	0544.0	3				III
		LEAR				0637.0	0647.0	3				III
		SVTO				0639.0	0640.0	2				III
		LEAR				0654.0	0654.0	1				III
		LEAR				0711.0	0713.0	2				III
		LEAR				0728.0	0730.0	3				III
		SVTO				0728.0	0729.0	2				III
		LEAR				0734.0	0735.0	1				III
		LEAR				0749.0	0753.0	2				III
		SVTO				0749.0	0753.0	2				III
	0750	WEIS				0752.1	0752.6	1				IIIG
		LEAR				0847.0	0850.0	2				V
		WEIS				0847.7	0848.2	1				IIIG
		LEAR				0901.0	0902.0	2				III
		SVTO				0935.0	0947.0	3				S
		WEIS				0935.6	0936.3	3				U
		WEIS				0940.8	0941.4	3				IIIG
		LEAR				0941.0	0941.0	3				III
		LEAR				0946.0	0948.0	3				III
		WEIS				0946.1	0947.1	3				IIIG
		SVTO				1019.0	1019.0	2				III
	0820	ONDR	1020.9	1021.11		1020.9	1021.1	1				IIIG
		SVTO				1049.0	1049.0	2				III
		WEIS				1049.6	1049.8	3				IIIG
		WEIS				1051.3	1052.8	1				IIIG
		WEIS				1057.9	1058.2	2				IIIG
		SVTO				1134.0	1140.0	2				V
		WEIS				1134.4	1136.0	2				IIIG
		WEIS				1138.7	1140.2	2				IIIG
		WEIS				1141.9	1142.0	1				IIIB
		ONDR	1152.4	1152.71								UNCLF
		SVTO				1210.0	1213.0	3				V
		ONDR	1210.1	1210.61								UNCLF
		WEIS				1210.2	1213.3	3				IIIG,U
		SVTO				1302.0	1303.0	2				III
		WEIS				1302.7	1304.2	2				IIIG
		SGMR				1328.0	1328.0	1				III
		SVTO				1328.0	1329.0	2				III
		WEIS				1328.1	1328.9	2				IIIG
		WEIS				1342.6	1342.9	2				IIIG
		SGMR				1508.0	1515.0	1				III
		WEIS				1508.4	1509.3	1				IIIG
		WEIS				1514.9	1516.3	2				IIIG,U
		SGMR				1616.0	1622.0	1				III
		SGMR				1648.0	1650.0	2				III
		PALE				1829.0	1837.0	2				III
		SGMR				1829.0	1837.0	1				III
		PALE				1912.0	1912.0	2				III
		SGMR				1912.0	1912.0	1				III
		PALE				2052.0	2107.0	1				S
20		LEAR				0041.0	0041.0	1				III
		LEAR				0102.0	0102.0	1				III
		LEAR				0123.0	0127.0	2				III
		PALE				0124.0	0124.0	1				III
		LEAR				0222.0	0223.0	2				III
		LEAR				0236.0	0236.0	2				III
		LEAR				0309.0	0310.0	1				III
		LEAR				0326.0	0332.0	1				III
		LEAR				0339.0	0344.0	3				III
		PALE				0343.0	0343.0	1				III
		LEAR				0432.0	0439.0	2				III
		LEAR				0716.0	0718.0	2				III
	0818	ONDR				1038.9	1039.1	1				IIIG
		ONDR	1247.5	1255.01		1247.5	1255.0	1				CONT,P,RS
	0747	WEIS				1249.1	1255.2	1				Spikes,RS
		ONDR				1319.0	1406.0	1				I
		ONDR	1324.0	1335.12		1324.0	1335.1	2				CONT,P,Spikes

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20		WEIS				1324.2	1327.6	3				IIIGG,Spikes
		SVTO				1325.0	1331.0	2				III
		WEIS				1334.7	1335.2	1				IIIG
21		LEAR				0040.0	0053.0	1				S
		LEAR				0147.0	0156.0	3				III
		PALE				0147.0	0156.0	2				V
		LEAR				0304.0	0305.0	1				III
		LEAR				0342.0	0342.0	1				III
		LEAR				0449.0	0512.0	2				II
		LEAR				0459.0	0500.0	2				III
		LEAR				0522.0	0543.0	1				IV
		LEAR				0609.0	0609.0	1				III
		LEAR				0641.0	0830.0	1				CONT
0817	1408	ONDR				0833.8	0834.2	1				IIIG
0746	1540	WEIS				0833.8	0834.0	3				IIIB,U
		LEAR				0836.0	0837.0	1				III
		ONDR				0836.5	0837.3	1				IIIG
		WEIS				0836.7	0837.2	3				IIIG,U
		LEAR				0915.0	1055.0	2				CONT
		ONDR	1013.8	1014.01								Spikes
		ONDR	1021.3	1022.91		1021.3	1022.9	1				IIIG
		WEIS				1132.4	1134.7	2				IIIG
		ONDR	1308.8	1309.02		1308.8	1309.0	2				IIIG
		WEIS				1308.9	1309.0	2				IIIB
22		LEAR				0018.0	0019.0	2				III
		LEAR				0030.0	0037.0	3				III
		PALE				0030.0	0034.0	2				V
		LEAR				0713.0	0716.0	2				III
		LEAR				0743.0	0746.0	2				III
		SVTO				0744.0	0745.0	1				III
0747	1305	WEIS										
		SVTO				0801.0	1104.0	2				CONT
0815	1411	ONDR										
1310	1541	WEIS										
		PALE				2041.0	2042.0	1				V
		LEAR				2258.0	2258.0	1				III
23		LEAR				0004.0	0012.0	1				III
		LEAR				0103.0	0200.0	1				CONT
		LEAR				0202.0	0203.0	1				III
		LEAR				0232.0	0232.0	2				III
		LEAR				0248.0	0249.0	2				III
		LEAR				0312.0	0313.0	1				III
0814	1413	ONDR										
0744	1544	WEIS				1326.8	1326.9	1				IIIB
		WEIS				1427.1	1430.6	1				IIIG
24		LEAR				0225.0	0228.0	1				III
0812	1415	ONDR										
0743	1545	WEIS				1312.2	1312.3	2				IIIB
		WEIS				1340.7	1340.9	2				IIIG
		WEIS				1343.5	1343.6	1				IIIB
		WEIS				1440.0	1440.2	1				IIIB
		WEIS				1453.3	1453.7	2				IIIG,U
		WEIS				1504.3	1504.5	1				IIIG
		SGMR				1527.0	1527.0	2				III
		SVTO				1527.0	1527.0	2				III
		WEIS				1527.2	1527.6	3				IIIB,U
25		LEAR				0354.0	0403.0	2				III
0744	0908	WEIS										
		LEAR				0806.0	0807.0	1				III
0912	1547	WEIS				1120.0	1120.4	1				IIIB
		WEIS				1309.0	1318.0	2				IIIN,RS
0810	1417	ONDR				1311.0	1318.0	1				I
		PALE				2137.0	2139.0	2				V
		LEAR				2248.0	2313.0	2				S

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26		LEAR				0021.0	0021.0	1				III
		LEAR				0126.0	0143.0	2				S
		LEAR				0217.0	0227.0	1				S
		LEAR				0230.0	0238.0	2				III
		LEAR				0401.0	0401.0	1				III
		LEAR				0503.0	0503.0	1				III
		LEAR				0704.0	0704.0	1				III
		LEAR				0941.0	0944.0	2				III
		SVTO				0943.0	0944.0	2				III
	0740 1549	WEIS				0943.6	0944.0	1				IIIG
	0819 1419	ONDR				0944.5	0944.9	1				IIIG
		ONDR	1004.7	1005.71		1004.7	1005.7	1				IIIG
		WEIS				1219.0	1230.0	1				IIIN
		WEIS				1301.8	1302.2	1				IIIG
		ONDR	1317.8	1318.11								UNCLF
		WEIS				1357.0	1407.0	1				IIIN
27		LEAR				0036.0	0047.0	2				S
		LEAR				0622.0	0622.0	1				III
		LEAR				0730.0	0742.0	1				S
	0739 1548	WEIS				0947.0	0951.4	1				IIIN
		SVTO				0949.0	0951.0	2				II
	0807 1422	ONDR				0949.5	0951.4	1				IIIGG
		ONDR				1047.4	1048.0	1				I
		PALE				2012.0	2012.0	1				III
		PALE				2234.0	2235.0	2				III
		PALE				2256.0	2300.0	1				III
28		LEAR				0035.0	0042.0	3				III
		PALE				0035.0	0036.0	2				III
		LEAR				0059.0	0101.0	3				III
		PALE				0059.0	0100.0	2				III
		LEAR				0144.0	0144.0	1				III
		LEAR				0210.0	0220.0	1				III
		LEAR				0238.0	0246.0	1				III
		LEAR				0328.0	0329.0	1				III
		LEAR				0612.0	0621.0	2				III
		LEAR				0653.0	0655.0	2				III
		LEAR				0748.0	0750.0	2				III
	0740 1552	WEIS				0748.0	1518.0	2				IIIN
		LEAR				0800.0	0802.0	2				II
		LEAR				0820.0	0823.0	1				III
	0805 1424	ONDR	0842.7	0843.31		0842.7	0843.3	1				IIIG
		WEIS				0842.8	0843.6	2				IIIG
		LEAR				0843.0	0843.0	2				III
		SVTO				0843.0	0843.0	2				III
		LEAR				0922.0	0924.0	2				III
		ONDR	0922.7	0933.51		0922.7	0933.5	1				IIIG,P,RS
		WEIS				0922.8	0923.3	2				IIIG
		WEIS				0942.4	0942.5	1				IIIB
		LEAR				0944.0	0944.0	1				III
		ONDR				0944.5	0944.7	1				IIIG
		WEIS				0944.6	0944.8	2				IIIB
		LEAR				1007.0	1017.0	1				III
		LEAR				1028.0	1028.0	2				III
		SVTO				1028.0	1028.0	3				III
		WEIS				1028.3	1028.7	3				IIIG
		SVTO				1042.0	1042.0	2				III
		ONDR	1114.7	1114.91		1114.7	1114.9	1				UNCLF
		SVTO				1343.0	1344.0	2				III
		SGMR				1344.0	1345.0	1				V
		ONDR	1413.7	1414.51		1413.7	1414.5	1				IIIG
		SGMR				1452.0	1453.0	1				III
		WEIS				1452.8	1453.3	3				IIIB
		SGMR				1752.0	1752.0	1				III
		SGMR				2000.0	2000.0	2				III
		PALE				2015.0	2018.0	2				V
		SGMR				2017.0	2018.0	2				III
		PALE				2018.0	2021.0	2				V

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

JANUARY 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
28			LEAR				2359.0	0009.0	2				III
29			LEAR				0055.0	0104.0	2				II
	0737	1157	WEIS										
			SVTO				0753.0	1539.0	2				CONT
	0803	1425	ONDR	0803.0	1425.01		0803.0	1425.0	1				IN
	1200	1554	WEIS				1335.7	1336.0	2				IIIB
			WEIS				1423.7	1424.2	2				IIIG
			PALE				2131.0	2146.0	2				II
			LEAR				2244.0	2245.0	1				III
			LEAR				2301.0	2301.0	1				III
30			LEAR				0026.0	0035.0	2				III
			LEAR				0044.0	0045.0	1				III
			LEAR				0050.0	0053.0	1				III
			LEAR				0106.0	0110.0	1				III
			LEAR				0115.0	0120.0	2				III
			LEAR				0129.0	0131.0	1				III
			LEAR				0207.0	0207.0	1				III
			LEAR				0223.0	0230.0	2				III
			LEAR				0354.0	0355.0	1				III
			LEAR				0532.0	0533.0	2				III
			LEAR				0718.0	0719.0	1				III
			SVTO				0755.0	0758.0	2				III
	0801	1428	ONDR				0801.0	1428.0	1				IN
			ONDR				0959.7	1000.0	1				IIIG
			SVTO				1141.0	1141.0	2				III
			ONDR	1305.5	1306.01		1305.5	1396.0	1				IIIG
	0735	1554	WEIS				1355.7	1355.8	1				IIIB
			SGMR				1537.0	1539.0	2				V
			SVTO				1537.0	1538.0	2				III
			WEIS				1537.2	1538.7	3				IIIG
			PALE				1849.0	1849.0	1				III
			LEAR				2341.0	0404.0	1				CONT
31			LEAR				0014.0	0015.0	2				III
			LEAR				0025.0	0033.0	3				III
			LEAR				0124.0	0125.0	2				III
			LEAR				0532.0	0533.0	1				III
			LEAR				0600.0	0601.0	1				III
			LEAR				0644.0	0644.0	1				III
	0759	1439	ONDR	0759.0	1430.02		0759.0	1430.0	2				I
	0735	1525	WEIS				0810.0	1434.0	1				IN
			LEAR				0900.0	0902.0	1				III
			LEAR				0913.0	0915.0	2				III
			WEIS				0915.2	0915.3	1				IIIG
			LEAR				0956.0	0956.0	1				III
			WEIS				0956.2	0956.5	1				IIIB
			ONDR	1024.3	1028.02		1024.3	1028.0	2				IIIGG,U
			WEIS				1024.4	1031.2	3				IIIGG,Spikes
			LEAR				1025.0	1028.0	2				III
			SVTO				1025.0	1031.0	2				III
			SVTO				1121.0	1122.0	2				III
			ONDR	1128.0	1129.82		1128.0	1129.8	2				IIIG
			WEIS				1129.6	1129.9	1				IIIB
			WEIS				1158.0	1200.8	3				IIIGG
			SVTO				1159.0	1201.0	2				III
			SVTO				1413.0	1414.0	2				III
			WEIS				1435.7	1436.5	2				IIIG
	1529	1557	WEIS				1531.8	1532.9	3				IIIG
			SGMR				1532.0	1532.0	1				III

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2136 (December 1989-January 1990)

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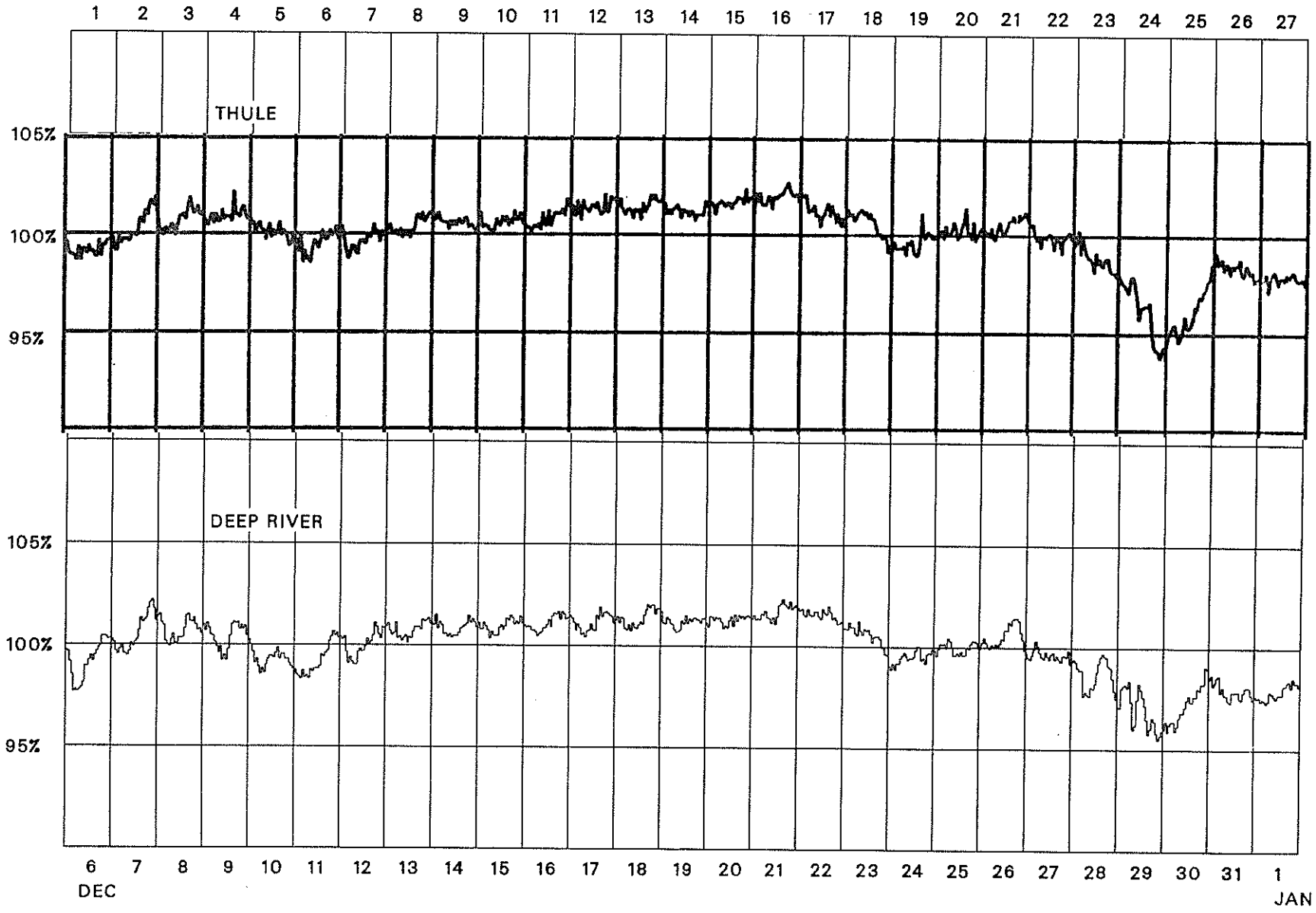
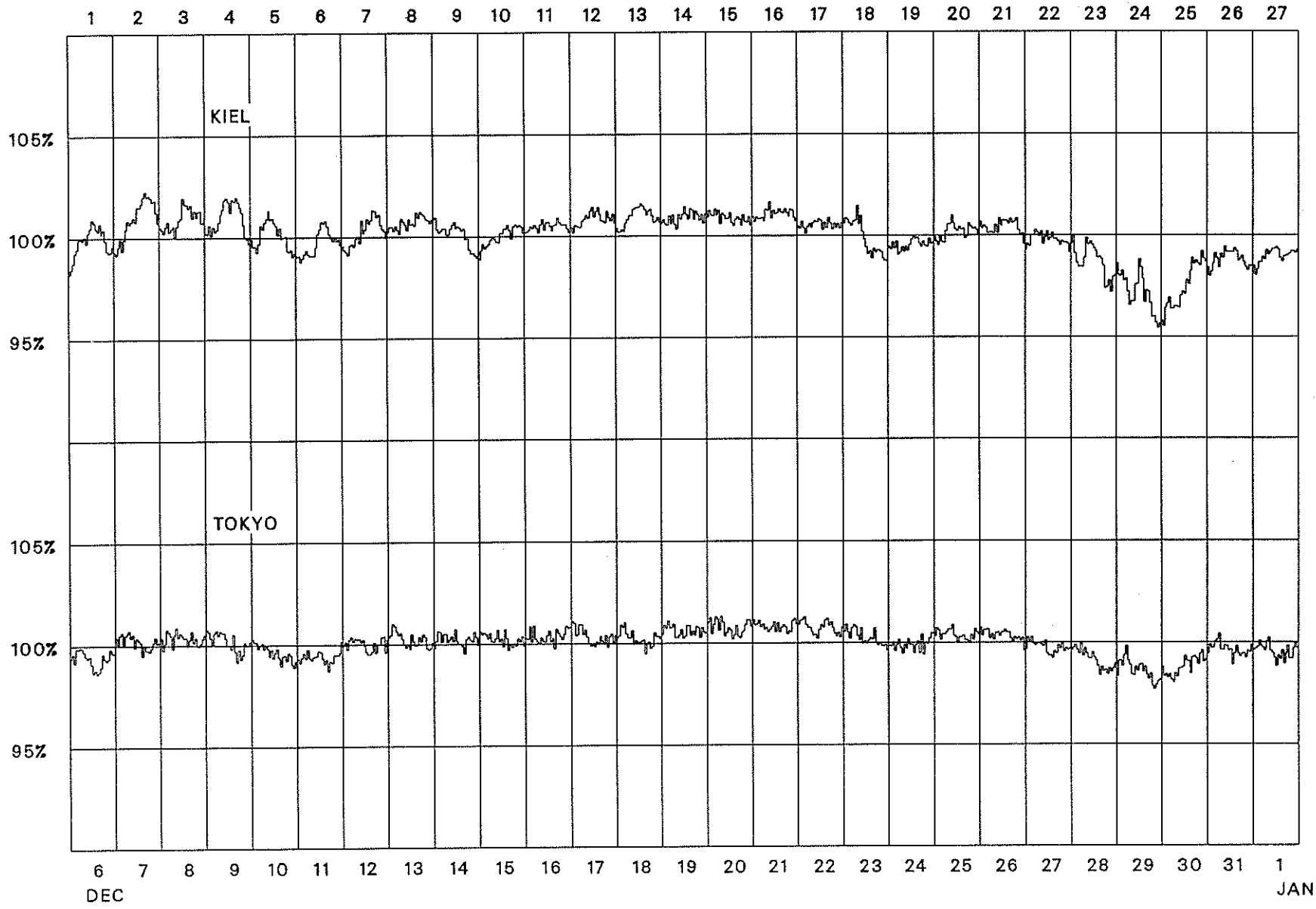
Jan 90



COSMIC RAY INDICES
(Neutron Monitor)

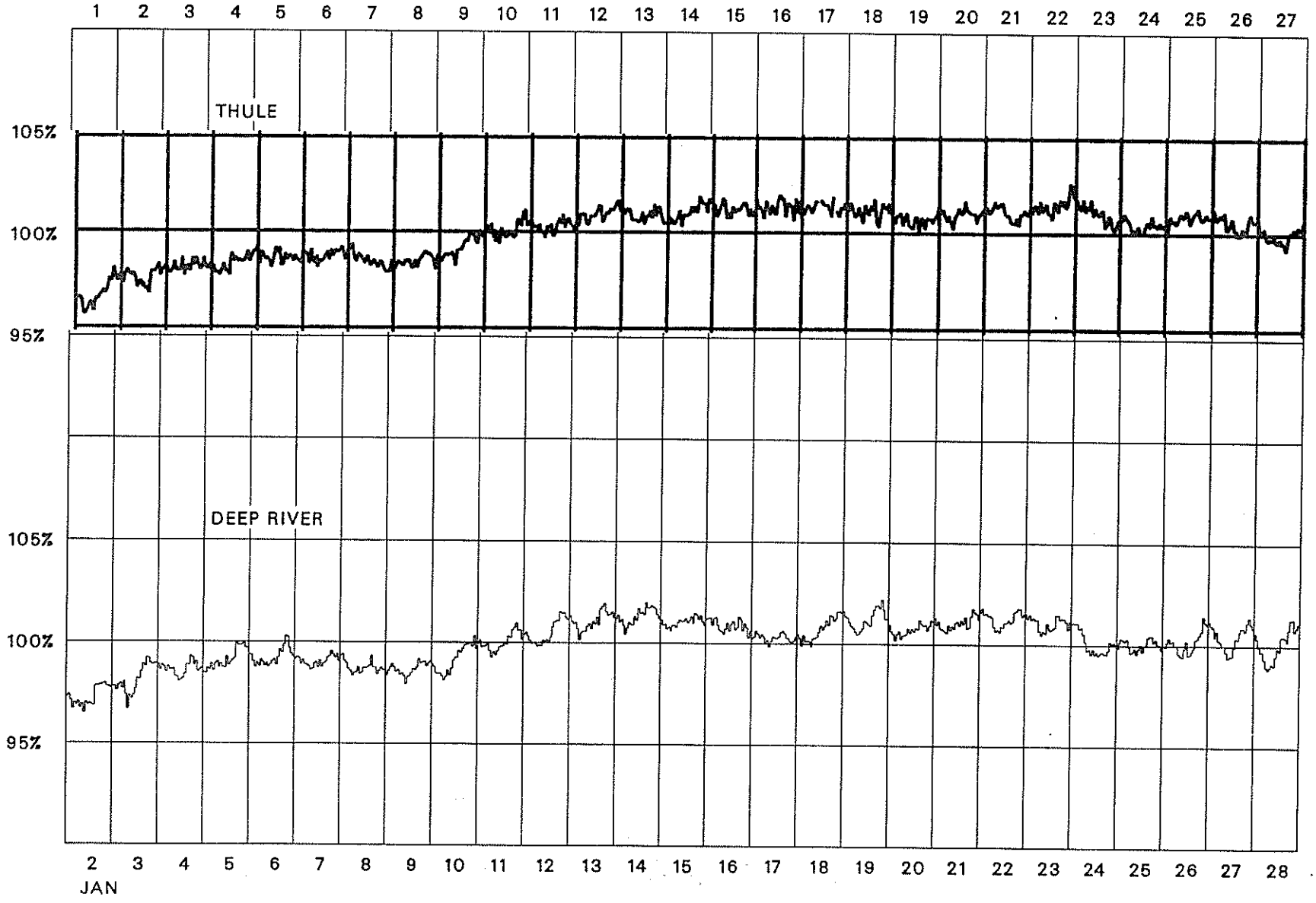
Bartels Rotation 2136 (December 1989-January 1990)



133
Jan 90

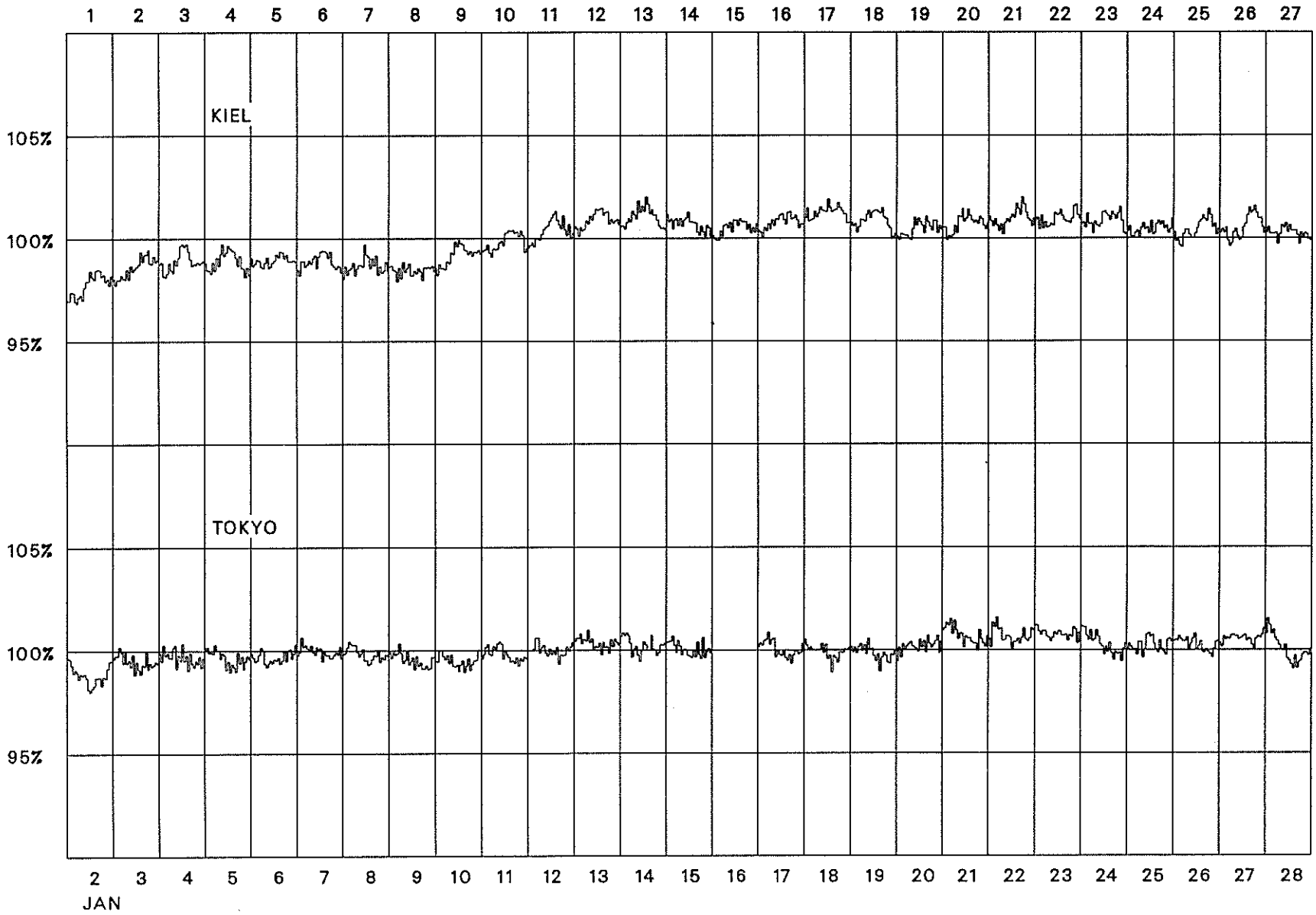
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2137 (January 1990)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2137 (January 1990)



135
Jan 90

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

JANUARY 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	3599	5753.5	5201.3		3395.2	
2	3600	5783.9	5230.8		3393.1	
3	3632	5834.2	5276.4		3415.0	
4	3651	5865.4	5291.5		3421.7	
5	3661	5893.5	5292.1		3421.0	
6	3669	5901.1	5293.8		3422.3	
7	3674	5889.3	5290.9		3431.5	
8	3662	5871.0	5279.9		3427.0	
9	3664	5866.0	5268.3		3417.7	
10	3693	5894.8	5306.7		3415.7	
11	3725	5946.2	5342.0		3426.4	
12	3732	5976.1	5371.8		3433.4	
13	3758	6009.7	5398.7		3445.2	
14	3753	6023.4	5406.9		3440.4	
15	3761	6007.5	5387.2		3434.7	
16	3766	5998.7	5377.4		---	
17	3770	5963.0	5392.1		3434.7	
18	3771	5987.7	5417.8		3430.6	
19	3763	6017.5	5396.5		3428.5	
20	3747	5988.3	5376.1		3439.5	
21	3758	6008.8	5388.7		3457.5	
22	3761	6021.7	5403.3		3456.9	
23	3777	6009.9	5401.4		3460.2	
24	3758	5952.4	5396.9		3444.0	
25	3737	5948.3	5376.1		3441.0	
26	3753	5954.5	5373.7		3442.2	
27	3741	5972.9	5380.6		3452.2	
28	3718	5949.2	5364.4		3434.8	
29	3748	5980.3	5373.5		3432.6	
30	3749	5972.6	5367.9		3426.2	
31	3745	5960.0	5347.5		3426.7	
Mean	3719	5942.0	5347.5		3431.6	

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

GEOMAGNETIC ACTIVITY INDICES

January 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		2 3 3- 3+	3- 3+ 4 4-	25-	16	0.9	2 2+ 3- 3	3- 3 4- 4-	28	31	32	24	39	
2		4+ 2+ 2- 3	2+ 3- 3+ 4+	24	17	0.9	3+ 2 2 3	3- 2+ 3 4-	27	35	33	28	39	
3		5 3+ 2 1+	2+ 3 2+ 2-	21	15	0.8	4- 2+ 2 1+	2+ 3+ 2+ 2-	22	29	23	30	23	
4		3- 2 1 3-	3 2 2+ 4	20-	12	0.7	2+ 1+ 1+ 3-	3- 2 2 4-	19	23	23	16	30	
5		4- 3- 2+ 3-	3- 3+ 4- 4	25	17	0.9	3 2 3- 3-	2 3+ 4- 3+	28	34	30	24	40	
6	Q5A	3+ 2 2 1+	1+ 1 2- 2	15-	7	0.4	2+ 2- 2- 2-	2- 1 2 2-	12	21	14	20	15	
7	Q3K	3- 3- 2+ 1	1 0+ 0+ 1	11+	6	0.3	2+ 2 2+ 1	1 0+ 1- 1+	10	13	11	17	7	CC
8		1 1+ 1 1-	3 4 3+ 3	17+	11	0.7	1 1+ 1+ 1+	3 4 4- 3+	26	24	29	10	44	
9		4+ 3 3- 2	3 2 1- 3+	21	14	0.8	4- 2+ 3- 2+	3- 2+ 1+ 3-	23	29	25	31	23	
10		4 2+ 4- 3+	2+ 3- 3- 3+	24+	16	0.9	3 2 3 3	3- 3- 3+ 3+	28	31	37	35	34	
11		3 3- 3+ 4-	4- 3+ 4- 3+	27-	18	1.0	3- 2+ 3+ 4-	4- 3+ 4- 3	36	33	37	35	35	
12		3+ 4- 3- 3+	3 3 3 2	24	15	0.9	3 3- 3- 4-	3 3- 3 2+	26	31	28	32	27	
13	Q10A	3- 2+ 2+ 3-	2+ 2 1+ 2	18-	9	0.5	3- 2- 3- 3-	2 2 1+ 2-	16	18	17	22	13	
14	Q6A	2+ 2- 1 2-	3+ 2 1 2-	15-	8	0.4	1 1 1 2	3+ 2 1+ 2-	13	16	14	13	17	
15	Q9A	2+ 3- 2 2-	3- 3 2- 1	17	9	0.5	2- 2 2- 2+	3- 3 2- 1-	16	18	19	15	22	
16		1+ 1+ 1 2	1 3- 4- 4-	17-	10	0.6	2- 2- 2- 3-	1+ 3- 3+ 3+	20	23	23	18	28	
17	Q8A	3- 3- 2 2-	1+ 2 2- 3	17	9	0.5	2+ 2+ 2 2-	1+ 2+ 2 3-	17	22	23	21	24	
18	Q7A	3- 1+ 1+ 2+	3 2 2- 2+	17-	8	0.5	3- 1+ 1+ 3-	3- 2 2 2	17	22	18	18	22	
19	Q2	1 0 0+ 0+	1- 0+ 2 2+	7	4	0.1	2- 0+ 0+ 1-	1- 0+ 2+ 3-	9	9	10	5	14	C
20		3- 2+ 3 2	3- 4- 4- 3-	23-	14	0.8	3- 2+ 3+ 3-	3 3+ 3+ 3-	29	25	41	28	38	
21		4 2+ 4- 4-	3+ 3- 3 2+	25	17	0.9	3+ 2+ 3+ 3+	3+ 3 3+ 3-	31	36	37	38	35	
22	D5*	4- 4+ 3- 3+	3 3- 4- 3+	27-	19	1.0	3+ 3+ 2+ 3	3- 3+ 3 3	31	34	35	37	33	
23	D4	4 4- 3 3+	4- 3- 3+ 4	28-	20	1.0	3+ 3 3- 3	4- 3- 3+ 4	35	38	49	39	49	
24	D1	5 4+ 4- 4-	4- 3+ 5 5	34-	32	1.3	4- 4- 3 3	3+ 3 4+ 4+	45	47	49	42	54	
25		5 3- 4- 3+	3+ 3+ 2 2	25+	19	1.0	4 3- 3 3-	3 3- 2- 2	27	29	31	33	27	
26		2+ 2+ 2- 3	3 3- 2- 1	18-	10	0.5	2+ 2- 2- 3-	3- 3- 2 1-	17	22	22	23	20	
27	Q1	1 2 1- 0+	0+ 1+ 1+ 0	7	4	0.1	1 1+ 1 0+	1- 2- 1+ 0+	7	9	5	7	7	CK
28	Q4A	0+ 1- 1+ 1+	2 2 3- 3	13+	7	0.4	1 1 2- 2-	2+ 2+ 3 3+	17	15	15	9	21	
29	D2	4+ 4- 5- 4-	4- 3- 3+ 4	30	24	1.2	4- 3 4 3	3+ 3- 3+ 3	37	42	49	54	37	
30	D3	4+ 4- 3 2+	4- 4- 5 3+	29	24	1.1	4- 4- 3 2+	4- 4 4+ 4-	43	42	51	30	63	
31		4+ 3+ 3+ 4-	3+ 3+ 3 1+	26-	18	1.0	4- 3- 3 3	4- 3+ 3 1+	32	30	32	33	29	
Mean					14	0.73			24.0	27.0	27.9		27.4	

Day	Kn Three-Hourly Indices 1 2 3 4	5 6 7 8	An	Ks Three-Hourly Indices 1 2 3 4	5 6 7 8	As	Sa	Prov Ri	Ra	Rs	IMF
1	2- 3- 2+ 3	3- 3+ 4- 3+	27	2 2+ 3 3	3- 3- 3+ 4	30	209.3	186	174	164	
2	3+ 2- 2- 3	2 2+ 3 4-	25	3+ 2+ 2+ 3+	3 2+ 3+ 4-	30	208.6	166	151	163	
3	4 2+ 2 1+	3- 4- 2+ 2-	23	3+ 3- 2 1+	2+ 3 2+ 2-	21	192.5	166	160	146	
4	2+ 1+ 1- 2	3- 2 2 3+	17	2 1+ 2- 3	3 2- 2 4-	21	189.2*	174	169	142	
5	3 2 2 3-	2+ 3+ 3+ 3+	27	3 2 3 3-	2- 3 4+ 3+	29	187.1	164	140	140	
6	3- 1+ 2- 1+	1+ 1+ 2 2	12	2 2- 2- 2-	2 1 2- 1+	12	180.9	144	133	133	
7	2+ 2 2 1	1 0+ 1- 1-	9	2+ 2 2+ 1	1+ 0+ 0+ 2-	11	177.1	129	131	129	
8	1- 1+ 1 1	3 4 3+ 3-	22	1+ 2- 1+ 2-	3 4+ 4 4	30	170.9	138	135	123	
9	4- 2+ 3- 2-	3- 2+ 1 3	21	4- 3- 3 3-	3 2+ 1+ 2+	25	160.6	125	117	111	
10	3 2- 3- 3	3- 3- 3 3	26	3 2 3 3	3 3 3+ 4-	30	167.2	134	134	119	
11	3- 2+ 3 4-	4- 3+ 4- 3-	34	3 3- 4- 4-	4- 3 4- 3+	38	169.5	164	161	121	
12	3- 3- 2 4-	3 3- 3 2	26	3 3- 3 3+	3 2+ 3- 2+	27	170.0	172	169	122	
13	2+ 2- 2+ 2+	2 2+ 1+ 2-	15	3- 2- 3- 3-	2 2- 1+ 1+	16	167.0	179	165	118	
14	1+ 1 1 2-	3+ 2 1 1+	12	1 1 1+ 2	3 2 1+ 2+	14	165.9	147	133	117	
15	2- 2 1+ 2	3 3+ 2- 1	17	2- 2- 2- 2+	3- 3- 2 1-	15	184.9	157	159	138	
16	1 1 1 2-	1+ 3 3+ 3	18	2+ 2+ 2+ 3	1+ 2 3+ 3+	23	187.6	152	147	141	
17	2+ 2 2- 1+	1+ 2+ 2- 3-	14	3- 3- 2+ 2+	1+ 2+ 2+ 3-	19	186.8	174	183	140	
18	2+ 1+ 1+ 3-	3- 2+ 2- 2	16	3 1+ 2- 3	3- 2- 2 2-	18	217.2	177	179	173	
19	1 0 0 0	0+ 0+ 2 2	6	2+ 1- 0+ 1	1- 0+ 3- 3+	12	233.1	199	201	190	
20	2 2- 3 2	3 4- 3+ 2+	26	3+ 2+ 4- 3	3 3+ 3+ 3	32	238.2	236	233	195	
21	3 2+ 3 3+	4- 3- 3 3-	29	3+ 3- 3+ 3+	3+ 3 4- 2+	34	250.8*	217	222	209	
22	4- 3+ 2+ 3	3- 3 3+ 3-	29	3 3+ 2+ 3+	3- 4- 3 3+	33	233.7	208	196	190	
23	3 3- 2+ 3	4- 3- 3+ 4-	32	3+ 3+ 3+ 3+	3+ 2+ 3 4+	38	233.6	219	218	190	
24	4- 4- 3 3+	3+ 3+ 4+ 4+	45	4- 4 3+ 3	4- 3 4+ 4	45	239.8	191	235	197	
25	4 2+ 3 3-	3 3 2- 2-	27	4- 3 3 3	3 2+ 2- 2+	27	234.6	228	225	191	
26	2 2- 1+ 3-	3- 3- 2- 1-	16	2+ 2- 2+ 3	3- 3- 2 1	19	238.8	227	220	196	
27	1 1+ 1 0+	1- 2- 2- 0+	7	1 1+ 1+ 1-	1- 2- 1- 0+	6	232.2	211	203	189	
28	1- 2 2- 1+	2+ 2+ 3 3-	15	1+ 1 2 2	2+ 2+ 3 4-	20	230.1	193	209	187	
29	4- 3- 4- 3-	3 3- 3+ 3+	32	4 3 4+ 3	4 3- 4- 3	42	227.8	185	213	184	
30	3+ 3+ 3- 2	4- 4 4+ 3	37	4- 4 3+ 3-	4 4 4+ 4	49	211.4	198	192	166	
31	4 3- 3 3	4- 3+ 3 1+	31	4- 3 3+ 3	4- 4- 3- 1+	32	209.3	201	198	164	
Mean			22.4			25.7	203.4	179.4	177.6	157.7	

DAILY AVERAGE INDICES Ap

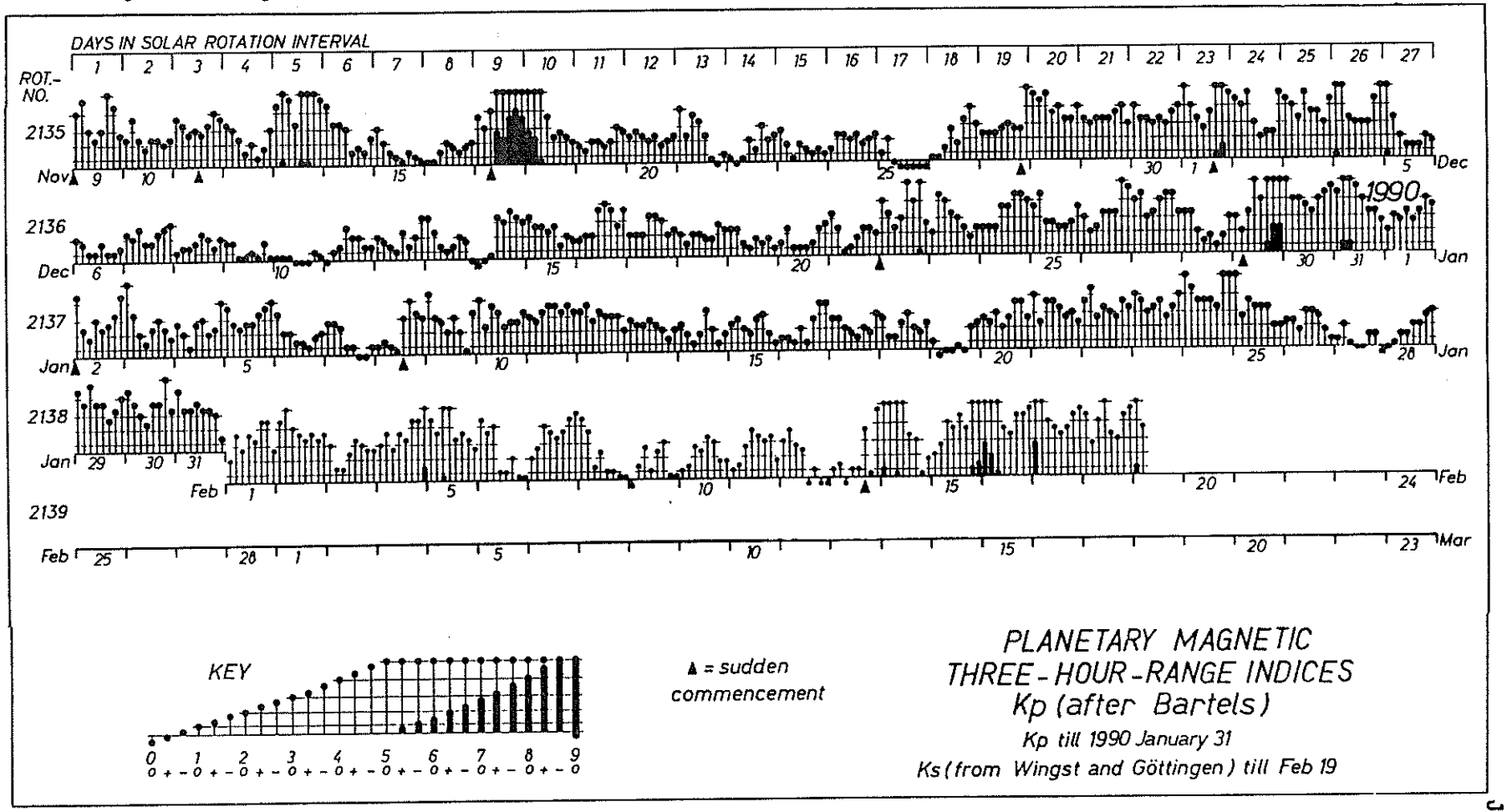
February 1989 to January 1990

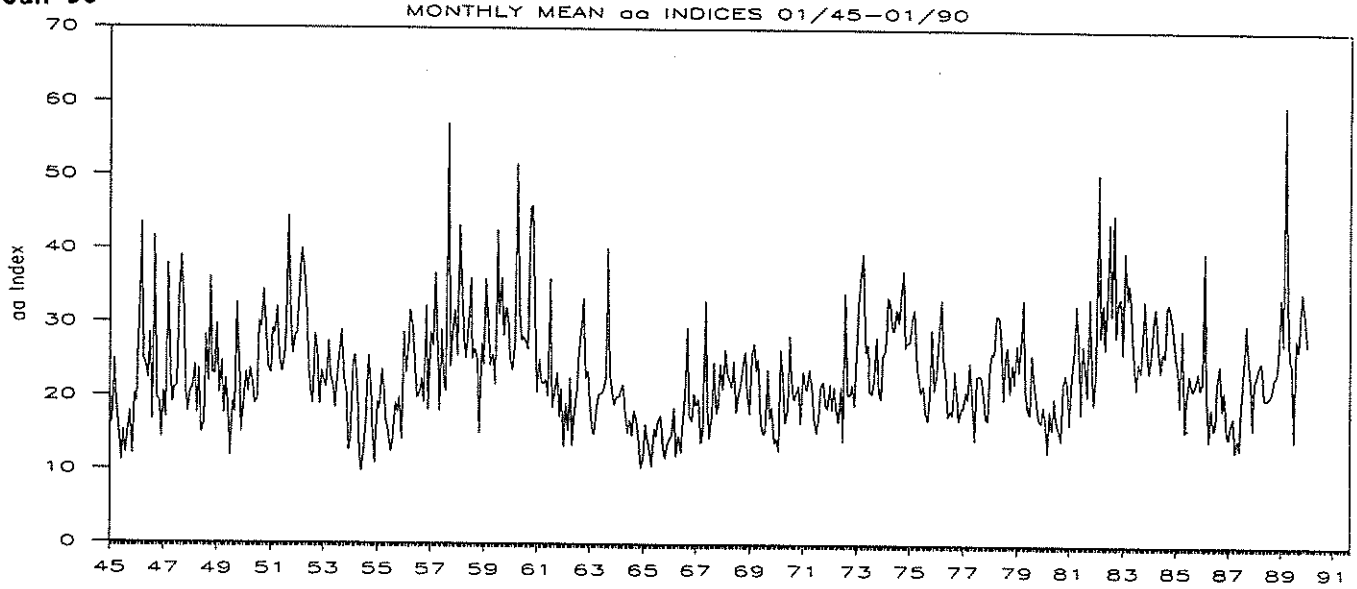
DAY	1989 FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1990 JAN
1	29	12	42	10	11	26	6	8	13	8	38	16
2	21	25	26	18	19	5	6	8	9	21	22	17
3	44	37	21	12	14	3	5	8	12	26	26	15
4	24	13	46	20	14	3	8	30	6	28	31	12
5	22	30	42	44	7	15	2	21	5	19	14	17
6	23	24	14	14	11	11	8	12	10	11	5	7
7	25	18	27	46	34	8	9	22	12	19	10	6
8	14	24	20	5	23	4	7	16	9	15	6	11
9	19	31	15	5	34	6	10	11	11	25	4	14
10	12	19	8	4	78	11	41	10	12	10	3	16
11	10	17	14	6	22	4	25	3	7	18	6	18
12	14	23	6	11	12	3	8	12	8	10	8	15
13	21	246	17	9	16	7	9	9	1	43	7	9
14	14	158	24	10	50	4	55	5	1	14	12	8
15	14	49	27	13	37	6	77	42	4	6	10	9
16	17	50	20	7	9	2	26	24	10	5	16	10
17	5	34	10	7	5	13	34	7	12	109	11	9
18	9	15	10	6	5	13	29	52	17	45	7	8
19	9	55	6	6	8	4	14	70	24	8	6	4
20	21	14	10	15	28	4	26	6	112	8	6	14
21	11	22	7	8	4	5	21	8	146	12	8	17
22	13	39	7	12	5	7	12	23	51	6	26	19
23	5	36	12	47	5	11	28	4	22	6	15	20
24	9	16	8	68	10	8	6	7	17	8	20	32
25	7	10	34	24	7	6	5	5	23	2	16	19
26	4	14	76	17	8	13	6	54	24	11	22	10
27	6	44	49	16	6	8	26	8	17	16	25	4
28	13	39	39	14	7	9	22	8	9	28	10	7
29		71	28	14	13	10	58	8	13	19	50	24
30		47	17	9	10	7	17	12	23	20	30	24
31		52		13		4	6		14		35	18
MEAN	15	41	23	16	17	8	20	17	21	19	16	14

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

University of Göttingen

Kp through January 31, 1990





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												27.4

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

JANUARY 1990

Sta	Geomag Lat	Commencement Day	Time (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges K	D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
HYB	07.6N	01	1300	..	..	..	..	01(7) 02(1)	4	4	98	21	03	09
ETT	00.6S	01	0200	..	..	..	..		-	4	123	46	03	11
BJI	28.5N	08	1432	SC	.9	27	1	08(6)	5	5	80	5	08	24
KRC	16.4N	08	1424	SC	- 1.2	30	11	08(6)	6	2	135	40	09	19
UJJ	13.5N	08	1431	SC	- .3	25	- 6		-	3	93	32	10	22
ABG	09.5N	08	1431	SC	- 1.0	22	- 4	08(6)	6	4	95	38	10	22
HYB	07.6N	08	1433	SC	- .3	21	- 1	08(6)	6	3	94	15	09	23
ANN	01.5N	08	1431	SC	- .8	27	18		-	4	110	70	10	22
ETT	00.6S	08	1432	SC	- .5	19	19		-	4	94	46	10	12
HER	33.7S	08	1431	SC	4	21	20	08(6)	5	20	84	75	09	03
KGL	56.5S	08	1432	SC	6	56	20	08(7) 09(1)	4	26	176	192	09	18
HYB	07.6N	10	1300	..	..	..	..	11(3,4,5)	5	4	118	23	12	21
KGL	56.5S	10	0834	SC	4	54	16	11(4)	5	--	--	--	12	06
ETT	00.6S	11	0100	..	..	..	..		-	5	142	53	12	21
HYB	07.6N	19	1800	..	..	..	..	20(6)	5	5	67	29	21	23
ETT	00.6S	19	1800	..	..	..	..		-	6	193	48	21	20
UJJ	13.5N	20	0700	..	..	..	..		-	4	131	43	22	23
ABG	09.5N	20	0700	..	..	..	..	20(3,6,7) 21(4,6) 22(7)	4	4	147	47	22	23
ANN	01.5N	20	0700	..	..	..	..		-	4	197	77	22	23
ETT	00.6S	21	2300	..	..	..	..		-	4	161	73	25	19
FRD	49.6N	23	22--	..	..	..	..	24(1,7,8) 25(1)	5	17	99	44	25	16
HYB	07.6N	23	0000	..	..	..	..	23(4) 24(6,7)	4	4	113	36	25	19
COL	64.6N	24	05--	..	..	..	..	24(4,7)	6	81	870	350	25	03
GUA	04.0N	24	17--	..	..	..	..	25(1)	5	--	80	30	25	10
KGL	56.5S	24	2115	SC	16	200	24	24(8) 25(1)	6	25	240	112	25	14
FRD	49.6N	28	2146	SC*	- .5	15	- 2	29(1) 30(1,5,6,7) 31(1)	4	17	97	35	31	--
HYB	07.6N	28	0100	..	..	..	..	30(5)	5	5	154	49	31	21
GUA	04.0N	28	2145	..	..	..	..	29(1)	5	--	120	30	29	17
ETT	00.6S	28	0100	..	..	..	..		-	8	237	65	31	20
GUA	04.0N	30	00--	..	..	..	..	30(2)	5	--	100	40	30	09
KGL	56.5S	30	1300	..	..	..	..	30(7) 31(1)	5	30	136	192	31	21

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
KGL = KERGUELEN
KRC = KARACHI
PMG = PORT MORESBY
SHL = SHILLONG
SIT = SITKA
TRD = TRIVANDRUM
UJJ = UJJAIN

C O N T E N T S

Prompt Reports **LATE DATA** Number 547 Part I

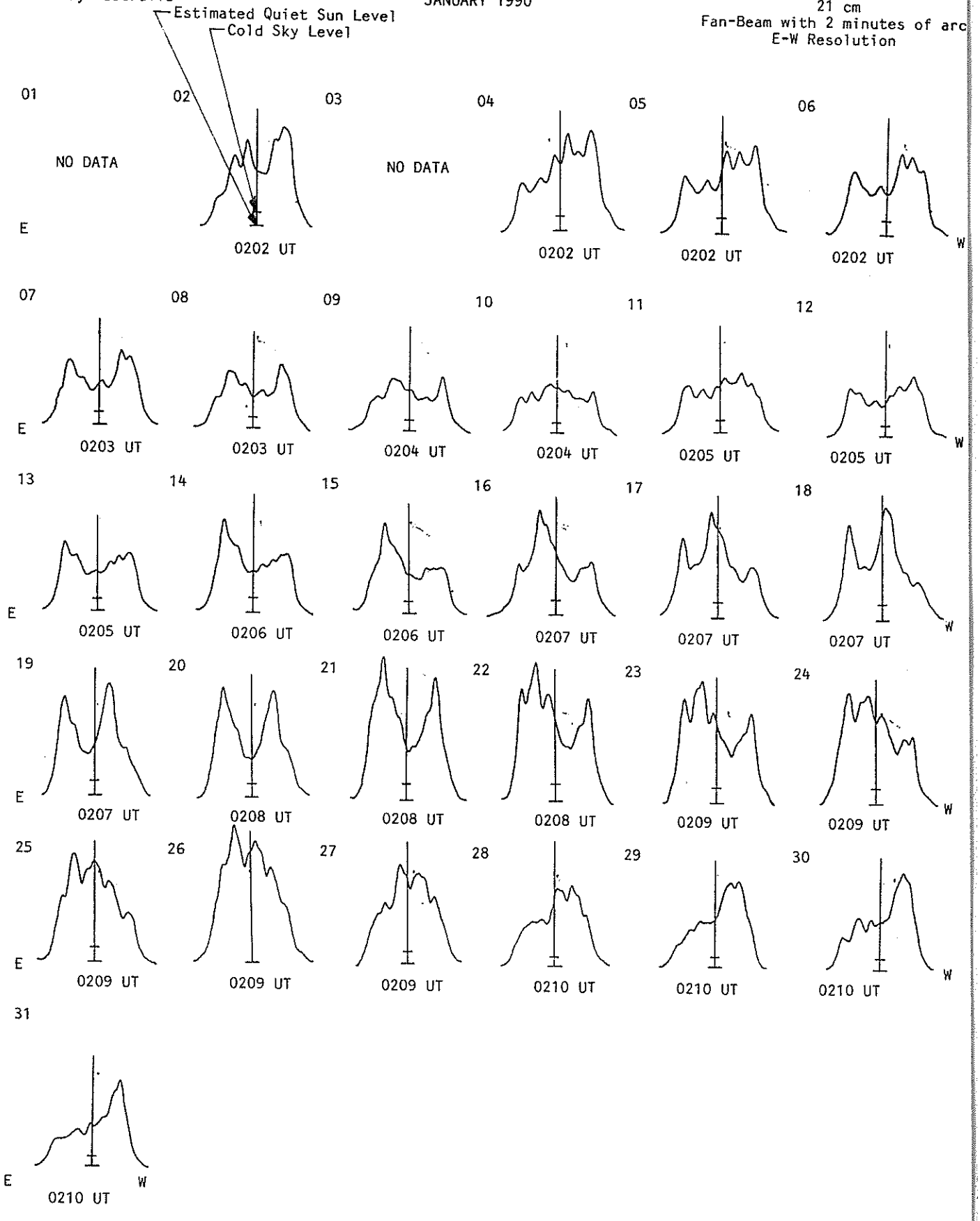
144
Late
Jan 90

EAST-WEST SOLAR SCANS

Fleurs, Australia

JANUARY 1990

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

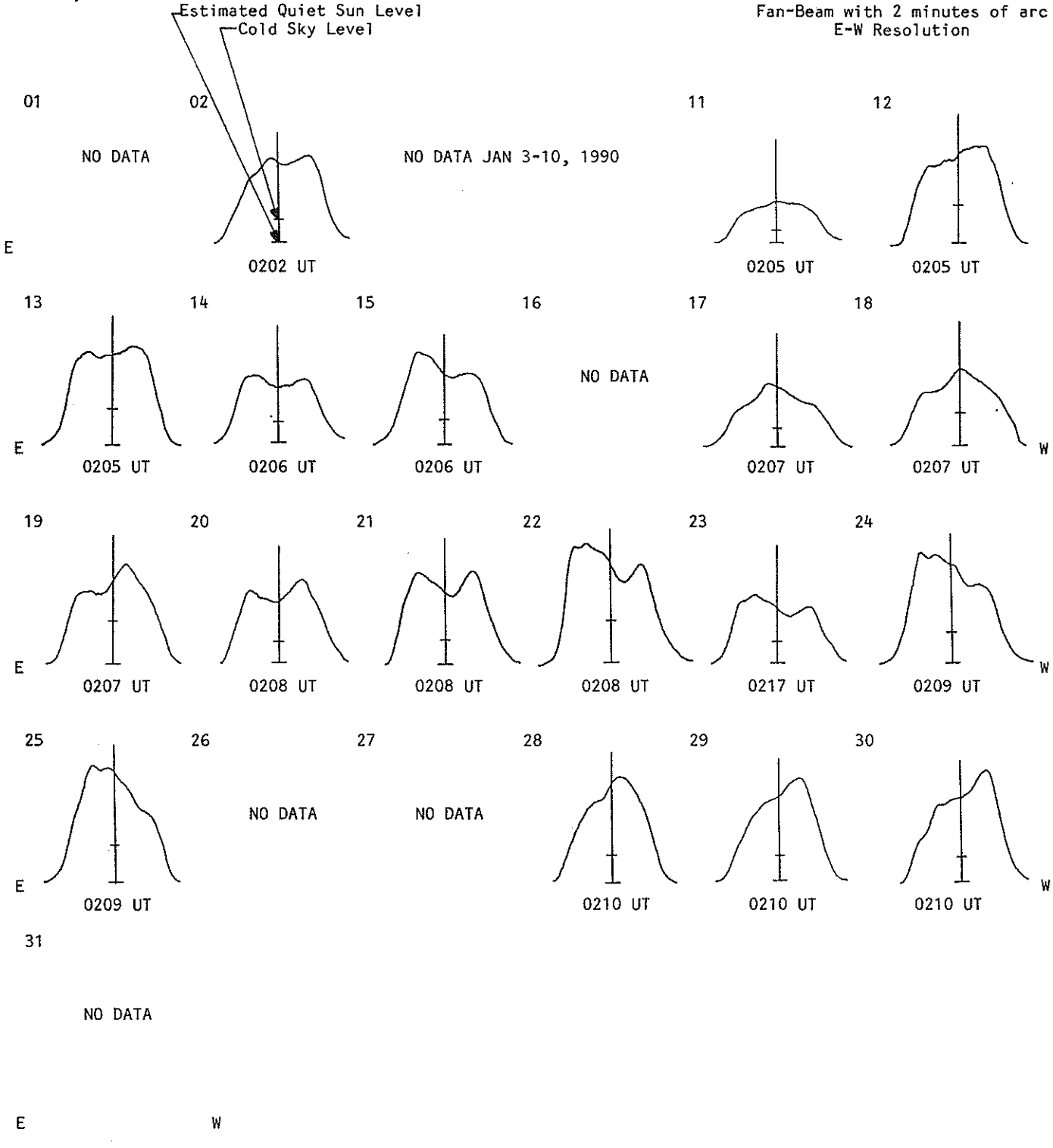


EAST-WEST SOLAR SCANS

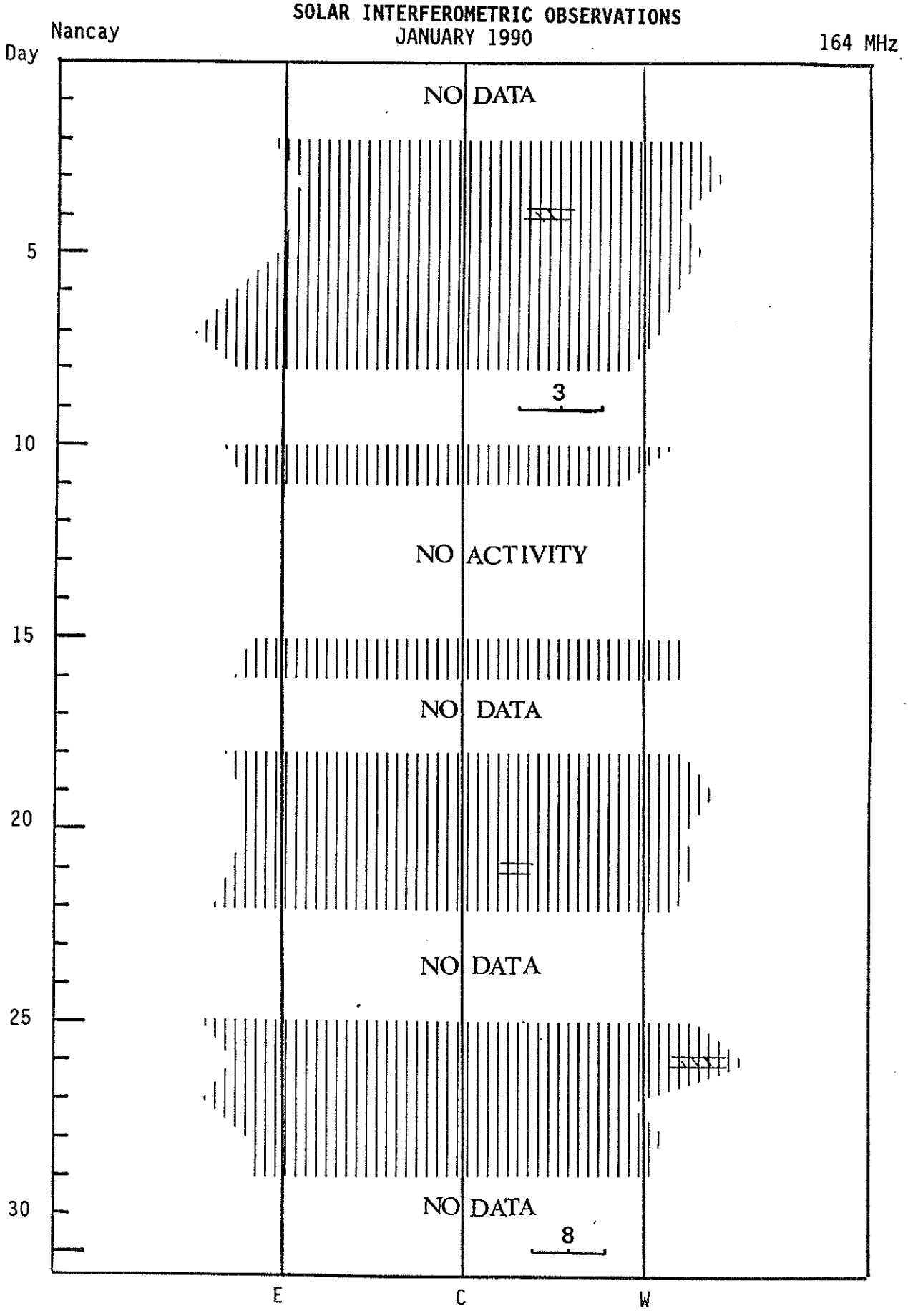
Fleurs, Australia

JANUARY 1990

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



146
Late
Jan 90



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

OCTOBER 1989

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
02	0339	A: COI	05	0607-0616	LNP
		B: WNG* SPT*	12	0742-0745	AQU (see SSC)
		C: VAL* BDV* QUE	17	0156-0159	LNP
			18	0050 0225	AQU LNP (see SSC)
12	0742	A: BJI ETT*		0440-0445	LNP
		B: SOD* WNG* VAL* COI HYD	19	1240-1620	WNG NGK BDV CLF
		C: BDV* CLF* GCK* SPT* QUE			EBR SPT
		si: LNP	20	0338-0343	LNP
		sfe: AQU		0519-0524	LNP
			21	0157-xxxx	LNP
18	0050	A: COI	22	0056-0103	LNP
		B: WNG* NAG* BJI	23	0341-0347	LNP
		C: NGK VAL BDV* GCK* QUE HYD ETT		1235-1312	WNG BDV CLF EBR (ssc: COI SPT)
		KGL DUM	24	0157-0200	LNP (ssc: QUE)
		sfe: AQU LNP		0515-xxxx	LNP
			25	0051-0055	LNP
20	0916	A: COI* FRD* KNY ETT KGL*		0455-0500	LNP
		B: WNG VAL* MMB BJI KAK QUE LNP HYD	29	0210-0224	LNP
		GNA AMS* CZT*		0853-0925	SPT
		C: BDV* CLF* GCK AQU EBR SPT	31	0335-0340	LNP
26	1427	A: DOB* WNG* VAL* CLF* NAG* AQU EBR* COI*			
		BJI* SPT* LNP HYD ETT			
		B: NUR NGK BDV* GCK CNB* CZT KGL DUM			
		C: FRD* QUE AMS			

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

SOD DOB NUR WNG NGK VAL BDV CLF NAG GCK MMB AQU EBR COI
BJI SPT FRD KAK KNY QUE LNP HYD ETT 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.

148
Late
Nov 89

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

NOVEMBER 1989

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
02	0036	A: NAG* COI LNP MPO	06	0706-0711	LNP
		B: WNG* BDV* CLF GCK* SPT* KGL		1211-1227	MPO
		C: NUR NGK BJI		1341-1350	BDV
			07	0214 0225	LNP
08	1123	A: COI BJI* SPT*	08	0600-0630	KAK
		B: WNG* BDV* CLF* NAG* CNB*	10	0151-0157	LNP
		C: NGK GCK*	12	0558-0625	KAK KNY LNP
			15	0652-0724	BDV LNP MPO CNB
09	0054	A: NAG COI SPT* MPO	16	0415-0430	LNP
		B: WNG BDV GCK QUE KGL		1315-1425	WNG NGK BDV CLF MPO
		C: NUR NGK CLF EBR BJI LNP	19	0620-0640	MMB KAK KNY LNP
			21	1050-1112	CLF
11	0054	A: MPO		1343-1410	WNG BDV MPO
		C: CLF BJI SPT LNP	22	1333-1348	MPO
			25	0325-0350	LNP
11	1410	A: COI BJI SPT* MPO	26	1053-1128	NGK CLF (ssc: EBR LNP)
		B: SOD* DOB* NUR WNG* BDV* NAG* GCK* EBR* QUE CZT* KGL*			
		C: NGK CLF*			
17	0925	A: SOD* DOB* WNG* BDV* CLF NAG* GCK* MMB* EBR COI BJI* SPT* KAK* KNY* LNP NPO GNA* AMS* CZT* KGL*			
		B: NUR NGK* QUE CNB*			
27	2139	A: NAG COI BJI SPT LNP MPO			
		B: WNG NGK BDV CLF* GCK EBR QUE AMS* CZT* KGL*			
		C: NUR CNB*			

Reporting Observatories: (up to the 2nd of January 1990)

SOD DOB NUR WNG NGK BDV CLF NAG GCK MMB EBR COI
BJI SPT KAK KNY QUE LNP MPO GNA CNB AMS CZT KGL

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.

SOLAR-GEOPHYSICAL DATA QUESTIONAIRE RESULTS

Notes from the Editor: In April 1989, Mr. Joe H. Allen, Chief, STP Division of NOAA's National Geophysical Data Center sent a "Dear Colleague" letter through the WDC-S for STP to the worldwide scientific community requesting responses to an enclosed questionnaire. The driving force for this questionnaire was to cut back on the monthly report **Solar-Geophysical Data** because of staff and funding reductions. Results of the questionnaire are given on the following two pages.

Changes were implemented immediately within the group that produces SGD. Some tables were eliminated, e.g., Radio Propagation Indices, because of low usage. Easier ways of producing some tables were devised, e.g., in some instances table headings of long listings were put on individually page by page -- the computer now does this automatically. Many changes are transparent to the user. Monies were saved by using scanned daily solar images on the map pages, instead of the expensive halftoning process. Sixty fewer Part II issues were printed, reflecting the actual SGD mailing list. Key entry by a senior staff was contracted out.

We received many written suggestions, some opposing each other, some arguing for their own needed data over other less useful data to them. We appreciate the many positive statements about the need for SGD. The battle against rising costs has and will rage on, especially when funding problems arise. SGD continues only because of the commitment of certain individuals and the generous contribution of data from scientists around the world. What the future holds, no one knows. The current Editor will do the best possible to insure a quality data product. Your suggestions and recommendations will continue to make up a large part of the equation impacting the future of SGD.

The Editor would like to thank the SGD staff for help with generating the questionnaire (using PageMaker) and its results (using Dbase).

SOLAR-GEOPHYSICAL DATA QUESTIONAIRE RESULTS

Number of Questionaires : 228

Number of US / Foreign respondents : 149(%65) / 79(%35)

Part I (PROMPT REPORTS)

Data from one month before date of issue

Data Used:	Often	Sometimes	Never	No Response	Percent of Use
IUWDS ALERT PERIODS.	26(%11)	62(%27)	95(%42)	NR 45(%20)	38%
Graph and Table of SUNSPOT NUMBERS . . .	103(%45)	95(%42)	17(% 7)	NR 13(% 6)	87%
Daily SUNSPOT #s/2800 MHz SOLAR FLUX . .	97(%43)	88(%39)	28(%12)	NR 15(% 7)	82%
Daily Solar Indices (current month only):	99(%43)	83(%36)	31(%14)	NR 15(% 7)	79%
Smoothed Observed & Predicted Sunspot #s:	98(%43)	90(%39)	27(%12)	NR 13(% 6)	82%
Graph of Observed and Predicted SS #s. .	100(%44)	93(%41)	23(%10)	NR 12(% 5)	85%
H-alpha SOLAR FLARES	102(%45)	74(%32)	38(%17)	NR 14(% 6)	77%
Intervals of No Flare Patrol	45(%20)	83(%36)	78(%34)	NR 22(%10)	56%
East-West SOLAR SCANS 3 cm Toyokawa . .	22(%10)	66(%29)	119(%52)	NR 21(% 9)	39%
East-West SOLAR SCANS 10 cm Ottawa . . .	38(%17)	69(%30)	100(%44)	NR 21(% 9)	47%
East-West SOLAR SCANS 21 cm Fleurs . . .	21(% 9)	66(%29)	118(%52)	NR 23(%10)	38%
East-West SOLAR SCANS 43 cm Fleurs . . .	18(% 8)	64(%28)	123(%54)	NR 23(%10)	36%
Solar Interferometric 164 MHz Nancay . .	12(% 5)	70(%31)	123(%54)	NR 23(%10)	36%
Selected Fixed Frequency Events.	42(%18)	72(%32)	94(%41)	NR 20(% 9)	50%
Selected Graphs of Solar Noise Bursts. .	36(%16)	88(%39)	83(%36)	NR 21(% 9)	55%
Stanford MEAN SOLAR MAGNETIC FIELD graph:	55(%24)	80(%35)	73(%32)	NR 20(% 9)	59%
Stanford Mean Solar Magnetic Field table:	36(%16)	83(%36)	87(%38)	NR 22(%10)	52%
Inferred Interplanetary Mag. Polarity. .	45(%20)	83(%36)	71(%31)	NR 29(%13)	56%

Data from two months before date of issue

SOLAR SYNOPTIC CHARTS.	85(%37)	84(%37)	37(%16)	NR 22(%10)	74%
Daily Activity Solar Maps.	100(%44)	71(%31)	35(%15)	NR 22(%10)	75%
SUNSPOT GROUPS	87(%38)	89(%39)	34(%15)	NR 18(% 8)	77%
SUDDEN IONOSPHERIC DISTURBANCES.	53(%23)	100(%44)	60(%26)	NR 15(% 7)	67%
Pioneer XII Interplanetary Mag. Field. .	30(%13)	87(%38)	91(%40)	NR 20(% 9)	51%
Solar Radio SPECTRAL Observations. . . .	55(%24)	69(%30)	81(%36)	NR 23(%10)	54%
COSMIC RAY Neutron Monitor Charts. . . .	31(%14)	79(%35)	98(%43)	NR 20(% 9)	49%
COSMIC RAY Neutron Monitor Tables. . . .	26(%11)	70(%31)	111(%49)	NR 21(% 9)	42%
GEOMAGNETIC Activity Indices	89(%39)	82(%36)	38(%17)	NR 19(% 8)	75%
Daily Average Ap	73(%32)	85(%37)	51(%22)	NR 19(% 8)	69%
Chart of Kp by 27-day Rotation	74(%32)	86(%38)	48(%21)	NR 20(% 9)	70%
Graph and Table of aa Index.	50(%22)	89(%39)	68(%30)	NR 21(% 9)	61%
Hourly Equatorial Dst Index.	54(%24)	70(%31)	83(%36)	NR 21(% 9)	55%
Principal Magnetic Storms.	79(%35)	87(%38)	45(%20)	NR 17(% 7)	73%
Sudden Commencements/Solar Flare Effects:	87(%38)	92(%40)	34(%15)	NR 15(% 7)	78%
RADIO PROPAGATION Quality Indices. . . .	8(% 4)	37(%16)	161(%71)	NR 22(%10)	20%
Field Strength Diagram - N Atlantic Path:	7(% 3)	35(%15)	163(%71)	NR 23(%10)	18%

Part II (COMPREHENSIVE REPORTS) Data from six month before date of issue

Data Used:	Often	Sometimes	Never	No Response	Percent of Use
MEUDON CARTE SYNOPTIQUE Table. . . . . .:	43(%19)	92(%40)	60(%26)	NR 33(%14)	59%
Meudon Carte Synoptique Map. . . . . .:	49(%21)	94(%41)	55(%24)	NR 30(%13)	62%
Comprehensive H-alpha SOLAR FLARES . . .:	93(%41)	70(%31)	41(%18)	NR 24(%11)	72%
Intervals of No Flare Patrol . . . . . .:	52(%23)	78(%34)	67(%29)	NR 31(%14)	57%
Number of Solar Flares (Aug 66-present).:	57(%25)	100(%44)	45(%20)	NR 26(%11)	69%
Solar Radio Bursts at Fixed Frequencies.:	60(%26)	74(%32)	67(%29)	NR 27(%12)	58%
Interplanetary Solar Particles & Plasma.:	55(%24)	87(%38)	55(%24)	NR 31(%14)	62%
GOES Solar X-ray Radiation . . . . . .:	74(%32)	71(%31)	39(%17)	NR 44(%19)	63%
GOES Solar X-ray Graphs. . . . . .:	76(%33)	79(%35)	41(%18)	NR 32(%14)	68%
GOES Solar X-ray Event List. . . . . .:	58(%25)	80(%35)	55(%24)	NR 35(%15)	60%
GOES Solar X-ray Average Background. . .:	41(%18)	82(%36)	68(%30)	NR 37(%16)	54%
Mass Ejections from the Sun. . . . . .:	59(%26)	87(%38)	58(%25)	NR 24(%11)	64%
Active Prominences and Filaments . . . .:	44(%19)	94(%41)	67(%29)	NR 23(%10)	60%
SOLAR IRRADIANCE . . . . . .:	31(%14)	79(%35)	89(%39)	NR 29(%13)	49%

General Questions:

	Part I	Part II	Both	Neither	No Response
SGD Subscriber: 1, 2, Both, Neither. . .:	18(% 8)	0(% 0)	176(%77)	30(%13)	NR 4(% 2)

	Yes	No	No Response
If SGD Combined - Would you subscribe? .:	143(%63)	10(% 4)	NR 75(%33)
If e-mail SGD, would you continue sub.? :	136(%60)	33(%14)	NR 59(%26)
Do you use SGD in your work? Yes/No. . .:	220(%96)	3(% 1)	NR 5(% 2)
How many colleagues use your copy? . . .:	1894(avg 8)	NR 77(%34)	
Solar Indices Bulletin subscriber. . . .:	34(%15)	NR193(%85)	
Geomagnetic Indices Bulletin subscriber.:	28(%12)	NR200(%88)	
Prelim. Report & Forecast of SGD sub.. .:	90(%39)	NR138(%61)	
Is Prelim. Report adequate?. . . . . .:	117(%51)	15(% 7) 3	NR 96(%42)
We can use magnetic tapes. . . . . .:	143(%63)	NR 85(%37)	
We can use floppy diskettes. . . . . .:	173(%76)	NR 55(%24)	
We can use CD-ROMs . . . . . .:	48(%21)	NR180(%79)	
We cannot use machine-readable form. . .:	25(%11)	NR203(%89)	

WORLD DATA CENTER A
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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."