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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
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Data for November, October 1990, and Late Data

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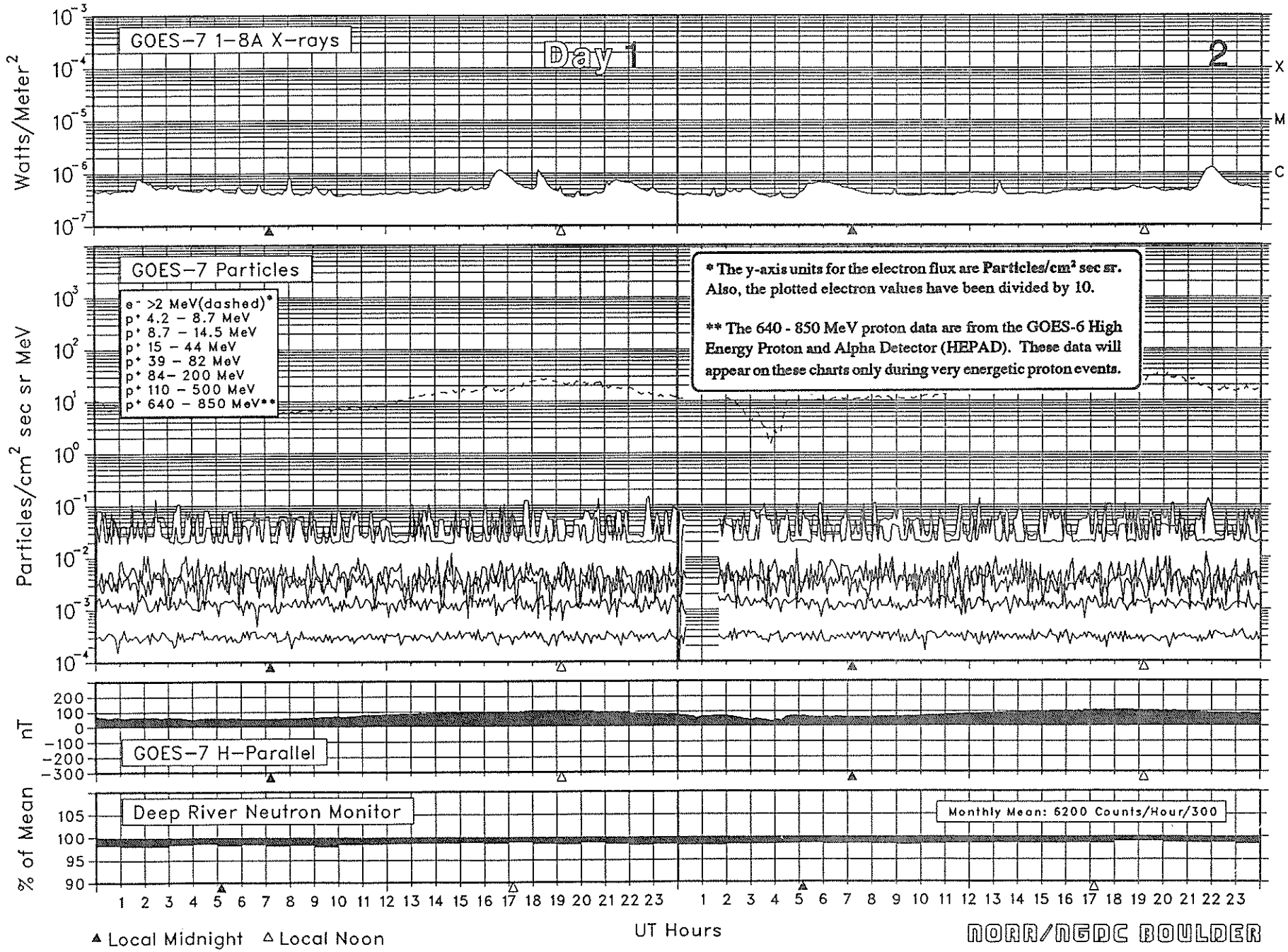
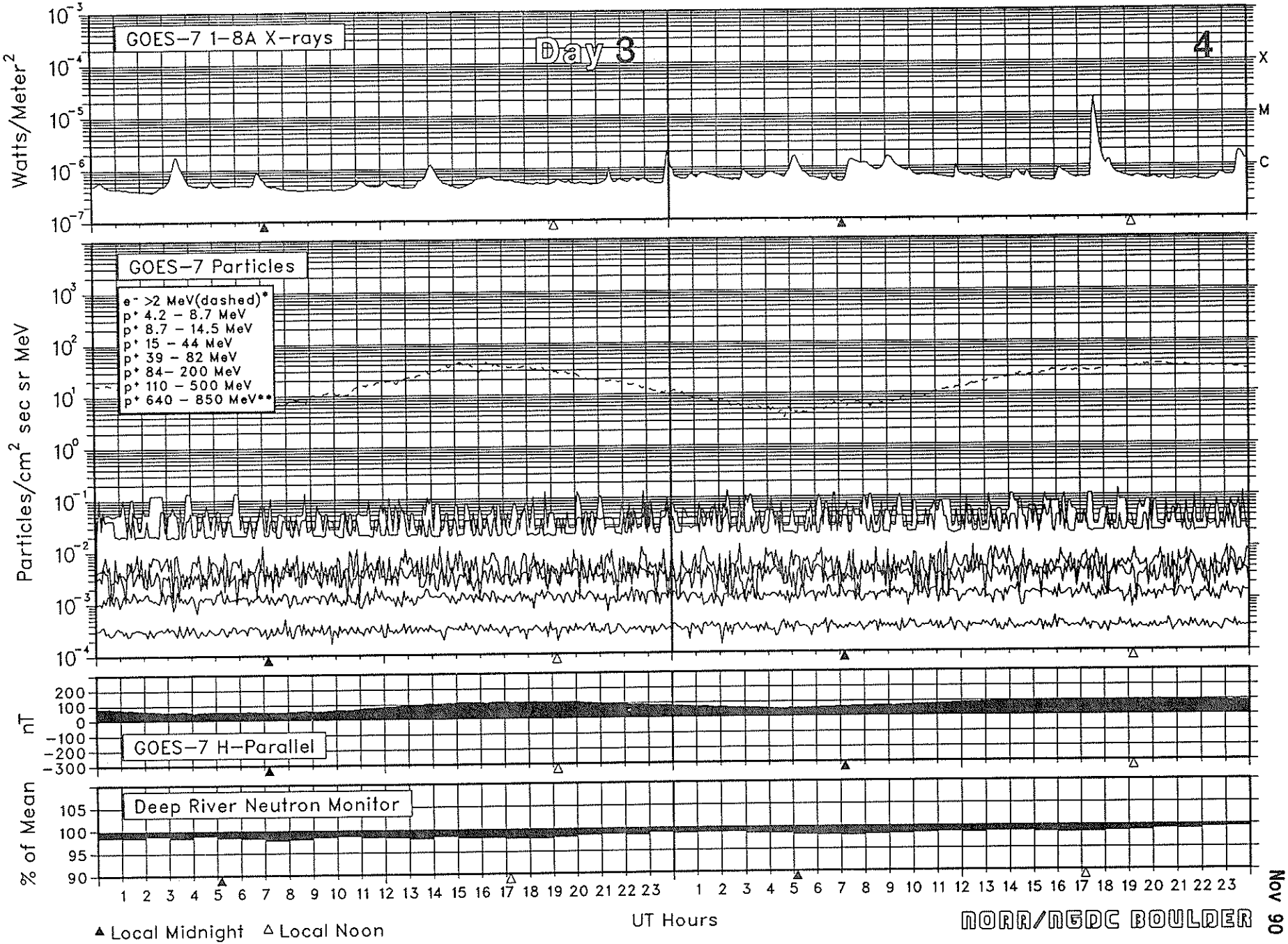


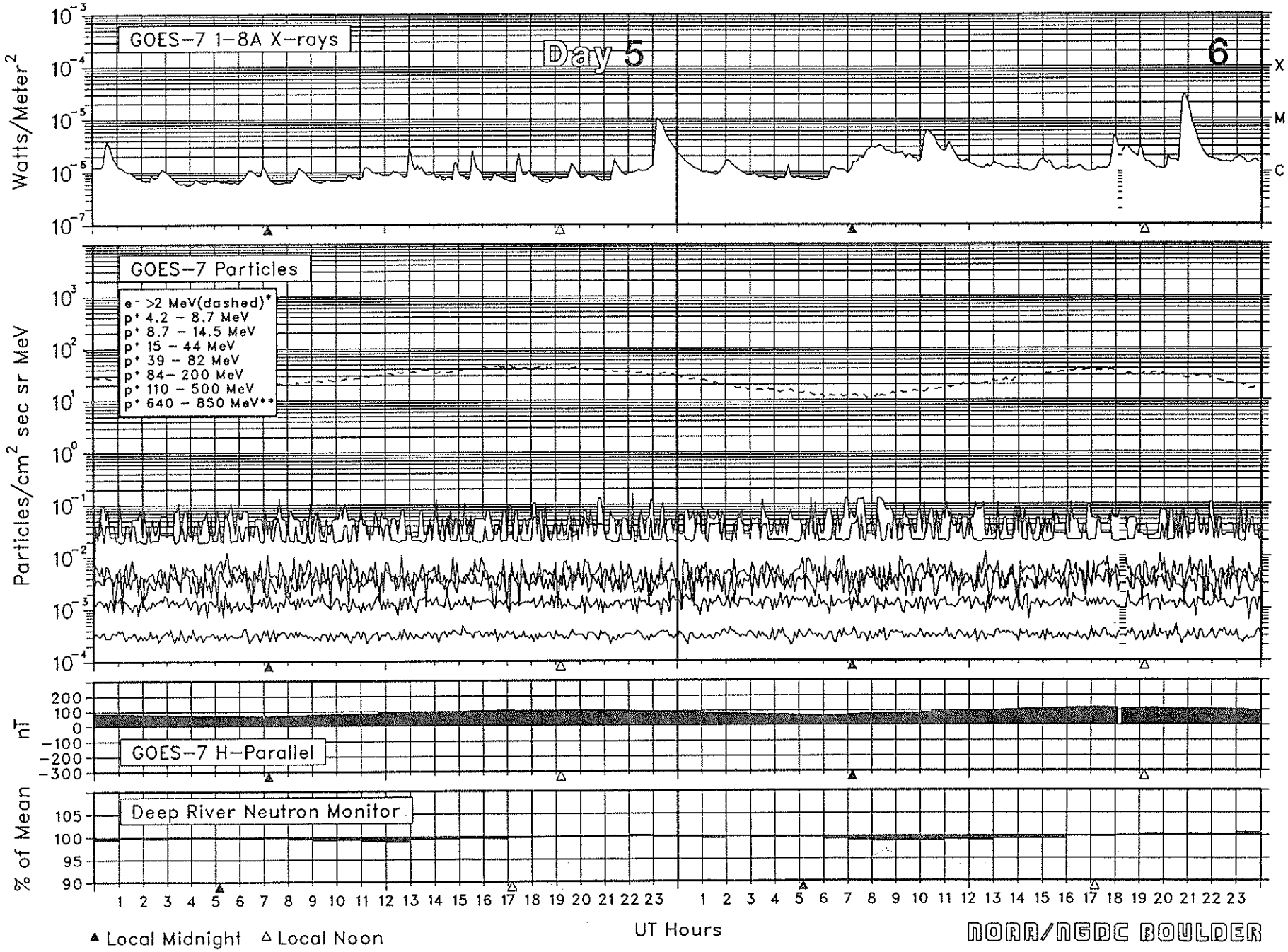
SOLAR-TERRESTRIAL ENVIRONMENT

November 1990



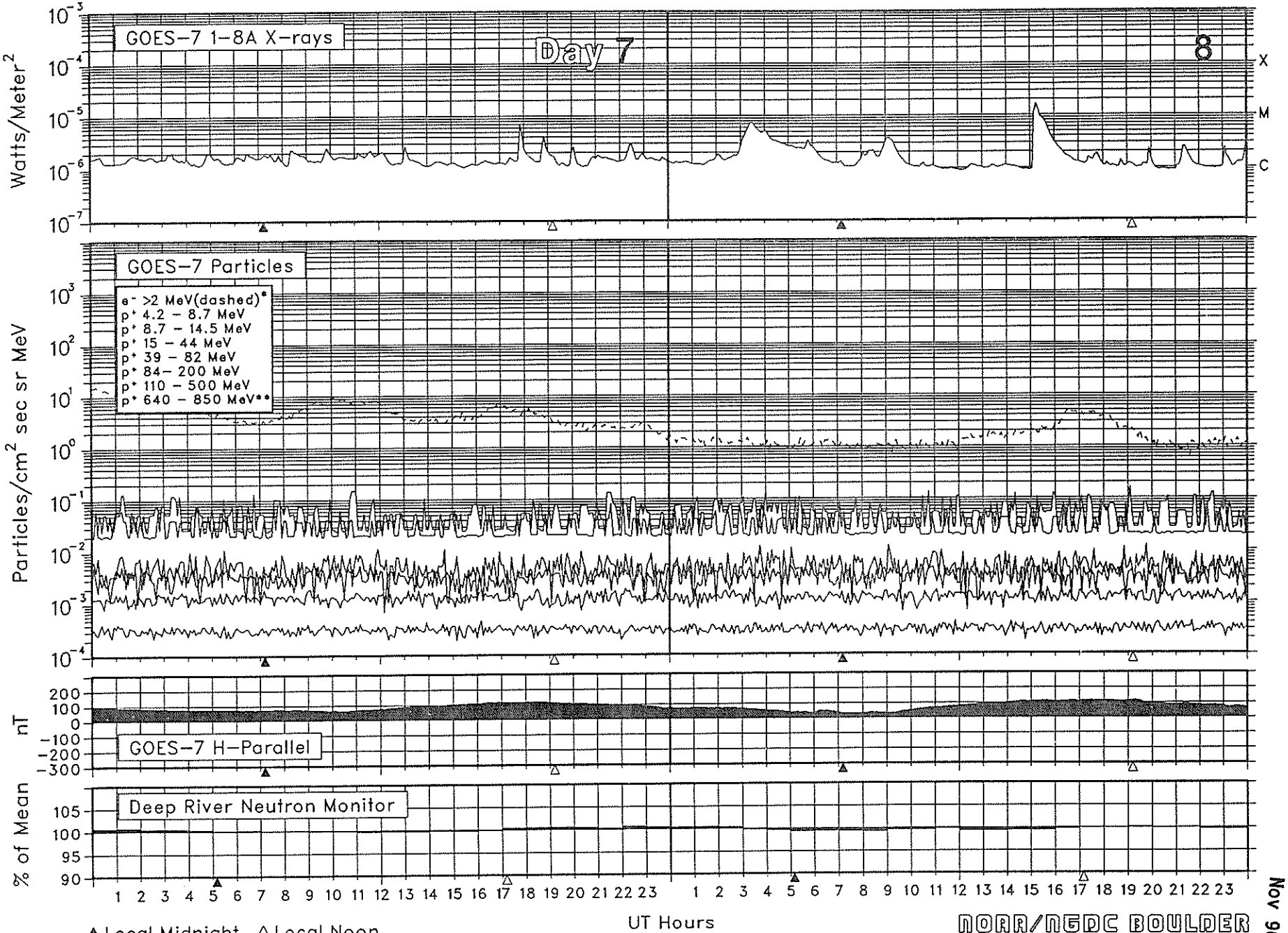
SOLAR-TERRESTRIAL ENVIRONMENT
November 1990

Nov 6 90



SOLAR-TERRESTRIAL ENVIRONMENT

November 1990



SOLAR-TERRESTRIAL ENVIRONMENT
November 1990

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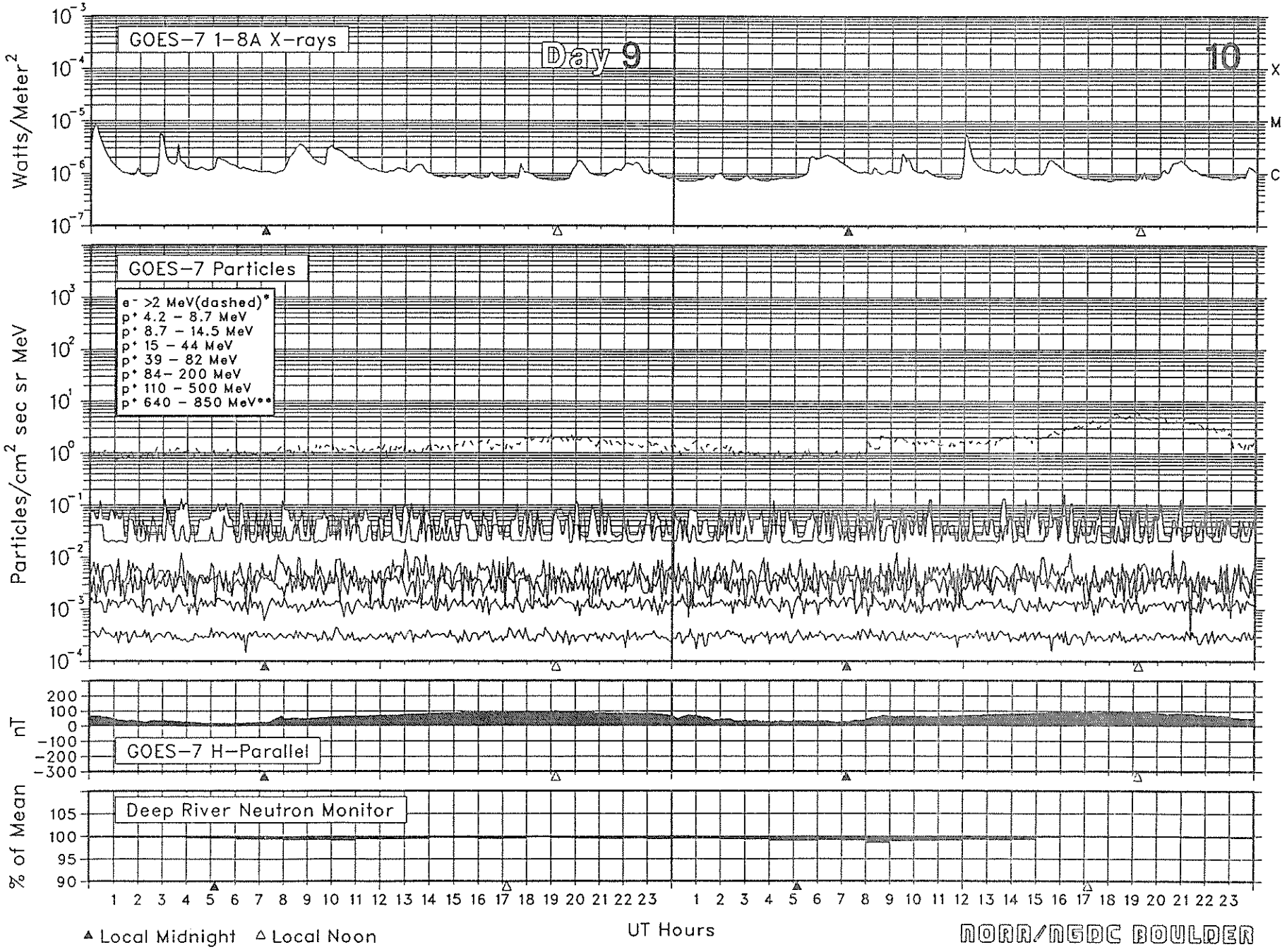
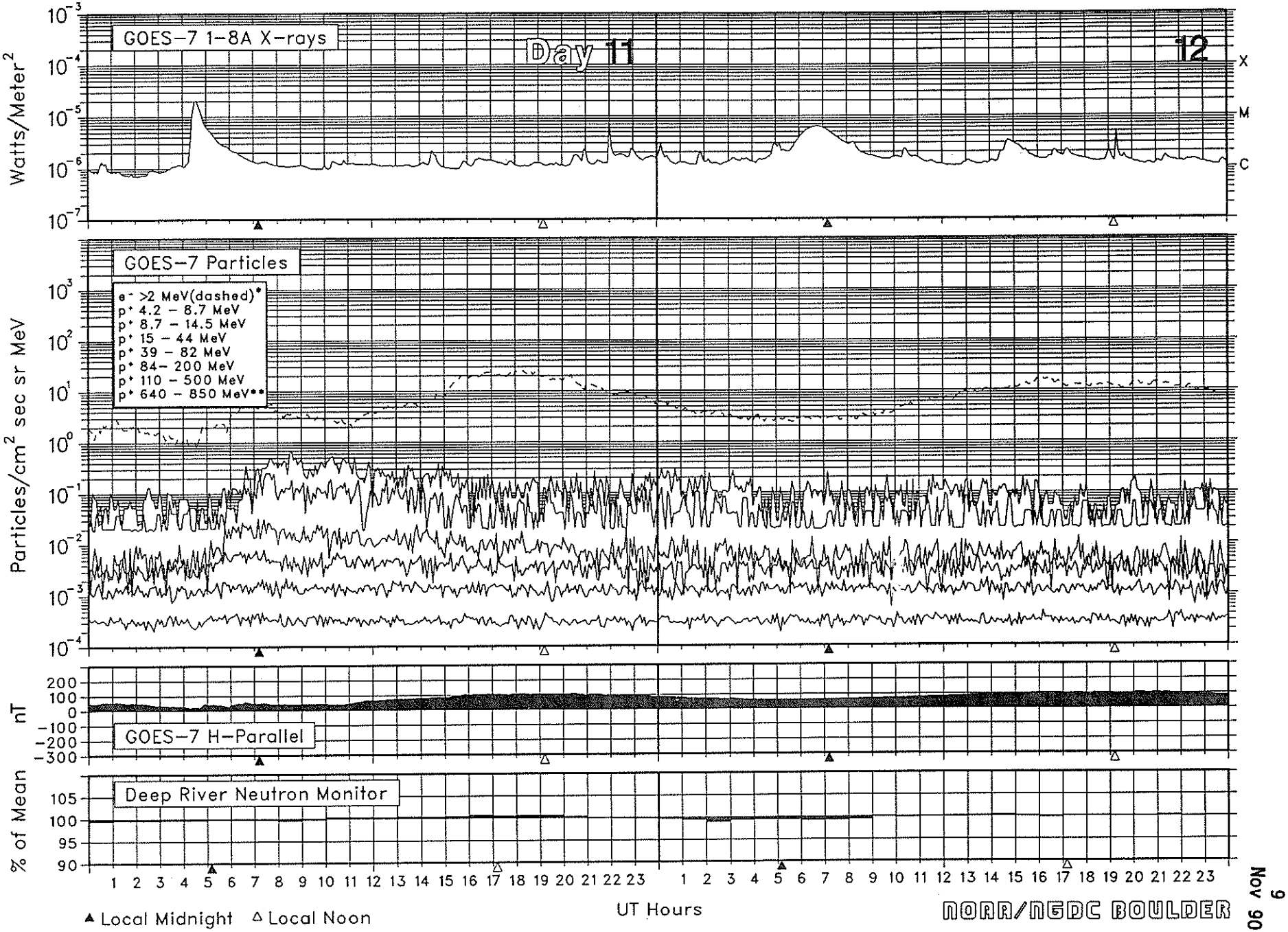


SOLAR-TERRESTRIAL ENVIRONMENT
November 1990



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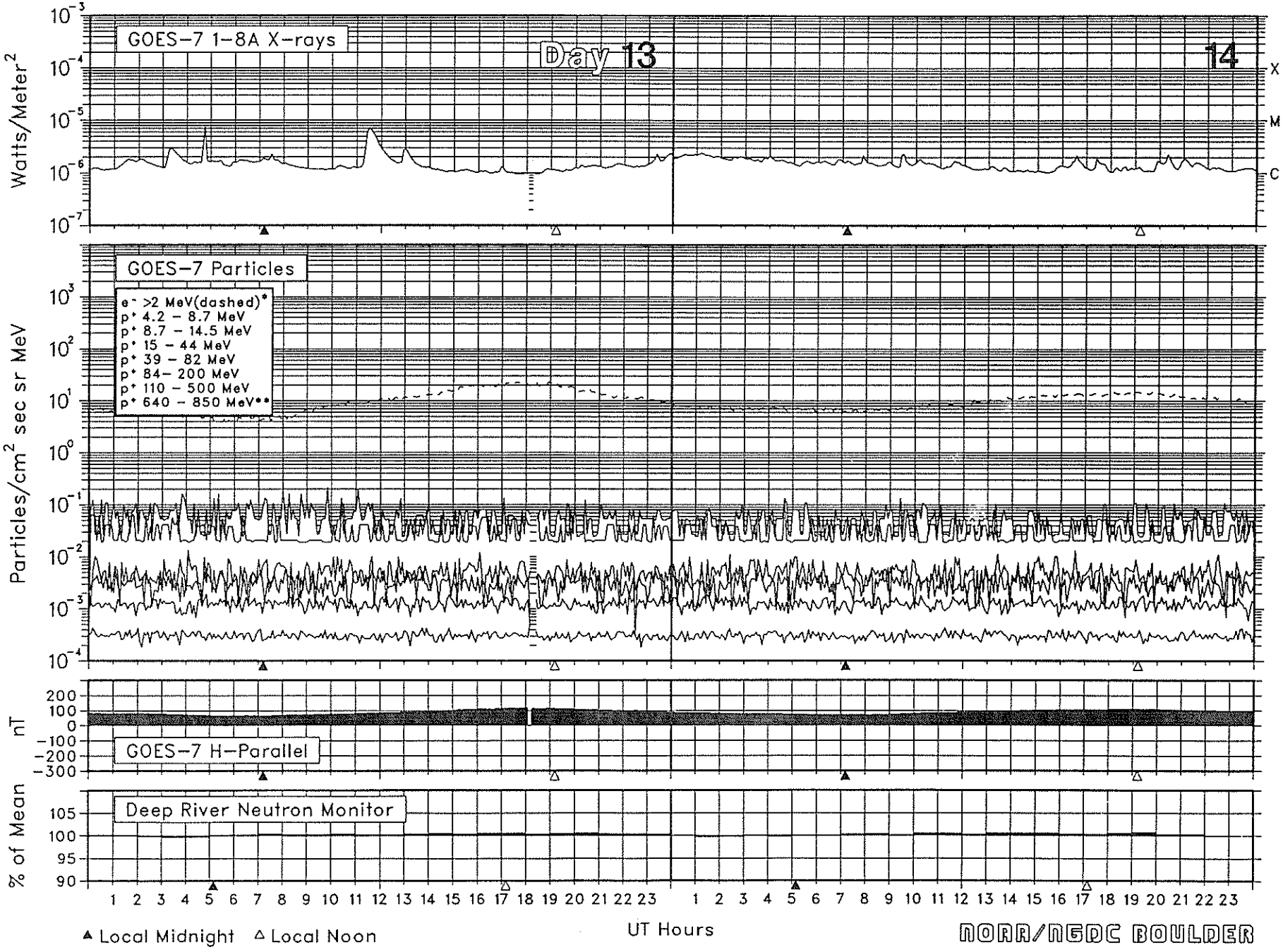
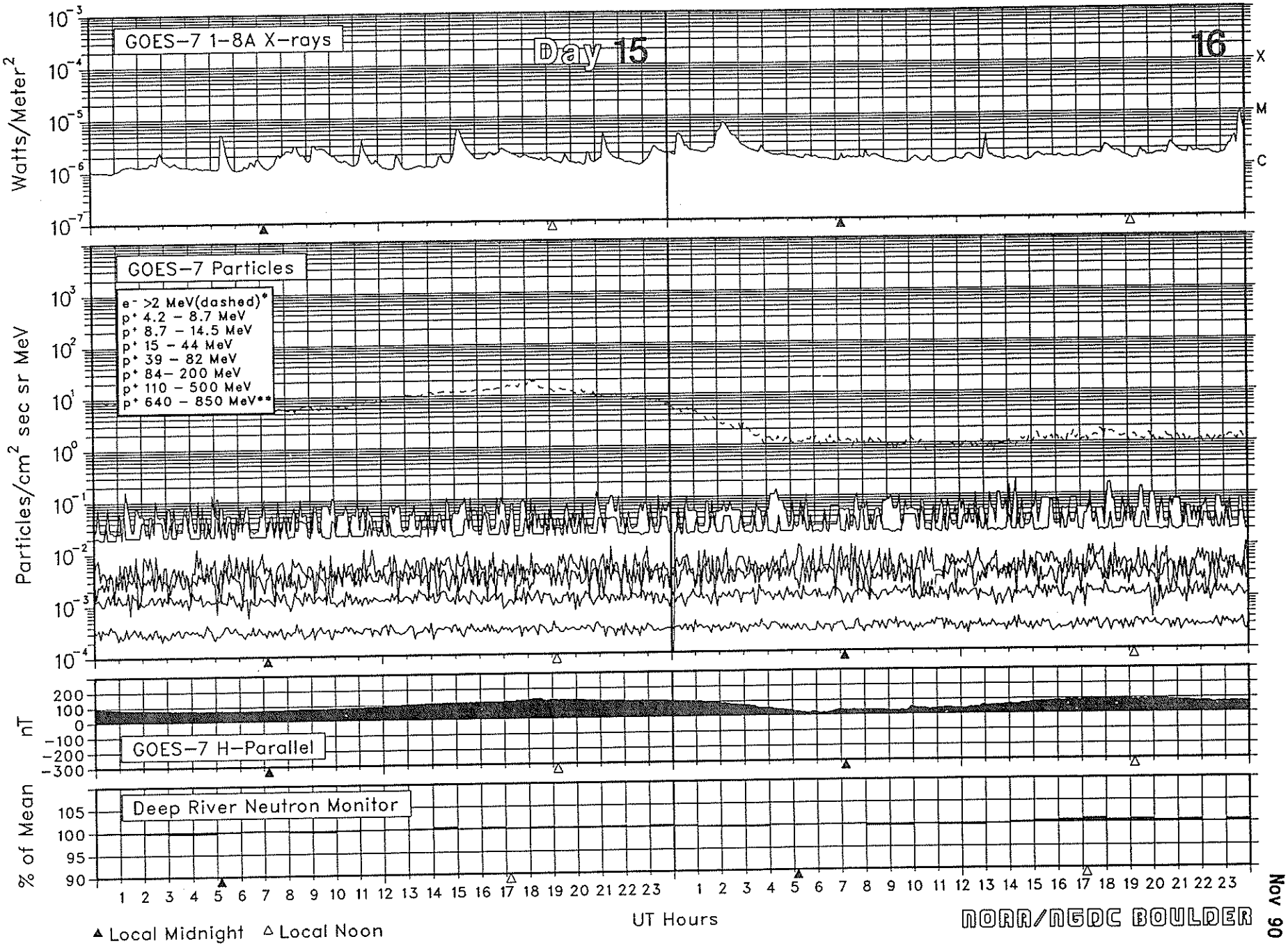


NOAA/NGDC BOULDER

SOLAR-TERRESTRIAL ENVIRONMENT

November 1990



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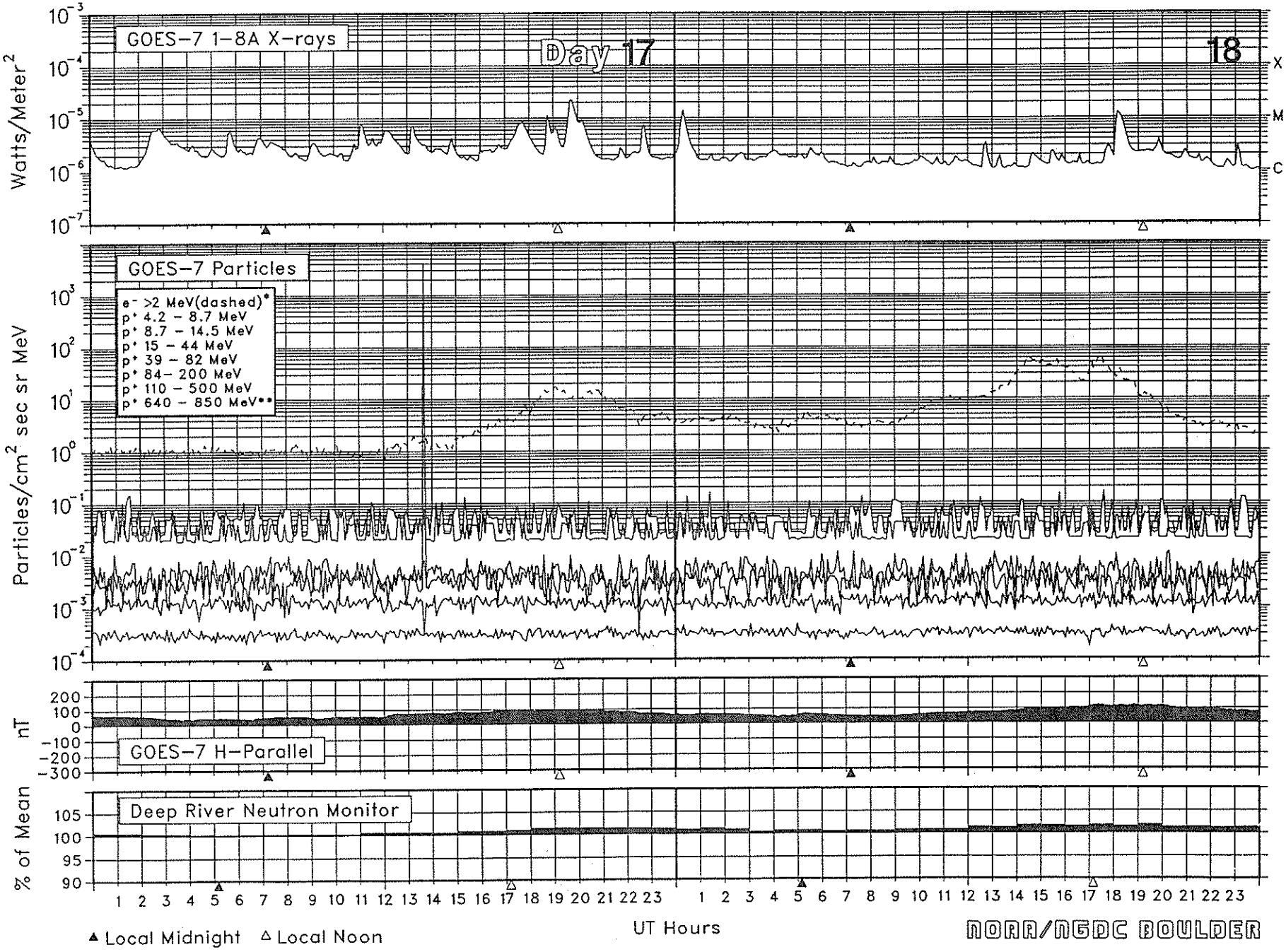
November 1990



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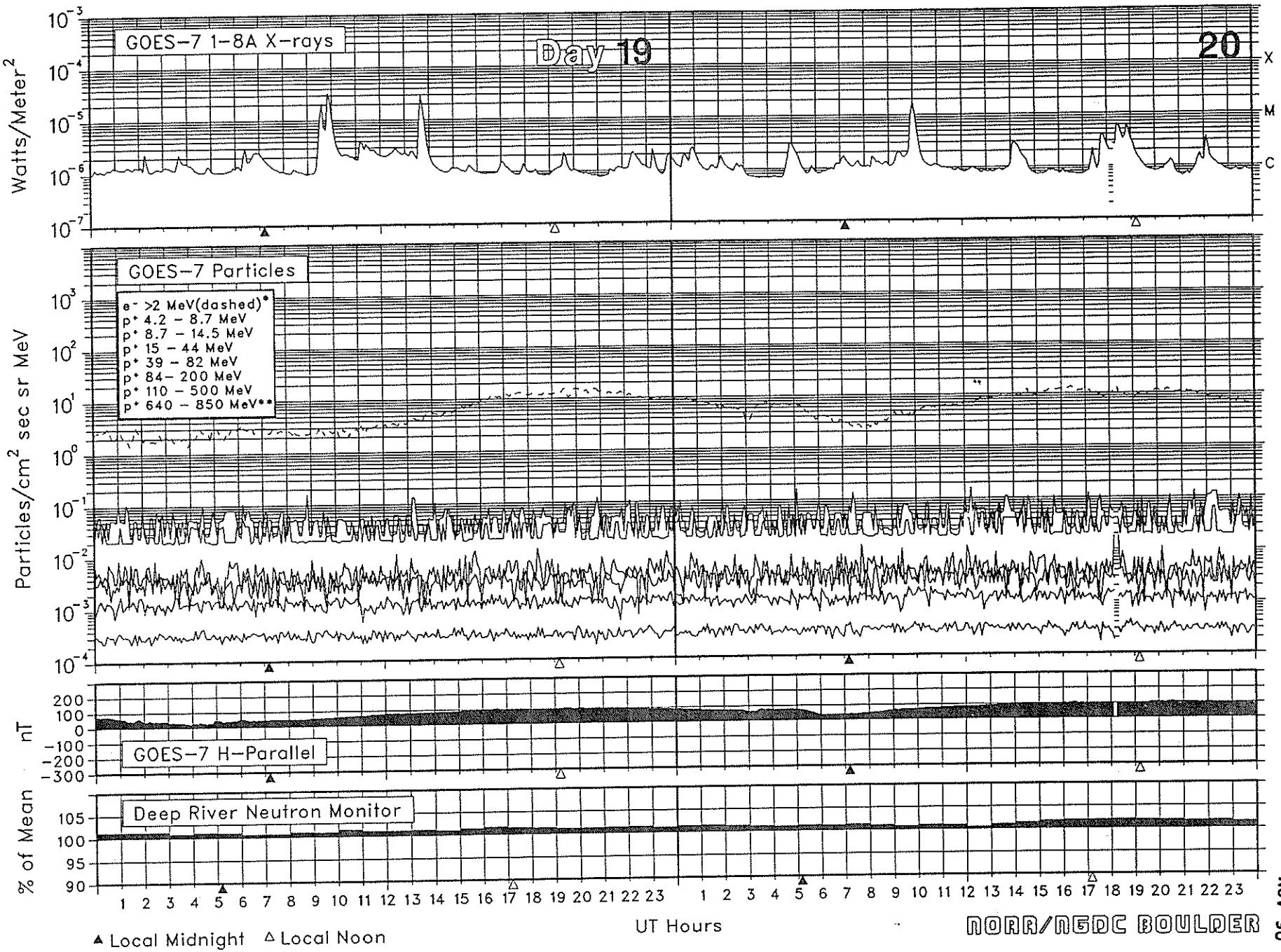
November 1990



SOLAR-TERRESTRIAL ENVIRONMENT
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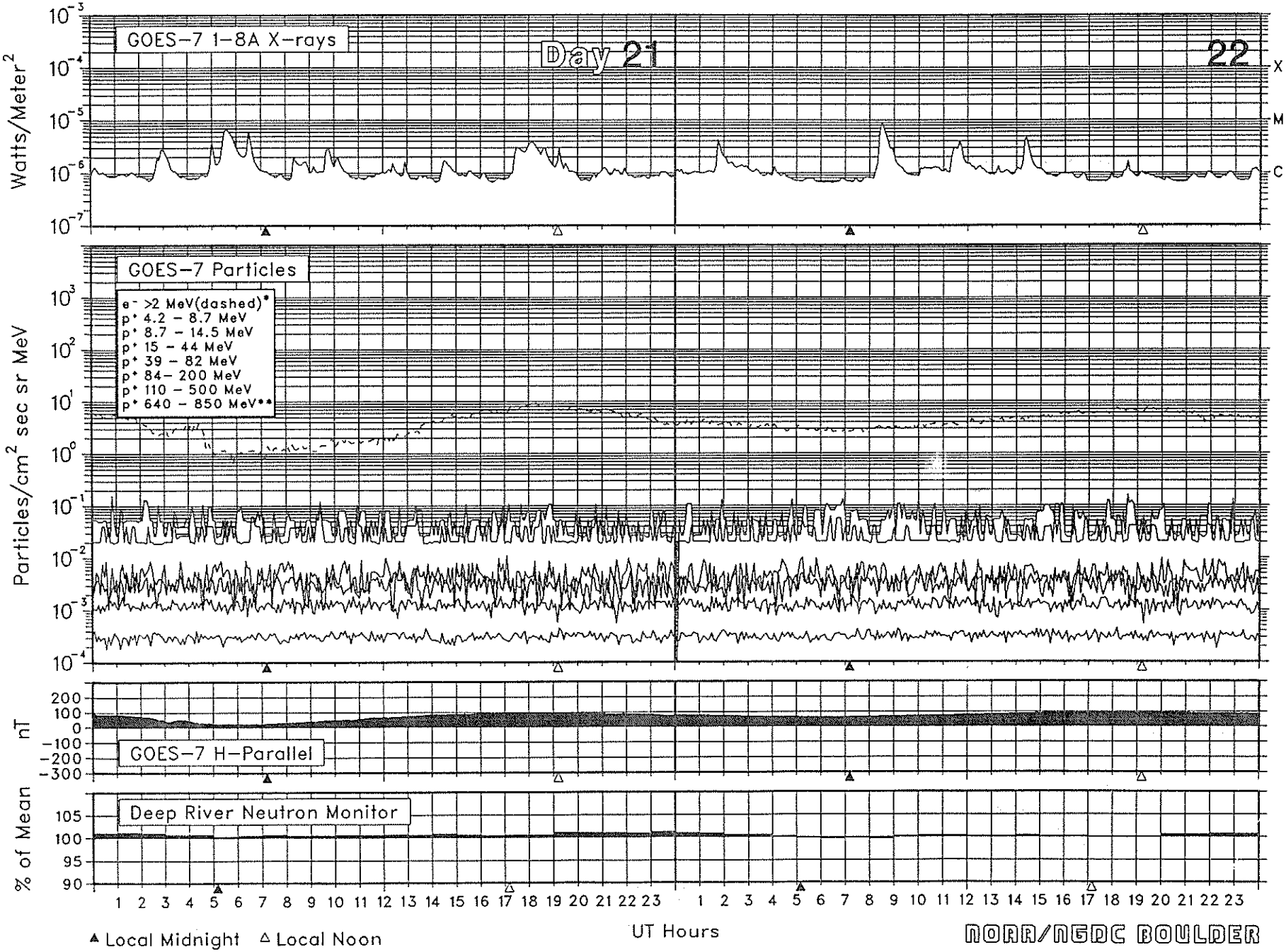
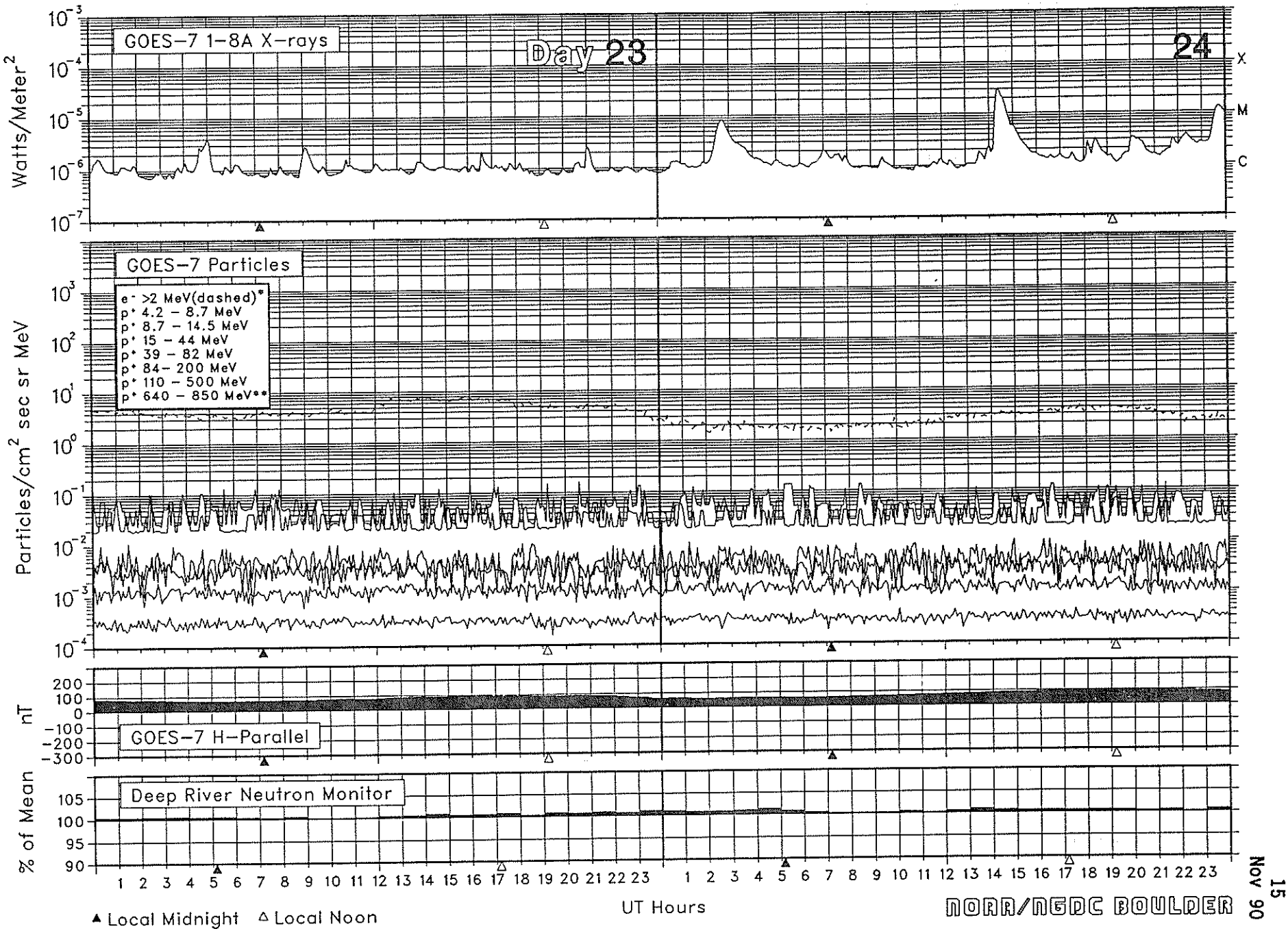


SOLAR-TERRESTRIAL ENVIRONMENT
November 1990



SOLAR-TERRESTRIAL ENVIRONMENT
November 1990

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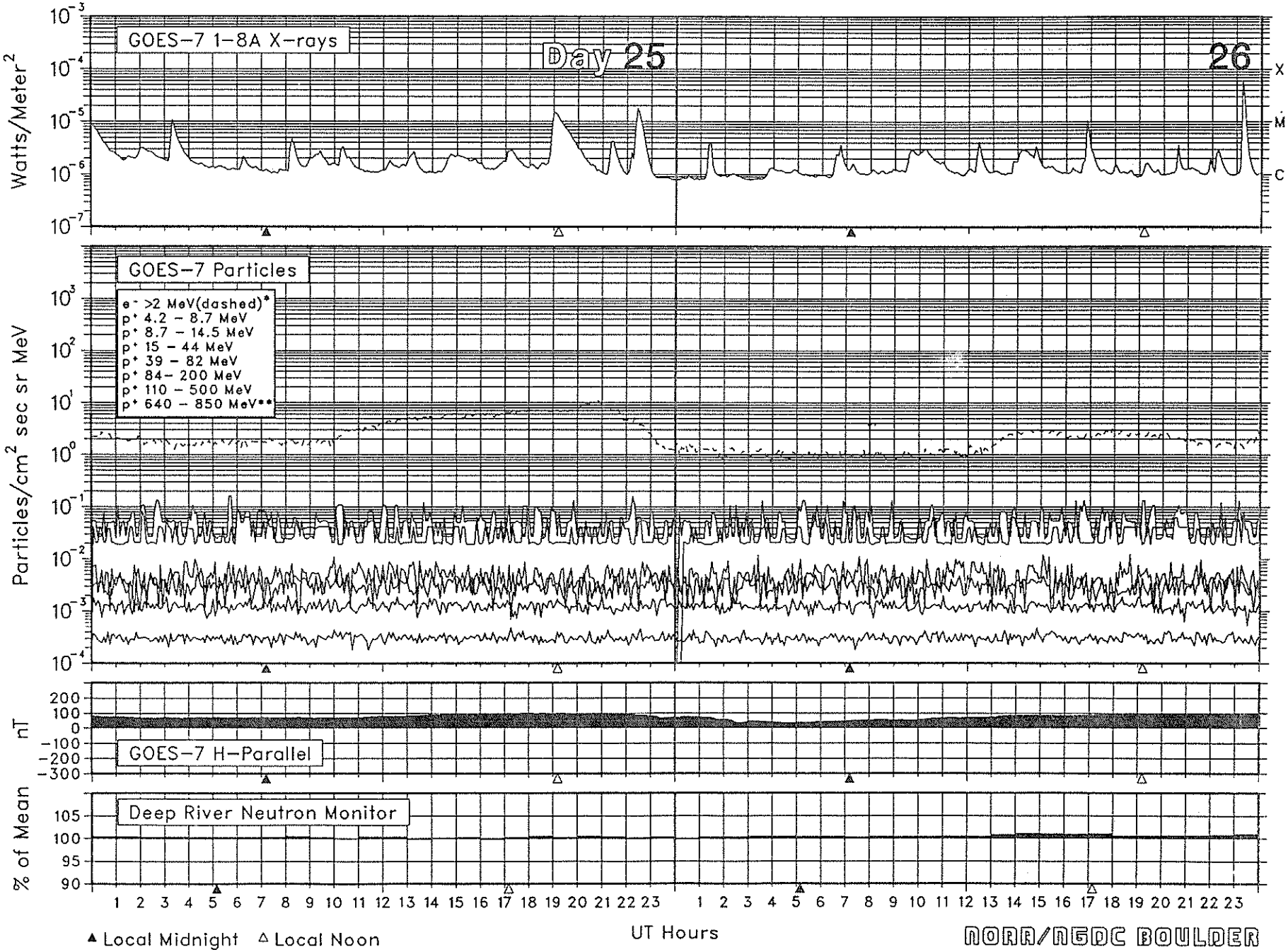
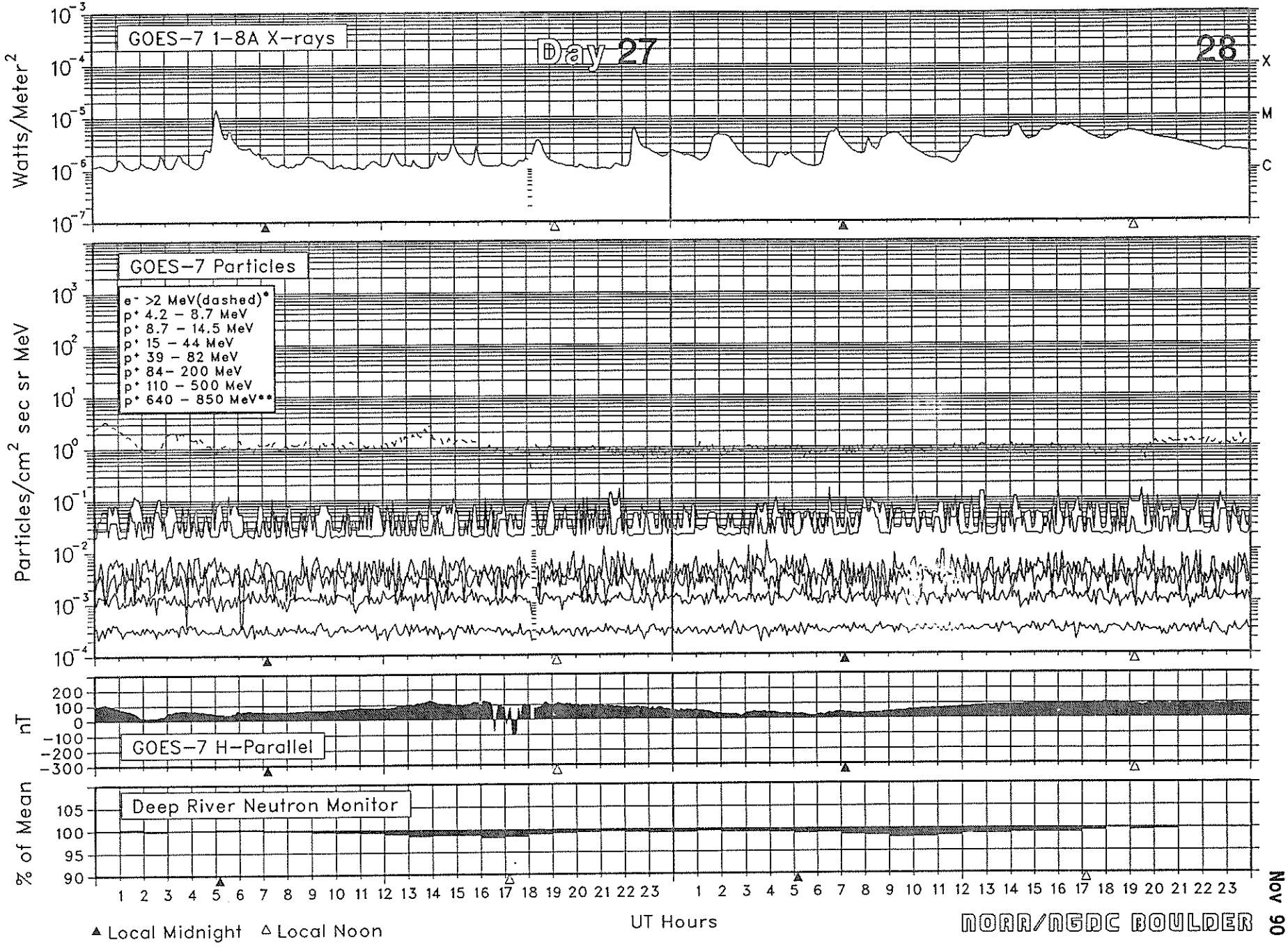


NOAA/NGDC BOULDER

SOLAR-TERRESTRIAL ENVIRONMENT
November 1990



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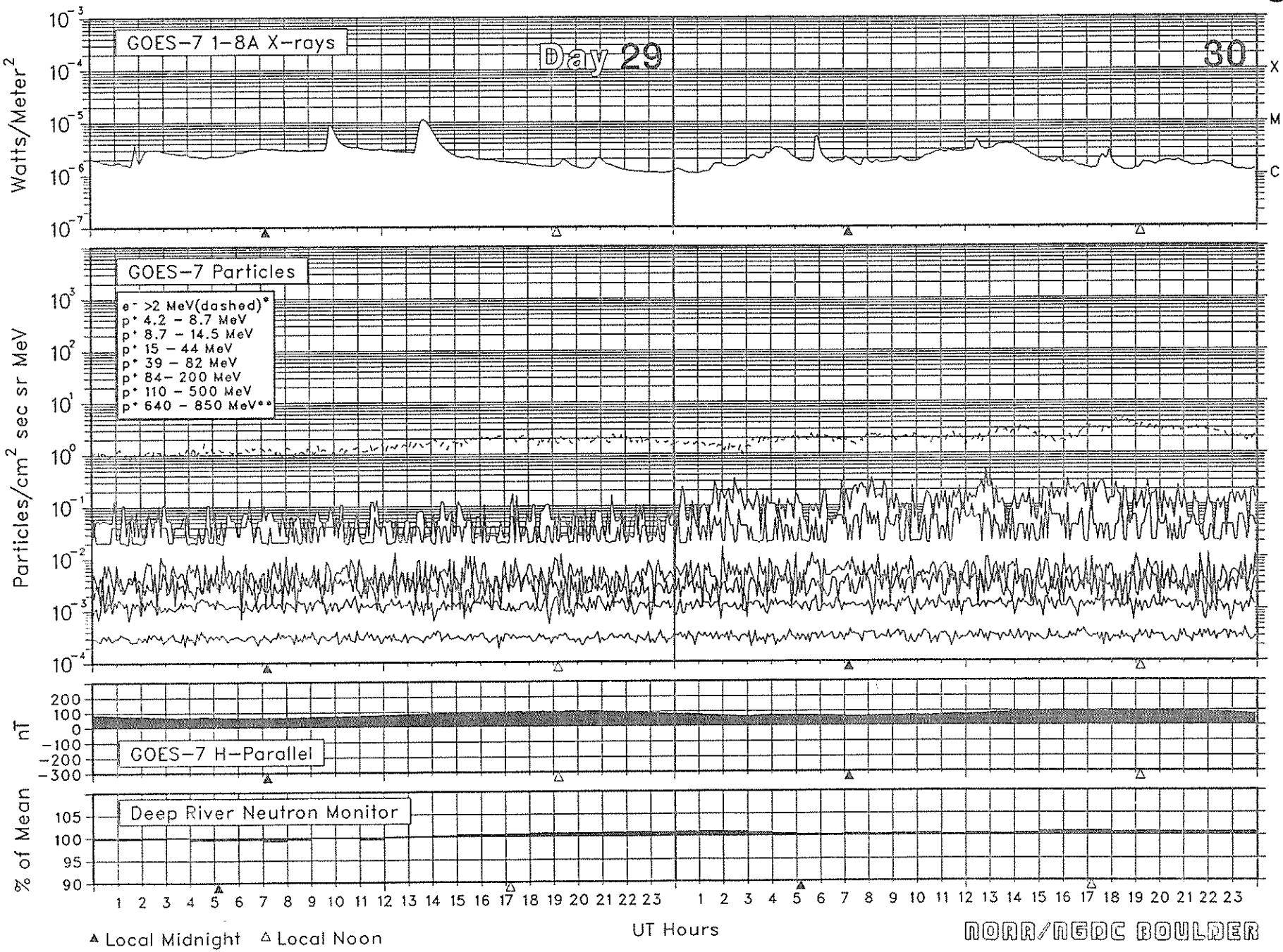
November 1990



ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages **NOVEMBER 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		
305	01	31	109	143	021	S15 W49	5	0	0	01	S15 W49	Q	Solquiet, Magquiet.
						N07 E03	0	0	0		N07 E03	Q	
						S21 W76	0	0	0		S21 W76	Q	
						S05 E35	2	0	0		S05 E35	Q	
						S19 E64	3	0	0		S19 E64	Q	
						S28 W17	0	0	0		S28 W17	Q	
306	02	01	097	145	006	S15 W61	0	0	0	02	S15 W61	Q	Solquiet, Magquiet.
						N06 W12	0	0	0		N06 W12	Q	
						S21 W89	0	0	0		S21 W89	Q	
						S05 E22	4	0	0		S05 E22	Q	
						S19 E51	4	0	0		S19 E51	E	
						S15 E64	0	0	0		S15 E64	Q	
307	03	02	112	140	009	S15 W75	0	0	0	03	S15 W75	Q	Solquiet, Magquiet.
						N07 W27	0	0	0		N07 W27	Q	
						S05 E08	2	0	0		S05 E08	E	
						S19 E37	0	0	0		S19 E37	E	
						S15 E50	0	0	0		S15 E50	Q	
						S26 E37	0	0	0		S26 E37	Q	
308	04	03	170	151	006	S15 W85	0	0	0	04	S15 W85	Q	Solquiet, Magquiet.
						N07 W40	0	0	0		N07 W40	Q	
						S04 W04	0	0	0		S04 W04	E	
						S19 E24	1	0	0		S19 E24	E	
						S13 E36	0	0	0		S13 E36	Q	
						S25 E25	1	0	0		S25 E25	Q	
						N12 W11	0	0	0		N12 W11	Q	
						N08 E04	0	0	0		N08 E04	Q	
						N12 E76	0	0	0		N12 E76	Q	
						S21 E11	0	0	0		S21 E11	Q	
309	05	04	227	156	002	N07 W55	1	0	0	05	N07 W55	Q	Solquiet, Magquiet.
						S05 W18	5	0	0		S05 W18	E	
						S18 E10	6	1	0		S18 E10	E	
						S25 E12	4	0	0		S25 E12	E	
						N12 W24	0	0	0		N12 W24	Q	
						N07 W09	0	0	0		N07 W09	Q	
						N12 E62	0	0	0		N12 E62	Q	
						S21 W02	0	0	0		S21 W02	Q	
						N16 E01	0	0	0		N16 E01	Q	
						S23 E23	0	0	0		S23 E23	Q	
						S11 E62	1	0	0		S11 E62	Q	
						N16 E74	2	0	0		N16 E74	E	
		Presto:[2] Boulder Tenflare 330 flux units 04/1736 UT duration 4 minutes.											
310	06	05	267	170	001	N08 W69	1	0	0	06	N08 W69	Q	Solquiet, Magalert
						S05 W33	0	0	0		S05 W33	E	06/07 Recurrence.
						S18 W06	6	0	0		S18 W06	E	
						S16 E15	0	0	0		S16 E15	Q	
						S25 W02	5	1	0		S25 W02	E	
						N08 W23	0	0	0		N08 W23	Q	
						N12 E50	0	0	0		N12 E50	Q	
						S20 W15	0	0	0		S20 W15	Q	
						N16 W11	0	0	0		N16 W11	Q	
						S24 E09	0	0	0		S24 E09	Q	
						S11 E46	0	0	0		S11 E46	Q	
						N16 E60	12	0	0		N16 E60	E	
						S17 E64	0	0	0		S17 E64	Q	
						S13 E72	0	0	0		S13 E72	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — NOVEMBER 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		
310	06	05				N08 E81	0	0	0	06	N08 E81	Q	
						N10 E60	0	0	0		N10 E60	Q	
						S08 W05	0	0	0		S08 W05	Q	
311	07	06	280	198	001	N07 W83	0	0	0	07	N07 W83	Q	Solquiet, Magalert
						S05 W46	0	0	0		S05 W46	Q	07/08 Recurrence.
						S18 W21	3	0	0		S18 W21	E	
						S16 E02	4	0	0		S16 E02	Q	
						S24 W14	2	0	0		S24 W14	E	
						N08 W36	0	0	0		N08 W36	Q	
						N12 E36	0	0	0		N12 E36	Q	
						S21 W27	0	0	0		S21 W27	Q	
						N16 W24	6	0	0		N16 W24	Q	
						S24 W06	1	0	0		S24 W06	Q	
						S11 E34	0	0	0		S11 E34	Q	
						N18 E45	15	0	0		N18 E45	E	
						S17 E53	0	0	0		S17 E53	Q	
						S13 E59	0	0	0		S13 E59	Q	
						N08 E67	3	1	0		N08 E67	E	
						N10 E44	1	0	0		N10 E44	Q	
						S29 E64	2	0	0		S29 E64	Q	
312	08	07	262	215	005	S05 W60	2	0	0	08	S05 W60	Q	Solalert 08/XX,
						S17 W34	0	0	0		S17 W34	E	Magnil.
						S16 W12	0	0	0		S16 W12	Q	
						S25 W29	0	0	0		S25 W29	E	
						N08 W46	0	0	0		N08 W46	Q	
						N13 E23	0	0	0		N13 E23	Q	
						S21 W41	1	0	0		S21 W41	Q	
						N17 W37	4	0	0		N17 W37	E	
						N18 E32	3	0	0		N18 E32	E	
						S17 E40	1	0	0		S17 E40	Q	
						S13 E44	0	0	0		S13 E44	Q	
						N08 E59	2	0	0		N08 E59	E	
						N10 E31	0	0	0		N10 E31	Q	
						S29 E52	0	0	0		S29 E52	Q	
313	09	08	294	212	008	S05 W73	2	0	0	09	S05 W73	E	Solalert 09/XX,
						S17 W47	4	0	0		S17 W47	E	Magquiet.
						S16 W27	2	0	0		S16 W27	Q	
						S24 W41	2	0	0		S24 W41	E	
						N13 E11	0	0	0		N13 E11	Q	
						N17 W50	9	1	0		N17 W50	E	
						N17 E19	1	0	0		N17 E19	E	
						S17 E26	0	0	0		S17 E26	Q	
						S12 E31	0	0	0		S12 E31	Q	
						N08 E47	2	0	0		N08 E47	E	
						N09 E18	2	0	0		N09 E18	E	
						S08 W44	0	0	0		S08 W44	Q	
						S29 E40	0	0	0		S29 E40	E	
314	10	09	287	202	010	S04 W88	0	0	0	10	S04 W88	Q	Solalert 10/XX,
						S17 W61	3	0	0		S17 W61	Q	Magquiet.
						S17 W40	1	0	0		S17 W40	E	
						S24 W58	2	0	0		S24 W58	E	
						N13 W02	0	0	0		N13 W02	Q	
						N17 W63	8	0	0		N17 W63	E	
						S15 W07	0	0	0		S15 W07	Q	
						N17 E06	0	0	0		N17 E06	E	
						S18 E13	0	0	0		S18 E13	Q	
						S12 E19	0	0	0		S12 E19	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — NOVEMBER 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		
314	10	09				N08 E34	3	0	0	10	N08 E34	E	
						N09 E05	1	0	0		N09 E05	E	
						S30 E29	6	0	0		S30 E29	E	
315	11	10	228	193	010	S17 W75	2	0	0	11	S17 W75	Q	Solnil, Magquiet.
						S16 W55	2	0	0		S16 W55	E	
						S23 W73	3	0	0		S23 W73	E	
						N13 W15	0	0	0		N13 W15	Q	
						N17 W76	8	0	0		N17 W76	E	
						N16 W08	0	0	0		N16 W08	E	
						S19 W02	0	0	0		S19 W02	Q	
						S12 E07	0	0	0		S12 E07	Q	
						N08 E20	4	0	0		N08 E20	E	
						N09 W08	1	0	0		N09 W08	E	
						S31 E16	2	0	0		S31 E16	E	
316	12	11	274	197	013	S18 W89	0	0	0	12	S18 W89	E	Solalert 12/XX,
						S16 W73	0	0	0		S16 W73	Q	Magquiet.
						S23 W85	0	0	0		S23 W85	Q	
						N15 W29	0	0	0		N15 W29	Q	
						N17 W89	0	0	0		N17 W89	E	
						N16 W21	0	0	0		N16 W21	E	
						S19 W14	0	0	0		S19 W14	Q	
						S13 W07	0	0	0		S13 W07	Q	
						N08 E04	14	1	0		N08 E04	E	
						N08 W21	3	0	0		N08 W21	E	
						S31 E05	10	0	0		S31 E05	E	
						S23 W58	0	0	0		S23 W58	Q	
						S21 E30	0	0	0		S21 E30	Q	
						N41 E52	0	0	0		N41 E52	Q	
317	13	12	253	194	006	S16 W82	0	0	0	13	S16 W82	Q	Solalert 13/XX,
						N12 W38	0	0	0		N12 W38	Q	Magquiet.
						N16 W33	1	0	0		N16 W33	E	
						S19 W30	1	0	0		S19 W30	Q	
						S09 W23	0	0	0		S09 W23	Q	
						N08 W10	16	0	0		N08 W10	E	
						N09 W33	1	0	0		N09 W33	Q	
						S31 W08	6	0	0		S31 W08	E	
						S23 W71	0	0	0		S23 W71	Q	
						S22 E18	0	0	0		S22 E18	Q	
						N41 E41	0	0	0		N41 E41	Q	
						N19 E78	0	0	0		N19 E78	Q	
						S28 W23	1	0	0		S28 W23	Q	
						S09 W03	0	0	0		S09 W03	Q	
318	14	13	176	186	004	N13 W55	0	0	0	14	N13 W55	Q	Solalert 14/XX,
						N16 W46	2	0	0		N16 W46	E	Magquiet.
						N07 W22	5	1	0		N07 W22	E	
						N08 W44	2	0	0		N08 W44	Q	
						S32 W24	2	0	0		S32 W24	E	
						S22 E08	1	0	0		S22 E08	Q	
						N20 E70	3	0	0		N20 E70	E	
						S26 W35	1	0	0		S26 W35	Q	
						S08 W17	0	0	0		S08 W17	Q	
319	15	14	194	202	001	N16 W59	4	0	0	15	N16 W59	E	Solalert 15/XX,
						S16 W44	0	0	0		S16 W44	Q	Magquiet.
						N09 W34	3	0	0		N09 W34	E	
						N08 W58	0	0	0		N08 W58	Q	
						S31 W34	0	0	0		S31 W34	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — NOVEMBER 1990

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat	Location °Long	Flares Total	Flares M	Flares X	Date of Forecast	Location °Lat	Location °Long	Region Forecast [1]	Geoalerts
319	15	14				S22	W09	12	0	0	15	S22	W09	E	
						N18	E63	10	0	0		N18	E63	E	
						S26	W48	0	0	0		S26	W48	Q	
320	16	15	155	212	001	N17	W72	1	0	0	16	N17	W72	E	Solalert 16/XX,
						S18	W59	0	0	0		S18	W59	Q	Magquiet.
						N08	W48	0	0	0		N08	W48	Q	
						N09	W73	0	0	0		N09	W73	Q	
						S30	W48	1	0	0		S30	W48	E	
						S21	W22	8	0	0		S21	W22	E	
						N18	E51	7	0	0		N18	E51	A	
321	17	16	123	210	016	N15	W83	1	0	0	17	N15	W83	Q	Solalert 17/XX,
						N08	W65	1	0	0		N08	W65	Q	Magquiet.
						S30	W63	1	0	0		S30	W63	Q	
						S22	W35	6	0	0		S22	W35	E	
						N18	E38	15	1	0		N18	E38	A	
		Presto:[2]	Boulder	Tenflare 290 flux units 16/1311 UT duration 1 minute.											
322	18	17	179	223	016	N14	W93	0	0	0	18	N14	W93	Q	Solalert 18/XX,
						N06	W81	3	0	0		N06	W81	Q	Magquiet.
						S30	W77	1	0	0		S30	W77	Q	
						S21	W48	0	0	0		S21	W48	Q	
						N19	E25	22	3	0		N19	E25	A	
						N18	W17	0	0	0		N18	W17	Q	
						S17	E66	0	0	0		S17	E66	Q	
323	19	18	216	203	012	N08	W90	1	0	0	19	N08	W90	Q	Solalert 19/XX,
						S29	W91	2	0	0		S29	W91	Q	Magalert 19/XX.
						S21	W62	0	0	0		S21	W62	Q	
						N18	E13	35	2	0		N18	E13	A	
						N18	W33	1	0	0		N18	W33	Q	
						S18	E53	0	0	0		S18	E53	Q	
						N10	W17	0	0	0		N10	W17	Q	
						N21	W13	0	0	0		N21	W13	Q	
						N21	E34	0	0	0		N21	E34	Q	
324	20	19	152	196	008	S20	W79	0	0	0	20	S20	W79	Q	Solalert 20/XX,
						N18	W01	23	2	0		N18	W01	A	Magnil.
						N17	W45	0	0	0		N17	W45	Q	
						S18	E39	0	0	0		S18	E39	Q	
						S18	W19	0	0	0		S18	W19	Q	
325	21	20	156	190	006	N17	W13	19	1	0	21	N17	W13	A	Solalert 21/XX,
						N17	W57	0	0	0		N17	W57	Q	Magquiet.
						S19	E26	0	0	0		S19	E26	Q	
						S17	W32	0	0	0		S17	W32	Q	
326	22	21	171	182	009	N19	W27	13	0	0	22	N19	W27	A	Solalert 22/XX,
						N17	W71	0	0	0		N17	W71	Q	Magquiet.
						S18	E12	0	0	0		S18	E12	Q	
						S17	W46	1	0	0		S17	W46	Q	
						S05	E40	0	0	0		S05	E40	Q	
327	23	22	183	181	001	N18	W39	3	0	0	23	N18	W39	A	Solalert 23/XX,
						N18	W84	2	0	0		N18	W84	E	Magquiet.
						S18	W01	0	0	0		S18	W01	Q	
						S17	W59	0	0	0		S17	W59	Q	
						S06	E27	0	0	0		S06	E27	Q	
						S10	E35	0	0	0		S10	E35	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — NOVEMBER 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		
328	24	23	186	176	003	N18 W52	19	0	0	24	N18 W52	E	Solalert 24/XX,
						S18 W14	0	0	0		S18 W14.	Q	Magquiet.
						N25 W29	0	0	0		N25 W29	Q	
						S16 W70	0	0	0		S16 W70	Q	
						S05 E13	3	0	0		S05 E13	E	
						S09 E22	0	0	0		S09 E22	Q	
						S06 E71	1	0	0		S06 E71	Q	
329	25	24	170	171	001	N18 W65	12	1	0	25	N18 W65	E	Solalert 25/XX,
						S18 W27	0	0	0		S18 W27	Q	Magquiet.
						S17 W82	0	0	0		S17 W82	Q	
						S04 W01	14	1	0		S04 W01	E	
						S09 E11	1	0	0		S09 E11	Q	
						S06 E59	0	0	0		S06 E59	Q	
						S07 W11	0	0	0		S07 W11	Q	
						S04 E73	0	0	0		S04 E73	Q	
		Presto:[2] Boulder Tenflare 250 flux units 24/1416 UT duration 17 minutes.											
330	26	25	144	167	004	N18 W76	21	2	0	26	N18 W76	E	Solalert 26/XX
						S18 W39	0	0	0		S18 W39	Q	Magquiet.
						S04 W15	9	1	0		S04 W15	E	
						S08 W03	1	0	0		S08 W03	Q	
						S06 E46	2	0	0		S06 E46	Q	
						S06 E61	0	0	0		S06 E61	Q	
						S21 E74	0	0	0		S21 E74	Q	
331	27	26	136	157	008	N17 W85	6	2	0	27	N17 W85	E	Solalert 27/27,
						S18 W52	0	0	0		S18 W52	Q	Magalert 27/28.
						S04 W29	10	0	0		S04 W29	E	
						S09 W18	0	0	0		S09 W18	E	
						S07 E32	0	0	0		S07 E32	Q	
						S04 E48	0	0	0		S04 E48	Q	
						S21 E60	0	0	0		S21 E60	Q	
						N16 E71	0	0	0		N16 E71	Q	
332	28	27	149	157	029	S05 W42	1	0	0	28	S05 W42	E	Solalert 28/28,
						S10 W31	0	0	0		S10 W31	E	Magalert 28/28.
						S08 E19	0	0	0		S08 E19	E	
						S04 E35	0	0	0		S04 E35	Q	
						S21 E47	0	0	0		S21 E47	Q	
						N16 E57	5	0	0		N16 E57	Q	
						N11 E21	0	0	0		N11 E21	Q	
						S16 E72	0	0	0		S16 E72	Q	
						N23 W08	0	0	0		N23 W08	Q	
333	29	28	195	170	014	S05 W56	4	0	0	29	S05 W56	E	Solnil, Magnil.
						S10 W44	0	0	0		S10 W44	Q	
						S06 E07	0	0	0		S06 E07	Q	
						S04 E21	0	0	0		S04 E21	Q	
						S20 E35	0	0	0		S20 E35	Q	
						N16 E43	1	0	0		N16 E43	E	
						N11 E08	0	0	0		N11 E08	Q	
						S15 E57	0	0	0		S15 E57	Q	
						N23 W21	0	0	0		N23 W21	Q	
						S23 E72	2	0	0		S23 E72	E	
						S08 E31	0	0	0		S08 E31	Q	
						N02 E13	0	0	0		N02 E13	Q	

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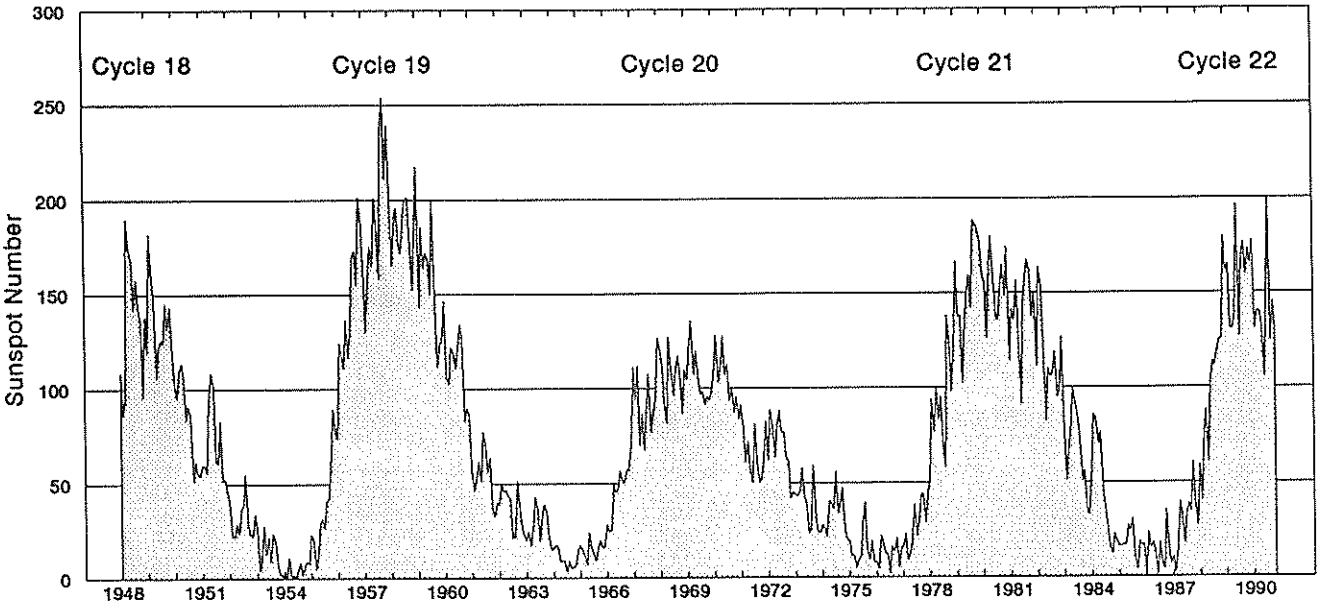
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — NOVEMBER 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		
334	30	29	227	165	003	S05 W69	3	0	0	30	S05 W69	E	Solquiet, Magquiet.
						S10 W63	0	0	0		S10 W63	Q	
						S06 W09	1	0	0		S06 W09	Q	
						S03 E08	0	0	0		S03 E08	Q	
						S20 E23	0	0	0		S20 E23	Q	
						N15 E32	3	0	0		N15 E32	E	
						N10 W07	0	0	0		N10 W07	Q	
						S16 E45	0	0	0		S16 E45	Q	
						N23 W34	0	0	0		N23 W34	Q	
						S23 E60	1	0	0		S23 E60	E	
						S07 E17	2	0	0		S07 E17	Q	
						N02 W01	0	0	0		N02 W01	Q	
						N35 E70	0	0	0		N35 E70	Q	
						N09 E51	0	0	0		N09 E51	Q	
335	01	30	219	172	007	S05 W83	3	0	0	01	S05 W83	E	Solquiet, Magquiet.
						S08 W78	0	0	0		S08 W78	Q	
						S06 W23	0	0	0		S06 W23	Q	
						S04 W05	0	0	0		S04 W05	Q	
						S20 E09	0	0	0		S20 E09	Q	
						N15 E18	0	0	0		N15 E18	E	
						N12 W16	0	0	0		N12 W16	Q	
						S15 E32	0	0	0		S15 E32	Q	
						S24 E46	8	0	0		S24 E46	E	
						S07 E03	3	0	0		S07 E03	Q	
						N02 W13	0	0	0		N02 W13	Q	
						N35 E60	2	0	0		N35 E60	Q	
						N09 E38	0	0	0		N09 E38	Q	
						S26 W25	0	0	0		S26 W25	Q	
						S21 E27	0	0	0		S21 E27	Q	

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

Monthly Mean Sunspot Numbers Jan 1948 – Nov 1990



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	
1948	108.5	86.1	94.8	189.7	174.0	167.8	142.2	157.9	143.3	136.3	95.8	138.0	136.3	
1949	119.1	182.3	157.5	147.0	106.2	121.7	125.8	123.8	145.3	131.6	143.5	117.6	134.7	
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1	83.9	
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4	
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5	
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9	
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4	m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0	
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7	
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2	M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8	
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0	
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	112.3	
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9	
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6	
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9	
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2	m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1	
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0	
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8	
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9	M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5	
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5	
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6	
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9	
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0	
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5	
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5	
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6	m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5	
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5	
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4	M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6	
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4	
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9	
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6	
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9	
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9	
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4	m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.4	
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	100.2	
1989	161.3	165.1	131.4	130.6	138.5	196.2	126.9	168.9	176.7	159.4	173.0	165.5	157.6	
1990	177.3	130.5	140.3	140.3	132.2	105.4	147.0	199.9	124.7	145.2	130.5		143.0	

Monthly values are preliminary since July 1990. For the yearly means, each "M" marks a sunspot cycle maximum and each "m" a minimum.

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

Day	Dec 89	Jan 90	Feb	Mar	Apr	May	Jun	Jul†	Aug†	Sep†	Oct†	Nov†
01	198	186	171	173	103	70	96	272	146	126	115	77
02	182	176	161	171	114	59	80	253	175	116	117	81
03	203	166	124	163	113	61	73	245	151	131	140	108
04	182	174	113	126	127	86	77	229	137	134	134	146
05	192	164	97	98	132	80	79	202	128	118	123	154
06	184	144	80	104	138	106	101	186	124	118	124	197
07	217	129	82	105	128	132	107	173	120	103	135	209
08	167	138	95	88	128	138	99	135	136	112	141	208
09	161	125	103	71	88	133	87	102	145	113	148	188
10	148	134	79	80	82	116	107	88	160	121	153	163
11	104	164	75	73	88	126	126	106	161	116	195	167
12	99	172	80	85	77	146	115	110	160	124	192	151
13	107	179	85	83	123	144	122	114	192	142	201	129
14	100	147	75	90	142	141	118	118	215	178	202	106
15	84	157	78	110	171	144	102	98	229	162	227	107
16	101	152	64	129	170	157	110	95	232	156	192	95
17	120	164	54	123	199	167	100	87	269	142	182	103
18	123	177	77	167	203	170	83	57	270	136	181	97
19	131	199	107	202	213	187	79	61	278	151	181	104
20	127	236	134	217	206	187	68	81	295	135	169	98
21	111	217	159	211	212	193	57	123	278	139	136	102
22	150	208	191	195	207	187	71	143	262	130	140	125
23	201	200	239	206	174	160	64	165	281	110	134	114
24	191	191	249	209	157	158	88	194	276	101	131	118
25	209	206	245	204	160	146	94	194	263	101	125	110
26	221	203	234	188	118	134	103	186	214	93	102	111
27	240	211	217	168	124	139	140	177	188	77	104	109
28	249	193	187	129	103	121	184	159	170	113	114	134
29	213	185		132	94	118	203	144	186	119	98	152
30	214	198		133	114	90	230	117	196	124	87	153
31	201	201		115		101		142	161		77	
Mean	165.5	177.3	130.5	140.3	140.3	132.2	105.4	147.0	199.9	124.7	145.2	130.5

† = preliminary. The yearly mean sunspot number equaled 157.6 for 1989.

OTTAWA 2800 MHz (10.7 cm) SOLAR FLUX

Algonquin Radio Observatory — Adjusted to 1 AU

Day	Dec 89	Jan 90	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
01	223.7*	209.3	200.8	200.0	159.2	129.0	140.6	248.3	199.0	171.4	160.5	141.6*
02	213.7	208.6	177.8	192.7	153.3	129.2	141.2	267.6	208.6	168.9	162.8	138.5
03	205.6	192.5	157.9	176.3*	151.6	125.2	146.1	253.8	192.4	162.6	177.4*	150.2
04	212.9	189.2*	154.8	168.9	148.6*	123.6	148.1	238.3*	191.2	158.2*	186.8	154.7
05	209.7	187.1	150.9	161.7	156.5	130.6	153.7	231.6	180.8	157.5	170.0	169.7
06	209.7	180.9	147.5	163.8*	150.2	151.0	161.4	221.8	174.6	157.6	170.0	196.4
07	221.5	177.1	144.3	168.1	155.0	155.5	183.6	215.7	172.1	165.1	169.3	214.3
08	203.6	170.9	142.2	157.1*	152.3	170.7	195.5	189.6	184.8	163.5	175.9*	211.8
09	194.6	160.6	142.0	150.9*	146.8	174.6	203.9*	170.9	183.2	170.4	183.9	201.2
10	177.1	167.2	148.5	149.0	149.3	195.4	207.5*	164.0	186.3	171.2	194.7	191.1
11	171.7	169.5	134.9	142.5	160.8	205.4*	217.2	160.2	187.1	180.6	205.1	195.0
12	164.9	170.0	140.0	146.1	169.9	215.2	221.8*	160.9	188.2	193.3	200.6	191.0
13	163.2	167.0	142.8	146.3	195.5*	225.8	208.8	161.5	192.5	198.0	209.4	181.5
14	161.8	165.9	149.5	149.8*	215.7	224.2*	206.8	155.4	188.2*	209.4*	220.6	198.0
15	165.5	184.9	148.8	164.2*	222.9	246.6	196.3	149.1	199.6	207.3	231.6	207.3
16	164.1	187.6	148.8	178.1	226.3*	251.5	189.9	146.5	211.0	205.2	224.6	207.3
17	176.0	186.8	151.6	182.0	236.7*	248.9	187.5	147.6	228.4	210.7	193.7	217.1
18	185.9	217.2	161.1	196.4	243.0	271.8	169.5	144.7	246.1	207.5	198.2	198.9
19	188.2	233.1	180.3	216.3	244.2*	280.0	163.5	145.3	268.0*	213.8	214.2*	191.2
20	189.3	238.2	189.5	223.9*	257.1	272.5	161.2	154.0	288.7	204.0	201.7	186.8
21	189.9	250.8*	211.9	227.6	239.6	259.2	155.8	159.2	298.3	203.2	188.7	177.6
22	199.9	233.7	215.7	243.1*	232.8	250.0	145.2	166.0*	322.8*	195.3	167.9	177.4
23	213.8	233.6	216.6	245.3	226.3	239.5	139.1	180.4	322.7	185.4	164.0	171.7
24	231.0	239.8	231.5	231.3	217.4	209.2	143.8	186.6	329.2	178.7	157.5	167.2
25	248.0*	234.6	225.3	223.9*	198.3	189.1	149.3	213.6	303.9	167.1	161.8	162.3
26	252.6	238.8	213.3	226.9	188.9*	186.3	154.5	209.9	285.1*	159.6	153.5	153.2
27	274.8	232.2	224.1	215.1	169.8	164.6	173.4*	197.2	269.2	152.6	162.5	155.0
28	246.4	230.1	222.0	206.0	152.7	159.3	187.7	193.1	250.2	152.1	150.9	167.1
29	242.7*	227.8		184.1	140.9	144.8	210.8	180.3	225.2	150.1	155.9	163.2
30	258.2*	211.4		186.5E	136.9	142.5*	226.6	188.3	210.4	157.8	151.1*	169.6
31	236.7	209.3		172.8		142.5*		183.4	182.9*		141.6	
Mean	206.3	203.4	174.1	187.0	186.6	194.0	176.3	186.6	228.1	179.3	180.9	180.3

* = corrected for burst in progress; E = corrected for snow on antenna.

DAILY SOLAR INDICES

November 1990

Day	Day of Year	Bartels Cycle Day	Sunspot Numbers Int	Amer	Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit — SGMR (15400)	SGMR (8800)	SGMR (4995)	Ottawa (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
01	305	7	77	77	143.8*	550	260	186	141.6*	137	92	63	41	19
02	306	8	81	84	140.7	541	255	182	138.5	128	89	63	41	24
03	307	9	108	117	152.6	547	259	191	150.2	140	95	61	42	22
04	308	10	146	140	157.3	555	269	203	154.7	152	101	64	41	18
05	309	11	154	169	172.7	550	275	208	169.7	161	106	69	44	18
06	310	12	197	192	199.9	568	288	225	196.4	184	121	75	53	22
07	311	13	209	197	218.2	577	302	241	214.3	200	132	78	55	25
08	312	14	208	204	215.8	577	300	239	211.8	203	139	83	59	39
09	313	15	188	200	205.1	570	283	224	201.2	187	136	79	54	36
10	314	16	163	167	194.9	496	272	214	191.1	186	135	80	48	20
11	315	17	167	141	198.9	562	283	218	195.0	183	133	77	49	19
12	316	18	151	143	194.9	577	294	224	191.0	181	134	75	50	22
13	317	19	129	127	185.3	583	301	232	181.5	182	131	83	50	26
14	318	20	106	142	202.3	588	310	245	198.0	187	130	80	52	31
15	319	21	107	113	211.9	597	324	264	207.3	199	126	80	58	54
16	320	22	95	98	212.0	589	336	274	207.3	197	122	77	52	41
17	321	23	103	121	222.1	577	350	287	217.1	203	125	117	--	--
18	322	24	97	102	203.5	554	333	272	198.9	191	116	73	64	--
19	323	25	104	109	195.8	544	324	266	191.2	179	113	83	83	--
20	324	26	98	109	191.4	551	317	256	186.8	173	107	77	57	48
21	325	27	102	120	182.0	548	298	239	177.6	166	105	76	52	70
22	326	1	125	131	181.9	542	302	233	177.4	166	103	75	68	--
23	327	2	114	130	176.1	501	280	223	171.7	161	100	70	68	--
24	328	3	118	120	171.6	546	280	219	167.2	160	103	71	53	70
25	329	4	110	114	166.6	541	277	210	162.3	152	101	70	48	33
26	330	5	111	109	157.3	555	268	197	153.2	146	99	71	46	44
27	331	6	109	106	159.2	536	262	188	155.0	145	97	74	40	25
28	332	7	134	132	171.7	551	260	192	167.1	152	103	71	45	45
29	333	8	152	152	167.8	531	270	197	163.2	153	105	70	41	29
30	334	9	153	142	174.4	568	281	210	169.6	162	111	73	40	23
Mean			130.5	133.6	184.3	556	290	225	180.3	171	114	75	52	33

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

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

* = corrected for burst in progress.

Equipment problems produced any gaps in the Air Weather Service's Sagamore Hill (SGMR) observations.

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

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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	154	157	158	159	158	157	157	158	154
1990	151	153	152	149	147	145	143	142	139	135	131	129
						(4)	(11)	(16)	(18)	(20)	(20)	(18)
1991	128	127	124	124	124	123	120	118	115	114	114	114
	(19)	(20)	(22)	(27)	(28)	(24)	(21)	(19)	(16)	(15)	(16)	(18)
1992	112	109	107	104	101	98	96	93	91	88	83	78
	(18)	(15)	(9)	(6)	(9)	(6)	(8)	(11)	(13)	(14)	(19)	(24)

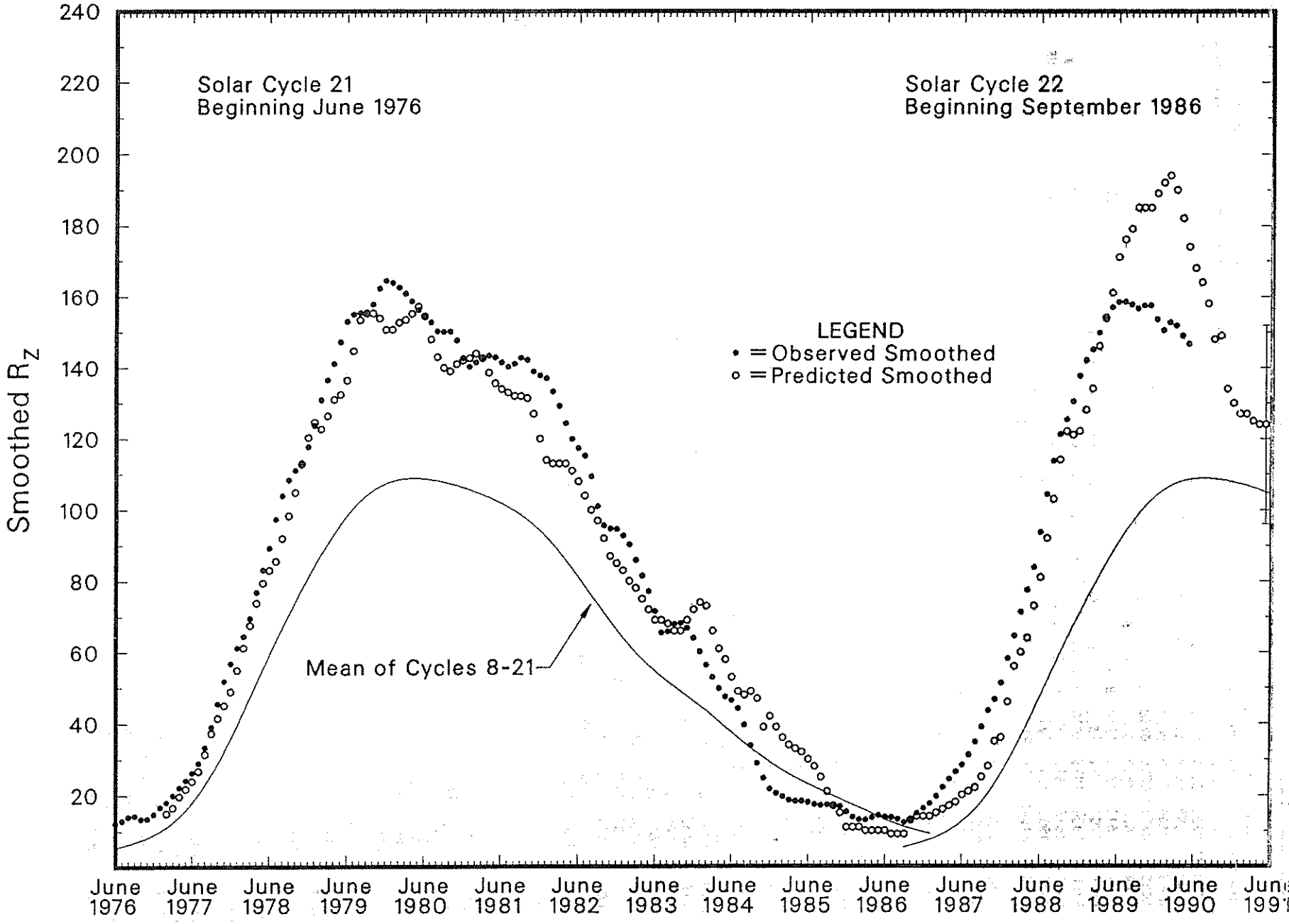
*September 1986 marks the onset of Sunspot Cycle 22.

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 June 1990 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 May 1991 prediction. There exists a 90% chance that in May 1991 the actual smoothed sunspot number will fall somewhere between 96 and 152.

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



Nov 90

Hα SOLAR FLARES

NOVEMBER 1990

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	01	0220	0221	0229	S20	E62	6347	11	5.8	9	SF		3	E		19		
LEAR		0457	0458	0511	S21	E61	6347	11	5.9	14	SF		3	E		15		
GOES		0646	0650	0653						7		B 7.7						
GOES		0751	0754	0758						7		B 5.8						
LEAR		0802	0802	0807	S21	E58	6347	11	5.8	5	SF	C 1.1	3	E		20		
RAMY		1612	1701	1712	S06	E25	6345	11	3.5	60	SF	C 1.2	3	E		59		F
PALE		1751	1754	1803	S06	E27	6345	11	3.8	12	SF		3	E		13		
PALE		1804	1826	1910	S03	E24	6345	11	3.5	66	SF		3	E		17		F
PALE		1815	1816	1829	S20	E56	6347	11	6.0	14	SF	C 1.3	3	E		48		UF
GOES		1953	1956	1958						5		B 6.8						
GOES		2104E	2105	2107D						30		C 1.1						
LEAR	02	0128	0129	0136	S04	E17	6345	11	3.3	8	SF	B 6.8	3	E		37		
GOES		0453	0552	0653						120		B 7.1						
LEAR		0515	0517	0534	S08	E20	6345	11	3.7	19	SF		3	E		18		
GOES		0855	0858	0900						5		B 6.3						
RAMY		1309	1315	1320D	S07	E13	6345	11	3.5	11D	SF	B 8.6	2	E		48		
SVTO		1309	1317	1329	S08	E14	6345	11	3.6	20	SF	B 8.6	2	E		32		
GOES		2135	2158	2215						40		C 1.3						
LEAR	03	0320	0338	0357	S26	E37	6350	11	6.0	37	SF	C 1.9	3	E		19		
PALE		0328E	0328U	0346D	S25	E39		11	6.2	18D	SF	C 1.9	3	E		45		F
GOES		0649	0656	0705						16		B 9.2						
GOES		1354	1403	1410						16		C 1.2						
GOES		2127E	2130	2137D						10D		C 1.1						
LEAR		2353	2353	2415	S20	E21	6347	11	5.6	22	SF		3	E		61		
LEAR	04	0116	0126	0139	S07	W05	6345	11	3.7	23	SF		3	E		28		F
LEAR		0242	0251	0313	S04	W05	6345	11	3.7	31	SF		3	E		38		
LEAR		0306	0307	0312	S20	E19	6347	11	5.6	6	SF		3	E		16		
LEAR		0455	0456	0501	N05	W41	6343	11	1.1	6	SF		3	E		20		F
LEAR		0505	0514	0523	S22	E21	6347	11	5.8	18	SF	C 1.7	3	E		13		F
GOES		0641	0645	0647						6		B 8.9						
LEAR		0724	0731	0750	S26	E24	6350	11	6.2	26	SF	C 1.3	3	E		48		F
LEAR		0904	0909	0936	S24	E25	6350	11	6.3	32	SF		3	E		22		F
GOES		1154	1158	1201						7		C 1.4						
RAMY		1306	1306	1309	S05	W18	6345	11	3.2	3	SF		3	E		19		
RAMY		1425	1426	1434	S21	E16	6347	11	5.8	9	SF		3	E		25		F
RAMY		1451	1453	1500	S19	E12	6347	11	5.5	9	SF	C 1.0	3	E		32		
HOLL		1451	1453	1504	S21	E14	6347	11	5.7	13	SF		2	E		41		F
HOLL		1604	1611	1630	S19	E13	6347	11	5.7	26	SF	B 8.8	3	E		21		F
RAMY		1607	1612	1631	S18	E11	6347	11	5.5	24	SF	B 8.8	3	E		15		
HOLL		1731	1731	1735	S07	W20	6345	11	3.2	4	SF		3	E		11		
HOLL		1736	1738	1828	S21	E15	6347	11	5.9	52	1B	M 2.1	3	E		238		FE
PALE		1737	1738	1815	S17	E13	6347	11	5.7	38	1N		4	E		184		FH
PALE		1737	1741	1809	S25	E15	6350	11	5.9	32	SF		4	E		22		
HOLL		1814	1817	1831	N11	E75		11	10.4	17	SF		3	E		74		F
PALE		1815	1817	1828	N15	E70		11	10.0	13	SF	C 1.4	4	E		56		F
HOLL		2332E	2335U	2352D	S24	E15	6350	11	6.1	20D	SF		2	E		64		F
LEAR		2332	2336	2408	S25	E15	6350	11	6.1	36	SF		3	E		93		F
LEAR		2335	2338	2350	N17	E73	6358	11	10.5	15	SF		3	E		22		
PALE		2346E	2347	2401	S23	E16	6350	11	6.2	15D	SF	C 1.8	3	E		44		F
PALE		2348	2355	2403	N11	E73	6358	11	10.5	15	SF		3	E		21		
LEAR		2355		2436	S07	W18	6345	11	3.6	41	SF		3	E		16		
LEAR	05	0027	0037	0116	S25	E14	6350	11	6.1	49	1F	C 3.9	3	E		166		F
PALE		0046E	0048	0108	S23	E14	6350	11	6.1	22D	SF		3	E		70		F
PALE		0109	0113	0119	N12	E71	6358	11	10.4	10	SF		3	E		21		
LEAR		0110	0112	0120	N11	E69	6358	11	10.2	10	SF		3	E		20		
LEAR		0128	0134	0144	N10	E70	6358	11	10.3	16	SF		3	E		66		
PALE		0128	0135	0142	N13	E72	6358	11	10.5	14	SF		3	E		75		
GOES		0225	0228	0231						6		C 1.0						
GOES		0241	0258	0307						26		C 1.1						
GOES		0605	0636	0652						47		C 1.1						
GOES		0658	0703	0709						11		C 1.3						
GOES		0811	0832	0847						36		C 1.3						
SVTO		1116	1118	1211D	S19	E04	6347	11	5.8	55D	SF	C 1.2	3	E		18		
SVTO		1304	1305	1318	N20	E65	6358	11	10.5	14	SF	C 4.5	3	E		77		

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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	05	1321	1321	1328	S29	E78		11	11.7	7	SF	C 1.5	3	E		14		
SVTO		1428	1432	1439	S29	E83		11	12.1	11	SF		3	E		17		
SVTO		1431	1432	1444	N16	E63	6358	11	10.4	13	SF		3	E		18		
HOLL		1450E	1452U	1525D	N16	E65	6358	11	10.5	35D	SF		2	E		48		F
SVTO		1451	1454	1502	N19	E64	6358	11	10.5	11	SF	C 2.1	2	E		88		
HOLL		1530	1536	1558	N18	E65	6358	11	10.6	28	SF	C 2.9	3	E		89		F
HOLL		1547	1547	1604	S19	E01	6347	11	5.7	17	SF		3	E		19		
HOLL		1609	1609	1626	S24	E05	6350	11	6.0	17	SF		3	E		27		F
HOLL		1622	1629	1706	N18	E64	6358	11	10.5	44	SF	C 1.1	3	E		74		
HOLL		1724	1725	1734	N08	W61	6343	11	1.1	10	SF		3	E		25		
HOLL		1727	1728	1812	S17	E00	6347	11	5.7	45	1N	C 2.9	3	E		105		FE
PALE		1911	1911	1919	N20	E64	6358	11	10.7	8	SF		3	E		15		
HOLL		1919	1923	1930	N18	E63	6358	11	10.6	11	SF		3	E		66		F
PALE		1922	1923	1930	N16	E61	6358	11	10.4	8	SF		3	E		44		F
HOLL		1931	1934	1950	N18	E62	6358	11	10.5	19	SF		3	E		27		F
HOLL		1936	1940	1946	S18	W06	6347	11	5.3	10	SF	C 1.5	3	E		16		
HOLL		2138E	2138U	2157	S20	W01	6347	11	5.8	19D	SF	C 1.7	3	E		52		F
HOLL		2233	2243	2246	S25	E02	6350	11	6.1	13	SF		3	E		18		
HOLL		2238	2238	2252	N14	E59	6358	11	10.4	14	SF		3	E		17		
HOLL		2251	2310	2358D	S24	E03	6350	11	6.2	67D	2B	M 1.0	3	E		398		UE
LEAR		2307	2309	2356	S25	E04	6350	11	6.3	49	2N	M 1.0	3	E		253		UF
LEAR		2327	2328	2335	S18	W09	6347	11	5.3	8	SF		3	E		20		
PALE		2327E	2328U	2410	S24	E03	6350	11	6.2	43D	SF		3	E		96		F
PALE		2340	2343	2359D	N19	E62	6358	11	10.7	19D	SF		3	E		25		
PALE	06	0010	0019	0026	N19	E62	6358	11	10.7	16	SF		3	E		12		
PALE		0048	0050	0059	N19	E60	6358	11	10.6	11	SF		3	E		36		
GOES		0139	0209	0225						46		C 1.7						
LEAR		0315	0315	0319	S24	E07	6356	11	6.7	4	SF		3	E		22		F
LEAR		0433	0438U	0446D	S19	W12	6347	11	5.3	13D	SF	C 1.5	3	E		19		
SVTO		0627	0724	1200	N15	E53	6358			333	SF			E		74		TK
SVTO		0627	1122	1200	N15	E53	6358	11	10.3	333	SF		3	E		61		T
LEAR		0654	0655	0659	N18	E53	6358	11	10.3	5	SF	C 1.3	3	E		21		
LEAR		0704	0705	0712	N18	E55	6358	11	10.5	8	SF		3	E		10		
LEAR		0728	0729	0739	S25	W06	6350	11	5.8	11	SF		3	E		23		
SVTO		0728	0729	0748	S25	W04	6350	11	6.0	20	SF		3	E		45		F
LEAR		0742	0743	0747	N18	E53	6358	11	10.3	5	SF		3	E		16		
SVTO		0742	0747	0752	N08	E77	6361	11	12.1	10	SF		3	E		95		H
LEAR		0744	0746	0750	N08	E76	6361	11	12.0	6	SF		3	E		59		
SVTO		0749	0749	0800	S29	E74		11	12.1	11	SF		3	E		23		
LEAR		0806	0815U	0853D	N18	E55	6358	11	10.5	47D	SF	C 3.2	2	E		37		
SVTO		0818	0836	1456D	N16	W16	6355			398D	SN			E		23		TK
SVTO		0818	1149	1456D	N16	W16	6355	11	5.1	398D	SF		3	E		91		T
SVTO		0902	0906	0920	S20	W09	6347	11	5.7	18	SF		4	E		36		F
SVTO		0914	0917	0922	S25	W05	6350	11	6.0	8	SF		4	E		17		
LEAR		0937E	0939U	0949D	N17	E52	6358	11	10.3	12D	SF		2	E		47		
GOES		1008	1022	1040						32		C 6.1						
RAMY		1110E	1112U	1130	N19	E50	6358	11	10.3	20D	SF	C 3.8	2	E		63		F
RAMY		1154	1154	1211	N15	W16	6355	11	5.3	17	SF		3	E		11		
RAMY		1201	1208	1210	N18	E51	6358	11	10.4	9	SF		3	E		24		F
RAMY		1210	1217	1226	N18	E49	6358	11	10.2	16	SF		3	E		31		
RAMY		1216	1217	1220	N17	W16	6355	11	5.3	4	SF		3	E		13		F
RAMY		1315	1315	1324	N17	E51	6358	11	10.4	9	SF		3	E		73		
RAMY		1405	1405	1416	S17	W18	6347	11	5.2	11	SF		3	E		15		
RAMY		1410	1451	1508	N17	W18	6355	11	5.2	58	SF		3	E		17		F
RAMY		1416	1418	1423	N19	E53	6358	11	10.6	7	SF		3	E		20		
RAMY		1431	1439	1444	N19	E51	6358	11	10.5	13	SF		3	E		23		
RAMY		1445	1446	1500	N19	E51	6358	11	10.5	15	SF		3	E		18		
HOLL		1449	1453U	1503D	N06	E70	6361	11	11.8	14D	SF		3	E		37		
RAMY		1450	1451	1508	N05	E69	6361	11	11.8	18	SF		3	E		36		
RAMY		1502	1506	1515	N19	E50	6358	11	10.4	13	SF	C 1.7	3	E		16		
RAMY		1525	1527	1530	N17	W18	6355	11	5.3	5	SF		3	E		19		F
RAMY		1526	1528	1530	N19	E51	6358	11	10.5	4	SF		3	E		14		
GOES		1749	1759	1806						17		C 5.7						
PALE		1804E	1810	1844D	S15	E04	6349	11	7.0	40D	SF		4	E		20		
PALE		1804E	1812	1915D	N15	W21	6355	11	5.2	71D	SF		4	E		37		
PALE		1823	1829	1844D	S29	E69		11	12.2	21D	SF		4	E		12		
GOES		1900	1905	1907						7		C 3.9						

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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
GOES	06	2008E	2010	2026D						18D		C 2.1						
PALE		2041	2046	2142D	N08	E68	6361			61D	2B			E		478		K
PALE		2041	2056	2142D	N08	E68	6361	11	12.0	61D	2B	M 3.1	4	E		486		FE
HOLL		2043E	2049U	2053D	N08	E67	6361	11	11.9	10D	1F		2	E		131		F
PALE		2055	2056	2108	S13	E01	6349	11	6.9	13	SF		4	E		19		
PALE		2057	2057U	2105	N08	E45	6362	11	10.2	8	SF		3	E		11		
PALE		2101	2104	2141D	N16	W22	6355	11	5.2	40D	1F		4	E		117		FZ
PALE		2205	2210	2220	S16	E05	6349	11	7.3	15	SF		3	E		20		
LEAR		2210E	2210U	2222	S15	E02	6349	11	7.1	12D	SF		3	E		20		
LEAR	07	0009	0023	0036	N17	E46	6358	11	10.5	27	SF		3	E		78		F
GOES		0448	0451	0454						6		C 2.1						
LEAR		0632	0648	0706	N15	W29	6355	11	5.1	34	SF	C 2.8	3	E		17		
LEAR		0750	0751	0758	N17	E41	6358	11	10.4	8	SF		3	E		73		
GOES		0819	0825	0837						18		C 2.8						
GOES		0951	0955	0957						6		C 3.3						
RAMY		1123E	1134	1144	N17	W32	6355	11	5.0	21D	SF	C 2.4	2	E		41		H
RAMY		1156	1201	1210	N17	E39	6358	11	10.5	14	SF		3	E		22		F
RAMY		1253	1255	1301	N17	W33	6355	11	5.0	8	SF		3	E		13		
RAMY		1305	1305	1310	N08	E66	6361	11	12.5	5	SF	C 3.5	3	E		13		
RAMY		1305	1310	1321	S16	E43	6359			16	SF			E		50		K
RAMY		1305	1316	1321	S16	E43	6359	11	10.8	16	SF		3	E		16		F
RAMY		1750	1752	1801	N08	E65	6361	11	12.6	11	SF	C 8.9	3	E		36		
GOES		1847	1851	1854						7		C 6.0						
GOES		2001	2005	2009						8		C 3.3						
PALE		2122	2124	2132	S05	W57	6345	11	3.6	10	SF		3	E		26		
PALE		2221	2228	2240	S19	W34	6354	11	5.3	19	SF		3	E		29		
LEAR		2222	2228	2234	S19	W34	6354	11	5.3	12	SF		3	E		31		
LEAR		2225	2229	2232	N15	W36	6355	11	5.2	7	SF	C 3.2	3	E		21		
PALE		2243	2243	2550	S05	W57	6345	11	3.7	187	SF			E		33		T
LEAR	08	0202	0204	0216	S22	W26	6350	11	6.1	14	SF	C 1.9	3	E		44		F
LEAR		0257	0303	0314	S05	W60	6345	11	3.6	17	SF		3	E		19		
LEAR		0258	0311	0459	S22	W27	6350	11	6.0	121	1F	C 7.5	3	E		128		F
LEAR		0304	0328	0353	S19	W34	6347	11	5.5	49	SF		3	E		26		
LEAR		0325	0328	0330	S09	W65	6345	11	3.3	5	SF		3	E		20		
LEAR		0337	0405	0412	N03	E49	6361	11	11.8	35	SF		3	E		47		F
GOES		0545E	0547	0555D						10D		C 3.8						
LEAR		0804	0806	0811	N16	W43	6355	11	5.1	7	SF	C 2.1	3	E		24		
GOES		0817	0823	0827						10		C 2.2						
LEAR		0828	0829	0845	S15	W19	6349	11	6.9	17	SF		3	E		25		
LEAR		0855	0908U	0917D	N15	W42	6355	11	5.2	22D	SF	C 3.8	3	E		32		
RAMY		1357	1400	1412	N10	E23	6362	11	10.3	15	SF		3	E		15		F
RAMY		1443	1443	1451	N15	W45	6355	11	5.2	8	SF		3	E		17		
RAMY		1510	1516	1606	N17	W48	6355	11	5.0	56	SB	M 1.6	3	E		87		F
RAMY		1537	1541	1605	S14	W24	6349	11	6.8	28	SF		3	E		19		
GOES		1723	1729	1740						17		C 1.6						
HOLL		1740E	1742U	1805D	N15	W47	6255	11	5.2	25D	SF	C 2.0	1	E		45		F
HOLL		1807E	1812U	1843D	N11	E22	6362	11	10.4	36D	SF		2	E		68		
RAMY		1827	1832	1836	N10	E20	6362	11	10.3	9	SF		3	E		19		
HOLL		1837	1846	1904	N16	W48	6355	11	5.1	27	1N	C 1.4	3	E		116		
PALE		1848	1851	1858	N16	W50	6355	11	5.0	10	SF		3	E		56		H
HOLL		1856E	1912U	1927	N06	E41	6361	11	11.8	31D	SF		2	E		36		F
PALE		1941	1943	1953	N15	W50	6355	11	5.0	12	SF		3	E		13		
HOLL		1955E	1955U	2007	N17	E20	6358	11	10.3	12D	SF	C 2.5	3	E		31		F
PALE		1955	1955	2022D	N17	E20	6358	11	10.3	27D	SF	C 2.5	3	E		27		F
HOLL		2106	2108	2128	S19	W46	6347	11	5.4	22	SF		3	E		60		
HOLL		2115	2119	2227	N15	W48	6355	11	5.2	72	SF	C 2.6	3	E		60		F
PALE		2119	2133	2157	N15	W48	6355	11	5.2	38	SF		3	E		50		F
HOLL		2304	2305	2326	S19	W47	6347	11	5.4	22	SN	C 2.6	4	E		99		EH
PALE		2313E	2313U	2318	S20	W49	6347	11	5.2	5D	SF		3	E		30		H
PALE		2354	2403	2455D	N15	W52	6355	11	5.0	61D	1F	C 8.8	3	E		161		F
GOES	09	0154E	0156	0202D						8D		C 1.4						
LEAR		0249	0251	0403D	N05	E36	6361	11	11.8	74D	1N	C 6.1	3	E		206		UF
LEAR		0249	0302	0403D	N05	E36	6361			74D	1N			E		119		K
GOES		0333E	0335	0343D						10D		C 4.8						
LEAR		0507	0514	0539	S25	W39	6350	11	6.2	32	SF		2	E		46		

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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
GOES	09	0508	0510	0525D						17D		C 2.0						
LEAR		0739	0741	0805D	N15	W54	6355	11	5.2	26D	SF		2	E		30		
LEAR		0802	0806	0916	S21	W42	6350	11	6.1	74	SF		3	E		45		F
SVTO		0802	0847	0923D	S24	W42	6350	11	6.1	81D	SF		2	E		46		F
LEAR		0825	0837	0910	N15	W55	6355	11	5.2	45	SF	C 3.6	3	E		48		
SVTO		0833	0838	0915	N15	W55	6355	11	5.2	42	SF	C 3.6	3	E		52		
LEAR		0907	0909	0915	S16	W32	6349	11	6.9	8	SF		2	E		10		
LEAR		0943	0946	1005	N15	W55	6355	11	5.2	22	SF	C 3.5	2	E		81		
SVTO		0944	0947	1034	N15	W56	6355	11	5.2	50	SF	C 3.5	3	E		70		F
SVTO		1323	1327	1400	S30	E36	6364	11	12.4	37	SF	C 1.5	3	E		28		
RAMY		1341	1341	1356	S31	E35	6364	11	12.3	15	SF		3	E		22		
RAMY		1353	1404	1423	N17	W57	6355	11	5.2	30	SF		3	E		17		
HOLL		1612	1651	1706	S32	E34	6364	11	12.4	54	SF		3	E		19		
HOLL		1627	1629	1655	N16	W59	6355	11	5.2	28	SF	C 1.2	3	E		27		
RAMY		1629	1629	1635	N16	W60	6355	11	5.1	6	SF	C 1.2	3	E		17		F
HOLL		1711	1714	1717	N07	E32	6361	11	12.1	6	SF		3	E		19		
HOLL		1741	1744	1748	N16	W59	6355	11	5.3	7	SF	C 1.9	3	E		25		
GOES		1933	2007	2025						52		C 1.8						
HOLL		1944	1947	2008	S31	E35	6364	11	12.6	24	SF		3	E		13		F
RAMY		1948	1948	2022	N07	E25	6361	11	11.7	34	SF		3	E		31		F
HOLL		1952	2005	2026	N07	E24	6361	11	11.6	34	SF		3	E		53		F
HOLL		2007	2015	2031	N09	E17	6362	11	11.1	24	SF		3	E		25		F
HOLL		2012	2022	2045	S30	E33	6364	11	12.4	33	SF		3	E		26		F
HOLL		2132	2305	2316	N17	W61	6355	11	5.3	104	SF		3	E		28		F
GOES		2153	2207	2219						26		C 1.6						
LEAR		2220	2231	2242	S32	E30	6364	11	12.3	22	SF		3	E		13		
HOLL		2225	2227	2244	S31	E34	6364	11	12.6	19	SF	C 1.6	3	E		13		
LEAR		2225	2233	2254	N16	W62	6355	11	5.2	29	SF		3	E		39		
LEAR		2305	2305	2312	N16	W63	6355	11	5.2	7	SF		3	E		10		
GOES	10	0142	0145	0150						8		C 1.0						
LEAR		0153	0154	0201	N16	W66	6355	11	5.1	8	SF		3	E		19		
PALE		0230	0234	0236	N15	W64	6355	11	5.2	6	SF		3	E		15		
LEAR		0508	0512	0518	N16	W66	6355	11	5.2	10	SF		3	E		32		
LEAR		0532	0534	0600	S24	W54	6350	11	6.0	28	SF		3	E		48		
LEAR		0534	0537	0552	N07	E01	6362	11	10.3	18	SF	C 2.2	3	E		67		
LEAR		0923	0926	0959	S32	E25	6364	11	12.4	36	SF		3	E		89		
SVTO		0923	0936	1000	S30	E26	6364	11	12.4	37	SF	C 2.7	3	E		47		F
GOES		0940	0943	0946						6		C 2.1						
RAMY		1126	1131	1133	N16	W69	6355	11	5.2	7	SF		3	E		27		
RAMY		1154	1200	1239	N05	E17	6361	11	11.8	45	2B	C 6.4	3	E		295		F
SVTO		1156	1205	1248	N06	E17	6361	11	11.8	52	1N	C 6.4	3	E		162		F
RAMY		1327	1334	1357	S15	W49	6349			30	SF			E		36		K
RAMY		1327	1347	1357	S15	W49	6349	11	6.8	30	SF		3	E		19		
GOES		1508	1530	1549						41		C 1.9						
HOLL		1514	1514	1543	S22	W59	6350	11	6.1	29	SF		3	E		13		F
RAMY		1514	1534	1546	S22	W62	6350	11	5.9	32	SF		3	E		18		F
HOLL		1529	1531	1540	S17	W65	6354	11	5.7	11	SF		3	E		28		
HOLL		1530	1540	1604	S17	W66	6347	11	5.6	34	SF		3	E		20		
HOLL		1544	1544	1554	S22	W60	6350	11	6.0	10	SF		3	E		23		F
RAMY		1817	1821	1822	N05	E14	6361	11	11.8	5	SF		3	E		19		
RAMY		1824	1837	1844	N04	E14	6361	11	11.8	20	SF		3	E		19		
HOLL		1825	1826	1839	N05	E15	6361	11	11.9	14	SF		3	E		17		
PALE		1920	1921	1926	N15	W76	6355	11	5.0	6	SF	C 1.2	3	E		55		
HOLL		2006	2009	2023	N16	W71	6355	11	5.4	17	SF	C 1.4	3	E		25		
PALE		2007	2009	2015	N15	W74	6355	11	5.2	8	SF		3	E		34		
RAMY		2008	2009	2011	N17	W73	6355	11	5.3	3	SF		3	E		11		
HOLL		2026	2053	2118	N17	W70	6355	11	5.5	52	SF	C 1.8	3	E		23		F
PALE		2034	2041	2052D	N16	W74	6355	11	5.2	18D	SF		3	E		31		
HOLL		2129	2130	2136	S31	E20	6364	11	12.5	7	SF		3	E		12		F
HOLL		2152	2152	2158	N16	W75	6355	11	5.2	6	SF		3	E		10		
HOLL		2320	2320	2325	N06	E14	6361	11	12.0	5	SF		3	E		13		F
PALE		2335	2339	2356	S17	W54	6349	11	6.9	21	SF		3	E		38		F
LEAR		2336	2340	2358	S16	W55	6349	11	6.8	22	SF		3	E		32		F
GOES	11	0045E	0048	0052D						7D		C 1.3						
LEAR		0332	0350	0357	N04	E08	6361	11	11.7	25	SF		3	E		21		
GOES		0446E	0449	0454D						8D		M 2.1						

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	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	11	0554	0558	0602	N05	E07	6361	11	11.8	8	SF		3	E		18		
RAMY		1123	1126	1134	N09	W16	6362	11	10.3	11	SF		3	E		12		
RAMY		1148	1150	1207	S32	E14	6364	11	12.6	19	SF		3	E		15		
RAMY		1231	1243	1301	S32	E13	6364	11	12.5	30	SF		3	E		11		
RAMY		1303	1308	1341	S32	E10	6364			38	SF			E		15		K
RAMY		1303	1317	1341	S32	E10	6364	11	12.3	38	SF		3	E		10		
RAMY		1352	1355	1421	S31	E10	6364	11	12.4	29	SF		3	E		17		F
RAMY		1357	1357	1401	N07	E02	6361	11	11.7	4	SF		3	E		18		
RAMY		1408	1409	1414	N10	W15	6362	11	10.5	6	SF		3	E		22		
RAMY		1427	1431	1508	S32	E11	6364	11	12.5	41	1F	C 2.3	3	E		117		F
SVTO		1428	1431	1437	S32	E11	6364	11	12.5	9	SF	C 2.3	3	E		40		F
HOLL		1428	1431	1451	S32	E11	6364	11	12.5	23	SF	C 2.3	3	E		59		F
HOLL		1437	1439	1458	N07	E02	6361	11	11.7	21	SF		3	E		30		F
RAMY		1437	1439	1503	N07	E02	6361	11	11.7	26	SF		3	E		32		
RAMY		1601	1602	1610	N07	E01	6361	11	11.7	9	SF		3	E		10		
RAMY		1607	1613	1619	S31	E07	6364	11	12.2	12	SF		3	E		21		
HOLL		1615	1623	1640	N08	E01	6361			25	SF			E		41		K
HOLL		1615	1631	1640	N08	E01	6361	11	11.7	25	SF		3	E		25		
RAMY		1615	1632	1658	N08	E01	6361			43	SF			E		18		K
RAMY		1615	1644	1658	N08	E01	6361	11	11.7	43	SF		3	E		46		F
HOLL		1644	1644	1651	N08	E02	6361	11	11.8	7	SF		3	E		23		H
HOLL		1845	1854	1914	N06	E01	6361	11	11.8	29	SF		3	E		25		
HOLL		1930	1946	1957	S30	E06	6364	11	12.3	27	SF		3	E		26		
PALE		1942	1946	1959	S32	E09	6364	11	12.5	17	SF		3	E		40		
HOLL		1944	1948	1955	N07	W01	6361	11	11.7	11	SF		3	E		30		
HOLL		2000	2002	2014	N07	E01	6361	11	11.9	14	SF		3	E		19		
PALE		2018	2025	2033	S33	E10	6364	11	12.6	15	SF		3	E		32		F
HOLL		2022	2025	2054	S32	E07	6364	11	12.4	32	SF	C 1.8	3	E		27		
HOLL		2044	2047	2117	N07	E00	6361			33	SF			E		11		K
HOLL		2044	2059	2117	N07	E00	6361	11	11.9	33	1N	C 2.6	3	E		103		
PALE		2056	2102	2114	N07	W03	6361	11	11.6	18	SF		3	E		51		
HOLL		2139	2140	2144	S32	E09	6364	11	12.6	5	SF		3	E		25		
HOLL		2153	2201	2217	N07	W02	6361	11	11.8	24	SN	C 9.8	3	E		97		EH
HOLL		2202	2202	2213	N13	W15	6362	11	10.8	11	SF		3	E		21		
LEAR		2202E	2203	2237	N08	W03	6361	11	11.7	35D	SF		3	E		41		FH
PALE		2203	2203	2213	N08	W02	6361	11	11.8	10	SF		3	E		57		
LEAR		2231	2243	2323	S33	E06	6364			52	SF			E		12		K
LEAR		2231	2254	2323	S33	E06	6364	11	12.4	52	SF	C 2.5	3	E		32		F
HOLL		2253	2254	2319	S32	E06	6364	11	12.4	26	SF	C 2.5	3	E		28		F
LEAR	12	0006	0012	0023	N08	W02	6361	11	11.8	17	SF	C 3.3	3	E		66		
LEAR		0147	0149	0201	N06	W06	6361	11	11.6	14	SF	C 2.3	3	E		58		
PALE		0153E	0153U	0211	N07	W06	6361	11	11.6	18D	SF		3	E		67		
PALE		0153E	0201U	0212	S30	E06	6364	11	12.5	19D	SF		3	E		35		
LEAR		0210	0211	0218	S31	E04	6364	11	12.4	8	SF		3	E		17		
LEAR		0226	0229	0233	N07	W06	6361	11	11.6	7	SF		3	E		13		
LEAR		0302	0308	0327	S30	E01	6364	11	12.2	25	SF		3	E		21		F
LEAR		0332	0335	0337	N07	W02	6361	11	12.0	5	SF		3	E		16		F
LEAR		0455	0455	0509	S22	W15	6359	11	11.0	14	SF		3	E		30		
LEAR		0456E	0457U	0521	S26	W12		11	11.3	25D	1F		3	E		121		F
LEAR		0510	0510	0518	N08	W05	6361	11	11.8	8	SF	C 3.1	3	E		52		
LEAR		0522	0529	0532	N06	W08	6361	11	11.6	10	SF		3	E		12		H
GOES		0543	0648	0729						106		C 6.4						
LEAR		0606	0620	0626	N07	W03	6361	11	12.0	20	SF		3	E		14		
LEAR		0817E	0818U	0835	S32	E02	6364	11	12.5	18D	SF		3	E		37		
GOES		1024	1030	1037						13		C 2.5						
RAMY		1254	1255	1321	N06	W08	6361	11	11.9	27	SF		3	E		20		F
GOES		1423	1448	1544						81		C 3.4						
RAMY		1424	1425U	1439	S33	E00	6364	11	12.6	15	SF		2	E		17		F
RAMY		1607	1609	1613	N07	W08	6361	11	12.1	6	SF		3	E		22		
RAMY		1632	1637	1709	N07	W09	6361			37	SN			E		15		K
RAMY		1632	1644	1709	N07	W09	6361	11	12.0	37	1N	C 3.1	3	E		109		F
HOLL		1642	1644	1651	N07	W09	6361	11	12.0	9	SN	C 3.1	3	E		75		FE
HOLL		1708	1710	1733	S33	W01	6364			25	SF			E		42		K
HOLL		1708	1713	1733	S33	W01	6364	11	12.6	25	SF		4	E		35		
RAMY		1709	1713	1725	S33	W02	6364	11	12.5	16	SF		3	E		20		F
HOLL		1908	1908	1914	N07	W11	6361	11	12.0	6	SF	C 2.2	3	E		10		
HOLL		1920	1921	1949	N09	W12	6361	11	11.9	29	SN	C 6.9	3	E		99		H

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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	12	1920	1942	1949	N09	W12	6361			29	SB			E		42		K
RAMY		1921	1922	1930	N09	W12	6361	11	11.9	9	SN		3	E		77		FH
RAMY		1922	1922	1930	N08	W30	6358	11	10.5	8	SF		3	E		19		
HOLL		1922	1922	1946	N11	W25	6362	11	10.9	24	SF		3	E		24		
HOLL		1959	2013	2015	N07	W11	6361	11	12.0	16	SF		3	E		12		
HOLL		2128	2128	2138	S27	W11	6364	11	12.0	10	SF	C 1.7	3	E		12		
LEAR		2346	2347	2356	N07	W19	6361	11	11.6	10	SF	C 1.5	3	E		23		
LEAR	13	0138	0143	0150	N08	W38	6362	11	10.2	12	SF		3	E		15		
GOES		0312	0322	0340						28		C 2.9						
LEAR		0432	0435	0455	N08	W19	6361			23	SN			E		30		K
LEAR		0432	0444	0455	N08	W19	6361	11	11.8	23	SN	M 1.6	3	E		93		E
LEAR		0728	0731	0737	N08	W20	6361	11	11.8	9	SF	C 2.7	3	E		47		
RAMY		1119	1129	1233	N09	W40	6362			74	1F			E		138		K
RAMY		1119	1130	1253	N12	W43	6358	11	10.2	94	1F	C 7.2	3	E		219		F
RAMY		1119	1138	1233	N09	W40	6362	11	10.5	74	1F		3	E		126		
RAMY		1259E	1304	1348	N10	W10	6361	11	12.8	490	1F	C 2.9	3	E		126		F
RAMY		1348	1348	1356	S32	W24	6364	11	11.7	8	SF		3	E		14		
HOLL		1639	1645	1722	N07	W22	6361			43	SF			E		11		K
HOLL		1639	1701	1722	N07	W22	6361	11	12.0	43	SF	C 1.3	3	E		27		F
RAMY		1651	1658	1715	N07	W23	6361	11	12.0	24	SF		3	E		27		
HOLL		1958	2000	2004	S27	W36	6369	11	11.0	6	SF		3	E		17		F
HOLL		2000	2000	2009	S31	W26	6364	11	11.8	9	SF		3	E		14		
HOLL		2010	2012	2044	S23	E08	6366	11	14.4	34	SF		3	E		32		F
RAMY		2011	2013	2026	S23	E08	6366	11	14.4	15	SF		3	E		19		F
RAMY		2042	2050	2102	N07	W25	6361	11	12.0	20	SF		3	E		19		
HOLL		2050	2050	2056	N07	W24	6361	11	12.1	6	SF		3	E		18		F
HOLL		2134	2137	2145	N12	E74	6368	11	19.5	11	SF		3	E		16		
HOLL		2200	2200	2205	N17	E79	6368	11	19.9	5	SF		3	E		13		
HOLL		2306	2314	2325	N18	W45	6358	11	10.5	19	SF		3	E		28		F
LEAR		2316	2321	2331	N14	E79	6368	11	19.9	15	SF	C 2.5	3	E		76		F
GOES		2339	2355	2359						20		C 2.4						
LEAR	14	0524	0524	0532	S21	W01	6366	11	14.1	8	SF	C 1.7	3	E		12		H
LEAR		0533	0535	0540	N06	W28	6361	11	12.1	7	SF	C 1.9	3	E		13		
LEAR		0536	0537	0547	N17	E79	6368	11	20.2	11	SF		3	E		12		F
LEAR		0549	0556	0559	N18	E78	6368	11	20.2	10	SF	C 1.7	3	E		29		
LEAR		0637	0637	0648	N18	E79	6368	11	20.3	11	SF		3	E		18		
LEAR		0654	0659	0702	N17	E78	6368	11	20.2	8	SF	C 1.9	3	E		11		
LEAR		0749	0752	0802	S21	W02	6366	11	14.2	13	SF	C 2.3	3	E		27		F
LEAR		0925	0930	0942	S24	E00	6366	11	14.4	17	SF	C 3.0	3	E		73		
LEAR		0958	0958	1003	N17	E72	6368	11	19.9	5	SF		3	E		25		
RAMY		1138	1147	1155	N19	E77	6368	11	20.4	17	SF		3	E		21		F
RAMY		1222	1226	1245	N18	E76	6368			23	SF			E		20		K
RAMY		1222	1238	1245	N18	E76	6368	11	20.3	23	SF		4	E		26		F
RAMY		1424	1435	1502	S21	W05	6366	11	14.2	38	SF		3	E		40		F
RAMY		1441	1446	1450	N17	E75	6368	11	20.3	9	SF		3	E		12		F
RAMY		1624	1626	1631	S20	W05	6366	11	14.3	7	SF	C 1.6	3	E		18		
RAMY		1633	1635	1707	S20	W06	6366	11	14.2	34	SN	C 2.4	3	E		24		
RAMY		1721	1727	1747	S21	W06	6366	11	14.3	26	SN		3	E		32		F
HOLL		1724	1729	1751	S22	W02	6366	11	14.6	27	SF	C 2.3	3	E		30		
HOLL		1724	1730	1740	N18	W57	6358	11	10.4	16	SF		3	E		16		
RAMY		1738	1746	1756	N06	W36	6361	11	12.0	18	SF		3	E		28		F
HOLL		1832	1835	1844	S21	W05	6366	11	14.4	12	SF		3	E		13		F
RAMY		1834	1835	1842	S21	W06	6366	11	14.3	8	SF		3	E		11		F
HOLL		1844	1845	1902	N16	W58	6358	11	10.4	18	SF		3	E		14		F
HOLL		1848	1851	1901	S20	W06	6366	11	14.3	13	SF		3	E		21		F
RAMY		1850	1851	1901	S21	W07	6366	11	14.2	11	SF		3	E		15		F
RAMY		1952	1952	2002	S21	W07	6366	11	14.3	10	SF	C 1.9	3	E		18		F
HOLL		1954	1957	2008	N18	E73	6368	11	20.4	14	SF		3	E		25		
GOES		2018	2025	2033						15		C 2.2						
HOLL		2050	2055	2120	N15	W58	6358	11	10.5	30	SF	C 2.0	3	E		17		F
HOLL		2053	2057	2105	N21	E69	6368	11	20.2	12	SF		3	E		13		F
HOLL		2059	2102	2124	N07	W37	6361	11	12.1	25	SF		3	E		24		F
HOLL		2124	2125	2153	N16	W57	6358	11	10.6	29	SF		3	E		19		F
HOLL		2227	2229	2244	S21	W07	6366	11	14.4	17	SF		3	E		11		F
HOLL		2315	2321	2332	S21	W08	6366	11	14.3	17	SF		3	E		12		F
LEAR	15	0253	0254	0304	S21	W11	6366	11	14.3	11	SF	C 3.0	3	E		51		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	15	0524	0526	0547	N19	W64	6358	11	10.3	23	1F	C 5.6	3	E		103		
LEAR		0626	0629	0633	N17	E63	6368	11	20.0	7	SF		3	E		24		F
GOES		0637	0641	0651						14		C 1.5						
LEAR		0657	0658	0702	S20	W14	6366	11	14.2	5	SF		3	E		20		
LEAR		0738	0749	0855	S22	W13	6366	11	14.3	77	SF	C 3.2	3	E		45		
LEAR		0738	0832	0855	S22	W13	6366			77	SN			E		51		K
LEAR		0914	0916	0928	N18	E65	6368	11	20.3	14	SF		3	E		33		F
GOES		0914E	0919	0942D						28D		C 3.3						
LEAR		0929	0930	0942	N15	E59	6368	11	19.9	13	SF		3	E		28		
GOES		1116	1122	1126						10		C 4.3						
GOES		1245E	1246	1314D						29D		C 2.7						
RAMY		1427	1435	1459	S21	W17	6366	11	14.3	32	SF	C 2.0	4	E		28		F
HOLL		1432E	1433U	1457	S21	W16	6366	11	14.4	25D	SF		2	E		51		F
HOLL		1459	1501	1513	S33	W37	6364	11	12.7	14	SF		3	E		14		
RAMY		1511	1513	1538	N18	E60	6368	11	20.2	27	SF		3	E		22		F
HOLL		1511	1522	1556	N19	E58	6368	11	20.0	45	SF	C 6.2	3	E		38		F
RAMY		1614	1615	1618	S20	W20	6366	11	14.1	4	SF		3	E		16		F
PALE		1846	1846	1854	S21	W20	6366	11	14.2	8	SF		3	E		21		F
HOLL		1846	1847	1851	S21	W19	6366	11	14.3	5	SF		3	E		15		F
PALE		1945	1945	1952	N19	E60	6368	11	20.4	7	SF	C 2.1	3	E		19		
HOLL		2040	2044	2054	N17	E52	6368	11	19.8	14	SF	C 2.6	3	E		37		F
HOLL		2121	2122	2142	N16	E51	6368	11	19.7	21	SN	C 6.6	4	E		58		FE
LEAR		2206	2212	2215	N18	E57	6368	11	20.3	9	SF		3	E		27		
LEAR		2309	2314	2326	S20	W23	6366	11	14.2	17	SF		3	E		10		
LEAR		2320	2325	2340	N17	E55	6368	11	20.1	20	SF		3	E		31		
HOLL		2323	2324	2336	N18	E56	6368	11	20.2	13	SF		3	E		20		F
LEAR	16	0023	0027	0059	N19	E42	6368			36	SF			E		58		K
LEAR		0023	0039	0059	N19	E42	6368	11	19.2	36	SF		3	E		67		F
GOES		0023E	0039	0105D						42D		C 4.9						
LEAR		0147	0147	0154	N15	E45	6368	11	19.5	7	SF		3	E		22		
LEAR		0203	0211	0311	N17	E52	6368			68	SF			E		59		K
LEAR		0203	0223	0311	N17	E52	6368	11	20.0	68	SF	C 7.7	3	E		81		
PALE		0225	0229	0239D	N19	E50	6368	11	19.9	14D	1F		3	E		106		
PALE		0231	0231	0236	S22	W22	6366	11	14.4	5	SF		3	E		18		F
LEAR		0336	0337	0342	N17	E41	6368	11	19.3	6	SF		3	E		19		
LEAR		0355	0358	0405	N19	E49	6368	11	19.9	10	SF	C 3.2	3	E		78		F
LEAR		0446	0446	0450	N19	E55	6368	11	20.4	4	SF		3	E		22		
LEAR		0549	0549	0554	N19	E48	6368	11	19.9	5	SF	C 1.8	3	E		17		
LEAR		0609	0610	0613	S25	W26	6366	11	14.2	4	SF		3	E		16		
GOES		0713	0716	0720						7		C 1.9						
LEAR		0817	0817	0824	N19	E46	6368	11	19.8	7	SF	C 2.2	3	E		17		
GOES		1010	1020	1031						21		C 1.6						
GOES		1049	1052	1059						10		C 1.5						
GOES		1223	1232	1250						27		C 1.7						
RAMY		1313	1315	1329D	N17	E36	6368	11	19.3	16D	1F	C 4.7	3	E		101		H
GOES		1512	1521	1542						30		C 1.7						
HOLL		1806	1813	1822	N05	W61	6361	11	12.2	16	SF	C 2.4	4	E		63		F
PALE		1809	1812	1817	N05	W63	6361	11	12.0	8	SF	C 2.4	3	E		11		
PALE		1837	1839	1902	S21	W32	6366	11	14.3	25	SF		3	E		22		F
HOLL		1838	1840	1907	S21	W30	6366	11	14.5	29	SF		3	E		23		F
RAMY		1843	1843	1848	S20	W34	6366	11	14.2	5	SF		3	E		31		F
PALE		1858	1859	1902	S31	W56	6364	11	12.4	4	SF		3	E		17		
HOLL		1858	1859	1905	S30	W55	6364	11	12.5	7	SF		3	E		12		F
PALE		1936	1939	2015D	N21	E47	6368	11	20.4	39D	SF		3	E		26		
HOLL		1937	1938	1949	N18	E39	6368	11	19.8	12	SF		3	E		20		
RAMY		1938	1940	2001	N19	E48	6368	11	20.5	23	SF	C 2.2	3	E		33		F
HOLL		2050	2051	2117	N19	E45	6368	11	20.3	27	SF	C 2.6	3	E		16		
HOLL		2121	2121	2143	S22	W33	6366	11	14.3	22	SF		3	E		10		
HOLL		2141	2142	2147	N19	E46	6368	11	20.4	6	SF	C 2.1	3	E		14		
LEAR		2211	2255	2302	S20	W36	6366	11	14.2	51	SF		3	E		26		
LEAR		2256	2305	2309	N18	E37	6368	11	19.8	13	SF		3	E		18		
LEAR		2323	2324	2433	N14	E32	6368			70	SN			E		35		K
LEAR		2323	2348	2433	N14	E32	6368	11	19.4	70	1N	C 3.8	3	E		248		
HOLL		2325E	2329	2351D	N18	E37	6368			26D	SN			E		49		K
HOLL		2325E	2346	2351D	N18	E37	6368	11	19.8	26D	1N	M 1.2	2	E		160		F
LEAR		2351	2357	2422	S22	W35	6366	11	14.3	31	SF		3	E		29		
LEAR	17	0052	0053	0057	N14	E32	6368	11	19.4	5	SF		3	E		22		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	17	0208	0226	0358	N16	E42	6368	11	20.3	110	1F	C 7.1	3	E		156		F
LEAR		0248	0250	0306	N07	W68	6361	11	12.0	18	SF		3	E		55		
LEAR		0359	0415	0421	N19	E43	6368	11	20.4	22	SF	C 3.6	3	E		33		
LEAR		0422	0425	0437	N14	E30	6368	11	19.4	15	SF		3	E		58		F
GOES		0539	0546	0552						13		C 7.1						
LEAR		0607	0610	0621	N17	E39	6368	11	20.2	14	SF		3	E		43		
GOES		0645	0656	0712						27		C 4.4						
LEAR		0645	0723	0743	N17	E38	6368	11	20.2	58	1F	C 3.9	3	E		117		F
SVTO		0850E	0910U	0943D	N18	E32	6368	11	19.8	53D	SF		3	E		57		
LEAR		0902	0907	0927	N17	E37	6368	11	20.2	25	SF	C 3.6	3	E		54		F
LEAR		0929	0931	0940	N17	E37	6368	11	20.2	11	SF		3	E		17		
GOES		1017	1020	1022						5		C 3.2						
SVTO		1050	1052	1253D	N17	E34	6368			123D	1F			E		113		K
SVTO		1050	1109	1253D	N17	E34	6368	11	20.0	123D	1F	C 3.9	3	E		166		F
SVTO		1050	1136	1140	N17	E34	6368	11	20.0	50	SN		3	E		75		F
RAMY		1052E	1053U	1056	N15	E33	6368	11	19.9	4D	SF		1	E		53		
GOES		1102E	1106U	1304D						122D		C 9.2						
GOES		1132	1136	1139						7		C 5.1						
GOES		1150	1208	1227						37		C 6.1						
RAMY		1234	1238	1240	S32	W64	6364	11	12.4	6	SF		3	E		13		
RAMY		1305	1307	1313	N18	E36	6368	11	20.3	8	SF		3	E		27		
RAMY		1309	1312	1333	N08	W70	6361	11	12.3	24	SN	C 8.5	3	E		74		
SVTO		1311	1312U	1313D	N07	W65	6361	11	12.7	2D	1F		3	E		120		
RAMY		1314	1319	1326	N19	E38	6368	11	20.4	12	SF		3	E		15		F
RAMY		1345	1345	1353	N19	E39	6368	11	20.5	8	SF		3	E		12		
RAMY		1416	1424	1427	N19	E39	6368	11	20.6	11	SF	C 2.8	3	E		20		
RAMY		1446	1447	1501	N15	E30	6368	11	19.9	15	SF	C 4.5	3	E		25		F
GOES		1600	1603	1606						6		C 3.2						
RAMY		1638	1643	1645	N21	E21	6368	11	19.3	7	SF	C 3.3	2	E		17		
RAMY		1646	1702	1725	N17	E28	6368			39	SF			E		59		K
RAMY		1646	1708	1725	N17	E28	6368	11	19.8	39	SF		2	E		31		
RAMY		1726	1733	1811	N14	E32	6368	11	20.1	45	1F		3	E		196		F
RAMY		1726	1743	1811	N14	E32	6368			45	1F			E		84		K
HOLL		1727	1734	1813	N14	E30	6368			46	1F			E		96		K
HOLL		1727	1744	1813	N14	E30	6368	11	20.0	46	2N	C 8.8	2	E		307		F
HOLL		1842	1845	1937	N18	E26	6368	11	19.7	55	SN	M 1.1	3	E		63		FE
HOLL		1842	1852	1937	N18	E26	6368			55	SN			E		99		K
HOLL		1910	1910	1919D	N07	W73	6361	11	12.3	9D	SF	C 7.7	3	E		32		
HOLL		2001	2005	2009	N21	E18	6368	11	19.2	8	SF	M 2.4	3	E		19		
HOLL		2053	2055	2100	N17	E18	6368	11	19.2	7	SF		3	E		19		F
HOLL		2147	2147	2155D	N17	E29	6368	11	20.1	8D	SF	C 3.2	3	E		70		
LEAR		2239	2244	2314	N15	E28	6368	11	20.1	35	1N	M 1.1	3	E		157		FE
LEAR	18	0010	0022	0058	N18	E31	6368	11	20.4	48	SN	M 1.4	3	E		79		F
LEAR		0010	0030	0058	N18	E31	6368			48	SN			E		79		K
LEAR		0052	0052	0059	S32	W75	6364	11	12.1	7	SF		3	E		11		
LEAR		0129	0133	0136	N18	E15	6368	11	19.2	7	SF	C 2.3	3	E		17		
LEAR		0155	0156	0200	N16	E16	6368	11	19.3	5	SF	C 2.0	3	E		20		
GOES		0245E	0246	0248D						3D		C 2.3						
GOES		0356E	0400	0413D						17D		C 2.4						
LEAR		0357	0404	0413	N09	E20	6368	11	19.7	16	SF		3	E		18		
LEAR		0504	0510	0517	N18	W20	6371	11	16.7	13	SF		3	E		33		
LEAR		0533	0535	0542	N14	E23	6368	11	20.0	9	SF	C 2.8	3	E		21		
GOES		0601	0605	0607						6		C 2.7						
LEAR		0628	0629	0636	N14	E18	6368	11	19.6	8	SF		3	E		30		
LEAR		0721	0723	0735	N15	E24	6368	11	20.1	14	SF		3	E		28		
SVTO		0813E	0813U	0818	N16	E17	6368	11	19.6	5D	SF	C 1.9	3	E		30		
SVTO		0832	0842	0849	N24	E14	6368	11	19.4	17	SF		4	E		12		
LEAR		0851	0852	0858	N17	E19	6368	11	19.8	7	SF	C 2.2	3	E		30		
LEAR		0946	0946	0953	S33	W85	6364	11	11.6	7	SF		3	E		31		
SVTO		0947	0948	0954	S33	W84	6364	11	11.7	7	SF		2	E		34		
GOES		0948	1004	1020						32		C 1.8						
GOES		1042	1045	1048						6		C 2.3						
RAMY		1129	1130	1138	N22	E10	6368	11	19.2	9	SF	C 1.9	2	E		43		
SVTO		1130	1130	1136	N22	E09	6368	11	19.2	6	SF	C 1.9	3	E		14		F
RAMY		1240	1244	1313	N14	E21	6368	11	20.1	33	SN	C 4.2	3	E		62		F
SVTO		1242	1243	1307	N16	E19	6368	11	20.0	25	SN		3	E		70		F
SVTO		1308	1318	1331	N23	E12	6368	11	19.5	23	SF		3	E		39		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	18	1317	1318	1328	N20	E14	6368	11	19.6	11	SN	C 2.4	3	E		42		
RAMY		1415	1416	1419	N21	E08	6368	11	19.2	4	SF		3	E		31		
SVTO		1415	1416	1426	N17	E19	6368	11	20.0	11	SF		3	E		36		F
RAMY		1434	1501	1514	N20	E22	6368			40	SF			E		30		K
RAMY		1434	1508	1514	N20	E22	6368	11	20.3	40	SF	C 2.1	3	E		13		F
HOLL		1435	1437	1508	N19	E23	6368	11	20.4	33	SF		3	E		31		
HOLL		1526	1527	1535	N22	E22	6368	11	20.3	9	SF		3	E		44		
RAMY		1528	1534	1537	N21	E24	6368	11	20.5	9	SF	C 2.7	3	E		13		F
RAMY		1551	1553	1558	N17	E18	6368	11	20.0	7	SF	C 2.2	3	E		42		F
HOLL		1551	1554	1559	N18	E17	6368	11	19.9	8	SF	C 2.2	3	E		64		
HOLL		1635	1635	1646	N22	E06	6368	11	19.1	11	SF	C 2.2	3	E		86		FH
HOLL		1654	1654	1701	N16	E18	6368	11	20.1	7	SF		3	E		16		
RAMY		1702	1704	1707	N16	E20	6368	11	20.2	5	SF		3	E		32		F
HOLL		1737	1746	1940	N19	E21	6368			123	1F			E		79		K
HOLL		1737	1806	1940	N19	E21	6368	11	20.3	123	1N	M 1.3	3	E		163		FE
RAMY		1738	1746	1933D	N18	E21	6368			115D	SF			E		71		K
RAMY		1738	1807	1933D	N18	E21	6368	11	20.3	115D	SN	C 3.1	3	E		94		F
HOLL		1945	1951	2112	N19	E21	6368	11	20.4	87	SF	C 3.9	3	E		33		F
GOES		2046E		2058						12D		C 2.4						
HOLL		2119	2131	2137	N21	E04	6368	11	19.2	18	SN	C 2.4	4	E		99		H
HOLL		2147	2148	2204	N18	E15	6368	11	20.0	17	SF	C 1.7	3	E		14		F
LEAR		2213	2222	2228	N13	E20	6368	11	20.4	15	SF		3	E		28		
LEAR		2229	2308	2319	N14	E20	6368	11	20.4	50	SF	C 1.5	3	E		49		F
HOLL		2237	2238	2250	N15	E20	6368	11	20.4	13	SF		3	E		13		F
HOLL		2304	2307	2317	N17	E13	6368	11	19.9	13	SF	C 4.9	3	E		25		FE
LEAR		2349	2350	2401	N19	E13	6368	11	20.0	12	SF		3	E		11		
LEAR	19	0009	0011	0027	N14	E13	6368	11	20.0	18	SF		3	E		41		F
LEAR		0040	0043	0056	N22	E07	6368	11	19.6	16	SF		3	E		23		
LEAR		0110	0216	0232	N17	E14	6368	11	20.1	82	1N	C 3.1	3	E		128		F
LEAR		0146	0146	0150	N23	W81		11	12.8	4	SF		3	E		14		
LEAR		0233	0241	0258	N18	E10	6368	11	19.9	25	SF		3	E		38		
LEAR		0337	0343	0350	N19	E17	6368	11	20.4	13	SF	C 2.3	3	E		33		
LEAR		0413	0415	0420	N18	E09	6368	11	19.9	7	SF		3	E		13		
LEAR		0452	0454	0508	N21	E05	6368	11	19.6	16	SF	C 1.6	3	E		36		
LEAR		0607	0625	0653	N17	E11	6368	11	20.1	46	SN	C 4.0	3	E		85		F
GOES		0639	0700	0707						28		C 2.7						
GOES		0921	0938	0945						24		M 2.4						
SVTO		0952E	0952U	0953D	N18	E08	6368	11	20.0	1D	1N	M 3.5	1	E		174		F
GOES		1109	1114	1120						11		C 4.6						
RAMY		1120E	1147	1152	N18	E11	6368	11	20.3	32D	SF	C 3.9	2	E		30		F
RAMY		1154	1202	1207	N22	E03	6368	11	19.7	13	SF		3	E		43		
RAMY		1218	1226	1322	N17	E06	6368			64	SF			E		65		K
RAMY		1218	1304	1322	N17	E06	6368	11	20.0	64	SF	C 3.1	3	E		79		F
SVTO		1338E	1342U	1406	N18	E06	6368	11	20.0	28D	1F	M 3.2	3	E		114		F
RAMY		1340E	1341	1411	N18	E07	6368	11	20.1	31D	1N	M 3.2	2	E		113		F
HOLL		1357E	1357U	1423D	N18	E07	6368	11	20.1	26D	SF		1	E		45		F
GOES		1535	1541	1551						16		C 1.4						
GOES		1647	1701	1724						37		C 1.6						
GOES		1752	1757	1804						12		C 1.4						
GOES		1820	1827	1831						11		C 1.2						
HOLL		1848	1905	1918	N18	E04	6368	11	20.1	30	SF		3	E		23		F
HOLL		1935	1935U	2004D	N21	W02	6368	11	19.7	29D	SF	C 2.5	2	E		22		F
HOLL		2014	2019	2032	N19	W02	6368	11	19.7	18	SF		3	E		21		F
HOLL		2128	2132	2147	N16	W03	6368	11	19.7	19	SF	C 1.2	3	E		30		F
HOLL		2151	2154	2158	N18	W01	6368	11	19.8	7	SF	C 1.2	3	E		20		F
PALE		2155	2224	2313	N18	E00	6368	11	19.9	78	SF		3	E		55		F
HOLL		2159	2223	2229D	N15	E02	6368	11	20.1	30D	SF		3	E		87		F
LEAR		2216	2222	2259	N16	E03	6368	11	20.1	43	SF	C 2.2	3	E		19		F
LEAR		2316	2316	2320	N22	W04	6368	11	19.7	4	SF	C 2.8	3	E		13		
LEAR		2349	2353	2419	N17	E00	6368	11	20.0	30	SF	C 2.1	3	E		87		F
PALE	20	0011	0011	0020	N17	W01	6368	11	19.9	9	SF		3	E		38		F
LEAR		0034	0037	0042	N18	E04	6368	11	20.3	8	SF	C 2.1	3	E		11		F
LEAR		0049	0057	0120	N18	E02	6368	11	20.2	31	SF	C 2.7	3	E		33		F
GOES		0203	0206	0210						7		C 2.0						
GOES		0241	0245	0250						9		C 1.4						
LEAR		0443	0454	0543	N21	W08	6368	11	19.6	60	1F	C 3.2	3	E		193		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	20	0706	0709	0718	N14	W05	6368	11	19.9	12	SF	C 1.8	3	E		15		
LEAR		0741	0746	0758	N17	W02	6368	11	20.2	17	SF		3	E		42		F
LEAR		0808	0809	0814	N17	W03	6368	11	20.1	6	SF		3	E		16		
GOES		0819	0824	0829						10		C 1.8						
LEAR		0851	0854	0859	N22	W09	6368	11	19.7	8	SF		3	E		27		
LEAR		0859	0902	0903	N18	W04	6368	11	20.1	4	SF		3	E		18		
LEAR		0918	0926	1018D	N18	W03	6368			60D	SB			E		48		K
LEAR		0918	1002	1018D	N18	W03	6368	11	20.1	60D	1F	M 1.8	3	E		206		
SVTO		0922	0924	0943	N16	W05	6368	11	20.0	21	SF		3	E		21		
SVTO		0945	1005	1035	N18	W03	6368	11	20.2	50	1N	M 1.8	3	E		125		
SVTO		1403	1412	1445	N17	W03	6368	11	20.3	42	SN	C 3.0	2	E		60		FH
RAMY		1725	1727	1730	N18	W04	6368	11	20.4	5	SF	C 2.5	3	E		11		F
GOES		1742	1749	1803						21		C 4.2						
GOES		1823	1829	1837						14		C 6.8						
GOES		1847	1852	1859						12		C 6.3						
RAMY		2030	2040	2054	N18	W06	6368	11	20.4	24	SF		2	E		18		F
GOES		2145	2151	2157						12		C 1.8						
LEAR		2204E	2208	2246	N19	W08	6368	11	20.3	42D	SF	C 4.9	3	E		87		F
LEAR	21	0244	0246	0342	N18	W14	6368			58	SF			E		15		K
LEAR		0244	0254	0342	N18	W14	6368	11	20.0	58	SF	C 2.9	3	E		54		F
LEAR		0456	0458	0650	N18	W13	6368			114	SF			E		40		K
LEAR		0456	0531	0650	N18	W13	6368	11	20.2	114	1F	C 7.1	3	E		134		F
GOES		0457	0502	0507						10		C 4.2						
GOES		0628	0633	0637						9		C 7.6						
SVTO		0821	0822	0832	N16	W19	6368	11	19.9	11	SF	C 2.4	3	E		21		
LEAR		0907	0910	0915	N19	W13	6368	11	20.4	8	SF	C 1.4	3	E		24		F
GOES		0939	0945	0953						14		C 3.9						
LEAR		0939	1008	1016	N16	W19	6368	11	20.0	37	SF		2	E		25		
SVTO		0948E	1008	1027	N18	W21	6368	11	19.8	39D	SN	C 2.5	2	E		36		F
RAMY		1141	1149	1200	N17	W19	6368	11	20.0	19	SF		3	E		25		F
RAMY		1203	1217	1230	N18	W14	6368	11	20.4	27	SF		3	E		29		F
RAMY		1215	1221	1224	S17	W43	6376	11	18.2	9	SF	C 1.7	3	E		18		
GOES		1252	1256	1259						7		C 2.1						
GOES		1426	1434	1450						24		C 1.7						
HOLL		1514E	1538	1603	N23	W25	6368	11	19.7	49D	SF		3	E		46		
HOLL		1742E	1832U	1834D	N15	W23	6368	11	20.0	52D	SF	C 3.9	1	E		62		F
RAMY		1838E	1839	1850	N16	W24	6368	11	19.9	12D	SF	C 4.1	3	E		25		
HOLL		1838	1839	1857D	N16	W24	6368	11	19.9	19D	SN	C 4.1	3	E		52		
PALE		1838	1840	1847	N16	W25	6368	11	19.9	9	SF	C 4.1	3	E		35		
PALE		1910	1916	1923	N17	W22	6368	11	20.1	13	SF	C 3.6	3	E		12		
RAMY		1911	1914	1916	N18	W21	6368	11	20.2	5	SF		2	E		18		
GOES	22	0003	0006	0010						7		C 1.3						
GOES		0142E	0150	0230D						48D		C 4.7						
PALE		0204E	0205	0208	N14	W27	6368	11	20.0	4D	SF		3	E		26		F
PALE		0215	0219	0226	N16	W74	6371	11	16.5	11	SF		3	E		17		
GOES		0404	0408	0411						7		C 1.5						
LEAR		0813	0828	0906	N17	W74	6371	11	16.7	53	SF	C 9.3	3	E		94		
LEAR		0855	0856	0904	N19	W25	6368	11	20.5	9	SF		3	E		21		F
GOES		1005	1009	1013						8		C 1.5						
GOES		1119	1144	1148						29		C 5.5						
GOES		1312	1317	1319						7		C 1.6						
GOES		1417	1427	1433						16		C 5.1						
GOES		1825	1828	1831						6		C 1.1						
GOES		1834	1837	1839						5		C 2.1						
HOLL		2150	2150	2157	N16	W28	6368	11	20.8	7	SF		4	E		13		
HOLL		2229	2230	2240	N16	W29	6368	11	20.7	11	SF		4	E		38		
LEAR	23	0009	0020	0115	N16	W40	6368	11	20.0	66	SF	C 1.7	3	E		39		
LEAR		0152	0152	0201	N14	W33	6368	11	20.6	9	SF	C 1.4	3	E		18		
LEAR		0304	0304	0309	N19	W30	6368	11	20.8	5	SF	C 1.2	3	E		21		
LEAR		0344	0346	0400	N14	W34	6368	11	20.6	16	SF		3	E		19		
LEAR		0401	0403	0422	N23	W45	6368	11	19.7	21	SF	C 1.8	3	E		44		
GOES		0503E		0512D						9D		C 5.9						
LEAR		0546	0547	0553	N20	W31	6368	11	20.9	7	SF	C 1.3	3	E		17		
LEAR		0621	0621	0632	S05	E24	6377	11	25.0	11	SF		3	E		28		
GOES		0739	0742	0745						6		C 1.2						

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp	Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	23	0831	0831	0837	N15	W33	6368	11	20.8	6	SF			3	E		44		
LEAR		0856	0904	0933	N22	W48	6368	11	19.7	37	SF	C	2.9	3	E		59		
LEAR		0952	0952	0958	N22	W49	6368	11	19.6	6	SF			2	E		18		
GOES		1048	1052	1056						8		C	1.7						
RAMY		1239	1239	1242	N21	W34	6368	11	20.9	3	SF			3	E		24		
RAMY		1350	1354	1525	N16	W48	6368	11	19.9	95	SF	C	1.5	2	E		47		
HOLL		1555	1557	1658	N14	W50	6368			63	SF				E		20		K
HOLL		1555	1638	1658	N14	W50	6368	11	19.9	63	SF	C	2.7	3	E		68		F
HOLL		1711	1711	1715	N17	W49	6368	11	20.0	4	SF			3	E		17		F
RAMY		1722	1729	1820	N18	W48	6368			58	SF				E		59		K
RAMY		1722	1811	1820	N18	W48	6368	11	20.1	58	SF	C	1.3	3	E		77		F
HOLL		1726	1727	1731	N18	W47	6368	11	20.1	5	SF			3	E		25		F
HOLL		1744	1745	1800	N15	W51	6368	11	19.9	16	SF			3	E		24		
HOLL		1808	1809	1820	N20	W52	6368	11	19.8	12	SF			3	E		22		
HOLL		1836	1842	1851	S04	E18	6377	11	25.1	15	SF			3	E		29		
RAMY		1841	1844	1850	S04	E19	6377	11	25.2	9	SF			3	E		15		H
HOLL		1911	1917	1924	S04	E16	6377	11	25.0	13	SF			4	E		35		F
RAMY		1953	1958	2007	N24	W54	6368	11	19.6	14	SF			3	E		58		F
HOLL		2031	2032	2057	N18	W49	6368			26	SN				E		28		K
HOLL		2031	2042	2057	N18	W49	6368	11	20.1	26	SN	C	1.4	4	E		71		F
HOLL		2058	2101	2124	N14	W43	6368	11	20.6	26	SN	C	3.0	4	E		49		FE
LEAR		2233	2234	2243	N18	W49	6368	11	20.2	10	SF			3	E		19		
LEAR	24	0036	0037	0040	N16	W52	6368	11	20.1	4	SF			3	E		15		
PALE		0157	0201	0207	S05	E12	6377	11	25.0	10	SF			3	E		20		
LEAR		0221	0243	0321	S05	E12	6377	11	25.0	60	1F	C	8.5	3	E		101		F
LEAR		0228	0228	0237	N16	W53	6368	11	20.1	9	SF			3	E		28		
PALE		0231	0233	0326D	S04	E11	6377	11	24.9	55D	SF			3	E		77		
LEAR		0322	0326	0335	S05	E11	6377	11	25.0	13	SF			3	E		36		
GOES		0654	0701	0719						25		C	2.1						
GOES		0926	0929	0936						10		C	1.7						
RAMY		1153	1153	1157	S05	E03	6377	11	24.7	4	SF			3	E		13		
RAMY		1154	1201	1205	N16	W59	6368	11	20.0	11	SF			3	E		11		
RAMY		1158	1215	1222	S05	E05	6377	11	24.9	24	SF			3	E		11		
RAMY		1219	1222	1242	N19	W57	6368	11	20.2	23	SF	C	1.4	3	E		21		
RAMY		1222	1237	1242	S04	E06	6377	11	25.0	20	SF			3	E		12		
RAMY		1249	1253	1258	N16	W62	6368	11	19.8	9	SF			3	E		33		
GOES		1331	1336	1344						13		C	1.9						
RAMY		1357	1357	1411	N16	W62	6368	11	19.9	14	SF			3	E		15		F
RAMY		1401	1401	1405	S04	E06	6377	11	25.0	4	SF	C	2.6	3	E		13		
RAMY		1409	1415	1605	S04	E04	6377			116	1B	M	3.1		E		96		K
RAMY		1409	1419	1605	S04	E04	6377	11	24.9	116	1B	M	3.1	3	E		153		
HOLL		1419E	1421U	1501D	S02	E04	6377	11	24.9	42D	1B	M	3.1	2	E		181		FH
RAMY		1435	1435	1441	N19	W60	6368	11	20.0	6	SF			3	E		16		
HOLL		1500E	1501	1513	N22	W64	6368	11	19.7	13D	SF			3	E		47		F
RAMY		1500	1502	1518	N23	W67	6368	11	19.5	18	SF			3	E		32		F
HOLL		1502E	1503U	1526D	S04	E04	6377	11	24.9	24D	SF			2	E		31		F
HOLL		1720	1728	1741	S08	E14	6378	11	25.8	21	SF			3	E		13		F
HOLL		1727	1729	1753	N14	W55	6368	11	20.6	26	SF			3	E		35		F
RAMY		1729	1731	1738	N13	W57	6368	11	20.4	9	SF			3	E		20		
RAMY		1806	1812	1816	N16	W65	6368	11	19.8	10	SF	C	2.9	3	E		37		
RAMY		1808	1811	1820	S04	E03	6377	11	25.0	12	SF			3	E		40		F
HOLL		1808	1812	1818	N15	W62	6368	11	20.1	10	SF	C	2.9	3	E		39		F
HOLL		1808	1812	1852	S05	E02	6377			44	SN				E		28		K
PALE		1808	1828	1854	S04	E04	6377	11	25.0	46	SF			3	E		56		
HOLL		1808	1829	1852	S05	E02	6377	11	24.9	44	SF	C	3.1	3	E		52		F
PALE		1810	1812	1816	N15	W64	6368	11	19.9	6	SF			3	E		24		
RAMY		1827	1828	1844	S04	E03	6377	11	25.0	17	SF			3	E		45		F
HOLL		1854	1859	1902	S05	E02	6377	11	24.9	8	SF			3	E		16		F
RAMY		1941	1942	1950D	S06	E01	6377	11	24.9	9D	SF			3	E		21		F
PALE		2002	2013	2036	S04	E02	6377	11	25.0	34	SF	C	3.5	3	E		26		F
PALE		2047	2048	2054	S04	E03	6377	11	25.1	7	SF			3	E		12		
GOES		2145E	2147	2156D						11D		C	3.5						
HOLL		2157	2241U	2251D	N14	W64	6368	11	20.1	54D	SF			3	E		40		
LEAR		2202	2227	2321	S05	E00	6377	11	24.9	79	SF			3	E		72		F
LEAR		2212	2243	2253	N16	W65	6368	11	20.0	41	1F	C	3.9	3	E		121		F
PALE		2234	2242	2259	N19	W62	6368	11	20.2	25	SF			3	E		59		
LEAR		2324	2327	2333	S04	E01	6377	11	25.0	9	SF			3	E		18		

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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
PALE	24	2326	2336	2428	N16	W78	6368	11	19.1	62	1F		3	E		137		FE
GOES		2326E	2345	2416D						50D		M 1.2						
LEAR	25	0055	0059	0113	S04	W01	6377	11	25.0	18	SF		3	E		13		
LEAR		0129	0134	0141	S05	W02	6377	11	24.9	12	SF		3	E		14		
LEAR		0200	0215	0235	S04	W02	6377	11	24.9	35	SF	C 3.3	3	E		47		F
PALE		0208	0212	0224	S05	W03	6377	11	24.9	16	SF	C 3.3	3	E		17		F
LEAR		0316	0318	0349	S04	W02	6377	11	25.0	33	SN	M 1.1	3	E		73		UE
PALE		0317	0318	0336	S05	W04	6377	11	24.8	19	SF	M 1.1	3	E		79		F
LEAR		0321	0326	0333	N19	W66	6368	11	20.1	12	SF		3	E		42		F
LEAR		0330	0337	0344	S09	E08	6378	11	25.7	14	SF		3	E		15		
LEAR		0546	0550	0556	N21	W61	6368	11	20.6	10	SF		4	E		11		
LEAR		0610	0617	0630	N21	W63	6368	11	20.4	20	SF		4	E		34		
GOES		0615	0618	0622						7		C 2.3						
SVTO		0732	0732	0736	N17	W58	6368	11	20.9	4	SF		3	E		14		
SVTO		0746	0747	0754	N13	W69	6368	11	20.1	8	SF		3	E		51		
SVTO		0810	0812	0840	N18	W67	6368	11	20.2	30	1N		3	E		203		
LEAR		0812E	0814U	0834	N19	W65	6368	11	20.4	22D	1F		2	E		219		
LEAR		0816	0817	0828	S04	W06	6377	11	24.9	12	SF		2	E		10		F
SVTO		0954	1016	1053	N15	W67	6368	11	20.3	59	SF	C 3.5	3	E		86		
SVTO		1207	1221U	1238D	S05	W08	6377	11	24.9	31D	SF		3	E		56		F
RAMY		1214	1217	1228	S04	W06	6377	11	25.1	14	SF		4	E		24		F
SVTO		1246	1313	1327	N17	W73	6368	11	20.0	41	SF		3	E		54		
RAMY		1247	1249	1252	N23	W77	6368	11	19.6	5	SF		4	E		33		
RAMY		1253	1300	1309	N19	W70	6368	11	20.2	16	SF		3	E		11		F
RAMY		1311	1314	1325	N18	W71	6368	11	20.1	14	SF		3	E		43		
RAMY		1438	1441	1445	S07	E53	6379	11	29.6	7	SF		3	E		21		F
RAMY		1447	1449	1453	N21	W69	6368	11	20.3	6	SF		3	E		42		F
RAMY		1503	1505	1511	N19	W72	6368	11	20.1	8	SF		3	E		27		F
RAMY		1556	1559	1604	N21	W67	6368	11	20.5	8	SF		3	E		25		
RAMY		1559	1559	1603	S05	W13	6377	11	24.7	4	SF		3	E		21		
RAMY		1647	1648	1655	N20	W71	6368	11	20.3	8	SF		3	E		14		F
RAMY		1657	1657	1702	N19	W72	6368	11	20.2	5	SF		3	E		33		
RAMY		1705	1707	1715	N20	W71	6368	11	20.3	10	SF	C 3.1	3	E		25		
PALE		1805	1805	1809	N19	W67	6368	11	20.6	4	SF		3	E		24		
HOLL		1806E	1806U	1809D	N20	W66	6368	11	20.7	3D	SF		2	E		27		F
HOLL		1851	1852	1903	N21	E85		12	2.3	12	SF		3	E		13		
HOLL		1904E	1904U	1926D	N17	W73	6368	11	20.2	22D	1F	M 1.5	2	E		153		F
PALE		1908	1908	1914	S06	W14	6377	11	24.7	6	SF		3	E		24		
PALE		1918	1918	1927	S05	W10	6377	11	25.0	9	SF		4	E		13		F
PALE		1933	1933	1943	N18	W71	6368	11	20.4	10	SF		4	E		31		F
PALE		2005	2008	2009	N20	W69	6368	11	20.5	4	SF		3	E		16		
PALE		2040	2040	2044	N19	W73	6368	11	20.3	4	SF		3	E		22		
PALE		2053	2053	2059	N18	W72	6368	11	20.4	6	SF		3	E		21		F
PALE		2119	2122	2129	N19	W74	6368	11	20.2	10	SF		3	E		20		FH
HOLL		2119E	2124U	2130D	N17	W74	6368	11	20.3	11D	SF	C 4.8	3	E		29		
HOLL		2205	2214	2318D	N18	W73	6368	11	20.4	73D	1N		2	E		244		F
PALE		2209	2212	2253	N19	W74	6368			44	SF			E		107		K
GOES		2209	2214	2217						8		C 3.3						
PALE		2209	2224	2253	N19	W74	6368	11	20.3	44	SF	M 1.8	3	E		65		
LEAR		2211E	2214	2302D	N20	W72	6368			51D	2F			E		231		K
LEAR		2211E	2225U	2302D	N20	W72	6368	11	20.4	51D	1F		2	E		176		
HOLL		2221	2222	2226	S06	E46	6379	11	29.4	5	SF		2	E		27		
PALE	26	0117	0125	0139	N18	W76	6368	11	20.3	22	2F	C 6.3	3	E		265		
GOES		0630	0647	0652						22		C 4.1						
GOES		0929	0944	0957						28		C 3.0						
GOES		1010	1016	1019						9		C 3.2						
GOES		1221	1226	1230						9		C 5.6						
RAMY		1406E	1409	1456D	S05	W23	6377	11	24.9	50D	SF	C 3.7	2	E		59		
SVTO		1410E	1410U	1440D	S04	W23	6377	11	24.9	30D	SF	C 3.7	2	E		38		F
RAMY		1638	1644U	1703D	S05	W24	6377	11	24.9	25D	1N	C 2.4	3	E		102		
HOLL		1641	1644	1701	S05	W24	6377	11	24.9	20	1N	C 2.4	3	E		125		F
HOLL		1651	1652	1703D	N19	W80	6368	11	20.6	12D	SF	M 1.4	3	E		51		
RAMY		1706	1707	1712	N18	W90	6368	11	19.8	6	SF		3	E		52		
RAMY		1722	1744	1827D	S04	W24	6377	11	24.9	65D	SF	C 1.7	3	E		22		F
RAMY		1730	1730	1747	N16	W83	6368	11	20.4	17	SF		3	E		19		
PALE		1730	1744	1753	S06	W25	6377	11	24.8	23	SF		3	E		15		

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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
PALE	26	1731	1731	1741	N13	W71	6368	11	21.4	10	SF		3	E		21		
PALE		1828	1828	1839	S07	W25	6377	11	24.9	11	SF		3	E		11		F
RAMY		1846E	1851U	1855D	S04	W26	6377	11	24.8	9D	SF		3	E		22		
PALE		1912	1916	1940	S05	W23	6377	11	25.1	28	SF		3	E		34		F
RAMY		1913	1916U	1937D	S04	W25	6377	11	24.9	24D	SF		3	E		56		F
HOLL		1915	1917	1931	S05	W24	6377	11	25.0	16	SF		2	E		30		F
RAMY		1958	2011	2014	S05	W27	6377	11	24.8	16	SF		3	E		33		
PALE		2035	2035	2039	N15	W90	6368	11	20.0	4	SF	C 4.2	3	E		20		
PALE		2113	2114	2118	S04	W27	6377	11	24.9	5	SF		3	E		23		
GOES		2155	2158	2201						6		C 2.5						
PALE		2209	2213	2229	S05	W25	6377	11	25.0	20	SF	C 3.0	3	E		71		F
GOES		2313E	2316	2322D						9D		M 7.5						
PALE	27	0054	0058	0100	N13	W81	6368	11	20.9	6	SF		3	E		23		
GOES		0102	0108	0120						18		C 1.7						
GOES		0248	0256	0259						11		C 2.0						
GOES		0459	0512	0529						30		M 1.5						
GOES		0537	0544	0555						18		C 6.1						
LEAR		0632	0633	0645	N18	E66	6383	12	2.3	13	SF		3	E		36		F
LEAR		0824	0824	0828	N18	E65	6383	12	2.3	4	SF		3	E		14		
GOES		1213	1231	1252						39		C 2.2						
GOES		1320	1323	1327						7		C 1.6						
GOES		1410	1421	1432						22		C 2.3						
GOES		1444	1500	1525						41		C 3.3						
GOES		1552	1558	1603						11		C 3.0						
HOLL		1807	1808	1817	N16	E59	6383	12	2.2	10	SF		3	E		17		
GOES		1816	1830	1845						29		C 3.9						
HOLL		1855	1856	1858	N15	E61	6383	12	2.4	3	SF		3	E		23		
HOLL		1932	1933	1941	S06	W39	6377	11	24.9	9	SF		3	E		14		F
HOLL		1943	1953	1957	N17	E58	6383	12	2.2	14	SF		3	E		20		
GOES		2221	2234	2242						21		C 6.9						
GOES	28	0132	0200	0251						79		C 4.6						
GOES		0413	0438	0446						33		C 2.1						
LEAR		0654	0658	0714	S04	W49	6377	11	24.6	20	SF	C 6.2	3	E		68		F
LEAR		0812	0813	0818	S25	E77		12	4.3	6	SF	C 3.9	3	E		38		
GOES		0841	0924	0947						66		C 4.9						
GOES		1230	1246	1306						36		C 4.3						
GOES		1405	1425	1440						35		C 6.8						
RAMY		1526	1528	1537	N16	E46	6383	12	2.1	11	SF		3	E		29		F
GOES		1601	1607	1618						17		C 6.9						
RAMY		1606	1629	1631	S22	E77		12	4.6	25	SF		3	E		27		F
GOES		1633	1638	1644						11		C 6.4						
HOLL		1907	1908	1924	S05	W55	6377	11	24.7	17	SF	C 5.5	3	E		25		
RAMY		1908	1908	1923	S04	W55	6377	11	24.7	15	SF	C 5.5	3	E		11		
HOLL		1939	1940	1950	S07	W53	6377	11	24.8	11	SF		3	E		13		
LEAR		2257	2257	2309	S05	W55	6377	11	24.8	12	SF		3	E		12		
LEAR	29	0114	0132	0140	S05	W57	6377	11	24.8	26	SF		3	E		35		
LEAR		0147	0150	0158	N14	E45	6383	12	2.5	11	SF	C 4.2	3	E		43		
GOES		0205	0242	0309						64		C 3.1						
LEAR		0340	0342	0348	S04	W61	6377	11	24.6	8	SF		3	E		19		
LEAR		0355	0356	0401	N16	E40	6383	12	2.2	6	SF		3	E		14		
LEAR		0851	0852	0904	S06	W61	6377	11	24.8	13	SF		3	E		14		
SVTO		0947	0959	1025	S19	E68	6387	12	4.6	38	1N	C 9.9	3	E		144		F
LEAR		0950	0953	1000D	S21	E63	6387	12	4.2	10D	SF		1	E		75		
GOES		1326	1346	1420						54		M 1.1						
RAMY		1412	1412	1424	N14	E39	6383	12	2.5	12	SF		3	E		11		F
HOLL		1758	1758	1803	S06	W05	6379	11	29.4	5	SF		3	E		13		F
HOLL		1912	1924	2001	S08	E18	6388	12	1.1	49	SF	C 2.0	3	E		31		F
PALE		1927	1928	1946D	S06	E19	6388	12	1.2	19D	SF		3	E		18		
HOLL		2033	2052	2151	S08	E17	6388	12	1.1	78	SF	C 2.2	3	E		46		F
RAMY		2050	2051	2057D	S07	E18	6388	12	1.2	7D	SF	C 2.2	2	E		18		F
GOES	30	0136	0154	0228						52		C 1.6						
LEAR		0252	0350	0413	S07	E13	6388	12	1.1	81	SF		3	E		82		F
LEAR		0308	0314	0327	N34	E71	6390	12	5.8	19	SF	C 2.4	3	E		23		F
LEAR		0358	0402	0447	S26	E45	6387	12	3.7	49	SF	C 3.4	3	E		48		F

Hα SOLAR FLARES

NOVEMBER 1990

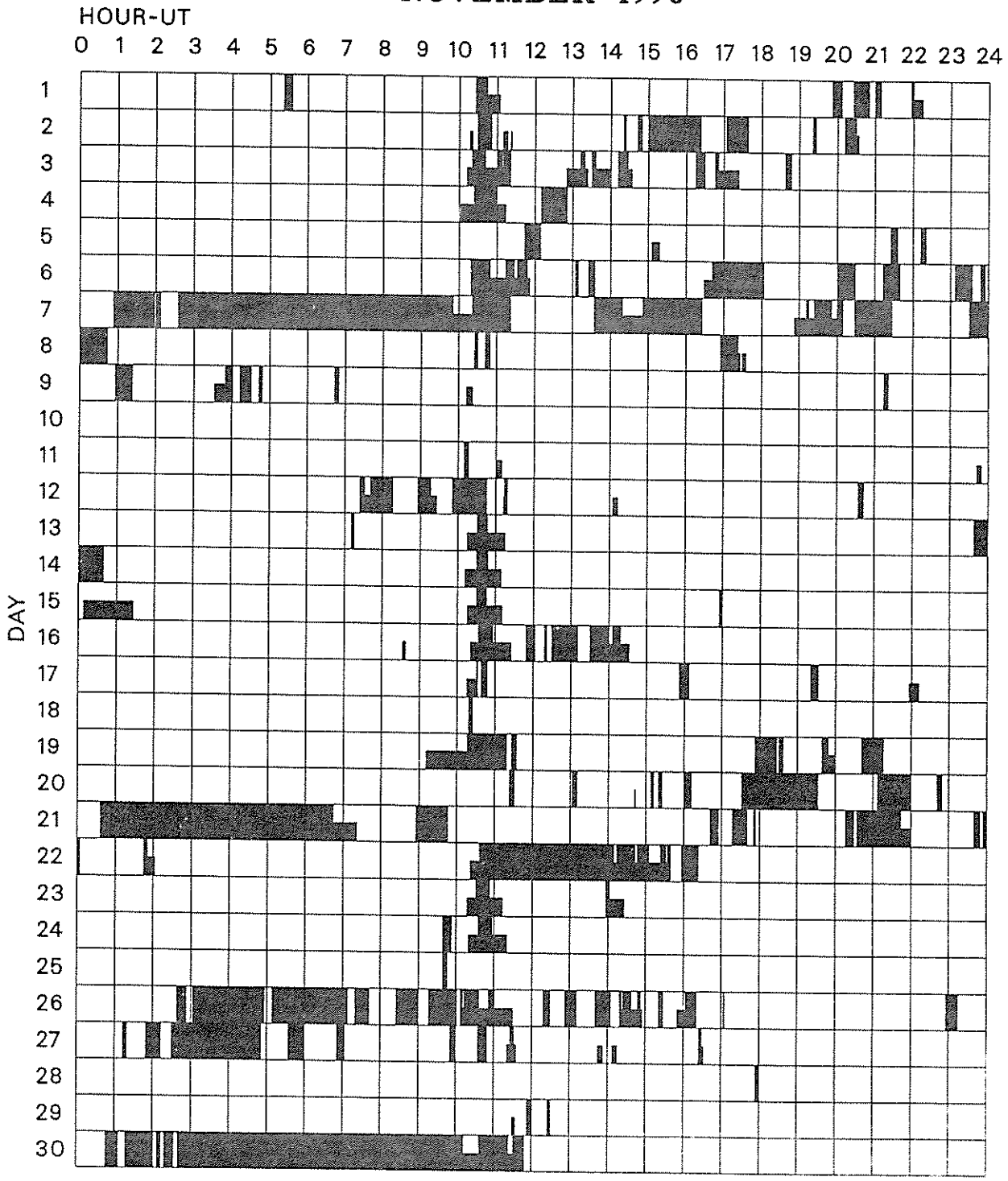
Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	30	0544	0553	0616	S23	E53	6387	12	4.3	32	SF	C 6.2	3	E		86		
LEAR		0746	0756	0817	S24	E51	6387	12	4.3	31	SF	C 2.1	3	E		35		F
LEAR		0918	0921	0935	S24	E53	6387	12	4.5	17	SF	C 2.2	3	E		20		F
RAMY		1224	1230	1242	S21	E47	6387	12	4.1	18	1N	C 4.8	3	E		127		FH
RAMY		1315	1316	1322	S06	W76	6377	11	24.9	7	SF		4	E		15		
RAMY		1358	1359	1409	S06	E07	6388	12	1.1	11	SF		3	E		34		F
HOLL		1533	1534	1544	S07	W75	6377	11	25.0	11	SF		3	E		22		F
HOLL		1533	1537	1543	S23	E49	6387	12	4.4	10	SF		3	E		23		F
HOLL		1546	1548	1604	S07	W75	6377	11	25.0	18	SF	C 2.1	3	E		16		F
HOLL		1603	1607	1639	S23	E48	6387	12	4.4	36	SF		3	E		51		F
RAMY		1606	1607	1619	S24	E49	6387	12	4.4	13	SF		3	E		34		F
HOLL		1738	1738	1755	S23	E47	6387	12	4.3	17	SF	C 2.4	3	E		10		F
GOES		1753	1757	1800						7		C 3.2						
HOLL		1811	1811	1822	N35	E64	6390	12	5.9	11	SF		3	E		14		F

"Remarks"

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

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

NOVEMBER 1990



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

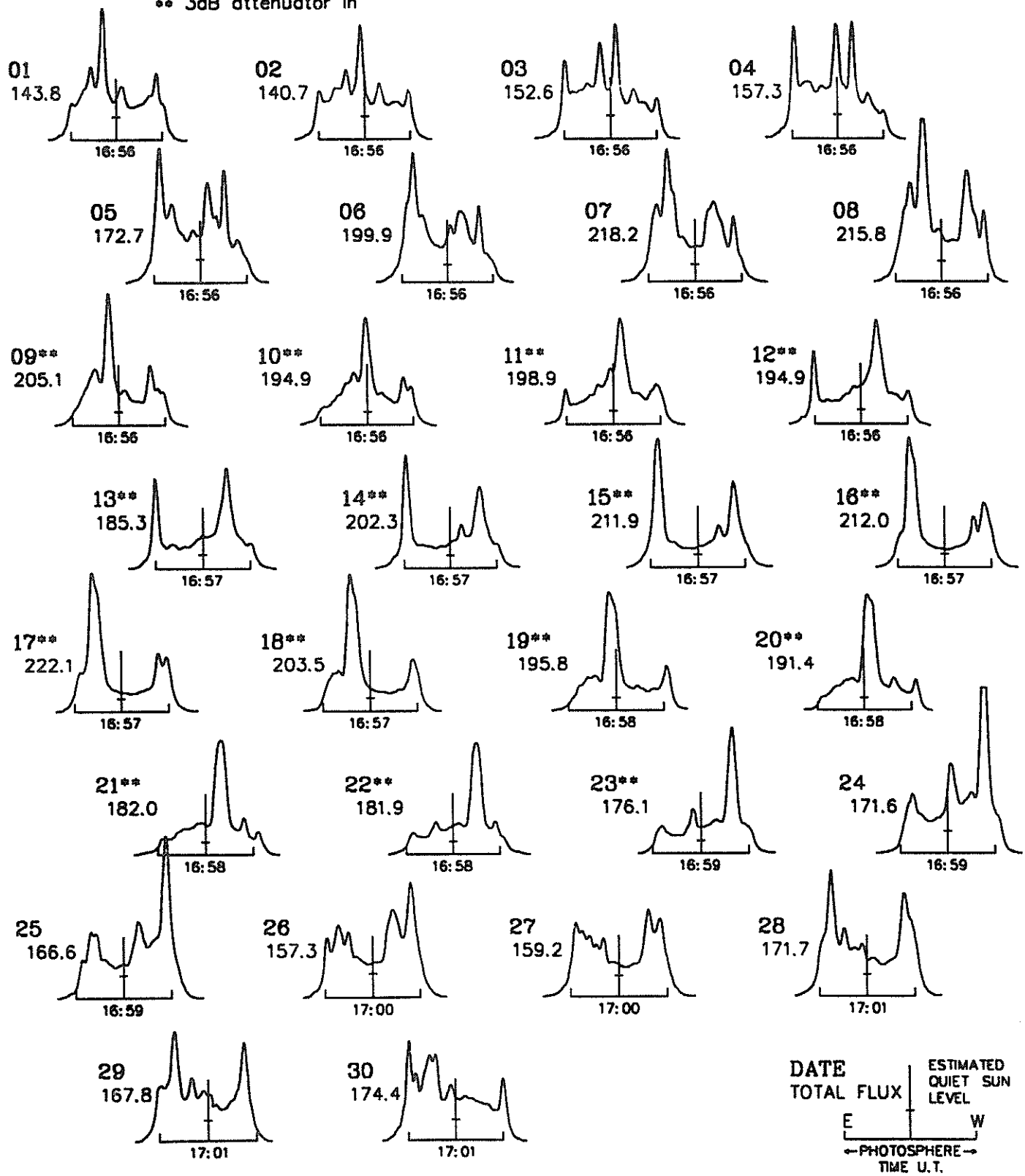
Holloman Learmonth Palehua Ramey San Vito

EAST – WEST SOLAR SCANS
NOVEMBER 1990

ALGONQUIN RADIO OBSERVATORY
CANADA

** 3dB attenuator in

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



SOLAR RADIO EMISSION
Selected Fixed Frequency Events

NOVEMBER 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	8800	SVTO	8	S	0556.0E	0557.0	1.0D	43.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0557.0E	0557.0	U	33.0			QL=4 ST=2 TYP=3
	2800	OTTA	20	GRF	1612.0	1635.0	115.0	2.8	1.0		
	2800	OTTA	3	S	1954.0	1954.3	4.6	21.3	4.0		
04	8800	PALE	49	GB	1736.0E	1737.0	3.0D	740.0			QL=4 ST=2 TYP=6
	2695	PALE	4	S/F	1736.0E	1737.0	5.0D	330.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1736.0E	1737.0	4.0D	330.0			QL=4 ST=2 TYP=3
	8800	SGMR	49	GB	1736.0E	1737.0	7.0D	740.0			QL=4 ST=2 TYP=6
	2800	OTTA	3	S	1736.3	1737.8	4.1	302.0	62.0		
	2800	OTTA	29	PBI	1740.4	1740.4	62.0	17.6	8.0		
05	2800	OTTA	3	S	1450.6	1451.5	1.9	7.1	2.0		
	2800	OTTA	20	GRF	1726.5	1728.5	13.0	6.5	3.0		
	2800	OTTA	20	GRF	1935.0	1941.0	22.0	3.9	1.0		
	2695	PENT	3	S	2120.7	2122.1	17.2	57.9	12.0		
	2695	PENT	4	S/F	2307.0	2308.0	9.7	120.0	24.0		
	2695	LEAR	4	S/F	2307.0E	2308.0	5.0D	110.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	2307.0E	2309.0	10.0D	98.0			QL=4 ST=2 TYP=3
06	8800	LEAR	8	S	0430.0E	0431.0	1.0D	13.0			QL=4 ST=2 TYP=3
	2800	OTTA	4	S/F	1448.5	1450.6	4.9	19.3	6.0		
	2800	OTTA	22	GRF	1754.0	1821.5	120.0	11.7	5.0		
	2800	OTTA	4	S/F	2040.5	2042.1	18.0	151.0	45.0		
	2695	PALE	4	S/F	2041.0E	2043.0	14.0D	120.0			QL=4 ST=2 TYP=5
	2695	SGMR	4	S/F	2041.0E	2043.0	199.0D	140.0			QL=4 ST=3 TYP=3
	8800	PALE	4	S/F	2042.0E	2049.0	12.0D	190.0			QL=4 ST=2 TYP=5
	8800	SGMR	4	S/F	2042.0E	2043.0	198.0D	88.0			QL=4 ST=3 TYP=3
	8800	SGMR	4	S/F	2043.0E	2049.0	7.0D	160.0			QL=2 ST=2 TYP=5
	2800	OTTA	29	PBI	2058.5	2058.5	65.0	14.9	7.0		
08	8800	SGMR	8	S	1509.0E	1510.0	2.0D	59.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1509.0E	1510.0	2.0D	43.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1509.0E	1510.0	2.0D	65.0			QL=4 ST=2 TYP=3
	2800	OTTA	3	S	1509.3	1510.8	4.5	55.1	16.0		
	2800	OTTA	29	PBI	1513.5	1537.5	101.0	10.9	5.0		
	2800	OTTA	20	GRF	1721.0	1722.5	14.0	9.5	4.0		
	2695	LEAR	8	S	2304.0E	2304.0	U	36.0			QL=4 ST=2 TYP=3
10	2695	SGMR	8	S	1158.0E	1159.0	2.0D	150.0			QL=2 ST=3 TYP=3
11	2695	LEAR	8	S	0423.0E	0423.0	1.0D	21.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	2055.0E	2055.0	U	98.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	2055.0E	2055.0	U	93.0			QL=4 ST=3 TYP=3
	2800	OTTA	3	S	2055.0	2055.4	3.3	144.0	29.0		
	2695	PENT	3	S	2159.2	2200.7	2.1	20.8	6.0		
	2695	PENT	29	PBI	2201.3	2204.3	17.6	8.0	3.0		
12	2695	LEAR	8	S	0509.0E	0509.0	U	19.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0509.0E	0509.0	U	23.0			QL=4 ST=2 TYP=3
	2800	OTTA	4	S/F	1641.8	1642.3	4.7	26.1	5.0		
	2695	PALE	8	S	1920.0E	1920.0	1.0D	51.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1920.0E	1920.0	1.0D	52.0			QL=2 ST=2 TYP=3
	2695	SGMR	8	S	1920.0E	1920.0	1.0D	62.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1920.0E	1920.0	1.0D	60.0			QL=2 ST=2 TYP=3
	2800	OTTA	3	S	1920.5	1920.8	7.2	62.8	19.0		
13	2695	LEAR	8	S	0443.0E	0444.0	2.0D	93.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0443.0E	0444.0	1.0D	140.0			QL=4 ST=2 TYP=3
15	2800	OTTA	3	S	1821.1	1822.1	3.0	8.8	3.0		
	2695	PENT	4	S/F	2119.8	2121.4	4.5	13.5	4.0		
16	2695	LEAR	8	S	0025.0E	0025.0	1.0D	130.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0025.0E	0025.0	1.0D	49.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	0025.0E	0025.0	1.0D	110.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0025.0E	0025.0	1.0D	44.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0251.0E	0252.0	3.0D	23.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0252.0E	0252.0	U	10.0			QL=4 ST=2 TYP=3

SOLAR RADIO EMISSION
Selected Fixed Frequency Events

NOVEMBER 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
16	8800	SGMR	8	S	1310.0E	1311.0	1.0D	230.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1311.0E	1311.0	1.0D	290.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1311.0E	1311.0	1.0D	300.0			QL=2 ST=2 TYP=3
	8800	SVTO	8	S	1311.0E	1311.0	U	180.0			QL=2 ST=2 TYP=3
	8800	PALE	4	S/F	2345.0E	2346.0	6.0D	160.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	2345.0E	2346.0	3.0D	180.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	2345.0E	2346.0	10.0D	120.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	2345.0E	2346.0	12.0D	200.0			QL=4 ST=2 TYP=3
17	2695	SVTO	4	S/F	1105.0E	1105.0	4.0D	54.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1133.0E	1133.0	1.0D	80.0			QL=4 ST=2 TYP=3
	2800	OTTA	3	S	1445.5	1448.0	5.5	16.4	5.0		
	2800	OTTA	3	S	1459.8	1500.3	3.1	15.4	4.0		
	2800	OTTA	20	GRF	1556.0	1605.0	34.0	10.3	4.0		
	2800	OTTA	20	GRF	1721.5	1730.5	112.0	16.9	8.0		
	8800	SGMR	4	S/F	1740.0E	1743.0	6.0D	100.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	1741.0E	1742.0	4.0D	80.0			QL=2 ST=2 TYP=3
	8800	PALE	8	S	1841.0E	1842.0	2.0D	92.0			QL=2 ST=2 TYP=3
	8800	SGMR	4	S/F	1842.0E	1843.0	7.0D	110.0			QL=4 ST=2 TYP=3
	2800	OTTA	3	S	1937.1	1939.2	4.1	9.7	3.0		
	8800	LEAR	8	S	2247.0E	2248.0	1.0D	49.0			QL=4 ST=2 TYP=3
18	8800	LEAR	4	S/F	0015.0E	0019.0	10.0D	81.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0018.0E	0019.0	1.0D	52.0			QL=2 ST=2 TYP=3
	8800	SVTO	4	S/F	1123.0E	1124.0	3.0D	62.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1317.0E	1317.0	U	56.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1317.0E	1317.0	1.0D	170.0			QL=2 ST=2 TYP=3
	2695	SVTO	4	S/F	1317.0E	1317.0	643.0D	64.0			QL=4 ST=1 TYP=3
	2800	OTTA	3	S	1317.6	1317.8	2.5	65.2	13.0		
	2800	OTTA	3	S	1634.7	1635.2	2.2	144.5	29.0		
	2695	SGMR	8	S	1635.0E	1635.0	U	120.0			QL=4 ST=2 TYP=3
	2800	OTTA	3	S	1739.5	1739.6	2.2	81.6	16.0		
	2800	OTTA	3	S	1804.8	1806.4	2.3	26.7	8.0		
	8800	PALE	8	S	1805.0E	1806.0	2.0D	150.0			QL=2 ST=2 TYP=3
	8800	SGMR	4	S/F	1805.0E	1806.0	5.0D	220.0			QL=2 ST=2 TYP=3
	2800	OTTA	29	PBI	1807.1	1807.1	33.0	13.6	6.0		
	2695	PENT	3	S	2052.0	2053.7	3.7	8.8	2.0		
	8800	PALE	4	S/F	2144.0E	2144.0	3.0D	150.0			QL=2 ST=2 TYP=3
	2695	PENT	3	S	2144.1	2145.1	2.8	18.5	4.0		
19	8800	LEAR	8	S	0216.0E	0216.0	2.0D	94.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0216.0E	0216.0	U	21.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0216.0E	0216.0	U	62.0			QL=2 ST=2 TYP=3
	8800	LEAR	4	S/F	0621.0E	0622.0	3.0D	130.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0621.0E	0622.0	4.0D	120.0			QL=2 ST=2 TYP=3
	2695	LEAR	8	S	0622.0E	0624.0	2.0D	130.0			QL=4 ST=2 TYP=5
	2695	SVTO	8	S	0624.0E	0624.0	U	48.0			QL=2 ST=2 TYP=3
	8800	SVTO	4	S/F	0926.0E	0949.0	38.0D	290.0			QL=4 ST=2 TYP=5
	8800	LEAR	4	S/F	0927.0E	0930.0	13.0D	80.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0946.0E	0949.0	7.0D	220.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	1021.0E	1022.0	2.0D	29.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	1022.0E	1022.0	1.0D	36.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	1025.0E	1027.0	3.0D	47.0			QL=2 ST=2 TYP=3
	8800	LEAR	8	S	1026.0E	1027.0	2.0D	49.0			QL=2 ST=2 TYP=3
	8800	SVTO	8	S	1126.0E	1126.0	U	58.0			QL=2 ST=2 TYP=3
	8800	SVTO	49	GB	1334.0E	1336.0	9.0D	510.0			QL=2 ST=2 TYP=7
	2800	OTTA	3	S	1334.5	1336.1	3.1	79.5	23.0		
	2695	SGMR	8	S	1335.0E	1336.0	2.0D	77.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1335.0E	1336.0	1.0D	480.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1335.0E	1336.0	2.0D	82.0			QL=4 ST=2 TYP=3
	2800	OTTA	29	PBI	1337.6	1337.6	40.0	9.6	4.0		
	8800	SGMR	8	S	1515.0E	1515.0	1.0D	350.0			QL=2 ST=2 TYP=3
	8800	PALE	8	S	1752.0E	1752.0	1.0D	80.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1752.0E	1752.0	2.0D	92.0			QL=2 ST=2 TYP=3
20	8800	LEAR	8	S	0454.0E	0454.0	U	60.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0954.0E	0955.0	8.0D	250.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0954.0E	0955.0	11.0D	310.0			QL=4 ST=2 TYP=3
	2800	OTTA	20	GRF	1327.0	1415.0	90.0	13.8	6.0		

SOLAR RADIO EMISSION
Selected Fixed Frequency Events
NOVEMBER 1990

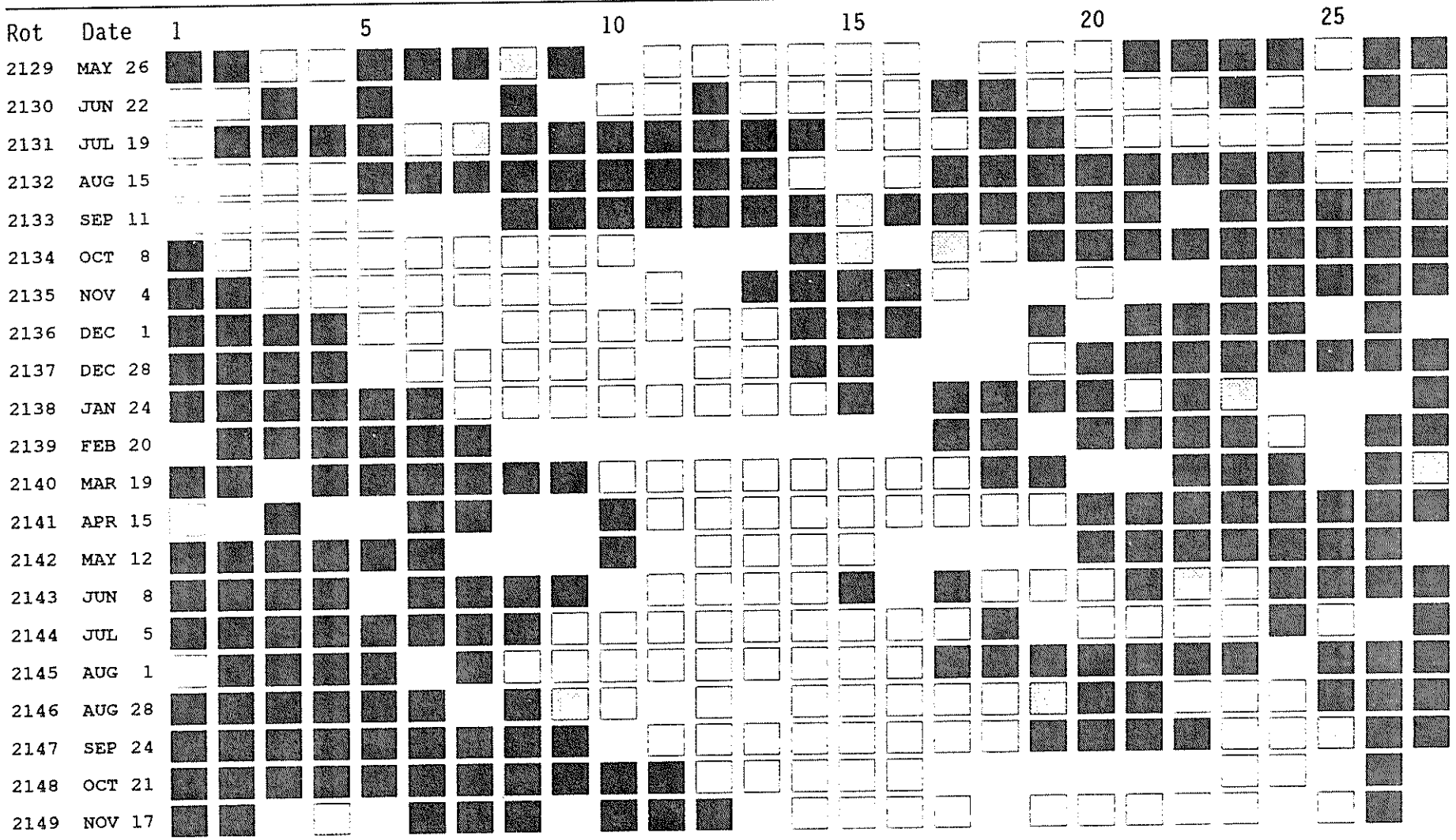
Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
20	2800	OTTA	3	S	1423.7	1424.2	3.0	32.9	7.0		
	2800	OTTA	3	S	1429.6	1429.9	1.9	6.7	1.0		
	2800	OTTA	3	S	1742.5	1743.4	3.1	42.5	13.0		
	2695	SGMR	8	S	1743.0E	1743.0	1.0D	39.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1743.0E	1743.0	1.0D	86.0			QL=4 ST=2 TYP=3
	2800	OTTA	29	PBI	1745.6	1745.6	30.0	10.4	5.0		
	8800	SGMR	4	S/F	1823.0E	1824.0	6.0D	69.0			QL=4 ST=2 TYP=3
	2695	PENT	3	S	2117.8	2118.3	2.3	18.1	4.0		
21	8800	LEAR	4	S/F	0251.0E	0253.0	5.0D	61.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0251.0E	0253.0	6.0D	62.0			QL=2 ST=2 TYP=3
	2695	PALE	4	S/F	0251.0E	0253.0	7.0D	66.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	0252.0E	0253.0	6.0D	48.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0532.0E	0533.0	2.0D	110.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0940.0E	0942.0	5.0D	160.0			QL=4 ST=2 TYP=5
	8800	SVTO	4	S/F	0940.0E	0942.0	5.0D	160.0			QL=4 ST=2 TYP=5
	2800	OTTA	3	S	1723.2	1726.8	6.0	64.3	19.0		
	2695	SGMR	4	S/F	1725.0E	1726.0	3.0D	60.0			QL=4 ST=2 TYP=3
	2800	OTTA	29	PBI	1729.2	1729.2	120.0	11.3	5.0		
	8800	PALE	8	S	1913.0E	1913.0	1.0D	41.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1913.0E	1913.0	1.0D	70.0			QL=4 ST=2 TYP=3
	2695	PENT	4	S/F	2037.0	2038.4	6.6	37.9	8.0		
22	2800	OTTA	3	S	1810.1	1810.6	3.1	27.5	6.0		
	8800	SGMR	8	S	1907.0E	1907.0	U	54.0			QL=4 ST=2 TYP=3
23	8800	LEAR	4	S/F	0150.0E	0152.0	4.0D	70.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0338.0E	0338.0	1.0D	110.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0402.0E	0402.0	1.0D	82.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0830.0E	0830.0	1.0D	100.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0830.0E	0830.0	1.0D	26.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0830.0E	0830.0	1.0D	92.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0855.0E	0856.0	3.0D	300.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0855.0E	0857.0	3.0D	290.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0856.0E	0856.0	1.0D	31.0			QL=4 ST=2 TYP=3
	2800	OTTA	4	S/F	1634.9	1636.6	8.5	13.1	2.0		
24	2800	OTTA	4	S/F	1415.0	1427.8	19.0	232.0	93.0		
	2695	SGMR	20	GRF	1416.0E	1427.0	17.0D	250.0			QL=4 ST=2 TYP=2
	8800	SVTO	4	S/F	1416.0E	1420.0	584.0D	200.0			QL=2 ST=1 TYP=3
	8800	SGMR	4	S/F	1417.0E	1420.0	14.0D	210.0			QL=2 ST=2 TYP=3
	2695	SVTO	20	GRF	1417.0E	1427.0	16.0D	240.0			QL=2 ST=2 TYP=2
	2800	OTTA	29	PBI	1433.9	1433.9	210.0	25.3	12.0		
	2800	OTTA	3	S	1437.8	1441.7	10.2	7.5	2.0		
	2695	SVTO	8	S	1442.0E	1442.0	U	29.0			QL=2 ST=2 TYP=3
	2800	OTTA	3	S	1458.9	1500.5	7.6	61.4	18.0		
	8800	SGMR	8	S	1500.0E	1500.0	U	82.0			QL=2 ST=2 TYP=3
	2695	SGMR	8	S	1500.0E	1500.0	U	68.0			QL=4 ST=2 TYP=3
	2800	OTTA	3	S	1725.2	1729.1	9.3	10.4	3.0		
	2695	PALE	8	S	2326.0E	2326.0	U	42.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	2329.0E	2331.0	7.0D	53.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	2329.0E	2331.0	7.0D	67.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	2330.0E	2331.0	4.0D	58.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2330.0E	2331.0	3.0D	37.0			QL=2 ST=2 TYP=3
25	2695	LEAR	8	S	0523.0E	0523.0	U	36.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0624.0E	0624.0	1.0D	21.0			QL=4 ST=2 TYP=3
	2800	OTTA	20	GRF	1426.0	1436.0	100.0	12.5	6.0		
26	2695	LEAR	8	S	0720.0E	0720.0	2.0D	66.0			QL=4 ST=2 TYP=3
	2800	OTTA	3	S	1346.0	1346.9	3.1	5.8	2.0		
	2800	OTTA	3	S	1355.9	1356.3	2.4	14.7	3.0		
	2800	OTTA	3	S	1642.3	1643.1	2.9	9.1	3.0		
	8800	SGMR	8	S	1650.0E	1650.0	1.0D	120.0			QL=4 ST=2 TYP=3
	2800	OTTA	20	GRF	1850.0	1900.0	95.0	24.4	12.0		
	8800	LEAR	4	S/F	2313.0E	2314.0	3.0D	160.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2313.0E	2314.0	3.0D	140.0			QL=2 ST=2 TYP=3
27	2695	LEAR	4	S/F	0457.0E	0503.0	18.0D	87.0			QL=4 ST=2 TYP=5
	8800	LEAR	4	S/F	0501.0E	0504.0	10.0D	56.0			QL=4 ST=2 TYP=3

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1989 Dec	1990 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	-113	.	128	.	84	35	-9	-4	14	-75	-80	3
2	-79	22	150	.	47	19	-8	-13	-29	-77	-49	25
3	-46	70	344	.	33	23	-5	-34	-27	.	.	45
4	-11	106	99	.	4	-18	-34	-42	-38	-44	22	45
5	43	132	69	.	-8	-24	-33	-36	-25	-2	44	29
6	60	129	23	.	-29	-25	-33	-36	.	19	57	.
7	.	.	-11	.	.	-27	.	-45	-13	.	51	.
8	84	58	.	-28	.	-38	-26	-34	3	68	36	.
9	126	23	-15	-23	-29	-33	-52	-12	26	.	41	.
10	115	-7	-8	.	-36	-15	-86	-11	43	60	33	.
11	79	-41	-14	-25	-34	-4	-83	-10	94	43	8	.
12	47	.	-9	-23	.	-9	.	-15	137	41	-10	68
13	7	.	4	-11	-8	-47	-88	17	76	14	-25	52
14	-35	.	-12	-15	0	-80	-58	32	25	5	-43	.
15	-59	5	-2	2	-2	-82	-31	78	3	-1	-9	-4
16	-62	-11	.	.	.	-80	-10	95	1	-17	24	.
17	.	-14	.	-10	-20	-88	.	57	-34	-9	12	-46
18	.	-58	.	-45	.	.	47	10	-33	30	0	-8
19	-4	-86	-78	-63	.	.	44	26	-27	35	-62	.
20	.	-84	.	-108	-105	.	43	41	-22	23	-91	-1
21	-32	-76	-142	.	-99	-29	11	20	-30	-20	-89	.
22	-70	-88	-193	-150	.	.	-4	-12	-15	-78	-87	-24
23	-101	-124	-167	-124	.	25	.	.	-16	-96	-69	-47
24	-103	-152	-133	-113	-21	33	-12	7	.	-112	-56	-50
25	.	-184	-102	-74	23	16	7	25	-83	-121	-44	.
26	-103	-203	-41	-62	57	3	13	50	-82	-107	-52	-69
27	.	-200	.	-34	75	.	42	10	-89	-90	-54	-56
28	-130	-140	.	9	65	.	-7	-13	-107	-82	-65	-11
29	-108	-62		45	50	.	-2	39	-131	-86	-66	.
30	-106	3		103	50	.	8	.	-128	-103	-54	48
31	-94	46		94		-4		-67	-90		-31	

Dot symbol indicates no data available for the day.
Note: Data from 21 June to 15 August 1990 are of poorer quality due to instrument problems.

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.

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CARRINGTON ROTATION NUMBER 1833
(1 September to 28 September 1990)

Dates of Observations Below Days of Year:

Data unavailable at time of publication.

Heliographic Longitude

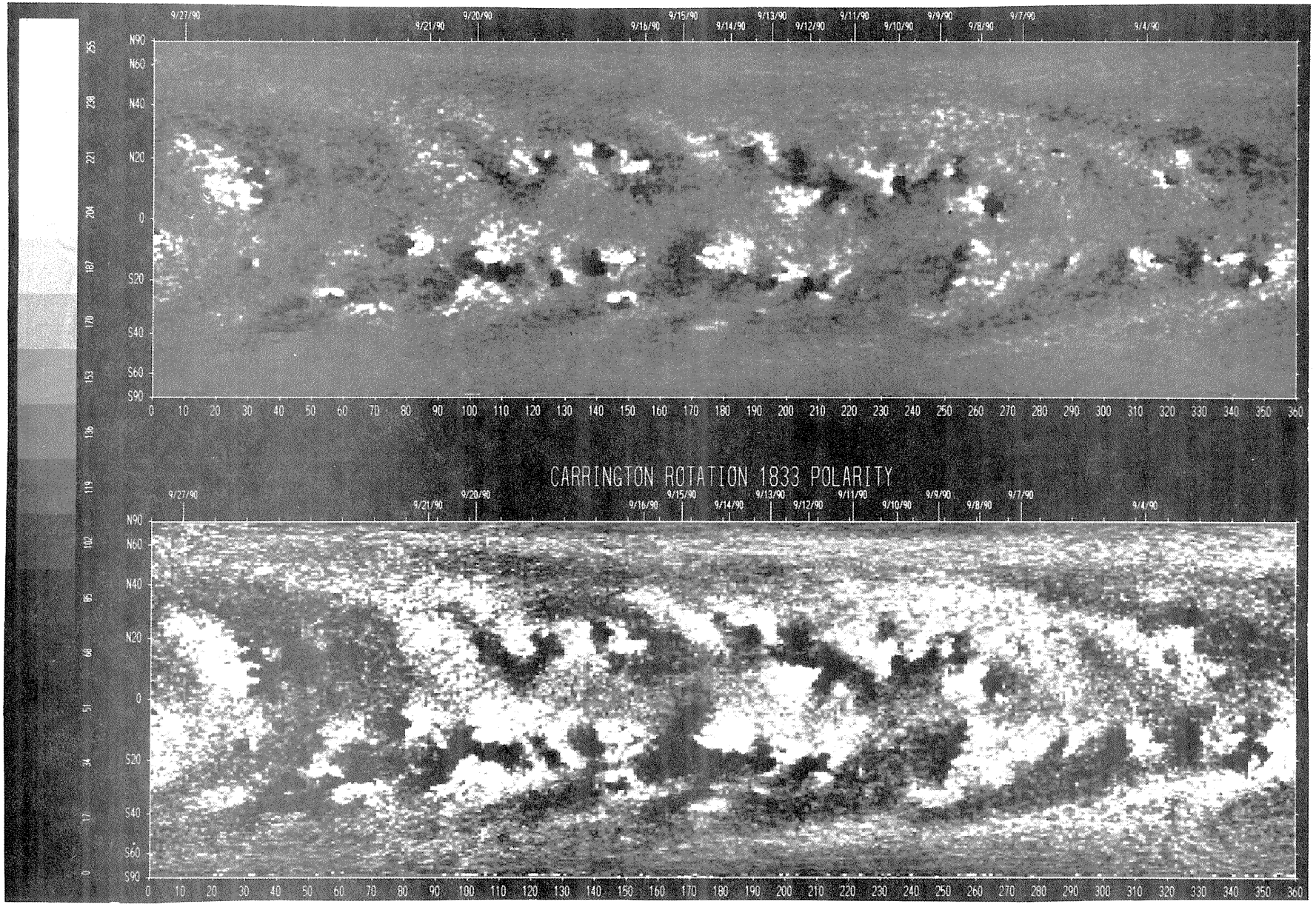
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1833

(1 to 28 September 1990)

National Solar Observatory/Kitt Peak

Dates of Observation



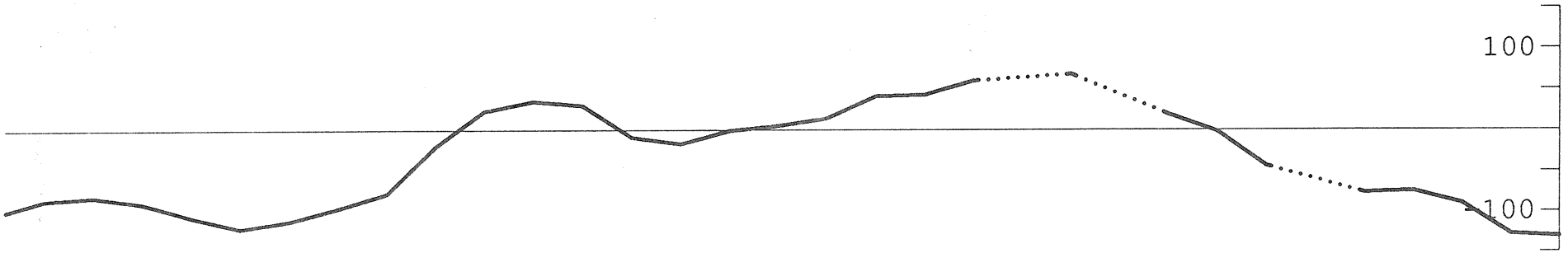
Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1833
(1 to 28 September 1990)

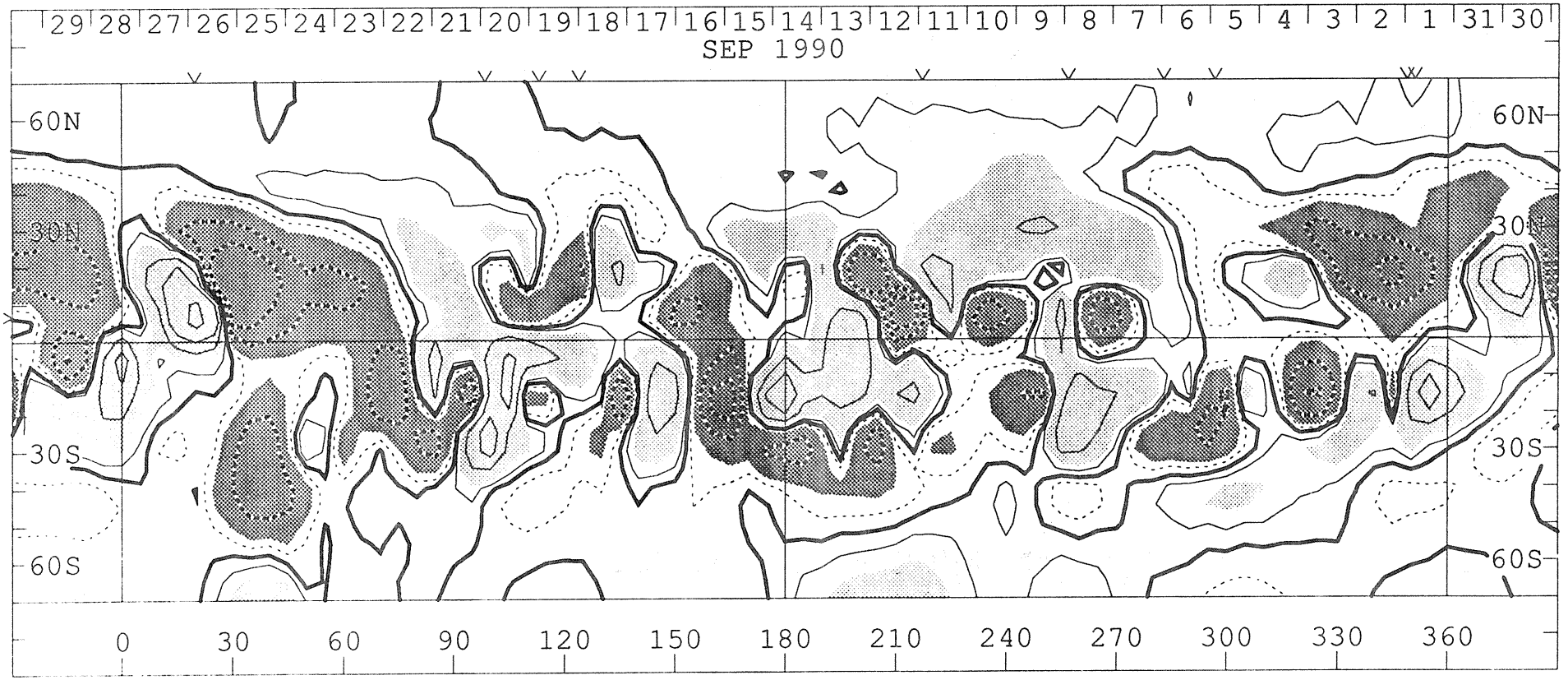
WILCOX SOLAR OBSERVATORY

Mean Field



Photospheric Magnetic Field

0, ±100, 500, 1000, 2000 MicroTesla



Heliographic Longitude

1833

SOLAR MAGNETIC FIELD SYNOPTIC CHART

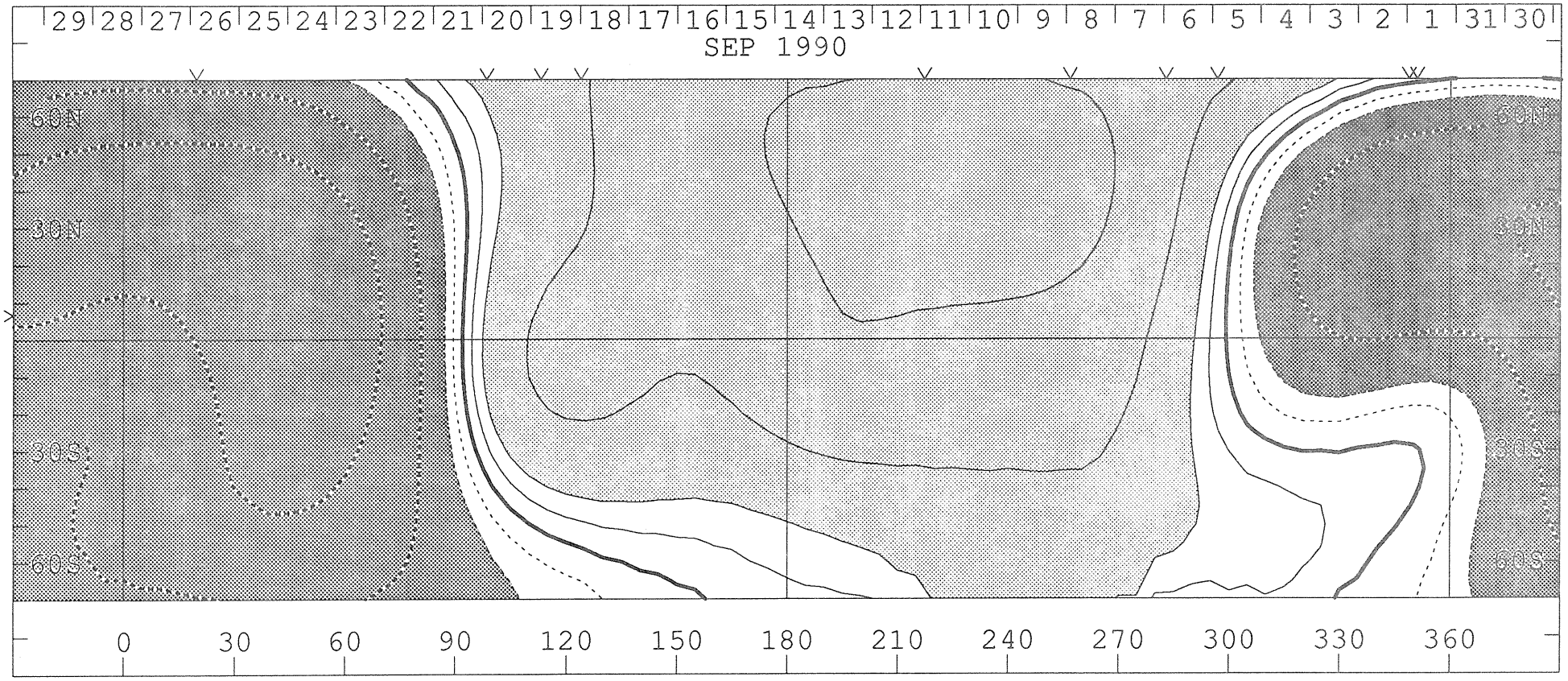
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1833

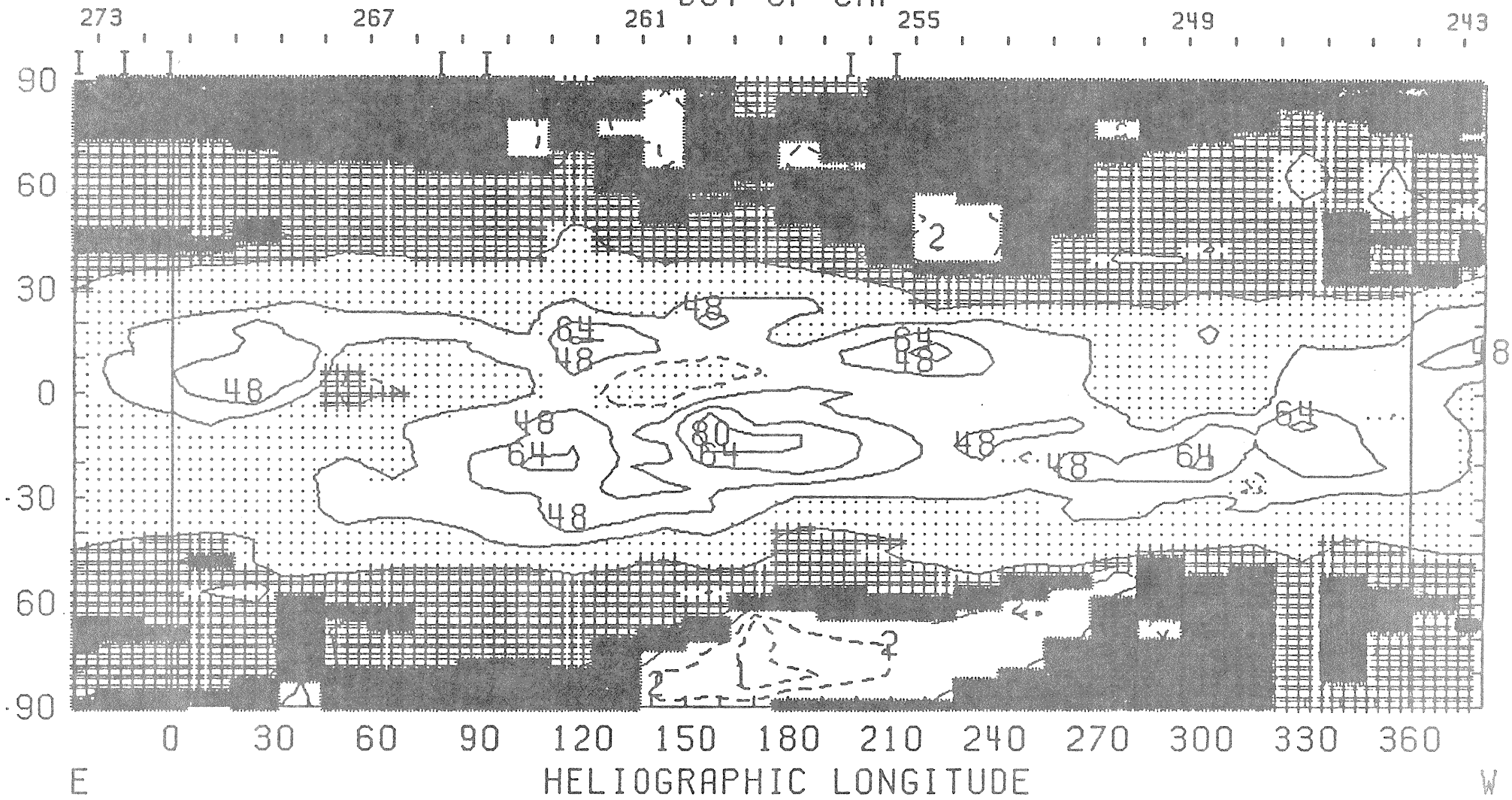
(1 to 28 September 1990)

Wilcox Solar Observatory

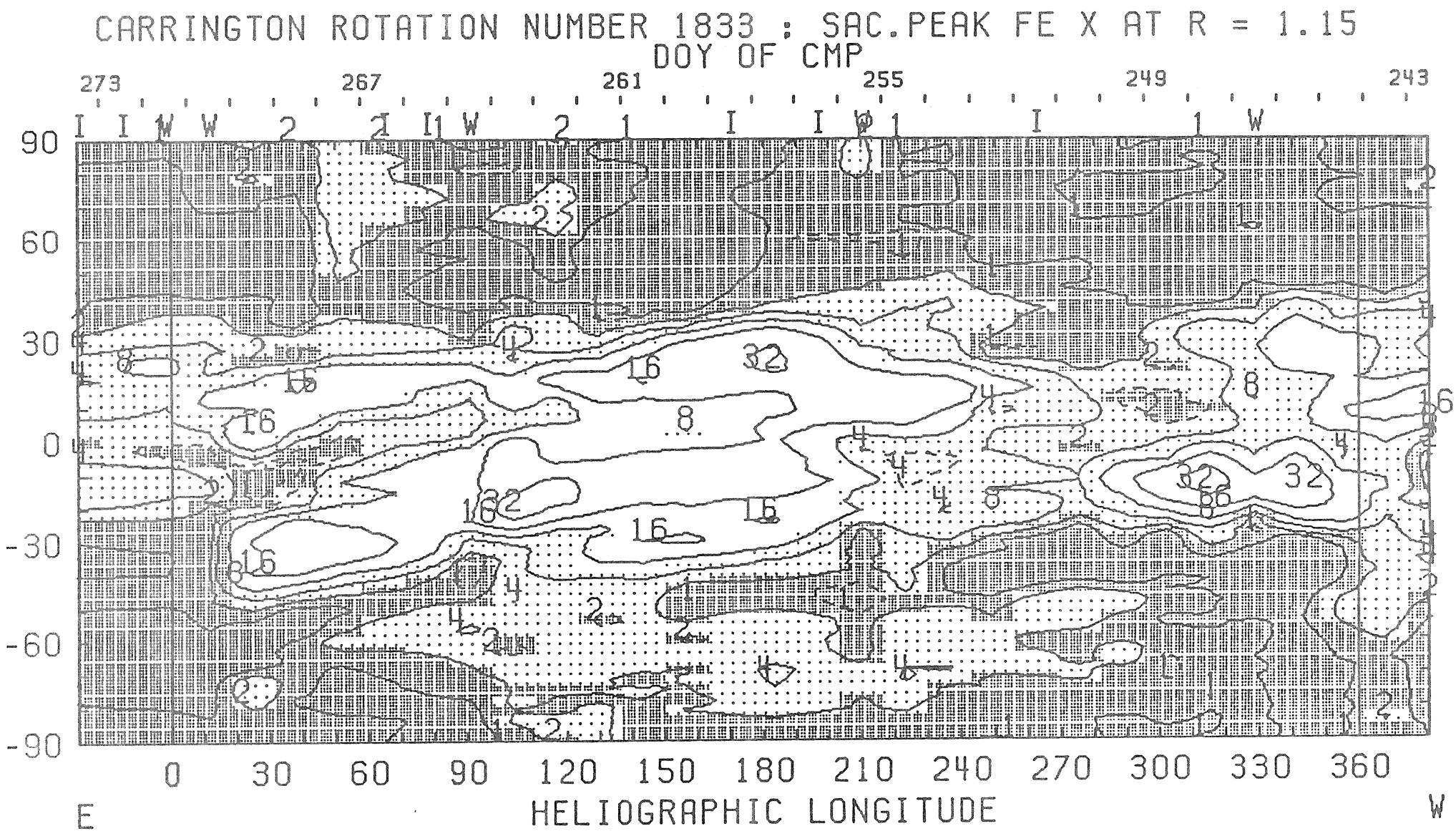
0, ±1, 2, 5, 10, 20 microTesla

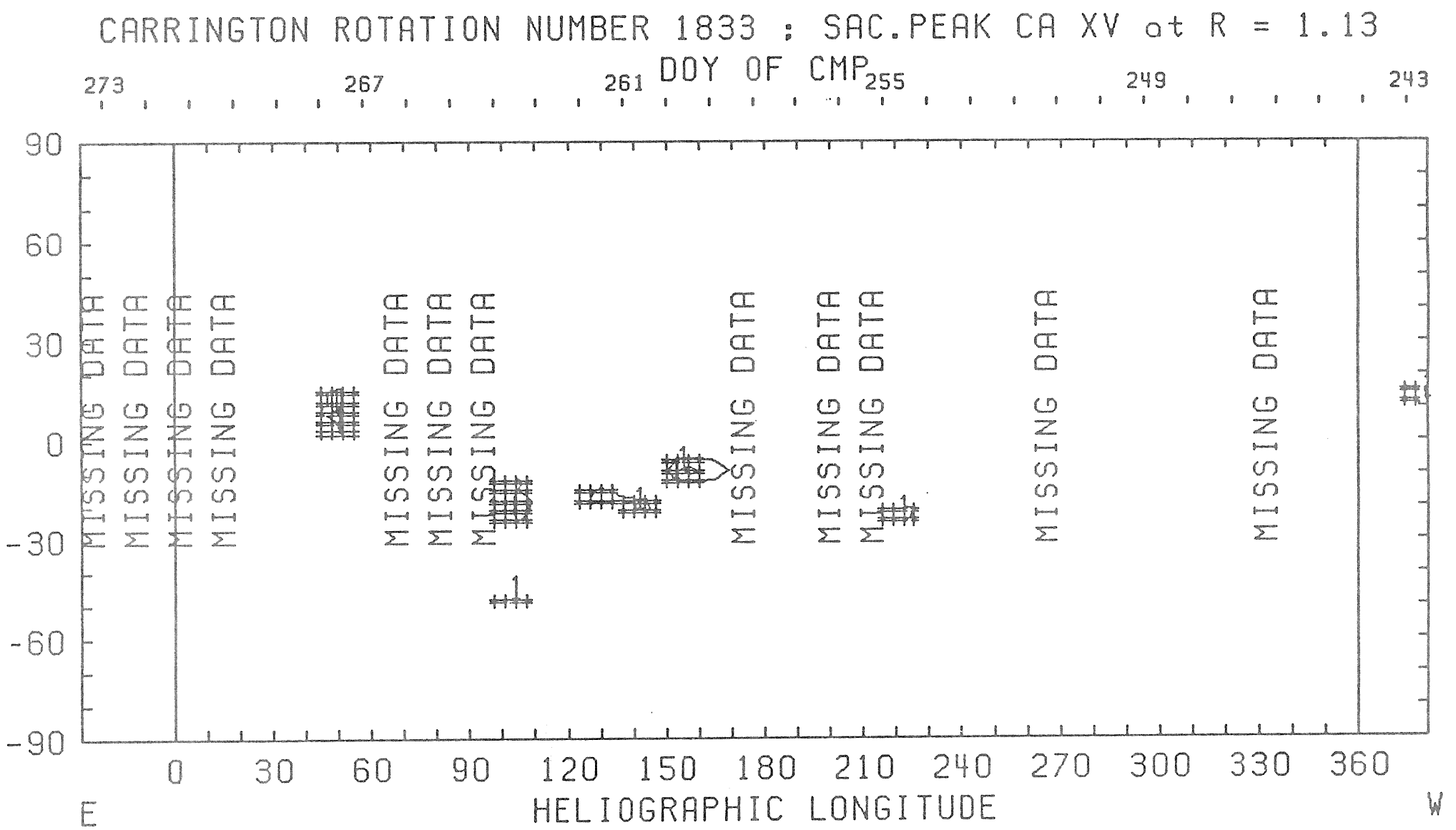


CARRINGTON ROTATION NUMBER 1833 : SAC.PEAK FE XIV AT R = 1.15



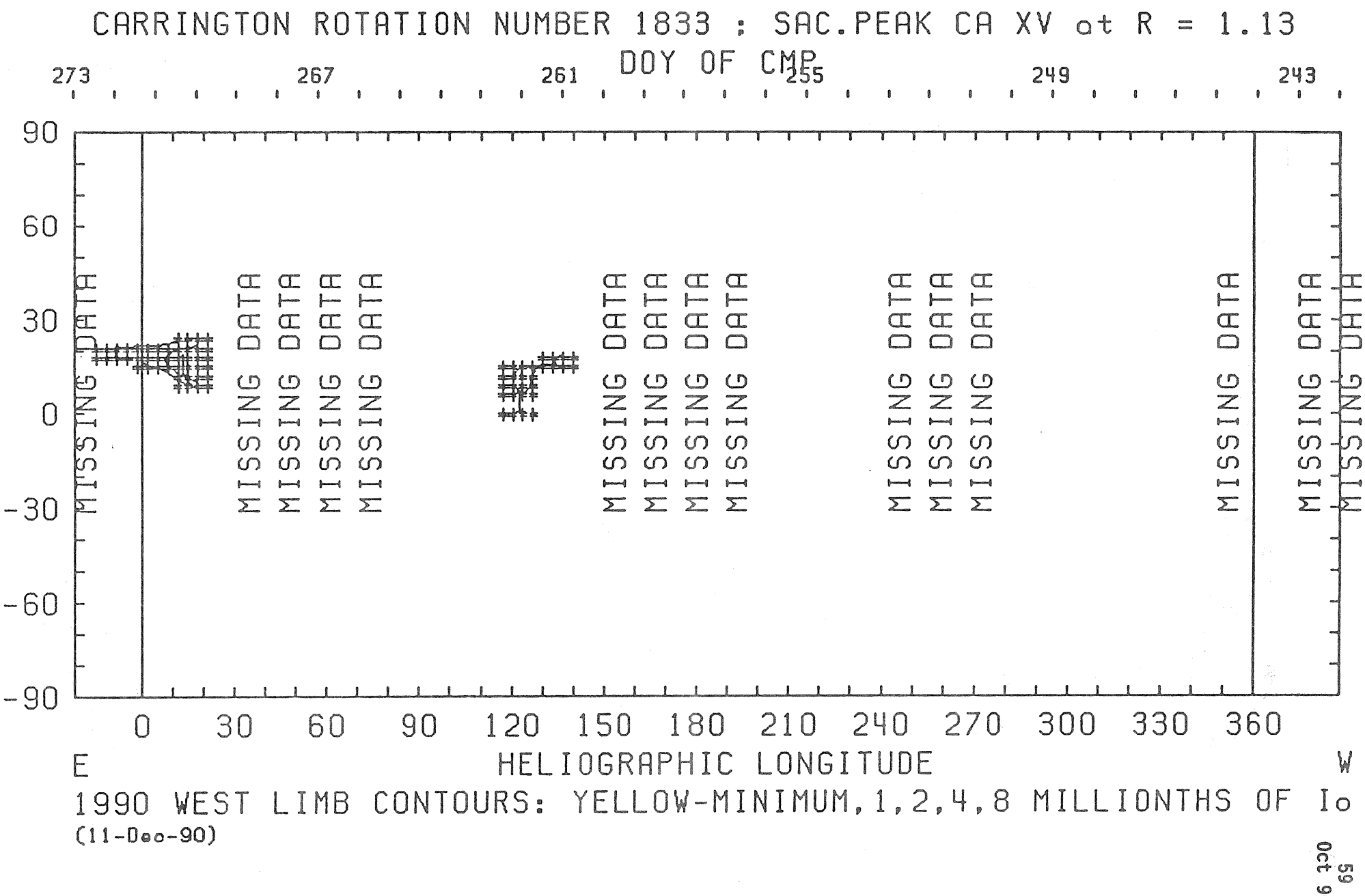
1990 E LIMB CONTOURS: 1,2,4,8,16,32,48,64,80 MILLIONTHS OF Io
(10-Dec-90) CORONAL HOLES ARE SHOWN AS WHITE SURROUNDED BY BLACK


CARRINGTON ROTATION NUMBER 1833 : SAC.PEAK FE X AT R = 1.15
DOY OF CMP
273
267
261
255
249
243
90
60
30
0
-30
-60
-90
0
30
60
90
120
150
180
210
240
270
300
330
360
E
HELIOGRAPHIC LONGITUDE
W
1990 E+W LIMB CONTOURS: 1,2,4,8,16,32,48,64,80 MILLIONTHS OF Io
(10-Dec-90)
Oct 90
57



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

(11-Dec-90)

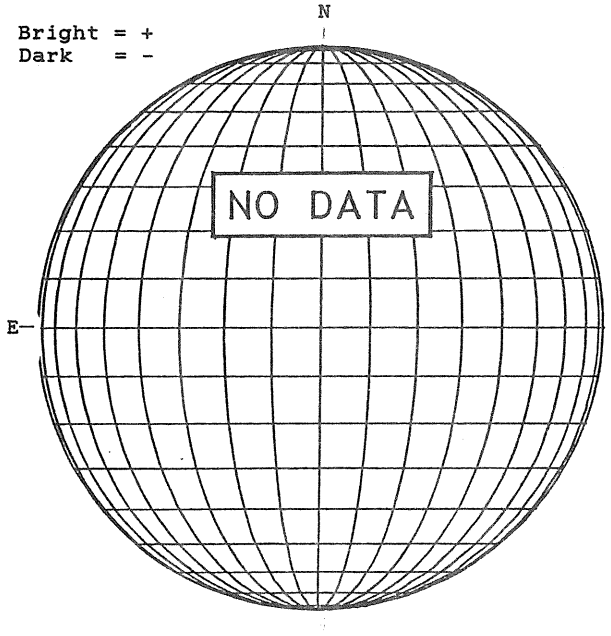

CARRINGTON ROTATION NUMBER 1833 : SAC.PEAK CA XV at R = 1.13
DOY OF CMP
273
267
261
255
249
243
90
60
30
0
-30
-60
-90
MISSING DATA
0
30
60
90
120
150
180
210
240
270
300
330
360
E
HELIOGRAPHIC LONGITUDE
W
1990 WEST LIMB CONTOURS: YELLOW-MINIMUM, 1, 2, 4, 8 MILLIONTHS OF Io
(11-Dec-90)
Oct 90
59

OCTOBER 1, 1990 (P= 25.97, B_o = 6.71, L_o = 325.28)

Oct 90

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



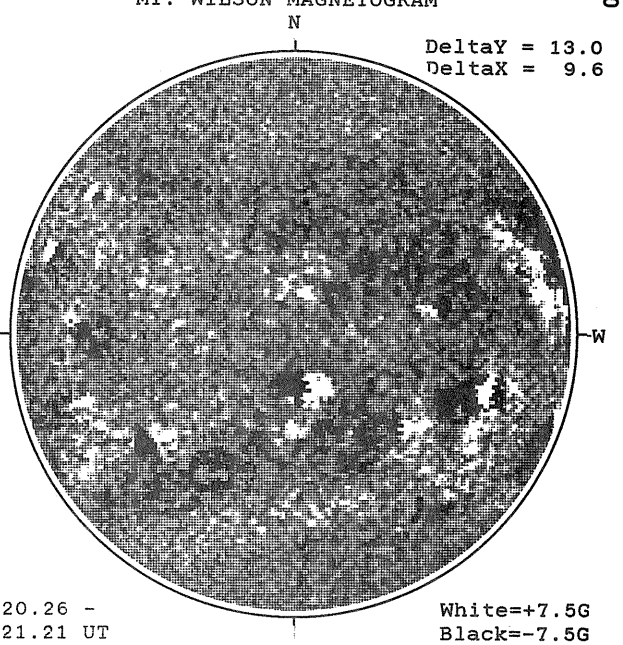
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2117 UT

MT. WILSON MAGNETOGRAM

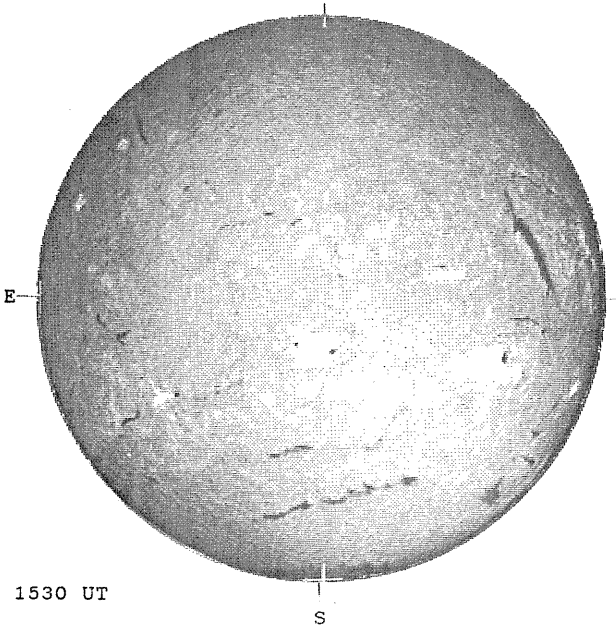
DeltaY = 13.0
DeltaX = 9.6



20.26 -
21.21 UT

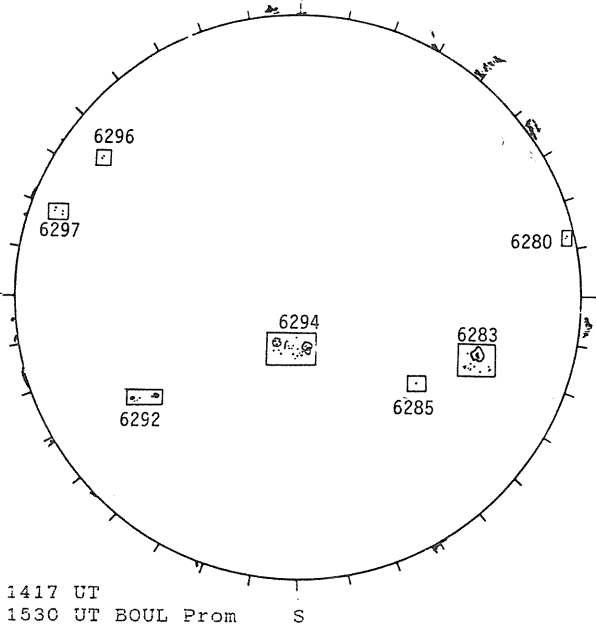
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



1530 UT

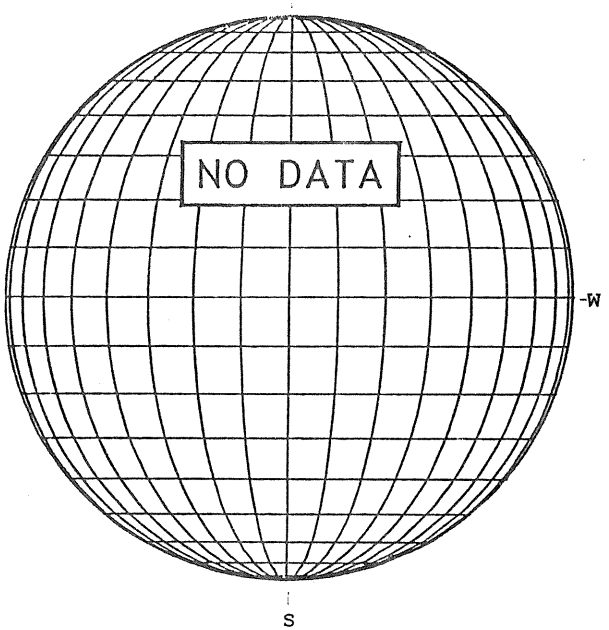
BOULDER SUNSPOT



1417 UT
1530 UT BOUL Prom

S

SACRAMENTO PEAK CORONA (1.15 Radii)

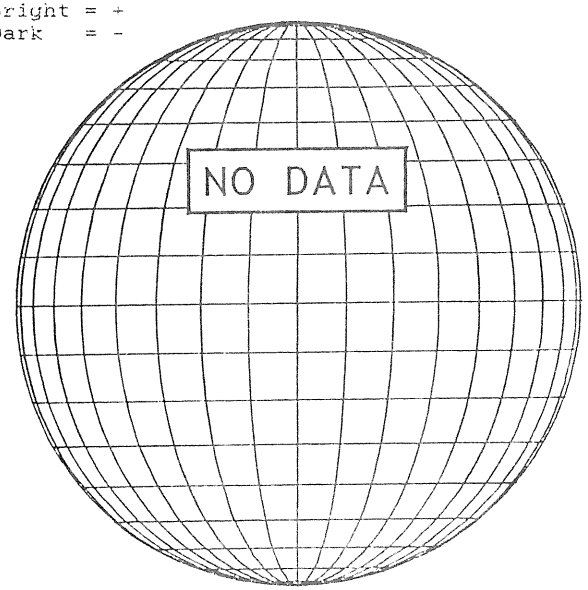


OCTOBER 2, 1990 (P= 26.04, B_o = 6.66, L_o = 312.08)

KITT PEAK MAGNETOGRAM

N

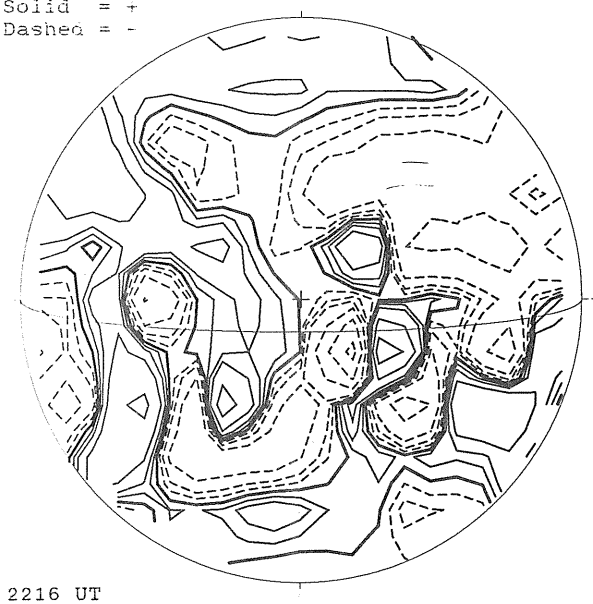
Bright = +
Dark = -



STANFORD MAGNETOGRAM

N

Solid = +
Dashed = -

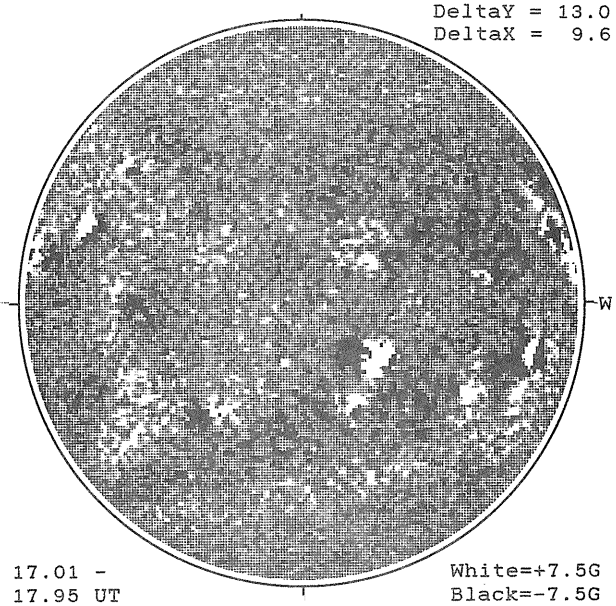


2216 UT

MT. WILSON MAGNETOGRAM

N

DeltaY = 13.0
DeltaX = 9.6

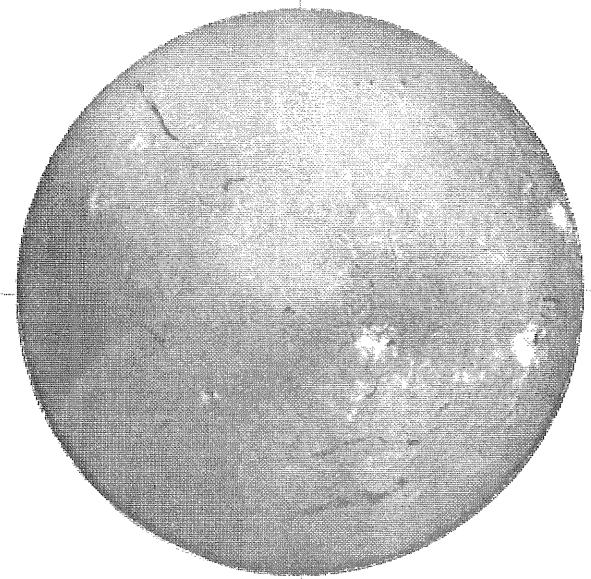


W

17.01 -
17.95 UT

White=+7.5G
Black=-7.5G

[illegible] H-ALPHA

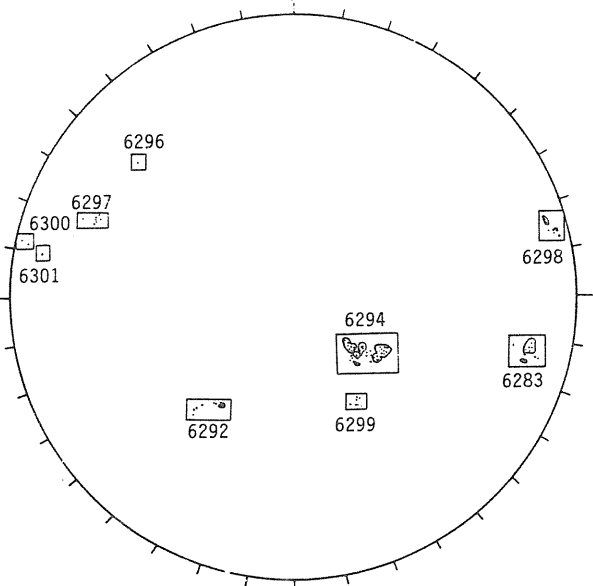


E

2019 UT

S

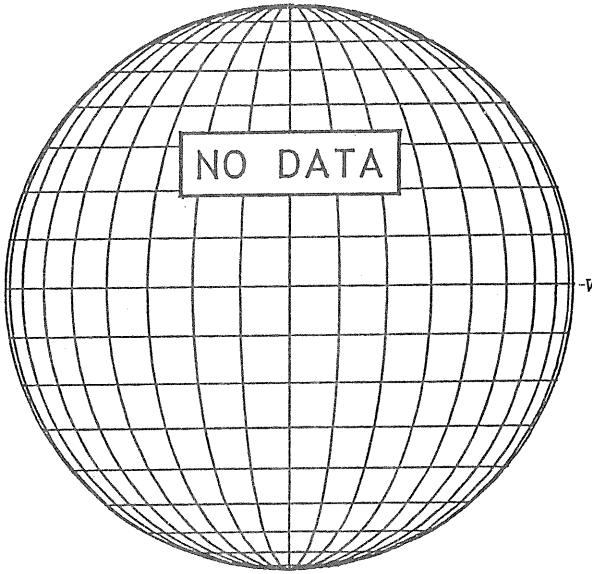
HOLLOMAN SUNSPOT



1905 UT

S

SACRAMENTO PEAK CORONA (1.15 Radii)



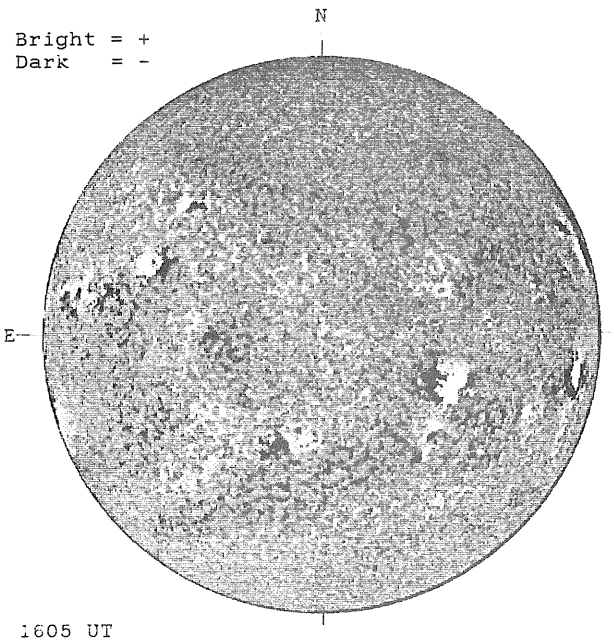
W

S

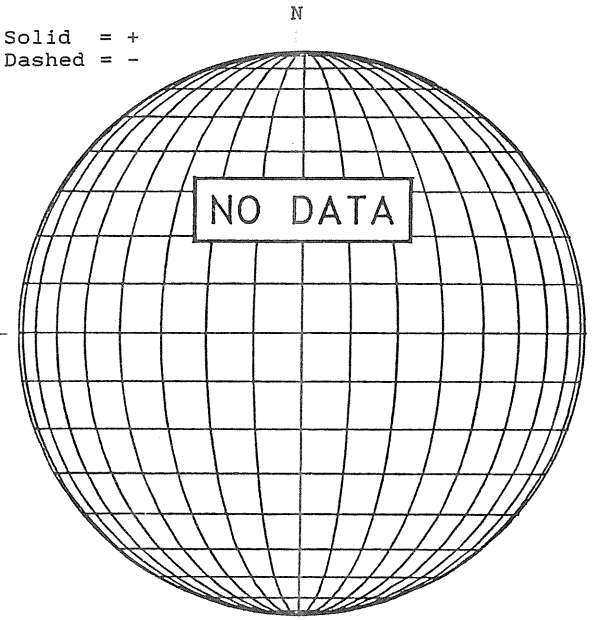
61 oct 90

OCTOBER 3, 1990 (P= 26.09, B_o = 6.61, L_o = 298.89)

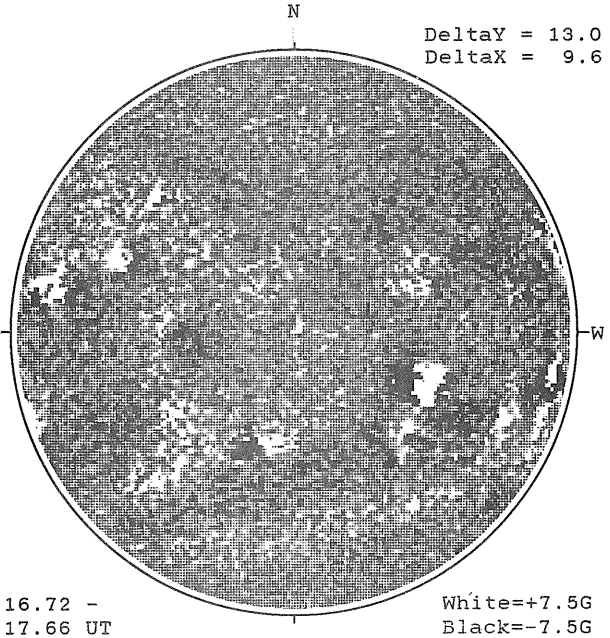
KITT PEAK MAGNETOGRAM



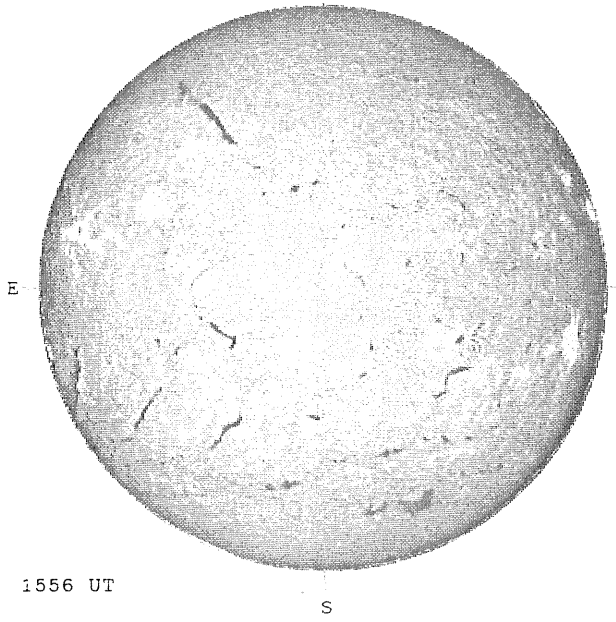
STANFORD MAGNETOGRAM



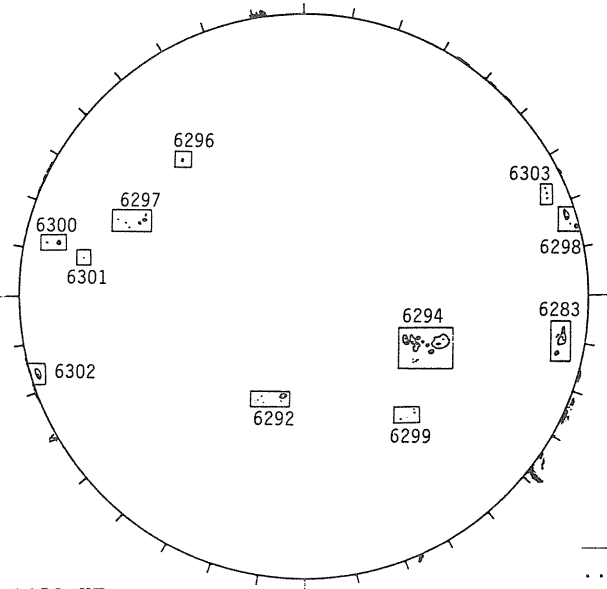
MT. WILSON MAGNETOGRAM



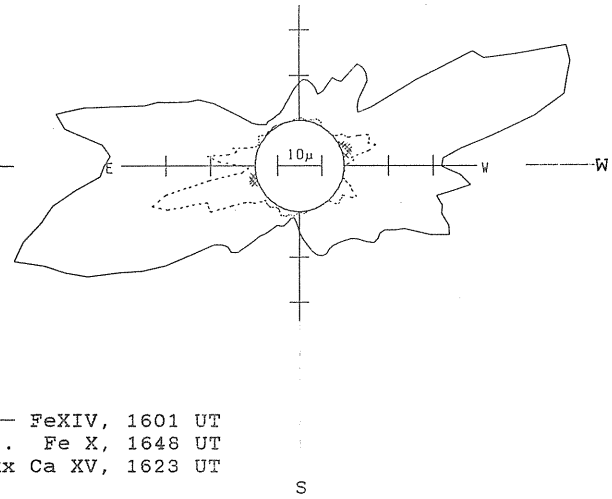
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



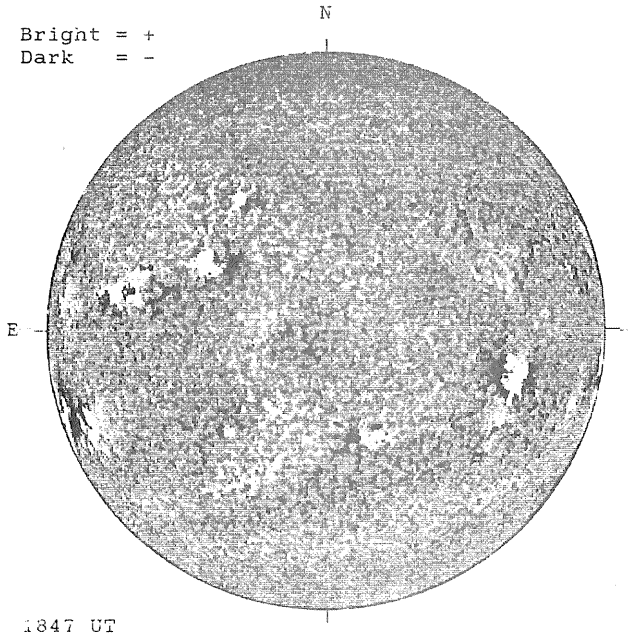
SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1601 UT
.... Fe X, 1648 UT
xxxx Ca XV, 1623 UT

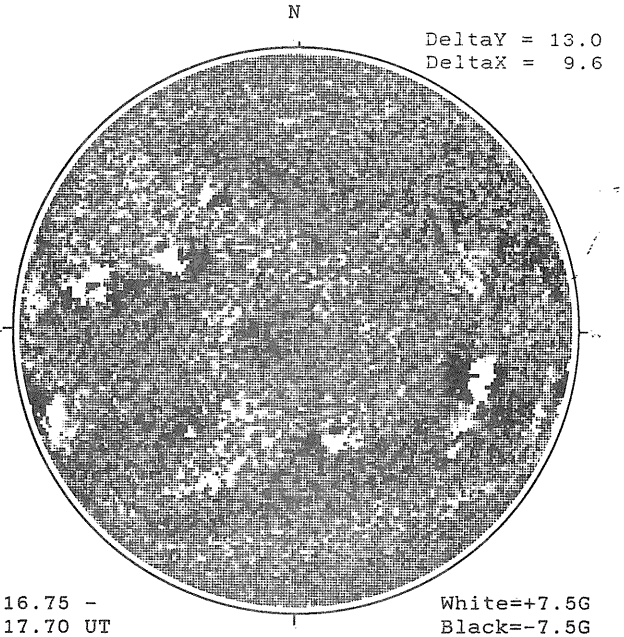
OCTOBER 4, 1990 (P= 26.14, B_o = 6.56, L_o = 285.69)

KITT PEAK MAGNETOGRAM

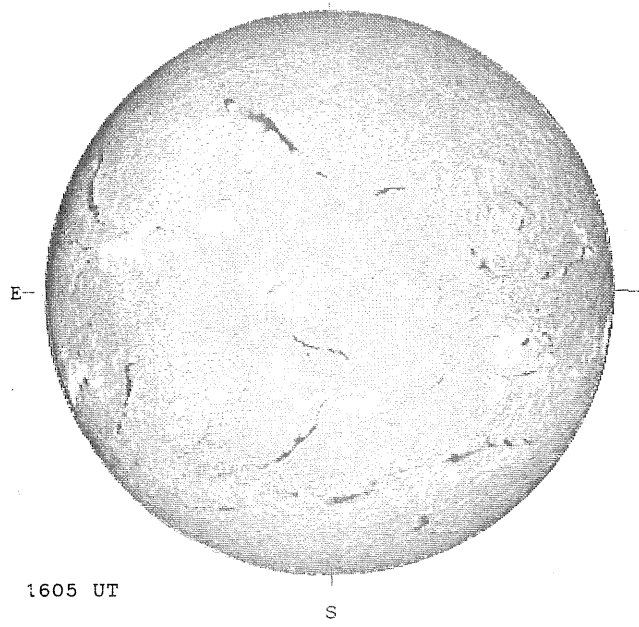


STANFORD MAGNETOGRAM

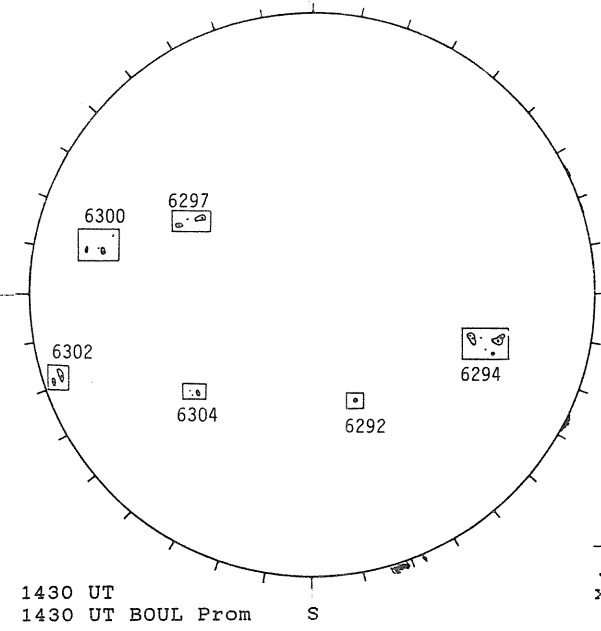
MT. WILSON MAGNETOGRAM



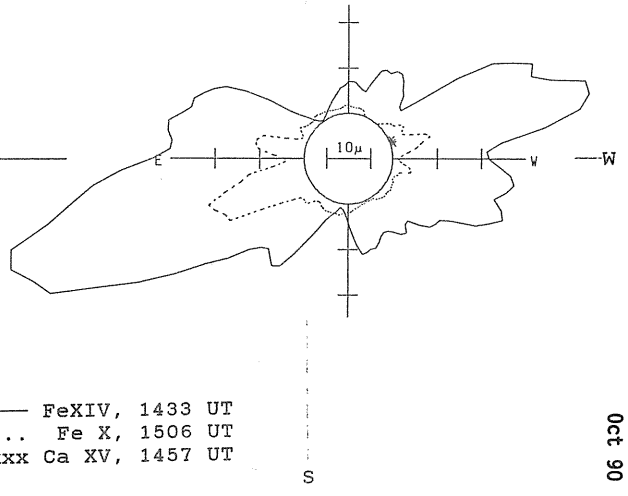
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



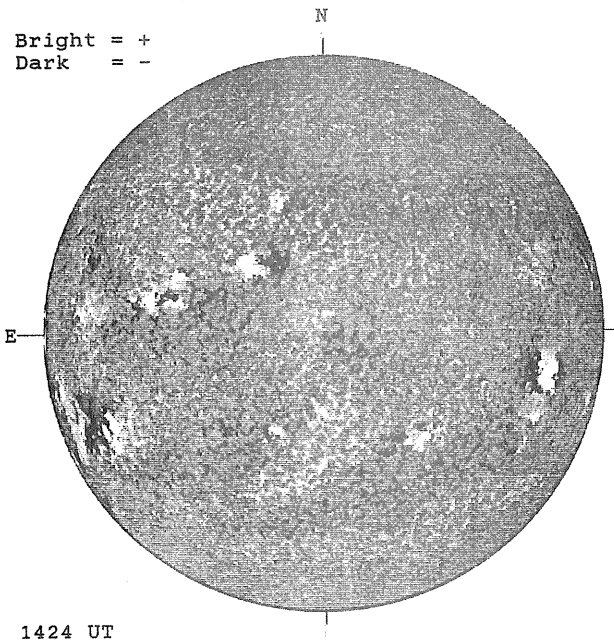
SACRAMENTO PEAK CORONA (1.15 Radii)



63
Oct 90

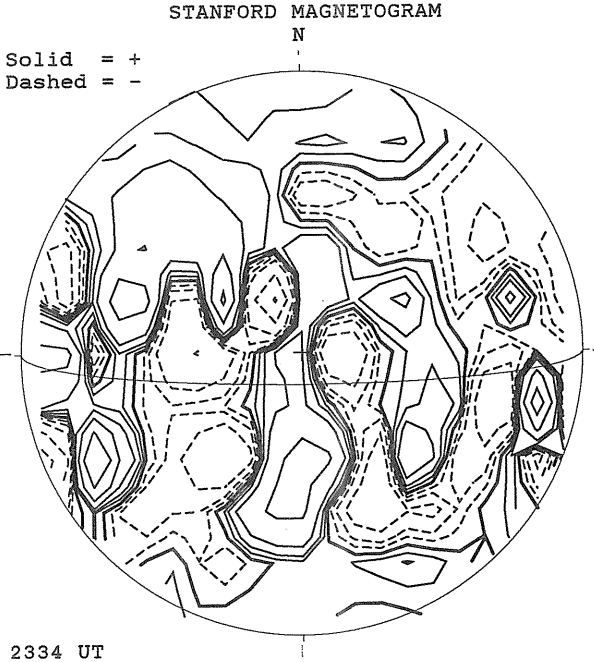
OCTOBER 5, 1990 (P= 26.19, B_o = 6.51, L_o = 272.50)

KITT PEAK MAGNETOGRAM



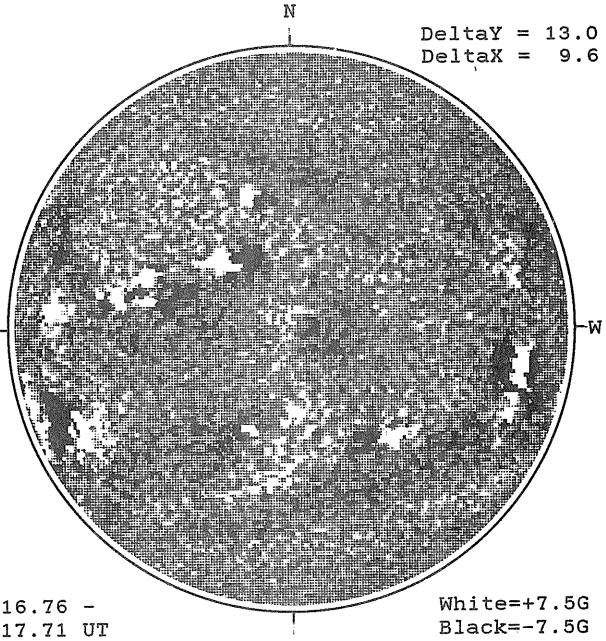
1424 UT

STANFORD MAGNETOGRAM



2334 UT

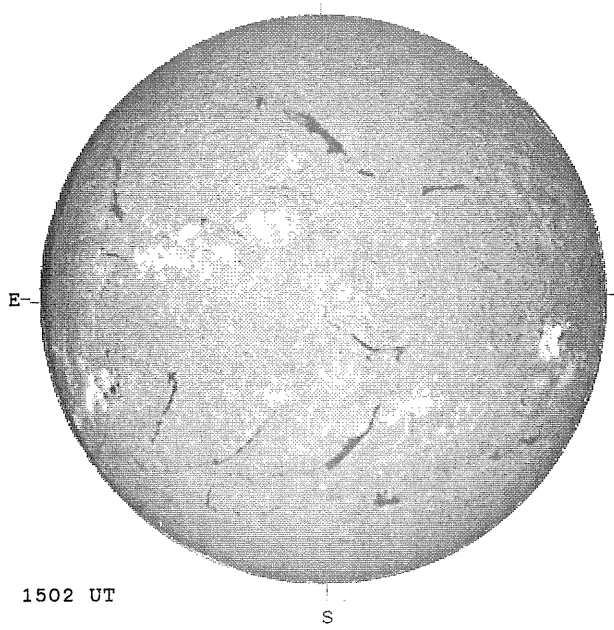
MT. WILSON MAGNETOGRAM



16.76 -
17.71 UT

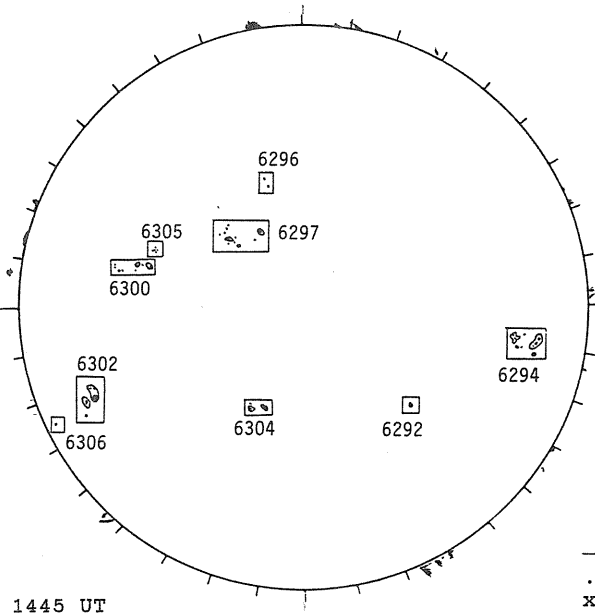
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



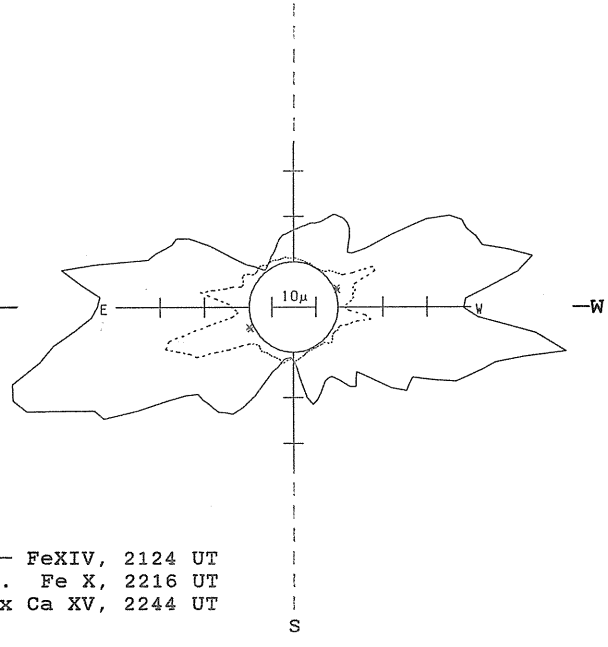
1502 UT

BOULDER SUNSPOT



1445 UT
1455 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

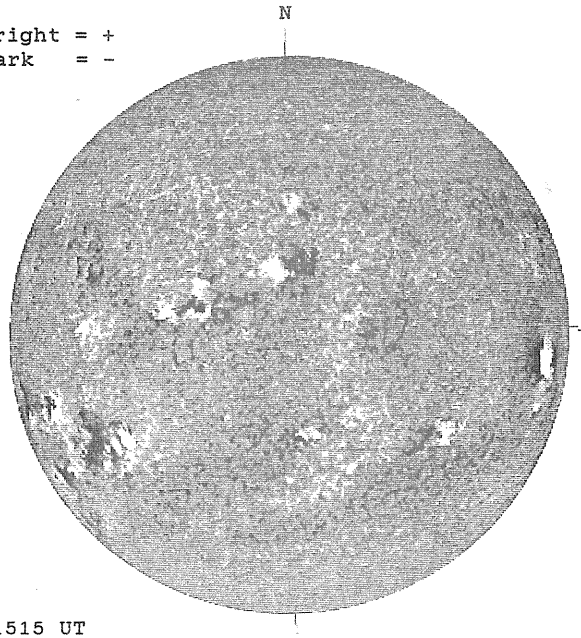


—— FeXIV, 2124 UT
.... Fe X, 2216 UT
xxxx Ca XV, 2244 UT

OCTOBER 6, 1990 (P= 26.22, B_o = 6.45, L_o = 259.30)

KITT PEAK MAGNETOGRAM

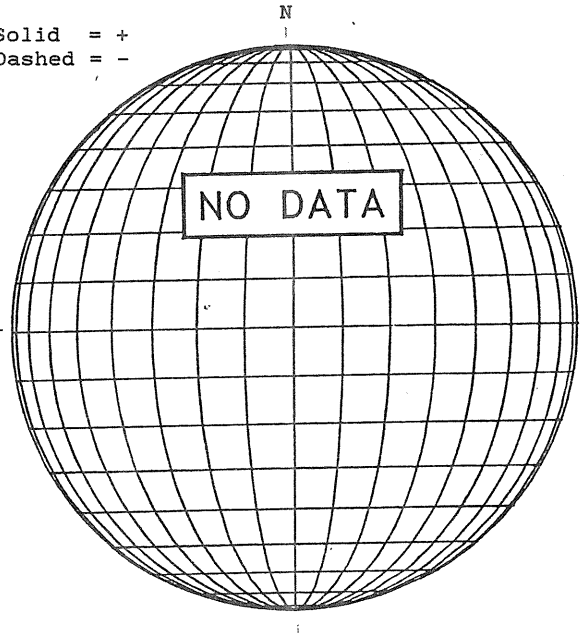
Bright = +
Dark = -



1515 UT

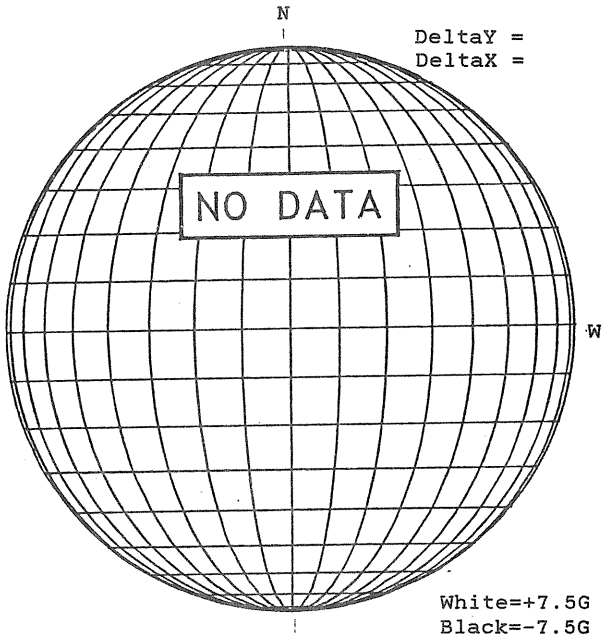
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



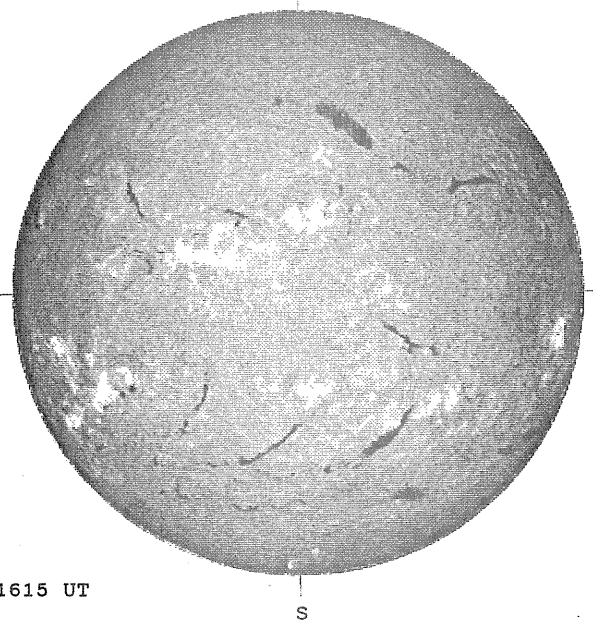
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



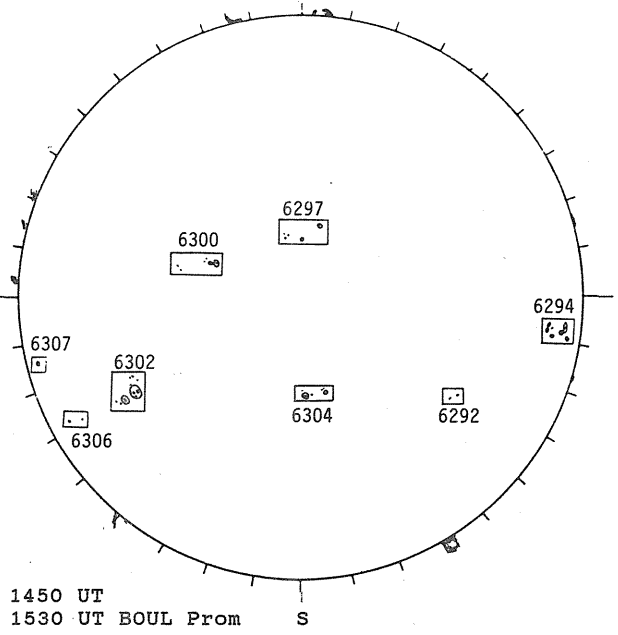
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



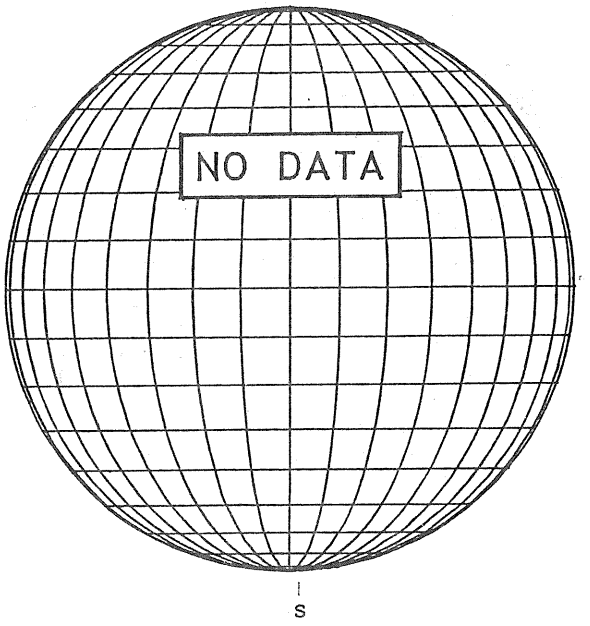
1615 UT

BOULDER SUNSPOT



1450 UT
1530 UT BOUL Prom

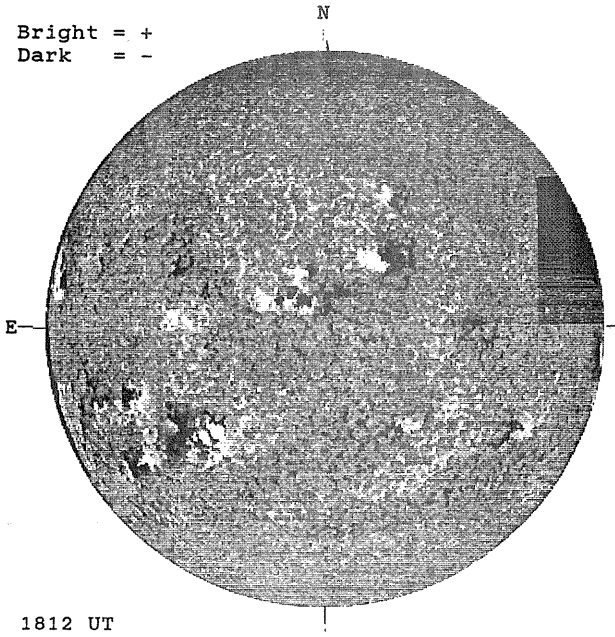
SACRAMENTO PEAK CORONA (1.15 Radii)



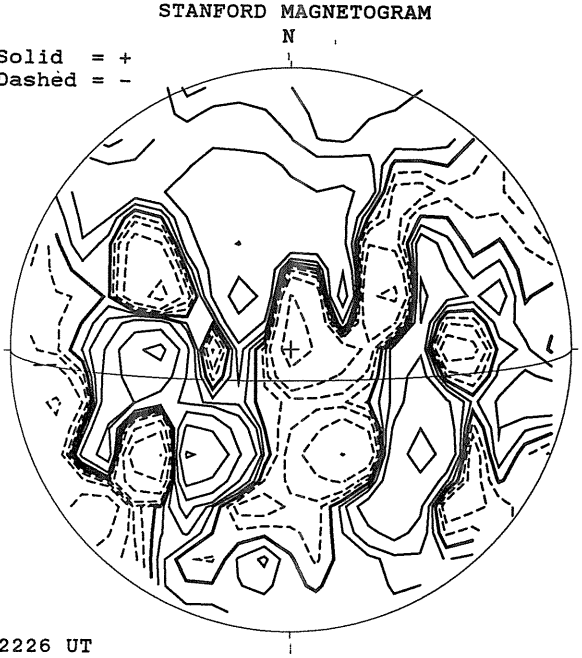
95
Oct 90

OCTOBER 7, 1990 (P= 26.25, B_o = 6.40, L_o = 246.11)

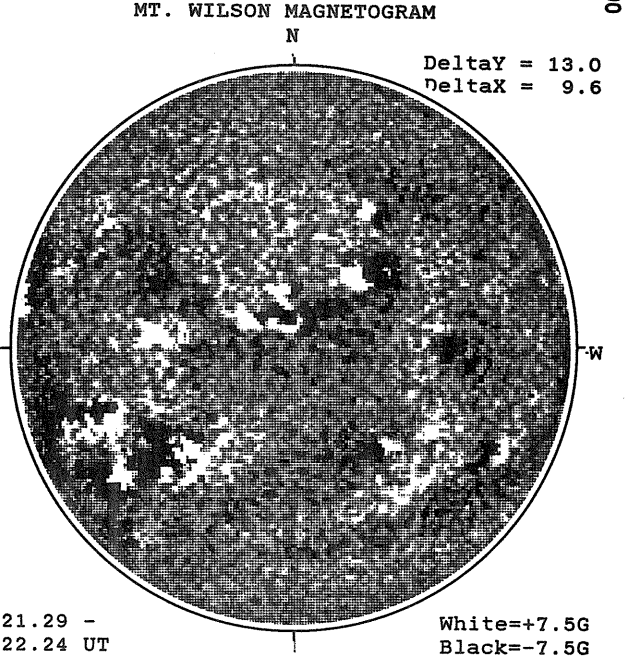
KITT PEAK MAGNETOGRAM



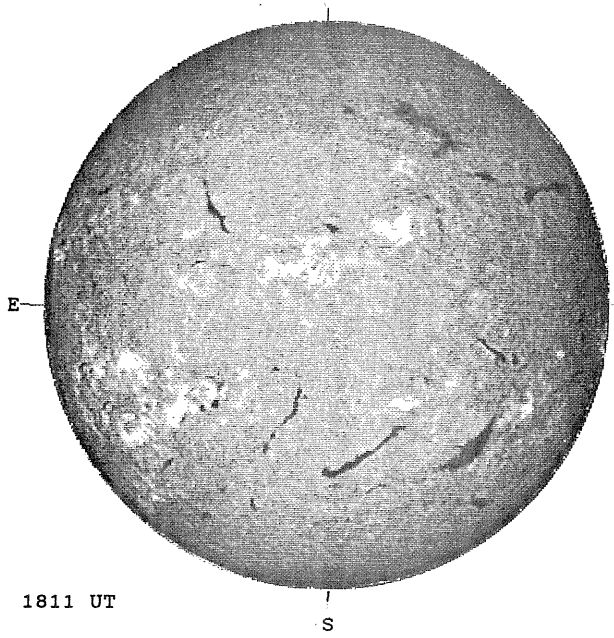
STANFORD MAGNETOGRAM



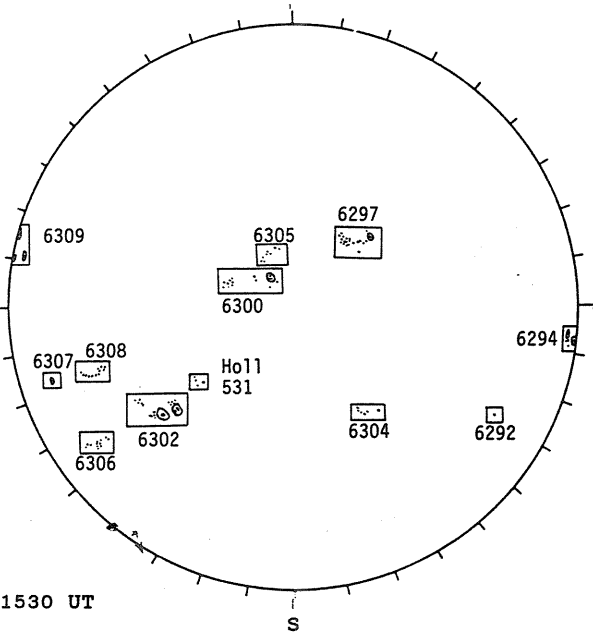
MT. WILSON MAGNETOGRAM



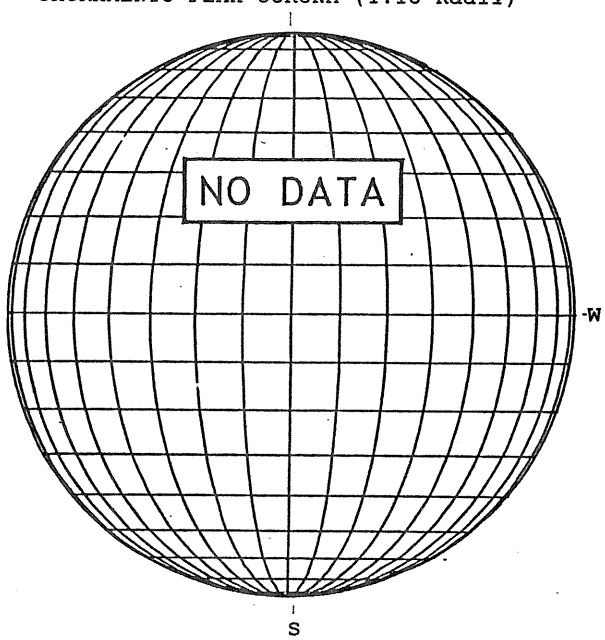
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOT



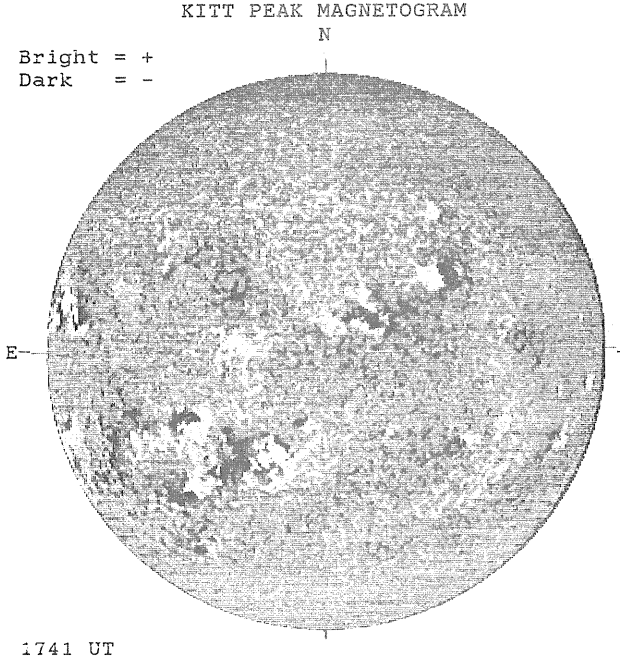
SACRAMENTO PEAK CORONA (1.15 Radii)



OCTOBER 8, 1990 (P= 26.28, B_o = 6.34, L_o = 232.92)

KITT PEAK MAGNETOGRAM

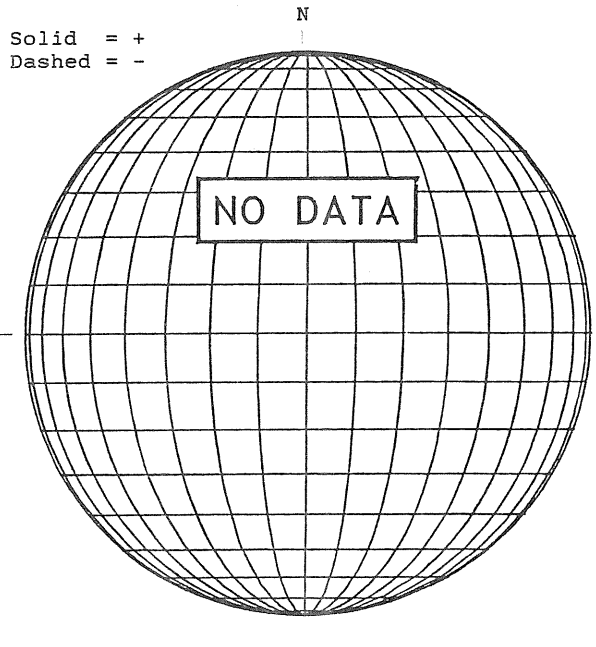
Bright = +
Dark = -



1741 UT

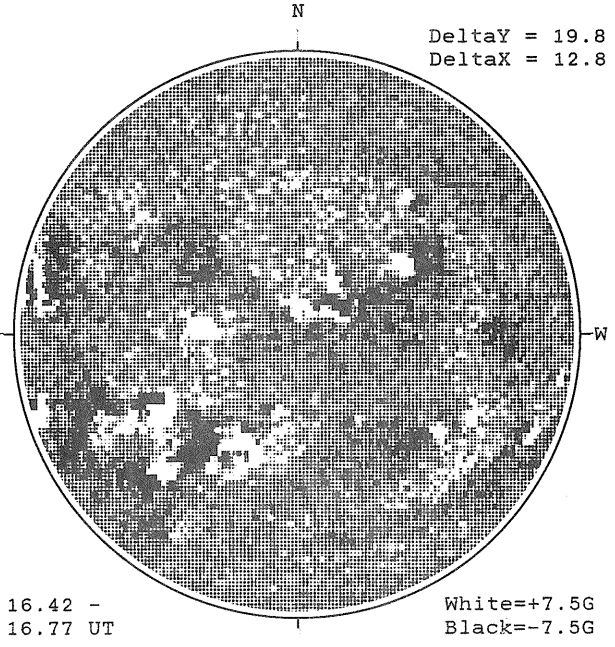
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

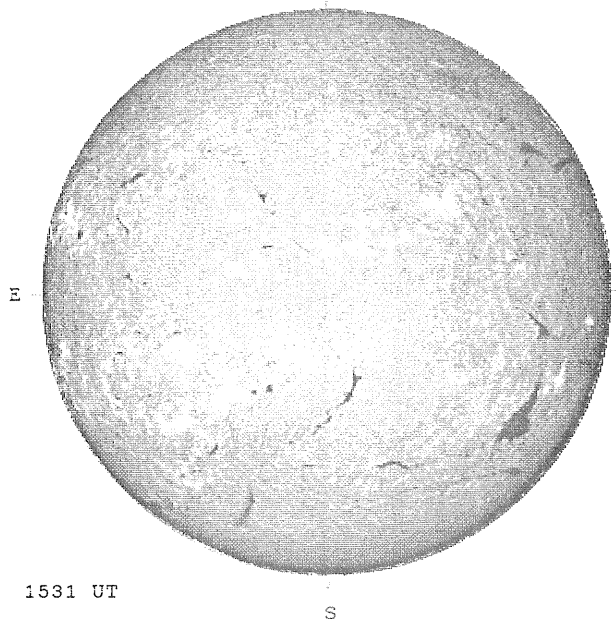
DeltaY = 19.8
DeltaX = 12.8



16.42 -
16.77 UT

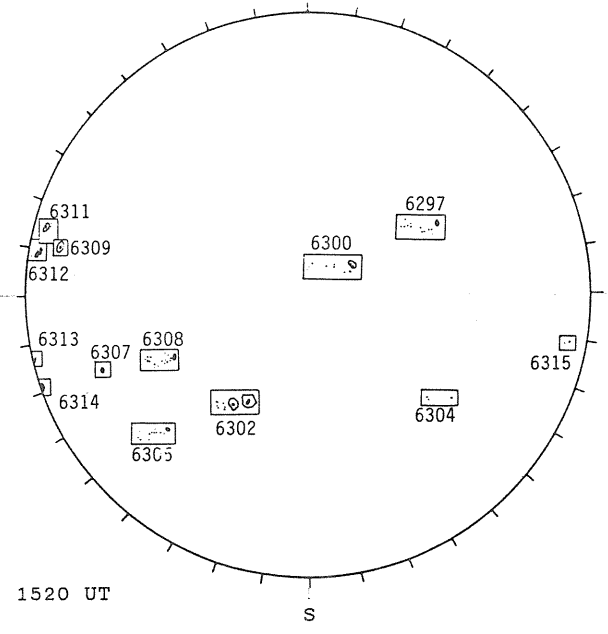
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



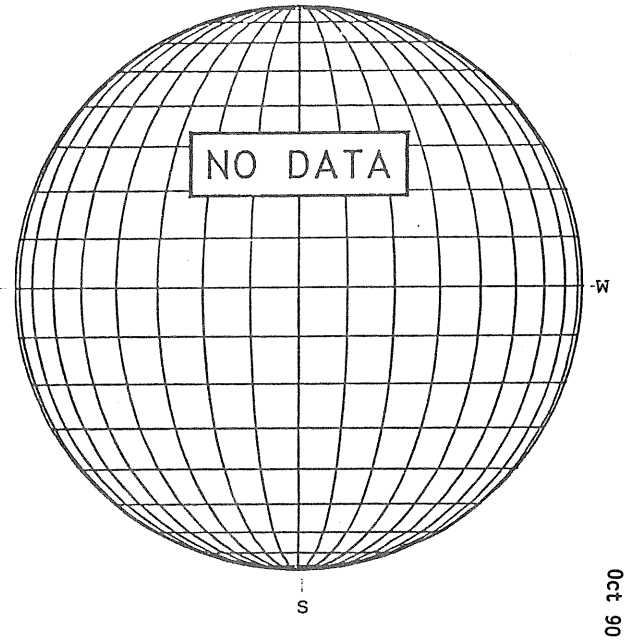
1531 UT

HOLLOMAN SUNSPOT



1520 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

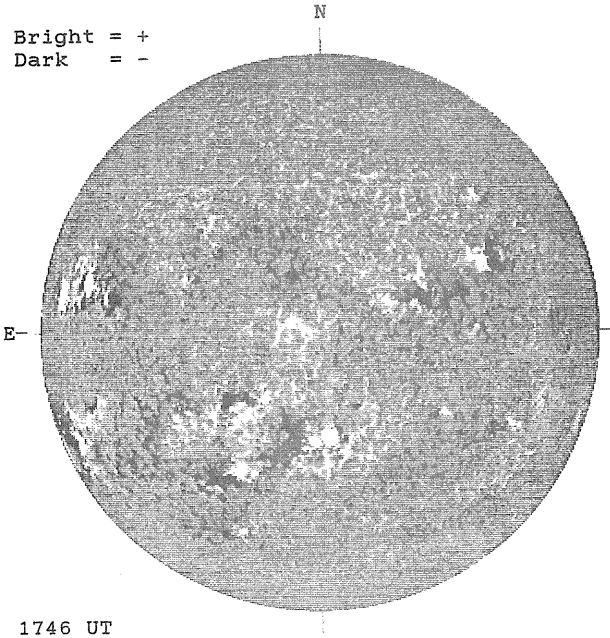


67
Oct 90

OCTOBER 9, 1990 (P= 26.29, B_o = 6.28, L_o = 219.72)

KITT PEAK MAGNETOGRAM

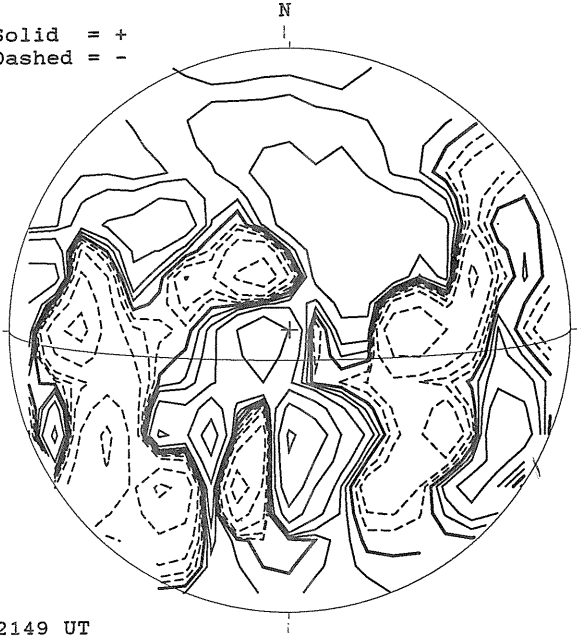
Bright = +
Dark = -



1746 UT

STANFORD MAGNETOGRAM

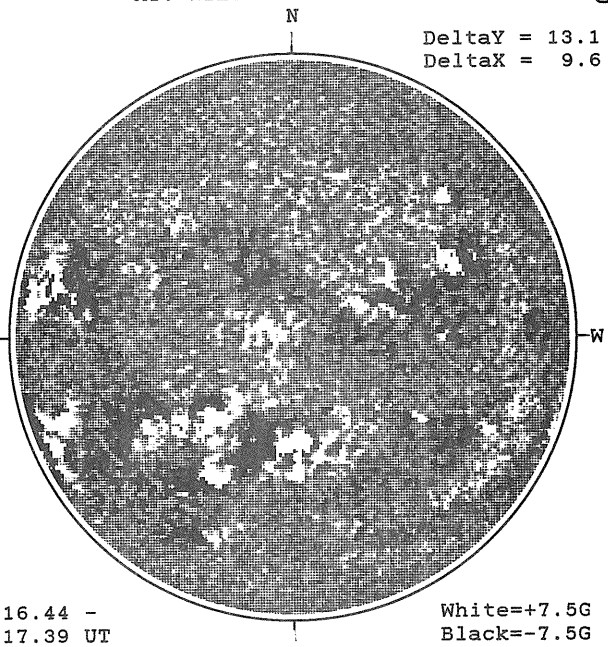
Solid = +
Dashed = -



2149 UT

MT. WILSON MAGNETOGRAM

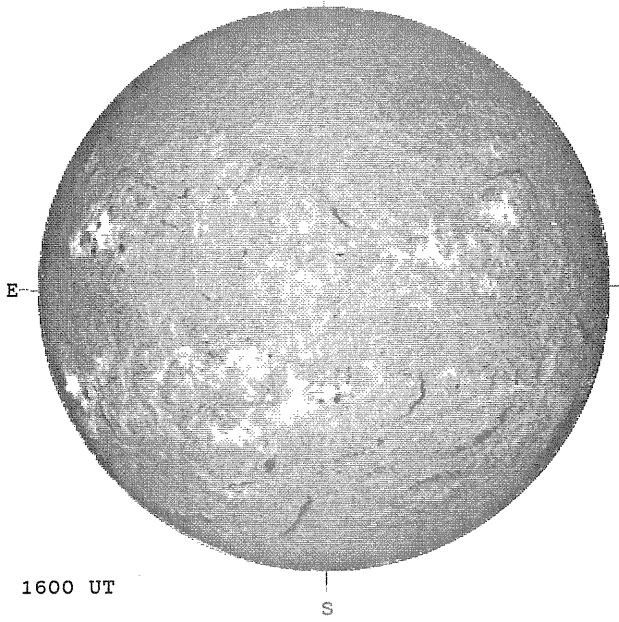
DeltaY = 13.1
DeltaX = 9.6



16.44 -
17.39 UT

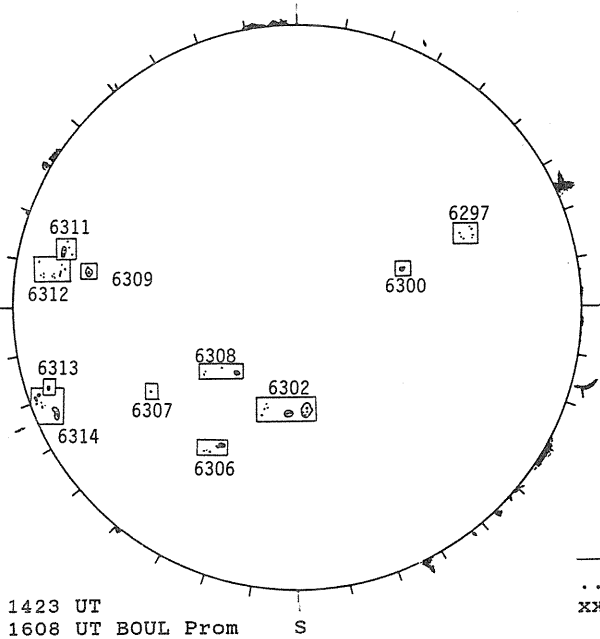
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



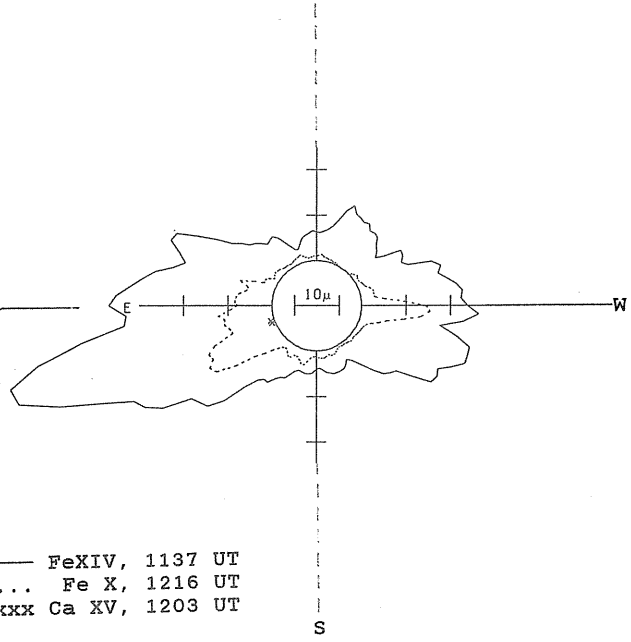
1600 UT

BOULDER SUNSPOT



1423 UT
1608 UT BOUL Prom

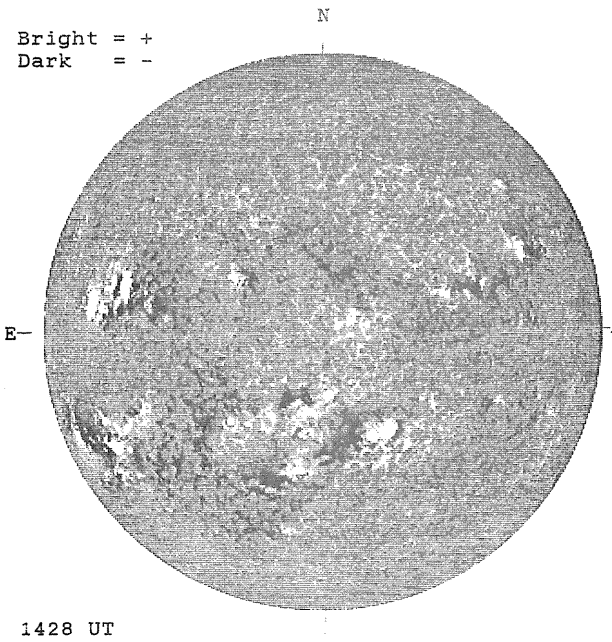
SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1137 UT
.... Fe X, 1216 UT
xxxx Ca XV, 1203 UT

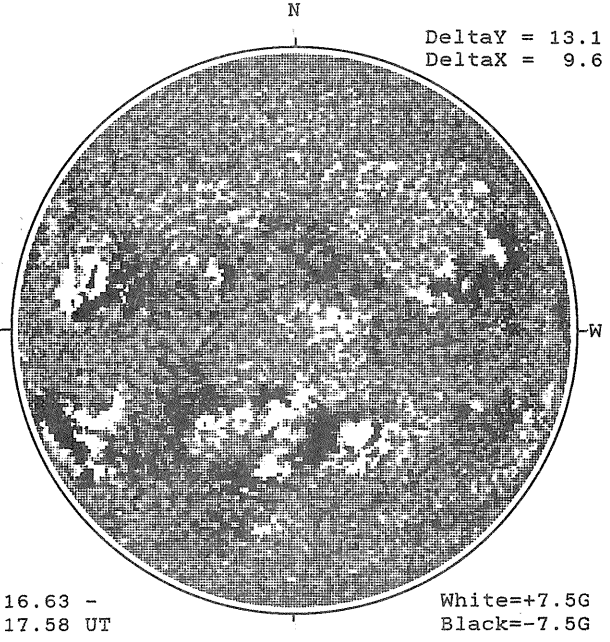
OCTOBER 10, 1990 (P= 26.30, B_o = 6.21, L_o = 206.53)

KITT PEAK MAGNETOGRAM

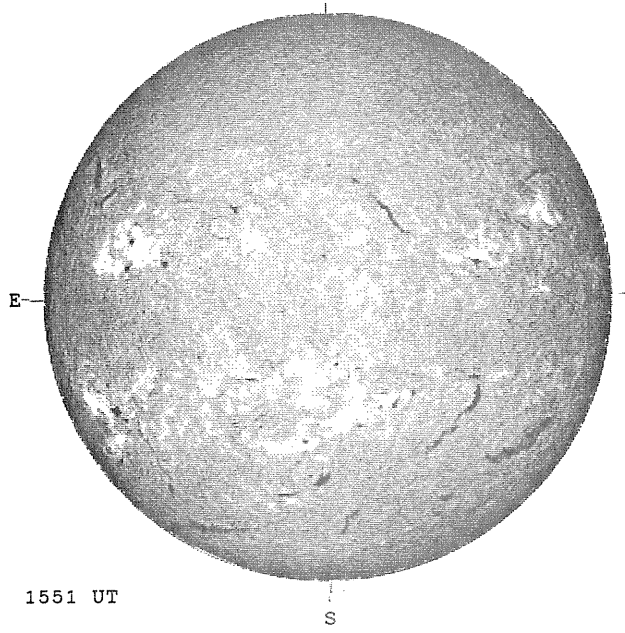


STANFORD MAGNETOGRAM

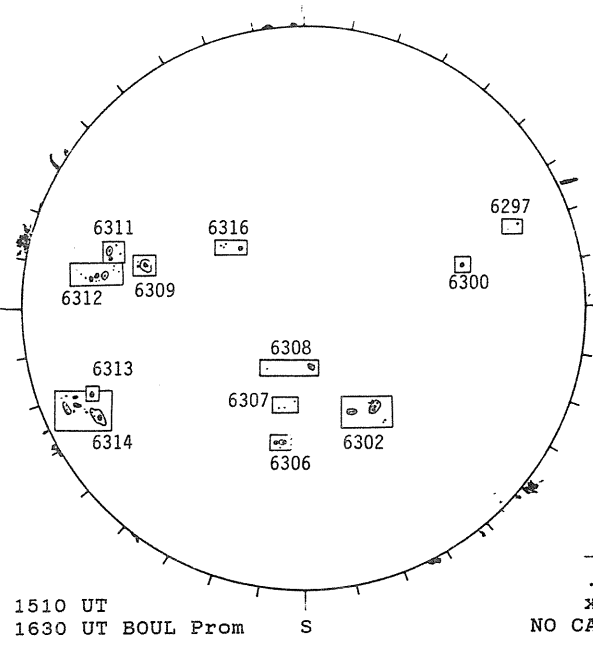
MT. WILSON MAGNETOGRAM



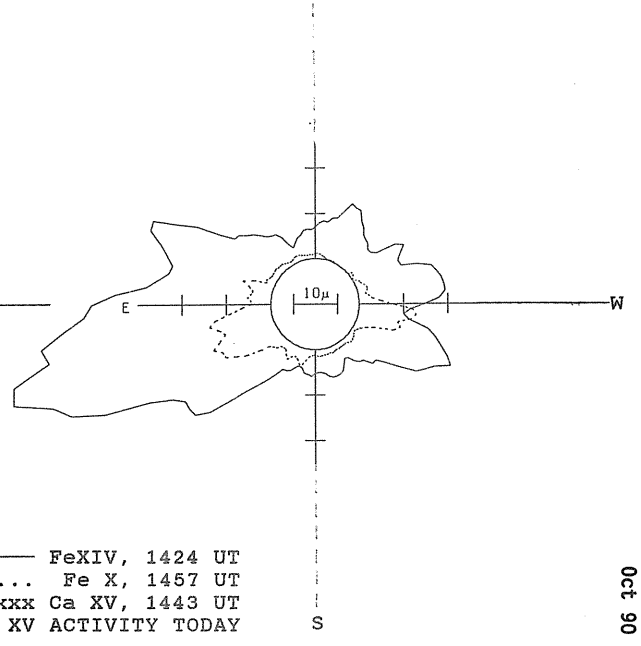
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT

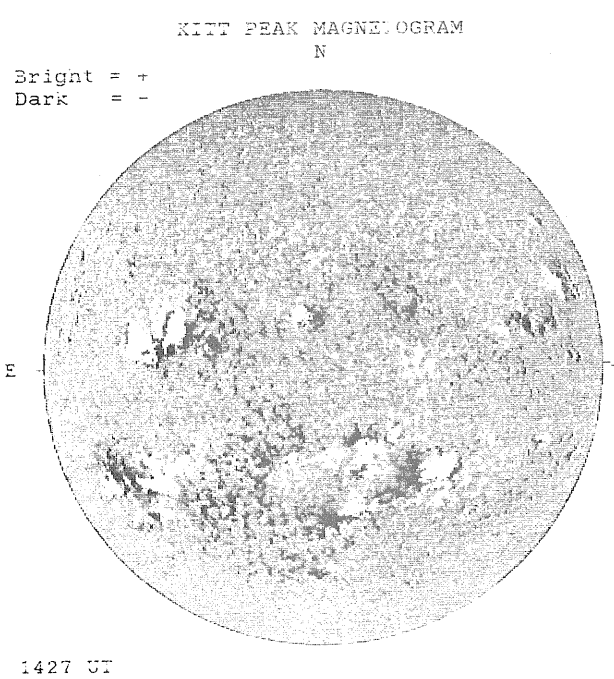


SACRAMENTO PEAK CORONA (1.15 Radii)

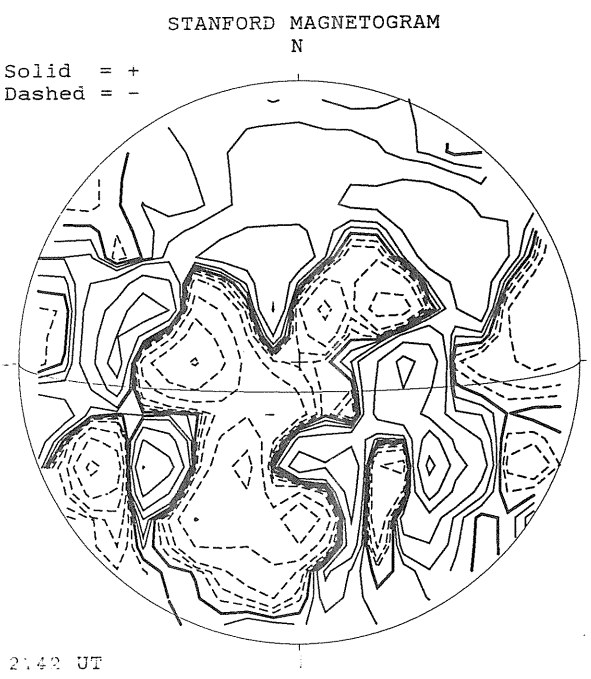


OCTOBER 11, 1990 (P= 26.30, B_o = 6.15, L_o = 193.34)

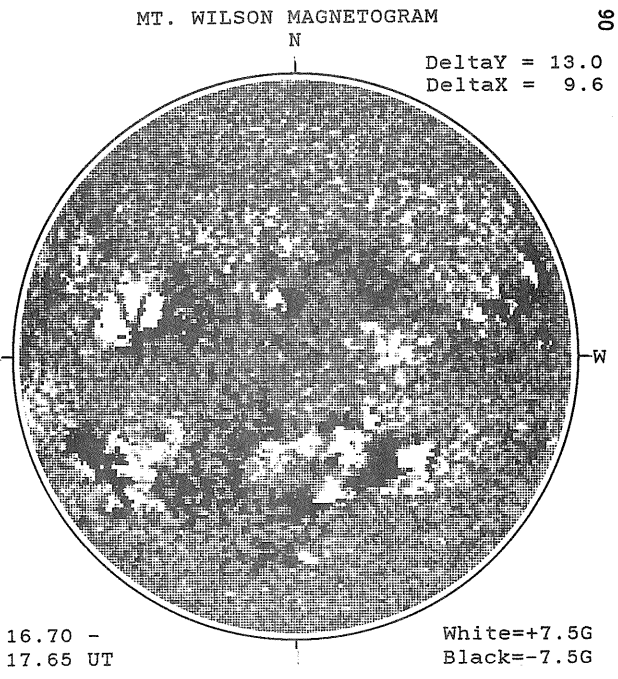
KITT PEAK MAGNETOGRAM



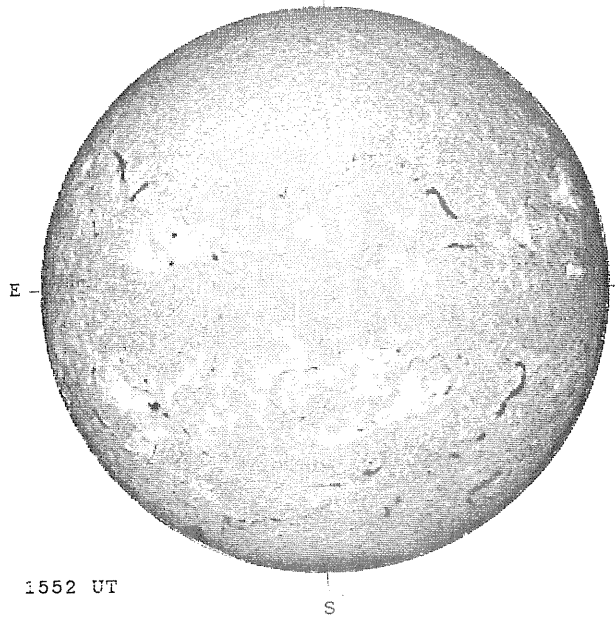
STANFORD MAGNETOGRAM



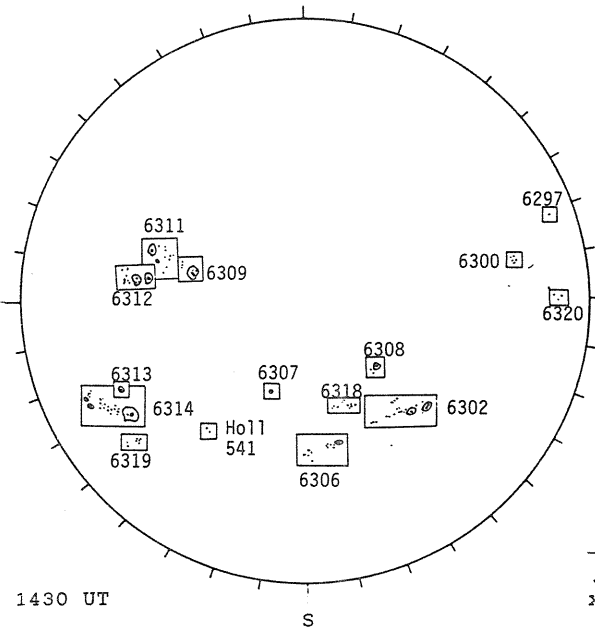
MT. WILSON MAGNETOGRAM



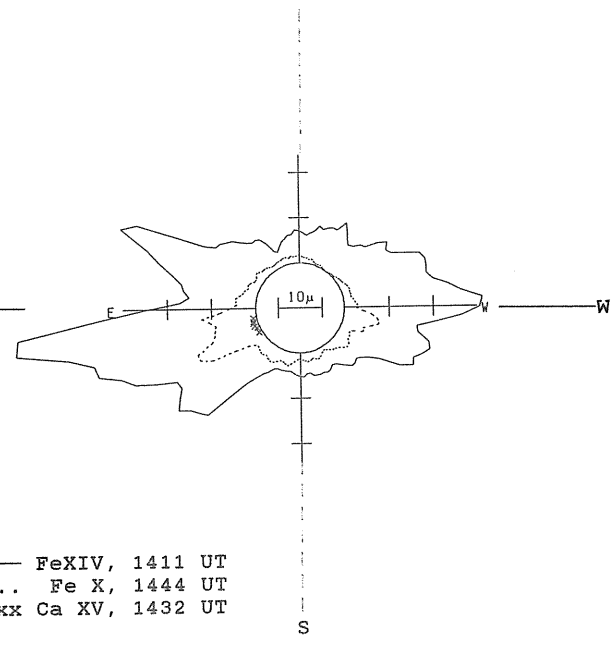
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOT

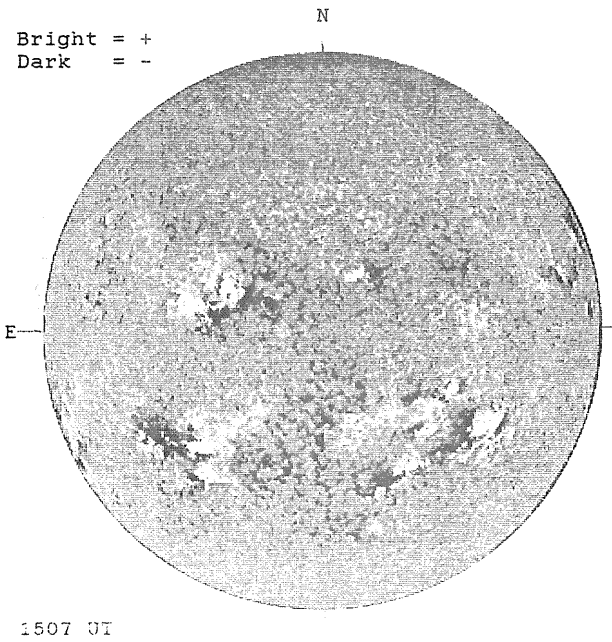


SACRAMENTO PEAK CORONA (1.15 Radii)



OCTOBER 12, 1990 (P= 26.29, B_o = 6.08, L_o = 180.15)

KITT PEAK MAGNETOGRAM

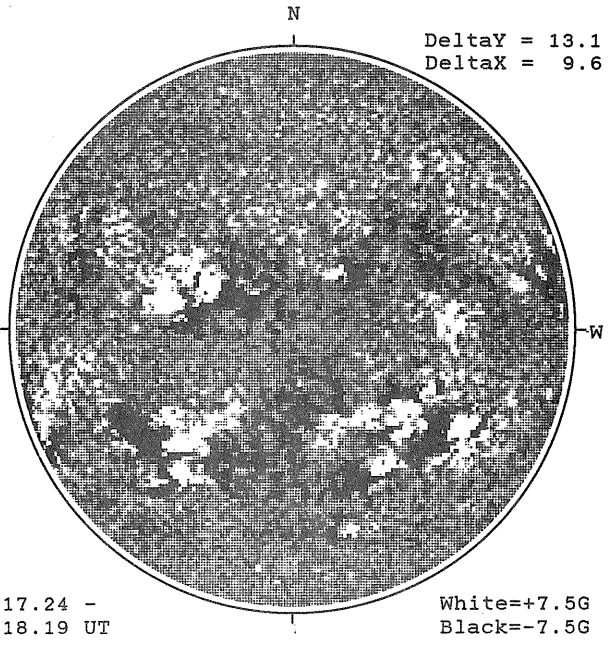


1507 UT

STANFORD MAGNETOGRAM

2234 UT

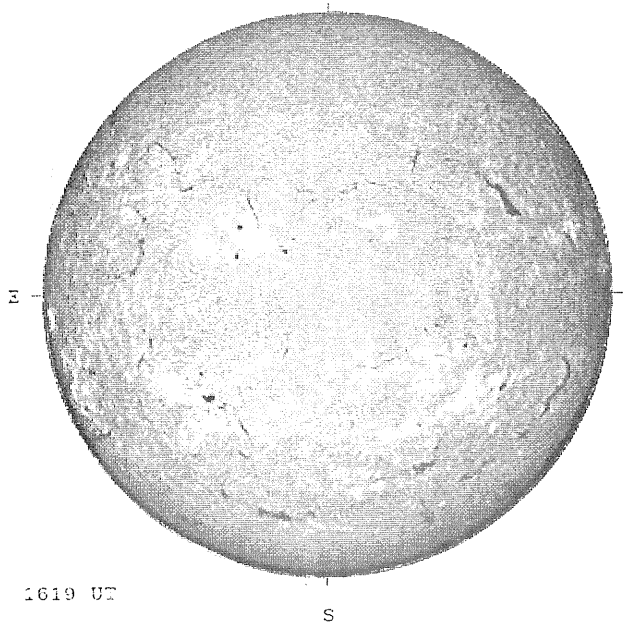
MT. WILSON MAGNETOGRAM



17.24 -
18.19 UT

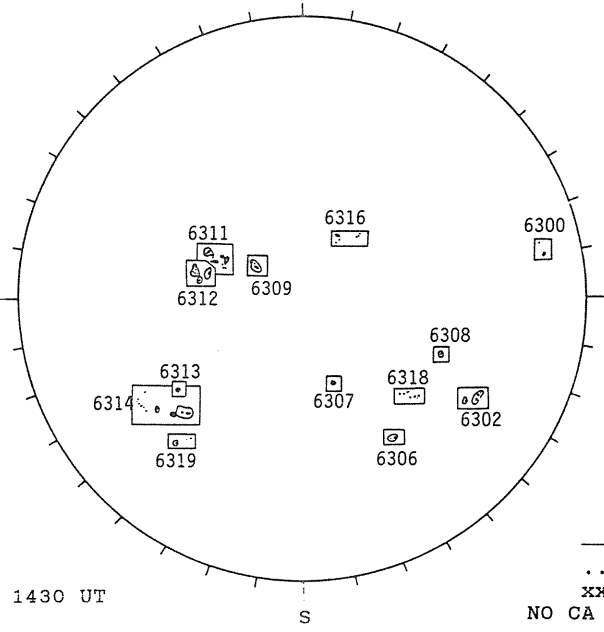
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



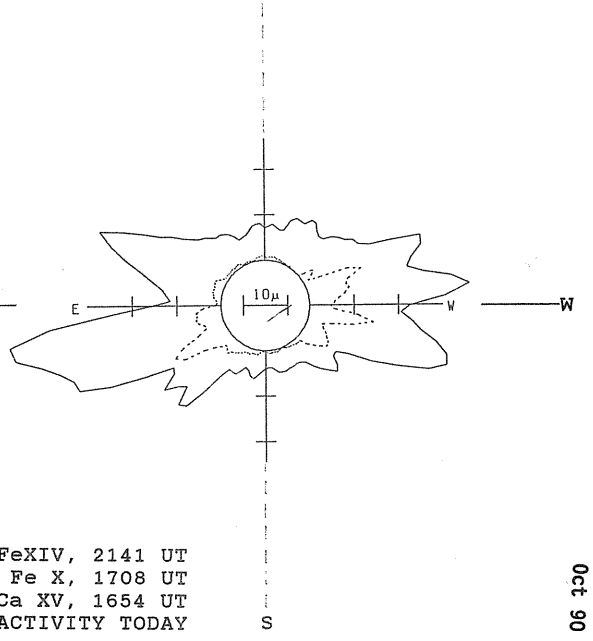
1619 UT

BOULDER SUNSPOT



1430 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 2141 UT
.... Fe X, 1708 UT
xxxx Ca XV, 1654 UT
NO CA XV ACTIVITY TODAY

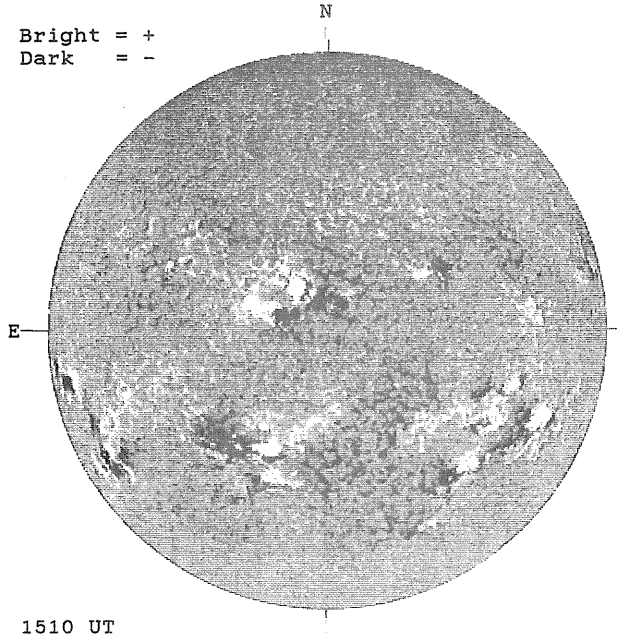
71
Oct 90

OCTOBER 13, 1990 (P= 26.28, B_o = 6.01, L_o = 166.95)

Oct 90
72

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1510 UT

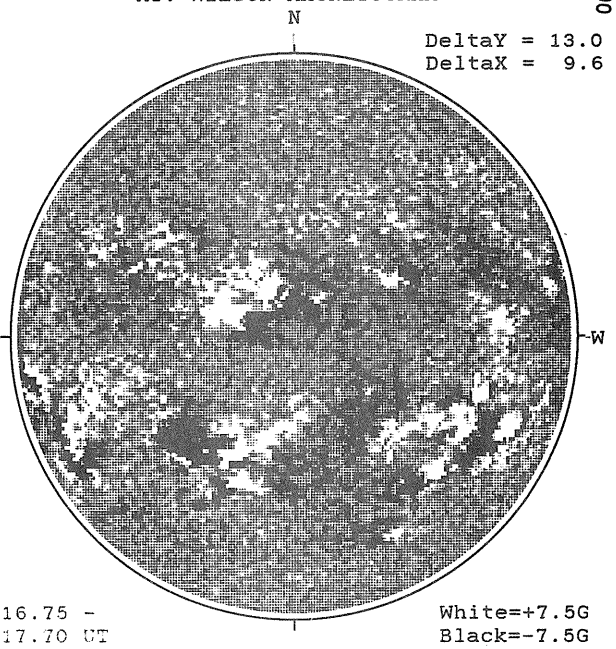
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2200 UT

MT. WILSON MAGNETOGRAM

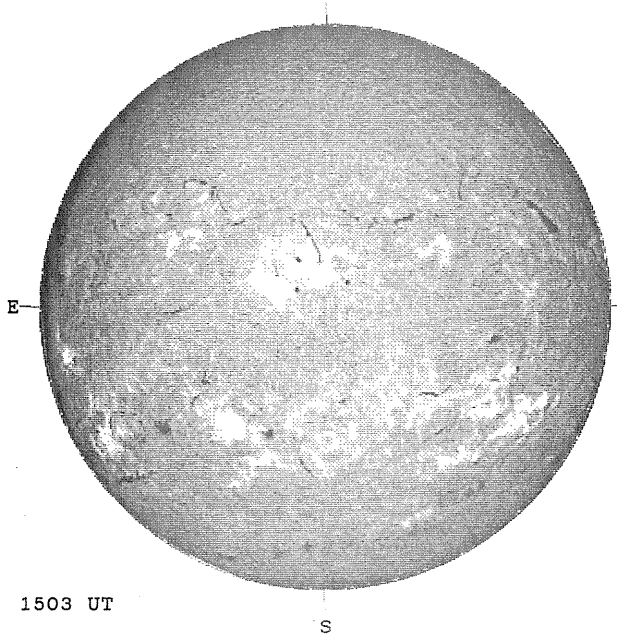
DeltaY = 13.0
DeltaX = 9.6



16.75 -
17.70 UT

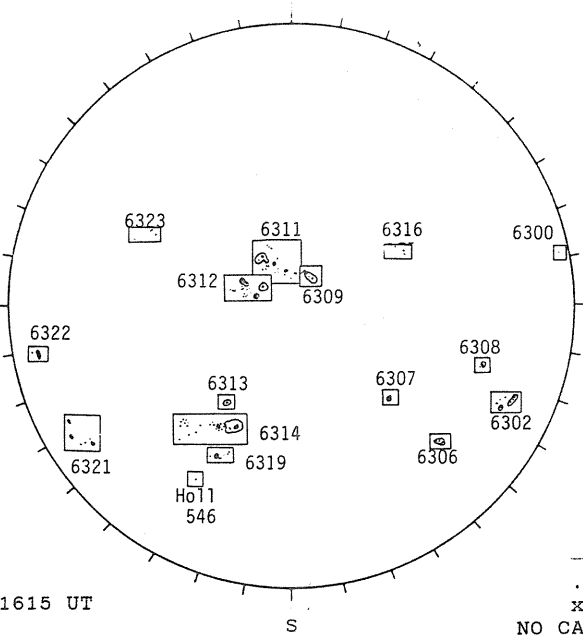
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



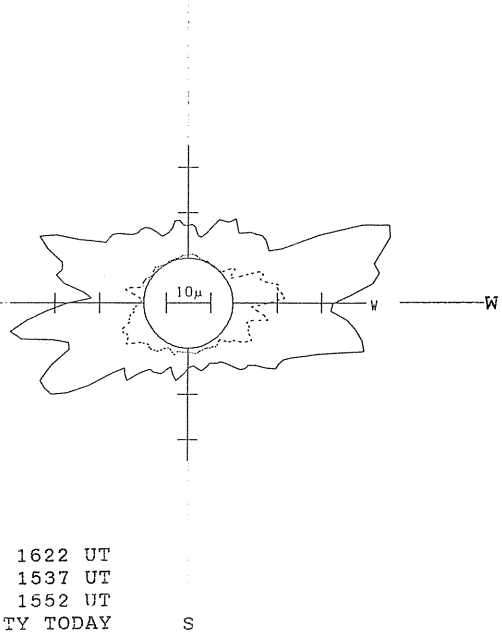
1503 UT

HOLLOMAN SUNSPOT



1615 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

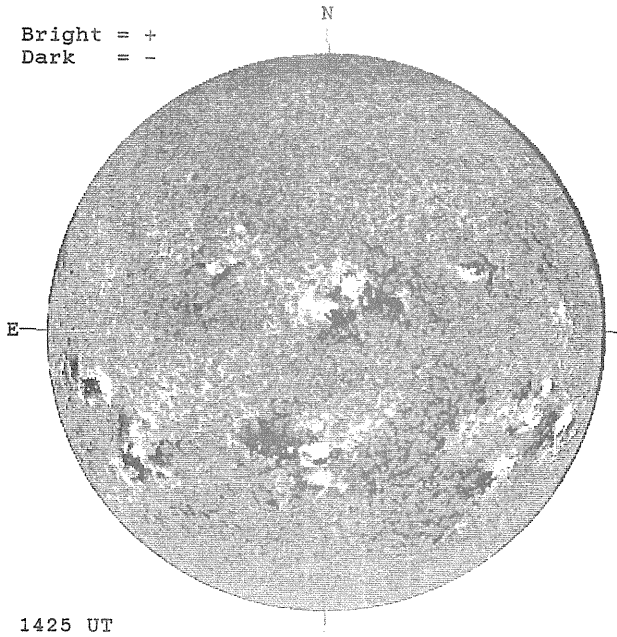


—— FeXIV, 1622 UT
.... Fe X, 1537 UT
xxxx Ca XV, 1552 UT
NO CA XV ACTIVITY TODAY

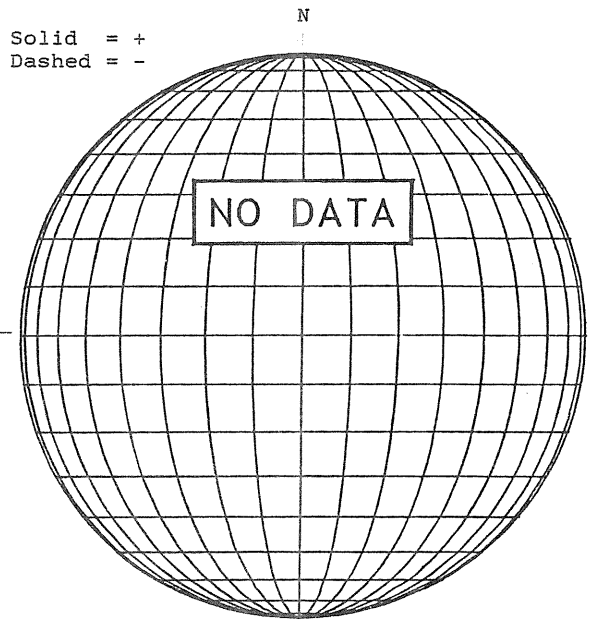
S

OCTOBER 14, 1990 (P= 26.25, B_o = 5.94, L_o = 153.76)

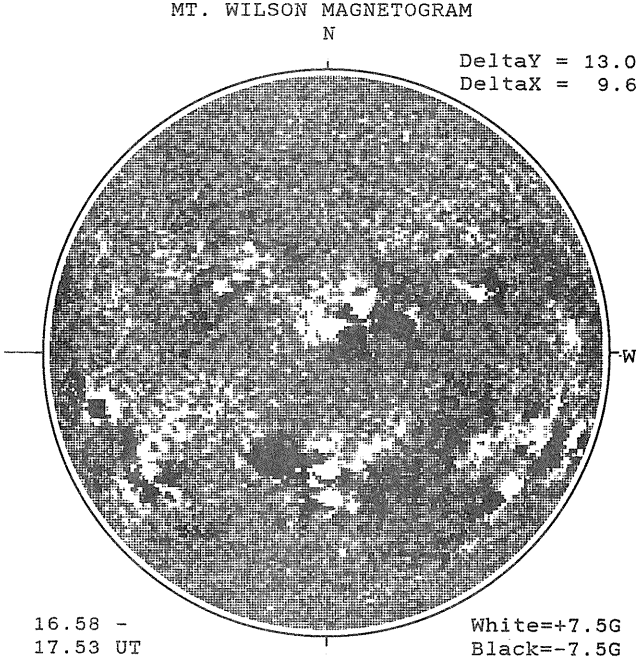
KITT PEAK MAGNETOGRAM



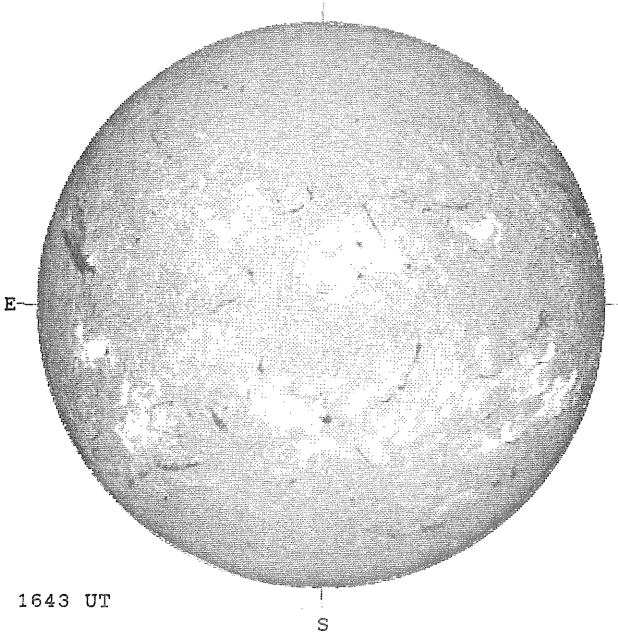
STANFORD MAGNETOGRAM



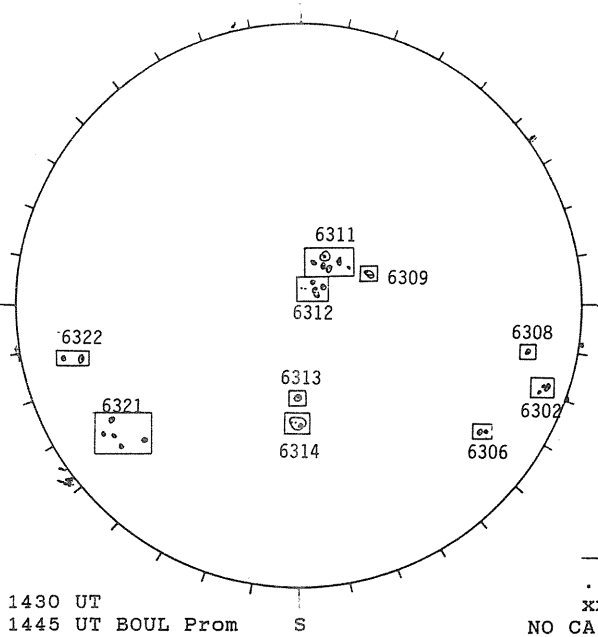
MT. WILSON MAGNETOGRAM



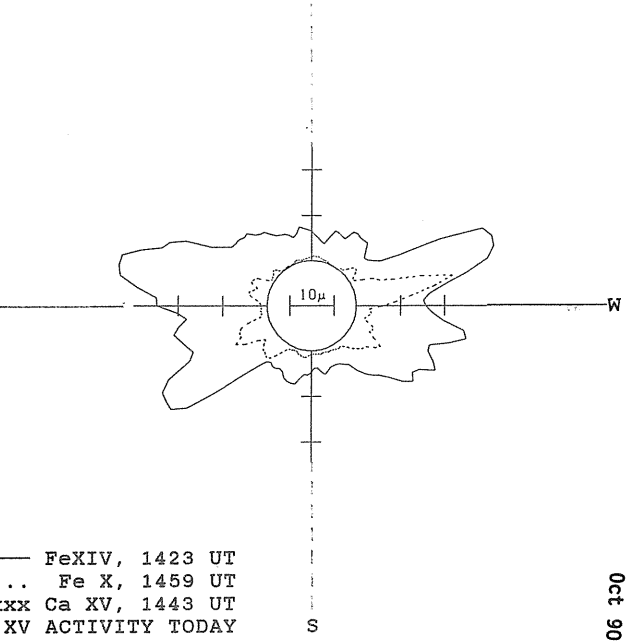
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

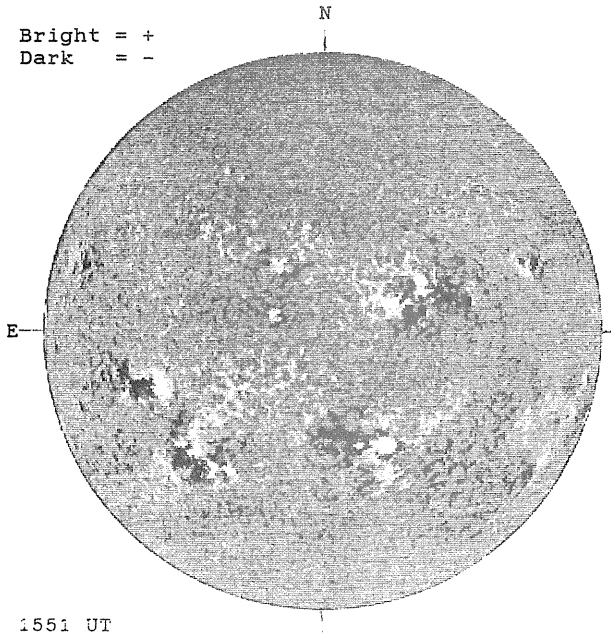


73
Oct 90

OCTOBER 15, 1990 (P= 26.23, B_o = 5.87, L_o = 140.57)

KITT PEAK MAGNETOGRAM

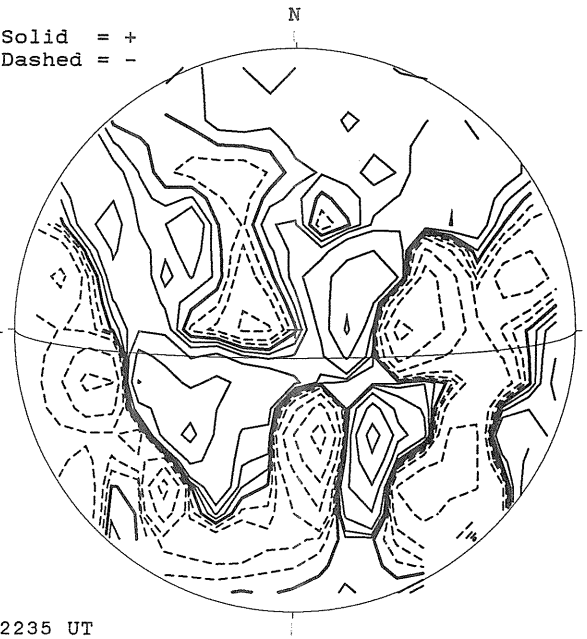
Bright = +
Dark = -



1551 UT

STANFORD MAGNETOGRAM

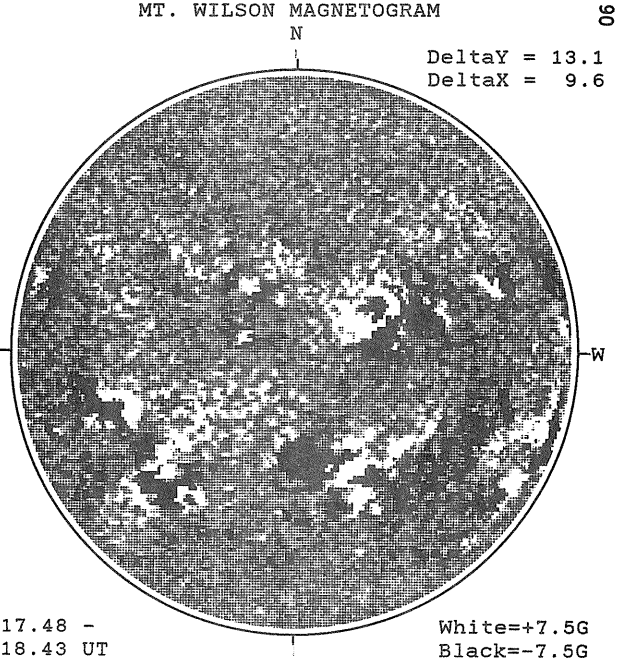
Solid = +
Dashed = -



2235 UT

MT. WILSON MAGNETOGRAM

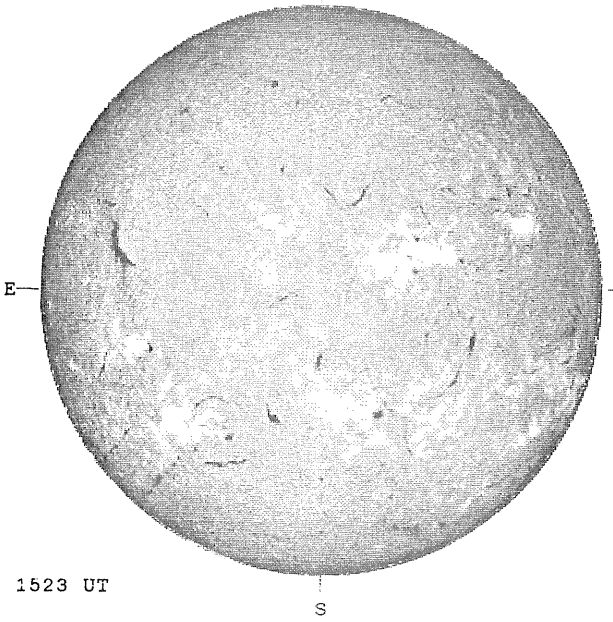
DeltaY = 13.1
DeltaX = 9.6



17.48 -
18.43 UT

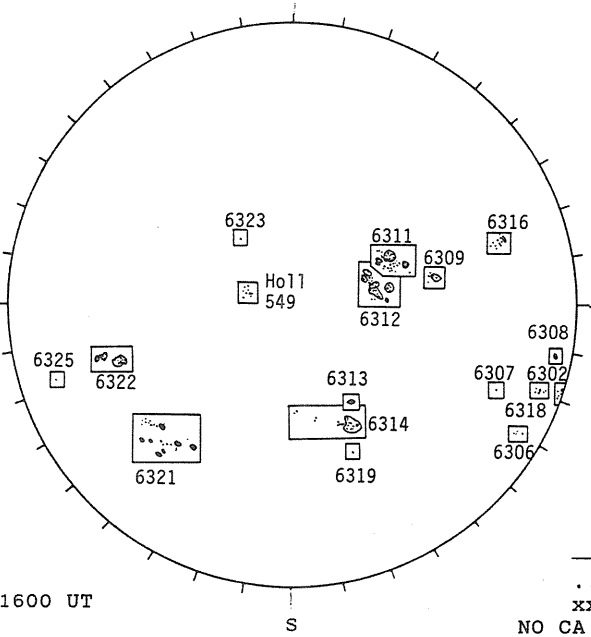
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



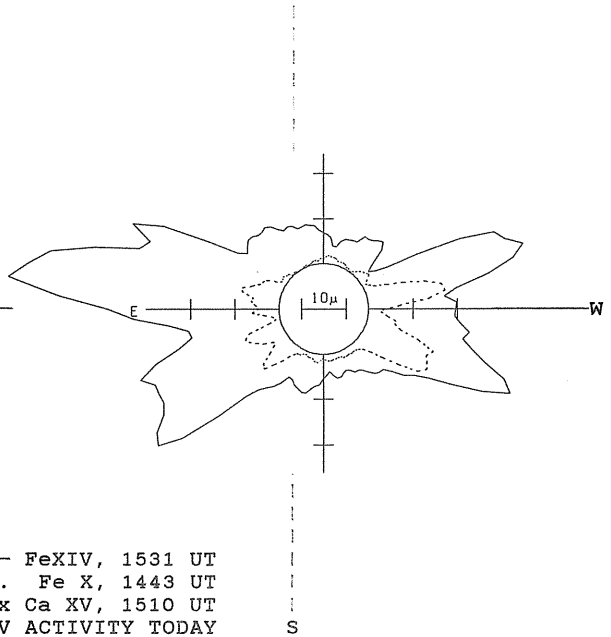
1523 UT

HOLLOMAN SUNSPOT



1600 UT

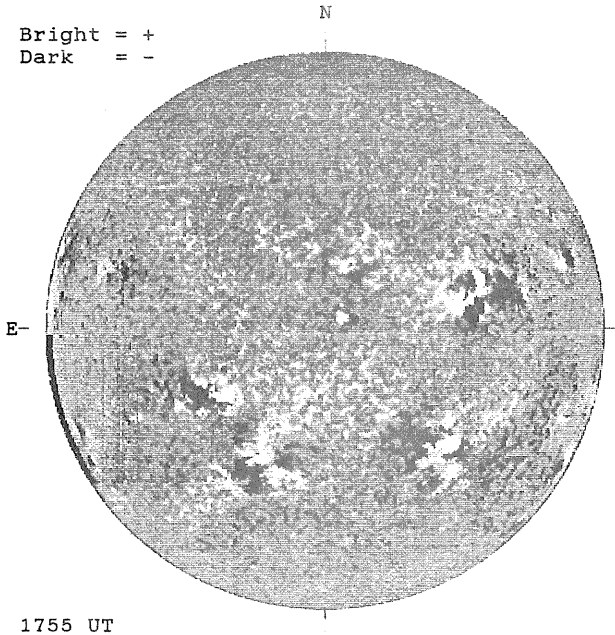
SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1531 UT
.... Fe X, 1443 UT
xxxx Ca XV, 1510 UT
NO CA XV ACTIVITY TODAY

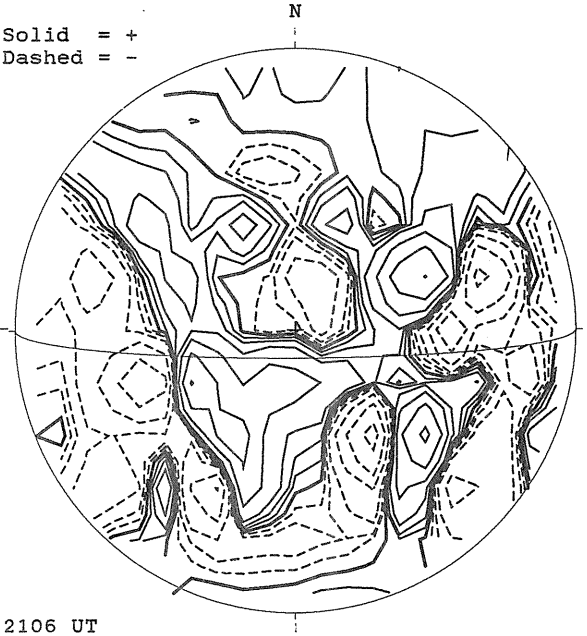
OCTOBER 16, 1990 (P= 26.19, B_o = 5.80, L_o = 127.38)

KITT PEAK MAGNETOGRAM



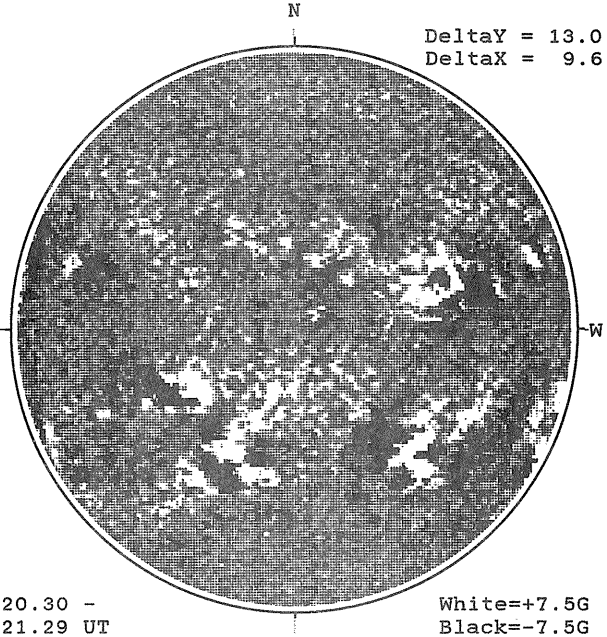
1755 UT

STANFORD MAGNETOGRAM



2106 UT

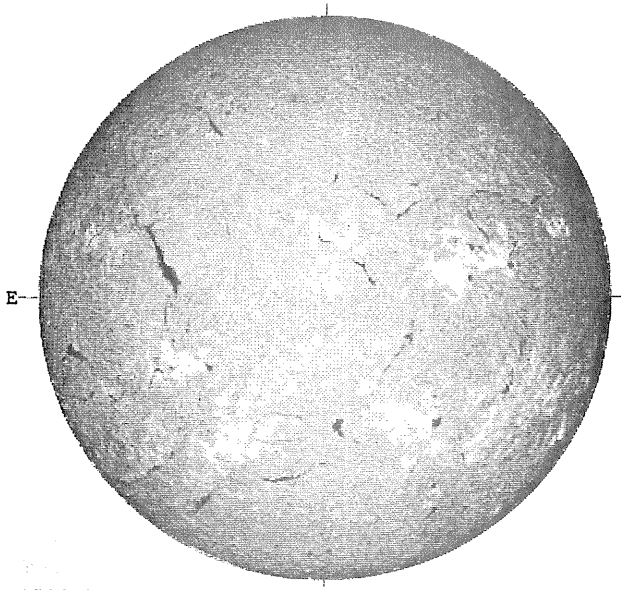
MT. WILSON MAGNETOGRAM



20.30 -
21.29 UT

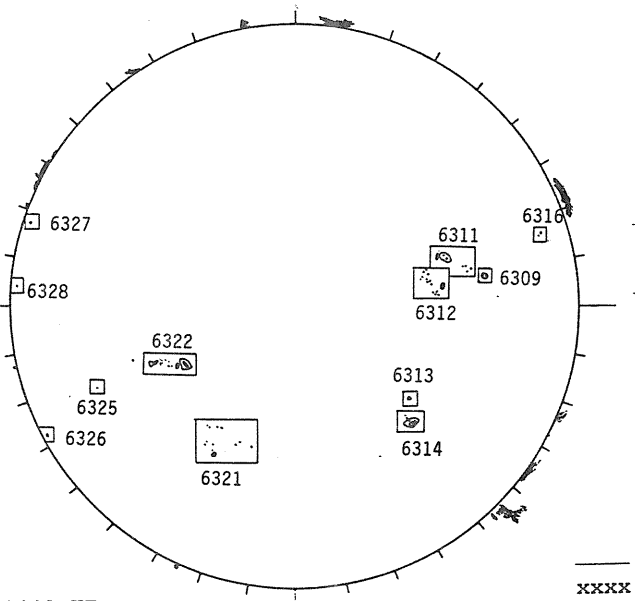
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



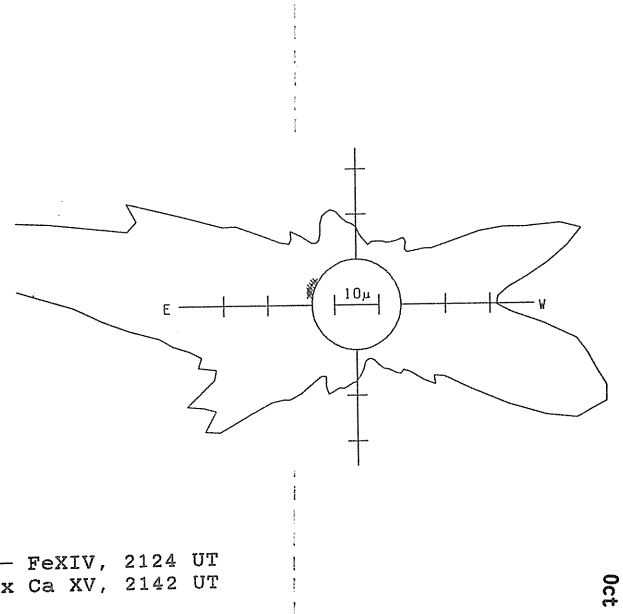
1529 UT

BOULDER SUNSPOT



1448 UT
1457 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



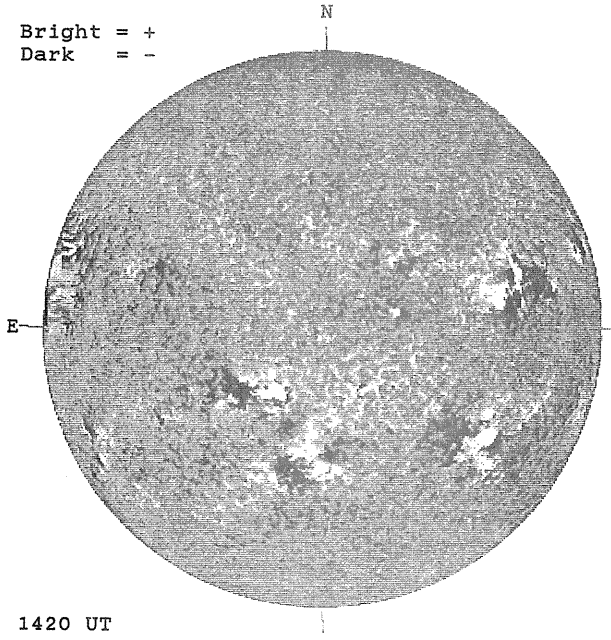
—— FeXIV, 2124 UT
xxxx Ca XV, 2142 UT

75
Oct 90

OCTOBER 17, 1990 (P= 26.14, B_o = 5.72, L_o = 114.19)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1420 UT

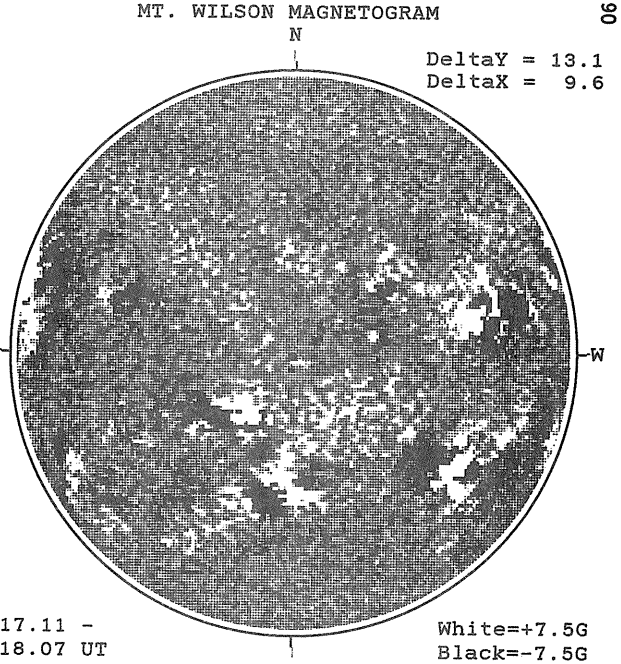
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2201 UT

MT. WILSON MAGNETOGRAM

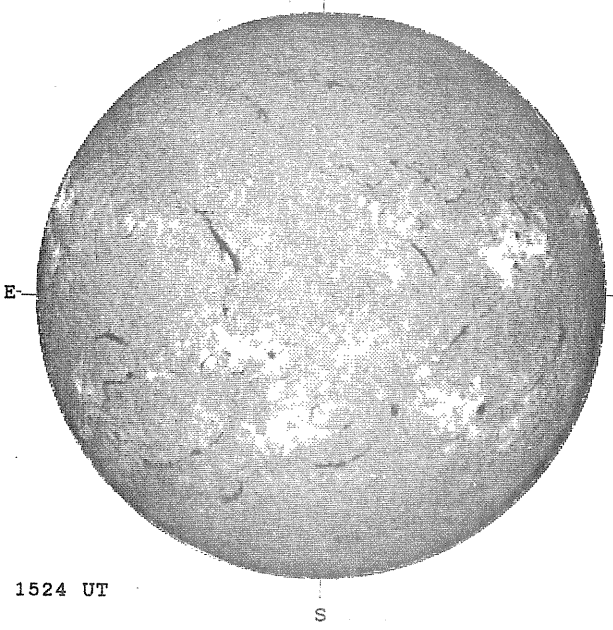
DeltaY = 13.1
DeltaX = 9.6



17.11 -
18.07 UT

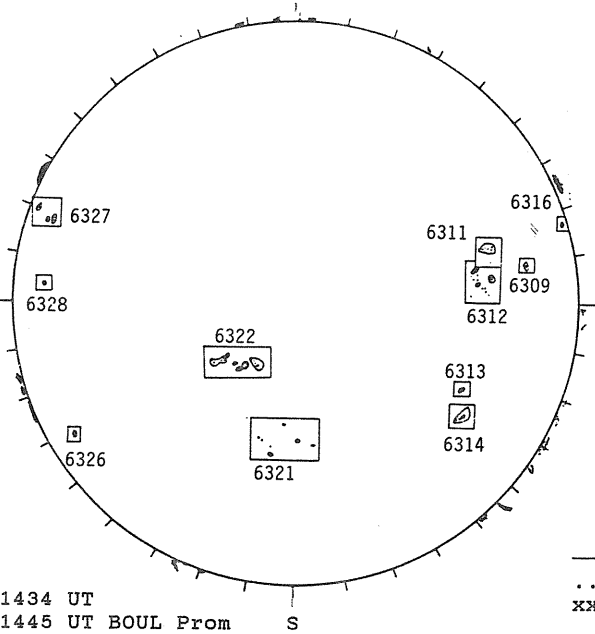
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



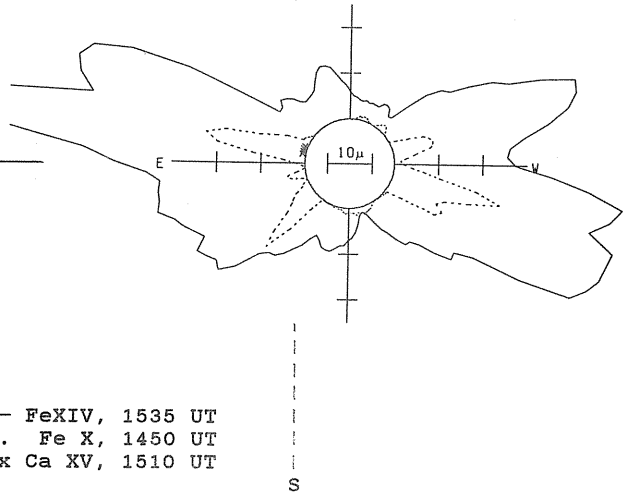
1524 UT

BOULDER SUNSPOT



1434 UT
1445 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

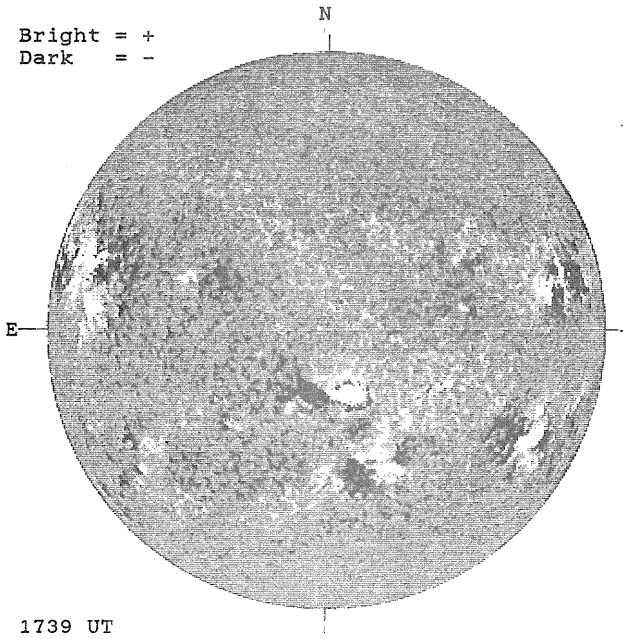


—— FeXIV, 1535 UT
.... Fe X, 1450 UT
xxxx Ca XV, 1510 UT

OCTOBER 18, 1990 (P= 26.09, B_o = 5.64, L_o = 101.00)

KITT PEAK MAGNETOGRAM

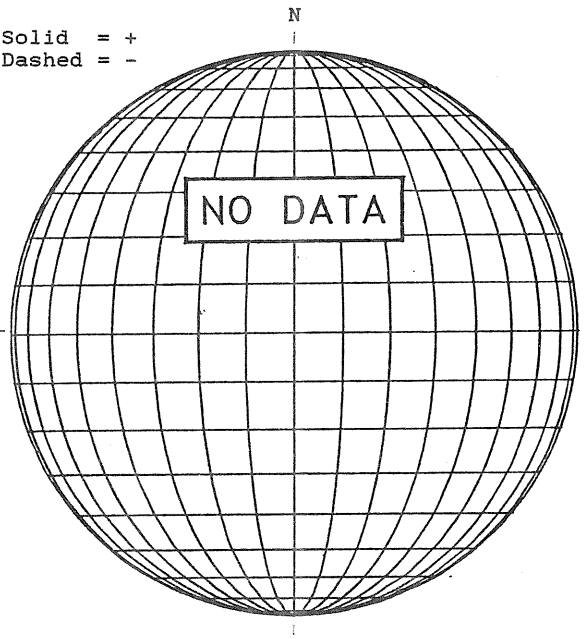
Bright = +
Dark = -



1739 UT

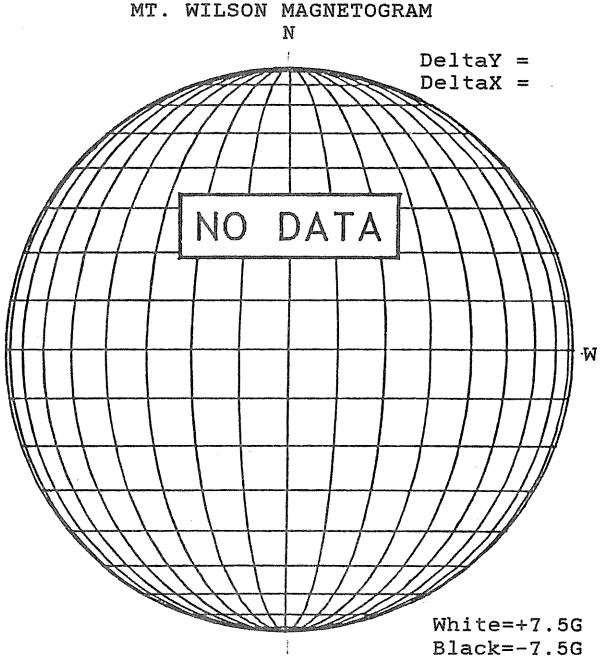
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



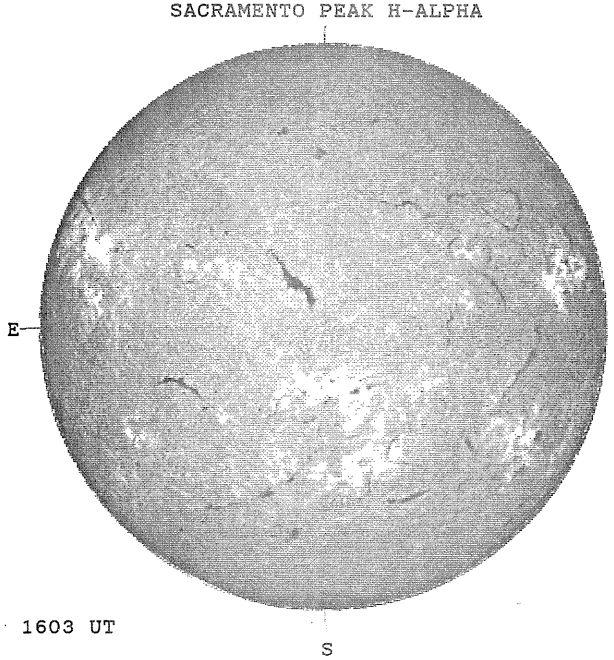
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



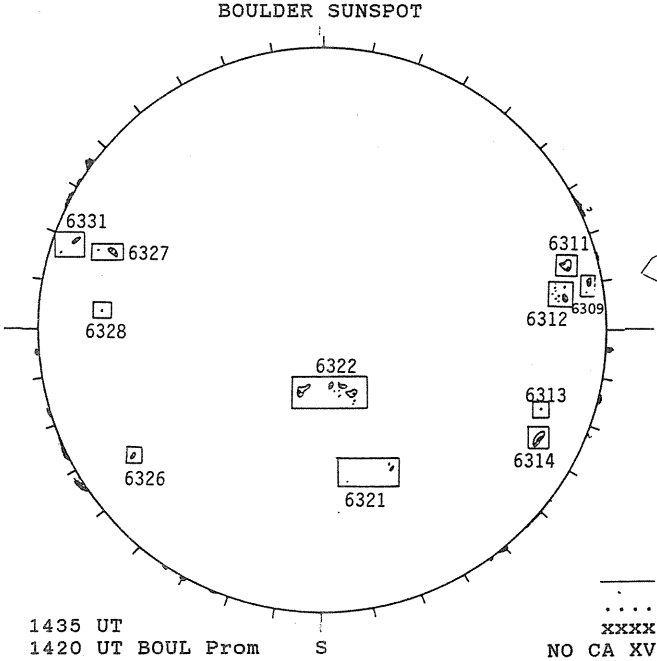
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



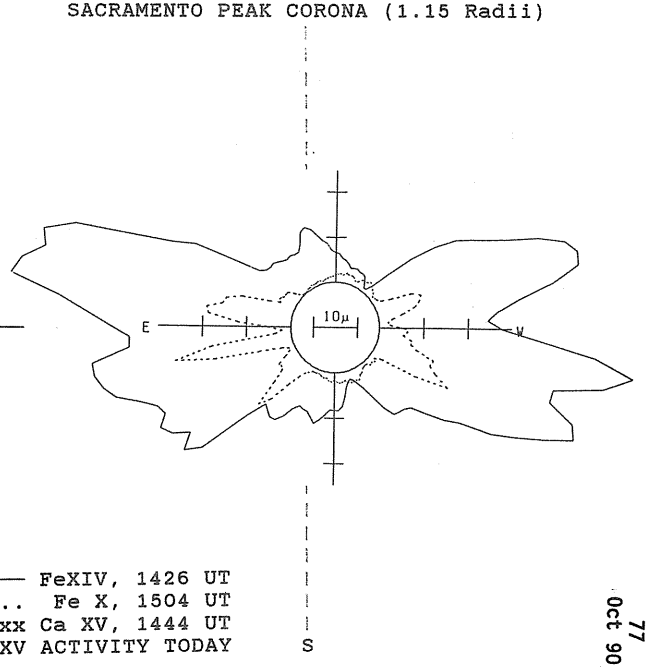
1603 UT

BOULDER SUNSPOT



1435 UT
1420 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



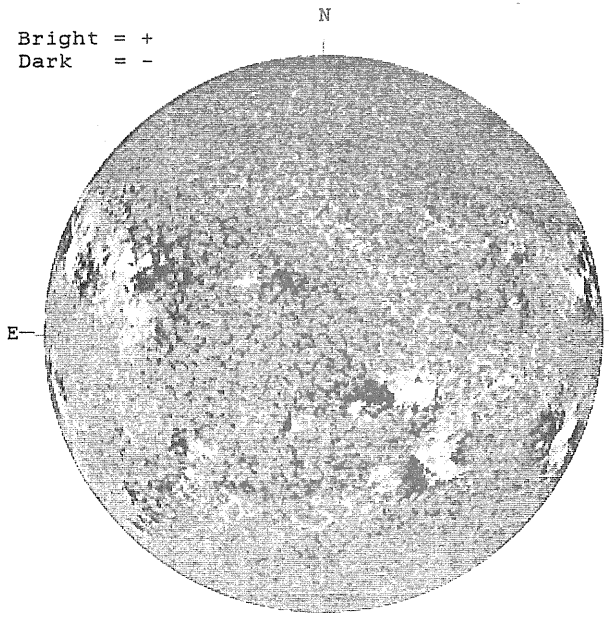
—— FeXIV, 1426 UT
.... Fe X, 1504 UT
xxxx Ca XV, 1444 UT
NO CA XV ACTIVITY TODAY

77
Oct 90

OCTOBER 19, 1990 (P= 26.03, B_o = 5.56, L_o = 87.81)

KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



1804 UT

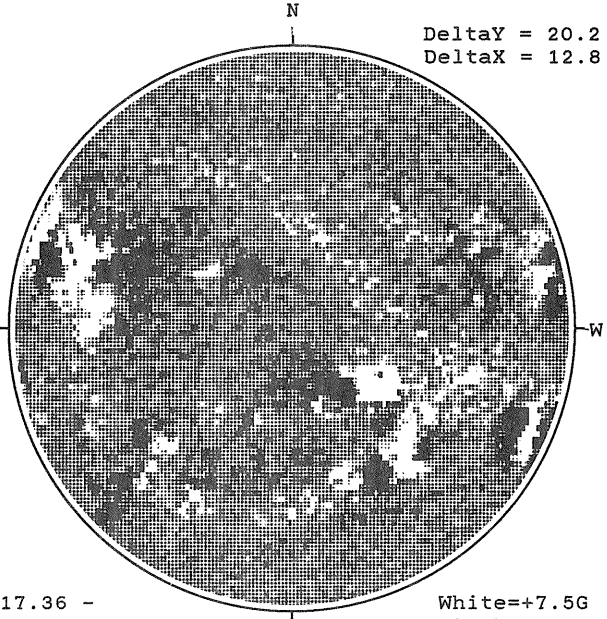
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

2247 UT

MT. WILSON MAGNETOGRAM

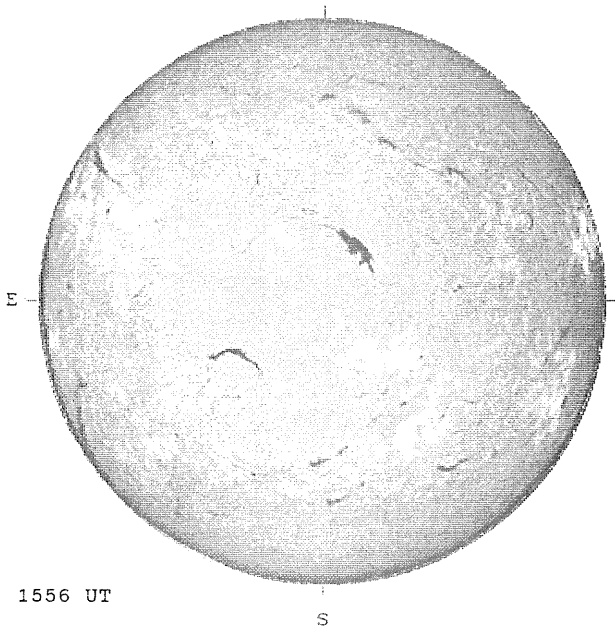
DeltaY = 20.2
DeltaX = 12.8



17.36 -
17.71 UT

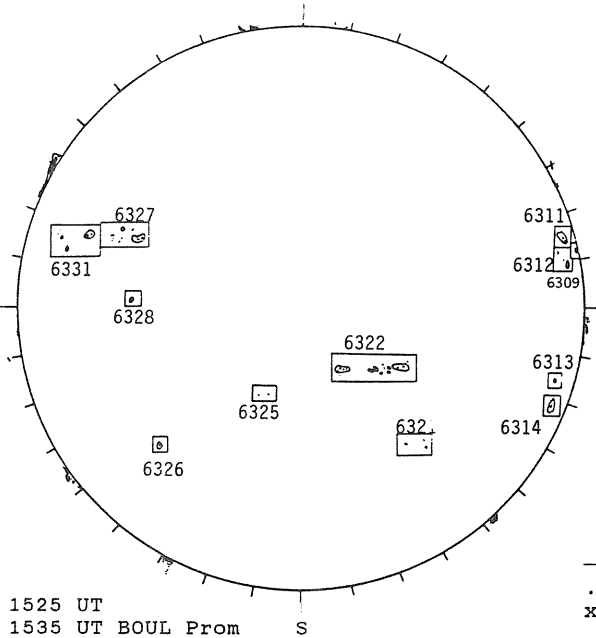
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



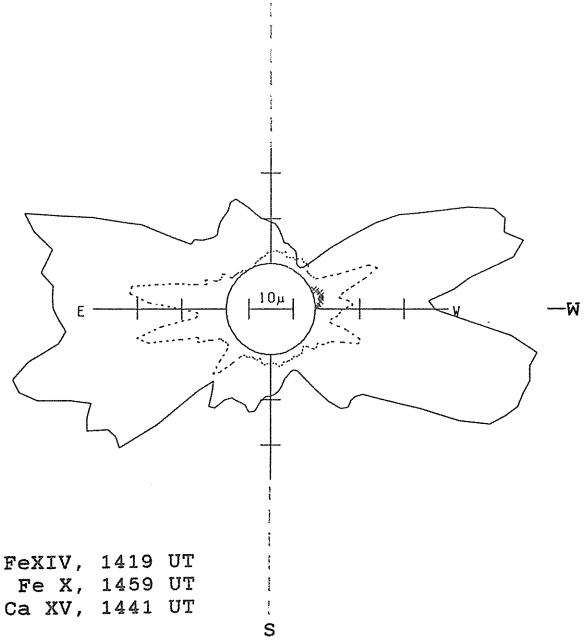
1556 UT

BOULDER SUNSPOT



1525 UT
1535 UT BOUL Prom

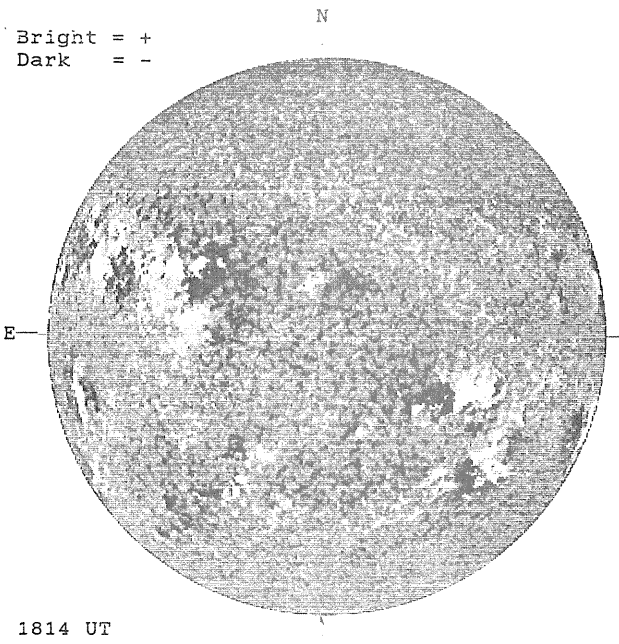
SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1419 UT
.... Fe X, 1459 UT
xxxx Ca XV, 1441 UT

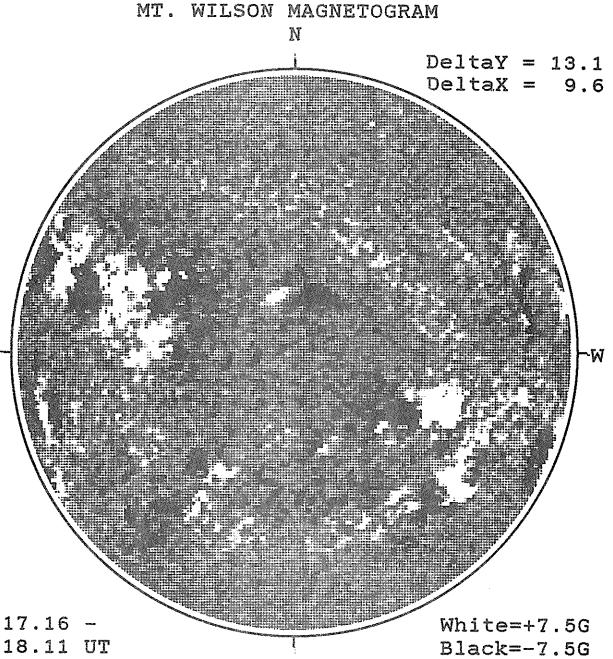
OCTOBER 20, 1990 (P= 25.96, B_o = 5.48, L_o = 74.62)

KITT PEAK MAGNETOGRAM

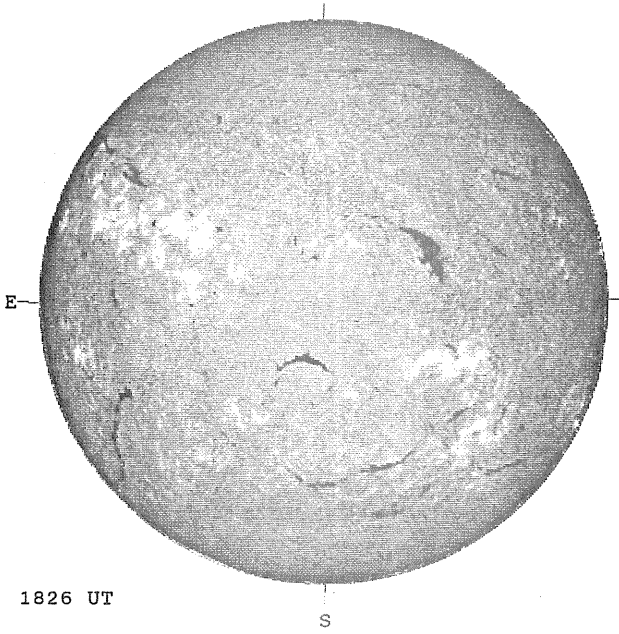


STANFORD MAGNETOGRAM

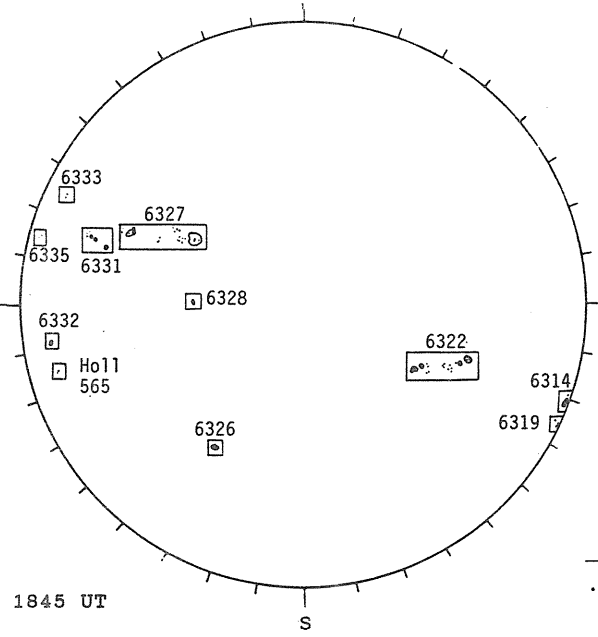
MT. WILSON MAGNETOGRAM



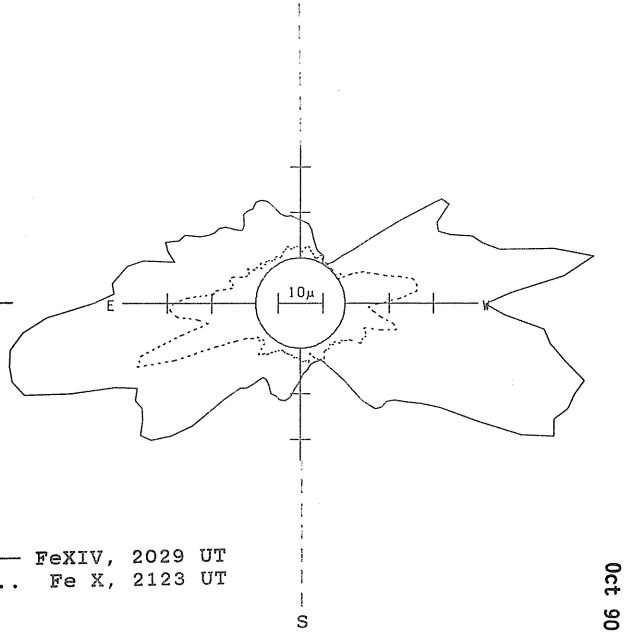
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

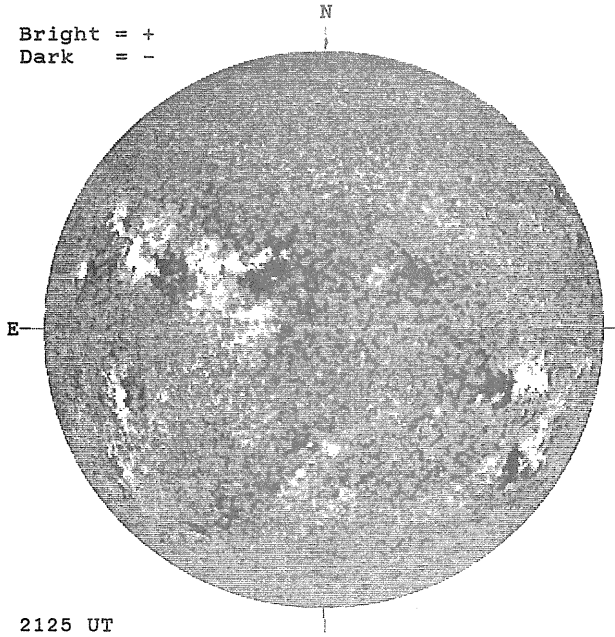


OCTOBER 21, 1990 (P= 25.89, B_o = 5.40, L_o = 61.43)

Oct 90

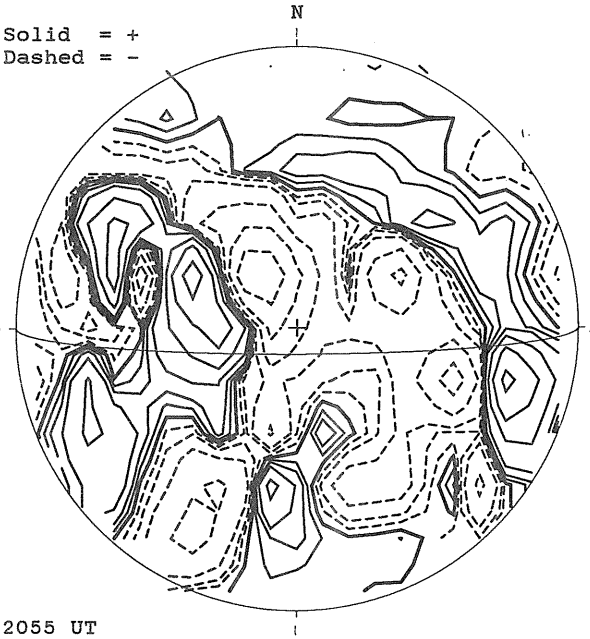
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



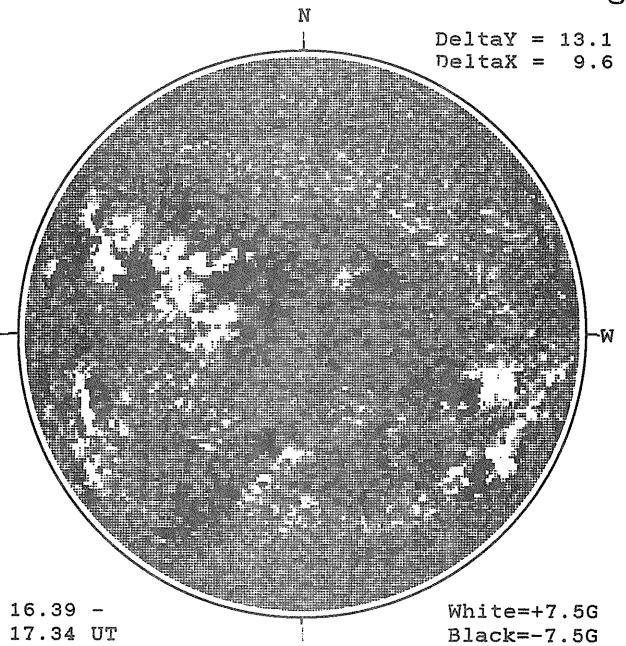
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

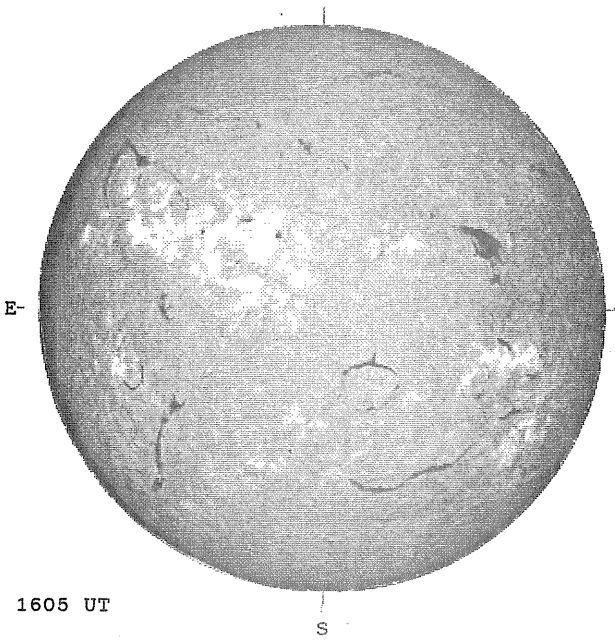


MT. WILSON MAGNETOGRAM

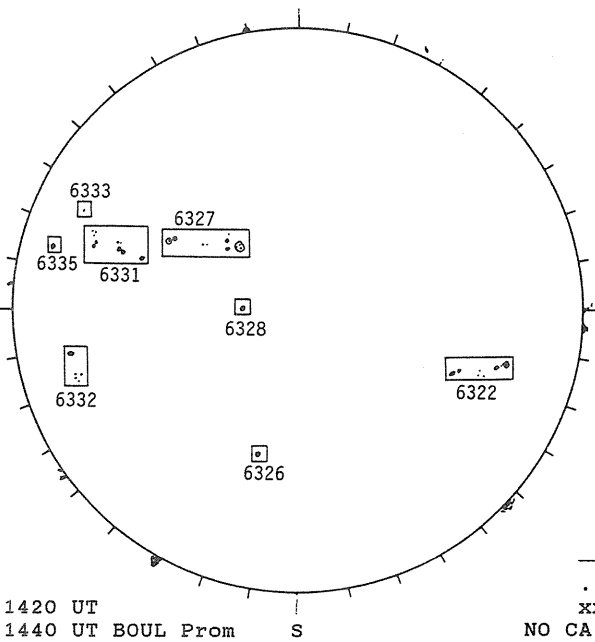
DeltaY = 13.1
DeltaX = 9.6



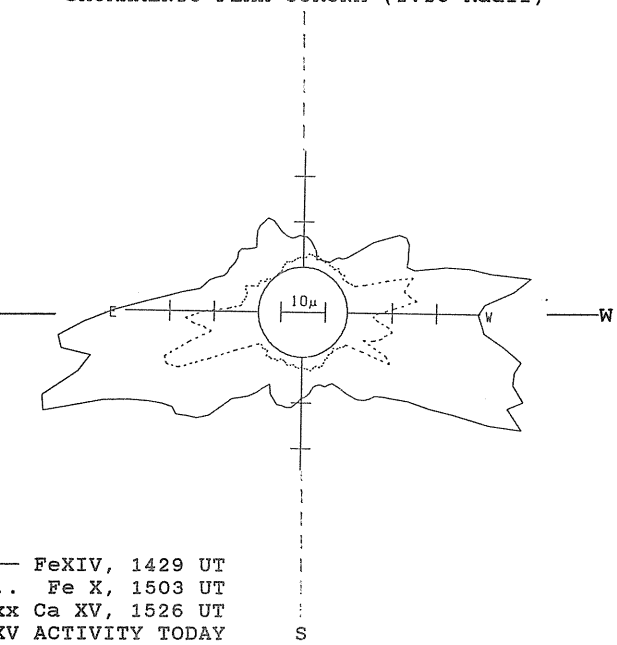
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



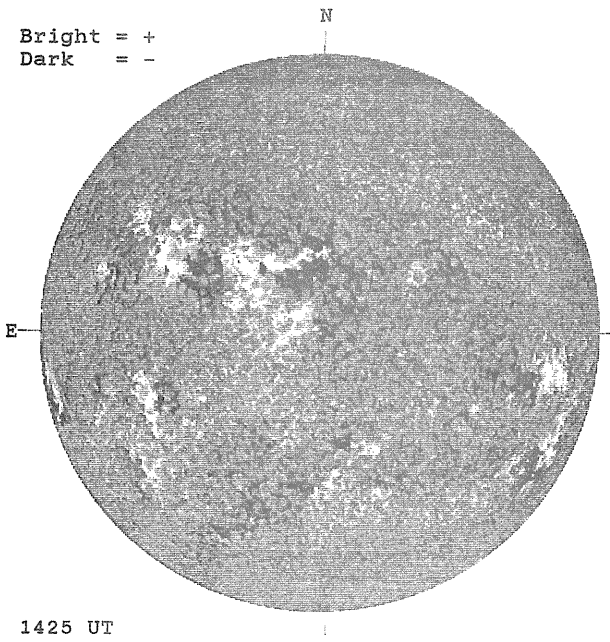
SACRAMENTO PEAK CORONA (1.15 Radii)



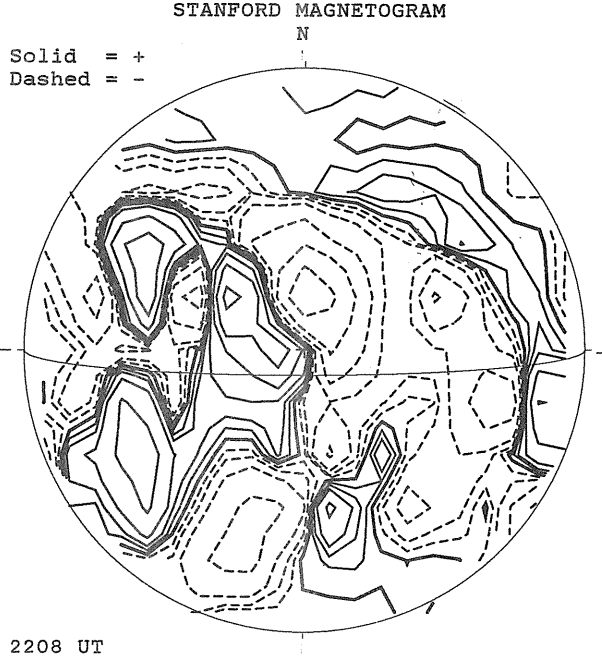
—— FeXIV, 1429 UT
.... Fe X, 1503 UT
xxxx Ca XV, 1526 UT
NO CA XV ACTIVITY TODAY

OCTOBER 22, 1990 (P= 25.81, B_o = 5.31, L_o = 48.24)

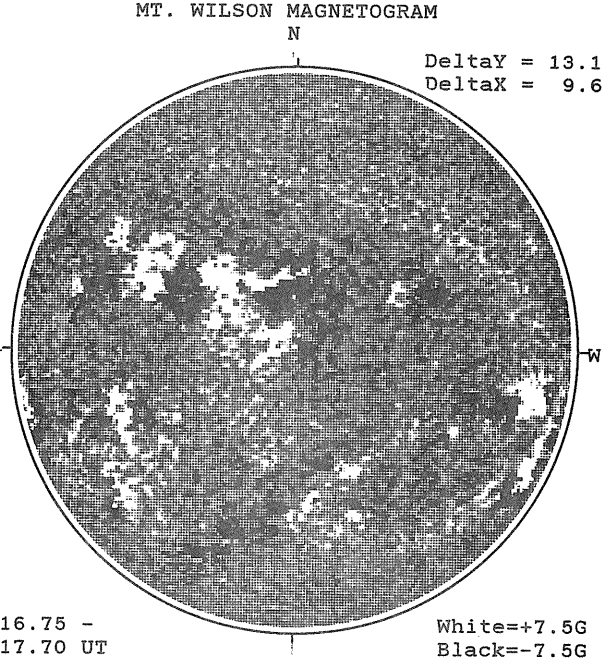
KITT PEAK MAGNETOGRAM



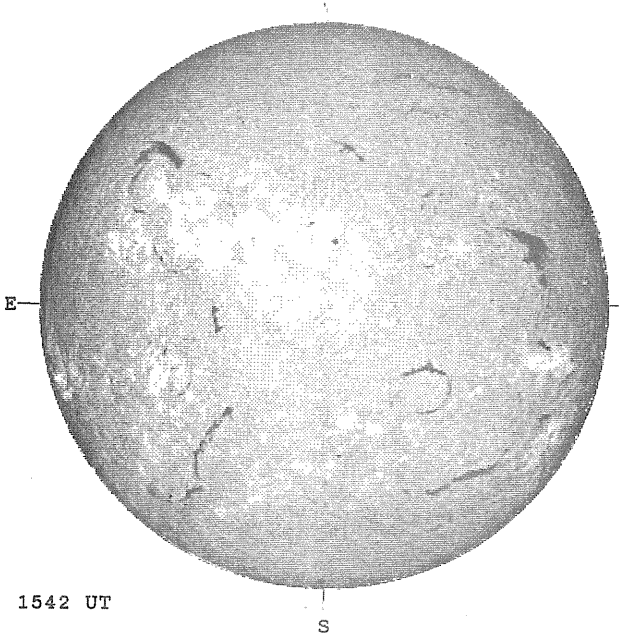
STANFORD MAGNETOGRAM



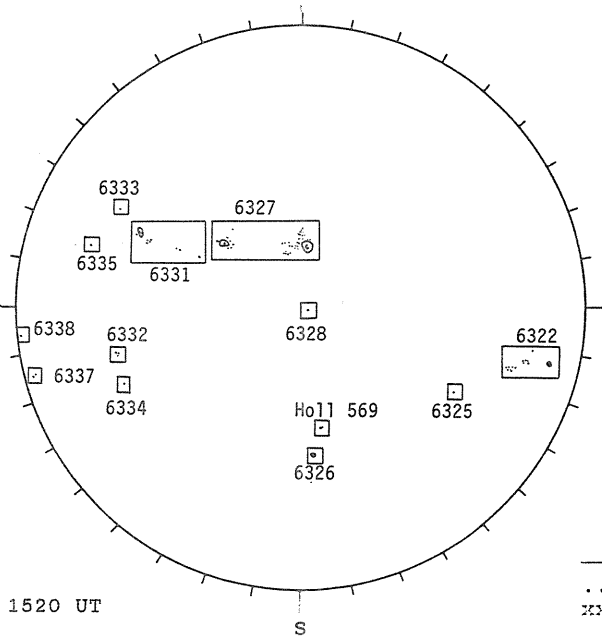
MT. WILSON MAGNETOGRAM



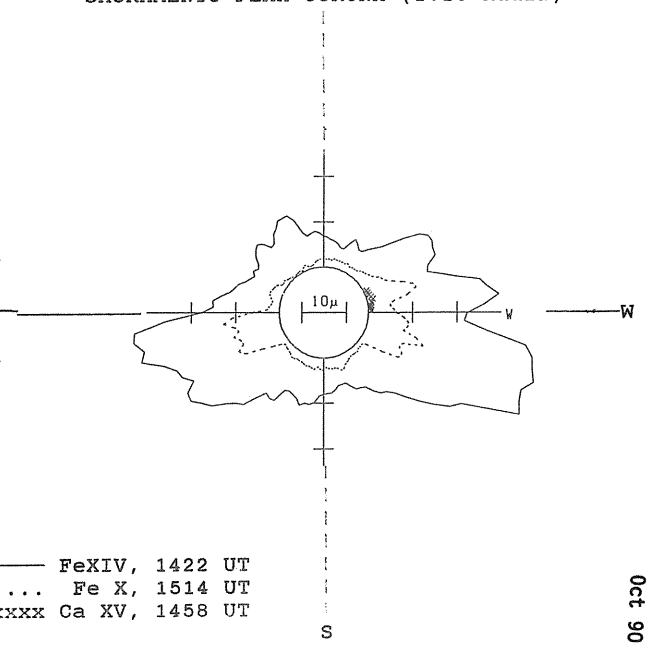
SACRAMENTO PEAK H-ALPHA



HOLLOMAN SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)

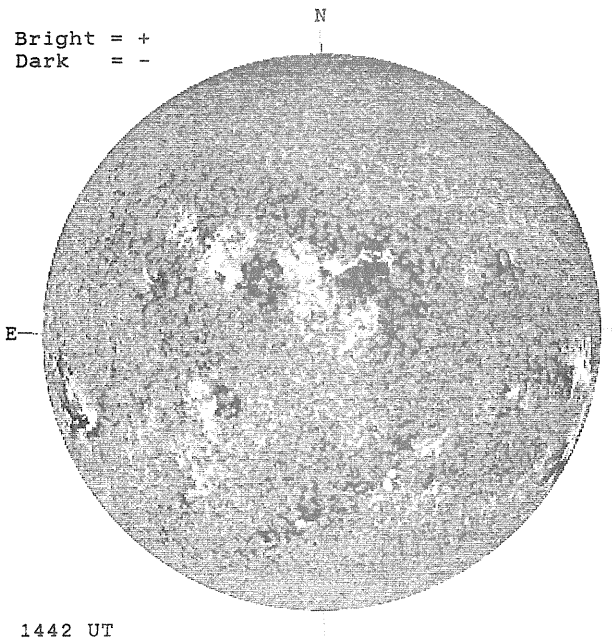


81
Oct 90

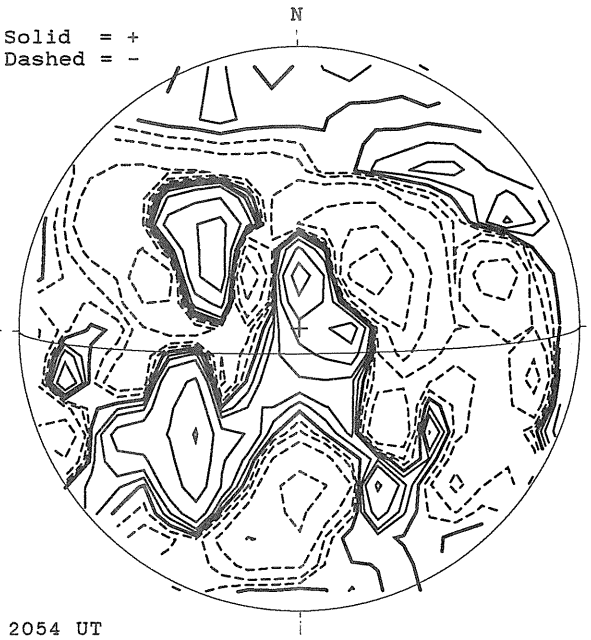
OCTOBER 23, 1990 (P= 25.72, B_o = 5.23, L_o = 35.06)

Oct 90 82

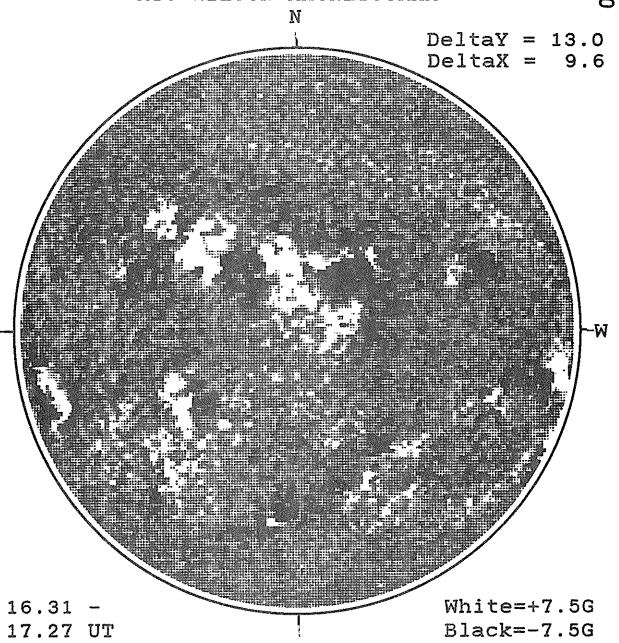
KITT PEAK MAGNETOGRAM



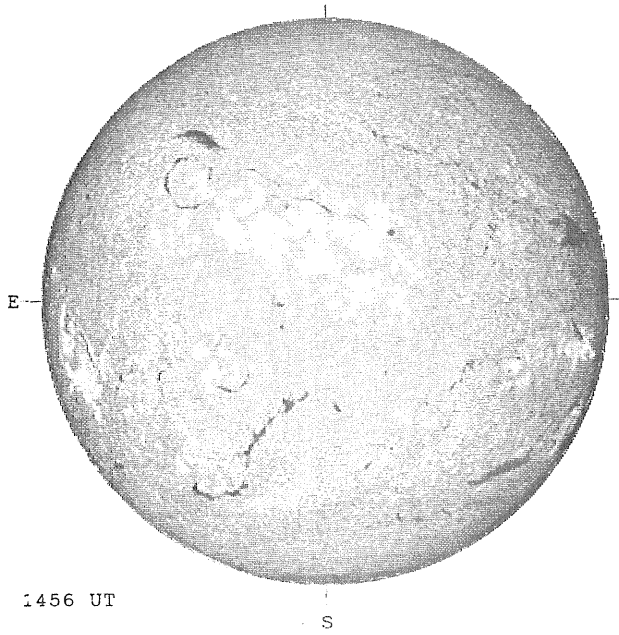
STANFORD MAGNETOGRAM



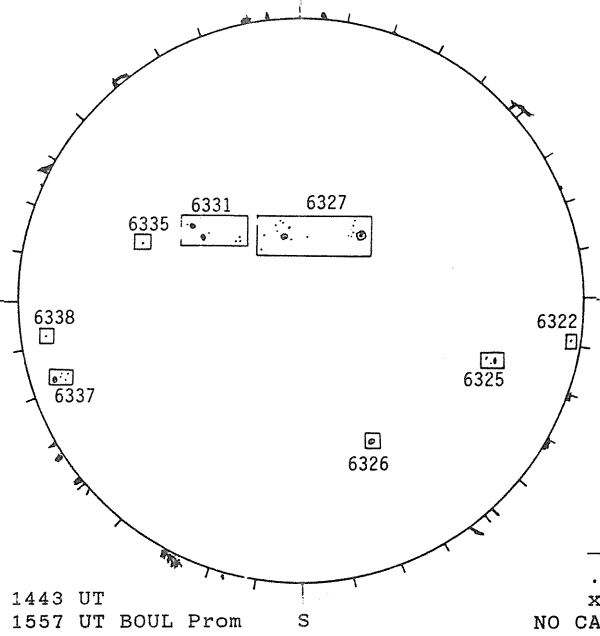
MT. WILSON MAGNETOGRAM



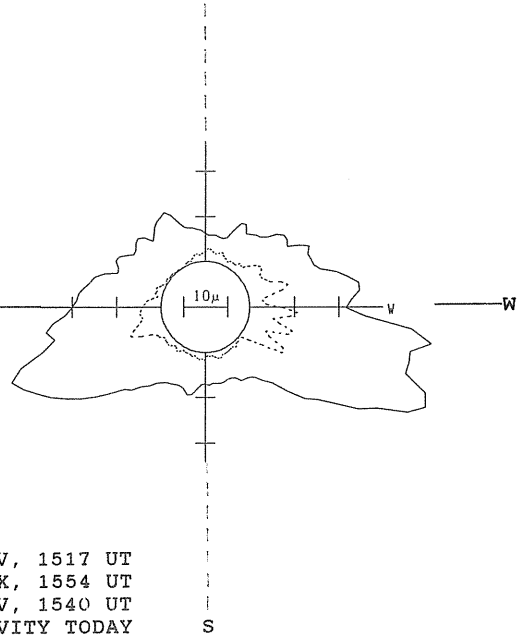
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT

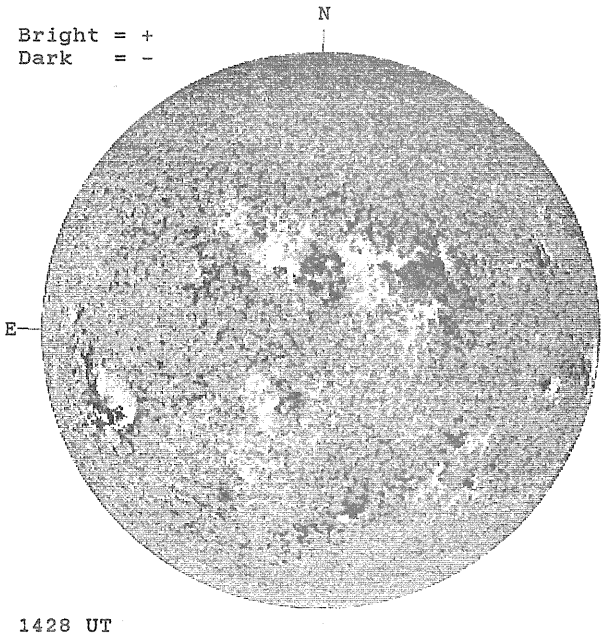


SACRAMENTO PEAK CORONA (1.15 Radii)



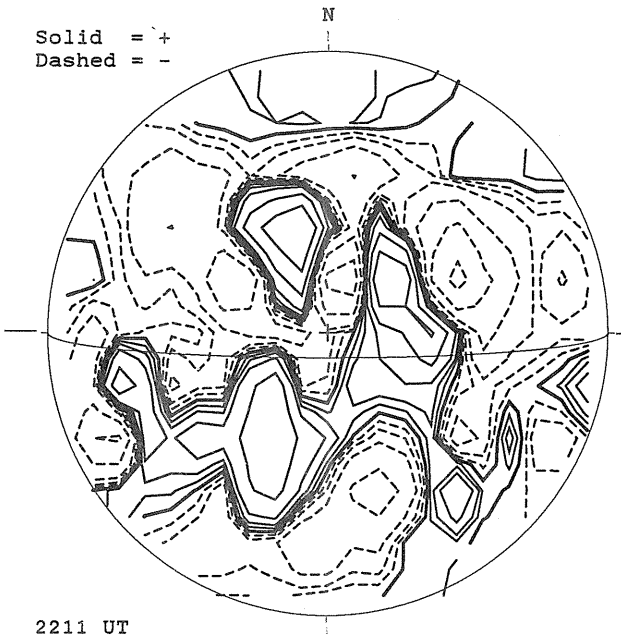
OCTOBER 24, 1990 (P= 25.62 B_o = 5.14, L_o = 21.87)

KITT PEAK MAGNETOGRAM



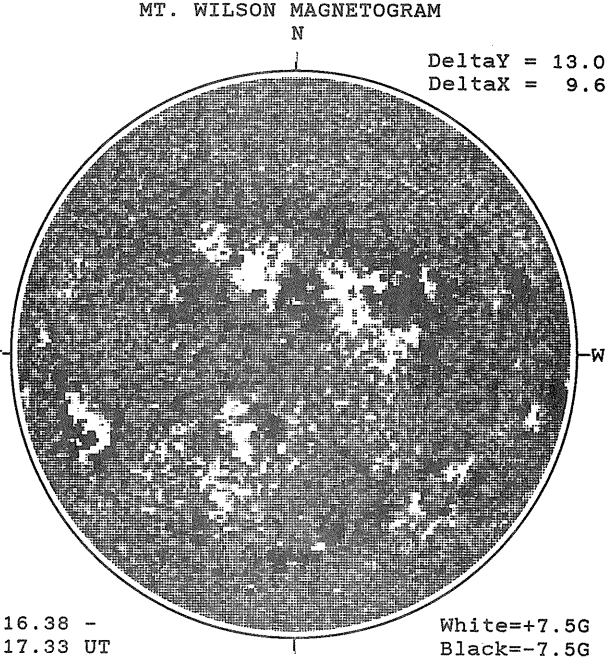
1428 UT

STANFORD MAGNETOGRAM



2211 UT

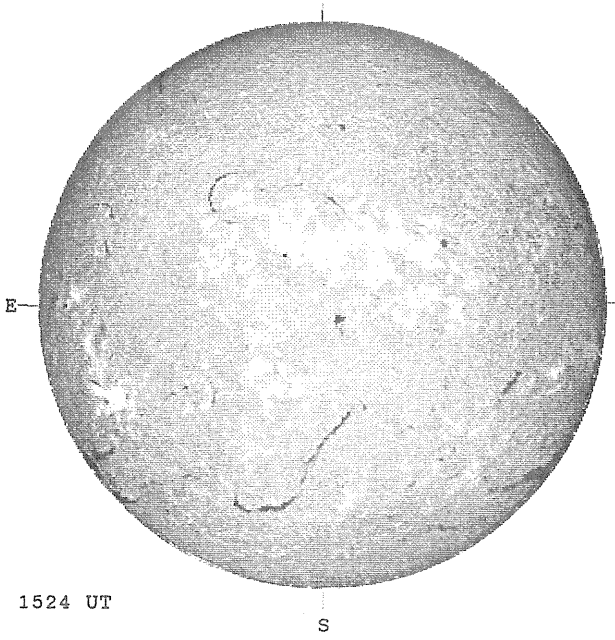
MT. WILSON MAGNETOGRAM



16.38 -
17.33 UT

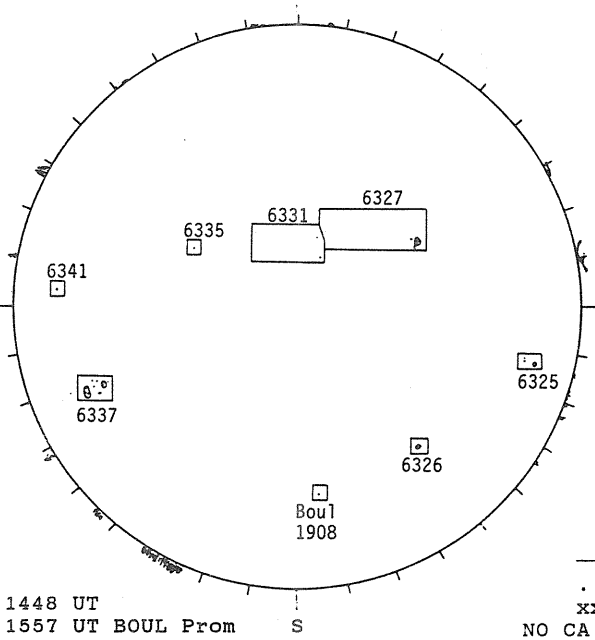
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



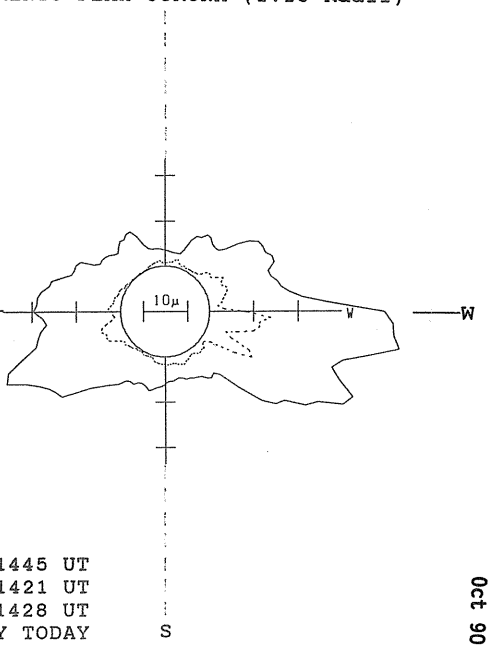
1524 UT

BOULDER SUNSPOT



1448 UT
1557 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



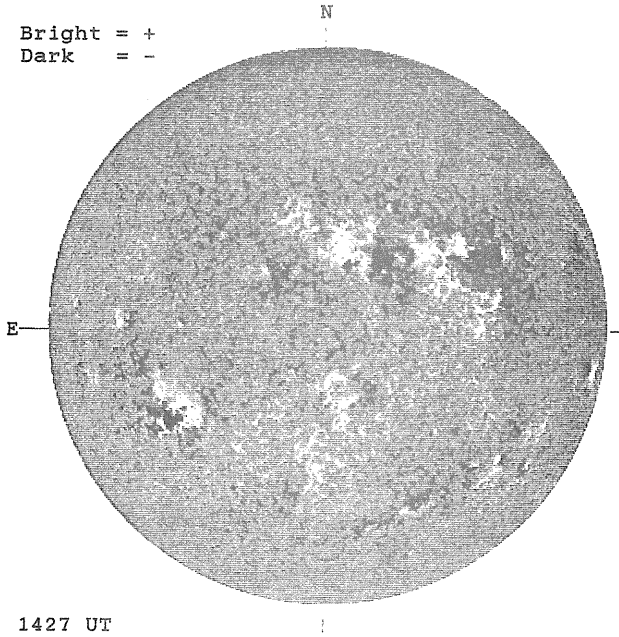
—— FeXIV, 1445 UT
.... Fe X, 1421 UT
xxxx Ca XV, 1428 UT
NO CA XV ACTIVITY TODAY

83
Oct 90

OCTOBER 25, 1990 (P= 25.51, B_o = 5.05, L_o = 8.68)

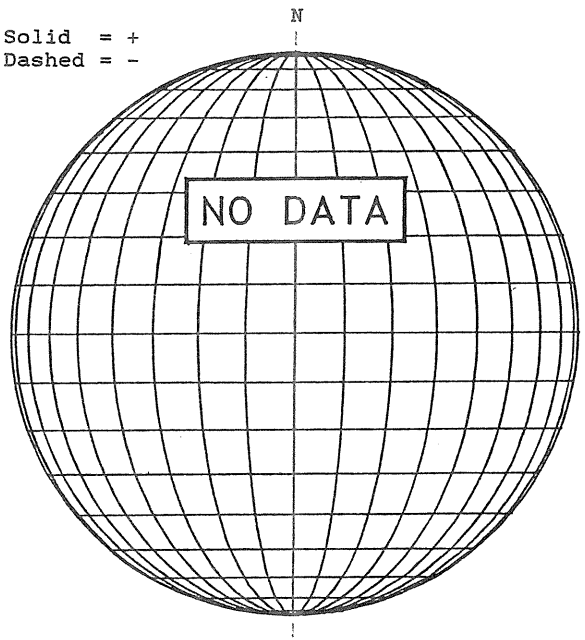
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



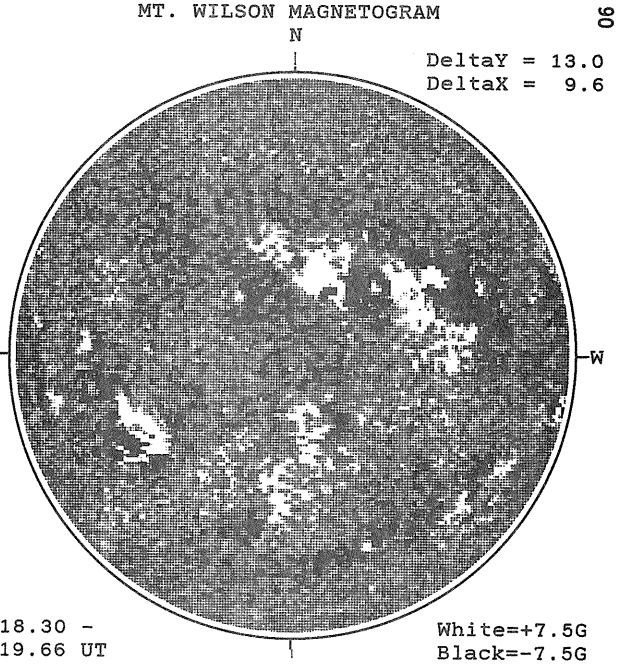
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

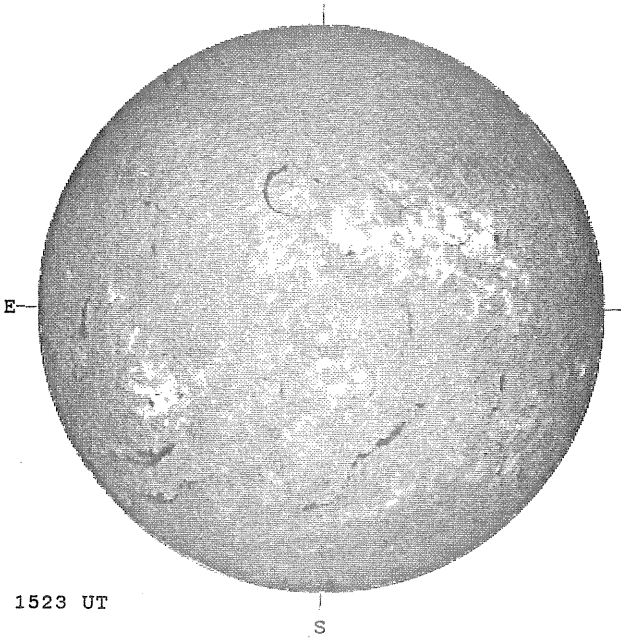


MT. WILSON MAGNETOGRAM

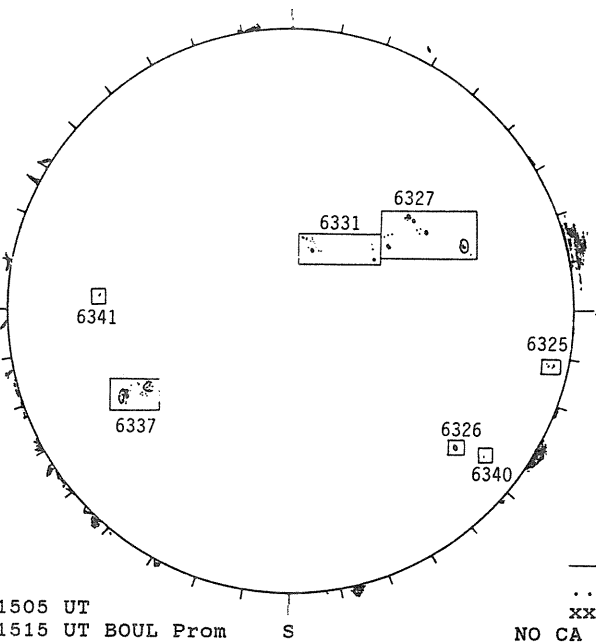
DeltaY = 13.0
DeltaX = 9.6



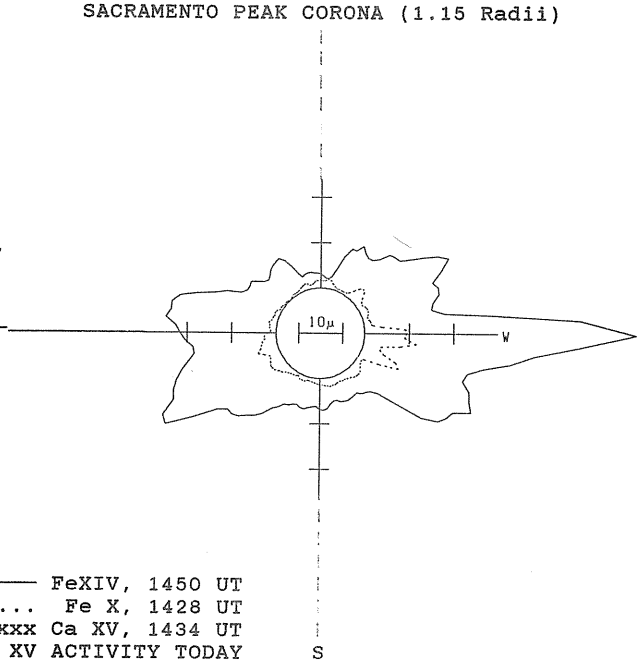
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



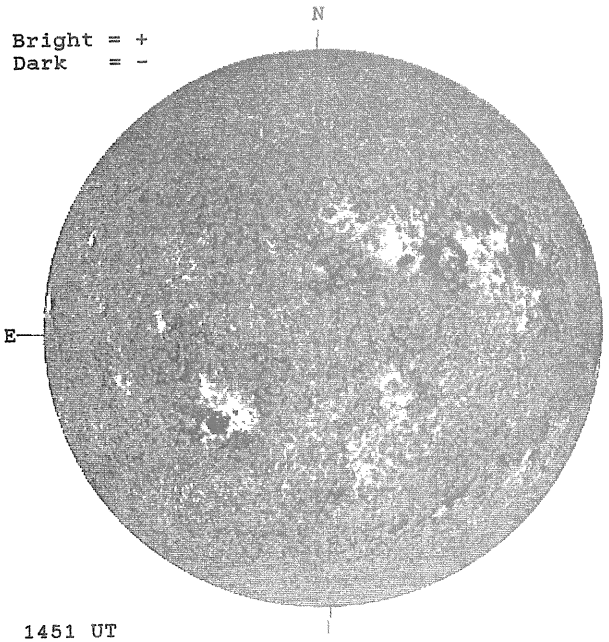
SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1450 UT
.... Fe X, 1428 UT
xxxx Ca XV, 1434 UT
NO CA XV ACTIVITY TODAY

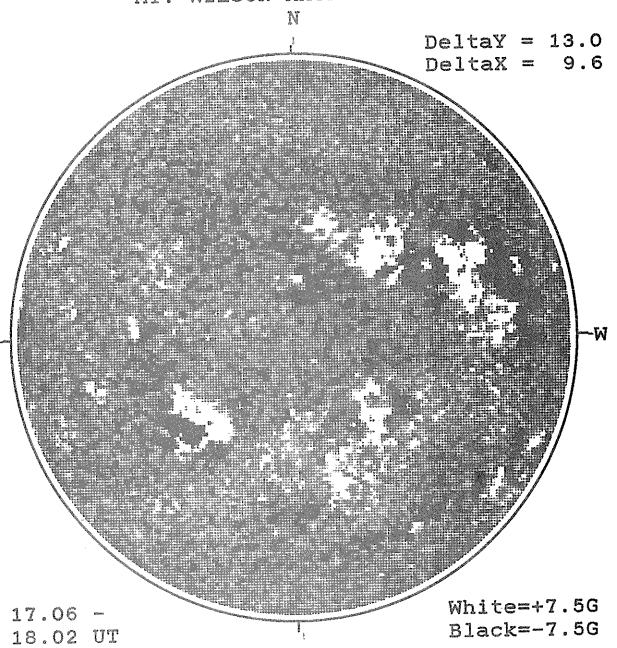
OCTOBER 26, 1990 (P= 25.40, B_o = 4.96, L_o = 355.49)

KITT PEAK MAGNETOGRAM

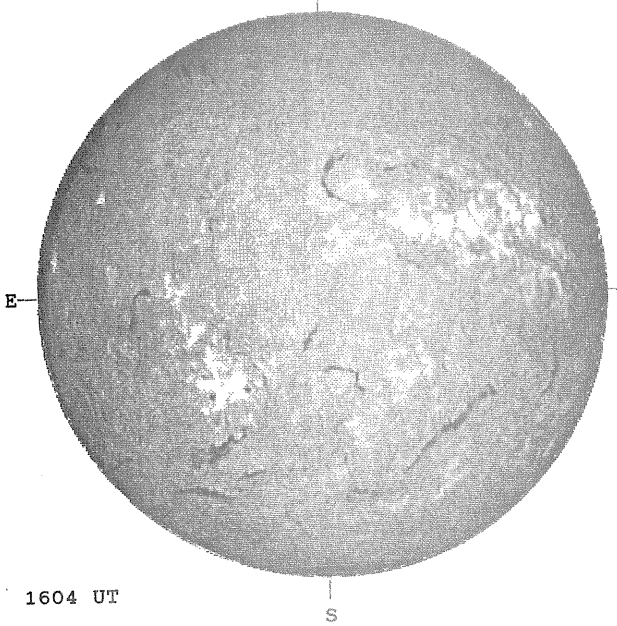


STANFORD MAGNETOGRAM

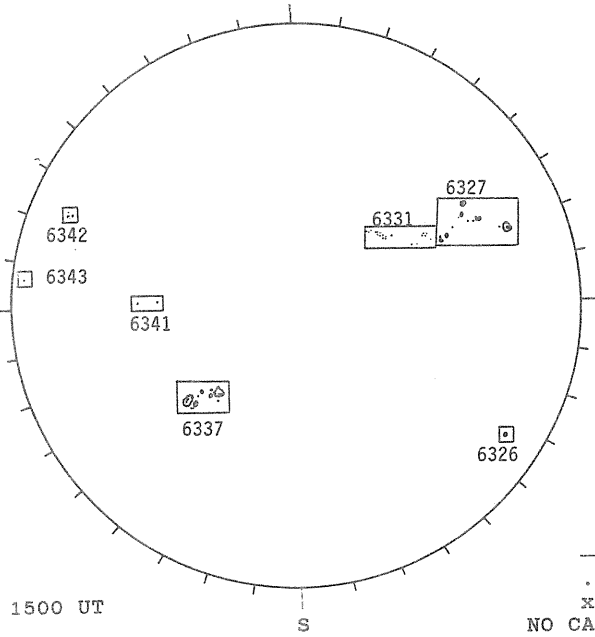
MT. WILSON MAGNETOGRAM



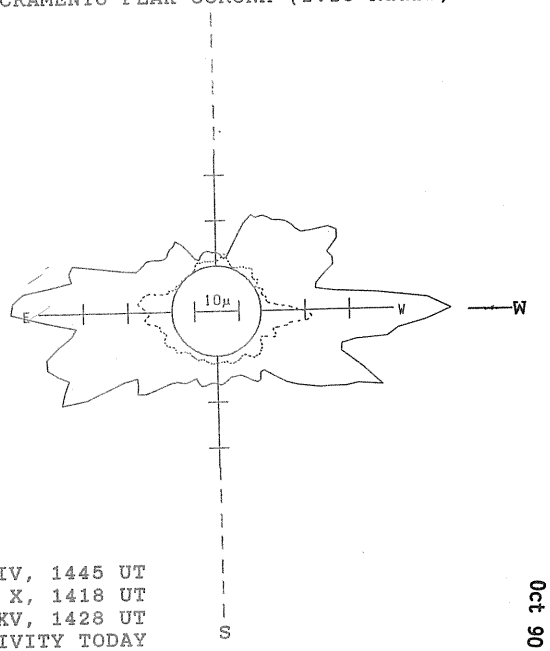
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1445 UT
.... Fe X, 1418 UT
xxxx Ca XV, 1428 UT
NO CA XV ACTIVITY TODAY

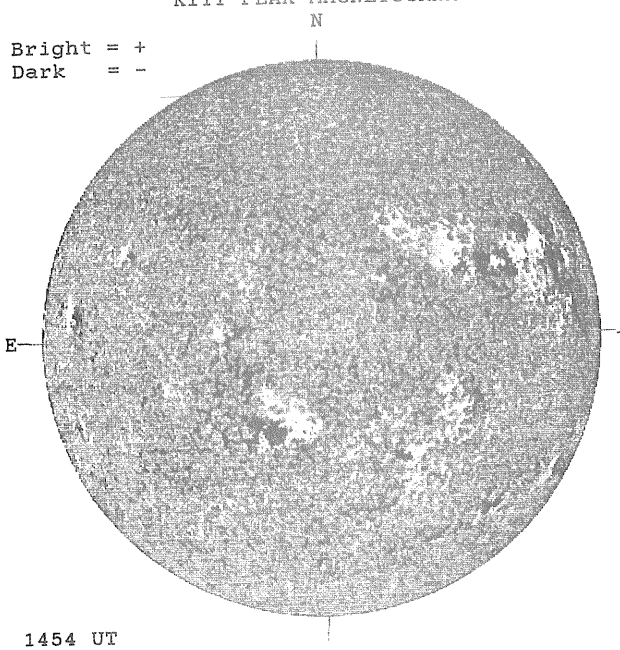
85 Oct 90

OCTOBER 27, 1990 (P= 25.28, B_o = 4.87, L_o = 342.30)

Oct 90

KITT PEAK MAGNETOGRAM

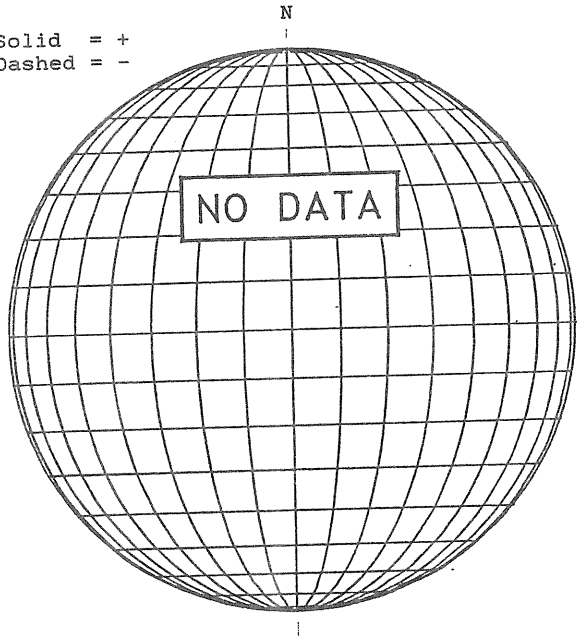
Bright = +
Dark = -



1454 UT

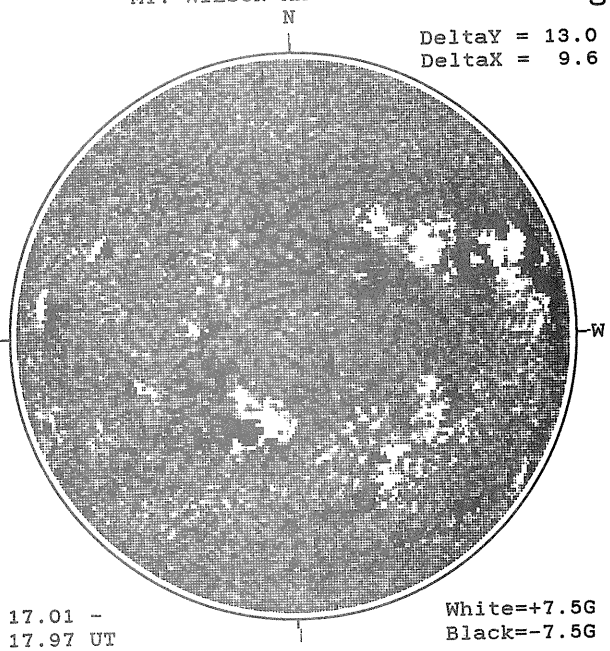
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

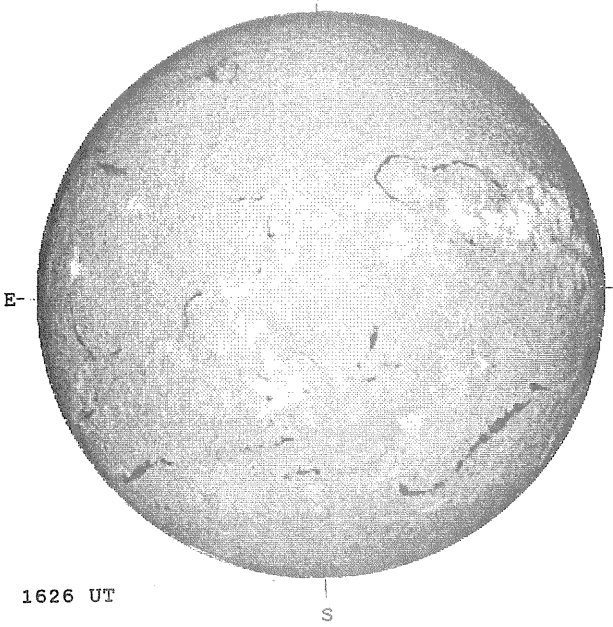
DeltaY = 13.0
DeltaX = 9.6



17.01 -
17.97 UT

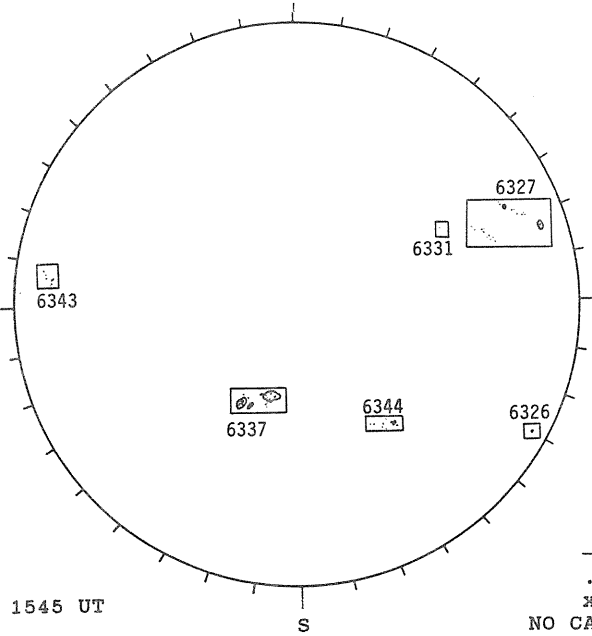
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



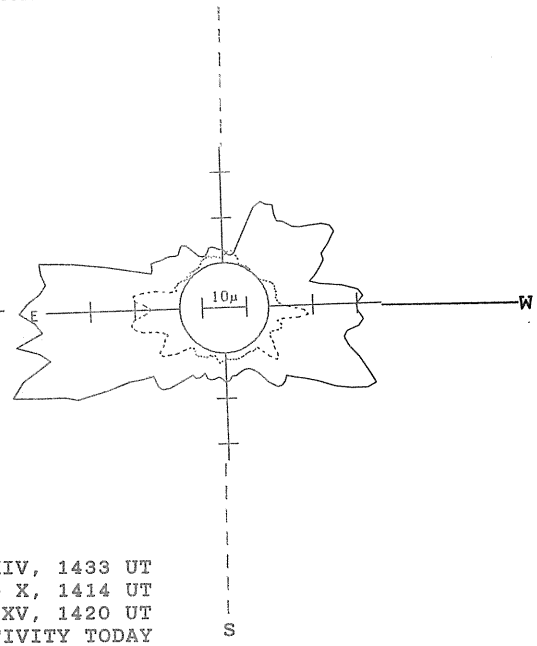
1626 UT

HOLLOMAN SUNSPOT



1545 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

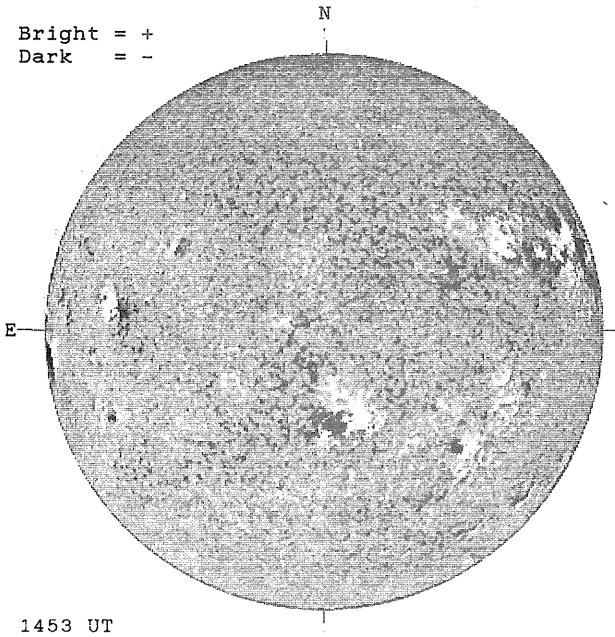


—— FeXIV, 1433 UT
.... Fe X, 1414 UT
xxxx Ca XV, 1420 UT
NO CA XV ACTIVITY TODAY

OCTOBER 28, 1990 (P= 25.15 B_o = 4.77, L_o = 329.12)

KITT PEAK MAGNETOGRAM

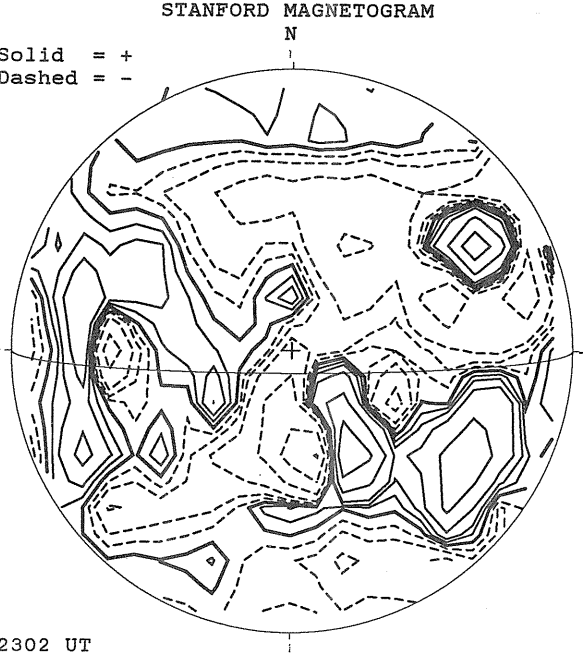
Bright = +
Dark = -



1453 UT

STANFORD MAGNETOGRAM

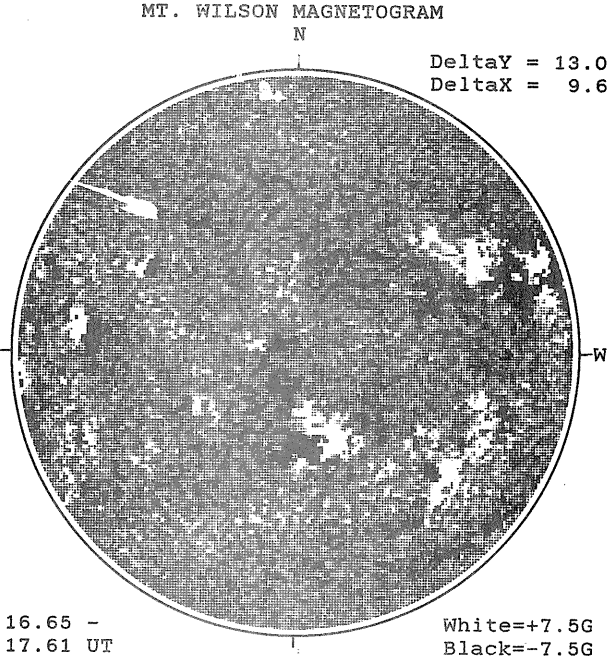
Solid = +
Dashed = -



2302 UT

MT. WILSON MAGNETOGRAM

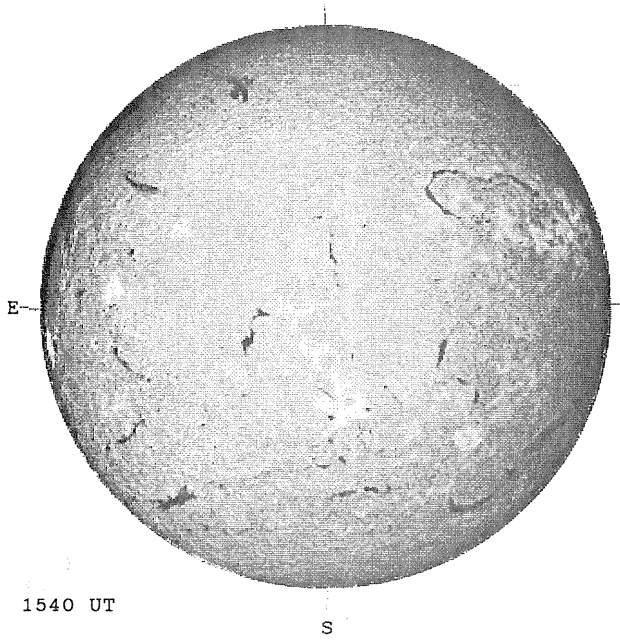
DeltaY = 13.0
DeltaX = 9.6



16.65 -
17.61 UT

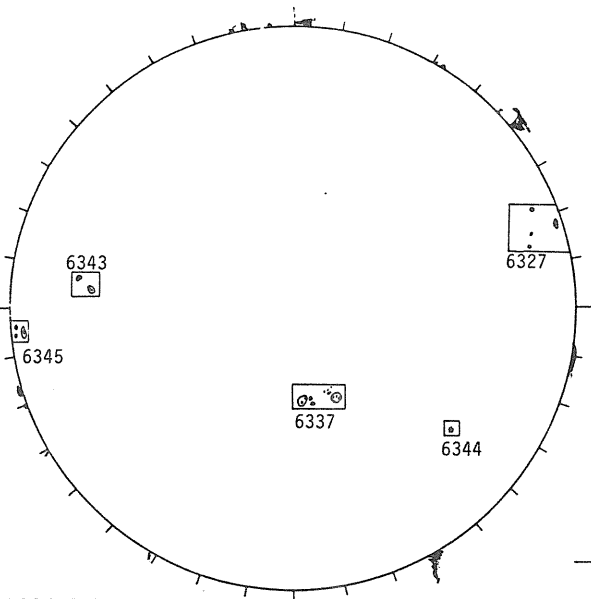
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



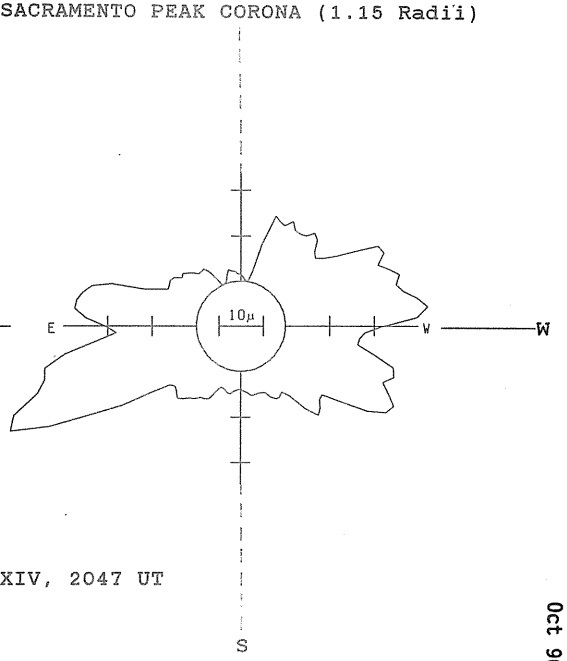
1540 UT

BOULDER SUNSPOT



1600 UT
1615 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 2047 UT

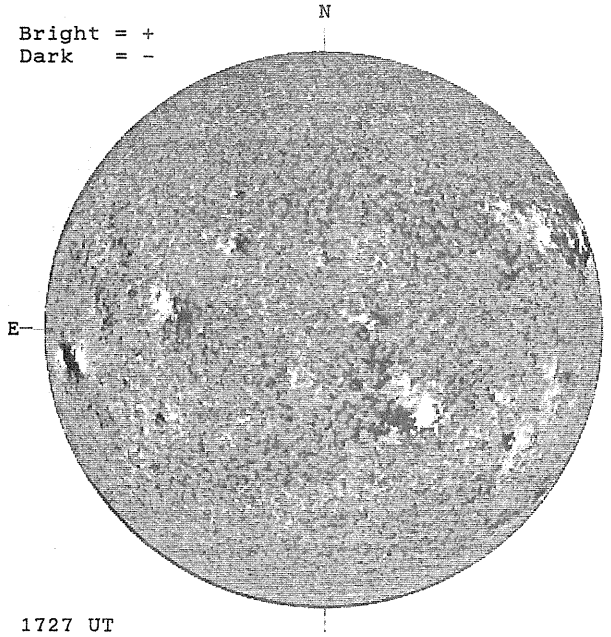
87
Oct 90

OCTOBER 29, 1990 (P= 25.01, B_o = 4.68, L_o = 315.93)

Oct 90 88

KITT PEAK MAGNETOGRAM

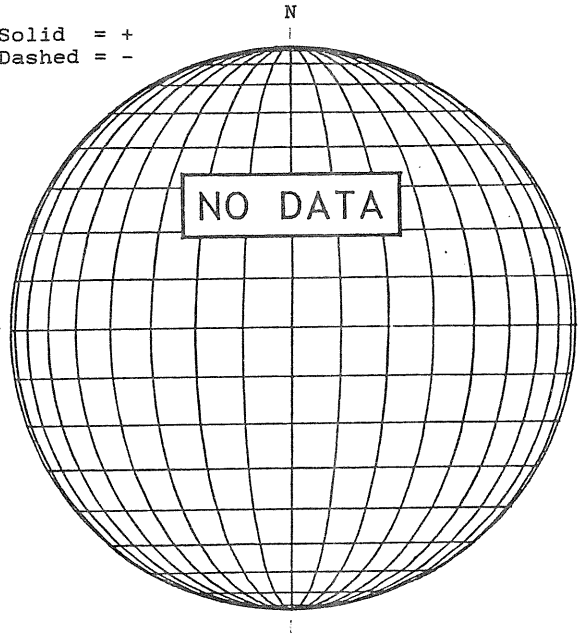
Bright = +
Dark = -



1727 UT

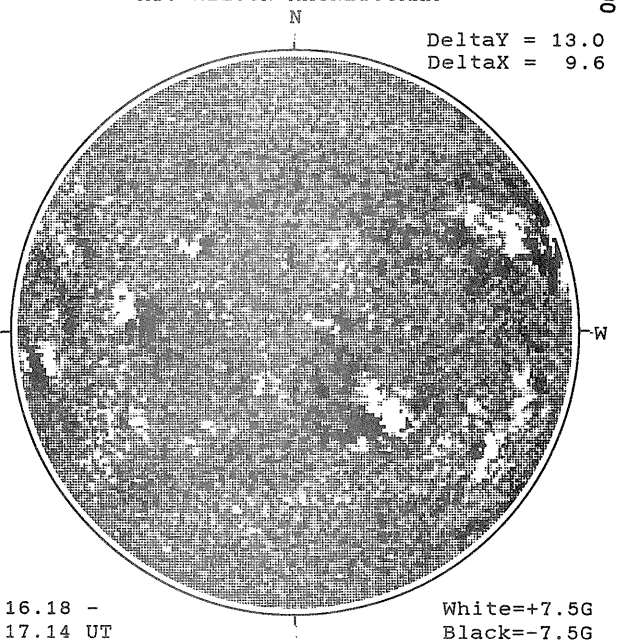
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

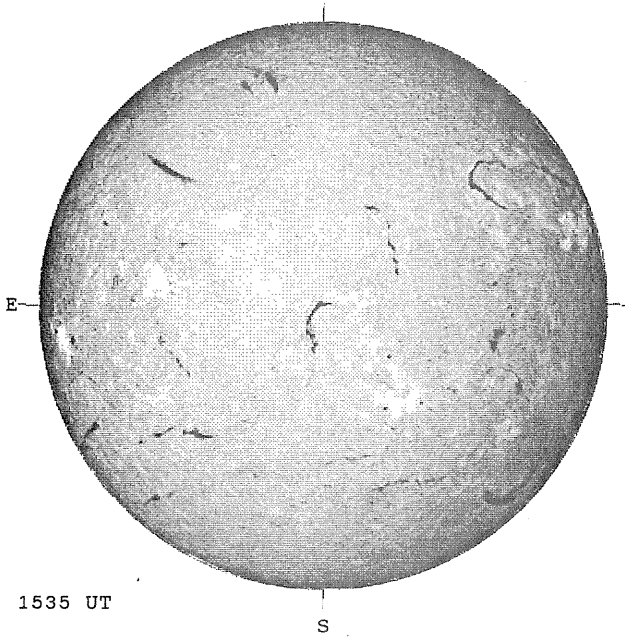
DeltaY = 13.0
DeltaX = 9.6



16.18 -
17.14 UT

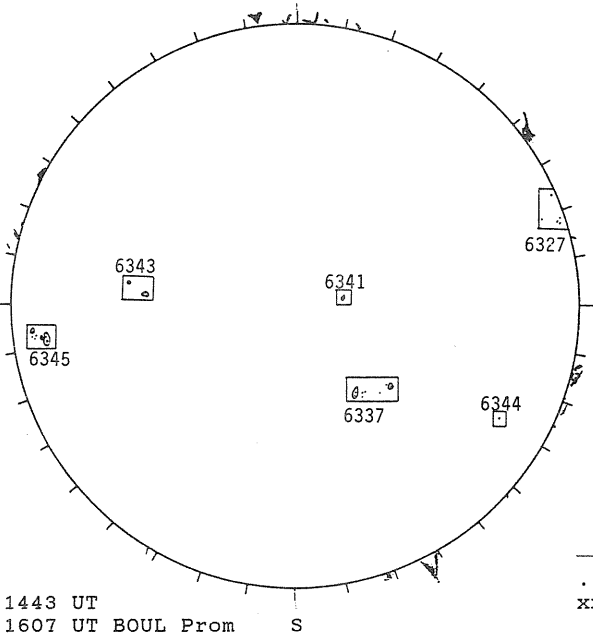
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



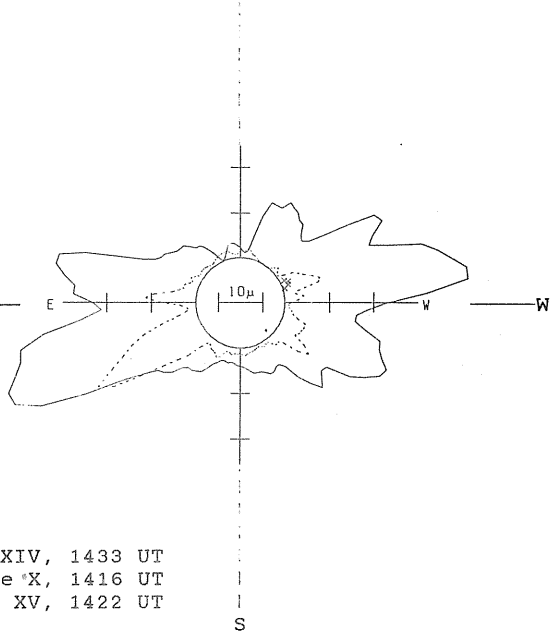
1535 UT

BOULDER SUNSPOT



1443 UT
1607 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

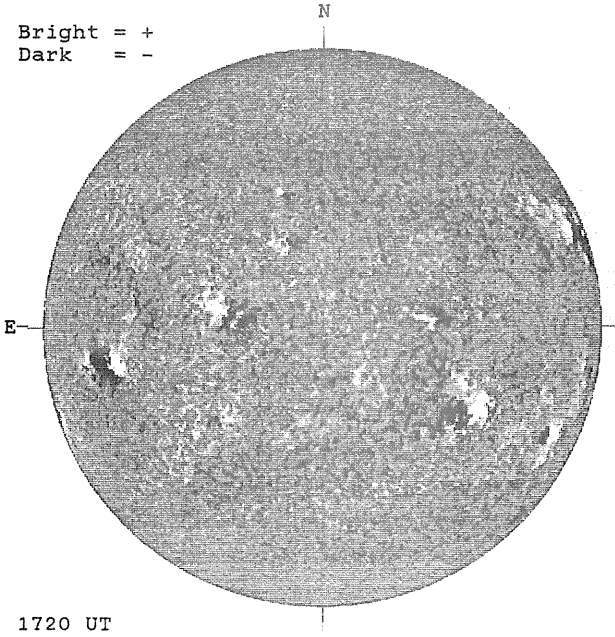


—— FeXIV, 1433 UT
.... Fe X, 1416 UT
xxxx Ca XV, 1422 UT

OCTOBER 30, 1990 (P= 24.87, B_o = 4.58, L_o = 302.74)

KITT PEAK MAGNETOGRAM

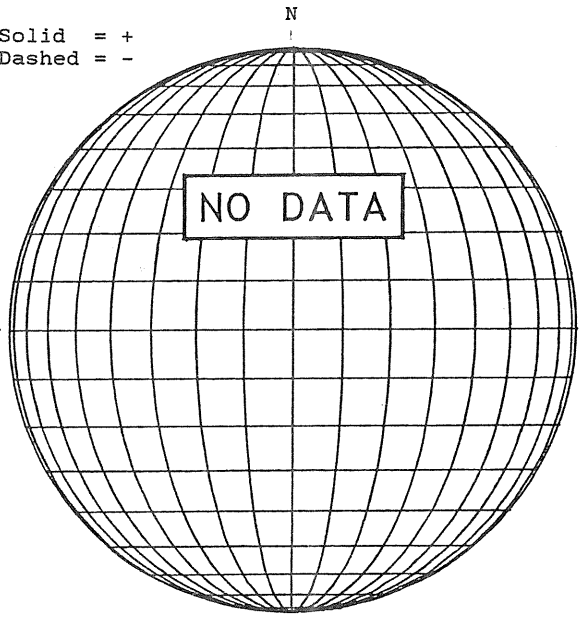
Bright = +
Dark = -



1720 UT

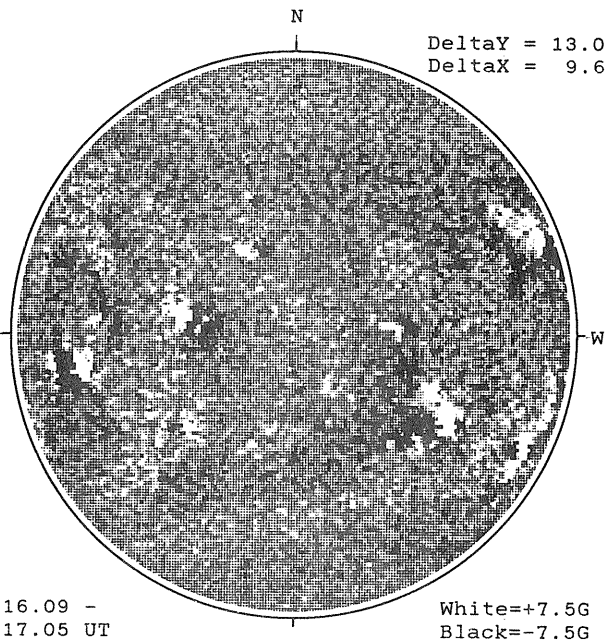
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

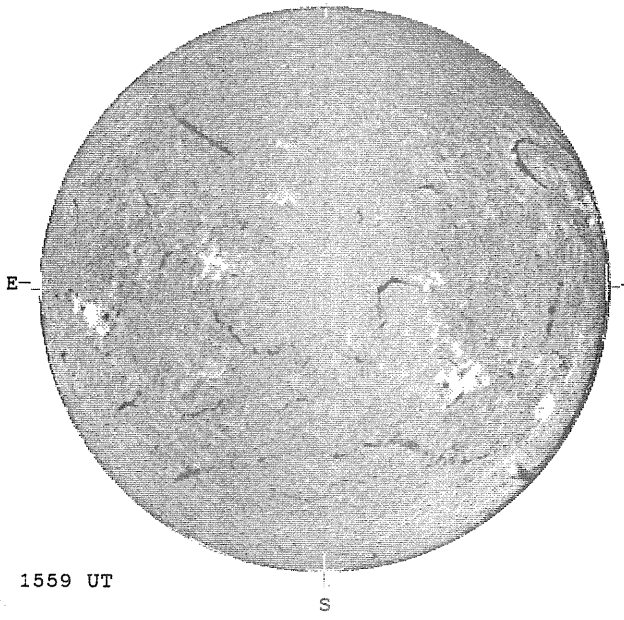
DeltaY = 13.0
DeltaX = 9.6



16.09 -
17.05 UT

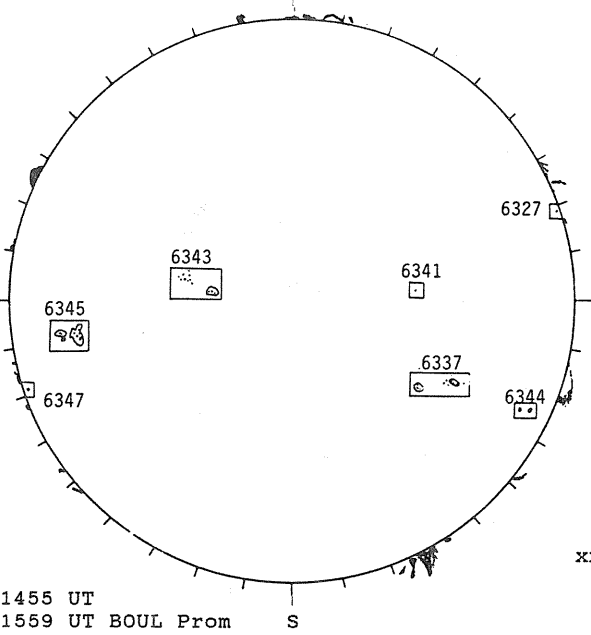
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



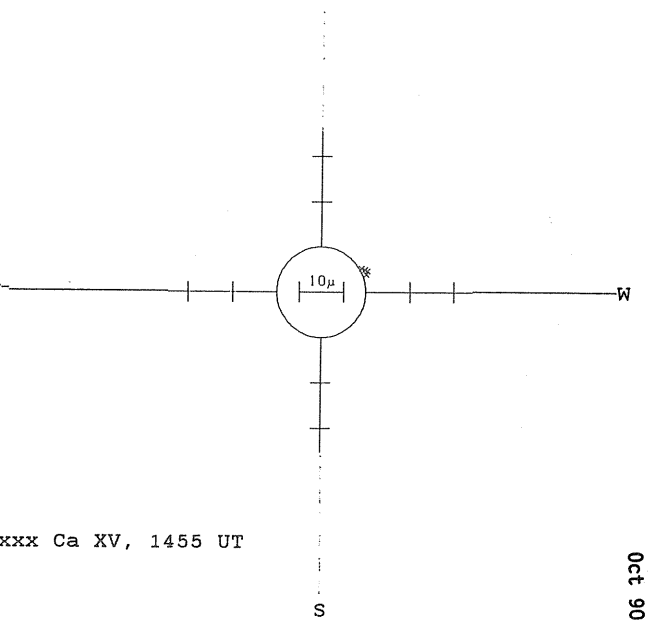
1559 UT

BOULDER SUNSPOT



1455 UT
1559 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



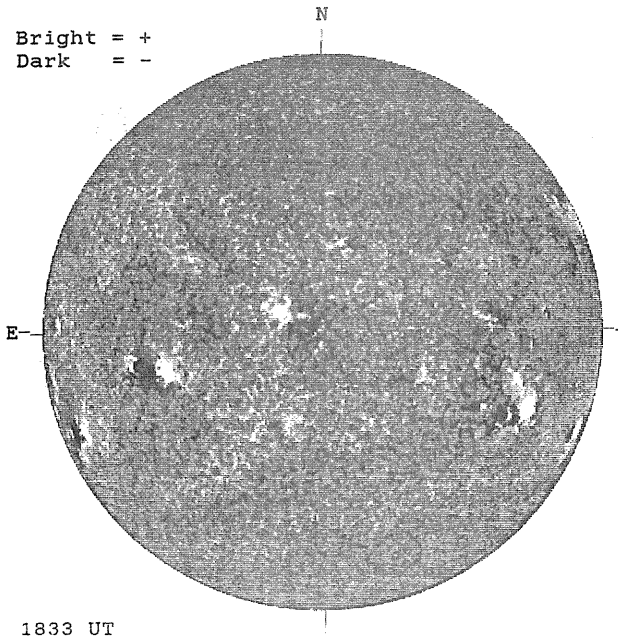
xxxx Ca XV, 1455 UT

89 Oct 30

OCTOBER 31, 1990 (P= 24.71, B_o = 4.48, L_o = 289.55)

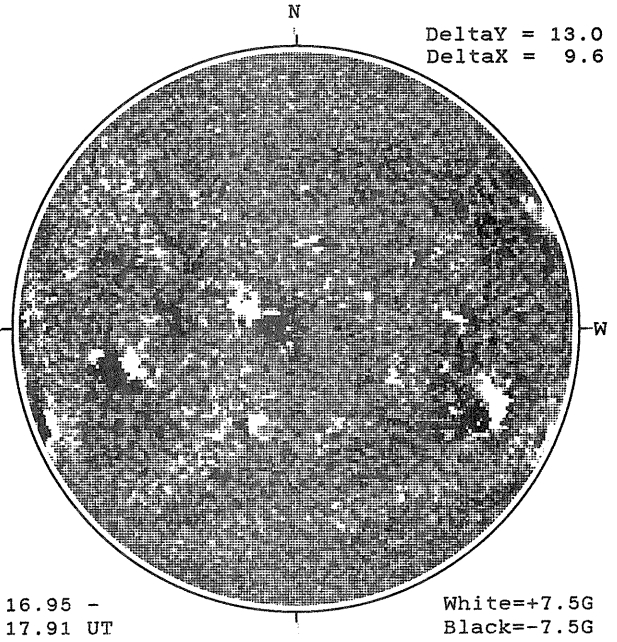
oct 90

KITT PEAK MAGNETOGRAM

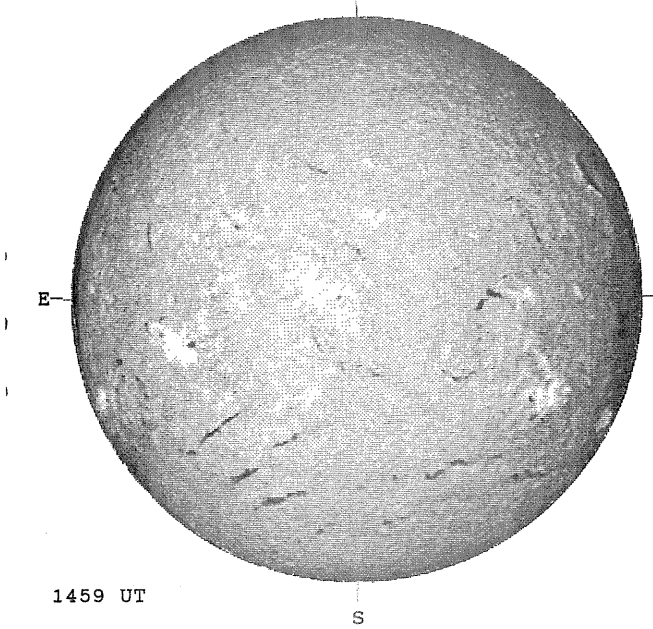


STANFORD MAGNETOGRAM

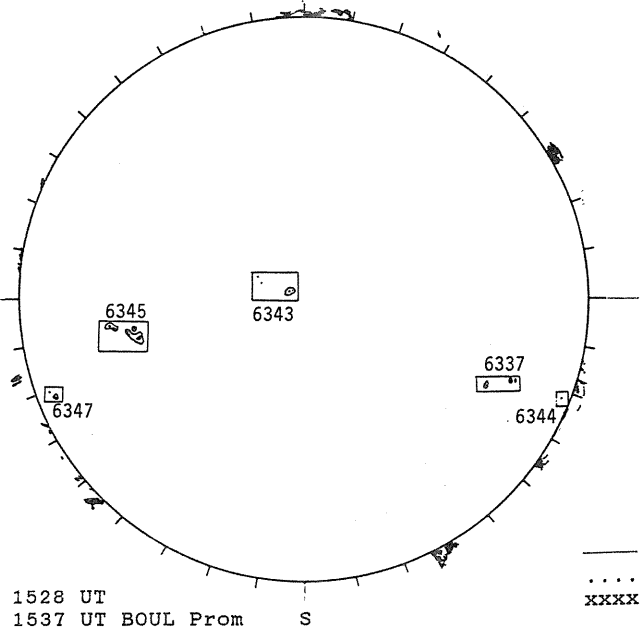
MT. WILSON MAGNETOGRAM



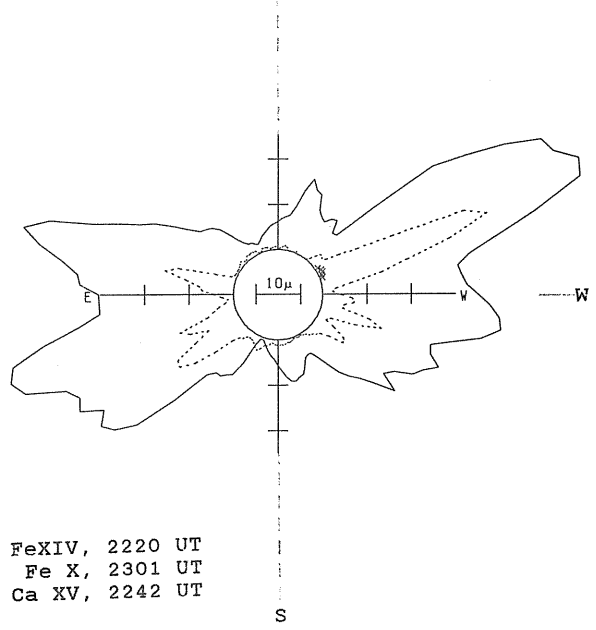
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 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
6294		RAMY	09 29 1520	S04 E29	10 1.8		B	BXO	10	7	3	3
6294		HOLL	09 29 1730	S04 E27	10 1.7		B	CAO	20	7	6	2
6294		PALE	09 29 1750	S04 E27	10 1.8		B	BXO	10	6	5	3
6294		LEAR	09 30 0005	S05 E24	10 1.8		B	CAO	30	9	5	3
6294		CULG	09 30 0155	S04 E21	10 1.6		B	DRI	20	8	5	2
6294		SVTO	09 30 0645	S04 E20	10 1.8		B	CRO	50	31	5	4
6294		RAMY	09 30 1129	S04 E17	10 1.7		B	DAI	80	24	6	4
6294		BOUL	09 30 1440	S03 E15	10 1.7		B	DAI	170	25	7	4
6294		LEAR	10 01 0055	S04 E09	10 1.7		B	DSO	140	19	7	3
6294		CULG	10 01 0103	S04 E09	10 1.7		B	DAO	150	15	8	2
6294		PALE	10 01 0204	S04 E09	10 1.7		B	DAI	340	27	7	3
6294		SVTO	10 01 0655	S05 E06	10 1.7		B	DSI	270	44	8	4
6294		RAMY	10 01 1238	S04 E04	10 1.8		B	DKI	290	33	9	2
6294		BOUL	10 01 1417	S03 E02	10 1.7		B	DSI	420	29	8	1
6294		PALE	10 01 1904	S05 E00	10 1.8		B	DKI	390	41	9	3
6294		LEAR	10 02 0007	S04 W03	10 1.8		B	DAI	340	27	10	3
6294		SVTO	10 02 0635	S04 W07	10 1.7		B	DKI	550	49	10	2
6294		RAMY	10 02 1314	S03 W11	10 1.7		B	DKI	560	45	9	3
6294		HOLL	10 02 1905	S04 W14	10 1.7		B	DKI	620	57	10	2
6294		PALE	10 02 1923	S03 W15	10 1.7		B	DKI	620	52	10	3
6294		LEAR	10 03 0008	S05 W17	10 1.7		B	DKI	620	47	10	4
6294		CULG	10 03 0045	S04 W18	10 1.7		B	EKI	440	47	11	2
6294		SVTO	10 03 0801	S05 W21	10 1.8		B	DKI	600	29	10	3
6294		RAMY	10 03 1314	S04 W24	10 1.7		B	EKI	700	32	11	2
6294		BOUL	10 03 1450	S04 W26	10 1.7		B	DKI	650	32	10	1
6294		PALE	10 03 1805	S05 W27	10 1.7		B	DKI	590	66	10	3
6294		HOLL	10 03 2315	S04 W30	10 1.7		B	EKI	710	60	12	3
6294		CULG	10 04 0045	S05 W30	10 1.8		B	EKI	540	35	11	3
6294		LEAR	10 04 0340	S05 W33	10 1.7		B	DKI	600	34	10	3
6294		SVTO	10 04 0759	S05 W36	10 1.6		B	DSI	520	19	10	2
6294		BOUL	10 04 1430	S04 W38	10 1.8		B	DKO	260	8	9	2
6294		HOLL	10 04 1435	S05 W38	10 1.8		B	DKI	510	29	10	3
6294		PALE	10 04 1955	S03 W42	10 1.7		B	EKI	520	17	12	3
6294		LEAR	10 05 0007	S05 W43	10 1.8		B	DKO	560	30	10	4
6294		CULG	10 05 0050	S05 W44	10 1.7		B	EKO	470	34	11	2
6294		SVTO	10 05 0715	S04 W49	10 1.6		B	DAO	480	35	10	3
6294		RAMY	10 05 1311	S05 W50	10 1.8		B	EKO	350	24	11	2
6294		BOUL	10 05 1445	S04 W52	10 1.7		B	DKO	480	12	9	2
6294		PALE	10 05 1800	S05 W54	10 1.7		B	EAO	440	15	10	3
6294		HOLL	10 05 2242	S05 W56	10 1.7		B	DHO	430	17	9	2
6294		LEAR	10 06 0117	S03 W56	10 1.9		B	EKO	410	12	11	2
6294		RAMY	10 06 1227	S04 W63	10 1.8		BG	DKO	370	23	10	3
6294		BOUL	10 06 1450	S04 W65	10 1.7		B	DKO	330	10	10	1
6294		SVTO	10 06 1500	S04 W67	10 1.6		B	DKO	310	12	9	2
6294		HOLL	10 06 1625	S06 W66	10 1.7		B	DKO	380	12	9	3
6294		PALE	10 06 1948	S05 W68	10 1.7		B	DAO	250	13	9	3
6294		CULG	10 07 0205	S04 W76	10 1.4		B	DKO	350	7	10	3
6294		LEAR	10 07 0210	S04 W70	10 1.8		B	DSO	330	9	10	2
6294		SVTO	10 07 1315	S05 W79	10 1.6		B	DAO	240	3	10	2
6294		RAMY	10 07 1523	S03 W76	10 2.0		B	DKO	360	9	8	3
6294		HOLL	10 07 1530	S05 W78	10 1.8		B	EKO	210	5	15	4
6294		PALE	10 07 1913	S04 W78	10 2.0		B	CSO	90	3	5	3
6294		LEAR	10 08 0000	S02 W77	10 2.2		A	HS	30	1	1	4
6299A		SVTO	10 03 0801	S13 W20	10 1.8		A	AX		1		3
6299		RAMY	10 02 1314	S14 W09	10 1.9		A	AX		2	1	3
6299		HOLL	10 02 1905	S15 W12	10 1.9		B	BXO	10	7	3	2
6299		LEAR	10 03 0008	S17 W14	10 1.9		B	BXO	30	5	5	4
6299		CULG	10 03 0045	S17 W15	10 1.9		B	BXO	10	4	2	2
6299		SVTO	10 03 0801	S19 W17	10 2.0		B	BXO	10	3	4	3
6299		RAMY	10 03 1314	S19 W21	10 1.9		B	BXO		2	3	2
6299		BOUL	10 03 1450	S19 W22	10 1.9		B	BXO	20	3	3	1
6299		LEAR	10 07 0210	S14 W67	10 2.0		A	AX	10	1	1	2
6292A		LEAR	09 28 0025	S15 E68	10 3.2		B	BXO	20	2	3	2
6315		LEAR	10 08 0000	S06 W58	10 3.6		B	BXO	10	2	3	4
6315		RAMY	10 08 1220	S06 W67	10 3.5		B	BXO	10	4	5	4

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 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
6315		HOLL	10	08	1520	S08	W68	10	3.5		B	BXO	10	2	4	3
6315		PALE	10	08	1900	S06	W72	10	3.4		B	BXO	10	3	7	3
6315		LEAR	10	09	0010	S06	W73	10	3.5		A	AX	10	1	1	3
6315		CULG	10	09	0220	S05	W81	10	3.0		B	BXO	10	2	3	2
6315		PALE	10	09	1805	S07	W80	10	3.8		A	AX	20	1	1	3
6292		SVTO	09	29	0722	S16	E67	10	4.4		B	DRO	70	6	5	3
6292		RAMY	09	29	1520	S16	E62	10	4.3		B	DAO	140	11	6	3
6292		HOLL	09	29	1730	S17	E60	10	4.3		B	DSO	120	7	6	2
6292		PALE	09	29	1750	S16	E60	10	4.3		B	DSO	130	5	6	3
6292		LEAR	09	30	0005	S17	E57	10	4.3		B	DSO	120	4	6	3
6292		CULG	09	30	0155	S17	E53	10	4.1		B	DAO	110	3	6	2
6292		SVTO	09	30	0645	S16	E55	10	4.4		B	DSO	130	11	7	4
6292		RAMY	09	30	1129	S18	E50	10	4.3		B	DAO	190	10	8	4
6292		BOUL	09	30	1440	S15	E47	10	4.2		B	DSO	160	8	7	4
6292		LEAR	10	01	0055	S17	E42	10	4.2		B	DSO	140	5	7	3
6292		CULG	10	01	0103	S16	E42	10	4.2		B	DSO	60	5	7	2
6292		PALE	10	01	0204	S16	E41	10	4.2		B	DSO	90	7	7	3
6292		SVTO	10	01	0655	S16	E40	10	4.3		B	DSO	110	14	7	4
6292		RAMY	10	01	1238	S16	E36	10	4.2		B	DSO	100	12	7	2
6292		BOUL	10	01	1417	S15	E34	10	4.2		B	DSI	90	7	7	1
6292		PALE	10	01	1904	S17	E32	10	4.2		B	DSO	100	7	7	3
6292		LEAR	10	02	0007	S16	E29	10	4.2		B	DSO	80	5	7	3
6292		SVTO	10	02	0635	S16	E26	10	4.2		B	DSO	90	8	8	2
6292		RAMY	10	02	1314	S16	E23	10	4.3		B	CSO	100	7	9	3
6292		HOLL	10	02	1905	S16	E19	10	4.2		B	CSO	100	7	7	2
6292		PALE	10	02	1923	S18	E18	10	4.2		B	CAO	60	6	8	3
6292		LEAR	10	03	0008	S16	E16	10	4.2		B	CSO	130	8	8	4
6292		CULG	10	03	0045	S16	E15	10	4.2		B	CSO	70	12	8	2
6292		SVTO	10	03	0801	S16	E12	10	4.2		B	CAO	70	11	8	3
6292		RAMY	10	03	1314	S16	E09	10	4.2		B	CSO	60	7	9	2
6292		BOUL	10	03	1450	S14	E07	10	4.1		B	CAO	60	8	7	1
6292		PALE	10	03	1805	S16	E06	10	4.2		B	CAO	70	15	9	3
6292		HOLL	10	03	2315	S15	E04	10	4.3		B	CAO	80	12	8	3
6292		CULG	10	04	0045	S16	E02	10	4.2		B	CAO	40	9	6	3
6292		LEAR	10	04	0340	S16	E00	10	4.1		B	CAO	90	10	6	3
6292		SVTO	10	04	0759	S16	W03	10	4.1		B	CRO	40	4	6	2
6292		RAMY	10	04	1206	S16	W05	10	4.1		B	CRO	30	10	7	3
6292		BOUL	10	04	1430	S15	W09	10	3.9		A	AX	20	1	1	2
6292		HOLL	10	04	1435	S16	W06	10	4.1		B	CAO	30	5	7	3
6292		PALE	10	04	1955	S16	W12	10	3.9		B	CSO	20	7	4	3
6292		LEAR	10	05	0007	S16	W12	10	4.1		B	CSO	80	7	7	4
6292		CULG	10	05	0050	S16	W12	10	4.1		B	CAO	20	8	3	2
6292		SVTO	10	05	0715	S15	W19	10	3.9		A	AX	10	4	2	3
6292		RAMY	10	05	1311	S16	W21	10	3.9		A	AX	10	5	2	2
6292		BOUL	10	05	1445	S14	W23	10	3.9		A	HA	10	1	1	2
6292		PALE	10	05	1800	S17	W24	10	3.9		A	AX	10	2	1	3
6292		HOLL	10	05	2242	S17	W23	10	4.2		B	BXO	10	3	7	2
6292		LEAR	10	06	0117	S13	W29	10	3.9		A	AX	10	1	1	2
6292		RAMY	10	06	1227	S17	W34	10	3.9		B	CRO	20	3	3	3
6292		BOUL	10	06	1450	S16	W34	10	4.0		A	AX	10	2	2	1
6292		SVTO	10	06	1500	S16	W36	10	3.9		A	AX	10	2	3	2
6292		PALE	10	06	1948	S17	W37	10	4.0		A	AX		2	2	3
6292		CULG	10	07	0205	S17	W43	10	3.8		A	AX		1		3
6292		LEAR	10	07	0210	S18	W41	10	4.0		A	AX	10	1	1	2
6292		RAMY	10	07	1523	S18	W47	10	4.1		A	AX	10	2	1	3
6292		HOLL	10	07	1530	S18	W49	10	3.9		A	AX		1		4
6292		PALE	10	07	1913	S19	W50	10	4.0		A	AX	10	1	1	3
6292B		CULG	09	29	0155	S16	E79	10	5.1		A	AX	10	1	1	3
6296		LEAR	10	01	0055	N33	E65	10	6.2		A	AX	10	1	1	3
6296		CULG	10	01	0103	N33	E69	10	6.5		A	AX	10	1	1	2
6296		PALE	10	01	0204	N33	E66	10	6.3		A	AX	10	1		3
6296		SVTO	10	01	0655	N35	E65	10	6.5		B	BXO	20	2	1	4
6296		RAMY	10	01	1238	N33	E58	10	6.1		A	AX	10	2	1	2
6296		PALE	10	01	1904	N33	E58	10	6.4		B	BXO	20	3	6	3
6296		LEAR	10	02	0007	N33	E53	10	6.2		B	BXO	20	2	5	3
6296		SVTO	10	02	0635	N34	E50	10	6.2		A	AX	10	2	1	2

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 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
6296		RAMY	10	02	1314	N34	E45	10	6.1		A	HS	20	2	2	3
6296		HOLL	10	02	1905	N34	E42	10	6.1		A	AX	10	1	1	2
6296		PALE	10	02	1923	N33	E45	10	6.4		A	AX	10	1		3
6296		LEAR	10	03	0008	N34	E39	10	6.1		A	AX	10	1	1	4
6296		CULG	10	03	0045	N35	E40	10	6.2		A	AX	10	1	1	2
6296		SVTO	10	03	0801	N35	E37	10	6.3		A	AX	10	1	4	3
6296		RAMY	10	03	1314	N34	E32	10	6.1		A	HA	20	1	1	2
6296		BOUL	10	03	1450	N34	E31	10	6.1		A	AX	10	1	1	1
6296		PALE	10	03	1805	N34	E32	10	6.3		B	BXO		3	4	3
6296		HOLL	10	03	2315	N35	E29	10	6.3		B	BXO	20	8	8	3
6296		CULG	10	04	0045	N35	E29	10	6.3		B	BXO		3	3	3
6296		LEAR	10	04	0340	N33	E27	10	6.3		B	BXO	40	5	4	3
6296		SVTO	10	04	0759	N33	E25	10	6.3		B	BXO	20	3	5	2
6296		RAMY	10	04	1206	N34	E23	10	6.3		A	AX	10	4	2	3
6296		LEAR	10	05	0007	N33	E17	10	6.3		B	BXO	20	2	4	4
6296		CULG	10	05	0050	N34	E17	10	6.4		A	AX		1		2
6296		RAMY	10	05	1311	N33	E11	10	6.4		A	AX	10	2	2	2
6296		BOUL	10	05	1445	N33	E09	10	6.3		B	BXO	10	2	2	2
6296		PALE	10	05	1800	N34	E08	10	6.4		B	BXO	10	3	3	3
6296		HOLL	10	05	2242	N34	E05	10	6.3		B	BXO	10	3	4	2
6296		LEAR	10	06	0117	N32	E05	10	6.4		B	BXO	20	4	5	2
6296		RAMY	10	06	1227	N32	W04	10	6.2		A	AX	10	3	3	3
6296		PALE	10	06	1948	N33	W07	10	6.3		B	BXO		3	3	3
6304		LEAR	10	04	0340	S16	E31	10	6.5		B	BXO	20	2	3	3
6304		SVTO	10	04	0759	S15	E28	10	6.4		B	BXO	10	3	4	2
6304		RAMY	10	04	1206	S15	E28	10	6.6		A	AX	30	7	3	3
6304		BOUL	10	04	1430	S13	E26	10	6.6		A	HA	30	2	3	2
6304		HOLL	10	04	1435	S14	E25	10	6.5		B	BXO	20	5	3	3
6304		PALE	10	04	1955	S14	E21	10	6.4		B	CSO	20	5	3	3
6304		LEAR	10	05	0007	S15	E18	10	6.4		B	DSO	70	8	4	4
6304		CULG	10	05	0050	S14	E20	10	6.5		B	DAO	40	11	3	2
6304		SVTO	10	05	0715	S15	E16	10	6.5		B	DAO	80	6	4	3
6304		RAMY	10	05	1311	S15	E13	10	6.5		B	DAO	90	7	4	2
6304		BOUL	10	05	1445	S14	E09	10	6.3		B	DAO	80	6	5	2
6304		PALE	10	05	1800	S14	E10	10	6.5		B	CAO	30	6	5	3
6304		HOLL	10	05	2242	S14	E07	10	6.5		B	CSO	30	7	5	2
6304		LEAR	10	06	0117	S14	E06	10	6.5		B	DSO	90	4	6	2
6304		RAMY	10	06	1227	S16	W02	10	6.4		B	DAO	70	16	8	3
6304		BOUL	10	06	1450	S13	W03	10	6.4		B	DAO	70	7	6	1
6304		SVTO	10	06	1500	S14	W04	10	6.3		B	DAO	60	12	6	2
6304		HOLL	10	06	1625	S15	W03	10	6.4		B	BXO	30	14	6	3
6304		PALE	10	06	1948	S15	W04	10	6.5		B	BXO	30	13	6	3
6304		CULG	10	07	0205	S15	W11	10	6.2		B	CRO	20	5	5	3
6304		LEAR	10	07	0210	S16	W09	10	6.4		B	DAO	50	5	5	2
6304		SVTO	10	07	1315	S16	W15	10	6.4					0		2
6304		RAMY	10	07	1523	S16	W16	10	6.4		B	DAO	40	8	6	3
6304		HOLL	10	07	1530	S15	W15	10	6.5		B	BXO	20	12	5	4
6304		PALE	10	07	1913	S14	W18	10	6.4		B	BXO	10	4	3	3
6304		LEAR	10	08	0000	S15	W21	10	6.4		B	CAO	20	8	6	4
6304		CULG	10	08	0220	S14	W26	10	6.1		B	BXO	10	2	5	2
6304		RAMY	10	08	1220	S14	W28	10	6.4		B	CAO	20	4	6	4
6304		SVTO	10	08	1432	S15	W31	10	6.2		B	BXO	10	2	4	1
6304		HOLL	10	08	1520	S16	W29	10	6.4		B	BXO	10	3	5	3
6304		PALE	10	08	1900	S15	W35	10	6.1		A	AX		1	1	3
6304		LEAR	10	09	0010	S15	W38	10	6.1		A	AX	10	1	1	3
6304		CULG	10	09	0220	S13	W41	10	6.0		A	AX	10	1	1	2
6297		CULG	10	01	0109	N20	E70	10	6.4		B	BXO	10	6	7	2
6297		SVTO	10	01	0655	N21	E72	10	6.8		B	BXO	10	4	4	4
6297		RAMY	10	01	1238	N22	E67	10	6.7		B	BXO	10	4	3	2
6297		BOUL	10	01	1417	N21	E66	10	6.6		B	BXO	40	4	5	1
6297		PALE	10	01	1904	N20	E65	10	6.8		B	BXO	20	2	5	3
6297		LEAR	10	02	0007	N20	E59	10	6.5		B	CAO	20	6	5	3
6297		SVTO	10	02	0635	N20	E59	10	6.8		B	BXO	30	15	7	2
6297		RAMY	10	02	1314	N21	E53	10	6.6		B	CAO	60	11	8	3
6297		HOLL	10	02	1905	N21	E50	10	6.6		B	BXO	20	8	4	2
6297		PALE	10	02	1923	N18	E50	10	6.6		A	AX	30	9	1	3
6297		LEAR	10	03	0008	N20	E46	10	6.5		B	CSO	70	7	3	4

SUNSPOT GROUPS
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6297		CULG	10	03	0045	N22	E46	10	6.6		B	CAO	10	5	2	2
6297		SVTO	10	03	0801	N20	E43	10	6.6		B	CRO	30	10	5	3
6297		RAMY	10	03	1314	N20	E41	10	6.7		B	CAO	30	11	8	2
6297		BOUL	10	03	1450	N21	E40	10	6.7		B	DSO	50	7	8	1
6297		PALE	10	03	1805	N20	E39	10	6.7		B	CRO	30	17	8	3
6297		HOLL	10	03	2315	N21	E36	10	6.7		B	DRO	50	26	8	3
6297		CULG	10	04	0045	N21	E36	10	6.8		B	DAO	50	23	10	3
6297		LEAR	10	04	0340	N19	E33	10	6.7		B	DSO	170	21	9	3
6297		SVTO	10	04	0759	N20	E32	10	6.8		B	DAO	120	15	9	2
6297		RAMY	10	04	1206	N20	E29	10	6.7		B	DAI	140	34	9	3
6297		BOUL	10	04	1430	N21	E27	10	6.7		B	DAO	140	4	6	2
6297		HOLL	10	04	1435	N21	E27	10	6.7		B	DAI	110	29	10	3
6297		LEAR	10	05	0007	N19	E22	10	6.7		B	DAO	200	21	10	4
6297		CULG	10	05	0050	N20	E22	10	6.7		B	DAO	80	29	10	2
6297		SVTO	10	05	0715	N20	E19	10	6.7		B	DAO	70	29	10	3
6297		RAMY	10	05	1311	N20	E14	10	6.6		B	CSO	90	31	9	2
6297		BOUL	10	05	1445	N21	E14	10	6.7		B	DAO	120	13	10	2
6297		PALE	10	05	1800	N21	E13	10	6.7		B	ESO	60	22	10	3
6297		HOLL	10	05	2242	N20	E09	10	6.6		B	DSO	80	24	9	2
6297		LEAR	10	06	0117	N22	E08	10	6.7		B	CSO	140	18	9	2
6297		RAMY	10	06	1227	N19	E01	10	6.6		B	DAO	90	16	8	3
6297		BOUL	10	06	1450	N20	E00	10	6.6		B	DSO	40	5	8	1
6297		SVTO	10	06	1500	N21	W01	10	6.5		B	DAO	100	7	8	2
6297		HOLL	10	06	1625	N20	E00	10	6.7		B	CSO	80	20	8	3
6297		PALE	10	06	1948	N20	W02	10	6.7		B	CSO	60	10	7	3
6297		CULG	10	07	0205	N19	W07	10	6.5		B	CSO	40	8	7	3
6297		LEAR	10	07	0210	N19	W06	10	6.6		B	CSO	70	8	8	2
6297		SVTO	10	07	1315	N19	W12	10	6.6		B	CSO	50	16	8	2
6297		RAMY	10	07	1523	N20	W12	10	6.7		B	CAO	70	12	8	3
6297		HOLL	10	07	1530	N20	W15	10	6.5		B	CSO	60	22	8	4
6297		PALE	10	07	1913	N19	W15	10	6.6		B	DSO	30	13	8	3
6297		LEAR	10	08	0000	N20	W16	10	6.8		B	CSO	10	8	9	4
6297		CULG	10	08	0220	N22	W19	10	6.6		B	CSO	30	5	8	2
6297		RAMY	10	08	1220	N20	W23	10	6.7		B	CAO	70	14	9	4
6297		SVTO	10	08	1432	N19	W28	10	6.5		B	DSO	60	5	5	1
6297		HOLL	10	08	1520	N20	W26	10	6.6		B	CSO	40	15	9	3
6297		PALE	10	08	1900	N20	W27	10	6.7		B	CAO	30	14	7	3
6297		LEAR	10	09	0010	N20	W29	10	6.8		B	CSO	40	11	6	3
6297		CULG	10	09	0220	N21	W33	10	6.6		B	CRO	10	5	6	2
6297		BOUL	10	09	1423	N19	W39	10	6.6		B	BXO	20	8	4	1
6297		RAMY	10	09	1450	N20	W39	10	6.6		B	CAO	30	12	6	1
6297		HOLL	10	09	1655	N19	W40	10	6.6		B	BXO	10	7	5	3
6297		PALE	10	09	1805	N19	W42	10	6.5		B	BXO	20	8	4	3
6297		LEAR	10	10	0015	N20	W43	10	6.7		B	CAO	20	3	5	2
6297		CULG	10	10	0205	N21	W47	10	6.5		B	BXO	10	2	5	2
6297		SVTO	10	10	0702	N20	W49	10	6.5		B	CRO	20	2	5	3
6297		HOLL	10	10	1500	N19	W51	10	6.7		B	BXO	10	4	5	4
6297		BOUL	10	10	1510	N20	W52	10	6.6		B	BXO	20	2	5	1
6297		PALE	10	10	1840	N20	W56	10	6.5		A	AX	10	1	1	2
6297		LEAR	10	11	0006	N21	W58	10	6.5		A	AX	20	1	1	4
6297		CULG	10	11	0130	N20	W63	10	6.2		A	AX	10	1	1	3
6297		SVTO	10	11	0821	N20	W66	10	6.3		A	AX		1		2
6297		HOLL	10	11	1430	N20	W66	10	6.5		A	AX		1		4
6297		RAMY	10	11	1904	N22	W68	10	6.6		A	AX	10	1		2
6297		PALE	10	11	2052	N23	W71	10	6.4		A	AX		1		3
6297		LEAR	10	12	0018	N20	W70	10	6.6		A	AX	30	1	1	3
6304A		CULG	10	11	0130	N04	W59	10	6.6		A	AX	10	2	2	3
6301A		LEAR	10	11	0006	N07	W53	10	7.0		B	BXO	30	2	3	4
6301A		HOLL	10	11	1430	N04	W62	10	7.0		B	BXO	10	3	4	4
6320		RAMY	10	11	1904	N07	W62	10	7.1		B	CRO	10	2	1	2
6320		PALE	10	11	2052	N06	W65	10	7.0		A	AX	20	3	2	3
6320		LEAR	10	12	0018	N06	W65	10	7.1		B	BXO	50	2	5	3
6320		SVTO	10	12	0904	N06	W74	10	6.8		B	CRO	30	2	5	3
6320		RAMY	10	12	1341	N06	W75	10	6.9		A	AX	20	4	4	1
6320		HOLL	10	12	1545	N05	W76	10	7.0		B	BXO	10	2	5	3
6320		PALE	10	12	1922	N06	W76	10	7.1		A	AX		1		3

SUNSPOT GROUPS
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6320		LEAR	10	13	0008	N07	W76	10	7.3		B	BXO	30	2	3	4
6301		HOLL	10	02	1905	N12	E67	10	7.8		A	AX	20	1		2
6301		PALE	10	02	1923	N08	E66	10	7.7		A	AX		1		3
6301		LEAR	10	03	0008	N12	E62	10	7.7		A	AX	20	1	1	4
6301		BOUL	10	03	1450	N12	E52	10	7.5		A	AX	10	1	1	1
6301		PALE	10	03	1805	N12	E56	10	8.0		B	BXO		2	3	3
6301		HOLL	10	03	2315	N12	E52	10	7.9		B	BXO	10	5	6	3
6301		CULG	10	04	0045	N12	E50	10	7.8		B	BXO		2	3	3
6301		LEAR	10	04	0340	N11	E48	10	7.8		A	AX	10	1	1	3
6301		PALE	10	04	1955	N12	E46	10	8.3		B	DSO	80	11	9	3
6301		HOLL	10	06	1625	N12	E13	10	7.7		A	AX	10	2	2	3
6301		RAMY	10	07	1523	N12	W05	10	7.3		A	AX	10	2	1	3
6320A		HOLL	10	09	1655	S11	W25	10	7.8		A	AX		2	2	3
6320A		PALE	10	09	1805	S11	W27	10	7.7		B	BXO	10	2	2	3
6320B		SVTO	10	03	0801	N12	E59	10	7.8		A	AX		1		3
6320B		RAMY	10	03	1314	N12	E56	10	7.8		B	BXO	20	4	5	2
6300		HOLL	10	02	1905	N13	E78	10	8.7		B	BXO	30	2	6	2
6300		PALE	10	02	1923	N11	E75	10	8.4		B	BXO		2	4	3
6300		LEAR	10	03	0008	N13	E73	10	8.5		B	BXO	60	2	7	4
6300		SVTO	10	03	0801	N13	E71	10	8.7		B	BXO	40	3	8	3
6300		RAMY	10	03	1314	N13	E66	10	8.5		B	CAO	50	2	7	2
6300		BOUL	10	03	1450	N14	E64	10	8.4		B	CSO	30	2	7	1
6300		PALE	10	03	1805	N14	E65	10	8.7		B	CAO	40	3	9	3
6300		HOLL	10	03	2315	N13	E60	10	8.5		B	CSO	50	7	10	3
6300		CULG	10	04	0045	N13	E60	10	8.5		B	CSO	60	8	8	3
6300		LEAR	10	04	0340	N12	E57	10	8.4		B	CSO	200	11	9	3
6300		SVTO	10	04	0759	N13	E57	10	8.6		B	CRO	120	10	10	2
6300		RAMY	10	04	1206	N13	E54	10	8.6		B	CAO	140	22	11	3
6300		BOUL	10	04	1430	N13	E55	10	8.7		B	DAO	110	4	7	2
6300		HOLL	10	04	1435	N13	E52	10	8.5		B	DAO	110	13	10	3
6300		PALE	10	04	1955	N12	E46	10	8.3		B	DSO	80	11	9	3
6300		LEAR	10	05	0007	N12	E45	10	8.4		B	DAO	240	17	8	4
6300		CULG	10	05	0050	N13	E47	10	8.6		B	DAO	130	17	10	2
6300		SVTO	10	05	0715	N12	E40	10	8.3		B	EAO	110	21	12	3
6300		RAMY	10	05	1311	N12	E37	10	8.3		B	CAO	100	21	9	2
6300		BOUL	10	05	1445	N13	E37	10	8.4		B	DAO	150	13	9	2
6300		PALE	10	05	1800	N13	E35	10	8.4		B	DAO	60	9	9	3
6300		HOLL	10	05	2242	N12	E32	10	8.3		B	CSO	100	13	9	2
6300		LEAR	10	06	0117	N11	E32	10	8.5		B	CAO	110	11	11	2
6300		RAMY	10	06	1227	N11	E25	10	8.4		B	EAO	90	19	11	3
6300		BOUL	10	06	1450	N13	E22	10	8.3		B	DSO	70	6	10	1
6300		SVTO	10	06	1500	N13	E22	10	8.3		B	DAO	100	13	9	2
6300		HOLL	10	06	1625	N12	E22	10	8.3		B	CAO	120	15	11	3
6300		PALE	10	06	1948	N11	E20	10	8.3		B	CAO	80	7	8	3
6300		CULG	10	07	0205	N11	E14	10	8.1		B	CAO	60	7	8	3
6300		LEAR	10	07	0210	N12	E16	10	8.3		B	CAO	80	9	9	2
6300		RAMY	10	07	1523	N12	E09	10	8.3		B	EAO	150	18	12	3
6300		HOLL	10	07	1530	N12	E09	10	8.3		B	CSO	10	16	12	4
6300		PALE	10	07	1913	N11	E06	10	8.2		B	DSO	50	14	10	3
6300		LEAR	10	08	0000	N12	E04	10	8.3		B	CAO	70	7	9	4
6300		CULG	10	08	0220	N13	W02	10	7.9		B	CSO	80	5	4	2
6300		RAMY	10	08	1220	N12	W03	10	8.3		B	CAO	110	22	11	4
6300		SVTO	10	08	1432	N12	W09	10	7.9		B	CAO	90	5	3	1
6300		HOLL	10	08	1520	N11	W05	10	8.3		B	CAO	80	12	10	3
6300		PALE	10	08	1900	N12	W06	10	8.3		B	CAO	80	9	11	3
6300		LEAR	10	09	0010	N12	W08	10	8.4		B	CAO	60	10	10	3
6300		CULG	10	09	0220	N13	W16	10	7.9		B	CAO	40	3	3	2
6300		RAMY	10	09	1450	N13	W21	10	8.0		B	CAO	40	4	3	1
6300		HOLL	10	09	1655	N12	W23	10	8.0		A	HA	20	7	2	3
6300		PALE	10	09	1805	N12	W19	10	8.3		B	DSO	40	6	10	3
6300		LEAR	10	10	0015	N13	W22	10	8.3		B	CAO	40	6	9	2
6300		CULG	10	10	0205	N14	W28	10	8.0		A	HS	30	1	1	2
6300		SVTO	10	10	0702	N13	W32	10	7.9		A	HS	40	3	2	3
6300		HOLL	10	10	1500	N12	W35	10	8.0		A	HS	30	2	1	4
6300		BOUL	10	10	1510	N14	W35	10	8.0		A	HS	20	1	1	1

SUNSPOT GROUPS
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6300		PALE	10	10	1840	N13	W36	10	8.1		A	HR	20	1	1	2
6300		LEAR	10	11	0006	N14	W38	10	8.1		B	CSO	40	3	4	4
6300		CULG	10	11	0130	N13	W42	10	7.9		A	HS	20	2	1	3
6300		SVTO	10	11	0821	N13	W46	10	7.9		A	HS	30	1	1	2
6300		HOLL	10	11	1430	N12	W48	10	8.0		A	AX	20	6	2	4
6300		RAMY	10	11	1904	N14	W49	10	8.1		A	HR	20	1	1	2
6300		PALE	10	11	2052	N14	W53	10	7.9		A	AX	20	1	1	3
6300		LEAR	10	12	0018	N13	W53	10	8.0		A	HS	30	1	2	3
6300		SVTO	10	12	0904	N13	W60	10	7.8		A	AX		1		3
6300		RAMY	10	12	1341	N15	W61	10	7.9		A	AX	20	3	2	1
6300		BOUL	10	12	1430	N13	W60	10	8.1		B	CSO	40	2	2	2
6300		HOLL	10	12	1545	N14	W61	10	8.0		B	CRO	40	2	4	3
6300		PALE	10	12	1922	N14	W65	10	7.9		A	AX	10	1		3
6300		LEAR	10	13	0008	N13	W67	10	7.9		A	AX	20	1	1	4
6300		CULG	10	13	0046	N14	W69	10	7.8		A	AX	10	1	1	3
6300		SVTO	10	13	0645	N14	W72	10	7.8		A	HS	30	1	2	3
6300		HOLL	10	13	1615	N13	W73	10	8.2		A	AX	10	2	1	3
6300		RAMY	10	13	1620	N13	W70	10	8.4		A	AX	10	1	1	1
6300		PALE	10	13	1914	N14	W76	10	8.0		A	AX		1		3
6300A		CULG	10	08	0220	N08	W01	10	8.0		A	AX		1		2
6305		LEAR	10	04	0340	N17	E49	10	7.9		A	AX	30	2	2	3
6305		RAMY	10	04	1206	N17	E46	10	8.0		A	AX	20	6	3	3
6305		HOLL	10	04	1435	N19	E45	10	8.0		B	BXO	10	6	5	3
6305		PALE	10	04	1955	N17	E42	10	8.0		B	CSO	20	3	3	3
6305		LEAR	10	05	0007	N16	E39	10	8.0		B	CSO	40	4	3	4
6305		CULG	10	05	0050	N18	E39	10	8.0		B	CAO	10	4	3	2
6305		SVTO	10	05	0715	N17	E37	10	8.1		A	HS	40	4	1	3
6305		RAMY	10	05	1311	N17	E34	10	8.1		A	AX	10	6	3	2
6305		BOUL	10	05	1445	N18	E34	10	8.2		B	BXO	20	4	2	2
6305		PALE	10	05	1800	N17	E31	10	8.1		B	BXO	10	5	3	3
6305		HOLL	10	05	2242	N17	E29	10	8.1		A	AX	10	3	2	2
6305		RAMY	10	06	1227	N17	E21	10	8.1		B	BXO	10	7	4	3
6305		SVTO	10	06	1500	N17	E18	10	8.0		B	BXO	10	3	4	2
6305		HOLL	10	06	1625	N17	E18	10	8.0		B	BXO	10	5	4	3
6305		PALE	10	06	1948	N16	E17	10	8.1		B	BXO		2	4	3
6305		CULG	10	07	0205	N18	E08	10	7.7		A	AX		1		3
6305		LEAR	10	07	0210	N18	E10	10	7.8		A	AX	10	1	1	2
6305		RAMY	10	07	1523	N18	E04	10	7.9		B	BXO	10	5	3	3
6305		HOLL	10	07	1530	N17	E06	10	8.1		B	BXO	10	8	6	4
6305		PALE	10	07	1913	N18	E01	10	7.9		B	BXO		2	2	3
6305		LEAR	10	08	0000	N18	E00	10	8.0		B	BXO	10	3	4	4
6310		RAMY	10	07	1523	S09	E19	10	9.1		B	CRO	20	2	2	3
6310		PALE	10	07	1913	S09	E17	10	9.1		B	BXO	10	3	3	3
6310		LEAR	10	08	0000	S09	E14	10	9.0		B	BXO	10	3	3	4
6310		CULG	10	08	0220	S08	E12	10	9.0		A	AX		1		2
6302		SVTO	10	03	0801	S15	E85	10	9.8		A	HA	90	1	4	3
6302		RAMY	10	03	1314	S15	E78	10	9.4		B	EKO	250	2	14	2
6302		BOUL	10	03	1450	S13	E73	10	9.1		A	HA	240	1	3	1
6302		PALE	10	03	1805	S14	E79	10	9.7		B	DAO	330	6	6	3
6302		HOLL	10	03	2315	S14	E75	10	9.6		B	DAO	420	2	7	3
6302		CULG	10	04	0045	S15	E74	10	9.6		B	DSO	400	2	8	3
6302		LEAR	10	04	0340	S15	E70	10	9.4		B	DHO	420	4	8	3
6302		SVTO	10	04	0759	S16	E71	10	9.7		B	DKO	420	2	8	2
6302		RAMY	10	04	1206	S15	E68	10	9.6		B	DKO	410	2	7	3
6302		BOUL	10	04	1430	S15	E70	10	9.9		B	DKO	340	2	9	2
6302		HOLL	10	04	1435	S15	E66	10	9.6		B	DKO	440	2	6	3
6302		PALE	10	04	1955	S16	E61	10	9.4		B	DHO	310	2	10	3
6302		LEAR	10	05	0007	S16	E60	10	9.5		B	DKO	460	4	7	4
6302		CULG	10	05	0050	S15	E61	10	9.6		B	DKO	380	4	7	2
6302		SVTO	10	05	0715	S16	E58	10	9.7		B	DAO	420	10	6	3
6302		RAMY	10	05	1311	S15	E54	10	9.6		B	DKO	520	10	7	2
6302		BOUL	10	05	1445	S15	E51	10	9.5		B	DKO	510	8	6	2
6302		PALE	10	05	1800	S16	E50	10	9.5		B	DSO	310	7	6	3
6302		HOLL	10	05	2242	S16	E50	10	9.7		B	DHO	600	11	8	2
6302		LEAR	10	06	0117	S16	E45	10	9.5		B	DHO	340	7	6	2

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6302		RAMY	10	06	1227	S17	E41	10	9.6		B	DKO	450	25	9	3
6302		BOUL	10	06	1450	S14	E39	10	9.6		B	DKO	420	11	8	1
6302		SVTO	10	06	1500	S14	E40	10	9.6		B	DKI	450	12	8	2
6302		HOLL	10	06	1625	S15	E41	10	9.8		B	DHO	450	13	7	3
6302		PALE	10	06	1948	S17	E39	10	9.8		B	DKO	370	10	10	3
6302		CULG	10	07	0205	S18	E32	10	9.5		B	DHO	330	3	5	3
6302		LEAR	10	07	0210	S17	E34	10	9.7		B	DKO	390	8	9	2
6302		RAMY	10	07	1523	S16	E28	10	9.8		B	DKO	470	20	8	3
6302		HOLL	10	07	1530	S15	E29	10	9.8		B	EHI	530	18	11	4
6302		PALE	10	07	1913	S17	E28	10	9.9		B	DHO	340	6	6	3
6302		LEAR	10	08	0000	S16	E23	10	9.7		B	EHI	360	11	12	4
6302		CULG	10	08	0220	S16	E17	10	9.4		B	DHO	350	2	5	2
6302		RAMY	10	08	1220	S17	E18	10	9.9		B	CKO	570	36	13	4
6302		SVTO	10	08	1432	S17	E15	10	9.7		B	DKO	470	4	6	1
6302		HOLL	10	08	1520	S17	E14	10	9.7		B	DKI	490	10	8	3
6302		PALE	10	08	1900	S16	E14	10	9.8		B	DHO	490	20	10	3
6302		LEAR	10	09	0010	S16	E12	10	9.9		B	EHI	320	11	11	3
6302		CULG	10	09	0220	S15	E10	10	9.8		B	EHO	350	16	13	2
6302		BOUL	10	09	1423	S15	E03	10	9.8		B	DKO	330	10	10	1
6302		RAMY	10	09	1450	S17	E06	10	10.1		B	EKO	420	8	14	1
6302		HOLL	10	09	1655	S17	E02	10	9.8		B	DHO	370	19	10	3
6302		PALE	10	09	1805	S18	E02	10	9.9		B	DHO	310	13	10	3
6302		LEAR	10	10	0015	S16	W03	10	9.8		B	DHI	280	13	9	2
6302		CULG	10	10	0205	S15	W07	10	9.5		B	DHO	310	5	6	2
6302		SVTO	10	10	0702	S17	W06	10	9.8		B	DKO	380	10	10	3
6302		HOLL	10	10	1500	S18	W08	10	10.0		B	DKO	390	17	10	4
6302		BOUL	10	10	1510	S16	W14	10	9.6		B	DKO	350	12	9	1
6302		PALE	10	10	1840	S18	W10	10	10.0		B	DKO	340	11	11	2
6302		LEAR	10	11	0006	S17	W17	10	9.7		B	EKO	340	14	13	4
6302		CULG	10	11	0130	S16	W17	10	9.8		B	EHO	260	15	13	3
6302		SVTO	10	11	0821	S16	W19	10	9.9		B	EKO	320	12	11	2
6302		HOLL	10	11	1430	S18	W20	10	10.1		B	EHO	300	22	13	4
6302		RAMY	10	11	1904	S18	W22	10	10.1		B	EKO	320	24	13	2
6302		PALE	10	11	2052	S15	W28	10	9.7		B	DKO	220	9	8	3
6302		LEAR	10	12	0018	S16	W28	10	9.9		B	DKO	310	11	10	3
6302		SVTO	10	12	0904	S16	W35	10	9.7		B	DKO	250	6	9	3
6302		RAMY	10	12	1341	S16	W37	10	9.8		B	DKO	390	7	10	1
6302		BOUL	10	12	1430	S16	W39	10	9.6		B	DKO	290	7	5	2
6302		HOLL	10	12	1545	S17	W38	10	9.8		B	CAI	210	8	9	3
6302		PALE	10	12	1922	S16	W39	10	9.8		B	DAO	240	9	9	3
6302		LEAR	10	13	0008	S16	W42	10	9.8		B	DKO	270	8	8	4
6302		CULG	10	13	0046	S16	W44	10	9.7		B	DHO	210	7	8	3
6302		SVTO	10	13	0645	S16	W46	10	9.8		B	DKO	240	6	7	3
6302		HOLL	10	13	1615	S16	W51	10	9.8		B	DKO	200	9	7	3
6302		RAMY	10	13	1620	S16	W50	10	9.9		B	DKO	190	5	6	1
6302		PALE	10	13	1914	S16	W53	10	9.8		B	DAO	270	4	6	3
6302		LEAR	10	14	0021	S16	W55	10	9.8		B	DKO	130	5	8	3
6302		SVTO	10	14	0824	S18	W63	10	9.5		B	DAO	180	4	6	2
6302		RAMY	10	14	1247	S15	W62	10	9.8		B	DAO	190	5	9	1
6302		BOUL	10	14	1430	S15	W64	10	9.7		B	DSO	170	3	7	1
6302		HOLL	10	14	1700	S17	W64	10	9.8		B	DAO	150	8	8	4
6302		LEAR	10	15	0015	S16	W69	10	9.8		B	DAI	150	8	5	3
6302		CULG	10	15	0130	S15	W68	10	9.9		B	DAO	180	2	10	3
6302		SVTO	10	15	1046	S18	W80	10	9.3		B	DAI	150	5	9	3
6302		RAMY	10	15	1438	S17	W79	10	9.6		B	DAO	120	3	7	2
6302		HOLL	10	15	1600	S17	W77	10	9.8		B	DAO	60	9	7	4
6302		PALE	10	15	1753	S18	W80	10	9.6		B	CRO	40	2	3	3
6302		CULG	10	16	0012	S17	W83	10	9.7		A	HS	10	1	1	3
6302		LEAR	10	16	0045	S17	W79	10	10.0		A	HA	60	1	2	3
6302A		LEAR	10	11	0006	N08	W11	10	10.2		B	BXO	20	4	3	4
6302A		CULG	10	11	0130	N09	W13	10	10.1		A	AX	10	3	1	3
6308		RAMY	10	06	1227	S08	E58	10	10.9		A	AX	10	2	2	3
6308		HOLL	10	06	1625	S07	E58	10	11.0		A	AX	10	2	2	3
6308		PALE	10	06	1948	S12	E57	10	11.1		A	AX	10	3	1	3
6308		LEAR	10	07	0210	S10	E51	10	10.9		B	BXO	20	4	6	2
6308		RAMY	10	07	1523	S08	E44	10	10.9		B	CRO	30	7	7	3
6308		HOLL	10	07	1530	S08	E45	10	11.0		B	BXO	20	12	7	4

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6308		PALE	10	07	1913	S09	E42	10	10.9		B	CRO	10	7	5	3
6308		LEAR	10	08	0000	S09	E39	10	10.9		B	CAO	30	12	7	4
6308		CULG	10	08	0220	S09	E37	10	10.9		B	CRI	20	12	6	2
6308		RAMY	10	08	1220	S09	E32	10	10.9		B	CAO	70	28	8	4
6308		SVTO	10	08	1432	S09	E31	10	10.9		B	DAO	60	7	7	1
6308		HOLL	10	08	1520	S08	E31	10	11.0		B	CAO	60	21	8	3
6308		PALE	10	08	1900	S09	E28	10	10.9		B	DAO	80	16	7	3
6308		CULG	10	09	0220	S07	E24	10	10.9		B	DSI	60	10	8	2
6308		BOUL	10	09	1423	S08	E16	10	10.8		B	CSO	60	4	8	1
6308		RAMY	10	09	1450	S07	E17	10	10.9		B	CAO	60	4	8	1
6308		HOLL	10	09	1655	S09	E16	10	10.9		B	CSO	80	8	10	3
6308		PALE	10	09	1805	S08	E15	10	10.9		B	CSO	50	3	9	3
6308		LEAR	10	10	0015	S08	E12	10	10.9		B	CAO	60	4	9	2
6308		CULG	10	10	0205	S08	E09	10	10.8		B	CSO	40	2	8	2
6308		SVTO	10	10	0702	S08	E08	10	10.9		B	CSO	90	5	9	3
6308		HOLL	10	10	1500	S08	E03	10	10.8		B	CSO	80	3	10	4
6308		BOUL	10	10	1510	S06	E04	10	10.9		B	CAO	70	2	9	1
6308		PALE	10	10	1840	S07	W03	10	10.5		A	HS	60	1	2	2
6308		LEAR	10	11	0006	S07	W06	10	10.5		B	CSO	70	2	3	4
6308		CULG	10	11	0130	S07	W03	10	10.8		B	CSO	80	5	11	3
6308		SVTO	10	11	0821	S08	W11	10	10.5		A	HA	60	2	2	2
6308		HOLL	10	11	1430	S08	W13	10	10.6		B	CAO	70	4	3	4
6308		RAMY	10	11	1904	S08	W17	10	10.5		A	HS	60	3	2	2
6308		PALE	10	11	2052	S07	W19	10	10.4		A	HS	60	1	2	3
6308		LEAR	10	12	0018	S08	W19	10	10.6		B	CSO	90	3	4	3
6308		SVTO	10	12	0904	S08	W26	10	10.4		B	CSO	90	3	5	3
6308		RAMY	10	12	1341	S08	W27	10	10.5		A	HS	70	3	3	1
6308		BOUL	10	12	1430	S06	W29	10	10.4		A	HA	60	1	1	2
6308		HOLL	10	12	1545	S08	W28	10	10.5		B	CSO	70	2	3	3
6308		PALE	10	12	1922	S07	W31	10	10.5		B	CSO	60	2	3	3
6308		LEAR	10	13	0008	S08	W29	10	10.8		B	CSO	60	3	10	4
6308		CULG	10	13	0046	S07	W36	10	10.3		A	HS	60	2	2	3
6308		SVTO	10	13	0645	S08	W37	10	10.5		A	HS	70	2	2	3
6308		HOLL	10	13	1615	S08	W43	10	10.4		A	HS	70	3	2	3
6308		RAMY	10	13	1620	S08	W41	10	10.6		A	HA	80	2	2	1
6308		PALE	10	13	1914	S07	W43	10	10.6		A	HS	60	1	1	3
6308		LEAR	10	14	0021	S08	W47	10	10.5		A	HS	30	1	1	3
6308		SVTO	10	14	0824	S08	W52	10	10.4		A	HS	60	1	1	2
6308		RAMY	10	14	1247	S07	W53	10	10.6		A	HS	70	1	2	1
6308		BOUL	10	14	1430	S06	W54	10	10.6		A	HS	60	1	2	1
6308		HOLL	10	14	1700	S07	W55	10	10.6		A	HS	70	1	2	4
6308		LEAR	10	15	0015	S07	W59	10	10.6		A	HS	30	1	1	3
6308		CULG	10	15	0130	S08	W60	10	10.6		A	HS	60	2	1	3
6308		SVTO	10	15	1046	S08	W68	10	10.3		A	HA	50	4	2	3
6308		RAMY	10	15	1438	S08	W67	10	10.6		A	HA	40	1	2	2
6308		HOLL	10	15	1600	S08	W68	10	10.6		A	HA	60	2	2	4
6308		PALE	10	15	1753	S09	W69	10	10.6		A	AX	10	2	1	3
6308		CULG	10	16	0012	S08	W74	10	10.5		A	AX	10	2	1	3
6308		LEAR	10	16	0045	S07	W71	10	10.7		A	HS	50	1	2	3
6308		SVTO	10	16	0817	S09	W80	10	10.3		A	HA	30	1	1	3
6308A		SVTO	10	05	0715	S23	E74	10	11.0		A	AX		1		3
6318		HOLL	10	10	1500	S15	E05	10	11.0		B	BXO	10	5	4	4
6318		BOUL	10	10	1510	S14	E04	10	10.9		B	BXO	10	3	4	1
6318		PALE	10	10	1840	S16	E03	10	11.0		B	BXO	10	6	5	2
6318		LEAR	10	11	0006	S16	E00	10	11.0		B	BXO	80	12	6	4
6318		CULG	10	11	0130	S16	W01	10	11.0		B	BXO	20	8	4	3
6318		SVTO	10	11	0821	S16	W04	10	11.0		B	DRO	30	6	5	2
6318		HOLL	10	11	1430	S16	W08	10	11.0		B	BXO	10	11	5	4
6318		RAMY	10	11	1904	S14	W11	10	11.0		B	CRO	40	14	5	2
6318		PALE	10	11	2052	S15	W14	10	10.8		B	BXO	30	15	7	3
6318		LEAR	10	12	0018	S16	W14	10	10.9		B	BXO	90	13	5	3
6318		SVTO	10	12	0904	S17	W20	10	10.8		B	CRO	30	9	6	3
6318		RAMY	10	12	1341	S15	W22	10	10.9		B	BXO	20	17	8	1
6318		BOUL	10	12	1430	S14	W23	10	10.9		B	CAO	40	7	5	2
6318		HOLL	10	12	1545	S15	W22	10	11.0		B	BXO	10	11	6	3
6318		PALE	10	12	1922	S14	W24	10	11.0		B	BXO	30	13	7	3
6318		LEAR	10	13	0008	S15	W27	10	11.0		B	BXO	60	11	6	4

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
6318		CULG	10	13	0046	S16	W28	10	10.9		B	BXO	10	7	6	3
6318		SVTO	10	13	0645	S15	W31	10	10.9		B	BXO	20	7	7	3
6318		PALE	10	13	1914	S15	W35	10	11.1		A	AX	10	2	1	3
6318		LEAR	10	15	0015	S14	W57	10	10.7		B	BXO	20	2	3	3
6318		CULG	10	15	0130	S14	W58	10	10.7		A	AX		2	2	3
6318		HOLL	10	15	1600	S15	W65	10	10.7		B	BXO	20	4	3	4
6318		CULG	10	16	0012	S15	W70	10	10.7		A	AX	10	1	1	3
6306		RAMY	10	05	1311	S24	E71	10	11.0		A	AX	10	2	2	2
6306		BOUL	10	05	1445	S22	E69	10	10.9		A	AX	20	1	1	2
6306		PALE	10	05	1800	S23	E68	10	11.0		A	AX	10	1	1	3
6306		HOLL	10	05	2242	S23	E68	10	11.2		A	AX	10	1		2
6306		RAMY	10	06	1227	S23	E61	10	11.2		B	BXO	10	4	8	3
6306		BOUL	10	06	1450	S22	E60	10	11.2		B	BXO	10	2	7	1
6306		SVTO	10	06	1500	S25	E62	10	11.4		B	BXO	40	5	8	2
6306		HOLL	10	06	1625	S23	E60	10	11.3		B	BXO	50	5	7	3
6306		PALE	10	06	1948	S25	E57	10	11.2		B	CAO	40	2	3	3
6306		CULG	10	07	0205	S26	E51	10	11.0		B	CRO	20	3	3	3
6306		LEAR	10	07	0210	S24	E52	10	11.1		B	CRO	30	4	4	2
6306		RAMY	10	07	1523	S24	E48	10	11.3		B	DAO	50	8	8	3
6306		HOLL	10	07	1530	S23	E49	10	11.4		B	BXO	40	11	10	4
6306		PALE	10	07	1913	S26	E45	10	11.3		B	CRO	10	5	5	3
6306		LEAR	10	08	0000	S25	E42	10	11.2		B	CAO	30	6	6	4
6306		CULG	10	08	0220	S26	E37	10	11.0		B	BXO	10	2	5	2
6306		RAMY	10	08	1220	S25	E37	10	11.4		B	DAO	70	25	9	4
6306		SVTO	10	08	1432	S24	E35	10	11.3		B	DRI	60	13	6	1
6306		HOLL	10	08	1520	S24	E35	10	11.3		B	DRI	50	16	9	3
6306		PALE	10	08	1900	S24	E32	10	11.3		B	DAO	60	15	7	3
6306		LEAR	10	09	0010	S25	E28	10	11.2		B	DAO	70	10	6	3
6306		CULG	10	09	0220	S23	E26	10	11.1		B	DAO	40	8	4	2
6306		BOUL	10	09	1423	S24	E20	10	11.1		B	CSO	100	7	6	1
6306		RAMY	10	09	1450	S22	E24	10	11.5		B	DAO	100	6	6	1
6306		HOLL	10	09	1655	S25	E22	10	11.4		B	DAO	100	12	10	3
6306		PALE	10	09	1805	S27	E22	10	11.5		B	CSO	90	9	9	3
6306		LEAR	10	10	0015	S26	E17	10	11.3		B	DAO	70	9	10	2
6306		CULG	10	10	0205	S23	E13	10	11.1		B	DSO	100	4	4	2
6306		SVTO	10	10	0702	S24	E12	10	11.2		B	DAO	130	6	7	3
6306		HOLL	10	10	1500	S25	E08	10	11.2		B	CAO	100	9	8	4
6306		BOUL	10	10	1510	S22	E06	10	11.1		B	DAO	110	3	3	1
6306		PALE	10	10	1840	S25	E07	10	11.3		B	CAO	70	10	7	2
6306		LEAR	10	11	0006	S24	E02	10	11.1		B	CAO	140	12	10	4
6306		CULG	10	11	0130	S25	E03	10	11.3		B	DAI	50	8	7	3
6306		SVTO	10	11	0821	S25	W01	10	11.3		B	CSO	110	6	9	2
6306		HOLL	10	11	1430	S25	W04	10	11.3		B	CSO	110	17	9	4
6306		RAMY	10	11	1904	S26	W06	10	11.3		B	BXO	90	9	10	2
6306		PALE	10	11	2052	S24	W12	10	10.9		B	CAO	70	2	3	3
6306		LEAR	10	12	0018	S25	W10	10	11.2		B	CSO	120	5	8	3
6306		SVTO	10	12	0904	S24	W14	10	11.3		B	CAO	110	5	10	3
6306		RAMY	10	12	1341	S25	W15	10	11.4		B	CAO	100	5	12	1
6306		BOUL	10	12	1430	S24	W21	10	11.0		A	HA	110	2	3	2
6306		HOLL	10	12	1545	S24	W21	10	11.0		A	HS	70	2	2	3
6306		PALE	10	12	1922	S24	W23	10	11.0		A	HA	100	1	2	3
6306		LEAR	10	13	0008	S23	W26	10	11.0		A	HS	100	2	2	4
6306		CULG	10	13	0046	S24	W27	10	10.9		A	HS	90	2	3	3
6306		SVTO	10	13	0645	S23	W30	10	11.0		A	HA	100	3	3	3
6306		HOLL	10	13	1615	S24	W33	10	11.1		A	HA	70	5	3	3
6306		RAMY	10	13	1620	S23	W33	10	11.1		A	HA	110	3	4	1
6306		PALE	10	13	1914	S24	W34	10	11.2		A	HK	80	2	3	3
6306		LEAR	10	14	0021	S22	W38	10	11.1		B	DSO	90	3	3	3
6306		SVTO	10	14	0824	S24	W43	10	11.0		B	CAO	60	3	4	2
6306		RAMY	10	14	1247	S22	W45	10	11.1		B	DRO	50	2	4	1
6306		BOUL	10	14	1430	S23	W45	10	11.1		A	HS	100	2	3	1
6306		HOLL	10	14	1700	S24	W47	10	11.1		A	HA	50	2	3	4
6306		LEAR	10	15	0015	S22	W51	10	11.1		B	CAO	30	3	4	3
6306		CULG	10	15	0130	S22	W50	10	11.2		A	HA	40	3	4	3
6306		SVTO	10	15	1046	S23	W60	10	10.8		B	CRO	30	2	4	3
6306		RAMY	10	15	1438	S24	W60	10	11.0		B	CSO	20	2	4	2
6306		HOLL	10	15	1600	S23	W58	10	11.2		B	CAO	40	4	3	4
6306		PALE	10	15	1753	S24	W62	10	10.9		B	BXO	10	2	5	3

SUNSPOT GROUPS
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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
6306		CULG	10 16 0012	S23 W66	10 10.9		B	BXO	10	2	4	3
6306		LEAR	10 16 0045	S22 W63	10 11.2		B	BXO	20	2	4	3
6306		SVTO	10 16 0817	S23 W68	10 11.1		A	HR	20	1	1	3
6318A		RAMY	10 09 1450	S11 E23	10 11.3		A	AX		3	3	1
6306A		RAMY	10 07 1523	S39 E49	10 11.6		A	AX	10	2	1	3
6306A		RAMY	10 08 1220	S41 E36	10 11.4		A	AX	10	2	1	4
6306A		PALE	10 08 1900	S40 E34	10 11.6		A	AX		1		3
6316		RAMY	10 09 1450	N16 E31	10 12.0		A	AX	10	3	4	1
6316		HOLL	10 09 1655	N18 E28	10 11.8		B	BXO		4	3	3
6316		PALE	10 09 1805	N17 E28	10 11.9		B	CSO	10	3	3	3
6316		LEAR	10 10 0015	N17 E25	10 11.9		B	CSO	10	2	4	2
6316		CULG	10 10 0205	N17 E22	10 11.7		A	AX	10	1	1	2
6316		SVTO	10 10 0702	N17 E21	10 11.9		B	CSO	40	3	5	3
6316		HOLL	10 10 1500	N18 E17	10 11.9		B	BXO	20	10	5	4
6316		BOUL	10 10 1510	N19 E16	10 11.8		B	CSO	30	4	5	1
6316		PALE	10 10 1840	N17 E16	10 12.0		B	BXO	20	7	5	2
6316		LEAR	10 11 0006	N17 E12	10 11.9		B	BXO	90	14	6	4
6316		CULG	10 11 0130	N18 E11	10 11.9		B	DRO	20	13	6	3
6316		SVTO	10 11 0821	N17 E07	10 11.9		B	DAO	60	9	5	2
6316		RAMY	10 11 1904	N17 E03	10 12.0		B	DAO	70	14	6	2
6316		PALE	10 11 2052	N18 E00	10 11.9		B	CAO	20	8	6	3
6316		LEAR	10 12 0018	N17 W02	10 11.9		B	CSO	70	10	6	3
6316		SVTO	10 12 0904	N17 W07	10 11.8		B	CRO	30	12	6	3
6316		RAMY	10 12 1341	N17 W10	10 11.8		B	BXO	20	11	7	1
6316		BOUL	10 12 1430	N19 W10	10 11.8		B	CAO	40	6	6	2
6316		HOLL	10 12 1545	N18 W10	10 11.9		B	BXO	10	11	5	3
6316		PALE	10 12 1922	N18 W10	10 12.0		B	BXO	20	10	7	3
6316		LEAR	10 13 0008	N17 W12	10 12.1		B	BXO	40	5	3	4
6316		CULG	10 13 0046	N17 W13	10 12.0		A	AX	10	3	2	3
6316		SVTO	10 13 0645	N17 W16	10 12.1		B	BXO	10	4	4	3
6316		HOLL	10 13 1615	N17 W22	10 12.0		B	BXO	10	6	5	3
6316		RAMY	10 13 1620	N18 W21	10 12.1		B	BXO	10	7	4	1
6316		PALE	10 13 1914	N18 W26	10 11.8		B	BXO	10	5	6	3
6316		LEAR	10 14 0021	N18 W26	10 12.0		B	BXO	20	4	2	3
6316		SVTO	10 14 0824	N18 W32	10 11.9		B	BXO	10	6	4	2
6316		RAMY	10 14 1247	N18 W32	10 12.1		B	BXO	20	7	5	1
6316		HOLL	10 14 1700	N18 W35	10 12.0		B	BXO	20	7	4	4
6316		LEAR	10 15 0015	N18 W39	10 12.0		B	BXO	20	12	4	3
6316		CULG	10 15 0130	N17 W40	10 12.0		B	BXO		9	4	3
6316		SVTO	10 15 1046	N17 W46	10 11.9		B	DAO	60	19	7	3
6316		RAMY	10 15 1438	N18 W47	10 12.0		B	BXO	20	14	6	2
6316		HOLL	10 15 1600	N17 W48	10 12.0		B	DSO	40	15	5	4
6316		PALE	10 15 1753	N17 W50	10 11.9		B	CRO	50	8	6	3
6316		CULG	10 16 0012	N17 W55	10 11.8		B	CRO	10	10	7	3
6316		LEAR	10 16 0045	N18 W54	10 11.9		B	CSO	30	9	6	3
6316		SVTO	10 16 0817	N17 W60	10 11.8		B	CRO	40	8	4	3
6316		BOUL	10 16 1448	N17 W65	10 11.7		A	AX	20	2	1	1
6316		PALE	10 16 1755	N15 W65	10 11.8		B	BXO	20	4	5	2
6316		HOLL	10 16 2110	N18 W65	10 11.9		B	BXO	30	8	6	3
6316		CULG	10 17 0010	N18 W71	10 11.6		A	HS	20	1	1	3
6316		LEAR	10 17 0018	N18 W65	10 12.1		B	CSO	40	4	7	3
6316		RAMY	10 17 1220	N19 W72	10 12.0		A	HA	40	1	2	1
6316		HOLL	10 17 1630	N17 W78	10 11.8		A	HS	30	1	2	3
6316		LEAR	10 18 0028	N19 W79	10 12.0		A	AX	30	1	1	3
6316		CULG	10 18 0055	N18 W81	10 11.9		A	HS	20	1	1	3
6307		HOLL	10 05 2242	S11 E80	10 12.0		A	AX	30	1	1	2
6307		RAMY	10 06 1227	S11 E72	10 11.9		A	HA	30	1	1	3
6307		BOUL	10 06 1450	S11 E72	10 12.0		A	HS	60	1	2	1
6307		SVTO	10 06 1500	S13 E71	10 12.0		B	CAO	40	2	4	2
6307		HOLL	10 06 1625	S11 E71	10 12.0		B	CSO	100	2	5	3
6307		PALE	10 06 1948	S13 E68	10 11.9		B	BXO	30	2	3	3
6307		CULG	10 07 0205	S13 E65	10 12.0		A	HS	50	1	1	3
6307		LEAR	10 07 0210	S12 E64	10 11.9		A	HS	50	1	2	2
6307		RAMY	10 07 1523	S11 E58	10 12.0		B	CAO	40	3	3	3
6307		HOLL	10 07 1530	S11 E60	10 12.1		A	HS	80	1	1	4

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6307		CULG	10	08	0220	S13	E52	10	12.0		A	HS	30	1	1	2
6307		RAMY	10	08	1220	S12	E48	10	12.1		A	HA	60	3	2	4
6307		SVTO	10	08	1432	S12	E47	10	12.1		A	HS	30	1	1	1
6307		HOLL	10	08	1520	S11	E47	10	12.2		A	HS	30	1	1	3
6307		PALE	10	08	1900	S12	E45	10	12.2		A	HS	30	1	2	3
6307		LEAR	10	09	0010	S12	E41	10	12.1		A	HS	30	1	1	3
6307		CULG	10	09	0220	S12	E39	10	12.0		A	HS	30	1	1	2
6307		BOUL	10	09	1423	S11	E32	10	12.0		A	HS	20	1	1	1
6307		RAMY	10	09	1450	S12	E33	10	12.1		A	HS	50	1	2	1
6307		HOLL	10	09	1655	S12	E32	10	12.1		A	HS	30	1	1	3
6307		PALE	10	09	1805	S12	E32	10	12.2		A	HS	10	1	1	3
6307		LEAR	10	10	0015	S13	E28	10	12.1		A	HS	10	1	1	2
6307		CULG	10	10	0205	S12	E27	10	12.1		A	HS	30	1	1	2
6307		SVTO	10	10	0702	S12	E22	10	11.9		B	CSO	30	2	4	3
6307		HOLL	10	10	1500	S12	E20	10	12.1		A	HR	10	3	1	4
6307		PALE	10	10	1840	S13	E18	10	12.1		A	HR	20	1	1	2
6307		LEAR	10	11	0006	S13	E15	10	12.1		A	AX	20	2	2	4
6307		CULG	10	11	0130	S13	E14	10	12.1		A	HS	10	2	1	3
6307		SVTO	10	11	0821	S12	E10	10	12.1		A	HR	20	2	1	2
6307		HOLL	10	11	1430	S12	E07	10	12.1		A	HR	10	2	1	4
6307		RAMY	10	11	1904	S12	E04	10	12.1		B	CAO	20	3	3	2
6307		PALE	10	11	2052	S13	E02	10	12.0		A	AX	10	2	1	3
6307		LEAR	10	12	0018	S12	E02	10	12.2		A	AX	20	2	2	3
6307		SVTO	10	12	0904	S12	W01	10	12.3		B	CRO	20	4	7	3
6307		RAMY	10	12	1341	S12	W06	10	12.1		A	AX	10	1	1	1
6307		BOUL	10	12	1430	S11	W07	10	12.1		A	HS	20	1	1	2
6307		HOLL	10	12	1545	S13	W07	10	12.1		A	HR	10	3	1	3
6307		PALE	10	12	1922	S12	W09	10	12.1		A	AX	10	1		3
6307		LEAR	10	13	0008	S13	W12	10	12.1		A	AX	10	1	1	4
6307		CULG	10	13	0046	S12	W13	10	12.0		A	AX	10	2	1	3
6307		SVTO	10	13	0645	S12	W16	10	12.1		A	HS	20	1	1	3
6307		HOLL	10	13	1615	S13	W21	10	12.1		A	HR	20	1	1	3
6307		RAMY	10	13	1620	S12	W20	10	12.2		A	HA	20	1	1	1
6307		PALE	10	13	1914	S12	W23	10	12.1		A	AX		1		3
6307		LEAR	10	14	0021	S12	W24	10	12.2		A	HS	20	1	1	3
6307		SVTO	10	14	0824	S13	W30	10	12.1		A	AX		1		2
6307		RAMY	10	14	1247	S12	W32	10	12.1		A	HR	10	1	1	1
6307		HOLL	10	14	1700	S13	W33	10	12.2		A	HR	20	1	1	4
6307		LEAR	10	15	0015	S12	W38	10	12.1		A	AX	10	1	1	3
6307		CULG	10	15	0130	S12	W40	10	12.0		A	AX		1		3
6307		SVTO	10	15	1046	S13	W46	10	12.0		A	AX	10	1	1	3
6307		HOLL	10	15	1600	S13	W47	10	12.1		A	AX	10	1	1	4
6307		PALE	10	15	1753	S13	W49	10	12.0		A	AX	10	1		3
6307		CULG	10	16	0012	S13	W53	10	12.0		A	AX	10	1	1	3
6307A		HOLL	10	11	1430	S21	E22	10	13.3		A	AX		2	1	4
6309		CULG	10	07	0205	N10	E85	10	13.5		A	HS	150	1	2	3
6309		LEAR	10	07	0210	N11	E79	10	13.0		A	HS	90	1	3	2
6309		RAMY	10	07	1523	N12	E82	10	13.8		B	EKO	300	6	13	3
6309		HOLL	10	07	1530	N13	E80	10	13.7		B	EHO	400	3	14	4
6309		PALE	10	07	1913	N11	E76	10	13.5		B	DHO	240	2	10	3
6309		LEAR	10	08	0000	N11	E70	10	13.3		A	HH	210	1	3	4
6309		CULG	10	08	0220	N09	E75	10	13.7		B	ESO	250	2	2	2
6309		RAMY	10	08	1220	N11	E65	10	13.4		A	HK	220	3	4	4
6309		SVTO	10	08	1432	N12	E63	10	13.3		A	HH	210	1	2	1
6309		HOLL	10	08	1520	N13	E63	10	13.4		A	HH	210	3	3	3
6309		PALE	10	08	1900	N11	E61	10	13.4		A	HS	150	1	2	3
6309		LEAR	10	09	0010	N11	E57	10	13.3		A	HS	180	1	2	3
6309		CULG	10	09	0220	N11	E57	10	13.4		A	HS	150	1	2	2
6309		BOUL	10	09	1423	N11	E49	10	13.3		A	HA	150	1	2	1
6309		RAMY	10	09	1450	N11	E51	10	13.4		A	HA	150	1	2	1
6309		HOLL	10	09	1655	N13	E51	10	13.5		B	CHO	230	2	6	3
6309		PALE	10	09	1805	N11	E49	10	13.4		A	HH	1120	1	2	3
6309		LEAR	10	10	0015	N12	E44	10	13.3		A	HK	160	2	3	2
6309		CULG	10	10	0205	N11	E45	10	13.5		A	HS	150	1	2	2
6309		SVTO	10	10	0702	N11	E41	10	13.4		A	HS	260	3	2	3
6309		HOLL	10	10	1500	N12	E38	10	13.5		A	HH	180	2	3	4
6309		BOUL	10	10	1510	N14	E36	10	13.3		B	CKO	310	3	4	1

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(Ordered by Central Meridian Passage Date)

OCTOBER 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
6309		PALE	10	10	1840	N11	E35	10	13.4		A	HS	240	1	2	2
6309		LEAR	10	11	0006	N11	E32	10	13.4		A	HH	160	1	3	4
6309		CULG	10	11	0130	N13	E31	10	13.4		A	HS	160	4	4	3
6309		SVTO	10	11	0821	N11	E28	10	13.4		A	HH	220	2	3	2
6309		HOLL	10	11	1430	N13	E25	10	13.5		B	CKO	230	5	5	4
6309		RAMY	10	11	1904	N12	E23	10	13.5		A	HH	190	3	3	2
6309		PALE	10	11	2052	N11	E20	10	13.4		B	CHO	200	4	4	3
6309		LEAR	10	12	0018	N12	E18	10	13.4		B	CHO	170	4	4	3
6309		SVTO	10	12	0904	N11	E13	10	13.3		B	CKO	200	8	4	3
6309		RAMY	10	12	1341	N12	E11	10	13.4		A	HK	200	2	4	1
6309		BOUL	10	12	1430	N13	E09	10	13.3		A	HK	180	3	4	2
6309		HOLL	10	12	1545	N12	E10	10	13.4		A	HA	200	3	2	3
6309		PALE	10	12	1922	N11	E09	10	13.5		B	CKO	200	4	4	3
6309		LEAR	10	13	0008	N11	E06	10	13.4		A	HK	150	4	3	4
6309		CULG	10	13	0046	N12	E05	10	13.4		A	HH	200	3	3	3
6309		SVTO	10	13	0645	N12	E02	10	13.4		A	HK	230	3	3	3
6309		HOLL	10	13	1615	N12	W04	10	13.4		A	HK	190	9	4	3
6309		RAMY	10	13	1620	N12	W01	10	13.6		A	HK	170	4	3	1
6309		PALE	10	13	1914	N13	W04	10	13.5		B	CKO	170	6	4	3
6309		LEAR	10	14	0021	N12	W08	10	13.4		A	HK	150	4	3	3
6309		SVTO	10	14	0824	N11	W14	10	13.3		A	HS	160	3	2	2
6309		RAMY	10	14	1247	N12	W15	10	13.4		A	HK	100	3	3	1
6309		BOUL	10	14	1430	N13	W15	10	13.5		A	HA	90	3	3	1
6309		HOLL	10	14	1700	N12	W17	10	13.4		A	HK	160	7	3	4
6309		LEAR	10	15	0015	N12	W21	10	13.4		A	HK	130	3	3	3
6309		CULG	10	15	0130	N13	W20	10	13.5		A	HK	150	3	3	3
6309		SVTO	10	15	1046	N11	W29	10	13.3		A	HA	110	3	3	3
6309		RAMY	10	15	1438	N12	W29	10	13.4		A	HK	100	4	3	2
6309		HOLL	10	15	1600	N11	W29	10	13.5		A	HA	100	6	3	4
6309		PALE	10	15	1753	N09	W31	10	13.4		A	HS	90	4	3	3
6309		CULG	10	16	0012	N12	W36	10	13.3		A	HA	70	3	3	3
6309		LEAR	10	16	0045	N12	W36	10	13.3		B	CAO	100	4	3	3
6309		SVTO	10	16	0817	N11	W40	10	13.3		A	HS	100	4	3	3
6309		BOUL	10	16	1448	N12	W43	10	13.4		A	HA	100	2	2	1
6309		PALE	10	16	1755	N11	W45	10	13.4		B	CAO	90	3	3	2
6309		HOLL	10	16	2110	N11	W44	10	13.6		B	CSO	120	18	6	3
6309		CULG	10	17	0010	N11	W48	10	13.4		A	HA	70	4	2	3
6309		LEAR	10	17	0018	N10	W47	10	13.5		B	CAO	120	4	5	3
6309		RAMY	10	17	1220	N12	W52	10	13.6		A	HA	120	2	3	1
6309		BOUL	10	17	1434	N12	W56	10	13.4		A	HA	100	1	2	2
6309		HOLL	10	17	1630	N11	W58	10	13.3		A	HS	140	2	2	3
6309		PALE	10	17	2222	N10	W58	10	13.6		A	HA	70	1	2	2
6309		LEAR	10	18	0028	N12	W59	10	13.6		A	HA	40	2	2	3
6309		CULG	10	18	0055	N11	W61	10	13.4		A	HA	80	2	2	3
6309		SVTO	10	18	0825	N11	W63	10	13.6		B	CSO	70	3	8	3
6309		RAMY	10	18	1226	N12	W67	10	13.5		A	HA	100	1	2	3
6309		BOUL	10	18	1435	N12	W71	10	13.2		A	HA	100	2	3	2
6309		HOLL	10	18	1745	N12	W70	10	13.5		A	HS	60	2	2	3
6309		PALE	10	18	1800	N11	W70	10	13.5		A	HA	100	2	2	3
6309		LEAR	10	19	0035	N12	W73	10	13.5		A	HH	120	1	3	3
6309		SVTO	10	19	0816	N11	W79	10	13.4		A	HS	60	1	2	5
6309		BOUL	10	19	1525	N12	W83	10	13.4		A	HA	60	1	2	2
6309		HOLL	10	19	1550	N12	W86	10	13.2		A	HS	30	1	2	3
6309		PALE	10	19	1920	N09	W90	10	13.0		B	CSO	60	2	2	3
6311		RAMY	10	07	1523	N17	E87	10	14.2		A	HA	60	1	3	3
6311		PALE	10	07	1913	N15	E85	10	14.2		A	HS	60	1	5	3
6311		LEAR	10	08	0000	N13	E80	10	14.0		B	DSO	180	3	8	4
6311		CULG	10	08	0220	N14	E80	10	14.1		A	HS	100	1	1	2
6311		RAMY	10	08	1220	N13	E74	10	14.1		B	CAO	170	13	10	4
6311		SVTO	10	08	1432	N16	E71	10	14.0		B	CAO	160	2	4	1
6311		HOLL	10	08	1520	N15	E72	10	14.1		B	CSO	160	8	7	3
6311		PALE	10	08	1900	N14	E68	10	13.9		B	CAO	120	6	6	3
6311		LEAR	10	09	0010	N12	E69	10	14.2		B	DSO	260	7	5	3
6311		CULG	10	09	0220	N16	E67	10	14.2		B	CSO	120	2	3	2
6311		BOUL	10	09	1423	N16	E57	10	13.9		B	CAO	160	5	5	1
6311		RAMY	10	09	1450	N14	E60	10	14.1		B	CAO	120	5	4	1
6311		HOLL	10	09	1655	N15	E58	10	14.1		B	CAO	110	11	7	3
6311		PALE	10	09	1805	N14	E56	10	14.0		B	DA	90	8	6	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 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
6311		LEAR	10 10 0015	N13 E55	10 14.2		B	DAO	210	12	7	2
6311		CULG	10 10 0205	N15 E53	10 14.1		B	CSO	120	2	4	2
6311		SVTO	10 10 0702	N14 E49	10 14.0		B	DAI	200	10	5	3
6311		HOLL	10 10 1500	N15 E45	10 14.0		B	CAI	100	17	6	4
6311		BOUL	10 10 1510	N17 E44	10 14.0		B	DSO	150	6	4	1
6311		PALE	10 10 1840	N15 E43	10 14.0		B	CAO	120	6	5	2
6311		LEAR	10 11 0006	N14 E40	10 14.0		B	DSO	230	10	6	4
6311		CULG	10 11 0130	N16 E40	10 14.1		B	DSO	120	8	5	3
6311		SVTO	10 11 0821	N14 E34	10 13.9		B	DSO	160	8	9	2
6311		HOLL	10 11 1430	N15 E31	10 13.9		B	CSO	140	12	6	4
6311		RAMY	10 11 1904	N13 E28	10 13.9		B	CHO	240	18	6	2
6311		PALE	10 11 2052	N13 E29	10 14.0		B	CAI	130	18	5	3
6311		LEAR	10 12 0018	N15 E26	10 14.0		B	CHO	190	15	6	3
6311		SVTO	10 12 0904	N14 E21	10 14.0		B	DSI	250	26	8	3
6311		RAMY	10 12 1341	N15 E18	10 13.9		B	DKO	280	17	7	1
6311		BOUL	10 12 1430	N14 E18	10 14.0		B	DAI	240	13	6	2
6311		HOLL	10 12 1545	N15 E18	10 14.0		B	DSI	230	31	7	3
6311		PALE	10 12 1922	N15 E16	10 14.0		B	DAI	170	22	6	3
6311		LEAR	10 13 0008	N14 E13	10 14.0		B	DKO	280	20	7	4
6311		CULG	10 13 0046	N15 E13	10 14.0		B	DAI	200	27	7	3
6311		SVTO	10 13 0645	N15 E09	10 14.0		B	DAO	250	20	7	3
6311		HOLL	10 13 1615	N14 E04	10 14.0		B	DKI	270	54	8	3
6311		RAMY	10 13 1620	N15 E06	10 14.1		B	DKO	280	22	7	1
6311		PALE	10 13 1914	N15 E02	10 13.9		B	DKI	280	29	7	3
6311		LEAR	10 14 0021	N15 E01	10 14.1		B	DKO	380	23	8	3
6311		SVTO	10 14 0824	N14 W07	10 13.8		B	DKI	500	37	8	2
6311		RAMY	10 14 1247	N13 W08	10 13.9		B	DKI	380	35	12	1
6311		BOUL	10 14 1430	N16 W07	10 14.1		B	DSI	200	7	9	1
6311		HOLL	10 14 1700	N15 W08	10 14.1		BG	EKI	400	51	12	4
6311		LEAR	10 15 0015	N14 W13	10 14.0		B	EKI	320	28	10	3
6311		CULG	10 15 0130	N15 W13	10 14.1		B	DKI	340	33	10	3
6311		SVTO	10 15 1046	N15 W21	10 13.8		B	EKI	370	43	11	3
6311		RAMY	10 15 1438	N14 W21	10 14.0		B	DKI	350	36	9	2
6311		HOLL	10 15 1600	N14 W22	10 14.0		BG	EKI	350	57	11	4
6311		PALE	10 15 1753	N15 W23	10 14.0		BG	DKI	280	28	10	3
6311		CULG	10 16 0012	N15 W26	10 14.0		B	EAI	210	29	10	3
6311		LEAR	10 16 0045	N15 W28	10 13.9		B	EKI	320	24	10	3
6311		SVTO	10 16 0817	N15 W32	10 13.9		B	CKO	340	33	12	3
6311		BOUL	10 16 1448	N16 W35	10 14.0		B	DKI	290	7	9	1
6311		PALE	10 16 1755	N14 W38	10 13.9		B	DAO	270	17	10	2
6311		HOLL	10 16 2110	N16 W36	10 14.1		B	CKI	290	15	5	3
6311		CULG	10 17 0010	N16 W40	10 14.0		B	CKO	230	16	11	3
6311		LEAR	10 17 0018	N15 W39	10 14.1		B	EKO	280	12	12	3
6311		RAMY	10 17 1220	N16 W41	10 14.4		B	CKO	270	14	5	1
6311		BOUL	10 17 1434	N15 W44	10 14.3		B	DKO	310	6	5	2
6311		HOLL	10 17 1630	N15 W47	10 14.1		BD	CKO	250	1	7	3
6311		PALE	10 17 2222	N14 W51	10 14.1		B	CAO	260	9	13	2
6311		LEAR	10 18 0028	N17 W49	10 14.3		B	CKO	120	8	5	3
6311		CULG	10 18 0055	N15 W51	10 14.2		B	CKO	240	12	5	3
6311		SVTO	10 18 0825	N15 W56	10 14.1		A	HA	290	7	4	3
6311		RAMY	10 18 1226	N16 W57	10 14.2		B	CKO	360	5	5	3
6311		BOUL	10 18 1435	N15 W63	10 13.8		B	DKO	420	2	5	2
6311		HOLL	10 18 1745	N16 W61	10 14.1		BD	DKC	230	9	5	3
6311		PALE	10 18 1800	N14 W64	10 13.9		B	CAO	300	17	8	3
6311		LEAR	10 19 0035	N15 W63	10 14.2		B	CKO	330	9	7	3
6311		SVTO	10 19 0816	N15 W69	10 14.1		A	HA	290	7	3	5
6311		BOUL	10 19 1525	N16 W73	10 14.1		A	HK	410	7	6	2
6311		HOLL	10 19 1550	N14 W75	10 14.0		B	CKO	240	7	8	3
6311		PALE	10 19 1920	N13 W74	10 14.2		B	DHO	150	7	5	3
6311		CULG	10 20 0025	N15 W78	10 14.1		B	CKO	120	6	4	3
6311		RAMY	10 20 1351	N17 W85	10 14.1		A	HK	120	2	4	3
6312		RAMY	10 08 1220	N09 E79	10 14.4		B	FAO	210	6	16	4
6312		SVTO	10 08 1432	N11 E72	10 14.0		B	DAO	160	3	5	1
6312		HOLL	10 08 1520	N12 E80	10 14.7		B	DAO	190	7	10	3
6312		PALE	10 08 1900	N10 E75	10 14.4		B	DSO	190	5	10	3
6312		LEAR	10 09 0010	N09 E78	10 14.9		B	CAO	30	2	4	3
6312		CULG	10 09 0220	N12 E68	10 14.2		B	DAO	150	6	8	2
6312		BOUL	10 09 1423	N11 E63	10 14.3		B	CAI	140	10	12	1

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

OCTOBER 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
6312		RAMY	10	09	1450	N09	E66	10	14.6		B	EAO	210	10	13	1
6312		HOLL	10	09	1655	N10	E64	10	14.5		B	EAO	190	6	11	3
6312		PALE	10	09	1805	N09	E64	10	14.5		B	DSO	140	7	10	3
6312		LEAR	10	10	0015	N09	E60	10	14.5		B	CSO	20	3	6	2
6312		CULG	10	10	0205	N10	E58	10	14.4		B	ESO	70	6	12	2
6312		SVTO	10	10	0702	N09	E56	10	14.5		B	EAI	240	10	11	3
6312		HOLL	10	10	1500	N10	E51	10	14.4		B	ESI	190	15	12	4
6312		BOUL	10	10	1510	N12	E48	10	14.2		B	EAO	230	13	14	1
6312		PALE	10	10	1840	N10	E50	10	14.5		B	DAO	220	7	10	2
6312		LEAR	10	11	0006	N09	E46	10	14.4		B	EAO	320	14	11	4
6312		CULG	10	11	0130	N11	E43	10	14.3		B	DAO	180	24	10	3
6312		SVTO	10	11	0821	N09	E40	10	14.4		B	DAI	310	16	8	2
6312		HOLL	10	11	1430	N10	E37	10	14.4		B	DAI	310	17	8	4
6312		RAMY	10	11	1904	N09	E32	10	14.2		B	DKO	340	9	6	2
6312		PALE	10	11	2052	N09	E33	10	14.3		B	DAO	220	18	10	3
6312		LEAR	10	12	0018	N09	E31	10	14.3		B	DKO	340	14	6	3
6312		SVTO	10	12	0904	N09	E25	10	14.2		B	DKI	300	15	6	3
6312		RAMY	10	12	1341	N09	E23	10	14.3		B	DAO	220	7	5	1
6312		BOUL	10	12	1430	N11	E22	10	14.2		B	DKO	250	12	5	2
6312		HOLL	10	12	1545	N10	E24	10	14.4		B	DSI	210	26	11	3
6312		PALE	10	12	1922	N10	E23	10	14.5		B	EAO	230	12	11	3
6312		LEAR	10	13	0008	N11	E20	10	14.5		B	DAO	300	25	10	4
6312		CULG	10	13	0046	N10	E16	10	14.2		B	DAO	180	16	6	3
6312		SVTO	10	13	0645	N10	E13	10	14.2		B	DAI	230	15	7	3
6312		HOLL	10	13	1615	N09	E09	10	14.3		B	DAI	260	30	9	3
6312		RAMY	10	13	1620	N09	E11	10	14.5		B	DAO	270	18	8	1
6312		PALE	10	13	1914	N10	E08	10	14.4		B	DAI	220	26	7	3
6312		LEAR	10	14	0021	N10	E05	10	14.4		B	DAO	270	21	8	3
6312		SVTO	10	14	0824	N11	W01	10	14.3		B	DAI	320	25	9	2
6312		RAMY	10	14	1247	N10	W01	10	14.4		B	DKI	220	17	9	1
6312		BOUL	10	14	1430	N10	W03	10	14.4		B	DAO	160	7	5	1
6312		HOLL	10	14	1700	N11	W03	10	14.5		B	DSI	270	46	10	4
6312		LEAR	10	15	0015	N10	W09	10	14.3		B	DAI	290	23	7	3
6312		CULG	10	15	0130	N10	W08	10	14.5		B	DKI	300	26	8	3
6312		SVTO	10	15	1046	N10	W16	10	14.2		B	DKI	280	34	8	3
6312		RAMY	10	15	1438	N10	W16	10	14.4		B	DAI	280	33	8	2
6312		HOLL	10	15	1600	N10	W17	10	14.4		B	DKI	370	51	7	4
6312		PALE	10	15	1753	N10	W18	10	14.4		B	DAI	280	34	7	3
6312		CULG	10	16	0012	N10	W22	10	14.3		BG	DAI	140	35	7	3
6312		LEAR	10	16	0045	N11	W22	10	14.4		B	ESI	230	23	8	3
6312		SVTO	10	16	0817	N10	W27	10	14.3		B	DSI	310	45	7	3
6312		BOUL	10	16	1448	N11	W29	10	14.4		B	DAI	150	13	5	1
6312		PALE	10	16	1755	N10	W31	10	14.4		B	DAI	240	33	7	2
6312		HOLL	10	16	2110	N10	W32	10	14.5		BG	EAI	290	59	14	3
6312		CULG	10	17	0010	N10	W34	10	14.4		B	DAI	120	27	7	3
6312		LEAR	10	17	0018	N10	W33	10	14.5		BG	DAI	300	21	7	3
6312		RAMY	10	17	1220	N11	W39	10	14.6		B	CAO	210	33	8	1
6312		BOUL	10	17	1434	N09	W42	10	14.4		B	DAO	220	13	7	2
6312		HOLL	10	17	1630	N10	W43	10	14.4		B	DSO	220	27	9	3
6312		LEAR	10	18	0028	N10	W47	10	14.5		B	CAO	70	17	6	3
6312		CULG	10	18	0055	N10	W47	10	14.5		B	DAO	150	21	6	3
6312		SVTO	10	18	0825	N10	W53	10	14.4		B	DAO	170	10	6	3
6312		RAMY	10	18	1226	N11	W55	10	14.4		B	DAO	220	17	4	3
6312		BOUL	10	18	1435	N10	W57	10	14.3		B	DAO	130	10	6	2
6312		HOLL	10	18	1745	N11	W57	10	14.4		B	DAO	130	15	5	3
6312		PALE	10	18	1800	N11	W58	10	14.4		B	DAO	160	15	6	3
6312		LEAR	10	19	0035	N10	W59	10	14.6		B	DAO	210	8	8	3
6312		SVTO	10	19	0816	N10	W67	10	14.3		B	DAO	160	5	5	5
6312		BOUL	10	19	1525	N12	W70	10	14.4		B	DAO	150	3	4	2
6312		HOLL	10	19	1550	N11	W69	10	14.5		B	CSO	70	5	7	3
6312		PALE	10	19	1920	N10	W72	10	14.4		B	DSO	90	3	5	3
6312		CULG	10	20	0025	N10	W74	10	14.4		B	CAO	80	3	4	3
6312		RAMY	10	20	1351	N10	W82	10	14.4		B	CAO	60	4	5	3
6313		RAMY	10	08	1220	S14	E81	10	14.6		A	HA	30	1	2	4
6313		SVTO	10	08	1432	S13	E79	10	14.6		A	HA	60	1	1	1
6313		HOLL	10	08	1520	S12	E80	10	14.7		A	HR	20	1	1	3
6313		PALE	10	08	1900	S13	E79	10	14.7		A	HS	30	2	1	3
6313		CULG	10	09	0220	S13	E69	10	14.3		A	HS	40	1	1	2

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 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
6313		BOUL	10 09 1423	S14 E65	10 14.5		A	HA	50	1	1	1
6313		RAMY	10 09 1450	S14 E68	10 14.7		A	HS	50	1	2	1
6313		HOLL	10 09 1655	S13 E66	10 14.7		A	HA	20	1	1	3
6313		PALE	10 09 1805	S18 E60	10 14.3		B	EAO	120	9	11	3
6313		CULG	10 10 0205	S14 E59	10 14.5		A	HS	20	1	1	2
6313		HOLL	10 10 1500	S13 E54	10 14.7		A	HS	50	1	2	4
6313		BOUL	10 10 1510	S14 E51	10 14.5		A	HS	50	1	1	1
6313		PALE	10 10 1840	S16 E50	10 14.6		B	DAO	260	12	13	2
6313		LEAR	10 11 0006	S14 E48	10 14.6		A	HS	60	1	2	4
6313		CULG	10 11 0130	S13 E48	10 14.7		A	HS	30	3	3	3
6313		SVTO	10 11 0821	S14 E45	10 14.7		A	HS	40	1	1	2
6313		HOLL	10 11 1430	S13 E41	10 14.7		A	HS	60	1	2	4
6313		RAMY	10 11 1904	S13 E37	10 14.6		A	HS	50	1	2	2
6313		PALE	10 11 2052	S18 E43	10 15.1		B	EAO	140	23	13	3
6313		LEAR	10 12 0018	S15 E35	10 14.7		A	HS	50	1	2	3
6313		SVTO	10 12 0904	S14 E30	10 14.6		A	HS	50	1	1	3
6313		RAMY	10 12 1341	S14 E29	10 14.8		A	HS	60	1	2	1
6313		BOUL	10 12 1430	S13 E27	10 14.6		A	HS	40	1	1	2
6313		HOLL	10 12 1545	S13 E27	10 14.7		A	HS	20	1	2	3
6313		PALE	10 12 1922	S15 E32	10 15.2		B	CSO	90	27	13	3
6313		LEAR	10 13 0008	S14 E23	10 14.7		A	HS	40	1	2	4
6313		CULG	10 13 0046	S14 E22	10 14.7		A	HS	20	1	1	3
6313		SVTO	10 13 0645	S14 E18	10 14.6		A	HS	40	1	2	3
6313		HOLL	10 13 1615	S13 E13	10 14.6		A	HS	50	1	2	3
6313		RAMY	10 13 1620	S14 E15	10 14.8		A	HA	60	1	2	1
6313		PALE	10 13 1914	S16 E18	10 15.2		B	CSO	60	19	12	3
6313		LEAR	10 14 0021	S14 E09	10 14.7		A	HS	40	1	1	3
6313		SVTO	10 14 0824	S14 E05	10 14.7		A	HS	50	1	1	2
6313		RAMY	10 14 1247	S13 E02	10 14.7		A	HS	40	1	2	1
6313		BOUL	10 14 1430	S13 E00	10 14.6		A	HS	40	1	2	1
6313		HOLL	10 14 1700	S13 E01	10 14.8		A	HS	60	2	3	4
6313		LEAR	10 15 0015	S13 W03	10 14.8		A	HS	20	1	2	3
6313		CULG	10 15 0130	S14 W04	10 14.8		A	HS	60	1	2	3
6313		SVTO	10 15 1046	S14 W10	10 14.7		A	HS	20	1	1	3
6313		RAMY	10 15 1438	S13 W11	10 14.8		A	HS	40	1	2	2
6313		HOLL	10 15 1600	S13 W12	10 14.8		A	HS	60	1	2	4
6313		PALE	10 15 1753	S14 W14	10 14.7		A	HS	40	1	1	3
6313		CULG	10 16 0012	S13 W17	10 14.7		A	HS	20	1	1	3
6313		LEAR	10 16 0045	S13 W18	10 14.7		A	HS	40	1	2	3
6313		SVTO	10 16 0817	S13 W21	10 14.8		A	HS	40	1	2	3
6313		BOUL	10 16 1448	S13 W24	10 14.8		A	HS	20	1	1	1
6313		PALE	10 16 1755	S14 W27	10 14.7		A	HS	20	1	1	2
6313		HOLL	10 16 2110	S13 W29	10 14.7		A	HS	50	1	2	3
6313		CULG	10 17 0010	S14 W29	10 14.8		A	HS	20	1	1	3
6313		LEAR	10 17 0018	S13 W29	10 14.8		A	HS	60	1	2	3
6313		RAMY	10 17 1220	S13 W35	10 14.9		A	HS	50	1	1	1
6313		BOUL	10 17 1434	S13 W37	10 14.8		A	HA	40	2	2	2
6313		HOLL	10 17 1630	S14 W38	10 14.8		A	HS	90	1	2	3
6313		LEAR	10 18 0028	S13 W41	10 14.9		A	HA	30	1	1	3
6313		CULG	10 18 0055	S13 W42	10 14.9		A	HS	30	2	1	3
6313		SVTO	10 18 0825	S14 W48	10 14.7		A	HA	50	1	1	3
6313		RAMY	10 18 1226	S13 W50	10 14.7		A	HS	30	1	2	3
6313		BOUL	10 18 1435	S13 W52	10 14.7		A	AX	20	1	1	2
6313		HOLL	10 18 1745	S13 W52	10 14.8		A	HA	50	2	2	3
6313		PALE	10 18 1800	S14 W53	10 14.7		A	HS	30	1	2	3
6313		LEAR	10 19 0035	S14 W56	10 14.8		A	HS	40	1	2	3
6313		SVTO	10 19 0816	S14 W60	10 14.8		A	HR	20	1	1	5
6313		BOUL	10 19 1525	S13 W66	10 14.7		A	HS	40	1	1	2
6313		HOLL	10 19 1550	S13 W64	10 14.8		A	HA	20	1	1	3
6313		PALE	10 19 1920	S16 W66	10 14.8		A	HS	20	1	1	3
6313		CULG	10 20 0025	S13 W69	10 14.8		A	HS	30	2	1	3
6313		RAMY	10 20 1351	S13 W76	10 14.8		A	AX	10	2	1	3
6314		RAMY	10 08 1220	S19 E82	10 14.8		A	HK	150	4	7	4
6314		SVTO	10 08 1432	S18 E78	10 14.5		A	HK	180	1	2	1
6314		HOLL	10 08 1520	S18 E80	10 14.7		A	HH	120	2	2	3
6314		PALE	10 08 1900	S18 E80	10 14.9		B	CAO	180	5	5	3
6314		LEAR	10 09 0010	S16 E73	10 14.5		B	DHO	210	3	6	3
6314		CULG	10 09 0220	S19 E69	10 14.4		A	HA	200	2	2	2

SUNSPOT GROUPS
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OCTOBER 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
6314		BOUL	10 09 1423	S18 E71	10 15.0		B	EKI	100	13	17	1
6314		RAMY	10 09 1450	S18 E72	10 15.1		B	EKO	710	8	14	1
6314		HOLL	10 09 1655	S18 E71	10 15.1		B	EHO	580	15	15	3
6314		PALE	10 09 1805	S19 E64	10 14.6		B	CKO	260	4	4	3
6314		LEAR	10 10 0015	S17 E65	10 14.9		B	EKO	380	12	13	2
6314		CULG	10 10 0205	S18 E64	10 15.0		B	EHO	300	6	13	2
6314		SVTO	10 10 0702	S18 E63	10 15.1		B	EKI	920	25	15	3
6314		HOLL	10 10 1500	S17 E60	10 15.2		B	EKI	600	28	14	4
6314		BOUL	10 10 1510	S17 E56	10 14.9		B	FKI	820	20	16	1
6314		PALE	10 10 1840	S19 E52	10 14.7		A	HK	430	4	7	2
6314		LEAR	10 11 0006	S18 E52	10 15.0		B	FKO	740	25	16	4
6314		CULG	10 11 0130	S16 E50	10 14.8		B	EKI	400	23	14	3
6314		SVTO	10 11 0821	S19 E48	10 15.0		B	EKO	700	26	15	2
6314		HOLL	10 11 1430	S18 E47	10 15.2		B	EKI	620	34	15	4
6314		RAMY	10 11 1904	S18 E43	10 15.1		B	EKI	560	35	15	2
6314		PALE	10 11 2052	S21 E37	10 14.7		B	CKO	470	12	6	3
6314		LEAR	10 12 0018	S18 E40	10 15.0		B	EKO	640	32	14	3
6314		SVTO	10 12 0904	S19 E34	10 15.0		B	EKO	550	30	15	3
6314		RAMY	10 12 1341	S18 E33	10 15.1		B	EKO	600	23	15	1
6314		BOUL	10 12 1430	S17 E32	10 15.0		B	EKI	550	16	13	2
6314		HOLL	10 12 1545	S18 E31	10 15.0		B	EKO	560	28	14	3
6314		PALE	10 12 1922	S20 E26	10 14.8		B	CKO	450	10	5	3
6314		LEAR	10 13 0008	S18 E26	10 15.0		B	FKO	480	38	16	4
6314		CULG	10 13 0046	S17 E26	10 15.0		B	FKO	410	29	16	3
6314		SVTO	10 13 0645	S18 E23	10 15.0		B	EKO	530	32	15	3
6314		HOLL	10 13 1615	S19 E18	10 15.0		B	CKO	500	35	15	3
6314		RAMY	10 13 1620	S19 E19	10 15.1		B	EKO	470	24	14	1
6314		PALE	10 13 1914	S19 E11	10 14.6		B	CKO	480	8	6	3
6314		LEAR	10 14 0021	S17 E14	10 15.1		B	FKO	460	29	17	3
6314		SVTO	10 14 0824	S18 E09	10 15.0		B	CKO	610	18	14	2
6314		RAMY	10 14 1247	S17 E07	10 15.1		B	CKO	460	12	14	1
6314		BOUL	10 14 1430	S18 E00	10 14.6		A	HK	340	3	5	1
6314		HOLL	10 14 1700	S17 E07	10 15.2		B	CKO	580	32	16	4
6314		LEAR	10 15 0015	S18 E01	10 15.1		B	EKO	450	16	15	3
6314		CULG	10 15 0130	S18 E00	10 15.1		B	CKO	520	25	15	3
6314		SVTO	10 15 1046	S19 W08	10 14.8		B	CKO	470	13	12	3
6314		RAMY	10 15 1438	S17 W08	10 15.0		B	CKO	550	3	11	2
6314		HOLL	10 15 1600	S18 W07	10 15.1		B	CKO	440	26	15	4
6314		PALE	10 15 1753	S20 W15	10 14.6		B	CKO	460	10	5	3
6314		CULG	10 16 0012	S17 W13	10 15.0		B	CKO	370	16	14	3
6314		LEAR	10 16 0045	S19 W13	10 15.0		B	CKO	440	11	13	3
6314		SVTO	10 16 0817	S19 W16	10 15.1		B	CKO	480	23	16	3
6314		BOUL	10 16 1448	S18 W26	10 14.6		B	DKO	280	5	4	1
6314		PALE	10 16 1755	S20 W28	10 14.6		B	CKO	370	5	4	2
6314		HOLL	10 16 2110	S16 W22	10 15.2		B	CKO	430	17	15	3
6314		CULG	10 17 0010	S17 W24	10 15.2		B	CKO	330	16	17	3
6314		LEAR	10 17 0018	S16 W25	10 15.1		B	CKO	250	11	14	3
6314		RAMY	10 17 1220	S19 W37	10 14.7		A	HK	360	3	4	1
6314		BOUL	10 17 1434	S19 W38	10 14.7		A	HK	420	3	4	2
6314		HOLL	10 17 1630	S19 W38	10 14.8		A	HH	420	5	3	3
6314		LEAR	10 18 0028	S18 W40	10 15.0		B	CKO	240	5	9	3
6314		CULG	10 18 0055	S18 W43	10 14.8		A	HK	420	4	4	3
6314		SVTO	10 18 0825	S19 W49	10 14.6		A	HA	350	3	3	3
6314		RAMY	10 18 1226	S18 W51	10 14.6		A	HK	340	1	4	3
6314		BOUL	10 18 1435	S19 W54	10 14.5		A	HK	2700	2	4	2
6314		HOLL	10 18 1745	S18 W53	10 14.7		A	HH	360	1	3	3
6314		PALE	10 18 1800	S19 W55	10 14.5		A	HH	400	3	4	3
6314		LEAR	10 19 0035	S19 W58	10 14.6		A	HH	400	1	3	3
6314		SVTO	10 19 0816	S19 W60	10 14.8		A	HK	440	1	3	5
6314		BOUL	10 19 1525	S18 W67	10 14.5		A	HK	320	1	3	2
6314		HOLL	10 19 1550	S18 W65	10 14.7		A	HH	360	2	2	3
6314		PALE	10 19 1920	S19 W68	10 14.6		A	HH	220	4	3	3
6314		CULG	10 20 0025	S18 W70	10 14.7		A	HH	400	3	4	3
6314		RAMY	10 20 1351	S18 W79	10 14.6		A	HK	300	3	4	3
6314		HOLL	10 20 1845	S20 W78	10 14.8		A	HK	110	3	3	2
6314		CULG	10 21 0007	S18 W87	10 14.4		A	HH	120	2	5	3
6319		LEAR	10 11 0006	S27 E48	10 14.7		B	BXO	40	4	3	4
6319		HOLL	10 11 1430	S25 E41	10 14.8		B	BXO	10	7	5	4

S U N S P O T G R O U P S
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OCTOBER 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
6319		RAMY	10	11	1904	S26	E38	10	14.7		B	CAO	40	7	4	2
6319		PALE	10	11	2052	S28	E38	10	14.8		A	HA	30	1	1	3
6319		LEAR	10	12	0018	S27	E36	10	14.8		B	CSO	60	6	5	3
6319		SVTO	10	12	0904	S26	E30	10	14.7		B	CAO	50	9	6	3
6319		RAMY	10	12	1341	S26	E30	10	14.9		B	CAO	30	3	4	1
6319		BOUL	10	12	1430	S25	E28	10	14.8		B	CSO	40	3	5	2
6319		HOLL	10	12	1545	S25	E28	10	14.8		B	CSO	40	8	6	3
6319		PALE	10	12	1922	S27	E26	10	14.8		B	BXO	20	8	6	3
6319		LEAR	10	13	0008	S26	E24	10	14.9		B	BXO	50	5	4	4
6319		CULG	10	13	0046	S26	E24	10	14.9		B	BXO	10	5	4	3
6319		SVTO	10	13	0645	S25	E19	10	14.7		B	CSO	40	6	7	3
6319		HOLL	10	13	1615	S25	E16	10	14.9		B	CRO	30	8	5	3
6319		RAMY	10	13	1620	S26	E16	10	14.9		B	CRO	180	7	6	1
6319		PALE	10	13	1914	S25	E15	10	15.0		B	BXO	10	7	5	3
6319		LEAR	10	14	0021	S28	E15	10	15.2		B	BXO	10	3	8	3
6319		RAMY	10	14	1247	S26	E01	10	14.6		A	AX		2	2	1
6319		HOLL	10	14	1700	S25	E02	10	14.9		B	BXO	10	8	6	4
6319		HOLL	10	15	1600	S24	W13	10	14.7		A	AX	10	2	2	4
6319		CULG	10	16	0012	S23	W15	10	14.8		B	BXO	10	3	9	3
6319		LEAR	10	19	0035	S23	W55	10	14.8		A	AX	20	1	1	3
6319		RAMY	10	20	1351	S25	W76	10	14.7		B	DAO	120	8	8	3
6319		CULG	10	21	0007	S23	W84	10	14.5		A	AX	10	1	1	3
6314A		HOLL	10	13	1615	S32	E23	10	15.5		A	AX		1		3
6314A		RAMY	10	13	1620	S32	E24	10	15.6		A	AX		1	1	1
6314B		SVTO	10	15	1046	S24	E01	10	15.5		A	AX		1		3
6324		SVTO	10	15	1046	N08	E13	10	16.4		B	BXO	10	2	2	3
6324		RAMY	10	15	1438	N08	E11	10	16.4		B	BXO	10	9	3	2
6324		HOLL	10	15	1600	N08	E10	10	16.4		B	BXO	20	11	4	4
6324		PALE	10	15	1753	N08	E09	10	16.4		B	BXO	20	8	3	3
6324		CULG	10	16	0012	N08	E05	10	16.4		B	BXO	10	9	4	3
6324		LEAR	10	16	0045	N09	E04	10	16.3		B	BXO	10	5	3	3
6324		SVTO	10	16	0817	N08	E01	10	16.4		B	BXO	10	3	3	3
6324		PALE	10	16	1755	N08	W05	10	16.4		B	BXO	10	4	3	2
6324		HOLL	10	16	2110	N08	W07	10	16.3		B	BXO	10	9	4	3
6324		LEAR	10	17	0018	N08	W08	10	16.4		B	BXO	10	5	4	3
6324		RAMY	10	17	1220	N09	W13	10	16.5		A	AX		2		1
6324		HOLL	10	17	1630	N09	W18	10	16.3		A	AX	10	1		3
6324		CULG	10	18	0055	N09	W21	10	16.5		A	AX		1		3
6324		LEAR	10	19	0035	N09	W33	10	16.5		B	BXO	20	2	3	3
6324		SVTO	10	19	0816	N10	W39	10	16.4		A	AX	10	2	2	5
6324		HOLL	10	19	1550	N11	W41	10	16.6		B	BXO		3	3	3
6324		PALE	10	19	1920	N10	W44	10	16.5		B	BRO	10	2	1	3
6324		CULG	10	20	0025	N11	W48	10	16.4		A	AX		2	2	3
6323		HOLL	10	13	1615	N20	E33	10	16.2		B	BXO	10	4	6	3
6323		RAMY	10	13	1620	N19	E34	10	16.3		B	BXO	10	7	5	1
6323		PALE	10	13	1914	N20	E34	10	16.4		B	BXO	10	10	4	3
6323		SVTO	10	14	0824	N19	E27	10	16.4		B	BXO	10	7	4	2
6323		RAMY	10	14	1247	N19	E23	10	16.3		B	BXO	10	5	6	1
6323		HOLL	10	14	1700	N19	E22	10	16.4		B	BXO	20	7	6	4
6323		LEAR	10	15	0015	N19	E20	10	16.5		A	AX	10	1	1	3
6323		CULG	10	15	0130	N20	E18	10	16.4		B	BXO		4	5	3
6323		SVTO	10	15	1046	N18	E13	10	16.4		B	BXO	10	3	4	3
6323		RAMY	10	15	1438	N21	E15	10	16.7		B	BXO	10	3	4	2
6323		HOLL	10	15	1600	N19	E12	10	16.6		A	AX		1		4
6323		CULG	10	16	0012	N20	E11	10	16.8		A	AX	10	1	1	3
6323		RAMY	10	17	1220	N20	W11	10	16.7		A	AX		2		1
6323		HOLL	10	17	1630	N20	W15	10	16.5		A	AX	10	2		3
6323A		LEAR	10	11	0006	N27	E77	10	17.0		A	AX	30	1	1	4
6329		CULG	10	16	0012	S08	E13	10	17.0		A	AX	10	1	1	3
6329		RAMY	10	17	1220	S06	W05	10	17.1		B	BXO	10	5	3	1
6329		HOLL	10	17	1630	S07	W08	10	17.1		B	BXO	10	2	2	3
6329		LEAR	10	18	0028	S07	W10	10	17.3		B	BXO	10	2	2	3
6329		HOLL	10	18	1745	S07	W23	10	17.0		B	BXO	20	8	5	3

SUNSPOT GROUPS
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OCTOBER 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
6329		PALE	10	18	1800	S07	W24	10	16.9		B	BXO	10	8	3	3
6329		LEAR	10	19	0035	S07	W28	10	16.9		B	BXO	20	2	3	3
6329		SVTO	10	19	0816	S06	W33	10	16.9		A	AX		1		5
6321		RAMY	10	12	1341	S25	E69	10	17.9		A	AX		1		1
6321		HOLL	10	12	1545	S24	E68	10	17.9		A	AX		1		3
6321		PALE	10	12	1922	S26	E65	10	17.8		A	AX		1		3
6321		LEAR	10	13	0008	S24	E63	10	17.9		B	BXO	80	5	8	4
6321		CULG	10	13	0046	S23	E66	10	18.1		B	BXO	10	3	7	3
6321		SVTO	10	13	0645	S23	E58	10	17.7		B	DSO	170	9	8	3
6321		HOLL	10	13	1615	S23	E55	10	17.9		B	DSO	100	10	9	3
6321		RAMY	10	13	1620	S23	E57	10	18.1		B	DRO	90	11	9	1
6321		PALE	10	13	1914	S23	E53	10	17.9		B	BXO	40	7	8	3
6321		LEAR	10	14	0021	S25	E50	10	17.9		B	DAO	100	7	8	3
6321		SVTO	10	14	0824	S24	E46	10	17.9		B	ESI	210	13	11	2
6321		RAMY	10	14	1247	S24	E44	10	17.9		B	ERO	60	10	11	1
6321		BOUL	10	14	1430	S23	E42	10	17.8		B	ESO	180	5	14	1
6321		HOLL	10	14	1700	S23	E42	10	17.9		B	EAO	120	19	13	4
6321		LEAR	10	15	0015	S23	E38	10	17.9		B	ESO	140	22	13	3
6321		SVTO	10	15	1046	S23	E32	10	17.9		B	EAO	170	34	13	3
6321		RAMY	10	15	1438	S25	E30	10	17.9		B	EAO	160	34	12	2
6321		HOLL	10	15	1600	S23	E29	10	17.9		B	EAI	270	62	14	4
6321		PALE	10	15	1753	S23	E28	10	17.9		B	EAI	180	32	13	3
6321		CULG	10	16	0012	S22	E25	10	17.9		BG	EAO	50	32	14	3
6321		LEAR	10	16	0045	S24	E23	10	17.8		BG	EAI	190	20	12	3
6321		SVTO	10	16	0817	S23	E17	10	17.6		B	FAO	140	42	17	3
6321		PALE	10	16	1755	S25	E15	10	17.9		BG	DSI	130	35	14	2
6321		HOLL	10	16	2110	S23	E13	10	17.9		BG	EAI	140	69	14	3
6321		CULG	10	17	0010	S23	E13	10	18.0				40	36	14	3
6321		LEAR	10	17	0018	S23	E11	10	17.9		B	EAO	130	24	15	3
6321		RAMY	10	17	1220	S22	E06	10	18.0		BG	EAO	90	40	14	1
6321		BOUL	10	17	1434	S23	E02	10	17.8		B	EAO	130	8	12	2
6321		HOLL	10	17	1630	S23	E04	10	18.0		B	CRO	540	35	13	3
6321		LEAR	10	18	0028	S25	W01	10	17.9		B	EAO	60	13	14	3
6321		CULG	10	18	0055	S23	W02	10	17.9		B	ERO	40	16	12	3
6321		SVTO	10	18	0825	S24	W05	10	18.0		B	ERO	40	18	13	3
6321		RAMY	10	18	1226	S23	W10	10	17.7		B	BXO	20	19	12	3
6321		BOUL	10	18	1435	S25	W10	10	17.8		B	DAO	10	3	10	2
6321		HOLL	10	18	1745	S25	W12	10	17.8		B	BXO	20	11	12	3
6321		PALE	10	18	1800	S22	W14	10	17.7		B	CRO	20	11	7	3
6321		LEAR	10	19	0035	S26	W15	10	17.8		B	BXO	60	7	10	3
6321		SVTO	10	19	0816	S23	W20	10	17.8		B	BXO	10	9	12	5
6321		BOUL	10	19	1525	S24	W26	10	17.6		B	DSO	30	4	5	2
6321		HOLL	10	19	1550	S24	W23	10	17.9		B	BXO	10	11	12	3
6321		PALE	10	19	1920	S25	W30	10	17.5		A	AX	10	1	1	3
6321		CULG	10	20	0025	S24	W34	10	17.4					3	3	3
6321		RAMY	10	20	1351	S28	W35	10	17.8		B	BXO	10	2	3	3
6321		HOLL	10	21	1610	S23	W45	10	18.2		A	AX		1		3
6322		PALE	10	12	1922	S09	E78	10	18.7		A	AX		2		3
6322		LEAR	10	13	0008	S07	E73	10	18.5		B	CAO	150	3	4	4
6322		CULG	10	13	0046	S08	E78	10	18.9		A	HA	40	2	2	3
6322		SVTO	10	13	0645	S07	E70	10	18.5		B	CAO	60	3	6	3
6322		HOLL	10	13	1615	S07	E65	10	18.5		B	CAO	100	4	3	3
6322		RAMY	10	13	1620	S06	E65	10	18.5		A	HA	100	1	2	1
6322		PALE	10	13	1914	S07	E66	10	18.7		B	CAO	80	2	6	3
6322		LEAR	10	14	0021	S07	E62	10	18.6		B	CAO	100	5	5	3
6322		SVTO	10	14	0824	S07	E58	10	18.7		B	DAI	170	8	7	2
6322		RAMY	10	14	1247	S07	E53	10	18.5		B	DSO	120	7	8	1
6322		BOUL	10	14	1430	S07	E53	10	18.6		B	DSO	180	2	9	1
6322		HOLL	10	14	1700	S07	E53	10	18.7		B	DAO	210	11	8	4
6322		LEAR	10	15	0015	S08	E48	10	18.6		B	DAO	240	8	8	3
6322		CULG	10	15	0130	S07	E50	10	18.8		B	DAO	280	11	8	3
6322		SVTO	10	15	1046	S07	E42	10	18.6		B	DKO	360	21	9	3
6322		RAMY	10	15	1438	S07	E41	10	18.7		B	DKO	480	16	10	2
6322		HOLL	10	15	1600	S07	E40	10	18.7		B	DKO	460	36	8	4
6322		PALE	10	15	1753	S08	E38	10	18.6		B	DKO	600	20	9	3
6322		CULG	10	16	0012	S06	E34	10	18.5		B	DKO	380	20	10	3
6322		LEAR	10	16	0045	S08	E34	10	18.6		B	EKI	460	19	10	3

SUNSPOT GROUPS
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6322		SVTO	10 16 0817	S07 E30	10 18.6		B	EKI	530	33	11	3
6322		BOUL	10 16 1448	S06 E26	10 18.6		B	DKI	390	13	9	1
6322		PALE	10 16 1755	S08 E25	10 18.6		B	CKI	440	25	10	2
6322		HOLL	10 16 2110	S08 E25	10 18.7		B	EKI	500	54	12	3
6322		LEAR	10 17 0018	S08 E21	10 18.6		B	EKI	530	22	12	3
6322		RAMY	10 17 1220	S08 E16	10 18.7		B	EKO	430	40	13	1
6322		BOUL	10 17 1434	S06 E12	10 18.5		B	EKI	460	24	11	2
6322		HOLL	10 17 1630	S07 E13	10 18.7		B	EKO	500	45	12	3
6322		LEAR	10 18 0028	S08 E10	10 18.8		B	EKI	400	26	13	3
6322		CULG	10 18 0055	S07 E08	10 18.6		B	EKO	480	44	13	3
6322		SVTO	10 18 0825	S08 E04	10 18.6		B	EAO	490	49	12	3
6322		RAMY	10 18 1226	S08 E03	10 18.7		B	FKI	680	55	18	3
6322		BOUL	10 18 1435	S06 W02	10 18.4		B	EKI	340	12	11	2
6322		HOLL	10 18 1745	S07 W03	10 18.5		B	EAI	430	71	14	3
6322		PALE	10 18 1800	S08 W03	10 18.5		B	EAI	490	63	15	3
6322		LEAR	10 19 0035	S08 W06	10 18.6		B	EKI	600	39	15	3
6322		SVTO	10 19 0816	S08 W11	10 18.5		B	EAI	400	45	12	5
6322		BOUL	10 19 1525	S06 W14	10 18.6		B	FAI	390	29	16	2
6322		HOLL	10 19 1550	S08 W14	10 18.6		B	EAI	360	49	15	3
6322		PALE	10 19 1920	S08 W15	10 18.7		B	EAI	230	26	14	3
6322		CULG	10 20 0025	S08 W21	10 18.4		B	EAO	270	47	13	3
6322		RAMY	10 20 1351	S09 W27	10 18.5		B	EAO	200	28	13	3
6322		HOLL	10 20 1845	S08 W29	10 18.6		B	EAO	220	25	14	2
6322		CULG	10 21 0007	S08 W33	10 18.5		B	EAO	90	26	16	3
6322		SVTO	10 21 0807	S08 W38	10 18.5		B	EAI	170	17	14	5
6322		BOUL	10 21 1420	S07 W40	10 18.6		B	FAO	120	11	16	2
6322		HOLL	10 21 1610	S09 W41	10 18.6		B	ESO	130	22	15	3
6322		CULG	10 22 0005	S08 W47	10 18.5		B	FSO	40	14	16	2
6322		SVTO	10 22 1041	S08 W52	10 18.5		B	ESO	70	13	15	2
6322		HOLL	10 22 1520	S07 W55	10 18.5		B	CSO	70	15	17	3
6322		RAMY	10 22 1530	S08 W55	10 18.5		B	CAO	50	9	16	1
6322		PALE	10 22 1958	S05 W65	10 18.0		A	HA	30	1	1	3
6322		CULG	10 23 0005	S08 W69	10 17.8		A	HS	20	2	2	3
6322		LEAR	10 23 0048	S08 W69	10 17.9		B	CAO	50	4	14	3
6322		SVTO	10 23 0825	S08 W73	10 17.9		A	HS	60	1	2	3
6322		RAMY	10 23 1410	S09 W75	10 18.0		A	HA	30	1	1	1
6322		BOUL	10 23 1443	S07 W74	10 18.1		A	HS	30	1	1	1
6322		HOLL	10 23 1510	S08 W76	10 17.9		A	HS	30	1	1	3
6322		CULG	10 24 0100	S08 W82	10 17.9		B	BXO		2	5	2
6325		LEAR	10 15 0015	S13 E68	10 20.1		A	AX	20	1	1	3
6325		CULG	10 15 0130	S15 E69	10 20.3		A	AX		1		3
6325		RAMY	10 15 1438	S12 E61	10 20.2		A	AX		1		2
6325		HOLL	10 15 1600	S12 E58	10 20.0		A	AX	10	1	1	4
6325		PALE	10 15 1753	S14 E58	10 20.1		A	AX	10	1		3
6325		CULG	10 16 0012	S12 E56	10 20.2		A	AX	10	2	4	3
6325		LEAR	10 16 0045	S13 E56	10 20.2		B	BXO	20	3	6	3
6325		SVTO	10 16 0817	S12 E52	10 20.3		B	BXO	20	3	5	3
6325		BOUL	10 16 1448	S12 E44	10 19.9		A	AX		1		1
6325		LEAR	10 17 0018	S13 E40	10 20.0		B	BXO	10	2	3	3
6325		PALE	10 18 1800	S12 E21	10 20.3		A	AX		2	1	3
6325		SVTO	10 19 0816	S14 E13	10 20.3		B	BXO	10	7	3	5
6325		BOUL	10 19 1525	S11 E08	10 20.2		B	BXO	10	2	2	2
6325		HOLL	10 19 1550	S13 E09	10 20.3		A	AX		3	2	3
6325		PALE	10 19 1920	S13 E06	10 20.2		A	AX	20	1	1	3
6325		CULG	10 20 0025	S13 E04	10 20.3		A	AX		1		3
6325		HOLL	10 22 1520	S13 W33	10 20.1		A	AX	10	1		3
6325		SVTO	10 23 0825	S09 W40	10 20.3		B	BXO	10	3	2	3
6325		RAMY	10 23 1410	S09 W41	10 20.5		B	DAO	60	7	4	1
6325		BOUL	10 23 1443	S08 W43	10 20.4		B	CAO	40	5	4	1
6325		HOLL	10 23 1510	S10 W43	10 20.4		B	BXO	10	6	3	3
6325		CULG	10 24 0100	S09 W50	10 20.3		B	DAO	50	9	6	2
6325		SVTO	10 24 0850	S10 W55	10 20.2		B	DAO	100	3	5	2
6325		BOUL	10 24 1448	S08 W56	10 20.4		B	CAO	50	1	4	1
6325		HOLL	10 24 1700	S09 W59	10 20.3		B	CSO	60	8	5	4
6325		PALE	10 24 1928	S10 W59	10 20.4		B	CSO	30	7	4	4
6325		RAMY	10 25 1416	S10 W70	10 20.3		B	CAO	50	8	5	2
6325		BOUL	10 25 1505	S09 W70	10 20.4		B	CAO	70	6	5	3
6325		HOLL	10 25 1515	S10 W71	10 20.3		B	BXO	50	11	10	4

SUNSPOT GROUPS
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6325		PALE	10	25	1826	S10	W72	10	20.3		B	BXO	50	5	5	3
6325		LEAR	10	26	0010	S09	W71	10	20.7		B	DSO	60	2	8	3
6325		CULG	10	26	0050	S09	W76	10	20.3		B	BXO		3	5	3
6325		RAMY	10	26	1228	S09	W82	10	20.4		A	AX	10	3	2	3
6330		LEAR	10	18	0028	N18	E33	10	20.5		B	BXO	10	5	3	3
6330		CULG	10	18	0055	N18	E31	10	20.4			AX		3	2	3
6330		SVTO	10	18	0825	N19	E28	10	20.5		A	AX		4	2	3
6330		RAMY	10	18	1226	N17	E25	10	20.4		A	AX	10	8	3	3
6330		HOLL	10	18	1745	N18	E22	10	20.4		B	BXO	10	4	3	3
6330		HOLL	10	19	1550	N18	E10	10	20.4		B	BXO	10	5	3	3
6330		RAMY	10	20	1351	N18	W02	10	20.4		B	BXO	10	4	3	3
6330		CULG	10	21	0007	N19	W08	10	20.4		A	AX	10	2	1	3
6330		SVTO	10	21	0807	N18	W12	10	20.4		A	AX	10	5	3	5
6330A		BOUL	10	25	1505	S28	W52	10	21.6		A	AX	10	1	1	3
6330A		HOLL	10	25	1515	S28	W51	10	21.6		A	AX	10	1		4
6336		SVTO	10	22	1041	S19	W03	10	22.2		A	AX	10	2	1	2
6336		HOLL	10	22	1520	S19	W04	10	22.3		A	AX	10	2	1	3
6336		RAMY	10	22	1530	S19	W05	10	22.3		A	AX	10	2	1	1
6336		PALE	10	22	1958	S20	W08	10	22.2		A	AX		1		3
6336		CULG	10	23	0005	S20	W09	10	22.3		A	AX	10	1	1	3
6336		LEAR	10	23	0048	S19	W10	10	22.3		A	AX	10	1	1	3
6336		SVTO	10	23	0825	S20	W15	10	22.2		A	AX		1		3
6336		RAMY	10	23	1410	S19	W17	10	22.3		A	AX		1	1	1
6336		HOLL	10	23	1510	S20	W18	10	22.2		A	AX		1		3
6326		LEAR	10	16	0045	S26	E80	10	22.2		A	HS	60	1	2	3
6326		SVTO	10	16	0817	S23	E78	10	22.3		A	HS	50	1	2	3
6326		BOUL	10	16	1448	S25	E74	10	22.3		A	HS	30	1	1	1
6326		PALE	10	16	1755	S25	E70	10	22.2		A	HS	60	1	1	2
6326		HOLL	10	16	2110	S25	E70	10	22.3		A	HS	80	1	1	3
6326		LEAR	10	17	0018	S24	E68	10	22.3		A	HS	60	1	2	3
6326		RAMY	10	17	1220	S25	E62	10	22.3		A	HA	50	1	2	1
6326		BOUL	10	17	1434	S25	E59	10	22.2		A	HS	90	1	1	2
6326		HOLL	10	17	1630	S24	E60	10	22.3		A	HS	80	1	2	3
6326		CULG	10	18	0055	S24	E55	10	22.3		A	HS	80	1	2	3
6326		SVTO	10	18	0825	S24	E52	10	22.4		A	HS	30	1	2	3
6326		RAMY	10	18	1226	S25	E49	10	22.3		A	HS	70	1	2	3
6326		BOUL	10	18	1435	S23	E46	10	22.1		A	HA	50	1	2	2
6326		HOLL	10	18	1745	S26	E46	10	22.3		A	HS	60	1	2	3
6326		PALE	10	18	1800	S24	E46	10	22.3		A	HS	60	1	2	3
6326		LEAR	10	19	0035	S26	E42	10	22.3		A	HS	30	1	1	3
6326		SVTO	10	19	0816	S26	E38	10	22.3		A	HS	60	1	1	5
6326		BOUL	10	19	1525	S24	E33	10	22.2		A	HA	70	1	2	2
6326		HOLL	10	19	1550	S25	E33	10	22.2		A	HS	60	1	2	3
6326		PALE	10	19	1920	S25	E33	10	22.4		A	HS	50	1	1	3
6326		CULG	10	20	0025	S24	E30	10	22.3		A	HS	50	2	1	3
6326		RAMY	10	20	1351	S26	E22	10	22.3		A	HA	60	1	2	3
6326		HOLL	10	20	1845	S26	E20	10	22.3		A	HS	60	1	2	2
6326		CULG	10	21	0007	S26	E17	10	22.3		A	HS	20	1	1	3
6326		SVTO	10	21	0807	S26	E12	10	22.3		A	HS	70	1	2	5
6326		BOUL	10	21	1420	S25	E09	10	22.3		A	HS	50	1	1	2
6326		HOLL	10	21	1610	S26	E09	10	22.4		A	HS	70	1	2	3
6326		CULG	10	22	0005	S27	E04	10	22.3		A	HS	20	1	1	2
6326		SVTO	10	22	1041	S26	W02	10	22.3		A	HS	40	1	2	2
6326		HOLL	10	22	1520	S26	W03	10	22.4		A	HS	50	1	2	3
6326		RAMY	10	22	1530	S26	W05	10	22.2		A	HS	40	1	2	1
6326		PALE	10	22	1958	S26	W07	10	22.3		A	HA	30	1	1	3
6326		CULG	10	23	0005	S26	W07	10	22.4		A	HS	30	1	1	3
6326		LEAR	10	23	0048	S26	W08	10	22.4		A	HS	60	1	2	3
6326		SVTO	10	23	0825	S26	W14	10	22.3		A	AX	50	1	1	3
6326		RAMY	10	23	1410	S26	W15	10	22.4		A	HA	40	2	2	1
6326		BOUL	10	23	1443	S25	W16	10	22.4		A	HS	50	1	1	1
6326		HOLL	10	23	1510	S26	W17	10	22.3		A	HS	40	1	1	3
6326		CULG	10	24	0100	S26	W21	10	22.4		A	HS	50	1	1	2
6326		SVTO	10	24	0850	S26	W26	10	22.3		A	HS	70	1	2	2
6326		BOUL	10	24	1448	S25	W28	10	22.4		A	HS	40	1	1	1

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OCTOBER 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
6326		HOLL	10	24	1700	S26	W30	10	22.4		A	HS	70	1	2	4
6326		PALE	10	24	1928	S27	W31	10	22.4		A	HS	30	2	1	4
6326		RAMY	10	25	1416	S26	W41	10	22.4		A	HS	30	1	2	2
6326		BOUL	10	25	1505	S25	W41	10	22.4		A	HA	30	1	1	3
6326		HOLL	10	25	1515	S27	W41	10	22.4		A	HS	60	1	2	4
6326		PALE	10	25	1826	S27	W42	10	22.5		A	HS	40	2	1	3
6326		LEAR	10	26	0010	S25	W45	10	22.5		A	HA	30	1	2	3
6326		CULG	10	26	0050	S26	W47	10	22.4		A	HS	70	1	1	3
6326		SVTO	10	26	1147	S26	W50	10	22.6		A	HS	50	1	1	2
6326		RAMY	10	26	1228	S26	W52	10	22.5		A	HS	40	1	2	3
6326		BOUL	10	26	1500	S26	W54	10	22.4		A	HA	40	1	2	3
6326		HOLL	10	26	1500	S27	W53	10	22.5		A	HR	30	1	1	5
6326		PALE	10	26	1922	S28	W57	10	22.3		A	HS	20	1	1	3
6326		CULG	10	27	0010	S27	W61	10	22.2		A	HR	10	2	1	3
6326		LEAR	10	27	0015	S25	W56	10	22.7		A	HS	20	1	1	3
6326		HOLL	10	27	1545	S26	W67	10	22.4		A	HR	40	1	1	2
6326		PALE	10	27	1742	S26	W68	10	22.4		A	AX	10	1		4
6326		LEAR	10	28	0008	S25	W68	10	22.7		A	HS	30	2	2	3
6326		CULG	10	28	0310	S25	W73	10	22.5		A	AX	10	1	1	3
6328		SVTO	10	16	0817	N07	E85	10	22.7		A	HS	30	1	1	3
6328		BOUL	10	16	1448	N06	E79	10	22.5		GD	AX	10	1	1	1
6328		PALE	10	16	1755	N05	E75	10	22.3		A	HS	60	1	1	2
6328		HOLL	10	16	2110	N06	E75	10	22.5		A	HS	40	1	1	3
6328		LEAR	10	17	0018	N07	E72	10	22.4		A	HS	50	1	2	3
6328		RAMY	10	17	1220	N06	E68	10	22.6		A	HA	90	1	2	1
6328		BOUL	10	17	1434	N07	E63	10	22.3		A	HS	40	1	1	2
6328		HOLL	10	17	1630	N07	E65	10	22.5		A	HS	50	1	1	3
6328		CULG	10	18	0055	N06	E60	10	22.5		A	HS	40	1	1	3
6328		SVTO	10	18	0825	N06	E56	10	22.5		A	HS	30	1	1	3
6328		RAMY	10	18	1226	N06	E54	10	22.5		A	HS	60	1	2	3
6328		BOUL	10	18	1435	N07	E52	10	22.5		A	AK	10	1	1	2
6328		HOLL	10	18	1745	N06	E51	10	22.5		A	HS	50	1	2	3
6328		PALE	10	18	1800	N07	E51	10	22.6		A	HS	50	1	1	3
6328		LEAR	10	19	0035	N07	E47	10	22.5		A	HS	10	1	1	3
6328		SVTO	10	19	0816	N06	E43	10	22.6		A	HS	50	1	1	5
6328		BOUL	10	19	1525	N07	E37	10	22.4		A	HS	50	1	2	2
6328		HOLL	10	19	1550	N07	E39	10	22.6		A	HA	30	3	2	3
6328		PALE	10	19	1920	N06	E37	10	22.6		A	HS	20	1	1	3
6328		CULG	10	20	0025	N06	E34	10	22.6		A	HS	40	2	1	3
6328		RAMY	10	20	1351	N06	E26	10	22.5		B	CAO	30	3	2	3
6328		HOLL	10	20	1845	N06	E23	10	22.5		A	HA	50	1	2	2
6328		CULG	10	21	0007	N06	E20	10	22.5		A	HS	10	1	1	3
6328		SVTO	10	21	0807	N05	E16	10	22.5		A	HR	40	1	1	5
6328		BOUL	10	21	1420	N06	E11	10	22.4		A	HS	20	1	1	2
6328		HOLL	10	21	1610	N05	E11	10	22.5		A	HA	40	3	2	3
6328		CULG	10	22	0005	N06	E08	10	22.6		A	HS	10	1	1	2
6328		SVTO	10	22	1041	N05	E01	10	22.5		A	HA	20	1	67	2
6328		HOLL	10	22	1520	N05	W02	10	22.5		A	AX	10	1	1	3
6328		RAMY	10	22	1530	N05	W02	10	22.5		A	AX	10	1	1	1
6328		PALE	10	22	1958	N05	W04	10	22.5		A	AX		1		3
6328		CULG	10	23	0005	N06	W06	10	22.5		A	HA	10	1	1	3
6328		LEAR	10	23	0048	N06	W07	10	22.5		A	HS	10	1	1	3
6328		SVTO	10	23	0825	N07	W09	10	22.7		B	CAO	30	6	7	3
6328		RAMY	10	23	1410	N06	W11	10	22.8		B	BXO	20	9	7	1
6328		HOLL	10	23	1510	N05	W16	10	22.4		A	AX		2	1	3
6328		CULG	10	24	0100	N10	W19	10	22.6		A	AX		2	1	2
6328		PALE	10	24	1928	N05	W23	10	23.1		A	AX	10	1	1	4
6328		PALE	10	25	1826	N03	W34	10	23.2		A	AX		1		3
6328		CULG	10	28	0310	N05	W67	10	23.1		A	AX	10	1	1	3
6328A		HOLL	10	23	1510	N08	W09	10	22.9		B	BXO	10	8	3	3
6327		SVTO	10	16	0817	N19	E87	10	23.0		A	HS	60	1	3	3
6327		BOUL	10	16	1448	N18	E79	10	22.6		B	BXO	30	2	3	1
6327		PALE	10	16	1755	N18	E76	10	22.5		B	BXO	50	4	3	2
6327		HOLL	10	16	2110	N18	E80	10	23.0		B	CAO	90	12	13	3
6327		LEAR	10	17	0018	N18	E76	10	22.8		B	DAO	100	6	9	3
6327		RAMY	10	17	1220	N18	E72	10	23.0		B	EAO	260	11	14	1

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 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
6327		BOUL	10	17	1434	N20	E72	10	23.1		B	EAO	410	7	14	2
6327		HOLL	10	17	1630	N20	E74	10	23.3		B	ESO	360	13	15	3
6327		LEAR	10	18	0028	N18	E70	10	23.3		B	FAO	140	7	17	3
6327		CULG	10	18	0055	N19	E69	10	23.3		B	FAO	230	12	17	3
6327		SVTO	10	18	0825	N20	E65	10	23.3		B	FAO	220	10	16	3
6327		RAMY	10	18	1226	N18	E63	10	23.3		B	FAO	320	13	17	3
6327		BOUL	10	18	1435	N20	E55	10	22.8		B	DAO	150	4	8	2
6327		HOLL	10	18	1745	N18	E59	10	23.2		B	FAO	320	24	18	3
6327		PALE	10	18	1800	N19	E59	10	23.2		B	FAO	310	16	19	3
6327		LEAR	10	19	0035	N18	E56	10	23.3		B	FKO	200	15	16	3
6327		SVTO	10	19	0816	N18	E51	10	23.2		B	FAI	320	24	17	5
6327		BOUL	10	19	1525	N20	E41	10	22.8		B	DKO	430	14	10	2
6327		HOLL	10	19	1550	N19	E47	10	23.2		B	FAO	340	31	20	3
6327		PALE	10	19	1920	N20	E45	10	23.2		B	EAO	180	9	10	3
6327		CULG	10	20	0025	N18	E43	10	23.3		B	FAO	330	24	18	3
6327		RAMY	10	20	1351	N18	E36	10	23.3		B	FKO	430	35	22	3
6327		HOLL	10	20	1845	N18	E33	10	23.3		B	FKO	460	34	20	2
6327		CULG	10	21	0007	N19	E29	10	23.2		B	FAO	280	17	21	3
6327		SVTO	10	21	0807	N18	E26	10	23.3		B	FAI	350	30	19	5
6327		BOUL	10	21	1420	N19	E20	10	23.1		B	FAO	230	10	17	2
6327		HOLL	10	21	1610	N18	E20	10	23.2		B	FKO	320	42	22	3
6327		CULG	10	22	0005	N19	E17	10	23.3		B	FSO	220	26	20	2
6327		HOLL	10	22	1520	N19	E08	10	23.2		B	ESO	340	36	12	3
6327		RAMY	10	22	1530	N18	E08	10	23.2		B	FSO	310	33	19	1
6327		PALE	10	22	1958	N19	E04	10	23.1		B	EKO	230	17	14	3
6327		CULG	10	23	0005	N20	E03	10	23.2		B	FAO	200	23	21	3
6327		LEAR	10	23	0048	N17	E03	10	23.3		B	FKI	260	15	20	3
6327		SVTO	10	23	0825	N18	W02	10	23.2		B	FSO	440	21	20	3
6327		RAMY	10	23	1410	N19	W04	10	23.3		B	FHO	280	21	22	1
6327		BOUL	10	23	1443	N19	E01	10	23.7		B	FKO	260	20	22	1
6327		HOLL	10	23	1510	N18	W04	10	23.3		B	FSO	270	26	21	3
6327		CULG	10	24	0100	N18	W10	10	23.3		B	FSO	300	15	21	2
6327		SVTO	10	24	0850	N18	W15	10	23.2		B	FSO	400	10	19	2
6327		BOUL	10	24	1448	N20	W16	10	23.4		B	FSO	180	14	22	1
6327		HOLL	10	24	1700	N20	W18	10	23.3		B	FSO	330	37	22	4
6327		PALE	10	24	1928	N18	W16	10	23.6		B	ESI	200	29	13	4
6327		RAMY	10	25	1416	N20	W30	10	23.3		B	FHO	310	27	20	2
6327		BOUL	10	25	1505	N21	W31	10	23.2		B	FKI	290	20	21	3
6327		HOLL	10	25	1515	N21	W31	10	23.2		BG	FSO	290	30	21	4
6327		PALE	10	25	1826	N19	W27	10	23.7		BG	FSI	220	39	25	3
6327		LEAR	10	26	0010	N20	W34	10	23.4		BG	FAO	210	33	25	3
6327		CULG	10	26	0050	N21	W35	10	23.3		BG	FSI	300	18	20	3
6327		SVTO	10	26	1147	N20	W41	10	23.3		BG	FSO	250	19	21	2
6327		RAMY	10	26	1228	N20	W42	10	23.3		B	FHO	220	17	18	3
6327		BOUL	10	26	1500	N21	W42	10	23.4		B	FAI	320	19	21	3
6327		PALE	10	26	1922	N19	W43	10	23.5		BG	FSO	180	19	25	3
6327		CULG	10	27	0010	N20	W42	10	23.8		BG	FSI	180	11	21	3
6327		LEAR	10	27	0015	N20	W43	10	23.7		B	FAO	130	11	26	3
6327		SVTO	10	27	0835	N19	W52	10	23.4		BG	FAO	120	7	21	1
6327		HOLL	10	27	1545	N19	W52	10	23.7		BG	FSO	230	31	26	2
6327		PALE	10	27	1742	N21	W58	10	23.3		B	ESO	160	10	15	4
6327		LEAR	10	28	0008	N19	W55	10	23.8		B	FAO	130	17	24	3
6327		CULG	10	28	0310	N22	W68	10	22.9		B	FSO	130	6	20	3
6327		SVTO	10	28	0958	N19	W69	10	23.1		B	FSO	200	7	20	2
6327		BOUL	10	28	1600	N19	W65	10	23.7		B	FAO	180	7	23	2
6327		HOLL	10	28	1615	N19	W70	10	23.3		BG	FSO	340	7	22	3
6327		PALE	10	28	2210	N20	W73	10	23.3		B	EAO	150	2	12	2
6327		CULG	10	29	0100	N20	W75	10	23.3		B	FAO	130	9	21	2
6327		SVTO	10	29	0752	N18	W70	10	24.0		B	ERO	110	7	12	4
6327		RAMY	10	29	1232	N21	W82	10	23.2		B	BXO	30	7	5	3
6327		BOUL	10	29	1443	N20	W75	10	23.9		B	BXO	80	5	11	1
6327		HOLL	10	29	1500	N18	W76	10	23.8		B	CAO	50	8	10	4
6327		PALE	10	29	1930	N19	W85	10	23.3		A	AX	30	1	1	1
6327		LEAR	10	30	0020	N18	W75	10	24.3		A	AX	30	3	9	3
6327		CULG	10	30	0110	N19	W87	10	23.4		B	BXO		4	9	3
6327		SVTO	10	30	1151	N19	W79	10	24.5		A	AX	20	1	1	2
6327		BOUL	10	30	1455	N19	W80	10	24.5		A	AX	10	1	1	3
6327		LEAR	10	31	0038	N21	W75	10	25.3		A	AX	10	1	1	3

S U N S P O T G R O U P S
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OCTOBER 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
6327A		HOLL	10	23	1510	S38	E06	10	24.1		B	BXO	10	4	3	3
6327A		CULG	10	24	0100	S39	W02	10	23.9		B	DRO	30	3	4	2
6327A		SVTO	10	24	0850	S36	W06	10	23.9		B	BXO	10	4	4	2
6327A		BOUL	10	24	1448	S36	W06	10	24.1		A	AX		1		1
6327A		HOLL	10	24	1700	S38	W06	10	24.2		A	AX	10	1		4
6327A		PALE	10	24	1928	S38	W08	10	24.2		A	AX	10	1	1	4
6327B		HOLL	10	24	1700	N27	E01	10	24.8		A	AX	10	2	2	4
6331		CULG	10	18	0055	N15	E86	10	24.5		A	HS	40	1	2	3
6331		SVTO	10	18	0825	N17	E81	10	24.5		B	CSO	30	2	4	3
6331		RAMY	10	18	1226	N16	E78	10	24.4		B	DAO	100	4	6	3
6331		BOUL	10	18	1435	N19	E73	10	24.2		B	CAO	140	2	7	2
6331		HOLL	10	18	1745	N17	E78	10	24.7		B	DSO	90	4	7	3
6331		PALE	10	18	1800	N17	E78	10	24.7		B	DAO	80	5	5	3
6331		LEAR	10	19	0035	N16	E73	10	24.6		B	DAO	100	6	5	3
6331		SVTO	10	19	0816	N17	E73	10	24.9		B	ERO	100	6	13	5
6331		BOUL	10	19	1525	N18	E68	10	24.8		B	EAO	220	7	13	2
6331		HOLL	10	19	1550	N18	E69	10	24.9		B	EAO	70	9	11	3
6331		PALE	10	19	1920	N17	E63	10	24.6		B	DSO	60	3	6	3
6331		CULG	10	20	0025	N17	E60	10	24.6		B	DSO	60	7	8	3
6331		RAMY	10	20	1351	N16	E52	10	24.5		B	DAO	100	7	7	3
6331		HOLL	10	20	1845	N17	E49	10	24.5		B	DSO	80	6	7	2
6331		CULG	10	21	0007	N18	E51	10	24.9		B	ESO	20	10	15	3
6331		SVTO	10	21	0807	N16	E42	10	24.5		B	DRO	40	5	6	5
6331		BOUL	10	21	1420	N16	E43	10	24.8		B	ESI	290	10	15	2
6331		HOLL	10	21	1610	N16	E38	10	24.5		B	DAO	60	13	8	3
6331		CULG	10	22	0005	N16	E35	10	24.6		B	DSO	10	5	8	2
6331		SVTO	10	22	1041	N16	E26	10	24.4		B	DAO	40	4	7	2
6331		HOLL	10	22	1520	N17	E25	10	24.5		B	BXO	30	4	8	3
6331		RAMY	10	22	1530	N18	E30	10	24.9		B	EAO	90	16	15	1
6331		PALE	10	22	1958	N17	E25	10	24.7		B	FAO	140	18	22	3
6331		CULG	10	23	0005	N18	E20	10	24.5		B	CRO	10	5	6	3
6331		LEAR	10	23	0048	N18	E25	10	24.9		B	EAO	120	13	15	3
6331		SVTO	10	23	0825	N17	E19	10	24.8		B	FAO	140	21	16	3
6331		RAMY	10	23	1410	N17	E18	10	24.9		B	FAO	80	16	16	1
6331		BOUL	10	23	1443	N19	E19	10	25.1		B	EAO	100	11	11	1
6331		HOLL	10	23	1510	N18	E17	10	24.9		B	CAO	70	22	17	3
6331		CULG	10	24	0100	N18	E10	10	24.8		B	EAO	90	22	16	2
6331		BOUL	10	24	1448	N17	E05	10	25.0		B	BXO	40	11	6	1
6331		HOLL	10	24	1700	N18	E02	10	24.9		B	BXO	50	23	18	4
6331		PALE	10	24	1928	N19	E03	10	25.0		B	ESO	40	15	11	4
6331		RAMY	10	25	1416	N18	W11	10	24.7		B	BXO	30	31	16	2
6331		BOUL	10	25	1505	N18	W12	10	24.7		B	ESO	50	17	14	3
6331		HOLL	10	25	1515	N18	W10	10	24.9		B	BXO	20	21	17	4
6331		PALE	10	25	1826	N19	W09	10	25.1		B	CRO	50	18	12	3
6331		LEAR	10	26	0010	N19	W09	10	25.3		B	DAO	40	17	7	3
6331		CULG	10	26	0050	N18	W15	10	24.9		B	CRO	40	17	16	3
6331		SVTO	10	26	1147	N18	W21	10	24.9		B	EAO	80	12	14	2
6331		RAMY	10	26	1228	N18	W23	10	24.8		B	CAO	50	31	17	3
6331		BOUL	10	26	1500	N18	W23	10	24.9		B	CAI	60	23	14	3
6331		PALE	10	26	1922	N18	W21	10	25.2		B	CAO	30	11	11	3
6331		CULG	10	27	0010	N18	W21	10	25.4		B	FAO	20	11	19	3
6331		LEAR	10	27	0015	N19	W22	10	25.3		B	CSO	20	4	6	3
6331		SVTO	10	27	0835	N19	W30	10	25.1		A	HA	20	2	1	1
6331		HOLL	10	27	1545	N18	W33	10	25.1		A	AX	10	2	2	2
6331		PALE	10	27	1742	N18	W40	10	24.7		B	BXO	20	12	16	4
6331		LEAR	10	28	0008	N19	W47	10	24.4		B	BXO	20	6	6	3
6331		CULG	10	28	0310	N18	W50	10	24.3		B	BXO	10	8	14	3
6331		SVTO	10	28	0958	N19	W52	10	24.4		A	AX	10	2	3	2
6331		HOLL	10	28	1615	N19	W57	10	24.3		A	AX	10	1	1	3
6331		PALE	10	28	2210	N16	W61	10	24.3		B	CSO	50	4	7	2
6331		CULG	10	29	0100	N19	W61	10	24.4		A	AX		3	2	2
6331		RAMY	10	29	1232	N17	W71	10	24.1		B	CRO	80	9	11	3
6331		HOLL	10	29	1500	N19	W69	10	24.3		B	BXO	10	2	3	4
6331		PALE	10	29	1930	N16	W71	10	24.4		B	DSO	60	2	9	1
6331		CULG	10	30	0110	N18	W75	10	24.3		B	CRO	20	4	7	3
6331		RAMY	10	30	1357	N18	W80	10	24.5		A	HR	20	1	1	2
6331		HOLL	10	30	1510	N19	W80	10	24.5		A	AX	10	2	2	4

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
6331A		SVTO	10	21	0807	N19	E53	10	25.4		B	BXO	10	5	4	5
6331A		HOLL	10	21	1610	N19	E48	10	25.3		B	CAO	70	18	6	3
6331A		SVTO	10	22	1041	N19	E38	10	25.3		B	DAO	50	17	5	2
6331A		HOLL	10	22	1520	N20	E35	10	25.3		B	DAO	140	16	5	3
6332		HOLL	10	19	1550	S06	E79	10	25.6		A	HS	30	1	1	3
6332		PALE	10	19	1920	S06	E76	10	25.5		A	AR	30	1	1	3
6332		CULG	10	20	0025	S06	E76	10	25.7		A	HS	40	1	1	3
6332		RAMY	10	20	1351	S05	E67	10	25.6		B	CAO	20	2	2	3
6332		CULG	10	21	0007	S06	E63	10	25.7		A	HS	20	1	1	3
6332		SVTO	10	21	0807	S08	E56	10	25.5		B	CRO	30	4	4	5
6332		BOUL	10	21	1420	S08	E52	10	25.5		B	CHO	50	5	3	2
6332		HOLL	10	21	1610	S05	E53	10	25.6		A	HS	20	1	1	3
6332		CULG	10	22	0005	S07	E50	10	25.7		A	HS	10	1	1	2
6332		SVTO	10	22	1041	S08	E42	10	25.6		B	CAO	10	3	3	2
6332		HOLL	10	22	1520	S05	E40	10	25.6		A	AX	20	3	1	3
6332		RAMY	10	22	1530	S06	E39	10	25.6		A	AX	10	3	2	1
6332		PALE	10	22	1958	S08	E37	10	25.6		A	AX	10	4	2	3
6332		CULG	10	23	0005	S06	E36	10	25.7		A	AX	10	3	1	3
6332		LEAR	10	23	0048	S07	E33	10	25.5		A	HS	10	1	1	3
6332		SVTO	10	23	0825	S07	E30	10	25.6		A	AX		1		3
6332		HOLL	10	23	1510	S08	E24	10	25.4		A	AX		1		3
6332A		CULG	10	22	0005	N19	E47	10	25.6		B	CRO	10	12	4	2
6332A		CULG	10	23	0005	N20	E31	10	25.4		B	DAO	40	13	5	3
6334		RAMY	10	20	1351	S11	E66	10	25.5		A	AX	10	4	1	3
6334		CULG	10	21	0007	S11	E59	10	25.4		A	AX	10	1	1	3
6334		HOLL	10	21	1610	S10	E51	10	25.5		B	BXO	20	8	4	3
6334		CULG	10	22	0005	S11	E48	10	25.6		A	AX	10	5	3	2
6334		HOLL	10	22	1520	S12	E39	10	25.6		A	AX	10	1	1	3
6334		RAMY	10	22	1530	S12	E38	10	25.5		A	AX	10	2	1	1
6333		HOLL	10	19	1550	N25	E80	10	25.8		A	AX		1	1	3
6333		PALE	10	19	1920	N25	E78	10	25.8		A	AX	30	1	1	3
6333		CULG	10	20	0025	N22	E76	10	25.8		B	BXO		4	5	3
6333		RAMY	10	20	1351	N24	E68	10	25.8		B	BXO	10	5	3	3
6333		CULG	10	21	0007	N24	E64	10	25.9		A	AX	10	1	1	3
6333		SVTO	10	21	0807	N24	E59	10	25.9		A	HR	20	1	1	5
6333		BOUL	10	21	1420	N24	E56	10	25.9		A	AX		1	1	2
6333		HOLL	10	21	1610	N25	E55	10	25.9		A	AX	10	2		3
6333		CULG	10	22	0005	N24	E53	10	26.1		A	AX	10	1	1	2
6333		SVTO	10	22	1041	N24	E45	10	25.9		A	HS	10	1	1	2
6333		HOLL	10	22	1520	N25	E42	10	25.9		A	AX		1		3
6333		RAMY	10	22	1530	N25	E40	10	25.7		A	AX	10	1	1	1
6333		PALE	10	22	1958	N23	E42	10	26.1		A	AX	10	3	2	3
6333		CULG	10	23	0005	N26	E39	10	26.0		A	AX	10	1	1	3
6333		LEAR	10	23	0048	N23	E37	10	25.9		A	AX	10	1	1	3
6333		SVTO	10	23	0825	N24	E32	10	25.8		A	AX	10	2	1	3
6333		PALE	11	01	1903	N21	W75	10	27.1		A	AX	20	1	1	4
6333		LEAR	11	02	0008	N22	W76	10	27.3		A	AX	30	1	1	3
6344		CULG	10	27	0010	S21	W10	10	26.2		B	BXO	10	4	4	3
6344		LEAR	10	27	0015	S21	W09	10	26.3		B	BXO	20	6	5	3
6344		SVTO	10	27	0835	S20	W14	10	26.3		B	BXO	20	5	4	1
6344		HOLL	10	27	1545	S21	W18	10	26.3		B	CRO	40	10	6	2
6344		LEAR	10	28	0008	S20	W24	10	26.2		B	BXO	20	16	8	3
6344		CULG	10	28	0310	S20	W29	10	25.9		B	BXO	10	8	7	3
6344		SVTO	10	28	0958	S20	W30	10	26.1		B	CRO	20	5	5	2
6344		BOUL	10	28	1600	S22	W36	10	25.9		A	HS	20	1	1	2
6344		HOLL	10	28	1615	S20	W33	10	26.1		B	BXO	30	10	8	3
6344		PALE	10	28	2210	S21	W40	10	25.8		A	AX	20	2	2	2
6344		LEAR	10	29	0008	S21	W38	10	26.1		B	BXO	70	9	7	3
6344		CULG	10	29	0100	S20	W38	10	26.1		B	BXO	10	9	6	2
6344		SVTO	10	29	0752	S20	W47	10	25.7		A	HR	20	3	1	4
6344		RAMY	10	29	1232	S21	W47	10	25.9		A	AX	10	3	3	3
6344		BOUL	10	29	1443	S21	W50	10	25.8		A	AX	10	1		1
6344		HOLL	10	29	1500	S21	W50	10	25.8		A	AX	10	4	1	4

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
6344		PALE	10	29	1930	S22	W54	10	25.7		A	AX	20	3	2	1
6344		LEAR	10	30	0020	S20	W50	10	26.2		B	BXO	20	4	6	3
6344		CULG	10	30	0110	S21	W54	10	25.9		B	BXO	10	7	8	3
6344		SVTO	10	30	1151	S20	W57	10	26.1		B	DRO	60	3	5	2
6344		RAMY	10	30	1357	S22	W59	10	26.0		B	DRO	30	2	4	2
6344		BOUL	10	30	1455	S21	W63	10	25.8		B	CSO	80	3	6	3
6344		HOLL	10	30	1510	S21	W59	10	26.1		B	CRO	30	6	7	4
6344		PALE	10	30	1817	S22	W62	10	26.0		B	CRO	30	3	7	3
6344		LEAR	10	31	0038	S21	W64	10	26.1		B	DAO	90	4	7	3
6344		SVTO	10	31	0753	S21	W66	10	26.3		A	HR	20	1	1	2
6344		RAMY	10	31	1237	S22	W73	10	25.9		B	CRO	20	3	9	3
6344		BOUL	10	31	1528	S20	W73	10	26.1		A	AX	10	1	1	1
6344		HOLL	10	31	1750	S21	W72	10	26.2		A	AX	20	1		1
6344		PALE	10	31	1906	S22	W71	10	26.3		A	AX		1		3
6344		CULG	11	01	0005	S21	W76	10	26.3		A	AX	10	2	1	2
6335		RAMY	10	20	1351	N15	E76	10	26.3		A	AX	10	3	1	3
6335		CULG	10	21	0007	N16	E74	10	26.6		A	AX	10	1	1	3
6335		SVTO	10	21	0807	N15	E68	10	26.5		B	CRO	20	2	4	5
6335		BOUL	10	21	1420	N16	E63	10	26.4		A	HS	40	1	2	2
6335		HOLL	10	21	1610	N16	E65	10	26.6		B	BXO	20	3	4	3
6335		CULG	10	22	0005	N14	E60	10	26.5		A	AX	10	1	1	2
6335		HOLL	10	22	1520	N16	E50	10	26.4		A	AX	20	1	1	3
6335		RAMY	10	22	1530	N15	E50	10	26.4		B	BXO	20	3	5	1
6335		PALE	10	22	1958	N15	E48	10	26.5		A	AX		1		3
6335		CULG	10	23	0005	N17	E47	10	26.6		A	AX	10	1	1	3
6335		LEAR	10	23	0048	N16	E45	10	26.4		A	AX	10	1	1	3
6335		SVTO	10	23	0825	N16	E40	10	26.4		A	AX		1		3
6335		RAMY	10	23	1410	N16	E38	10	26.5		A	HR	10	1	1	1
6335		BOUL	10	23	1443	N16	E36	10	26.3		A	AX		1		1
6335		HOLL	10	23	1510	N17	E38	10	26.5		A	AX		1		3
6335		CULG	10	24	0100	N16	E33	10	26.5		A	AX		1		2
6335		BOUL	10	24	1448	N17	E23	10	26.4		A	AX		1		1
6335		HOLL	10	24	1700	N17	E23	10	26.4		A	AX	10	1		4
6335		PALE	10	24	1928	N16	E22	10	26.5		A	AX	10	1	1	4
6335		RAMY	10	25	1416	N17	E11	10	26.4		A	AX	10	2	1	2
6335		HOLL	10	25	1515	N17	E11	10	26.5		A	AX		1		4
6333A		CULG	11	01	0005	N07	W57	10	27.8		A	AX	10	2	3	2
6333A		LEAR	11	01	0008	N06	W56	10	27.9		B	BXO	50	4	3	4
6337		HOLL	10	22	1520	S13	E73	10	28.1		B	BXO	30	7	6	3
6337		RAMY	10	22	1530	S14	E71	10	28.0		B	BXO	20	7	5	1
6337		PALE	10	22	1958	S17	E71	10	28.2		A	AX	20	3	2	3
6337		CULG	10	23	0005	S13	E67	10	28.0		B	BXO	10	4	7	3
6337		LEAR	10	23	0048	S13	E68	10	28.2		B	BXO	60	4	5	3
6337		SVTO	10	23	0825	S15	E64	10	28.2		B	DAO	100	7	8	3
6337		RAMY	10	23	1410	S15	E62	10	28.3		B	DAO	100	7	8	1
6337		BOUL	10	23	1443	S13	E60	10	28.1		B	CAO	100	7	7	1
6337		HOLL	10	23	1510	S14	E61	10	28.2		B	CAO	70	10	6	3
6337		CULG	10	24	0100	S14	E55	10	28.2		B	DAO	190	12	7	2
6337		SVTO	10	24	0850	S14	E51	10	28.2		B	DAI	370	9	7	2
6337		BOUL	10	24	1448	S13	E47	10	28.2		B	DKO	270	14	9	1
6337		HOLL	10	24	1700	S14	E48	10	28.3		B	DHO	350	22	8	4
6337		PALE	10	24	1928	S15	E45	10	28.2		B	DSI	210	18	9	4
6337		RAMY	10	25	1416	S13	E36	10	28.3		B	DKI	270	27	10	2
6337		BOUL	10	25	1505	S14	E33	10	28.1		B	DKI	430	35	10	3
6337		HOLL	10	25	1515	S15	E34	10	28.2		B	DKO	420	29	8	4
6337		PALE	10	25	1826	S15	E33	10	28.3		B	DKO	370	29	10	3
6337		LEAR	10	26	0010	S14	E30	10	28.3		B	EKO	230	31	11	3
6337		CULG	10	26	0050	S14	E29	10	28.2		B	DKO	420	26	10	3
6337		SVTO	10	26	1147	S14	E26	10	28.4		B	DAI	370	23	10	2
6337		RAMY	10	26	1228	S13	E23	10	28.2		B	DKI	270	28	10	3
6337		BOUL	10	26	1500	S14	E20	10	28.1		B	DKI	500	38	9	3
6337		PALE	10	26	1922	S14	E19	10	28.2		B	DKO	300	17	8	3
6337		CULG	10	27	0010	S14	E17	10	28.3		B	EKO	390	26	11	3
6337		LEAR	10	27	0015	S14	E17	10	28.3		B	EKI	310	32	11	3
6337		SVTO	10	27	0835	S14	E12	10	28.3		B	DAO	380	14	9	1
6337		HOLL	10	27	1545	S14	E08	10	28.3		B	DAO	430	29	10	2

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6337		PALE	10	27	1742	S14	E07	10	28.3		B	DKO	330	19	10	4
6337		LEAR	10	28	0008	S14	E04	10	28.3		B	EKI	350	27	11	3
6337		CULG	10	28	0310	S15	E00	10	28.1		B	EKO	330	32	11	3
6337		SVTO	10	28	0958	S15	W02	10	28.3		B	DAI	410	28	8	2
6337		BOUL	10	28	1600	S13	W05	10	28.3		B	DAO	340	17	9	2
6337		HOLL	10	28	1615	S15	W05	10	28.3		B	EAO	500	47	11	3
6337		PALE	10	28	2210	S14	W09	10	28.2		B	DAI	350	17	10	2
6337		LEAR	10	29	0008	S14	W09	10	28.3		B	DKI	440	35	9	3
6337		CULG	10	29	0100	S14	W10	10	28.3		B	DAO	360	34	10	2
6337		SVTO	10	29	0752	S14	W13	10	28.3		B	DAI	270	19	9	4
6337		RAMY	10	29	1232	S14	W16	10	28.3		B	DSO	340	28	10	3
6337		BOUL	10	29	1443	S13	W16	10	28.4		B	DAO	200	12	9	1
6337		HOLL	10	29	1500	S15	W17	10	28.3		B	DSO	300	32	10	4
6337		PALE	10	29	1930	S16	W21	10	28.2		B	ESI	280	13	11	1
6337		LEAR	10	30	0020	S15	W22	10	28.3		B	DSO	70	14	10	3
6337		CULG	10	30	0110	S14	W22	10	28.4		B	DAO	310	21	10	3
6337		SVTO	10	30	1151	S14	W28	10	28.4		B	DAI	290	17	10	2
6337		RAMY	10	30	1357	S15	W29	10	28.4		B	ESO	210	12	11	2
6337		BOUL	10	30	1455	S13	W33	10	28.1		B	EAI	230	18	12	3
6337		HOLL	10	30	1510	S15	W31	10	28.3		BG	EAO	180	21	11	4
6337		PALE	10	30	1817	S15	W32	10	28.3		B	EAO	150	11	12	3
6337		LEAR	10	31	0038	S14	W36	10	28.3		B	DSO	180	6	10	3
6337		SVTO	10	31	0753	S14	W39	10	28.4		B	DAO	170	8	10	2
6337		RAMY	10	31	1237	S15	W43	10	28.3		B	ESO	130	10	11	3
6337		BOUL	10	31	1528	S15	W45	10	28.2		B	DSO	170	4	10	1
6337		HOLL	10	31	1750	S15	W46	10	28.3		B	DSO	160	5	10	1
6337		PALE	10	31	1906	S15	W45	10	28.4		B	DAO	130	9	10	3
6337		CULG	11	01	0005	S15	W50	10	28.3		B	ESO	120	7	11	2
6337		LEAR	11	01	0008	S14	W48	10	28.5		B	DAO	180	11	9	4
6337		SVTO	11	01	0747	S14	W54	10	28.3		B	DSO	100	5	10	2
6337		RAMY	11	01	1226	S15	W56	10	28.4		B	DSO	190	6	10	4
6337		PALE	11	01	1903	S16	W55	10	28.7		B	DAO	180	4	7	4
6337		LEAR	11	02	0008	S15	W61	10	28.5		B	DAO	100	5	8	3
6337		CULG	11	02	0015	S15	W62	10	28.4		B	DSO	130	6	10	3
6337		SVTO	11	02	0825	S14	W67	10	28.4		B	CSO	40	4	10	3
6337		RAMY	11	02	1255	S14	W69	10	28.4		B	EAO	120	5	11	2
6337		LEAR	11	03	0016	S15	W71	10	28.7		B	CAO	60	2	7	3
6337		CULG	11	03	0020	S15	W75	10	28.4		B	CAO	60	4	10	2
6337		SVTO	11	03	0957	S15	W76	10	28.8		A	HS	60	2	1	1
6337		RAMY	11	03	1133	S15	W78	10	28.7		A	HA	20	2	1	3
6337		PALE	11	03	1800	S16	W80	10	28.8		A	HA	60	2	3	3
6341		BOUL	10	24	1448	N06	E59	10	29.0		A	AX		1		1
6341		PALE	10	24	1928	N05	E57	10	29.1		A	AX	10	1	1	4
6341		RAMY	10	25	1416	N05	E45	10	29.0		A	AX	10	1	1	2
6341		BOUL	10	25	1505	N06	E42	10	28.8		A	AX		1		3
6341		PALE	10	25	1826	N05	E43	10	29.0		A	AX		1		3
6341		LEAR	10	26	0010	N06	E39	10	28.9		A	AX	10	1	1	3
6341		CULG	10	26	0050	N06	E40	10	29.0		A	AX		2		3
6341		BOUL	10	26	1500	N06	E32	10	29.0		B	BXO	10	2	5	3
6341		PALE	10	26	1922	N07	E33	10	29.3		A	AX		1		3
6341		CULG	10	27	0010	N06	E26	10	28.9		A	AX	10	1	1	3
6341		LEAR	10	27	0015	N07	E26	10	28.9		A	AX	10	1	1	3
6341		RAMY	10	29	1232	N06	W09	10	28.8		A	AX	10	3	1	3
6341		BOUL	10	29	1443	N06	W09	10	28.9		A	AX	10	1		1
6341		HOLL	10	29	1500	N06	W09	10	28.9		B	BXO	10	3	3	4
6341		PALE	10	29	1930	N05	W13	10	28.8		A	AX	10	1	1	1
6341		LEAR	10	30	0020	N07	W16	10	28.8		A	HS	10	1	1	3
6341		CULG	10	30	0110	N06	W14	10	29.0		A	HR	10	2	1	3
6341		SVTO	10	30	1151	N06	W22	10	28.8		A	AX	10	1	1	2
6341		RAMY	10	30	1357	N06	W23	10	28.8		A	HR	10	1	1	2
6341		BOUL	10	30	1455	N06	W26	10	28.7		A	AX	10	1	1	3
6341		HOLL	10	30	1510	N06	W25	10	28.8		A	AX		2	1	4
6341		PALE	10	30	1817	N05	W26	10	28.8		A	AX		1	1	3
6341		LEAR	10	31	0038	N05	W30	10	28.8		A	HA	10	1	1	3
6338		HOLL	10	22	1520	S05	E80	10	28.6		A	AX	10	1	1	3
6338		RAMY	10	22	1530	S06	E73	10	28.1		A	AX		1		1
6338		PALE	10	22	1958	S08	E76	10	28.5		A	AX		1		3

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

OCTOBER 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
6338		CULG	10	23	0005	S05	E72	10	28.4		A	AX	10	2	1	3
6338		LEAR	10	23	0048	S06	E72	10	28.4		A	AX	10	1	1	3
6338		SVTO	10	23	0825	S07	E69	10	28.5		A	AX	10	1	1	3
6338		RAMY	10	23	1410	S07	E65	10	28.4		A	AX	10	1	1	1
6338		BOUL	10	23	1443	S05	E64	10	28.4		A	AX		1		1
6338		HOLL	10	23	1510	S05	E65	10	28.5		A	AX		1		3
6338		CULG	10	24	0100	S06	E60	10	28.5		A	AX		1		2
6338		HOLL	10	24	1700	S06	E60	10	29.2		B	BXO	20	2	3	4
6338		HOLL	10	25	1515	S06	E45	10	29.0		A	AX	10	1		4
6338		PALE	10	31	1906	S04	W32	10	29.4		A	AX		2	1	3
6337A		RAMY	11	02	1255	N18	W52	10	29.7		A	AX		1		2
6337A		RAMY	11	03	1133	N18	W65	10	29.6		A	AX	10	1	1	3
6341A		HOLL	10	31	1750	S27	W14	10	30.6		A	AX	10	1		1
6341A		PALE	10	31	1906	S28	W14	10	30.7		B	BXO	10	7	3	3
6342		SVTO	10	26	1147	N22	E62	10	31.2		A	AX	10	1	1	2
6342		RAMY	10	26	1228	N23	E60	10	31.1		A	AX		2		3
6342		BOUL	10	26	1500	N22	E59	10	31.1		B	BXO	10	5	3	3
6342		PALE	10	26	1922	N24	E56	10	31.1		A	AX	10	2		3
6342		CULG	10	27	0010	N22	E54	10	31.1		A	AX	10	2	1	3
6342		LEAR	10	27	0015	N22	E55	10	31.2		B	BXO	20	2	2	3

Stations reporting:

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

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1990

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	LF-SES	Flare (UT)	X-ray Class	NOAA Region
01	0653	0709	0802	1-	1			1			No flare		
01	0827	0835	0908	1-	5		5	1	1	2	0826	C4.0	6283
01	1320	1326	1345	1-	5	1	3		1	2	1320		6287
01	2115	2117	2147	1+	1					1	2114	C1.9	6294
01	2309	2312	2329	1-	1			1			2308	C1.9	
02	0133	0146	0222D	1+	3	1		1			0134	C5.5	6283
02	0222E	0230	0335	1	1			1			0216		6283
02	0803	0826	0840	2+	3		2				No flare		
02	0854	0954	1000	2	1		1				No flare		
02	1048	1128	1138	1	1		1				*		
02	1122	1156	1221	1+	3		3				No flare		
02	1257	1302	1329	1	1		1				No flare		
02	1330	1336	1430	1	5	1	6		1	5	1329	C6.6	
02	1545	1602	1627	1+	3		2				No flare		
03	0140	0149	0215	1-	1			1			0142	C3.9	6294
03	0307	0319	0350D	2-	3	1		1			0307	C6.4	
03	0350E	0355	0427D	1-	1			1			No flare		
03	0427E	0432	0509D	1-	1			1			No flare		
03	0509E	0515	0556	1-	1			1			0508	C3.4	6294
03	0631	0639	0720	1-	1			1			0633	C3.9	6294
03	0739	0745	0820	1-	5		2	1			0735	C4.2	6294
03	0845	0907	0925	2+	3		3				0856		6294
03	1030	1034	1108	1-	5	3	4	1	1	3	1030E	C7.5	6298
03	1235	1242	1300	1-	3				1	1	1216	C4.6	
03	1630	1633	1645D	1-	1					1	1630		
03	1648	1651	1723	2-	3					3	1650	C5.4	6298
03	1715	1716	1730	1-	1					1	No flare		
03	1801	1808	1842	2	3					2	No flare		
03	1904	1914	1945	2	1					1	No flare		
03	2039	2043	2104	1-	5			1		5	2046	C6.0	6298
03	2311	2319	2353	1-	1			1			2310	C2.5	
04	0309	0323	0333	1-	1			1			0307	C2.6	
04	0449	0457	0536	1-	1			1			0448	C2.4	6300
04	0720	0726	0749	1-	5		1	1		1	0712E	C2.6	6300
04	0944	0946	0956	1-	1					1	0948	C2.7	6300
04	0948	0959	1022	1+	3		1			1	0948	C2.7	6300
04	1200	1210	1224	1	1					1	1202	C2.8	
04	1612	1613	1638	1+	1					1	1605E		6300
04	1715	1716	1750	2	1					1	1717		6304
04	2141	2148	2220	1-	1			1			2140	C3.9	
04	2311	2320	2350	1-	1			1			No flare		
05	0600	0633	0800	1+	5	1		1		1	0627	C6.6	6297
05	1055	1100	1113	1	1		1				No flare		
05	1109	1115	1120	1-	1					1	1109	C1.8	
05	1128	1140	1200	1+	1		1				1150	C1.4	
05	1337	1355U	1417	1	1		1				No flare		
05	1438	1445	1518	1	1		1				No flare		
06	0021	0034	0115	1-	1			1			0022	C1.5	
06	0208	0257	0423	1-	1			1			0145	C2.4	
06	1706	1720	1743	2-	3					2	1704		6300
06	1840	1844	1928	2	3					7	1816	C4.5	6304
07	0340	0349	0417	1-	1			1			0334		6300
07	0438	0448	0554	1	1			1			0438	C2.7	
07	0709	0731	0842	1-	1			1			0708	C2.3	
07	1034	1128	1211	1	3		2				1030E	C1.5	6304
07	1247	1255	1320	1-	5		3		1	2	1232	C3.2	
07	1500	1511	1601	2	3					6	1501	C2.1	
07	1618	1629	1717	2	3					8	1618	C4.5	
07	2140	2149	2222D	1-	5			1		1	2137	C2.5	
07	2305E	2305	2406	1-	5			1		2	2250	C4.3	

* = no flare patrol.

OCTOBER 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
08	0145	0152	0208D	1-	1			1			0144	C3.8	6309
08	0208E	0210	0238	1-	1			1			No flare		
08	0614	0634	0654D	1-	1			1			No flare		
08	0700	0709	0838	1-	5	3	2	2	1	3	0652	M1.5	
08	0851	0901	0927	1+	3		1			1	0858	C1.8	
08	0943	0957	1007	1+	3		2				No flare		
08	1037	1102	1115	1	3		2				No flare		
08	1330	1340	1356	1	1		1				No flare		
08	1430	1430	1445	1-	1					1	1423	C2.7	
08	1456	1501	1511	1-	3					2	1451	C1.6	6306
08	1651	1655	1724	1+	3					4	1651	C3.4	6311
08	2332	2335	2350	1-	1			1			No flare		
09	0131	0149	0241	2	3	1		1			0133	C6.6	6314
09	0312	0322	0354	1-	1			1			0305	C2.0	6309
09	0436	0447	0524	1-	1			1			0436E	C2.2	
09	0605	0617	0643	1-	1			1			0602		6314
09	0758	0830	0843	1	3		2				No flare		
09	0847	0913	1111	2+	5	2	5	1	1	5	0853	M1.6	6314
09	1200	1208	1230	1-	3		3		1	1	1157	C2.5	
09	1254	1303	1323	1	3		2				*		
09	1344	1408	1434	2-	3		3			1	1349	C2.0	6306
09	1558	1602	1625	1	5	1	1		1	5	1558	C7.6	6314
09	1745	1752	1815	1+	1					1	No flare		
09	1857	1918	1952	2	3					3	1832	C4.8	
09	2234	2245	2306	1-	1			1			2227	C3.4	6314
10	0104	0114	0244	2	3	1		1			0104	C7.9	6314
10	0642	0655	0711	1-	1			1			0652	C1.4	6314
10	0934	0944	1005	1-	5	2	1	1	1	2	0928	C2.7	6314
10	1755	1802	1907	2+	3					8	1755	M1.1	6314
10	2024	2028	2055	2-	3					2	2025	C1.6	6309
11	0513	0516	0527	1-	1			1			0514	C1.4	6312
11	0735	0744	0849	2	5	1	4	1	1	5	0736	M1.0	6312
11	0807	0812	0818	1	1		1				No flare		
11	1237	1244	1255	1	1					1	No flare		
11	1435	1440	1504	1+	3					2	1350E	C3.2	6314
11	1608	1613	1623D	1-	1					1	1601	C4.1	6318
11	1623	1627	1653	2	1					2	No flare		
11	1657	1700	1715	1-	1						1655	C1.4	6312
11	2015	2020	2040	1	1						2013	C1.4	6311
11	2319	2324	2357	1-	1			1			2316	C2.4	6314
12	0110	0122	0130	1-	1			1			0109E	C1.8	6314
12	0202	0212	0239	1-	1			1			0202	C2.1	
12	0336	0346	0419	1-	1			1			0339E	C2.1	6314
12	0838	0853	0920	1+	1		1				0840	C1.5	6306
12	0959	1022	1057	2+	3		2				*		
12	1759	1804	1817	1-	1					1	1800	C1.5	6306
12	2108	2110	2118	1-	1					1	2108	C1.8	6314
13	0245	0255	0313	1-	1			1			0246	C1.7	6314
13	0508	0514	0556	1-	1			1			0506	C2.8	6314
13	1458	1504	1524	1+	5					2	1502	C2.2	
13	1740	1746	1810	1+	1						1738	C1.8	6311
13	1822	1830	1913	2-	3					2	1819		6311
13	1940	1945	2039	2	3					4	1944	C4.0	6322
14	0720	0737	0835	1	5	1		1	1	5	0722	C5.5	
14	1957	2000	2015	1-	1					1	1955		6314
14	2311	2322	2348	1-	1			1			2310	C2.9	6318
15	0130	0138	0237D	3-	3	1		1			0125	M2.8	6321
15	0237E	0248	0400	1	3	1		1			0238	C8.3	6321
15	1126	1138	1204	1	3		1			1	1126	C3.0	
15	1225	1229	1229D	1-	5	1	3		1	5	1224	C9.5	6316

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

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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
15	1238	1244	1300	1-	3		1		1		1228	C5.7	6311
15	1300	1301	1323	1	1					1	1228	C5.7	6311
15	1413	1415	1440	1+	1					1	1418		6316
15	1617	1618	1634	1-	1					1	1612	C2.3	6321
15	1648	1655	1720	1+	3					4	1648	C2.8	6316
15	1843	1846	1900	1-	3					3	1844		6322
15	1911	1914	1934	1	3					3	1915E	C2.7	6321
15	2321	2330	2352D	1-	1			1			2312	C2.7	6322
15	2345	2400	2423	1-	1			1			2352	C3.3	6311
16	0324	0331	0347D	1-	1			1			0325		6312
16	0347E	0355	0439	1	5			1		1	0347	C3.7	6322
16	0941	0956	1048	2	3		2			1	0931	C3.6	
16	1044	1121	1134	2	1		1				No flare		
16	1234	1251	1310	1	3		2				1234		6316
16	1310	1326	1407	1+	3		2				No flare		
16	1626	1627	1639	1-	3					2	1627	C2.1	6322
16	1714	1727	1811	2+	3					5	1716	M1.4	
16	1759	1800	1810	1-	1					1	No flare		
16	2123	2126	2131U	1-	1					1	2123		6312
17	0602	0608	0634	1-	1			1			0602	C2.7	6312
17	0647	0654	0725	1-	5			1		2	0649	C3.8	6322
17	0713	0714	0717	1-	1					1	No flare		
17	0741	0744	0748	1-	1					1	0743		6312
17	0834	0837	0850	1-	1					1	0834	C1.9	6322
17	1229	1246	1305	1-	3		2			1	1226	C1.9	6322
17	1325	1327	1345	1-	3		3		1	4	1323	C4.8	6322
17	1425	1428	1435	1-	5				1	2	1423	C2.3	
17	1445	1448	1507	1	1					1	1450		6322
17	1646	1651	1725	2-	3					5	1642	C6.8	6322
17	1846	1854	1900	1-	1					1	1845		6322
17	2012	2038	2103	2	3					3	2000	C3.0	6322
18	0048	0101	0137	1-	1			1			0053	C3.2	
18	0334	0345	0425	1-	1			1			*		
18	0524	0531	0606D	1-	1			1			0515E	C3.2	6309
18	0606E	0613	0717	2-	3	1		1			0610	C6.5	6322
18	0840	0843	0903	1	1		1				0841E	C2.2	
18	0946	0952	1037	1-	5	1	3	1	2	2	0956E	C6.1	6322
18	1037	1050	1050D	1+	1					1	*		
18	1110	1118	1135	1-	3				1	1	1113	C4.3	6322
18	1526	1528	1549	1	5					6	1525	C3.7	
18	1928	1931	1945	1-	1						1930	C2.0	
18	2005	2008	2018D	1-	1						2001	C3.8	6322
18	2018	2026	2130	2+	1						2011		6322
18	2211	2222	2253	1-	5			1		1	2205	C4.1	6327
18	2319	2330	2346	1-	1			1			2319	C2.3	6327
19	0158	0237	0330	1-	1			1			0100	C5.8	
19	0334	0346	0419	1-	1			1			0338	C4.2	6327
19	0546	0554	0648	1-	1			1			0545	C3.5	6327
19	0718	0725	0740	1-	1				1		0720	C3.0	6327
19	0833	0840	0858	1-	5	1	1	1	1	2	0829	C3.4	6322
19	0956	0959	0959D	1-	3	1			1		0959	C7.3	6322
19	1004	1015	1025	1-	3	1	3		1	1	0959	C7.3	6322
19	1401	1404	1431	1+	5		1			3	1350	C4.9	6311
19	1515	1518	1530	1-	1						No flare		
19	1704	1720	1826	2+	3					5	1658	C6.1	6327
20	0205	0217	0256D	1-	1			1			0203	C4.8	
20	0256E	0304	0400	1-	1			1			0203	C4.8	
20	0440	0509	0644D	2+	5	1		1		3	0500	C8.4	6311
20	0644E	0652	0710	1-	5		2	1		1	No flare		
20	0857	0907	0955	1-	5		2	1	1	2	0843	C4.0	
20	1252	1305	1358	2-	3		3				*		
20	1521	1526	1530	1	5		1		1	7	1520	C5.6	

* = no flare patrol.

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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	1616	1627	1715	2	3					8	1631E	C6.4	6314
20	1757	1810	1841	1-	5	1		1		9	1759	M8.5	6311
20	2137	2221	2317	1-	1			1			2225	C7.4	6327
21	0314	0322	0330D	2	5	1		1		1	0313E	M1.0	
21	0330E	0342	0447	2	1			1			0328	C7.1	
21	0551	0605	0713D	3	5	2		1		4	0556	M3.0	6311
21	0713E	0730	0746D	1-	5	1		1	1	2	0711	C6.3	6333
21	0746E	0803	0830	1-	5	1		1	1	1	No flare		
21	0936	0952	1043	2	3					2	0924	M1.7	6327
21	0946	1008	1143	2-	5	2	3	1	1	4	*		
21	1304	1313	1335	1	3		1		1	1	*		
21	1350	1353	1400	1-	3	1	1		1	1	*		
21	1459	1501	1515	1-	1					1	*		
21	1636	1645	1723	2	3					3	1634	C3.6	6327
21	1727	1730	1744	1-	1					1	*		
21	1747	1752	1812	1	3					2	1742	C3.4	6333
21	1843	1847	1910	1	3					2	*		
22	0140	0149	0219	1-	1			1			0139	C3.1	
22	0609	0634	0835	3	5	1		1	1	1	0704	M2.9	
22	1150	1258	1356	2	3		2				*		
22	1353	1354	1416	1	1					1	1351	C3.3	6333
22	1954	2000	2038	2-	3					7	1954	C4.3	6331
23	0709	0712	0734	1-	1			1			0712	C1.6	
23	0754	0827	0859	2	3		2				No flare		
23	0859	0931	1045	3	3		3				No flare		
23	0930	1040	1208	3+	1		1				No flare		
23	1103	1131	1157	1	3		2				1120	C1.9	6333
23	1613	1619	1645	1+	5					6	1612	C4.6	6331
23	2118	2130	2146	1+	1					1	2117E	C1.9	
24	0201	0212	0249	1-	1			1			0200	C2.7	
24	0506	0516	0521	1-	1			1			0504	C1.1	
24	0812	0822	0847	1+	1		1				0808	C1.3	
24	0937	1021	1106	1+	3		2				*		
24	1126	1142	1157	1	3		2				*		
24	1205	1225	1402	2-	3		3				*		
24	1637	1640	1656	1-	3					5	1636E	C2.3	6331
24	1945	1954	2018	2-	3					3	1939E	C1.7	6337
24	2152	2200	2217	1	1					1	2154	C1.9	6337
24	2355	2359	2407	1-	1					1	2355	C1.3	6337
25	0654	0703	0735	1-	1			1			0650	C2.8	6334
25	0830	0850	0928	2	1		1				No flare		
25	0905	0907	0929	1-	5		1	1	1	2	0902	C3.0	6331
25	1108	1116	1137	1-	5	1	1	1	1	3	1104	C7.5	6331
25	1147	1153	1200	1-	1				1		1136E		6337
25	1610	1611	1620	1-	1					1	1559	C2.2	6331
26	0930	1002	1200	3+	1		1				No flare		
26	1030	1033	1038	1-	1					1	1024	C1.0	6327
26	1050	1057	1110	1	1					1	1049	C1.9	
26	1653	1655	1702	1-	1					1	1650	C1.0	6337
26	2012	2015	2026	1-	1					1	2012	C1.3	6331
27	0538	0548	0633	1-	1			1			0532		6337
27	1233	1248	1310	1-	1				1		1232		6327
27	2137	2137	2150	1-	1					1	2137	C1.8	6327
28	2335	2339	2350	1-	1			1			2333	C1.6	6327
29	0104	0119	0121D	1-	1			1			0100	C2.9	
29	0121E	0130	0206	1-	1			1			*		
29	0237	0310	0541	2	3	1		1			0243	C7.7	6327
29	1247	1250	1307	1+	5					2	1253	C4.5	6327
29	1253	1301	1320	1+	3		4		1		1253	C4.5	6327

* = no flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 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
30	0532	0540	0620	1-	1			1			0529	C2.4	
30	1917	1932	2014	2+	3					3	1918	C2.7	
31	1203	1208	1220	1-	3				1	1	1205	C1.3	6345
31	2155	2159	2212	1-	1			1			2158	C1.8	6337

* = no flare patrol.

OBSERVATORIES REPORTING FOR OCTOBER 1990

Athens, Georgia, USA	SES	Kuhlungsborn, Germany	SEA, SPA
Boksburg, Rep of S. Africa	SES	LaCrescenta, California, USA	SES
Cleveland, Ohio, USA	SES	Latrobe, Pennsylvania, USA	SES
Cypress, Texas, USA	SES	Locust Grove, Georgia, USA	SES
Darmstadt, Germany	SWF	Madison, Wisconsin, USA	SES
Edenvale, Rep of S. Africa	SES	Manahawkin, New Jersey, USA	SES
Euclid, Ohio, USA	SES	Nerja, Spain	SES
Farsta, Sweden	SES	Panska Ves, Czechoslovakia	SES, SEA, SWF
Hiraiso, Japan	SWF	Rochester, New York, USA	SES
Houston, Texas, USA	SES	San Francisco, California, USA	SES
Hudson, Ohio, USA	SES	Shaker Heights, Ohio, USA	SES
Inubo, Japan	SPA	Sofia, Bulgaria	SES
Johannesburg, Rep of S. Africa	SES	Uccle, Belgium	SEA
Juliusruh, Germany	SWF	Upice, Czechoslovakia	SEA
Kandilli, Turkey	SEA	Vlasim, Czechoslovakia	SEA

Observations are not necessarily continuous.

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

OCTOBER 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
01			LEAR				0209.0	0210.0	1				III
			PALE				0341.0	0342.0	1				III
			LEAR				0342.0	0343.0	2				III
			LEAR				0358.0	0359.0	1				III
			LEAR				0450.0	0450.0	2				III
	0641	1510	POTS				0641.E	1510.U	2				I,S,C,DC,DP
			POTS				0914.4	0917.7	2				IIIGG,U
			POTS				0947.9	0948.0	2				IIIB
			POTS				0952.6	0952.9	2				IIIGG
			POTS				1008.4	1008.5	1				IIIB
			POTS				1014.0	1014.5	1				IIIG
			POTS				1042.1	1043.4	3				IIIG,U
	0629	1630	BLEN	1319.7	1320.2	2	1319.7	1320.2	2				IIIGG,RS
			POTS	1319.8	1320.7	3							IIIG,C
			POTS				1319.9	1327.3	3			II	C,U
			SGMR				1332.0	1332.0	1				V
			POTS				1356.6	1356.7	1				IIIB
			POTS				1403.0	1403.7	1				IIIG
			POTS				1412.4	1415.0	1				IIIGG
			SGMR				1541.0	1544.0	1				III
			SGMR				1554.0	1558.0	3				III
			SVTO				1554.0	1555.0	2				III
02			PALE				0133.0	0144.0	2				S
			LEAR				0153.0	0154.0	1				III
	0631	1523	POTS	0631.0E	0828.0	1							I,C,DC
			POTS	0650.9	0651.8	3	0651.5	0651.6	2				IIIG
	0630	1630	BLEN				0651.0	0651.6	2				III
			POTS				0702.0	1517.0U	2				I,S,C,U,DC
			POTS	0720.3	0720.5	1	0720.3	0720.4	1				IIIB
			SGMR				1234.0	1234.0	1				III
			SGMR				1325.0	1329.0	1				III
			POTS				1325.1	1325.5	1				IIIB
			POTS	1329.1	1329.4	1	1329.0	1329.9	3				IIIG
			POTS				1508.0	1508.6	1				IIIG
			PALE				1901.0	1901.0	1				III
03			LEAR				0113.0	0220.0	1				CONT
	0630	1630	BLEN										
	0631	1501	POTS	0639.0E	0732.0	1	0639.0E	1453.0U	3				I,S,C,U,DC,DP
			POTS				0706.5	0706.6	1				IIIB
			LEAR				0707.0	0707.0	1				III
			POTS				0717.7	0720.1	2				IIIGG,RS,C
			LEAR				0719.0	0727.0	3				III
			POTS				0723.0	0726.0	2				IIIGG,C
			SVTO				0723.0	0725.0	2				III
			LEAR				0727.0	0900.0	2				CONT
			POTS	0730.9	0732.3	1							IIIGG
			LEAR				2317.0	0445.0	1				CONT
04	0635	1630	BLEN										
	0655	1521	POTS	0659.0E	1221.0	1	0715.0E	1513.0U	2				I,S,C,U,DC
			LEAR				2317.0	0445.0	1				CONT
05			LEAR				0003.0	0003.0	2				III
			LEAR				0137.0	0138.0	2				III
			PALE				0137.0	0137.0	1				III
			LEAR				0222.0	0222.0	1				III
			LEAR				0515.0	0516.0	2				III
	0635	0852	BLEN										
	0651	1511	POTS	0651.0E	1205.0	1							I,S,C
			POTS				0721.0	1503.0U	2				I,S,C,U,DC
			POTS				0738.5	0739.0	1				IIIG
			POTS				0932.6	0934.6	1				UG
			POTS				0934.5	0934.7	3				U
			POTS				1048.9	1049.1	2				IIIB
			POTS				1054.1	1054.2	1				IIIB
			POTS				1137.9	1138.2	2				IIIB
			SGMR				1246.0	1256.0	2				III

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

OCTOBER 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
05		POTS				1246.4	1247.3	2				IIIG
		SVTO				1256.0	1256.0	3				III
		POTS	1256.3	1256.4	2							RS
		POTS	1256.3	1256.4	2	1256.2	1256.7	3				IIIG
		POTS				1324.9	1325.0	1				IIIB
		SGMR				1325.0	1325.0	1				III
		SGMR				1411.0	1411.0	1				III
		POTS	1420.3	1421.5	1							I,DC
		SGMR				1454.0	1455.0	1				III
		POTS				1456.0	1456.4	1				IIIG
		SGMR				1534.0	1534.0	1				III
	1611	1635 BLEN										
		PALE				2133.0	2134.0	1				III
06		LEAR				0018.0	0018.0	1				III
		LEAR				0104.0	0130.0	1				CONT
		LEAR				0252.0	0253.0	2				III
		SVTO				0519.0	0524.0	2				III
		LEAR				0522.0	0529.0	2				III
		LEAR				0630.0	0630.0	1				III
	0633	1449 POTS	0633.0E	0921.01		0701.0	0801.0	1				I,S,C,DC
	0637	1635 BLEN										
		SVTO				0725.0	0726.0	2				III
		LEAR				0726.0	0726.0	2				III
		POTS				0726.7	0726.8	1				IIIB
		POTS				0752.7	0754.5	1				IIIG
		POTS				0944.0	1449.0U	2				I,S,C,DC
		POTS				0958.7	0958.9	2				IIIB,U
		POTS				1014.2	1014.3	1				IIIB
		POTS				1018.9	1019.0	1				IIIB
		POTS				1039.3	1040.8	1				IIIG
		POTS				1052.1	1052.2	1				IIIB
		POTS				1117.8	1118.0	1				IIIB
		POTS				1123.1	1123.6	2				IIIG,RS
		POTS				1127.9	1128.0	1				IIIB
		POTS				1139.2	1139.3	2				IIIB
		POTS				1215.4	1215.5	1				IIIB
		POTS				1217.7	1217.8	1				IIIB
		POTS				1219.8	1335.7	3				IIIGG
		SGMR				1232.0	1251.0	1				S
		SVTO				1250.0	1251.0	2				III
		SGMR				1310.0	1311.0	1				III
		SGMR				1629.0	1629.0	1				V
		SGMR				1652.0	1653.0	1				V
		PALE				2207.0	2209.0	2				V
		LEAR				2349.0	2349.0	1				III
07		LEAR				0023.0	0025.0	1				III
		LEAR				0112.0	0115.0	1				III
		LEAR				0145.0	0147.0	2				III
		LEAR				0200.0	0200.0	1				III
		LEAR				0216.0	0216.0	1				III
		LEAR				0223.0	0224.0	1				III
		LEAR				0234.0	0234.0	1				III
		LEAR				0248.0	0248.0	1				III
		LEAR				0334.0	0334.0	3				III
		LEAR				0426.0	0427.0	1				III
	0637	0812 BLEN										
	0706	1510 POTS	0710.0E	0732.0	1							I,S,DC
		POTS				0738.7	0738.8	1				IIIB
		POTS				0745.6	0745.7	1				IIIB
		POTS				0810.9	0814.5	1				IIIG
		LEAR				0811.0	0811.0	2				III
		SVTO				0811.0	0811.0	1				III
		POTS	0848.8	0850.0	1	0848.3	0851.6	3				IIIGG,C,U
		LEAR				0849.0	0852.0	2				III
		SVTO				0849.0	0852.0	2				V
		POTS				0859.0	0900.0	1				UNCLF
		POTS	0900.0	0937.0	1							I,S,DC

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

OCTOBER 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
07			POTS				0938.4	0938.5	2				IIIB
			POTS				0944.1	0944.2	2				IIIB
			POTS				0946.0	1123.0	3				I,S,DC
			POTS				1032.3	1123.0	3				IIIGG
			SVTO				1038.0	1039.0	2				V
			POTS	1038.2	1039.2	1							RS
			POTS	1038.2	1039.2	3	1038.8	1044.6	3				IIIG
			POTS				1155.0	1233.0	1				I,S
			POTS	1213.7	1214.2	1	1201.3	1214.2	2				IIIG
			POTS				1307.3	1310.9	2				IIIGG
			POTS				1319.5	1319.6	1				IIIB
			POTS				1323.0	1505.0	U				I,S,DC
			POTS				1349.9	1350.4	1				IIIG
			SGMR				1448.0	1451.0	2				V
			SVTO				1450.0	1451.0	2				III
			POTS				1450.2	1451.7	3				IIIGG
			SGMR				1749.0	1749.0	1				III
			LEAR				2326.0	2327.0	1				III
08			LEAR				0006.0	0600.0	1				CONT
	0630	1508	POTS	0630.0E	1350.0	2	0637.0E	1409.0	1				I,S,C,DC
			POTS	0638.8	0638.9	2							IIIG
	0658	1630	BLEN	0658.0E	1630.0D	1	0658.0E	1630.0D	1				I,DC
			LEAR				0715.0	0915.0	1				CONT
			POTS				1219.4	1219.6	1				IIIB
			POTS				1313.1	1318.2	3				IIIG,RS
			POTS				1351.2	1351.6	1				IIIG
			SGMR				1603.0	1603.0	1				III
			SGMR				1612.0	1615.0	3				V
09			LEAR				0600.0	0600.0	1				III
	0628	1509	POTS	0628.0E	1257.0	2	0641.0	1324.0	2				I,S,C,DC
	0641	1630	BLEN										
			POTS				0738.3	0743.8	2				IIIGG
			LEAR				0739.0	0740.0	2				III
			SVTO				0739.0	0739.0	2				III
			POTS				0911.9	0912.0	1				IIIB
			POTS				1128.7	1128.8	1				IIIB
			POTS				1136.8	1150.0	1				IIIG
			POTS				1225.2	1225.4	2				IIIB
			POTS				1304.7	1304.8	1				IIIB
			POTS				1314.0	1314.1	1				IIIB
			POTS				1336.5	1336.6	1				IIIB
			POTS				1349.1	1349.2	1				IIIB
			POTS				1437.4	1438.1	1				IIIG
			LEAR				2242.0	2242.0	1				III
10			LEAR				0032.0	0033.0	1				III
			LEAR				0152.0	0153.0	2				III
			PALE				0206.0	0241.0	2				S
			LEAR				0347.0	0348.0	1				III
			LEAR				0514.0	0517.0	2				III
			LEAR				0527.0	0527.0	1				III
			SVTO				0528.0	0528.0	1				III
	0642	1511	POTS				0651.6	0652.4	3				IIIG,C
			LEAR				0652.0	0653.0	3				III
			SVTO				0652.0	0652.0	3				III
			POTS				0654.9	0659.8	3				II
			LEAR				0657.0	0706.0	1				II
			POTS				0750.5	0750.6	1				IIIB
			POTS	0805.0	1333.0	2	0655.0	1029.0	2				I,S,DC
			SVTO				0830.0	0844.0	1				S
			LEAR				0831.0	0844.0	1				S
			POTS	0945.2	0947.7	3	0945.2	0947.5	2				IIIGG
	0641	1630	BLEN				0946.3	0946.6	1				IIIG
			POTS	1042.7	1042.9	2	1042.7	1042.9	2				IIIG
			POTS				1152.0	1313.0	2				I,S,DC
			POTS				1414.7	1415.5	1				IIIG
			SGMR				1707.0	1707.0	1				V

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

OCTOBER 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
10		PALE				2339.0	2340.0	1				III
		LEAR				2340.0	2340.0	2				III
11		LEAR				0044.0	0045.0	2				III
		PALE				0044.0	0044.0	1				III
		LEAR				0416.0	0416.0	2				III
		SVTO				0543.0	0551.0	3				III
	0629 1506	POTS	0629.0E	0906.0	2	0642.0	1500.0U	3				I,S,DC
		LEAR				0640.0	0642.0	2				III
	0641 1630	BLEN										
		LEAR				0728.0	0728.0	2				III
		POTS				0728.1	0728.5	1				IIIG
		POTS	0741.4	0741.6	1							IIIG
		POTS				0752.2	0752.3	1				IIIB
		POTS	0820.4	0821.0	2	0819.9	0820.0	1				IIIB
		POTS				1017.3	1017.4	1				IIIB
		POTS				1042.0	1043.1	1				IIIG
		POTS				1057.7	1057.8	1				IIIB
		POTS	1122.5	1122.8	1							UNCLF
		POTS				1152.9	1153.6	1				IIIG
		SGMR				1339.0	1341.0	1				V
		SGMR				1618.0	1625.0	2				V
12		LEAR				0200.0	0200.0	1				III
		LEAR				0222.0	0222.0	1				III
		LEAR				0622.0	0622.0	2				III
		POTS				0710.8	0710.9	1				IIIB
		LEAR				0722.0	0722.0	2				III
		POTS	0737.1	0737.3	1							IIIG
	0630 1425	POTS	0803.0	0823.0	1	0631.0E	1132.0	1				I,S,DC
		POTS				0824.9	0826.0	1				IIIG
		SVTO				0923.0	0923.0	3				III
		POTS				0953.2	0953.3	1				IIIB
		SVTO				1001.0	1001.0	3				III
		POTS				1039.7	1039.8	3				IIIB
		POTS				1043.3	1044.0	2				IIIG
		POTS				1120.6	1120.7	1				IIIB
		SGMR				1146.0	1146.0	1				III
		POTS	1346.0	1346.2	1							UNCLF
	0641 1630	BLEN	1404.4	1405.1	2							IIIGG
		SGMR				1629.0	1631.0	2				V
		PALE				2149.0	2150.0	1				III
13		LEAR				0249.0	0249.0	1				III
		LEAR				0301.0	0301.0	1				III
		LEAR				0330.0	0330.0	1				III
		LEAR				0421.0	0421.0	1				III
	0633 1435	POTS				0633.0E	1324.0	2				I,S,C,DC
		POTS				0804.9	0808.9	3				IIIG
	0648 1620	BLEN	0805.3	0805.5	1	0805.3	0805.5	1				III
		POTS				0938.2	0938.4	1				IIIG
		POTS				0946.5	0094.7	5				IIIG
		POTS				1030.7	1030.8	3				IIIB
		POTS				1047.6	1047.7	2				IIIB
		SVTO				1136.0	1136.0	2				III
		POTS				1136.1	1136.3	1				UNCLF
		POTS				1159.5	1205.7	3				IIIG
		POTS				1227.8	1227.9	1				IIIB
		SGMR				1239.0	1240.0	1				III
		POTS				1245.1	1245.2	2				IIIB
		POTS				1341.9	1346.6	2				IIIG
		POTS				1416.7	1416.8	3				IIIB
		PALE				2053.0	2058.0	1				III
		SGMR				2053.0	2054.0	1				III
14		LEAR				0248.0	0248.0	1				III
		SVTO				0554.0	0555.0	3				III
	0631 1435	POTS				0631.0E	1435.0U	2				I,S,C,DC
		LEAR				0715.0	0716.0	1				III

SOLAR RADIO EMISSION
Spectral Observations

OCTOBER 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
14			LEAR				0745.0	0745.0	2				III
			SVTO				0745.0	0745.0	2				III
	0648	1620	BLEN				0745.2	0745.3	2				III
			POTS				0745.2	0745.8	3				U,HARM,C
			LEAR				0903.0	0903.0	2				III
			SVTO				0903.0	0903.0	2				III
			POTS				0903.1	0903.4	2				U
			POTS				0955.0	0955.1	2				IIIB
			POTS				1047.8	1047.9	1				IIIB
			POTS				1109.8	1110.2	2				IIIG
			POTS				1112.8	1112.9	1				IIIB
			SGMR				1203.0	1203.0	1				III
			POTS				1204.1	1204.7	1				IIIG
			POTS				1243.2	1243.3	3				IIIB
			POTS				1356.1	1356.3	2				U,HARM
			POTS				1357.6	1357.8	1				U,HARM
			POTS				1401.3	1401.5	3				U,HARM
			POTS				1407.6	1410.4	3				IIIG,HARM
			SGMR				1417.0	0000.0	1				CONT
			POTS				1417.8	1418.0	2				IIIG
			POTS				1427.0	1432.3	3				IIIG
			SGMR				1429.0	1429.0	2				III
			SVTO				1429.0	1429.0	3				III
			SGMR				1717.0	0000.0	1				CONT
			SGMR				1731.0	1732.0	1				III
			PALE				1846.0	1846.0	1				III
			SGMR				1846.0	1846.0	1				V
			PALE				2024.0	2025.0	1				III
			PALE				2121.0	2127.0	1				III
15			LEAR				0107.0	0108.0	2				III
			LEAR				0236.0	0243.0	3				III
			PALE				0237.0	0248.0	2				S
			LEAR				0243.0	0312.0	2				IV
			LEAR				0518.0	0519.0	2				III
			LEAR				0624.0	0652.0	1				S
	0631	1509	POTS	0631.0E	0932.0	1	0644.0	0845.0	2				I,S,C,DC
			POTS	0632.5	0642.2	2							IIIG
			POTS				0721.3	0721.4	2				IIIB
			POTS				0757.3	0757.7	1				IIIG
			POTS	1159.5	1159.9	1	1159.5	1159.6	1				DCIM,IIIB
	0648	1620	BLEN	1224.7	1225.1	2							IIIG
			POTS	1224.8	1228.3	3	1226.8	1239.0	3				II DCIM,C
			BLEN	1225.1	1227.3	3	1225.1	1227.3	3				II
			POTS	1423.5	1423.6	3							IIIB
16			LEAR				0023.0	0029.0	1				III
			LEAR				0059.0	0101.0	2				III
			LEAR				0501.0	0501.0	2				III
			LEAR				0511.0	0516.0	2				III
	0652	1615	BLEN										
	0645	1247	POTS	0656.3	0656.4	2							IIIG
	1301	1519	POTS				0800.3	0800.4	2				IIIB
			POTS				0816.9	0817.1	1				U
			POTS				0859.5	0859.6	1				IIIB
			POTS	0905.7	0905.8	3							IIIB
			POTS	0926.5	0926.7	2							IIIG
			POTS	0948.1	1519.0U	2	1027.0E	1227.0	2				I,S,C,DC
			POTS				1047.3	1047.6	1				IIIG
			POTS	1102.4	1102.5	2							IIIB
			POTS				1202.5	1202.8	2				U
			POTS	1328.9	1329.0	2							IIIB
			POTS	1357.7	1402.5	1							IIIGG
			PALE				2037.0	2039.0	1				V
17			LEAR				0121.0	0124.0	2				V
			PALE				0121.0	0124.0	1				V
			LEAR				0259.0	0330.0	1				CONT
			LEAR				0507.0	0508.0	2				III

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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
17		LEAR				0522.0	0523.0	2				III
		LEAR				0605.0	0608.0	2				III
		SVTO				0607.0	0607.0	3				III
	0633 1509	POTS	0646.4	0646.7	3							IIIB
		POTS	0648.7	0653.1	3	0649.9	0650.3	2				IIIGG,U
		LEAR				0649.0	0651.0	3				III
		SVTO				0649.0	0650.0	3				III
		POTS				0729.0	0733.6	1				IIIG
		POTS	0808.4	0808.6	1	0808.4	0808.6	1				IIIG
		LEAR				0836.0	0836.0	2				III
		POTS				0836.0	0836.3	1				IIIB,U
		SVTO				0836.0	0836.0	2				III
		POTS				0859.5	0859.8	1				IIIG
		POTS				0918.3	0933.7	3				IIIGG
		LEAR				0931.0	0933.0	1				III
		SVTO				0931.0	0936.0	2				III
		POTS	0934.9	0936.2	2							IIIG
		POTS				0958.2	0958.4	1				UNCLF
		POTS				1023.9	1026.6	2				IIIGG
		SVTO				1025.0	1028.0	3				V
		POTS	1112.6	1112.9	2	1049.4	1113.5	3				IIIGG
		SGMR				1151.0	1152.0	1				III
		SVTO				1151.0	1151.0	2				III
		POTS	1151.3	1151.6	2	1146.0	1151.8	3				IIIGG
		POTS	1216.0	1509.0U	2							I,S,DC
		POTS				1216.6	1233.1	3				IIIGG
		SGMR				1217.0	1231.0	2				S
		POTS	1224.3	1226.0	2							IIIG,RS
		POTS	1226.8	1227.3	3							IIIGG
		SVTO				1227.0	1228.0	3				III
		POTS	1232.1	1232.2	3							IIIB
		POTS	1256.2	1258.5	3	1257.0	1258.6	3				IIIGG,DCIM
		POTS				1301.1	1301.2	2				IIIB
		SGMR				1310.0	1314.0	2				III
		SVTO				1310.0	1313.0	3				III
		POTS	1311.7	1312.3	3	1310.4	1313.2	3				IIIGG,V
		POTS	1323.1	1324.7	3	1322.8	1325.5	2				IIIGG,U
		SGMR				1343.0	1345.0	2				III
		SVTO				1343.0	1344.0	2				III
		POTS				1343.1	1445.8	2				IIIGG
		SGMR				1421.0	1429.0	2				V
		POTS	1424.1	1427.5	3	1421.1	1427.7	3				IIIGG
		SGMR				1456.0	1456.0	1				III
		PALE				1744.0	1753.0	2				III
		SGMR				1744.0	1745.0	2				V
		SGMR				1753.0	1753.0	1				III
		PALE				1835.0	1835.0	1				III
		SGMR				1835.0	1835.0	1				V
		PALE				1857.0	1858.0	1				III
		SGMR				1857.0	1858.0	1				III
		PALE				1909.0	1910.0	1				V
		SGMR				1919.0	1920.0	1				V
		PALE				2035.0	2038.0	2				V
		SGMR				2035.0	2037.0	1				III
		PALE				2052.0	2100.0	3				V
		SGMR				2055.0	2059.0	2				V
		PALE				2110.0	2122.0	1				S
		PALE				2206.0	2207.0	2				V
		LEAR				2300.0	2300.0	1				III
		PALE				2300.0	2300.0	2				V
		LEAR				2315.0	2322.0	3				III
		PALE				2316.0	2318.0	2				V
		LEAR				2354.0	2356.0	2				III
		PALE				2354.0	2356.0	2				III
18		LEAR				0037.0	0038.0	2				III
		LEAR				0051.0	0104.0	2				S
		LEAR				0141.0	0142.0	1				III
		LEAR				0521.0	0526.0	3				III

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18		SVTO				0521.0	0521.0	2				III
		LEAR				0605.0	0608.0	2				III
		SVTO				0607.0	0610.0	2				III
0708	1014	POTS	0708.0E	1429.0	2	0708.0E	1509.0U	3				I,S,C,DC
1026	1509	POTS	0749.1	0749.2	1							IIIB
		POTS	0839.7	0840.4	1							IIIG
		POTS	0848.7	0849.1	1							IIIG
		POTS	0913.1	0913.7	2							IIIG
		POTS	0947.4	0947.5	2							IIIB
		SVTO				1013.0	1017.0	3				III
		POTS	1013.4	1014.0U		1005.5	1013.8	2				IIIGG
		POTS				1043.0	1048.6	3				IIIG
		SVTO				1102.0	1105.0	3				III
		POTS	1102.1	1103.5	2	1101.0	1104.0	3				IIIGG,V
		POTS				1129.3	1133.5	1				IIIG
		POTS	1147.0	1147.3	2	1147.0	1147.8	3				IIIG,U
		SGMR				1147.0	1147.0	2				III
		SVTO				1147.0	1148.0	3				III
0713	1615	BLEN				1147.1	1147.3	1				III
		SVTO				1218.0	1219.0	2				III
		POTS				1218.3	1219.0	2				IIIG
		SGMR				1228.0	1235.0	1				III
		SGMR				1228.0	1242.0	1				S
		POTS				1228.7	1246.4	3				IIIGG
		POTS				1307.1	1309.0	1				IIIG
		SGMR				1330.0	1341.0	3				S
		SVTO				1331.0	1337.0	2				III
		BLEN	1337.3	1340.0	3	1337.3	1340.0	3				IIIGG
		SVTO				1339.0	1341.0	3				V
		POTS	1339.4	1340.1	3	1330.9	1343.7	3				IIIGG,C
		POTS				1356.7	1401.4	3				IIIG
		SGMR				1358.0	1358.0	2				III
		POTS				1420.0	1420.5	2				IIIG
		SGMR				1420.0	1421.0	2				V
		POTS	1427.8	1428.3	1	1427.8	1428.8	3				IIIG
		SGMR				1428.0	1445.0	1				S
		POTS	1441.6	1441.7	1	1438.3	1445.5	3				IIIGG
		SGMR				1503.0	1512.0	2				S
		SVTO				1503.0	1511.0	3				III
		SGMR				1527.0	1530.0	2				V
		SVTO				1527.0	1528.0	3				III
		SGMR				1540.0	1540.0	1				V
		SGMR				1559.0	1912.0	1				CONT
		PALE				1821.0	1822.0	1				III
		SGMR				1821.0	1822.0	2				V
		PALE				1839.0	1843.0	1				III
		PALE				1853.0	1854.0	1				III
		PALE				1910.0	1912.0	2				III
		PALE				2044.0	2054.0	2				V
		SGMR				2053.0	2053.0	1				III
		PALE				2109.0	2120.0	1				S
		PALE				2136.0	2138.0	1				III
		LEAR				2206.0	2206.0	2				III
		PALE				2206.0	2207.0	2				V
		LEAR				2238.0	2245.0	2				III
		PALE				2240.0	2245.0	1				III
		LEAR				2335.0	2340.0	2				III
		PALE				2354.0	2356.0	2				III
19		LEAR				0205.0	0207.0	2				III
		LEAR				0242.0	0249.0	2				III
		LEAR				0403.0	0404.0	1				III
		LEAR				0429.0	0433.0	2				III
		LEAR				0519.0	0535.0	1				S
0658	1608	BLEN				0659.9	0701.3	3				IIIG
0713	1503	POTS				0716.6	0716.8	1				IIIG
		POTS				0718.1	0718.3	2				U
		POTS				0727.5	0727.9	1				IIIG
		POTS	0730.6	0730.7	2							IIIB

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19		LEAR				0731.0	0731.0	2				III
		SVTO				0731.0	0731.0	2				III
		POTS				0731.1	0731.2	2				IIIB
		POTS	0733.3	0733.4	1	0733.3	0733.4	3				IIIB
		POTS	0749.1	0749.3	1							I
		POTS				0749.7	0749.8	1				IIIB
		LEAR				0755.0	0756.0	1				III
		POTS				0755.5	0755.9	1				IIIG
		POTS				0803.3	0803.4	1				IIIB
		POTS				0813.0	0828.0	1				I,S,DP
		POTS				0827.7	0827.8	1				IIIB
		POTS				0839.5	0839.6	1				IIIB
		POTS	0841.8	0842.5	2							IIIG
		POTS				0843.3	0843.9	1				IIIG
		POTS				0855.5	0855.6	1				IIIB
		POTS	0924.7	0925.3	2	0915.6	0926.4	3				IIIGG
		SVTO				1004.0	1024.0	2				S
		POTS	1004.1	1033.3	2	1003.7	1033.6	3				IIIGG
		POTS				1006.6	1009.0	3				II
		POTS				1011.U	1045.0	2				I,S,DC
		POTS				1023.9	1024.3	2				U
		POTS				1059.2	1059.6	1				IIIG
		POTS	1132.6	1133.3	1							I
		POTS	1133.7	1133.8	1	1133.3	1135.4	1				IIIG
		POTS				1229.0	1229.1	1				IIIB
		POTS	1230.5	1232.8	1	1224.0	1357.0	1				I,S,DC
20		LEAR				0305.0	0305.0	1				III
	0700 1605	BLEN										
	0641 1439	POTS	0836.0	0836.2	1							IIIG
		POTS	0855.7	0855.9	1							I
		LEAR				0857.0	0857.0	1				III
		POTS				0857.3	0857.4	1				IIIB
		POTS				0908.8	0909.2	1				I
		POTS				1005.3	1005.5	1				I
		POTS	1008.3	1008.5	1							I
		POTS				1123.0	1123.5	1				I
		POTS				1220.6	1220.7	1				IIIB
		SGMR				1411.0	1411.0	1				III
		PALE				1801.0	1808.0	1				III
		SGMR				1801.0	1808.0	2				V
21		LEAR				0127.0	0128.0	1				III
		LEAR				0538.0	0539.0	2				III
		LEAR				0547.0	0548.0	3				III
		SVTO				0602.0	0602.0	2				III
	0700 1605	BLEN										
	0701 1437	POTS				0715.3	0715.4	1				IIIB
		POTS				0744.0	0744.3	1				IIIG
		POTS				0828.8	0828.9	1				IIIB
		POTS				0941.8	0942.3	2				IIIG
		SVTO				0953.0	0953.0	2				III
		POTS				0953.1	0953.4	1				IIIG
		POTS				1004.9	1005.1	1				IIIG
		POTS				1016.4	1101.0	1				I,S,C,DC
		POTS				1043.8	1043.9	2				IIIB
		POTS				1200.0	1200.1	1				IIIB
		POTS				1229.3	1239.5	1				UNCLF
		POTS				1325.9	1326.1	1				UNCLF
		SGMR				1705.0	1708.0	2				V
22		LEAR				0414.0	0414.0	2				III
		LEAR				0422.0	0423.0	1				III
		LEAR				0448.0	0452.0	1				III
		LEAR				0513.0	0523.0	1				S
		LEAR				0555.0	0630.0	1				S
		LEAR				0633.0	0722.0	1				CONT
	0629 1509	POTS	0643.0E	0920.0	2	0633.E	1310.0	3				I,S,DC
	0700 1605	BLEN										

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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
22			LEAR				0754.0	0754.0	1				III
			POTS				0831.5	0831.6	1				IIIB
			LEAR				0835.0	0836.0	1				III
			POTS	1120.0	1134.0	1							I,S
			SGMR				1245.0	1300.0	1				S
			SVTO				1245.0	1246.0	2				III
			POTS	1245.6	1246.5	1	1244.3	1301.3	3				IIIGG
			SVTO				1254.0	1300.0	2				III
			POTS				1341.6	1341.9	1				IIIG
			POTS				1408.3	1412.8	1				IIIGG
			PALE				2044.0	2048.0	3				III
			SGMR				2044.0	2045.0	1				III
			PALE				2236.0	2236.0	1				III
			LEAR				2253.0	2254.0	1				III
			LEAR				2318.0	1013.0	2				CONT
23			LEAR				0004.0	0004.0	1				III
			LEAR				0059.0	0059.0	2				III
			PALE				0059.0	0059.0	1				III
			LEAR				0111.0	0112.0	3				III
			PALE				0111.0	0112.0	2				III
			LEAR				0129.0	0130.0	2				III
			PALE				0129.0	0130.0	2				III
			LEAR				0147.0	0147.0	1				III
			LEAR				0201.0	0202.0	2				III
			LEAR				0218.0	0220.0	2				III
			LEAR				0232.0	0233.0	2				III
			LEAR				0238.0	0242.0	2				III
			LEAR				0420.0	0421.0	3				III
			LEAR				0524.0	0528.0	3				III
			SVTO				0525.0	0525.0	2				III
	0700	1605	BLEN	0700.0E	0810.0	1	0700.0E	0810.0	1				I,DC
	0637	1531	POTS	0709.0	0712.8	3							IIIGG
			POTS	0712.8	1217.0	3	0639.0E	1523.0U	3				I,S,C,DC
			LEAR				0809.0	0819.0	2				II
			SVTO				0809.0	0812.0	2				II
			SVTO				0812.0	0830.0	2				IV
			POTS				0828.6	0829.1	1				IIIG
			POTS				0856.8	0856.9	1				IIIB
			POTS				1044.3	1045.0	1				IIIG
			SVTO				1103.0	1255.0	2				CONT
			POTS				1109.0	1109.4	1				IIIG
			POTS				1126.0	1126.1	1				IIIB
			SGMR				1154.0	1155.0	1				III
			POTS				1154.3	1154.8	2				IIIG
			SGMR				1325.0	1326.0	2				III
			SVTO				1325.0	1325.0	2				III
			POTS				1325.1	1325.7	2				IIIG,U
			SGMR				1609.0	1616.0	2				III
			LEAR				2311.0	0503.0	1				CONT
24	0635	1449	POTS	0635.0E	0727.0	1	0703.0	0757.0	1				I,S,C,DC
	0700	1605	BLEN										
			POTS				0919.0	1431.0U	2				I,S,C,DC
			POTS				1229.6	1229.8	1				IIIB
			SGMR				1748.0	1749.0	1				III
			LEAR				2313.0	2314.0	2				III
			PALE				2313.0	2313.0	1				III
			LEAR				2329.0	2337.0	1				III
25			PALE				0034.0	0344.0	1				CONT
			LEAR				0038.0	0044.0	2				III
			LEAR				0353.0	0401.0	2				III
	0629	1509	POTS	0629.0E	1040.0	3	0633.0E	1503.0U	2				I,S,C,DC
			LEAR				0657.0	0658.0	2				III
			POTS				0657.4	0658.2	2				IIIG
	0705	1600	BLEN	0705.0E	1600.0D	1	0705.0E	1600.0D	1				IW
			LEAR				0855.0	0856.0	2				III
			SVTO				0855.0	0856.0	2				III

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

OCTOBER 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
25			POTS	0855.7	0855.9	2	0855.7	0856.2	2				IIIG
			LEAR				0905.0	0913.0	2				III
			POTS				0905.9	0906.7	1				IIIG
			POTS				0913.2	0913.6	1				IIIG
			POTS				1045.5	1046.0	2				IIIG
			POTS				1051.5	1051.6	1				IIIB
			POTS	1114.0	1114.8	1							IIIG
			POTS				1118.9	1119.3	2				IIIG,C
			POTS				1153.3	1153.5	1				IIIG
			SGMR				1217.0	1221.0	1				III
			SVTO				1217.0	1221.0	3				III
			POTS				1217.3	1220.1	2				IIIGG
			POTS	1247.5	1247.7	1							I
			POTS	1441.0	1442.0	1							I
			SGMR				1452.0	1452.0	1				III
			PALE				1903.0	1915.0	2				S
			SGMR				1903.0	1911.0	2				V
			PALE				1946.0	1947.0	1				III
26			LEAR				0051.0	0119.0	2				S
			LEAR				0255.0	0302.0	2				III
	0710	1400	BLEN										
	0633	1505	POTS	0922.0	1012.0	2	0913.0	1149.0	2				I,S,C,DC
			POTS				1134.9	1135.3	2				IIIG
			SVTO				1135.0	1135.0	2				III
			POTS				1249.0	1254.3	2				IIIG
			SGMR				1252.0	1253.0	1				III
			SVTO				1253.0	1253.0	3				III
			POTS				1329.0	1339.0	1				I,S
			SGMR				1338.0	1339.0	1				III
			POTS				1338.7	1339.5	1				IIIG
			POTS				1348.7	1348.8	1				IIIB
			SGMR				1429.0	1429.0	1				III
			SGMR				2007.0	2008.0	1				III
			SGMR				2037.0	2038.0	1				III
			LEAR				2256.0	2257.0	1				III
			LEAR				2335.0	2338.0	3				III
			PALE				2337.0	2338.0	2				V
			LEAR				2351.0	2356.0	3				III
			PALE				2351.0	0001.0	2				V
27			LEAR				0000.0	0014.0	2				S
			LEAR				0042.0	0610.0	1				CONT
			LEAR				0433.0	0434.0	1				III
			LEAR				0534.0	0541.0	2				III
	0631	1451	POTS				0644.0	1201.0	1				I,W,S,C,DC
			POTS				0712.4	0712.7	2				IIIG
			POTS				0730.6	0730.7	1				IIIB
			POTS	0737.1	0739.5	3	0736.5	0739.5	3				IIIGG
			SVTO				1015.0	1016.0	3				III
			PALE				2137.0	2138.0	2				III
28			LEAR				0822.0	0823.0	1				III
	0646	1445	POTS				1042.9	1043.4	3				IIIB,U
			POTS				1256.6	1318.7	1				I,S
			SGMR				1306.0	1306.0	1				III
			SGMR				1436.0	1437.0	1				III
			SGMR				1454.0	1455.0	1				V
			LEAR				2356.0	2356.0	1				III
29			LEAR				0109.0	0111.0	2				III
			LEAR				0250.0	0253.0	1				II
			LEAR				0545.0	0545.0	1				III
	0629	1505	POTS				0648.3	0959.0	1				I,W,C
	0730	1555	BLEN										
			POTS				1056.7	1503.0U	1				I,W
30	0718	1545	BLEN										
	0635	1513	POTS				0729.0	1513.0U	1				I,W,S

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

OCTOBER 1990

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1–3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1–3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1–3)	Spectral Type
31		LEAR				0147.0	0147.0	1				III
0627	1435	POTS				0636.0	1435.0U	2				I,S,C,DC
		POTS				0739.5	0739.8	1				UNCLF
		POTS				0932.1	0933.0	1				IIIG
		POTS				0943.6	0944.6	2				IIIG
		POTS				1110.8	1111.0	1				U
		POTS				1123.4	1125.1	3				IIIG,U,V
		POTS				1306.8	1309.7	3				IIIGG
0720	1545	BLEN				1310.0	1310.2	1				III
		LEAR				2230.0	2234.0	2				III
		PALE				2230.0	2234.0	1				III
		PALE				2300.0	2304.0	1				III
		LEAR				2352.0	2359.0	3				III
		PALE				2357.0	2358.0	2				V

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

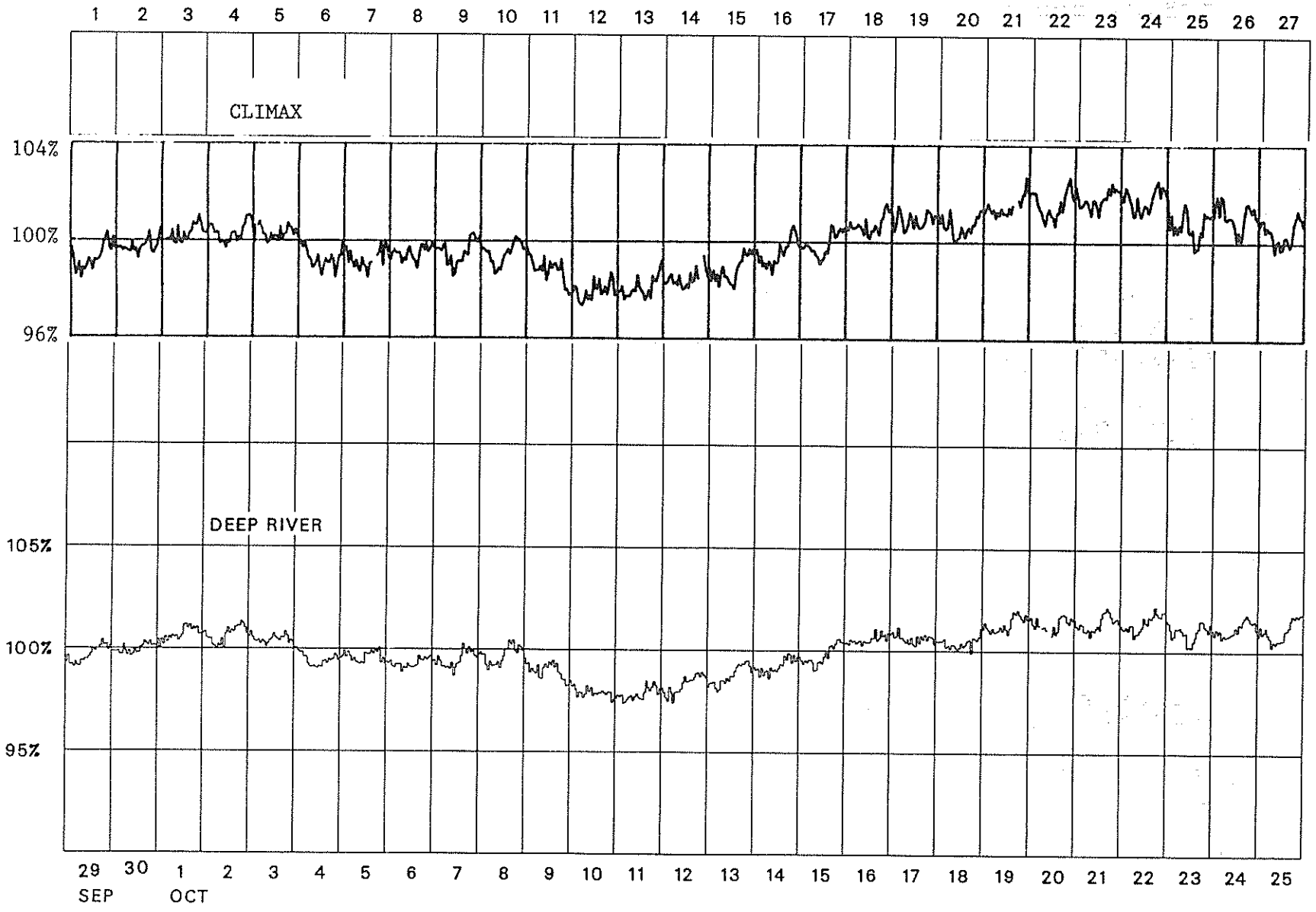
B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst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

Stations Reporting:

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

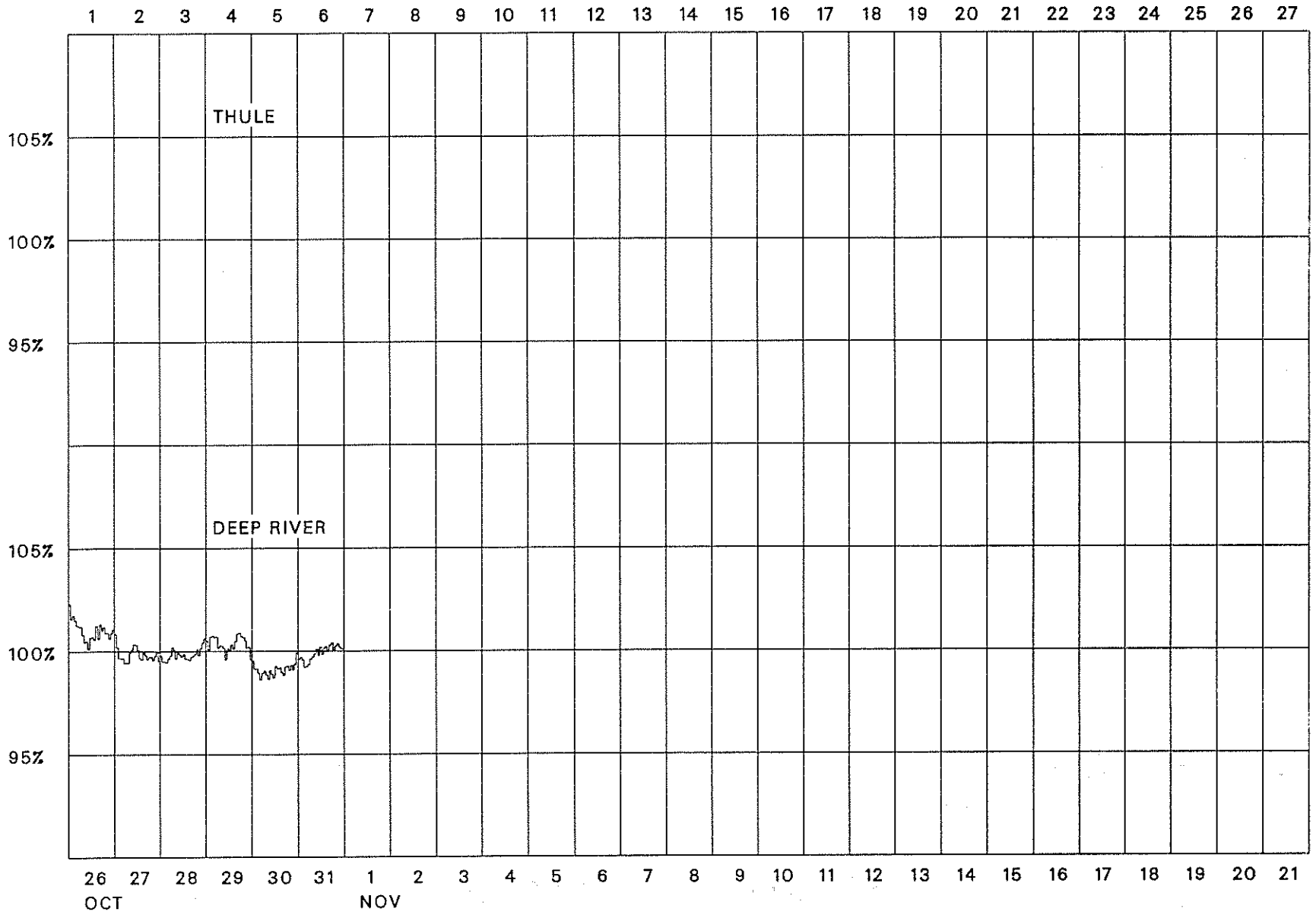
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2147 (September 1990-October 1990)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2148 (October 1990-November 1990)



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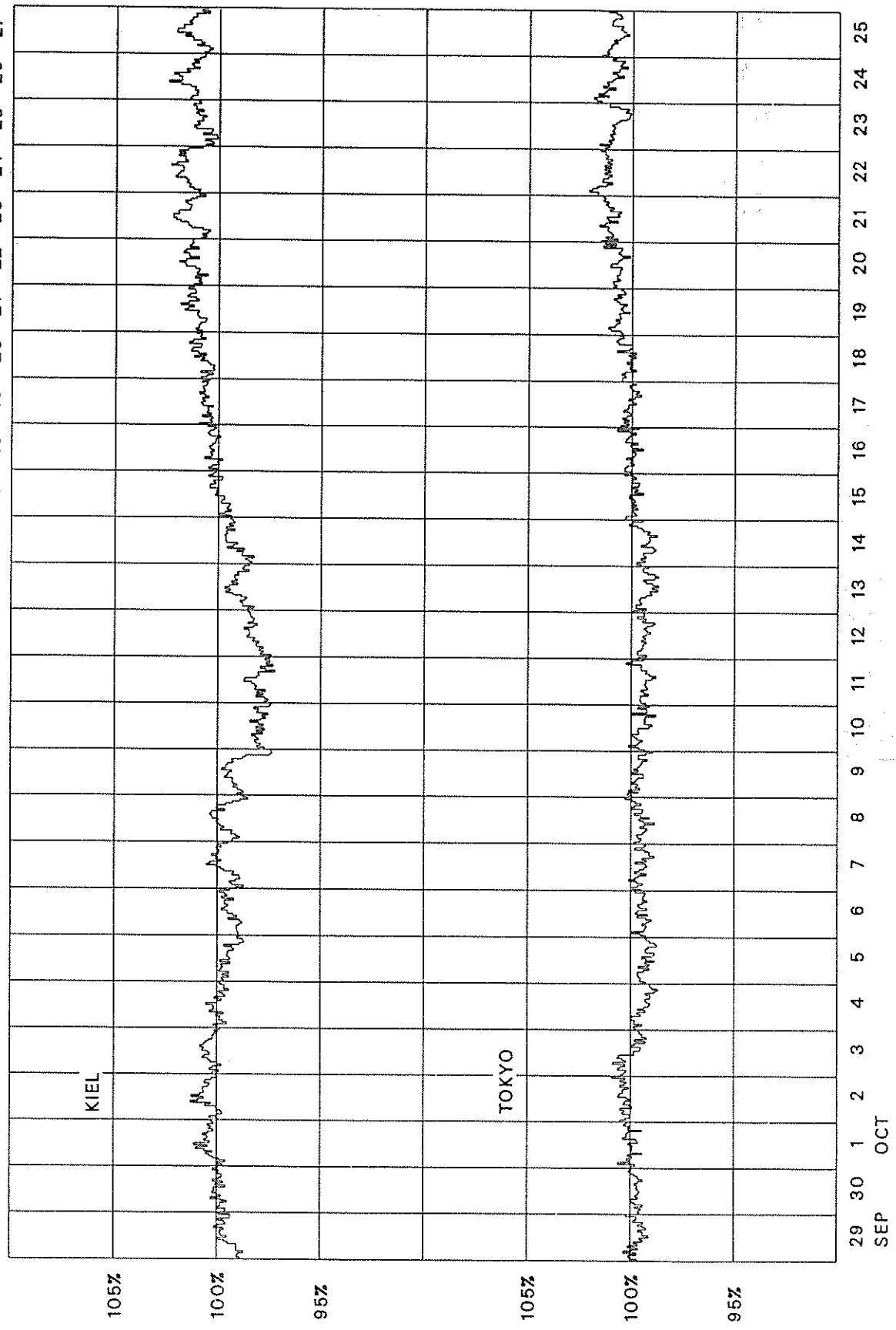
Oct 90

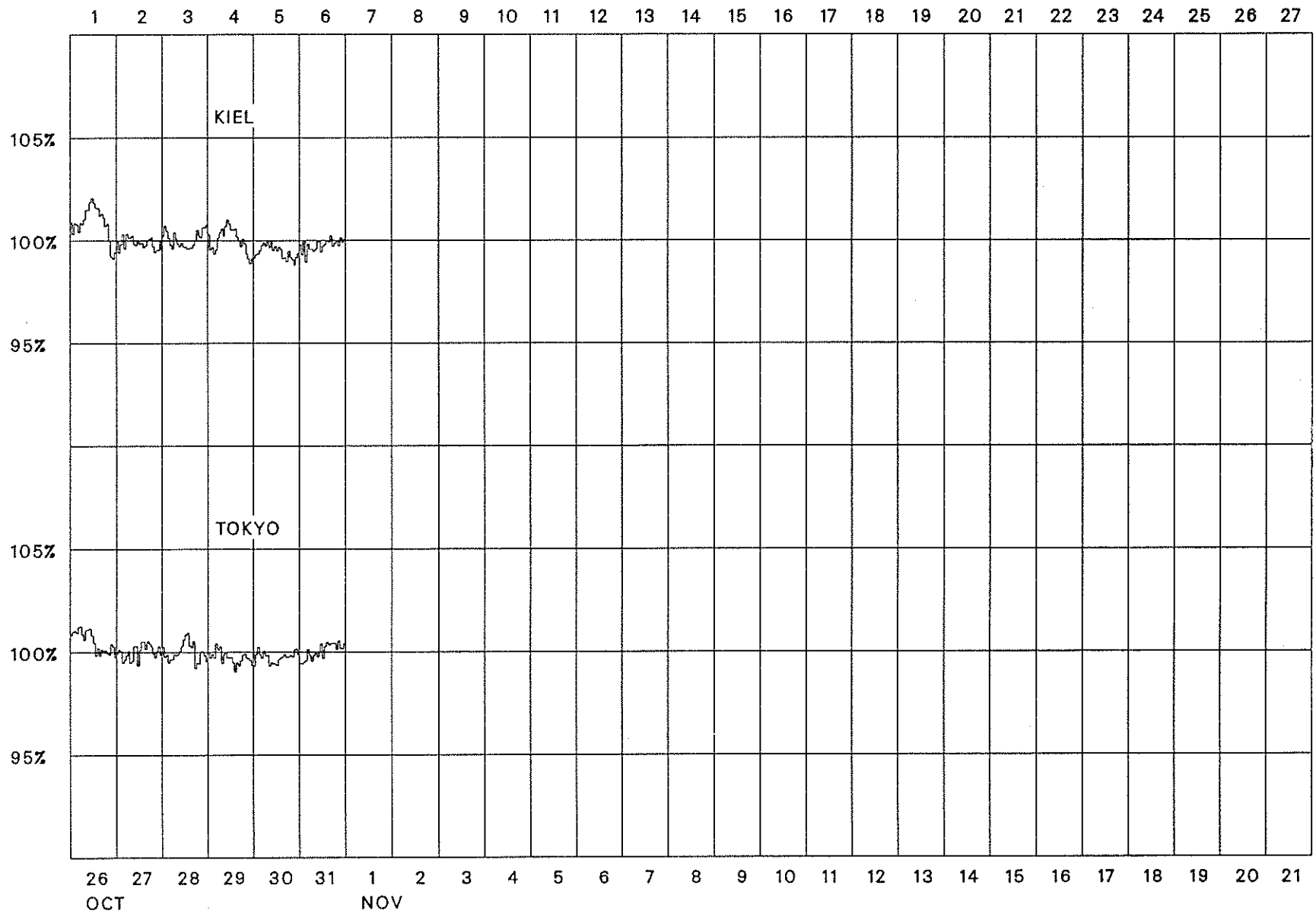
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2147 (September 1990-October 1990)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2148 (October 1990-November 1990)



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COSMIC RAY INDICES
(Neutron Monitor)

OCTOBER 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		6147.2	5493.9	3513.9	3455.9	
2		6146.5	5497.4	3515.5	3466.3	
3		6133.9	5492.2	3513.9	3455.7	
4		6073.5	5470.1	3478.1	3434.0	
5		6082.1	5443.6	3477.4	3429.9	
6		6062.6	5438.5	3485.5	3435.7	
7		6073.4	5456.1	3487.2	3437.7	
8		6087.7	5453.1	3485.5	3440.6	
9		6043.5	5420.9	3461.5	3443.4	
10		5978.3	5362.8	3431.7	3438.1	
11		5972.7	5359.9	3437.0	3434.8	
12		6001.7	5378.2	3448.9	3434.0	
13		6029.4	5418.6	3463.4	3430.0	
14		6059.0	5429.6	3487.8	3433.5	
15		6091.4	5470.0	3499.5	3452.3	
16		6139.1	5488.7	3528.3	3457.1	
17		6143.2	5508.2	3534.9	3458.2	
18		6129.2	5518.1	3527.2	3464.6	
19		6186.5	5538.0	3554.9	3476.6	
20		6190.0	5543.4	3558.5	3481.3	
21		6190.7	5548.9	3566.7	3494.0	
22		6192.2	5564.4	3565.8	3502.6	
23		6165.7	5518.0	3529.2	3483.9	
24		6175.5	5551.1	3542.0	3490.8	
25		6170.6	5538.6	3518.5	3484.7	
26		6143.3	5494.2	3491.1	3480.3	
27		6071.4	5440.7	3456.4	3462.6	
28		6071.9	5451.1	3459.1	3461.3	
29		6103.1	5447.3	3475.0	3452.7	
30		6026.2	5417.0	3444.0	3453.4	
31		6076.5	5434.7	3476.5	3462.9	
Mean		6101.9	5470.6	3497.2	3457.7	

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

GEOMAGNETIC ACTIVITY INDICES

October 1990

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	aa Provisional Am	N	S	M	
1	Q1	1+	2-	1-	0	0	0+	0	0+	4+	2	0.0	1+	2-	1-	0+	0+	0+	0+	1	5	5	4	6	3 CC
2	Q5	1	0+	1+	2-	2+	1+	2-	1	11-	5	0.2	1+	0+	1+	2	2+	2-	2	1+	11	12	10	9	14 CC
3		2-	2+	1+	2-	2	2	3	4-	18-	10	0.5	2	2	2-	2	2	2-	3-	3+	18	19	19	14	24
4		2-	3-	3	3	3	3+	5-	3-	24	16	0.9	2	3	3	3	3	3+	4-	3-	30	34	28	24	39
5		2	2+	2+	2+	3	2	1+	3	18+	10	0.5	2	2	3-	2+	3+	2	2-	3-	20	19	21	19	21
6		2-	3-	4	3+	3-	2+	2	2+	21	12	0.7	2-	3-	3+	4-	3-	2+	2	2	23	22	24	28	18
7	Q8A	2-	2	2-	2	2-	2	3-	2+	16	8	0.4	1	1+	1+	2	2	2	3-	3-	15	17	15	10	22
8	Q2	1	1	1+	1	1+	1+	1-	1-	8+	4	0.1	1	1-	1	1	2-	2-	1	1+	8	9	6	7	8 CK
9		1+	1+	1	2-	3	3+	3+	4	19	12	0.7	1	1	1	2-	3+	4-	3	4-	24	26	23	11	39
10	D1	5+	6	6	6-	5	4-	3	3-	37+	48	1.6	5-	5-	5+	5+	4+	3	3	3-	65	62	78	100	40
11	D2	5	4	5+	4+	3+	4+	5+	6-	37+	42	1.5	5-	3+	5-	4-	4-	4	4	5-	58	71	49	61	60
12	D3	5-	5	5-	4+	3+	4-	4-	4	33+	31	1.3	4-	4	4-	4-	3+	3+	3	3+	42	45	39	39	45
13		3+	3+	3+	2+	3-	2+	4	3+	25-	16	0.9	3	3-	3-	2	3-	3-	3+	3	26	40	25	23	42
14		4+	3	3+	2	2+	3	3+	4-	25	17	0.9	4-	2+	3-	2-	3-	3	3	4-	28	35	22	24	33
15	D4	4+	4	3-	3+	5-	5-	4-	3	30+	26	1.2	3+	3	2+	3	4+	4	4-	3-	39	40	41	29	51
16		2	3-	3+	2-	2-	2	3-	3	19	10	0.6	2-	2-	3-	2-	2-	2+	2+	2+	16	25	14	18	21
17	Q6K	3	2	2+	1	0+	0	0+	1-	10-	5	0.2	2+	1+	2	1	1	1-	0+	1	9	11	8	16	4 CK
18	Q4	0+	1-	1+	2-	1+	2	2	1+	11-	5	0.2	1-	0+	1	1+	1+	2-	2	1+	8	11	7	4	14 CK
19		3+	3	2	2+	1+	1	2-	2+	17	9	0.5	3-	2	2-	2+	1+	1+	2-	3-	16	24	13	24	14
20		1+	2+	2	3	4+	5	5-	4+	27	23	1.1	1+	2	2+	4-	4	4-	3+	4-	34	39	29	21	47
21		3	3-	3+	3-	3	1	2-	1	18+	11	0.6	3-	2+	3-	2+	3	1	1+	1	17	19	21	26	13
22		3+	3	3-	1+	2+	3-	1	1	17+	10	0.6	3	2+	2+	2-	2+	2+	1+	1+	17	20	16	20	16
23	Q10A	1+	1+	2-	2-	1+	1+	3+	4	16	10	0.5	1+	1+	2-	2	2-	2-	3	3+	17	24	17	12	30
24		5	4+	4	4-	4	3+	3+	2-	29+	25	1.2	4+	4	3+	3	4-	3-	3	2-	37	35	36	42	29
25	Q9A	3+	4-	2-	2	2-	1	1+	2-	16+	9	0.5	3	3-	2-	2	2-	1+	1+	2-	15	20	9	19	10
26		1+	1	1-	3	3	3+	3	2-	17	10	0.6	1+	1	1-	3+	3	3	3	2	20	21	17	14	24
27	Q7K	2-	3	1+	2-	2	3-	2-	1+	15+	8	0.4	1+	2+	1	2	2	2	2	1+	13	19	11	12	17
28	Q3	1+	1+	2+	2-	0+	0	0	1-	8-	4	0.1	1+	1	3-	2-	0+	0+	0+	1-	8	8	9	14	3 CK
29		0+	1	1-	2	2	3-	4	3+	16	10	0.6	1-	1	1-	3-	3-	2+	4	3	21	19	23	10	33
30		6-	5-	2+	2	3-	2	2+	3-	24+	20	1.0	5	3+	2+	2	3-	2+	2+	3-	32	35	41	49	26
31	D5	3	4	4-	3+	3+	4+	5-	4	30+	25	1.2	2+	3	3+	3	3+	4-	4+	3+	37	47	44	30	61
Mean											15	0.69									23.5	27.0	23.3	25.1	

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	1+	2-	1-	0	0+	0+	0+	1	5	1	2-	1	1-	0+	0+	0+	1	6	160.5	115	120	111		
2	1+	0+	1+	2	2+	2-	2	1+	11	2-	0+	1	2	2	2-	2	1+	11	162.8	117	130	114		
3	2-	1+	1+	2	2	2-	3	4-	18	2	2+	2	2	2-	2-	2	3	17	177.4*	140	146	130		
4	2	3-	3	3	3+	3+	4	3-	31	2	3	3+	3	3	3	4-	2+	30	186.8	134	147	140		
5	2	2	3-	2+	3+	2+	1+	3	21	2	2+	3-	3-	3	2	2-	3-	21	170.0	123	130	122		
6	1+	3-	4-	4-	3-	2+	2	2	24	2	3-	3	3	3-	2+	2	2	22	170.0	124	136	122		
7	1	2-	1+	2-	2	2	3-	2+	15	1	1+	1+	2	2	2	3-	3-	15	169.3	135	150	121		
8	1	1-	1	1	2-	2	1+	1+	9	1	1-	1	1	2-	1+	1	1+	8	175.9*	141	155	128		
9	1-	1	1	2-	3+	4-	3	4-	23	1+	1	1	2-	3+	4-	3+	4-	25	183.9	148	156	137		
10	5-	5-	5	6-	5-	3+	3-	3-	66	5-	4+	6-	5	4	3-	3+	3-	63	194.7	153	173	148		
11	4+	3+	5-	4-	3+	4+	4+	5-	59	5-	3+	4+	4	4-	4-	4	5-	58	205.1	195	199	160		
12	4	4	4-	4-	3+	3+	3+	4-	44	4-	4-	4	4-	3	4-	3	3	40	200.6	192	190	155		
13	3	3-	3-	2	3	3-	4-	3+	28	3+	3-	2	2-	3-	3-	3	3	23	209.4	201	207	164		
14	4-	3-	3-	2-	3-	3	3	4-	28	3+	2+	3	2	2+	3	3	4-	28	220.6	202	208	176		
15	4-	3	2+	3	5-	4+	4-	3-	42	3+	3	2	3	4	4	4-	3-	36	231.6	227	221	188		
16	2-	2-	3-	2-	2-	2	2+	3-	16	2	1+	3-	2	1+	2+	2+	2+	16	224.6	192	193	181		
17	2+	2-	2+	1	1-	0+	1-	1-	9	2+	1+	2-	1	1+	1	0+	1+	9	193.7	182	190	147		
18	0+	0+	1+	1+	2-	2-	2	1+	9	1	1-	1-	1+	1+	2-	2-	1	8	198.2	181	185	152		
19	3	2	1+	2	1+	1	2-	2+	14	3-	2	2	3-	1+	1+	2	3	18	214.2*	181	173	169		
20	1+	2	2-	4-	4-	4-	3+	3+	31	1+	2	2+	4-	4	4	3+	4	36	201.7	169	152	156		
21	2+	2	3-	2+	3	1	2-	1	17	3-	3-	3-	2	3-	1+	1	1	17	188.7	136	141	142		
22	3	2	2	2-	3	3-	1+	1	16	3	3-	3-	2-	2	2	1+	1+	18	167.9	140	143	119		
23	1	1	1+	2-	1+	1+	3-	3+	15	2-	1+	2	2+	2-	2-	3	3+	19	164.0	134	137	115		
24	4	3+	3+	3	4-	3	3	2-	34	5-	4+	4-	3+	4	3-	3	2-	42	157.5	131	132	108		
25	3	3-	2-	2+	2-	1+	1	2-	15	3-	3-	1+	2	2-	1+	1+	2	14	161.8	125	130	113		
26	1-	1	1-	3-	3-	3	3-	2-	16	2-	1-	1	4-	3	3+	3	2+	24	153.5	102	111	104		
27	1+	2+	1-	2	2+	2+	2-	1+	13	1+	2+	1+	2	2	2-	2+	1+	13	162.5	104	110	114		
28	1	1	2+	1+	0+	0+	0+	0+	6	1+	1	3	2	0+	0+	0+	1	10	150.9	114	107	101		
29	0+	1	0+	2+	2+	2+	4-	3	18	1-	1+	1-	3-	3-	2	4+	3+	24	155.9	98	108	106		
30	5	4-	2+	2+	2+	2	2+	3-	31	5	3+	2+	2-	3-	2+	3-	3	33	151.1*	87	89	101		
31	2+	3	3+	3	3+	4-	4	3	34	2	3	3+	3	3+	4-	5-	4-	40	141.6	77	84	91		
Mean									23.2									24.0	180.9	145.2	150.1	133.4		

DAILY AVERAGE INDICES Ap

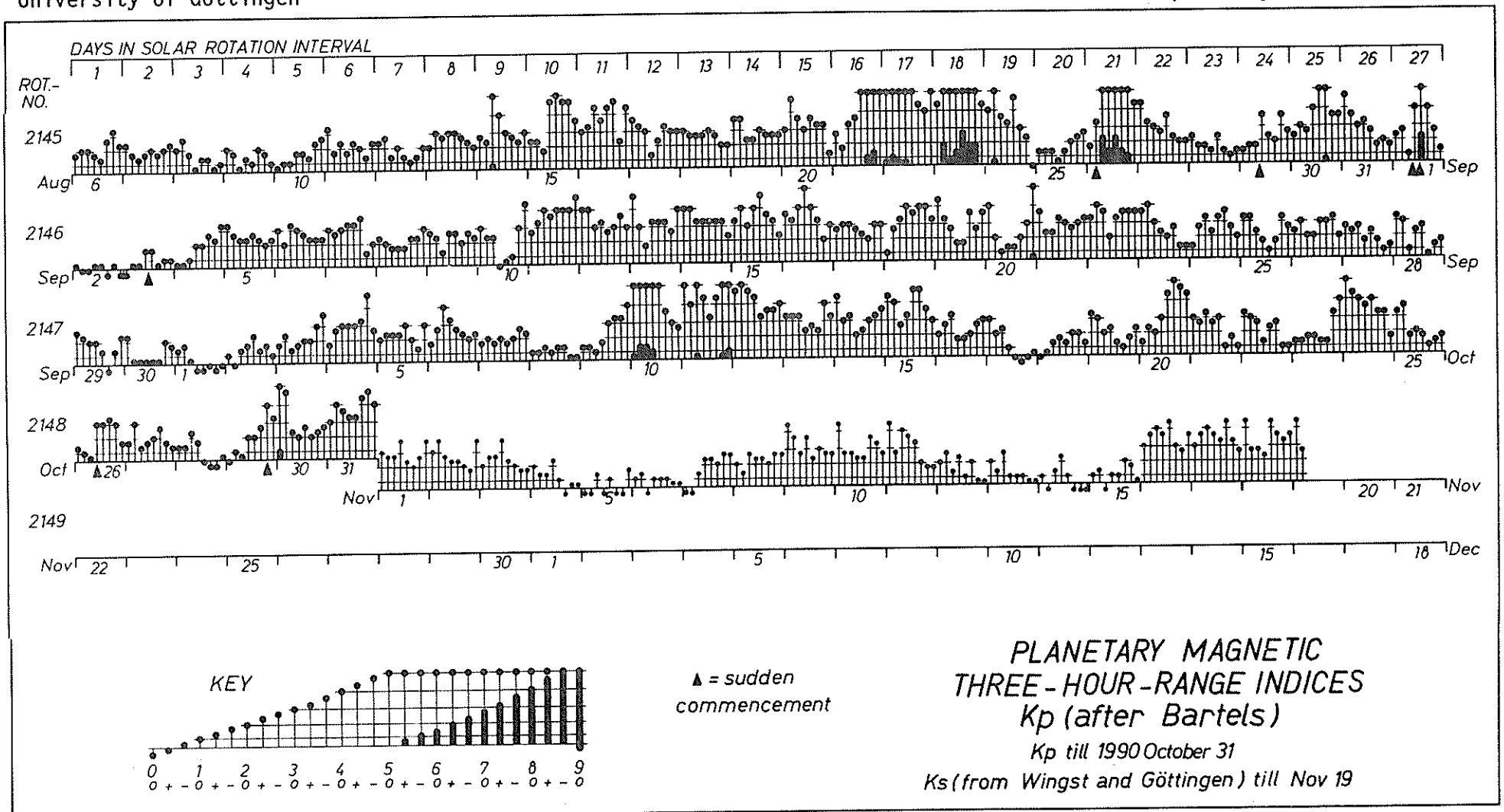
November 1989 to October 1990

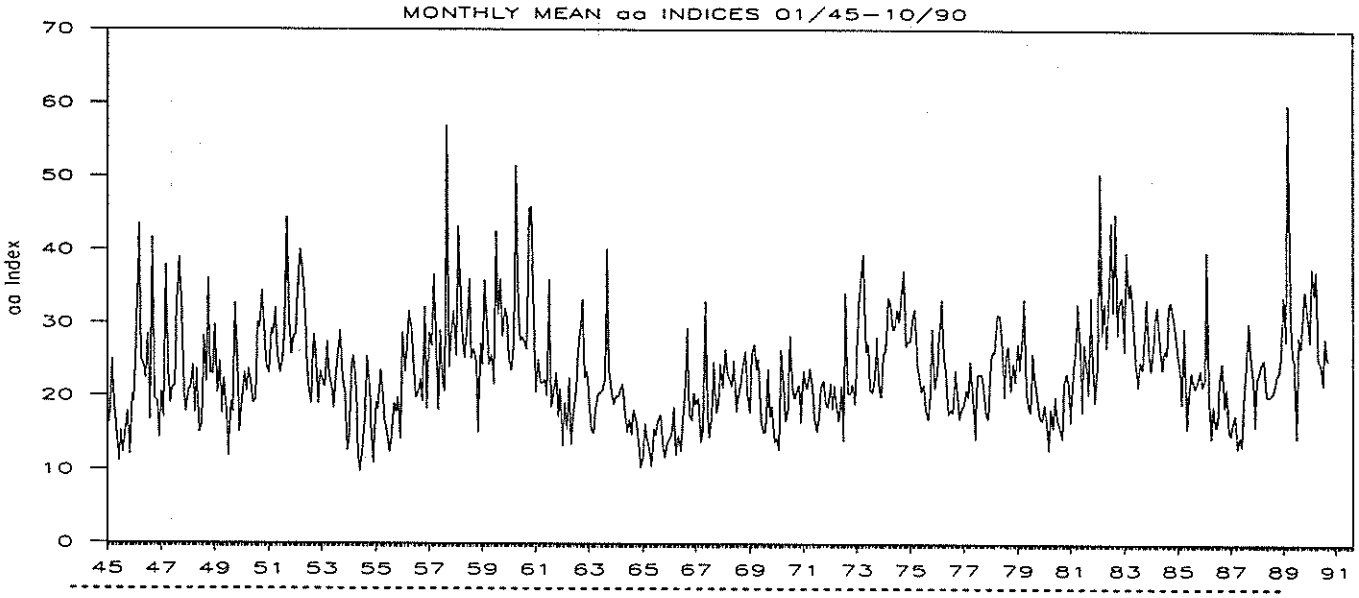
DAY	1989 NOV	DEC	1990 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	8	38	16	22	20	6	8	10	5	26	26	2
2	21	22	17	25	14	11	10	6	6	9	2	5
3	26	26	15	8	10	17	18	6	7	11	4	10
4	28	31	12	28	6	10	12	5	8	6	8	16
5	19	14	17	24	11	10	10	5	10	5	11	10
6	11	5	7	10	21	7	5	10	7	9	12	12
7	19	10	6	25	8	8	7	22	6	7	14	8
8	15	6	11	8	10	6	11	16	10	6	8	4
9	25	4	14	7	8	34	16	32	5	5	10	12
10	10	3	16	8	8	124	33	17	14	6	11	48
11	18	6	18	10	14	64	24	11	7	9	25	42
12	10	8	15	6	42	99	7	89	8	7	19	31
13	43	7	9	9	29	38	11	70	13	12	19	16
14	14	12	8	30	26	45	3	79	12	19	19	17
15	6	10	9	36	11	24	5	9	8	26	22	26
16	5	16	10	50	7	10	3	5	7	25	23	10
17	109	11	9	33	3	40	4	3	6	15	12	5
18	45	7	8	23	35	24	31	10	8	12	19	5
19	8	6	4	33	16	9	18	6	16	14	16	9
20	8	6	14	38	30	18	20	2	16	19	16	23
21	12	8	17	16	76	13	22	5	7	38	15	11
22	6	26	19	21	28	16	32	6	6	49	20	10
23	6	15	20	36	29	37	11	7	4	77	13	10
24	8	20	32	29	18	30	8	8	4	24	13	25
25	2	16	19	29	39	19	20	7	4	6	11	9
26	11	22	10	19	41	16	47	7	14	63	12	10
27	16	25	4	26	34	15	45	12	9	15	8	8
28	28	10	7	31	24	20	7	7	102	6	9	4
29	19	50	24		27	30	10	8	75	11	7	10
30	20	30	24		69	19	23	4	12	26	5	20
31		35	18		7		11		6	16		25
MEAN	19	16	14	23	23	27	16	16	14	19	14	15

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

University of Göttingen

Kp through October 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	37.8	33.9	37.4	25.1	24.6	21.6	28.2	25.1	25.1			28.6

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

OCTOBER 1990

Sta	Geomag Lat	Commencement Day	Commencement Time (UT)	Type	SC Amplitudes D (Min)	SC Amplitudes H (Gamma)	SC Amplitudes Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	Ranges H (Gamma)	Ranges Z (Gamma)	End Day	End Hour (UT)
FRD	49.6N	09	13--	..	..	..	..	10(1,2,3,4) 11(1,3,8) 12(2)	5	25	136	112	12	15
BJI	28.5N	09	10--	..	..	..	..	10(3)	6	10	196	40	10	21
UJJ	13.5N	09	1200	..	..	..	..		-	4	171	46	12	22
ABG	09.5N	09	1200	..	..	..	..	09(6) 10(1,3,4,6)	5	5	175	60	12	22
HYB	07.6N	09	0700	..	..	..	..	10(3,4)	6	5	206	37	12	23
GUA	04.0N	09	2213	..	..	..	..	01(3)	6	10	250	30	10	15
ANN	01.5N	09	1200	..	..	..	..		-	4	206	101	12	22
ETT	00.6S	09	1000	..	..	..	..		-	5	244	122	13	23
TRD	01.1S	09	1200	..	..	..	..		-	3	256	194	12	22
HER	33.7S	09	11--	..	..	..	..	10(3)	6	17	164	109	10	15
CNB	43.9S	09	12--	..	..	..	..	10(3,4)	6	21	160	95	10	22
KGL	56.5S	09	1200	..	..	..	..		-	95	720	320	12	23
COL	64.6N	10	04--	..	..	..	..	10(4)	7	201	1620	840	10	21
GUA	04.0N	10	22--	..	..	..	..	11(3)	5	--	120	20	11	12
COL	64.6N	11	01--	..	..	..	..	11(3) 12(4)	7	181	1510	950	12	14
HER	33.7S	11	00--	..	..	..	..	11(1,3,5,8)	5	29	114	92	12	14
HYB	07.6N	13	1400	..	..	..	..	15(5)	5	4	129	28	15	22
ETT	00.6S	13	1400	..	..	..	..		-	5	215	54	15	21
HYB	07.6N	19	2000	..	..	..	..	20(4)	6	6	158	26	21	15
UJJ	13.5N	20	0400	..	..	..	..		-	6	143	40	21	21
ABG	09.5N	20	0400	..	..	..	..	20(5)	5	6	155	49	21	21
GUA	04.0N	20	07--	..	..	..	..	20(4)	5	--	110	10	20	16
ANN	01.5N	20	0400	..	..	..	..		-	-	--	--	21	21
ETT	00.6S	20	0100	..	..	..	..		-	6	238	61	21	15
TRD	01.1S	20	0400	..	..	..	..		-	4	246	105	21	21
HER	33.7S	20	07--	..	..	..	..	20(5,6)	5	32	136	106	20	23
KGL	56.5S	20	0900	..	..	..	..	20(6,7,8)	6	68	416	240	21	02
UJJ	13.5N	23	1900	..	..	..	..		-	5	91	46	24	21
ABG	09.5N	23	1900	..	..	..	..	24(5)	5	5	95	54	24	21
ANN	01.5N	23	1900	..	..	..	..		-	--	--	--	24	21
ETT	00.6S	23	1945	..	..	..	..		-	6	177	52	25	15
TRD	01.1S	23	1900	..	..	..	..		-	3	188	101	24	21
KGL	56.5S	23	2000	..	..	..	..	24(1)	6	32	336	296	24	22
GUA	04.0N	24	00--	..	..	..	..	24(1)	6	--	120	20	24	15
UJJ	13.5N	26	1133	SC	- .4	24	- 7		-	3	46	18	27	19
ABG	09.5N	26	1133	SC	- .7	20	- 7	26(6,7)	4	4	48	26	27	19
HYB	07.6N	26	1135	SC	- .3	20	- 2		-	--	--	--	--	--
ANN	01.5N	26	1133	..	..	..	..		-	--	--	--	27	19
ETT	00.6S	26	1135	SC	- .7	24	19		-	3	107	29	27	18
TRD	01.1S	26	1133	SC	- .1	29	36		-	2	106	51	27	19
HER	33.7S	26	1134	SC*	5 *	28	28 *	26(4)	4	14	26	38	26	14
KGL	56.5S	26	1135	SC	- 10	- 56	- 16	26(4,5,6,7)	3	16	96	56	26	20
ETT	00.6S	28	0631	SC	- .2	11	4		-	--	--	--	--	--
FRD	49.6N	29	2012	SC*	- 1.6	48	- 6.5	29(1)	6	25	128	26	30	04
BJI	28.5N	29	2012	SC	.6	12	1	30(1)	5	8	113	14	30	11
UJJ	13.5N	29	2010	SC	- .2	26	- 5		-	5	81	34	31	24
ABG	09.5N	29	2010	SC	- .4	22	- 3	30(1) 31(6)	5	5	89	42	31	24
HYB	07.6N	29	2011	SC	.2	22	- 1	30(1) 31(6)	5	4	94	24	31	23
GUA	04.0N	29	2011	SC	.2	7	- 3	30(1)	6	--	120	30	30	11
ANN	01.5N	29	2010	..	..	..	..		-	--	--	--	31	24
ETT	00.6S	29	2011	SC	- .1	15	13		-	4	176	58	31	22
TRD	01.1S	29	2010	SC	.1	20	29		-	2	177	86	31	24
HER	33.7S	29	2012	SC	2	38	16	30(1)	5	22	25	52	30	04
KGL	56.5S	29	2011	SC	5	16	4	30(1)	6	36	320	122	30	13
HER	33.7S	31	19--	..	..	..	..	31(7)	5	8	47	48	01	01

C O N T E N T S

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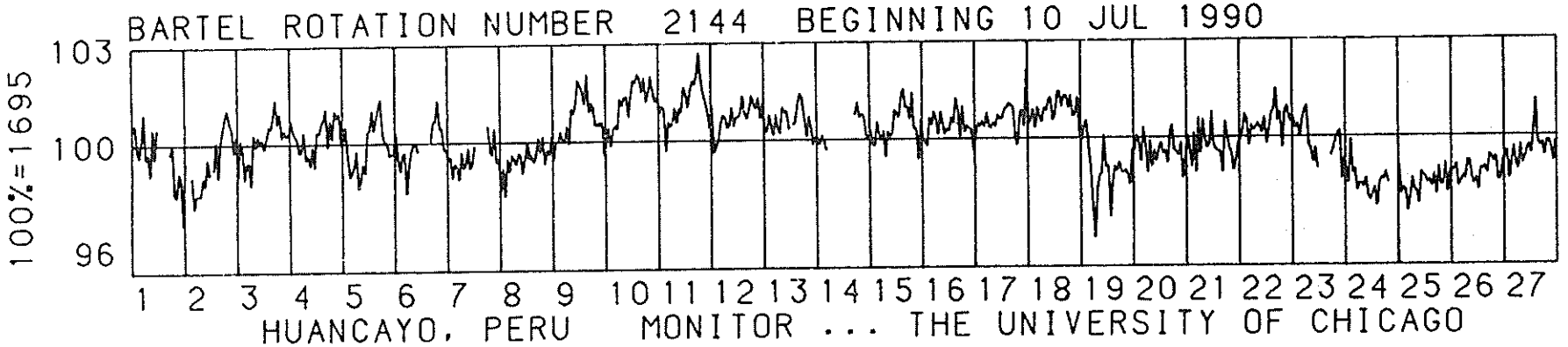
COSMIC RAY INDICES
(Neutron Monitor)

AUGUST 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		5872.6	5322.8	3331.9	3393.7	1694.1(32)
2		5753.0	5178.5	3261.4	3349.9	1670.5(36)
3		5738.0	5194.9	3251.4	3350.0	1669.6
4		5797.5	5247.1	3292.4	3363.0	1676.3
5		5832.8	5294.1	3329.2	3380.0	1687.4
6		5870.4	5357.6	3338.8	3388.8	1693.3
7		5884.2	5330.5	3348.3(34)	3390.2	1698.8
8		5900.8	5321.0	3346.8	3390.7	1702.2
9		5923.7	5346.4	3367.4	3401.5	1710.3
10		5946.0	5355.6	3376.6	3404.7	1706.8
11		5935.2	5353.8	3383.0	3403.3	1709.8
12		5965.2	5380.4	3397.8	3412.5	1718.5
13		5973.1	5402.1	3419.9	3432.3	1721.5
14		5950.3	5359.7	3393.1	3416.2	1710.1
15		5911.2	5350.0	3387.9	3418.9	1708.1(38)
16		5779.1	5235.4	3299.9	3372.3	1686.4
17		5768.1	5227.2	3278.3	3365.5	1680.1
18		5766.4	5229.7	3282.4	3366.5	1679.0
19		5813.8	5251.6	3301.3	3374.4	1683.9
20		5841.6	5260.9	3311.4	3382.1	---
21		5847.1	5216.3	3319.5	3379.6	---
22		5832.9	5237.3	3308.4	3382.2	---
23		5886.6	5306.3	3367.7	3401.5	---
24		5875.7	5297.8	3349.9	3398.0	---
25		5909.8	5339.8	3374.8	3409.3	---
26		5860.7	5276.5	3344.5	3410.9	---
27		5739.8	5212.6	3267.4	3382.3	---
28		5862.4	5298.5	3332.3	3391.2	1687.8(12)
29		5894.0	5344.0	3335.9	3382.6	1696.9
30		5922.8	5338.7	3366.5	3391.5	1698.3
31		5892.7	5326.2	3362.5	3385.3	1685.0
Mean		5862.9	5296.6	3336.8	3389.3	1694.6

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.

COSMIC RAY INDICES
(Neutron Monitor)



GEOMAGNETIC ACTIVITY INDICES

September 1990

Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	aa Provisional Am	N	S	M	
1	D4	2+	3-	1	4	7-	4	3-	1+	25-	26	1.2	2+	3-	1	3+	6-	4-	3-	2-	38	34	38	24	47	
2	Q1	1-	0+	0+	1-	1-	0	1-	0	3+	2	0.0	1	1-	0	1-	1-	0+	1-	0+	4	9	4	8	5	C
3	Q2	0	1-	1-	2-	2-	1-	1	1	7+	4	0.1	0+	1-	1	1+	1+	1-	1+	1	6	12	3	6	9	CC
4	Q6A	1-	1-	1	2	2	3-	2+	3+	15-	8	0.4	1	1-	1	2	2	3-	2	3	15	19	20	11	29	
5		3+	3-	2+	2+	3-	2+	2	2+	20	11	0.6	4-	3-	2+	3-	3-	2+	2-	3-	22	26	17	24	19	
6		3	2	3+	3	3-	2+	2+	2+	21	12	0.7	3-	2	3+	3-	3-	2	3-	3-	23	26	24	27	23	
7		3	3-	3	3+	3+	4-	1+	2	22+	14	0.8	3	2+	3	3	3+	3	1+	2-	26	25	29	28	26	
8	Q7A	2+	2	2-	2-	2-	2+	2+	3	17	8	0.5	2	2-	2-	2-	2-	2	2+	3	16	29	14	14	30	
9	Q9A	3-	2+	1+	3-	3-	2	3-	2+	19-	10	0.5	2	2-	1-	2	2	2+	3-	3-	16	25	12	15	22	
10	Q10A	3	2+	2+	0+	1-	1	3	4+	17	11	0.6	3	2+	3-	1-	1-	1	3	4	21	22	21	17	25	
11	D1	3-	3+	4	4-	4	4	4	5-	30+	25	1.2	3-	3+	4	4-	4-	3	4-	4+	43	48	41	40	49	
12		4	4	3	3+	3-	3	4-	3	27-	19	1.0	3+	4	3	3+	3-	2+	4-	3-	33	35	32	34	33	
13		5-	3	2-	3+	3+	3+	3-	4	26	19	1.0	4+	3-	2+	3+	3	3+	3-	3+	33	42	27	36	33	
14		4	4	3+	3+	3+	3+	3+	2+	27	19	1.0	4-	3+	3	3+	3	3	3	2	32	50	28	42	36	
15	D3	3+	4	3	4	5-	4-	3+	2+	28+	22	1.1	3	4-	3-	4	4	4-	3	2+	39	38	51	42	48	
16	D2	4-	3+	4	5	4	3+	2	3	28+	23	1.1	4-	3-	4-	4+	4-	3-	2-	3-	35	40	30	42	28	
17		3-	3	3	3-	2+	2	3	3	22-	12	0.7	2+	2	3-	2	2+	2-	3-	3	19	26	16	19	23	
18		1	3-	3+	4	4-	4	4	3+	26	19	1.0	1	2	3	4	3	4-	4-	3+	33	37	31	28	40	
19		4+	3+	3-	2-	2-	4-	3-	4-	24-	16	0.9	4-	3-	3-	2	2-	4-	3-	3+	28	36	19	24	31	
20		4	2	1	1+	1+	2	3	5+	20	16	0.9	3+	2-	1	1	2-	3	3+	5-	27	31	22	16	36	
21		4-	2+	2+	3+	3	3-	3	3+	24-	15	0.8	3	2+	2	3	3+	3-	3	3	27	28	25	21	32	
22	D5	3+	4	4-	2	3+	4-	4-	4-	27+	20	1.0	3-	3+	3+	2+	3	3+	3-	3+	31	40	28	26	41	
23		4-	4	3	2+	2	3-	1+	1+	20+	13	0.7	3	3+	3-	2+	2-	3-	2	2	22	24	20	28	16	
24		1+	3-	3+	2+	3+	4-	3-	2	21+	13	0.7	1+	2	3	2+	4-	3	3-	2-	23	27	25	20	32	
25		3+	3+	2+	2-	1	2-	3+	3-	19+	11	0.7	3	3-	2+	1+	1	1+	3+	3-	20	27	12	19	21	
26		2+	3	2	2	3	3	3+	2	21-	12	0.7	2	2	2-	2	3	3-	3	2	19	29	17	17	29	
27	Q5A	3-	2+	3-	2-	2+	2-	1	1+	16-	8	0.4	3-	2	3-	1+	3-	2	1+	1+	15	21	11	15	17	
28	Q8A	3+	3	1	2+	3-	1-	1+	2-	16	9	0.5	3	2+	1-	2+	2+	1	1+	2-	15	20	17	22	14	
29	Q4A	3-	2+	2	2	1+	0	1+	2+	14	7	0.3	2+	2-	2-	2-	1+	0	1+	2+	12	16	11	17	11	K
30	Q3	2+	1-	1-	1-	1-	1-	2	2-	9+	5	0.2	2	1	1	0+	1-	0+	2-	2	8	13	5	10	9	CC
Mean											14	0.71									23.4	28.5	21.7	25.1	

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	2+	3	1	3+	6	4	2+	2-	41	2	3-	1	3+	5+	3+	3-	1+	34	171.4	126	125	123	
2	1+	1-	0+	0+	0+	0	1-	0	3	1-	1-	0	1-	1	0+	1-	1-	4	168.9	116	124	120	
3	0	1-	1+	1+	2-	1	1+	2-	8	0+	1-	1-	1+	1-	1	1	1-	5	162.6	131	135	114	
4	1	1-	1	2+	2+	3-	2	3	16	1	1-	1	2-	2	3-	2	3	14	158.2*	134	141	109	
5	3	3-	3-	3-	3-	3-	2-	3-	24	4+	3-	2	2	2	2-	1+	2	21	157.5	118	119	108	
6	2+	2	3+	3	3-	2+	3-	3-	24	3	2-	4-	2+	3-	2	3-	2+	23	157.6	118	114	108	
7	3-	2	3+	3	4	3+	2-	2-	27	3+	3-	3	3	3	3-	1+	2-	24	165.1	103	107	116	
8	2	2-	2-	1+	2-	2	3-	3+	17	2+	2-	2	2	2-	2-	2+	3	16	163.5	112	104	115	
9	2+	2-	1	2+	2+	3-	3-	3-	18	2-	2-	1-	2-	2	2-	3-	3-	14	170.4	113	112	122	
10	3-	2+	2	1-	1-	1	3+	4+	21	3+	2+	3	0+	0+	1-	3-	4-	21	171.2	121	118	123	
11	3-	3+	4	4	4+	3+	4-	4	48	3-	3	4-	3+	3+	3	3+	5-	39	180.6	116	113	133	
12	4-	4-	3+	3+	3	3-	4-	3-	36	3+	4	3-	3	3-	2	4-	3-	31	193.3	124	127	147	
13	5-	3-	2+	3+	3	4-	3-	4-	36	4+	2	2	3+	3	3	3-	3	30	198.0	142	139	152	
14	3+	4-	3+	3+	3+	3+	3+	2	34	4-	3	3-	3+	3	3	3	2-	29	209.4*	178	164	164	
15	3	4-	3-	4	4+	4	3	3-	41	3+	3+	3-	4+	4	3	3-	2+	37	207.3	162	158	162	
16	3+	2+	4-	4	4	3	2	3	35	4-	3-	4-	5-	4-	3-	2-	2	35	205.2	156	162	160	
17	3-	2+	3-	2+	3-	2-	3	3	22	2	2	2+	2	2-	2-	2+	3-	16	210.7	142	144	166	
18	1	2	3	4+	3+	4	4	3+	37	1-	2	3-	4-	3	3+	4-	3+	30	207.5	136	138	162	
19	4-	3-	3-	2	2	4-	3	3+	29	4-	3-	3-	2	2-	3+	2+	3+	26	213.8	151	143	169	
20	3	2	1+	1	2-	3-	3	4+	25	3+	1	1-	1	1+	3	4-	5-	28	204.0	135	142	158	
21	3	2+	2+	3+	3+	3	3	3	28	3+	2	2	3	3+	2	3	3	25	203.2	139	138	157	
22	3-	3	3+	2	3	4-	3	3+	30	3	4-	3+	2+	3	3+	3-	3	31	195.3	130	133	149	
23	3-	3	3	2	2-	3	2	2+	22	3	3+	3-	3-	2-	2+	2	2-	21	185.4	110	113	138	
24	1+	2+	3	2+	4	3+	3-	2-	25	1+	2-	3-	2	3+	3	3-	2	20	178.7	101	101	131	
25	3	3-	2+	1+	1+	2-	3	3-	20	3+	3-	2	2-	1-	1+	3+	3-	20	167.1	101	97	118	
26	2+	2+	2-	2-	3	3-	3+	2	20	2	2	1+	2+	3	3-	3-	2-	18	159.6	93	98	110	
27	2+	2	3-	2-	3-	2	2-	1+	16	3	2	2+	1+	2+	2-	1-	1+	15	152.6	77	95	103	
28	3-	2+	1	2-	2	1-	1+	2-	13	3+	3-	1-	3-	3-	1	1+	2	17	152.1	113	119	102	
29	2+	2-	2-	2-	1-	0	1+	2+	11	3-	1+	2-	2	2-	0+	1+	2+	12	150.1	119	127	100	
30	2	1-	1-	0+	1-	1-	2-	2	8	2	1	1	1-	1-	0+	2-	2-	7	157.8	124	118	108	
Mean									24.5									22.1	179.3	124.7	125.6	131.6	

International Geophysical Calendar 1991

Extended Text for use in Journals:

EXPLANATIONS

This Calendar continues the series begun for the IGY years 1957-58, and is issued annually to recommend dates for solar and geophysical observations which cannot be carried out continuously. Thus, the amount of observational data in existence tends to be larger on Calendar days. The recommendations on data reduction and especially the flow of data to **World Data Centers (WDCs)** in many instances emphasize Calendar days. The Calendar is prepared by the **International Ursigram and World Days Service (IUWDS)** with the advice of spokesmen for the various scientific disciplines. For some programs, greater detail concerning recommendations appears from time to time published in **IAGA News, IUGG Chronicle, URSI Information Bulletin** or other scientific journals or newsletters.

The definitions of the designated days remain as described on previous Calendars. **Universal Time (UT)** is the standard time for all world days. **Regular Geophysical Days (RGD)** are each Wednesday. **Regular World Days (RWD)** are three consecutive days each month (always Tuesday, Wednesday and Thursday near the middle of the month). **Priority Regular World Days (PRWD)** are the **RWD** which fall on Wednesdays. **Quarterly World Days (QWD)** are one day each quarter and are the **PRWD** which fall in the **World Geophysical Intervals (WGI)**. The **WGI** are fourteen consecutive days in each season, beginning on Monday of the selected month, and normally shift from year to year. In 1991 the **WGI** will be February, May, August and November.

The Solar Eclipses are:

a.) 15-16 January 1991 (annular) begins at S30 E109, crosses southwestern Australia, Tasmania and New Zealand and ends in the Pacific Ocean on the equator (S00 W114); duration 9 minutes.

b.) 11 July 1991 (total) begins at N13 W175, crosses Hawaii, Pacific Ocean, Mexico, Central and South America; maximum path width 161 miles; maximum duration 6 minutes 54 seconds; ends at S13 W46.

Meteor Showers (selected by P.M. Millman, Ottawa) include important visual showers and also unusual showers observable mainly by radio and radar techniques. The dates for Northern Hemisphere meteor showers are: Jan 3, 4; Apr 22-23; May 4-5; Jun 8-12; Jul 28-29; Aug 10-14; Oct 21-22; Nov 2-3, 17-18; Dec 12-16, 22-23, 1991; and Jan 3-4, 1992. The dates for Southern Hemisphere meteor showers are: May 4-5; Jun 8-12; Jul 27-30; Oct 21-22; Nov 2-3, 17-18; and Dec 5-7, 12-16, 1991.

The occurrence of unusual solar or geophysical conditions is announced or forecast by the IUWDS through various types of geophysical **"Alerts"** (which are widely distributed by telegram and radio broadcast on a current schedule). Stratospheric warmings **(STRATWARM)** are also designated. The meteorological telecommunications network coordinated by WMO carries these worldwide Alerts once daily soon after 0400 UT. For definitions of Alerts see IUWDS "Synoptic Codes for Solar and Geophysical Data, Third Revised Edition 1973" and its amendments. **Retrospective World Intervals** are selected and announced by MONSEE and elsewhere to provide additional analyzed data for particular events studied in the ICSU Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) programs.

RECOMMENDED SCIENTIFIC PROGRAMS

OPERATIONAL EDITION

(The following material was reviewed in 1990 by spokesmen of IAGA, WMO and URSI as suitable for coordinated geophysical programs in 1991.) **Airglow and Aurora Phenomena.** Airglow and auroral observatories operate with their full capacity around the New Moon periods. However, for progress in understanding the mechanism of many phenomena, such as low latitude aurora, the coordinated use of all available techniques, optical and radio, from the ground and in space is required. Thus, for the airglow and aurora 7-day periods on the Calendar, ionosonde, incoherent scatter, special satellite or balloon observations, etc., are especially encouraged. Periods of approximately one weeks' duration centered on the New Moon are proposed for high resolution of ionospheric, auroral and magnetospheric observations at high latitudes during northern winter.

Atmospheric Electricity. Non-continuous measurements and data reduction for continuous measurements of atmospheric electric current density, field, conductivities, space charges, ion number densities, ionosphere potentials, condensation nuclei, etc.; both at ground as well as with radiosondes, aircraft, rockets; should be done with first priority on the **RGD** each Wednesday, beginning on 2 January 1991 at 0000 UT, 9 January at 0600 UT, 16 January at 1200 UT, 23 January at 1800 UT, etc. (beginning hour shifts six hours each week, but is always on Wednesday). Minimum program is at the same time on **PRWD** beginning with 16 January at 1200 UT. Data reduction for continuous measurements should be extended, if possible, to cover at least the full RGD including, in addition, at least 6 hours prior to indicated beginning time. Measurements prohibited by bad weather should be done 24 hours later. Results on sferics and ELF are wanted with first priority for the same hours, short-period measurements centered around the minutes 35-50 of the hours indicated. **Priority Weeks** are the weeks which contain a PRWD; minimum priority weeks are the ones with a QWD. The World Data Centre for Atmospheric Electricity, 7 Karbysheva, Leningrad 194018, USSR, is the collection point for data and information on measurements.

Geomagnetic Phenomena. It has always been a leading principle for geomagnetic observatories that operations should be as continuous as possible and the great majority of stations undertake the same program without regard to the Calendar.

Stations equipped for making magnetic observations, but which cannot carry out such observations and reductions on a continuous schedule are encouraged to carry out such work at least on RWD (and during times of **MAGSTORM** Alert).

Ionospheric Phenomena. Special attention is continuing on particular events which cannot be forecast in advance with reasonable certainty. These will be identified by Retrospective World Intervals. The importance of obtaining full observational coverage is therefore stressed even if it is possible to analyze the detailed data only for the chosen events. In the case of vertical incidence sounding, the need to obtain quarter-hourly ionograms at as many stations as possible is particularly stressed and takes priority over recommendation (a) below when both are not practical.

For the vertical incidence (VI) sounding program, the summary recommendations are: (a) All stations should make soundings on the hour and every quarter hour; (b) On **RWDs**, ionogram soundings should be made at least every quarter hour and preferably every five minutes or more frequently, particularly at high latitudes; (c) All stations are encouraged to make f-plots on **RWDs**; f-plots should be made for high latitude stations, and for so-called "representative" stations at lower latitudes for all days (i.e., including **RWDs** and **WGIs**) (Continuous records of ionospheric parameters are acceptable in place of f-plots at temperate and low latitude stations); (d) Copies of hourly ionograms with appropriate scales for **QWDs** are to be sent to WDCs; (e) Stations in the eclipse zone and its conjugate area should take continuous observations on solar eclipse days and special observations on adjacent days. See also recommendations under **Airglow and Aurora Phenomena.**

For the incoherent scatter observation program, every effort should be made to obtain measurements at least on the **Incoherent Scatter Coordinated Observation Days**, and intensive series should be attempted whenever possible in WGIs or the **Airglow and Aurora Periods.** The need for collateral VI observations with not more than quarter-hourly spacing at least during all observation periods is stressed. Special programs: Dr. V. Wickwar, Utah State University, Center for Atmospheric and Space Sciences, Logan, UT 84322-4405 U.S.A., URSI Working Group G.5. Phone: (801)750-3641.

For the ionospheric drift or wind measurement by the various radio techniques, observations are recommended to be concentrated on the weeks including **RWDs.**

For traveling ionosphere disturbances, propose special periods for coordinated measurements of gravity waves induced by magnetospheric activity, probably on selected **PRWD** and **RWD.**

For the ionospheric absorption program half-hourly observations are made at least on all **RWDs** and half-hourly tabulations sent to WDCs. Observations should be continuous on solar eclipse days for stations in eclipse zone and in its conjugate area. Special efforts should be made to obtain daily absorption measurements at temperate latitude stations during the period of Absorption Winter Anomaly, particularly on days of abnormally high or abnormally low absorption (approximately October-March, Northern Hemisphere; April-September, Southern Hemisphere).

For back-scatter and forward scatter programs, observations should be made and analyzed on all **RWDs** at least.

For synoptic observations of mesospheric (D region) electron densities, several groups have agreed on using the **RGD** for the hours around noon.

For ELF noise measurements involving the earth-ionosphere cavity resonances any special effort should be concentrated during the **WGIs.**

It is recommended that more intensive observations in all programs be considered on days of unusual meteor activity.

Meteorology. Particular efforts should be made to carry out an intensified program on the **RGD** -- each Wednesday, UT. A desirable goal would be the scheduling of meteorological rocketsondes, ozone sondes and radiometer sondes on these days, together with maximum-altitude rawinsonde ascents at both 0000 and 1200 UT.

During **WGI** and **STRATWARM** Alert Intervals, intensified programs are also desirable, preferably by the implementation of RGD-type programs (see above) on Mondays and Fridays, as well as on Wednesdays.

Solar Phenomena. Observatories making specialized studies of solar phenomena, particularly using new or complex techniques, such that continuous observation or reporting is impractical, are requested to make special efforts to provide to WDCs data for **solar eclipse** days, **RWDs** and during **PROTON/FLARE ALERTS.** The attention of those recording solar noise spectra, solar magnetic fields and doing specialized optical studies is particularly drawn to this recommendation.

FLARES22(FLAre RESearch at the maximum of solar cycle 22). 1990-1995 worldwide Solar-Terrestrial Energy Program (STEP) project. Aimed at understanding basic physical processes of transient solar activity and its coupling with the solar-terrestrial environment, including times of the various solar **ALERTS.** Coordinates satellite and ground-based observations. Observational campaigns are driven by specific scientific objectives rather than observations per se. Satellites include SOLAR-A, GRO, CORONAS, WIND, GEOTAIL, ULYSSES, etc. Program will focus on international collaboration of data analyses and theoretical work via electronic mail and workshops. For more information, contact Dr. M. Machado, Department of Physics, The University of Alabama in Huntsville, Huntsville, AL 35899 USA. Phone: (205)895-6676; FAX number is (205)895-6790; SPAN e-mail address is SSL::MACHADO or SOLAR::MMACHADO.

SOLTIP (SOlar connection with Transient Interplanetary Processes). Proposed program within the SCOSTEP STEP (Solar-Terrestrial Energy Program) project: 1990-1995. It will focus on remote and <u>in situ</u> observations and analyses of solar-generated phenomena and their propagation throughout the heliosphere, including times following the various solar **ALERTS.** Desired goals include: (1) interplanetary scintillation observation of remote radio galaxies as well as telemetry signals to/from interplanetary spacecraft; (2) coordination of Earth-orbiting spacecraft such as IMP-8 in the solar wind and solar-orbiting spacecraft such as ICE, GIOTTO, SAKIGAKE, VOYAGER 1/2, PIONEER 10/11, ULYSSES, RELICT, WIND, and SOHO. Contact is Dr. M. Dryer, NOAA R/E/SE, 325 Broadway, Boulder, CO 80303 USA. Phone: (303)497-3978; FAX number is (303)497-3645; SPAN e-mail address is SELVAX::MDRYER.

Space Research, Interplanetary Phenomena, Cosmic Rays, Aeronomy. Experimenters should take into account that observational effort in other disciplines tends to be intensified on the days marked on the Calendar, and schedule balloon and rocket experiments accordingly if there are no other geophysical reasons for choice. In particular it is desirable to make rocket measurements of ionospheric characteristics on the same day at as many locations as possible; where feasible, experimenters should endeavor to launch rockets to monitor at least normal conditions on the **Quarterly World Days (QWD)** or on **RWDs**, since these are also days when there will be maximum support from ground observations. Also, special efforts should be made to assure recording of telemetry on **QWD** and **Airglow and Aurora Periods** of experiments on satellites and of experiments on spacecraft in orbit around the Sun.

The **International Ursigram and World Days Service (IUWDS)** is a permanent scientific service of the **International Union of Radio Science (URSI)**, with the participation of the **International Astronomical Union** and the **International Union Geodesy and Geophysics.** **IUWDS** adheres to the **Federation of Astronomical and Geophysical Data Analysis Services (FAGS)** of the **International Council of Scientific Unions (ICSU).** The **IUWDS** coordinates the international aspects of the world days program and rapid data interchange.

This Calendar for 1991 has been drawn up by H.E. Coffey, of the IUWDS Steering Committee, in association with spokesmen for the various scientific disciplines in SCOSTEP, IAGA and URSI and other ICSU organizations. Similar Calendars are issued annually beginning with the IGY, 1957-58, and are published in various widely available scientific publications.

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Additional copies are available upon request to IUWDS Chairman, Dr. R. Thompson, IPS Radio and Space Services, Department of Administrative Services, P.O. Box 1548, Chatswood, NSW 2057, Australia (FAX number (61)(2)414 8331; e-mail address is richard@ipso.ips.oz.au), or IUWDS Secretary for World Days, Miss H.E. Coffey, WDC-A for Solar-Terrestrial Physics, NOAA E/GC2, 325 Broadway, Boulder, Colorado 80303, USA (FAX number (303)497-6513; e-mail address is hcoffey%9555.span@ames.arc.nasa.gov).

Footnotes to front of calendar --

NOTES on other dates and programs of interest:

1. Days with unusual meteor shower activity are: Northern Hemisphere Jan 3,4; Apr 22-23; May 4-5; Jun 8-12; Jul 28-29; Aug 10-14; Oct 21-22; Nov 2-3, 17-18; Dec 12-16, 22-23, 1991; Jan 3-4, 1992. Southern Hemisphere May 4-5; Jun 8-12; Jul 26-30; Oct 21-22; Nov 2-3, 17-18; Dec 5-7, 12-16, 1991.

2. SOLTIP (Solar connection with Transient Interplanetary Processes). Observing Program 1990 - 1995: solar-generated phenomena and their propagation throughout the heliosphere. (See Explanations.)

3. FLARES22 (FLAre RESearch at solar cycle 22 maximum). Observing Program 1990-1995: basic physical processes of transient solar activity and its coupling with solar-terrestrial environment. (See Explanations.)

4. Day intervals that IMP 8 satellite is in the solar wind (begin and end days are generally partial days): 29 Dec 1990-5 Jan 1991; 10-18 Jan; 23-31 Jan; 5-13 Feb; 17-25 Feb; 2-10 Mar; 14-22 Mar; 27 Mar-3 Apr; 9-16 Apr; 21-28 Apr; 4-11 May; 17-24 May; 30 May-5 Jun; 11-17 Jun; 24-30 Jun; 6-12 Jul; 19-25 Jul; 31 Jul-7 Aug; 13-20 Aug; 25 Aug-1 Sep; 7-14 Sep; 20-27 Sep; 3-9 Oct; 15-22 Oct; 27 Oct-3 Nov; 9-16 Nov; 21-29 Nov; 4-11 Dec; 16-24 Dec; 29 Dec 1991-6 Jan 1992. Note that there will not necessarily be total IMP 8 data monitoring coverage during these intervals. (Information kindly provided by the WDC-A for Rockets and Satellites, NASA GSFC, Greenbelt, MD 20771 U.S.A.).

5. + Incoherent Scatter Coordinated Observations Days (see Explanations) starting at 1600 UT on the first day of the intervals indicated, and ending at 1600 UT on the last day of the intervals: 11-12 Jan; 14-20 Mar CADITS/MLTCS/SUNDIAL/WAGS; 9-10 Apr; 11-12 Jun; 10-11 Jul; 10-11 Sep; 7-9 Oct GISMOS; 4-10 Dec CADITS/MLTCS/SUNDIAL/WAGS; 27-29 Jan 1992;

   where CADITS = Coupling and Dynamics of the Ionosphere-Thermosphere System;
   GISMOS = Global Ionospheric Simultaneous Measurements of Substorms;
   MLTCS = Mesosphere, Lower-Thermosphere Coupling Study;
   SUNDIAL = Coordinated study of the ionosphere/magnetosphere;
   WAGS = Worldwide Acoustics Gravity Wave Study.

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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."