U.S. DEPARTMENT OF COMMERCE
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William E. Evans, Under Secretary for Oceans and Atmosphere

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Solar-Geophysical Data prompt reports

Data for November, October 1988, and Late Data

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

NUMBER 532

(Issued in Two Parts)

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C O N T E N T S

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PART II (COMPREHENSIVE REPORTS)

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C O N T E N T S

Prompt Reports DATA FOR **NOVEMBER 1988** Number 532 Part I

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages NOVEMBER 1988

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
306	01	31	157	161	011	S36 W53	0	0	0	01	S36 W53	Q	Solquiet, Magquiet.
						S28 W22	0	0	0		S28 W22	Q	
						N22 W17	1	0	0		N22 W17	Q	
						N28 W30	0	0	0		N28 W30	Q	
						N16 E12	0	0	0		N16 E12	Q	
						S17 E34	3	0	0		S17 E34	E	
						S28 E49	0	0	0		S28 E49	Q	
						N24 E46	0	0	0		N24 E46	Q	
						N25 E66	0	0	0		N25 E66	Q	
						N16 E48	0	0	0		N16 E48	Q	
307	02	01	158	157	007	S37 W64	0	0	0	02	S37 W64	Q	Solquiet, Magquiet.
						S28 W37	1	0	0		S28 W37	Q	
						N20 W30	1	0	0		N20 W30	Q	
						N28 W47	0	0	0		N28 W47	Q	
						N15 W02	1	0	0		N15 W02	Q	
						S16 E21	2	0	0		S16 E21	E	
						S29 E36	0	0	0		S29 E36	Q	
						N25 E53	0	0	0		N25 E53	Q	
						N17 E34	0	0	0		N17 E34	Q	
						N11 E69	7	2	0		N11 E69	E	
						N26 W24	0	0	0		N26 W24	Q	
308	03	02	130	167	024	S36 W77	0	0	0	03	S36 W77	Q	Solquiet, Magquiet.
						S28 W51	0	0	0		S28 W51	Q	
						N27 W60	0	0	0		N27 W60	Q	
						S17 E08	5	0	0		S17 E08	E	
						S29 E24	0	0	0		S29 E24	Q	
						N25 E40	0	0	0		N25 E40	Q	
						N16 E20	2	0	0		N16 E20	Q	
						N11 E56	11	0	0		N11 E56	E	
309	04	03	168	167	024	S36 W89	0	0	0	04	S36 W89	Q	Solquiet, Magquiet.
						S27 W64	0	0	0		S27 W64	Q	
						N27 W71	0	0	0		N27 W71	Q	
						S17 W06	9	0	0		S17 W06	A	
						S29 E10	1	0	0		S29 E10	Q	
						N25 E29	0	0	0		N25 E29	Q	
						N16 E07	0	0	0		N16 E07	Q	
						N12 E43	5	0	0		N12 E43	E	
						N32 W52	0	0	0		N32 W52	Q	
						N22 E74	0	0	0		N22 E74	Q	
		Presto:[2] Sydney				Culgoora Intense Type III duration 1 minute 03/2123 UT. Weak Type II duration 6 minutes 03/2126 UT.							
310	05	04	146	162	007	S16 W19	9	0	0	05	S16 W19	A	Solquiet, Magquiet.
						S28 W03	0	0	0		S28 W03	Q	
						N26 W03	0	0	0		N26 W03	Q	
						N26 E16	0	0	0		N26 E16	Q	
						N17 W04	0	0	0		N17 W04	Q	
						N12 E29	4	0	0		N12 E29	E	
						N32 W66	0	0	0		N32 W66	Q	
						N21 E60	0	0	0		N21 E60	Q	

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages NOVEMBER 1988

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
311	06	05	166	169	008	S16 W34	4	0	0	06	S16 W34	E	Solquiet, Magquiet.
						S29 W15	0	0	0		S29 W15	Q	
						N26 E03	0	0	0		N26 E03	Q	
						N15 W17	0	0	0		N15 W17	Q	
						N12 E16	5	0	0		N12 E16	E	
						N31 W78	0	0	0		N31 W78	Q	
						N22 E46	0	0	0		N22 E46	Q	
						N21 E26	0	0	0		N21 E26	Q	
						N33 W37	0	0	0		N33 W37	Q	
312	07	06	157	165	014	S17 W45	8	1	0	07	S17 W45	E	Solquiet, Magquiet.
						S29 W27	0	0	0		S29 W27	Q	
						N25 W10	0	0	0		N25 W10	Q	
						N15 W30	0	0	0		N15 W30	Q	
						N11 E03	4	0	0		N11 E03	E	
						N32 W90	0	0	0		N32 W90	Q	
						N20 E13	0	0	0		N20 E13	Q	
						N33 W49	0	0	0		N33 W49	Q	
						N24 W67	0	0	0		N24 W67	Q	
313	08	07	150	155	017	S18 W54	3	1	0	08	S18 W54	A	Solquiet, Magquiet.
						S29 W40	0	0	0		S29 W40	Q	
						N26 W23	0	0	0		N26 W23	Q	
						N16 W45	0	0	0		N16 W45	Q	
						N12 W10	7	0	0		N12 W10	E	
						N21 W00	0	0	0		N21 W00	Q	
						N33 W63	0	0	0		N33 W63	Q	
						S32 E10	0	0	0		S32 E10	Q	
						S20 E34	0	0	0		S20 E34	Q	
314	09	08	126	146	013	S17 W69	2	0	0	09	S17 W69	A	Solquiet, Magquiet.
						S28 W53	0	0	0		S28 W53	Q	
						N26 W36	0	0	0		N26 W36	Q	
						N12 W24	1	0	0		N12 W24	E	
						N21 W14	0	0	0		N21 W14	Q	
						N34 W76	2	0	0		N34 W76	Q	
						S34 W06	0	0	0		S34 W06	Q	
						S25 E44	0	0	0		S25 E44	Q	
		Presto:[2] Boulder Proton event 10 pfu at greater than 10 MeV began 08/2225 UT.											
315	10	09	156	156	014	S16 W81	5	0	0	10	S16 W81	A	Solalert 10/XX,
						S28 W66	0	0	0		S28 W66	Q	Magalert 10/11 Flare.
						N25 W49	0	0	0		N25 W49	Q	
						N11 W36	9	2	0		N11 W36	A	
						N18 W26	0	0	0		N18 W26	Q	
						N33 W87	1	0	0		N33 W87	Q	
						S21 E08	0	0	0		S21 E08	Q	
						S26 E31	0	0	0		S26 E31	Q	
						N19 E47	2	0	0		N19 E47	Q	
						N33 E68	2	0	0		N33 E68	Q	
		Presto:[2] Boulder Tenflare 260 flux units 09/1224 UT.											

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages NOVEMBER 1988

Julian Day	Date of Issue	Date of Observation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
316	11	10	184	152	015	S17 W95	0	0	0	11	S17 W95	E	Solalert 11/XX,
						S29 W79	0	0	0		S29 W79	Q	Magalert 11/11 Flare.
						N25 W62	0	0	0		N25 W62	Q	
						N12 W50	4	0	0		N12 W50	A	
						S21 W01	0	0	0		S21 W01	Q	
						S25 E19	0	0	0		S25 E19	Q	
						N19 E34	3	0	0		N19 E34	Q	
						N32 E57	7	0	0		N32 E57	Q	
						S14 W17	0	0	0		S14 W17	Q	
						N14 E61	2	1	0		N14 E61	A	
						N13 E38	0	0	0		N13 E38	Q	
						N15 E75	1	0	0		N15 E75	Q	
		Presto:[2] Boulder Tenflare 730 flux units duration 20 minutes 10/0608 UT.											
317	12	11	192	157	007	S29 W90	0	0	0	12	S29 W90	Q	Solalert 12/XX,
						N25 W75	0	0	0		N25 W75	Q	Magalert 12/12 Flare.
						N12 W62	7	0	0		N12 W62	A	
						S24 W02	0	0	0		S24 W02	Q	
						N20 E21	0	0	0		N20 E21	Q	
						N32 E45	2	0	0		N32 E45	Q	
						S13 W30	0	0	0		S13 W30	Q	
						N13 E47	1	0	0		N13 E47	Q	
						N14 E23	0	0	0		N14 E23	Q	
						N15 E61	1	0	0		N15 E61	E	
						N13 W23	0	0	0		N13 W23	Q	
						N15 E73	0	0	0		N15 E73	Q	
						S25 E03	0	0	0		S25 E03	Q	
318	13	12	211	156	017	N13 W76	6	0	0	13	N13 W76	E	Solalert 13/XX,
						S23 W15	0	0	0		S23 W15	E	Magalert 13/13.
						N20 E08	0	0	0		N20 E08	Q	
						N33 E32	8	1	0		N33 E32	A	
						N13 E34	0	0	0		N13 E34	Q	
						N13 E12	0	0	0		N13 E12	Q	
						N14 E47	0	0	0		N14 E47	Q	
						N13 W37	0	0	0		N13 W37	Q	
						N15 E64	1	0	0		N15 E64	Q	
						S26 W08	1	0	0		S26 W08	Q	
						N17 E01	0	0	0		N17 E01	Q	
						N25 W31	0	0	0		N25 W31	Q	
						N25 W09	1	0	0		N25 W09	Q	
		Presto:[2] Boulder Tenflare 350 flux units duration 8 minutes 12/1606 UT.											

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages NOVEMBER 1988

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
319	14	13	190	171	011	N13 W86	1	0	0	14	N13 W86	E	Solalert 14/XX,
						S23 W28	6	1	0		S23 W28	E	Magalert 14/14.
						N17 W04	0	0	0		N17 W04	Q	
						N32 E18	8	4	0		N32 E18	A	
						N13 E20	0	0	0		N13 E20	Q	
						N13 W03	1	0	0		N13 W03	Q	
						N14 E34	0	0	0		N14 E34	Q	
						N13 W53	2	0	0		N13 W53	E	
						N15 E50	0	0	0		N15 E50	Q	
						S26 W20	0	0	0		S26 W20	Q	
						N17 W12	0	0	0		N17 W12	Q	
		Presto:[2]	Toyokawa	Tenflare 600 flux units duration 18 minutes 13/0520 UT.									
			Boulder	Tenflare 390 flux units duration 12 minutes 13/0528 UT.									
			Toyokawa	Tenflare 940 flux units duration 75 minutes 13/2245 UT.									
			Boulder	Tenflare 700 flux units duration 29 minutes 13/2257 UT.									
			Sydney	Culgoora Type II burst 13/2308 UT.									
			Sydney	Culgoora Soflare S23 W29 subnormal in progress 13/2315 UT.									
320	15	14	182	179	012	S23 W40	10	2	0	15	S23 W40	A	Solalert 15/XX,
						N32 E05	5	2	0		N32 E05	A	Magalert 15/16.
						N12 E05	0	0	0		N12 E05	Q	
						N14 E20	0	0	0		N14 E20	Q	
						N14 W68	1	0	0		N14 W68	Q	
						N15 E37	0	0	0		N15 E37	Q	
						N16 W25	0	0	0		N16 W25	Q	
						N21 E59	3	2	0		N21 E59	A	
						N28 E76	1	0	0		N28 E76	Q	
		Presto:[2]	Boulder	Proton event began 14/0130 UT, maximum of 13 pfu at greater than 10 MeV 14/0235 UT, ended 14/0310 UT.									
				Tenflare 190 flux units duration 14 minutes 14/1436 UT.									
321	16	15	220	174	010	S24 W51	7	0	0	16	S24 W51	A	Solalert 16/XX,
						N23 W33	2	0	0		N23 W33	Q	Magalert 16/XX.
						N33 W08	8	1	0		N33 W08	A	
						N13 W08	0	0	0		N13 W08	Q	
						N17 E23	0	0	0		N17 E23	Q	
						N16 W41	0	0	0		N16 W41	Q	
						N25 W73	0	0	0		N25 W73	Q	
						N21 E46	5	0	0		N21 E46	A	
						N27 E63	1	0	0		N27 E63	Q	
						N26 W36	0	0	0		N26 W36	Q	
						S32 W40	0	0	0		S32 W40	Q	
						N31 E22	0	0	0		N31 E22	Q	
322	17	16	208	189	015	S22 W68	6	0	0	17	S22 W68	A	Solalert 18/20, Magnil.
						N23 W46	1	0	0		N23 W46	Q	
						N34 W18	19	6	0		N34 W18	A	
						N12 W22	0	0	0		N12 W22	Q	
						N15 E10	0	0	0		N15 E10	Q	
						N20 E34	6	1	0		N20 E34	A	
						N27 E51	1	0	0		N27 E51	Q	
						N27 W49	1	0	0		N27 W49	Q	
						S33 W54	1	0	0		S33 W54	E	
						N31 E09	2	0	0		N31 E09	Q	
		Presto:[2]	Boulder	Tenflare 230 flux units 16/0626 UT.									

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages NOVEMBER 1988

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		
323	18	17	212	180	011	S23 W80	1	0	0	18	S23 W80	E	Solalert 18/20,
						N22 W60	0	0	0		N22 W60	Q	Magquiet.
						N33 W33	9	0	0		N33 W33	A	
						N12 W36	2	0	0		N12 W36	Q	
						N15 W03	0	0	0		N15 W03	Q	
						N21 E19	4	0	0		N21 E19	A	
						N27 E37	0	0	0		N27 E37	E	
						N27 W63	2	0	0		N27 W63	Q	
						S33 W64	4	0	0		S33 W64	Q	
						S15 W27	0	0	0		S15 W27	Q	
324	19	18	214	166	007	S24 W90	0	0	0	19	S24 W90	Q	Solalert 19/XX,
						N21 W76	0	0	0		N21 W76	Q	Magquiet.
						N33 W45	4	0	0		N33 W45	E	
						N11 W49	0	0	0		N11 W49	Q	
						N15 W17	0	0	0		N15 W17	Q	
						N21 E06	3	0	0		N21 E06	E	
						N26 E23	2	0	0		N26 E23	Q	
						N26 W76	1	0	0		N26 W76	Q	
						S34 W78	1	0	0		S34 W78	Q	
						S16 W41	0	0	0		S16 W41	Q	
325	20	19	154	156	003	N33 W58	4	0	0	20	N33 W58	E	Solnil, Magquiet.
						N11 W62	0	0	0		N11 W62	Q	
						N15 W31	0	0	0		N15 W31	Q	
						N20 W06	6	0	0		N20 W06	E	
						N27 E10	2	0	0		N27 E10	Q	
						N27 W86	0	0	0		N27 W86	Q	
						S35 W86	1	0	0		S35 W86	Q	
						S15 W56	0	0	0		S15 W56	Q	
326	21	20	131	147	003	N34 W71	2	0	0	21	N34 W71	E	Solquiet, Magquiet.
						N12 W77	0	0	0		N12 W77	Q	
						N15 W43	4	0	0		N15 W43	E	
						N21 W19	5	0	0		N21 W19	E	
						N27 W04	3	0	0		N27 W04	E	
						S16 W72	0	0	0		S16 W72	Q	
						S28 W12	0	0	0		S38 W12	Q	
327	22	21	188	157	005	N34 W77	1	0	0	22	N34 W77	Q	Solquiet, Magquiet.
						N13 W91	0	0	0		N13 W91	Q	
						N15 W57	3	1	0		N15 W57	Q	
						N22 W33	7	0	0		N22 W33	A	
						N28 W16	5	0	0		N28 W16	E	
						S14 W85	0	0	0		S14 W85	Q	
						S37 W22	0	0	0		S37 W22	Q	
						S13 W43	0	0	0		S13 W43	Q	
						N20 E15	0	0	0		N20 E15	Q	
						S30 E59	2	0	0		S30 E59	Q	
						S31 E40	0	0	0		S31 E40	Q	
						N17 E80	0	0	0		N17 E80	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages NOVEMBER 1988

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		
328	23	22	136	150	003	N16 W70	0	0	0	23	N16 W70	E	Solquiet, Magquiet.
						N21 W46	3	0	0		N21 W46	E	
						N28 W27	2	0	0		N28 W27	E	
						S37 W36	1	0	0		S37 W36	Q	
						S13 W56	1	0	0		S13 W56	Q	
						N20 E01	0	0	0		N20 E01	Q	
						S29 E47	0	0	0		S29 E47	Q	
						N18 E67	0	0	0		N18 E67	Q	
329	24	23	146	139	001	N15 W85	0	0	0	24	N15 W85	Q	Solquiet, Magquiet.
						N21 W61	0	0	0		N21 W61	E	
						N29 W42	1	0	0		N29 W42	Q	
						S37 W49	0	0	0		S37 W49	Q	
						S13 W70	0	0	0		S13 W70	Q	
						N20 W14	0	0	0		N20 W14	Q	
						S29 E34	1	0	0		S29 E34	Q	
						N19 E54	2	0	0		N19 E54	Q	
						S28 E03	0	0	0		S28 E03	Q	
330	25	24	145	142	002	N21 W75	1	0	0	25	N21 W75	E	Solquiet, Magquiet.
						N29 W55	0	0	0		N29 W55	Q	
						S37 W62	0	0	0		S37 W62	Q	
						S14 W80	0	0	0		S14 W80	Q	
						N20 W27	0	0	0		N20 W27	Q	
						S29 E21	0	0	0		S29 E21	Q	
						N18 E41	0	0	0		N18 E41	E	
						S28 W10	0	0	0		S28 W10	Q	
						N17 E06	0	0	0		N17 E06	Q	
						S16 E77	2	1	0		S16 E77	E	
331	26	25	121	143	004	N20 W83	1	0	0	26	N20 W83	E	Solquiet, Magquiet.
						N28 W67	1	0	0		N28 W67	Q	
						N21 W39	0	0	0		N21 W39	Q	
						S28 E06	0	0	0		S28 E06	Q	
						N18 E27	0	0	0		N18 E27	E	
						S28 W23	0	0	0		S28 W23	Q	
						S18 E68	1	0	0		S18 E68	A	
						N29 E61	0	0	0		N29 E61	Q	
332	27	26	072	142	013	N29 W81	0	0	0	27	N29 W81	E	Solquiet, Magquiet.
						S28 W09	1	0	0		S28 W09	E	
						N18 E14	1	0	0		N18 E14	E	
						S18 E55	2	1	0		S18 E55	E	
333	28	27	120	145	009	S28 W21	0	0	0	28	S28 W21	Q	Solquiet, Magquiet.
						N19 E01	3	0	0		N19 E01	Q	
						S18 E42	6	1	0		S18 E42	E	
						N30 E34	0	0	0		N30 E34	Q	
						N23 E02	2	0	0		N23 E02	E	
						S17 W08	0	0	0		S17 W08	Q	
						N13 E81	0	0	0		N13 E81	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages NOVEMBER 1988

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location °Lat °Long	Flares Total	M	X	Date of Forecast	Location °Lat °Long	Region Forecast[1]	Geoalerts
334	29	28	099	142	009	S27 W34	1	0	0	29	S27 W34	Q	Solquiet, Magquiet.
						N18 W13	2	0	0		N18 W13	Q	
						S18 E28	6	0	0		S18 E28	E	
						N23 W11	2	0	0		N23 W11	E	
						N13 E68	0	0	0		N13 E68	E	
335	30	29	123	143	007	S27 W47	0	0	0	30	S27 W47	Q	Solquiet, Magquiet.
						N20 W25	1	0	0		N20 W25	Q	
						S28 W74	2	0	0		S28 W74	Q	
						S18 E15	7	0	0		S18 E15	E	
						N24 W24	0	0	0		N24 W24	Q	
						N13 E54	0	0	0		N13 E54	Q	
						N20 E08	0	0	0		N20 E08	Q	
336	01	30	140	140	031	N20 W38	1	0	0	01	N20 W38	Q	Solquiet, Magalert 01.
						S28 W86	0	0	0		S28 W86	Q	
						S17 E02	6	0	0		S17 E02	E	
						N23 W37	0	0	0		N23 W37	Q	
						N14 E41	0	0	0		N14 E41	Q	
						N20 W06	0	0	0		N20 W06	Q	
						N17 E08	2	0	0		N17 E08	E	
						N18 E62	2	0	0		N18 E62	Q	

Presto:[2] Kakioka Magstorm begins 30/0800 UT.

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

INTERNATIONAL RELATIVE SUNSPOT NUMBERS

Day	Dec 87	Jan 88	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct†	Nov†
01	17	47	63	68	110	69	95	139	142	137	109	126
02	16	31	68	66	96	84	96	145	143	144	117	114
03	16	25	68	72	94	76	100	142	146	129	129	121
04	15	23	74	77	74	101	105	129	135	148	128	104
05	19	32	58	64	66	103	125	119	120	128	130	129
06	24	40	43	61	62	77	145	108	123	93	131	124
07	34	58	44	65	84	50	141	103	144	97	128	114
08	36	57	46	67	92	63	151	106	160	88	138	95
09	41	62	50	49	115	74	173	82	171	74	112	110
10	34	68	38	36	107	87	144	78	152	76	146	131
11	22	75	26	20	115	65	108	102	135	81	148	155
12	13	67	14	39	118	56	77	109	133	88	156	159
13	20	76	23	53	120	44	47	103	122	91	150	147
14	26	91	28	62	138	37	53	121	128	94	131	139
15	42	90	33	63	145	44	65	121	121	89	109	156
16	40	83	42	74	157	53	81	111	91	89	120	181
17	39	72	35	99	144	57	76	124	67	79	125	196
18	39	68	55	95	137	44	67	136	47	97	134	175
19	28	73	66	105	108	20	70	105	57	113	133	147
20	26	85	51	85	88	20	77	106	57	153	119	112
21	14	78	27	81	79	25	95	103	40	168	117	145
22	24	66	15	76	72	30	92	106	21	168	109	124
23	17	47	13	74	43	40	91	116	26	190	104	117
24	13	44	23	83	30	48	93	81	43	172	121	116
25	25	33	19	92	40	54	111	76	76	149	124	96
26	27	44	15	93	44	63	107	76	93	151	110	80
27	29	54	31	103	36	66	111	101	142	157	120	69
28	28	67	40	109	41	70	116	117	146	143	119	86
29	30	59	52	104	39	74	121	157	164	111	122	92
30	42	56		108	47	83	121	161	163	106	115	107
31	43	57		120		86		146	151		111	
Mean	27.1	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	124.7	125.6

† = preliminary. The yearly mean sunspot number equaled 29.2 in 1987.

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

Day	Dec 87	Jan 88	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
01	87.6	100.1	105.5	99.8*	127.2	108.8	149.3*	194.4*	180.9	191.3	179.4	157.2*
02	86.5	93.7	104.3	99.1	126.5	113.1*	147.6	198.9	187.6	178.9	197.0	156.5*
03	85.8	101.2	103.6	101.9*	127.6	116.4*	149.5	190.2	172.2*	177.3	200.4	164.0
04	85.1	98.2	103.1	102.6*	122.6	127.4	150.9	181.0	163.6	165.9	189.2	159.7
05	86.8	99.5	102.6	106.7*	114.6	121.1	151.2	171.2	159.2	166.3	191.0	163.8
06	85.7	101.7	103.6	107.6	116.8	116.5	159.0	156.7	163.4	152.4	193.4	161.2
07	85.3	102.1	105.3	107.3	120.0	112.9	164.6	152.4	170.4	145.4	182.4	151.6
08	88.7	105.6	102.5	104.1*	121.8*	116.7	168.3	142.4	186.9	138.9	172.6	143.5
09	91.2	100.6*	101.0	101.5	121.8*	121.9	165.9*	137.7	182.4	128.0	176.5	152.4
10	90.1	100.9	100.2	99.2	127.2	116.4	149.8	138.3	181.8	117.6	177.8	147.7
11	91.1	101.7*	99.6	102.9	128.0*	114.6	137.8	137.7*	178.2	121.9	168.2	153.8
12	91.5*	107.5*	101.3	103.5	130.6*	111.6	125.9	137.9	161.2	127.0	148.4	150.6*
13	91.1	108.1*	102.9	107.8	134.6	105.9	115.0	141.3*	159.7	124.8	157.5	157.8*
14	91.5	113.7	102.6	108.9*	146.3	105.2	111.7	150.1	151.6	130.2	150.4	173.2*
15	92.0*	112.4	100.4	112.6*	143.5	103.4	113.5	150.7	144.0	126.1	149.1	161.1*
16	93.4*	121.8*	101.0	114.1*	147.6	103.3	121.7	153.3*	137.8	128.5	152.3	186.1*
17	92.2	116.4*	106.2	117.4	145.5	103.7	124.8	152.8*	145.6	135.3	175.0	175.6
18	90.2	110.9	112.5	116.1	145.3	106.7	125.7	152.3	128.5	139.5	162.3	161.8
19	88.4	114.2	109.0	116.1*	138.5	104.8	119.4	142.1	123.9	138.6	164.0	151.2
20	86.9	112.7	106.5	116.3*	134.9	106.1	118.5	141.3	118.1	151.4	166.0	146.6
21	90.7	111.6	104.7	117.5*	127.6	112.6	122.8*	145.8	116.1	157.8	165.9	152.9
22	88.1	104.5	102.5	117.6	120.1	114.0	124.4*	141.2	114.9	178.6	166.2	153.1
23	88.2	104.7	100.2	120.9*	111.5	122.2	129.3	144.6	121.7A	177.8*	171.1	135.7
24	89.9	102.2	99.6	123.0*	105.6	119.8	135.7*	138.6	133.7	178.6	168.4	138.0
25	96.2*	94.9	96.4	128.5*	106.7	123.8*	153.7	140.9	144.3	177.4	162.1	137.5
26	96.8*	93.5	96.7	127.5*	103.8	127.8	157.6*	149.7	157.1	172.0	155.4	137.4
27	101.4	101.6	96.3	128.0*	101.9	130.0	160.5	161.5	166.8	179.6*	161.8	140.9
28	102.5	103.0	97.1	129.8	101.6	130.1	183.2	175.4	174.0	171.0	156.0	138.8
29	101.4	99.1	103.3	131.7	102.1	140.2	189.5	185.9	189.0	172.0	155.9	137.6
30	99.2	100.1		128.3	104.8	142.8	187.4*	188.3	190.0	173.1	154.2*	135.8
31	99.7	103.1		130.6*		153.6*		192.5	194.5		160.4	
Mean	91 5	104.6	102.4	113.8	123.6	117.9	143.8	157.6	158.0	154.1	168.7	152.8

* = corrected for burst in progress; A = interpolation - interference during calibration. The yearly mean flux equaled 85.3 in 1987.

DAILY SOLAR INDICES

November 1988

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers Int	Amer	Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit — SGMR (15400)	SGMR (8800)	SGMR (4995)	Ottawa (2800)	SGMR (2695)	SGMR (1415)	SGMR (610)	SGMR (410)	SGMR (245)
01	306	6	126	127	159.7*	581	326	205	157.2*	179	139	63	33	20
02	307	7	114	103	159.0*	567	---	---	156.5*	---	---	63	34	35
03	308	8	121	122	166.7	594	299	187	164.0	152	120	62	38	36
04	309	9	104	113	162.4	574	---	---	159.7	---	---	61	37	40
05	310	10	129	128	166.7	---	296	190	163.8	151	119	67	49	--
06	311	11	124	132	164.1	574	292	179	161.2	147	115	62	47	66
07	312	12	114	113	154.4	568	288	173	151.6	141	113	58	34	46
08	313	13	95	98	146.3	563	296	168	143.5	137	111	56	56	--
09	314	14	110	118	155.4	578	289	175	152.4	143	113	72	63	--
10	315	15	131	137	150.7	579	276	169	147.7	137	109	54	35	23
11	316	16	155	155	157.0	589	278	172	153.8	140	110	60	33	27
12	317	17	159	167	153.8*	589	280	174	150.6*	146	113	59	32	20
13	318	18	147	155	161.2*	564	291	185	157.8*	152	118	60	33	19
14	319	19	139	142	177.0*	556	290	194	173.2*	164	127	60	38	22
15	320	20	156	171	164.7*	541	286	183	161.1*	159	122	66	33	20
16	321	21	181	181	190.4*	527	287	193	186.1*	174	131	62	36	27
17	322	22	196	167	179.7	466	249	167	175.6	164	124	58	33	30
18	323	23	175	165	165.7	545	296	170	161.8	152	118	60	32	22
19	324	24	147	143	154.9	541	273	164	151.2	139	113	57	31	17
20	325	25	112	103	150.2	444	248	146	146.6	131	106	50	29	18
21	326	26	145	139	156.7	539	273	167	152.9	141	113	60	31	22
22	327	27	124	130	157.0	554	283	175	153.1	149	118	59	30	19
23	328	1	117	120	139.2	547	266	156	135.7	129	106	58	32	19
24	329	2	116	113	141.6	546	267	154	138.0	127	105	57	31	19
25	330	3	96	84	141.2	546	268	156	137.5	126	102	55	31	19
26	331	4	80	67	141.1	547	273	160	137.4	131	106	55	32	18
27	332	5	69	73	144.8	535	267	160	140.9	131	107	57	31	16
28	333	6	86	86	142.7	412	244	148	138.8	128	103	52	28	22
29	334	7	92	99	141.5	544	271	160	137.6	129	105	49	30	15
30	335	8	107	108	139.7	547	274	159	135.8	132	108	60	31	16
Mean			125.6	125.3	156.2	547	280	171	152.8	144	114	59	35	25

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

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

* = corrected for burst in progress

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

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

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	138
1982	137	133	129	124	120	117	115	109	101	96	95	95
1983	93	90	86	82	77	70	66	66	68	68	67	64
1984	60	56	53	50	48	46	44	40	34	29	25	22
1985	20	20	19	18	18	18	17	17	17	17	17	15
1986	14	13	13	14	14	14	14	13	12*	13	15	16
1987	18	20	22	24	26	28	31	35	39	44	47	51
1988	58	65	71	78	84	91 (3)	99 (6)	108 (9)	115 (12)	122 (15)	128 (19)	132 (22)
1989	136 (22)	139 (21)	148 (19)	155 (19)	161 (20)	166 (24)	169 (28)	172 (31)	179 (34)	184 (36)	186 (38)	187 (41)
1990	187 (43)	186 (46)	184 (47)	179 (47)	173 (44)	169 (40)	167 (38)	165 (39)	158 (38)	149 (37)	142 (34)	138 (31)

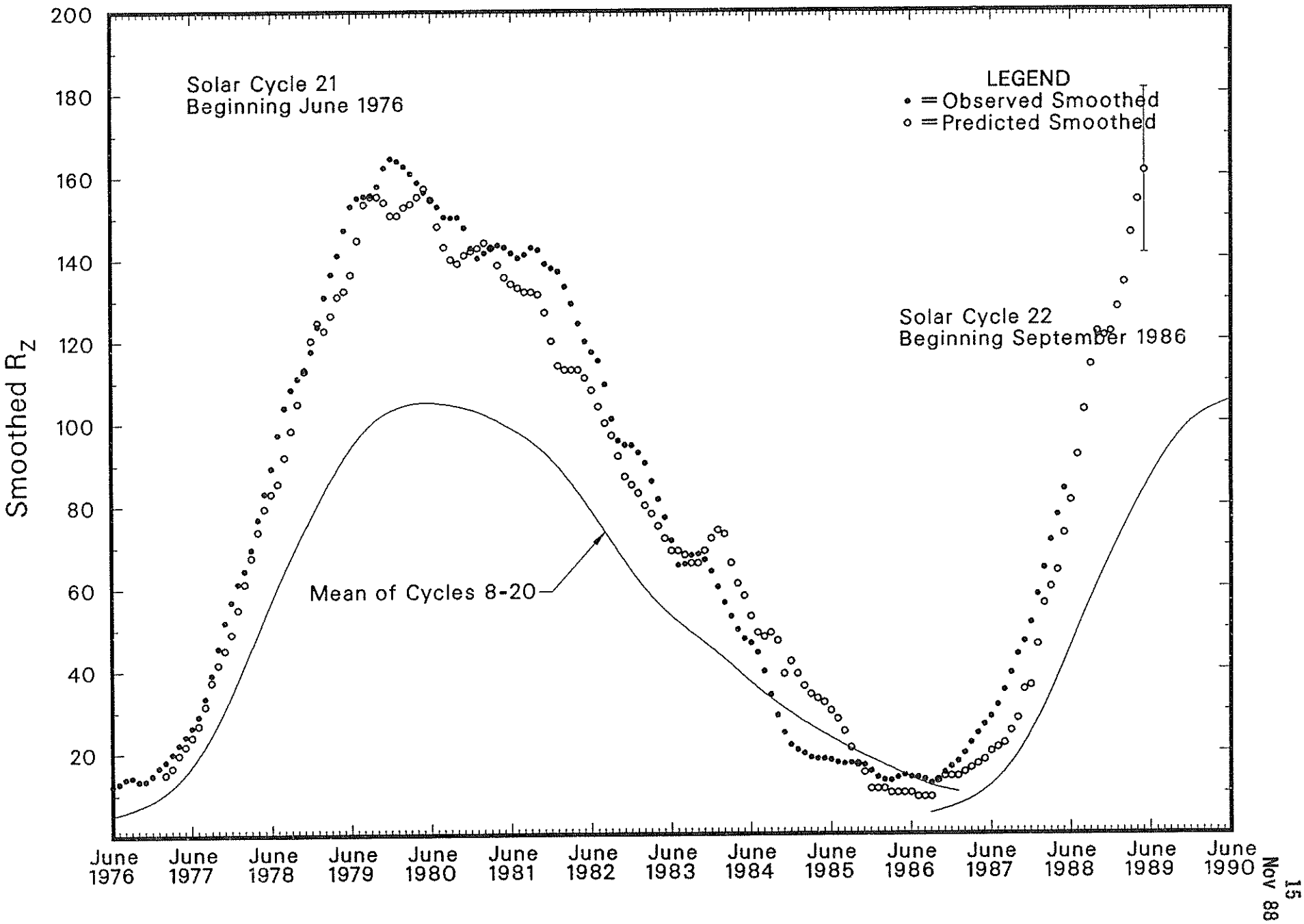
*September 1986 marks the onset of Sunspot Cycle 22.

For the end of Solar Cycle 21, and the beginning of 22, the table gives observed smoothed sunspot numbers up to the one calculated from the most recently available monthly mean. These smoothed observed values are based on final, monthly means through September 1988 and on provisional numbers thereafter.

Table entries, with numbers in parentheses below them, denote predictions by the McNish-Lincoln method. (See page 9 in the July 1987 supplement to *Solar-Geophysical Data*.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number from the predicted value generates the lower limit. Consider, for example, the May 1989 prediction. There exists a 90% chance that in May 1989 the actual smoothed sunspot number will fall somewhere between 141 and 181.

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



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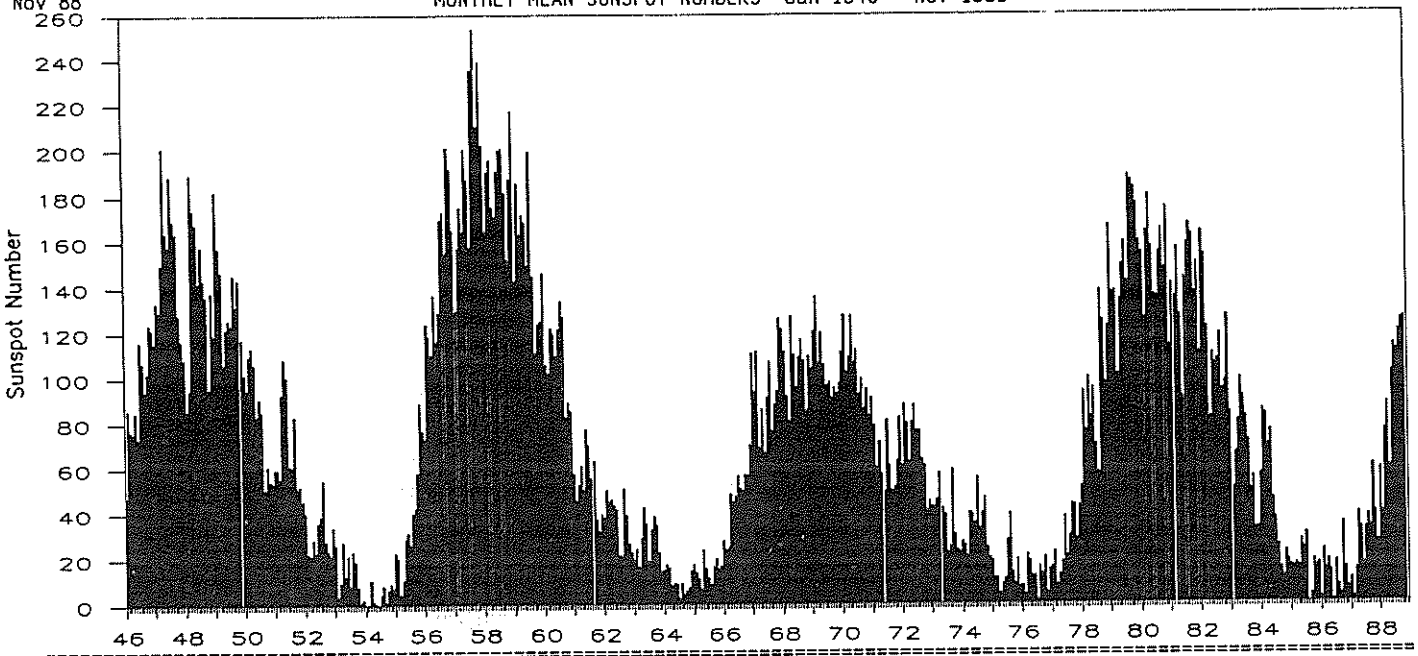
Nov 88

MONTHLY MEAN SUNSPOT NUMBERS Jan 1946 - Nov 1988



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1946	47.6	86.2	76.6	75.7	84.9	73.5	116.2	107.2	94.4	102.3	123.8	121.7	92.6
1947	115.7	133.4	129.8	149.8	201.3	163.9	157.9	188.8	169.4	163.6	128.0	116.5	151.6 M
1948	108.5	86.1	94.8	189.7	174.0	167.8	142.2	157.9	143.3	136.3	95.8	138.0	136.3
1949	119.1	182.3	157.5	147.0	106.2	121.7	125.8	123.8	145.3	131.6	143.5	117.6	134.7
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1	83.9
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4 m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2 M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	112.3
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2 m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9 M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6 m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4 M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4 m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.2
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	124.7*	125.6*		92.8*

*Preliminary

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

H - ALPHA S O L A R F L A R E S

NOVEMBER 1988

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	01	0433	0446	0456	S19	E30	5212	11	3.5	23	SF	C 2.8	3	E		45		
SVTO		1055	1059	1118	N14	E81	5218	11	7.6	23	1N	M 3.4	2	E		172		
RAMY		1458	1505	1526D	N12	E76	5218	11	7.3	28D	SF		3	E		11		
RAMY		1525	1527U	1710D	S16	E29	5212	11	3.8	105D	SF	C 9.2	1	E		18		ZF
HOLL		1530	1533	1548	S16	E29	5212	11	3.8	18	SF	C 9.2	3	E		28		F
RAMY		1544E	1600U	1602D	N12	E76	5218	11	7.4	18D	SF		1	E		21		
RAMY		1639E	1639U	1710D	S28	W28	5207	10	30.6	31D	SN		1	E		73		UF
HOLL		1707	1725	1741	N11	E76	5218	11	7.4	34	SF		3	E		13		F
HOLL		1708E	1713	1720	S28	W27	5207	10	30.7	12D	SF		3	E		16		UF
RAMY		1955E	2022	2032	N13	E73	5218	11	7.3	37D	SF		2	E		19		
HOLL		2013	2021	2149	N16	E03	5211	11	2.1	96	1F	C 2.3	3	E		106		F
RAMY		2018	2021	2116	N16	E03	5211	11	2.1	58	SF	C 2.3	3	E		85		F
PALE		2021	2023	2049D	N16	E03	5211	11	2.1	28D	1F	C 2.3	3	E		102		F
HOLL		2107	2111	2113	N11	E72	5218	11	7.3	6	SF		3	E		10		
HOLL		2145	2148	2206	N11	E74	5218	11	7.5	21	SN	M 1.6	3	E		67		F
PALE		2149	2151	2202	N13	E78	5218	11	7.8	13	SF	M 1.6	3	E		64		
LEAR	02	0044	0045	0050	N13	E70	5218	11	7.3	6	SF		3	E		61		
PALE		0128	0131	0132	N12	E71	5218	11	7.4	4	SF		3	E		14		
LEAR		0135	0139	0154	N13	E70	5218	11	7.3	19	SF		3	E		16		
PALE		0159	0209	0217	N13	E72	5218	11	7.5	18	SF		3	E		27		
LEAR		0247	0249	0252	N11	E69	5218	11	7.3	5	SF		3	E		18		
LEAR		0503	0507	0513	N11	E67	5218	11	7.2	10	SF		3	E		12		
SVTO		0642	0848	0926	N13	E65	5218	11	7.2	164	SF	C 1.0	3	E		17		F
SVTO		0649	0714	0810	S16	E25	5212	11	4.2	81	SF		3	E		45		
LEAR		0735	0740	0759	N11	E66	5218	11	7.3	24	SF		3	E		43		
SVTO		0854	0900	1006	N18	W03	5211	11	2.1	72	SF	C 1.7	3	E		96		U
LEAR		0857	0858	0922	N17	W03	5211	11	2.1	25	SF	C 1.7	4	E		27		U
SVTO		0927	0935	1022	N17	E30	5215	11	4.7	55	SF		3	E		28		
SVTO		1000	1004	1018	S16	E18	5212	11	3.8	18	SF	C 5.3	3	E		23		
SVTO		1002	1015	1026	N10	E65	5218	11	7.3	24	SF		3	E		13		
SVTO		1059	1110	1116	N10	E64	5218	11	7.3	17	SF		3	E		11		
GOES		1151	1157	1204						13		C 1.9						
GOES		1210	1222	1257						47		C 5.4						
SVTO		1317	1322	1334	S16	E17	5212	11	3.8	17	SF		3	E		29		
GOES		1410	1416	1420						10		C 1.4						
RAMY		1644	1644	1705	N13	E65	5218	11	7.6	21	SF	C 4.2	3	E		10		F
HOLL		1659	1702	1707	N13	E65	5218	11	7.6	8	SF		3	E		13		
RAMY		1720	1722	1728	S19	E15	5212	11	3.9	8	SF	C 1.3	3	E		27		
PALE		1721	1722	1725	S19	E15	5212	11	3.9	4	SF	C 1.3	3	E		16		
HOLL		1721	1722	1726	S19	E15	5212	11	3.9	5	SF	C 1.3	3	E		26		
RAMY		1838	1850	1915	S18	E11	5212	11	3.6	37	SF		3	E		43		F
HOLL		1842	1851	1853	S15	E08	5212	11	3.4	11	SF		3	E		13		
HOLL		2023	2025	2056	N16	E22	5217	11	4.5	33	SF	C 1.3	4	E		65		F
HOLL		2150	2150	2225	S17	E09	5212	11	3.6	35	SF		4	E		29		F
HOLL		2158	2159	2208	N12	E60	5218	11	7.4	10	SF		4	E		34		F
LEAR	03	0015	0017	0020	N13	E62	5218	11	7.7	5	SF	C 2.1	3	E		22		
LEAR		0110	0111	0114	S27	E23	5213	11	4.8	4	SF	C 1.1	3	E		17		
LEAR		0201	0203	0211	S18	E07	5212	11	3.6	10	SF	C 1.0	4	E		38		F
PALE		0204	0204	0210	S17	E07	5212	11	3.6	6	SF	C 1.0	3	E		34		
SVTO		0741	0846U	0956D	S18	E06	5212	11	3.8	135D	1B	C 4.4	2	E		230		F
LEAR		0828	0846	0918	S18	E03	5212	11	3.6	50	1F	C 4.4	3	E		119		F
KAND		0945E		1005	S19	E06	5212	11	3.9	20D	SF			P	0950	21	0.2	D
RAMY		1128E	1130U	1148	S19	E05	5212	11	3.8	20D	SF		2	E		22		F
RAMY		1220	1222	1254	S19	E05	5212	11	3.9	34	SF	C 1.5	4	E		16		F
RAMY		1314	1330	1339	S19	E04	5212	11	3.8	25	SF	C 1.7	4	E		11		F
SVTO		1327E	1347U	1422	S19	E06	5212	11	4.0	55D	SN	C 2.0	2	E		70		F
RAMY		1406	1407	1417	S19	E04	5212	11	3.9	11	SF	C 2.2	3	E		10		F
HOLL		1600	1608	1640	N11	E46	5218	11	7.1	40	SF	C 2.1	3	E		65		F
RAMY		1604	1609	1630	N11	E48	5218	11	7.3	26	SF	C 2.1	3	E		32		
HOLL		1638	1639	1718	S18	E04	5212	11	4.0	40	SF		3	E		23		F
RAMY		1842	1842	1858	S18	E02	5212	11	3.9	16	SF	C 1.3	3	E		23		F
HOLL		1842	1842	1858	S16	E00	5212	11	3.8	16	SF	C 1.3	3	E		24		F
HOLL		1951	1952	2006	N12	E46	5218	11	7.3	15	SF		3	E		21		
HOLL		2123	2124	2135	N13	E50	5218	11	7.7	12	SN	C 4.3	3	E		43		FE
HOLL		2141	2141	2154	N11	E46	5218	11	7.4	13	SF		3	E		29		F
GOES	04	0155	0203	0211						16		C 1.1						

H - ALPHA S O L A R F L A R E S

NOVEMBER 1988

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
PEKG	04	0220	0255	0242	S16	W08		11	3.5	22	1N			C	0225	294	3.2	F
LEAR		0320	0323	0328	S19	W05	5212	11	3.7	8	SF		4	E		10		
LEAR		0529	0530	0536	N11	E40	5218	11	7.2	7	SF	C 1.8	3	E		24		F
LEAR		0638	0638	0644	S16	W06	5212	11	3.8	6	SF	C 1.5	3	E		11		
LEAR		0731	0731	0734	N10	E35	5218	11	6.9	3	SF		3	E		13		
GOES		0830	0835	0846						16		C 1.2						
RAMY		1208	1221	1236	S19	W09	5212	11	3.8	28	SF		3	E		33		F
HOLL		1544	1547	1555	S17	W10	5212	11	3.9	11	SF		3	E		27		F
RAMY		1549	1554	1556	S15	W09	5212	11	4.0	7	SF		3	E		11		
HOLL		1647	1648	1658	S18	W12	5212	11	3.8	11	SF	C 1.7	3	E		16		
RAMY		1647	1648	1700	S18	W12	5212	11	3.8	13	SF	C 1.7	3	E		18		
HOLL		1740	1741	1751	S18	W12	5212	11	3.8	11	SF	C 2.1	3	E		26		F
RAMY		1740	1744	1752	S18	W12	5212	11	3.8	12	SF	C 2.1	3	E		41		F
HOLL		1828	1829	1835	S19	W13	5212	11	3.8	7	SF		3	E		12		F
RAMY		1829	1829	1834	S18	W13	5212	11	3.8	5	SF		3	E		10		
HOLL		2118	2123	2133	N11	E32	5218	11	7.3	15	SF	C 1.5	3	E		29		F
HOLL		2250	2255	2301	S18	W15	5212	11	3.8	11	SF		2	E		26		
HOLL		2339	2339	2346	N12	E34	5218	11	7.5	7	SF		2	E		12		
GOES	05	0106	0109	0111						5		C 1.1						
PEKG		0320	0321	0328	S20	W14		11	4.1	8	SN			P	0321	42	0.5	D
GOES		0418	0422	0426						8		C 1.6						
PEKG		0529E	0529	0529D	N14	E34		11	7.8	8D	1N			P	0529	172	2.1	D
LEAR		0529	0529	0535	N13	E33	5218	11	7.7	6	SF	C 2.1	4	E		20		F
LEAR		0907	0912	0930	S19	W20	5212	11	3.8	23	SF	C 1.4	4	E		20		F
RAMY		1306	1307	1313	S17	W24	5212	11	3.7	7	SF		3	E		13		
RAMY		1339	1340	1343	N14	E29	5218	11	7.8	4	SF	C 1.1	3	E		18		H
HOLL		1751	1754	1801	S18	W22	5212	11	4.1	10	SF		3	E		38		
RAMY		1800	1801U	1812	N14	E26	5218	11	7.7	12	SF	C 1.8	2	E		75		
HOLL		1800	1803	1808	N14	E26	5218	11	7.7	8	SF	C 1.8	3	E		44		H
RAMY		2021	2023	2036D	N13	E23	5218	11	7.6	15D	SF		1	E		35		
HOLL		2023	2024	2028	N14	E25	5218	11	7.7	5	SF		3	E		30		H
HOLL		2151	2153	2205	N18	E24	5218	11	7.7	14	SF		3	E		43		FS
HOLL		2235	2238	2242	S15	W30	5212	11	3.7	7	SF		3	E		19		F
LEAR	06	0508	0508	0516	S22	W31	5212	11	3.8	8	SF	C 1.2	3	E		12		F
PEKG		0510	0512	0515	S22	W32		11	3.7	5	SN			P	0510	42	0.6	D
LEAR		0600E	0619U	0622D	S17	W34	5212	11	3.7	22D	SF		3	E		13		F
GOES		0822	0825	0827						5		C 1.4						
LEAR		0856	0856	0900	S22	W32	5212	11	3.9	4	SF	C 1.4	3	E		11		F
RAMY		1103	1106	1129	S21	W51	5212	11	2.5	26	SF	C 3.6	2	E		86		FE
RAMY		1133E	1142U	1212D	S18	W38	5212	11	3.6	39D	SF		2	E		42		F
RAMY		1403	1407	1431	S22	W35	5212	11	3.9	28	SF		3	E		18		
HOLL		1438	1444	1448	N11	E08	5218	11	7.2	10	SF		3	E		13		
RAMY		1439	1442	1448	N12	E07	5218	11	7.1	9	SF		3	E		16		
HOLL		1727	1727	1751	S15	W43	5212	11	3.5	24	SF		4	E		14		
HOLL		1820	1823	1900	S20	W37	5212	11	3.9	40	2B	M 4.9	4	E		298		F
RAMY		1820	1828U	1857	S20	W41	5212	11	3.6	37	2B	M 4.9	3	E		263		F
RAMY		1839	1843	1903D	N11	E06	5218	11	7.2	24D	SF		3	E		19		F
HOLL		1842	1850	1859	N11	E06	5218	11	7.2	17	SF		4	E		11		F
HOLL		1906	1907	1920	N12	E05	5218	11	7.2	14	SF		4	E		10		F
HOLL		2000	2001	2027	S22	W39	5212	11	3.8	27	SF		3	E		50		F
HOLL		2006	2009	2017	N11	E04	5218	11	7.1	11	SF		3	E		16		
LEAR	07	0309	0313	0320	N09	E05	5218	11	7.5	11	SF	C 1.4	3	E		27		F
GOES		0406	0411	0417						11		C 1.0						
LEAR		0520	0522	0531	N09	E04	5218	11	7.5	11	SF		3	E		30		F
GOES		0802	0807	0815						13		C 1.9						
SVTO		1017E	1018U	1025	S24	W48	5212	11	3.7	8D	SF	C 1.3	1	E		63		
RAMY		1103	1106	1129	S21	W51	5212	11	3.5	26	SF	M 3.0	2	E		86		FE
SVTO		1105E	1105	1105D	S17	W47	5212	11	3.9	26D	1N	M 3.0	3	E		150		
RAMY		1218	1222	1231	N11	W01	5218	11	7.4	13	SF		3	E		13		F
RAMY		1233	1235	1249	N11	E00	5218	11	7.5	16	SF		3	E		19		F
GOES		1359	1402	1407						8		C 2.1						
RAMY		1750	1751	1757	N11	W03	5218	11	7.5	7	SF		4	E		14		F
HOLL		1750	1753	1803	N11	W03	5218	11	7.5	13	SF		4	E		23		F
HOLL		1826	1827	1832	N12	W06	5218	11	7.3	6	SF		4	E		10		
HOLL		2056	2057	2106	S19	W51	5212	11	4.0	10	SF		3	E		19		
HOLL		2157	2202	2213	N10	W09	5218	11	7.2	16	SF		3	E		13		

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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	08	0052	0102	0111						19		C 2.1						
RAMY		1228E	1248U	1414	N16	W07	5218	11	8.0	106D	2F	C 3.0	3	E		283		F
RAMY		1613	1616	1628	N31	W69	5223	11	3.2	15	SF		4	E		17		
RAMY		1619	1621	1630	S25	W64	5212	11	3.7	11	SF	C 1.3	4	E		69		F
HOLL		1622E	1622U	1633D	S24	W65	5212	11	3.7	11D	SF	C 1.3	1	E		92		F
RAMY		1650	1655	1701	N31	W72	5223	11	3.0	11	SF		4	E		12		
LEAR	09	0043	0051	0113	N13	W19	5218	11	7.6	30	SF		3	E		19		F
LEAR		0210	0215	0229	N13	W20	5218	11	7.6	19	SF	C 4.3	3	E		43		F
PALE		0213E	0213U	0236D	N14	W21	5218	11	7.5	23D	SF	C 4.3	3	E		31		
GOES		0403	0411	0418						15		C 2.3						
GOES		0435	0438	0442						7		C 1.2						
LEAR		0757	0757	0816	N14	W22	5218	11	7.7	19	SF		3	E		10		
GOES		0817	0823	0831						14		C 2.7						
RAMY		1142	1151	1154	N33	E78	5229	11	15.7	12	SF		3	E		29		
GOES		1203	1207	1211						8		C 2.8						
RAMY		1203	1231	1257	N13	W29	5218	11	7.3	54	1B	M 9.7	4	E		162		FS
RAMY		1418	1421	1422	S21	W76	5212	11	3.8	4	SF		3	E		15		
HOLL		1433	1434	1455	N14	W25	5218	11	7.7	22	SF		3	E		25		F
RAMY		1433	1435	1458	N14	W25	5218	11	7.7	25	SF		4	E		30		F
RAMY		1524	1526	1530	S21	W78	5212	11	3.7	6	SF		4	E		11		
RAMY		1527	1529	1536	N10	W32	5218	11	7.2	9	SF		4	E		10		F
RAMY		1556	1609	1621	S21	W78	5212	11	3.7	25	SF		3	E		21		
HOLL		1604	1610	1621	S19	W74	5212	11	4.0	17	SF		3	E		20		
HOLL		1731	1731	1735	N21	E52	5228	11	13.7	4	SF	C 2.0	3	E		23		
HOLL		1754	1754	1812	N28	W34	5216	11	7.1	18	SF		3	E		12		F
RAMY		1832	1840	1849	S22	W81	5212	11	3.5	17	SF		3	E		20		
HOLL		1839	1840	1844	S21	W82	5212	11	3.5	5	SF		3	E		15		
RAMY		1905	1905	1924	N13	W28	5218	11	7.7	19	SF		3	E		12		H
HOLL		1932	1934	2005	N13	W30	5218	11	7.5	33	1B	M 4.5	4	E		241		F
PALE		1935E	1936U	2007D	N13	W29	5218	11	7.6	32D	2N	M 4.5	3	E		432		
RAMY		1936E	1938	2010D	N13	W30	5218	11	7.5	34D	2B		2	E		338		F
HOLL		2033	2036	2044	N33	E68	5229	11	15.2	11	SF		4	E		21		
HOLL		2134	2135	2146	N21	E50	5228	11	13.7	12	SF		4	E		19		
PALE		2210	2211	2214	S18	W76	5212	11	4.1	4	SF		3	E		17		
HOLL		2250	2257	2315	N12	W32	5218	11	7.5	25	SF		4	E		21		F
GOES	10	0033	0036	0038						5		C 1.5						
PALE		0055E	0055U	0059	N14	W31	5218	11	7.7	4D	SF		3	E		15		F
LEAR		0533	0538	0552	N31	E62	5229	11	15.1	19	SN	C 2.5	3	E		78		
PEKG		0603	0613	0635	N14	E90		11	17.0	32	2B			C	0613	273		A
LEAR		0604	0613	0645	N13	E83	5233	11	16.5	41	2N	M 9.5	3	E		378		
LEAR		0704	0705	0716	N30	E61	5229	11	15.1	12	SF		3	E		35		
LEAR		0844	0845	0849	N19	E42	5228	11	13.6	5	SF		3	E		21		
GOES		1031	1042	1051						20		C 3.0						
RAMY		1240	1247	1257	N31	E60	5229	11	15.3	17	SF		3	E		19		
RAMY		1240	1249	1256	N19	E41	5228	11	13.6	16	SF		3	E		14		
HOLL		1424	1438	1503	N33	E58	5229	11	15.2	39	SF		3	E		27		FH
HOLL		1659	1702	1704	N32	E59	5229	11	15.4	5	SF		3	E		11		
HOLL		1800	1801	1823	N33	E62	5229	11	15.7	23	SF		3	E		17		
RAMY		1807E	1819U	1829D	N31	E59	5229	11	15.4	22D	SF		3	E		11		
HOLL		1849	1858	1910	N32	E58	5229	11	15.4	21	SF		3	E		17		
RAMY		1856E	1857	1912	N32	E59	5229	11	15.4	16D	SF		3	E		18		
RAMY		1858	1901	1917	N14	W46	5218	11	7.3	19	SF		3	E		36		
PALE		2211	2212	2214	N13	E77	5233	11	16.7	3	SF		3	E		10		
PALE		2251	2252	2300	N22	E37	5228	11	13.8	9	SF	C 1.6	3	E		24		F
HOLL		2251	2252	2308	N21	E37	5228	11	13.8	17	SF	C 1.6	3	E		46		F
GOES	11	0018	0022	0025						7		C 1.9						
PALE		0111	0111	0120	N13	W48	5218	11	7.4	9	SF	C 2.3	3	E		28		F
PALE		0121	0126	0129	N13	E61	5231	11	15.6	8	SF		3	E		13		
GOES		0427	0430	0433						6		C 2.5						
PEKG		0458	0513	0532	N14	W48		11	7.6	34	2N			C	0514	357	5.4	E
GOES		0624	0634	0645						21		C 5.9						
GOES		0731	0738	0747						16		C 3.2						
GOES		0828	0831	0834						6		C 3.4						
RAMY		1333	1335	1344	N12	W56	5218	11	7.3	11	SF		3	E		13		
RAMY		1456	1505	1511	N31	E54	5229	11	15.9	15	SF	C 2.2	3	E		39		
HOLL		1458E	1504U	1528	N33	E53	5229	11	15.8	30D	SF	C 2.2	3	E		53		

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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
HOLL	11	1512	1516	1622	N12	W53	5218	11	7.6	70	1N	C 6.6	3	E		202		FE
RAMY		1513	1516	1626	N13	W53	5218	11	7.6	73	1N	C 6.6	3	E		158		FE
RAMY		1659	1721	1736	N10	W54	5218	11	7.6	37	SF		3	E		39		
HOLL		1717E	1720U	1722D	N09	W54	5218	11	7.7	5D	SF		3	E		30		
GOES		1718	1723	1730						12		C 1.5						
GOES		1823	1828	1832						9		C 1.1						
GOES		1913	1922	1926						13		C 3.1						
PALE		2046	2047	2053	N13	W57	5218	11	7.6	7	SF	C 3.0	3	E		18		
PALE		2154	2159	2210	N11	W58	5218	11	7.5	16	SF	C 2.4	3	E		31		
HOLL		2256E	2257U	2305	N32	E48	5229	11	15.7	9D	SF	C 2.1	3	E		13		
LEAR	12	0724	0724	0734	N14	E79	5235	11	18.3	10	SF	C 1.8	3	E		28		
GOES		1101	1105	1117						16		C 1.0						
RAMY		1152	1155U	1225	N34	E43	5229	11	15.9	33	SF	C 7.4	2	E		40		H
RAMY		1202	1203	1208	N11	W64	5218	11	7.7	6	SF		2	E		21		
GOES		1209	1219	1230						21		C 4.0						
GOES		1243	1251	1300						17		C 2.2						
GOES		1322	1326	1330						8		C 2.0						
RAMY		1339	1339	1344	N13	W67	5218	11	7.5	5	SF		3	E		30		
RAMY		1344	1344	1355	N34	E42	5229	11	15.9	11	SF	C 1.9	3	E		26		
RAMY		1357	1400	1401	S25	W05	5236	11	12.2	4	SF		3	E		12		
RAMY		1541	1541	1547	N34	E41	5229	11	15.9	6	SF	C 1.1	3	E		17		
RAMY		1604	1609	1706	N35	E45	5229	11	16.3	62	2B	M 5.1	3	E		275		F
HOLL		1605	1608	1705	N35	E44	5229	11	16.2	60	2B	M 5.1	3	E		255		F
HOLL		1615	1616	1630	N12	W68	5218	11	7.5	15	SF		3	E		15		
RAMY		1615	1616	1631	N12	W68	5218	11	7.5	16	SF		3	E		15		
RAMY		1834	1835	1844	N12	W69	5218	11	7.6	10	SF		3	E		12		
HOLL		1836	1836	1845	N12	W69	5218	11	7.6	9	SF		3	E		11		
RAMY		1852	1854	1912	N33	E41	5229	11	16.0	20	SF		3	E		26		F
HOLL		1854	1856	1901	N34	E40	5229	11	16.0	7	SF		3	E		16		
HOLL		1941	1948	1959	N12	W70	5218	11	7.5	18	SF	C 6.6	3	E		36		
PALE		1946	1947	1959	N13	W71	5218	11	7.5	13	SN		3	E		63		
HOLL		1945	1946	1953	N34	E39	5229	11	15.9	8	SF		3	E		17		
PALE		1946	1946	1959	N35	E39	5229	11	15.9	13	SF		3	E		20		
HOLL		2117	2117	2130	N34	E39	5229	11	16.0	13	SF	C 5.5	3	E		17		
PALE		2117	2117	2132	N34	E39	5229	11	16.0	15	SF	C 5.5	3	E		32		
PALE		2224	2232U	2310D	N34	E42	5229	11	16.3	46D	SF	C 4.2	3	E		54		F
HOLL		2227	2249	2316	N34	E41	5229	11	16.2	49	SF	C 4.2	3	E		28		F
LEAR		2235	2246	2307	N33	E44	5229	11	16.4	32	SF	C 4.2	3	E		24		F
PALE	13	0127	0146	0229	N35	E37	5229	11	16.0	62	SF	C 6.0	3	E		89		F
LEAR		0130	0155	0232	N33	E37	5229	11	16.0	62	SF	C 6.0	4	E		33		F
LEAR		0137	0144	0155	N12	W75	5218	11	7.4	18	SF		4	E		58		F
PALE		0138	0142	0156	N13	W74	5218	11	7.5	18	SF		3	E		32		
LEAR		0253	0255	0302	N31	E27	5229	11	15.2	9	SF		4	E		17		
LEAR		0450	0537	0639	N33	E37	5229	11	16.1	109	1N	M 7.0	4	E		213		
LEAR		0716	0725	0731	N19	E84	5240	11	19.7	15	SF	C 4.3	3	E		70		
RAMY		1108	1123	1143	S24	W21	5227	11	11.8	35	SF		2	E		29		F
RAMY		1113	1146	1158	N21	E80	5240	11	19.6	45	SF		2	E		36		
RAMY		1203	1211	1215	N11	W47	5234	11	10.0	12	SF		3	E		10		
RAMY		1229	1229	1241	S22	W22	5227	11	11.8	12	SF		3	E		11		
RAMY		1245	1317	1350	S22	W22	5227	11	11.8	65	SF	C 8.8	3	E		51		F
RAMY		1255	1310	1359	N32	E30	5229	11	15.9	64	SN		3	E		77		FE
RAMY		1306	1307	1312	N12	W48	5234	11	9.9	6	SF		3	E		17		
SVTO		1311E	1312U	1406D	N29	E31	5229	11	16.0	55D	SF		2	E		35		
RAMY		1403	1404	1407	N33	E32	5229	11	16.1	4	SF	C 6.7	3	E		12		
RAMY		1413	1414	1425	S24	W21	5227	11	12.0	12	SF		3	E		11		F
RAMY		1433	1434	1439	S24	W21	5227	11	12.0	6	SF		3	E		15		F
RAMY		1457	1524	1546	N21	E80	5240	11	19.7	49	1F	C 4.5	3	E		110		
RAMY		1603	1604	1614	N33	E29	5229	11	16.0	11	SF		3	E		12		F
HOLL		1628	1633	1722	N31	E24	5229	11	15.6	54	1B	M 3.4	3	E		198		F
RAMY		1628	1635	1718	N31	E22	5229	11	15.4	50	1B	M 3.4	3	E		192		F
RAMY		1647	1648	1656	N21	E80	5240	11	19.8	9	SF		3	E		16		
HOLL		2022E	2105	2231	N34	E27	5229	11	16.0	129D	1B	M 3.8	4	E		124		UF
PALE		2148E		2246	N32	E20	5229	11	15.5	58D	1F	M 3.8	3	E		102		F
LEAR		2154E		2252	N34	E25	5229	11	15.9	58D	SF	M 3.8	1	E		38		F
HOLL		2247	2307	2354D	S24	W27	5227	11	11.9	67D	1B	M 3.2	4	E		127		F
LEAR		2252	2309	2405	S23	W27	5227	11	11.9	73	1N	M 3.2	4	E		138		ZU
PALE		2253E	2308U	2308D	S23	W28	5227	11	11.8	15D	SB	M 3.2	3	E		77		

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LEAR	14	0146	0155	0230	N21	E72	5240	11	19.6	44	2N	M 2.3	4	E		292		
PALE		0148	0155	0228	N22	E74	5240	11	19.8	40	1N	M 2.3	3	E		193		F
LEAR		0242	0250	0259D	S25	W31	5227	11	11.7	17D	SF		4	E		54		
PALE		0246	0250	0256	S23	W31	5227	11	11.7	10	SF		3	E		25		F
LEAR		0323E	0415	0520	S23	W30	5227	11	11.8	117D	SN	M 1.3	3	E		93		
LEAR		0634	0644	0703	S23	W33	5227	11	11.7	29	SF	C 3.8	4	E		29		
GOES		0739	0756	0823						44		M 1.4						
RAMY		1150	1206	1244	S23	W35	5227	11	11.8	54	SF	M 1.3	3	E		33		F
RAMY		1159	1203	1241	N22	E68	5240	11	19.7	42	1N		3	E		210		FE
RAMY		1210	1222	1319	N31	E11	5229	11	15.4	69	SF		3	E		24		F
RAMY		1344	1437	1558	N31	E11	5229	11	15.4	134	2B	M 2.2	3	E		267		F
RAMY		1346	1346	1354	N11	W62	5234	11	9.9	8	SF		3	E		12		
HOLL		1404E	1439	1534	N34	E16	5229	11	15.9	90D	2B		3	E		288		FH
RAMY		1436	1445	1529	S23	W38	5227	11	11.7	53	SF		3	E		12		F
HOLL		1444	1445	1452	S23	W36	5227	11	11.8	8	SF		3	E		12		
HOLL		1513	1514	1528	S23	W39	5227	11	11.6	15	SF		3	E		21		
RAMY		1614	1614	1634D	S24	W42	5227	11	11.4	20D	SF		2	E		12		
RAMY		1640E	1646	1723	N31	E09	5229	11	15.4	43D	1B	M 3.4	3	E		148		F
HOLL		1644	1650	1717	N32	E10	5229	11	15.5	33	1N	M 3.4	3	E		150		FE
RAMY		1732	1734	1744	N30	E09	5229	11	15.4	12	SF		3	E		12		F
PALE		1826	1835	1849	S21	W40	5227	11	11.7	23	SF		3	E		55		
PALE		1944	1947	2022	N21	E61	5240	11	19.5	38	2B	M 4.0	3	E		253		
HOLL		1944	1947	2025	N23	E64	5240	11	19.7	41	2B	M 4.0	4	E		303		FH
HOLL		2026	2034	2058	N26	E79	5241	11	21.0	32	SF		4	E		48		F
HOLL		2037	2043	2049	S23	W39	5227	11	11.8	12	SF	C 5.0	4	E		14		F
HOLL		2333	2335	2352D	N31	E06	5229	11	15.4	19D	SF		3	E		12		
PALE		2334	2336	2342	N32	E07	5229	11	15.5	8	SF		3	E		21		
PALE		2358	2404	2410	S25	W35	5227	11	12.3	12	SF		3	E		39		
PALE	15	0036	0036	0039	N32	E05	5229	11	15.4	3	SF		3	E		10		
PALE		0056	0056	0059	N34	E07	5229	11	15.6	3	SF		3	E		27		
PALE		0129	0135	0143	S25	W36	5227	11	12.3	14	SF		3	E		46		
PALE		0243	0250	0304	N32	E05	5229	11	15.5	21	SF	C 4.4	3	E		60		
GOES		0905	0911	0918						13		C 1.7						
GOES		1058	1105	1112						14		C 5.5						
SVTO		1128E	1129U	1421D	N36	W04	5229	11	15.1	173D	SF		2	E		21		
RAMY		1334	1336	1350	N20	W25	5228	11	13.6	16	SF		4	E		14		
RAMY		1417	1422	1441	N19	E53	5240	11	19.6	24	SF		4	E		14		
HOLL		1419	1423	1440	N19	E53	5240	11	19.6	21	SF		2	E		16		
RAMY		1434	1440	1500	S23	W51	5227	11	11.7	26	1F	C 2.7	3	E		101		F
HOLL		1436	1440	1446	S25	W49	5227	11	11.8	10	SF	C 2.7	2	E		64		F
RAMY		1459E	1528U	1604	N33	W03	5229	11	15.4	65D	SF		2	E		40		F
HOLL		1501	1504	1529	N31	E00	5229	11	15.6	28	SF		2	E		23		F
HOLL		1600	1619	1647	N26	E65	5241	11	20.7	47	SF		2	E		54		
HOLL		1611	1651	1717	N35	W01	5229	11	15.6	66	SF	C 3.3	3	E		44		
RAMY		1633E	1633U	1636D	N32	W01	5229	11	15.6	3D	SF		1	E		20		
HOLL		1638	1639	1649	N21	E51	5240	11	19.6	11	SF		3	E		16		
HOLL		1656	1705	1709	S24	W49	5227	11	11.9	13	SF		3	E		20		
HOLL		1749	1752	1758	S24	W50	5227	11	11.9	9	SF	C 7.3	3	E		49		F
RAMY		1749	1752	1759D	S24	W52	5227	11	11.7	10D	SF	C 7.3	2	E		44		F
PALE		1750	1751	1756	S24	W50	5227	11	11.9	6	SF	C 7.3	3	E		18		F
PALE		1815	1832	1904	N32	W03	5229	11	15.5	49	SF		3	E		20		F
HOLL		1815	1833	1857	N32	W03	5229	11	15.5	42	SF		3	E		28		F
HOLL		1944	1951U	2018	N20	E50	5240	11	19.6	34	SF	C 2.0	3	E		46		F
HOLL		1957	1957	2000	S22	W52	5227	11	11.8	3	SF		3	E		18		FH
PALE		2034	2039U	2105D	S24	W53	5227	11	11.8	31D	SN	C 7.0	3	E		68		FH
HOLL		2037	2040	2101	S24	W51	5227	11	11.9	24	1N	C 7.0	3	E		104		FH
HOLL		2043	2045	2058	N20	W30	5228	11	13.6	15	SF		3	E		27		F
HOLL		2044	2047	2100	N20	E49	5240	11	19.6	16	SF		3	E		17		
HOLL		2105	2106	2138	N33	E00	5229	11	15.9	33	SF		3	E		21		F
HOLL		2154	2205	2220	S24	W52	5227	11	11.9	26	SF	C 1.9	3	E		50		FH
PALE		2215	2223U	2318D	N36	W01	5229	11	15.8	63D	1N	M 2.0	3	E		142		F
HOLL		2219	2233	2331	N19	E47	5240	11	19.5	72	SF		3	E		74		
GOES		2250	2354	2356						66		C 1.8						
PALE	16	0039	0040	0048	N34	E04	5229	11	16.3	9	SF		3	E		16		
PALE		0115	0116	0123	N34	E02	5229	11	16.2	8	SF	C 3.2	3	E		22		H
PEKG		0304	0305	0324	N20	E46		11	19.6	20	1N			P	0306	168	2.5	D
PALE		0307	0308	0317D	N20	E44	5240	11	19.5	10D	SF	C 4.4	3	E		64		

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PEKG	16	0414	0418	0459	N32	W14		11	15.1	45	2N			P	0418	589	7.1	
GOES		0500	0504	0524						24		M 1.2						
PEKG		0503	0504	0529	S23	W58		11	11.7	26	1N			P	0504	168	3.5	
PEKG		0630E	0631	0654	N32	W00		11	16.3	24D	2N			C	0631	631	7.5	
GOES		0804	0812	0817						13		C 4.6						
GOES		0846	0856	0902						16		C 4.5						
GOES		0919	0935	0950						31		M 1.0						
RAMY		1145	1152	1206D	S24	W61	5227	11	11.8	21D	1F	C 7.8	2	E		105		
RAMY		1157	1307	1334	N23	E51	5241	11	20.4	97	SN	C 2.4	2	E		77		FE
GOES		1236	1243	1247						11		C 2.7						
RAMY		1320	1321	1329	N28	W13	5229	11	15.5	9	SF		2	E		16		F
RAMY		1320	1334	1338	N15	W01	5233	11	16.5	18	SF		2	E		23		F
HOLL		1410	1435	1458	N31	W04	5229	11	16.3	48	1N	M 1.1	2	E		105		FE
RAMY		1411E	1437	1454D	N31	W02	5229	11	16.4	43D	1N	M 1.1	2	E		103		FE
SVTO		1438E	1438U	1501	N36	W07	5229	11	16.0	23D	SF		2	E		45		
HOLL		1414	1418	1439	S25	W63	5227	11	11.7	25	SF	C 5.2	2	E		19		
RAMY		1420E	1421U	1437	S25	W63	5227	11	11.7	17D	SF	C 5.2	2	E		22		
RAMY		1458E	1458	1539	N19	E39	5240	11	19.6	41D	1N	M 2.7	2	E		168		FE
HOLL		1500E	1500	1537	N19	E37	5240	11	19.4	37D	1N	M 2.7	4	E		231		FE
HOLL		1500E	1505	1529	S26	W62	5227	11	11.8	29D	1F		4	E		104		
RAMY		1503E	1504U	1519	S24	W62	5227	11	11.8	16D	SF		2	E		25		
RAMY		1515E	1515	1520	N30	W11	5229	11	15.8	5D	SF		2	E		17		F
HOLL		1604	1605	1608	S24	W60	5227	11	12.0	4	SF		4	E		39		
HOLL		1712	1716	1738	N19	E36	5240	11	19.5	26	SN	C 7.3	4	E		78		FE
PALE		1715	1718	1732	N19	E36	5240	11	19.5	17	SF	C 7.3	3	E		26		F
HOLL		1718	1723	1728	N35	W06	5229	11	16.2	10	SF		4	E		12		H
PALE		1721	1723	1727	N35	W05	5229	11	16.3	6	SF		3	E		33		H
HOLL		1729	1734	1821	N31	W07	5229	11	16.2	52	SN	M 1.1	4	E		97		FE
PALE		1731	1734	1820	N34	W08	5229	11	16.1	49	SN	M 1.1	3	E		98		F
HOLL		1751	1752	1756	N23	W45	5242	11	13.3	5	SF		3	E		11		
PALE		1832	1833	1836	N35	W06	5229	11	16.3	4	SF		3	E		15		H
HOLL		1833	1833	1837	N35	W06	5229	11	16.3	4	SF		3	E		21		
HOLL		1909	1912	1925	N32	W20	5229	11	15.2	16	SF	C 5.1	3	E		48		
PALE		1910	1914	1920	N32	W19	5229	11	15.3	10	SF	C 5.1	3	E		33		
HOLL		1938	1942	2005	N19	E36	5240	11	19.6	27	SN		3	E		44		
PALE		1942	1943	1958	N19	E37	5240	11	19.6	16	SF		3	E		32		
HOLL		1957	1959	2041	N32	W06	5229	11	16.3	44	1B	M 1.2	3	E		128		FE
PALE		1957	2011	2011D	N32	W06	5229	11	16.3	14D	1N	M 1.2	3	E		106		F
HOLL		2030	2033	2044	N31	E11	5244	11	17.7	14	SF		3	E		23		
HOLL		2049	2051	2101	N31	E11	5244	11	17.7	12	SF		3	E		13		F
HOLL		2118	2139	2156	S34	W54	5243	11	12.6	38	SF		3	E		25		FH
HOLL		2119	2120	2125	N21	W44	5228	11	13.5	6	SN		3	E		65		FE
HOLL		2139	2140	2222	N32	W17	5229	11	15.5	43	SB	C 9.4	3	E		93		FE
HOLL		2154	2220	2232	N19	E34	5240	11	19.5	38	SF		3	E		20		F
HOLL		2209	2209	2212	S22	W68	5227	11	11.7	3	SF		3	E		19		
HOLL		2227	2237	2258	N32	W22	5229	11	15.2	31	SF		3	E		29		UF
HOLL		2234	2234	2253	N19	E33	5240	11	19.4	19	SF		3	E		12		F
HOLL		2306	2306	2312	S24	W65	5227	11	11.9	6	SF		3	E		12		
HOLL		2312	2314	2326	N30	W17	5229	11	15.6	14	SF		3	E		19		F
HOLL		2336	2337	2342	N34	W11	5229	11	16.1	6	SF		2	E		16		
GOES	17	0002	0005	0013						11		C 2.8						
GOES		0105	0109	0112						7		C 3.0						
GOES		0130	0133	0135						5		C 2.2						
LEAR		0434	0435	0440	S22	W72	5227	11	11.6	6	SF		3	E		13		
LEAR		0541	0555	0653	N33	W22	5229	11	15.5	72	1F	C 5.4	3	E		136		F
LEAR		0556	0559	0613	S34	W54	5243	11	12.9	17	SF		3	E		45		
LEAR		0616	0616	0621	N20	E28	5240	11	19.4	5	SF		3	E		15		
GOES		0637	0641	0645						8		C 5.4						
SVTO		0647E	0647U	0746	N33	W23	5229	11	15.4	59D	SN	C 8.0	3	E		85		F
PEKG		0724	0728	0740D	N31	W16		11	16.0	16D	1N			P	0733	336	4.1	D
LEAR		0726	0727	0743	N33	W23	5229	11	15.5	17	SF	C 8.0	3	E		59		
SVTO		0937	0941	1028	S34	W59	5234	11	12.7	51	SF		3	E		41		
GOES		1118	1122	1125						7		C 2.6						
SVTO		1120	1122	1133	N34	W16	5229	11	16.2	13	SN		3	E		34		
SVTO		1202	1213	1241	S35	W59	5243	11	12.8	39	SF		3	E		38		
RAMY		1227	1232U	1250D	S34	W58	5243	11	12.9	23D	SF		2	E		29		
RAMY		1227E	1232	1239D	N24	W56	5242	11	13.2	12D	SF		2	E		21		
SVTO		1229	1230	1235	N23	W56	5242	11	13.2	6	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
RAMY	17	1300	1306U	1427D	N30	W14	5229	11	16.4	87D	SF		2	E		31		
SVTO		1301	1303	1325	N32	W32	5229	11	15.0	24	SN		3	E		70		F
SVTO		1326	1329	1345	S33	W59	5243	11	12.9	19	SF		3	E		19		
SVTO		1345	1350	1354D	N24	E27	5240	11	19.6	9D	2N	C 9.1	3	E		263		F
HOLL		1358E	1400U	1445	N20	E27	5240	11	19.6	47D	1F	C 9.1	2	E		245		F
HOLL		1403E	1405U	1428	N30	W15	5229	11	16.4	25D	SN		2	E		40		F
SVTO		1403	1406U	1406D	N32	W18	5229	11	16.2	3D	1B		3	E		138		F
RAMY		1427E	1427U	1432D	N19	E25	5240	11	19.5	5D	SF		2	E		24		
HOLL		1427	1431	1440	N13	W26	5231	11	15.6	13	SF		2	E		18		
HOLL		1518	1519	1525	N31	W26	5229	11	15.6	7	SF		3	E		12		F
HOLL		1534	1537	1555	N31	W21	5229	11	16.0	21	SF		3	E		36		F
HOLL		1802	1832	1841	S34	W60	5243	11	13.0	39	SF		3	E		21		
HOLL		1804	1810	1857	N25	W57	5242	11	13.3	53	SF		3	E		70		
PALE		1806	1810	1812	N25	W59	5242	11	13.2	6	SF		3	E		10		
HOLL		1823	1835	1852	N31	W33	5229	11	15.2	29	SF	C 3.2	3	E		73		FE
HOLL		1903	1903	1915	N23	E27	5240	11	19.9	12	SF		3	E		11		
HOLL		2031	2032	2043	N14	W29	5231	11	15.7	12	SF		3	E		22		H
HOLL		2059	2131	2203	N19	E21	5240	11	19.5	64	SN		3	E		63		FH
HOLL		2128	2130	2146	N32	W25	5229	11	15.9	18	SF		3	E		39		
HOLL		2302	2305	2317	N31	W33	5229	11	15.3	15	SF	C 2.2	3	E		30		F
LEAR	18	0231	0241	0318	N29	W34	5229	11	15.4	47	SF		3	E		60		
GOES		0455	0459	0512						17		C 1.6						
KAND		0903	0910	0905	S22	W90	5227	11	11.4	2	SN			P				D
GOES		1111E	1115	1119						8D		C 1.4						
SVTO		1112	1114	1124D	N36	W30	5229	11	16.0	12D	SN		3	E		44		
RAMY		1243	1244	1249	N35	W36	5229	11	15.6	6	SF		2	E		11		
HOLL		1404E	1405U	1430	N32	W44	5229	11	15.1	26D	SN	C 2.0	1	E		58		F
HOLL		1638	1702	1722	N28	E30	5241	11	21.0	44	SF	C 1.6	3	E		56		F
RAMY		1640E	1702U	1717D	N24	E26	5241	11	20.7	37D	SF	C 1.6	2	E		32		
RAMY		1717	1719U	1810	N21	E11	5240	11	19.6	53	SF		2	E		40		F
HOLL		1717	1724	1820	N19	E10	5240	11	19.5	63	1F	C 3.1	3	E		118		UF
RAMY		1943	1944	2026	N32	W47	5229	11	15.1	43	1N	C 6.9	3	E		105		E
HOLL		1944	1944	2013	N34	W49	5229	11	14.9	29	1N	C 6.9	3	E		110		FE
RAMY		2006	2007	2014	S35	W72	5243	11	13.1	8	SF		3	E		12		
HOLL		2203	2205	2230	N23	E13	5240	11	19.9	27	SF		3	E		31		F
LEAR		2317	2317	2321	N25	W70	5242	11	13.5	4	SF	C 1.1	3	E		11		
LEAR	19	0948	0951	0954	N33	W56	5229	11	15.0	6	SF		3	E		19		
SVTO		0949	1001	1013	N30	W56	5229	11	15.0	24	SN		3	E		79		
GOES		0959	1002	1005						6		C 2.2						
LEAR		1000	1001	1006	N34	W50	5229	11	15.4	6	SF		3	E		61		F
SVTO		1107		1119	N26	E17	5241	11	20.8	12	SF		2	E		17		
RAMY		1131	1131	1149	N21	E01	5240	11	19.5	18	SF		2	E		17		
RAMY		1138	1147	1201	N31	W50	5229	11	15.5	23	SF		3	E		59		
RAMY		1204	1207	1218	N20	E03	5240	11	19.7	14	SF		3	E		17		F
RAMY		1227E	1227U	1242	S34	W88	5243	11	12.5	15D	SF		3	E		24		
SVTO		1229		1243	S35	W88	5243	11	12.5	14	SF		2	E		29		
RAMY		1327	1329	1351	N31	W52	5229	11	15.4	24	SF		3	E		10		F
RAMY		1331	1335	1356	N18	W01	5240	11	19.5	25	SF		3	E		49		FH
RAMY		1645E	1645U	1650	N34	W75	5229	11	13.7	5D	SF		2	E		10		
RAMY		1758E	1759U	1811D	N25	E14	5241	11	20.8	13D	SF		1	E		21		F
HOLL		1837	1846	1920	N21	W01	5240	11	19.7	43	SF		3	E		35		F
RAMY		1845E	1929U	1936D	N20	W02	5240	11	19.6	51D	SF		1	E		12		F
HOLL		2021	2024	2036	N33	W63	5229	11	14.8	15	SF		3	E		26		
HOLL		2128	2129	2136	N21	W03	5240	11	19.7	8	SF		3	E		20		H
HOLL		2215	2218	2240	N24	W01	5240	11	19.8	25	SF	C 2.4	3	E		50		
HOLL		2313	2316	2323	N34	W53	5229	11	15.7	10	SF	C 1.8	3	E		48		
LEAR	20	0200	0201	0204	N24	W02	5240	11	19.9	4	SF		3	E		14		F
GOES		0816	0819	0822						6		C 1.7						
RAMY		1144	1145	1158	N22	W09	5240	11	19.8	14	SF	C 1.1	3	E		25		F
RAMY		1234	1235	1249	N22	W09	5240	11	19.8	15	SF		3	E		14		F
SVTO		1313	1317	1337	N27	E03	5241	11	20.8	24	SF		3	E		26		
RAMY		1315	1321	1337D	N28	E05	5241	11	20.9	22D	SF		3	E		32		F
SVTO		1412	1412	1418	N23	W12	5240	11	19.7	6	SF	C 1.8	3	E		26		
SVTO		1417	1418	1456D	N12	W38	5235	11	17.7	39D	SB		3	E		97		F
HOLL		1417	1420	1451	N13	W36	5235	11	17.9	34	SN	C 6.4	3	E		92		F
RAMY		1418E	1419U	1451D	N14	W37	5235	11	17.8	33D	1B	C 6.4	3	E		101		F

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SVTO	20	1430	1432	1446	N34	W58	5229	11	16.0	16	SF		3	E		42		
HOLL		1431	1431	1436	N36	W56	5229	11	16.1	5	SF		3	E		17		
RAMY		1434E	1434U	1448D	N36	W57	5229	11	16.0	14D	SF		3	E		31		F
HOLL		1527	1529	1536	N27	E03	5241	11	20.9	9	SF		3	E		24		F
RAMY		1528E	1531U	1538D	N27	E03	5241	11	20.9	10D	SF		2	E		18		F
HOLL		1634	1639	1708	N27	E01	5241	11	20.8	34	1N	C 6.0	3	E		239		FE
RAMY		1636	1640	1717D	N25	W01	5241	11	20.6	41D	1F	C 6.0	2	E		181		F
HOLL		1651	1652	1708	N17	W56	5233	11	16.4	17	SF		3	E		16		
RAMY		1656E	1657U	1721D	N16	W56	5233	11	16.4	25D	SF		1	E		82		F
HOLL		1849	1849	1854	N23	W11	5240	11	19.9	5	SF		3	E		13		
HOLL		1937	1938	1947	N14	W39	5235	11	17.9	10	SF	C 1.4	3	E		22		
RAMY		1940E	1940U	1949	N14	W39	5235	11	17.9	9D	SF	C 1.4	2	E		25		
RAMY		1959	2002	2022D	N34	W62	5229	11	15.9	23D	SF		3	E		25		
HOLL		2003	2017	2021	N36	W59	5229	11	16.1	18	SF		3	E		17		
PALE		2218E	2218U	2235D	N13	W41	5235	11	17.8	17D	SF	C 3.4	3	E		20		
HOLL		2238	2239	2247	N14	W42	5235	11	17.8	9	SF	C 3.4	3	E		14		
GOES		2322	2326	2329						7		C 2.0						
GOES		2346	2352	2359						13		C 3.8						
GOES	21	0106	0109	0111						5		C 1.8						
GOES		0149	0208	0217						28		C 3.6						
GOES		0333	0338	0347						14		C 1.9						
LEAR		0406	0407	0411	N32	W71	5229	11	15.5	5	SF		3	E		17		
GOES		0508	0512	0514						6		C 2.4						
RAMY		1215	1215	1225	S27	E68	5249	11	26.8	10	SF		4	E		25		
RAMY		1227	1230	1306	N19	W25	5240	11	19.6	39	1F	C 2.1	4	E		164		F
RAMY		1349	1349	1417	N24	W10	5241	11	20.8	28	SF		3	E		38		F
RAMY		1356	1415	1458	N21	W22	5240	11	19.9	62	1N	C 6.7	4	E		178		FH
HOLL		1411	1417	1436	N23	W21	5240	11	20.0	25	1N	C 6.7	3	E		151		EH
RAMY		1436	1442	1451	S28	E69	5249	11	27.0	15	SF		4	E		14		
RAMY		1527	1529	1549	N26	W11	5241	11	20.8	22	SF	C 2.0	4	E		31		F
HOLL		1527	1530	1548	N27	W11	5241	11	20.8	21	SF	C 2.0	3	E		38		F
RAMY		1642E	1824U	1827D	N20	W31	5240	11	19.3	105D	SF		2	E		18		
HOLL		1654	1654	1717	N21	W31	5240	11	19.3	23	SN	C 8.6	3	E		43		FE
HOLL		1822	1824	1831	N21	W32	5240	11	19.3	9	SF	C 1.6	3	E		22		
PALE		1823	1824	1826	N21	W32	5240	11	19.3	3	SF	C 1.6	2	E		16		
RAMY		1852	1852	1905	N14	W55	5235	11	17.6	13	SF	C 1.7	2	E		19		
HOLL		1852	1852	1905	N14	W55	5235	11	17.6	13	SF	C 1.7	3	E		24		
HOLL		1914	1919	2028	N27	W12	5241	11	20.9	74	1F		3	E		109		
RAMY		1917E	1918U	1955	N27	W11	5241	11	20.9	38D	SF		2	E		45		
PALE		1918	1920	1926	N27	W12	5241	11	20.9	8	SF		3	E		44		
HOLL		1915	1923	2036	N23	W26	5240	11	19.8	81	1N		3	E		131		F
RAMY		1917E	1924	2034	N23	W27	5240	11	19.7	77D	1F		2	E		147		F
PALE		1918	1923	2004	N24	W26	5240	11	19.8	46	1F		3	E		130		F
GOES		2122	2125	2129						7		C 1.6						
HOLL		2220	2228	2245	N13	W54	5235	11	17.8	25	SF		3	E		39		F
HOLL		2221	2236	2322	N27	W15	5241	11	20.8	61	SF		3	E		53		
HOLL		2225	2227	2248	N21	W35	5240	11	19.2	23	SF		3	E		14		F
HOLL		2250	2259	2344	N14	W56	5235	11	17.7	54	1B	M 1.6	3	E		103		YF
LEAR		2252	2255	2328	N16	W54	5235	11	17.8	36	SN	M 1.6	3	E		66		FE
PALE		2303E	2304U	2327	N14	W56	5235	11	17.7	24D	1N	M 1.6	3	E		119		F
LEAR	22	0625	0625	0633	N28	W18	5241	11	20.9	8	SF	C 4.6	3	E		16		
LEAR		0716	0717	0719	N33	W69	5229	11	16.8	3	SF		3	E		15		
HOLL		1421	1425	1435	N27	W23	5241	11	20.8	14	SF		3	E		19		F
HOLL		1453	1501	1539	N28	W26	5241	11	20.6	46	1F	C 9.3	3	E		154		F
HOLL		1856	1921	1927	S38	W33	5246	11	20.1	31	SF		3	E		22		
HOLL		1916	1919	1929	N19	W45	5240	11	19.4	13	SF		3	E		33		
HOLL		1957	2000	2008	N22	W38	5240	11	19.9	11	SF		3	E		34		
HOLL		2054	2107	2217	N21	W44	5240	11	19.5	83	SF	C 3.7	3	E		84		F
HOLL		2110	2112	2130	S15	W54	5247	11	18.8	20	SF		3	E		79		
LEAR	23	0332	0333	0339	N21	E66	5251	11	28.2	7	SF	C 1.1	3	E		31		
RAMY		1340	1340	1345	N17	E58	5251	11	28.0	5	SF		3	E		16		
HOLL		1906	1908	1931	N03	E03	5241	11	24.0	25	SF	C 1.3	3	E		57		F
HOLL		1935	1938	1957	N28	W39	5241	11	20.8	22	SF		3	E		20		
HOLL		1950	2001	2047	S31	E38	5249	11	26.8	57	SF		3	E		68		F
PALE		2003E	2012U	2055D	S30	E38	5249	11	26.8	52D	SF		3	E		56		F

H - ALPHA S O L A R F L A R E S

NOVEMBER 1988

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	24	0220	0221	0225	N18	E50	5251	11	27.9	5	SF		3	E		23		
PALE		0220	0221	0225	N18	E51	5251	11	28.0	5	SF		3	E		24		
GOES		0801	0811	0819						18		C 2.4						
RAMY		1117E	1129	1143	N19	W61	5240	11	19.8	26D	SF		3	E		36		
RAMY		1250E	1251U	1258	S17	E88	5254	12	1.2	8D	SF	C 5.8	2	E		81		
PEKG	25	0412	0413	0416	S21	E90		12	2.1	4	SN			P	0413	143		D
RAMY		1359E	1359U	1406	N27	W61	5241	11	20.8	7D	SF		2	E		10		
RAMY		1536	1537	1542	N20	W89	5240	11	18.8	6	SF		3	E		41		
HOLL		1614E	1616U	1630D	S17	E76	5254	12	1.4	16D	SF	C 3.8	2	E		34		
GOES	26	0051	0055	0102						11		C 1.0						
GOES		0550	0625	0800						130		C 2.1						
RAMY		1107E	1136	1143	N23	W88	5240	11	19.7	36D	SF	C 3.4	2	E		31		F
RAMY		1339E	1340U	1349D	N24	W90	5240	11	19.6	10D	SF		2	E		12		
RAMY		1348E	1348U	1355D	S18	E56	5254	11	30.8	7D	SF		2	E		15		F
HOLL		1710	1711U	1730	S30	E00	5249	11	26.7	20	SF	C 3.0	2	E		32		
RAMY		1712E	1712U	1738	S30	E00	5249	11	26.7	26D	SF	C 3.0	2	E		45		F
GOES		2127	2136	2150						23		C 7.3						
HOLL		2306	2308	2325	N16	E14	5251	11	28.0	19	SF		2	E		32		
PALE		2307	2307	2320	N18	E15	5251	11	28.1	13	SF		3	E		34		
PALE		2330	2338	2429	S17	E57	5254	12	1.3	59	SF	M 1.2	3	E		56		F
HOLL		2334E	2337U	2348D	S19	E50	5254	11	30.8	14D	SF	M 1.2	1	E		20		
PEKG	27	0220E	0227	0235	N17	E13		11	28.1	15D	SN			C	0231	84	0.9	D
PALE		0221E	0222U	0253D	N18	E13	5251	11	28.1	32D	SF	C 3.3	3	E		34		F
HOLL		1448	1500	1508	S19	E47	5254	12	1.2	20	SF		2	E		38		
HOLL		1458	1503	1506	N22	E07	5251	11	28.2	8	SF		2	E		16		
HOLL		1510	1512	1520	N22	E07	5251	11	28.2	10	SF		3	E		13		
RAMY		1630E	1632U	1641D	N23	E07	5256	11	28.2	11D	SF		2	E		15		
RAMY		1717	1717	1732	S17	E48	5254	12	1.4	15	SF		3	E		11		
RAMY		1735	1739	1757	S17	E45	5254	12	1.1	22	SF		3	E		13		
RAMY		1755	1755	1806	N23	E06	5256	11	28.2	11	SF		3	E		12		
HOLL		1918	1947	2015	S18	E48	5254	12	1.4	57	SF		3	E		52		
RAMY		1928	1939	2011	S17	E47	5254	12	1.4	43	SF		3	E		29		
HOLL		2025	2030	2047	S20	E38	5254	11	30.7	22	SF		3	E		37		
RAMY		2026	2028	2046	S19	E38	5254	11	30.7	20	SF		3	E		35		
HOLL		2207	2230	2342D	S18	E45	5254	12	1.3	95D	1B	M 6.5	3	E		202		ZF
PALE		2215E	2216U	2320D	S18	E48	5254	12	1.6	65D	1N	M 6.5	3	E		192		F
PEKG	28	0729	0747	0812D	S19	E37		12	1.1	43D	1N			P	0747	151	2.1	EZ
GOES		1039	1045	1055						16		C 1.4						
RAMY		1128E	1129U	1216	S19	E31	5254	11	30.8	48D	SN	C 3.2	2	E		54		FH
RAMY		1322	1323	1330	N18	E01	5256	11	28.6	8	SF		4	E		13		F
HOLL		1609	1616	1627	N16	W08	5251	11	28.1	18	SF		3	E		25		
HOLL		1643	1654	1721	S18	E36	5254	12	1.4	38	SF		3	E		33		U
HOLL		1744	1744	1754	S33	W22	5249	11	27.0	10	SF		3	E		17		
HOLL		1751	1757	1817	S19	E31	5254	12	1.1	26	SF		3	E		19		F
HOLL		1834	1836	1848	N19	W06	5256	11	28.3	14	SF		3	E		50		F
HOLL		1901	1903	1925	N17	W10	5251	11	28.0	24	SF		3	E		33		F
PALE		1920E	1922U	1948D	N16	W11	5251	11	28.0	28D	SF		3	E		46		F
HOLL		1952	1956	2010	S19	E29	5254	12	1.0	18	SF		3	E		45		F
HOLL		2328	2329	2337	S20	E24	5254	11	30.8	9	SF		3	E		20		
HOLL		2333	2343	2347D	N32	E28	5255	12	1.2	14D	SF		3	E		15		F
LEAR	29	0223	0224	0241	S18	E23	5254	11	30.8	18	SF	C 3.7	3	E		60		F
LEAR		0551	0553	0602	S19	E20	5254	11	30.8	11	SF		3	E		15		
LEAR		0634	0636	0656	S22	E21	5254	11	30.9	22	SF	C 1.7	3	E		36		H
LEAR		0757	0758	0812	N18	W18	5251	11	28.0	15	SF		3	E		21		F
SVTO		0832	0834	0834	S30	W65	5252	11	24.2	2	SF		2	E		87		
SVTO		1352E	1353U	1355	N24	E48		12	3.3	3D	SN		1	E		60		
RAMY		1352	1353	1356	S20	E25	5254	12	1.5	4	SF		3	E		29		
RAMY		1714E	1716U	1733	S19	E20	5254	12	1.2	19D	SF		2	E		49		F
HOLL		1759	1759	1811	S28	W70	5252	11	24.3	12	SF	C 1.2	3	E		11		
RAMY		2027E	2040U	2100	S17	E16	5254	12	1.1	33D	SF	C 1.0	2	E		12		F
HOLL		2041	2048	2108	S21	E16	5254	12	1.1	27	SF	C 1.0	3	E		47		F
GOES	30	0107	0121	0129						22		C 1.1						
LEAR		0337	0338	0354	S21	E12	5254	12	1.1	17	SF	C 1.3	3	E		38		F

H - ALPHA S O L A R F L A R E S

NOVEMBER 1988

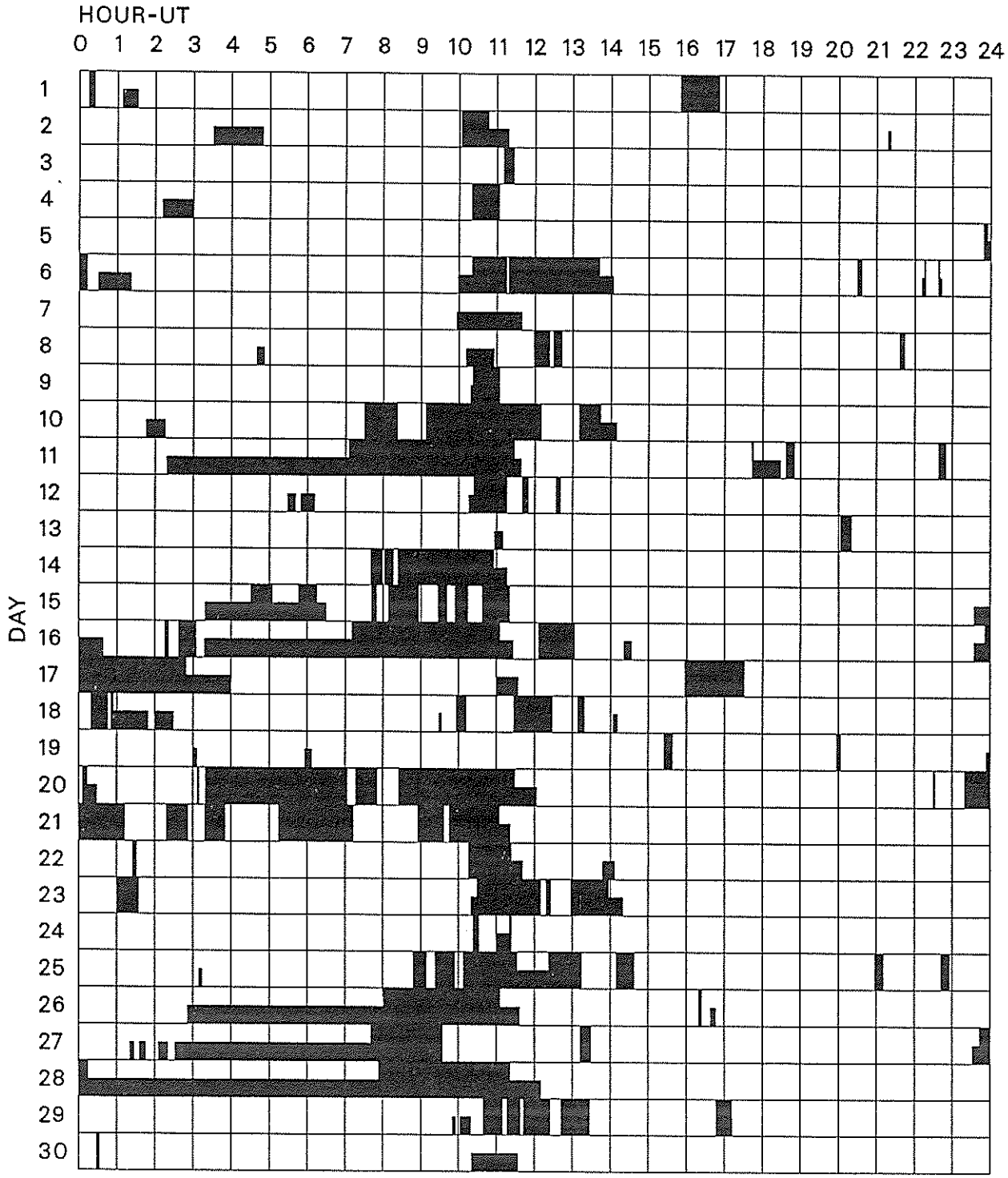
Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	30	0434	0439	0450	S20	E11	5254	12	1.0	16	SF	C 2.6	3	E		68		
LEAR		0612	0621	0656	S18	E14	5254	12	1.3	44	SF	C 1.5	3	E		23		Z
KAND		1007	1018	1011	S15	E43		12	3.7	4	SN			P	1011	21	0.3	DG
GOES		1034	1040	1047						13		C 2.5						
KAND		1035	1055	1039	S22	E07	5254	12	1.0	4	SN			P	1039	104	1.1	EF
GOES		1226	1240	1249						23		C 1.2						
GOES		1402	1407	1411						9		C 1.0						
RAMY		1621	1623	1641	N17	W35	5251	11	28.0	20	SF		3	E		26		
HOLL		1621	1627	1640	N16	W35	5251	11	28.0	19	SF		3	E		23		F
HOLL		1648	1656	1712	N17	E12	5260	12	1.6	24	SF		3	E		31		F
HOLL		1836	1837	1849	S18	E09	5254	12	1.5	13	SF		3	E		23		F
RAMY		1957	2013	2032	N18	E63	5261	12	5.6	35	SF		3	E		46		
HOLL		2103	2106	2116	S14	E04	5254	12	1.2	13	SF		3	E		13		
HOLL		2233	2235	2246	S21	E02	5254	12	1.1	13	SF		3	E		26		F
LEAR		2255	2318	2324	N17	E08	5260	12	1.6	29	SF		3	E		52		
LEAR		2257	2257	2316	N18	E60	5261	12	5.5	19	SF		3	E		10		

"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 1988



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 Kandilli Learmonth Palehua Ramey
Peking San Vito

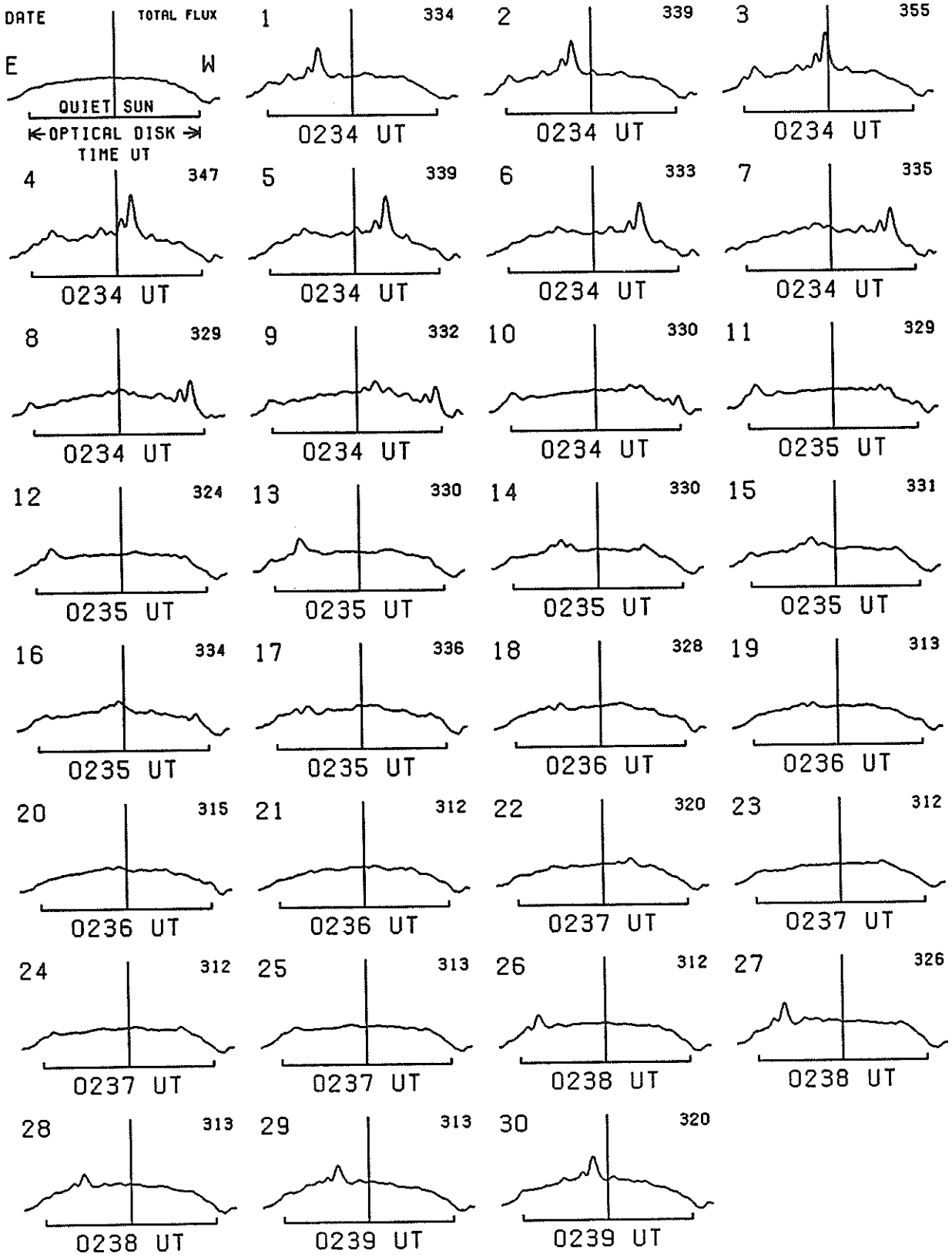
28
Nov 88

EAST-WEST SOLAR SCANS

NOVEMBER 1988

TOYOKAWA, JAPAN

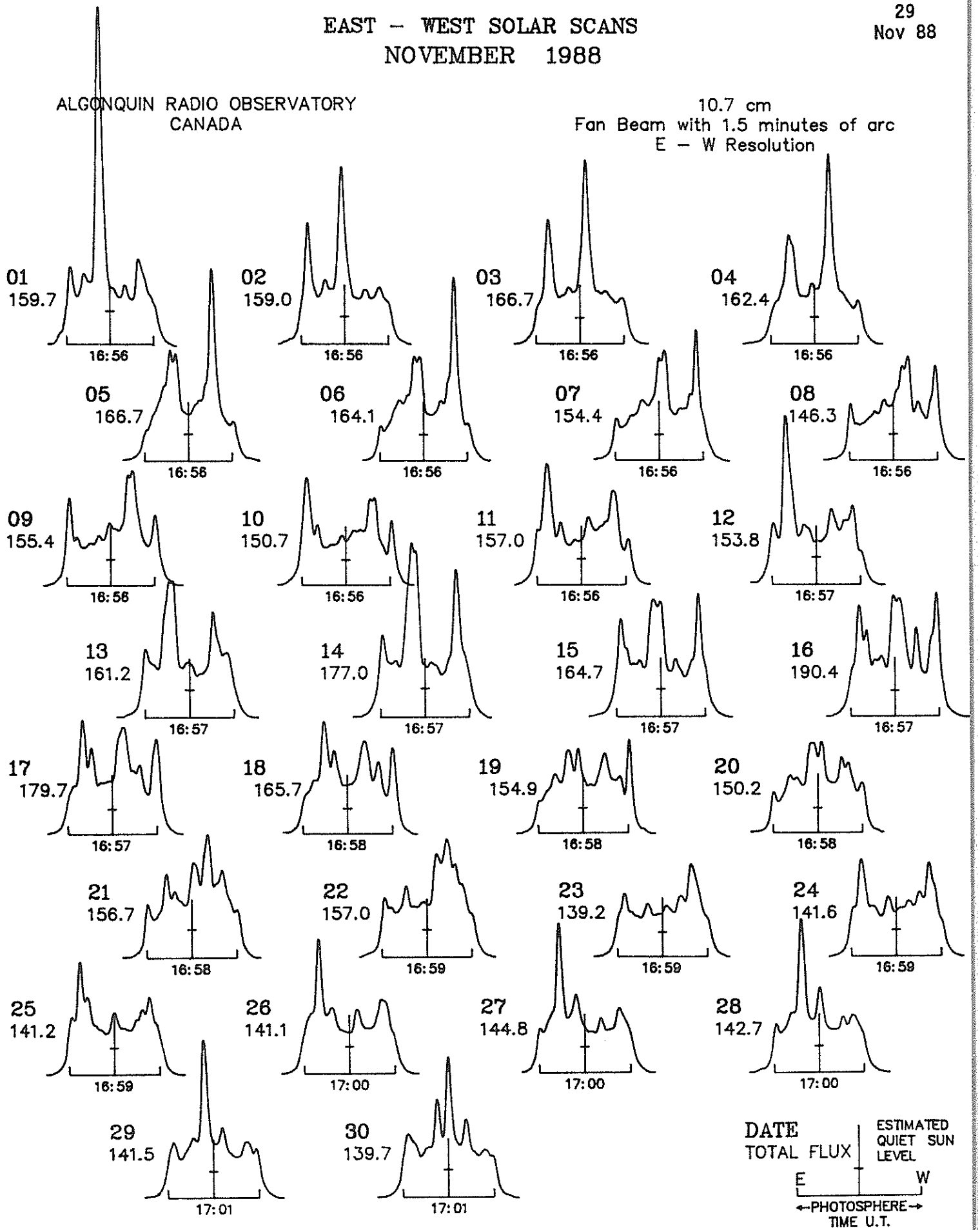
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST – WEST SOLAR SCANS
NOVEMBER 1988

ALGONQUIN RADIO OBSERVATORY
CANADA

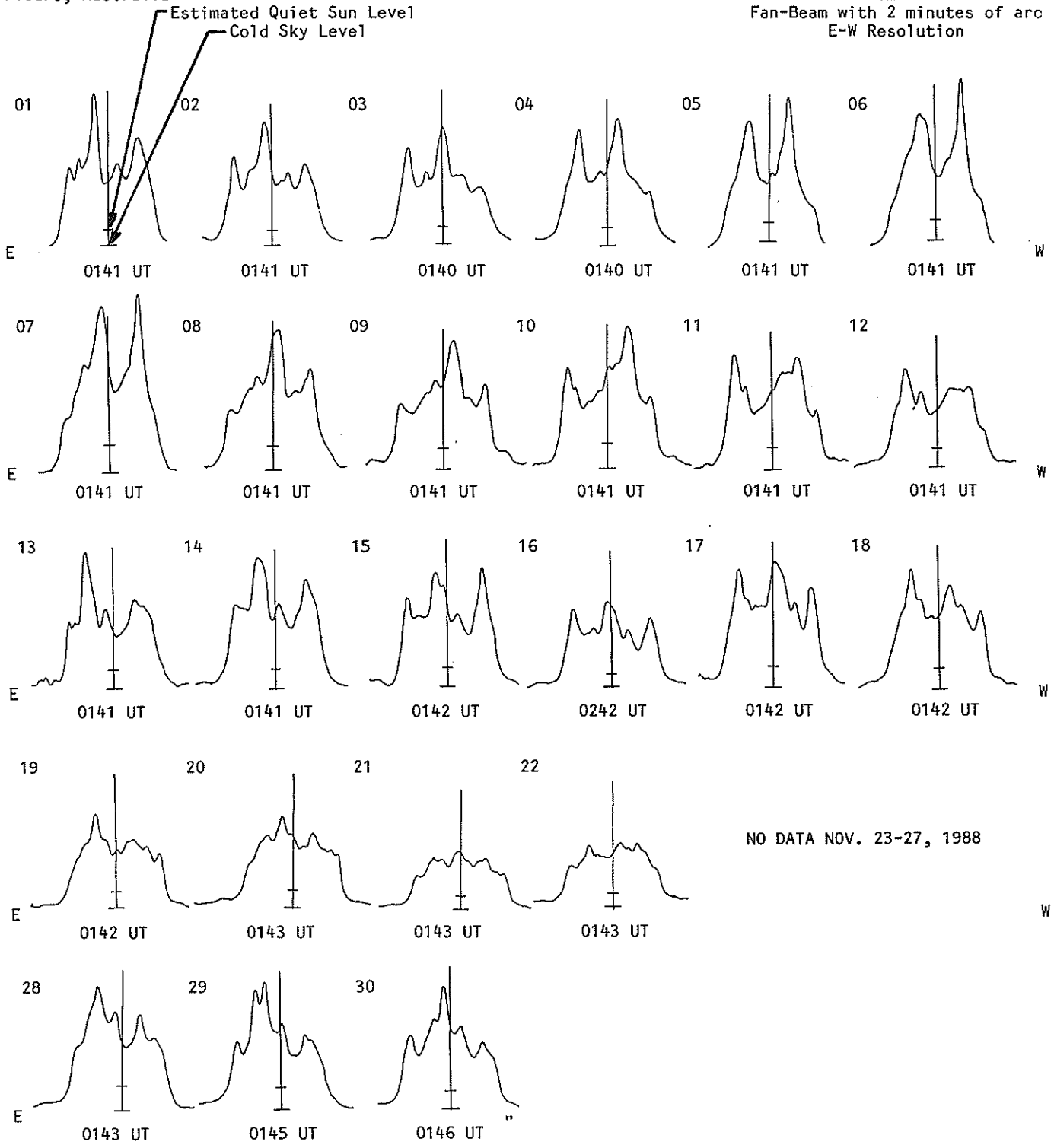
10.7 cm
Fan Beam with 1.5 minutes of arc
E – W Resolution



30
Nov 88

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

Fleurs, Australia — NOVEMBER 1988 — 21 cm Fan-Beam with 2 minutes of arc E-W Resolution



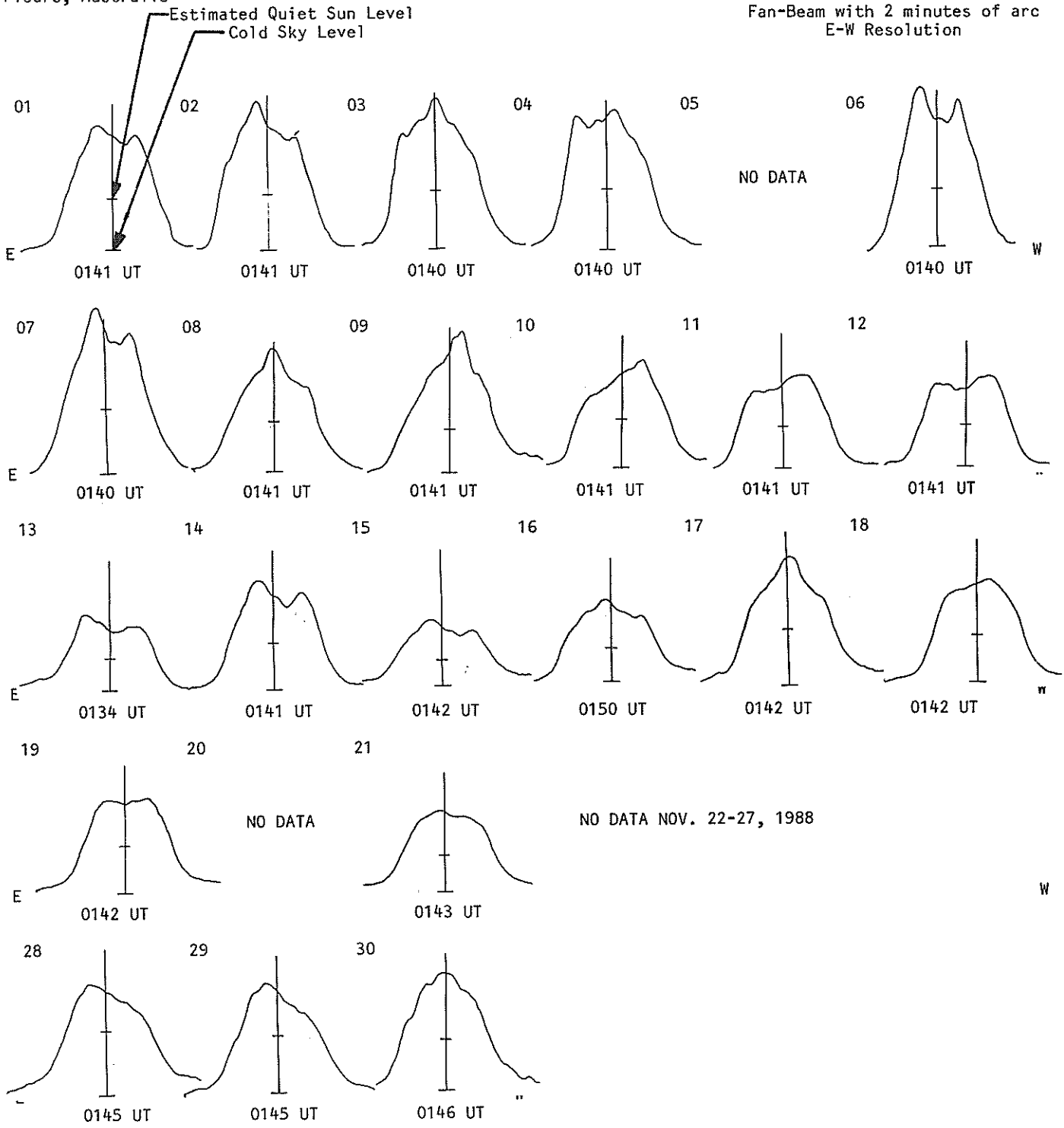
NO DATA NOV. 23-27, 1988

EAST-WEST SOLAR SCANS

Fleurs, Australia

NOVEMBER 1988

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

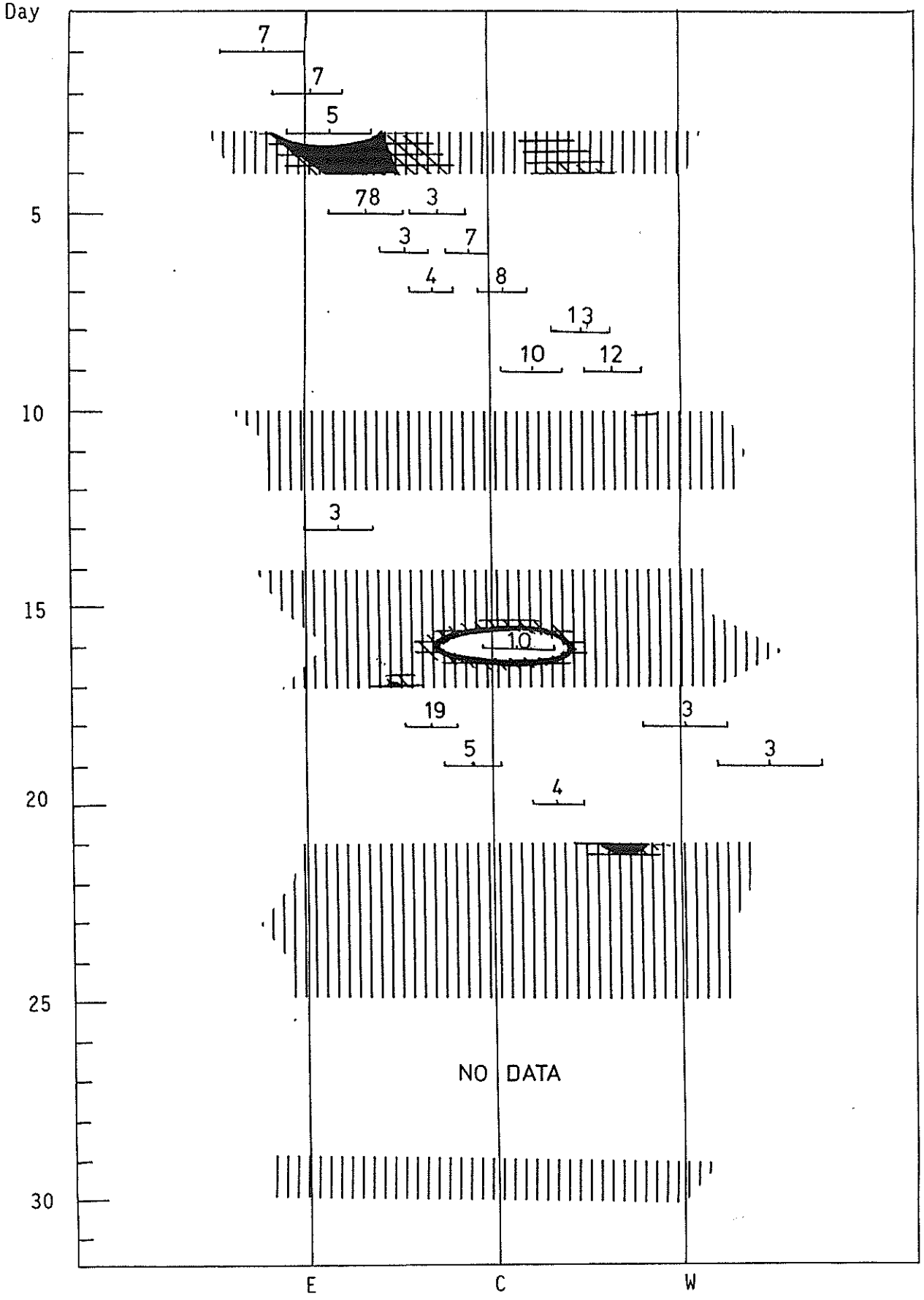


SOLAR INTERFEROMETRIC OBSERVATIONS

NOVEMBER 1988

Nancay

164 MHz



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1988

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	2695	SVTO	8	S	1058.0	1059.0	1.0	160.0			QL=1 ST=2 TYP=3
	8800	SVTO	4	S/F	1058.0	1100.0	4.0	190.0			QL=1 ST=2 TYP=3
	2800	OTTA	22	GRF	1420.0	1700.0	330.0	36.7	18.0		
	8800	PALE	4	S/F	2145.0	2145.0		250.0			QL=1 ST=1 TYP=3
02	2800	OTTA	4	S/F	1643.0	1643.3	10.0	13.6	4.0		
03	8800	LEAR	4	S/F	0009.0	0012.0	4.0	51.0			QL=1 ST=2 TYP=3
	8800	PALE	8	S	2122.0	2122.0	2.0	180.0			QL=1 ST=2 TYP=3
	2695	PALE	4	S/F	2122.0	2122.0	3.0	140.0			QL=1 ST=2 TYP=3
04	8800	LEAR	8	S	0001.0E	0001.0	1.0D	86.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0529.0E	0529.0	6.0D	37.0			QL=1 ST=2 TYP=3
05	2800	OTTA	3	S	1800.3	1801.5	6.0	45.7	13.0		
06	8800	LEAR	8	S	0136.0	0136.0	1.0	26.0			QL=1 ST=2 TYP=3
	8800	LEAR	8	S	0822.0	0823.0	2.0	30.0			QL=1 ST=2 TYP=3
	2695	LEAR	8	S	0823.0	0823.0	1.0	21.0			QL=1 ST=2 TYP=3
	2800	OTTA	4	S/F	1819.5	1823.1	14.8	136.4	65.0		
	8800	PALE	4	S/F	1821.0	1822.0	8.0	250.0			QL=1 ST=3 TYP=3
	2695	PALE	20	GRF	1821.0	1823.0	7.0	110.0			QL=1 ST=3 TYP=2
	8800	SGMR	4	S/F	1821.0	1822.0	9.0	350.0			QL=1 ST=2 TYP=3
	2695	SGMR	20	GRF	1821.0	1823.0	9.0	120.0			QL=1 ST=2 TYP=2
07	8800	LEAR	8	S	0803.0	0803.0	2.0	83.0			QL=1 ST=2 TYP=3
	2695	SVTO	4	S/F	1105.0	1106.0	4.0	110.0			QL=1 ST=2 TYP=3
	8800	SVTO	4	S/F	1105.0	1106.0	3.0	210.0			QL=1 ST=2 TYP=3
08	2695	SVTO	4	S/F	1227.0E	1252.0	107.0D	140.0			QL=1 ST=2 TYP=3
	2695	SGMR	20	GRF	1245.0E	1252.0	47.0D	130.0			QL=1 ST=2 TYP=2
09	2695	LEAR	4	S/F	0210.0	0212.0	5.0	27.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	0210.0	0212.0	5.0	36.0			QL=1 ST=2 TYP=3
	8800	SVTO	4	S/F	1223.0	1225.0	17.0	430.0			QL=1 ST=2 TYP=3
	8800	SGMR	20	GRF	1224.0	1225.0	7.0	370.0			QL=1 ST=2 TYP=2
	2695	SGMR	4	S/F	1224.0	1225.0	5.0	240.0			QL=1 ST=2 TYP=3
	2695	SVTO	4	S/F	1224.0	1225.0	9.0	260.0			QL=1 ST=2 TYP=3
	2800	OTTA	4	S/F	1931.8	1933.9	7.2	34.2	17.0		
	8800	PALE	4	S/F	1932.0	1932.0	3.0	100.0			QL=1 ST=2 TYP=3
10	8800	LEAR	4	S/F	0034.0	0034.0	5.0	28.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0034.0	0034.0	5.0	16.0			QL=1 ST=2 TYP=3
	2695	LEAR	49	GB	0608.0E	0612.0	20.0D	730.0			QL=1 ST=2 TYP=7
	2695	SVTO	49	GB	0610.0E	0612.0	13.0D	610.0			QL=1 ST=2 TYP=7
	8800	LEAR	49	GB	0611.0E	0614.0	18.0D	1500.0			QL=1 ST=2 TYP=7
	8800	SVTO	49	GB	0611.0E	0614.0	11.0D	1900.0			QL=1 ST=2 TYP=7
	2695	LEAR	4	S/F	0633.0	0635.0	10.0	140.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	0635.0	0635.0	4.0	36.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0702.0	0705.0	5.0	35.0			QL=1 ST=2 TYP=3
11	2695	SGMR	4	S/F	1513.0	1514.0	3.0	130.0			QL=1 ST=2 TYP=3
	8800	SGMR	8	S	1513.0	1514.0	2.0	240.0			QL=1 ST=2 TYP=3
	2800	OTTA	3	S	1513.5	1514.8	5.4	138.0	69.0		
	2800	OTTA	29	PBI	1518.9	1518.9	50.0	20.5	10.0		
12	2800	OTTA	28	PRE	1513.0	1604.0	51.0	5.1	2.0		
	2800	OTTA	45	C	1604.0	1608.0	17.0	216.2	108.0		
	2695	SGMR	4	S/F	1606.0	1608.0	8.0	250.0			QL=1 ST=2 TYP=3
	8800	SGMR	4	S/F	1614.0	1614.0	5.0	140.0			QL=1 ST=2 TYP=3
	2695	SGMR	4	S/F	1614.0	1614.0		76.0			QL=1 ST=2 TYP=3
	2800	OTTA	29	PBI	1621.0	1621.0	300.0D	15.3	7.0		
	2800	OTTA	3	S	1944.0	1945.0	13.0	52.5	25.0		
	8800	SGMR	8	S	1944.0	1944.0	1.0	63.0			QL=1 ST=2 TYP=3
	2695	SGMR	4	S/F	1945.0	1945.0		19.0			QL=1 ST=2 TYP=3
13	8800	LEAR	49	GB	0526.0E	0536.0	24.0D	890.0			QL=1 ST=2 TYP=7

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1988

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
13	2695	LEAR	4	S/F	0528.0	0536.0	12.0	390.0			QL=1 ST=2 TYP=5
	2695	SVTO	8	S	0714.0	0714.0	1.0	72.0			QL=1 ST=2 TYP=3
	2800	OTTA	3	S	1307.0	1310.0	9.0	78.0	39.0		
	2695	SVTO	4	S/F	1308.0	1310.0	4.0	66.0			QL=1 ST=2 TYP=3
	2695	SGMR	8	S	1309.0	1310.0	1.0	64.0			QL=1 ST=2 TYP=3
	2800	OTTA	3	S	1318.7	1319.0	2.0	25.4	12.0		
	2800	OTTA	22	GRF	1611.0	1757.0	137.0	8.1	4.0		
	2800	OTTA	3	S	1629.0	1630.2	2.4	25.4	12.0		
	2800	OTTA	32	ABS	1631.4	1639.0	11.6	5.5	2.0		
	2695	SYDN	4	S/F	2020.0	2022.0	6.0	21.0			
	2800	OTTA	3	S	2020.5	2021.7	3.5	16.5	8.0		
	2695	PENT	47	GB	2252.0	2309.0	22.0	642.0	320.0		
	2695	LEAR	49	GB	2257.0E	2309.0	29.0D	700.0			QL=1 ST=2 TYP=7
	2695	PALE	49	GB	2302.0E	2309.0	21.0D	620.0			QL=1 ST=2 TYP=7
14	8800	LEAR	4	S/F	0748.0	0750.0	7.0	28.0			QL=1 ST=2 TYP=3
	8800	SVTO	4	S/F	0750.0	0750.0		51.0			QL=1 ST=3 TYP=3
	2800	OTTA	22	GRF	1422.0	1426.8	125.0	19.9	8.0		
	2800	OTTA	4	S/F	1434.2	1438.0	9.9	183.0	73.0		
	2695	SGMR	4	S/F	1436.0	1437.0	4.0	150.0			QL=1 ST=2 TYP=3
	8800	SGMR	4	S/F	1436.0	1436.0	4.0D	270.0			QL=1 ST=2 TYP=3
	2695	SVTO	4	S/F	1436.0	1437.0	14.0	190.0			QL=1 ST=3 TYP=5
	8800	SVTO	4	S/F	1437.0	1438.0	13.0	92.0			QL=1 ST=3 TYP=5
	2800	OTTA	3	S	1445.2	1446.9	4.7	99.4	40.0		
	2695	SGMR	8	S	1446.0	1446.0	1.0	90.0			QL=1 ST=2 TYP=3
	2800	OTTA	4	S/F	1642.2	1645.5	5.2	37.7	19.0		
	2800	OTTA	29	PBI	1647.7	1647.7	200.0	17.0	8.0		
	2800	OTTA	3	S	1944.7	1946.7	3.1	120.1	60.0		
	2695	PALE	8	S	1946.0	1946.0	1.0	100.0			QL=1 ST=2 TYP=3
	8800	PALE	8	S	1946.0	1946.0	1.0	93.0			QL=1 ST=2 TYP=3
	2695	SGMR	8	S	1946.0	1946.0	1.0	110.0			QL=1 ST=2 TYP=3
	8800	SGMR	4	S/F	1946.0	1946.0		71.0			QL=1 ST=2 TYP=3
15	2800	OTTA	22	GRF	1515.0	1700.0	300.0D	9.7	4.0		
	2695	PENT	4	S/F	2209.0	2223.0	22.0	86.3	34.0		
	2695	LEAR	4	S/F	2217.0	2222.0	8.0	73.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	2218.0	2223.0	7.0	40.0			QL=1 ST=2 TYP=3
16	2695	SYDN	4	S/F	0208.0	0304.0	91.0	32.0			
	2695	SVTO	8	S	0621.0	0622.0	2.0	220.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0626.0	0627.0	3.0	230.0			QL=1 ST=2 TYP=3
	8800	LEAR	8	S	0626.0	0627.0	1.0	17.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0631.0	0633.0	7.0	33.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	0631.0	0633.0	5.0	26.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0808.0	0808.0	7.0	13.0			QL=1 ST=2 TYP=3
	8800	SVTO	8	S	1146.0	1146.0	1.0	220.0			QL=1 ST=3 TYP=3
	2800	OTTA	4	S/F	1430.0	1435.0	16.0	20.2	10.0		
	2800	OTTA	4	S/F	1452.0	1456.0	8.0	163.8	80.0		
	8800	SGMR	4	S/F	1454.0	1457.0	4.0	110.0			QL=1 ST=3 TYP=3
	2695	SVTO	4	S/F	1454.0	1455.0	3.0	130.0			QL=1 ST=2 TYP=3
	8800	SGMR	8	S	1457.0	1457.0	1.0	110.0			QL=1 ST=2 TYP=3
	2800	OTTA	29	PBI	1500.0	1503.0	60.0	12.5	6.0		
	2800	OTTA	22	GRF	1618.0	1733.0	142.0	34.4	6.0		
	2695	PENT	4	S/F	1953.0	2002.0	15.0	87.7	43.0		
	2695	PALE	8	S	2000.0	2001.0	2.0	98.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	2350.0	2350.0	5.0	39.0			QL=1 ST=2 TYP=3
17	8800	LEAR	8	S	0030.0	0030.0	1.0	71.0			QL=1 ST=2 TYP=3
	8800	LEAR	8	S	0107.0	0107.0	1.0	39.0			QL=1 ST=2 TYP=3
	8800	LEAR	8	S	0449.0	0449.0	1.0	28.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	0639.0	0639.0		73.0			QL=1 ST=1 TYP=3
	2695	SVTO	8	S	0639.0	0640.0	1.0	75.0			QL=1 ST=2 TYP=3
	2695	LEAR	8	S	0725.0	0725.0	2.0	36.0			QL=1 ST=2 TYP=3
	2800	OTTA	3	S	1330.0	1345.0	62.0	68.3	27.0		
	2695	SVTO	20	GRF	1342.0	1345.0	4.0	67.0			QL=1 ST=2 TYP=2
	2695	SGMR	8	S	1343.0	1344.0	2.0	60.0			QL=1 ST=3 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1988

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
17	8800	SGMR	4	S/F	1343.0	1345.0	5.0	20.0			QL=1 ST=3 TYP=3
	8800	SGMR	4	S/F	1344.0	1345.0	4.0	38.0			QL=1 ST=2 TYP=3
	8800	SGMR	8	S	1821.0	1822.0	1.0	50.0			QL=1 ST=2 TYP=3
20	2800	OTTA	4	S/F	1416.3	1418.1	6.2	93.6	46.0		
	2695	SGMR	8	S	1417.0	1417.0	1.0	80.0			QL=1 ST=2 TYP=3
	2695	SVTO	8	S	1417.0	1418.0	1.0	81.0			QL=1 ST=2 TYP=3
	2800	OTTA	4	S/F	1636.2	1637.9	6.9	29.9	15.0		
	2800	OTTA	29	PBI	1643.1	1643.1	72.0	10.7	5.0		
	8800	LEAR	8	S	2223.0	2223.0	1.0	22.0			QL=1 ST=2 TYP=3
21	2695	LEAR	8	S	0107.0	0107.0	1.0	25.0			QL=1 ST=2 TYP=3
	2695	LEAR	8	S	0159.0	0159.0	1.0	13.0			QL=1 ST=2 TYP=3
	2800	OTTA	4	S/F	1653.0	1654.2	5.3	27.3	13.0		
	2800	OTTA	29	PBI	1658.5	1658.5	27.8	4.2	2.0		
	2695	LEAR	4	S/F	2252.0	2254.0	4.0	54.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	2253.0	2254.0	3.0	50.0			QL=1 ST=2 TYP=3
22	2800	OTTA	22	GRF	1400.0	1501.0	277.0	36.3	11.0		
23	8800	SGMR	8	S	1636.0	1636.0	1.0	210.0			QL=1 ST=2 TYP=3
26	2695	LEAR	8	S	2329.0	2330.0	2.0	23.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	2329.0	2330.0	7.0	55.0			QL=1 ST=2 TYP=3
	2695	LEAR	8	S	2353.0	2353.0	2.0	11.0			QL=1 ST=2 TYP=3
27	8800	LEAR	4	S/F	2210.0	2211.0	7.0	330.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	2211.0	2211.0	6.0	95.0			QL=1 ST=2 TYP=3
	2695	LEAR	4	S/F	2222.0	2223.0	3.0	59.0			QL=1 ST=2 TYP=3
	8800	LEAR	4	S/F	2222.0	2223.0	6.0	98.0			QL=1 ST=2 TYP=3
	2695	PALE	4	S/F	2222.0	2223.0	3.0	59.0			QL=1 ST=3 TYP=3

Reports are received routinely from the following observatories:

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

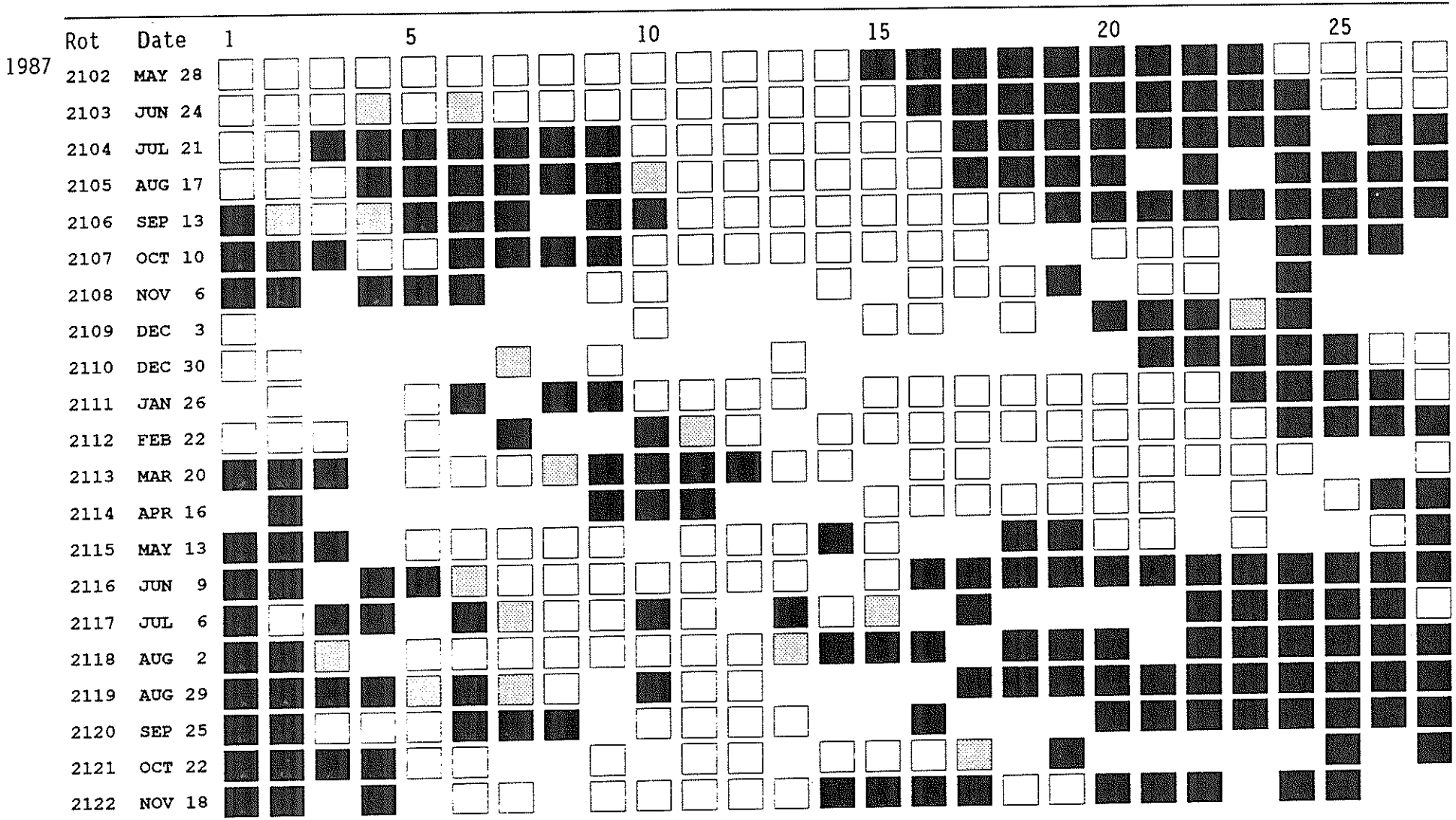
Explanation of Type Code:

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

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

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

STANFORD MEAN SOLAR MAGNETIC FIELD



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

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

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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	1987 Dec	1988 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	.	.	.	.	12	13	14	-35	5	-27	-15	23
2	.	.	-16	-16	21	12	7	-51	-22	-2	-19	24
3	2	.	-5	1	.	28	.	-29	-14	-4	.	.
4	.	.	16	22	35	29	33	-9	1	-2	8	40
5	.	0	25	.	42	25	.	-13	.	16	12	19
6	.	.	42	49	.	37	.	-39	5	.	15	3
7	.	20	40	50	45	.	12	39	18	-22	10	0
8	.	.	.	49	41	39	-14	-18	43	43	.	.
9	.	.	62	44	53	.	-25	-29	48	45	.	-9
10	.	.	56	53	47	6	-17	.	51	.	-8	.
11	.	29	58	52	43	-8	.	-16	22	.	.	.
12	19	.	58	49	36	-11	-14	-1	25	.	.	.
13	.	.	48	36	.	-22	-11	14	23	.	.	.
14	.	.	47	35	.	-29	-1	15	1	-30	-36	.
15	.	.	23	21	8	-25	13	-6	-14	-44	-33	-35
16	.	.	16	-13	.	.	22	2	-15	-50	-43	.
17	22	.	-13	-9	-25	10	28	.	-20	-54	-39	-46
18	30	.	-22	-13	.	17	27	-3	.	-46	-52	-43
19	.	-12	-25	-9	.	15	30	3	-36	-49	-53	-46
20	20	-22	-13	-20	.	12	37	-1	-38	-64	-40	.
21	.	-35	11	-14	.	22	35	.	-49	-67	-37	-19
22	-10	-28	14	-8	.	.	.	-16	.	-64	-34	.
23	-17	-15	35	.	.	5	15	.	-57	-57	-38	29
24	-18	4	37	18	-6	5	-3	.	-79	-36	-36	31
25	-1	15	.	21	-20	4	-35	.	-91	-29	-17	.
26	-3	.	17	12	-26	-6	-67	.	-77	-8	14	30
27	.	23	.	-1	.	7	-75	-49	-57	6	15	31
28	.	.	-14	-13	.	.	-80	-79	-24	34	.	24
29	.	.	.	-43	.	.	-57	-51	-10	13	.	26
30	24	3		-40	18	-19	-29	-15	-20	-6	15	18
31	24	-15		-11		-13		-3	-20		.	

Dot symbol indicates no data available for the day.

C O N T E N T S

Prompt Reports DATA FOR **OCTOBER** 1988 Number 532 Part I

P R E L I M I N A R Y H - ALPHA S O L A R S Y N O P T I C C H A R T

CARRINGTON ROTATION NUMBER 1807
(21 September to 19 October 1988)

Dates of Observations Below Days of Year: 277 272 267

Chart unavailable at time of publication.

Heliographic Longitude

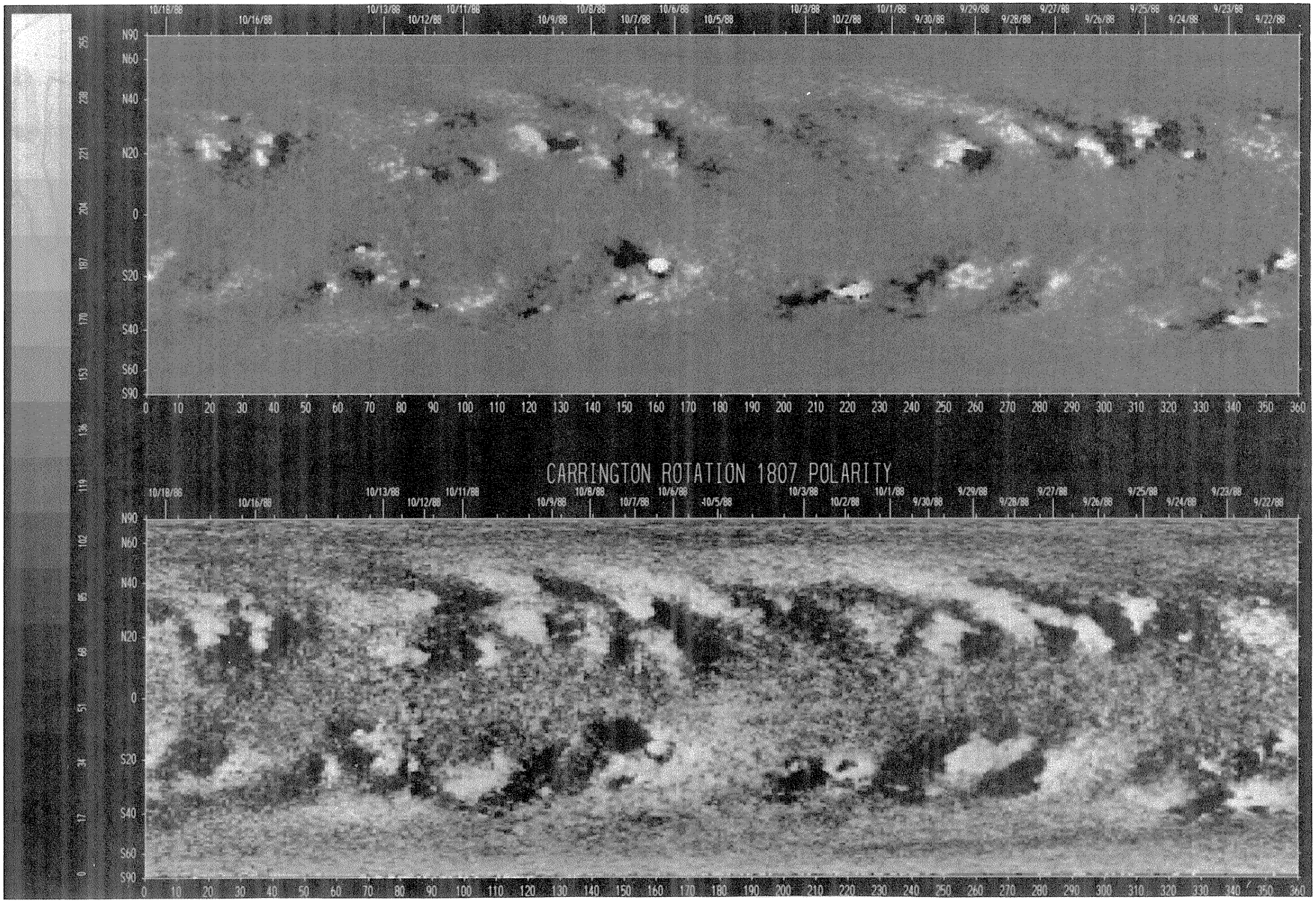
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1807

(21 September to 19 October 1988)

Kitt Peak National Observatory

Dates of Observation



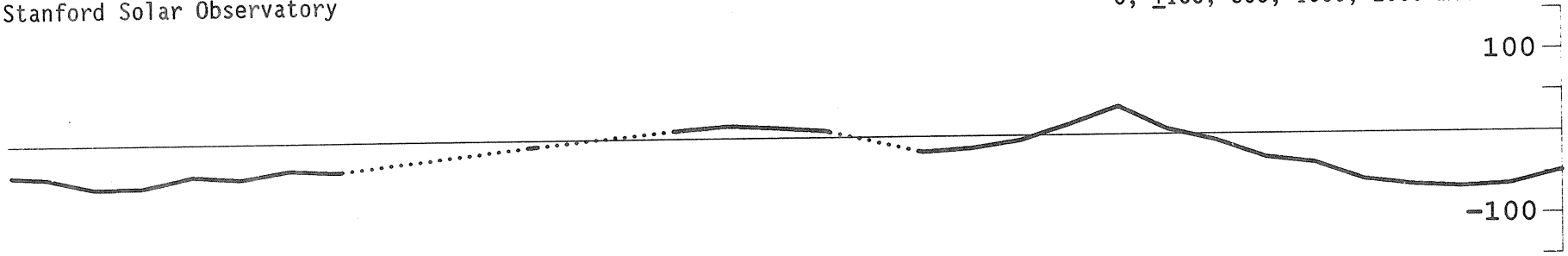
Heliographic Longitude

SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1807
(21 September to 19 October 1988)

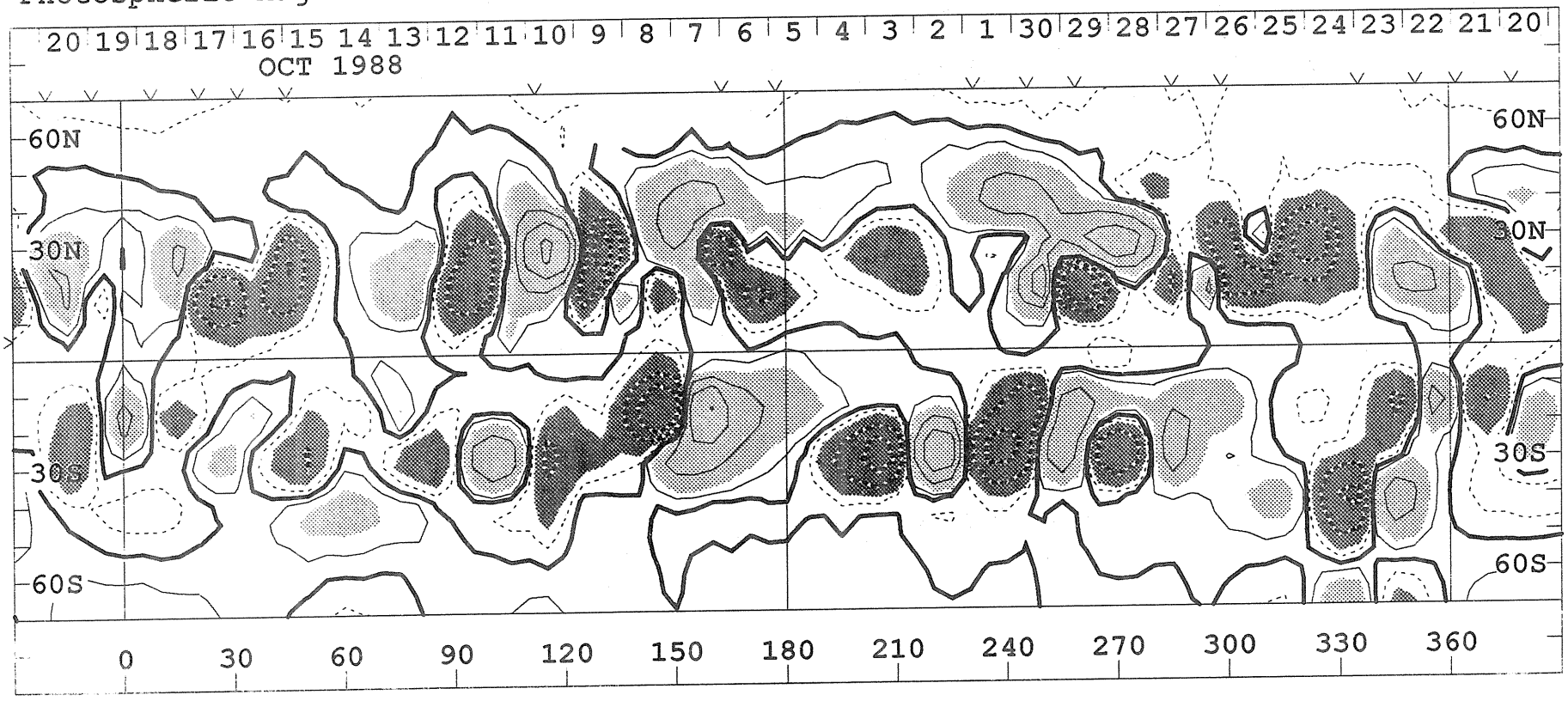
Stanford Solar Observatory

0, ±100, 500, 1000, 2000 microTesla



Photospheric Magnetic Field

0, ±100, 500, 1000, 2000 MicroTesla



SOLAR MAGNETIC FIELD SYNOPTIC CHART

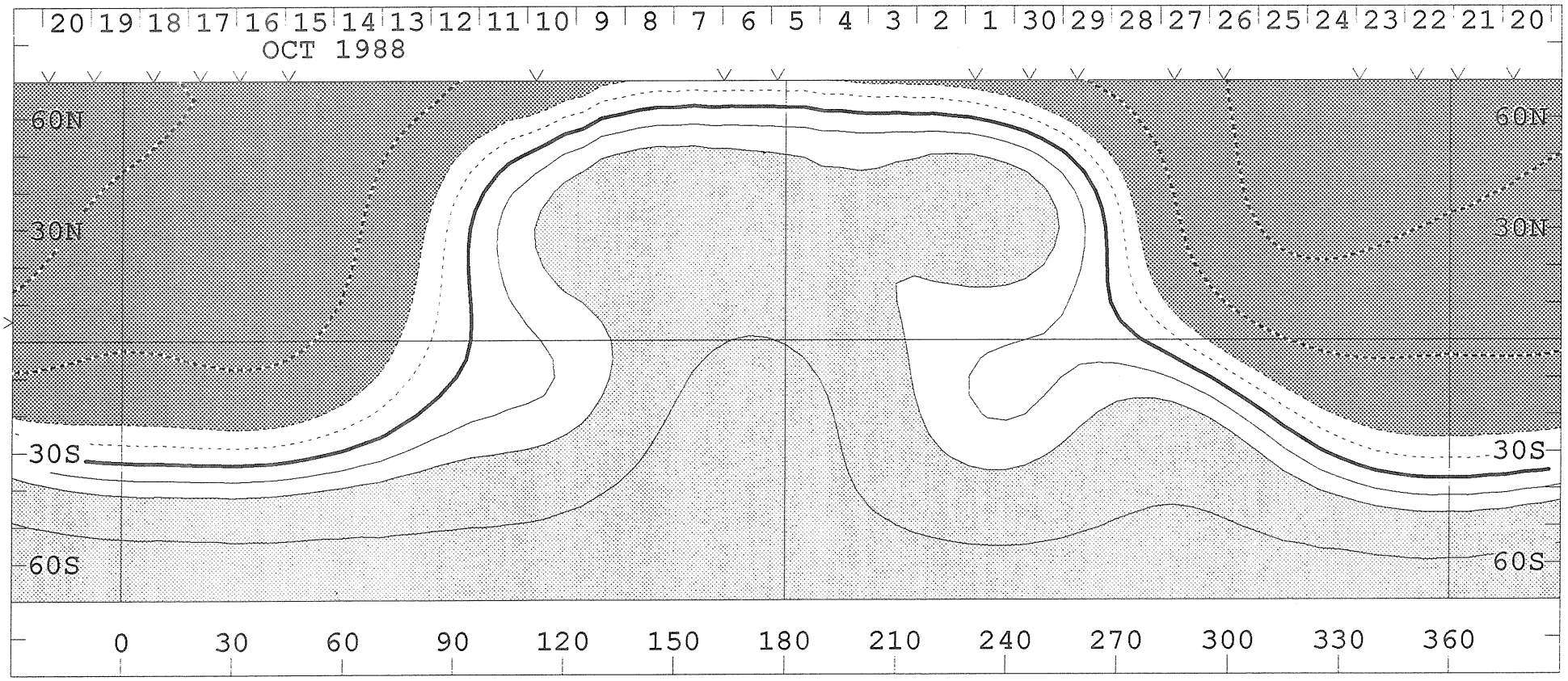
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1807

(21 September to 19 October 1988)

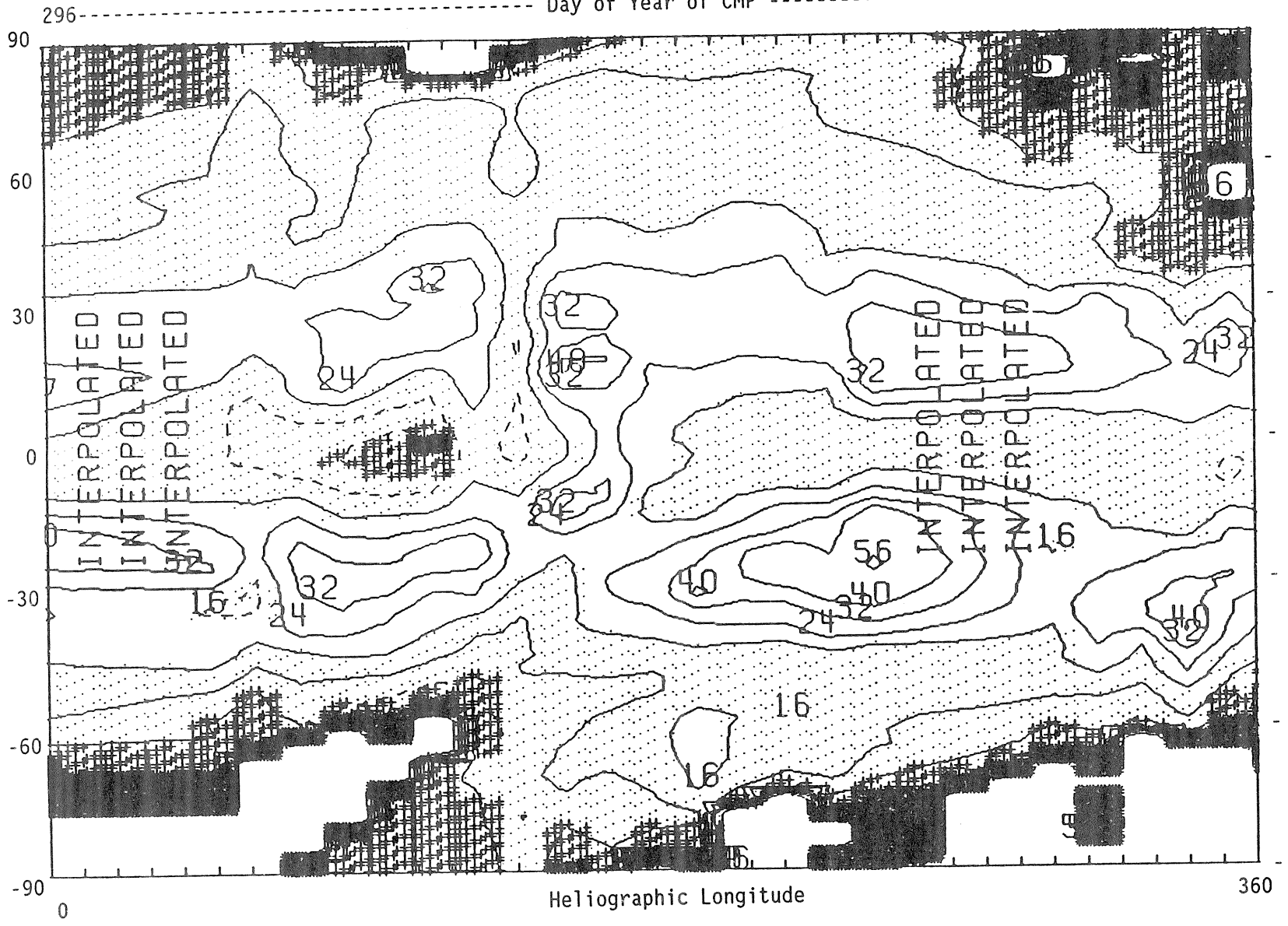
Stanford Solar Observatory

0, ±1, 2, 5, 10, 20 microTesla

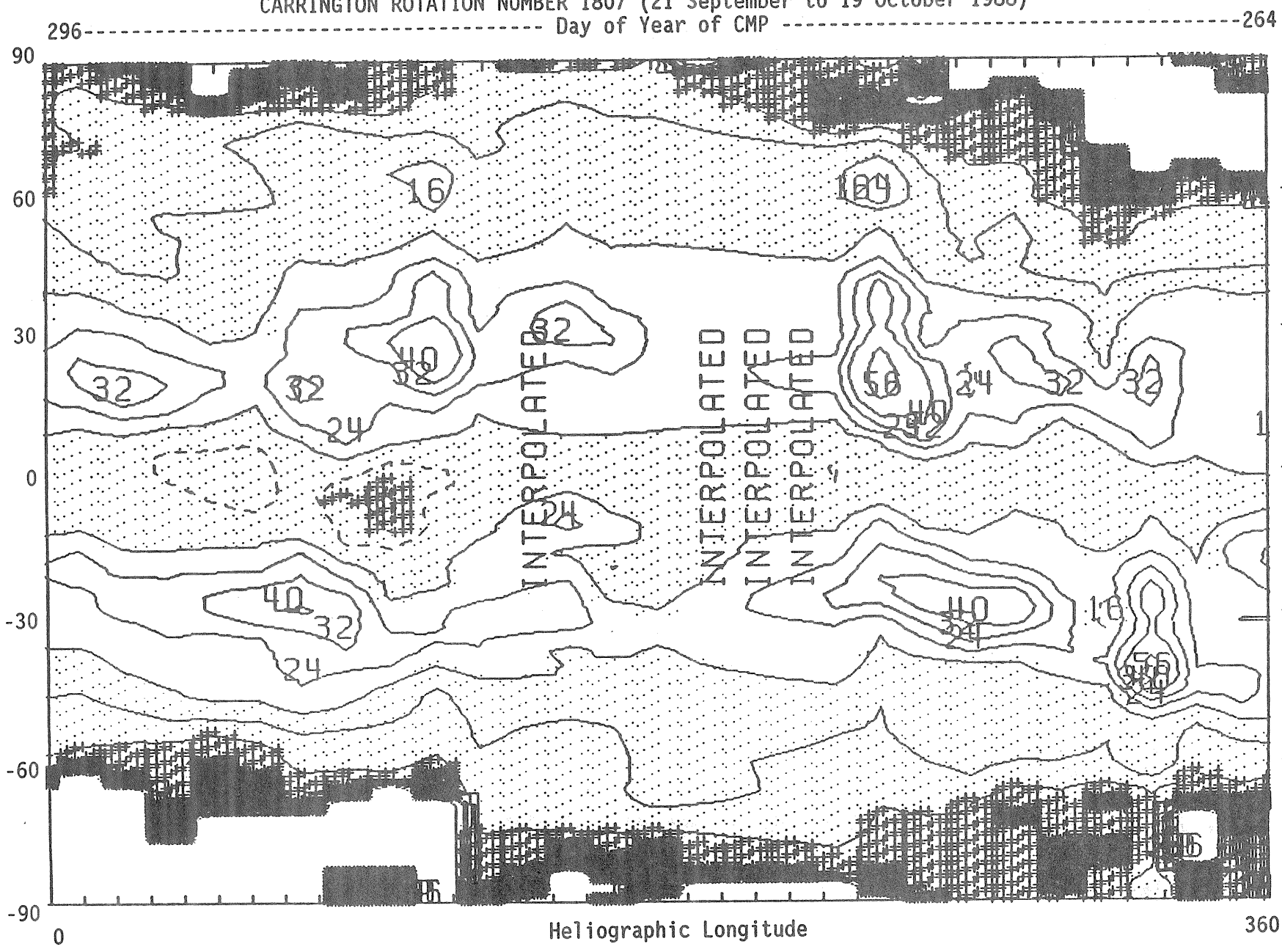


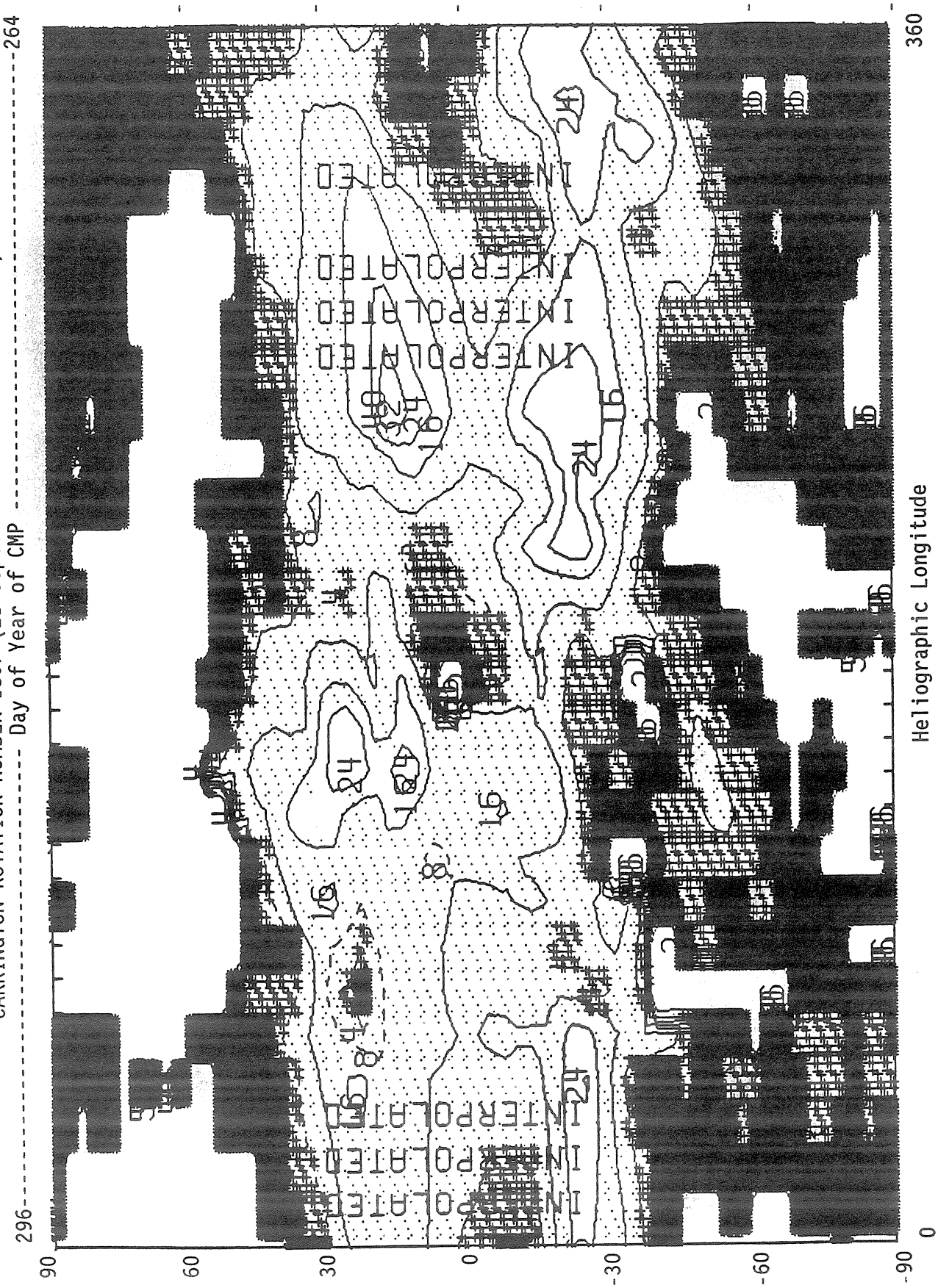
Heliographic Longitude

SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1807 (21 September to 19 October 1988)



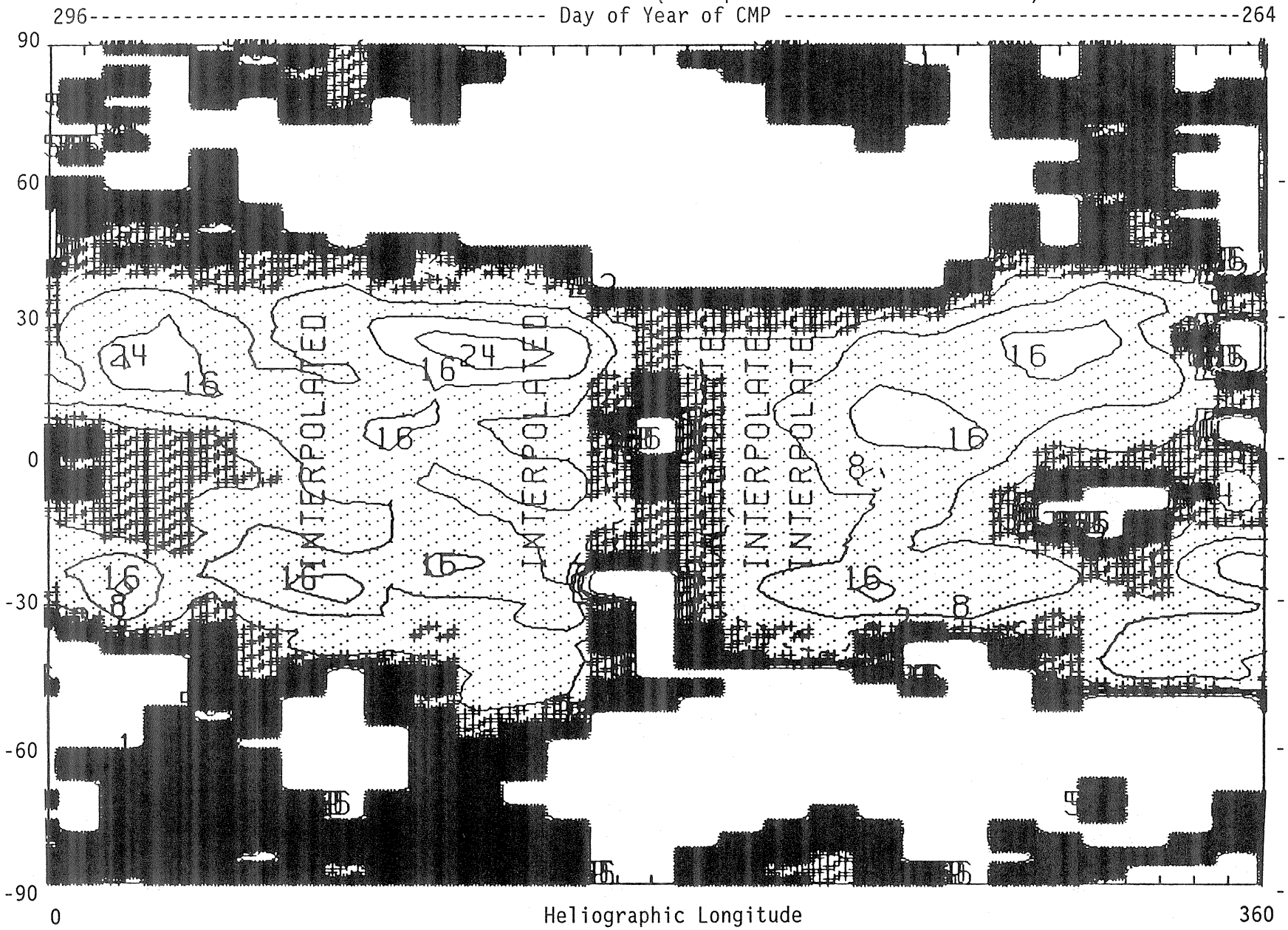
SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1807 (21 September to 19 October 1988)




SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1807 (21 September to 19 October 1988)
296 Day of Year of CMP 264
90
60
30
0
-30
-60
-90
0
360
Heliographic Longitude
INTERPOLATED

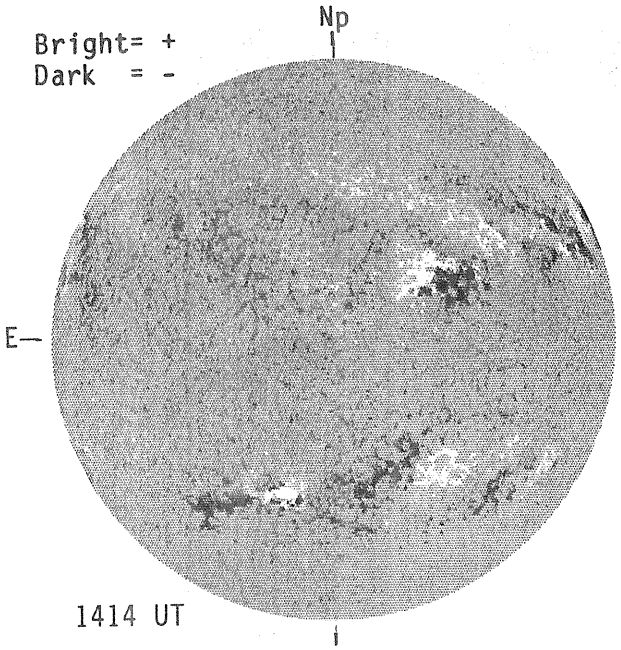
SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--WEST LIMB

CARRINGTON ROTATION NUMBER 1807 (21 September to 19 October 1988)

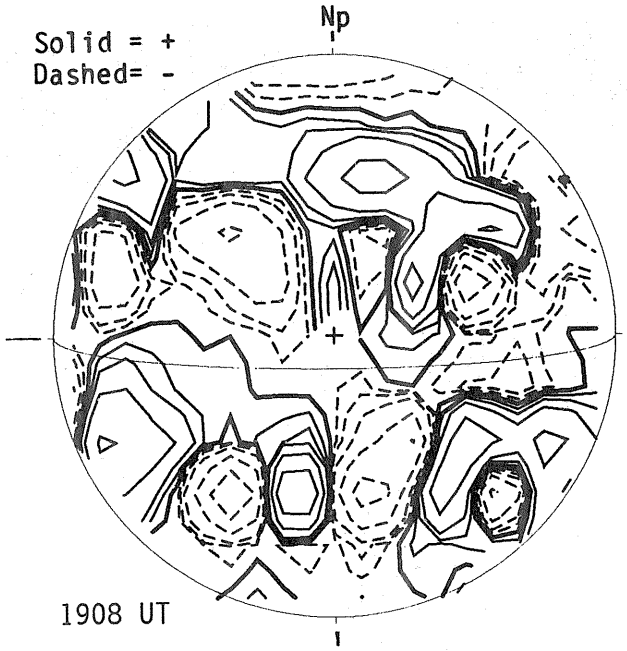


OCTOBER 01, 1988 (P= 26.01, B_o= 6.69, L_o= 240.39)

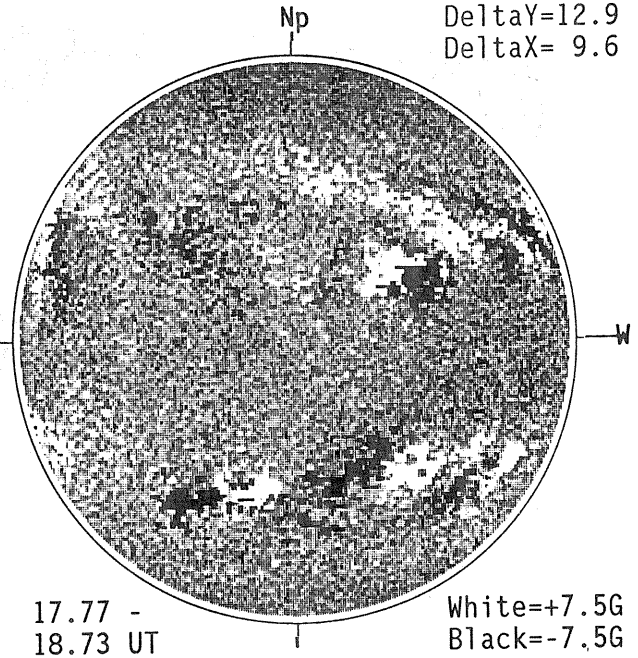
KITT PEAK MAGNETOGRAM



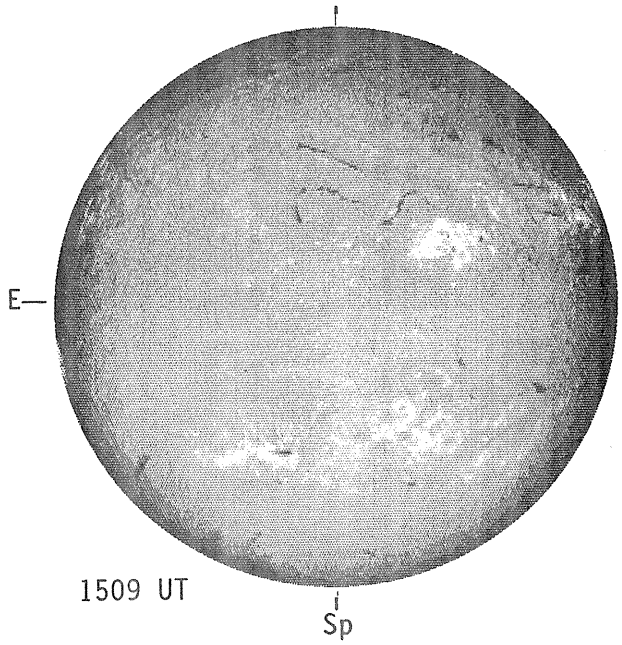
STANFORD MAGNETOGRAM



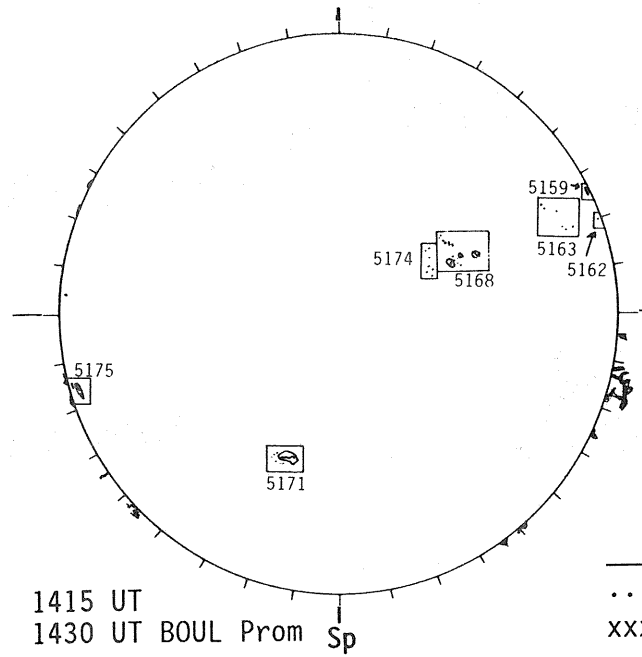
MT. WILSON MAGNETOGRAM



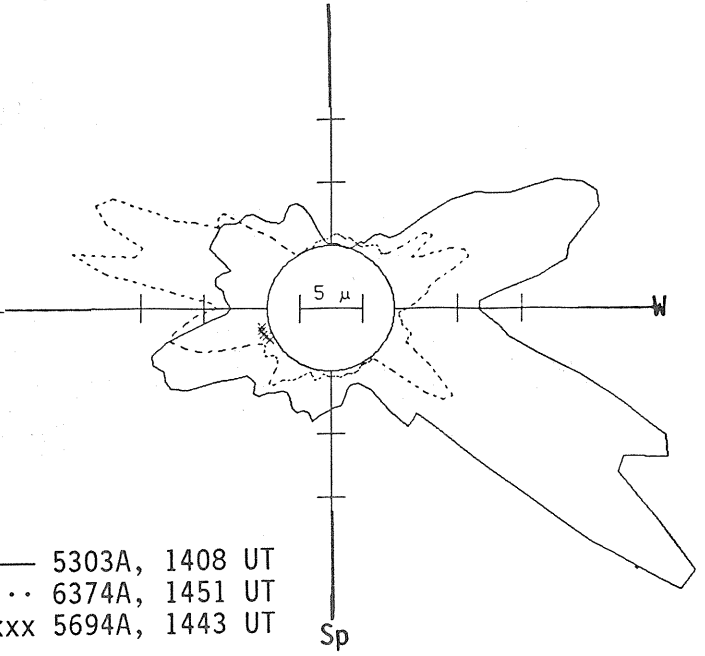
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



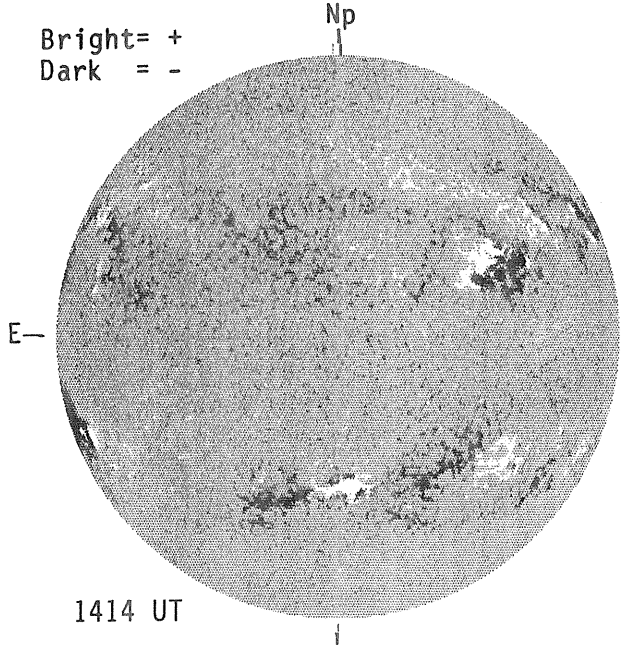
SACRAMENTO PEAK CORONA (1.15 Radii)



OCTOBER 02, 1988 (P= 26.07, B_o= 6.64, L_o= 227.20)

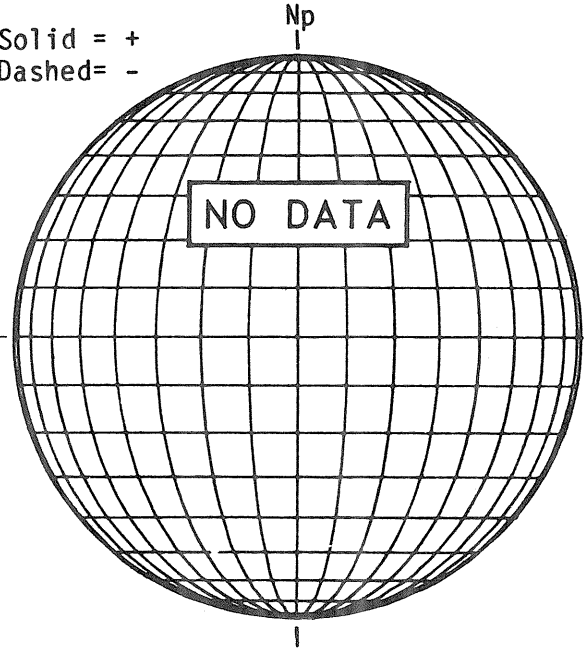
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



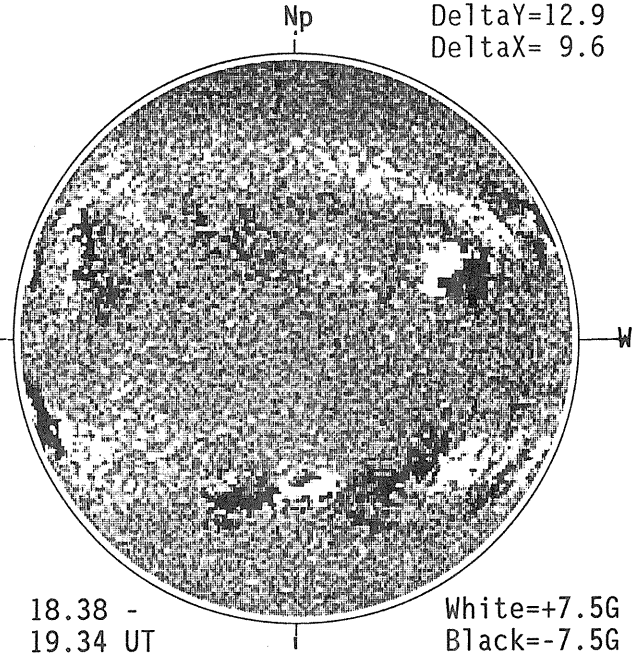
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

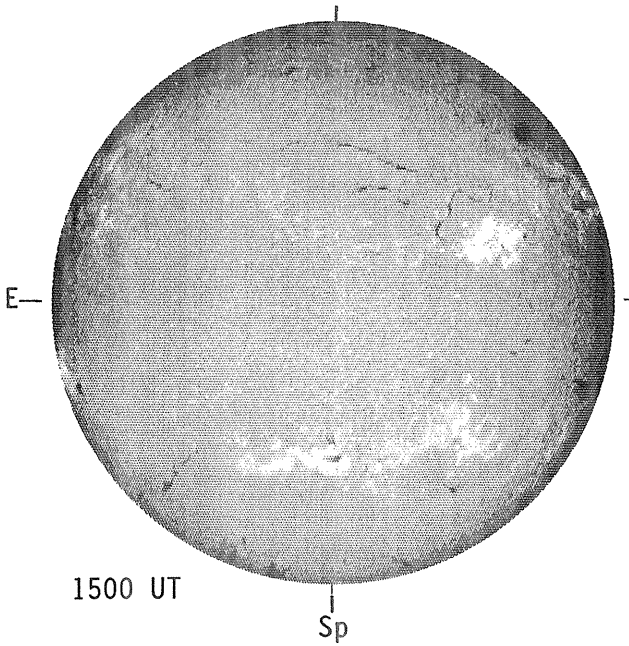


MT. WILSON MAGNETOGRAM

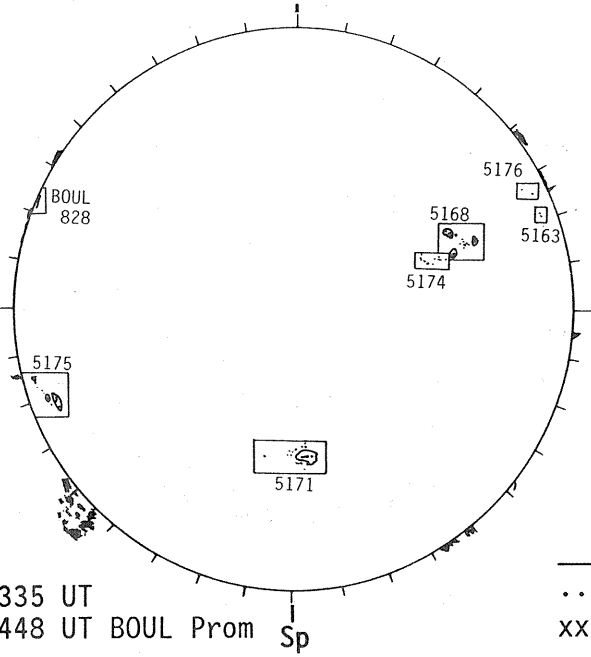
DeltaY=12.9
DeltaX= 9.6



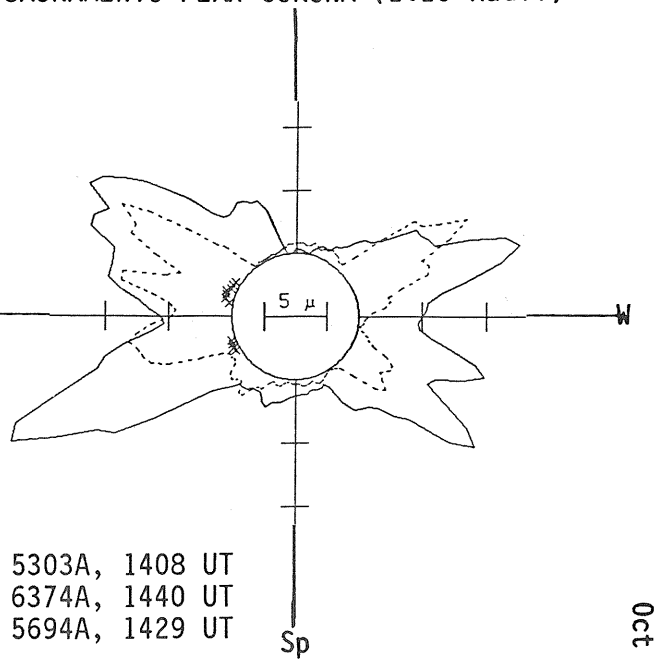
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

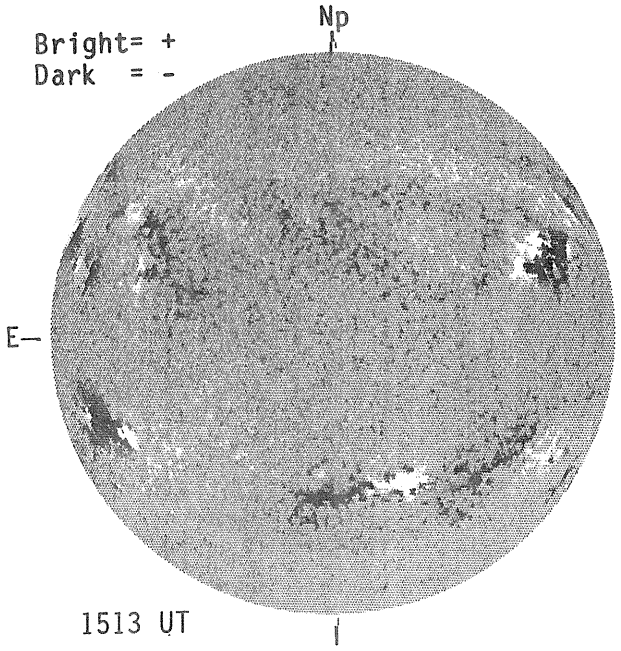


—— 5303A, 1408 UT
···· 6374A, 1440 UT
xxxx 5694A, 1429 UT

OCTOBER 03, 1988 (P= 26.12, B_o= 6.59, L_o= 214.00)

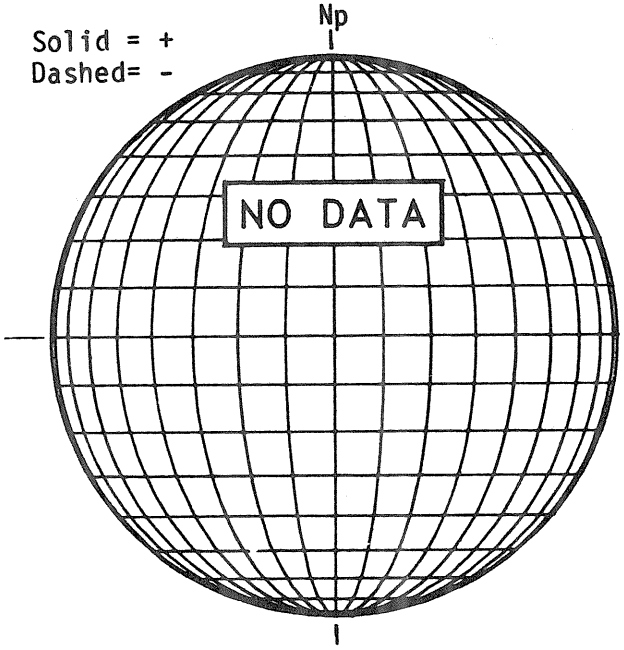
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

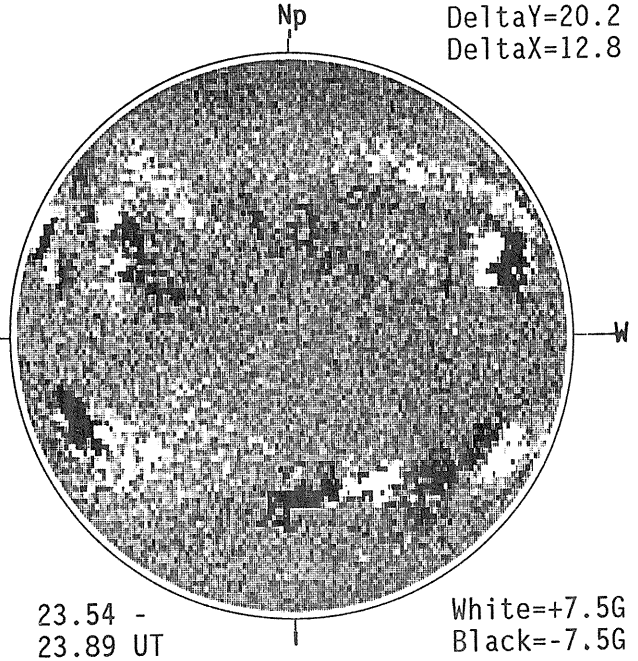


STANFORD MAGNETOGRAM

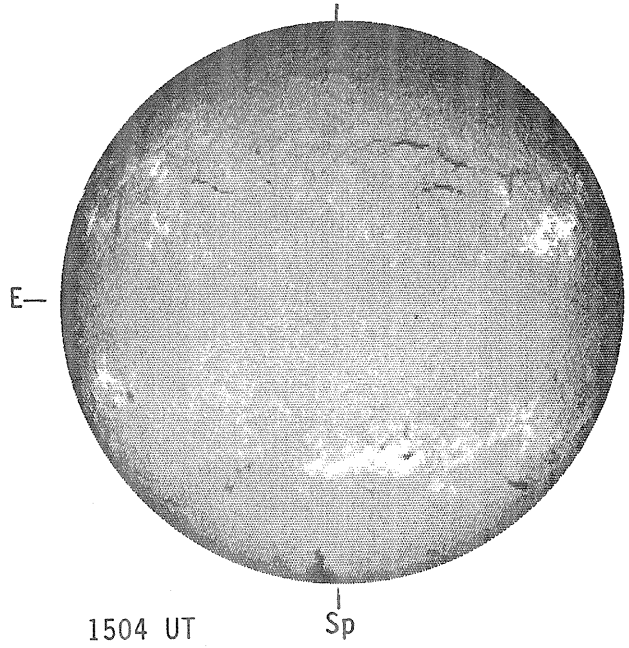
Solid = +
Dashed= -



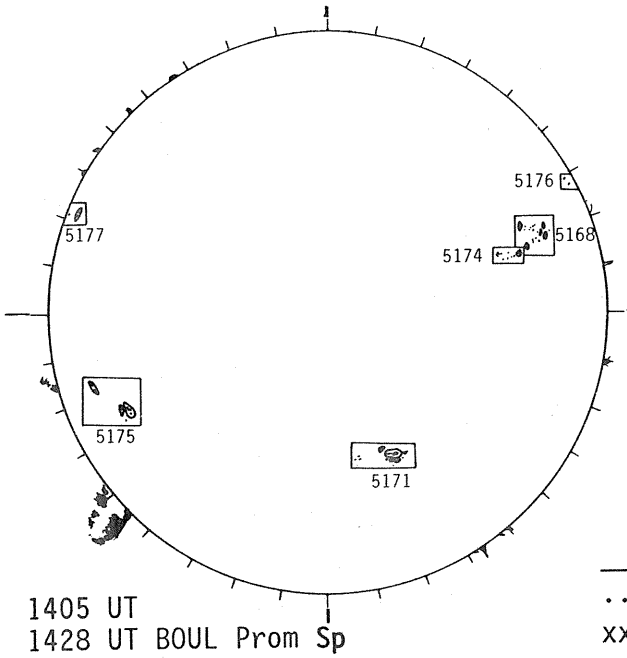
MT. WILSON MAGNETOGRAM



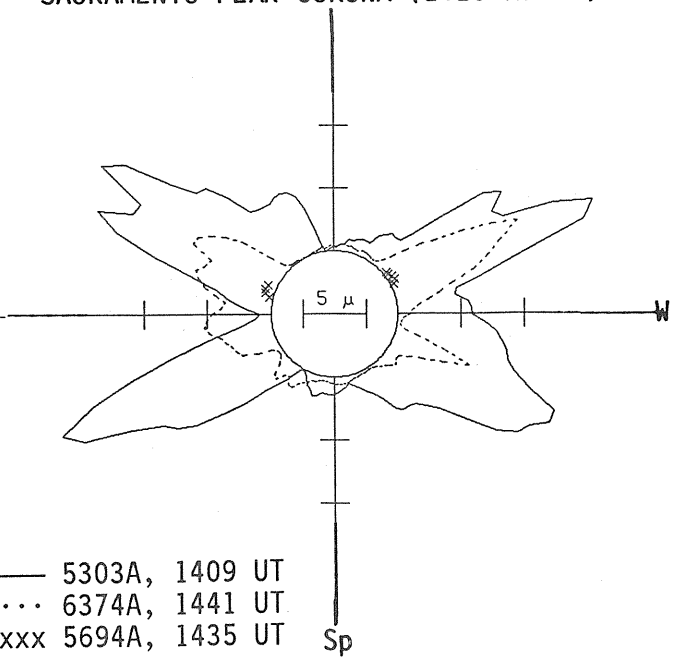
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

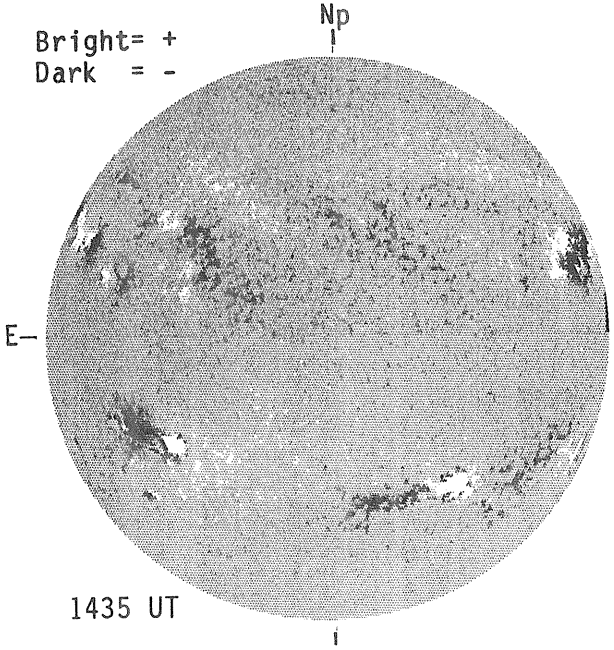


—— 5303A, 1409 UT
···· 6374A, 1441 UT
xxxx 5694A, 1435 UT

OCTOBER 04, 1988 (P= 26.17, B_o= 6.54, L_o= 200.81)

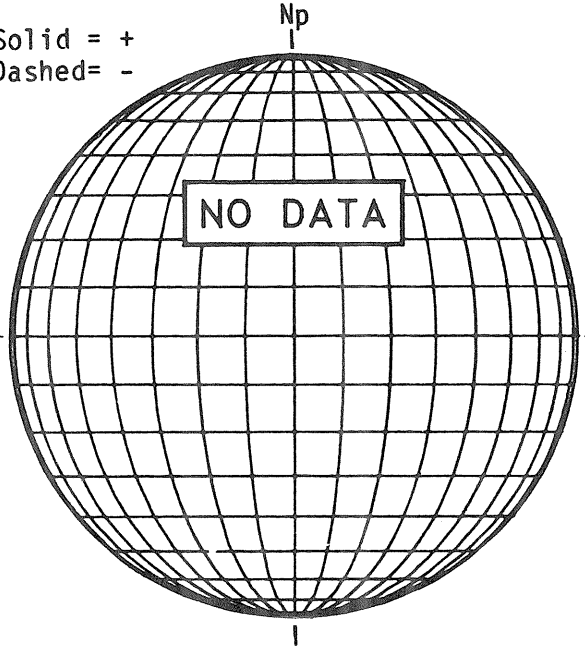
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



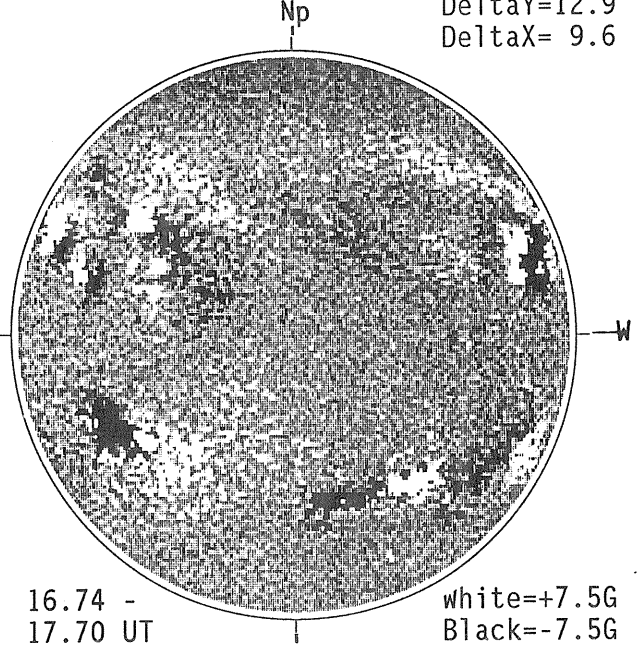
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

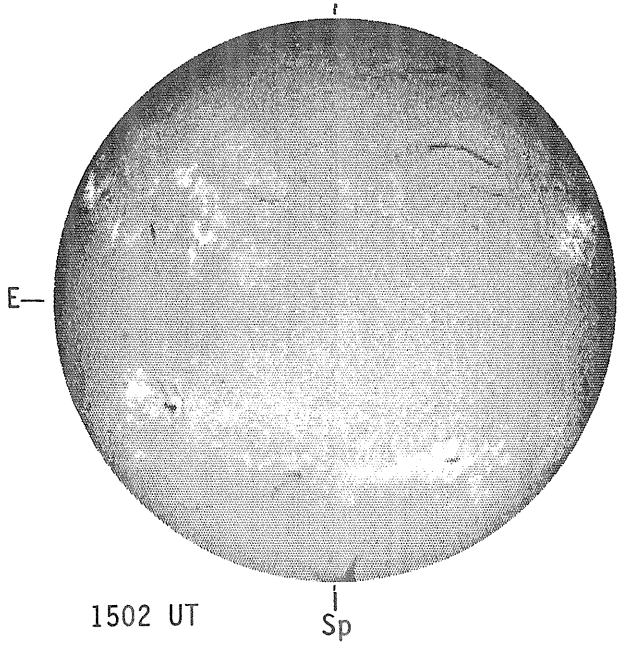


MT. WILSON MAGNETOGRAM

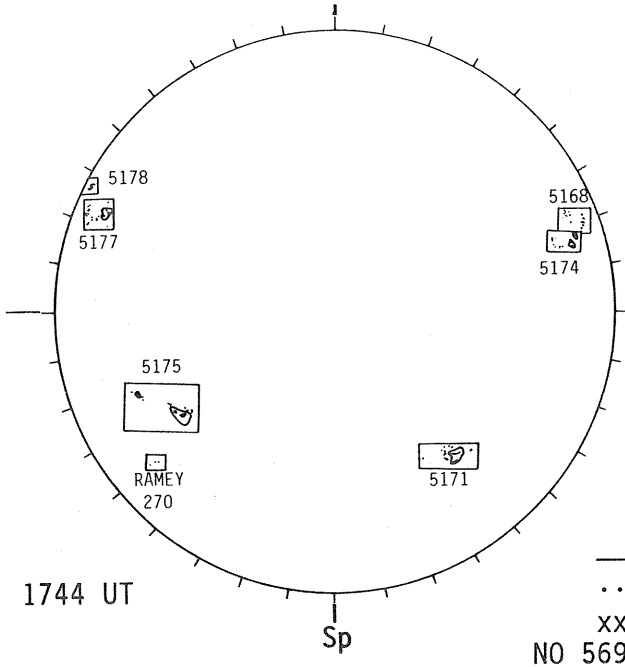
DeltaY=12.9
DeltaX= 9.6



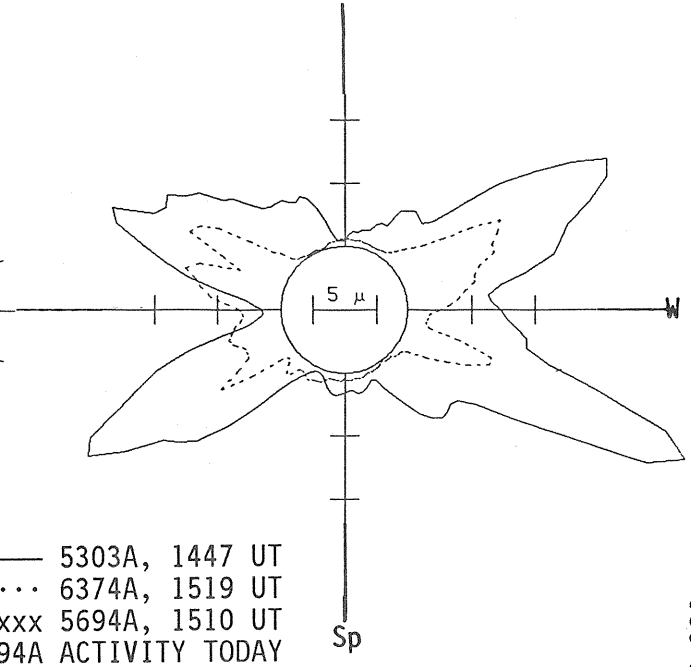
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



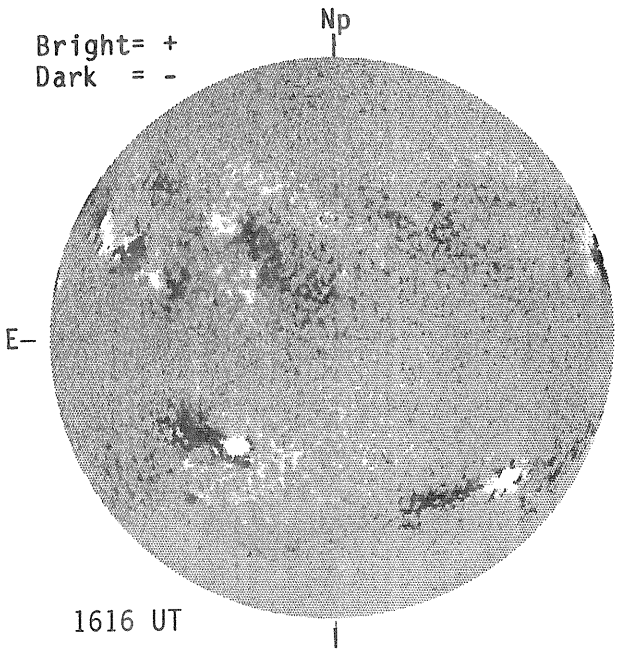
—— 5303A, 1447 UT
···· 6374A, 1519 UT
xxxx 5694A, 1510 UT
NO 5694A ACTIVITY TODAY

51
Oct 88

OCTOBER 05, 1988 (P= 26.21, B_o= 6.48, L_o= 187.61)

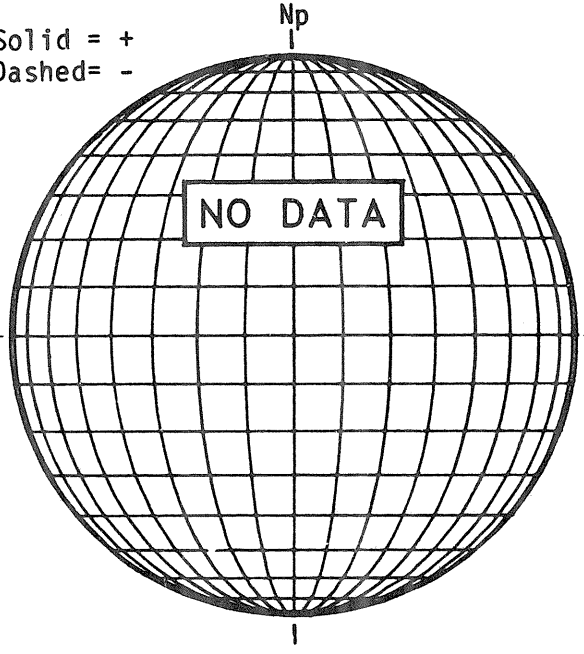
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

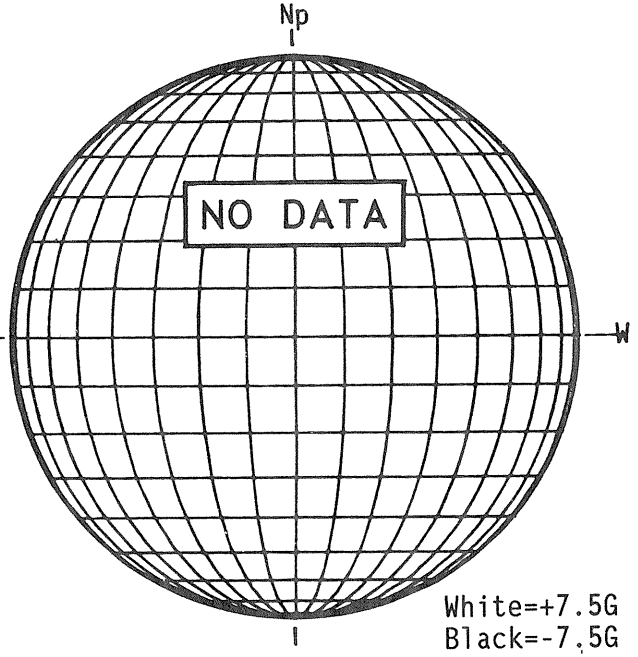


STANFORD MAGNETOGRAM

Solid = +
Dashed= -

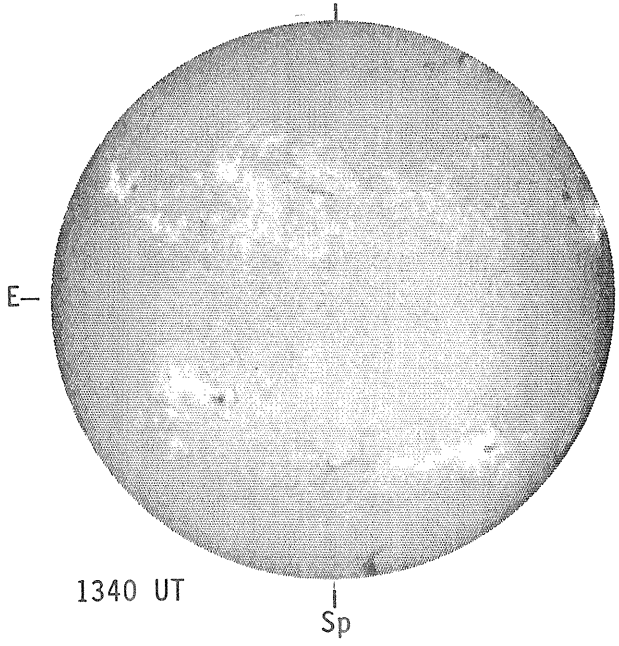


MT. WILSON MAGNETOGRAM

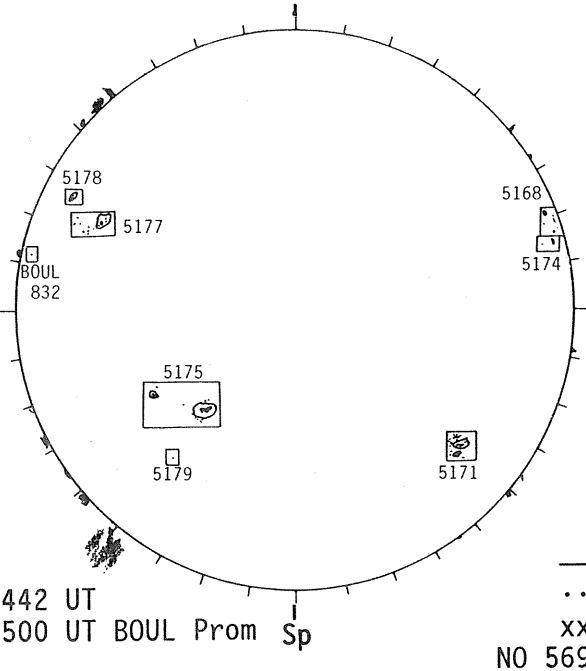


White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

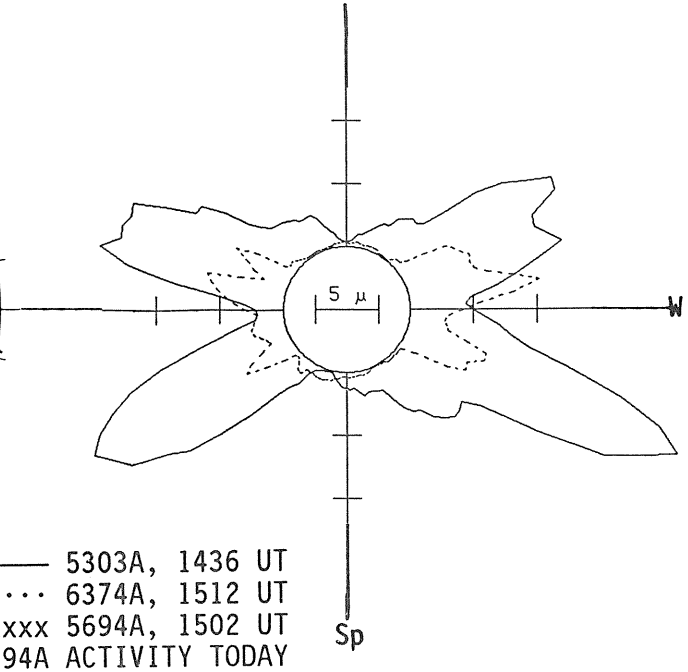


BOULDER SUNSPOTS



1442 UT
1500 UT BOUL Prom

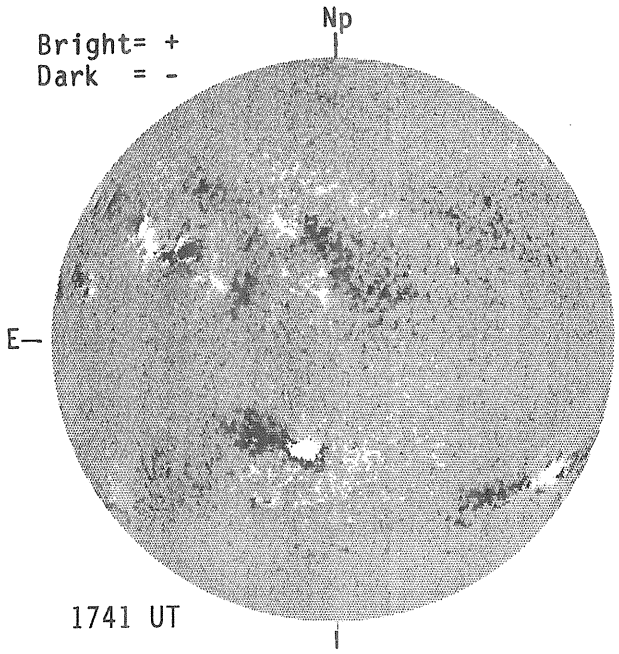
SACRAMENTO PEAK CORONA (1.15 Radii)



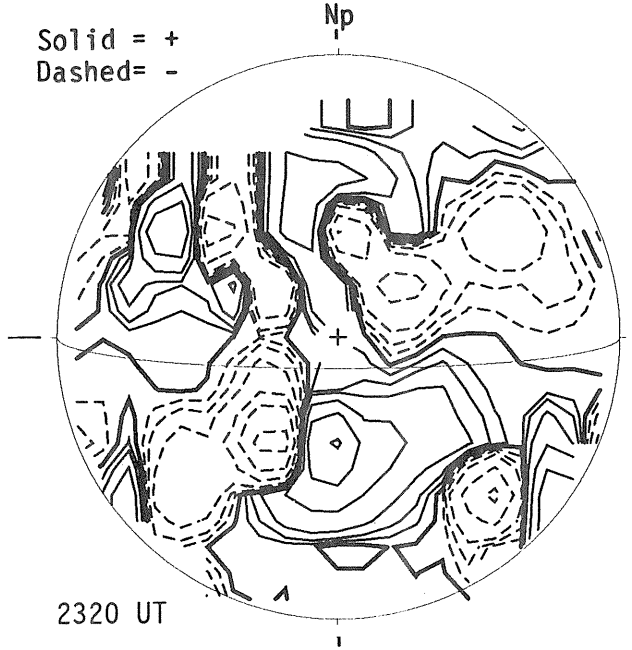
—— 5303A, 1436 UT
···· 6374A, 1512 UT
xxxx 5694A, 1502 UT
NO 5694A ACTIVITY TODAY

OCTOBER 06, 1988 (P= 26.24, B_o= 6.42, L_o= 174.42)

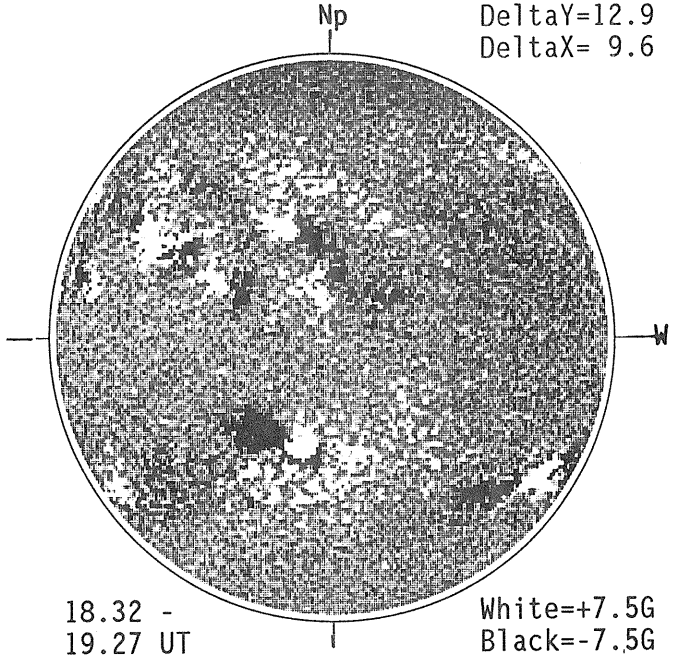
KITT PEAK MAGNETOGRAM



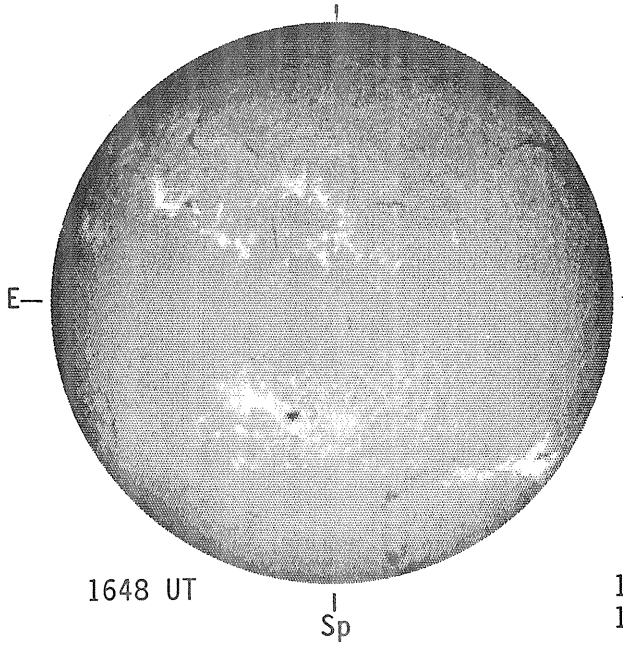
STANFORD MAGNETOGRAM



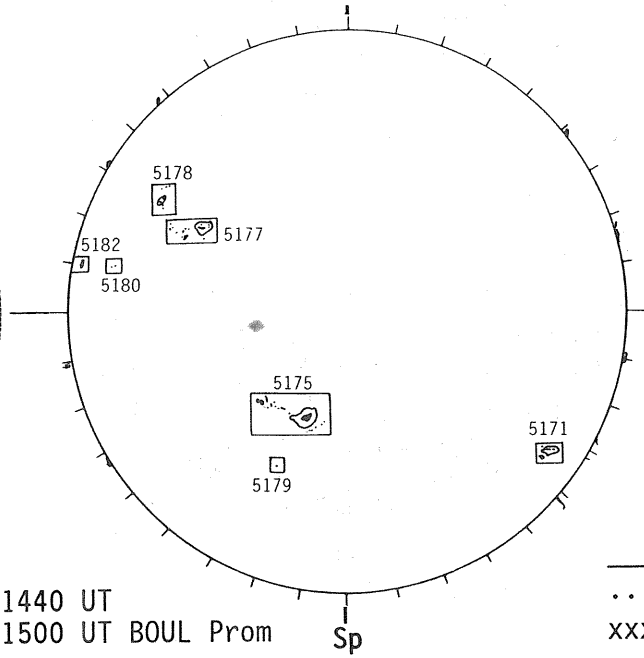
MT. WILSON MAGNETOGRAM



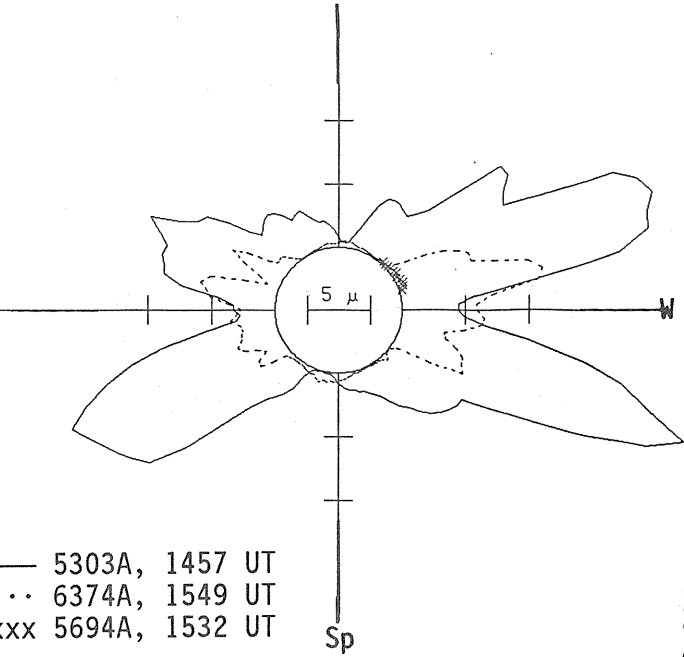
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

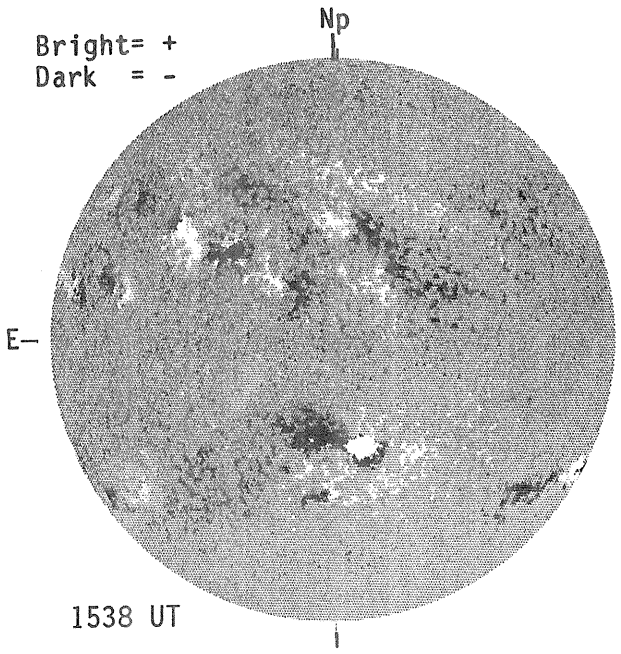


—— 5303A, 1457 UT
···· 6374A, 1549 UT
xxxx 5694A, 1532 UT

OCTOBER 07, 1988 (P= 26.27, B_o= 6.37, L_o= 161.23)

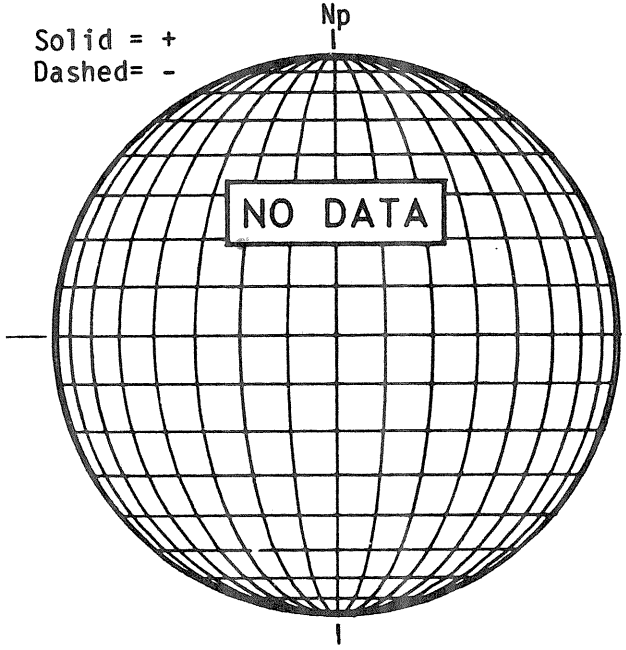
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



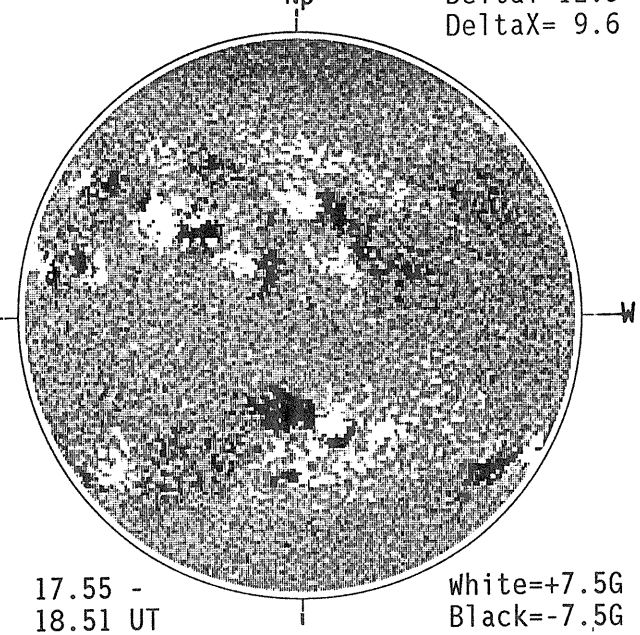
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

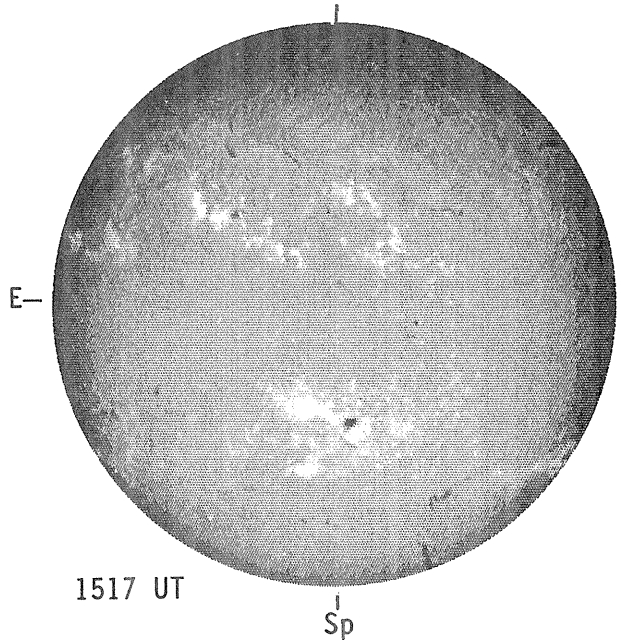


MT. WILSON MAGNETOGRAM

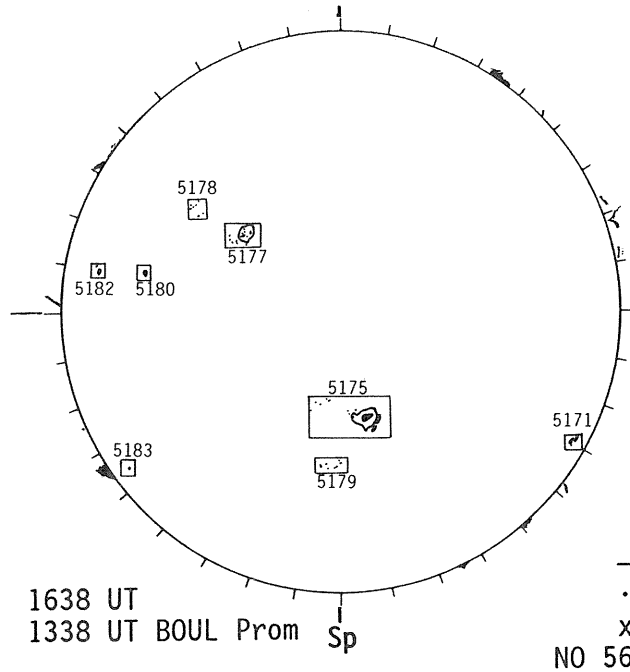
DeltaY=12.9
DeltaX= 9.6



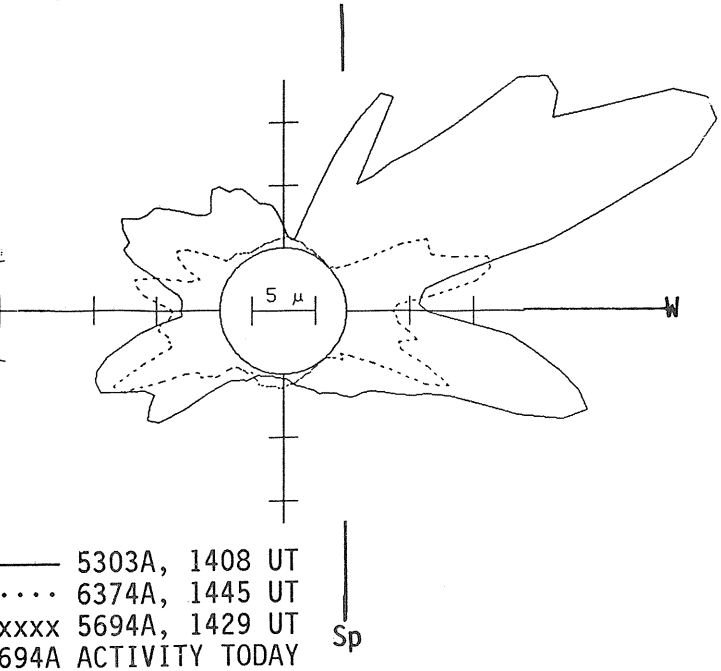
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

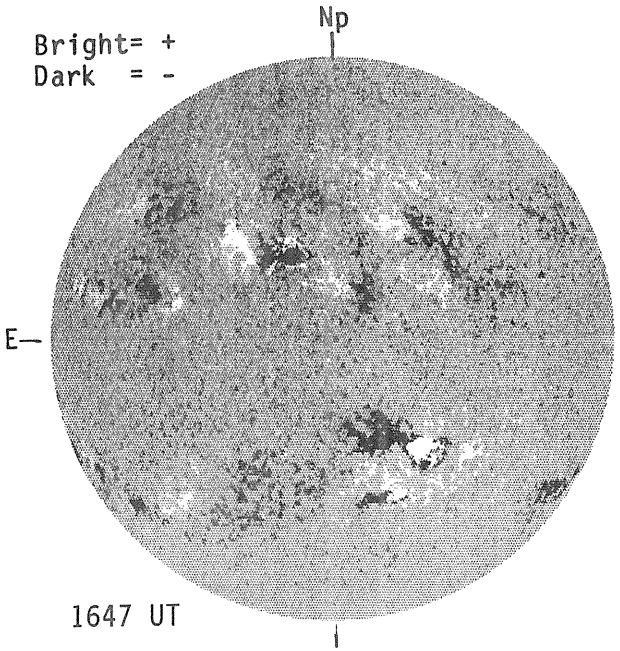


SACRAMENTO PEAK CORONA (1.15 Radii)

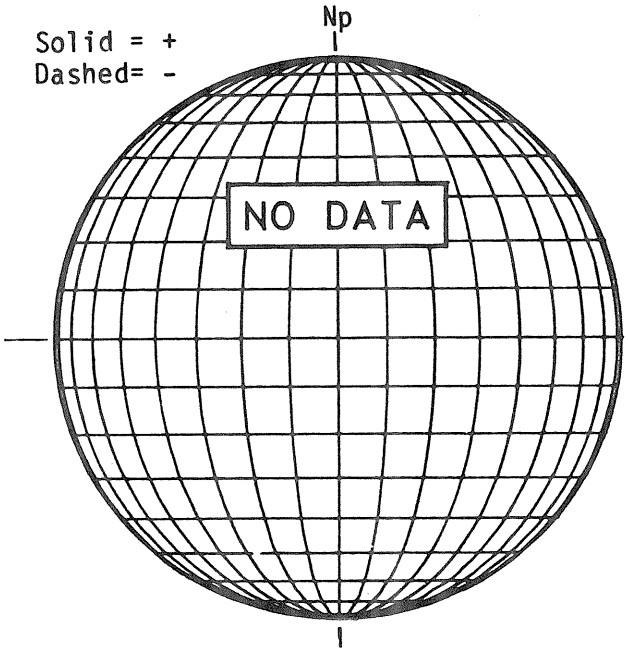


OCTOBER 08, 1988 (P= 26.29, B_o= 6.31, L_o= 148.03)

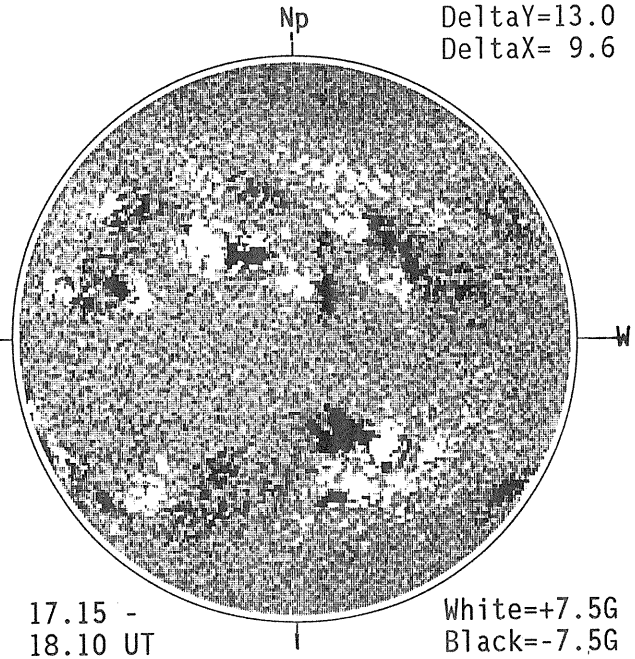
KITT PEAK MAGNETOGRAM



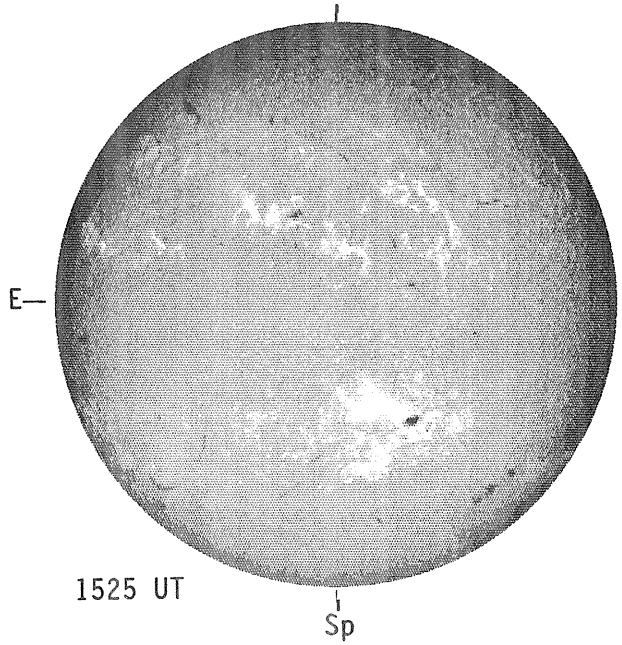
STANFORD MAGNETOGRAM



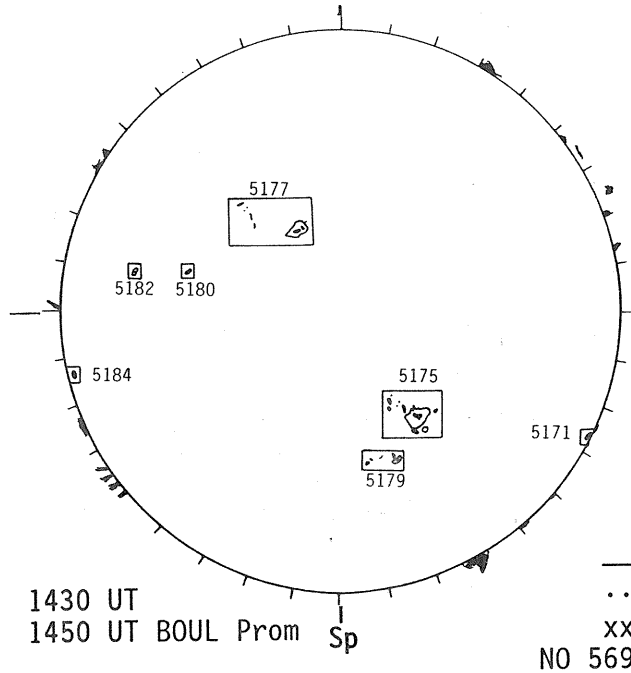
MT. WILSON MAGNETOGRAM



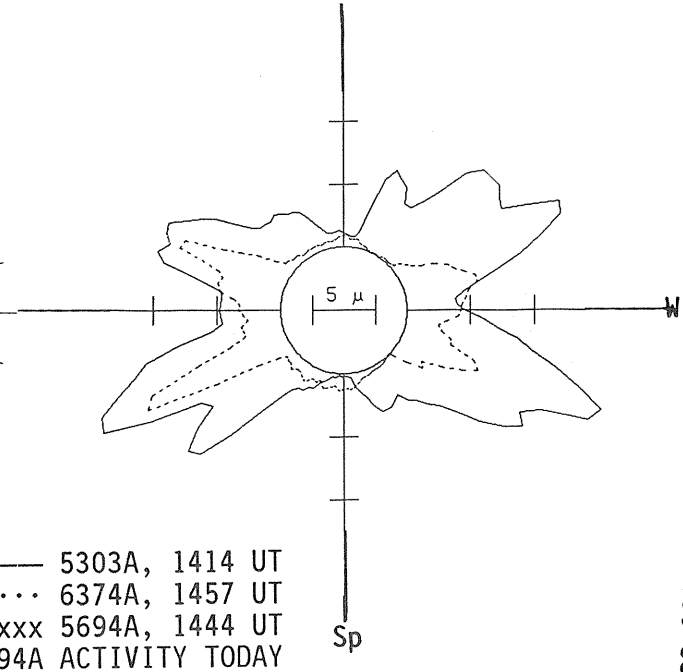
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1414 UT
···· 6374A, 1457 UT
xxxx 5694A, 1444 UT
NO 5694A ACTIVITY TODAY

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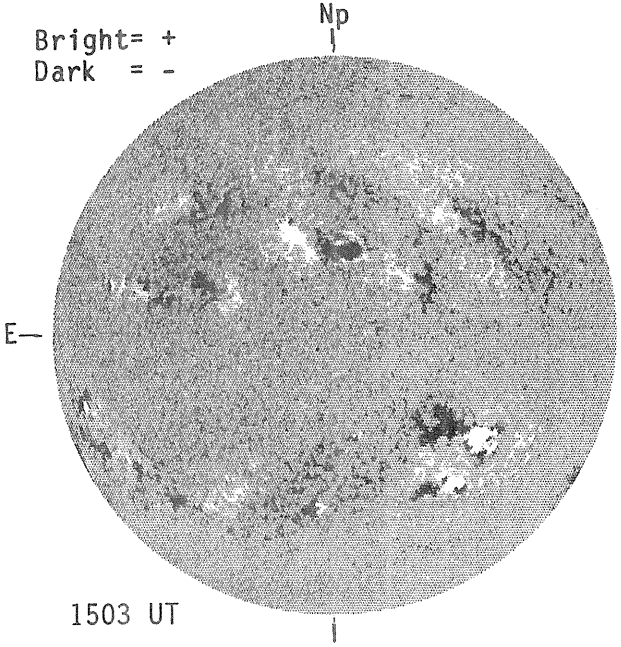
Oct 88

OCTOBER 09, 1988 (P= 26.30, B_o= 6.24, L_o= 134.84)

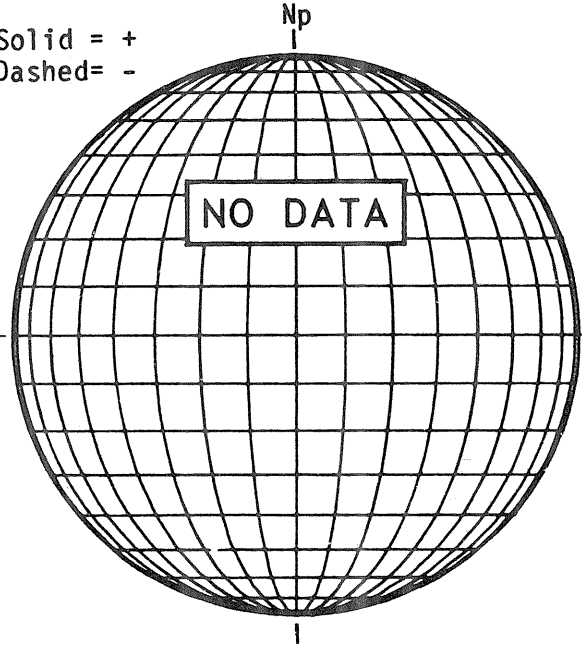
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



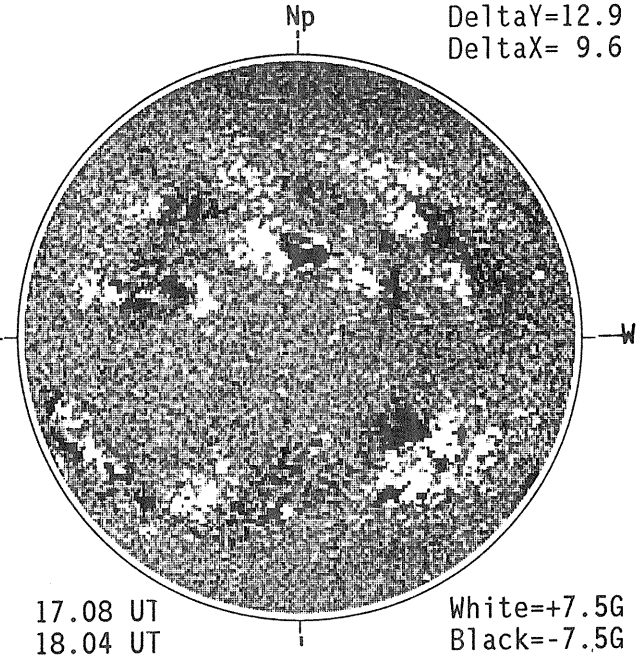
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

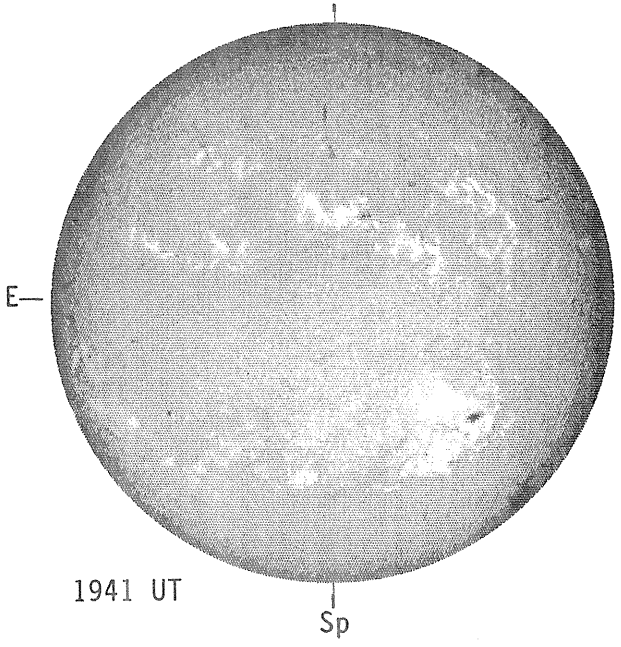
DeltaY=12.9
DeltaX= 9.6



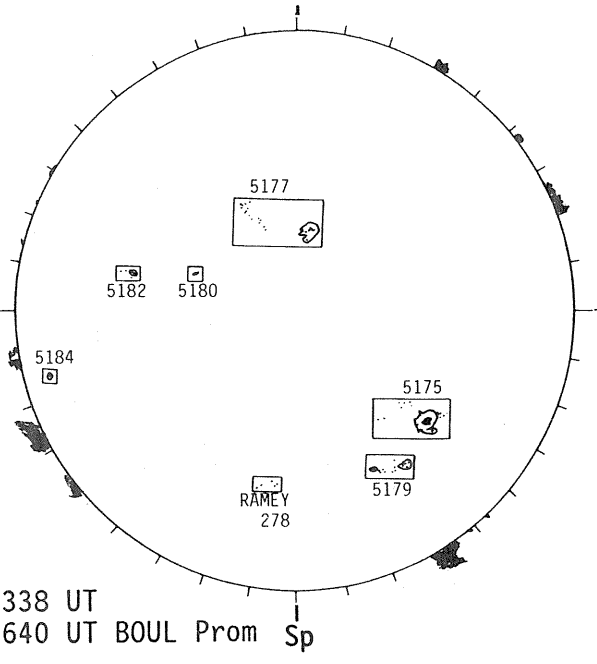
17.08 UT
18.04 UT

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

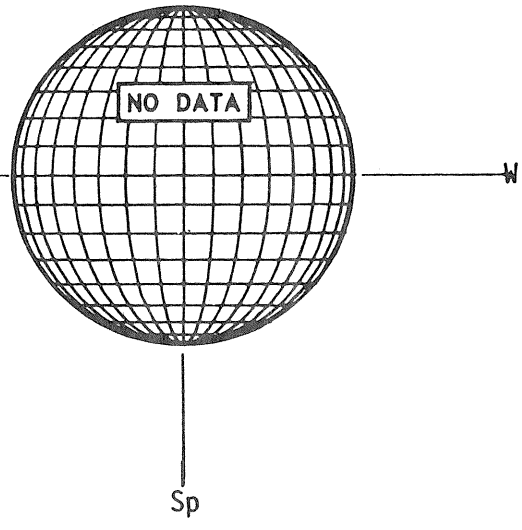


RAMEY SUNSPOTS



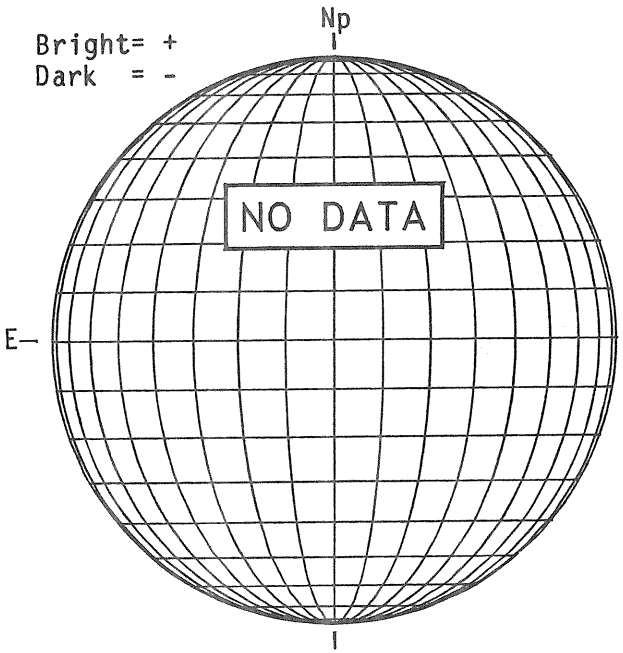
1338 UT
1640 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

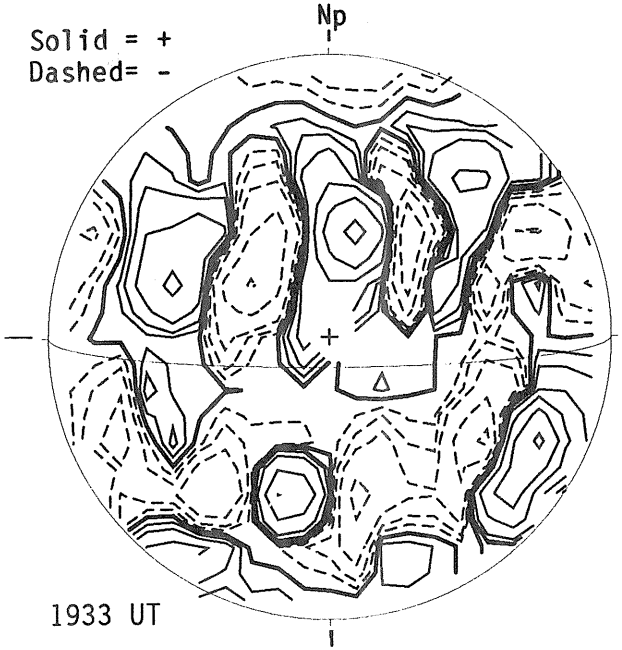


OCTOBER 10, 1988 (P= 26.30, B_o= 6.18, L_o= 121.65)

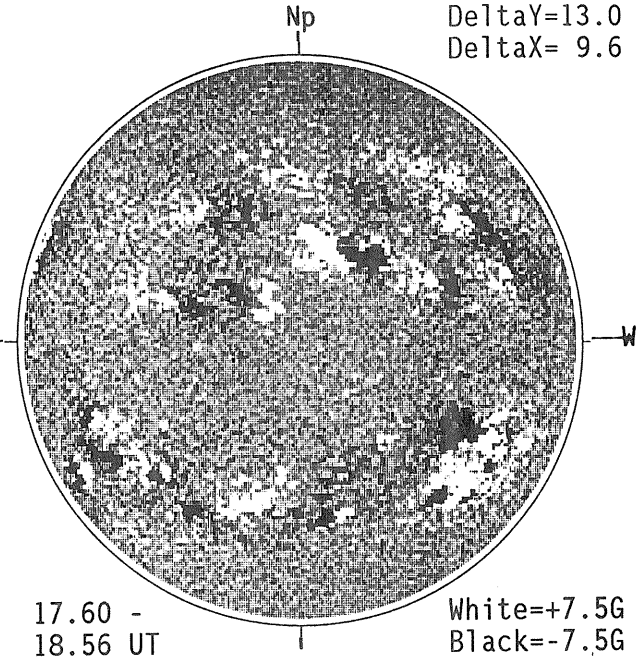
KITT PEAK MAGNETOGRAM



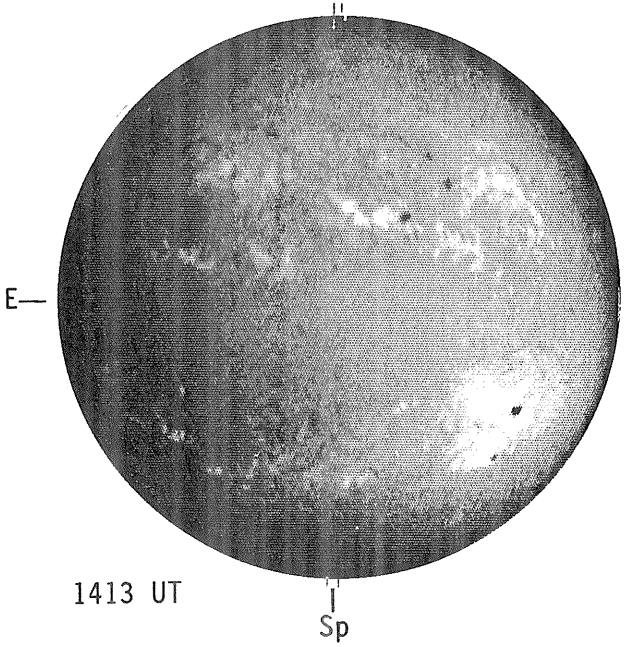
STANFORD MAGNETOGRAM



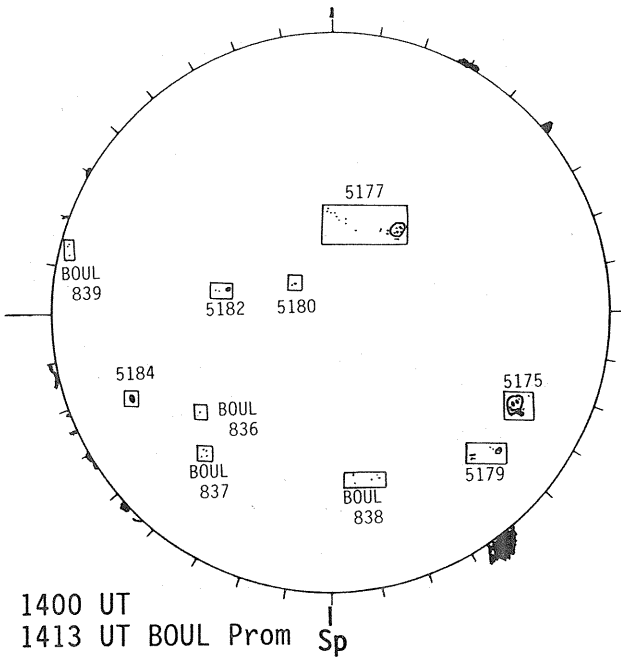
MT. WILSON MAGNETOGRAM



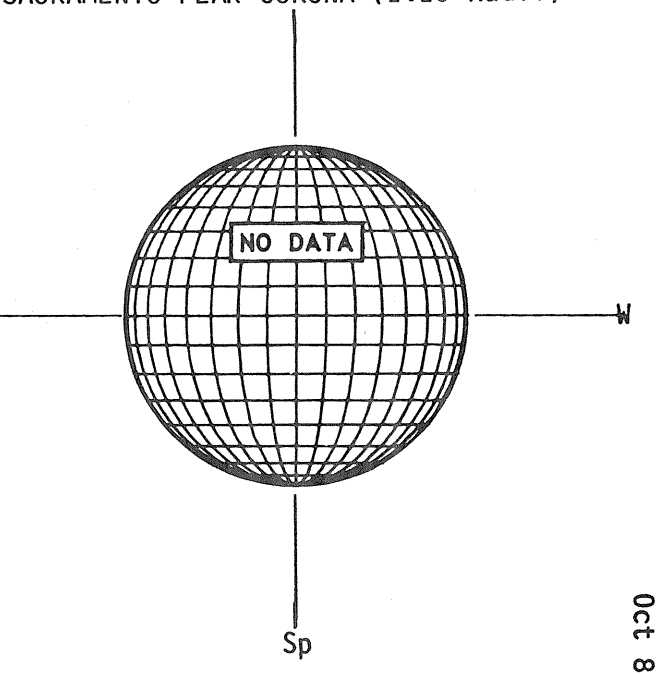
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



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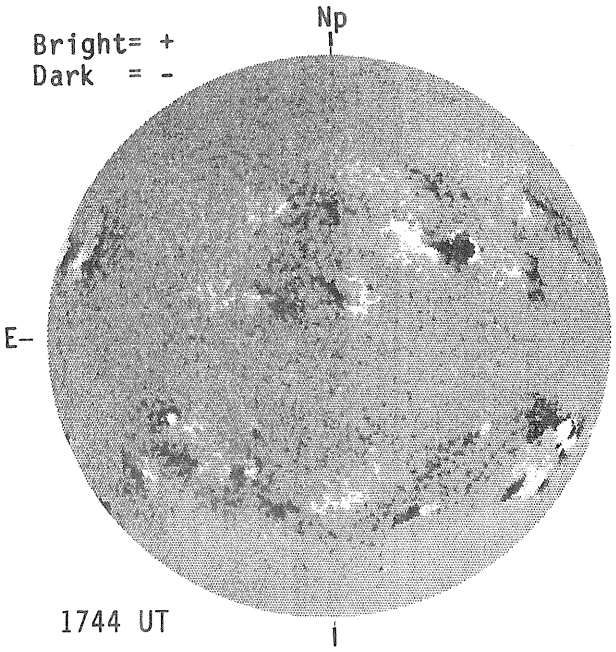
Oct 88

OCTOBER 11, 1988 (P= 26.30, B_o= 6.11, L_o= 108.46)

KITT PEAK MAGNETOGRAM

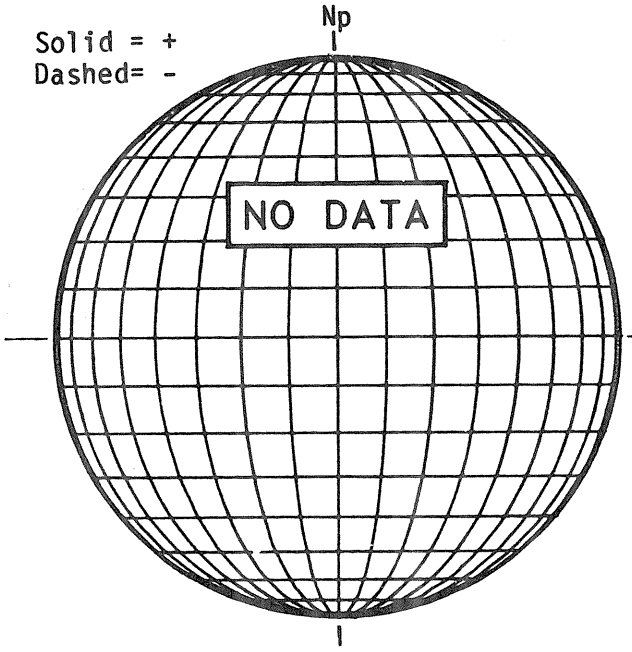
Bright= +
Dark = -



1744 UT

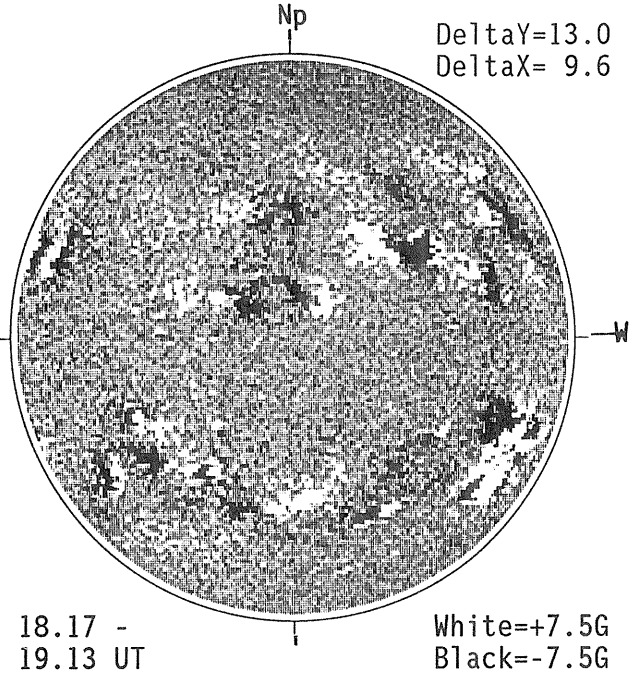
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

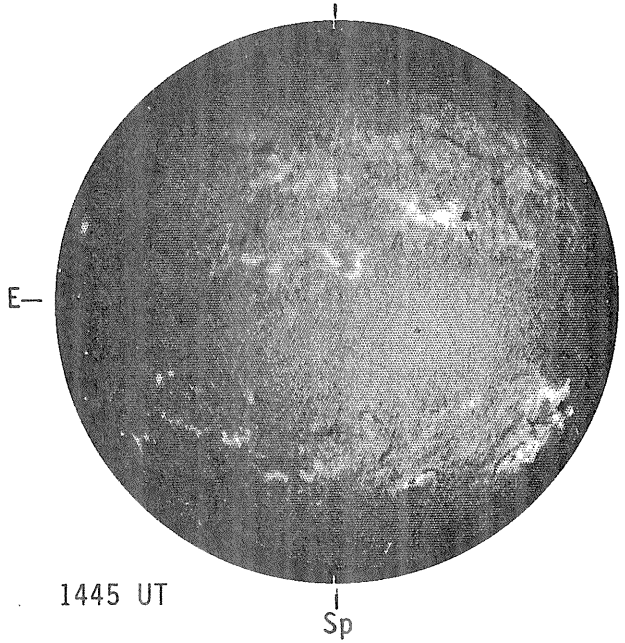
DeltaY=13.0
DeltaX= 9.6



18.17 -
19.13 UT

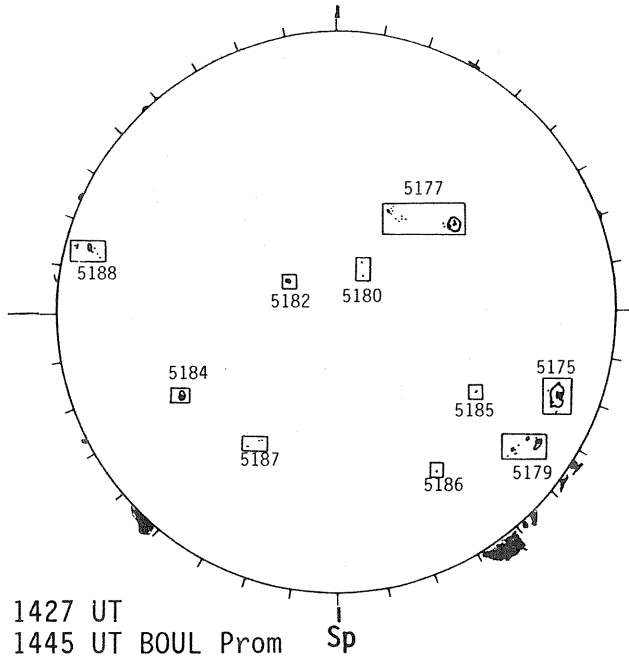
White=+7.5G
Black=-7.5G

BOULDER H-ALPHA



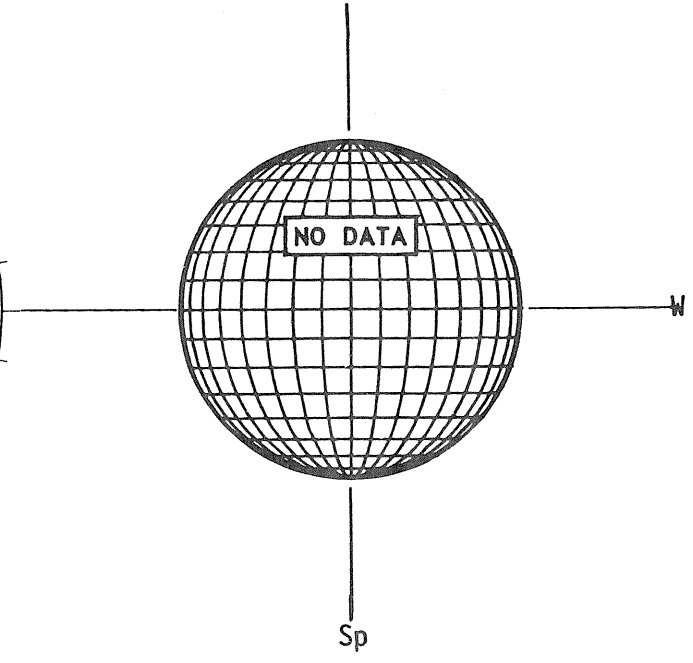
1445 UT

BOULDER SUNSPOTS



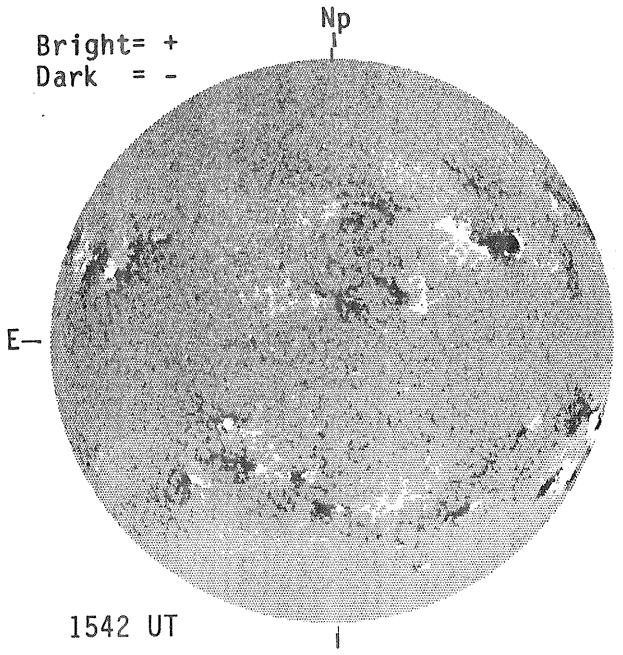
1427 UT
1445 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

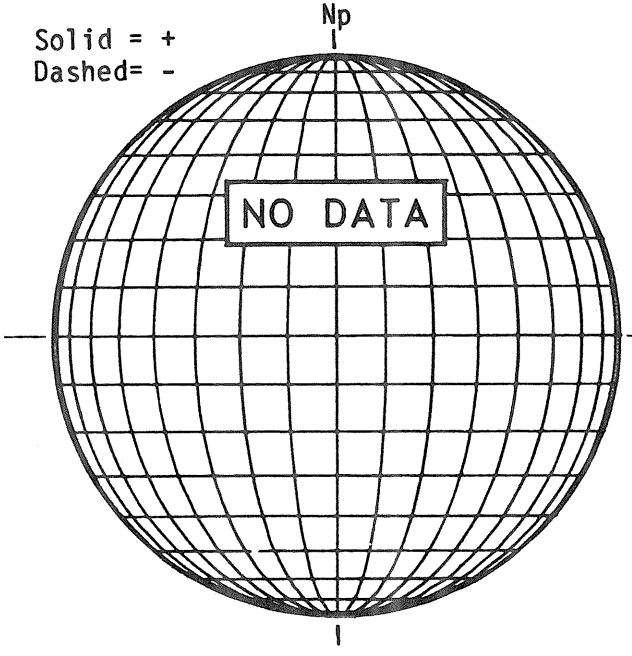


OCTOBER 12, 1988 (P= 26.29, B_o= 6.05, L_o= 95.27)

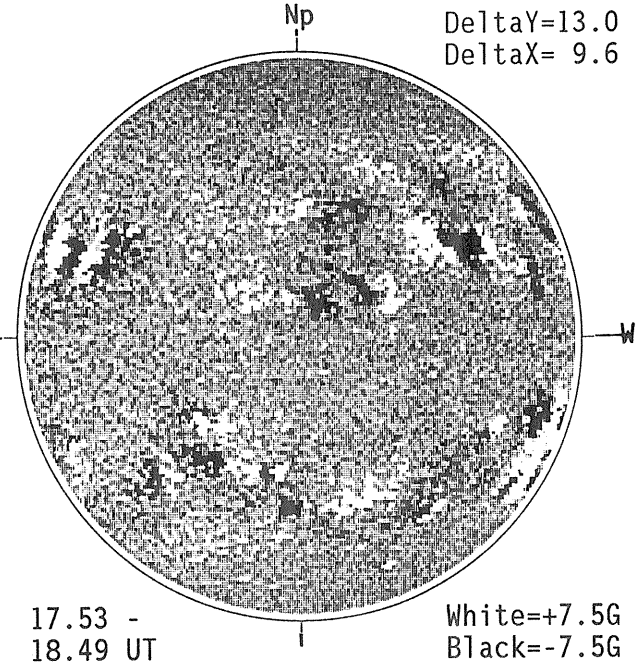
KITT PEAK MAGNETOGRAM



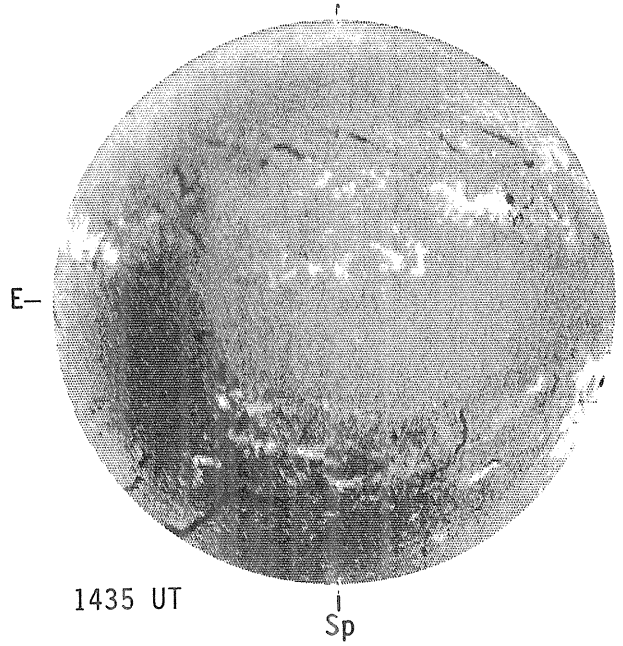
STANFORD MAGNETOGRAM



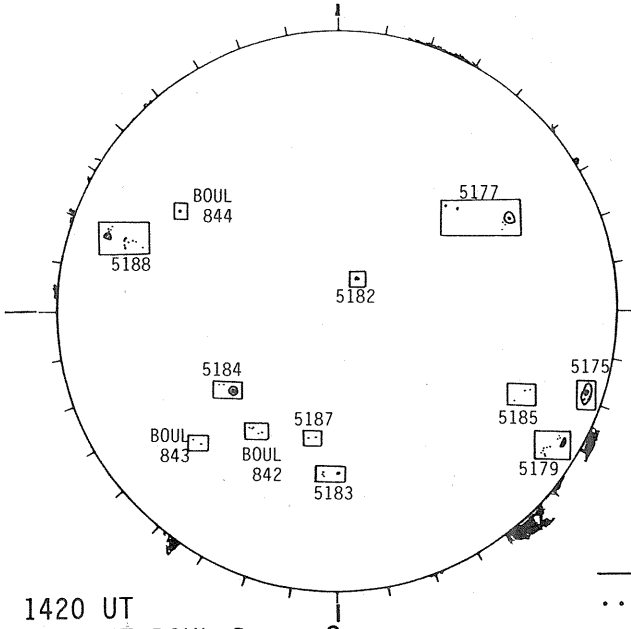
MT. WILSON MAGNETOGRAM



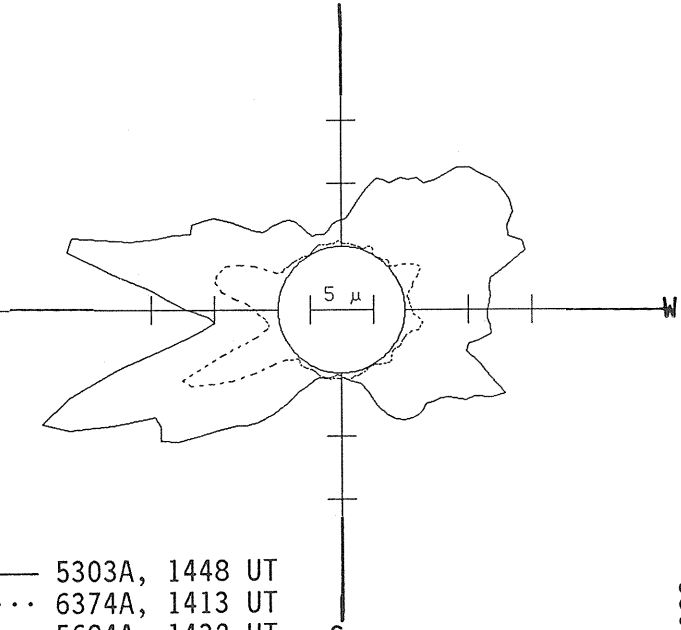
BOULDER H-ALPHA



BOULDER SUNSPOTS



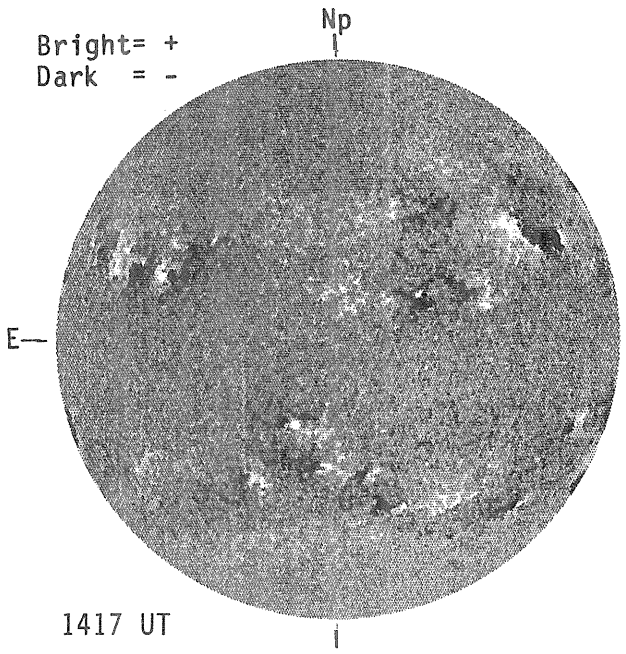
SACRAMENTO PEAK CORONA (1.15 Radii)



OCTOBER 13, 1988 (P= 26.27, B_o= 5.98, L_o= 82.07)

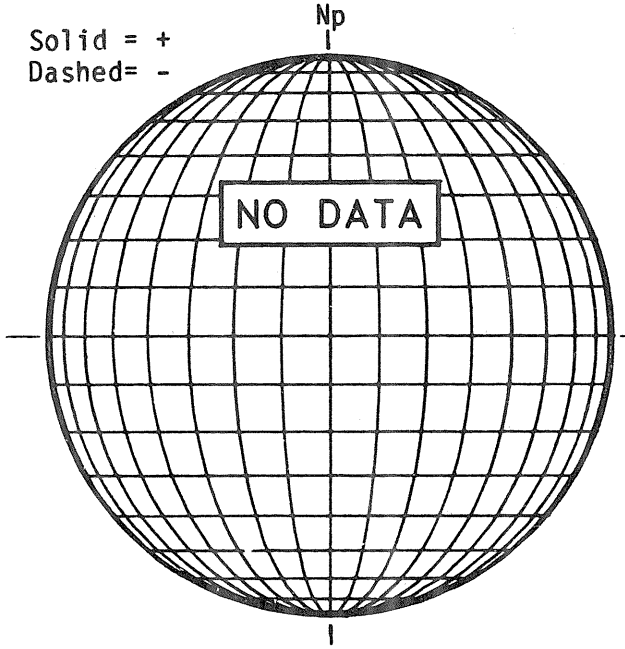
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



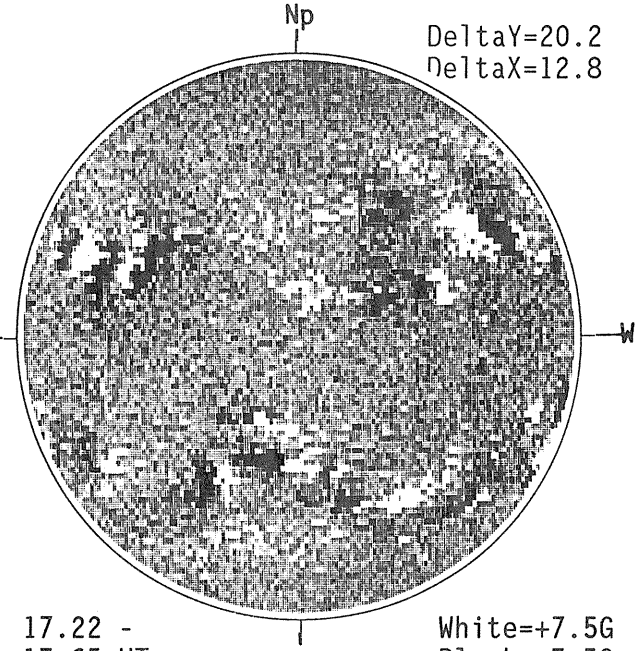
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

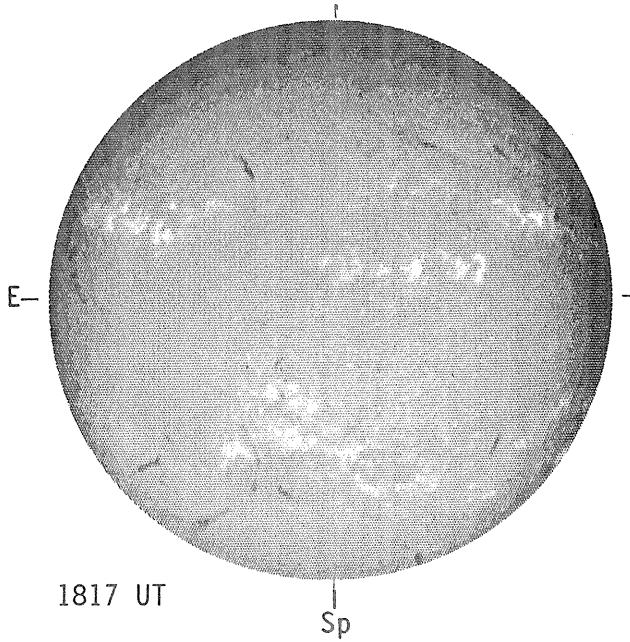
DeltaY=20.2
DeltaX=12.8



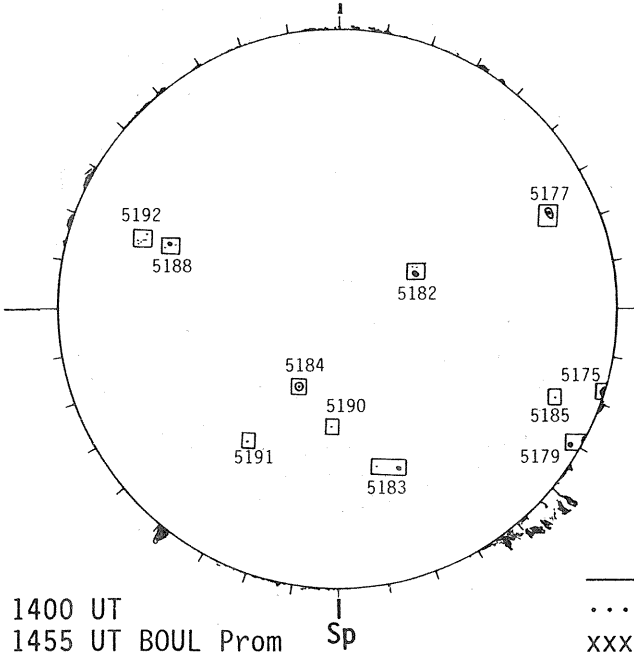
17.22 -
17.65 UT

White=+7.5G
Black=-7.5G

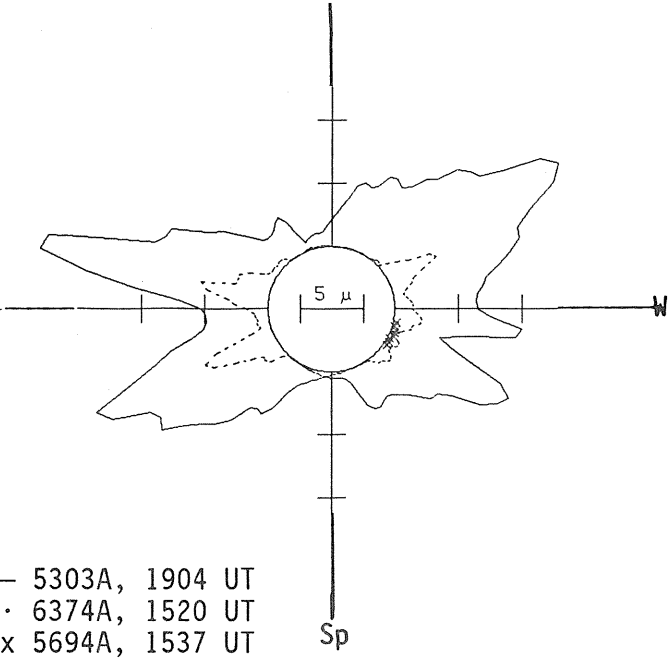
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

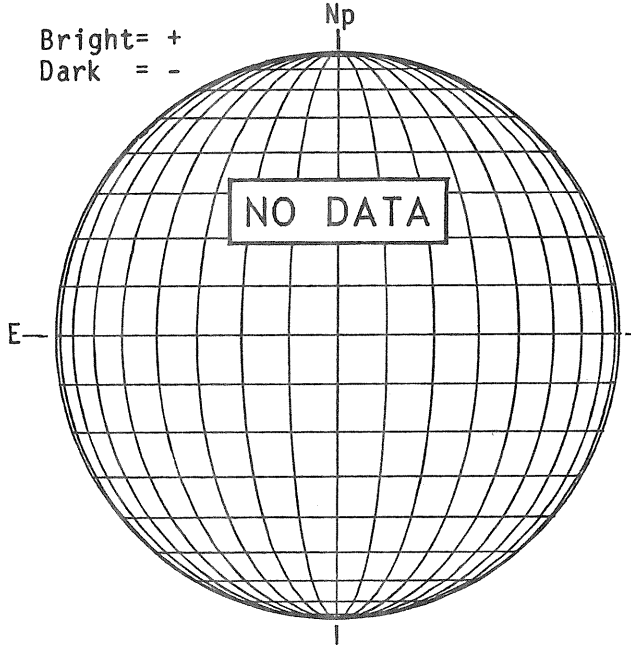


—— 5303A, 1904 UT
···· 6374A, 1520 UT
xxxx 5694A, 1537 UT

OCTOBER 14, 1988 (P= 26.25, B_o= 5.90, L_o= 68.88)

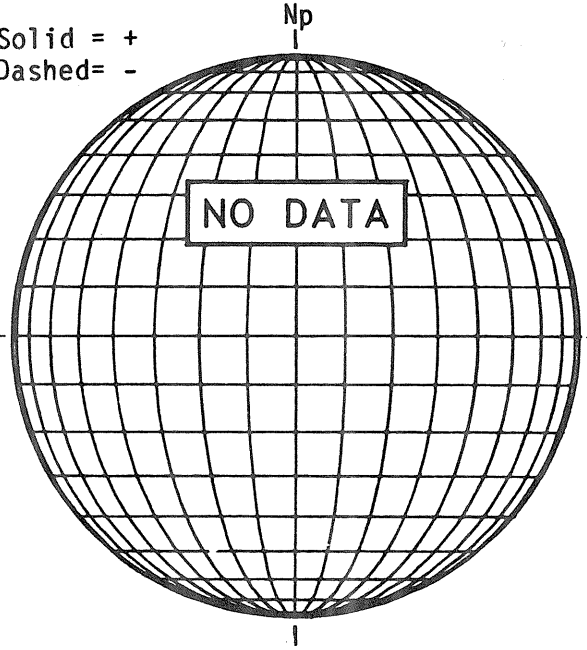
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



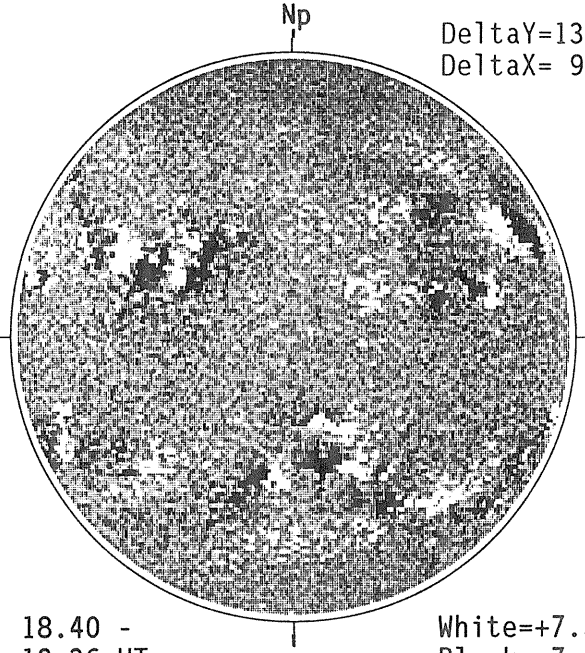
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

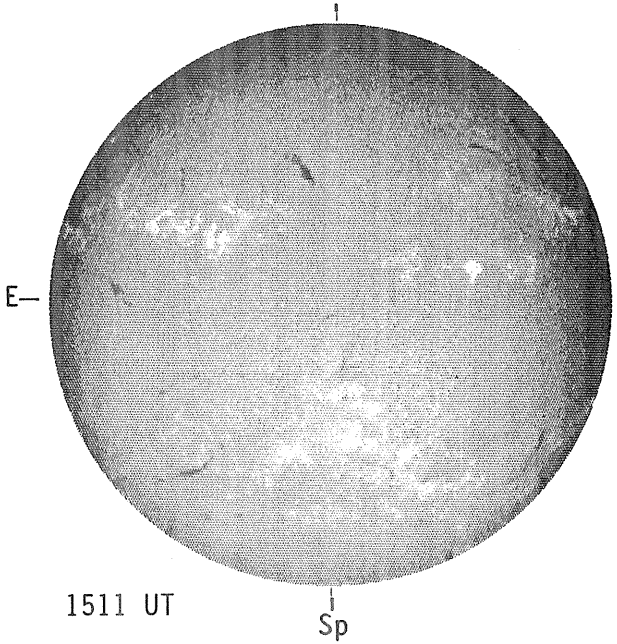
DeltaY=13.0
DeltaX= 9.6



18.40 -
19.36 UT

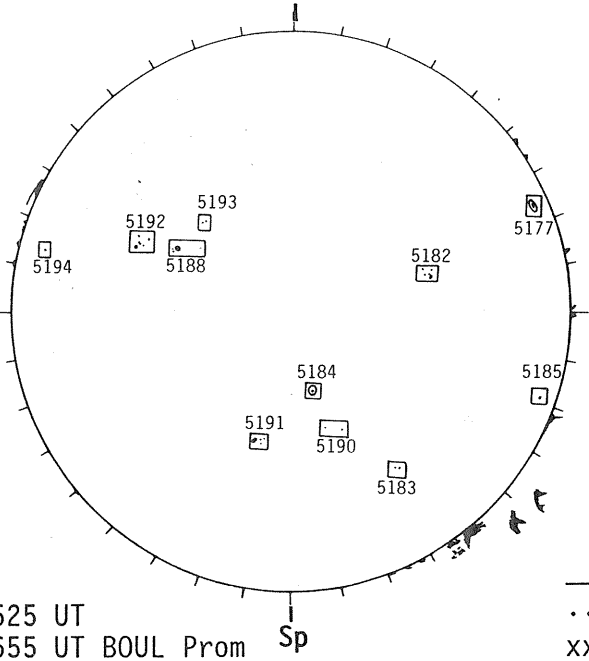
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



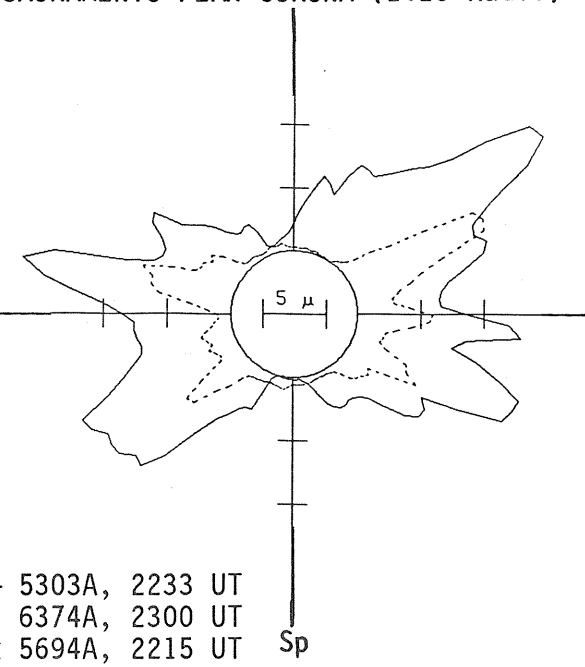
1511 UT

RAMEY SUNSPOTS



1525 UT
1655 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 2233 UT
···· 6374A, 2300 UT
xxxx 5694A, 2215 UT
NO 5694A ACTIVITY TODAY

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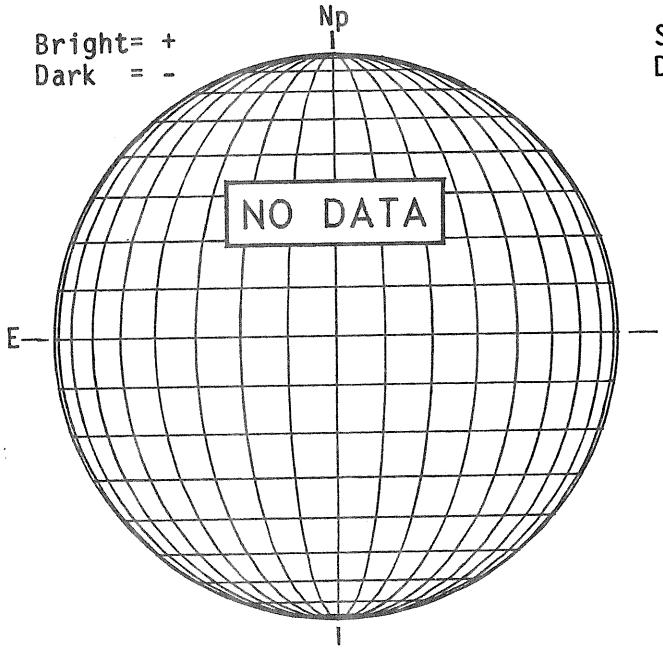
OCTOBER 15, 1988 (P= 26.21, B_o= 5.83, L_o= 55.69)

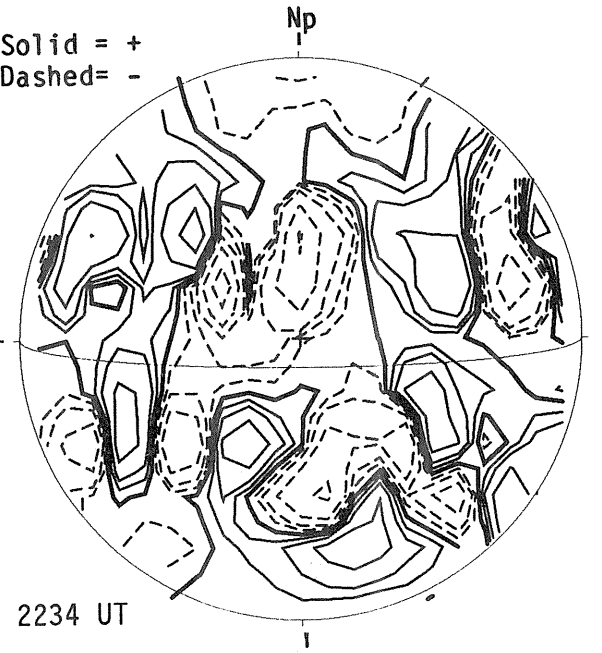
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



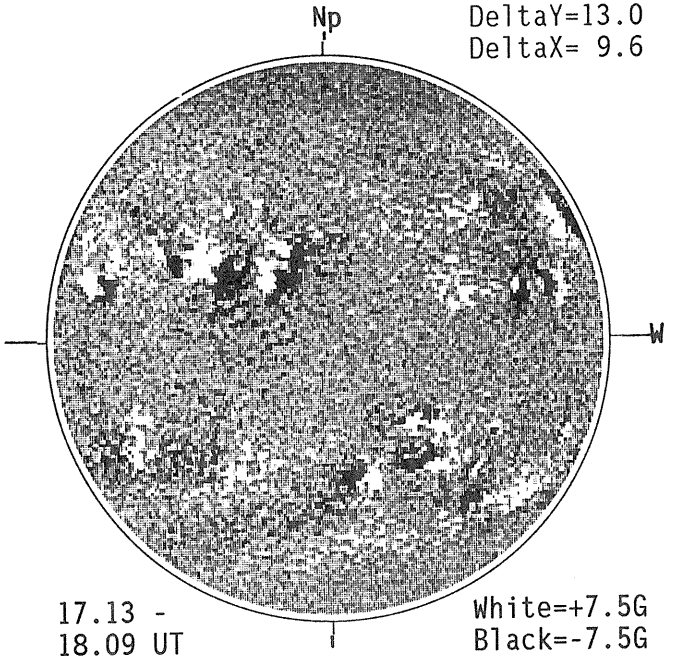
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

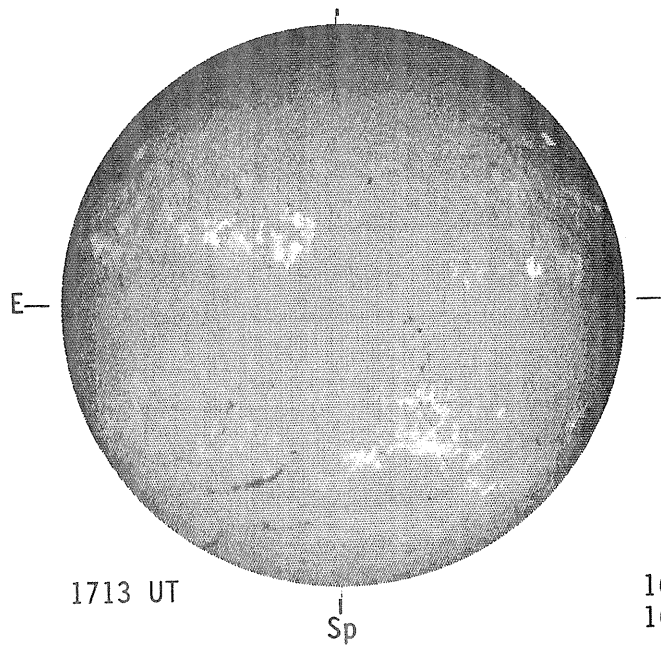


MT. WILSON MAGNETOGRAM

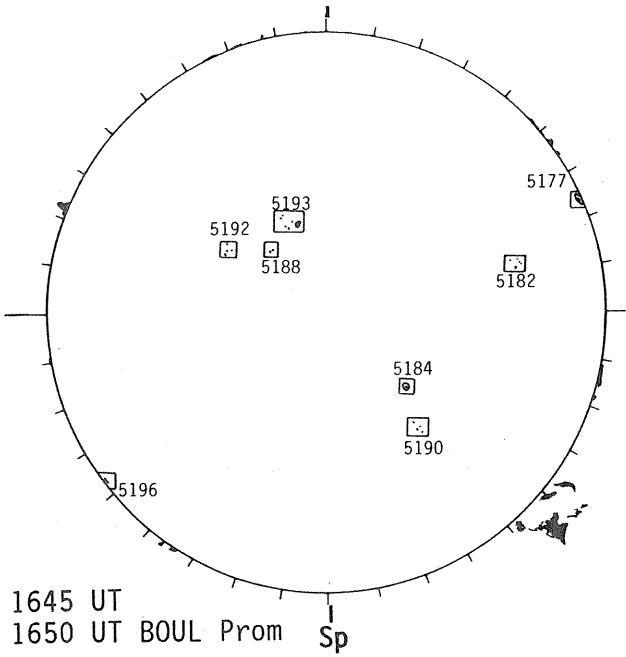
DeltaY=13.0
DeltaX= 9.6



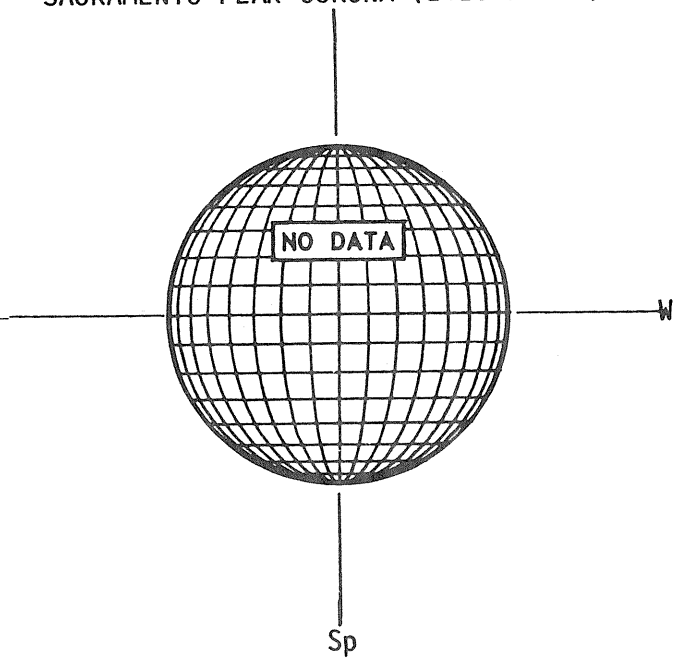
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

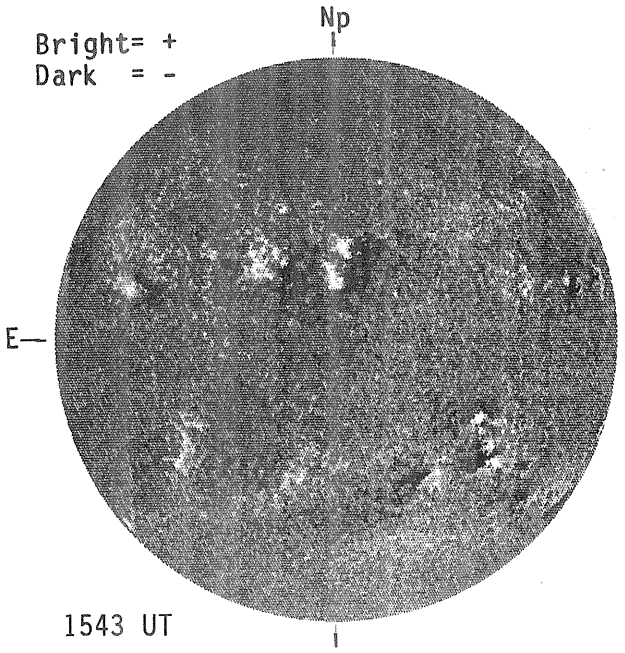


SACRAMENTO PEAK CORONA (1.15 Radii)

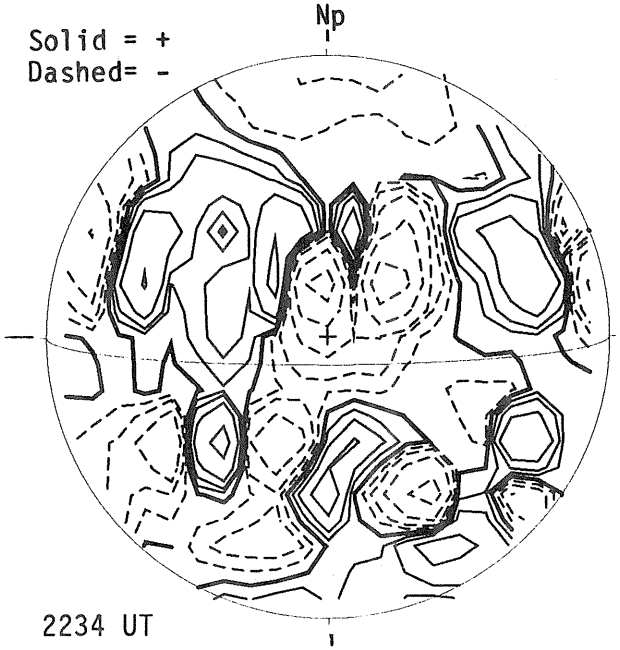


OCTOBER 16, 1988 (P= 26.17, B_o= 5.76, L_o= 42.50)

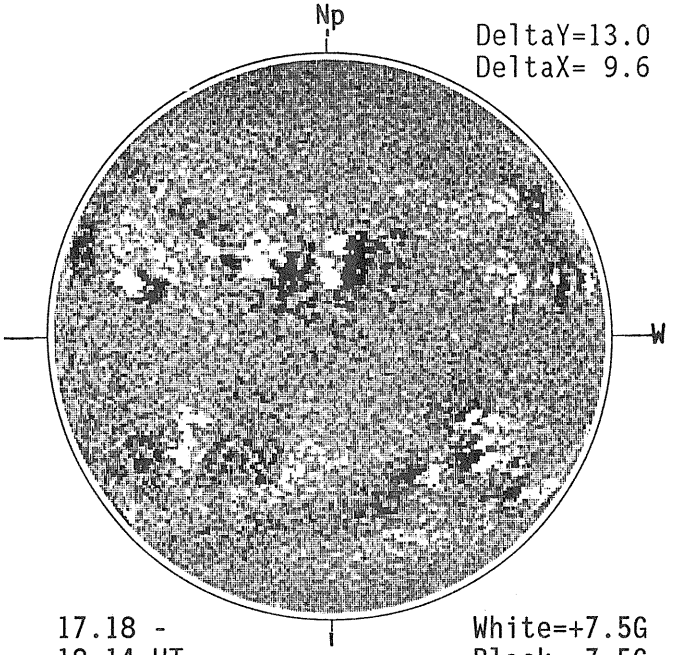
KITT PEAK MAGNETOGRAM



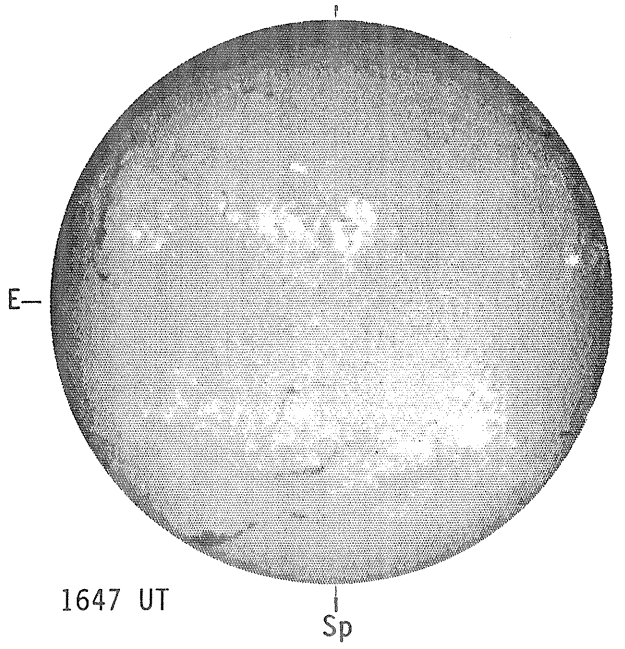
STANFORD MAGNETOGRAM



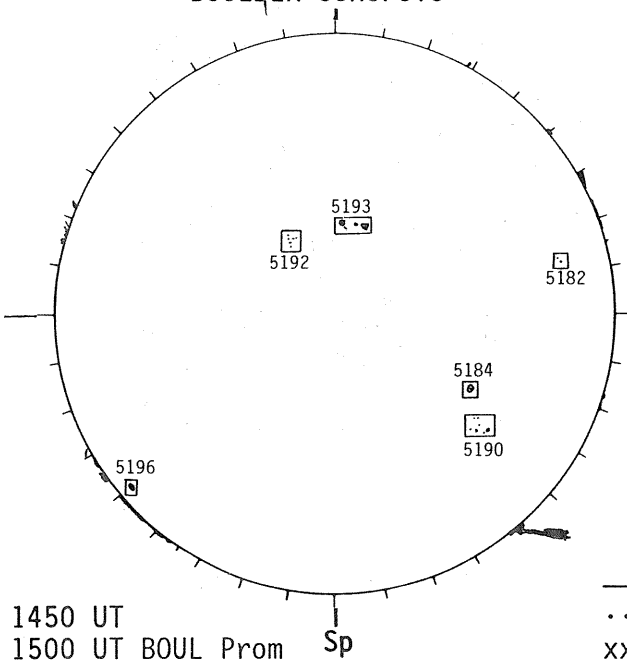
MT. WILSON MAGNETOGRAM



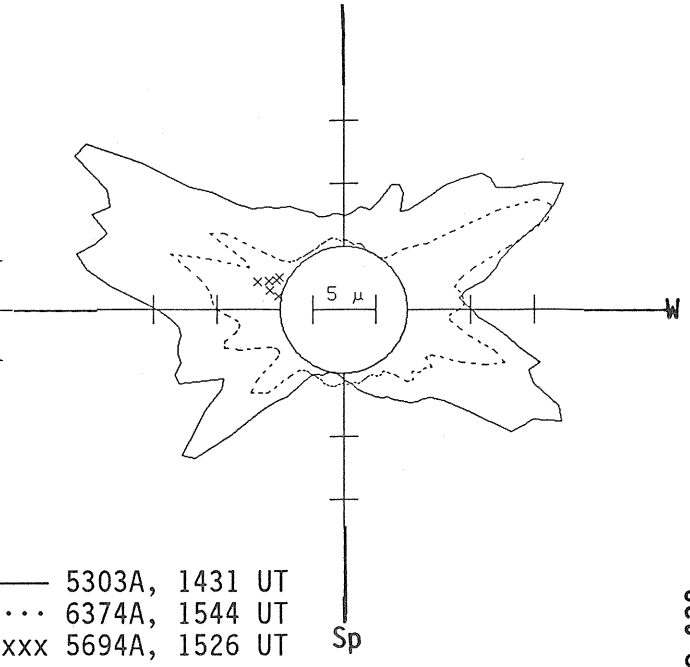
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



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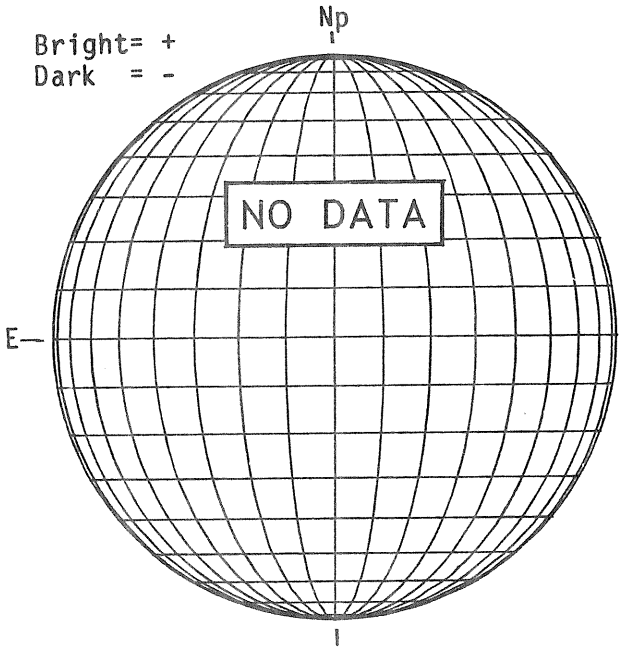
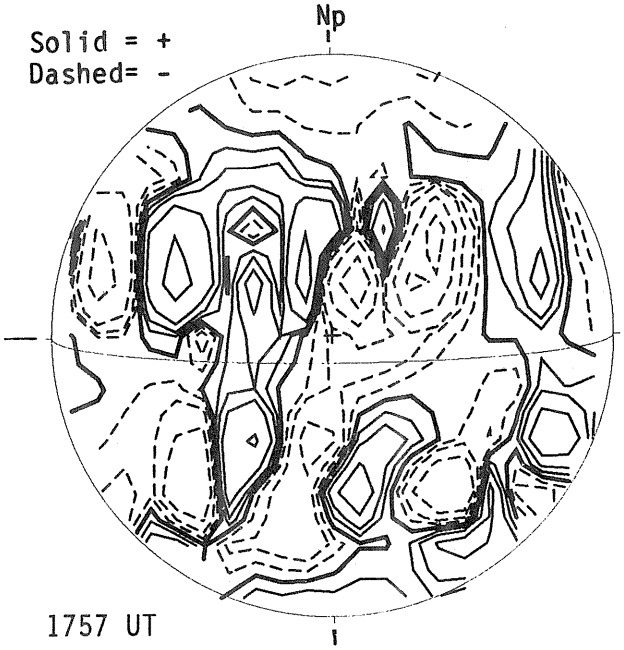
OCTOBER 17, 1988 (P= 26.12, B_o= 5.68, L_o= 29.31)

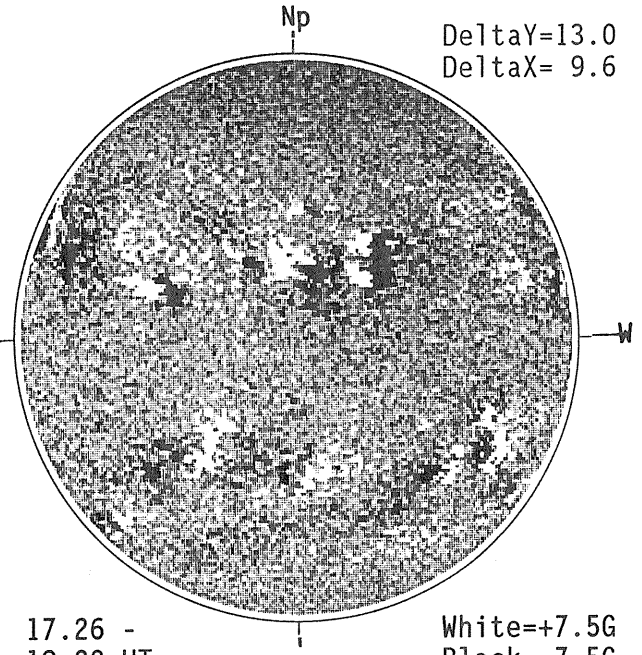
KITT PEAK MAGNETOGRAM



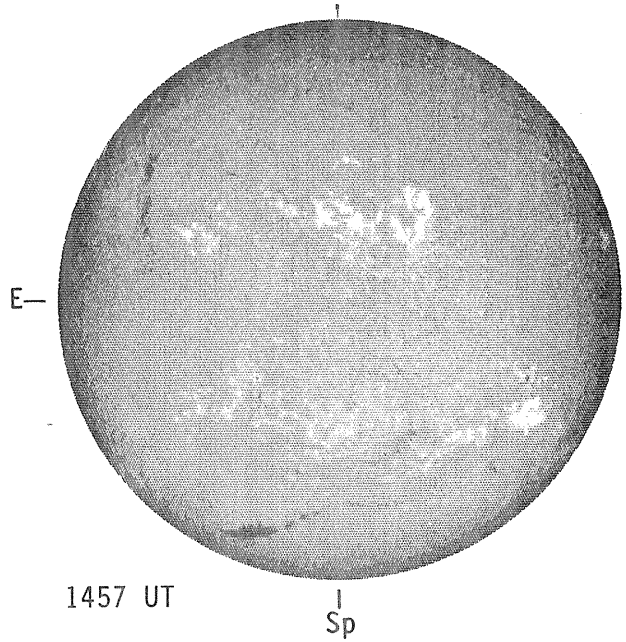
STANFORD MAGNETOGRAM



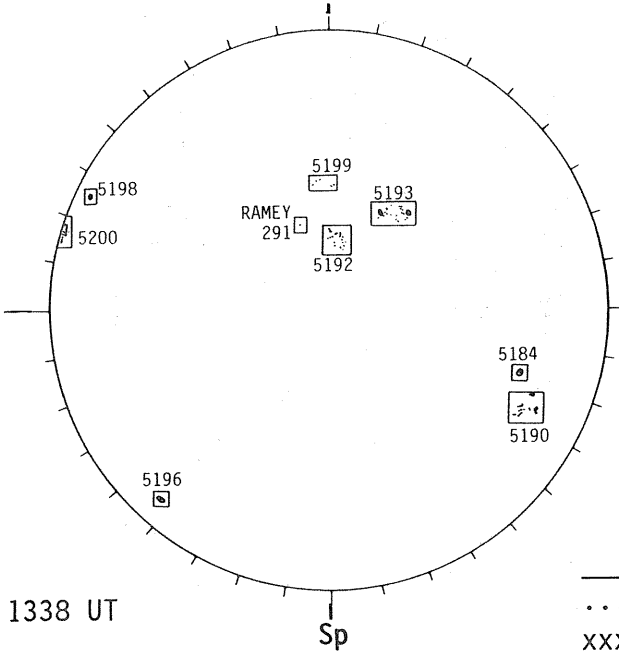
MT. WILSON MAGNETOGRAM



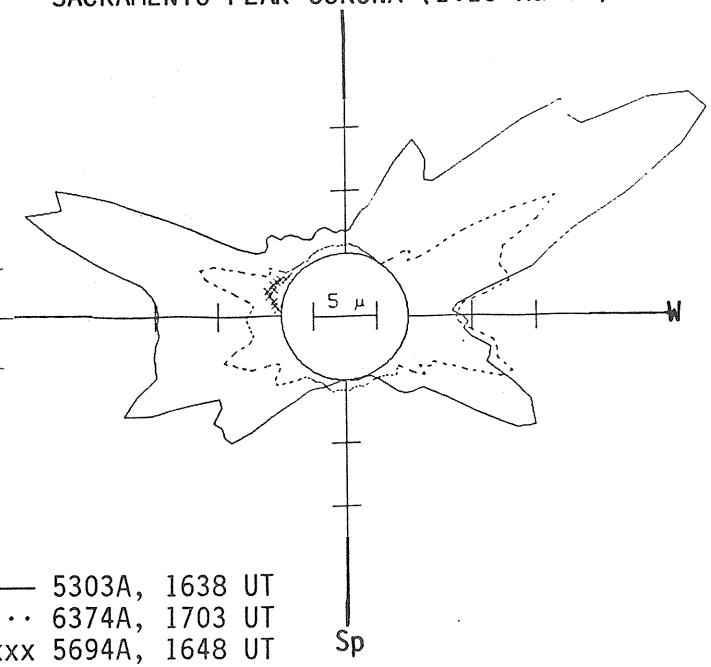
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



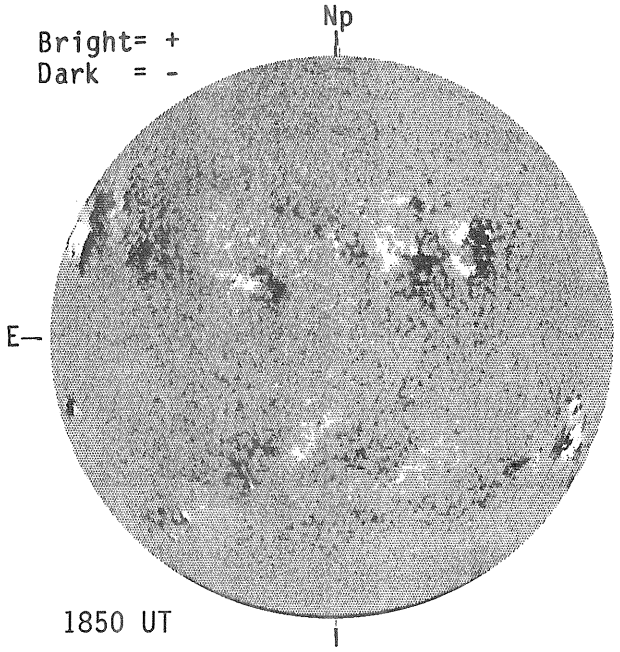
SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1638 UT
···· 6374A, 1703 UT
xxxx 5694A, 1648 UT

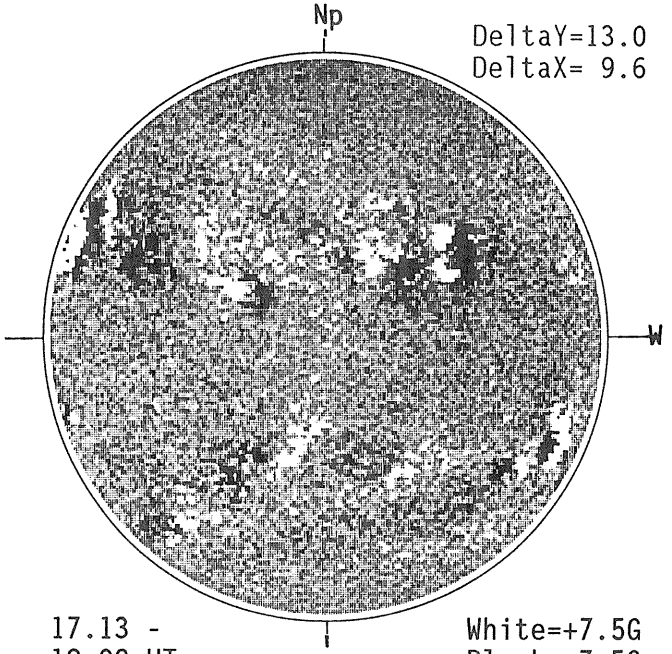
OCTOBER 18, 1988 (P= 26.07, B_o= 5.60, L_o= 16.12)

KITT PEAK MAGNETOGRAM

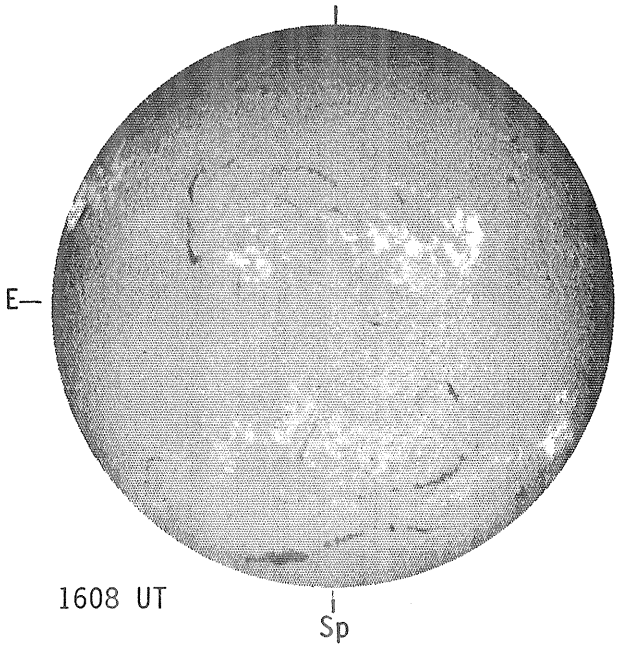


STANFORD MAGNETOGRAM

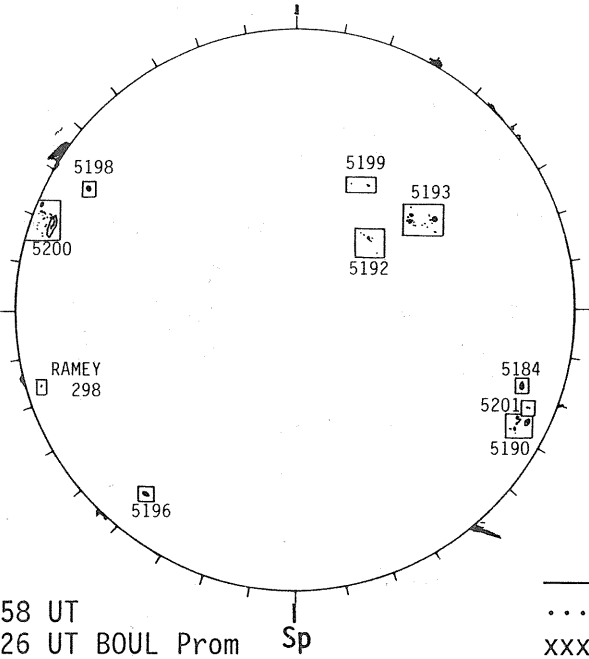
MT. WILSON MAGNETOGRAM



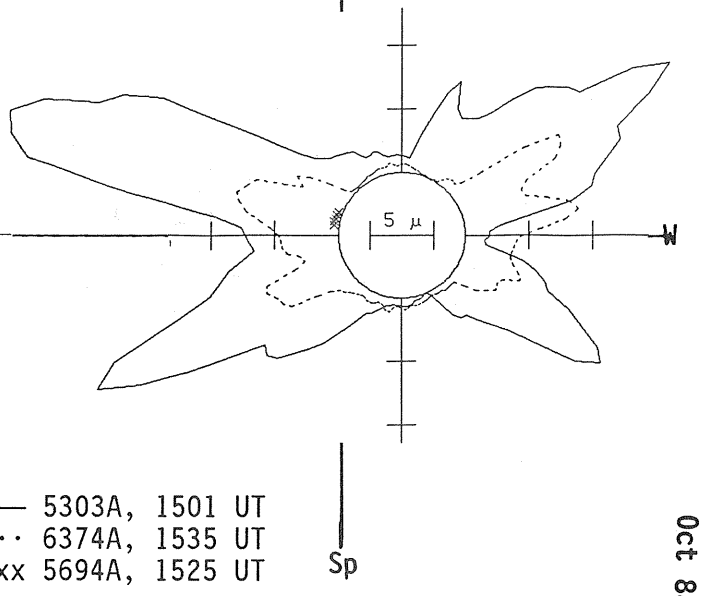
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



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Oct 88

OCTOBER 19, 1988 (P= 26.00, B_o= 5.52, L_o= 2.93)

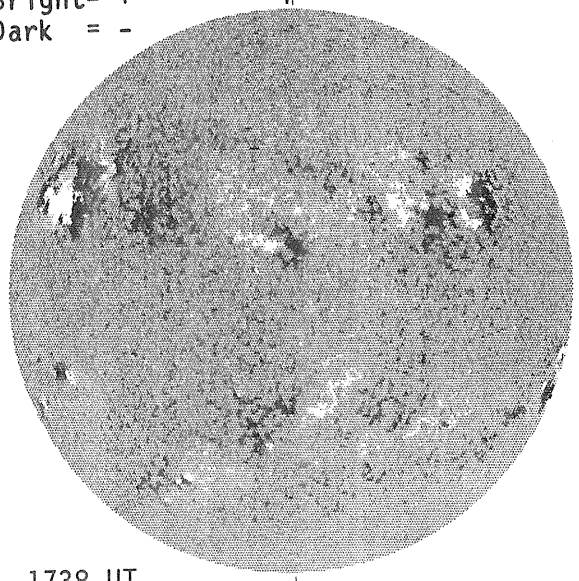
oct 88 66

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

E—

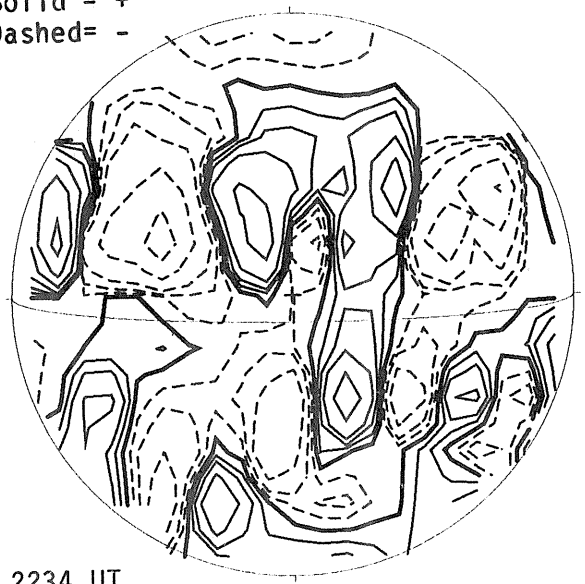


1738 UT

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

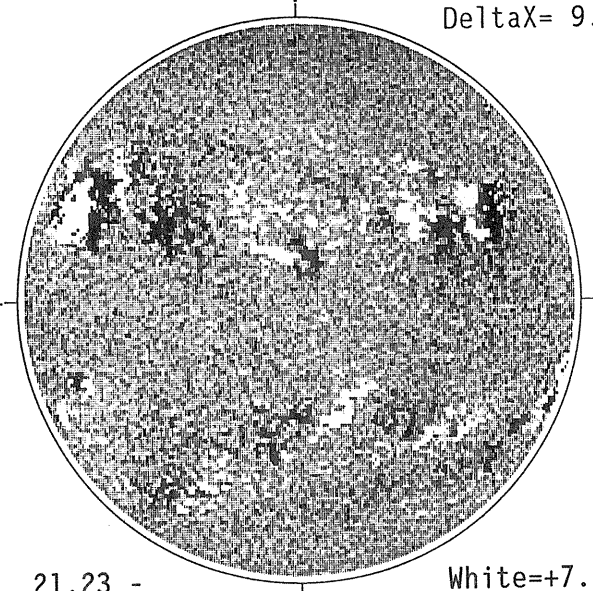


2234 UT

MT. WILSON MAGNETOGRAM

Np

DeltaY=13.0
DeltaX= 9.6



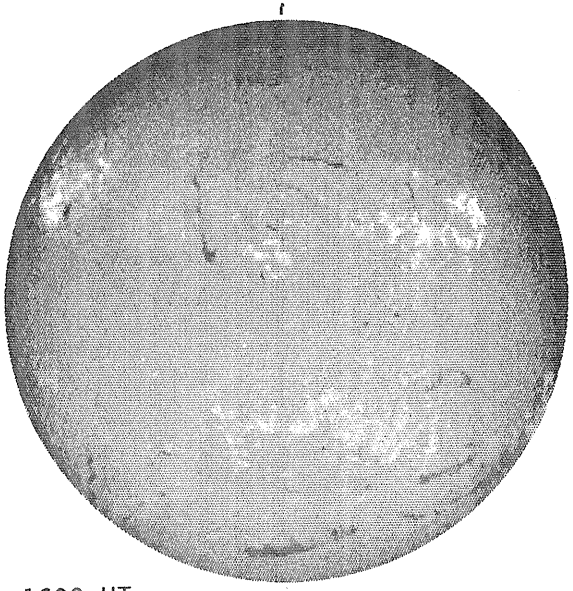
—W

21.23 -
22.19 UT

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

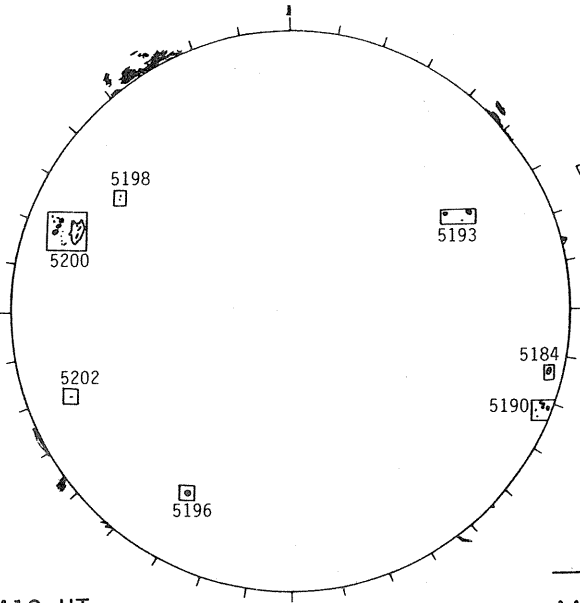
E—



1602 UT

Sp

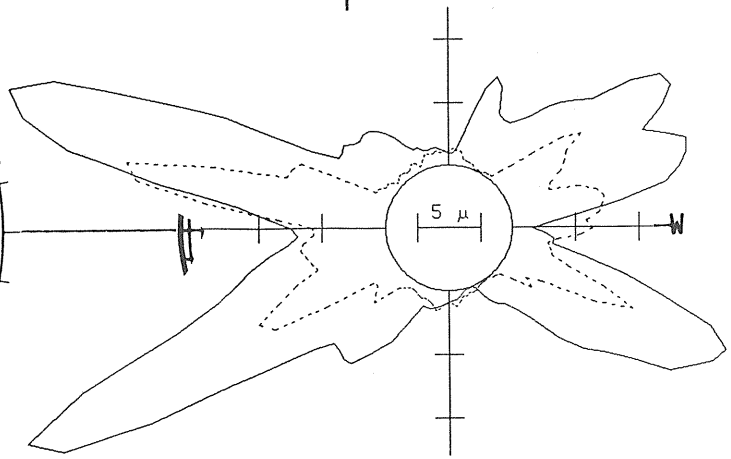
BOULDER SUNSPOTS



1418 UT
1428 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1709 UT
···· 6374A, 1934 UT
xxxx 5694A, 1919 UT
NO 5694A ACTIVITY TODAY

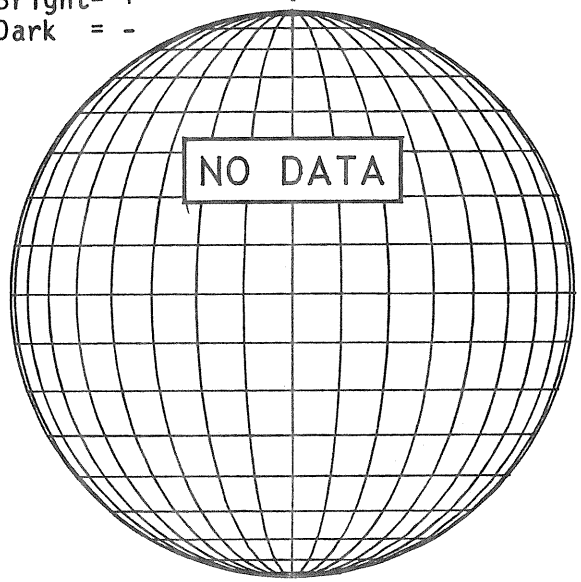
Sp

OCTOBER 20, 1988 (P= 25.93 B_o= 5.44, L_o= 349.74)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

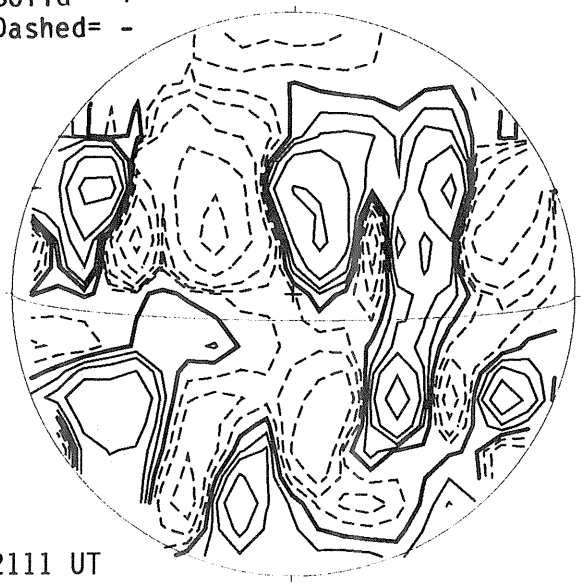


E

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

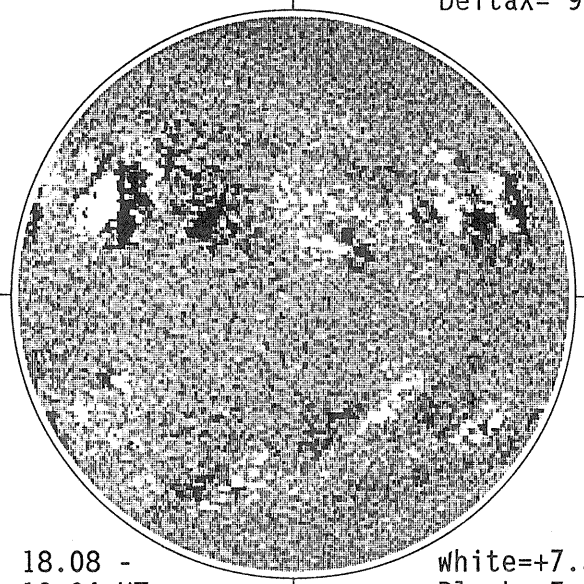


2111 UT

MT. WILSON MAGNETOGRAM

Np

DeltaY=13.0
DeltaX= 9.6

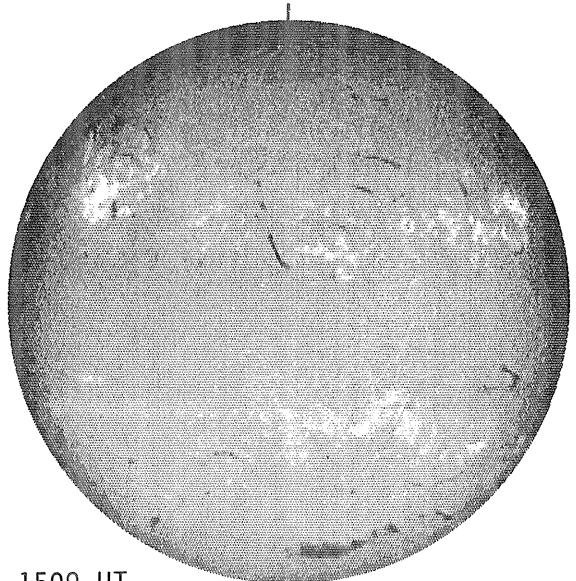


W

18.08 -
19.04 UT

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

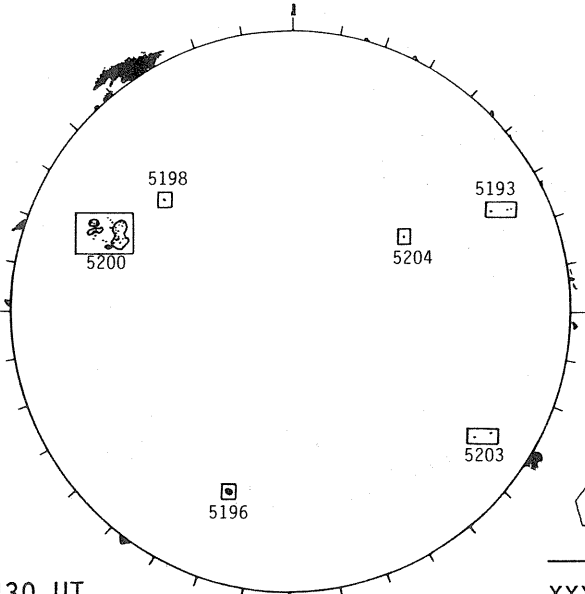


E

1509 UT

Sp

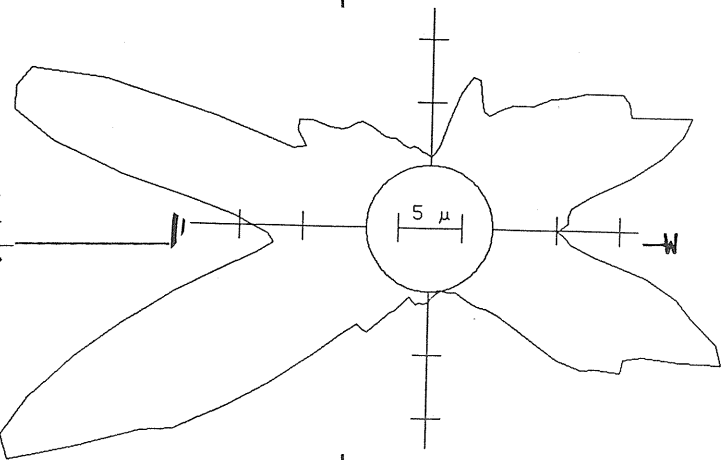
BOULDER SUNSPOTS



1430 UT
1455 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (1.15 Radii)



W

—— 5303A, 1918 UT
xxxx 5694A, 1945 UT
NO 5694A ACTIVITY TODAY

Sp

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Oct 88

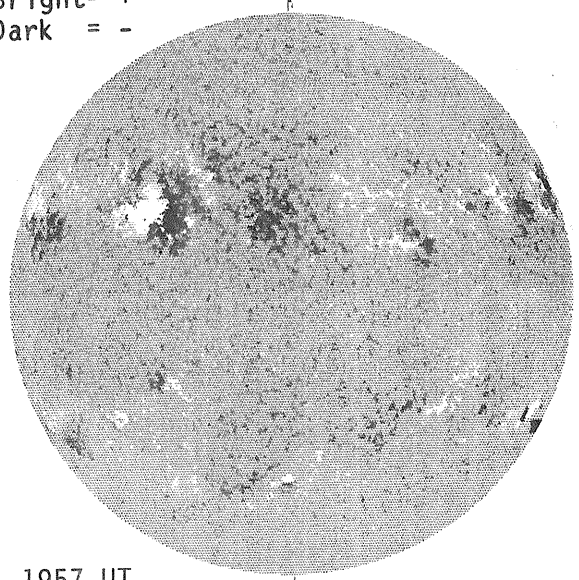
OCTOBER 21, 1988 (P= 25.85, B_o= 5.36, L_o= 336.55)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

E—

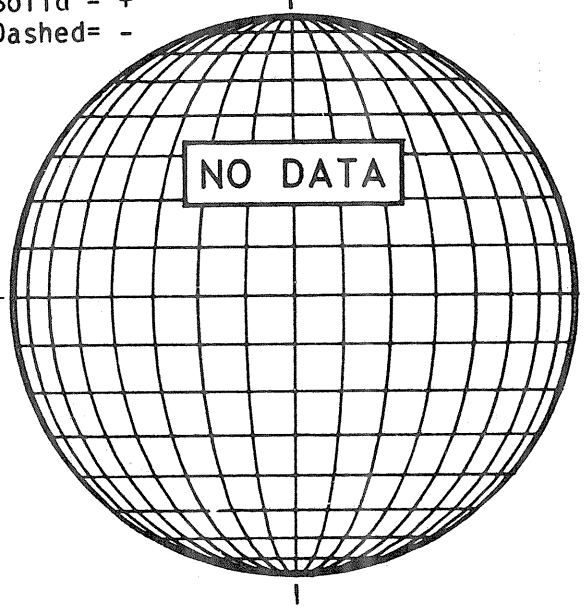


1957 UT

STANFORD MAGNETOGRAM

Np

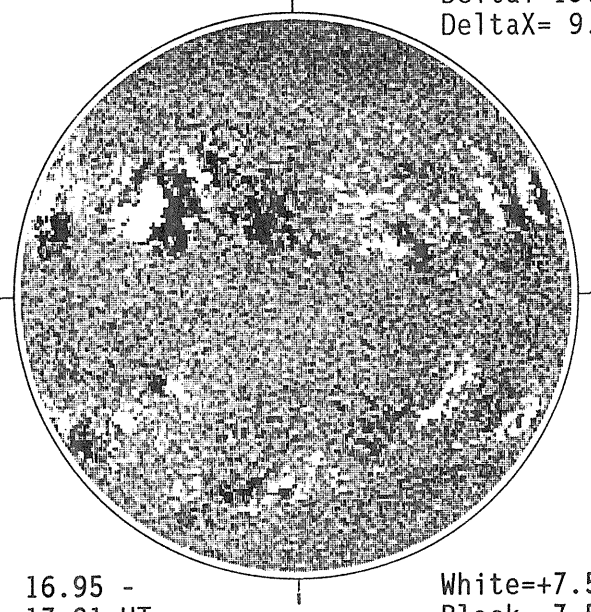
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

Np

DeltaY=13.0
DeltaX= 9.6

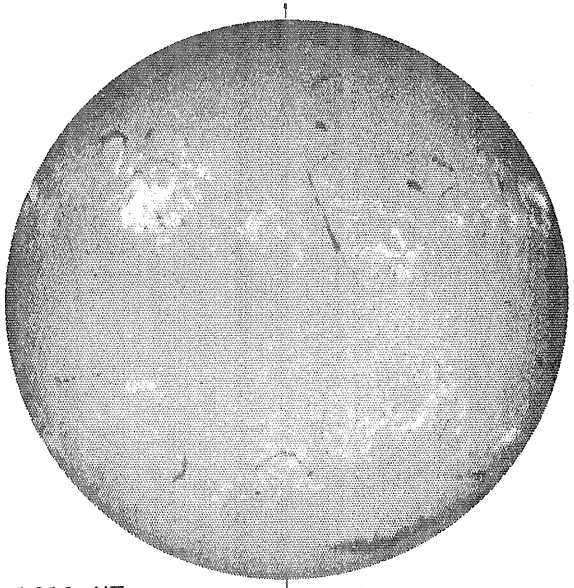


—W

16.95 -
17.91 UT

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

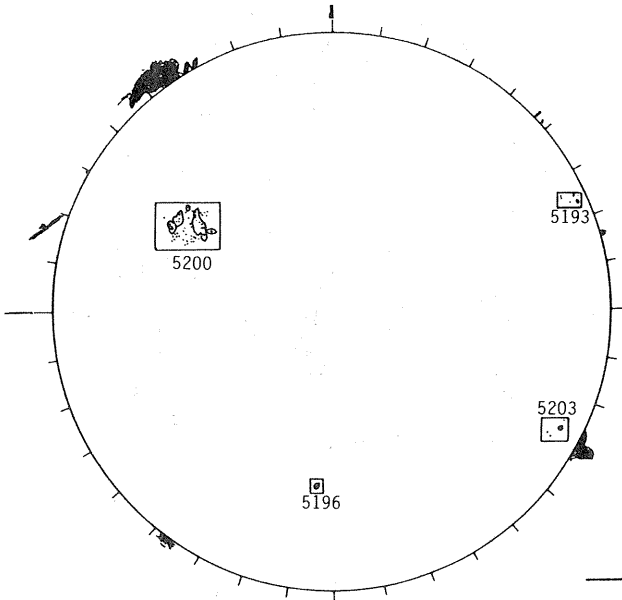


E—

1611 UT

Sp

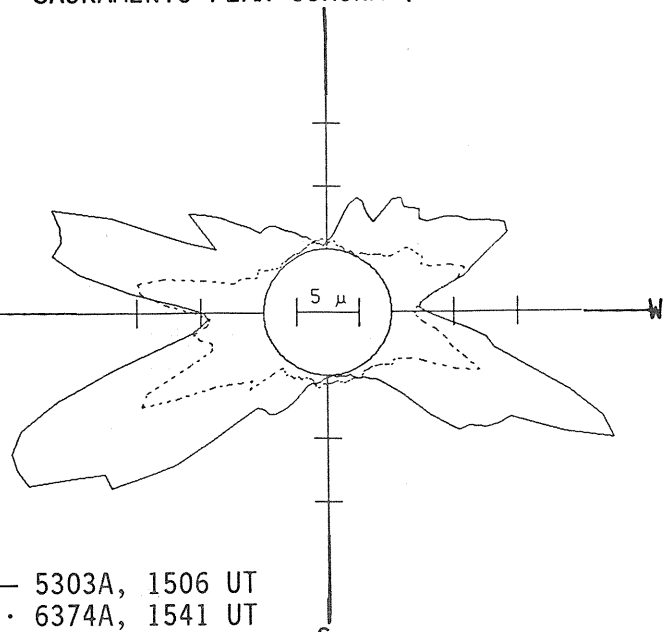
BOULDER SUNSPOTS



1428 UT
1605 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (1.15 Radii)



W

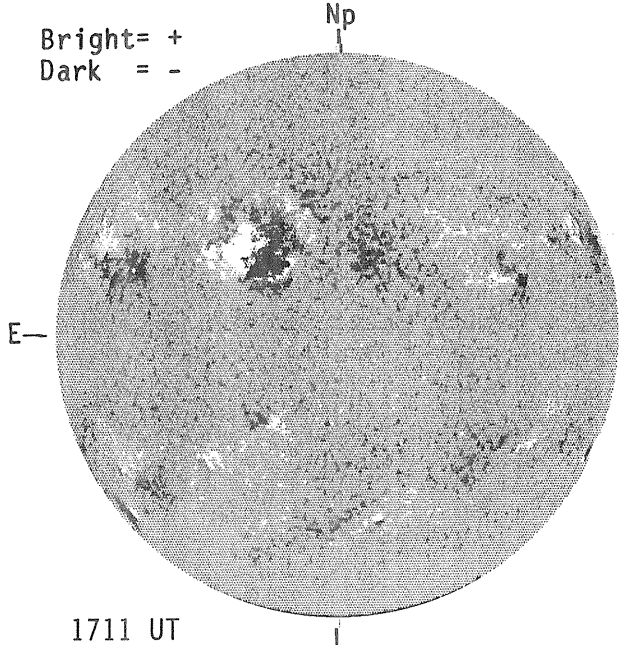
Sp

—— 5303A, 1506 UT
···· 6374A, 1541 UT
xxxx 5694A, 1531 UT
NO 5694A ACTIVITY TODAY

OCTOBER 22, 1988 (P= 25.77, B_o= 5.27, L_o= 323.36)

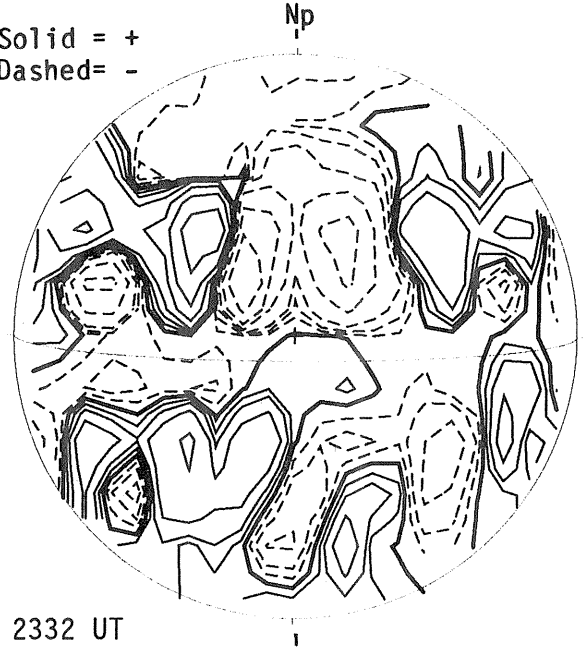
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



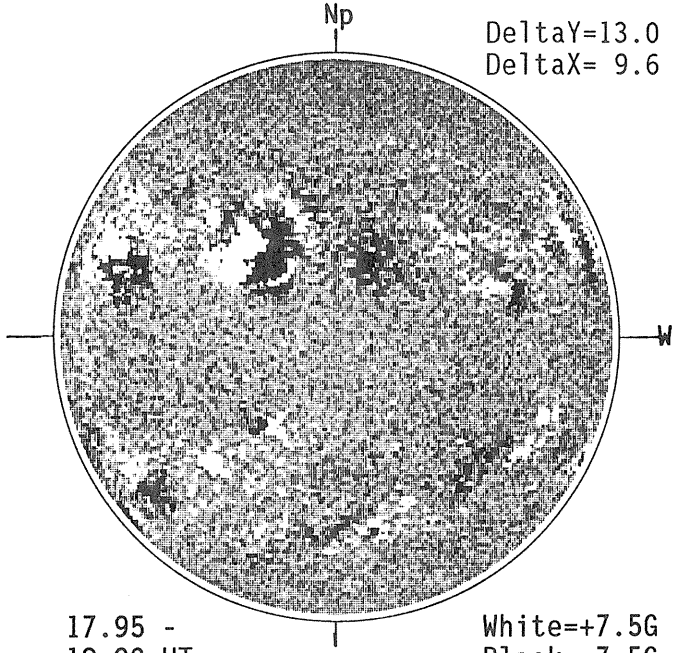
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

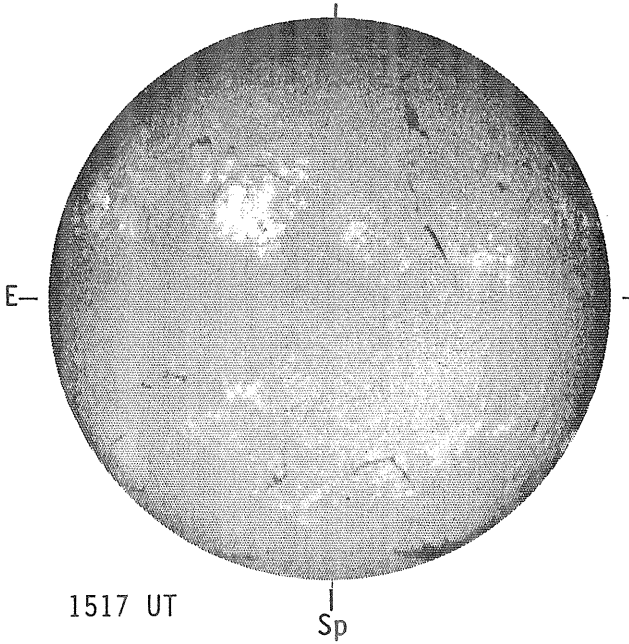
DeltaY=13.0
DeltaX= 9.6



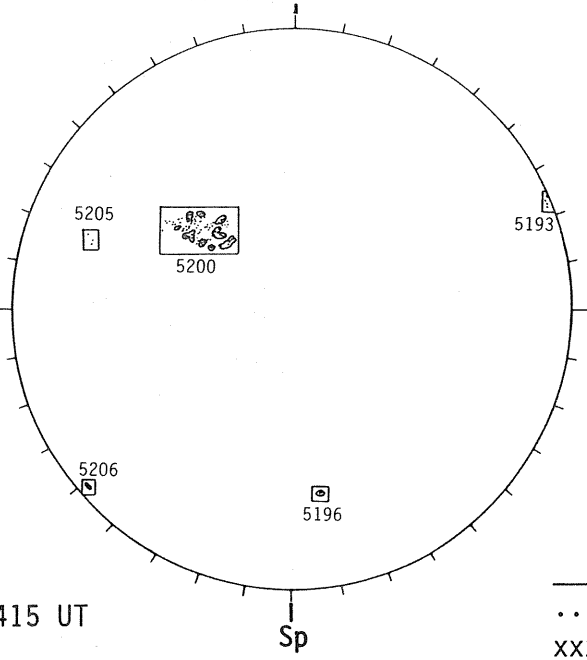
17.95 -
18.92 UT

White=+7.5G
Black=-7.5G

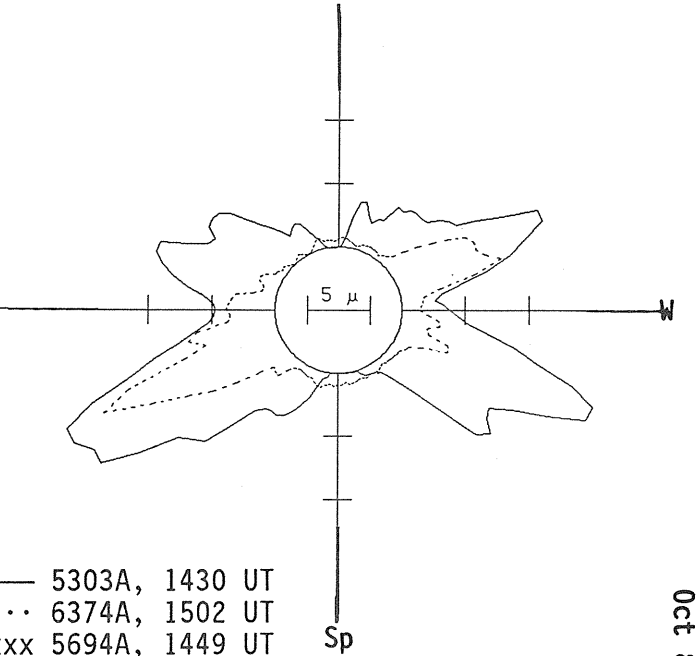
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1430 UT
···· 6374A, 1502 UT
xxxx 5694A, 1449 UT
NO 5694A ACTIVITY TODAY

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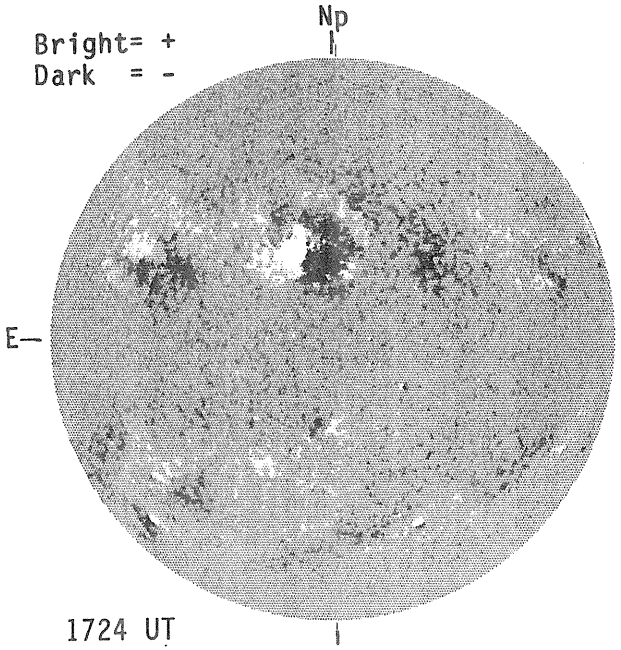
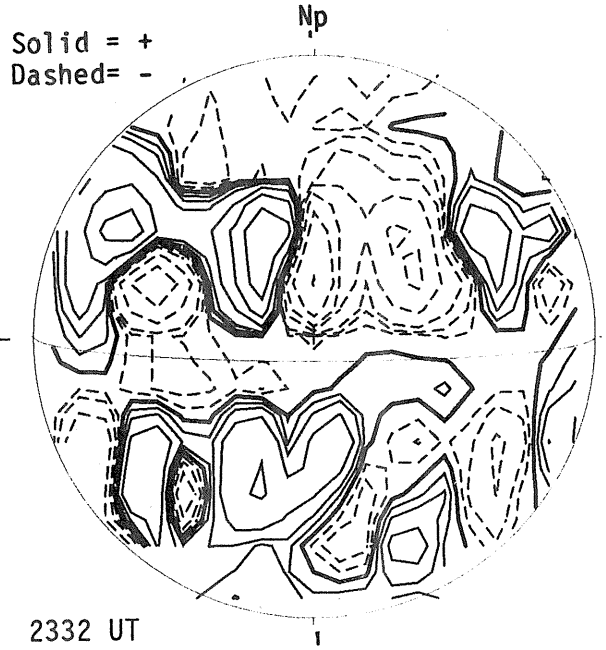
Oct 88

OCTOBER 23, 1988 (P= 25.67, B_o= 5.18, L_o= 310.18)

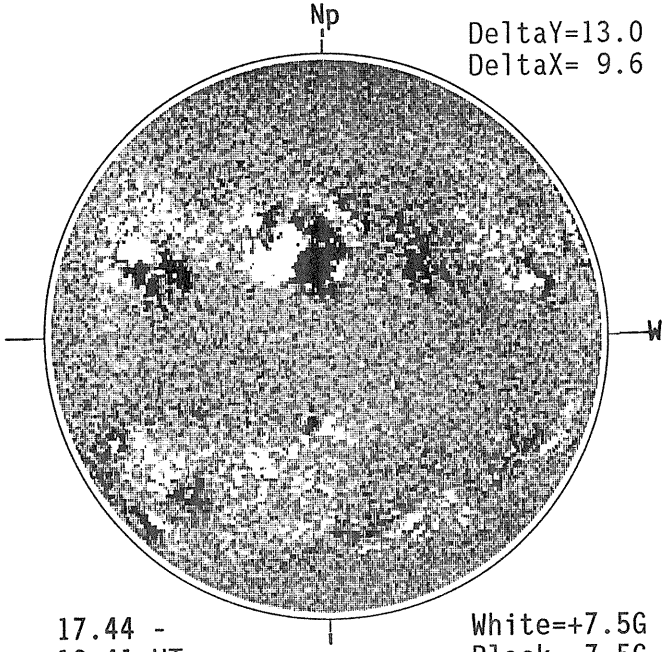
KITT PEAK MAGNETOGRAM



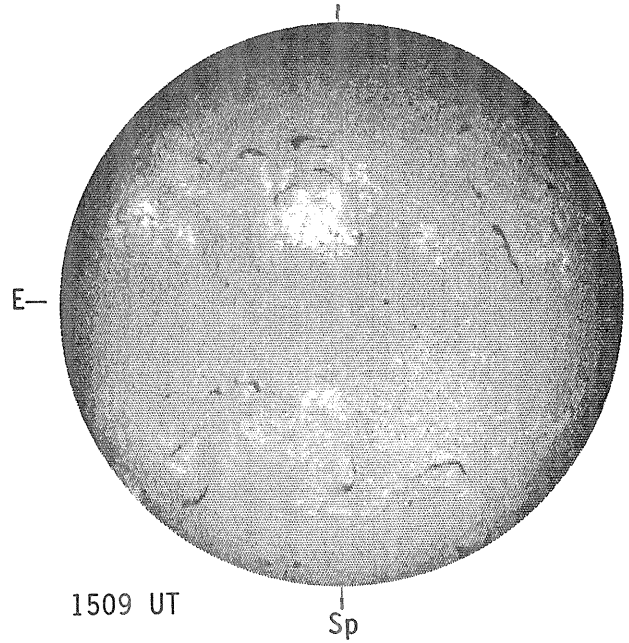
STANFORD MAGNETOGRAM



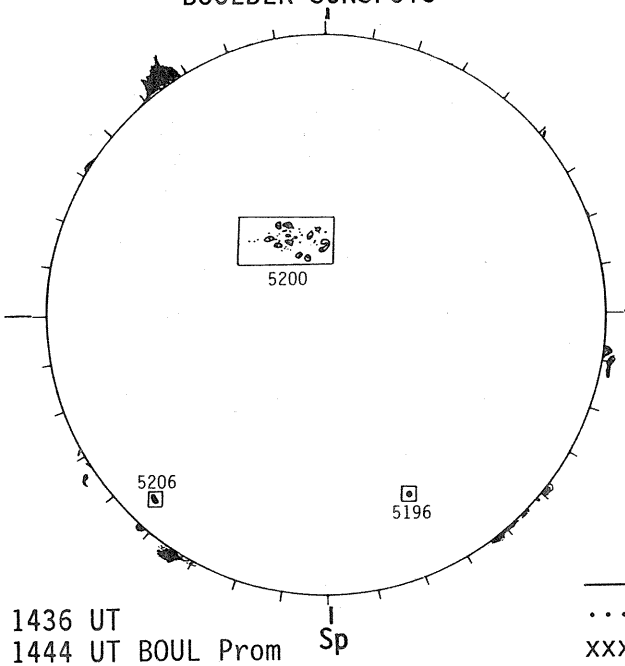
MT. WILSON MAGNETOGRAM



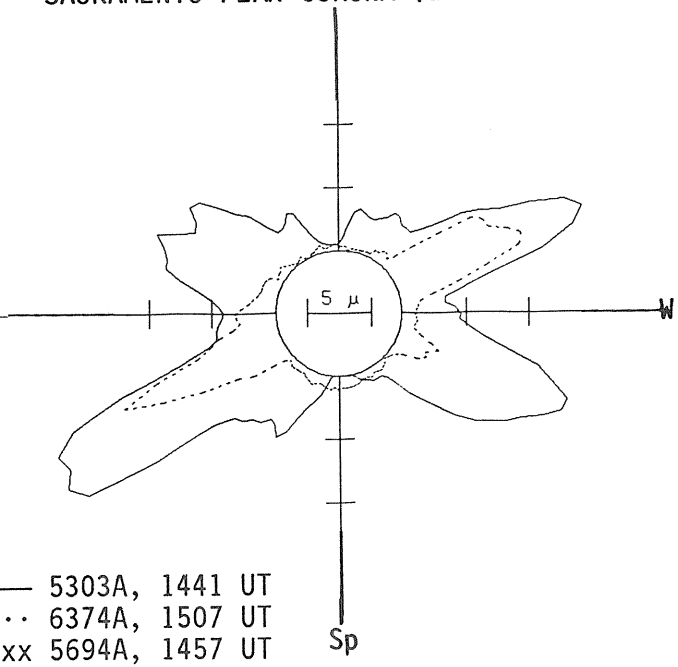
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

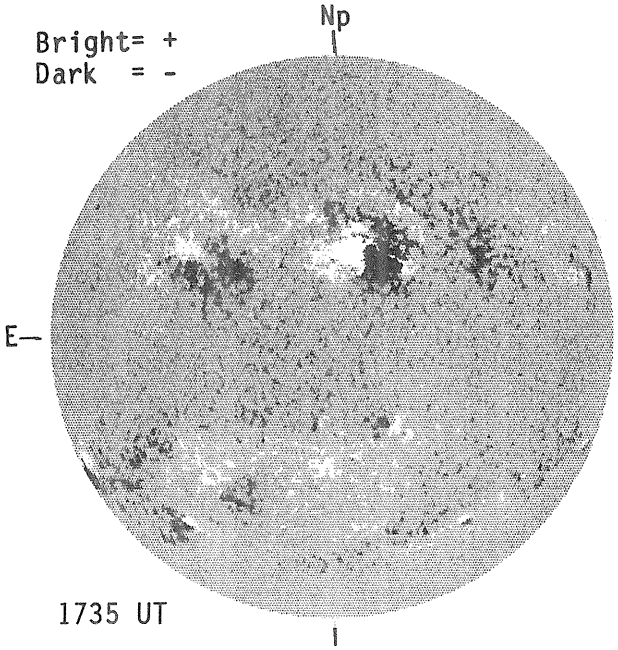


—— 5303A, 1441 UT
···· 6374A, 1507 UT
xxxx 5694A, 1457 UT
NO 5694A ACTIVITY TODAY

OCTOBER 24, 1988 (P= 25.57, B_o= 5.09, L_o= 296.99)

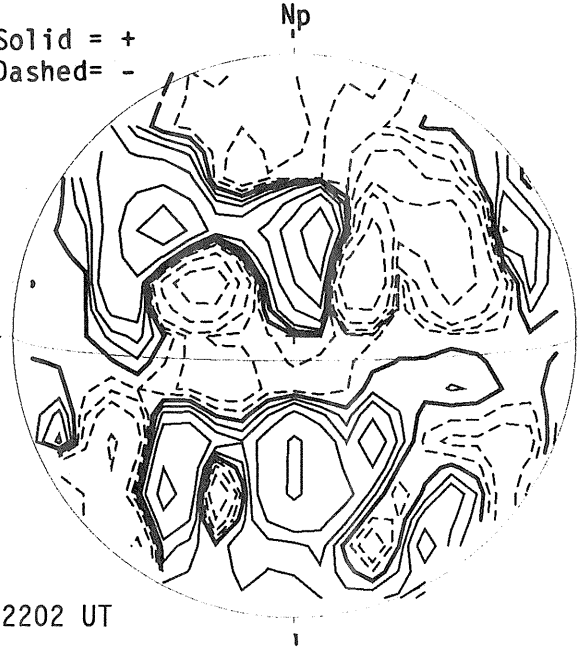
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



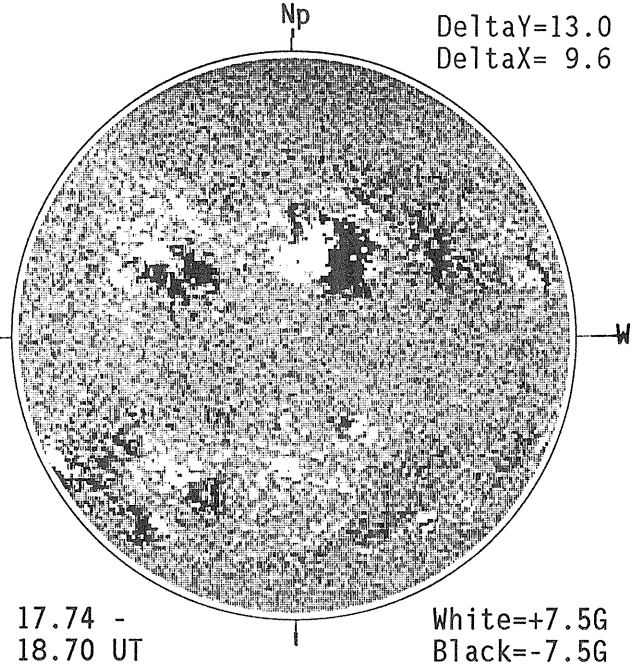
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

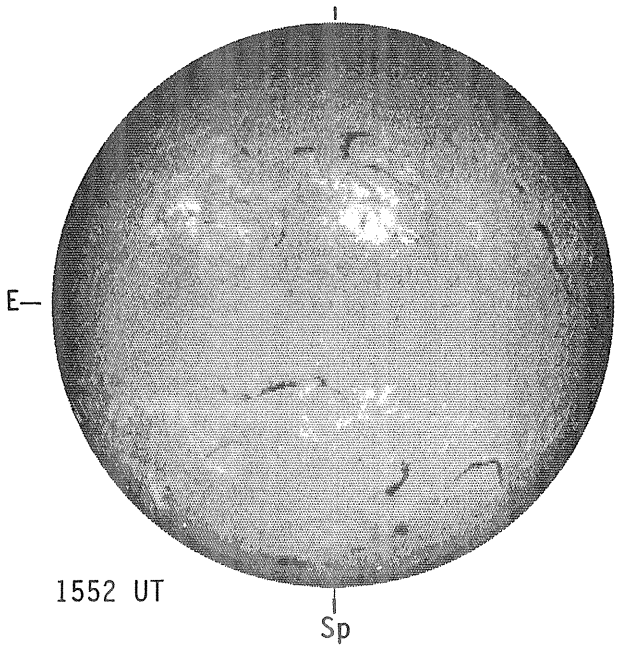


MT. WILSON MAGNETOGRAM

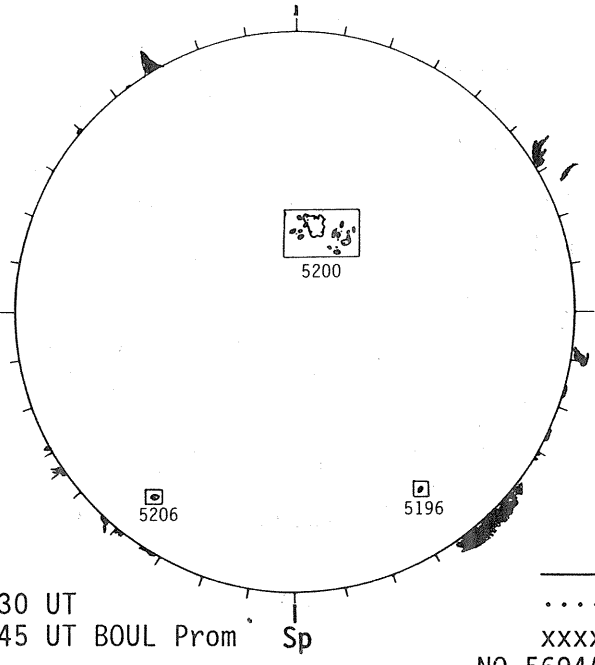
DeltaY=13.0
DeltaX= 9.6



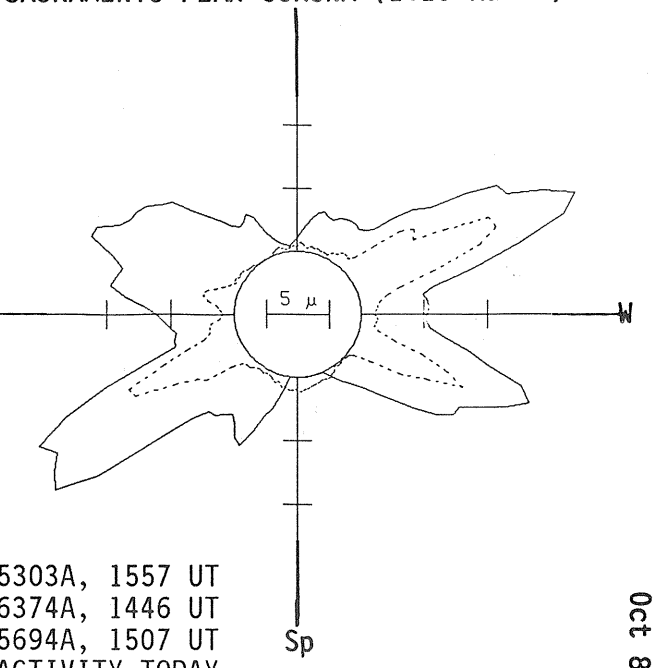
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1557 UT
···· 6374A, 1446 UT
xxxx 5694A, 1507 UT
NO 5694A ACTIVITY TODAY

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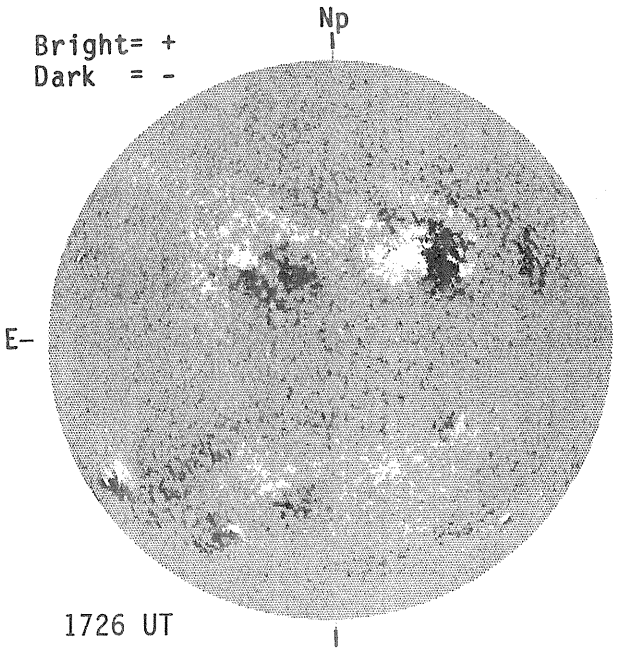
Oct 88

OCTOBER 25, 1988 (P= 25.46, B_o= 5.00, L_o= 283.80)

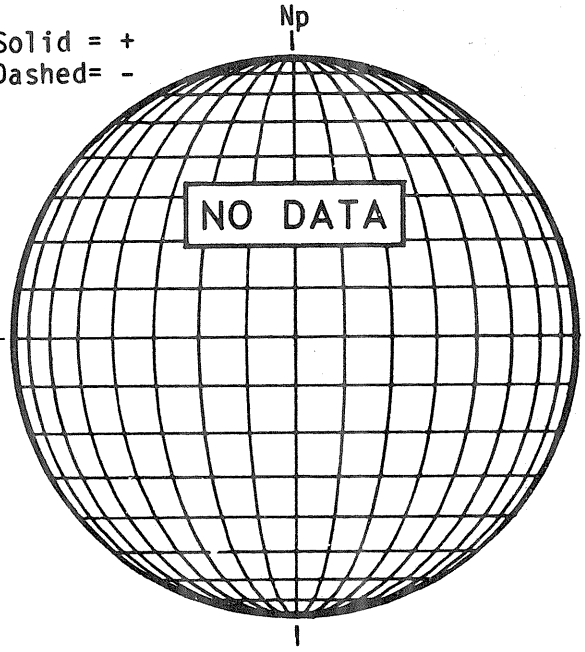
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

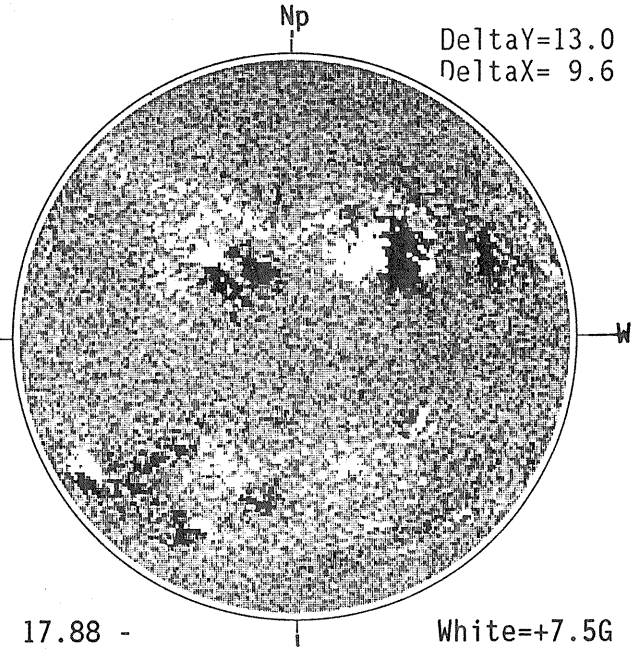


STANFORD MAGNETOGRAM

Solid = +
Dashed= -



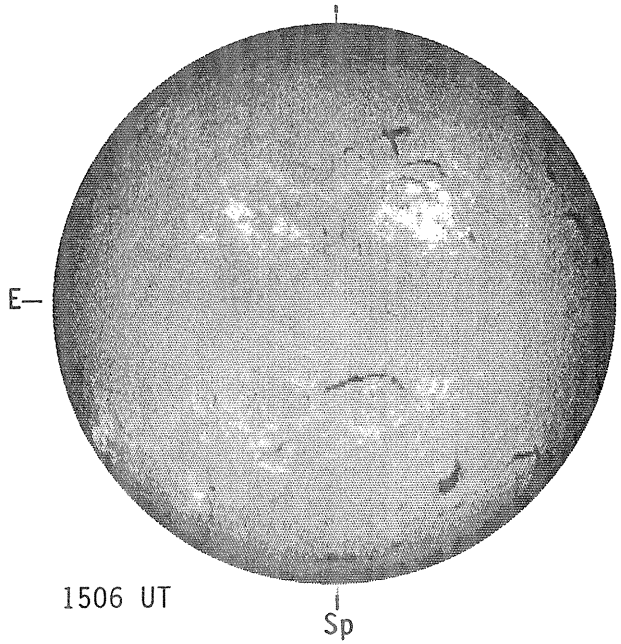
MT. WILSON MAGNETOGRAM



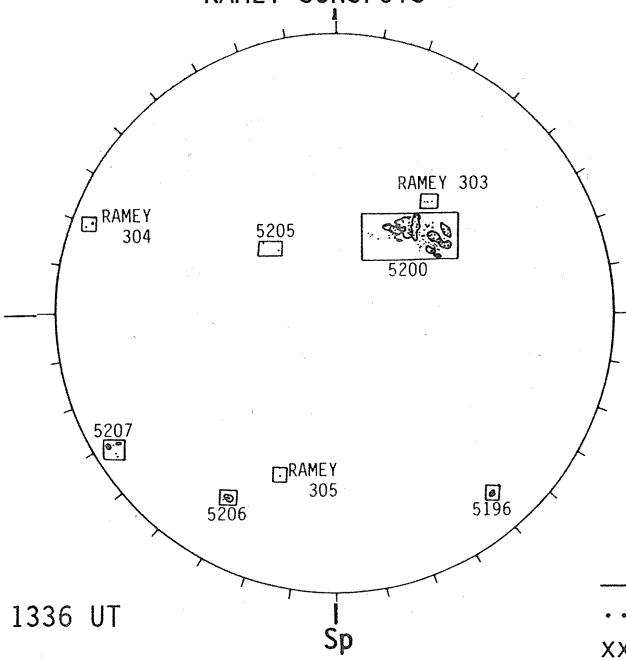
17.88 -
18.85 UT

White=+7.5G
Black=-7.5G

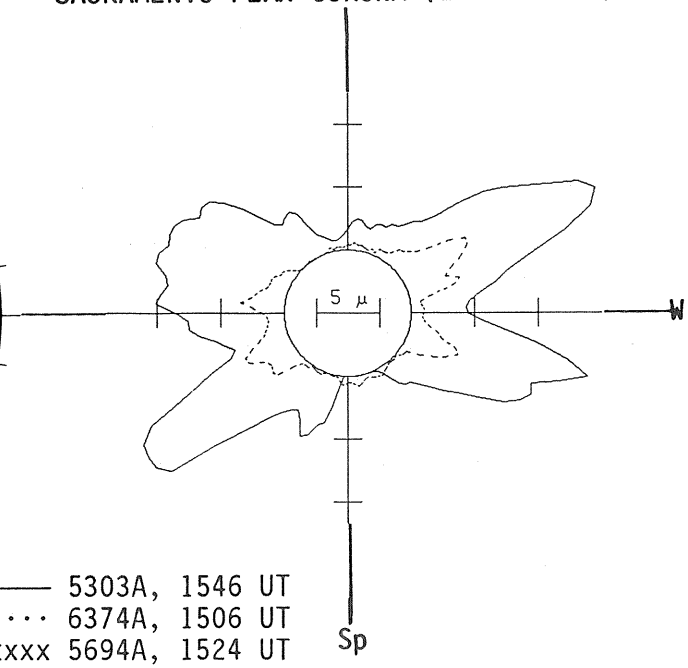
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

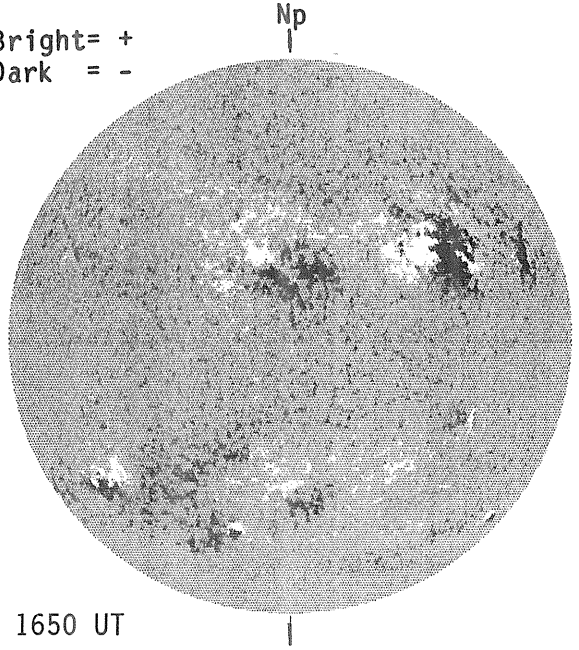


—— 5303A, 1546 UT
···· 6374A, 1506 UT
xxxx 5694A, 1524 UT
NO 5694A ACTIVITY TODAY

OCTOBER 26, 1988 (P= 25.35, B_o= 4.91, L_o= 270.61)

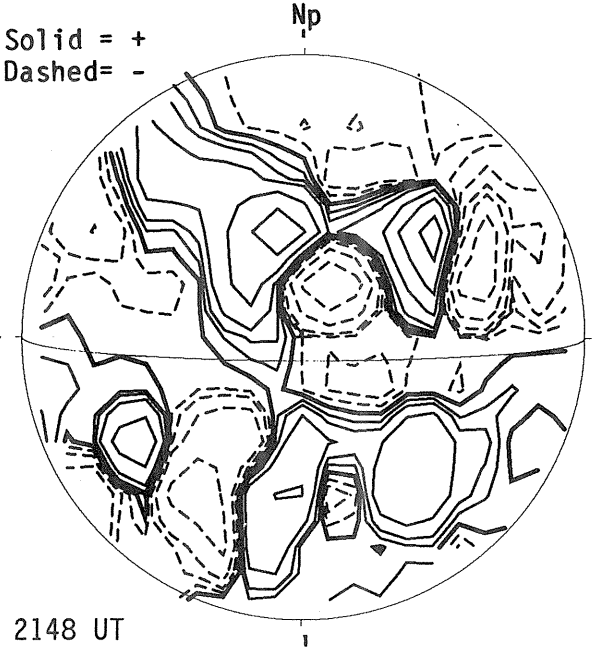
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



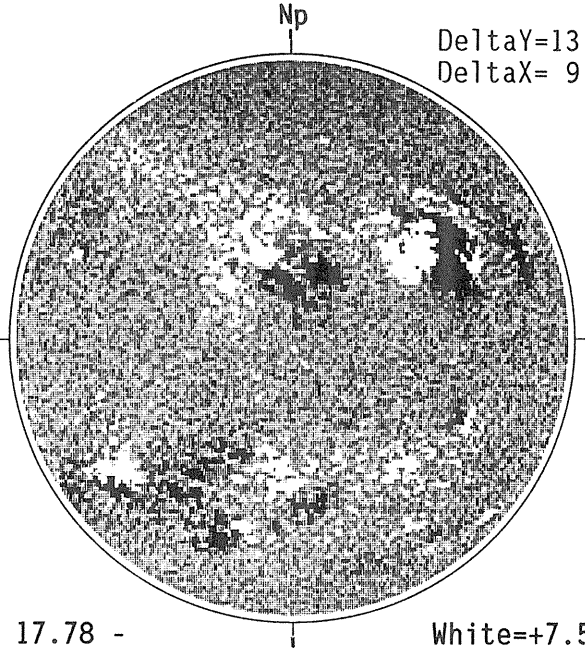
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

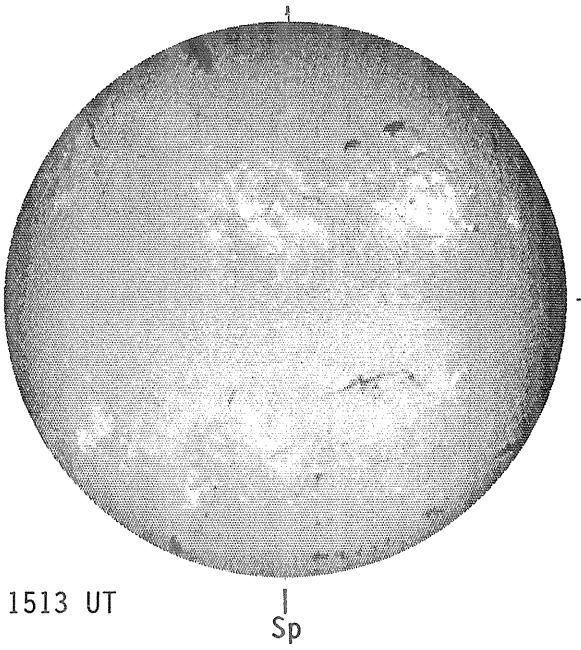
DeltaY=13.0
DeltaX= 9.6



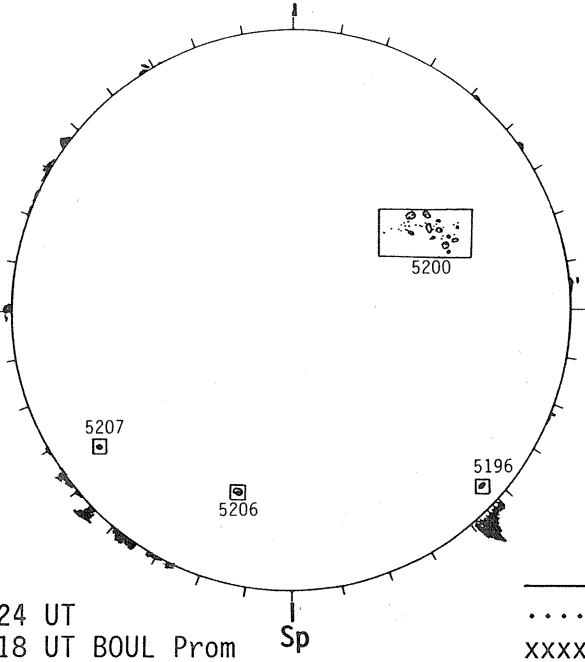
17.78 -
18.75 UT

White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA

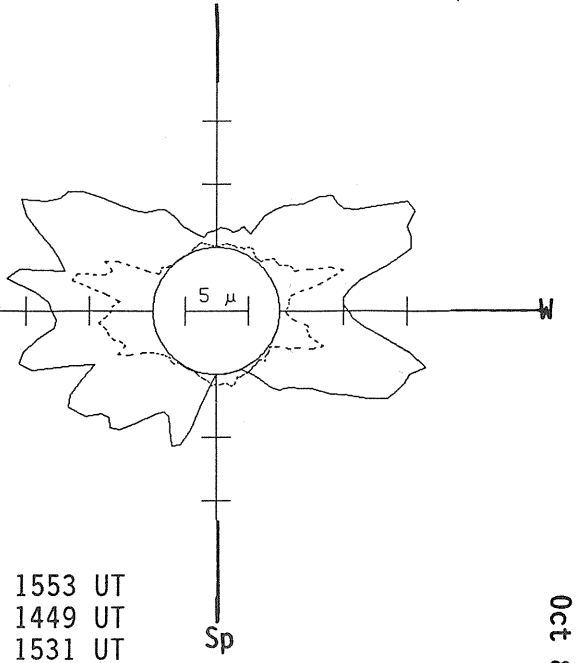


BOULDER SUNSPOTS



1424 UT
1418 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1553 UT
···· 6374A, 1449 UT
xxxx 5694A, 1531 UT
NO 5694A ACTIVITY TODAY

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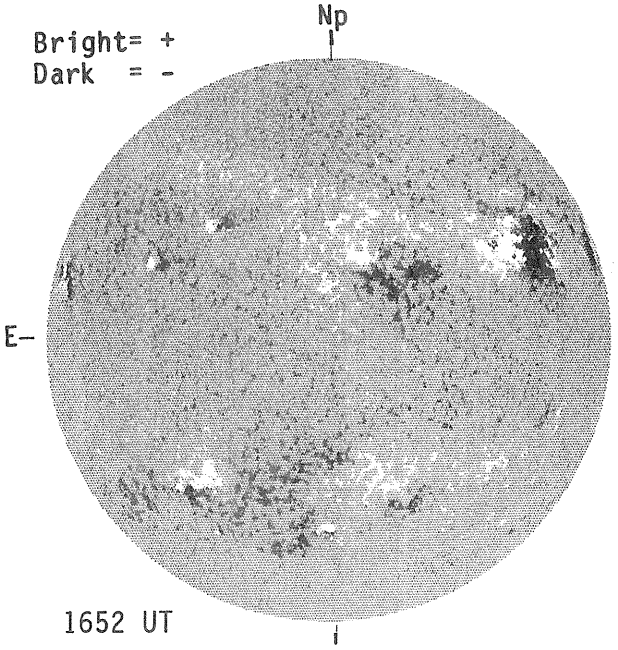
Oct 88

OCTOBER 27, 1988 (P= 25.22, B_o= 4.82, L_o= 257.42)

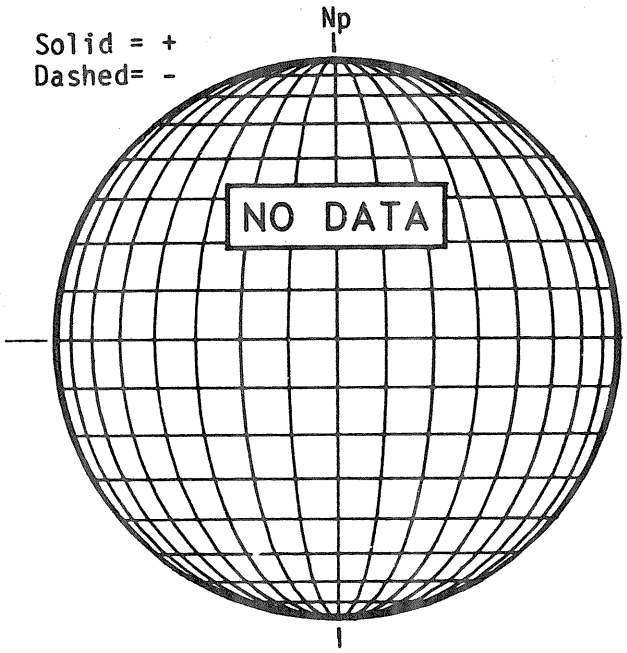
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

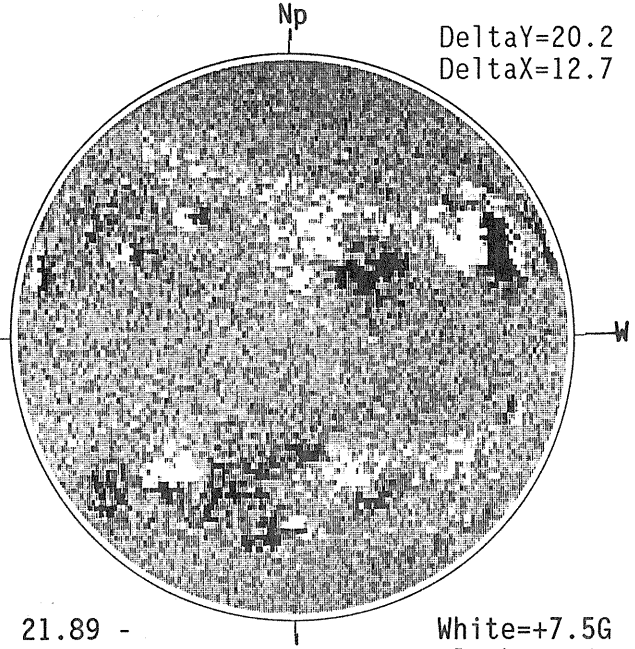


STANFORD MAGNETOGRAM

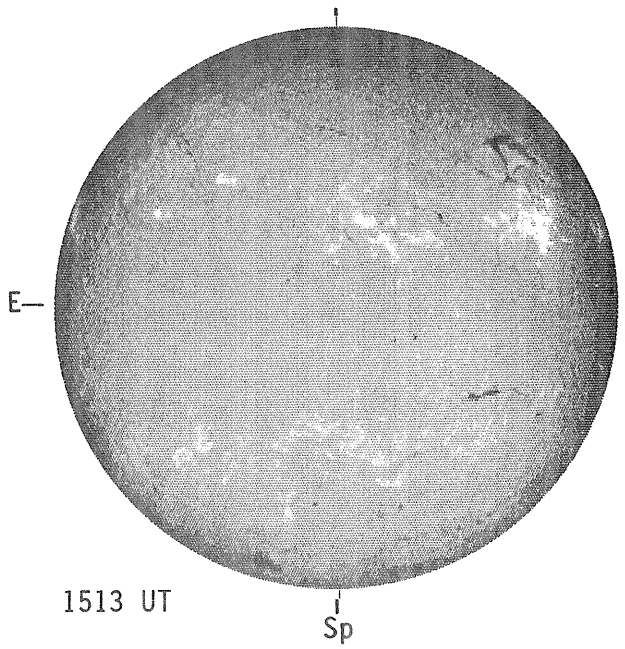
Solid = +
Dashed= -



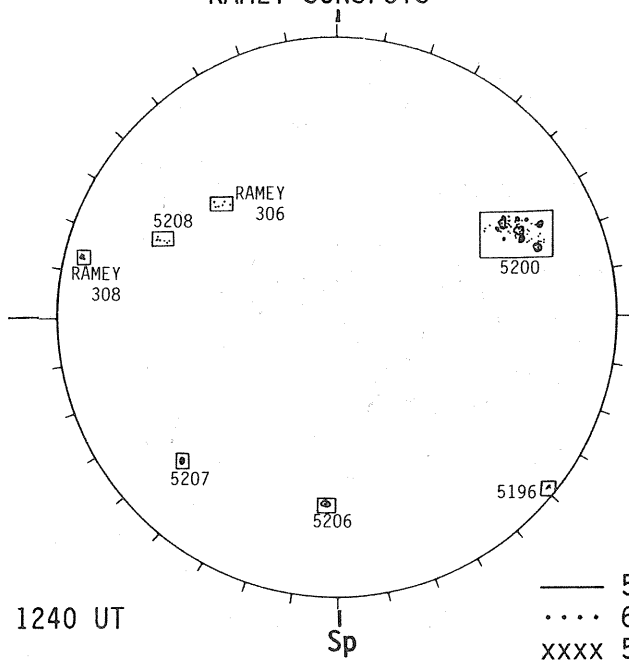
MT. WILSON MAGNETOGRAM



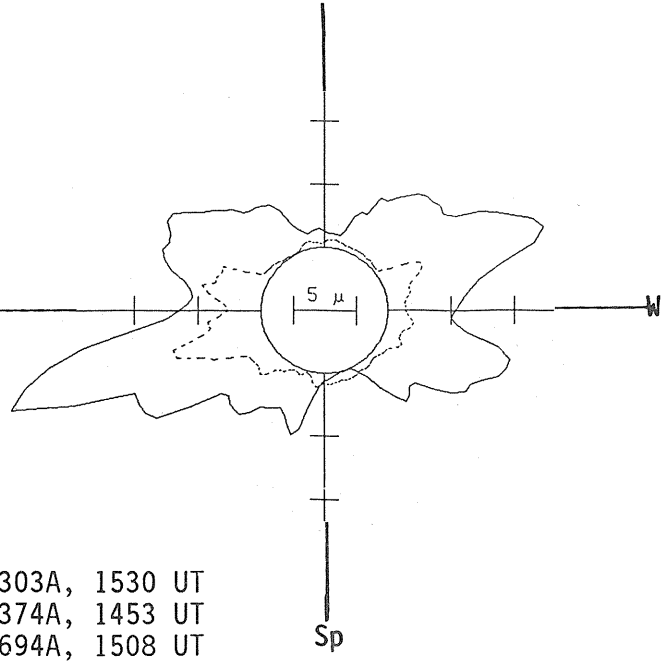
SACRAMENTO PEAK H-ALPHA



RAMEY SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)

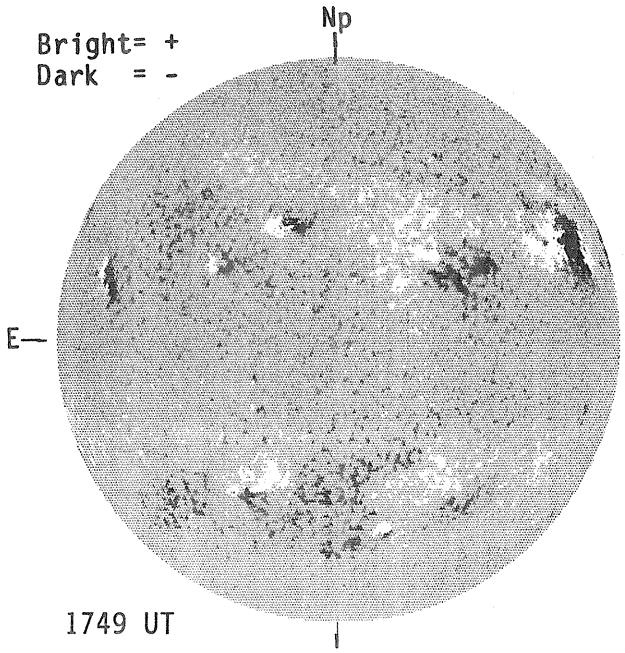


—— 5303A, 1530 UT
···· 6374A, 1453 UT
xxxx 5694A, 1508 UT
NO 5694A ACTIVITY TODAY

OCTOBER 28, 1988 (P= 25.09, B_o= 4.72, L_o= 244.23)

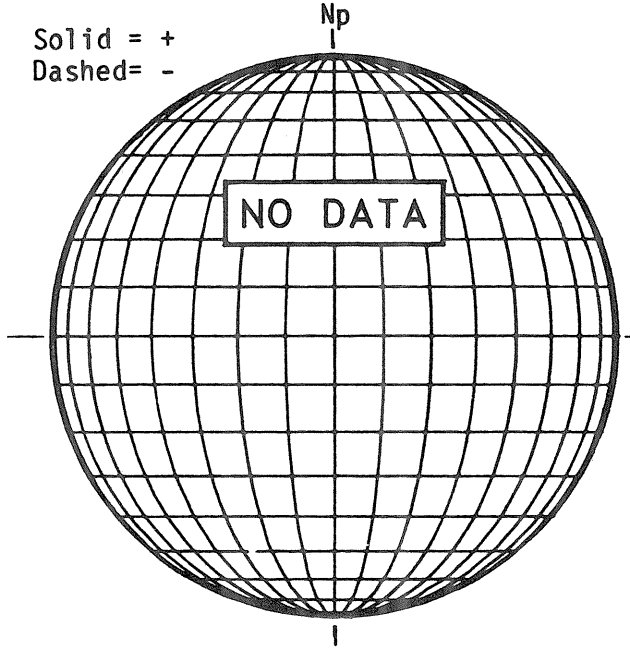
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

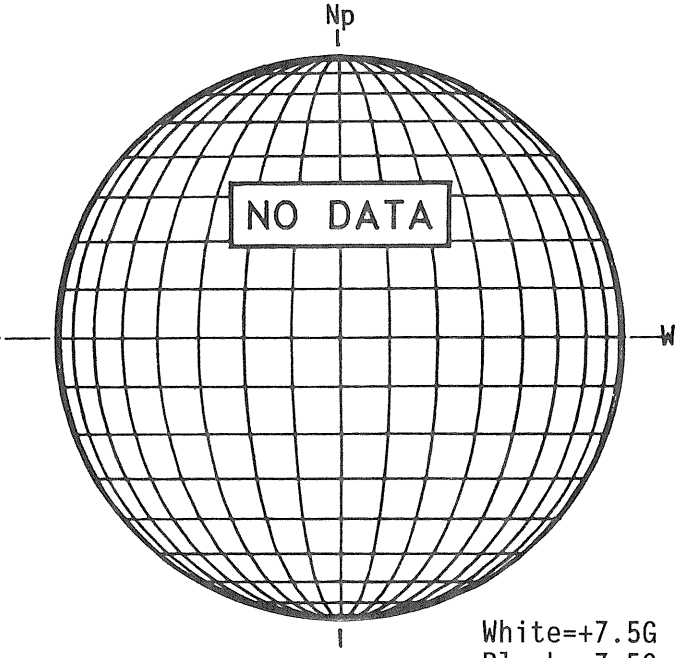


STANFORD MAGNETOGRAM

Solid = +
Dashed= -

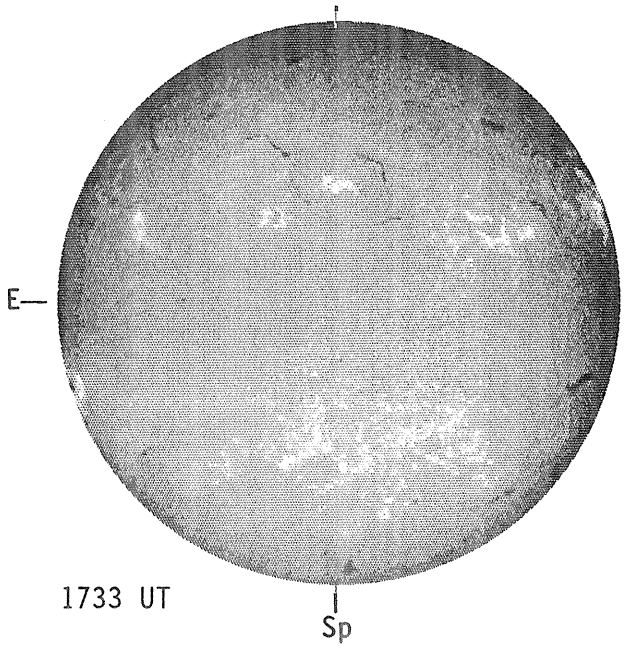


MT. WILSON MAGNETOGRAM

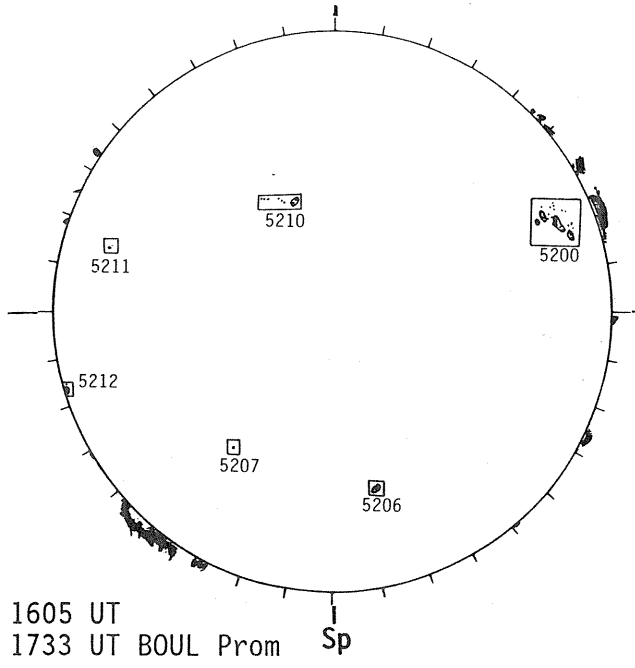


White=+7.5G
Black=-7.5G

BOULDER H-ALPHA

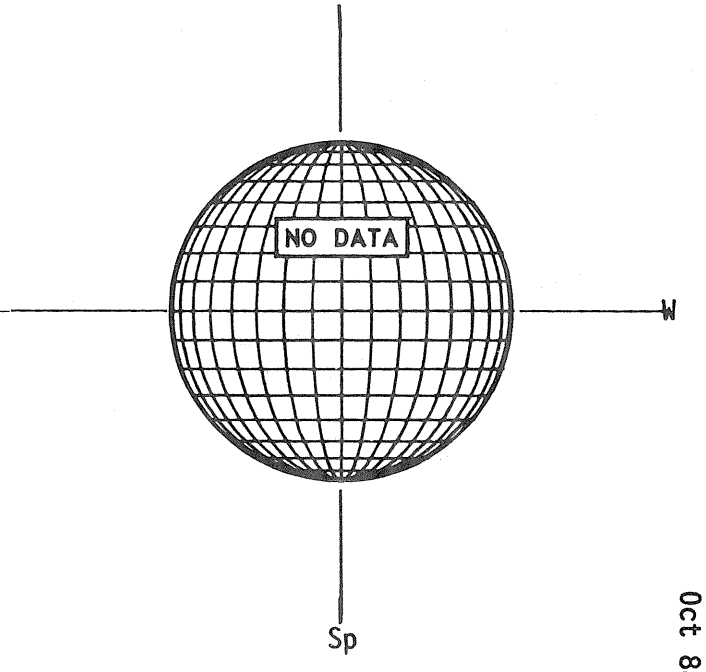


BOULDER SUNSPOTS



1605 UT
1733 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

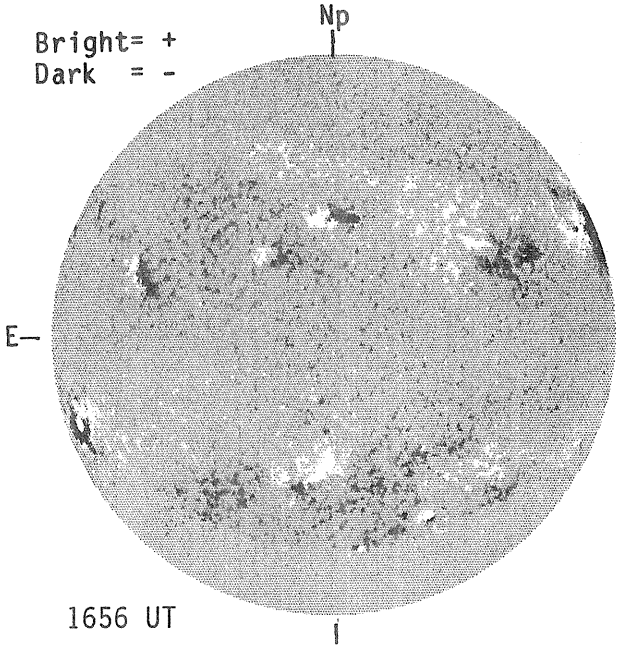


75
Oct 88

OCTOBER 29, 1988 (P= 24.95, B_o= 4.63, L_o= 231.05)

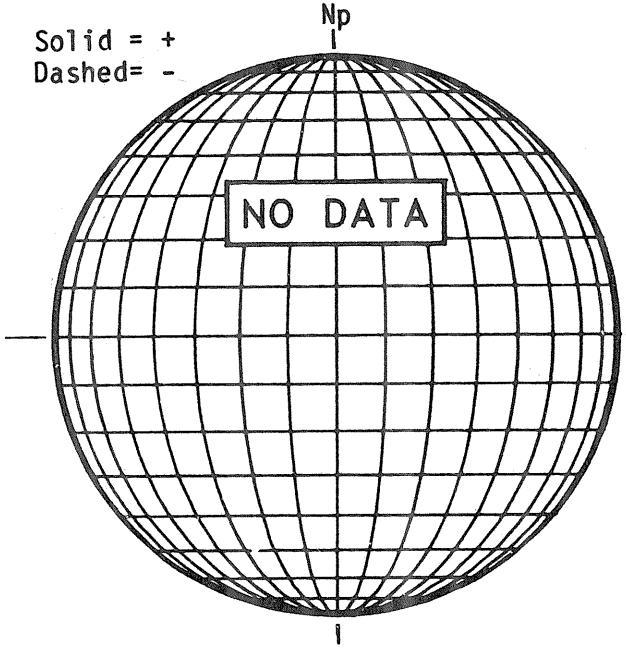
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

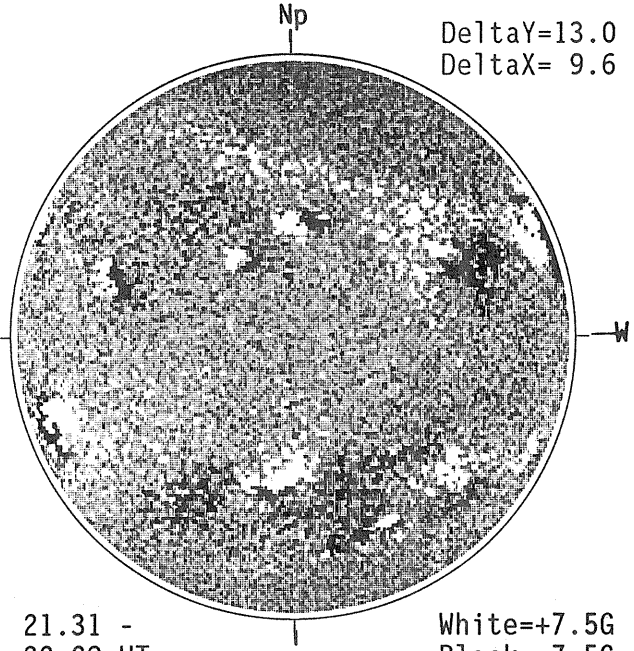


STANFORD MAGNETOGRAM

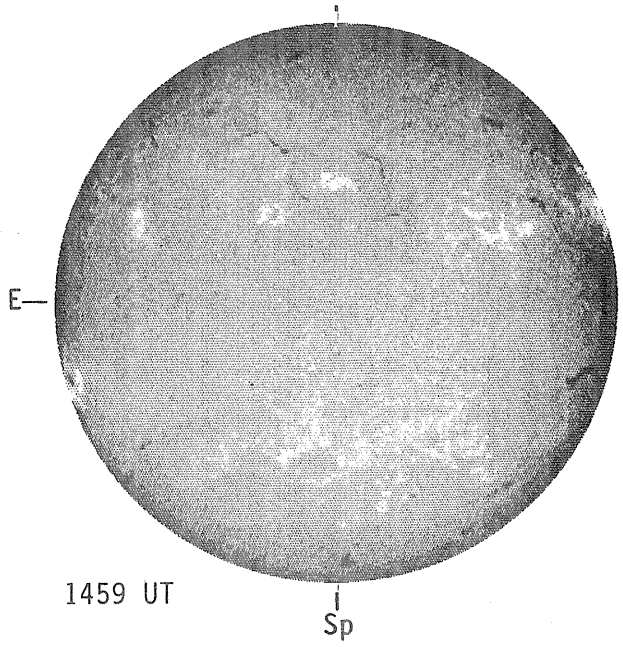
Solid = +
Dashed= -



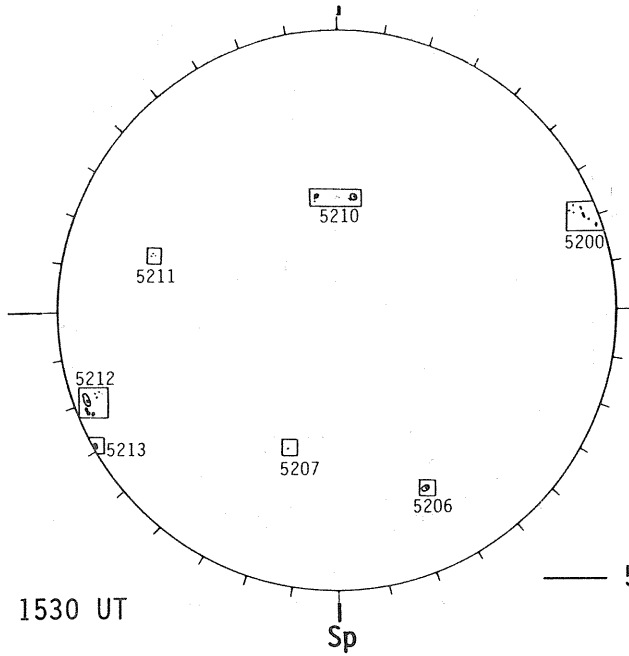
MT. WILSON MAGNETOGRAM



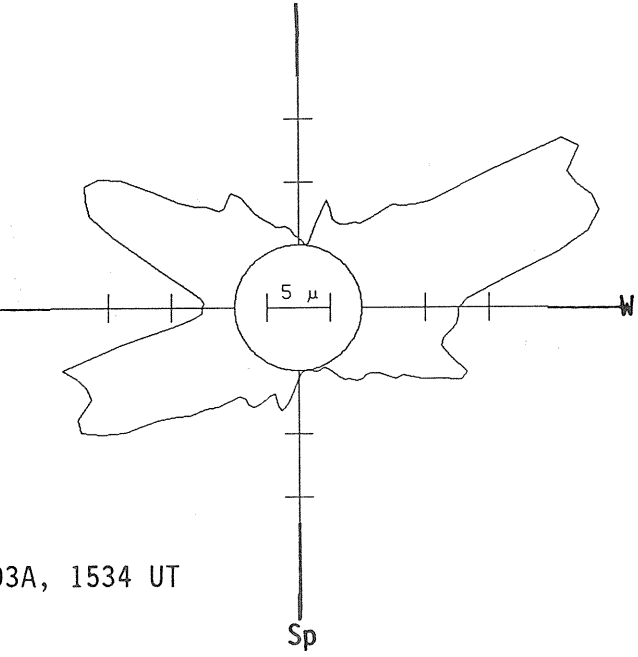
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1534 UT

OCTOBER 30, 1988 (P= 24.80, B_o= 4.53, L_o= 217.86)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

NO DATA

E—

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

2150 UT

MT. WILSON MAGNETOGRAM

Np

DeltaY=13.0
DeltaX= 9.6

—W

17.86 -
18.83 UT

White=+7.5G
Black=-7.5G

BOULDER H-ALPHA

E—

1902 UT

Sp

BOULDER SUNSPOTS

5215
5216
5210
5200
5211
5212
5213
5207
5206

1450 UT
1502 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (1.15 Radii)

NO DATA

—W

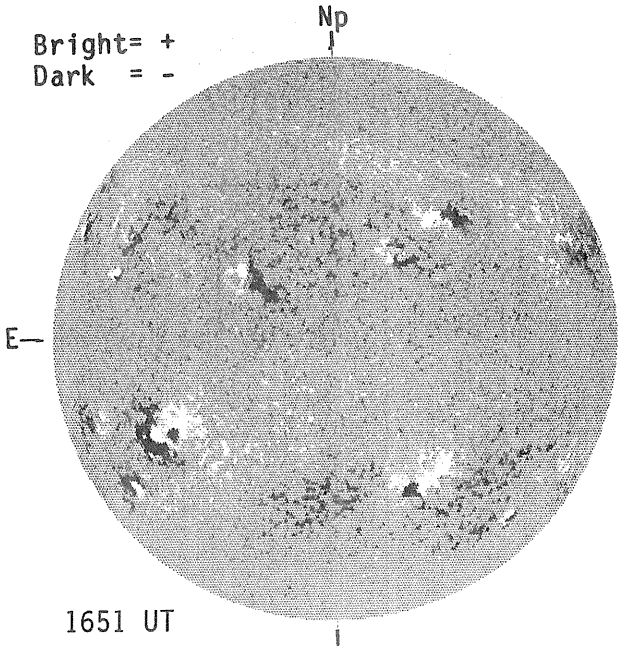
Sp

77
Oct 88

OCTOBER 31, 1988 (P= 24.64, B_o= 4.43, L_o= 204.67)

KITT PEAK MAGNETOGRAM

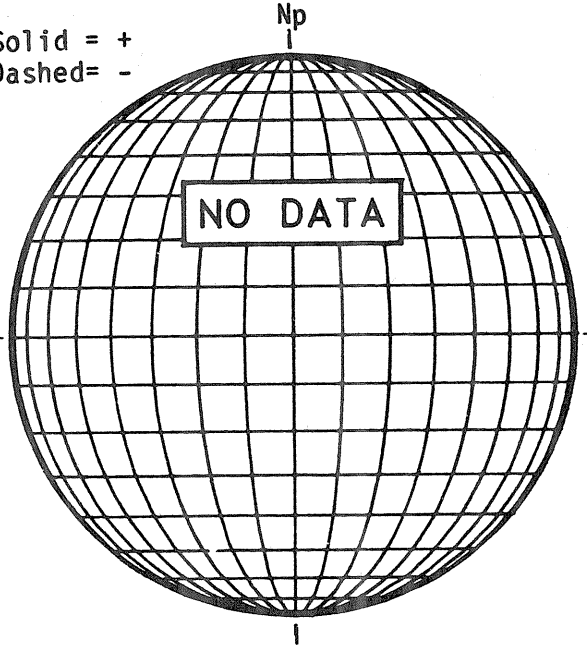
Bright= +
Dark = -



1651 UT

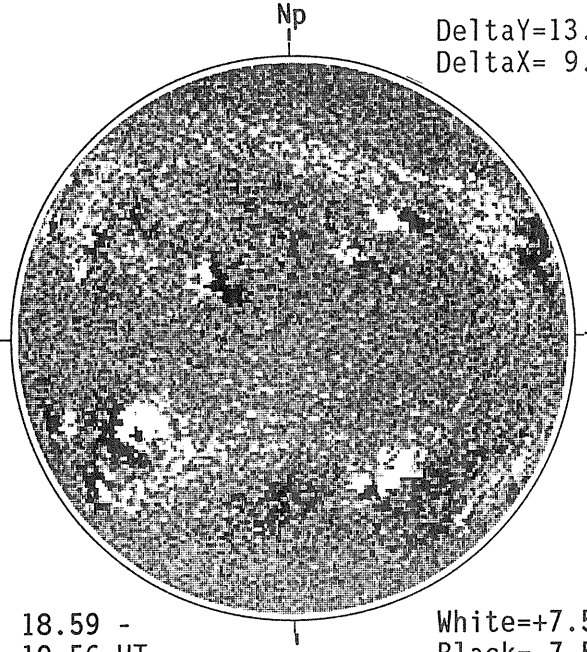
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

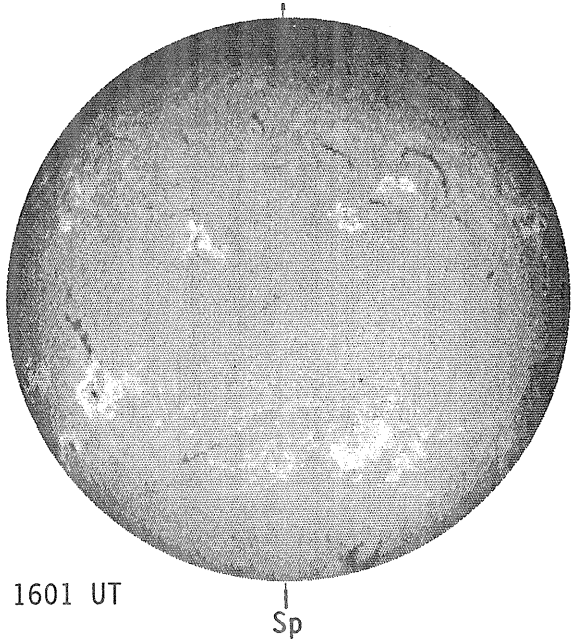
DeltaY=13.0
DeltaX= 9.6



18.59 -
19.56 UT

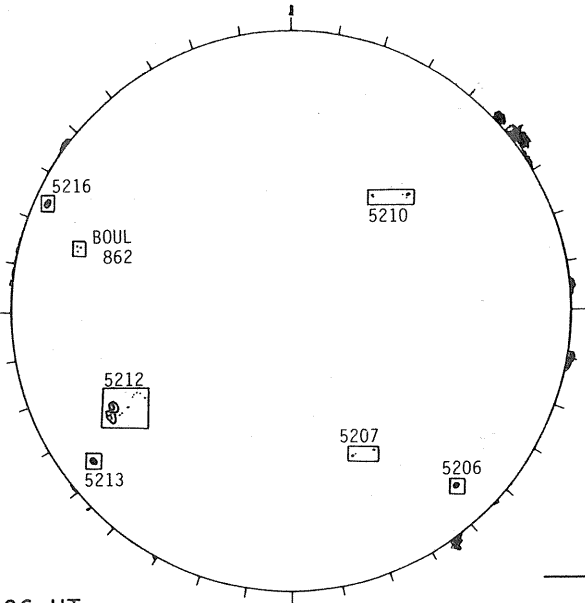
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



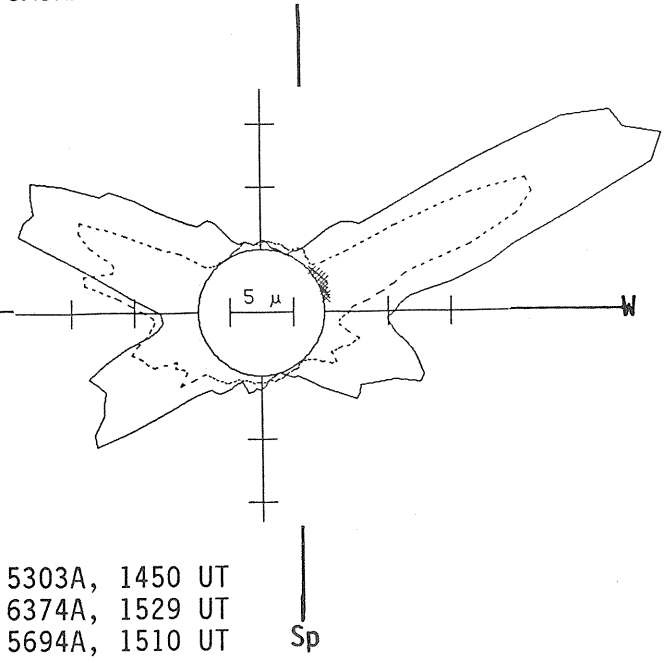
1601 UT

BOULDER SUNSPOTS



1426 UT
1438 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— 5303A, 1450 UT
.... 6374A, 1529 UT
xxxx 5694A, 1510 UT

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

OCTOBER 1988

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
5174B		HOLL	09 28	1425	S30 E35	10	1.3		A	AX	10	2	1	4
5174B		PALE	09 28	1745	S30 E33	10	1.3		A	AX		1	1	3
5171		CULG	09 26	0435	S30 E78	10	2.3		A	AX	50	1	4	2
5171		SVTO	09 26	0735	S25 E81	10	2.6		A	HH	80	2	2	3
5171		BOUL	09 26	1348	S25 E76	10	2.5		A	HS	180	1	2	2
5171		HOLL	09 26	1441	S26 E78	10	2.7		A	HK	180	2	3	3
5171	24809	MWIL	09 26	1515	S26 E76	10	2.5	5	AP					
5171		PALE	09 26	1820	S26 E76	10	2.7		B	CKO	300	8	8	3
5171		LEAR	09 27	0050	S25 E70	10	2.4		A	HK	330	3	5	3
5171		CULG	09 27	0240	S25 E65	10	2.1		A	HK	320	2	5	2
5171		SVTO	09 27	0845	S25 E66	10	2.5		BG	DKI	340	10	6	2
5171		BOUL	09 27	1430	S25 E65	10	2.6		B	DKO	340	7	7	3
5171		HOLL	09 27	1500	S25 E64	10	2.6		B	CKO	440	10	11	3
5171	24809	MWIL	09 27	1530	S26 E64	10	2.6	6	(D)					
5171		PALE	09 27	1915	S25 E62	10	2.6		B	DKO	420	9	8	2
5171		CULG	09 28	0230	S26 E54	10	2.3		B	DKO	360	5	7	3
5171		SVTO	09 28	0750	S26 E57	10	2.7		BG	EKI	450	11	13	3
5171		RAMY	09 28	1400	S25 E52	10	2.6		B	EKI	560	25	11	4
5171		HOLL	09 28	1425	S25 E51	10	2.5		BG	CKO	550	15	10	4
5171		BOUL	09 28	1430	S26 E50	10	2.5		B	CKO	530	5	8	1
5171	24809	MWIL	09 28	1530	S26 E51	10	2.6	6	(D)					
5171		PALE	09 28	1745	S25 E48	10	2.4		BG	CKO	540	20	9	3
5171		LEAR	09 29	0322	S25 E44	10	2.5		B	DKO	330	6	10	2
5171		CULG	09 29	0330	S25 E42	10	2.4		B	DKO	520	11	9	3
5171		SVTO	09 29	0747	S25 E45	10	2.8		BG	EKI	540	20	13	4
5171		RAMY	09 29	1345	S25 E39	10	2.6		BGD	EKI	540	17	13	4
5171		BOUL	09 29	1420	S24 E38	10	2.5		B	DKO	390	10	10	3
5171	24809	MWIL	09 29	1530	S26 E38	10	2.6	6	(D)					
5171		HOLL	09 29	1633	S25 E39	10	2.7		BG	EKO	510	16	12	3
5171		LEAR	09 30	0017	S25 E35	10	2.7		BGD	EKI	360	18	13	4
5171		CULG	09 30	0410	S26 E30	10	2.5		BGD	DKI	400	14	9	3
5171		SVTO	09 30	1057	S25 E28	10	2.6		BGD	DKI	580	14	8	3
5171	24809	MWIL	09 30	1500	S26 E24	10	2.5	6	(D)					
5171		HOLL	09 30	1610	S25 E25	10	2.6		B	EKO	480	19	8	3
5171		PALE	09 30	1747	S27 E23	10	2.5		B	DKO	350	16	6	3
5171		LEAR	10 01	0027	S25 E18	10	2.4		B	DKI	430	12	9	2
5171		CULG	10 01	0405	S27 E16	10	2.4		B	DKO	450	12	7	3
5171		SVTO	10 01	1043	S25 E13	10	2.4		BGD	DKC	580	16	6	3
5171		BOUL	10 01	1415	S24 E13	10	2.6		B	CKO	370	10	7	3
5171		RAMY	10 01	1418	S25 E15	10	2.7		BGD	EKI	530	22	15	3
5171	24809	MWIL	10 01	1530	S26 E10	10	2.4	6	(BG)					
5171		HOLL	10 01	1615	S25 E12	10	2.6		B	CKO	450	20	7	4
5171		PALE	10 01	1755	S26 E10	10	2.5		B	CKO	400	17	8	3
5171		LEAR	10 02	0040	S25 E05	10	2.4		BG	DKI	420	20	7	3
5171		CULG	10 02	0355	S26 E01	10	2.2		B	DKI	440	13	6	2
5171		SVTO	10 02	0755	S25 E02	10	2.5		BGD	DKC	510	22	8	4
5171		RAMY	10 02	1332	S25 E02	10	2.7		BGD	EKO	660	23	13	4
5171		BOUL	10 02	1335	S25 E00	10	2.6		B	CKO	480	30	13	3
5171	24809	MWIL	10 02	1500	S26 W04	10	2.3	6	(D)					
5171		HOLL	10 02	1637	S25 W01	10	2.6		B	CKO	510	22	13	3
5171		PALE	10 02	1910	S26 W02	10	2.6		B	CKO	480	28	13	2
5171		LEAR	10 03	0152	S25 W05	10	2.7		B	EKI	450	21	13	2
5171		CULG	10 03	0250	S24 W08	10	2.5		BG	EKI	430	23	13	3
5171		SVTO	10 03	0736	S26 W09	10	2.6		BGD	EKI	570	36	14	/
5171		BOUL	10 03	1405	S25 W12	10	2.6		B	CKO	490	23	13	3
5171	24809	MWIL	10 03	1515	S26 W15	10	2.5	6	(D)					
5171		HOLL	10 03	1652	S25 W14	10	2.6		BG	EKO	570	26	13	3
5171		PALE	10 03	1820	S25 W15	10	2.6		BG	EKO	600	22	14	3
5171		LEAR	10 04	0018	S24 W18	10	2.6		BG	EKO	470	29	13	4
5171		CULG	10 04	0325	S25 W22	10	2.4		BG	EKI	680	15	12	3
5171		SVTO	10 04	0702	S25 W22	10	2.6		B	CKI	470	20	12	2
5171	24809	MWIL	10 04	1445	S25 W28	10	2.4	6	(D)					
5171		HOLL	10 04	1500	S25 W25	10	2.7		BG	CKO	680	23	13	3
5171		PALE	10 04	1730	S25 W26	10	2.7		BG	CKO	620	21	14	3
5171		LEAR	10 05	0030	S25 W31	10	2.6		B	DKO	600	25	13	3
5171		CULG	10 05	0250	S27 W34	10	2.5		B	CKI	480	15	13	2
5171		SVTO	10 05	0707	S26 W35	10	2.6		B	EKI	640	25	12	3

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

OCTOBER 1988

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
5171		BOUL	10 05 1442	S26 W41	10 2.4		B	DAC	580	20	8	3
5171		HOLL	10 05 1525	S25 W39	10 2.6		BG	CKO	460	19	12	4
5171	24809	MWIL	10 05 1615	S25 W43	10 2.3	6	(BG)					
5171		PALE	10 05 1920	S25 W44	10 2.4		BG	CKO	360	16	13	2
5171		LEAR	10 06 0009	S25 W47	10 2.4		B	DAO	450	15	8	3
5171		CULG	10 06 0440	S25 W48	10 2.5		B	CKO	370	5	8	1
5171		SVTO	10 06 1015	S26 W55	10 2.1		BG	DHI	590	17	8	1
5171		RAMY	10 06 1337	S26 W52	10 2.5		B	CKO	430	11	11	4
5171		BOUL	10 06 1440	S26 W54	10 2.4		B	DAC	320	6	7	3
5171	24809	MWIL	10 06 1500	S26 W55	10 2.3	5	(AP)					
5171		HOLL	10 06 1500	S27 W51	10 2.6		B	CKO	310	14	10	3
5171		PALE	10 06 1900	S24 W54	10 2.6		B	CKO	270	9	11	3
5171		LEAR	10 07 0005	S23 W59	10 2.4		B	DAO	310	5	6	4
5171		CULG	10 07 0450	S23 W62	10 2.4		B	CAO	200	5	4	3
5171		SVTO	10 07 0711	S27 W65	10 2.2		B	DAC	290	5	6	3
5171		RAMY	10 07 1350	S26 W65	10 2.5		B	DSO	280	6	5	3
5171	24809	MWIL	10 07 1445	S26 W67	10 2.4	5	(AP)					
5171		HOLL	10 07 1500	S27 W65	10 2.6		A	HA	210	5	5	3
5171		BOUL	10 07 1638	S25 W67	10 2.5		A	HA	170	3	4	2
5171		PALE	10 07 1745	S26 W69	10 2.4		B	DAO	240	3	6	/
5171		LEAR	10 08 0040	S25 W71	10 2.5		B	DSO	120	2	3	3
5171		SVTO	10 08 0940	S27 W80	10 2.2		B	DSC	260	2	5	3
5171		RAMY	10 08 1335	S25 W79	10 2.4		B	DAO	90	2	4	3
5171		BOUL	10 08 1430	S25 W79	10 2.5		A	HS	30	1	1	3
5171	24809	MWIL	10 08 1445	S26 W78	10 2.5	3	AP					
5171		HOLL	10 08 1615	S26 W79	10 2.5		A	HS	120	1	2	3
5171		PALE	10 08 1750	S27 W88	10 1.9		A	HA	60	1	4	2
5171A		LEAR	10 04 0018	N19 E06	10 4.5		A	AX	10	1	1	4
5171A		PALE	10 08 1750	N17 W52	10 4.8		A	AX	10	2	1	2
5171B	24814	MWIL	09 30 1500	S20 E63	10 5.4	4	(AP)					
5171C	24818	MWIL	10 03 1515	N34 E23	10 5.5	3	(B)					
5171D		LEAR	10 05 0030	N19 E07	10 5.5		B	BXO	10	2	2	3
5171D		SVTO	10 05 0707	N17 E05	10 5.7		B	BXO	10	2	1	3
5175		CULG	10 01 0405	S18 E80	10 7.3		A	HS	200	1	2	3
5175		SVTO	10 01 1043	S16 E77	10 7.3		A	HK	230	5	3	3
5175		BOUL	10 01 1415	S13 E78	10 7.5		B	DAO	240	3	9	3
5175	24815	MWIL	10 01 1530	S15 E78	10 7.5	5	B					
5175		HOLL	10 01 1615	S14 E78	10 7.6		B	DKO	300	5	9	4
5175		PALE	10 01 1755	S15 E78	10 7.6		B	CKO	310	5	8	3
5175		LEAR	10 02 0040	S15 E72	10 7.5		B	EKI	440	14	14	3
5175		CULG	10 02 0355	S18 E69	10 7.4		B	EKI	540	6	13	2
5175		SVTO	10 02 0755	S14 E69	10 7.5		B	EHI	580	10	14	4
5175		RAMY	10 02 1332	S14 E68	10 7.7		B	EKO	690	14	14	4
5175		BOUL	10 02 1335	S15 E65	10 7.5		B	EKI	530	12	14	3
5175	24815	MWIL	10 02 1500	S15 E67	10 7.7	5	(B)					
5175		HOLL	10 02 1637	S15 E67	10 7.8		B	EKO	660	13	14	3
5175		PALE	10 02 1910	S15 E65	10 7.7		B	EKO	600	13	14	2
5175		LEAR	10 03 0152	S15 E60	10 7.6		B	EKO	740	12	14	2
5175		CULG	10 03 0250	S15 E58	10 7.5		B	EKI	840	8	15	3
5175		SVTO	10 03 0736	S14 E56	10 7.5		B	EKI	650	19	14	/
5175		BOUL	10 03 1405	S14 E52	10 7.5		B	EKI	630	16	15	3
5175	24815	MWIL	10 03 1515	S15 E53	10 7.6	6	(BG)					
5175		HOLL	10 03 1652	S15 E52	10 7.6		B	EKO	830	8	15	3
5175		PALE	10 03 1820	S14 E51	10 7.6		B	EKO	920	8	15	3
5175		LEAR	10 04 0018	S15 E49	10 7.7		BG	FKO	670	14	20	4
5175		CULG	10 04 0325	S15 E43	10 7.4		BG	EKI	770	7	14	3
5175		SVTO	10 04 0702	S13 E45	10 7.7		B	EKO	800	17	15	2
5175	24815	MWIL	10 04 1445	S14 E40	10 7.6	6	(BG)					
5175		HOLL	10 04 1500	S13 E40	10 7.6		B	EKO	830	13	15	3
5175		PALE	10 04 1730	S13 E40	10 7.7		B	EKO	780	15	15	3
5175		LEAR	10 05 0030	S15 E35	10 7.7		BG	EKO	680	18	15	3
5175		CULG	10 05 0250	S17 E32	10 7.5		B	EKO	740	4	14	2
5175		SVTO	10 05 0707	S16 E33	10 7.8		BG	FKI	840	23	18	3

SUNSPOT GROUPS
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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5175		BOUL	10	05	1442	S14	E23	10	7.3		B	FKO	700	13	16	3
5175		HOLL	10	05	1525	S14	E26	10	7.6		B	EKO	700	22	15	4
5175	24815	MWIL	10	05	1615	S15	E25	10	7.6	6	(BG)					
5175		PALE	10	05	1920	S18	E25	10	7.7		B	EKO	640	11	15	2
5175		CULG	10	06	0440	S18	E18	10	7.6		B	EKO	690	4	14	1
5175		SVTO	10	06	1015	S15	E17	10	7.7		B	EKI	1080	27	15	1
5175		RAMY	10	06	1337	S15	E14	10	7.6		B	FKI	840	27	16	4
5175		BOUL	10	06	1440	S15	E12	10	7.5		B	EKI	690	22	15	3
5175		HOLL	10	06	1500	S14	E14	10	7.7		B	EKI	730	33	15	3
5175	24815	MWIL	10	06	1500	S16	E11	10	7.4	5	(D)					
5175		PALE	10	06	1900	S16	E11	10	7.6		B	EKO	700	24	13	3
5175		LEAR	10	07	0005	S16	E09	10	7.7		B	EKI	900	35	15	4
5175		CULG	10	07	0450	S17	E03	10	7.4		B	EKI	610	15	13	3
5175		SVTO	10	07	0711	S15	E04	10	7.6		B	EKO	960	35	15	3
5175		RAMY	10	07	1350	S14	E02	10	7.7		B	FKO	920	26	16	3
5175	24815	MWIL	10	07	1445	S16	W01	10	7.5	6	(D)					
5175		HOLL	10	07	1500	S14	E01	10	7.7		B	DKI	790	48	15	3
5175		BOUL	10	07	1638	S16	W01	10	7.6		B	CKO	760	22	16	2
5175		PALE	10	07	1745	S15	W03	10	7.5		B	DKI	810	41	16	/
5175		LEAR	10	08	0040	S16	W07	10	7.5		B	EKI	770	25	14	3
5175		SVTO	10	08	0940	S16	W12	10	7.5		B	EKO	1030	19	15	3
5175		RAMY	10	08	1335	S16	W15	10	7.4		BG	EKO	1010	31	13	3
5175		BOUL	10	08	1430	S16	W15	10	7.5		B	EKO	770	15	11	3
5175	24815	MWIL	10	08	1445	S16	W15	10	7.5	5	(D)					
5175		HOLL	10	08	1615	S15	W16	10	7.5		B	CKO	960	21	13	3
5175		PALE	10	08	1750	S17	W16	10	7.5		B	EKO	780	25	13	2
5175		LEAR	10	09	0030	S16	W21	10	7.4		BG	EKI	60	16	12	3
5175		CULG	10	09	0300	S17	W22	10	7.4		B	CKO	690	11	11	2
5175		SVTO	10	09	0745	S16	W25	10	7.4		B	CKI	860	23	12	4
5175		RAMY	10	09	1338	S17	W25	10	7.7		BG	CAO	900	26	16	4
5175	24815	MWIL	10	09	1500	S17	W31	10	7.3	5	(D)					
5175		HOLL	10	09	1806	S16	W32	10	7.3		B	DKO	780	10	7	2
5175		PALE	10	09	1845	S15	W28	10	7.7		B	CKO	780	18	11	3
5175		LEAR	10	10	0204	S17	W34	10	7.5		BG	CKO	720	8	9	2
5175		CULG	10	10	0415	S16	W37	10	7.4		A	HK	570	3	4	3
5175		SVTO	10	10	0715	S17	W39	10	7.3		BG	EKI	800	21	11	4
5175		BOUL	10	10	1400	S16	W45	10	7.2		BG	DKI	630	12	6	3
5175		RAMY	10	10	1500	S15	W41	10	7.5		B	CKO	9910	21	10	4
5175	24815	MWIL	10	10	1515	S17	W44	10	7.3	6	(D)					
5175		PALE	10	10	1844	S16	W43	10	7.5		B	DKO	750	14	10	4
5175		LEAR	10	11	0052	S17	W47	10	7.5		BG	DKI	770	22	8	3
5175		CULG	10	11	0445	S16	W53	10	7.2		A	HK	680	5	5	2
5175		SVTO	10	11	0820	S16	W54	10	7.2		BG	DKI	830	12	7	3
5175		RAMY	10	11	1345	S16	W55	10	7.4		BG	DKI	920	20	7	4
5175		BOUL	10	11	1427	S15	W55	10	7.4		B	DKO	680	4	6	2
5175		HOLL	10	11	1525	S17	W55	10	7.5		A	HK	860	7	5	2
5175	24815	MWIL	10	11	1530	S17	W57	10	7.3	6	(D)					
5175		PALE	10	11	1730	S16	W56	10	7.5		B	DKO	880	12	8	3
5175		LEAR	10	12	0403	S17	W63	10	7.4		BG	DKI	480	5	6	4
5175		CULG	10	12	0615	S15	W67	10	7.2		A	HK	750	4	5	2
5175		SVTO	10	12	0724	S17	W63	10	7.5		BG	CKO	770	9	10	3
5175		BOUL	10	12	1420	S15	W68	10	7.4		B	DKO	840	7	4	3
5175	24815	MWIL	10	12	1515	S17	W69	10	7.4	6	(AP)					
5175		HOLL	10	12	1600	S16	W68	10	7.5		A	HK	900	3	6	3
5175		PALE	10	12	1725	S16	W71	10	7.3		B	CKO	600	5	5	3
5175		LEAR	10	13	0111	S16	W71	10	7.7		BG	CKO	410	6	6	4
5175		CULG	10	13	0415	S15	W76	10	7.4		A	HK	650	1	3	2
5175		SVTO	10	13	0815	S17	W74	10	7.7		B	CKO	320	2	11	2
5175		RAMY	10	13	1335	S17	W75	10	7.9		A	HK	300	1	8	2
5175		BOUL	10	13	1400	S16	W82	10	7.4		A	HS	120	1	2	1
5175		HOLL	10	13	1500	S17	W83	10	7.3		A	HK	300	1	4	3
5175	24815	MWIL	10	13	1530	S17	W81	10	7.5	5	AP					
5175		PALE	10	13	1905	S17	W88	10	7.1		A	HK	150	1	4	2
5179		LEAR	10	04	0018	S28	E52	10	8.1		B	BXO	10	2	5	4
5179	24821	MWIL	10	04	1445	S28	E46	10	8.2	4	(B)					
5179		HOLL	10	04	1500	S27	E45	10	8.1		B	BXO	10	3	3	3
5179		PALE	10	04	1730	S28	E44	10	8.2		B	BXO	10	2	3	3

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5179		LEAR	10 05 0030	S29 E41	10 8.2		B	BXO	10	2	4	3
5179		CULG	10 05 0250	S29 E36	10 7.9		A	AX		1		2
5179		BOUL	10 05 1442	S26 E28	10 7.8		A	AX	20	1	1	3
5179		HOLL	10 05 1525	S27 E29	10 7.9		A	AX		1	1	4
5179	24821	MWIL	10 05 1615	S28 E29	10 7.9	4	(AP)					
5179		PALE	10 05 1920	S31 E25	10 7.8		A	AX	10	1	1	2
5179		SVTO	10 06 1015	S27 E18	10 7.8		A	AX		1		1
5179		RAMY	10 06 1337	S27 E17	10 7.9		A	AX		1		4
5179		BOUL	10 06 1440	S28 E17	10 7.9		A	AX		1		3
5179	24821	MWIL	10 06 1500	S28 E16	10 7.9	4	(AP)					
5179		HOLL	10 06 1500	S28 E18	10 8.0		A	AX		1		3
5179		PALE	10 06 1900	S28 E13	10 7.8		A	AX	10	1	1	3
5179		LEAR	10 07 0005	S27 E09	10 7.7		B	BXO	10	2	2	4
5179		SVTO	10 07 0711	S28 E08	10 7.9		B	CSO	10	5	5	3
5179		RAMY	10 07 1350	S28 E06	10 8.0		B	BXO	50	10	7	3
5179	24821	MWIL	10 07 1445	S28 E04	10 7.9	5	(B)					
5179		HOLL	10 07 1500	S28 E04	10 7.9		B	CAO	30	10	6	3
5179		BOUL	10 07 1638	S27 E03	10 7.9		B	BXO		8	5	2
5179		PALE	10 07 1745	S29 E02	10 7.9		B	CAO	20	7	6	/
5179		LEAR	10 08 0040	S27 W03	10 7.8		B	CAO	60	10	7	3
5179		SVTO	10 08 0940	S28 W08	10 7.8		B	DAO	110	13	8	3
5179		RAMY	10 08 1335	S27 W10	10 7.8		B	DAI	160	21	8	3
5179		BOUL	10 08 1430	S27 W10	10 7.8		B	DAO	130	7	9	3
5179	24821	MWIL	10 08 1445	S28 W10	10 7.8	5	(B)					
5179		HOLL	10 08 1615	S27 W11	10 7.8		B	CSO	150	14	9	3
5179		PALE	10 08 1750	S28 W12	10 7.8		B	CAO	120	18	8	2
5179		LEAR	10 09 0030	S28 W16	10 7.8		B	DAO	180	13	9	3
5179		CULG	10 09 0300	S27 W18	10 7.7		B	DAO	70	6	7	2
5179		SVTO	10 09 0745	S28 W19	10 7.8		B	DAI	190	27	10	4
5179		RAMY	10 09 1338	S27 W23	10 7.8		B	DAO	250	16	10	4
5179	24821	MWIL	10 09 1500	S27 W24	10 7.7	5	(B)					
5179		HOLL	10 09 1806	S27 W25	10 7.8		B	DAO	210	15	10	2
5179		PALE	10 09 1845	S27 W25	10 7.8		B	EAO	260	15	12	3
5179		LEAR	10 10 0204	S27 W29	10 7.8		B	DAO	90	10	10	2
5179		CULG	10 10 0415	S27 W33	10 7.6		B	DSI	60	12	9	3
5179		SVTO	10 10 0715	S28 W33	10 7.7		B	EAI	190	22	11	4
5179		BOUL	10 10 1400	S26 W37	10 7.7		B	DAO	160	9	9	3
5179		RAMY	10 10 1500	S26 W37	10 7.7		B	ESO	200	18	11	4
5179	24821	MWIL	10 10 1515	S28 W37	10 7.7	5	(B)					
5179		PALE	10 10 1844	S25 W38	10 7.8		B	EAO	280	17	11	4
5179		LEAR	10 11 0052	S27 W41	10 7.8		B	EAO	110	16	11	3
5179		CULG	10 11 0445	S27 W46	10 7.6		B	DSO	120	6	10	2
5179		SVTO	10 11 0820	S27 W45	10 7.8		B	ESO	220	18	12	3
5179		RAMY	10 11 1345	S26 W47	10 7.9		B	EAI	280	20	11	4
5179		BOUL	10 11 1427	S24 W48	10 7.9		B	CAO	190	12	10	2
5179		HOLL	10 11 1525	S27 W48	10 7.9		B	EAO	280	12	11	2
5179	24821	MWIL	10 11 1530	S28 W48	10 7.9	5	(B)					
5179		PALE	10 11 1730	S28 W50	10 7.8		B	EAO	340	12	11	3
5179		LEAR	10 12 0403	S27 W54	10 8.0		B	EAO	140	13	12	4
5179		CULG	10 12 0615	S26 W59	10 7.7		B	DSO	100	5	10	2
5179		SVTO	10 12 0724	S26 W55	10 8.0		B	ESO	240	14	11	3
5179		BOUL	10 12 1420	S27 W60	10 7.9		B	DAO	340	12	10	3
5179	24821	MWIL	10 12 1515	S28 W61	10 7.9	5	(BG)					
5179		HOLL	10 12 1600	S27 W60	10 8.0		B	DAO	250	12	10	3
5179		PALE	10 12 1725	S28 W62	10 7.9		B	CAO	180	11	11	3
5179		LEAR	10 13 0111	S27 W63	10 8.1		B	EAO	100	12	11	4
5179		CULG	10 13 0415	S25 W68	10 7.9		B	DSO	170	5	9	2
5179		SVTO	10 13 0815	S27 W71	10 7.8		B	ESO	150	3	13	2
5179		RAMY	10 13 1335	S28 W73	10 7.9		B	EAO	240	5	12	2
5179		BOUL	10 13 1400	S27 W75	10 7.7		B	ESO	120	3	12	1
5179		HOLL	10 13 1500	S28 W71	10 8.1		B	DSO	120	6	10	3
5179	24821	MWIL	10 13 1530	S28 W74	10 7.9	4	(B)					
5179		PALE	10 13 1905	S28 W79	10 7.6		B	EAO	90	5	12	2
5179A		HOLL	10 05 1525	N16 E33	10 8.1		B	BXO	10	4	5	4
5179A		PALE	10 05 1920	N13 E32	10 8.2		A	AX	10	2	1	2
5179A		HOLL	10 06 1500	N16 E21	10 8.2		A	AX	10	3	2	3
5179A		PALE	10 06 1900	N16 E20	10 8.3		A	AX	10	2	2	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5179A	24825	MWIL	10	07	1445	N16	E09	10	8.3	3	(AP)					
5179A		HOLL	10	07	1500	N17	E09	10	8.3		A	AX		1		3
5179A		PALE	10	07	1745	N16	E07	10	8.3		A	AX		2	2	/
5179A	24825	MWIL	10	08	1445	N18	W05	10	8.2	3	(AP)					
5179B		BOUL	10	02	1335	N23	E87	10	9.3		A	HS	100	1	2	3
5179B		HOLL	10	02	1637	N24	E89	10	9.6		A	HA	120	1	2	3
5185		SVTO	10	09	0745	S16	E01	10	9.4		A	AX		1	1	4
5185	24829	MWIL	10	09	1500	S16	W04	10	9.3	4	(AF)					
5185		SVTO	10	10	0715	S14	W15	10	9.2		A	AX		1		4
5185	24829	MWIL	10	10	1515	S16	W15	10	9.5	4	(B)					
5185		PALE	10	10	1844	S16	W17	10	9.5		A	AX	10	3	2	4
5185		LEAR	10	11	0052	S14	W22	10	9.4		B	BXO	10	3	3	3
5185		SVTO	10	11	0820	S14	W26	10	9.4		B	BXO	10	3	5	3
5185		RAMY	10	11	1345	S13	W30	10	9.3		B	BXO	10	3	3	4
5185		BOUL	10	11	1427	S12	W31	10	9.3		A	AX		1		2
5185		HOLL	10	11	1525	S14	W32	10	9.2		A	AX	10	1	1	2
5185	24829	MWIL	10	11	1530	S15	W30	10	9.4	5	(B)					
5185		PALE	10	11	1730	S15	W32	10	9.3		B	BXO	10	2	3	3
5185		LEAR	10	12	0403	S13	W36	10	9.4		B	BXO	10	5	4	4
5185		CULG	10	12	0615	S11	W41	10	9.2		B	BX	10	2	4	2
5185		BOUL	10	12	1420	S13	W43	10	9.3		B	BXO	20	3	4	3
5185	24829	MWIL	10	12	1515	S14	W43	10	9.4	4	(AP)					
5185		HOLL	10	12	1600	S14	W44	10	9.3		B	BXO	20	3	6	3
5185		PALE	10	12	1725	S13	W43	10	9.5		B	BXO	20	3	5	3
5185		LEAR	10	13	0111	S14	W48	10	9.4		B	CSO	10	4	4	4
5185		CULG	10	13	0415	S13	W51	10	9.3		A	AX		2		2
5185		SVTO	10	13	0815	S13	W53	10	9.3		B	CRO	30	4	6	2
5185		RAMY	10	13	1335	S15	W56	10	9.3		B	CRO	30	2	4	2
5185		BOUL	10	13	1400	S16	W53	10	9.6		A	HR	20	1	1	1
5185		HOLL	10	13	1500	S15	W55	10	9.5		A	AX	10	2	1	3
5185	24829	MWIL	10	13	1530	S14	W56	10	9.4	5	(AF)					
5185		PALE	10	13	1905	S16	W58	10	9.4		A	AX	60	3	2	2
5185		LEAR	10	14	0110	S15	W60	10	9.5		A	AX	20	1	1	4
5185		CULG	10	14	0330	S13	W63	10	9.4		A	AX		1		3
5185		SVTO	10	14	0827	S16	W65	10	9.4		B	BXO	10	2	1	2
5185		RAMY	10	14	1227	S16	W67	10	9.4		A	AX	10	1	1	4
5185		BOUL	10	14	1525	S15	W68	10	9.5		A	AX	10	1		3
5185	24829	MWIL	10	14	1700	S15	W69	10	9.5	4	(AP)					
5185		HOLL	10	14	1709	S17	W71	10	9.3		A	AX	10	1	1	2
5185		PALE	10	14	1825	S15	W77	10	8.9		B	BXO	10	2	7	3
5177		PALE	10	02	1910	N24	E88	10	9.6		A	HA	150	2	6	2
5177		LEAR	10	03	0152	N23	E80	10	9.2		A	HK	300	3	3	2
5177		CULG	10	03	0250	N22	E80	10	9.3		A	HH	200	1	2	3
5177		SVTO	10	03	0736	N24	E79	10	9.4		A	HK	240	3	5	/
5177		BOUL	10	03	1405	N23	E76	10	9.4		B	CKO	320	3	12	3
5177	24819	MWIL	10	03	1515	N23	E76	10	9.5	6	(BP)					
5177		HOLL	10	03	1652	N24	E77	10	9.6		B	CKO	490	6	10	3
5177		PALE	10	03	1820	N24	E75	10	9.5		B	CKO	450	5	10	3
5177		LEAR	10	04	0018	N22	E74	10	9.7		B	CKO	440	11	12	4
5177		CULG	10	04	0325	N22	E71	10	9.6		B	CKO	300	6	10	3
5177		SVTO	10	04	0702	N24	E71	10	9.8		B	EKI	540	15	12	2
5177	24819	MWIL	10	04	1445	N24	E68	10	9.9	5	(B)					
5177		HOLL	10	04	1500	N25	E66	10	9.7		B	EKO	480	13	12	3
5177		PALE	10	04	1730	N26	E65	10	9.8		B	EKO	540	12	11	3
5177		LEAR	10	05	0030	N23	E60	10	9.6		BG	DKI	400	19	10	3
5177		CULG	10	05	0250	N22	E58	10	9.6		B	EKC	450	8	11	2
5177		SVTO	10	05	0707	N24	E56	10	9.6		BG	EKI	710	28	15	3
5177		BOUL	10	05	1442	N23	E52	10	9.6		B	CKO	460	11	12	3
5177		HOLL	10	05	1525	N25	E54	10	9.8		B	EKO	510	25	12	4
5177	24819	MWIL	10	05	1615	N25	E52	10	9.7	6	(B)					
5177		PALE	10	05	1920	N23	E52	10	9.8		B	EKO	550	13	11	2
5177		CULG	10	06	0440	N22	E46	10	9.7		B	CKO	320	6	12	1
5177		SVTO	10	06	1015	N23	E45	10	9.9		BG	EHI	600	33	15	1
5177		RAMY	10	06	1337	N25	E43	10	9.9		B	EKI	520	24	15	4
5177		BOUL	10	06	1440	N22	E40	10	9.7		B	EKI	430	15	11	3

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5177		HOLL	10	06	1500	N24	E41	10	9.8		B	EKI	500	19	12	3
5177	24819	MWIL	10	06	1500	N24	E41	10	9.8	5	(BG)					
5177		PALE	10	06	1900	N23	E41	10	9.9		B	EKO	560	25	15	3
5177		LEAR	10	07	0005	N23	E35	10	9.7		B	EKI	520	22	13	4
5177		CULG	10	07	0450	N21	E29	10	9.4		B	DKO	370	8	7	3
5177		SVTO	10	07	0711	N24	E34	10	9.9		B	EKO	500	33	14	3
5177		RAMY	10	07	1350	N24	E30	10	9.9		B	CHO	460	31	14	3
5177	24819	MWIL	10	07	1445	N24	E28	10	9.8	5	(B)					
5177		HOLL	10	07	1500	N24	E24	10	9.5		B	CKI	460	18	7	3
5177		BOUL	10	07	1638	N23	E22	10	9.4		B	CKO	390	14	6	2
5177		PALE	10	07	1745	N23	E22	10	9.4		B	CKI	410	13	7	/
5177		LEAR	10	08	0040	N25	E24	10	9.9		B	CKI	440	14	9	3
5177		SVTO	10	08	0940	N24	E19	10	9.9		BG	EKO	480	15	14	3
5177		RAMY	10	08	1335	N23	E17	10	9.9		B	CKO	500	16	15	3
5177		BOUL	10	08	1430	N26	E16	10	9.8		B	FKO	460	17	17	3
5177	24819	MWIL	10	08	1445	N24	E16	10	9.8	5	(BG)					
5177		HOLL	10	08	1615	N25	E18	10	10.1		B	CKO	590	23	18	3
5177		PALE	10	08	1750	N25	E16	10	10.0		B	FKO	410	23	18	2
5177		LEAR	10	09	0030	N26	E11	10	9.9		B	FKO	400	10	17	3
5177		CULG	10	09	0300	N25	E09	10	9.8		B	FKO	350	14	18	2
5177		SVTO	10	09	0745	N25	E09	10	10.0		B	FKI	370	41	19	4
5177		RAMY	10	09	1338	N25	E06	10	10.0		B	CAO	530	19	19	4
5177	24819	MWIL	10	09	1500	N23	E01	10	9.7	5	(B)					
5177		HOLL	10	09	1806	N25	E03	10	10.0		B	CKO	530	31	18	2
5177		PALE	10	09	1845	N26	E03	10	10.0		B	CKO	420	32	18	3
5177		LEAR	10	10	0204	N24	W03	10	9.8		B	FKO	320	19	19	2
5177		CULG	10	10	0415	N25	W03	10	9.9		B	FKO	340	14	19	3
5177		SVTO	10	10	0715	N25	W05	10	9.9		B	CKO	420	33	18	4
5177		BOUL	10	10	1400	N25	W08	10	10.0		B	FKO	410	21	19	3
5177		RAMY	10	10	1500	N25	W08	10	10.0		B	CHO	400	42	18	4
5177	24819	MWIL	10	10	1515	N23	W12	10	9.7	6	(B)					
5177		PALE	10	10	1844	N26	W10	10	10.0		B	CKO	420	34	18	4
5177		LEAR	10	11	0052	N25	W13	10	10.0		B	FKO	350	7	19	3
5177		CULG	10	11	0445	N26	W14	10	10.1		B	FKO	400	12	16	2
5177		SVTO	10	11	0820	N25	W18	10	9.9		B	FKO	420	19	19	3
5177		RAMY	10	11	1345	N26	W22	10	9.9		B	CHO	390	25	19	4
5177		BOUL	10	11	1427	N26	W20	10	10.0		B	FKO	390	14	17	2
5177		HOLL	10	11	1525	N25	W22	10	9.9		B	CKO	350	12	17	2
5177	24819	MWIL	10	11	1530	N24	W25	10	9.7	6	(B)					
5177		PALE	10	11	1730	N25	W24	10	9.9		B	FKO	360	15	17	3
5177		LEAR	10	12	0403	N25	W28	10	10.0		B	FKO	200	11	17	4
5177		CULG	10	12	0615	N27	W27	10	10.1		B	CSO	220	8	17	2
5177		SVTO	10	12	0724	N27	W31	10	9.9		B	FKO	360	16	17	3
5177		BOUL	10	12	1420	N25	W34	10	10.0		B	CHO	270	8	19	3
5177	24819	MWIL	10	12	1515	N24	W39	10	9.6	6	(BG)					
5177		HOLL	10	12	1600	N25	W36	10	9.9		B	CKO	230	9	18	3
5177		PALE	10	12	1725	N25	W35	10	10.0		B	CHO	280	8	18	3
5177		LEAR	10	13	0111	N25	W41	10	9.9		BG	FSO	190	8	18	4
5177		CULG	10	13	0415	N26	W40	10	10.1		B	CKO	220	5	17	2
5177		SVTO	10	13	0815	N26	W44	10	9.9		B	CKO	190	5	13	2
5177		RAMY	10	13	1335	N25	W46	10	10.0		B	CHO	190	6	17	2
5177		BOUL	10	13	1400	N24	W50	10	9.7		B	CSO	260	2	5	1
5177		HOLL	10	13	1500	N25	W50	10	9.7		B	CKO	270	5	18	3
5177	24819	MWIL	10	13	1530	N24	W54	10	9.5	6	(BG)					
5177		PALE	10	13	1905	N26	W51	10	9.8		B	CHO	200	3	17	2
5177		LEAR	10	14	0110	N22	W61	10	9.4		B	CSO	180	2	5	4
5177		CULG	10	14	0330	N26	W62	10	9.3		A	HS	210	1	3	3
5177		SVTO	10	14	0827	N24	W63	10	9.5		A	HS	210	1	3	2
5177		RAMY	10	14	1227	N23	W68	10	9.3		A	HH	260	1	3	4
5177		BOUL	10	14	1525	N24	W70	10	9.2		A	HH	260	1	3	3
5177	24819	MWIL	10	14	1700	N24	W70	10	9.3	6	(AP)					
5177		HOLL	10	14	1709	N24	W71	10	9.2		A	HS	240	1	2	2
5177		PALE	10	14	1825	N24	W73	10	9.1		A	HA	170	1	2	3
5177		LEAR	10	15	0035	N23	W75	10	9.2		A	HS	120	1	1	3
5177		CULG	10	15	0315	N26	W73	10	9.5		A	HS	180	1	2	3
5177		SVTO	10	15	0900	N24	W80	10	9.2		A	HS	150	1	2	2
5177		RAMY	10	15	1240	N24	W81	10	9.3		A	HH	180	1	3	4
5177	24819	MWIL	10	15	1530	N25	W81	10	9.4	4	AP					

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5177		HOLL	10 15 1600	N23 W82	10 9.3		A	HS	240	1	2	3
5177		BOUL	10 15 1645	N24 W80	10 9.5		A	HS	300	1	3	2
5177		PALE	10 15 2035	N25 W84	10 9.4		A	HH	80	1	3	2
5177		LEAR	10 16 0050	N23 W85	10 9.5		A	HS	20	1	1	3
5177A		LEAR	10 04 0018	N37 E69	10 9.6		A	AX	10	1	1	4
5177A	24822	MWIL	10 04 1445	N37 E64	10 9.8	3	(AP)					
5195		PALE	10 13 1905	S22 W48	10 10.1		A	AX		1		2
5195		RAMY	10 14 1227	S22 W56	10 10.2		A	AX		1	1	4
5195	24844	MWIL	10 14 1700	S22 W58	10 10.2	3	(AF)					
5195		HOLL	10 14 1709	S22 W60	10 10.1		A	AX	20	2	2	2
5195		PALE	10 14 1825	S22 W62	10 10.0		B	BXO	10	2	3	3
5195		LEAR	10 15 0035	S22 W66	10 9.9		A	AX	10	1	1	3
5195		LEAR	10 16 0050	S21 W76	10 10.2		A	AX	10	1	1	3
5186		LEAR	10 09 0030	S31 E13	10 10.0		A	AX	10	1	1	3
5186		SVTO	10 09 0745	S32 E10	10 10.1		B	BXO	20	4	4	4
5186		RAMY	10 09 1338	S32 E07	10 10.1		B	BXO	10	5	5	4
5186	24830	MWIL	10 09 1500	S32 E06	10 10.1	4	(B)					
5186		HOLL	10 09 1806	S32 E05	10 10.2		B	BXO	30	9	6	2
5186		PALE	10 09 1845	S32 E04	10 10.1		B	BXO	20	6	6	3
5186		LEAR	10 10 0204	S32 E01	10 10.2		B	BXO	20	5	5	2
5186		CULG	10 10 0415	S33 W03	10 9.9		B	BXO	10	2	6	3
5186		SVTO	10 10 0715	S33 W03	10 10.1		B	CRO	30	8	6	4
5186		BOUL	10 10 1400	S31 W08	10 9.9		B	BXO	10	4	6	3
5186		RAMY	10 10 1500	S32 W06	10 10.2		B	BXO	10	4	7	4
5186	24830	MWIL	10 10 1515	S32 W06	10 10.2	5	(B)					
5186		PALE	10 10 1844	S33 W08	10 10.1		B	BXO	20	5	7	4
5186		LEAR	10 11 0052	S32 W11	10 10.2		B	BXO	10	5	7	3
5186		CULG	10 11 0445	S31 W16	10 9.9		A	AX	10	1	1	2
5186		SVTO	10 11 0820	S32 W16	10 10.1		B	BXO	10	2	7	3
5186		RAMY	10 11 1345	S32 W18	10 10.1		B	BXO	10	2	7	4
5186		BOUL	10 11 1427	S29 W24	10 9.7		A	AX		1		2
5186	24830	MWIL	10 11 1530	S33 W23	10 9.8	4	(B)					
5186		PALE	10 11 1730	S32 W26	10 9.7		A	AX	10	1	1	3
5186		LEAR	10 12 0403	S32 W26	10 10.1		B	BXO	10	2	3	4
5178	24820	MWIL	10 03 1515	N28 E88	10 10.5	3	AF					
5178		HOLL	10 03 1652	N28 E88	10 10.6		A	HA	60	1	2	3
5178		PALE	10 03 1820	N29 E85	10 10.4		A	HA	60	1	3	3
5178		LEAR	10 04 0018	N27 E84	10 10.5		B	BXO	30	5	6	4
5178		CULG	10 04 0325	N26 E79	10 10.3		A	HA	60	2	3	3
5178		SVTO	10 04 0702	N28 E79	10 10.5		B	DSO	180	2	7	2
5178		HOLL	10 04 1500	N29 E76	10 10.6		A	HA	170	4	2	3
5178		PALE	10 04 1730	N30 E75	10 10.6		A	HH	180	3	3	3
5178		LEAR	10 05 0030	N28 E71	10 10.6		B	CAO	160	4	6	3
5178		CULG	10 05 0250	N26 E69	10 10.5		A	HA	70	2	2	2
5178		SVTO	10 05 0707	N28 E70	10 10.8		B	CSO	160	5	10	3
5178		BOUL	10 05 1442	N27 E63	10 10.5		B	CAO	120	4	3	3
5178		HOLL	10 05 1525	N29 E63	10 10.6		A	HA	130	5	2	4
5178		PALE	10 05 1920	N26 E60	10 10.5		A	HA	80	3	3	2
5178		CULG	10 06 0440	N25 E56	10 10.5		A	HA	70	2	2	1
5178		SVTO	10 06 1015	N28 E53	10 10.6		B	CSO	100	5	3	1
5178		RAMY	10 06 1337	N28 E49	10 10.4		A	HA	100	6	4	4
5178		BOUL	10 06 1440	N28 E50	10 10.5		B	CAO	100	6	4	3
5178		HOLL	10 06 1500	N28 E49	10 10.4		A	HA	80	7	4	3
5178		PALE	10 06 1900	N27 E50	10 10.7		A	HA	60	4	2	3
5178		LEAR	10 07 0005	N28 E47	10 10.7		A	HA	120	5	3	4
5178		CULG	10 07 0450	N26 E43	10 10.5		A	HA	60	2	2	3
5178		SVTO	10 07 0711	N28 E41	10 10.5		B	CAI	70	7	4	3
5178		RAMY	10 07 1350	N28 E38	10 10.5		A	HA	50	4	2	3
5178		HOLL	10 07 1500	N28 E36	10 10.4		A	HA	40	15	6	3
5178		BOUL	10 07 1638	N27 E35	10 10.4		B	BXO		8	5	2
5178		PALE	10 07 1745	N27 E36	10 10.5		B	BXO	40	14	6	/
5178		LEAR	10 08 0040	N29 E32	10 10.5		A	HR	40	3	2	3
5178		SVTO	10 08 0940	N28 E28	10 10.6		A	HR	20	5	3	3
5178		RAMY	10 08 1335	N28 E26	10 10.6		A	HR	20	4	2	3

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5180		SVTO	10 05 0707	N14 E75	10 11.0		A	HS	60	1	2	3
5180		BOUL	10 05 1442	N13 E74	10 11.2		A	AX	10	1	1	3
5180		HOLL	10 05 1525	N15 E75	10 11.3		A	HA	60	2	1	4
5180	24823	MWIL	10 05 1615	N14 E74	10 11.3	4	(AF)					
5180		SVTO	10 06 1015	N14 E64	10 11.3		A	AX	20	2	2	1
5180		RAMY	10 06 1337	N14 E62	10 11.2		A	HA	40	1	2	4
5180		BOUL	10 06 1440	N13 E61	10 11.2		A	BXO		2	1	3
5180	24823	MWIL	10 06 1500	N13 E61	10 11.2	4	(AF)					
5180		HOLL	10 06 1500	N14 E62	10 11.3		A	HS	20	2	1	3
5180		PALE	10 06 1900	N12 E60	10 11.3		A	HS	20	2	2	3
5180		LEAR	10 07 0005	N13 E56	10 11.2		B	BXO	10	2	2	4
5180		CULG	10 07 0450	N10 E54	10 11.2		A	AX	10	1	1	3
5180		SVTO	10 07 0711	N13 E52	10 11.2		A	HR	20	4	2	3
5180		RAMY	10 07 1350	N14 E48	10 11.2		A	HR	30	2	2	3
5180	24823	MWIL	10 07 1445	N12 E48	10 11.2	4	(AF)					
5180		HOLL	10 07 1500	N14 E48	10 11.2		A	HS	30	2	2	3
5180		BOUL	10 07 1638	N13 E46	10 11.2		B	CAO	10	2	1	2
5180		PALE	10 07 1745	N12 E47	10 11.3		B	BXO	20	2	4	/
5180		LEAR	10 08 0040	N13 E41	10 11.1		A	AX	10	2	1	3
5180		SVTO	10 08 0940	N14 E38	10 11.3		A	HR	20	3	2	3
5180		RAMY	10 08 1335	N13 E35	10 11.2		A	HS	30	4	2	3
5180		BOUL	10 08 1430	N13 E34	10 11.2		B	CAO	20	2	1	3
5180	24823	MWIL	10 08 1445	N13 E35	10 11.2	4	(AF)					
5180		HOLL	10 08 1615	N13 E34	10 11.2		A	HS	20	2	2	3
5180		PALE	10 08 1750	N13 E32	10 11.1		A	HR	20	3	2	2
5180		LEAR	10 09 0030	N13 E28	10 11.1		A	AX	20	2	2	3
5180		CULG	10 09 0300	N13 E27	10 11.2		A	HS	10	1	1	2
5180		SVTO	10 09 0745	N14 E25	10 11.2		A	AX	10	4	1	4
5180		RAMY	10 09 1338	N14 E22	10 11.2		A	HA	20	3	2	4
5180	24823	MWIL	10 09 1500	N13 E21	10 11.2	3	(AF)					
5180		HOLL	10 09 1806	N13 E19	10 11.2		A	HA	20	2	1	2
5180		PALE	10 09 1845	N13 E20	10 11.3		A	AX	20	3	2	3
5180		LEAR	10 10 0204	N13 E15	10 11.2		A	HA	10	3	2	2
5180		CULG	10 10 0415	N11 E13	10 11.1		A	HS	10	2	1	3
5180		SVTO	10 10 0715	N14 E11	10 11.1		A	AX	10	3	1	4
5180		BOUL	10 10 1400	N12 E08	10 11.2		B	CSO	10	2	1	3
5180		RAMY	10 10 1500	N13 E07	10 11.1		A	AX	10	3	2	4
5180	24823	MWIL	10 10 1515	N13 E07	10 11.2	4	(AF)					
5180		PALE	10 10 1844	N13 E06	10 11.2		A	AX	20	3	2	4
5180		LEAR	10 11 0052	N13 E03	10 11.3		B	CRO	10	5	3	3
5180		CULG	10 11 0445	N13 E00	10 11.2		A	HR	10	1	1	2
5180		RAMY	10 11 1345	N14 W05	10 11.2		A	AX	10	2	1	4
5180		BOUL	10 11 1427	N15 W06	10 11.1		B	BXO		2	1	2
5180	24823	MWIL	10 11 1530	N15 W04	10 11.3	4	(BG)					
5180		PALE	10 11 1730	N15 W08	10 11.1		B	BXO	10	5	3	3
5180		LEAR	10 12 0403	N12 W10	10 11.4		B	CRO	10	2	3	4
5180	24823	MWIL	10 12 1515	N13 W17	10 11.3	4	(AF)					
5180	24823	MWIL	10 13 1530	N13 W31	10 11.3	3	(AP)					
5197		LEAR	10 16 0050	S17 W62	10 11.3		A	AX	10	1	1	3
5197		SVTO	10 16 1011	S17 W72	10 10.9		A	AX		2	1	2
5197		RAMY	10 16 1430	S15 W71	10 11.2		A	AX	10	1	1	3
5197		HOLL	10 16 1645	S18 W74	10 11.1		A	AX		1		3
5197A	24838	MWIL	10 12 1515	S31 W14	10 11.5	4	(B)					
5197B		BOUL	10 10 1400	N15 E16	10 11.8		B	BXO	30	3	4	3
5197B	24832	MWIL	10 10 1515	N17 E15	10 11.8	4	(AP)					
5182		SVTO	10 06 1015	N13 E78	10 12.3		A	HS	40	1	2	1
5182		RAMY	10 06 1337	N13 E78	10 12.4		A	HA	60	1	2	4
5182		BOUL	10 06 1440	N12 E78	10 12.5		A	HS	30	1		3
5182	24824	MWIL	10 06 1500	N12 E76	10 12.3	4	(AP)					
5182		HOLL	10 06 1500	N14 E79	10 12.6		A	HA	30	1	1	3
5182		PALE	10 06 1900	N11 E75	10 12.4		A	HS	40	1	2	3
5182		LEAR	10 07 0005	N11 E71	10 12.3		B	CAO	70	3	3	4
5182		CULG	10 07 0450	N09 E68	10 12.3		A	HS	50	1	2	3
5182		SVTO	10 07 0711	N13 E70	10 12.6		B	CSO	50	4	6	3

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5182		RAMY	10	07	1350	N13	E66	10	12.5		B	CSO	70	5	6	3
5182	24824	MWIL	10	07	1445	N12	E64	10	12.4	4	(B)					
5182		HOLL	10	07	1500	N15	E66	10	12.6		B	CAO	40	5	6	3
5182		BOUL	10	07	1638	N12	E63	10	12.4		B	CAO	40	2	3	2
5182		PALE	10	07	1745	N11	E61	10	12.3		B	CSO	50	3	2	/
5182		LEAR	10	08	0040	N13	E58	10	12.4		B	CSO	70	2	2	3
5182		SVTO	10	08	0940	N14	E54	10	12.5		B	CSO	70	3	3	3
5182		RAMY	10	08	1335	N12	E52	10	12.5		B	CSO	70	4	4	3
5182		BOUL	10	08	1430	N12	E49	10	12.3		A	HA	60	1	1	3
5182	24824	MWIL	10	08	1445	N12	E50	10	12.4	5	(AP)					
5182		HOLL	10	08	1615	N12	E50	10	12.4		A	HS	80	4	2	3
5182		PALE	10	08	1750	N12	E48	10	12.3		A	HS	40	1	2	2
5182		LEAR	10	09	0030	N12	E43	10	12.3		A	HS	40	1	1	3
5182		CULG	10	09	0300	N12	E43	10	12.4		A	HS	20	1	1	2
5182		SVTO	10	09	0745	N13	E42	10	12.5		B	CAO	60	4	4	4
5182		RAMY	10	09	1338	N14	E38	10	12.4		B	CSO	50	3	4	4
5182	24824	MWIL	10	09	1500	N12	E36	10	12.3	4	(AP)					
5182		HOLL	10	09	1806	N12	E36	10	12.5		A	HS	50	3	2	2
5182		PALE	10	09	1845	N12	E37	10	12.6		A	HS	50	4	3	3
5182		LEAR	10	10	0204	N13	E31	10	12.4		B	CSO	20	2	3	2
5182		CULG	10	10	0415	N10	E30	10	12.4		B	CSO	20	3	3	3
5182		SVTO	10	10	0715	N13	E28	10	12.4		B	CSO	50	7	4	4
5182		BOUL	10	10	1400	N11	E23	10	12.3		B	CSO	20	3	3	3
5182		RAMY	10	10	1500	N12	E24	10	12.4		B	CSO	50	6	6	4
5182	24824	MWIL	10	10	1515	N12	E23	10	12.4	5	(AP)					
5182		PALE	10	10	1844	N12	E23	10	12.5		B	CSO	40	5	4	4
5182		LEAR	10	11	0052	N13	E18	10	12.4		B	CSO	20	6	5	3
5182		CULG	10	11	0445	N11	E16	10	12.4		A	HS	20	2	1	2
5182		SVTO	10	11	0820	N13	E13	10	12.3		B	CSO	20	4	3	3
5182		RAMY	10	11	1345	N13	E11	10	12.4		A	HS	20	3	2	4
5182		BOUL	10	11	1427	N12	E11	10	12.4		A	HS	20	1	1	2
5182		HOLL	10	11	1525	N12	E09	10	12.3		A	HA	40	2	2	2
5182	24824	MWIL	10	11	1530	N12	E08	10	12.2	4	(AP)					
5182		PALE	10	11	1730	N12	E08	10	12.3		A	HA	30	2	2	3
5182		LEAR	10	12	0403	N12	E03	10	12.4		B	CSO	20	5	5	4
5182		CULG	10	12	0615	N12	E01	10	12.3		A	HS	20	2	1	2
5182		SVTO	10	12	0724	N13	E01	10	12.4				20	4	2	3
5182		BOUL	10	12	1420	N13	W04	10	12.3		A	HS	20	3	2	3
5182	24824	MWIL	10	12	1515	N13	W04	10	12.3	5	(AP)					
5182		HOLL	10	12	1600	N13	W04	10	12.4		A	HA	40	2	2	3
5182		PALE	10	12	1725	N13	W05	10	12.3		A	HS	30	2	2	3
5182		LEAR	10	13	0111	N13	W09	10	12.4		B	CAO	20	5	3	4
5182		CULG	10	13	0415	N13	W10	10	12.4		A	HA	20	4	3	2
5182		SVTO	10	13	0815	N13	W13	10	12.4		A	HA	20	4	2	2
5182		RAMY	10	13	1335	N14	W15	10	12.4		B	CRO	40	11	2	2
5182		BOUL	10	13	1400	N14	W16	10	12.4		B	CAO	50	5	3	1
5182		HOLL	10	13	1500	N13	W17	10	12.3		B	CSO	20	12	4	3
5182	24824	MWIL	10	13	1530	N14	W17	10	12.4	5	(B)					
5182		PALE	10	13	1905	N14	W19	10	12.3		B	CRO	40	9	3	2
5182		LEAR	10	14	0110	N14	W23	10	12.3		B	DAO	60	12	3	4
5182		CULG	10	14	0330	N15	W23	10	12.4		B	CAO	40	8	3	3
5182		SVTO	10	14	0827	N14	W28	10	12.2		B	CAO	40	5	3	2
5182		RAMY	10	14	1227	N14	W29	10	12.3		B	CAO	40	7	3	4
5182		BOUL	10	14	1525	N13	W29	10	12.4		B	CAO	60	7	3	3
5182	24824	MWIL	10	14	1700	N14	W32	10	12.3	5	(BG)					
5182		HOLL	10	14	1709	N13	W31	10	12.4		B	CSO	40	8	4	2
5182		PALE	10	14	1825	N14	W32	10	12.3		B	CRO	40	7	4	3
5182		LEAR	10	15	0035	N14	W35	10	12.4		BG	CSO	40	7	3	3
5182		CULG	10	15	0315	N16	W37	10	12.3		B	CSO	30	5	3	3
5182		SVTO	10	15	0900	N13	W40	10	12.3		B	DAO	60	9	4	2
5182		RAMY	10	15	1240	N14	W42	10	12.3		B	BXO	20	8	5	4
5182	24824	MWIL	10	15	1530	N14	W45	10	12.2	5	(BP)					
5182		HOLL	10	15	1600	N14	W44	10	12.3		B	CSO	50	7	6	3
5182		BOUL	10	15	1645	N14	W44	10	12.4		B	BXO		5	4	2
5182		PALE	10	15	2035	N14	W47	10	12.3		B	BXO	30	3	4	2
5182		LEAR	10	16	0050	N14	W50	10	12.2		B	CRO	30	5	3	3
5182		CULG	10	16	0410	N16	W52	10	12.2		A	HR	20	2	2	3
5182		SVTO	10	16	1011	N14	W55	10	12.3		B	DSO	30	6	3	2

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5182		RAMY	10 16 1430	N14 W57	10 12.3		B	BXO	30	9	4	3
5182		BOUL	10 16 1450	N14 W55	10 12.5		A	AX		2	1	2
5182	24824	MWIL	10 16 1515	N14 W56	10 12.4	4	(AP)					
5182		HOLL	10 16 1645	N13 W58	10 12.3		B	BXO	20	8	4	3
5182		PALE	10 16 1810	N15 W59	10 12.3		B	BXO	20	6	4	3
5182		LEAR	10 17 0048	N15 W61	10 12.4		B	BXO	10	3	3	4
5182		LEAR	10 18 0053	N14 W80	10 12.0		B	BXO	10	3	2	3
5182A		BOUL	10 10 1400	S16 E28	10 12.7		A	AX	10	1		3
5182A		RAMY	10 10 1500	S13 E30	10 12.9		A	AX		1		4
5182A	24834	MWIL	10 10 1515	S14 E31	10 13.0	4	(B)					
5183	24826	MWIL	10 07 1445	S32 E65	10 12.8	3	(AP)					
5183		HOLL	10 07 1500	S29 E64	10 12.6		A	AX	10	1	1	3
5183		BOUL	10 07 1638	S31 E63	10 12.7		A	AX		1		2
5183		PALE	10 07 1745	S33 E63	10 12.7		A	AX	10	1	1	/
5183	24826	MWIL	10 08 1445	S31 E55	10 12.9	3	(AF)					
5183		SVTO	10 10 0715	S31 E32	10 12.8		A	AX		1		4
5183	24826	MWIL	10 10 1515	S31 E28	10 12.8	3	(AP)					
5183	24826	MWIL	10 11 1530	S33 E12	10 12.6	4	(B)					
5183		PALE	10 11 1730	S32 E13	10 12.7		A	AX	10	1	1	3
5183		LEAR	10 12 0403	S30 E08	10 12.8		B	DRO	20	7	6	4
5183		CULG	10 12 0615	S32 E03	10 12.5		B	BXO	10	3	3	2
5183		BOUL	10 12 1420	S29 E02	10 12.7		B	CSO	60	6	4	3
5183	24826	MWIL	10 12 1515	S31 E02	10 12.8	5	(B)					
5183		HOLL	10 12 1600	S30 E02	10 12.8		B	CSO	30	6	6	3
5183		PALE	10 12 1725	S31 E01	10 12.8		B	DSO	80	2	5	3
5183		LEAR	10 13 0111	S30 W04	10 12.7		B	DSO	30	4	6	4
5183		CULG	10 13 0415	S31 W07	10 12.6		B	DSO	30	3	6	2
5183		SVTO	10 13 0815	S30 W08	10 12.7		B	CAO	30	3	6	2
5183		RAMY	10 13 1335	S30 W09	10 12.8		B	CRO	30	4	4	2
5183		BOUL	10 13 1400	S29 W12	10 12.6		B	CAO	50	3	6	1
5183		HOLL	10 13 1500	S30 W11	10 12.7		B	BXO	10	3	5	3
5183	24826	MWIL	10 13 1530	S30 W12	10 12.7	5	(B)					
5183		PALE	10 13 1905	S31 W16	10 12.5		B	BXO	20	3	6	2
5183		LEAR	10 14 0110	S30 W17	10 12.7		B	CAO	20	3	7	4
5183		CULG	10 14 0330	S30 W20	10 12.6		B	BXO	20	3	5	3
5183		SVTO	10 14 0827	S31 W19	10 12.8		B	BXO	10	4	7	2
5183		RAMY	10 14 1227	S30 W22	10 12.8		B	BXO	10	5	6	4
5183		BOUL	10 14 1525	S29 W26	10 12.6		B	BXO	10	2	2	3
5183	24826	MWIL	10 14 1700	S30 W26	10 12.7	4	(AP)					
5183		HOLL	10 14 1709	S31 W27	10 12.6		A	AX	10	3	2	2
5183		PALE	10 14 1825	S31 W26	10 12.7		B	BXO	10	2	6	3
5183		LEAR	10 15 0035	S30 W31	10 12.6		B	BXO	10	2	3	3
5183		CULG	10 15 0315	S29 W33	10 12.5		A	AX		1		3
5183		RAMY	10 15 1240	S30 W37	10 12.6		A	AX		1		4
5187	24831	MWIL	10 09 1500	S25 E48	10 13.3	3	(B)					
5187		PALE	10 09 1845	S25 E47	10 13.4		B	BXO	10	2	2	3
5187		LEAR	10 10 0204	S22 E41	10 13.2		B	BXO	10	4	3	2
5187		SVTO	10 10 0715	S23 E37	10 13.1		B	BXO	10	4	3	4
5187		BOUL	10 10 1400	S25 E30	10 12.9		B	BXO	10	4	2	3
5187		RAMY	10 10 1500	S22 E32	10 13.1		B	BXO	20	7	3	4
5187	24831	MWIL	10 10 1515	S23 E33	10 13.2	4	(B)					
5187		PALE	10 10 1844	S24 E32	10 13.2		B	BXO	20	8	3	4
5187		LEAR	10 11 0052	S22 E28	10 13.2		B	BXO	20	7	4	3
5187		CULG	10 11 0445	S23 E25	10 13.1		B	BXO	10	7	4	2
5187		SVTO	10 11 0820	S22 E23	10 13.1		B	BXO	10	6	5	3
5187		RAMY	10 11 1345	S22 E21	10 13.2		B	BXO	10	6	5	4
5187		BOUL	10 11 1427	S22 E18	10 13.0		B	BXO	10	3	4	2
5187		HOLL	10 11 1525	S22 E20	10 13.2		B	BXO	10	4	5	2
5187	24831	MWIL	10 11 1530	S23 E19	10 13.1	4	(B)					
5187		PALE	10 11 1730	S22 E17	10 13.0		A	AX	10	2	2	3
5187		LEAR	10 12 0403	S22 E13	10 13.2		B	BXO	10	6	5	4
5187		CULG	10 12 0615	S23 E07	10 12.8		B	BXO	10	4	3	2
5187		BOUL	10 12 1420	S21 E06	10 13.0		B	BXO	10	2	3	3
5187	24831	MWIL	10 12 1515	S22 E05	10 13.0	4	(B)					
5187		PALE	10 12 1725	S22 E06	10 13.2		A	AX	10	1	1	3

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5187A	24827	MWIL	10 08 1445	N14 E64	10 13.4	3	(AF)					
5187A	24827	MWIL	10 11 1530	N13 E22	10 13.3	3	(AP)					
5190		LEAR	10 12 0403	S20 E23	10 13.9		B	CRO	10	2	3	4
5190		HOLL	10 12 1600	S20 E16	10 13.9		B	BXO	10	4	4	3
5190		PALE	10 12 1725	S21 E18	10 14.1		B	BXO	10	3	3	3
5190		LEAR	10 13 0111	S20 E12	10 14.0		B	DRO	10	3	4	4
5190		CULG	10 13 0415	S21 E09	10 13.9		A	DRO	10	2	3	2
5190		SVTO	10 13 0815	S20 E08	10 13.9		B	BXO	10	4	4	2
5190		RAMY	10 13 1335	S20 E06	10 14.0		B	BXO	10	4	4	2
5190		BOUL	10 13 1400	S19 E02	10 13.7		A	HR	10	1	1	1
5190		HOLL	10 13 1500	S20 E06	10 14.1		B	BXO	10	3	4	3
5190		PALE	10 13 1905	S20 E01	10 13.9		A	AX	10	2	1	2
5190		LEAR	10 14 0110	S20 W02	10 13.9		B	BXO	10	2	4	4
5190		CULG	10 14 0330	S20 W05	10 13.8		B	BXO	10	2	4	3
5190		RAMY	10 14 1227	S20 W07	10 14.0		B	BXO	10	3	5	4
5190		BOUL	10 14 1525	S18 W09	10 13.9		B	BXO	10	2	4	3
5190		HOLL	10 14 1709	S20 W08	10 14.1		B	BXO	20	7	5	2
5190		PALE	10 14 1825	S20 W12	10 13.8		B	BXO	10	2	4	3
5190		LEAR	10 15 0035	S20 W14	10 13.9		B	BXO	10	3	5	3
5190		CULG	10 15 0315	S19 W18	10 13.8		B	BXO		2	4	3
5190		SVTO	10 15 0900	S19 W17	10 14.1		B	BXO	10	5	3	2
5190		RAMY	10 15 1240	S20 W19	10 14.1		B	BXO	10	5	4	4
5190		HOLL	10 15 1600	S20 W20	10 14.1		B	BXO	20	6	4	3
5190		BOUL	10 15 1645	S19 W21	10 14.1		B	BXO		4	2	2
5190		PALE	10 15 2035	S20 W24	10 14.0		B	CRO	20	5	3	2
5190		LEAR	10 16 0050	S20 W26	10 14.0		B	CSO	30	7	3	3
5190		CULG	10 16 0410	S19 W29	10 14.0		B	BXO	10	6	3	3
5190		SVTO	10 16 1011	S18 W30	10 14.1		B	DAO	50	10	5	2
5190		RAMY	10 16 1430	S18 W33	10 14.1		B	DAI	70	16	5	3
5190		BOUL	10 16 1450	S20 W34	10 14.0		B	DAO	30	7	5	2
5190		HOLL	10 16 1645	S20 W33	10 14.2		B	CRO	20	14	5	3
5190		PALE	10 16 1810	S19 W36	10 14.0		B	CRI	40	15	6	3
5190		LEAR	10 17 0048	S18 W39	10 14.1		B	DSO	70	11	5	4
5190		CULG	10 17 0320	S17 W42	10 13.9		B	DAO	60	6	5	3
5190		SVTO	10 17 0742	S18 W44	10 14.0		B	DSO	130	15	9	4
5190		RAMY	10 17 1338	S18 W45	10 14.1		B	DAO	160	13	8	3
5190		HOLL	10 17 1555	S19 W48	10 14.0		B	DSO	60	15	8	3
5190		LEAR	10 18 0053	S19 W51	10 14.1		B	DAO	210	15	10	3
5190		CULG	10 18 0245	S17 W55	10 13.9		B	DAO	150	8	8	2
5190		SVTO	10 18 0830	S20 W58	10 13.9		B	DAI	300	18	8	2
5190		RAMY	10 18 1458	S20 W59	10 14.1		B	DAO	200	9	8	3
5190		HOLL	10 18 1500	S19 W58	10 14.2		B	DAI	150	12	8	3
5190		PALE	10 18 2215	S21 W66	10 13.9		B	DAO	210	7	9	1
5190		LEAR	10 19 0028	S20 W66	10 14.0		B	DAI	310	14	8	3
5190		CULG	10 19 0400	S19 W65	10 14.2		B	DSO	90	7	7	2
5190		SVTO	10 19 0742	S21 W70	10 13.9		B	DAI	240	11	8	3
5190		RAMY	10 19 1355	S21 W72	10 14.0		B	DAO	140	4	8	2
5190		BOUL	10 19 1418	S19 W73	10 14.0		B	DSO	120	5	10	2
5190		HOLL	10 19 1605	S21 W72	10 14.1		B	DAO	120	9	8	3
5190		PALE	10 19 1845	S18 W74	10 14.1		B	DAO	180	8	8	3
5190		LEAR	10 20 0145	S19 W81	10 13.9		B	CAO	90	5	7	2
5190		CULG	10 20 0402	S19 W83	10 13.8		A	HS	20	1	2	2
5201		CULG	10 12 0615	S22 E24	10 14.1		B	BXO	10	2	5	2
5201		BOUL	10 12 1420	S20 E18	10 14.0		B	BXO	20	4	3	3
5201	24839	MWIL	10 12 1515	S21 E18	10 14.0	4	(B)					
5201	24839	MWIL	10 13 1530	S21 E05	10 14.0	4	(B)					
5201	24839	MWIL	10 14 1700	S20 W10	10 13.9	3	(B)					
5201	24839	MWIL	10 15 1530	S20 W21	10 14.0	4	(B)					
5201	24839	MWIL	10 16 1515	S21 W34	10 14.0	4	(B)					
5201	24839	MWIL	10 17 1515	S19 W47	10 14.0	3	(B)					
5201		LEAR	10 18 0053	S16 W52	10 14.1		B	DRO	50	6	4	3
5201		SVTO	10 18 0830	S17 W59	10 13.9		B	BXO	10	2	2	2
5201		RAMY	10 18 1458	S17 W60	10 14.1		A	HA	20	2	2	3
5201		HOLL	10 18 1500	S17 W61	10 14.0		A	AX	10	2	2	3
5201	24839	MWIL	10 18 1500	S19 W61	10 14.0	5	(B)					
5201		PALE	10 18 2215	S17 W68	10 13.7		A	AX	10	1	1	1

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5201		LEAR	10	19	0028	S16	W67	10	13.9		B	CAO	80	5	3	3
5201		SVTO	10	19	0742	S18	W70	10	14.0		A	HA	20	2	1	3
5201		RAMY	10	19	1355	S19	W71	10	14.2		A	HS	30	1	2	2
5201	24839	MWIL	10	19	1515	S19	W70	10	14.3	4	(B)					
5201		LEAR	10	20	0145	S16	W80	10	14.0		B	BXO	10	1	2	2
5201A		LEAR	10	21	0017	S25	W89	10	14.1		A	AX	10	1	1	3
5184		SVTO	10	08	0940	S10	E82	10	14.6		A	HS	100	1	1	3
5184		RAMY	10	08	1335	S11	E76	10	14.3		A	HA	60	1	2	3
5184		BOUL	10	08	1430	S12	E78	10	14.5		A	HA	90	2	1	3
5184	24828	MWIL	10	08	1445	S11	E77	10	14.4	3	(AP)					
5184		HOLL	10	08	1615	S12	E75	10	14.3		A	HS	60	1	2	3
5184		PALE	10	08	1750	S12	E77	10	14.5		A	HA	60	1	2	2
5184		LEAR	10	09	0030	S11	E70	10	14.3		A	HS	60	1	1	3
5184		CULG	10	09	0300	S12	E68	10	14.2		A	HS	20	1	1	2
5184		SVTO	10	09	0745	S11	E67	10	14.4		A	HS	70	1	2	4
5184		RAMY	10	09	1338	S11	E63	10	14.3		A	HS	130	1	2	4
5184	24828	MWIL	10	09	1500	S12	E62	10	14.3	4	(AP)					
5184		HOLL	10	09	1806	S12	E61	10	14.3		A	HS	90	1	2	2
5184		PALE	10	09	1845	S13	E62	10	14.4		A	HS	90	1	2	3
5184		LEAR	10	10	0204	S11	E55	10	14.2		A	HS	40	1	2	2
5184		CULG	10	10	0415	S14	E56	10	14.4		A	HS	40	1	1	3
5184		SVTO	10	10	0715	S11	E53	10	14.3		A	HS	90	1	2	4
5184		BOUL	10	10	1400	S13	E47	10	14.1		A	HA	100	1	1	3
5184		RAMY	10	10	1500	S12	E47	10	14.2		A	HS	100	1	2	4
5184	24828	MWIL	10	10	1515	S11	E48	10	14.2	5	(AP)					
5184		PALE	10	10	1844	S12	E48	10	14.4		A	HS	90	1	2	4
5184		LEAR	10	11	0052	S11	E44	10	14.3		A	HS	80	1	2	3
5184		CULG	10	11	0445	S13	E41	10	14.3		A	HS	60	1	2	2
5184		SVTO	10	11	0820	S11	E39	10	14.3		B	CSO	80	3	3	3
5184		RAMY	10	11	1345	S12	E37	10	14.4		B	CSO	110	3	3	4
5184		BOUL	10	11	1427	S13	E36	10	14.3		B	CSO	70	2	2	2
5184		HOLL	10	11	1525	S11	E37	10	14.4		B	CSO	90	3	4	2
5184	24828	MWIL	10	11	1530	S12	E35	10	14.3	6	(BP)					
5184		PALE	10	11	1730	S12	E35	10	14.4		B	CSO	100	2	4	3
5184		LEAR	10	12	0403	S12	E28	10	14.3		A	HS	60	1	2	4
5184		CULG	10	12	0615	S13	E27	10	14.3		A	HS	50	1	1	2
5184		BOUL	10	12	1420	S11	E23	10	14.3		B	CSO	120	3	4	3
5184	24828	MWIL	10	12	1515	S12	E23	10	14.4	6	(BP)					
5184		HOLL	10	12	1600	S11	E22	10	14.3		A	HS	110	1	2	3
5184		PALE	10	12	1725	S10	E22	10	14.4		B	CSO	90	2	3	3
5184		LEAR	10	13	0111	S11	E17	10	14.3		B	CSO	80	2	4	4
5184		CULG	10	13	0415	S12	E14	10	14.2		A	HS	80	4	3	2
5184		SVTO	10	13	0815	S11	E14	10	14.4		A	HS	110	2	2	2
5184		RAMY	10	13	1335	S12	E13	10	14.5		A	HS	110	2	3	2
5184		BOUL	10	13	1400	S11	E08	10	14.2		A	HS	100	1	2	1
5184		HOLL	10	13	1500	S11	E10	10	14.4		B	CSO	80	4	4	3
5184	24828	MWIL	10	13	1530	S12	E09	10	14.3	5	(BP)					
5184		PALE	10	13	1905	S12	E08	10	14.4		A	HS	60	1	2	2
5184		LEAR	10	14	0110	S11	E03	10	14.3		B	CSO	70	5	4	4
5184		CULG	10	14	0330	S11	E02	10	14.3		A	HS	70	1	2	3
5184		SVTO	10	14	0827	S11	E01	10	14.4		A	HS	10	1	2	2
5184		RAMY	10	14	1227	S11	W01	10	14.4		B	CSO	100	3	4	4
5184		BOUL	10	14	1525	S10	W04	10	14.3		A	HS	150	1	2	3
5184	24828	MWIL	10	14	1700	S12	W04	10	14.4	6	(AP)					
5184		HOLL	10	14	1709	S12	W04	10	14.4		A	HS	70	1	2	2
5184		PALE	10	14	1825	S11	W06	10	14.3		A	HS	70	1	2	3
5184		LEAR	10	15	0035	S11	W09	10	14.3		A	HS	60	1	2	3
5184		CULG	10	15	0315	S11	W12	10	14.2		A	HS	60	2	3	3
5184		SVTO	10	15	0900	S11	W13	10	14.4		A	HS	90	1	2	2
5184		RAMY	10	15	1240	S11	W16	10	14.3		A	HS	110	2	2	4
5184	24828	MWIL	10	15	1530	S12	W17	10	14.4	5	(AP)					
5184		HOLL	10	15	1600	S11	W17	10	14.4		A	HS	80	1	2	3
5184		BOUL	10	15	1645	S10	W17	10	14.4		A	HS	90	1	2	2
5184		PALE	10	15	2035	S11	W19	10	14.4		A	HS	80	1	2	2
5184		LEAR	10	16	0050	S11	W22	10	14.4		A	HS	50	1	2	3
5184		CULG	10	16	0410	S11	W26	10	14.2		A	HS	30	1	1	3

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5184		SVTO	10	16	1011	S11	W27	10	14.4		A	HX	80	3	3	2
5184		RAMY	10	16	1430	S11	W28	10	14.5		A	HS	80	3	4	3
5184		BOUL	10	16	1450	S11	W30	10	14.4		A	HS	60	1	1	2
5184	24828	MWIL	10	16	1515	S12	W29	10	14.4	5	(AP)					
5184		HOLL	10	16	1645	S12	W30	10	14.4		A	HS	70	2	3	3
5184		PALE	10	16	1810	S11	W32	10	14.3		B	CSO	100	2	3	3
5184		LEAR	10	17	0048	S11	W35	10	14.4		A	HS	60	1	2	4
5184		CULG	10	17	0320	S10	W38	10	14.3		A	HS	50	1	2	3
5184		SVTO	10	17	0742	S13	W38	10	14.4		A	HS	50	1	2	4
5184		RAMY	10	17	1338	S09	W43	10	14.3		A	HS	80	1	2	3
5184	24828	MWIL	10	17	1515	S12	W43	10	14.4	6	(AP)					
5184		HOLL	10	17	1555	S11	W43	10	14.4		A	HS	60	1	2	3
5184		LEAR	10	18	0053	S11	W48	10	14.4		A	HS	60	1	2	3
5184		CULG	10	18	0245	S10	W50	10	14.3		A	HS	70	1	1	2
5184		SVTO	10	18	0830	S13	W55	10	14.2		A	HS	70	1	2	2
5184		RAMY	10	18	1458	S12	W55	10	14.5		A	HS	80	1	2	3
5184		HOLL	10	18	1500	S12	W56	10	14.4		A	HS	40	2	2	3
5184	24828	MWIL	10	18	1500	S12	W57	10	14.3	5	(AP)					
5184		PALE	10	18	2215	S12	W62	10	14.2		A	HS	70	1	2	1
5184		LEAR	10	19	0028	S12	W61	10	14.4		A	HS	130	1	2	3
5184		CULG	10	19	0400	S11	W65	10	14.3		B	CSO	30	2	4	2
5184		SVTO	10	19	0742	S13	W67	10	14.3		A	HS	100	1	2	3
5184		RAMY	10	19	1355	S12	W69	10	14.4		A	HS	110	1	2	2
5184		BOUL	10	19	1418	S11	W69	10	14.4		A	HS	60	1	1	2
5184	24828	MWIL	10	19	1515	S12	W69	10	14.4	5	(AP)					
5184		HOLL	10	19	1605	S12	W70	10	14.4		A	HS	60	1	1	3
5184		PALE	10	19	1845	S12	W73	10	14.3		A	HS	120	1	2	3
5184		LEAR	10	20	0145	S11	W76	10	14.3		A	HS	60	1	2	2
5184		CULG	10	20	0402	S12	W80	10	14.1		A	HS	20	1	2	2
5191		LEAR	10	12	0403	S24	E39	10	15.2		B	CRO	10	4	4	4
5191		CULG	10	12	0615	S26	E36	10	15.0		A	AX		1		2
5191		BOUL	10	12	1420	S23	E33	10	15.1		B	BXO	10	2	3	3
5191	24840	MWIL	10	12	1515	S24	E33	10	15.2	4	(B)					
5191		HOLL	10	12	1600	S23	E34	10	15.3		A	AX	10	4	2	3
5191		PALE	10	12	1725	S23	E32	10	15.2		A	AX	10	2	2	3
5191		LEAR	10	13	0111	S23	E28	10	15.2		B	CRO	10	3	3	4
5191		CULG	10	13	0415	S26	E27	10	15.3		A	AX		1		2
5191		SVTO	10	13	0815	S23	E23	10	15.1		B	CRO	20	4	3	2
5191		RAMY	10	13	1335	S22	E22	10	15.2		B	CRO	20	4	2	2
5191		BOUL	10	13	1400	S23	E21	10	15.2		A	HR	10	1	1	1
5191		HOLL	10	13	1500	S23	E20	10	15.2		B	BXO	10	5	4	3
5191	24840	MWIL	10	13	1530	S24	E21	10	15.3	4	(BF)					
5191		PALE	10	13	1905	S23	E19	10	15.2		B	BXO	10	4	3	2
5191		LEAR	10	14	0110	S23	E15	10	15.2		B	CSO	20	4	3	4
5191		CULG	10	14	0330	S24	E13	10	15.1		A	AX	10	2	2	3
5191		RAMY	10	14	1227	S23	E09	10	15.2		B	CRO	20	7	3	4
5191		BOUL	10	14	1525	S21	E07	10	15.2		B	CAO	30	6	3	3
5191	24840	MWIL	10	14	1700	S24	E07	10	15.2	4	(B)					
5191		HOLL	10	14	1709	S23	E08	10	15.3		B	BXO	20	8	3	2
5191		PALE	10	14	1825	S23	E06	10	15.2		B	CRO	40	8	4	3
5191		LEAR	10	15	0035	S23	E03	10	15.2		B	CAO	30	5	3	3
5191		CULG	10	15	0315	S23	W01	10	15.0		B	CRO	10	3	2	3
5191		SVTO	10	15	0900	S23	W02	10	15.2		B	BXO	10	5	3	2
5191		RAMY	10	15	1240	S23	W04	10	15.2		B	BXO	10	5	3	4
5191	24840	MWIL	10	15	1530	S24	W06	10	15.2	3	(BF)					
5191		HOLL	10	15	1600	S23	W05	10	15.3		B	BXO	10	5	3	3
5191		LEAR	10	16	0050	S23	W09	10	15.3		B	BXO	10	3	3	3
5189		LEAR	10	12	0403	N25	E46	10	15.7		B	CRO	10	2	3	4
5189		CULG	10	12	0615	N23	E47	10	15.9		B	BXO	10	2	3	2
5189		BOUL	10	12	1420	N26	E38	10	15.5		A	AX	10	1	1	3
5189	24841	MWIL	10	12	1515	N26	E40	10	15.7	5	(B)					
5189		HOLL	10	12	1600	N26	E40	10	15.8		B	BXO	10	4	3	3
5189		PALE	10	12	1725	N26	E38	10	15.7		A	AX	10	1	1	3
5189		LEAR	10	13	0111	N27	E33	10	15.6		A	HS	10	1	1	4
5189		CULG	10	13	0415	N24	E32	10	15.6		A	AX		1		2
5189		RAMY	10	13	1335	N26	E24	10	15.4		A	AX	10	2	1	2

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5189		HOLL	10 13	1500	N26 E23	10 15.4		A	AX		1		3
5189	24841	MWIL	10 13	1530	N26 E24	10 15.5	3	(AP)					
5189		CULG	10 14	0330	N22 E22	10 15.8		A	AX		1		3
5189A		LEAR	10 19	0145	S23 W41	10 15.9		B	BXO	10	2	5	2
5193	24842	MWIL	10 12	1515	N24 E49	10 16.4	4	(B)					
5193		SVTO	10 13	0815	N25 E39	10 16.4		B	BXO	10	2	1	2
5193		RAMY	10 13	1335	N25 E37	10 16.4		B	BXO	10	2	5	2
5193		HOLL	10 13	1500	N25 E35	10 16.3		A	AX		1		3
5193	24842	MWIL	10 13	1530	N24 E35	10 16.3	4	(AP)					
5193		PALE	10 13	1905	N24 E32	10 16.3		A	AX		1		2
5193		LEAR	10 14	0110	N25 E28	10 16.2		A	AX	10	1	1	4
5193		RAMY	10 14	1227	N25 E22	10 16.2		A	AX		2	2	4
5193		BOUL	10 14	1525	N24 E21	10 16.3		A	AX	10	2	1	3
5193	24842	MWIL	10 14	1700	N24 E22	10 16.4	4	(B)					
5193		HOLL	10 14	1709	N25 E21	10 16.3		B	BXO	20	6	5	2
5193		PALE	10 14	1825	N24 E21	10 16.4		B	BXO	30	7	5	3
5193		LEAR	10 15	0035	N24 E15	10 16.2		B	BXO	10	4	2	3
5193		CULG	10 15	0315	N24 E15	10 16.3		A	HR	10	1	2	3
5193		SVTO	10 15	0900	N25 E12	10 16.3		B	CSO	30	8	4	2
5193		RAMY	10 15	1240	N25 E11	10 16.4		B	CRO	40	9	5	4
5193	24842	MWIL	10 15	1530	N24 E09	10 16.3	5	(B)					
5193		HOLL	10 15	1600	N25 E09	10 16.4		B	CSO	40	10	5	3
5193		BOUL	10 15	1645	N25 E07	10 16.2		B	CAO	30	7	5	2
5193		PALE	10 15	2035	N25 E07	10 16.4		B	CRO	40	5	4	2
5193		LEAR	10 16	0050	N25 E04	10 16.3		B	DAO	70	16	6	3
5193		CULG	10 16	0410	N24 E03	10 16.4		B	CSI	40	9	5	3
5193		SVTO	10 16	1011	N25 W01	10 16.3		B	DSI	100	18	6	2
5193		RAMY	10 16	1430	N24 W04	10 16.3		B	DAI	150	28	8	3
5193		BOUL	10 16	1450	N24 W04	10 16.3		B	DAO	70	7	7	2
5193	24842	MWIL	10 16	1515	N24 W04	10 16.3	5	(B)					
5193		HOLL	10 16	1645	N25 W05	10 16.3		B	DAI	130	21	6	3
5193		PALE	10 16	1810	N25 W05	10 16.4		B	DAO	120	17	7	3
5193		LEAR	10 17	0048	N25 W09	10 16.3		B	DAI	90	26	7	4
5193		CULG	10 17	0320	N25 W09	10 16.4		B	DAO	120	10	7	3
5193		SVTO	10 17	0742	N25 W13	10 16.3		B	DAI	210	22	7	4
5193		RAMY	10 17	1338	N26 W15	10 16.4		B	DAI	190	25	8	3
5193	24842	MWIL	10 17	1515	N25 W17	10 16.3	5	(B)					
5193		HOLL	10 17	1555	N24 W18	10 16.3		B	DAO	140	22	9	3
5193		LEAR	10 18	0053	N25 W23	10 16.2		B	DAO	200	20	9	3
5193		CULG	10 18	0245	N25 W22	10 16.4		B	DAO	100	12	8	2
5193		SVTO	10 18	0830	N25 W27	10 16.3		B	DSO	130	14	7	2
5193		RAMY	10 18	1458	N25 W29	10 16.4		B	DAI	140	21	8	3
5193		HOLL	10 18	1500	N24 W29	10 16.4		B	DAO	120	21	8	3
5193	24842	MWIL	10 18	1500	N25 W30	10 16.3	5	(B)					
5193		PALE	10 18	2215	N25 W35	10 16.2		B	DSO	80	9	9	1
5193		LEAR	10 19	0028	N24 W35	10 16.3		B	DAO	80	14	8	3
5193		CULG	10 19	0400	N24 W36	10 16.4		B	DSO	80	10	7	2
5193		SVTO	10 19	0742	N24 W39	10 16.3		B	DAO	90	15	8	3
5193		RAMY	10 19	1355	N24 W43	10 16.2		B	DAO	70	4	8	2
5193		BOUL	10 19	1418	N24 W41	10 16.4		B	DSO	40	3	8	2
5193	24842	MWIL	10 19	1515	N24 W42	10 16.4	5	(B)					
5193		HOLL	10 19	1605	N24 W43	10 16.3		B	DSO	80	11	8	3
5193		PALE	10 19	1845	N26 W44	10 16.4		B	DAO	70	4	8	3
5193		LEAR	10 20	0145	N26 W47	10 16.4		B	DAO	80	4	8	2
5193		CULG	10 20	0402	N23 W47	10 16.5		B	DRO	40	6	8	2
5193		BOUL	10 20	1430	N24 W56	10 16.3		B	DAO	90	3	9	2
5193	24842	MWIL	10 20	1445	N24 W55	10 16.4	5	(B)					
5193		HOLL	10 20	1903	N25 W59	10 16.2		B	CSO	50	6	8	3
5193		PALE	10 20	2107	N22 W58	10 16.4		B	BXO	40	6	15	1
5193		LEAR	10 21	0017	N23 W61	10 16.3		B	CAO	40	4	7	3
5193		CULG	10 21	0345	N25 W63	10 16.3		B	CRO	20	3	8	2
5193		BOUL	10 21	1428	N25 W69	10 16.2		B	CSO	130	5	8	2
5193		RAMY	10 21	1459	N24 W68	10 16.4		B	CRO	60	5	7	1
5193	24842	MWIL	10 21	1500	N24 W69	10 16.3	4	(B)					
5193		HOLL	10 21	1519	N23 W71	10 16.2		B	BXO	50	6	8	3
5193		PALE	10 21	1920	N24 W71	10 16.3		B	CRO	60	6	10	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5193		LEAR	10 22 0020	N23 W73	10 16.4		B	CAO	60	4	9	3
5193		CULG	10 22 0412	N20 W76	10 16.4		B	CRO	10	3	4	1
5193		RAMY	10 22 1415	N23 W83	10 16.2		B	BXO	20	4	5	3
5193		HOLL	10 22 1510	N24 W81	10 16.4		B	BXO	10	2	8	4
5193	24842	MWIL	10 22 1515	N24 W85	10 16.1	2	B					
5188		SVTO	10 10 0715	N19 E84	10 16.7		A	HS	20	3	2	4
5188		RAMY	10 10 1500	N17 E76	10 16.4		B	CAO	50	8	4	4
5188	24835	MWIL	10 10 1515	N18 E78	10 16.6	5	(B)					
5188		PALE	10 10 1844	N17 E78	10 16.7		B	CAO	50	4	3	4
5188		LEAR	10 11 0052	N18 E76	10 16.8		B	EAO	80	6	11	3
5188		CULG	10 11 0445	N15 E75	10 16.9		B	DSO	60	5	10	2
5188		SVTO	10 11 0820	N18 E74	10 17.0		B	ESO	240	11	15	3
5188		RAMY	10 11 1345	N18 E68	10 16.7		BG	EAI	180	14	15	4
5188		BOUL	10 11 1427	N16 E70	10 16.9		B	EAO	140	7	16	2
5188		HOLL	10 11 1525	N19 E68	10 16.8		B	DAO	110	9	16	2
5188	24835	MWIL	10 11 1530	N18 E66	10 16.7	4	(B)					
5188		PALE	10 11 1730	N18 E70	10 17.0		B	FAO	210	7	17	3
5188		LEAR	10 12 0403	N18 E61	10 16.8		B	EAO	90	20	14	4
5188		CULG	10 12 0615	N17 E62	10 17.0		B	DSO	80	3	9	2
5188		BOUL	10 12 1420	N19 E53	10 16.6		B	EAI	160	18	15	3
5188	24835	MWIL	10 12 1515	N18 E52	10 16.6	4	(B)					
5188		HOLL	10 12 1600	N20 E55	10 16.9		B	FAO	120	19	18	3
5188		PALE	10 12 1725	N19 E53	10 16.8		B	EAO	260	12	12	3
5188		LEAR	10 13 0111	N19 E48	10 16.7		B	CAO	20	5	3	4
5188		CULG	10 13 0415	N16 E46	10 16.7		A	HA	40	2	3	2
5188		SVTO	10 13 0815	N19 E43	10 16.6		B	CSO	40	5	3	2
5188		RAMY	10 13 1335	N19 E40	10 16.6		B	CAO	40	8	5	2
5188		BOUL	10 13 1400	N17 E39	10 16.5		B	CAO	80	3	3	1
5188		HOLL	10 13 1500	N19 E39	10 16.6		A	HS	50	5	4	3
5188	24835	MWIL	10 13 1530	N18 E40	10 16.7	5	(B)					
5188		PALE	10 13 1905	N19 E38	10 16.7		B	CAO	40	6	4	2
5188		LEAR	10 14 0110	N18 E33	10 16.6		B	DSO	40	2	2	4
5188		CULG	10 14 0330	N17 E33	10 16.6		A	HS	40	3	3	3
5188		SVTO	10 14 0827	N19 E31	10 16.7		B	CSO	30	4	2	2
5188		RAMY	10 14 1227	N18 E25	10 16.4		B	CSO	40	6	6	4
5188		BOUL	10 14 1525	N19 E24	10 16.5		B	CAO	50	4	7	3
5188	24835	MWIL	10 14 1700	N18 E23	10 16.4	5	(B)					
5188		HOLL	10 14 1709	N18 E23	10 16.5		B	CSO	50	4	6	2
5188		PALE	10 14 1825	N18 E22	10 16.4		B	CSO	40	4	6	3
5188		LEAR	10 15 0035	N18 E21	10 16.6		B	CAO	20	3	1	3
5188		CULG	10 15 0315	N17 E20	10 16.6		A	HA	20	2	2	3
5188		SVTO	10 15 0900	N18 E17	10 16.7		B	CSO	20	2	1	2
5188		RAMY	10 15 1240	N18 E15	10 16.7		A	HR	20	3	2	4
5188	24835	MWIL	10 15 1530	N18 E13	10 16.6	5	(AF)					
5188		HOLL	10 15 1600	N18 E12	10 16.6		A	HR	10	2	1	3
5188		BOUL	10 15 1645	N18 E12	10 16.6		B	BXO	10	2	2	2
5188		PALE	10 15 2035	N17 E11	10 16.7		B	CSO	20	3	2	2
5188		LEAR	10 16 0050	N19 E08	10 16.6		A	HS	20	2	2	3
5188		CULG	10 16 0410	N17 E06	10 16.6		B	BXO	10	3	4	3
5188		SVTO	10 16 1011	N18 E01	10 16.5		B	BXO	10	6	3	2
5188		RAMY	10 16 1430	N18 W02	10 16.4		B	BXO	10	5	3	3
5188		HOLL	10 16 1645	N18 W02	10 16.5		A	AX		3	1	3
5188		LEAR	10 17 0048	N19 W08	10 16.4		A	AX	10	2	2	4
5188		HOLL	10 17 1555	N18 W18	10 16.3		A	AX		1	1	3
5188		LEAR	10 19 0145	N20 W38	10 16.2		B	BXO	10	3	7	2
5188	24835	MWIL	10 20 1445	N19 W58	10 16.2	3	(AP)					
5203		LEAR	10 20 0145	S23 W41	10 16.9		B	BXO	10	2	5	2
5203		CULG	10 20 0402	S25 W43	10 16.8		B	BXO		2	4	2
5203		BOUL	10 20 1430	S22 W48	10 16.9		B	BXO	30	2	6	2
5203	24854	MWIL	10 20 1445	S23 W48	10 16.9	4	(BP)					
5203		HOLL	10 20 1903	S23 W51	10 16.9		B	BXO	10	6	5	3
5203		PALE	10 20 2107	S24 W58	10 16.4		A	AX	10	2	2	1
5203		CULG	10 21 0345	S23 W61	10 16.4		A	AX		1	1	2
5203		BOUL	10 21 1428	S23 W61	10 16.9		B	CSO	70	4	6	2
5203		RAMY	10 21 1459	S23 W61	10 16.9		B	BXO	30	5	4	1
5203	24854	MWIL	10 21 1500	S23 W60	10 17.0	3	(B)					

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5203		HOLL	10 21 1519	S24 W62	10 16.8		B	BXO	30	7	7	3
5203		PALE	10 21 1920	S23 W68	10 16.6		B	BXO	50	4	7	2
5203		LEAR	10 22 0020	S24 W65	10 17.0		B	BXO	20	2	6	3
5203		CULG	10 22 0412	S21 W70	10 16.8		A	AX		1		1
5203		HOLL	10 22 1510	S21 W74	10 16.9		A	AX	10	1	1	4
5203		PALE	10 22 1750	S21 W76	10 16.9		A	AX	10	1	1	3
5192	24837	MWIL	10 11 1530	N18 E75	10 17.3	4	(AP)					
5192	24837	MWIL	10 12 1515	N19 E62	10 17.4	5	(B)					
5192		HOLL	10 12 1600	N20 E61	10 17.3		A	HS	70	9	4	3
5192		LEAR	10 13 0111	N19 E59	10 17.5		B	CAO	50	12	9	4
5192		CULG	10 13 0415	N17 E55	10 17.3		B	DSO	50	4	4	2
5192		SVTO	10 13 0815	N20 E52	10 17.3		B	DSO	50	6	5	2
5192		RAMY	10 13 1335	N19 E52	10 17.5		B	CAO	130	14	7	2
5192		BOUL	10 13 1400	N17 E48	10 17.2		B	DAO	90	5	3	1
5192		HOLL	10 13 1500	N19 E50	10 17.4		B	CSO	30	11	8	3
5192	24837	MWIL	10 13 1530	N18 E54	10 17.7	4	(BP)					
5192	24837	MWIL	10 13 1530	N19 E48	10 17.3	5	(BG)					
5192		PALE	10 13 1905	N20 E49	10 17.5		B	CRO	40	11	8	2
5192		LEAR	10 14 0110	N20 E43	10 17.3		B	CAI	40	11	5	4
5192		CULG	10 14 0330	N17 E42	10 17.3		B	DAO	50	8	4	3
5192		RAMY	10 14 1227	N19 E38	10 17.4		B	CRI	30	8	4	4
5192		BOUL	10 14 1525	N20 E35	10 17.3		B	CAO	40	6	4	3
5192	24837	MWIL	10 14 1700	N19 E35	10 17.4	4	(BG)					
5192		HOLL	10 14 1709	N20 E35	10 17.4		B	CRO	30	9	4	2
5192		PALE	10 14 1825	N19 E34	10 17.4		B	BXO	30	7	3	3
5192		LEAR	10 15 0035	N20 E31	10 17.4		BG	CAI	50	9	3	3
5192		CULG	10 15 0315	N16 E30	10 17.4		A	HR	20	2	2	3
5192		SVTO	10 15 0900	N20 E24	10 17.2		B	CAO	30	12	6	2
5192		RAMY	10 15 1240	N19 E24	10 17.3		B	BXO	10	6	4	4
5192	24837	MWIL	10 15 1530	N19 E23	10 17.4	4	(AP)					
5192		HOLL	10 15 1600	N19 E23	10 17.4		A	AX	10	4	2	3
5192		BOUL	10 15 1645	N18 E22	10 17.4		B	BXO		4	3	2
5192		PALE	10 15 2035	N18 E22	10 17.5		B	BXO	10	3	2	2
5192		LEAR	10 16 0050	N20 E18	10 17.4		B	CRO	20	6	4	3
5192		CULG	10 16 0410	N18 E17	10 17.5		B	CRO	20	6	2	3
5192		SVTO	10 16 1011	N21 E13	10 17.4		B	CSI	30	13	5	2
5192		RAMY	10 16 1430	N21 E11	10 17.4		B	CRI	40	16	5	3
5192		BOUL	10 16 1450	N20 E10	10 17.4		B	BXO		6	3	2
5192	24837	MWIL	10 16 1515	N22 E11	10 17.5	4	(B)					
5192		HOLL	10 16 1645	N20 E09	10 17.4		B	CRO	10	14	4	3
5192		PALE	10 16 1810	N20 E10	10 17.5		B	CRI	30	10	4	3
5192		LEAR	10 17 0048	N21 E06	10 17.5		B	DSO	40	12	5	4
5192		CULG	10 17 0320	N21 E05	10 17.5		B	DAO	40	10	4	3
5192		SVTO	10 17 0742	N20 E04	10 17.6		B	CSO	50	18	7	4
5192		RAMY	10 17 1338	N20 W03	10 17.3		B	CAO	40	20	4	3
5192	24837	MWIL	10 17 1515	N22 W03	10 17.4	4	(BP)					
5192		HOLL	10 17 1555	N20 W04	10 17.3		B	CRO	40	13	6	3
5192		LEAR	10 18 0053	N22 W08	10 17.4		B	DAO	60	6	4	3
5192		CULG	10 18 0245	N21 W08	10 17.5		B	DAO	20	4	3	2
5192		SVTO	10 18 0830	N22 W13	10 17.3		B	CSO	60	8	4	2
5192		RAMY	10 18 1458	N21 W17	10 17.3		B	CAO	40	6	4	3
5192		HOLL	10 18 1500	N20 W16	10 17.4		B	CAO	20	10	4	3
5192	24837	MWIL	10 18 1500	N22 W16	10 17.4	4	(B)					
5192		PALE	10 18 2215	N21 W20	10 17.4		B	BXO	10	5	3	1
5192		LEAR	10 19 0028	N21 W22	10 17.3		B	BXO	20	8	6	3
5192		CULG	10 19 0400	N19 W23	10 17.4		B	CRO	10	4	3	2
5192		SVTO	10 19 0742	N21 W25	10 17.4		B	CRO	20	8	5	3
5192		RAMY	10 19 1355	N19 W29	10 17.4		B	BXO	10	2	2	2
5192	24837	MWIL	10 19 1515	N21 W29	10 17.4	4	(AP)					
5192		HOLL	10 19 1605	N17 W31	10 17.3		B	BXO	10	5	4	3
5192		PALE	10 19 1845	N22 W32	10 17.3		B	BXO	10	3	3	3
5192		LEAR	10 20 0145	N20 W38	10 17.2		B	BXO	10	3	7	2
5192	24837	MWIL	10 20 1445	N20 W43	10 17.3	3	(AP)					
5192	24837	MWIL	10 21 1500	N20 W56	10 17.3	2	(AP)					
5199		SVTO	10 16 1011	N33 E13	10 17.4		B	BXO		2	3	2
5199		RAMY	10 16 1430	N33 E12	10 17.5		B	BXO	10	3	3	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5199		HOLL	10 16 1645	N32 E10	10 17.5		B	BXO		2	4	3
5199		PALE	10 16 1810	N32 E10	10 17.5		B	BXO	10	3	4	3
5199		LEAR	10 17 0048	N32 E07	10 17.6		B	BXO	10	3	5	4
5199		CULG	10 17 0320	N32 E07	10 17.7		B	BXO		2	4	3
5199		SVTO	10 17 0742	N34 E04	10 17.6		B	BXO	10	3	2	4
5199		RAMY	10 17 1338	N33 E03	10 17.8		B	BXO	10	5	4	3
5199	24847	MWIL	10 17 1515	N33 W01	10 17.5	5	(B)					
5199		HOLL	10 17 1555	N33 E00	10 17.7		A	AX		1	1	3
5199		LEAR	10 18 0053	N33 W06	10 17.6		B	BXO	10	5	6	3
5199		CULG	10 18 0245	N33 W07	10 17.5		B	BXO	10	3	6	2
5199		SVTO	10 18 0830	N35 W12	10 17.4		B	CSO	20	2	6	2
5199		RAMY	10 18 1458	N33 W15	10 17.4		B	CAO	20	2	4	3
5199		HOLL	10 18 1500	N33 W16	10 17.3		B	BXO	10	3	4	3
5199	24847	MWIL	10 18 1500	N33 W17	10 17.3	4	(AP)					
5199		PALE	10 18 2215	N33 W23	10 17.1		A	AX		1		1
5199		LEAR	10 19 0028	N32 W23	10 17.2		B	BXO	10	2	2	3
5199		CULG	10 19 0400	N32 W26	10 17.1		A	AX	10	1	1	2
5199		SVTO	10 19 0742	N32 W28	10 17.1		A	AX		2	2	3
5199		RAMY	10 19 1355	N31 W31	10 17.1		A	AX		1	1	2
5199	24847	MWIL	10 19 1515	N32 W31	10 17.2	3	(AP)					
5199A		SVTO	10 17 0742	S25 E05	10 17.7		B	BXO		2	2	4
5199B		RAMY	10 16 1430	N22 E18	10 18.0		A	AX		1		3
5199B		RAMY	10 17 1338	N23 E07	10 18.1		A	AX		1	1	3
5199B		HOLL	10 20 1903	N22 W37	10 17.9		A	AX		1		3
5204		LEAR	10 17 0050	N20 E18	10 18.4		B	CRO	20	6	4	3
5204	24851	MWIL	10 19 1515	N21 W11	10 18.8	3	(AF)					
5204		LEAR	10 20 0145	N21 W17	10 18.8		B	BXO	10	3	3	2
5204		CULG	10 20 0402	N20 W18	10 18.8		B	BXO	10	2	2	2
5204		BOUL	10 20 1430	N21 W26	10 18.6		A	HR	20	1	1	2
5204	24851	MWIL	10 20 1445	N20 W24	10 18.8	4	(BP)					
5204		HOLL	10 20 1903	N21 W28	10 18.6		A	AX		1		3
5204		HOLL	10 20 1903	N22 W32	10 18.3		B	BXO	10	2	7	3
5204		PALE	10 20 2107	N22 W32	10 18.4		B	BXO	10	2	8	1
5204		LEAR	10 21 0017	N20 W32	10 18.6		B	BXO	10	2	2	3
5204		CULG	10 21 0345	N21 W34	10 18.5		A	AX		1		2
5204	24851	MWIL	10 21 1500	N21 W40	10 18.5	3	(AP)					
5204		HOLL	10 21 1519	N21 W41	10 18.5		A	AX		2	1	3
5204A	24855	MWIL	10 20 1445	S14 W20	10 19.1	3	(AP)					
5194		LEAR	10 14 0110	N15 E75	10 19.7		A	AX	30	3	2	4
5194		RAMY	10 14 1227	N15 E69	10 19.7		A	AX	20	2	2	4
5194		BOUL	10 14 1525	N15 E67	10 19.7		A	AX	10	1	1	3
5194	24845	MWIL	10 14 1700	N15 E69	10 19.9	4	(AP)					
5194		HOLL	10 14 1709	N15 E68	10 19.9		A	AX	30	2	2	2
5194		PALE	10 14 1825	N14 E67	10 19.8		A	AX	10	2	2	3
5194		LEAR	10 15 0035	N14 E62	10 19.7		A	AX	10	1	1	3
5194		CULG	10 15 0315	N12 E62	10 19.8		A	AX		1		3
5194		SVTO	10 15 0900	N15 E59	10 19.8		A	AX		1	1	2
5194		RAMY	10 15 1240	N15 E56	10 19.8		A	AX	10	1	1	4
5194	24845	MWIL	10 15 1530	N14 E55	10 19.8	4	(AP)					
5194		HOLL	10 15 1600	N15 E54	10 19.7		A	AX	10	2	1	3
5194		LEAR	10 16 0050	N15 E49	10 19.7		A	AX	10	1	1	3
5194		HOLL	10 17 1555	N14 E28	10 19.8		A	AX		1	1	3
5194		HOLL	10 20 1903	N13 W14	10 19.7		B	BXO	10	3	4	3
5194		PALE	10 20 2107	N14 W18	10 19.5		B	BXO	10	4	3	1
5194		PALE	10 21 1920	N14 W28	10 19.7		A	AX		1		2
5194A		SVTO	10 19 0742	S27 E12	10 20.2		A	HR	10	1	1	3
5194A	24852	MWIL	10 19 1515	S27 E06	10 20.1	3	(AP)					
5196	24846	MWIL	10 15 1530	S37 E78	10 21.9	3	AP					
5196		HOLL	10 15 1600	S36 E80	10 22.1		A	HS	60	1	2	3
5196		BOUL	10 15 1645	S36 E80	10 22.1		A	HS	10	1	1	2
5196		PALE	10 15 2035	S37 E79	10 22.2		A	HA	30	1	2	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5196		LEAR	10 16 0050	S36 E72	10 21.8		A	HS	120	1	2	3
5196		CULG	10 16 0410	S40 E70	10 21.9		A	HS	30	1	1	3
5196		SVTO	10 16 1011	S36 E63	10 21.5		A	HH	60	1	3	2
5196		RAMY	10 16 1430	S36 E63	10 21.7		A	HS	100	1	2	3
5196		BOUL	10 16 1450	S37 E66	10 21.9		A	HS	60	1	2	2
5196	24846	MWIL	10 16 1515	S36 E65	10 21.8	4	AP					
5196		HOLL	10 16 1645	S36 E66	10 22.0		A	HA	60	2	2	3
5196		PALE	10 16 1810	S38 E67	10 22.2		A	HS	120	1	2	3
5196		LEAR	10 17 0048	S37 E59	10 21.8		A	HS	80	1	1	4
5196		CULG	10 17 0320	S39 E59	10 21.9		A	HS	50	1	2	3
5196		SVTO	10 17 0742	S36 E56	10 21.8		A	HS	80	1	2	4
5196		RAMY	10 17 1338	S37 E51	10 21.7		A	HS	70	1	2	3
5196	24846	MWIL	10 17 1515	S36 E52	10 21.8	5	(AP)					
5196		HOLL	10 17 1555	S36 E52	10 21.8		A	HS	50	2	2	3
5196		LEAR	10 18 0053	S36 E48	10 21.9		B	CSO	100	2	3	3
5196		CULG	10 18 0245	S38 E45	10 21.7		A	HS	80	1	2	2
5196		SVTO	10 18 0830	S37 E46	10 22.1		A	HS	80	1	3	2
5196		RAMY	10 18 1458	S36 E40	10 21.8		A	HS	50	1	2	3
5196	24846	MWIL	10 18 1500	S36 E40	10 21.8	6	(AP)					
5196		HOLL	10 18 1500	S36 E41	10 21.9		A	HS	70	1	2	3
5196		PALE	10 18 2215	S36 E37	10 21.9		A	HS	80	1	2	1
5196		LEAR	10 19 0028	S37 E36	10 21.9		A	HS	100	1	2	3
5196		CULG	10 19 0400	S37 E34	10 21.9		A	HS	40	1	1	2
5196		SVTO	10 19 0742	S36 E33	10 22.0		A	HS	100	1	2	3
5196		RAMY	10 19 1355	S36 E29	10 21.9		A	HS	60	1	2	2
5196		BOUL	10 19 1418	S35 E27	10 21.7		A	HS	60	1	2	2
5196	24846	MWIL	10 19 1515	S36 E28	10 21.9	5	(AP)					
5196		HOLL	10 19 1605	S36 E28	10 21.9		A	HS	90	1	2	3
5196		PALE	10 19 1845	S38 E26	10 21.9		A	HS	80	1	2	3
5196		LEAR	10 20 0145	S37 E22	10 21.8		A	HS	80	1	2	2
5196		CULG	10 20 0402	S37 E25	10 22.2		A	HS	60	1	2	2
5196		BOUL	10 20 1430	S35 E16	10 21.9		A	HS	100	1	2	2
5196	24846	MWIL	10 20 1445	S36 E16	10 21.9	5	(AP)					
5196		HOLL	10 20 1903	S37 E15	10 22.0		A	HS	60	1	2	3
5196		PALE	10 20 2107	S38 E12	10 21.8		A	HS	80	1	2	1
5196		LEAR	10 21 0017	S37 E12	10 22.0		A	HS	50	1	2	3
5196		CULG	10 21 0345	S37 E08	10 21.8		A	HS	40	1	2	2
5196		BOUL	10 21 1428	S34 E04	10 21.9		A	HS	70	1	2	2
5196		RAMY	10 21 1459	S36 E04	10 21.9		A	HS	80	1	2	1
5196	24846	MWIL	10 21 1500	S36 E04	10 21.9	5	(AP)					
5196		HOLL	10 21 1519	S37 E05	10 22.0		A	HS	80	1	2	3
5196		PALE	10 21 1920	S38 E01	10 21.9		A	HS	80	1	2	2
5196		LEAR	10 22 0020	S37 E00	10 22.0		A	HS	70	1	2	3
5196		CULG	10 22 0412	S37 W06	10 21.7		A	HS	40	1	1	1
5196		RAMY	10 22 1415	S36 W07	10 22.0		A	HS	80	1	2	3
5196		HOLL	10 22 1510	S36 W08	10 22.0		A	HS	50	1	2	4
5196	24846	MWIL	10 22 1515	S36 W08	10 22.0	5	(AP)					
5196		PALE	10 22 1750	S36 W11	10 21.9		A	HS	80	1	2	3
5196		LEAR	10 23 0100	S36 W14	10 21.9		A	HS	50	1	3	4
5196		CULG	10 23 0355	S37 W19	10 21.6		A	HS	50	1	1	2
5196		SVTO	10 23 0735	S36 W15	10 22.1		A	HS	50	1	3	2
5196		BOUL	10 23 1436	S35 W21	10 21.9		A	HS	40	1	1	2
5196		HOLL	10 23 1510	S36 W20	10 22.0		A	HS	60	1	2	3
5196	24846	MWIL	10 23 1545	S36 W20	10 22.0	5	(AP)					
5196		PALE	10 23 1725	S36 W23	10 21.9		A	HS	110	1	2	3
5196		LEAR	10 24 0019	S35 W25	10 22.0		A	HS	80	1	2	4
5196		CULG	10 24 0305	S36 W29	10 21.8		A	HS	60	1	1	3
5196		SVTO	10 24 0905	S36 W30	10 22.0		A	HS	60	1	2	3
5196		RAMY	10 24 1338	S36 W31	10 22.1		A	HS	60	1	2	4
5196		BOUL	10 24 1430	S35 W33	10 22.0		A	HS	40	1	1	1
5196		HOLL	10 24 1525	S36 W32	10 22.1		A	HS	90	1	2	3
5196	24846	MWIL	10 24 1530	S36 W33	10 22.0	6	(AP)					
5196		PALE	10 24 1805	S36 W36	10 21.9		A	HS	60	1	2	2
5196		LEAR	10 25 0024	S36 W39	10 21.9		A	HS	30	1	2	4
5196		CULG	10 25 0450	S33 W42	10 21.9		A	HS	50	1	1	3
5196		SVTO	10 25 0925	S35 W42	10 22.0		A	HS	80	1	2	2
5196		RAMY	10 25 1336	S36 W42	10 22.2		A	HS	70	1	2	4
5196		HOLL	10 25 1515	S36 W45	10 22.0		A	HS	80	1	2	3

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5196	24846	MWIL	10 25 1545	S36 W46	10 22.0	5	(AP)					
5196		PALE	10 25 2010	S37 W48	10 22.0		A	HS	70	1	2	3
5196		LEAR	10 26 0122	S37 W52	10 21.9		A	HS	30	1	2	4
5196		CULG	10 26 0440	S34 W57	10 21.6		A	HS	40	1	1	2
5196		SVTO	10 26 0701	S36 W55	10 21.9		A	HS	50	1	2	3
5196		RAMY	10 26 1335	S36 W57	10 22.0		A	HS	90	1	2	4
5196		BOUL	10 26 1424	S36 W59	10 21.9		A	HS	50	1	1	2
5196	24846	MWIL	10 26 1530	S36 W58	10 22.0	5	(AP)					
5196		HOLL	10 26 1542	S36 W58	10 22.0		A	HS	100	1	2	3
5196		PALE	10 26 1810	S34 W58	10 22.1		A	HS	110	1	2	2
5196		LEAR	10 27 0025	S35 W61	10 22.1		A	HS	60	1	2	3
5196		CULG	10 27 0210	S33 W67	10 21.8		A	HS	30	1	2	1
5196		SVTO	10 27 0900	S36 W67	10 22.0		A	HS	90	2	2	2
5196		RAMY	10 27 1240	S36 W68	10 22.1		A	HS	60	1	2	4
5196	24846	MWIL	10 27 1530	S36 W69	10 22.1	4	(AP)					
5196		HOLL	10 27 1538	S36 W70	10 22.0		A	HS	60	1	2	3
5196		PALE	10 27 1830	S38 W73	10 21.9		A	HS	60	1	1	3
5196		LEAR	10 28 0020	S35 W70	10 22.4		A	HS	30	1	1	3
5196A		LEAR	10 19 0145	N28 E39	10 22.1		B	BXO	10	3	3	2
5196A		CULG	10 21 0345	N29 E16	10 22.4		A	AX		1		2
5198		RAMY	10 16 1430	N28 E82	10 23.0		A	HS	50	3	2	3
5198		HOLL	10 16 1645	N29 E82	10 23.1		A	HA	30	1	1	3
5198		PALE	10 16 1810	N27 E85	10 23.4		A	HS	60	1	2	3
5198		LEAR	10 17 0048	N28 E79	10 23.2		A	HS	40	1	2	4
5198		CULG	10 17 0320	N25 E78	10 23.2		A	HS	20	1	2	3
5198		SVTO	10 17 0742	N28 E75	10 23.2		B	DSO	80	3	4	4
5198		RAMY	10 17 1338	N27 E72	10 23.2		A	HS	60	1	3	3
5198	24848	MWIL	10 17 1515	N28 E71	10 23.2	5	(AP)					
5198		HOLL	10 17 1555	N29 E71	10 23.2		A	HA	30	1	1	3
5198		LEAR	10 18 0053	N29 E69	10 23.4		B	CSO	80	4	8	3
5198		CULG	10 18 0245	N26 E65	10 23.2		A	HS	20	1	2	2
5198		SVTO	10 18 0830	N30 E66	10 23.5		A	HS	70	3	3	2
5198		RAMY	10 18 1458	N29 E58	10 23.2		A	HS	30	1	2	3
5198		HOLL	10 18 1500	N29 E58	10 23.2		A	HA	20	2	2	3
5198	24848	MWIL	10 18 1500	N29 E58	10 23.2	5	(AP)					
5198		PALE	10 18 2215	N29 E56	10 23.3		A	HS	40	1	1	1
5198		LEAR	10 19 0028	N28 E52	10 23.1		B	CSO	30	3	3	3
5198		CULG	10 19 0400	N28 E51	10 23.1		A	HR	10	1	1	2
5198		SVTO	10 19 0742	N30 E49	10 23.2		A	HS	40	2	1	3
5198		RAMY	10 19 1355	N28 E45	10 23.1		A	HS	40	2	2	2
5198		BOUL	10 19 1418	N29 E44	10 23.0		A	AX		2	1	2
5198	24848	MWIL	10 19 1515	N28 E45	10 23.1	4	(AP)					
5198		HOLL	10 19 1605	N29 E44	10 23.1		A	HS	20	2	1	3
5198		PALE	10 19 1845	N27 E45	10 23.3		A	HS	30	1	1	3
5198		LEAR	10 20 0145	N28 E39	10 23.1		B	BXO	10	3	3	2
5198		CULG	10 20 0402	N29 E38	10 23.1		A	HR	10	2	1	2
5198		BOUL	10 20 1430	N28 E31	10 23.0		A	HR	10	1	1	2
5198	24848	MWIL	10 20 1445	N29 E32	10 23.1	4	(AP)					
5198		HOLL	10 20 1903	N29 E30	10 23.1		A	AX	10	2	1	3
5198		PALE	10 20 2107	N28 E28	10 23.1		A	AX	10	2	1	1
5209		RAMY	10 25 1336	N29 W23	10 23.8		B	BXO	10	2	2	4
5209		HOLL	10 25 1515	N28 W23	10 23.8		A	AX	10	2	2	3
5209		PALE	10 25 2010	N29 W25	10 23.9		A	AX	10	2	1	3
5209		LEAR	10 26 0122	N29 W29	10 23.8		B	BXO	10	3	3	4
5209		SVTO	10 26 0701	N29 W33	10 23.7		A	AX	10	2	2	3
5209		RAMY	10 26 1335	N28 W35	10 23.8		B	BXO	10	2	2	4
5202		SVTO	10 18 0830	S13 E74	10 23.9		B	BXO	20	2	3	2
5202		RAMY	10 18 1458	S12 E68	10 23.7		A	HR	20	1	2	3
5202	24850	MWIL	10 18 1500	S13 E68	10 23.7	4	(AP)					
5202		HOLL	10 18 1500	S13 E70	10 23.9		A	AX	10	2	1	3
5202		PALE	10 18 2215	S14 E66	10 23.9		A	AX	10	1	1	1
5202		LEAR	10 19 0028	S13 E64	10 23.8		B	BXO	10	3	1	3
5202		CULG	10 19 0400	S16 E61	10 23.8		A	AX		1		2
5202		SVTO	10 19 0742	S13 E59	10 23.8		A	HR	20	1	1	3

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5202		RAMY	10 19 1355	S13 E57	10 23.9		B	BXO	20	2	4	2
5202		BOUL	10 19 1418	S14 E55	10 23.7		A	AX		1		2
5202	24850	MWIL	10 19 1515	S14 E56	10 23.9	4	(BP)					
5202		HOLL	10 19 1605	S13 E56	10 23.9		B	BXO	10	3	4	3
5202		PALE	10 19 1845	S16 E55	10 23.9		B	BXO	10	2	4	3
5202		LEAR	10 20 0145	S13 E50	10 23.8		B	BXO	30	4	5	2
5202		CULG	10 20 0402	S14 E50	10 23.9		B	BXO		3	5	2
5202	24850	MWIL	10 20 1445	S14 E44	10 23.9	4	(BF)					
5202		HOLL	10 20 1903	S13 E43	10 24.0		B	BXO	10	4	3	3
5202		LEAR	10 21 0017	S14 E39	10 23.9		B	BXO	10	2	2	3
5202		CULG	10 21 0345	S15 E37	10 23.9		A	AX		1		2
5202	24850	MWIL	10 21 1500	S14 E30	10 23.9	2	X					
5200		LEAR	10 17 0048	N21 E87	10 23.7		A	HS	140	1	2	4
5200		CULG	10 17 0320	N18 E86	10 23.7		A	HS	20	1	2	3
5200		SVTO	10 17 0742	N21 E84	10 23.8		B	DSO	130	3	4	4
5200		RAMY	10 17 1338	N18 E84	10 24.0		B	DAO	240	6	10	3
5200	24849	MWIL	10 17 1515	N20 E81	10 23.8	5	(B					
5200		HOLL	10 17 1555	N21 E80	10 23.8		B	DKO	230	5	9	3
5200		LEAR	10 18 0053	N20 E72	10 23.5		B	DHI	510	13	9	3
5200		CULG	10 18 0245	N19 E77	10 24.0		B	DKO	620	7	8	2
5200		SVTO	10 18 0830	N23 E76	10 24.2		B	EKI	1070	18	15	2
5200		RAMY	10 18 1458	N23 E74	10 24.3		B	EKI	800	20	15	3
5200	24849	MWIL	10 18 1500	N21 E69	10 23.9	5	(B)					
5200		HOLL	10 18 1500	N23 E73	10 24.2		B	EKI	760	22	14	3
5200		PALE	10 18 2215	N21 E69	10 24.2		B	EKO	750	12	13	1
5200		LEAR	10 19 0028	N20 E65	10 24.0		BD	FKI	1190	28	17	3
5200		CULG	10 19 0400	N19 E66	10 24.2		B	EKO	500	10	12	2
5200		SVTO	10 19 0742	N23 E66	10 24.4		BD	FKI	1140	33	17	3
5200		RAMY	10 19 1355	N21 E60	10 24.2		B	EKI	1100	26	15	2
5200		BOUL	10 19 1418	N20 E60	10 24.2		B	EKI	920	14	15	2
5200	24849	MWIL	10 19 1515	N20 E56	10 23.9	6	(D)					
5200		HOLL	10 19 1605	N23 E59	10 24.2		B	FKI	1090	41	16	3
5200		PALE	10 19 1845	N18 E60	10 24.3		B	FKI	1180	29	17	3
5200		LEAR	10 20 0145	N19 E54	10 24.2		BG	FKI	1100	31	16	2
5200		CULG	10 20 0402	N21 E52	10 24.1		BD	EKI	910	30	14	2
5200		BOUL	10 20 1430	N21 E46	10 24.1		B	FKC	1350	35	16	2
5200	24849	MWIL	10 20 1445	N20 E46	10 24.1	5	(BG)					
5200		HOLL	10 20 1903	N22 E43	10 24.1		BD	FKI	1480	62	19	3
5200		PALE	10 20 2107	N18 E45	10 24.3		BD	FKI	1760	59	18	1
5200		LEAR	10 21 0017	N20 E40	10 24.1		B	FKI	1490	42	17	3
5200		CULG	10 21 0345	N20 E38	10 24.1		BG	FKI	1140	52	16	2
5200		BOUL	10 21 1428	N22 E34	10 24.2		B	EKC	1320	58	15	2
5200		RAMY	10 21 1459	N21 E34	10 24.2		BG	FKI	1220	70	16	1
5200	24849	MWIL	10 21 1500	N20 E32	10 24.1	5	(D)					
5200		HOLL	10 21 1519	N22 E33	10 24.2		BG	FKI	1340	75	16	3
5200		PALE	10 21 1920	N21 E33	10 24.3		BG	FKI	1280	62	16	2
5200		LEAR	10 22 0020	N21 E28	10 24.2		BG	FKI	1050	48	16	3
5200		CULG	10 22 0412	N20 E26	10 24.2		B	FKI	1040	49	17	1
5200		RAMY	10 22 1415	N22 E21	10 24.2		B	FKI	1270	0	17	3
5200		HOLL	10 22 1510	N21 E20	10 24.2		BGD	FKI	1570	0	18	4
5200	24849	MWIL	10 22 1515	N20 E20	10 24.2	5	(D)					
5200		PALE	10 22 1750	N21 E20	10 24.3		BG	FKI	1330	83	19	3
5200		LEAR	10 23 0100	N21 E15	10 24.2		BG	FKC	1360	99	19	4
5200		CULG	10 23 0355	N20 E13	10 24.1		B	FKI	1350	81	15	2
5200		SVTO	10 23 0735	N20 E11	10 24.1		BG	EKI	990	91	15	2
5200		BOUL	10 23 1436	N20 E08	10 24.2		B	FAI	770	46	19	2
5200		HOLL	10 23 1510	N22 E08	10 24.2		BD	FKI	1250	0	19	3
5200	24849	MWIL	10 23 1545	N21 E07	10 24.2	5	(D)					
5200		PALE	10 23 1725	N21 E06	10 24.2		BGD	FKI	1570	75	19	3
5200		LEAR	10 24 0019	N22 E02	10 24.2		BG	FKC	1310	0	20	4
5200		CULG	10 24 0305	N20 W02	10 24.0		B	FKI	1000	52	18	3
5200		SVTO	10 24 0905	N23 W01	10 24.3		BGD	FKI	1220	0	18	3
5200		RAMY	10 24 1338	N22 W05	10 24.2		B	FKI	1320	0	16	4
5200		BOUL	10 24 1430	N19 W06	10 24.1		B	EKI	1110	40	14	1
5200		HOLL	10 24 1525	N21 W07	10 24.1		BGD	EKI	1200	0	14	3
5200	24849	MWIL	10 24 1530	N21 W07	10 24.1	5	(D)					
5200		PALE	10 24 1805	N21 W07	10 24.2		B	FKI	1270	72	17	2

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5200		LEAR	10	25	0024	N21	W12	10	24.1		BG	EKI	1130	83	15	4
5200		CULG	10	25	0450	N21	W12	10	24.3		B	FKI	990	60	16	3
5200		SVTO	10	25	0925	N21	W15	10	24.2		BG	FKI	1110	0	19	2
5200		RAMY	10	25	1336	N22	W19	10	24.1		B	FKI	1190	0	19	4
5200		HOLL	10	25	1515	N22	W18	10	24.2		BG	FKI	1270	0	19	3
5200	24849	MWIL	10	25	1545	N21	W20	10	24.1	6	(BG)					
5200		PALE	10	25	2010	N21	W20	10	24.3		B	FKI	1120	69	18	3
5200		LEAR	10	26	0122	N22	W23	10	24.3		BG	FKI	1130	90	19	4
5200		CULG	10	26	0440	N22	W26	10	24.2		B	FKI	750	40	17	2
5200		SVTO	10	26	0701	N22	W27	10	24.2		BG	FKI	1170	93	21	3
5200		RAMY	10	26	1335	N21	W29	10	24.3		B	FKI	1280	99	19	4
5200		BOUL	10	26	1424	N20	W30	10	24.3		B	FAI	430	40	20	2
5200	24849	MWIL	10	26	1530	N21	W33	10	24.1	5	(BG)					
5200		HOLL	10	26	1542	N21	W31	10	24.3		BG	FKI	1290	93	19	3
5200		PALE	10	26	1810	N22	W32	10	24.3		BG	FKC	710	51	18	2
5200		LEAR	10	27	0025	N21	W35	10	24.3		BG	FKI	920	58	19	3
5200		CULG	10	27	0210	N22	W38	10	24.2		B	FKI	600	42	22	1
5200		SVTO	10	27	0900	N22	W41	10	24.2		BG	FKI	990	90	20	2
5200		RAMY	10	27	1240	N21	W43	10	24.2		B	FKI	1160	89	18	4
5200	24849	MWIL	10	27	1530	N21	W47	10	24.0	5	(D)					
5200		HOLL	10	27	1538	N21	W48	10	24.0		BG	FAI	950	63	18	3
5200		PALE	10	27	1830	N22	W48	10	24.1		BG	FAI	850	47	20	3
5200		LEAR	10	28	0020	N22	W48	10	24.3		BG	FKI	720	55	19	3
5200		CULG	10	28	0415	N24	W51	10	24.2		B	FKI	580	43	19	2
5200		SVTO	10	28	0754	N21	W52	10	24.3		B	FKI	940	60	19	4
5200	24849	MWIL	10	28	1530	N22	W59	10	24.1	5	(D)					
5200		BOUL	10	28	1605	N21	W58	10	24.2		B	EKC	780	31	14	2
5200		HOLL	10	28	1715	N22	W61	10	24.0		BG	FAI	570	30	18	2
5200		PALE	10	28	1735	N22	W60	10	24.1		BG	EAI	490	36	15	3
5200		LEAR	10	29	0020	N22	W63	10	24.2		B	EAI	320	41	14	3
5200		CULG	10	29	0323	N23	W66	10	24.0		B	FKI	220	22	15	2
5200		SVTO	10	29	0818	N18	W65	10	24.4		BG	EKI	660	24	15	2
5200		RAMY	10	29	1315	N22	W72	10	24.0		B	FKI	410	32	16	3
5200		BOUL	10	29	1530	N21	W70	10	24.3		B	EAI	140	8	14	2
5200		HOLL	10	29	1545	N19	W77	10	23.8		BG	FAO	250	19	17	4
5200		PALE	10	29	1840	N22	W76	10	23.9		BG	FAO	180	13	16	3
5200	24849	MWIL	10	29	2015	N19	W75	10	24.1	5	(BP)					
5200		LEAR	10	30	0015	N22	W77	10	24.1		B	FAO	210	16	19	3
5200		SVTO	10	30	1014	N18	W81	10	24.2		B	CAO	70	3	10	1
5200		RAMY	10	30	1427	N22	W85	10	24.1		B	CAO	90	2	7	2
5200		BOUL	10	30	1450	N21	W82	10	24.3		A	AX	10	1	1	3
5200		HOLL	10	30	1515	N21	W85	10	24.1		A	HA	60	1	4	1
5200	24849	MWIL	10	30	1530	N20	W87	10	24.0	3	AP					
5200		PALE	10	30	1945	N23	W85	10	24.3		B	CAO	80	2	8	2
5200A	24856	MWIL	10	20	1445	N30	E58	10	25.2	3	(AF)					
5200A		HOLL	10	20	1903	N30	E56	10	25.2		A	AX		1		3
5200A		LEAR	10	24	0019	N31	E11	10	24.9		A	AX	10	1	1	4
5214		HOLL	10	22	1510	N18	E40	10	25.7		B	BXO	10	5	5	4
5214	24863	MWIL	10	27	1530	N16	W27	10	25.6	3	(AP)					
5214		CULG	10	29	0442	N19	W51	10	25.3		A	AX	10	1		2
5205		HOLL	10	20	1903	N18	E70	10	26.1		A	AX		1		3
5205		LEAR	10	21	0017	N16	E68	10	26.2		B	BXO	10	2	2	3
5205		RAMY	10	21	1459	N16	E61	10	26.2		A	AX		1		1
5205	24857	MWIL	10	21	1500	N17	E60	10	26.2	2	(AP)					
5205		HOLL	10	21	1519	N17	E61	10	26.3		A	AX		1		3
5205		LEAR	10	22	0020	N16	E55	10	26.2		B	BXO	20	2	3	3
5205		RAMY	10	22	1415	N18	E48	10	26.2		B	BXO	10	3	3	3
5205	24857	MWIL	10	22	1515	N18	E48	10	26.3	4	(AP)					
5205		RAMY	10	24	1338	N19	E27	10	26.6		A	AX		1	1	4
5205		HOLL	10	24	1525	N19	E25	10	26.5		A	AX		1		3
5205		LEAR	10	25	0024	N18	E20	10	26.5		B	BXO	10	2	3	4
5205		RAMY	10	25	1336	N19	E14	10	26.6		B	BXO	10	2	3	4
5205		HOLL	10	25	1515	N19	E08	10	26.2		A	AX		1		3
5205		LEAR	10	26	0122	N18	E06	10	26.5		A	AX	10	1	1	4
5205		HOLL	10	26	1542	N19	W05	10	26.3		A	AX		3	1	3

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5205	24857	MWIL	10 27 1530	N15 W13	10 26.7	4	(BP)					
5205	24857	MWIL	10 27 1530	N18 W17	10 26.3	4	(AP)					
5205		HOLL	10 27 1538	N18 W18	10 26.3		A	AX	10	3	2	3
5205		PALE	10 27 1830	N18 W20	10 26.2		A	HS	20	1	2	3
5205		LEAR	10 28 0020	N18 W22	10 26.3		A	AX	10	1	1	3
5205		SVTO	10 29 0818	N18 W42	10 26.1		B	CRO	40	8	13	2
5205		RAMY	10 29 1315	N18 W45	10 26.1		A	AX	10	1	1	3
5205		HOLL	10 29 1545	N18 W45	10 26.2		B	BXO	10	3	3	4
5205		PALE	10 29 1840	N18 W48	10 26.1		A	AX	10	1	1	3
5205	24857	MWIL	10 29 2015	N19 W47	10 26.2	4	(AP)					
5205		LEAR	10 30 0015	N19 W50	10 26.2		B	BXO	10	2	1	3
5205A		RAMY	10 25 1336	S30 E12	10 26.5		A	AX		1		4
5205A		HOLL	10 25 1515	S30 E13	10 26.6		A	AX		1		3
5205B	24866	MWIL	10 27 1530	N21 W06	10 27.2	3	(AP)					
5205B		LEAR	10 29 0020	N22 W23	10 27.2		A	AX	10	1	1	3
5205B		RAMY	10 29 1315	N23 W33	10 27.0		A	AX	10	2	2	3
5205B		HOLL	10 29 1545	N22 W33	10 27.1		A	AX		2	1	4
5205B	24866	MWIL	10 29 2015	N22 W34	10 27.2	4	(AF)					
5205C	24861	MWIL	10 26 1530	S19 E14	10 27.7	4	(AF)					
5206		RAMY	10 21 1459	S38 E78	10 27.9		A	HS	120	2	2	1
5206	24858	MWIL	10 21 1500	S38 E77	10 27.8	4	AP					
5206		HOLL	10 21 1519	S37 E78	10 27.9		A	HS	120	2	2	3
5206		PALE	10 21 1920	S39 E75	10 27.9		A	HS	120	1	2	2
5206		LEAR	10 22 0020	S37 E75	10 28.0		A	HS	90	2	5	3
5206		CULG	10 22 0412	S40 E72	10 28.0		A	HS	100	1	3	1
5206		RAMY	10 22 1415	S37 E64	10 27.7		A	HS	110	2	2	3
5206		HOLL	10 22 1510	S37 E65	10 27.9		A	HS	120	1	2	4
5206	24858	MWIL	10 22 1515	S38 E65	10 27.9	4	(AP)					
5206		PALE	10 22 1750	S39 E64	10 27.9		A	HS	180	1	2	3
5206		LEAR	10 23 0100	S37 E58	10 27.7		A	HS	100	2	3	4
5206		CULG	10 23 0355	S40 E57	10 27.8		A	HS	90	2	2	2
5206		SVTO	10 23 0735	S35 E54	10 27.6		A	HS	130	3	3	2
5206		BOUL	10 23 1436	S38 E52	10 27.8		A	HS	110	1	2	2
5206		HOLL	10 23 1510	S36 E52	10 27.8		A	HS	90	2	2	3
5206	24858	MWIL	10 23 1545	S37 E52	10 27.8	5	(AP)					
5206		PALE	10 23 1725	S38 E52	10 27.9		A	HS	200	1	2	3
5206		LEAR	10 24 0019	S36 E47	10 27.8		A	HS	170	2	3	4
5206		CULG	10 24 0305	S40 E47	10 27.9		A	HS	70	1	1	3
5206		SVTO	10 24 0905	S36 E44	10 27.9		A	HS	140	3	3	3
5206		RAMY	10 24 1338	S36 E40	10 27.8		A	HS	100	2	3	4
5206		BOUL	10 24 1430	S38 E40	10 27.8		A	HS	100	1	2	1
5206		HOLL	10 24 1525	S36 E41	10 27.9		A	HS	140	1	2	3
5206	24858	MWIL	10 24 1530	S37 E39	10 27.8	5	(AP)					
5206		PALE	10 24 1805	S38 E39	10 27.9		A	HS	100	1	2	2
5206		LEAR	10 25 0024	S37 E34	10 27.7		A	HS	100	1	3	4
5206		CULG	10 25 0450	S39 E30	10 27.6		A	HS	80	1	1	3
5206		SVTO	10 25 0925	S35 E30	10 27.8		A	HS	120	1	2	2
5206		RAMY	10 25 1336	S35 E29	10 27.9		A	HS	120	2	2	4
5206		HOLL	10 25 1515	S36 E28	10 27.9		A	HS	120	1	2	3
5206	24858	MWIL	10 25 1545	S37 E27	10 27.8	5	(AP)					
5206		PALE	10 25 2010	S38 E24	10 27.8		A	HS	80	1	2	3
5206		LEAR	10 26 0122	S37 E22	10 27.8		A	HS	100	1	2	4
5206		CULG	10 26 0440	S39 E17	10 27.6		A	HS	80	1	1	2
5206		SVTO	10 26 0701	S36 E19	10 27.8		A	HS	110	1	3	3
5206		RAMY	10 26 1335	S36 E16	10 27.8		A	HS	130	1	2	4
5206		BOUL	10 26 1424	S36 E14	10 27.7		A	HS	100	1	2	2
5206	24858	MWIL	10 26 1530	S37 E14	10 27.8	6	(AP)					
5206		HOLL	10 26 1542	S37 E15	10 27.9		A	HS	110	1	2	3
5206		PALE	10 26 1810	S38 E15	10 28.0		A	HS	110	1	2	2
5206		LEAR	10 27 0025	S36 E09	10 27.7		A	HS	100	1	2	3
5206		CULG	10 27 0210	S37 E06	10 27.6		A	HS	50	1	2	1
5206		SVTO	10 27 0900	S37 E05	10 27.8		A	HH	120	1	3	2
5206		RAMY	10 27 1240	S36 E04	10 27.8		A	HS	130	1	2	4
5206	24858	MWIL	10 27 1530	S37 E02	10 27.8	5	(AP)					

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5206		HOLL	10 27	1538	S36 E02	10 27.8		A	HS	70	1	2	3
5206		PALE	10 27	1830	S36 E01	10 27.8		A	HS	90	1	2	3
5206		LEAR	10 28	0020	S36 W03	10 27.8		A	HS	80	1	2	3
5206		CULG	10 28	0415	S38 W09	10 27.4		A	HS	80	1	3	2
5206		SVTO	10 28	0754	S37 W06	10 27.8		A	HH	140	1	3	4
5206	24858	MWIL	10 28	1530	S36 W11	10 27.8	6	(AP)					
5206		BOUL	10 28	1605	S35 W11	10 27.8		A	HA	70	1	2	2
5206		HOLL	10 28	1715	S35 W11	10 27.8		A	HS	110	1	2	2
5206		PALE	10 28	1735	S36 W11	10 27.8		A	HS	80	1	2	3
5206		LEAR	10 29	0020	S36 W15	10 27.8		A	HS	80	1	2	3
5206		CULG	10 29	0323	S36 W19	10 27.6		A	HS	80	1	2	2
5206		SVTO	10 29	0818	S38 W17	10 28.0		B	CHO	120	3	5	2
5206		RAMY	10 29	1315	S35 W22	10 27.8		A	HS	110	1	2	3
5206		BOUL	10 29	1530	S36 W23	10 27.8		A	HS	50	1	2	2
5206		HOLL	10 29	1545	S36 W22	10 27.9		A	HS	60	1	2	4
5206		PALE	10 29	1840	S37 W25	10 27.8		A	HS	50	1	2	3
5206	24858	MWIL	10 29	2015	S36 W25	10 27.8	5	(AP)					
5206		LEAR	10 30	0015	S36 W27	10 27.8		A	HS	100	1	2	3
5206		SVTO	10 30	1014	S37 W35	10 27.6		A	HS	60	1	2	1
5206		RAMY	10 30	1427	S37 W35	10 27.8		A	HA	60	1	2	2
5206		BOUL	10 30	1450	S36 W35	10 27.8		A	HS	80	1	2	3
5206		HOLL	10 30	1515	S36 W35	10 27.8		A	HS	60	1	2	2
5206	24858	MWIL	10 30	1530	S36 W36	10 27.7	5	(AP)					
5206		PALE	10 30	1945	S36 W39	10 27.7		A	HS	70	1	2	2
5206		LEAR	10 31	0055	S36 W40	10 27.8		A	HS	70	1	3	3
5206		CULG	10 31	0538	S36 W43	10 27.8		A	HS	50	2	1	2
5206		RAMY	10 31	1348	S37 W48	10 27.7		A	HA	70	1	2	4
5206		BOUL	10 31	1426	S36 W48	10 27.7		A	HS	80	1	2	1
5206		HOLL	10 31	1545	S36 W47	10 27.9		A	HS	80	2	2	3
5206	24858	MWIL	10 31	1545	S37 W47	10 27.9	5	(AP)					
5206		PALE	10 31	1945	S36 W49	10 27.9		A	HS	70	2	2	3
5206		LEAR	11 01	0142	S37 W52	10 28.0		A	HS	40	1	1	2
5206		CULG	11 01	0352	S37 W53	10 28.0		A	HS	60	1	2	2
5206		SVTO	11 01	0724	S36 W56	10 27.9		A	HH	130	4	3	2
5206		RAMY	11 01	1312	S36 W57	10 28.1		A	HS	100	2	2	4
5206		HOLL	11 01	1501	S36 W58	10 28.1		A	HS	100	1	2	3
5206		BOUL	11 01	1535	S37 W60	10 27.9		A	HS	100	1	2	2
5206	24858	MWIL	11 01	1600	S36 W59	10 28.0	5	(AP)					
5206		PALE	11 01	1815	S37 W61	10 27.9		A	HS	90	1	2	3
5206		LEAR	11 02	0015	S36 W64	10 28.0		A	HS	50	3	2	3
5206		CULG	11 02	0355	S38 W67	10 27.8		A	HS	30	1	1	2
5206		SVTO	11 02	0954	S36 W68	10 28.0		A	HH	90	2	3	4
5206	24858	MWIL	11 02	1545	S36 W72	10 28.0	4	(AP)					
5206		HOLL	11 02	1726	S36 W73	10 28.0		A	HS	60	1	2	3
5206		PALE	11 02	1800	S37 W77	10 27.6		A	HS	60	1	2	3
5206		LEAR	11 03	0017	S36 W75	10 28.1		A	HS	20	2	2	4
5210		LEAR	10 27	0025	N29 E36	10 29.8		A	AX	10	2	3	3
5210		SVTO	10 27	0900	N28 E30	10 29.7		B	DRO	20	10	4	2
5210		RAMY	10 27	1240	N29 E28	10 29.7		B	BXO	20	10	5	4
5210	24867	MWIL	10 27	1530	N28 E26	10 29.7	5	(B)					
5210		HOLL	10 27	1538	N29 E27	10 29.8		B	BXO	30	11	5	3
5210		PALE	10 27	1830	N28 E28	10 29.9		B	BXO	40	6	5	3
5210		LEAR	10 28	0020	N29 E22	10 29.7		B	DRO	30	8	7	3
5210		CULG	10 28	0415	N27 E21	10 29.8		B	DSO	60	9	6	2
5210		SVTO	10 28	0754	N29 E17	10 29.7		B	DSI	70	23	8	4
5210	24867	MWIL	10 28	1530	N29 E13	10 29.7	5	(BG)					
5210		BOUL	10 28	1605	N28 E13	10 29.7		B	DSO	130	8	8	2
5210		HOLL	10 28	1715	N29 E12	10 29.6		B	DSO	100	10	10	2
5210		PALE	10 28	1735	N29 E12	10 29.7		B	DSO	130	6	7	3
5210		LEAR	10 29	0020	N30 E10	10 29.8		B	DSO	90	10	9	3
5210		CULG	10 29	0323	N29 E08	10 29.8		B	DSO	110	9	9	2
5210		SVTO	10 29	0818	N27 E05	10 29.7		B	DSI	140	14	10	2
5210		RAMY	10 29	1315	N28 E02	10 29.7		B	ESI	170	25	13	3
5210		BOUL	10 29	1530	N29 E00	10 29.6		B	DAO	60	10	9	2
5210		HOLL	10 29	1545	N29 W01	10 29.6		B	ESO	120	18	11	4
5210		PALE	10 29	1840	N29 E00	10 29.8		B	ESO	80	7	11	3
5210	24867	MWIL	10 29	2015	N28 W01	10 29.8	4	(B)					

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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
5210		LEAR	10	30	0015	N29	W04	10	29.7		B	DAO	160	15	10	3
5210		SVTO	10	30	1014	N28	W08	10	29.8		B	ESO	80	16	11	1
5210		RAMY	10	30	1427	N29	W13	10	29.6		B	ESO	130	13	12	2
5210		BOUL	10	30	1450	N29	W13	10	29.6		B	CAO	70	13	10	3
5210		HOLL	10	30	1515	N29	W13	10	29.6		B	ESO	70	10	12	2
5210	24867	MWIL	10	30	1530	N28	W14	10	29.5	5	(B)					
5210		PALE	10	30	1945	N29	W15	10	29.6		B	DSO	80	8	10	2
5210		LEAR	10	31	0055	N28	W17	10	29.7		B	DAO	100	12	10	3
5210		CULG	10	31	0538	N29	W21	10	29.6		B	DSO	40	8	9	2
5210		RAMY	10	31	1348	N28	W25	10	29.6		B	EAO	70	13	11	4
5210		BOUL	10	31	1426	N28	W24	10	29.7		B	DAO	20	5	10	1
5210	24867	MWIL	10	31	1545	N28	W26	10	29.6	5	(B)					
5210		HOLL	10	31	1545	N29	W25	10	29.7		B	CSO	40	11	10	3
5210		PALE	10	31	1945	N29	W26	10	29.8		B	CSO	40	8	10	3
5210		LEAR	11	01	0142	N28	W37	10	29.3		B	CSO	40	4	3	2
5210		CULG	11	01	0352	N28	W31	10	29.8		B	CSO	10	4	10	2
5210		SVTO	11	01	0724	N27	W38	10	29.4		B	CSO	30	5	3	2
5210		RAMY	11	01	1312	N28	W41	10	29.4		A	HS	20	2	1	4
5210		HOLL	11	01	1501	N27	W42	10	29.4		A	AX	10	2	1	3
5210		BOUL	11	01	1535	N27	W43	10	29.4		A	HS	30	1	1	2
5210	24867	MWIL	11	01	1600	N28	W43	10	29.4	5	(AP)					
5210		PALE	11	01	1815	N28	W46	10	29.3		A	AX	10	1	1	3
5210		LEAR	11	02	0015	N27	W47	10	29.4		A	HS	10	2	1	3
5210		CULG	11	02	0355	N27	W48	10	29.5		A	HR	10	1	1	2
5210		SVTO	11	02	0954	N27	W53	10	29.4		A	HR	20	1	1	4
5210	24867	MWIL	11	02	1545	N28	W56	10	29.4	4	(AP)					
5210		HOLL	11	02	1726	N27	W56	10	29.5		A	AX		1	1	3
5210		PALE	11	02	1800	N28	W58	10	29.3		A	AX	10	1	1	3
5210		LEAR	11	03	0017	N27	W59	10	29.5		A	HR	20	2	2	4
5210		CULG	11	03	0310	N32	W62	10	29.3		A	AX		1		2
5210		RAMY	11	03	1340	N28	W65	10	29.6		A	AX	10	1	1	3
5210		HOLL	11	03	1605	N23	W65	10	29.8		A	AX	20	1	1	2
5210A	24873	MWIL	10	31	1545	S22	W24	10	29.8	3	(AP)					
5207		LEAR	10	24	0019	S28	E79	10	30.2		A	AX	10	1	1	4
5207		SVTO	10	24	0905	S26	E80	10	30.6		B	DSO	50	2	9	3
5207		RAMY	10	24	1338	S26	E76	10	30.5		B	DSO	60	2	7	4
5207		HOLL	10	24	1525	S26	E75	10	30.5		B	DAO	80	3	4	3
5207	24859	MWIL	10	24	1530	S27	E74	10	30.4	3	B					
5207		PALE	10	24	1805	S28	E75	10	30.6		B	DSO	90	3	8	2
5207		LEAR	10	25	0024	S27	E66	10	30.1		B	DSO	80	6	6	4
5207		CULG	10	25	0450	S30	E66	10	30.4		B	CSO	50	4	6	3
5207		SVTO	10	25	0925	S25	E63	10	30.3		B	DAO	80	4	7	2
5207		RAMY	10	25	1336	S25	E60	10	30.2		B	DSO	110	5	6	4
5207		HOLL	10	25	1515	S26	E60	10	30.3		B	CSO	70	10	8	3
5207	24859	MWIL	10	25	1545	S26	E61	10	30.4	4	(BG)					
5207		PALE	10	25	2010	S26	E58	10	30.3		B	CAO	60	3	8	3
5207		LEAR	10	26	0122	S26	E53	10	30.2		B	CSO	40	5	7	4
5207		CULG	10	26	0440	S30	E53	10	30.4		A	HS	50	1	1	2
5207		SVTO	10	26	0701	S26	E52	10	30.3		B	CAO	50	3	6	3
5207		RAMY	10	26	1335	S26	E49	10	30.4		B	CSO	70	4	7	4
5207		BOUL	10	26	1424	S26	E50	10	30.5		A	HS	40	1	1	2
5207	24859	MWIL	10	26	1530	S26	E48	10	30.4	5	(BG)					
5207		HOLL	10	26	1542	S26	E47	10	30.3		B	CSO	70	4	6	3
5207		PALE	10	26	1810	S28	E45	10	30.3		A	HS	70	1	2	2
5207		LEAR	10	27	0025	S26	E44	10	30.4		A	HS	60	1	2	3
5207		CULG	10	27	0210	S28	E42	10	30.4		A	HS	30	1	1	1
5207		SVTO	10	27	0900	S26	E41	10	30.6		A	HS	60	2	2	2
5207		RAMY	10	27	1240	S26	E38	10	30.5		A	HA	60	1	2	4
5207	24859	MWIL	10	27	1530	S26	E36	10	30.4	5	(AP)					
5207		HOLL	10	27	1538	S26	E37	10	30.5		A	HS	30	1	2	3
5207		PALE	10	27	1830	S28	E35	10	30.5		A	HS	20	1	1	3
5207		LEAR	10	28	0020	S25	E32	10	30.5		A	HS	30	1	2	3
5207		CULG	10	28	0415	S29	E28	10	30.4		A	HS	20	1	2	2
5207		SVTO	10	28	0754	S27	E28	10	30.5		B	CSO	30	5	3	4
5207	24859	MWIL	10	28	1530	S26	E24	10	30.5	5	(AP)					
5207		BOUL	10	28	1605	S25	E23	10	30.4		A	HS	20	1	1	2

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

OCTOBER 1988

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
5207		HOLL	10	28	1715	S26	E23	10	30.5		A	HS	20	1	1	2
5207		PALE	10	28	1735	S27	E22	10	30.4		A	HS	20	1	2	3
5207		LEAR	10	29	0020	S25	E19	10	30.5		A	HS	20	1	1	3
5207		CULG	10	29	0323	S27	E16	10	30.4		A	HS	20	2	1	2
5207		SVTO	10	29	0818	S27	E16	10	30.6		A	HS	50	2	2	2
5207		RAMY	10	29	1315	S26	E12	10	30.5		B	CSO	30	6	5	3
5207		BOUL	10	29	1530	S25	E11	10	30.5		A	AX		1		2
5207		HOLL	10	29	1545	S26	E09	10	30.3		B	CSO	30	5	6	4
5207		PALE	10	29	1840	S27	E10	10	30.5		A	HS	20	1	1	3
5207	24859	MWIL	10	29	2015	S26	E08	10	30.5	4	(B)					
5207		LEAR	10	30	0015	S26	E07	10	30.5		A	HA	30	3	1	3
5207		SVTO	10	30	1014	S27	W02	10	30.3		B	BXO	10	5	6	1
5207		RAMY	10	30	1427	S28	W04	10	30.3		B	DAO	30	6	6	2
5207		BOUL	10	30	1450	S26	W05	10	30.2		B	BXO		4	6	3
5207		HOLL	10	30	1515	S27	W04	10	30.3		B	CRO	10	6	6	2
5207	24859	MWIL	10	30	1530	S28	W04	10	30.3	5	(B)					
5207		PALE	10	30	1945	S28	W08	10	30.2		B	DSO	50	4	6	2
5207		LEAR	10	31	0055	S27	W09	10	30.3		B	DAO	80	9	7	3
5207		CULG	10	31	0538	S27	W12	10	30.3		B	DSO	20	4	4	2
5207		RAMY	10	31	1348	S28	W18	10	30.2		B	DAO	20	4	5	4
5207		BOUL	10	31	1426	S27	W17	10	30.3		B	BXO	20	3	6	1
5207	24859	MWIL	10	31	1545	S28	W17	10	30.3	5	(B)					
5207		HOLL	10	31	1545	S29	W17	10	30.3		B	DSO	40	5	6	3
5207		PALE	10	31	1945	S28	W18	10	30.4		B	DAO	40	6	5	3
5207		LEAR	11	01	0142	S28	W26	10	30.1		B	CSO	30	3	6	2
5207		CULG	11	01	0352	S29	W23	10	30.4		B	DSO	20	2	5	2
5207		SVTO	11	01	0724	S28	W26	10	30.4		B	CSO	50	4	6	2
5207		RAMY	11	01	1312	S28	W31	10	30.2		A	HS	30	2	1	4
5207		HOLL	11	01	1501	S28	W32	10	30.2		A	HS	30	1	1	3
5207		BOUL	11	01	1535	S28	W33	10	30.2		A	HS	30	1	1	2
5207	24859	MWIL	11	01	1600	S28	W33	10	30.2	5	(AP)					
5207		PALE	11	01	1815	S28	W34	10	30.2		A	HS	30	1	1	3
5207		LEAR	11	02	0015	S27	W37	10	30.2		A	HS	10	1	1	3
5207		CULG	11	02	0355	S29	W40	10	30.1		A	HS	10	1		2
5207		SVTO	11	02	0954	S27	W43	10	30.2		A	HR	20	1	1	4
5207	24859	MWIL	11	02	1545	S27	W46	10	30.2	4	(AP)					
5207		HOLL	11	02	1726	S28	W47	10	30.1		A	AX	10	1	1	3
5207		PALE	11	02	1800	S29	W48	10	30.1		A	AX	20	1	1	3
5207		LEAR	11	03	0017	S27	W51	10	30.1		A	HR	10	1	1	4
5207		CULG	11	03	0310	S27	W57	10	29.8		A	AX		1		2
5207		RAMY	11	03	1340	S27	W58	10	30.1		A	AX	10	1	1	3
5208		SVTO	10	25	0925	N21	E70	10	30.7		B	BXO	20	2	5	2
5208		RAMY	10	25	1336	N21	E69	10	30.8		B	BXO	20	2	3	4
5208		HOLL	10	25	1515	N21	E68	10	30.8		B	BXO	10	2	3	3
5208	24860	MWIL	10	25	1545	N20	E68	10	30.8	4	(B)					
5208		LEAR	10	26	0122	N21	E61	10	30.7		A	AX	10	1	1	4
5208		RAMY	10	27	1240	N20	E43	10	30.8		B	BXO	20	7	5	4
5208	24860	MWIL	10	27	1530	N20	E40	10	30.7	4	(B)					
5208		HOLL	10	27	1538	N21	E40	10	30.7		B	BXO	10	4	4	3
5208		LEAR	10	28	0020	N21	E36	10	30.8		B	BXO	10	4	5	3
5208		CULG	10	28	0415	N18	E34	10	30.8		B	BXO	10	3	5	2
5208	24860	MWIL	10	28	1530	N20	E26	10	30.6	4	(AP)					
5208		HOLL	10	28	1715	N19	E24	10	30.5		A	AX		1		2
5208		PALE	10	28	1735	N19	E24	10	30.6		A	AX	10	1	1	3
5208		LEAR	10	29	0020	N20	E20	10	30.5		A	AX	10	1	1	3
5208		RAMY	10	31	1348	N21	W12	10	30.6		A	AX		1	1	4
5208		HOLL	10	31	1545	N21	W13	10	30.6		B	BXO	10	5	5	3
5208	24860	MWIL	10	31	1545	N22	W13	10	30.6	3	(B)					
5208		PALE	10	31	1945	N23	W14	10	30.7		B	BXO	10	4	5	3
5208		LEAR	11	01	0142	N23	W16	10	30.9		A	AX	20	4	2	2
5208		CULG	11	01	0352	N22	W18	10	30.9		B	BXO	10	3	5	2
5208		SVTO	11	01	0724	N19	W22	10	30.7		A	HR	10	2	1	2
5208		RAMY	11	01	1312	N19	W26	10	30.7		B	BXO	10	5	4	4
5208		HOLL	11	01	1501	N19	W26	10	30.7		B	BXO	70	3	4	3
5208		BOUL	11	01	1535	N19	W27	10	30.7		B	CSO	20	2	3	2
5208	24860	MWIL	11	01	1600	N21	W26	10	30.8	4	(B)					
5208		PALE	11	01	1815	N20	W28	10	30.7		B	BXO	20	4	4	3

SUNSPOT GROUPS
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

OCTOBER 1988

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
5220		HOLL	11	02	1726	N32	W35	10	31.0		A	AX	10	3	2	3
5220		PALE	11	02	1800	N32	W35	10	31.0		A	AX	10	2	2	3
5220		LEAR	11	03	0017	N31	W39	10	31.0		B	BXO	10	4	3	4
5220		CULG	11	03	0310	N35	W39	10	31.0		B	CRO	10	2	4	2
5220		RAMY	11	03	1340	N32	W46	10	31.0		B	BXO	20	5	5	3
5220	24878	MWIL	11	03	1500	N32	W48	10	30.9	3	(AP)					
5220		HOLL	11	03	1605	N32	W50	10	30.8		B	BXO	20	3	3	2
5220		LEAR	11	04	0010	N32	W51	10	31.0		B	BXO	10	3	6	3
5220		RAMY	11	04	1250	N33	W59	10	30.9		B	BXO	20	4	5	4
5220		HOLL	11	04	1505	N31	W64	10	30.7		A	AX	10	1	1	3
5220		LEAR	11	05	0100	N33	W67	10	30.8		B	BXO	20	2	8	4
5220		SVTO	11	05	0753	N30	W70	10	30.9		A	AX		1		3
5220		BOUL	11	05	1520	N31	W73	10	31.0		B	BXO		2	2	3
5220		HOLL	11	05	1530	N31	W71	10	31.0		B	BXO	30	2	8	4
5220		RAMY	11	05	1553	N31	W71	10	31.0		B	BXO	20	2	2	2
5220	24878	MWIL	11	05	1600	N31	W70	10	31.1	4	B					
5220		CULG	11	06	0400	N34	W79	10	31.0		B	BXO		2	3	2
5220		LEAR	11	06	0411	N32	W80	10	30.9		B	BXO	90	3	12	3
5220		HOLL	11	06	1515	N32	W79	10	31.4		A	AX	10	1	1	4
5220	24878	MWIL	11	06	1530	N33	W84	10	31.0	2	X					
5220A		HOLL	11	01	1501	N26	W19	10	31.1		A	AX		1		3
5220A	24876	MWIL	11	01	1600	N26	W19	10	31.2	3	(AP)					
5220B		CULG	11	02	0355	N12	W27	10	31.1		A	AX	10	1		2
5220C		HOLL	11	01	1501	N39	W11	10	31.7		A	AX		3	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 1988

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
01	0115	0123	0247	2	3			1	1		0007	C9.4	5166
01	0725	0736	0926	3-	5	4	3	1	2	2	0723	M1.8	5162
01	1004	1016	1104	1	5	1	1	1	1	3	1000	C4.4	5171
01	1200	1215	1300	1-	3				1	1	1157		5171
01	1936	1938	1947	1	3					4	1936	C5.4	5171
01	2228	2233	2255	1-	1			1			2227		5174
01	2321	2331	0011	1-	1			1			2326		5174
02	0128	0146	0246	1	3	1		1	1		0135	C3.4	
02	0408	0427	0534	2+	3	1		1	1		0417	C9.4	5171
02	0852	0911	0928	1	1		1				0837		5163
02	1440	1452	1545	1	1		1				1446E		5171
02	1513	1517	1540	1-	3					4	1502	C3.2	5174
02	1728	1735	1817	2	1					1	1728	C4.0	5171
02	1933	1937	1955	1	1					1	1930	C2.6	5174
03	0000	0009	0111	1-	1			1			0001	C5.3	
03	0308	0310	0340	1-	1				1		No flare		
03	0525	0531	0720	2	3	1		1	1		0525	C7.3	5171
03	0702		0812	2	1		1				0747		5168
03	1049	1054	1119	1-	3			1		1	1044	C4.0	5171
03	1214	1217	1225	1-	1			1			1205	C2.2	5168
03	1322	1331	1433	2	5	3	4	1	1	6	1322E	M1.9	5171
03	1415	1423	1434	1	1			1			1453	C2.8	
03	1506	1515	1634	3	5	3	4	1	1	10	1453	X3.2	5171
03	1913	1917	1936	1+	3					5	1913	C7.6	5171
03	2057	2107	2157	1-	5	1		1		5	2054	C7.5	5171
03	2328	2338	0100	3	5	2		1	1	1	2325	X1.1	5171
04	0202	0207	0240	1-	1			1			No flare		
04	0250	0307	0443	2+	3	1		1	1		0254	C9.7	5171
04	0543	0551	0649	1	3			1	1		0542	C5.4	5177
04	1145	1149	1215	1-	3		1		1	1	1139	C2.8	5177
04	1229	1243	1343	2+	5	3	4	1	1	6	1226	M1.9	
04	1350	1356	1410	1-	3				1	2	1346		5168
04	1700	1703	1710	1-	1					1	1658	C1.4	
05	0203	0206	0246	1-	3			1	1		0158	C1.9	
05	0439	0457	0546	1-	3			1	1		0439	C2.4	
05	0615	0624	0805	3	5	4	3	1	2	1	0618E	M3.3	5171
05	1230	1238	1243	1	1		1				1222		5171
05	1419	1422	1430	1-	3		1			2	1418	C2.2	
05	2140	2143	2155	1-	1			1			2143	C2.7	5171
06	0104	0111	0119	1-	1			1			0102	C1.7	
06	0122	0135	0303	2+	3	2		1	1		0124	M1.6	5171
06	0303	0306	0323	1-	3			1	1		*		
06	0432	0441	0453	1-	3			1	1		0431	C2.0	
06	0549	0558	0612	1-	1			1			No flare		
06	0916	0932	0947	1	1		1				No flare		
06	1524	1530	1600	1	3					5	1534	C2.7	5178
06	1634	1641	1728	1-	5			1		9	1630	C9.5	5171
06	1813	1816	1830	1-	3					2	1831	C3.0	5171
06	2035	2046	2107	1-	1			1			2031		5171
06	2157	2210	2239	1-	1			1			*		
07	0244	0250	0310	1-	1			1			0244	C2.4	5175
07	0440	0447	0510	1-	1			1			0439	C2.1	
07	0510	0527	0644	1	1			1			0510	C4.0	
07	0826	0834	0856	1-	3			1		1	0825	C3.1	
07	1158	1201	1210	1	1		1				1150	C1.2	
07	1408	1425	1509	1-	5		1	1		4	1347	C3.9	5179
07	1815	1825	1851	2	3					3	1810	C4.8	5175
08	2154	2200	2238	1-	3			1		1	2149	C4.1	5171
09	1800	1819	1850	2+	3					2	1757	C1.7	
09	2010	2017	2119	1-	5			1		7	2008	C4.6	
09	2346	2353	0125	2	5	1		1		1	2345	M1.0	

*No flare patrol

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1988

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Flare (UT)	X-ray Class	NOAA Region
10	1615	1617	1645	1+	1					1	1615	C2.5	5175
10	1805	1825	1955	3-	3					10	1803	M2.7	5175
11	0645	0658	0804	1	3		1	1	1		0656E	C2.9	5175
11	0943	0948	1110	1-	1				1		No flare		
11	1120	1135	1153	1-	1			1			No flare		
11	2034	2036	2046	1-	1					1	2031		5175
12	0435	0441	0500	1-	3			1	1		0437		5175
12	0455	0511	0702	3	5	2		1	1		0457	X2.5	5175
12	0934	0945	1023	1-	5		1	1		1	0930	C2.4	
12	1206	1216	1323	2-	5	3	3	1		2	1207	M1.4	
13	0637	0643	0751	1-	3			1	1		0632	C2.2	5179
13	0847	0851	0919	1	1		1				0857	C1.4	
13	1049	1110	1135	1-	5		2	1	1	1	No flare		
13	1246	1248	1310	1	3		2				1245	C1.7	
13	1527	1543	1558	1	1		1				1535		5188
13	2030	2040	2155	2	5	1		1		8	2030	M6.4	5175
14	0830	0901	0922	1	1		1				0854		5182
14	0954	0956	1017	1-	1			1			No flare		
14	1134	1138	1200	1-	3	1			1	1	1132	C2.3	
14	1425	1440	1452	1	1		1				1435		5182
14	1606	1618	1634	1	1		1				1555		5182
15	1227	1256	1320	1	1		2		1		1303	C5.5	
15	2314	2319	2329	1-	1			1			2308	C2.5	
16	0611	0620	0649	1-	1			1			0607	C2.8	
16	0649	0705	0844	1-	1			1			0607	C2.8	
16	1305	1315	1342	1-	5	1	3	1	1	6	1259	C4.3	
16	1523	1528	1550	1-	5		1		1	10	1522	C3.3	
16	2044	2053	2114	1	5	1		1		4	No flare		
16	2227	2238	2300	1-	1			1			No flare		
17	0036	0042	0216	2	1			1			No flare		
17	0132	0137	0235	1-	1			1			No flare		
17	0351	0437	0559	3	5	1		1	1		0410	M2.3	5200
17	0755	0800	0846	1-	5	1		1	1	1	0752	C9.2	
17	1050	1115	1208	2-	5	2	1	1	1	1	1046	C7.9	
17	1408	1423	1517	1	5	1	4	1	1	5	1408	M1.0	5200
17	1543	1550	1630	1-	5	1	3	1	1	10	1608	M2.0	5200
17	1625	1629	1650	1	1					1	1623	C7.8	
17	2005	2017	2045	1	5			1		3	2010E	C3.5	5193
17	2343	2350	0033	1+	5	2		1		1	2343	C7.8	5200
18	0033	0040	0158	2+	5	2		1		1	0034	M1.6	5200
18	0227	0235	0307	1-	3			1	1		No flare		
18	0528	0555	0649	1-	1			1			0541	C3.2	5200
18	0738	0741	0816	1-	1			1			0743		5190
18	0817	0825	0847	1-	1			1			No flare		
18	0937	0949	1023	1	5	2	3	1	1	2	0938	C7.6	5200
18	1042	1052	1110	1+	3		2				1052	C3.1	5190
18	1155	1158	1220	1-	3	1	1		1	1	1154	C3.6	5190
18	1550	1555	1658	2+	1					1	1551		5190
19	1301	1304	1336	1-	5		1	1		3	1257E	C5.1	5184
19	1447	1502	1535	2+	1					1	No flare		
19	1638	1641	1655	1	3					8	1638	C3.4	5200
19	1903	1915	2005	2+	3					10	1904	M1.0	5200
19	2010	2013	2017	1	3	1				1	2009		5200
19	2054	2059	2115	1	1					1	No flare		
19	2207	2213	2310	1+	3			1		1	2209	M1.1	5200
19	2310	2315	0004	1-	3			1		1	2308	C4.2	
20	0050	0105	0137	1-	1			1			No flare		
20	0139	0159	0259	1-	3			1	1		No flare		
20	0611	0642	0804	2	3			1	1		0615	C9.5	

OCTOBER 1988

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	0949	0958	1011	2	3		2				0942	C1.4	
20	1100	1108	1133	2	3		2				No flare		
20	1207	1227	1246	2	3		2				1156	C1.0	
20	1257	1310	1353	2	3		2				*		
20	1526	1530	1543	1+	3					3	1524	C2.0	
20	2314	2320	2337	1-	1			1			2308	C1.4	5200
21	0217	0222	0232	1-	3			1	1		0216	C1.2	5200
21	0342	0348	0419	1-	3			1	1		0340	C1.9	
21	0505	0515	0604	1-	3			1	1		0414	C4.1	5193
21	0955	1000	1008	1-	3		1			1	0958	C1.4	
21	1104	1110	1126	1	1		1				1116	C1.8	
22	0600	0611	0657	1-	3			1	1		No flare		
22	0658	0704	0724	1-	1			1			0656	C2.2	
22	1230	1232	1250	1-	3					2	1231	C2.1	
22	1256	1258	1304	1-	1					1	1254	C1.9	
22	1823	1828	1845	1+	3					7	1823	C4.3	5200
22	2017	2025	2055	1+	3					3	2018	C4.6	5200
22	2314	2322	0042	1-	1			1			2313	C6.3	5200
23	0208	0230	0255	1-	3			1	1		0226		5200
23	0349	0351	0440	1-	1				1		0349		5200
23	0555	0604	0654	1+	3			1	1		0555	C4.9	5200
23	0654	0705	0754	1-	3			1	1		0653		5200
23	1032	1035	1046	1-	3				1	1	1031	C1.9	
23	1048	1051	1102	1-	3				1	1	1046	C1.9	
23	1105	1110	1127	1-	5	1	1	1	1	2	1109E	C4.4	5200
23	1459	1501	1515	1-	5		1			7	1459	C2.0	5200
23	1525	1526	1530	1-	3					2	1523	C2.1	5200
23	1558	1602	1616	1-	3					7	1558	C1.7	5200
23	1630	1633	1700	1+	3					3	1630		5200
23	2157	2202	2234	1-	1			1			2158	C6.0	5200
24	0045	0052	0139	1-	1			1			0047	C3.5	5200
24	0138	0142	0210	1-	3			1	1		0140	C1.5	5200
24	1600	1602	1627	1+	3					3	1602	C4.9	5200
24	2006	2009	2014	1-	5	1		1		4	2003	C6.0	5200
24	2112	2210	2324	1-	5			1		1	No flare		
25	0448	0456	0522	1-	3			1	1		0448	C1.6	5207
25	0900	0903	0913	1	1		1				No flare		
25	2333	2340	2359	1-	1			1			2333	C1.0	
26	0220	0244	0244	1-	3			1	1		0218	C1.2	
27	0435	0441	0459	1-	1			1			No flare		
27	0622	0632	0745	1-	3			1	1		0621	C2.2	
27	1824	1833	1907	1+	5	2		1		8	1837	M3.9	5212
27	2159	2202	2219	1-	1			1			No flare		
28	0121	0141	0156	1	5	1		1	1		0136	C3.4	
28	0400	0410	0447	1-	3	1		1	1		0402		5200
28	0711	0726	0800	1-	1			1			No flare		
28	0807	0814	0830	1-	1			1			0805	C1.7	5200
28	0846	0901	0953	1-	5	1		1	1		0845	C3.2	5200
28	2133	2138	2158	1-	1			1			2128	C1.5	
28	2236	2242	2326	1-	1			1			2235	C2.0	
28	2340	2343	0029	1-	1			1			2339	C3.3	5212
29	0034	0053	0123	1-	1			1			0028	C2.9	5212
29	0147	0152	0211	1-	3			1	1		0145	C2.5	
29	0222	0252	0352	1+	3			1	1		0246	C7.3	
29	0402	0424	0454	2	5	1		1	1		0339	C7.5	
29	0454	0500	0624	1	1			1			0453	C4.5	
29	0932	0939	0952	1-	5		1	1	1	1	0927	C3.3	5212
29	1302	1308	1320	1-	5	1	1		1	8	1302E	C3.8	5212
29	1440	1443	1450	2-	5				1	8	1440	M1.0	5212
29	1532	1536	1548	1-	3					3	1530	C2.2	

*No flare patrol

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1988

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
29	1556	1558	1612	1-	3					3	1545	C1.9	5210
29	1636	1639	1700	1	3					6	1638	C2.7	5200
29	2048	2059	2121	1-	1			1			No flare		
29	2156	2204	2229	1-	1			1			No flare		
29	2306	2320	0017	1-	1			1			No flare		
30	0122	0131	0154	1-	3			1	1		0125	C2.2	5200
30	0447	0502	0605	1+	3			1	1		0449	C5.9	
30	0701	0706	0737	1-	1			1			0702		5200
30	1910	1945	1959	1	1	1					No flare		
31	0042	0052	0119	1-	1			1			0044	C1.3	5212
31	1141	1154	1205	1-	3	1			1	2	1152	C4.5	5212

OBSERVATORIES REPORTING FOR OCTOBER 1988

Amherst, New Hampshire, USA	SES	Louisville, Kentucky, USA	SES
Ayrshire, Scotland	SES	Maui, Hawaii, USA	SWF
Darmstadt, German Federal Republic	SWF	Panska Ves, Czechoslovakia	SES, SEA, SWF
Farsta, Sweden	SES	Paterson, New Jersey, USA	SES
Hiraiso, Japan	SWF	San Jose, California, USA	SES
Houston, Texas, USA	SES	Somersworth, New Hampshire, USA	SES
Inubo, Japan	SPA	Tavares, Florida, USA	SES
Juliusruh, German Democratic Rep.	SWF	Tucson, Arizona, USA	SES
Kandilli, Turkey	SEA	Upice, Czechoslovakia	SEA
Kuhlungsborn, German Democratic Rep.	SEA, SPA	Uccle, Belgium	SEA
Latrobe, Pennsylvania, USA	SES	Valley Cottage, New York, USA	SES
Lintong, People's Repubic of China	SPA		

Observations are not necessarily continuous.

SIDs BY NOAA/SESC REGIONS

Day :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Reg. No.																															
5162	1																														
5163		1																													
5166	1																														
5168			2	1																											
5171	3	3	7	1	3	4		1																							
5174	2	2																													
5175							2			2	2	2	1																		
5177				2																											
5178						1																									
5179							1						1																		
5182														3																	
5184																			1												
5188													1																		
5190																		4													
5193																	1				1										
5200																	4	3	4	1	1	3	10	4				3	1	2	
5207																									1						
5210																													1		
5212																												1	4		2

Number of events with X-Ray flares

4	5	10	5	5	6	7	1	3	2	1	3	4	1	2	4	8	5	5	5	5	6	8	4	2	1	2	6	11	2	2

Number of events with no flare reported

		1	1		2					2		1	1		2	2	2	2	3		1		1	1		2	1	3	1	

Number of events with no flare patrol

					2														1												

Total SID events

7	7	12	7	6	11	7	1	3	2	4	4	6	5	2	6	10	9	8	9	5	7	12	5	3	1	4	8	14	4	2

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1988

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				0013.0	0018.0	2				III
			LEAR				0209.0	0210.0	2				III
			LEAR				0254.0	0255.0	2				III
			LEAR				0305.0	0309.0	1				III
			LEAR				0335.0	0339.0	2				III
			LEAR				0412.0	0417.0	2				III
			LEAR				0445.0	0450.0	3				III
	0600	1640	WEIS				0607.0	1417.0	3				INDC
			WEIS				0650.0	1328.0	3				IIIN
			SVTO				0722.0	0728.0	3				V
			WEIS				0722.1	0727.0	3				IIIGG
			LEAR				0723.0	0729.0	3				III
			LEAR				0734.0	0748.0	2				II
			WEIS				0734.2	0742.5	2				II H
			WEIS				0757.7	0758.3	2				IIIG
			SVTO				0831.0	0834.0	3				III
			LEAR				0833.0	0836.0	3				III
			SGMR				1118.0	2204.0	1				CONT
			SGMR				1154.0	1156.0	2				III
			WEIS				1154.1	1156.6	3				IIIG
			SGMR				1305.0	1306.0	2				III
			WEIS				1305.1	1305.9	3				IIIG
			WEIS				1557.7	0157.9	1				IIIG
			SGMR				1705.0	1712.0	1				II
			SGMR				2200.0	2201.0	2				III
			LEAR				2249.0	0003.0	2				CONT
02			PALE				0002.0	0002.0	1				III
			LEAR				0003.0	1006.0	1				CONT
			LEAR				0327.0	0330.0	3				III
			PALE				0327.0	0329.0	2				III
			LEAR				0330.0	0335.0	2				III
			LEAR				0418.0	0426.0	2				III
			LEAR				0546.0	0547.0	3				III
	0600	1638	WEIS				0601.0	1341.0	3				IIIN
			LEAR				0602.0	0607.0	3				III
			LEAR				0652.0	0653.0	2				III
			WEIS				0738.2	0741.3	3				IIIGG
			LEAR				0739.0	0741.0	3				III
			SVTO				0739.0	0740.0	3				III
			LEAR				0830.0	0830.0	2				III
			SGMR				1201.0	1203.0	2				III
			SGMR				1221.0	1224.0	2				III
			SGMR				1338.0	1341.0	2				V
			SGMR				1428.0	2013.0	1				CONT
			PALE				1829.0	1829.0	1				III
			PALE				1940.0	1940.0	1				III
			PALE				2103.0	2104.0	2				III
			LEAR				2245.0	1006.0	2				CONT
			PALE							2309.0	0000.0		CONT
			PALE				2309.0	0403.0	2				CONT
03	0601	1635	WEIS				0938.6	0939.9	2				IIIG
			SVTO				0942.0	0942.0	2				III
			WEIS				0942.0	0943.0	3				IIIG
			WEIS				1014.5	1014.6	1				IIIG
			WEIS				1139.5	1141.4	1				IIIG
			WEIS				1145.5	1145.9	2				IIIG
			WEIS				1237.9	1239.5	3				IIIG,RS
			WEIS				1248.3	1248.6	1				IIIG
			WEIS				1250.0	1250.7	2				IIIG
			SGMR				1307.0	1319.0	3				IV
			WEIS				1319.6	1324.8	2				Spikes
			WEIS				1320.8	1325.7	3				IIIGG
			WEIS				1325.1	1333.4	3				II H,HB
			SGMR				1339.0	2201.0	2				CONT
			WEIS				1339.4	1349.3	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1988

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
03		WEIS				1356.0	1547.0	2				IN
		WEIS				1423.0	1635.0	2				IIIS
		SGMR				1505.0	1718.0	3				IV
		WEIS				1505.6	1512.6	3				IIIGG,RS
		SVTO				1506.0	1519.0	3				IV
		WEIS				1507.5	1522.8	2				Spikes
		WEIS				1512.0	1519.0	3				II H,HB
		WEIS				1552.0	1608.0	2				IV dm
		PALE				1911.0	1911.0	1				III
		PALE				2137.0	2139.0	1				III
		LEAR				2335.0	2339.0	2				III
		LEAR				2346.0	0408.0	2				IV
		LEAR				2347.0	0409.0	2				IV
		PALE				2348.0	0236.0	2				CONT
04		LEAR				0307.0	0312.0	3				III
		PALE				0307.0	0310.0	2				V
		LEAR				0441.0	0443.0	2				III
		LEAR				0606.0	0606.0	1				III
		LEAR				0836.0	0836.0	2				III
	0604	WEIS				0853.3	0853.7	2				IIIG
	0821	WEIS				0929.8	0930.6	2				IIIG
		WEIS				1011.7	1012.2	2				IIIB
		WEIS				1016.8	1016.9	2				IIIB
		WEIS				1019.5	1019.7	2				IIIG
		WEIS				1022.2	1022.3	1				IIIB
		WEIS				1039.2	1039.3	1				IIIB
		WEIS				1209.7	1210.1	2				IIIB
		SGMR				1212.0	1213.0	1				III
		WEIS				1212.5	1213.2	3				IIIG
		WEIS				1225.4	1226.8	2				IIIG
		SGMR				1226.0	2159.0	1				CONT
		WEIS				1321.8	1322.1	2				IIIB
		LEAR				2326.0	2326.0	1				III
05		LEAR				0132.0	0134.0	1				III
		LEAR				0541.0	0543.0	2				III
	0604	WEIS				0637.4	0637.6	2				IIIG,RS
	1631	LEAR				0719.0	0720.0	2				III
		WEIS				0720.7	0720.9	1				IIIB
		WEIS				0820.3	0820.4	3				IIIB
		LEAR				0859.0	0905.0	2				III
		WEIS				0859.6	0901.6	2				IIIG
		SVTO				0900.0	0901.0	2				III
		WEIS				0905.1	0905.5	2				IIIG
		WEIS				1035.7	1035.9	2				IIIB
		WEIS				1201.3	1201.5	2				RS
		SGMR				1250.0	1251.0	1				III
		WEIS				1250.5	1251.0	3				IIIG,U
		SGMR				1436.0	1439.0	1				S
		SGMR				1436.0	2157.0	1				CONT
		WEIS				1437.0	1437.7	2				IIIG
		WEIS				1440.2	1440.5	2				IIIG
		SGMR				1537.0	1538.0	1				V
		PALE				1937.0	1938.0	2				V
		PALE				2236.0	2239.0	2				III
		LEAR				2238.0	2241.0	2				III
		LEAR				2308.0	2330.0	3				S
		PALE				2308.0	2335.0	2				S
		LEAR				2326.0	2326.0	1				III
		LEAR				2336.0	2343.0	2				III
06		LEAR				0005.0	0237.0	2				CONT
		PALE				0045.0	0048.0	2				V
		PALE				0150.0	0150.0	1				III
		LEAR				0224.0	0237.0	2				S
		LEAR				0237.0	1007.0	1				CONT

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06		LEAR				0403.0	0410.0	2				III
		SVTO				0523.0	0000.0	1				CONT
		LEAR				0529.0	0529.0	2				III
		SVTO				0601.0	0602.0	2				III
		LEAR				0602.0	0603.0	3				III
		LEAR				0616.0	0628.0	2				III
		LEAR				0643.0	0708.0	2				S
0750	1628	WEIS				0643.2	0643.4	1				IIIB
		LEAR				0751.0	0803.0	3				S
0606	0744	WEIS				0751.0	1626.0	2				IIIN
		LEAR				0757.0	0758.0	3				III
		SVTO				0757.0	0803.0	3				III
		WEIS				0757.4	0758.4	3				IIIG
		LEAR				0841.0	0845.0	2				III
		LEAR				0906.0	0910.0	2				III
		WEIS				1039.3	1048.0	2				Spikes
		WEIS				1040.0	1050.3	3				IIIGG,UH
		SGMR				1046.0	1047.0	1				III
		SGMR				1115.0	2155.0	1				CONT
		SGMR				1231.0	1236.0	2				III
		SGMR				1252.0	1259.0	3				III
		WEIS				1252.2	1300.7	2				Spikes
		WEIS				1252.8	1257.9	3				IIIGG
		WEIS				1303.7	1309.2	3				Spikes
		SGMR				1417.0	1417.0	2				III
		SGMR				1431.0	1500.0	2				S
		WEIS				1433.4	1449.8	3				IIIGG
		WEIS				1433.4	1452.1	3				Spikes,DCIM
		SGMR				1534.0	1536.0	2				V
		SGMR				1641.0	1646.0	1				II
		SGMR				1704.0	1712.0	3				V
		PALE				1707.0	1726.0	2				S
		PALE				1739.0	0000.0	1				CONT
		PALE				2024.0	2058.0	2				S
		SGMR				2056.0	2058.0	3				III
		LEAR				2220.0	1008.0	2				CONT
		LEAR				2235.0	2247.0	2				S
		PALE				2235.0	2247.0	2				S
		LEAR				2241.0	2244.0	3				III
07		LEAR				0141.0	0142.0	3				III
		PALE				0142.0	0142.0	2				III
		LEAR				0218.0	0252.0	3				S
		PALE				0221.0	0255.0	2				S
		LEAR				0349.0	0350.0	3				III
		LEAR				0437.0	0439.0	3				III
		LEAR				0518.0	0529.0	3				III
		SVTO				0527.0	0527.0	3				III
		WEIS				0610.0	1543.0	3				IN,DC
0609	1627	WEIS				0648.0	1621.0	3				IIIN,Fib,RS
		LEAR				0654.0	0709.0	3				S
		WEIS				0706.9	0708.8	3				IIIGG
		SVTO				0707.0	0708.0	3				V
		LEAR				0725.0	0727.0	3				III
		LEAR				0740.0	0740.0	3				III
		LEAR				0814.0	0828.0	3				V
		SVTO				0815.0	0000.0	1				CONT
		WEIS				0817.3	0831.7	3				IIIGG
		SVTO				0820.0	0828.0	3				V
		LEAR				0906.0	0907.0	3				III
		SVTO				0906.0	0907.0	3				III
		SGMR				1048.0	1234.0	1				CONT
		SGMR				1234.0	2154.0	2				CONT
		WEIS				1234.3	1236.0	3				IIIGG
		WEIS				1348.6	1349.5	3				IIIGG
		SGMR				1415.0	1416.0	3				III
		PALE				1716.0	1725.0	2				III

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07			PALE				1740.0	1752.0	1				III
			PALE				1805.0	1830.0	2				S
			SGMR				1805.0	1810.0	3				III
			SVTO				1820.0	1828.0	3				V
			PALE				1835.0	0130.0	1				CONT
			LEAR				2252.0	1008.0	2				CONT
			LEAR				2252.0	2305.0	1				S
08			LEAR				0102.0	0113.0	3				III
			LEAR				0130.0	0131.0	3				III
			LEAR				0232.0	0235.0	3				V
			PALE				0232.0	0233.0	2				V
	0609	0734	WEIS				0612.0	1623.0	2				IIIN,Fib,DP
	0804	1625	WEIS										RS
			SGMR				1103.0	1336.0	1				CONT
			SGMR				1703.0	2152.0	2				CONT
			PALE				1718.0	1733.0	2				S
			PALE				1746.0	1752.0	1				III
			PALE				1824.0	0112.0	2				CONT
			LEAR				2232.0	0036.0	1				CONT
			LEAR				2235.0	2235.0	1				III
09			LEAR				0015.0	0019.0	2				III
			LEAR				0036.0	1008.0	2				CONT
			LEAR				0402.0	0403.0	3				III
			LEAR				0416.0	0417.0	2				III
	0610	0939	WEIS				0642.0	1434.0	2				IIIN
			LEAR				0828.0	0829.0	2				III
			LEAR				0857.0	0859.0	3				III
			SVTO				0857.0	0858.0	3				III
	0950	1623	WEIS				0857.7	0858.1	3				IIIG
			SGMR				1111.0	2150.0	1				CONT
			PALE				1757.0	1826.0	2				S
			LEAR				2228.0	1008.0	2				CONT
10			LEAR				0101.0	0105.0	3				III
			PALE				0102.0	0103.0	2				III
			LEAR				0132.0	0132.0	2				III
			LEAR				0202.0	0203.0	2				III
			LEAR				0242.0	0310.0	2				S
			LEAR				0416.0	0424.0	2				III
			LEAR				0540.0	0549.0	2				III
			LEAR				0559.0	0609.0	2				III
	0816	1143	WEIS				0624.0	1618.0	3				IN
	1207	1621	WEIS				0627.4	0628.2	3				IIIG,RS,U
	0614	0809	WEIS				0821.0	1618.0	2				IIIN
			WEIS				0921.2	0921.3	2				IIIB
			WEIS				0931.1	0931.4	2				IIIG
			SGMR				1112.0	2148.0	1				CONT
			WEIS				1306.6	1307.4	2				IIIG
			PALE				1805.0	0000.0	1				CONT
			LEAR				2341.0	1009.0	2				CONT
11	0613	1619	WEIS				1046.0	1235.0	2				IIIN
			SGMR				1113.0	2147.0	1				CONT
			WEIS				1312.0	1314.0	2				I
			WEIS				1439.0	1447.0	2				I
			PALE				1831.0	1835.0	1				III
12			LEAR				0442.0	0443.0	2				III
			SVTO				0459.0	0514.0	2				IV
	0615	1616	WEIS				0618.0	0623.0	1				IIIN
			WEIS				0831.7	0831.8	1				IIIB
			WEIS				1241.2	1241.4	3				IIIG
			PALE				2139.0	2152.0	2				S
			LEAR				2306.0	2308.0	2				III
			LEAR				2314.0	2316.0	2				III

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13		LEAR				0050.0	0050.0	2				III
		LEAR				0119.0	0119.0	1				III
		LEAR				0130.0	0131.0	2				III
		LEAR				0307.0	0308.0	2				III
		LEAR				0401.0	0402.0	1				III
		LEAR				0646.0	0647.0	1				III
	0618	WEIS				0647.8	0648.3	2				IIIG
	1419	WEIS				0818.3	0818.4	1				IIIB
		WEIS				1105.0	1430.0	2				IN
		WEIS				1116.3	1116.5	1				IIIG
		WEIS				1149.6	1149.8	2				IIIG
		WEIS				1246.6	1251.6	3				IIIGG,Spike
		SGMR				1248.0	1248.0	2				III
		WEIS				1302.8	1305.2	2				IIIG
		SGMR				1304.0	1305.0	2				III
		PALE				2028.0	2043.0	2				IV
		SGMR				2028.0	2041.0	2				IV
		SGMR				2041.0	2143.0	1				CONT
		PALE				2050.0	2110.0	2				CONT
		LEAR				2338.0	2338.0	2				III
14		SGMR				1203.0	1204.0	1				V
	0618	WEIS				1203.8	1204.5	1				IIIG
15		LEAR				0104.0	0109.0	1				III
		LEAR				0113.0	0113.0	2				III
		LEAR				0318.0	0318.0	3				III
		LEAR				0335.0	0336.0	1				III
	0619	WEIS										
		SGMR				1354.0	2140.0	1				CONT
16		LEAR				0008.0	0009.0	2				III
		PALE				0009.0	0009.0	2				III
		LEAR				0217.0	0227.0	2				III
		LEAR				0249.0	0249.0	1				III
		LEAR				0256.0	0257.0	3				III
		PALE				0257.0	0257.0	1				III
		LEAR				0312.0	0315.0	3				III
		PALE				0313.0	0314.0	1				III
		LEAR				0500.0	0501.0	2				III
	0623	WEIS										
		LEAR				0800.0	0801.0	2				III
17		LEAR				0017.0	0017.0	1				III
		LEAR				0055.0	0056.0	2				III
		LEAR				0129.0	0139.0	3				III
		PALE				0139.0	0139.0	1				III
		LEAR				0158.0	0159.0	1				III
		LEAR				0348.0	0349.0	1				III
		LEAR				0358.0	0359.0	1				III
	0622	WEIS										
		LEAR				0717.0	0718.0	2				III
	1059	WEIS										
		SGMR				1121.0	2137.0	1				CONT
		PALE				1906.0	1907.0	1				III
18		LEAR				0024.0	0025.0	2				III
		LEAR				0038.0	0038.0	2				III
		LEAR				0142.0	0143.0	2				III
		PALE				0143.0	0143.0	1				III
		LEAR				0201.0	0201.0	2				III
		LEAR				0206.0	0206.0	1				III
		LEAR				0217.0	0218.0	2				III
		PALE				0217.0	0218.0	2				III
		LEAR				0450.0	0450.0	3				III
		LEAR				0540.0	0540.0	1				III
	0624	WEIS				0644.0	1249.0	3				IIIN

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18		LEAR				0656.0	0703.0	2				III
		LEAR				0728.0	0743.0	3				S
		SVTO				0741.0	0741.0	2				III
		LEAR				0804.0	0804.0	1				III
		SVTO				0804.0	0835.0	2				S
		LEAR				0821.0	0822.0	1				III
		LEAR				0835.0	0836.0	3				III
		LEAR				0858.0	0859.0	1				III
		WEIS				0913.6	0914.1	3				IIIG,U,RS
		LEAR				0919.0	0920.0	2				III
		LEAR				0934.0	0934.0	1				III
		WEIS				0934.3	0934.6	3				IIIG
		LEAR				0942.0	0944.0	1				III
		WEIS				0943.4	0943.9	3				IIIG
		WEIS				1021.3	1022.0	1				IIIG,U
		WEIS				1100.4	1100.6	3				IIIG,U
		WEIS				1113.9	1115.2	3				IIIGG
		SGMR				1114.0	1115.0	2				III
		SGMR				1115.0	1623.0	1				CONT
		WEIS				1153.8	1156.8	3				IIIGG,U
		WEIS				1427.9	1428.2	3				U
		SGMR				1821.0	1822.0	1				III
		SGMR				1911.0	1911.0	1				III
		SGMR				1926.0	2135.0	1				CONT
		LEAR				2310.0	2310.0	1				III
		LEAR				2320.0	2320.0	1				III
		LEAR				2335.0	2337.0	3				III
		PALE				2335.0	2337.0	1				III
19		LEAR				0114.0	0115.0	1				III
		LEAR				0138.0	0139.0	1				III
		LEAR				0208.0	0209.0	1				III
		LEAR				0251.0	0251.0	2				III
		LEAR				0332.0	0333.0	1				III
		LEAR				0352.0	0355.0	3				V
		LEAR				0405.0	0406.0	2				III
		LEAR				0533.0	0534.0	1				III
		LEAR				0608.0	0610.0	2				III
		LEAR				0702.0	0702.0	2				III
	0628 1151	WEIS				0922.1	0922.3	1				IIIG,U
	1209 1604	WEIS				1001.3	1003.1	3				IIIG
		WEIS				1032.3	1032.4	1				IIIB
		PALE				2005.0	2006.0	1				III
		PALE				2050.0	2055.0	2				V
		SGMR				2050.0	2055.0	1				III
		PALE				2106.0	2106.0	1				III
		LEAR				2317.0	2319.0	2				III
		PALE				2318.0	2319.0	1				III
		LEAR				2332.0	2335.0	2				III
20		LEAR				0426.0	0428.0	1				III
		LEAR				0442.0	0446.0	2				III
		LEAR				0524.0	0525.0	1				III
		LEAR				0734.0	0736.0	3				III
		SVTO				0734.0	0735.0	2				III
	0627 1602	WEIS				0734.5	0736.1	2				IIIG
		LEAR				0828.0	0829.0	2				III
		WEIS				0828.5	0828.7	1				IIIB
		LEAR				0944.0	0953.0	2				III
		WEIS				0944.8	0947.8	3				IIIGG
		SVTO				0945.0	0952.0	2				III
		WEIS				0946.6	0947.5	3				Spikes
		WEIS				0950.1	0953.2	3				IIIGG
		WEIS				0958.7	0958.9	3				IIIB
		WEIS				1525.8	1529.2	3				IIIGG,Spike
		SGMR				1526.0	1528.0	3				V
21		LEAR				0432.0	0435.0	2				III

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21		LEAR				0731.0	0733.0	3				III
		SVTO				0731.0	0732.0	3				III
	0629	WEIS				0731.8	0732.1	2				IIIG
		SGMR				1432.0	1438.0	2				V
	1333 1559	WEIS				1432.7	1438.3	2				IIIGG
		SGMR				1521.0	1521.0	1				III
		WEIS				1521.2	1521.4	1				IIIB
		SGMR				1558.0	1559.0	1				III
		SGMR				1755.0	1759.0	2				V
		PALE				1936.0	1938.0	1				III
		LEAR				2353.0	2355.0	2				III
22		LEAR				0037.0	0043.0	2				III
		LEAR				0207.0	0210.0	2				III
		LEAR				0425.0	0433.0	2				III
		LEAR				0539.0	0541.0	2				III
		LEAR				0633.0	0639.0	3				III
		WEIS				0634.2	0634.7	3				IIIG
	1429 1558	WEIS				0701.0	0803.0	1				I
		LEAR				0709.0	0710.0	2				III
	0632 1350	WEIS				0709.0	1453.0	2				IIIN
		SVTO				0809.0	0809.0	3				III
		LEAR				0828.0	0834.0	3				III
		SVTO				0828.0	0831.0	3				III
		WEIS				0828.6	0834.2	3				IIIGG
		LEAR				0902.0	0903.0	3				III
		SVTO				0902.0	0903.0	3				III
		WEIS				0902.1	0903.5	3				IIIGU
		WEIS				0915.9	0916.2	2				IIIB
		SGMR				1103.0	1103.0	1				III
		SGMR				1203.0	1203.0	1				III
		WEIS				1230.8	1235.3	3				IIIGG
		SGMR				1231.0	1235.0	3				V
		SGMR				1255.0	1257.0	1				III
		WEIS				1255.7	1257.9	2				IIIG
		SGMR				1424.0	1429.0	2				III
		WEIS				1427.5	1429.7	3				IIIGG
		WEIS				1540.1	1540.6	2				IIIG,U
		SGMR				1821.0	1826.0	3				V
		PALE				1822.0	1827.0	3				V
		PALE				1840.0	1848.0	2				V
		PALE				1940.0	1942.0	2				III
		PALE				2023.0	2028.0	2				V
		LEAR				2223.0	2229.0	2				III
		PALE				2223.0	2229.0	2				III
		LEAR				2246.0	2248.0	2				III
		PALE				2246.0	2247.0	1				III
		LEAR				2308.0	2312.0	2				III
		PALE				2309.0	2320.0	2				S
		LEAR				2315.0	2320.0	3				V
		LEAR				2329.0	2340.0	2				S
		PALE				2329.0	2339.0	1				S
		LEAR				2346.0	0002.0	2				S
		PALE				2355.0	0002.0	1				III
23		LEAR				0012.0	0019.0	3				III
		PALE				0014.0	0017.0	1				III
		LEAR				0022.0	0035.0	2				S
		LEAR				0134.0	0134.0	2				III
		LEAR				0202.0	0209.0	3				V
		LEAR				0218.0	0223.0	1				III
		LEAR				0227.0	0231.0	3				III
		LEAR				0306.0	0324.0	2				S
		LEAR				0340.0	0344.0	3				III
		LEAR				0404.0	0444.0	2				S
		LEAR				0504.0	0539.0	3				S
		SVTO				0521.0	0523.0	2				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1988

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
23		LEAR				0552.0	0600.0	3				V
		SVTO				0552.0	0556.0	3				III
		LEAR				0609.0	0900.0	2				CONT
	0632	1556 WEIS				0653.0	1551.0	2				IIIN
		LEAR				0719.0	0724.0	3				III
		SVTO				0719.0	0721.0	3				V
		WEIS				0719.3	0724.3	3				IIIGG
		WEIS				0905.0	0905.2	3				IIIBU
		LEAR				0919.0	0929.0	2				S
		SVTO				0928.0	0929.0	3				III
		LEAR				1008.0	1009.0	2				III
		WEIS				1008.6	1009.2	3				IIIB
		WEIS				1026.2	1027.2	1				IIIG
		WEIS				1037.3	1038.7	3				IIIGG
		SGMR				1102.0	1107.0	1				V
		SVTO				1102.0	1104.0	3				V
		WEIS				1102.7	1107.9	3				IIIGG,Spike
		SGMR				1137.0	1137.0	1				III
		WEIS				1137.0	1137.6	3				IIIG
		SGMR				1147.0	1147.0	1				III
		SGMR				1251.0	1254.0	1				V
		WEIS				1251.7	1254.0	3				IIIG
		WEIS				1316.3	1316.6	2				IIIGG
		WEIS				1401.7	1403.2	2				IIIG
		WEIS				1408.6	1408.8	2				IIIG
		WEIS				1503.4	1503.7	1				U
		WEIS				1518.8	1519.1	3				IIIB
		WEIS				1526.1	1526.6	3				IIIG,U
		PALE				1841.0	1842.0	1				III
		PALE				1920.0	1921.0	2				III
		SGMR				1920.0	1921.0	1				III
		PALE				1936.0	1937.0	1				III
		PALE				2109.0	2111.0	2				V
		PALE				2156.0	2200.0	3				V
		LEAR				2157.0	2159.0	2				III
		LEAR				2233.0	2234.0	2				III
		PALE				2233.0	2234.0	1				III
		LEAR				2326.0	2328.0	2				V
		PALE				2326.0	2327.0	1				III
		PALE				2333.0	2334.0	1				III
		LEAR				2341.0	2348.0	3				III
		PALE				2341.0	2348.0	2				III
		PALE				2355.0	0002.0	1				III
24		PALE				0046.0	0050.0	2				V
		LEAR				0047.0	0056.0	3				III
		WEIS				0647.8	0648.1	3				IIIB,U
		LEAR				0653.0	0653.0	2				III
	0634	1553 WEIS				0815.0	1537.0					IIIN
		LEAR				0816.0	0817.0	2				III
		LEAR				0832.0	0832.0	1				III
		WEIS				1110.7	1113.4	3				IIIGG
		SGMR				1112.0	1113.0	1				III
		SGMR				1242.0	1243.0	2				III
		SGMR				1310.0	1314.0	2				III
		WEIS				1310.6	1311.0	3				IIIG
		SGMR				1324.0	1325.0	1				III
		SGMR				1357.0	1357.0	1				III
		SGMR				1415.0	2126.0	1				CONT
		SGMR				1459.0	1500.0	3				III
		WEIS				1459.1	1500.8	3				IIIG,U
		SGMR				1536.0	1536.0	2				III
		SGMR				1602.0	1605.0	3				III
		SGMR				1653.0	1654.0	2				III
		PALE				1814.0	1825.0	2				S
		SGMR				1824.0	1825.0	2				III
		PALE				1851.0	1900.0	2				III

SOLAR RADIO EMISSION
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OCTOBER 1988

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
24		SGMR				1855.0	1900.0	3				III
		PALE				1930.0	1935.0	2				V
		SGMR				1930.0	1931.0	2				III
		PALE				1956.0	2008.0	3				S
		PALE				2030.0	2030.0	1				III
		PALE				2100.0	2101.0	2				V
		LEAR				2230.0	1015.0	1				CONT
25		LEAR				0034.0	0035.0	2				III
		LEAR				0121.0	0127.0	3				III
		PALE				0126.0	0127.0	2				III
		LEAR				0220.0	0221.0	2				III
		LEAR				0235.0	0237.0	3				III
		PALE				0235.0	0236.0	1				III
		LEAR				0256.0	0259.0	3				III
		PALE				0257.0	0258.0	1				III
		LEAR				0315.0	0315.0	2				III
		LEAR				0324.0	0325.0	2				III
		LEAR				0339.0	0344.0	3				III
		LEAR				0349.0	0350.0	2				III
		LEAR				0400.0	0407.0	2				III
		LEAR				0413.0	0413.0	2				III
		LEAR				0427.0	0430.0	3				III
		LEAR				0522.0	0524.0	2				III
		LEAR				0610.0	0612.0	2				III
		LEAR				0622.0	0624.0	3				III
		LEAR				0634.0	0635.0	3				III
		SVTO				0634.0	0634.0	3				III
		LEAR				0642.0	0657.0	2				S
	0637	WEIS				0651.0	1452.0	1				IIIN
		LEAR				0700.0	0704.0	3				III
		SVTO				0700.0	0704.0	3				V
	1226	WEIS				0700.4	0704.3	3				IIIGG,U
		LEAR				0745.0	0746.0	3				III
		SVTO				0745.0	0746.0	3				III
		WEIS				0921.7	0932.3	2				IIIGG
		WEIS				1107.9	1110.8	3				IIIGG
		SVTO				1108.0	1109.0	3				III
		SGMR				1154.0	1154.0	1				III
		SGMR				1222.0	1222.0	1				III
		SGMR				1401.0	1401.0	1				III
		SGMR				1609.0	1609.0	2				III
		PALE				1750.0	1752.0	2				V
		SGMR				1750.0	1752.0	2				III
		PALE				1928.0	1929.0	2				V
		SGMR				1928.0	1929.0	2				III
		PALE				1958.0	2005.0	2				V
		SGMR				1958.0	1959.0	3				III
		PALE				2132.0	2133.0	1				III
26		LEAR				0009.0	0012.0	1				III
		LEAR				0025.0	0600.0	1				CONT
		LEAR				0158.0	0158.0	2				III
	0637	WEIS				1246.0	1529.0	1				IIIN
		LEAR				2156.0	2157.0	1				III
		PALE				2156.0	2157.0	1				III
27		LEAR				0054.0	0055.0	2				III
		LEAR				0159.0	0159.0	1				III
		LEAR				0812.0	0815.0	1				III
		WEIS				1410.4	1410.6	2				IIIB
	0638	WEIS				1432.4	1432.9	2				IIIG
		PALE				1742.0	1750.0	1				III
		SGMR				1923.0	1936.0	2				S
		LEAR				2309.0	2313.0	2				III
		LEAR				2333.0	2333.0	2				III
28		LEAR				0337.0	0339.0	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1988

Observation Day	Start (UT)	End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
28			LEAR				0429.0	0439.0	2				III
			LEAR				0538.0	0538.0	2				III
			LEAR				0558.0	0600.0	3				III
			LEAR				0621.0	0627.0	2				III
			LEAR				0700.0	0705.0	3				III
			LEAR				0712.0	0719.0	2				III
	0642	1119	WEIS				0713.7	0713.9	2				IIIB
			LEAR				0730.0	0735.0	3				III
	1152	1547	WEIS				0730.7	0731.0	1				IIIB
			LEAR				0749.0	0750.0	1				III
			LEAR				0806.0	0807.0	2				III
			WEIS				0842.0	0843.8	2				IIIG
			LEAR				0843.0	0844.0	2				III
			LEAR				0852.0	0852.0	1				III
			WEIS				1515.7	1515.9	1				IIIB
			CULG				2239.0	2240.0	1				III
			LEAR				2335.0	2340.0	2				III
			PALE				2335.0	2335.0	1				III
			CULG				2336.0	2337.0	1				V
29			LEAR				0041.0	0041.0	1				III
			CULG				0142.0	0144.0	1				V
			LEAR				0142.0	0147.0	3				III
			PALE				0142.0	0142.0	1				III
			CULG				0149.0	0149.0	1				III
			CULG				0235.0	0235.0	1				III
			LEAR				0235.0	0246.0	2				S
			CULG				0242.0	0242.0	1				III
			CULG				0244.0	0246.0	2				III
			PALE				0244.0	0247.0	1				III
			CULG				0247.0	0248.0	2				III
			LEAR				0247.0	0249.0	3				III
			CULG				0249.0	0250.0	1				III
			LEAR				0455.0	0456.0	3				III
			CULG				0605.0	0605.0	1				III
			LEAR				0605.0	0606.0	2				III
			CULG				0656.0	0657.0	1				V
			LEAR				0656.0	0657.0	2				III
	0642	1200	WEIS				0656.0	1526.0	1				IIIN
			CULG				0716.0	0718.0	2				V
			LEAR				0716.0	0718.0	2				III
	1212	1546	WEIS				0716.6	0718.1	3				IIIG,U
			LEAR				0734.0	0739.0	2				III
			WEIS				0804.9	0808.9	3				IIIGG
			LEAR				0805.0	0808.0	3				III
			SVTO				0806.0	0807.0	3				III
			LEAR				0838.0	0839.0	2				III
			LEAR				0930.0	0931.0	2				III
			SGMR				1300.0	1301.0	2				III
			SVTO				1300.0	1301.0	2				III
			WEIS				1300.5	1302.0	3				IIIGG,RS
			SGMR				1334.0	1334.0	1				III
			SGMR				1352.0	1352.0	3				III
			SVTO				1352.0	1352.0	2				III
			WEIS				1352.2	1352.7	3				IIIG
			SGMR				1417.0	1422.0	1				III
			SGMR				1439.0	1451.0	3				S
			SVTO				1439.0	1440.0	2				III
			WEIS				1439.3	1440.4	3				IIIGG
			WEIS				1450.4	1451.0	2				IIIG
			PALE				2004.0	2013.0	1				V
			CULG				2021.0	2200.0	1				S
			CULG				2042.0	2042.0	2				V
			PALE				2042.0	2043.0	2				III
			SGMR				2042.0	2043.0	2				III
			CULG				2053.0	2200.0	1				S
			PALE				2106.0	2107.0	1				III

SOLAR RADIO EMISSION
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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
29		LEAR				2212.0	2212.0	1				III
		LEAR				2218.0	2218.0	2				III
		PALE				2218.0	2219.0	1				III
		LEAR				2256.0	2257.0	3				III
		PALE				2256.0	2305.0	3				V
		LEAR				2304.0	2305.0	3				III
		LEAR				2311.0	2313.0	3				III
		PALE				2312.0	2314.0	2				III
		LEAR				2317.0	2318.0	2				III
		LEAR				2329.0	2330.0	1				III
		PALE				2335.0	2335.0	1				III
30		CULG				0009.0	0009.0	2				III
		LEAR				0009.0	0010.0	3				III
		PALE				0009.0	0010.0	2				V
		LEAR				0011.0	0012.0	1				III
		CULG				0040.0	0040.0	2				III
		LEAR				0040.0	0041.0	3				III
		PALE				0040.0	0040.0	1				III
		LEAR				0050.0	0050.0	2				III
		LEAR	0113.0	0114.0	1							III
		LEAR				0126.0	0126.0	1				III
		CULG				0154.0	0154.0	2				III
		LEAR				0154.0	0154.0	2				III
		LEAR				0157.0	0157.0	1				III
		LEAR				0204.0	0204.0	2				III
		LEAR				0210.0	0211.0	1				III
		LEAR				0349.0	0350.0	1				III
		CULG				0435.0	0436.0	2				III
		LEAR				0435.0	0436.0	2				III
		LEAR				0611.0	0612.0	2				III
		LEAR				0734.0	0734.0	1				III
	0643 1543	WEIS				1024.9	1025.2	1				IIIG
31		LEAR				0812.0	0812.0	1				III
	0647 1427	WEIS				1009.7	1009.8	1				IIIB
	1437 1542	WEIS										

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

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

Stations Reporting:

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

COSMIC RAY INDICES
(Neutron Monitor)

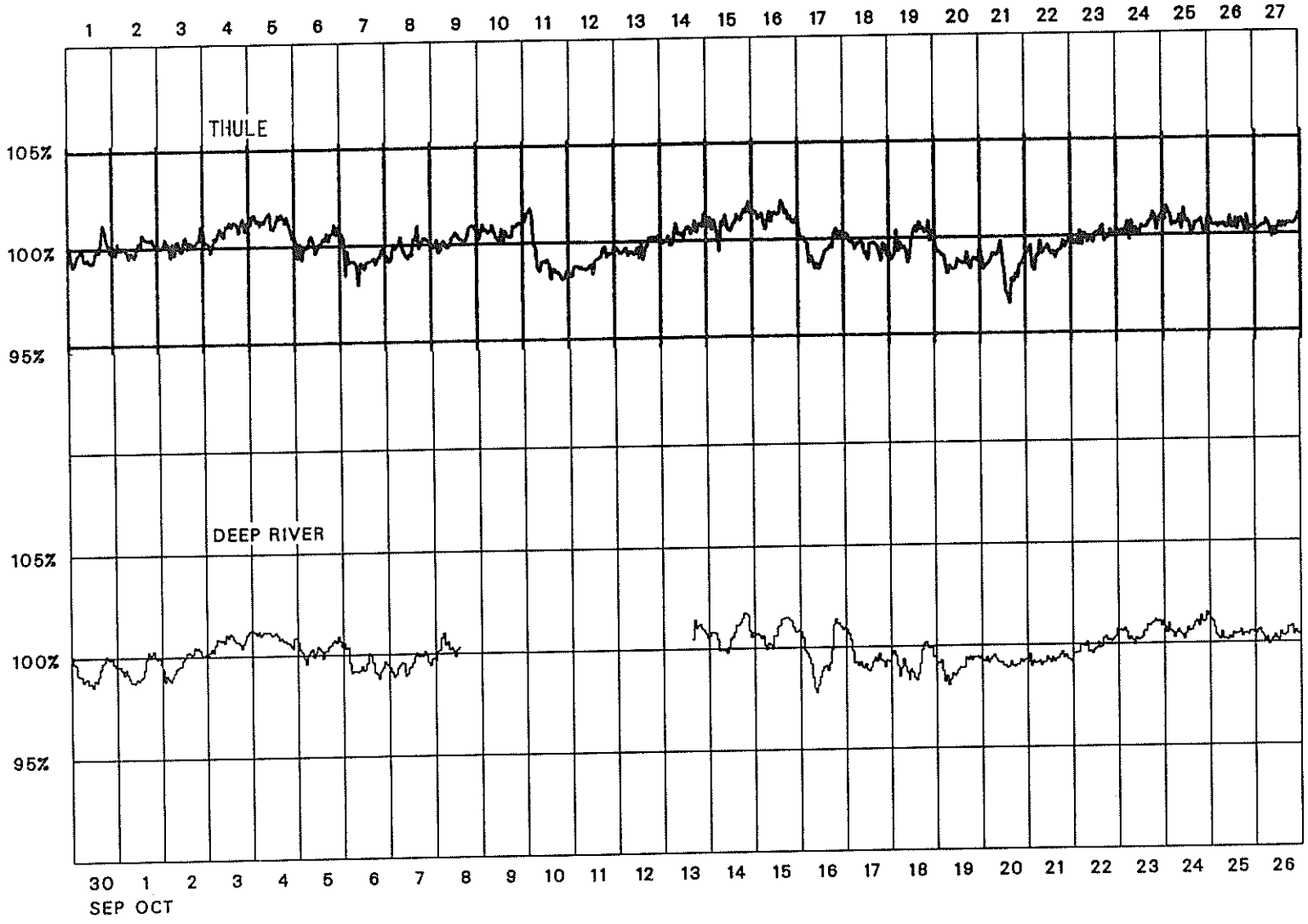
OCTOBER 1988

Day	THULE Average (cts/h)/100	ALERT 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	4207		6580.6	5860.6	3840.3	3539.0	
2	4213		6599.0	5883.2	3861.3	3545.8	
3	4238		6665.1	5914.4	3867.8	3557.1	
4	4258		6678.8	5934.5	3845.0	3560.4	
5	4214		6636.9	5917.1	3792.7	3545.3	
6	4173		6583.7	5849.9	3794.5	3523.0	
7	4200		6586.3	5891.6	3828.0	3527.7	
8	4216		6636.0(18)	5898.6	3879.2	3539.1	
9	4231		---	5928.7	3858.9	3554.0	
10	4174		---	5844.1	3815.4(34)	3545.8	
11	4161		---	5835.4	---	3533.3	
12	4191		---	5848.3	---	3535.3	
13	4226		6680.4(9)	5877.5	---	3559.3	
14	4245		6665.6	5910.3	---	3559.8	
15	4257		6669.3	5914.1	3898.0	3552.1	
16	4185		6598.7	5865.1	3838.1	3528.8	
17	4187		6577.5	5863.5	3836.9	3518.8	
18	4200		6567.5	5856.0	3840.3	3525.7	
19	4153		6549.8	5812.2	3803.5	3525.2	
20	4139		6562.7	5814.9	3807.3	3521.5	
21	4175		6568.5	5828.4	3816.3	3525.5	
22	4204		6614.8	5854.3	3840.9(38)	3540.0	
23	4226		6660.0	5903.6	3871.7	3548.5	
24	4234		6669.1	5920.4	3880.8	3543.9	
25	4226		6648.0	5896.8	3865.0	3542.7	
26	4224		6642.3	5889.5	3860.8	3544.6	
27	4208		6618.9	5868.3	3857.0	3545.7	
28	4212		6617.1	5883.8	3857.0	3556.0	
29	4224		6643.6	5900.6	3866.8	3569.7	
30	4247		6697.6	5931.3	3895.4	3580.5	
31	4202		6612.2	5888.0	3840.5	3562.2	
Mean	4208		6623.3	5880.1	3845.3	3543.7	

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

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2120 (September 1988-October 1988)



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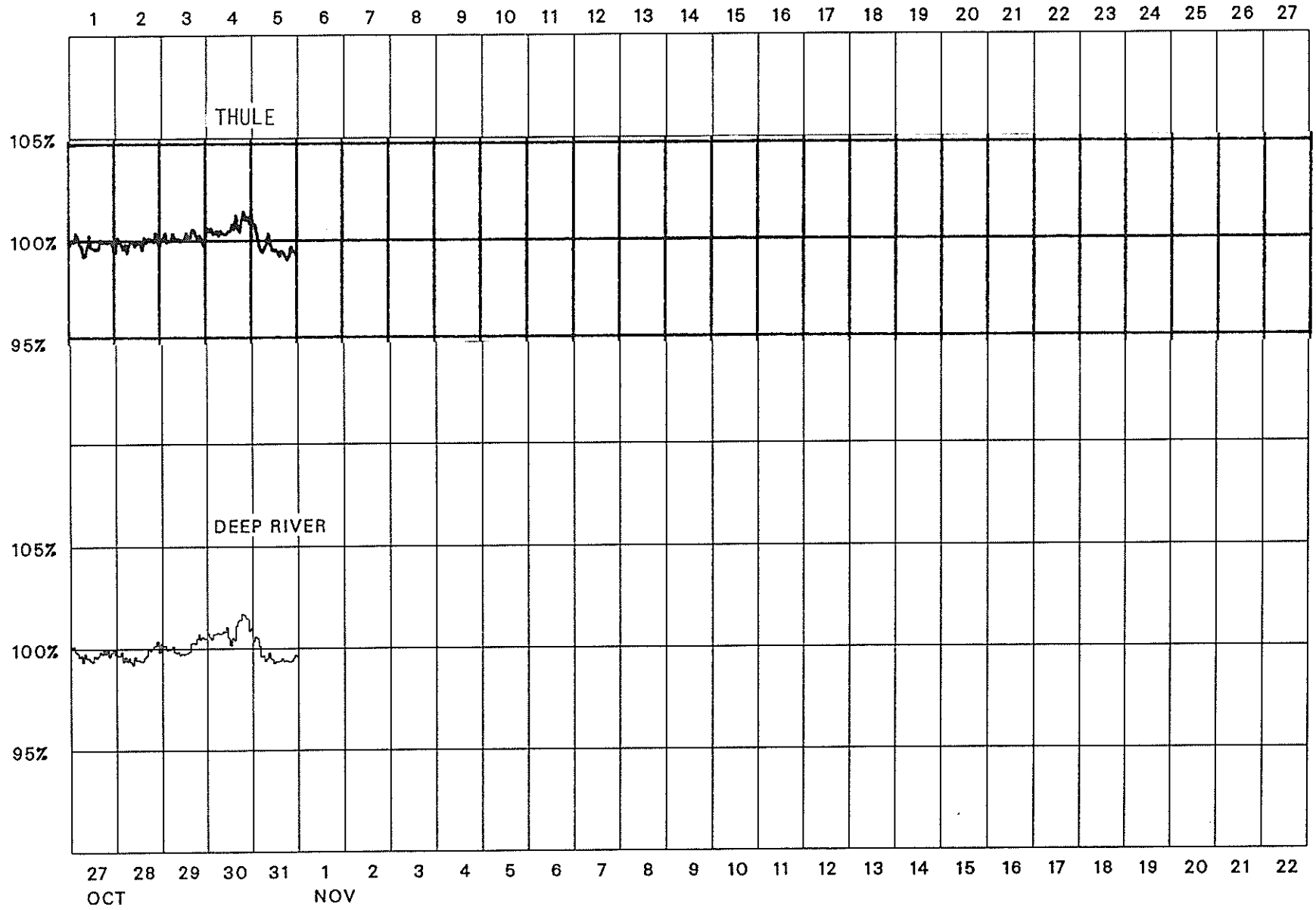
Oct 88

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2121 (October 1988-November 1988)



GEOMAGNETIC ACTIVITY INDICES

October 1988

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		3+	2+	2	2+	2+	2	3-	3	20	11	0.6	3+	2+	2-	2-	2+	2-	3-	3	20	30	19	23	26	
2	Q5	2+	2-	2-	1-	2-	0+	1-	1-	10-	5	0.2	2+	2-	1	0+	2-	0+	1-	1	8	16	6	12	10	CK
3	Q2	0+	0+	1-	0+	0+	1+	1+	1-	5+	3	0.1	0+	0+	0+	0+	0	2-	1+	1+	5	9	6	4	10	CC
4		0	1-	1+	1-	1	1	3+	4+	12+	9	0.5	0+	1-	1+	1-	1-	1-	3	4-	13	18	10	8	21	
5	D5*	4	4+	3	3+	3-	3+	3-	3-	26	18	1.0	4	4-	3	3	3-	3-	3-	3-	33	34	30	42	22	
6	D2	5	4-	4+	4+	5-	5+	6-	3-	36-	38	1.4	4+	3+	4	4	4+	5+	5	3-	62	60	64	58	67	
7		2+	2+	2-	1+	2	1+	1+	2-	14	6	0.3	2+	2-	2-	1+	2-	1+	2-	2-	12	15	11	13	12	C
8		1+	1+	1-	1+	2+	3-	3-	1+	14-	7	0.4	1+	1+	1	1	3-	2+	3-	1+	13	17	18	10	24	
9		2+	3	3-	3+	4	4-	3+	3+	26-	17	0.9	2+	2+	3-	3	4-	4-	4-	3	30	36	40	26	49	
10	D1	4	4+	6+	8-	7+	6-	6	5	46+	85	1.8	4-	3+	5+	7	6+	5	5	4+	112	116	103	119	100	
11		4+	3	3-	3+	2	2-	1	2	20	13	0.7	4-	3-	2	3+	2+	2	1+	2	22	27	19	31	15	
12	Q9	2+	2+	2+	1+	1	1	1+	0+	12	6	0.3	2+	2+	2	1+	1	1	2-	1	12	17	12	18	11	
13	Q10	2-	3-	2-	2+	1	1-	1	1	12	6	0.3	2	2+	2-	2	1+	1-	1+	1+	11	17	10	16	11	CC
14	Q7	2	2+	2-	1+	2-	2-	0+	1-	12-	6	0.2	2	2-	1+	1+	2	2-	1-	1	11	13	12	13	12	CC
15	Q8K	0+	1-	1	1+	3-	3-	1+	1+	11+	6	0.3	0+	0+	1	1+	3	3-	2-	2-	12	17	15	9	23	
16		2+	3-	2	2-	1	3	4-	2	18+	10	0.6	2+	3-	2	2-	1	3-	3	2+	18	23	20	17	26	
17		3-	3-	2+	3-	3	3-	4-	4	24-	15	0.9	3-	2+	2+	2+	2+	2+	4-	4	27	31	23	24	30	
18	D3	4	3	3+	5-	4+	5	4	4+	33-	30	1.3	4-	3-	3-	5-	4-	4+	4	4+	47	52	46	42	56	
19		3+	3	2+	3+	2+	2+	3-	2-	21	12	0.7	3	2+	2+	3	3-	3-	3-	2	22	24	22	26	20	
20	D4*	3+	4	4-	3-	3-	4	3	3	26+	18	1.0	3-	3+	3+	2	2+	4-	3	3	29	35	23	27	31	
21		3	3-	2-	1+	1+	1-	1+	2	14	7	0.4	3-	2-	1+	1	1+	1-	1+	2	11	17	8	13	12	C
22	Q1	1+	1	0+	0+	0+	1	0+	0+	5	3	0.1	1+	1-	0+	0	0+	1	0+	1-	4	9	5	8	6	CC
23		1+	1+	2+	2	2	1+	1+	1	13-	6	0.3	1	1	2+	1+	2	2-	2-	1	11	14	13	14	13	CC
24		3-	2-	2-	2-	1	1	1	2	13-	6	0.3	2	2-	1+	2-	1	1	1	2+	11	16	12	17	11	C
25	Q4	2-	2	1	1-	0+	1-	1-	1-	8-	4	0.1	2-	2-	1+	1-	0+	1-	1	1+	7	11	6	11	6	CC
26		1-	1+	2	1+	2-	2-	3-	2+	14-	7	0.3	1+	2	3-	2-	2	2	3-	2+	16	20	17	17	20	
27		1	2	2	2+	2-	2	3+	2	16+	8	0.4	1	2	2-	2	1+	2+	3	2	15	23	16	14	25	
28		3	3	3-	3-	2-	1	1-	1+	16	9	0.5	3	2	3-	2+	2-	1+	1	2-	15	21	14	24	11	
29	Q3	1+	2	1-	1-	0+	0+	0	0+	6-	3	0.1	1+	1+	0+	0+	0+	0+	0	0	4	8	4	8	4	CC
30	Q6K	1-	1-	0	0	0+	0+	3	3	8	5	0.2	0+	1-	0	0	0	0+	3+	3	10	14	14	6	22	
31		2	2	3+	3+	3-	2	2-	2+	19+	10	0.6	2+	2	4-	4-	2	2	2	2	22	26	33	36	22	
Mean											13	0.54									20.8	25.4	21.0	23.2	

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	Sa	Prov Ri	Ra	Rs	IMF
1	3	2	2	2-	2+	2	3-	3	19	4-	3-	2-	2-	2+	1+	2+	3-	21	179.4	109	117	132	- -
2	2+	1+	1+	0+	2-	1	1-	1+	9	2+	2-	1	0+	1+	0	0+	1-	7	197.0	117	120	151	- -
3	0+	0	0+	0+	0	2	1+	1+	5	1-	0+	0+	0+	0	1+	2-	1+	5	200.4	129	122	154	- -
4	0	1-	1+	1	1	1+	3	4-	14	0+	0+	1	1-	1-	0+	3	4-	12	189.2	128	128	142	- -
5	4	4	3	3+	3-	3	2+	3	35	4+	3+	3-	3	3-	3-	3-	2+	30	191.0	130	125	144	- -
6	4+	3+	4	4	4+	5+	5	3	63	4+	3	4-	4	4	5+	5	3-	61	193.4	131	120	147	- -
7	2+	2-	2-	1+	2-	2-	1+	2-	12	2	2-	2-	1+	2-	1	2-	2-	12	182.4	128	124	135	- -
8	1+	1+	1+	1	3	3-	3-	2-	15	1+	1+	1	1	2	2	3-	1	11	172.6	138	120	124	- -
9	2+	2+	3-	3	4-	4-	4	3	33	2	2+	2+	3-	4-	3+	3+	3-	27	176.5	112	122	129	- -
10	4-	3+	5+	7	6+	5+	5	4	111	4-	3+	5+	7	6+	5	5+	4+	114	177.8	146	149	130	- -
11	4-	3	2+	3+	3-	2+	1+	2	25	3+	2+	2-	3+	2	2-	1+	2	19	168.2	148	153	120	- -
12	2+	2	2+	2-	1	1	2-	1-	12	3-	3-	2	1+	1	1+	2-	1+	13	148.4	156	160	98	- -
13	1+	2+	2-	2	2-	1	2-	1+	12	2+	2	2-	2+	1	0	1+	1+	11	157.5	150	153	108	- -
14	2-	2-	2-	2-	2	2-	1	1-	11	2	2-	1	1+	2	2-	0+	1	10	150.4	131	134	100	- -
15	0	0	1	1+	3	3	2-	2-	13	1	0+	1-	1+	3-	2+	1+	2-	11	149.1	109	121	99	- -
16	3-	2+	2-	1+	1	3-	3+	2+	18	2+	3-	2+	2-	1	2+	3	2	18	152.3	120	118	102	- -
17	2+	2	2	2+	3-	2+	4-	4	25	3-	3-	3-	2+	2+	2-	3+	4+	28	175.0	125	120	127	- -
18	4-	3	3-	4	4-	5-	4-	4-	45	4-	3-	3	5-	4-	4	4+	3+	49	162.3	134	135	113	- -
19	3	3-	2+	3	3-	3-	3-	2	24	3	2	2+	3	3-	2+	2+	2	21	164.0	133	128	115	- -
20	3-	3+	3+	2+	2+	4	3-	3	30	3-	3+	3	2	2+	3	3	3	27	166.0	119	133	117	- -
21	2+	2	2-	1	1+	1	1+	2+	12	3-	2-	0+	1	1+	0+	1+	2-	10	165.9	117	119	117	- -
22	1+	1	0+	0	0+	1+	0	1	5	1+	0+	0+	0+	0	1-	1-	0+	4	166.2	109	121	117	- -
23	1	1+	2+	1+	2+	2-	2-	1	12	1-	1	2+	1	2-	1+	2-	1	10	171.1	104	113	123	- -
24	2+	2-	1+	1+	1	1+	1	2+	11	2	1+	2-	2	1	1-	1+	3-	12	168.4	121	123	120	- -
25	2-	2-	1	0+	0+	1-	1-	1	7	2-	2	1+	1-	0	0+	1	1+	8	162.1	124	127	113	- -
26	1	2-	2+	1+	2	2	2+	2+	14	1+	2+	3-	2-	2-	2	3	2+	17	155.4	110	119	106	- -
27	1	2-	2-	2+	2-	2-	3	2	14	1+	2	2-	2	1+	2+	3+	2-	16	161.8	120	123	113	- -
28	3-	2+	3-	2+	2-	1+	1-	1+	14	3+	2	3-	2	2-	1+	1+	2-	16	156.0	119	118	106	- -
29	1+	1+	0+	0+	1-	0+	0	0	4	1+	1+	0	0+	0+	0+	0+	0+	4	155.9	122	119	106	- -
30	0+	1-	0	0	0	0+	3+	3-	9	0+	1-	0+	0	0	0+	3+	3+	11	154.2*	115	111	105	- -
31	2	2+	3+	4-	2+	2+	2	2	23	2+	2	4-	3+	2-	2-	2-	2-	21	160.4	111	111	111	- -
Mean									21.2									20.5	168.7	124.4	126.0	120.2	

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

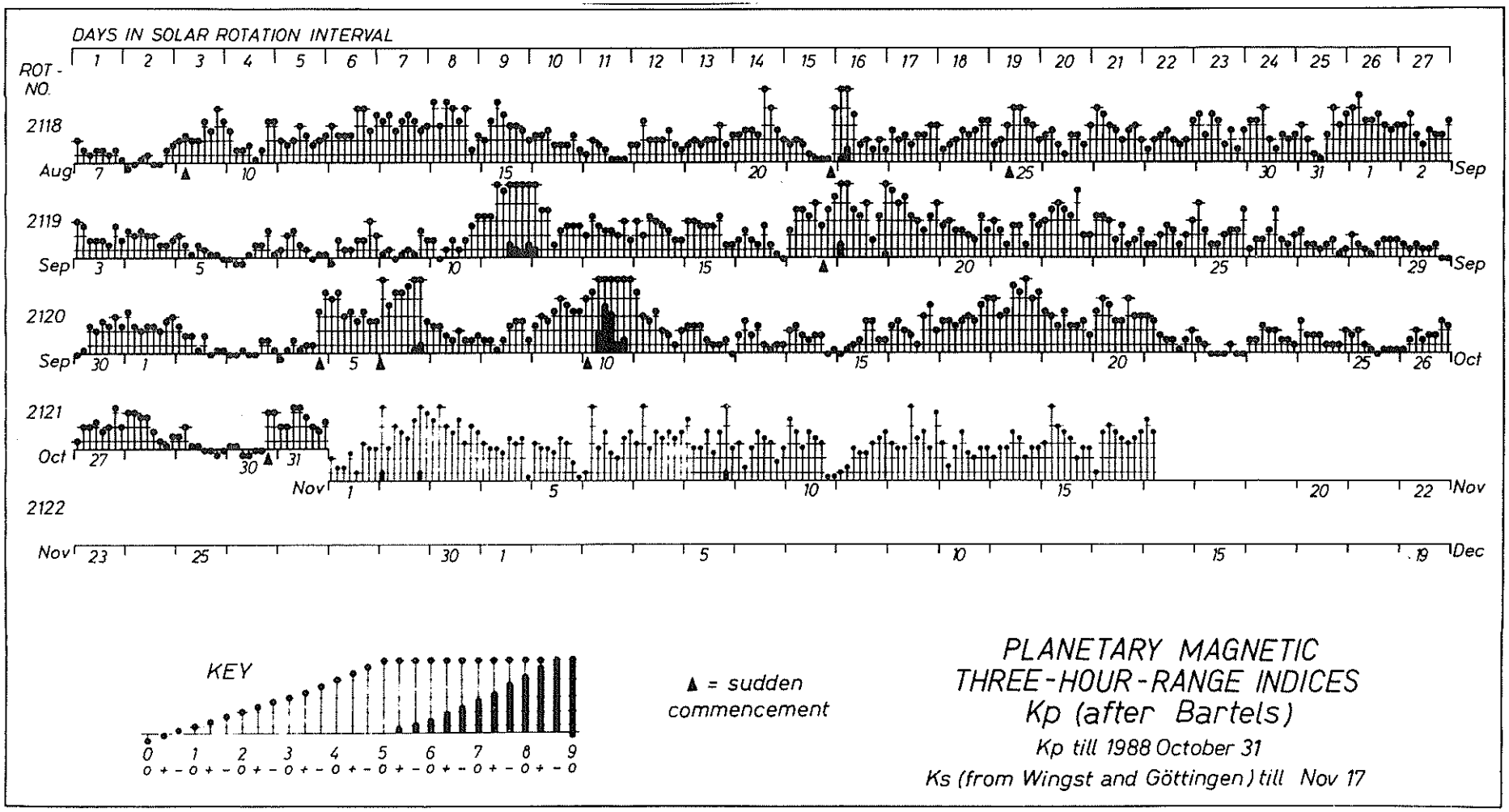
November 1987 to October 1988

DAY	1987 NOV	DEC	1988 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	7	5	5	2	4	13	5	6	14	8	21	11
2	23	4	29	5	6	19	7	5	10	5	12	5
3	27	12	7	3	10	48	7	2	7	6	8	3
4	9	10	14	7	19	78	13	3	4	2	7	9
5	10	17	14	29	8	24	20	10	5	6	4	18
6	9	8	31	11	19	48	106	8	11	5	3	38
7	5	4	24	6	11	15	13	6	8	5	5	6
8	4	1	19	5	26	7	13	6	10	3	6	7
9	10	6	7	11	13	10	10	8	3	13	4	17
10	11	28	4	13	12	16	11	9	7	9	7	85
11	14	15	11	11	14	9	6	7	21	8	51	13
12	20	9	21	16	9	14	5	4	15	16	20	6
13	27	4	7	14	5	10	5	6	5	17	10	6
14	22	4	48	7	12	9	4	20	7	21	11	6
15	14	11	63	19	20	6	6	9	11	16	12	6
16	8	39	5	15	14	5	11	6	22	8	6	10
17	3	16	7	14	9	5	24	10	6	5	20	15
18	5	8	12	19	7	7	18	14	9	8	34	30
19	12	7	10	7	4	9	6	21	9	8	23	12
20	10	4	12	5	6	7	6	13	3	17	11	18
21	6	10	9	26	2	8	10	5	26	7	11	7
22	7	22	7	97	3	44	8	12	27	24	20	3
23	35	10	2	36	5	21	6	8	12	10	11	6
24	24	6	5	12	5	7	8	17	7	11	8	6
25	12	7	6	14	10	6	6	27	6	15	12	4
26	17	4	8	9	49	5	8	17	16	9	8	7
27	20	1	12	7	34	6	3	9	12	15	5	8
28	9	2	6	5	26	11	3	10	11	9	5	9
29	3	5	4	3	32	6	7	26	7	13	4	3
30	3	3	3		34	7	12	22	6	12	8	5
31		4	3		11		9		8	13		10
MEAN	13	9	13	15	14	16	12	11	10	10	12	13

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

University of Göttingen

Kp through October 31, 1988



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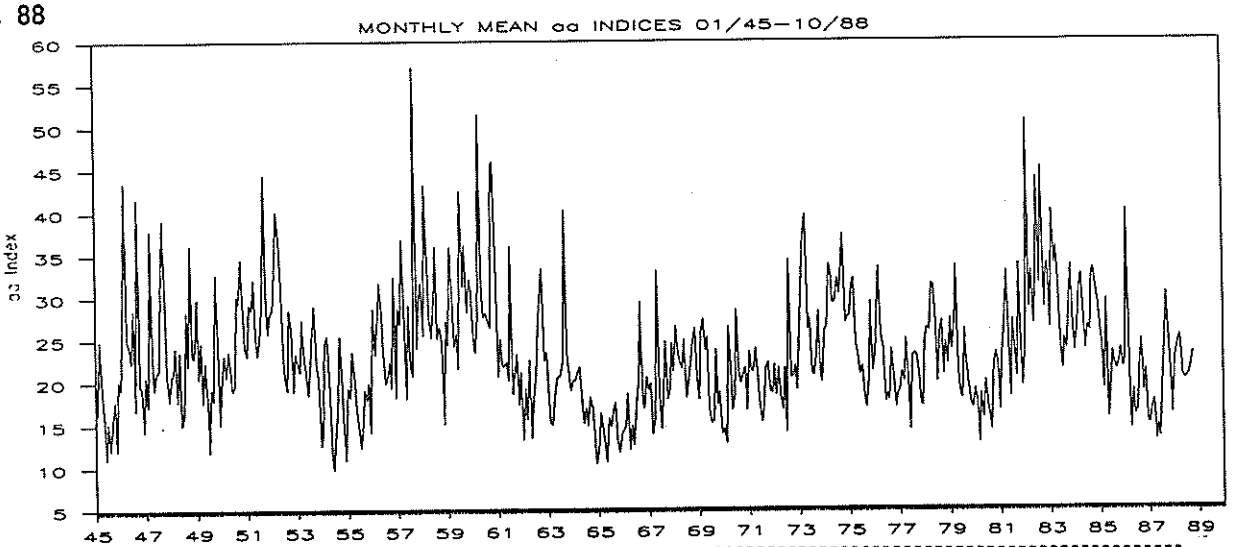
Oct 88



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			22.2

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

OCTOBER 1988

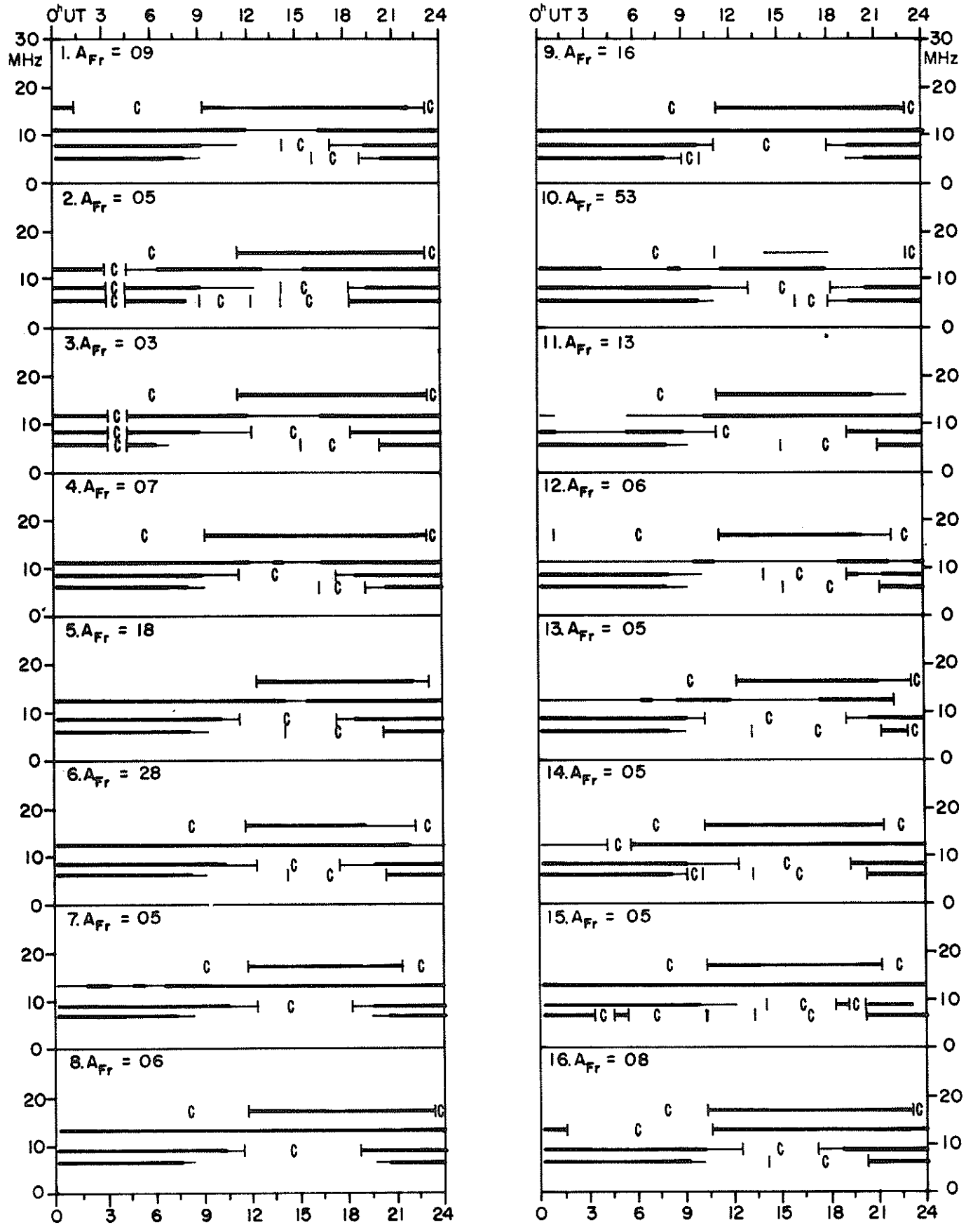
Sta	Geomag Lat	Commencement Day	Time (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
FRD	49.6N	04	2016	SC	- 1.0	25.5	- 3.8	06(5,6)	5	21	166	33	07	00
BJI	28.5N	04	2014	SC	0.8	17	..	06(6)	6	10	197	80	07	09
UJJ	13.5N	04	2000	..	..	..	..		-	6	238	48	06	24
ABG	09.5N	04	2000	..	..	..	..	06(5,6,7)	6	9	267	51	06	24
HYB	07.6N	04	2016	SC	- 0.1*	13	- 2	04(8) 05(1,2,4)	4	5	99	22	05	20
GUA	04.0N	04	2011	SC*	0.4	7	- 3	05(1)	5	--	130	20	05	19
ANN	01.5N	04	2000	..	..	..	..		-	7	345	70	06	24
TRD	01.1S	04	2000	..	..	..	..		-	--	--	--	06	24
GNA	43.2S	04	18--	..	..	..	..	06(6,7)	5	22	140	150	07	09
BJI	28.5N	05	1648	SC	0.3	21	1	06(6)	6	10	197	80	07	09
COL	64.6N	06	00--	..	..	..	..	06(6)	8	498	1705	1105	06	21
HYB	07.6N	06	0038	SC	- 0.1*	14	- 2	06(7)	7	7	287	28	07	09
GUA	04.0N	06	0038	SC*	0.4	49	- 17	06(1)	6	--	240	60	07	09
HER	33.7S	06	0037	SC	6	24	28	06(6,7)	6	22	209	132	06	23
UJJ	13.5N	09	1000	..	..	..	..		-	4	287	41	10	24
ABG	09.5N	09	1000	..	..	..	..	10(5,6)	6	7	316	42	10	24
HYB	07.6N	09	1009	SC	- 0.1*	10	- 2	10(4,5)	8	6	349	38	11	15
ANN	01.5N	09	1000	..	..	..	..		-	5	357	121	10	24
TRD	01.1S	09	1000	..	..	..	..		-	3	394	193	10	24
COL	64.6N	10	0231	SC*	- 3	-108	7	10(4)	8	458	2165	1395	10	23
SIT	60.0N	10	0232	SC	- 3	27	9	10(5)	8	--	--	--	11	03
FRD	49.6N	10	0232	SC	2.5	32.0	- 5.6	10(4)	7	42	192	146	11	06
BJI	28.5N	10	0231	SC	1.5	17	..	10(4)	7	13	260	89	11	19
HYB	07.6N	10	0231	SC	- 0.2*	18	- 2	10(4,5)	8	6	349	38	11	15
GUA	04.0N	10	0231	SC*	0.4	30	- 10	10(4)	7	10	280	30	11	11
HER	33.7S	10	0231	SC	3 *	15	14	10(4)	7	46	208	130	11	03
GNA	43.2S	10	0231	SC*	2.0*	12 *	9 *	10(4)	7	37	220	290	11	10
HYB	07.6N	16	1000	..	..	..	..	18(4,5)	5	5	179	19	19	11
GUA	04.0N	18	0812	..	..	..	..	18(5)	5	--	70	10	18	20
HER	33.7S	18	07--	..	..	..	..	18(4,7)	5	33	101	93	19	04
FRD	49.6N	30	2000	SC*	- 2.0	18.5	- 3.2	31(3,4)	4	12	86	22	31	--
HYB	07.6N	30	2000	SC	- 0.3*	25	- 1	31(3)	5	3	116	28	31	23
GUA	04.0N	30	2000	SC	0.2	20	- 5	31(3)	5	--	150	30	31	16

Stations Reporting:

ABG = ALIBAG
ANN = ANNAMALAINAGAR
BJI = BEIJING
COL = COLLEGE
FRD = FREDERICKSBURG
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS
HYB = HYDERABAD
SIT = SITKA
TRD = TRIVANDRUM
UJJ = UJJAIN

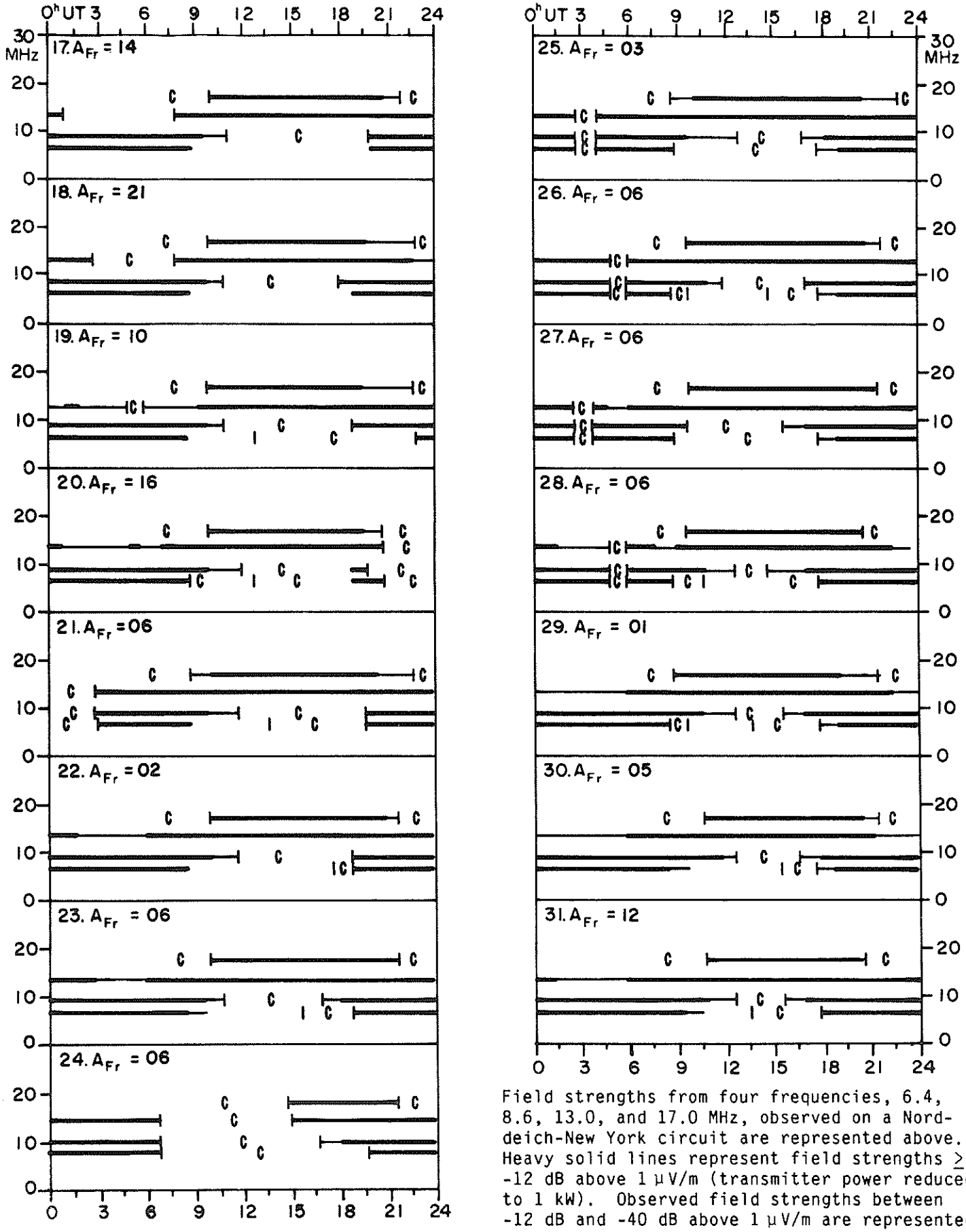
TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH

OCTOBER 1988



TRANSMISSION FREQUENCY RANGES--NORTH ATLANTIC PATH

OCTOBER 1988



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

RADIO PROPAGATION QUALITY INDICES
OCTOBER 1988

Day	For Circuits from Norddeich to: Bracknell England	Rome Italy	Teheran Iran	New York USA (East)	Tokyo Japan	Canberra Australia
1.	6.9	6.1	6.0	6.5	7.5	6.4
2.	7.1	6.3	6.0	6.9	8.4	6.5
3.	6.6	5.7	5.9	6.9	8.3	6.9
4.	6.9	5.6	6.3	6.3	8.4	6.8
5.	6.2	5.5	5.6	6.7	7.6	6.8
6.	6.5	5.7	5.9	5.2	6.3	6.6
7.	6.3	6.0	4.6	6.2	7.7	6.1
8.	7.1	5.7	6.0	6.8	7.4	6.6
9.	7.0	5.5	6.1	6.3	5.5	6.4
10.	4.0	5.0	4.8	2.9	3.1	4.4
11.	5.6	5.5	5.0	4.6	4.8	4.7
12.	6.2	5.7	6.0	3.0	4.7	4.5
13.	7.0	6.2	5.9	4.1	5.7	5.4
14.	7.3	5.9	5.2	6.9	7.1	5.5
15.	7.3	5.6	6.3	6.9	6.8	6.5
16.	7.1	5.8	6.6	7.0	6.1	6.7
17.	7.4	4.5	5.5	6.4	7.2	5.8
18.	6.1	4.7	6.9	4.7	5.8	5.3
19.	6.8	4.6	5.0	4.5	6.2	4.9
20.	7.1	5.5	6.1	6.3	4.9	6.4
21.	6.3	4.5	4.9	5.8	5.5	5.1
22.	6.4	4.5	5.1	6.0	5.7	5.6
23.	6.8	5.8	5.4	6.8	5.1	5.9
24.	6.6	7.2	5.6	5.9	7.1	4.9
25.	6.3	6.8	4.7	6.1	6.4	5.4
26.	6.5	7.7	5.9	6.4	6.9	5.7
27.	7.1	7.1	4.7	6.2	7.6	5.4
28.	6.6	7.2	5.0	6.2	7.3	5.1
29.	5.9	6.4	4.2	5.5	4.8	5.0
30.	6.2	6.6	5.2	6.1	5.3	5.5
31.	7.1	7.5	7.7	7.2	6.9	6.3
MEAN:	6.6	5.9	5.6	5.9	6.4	5.8

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

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

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

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

C O N T E N T S

Prompt Reports LATE DATA Number 532 Part I

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1988

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			CULG				0000.0	0005.0	2				IIIN
	0000	0700	CULG				0000.0	0700.0	1				IC
			CULG				0025.0	0437.0	1				IIIN
			CULG				0422.0	0700.0	1				I,DC
			CULG				0549.0	0646.0	1				IIIN
			CULG				2100.0	2332.0	2				IC
	2100	2400	CULG				2102.0	2116.0	3	2107.0	2116.0	3	IIIN
			CULG				2142.0	2218.0	1				IIIS
			CULG				2218.0	2322.0	2	2218.0	2322.0	2	IIIS
			CULG				2322.0	2400.0	1				IIIS
			CULG				2332.0	2400.0	1				IC
02			CULG				0000.0	0700.0	1				IC
	0000	0700	CULG				0000.0	0700.0	1				IIIS
			CULG				0025.0	0128.0	3				S
			CULG				0025.0	0128.0	3	0025.0	0128.0	3	IIIN
			CULG				0206.0	0206.0	3				III
			CULG				0206.0	0206.0	3				IIIB
			CULG				0245.0	0700.0	2	0245.0	0700.0	2	IIIN
			CULG				0409.0	0438.0	2				S
			CULG				0409.0	0438.0	2	0409.0	0438.0	2	IIIN
			CULG				0638.0	0650.0	3	0638.0	0650.0	3	IIIN
			CULG				2100.0	2400.0	2	1100.0	2400.0	1	IIIB,N
			CULG				2100.0	2400.0	2	2100.0	2400.0	2	IIIB,N
	2100	2400	CULG				2100.0	2400.0	1				IC
			CULG				2105.0	2115.0	1				II
			CULG				2109.0	2400.0	1	2109.0	2400.0	1	IIIS
03			CULG				0000.0	0408.0	2	0000.0	0408.0	2	IIIB,N
	0000	0700	CULG				0000.0	0700.0	2	0000.0	0700.0	2	I
	2100	2400	CULG				2100.0	2400.0	2				IC
			CULG				2133.0	2400.0	2	2133.0	2400.0	2	IIIS
			CULG				2223.0	2235.0	2				S
			CULG				2223.0	2235.0	2	2223.0	2235.0	2	IIIB,N
04			CULG				0000.0	0312.0	1	0000.0	0312.0	1	IIIS
	0000	0312	CULG				0000.0	0312.0	2				IC
			CULG				0006.0	0312.0	2	0006.0	0312.0	2	IIIB,N
			CULG				0318.0	0505.0	2				IC
			CULG				0318.0	0632.0	2	0318.0	0632.0	2	IIIB,N
			CULG				0318.0	0700.0	1	0318.0	0700.0	1	IIIS
			CULG				0416.0	0700.0	2				I,DC
			CULG				0505.0	0645.0	1				IC
			CULG				0645.0	0700.0	2				IC
	2100	2400	CULG				2113.0	2400.0	2	2113.0	2400.0	2	IIIB,N
			CULG				2124.0	2124.0	3	2124.0	2124.0	3	IIIB
			CULG				2129.0	2130.0	3	2129.0	2130.0	3	IIIG
			CULG				2139.0	2400.0	2	2139.0	2400.0	2	IIIB,N
05	0000	0700	CULG				0016.0	0700.0	2	0016.0	0700.0	2	IIIB,N
			CULG				0052.0	0700.0	2	0052.0	0700.0	2	IIIB,N
			CULG				0312.0	0312.0	3	0312.0	0312.0	3	IIIB
			CULG				0613.0	0616.0	3	0613.0	0616.0	3	V/III
			CULG				0622.0	0630.0	3	0622.0	0630.0	3	IIIG
	2100	2400	CULG				2100.0	2400.0	1	2100.0	2400.0	1	IC
			CULG				2119.0	2122.0	1				IIIG
			CULG				2147.0	2149.0	1	2147.0	2149.0	1	IIIG
			CULG				2150.0	2154.0	3	2150.0	2154.0	3	IIIG
			CULG				2154.0	2157.0	3	2154.0	2157.0	3	V
			CULG				2215.0	2305.0	2	2215.0	2305.0	2	I,DC
			CULG				2215.0	2400.0	1	2215.0	2400.0	1	I,DC
			CULG				2341.0	2341.0	1	2341.0	2341.0	1	IIIB
			CULG				2349.0	2349.0	1	2349.0	2349.0	1	IIIB
06	0000	0700	CULG				0000.0	0700.0	1				IC
			CULG				0158.0	0652.0	1	0158.0	0652.0	1	IIIB,N
			CULG				0433.0	0433.0	2	0433.0	0433.0	2	IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1988

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
06	2058	2400	CULG				2058.0	2058.0	1				II B
			CULG				2154.0	2154.0	1				IIIB
			CULG				2226.0	2228.0	2				IIIB
			CULG				2354.0	2355.0	2	2354.0	2355.0	2	IIIB
07	0000	0700	CULG				0004.0	0004.0	1				IIIB
			CULG				0018.0	0035.0	1				IIIN
			CULG				0420.0	0421.0	2	0420.0	0421.0	2	IIIB
			CULG				0539.0	0617.0	1				IIIN
	2100	2400	CULG										
08	0000	0700	CULG				0241.0	0241.0	2				IIIB
			CULG				0243.0	0254.0	1				IIIN
			CULG	0331.0	0338.0	3	0331.0	0338.0	3	0331.0	0338.0	3	IIIV,G
			CULG				0404.0	0404.0	1				III
			CULG				0404.0	0404.0	1				IIIB
			CULG				0504.0	0633.0	1				IIIN
	2100	2400	CULG				2100.0	2400.0	2	2100.0	2400.0	2	I,III,S,DC
			CULG				2255.0	2303.0	2	2255.0	2303.0	2	IIIGG
			CULG				2313.0	2314.0	2	2313.0	2314.0	2	IIIB
09	0000	0700	CULG				0000.0	0325.0	1				I,III,S,DC
			CULG				0059.0	0100.0	2	0059.0	0100.0	2	IIIG
			CULG				0144.0	0149.0	3	0144.0	0149.0	3	IIIGG
			CULG				0251.0	0304.0	2	0251.0	0304.0	2	IIIGG
			CULG				0325.0	0515.0	2	0325.0	0515.0	2	I,III,S,DC
			CULG				0515.0	0700.0	1				I,III,S,DC
			CULG				0603.0	0624.0	3	0603.0	0624.0	3	IIIGG
			CULG				0631.0	0700.0	2	0631.0	0700.0	2	IIIN
	2100	2400	CULG				2100.0	2400.0	1				I,III,S,DC
			CULG				2131.0	2132.0	2	2131.0	2132.0	2	IIIG
			CULG				2231.0	2259.0	2	2231.0	2259.0	2	I,III,S,DC
10			CULG										I
			CULG				0000.0	0248.0	1				I,III,S,DC
			CULG				0401.0	0502.0	1				IIIN
			CULG				0629.0	0629.0	2	0629.0	0629.0	2	IIIB
			CULG				2100.0	2400.0	1				IIIS
	2100	2400	CULG				2100.0	2257.0	1				I,S,C,DC
			CULG				2133.0	2134.0	2	2133.0	2134.0	2	IIIB
			CULG				2257.0	2400.0	1				I,S,C,DC
11	0000	0700	CULG				0000.0	0700.0	1				I,III,S,C,
	2100	2400	CULG				2147.0	2149.0	1				IIIB
			CULG				2239.0	2400.0	1				IIIN
			CULG							2247.0	2249.0	1	III
			CULG				2348.0	2400.0	2	2348.0	2400.0	2	IIIGG
12	0000	0700	CULG				0000.0	0006.0	2	0000.0	0006.0	2	IIIGG
			CULG				0041.0	0047.0	2	0041.0	0047.0	2	IIIG
			CULG				0054.0	0055.0	1				IIIG
			CULG				0137.0	0137.0	1				IIIB
			CULG				0146.0	0146.0	1				IIIB
			CULG				0201.0	0206.0	2	0201.0	0206.0	2	IIIG
			CULG				0239.0	0239.0	1				IIIB
			CULG				0433.0	0439.0	1				IIIG
			CULG				0614.0	0614.0	1				IIIB
			CULG				0629.0	0634.0	1				IIIG
			CULG				0659.0	0659.0	1				IIIB
			CULG				2105.0	2224.0	1				IDC
	2100	2400	CULG				2105.0	2400.0	1				IC
			CULG				2147.0	2357.0	1	2147.0		1	IIIB,N
13	0000	0700	CULG				0000.0	0700.0	1				IC
			CULG				0120.0	0120.0	1	0120.0	0120.0	1	IIIB
			CULG				0122.0	0123.0	2				III
			CULG				0122.0	0123.0	2	0122.0	0123.0	2	IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1988

Observation Day	Start (UT)	End (UT)	Sta	Decimetric Band Start (UT)	End (UT)	Int (1–3)	Metric Band Start (UT)	End (UT)	Int (1–3)	Dekametric Band Start (UT)	End (UT)	Int (1–3)	Spectral Type
13			CULG				0446.0	0454.0	1	0446.0	0454.0	1	IIIB,N
	2100	2400	CULG				2100.0	2400.0	1				IC
			CULG				2212.0	2212.0	1			1	IIIB
			CULG				2224.0	2227.0	1	2224.0	2227.0	1	IIIG
			CULG				2302.0	2302.0	1	2302.0	2302.0	1	IIIB
			CULG				2304.0	2304.0	1	2304.0	2304.0	1	IIIB
14	0000	0700	CULG				0000.0	0700.0	1				IC
			CULG				0013.0	0513.0	1	0013.0	0513.0	1	IIIB,N
			CULG				0020.0	0700.0	1				I,DC
			CULG				0250.0	0335.0	2				IC
			CULG				0253.0	0253.0	2	0253.0	0253.0	2	IIIB
	2100	2400	CULG				2254.0	2400.0	1				IIIB,N
			CULG				2306.5	2306.5	1				IIIB
			CULG				2327.0	2329.5	1				IIIG
15	0000	0710	CULG				0000.0	0710.0	1				IIIN,G,N
			CULG				0206.5	0206.5	1				IIIB
	0000	0710	CULG				0212.0	0212.0	1				IIIB
			CULG				0552.0	0552.0	1	0552.0	0552.0	1	IIIB
16			CULG				0425.0	0710.0	1				IIIB,N
	0425	0710	CULG				0425.0	0510.0	1				I,C,DC
			CULG				0620.0	0710.0	1				IC
	2100	2400	CULG				2100.0	2400.0	2				IC
			CULG				2106.5	2106.5	1				IIIB
			CULG				2114.0	2153.0	1				IIIS
			CULG				2124.0	2124.0	1				IIIB
			CULG				2153.0	2320.0	1				IIIS
			CULG				2204.0	2206.0	3	2204.0	2206.0	3	IIIG
			CULG				2315.5	2315.5	1	2315.5	2316.0	1	IIIB
			CULG				2320.0	2340.0	1				IIIS
			CULG	2356.0	2356.5	1	2355.5	2358.5	2	2355.5	2358.5	2	IIIG
17			CULG				0000.0	0710.0	1				IC
			CULG				0001.0	0143.0	1				S
	0000	0710	CULG				0001.0	0143.0	1				IIIS
			CULG				0053.0	0103.0	2	0053.0	0103.0	2	IIIG
			CULG				0143.0	0210.0	1				IIIS
			CULG				0214.0	0323.0	1				IIIS
			CULG				0328.0	0418.0	1				IIIS
			CULG				0418.0	0634.0	1				IIIS
			CULG				0427.0	0428.0	2	0427.0	0428.0	2	IIIG
			CULG				0435.5	0439.5	2	0435.5	0439.5	2	IIIGG
			CULG	0540.0	0540.0	1	0539.0	0540.5	2	0539.0	0540.5	2	IIIG
			CULG				0610.5	0611.0	1				IIIB
			CULG				0634.0	0655.0	1				IIIS
			CULG				0645.0	0647.5	2				IC
			CULG				0646.0	0648.0	2				IIIG
	2100	2400	CULG				2100.0	2400.0	3	2100.0	2400.0	3	C
			CULG				2358.5	2400.0	2	2358.5	2400.0	2	IIIC
18	0000	0715	CULG				0000.0	0200.0	2	0000.0	0200.0	2	C
			CULG				0031.0	0148.0	1	0031.0	0148.0	1	IIIB,N
			CULG				0148.0	0151.0	2	0148.0	0151.0	2	IIIG
			CULG				0151.0	0259.0	1				IIIS
			CULG				0200.0	0230.0	2				C
			CULG				0230.0	0710.0	1				C
			CULG	0243.5	0244.0	1	0243.5	0244.0	2	0243.5	0244.0	2	IIIB
			CULG				0259.0	0259.0	1	0259.0	0259.5	1	IIIB
			CULG				0300.0	0336.0	2	0259.0	0336.0		IIIS
			CULG	0319.00	3205.0	2	0319.0	0319.5	2	0319.0	0319.5	2	IIIG
			CULG				0336.0	0550.0	1				IIIS
			CULG				0550.0	0710.0	1				IIIS
			CULG				2100.0	2211.0	2	2100.0	2211.0	2	IIIS
19			CULG				0000.0	0317.0	1	0000.0		1	IIIN

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19	0000	0710	CULG				0000.0	0710.0	3	0000.0	0710.0	3	IC,DC
			CULG				0317.0	0527.0	1	0317.0	0527.0	1	IIIS
			CULG				0527.0	0710.0	1	0527.0	0710.0	1	IIIN
			CULG				2100.0	2400.0	1	2100.0	2400.0	1	IIIS
	2100	2400	CULG				2100.0	2400.0	3	2100.0	2400.0	3	IC
			CULG				2350.0	2359.0	3	2350.0	2359.0	3	IIIGG
20			CULG				0000.0	0710.0	1	0000.0	0710.0	1	IIIS
	0000	0710	CULG				0000.0	0710.0	3	0000.0	0710.0	3	IC
			CULG				0014.0	0015.0	2	0014.0	0015.0	2	IIIG
			CULG				0153.0	0153.0	2	0153.0	0153.0	2	IIIG
			CULG				0215.0	0218.0	2	0215.0	0218.0	2	IIIG
	2100	2400	CULG				2100.0	2400.0	1				IC
			CULG				2232.5	2232.5	1				IIIB
			CULG	2342.0	2351.5	1	2342.0	2351.5	3	2342.0	2351.5	3	IIIGG
21	0000	0716	CULG				0000.0	0716.0	1				IC
			CULG				0025.0	0026.0	1				IIIG
			CULG				0100.0	0125.0	1				IIIS
			CULG				0128.0	0135.0	3				III
			CULG	0129.0	0132.0	1	0128.5	0135.0	3	0129.0	0135.0	3	IIIG
			CULG				0135.0	0148.0	1				III
			CULG				0136.0	0142.0	1				III
			CULG	0136.0	0141.5	1	0135.0	0148.0	1				IIIGG
			CULG				0225.5	0229.0	1				IIIG
			CULG				0520.0	0639.0	1				IIIN
			CULG				0708.0	0712.0	3	0708.0	0712.0	3	IIIGG
			CULG				0709.0	0709.5	1				IIIG
			CULG				0714.0	0716.0	1				IIIG
			CULG				2106.0	2107.0	1				III
	2100	2400	CULG				2106.5	2107.0	1				IIIG
			CULG				2108.5	2109.0	1				IIIG
			CULG				2151.5	2205.0	1	2151.5	2205.0	1	IIIGG
			CULG				2225.0	2400.0	1				IIIB,G,N
			CULG				2246.5	2246.5	3	2246.5	2247.0	3	IIIB
			CULG				2308.0	2316.0	1				IIIGG
			CULG				2309.5	2311.0	2	2309.5	2311.0	2	IIIG
22	0000	0710	CULG				0000.0	0710.0		0000.0	0710.0	1	IIIB,N
			CULG				0026.0	0027.0	1				III
			CULG	0026.0	0027.0	1	0026.0	0028.5	3	0026.0	0028.5	3	IIIGG
			CULG				0107.0	0108.5	1				IIIG
			CULG				0111.0	0112.5	3	0111.0	0112.5	3	IIIG
			CULG				0152.0	0158.0	3	0152.0	0158.0	3	IIIGG
			CULG				0159.0	0200.0	3	0159.0	0200.0	3	IIIG
			CULG				0219.0	0339.0	1				IIIB,G,N
			CULG				0258.0	0300.0	3	0259.0	0300.0	3	IIIG
			CULG				0300.5	0300.5	3	0300.5	0301.0	3	IIIB
			CULG				0301.0	0308.0	1				IIIG
			CULG				0326.0	0328.5	3	0326.0	0328.5	3	IIIG
			CULG				0327.0	0400.0	1				I,DC
			CULG				0336.0	0336.5	2	0336.0	0336.5	2	IIIB
	0000	0710	CULG				0350.5	0355.5	3	0350.5	0355.5	3	IIIGG
			CULG				0455.5	0455.5	1				IIIG
			CULG				0550.0	0556.0	2	0550.0	0556.0	2	IIIGG
			CULG				0648.0	0710.0	1				IC,DC
			CULG				0652.0	0652.0	1				IIIB
			CULG				2126.0	2127.0	1				III
	2100	2400	CULG				2126.5	2127.0	1				IIIG
			CULG				2213.5	2221.0	1				IIIGG
			CULG				2228.0	2229.5	1				IIIG
			CULG				2233.5	2235.0	1				IIIG
			CULG				2303.5	2305.0	2	2303.5	2305.0	2	IIIG,V
			CULG				2312.0	2312.0	1	2312.5	2312.5	1	IIIB
			CULG				2320.0	2325.0	2	2320.0	2325.0	2	IIIGG
23	0000	0710	CULG				0550.5	0551.0	1				IIIB

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23		CULG				0551.0	0551.0	1				III
2100	2400	CULG				2104.0	2107.0	1				IIIG
		CULG				2112.0	2112.0	1				IIIB
		CULG				2121.5	2125.5	1				IIIG
		CULG				2139.0	2148.5	1				IIIGG
		CULG				2200.0	2212.0	2				III
		CULG				2200.0	2212.5	2	2200.0	2212.5	2	IIIGG
		CULG				2225.5	2225.5	1	2225.5	2225.5	1	IIIB
		CULG				2228.5	2229.0	1				IIIG
		CULG				2232.0	2232.0	1				III
		CULG				2236.5	2236.5	2	2236.5	2237.0	2	IIIB,V
		CULG				2237.0	2248.5	1				IIIGG
		CULG				2311.0	2400.0	1	2311.0	2400.0	1	IIIB,G,N
		CULG				2320.5	2321.5	1				IIIG
		CULG				2331.5	2332.5	1	2331.5	2332.5	1	IIIG
		CULG				2346.0	2352.0	3				III
24	0000 0710	CULG				0000.0	0229.5	1				IIIB,G,N
		CULG				0045.0	0045.5	2	0045.5	0046.0	1	IIIB
		CULG				0230.0	0231.0	3	0230.5	0231.5	3	IIIG,V
		CULG				0300.0	0315.0	1				IIIB,N
		CULG				0353.0	0443.0	1	0353.0	0443.0	1	IIIB,N
		CULG				0641.0	0710.0	1				IC,DC
		CULG				0650.0	0655.0	3				II
		CULG				0656.0	0705.0	1	0656.0	0705.0	1	I,V
2100	2400	CULG										
25	0000 0710	CULG				0306.0	0308.5	1	0306.0	0309.5	1	IIIG
		CULG				0428.0	0428.5	1	0428.0	0428.5	1	IIIG
		CULG				0447.0	0447.0	1	0447.0	0447.0	1	IIIB
		CULG				0537.0	0540.5	2	0537.0	0540.5	2	IIIG
		CULG				0543.0	0549.0	2			2	II
		CULG				0543.0	0549.5	3			3	II
		CULG				0556.5	0557.0	1				III
2100	2400	CULG				2100.0	2400.0	1				IC
		CULG				2338.0	2340.0	1				IIIG
26	0000 0700	CULG				0000.0	0700.0	1				IC
		CULG				0153.0	0155.0	3	0153.0	0155.0	3	IIIB
		CULG				0248.0	0254.0	1	0248.0	0254.0	1	IIIB
		CULG				0557.0	0601.0	1	0557.0	0601.0	1	IIIB
2100	2400	CULG				2100.0	2400.0	1				IC
		CULG				2137.0	2137.0	1				III
		CULG				2232.0	2232.0	1				IIIB
		CULG				2356.0	2356.0	1				III
27	0000 0700	CULG				0000.0	0700.0	1				IC
		CULG				0004.0	0705.0	1	0004.0	0705.0	1	IIIG,N
		CULG				0543.0	0543.0	2	0543.0	0543.0	2	IIIG,N
2100	2400	CULG				2100.0	2400.0	2				IC
		CULG				2153.0	2156.0	1				IIIG
		CULG				2156.0	2159.0	2				IIIG
		CULG							2216.0	2216.0	1	III
		CULG				2216.0	2216.0	1	2216.0	2216.0	1	IIIB
		CULG							2237.0	2237.0	1	III
		CULG				2237.0	2237.0	1	2237.0	2237.0	1	IIIG
		CULG				2345.0	2345.0	1	2345.0	2345.0	1	IIIB
28	0000 0710	CULG				0000.0	0710.0	1				IC
		CULG				0123.0	0125.0	1	0123.0	0125.0	1	IIIG
		CULG				0128.0	0134.0	1				II
		CULG				0157.0	0601.0	1	0157.0	0601.0	1	IIIB,N
2100	2400	CULG				2100.0	2400.0	1	2100.0	2400.0	1	IIIB,N
		CULG				2147.0	2147.0	1	2147.0	2147.0	1	IIIB
		CULG				2324.0	2326.0	2	2324.0	2326.0	2	IIIG
29	0000 0710	CULG				0000.0	0700.0	2				IC

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29		CULG				0103.0	0103.0	1	0103.0	0103.0	1	IIIB
		CULG				0243.0	0243.0	2	0243.0	0243.0	2	IIIB
		CULG				0354.0	0355.0	2	0354.0	0355.0	2	IIIG
		CULG				0405.0	0405.0	2	0405.0	0406.0	2	IIIG
		CULG				0418.0	0710.0	1	0418.0	0710.0	1	IIIB,N
	2100 2400	CULG				2100.0	2400.0	1				IC
		CULG				2129.0	2400.0	1	2129.0	2400.0	1	IIIB,N
30		CULG				0000.0	0650.0	1	0000.0	0650.0	1	IIIB,N
		CULG				0000.0	0650.0	2	0000.0	0650.0	2	IIIB,N
		CULG				0000.0	0710.0	2				IDC
	0000 0710	CULG				0000.0	0710.0	2				IC
		CULG				0605.0	0605.0	2	0605.0	0605.0	2	IIIB
		CULG				2100.0	2400.0	1				IC,DC
	2100 2400	CULG				2100.0	2400.0	1				IIIS
31		CULG				0000.0	0710.0	1				I,III,S,C,
		CULG				0109.0	0148.0	2				III
	0000 0710	CULG				0109.0	0148.0	2	0109.0	0148.0	2	IIIN
		CULG				0343.0	0344.0	1				IIIG
		CULG				0551.0	0710.0	1				IIIN
		CULG				2100.0	2400.0	1				IC
	2100 2400	CULG				2100.0	2400.0	1				IIIS
		CULG				2305.0	2331.3	2	2305.0	2313.0	2	IIIN

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

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

Stations Reporting:

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

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01	0000	0715	CULG				0000.0	0715.0	1				IC
			CULG				0123.0	0124.0	2	0123.0	0124.0	2	IIIB
			CULG				0330.0	0352.0	1				IIIN
			CULG				0339.0	0341.0	2	0339.0	0341.0	2	IIIB
			CULG				0552.0	0554.0	1				IIIG
			CULG				0619.0	0622.0	2	0619.0	0622.0	2	IIIG
			CULG				0623.0	0626.0	2	0623.0	0626.0	2	II B
	2100	2400	CULG				2100.0	2400.0	1				I,III,C,S
02			CULG				0000.0	0715.0	2	0000.0	0715.0		IC,DC
	0000	0715	CULG				0000.0	0715.0	1				I,IIIC,S
			CULG				0139.0	0140.0	2	0139.0	0140.0	2	IIIG
			CULG				0237.0	0237.0	2	0237.0	0237.0	2	IIIB
			CULG				0510.0	0611.0	2	0610.0	0611.0	2	IIIB
			CULG				0540.0	0550.0	2	0540.0	0550.0	2	IIIN
			CULG				0620.0	0650.0	3	0620.0	0650.0	3	UNCLF
	2100	2400	CULG				2100.0	2400.0	2	2100.0	2400.0	2	I,III,C,S,
			CULG				2202.0	2209.0	3	2202.0	2209.0	3	IIIG
03	0000	0715	CULG				0000.0	0150.0	2	0000.0	0150.0	2	IIIS
			CULG				0035.0	0036.0	2				IIIG
			CULG				0150.0	0715.0	1	0150.0	0715.0	1	IIIS
	2100	2400	CULG										
11	0537	0720	CULG										
	2100	2400	CULG				2139.0	2139.0	1	2139.0	2139.5	1	IIIB
			CULG				2146.5	2149.5	2	2146.5	2149.5	2	IIIG
12	0000	0720	CULG				0630.0	0651.0	1				IIIGG
	2050	2400	CULG				2055.0	2055.0	2				IIIB
13	0000	0720	CULG				0000.0	0720.0	1				IIIN
	2050	2400	CULG				2255.0	2255.0	1				IIIB
			CULG				2325.0	2325.0	2	2325.0	2325.0	2	IIIB
14	0000	0720	CULG				0521.0	0521.0	1				IIIB
	2050	2400	CULG										
15	0000	0720	CULG				0224.0	0228.0	2	0224.0	0228.0	2	IIIG
			CULG				0521.0	0521.0	1				IIIB
			CULG				0601.0	0601.0	1				IIIB
			CULG				0624.0	0624.0	1				IIIB
	2050	2400	CULG				2235.0	2235.0	1				IIIB
16	0000	0720	CULG				0300.0	0302.0	1				IIIG
			CULG				0519.0	0519.0	1				IIIB
			CULG				0705.0	0705.0	1				IIIB
	2050	2400	CULG										
17	0000	0720	CULG										
	2050	2400	CULG				2103.0	2103.0	1				IIIB
			CULG							2300.0	2400.0	1	IIIS
18	0000	0720	CULG							0000.0	0720.0	1	IIIS
			CULG				0144.0	0144.0	1				IIIB
			CULG							0230.0	0235.0	1	IIIGG
			CULG							0236.0	0237.0	1	IIIGG
	2040	2400	CULG				2119.0	2119.0	1	2119.0	2119.0	1	IIIB
19	0000	0720	CULG				0511.0	0532.0	1	0511.0	0532.0	1	IIIN
			CULG				0525.0	0528.0	2	0525.0	0525.0	2	IIIG
	2040	2400	CULG				2159.0	2159.0	2	2159.0	2159.0	2	IIIB
20	0000	0720	CULG							0051.0	0051.0	1	IIIB
			CULG							0120.0	0120.0	1	IIIB
			CULG				0233.0	0233.0	2	0233.0	0233.0	2	IIIB
			CULG							0255.0	0255.0	2	IIIG

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20	2040	2400	CULG										
21	0000	0720	CULG				0212.0	0212.0	1	0212.0	0212.0	1	IIIB
	2040	2400	CULG										
22	0000	0720	CULG										
		2400	CULG				2035.0	2036.0	1	2035.0	2036.0	1	IIIG
			CULG							2249.0	2252.0	1	IIIG
23	0000	0730	CULG				0213.0	0213.0	1				IIIB
			CULG				0238.5	0239.0	1				IIIG
			CULG				0454.5	0456.0	1				IIIG
			CULG				0611.0	0611.0	1				IIIB
			CULG				0616.5	0617.0	1				IIIB
			CULG				0702.0	0702.5	1				IIIB
			CULG				0728.0	0728.0	1				IIIB
	2030	2400	CULG				2114.0	2114.0	1				IIIB
			CULG				2219.0	2220.0	1				IIIG
24			CULG				0000.0	0730.0	1				IIIN
	0000	0730	CULG				0000.0	0730.0	1				IIIN
			CULG				0154.0	0155.0	2	0154.0	0155.0	2	IIIB
	0000	0730	CULG				0400.0	0402.0	2	0400.0	0402.0	2	IIIG
			CULG				0404.0	0404.0	2	0404.0	0404.0	2	IIIB
			CULG				0409.0	0410.0	2	0409.0	0410.0	2	IIIG
			CULG				0442.0	0442.0	2	0442.0	0442.0	2	IIIB
			CULG				0454.0	0454.0	2	0454.0	0454.0	2	IIIB
			CULG				0533.0	0533.0	1				IIIB
			CULG				0603.0	0603.0	2	0603.0	0603.0	2	IIIB
			CULG				0720.0	0720.0	2	0720.0	0720.0	2	IIIGG
	2030	2400	CULG				2052.0	2052.0	1				IIIB
			CULG				2100.0	2105.0	2	2100.0	2105.0	2	IIIGG
			CULG				2136.0	2136.0	1				IIIB
			CULG				2201.0	2201.0	1				IIIB
			CULG				2242.0	2242.0	1				IIIB
			CULG				2252.0	2258.0	2	2252.0	2258.0		IIIG
25			CULG				0000.0	0430.0	1				IIIN
	0000	0730	CULG				0000.0	0430.0	1				IIIN
			CULG				0122.0	0137.0	2	0122.0	0137.0	2	IIIG
			CULG				0210.0	0219.0	2	0210.0	0219.0	2	IIIGG
			CULG				0503.0	0605.0	1				IIIN
			CULG				0526.0	0605.0	1				IIIN,DP
			CULG				0646.0	0714.0	2				IIIN
			CULG				2030.0	2145.0	1				IIIN
	2030	2400	CULG				2030.0	2145.0	1				IIIN
			CULG				2135.0	2139.0	2	2135.0	2139.0	2	IIIG
			CULG				2214.0	2315.0	2	2214.0	2315.0	2	IIIN
			CULG				2216.0	2218.0	3	2216.0	2218.0	3	III,VB
			CULG				2348.0	2348.0	1				IIIG
26			CULG				0001.0	0002.0	2	0001.0	0002.0	2	III,VB
	0000	0604	CULG				0008.0	0052.0	2	0008.0	0052.0	2	IIIN
			CULG				0055.0	0055.0	1				IIIB
			CULG				0057.0	0057.0	2	0057.0	0057.0	2	III,VB
			CULG				0129.0	0129.0	1				IIIB
			CULG				0235.0	0240.0	1				IIIG
	0631	0730	CULG				0634.0	0634.0	1				IIIB
			CULG				0735.0	0735.0	2				IIIB
	2030	2130	CULG				2044.0	2130.0	2				IIIG
	2146	2400	CULG				2154.0	2154.0	3	2154.0	2154.0	3	IIIB
			CULG				2200.0	2204.0	3	2200.0	2204.0	3	IIIG
			CULG				2212.0	2227.0	1				IIIN
			CULG				2251.0	2254.0	2	2251.0	2254.0	2	IIIG
			CULG				2300.0	2300.0	2	2300.0	2300.0	2	IIIB
			CULG				2355.0	2355.0	1				IIIG
27	0000	0730	CULG				0021.0	0023.0	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1988

Observation Day	Start (UT)	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
27			CULG				0028.0	0028.0	1				IIIB
			CULG				0120.0	0355.0	1				IIIN
			CULG				0242.0	0242.0	2	0242.0	0245.0	2	IIIG
			CULG				0438.0	0438.0	1				IIIB
			CULG				0550.0	0550.0	2	0550.0	0550.0	2	IIIG
			CULG				0554.0	0730.0	1				IIIS
			CULG				0655.0	0656.0	2				IIIG
	2035	2400	CULG				2039.0	2326.0	1	2039.0	2326.0	1	IIIB,N
			CULG				2311.0	2311.0	2				IIIB
28	0000	0730	CULG				0059.0	0756.0	1	0059.0	0726.0	1	IIIB,N
			CULG				2030.0	2400.0	1				IC
	2030	2400	CULG				2030.0	2400.0	1	2030.0	2400.0	1	IIIB,N
29			CULG				0000.0	0730.0	1				IC
	0000	0730	CULG				0000.0	0708.0	1	0000.0	0708.0	1	IIIB,N
	2030	2400	CULG				2030.0	2400.0	1				IC
			CULG				2112.0	2112.0	2	2112.0	2112.0	2	IIIG
30			CULG				0000.0	0730.0	1				IC
			CULG				0014.0	0505.0	1	0014.0	0505.0	1	IIIB,N
	2035	2400	CULG				2035.0	2400.0	1				IC
			CULG				2043.0	2231.0	1				IIIB,N
	0000	0730	CULG				2107.0	2307.0	1	2107.0	2307.0	1	IIIB,N
			CULG				2135.0	2200.0	1				IIIS
31	0000	0732	CULG				0021.0	0732.0	1				IIIB,N
			CULG	0459.0	0459.0	1	0459.0	0459.0	1				IIIB
	2032	2400	CULG				2032.0	2219.5	1				IIIB,N
			CULG				2138.0	2138.0	1				IIIB

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

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

Stations Reporting:

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

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

SEPTEMBER 1988

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
17	1845	A: DOB WNG* NAG* COI	08	1234-1253	BDV
		B: SPT* LNP GNA	16	1351-1419	NGK CLF NAG SPT
		C: NGK BDV* FRD*	20	0136-0139	LNP
		-: COL	22	1029-1200	WNG BDV
28	2045	A: BJI	25	0036-0039	LNP
		B: WNG* COI	26	1207-1237	CLF
		BDV* CLF NAG* AQU SPT QUE			

Reporting Observatories: (up to the 1st of November)

SOD COL DOB NUR WNG NGK BDV CLF NAG GCK MMB
AQU EBR COI BJI SPT FRD KAK KNY QUE LNP GNA

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

WORLD DATA CENTER A
FOR
SOLAR-TERRESTRIAL PHYSICS

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

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