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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
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Solar-Geophysical Data prompt reports

Data for November, October 1989, and Late Data

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NATIONAL GEOPHYSICAL DATA CENTER
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Boulder, Colorado

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

NUMBER 544

(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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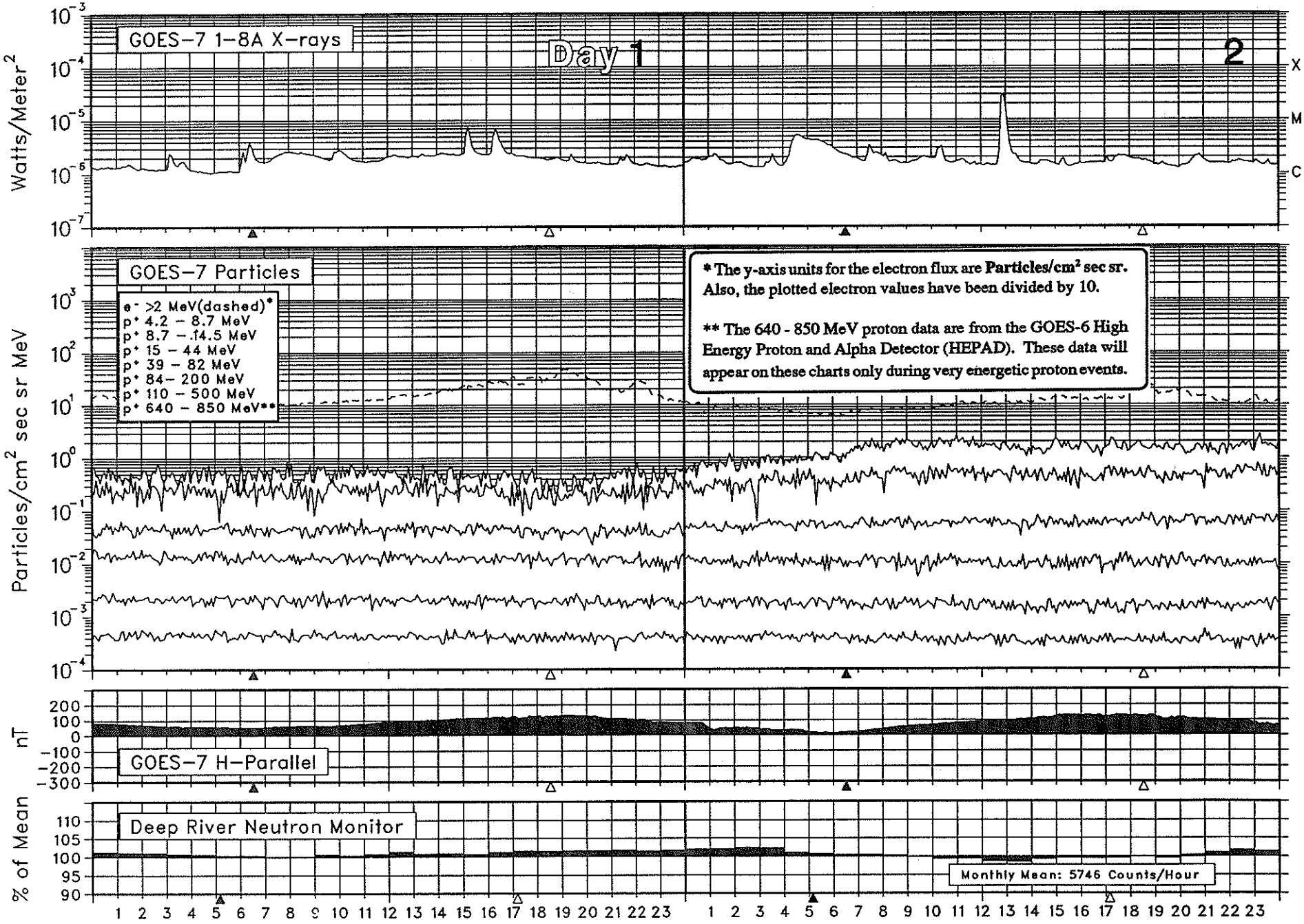

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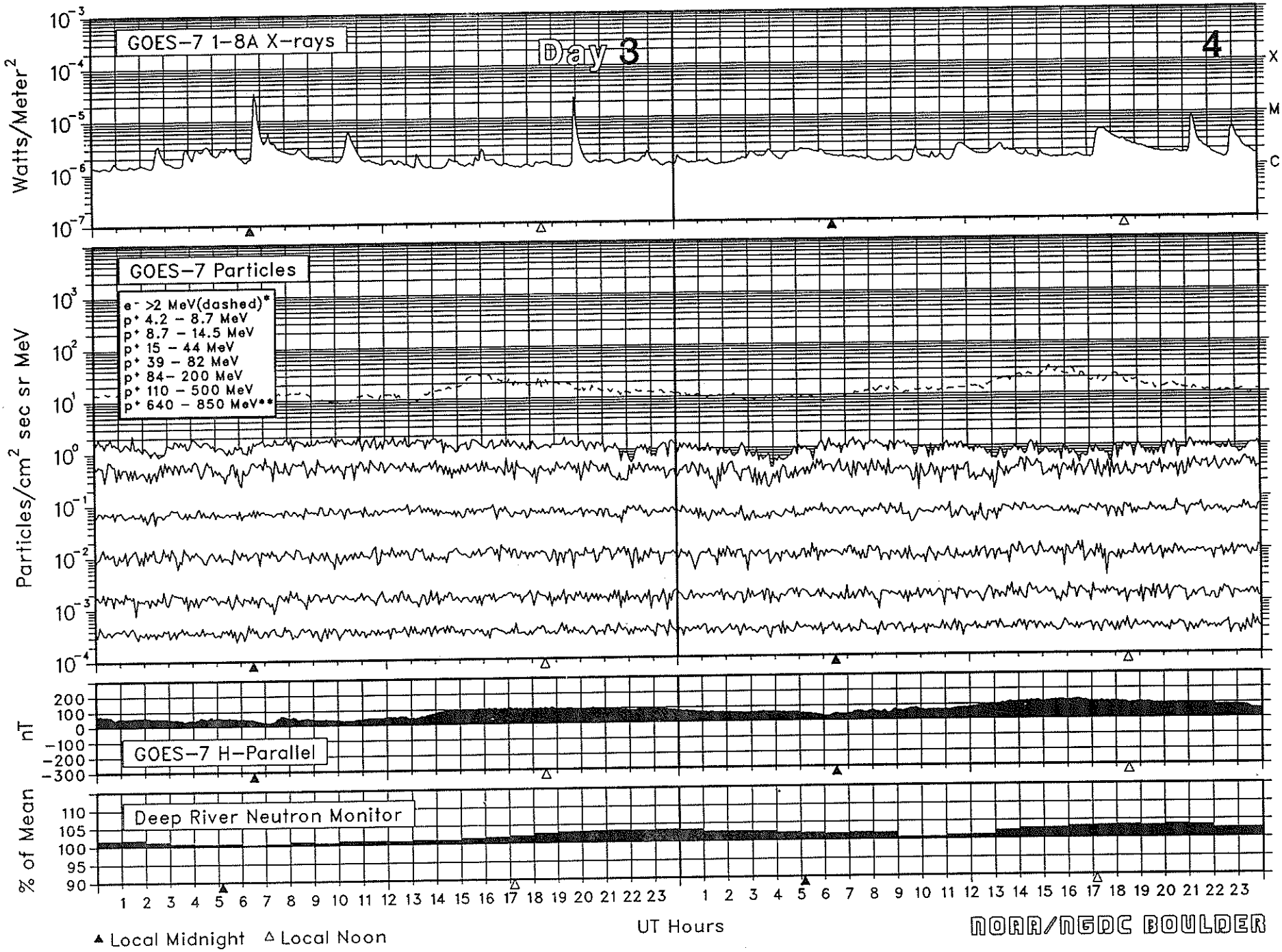

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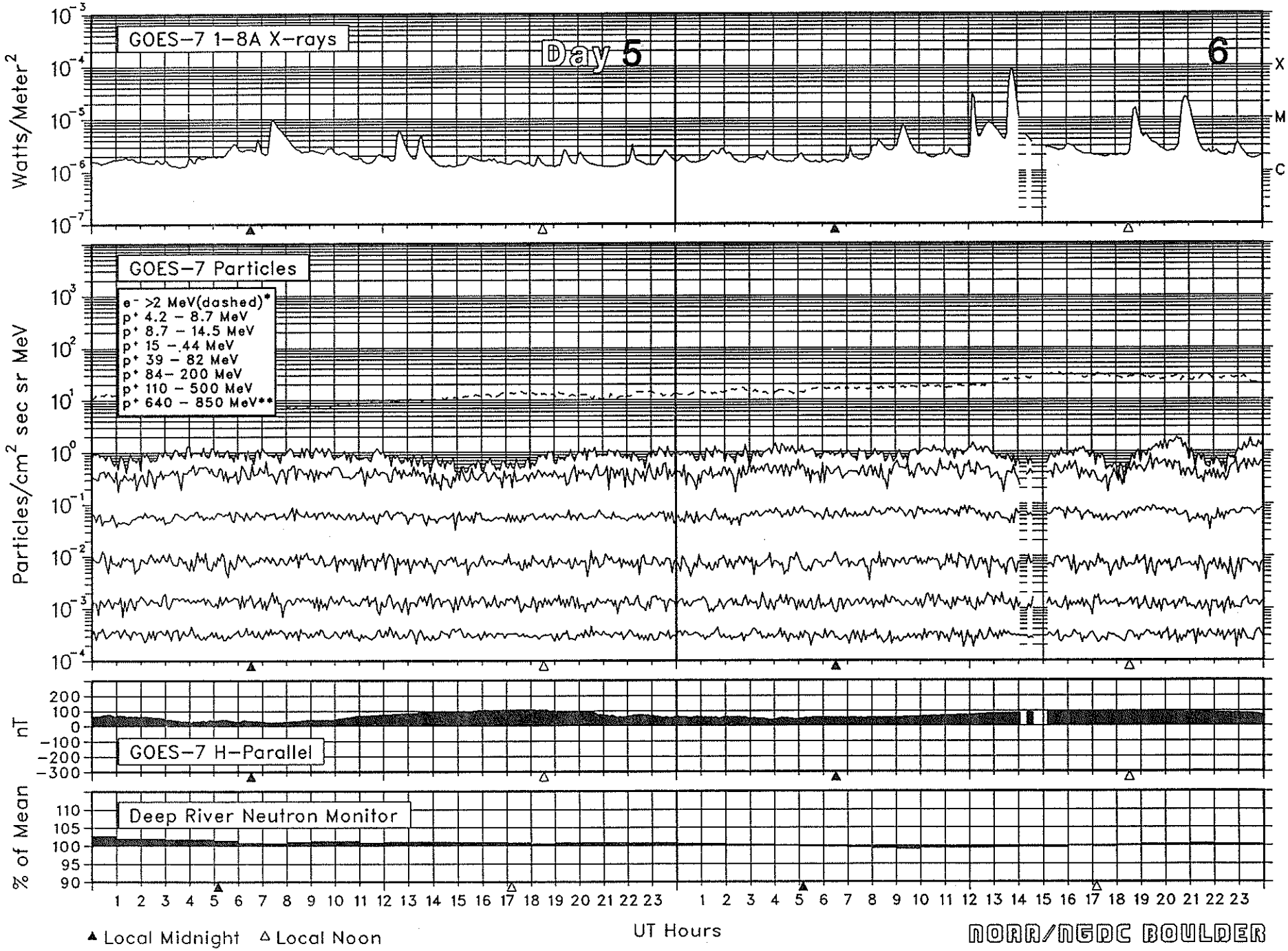

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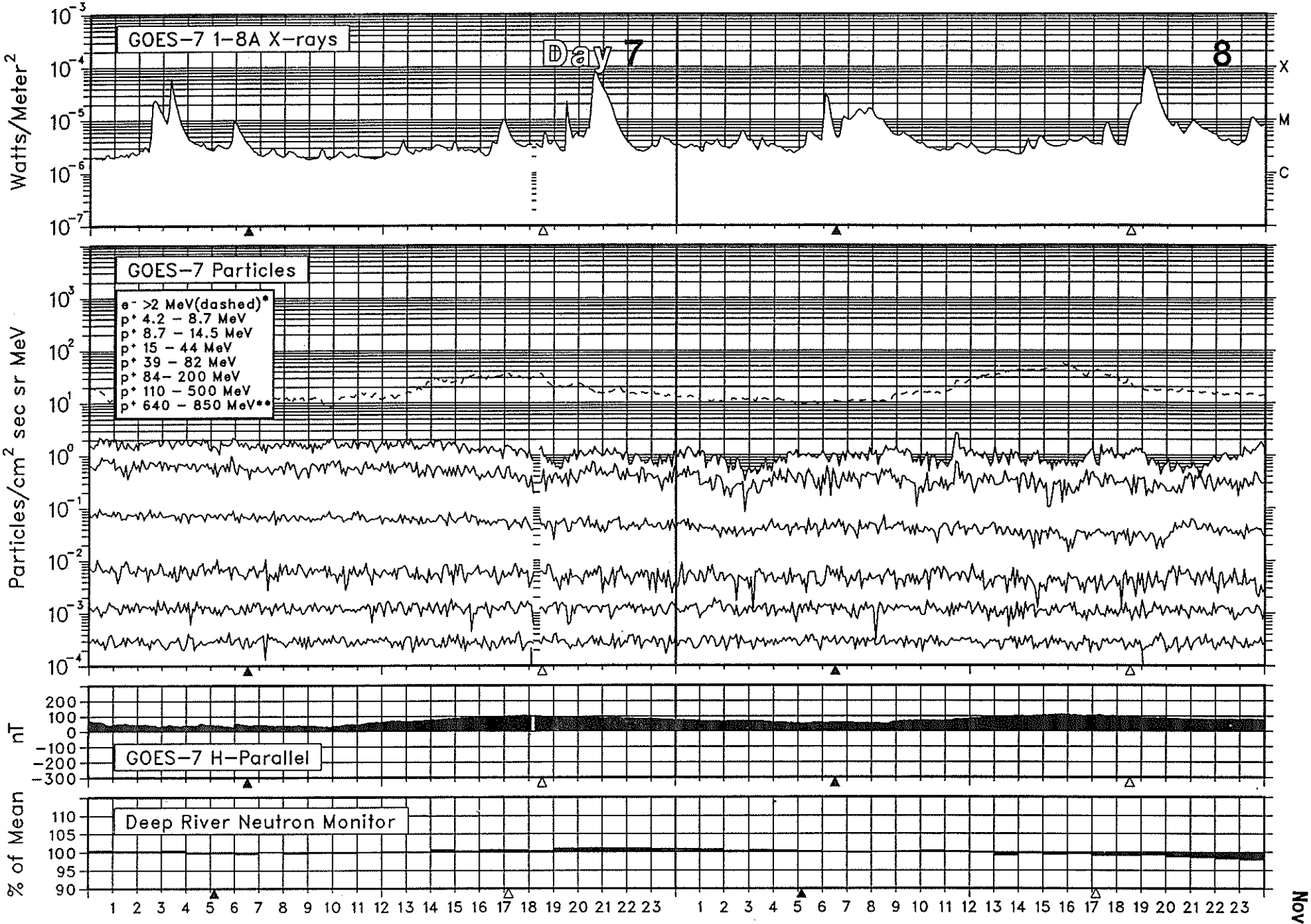

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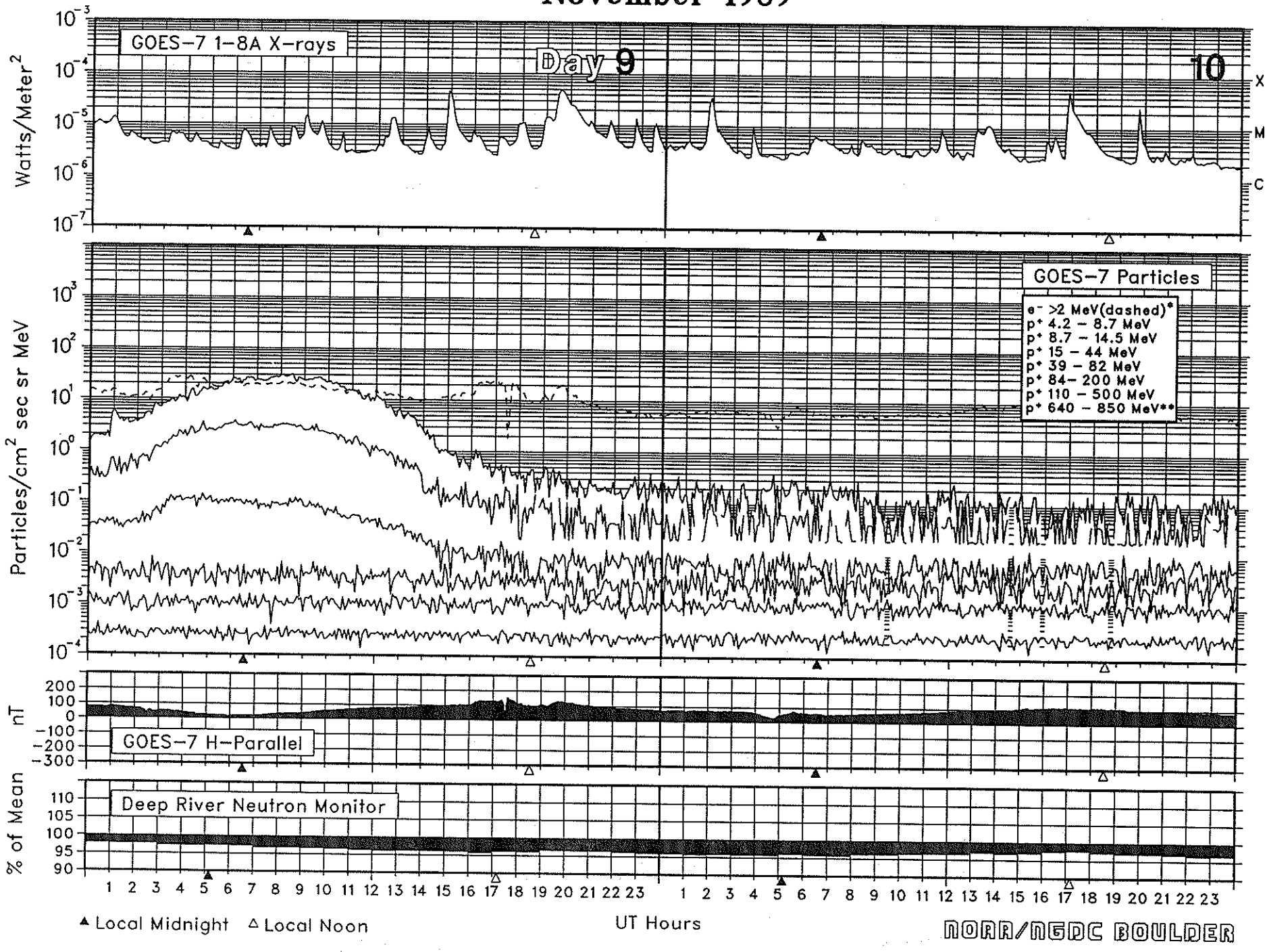

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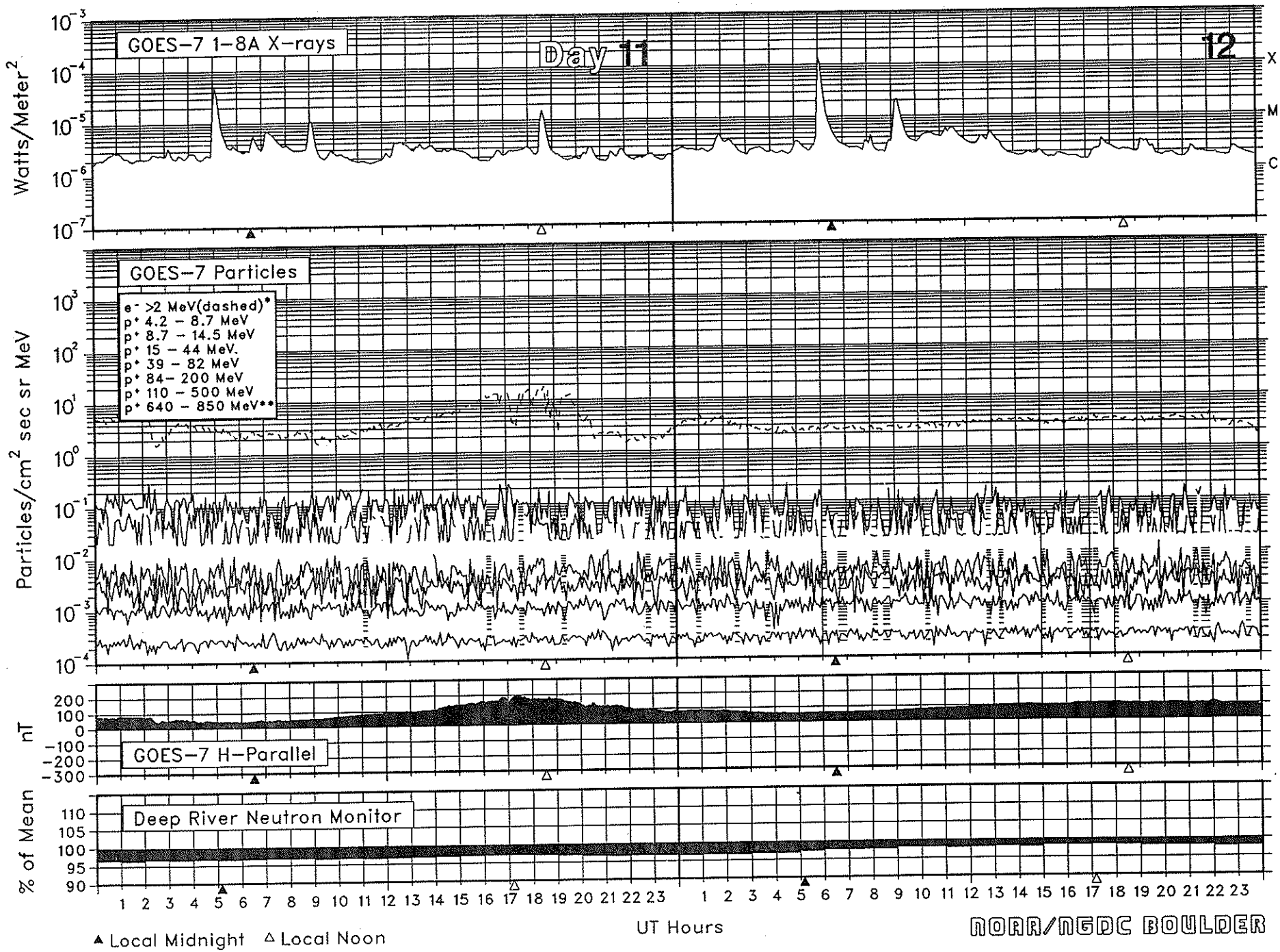

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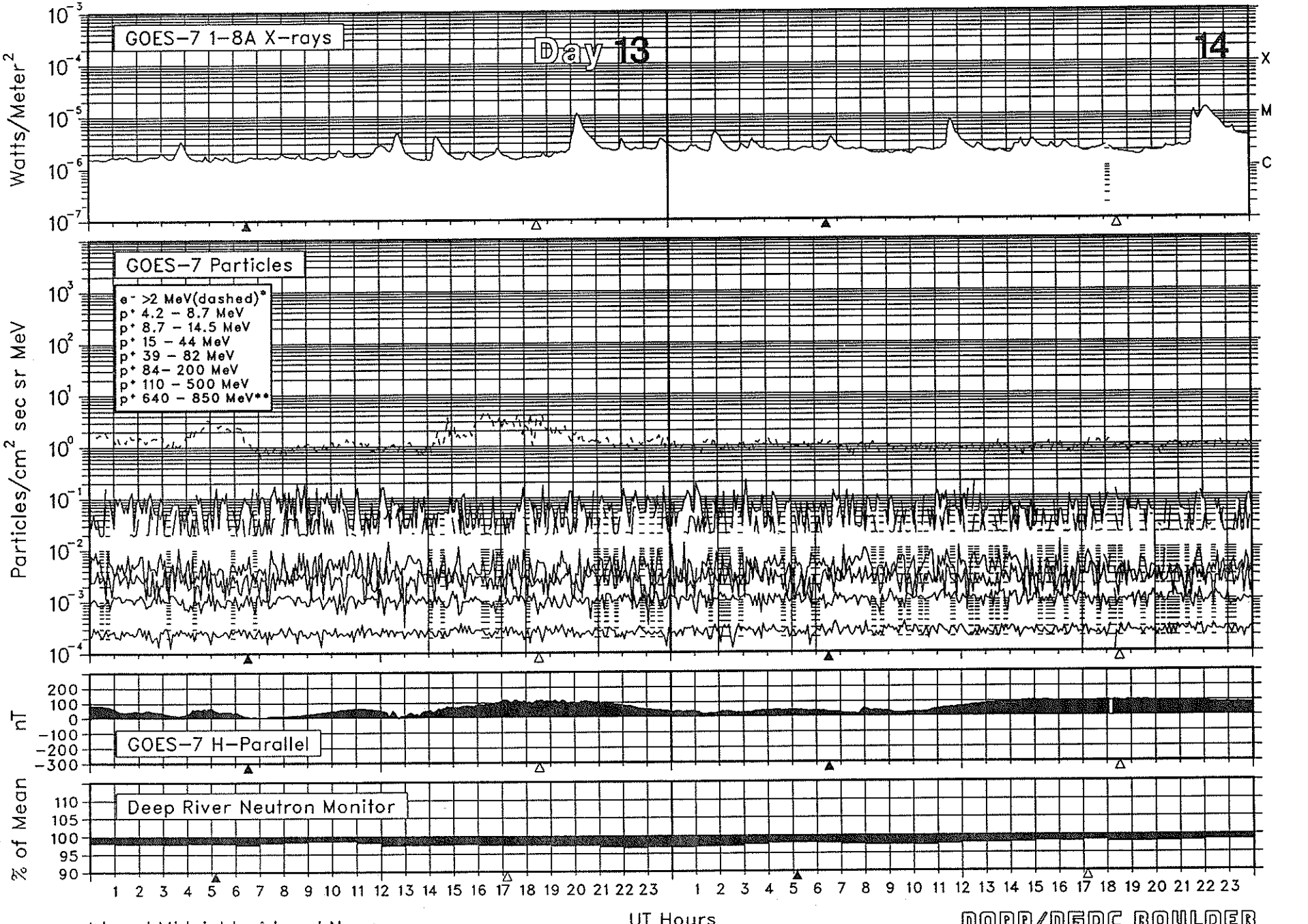

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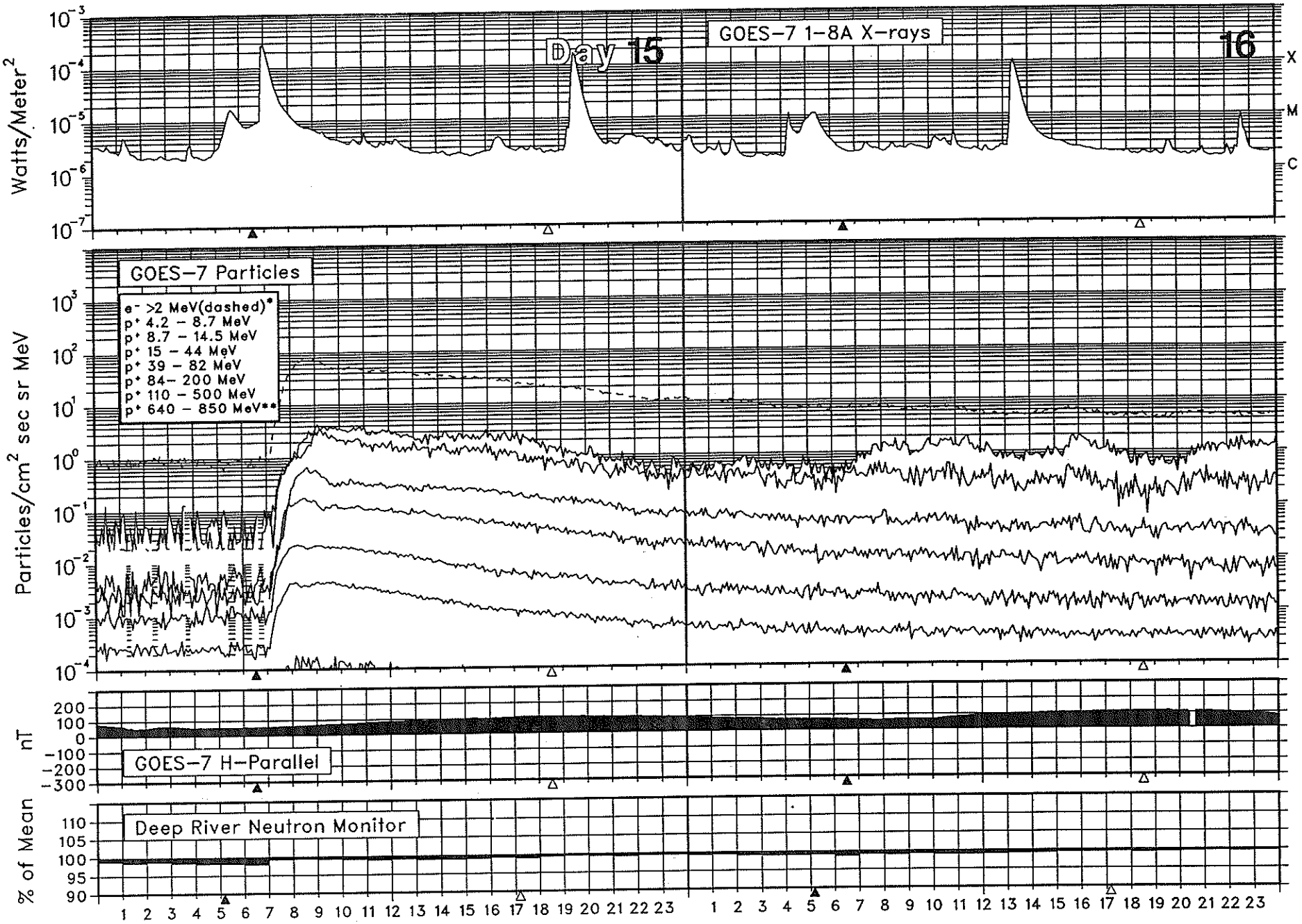

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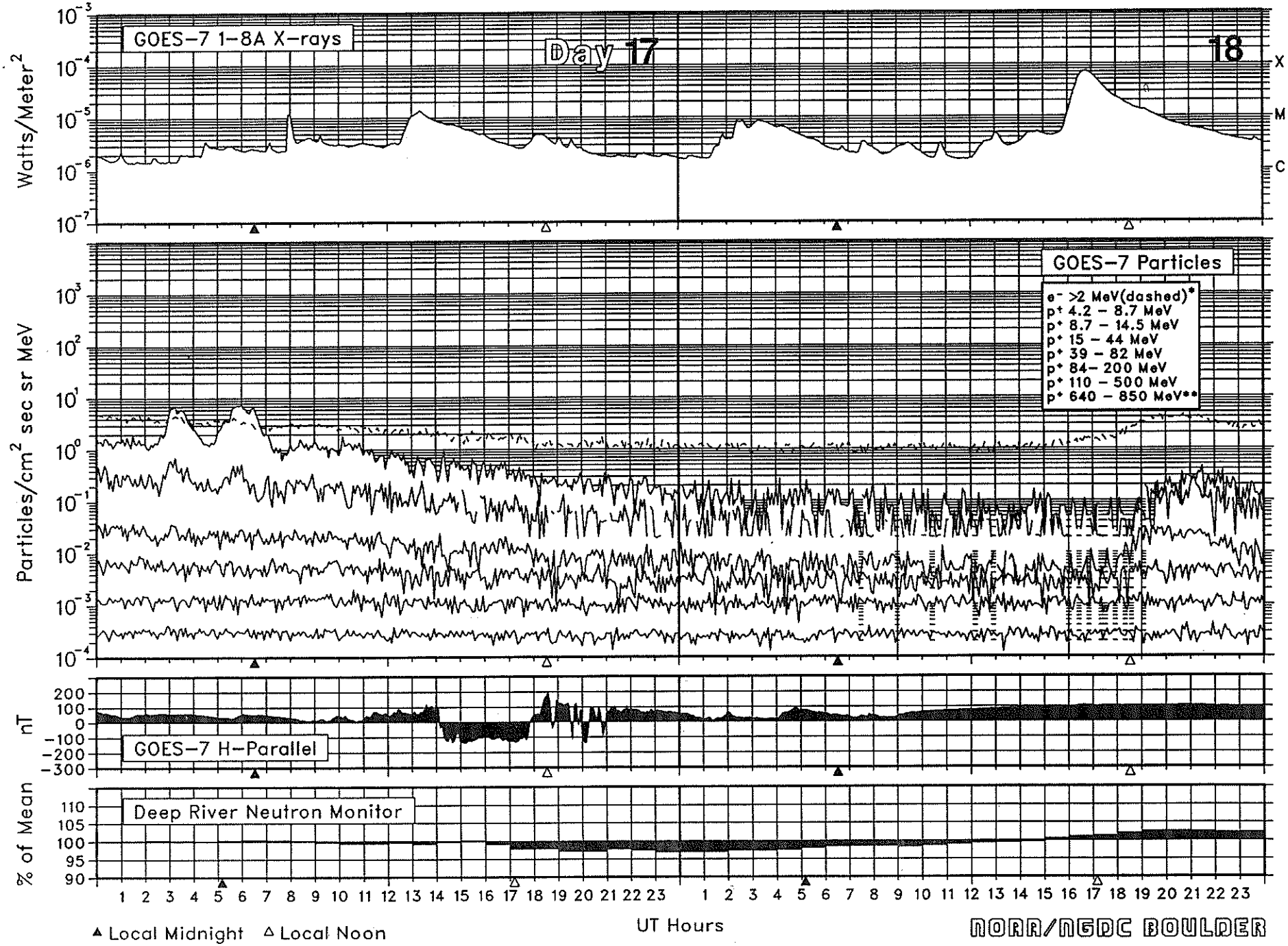

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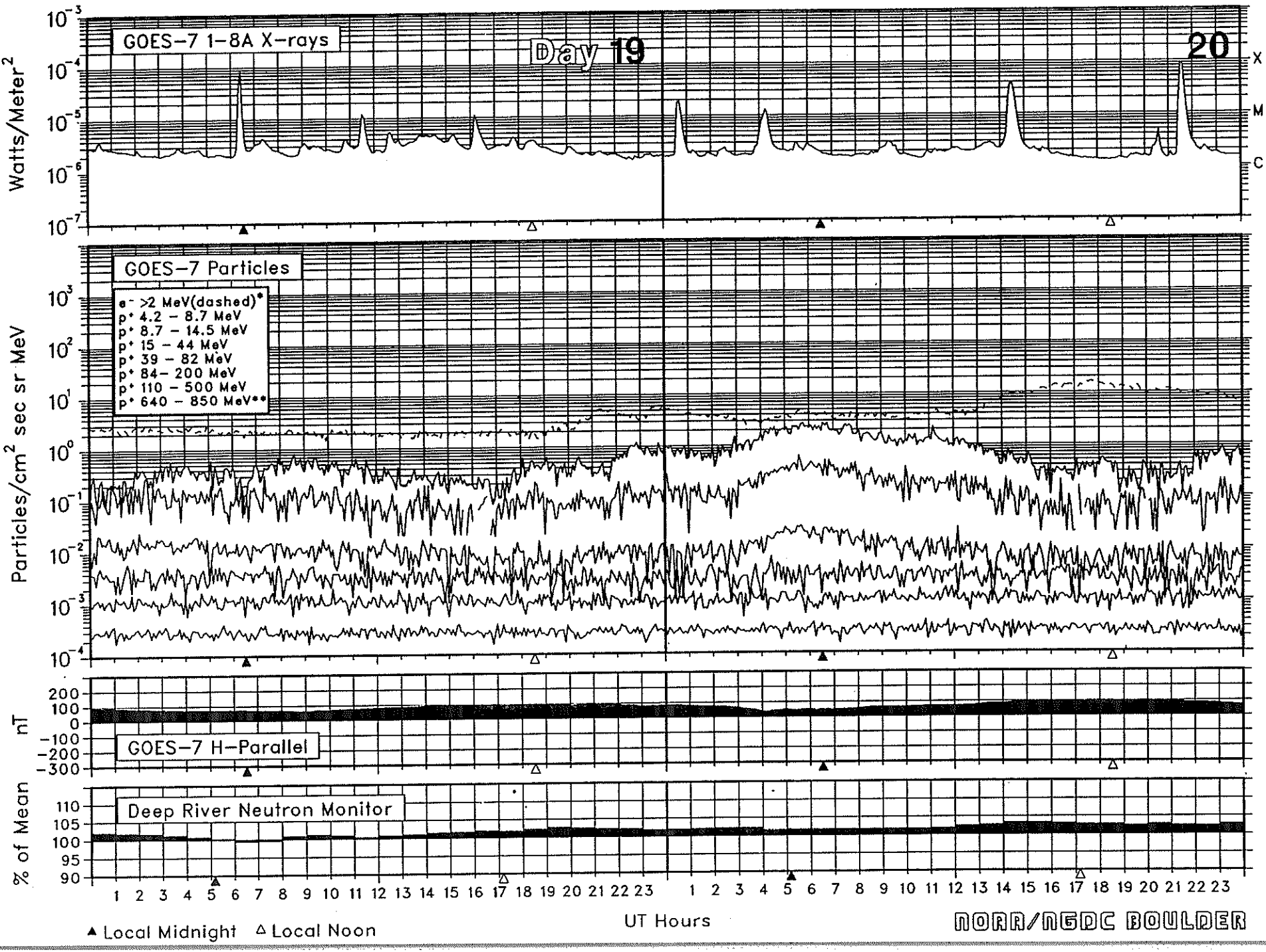

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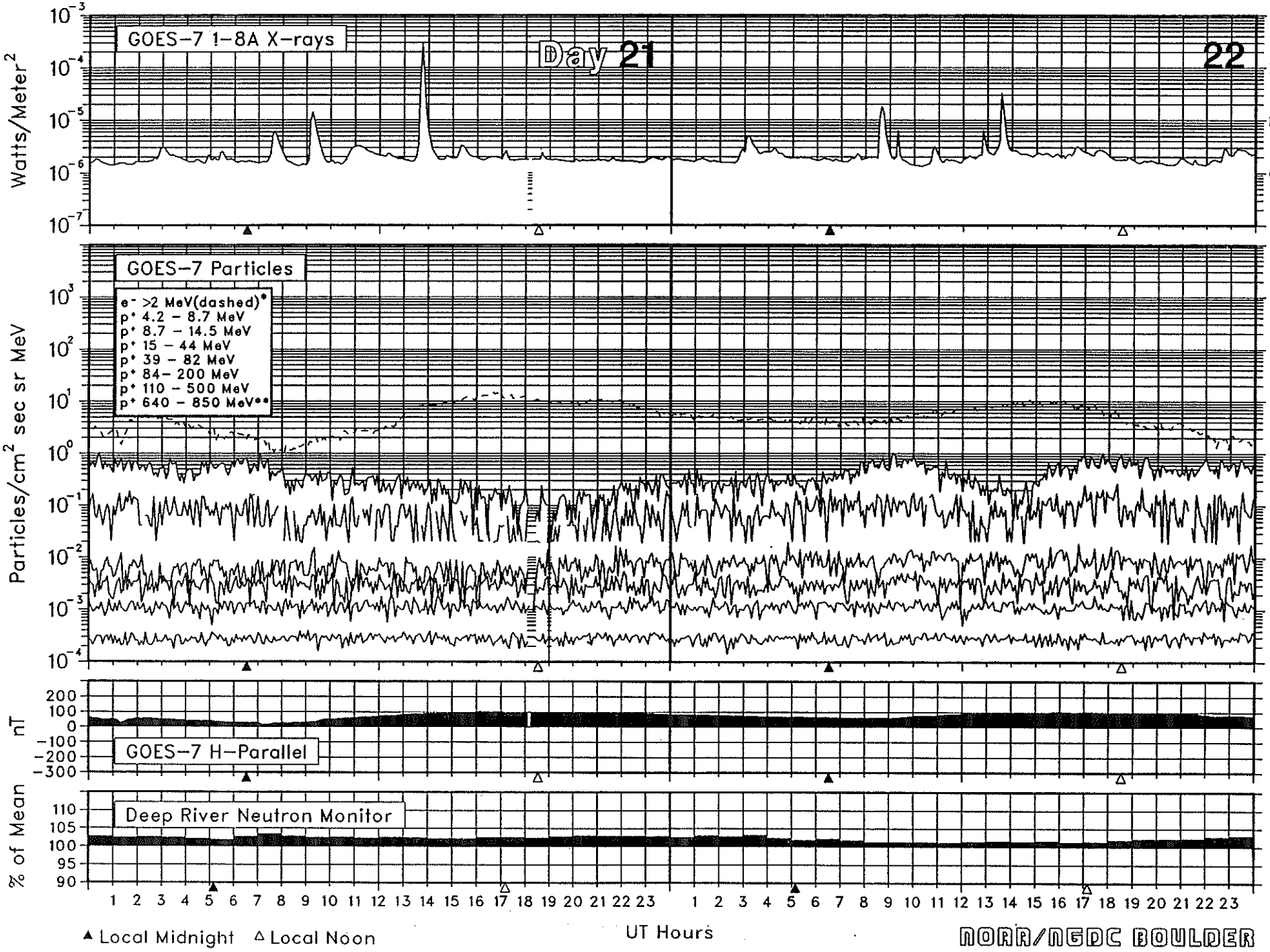

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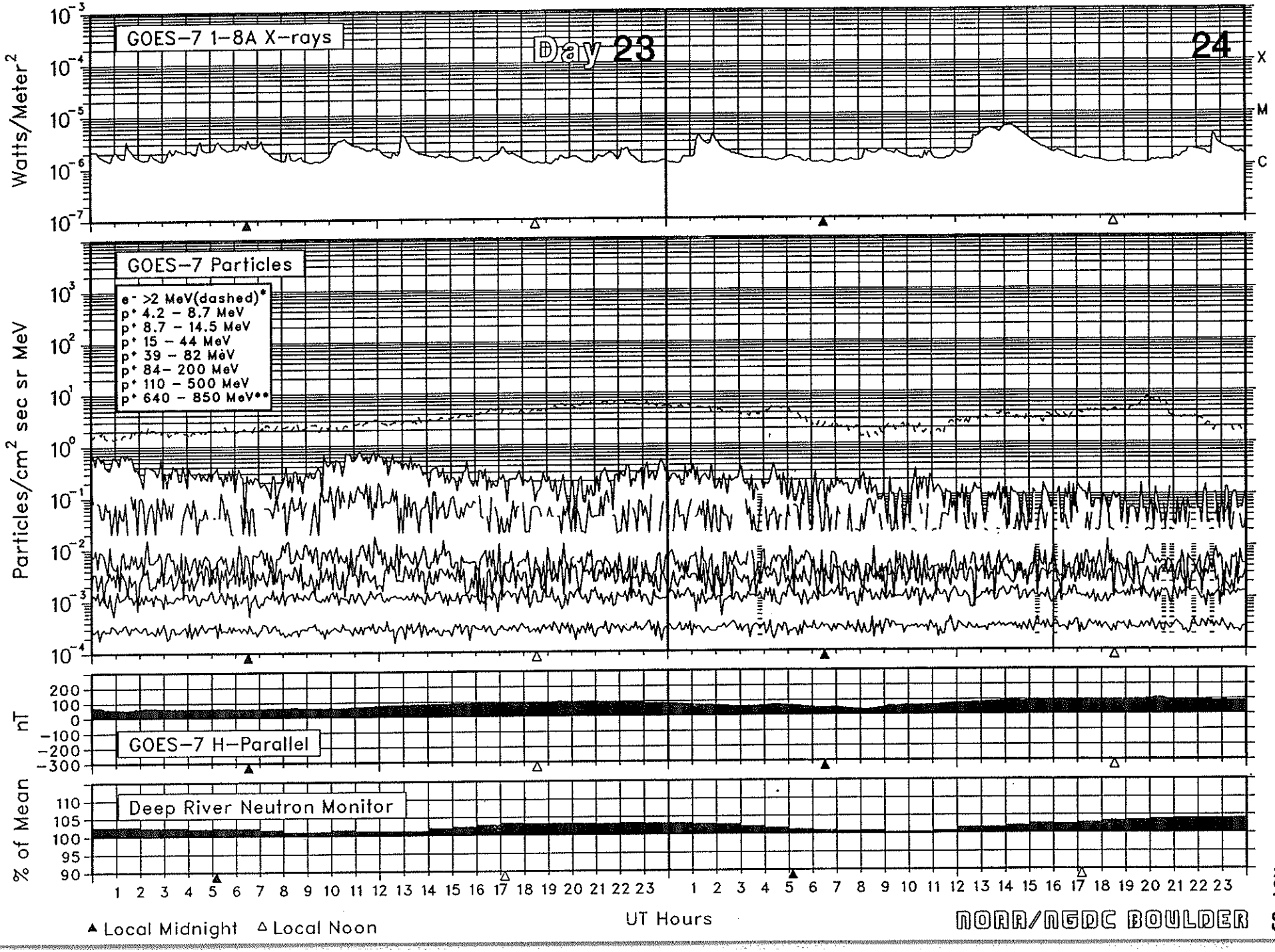

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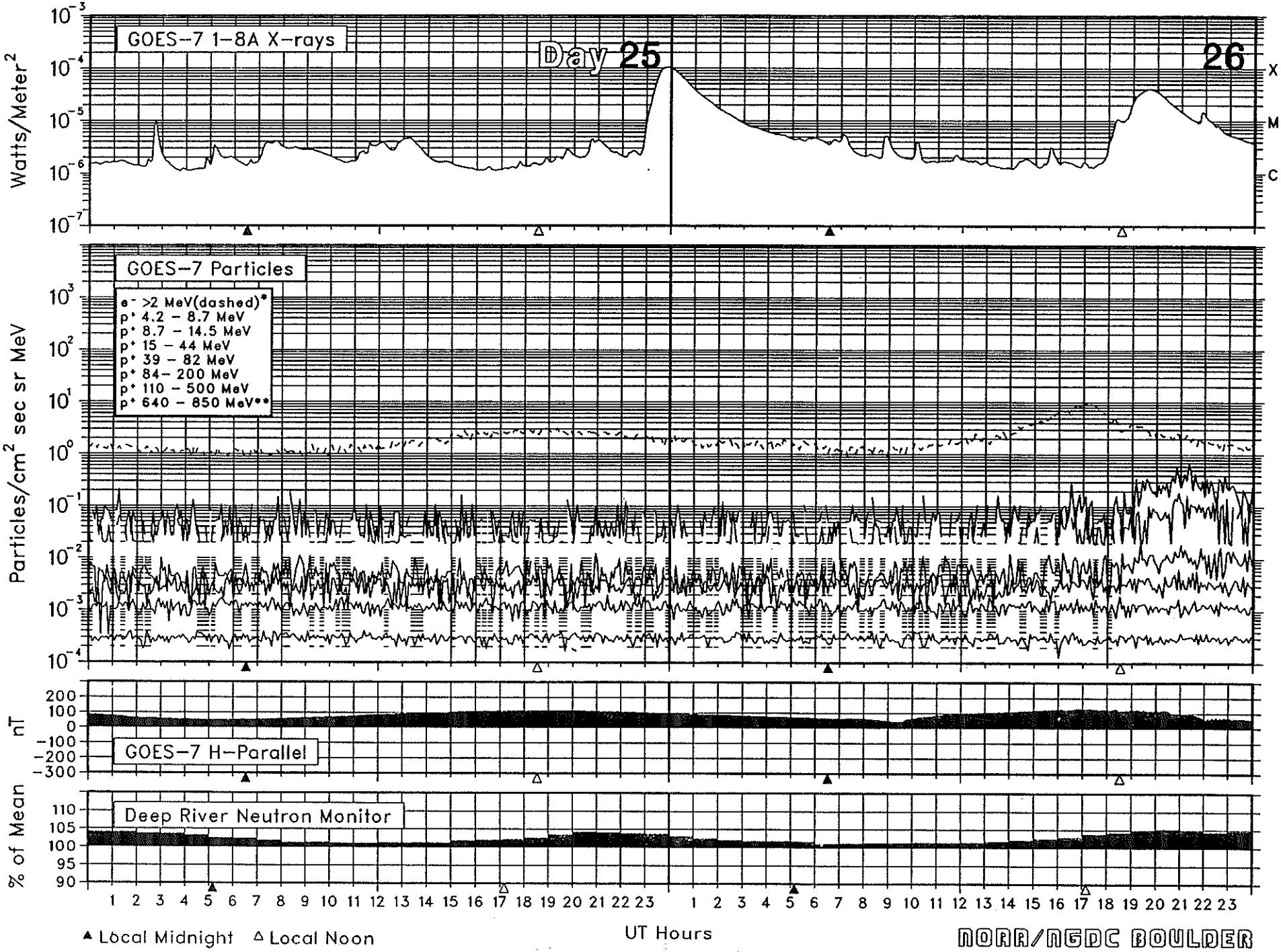

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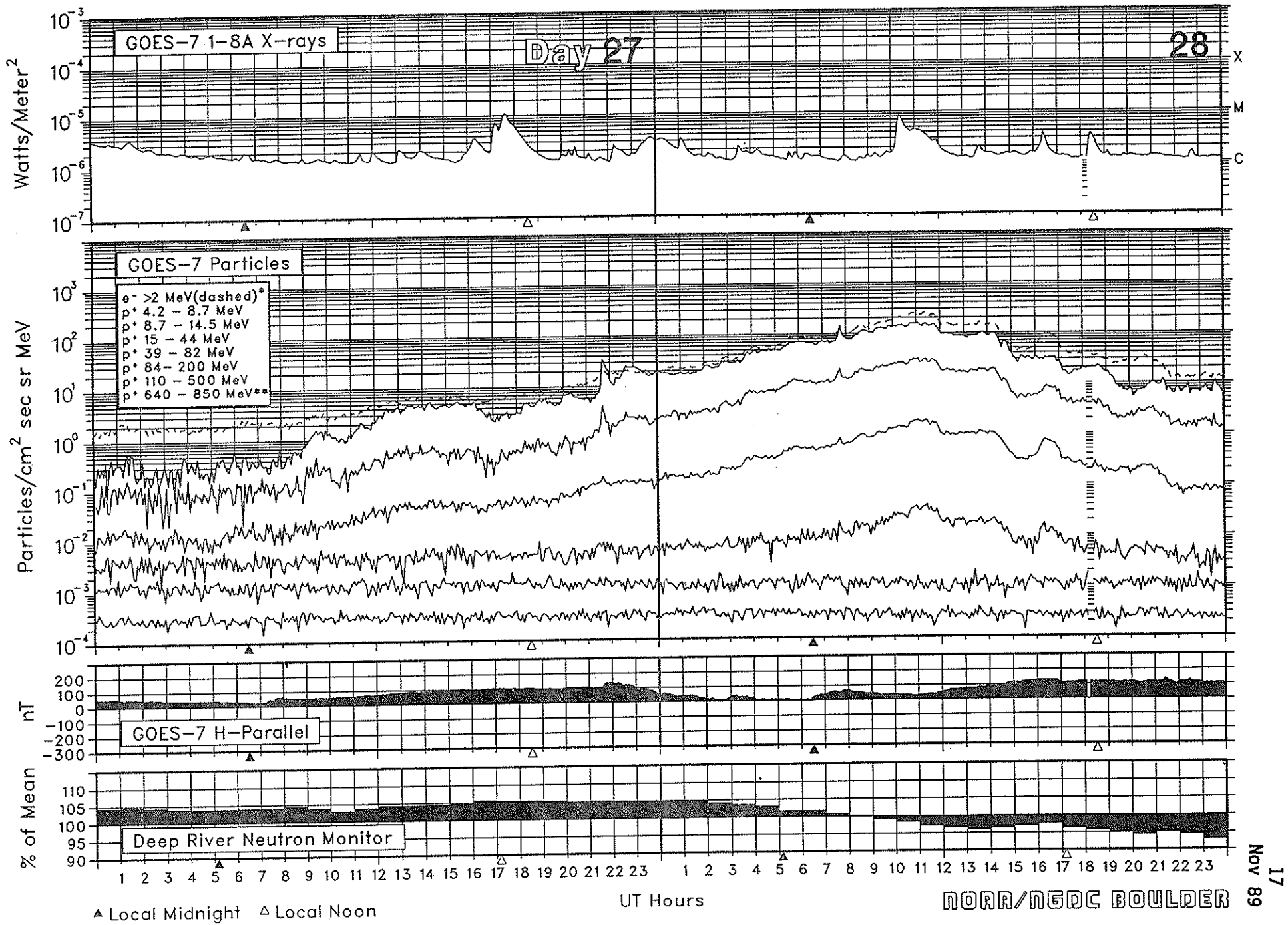

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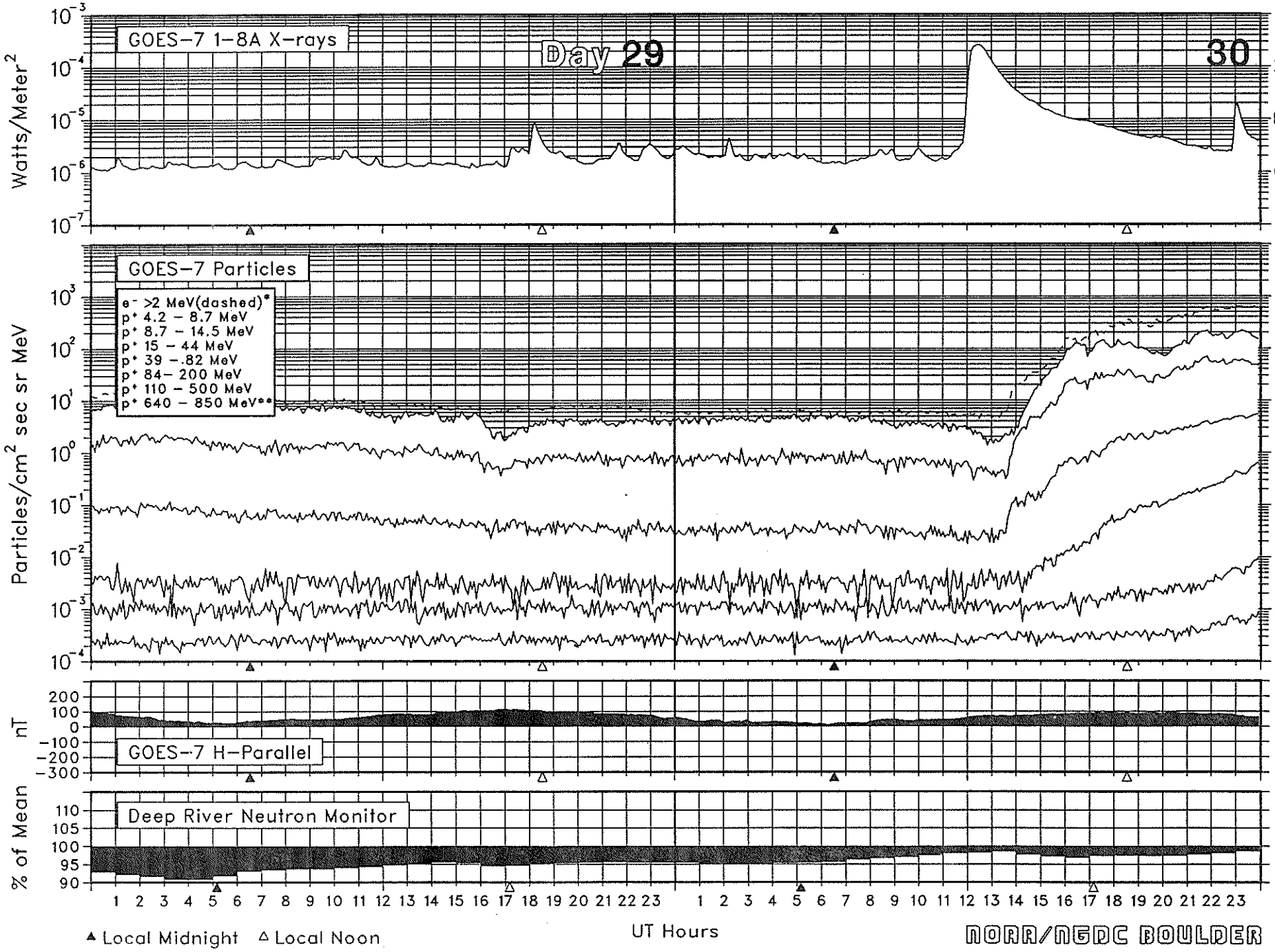

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — NOVEMBER 1989

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast [1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
305	01	31	184	206	008	S21 W72	0	0	0	01	S21 W72	Q	Solquiet, Magquiet.
						S15 W58	0	0	0		S15 W58	Q	
						N20 W30	1	0	0		N20 W30	Q	
						S12 W50	0	0	0		S12 W50	Q	
						N24 E42	7	1	0		N24 E42	A	
						N18 E30	0	0	0		N18 E30	Q	
						S17 E43	0	0	0		S17 E43	Q	
						S18 E58	1	0	0		S18 E58	Q	
						N15 E58	0	0	0		N15 E58	Q	
						N18 E56	0	0	0		N18 E56	Q	
						S13 W09	1	0	0		S13 W09	Q	
306	02	01	220	211	007	S21 W88	0	0	0	02	S21 W88	Q	Solquiet,
						S16 W70	0	0	0		S16 W70	Q	Magalert 02/XX
						N20 W42	0	0	0		N20 W42	Q	
						N23 E02	0	0	0		N23 E02	Q	
						S12 W64	0	0	0		S12 W64	Q	
						N24 E30	3	0	0		N24 E30	A	
						N18 E18	1	0	0		N18 E18	Q	
						S17 E30	0	0	0		S17 E30	Q	
						S18 E46	2	0	0		S18 E46	Q	
						N15 E45	0	0	0		N15 E45	Q	
						N18 E44	0	0	0		N18 E44	Q	
						S12 W22	0	0	0		S12 W22	Q	
						N17 E80	4	0	0		N17 E80	E	
307	03	02	249	215	013	N20 W55	0	0	0	03	N20 W55	Q	Solquiet, Magnil.
						S24 W68	1	0	0		S24 W68	Q	
						N24 E17	6	0	0		N24 E17	E	
						N18 E03	0	0	0		N18 E03	Q	
						S16 E18	0	0	0		S16 E18	Q	
						S18 E33	0	0	0		S18 E33	Q	
						N15 E30	0	0	0		N15 E30	Q	
						N18 E31	0	0	0		N18 E31	Q	
						S14 W35	0	0	0		S14 W35	Q	
						N16 E66	10	1	0		N16 E66	E	
						N15 W17	0	0	0		N15 W17	Q	
						S13 W02	0	0	0		S13 W02	Q	
308	04	03	302	219	015	N20 W70	0	0	0	04	N20 W70	Q	Solquiet, Magquiet.
						N25 E05	5	0	0		N25 E05	E	
						N18 W10	0	0	0		N18 W10	Q	
						S16 E04	0	0	0		S16 E04	Q	
						S18 E20	1	0	0		S18 E20	Q	
						N15 E18	3	0	0		N15 E18	Q	
						N18 E18	0	0	0		N18 E18	Q	
						S13 W49	1	0	0		S13 W49	Q	
						N15 E52	7	1	0		N15 E52	A	
						S14 W17	0	0	0		S14 W17	Q	
						N27 E19	0	0	0		N27 E19	Q	
						S05 E37	1	0	0		S05 E37	E	
						N12 E60	1	0	0		N12 E60	Q	
						N12 E75	1	0	0		N12 E75	Q	
						N19 E79	1	0	0		N19 E79	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages — NOVEMBER 1989

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
309	05	04	311	226	022	N21 W84	0	0	0	05	N21 W84	Q	Solquiet, Magquiet.
						N25 W08	13	0	0		N25 W08	E	
						N19 W24	3	0	0		N19 W24	Q	
						S16 W10	1	0	0		S16 W10	Q	
						S18 E06	0	0	0		S18 E06	Q	
						N14 E06	0	0	0		N14 E06	Q	
						N17 E06	0	0	0		N17 E06	Q	
						S13 W62	1	0	0		S13 W62	Q	
						N16 E38	0	0	0		N16 E38	E	
						S14 W29	0	0	0		S14 W29	Q	
						N27 E06	0	0	0		N27 E06	Q	
						S05 E23	0	0	0		S05 E23	Q	
						N11 E46	0	0	0		N11 E46	Q	
						N11 E61	0	0	0		N11 E61	Q	
						N19 E66	2	0	0		N19 E66	E	
		Presto:[2]	Sydney			Culgoora Soflare 1B S19 E05 began 04/2251 UT, maximum 04/2256 UT.							
			Sydney			Culgoora Strong Type II burst began 04/2259 UT.							
310	06	05	326	236	012	N21 W99	2	0	0	06	N21 W99	Q	Solquiet, Magquiet.
						N24 W21	3	1	0		N24 W21	E	
						N18 W37	3	0	0		N18 W37	E	
						S16 W24	0	0	0		S16 W24	Q	
						S18 W08	0	0	0		S18 W08	Q	
						N15 W10	0	0	0		N15 W10	Q	
						N18 W08	0	0	0		N18 W08	Q	
						S14 W75	0	0	0		S14 W75	Q	
						N16 E25	7	0	0		N16 E25	A	
						N15 W56	0	0	0		N15 W56	Q	
						S14 W43	0	0	0		S14 W43	Q	
						S05 E09	1	0	0		S05 E09	Q	
						N11 E34	3	0	0		N11 E34	E	
						N11 E48	0	0	0		N11 E48	Q	
						N19 E55	3	0	0		N19 E55	E	
						N23 E72	0	0	0		N23 E72	Q	
311	07	06	317	256	008	N24 W34	4	0	0	07	N24 W34	E	Solalert 07/XX,
						N17 W51	1	0	0		N17 W51	Q	Magalert 08/09 Flare.
						S16 W36	0	0	0		S16 W36	Q	
						S18 W21	0	0	0		S18 W21	Q	
						N16 W21	0	0	0		N16 W21	Q	
						N17 E13	7	4	0		N17 E13	A	
						N15 W68	0	0	0		N15 W68	Q	
						S15 W55	0	0	0		S15 W55	Q	
						S05 W03	0	0	0		S05 W03	Q	
						N12 E20	7	0	0		N12 E20	E	
						N13 E36	0	0	0		N13 E36	Q	
						N20 E41	6	0	0		N20 E41	Q	
						N23 E60	0	0	0		N23 E60	Q	
						N25 W19	0	0	0		N25 W19	Q	
						N11 E75	0	0	0		N11 E75	Q	
		Presto:[2]	Boulder			Tenflare 360 flux units 06/1209 UT duration 4 minutes.							
			Boulder			Tenflare 310 flux units 06/1338 UT duration 16 minutes.							

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

Summary of the Geoalert Messages NOVEMBER 1989

Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast [1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
312	08	07	274	227	018	N25 W47	2	0	0	08	N25 W47	Q	Solalert 08/XX,
						N19 W67	3	0	0		N19 W67	Q	Magalert 08/09 Flare.
						S18 W35	0	0	0		S18 W35	Q	
						N17 W00	6	1	0		N17 W00	A	
						N15 W82	2	0	0		N15 W82	Q	
						S05 W17	0	0	0		S05 W17	Q	
						N13 E08	2	0	0		N13 E08	Q	
						N12 E23	1	0	0		N12 E23	Q	
						N20 E28	7	3	0		N20 E28	A	
						N24 E49	0	0	0		N24 E49	Q	
						N13 E67	4	2	0		N13 E67	A	
		Presto:[2]	Boulder	Tenflare 460 flux units 07/0316 UT duration 13 minutes.									
			Sydney	Culgoora Strong Type II burst began 07/0324 UT, in progress.									
			Sydney	Culgoora Soflare 1B N17 E12 began 07/0330 UT, in progress.									
313	09	08	275	271	014	N25 W58	4	1	0	09	N25 W58	A	Solalert 09/XX,
						N19 W78	1	0	0		N19 W78	Q	Magalert 09/10,
						S18 W48	0	0	0		S18 W48	Q	Proton Arrival Alert
						N16 W46	0	0	0		N16 W46	Q	09/08 1912 UT.
						N17 W13	4	1	0		N17 W13	A	
						N18 W91	0	0	0		N18 W91	Q	
						S05 W30	0	0	0		S05 W30	Q	
						N12 W04	2	0	0		N12 W04	E	
						N12 E10	1	0	0		N12 E10	Q	
						N19 E15	15	1	0		N19 E15	A	
						N24 E36	1	0	0		N24 E36	Q	
						N12 E53	11	1	0		N12 E53	A	
		Presto:[2]	Toyokawa	Tenflare 120 flux units 08/0601 UT duration 4 minutes.									
			Boulder	Tenflare 570 flux units 08/1857 UT duration 21 minutes.									
314	10	09	257	261	017	N25 W72	0	0	0	10	N25 W72	Q	Solalert 10/XX,
						N18 W89	2	1	0		N18 W89	Q	Magalert 10/10.
						S18 W63	0	0	0		S18 W63	Q	
						N17 W28	4	1	0		N17 W28	E	
						S05 W44	0	0	0		S05 W44	Q	
						N12 W19	5	0	0		N12 W19	E	
						N11 W04	0	0	0		N11 W04	Q	
						N19 E02	18	5	0		N19 E02	A	
						N23 E21	0	0	0		N23 E21	Q	
						N12 E43	11	2	0		N12 E43	A	
		Presto:[2]	Boulder	Proton event began 09/0240 UT maximum of 43 particles/cm²-s-ster at greater than 10 MeV 09/0610 UT, ended 09/1255 UT.									
315	11	10	265	260	010	N24 W87	2	1	0	11	N24 W87	A	Solalert 11/XX,
						S17 W74	0	0	0		S17 W74	Q	Magalert 11.
						N17 W40	0	0	0		N17 W40	Q	
						S05 W61	0	0	0		S05 W61	Q	
						N12 W32	1	0	0		N12 W32	E	
						N12 W19	0	0	0		N12 W19	Q	
						N18 W13	15	3	0		N18 W13	A	
						N23 E07	2	0	0		N23 E07	Q	
						N12 E29	6	0	0		N12 E29	A	
						S23 E69	6	1	0		S23 E69	A	
316	12	11	235	252	015	S17 W85	0	0	0	12	S17 W85	Q	Solalert 12/XX,
						N16 W52	1	0	0		N16 W52	Q	Magalert.
						S05 W74	0	0	0		S05 W74	Q	
						N11 W45	3	1	0		N11 W45	E	
						N18 W26	6	1	0		N18 W26	A	
						N23 W06	3	0	0		N23 W06	Q	
						N12 E19	5	0	0		N12 E19	E	
						S23 E57	3	0	0		S23 E57	A	

ALERT PERIODS

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Summary of the Geoalert Messages **NOVEMBER 1989**

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
317	13	12	199	260	006	N16 W65	2	0	0	13	N16 W65	Q	Solalert 13/XX,
						N12 W60	3	0	0		N12 W60	E	Magnil.
						N18 W39	8	0	1		N18 W39	A	
						N23 W17	0	0	0		N23 W17	Q	
						N12 E05	4	1	0		N12 E05	E	
						S23 E45	4	0	0		S23 E45	A	
		Presto:[2]	Boulder	X-ray event X1/SN N28 W19 12/0556 UT duration 30 minutes.									
			Boulder	Tenflare 360 flux units 12/0558 UT duration 6 minutes.									
318	14	13	191	244	041	N18 W78	1	0	0	14	N18 W78	Q	Solalert 14/XX,
						N12 W72	4	0	0		N12 W72	E	Magalert.
						N18 W52	6	1	0		N18 W52	A	
						N22 W30	0	0	0		N22 W30	Q	
						N13 W09	5	0	0		N13 W09	E	
						S23 E31	1	0	0		S23 E31	E	
						N35 E23	0	0	0		N35 E23	Q	
319	15	14	181	244	010	N11 W86	0	0	0	15	N11 W86	E	Solalert 15/XX,
						N18 W65	4	1	0		N18 W65	A	Magnil.
						N13 W23	8	0	0		N13 W23	A	
						S23 E19	2	0	0		S23 E19	E	
						N34 E10	0	0	0		N34 E10	Q	
						N25 E12	0	0	0		N25 E12	Q	
						N29 E76	0	0	0		N29 E76	Q	
320	16	15	150	220	004	N18 W78	12	1	0	16	N18 W78	E	Solalert 16/XX,
						N13 W35	11	0	2		N13 W35	P	Magalert 17/18 Flare.
						S23 E07	7	0	0		S23 E07	E	
						N25 W01	0	0	0		N25 W01	Q	
						N28 E63	0	0	0		N28 E63	Q	
						N10 E34	0	0	0		N10 E34	Q	
		Presto:[2]	Boulder	X-ray event X3/3B N16 W26 15/0652 UT duration 89 minutes.									
			Boulder	X-ray event X1/2B N11 W33 15/1917 UT duration 63 minutes.									
			Boulder	Tenflare 1400 flux units 15/0645 UT duration 10 minutes.									
			Boulder	Tenflare 230 flux units 15/1918 UT duration 3 minutes.									
			Boulder	Tenflare 740 flux units 15/1932 UT duration 19 minutes.									
			Boulder	Proton event began 15/0735 UT maximum of 71 particles/cm²-s-ster at greater than 10 MeV 15/0910 UT, ended 15/2205 UT.									
321	17	16	179	218	006	N18 W85	3	0	0	17	N18 W85	Q	Solalert 17/XX,
						N13 W48	12	0	1		N13 W48	A	Magalert 17/18 Flare.
						S22 W12	3	0	0		S22 W12	E	
						N24 W12	0	0	0		N24 W12	Q	
						N29 E52	1	0	0		N29 E52	Q	
						N10 E21	0	0	0		N10 E21	Q	
						S25 E05	1	1	0		S25 E05	E	
						N07 W28	0	0	0		N07 W28	Q	
						S09 E59	3	0	0		S09 E59	Q	
		Presto:[2]	Boulder	X-ray event X1/2B N12 W46 16/1314 UT duration 49 minutes.									
			Boulder	Tenflare 340 flux units 16/1316 UT duration 34 minutes.									
322	18	17	204	219	062	N28 W82	1	0	0	18	N28 W82	Q	Solalert 18/20,
						N13 W64	6	0	0		N13 W64	A	Magalert 18/XX Flare.
						S21 W25	2	0	0		S21 W25	E	
						N27 W24	0	0	0		N27 W24	Q	
						N29 E39	0	0	0		N29 E39	Q	
						N10 E07	0	0	0		N10 E07	Q	
						S26 W08	4	2	0		S26 W08	E	
						S09 E45	1	0	0		S09 E45	Q	
						N12 E63	2	0	0		N12 E63	E	
		Presto:[2]	Boulder	Tenflare 500 flux units 17/0745 UT duration 8 minutes.									
			Boulder	Strong magstorm in progress 17/2100 UT, ssc of 71 nanoteslas at 17/0925 UT.									

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Julian Day	Date of Issue	Date of Obser-vation	Wolf No.	10-cm Solar Flux	A-index	Location	Flares			Date of Forecast	Location	Region Forecast [1]	Geoalerts
						°Lat °Long	Total	M	X		°Lat °Long		
323	19	18	189	223	029	N12 W78	1	0	0	19	N12 W78	E	Solalert 19/XX,
						S22 W40	0	0	0		S22 W40	Q	Magalert 19/20 Flare.
						N28 E25	0	0	0		N28 E25	Q	
						N09 W10	0	0	0		N09 W10	Q	
						S26 W21	5	1	0		S26 W21	A	
						S10 E33	0	0	0		S10 E33	Q	
						N11 E49	0	0	0		N11 E49	E	
						S02 W36	0	0	0		S02 W36	Q	
						S29 E50	0	0	0		S29 E50	Q	
						N21 E52	1	0	0		N21 E52	Q	
		Presto:[2]	Boulder	Tenflare 450 flux units 18/1619 UT duration 94 minutes.									
324	20	19	226	235	008	N13 W88	2	0	0	20	N13 W88	E	Major Flare Alert
						S22 W53	0	0	0		S22 W53	Q	20/XX 33527,
						N28 E13	0	0	0		N28 E13	Q	Magalert 20/XX Flare.
						N09 W23	0	0	0		N09 W23	Q	
						S27 W35	8	2	1		S27 W35	P	
						S10 E20	1	0	0		S10 E20	Q	
						N10 E36	1	0	0		N10 E36	E	
						S31 E37	0	0	0		S31 E37	Q	
						N20 E38	1	0	0		N20 E38	E	
						N24 E75	0	0	0		N24 E75	E	
		Presto:[2]	Boulder	X-ray event X1/2B S24 W25 19/0617 UT duration 16 minutes.									
			Boulder	Tenflare 370 flux units 19/0620 UT duration 8 minutes.									
325	21	20	208	229	008	S21 W70	0	0	0	21	S21 W70	Q	Solalert 21/XX,
						N29 E01	0	0	0		N29 E01	Q	Magalert 21/22 Flare.
						S25 W47	8	3	1		S25 W47	P	
						S10 E06	0	0	0		S10 E06	E	
						N10 E23	1	0	0		N10 E23	E	
						N20 E25	2	0	0		N20 E25	E	
						N24 E65	0	0	0		N24 E65	Q	
						S17 E65	0	0	0		S17 E65	Q	
		Presto:[2]	Toyokawa	Tenflare 200 flux units 20/0035 UT duration 5 minutes.									
			Boulder	X-ray event X1/2B S27 W43 20/2123 UT duration 27 minutes.									
			Sydney	Culgoora Soflare S25 W44 20/2126 UT duration 22 minutes.									
			Boulder	Tenflare 620 flux units 20/2127 UT duration 11 minutes.									
326	22	21	246	231	009	S21 W83	0	0	0	22	S21 W83	Q	Solalert 23/XX,
						N29 W12	0	0	0		N29 W12	Q	Magalert 24/24 Flare.
						S26 W60	8	1	1		S26 W60	A	
						S11 W06	0	0	0		S11 W06	E	
						N12 E08	0	0	0		N12 E08	E	
						N20 E12	2	0	0		N20 E12	E	
						N25 E54	3	0	0		N25 E54	Q	
						S17 E52	0	0	0		S17 E52	Q	
						S12 E14	0	0	0		S12 E14	Q	
						S12 E47	0	0	0		S12 E47	Q	
						N44 E65	0	0	0		N44 E65	Q	
						S11 E70	0	0	0		S11 E70	Q	
		Presto:[2]	Boulder	X-ray event X4/2B S26 W54 21/1342 UT duration 19 minutes.									
327	23	22	214	224	007	N29 W25	0	0	0	23	N29 W25	Q	Solalert 23/XX,
						S26 W73	4	2	0		S26 W73	A	Magnil.
						S08 W20	0	0	0		S08 W20	Q	
						N11 W04	0	0	0		N11 W04	E	
						N20 W01	4	0	0		N20 W01	E	
						N25 E43	5	0	0		N25 E43	E	
						S12 W00	0	0	0		S12 W00	Q	
						S12 E34	0	0	0		S12 E34	Q	

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327	23	22				N44 E54	0	0	0	23	N44 E54	Q	
						S12 E57	2	0	0		S12 E57	Q	
		Presto:[2]	Boulder	Tenflare 300 flux units 23/0836 UT duration 3 minutes.									
328	24	23	185	219	005	S25 W85	0	0	0	24	S25 W85	E	Solnil, Magquiet.
						S07 W35	0	0	0		S07 W35	Q	
						N11 W17	0	0	0		N11 W17	E	
						N20 W14	6	0	0		N20 W14	E	
						N24 E30	5	0	0		N24 E30	E	
						S12 W12	0	0	0		S12 W12	Q	
						S12 E20	0	0	0		S12 E20	Q	
						N44 E42	0	0	0		N44 E42	Q	
						S12 E44	1	0	0		S12 E44	Q	
						N18 E74	0	0	0		N18 E74	Q	
329	25	24	214	211	008	S07 W48	0	0	0	25	S07 W48	Q	Solquiet, Magquiet.
						N12 W30	4	0	0		N12 W30	E	
						N20 W28	2	0	0		N20 W28	E	
						N24 E16	4	0	0		N24 E16	E	
						S13 W25	0	0	0		S13 W25	Q	
						S10 E07	2	0	0		S10 E07	Q	
						N44 E30	0	0	0		N44 E30	Q	
						S13 E30	0	0	0		S13 E30	Q	
						N19 E64	2	0	0		N19 E64	Q	
						N28 E34	0	0	0		N28 E34	Q	
330	26	25	262	221	001	S05 W63	0	0	0	26	S05 W63	Q	Solalert 26/XX,
						N11 W42	0	0	0		N11 W42	E	Magquiet.
						N21 W42	2	0	0		N21 W42	E	
						N25 E04	3	0	1		N25 E04	E	
						S13 W38	1	0	0		S13 W38	Q	
						S11 W07	2	0	0		S11 W07	E	
						N43 E17	1	0	0		N43 E17	Q	
						S12 E17	0	0	0		S12 E17	Q	
						N20 E54	2	0	0		N20 E54	E	
						N29 E20	0	0	0		N29 E20	Q	
						S04 W06	1	0	0		S04 W06	E	
		Presto:[2]	Boulder	X-ray event X1/2N N30 E05 25/2252 UT duration 114 minutes.									
			Boulder	Tenflare 610 flux units 25/2254 UT duration 155 minutes.									
331	27	26	287	238	008	N12 W56	0	0	0	27	N12 W56	E	Solalert 27/XX,
						N20 W55	1	0	0		N20 W55	E	Magalert 28/29 Flare.
						N25 W08	5	1	0		N25 W08	A	
						S20 W11	0	0	0		S20 W11	Q	
						S13 W51	0	0	0		S13 W51	Q	
						S13 W17	0	0	0		S13 W17	Q	
						N43 E06	3	0	0		N43 E06	Q	
						S13 E04	0	0	0		S13 E04	Q	
						N19 E41	3	0	0		N19 E41	E	
						S04 W20	2	0	0		S04 W20	E	
						S18 E67	2	0	0		S18 E67	Q	
		Presto:[2]	Boulder	Tenflare 430 flux units 26/1847 UT duration 149 minutes.									
332	28	27	285	246	012	N12 W69	0	0	0	28	N12 W69	Q	Solalert 28/XX,
						N21 W68	4	1	0		N21 W68	E	Magalert 28/29 Flare.
						N26 W20	3	0	0		N26 W20	A	
						S20 W24	0	0	0		S20 W24	Q	
						S14 W65	1	0	0		S14 W65	Q	
						S12 W31	0	0	0		S12 W31	Q	
						N43 W09	2	0	0		N43 W09	E	
						S13 W09	3	0	0		S13 W09	E	

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332	28	27				N18 E26	1	0	0	28	N18 E26	Q	
						S05 W34	4	0	0		S05 W34	E	
						S18 E57	6	0	0		S18 E57	E	
						N23 E51	1	0	0		N23 E51	Q	
						S17 E78	0	0	0		S17 E78	Q	
						N18 E35	0	0	0		N18 E35	Q	
		Presto:[2]	Boulder			Proton event began 27/2000 UT maximum of 14 particles/cm²-s-ster at greater than 10 MeV 27/2005 UT.							
			Sydney			Sudden storm commencement began 27/2140 UT.							
333	29	28	251	235	022	N11 W84	0	0	0	29	N11 W84	Q	Solalert 29/XX,
						N20 W79	1	0	0		N20 W79	E	Magalert 29/XX Flare.
						N26 W34	1	0	0		N26 W34	E	
						S13 W82	0	0	0		S13 W82	Q	
						S13 W43	1	0	0		S13 W43	Q	
						N42 W24	0	0	0		N42 W24	Q	
						S14 W24	0	0	0		S14 W24	Q	
						N18 E11	0	0	0		N18 E11	E	
						S05 W48	0	0	0		S05 W48	E	
						S18 E44	6	0	0		S18 E44	E	
						S16 E67	0	0	0		S16 E67	Q	
						N16 E21	1	0	0		N16 E21	Q	
334	30	29	251	224	013	N26 W46	3	0	0	30	N26 W46	E	Solalert 30/XX,
						N42 W37	0	0	0		N42 W37	Q	Magalert 30/XX.
						S13 W37	0	0	0		S13 W37	Q	
						N17 W02	1	0	0		N17 W02	Q	
						S05 W62	2	0	0		S05 W62	E	
						S18 E31	3	0	0		S18 E31	E	
						S16 E54	0	0	0		S16 E54	Q	
						N16 E06	0	0	0		N16 E06	Q	
						S22 W25	0	0	0		S22 W25	Q	
						S11 W05	0	0	0		S11 W05	Q	
						S16 E05	0	0	0		S16 E05	Q	
						N09 E33	0	0	0		N09 E33	Q	
						N13 E65	0	0	0		N13 E65	Q	
335	01	30	213	249	013	N25 W60	7	0	1	01	N25 W60	A	Solalert 01/XX,
						N42 W51	0	0	0		N42 W51	Q	Magalert 01/03.
						S13 W48	1	0	0		S13 W48	Q	
						N18 W18	2	0	0		N18 W18	E	
						S05 W75	0	0	0		S05 W75	E	
						S18 E16	0	0	0		S18 E16	Q	
						S16 E40	1	0	0		S16 E40	E	
						N15 W08	1	0	0		N15 W08	Q	
						S11 W19	0	0	0		S11 W19	Q	
						N10 E20	1	0	0		N10 E20	Q	
						N12 E51	2	0	0		N12 E51	Q	
						N18 E71	0	0	0		N18 E71	Q	
		Presto:[2]	Boulder			X-ray event X2/3B N23 W52 30/1154 UT duration 68 minutes.							
			Boulder			Tenflare 2100 flux units 30/1155 UT duration 89 minutes.							
			Boulder			Proton event began 30/1345 UT maximum of 570 particles/cm²-s-ster at greater than 10 MeV 30/2100 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 88	Jan 89	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct†	Nov†
01	128	148	141	127	104	93	136	128	171	147	129	153
02	114	173	144	107	122	94	148	149	196	171	143	160
03	139	146	164	103	140	85	158	129	193	180	159	191
04	122	120	133	98	115	97	157	120	213	204	186	216
05	149	155	127	90	106	85	171	101	227	212	209	228
06	149	142	127	103	139	105	145	120	220	230	189	236
07	144	165	132	98	170	134	130	149	215	267	168	233
08	111	155	161	109	185	149	143	141	218	261	166	204
09	122	165	172	133	153	137	168	116	218	296	187	214
10	133	190	192	163	122	123	192	104	200	270	178	203
11	152	211	190	155	106	120	203	136	202	280	191	173
12	175	229	216	140	96	115	218	111	188	264	154	173
13	187	206	219	162	92	129	253	116	207	248	148	153
14	213	189	208	181	103	123	251	116	197	215	159	140
15	225	177	191	165	120	148	264	92	203	207	189	132
16	226	164	195	187	130	154	265	91	177	180	209	124
17	232	155	209	168	144	161	233	99	192	159	206	124
18	222	160	163	164	137	177	216	113	189	155	184	134
19	223	140	164	148	160	191	235	138	202	152	159	124
20	218	126	169	158	165	195	232	149	209	137	140	141
21	210	114	149	155	175	168	187	170	203	111	152	170
22	255	165	142	155	167	156	174	197	160	109	158	162
23	235	171	134	145	128	180	196	195	133	103	145	157
24	199	142	153	155	135	196	215	168	129	75	131	160
25	183	144	189	131	132	173	227	132	105	80	121	175
26	174	152	163	117	125	157	237	111	82	93	109	184
27	175	157	147	102	118	163	206	99	57	101	97	183
28	196	172	128	89	109	130	187	75	50	111	116	183
29	194	169		95	107	121	182	112	70	134	131	179
30	178	157		78	114	122	156	125	94	150	156	182
31	172	140		91		111		132	116		144	
Mean	179.2	161.3	165.1	131.4	130.6	138.5	196.2	126.9	168.9	176.7	158.5	173.0

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

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

Day	Dec 88	Jan 89	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
01	150.5	179.5*	184.8	168.8*	173.8*	180.5	191.6*	204.0	198.5	223.8	198.4	211.4
02	149.4	193.7	171.2	173.7	183.5	184.5*	208.2*	193.4	201.7	233.3	208.5	216.0
03	147.3	189.2	185.8*	169.0	196.5*	190.6	203.3*	192.5*	220.2	243.0*	222.4	217.6
04	142.7	195.7*	183.4	163.6	188.9	198.2	221.3*	189.8	225.7	245.0	234.1	223.9
05	154.6*	201.6	195.1	183.5	191.1	193.7	213.2*	183.4*	241.5	273.3	223.2	235.4
06	157.7	198.7	205.3*	201.1J	196.5	195.9*	212.2*	192.3	240.3	288.4	220.5	255.3
07	152.9*	239.5	210.5	190.3*	199.8	200.6	205.3	193.5	240.6	303.4	225.7	207.3*
08	164.1	260.2	243.9	202.6	207.1	212.4	222.9	188.9	233.6	302.1	210.1	270.9
09	165.2	251.3	259.3	204.2*	194.0	205.1*	241.9	188.1	233.9*	311.5	201.9	257.2
10	161.2*	250.0	269.8	212.4*	182.3	208.7	250.9*	184.1	232.6	303.3	195.5	246.3*
11	176.4	254.7*	257.0	232.4*	180.7	198.9	270.3	193.2	243.6	299.3	191.5	249.1
12	173.9	263.2	257.3	237.6*	181.3	197.2	285.8*	190.7	256.1*	292.2	203.2	253.5
13	181.1	291.7*	258.4	253.0	185.3*	197.5	319.2	184.0*	263.9	249.3	224.2	240.3
14	204.4*	274.9	260.7	263.8J	198.1	193.1*	327.2	183.9	271.3	244.9	225.9	243.0
15	212.0	280.1	241.3	255.8J	199.5	195.8	334.7*	185.7	281.7	226.0	225.4	216.5
16	232.1	292.1	241.1	261.6J	203.9	188.6	320.9*	183.9	259.8	233.7	237.0	216.2
17	241.7	266.7*	233.9*	240.7	210.6*	187.0	303.7*	184.1	262.9	216.2	225.3	215.0
18	243.5	271.2	213.8	234.2	204.1	184.9	271.5	189.2	265.0	208.6	221.3*	221.6J
19	240.2	241.6	214.0	221.1	209.7	188.6	270.6	193.7	249.1	197.0*	214.7J	229.2
20	238.8	222.0*	202.2*	218.2*	192.5	203.1	249.3*	192.4	236.4	173.1	205.4	223.7
21	245.2	198.2*	217.8	213.5*	196.1	211.9*	242.8	195.0	225.7	161.8	206.2	229.4
22	246.6	203.6	213.9	222.5	193.6*	203.9	233.1	200.9	205.4	159.3	217.8	222.0
23	234.8	205.6	214.7*	216.1*	183.1*	212.2	238.7	196.5	191.3	157.5	210.4	213.4
24	221.6	211.0	213.4	193.2*	189.0	210.0	227.6	191.1	182.0	157.0	214.2	208.8
25	210.5	227.3	203.8*	186.2*	179.7	194.6*	221.6	180.4	159.7	166.8	183.3*	216.0
26	193.0	206.3	190.3*	171.6*	176.9	188.0	233.0	169.8	161.0	182.2*	171.7	234.3
27	201.9	211.1	168.6*	162.6	176.9	176.6	227.5	172.8	159.6	199.4	176.9	239.4
28	201.6	207.1	163.5	157.3	183.2	173.5	227.4	170.7	174.1	194.3	173.0	231.3
29	196.7	200.5		155.8	189.5	173.6	223.0	180.9	180.3*	204.7*	172.0	215.1
30	179.5	187.3		159.8	180.6	183.0	217.4	185.1	192.0*	202.0	186.3	240.9
31	177.6	187.5		167.5		194.2		188.2	208.9*		202.0*	
Mean	193.5	227.8	217.0	203.0	190.9	194.4	247.2	187.8	222.5	228.4	207.4	230.0

* = corrected for burst in progress; J = no calibration due to burst; the yearly mean flux equaled 141.1 in 1988.

DAILY SOLAR INDICES

November 1989

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers Int	Amer	Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit — PALE (15400)	PALE (8800)	PALE (4995)	Ottawa (2800)	PALE (2695)	PALE (1415)	PALE (610)	PALE (410)	PALE (245)
01	305	20	153	155	214.6	586	295	223	211.4	198	136	89	43	--
02	306	21	160	173	219.5	566	290	225	216.0	200	137	77	42	51
03	307	22	191	201	221.2	563	283	228	217.6	208	141	79	41	27
04	308	23	216	230	227.7	566	300	235	223.9	215	144	78	40	23
05	309	24	228	230	239.5	576	303	237	235.4	226	154	78	39	44
06	310	25	236	228	260.0	580	310	206	255.3	232	151	78	41	89
07	311	26	233	208	211.1*	579	304	254	207.3*	245	155	82	39	25
08	312	27	204	204	276.0	608	324	262	270.9	252	167	78	42	29
09	313	1	214	201	262.2	600	341	270	257.2	247	164	86	48	38
10	314	2	203	188	251.3*	602	331	261	246.3*	239	155	81	41	27
11	315	3	173	169	254.3	586	322	257	249.1	238	158	81	41	25
12	316	4	173	154	258.8	570	313	252	253.5	240	158	89	47	27
13	317	5	153	145	245.5	589	321	250	240.3	233	150	81	47	--
14	318	6	140	139	248.4	591	329	256	243.0	227	148	79	41	28
15	319	7	132	130	221.4	565	292	215	216.5	204	144	78	40	21
16	320	8	124	125	221.2	565	292	215	216.2	204	144	78	40	21
17	321	9	124	140	220.0	573	296	213	215.0	200	142	82	41	25
18	322	10	134	142	226.8J	583	304	225	221.6J	206	143	88	40	22
19	323	11	124	152	234.7	---	---	---	229.2	---	---	--	--	--
20	324	12	141	149	229.2	724	308	241	223.7	212	145	81	44	27
21	325	13	170	181	235.1	583	307	244	229.4	214	145	86	53	67
22	326	14	162	160	227.7	599	313	252	222.0	210	139	81	51	87
23	327	15	157	134	218.8	577	305	236	213.4	206	140	89	59	--
24	328	16	160	172	214.2	579	298	224	208.8	203	140	80	40	24
25	329	17	175	180	221.7	589	302	231	216.0	210	147	85	47	45
26	330	18	184	184	240.6	607	356	285	234.3	247	161	87	40	18
27	331	19	183	199	245.9	581	316	258	239.4	229	149	82	41	31
28	332	20	183	176	237.7	577	308	240	231.3	217	146	87	64	79
29	333	21	179	179	221.2	574	306	234	215.1	216	150	92	--	--
30	334	22	182	160	247.7	580	319	247	240.9	218	148	81	52	--
Mean			173.0	172.9	235.1	587	310	241	230.0	221	148	83	44	38

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; J = no calibration due to burst.

Equipment problems produced any gaps in the Air Weather Service's Palehua (PALE) observations.

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

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	138
1982	137	133	129	124	120	117	115	109	101	96	95	95
1983	93	90	86	82	77	70	66	66	68	68	67	64
1984	60	56	53	50	48	46	44	40	34	29	25	22
1985	20	20	19	18	18	18	17	17	17	17	17	15
1986	14	13	13	14	14	14	14	13	12*	13	15	16
1987	18	20	22	24	26	28	31	35	39	44	47	51
1988	58	65	71	78	84	94	104	114	121	125	130	138
1989	142	145	150	153	157	163	166	169	176	181	183	185
						(5)	(11)	(16)	(19)	(21)	(23)	(24)
1990	186	187	185	180	174	170	168	166	159	151	144	139
	(26)	(29)	(31)	(32)	(31)	(28)	(27)	(29)	(30)	(31)	(29)	(26)
1991	138	134	130	129	130	128	124	119	114	113	115	115
	(27)	(28)	(29)	(34)	(35)	(32)	(29)	(26)	(22)	(20)	(21)	(24)

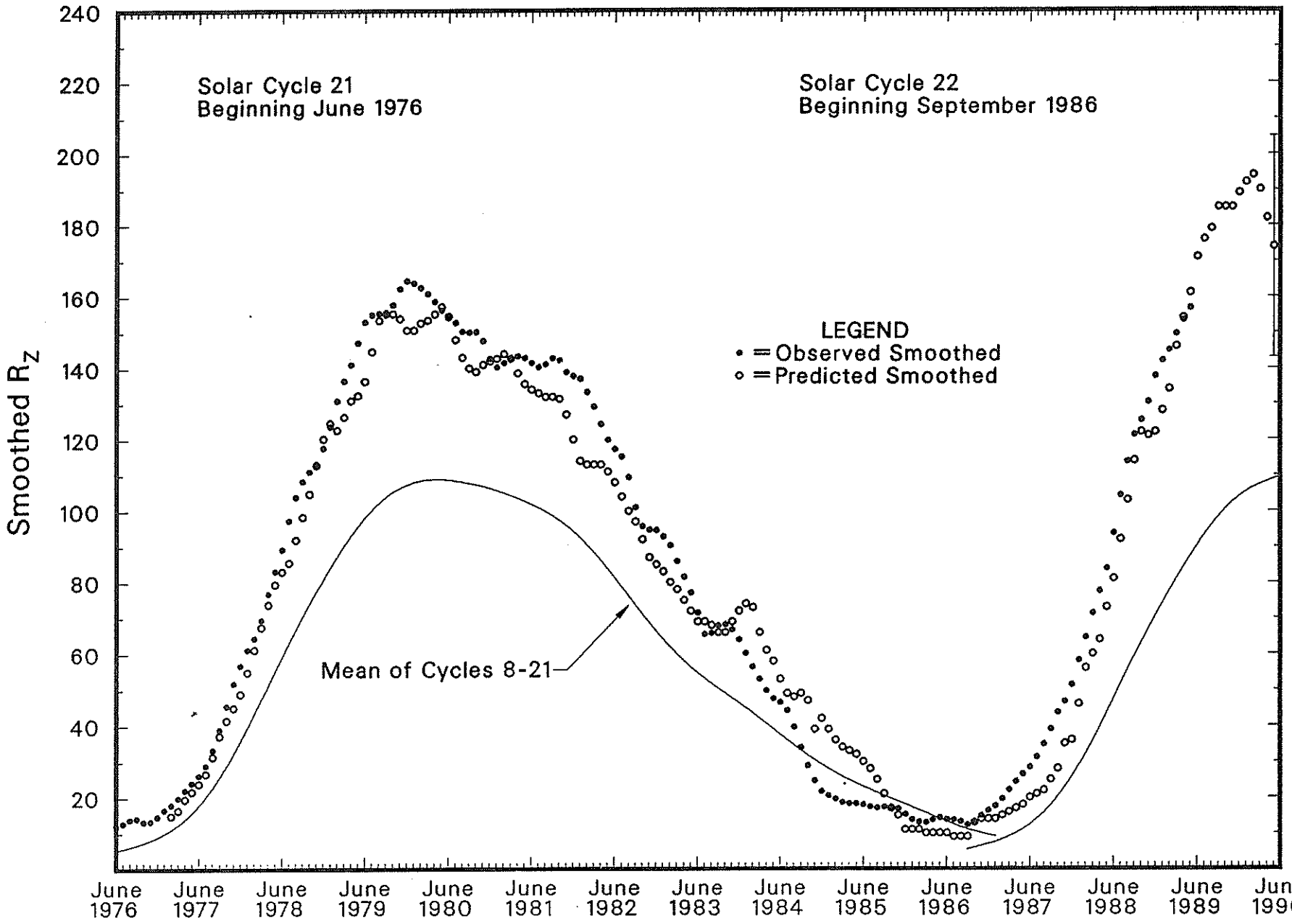
*September 1986 marks the onset of Sunspot Cycle 22.

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

Table entries, with numbers in parentheses below them, denote predictions by the McNish-Lincoln method. (See page 9 in the July 1987 supplement to *Solar-Geophysical Data*.) Adding the number in parentheses to the predicted value generates the upper limit of the 90% confidence interval; subtracting the number from the predicted value generates the lower limit. Consider, for example, the May 1990 prediction. There exists a 90% chance that in May 1990 the actual smoothed sunspot number will fall somewhere between 143 and 205.

THE MCNISH-LINCOLN PREDICTION METHOD GENERATES USEFUL ESTIMATES OF SMOOTHED, MONTHLY MEAN SUNSPOT NUMBERS FOR NO MORE THAN 12 MONTHS AHEAD. Beyond a year the predictions regress rapidly toward the mean of all 13 cycles used in the computation. Moreover, the method is very sensitive to the data defined as the beginning of the current sunspot cycle, that is, to the date of the most recent sunspot minimum. The new cycle predictions tabulated above are based on the minimum value of 12.3 that occurred in September 1986.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SUNSPOT NUMBERS

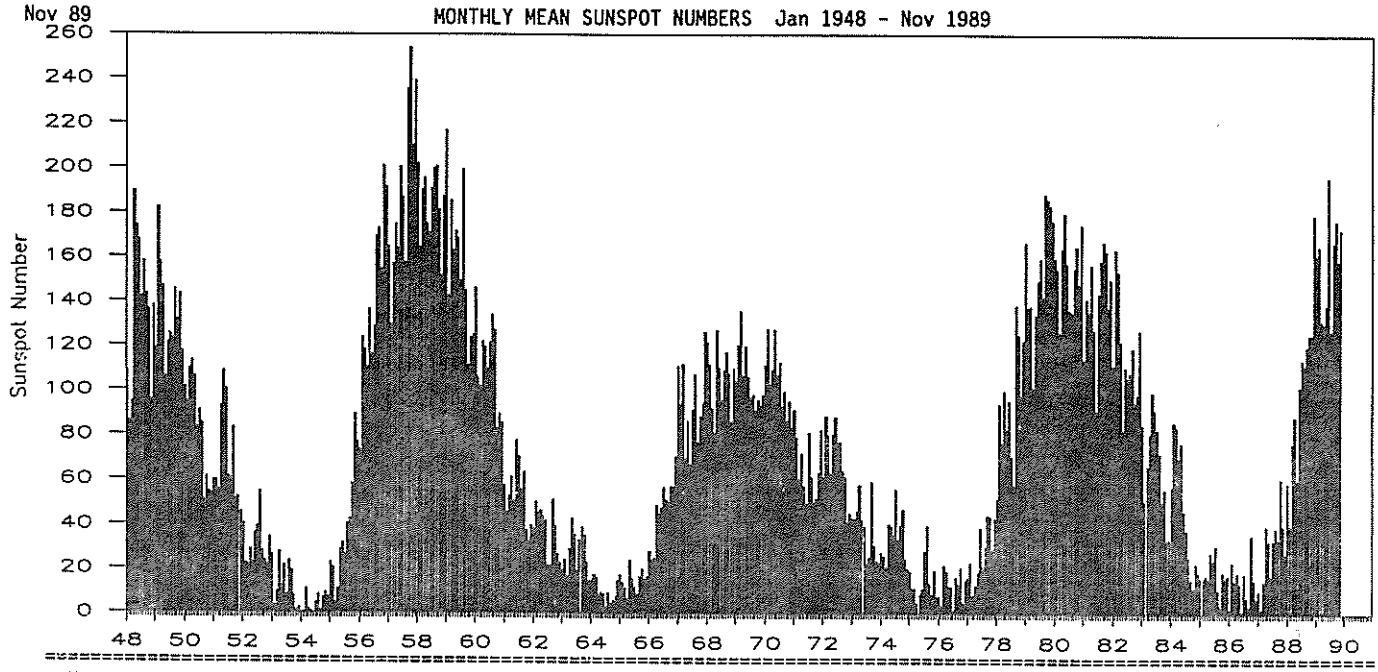


Nov 89

29

30
Nov 89

MONTHLY MEAN SUNSPOT NUMBERS Jan 1948 - Nov 1989



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	
1948	108.5	86.1	94.8	189.7	174.0	167.8	142.2	157.9	143.3	136.3	95.8	138.0	136.3	
1949	119.1	182.3	157.5	147.0	106.2	121.7	125.8	123.8	145.3	131.6	143.5	117.6	134.7	
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1	83.9	
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8	69.4	
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3	31.5	
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5	13.9	
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6	4.4	m
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9	38.0	
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1	141.7	
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4	190.2	M
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6	184.8	
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0	159.0	
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6	112.3	
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9	53.9	
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2	37.6	
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9	27.9	
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1	10.2	m
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0	15.1	
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4	47.0	
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4	93.8	
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8	105.9	M
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9	105.5	
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5	104.5	
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2	66.6	
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3	68.9	
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3	38.0	
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5	34.5	
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8	15.5	
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3	12.6	m
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	27.5	
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	92.5	
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	155.4	M
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4	154.6	
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	140.4	
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.7	98.1	127.0	115.9	
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.8	33.3	33.4	66.6	
1984	57.0	85.4	83.5	69.7	76.4	46.1	37.4	25.5	15.7	12.0	22.8	18.7	45.9	
1985	16.5	15.9	17.2	16.2	27.5	24.2	30.7	11.1	3.9	18.6	16.2	17.3	17.9	
1986	2.5	23.2	15.1	18.5	13.7	1.1	18.1	7.4	3.8	35.4	15.2	6.8	13.4	m
1987	10.4	2.4	14.7	39.6	33.0	17.4	33.0	38.7	33.9	60.6	39.9	27.1	29.4	
1988	59.0	40.0	76.2	88.0	60.1	101.8	113.8	111.6	120.1	125.1	125.1	179.2	100.2	
1989	161.3	165.1	131.4	130.6	138.5	196.2	126.8*	166.8*	176.8*	158.5*	173.0*		159.8*	

*Preliminary

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

Hα SOLAR FLARES

NOVEMBER 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	01	0130	0131	0135	N24	E43	5769	11	4.4	5	SF		3	E		16		
GOES		0308	0314	0322						14		C 2.6						
GOES		0606	0611	0614						8		C 3.3						
GOES		0620	0628	0636						16		C 3.9						
LEAR		0736	0736	0751	S21	W48	5765	10	28.7	15	SF		3	E		12		
LEAR		0951	0951	1000	N23	E40	5769	11	4.5	9	SF		3	E		17		F
RAMY		1211	1211	1240	N16	E22	5770	11	3.2	29	SF		3	E		13		
RAMY		1511	1514	1524	S17	E51	5772	11	5.5	13	SN	C 8.4	2	E		52		FH
HOLL		1613E	1617U	1639	N17	E81		11	7.8	26D	SF	C 7.1	3	E		93		
PALE		1656E	1658	1702	N25	E35	5769	11	4.4	6D	SF		3	E		15		
RAMY		1846E	1901U	1912D	N16	E77	5776	11	7.6	26D	SF		3	E		49		
HOLL		1854	1901	1914	N16	E77	5776	11	7.6	20	SF		3	E		29		
HOLL		1917	1925	1941	N25	E36	5769	11	4.6	24	SF		3	E		46		F
RAMY		1926	1926	1953D	N26	E36	5769	11	4.6	27D	SF		3	E		39		F
RAMY		1926	1927	1931	N18	E83	5776	11	8.1	5	SF		3	E		14		
HOLL		1927	1927	1933	N16	E77	5776	11	7.6	6	SF		3	E		21		
RAMY		2019	2025	2038	N19	E82	5776	11	8.1	19	SF		3	E		19		
RAMY		2025	2033	2038	S17	E48	5772	11	5.5	13	SF		3	E		20		
HOLL		2123	2124	2147	N17	E82	5776	11	8.1	24	SF	C 2.1	3	E		31		F
PALE		2136	2139	2145	N21	E81	5776	11	8.1	9	SF		3	E		38		F
GOES	02	0330E	0334	0342D						12D		C 2.5						
GOES		0727E	0730	0736D						9D		C 3.5						
GOES		1022	1025	1028						6		C 3.6						
RAMY		1216	1246	1333D	N19	E74	5776			77D	1B			E		144		K
RAMY		1216	1252	1333D	N19	E74	5776	11	8.1	77D	2B	M 3.3	2	E		311		H
RAMY		1322E	1322U	1338D	N25	E23	5769	11	4.3	16D	SF		2	E		12		F
PALE		1649E	1651	1700	N18	E74	5776	11	8.3	11D	SF		2	E		21		
RAMY		1650	1654	1719	N20	E71	5776			29	SF			E		83		K
RAMY		1650	1707	1719	N20	E71	5776	11	8.1	29	SF		3	E		44		
HOLL		1651	1653	1657	N19	E72	5776	11	8.2	6	SF		3	E		17		
HOLL		1701	1706	1719	N18	E72	5776	11	8.2	18	1F		3	E		110		F
PALE		1702	1705	1709D	N18	E73	5776	11	8.3	7D	SF		3	E		81		F
RAMY		1723	1723	1729	N19	E70	5776	11	8.1	6	SF		3	E		21		
HOLL		1838	1840	1846	N24	E22	5769	11	4.5	8	SF		3	E		22		F
PALE		1839	1840	1850	N27	E21	5769	11	4.4	11	SF		3	E		22		F
RAMY		1842	1842	1858	N19	E70	5776	11	8.1	16	SF		3	E		14		
HOLL		1842	1844	1858	N19	E70	5776	11	8.1	16	SF		3	E		19		
RAMY		1916	1920	1929	N18	E69	5776	11	8.0	13	SF		3	E		16		
HOLL		1918	1919	1934	N21	E92	5776	11	9.8	16	SF		3	E		17		F
RAMY		1930	1930	1934	N20	E69	5776	11	8.1	4	SF		3	E		18		
RAMY		2040	2040	2054	N23	E23	5769	11	4.6	14	SF		3	E		14		
HOLL		2117	2125	2129	S24	W69	5765	10	28.6	12	SF		3	E		22		
HOLL		2157	2218	2249	N18	E67	5776	11	8.0	52	SF		3	E		72		
HOLL		2223	2223	2233	N25	E27	5769	11	5.0	10	SF		3	E		23		F
HOLL		2305	2305	2323	N22	E20	5769	11	4.5	18	SF		3	E		31		F
GOES	03	0237	0246	0254						17		C 3.6						
GOES		0352		0359						7		C 3.3						
GOES		0435		0445D						10D		C 3.4						
GOES		0640	0648	0705						25		M 3.7						
GOES		0717	0721	0724						7		C 7.5						
SVTO		1031	1033	1045	N21	E60	5776	11	8.0	14	SF	C 6.2	3	E		16		
RAMY		1246	1246	1254	N23	E10	5769	11	4.3	8	SF		3	E		15		F
RAMY		1326	1328	1332	N22	E10	5769	11	4.3	6	SN	C 2.8	3	E		35		F
SVTO		1326	1328	1333	N22	E08	5769	11	4.2	7	SN	C 2.8	3	E		44		
HOLL		1412E	1413U	1416	S25	W76	5768	10	28.8	4D	SF		2	E		24		
HOLL		1444	1452	1512	S14	W44	5775	10	31.3	28	SF		3	E		61		F
HOLL		1446	1447	1452	N17	E57	5776	11	7.9	6	SF		3	E		24		
HOLL		1506	1506	1512	N13	E27	5773	11	5.7	6	SF		3	E		16		
RAMY		1518	1526	1531	N12	E70		11	8.9	13	SF		3	E		17		
RAMY		1550	1550	1602	N17	E61	5776	11	8.3	12	SF		3	E		36		
HOLL		1550	1551	1555	N16	E60	5776	11	8.2	5	SF	C 2.0	4	E		13		
HOLL		1552	1552	1556	S05	E41		11	6.7	4	SF		4	E		10		
RAMY		1602	1603	1612	N22	E09	5769	11	4.3	10	SF	C 2.9	3	E		30		
HOLL		1653	1653	1705	N20	E85		11	10.2	12	SF		3	E		22		
PALE		1953	1956	2033	N18	E59	5776	11	8.3	40	1B	M 3.0	3	E		168		
HOLL		1953	1956	2040	N17	E58	5776	11	8.2	47	1B	M 3.0	3	E		192		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	03	1953	1958	2035	N19	E59	5776	11	8.3	42	1B		3	E		200		
HOLL		2043	2045	2052	N10	E62	5781	11	8.5	9	SF		3	E		22		
HOLL		2046	2050	2104	N22	E08	5769	11	4.5	18	SF		3	E		52		F
PALE		2048	2049	2109	N25	E10	5769	11	4.6	21	SF		3	E		19		
HOLL		2124	2126	2136	N14	E22	5773	11	5.5	12	SF		3	E		15		
HOLL		2218	2219	2228	N13	E22	5773	11	5.6	10	SF		3	E		29		
HOLL		2244	2300	2316	N18	E52	5776	11	7.9	32	SF		3	E		22		F
HOLL		2305	2307	2341	S17	E21	5772	11	5.5	36	SF		3	E		39		F
LEAR	04	0012	0012	0017	N27	E01	5769	11	4.1	5	SF	C 2.1	3	E		16		F
LEAR		0309	0310	0327	N26	E11	5769	11	5.0	18	SF		3	E		18		F
LEAR		0607	0609	0614	N27	W02	5769	11	4.1	7	SF		3	E		17		
GOES		0957	1001	1005						8		C 3.2						
SVTO		1042	1043	1047	N26	W06	5769	11	4.0	5	SF	C 2.1	3	E		24		
SVTO		1104	1109	1134	N25	E04	5769	11	4.8	30	SF		3	E		33		
SVTO		1132	1136U	1303D	S13	W54	5775	10	31.4	91D	SF		3	E		73		
SVTO		1134	1141U	1209D	N22	W02	5769	11	4.3	35D	SF		3	E		35		
RAMY		1136	1136	1141	S14	W57	5775	10	31.2	5	SF		3	E		13		
RAMY		1139	1142	1157	N25	E02	5769	11	4.6	18	SF		3	E		25		
RAMY		1142	1144	1309D	S14	W58	5775	10	31.1	87D	SF		3	E		31		
SVTO		1303	1311	1325	N20	W18	5770	11	3.2	22	SF		3	E		24		
RAMY		1308E	1313	1400	N19	W19	5770	11	3.1	52D	SF		3	E		42		F
RAMY		1313	1322	1503	N22	W03	5769	11	4.3	110	SF		3	E		43		
RAMY		1313	1333	1503	N22	W03	5769			110	SF			E		32		K
SVTO		1319	1322	1326	N27	W07	5769	11	4.0	7	SF		3	E		17		
HOLL		1342E	1346U	1429	N21	W04	5769	11	4.3	47D	SN		2	E		23		F
RAMY		1345	1347	1348	N22	E75	5783	11	10.3	3	SF		3	E		14		
RAMY		1358	1402	1412	N22	E78	5783	11	10.6	14	SF		3	E		21		
HOLL		1430	1432	1503	N22	W04	5769			33	SF			E		35		K
HOLL		1430	1447	1503	N22	W04	5769	11	4.3	33	SF		3	E		35		F
HOLL		1502	1505	1518	N19	W18	5770	11	3.2	16	SF	C 2.0	3	E		66		F
RAMY		1504	1504	1510	N18	W20	5770	11	3.1	6	SF	C 2.0	3	E		15		
RAMY		1720	1724	1826	N29	W03	5769	11	4.5	66	SF	C 4.8	3	E		77		FH
HOLL		1721	1725	1800	N28	W02	5769	11	4.6	39	SF	C 4.8	4	E		82		FH
HOLL		1828	1832	1844	N22	W05	5769	11	4.4	16	SF		3	E		18		
HOLL		2106	2108	2112	N26	W11	5769	11	4.0	6	SF		3	E		19		H
HOLL		2118	2120	2204	N21	W06	5769	11	4.4	46	1B	C 9.7	3	E		134		FE
HOLL		2118	2127	2204	N21	W06	5769			46	1B			E		188		K
HOLL		2253	2259	2344D	S20	W04	5771	11	4.6	51D	1N	C 5.4	1	E		140		UE
LEAR		2255	2259	2317	S20	W05	5771	11	4.6	22	SF	C 5.4	3	E		52		U
HOLL		2319	2319	2324	N17	W24	5770	11	3.1	5	SF		3	E		11		
LEAR	05	0548	0551	0553	N25	W92	5763	10	29.2	5	SF	C 3.8	3	E		44		
LEAR		0608	0608	0614	N17	E62	5783	11	10.0	6	SF		3	E		13		
LEAR		0648	0651	0703	N19	W28	5770	11	3.1	15	SF	C 4.9	3	E		15		
LEAR		0707	0710	0712	N25	W92	5763	10	29.3	5	SF		3	E		30		
LEAR		0719	0723	0809	N23	W13	5769	11	4.3	50	1F	M 1.0	3	E		117		F
SVTO		0720E	0725U	0828	N21	W13	5769	11	4.3	68D	SF		3	E		93		F
LEAR		0829	0830	0841	N15	E62	5783	11	10.0	12	SF		3	E		16		
SVTO		0942	0953	1010	N18	E38	5776	11	8.3	28	SF		3	E		34		
LEAR		0951	0955	0957	N17	E38	5776	11	8.3	6	SF		3	E		14		
SVTO		1103	1104	1111	N12	E44	5781	11	8.8	8	SF		3	E		25		F
SVTO		1232	1239	1306D	N22	E32	5776	11	8.0	34D	SF	C 6.3	3	E		35		
GOES		1323	1327	1330						7		C 2.8						
SVTO		1332E	1334U	1353	N16	W34	5770	11	3.0	21D	1F	C 5.8	3	E		146		
RAMY		1336E	1336U	1428D	N17	W32	5770	11	3.1	52D	SN		2	E		78		F
HOLL		1508	1509	1516	S06	E16	5780	11	6.8	8	SF		2	E		38		
RAMY		1620	1620	1626D	N28	W17	5769	11	4.3	6D	SF		3	E		21		F
RAMY		1633	1633	1639	N18	E62	5783	11	10.4	6	SF	C 2.2	3	E		12		
HOLL		1817	1820	1844	N16	E33	5776	11	8.3	27	1F	C 2.0	3	E		104		F
HOLL		1819	1825	1848	N13	E38	5781	11	8.6	29	SF		3	E		36		
HOLL		1911	1912	1917	N17	W33	5770	11	3.3	6	SF		3	E		17		
HOLL		1922	1931	2034	N17	E32	5776			72	SB			E		72		K
HOLL		1922	2005	2034	N17	E32	5776	11	8.2	72	SF		3	E		67		
RAMY		1927E	1928U	1959D	N17	E33	5776	11	8.3	32D	SF	C 2.7	3	E		45		
RAMY		2001E	2006U	2040D	N16	E31	5776	11	8.2	39D	SF	C 2.5	3	E		56		
HOLL		2213	2214	2229	N17	E26	5776	11	7.9	16	SN	C 3.9	3	E		55		FE
HOLL		2227	2230	2238	N11	E37	5781	11	8.7	11	SF		3	E		15		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	05	2318	2319	2336	N16	E29	5776	11	8.2	18	SF		3	E		15		F
PALE		2319	2319	2332	N18	E29	5776	11	8.2	13	SF		3	E		14		
HOLL		2334	2334	2345	N25	W15	5769	11	4.8	11	SF		3	E		54		F
PALE		2334	2334	2346	N25	W16	5769	11	4.7	12	SF		3	E		31		
PALE	06	0210	0211	0227	N25	W19	5769	11	4.6	17	SF		3	E		19		
LEAR		0343	0344	0354	N13	E31	5781	11	8.5	11	SF		3	E		16		F
LEAR		0519	0520	0526	N14	E33	5781	11	8.7	7	SF		3	E		10		
GOES		0711E	0712	0718D						7D		C 3.7						
LEAR		0821	0823	0836	N19	E51	5783	11	10.2	15	SF		3	E		41		
LEAR		0837	0841	0904	N19	E51	5783	11	10.2	27	SF		3	E		22		
LEAR		0912	0912	0933	N18	E50	5783	11	10.2	21	SF		3	E		16		
LEAR		0919	0920	0934	N17	E24	5776	11	8.2	15	SF	C 8.1	3	E		21		
RAMY		1210	1211	1330	N17	E24	5776	11	8.3	80	1N	M 3.7	3	E		212		E
RAMY		1210	1212	1222	N16	E29	5781	11	8.7	12	SN		3	E		73		
RAMY		1226	1239	1330	N13	E29	5781	11	8.7	64	SF	C 8.0	3	E		38		
HOLL		1343E	1345U	1433	N20	E19	5776	11	8.0	50D	1B	M 9.2	1	E		170		
RAMY		1346E	1346	1417	N20	E20	5776	11	8.1	31D	2F	M 9.2	3	E		448		
HOLL		1424	1432	1450	N25	W22	5769	11	4.9	26	SF		2	E		51		
RAMY		1432	1434	1446	N26	W24	5769	11	4.7	14	SF		3	E		21		H
HOLL		1433	1441	1447	N12	E27	5781	11	8.6	14	SF		2	E		12		
HOLL		1553	1558	1630	N22	W29	5769	11	4.4	37	SF		3	E		28		
HOLL		1615	1616	1634	N11	E21	5781	11	8.2	19	SF		3	E		16		
HOLL		1639	1752	1811	N19	E18	5776	11	8.1	92	SF		3	E		56		
RAMY		1749	1752	1759	N19	E19	5776	11	8.2	10	SF		3	E		17		
HOLL		1754	1755	1815	N23	W30	5769	11	4.4	21	SF		3	E		18		
HOLL		1756	1757	1802	N18	W45	5770	11	3.3	6	SF		3	E		10		
HOLL		1805	1809	1817	N12	E27	5781	11	8.8	12	SF		3	E		17		
HOLL		1831	1844	1935	N18	E16	5776	11	8.0	64	1N	M 1.6	3	E		228		UE
HOLL		1831	1911	1935	N18	E16	5776			64	SB			E		102		K
PALE		1838	1844	1930	N16	E16	5776	11	8.0	52	1N	M 1.6	3	E		150		UE
RAMY		1844E	1844U	1853D	N18	E16	5776	11	8.0	9D	1N		3	E		204		FE
HOLL		1919	1919	1941	N16	E45	5783	11	10.2	22	SF		3	E		74		F
PALE		2041E	2046	2121D	N18	E14	5776	11	7.9	40D	1F	M 2.5	3	E		176		F
HOLL		2047E	2058U	2135D	N21	E13	5776	11	7.9	48D	2B		3	E		464		F
HOLL		2118E	2122U	2136D	N16	E41	5783	11	10.0	18D	SF		2	E		75		F
LEAR		2257	2259	2321	N19	E42	5783	11	10.2	24	SF	C 3.6	3	E		20		F
LEAR	07	0104	0105	0112	N18	W53	5770	11	3.0	8	SF		4	E		46		
LEAR		0116	0120	0127	N20	E14	5776	11	8.1	11	SF		4	E		16		
LEAR		0129	0131	0236	N19	E14	5776			67	SF			E		51		K
LEAR		0129	0218	0236	N19	E14	5776	11	8.1	67	SF		4	E		87		
PALE		0209	0217	0227	N21	E12	5776	11	8.0	18	SF		2	E		39		F
LEAR		0232	0235	0245	N12	E34	5782	11	9.7	13	SF		4	E		18		F
PALE		0232	0238	0316	N18	E36	5783	11	9.8	44	1N	M 2.4	2	E		226		F
LEAR		0255	0302	0415	N20	E13	5776			80	2B			E		525		K
LEAR		0255	0320	0415	N20	E13	5776	11	8.1	80	2B	M 6.9	4	E		528		FH
PALE		0256	0302	0310	N19	E11	5776	11	8.0	14	SF		2	E		80		F
PALE		0318	0320	0336D	N18	E10	5776	11	7.9	18D	2N		2	E		288		F
GOES		0610		0628						18		M 1.0						
GOES		0929	0934	0939						10		C 3.1						
RAMY		1231	1234	1248	N27	W33	5769	11	4.9	17	SF		2	E		17		F
RAMY		1242	1248	1331	N13	E16	5781	11	8.7	49	SF		3	E		33		F
RAMY		1248	1250	1302	N20	W48	5770	11	3.9	14	SN		3	E		53		
RAMY		1253	1254	1302	N11	E66	5786	11	12.5	9	SF		3	E		14		F
SVTO		1321E	1322U	1327D	N18	E28	5783	11	9.7	6D	SF		1	E		39		
SVTO		1421	1424	1440	N20	E20	5783	11	9.1	19	SF		3	E		27		
SVTO		1422	1428	1443	N18	W57	5770	11	3.2	21	SF		3	E		11		
GOES		1456	1500	1502						6		C 5.8						
RAMY		1523	1538	1558	N14	W81	5777	11	1.5	35	SF		3	E		32		
HOLL		1605E	1606	1621	N25	E04	5776	11	8.0	16D	SF		2	E		45		
RAMY		1605	1607	1614	N20	E05	5776	11	8.0	9	SF		3	E		26		F
HOLL		1632	1655	1741	N16	E29	5783	11	9.9	69	1N	M 1.0	3	E		241		FE
RAMY		1643	1659	1723	N17	E28	5783	11	9.8	40	SN	M 1.0	3	E		72		F
RAMY		1837	1846U	1906	N18	E77	5786	11	13.6	29	SF	C 9.1	2	E		21		
HOLL		1930	1932	2204	N13	E71	5786			154	SB	M 2.8		E		99		K
HOLL		1930	2051	2204	N13	E71	5786	11	13.2	154	2B		3	E		301		FH
PALE		1931E	1932	2016	N17	E74	5786	11	13.4	45D	SF	M 2.8	3	E		53		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CHP Mo	CHP 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	07	2007	2011	2031	N20	E03	5776	11	8.1	24	SF	C 8.3	3	E		20		
PALE		2034	2047U	2204	N16	E73	5786	11	13.4	90	1N	M 8.2	3	E		150		FH
PALE		2107	2118	2132	N19	E29	5783	11	10.1	25	SF		3	E		20		
HOLL		2108	2117	2139	N17	E29	5783	11	10.1	31	SF		3	E		78		F
HOLL		2246	2300	2310	N12	E11	5781	11	8.8	24	SF		3	E		46		F
HOLL		2300	2301	2316	N23	W51	5769	11	4.0	16	SF		3	E		30		
HOLL		2307	2323	2341	N17	E27	5783	11	10.0	34	SF		3	E		29		F
HOLL		2316	2318	2339	N18	W02	5776	11	7.8	23	SF		3	E		71		F
HOLL		2330	2330	2337	N20	W48	5769	11	4.3	7	SF		3	E		13		
LEAR	08	0105	0112	0128	N17	E27	5783	11	10.1	23	SF		4	E		52		
LEAR		0129	0134	0139	N18	E27	5783	11	10.1	10	SF		3	E		24		
LEAR		0135	0140	0157	N21	E01	5776	11	8.1	22	SF	C 4.4	3	E		40		
PALE		0232	0232	0243	N20	W02	5776	11	7.9	11	SF		3	E		13		
PALE		0237	0237	0245	N18	E76	5786	11	13.9	8	SF		3	E		13		
LEAR		0326	0328	0423	N18	E25	5783	11	10.0	57	SF	C 4.7	3	E		68		
GOES		0515E	0532	0610D						55D		C 6.4						
LEAR		0516	0525	0601	N14	E20	5783	11	9.7	45	1F		3	E		149		
LEAR		0519	0531	0542	N12	E21	5782	11	9.8	23	SF		3	E		16		
GOES		0601E	0603	0700D						59D		M 3.3						
GOES		0634E	0658	0806						92D		M 1.6						
LEAR		0640	0723	0911	N21	W53	5769			151	2F			E		317		K
LEAR		0640	0749	0911	N21	W53	5769	11	4.2	151	2F		3	E		236		H
LEAR		0645	0650	0715	N17	E22	5783	11	9.9	30	SF		3	E		57		
SVTO		0725E	0745U	0755D	N22	W50	5769	11	4.5	30D	2F		1	E		374		
LEAR		0820	0824	0839	N16	E22	5783	11	10.0	19	SF		3	E		25		
LEAR		0915	0916	0920	N18	E27	5783	11	10.4	5	SF		3	E		21		
LEAR		0929	0934	0944	N16	E23	5783	11	10.1	15	SF		3	E		23		
SVTO		1417	1419	1432D	N18	E19	5783	11	10.0	15D	SF		2	E		60		
RAMY		1419E	1444U	1522	N18	E18	5783	11	10.0	63D	SF	C 4.6	3	E		48		F
HOLL		1439	1446	1526	N17	E20	5783	11	10.1	47	1F		3	E		104		F
HOLL		1450	1455	1505	N13	E61	5786	11	13.2	15	SF		3	E		10		F
HOLL		1520	1521	1531	N10	E52	5786	11	12.5	11	SF		3	E		22		F
RAMY		1521	1522	1532	N10	E54	5786	11	12.7	11	SF		3	E		18		H
HOLL		1541	1545	1550	N17	E19	5783	11	10.1	9	SF		3	E		23		F
HOLL		1555	1558	1611	N10	E52	5786	11	12.6	16	SF		3	E		37		F
RAMY		1555	1559	1612	N10	E53	5786	11	12.6	17	SF		3	E		34		
RAMY		1556	1603	1625	N24	W53	5769	11	4.6	29	SF		3	E		22		F
HOLL		1558	1558	1618	N23	W54	5769	11	4.5	20	SF		3	E		20		F
HOLL		1635	1638	1652	N14	E60	5786	11	13.2	17	SF		3	E		19		
RAMY		1726	1727	1819	N12	E64	5786			53	SF			E		59		K
RAMY		1726	1735	1819	N12	E64	5786	11	13.5	53	SN	C 9.1	3	E		59		
PALE		1726E	1737	1812	N18	E62	5786	11	13.4	46D	SF	C 9.1	3	E		61		FH
HOLL		1726	1739	1803	N15	E60	5786	11	13.3	37	SN	C 9.1	3	E		45		F
PALE		1818	1826	1938	N16	E08	5783			80	1N			E		113		K
RAMY		1818	1826	1939D	N13	E14	5783	11	9.8	81D	1N		3	E		140		FE
HOLL		1818	1826	1941	N15	E10	5783			83	1N			E		167		K
RAMY		1818	1838	1939D	N13	E14	5783			81D	1N			E		109		K
PALE		1818	1848	1938	N16	E08	5783	11	9.4	80	1N	M 2.0	3	E		124		FE
HOLL		1818	1851	1941	N15	E10	5783	11	9.5	83	1N		3	E		179		FE
HOLL		1825	1832	2006	N15	E02	5781			101	1N			E		192		K
HOLL		1825	1850	2006	N15	E02	5781	11	8.9	101	1F		3	E		188		F
RAMY		1826E	1826U	1942D	N11	W01	5781	11	8.7	76D	SF		2	E		46		F
PALE		1829	1833	1939	N15	E03	5781	11	9.0	70	SF		3	E		36		FH
PALE		1856	1902	2036	N20	W57	5769	11	4.4	100	2B	M 9.8	3	E		271		UF
PALE		1856	2021	2036	N20	W57	5769			100	SF			E		64		K
HOLL		1857	1903	2031	N19	W54	5769			94	2B	M 9.8		E		449		K
HOLL		1857	1909	2031	N19	W54	5769	11	4.7	94	2B		3	E		365		F
PALE		1900	1905	1935	N16	W71	5770	11	3.4	35	SF		3	E		17		
RAMY		1903E	1903U	2005D	N23	W55	5769	11	4.5	62D	2B		3	E		265		U
RAMY		1904	1911U	1923	N25	E41	5784	11	12.0	19	SF		2	E		30		
PALE		1922	1923	1938	N17	E62	5786	11	13.5	16	SF		3	E		11		
PALE		2021	2023	2034	N14	E54	5786	11	12.9	13	SF		3	E		18		
HOLL		2021	2025	2029	N17	E18	5783	11	10.2	8	SF		3	E		25		F
HOLL		2021	2025	2038	N15	E59	5786	11	13.3	17	SF		3	E		22		F
HOLL		2050	2108	2218	N17	E18	5783	11	10.2	88	1N		3	E		123		FE
HOLL		2050	2141	2218	N17	E18	5783			88	SF			E		56		K
HOLL		2052	2054	2109	N13	E58	5786	11	13.2	17	SF		3	E		16		

Hα SOLAR FLARES

NOVEMBER 1989

Ste	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
PALE	08	2054	2107	2148	N19	E16	5783	11	10.1	54	SF		3	E		50		F
LEAR		2305	2325	2406	N17	E13	5783	11	9.9	61	1N		3	E		155		
HOLL		2309	2325	2356D	N17	E12	5783	11	9.9	47D	SN		3	E		84		FE
GOES		2316	2457	2603						167		M 1.3						
PALE		2317	2328	2351	N20	E15	5783	11	10.1	34	SF		3	E		47		F
PALE		2330	2330	2356	N15	E54	5786	11	13.1	26	SF		3	E		10		
PALE		2354	2408	2525	N15	W10	5776	11	8.2	91	SF		3	E		78		F
PALE		2354	2419	2433	N11	W11	5781	11	8.2	39	SF		3	E		12		
LEAR	09	0008	0013	0116	N15	W10	5776	11	8.2	68	1F		3	E		108		
PALE		0021	0050	0155D	N19	E57	5786	11	13.4	94D	SF		3	E		75		F
LEAR		0036	0059	0121	N12	E57	5786	11	13.3	45	SF		3	E		49		
LEAR		0136	0136	0146	N17	E13	5783	11	10.0	10	SF		3	E		31		
LEAR		0314	0321	0344	N17	E12	5783			30	SF			E		35		K
LEAR		0314	0334	0344	N17	E12	5783	11	10.0	30	SF		3	E		35		
PALE		0336E	0338	0341D	N17	E14	5783	11	10.2	5D	SF	C 7.3	2	E		56		F
LEAR		0345	0346	0358	N12	W07	5781	11	8.6	13	SF		3	E		28		
LEAR		0416	0422	0458	N20	W16	5776	11	7.9	42	SF		3	E		79		F
LEAR		0521	0522	0529	N12	E55	5786	11	13.4	8	SF	C 5.3	3	E		45		
GOES		0605E	0639	0708D						63D		C 7.9						
LEAR		0605	0639	0708	N17	E12	5783	11	10.2	63	SF		3	E		40		F
LEAR		0613	0615	0619	N10	E44	5786	11	12.6	6	SF		3	E		19		
LEAR		0616	0618	0621	N18	W83	5770	11	2.9	5	SF		3	E		23		
SVTO		0625	0726	1007	N19	E08	5783			222	1F	C 9.7		E		98		KT
SVTO		0625	0901	1007	N19	E08	5783	11	9.9	222	1N		3	E		152		UF
LEAR		0722	0727	0827	N18	E08	5783	11	9.9	65	SF	C 9.7	3	E		79		F
LEAR		0820	0822	0914	N13	E53	5786	11	13.3	54	SF	M 1.1	3	E		79		FE
SVTO		0820	0822	0923	N15	E53	5786	11	13.3	63	SN	M 1.1	3	E		90		F
LEAR		0820	0900	0914	N13	E53	5786			54	SB			E		50		K
LEAR		0848	0857	0947	N17	E08	5783	11	10.0	59	SF	M 1.8	3	E		82		FE
LEAR		0935	0936	0953	N12	E51	5786	11	13.2	18	1F		3	E		111		FE
SVTO		0936	0940	1007	N15	E52	5786	11	13.3	31	1N		3	E		146		F
SVTO		1023	1032	1036	N17	E60	5786	11	14.0	13	SN		3	E		31		
SVTO		1143	1457	1513D	N18	E04	5783	11	9.8	210D	1N		3	E		105		F
RAMY		1214	1217	1310	N18	E07	5783			56	SN			E		73		K
RAMY		1214	1239	1310	N18	E07	5783	11	10.0	56	SN	C 7.3	3	E		74		F
SVTO		1216	1238	1301	N18	E05	5783	11	9.9	45	SF	C 7.3	3	E		53		F
RAMY		1230	1233	1314	N17	W90	5770	11	2.7	44	2F	M 1.4	3	E		351		E
RAMY		1334	1335	1339	N13	E50	5786	11	13.3	5	SF		3	E		30		F
SVTO		1334	1335	1344	N15	E48	5786	11	13.2	10	SN		3	E		50		
RAMY		1354	1404	1428	N18	E05	5783	11	9.9	34	SF	C 9.9	3	E		39		F
RAMY		1446	1454	1530	N19	E05	5783	11	10.0	44	1B	M 4.9	3	E		192		F
RAMY		1446	1505	1530	N18	E07	5783			44	SN			E		133		K
HOLL		1457E	1457	1514	N19	E05	5783	11	10.0	17D	1N		2	E		133		UF
HOLL		1539	1540	1547	N13	W15	5781	11	8.5	8	SF		2	E		61		
RAMY		1554	1555	1625	N18	E07	5783	11	10.2	31	SN	C 7.9	3	E		36		F
RAMY		1554	1613	1625	N18	E07	5783			31	SN			E		27		K
HOLL		1643	1648	1653	N13	W15	5781	11	8.6	10	SF		3	E		65		
RAMY		1701	1702	1714	N18	E03	5783	11	9.9	13	SF		3	E		33		F
RAMY		1712	1716	1718	N10	E41	5786	11	12.8	6	SF	C 7.6	3	E		21		H
RAMY		1714	1723	1726	N18	E03	5783	11	9.9	12	SF		3	E		16		F
GOES		1742	1745	1747						5		C 5.7						
PALE		1751	1754	1814	N18	E06	5783	11	10.2	23	SF		3	E		22		F
HOLL		1838	1857	2017	N13	E46	5786			99	1N			E		184		K
HOLL		1838	1907	2017	N13	E46	5786	11	13.2	99	1N	M 1.4	3	E		220		FE
PALE		1846	1858	2024	N15	E46	5786	11	13.3	98	1F		3	E		181		F
HOLL		1919	1925	2135	N17	E00	5783			136	1B			E		204		K
HOLL		1919	2052	2135	N17	E00	5783	11	9.8	136	1N	M 4.8	3	E		111		FE
HOLL		1919	2101	2135	N17	E00	5783			136	1N			E		131		K
PALE		1921	1931	2215D	N17	W23	5776	11	8.0	174D	2N		3	E		334		E
PALE		1921	2140	2215D	N17	W23	5776			174D	1N			E		125		K
PALE		1922	1932	1935	N18	E05	5783	11	10.2	13	SF		3	E		20		
HOLL		1923	1932	2155	N12	W21	5781	11	8.2	152	2B		3	E		411		F
PALE		1923	1934	2055	N12	W15	5781	11	8.7	92	SF		3	E		87		
PALE		2050	2052	2110	N18	E04	5783	11	10.2	20	SF	M 1.3	3	E		39		
HOLL		2136	2141	2202	N21	W26	5776	11	7.9	26	1N	M 1.4	3	E		120		FE
HOLL		2141	2143	2154	N18	E00	5783	11	9.9	13	SN		3	E		60		FE
HOLL		2240	2246	2318	N17	E00	5783	11	9.9	38	SN		3	E		80		FE

Hα S O L A R F L A R E S

NOVEMBER 1989

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	09	2241	2246	2257	N18	E00	5783	11	9.9	16	SF		3	E		53		
PALE		2244	2246	2256	N18	W01	5783	11	9.9	12	SN		3	E		56		F
HOLL		2328	2331	2356D	N17	W01	5783	11	9.9	28D	SN		3	E		87		FE
GOES		2328	2337	2353						25		M 1.1						
LEAR		2329	2332	2414	N18	E00	5783	11	10.0	45	SF		3	E		75		
PALE		2330	2331	2356	N18	W01	5783	11	9.9	26	SN		3	E		68		FH
LEAR	10	0050	0100	0116	N17	W01	5783	11	9.9	26	SF		3	E		44		
LEAR		0138	0150	0253	N18	W01	5783	11	10.0	75	1N	M 3.9	3	E		128		
PALE		0146	0150	0303D	N18	W03	5783	11	9.8	77D	1N		3	E		125		FE
LEAR		0216	0217	0222	N10	E41	5786	11	13.2	6	SF		3	E		26		F
LEAR		0339	0341	0400	N18	W03	5783	11	9.9	21	1F	M 1.4	3	E		112		
LEAR		0541	0542	0553	N18	W04	5783	11	9.9	12	SF		3	E		17		
SVTO		0626E	0812	0826	N18	W05	5783	11	9.9	120D	SF		3	E		66		
LEAR		0634	0635	0657	N18	W01	5783	11	10.2	23	SF	C 6.7	3	E		19		
LEAR		0744	0746	0757	N18	W04	5783	11	10.0	13	SF	C 5.1	3	E		88		
LEAR		0811	0813	0818	N17	W05	5783	11	10.0	7	SF	C 6.4	3	E		29		
LEAR		0830	0841	0847	S19	E66	5788	11	15.4	17	SF		3	E		14		
SVTO		0856	0858	0912	N12	E29	5786	11	12.5	16	SF		3	E		40		
LEAR		0856	0900	0904	N10	E29	5786	11	12.5	8	SF		3	E		24		
RAMY		1122E	1128	1201	N18	W07	5783	11	9.9	39D	SN	M 1.2	3	E		72		F
SVTO		1128	1138U	1152D	N18	W09	5783	11	9.8	24D	SN		3	E		60		
SVTO		1209E	1213U	1219	N18	W06	5783	11	10.0	10D	SN		3	E		30		
SVTO		1225E	1259U	1353	N18	W07	5783	11	10.0	88D	1N		3	E		100		F
SVTO		1250E	1250	1300	N18	W07	5783	11	10.0	10D	1N		3	E		100		
RAMY		1255	1258	1401	N19	W04	5783	11	10.2	66	1N	M 1.1	3	E		116		F
SVTO		1259E	1259U	1300	N18	W07	5783	11	10.0	1D	1N		3	E		100		
HOLL		1416	1420	1430	S17	E61	5788	11	15.2	14	SF		2	E		59		
RAMY		1418	1418	1448	S19	E70	5788	11	15.9	30	SF		3	E		30		F
SVTO		1418	1420	1446	S17	E62	5788			28	SF			E		27		K
SVTO		1418	1430	1446	S17	E62	5788	11	15.3	28	SF		3	E		20		
RAMY		1515	1518	1530	N14	E35	5786	11	13.3	15	SF		3	E		20		F
HOLL		1515	1519	1531	N13	E35	5786	11	13.3	16	SF		3	E		28		F
HOLL		1558	1558	1608	N17	W10	5783	11	9.9	10	SF	C 8.2	3	E		18		
RAMY		1558	1559	1622	N18	W11	5783			24	SF			E		49		K
RAMY		1558	1617	1622	N18	W11	5783	11	9.8	24	SF		3	E		49		F
HOLL		1609	1614	1628	N17	W10	5783	11	9.9	19	SN		3	E		45		F
RAMY		1617	1617	1621	N12	W30	5781	11	8.4	4	SF	C 7.8	3	E		14		F
RAMY		1626	1628	1644	N18	W10	5783	11	9.9	18	SF		3	E		21		F
RAMY		1644	1650	1807	N25	W81	5769	11	4.4	83	2B	M 5.6	3	E		428		
RAMY		1645	1647	1714	S22	E69	5788	11	16.0	29	SF		3	E		26		H
HOLL		1646	1646	1703	S23	E67	5788	11	15.9	17	SF		3	E		23		
HOLL		1646	1650	1735	N24	W78	5769	11	4.7	49	2N		3	E		532		E
HOLL		1749	1750	1753	N10	E24	5786	11	12.5	4	SF		3	E		43		
RAMY		1749	1750	1757	N10	E24	5786	11	12.5	8	SF		3	E		42		
PALE		1947E	1947U	2012D	S23	E66	5788	11	15.9	25D	2F	M 2.9	3	E		367		F
RAMY		2011E	2014U	2029	S16	E63	5788	11	15.6	18D	SF		3	E		59		
HOLL		2026	2029	2041	N18	W14	5783	11	9.8	15	SF		3	E		21		
RAMY		2027	2029	2037	N18	W13	5783	11	9.9	10	SF		3	E		12		
RAMY		2030	2033	2051D	S19	E60	5788	11	15.4	21D	SF		3	E		54		
HOLL		2048	2054	2101	N18	W11	5783	11	10.0	13	SF		3	E		98		
RAMY		2051	2053	2059	N18	W13	5783	11	9.9	8	SF		3	E		23		F
HOLL		2127	2129	2138	N17	W14	5783	11	9.8	11	SF		3	E		14		
HOLL		2135	2231	2256	N14	E31	5786	11	13.2	81	SF	C 4.2	3	E		41		
HOLL		2253	2306	2312	N23	W82	5769	11	4.6	19	SF		3	E		58		
PALE		2258	2306	2310	N22	W82	5769	11	4.6	12	SF		3	E		17		
LEAR		2303	2306	2310	N25	W82	5769	11	4.6	7	SF		3	E		25		
PALE		2306	2308	2315	N18	W14	5784	11	9.9	9	SF		3	E		13		F
PALE		2330E	2330U	2339	N20	W08	5784	11	10.4	9D	SF		3	E		80		
LEAR	11	0010	0012	0015	N17	W16	5783	11	9.8	5	SF		3	E		15		
LEAR		0310	0314	0317	N12	E35	5786	11	13.8	7	SF		3	E		34		
LEAR		0500	0505	0527	N16	W25	5783	11	9.3	27	2N	M 5.1	3	E		283		UF
LEAR		0636E	0636U	0642D	N25	W86	5769	11	4.6	6D	SF	C 6.1	2	E		40		
LEAR		0710	0713	0722	N19	W14	5783	11	10.2	12	SF	C 7.2	3	E		35		F
GOES		0856	0905	0916						20		M 1.2						
RAMY		1207	1207	1214	N18	W23	5783	11	9.7	7	SF		3	E		16		
RAMY		1228	1230	1256	N18	W21	5783	11	9.9	28	SF	C 4.1	3	E		47		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	11	1236	1239	1246	S17	E52	5788	11	15.5	10	SF		3	E		19		
RAMY		1240	1244	1246	N24	W84	5769	11	5.0	6	SF		3	E		14		
RAMY		1354	1358	1427	N10	W39	5781	11	8.6	33	SF		3	E		19		
RAMY		1421	1421	1436	N21	E02	5784	11	11.7	15	SF		3	E		26		F
HOLL		1734	1734	1737	N12	W41	5781	11	8.6	3	SF		3	E		19		
HOLL		1739	1742	1803	S21	E58	5788	11	16.2	24	SF		3	E		18		
RAMY		1741	1742	1807	S22	E61	5788	11	16.4	26	SF		3	E		15		
RAMY		1745	1832	1910	N12	W44	5781	11	8.4	85	SN		3	E		81		FE
RAMY		1800	1808U	1830	N13	E18	5786	11	13.1	30	SF		3	E		40		
HOLL		1805	1813	1834	N15	E17	5786	11	13.0	29	SF		3	E		31		
HOLL		1806	1810	1827	N21	W01	5784	11	11.7	21	SF		3	E		19		
RAMY		1809	1812	1822	N20	W02	5784	11	11.6	13	SF		3	E		16		
HOLL		1829	1832	1906	N11	W44	5781	11	8.4	37	SB	M 1.6	3	E		78		FE
HOLL		1830	1831	1844	S19	E58	5788	11	16.2	14	SF		3	E		14		
HOLL		1915	1915	1927	N18	W25	5783	11	9.9	12	SF		3	E		22		
HOLL		2017	2019	2032	N14	E18	5786	11	13.2	15	SF		3	E		17		F
HOLL		2029	2033	2049	N10	W45	5781	11	8.5	20	SF		3	E		17		F
HOLL		2122	2122	2143	N13	E23	5786	11	13.6	21	SF		3	E		13		F
HOLL		2147	2151	2211	N21	W53	5776	11	7.8	24	SF		3	E		16		F
PALE		2149	2151	2204	N17	W54	5776	11	7.8	15	SF		3	E		22		
HOLL		2230	2231	2234	N13	E15	5786	11	13.1	4	SF		3	E		26		F
HOLL		2302	2311	2326	N21	W04	5784	11	11.6	24	SF		3	E		16		
LEAR	12	0143	0148	0209	N14	W54	5776	11	8.0	26	SF		3	E		61		F
LEAR		0143	0156	0209	N14	W54	5776			26	SF			E		55		K
LEAR		0214	0222	0237	N15	W40	5781	11	9.1	23	SF		3	E		19		
SVTO		0621E	0621U	0707	N13	W39	5783	11	9.3	46D	SN	X 1.5	2	E		90		FH
SVTO		0755	0756	0811	S29	E61	5788	11	17.1	16	SF	C 4.1	3	E		41		
SVTO		0804	0811	0826	N12	E12	5786	11	13.2	22	SN	C 5.0	3	E		55		
SVTO		0840E	0855	0914	S16	E51	5788	11	16.2	34D	SN		3	E		74		
SVTO		0859	0911U	1015D	N15	E14	5786	11	13.4	76D	2B	M 2.2	3	E		280		F
LEAR		0904	0909U	0909D	N12	E10	5786	11	13.1	5D	SF		1	E		44		
SVTO		1024	1025	1043	N16	E14	5786	11	13.5	19	SF		3	E		46		
SVTO		1112E	1116	1151D	N18	W32	5783	11	10.0	39D	1N		2	E		188		F
RAMY		1143E	1145	1208D	S18	E53	5788	11	16.5	25D	SF		3	E		58		
RAMY		1143E	1149	1154	N12	E19	5786	11	13.9	11D	SF		3	E		31		
RAMY		1143E	1150	1219D	N17	W63	5776	11	7.7	36D	SF		3	E		34		
GOES		1301	1305	1311						10		C 5.9						
HOLL		1426E	1504	1541	N18	W32	5783	11	10.2	75D	SF		3	E		70		
HOLL		1551	1554	1621	N18	W33	5783	11	10.1	30	SF		3	E		27		
RAMY		1737	1740	1753	N18	W35	5783	11	10.1	16	SF	C 3.6	3	E		38		F
HOLL		1741	1741	1807	N18	W37	5783	11	9.9	26	SF	C 3.6	3	E		35		
RAMY		1912	1915U	2001D	N19	W38	5783	11	9.9	49D	SF	C 3.4	3	E		36		
HOLL		1912	1917	1953	N18	W37	5783	11	10.0	41	SF		3	E		46		FE
RAMY		2018	2018	2026	N20	W46	5783	11	9.3	8	SF		3	E		40		H
HOLL		2018	2019	2022	N20	W45	5783	11	9.4	4	SF		3	E		53		F
HOLL		2058	2059	2127	N12	W55	5781	11	8.7	29	SF		3	E		13		FH
HOLL		2118	2121	2134	N18	W37	5783	11	10.1	16	SF		3	E		25		F
HOLL		2207	2207	2212	N10	W59	5781	11	8.5	5	SF		3	E		11		
LEAR	13	0300	0301	0312	N19	W40	5783	11	10.1	12	SF		3	E		19		
LEAR		0338	0342	0406	N10	W59	5781	11	8.7	28	SF		3	E		54		
LEAR		0350	0351	0357	N14	W66	5776	11	8.2	7	SF		3	E		72		
LEAR		0845	0846	0851	N17	W37	5783	11	10.5	6	SF	C 2.3	3	E		19		
RAMY		1219E	1222U	1240D	N08	W60	5781	11	9.0	21D	SF		2	E		70		F
RAMY		1220E	1222	1230D	N14	W01	5786	11	13.4	10D	SF		2	E		19		
SVTO		1221	1221	1228	N13	W01	5786	11	13.4	7	SF		3	E		13		
GOES		1230	1245	1300						30		C 5.0						
RAMY		1259E	1300	1307	N17	W50	5783	11	9.7	8D	SF		2	E		15		F
GOES		1417	1426	1440						23		C 4.2						
HOLL		1546	1546	1555D	N18	W43	5783	11	10.4	9D	SF		3	E		37		F
RAMY		1653	1659	1715	N18	W45	5783	11	10.3	22	SF		3	E		18		F
HOLL		1709	1709	1710	N18	W46	5783	11	10.2	1	SF		3	E		14		F
HOLL		1843	1843	1847	S23	E41	5788	11	16.9	4	SF		3	E		12		F
GOES		1849	1852	1854						5		C 2.3						
HOLL		1913	1914	1920	N11	W07	5786	11	13.3	7	SF		3	E		13		F
RAMY		1918E	1919U	1924	N08	W79	5781	11	7.9	6D	SF		2	E		34		
HOLL		1919	1920	1924	N08	W73	5781	11	8.3	5	SF		3	E		46		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	13	1927	1937U	1942	N12	W07	5786	11	13.3	15	SF		2	E		10		F
HOLL		1936	1936	1943	N11	W08	5786	11	13.2	7	SF		3	E		19		
RAMY		2005E	2012U	2052D	N18	W48	5783	11	10.2	47D	SF	M 1.1	1	E		39		F
HOLL		2029	2038	2137	N16	W03	5786	11	13.6	68	SF		3	E		39		
RAMY		2034E	2034U	2151D	N14	W01	5786	11	13.8	77D	SF		1	E		36		F
HOLL		2202	2207	2219	N19	W45	5783	11	10.5	17	SN	C 4.7	3	E		63		
LEAR	14	0149	0204U	0228	N21	W30	5784	11	11.8	39	SF		2	E		72		F
LEAR		0149	0216	0228	N21	W30	5784			39	SF	C 5.2		E		98		K
GOES		0332E	0337	0356D						24D		C 3.6						
SVTO		0645E	0650U	0704	N13	W05	5786	11	13.9	19D	SF		3	E		22		F
RAMY		1127	1127	1132	N13	W12	5786	11	13.6	5	SF		2	E		13		
GOES		1133	1144	1154						21		C 8.0						
RAMY		1417	1436	1514D	N11	W19	5786	11	13.2	57D	SF	C 3.5	2	E		40		F
RAMY		1424	1428U	1520D	N18	W60	5783	11	10.0	56D	SF		2	E		13		
HOLL		1424	1435	1445	N11	W18	5786	11	13.2	21	SF		2	E		32		F
HOLL		1429	1437	1440	N18	W59	5783	11	10.1	11	SF		2	E		13		
HOLL		1454	1502	1504	N15	W19	5786	11	13.2	10	SF		3	E		12		
HOLL		1502	1507	1519	N18	W59	5783	11	10.1	17	SF		3	E		18		
HOLL		1548	1550	1606	N12	W19	5786	11	13.2	18	SF		3	E		20		
RAMY		1550E	1553U	1605D	N13	W15	5786	11	13.5	15D	SF		2	E		16		
HOLL		1728	1737	1802	N12	W20	5786	11	13.2	34	SF		3	E		18		
HOLL		2035	2035	2049	N19	W57	5783	11	10.5	14	SF		3	E		30		F
RAMY		2035	2035	2054	N18	W66	5783	11	9.8	19	SF		3	E		23		
HOLL		2108	2111	2115	N14	W21	5786	11	13.3	7	SF		3	E		27		
HOLL		2129	2133	2145	N08	W28	5786	11	12.8	16	SF		3	E		28		
HOLL		2138	2142	2318D	N18	W61	5783	11	10.2	100D	SN	M 1.2	3	E		81		
HOLL		2138	2210	2318D	N18	W61	5783			100D	SN			E		92		K
LEAR		2237	2300	2312	N18	W68	5783	11	9.8	35	SF		3	E		28		
LEAR		2311	2317	2322	N10	W20	5786	11	13.5	11	SF		3	E		12		F
LEAR		2318	2320	2327	S27	E33	5788	11	17.5	9	SF		3	E		26		
LEAR	15	0113	0115	0125	N19	W67	5783	11	9.9	12	SF	C 5.4	3	E		31		F
LEAR		0357	0359	0406	S27	E29	5788	11	17.4	9	SF	C 5.1	3	E		30		
LEAR		0445	0520	0625	N19	W66	5783			100	SF			E		59		K
LEAR		0445	0537	0625	N19	W66	5783	11	10.2	100	SF	M 1.7	3	E		36		F
LEAR		0626	0729	0738	N19	W70	5783	11	9.9	72	SF		3	E		56		
SVTO		0638	0705	0920	N11	W26	5786	11	13.3	162	3B	X 3.2	3	E		648		
LEAR		0640	0656	0821	N12	W28	5786	11	13.2	101	2B		3	E		506		UF
LEAR		0640	0702	0821	N12	W28	5786			101	2F			E		530		K
SVTO		0644	0706	0743	N17	W68	5783			59	SF			E		47		K
SVTO		0644	0729	0743	N17	W68	5783	11	10.1	59	SF		3	E		26		
SVTO		0706	0708	0710	S23	E14	5788	11	16.4	4	SF		3	E		16		
LEAR		0728	0729	0736	N12	W81	5781	11	9.2	8	SF		3	E		25		
LEAR		0823	0830	0913	N10	W27	5786	11	13.3	50	SF		3	E		45		
SVTO		0851	0851	0859	N16	W71	5783	11	10.0	8	SF		3	E		15		
LEAR		0923	0924	0933	N11	W27	5786	11	13.3	10	SF		3	E		37		
SVTO		0923	0925	0945	N11	W27	5786	11	13.3	22	SN		3	E		41		
SVTO		1037	1038	1045	N17	W65	5783	11	10.5	8	SF		3	E		19		
GOES		1102	1106	1111						9		C 6.5						
SVTO		1144	1144	1224	N10	W28	5786	11	13.4	40	SF		3	E		20		
SVTO		1212	1213	1217	N16	W69	5783	11	10.3	5	SF		3	E		14		
RAMY		1234	1240	1252	S22	E07	5788	11	16.1	18	SF		3	E		14		F
RAMY		1247	1249	1256	N12	W29	5786	11	13.3	9	SF		3	E		17		F
RAMY		1445E	1449U	1533D	N18	W73	5783	11	10.0	48D	SF		2	E		16		
HOLL		1455	1455	1514	N17	W69	5783	11	10.4	19	SF		2	E		32		
HOLL		1526	1529	1534	N11	W31	5786	11	13.3	8	SF		3	E		11		
HOLL		1601	1609	1616	S23	E10	5788	11	16.4	15	SF		3	E		22		
HOLL		1604	1625	1704	N19	W67	5783	11	10.5	60	SF		3	E		78		F
RAMY		1654	1654	1703	N17	W74	5783	11	10.1	9	SF		3	E		49		
HOLL		1720	1731	1739	N18	W69	5783	11	10.5	19	SF		3	E		51		
RAMY		1747	1749	1820	N17	W78	5783	11	9.8	33	SF		3	E		20		
RAMY		1751	1753	1803	N21	W54	5784	11	11.6	12	SF		3	E		20		F
HOLL		1756	1802	1808	N19	W76	5783	11	9.9	12	SF		3	E		36		
HOLL		1853	1855	1858	N12	W31	5786	11	13.4	5	SF		3	E		27		
HOLL		1918	1935	2117	N16	W27	5786	11	13.7	119	2B	X 1.8	3	E		441		ZU
HOLL		1919	1919U	1931	S29	E22	5788	11	17.5	12	SF		3	E		68		
RAMY		1919	1919	1950	S27	E23	5788	11	17.6	31	SF		3	E		60		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	15	1920	1936	2114	N10	W34	5786	11	13.2	114	2B		3	E		353		UF
HOLL		2105	2105	2109	S26	E22	5788	11	17.6	4	SF		3	E		14		
RAMY		2107E	2107U	2115	S26	E21	5788	11	17.5	8D	SF		2	E		44		F
HOLL		2215	2216	2225	N18	W75	5783	11	10.2	10	SF		3	E		36		
HOLL		2222	2224	2229	N12	W33	5786	11	13.4	7	SF		3	E		30		
LEAR		2256	2258	2302	N13	W35	5786	11	13.3	6	SF		3	E		23		F
HOLL		2256	2305	2318	N12	W36	5786	11	13.2	22	SF		3	E		23		
LEAR		2331	2333	2339	S26	E20	5788	11	17.5	8	SF		3	E		12		F
LEAR		2359	2406	2438	N13	W34	5786	11	13.4	39	SF		3	E		25		F
LEAR	16	0007E	0007	0012	N19	W75	5783	11	10.3	5D	SF	C 4.7	3	E		35		
LEAR		0049	0103	0114	N13	W36	5786	11	13.3	25	SF		3	E		40		F
LEAR		0119	0120	0127	N11	W31	5786	11	13.7	8	SF	C 4.0	3	E		17		F
GOES		0200	0204	0210						10		C 4.0						
GOES		0412	0423	0439						27		M 1.2						
LEAR		0525E		0600	N14	W40	5786	11	13.2	35D	SF		3	E		36		
SVTO		1010	1014	1033	N11	W41	5786	11	13.3	23	SF		3	E		35		
SVTO		1037	1039	1053	N14	W45	5786	11	13.0	16	SF		3	E		43		
RAMY		1056	1059	1116	S27	E14	5788	11	17.5	20	SF		2	E		31		F
SVTO		1100	1101	1125	S27	E14	5788	11	17.5	25	SN	C 5.6	3	E		45		
SVTO		1150	1158	1216	S08	E65		11	21.4	26	SF		3	E		14		
SVTO		1154	1155	1215	S21	W01	5788	11	16.4	21	SF		3	E		13		
RAMY		1308	1309	1457	N12	W46	5786			109	2B			E		332		K
RAMY		1308	1323	1457	N12	W46	5786	11	13.1	109	2B	X 1.1	3	E		276		FE
SVTO		1317	1320U	1404D	N10	W44	5786	11	13.2	47D	1N		1	E		175		F
HOLL		1357E	1358U	1427	N10	W42	5786	11	13.4	30D	SN		2	E		56		F
RAMY		1633	1638	1653	N15	W49	5786	11	13.0	20	SF		3	E		13		
RAMY		1659	1715	1722	N12	W48	5786	11	13.1	23	SF		3	E		21		
RAMY		1712	1712	1716	N18	W89	5783	11	9.9	4	SF		3	E		13		
HOLL		1734	1735	1742	S20	W13	5788	11	15.7	8	SF		3	E		23		H
HOLL		1758	1808	1816	N15	W48	5786	11	13.1	18	SF		3	E		33		
RAMY		1803	1808	1817	N15	W49	5786	11	13.0	14	SF		3	E		17		
HOLL		1820	1820	1826	N14	W49	5786	11	13.1	6	SF		3	E		20		
RAMY		1902	1915	1925	S09	E62	5795	11	21.4	23	SF		3	E		26		
RAMY		1939	1939	1956	N29	E63	5791	11	21.7	17	SF		3	E		14		F
HOLL		1939E	1944	2007	N29	E64	5791	11	21.8	28D	1F		3	E		170		
HOLL		1949	1953	1955	N19	W73	5783	11	11.2	6	SF		3	E		30		
RAMY		2012	2012	2020	S09	E62	5795	11	21.5	8	SF		3	E		21		F
HOLL		2056	2056	2103	N12	W48	5786	11	13.2	7	SF	C 2.5	3	E		14		
GOES		2203	2207	2213						10		C 2.6						
LEAR		2234	2238	2313	S31	E08	5793	11	17.6	39	1F	M 1.1	3	E		222		F
LEAR		2234	2253	2313	S31	E08	5793			39	SF			E		79		K
HOLL		2248E	2248U	2312	S30	E08	5793	11	17.6	24D	1F		3	E		161		
PALE		2253	2253	2259	S28	E06	5793	11	17.4	6	SF		3	E		38		F
LEAR	17	0359	0400	0404	N12	W53	5786	11	13.2	5	SF		3	E		15		
LEAR		0426	0428	0446	S24	W15	5788	11	16.0	20	SF	C 3.7	3	E		58		
LEAR		0442	0442	0445	N21	W73	5784	11	11.6	3	SF		3	E		11		
SVTO		0650	0717	0721	S28	E01	5793	11	17.4	31	SF		3	E		23		
LEAR		0705	0711	0719	N13	W55	5786	11	13.1	14	SF		3	E		62		
LEAR		0755	0756	0833	S28	E04	5793	11	17.6	38	1N		3	E		233		FH
SVTO		0755	0800	0839	S29	E00	5793	11	17.3	44	2B	M 1.6	3	E		387		FH
LEAR		0755	0826	0833	S28	E04	5793			38	SN			E		22		K
LEAR		0915	0916	0922	N13	W56	5786	11	13.2	7	SF	C 5.7	3	E		50		
SVTO		1013	1016	1025	S30	E04	5793	11	17.7	12	SF		3	E		17		
RAMY		1116	1140	1203	N13	E69		11	22.7	47	SF		2	E		26		
RAMY		1123	1125	1131	N12	W56	5786	11	13.2	8	SF		2	E		16		F
SVTO		1124	1125	1132	N10	W57	5786	11	13.2	8	SF		3	E		18		
RAMY		1217	1220	1236	S25	W21	5788	11	15.9	19	SF		3	E		11		H
SVTO		1237	1245	1258	S28	E00	5793	11	17.5	21	SF	M 1.5	3	E		36		
RAMY		1238	1238	1242	S28	W01	5793	11	17.4	4	SF		3	E		12		
RAMY		1243	1245	1257	S27	E00	5793	11	17.5	14	SF		3	E		27		F
SVTO		1323	1323	1330	N10	W60	5786	11	13.0	7	SN		3	E		55		
RAMY		1540	1540	1544	N10	E66		11	22.6	4	SF		3	E		22		
HOLL		1555	1600	1613	S08	E50	5795	11	21.4	18	SF		3	E		24		
RAMY		1556	1556	1612	S09	E53	5795	11	21.6	16	SF		3	E		22		
GOES		1932	1936	1939						7		C 4.7						
LEAR		2223	2224	2227	N16	W65	5786	11	13.0	4	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	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
PALE	17	2223	2224	2227	N15	W64	5786	11	13.1	4	SF		3	E		15		
LEAR	18	0148	0148	0154	N12	W66	5786	11	13.1	6	SF	C 5.1	3	E		30		
LEAR		0236	0239	0300	S27	W07	5793	11	17.6	24	SF	C 9.0	3	E		62		F
PALE		0238	0239	0254	S29	W09	5793	11	17.4	16	SF		3	E		55		F
GOES		1046	1050	1054						8		C 3.6						
RAMY		1211	1227	1335	S28	W15	5793			84	1F			E		143		K
RAMY		1211	1303	1335	S28	W15	5793	11	17.3	84	1F		3	E		135		F
HOLL		1602E	1622	2040	S31	W14	5793			278D	3B			E		413		KT
HOLL		1602E	1639	2040	S31	W14	5793	11	17.6	278D	3B	M 7.3	3	E				UY
PALE		1703E	1709U	1912	S29	W13	5793	11	17.7	129D	2F		2	E		304		UY
RAMY		1900	1922	2027	S31	W17	5793	11	17.4	87	SF		3	E		64		F
RAMY		2008	2008	2058D	N20	E53	5799	11	22.9	50D	SF		3	E		11		
HOLL		2047	2049	2056	N21	E55	5799	11	23.1	9	SF		3	E		29		
PALE		2339	2342	2357	S25	W21	5793	11	17.3	18	SF		3	E		27		F
LEAR		2340	2344	2349	S24	W21	5793	11	17.4	9	SF		3	E		14		
LEAR	19	0027	0027	0037	S28	W24	5793	11	17.1	10	SF		3	E		12		F
LEAR		0252	0253	0256	N15	W68	5786	11	14.0	4	SF		3	E		19		
LEAR		0537	0538	0555	N19	E48	5799	11	22.9	18	SF		3	E		11		
LEAR		0617	0617	0633	S09	E31	5795	11	21.6	16	SF		3	E		12		F
LEAR		0619	0622	0642	S24	W25	5793	11	17.3	23	2B	X 1.1	3	E		258		F
LEAR		0650	0723	0740	S26	W24	5793	11	17.4	50	SF		3	E		27		
LEAR		0720	0721	0723	N13	W83	5786	11	13.0	3	SF		3	E		21		
LEAR		0856	0856	0907	S25	W32	5793	11	16.9	11	SF		3	E		14		F
RAMY		1123	1132	1154	S24	W27	5793	11	17.4	31	SB	M 1.2	3	E		58		
RAMY		1232	1238	1306	S24	W27	5793	11	17.4	34	SF	C 5.7	3	E		45		F
RAMY		1346	1348	1402	N10	E42	5796	11	22.7	16	SF		3	E		11		
RAMY		1516	1518	1526	S25	W29	5793	11	17.4	10	SF		3	E		12		F
RAMY		1606	1610	1659	S25	W29	5793	11	17.4	53	SN	M 1.2	2	E		98		FE
HOLL		1614E	1618U	1636D	S26	W29	5793	11	17.4	22D	SN		2	E		40		UF
LEAR	20	0035	0038	0101	S25	W34	5793	11	17.4	26	SN	M 2.1	4	E		66		FE
LEAR		0151	0153	0201	N20	E38	5799	11	23.0	10	SF		3	E		12		
GOES		0220	0236	0242						22		C 2.5						
LEAR		0350	0413	0438	S25	W38	5793	11	17.2	48	SF	M 1.3	3	E		93		F
GOES		0530	0534	0539						9		C 3.6						
LEAR		0558	0601	0634	S28	W39	5793	11	17.2	36	SF	C 3.1	3	E		17		
LEAR		0858	0900	0908	S28	W40	5793	11	17.2	10	SF		3	E		19		F
LEAR		0937	0940	0948	S26	W40	5793	11	17.3	11	SF		3	E		13		F
RAMY		1417	1425	1457	S28	W43	5793	11	17.2	40	1N	M 3.9	3	E		106		F
RAMY		1545	1546	1559	N10	E27	5796	11	22.7	14	SF		3	E		17		F
RAMY		1553	1555	1605	N22	E33	5799	11	23.2	12	SF		3	E		15		F
GOES		2019	2036	2040						21		C 5.6						
HOLL		2125	2128	2201D	S27	W43	5793	11	17.5	36D	2B	X 1.0	3	E		270		F
HOLL		2255	2300	2311	S23	W46	5793	11	17.4	16	SF		3	E		15		
LEAR	21	0453	0457	0504	S23	W50	5793	11	17.3	11	SF	C 2.2	3	E		10		F
LEAR		0508	0509	0517	S23	W50	5793	11	17.4	9	SF		4	E		15		
LEAR		0527	0529	0535	N23	E66	5800	11	26.3	8	SF	C 2.8	4	E		28		F
LEAR		0727	0736	0805	S23	W52	5793	11	17.3	38	SN	C 6.5	4	E		92		F
SVTO		0737E	0738U	0801D	S26	W50	5793	11	17.4	24D	SF		1	E		34		F
LEAR		0908	0912	0936	S27	W51	5793	11	17.4	28	1F	M 1.5	3	E		188		F
SVTO		0909	0914U	0942D	S29	W51	5793	11	17.4	33D	1N		1	E		141		F
GOES		1048E	1049	1054						6D		C 3.3						
RAMY		1332	1336	1431	S26	W53	5793			59	1B			E		184		K
RAMY		1332	1346	1431	S26	W53	5793	11	17.4	59	2B	X 4.0	3	E		286		
SVTO		1333E	1345	1424	S26	W54	5793	11	17.4	51D	2B	X 4.0	1	E		255		F
RAMY		1516	1518	1543	N23	E61	5800	11	26.3	27	SF	C 3.4	3	E		35		
RAMY		1556	1557	1609	S24	W56	5793	11	17.3	13	SF		3	E		25		
RAMY		1637	1714	1722	S24	W56	5793	11	17.4	45	SF	C 2.8	3	E		17		F
RAMY		1840	1840	1850	S26	W54	5793	11	17.6	10	SF	C 2.6	3	E		18		
HOLL		1840	1840	1850	S26	W54	5793	11	17.6	10	SF	C 2.6	3	E		17		
HOLL		2134	2138	2147	N21	E16	5799	11	23.1	13	SF		3	E		38		F
HOLL		2152	2156	2202	N22	E17	5799	11	23.2	10	SF		3	E		12		
LEAR	22	0247	0305	0310	S23	W63	5793	11	17.3	23	SF		3	E		75		F
LEAR		0303	0308	0323	N21	E14	5799	11	23.2	20	SN	C 5.5	3	E		59		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
PALE	22	0312E	0320	0333D	N20	E09	5799	11	22.8	21D	SF		3	E		35		F
LEAR		0834	0837	0912	S23	W67	5793	11	17.2	38	1B	M 2.0	3	E		238		H
SVTO		0835	0844	0901D	S25	W66	5793	11	17.2	26D	1N		2	E		178		FH
LEAR		0920	0920	0929	S28	W64	5793	11	17.4	9	SF	C 8.9	3	E		51		
GOES		1042	1053	1101						19		C 3.2						
GOES		1249	1253	1256						7		C 8.8						
RAMY		1320E	1335U	1349	S23	W67	5793	11	17.4	29D	SN	M 3.8	2	E		85		FE
RAMY		1322	1327U	1335D	N26	E50	5800	11	26.4	13D	SF		3	E		47		F
RAMY		1440E	1440U	1445	N26	E51	5800	11	26.6	5D	SF		2	E		15		
HOLL		1614	1622	1630	S15	E62	5805	11	27.4	16	SF		3	E		36		
HOLL		1636	1638	1723	N27	E51	5800	11	26.7	47	SF		3	E		40		
HOLL		1844	1845	1900	N21	E04	5799	11	23.1	16	SF		3	E		24		F
RAMY		1845E	1846U	1854D	N21	E03	5799	11	23.0	9D	SF		2	E		16		
PALE		1849	1849	1853	N27	E48	5800	11	26.5	4	SF		3	E		19		
HOLL		1937	1940	1955	N19	E00	5799	11	22.8	18	SF		3	E		23		
HOLL		2048	2101	2125	S07	E40		11	25.9	37	SF		3	E		28		
HOLL		2123	2130	2149	N19	E00	5799	11	22.9	26	SF		3	E		85		F
HOLL		2232	2243	2312D	N26	E45	5800	11	26.4	40D	SF	C 3.2	3	E		83		E
PALE	23	0058	0059	0106	N29	E46	5800	11	26.6	8	SF		3	E		17		F
PALE		0131	0132	0136	N21	W01	5799	11	23.0	5	SF	C 3.8	3	E		34		
GOES		0429	0436	0440						11		C 3.8						
LEAR		0510	0517U	0530D	N20	W04	5799	11	22.9	20D	SF		3	E		49		F
GOES		0513	0520	0527						14		C 3.4						
GOES		0625E		0645D						20D		C 3.7						
GOES		0710E	0717	0737D						27D		C 4.0						
GOES		0816	0820	0823						7		C 2.5						
SVTO		0953E	1019U	1037D	N27	E40	5800	11	26.5	44D	SF		2	E		49		
SVTO		1007	1008	1036D	N20	W09	5799	11	22.7	29D	SF	C 3.6	2	E		34		
GOES		1259	1304	1316						17		C 4.7						
HOLL		1646	1742	1754	N19	W13	5799	11	22.7	68	SF		3	E		50		F
HOLL		1706	1715	1735	N27	E35	5800	11	26.4	29	SF	C 2.7	3	E		84		F
HOLL		1836	1839	1847	N22	E35	5800	11	26.5	11	SF		3	E		16		
HOLL		1923	1925	1938	N22	E35	5800	11	26.5	15	SF		3	E		25		
HOLL		2004	2004	2010	S27	W07	5798	11	23.3	6	SF		3	E		16		H
PALE		2136	2138	2204	N19	W17	5799	11	22.6	28	SF		3	E		14		
HOLL		2207	2211	2325D	S14	E45	5805	11	27.3	78D	SF		3	E		68		
PALE		2210	2210	2250	S11	E46	5805	11	27.4	40	SF		3	E		30		
PALE		2222	2223	2245	N21	W13	5799	11	22.9	23	SF	C 2.3	3	E		30		F
HOLL		2223	2223	2231	N20	W14	5799	11	22.9	8	SF		3	E		28		
PALE	24	0040	0043	0049	N24	E31	5800	11	26.4	9	SF		3	E		17		F
PALE		0140	0144	0203	N22	W17	5799	11	22.8	23	SF	C 3.9	3	E		17		
LEAR		0154	0156	0216	N22	E31	5800	11	26.5	22	SF	C 4.4	4	E		45		F
LEAR		0154	0212	0216	N22	E31	5800			22	SF			E		22		K
PALE		0159	0212	0225	N24	E30	5800	11	26.4	26	SF		3	E		78		F
LEAR		0557	0559	0602	N24	E27	5800	11	26.3	5	SF		4	E		25		
LEAR		0815	0816	0826	N22	W29	5799	11	22.1	11	SF	C 2.0	3	E		23		F
RAMY		1156	1203	1218	S12	E12	5803	11	25.4	22	SF		3	E		37		F
GOES		1243	1416	1452						129		C 5.6						
RAMY		1244	1247	1301	N29	E25	5800	11	26.5	17	SF		3	E		43		F
RAMY		1254	1254	1304	N09	W26	5796	11	22.6	10	SF		3	E		13		FH
RAMY		1453	1454	1506	S11	E14	5803	11	25.7	13	SF		3	E		13		
RAMY		1521	1522	1532	N08	W27	5796	11	22.6	11	SF		3	E		14		
RAMY		1616	1617	1623	N08	W29	5796	11	22.5	7	SF		3	E		11		
RAMY		1629	1630	1638	N08	W29	5796	11	22.5	9	SF		3	E		13		
RAMY		2010	2014	2022	N22	E73	5806	11	30.4	12	SF		3	E		11		
PALE		2242	2243	2257	N24	E73	5806	11	30.6	15	SF	C 5.6	3	E		26		
LEAR	25	0225	0225	0231	N20	W27	5799	11	23.0	6	SF	C 2.2	3	E		41		
PALE		0225	0226	0231	N18	W28	5799	11	23.0	6	SN		3	E		30		
GOES		0238	0246	0254						16		M 1.1						
GOES		0448	0453	0459						11		C 2.1						
LEAR		0507	0510	0525	N19	E72	5806	11	30.7	18	SF	C 3.6	3	E		27		F
LEAR		0510	0511	0516	N20	W30	5799	11	22.9	6	SF		3	E		32		F
GOES		0637	0641	0644						7		C 2.0						
GOES		1107	1137	1226						79		C 4.2						
RAMY		1205	1219	1228	S05	E01		11	25.6	23	SF		3	E		17		

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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	25	1258	1258	1329	N24	E14	5800	11	26.6	31	SF		3	E		18		F
GOES		1742	1746	1751						9		C 1.8						
HOLL		1814	1815	1823	S06	W03		11	25.5	9	SF		3	E		21		F
HOLL		1847	1853	1929	N20	E54	5806	11	29.9	42	SF		3	E		31		F
PALE		1852	1852	1901	N24	E56	5806	11	30.1	9	SF		3	E		11		
HOLL		1914	1918	1953	S14	W01	5803	11	25.7	39	SF		3	E		62		F
PALE		1915	1918	1929	S13	E01	5803	11	25.9	14	SF		3	E		19		F
HOLL		1935	1938	2025	S14	W34	5802	11	23.2	50	1F		3	E		146		F
PALE		1936	1938	2003	S15	W35	5802	11	23.2	27	SF		3	E		56		F
GOES		2041	2045	2049						8		C 5.4						
PALE		2255E	2324U	2635	N30	E05	5800	11	26.3	220D	2N	X 1.0	3	E		337		UY
PALE		2257E	2313U	2345	N43	E11	5804	11	26.9	48D	SF		3	E		23		F
HOLL		2326E	2326U	2338D	N30	E05	5800	11	26.4	12D	2N		2	E		429		UF
PALE	26	0222	0222	0230	N21	E55	5806	11	30.3	8	SF		3	E		14		F
LEAR		0638	0639	0656	N26	E04	5800	11	26.6	18	SF		3	E		29		F
LEAR		0657	0707	0733	N26	E04	5800	11	26.6	36	SF		3	E		94		F
LEAR		0845	0846	0906	N18	E55	5806	11	30.5	21	1F	C 5.3	3	E		117		F
GOES		1004	1011	1015						11		C 4.6						
RAMY		1142	1201	1221	N23	W01	5800	11	26.4	39	SF		3	E		19		F
RAMY		1223	1230	1234	N24	E01	5800	11	26.6	11	SF		3	E		12		F
RAMY		1412	1415	1421	S18	E85		12	3.1	9	SF		3	E		38		
HOLL		1445	1453	1500	S05	W15	5808	11	25.5	15	SF		2	E		14		F
RAMY		1533	1534	1551	N41	E04	5804	11	27.0	18	SN	C 3.4	3	E		92		
HOLL		1652	1657	1704	N21	E42	5806	11	29.9	12	SF		3	E		22		F
RAMY		1654	1654	1704	N21	E42	5806	11	29.9	10	SF		3	E		11		
RAMY		1749	1815	2122	N26	W02	5800			213	1N			E		168		KT
RAMY		1749	1907	2122	N26	W02	5800	11	26.6	213	2B		3	E		390		FT
HOLL		1756	1816	2240D	N25	W03	5800			284D	1N			E		215		KT
HOLL		1756	1927	2240D	N25	W03	5800			284D	2B			E		497		KT
HOLL		1756	1931	2240D	N25	W03	5800	11	26.5	284D	2B	M 4.0	3	E		538		UF
PALE		1757	1859	2206D	N23	W07	5800	11	26.2	249D	2N		3	E		283		FET
HOLL		1950	1952	1956	S04	W18	5808	11	25.5	6	SF		3	E		19		
RAMY		2001	2002	2011	N40	E02	5804	11	27.0	10	SF		3	E		31		
PALE		2001	2003	2013	N41	W01	5804	11	26.7	12	SF		3	E		24		
HOLL		2009	2009	2015	N22	W54	5799	11	22.7	6	SF		3	E		16		
HOLL		2148E	2201U	2240D	S18	E74	5809	12	2.5	52D	SF		2	E		80		
PALE		2150	2152	2206D	S15	E72	5809	12	2.4	16D	SF		3	E		25		
LEAR		2230	2234	2239	N40	E01	5804	11	27.0	9	SF		3	E		20		F
LEAR	27	0643	0645	0652	N43	W06	5804	11	26.8	9	SF		3	E		35		F
LEAR		0900	0901	0903	N28	W14	5800	11	26.3	3	SF		3	E		15		F
SVTO		1028	1031	1036	N17	W62	5799	11	22.7	8	SF		3	E		24		
SVTO		1117	1132	1138	S12	W01	5805	11	27.4	21	SF		3	E		54		
RAMY		1201	1202	1211	S18	E69	5809	12	2.7	10	SF		3	E		10		
RAMY		1306	1308	1323	S20	E67	5809	12	2.7	17	1F	C 2.6	3	E		130		F
SVTO		1307E	1307U	1326D	S18	E60	5809	12	2.1	19D	SF		1	E		82		
RAMY		1317	1317	1321	N27	W16	5800	11	26.3	4	SF		3	E		11		
RAMY		1357	1400	1410	S03	W30	5808	11	25.3	13	SF		3	E		21		F
HOLL		1544E	1552U	1610	N20	W64	5799	11	22.8	26D	SF		2	E		37		
RAMY		1600	1618	1647	N25	W13	5800	11	26.6	47	SF		3	E		52		F
HOLL		1603E	1621U	1644D	N26	W14	5800	11	26.6	41D	SF		2	E		51		F
RAMY		1702	1706	1817	N22	W64	5799	11	22.8	75	1N	M 1.1	2	E		170		F
RAMY		1702	1737	1817	N22	W64	5799			75	1F			E		89		K
HOLL		1703	1709	1835	N20	W62	5799	11	23.0	92	1N		3	E		141		F
PALE		1703E	1710	1800	N20	W64	5799	11	22.8	57D	1B		3	E		153		F
HOLL		1703	1737	1835	N20	W62	5799			92	1F			E		121		K
HOLL		1709	1713	1725	S14	W04	5805	11	27.4	16	SF		3	E		72		F
PALE		1711E	1713	1724D	S12	W04	5805	11	27.4	13D	SF		3	E		48		FH
RAMY		1713	1715	1724	S14	W04	5805	11	27.4	11	SF		3	E		58		F
RAMY		1732	1732	1736	S15	E55	5809	12	1.9	4	SF		3	E		15		F
PALE		2019	2020	2027	S05	W30	5808	11	25.6	8	SF	C 2.3	3	E		29		F
HOLL		2019	2020	2030	S04	W31	5808	11	25.5	11	SF		3	E		58		
HOLL		2028	2034	2042	S16	E53	5809	12	1.9	14	SF		3	E		27		
HOLL		2034	2037	2043	N21	W58	5799	11	23.4	9	SF	C 3.0	3	E		26		
PALE		2035	2037	2040	N19	W59	5799	11	23.3	5	SF	C 3.0	3	E		14		
HOLL		2113	2113	2118	S21	E61	5809	12	2.6	5	SF		3	E		13		
HOLL		2211	2215	2231	N44	W10	5804	11	27.1	20	1F	C 2.7	3	E		112		F

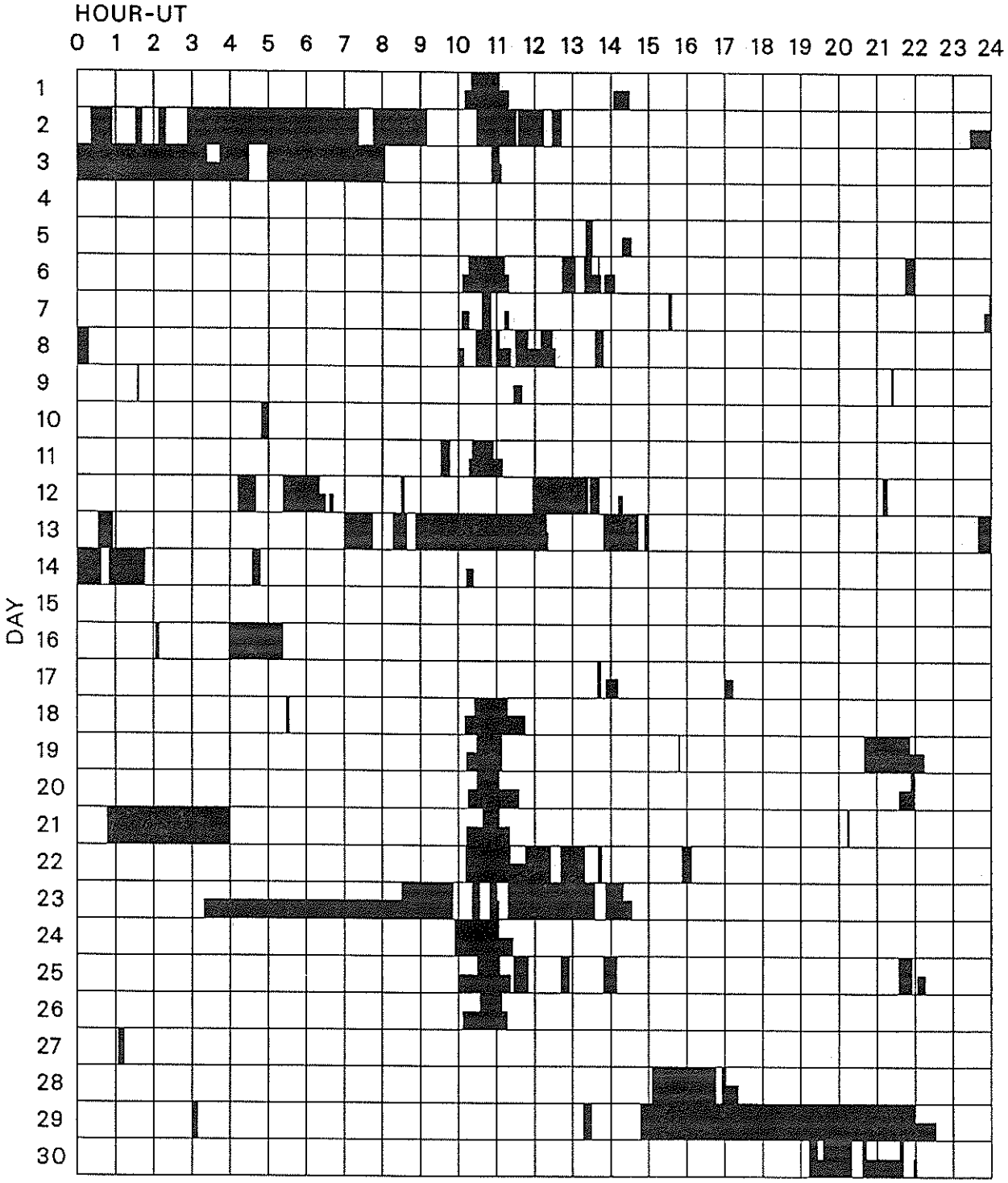
Hα SOLAR FLARES

NOVEMBER 1989

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	27	2234	2234	2246	N20	E27	5806	11	30.0	12	SF		3	E		46		F
HOLL		2234	2253	2306	S12	W65	5802	11	23.0	32	SF		3	E		16		
HOLL		2237	2239	2302	N27	E56	5810	12	2.3	25	SF		3	E		39		
HOLL		2301	2303	2311	S18	E59	5809	12	2.4	10	SF		3	E		26		
LEAR	28	0105	0108	0127	S16	E54	5809	12	2.1	22	SF	C 3.6	3	E		59		F
LEAR		0227	0227	0234	N22	W63	5799	11	23.3	7	SF		3	E		11		
GOES		0329	0333	0339						10		C 2.5						
LEAR		0418	0421	0424	S18	E53	5809	12	2.2	6	SF		3	E		10		F
GOES		0539	0542	0546						7		C 1.8						
GOES		0555	0558	0600						5		C 2.4						
SVTO		0736	0737	0744	S14	W37	5803	11	25.5	8	SF		3	E		18		
SVTO		0755	0802	0838	S16	E54	5809	12	2.4	43	SF		3	E		19		F
SVTO		1007	1022	1148D	N26	W27	5800	11	26.3	101D	1N	C 8.8	3	E		199		UF
SVTO		1337	1340	1349	N15	E25	5812	11	30.5	12	SF		3	E		18		
SVTO		1339	1346	1403	S17	E49	5809	12	2.3	24	SF		3	E		23		F
GOES		1623	1627	1631						8		C 4.1						
PALE		1822	1822	1840	S16	E50	5809	12	2.5	18	SF	C 4.1	3	E		25		F
PALE		1910	1912	1915	S14	E40	5809	12	1.8	5	SF		3	E		16		
RAMY		1910	1912	1916	S17	E39	5809	12	1.8	6	SF		3	E		18		F
GOES		2241	2245	2250						9		C 1.7						
PALE	29	0105	0106	0121	N23	W34	5800	11	26.4	16	SF	C 2.1	3	E		25		
LEAR		0107	0107	0113	N26	W32	5800	11	26.6	6	SF		3	E		14		F
GOES		0733	0742	0803						30		C 1.8						
SVTO		0913	0913	0951D	S15	E39	5809	12	2.3	38D	SF		2	E		30		F
SVTO		1026	1029	1109D	N24	W37	5800	11	26.6	43D	SF	C 2.8	3	E		50		
SVTO		1144E	1144U	1159	N27	W43	5800	11	26.1	15D	SF	C 2.0	3	E		15		
SVTO		1153	1155	1213	S06	W58	5808	11	25.1	20	SF		3	E		18		
RAMY		1200E	1215U	1219	S05	W57	5808	11	25.2	19D	SF		2	E		14		
GOES		1541	1544	1547						6		C 1.7						
RAMY		1632	1640	1659	S06	W55	5808	11	25.6	27	SF		3	E		32		F
RAMY		1712	1718	1742	S16	E31	5809	12	2.1	30	SF	C 3.0	3	E		32		
RAMY		1739	1755	1811	S16	W49	5803	11	26.0	32	SF	C 2.9	3	E		31		
RAMY		1756	1812	1849	S20	E36	5809	12	2.5	53	1F	C 9.1	3	E		183		
LEAR	30	0217	0218	0225	N25	W49	5800	11	26.3	8	SF	C 4.5	3	E		31		F
LEAR		0239	0243	0251	S14	W39	5805	11	27.2	12	SF		3	E		27		F
LEAR		0518	0520	0525	N26	W48	5800	11	26.5	7	SF		3	E		16		
SVTO		0820	0829	0858	N16	E02	5812	11	30.5	38	SF		4	E		60		F
LEAR		0822	0823	0839	N18	E03	5812	11	30.6	17	SF		3	E		27		F
SVTO		0853	0857	0909	N27	W52	5800	11	26.3	16	SF		4	E		45		H
SVTO		0859	0915	0923	N18	W65		11	25.4	24	SF		4	E		15		
SVTO		0951	0953	1018	N23	W52	5800	11	26.4	27	SF		4	E		30		F
SVTO		1113	1119	1138	N21	W07	5806	11	29.9	25	SF		3	E		22		
SVTO		1120	1122	1127	S15	E48	5811	12	4.1	7	SF		3	E		15		
RAMY		1121	1123	1130	S17	E47	5811	12	4.0	9	SF		2	E		17		
SVTO		1125	1128	1142	N25	W50	5800	11	26.6	17	SF		3	E		21		
SVTO		1145	1225	1504D	N24	W52	5800	11	26.5	199D	3B	X 2.6	3	E				UY
SVTO		1400	1406	1442	N14	E58	5817	12	5.0	42	SN		3	E		51		F
HOLL		1402E	1402U	1616	N26	W52	5800	11	26.5	134D	SF		2	E		85		F
RAMY		1403	1406	1439	N11	E60	5817	12	5.1	36	SF		3	E		40		F
HOLL		1520	1522	1524	N09	E26	5816	12	2.6	4	SF		2	E		15		
RAMY		1521	1522	1529	N08	E26	5816	12	2.6	8	SF		3	E		12		F
HOLL		1635	1637	1656	N13	E60	5817	12	5.2	21	SF		3	E		29		
RAMY		1636	1658	1716	N11	E60	5817	12	5.2	40	SF		3	E		16		
HOLL		2156E	2157U	2212D	N15	W15	5806	11	29.8	16D	SF		2	E		77		
GOES		2256	2306	2335						39		M 2.0						

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

NOVEMBER 1989



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

Holloman Learmonth Palehua Ramey San Vito

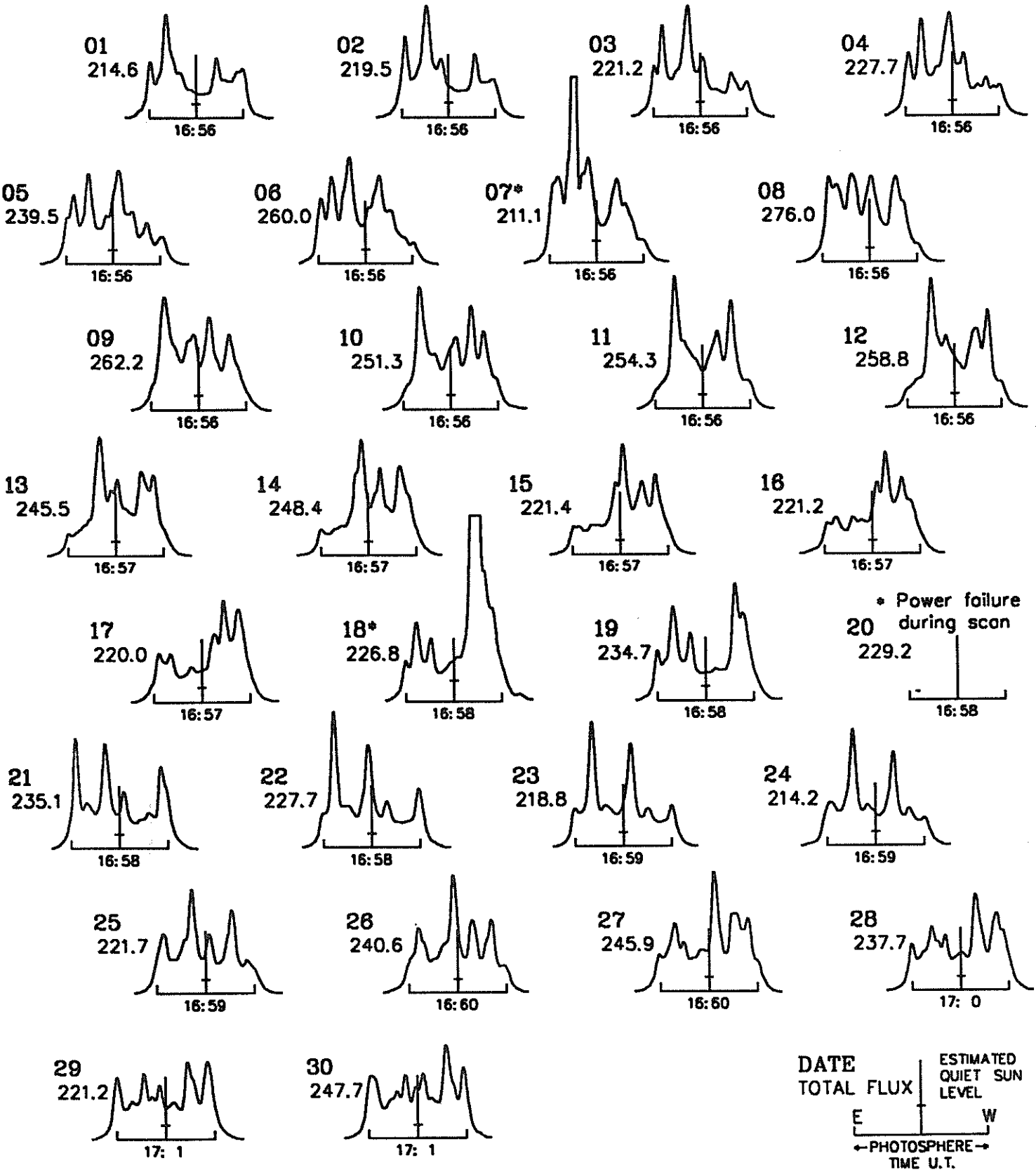
Note: All scans taken with 3 dB attenuation. This means all scans are one-half normal height.

EAST – WEST SOLAR SCANS
NOVEMBER 1989

ALGONQUIN RADIO OBSERVATORY
CANADA

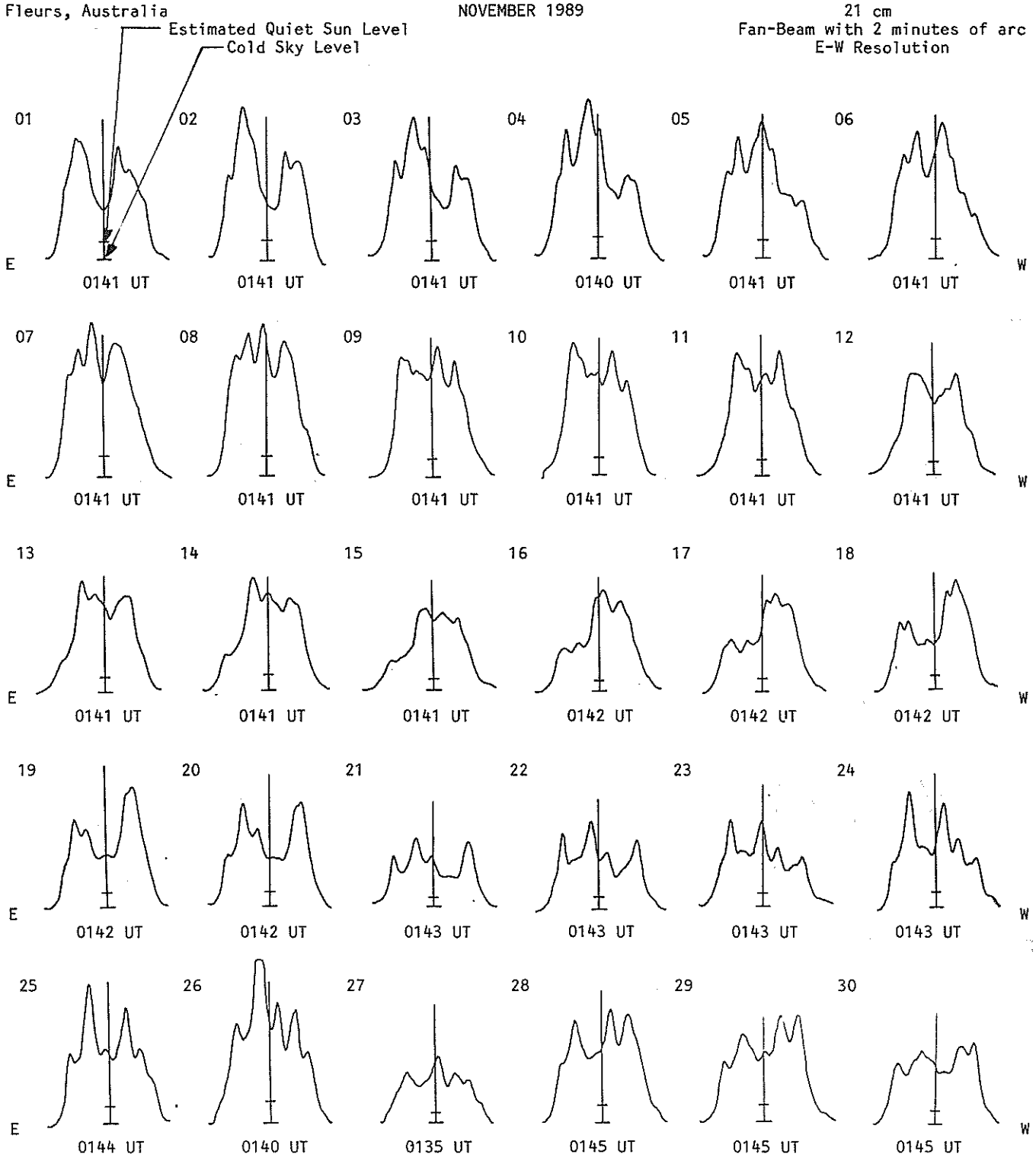
10.7 cm
Fan Beam with 1.5 minutes of arc
E – W Resolution

* Peak height clipped by recorder's lack of range.



EAST-WEST SOLAR SCANS

Fleurs, Australia — NOVEMBER 1989 — 21 cm Fan-Beam with 2 minutes of arc E-W Resolution

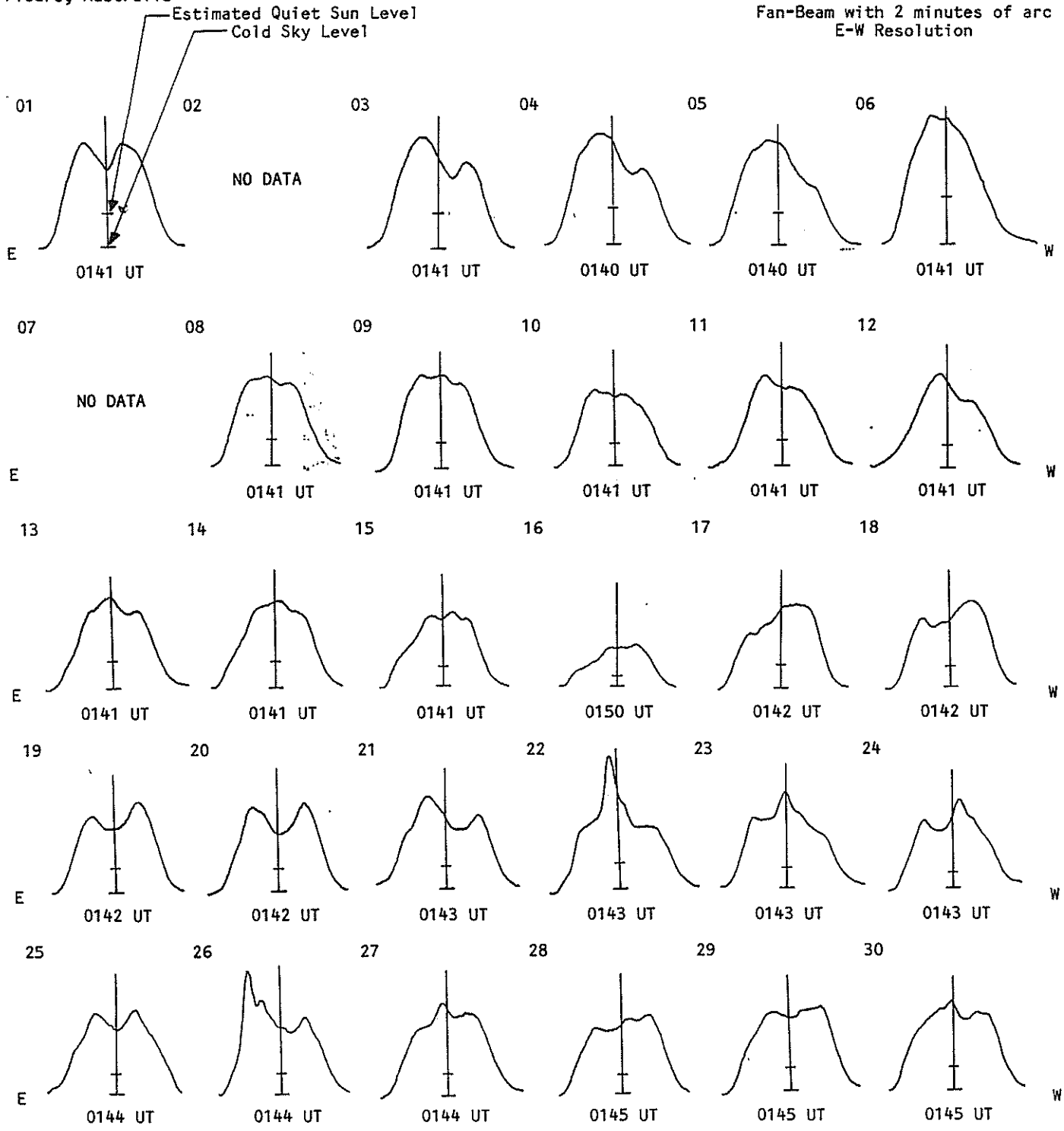


EAST-WEST SOLAR SCANS

Fleurs, Australia

NOVEMBER 1989

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



SOLAR RADIO EMISSION
Selected Fixed Frequency Events

NOVEMBER 1989

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
01	8800	PALE	8	S	0044.0E	0044.0	U	74.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0309.0E	0309.0	1.0D	46.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0309.0E	0309.0	1.0D	35.0			QL=2 ST=2 TYP=3
	8400	BERN	3	S	1511.5	1512.3	2.5	4.9			
	3200	BERN	3	S	1511.5	1512.3	2.5	6.3			
	2695	SVTO	4	S/F	1512.0E	1512.0	528.0D	60.0			QL=2 ST=1 TYP=3
02	2695	SGMR	8	S	1248.0E	1249.0	2.0D	91.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1248.0E	1249.0	3.0D	86.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1248.0E	1249.0	1.0D	62.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1248.0E	1249.0	U	95.0			QL=4 ST=2 TYP=3
03	8800	LEAR	8	S	0532.0E	0533.0	1.0D	29.0			QL=2 ST=2 TYP=3
	2695	LEAR	8	S	0532.0E	0533.0	1.0D	16.0			QL=2 ST=2 TYP=3
	8800	LEAR	4	S/F	0642.0E	0645.0	4.0D	39.0			QL=2 ST=2 TYP=5
	2695	SVTO	8	S	0642.0E	0642.0	U	26.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0643.0E	0643.0	U	29.0			QL=2 ST=2 TYP=3
	2695	LEAR	8	S	0730.0E	0731.0	1.0D	24.0			QL=2 ST=3 TYP=3
	2695	SVTO	8	S	1034.0E	1035.0	1.0D	29.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1034.0E	1035.0	1.0D	57.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	1954.0E	1955.0	2.0D	94.0			QL=4 ST=2 TYP=3
	8800	PALE	49	GB	1954.0E	1955.0	2.0D	570.0			QL=4 ST=2 TYP=6
	8800	SGMR	8	S	1954.0E	1955.0	2.0D	360.0			QL=2 ST=3 TYP=3
	2695	SGMR	8	S	1954.0E	1955.0	2.0D	110.0			QL=2 ST=3 TYP=3
04	8800	LEAR	8	S	0011.0E	0011.0	U	71.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	0011.0E	0011.0	U	95.0			QL=4 ST=3 TYP=3
	2695	PALE	8	S	2119.0E	2119.0	1.0D	38.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	2119.0E	2119.0	1.0D	100.0			QL=4 ST=2 TYP=3
05	8400	BERN	3	S	0718.0	0723.3	12.0	4.9			
	3200	BERN	3	S	0718.0	0723.3	12.0	10.6			
	2695	SVTO	4	S/F	0720.0E	0723.0	5.0D	120.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0722.0E	0723.0	2.0D	34.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	0722.0E	0723.0	1.0D	30.0			QL=4 ST=2 TYP=3
	8400	BERN	3	S	0940.3	0940.6	2.0	2.1			
06	8800	LEAR	8	S	0917.0E	0917.0	2.0D	66.0			QL=4 ST=2 TYP=3
	8400	BERN	3	S	0917.3	0917.8	1.5	8.2			
	3200	BERN	3	S	0917.3	0917.8	1.5	1.4			
	2695	SGMR	4	S/F	1209.0E	1210.0	4.0D	360.0			QL=4 ST=2 TYP=3
	8800	SGMR	49	GB	1209.0E	1210.0	4.0D	760.0			QL=4 ST=2 TYP=6
	8800	SGMR	8	S	1839.0E	1844.0	5.0D	120.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	1839.0E	1843.0	12.0D	110.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	1842.0E	1844.0	9.0D	74.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1842.0E	1844.0	5.0D	70.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	2042.0E	2045.0	6.0D	110.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	2044.0E	2045.0	3.0D	97.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	2044.0E	2045.0	3.0D	130.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	2044.0E	2045.0	2.0D	130.0			QL=4 ST=2 TYP=3
07	2695	LEAR	8	S	0139.0E	0139.0	1.0D	83.0			QL=2 ST=2 TYP=3
	2695	LEAR	4	S/F	0230.0E	0237.0	15.0D	150.0			QL=2 ST=2 TYP=3
	2695	PALE	4	S/F	0230.0E	0237.0	15.0D	160.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0235.0E	0238.0	9.0D	48.0			QL=4 ST=2 TYP=3
	8800	PALE	4	S/F	0235.0E	0239.0	6.0D	56.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0316.0E	0320.0	13.0D	460.0			QL=2 ST=2 TYP=3
	2695	PALE	4	S/F	0317.0E	0320.0	4.0D	430.0			QL=4 ST=2 TYP=3
	8800	LEAR	49	GB	0317.0E	0319.0	10.0D	1100.0			QL=4 ST=2 TYP=6
	8800	PALE	49	GB	0318.0E	0319.0	6.0D	1100.0			QL=4 ST=2 TYP=6
	2695	SGMR	4	S/F	1652.0E	1656.0	7.0D	69.0			QL=4 ST=2 TYP=5
	2695	PALE	8	S	1656.0E	1656.0U	1.0D	71.0			QL=4 ST=3 TYP=3
	8800	PALE	4	S/F	1929.0E	1929.0	5.0D	73.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1929.0E	1929.0	1.0D	76.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	2032.0E	2035.0	7.0D	140.0			QL=4 ST=2 TYP=3
	8800	PALE	49	GB	2032.0E	2035.0	7.0D	680.0			QL=4 ST=2 TYP=6
	8800	SGMR	49	GB	2032.0E	2035.0	7.0D	800.0			QL=2 ST=2 TYP=6
	2695	LEAR	8	S	2316.0E	2316.0	1.0D	120.0			QL=2 ST=2 TYP=3
	2695	PALE	8	S	2316.0E	2316.0	1.0D	110.0			QL=4 ST=2 TYP=3

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

NOVEMBER 1989

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean	Int	Remarks
08	2695	LEAR	8	S	0529.0E	0529.0	U	27.0			QL=2 ST=2 TYP=3
	2695	PALE	49	GB	1856.0E	1909.0	32.0D	600.0			QL=4 ST=2 TYP=7
	2695	SGMR	49	GB	1857.0E	1909.0	21.0D	570.0			QL=4 ST=2 TYP=7
	8800	PALE	49	GB	1858.0E	1908.0	29.0D	1200.0			QL=4 ST=2 TYP=7
	8800	SGMR	4	S/F	1859.0E	1902.0	21.0D	480.0			QL=2 ST=3 TYP=5
	2695	LEAR	4	S/F	2154.0E	2155.0	4.0D	47.0			QL=2 ST=2 TYP=3
	8800	LEAR	4	S/F	2154.0E	2155.0	4.0D	52.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	2203.0E	2206.0	8.0D	51.0			QL=4 ST=2 TYP=3
09	2695	LEAR	8	S	0113.0E	0113.0	1.0D	54.0			QL=2 ST=2 TYP=3
	2695	LEAR	4	S/F	0819.0E	0821.0	8.0D	170.0			QL=2 ST=2 TYP=3
	8800	LEAR	4	S/F	0819.0E	0821.0	4.0D	220.0			QL=4 ST=2 TYP=5
	8800	SVTO	4	S/F	0819.0E	0821.0	5.0D	180.0			QL=4 ST=2 TYP=5
	3200	BERN	46	C	0819.5	0821.6	3.5	14.4			
	8400	BERN	46	C	0819.5	0821.6	3.5	19.6			
	3200	BERN	3	S	0934.0	0936.0	5.0	3.3			
	8400	BERN	3	S	0934.0	0936.0	5.0	8.1			
	8800	LEAR	8	S	0935.0E	0936.0	2.0D	78.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0935.0E	0936.0	1.0D	39.0			QL=2 ST=2 TYP=3
	8800	SVTO	8	S	0935.0E	0936.0	2.0D	95.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0935.0E	0936.0	1.0D	27.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1028.0E	1028.0	U	88.0			QL=4 ST=2 TYP=3
	3200	BERN	3	S	1227.0	1229.0	6.0	1.4			
	8400	BERN	3	S	1227.0	1229.0	6.0	2.6			
	2695	SGMR	4	S/F	1851.0E	1853.0	6.0D	63.0			QL=2 ST=2 TYP=3
	8800	SGMR	8	S	1851.0E	1851.0	1.0D	52.0			QL=2 ST=2 TYP=3
	8800	SGMR	4	S/F	1921.0E	1931.0	55.0D	230.0			QL=2 ST=2 TYP=5
	2695	PALE	4	S/F	1921.0E	1929.0	63.0D	250.0			QL=4 ST=2 TYP=5
	2695	SGMR	4	S/F	1922.0E	1929.0	54.0D	240.0			QL=2 ST=2 TYP=3
	8800	PALE	4	S/F	1924.0E	1931.0	33.0D	180.0			QL=4 ST=2 TYP=3
	2695	PALE	4	S/F	2135.0E	2137.0	5.0D	89.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	2146.0E	2146.0	U	24.0			QL=4 ST=2 TYP=3
10	8800	LEAR	8	S	0050.0E	0050.0	1.0D	32.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0050.0E	0050.0	1.0D	67.0			QL=2 ST=2 TYP=3
	2695	PALE	8	S	0050.0E	0050.0	1.0D	68.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0216.0E	0217.0	2.0D	63.0			QL=2 ST=2 TYP=3
	2695	PALE	8	S	0216.0E	0217.0	2.0D	54.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0217.0E	0217.0	U	24.0			QL=4 ST=2 TYP=3
	8800	SGMR	4	S/F	1646.0E	1650.0	5.0D	400.0			QL=4 ST=2 TYP=5
	2695	SGMR	4	S/F	1648.0E	1650.0	3.0D	170.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1711.0E	1712.0	2.0D	93.0			QL=2 ST=2 TYP=3
11	2695	LEAR	8	S	0459.0E	0501.0	2.0D	46.0			QL=4 ST=3 TYP=3
	8800	LEAR	20	GRF	0500.0E	0508.0	19.0D	56.0			QL=4 ST=3 TYP=2
	2695	LEAR	4	S/F	0803.0E	0806.0	5.0D	40.0			QL=2 ST=3 TYP=3
	2695	LEAR	8	S	0818.0E	0818.0	1.0D	90.0			QL=2 ST=3 TYP=3
	8400	BERN	46	C	0856.1	0858.0	5.0	4.6			
	3200	BERN	46	C	0856.1	0858.0	5.0	7.4			
	8800	LEAR	8	S	0857.0E	0858.0	1.0D	38.0			QL=4 ST=2 TYP=3
	8800	PALE	8	S	1831.0E	1831.0	1.0D	73.0			QL=4 ST=3 TYP=3
12	2695	LEAR	49	GB	0558.0E	0559.0	9.0D	360.0			QL=4 ST=2 TYP=7
	2695	SVTO	4	S/F	0558.0E	0559.0	6.0D	470.0			QL=2 ST=2 TYP=3
	8800	LEAR	49	GB	0558.0E	0600.0	28.0D	1200.0			QL=4 ST=2 TYP=7
	8800	SVTO	8	S	0559.0E	0600.0	2.0D	260.0			QL=2 ST=2 TYP=3
	8400	BERN	3	S	0808.0	0809.3	7.0	1.8			
	3200	BERN	3	S	0808.0	0809.3	7.0	1.6			
	8800	SVTO	8	S	0836.0E	0836.0	U	73.0			QL=4 ST=2 TYP=3
	3200	BERN	46	C	0905.0	0909.0	20.0	3.3			
	8400	BERN	46	C	0905.0	0909.0	20.0	2.7			
	8800	LEAR	8	S	0909.0E	0909.0	U	17.0			QL=4 ST=3 TYP=3
13	3200	BERN	3	S	1417.0	1420.6	8.0	12.7			
	8400	BERN	3	S	1417.0	1420.6	8.0	6.7			
14	8800	SGMR	8	S	1433.0E	1434.0	2.0D	78.0			QL=4 ST=2 TYP=3
	8400	BERN	4	S/F	1433.0	1434.2	3.0	2.6			
	3200	BERN	4	S/F	1433.0	1434.2	3.0	6.3			

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

NOVEMBER 1989

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
14	8800	SVTO	8	S	1434.0E	1434.0	U	49.0			QL=2 ST=2 TYP=3
15	2695	LEAR	49	GB	0654.0E	0655.0	10.0D	2000.0			QL=4 ST=2 TYP=7
	2695	SVTO	49	GB	0654.0E	0655.0	11.0D	1900.0			QL=4 ST=2 TYP=7
	8800	LEAR	49	GB	0654.0E	0657.0	23.0D	3300.0			QL=4 ST=2 TYP=6
	8800	SVTO	49	GB	0654.0E	0657.0	27.0D	2900.0			QL=4 ST=2 TYP=7
	2695	PALE	4	S/F	1918.0E	1919.0	3.0D	230.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1918.0E	1919.0	3.0D	230.0			QL=2 ST=2 TYP=3
	8800	SGMR	8	S	1919.0E	1919.0	U	74.0			QL=2 ST=2 TYP=3
	2695	PALE	49	GB	1932.0E	1936.0	19.0D	740.0			QL=4 ST=2 TYP=7
	8800	PALE	49	GB	1932.0E	1935.0	18.0D	2800.0			QL=2 ST=2 TYP=7
	2695	SGMR	49	GB	1932.0E	1936.0	19.0D	680.0			QL=2 ST=2 TYP=7
	8800	SGMR	49	GB	1932.0E	1936.0	20.0D	3400.0			QL=2 ST=2 TYP=7
	2695	PALE	4	S/F	2032.0E	2038.0	28.0D	130.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	2033.0E	2036.0	5.0D	47.0			QL=2 ST=2 TYP=3
16	2695	LEAR	8	S	0413.0E	0414.0	2.0D	91.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1059.0E	1100.0	1.0D	56.0			QL=4 ST=2 TYP=3
	8800	SGMR	49	GB	1316.0E	1320.0	37.0D	610.0			QL=4 ST=2 TYP=7
	2695	SVTO	4	S/F	1316.0E	1339.0	34.0D	460.0			QL=4 ST=2 TYP=5
	2695	SGMR	4	S/F	1317.0E	1339.0	38.0D	420.0			QL=4 ST=2 TYP=5
	8400	BERN	46	C	1317.0	1320.0	40.0	60.5			
	3200	BERN	46	C	1317.0	1320.0	40.0	35.0			
	8800	SVTO	49	GB	1318.0E	1319.0	31.0D	500.0			QL=4 ST=2 TYP=6
	2695	LEAR	8	S	2235.0E	2236.0	2.0D	79.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	2236.0E	2236.0	1.0D	34.0			QL=4 ST=2 TYP=3
17	2695	LEAR	49	GB	0754.0E	0756.0	9.0D	500.0			QL=4 ST=2 TYP=6
	2695	SVTO	49	GB	0754.0E	0756.0	966.0D	510.0			QL=4 ST=1 TYP=6
	3200	BERN	47	GB	0754.5	0756.5	4.0	379.6			
	8400	BERN	47	GB	0754.5	0756.5	4.0	44.0			
	8800	LEAR	4	S/F	0755.0E	0756.0	7.0D	190.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0755.0E	0756.0	7.0D	160.0			QL=4 ST=2 TYP=3
	8800	SGMR	8	S	1321.0E	1322.0	2.0D	68.0			QL=4 ST=2 TYP=3
18	2695	LEAR	4	S/F	0235.0E	0236.0	4.0D	38.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	0235.0E	0236.0	2.0D	38.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	1259.0E	1300.0	1.0D	31.0			QL=4 ST=2 TYP=3
	2695	SGMR	4	S/F	1619.0E	1640.0	94.0D	450.0			QL=4 ST=2 TYP=5
	8800	SGMR	20	GRF	1621.0E	1646.0	92.0D	250.0			QL=4 ST=2 TYP=2
	8800	PALE	4	S/F	1703.0E	1705.0U	55.0D	92.0			QL=4 ST=2 TYP=5
	2695	PALE	4	S/F	1703.0E	1704.0U	68.0D	110.0			QL=4 ST=2 TYP=5
	2695	SGMR	4	S/F	1800.0E	1803.0	7.0D	61.0			QL=4 ST=2 TYP=3
19	8800	LEAR	8	S	0525.0E	0526.0	1.0D	57.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0526.0E	0526.0	U	25.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0610.0E	0611.0	4.0D	79.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0620.0E	0621.0	8.0D	370.0			QL=4 ST=2 TYP=3
	8800	SVTO	49	GB	0620.0E	0625.0	8.0D	1400.0			QL=2 ST=2 TYP=7
	8800	LEAR	49	GB	0620.0E	0625.0	12.0D	1800.0			QL=4 ST=2 TYP=7
	8800	SGMR	8	S	1609.0E	1609.0	1.0D	180.0			QL=4 ST=2 TYP=3
20	2695	LEAR	4	S/F	0034.0E	0036.0	8.0D	130.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0035.0E	0036.0	7.0D	350.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0404.0E	0405.0	12.0D	51.0			QL=4 ST=2 TYP=3
	8800	LEAR	8	S	0530.0E	0531.0	1.0D	86.0			QL=4 ST=2 TYP=3
	8400	BERN	3	S	1056.5	1057.0	2.0	5.2			
	2695	SVTO	4	S/F	1419.0E	1432.0	16.0D	120.0			QL=4 ST=2 TYP=5
	8400	BERN	46	C	1420.0	1432.0	20.0	44.7			
	3200	BERN	46	C	1420.0	1432.0	20.0	8.6			
	8800	PALE	49	GB	2126.0E	2127.0	14.0D	880.0			QL=4 ST=2 TYP=6
	2695	PALE	49	GB	2127.0E	2128.0	11.0D	620.0			QL=4 ST=2 TYP=6
21	2695	LEAR	4	S/F	0733.0E	0734.0	6.0D	31.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0734.0E	0735.0	4.0D	64.0			QL=4 ST=2 TYP=3
	8400	BERN	46	C	0734.0	0735.3	7.0	16.7			
	3200	BERN	46	C	0734.0	0735.3	7.0	13.4			
	8800	LEAR	4	S/F	0907.0E	0912.0	8.0D	70.0			QL=4 ST=2 TYP=5
	8400	BERN	46	C	0907.5	0911.3	7.0	14.3			

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

NOVEMBER 1989

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
21	3200	BERN	46	C	0907.5	0911.3	7.0	25.3			
	8800	SVTO	8	S	0908.0E	0908.0	1.0D	47.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0910.0E	0911.0	3.0D	37.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0911.0E	0911.0	1.0D	32.0			QL=4 ST=3 TYP=3
	8800	SVTO	8	S	0911.0E	0912.0	2.0D	51.0			QL=4 ST=3 TYP=3
	2695	SVTO	4	S/F	1333.0E	1336.0	4.0D	38.0			QL=4 ST=2 TYP=3
	8800	SVTO	8	S	1335.0E	1336.0	2.0D	34.0			QL=4 ST=2 TYP=3
	8400	BERN	47	GB	1342.5	1344.8	6.0	43.3			
	3200	BERN	47	GB	1342.5	1344.8	6.0	78.0			
	8800	SVTO	4	S/F	1343.0E	1346.0	5.0D	170.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1343.0E	1344.0	5.0D	170.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	1839.0E	1840.0	1.0D	93.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	1949.0E	1951.0	2.0D	29.0			QL=4 ST=2 TYP=3
22	2695	LEAR	8	S	0026.0E	0026.0	1.0D	160.0			QL=4 ST=2 TYP=3
	2695	LEAR	8	S	0431.0E	0431.0	1.0D	61.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0835.0E	0836.0	3.0D	320.0			QL=4 ST=2 TYP=3
	8800	LEAR	4	S/F	0836.0E	0836.0	4.0D	490.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	0836.0E	0837.0	3.0D	300.0			QL=4 ST=2 TYP=3
	8800	SVTO	4	S/F	0836.0E	0837.0	4.0D	430.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	0918.0E	0920.0	3.0D	72.0			QL=4 ST=2 TYP=3
	2695	SVTO	8	S	0919.0E	0921.0	2.0D	70.0			QL=4 ST=2 TYP=3
	2695	SVTO	4	S/F	1331.0E	1333.0	5.0D	200.0			QL=4 ST=3 TYP=3
	8800	SVTO	4	S/F	1332.0E	1333.0	4.0D	240.0			QL=4 ST=3 TYP=3
24	2695	LEAR	4	S/F	2227.0E	2228.0	93.0D	200.0			QL=4 ST=1 TYP=3
25	8800	LEAR	8	S	0226.0E	0226.0	U	11.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	1743.0E	1743.0	1.0D	65.0			QL=4 ST=2 TYP=3
	2695	PALE	49	GB	2254.0E	2420.0	155.0D	610.0			QL=4 ST=2 TYP=7
	8800	PALE	4	S/F	2256.0E	2326.0	64.0D	240.0			QL=4 ST=1 TYP=5
	8800	LEAR	4	S/F	2256.0E	2420.0	196.0D	220.0			QL=4 ST=3 TYP=3
	2695	LEAR	49	GB	2257.0E	2420.0	195.0D	600.0			QL=4 ST=3 TYP=6
26	2695	PALE	4	S/F	1847.0E	1907.0	149.0D	430.0			QL=4 ST=2 TYP=5
	8800	PALE	4	S/F	1906.0E	1906.0	3.0D	79.0			QL=4 ST=2 TYP=3
	2695	PALE	8	S	2149.0E	2149.0	1.0D	85.0			QL=4 ST=2 TYP=3
28	8800	LEAR	8	S	1014.0E	1015.0	2.0D	44.0			QL=4 ST=2 TYP=3
	2695	LEAR	4	S/F	1014.0E	1015.0	3.0D	45.0			QL=4 ST=2 TYP=3
30	2695	SVTO	49	GB	1155.0E	1224.0	89.0D	2800.0			QL=4 ST=2 TYP=7
	8800	SVTO	49	GB	1159.0E	1212.0	85.0D	4400.0			QL=4 ST=2 TYP=7

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.

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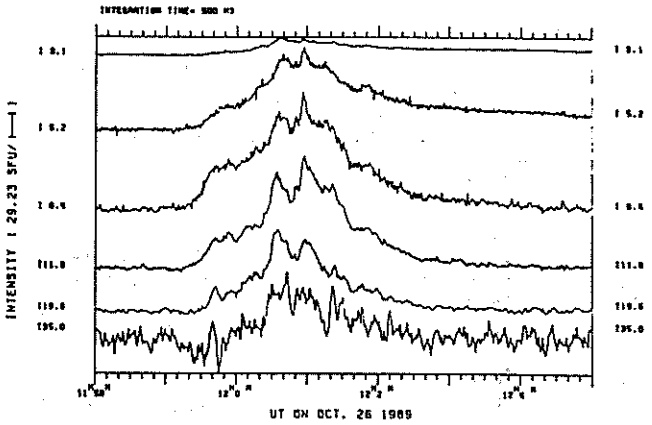

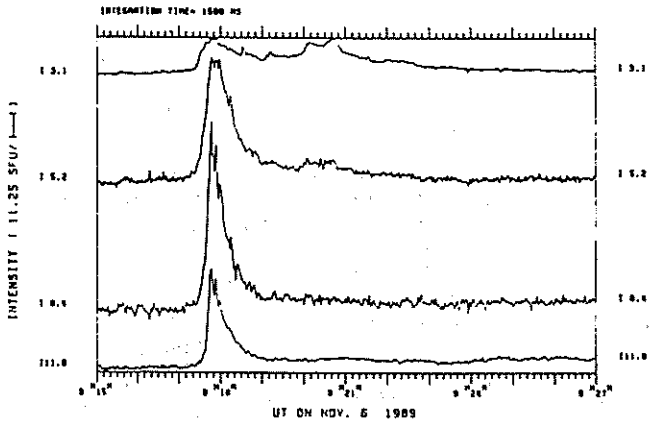

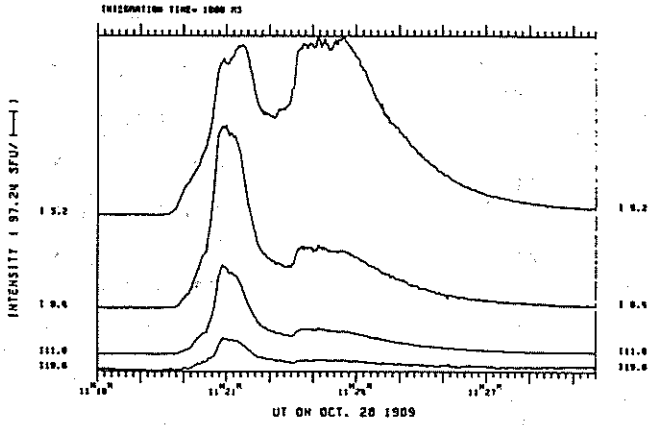

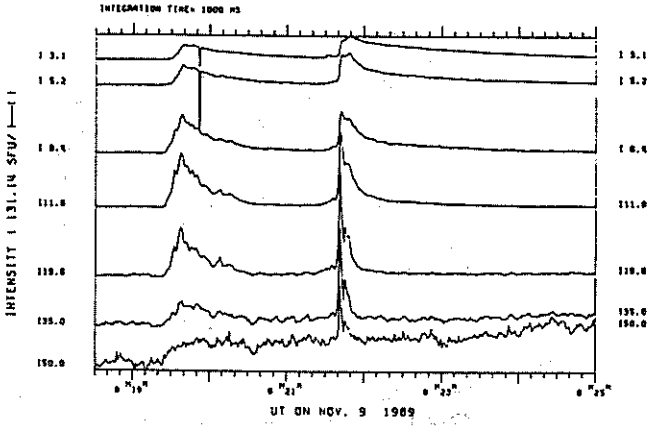

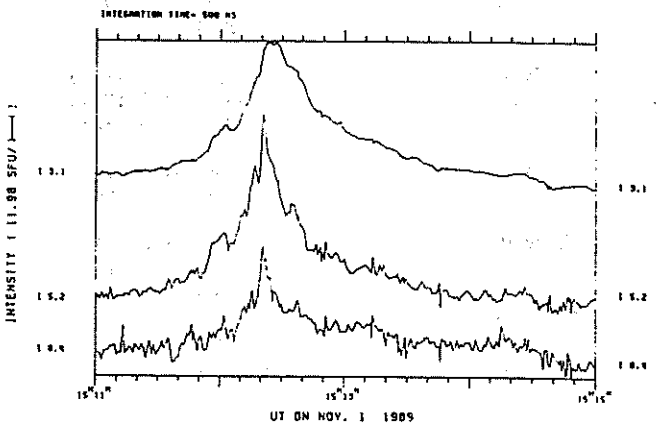

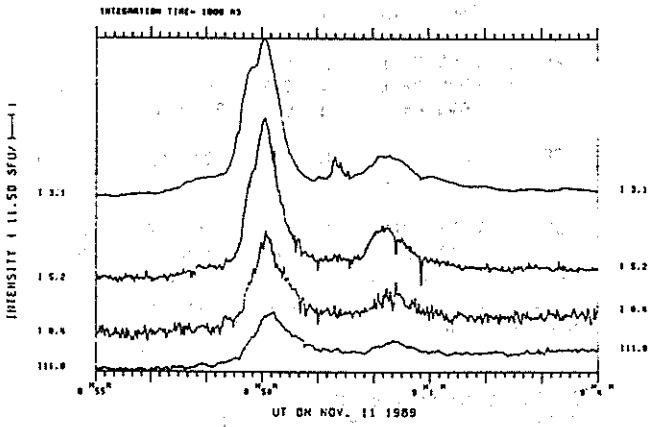

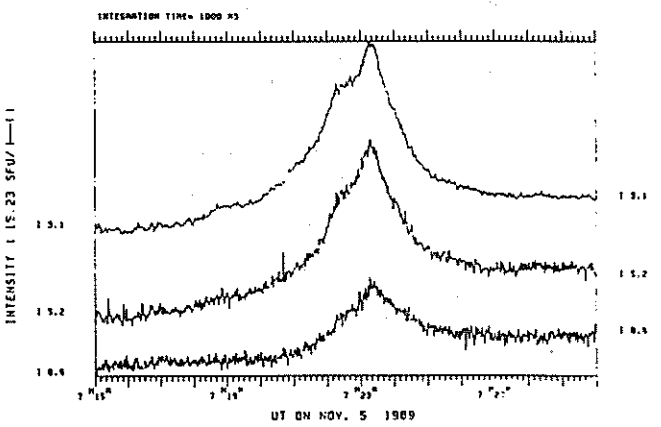

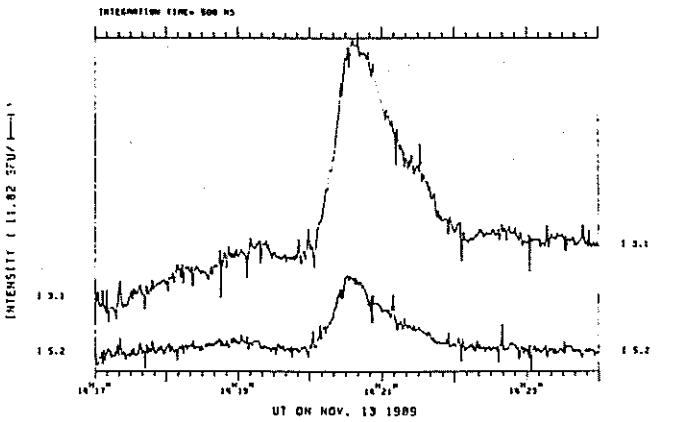

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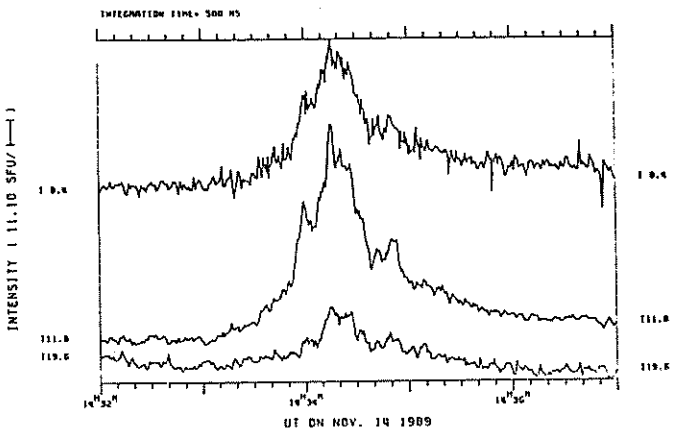
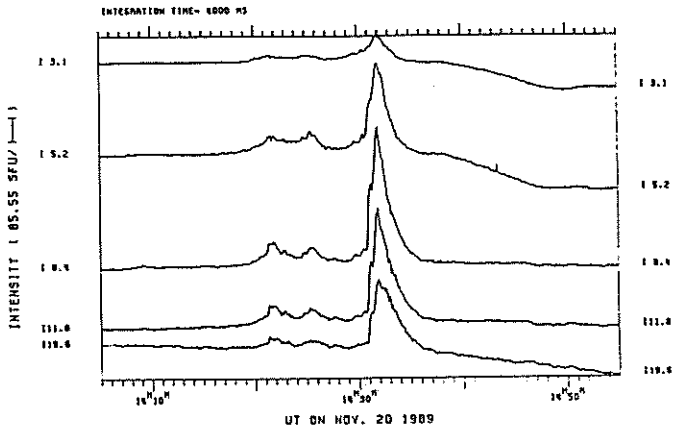
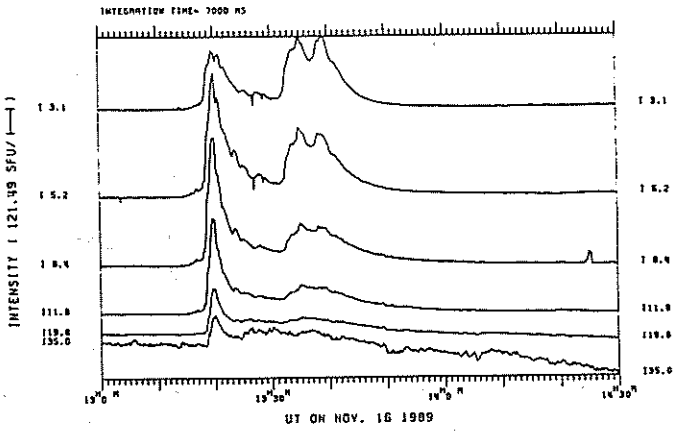
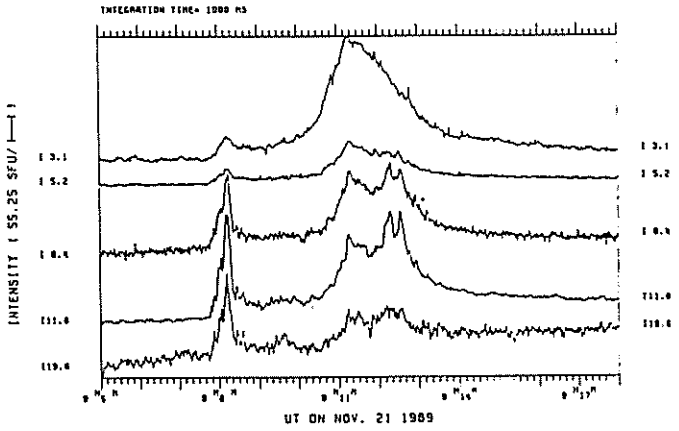
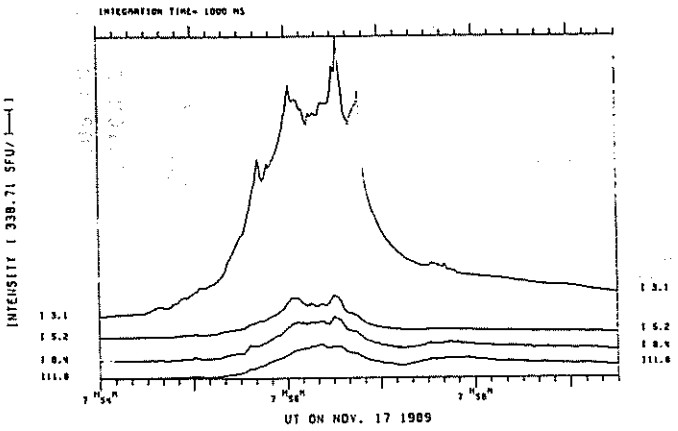
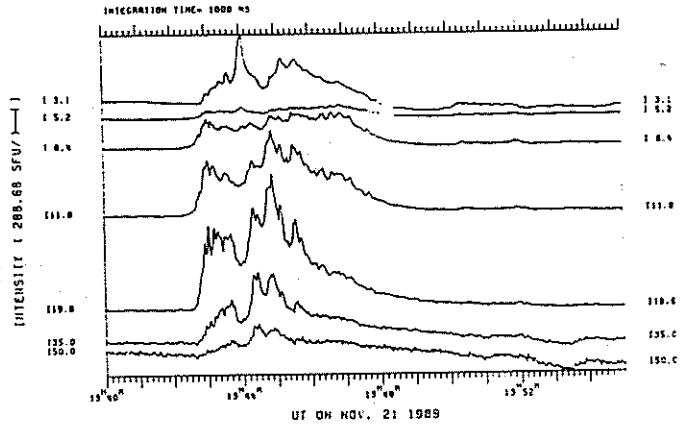


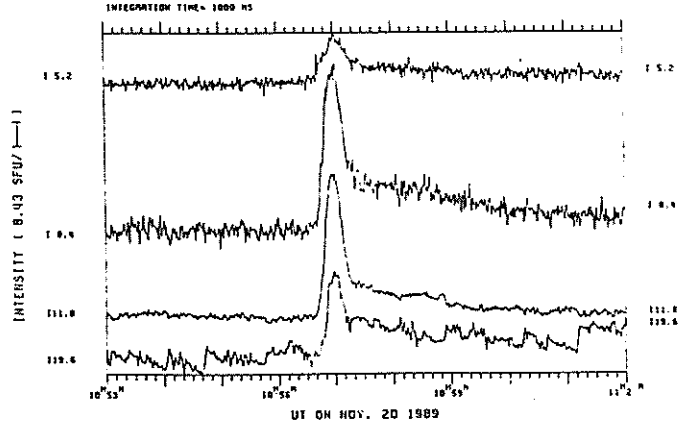




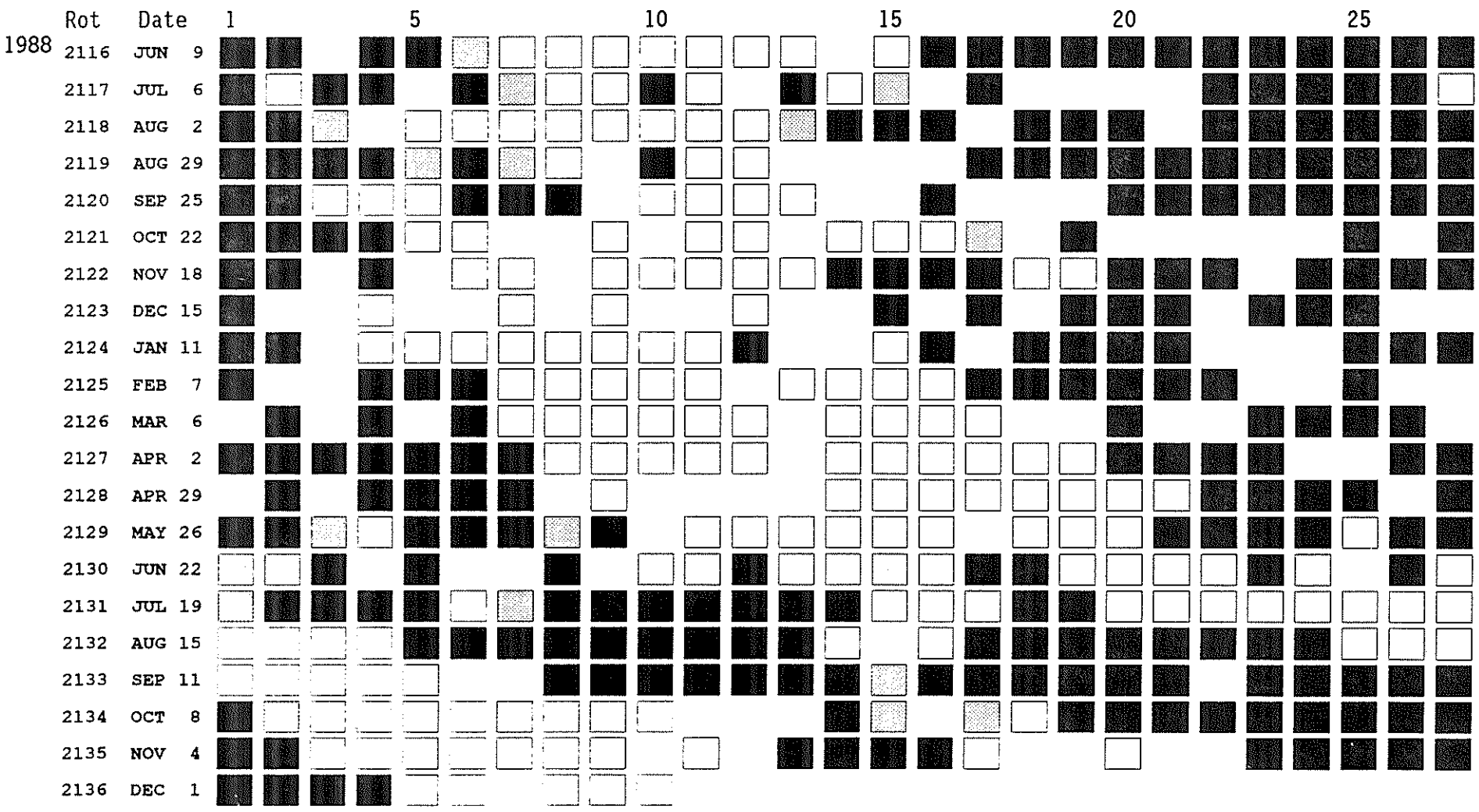








STANFORD MEAN SOLAR MAGNETIC FIELD



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	1988 Dec	1989 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	-3	.	.	.	.	.	-5	4	-145	-58	-43	-111
2	-5	-19	.	.	-97	-47	-1	51	80	-46	.	-125
3	-4	-22	.	-66	-114	-31	-22	-19	121	-37	-87	-111
4	-12	-41	-65	.	-86	-22	.	3	14	-37	-84	-75
5	2	.	-46	.	-76	-22	2	71	-51	-46	-35	-11
6	4	-65	-4	.	-62	.	56	69	-65	-30	-22	44
7	-24	-85	-13	-10	-28	65	74	25	9	-5	-13	54
8	-27	-101	.	.	-15	.	120	-90	145	22	-5	86
9	-33	.	.	-58	25	.	145	-79	86	25	0	97
10	.	.	-16	.	71	.	142	106	82	12	2	103
11	-62	-16	-6	-16	101	.	.	115	59	23	10	107
12	-47	-23	-18	37	78	73	37	84	43	23	38	95
13	-53	.	23	39	54	87	34	73	43	43	33	.
14	-38	10	34	61	.	75	24	-55	55	44	26	13
15	-30	24	55	63	44	76	-58	22	57	25	31	.
16	.	23	73	40	11	73	-26	.	66	.	17	-70
17	.	16	66	32	15	59	-91	-49	33	.	5	-79
18	34	74	.	.	19	53	-6	6	2	-13	.	-86
19	.	101	116	64	29	22	4	0	-10	-22	.	-38
20	.	120	131	73	27	-37	-67	-138	-20	-20	.	4
21	56	119	94	14	-21	-44	-18	-126	-35	-21	-88	.
22	.	-29	40	12	-68	-48	35	-57	-41	-26	0	.
23	61	.	-13	.	-6	-54	15	-25	-29	-31	.	17
24	.	.	-7	.	-110	.	-15	10	-15	-21	1	.
25	.	22	-35	-50	.	-44	.	-2	-13	-1	5	.
26	65	-37	-64	.	.	-14	-24	-15	-15	-8	-19	-52
27	.	.	-108	.	-80	-13	.	-52	-7	-19	-56	-78
28	.	-50	-93	-110	-77	1	.	-27	4	-16	-70	-76
29	-5	-64		-105	.	7	-30	-12	.	-24	-100	-92
30	.	-91		-106	-64	-12	.	-44	3	-26	-110	-110
31	-24	-101		-100		-5		-144	-29		-104	

Dot symbol indicates no data available for the day.

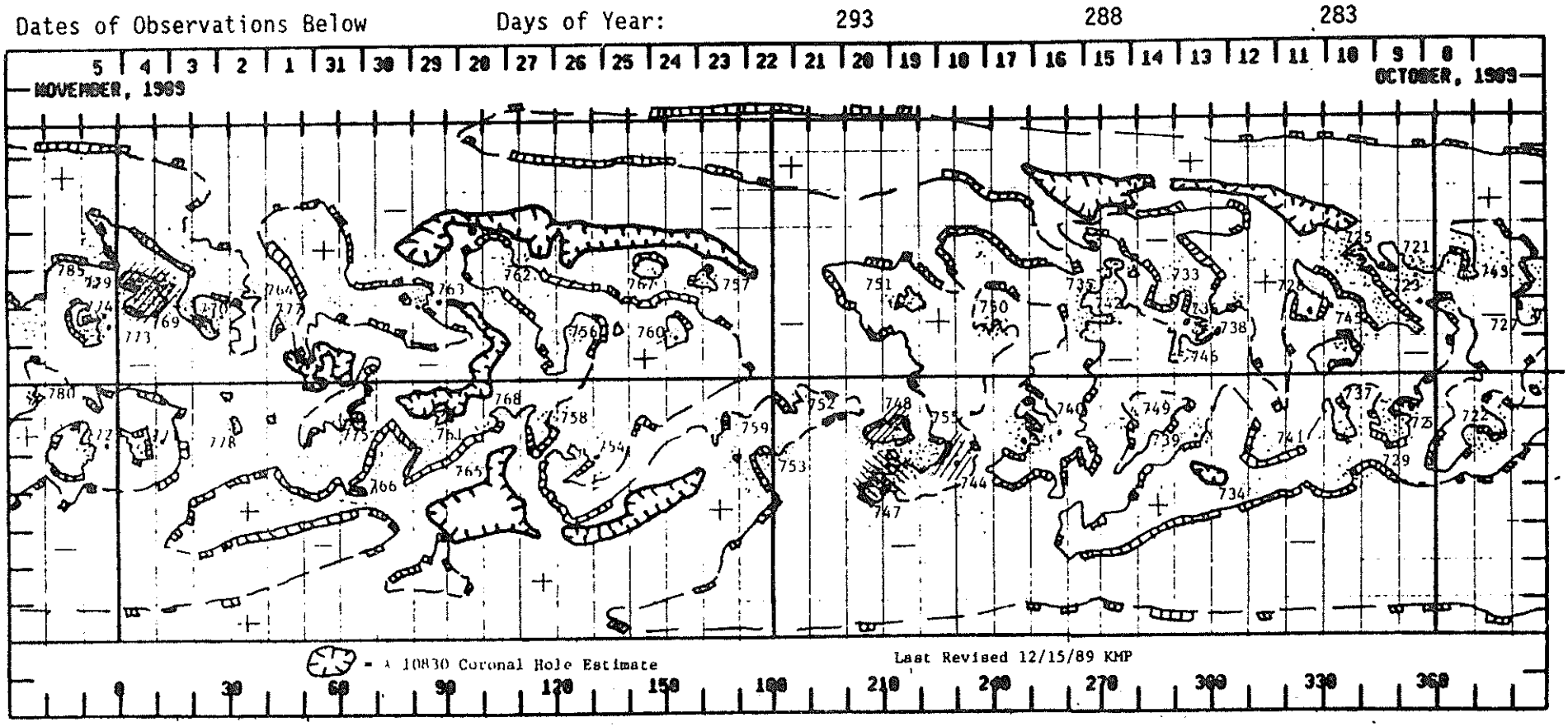
C O N T E N T S

Prompt Reports DATA FOR OCTOBER 1989 Number 544 Part I

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

PRELIMINARY H-ALPHA SOLAR SYNOPTIC CHART

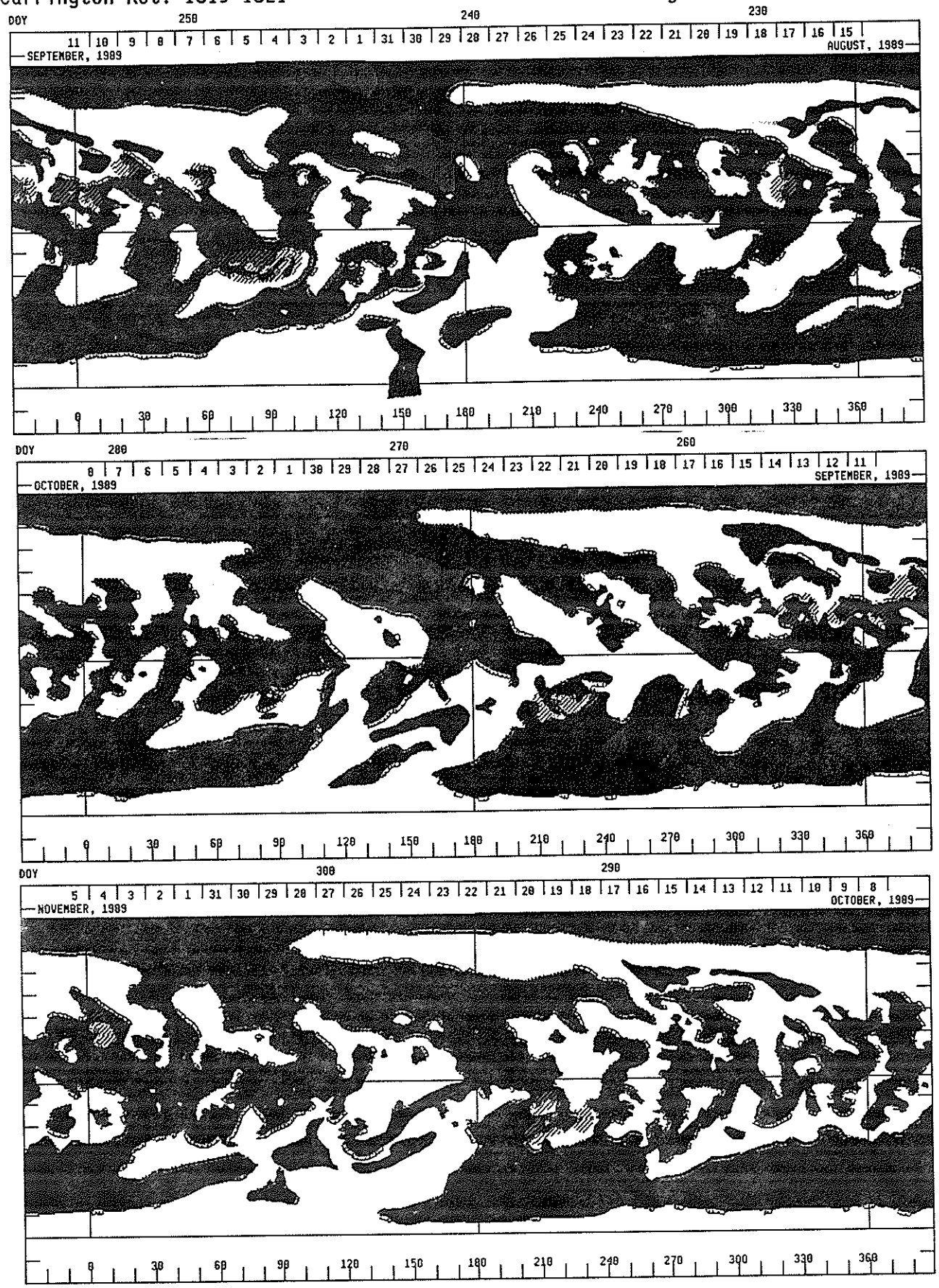
CARRINGTON ROTATION NUMBER 1821
(8 October to 5 November 1989)



SHADED H-ALPHA SOLAR SYNOPTIC CHARTS

Carrington Rot. 1819-1821

15 August to 5 November 1989



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

Heliographic Longitude

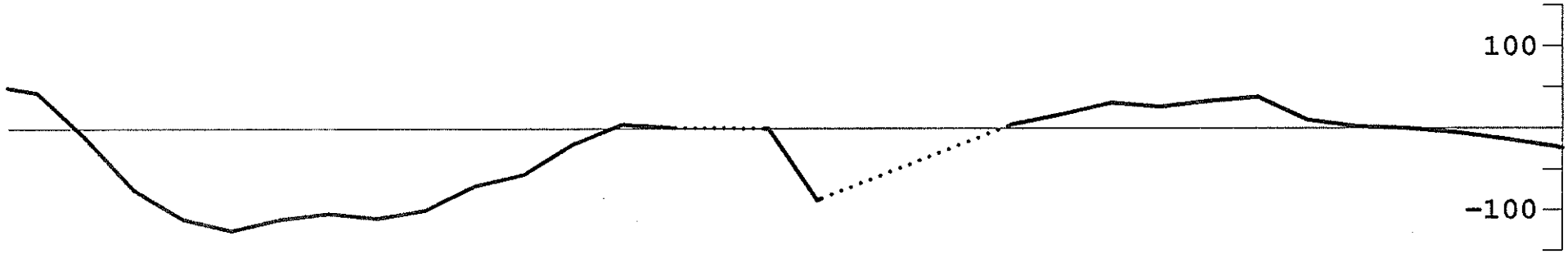
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1821
(8 October to 5 November 1989)

60 Oct 89

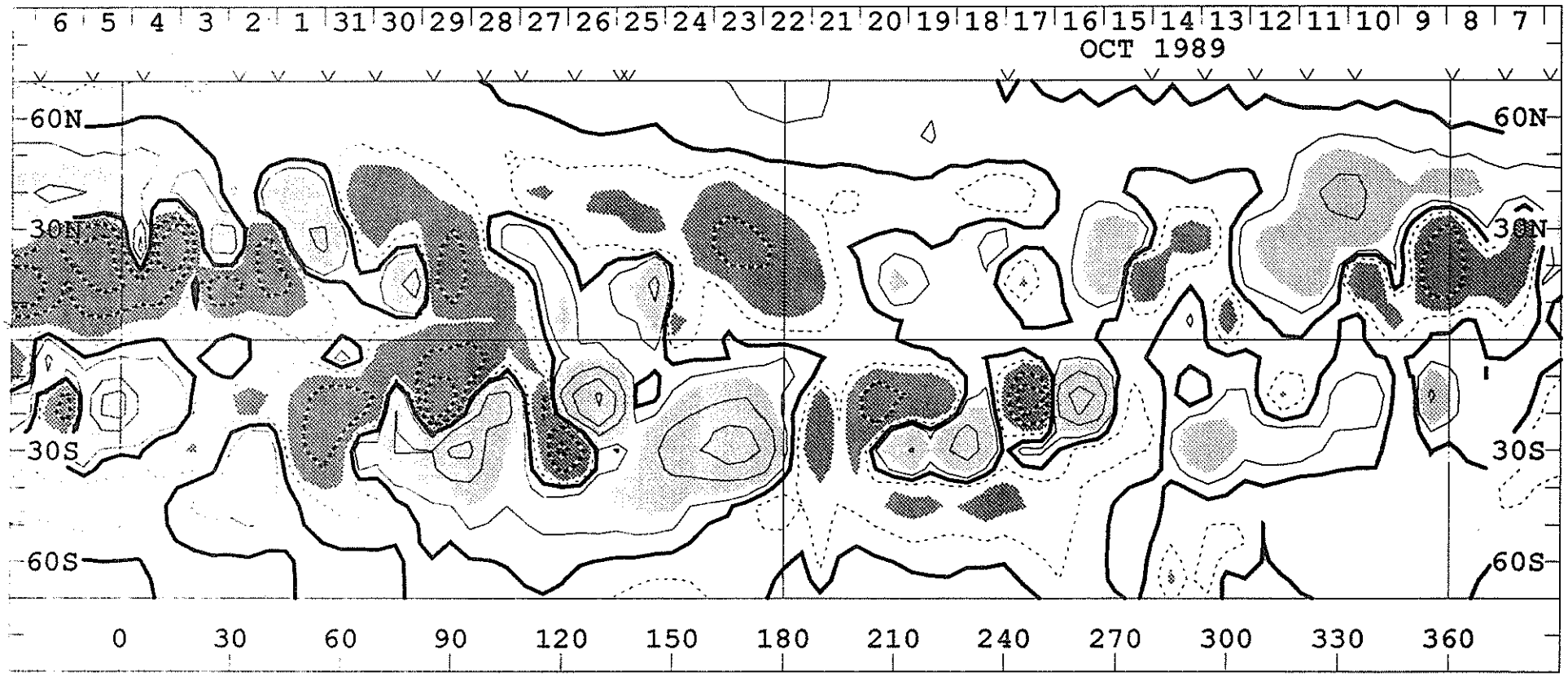
WILCOX SOLAR OBSERVATORY

Mean Field



Photospheric Magnetic Field

0, ±100, 500, 1000, 2000 MicroTesla



Heliographic Longitude

1821

SOLAR MAGNETIC FIELD SYNOPTIC CHART

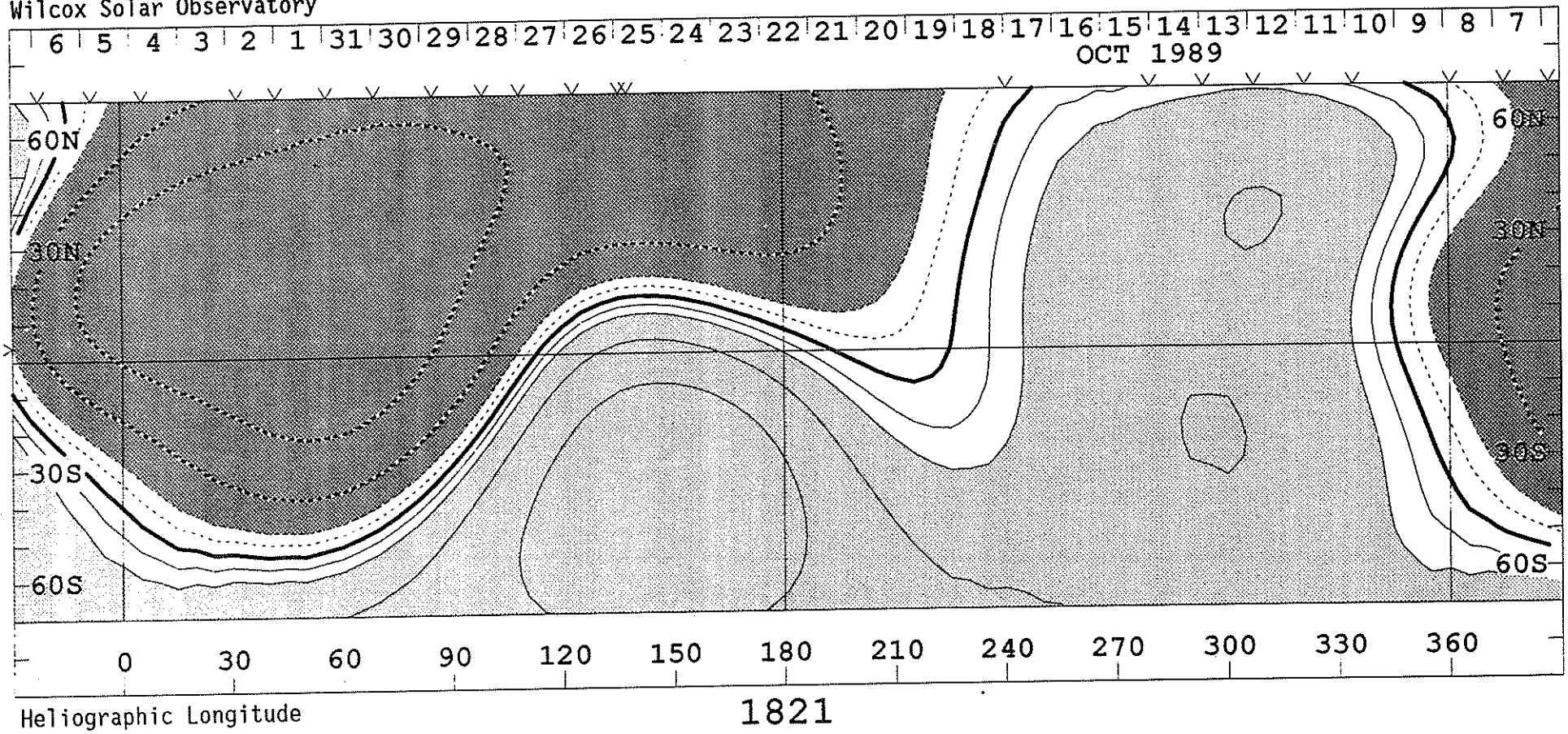
SOURCE SURFACE FIELD

CARRINGTON ROTATION NUMBER 1821

(8 October to 5 November 1989)

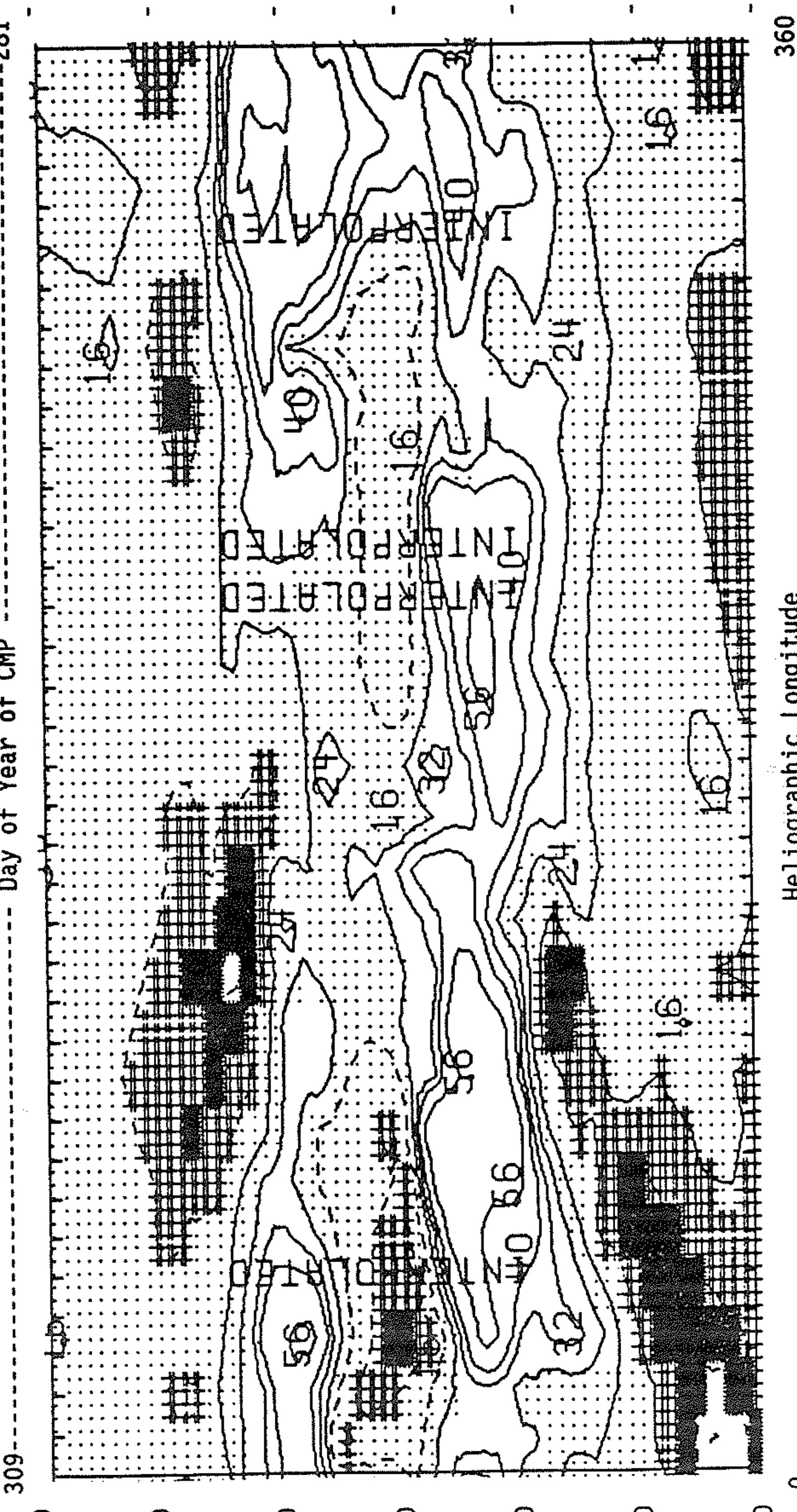
0, ±1, 2, 5, 10, 20 microTesla

Wilcox Solar Observatory

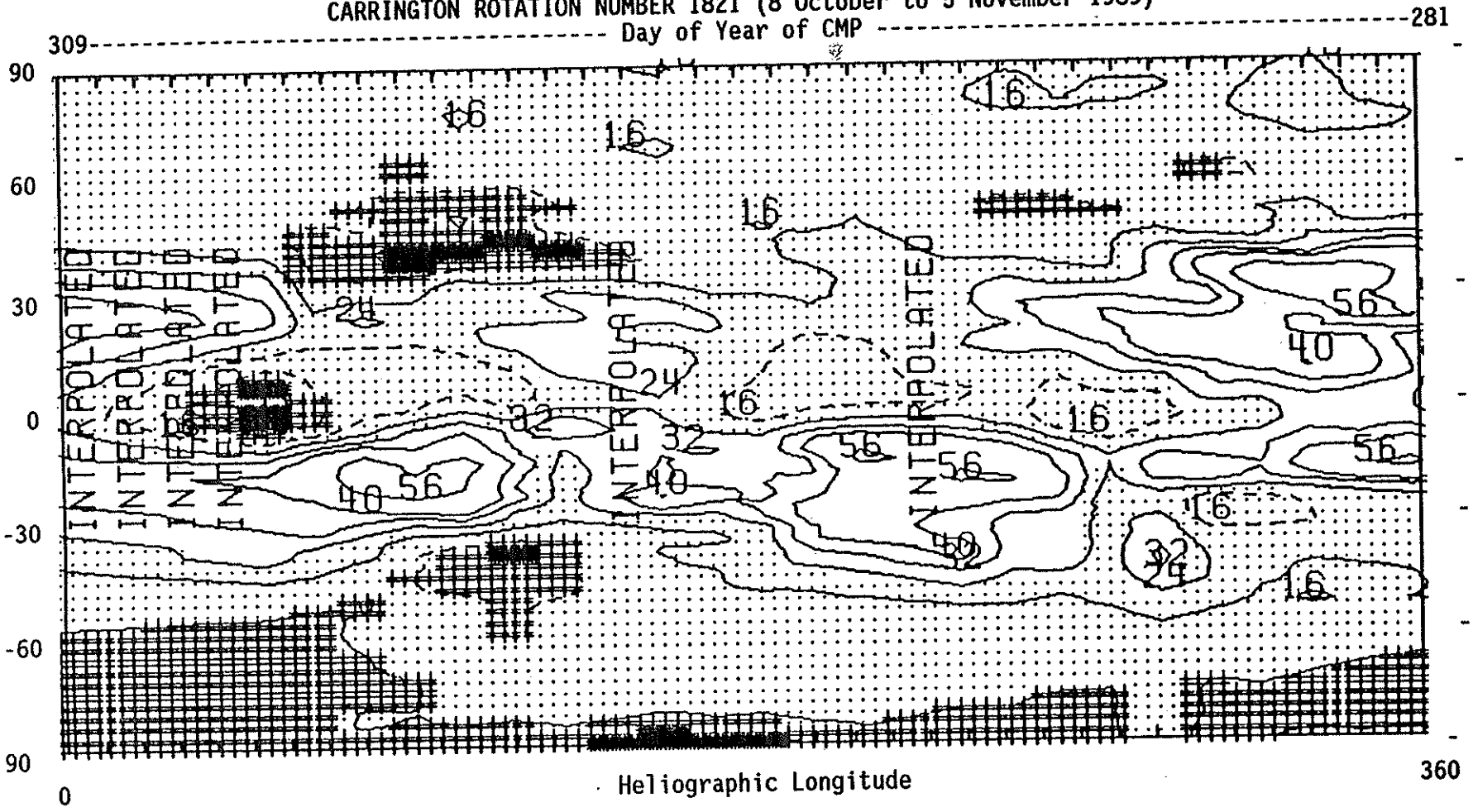


68 120 Oct 89

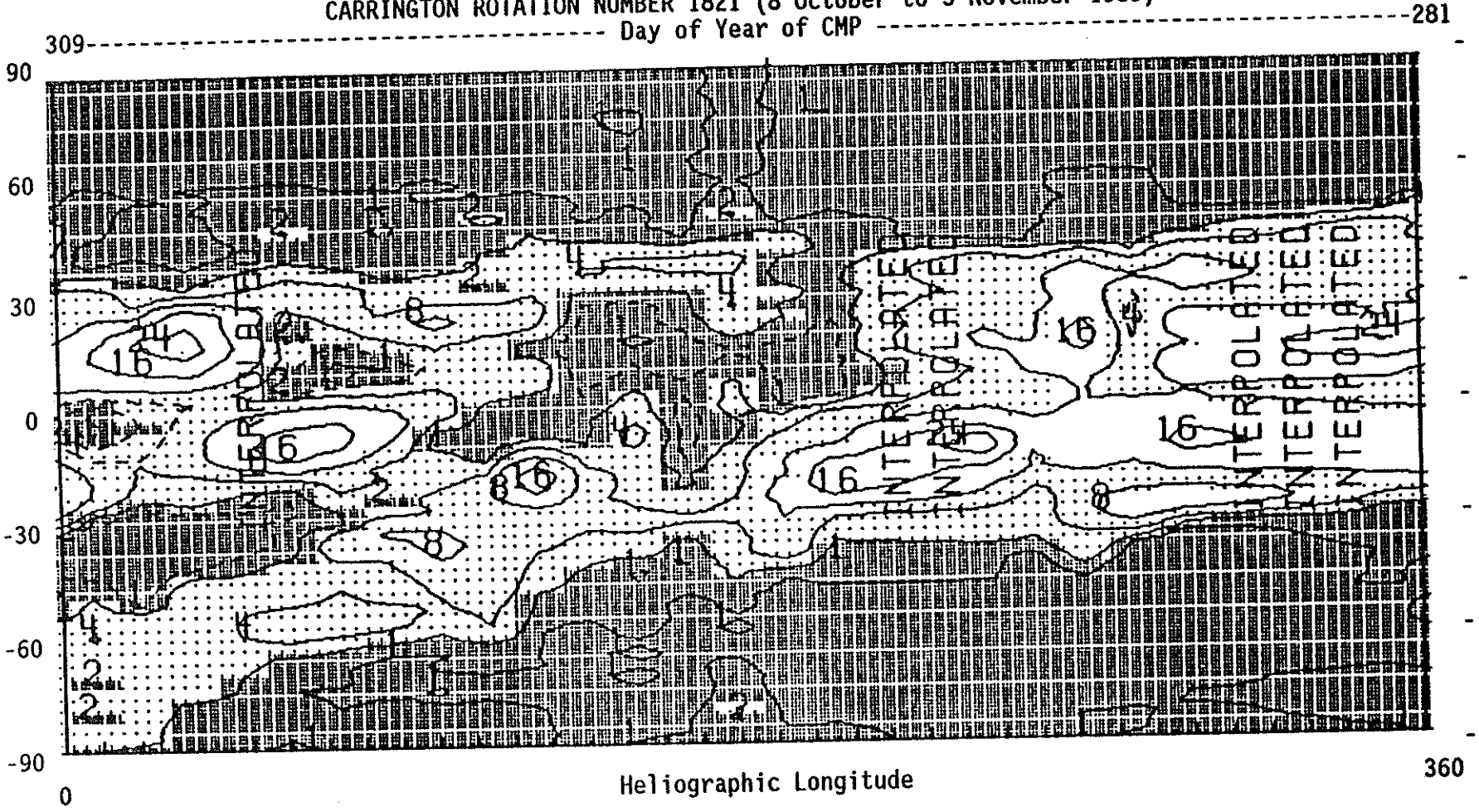
SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1821 (8 October to 5 November 1989)



SACRAMENTO PEAK CORONAL GREEN LINE SYNOPTIC MAP--WEST LIMB
CARRINGTON ROTATION NUMBER 1821 (8 October to 5 November 1989)

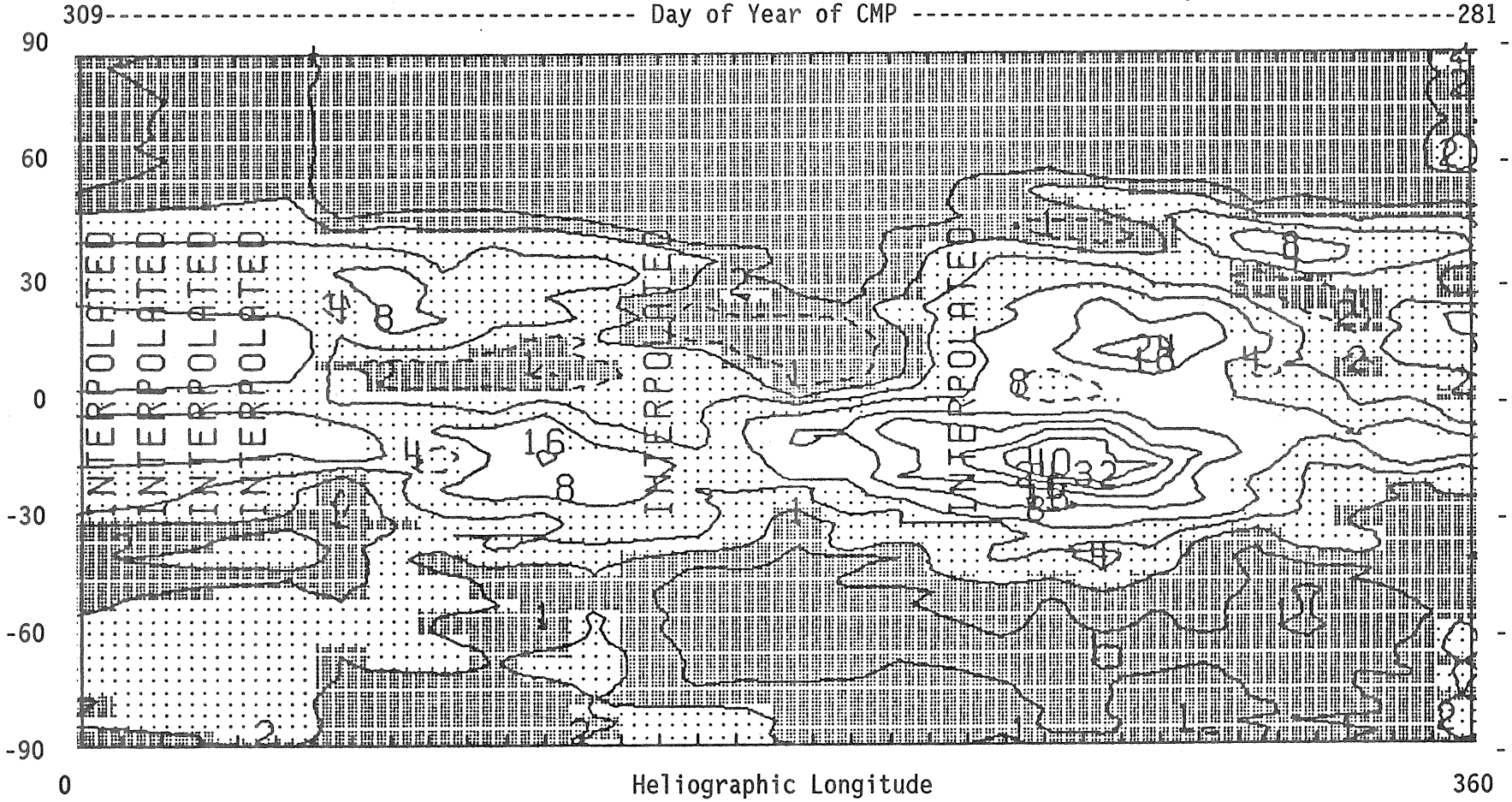


SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--EAST LIMB
CARRINGTON ROTATION NUMBER 1821 (8 October to 5 November 1989)



SACRAMENTO PEAK CORONAL RED LINE SYNOPTIC MAP--WEST LIMB

CARRINGTON ROTATION NUMBER 1821 (8 October to 5 November 1989)

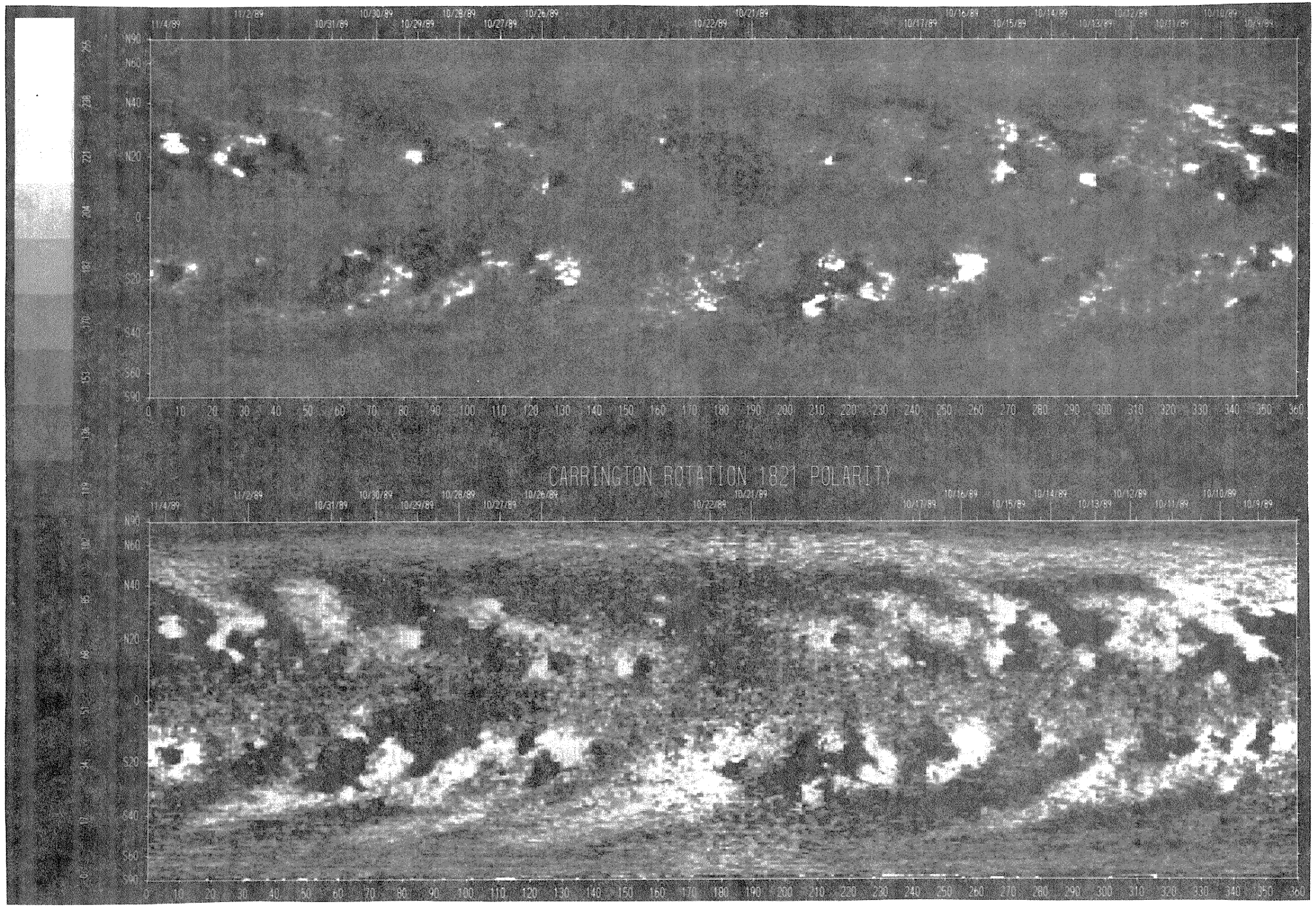


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION NUMBER 1821
(8 October to 5 November 1989)

Kitt Peak National Observatory

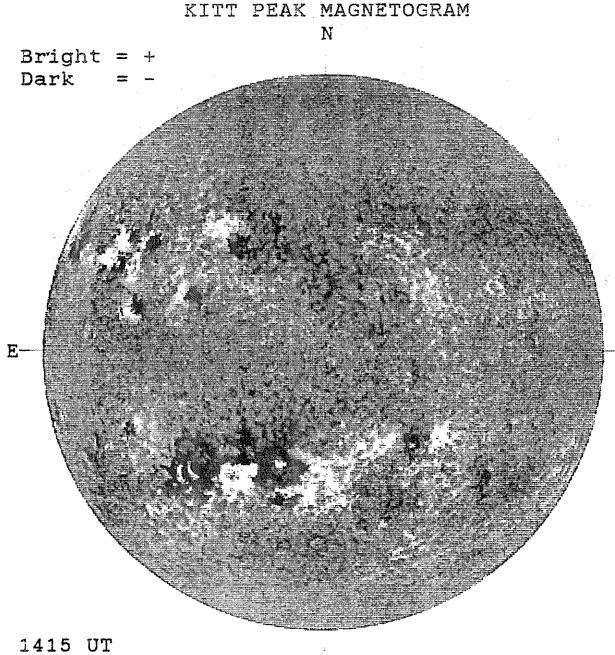
Dates of Observation



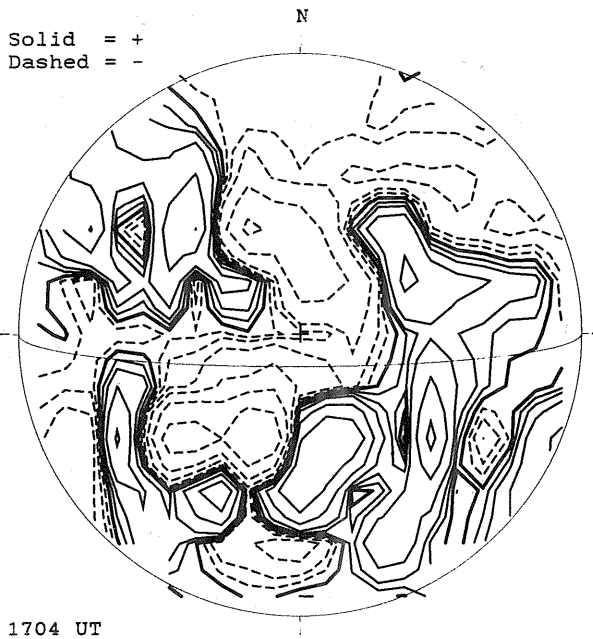
Heliographic Longitude

OCTOBER 1, 1989 (P= 25.99, B_o = 6.70, L_o = 102.84)

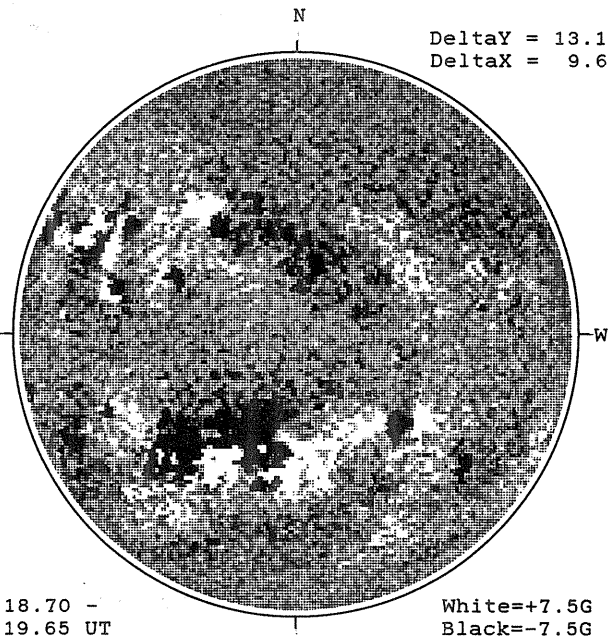
KITT PEAK MAGNETOGRAM



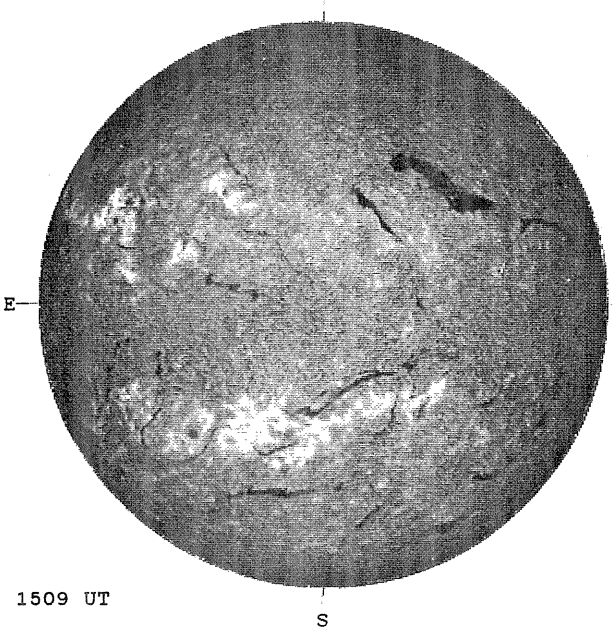
STANFORD MAGNETOGRAM



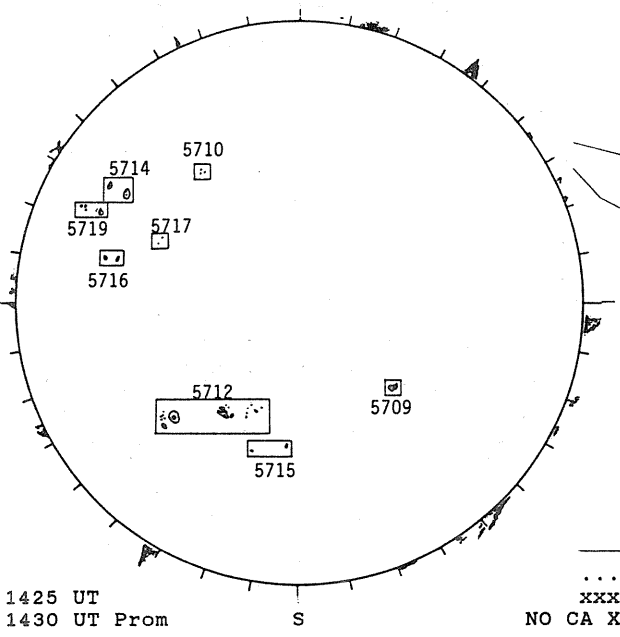
MT. WILSON MAGNETOGRAM



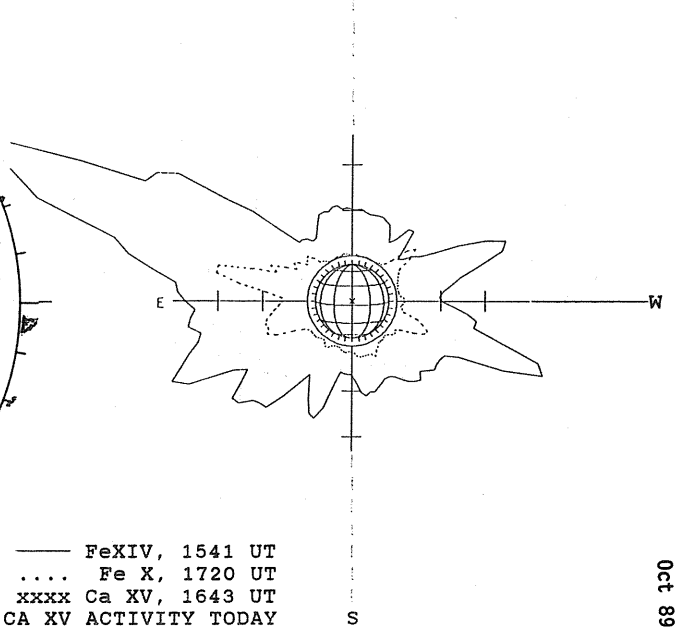
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



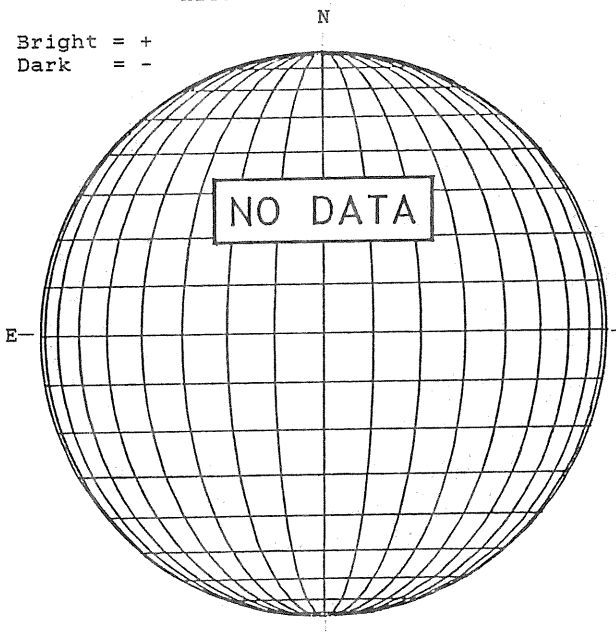
—— FeXIV, 1541 UT
.... Fe X, 1720 UT
xxxx Ca XV, 1643 UT
NO CA XV ACTIVITY TODAY

67
Oct 89

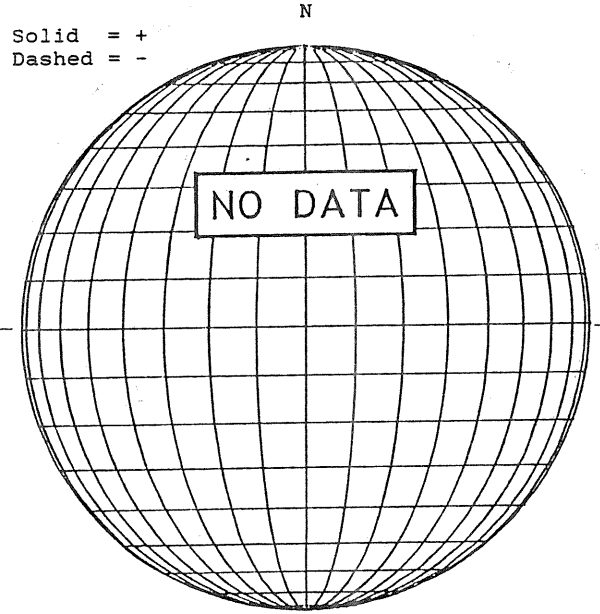
OCTOBER 2, 1989 (P= 26.05, B_o = 6.65, L_o = 89.64)

Oct 89

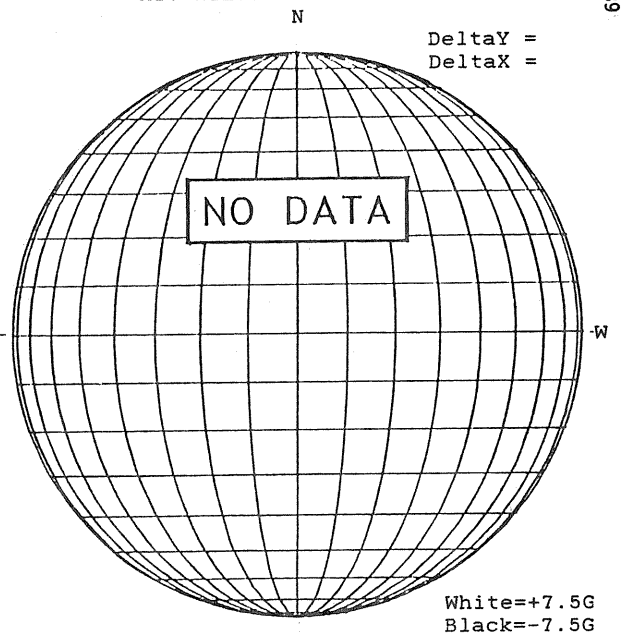
KITT PEAK MAGNETOGRAM



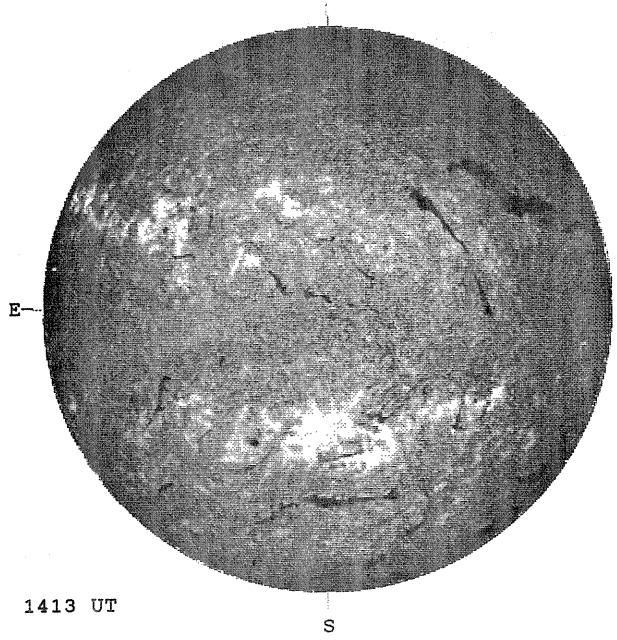
STANFORD MAGNETOGRAM



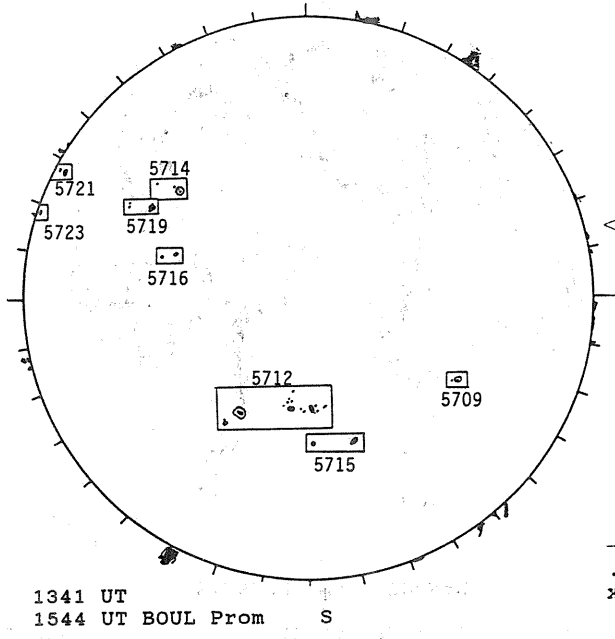
MT. WILSON MAGNETOGRAM



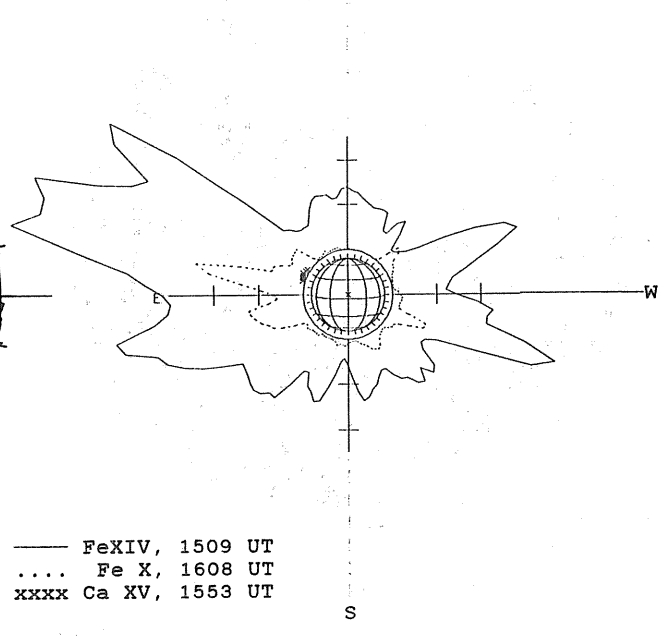
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



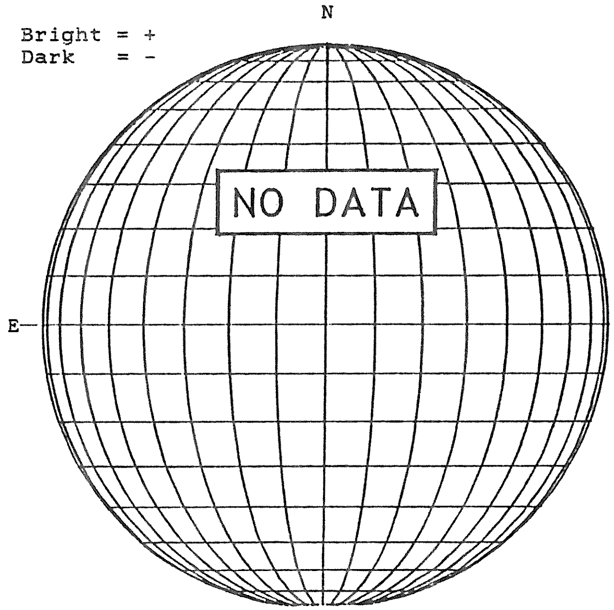
SACRAMENTO PEAK CORONA (1.15 Radii)



OCTOBER 3, 1989 (P= 26.11, B_o = 6.60, L_o = 76.45)

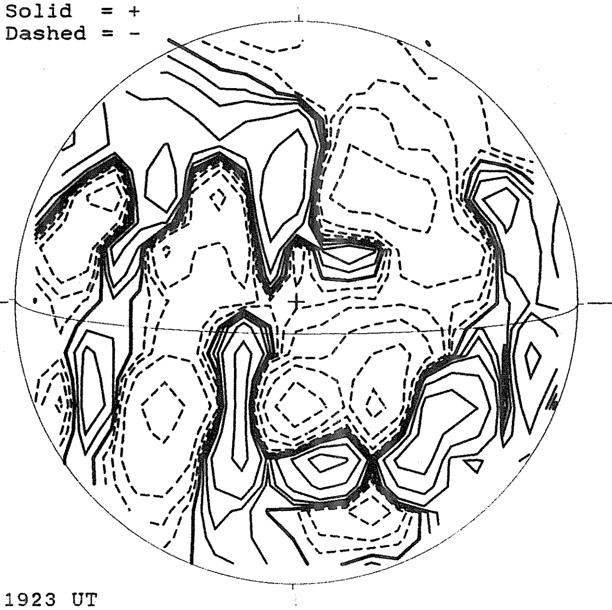
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



STANFORD MAGNETOGRAM

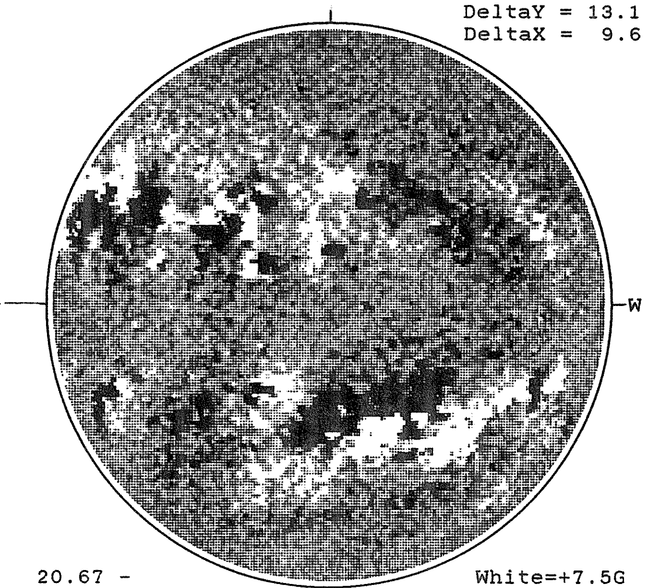
Solid = +
Dashed = -



1923 UT

MT. WILSON MAGNETOGRAM

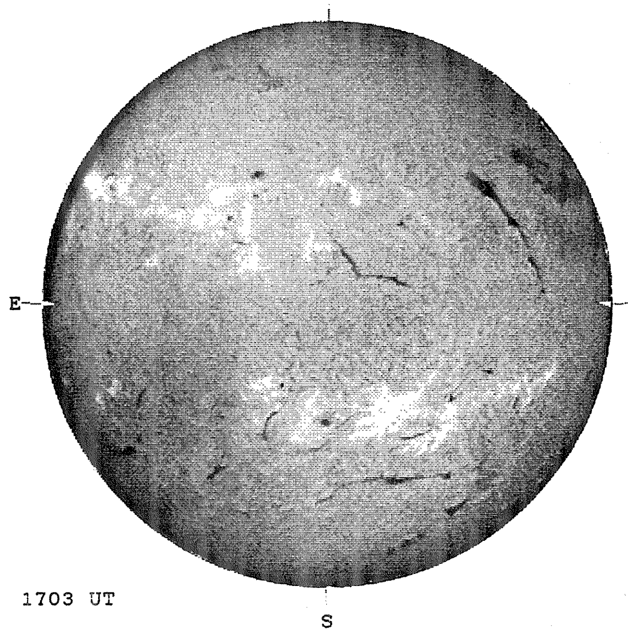
DeltaY = 13.1
DeltaX = 9.6



20.67 -
21.62 UT

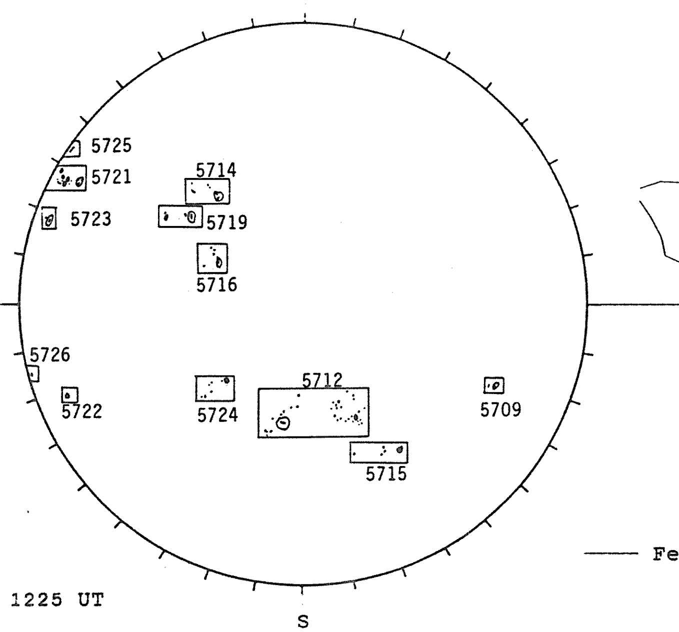
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



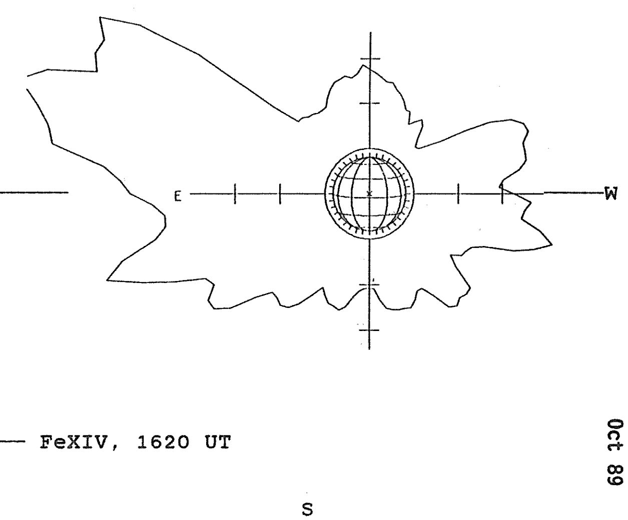
1703 UT

RAMEY SUNSPOT



1225 UT

SACRAMENTO PEAK CORONA (1.15 Radii)

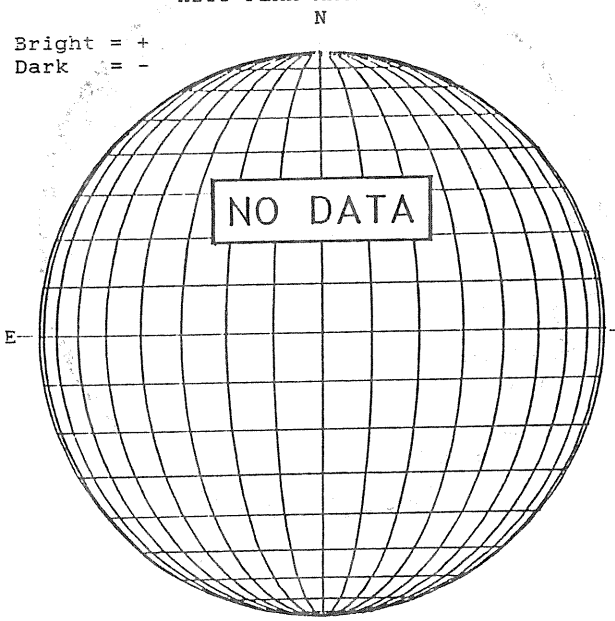


—— FeXIV, 1620 UT

OCTOBER 4, 1989 (P= 26.16, B_o = 6.55, L_o = 63.25)

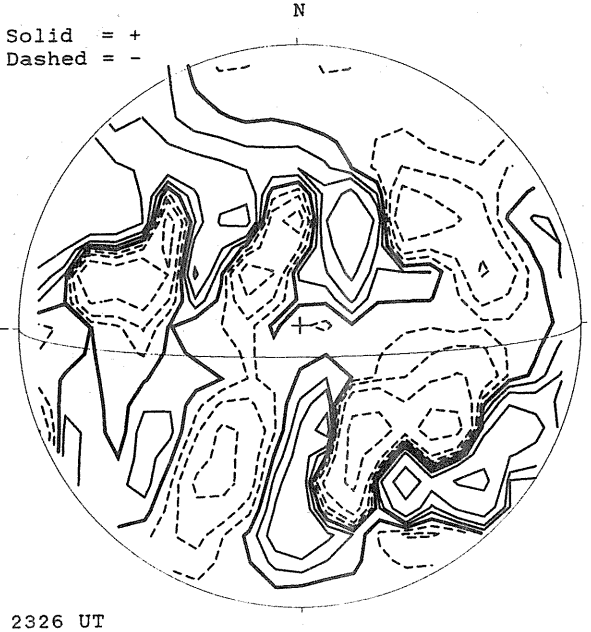
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



STANFORD MAGNETOGRAM

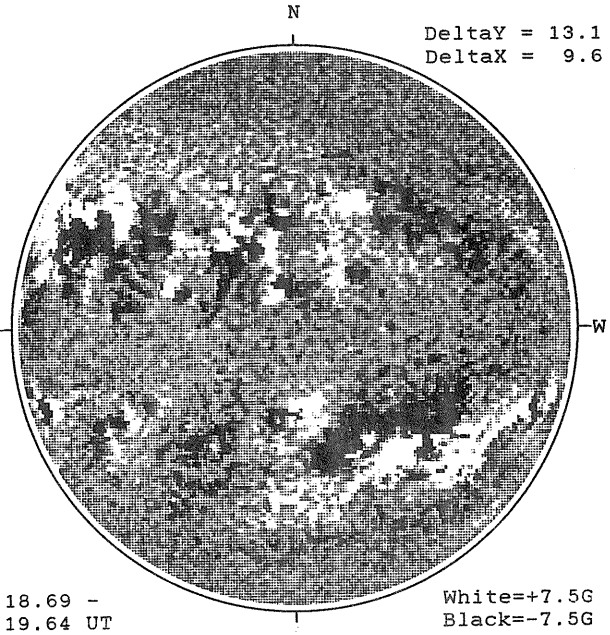
Solid = +
Dashed = -



2326 UT

MT. WILSON MAGNETOGRAM

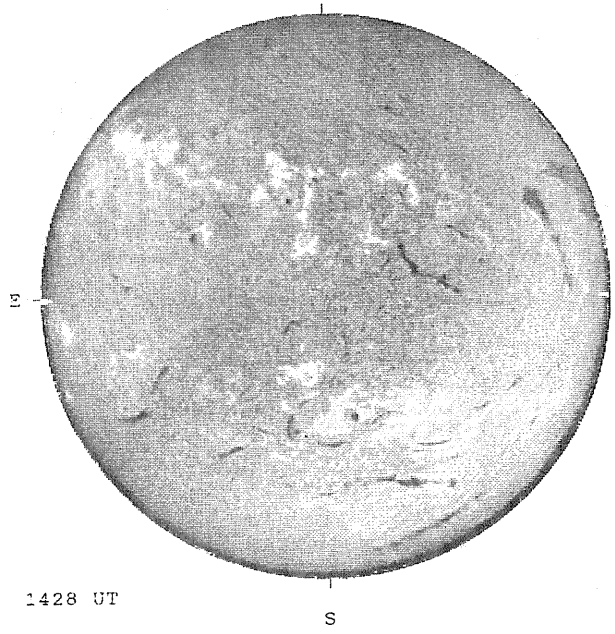
DeltaY = 13.1
DeltaX = 9.6



18.69 -
19.64 UT

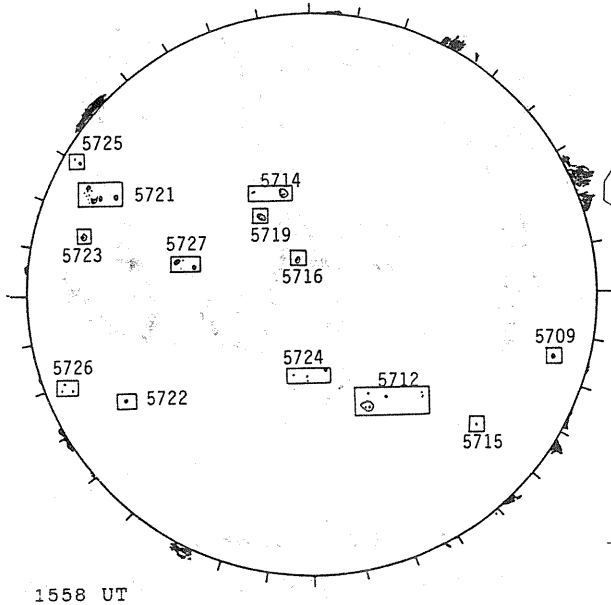
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



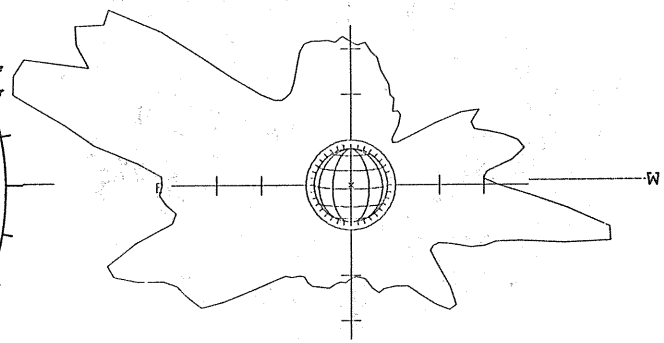
1428 UT

BOULDER SUNSPOT



1558 UT
1615 UT BOUL Prom

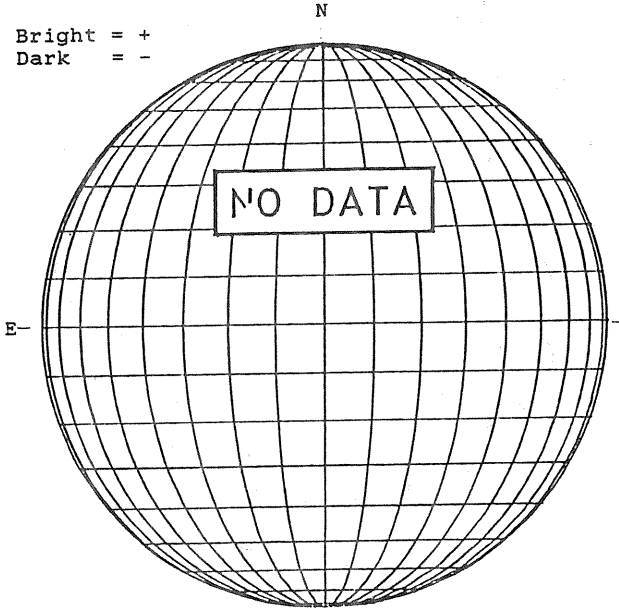
SACRAMENTO PEAK CORONA (1.15 Radii)



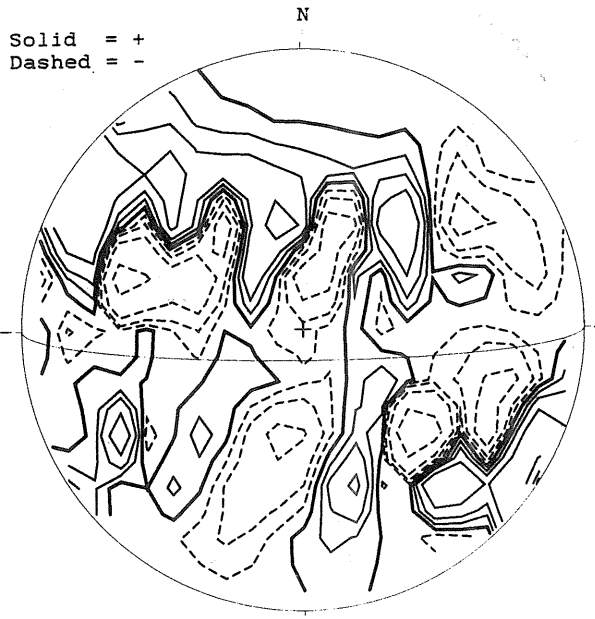
—— Fe XIV, 1604 UT

OCTOBER 5, 1989 (P= 26.20, B_o = 6.50, L_o = 50.06)

KITT PEAK MAGNETOGRAM

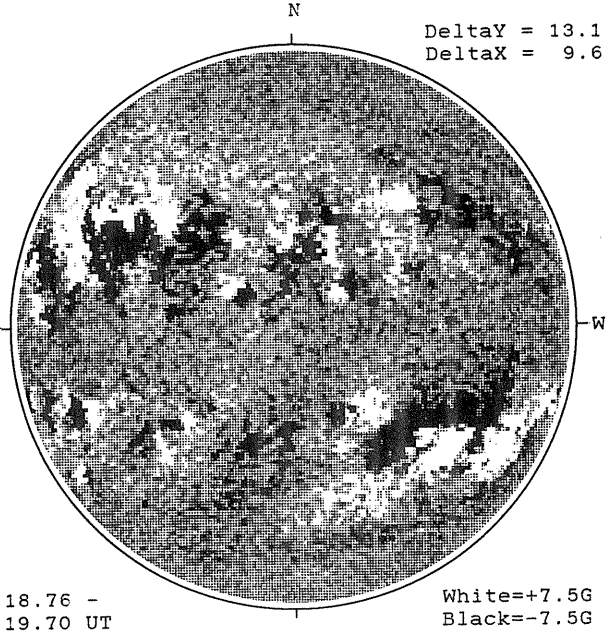


STANFORD MAGNETOGRAM



2116 UT

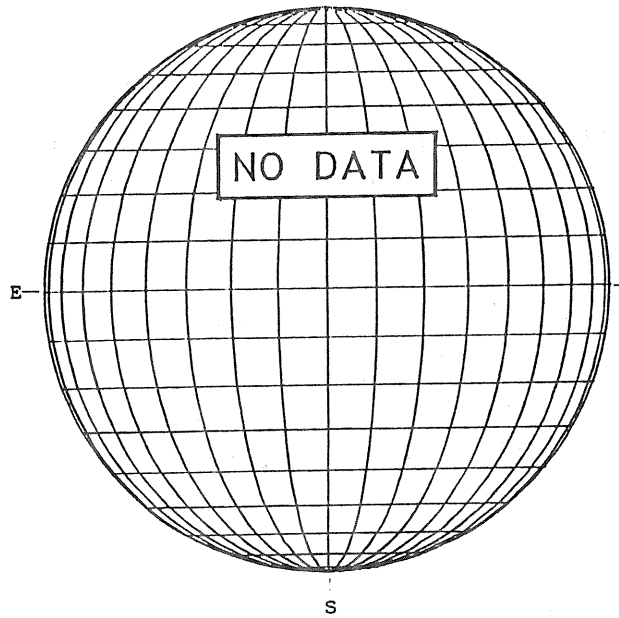
MT. WILSON MAGNETOGRAM



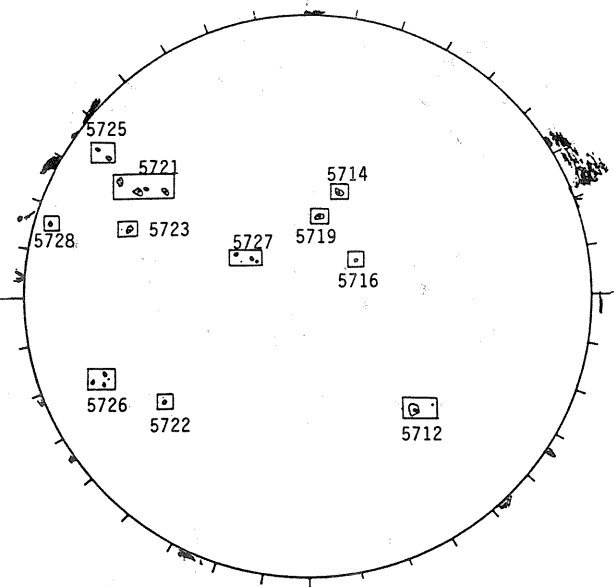
18.76 -
19.70 UT

White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA

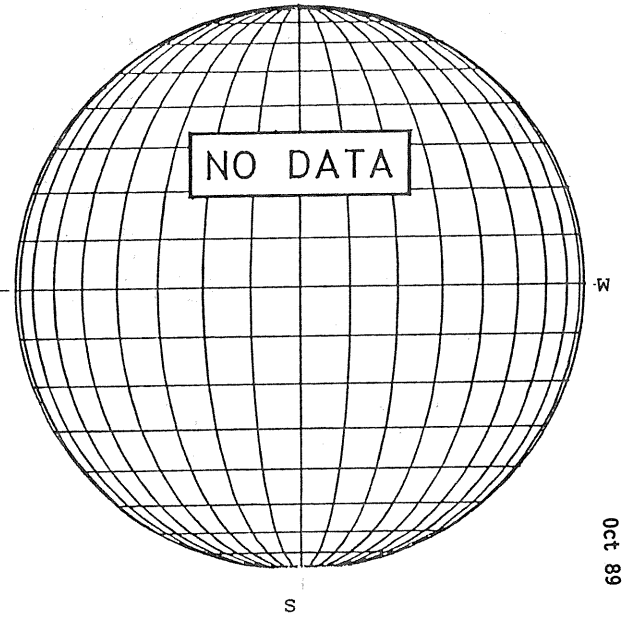


BOULDER SUNSPOT



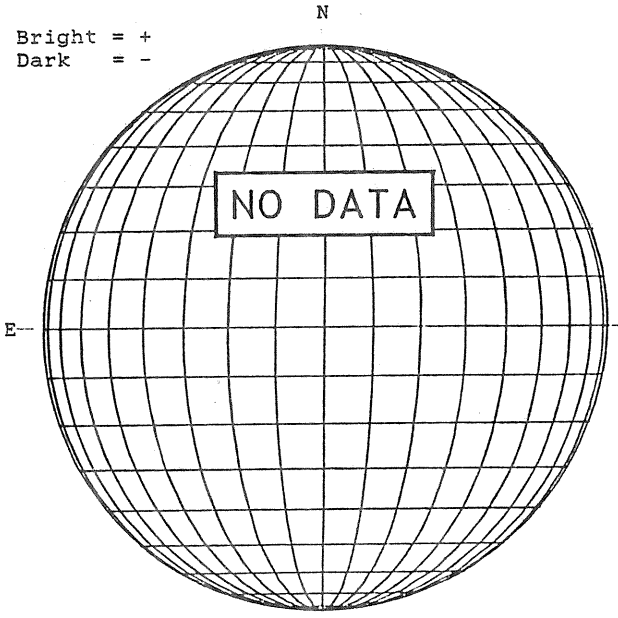
1507 UT
1550 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



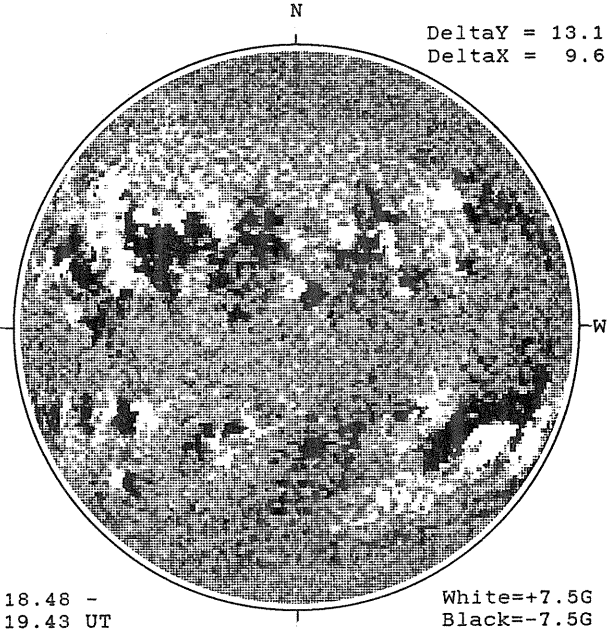
OCTOBER 6, 1989 (P= 26.23, B_o = 6.44, L_o = 36.86)

KITT PEAK MAGNETOGRAM

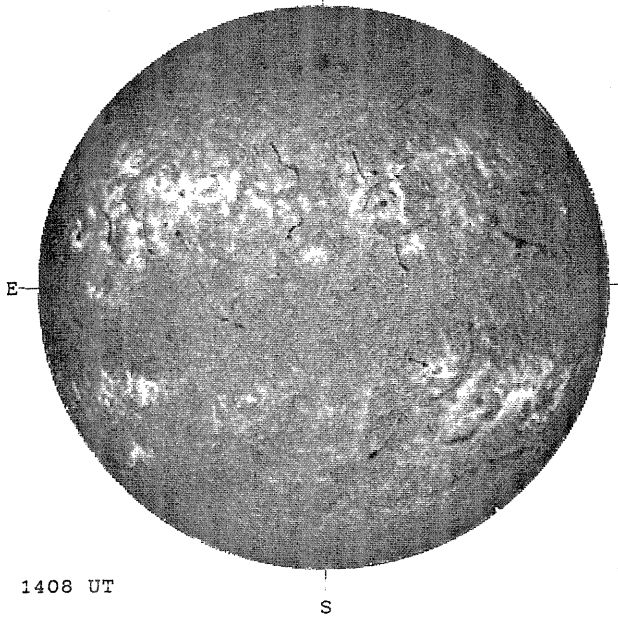


STANFORD MAGNETOGRAM

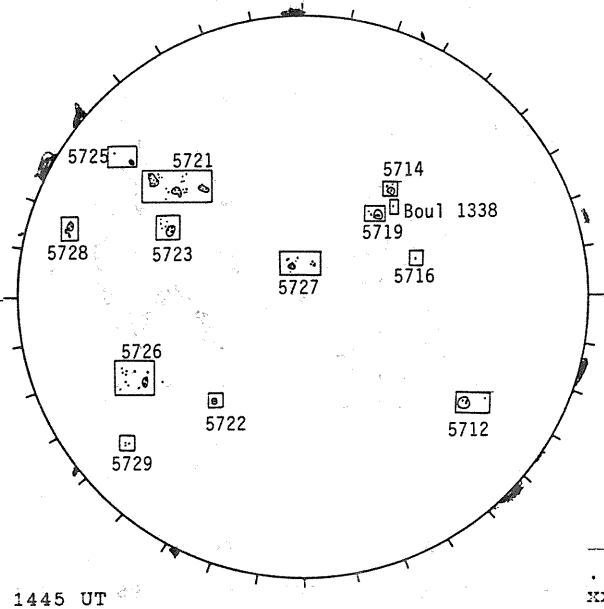
MT. WILSON MAGNETOGRAM



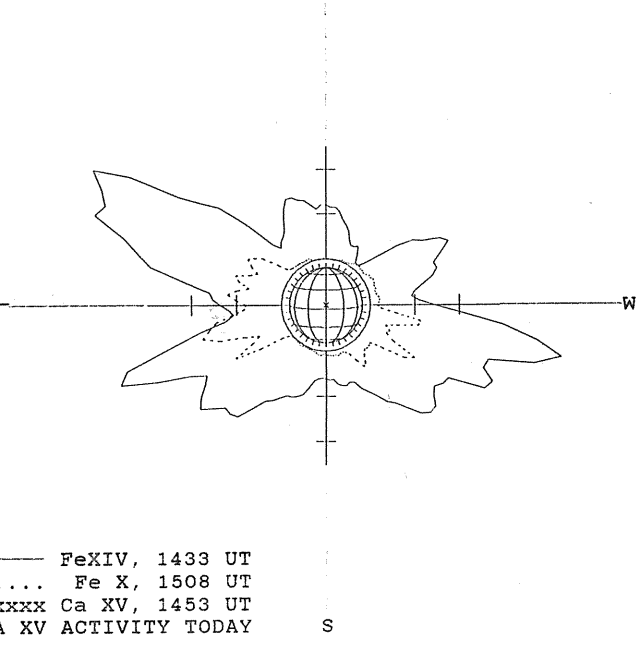
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT

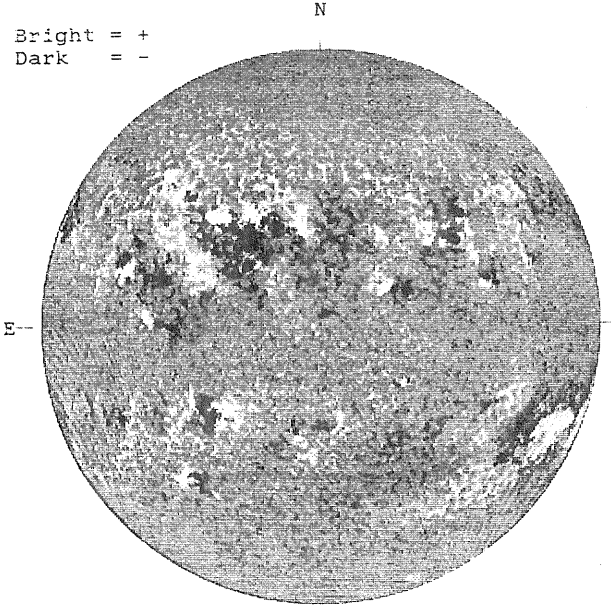


SACRAMENTO PEAK CORONA (1.15 Radii)



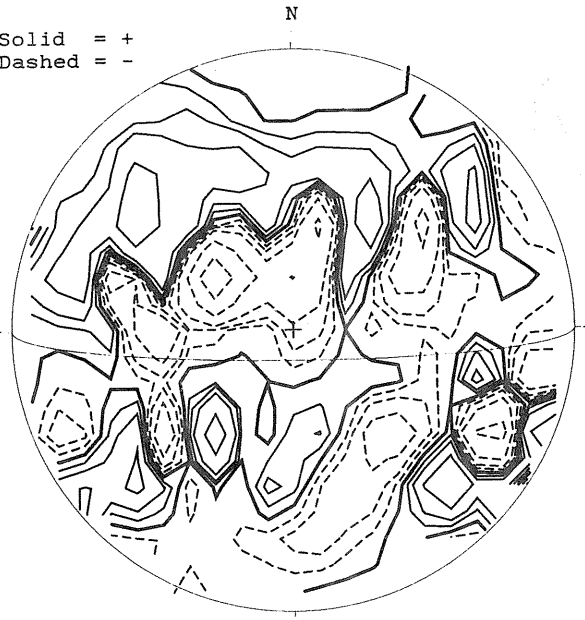
OCTOBER 7, 1989 (P= 26.26, B_o = 6.38, L_o = 23.67)

KITT PEAK MAGNETOGRAM



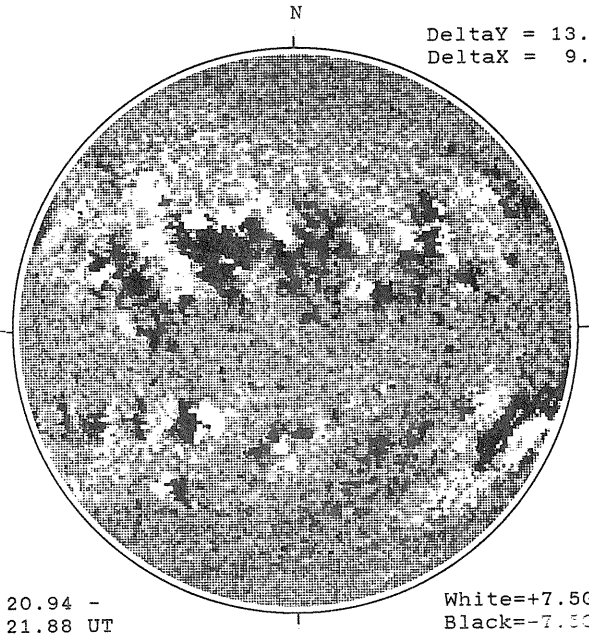
1723 UT

STANFORD MAGNETOGRAM



1845 UT

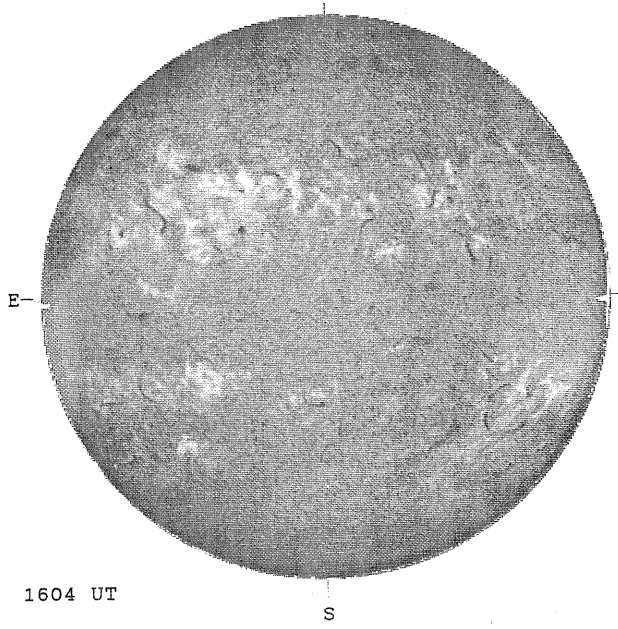
MT. WILSON MAGNETOGRAM



20.94 -
21.88 UT

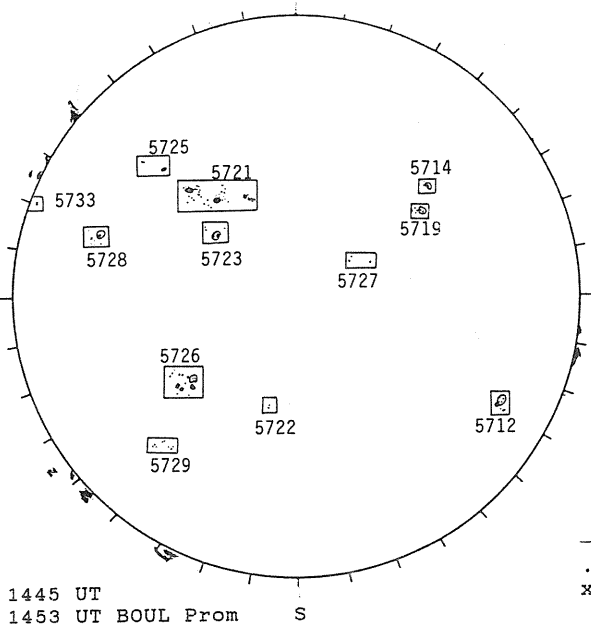
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



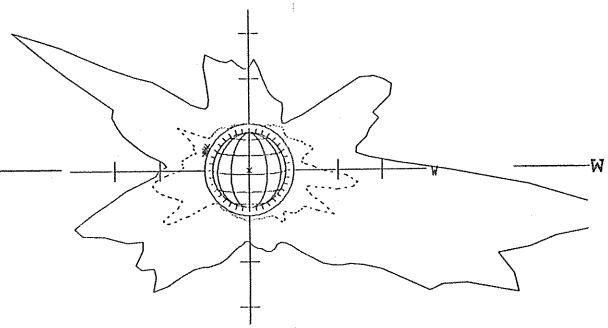
1604 UT

BOULDER SUNSPOT



1445 UT
1453 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1448 UT
.... Fe X, 1526 UT
xxxx Ca XV, 1509 UT

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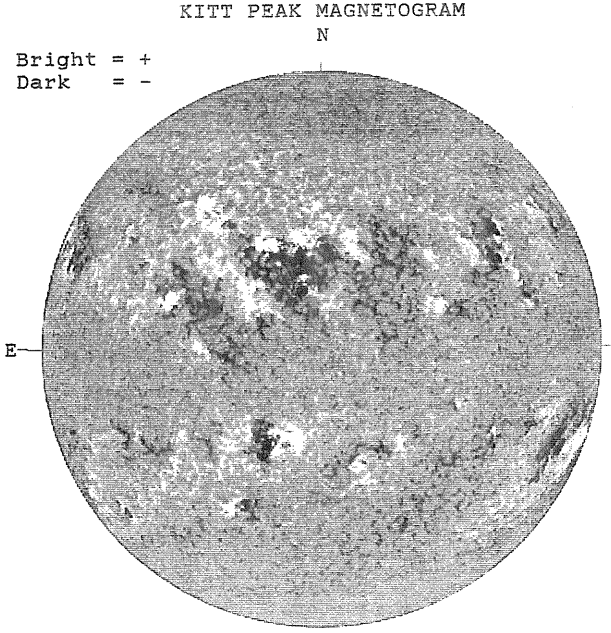
Oct 89

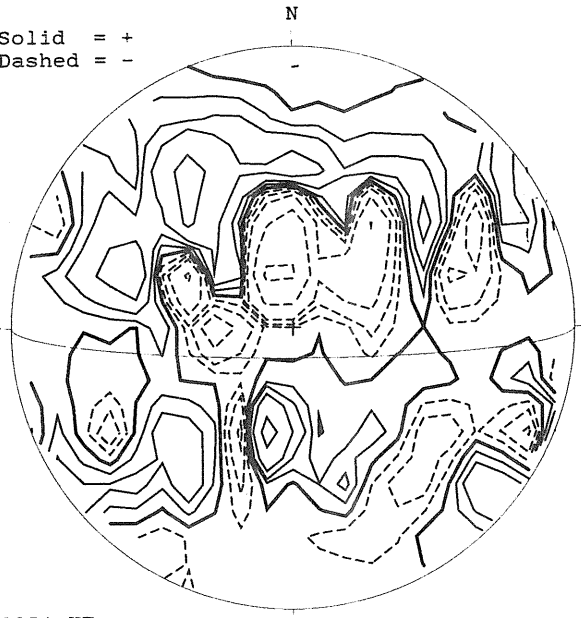
OCTOBER 8, 1989 (P= 26.28, B_o = 6.32, L_o = 10.48)

KITT PEAK MAGNETOGRAM



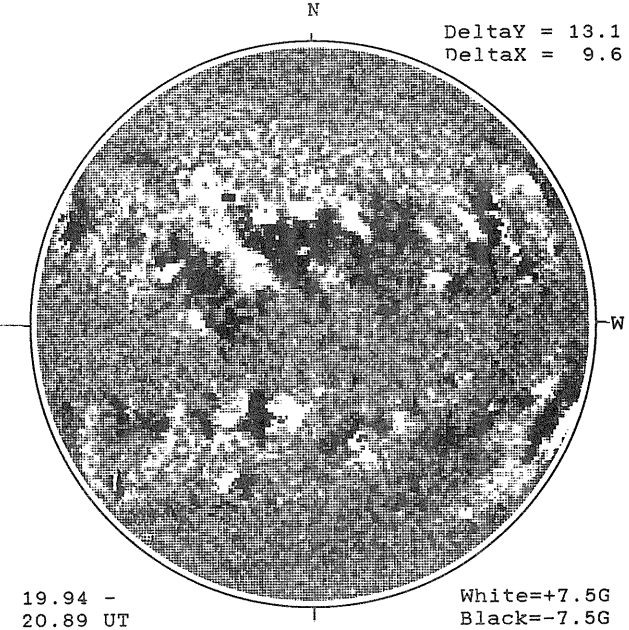
1717 UT

STANFORD MAGNETOGRAM



2051 UT

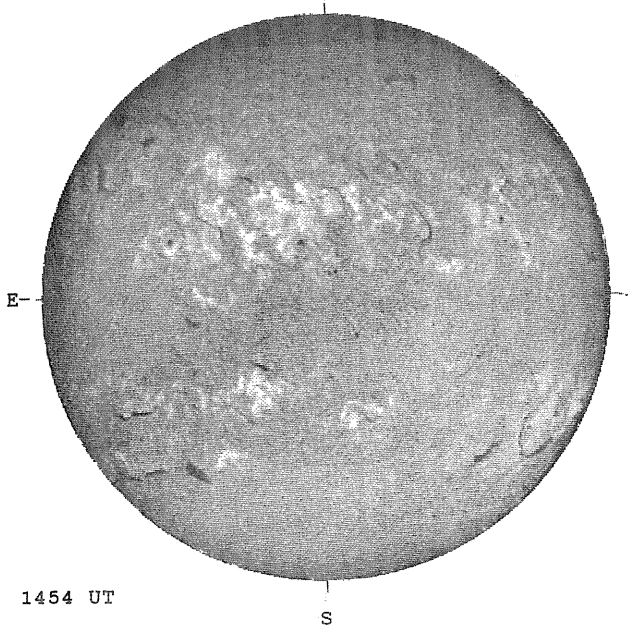
MT. WILSON MAGNETOGRAM



19.94 -
20.89 UT

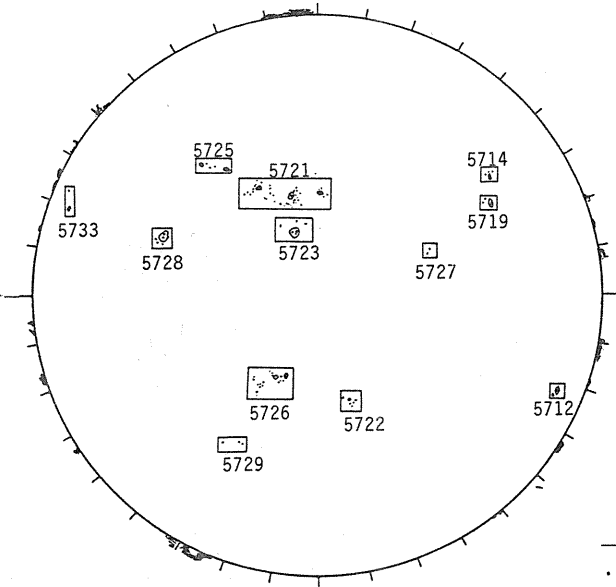
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



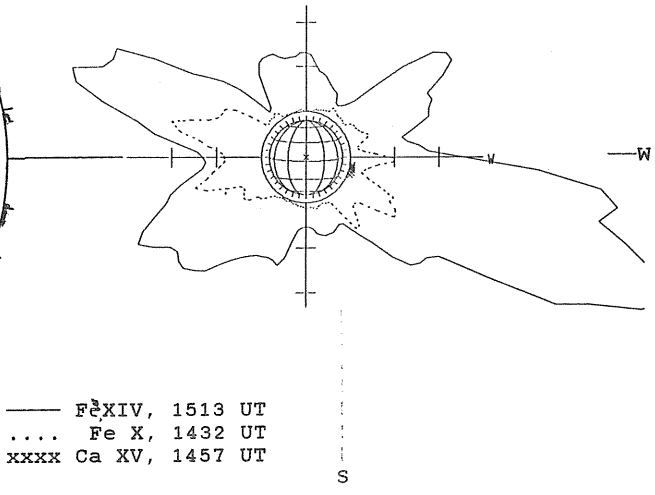
1454 UT

BOULDER SUNSPOT



1435 UT
1445 UT BOUL Prom

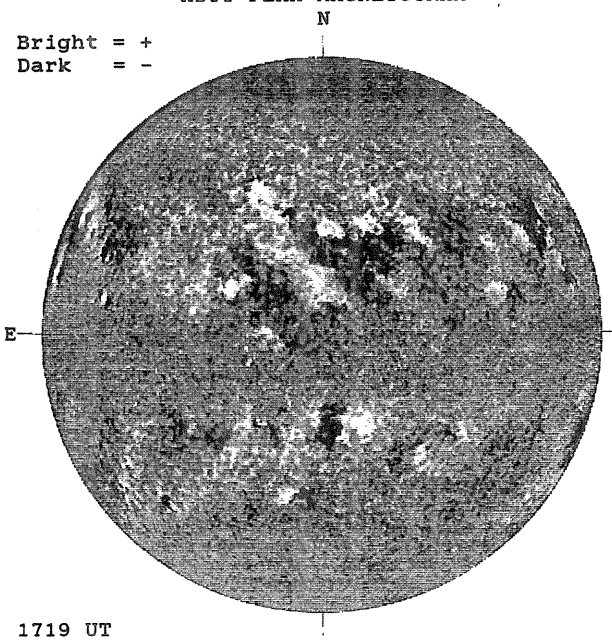
SACRAMENTO PEAK CORONA (1.15 Radii)



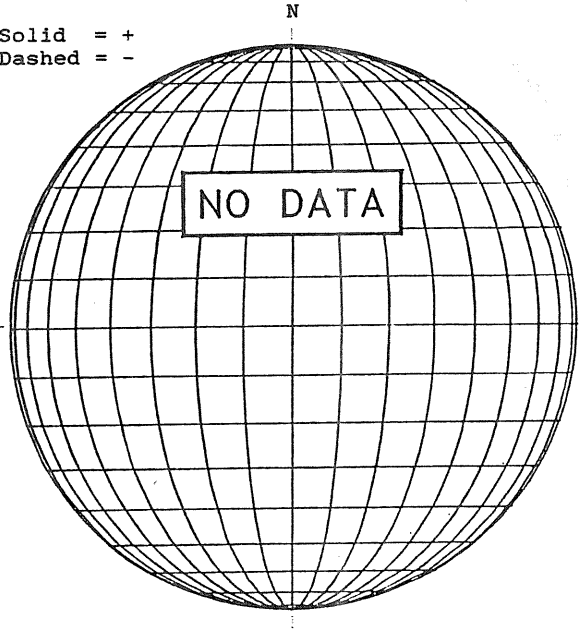
—— Fe^{13}XIV, 1513 UT
.... Fe X, 1432 UT
xxxx Ca XV, 1457 UT

OCTOBER 9, 1989 (P= 26.29, B_o = 6.26, L_o = 357.28)

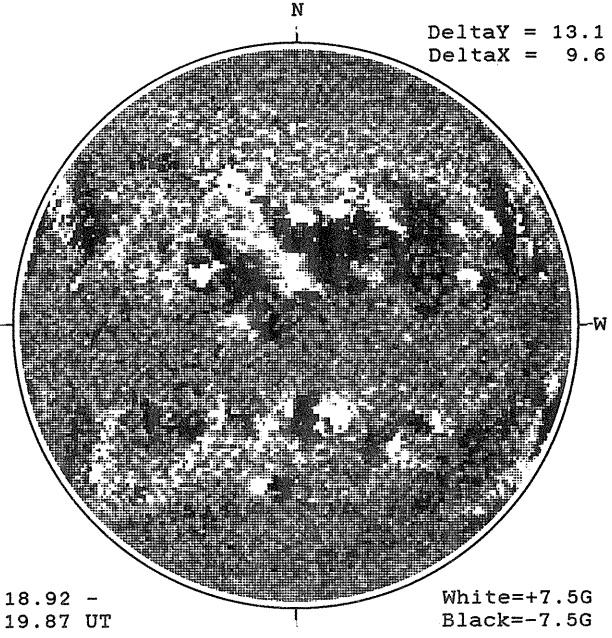
KITT PEAK MAGNETOGRAM



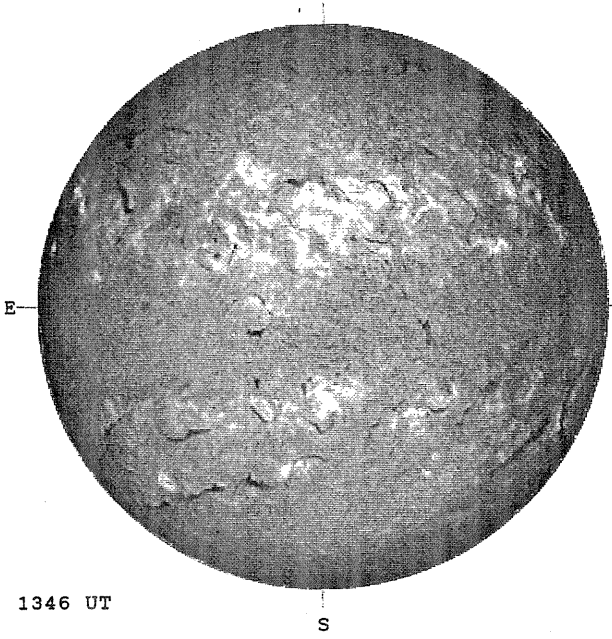
STANFORD MAGNETOGRAM



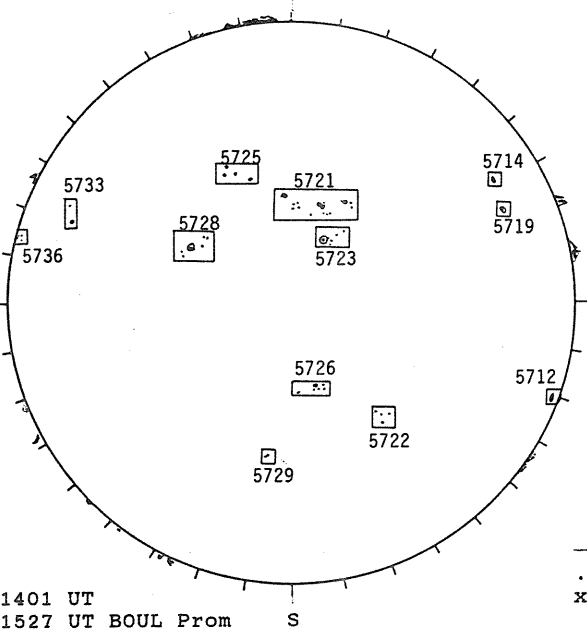
MT. WILSON MAGNETOGRAM



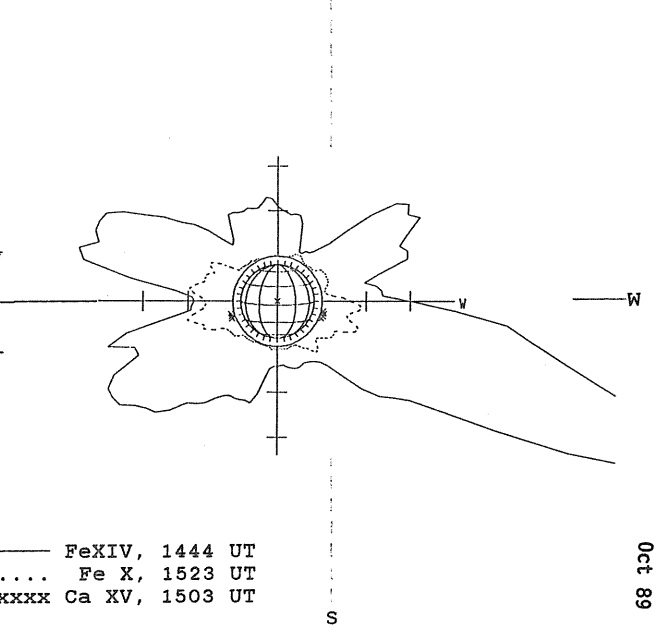
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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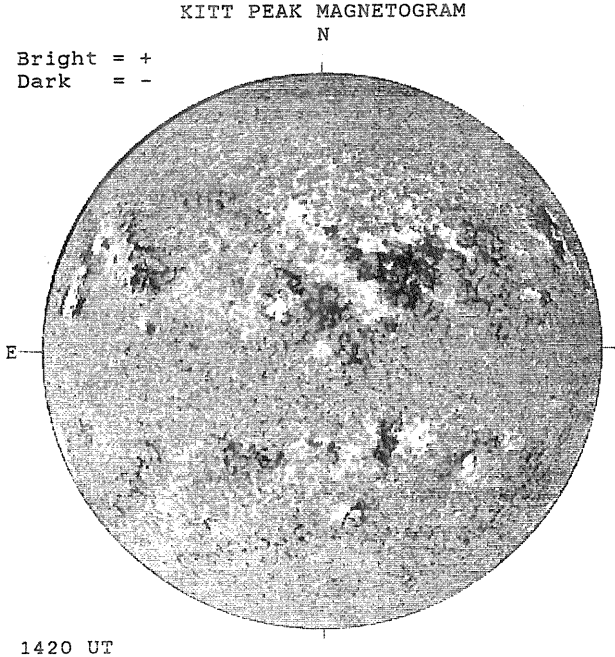
Oct 89

OCTOBER 10, 1989 (P= 26.30, B_o = 6.20, L_o = 344.09)

KITT PEAK MAGNETOGRAM

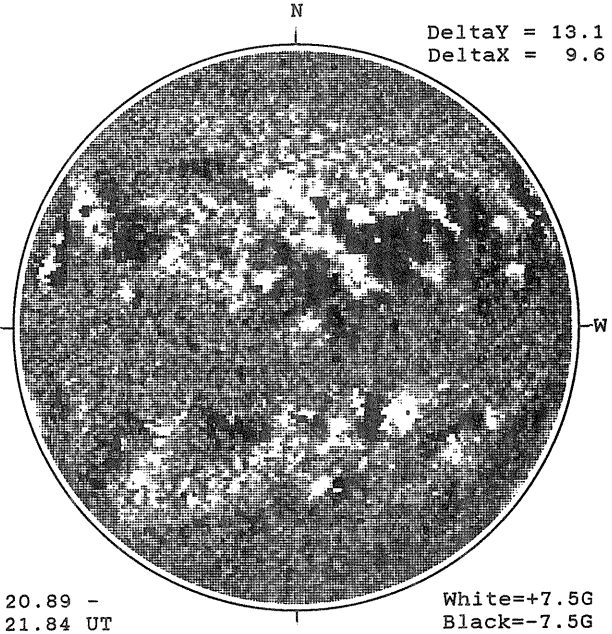


1420 UT

STANFORD MAGNETOGRAM

2044 UT

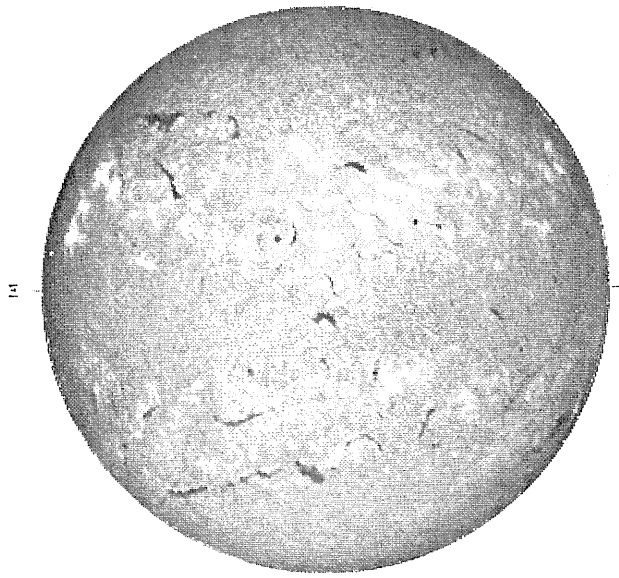
MT. WILSON MAGNETOGRAM



20.89 -
21.84 UT

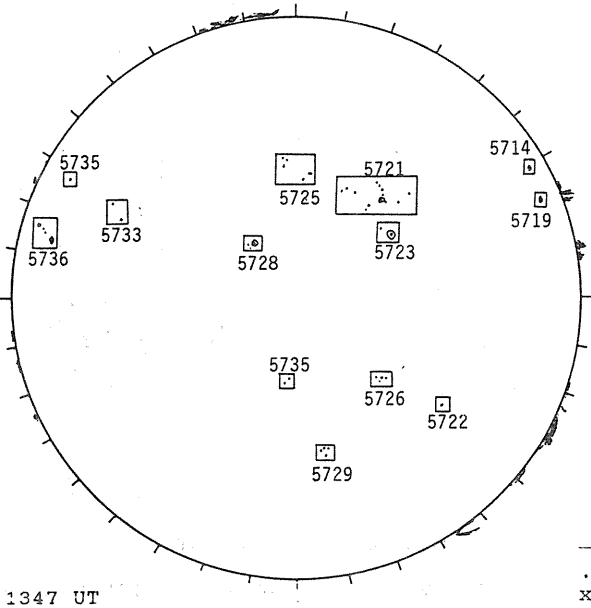
White=+7.5G
Black=-7.5G

SACRAMENTO PEAK H-ALPHA



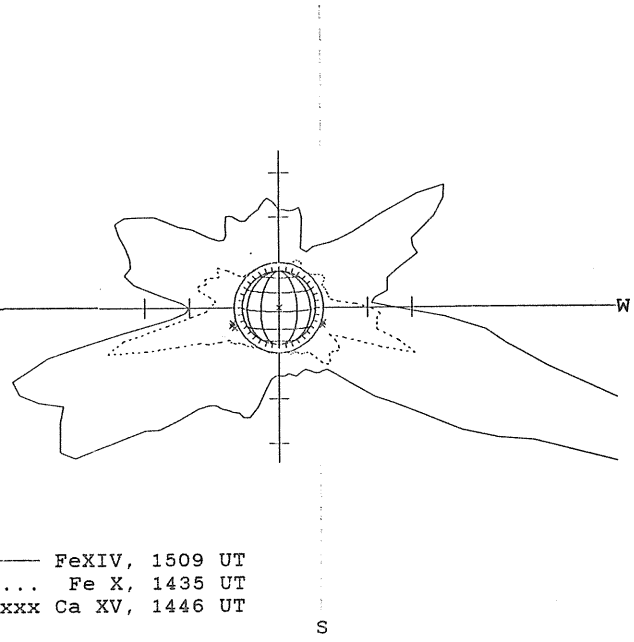
1349 UT

BOULDER SUNSPOT



1347 UT
1512 UT BOUL Prom

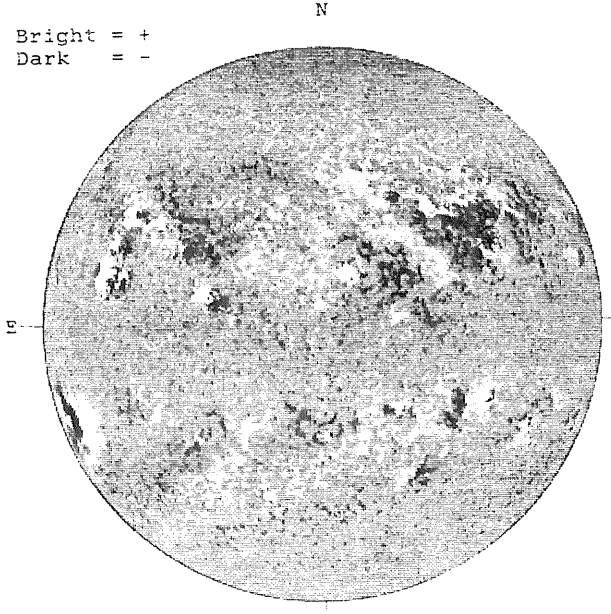
SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1509 UT
.... Fe X, 1435 UT
xxxx Ca XV, 1446 UT

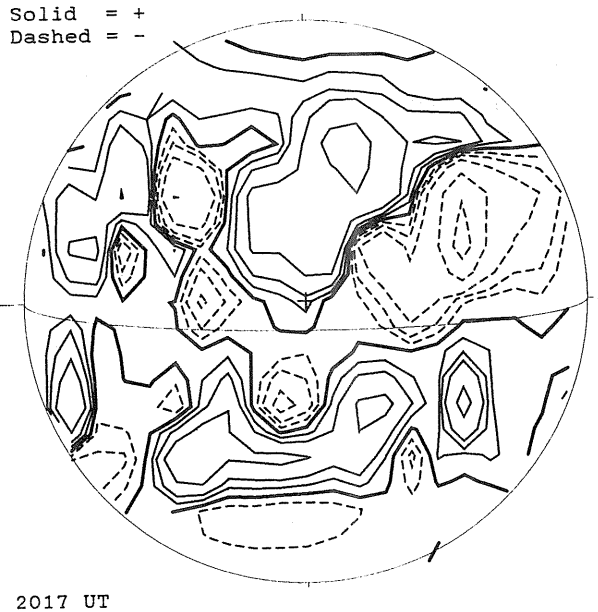
OCTOBER 11, 1989 (P= 26.30, B_o = 6.13, L_o = 330.90)

KITT PEAK MAGNETOGRAM



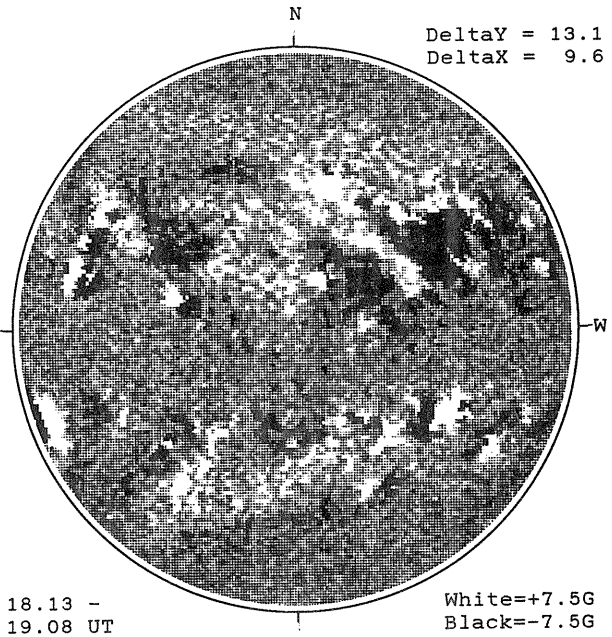
1808 UT

STANFORD MAGNETOGRAM



2017 UT

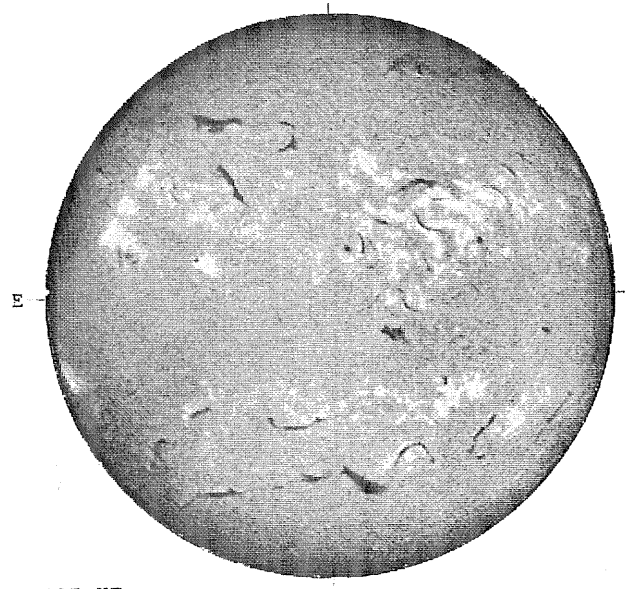
MT. WILSON MAGNETOGRAM



18.13 -
19.08 UT

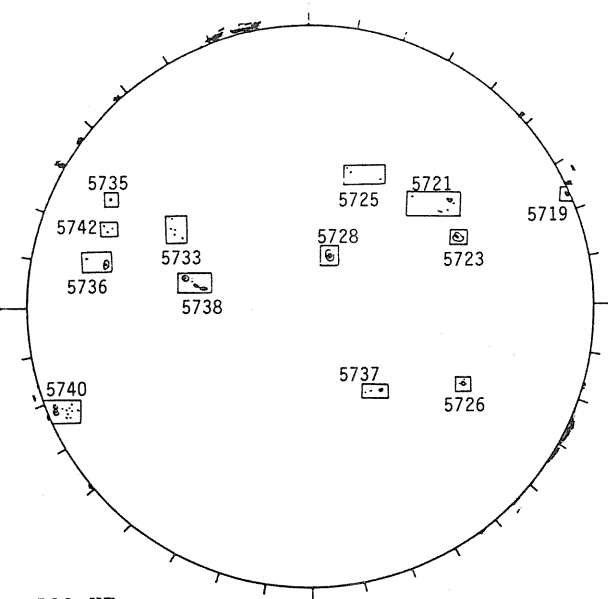
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



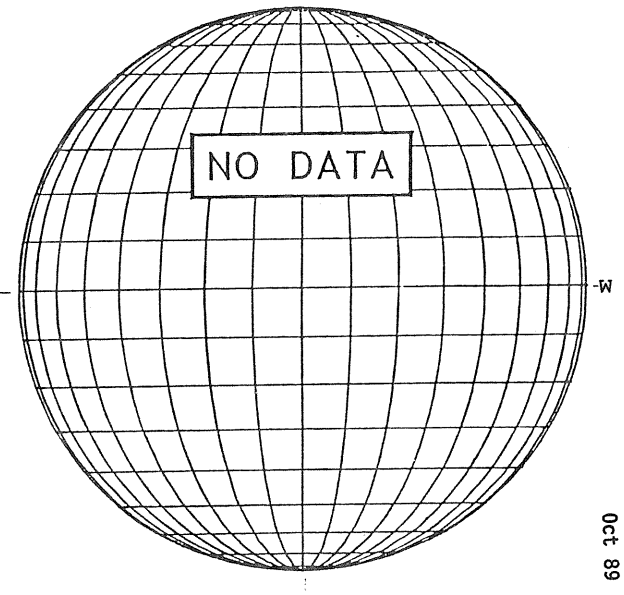
1407 UT

BOULDER SUNSPOT



1530 UT
1544 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



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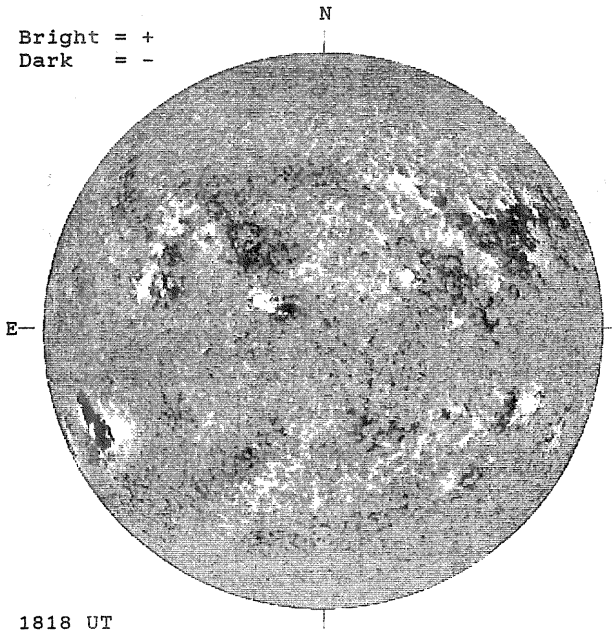
Oct 89

OCTOBER 12, 1989 (P= 26.29, B_o = 6.06, L_o = 317.71)

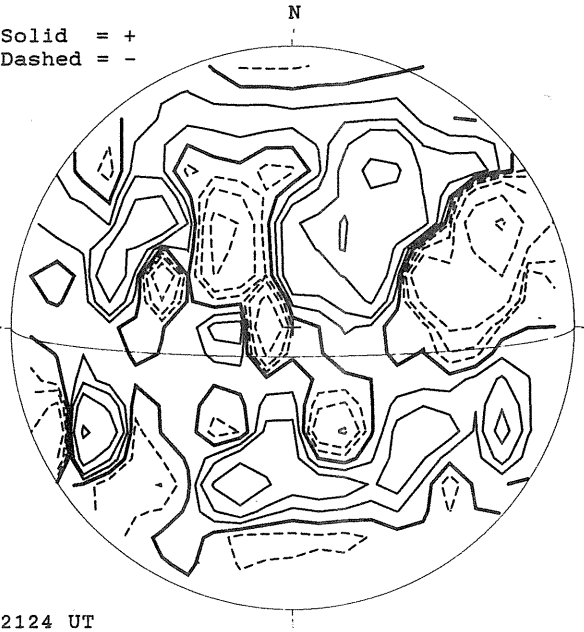
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



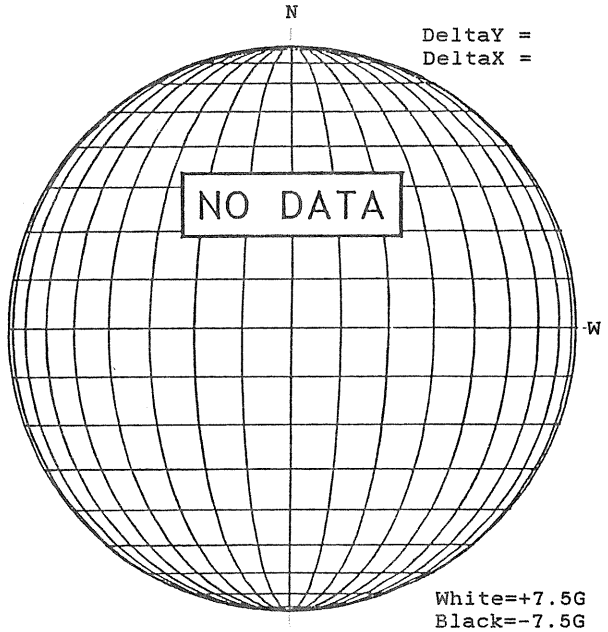
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

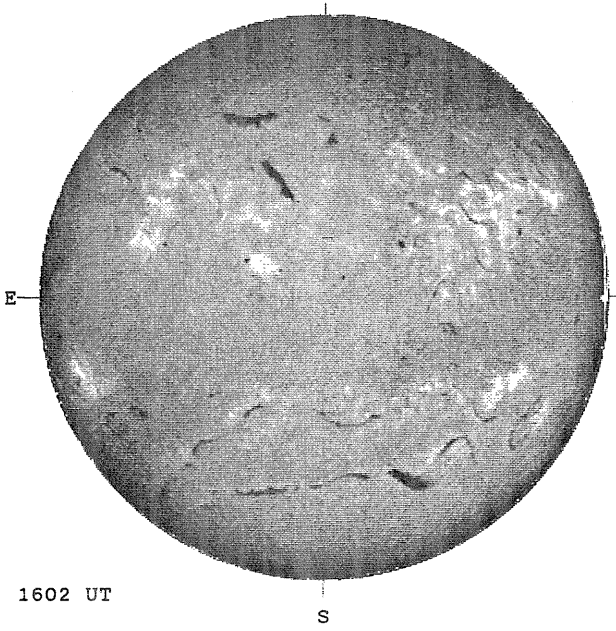


MT. WILSON MAGNETOGRAM

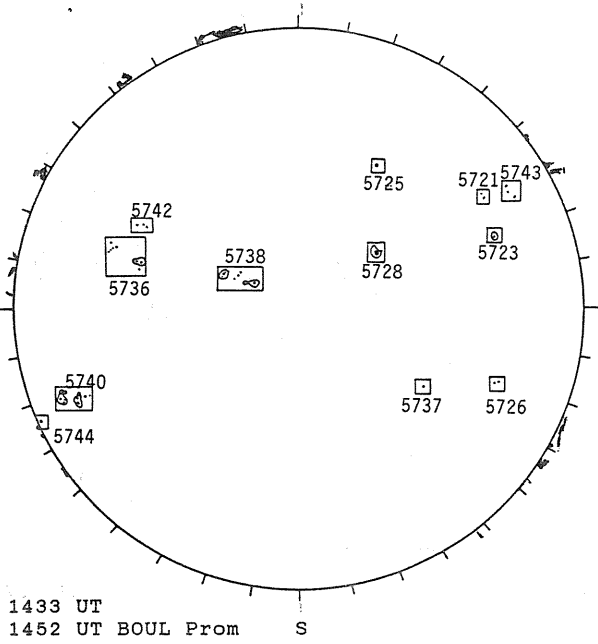
DeltaY =
DeltaX =



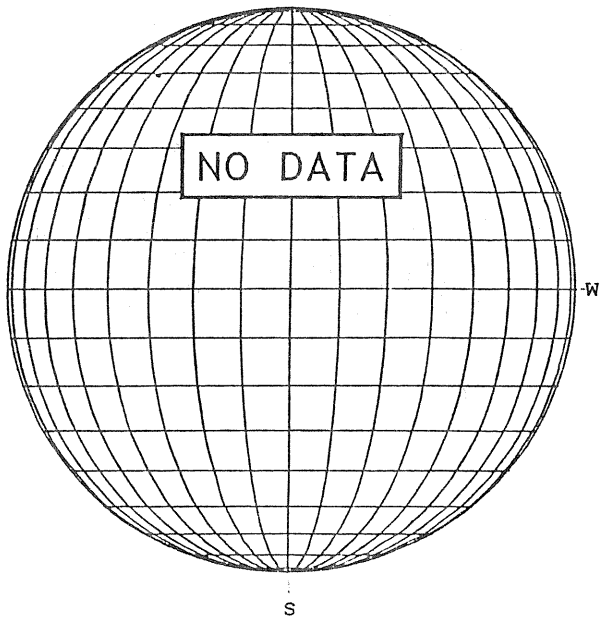
HOLLOMAN H-ALPHA



BOULDER SUNSPOT

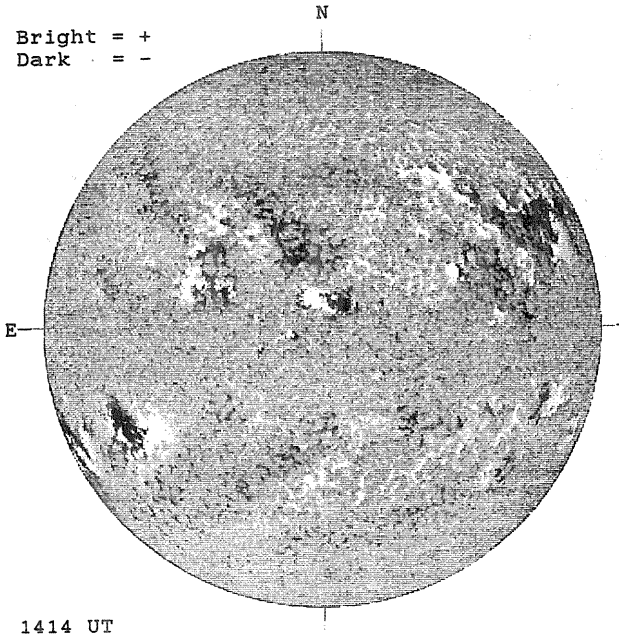


SACRAMENTO PEAK CORONA (1.15 Radii)



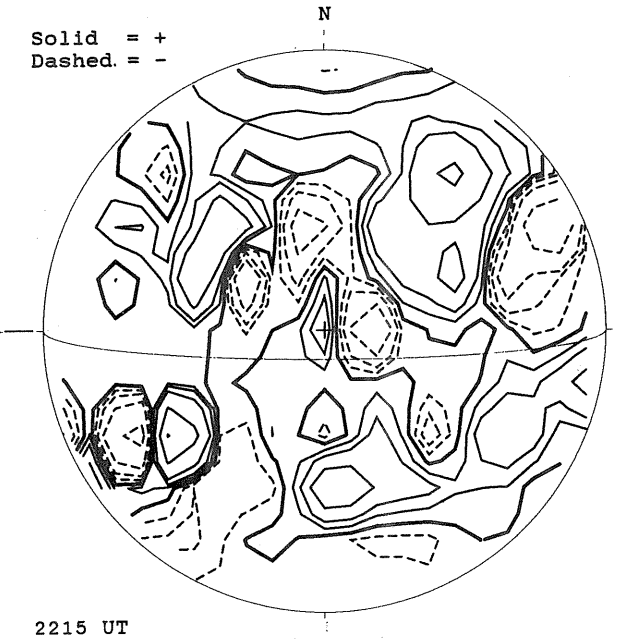
OCTOBER 13, 1989 (P= 26.27, B_o = 5.99, L_o = 304.51)

KITT PEAK MAGNETOGRAM



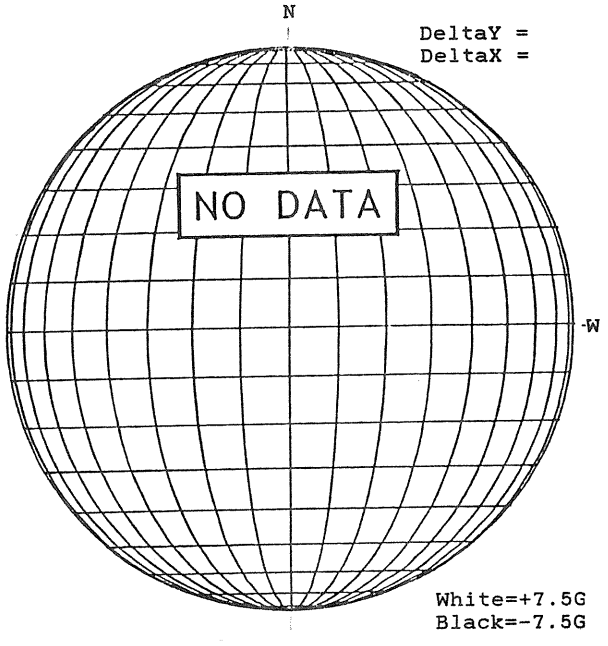
1414 UT

STANFORD MAGNETOGRAM

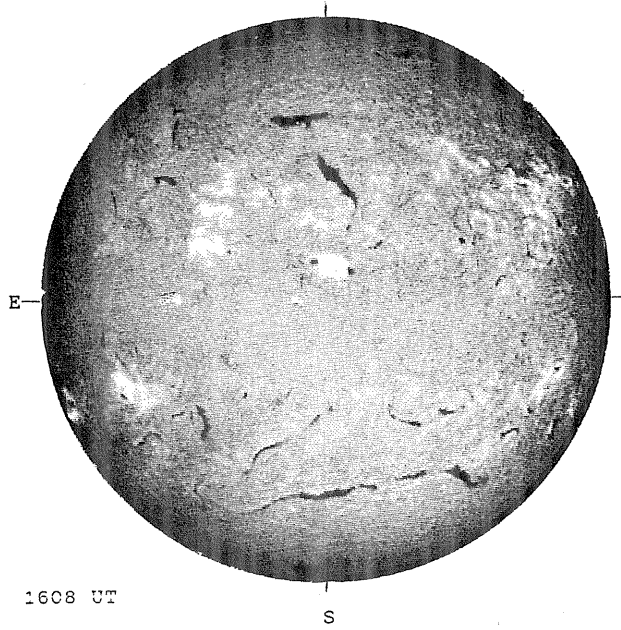


2215 UT

MT. WILSON MAGNETOGRAM

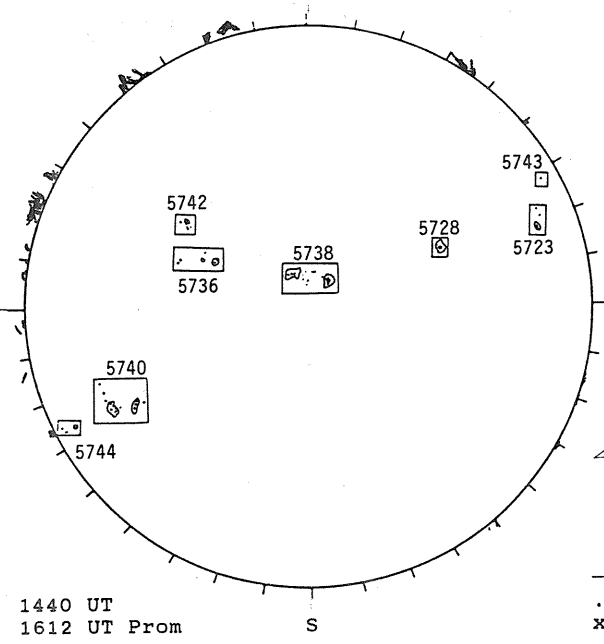


HOLLOMAN H-ALPHA



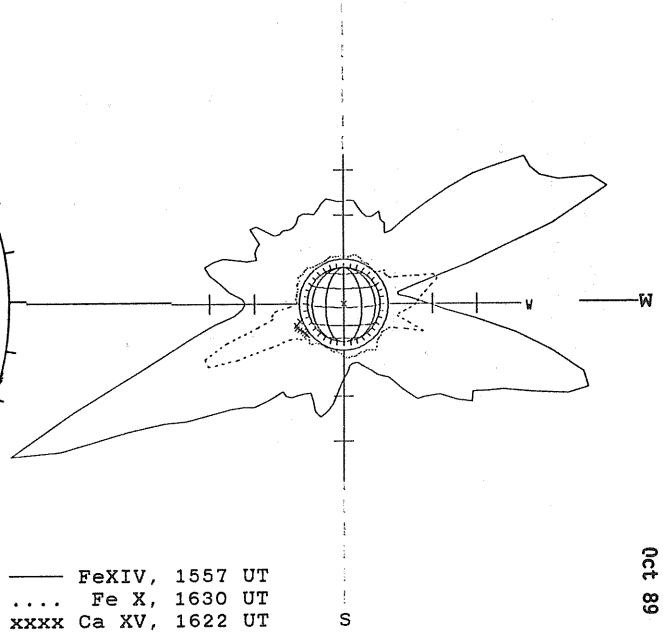
1608 UT

BOULDER SUNSPOT



1440 UT
1612 UT Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1557 UT
.... Fe X, 1630 UT
xxxx Ca XV, 1622 UT

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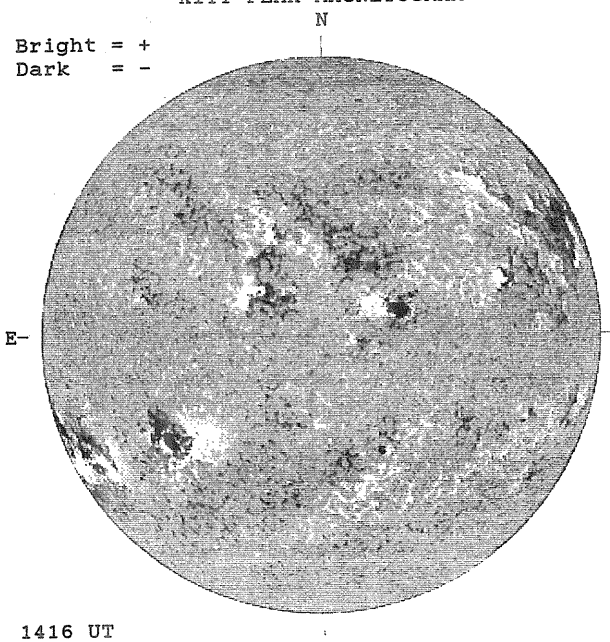
OCTOBER 14, 1989 (P= 26.25, B_o = 5.92, L_o = 291.32)

oct 89

KITT PEAK MAGNETOGRAM

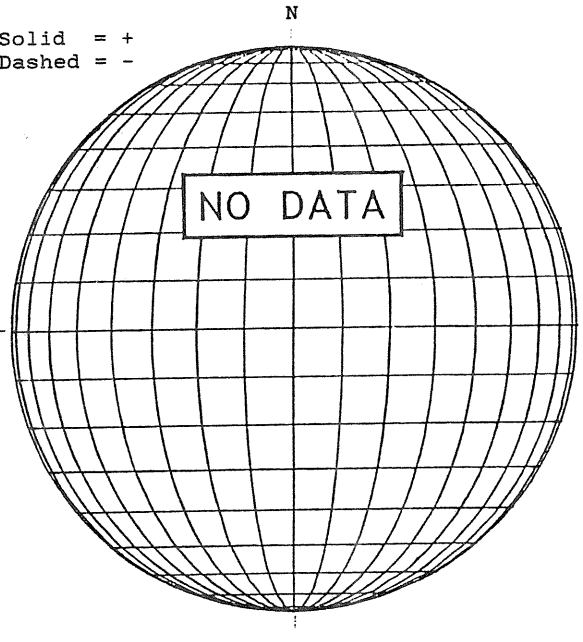
Bright = +
Dark = -



1416 UT

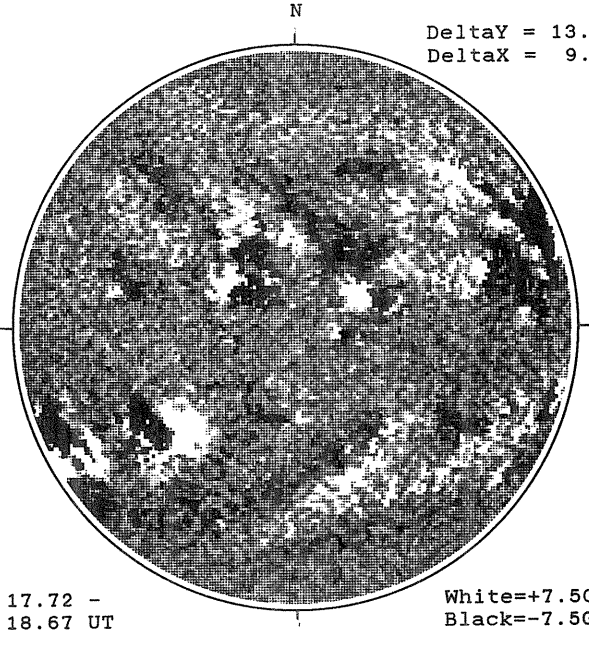
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

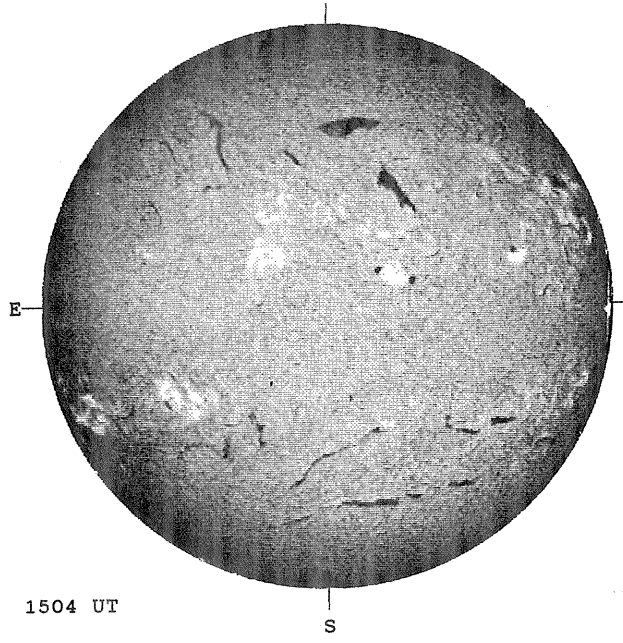
DeltaY = 13.1
DeltaX = 9.6



17.72 -
18.67 UT

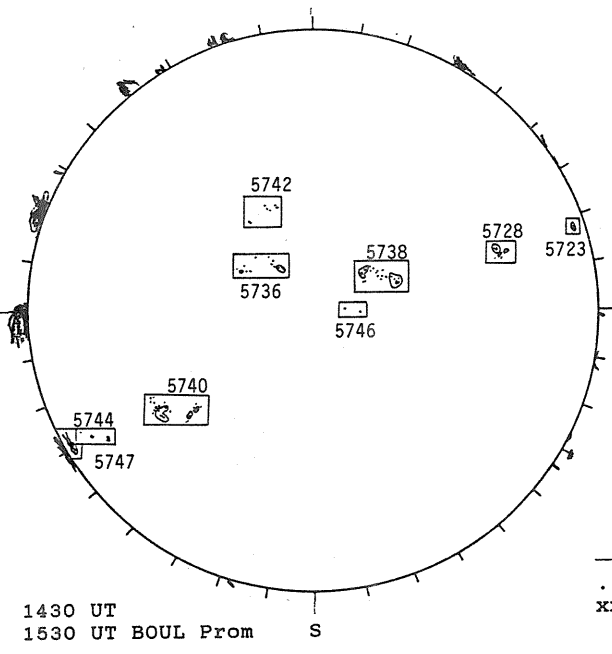
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



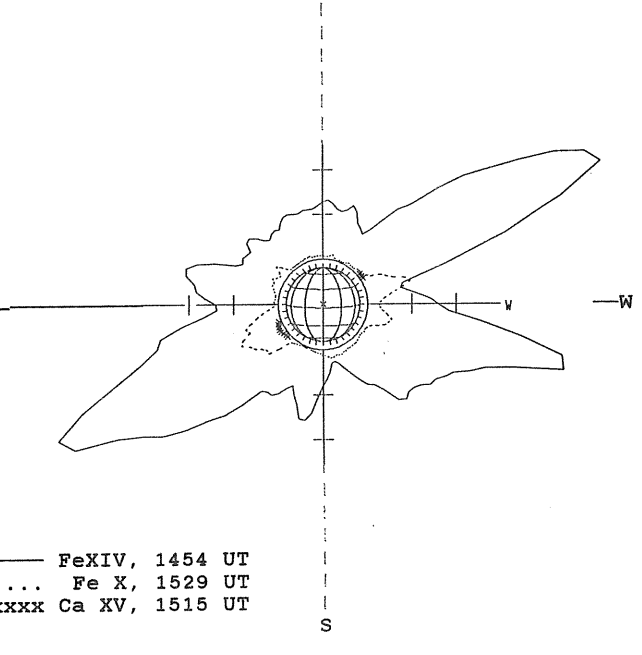
1504 UT

BOULDER SUNSPOT



1430 UT
1530 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

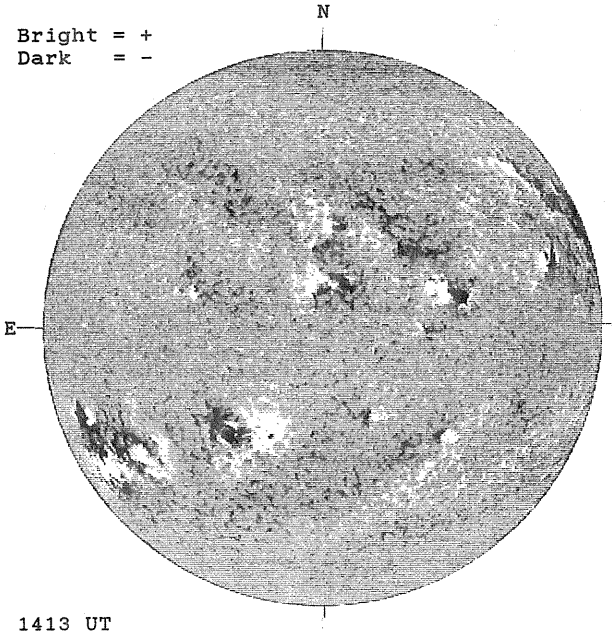


—— FeXIV, 1454 UT
.... Fe X, 1529 UT
xxxx Ca XV, 1515 UT

OCTOBER 15, 1989 (P= 26.22, B_o = 5.85, L_o = 278.13)

KITT PEAK MAGNETOGRAM

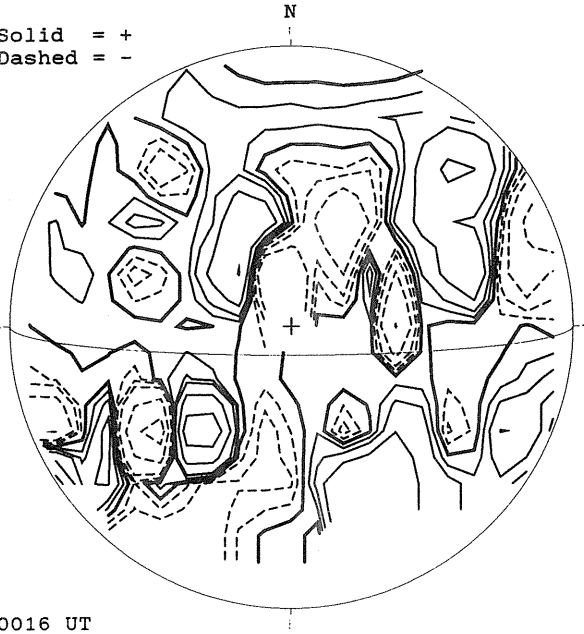
Bright = +
Dark = -



1413 UT

STANFORD MAGNETOGRAM

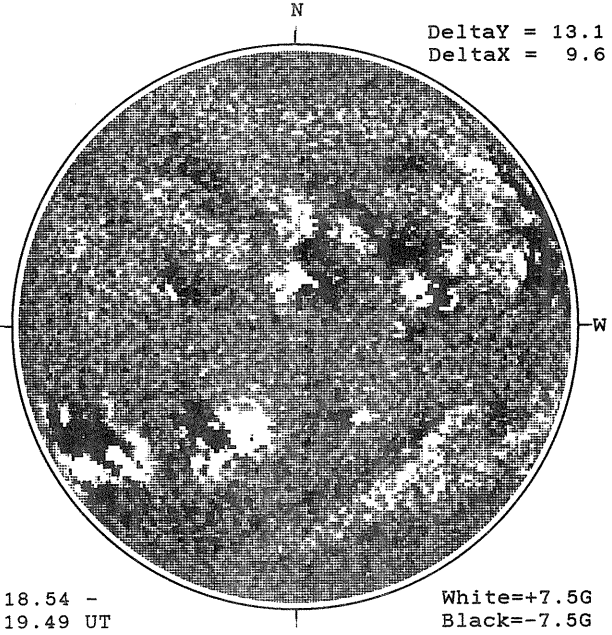
Solid = +
Dashed = -



0016 UT

MT. WILSON MAGNETOGRAM

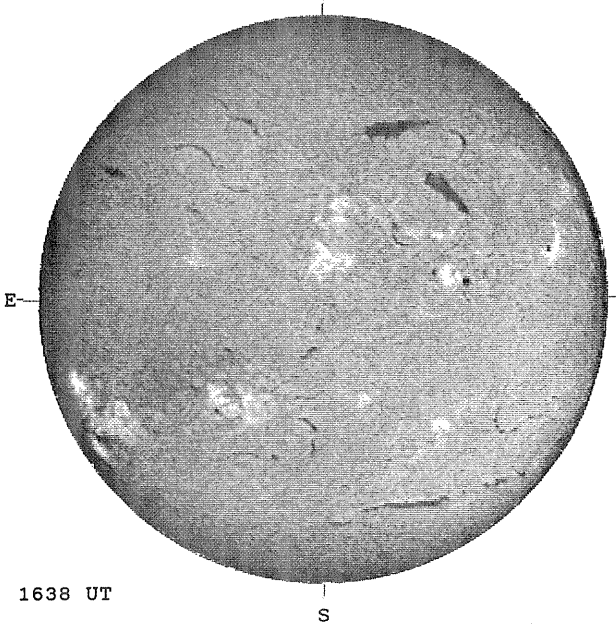
DeltaY = 13.1
DeltaX = 9.6



18.54 -
19.49 UT

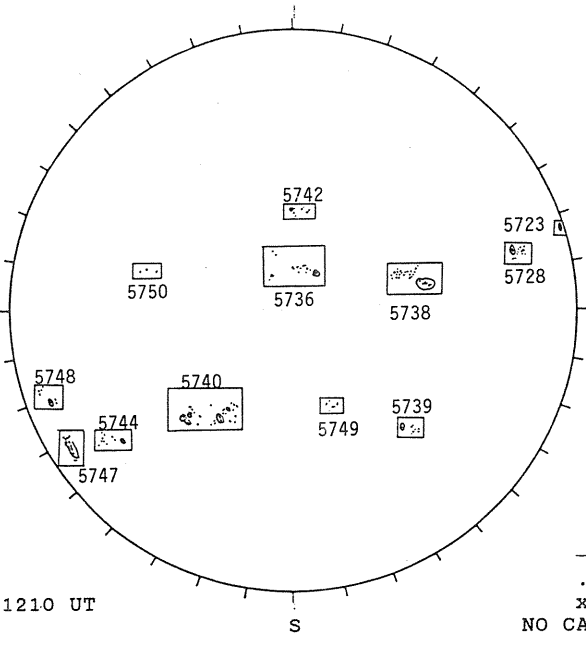
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



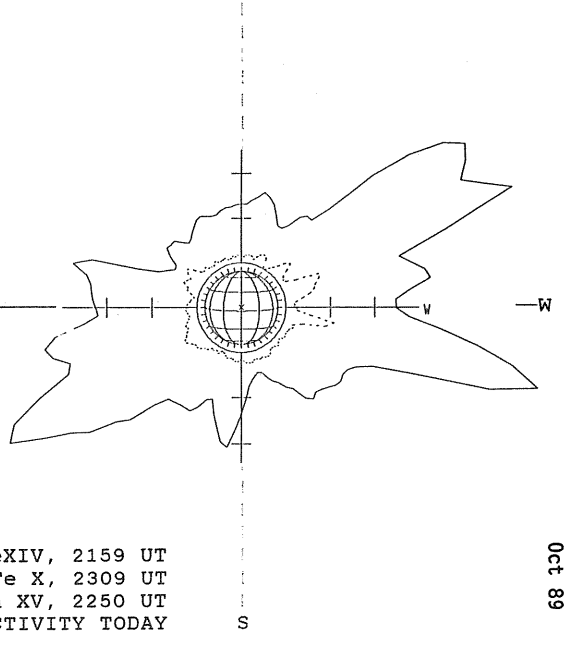
1638 UT

RAMEY SUNSPOT



1210 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



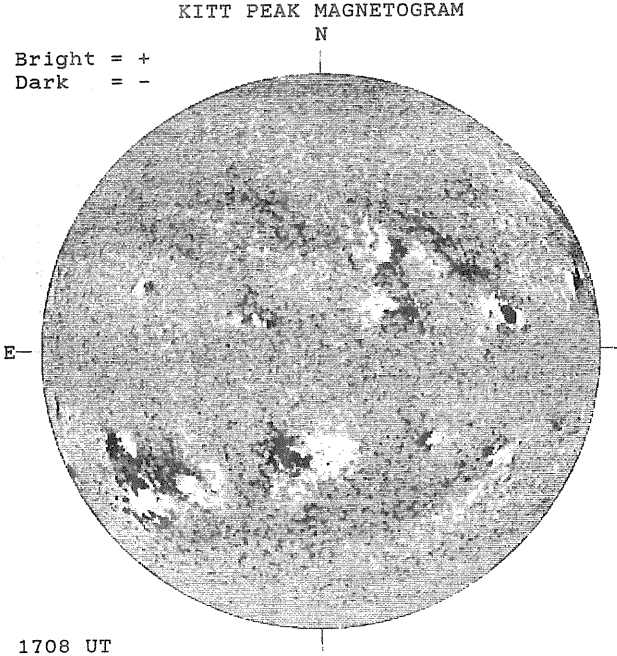
—— FeXIV, 2159 UT
.... Fe X, 2309 UT
xxxx Ca XV, 2250 UT
NO CA XV ACTIVITY TODAY

81
Oct 89

OCTOBER 16, 1989 (P= 26.18, B_o = 5.78, L_o = 264.94)

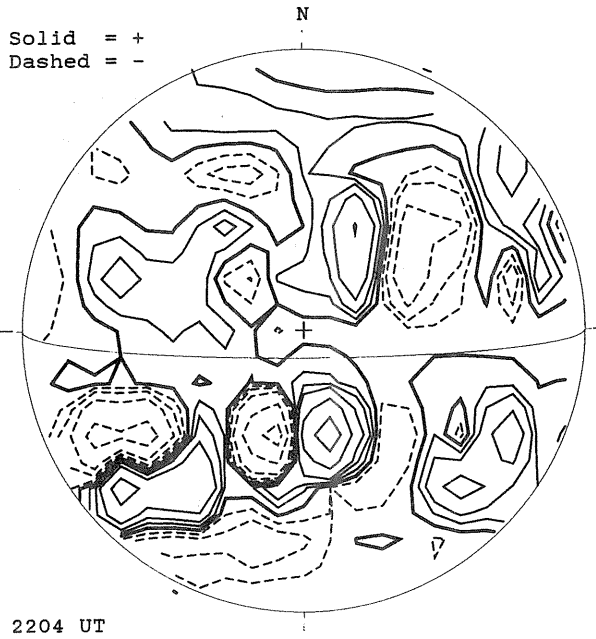
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



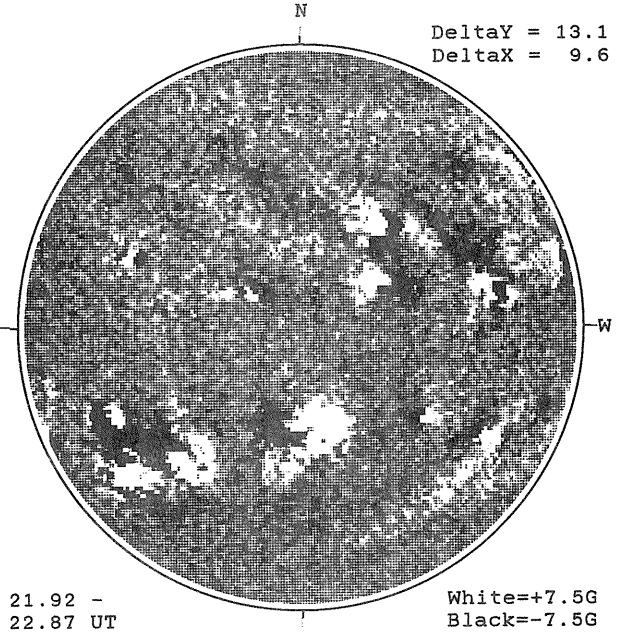
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

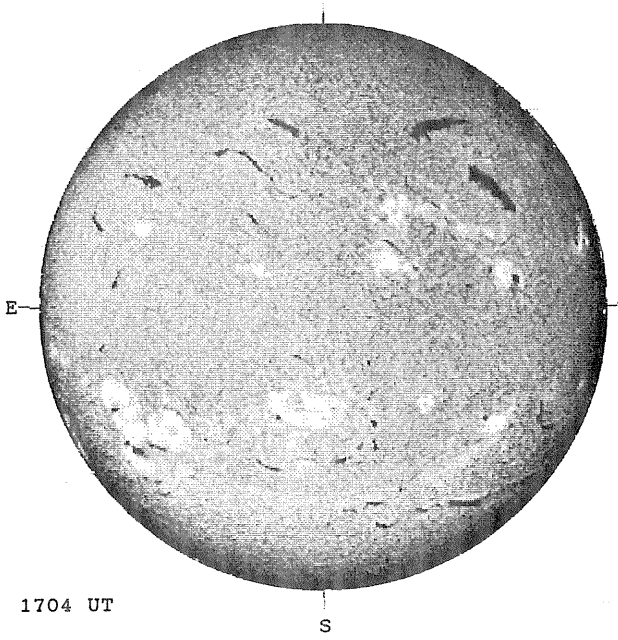


MT. WILSON MAGNETOGRAM

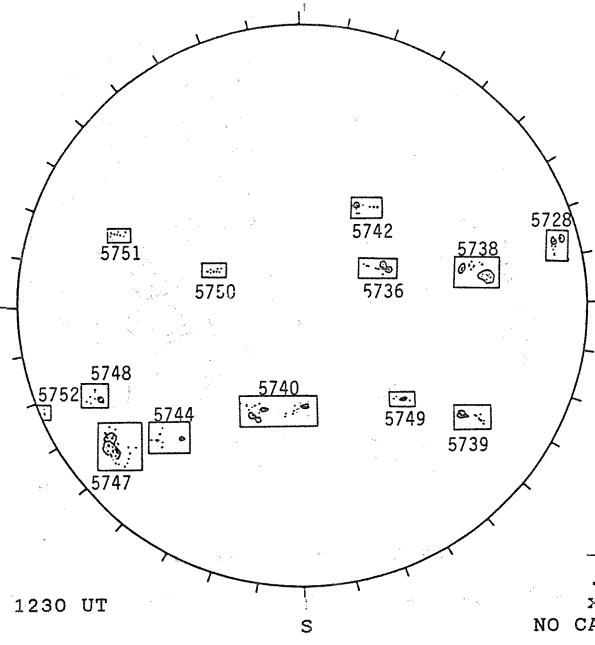
DeltaY = 13.1
DeltaX = 9.6



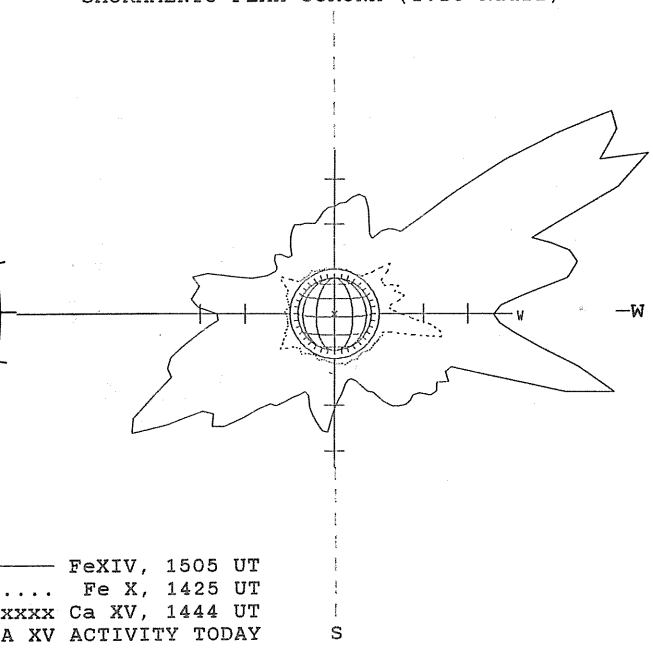
HOLLOMAN H-ALPHA



RAMEY SUNSPOT



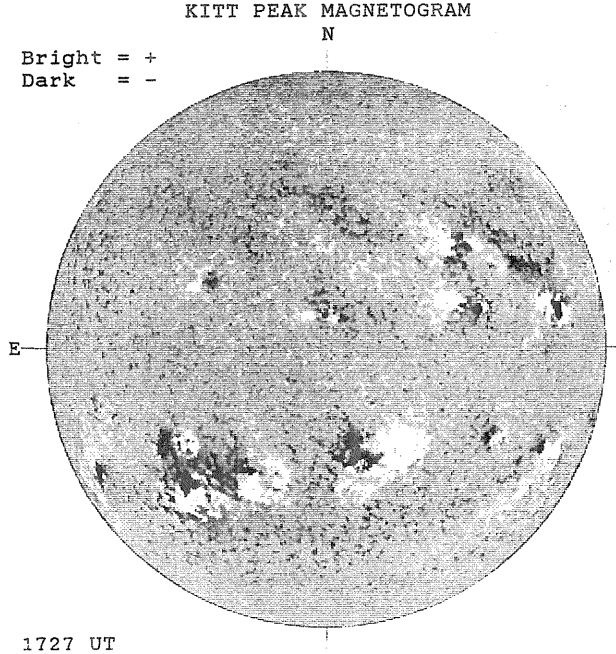
SACRAMENTO PEAK CORONA (1.15 Radii)



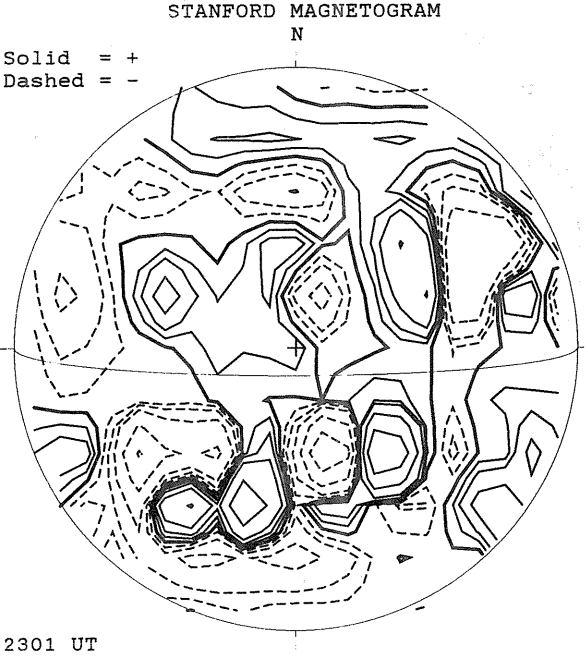
—— FeXIV, 1505 UT
.... Fe X, 1425 UT
xxxx Ca XV, 1444 UT
NO CA XV ACTIVITY TODAY

OCTOBER 17, 1989 (P= 26.13, B_o = 5.70, L_o = 251.75)

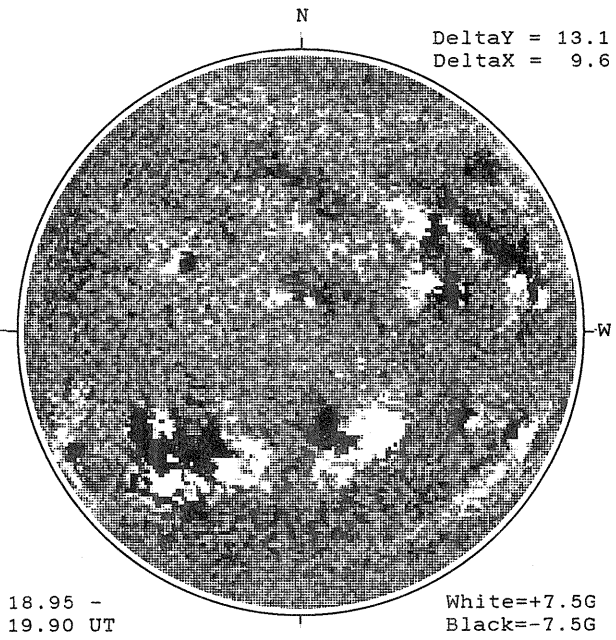
KITT PEAK MAGNETOGRAM



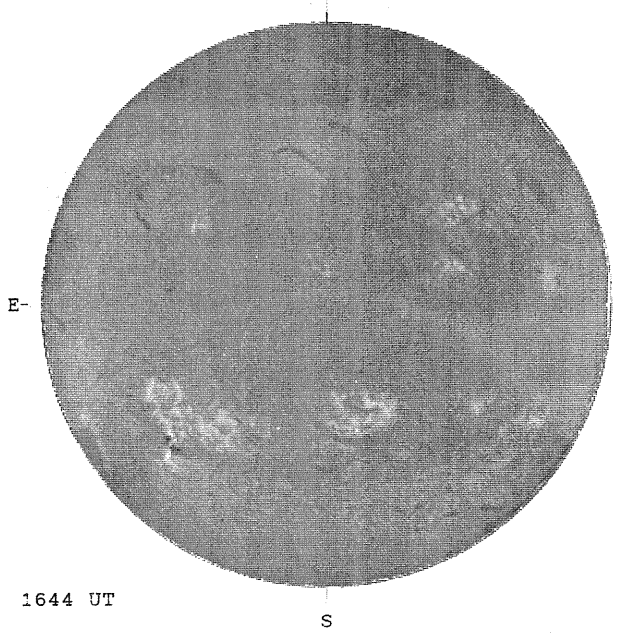
STANFORD MAGNETOGRAM



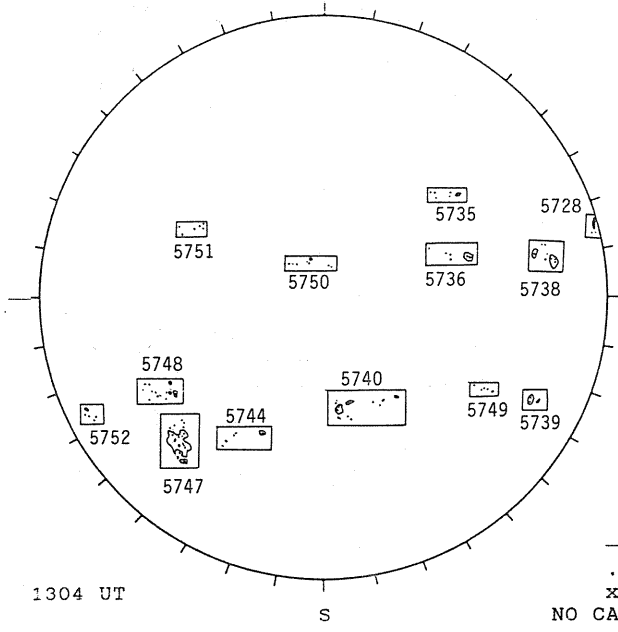
MT. WILSON MAGNETOGRAM



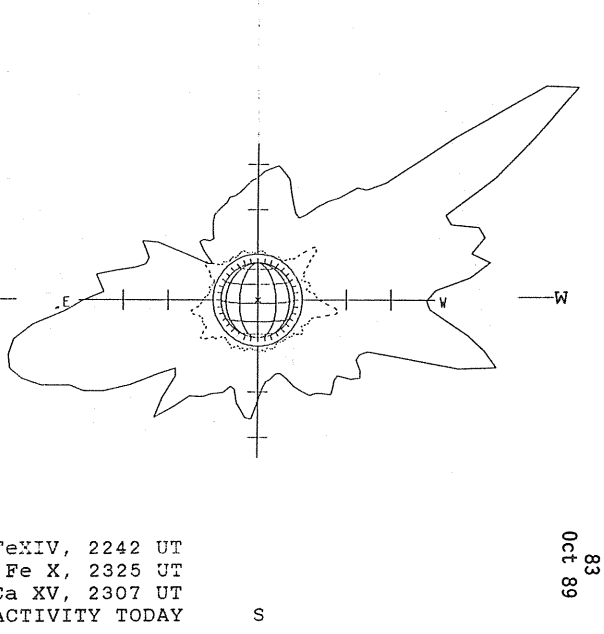
HOLLOMAN H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 2242 UT
.... Fe X, 2325 UT
xxxx Ca XV, 2307 UT
NO CA XV ACTIVITY TODAY

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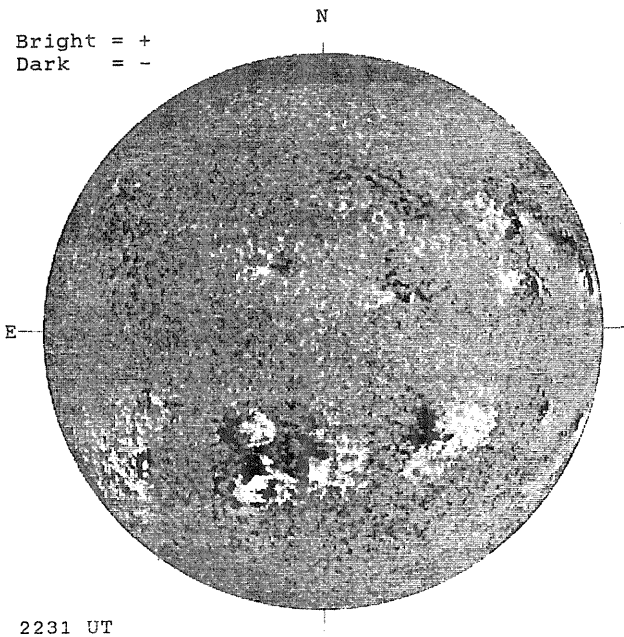
Oct 89

OCTOBER 18, 1989 (P= 26.08, B_o = 5.62, L_o = 238.56)

KITT PEAK MAGNETOGRAM

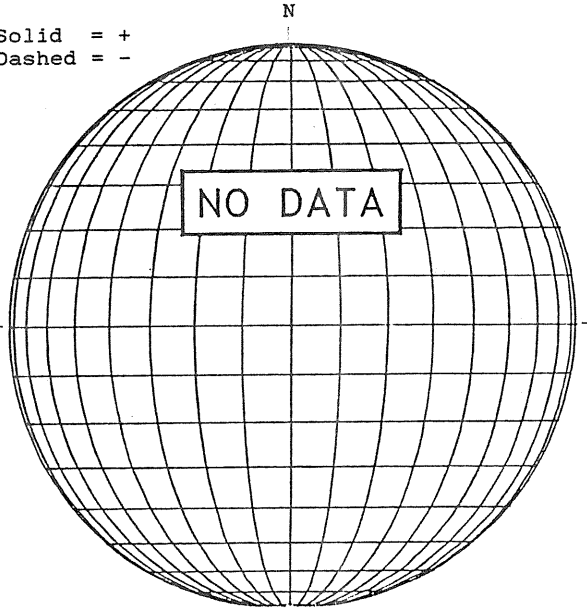
Bright = +
Dark = -



2231 UT

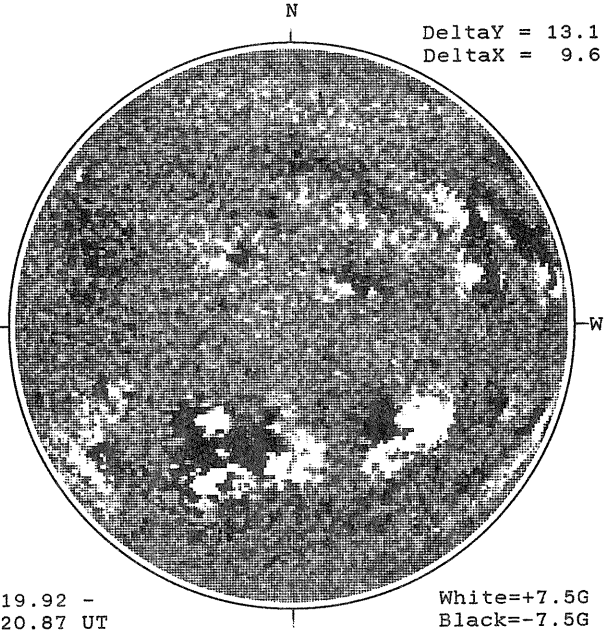
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

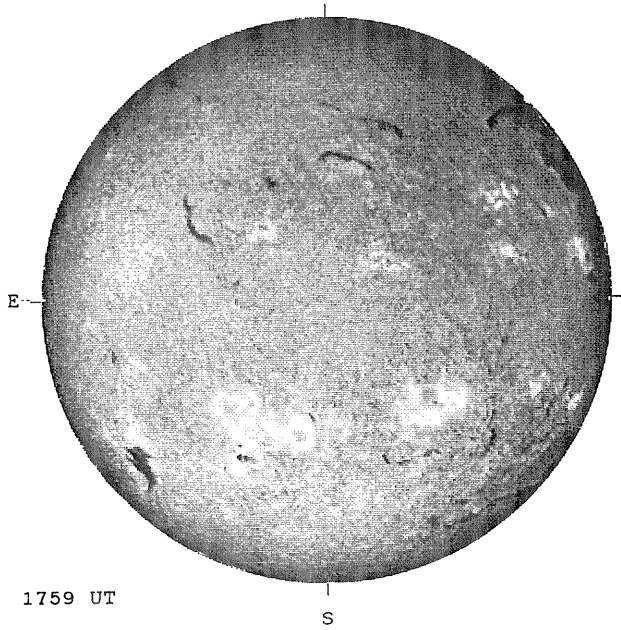
DeltaY = 13.1
DeltaX = 9.6



19.92 -
20.87 UT

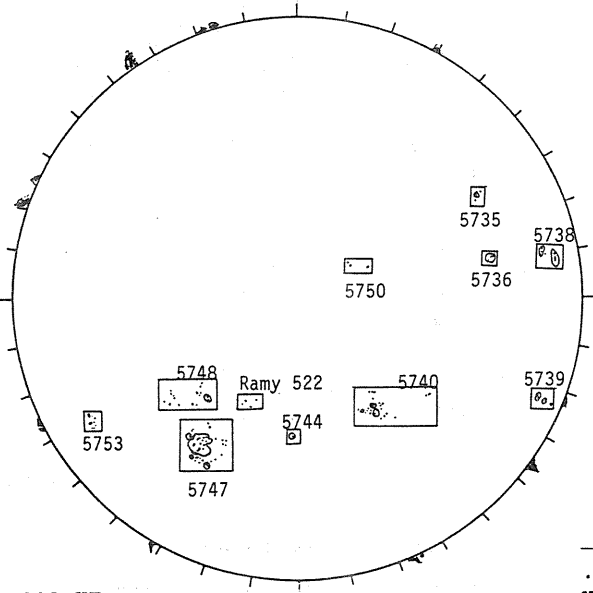
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



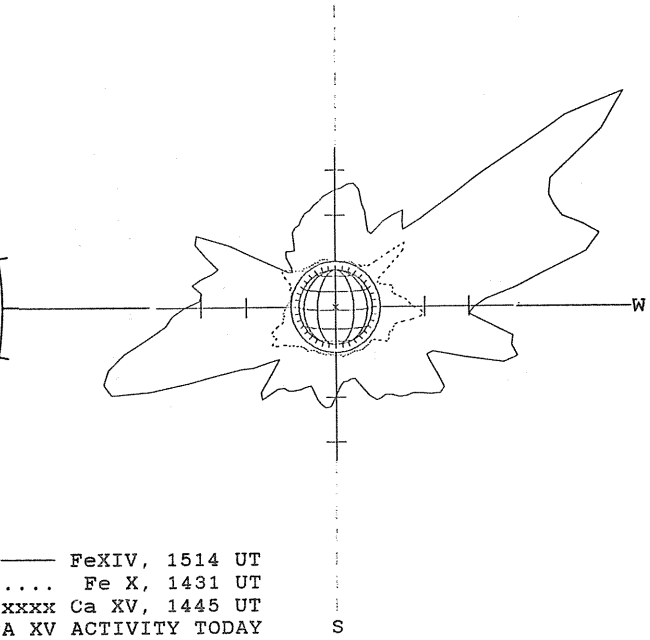
1759 UT

RAMEY SUNSPOT



1220 UT
1912 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

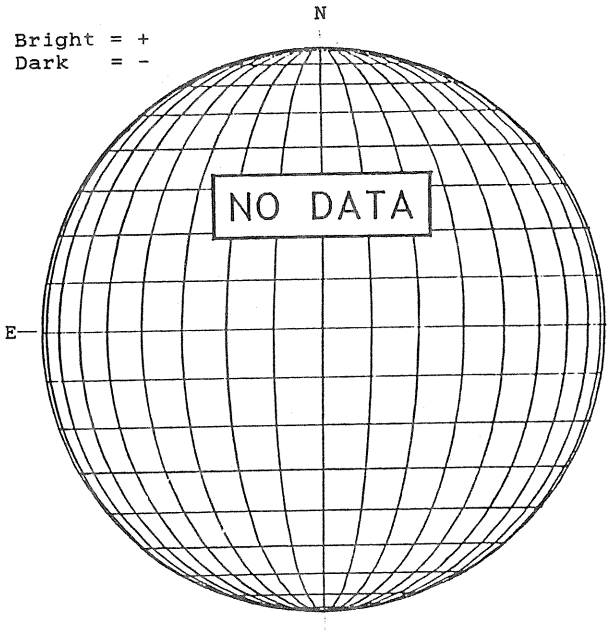


—— FeXIV, 1514 UT
.... Fe X, 1431 UT
xxxx Ca XV, 1445 UT
NO CA XV ACTIVITY TODAY

OCTOBER 19, 1989 (P= 26.02, B_o = 5.54, L_o = 225.37)

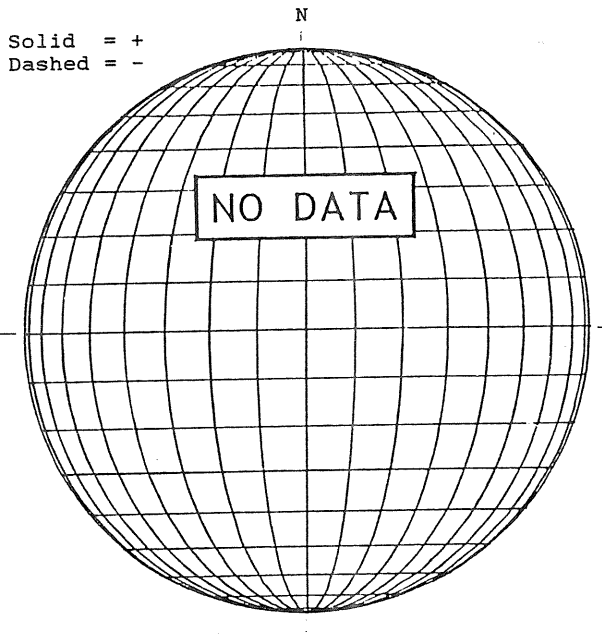
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



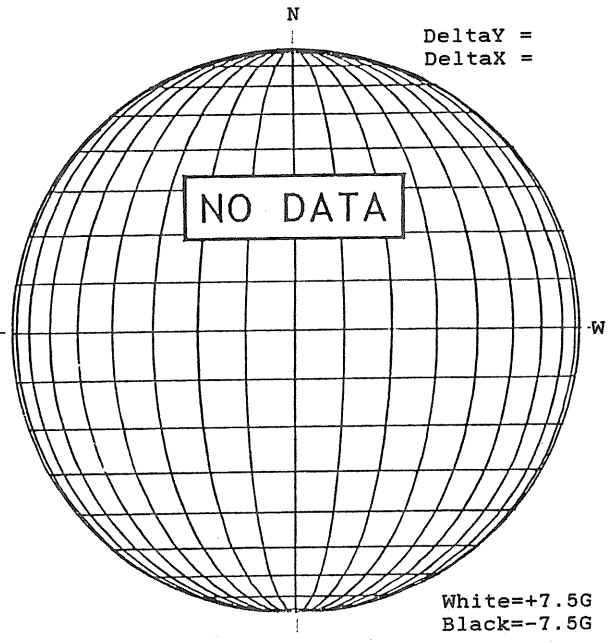
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



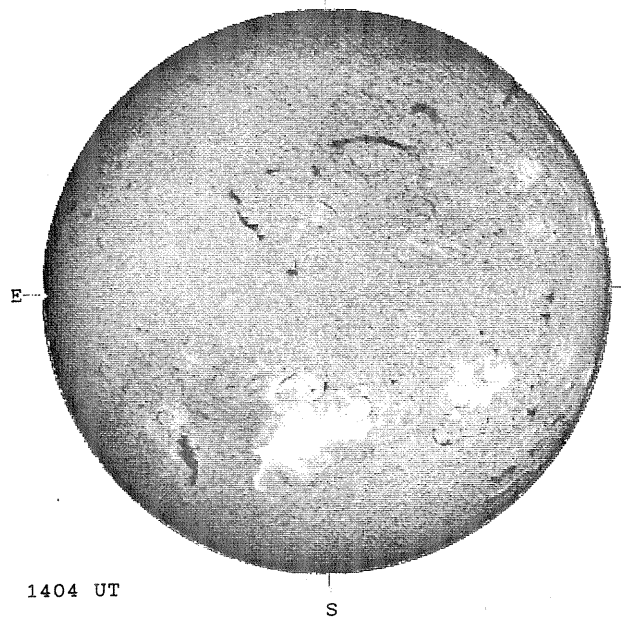
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



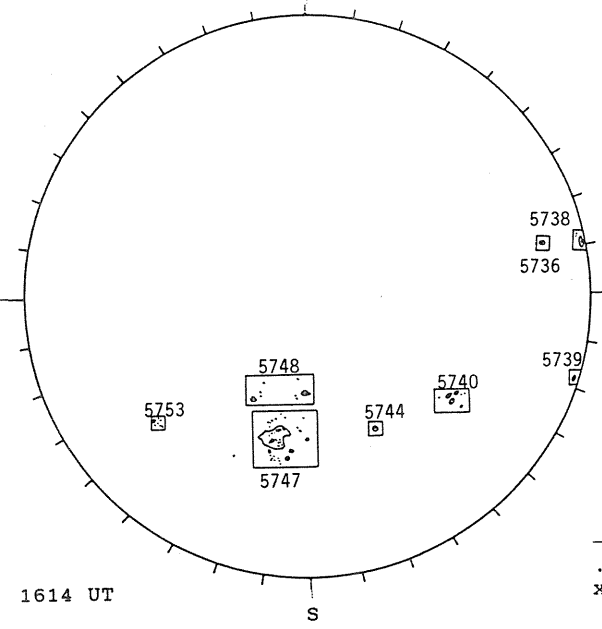
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



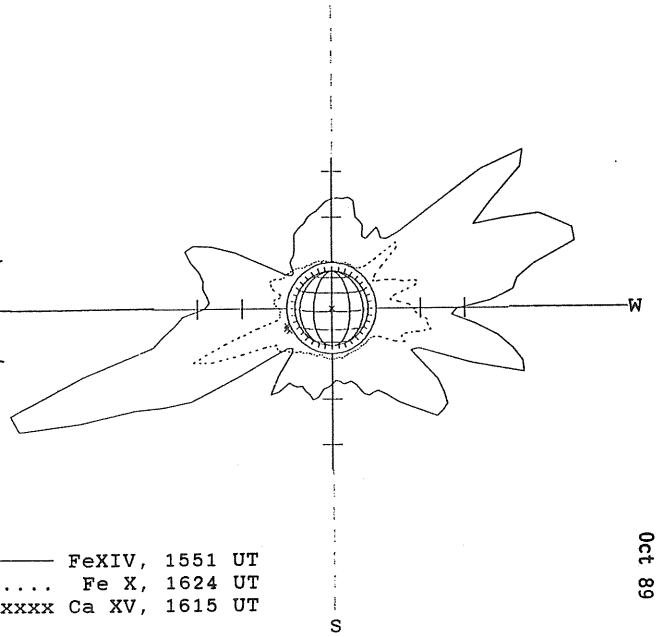
1404 UT

BOULDER SUNSPOT



1614 UT

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1551 UT
.... Fe X, 1624 UT
xxxx Ca XV, 1615 UT

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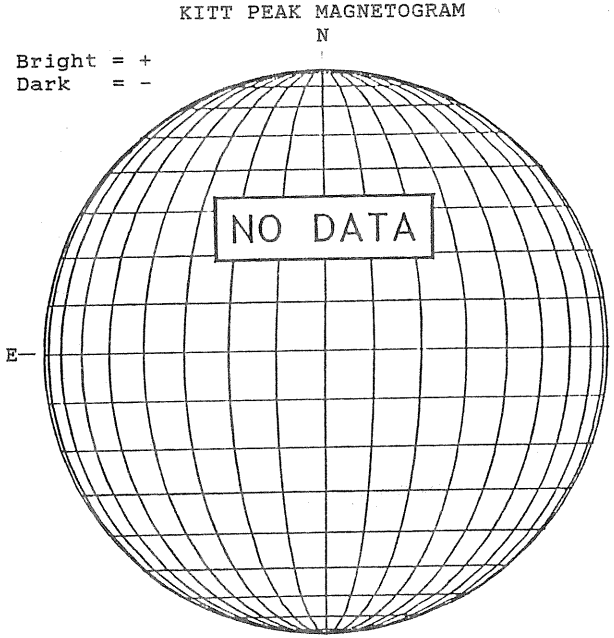
Oct 89

OCTOBER 20, 1989 (P= 25.95, B_o = 5.46, L_o = 212.18)

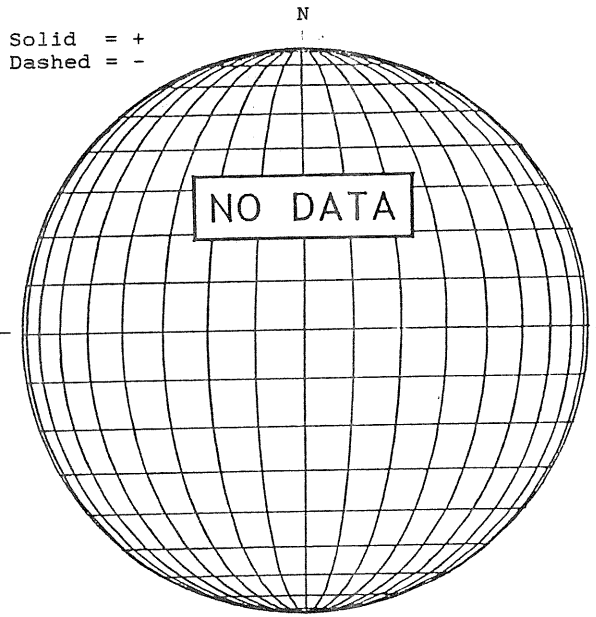
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



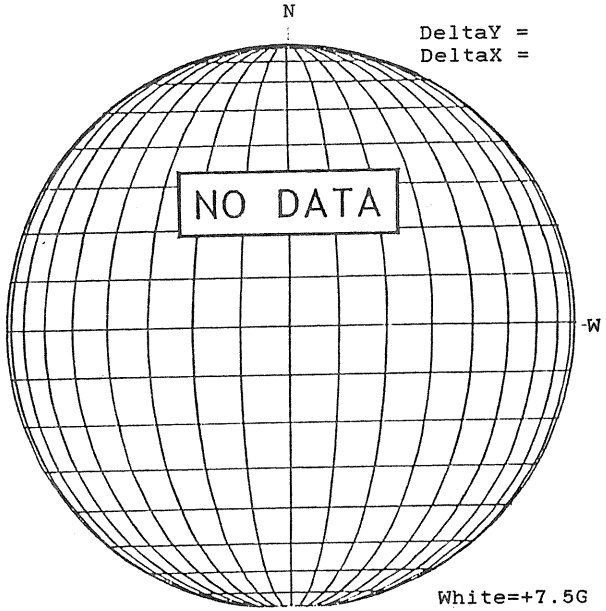
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



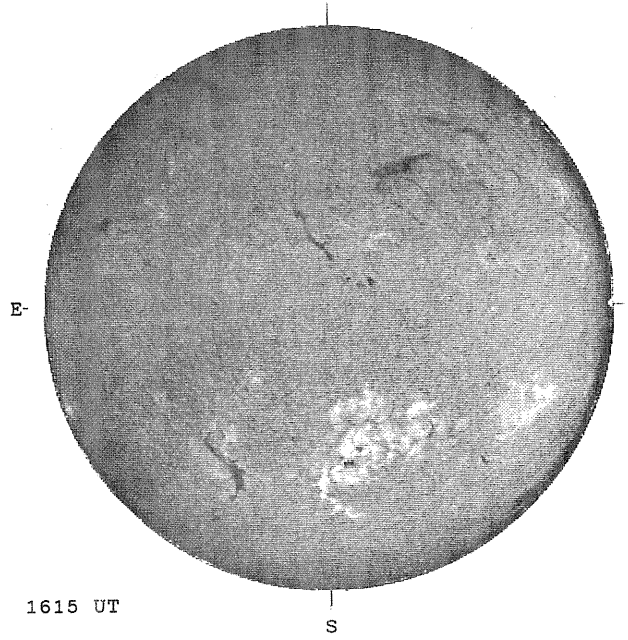
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



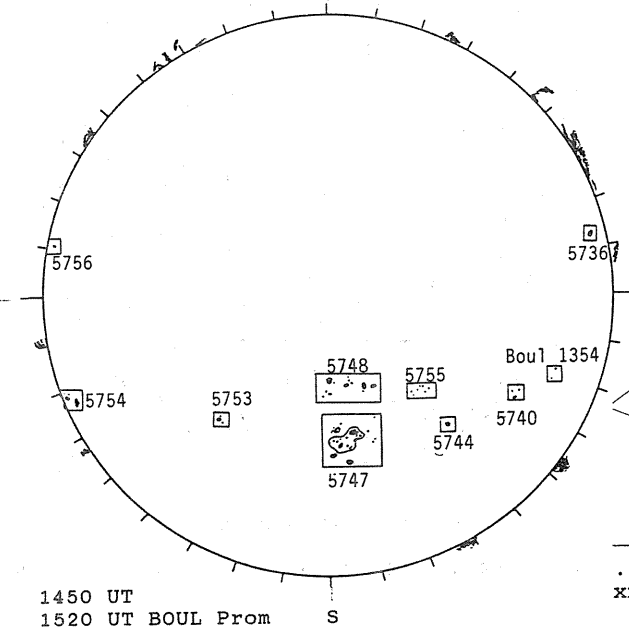
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



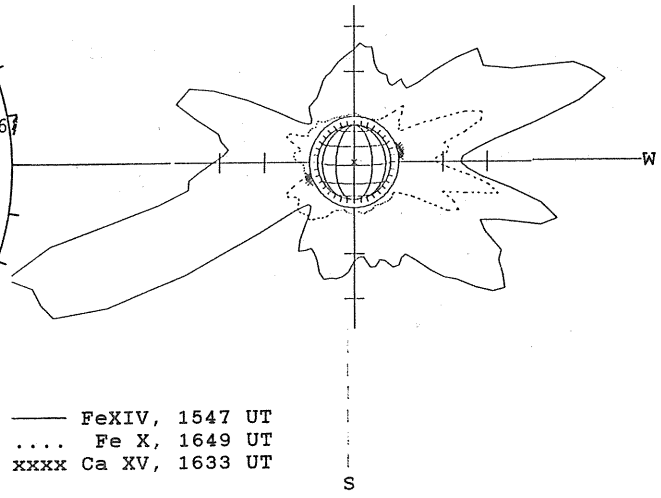
1615 UT

BOULDER SUNSPOT



1450 UT
1520 UT BOUL Prom

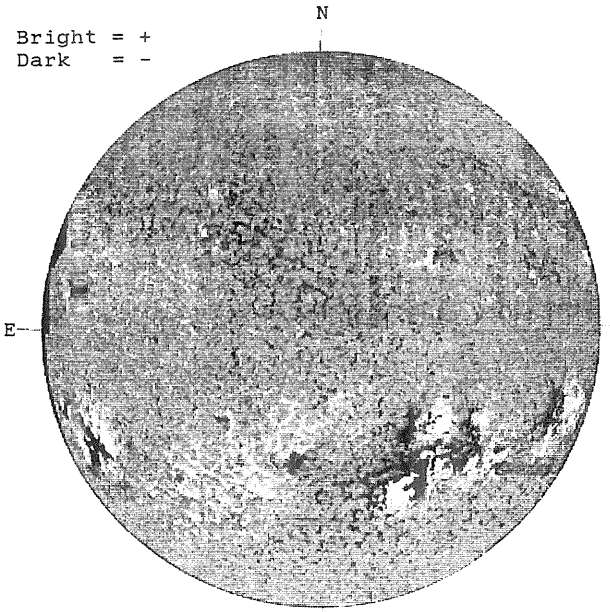
SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1547 UT
.... Fe X, 1649 UT
xxxx Ca XV, 1633 UT

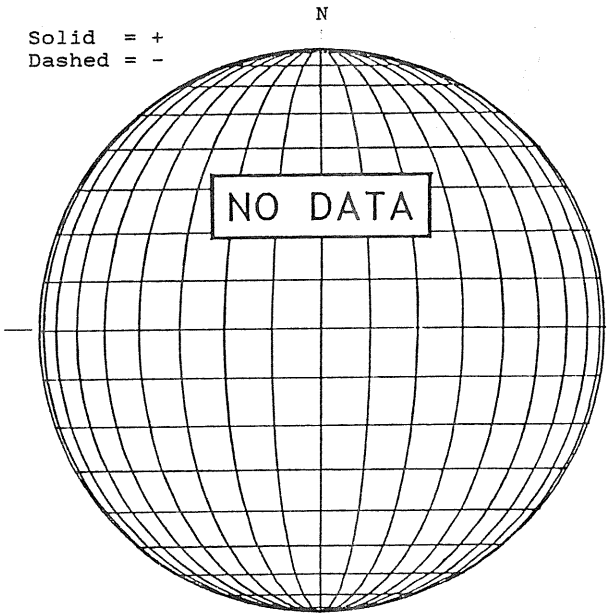
OCTOBER 21, 1989 (P= 25.87, B_o = 5.38, L_o = 198.99)

KITT PEAK MAGNETOGRAM

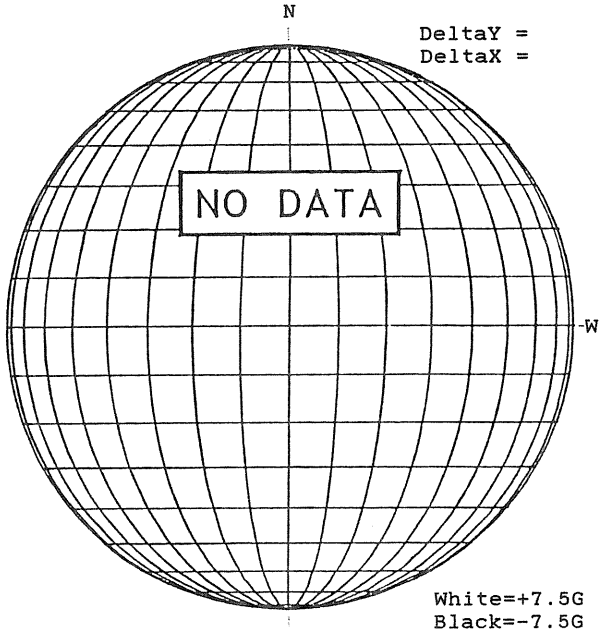


1744 UT

STANFORD MAGNETOGRAM

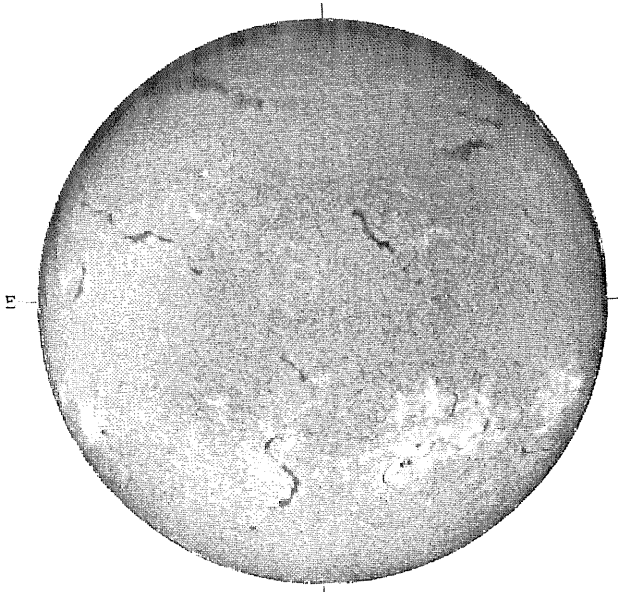


MT. WILSON MAGNETOGRAM



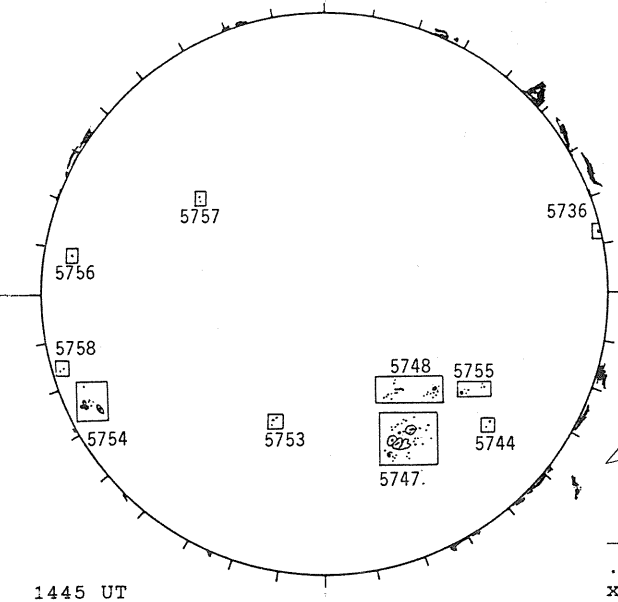
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



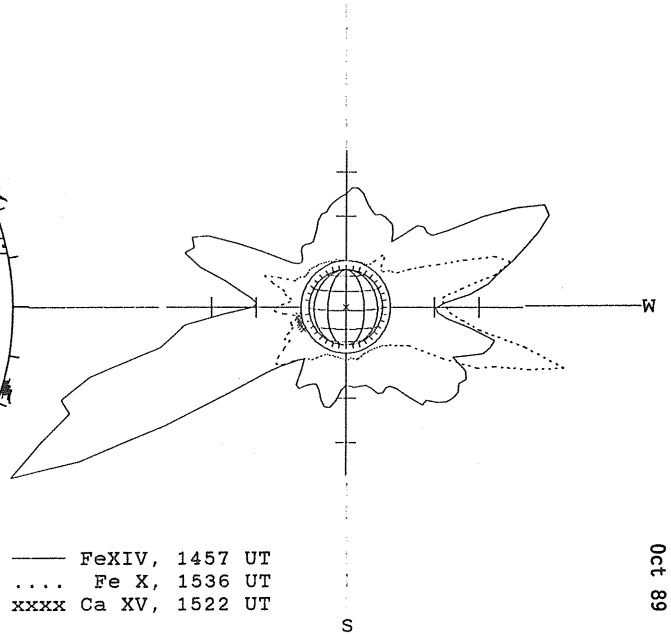
1726 UT

BOULDER SUNSPOT



1445 UT
1530 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



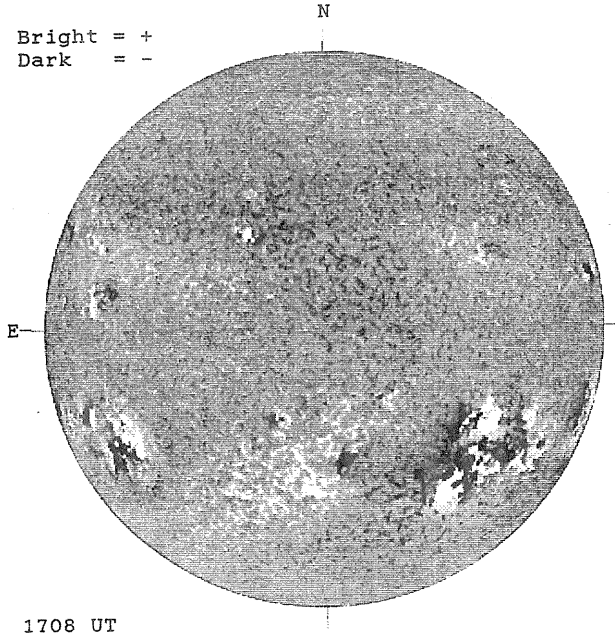
—— FeXIV, 1457 UT
.... Fe X, 1536 UT
xxxx Ca XV, 1522 UT

87 Oct 89

OCTOBER 22, 1989 (P= 25.79, B_o = 5.29, L_o = 185.80)

KITT PEAK MAGNETOGRAM

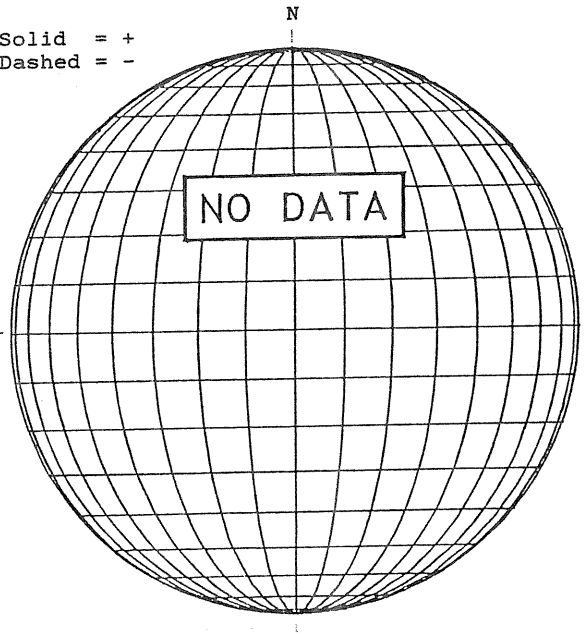
Bright = +
Dark = -



1708 UT

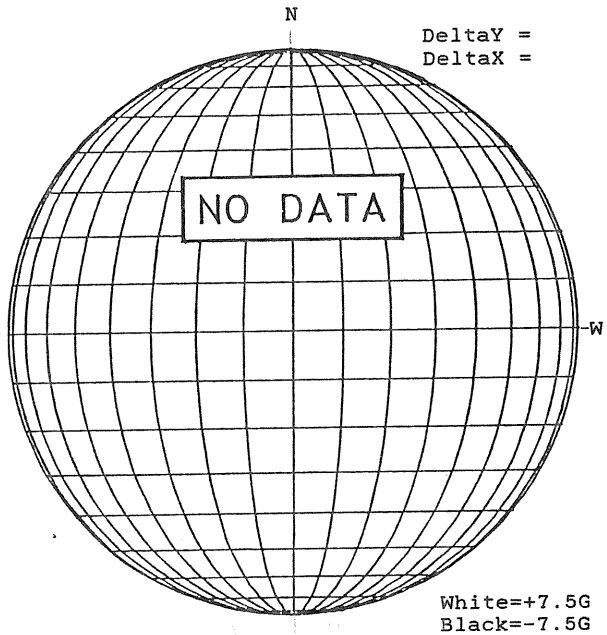
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



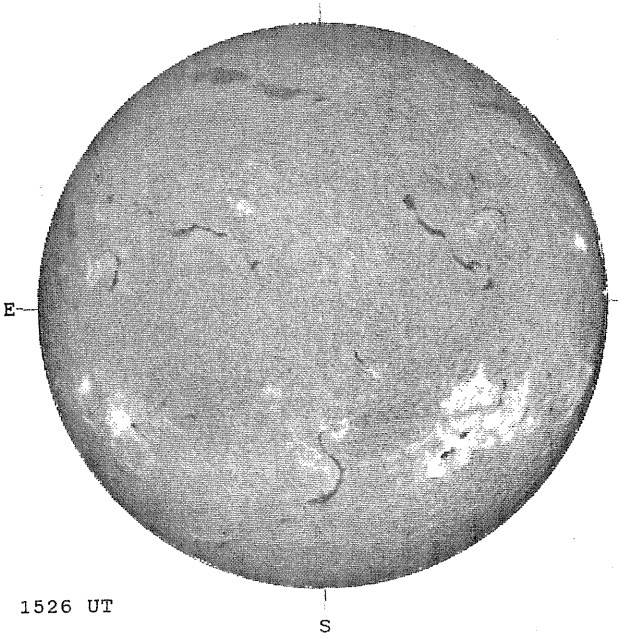
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



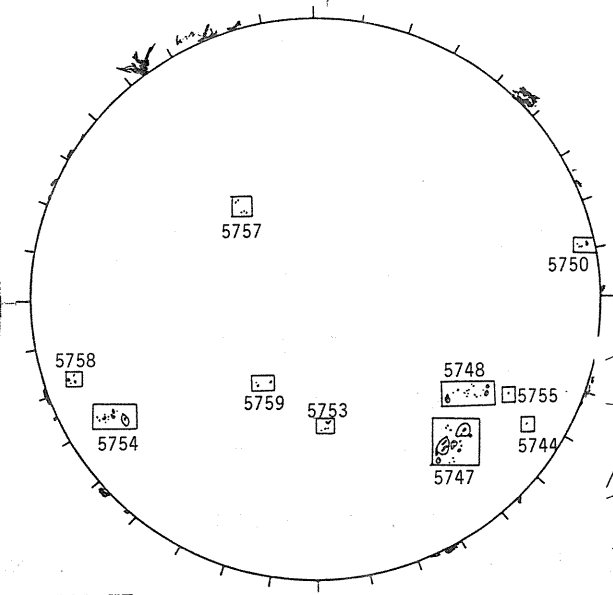
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



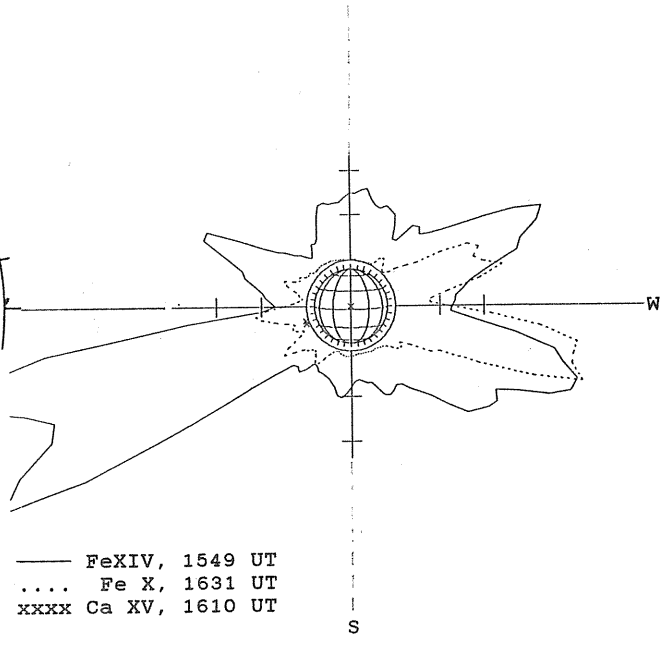
1526 UT

BOULDER SUNSPOT



1532 UT
1542 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

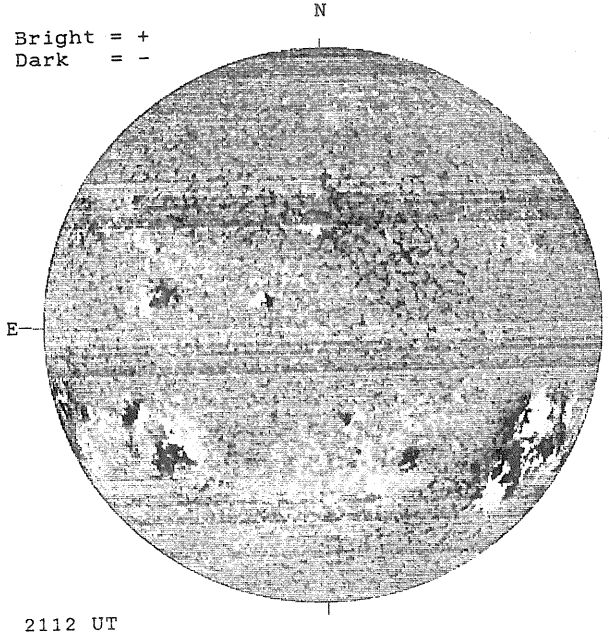


—— FeXIV, 1549 UT
.... Fe X, 1631 UT
xxxx Ca XV, 1610 UT

OCTOBER 23, 1989 (P= 25.70, B_o = 5.21, L_o = 172.61)

KITT PEAK MAGNETOGRAM

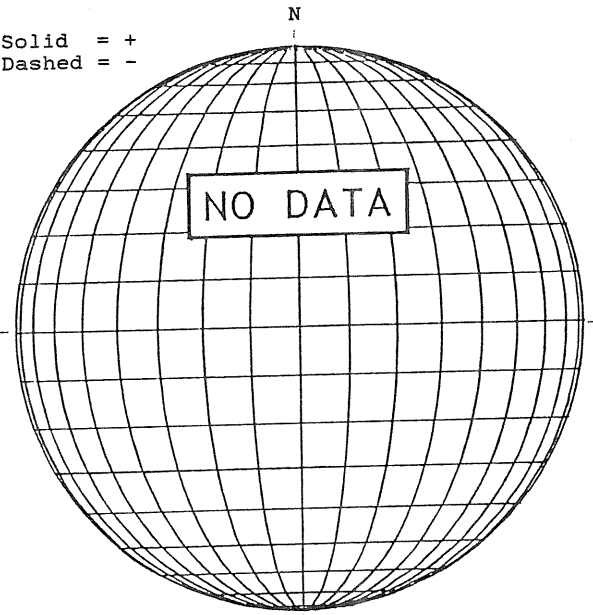
Bright = +
Dark = -



2112 UT

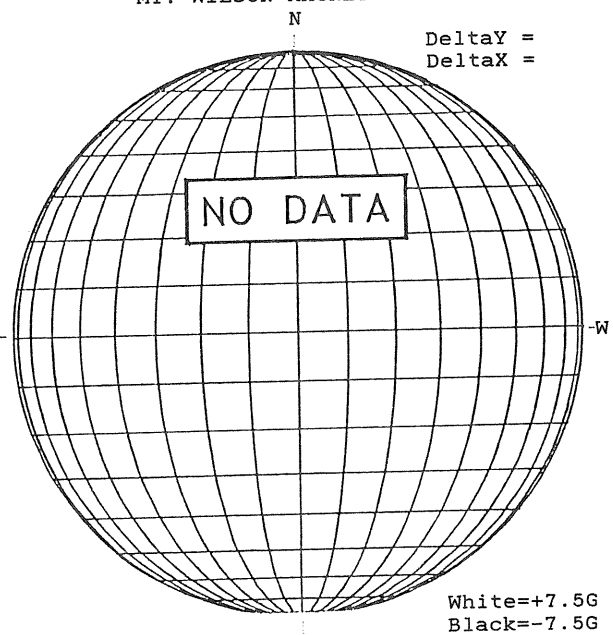
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



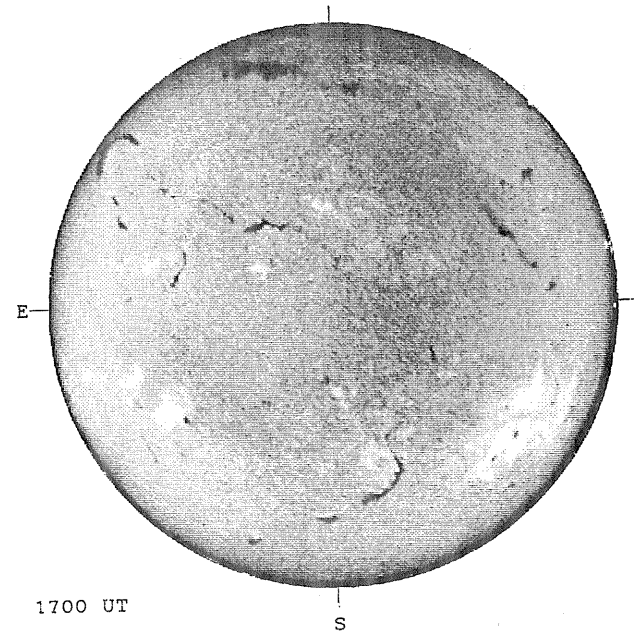
MT. WILSON MAGNETOGRAM

DeltaY =
DeltaX =



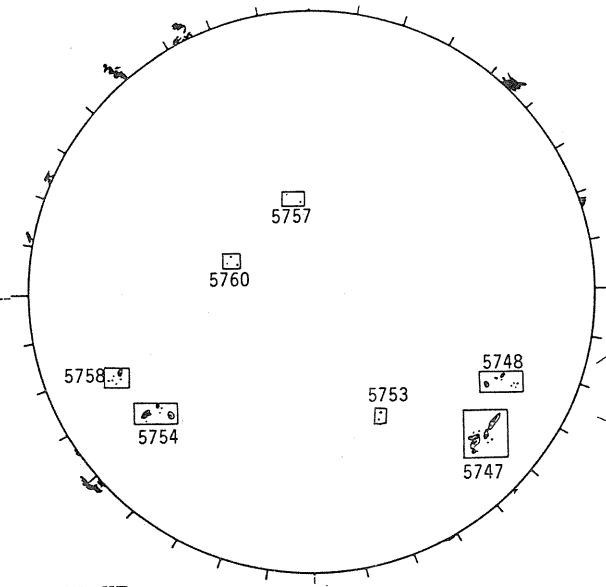
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



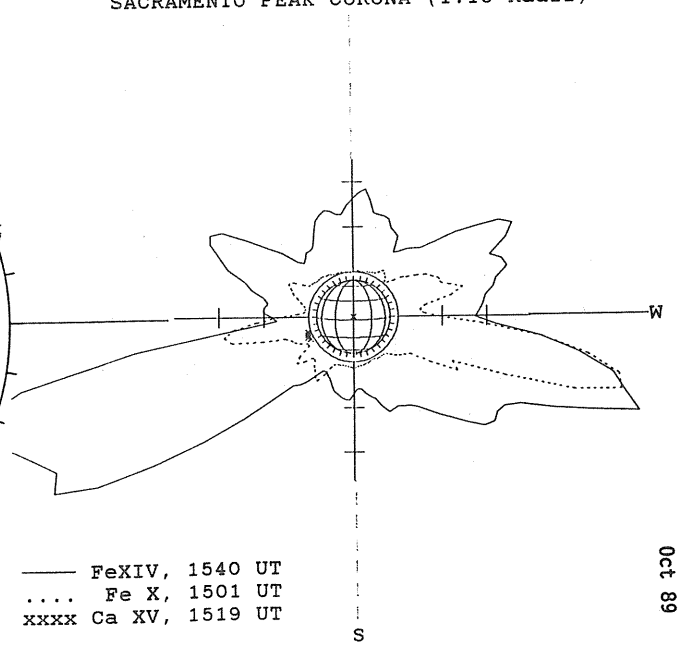
1700 UT

BOULDER SUNSPOT



1400 UT
1533 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1540 UT
.... Fe X, 1501 UT
xxxx Ca XV, 1519 UT

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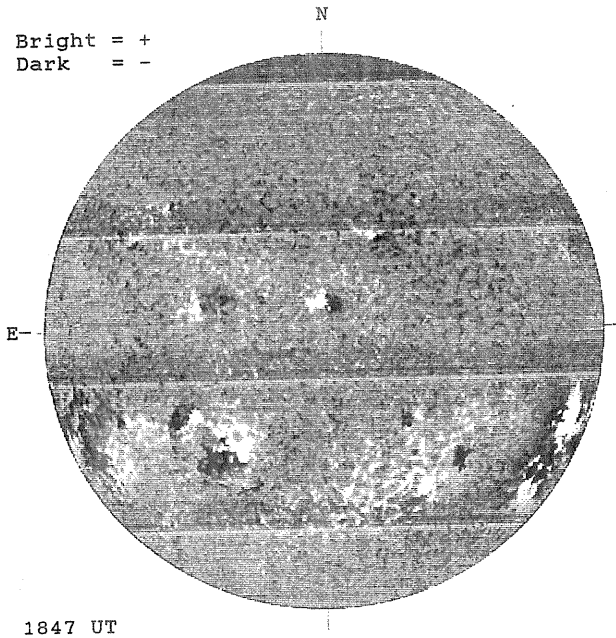
OCTOBER 24, 1989 (P= 25.60, B_o = 5.12, L_o = 159.42)

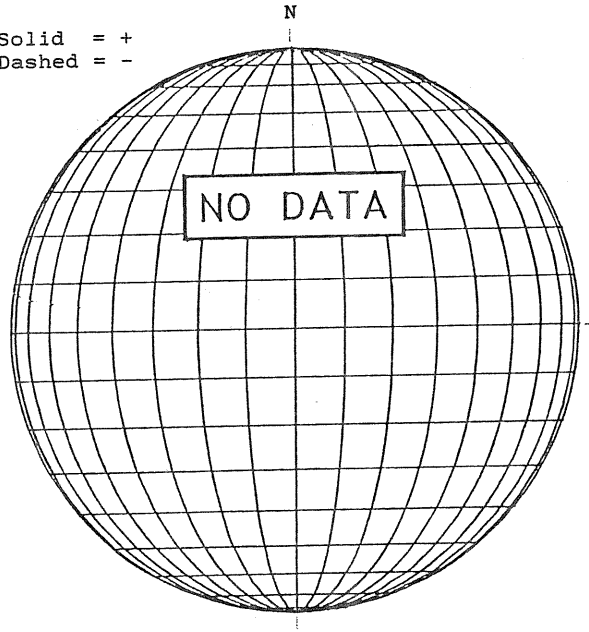
Oct 89

KITT PEAK MAGNETOGRAM

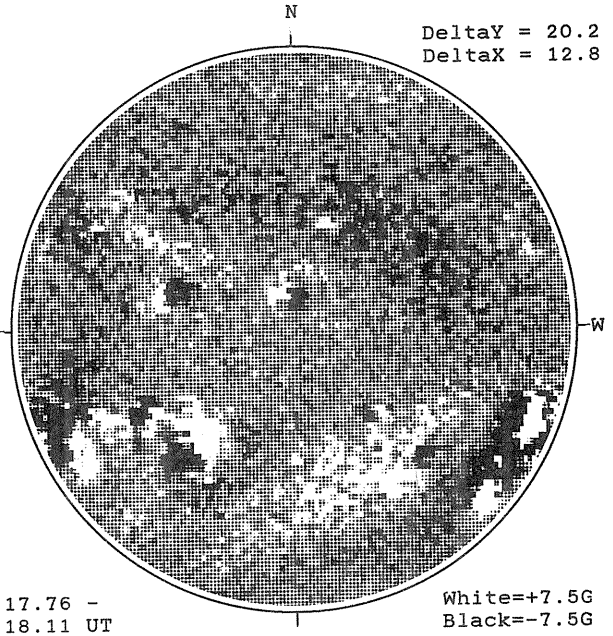


1847 UT

STANFORD MAGNETOGRAM



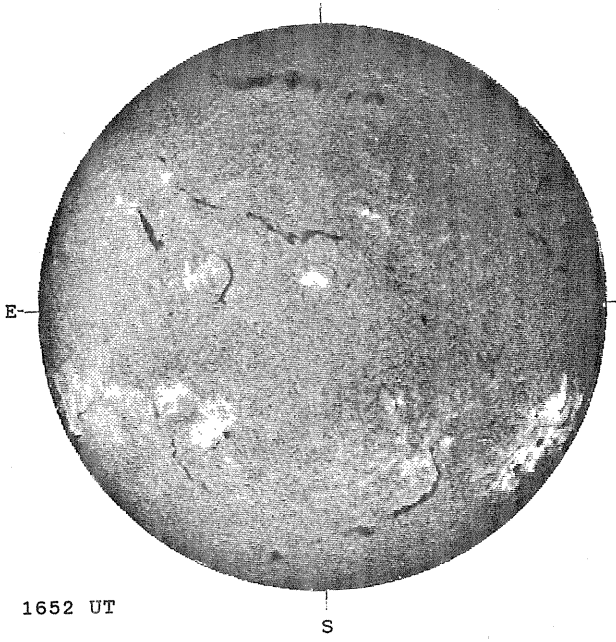
MT. WILSON MAGNETOGRAM



17.76 -
18.11 UT

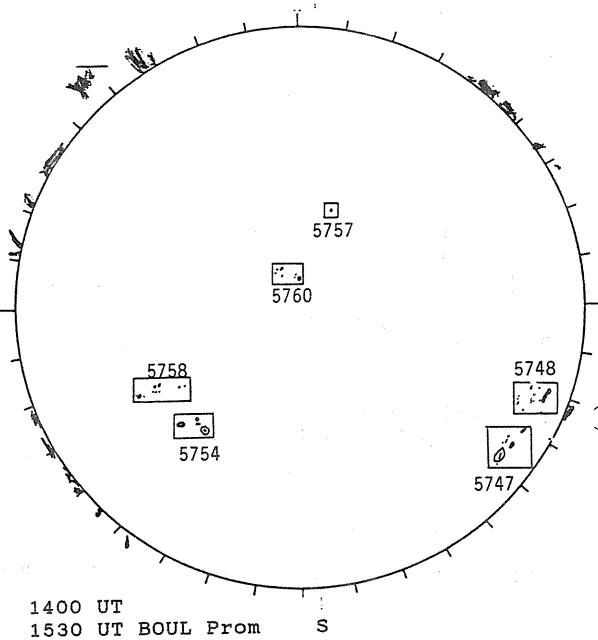
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



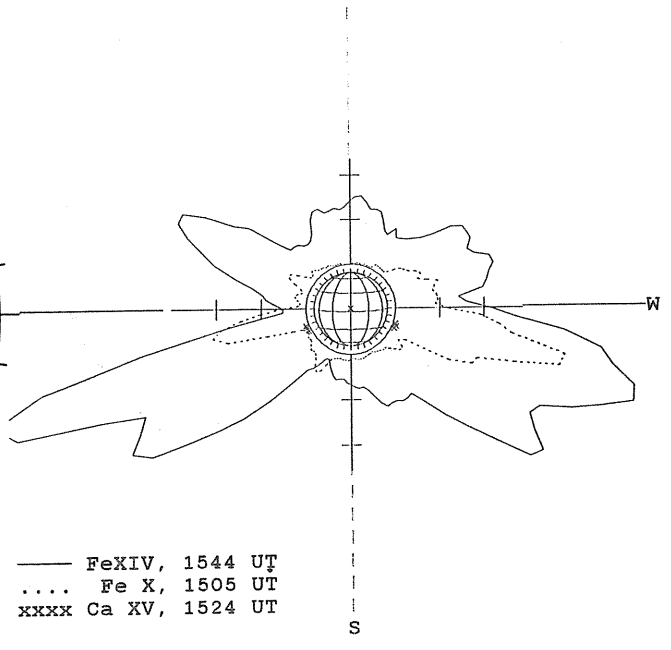
1652 UT

BOULDER SUNSPOT



1400 UT
1530 UT BOUL Prom

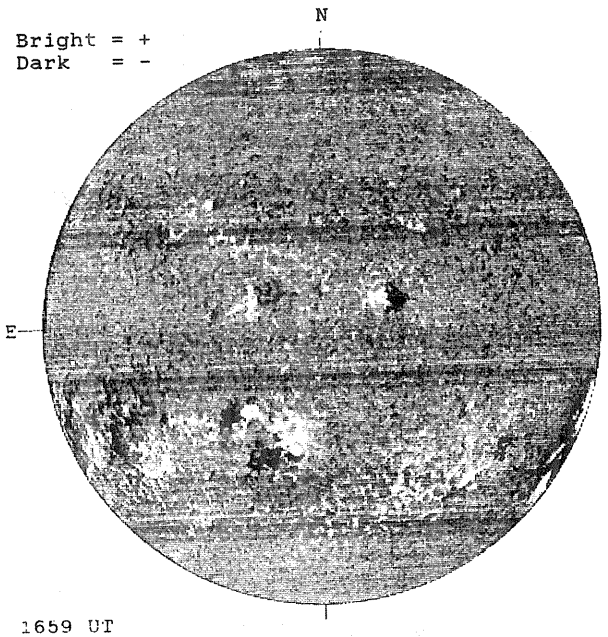
SACRAMENTO PEAK CORONA (1.15 Radii)



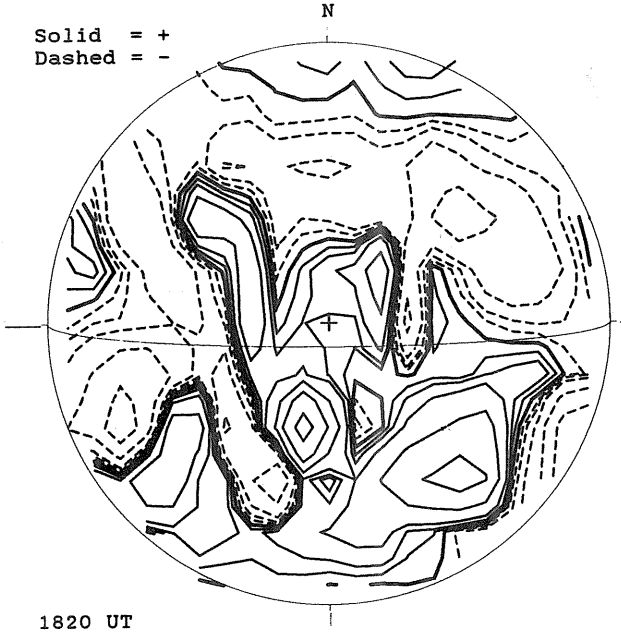
—— FeXIV, 1544 UT
.... Fe X, 1505 UT
xxxx Ca XV, 1524 UT

OCTOBER 25, 1989 (P= 25.49, B_o = 5.03, L_o = 146.24)

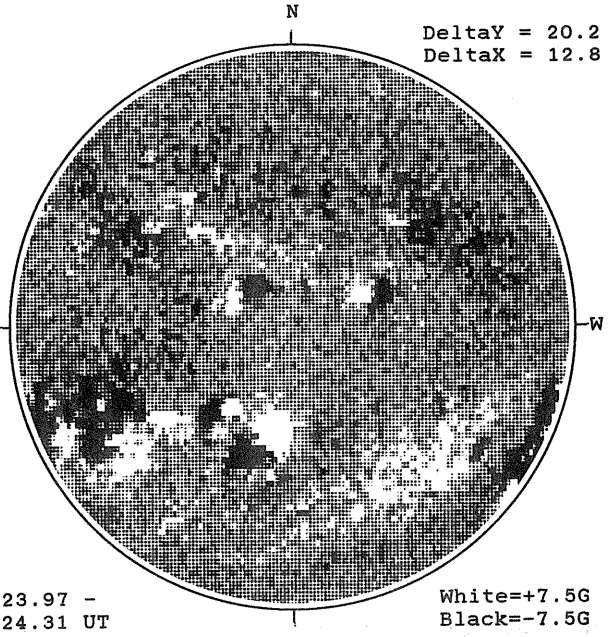
KITT PEAK MAGNETOGRAM



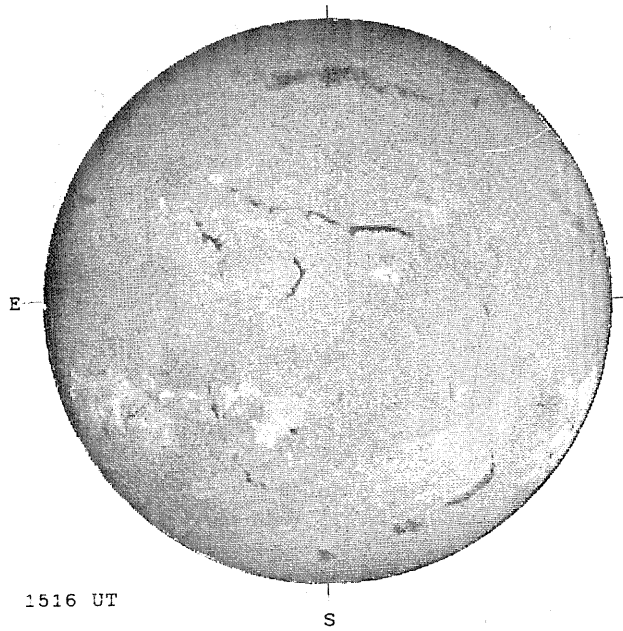
STANFORD MAGNETOGRAM



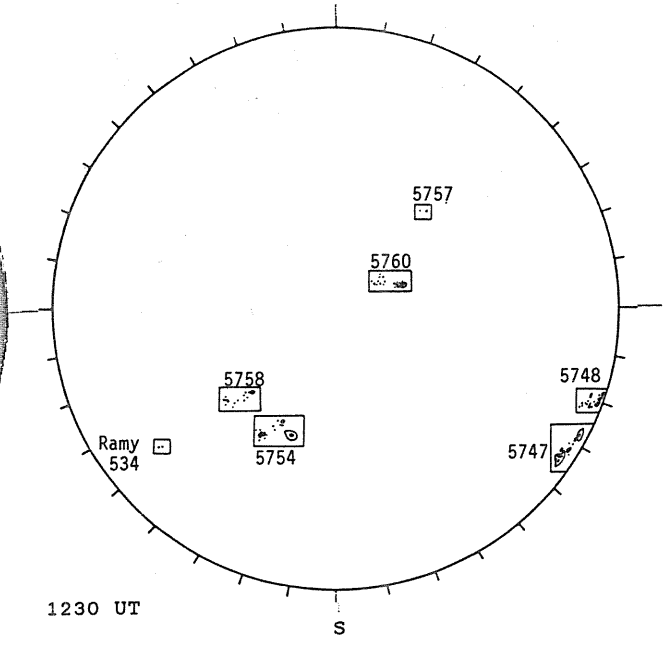
MT. WILSON MAGNETOGRAM



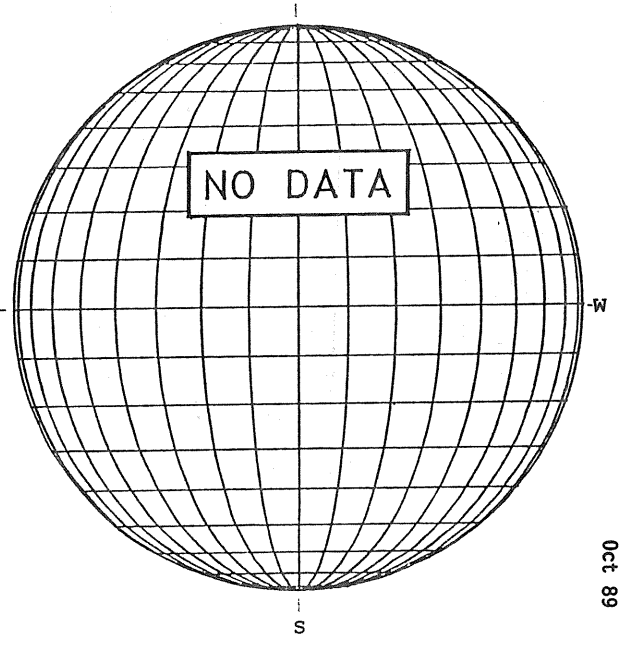
HOLLOMAN H-ALPHA



RAMEY SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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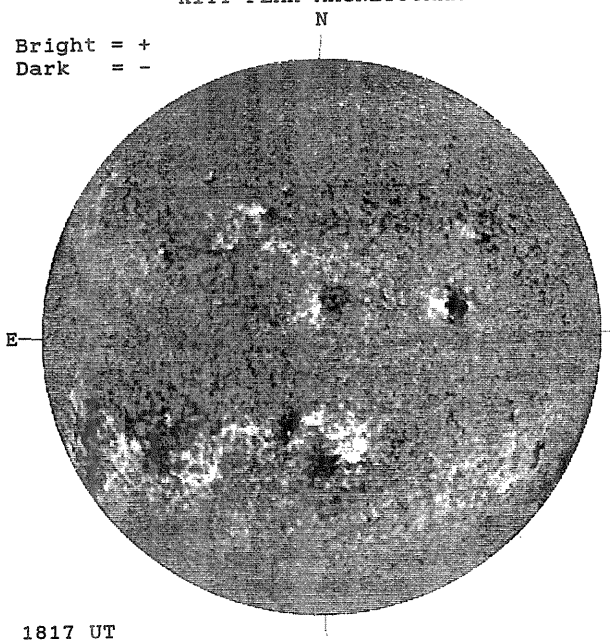
OCTOBER 26, 1989 (P= 25.37, B_o = 4.94, L_o = 133.05)

KITT PEAK MAGNETOGRAM

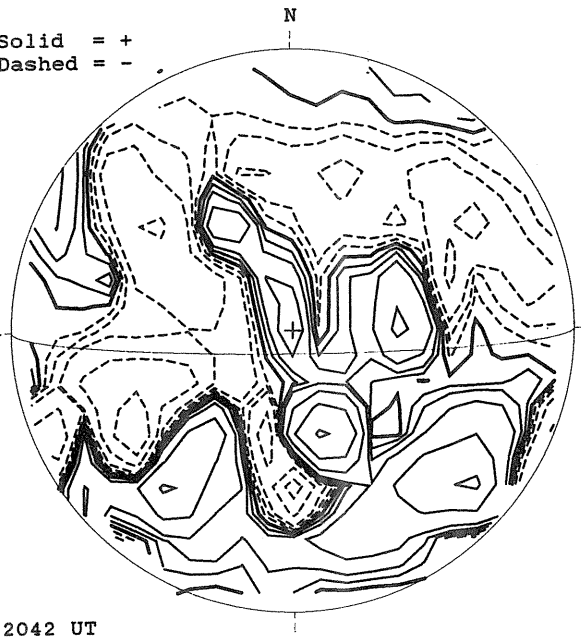
Bright = +
Dark = -



1817 UT

STANFORD MAGNETOGRAM

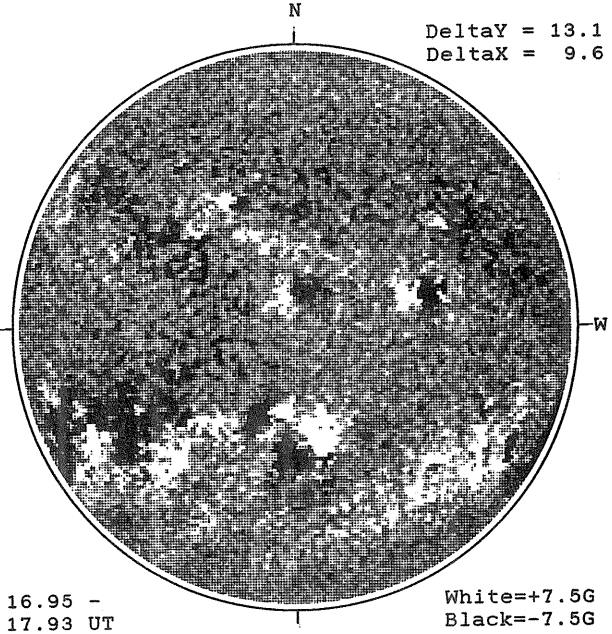
Solid = +
Dashed = -



2042 UT

MT. WILSON MAGNETOGRAM

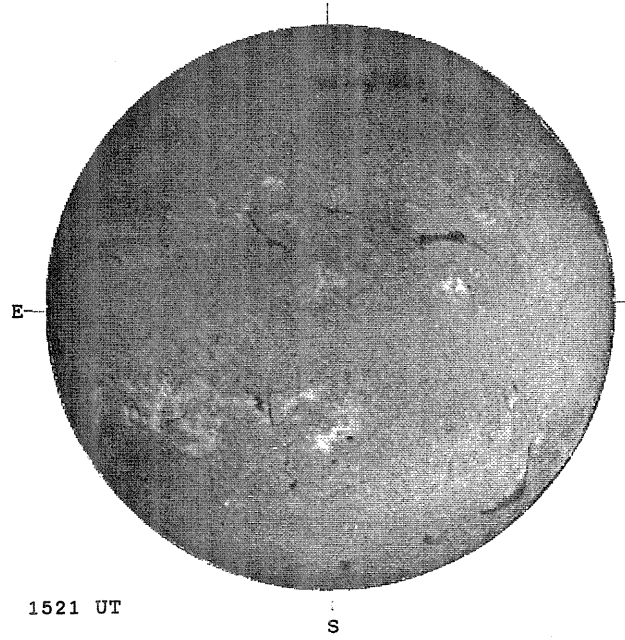
DeltaY = 13.1
DeltaX = 9.6



16.95 -
17.93 UT

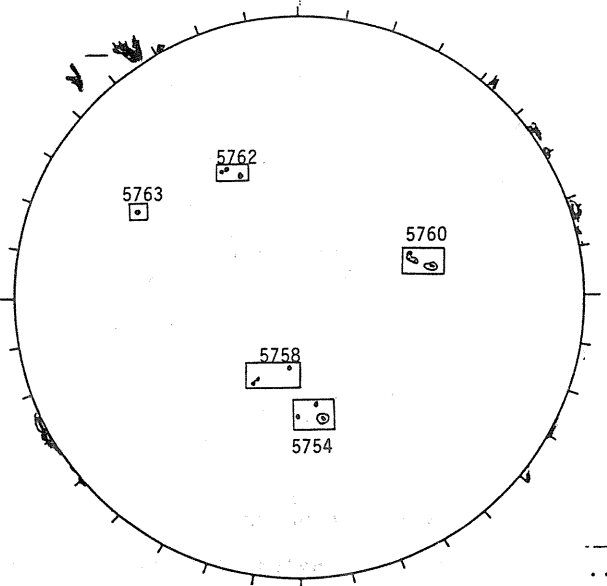
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



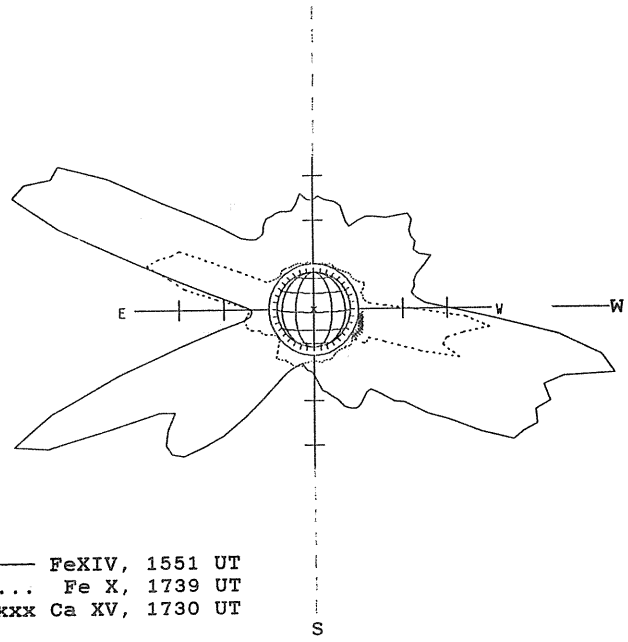
1521 UT

BOULDER SUNSPOT



1457 UT
1437 UT BOUL Prom

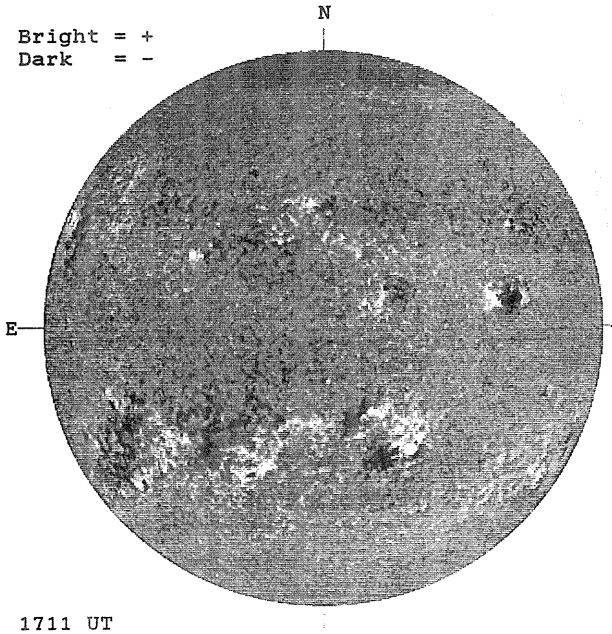
SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1551 UT
.... Fe X, 1739 UT
xxxx Ca XV, 1730 UT

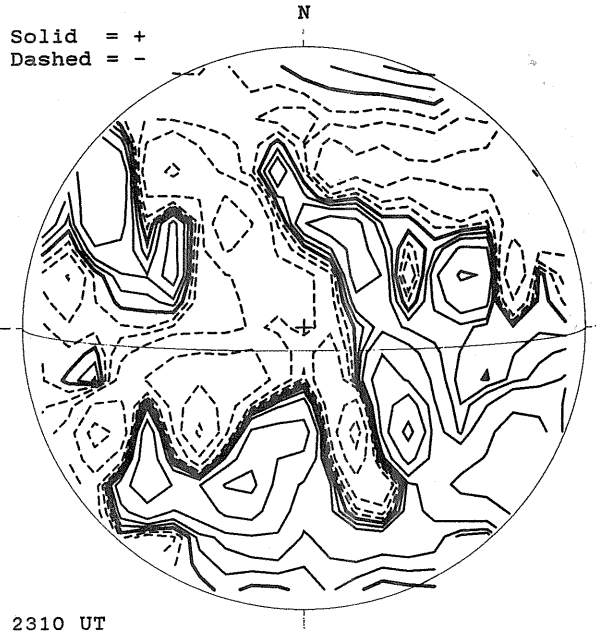
OCTOBER 27, 1989 (P= 25.25, B_o = 4.84, L_o = 119.86)

KITT PEAK MAGNETOGRAM



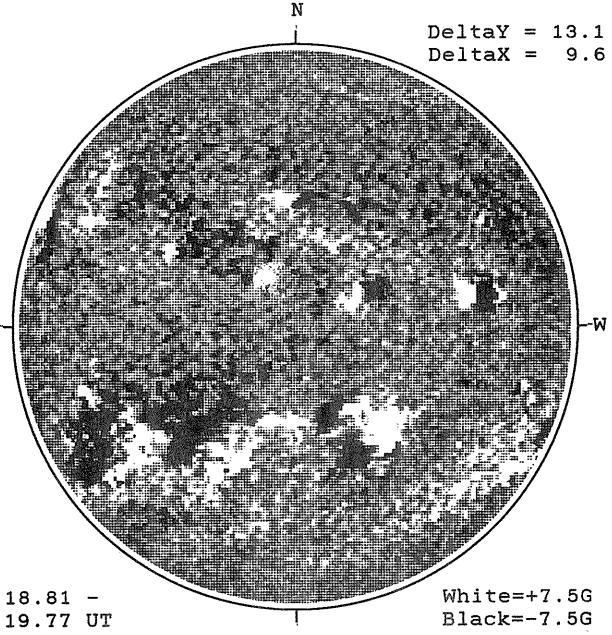
1711 UT

STANFORD MAGNETOGRAM



2310 UT

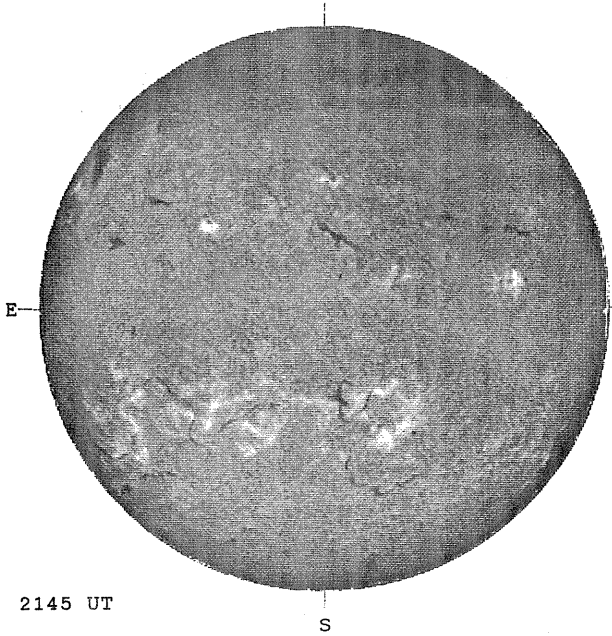
MT. WILSON MAGNETOGRAM



18.81 -
19.77 UT

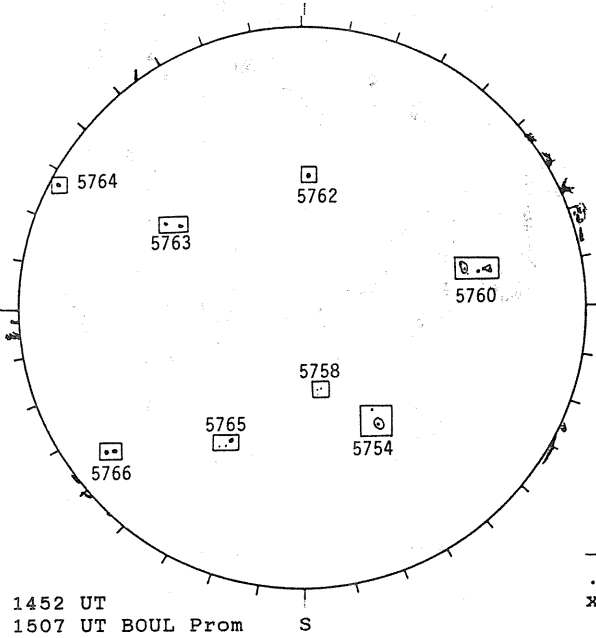
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



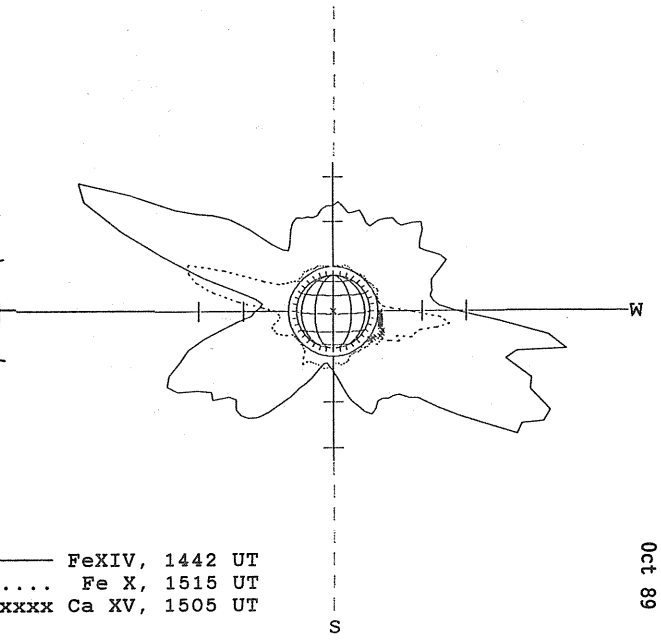
2145 UT

BOULDER SUNSPOT



1452 UT
1507 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)



—— FeXIV, 1442 UT
.... Fe X, 1515 UT
xxxx Ca XV, 1505 UT

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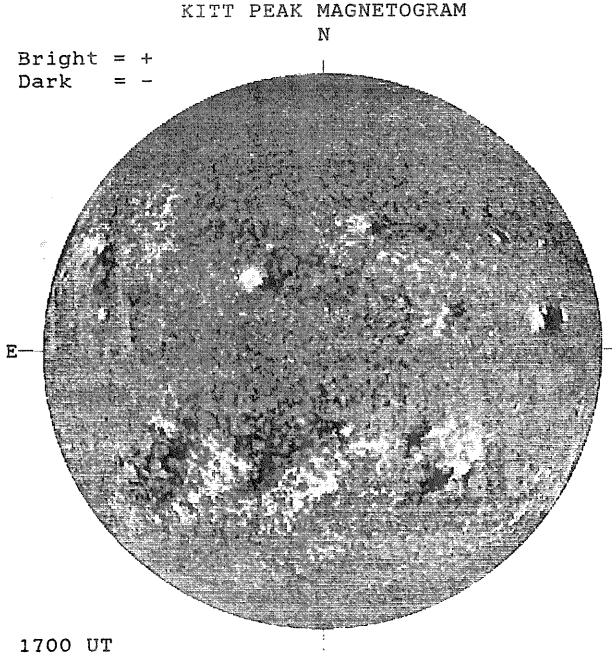
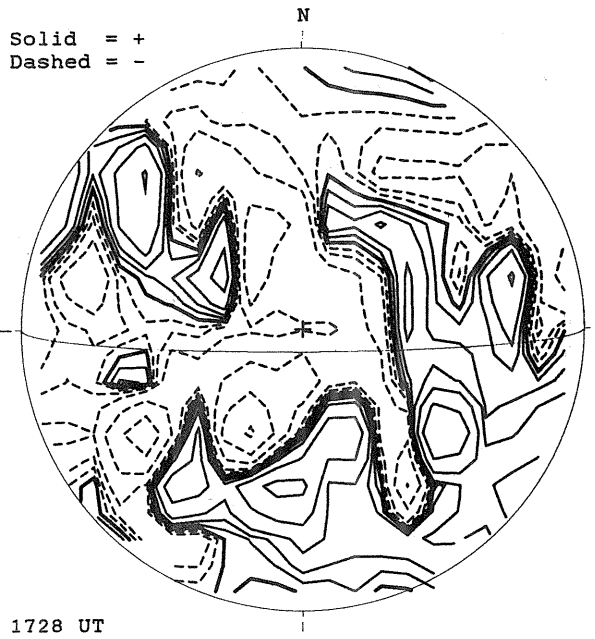
Oct 89

OCTOBER 28, 1989 (P= 25.12, B_o = 4.75, L_o = 106.67)

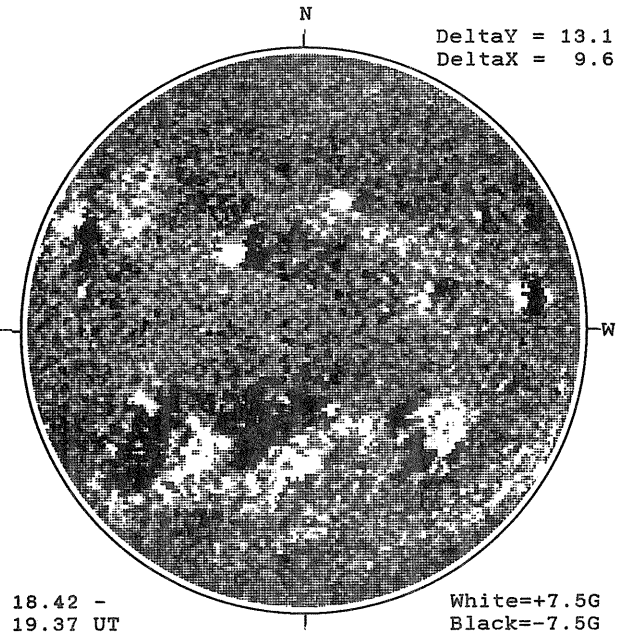
KITT PEAK MAGNETOGRAM



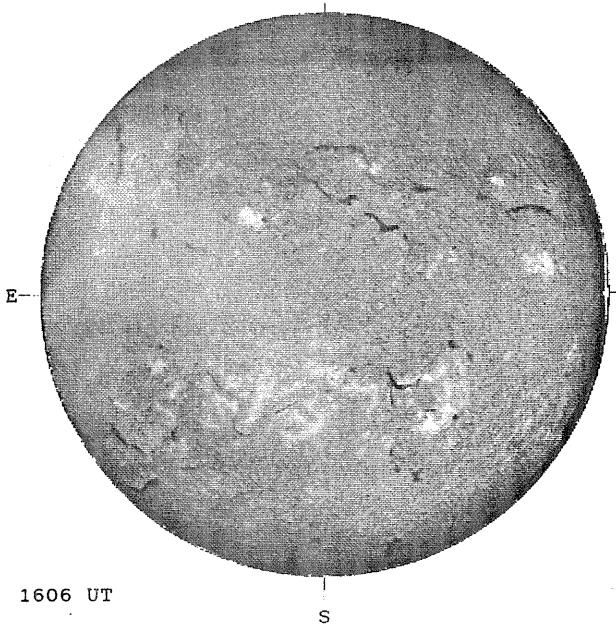
STANFORD MAGNETOGRAM



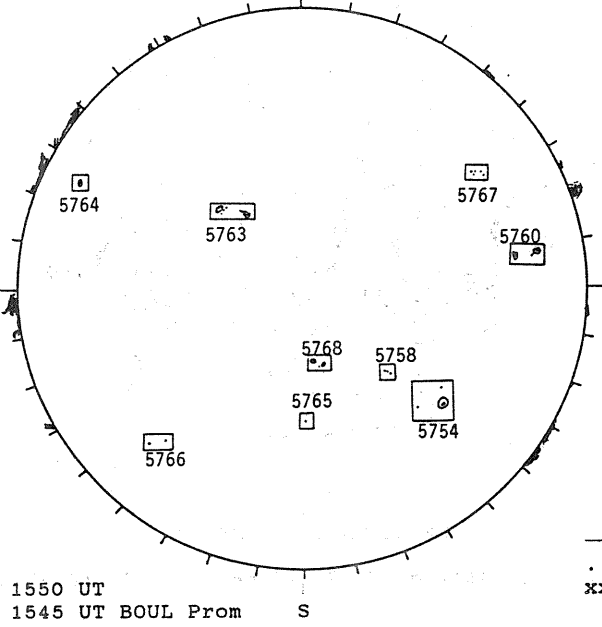
MT. WILSON MAGNETOGRAM



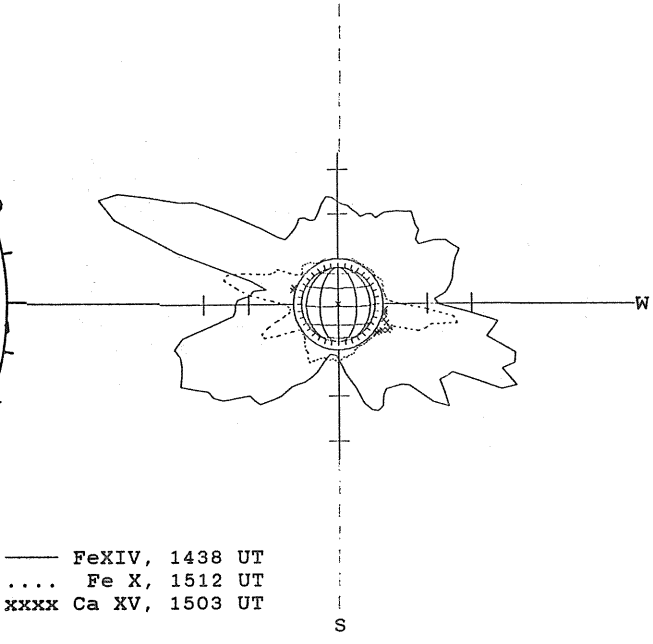
HOLLOMAN H-ALPHA



BOULDER SUNSPOT

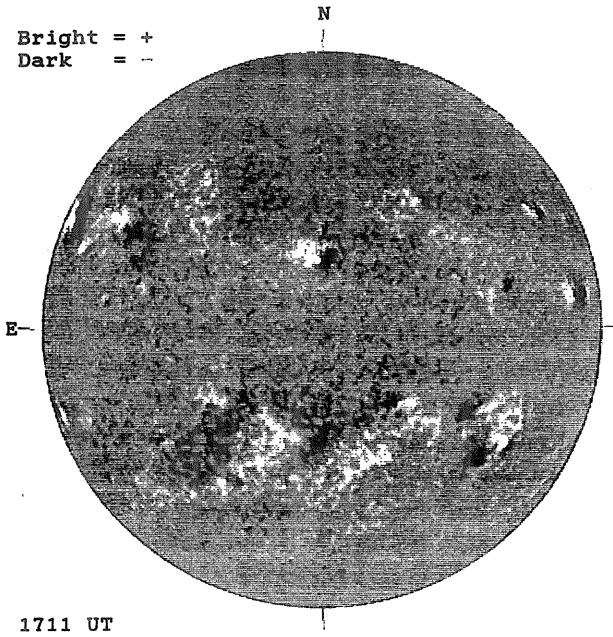


SACRAMENTO PEAK CORONA (1.15 Radii)

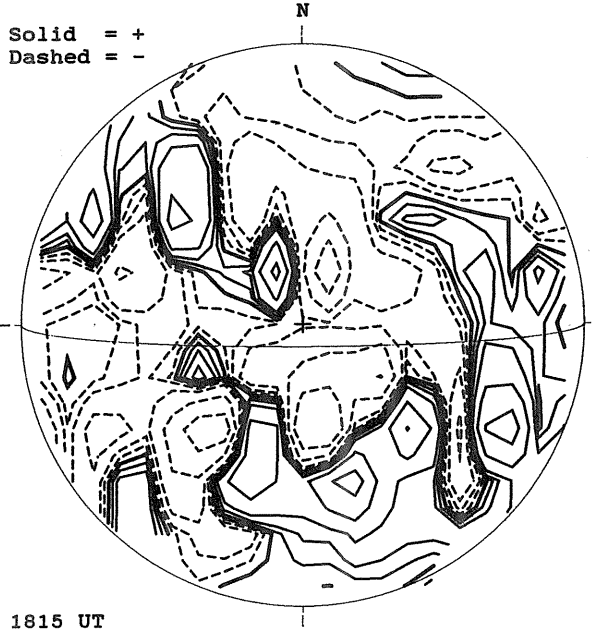


OCTOBER 29, 1989 (P= 24.98, B_o = 4.65, L_o = 93.49)

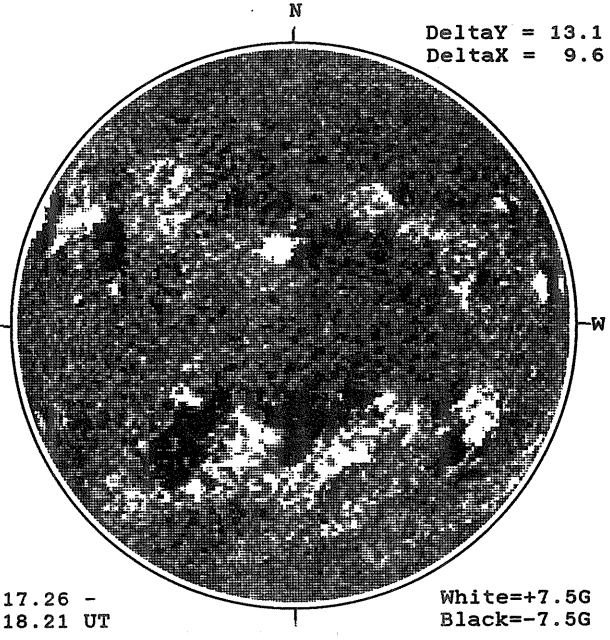
KITT PEAK MAGNETOGRAM



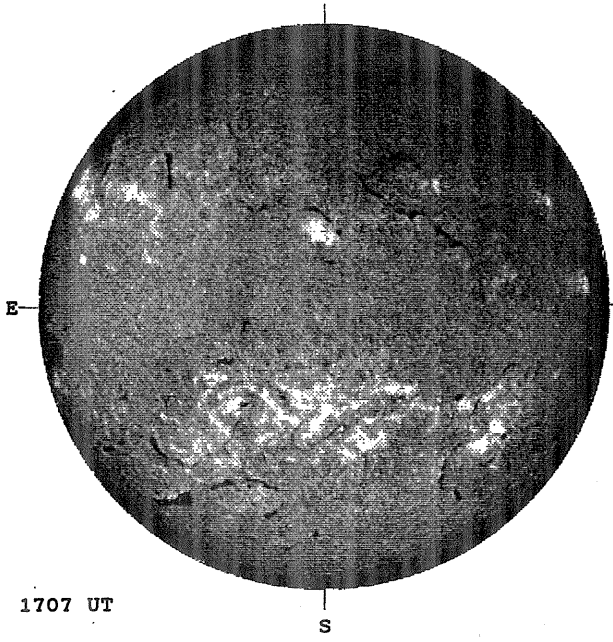
STANFORD MAGNETOGRAM



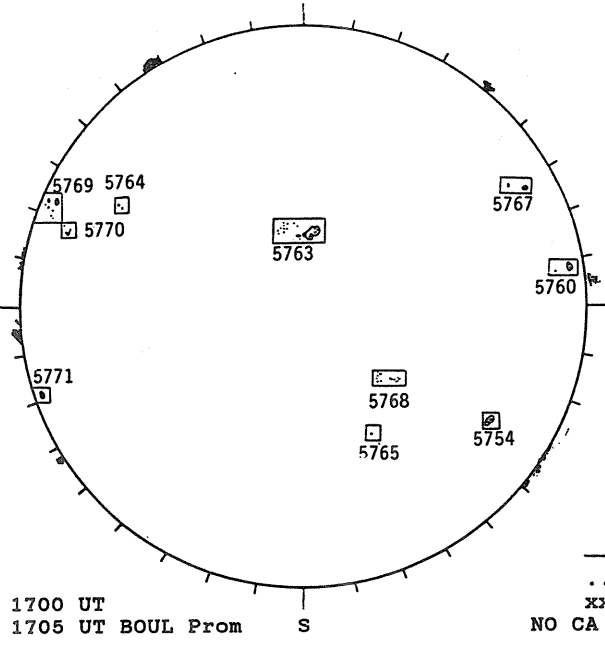
MT. WILSON MAGNETOGRAM



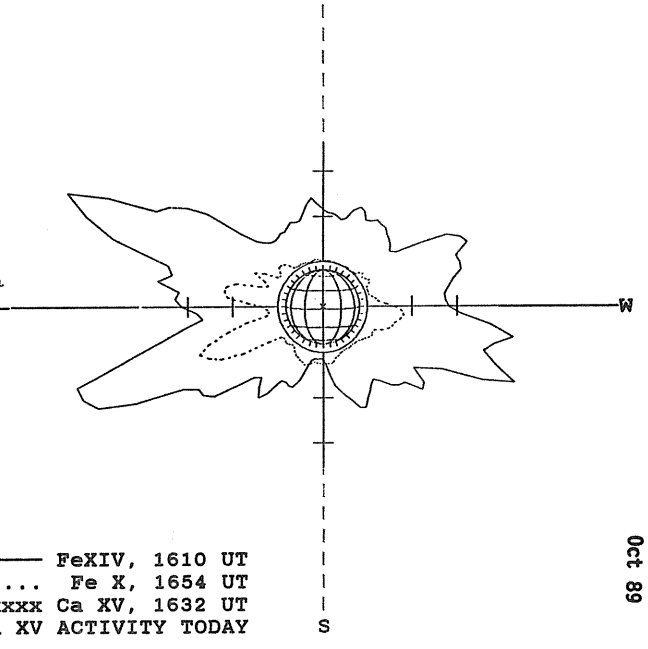
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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OCTOBER 30, 1989 (P= 24.83, B_o = 4.56, L_o = 80.30)

Oct 89
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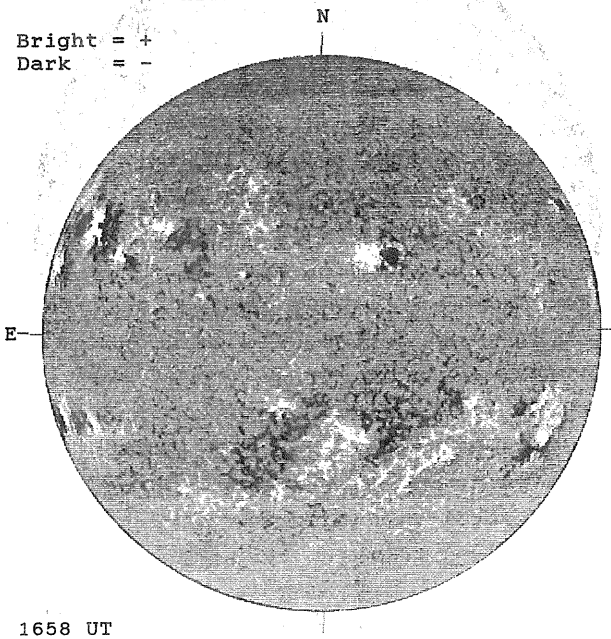
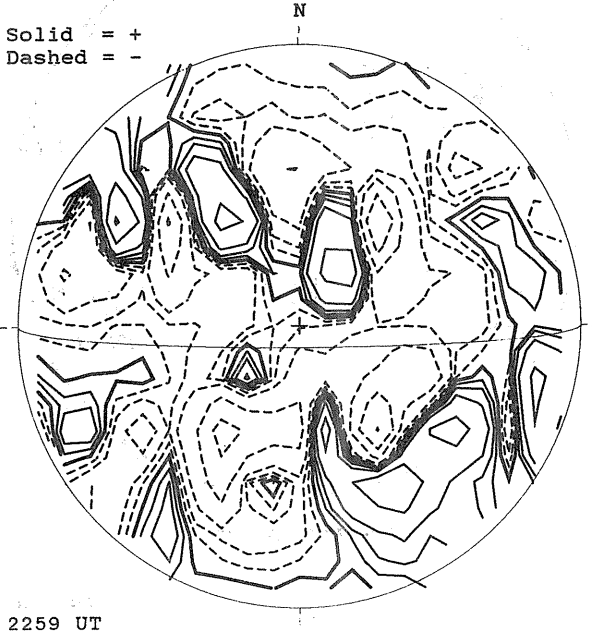
KITT PEAK MAGNETOGRAM



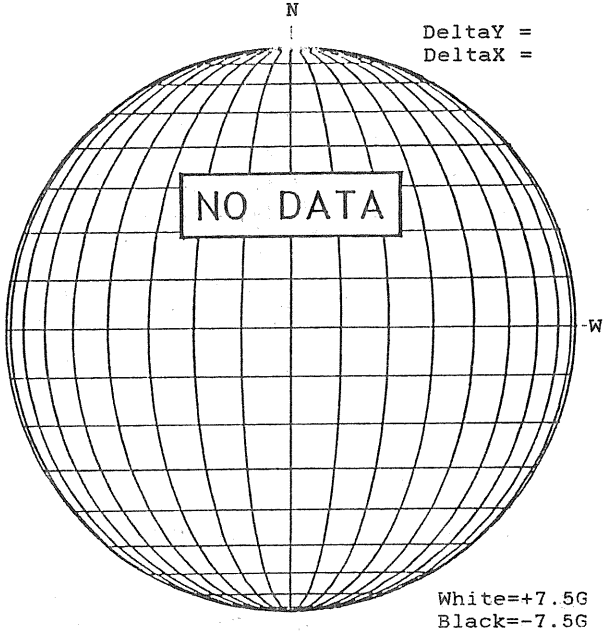
1658 UT

STANFORD MAGNETOGRAM



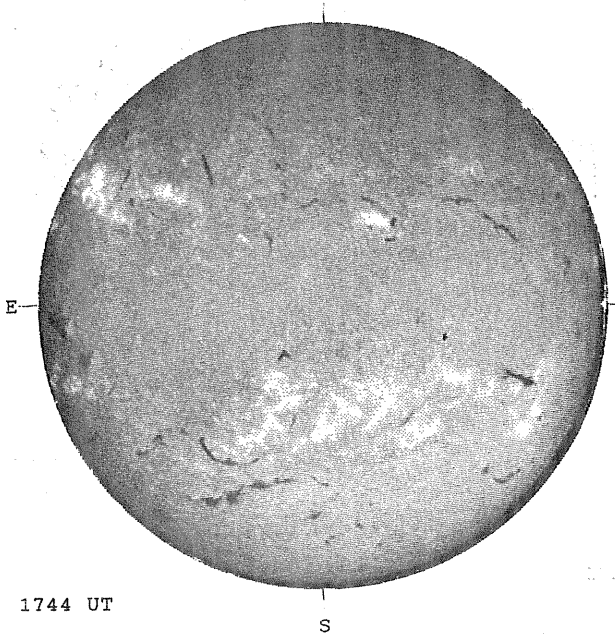
2259 UT

MT. WILSON MAGNETOGRAM



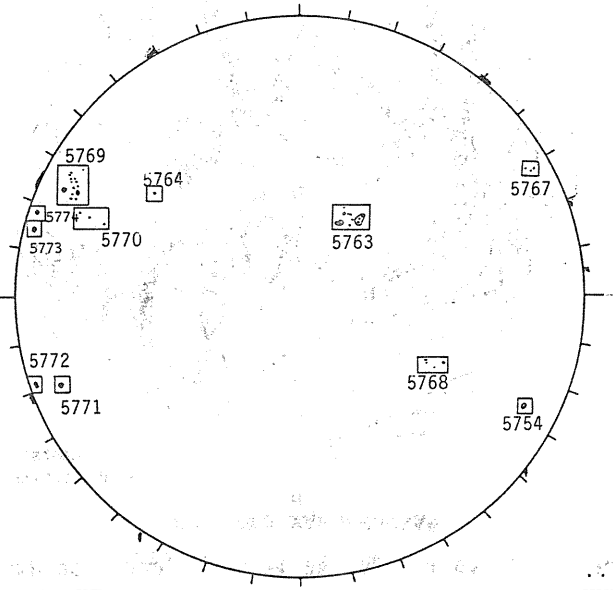
White=+7.5G
Black=-7.5G

HOLLOMAN H-ALPHA



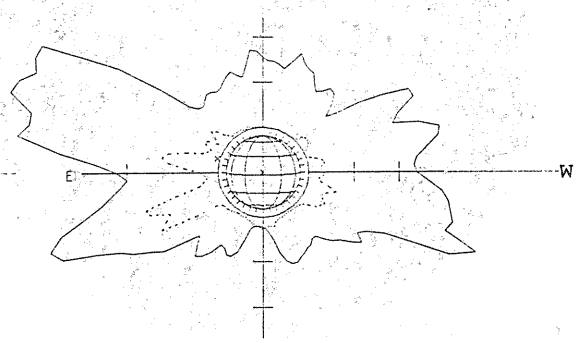
1744 UT

BOULDER SUNSPOT



1421 UT
1640 UT BOUL Prom

SACRAMENTO PEAK CORONA (1.15 Radii)

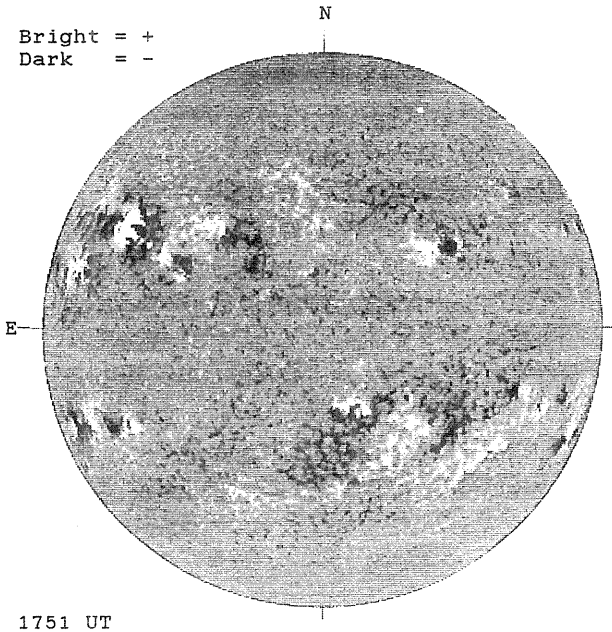


FeXIV, 1629 UT
.... Fe X, 1544 UT
xxxx Ca XV, 1609 UT

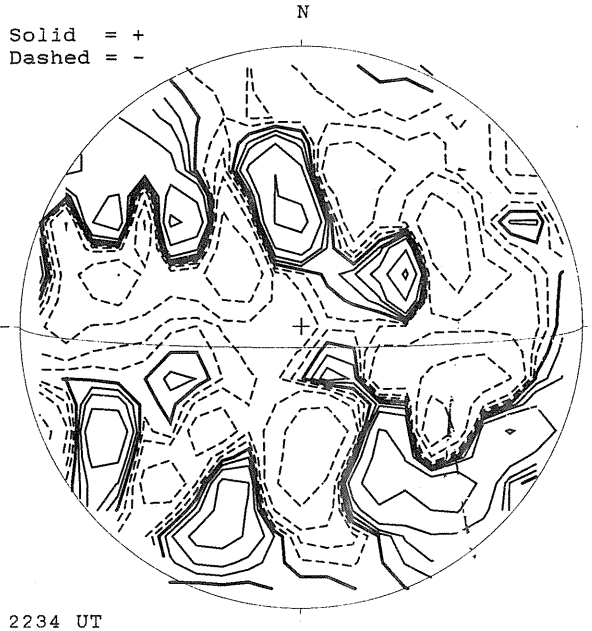
S

OCTOBER 31, 1989 (P= 24.68, B_o = 4.46, L_o = 67.11)

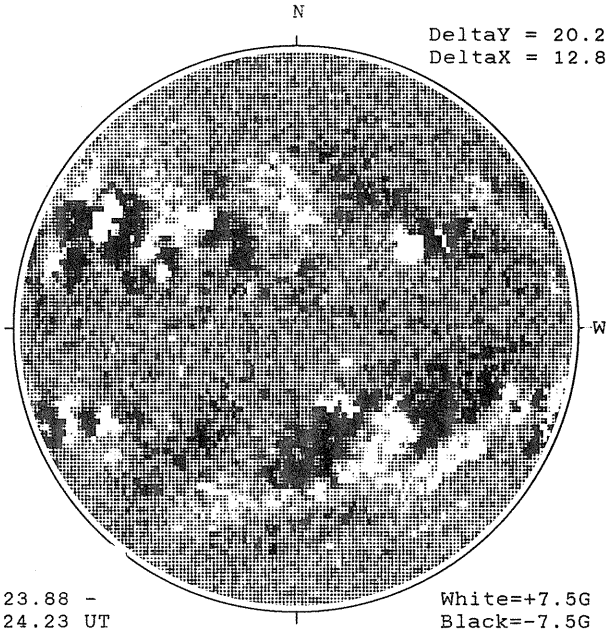
KITT PEAK MAGNETOGRAM



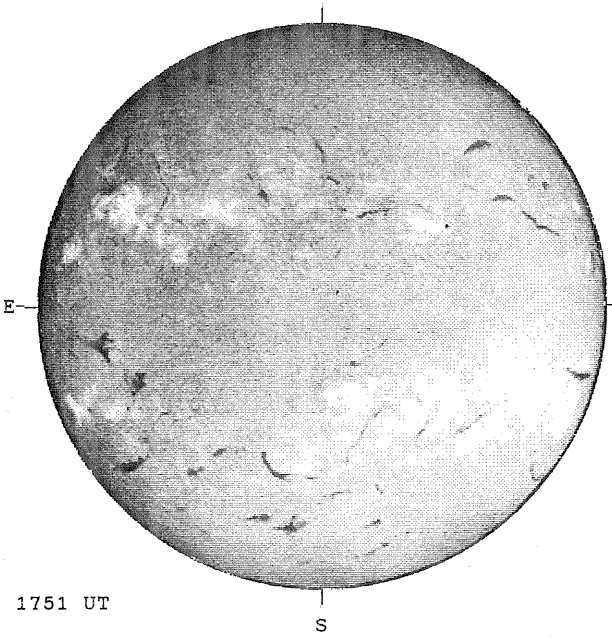
STANFORD MAGNETOGRAM



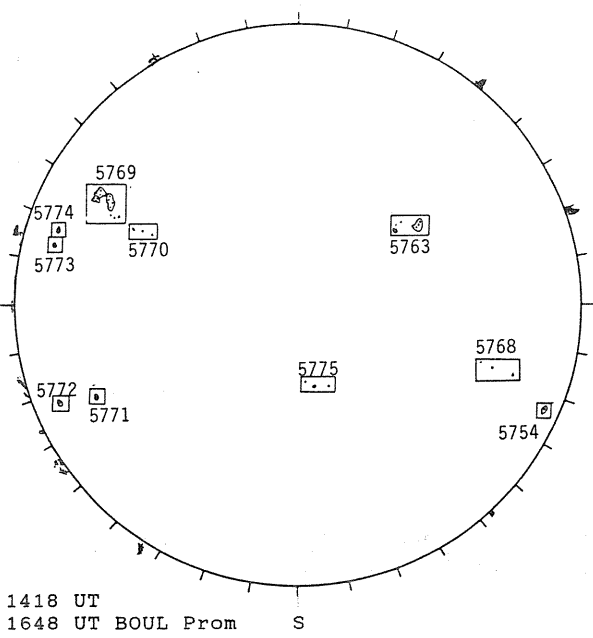
MT. WILSON MAGNETOGRAM



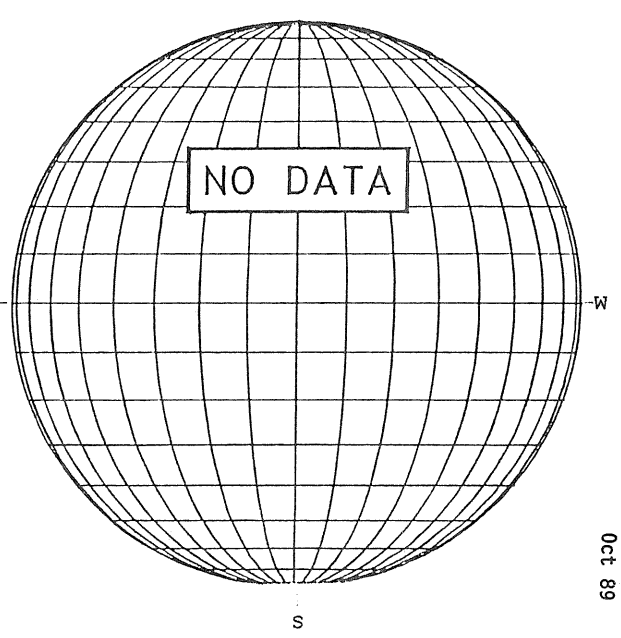
HOLLOMAN H-ALPHA



BOULDER SUNSPOT



SACRAMENTO PEAK CORONA (1.15 Radii)



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

OCTOBER 1989

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
5709A		CULG	09	28	0345	N31	E38	10	1.1		A	AX		1		2
5709A		CULG	10	06	0325	N26	W72	09	30.5		B	BXO	10	2	3	2
5713		RAMY	09	28	1235	N23	E37	10	1.4		A	AX	10	1	1	4
5713		BOUL	09	28	1510	N23	E35	10	1.3		A	AX		2	1	3
5713		PALE	09	28	1810	N23	E35	10	1.4		A	AX		2		3
5709D		RAMY	10	05	1249	N15	W50	10	1.7		A	AX	10	1	1	3
5709D		HOLL	10	05	2213	N17	W57	10	1.6		B	BXO	30	3	3	2
5709D		LEAR	10	06	0013	N17	W57	10	1.7		B	BXO	20	3	3	3
5709D		CULG	10	06	0325	N20	W61	10	1.5		B	BXO	10	2	3	2
5708		RAMY	09	25	1600	S13	E85	10	2.1		B	BXO	30	2	3	2
5708		PALE	09	25	1843	S17	E79	10	1.8		A	AX		2	2	3
5708		LEAR	09	26	0020	S17	E75	10	1.7		B	CSO	90	3	3	4
5708		BOUL	09	26	1337	S17	E69	10	1.8		B	BXO	40	4	4	2
5708		PALE	09	26	1715	S14	E69	10	1.9		B	CRO	40	3	6	3
5708		LEAR	09	27	0020	S15	E68	10	2.2		B	CRO	100	9	15	3
5708		CULG	09	27	0355	S20	E61	10	1.8		B	BXO	10	4	6	2
5708		RAMY	09	27	1315	S13	E55	10	1.7		B	BXO	30	9	3	4
5708		BOUL	09	27	1430	S14	E54	10	1.7		B	BXO	40	9	4	3
5708		PALE	09	27	1730	S15	E54	10	1.8		B	BXO	30	7	3	3
5708		CULG	09	28	0345	S18	E47	10	1.7		B	BXO		2	2	2
5708		LEAR	09	28	0701	S17	E49	10	2.0		B	CSO	60	8	10	2
5708		RAMY	09	28	1235	S15	E42	10	1.7		B	CRO	40	9	6	4
5708		BOUL	09	28	1510	S14	E39	10	1.6		B	BXO		3	2	3
5708		PALE	09	28	1810	S15	E39	10	1.7		B	BXO	10	5	3	3
5708		RAMY	09	29	1227	S15	E28	10	1.6		B	BXO	10	2	2	3
5708		PALE	09	29	1730	S14	E23	10	1.5		B	BXO		4	7	4
5708		RAMY	10	01	1247	S18	E03	10	1.8		B	BXO	10	3	3	4
5708A		PALE	09	29	1730	S09	E32	10	2.1		A	AX		1		4
5708A		HOLL	10	01	1515	S08	E06	10	2.1		A	AX	10	2	2	2
5708A		PALE	10	01	1922	S10	E04	10	2.1		A	AX		3	2	2
5715		RAMY	09	29	1227	S22	E38	10	2.4		B	BXO	10	4	2	3
5715		BOUL	09	29	1445	S25	E35	10	2.3		B	BXO	10	4	3	3
5715		PALE	09	29	1730	S24	E34	10	2.3		B	BXO	10	7	4	4
5715		LEAR	09	30	0015	S24	E31	10	2.4		B	BXO	10	2	1	3
5715		CULG	09	30	0304	S24	E28	10	2.3		B	BXO	10	5	5	3
5715		RAMY	09	30	1212	S24	E25	10	2.4		B	CRO	30	9	7	3
5715		BOUL	09	30	1415	S26	E21	10	2.2		B	CAO	30	5	6	3
5715		PALE	09	30	2045	S27	E18	10	2.3		B	BXO	30	7	7	1
5715		LEAR	10	01	0015	S26	E15	10	2.2		B	ESO	80	6	9	3
5715		RAMY	10	01	1247	S24	E10	10	2.3		B	DAO	60	6	8	4
5715		BOUL	10	01	1425	S24	E06	10	2.1		B	DAO	20	3	8	2
5715		HOLL	10	01	1515	S25	E07	10	2.2		B	CSO	40	6	8	2
5715		PALE	10	01	1922	S26	E05	10	2.2		B	CAO	80	2	10	2
5715		CULG	10	02	0340	S27	W03	10	1.9		B	CAO	40	3	10	2
5715		LEAR	10	02	0415	S26	E01	10	2.2		B	CAO	60	5	10	1
5715		RAMY	10	02	1330	S23	W05	10	2.2		B	EAO	60	7	11	4
5715		BOUL	10	02	1341	S24	W06	10	2.1		B	CAO	60	2	9	1
5715		HOLL	10	02	1415	S25	W06	10	2.1		B	CAO	40	8	13	3
5715		PALE	10	02	1912	S26	W12	10	1.9		B	CAO	50	6	5	3
5715		LEAR	10	03	0055	S25	W10	10	2.3		B	CAO	60	6	10	3
5715		CULG	10	03	0410	S24	W17	10	1.9		B	CAO	40	4	11	2
5715		RAMY	10	03	1225	S25	W18	10	2.1		B	CAO	30	7	11	4
5715		HOLL	10	03	1730	S25	W18	10	2.3		B	CSO	40	12	12	4
5715		LEAR	10	04	0015	S25	W28	10	1.8		B	CSO	40	2	3	2
5715		CULG	10	04	0207	S24	W31	10	1.7		A	HR	10	4	2	2
5715		RAMY	10	04	1220	S23	W35	10	1.8		B	CAO	40	12	8	4
5715		HOLL	10	04	1435	S26	W36	10	1.8		A	HR	20	3	2	3
5715		BOUL	10	04	1558	S23	W38	10	1.7		A	AX	10	1		1
5715		LEAR	10	05	0012	S25	W41	10	1.8		A	AX	20	2	2	2
5715		PALE	10	05	0015	S26	W42	10	1.7		A	AX		1		1
5715		CULG	10	05	0320	S24	W46	10	1.6		A	HS	20	1	1	2
5715		RAMY	10	05	1249	S27	W47	10	1.9		B	BXO	10	2	3	3
5712A		RAMY	09	29	1227	S09	E44	10	2.8		B	BXO	10	5	3	3

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

OCTOBER 1989

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
5712A		PALE	09	29	1730	S11	E42	10	2.9		B	BXO		3	3	4
5712		BOUL	09	27	1430	S18	E74	10	3.2		B	CKO	250	2	11	3
5712		PALE	09	27	1730	S18	E72	10	3.2		B	CKO	250	2	10	3
5712		CULG	09	28	0345	S21	E67	10	3.3		B	CAO	300	7	21	2
5712		LEAR	09	28	0701	S19	E64	10	3.2		B	CKO	360	10	13	2
5712		RAMY	09	28	1235	S16	E60	10	3.1		BG	FKO	570	21	22	4
5712		BOUL	09	28	1510	S17	E58	10	3.0		B	FSO	220	12	20	3
5712		PALE	09	28	1810	S17	E58	10	3.2		B	FKI	400	12	21	3
5712		CULG	09	29	0315	S19	E51	10	3.0		BG	FKO	270	14	23	2
5712		RAMY	09	29	1227	S17	E47	10	3.1		BG	FKO	560	26	22	3
5712		BOUL	09	29	1445	S17	E45	10	3.0		B	FAO	430	16	21	3
5712		PALE	09	29	1730	S17	E46	10	3.2		BG	FHI	450	38	22	4
5712		LEAR	09	30	0015	S18	E41	10	3.1		BG	FKO	290	23	22	3
5712		CULG	09	30	0304	S18	E39	10	3.1		BG	FHO	410	34	23	3
5712		RAMY	09	30	1212	S17	E35	10	3.2		BG	FAO	550	43	23	3
5712		BOUL	09	30	1415	S17	E32	10	3.0		B	FHO	440	20	23	3
5712		PALE	09	30	2045	S19	E29	10	3.1		BG	FHI	510	35	24	1
5712		LEAR	10	01	0015	S18	E31	10	3.4		B	FHO	390	21	30	3
5712		RAMY	10	01	1247	S17	E23	10	3.3		BG	FKO	600	37	24	4
5712		BOUL	10	01	1425	S17	E19	10	3.0		B	FSI	320	29	23	2
5712		HOLL	10	01	1515	S18	E18	10	3.0		BG	FKI	360	65	23	2
5712		PALE	10	01	1922	S19	E13	10	2.8		BG	FHI	530	61	34	2
5712		CULG	10	02	0340	S20	E11	10	3.0		BG	FHO	380	25	23	2
5712		LEAR	10	02	0415	S19	E13	10	3.2		BG	FH	460	29	23	1
5712		RAMY	10	02	1330	S18	E08	10	3.2		BG	FHO	490	44	25	4
5712		BOUL	10	02	1341	S16	E07	10	3.1		BG	FKI	440	17	23	1
5712		HOLL	10	02	1415	S17	E08	10	3.2		BG	FKO	510	77	33	3
5712		PALE	10	02	1912	S18	E04	10	3.1		BG	FKO	370	35	23	3
5712		CULG	10	03	0410	S17	W02	10	3.0		B	FSO	330	15	20	2
5712		RAMY	10	03	1225	S17	W03	10	3.3		BG	FKO	400	56	25	4
5712		HOLL	10	03	1730	S18	W05	10	3.3		BG	CHO	320	39	27	4
5712		LEAR	10	04	0015	S18	W10	10	3.2		BG	FHO	400	13	20	2
5712		CULG	10	04	0207	S18	W12	10	3.2		BG	CHO	300	16	21	2
5712		RAMY	10	04	1220	S17	W13	10	3.5		BG	FKO	370	59	20	4
5712		HOLL	10	04	1435	S18	W13	10	3.6		BG	CHO	250	21	23	3
5712		BOUL	10	04	1558	S16	W17	10	3.4		B	EAO	250	6	14	1
5712		LEAR	10	05	0012	S18	W22	10	3.3		B	EHO	310	15	15	2
5712		PALE	10	05	0015	S18	W22	10	3.3		B	FKO	390	9	16	1
5712		CULG	10	05	0320	S16	W24	10	3.3		B	FAO	260	9	15	2
5712		RAMY	10	05	1249	S18	W30	10	3.2		B	FKO	290	21	22	3
5712		BOUL	10	05	1507	S18	W25	10	3.7		B	CAO	220	2	6	1
5712		HOLL	10	05	2213	S18	W32	10	3.5		B	CHO	320	6	14	2
5712		LEAR	10	06	0013	S18	W32	10	3.6		B	FHO	200	5	17	3
5712		CULG	10	06	0325	S17	W37	10	3.3		B	CHO	300	4	15	2
5712		RAMY	10	06	1419	S17	W43	10	3.3		B	FKO	310	7	16	3
5712		BOUL	10	06	1445	S17	W38	10	3.7		B	CAO	220	3	7	3
5712		HOLL	10	06	1601	S18	W43	10	3.4		B	CHO	240	5	15	4
5712		PALE	10	06	2215	S20	W41	10	3.8		A	HH	210	2	3	2
5712		LEAR	10	07	0010	S19	W41	10	3.9		B	CHO	170	5	5	3
5712		CULG	10	07	0345	S18	W47	10	3.6		A	HS	160	2	2	1
5712		RAMY	10	07	1314	S21	W49	10	3.8		A	HK	270	5	3	4
5712		BOUL	10	07	1445	S19	W49	10	3.9		B	DAO	190	8	3	3
5712		HOLL	10	07	1545	S19	W49	10	3.9		A	HH	200	3	3	2
5712		PALE	10	07	2035	S20	W55	10	3.6		A	HS	180	1	2	3
5712		CULG	10	08	0030	S18	W59	10	3.5		A	HS	260	2	2	2
5712		LEAR	10	08	0152	S19	W54	10	3.9		A	HS	200	3	2	2
5712		RAMY	10	08	1330	S19	W62	10	3.8		A	HK	210	2	3	3
5712		BOUL	10	08	1435	S18	W62	10	3.9		B	DAO	150	3	4	3
5712		HOLL	10	08	1445	S19	W61	10	3.9		A	HK	180	2	3	3
5712		PALE	10	08	1745	S21	W63	10	3.9		A	HK	240	5	3	3
5712		LEAR	10	09	0035	S19	W66	10	4.0		A	HA	180	3	2	4
5712		RAMY	10	09	1350	S19	W70	10	4.2		A	HA	80	2	3	4
5712		BOUL	10	09	1401	S19	W78	10	3.6		B	CAO	80	2	3	1
5712		HOLL	10	09	1515	S21	W78	10	3.6		A	HK	120	2	3	4
5712		LEAR	10	10	0031	S18	W79	10	4.0		A	HK	120	1	3	4
5712B		LEAR	09	27	0020	N31	E78	10	3.2		B	BXO	50	4	6	3
5712B		RAMY	09	27	1315	N33	E70	10	3.1		B	CAO	50	11	10	4

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5712C		RAMY	09	27	1315	S15	E75	10	3.2		B	EKO	170	6	13	4
5710A		CULG	10	06	0325	S24	W36	10	3.4		A	AX	10	1	1	2
5710		CULG	09	27	0355	N27	E82	10	3.5		A	HS	20	1	1	2
5710		BOUL	09	27	1430	N32	E75	10	3.5		B	CAO	120	6	10	3
5710		PALE	09	27	1730	N32	E69	10	3.2		B	DSO	100	2	8	3
5710		CULG	09	28	0345	N29	E67	10	3.4		B	DRO	40	2	6	2
5710		LEAR	09	28	0701	N30	E63	10	3.2		B	DAO	80	6	9	2
5710		RAMY	09	28	1235	N32	E60	10	3.3		B	CAO	50	5	9	4
5710		BOUL	09	28	1510	N33	E60	10	3.4		B	DSO	60	6	8	3
5710		PALE	09	28	1810	N32	E58	10	3.3		B	DAO	60	5	6	3
5710		LEAR	09	29	0020	N30	E50	10	2.9		B	CSO	20	6	8	3
5710		CULG	09	29	0315	N30	E55	10	3.5		B	DAO	30	5	9	2
5710		RAMY	09	29	1227	N34	E45	10	3.1		B	BXO	10	10	4	3
5710		BOUL	09	29	1445	N32	E48	10	3.4		B	BXO	10	7	8	3
5710		PALE	09	29	1730	N33	E46	10	3.4		B	DRO	30	8	9	4
5710		LEAR	09	30	0015	N31	E42	10	3.3		B	BXO	10	4	10	3
5710		CULG	09	30	0304	N33	E42	10	3.5		B	CRO	10	16	10	3
5710		RAMY	09	30	1212	N33	E37	10	3.4		B	BXO	10	10	10	3
5710		BOUL	09	30	1415	N32	E35	10	3.4		B	BXO	10	4	9	3
5710		PALE	09	30	2045	N34	E37	10	3.8		A	AX	10	8		1
5710		LEAR	10	01	0015	N33	E33	10	3.6		B	BXO	10	2	1	3
5710		RAMY	10	01	1247	N34	E25	10	3.5		B	BXO	20	5	2	4
5710		BOUL	10	01	1425	N34	E25	10	3.6		B	BXO		3	2	2
5710		HOLL	10	01	1515	N35	E25	10	3.6		A	AX	10	6	2	2
5710		PALE	10	01	1922	N34	E24	10	3.7		A	AX	10	4	2	2
5717		PALE	09	28	1810	N19	E69	10	4.0		A	AX		2		3
5717		LEAR	09	29	0020	N17	E63	10	3.8		B	BXO	20	2	4	3
5717		CULG	09	29	0315	N16	E66	10	4.1		A	AX	20	1	1	2
5717		RAMY	09	29	1227	N21	E59	10	4.0		B	BXO	10	4	2	3
5717		BOUL	09	29	1445	N17	E59	10	4.1		B	BXO	10	4	3	3
5717		PALE	09	29	1730	N20	E57	10	4.1		A	AX	10	3	2	4
5717		LEAR	09	30	0015	N18	E52	10	4.0		B	BXO	20	2	1	3
5717		CULG	09	30	0304	N19	E54	10	4.2		B	BXO	10	2	2	3
5717		RAMY	09	30	1212	N19	E45	10	3.9		B	BXO	10	5	6	3
5717		BOUL	09	30	1415	N18	E45	10	4.0		B	BXO	10	2	3	3
5717		PALE	09	30	2045	N18	E41	10	4.0		B	BXO	10	4	5	1
5717		LEAR	10	01	0015	N17	E38	10	3.9		B	BXO	10	2	3	3
5717		RAMY	10	01	1247	N19	E31	10	3.9		B	BXO	30	7	4	4
5717		BOUL	10	01	1425	N19	E31	10	4.0		B	BXO		2	2	2
5717		HOLL	10	01	1515	N19	E32	10	4.1		B	BXO	20	8	4	2
5717		PALE	10	01	1922	N18	E30	10	4.1		A	AX	10	5	2	2
5717		CULG	10	02	0340	N18	E25	10	4.0		A	AX	10	2	2	2
5717		LEAR	10	02	0415	N19	E23	10	3.9		B	BXO	20	3	3	1
5717		RAMY	10	02	1330	N19	E18	10	3.9		B	BXO	20	5	3	4
5717		HOLL	10	02	1415	N20	E17	10	3.9		B	BXO	20	7	4	3
5717		PALE	10	02	1912	N19	E15	10	3.9		B	BXO	10	3	3	3
5717		HOLL	10	05	2213	N21	W23	10	4.2		B	BXO	10	2	3	2
5724		PALE	10	02	1912	S09	E27	10	4.8		A	AX		3	1	3
5724		LEAR	10	03	0055	S10	E24	10	4.8		B	BXO	20	5	3	3
5724		CULG	10	03	0410	S12	E21	10	4.7		B	CRO	20	6	5	2
5724		LEAR	10	04	0015	S10	E11	10	4.8		B	BXO	70	9	5	2
5724		CULG	10	04	0207	S10	E08	10	4.7		B	CRO	10	8	6	2
5724		RAMY	10	04	1220	S10	E04	10	4.8		B	DRO	40	18	7	4
5724		HOLL	10	04	1435	S11	E03	10	4.8		B	BXO	20	8	6	3
5724		BOUL	10	04	1558	S10	E01	10	4.7		B	CSO	20	4	6	1
5724		LEAR	10	05	0012	S10	W03	10	4.8		B	CAO	90	11	5	2
5724		PALE	10	05	0015	S11	W03	10	4.8		B	BXO	20	6	7	1
5724		CULG	10	05	0320	S10	W07	10	4.6		B	DRO	20	6	8	2
5724		RAMY	10	05	1249	S11	W11	10	4.7		B	CRO	20	5	6	3
5724		HOLL	10	05	2213	S12	W16	10	4.7		B	BXO	30	4	8	2
5724		LEAR	10	06	0013	S09	W18	10	4.6		B	BXO	20	3	1	3
5724		CULG	10	06	0325	S10	W23	10	4.4		B	BXO	10	3	3	2
5724		RAMY	10	06	1419	S12	W24	10	4.8		B	BXO	10	3	8	3
5724		HOLL	10	06	1601	S12	W25	10	4.8		B	BXO	20	3	8	4
5724		PALE	10	06	2215	S13	W34	10	4.4		A	AX		1		2

S U N S P O T G R O U P S
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OCTOBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5724		LEAR	10	07	0010	S12	W30	10	4.7		B	BXO	10	2	9	3
5724		PALE	10	07	2035	S10	W44	10	4.5		A	AX		1		3
5716		RAMY	09	29	1227	N17	E70	10	4.8		B	CRO	60	8	5	3
5716		BOUL	09	29	1445	N12	E70	10	4.9		B	BXO	10	3	3	3
5716		PALE	09	29	1730	N16	E69	10	5.0		B	CAO	50	5	3	4
5716		LEAR	09	30	0015	N15	E64	10	4.8		B	BXO	40	3	2	3
5716		CULG	09	30	0304	N14	E64	10	5.0		B	CSO	40	7	4	3
5716		RAMY	09	30	1212	N16	E60	10	5.0		B	DRO	70	11	5	3
5716		BOUL	09	30	1415	N13	E58	10	5.0		B	DAO	40	2	5	3
5716		PALE	09	30	2045	N14	E45	10	4.3		B	DAO	100	2	5	1
5716		LEAR	10	01	0015	N13	E52	10	4.9		B	DSO	60	2	4	3
5716		RAMY	10	01	1247	N16	E55	10	5.7		B	DAO	90	6	7	4
5716		BOUL	10	01	1425	N14	E43	10	4.8		B	DSO	30	2	5	2
5716		HOLL	10	01	1515	N15	E44	10	5.0		B	DAO	50	8	4	2
5716		PALE	10	01	1922	N14	E42	10	5.0		B	DAO	80	2	5	2
5716		CULG	10	02	0340	N12	E37	10	4.9		B	DSO	40	3	4	2
5716		LEAR	10	02	0415	N14	E37	10	5.0		B	DAO	50	4	4	1
5716		RAMY	10	02	1330	N14	E32	10	5.0		B	DAO	70	6	4	4
5716		BOUL	10	02	1341	N14	E31	10	4.9		B	CAO	40	2	4	1
5716		HOLL	10	02	1415	N15	E33	10	5.1		B	DAO	50	5	5	3
5716		LEAR	10	03	0055	N14	E26	10	5.0		B	CSO	70	7	4	3
5716		CULG	10	03	0410	N13	E23	10	4.9		B	CSO	40	3	4	2
5716		RAMY	10	03	1225	N15	E10	10	4.3		B	DAO	60	11	4	4
5716		LEAR	10	04	0015	N14	E12	10	4.9		B	CSO	30	4	4	2
5716		CULG	10	04	0207	N17	E12	10	5.0		B	CAO	10	4	4	2
5716		RAMY	10	04	1220	N15	E06	10	5.0		B	CAO	40	13	6	4
5716		BOUL	10	04	1558	N14	E03	10	4.9		A	HS	20	1	1	1
5716		LEAR	10	05	0012	N14	W02	10	4.8		B	BXO	30	4	3	2
5716		PALE	10	05	0015	N13	W03	10	4.8		A	HA	20	1	2	1
5716		CULG	10	05	0320	N15	W04	10	4.8		A	HA	10	2	1	2
5716		RAMY	10	05	1249	N13	W09	10	4.8		B	CRO	30	5	4	3
5716		BOUL	10	05	1507	N14	W11	10	4.8		A	HS	20	1	1	1
5716		HOLL	10	05	2213	N13	W15	10	4.8		A	AX	10	1		2
5716		LEAR	10	06	0013	N15	W15	10	4.9		A	AX	10	1	1	3
5716		CULG	10	06	0325	N14	W18	10	4.8		A	AX	10	1	1	2
5716		RAMY	10	06	1419	N13	W23	10	4.9		A	AX	10	1	1	3
5716		BOUL	10	06	1445	N14	W24	10	4.8		A	AX	10	1		3
5716		HOLL	10	06	1601	N13	W24	10	4.8		A	AX	10	1	1	4
5716		PALE	10	06	2215	N12	W27	10	4.9		A	AX		1		2
5716		LEAR	10	07	0010	N14	W29	10	4.8		A	AX	10	1	1	3
5716		RAMY	10	07	1314	N13	W35	10	4.9		A	AX	10	2	2	4
5716		PALE	10	08	1745	N15	W48	10	5.1		A	AX	10	2	1	3
5716		RAMY	10	09	1350	N16	W58	10	5.2		A	AX	10	1	1	4
[illegible]																
5716A		CULG	10	09	0335	N20	W54	10	5.0		A	AX	10	1	1	3
5714		LEAR	09	28	0701	N27	E85	10	4.9		B	BXO	60	2	3	2
5714		RAMY	09	28	1235	N30	E80	10	4.8		B	DAO	60	2	3	4
5714		BOUL	09	28	1510	N28	E85	10	5.3		A	HS	200	1	3	3
5714		PALE	09	28	1810	N28	E80	10	5.0		A	HA	120	1	3	3
5714		LEAR	09	29	0020	N26	E75	10	4.8		A	HK	90	1	3	3
5714		CULG	09	29	0315	N24	E85	10	5.7		B	FAO	130	5	18	2
5714		RAMY	09	29	1227	N28	E74	10	5.3		B	EAO	420	7	12	3
5714		BOUL	09	29	1445	N27	E73	10	5.3		B	EAO	300	5	12	3
5714		PALE	09	29	1730	N27	E72	10	5.3		B	EAO	330	11	12	4
5714		LEAR	09	30	0015	N26	E70	10	5.4		B	EAO	220	6	11	3
5714		CULG	09	30	0304	N28	E70	10	5.6		B	EAO	130	9	13	3
5714		RAMY	09	30	1212	N28	E63	10	5.4		B	EAO	330	16	13	3
5714		BOUL	09	30	1415	N26	E61	10	5.3		B	EAO	240	8	15	3
5714		PALE	09	30	2045	N26	E63	10	5.7		B	EAO	220	22	15	1
5714		LEAR	10	01	0015	N25	E58	10	5.5		B	FSO	340	13	17	3
5714		RAMY	10	01	1247	N28	E51	10	5.5		B	EAO	370	20	15	4
5714		BOUL	10	01	1425	N28	E46	10	5.2		B	DAO	150	3	7	2
5714		HOLL	10	01	1515	N29	E48	10	5.4		B	DKO	200	16	10	2
5714		PALE	10	01	1922	N27	E50	10	5.7		B	FAO	400	16	16	2
5714		CULG	10	02	0340	N27	E41	10	5.3		B	DAO	120	5	8	2
5714		LEAR	10	02	0415	N28	E40	10	5.3		B	DHO	160	9	6	1

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5714		RAMY	10	02	1330	N28	E35	10	5.3		B	DSO	180	9	8	4
5714		BOUL	10	02	1341	N28	E34	10	5.2		B	CAO	140	4	8	1
5714		HOLL	10	02	1415	N29	E35	10	5.3		B	CKO	170	6	8	3
5714		PALE	10	02	1912	N29	E32	10	5.3		B	CKO	190	9	10	3
5714		LEAR	10	03	0055	N28	E28	10	5.2		B	CSO	160	5	8	3
5714		CULG	10	03	0410	N28	E28	10	5.4		B	CSO	150	3	7	2
5714		RAMY	10	03	1225	N29	E22	10	5.2		B	DAO	220	11	9	4
5714		HOLL	10	03	1730	N30	E20	10	5.3		B	CSO	140	10	10	4
5714		LEAR	10	04	0015	N28	E16	10	5.3		B	CSO	190	4	8	2
5714		CULG	10	04	0207	N30	E16	10	5.3		B	CSO	150	4	8	2
5714		RAMY	10	04	1220	N29	E10	10	5.3		B	DAO	130	10	8	4
5714		HOLL	10	04	1435	N30	E10	10	5.4		B	CAO	120	7	9	3
5714		BOUL	10	04	1558	N28	E06	10	5.1		A	HA	90	3	2	1
5714		LEAR	10	05	0012	N29	E06	10	5.5		B	CAO	120	5	8	2
5714		PALE	10	05	0015	N26	E03	10	5.2		B	DAO	300	2	7	1
5714		CULG	10	05	0320	N30	E03	10	5.4		B	CAO	150	5	8	2
5714		RAMY	10	05	1249	N29	W07	10	5.0		B	CAO	130	7	4	3
5714		HOLL	10	05	2213	N28	W10	10	5.1		B	CAO	110	4	3	2
5714		LEAR	10	06	0013	N29	W11	10	5.1		B	DAO	70	3	2	3
5714		CULG	10	06	0325	N29	W14	10	5.0		A	HA	100	4	3	2
5714		RAMY	10	06	1419	N28	W20	10	5.0		B	CAO	80	6	3	3
5714		BOUL	10	06	1445	N28	W21	10	5.0		B	DAO	90	4	3	3
5714		HOLL	10	06	1601	N28	W21	10	5.0		B	CSO	90	7	3	4
5714		PALE	10	06	2215	N26	W22	10	5.2		B	DAO	130	6	8	2
5714		LEAR	10	07	0010	N28	W25	10	5.0		B	DSO	70	3	2	3
5714		CULG	10	07	0345	N29	W27	10	5.0		A	HA	50	2	1	1
5714		RAMY	10	07	1314	N28	W31	10	5.1		B	CAO	100	4	2	4
5714		BOUL	10	07	1445	N28	W32	10	5.1		B	CAO	50	6	2	3
5714		HOLL	10	07	1545	N28	W33	10	5.1		A	HA	50	2	2	2
5714		PALE	10	07	2035	N25	W33	10	5.3		B	DAO	160	5	6	3
5714		CULG	10	08	0030	N31	W39	10	4.9		A	HS	60	2	2	2
5714		LEAR	10	08	0152	N29	W37	10	5.2		B	CAO	50	2	3	2
5714		RAMY	10	08	1330	N28	W45	10	5.0		B	CSO	60	5	3	3
5714		BOUL	10	08	1435	N29	W44	10	5.1		B	CAO	30	5	3	3
5714		HOLL	10	08	1445	N28	W46	10	5.0		B	CAO	50	3	3	3
5714		PALE	10	08	1745	N28	W48	10	5.0		B	CAO	60	2	2	3
5714		LEAR	10	09	0035	N28	W49	10	5.2		A	HS	50	1	2	4
5714		CULG	10	09	0335	N30	W53	10	5.0		A	HS	40	1	2	3
5714		RAMY	10	09	1350	N29	W56	10	5.2		A	HA	60	2	2	4
5714		BOUL	10	09	1401	N29	W56	10	5.2		A	HS	30	1	2	1
5714		HOLL	10	09	1515	N27	W58	10	5.1		A	HS	40	1	2	4
5714		LEAR	10	10	0031	N28	W62	10	5.2		A	HS	40	1	2	4
5714		CULG	10	10	0300	N28	W66	10	5.0		B	CSO	20	2	2	3
5714		RAMY	10	10	1235	N30	W70	10	5.0		B	CAO	80	7	3	3
5714		BOUL	10	10	1347	N29	W69	10	5.2		A	HS	40	2	1	1
5714		HOLL	10	10	1450	N28	W70	10	5.1		A	HS	30	2	3	4
5714		LEAR	10	11	0025	N28	W74	10	5.2		A	HS	60	1	2	2
5714		CULG	10	11	0230	N28	W77	10	5.1		A	HS	30	1	1	2
5714		RAMY	10	11	1231	N28	W82	10	5.1		A	HA	60	1	3	4
5714		HOLL	10	11	1525	N27	W85	10	5.0		A	HA	20	1	2	3
5719		CULG	09	30	0304	N23	E74	10	5.8		B	CAO	120	3	8	3
5719		BOUL	10	01	1425	N24	E54	10	5.8		B	DAO	120	7	9	2
5719		HOLL	10	01	1515	N25	E55	10	5.9		B	DAO	110	20	7	2
5719		CULG	10	02	0340	N22	E48	10	5.8		B	DAO	110	6	7	2
5719		LEAR	10	02	0415	N23	E47	10	5.8		B	DAO	130	6	6	1
5719		RAMY	10	02	1330	N23	E43	10	5.9		B	DAO	180	8	8	4
5719		BOUL	10	02	1341	N25	E41	10	5.7		B	CAO	100	4	8	1
5719		HOLL	10	02	1415	N24	E42	10	5.8		B	DKO	150	8	7	3
5719		PALE	10	02	1912	N23	E38	10	5.7		B	CKO	190	4	8	3
5719		LEAR	10	03	0055	N24	E35	10	5.7		B	CAO	130	5	8	3
5719		CULG	10	03	0410	N22	E34	10	5.8		B	CAO	100	4	7	2
5719		RAMY	10	03	1225	N23	E28	10	5.7		B	DAO	170	8	10	4
5719		HOLL	10	03	1730	N24	E24	10	5.6		B	CSO	110	6	8	4
5719		LEAR	10	04	0015	N23	E23	10	5.8		B	CAO	130	3	9	2
5719		CULG	10	04	0207	N24	E17	10	5.4		A	HA	100	3	2	2
5719		RAMY	10	04	1220	N25	E10	10	5.3		B	CAO	110	10	6	4
5719		HOLL	10	04	1435	N24	E15	10	5.8		B	CAO	140	5	8	3
5719		BOUL	10	04	1558	N26	E11	10	5.5		B	CSO	50	4	3	1

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

OCTOBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5719		LEAR	10	05	0012	N23	E06	10	5.5		A	HH	110	2	3	2
5719		CULG	10	05	0320	N24	E04	10	5.4		A	HS	150	1	3	2
5719		RAMY	10	05	1249	N23	W02	10	5.4		B	CAO	270	5	4	3
5719		BOUL	10	05	1507	N23	W03	10	5.4		A	HA	80	1	3	1
5719		HOLL	10	05	2213	N22	W08	10	5.3		B	CSO	120	6	4	2
5719		LEAR	10	06	0013	N23	W08	10	5.4		B	CHO	150	6	4	3
5719		CULG	10	06	0325	N23	W09	10	5.4		B	CAO	100	3	4	2
5719		RAMY	10	06	1419	N23	W16	10	5.4		B	CSO	120	8	7	3
5719		BOUL	10	06	1445	N23	W16	10	5.4		B	CAO	140	4	4	3
5719		HOLL	10	06	1601	N23	W18	10	5.3		B	CAO	120	6	7	4
5719		LEAR	10	07	0010	N23	W20	10	5.5		B	CKO	120	5	5	3
5719		CULG	10	07	0345	N23	W23	10	5.4		A	HA	120	2	2	1
5719		RAMY	10	07	1314	N23	W28	10	5.4		B	CAO	100	6	4	4
5719		BOUL	10	07	1445	N23	W28	10	5.4		B	DAO	70	8	3	3
5719		HOLL	10	07	1545	N23	W30	10	5.3		B	CAO	110	8	3	2
5719		CULG	10	08	0030	N26	W36	10	5.2		A	HS	80	3	2	2
5719		LEAR	10	08	0152	N23	W33	10	5.5		B	CSO	90	6	5	2
5719		RAMY	10	08	1330	N23	W41	10	5.4		B	CSO	110	3	3	3
5719		BOUL	10	08	1435	N23	W42	10	5.4		B	CAO	70	4	3	3
5719		HOLL	10	08	1445	N23	W42	10	5.4		B	CSO	120	3	4	3
5719		PALE	10	08	1745	N22	W43	10	5.4		B	DAO	140	3	3	3
5719		LEAR	10	09	0035	N20	W48	10	5.3		B	CSO	110	4	11	4
5719		CULG	10	09	0335	N24	W51	10	5.2		B	CSO	80	2	4	3
5719		RAMY	10	09	1350	N22	W54	10	5.4		B	CSO	80	2	3	4
5719		BOUL	10	09	1401	N23	W55	10	5.3		A	HA	80	1	2	1
5719		HOLL	10	09	1515	N22	W56	10	5.3		A	HS	100	1	2	4
5719		LEAR	10	10	0031	N23	W60	10	5.4		A	HS	80	1	2	4
5719		CULG	10	10	0300	N22	W62	10	5.3		A	HS	40	1	1	3
5719		RAMY	10	10	1235	N24	W69	10	5.2		B	CAO	120	3	3	3
5719		BOUL	10	10	1347	N23	W68	10	5.3		A	HS	90	1	2	1
5719		HOLL	10	10	1450	N23	W68	10	5.4		B	CSO	50	4	7	4
5719		LEAR	10	11	0025	N23	W73	10	5.4		A	HS	120	1	2	2
5719		CULG	10	11	0230	N23	W76	10	5.2		A	HS	60	1	1	2
5719		RAMY	10	11	1231	N23	W83	10	5.1		B	CAO	120	2	5	4
5719		HOLL	10	11	1525	N23	W80	10	5.5		A	HS	50	1	2	3
5719		BOUL	10	11	1530	N24	W81	10	5.4		A	HA	60	1	2	2
5719		PALE	10	11	1940	N21	W85	10	5.3		A	HS	60	1	5	2
5719A		HOLL	10	06	1601	N24	E01	10	6.7		A	AX	10	2	1	4
5727		HOLL	10	03	1730	N14	E40	10	6.7		B	BXO		3	3	4
5727		LEAR	10	04	0015	N14	E37	10	6.8		B	BXO	50	6	4	2
5727		CULG	10	04	0207	N14	E36	10	6.8		B	BXO	10	8	4	2
5727		RAMY	10	04	1220	N15	E29	10	6.7		B	DAO	80	19	4	4
5727		HOLL	10	04	1435	N15	E28	10	6.7		B	DAO	50	9	5	3
5727		BOUL	10	04	1558	N13	E27	10	6.7		B	DAO	60	3	6	1
5727		LEAR	10	05	0012	N15	E22	10	6.7		B	DSO	100	9	5	2
5727		PALE	10	05	0015	N15	E22	10	6.7		B	DAO	80	2	5	1
5727		CULG	10	05	0320	N14	E20	10	6.6		B	DRO	40	9	5	2
5727		RAMY	10	05	1249	N13	E16	10	6.7		B	DAO	60	16	7	3
5727		BOUL	10	05	1507	N14	E13	10	6.6		B	DSO	60	4	5	1
5727		HOLL	10	05	2213	N13	E10	10	6.7		B	DAO	100	15	6	2
5727		LEAR	10	06	0013	N15	E09	10	6.7		B	DAO	60	12	6	3
5727		CULG	10	06	0325	N14	E07	10	6.7		B	CAO	20	13	6	2
5727		RAMY	10	06	1419	N13	E01	10	6.7		B	BXO	20	17	6	3
5727		BOUL	10	06	1445	N13	E01	10	6.7		B	CAO	50	13	7	3
5727		HOLL	10	06	1601	N13	W01	10	6.6		B	CRO	80	16	6	4
5727		PALE	10	06	2215	N12	W04	10	6.6		B	DAO	40	7	7	2
5727		LEAR	10	07	0010	N14	W05	10	6.6		B	DAO	60	8	6	3
5727		CULG	10	07	0345	N13	W08	10	6.5		B	CSO	30	3	4	1
5727		RAMY	10	07	1314	N13	W13	10	6.6		B	CAO	30	7	5	4
5727		BOUL	10	07	1445	N13	W13	10	6.6		B	BXO		3	5	3
5727		HOLL	10	07	1545	N13	W14	10	6.6		B	BXO	20	8	5	2
5727		PALE	10	07	2035	N13	W14	10	6.8		A	AX		3	1	3
5727		CULG	10	08	0030	N16	W18	10	6.6		A	AX	10	2	1	2
5727		LEAR	10	08	0152	N14	W17	10	6.8		B	BXO	10	3	2	2
5727		RAMY	10	08	1330	N13	W24	10	6.7		A	AX	10	2	2	3
5727		BOUL	10	08	1435	N15	W24	10	6.8		A	AX		2	1	3
5727		PALE	10	08	1745	N13	W27	10	6.7		A	AX		1	1	3

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5727		LEAR	10	09	0035	N13	W29	10	6.8		B	BXO	10	2	3	4
5732		HOLL	10	05	2213	N22	E11	10	6.8		A	AX	10	2	1	2
5732		CULG	10	06	0325	N23	E10	10	6.9		B	BXO	10	4	1	2
5732		RAMY	10	07	1314	N23	W08	10	6.9		A	AX	10	2	2	4
5732A		RAMY	10	09	1350	N22	W26	10	7.6		B	BXO	10	5	4	4
5722		RAMY	10	01	1247	S19	E78	10	7.5		A	AX		2		4
5722		CULG	10	02	0340	S18	E80	10	8.2		A	HS	20	1	1	2
5722		LEAR	10	02	0415	S15	E71	10	7.5		B	CSO	60	6	6	1
5722		RAMY	10	02	1330	S14	E66	10	7.5		B	CRO	50	4	5	4
5722		HOLL	10	02	1415	S18	E72	10	8.1		B	BXO	30	4	10	3
5722		PALE	10	02	1912	S14	E65	10	7.7		B	CAO	100	3	7	3
5722		LEAR	10	03	0055	S14	E62	10	7.7		B	CSO	50	4	9	3
5722		CULG	10	03	0410	S19	E63	10	8.0		A	HR	20	1	1	2
5722		RAMY	10	03	1225	S16	E59	10	8.0		A	HA	40	1	1	4
5722		HOLL	10	03	1730	S15	E56	10	8.0		A	HS	30	2	1	4
5722		LEAR	10	04	0015	S16	E53	10	8.0		A	HS	40	1	2	2
5722		CULG	10	04	0207	S18	E54	10	8.2		A	HS	20	1	1	2
5722		RAMY	10	04	1220	S17	E46	10	8.0		A	HA	20	2	1	4
5722		HOLL	10	04	1435	S16	E46	10	8.1		A	HS	20	1	1	3
5722		BOUL	10	04	1558	S16	E43	10	7.9		A	HS	20	1		1
5722		LEAR	10	05	0012	S16	E40	10	8.0		A	HS	60	1	2	2
5722		PALE	10	05	0015	S16	E42	10	8.2		A	HS	30	1	1	1
5722		CULG	10	05	0320	S17	E39	10	8.1		A	HS	30	1	1	2
5722		RAMY	10	05	1249	S17	E34	10	8.1		A	HA	30	1	2	3
5722		BOUL	10	05	1507	S16	E32	10	8.0		A	HS	40	2	1	1
5722		HOLL	10	05	2213	S18	E28	10	8.0		A	HR	20	1	1	2
5722		LEAR	10	06	0013	S17	E28	10	8.1		A	HS	20	1	1	3
5722		CULG	10	06	0325	S19	E25	10	8.0		A	HS	20	1	1	2
5722		RAMY	10	06	1419	S17	E21	10	8.2		A	HS	20	1	2	3
5722		BOUL	10	06	1445	S16	E18	10	8.0		A	HS	20	1	1	3
5722		HOLL	10	06	1601	S16	E18	10	8.0		B	BXO	30	3	5	4
5722		PALE	10	06	2215	S19	E16	10	8.1		A	HS	20	1	1	2
5722		LEAR	10	07	0010	S18	E15	10	8.1		A	HS	20	1	2	3
5722		CULG	10	07	0345	S19	E11	10	8.0		A	HS	20	1	1	1
5722		RAMY	10	07	1314	S18	E08	10	8.2		A	HR	20	1	1	4
5722		BOUL	10	07	1445	S17	E06	10	8.1		A	AX		2	1	3
5722		HOLL	10	07	1545	S18	E07	10	8.2		A	AX	10	1	1	2
5722		PALE	10	07	2035	S18	E05	10	8.2		A	AX		1		3
5722		CULG	10	08	0030	S17	W01	10	7.9		A	HS	20	4	2	2
5722		LEAR	10	08	0152	S17	E01	10	8.1		B	CSO	30	5	2	2
5722		RAMY	10	08	1330	S18	W05	10	8.2		B	CRO	20	5	3	3
5722		BOUL	10	08	1435	S17	W07	10	8.1		B	DRO	20	6	3	3
5722		HOLL	10	08	1445	S19	W06	10	8.1		B	BXO	30	6	4	3
5722		PALE	10	08	1745	S19	W08	10	8.1		B	DAO	30	8	4	3
5722		LEAR	10	09	0035	S19	W11	10	8.2		B	BXO	30	8	5	4
5722		CULG	10	09	0335	S19	W14	10	8.1		B	BXO	10	5	4	3
5722		RAMY	10	09	1350	S19	W18	10	8.2		B	CAO	20	5	3	4
5722		BOUL	10	09	1401	S17	W20	10	8.1		B	BXO	20	4	3	1
5722		HOLL	10	09	1515	S19	W18	10	8.3		B	BXO	20	8	5	4
5722		LEAR	10	10	0031	S18	W23	10	8.3		B	BXO	20	3	3	4
5722		CULG	10	10	0300	S19	W26	10	8.1		B	BXO	10	2	1	3
5722		RAMY	10	10	1235	S19	W34	10	7.9		A	AX	10	1	1	3
5722		BOUL	10	10	1347	S17	W33	10	8.1		A	AX	10	1		1
5722		HOLL	10	10	1450	S19	W32	10	8.2		A	AX		1		4
5722		LEAR	10	11	0025	S18	W38	10	8.1		A	AX	10	1	1	2
5722		CULG	10	11	0230	S19	W39	10	8.1		A	AX		1		2
5722		RAMY	10	11	1231	S19	W45	10	8.1		A	AX	10	1	1	4
5722		HOLL	10	11	1525	S19	W46	10	8.1		A	AX		1		3
5743		RAMY	10	12	1311	N25	W58	10	8.0		B	BXO	10	5	5	3
5743		BOUL	10	12	1433	N27	W58	10	8.1		B	BXO	10	3	3	2
5743		HOLL	10	12	1505	N27	W58	10	8.1		B	BXO	20	4	5	3
5743		PALE	10	12	1912	N25	W63	10	7.9		A	AX		1		2
5743		LEAR	10	13	0025	N28	W61	10	8.2		A	AX	20	2	2	3
5743		CULG	10	13	0334	N26	W65	10	8.1		A	HS	20	1	1	3
5743		RAMY	10	13	1316	N28	W70	10	8.1		A	HR	20	4	1	3

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

OCTOBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5743		BOUL	10	13	1440	N27	W68	10	8.3		A	AX	10	1	1	1
5743		HOLL	10	13	1805	N27	W74	10	8.0		A	AX	20	2	2	3
5743		PALE	10	13	2012	N25	W77	10	7.9		A	AX		1		2
5743A		RAMY	10	04	1220	S25	E48	10	8.2		A	AX	10	2	2	4
5743B		PALE	10	01	1922	N28	E88	10	8.7		A	AX	30	1	2	2
5723		BOUL	10	02	1341	N19	E85	10	9.0		A	HS	60	1	3	1
5723		HOLL	10	02	1415	N17	E78	10	8.5		A	HK	120	1	3	3
5723		PALE	10	02	1912	N18	E85	10	9.3		A	HA	180	1	2	3
5723		LEAR	10	03	0055	N18	E75	10	8.7		A	HS	90	1	2	3
5723		CULG	10	03	0410	N16	E78	10	9.1		A	HS	90	1	2	2
5723		RAMY	10	03	1225	N19	E70	10	8.8		B	CAO	170	2	5	4
5723		HOLL	10	03	1730	N19	E68	10	8.9		A	HS	130	1	2	4
5723		LEAR	10	04	0015	N18	E64	10	8.9		A	HH	120	1	3	2
5723		CULG	10	04	0207	N18	E66	10	9.1		A	HS	90	1	2	2
5723		RAMY	10	04	1220	N19	E60	10	9.1		B	CAO	200	6	5	4
5723		HOLL	10	04	1435	N20	E59	10	9.1		B	CSO	180	2	5	3
5723		BOUL	10	04	1558	N17	E56	10	8.9		A	HS	100	1	2	1
5723		LEAR	10	05	0012	N18	E51	10	8.9		A	HK	130	1	3	2
5723		PALE	10	05	0015	N20	E52	10	9.0		A	HA	140	1	2	1
5723		CULG	10	05	0320	N18	E51	10	9.0		B	CSO	160	2	5	2
5723		RAMY	10	05	1249	N18	E46	10	9.0		B	CAO	180	16	6	3
5723		BOUL	10	05	1507	N19	E42	10	8.8		B	CAO	90	2	4	1
5723		HOLL	10	05	2213	N18	E41	10	9.0		B	CAO	190	6	9	2
5723		LEAR	10	06	0013	N19	E39	10	9.0		B	DHO	100	2	5	3
5723		CULG	10	06	0325	N17	E39	10	9.1		B	CAO	120	2	5	2
5723		RAMY	10	06	1419	N18	E32	10	9.0		B	CSO	130	7	4	3
5723		BOUL	10	06	1445	N19	E30	10	8.9		B	CAO	140	8	4	3
5723		HOLL	10	06	1601	N20	E33	10	9.2		B	CSO	160	9	9	4
5723		PALE	10	06	2215	N18	E27	10	9.0		A	HS	110	1	3	2
5723		LEAR	10	07	0010	N19	E27	10	9.1		B	CSO	100	4	5	3
5723		CULG	10	07	0345	N17	E23	10	8.9		A	HS	120	1	2	1
5723		RAMY	10	07	1314	N18	E19	10	9.0		B	CAO	230	10	7	4
5723		BOUL	10	07	1445	N18	E17	10	8.9		B	CAO	130	5	5	3
5723		HOLL	10	07	1545	N20	E18	10	9.0		B	CKO	230	9	8	2
5723		PALE	10	07	2035	N19	E14	10	8.9		B	CSO	160	2	4	3
5723		CULG	10	08	0030	N19	E12	10	8.9		A	HS	120	1	2	2
5723		LEAR	10	08	0152	N18	E12	10	9.0		A	HS	150	1	2	2
5723		RAMY	10	08	1330	N20	E06	10	9.0		B	CSO	200	8	6	3
5723		BOUL	10	08	1435	N20	E05	10	9.0		B	CAO	120	7	6	3
5723		HOLL	10	08	1445	N19	E05	10	9.0		B	CAO	240	5	5	3
5723		PALE	10	08	1745	N19	E04	10	9.0		B	CAO	200	10	8	3
5723		LEAR	10	09	0035	N19	W01	10	8.9		B	CSO	170	7	7	4
5723		CULG	10	09	0335	N19	W03	10	8.9		B	CSO	180	4	5	3
5723		RAMY	10	09	1350	N19	W09	10	8.9		B	CAO	20	9	6	4
5723		BOUL	10	09	1401	N19	W09	10	8.9		B	CAO	110	5	5	1
5723		HOLL	10	09	1515	N18	W08	10	9.0		B	CAO	190	16	12	4
5723		LEAR	10	10	0031	N18	W13	10	9.0		B	CHO	200	9	6	4
5723		CULG	10	10	0300	N19	W16	10	8.9		B	CSO	140	5	7	3
5723		RAMY	10	10	1235	N19	W18	10	9.1		B	CSO	140	4	4	3
5723		BOUL	10	10	1347	N19	W20	10	9.0		B	CAO	110	2	4	1
5723		HOLL	10	10	1450	N18	W19	10	9.2		B	CSO	150	3	4	4
5723		LEAR	10	11	0025	N18	W27	10	9.0		B	CSO	120	3	3	2
5723		CULG	10	11	0230	N18	W28	10	9.0		A	HS	120	1	2	2
5723		RAMY	10	11	1231	N18	W32	10	9.1		B	CAO	120	2	4	4
5723		HOLL	10	11	1525	N18	W34	10	9.0		A	HS	140	1	2	3
5723		BOUL	10	11	1530	N19	W33	10	9.1		A	HS	140	1	3	2
5723		PALE	10	11	1940	N17	W37	10	9.0		A	HS	180	1	3	2
5723		LEAR	10	12	0010	N18	W38	10	9.1		B	CSO	120	2	4	3
5723		CULG	10	12	0550	N21	W43	10	8.9		A	HS	140	1	2	3
5723		RAMY	10	12	1311	N19	W47	10	9.0		B	CAO	210	3	4	3
5723		BOUL	10	12	1433	N18	W47	10	9.0		A	HS	110	1	2	2
5723		HOLL	10	12	1505	N19	W48	10	9.0		B	CSO	140	3	6	3
5723		PALE	10	12	1912	N20	W50	10	9.0		B	CSO	120	3	4	2
5723		LEAR	10	13	0025	N19	W52	10	9.0		A	HH	110	1	4	3
5723		CULG	10	13	0334	N22	W56	10	8.8		B	CSO	110	3	4	3
5723		RAMY	10	13	1316	N20	W60	10	9.0		B	CAO	170	2	5	3

SUNSPOT GROUPS
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OCTOBER 1989

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5723		BOUL	10	13	1440	N20	W59	10	9.1		B	CSO	120	3	3	1
5723		HOLL	10	13	1805	N19	W64	10	8.9		B	CSO	120	2	8	3
5723		PALE	10	13	2012	N20	W65	10	8.9		B	CSO	120	2	3	2
5723		LEAR	10	14	0132	N18	W65	10	9.1		B	CSO	100	3	8	3
5723		BOUL	10	14	1430	N19	W73	10	9.0		A	HS	80	1	2	2
5723		HOLL	10	14	1455	N18	W74	10	9.0		A	HS	60	1	1	4
5723		RAMY	10	14	1620	N18	W76	10	8.9		A	HS	120	1	2	2
5723		LEAR	10	15	0030	N18	W75	10	9.3		A	HS	120	1	2	4
5723		CULG	10	15	0500	N21	W85	10	8.7		A	HS	50	1	2	3
5723		RAMY	10	15	1210	N18	W85	10	9.0		A	HA	80	1	2	4
5721		HOLL	10	01	1515	N29	E82	10	8.1		A	AX		1		2
5721		CULG	10	02	0340	N24	E85	10	8.7		A	HS	70	1	1	2
5721		LEAR	10	02	0415	N28	E78	10	8.3		B	CSO	90	4	4	1
5721		RAMY	10	02	1330	N27	E78	10	8.6		B	DAO	180	6	9	4
5721		BOUL	10	02	1341	N28	E76	10	8.5		B	CSO	90	2	7	1
5721		HOLL	10	02	1415	N28	E79	10	8.8		B	DKO	210	3	10	3
5721		PALE	10	02	1912	N27	E75	10	8.6		B	DAO	330	7	9	3
5721		LEAR	10	03	0055	N28	E74	10	8.8		B	EAO	300	15	13	3
5721		CULG	10	03	0410	N24	E79	10	9.3		B	FKI	330	6	21	2
5721		RAMY	10	03	1225	N28	E69	10	8.9		BG	FAO	410	23	16	4
5721		HOLL	10	03	1730	N29	E69	10	9.1		B	FAI	330	18	18	4
5721		LEAR	10	04	0015	N28	E63	10	8.9		BG	FAI	530	18	18	2
5721		CULG	10	04	0207	N28	E66	10	9.2		B	FAO	180	18	16	2
5721		RAMY	10	04	1220	N28	E59	10	9.1		BG	FAI	430	47	21	4
5721		HOLL	10	04	1435	N29	E57	10	9.1		BG	FAI	310	23	17	3
5721		BOUL	10	04	1558	N26	E56	10	9.0		BG	EAI	280	14	14	1
5721		LEAR	10	05	0012	N29	E51	10	9.0		BG	FAI	440	23	16	2
5721		PALE	10	05	0015	N29	E50	10	8.9		B	FAO	390	8	19	1
5721		CULG	10	05	0320	N27	E51	10	9.1		BG	FAI	370	13	16	2
5721		RAMY	10	05	1249	N28	E46	10	9.1		BG	FAI	330	33	16	3
5721		BOUL	10	05	1507	N28	E42	10	8.9		BG	FAO	350	5	17	1
5721		HOLL	10	05	2213	N27	E40	10	9.0		BG	FAI	380	30	16	2
5721		LEAR	10	06	0013	N27	E40	10	9.1		BG	FKI	310	21	19	3
5721		CULG	10	06	0325	N26	E39	10	9.2		BG	FAI	220	26	17	2
5721		RAMY	10	06	1419	N27	E32	10	9.1		BG	FAI	260	48	16	3
5721		BOUL	10	06	1445	N28	E31	10	9.0		B	FKI	440	28	17	3
5721		HOLL	10	06	1601	N28	E31	10	9.1		BG	FAI	380	35	17	4
5721		PALE	10	06	2215	N27	E28	10	9.1		B	DAI	280	18	16	2
5721		LEAR	10	07	0010	N26	E26	10	9.0		BG	FAI	350	30	19	3
5721		CULG	10	07	0345	N26	E24	10	9.0		B	FAI	220	16	16	1
5721		RAMY	10	07	1314	N27	E23	10	9.3		BG	FAI	530	72	23	4
5721		BOUL	10	07	1445	N27	E17	10	8.9		B	FAI	120	51	18	3
5721		HOLL	10	07	1545	N27	E15	10	8.8		BG	FAI	320	67	23	2
5721		PALE	10	07	2035	N26	E15	10	9.0		B	FAI	360	29	18	3
5721		CULG	10	08	0030	N28	E13	10	9.0		BG	FAI	100	22	17	2
5721		LEAR	10	08	0152	N27	E13	10	9.1		B	FAI	220	29	17	2
5721		RAMY	10	08	1330	N27	E09	10	9.3		BG	FAI	350	52	20	3
5721		BOUL	10	08	1435	N27	E07	10	9.1		B	FAI	140	50	18	3
5721		HOLL	10	08	1445	N27	E06	10	9.1		BG	FAI	190	46	20	3
5721		PALE	10	08	1745	N26	E05	10	9.1		BG	FAI	170	36	20	3
5721		LEAR	10	09	0035	N25	E03	10	9.2		B	FAI	120	36	18	4
5721		CULG	10	09	0335	N27	E01	10	9.2		BG	FAI	40	27	17	3
5721		RAMY	10	09	1350	N26	W04	10	9.3		BG	FAO	150	52	16	4
5721		BOUL	10	09	1401	N27	W06	10	9.1		B	FAI	90	17	16	1
5721		HOLL	10	09	1515	N27	W08	10	9.0		BG	CAI	160	77	23	4
5721		LEAR	10	10	0031	N27	W12	10	9.1		BG	FAI	170	27	17	4
5721		CULG	10	10	0300	N26	W14	10	9.0		BG	FAI	70	26	19	3
5721		RAMY	10	10	1235	N25	W19	10	9.0		BG	FAO	120	38	20	3
5721		BOUL	10	10	1347	N27	W19	10	9.1		B	CAI	10	15	16	1
5721		HOLL	10	10	1450	N26	W19	10	9.1		B	CAO	40	33	20	4
5721		LEAR	10	11	0025	N27	W24	10	9.1		B	FAO	160	16	18	2
5721		CULG	10	11	0230	N27	W22	10	9.4		B	EAO	60	13	11	2
5721		RAMY	10	11	1231	N27	W28	10	9.3		B	CAO	40	17	15	4
5721		HOLL	10	11	1525	N26	W29	10	9.4		B	CAO	30	9	11	3
5721		BOUL	10	11	1530	N27	W28	10	9.5		B	CSO	40	9	10	2
5721		PALE	10	11	1940	N27	W31	10	9.4		B	CAO	40	12	11	2
5721		LEAR	10	12	0010	N27	W32	10	9.5		B	DSO	40	10	13	3
5721		CULG	10	12	0550	N31	W37	10	9.3		B	BXO	10	6	12	3

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

OCTOBER 1989

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
5721		RAMY	10 12	1311	N25 W42	10 9.3		B	BXO	20	14	11	3
5721		BOUL	10 12	1433	N27 W47	10 8.9		B	BXO	20	2	1	2
5721		HOLL	10 12	1505	N27 W42	10 9.3		B	BXO	10	12	13	3
5721		PALE	10 12	1912	N26 W53	10 8.7		B	BXO	30	6	13	2
5721		LEAR	10 13	0025	N23 W52	10 9.0		B	BXO	20	3	3	3
5726		RAMY	10 03	1225	S13 E77	10 9.3		A	AX	30	3	1	4
5726		HOLL	10 03	1730	S12 E75	10 9.4		A	AX		1		4
5726		LEAR	10 04	0015	S13 E70	10 9.3		A	AX	30	1	1	2
5726		CULG	10 04	0207	S15 E72	10 9.5		B	BXO	10	3	7	2
5726		RAMY	10 04	1220	S12 E66	10 9.5		B	BXO	30	6	5	4
5726		HOLL	10 04	1435	S12 E65	10 9.5		B	CRO	30	7	6	3
5726		BOUL	10 04	1558	S15 E64	10 9.5		B	BXO	30	3	7	1
5726		LEAR	10 05	0012	S13 E58	10 9.4		B	CAO	110	10	4	2
5726		PALE	10 05	0015	S12 E60	10 9.5		B	CAO	50	5	8	1
5726		CULG	10 05	0320	S15 E58	10 9.5		B	DRO	20	4	6	2
5726		RAMY	10 05	1249	S13 E51	10 9.4		B	DAO	90	20	6	3
5726		BOUL	10 05	1507	S13 E49	10 9.3		B	DAO	110	4	5	1
5726		HOLL	10 05	2213	S14 E48	10 9.5		B	DSO	130	20	8	2
5726		LEAR	10 06	0013	S12 E47	10 9.6		B	DSO	70	16	7	3
5726		CULG	10 06	0325	S15 E44	10 9.5		B	CAO	30	12	8	2
5726		RAMY	10 06	1419	S13 E38	10 9.5		B	BXO	30	23	8	3
5726		BOUL	10 06	1445	S13 E38	10 9.5		B	CAI	80	13	8	3
5726		HOLL	10 06	1601	S13 E38	10 9.5		B	CAO	100	18	8	4
5726		PALE	10 06	2215	S13 E34	10 9.5		B	DAI	50	16	7	2
5726		LEAR	10 07	0010	S13 E32	10 9.4		B	DAO	100	20	7	3
5726		CULG	10 07	0345	S13 E31	10 9.5		B	DAI	110	11	8	1
5726		RAMY	10 07	1314	S14 E26	10 9.5		B	DAO	300	28	6	4
5726		BOUL	10 07	1445	S12 E24	10 9.4		B	DAI	140	24	7	3
5726		HOLL	10 07	1545	S12 E25	10 9.5		B	DAO	150	25	7	2
5726		PALE	10 07	2035	S13 E21	10 9.4		B	DKO	180	11	6	3
5726		CULG	10 08	0030	S12 E17	10 9.3		B	DAO	90	15	5	2
5726		LEAR	10 08	0152	S13 E18	10 9.4		B	DAO	120	14	7	2
5726		RAMY	10 08	1330	S13 E13	10 9.5		B	DAO	220	21	8	3
5726		BOUL	10 08	1435	S12 E09	10 9.3		B	DAI	50	26	8	3
5726		HOLL	10 08	1445	S12 E12	10 9.5		B	DAO	100	19	8	3
5726		PALE	10 08	1745	S13 E11	10 9.6		B	DAO	100	20	10	3
5726		LEAR	10 09	0035	S12 E05	10 9.4		B	DAO	90	14	8	4
5726		CULG	10 09	0335	S13 E02	10 9.3		B	DAO	20	11	8	3
5726		RAMY	10 09	1350	S12 W01	10 9.5		B	CRO	50	24	9	4
5726		BOUL	10 09	1401	S12 W04	10 9.3		B	CAO	50	7	6	1
5726		HOLL	10 09	1515	S13 W03	10 9.4		B	CRO	50	20	9	4
5726		LEAR	10 10	0031	S12 W09	10 9.3		B	CSO	80	12	7	4
5726		CULG	10 10	0300	S13 W11	10 9.3		B	CRO	10	8	6	3
5726		RAMY	10 10	1235	S12 W17	10 9.2		B	CAO	30	9	5	3
5726		BOUL	10 10	1347	S12 W17	10 9.3		B	BXO	20	4	3	1
5726		HOLL	10 10	1450	S13 W15	10 9.5		B	BXO	20	16	10	4
5726		LEAR	10 11	0025	S12 W25	10 9.1		B	BXO	20	5	4	2
5726		CULG	10 11	0230	S13 W27	10 9.1		A	AX	10	2	2	2
5726		RAMY	10 11	1231	S12 W31	10 9.2		B	BXO	10	11	7	4
5726		HOLL	10 11	1525	S13 W33	10 9.1		A	AX	10	6	3	3
5726		BOUL	10 11	1530	S11 W33	10 9.2		B	CSO	30	4	2	2
5726		PALE	10 11	1940	S14 W36	10 9.1		A	HR	10	2	2	2
5726		CULG	10 12	0550	S11 W46	10 8.8		B	BXO		3	3	3
5726		RAMY	10 12	1311	S12 W44	10 9.2		B	BXO	10	2	2	3
5726		BOUL	10 12	1433	S12 W46	10 9.1		B	BXO	20	2	2	2
5726		HOLL	10 12	1505	S12 W46	10 9.2		A	AX	10	2	2	3
5726		PALE	10 12	1912	S12 W51	10 8.9		A	AX		4	2	2
5726A		PALE	10 08	1745	N19 E12	10 9.6		B	BXO	10	7	6	3
5726B		RAMY	10 05	1249	N13 E57	10 9.8		A	AX	20	2	1	3
5726B		HOLL	10 06	1601	N13 E40	10 9.7		A	AX	10	1	1	4
5726B		RAMY	10 07	1314	N14 E28	10 9.7		B	BXO	20	5	4	4
5726B		RAMY	10 08	1330	N12 E15	10 9.7		B	BXO	10	2	5	3
5729		RAMY	10 04	1220	S28 E75	10 10.4		A	AX	20	3	2	4
5729		HOLL	10 04	1435	S27 E71	10 10.1		A	AX		1	1	3
5729		LEAR	10 05	0012	S27 E64	10 10.0		A	AX	30	1	1	2

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5729		CULG	10 05 0320	S31 E69	10 10.6		B	BXO	10	4	9	2
5729		RAMY	10 05 1249	S27 E60	10 10.2		B	DAO	120	7	9	3
5729		HOLL	10 05 2213	S28 E54	10 10.1		A	HS	50	2	2	2
5729		LEAR	10 06 0013	S27 E53	10 10.1		B	BXO	20	3	1	3
5729		CULG	10 06 0325	S30 E51	10 10.1		A	HA	20	2	2	2
5729		RAMY	10 06 1419	S27 E45	10 10.1		A	AX	30	4	2	3
5729		BOUL	10 06 1445	S27 E44	10 10.0		B	BXO	10	3	1	3
5729		HOLL	10 06 1601	S28 E44	10 10.1		A	AX	30	4	2	4
5729		PALE	10 06 2215	S28 E43	10 10.3		B	BXO	10	4	5	2
5729		LEAR	10 07 0010	S28 E41	10 10.2		B	CSO	50	5	6	3
5729		CULG	10 07 0345	S31 E40	10 10.3		B	BXO	10	3	5	1
5729		RAMY	10 07 1314	S28 E35	10 10.3		B	DAO	60	7	5	4
5729		BOUL	10 07 1445	S27 E33	10 10.2		B	BXO	10	7	5	3
5729		HOLL	10 07 1545	S28 E35	10 10.4		B	BXO	30	6	6	2
5729		PALE	10 07 2035	S29 E32	10 10.4		B	CAO	30	3	5	3
5729		CULG	10 08 0030	S28 E26	10 10.0		B	BXO		4	4	2
5729		LEAR	10 08 0152	S27 E27	10 10.2		B	DAO	50	3	5	2
5729		RAMY	10 08 1330	S27 E23	10 10.3		B	DRO	20	2	4	3
5729		BOUL	10 08 1435	S26 E19	10 10.1		B	BXO	10	3	5	3
5729		HOLL	10 08 1445	S28 E22	10 10.3		B	BXO	20	3	6	3
5729		PALE	10 08 1745	S28 E20	10 10.3		B	CAO	30	2	5	3
5729		LEAR	10 09 0035	S28 E16	10 10.3		B	CAO	40	2	5	4
5729		CULG	10 09 0335	S29 E13	10 10.2		B	CAO	10	3	4	3
5729		RAMY	10 09 1350	S28 E08	10 10.2		A	AX	10	2	1	4
5729		BOUL	10 09 1401	S27 E05	10 10.0		A	AX	10	2	1	1
5729		HOLL	10 09 1515	S28 E08	10 10.3		A	AX	10	2	2	4
5729		LEAR	10 10 0031	S28 E02	10 10.2		A	AX	20	2	2	4
5729		CULG	10 10 0300	S29 W01	10 10.0		B	BXO	10	2	2	3
5729		RAMY	10 10 1235	S29 W05	10 10.1		A	AX	10	6	2	3
5729		BOUL	10 10 1347	S27 W07	10 10.0		B	BXO	20	4	2	1
5729		HOLL	10 10 1450	S29 W06	10 10.1		B	BXO	10	7	3	4
5729		LEAR	10 11 0025	S28 W12	10 10.1		B	BXO	40	5	3	2
5729		CULG	10 11 0230	S29 W13	10 10.1		A	AX	10	2	1	2
5729		RAMY	10 11 1231	S28 W19	10 10.0		B	BXO	10	2	2	4
5729		HOLL	10 11 1525	S28 W21	10 10.0		A	AX		1		3
5729		PALE	10 11 1940	S29 W23	10 10.0		A	AX		1		2
5725A		RAMY	10 08 1330	N08 E28	10 10.7		A	AX		1		3
5725A		RAMY	10 09 1350	N10 E09	10 10.2		A	AX	10	1	1	4
5725B		RAMY	10 11 1231	N16 W17	10 10.2		A	AX	10	2	1	4
5725C		RAMY	10 07 1314	N22 E37	10 10.4		A	AX		1		4
5725		RAMY	10 03 1225	N33 E80	10 9.9		A	FA	40	1	1	4
5725		HOLL	10 03 1730	N35 E81	10 10.2		A	HS	30	2	1	4
5725		LEAR	10 04 0015	N34 E77	10 10.1		A	AX	60	1	2	2
5725		CULG	10 04 0207	N33 E81	10 10.5		A	AX	20	1	2	2
5725		RAMY	10 04 1220	N34 E74	10 10.4		B	CAO	80	3	6	4
5725		HOLL	10 04 1435	N35 E75	10 10.6		B	CRO	30	2	8	3
5725		BOUL	10 04 1558	N32 E71	10 10.3		B	CSO	40	2	6	1
5725		LEAR	10 05 0012	N34 E70	10 10.6		B	CSO	120	2	8	2
5725		PALE	10 05 0015	N35 E68	10 10.4		B	CAO	100	2	7	1
5725		CULG	10 05 0320	N32 E71	10 10.7		B	CSO	40	2	9	2
5725		RAMY	10 05 1249	N35 E65	10 10.7		B	DAO	90	3	9	3
5725		BOUL	10 05 1507	N34 E61	10 10.5		B	DSO	110	2	9	1
5725		HOLL	10 05 2213	N32 E59	10 10.6		B	CSO	40	3	8	2
5725		LEAR	10 06 0013	N34 E59	10 10.7		B	DSO	40	3	8	3
5725		CULG	10 06 0325	N32 E59	10 10.8		B	CSO	40	2	9	2
5725		RAMY	10 06 1419	N33 E51	10 10.6		B	CSO	40	2	8	3
5725		BOUL	10 06 1445	N33 E49	10 10.5		B	CSO	40	2	7	3
5725		HOLL	10 06 1601	N33 E50	10 10.6		B	CSO	70	3	7	4
5725		PALE	10 06 2215	N32 E47	10 10.6		B	DSO	50	4	8	2
5725		LEAR	10 07 0010	N32 E45	10 10.6		B	CSO	40	2	8	3
5725		CULG	10 07 0345	N32 E43	10 10.6		B	CSO	20	2	7	1
5725		RAMY	10 07 1314	N33 E38	10 10.6		B	CAO	70	4	8	4
5725		BOUL	10 07 1445	N33 E37	10 10.5		B	CSO	30	4	8	3
5725		HOLL	10 07 1545	N34 E37	10 10.6		B	CSO	40	6	8	2
5725		PALE	10 07 2035	N32 E35	10 10.6		B	CAO	40	2	8	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
5725		CULG	10	08	0030	N32 E34	10	10.7		B	CSO	20	2	7	2
5725		LEAR	10	08	0152	N32 E32	10	10.6		B	CSO	40	2	8	2
5725		RAMY	10	08	1330	N33 E26	10	10.6		B	DAO	50	7	9	3
5725		BOUL	10	08	1435	N33 E25	10	10.6		B	DAO	30	5	8	3
5725		HOLL	10	08	1445	N33 E25	10	10.6		B	CAO	40	3	8	3
5725		PALE	10	08	1745	N33 E23	10	10.6		B	DSO	50	8	9	3
5725		LEAR	10	09	0035	N33 E21	10	10.7		B	DAO	40	6	8	4
5725		CULG	10	09	0335	N33 E20	10	10.7		B	DSO	30	9	9	3
5725		RAMY	10	09	1350	N33 E17	10	10.9		B	CAO	60	22	16	4
5725		BOUL	10	09	1401	N33 E13	10	10.6		B	DAO	60	4	6	1
5725		HOLL	10	09	1515	N34 E15	10	10.8		B	CAO	50	14	13	4
5725		LEAR	10	10	0031	N34 E09	10	10.7		B	CAO	80	10	7	4
5725		CULG	10	10	0300	N35 E04	10	10.4		B	CAO	10	6	8	3
5725		RAMY	10	10	1235	N33 E01	10	10.6		B	CAO	30	10	10	3
5725		BOUL	10	10	1347	N34 W01	10	10.5		B	BXO	30	4	7	1
5725		HOLL	10	10	1450	N34 E00	10	10.6		B	CRO	30	12	12	4
5725		LEAR	10	11	0025	N33 W05	10	10.6		B	BXO	40	7	8	2
5725		CULG	10	11	0230	N35 W07	10	10.5		B	BXO	10	3	8	2
5725		RAMY	10	11	1231	N34 W13	10	10.5		B	CRO	20	10	10	4
5725		HOLL	10	11	1525	N34 W14	10	10.5		B	BXO	10	5	10	3
5725		BOUL	10	11	1530	N35 W13	10	10.6		B	BXO	20	3	8	2
5725		LEAR	10	12	0010	N37 W12	10	11.0		B	BXO	20	7	8	3
5725		CULG	10	12	0550	N37 W14	10	11.1		A	AX		1		3
5725		RAMY	10	12	1311	N34 W20	10	10.9		B	BXO	20	6	5	3
5725		BOUL	10	12	1433	N36 W21	10	10.9		A	HS	10	1	1	2
5725		HOLL	10	12	1505	N36 W21	10	10.9		B	BXO	20	4	3	3
5725		LEAR	10	13	0025	N36 W27	10	10.8		A	HS	10	1	2	3
5725		CULG	10	13	0334	N38 W26	10	11.0		A	AX	10	1	1	3
5737		LEAR	10	10	0031	S12 E09	10	10.7		A	AX	10	2	2	4
5737		RAMY	10	10	1235	S11 E03	10	10.8		B	BXO	10	5	3	3
5737		BOUL	10	10	1347	S11 E02	10	10.7		A	AX	10	2	2	1
5737		HOLL	10	10	1450	S13 E02	10	10.8		B	BXO	10	3	3	4
5737		LEAR	10	11	0025	S13 W04	10	10.7		B	BXO	20	3	3	2
5737		CULG	10	11	0230	S12 W07	10	10.6		A	AX	10	1	1	2
5737		RAMY	10	11	1231	S12 W11	10	10.7		B	CRO	30	7	5	4
5737		HOLL	10	11	1525	S13 W13	10	10.7		B	CAO	20	4	4	3
5737		BOUL	10	11	1530	S12 W13	10	10.7		B	CSO	30	3	4	2
5737		PALE	10	11	1940	S14 W14	10	10.8		B	CRO	10	2	3	2
5737		RAMY	10	12	1311	S12 W27	10	10.5		A	AX	10	2	1	3
5737		BOUL	10	12	1433	S11 W27	10	10.6		A	HS	10	1	1	2
5737		HOLL	10	12	1505	S12 W27	10	10.6		A	AX	10	2	1	3
5737		PALE	10	12	1912	S12 W28	10	10.7		A	AX	10	3	1	2
5737		LEAR	10	13	0025	S12 W32	10	10.6		A	HS	20	1	1	3
5737		CULG	10	13	0334	S11 W36	10	10.4		A	AX	10	1	1	3
5737		RAMY	10	13	1316	S12 W40	10	10.5		A	AX	10	1	1	3
5737		HOLL	10	13	1805	S12 W42	10	10.6		A	AX		1		3
5737		PALE	10	13	2012	S14 W45	10	10.4		A	AX		1		2
5728		HOLL	10	04	1435	N18 E87	10	11.2		A	HS	40	1	2	3
5728		LEAR	10	05	0012	N18 E79	10	11.0		A	HH	180	1	3	2
5728		PALE	10	05	0015	N17 E85	10	11.5		A	HK	120	1	4	1
5728		CULG	10	05	0320	N15 E80	10	11.2		A	HS	60	4	3	2
5728		RAMY	10	05	1249	N18 E76	10	11.3		A	HA	210	2	4	3
5728		BOUL	10	05	1507	N17 E71	10	11.0		A	HA	120	1	2	1
5728		HOLL	10	05	2213	N17 E69	10	11.2		A	HS	50	1	2	2
5728		LEAR	10	06	0013	N17 E69	10	11.2		A	HH	100	2	3	3
5728		CULG	10	06	0325	N14 E69	10	11.3		A	HA	100	3	3	2
5728		RAMY	10	06	1419	N15 E61	10	11.2		B	DAO	230	6	3	3
5728		BOUL	10	06	1445	N17 E59	10	11.1		B	DAO	230	7	3	3
5728		HOLL	10	06	1601	N18 E61	10	11.3		B	DAO	230	8	4	4
5728		PALE	10	06	2215	N16 E58	10	11.3		B	DAO	270	6	3	2
5728		LEAR	10	07	0010	N16 E55	10	11.2		B	DAO	120	4	6	3
5728		CULG	10	07	0345	N13 E56	10	11.4		B	DAO	150	5	3	1
5728		RAMY	10	07	1314	N16 E49	10	11.3		B	DAO	180	11	3	4
5728		BOUL	10	07	1445	N17 E47	10	11.2		B	CSO	120	7	5	3
5728		HOLL	10	07	1545	N17 E48	10	11.3		B	CKO	190	11	4	2
5728		PALE	10	07	2035	N15 E46	10	11.3		B	CAO	150	7	4	3
5728		CULG	10	08	0030	N15 E43	10	11.3		A	HS	100	6	3	2

SUNSPOT GROUPS
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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5728		LEAR	10 08 0152	N16 E42	10 11.3		B	CSO	160	5	4	2
5728		RAMY	10 08 1330	N16 E35	10 11.2		B	DSO	200	7	5	3
5728		BOUL	10 08 1435	N17 E34	10 11.2		B	CAO	90	6	3	3
5728		HOLL	10 08 1445	N18 E35	10 11.3		B	CAO	170	5	3	3
5728		PALE	10 08 1745	N16 E33	10 11.2		B	CAO	180	7	3	3
5728		LEAR	10 09 0035	N16 E31	10 11.4		B	CSO	130	5	4	4
5728		CULG	10 09 0335	N16 E27	10 11.2		B	CSO	130	4	6	3
5728		RAMY	10 09 1350	N18 E21	10 11.2		B	CAO	200	14	7	4
5728		BOUL	10 09 1401	N17 E21	10 11.2		B	CAI	100	6	7	1
5728		HOLL	10 09 1515	N18 E20	10 11.1		B	CAO	180	8	8	4
5728		LEAR	10 10 0031	N17 E17	10 11.3		B	CSO	190	6	3	4
5728		CULG	10 10 0300	N17 E16	10 11.3		B	CSO	150	4	3	3
5728		RAMY	10 10 1235	N17 E11	10 11.4		B	CSO	200	6	3	3
5728		BOUL	10 10 1347	N17 E09	10 11.2		B	CAO	90	3	3	1
5728		HOLL	10 10 1450	N17 E10	10 11.4		A	HS	150	4	3	4
5728		LEAR	10 11 0025	N16 E04	10 11.3		A	HH	110	1	3	2
5728		CULG	10 11 0230	N17 E03	10 11.3		A	HS	150	1	2	2
5728		RAMY	10 11 1231	N17 W03	10 11.3		A	HA	10	1	3	4
5728		HOLL	10 11 1525	N16 W03	10 11.4		A	HS	150	3	3	3
5728		BOUL	10 11 1530	N17 W04	10 11.3		A	HS	150	1	3	2
5728		PALE	10 11 1940	N16 W07	10 11.3		A	HS	170	1	3	2
5728		LEAR	10 12 0010	N17 W08	10 11.4		A	HH	140	1	3	3
5728		CULG	10 12 0550	N17 W12	10 11.3		A	HS	120	1	2	3
5728		RAMY	10 12 1311	N16 W17	10 11.2		B	CAO	220	3	4	3
5728		BOUL	10 12 1433	N17 W17	10 11.3		A	HA	180	1	3	2
5728		HOLL	10 12 1505	N17 W18	10 11.3		B	CSO	150	3	4	3
5728		PALE	10 12 1912	N16 W19	10 11.3		A	HH	150	1	3	2
5728		LEAR	10 13 0025	N17 W22	10 11.3		A	HH	90	1	3	3
5728		CULG	10 13 0334	N18 W24	10 11.3		A	HS	120	1	2	3
5728		RAMY	10 13 1316	N17 W29	10 11.3		A	HS	110	1	2	3
5728		BOUL	10 13 1440	N16 W29	10 11.4		A	HK	170	2	3	1
5728		HOLL	10 13 1805	N17 W32	10 11.3		A	HH	150	1	3	3
5728		PALE	10 13 2012	N16 W33	10 11.3		A	HS	130	1	2	2
5728		LEAR	10 14 0132	N15 W35	10 11.4		B	CSO	130	3	4	3
5728		BOUL	10 14 1430	N17 W42	10 11.4		B	DAI	180	11	5	2
5728		HOLL	10 14 1455	N16 W44	10 11.3		B	DSO	170	8	5	4
5728		RAMY	10 14 1620	N15 W45	10 11.3		B	DAO	200	10	5	2
5728		LEAR	10 15 0030	N16 W48	10 11.4		B	DSO	180	16	5	4
5728		CULG	10 15 0500	N19 W53	10 11.2		B	DAO	150	13	6	3
5728		RAMY	10 15 1210	N16 W55	10 11.3		B	DAO	210	21	6	4
5728		HOLL	10 15 1700	N15 W59	10 11.2		B	DAO	180	16	8	2
5728		LEAR	10 16 0034	N17 W62	10 11.3		B	DAO	260	9	7	3
5728		RAMY	10 17 1304	N18 W74	10 11.9		B	DAO	90	4	10	3
5728		HOLL	10 17 1635	N15 W78	10 11.8		A	HS	50	1	2	3
5728		PALE	10 17 1945	N15 W85	10 11.4		A	HS	60	1	4	2
5728		LEAR	10 18 0013	N15 W88	10 11.3		A	HS	30	7	1	3
5741		RAMY	10 11 1231	S18 E05	10 11.9		B	BXO	10	2	3	4
5741		HOLL	10 11 1525	S18 E02	10 11.8		A	AX		1		3
5741		PALE	10 11 1940	S19 E00	10 11.8		A	AX		1		2
5741		PALE	10 12 1912	S17 W14	10 11.7		A	AX		1		2
5734		RAMY	10 08 1330	S31 E55	10 12.9		B	BXO	20	2	3	3
5734		HOLL	10 08 1445	S31 E55	10 12.9		B	BXO	30	2	3	3
5734		PALE	10 08 1745	S32 E54	10 13.0		B	BXO	10	2	3	3
5734		LEAR	10 09 0035	S32 E49	10 12.9		B	BXO	20	5	4	4
5734		CULG	10 09 0335	S36 E47	10 12.9		A	AX	10	1	1	3
5734		RAMY	10 09 1350	S33 E41	10 12.8		A	AX	10	3	1	4
5734		HOLL	10 09 1515	S33 E42	10 13.0		A	AX	10	2	2	4
5734		LEAR	10 10 0031	S33 E37	10 13.0		A	AX	30	3	2	4
5734		CULG	10 10 0300	S36 E33	10 12.8		A	AX	10	2	1	3
5734		RAMY	10 10 1235	S31 E29	10 12.8		A	AX	10	1	1	3
5734		HOLL	10 10 1450	S32 E28	10 12.8		A	AX		1		4
5738		RAMY	10 09 1350	N11 E53	10 13.6		B	BXO	10	2	3	4
5738		LEAR	10 10 0031	N12 E47	10 13.6		B	BXO	30	3	3	4
5738		RAMY	10 10 1235	N11 E40	10 13.5		A	AX	10	2	2	3
5738		LEAR	10 11 0025	N12 E33	10 13.5		B	BXO	50	7	5	2
5738		CULG	10 11 0230	N13 E33	10 13.6		B	DAO	50	6	4	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
5738		RAMY	10 11 1231	N12 E27	10 13.5		B	DAO	60	19	6	4
5738		HOLL	10 11 1525	N12 E26	10 13.6		B	DAO	100	18	7	3
5738		BOUL	10 11 1530	N10 E24	10 13.4		B	DAO	140	9	5	2
5738		PALE	10 11 1940	N11 E24	10 13.6		B	DAO	10	11	8	2
5738		LEAR	10 12 0010	N11 E21	10 13.6		B	DAO	170	10	8	3
5738		CULG	10 12 0550	N12 E17	10 13.5		B	DAO	190	8	8	3
5738		RAMY	10 12 1311	N12 E13	10 13.5		B	DAI	240	16	9	3
5738		BOUL	10 12 1433	N12 E13	10 13.6		B	DAI	290	14	9	2
5738		HOLL	10 12 1505	N12 E12	10 13.5		B	DAO	280	18	10	3
5738		PALE	10 12 1912	N11 E11	10 13.6		B	DAO	240	12	9	2
5738		LEAR	10 13 0025	N13 E08	10 13.6		B	DKI	280	21	10	3
5738		CULG	10 13 0334	N11 E05	10 13.5		B	DAO	250	23	9	3
5738		RAMY	10 13 1316	N12 E00	10 13.5		B	DAO	420	41	10	3
5738		BOUL	10 13 1440	N12 E00	10 13.6		B	EKI	450	16	11	1
5738		HOLL	10 13 1805	N11 W04	10 13.4		B	DKO	460	23	10	3
5738		PALE	10 13 2012	N11 W05	10 13.5		B	DHI	540	24	10	2
5738		LEAR	10 14 0132	N12 W07	10 13.5		B	DHI	480	20	10	3
5738		BOUL	10 14 1430	N13 W14	10 13.5		B	DKO	340	16	10	2
5738		HOLL	10 14 1455	N11 W15	10 13.5		B	DHI	490	19	10	4
5738		RAMY	10 14 1620	N12 W15	10 13.5		B	DKO	520	33	10	2
5738		LEAR	10 15 0030	N12 W19	10 13.6		B	DHO	540	21	9	4
5738		CULG	10 15 0500	N13 W23	10 13.5		B	DKI	460	11	9	3
5738		RAMY	10 15 1210	N11 W26	10 13.5		B	DKO	590	36	10	4
5738		HOLL	10 15 1700	N12 W29	10 13.5		B	EKO	460	11	11	2
5738		LEAR	10 16 0034	N12 W31	10 13.7		B	DKO	470	13	10	3
5738		CULG	10 16 0350	N14 W36	10 13.4		B	DKO	260	7	9	2
5738		RAMY	10 17 1304	N11 W51	10 13.7		B	DKO	450	9	9	3
5738		HOLL	10 17 1635	N12 W53	10 13.7		B	DKO	440	4	8	3
5738		PALE	10 17 1945	N11 W57	10 13.5		B	DKO	340	7	8	2
5738		LEAR	10 18 0013	N10 W57	10 13.7		B	DKO	210	8	8	3
5738		CULG	10 18 0455	N17 W63	10 13.4		B	DHO	300	3	7	2
5738		HOLL	10 18 1625	N12 W66	10 13.7		B	DKO	310	7	8	3
5738		LEAR	10 19 0010	N12 W69	10 13.8		B	DKO	220	7	6	3
5738		CULG	10 19 0210	N14 W76	10 13.3		B	DHO	430	2	9	2
5738		RAMY	10 19 1228	N12 W80	10 13.5		B	EAO	200	6	11	4
5738		HOLL	10 19 1529	N11 W79	10 13.7		B	DSO	90	4	9	3
5738		BOUL	10 19 1614	N12 W78	10 13.8		B	CAO	200	3	5	3
5738		LEAR	10 20 0040	N13 W79	10 14.1		B	DSO	60	2	4	4
5739		RAMY	10 10 1235	S20 E46	10 14.0		A	AX	10	1	1	3
5739		LEAR	10 11 0025	S18 E38	10 13.9		B	BXO	30	3	3	2
5739		RAMY	10 11 1231	S19 E34	10 14.1		B	BXO	10	2	2	4
5739		RAMY	10 12 1311	S18 E19	10 14.0		B	BXO	10	3	2	3
5739		RAMY	10 14 1620	S19 W15	10 13.5		B	AX	10	7	2	2
5739		LEAR	10 15 0030	S19 W19	10 13.6		B	BXO	30	4	3	4
5739		CULG	10 15 0500	S19 W26	10 13.2		B	BXO	10	3	4	3
5739		RAMY	10 15 1210	S19 W26	10 13.5		B	CAO	40	11	5	4
5739		HOLL	10 15 1700	S19 W27	10 13.6		B	CAO	60	8	5	2
5739		LEAR	10 16 0034	S19 W32	10 13.6		B	DAO	130	7	6	3
5739		CULG	10 16 0350	S18 W37	10 13.3		B	DSO	100	4	6	2
5739		RAMY	10 17 1304	S18 W51	10 13.7		B	DAO	170	6	8	3
5739		HOLL	10 17 1635	S18 W54	10 13.6		B	CAO	190	6	8	3
5739		PALE	10 17 1945	S20 W57	10 13.5		B	CAO	180	4	8	2
5739		LEAR	10 18 0013	S18 W55	10 13.8		B	DAO	110	5	8	3
5739		CULG	10 18 0455	S13 W63	10 13.4		B	DSO	120	2	4	2
5739		HOLL	10 18 1625	S18 W66	10 13.6		B	DSO	140	2	7	3
5739		LEAR	10 19 0010	S17 W69	10 13.8		B	DSO	140	3	7	3
5739		CULG	10 19 0210	S14 W77	10 13.3		A	HS	80	1	1	2
5739		RAMY	10 19 1228	S19 W79	10 13.5		B	DAO	90	4	5	4
5739		HOLL	10 19 1529	S18 W79	10 13.6		A	HS	50	1	2	3
5739		BOUL	10 19 1614	S17 W78	10 13.7		A	HS	60	1	2	3
5739		LEAR	10 20 0040	S16 W79	10 14.0		A	HA	30	1	2	4
5739A		HOLL	10 09 1515	N12 E54	10 13.7		B	BXO	20	4	3	4
5733		RAMY	10 07 1314	N21 E82	10 13.8		A	HR	30	1	1	4
5733		BOUL	10 07 1445	N21 E80	10 13.7		A	HS	30	1	1	3
5733		HOLL	10 07 1545	N23 E80	10 13.8		B	BXO	20	2	5	2
5733		PALE	10 07 2035	N20 E77	10 13.7		A	AX		1		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
5733		CULG	10	08	0030	N19	E79	10	14.0		A	HS	20	1	1	2
5733		LEAR	10	08	0152	N22	E73	10	13.7		B	BXO	50	2	2	2
5733		RAMY	10	08	1330	N21	E69	10	13.8		A	HA	30	1	2	3
5733		BOUL	10	08	1435	N22	E69	10	13.9		B	CSO	50	2	4	3
5733		HOLL	10	08	1445	N23	E70	10	14.0		B	BXO	50	2	4	3
5733		PALE	10	08	1745	N21	E68	10	13.9		A	HA	50	1	2	3
5733		LEAR	10	09	0035	N22	E64	10	13.9		B	CAO	40	2	8	4
5733		CULG	10	09	0335	N20	E66	10	14.2		B	CAO	40	2	4	3
5733		RAMY	10	09	1350	N20	E55	10	13.8		A	HA	30	1	1	4
5733		BOUL	10	09	1401	N22	E57	10	14.0		B	CAO	30	2	5	1
5733		HOLL	10	09	1515	N22	E57	10	14.0		B	CSO	50	3	5	4
5733		LEAR	10	10	0031	N22	E51	10	13.9		B	CAO	50	5	3	4
5733		CULG	10	10	0300	N22	E53	10	14.2		B	BXO	20	2	5	3
5733		RAMY	10	10	1235	N22	E45	10	14.0		B	CRO	40	7	4	3
5733		BOUL	10	10	1347	N23	E43	10	13.9		B	BXO	20	2	4	1
5733		HOLL	10	10	1450	N22	E43	10	13.9		B	CRO	20	8	6	4
5733		LEAR	10	11	0025	N22	E38	10	13.9		B	BXO	40	5	3	2
5733		CULG	10	11	0230	N23	E38	10	14.0		B	BXO	10	3	3	2
5733		RAMY	10	11	1231	N22	E33	10	14.0		B	CRO	30	5	4	4
5733		HOLL	10	11	1525	N22	E31	10	14.0		B	BXO	10	5	6	3
5733		BOUL	10	11	1530	N22	E31	10	14.0		B	BXO	10	5	4	2
5733		PALE	10	11	1940	N22	E29	10	14.0		B	BXO	10	4	4	2
5733		LEAR	10	12	0010	N21	E27	10	14.1		B	BXO	20	5	5	3
5733		CULG	10	12	0550	N21	E26	10	14.2		B	BXO		3	5	3
5733		RAMY	10	12	1311	N21	E19	10	14.0		B	BXO	10	5	4	3
5733		HOLL	10	12	1505	N21	E18	10	14.0		B	BXO	20	6	4	3
5733		PALE	10	12	1912	N20	E17	10	14.1		B	BXO		3	3	2
5733		LEAR	10	13	0025	N21	E12	10	13.9		B	BXO	10	5	3	3
5733		CULG	10	13	0334	N20	E13	10	14.1		A	AX	10	2	1	3
5733		RAMY	10	13	1316	N20	E05	10	13.9		A	AX	10	5	2	3
5733		LEAR	10	14	0132	N20	W03	10	13.8		B	BXO	10	3	3	3
5733A		HOLL	10	10	1450	S20	E45	10	14.0		A	AX		1		4
5733C		PALE	10	08	1745	N24	E70	10	14.1		A	HA	30	1	2	3
5733C		RAMY	10	09	1350	N24	E59	10	14.1		A	HA	30	2	1	4
5746		RAMY	10	13	1316	N04	E07	10	14.1		A	AX		3	2	3
5746		HOLL	10	13	1805	N04	E02	10	13.9		A	AX	10	2	1	3
5746		PALE	10	13	2012	N04	E02	10	14.0		A	AX	10	1		2
5746		LEAR	10	14	0132	N04	E01	10	14.1		B	BXO	10	3	3	3
5746		BOUL	10	14	1430	N06	W08	10	14.0		B	BXO		2	4	2
5746		HOLL	10	14	1455	N05	W08	10	14.0		B	BXO		2	3	4
5746		LEAR	10	15	0030	N05	W13	10	14.0		B	BXO	20	2	3	4
5746A		CULG	10	12	0550	S12	E26	10	14.2		A	AX		1		3
5746C		RAMY	10	08	1330	N25	E73	10	14.2		A	HR	30	1	2	3
5746B		HOLL	10	10	1450	N14	E51	10	14.5		A	AX		1		4
5749		LEAR	10	15	0030	S13	W01	10	14.9		B	BXO	30	3	3	4
5749		CULG	10	15	0500	S13	W07	10	14.7		B	BXO	10	4	3	3
5749		RAMY	10	15	1210	S12	W08	10	14.9		B	CRO	20	8	3	4
5749		HOLL	10	15	1700	S14	W11	10	14.9		B	BXO	20	6	4	2
5749		LEAR	10	16	0034	S13	W15	10	14.9		B	CAO	70	10	4	3
5749		CULG	10	16	0350	S13	W19	10	14.7		B	DSO	30	7	4	2
5749		RAMY	10	17	1304	S13	W35	10	14.9		B	BXO	10	6	6	3
5749		HOLL	10	17	1635	S14	W37	10	14.9		B	BXO	10	3	4	3
5749		PALE	10	17	1945	S14	W38	10	14.9		B	BXO	10	2	4	2
5749		LEAR	10	18	0013	S13	W38	10	15.1		B	BXO	10	4	10	3
5735		LEAR	10	09	0035	N27	E76	10	14.9		B	BXO	30	2	5	4
5735		RAMY	10	09	1350	N28	E71	10	15.1		B	BXO	50	11	11	4
5735		HOLL	10	09	1515	N28	E75	10	15.5		B	BXO	30	6	3	4
5735		LEAR	10	10	0031	N28	E70	10	15.5		B	BXO	60	2	3	4
5735		CULG	10	10	0300	N26	E64	10	15.1		B	BXO	10	2	1	3
5735		RAMY	10	10	1235	N28	E65	10	15.6		B	BXO	20	5	2	3
5735		BOUL	10	10	1347	N28	E64	10	15.6		A	AX	20	1	1	1

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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
5735		HOLL	10 10	1450	N28	E65	10 15.7		A	AX	20	4	2	4
5735		LEAR	10 11	0025	N25	E58	10 15.5		B	BXO	80	6	7	2
5735		RAMY	10 11	1231	N24	E56	10 15.8		B	DAO	50	10	5	4
5735		HOLL	10 11	1525	N27	E52	10 15.7		B	BXO	10	3	3	3
5735		BOUL	10 11	1530	N26	E53	10 15.8		A	HS	30	1	1	2
5735		PALE	10 11	1940	N29	E50	10 15.7		A	AX		2	1	2
5735		LEAR	10 12	0010	N27	E49	10 15.8		A	AX	20	1	1	3
5735		RAMY	10 12	1311	N27	E40	10 15.7		B	BXO	10	3	6	3
5735		PALE	10 12	1912	N28	E38	10 15.8		A	AX		1		2
5735		LEAR	10 14	0132	N28	E21	10 15.7		A	AX	10	1	1	3
5735		HOLL	10 14	1455	N27	E10	10 15.4		B	BXO	10	7	3	4
5735		LEAR	10 15	0030	N27	E04	10 15.3		B	BXO	30	5	6	4
5735		HOLL	10 15	1700	N27	W05	10 15.3		B	BXO	40	10	5	2
5735		LEAR	10 16	0034	N27	W08	10 15.4		B	DAO	80	14	5	3
5735		RAMY	10 17	1304	N28	W29	10 15.3		B	CSO	80	7	7	3
5735		HOLL	10 17	1635	N26	W30	10 15.4		B	CAO	30	4	7	3
5735		PALE	10 17	1945	N26	W37	10 14.9		A	HS	240	1	20	2
5735		LEAR	10 18	0013	N25	W42	10 14.7		B	CAO	50	7	9	3
5735		HOLL	10 18	1625	N26	W47	10 15.0		A	HR	20	1	2	3
5735		LEAR	10 19	0010	N26	W49	10 15.2		A	AX	20	2	2	3
5735		RAMY	10 19	1228	N26	W57	10 15.1		A	AX	10	2	2	4
5736		RAMY	10 09	1350	N15	E78	10 15.5		B	CAO	50	3	4	4
5736		BOUL	10 09	1401	N15	E85	10 16.0		B	BXO	50	4	9	1
5736		HOLL	10 09	1515	N16	E79	10 15.6		A	AX	30	5	2	4
5736		LEAR	10 10	0031	N16	E70	10 15.3		B	CAO	90	7	3	4
5736		CULG	10 10	0300	N14	E73	10 15.6		A	HA	110	2	4	3
5736		RAMY	10 10	1235	N16	E67	10 15.6		B	DAO	120	7	6	3
5736		BOUL	10 10	1347	N15	E66	10 15.6		B	DAO	130	5	9	1
5736		HOLL	10 10	1450	N16	E66	10 15.6		B	DAO	100	5	8	4
5736		LEAR	10 11	0025	N17	E60	10 15.6		B	DAO	220	8	8	2
5736		CULG	10 11	0230	N15	E62	10 15.8		B	CSO	80	6	8	2
5736		RAMY	10 11	1231	N15	E55	10 15.7		B	DAO	140	11	8	4
5736		HOLL	10 11	1525	N16	E52	10 15.6		B	CAO	110	14	9	3
5736		BOUL	10 11	1530	N13	E51	10 15.5		B	CAO	140	3	7	2
5736		PALE	10 11	1940	N17	E51	10 15.7		B	DAO	110	8	8	2
5736		CULG	10 12	0550	N13	E45	10 15.6		B	CSO	80	5	10	3
5736		RAMY	10 12	1311	N15	E42	10 15.7		B	CAO	160	10	11	3
5736		BOUL	10 12	1433	N14	E39	10 15.5		B	CAO	140	9	10	2
5736		HOLL	10 12	1505	N16	E38	10 15.5		B	CSO	130	11	10	3
5736		PALE	10 12	1912	N15	E37	10 15.6		B	CSO	90	11	10	2
5736		LEAR	10 13	0025	N15	E35	10 15.7		B	CSO	80	12	11	3
5736		CULG	10 13	0334	N13	E33	10 15.6		B	CSO	70	14	11	3
5736		RAMY	10 13	1316	N14	E26	10 15.5		B	CSO	90	24	10	3
5736		BOUL	10 13	1440	N15	E24	10 15.4		B	DAO	100	7	9	1
5736		HOLL	10 13	1805	N15	E23	10 15.5		B	CSO	90	23	10	3
5736		PALE	10 13	2012	N14	E22	10 15.5		B	CSO	80	7	10	2
5736		LEAR	10 14	0132	N14	E20	10 15.6		B	CSO	100	14	9	3
5736		BOUL	10 14	1430	N15	E11	10 15.4		B	DAO	60	13	9	2
5736		HOLL	10 14	1455	N15	E11	10 15.4		B	CSO	60	17	11	4
5736		RAMY	10 14	1620	N14	E11	10 15.5		B	DAO	100	27	10	2
5736		LEAR	10 15	0030	N14	E07	10 15.5		B	CAO	120	14	10	4
5736		CULG	10 15	0500	N14	E04	10 15.5		B	DAI	80	13	9	3
5736		RAMY	10 15	1210	N15	W01	10 15.4		B	DAO	90	20	10	4
5736		HOLL	10 15	1700	N14	W03	10 15.5		B	EAO	110	15	11	2
5736		LEAR	10 16	0034	N13	W07	10 15.5		B	EAO	130	15	11	3
5736		CULG	10 16	0350	N15	W17	10 14.9		B	DAO	80	5	5	2
5736		RAMY	10 17	1304	N13	W28	10 15.4		B	CAO	140	8	10	3
5736		HOLL	10 17	1635	N13	W29	10 15.5		B	CAO	110	7	11	3
5736		PALE	10 17	1945	N12	W32	10 15.4		B	CAO	110	6	6	2
5736		LEAR	10 18	0013	N15	W32	10 15.6		B	CAO	90	8	10	3
5736		CULG	10 18	0455	N16	W41	10 15.1		A	HA	50	3	2	2
5736		HOLL	10 18	1625	N13	W46	10 15.2		A	HA	70	2	2	3
5736		LEAR	10 19	0010	N14	W49	10 15.3		A	HS	80	2	2	3
5736		CULG	10 19	0210	N16	W53	10 15.1		A	HS	60	1	2	2
5736		RAMY	10 19	1228	N12	W58	10 15.1		A	HA	70	3	2	4
5736		HOLL	10 19	1529	N12	W58	10 15.3		B	DSO	50	2	3	3
5736		BOUL	10 19	1614	N13	W58	10 15.3		A	HA	50	2	2	3
5736		LEAR	10 20	0040	N13	W63	10 15.3		A	HA	80	2	2	4

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5736		BOUL	10	20	1450	N13	W70	10	15.3		A	HS	50	1	2	1
5736		HOLL	10	20	1600	N13	W72	10	15.2		B	CAO	50	3	3	2
5736		PALE	10	20	2100	N11	W74	10	15.3		A	HA	60	1	2	2
5736		LEAR	10	21	0035	N13	W74	10	15.4		A	HA	60	1	2	3
5736		CULG	10	21	0300	N14	W78	10	15.2		A	HA	10	2	3	3
5736		RAMY	10	21	1220	N12	W84	10	15.2		A	HA	30	2	2	4
5736		BOUL	10	21	1445	N13	W88	10	15.0		A	HS	30	1	1	2
5742		HOLL	10	10	1450	N22	E62	10	15.4		A	AX		1		4
5742		CULG	10	11	0230	N22	E59	10	15.6		A	AX	10	2	2	2
5742		HOLL	10	11	1525	N22	E52	10	15.6		B	BXO	10	8	6	3
5742		BOUL	10	11	1530	N20	E50	10	15.5		B	BXO	20	3	3	2
5742		LEAR	10	12	0010	N21	E48	10	15.7				30	3	4	3
5742		CULG	10	12	0550	N20	E44	10	15.6		B	BXO		3	4	3
5742		RAMY	10	12	1311	N21	E40	10	15.6		B	BXO	20	6	6	3
5742		BOUL	10	12	1433	N22	E36	10	15.4		B	BXO	10	3	3	2
5742		HOLL	10	12	1505	N22	E37	10	15.5		B	BXO	10	4	3	3
5742		PALE	10	12	1912	N21	E36	10	15.6		A	AX		3	1	2
5742		LEAR	10	13	0025	N22	E35	10	15.7		B	BXO	20	8	6	3
5742		CULG	10	13	0334	N20	E36	10	15.9		B	BXO	10	2	1	3
5742		RAMY	10	13	1316	N22	E27	10	15.6		B	BXO	20	8	8	3
5742		BOUL	10	13	1440	N22	E27	10	15.7		B	CAO	50	7	3	1
5742		HOLL	10	13	1805	N22	E26	10	15.7		B	BXO	20	7	4	3
5742		PALE	10	13	2012	N22	E26	10	15.8		B	CAO	30	5	3	2
5742		LEAR	10	14	0132	N22	E22	10	15.7		B	BXO	20	2	3	3
5742		BOUL	10	14	1430	N26	E12	10	15.5		B	BXO		6	5	2
5742		HOLL	10	14	1455	N22	E12	10	15.5		B	BXO		2	6	4
5742		RAMY	10	14	1620	N24	E11	10	15.5		B	BXO	20	13	7	2
5742		LEAR	10	15	0030	N23	E09	10	15.7		B	BXO	20	2	3	4
5742		CULG	10	15	0500	N27	E03	10	15.4		B	BXO	10	3	5	3
5742		RAMY	10	15	1210	N27	W01	10	15.4		B	DAO	40	11	4	4
5742		CULG	10	16	0350	N27	W10	10	15.4		B	DSO	60	9	5	2
5742		CULG	10	18	0455	N30	W42	10	14.9		A	HS	30	1	1	2
5742		CULG	10	19	0210	N29	W55	10	14.8		A	AX		1		2
5742A		CULG	10	11	0230	N28	E61	10	15.9		A	AX	10	2	1	2
5742B		BOUL	10	20	1450	S14	W54	10	16.5		B	BXO	10	2	2	1
5740		HOLL	10	10	1450	S15	E79	10	16.6		B	CAO	50	3	4	4
5740		LEAR	10	11	0025	S16	E73	10	16.5		B	BXO	120	6	5	2
5740		CULG	10	11	0230	S17	E78	10	17.0		B	DAO	100	4	5	2
5740		RAMY	10	11	1231	S16	E80	10	17.6		B	DAI	150	14	9	4
5740		HOLL	10	11	1525	S16	E68	10	16.8		B	EAI	280	30	12	3
5740		BOUL	10	11	1530	S21	E68	10	16.8		B	DAO	200	11	9	2
5740		PALE	10	11	1940	S16	E69	10	17.0		B	EAI	290	13	11	2
5740		CULG	10	12	0550	S20	E60	10	16.8		B	EAO	300	9	11	3
5740		RAMY	10	12	1311	S17	E58	10	16.9		B	DAO	440	17	10	3
5740		BOUL	10	12	1433	S16	E55	10	16.8		B	EKI	590	14	12	2
5740		HOLL	10	12	1505	S16	E56	10	16.9		B	EKI	440	19	11	3
5740		PALE	10	12	1912	S18	E54	10	16.9		B	EKI	380	12	10	2
5740		LEAR	10	13	0025	S17	E51	10	16.9		B	EKO	300	19	12	3
5740		CULG	10	13	0334	S19	E51	10	17.0		B	EKO	310	17	14	3
5740		HOLL	10	13	1205	S16	E42	10	16.7		B	FKO	500	36	16	3
5740		RAMY	10	13	1316	S16	E45	10	17.0		B	EAO	470	29	13	3
5740		BOUL	10	13	1440	S16	E43	10	16.9		B	EKI	560	15	12	1
5740		HOLL	10	13	1805	S16	E42	10	16.9		B	FKO	500	36	16	3
5740		PALE	10	13	2012	S17	E41	10	16.9		B	EKI	330	18	12	2
5740		LEAR	10	14	0132	S16	E38	10	16.9		B	EKO	430	23	12	3
5740		BOUL	10	14	1430	S16	E30	10	16.9		B	EKI	380	31	12	2
5740		HOLL	10	14	1455	S16	E30	10	16.9		BG	EKI	450	37	14	4
5740		RAMY	10	14	1620	S16	E30	10	16.9		B	EKO	410	56	12	2
5740		LEAR	10	15	0030	S16	E26	10	17.0		B	EKO	360	32	13	4
5740		CULG	10	15	0500	S19	E21	10	16.8		B	EKO	350	14	13	3
5740		RAMY	10	15	1210	S16	E18	10	16.9		B	EKO	530	46	13	4
5740		HOLL	10	15	1700	S17	E16	10	16.9		B	EKO	290	31	14	2
5740		LEAR	10	16	0034	S16	E13	10	17.0		B	EAO	400	35	14	3
5740		CULG	10	16	0350	S17	E07	10	16.7		B	EAO	230	11	11	2
5740		RAMY	10	17	1304	S17	W09	10	16.9		B	EAO	200	23	13	3

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5740		HOLL	10 17 1635	S17 W11	10 16.8		B	EAO	150	29	14	3
5740		PALE	10 17 1945	S17 W14	10 16.7		B	EAO	110	12	15	2
5740		LEAR	10 18 0013	S16 W14	10 16.9		B	EAO	110	32	15	3
5740		CULG	10 18 0455	S18 W22	10 16.5		B	CAO	70	22	13	2
5740		HOLL	10 18 1625	S16 W23	10 16.9		B	CAO	30	27	17	3
5740		LEAR	10 19 0010	S18 W23	10 17.2		B	DAO	90	37	10	3
5740		CULG	10 19 0210	S17 W27	10 17.0		A	HA	40	12	4	2
5740		RAMY	10 19 1228	S17 W31	10 17.2		B	EAO	110	31	12	4
5740		HOLL	10 19 1529	S17 W33	10 17.1		B	CAO	30	23	13	3
5740		BOUL	10 19 1614	S18 W32	10 17.2		B	DAO	120	11	7	3
5740		LEAR	10 20 0040	S17 W38	10 17.1		B	CAO	50	11	13	4
5740		BOUL	10 20 1450	S17 W43	10 17.3		B	CAO	30	3	3	1
5740		HOLL	10 20 1600	S17 W45	10 17.2		B	BXO	20	7	3	2
5740		PALE	10 20 2100	S19 W46	10 17.4		B	BXO	20	6	4	2
5740		LEAR	10 21 0035	S17 W48	10 17.4		B	BXO	20	3	3	3
5740		CULG	10 21 0300	S17 W51	10 17.2		A	HR	10	1	1	3
5740		RAMY	10 21 1220	S18 W55	10 17.3		B	BXO	20	5	3	4
5740		PALE	10 22 1945	S15 W70	10 17.5		A	AX		1		3
5750		RAMY	10 15 1210	N13 E31	10 17.8		B	BXO	10	3	4	4
5750		HOLL	10 15 1700	N13 E28	10 17.8		B	BXO	20	4	5	2
5750		LEAR	10 16 0034	N13 E26	10 18.0		B	BXO	20	2	3	3
5750		RAMY	10 17 1304	N15 E01	10 17.6		B	DRO	80	8	8	3
5750		HOLL	10 17 1635	N12 E02	10 17.8		B	BXO	10	6	10	3
5750		PALE	10 17 1945	N13 W02	10 17.7		B	BXO	10	6	8	2
5750		LEAR	10 18 0013	N14 W06	10 17.5		B	BXO	20	6	6	3
5750		CULG	10 18 0455	N13 W06	10 17.7		A	AX		1		2
5750		LEAR	10 19 0010	N13 W20	10 17.5		B	BXO	10	3	6	3
5750		CULG	10 22 0445	N17 W72	10 16.7		B	BXO	10	2	4	1
5750		HOLL	10 22 1440	N12 W70	10 17.3		B	BXO	20	6	4	2
5750		BOUL	10 22 1532	N12 W73	10 17.1		B	CSO	30	4	7	2
5750		PALE	10 22 1945	N12 W74	10 17.2		B	BXO	40	5	6	3
5750		CULG	10 23 0400	N16 W84	10 16.8		B	BXO	10	2	9	1
5750		RAMY	10 23 1226	N12 W81	10 17.4		B	CAO	80	3	5	4
5750		HOLL	10 23 1510	N13 W82	10 17.4		A	AX		1		4
5744		RAMY	10 12 1311	S22 E83	10 18.9		B	CAO	60	2	4	3
5744		BOUL	10 12 1433	S23 E79	10 18.7		A	HA	60	1	1	2
5744		HOLL	10 12 1505	S22 E75	10 18.4		A	HS	60	1	2	3
5744		PALE	10 12 1912	S24 E78	10 18.8		A	AX		1	1	2
5744		LEAR	10 13 0025	S23 E70	10 18.4		A	HH	30	1	3	3
5744		CULG	10 13 0334	S23 E74	10 18.8		A	HS	20	1	2	3
5744		HOLL	10 13 1205	S23 E69	10 18.8		B	FSO	210	6	16	3
5744		RAMY	10 13 1316	S23 E67	10 18.7		B	CAO	60	3	8	3
5744		BOUL	10 13 1440	S23 E68	10 18.8		B	CSO	70	3	9	1
5744		HOLL	10 13 1805	S23 E69	10 19.1		B	FSO	210	6	16	3
5744		PALE	10 13 2012	S24 E66	10 18.9		B	CSO	50	2	8	2
5744		LEAR	10 14 0132	S24 E68	10 19.3		B	FKI	480	10	20	3
5744		BOUL	10 14 1430	S23 E57	10 19.0		B	DSO	60	5	8	2
5744		HOLL	10 14 1455	S23 E55	10 18.8		B	DSO	50	5	9	4
5744		RAMY	10 14 1620	S22 E53	10 18.7		B	EAO	130	8	11	2
5744		LEAR	10 15 0030	S22 E49	10 18.8		B	DSO	70	5	9	4
5744		CULG	10 15 0500	S27 E47	10 18.9		B	DSO	40	2	8	3
5744		RAMY	10 15 1210	S21 E43	10 18.8		B	DAO	100	8	10	4
5744		HOLL	10 15 1700	S21 E39	10 18.7		B	DAO	80	6	7	2
5744		LEAR	10 16 0034	S23 E37	10 18.9		B	CSO	70	8	8	3
5744		CULG	10 16 0350	S27 E33	10 18.7		B	DSO	60	2	8	2
5744		RAMY	10 17 1304	S23 E18	10 18.9		B	CAO	60	5	10	3
5744		HOLL	10 17 1635	S23 E16	10 18.9		B	CSO	60	4	9	3
5744		PALE	10 17 1945	S22 E10	10 18.6		A	HS	30	1	2	2
5744		LEAR	10 18 0013	S23 E12	10 18.9		B	CAO	40	5	9	3
5744		HOLL	10 18 1625	S23 E03	10 18.9		B	CAO	40	3	7	3
5744		LEAR	10 19 0010	S20 E01	10 19.1		B	CSO	60	8	12	3
5744		CULG	10 19 0210	S23 W09	10 18.4		A	HS	30	1	1	2
5744		RAMY	10 19 1228	S22 W12	10 18.6		A	HA	20	2	1	4
5744		HOLL	10 19 1529	S24 W12	10 18.7		B	CRO	10	4	3	3
5744		BOUL	10 19 1614	S23 W14	10 18.6		A	HS	20	1	1	3
5744		LEAR	10 20 0040	S21 W13	10 19.0		B	CAO	30	3	12	4
5744		BOUL	10 20 1450	S23 W26	10 18.6		A	HA	40	1	1	1

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5744		HOLL	10 20 1600	S24 W26	10 18.6		A	AX	10	1	1	2
5744		PALE	10 20 2100	S25 W29	10 18.6		A	HS	20	1	1	2
5744		LEAR	10 21 0035	S26 W28	10 18.8		B	BXO	20	5	7	3
5744		CULG	10 21 0300	S23 W34	10 18.5		A	AX	10	4	1	3
5744		RAMY	10 21 1220	S25 W34	10 18.9		B	CRO	20	8	8	4
5744		BOUL	10 21 1445	S24 W38	10 18.7		B	BXO		2	2	2
5744		HOLL	10 21 1609	S25 W36	10 18.9		B	BXO	10	6	9	4
5744		PALE	10 21 1730	S24 W38	10 18.8		B	BXO	10	4	5	3
5744		LEAR	10 22 0040	S23 W44	10 18.6		B	BXO	10	2	2	3
5744		CULG	10 22 0445	S22 W52	10 18.2		A	AX	10	1	1	1
5744		HOLL	10 22 1440	S24 W51	10 18.7		A	AX		2	1	2
5744		BOUL	10 22 1532	S24 W54	10 18.5		A	AX		1		2
5744		PALE	10 22 1945	S23 W55	10 18.6		A	AX		1		3
5744		RAMY	10 23 1226	S25 W65	10 18.5		B	BXO	10	3	3	4
5744		HOLL	10 23 1510	S24 W64	10 18.7		A	AX		1		4
5755		HOLL	10 18 1625	S16 E07	10 19.2		B	BXO		2	3	3
5755		BOUL	10 20 1450	S15 W19	10 19.2		B	BXO	10	7	4	1
5755		HOLL	10 20 1600	S15 W20	10 19.1		B	BXO	20	12	4	2
5755		PALE	10 20 2100	S18 W22	10 19.2		B	CAO	40	10	5	2
5755		LEAR	10 21 0035	S16 W24	10 19.2		B	CAO	40	11	5	3
5755		CULG	10 21 0300	S16 W27	10 19.1		B	DAO	20	9	6	3
5755		RAMY	10 21 1220	S16 W31	10 19.2		B	CRO	20	15	7	4
5755		BOUL	10 21 1445	S15 W32	10 19.2		B	CAO	20	7	5	2
5755		HOLL	10 21 1609	S16 W33	10 19.2		B	CRO	20	9	6	4
5755		PALE	10 21 1730	S18 W34	10 19.1		B	DAO	50	7	6	3
5755		LEAR	10 22 0040	S15 W37	10 19.2		B	CAO	30	5	6	3
5755		CULG	10 22 0445	S14 W42	10 19.0		A	HR	20	1	1	1
5755		HOLL	10 22 1440	S16 W45	10 19.2		B	BXO	10	3	6	2
5755		BOUL	10 22 1532	S16 W45	10 19.2		A	AX		1		2
5755		PALE	10 22 1945	S17 W46	10 19.3		A	AX		1		3
5755		RAMY	10 23 1226	S16 W60	10 19.0		A	AX	10	1	1	4
5755		LEAR	10 24 0013	S16 W61	10 19.4		A	AX	20	1	1	3
5755		RAMY	10 24 1221	S15 W70	10 19.2		A	AX	10	1	1	4
5755		HOLL	10 24 1540	S16 W70	10 19.3		A	AX		1		3
5751		RAMY	10 17 1304	N20 E30	10 19.8		B	BXO	10	7	6	3
5751		HOLL	10 17 1635	N19 E25	10 19.6		A	AX	10	2	2	3
5751		PALE	10 17 1945	N20 E23	10 19.6		A	HR	10	1	1	2
5751		LEAR	10 18 0013	N19 E28	10 20.1		B	BXO	10	5	8	3
5751A		RAMY	10 21 1220	W30 W19	10 20.0		A	AX	10	3	1	4
5747		BOUL	10 14 1430	S27 E75	10 20.4		B	DKC	560	7	10	2
5747		HOLL	10 14 1455	S26 E71	10 20.1		B	DKO	560	11	10	4
5747		RAMY	10 14 1620	S26 E70	10 20.1		A	HK	670	4	6	2
5747		LEAR	10 15 0030	S26 E66	10 20.1		B	DKC	720	8	8	4
5747		CULG	10 15 0500	S31 E66	10 20.4		A	HK	550	7	7	3
5747		RAMY	10 15 1210	S26 E59	10 20.1		B	DKO	960	13	8	4
5747		HOLL	10 15 1700	S26 E58	10 20.2		B	DKI	810	12	9	2
5747		LEAR	10 16 0034	S26 E53	10 20.1		B	DKI	1000	17	6	3
5747		CULG	10 16 0350	S31 E52	10 20.3		A	HK	850	11	6	2
5747		RAMY	10 17 1304	S26 E37	10 20.4		BD	DKI	1100	24	7	3
5747		HOLL	10 17 1635	S26 E32	10 20.2		BD	EKC	1110	37	11	3
5747		PALE	10 17 1945	S26 E32	10 20.3		BD	DKC	1080	20	6	2
5747		LEAR	10 18 0013	S25 E30	10 20.3		BD	DKC	1300	34	10	3
5747		CULG	10 18 0455	S30 E24	10 20.1		BD	DKC	940	22	5	2
5747		HOLL	10 18 1625	S26 E19	10 20.2		BD	EKC	1160	46	12	3
5747		LEAR	10 19 0010	S27 E16	10 20.2		BD	DKC	1200	44	10	3
5747		CULG	10 19 0210	S26 E10	10 19.9		BD	DKC	950	20	8	2
5747		RAMY	10 19 1228	S25 E07	10 20.1		BD	EKI	1110	77	11	4
5747		HOLL	10 19 1529	S27 E07	10 20.2		BD	DKC	1060	64	10	3
5747		BOUL	10 19 1614	S25 E06	10 20.1		B	EKC	1010	37	11	3
5747		LEAR	10 20 0040	S26 E01	10 20.1		BGD	EKC	980	56	11	4
5747		BOUL	10 20 1450	S26 W06	10 20.1		B	DKC	950	28	10	1
5747		HOLL	10 20 1600	S27 W07	10 20.1		BD	EKI	1030	37	13	2
5747		PALE	10 20 2100	S26 W09	10 20.2		BD	EKC	1080	36	11	2
5747		LEAR	10 21 0035	S26 W12	10 20.1		BD	EKC	950	44	14	3
5747		CULG	10 21 0300	S27 W14	10 20.0		BD	EKC	920	50	13	3

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NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5747		RAMY	10	21	1220	S27	W15	10	20.3		BD	EKC	1020	81	14	4
5747		BOUL	10	21	1445	S26	W18	10	20.2		B	EAC	600	45	11	2
5747		HOLL	10	21	1609	S26	W20	10	20.1		BD	EKC	950	53	14	4
5747		PALE	10	21	1730	S26	W21	10	20.1		BD	EKC	860	50	12	3
5747		LEAR	10	22	0040	S26	W23	10	20.2		BD	EKI	930	36	11	3
5747		CULG	10	22	0445	S27	W28	10	20.0		BD	DKC	800	17	7	1
5747		HOLL	10	22	1440	S27	W30	10	20.3		BD	EKC	980	30	12	2
5747		BOUL	10	22	1532	S27	W32	10	20.1		B	DKC	910	23	9	2
5747		PALE	10	22	1945	S27	W33	10	20.2		BD	DKC	810	27	7	3
5747		CULG	10	23	0400	S26	W42	10	19.9		BD	DKC	820	12	7	1
5747		RAMY	10	23	1226	S27	W42	10	20.2		GD	DAI	1280	21	10	4
5747		BOUL	10	23	1400	S27	W42	10	20.3		B	DKC	930	15	8	1
5747		HOLL	10	23	1510	S27	W44	10	20.2		BD	EKC	1300	29	11	4
5747		PALE	10	23	1957	S28	W46	10	20.2		BD	DKC	910	22	8	3
5747		LEAR	10	24	0013	S27	W46	10	20.4		BD	DKC	800	12	9	3
5747		RAMY	10	24	1221	S26	W55	10	20.2			EKO	800	22	11	4
5747		BOUL	10	24	1400	S27	W56	10	20.2		B	DKI	760	10	9	1
5747		HOLL	10	24	1540	S27	W56	10	20.3		BD	DKC	970	17	10	3
5747		PALE	10	24	2000	S27	W60	10	20.1		BD	DKI	900	21	10	2
5747		LEAR	10	25	0010	S25	W60	10	20.3		BD	EKI	870	14	11	3
5747		RAMY	10	25	1230	S27	W69	10	20.1		BD	DKI	950	10	10	4
5747		HOLL	10	25	1534	S28	W68	10	20.3		BD	EKI	860	9	12	2
5747		PALE	10	25	1910	S27	W73	10	20.1		BD	EKI	810	7	11	2
5747		RAMY	10	26	1458	S30	W80	10	20.3		BD	DKO	300	2	7	3
5747		HOLL	10	26	1600	S30	W80	10	20.4		BD	DKI	290	2	5	2
5747		PALE	10	26	1912	S30	W86	10	20.0		B	BXO	60	2	2	3
5748		HOLL	10	14	1455	S17	E73	10	20.2		B	BXO	10	2	4	4
5748		RAMY	10	14	1620	S16	E71	10	20.1		B	BXO	30	3	3	2
5748		LEAR	10	15	0030	S15	E69	10	20.2		B	CSO	120	4	7	4
5748		RAMY	10	15	1210	S15	E62	10	20.2		B	CAO	110	7	8	4
5748		HOLL	10	15	1700	S15	E61	10	20.3		B	CAO	100	5	10	2
5748		LEAR	10	16	0034	S13	E55	10	20.2		B	CAO	170	12	8	3
5748		CULG	10	16	0350	S19	E54	10	20.3		B	CSO	70	3	5	2
5748		RAMY	10	17	1304	S14	E36	10	20.3		B	DAO	130	16	9	3
5748		HOLL	10	17	1635	S15	E35	10	20.3		B	CSI	110	18	10	3
5748		LEAR	10	18	0013	S14	E30	10	20.3		B	DAO	80	19	9	3
5748		CULG	10	18	0455	S17	E26	10	20.2		B	CAO	70	15	7	2
5748		HOLL	10	18	1625	S15	E21	10	20.3		B	CAO	90	10	11	3
5748		LEAR	10	19	0010	S15	E17	10	20.3		B	CSO	90	15	12	3
5748		CULG	10	19	0210	S16	E13	10	20.1		B	CSO	70	10	10	2
5748		RAMY	10	19	1228	S14	E09	10	20.2		B	EAO	80	34	12	4
5748		HOLL	10	19	1529	S15	E08	10	20.2		B	CSO	50	24	13	3
5748		BOUL	10	19	1614	S14	E07	10	20.2		B	EAO	90	10	12	3
5748		LEAR	10	20	0040	S15	E03	10	20.2		B	CAO	60	27	11	4
5748		BOUL	10	20	1450	S14	W05	10	20.2		B	EAI	110	14	11	1
5748		HOLL	10	20	1600	S15	W06	10	20.2		B	BXO	50	26	14	2
5748		PALE	10	20	2100	S16	W07	10	20.3		B	EAO	110	16	13	2
5748		LEAR	10	21	0035	S16	W10	10	20.3		B	CAO	70	25	12	3
5748		CULG	10	21	0300	S15	W13	10	20.1		B	EAO	30	21	13	3
5748		RAMY	10	21	1220	S15	W16	10	20.3		B	EAO	120	54	11	4
5748		BOUL	10	21	1445	S14	W17	10	20.3		B	EAO	30	27	12	2
5748		HOLL	10	21	1609	S16	W19	10	20.2		B	EAO	70	28	12	4
5748		PALE	10	21	1730	S16	W19	10	20.3		B	EAO	110	21	12	3
5748		LEAR	10	22	0040	S15	W24	10	20.2		B	EAO	60	19	11	3
5748		CULG	10	22	0445	S13	W30	10	19.9		B	DAO	90	14	9	1
5748		HOLL	10	22	1440	S16	W32	10	20.2		B	EAI	140	17	11	2
5748		BOUL	10	22	1532	S15	W33	10	20.1		B	DAO	70	19	10	2
5748		PALE	10	22	1945	S15	W36	10	20.1		B	EAI	160	26	11	3
5748		CULG	10	23	0400	S14	W44	10	19.8		B	EAI	140	8	10	1
5748		RAMY	10	23	1226	S17	W43	10	20.2		B	EAI	500	28	12	4
5748		BOUL	10	23	1400	S15	W44	10	20.2		B	DAI	210	12	10	1
5748		HOLL	10	23	1510	S16	W46	10	20.1		BG	EAI	380	37	12	4
5748		PALE	10	23	1957	S16	W49	10	20.1		B	EAI	290	25	12	3
5748		LEAR	10	24	0013	S17	W50	10	20.2		B	EAI	240	22	14	3
5748		RAMY	10	24	1221	S17	W58	10	20.1		B	EAI	560	33	12	4
5748		BOUL	10	24	1400	S16	W58	10	20.2		B	EAI	440	16	13	1
5748		HOLL	10	24	1540	S17	W59	10	20.2		BG	EAI	510	27	11	3
5748		PALE	10	24	2000	S17	W63	10	20.0		B	EAI	320	28	13	2

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5748		LEAR	10 25 0010	S17 W61	10 20.4		B	EAI	380	14	13	3
5748		RAMY	10 25 1230	S18 W73	10 20.0		B	EAI	430	13	12	4
5748		HOLL	10 25 1534	S18 W72	10 20.2		BG	EAI	390	14	14	2
5748		PALE	10 25 1910	S18 W76	10 20.0		B	FAI	380	11	17	2
5748		RAMY	10 26 1458	S18 W79	10 20.6		B	EAO	140	2	11	3
5748A		LEAR	10 16 0034	S08 E73	10 21.5		A	AX	30	1	1	3
5753		RAMY	10 17 1304	S22 E74	10 23.2		B	FAO	40	6	5	3
5753		HOLL	10 17 1635	S23 E61	10 22.4		B	CAI	20	6	5	3
5753		PALE	10 17 1945	S21 E59	10 22.3		B	CSO	40	5	3	2
5753		LEAR	10 18 0013	S22 E58	10 22.5		B	CAO	60	4	4	3
5753		CULG	10 18 0455	S27 E56	10 22.6		B	CRO	20	3	2	2
5753		HOLL	10 18 1625	S23 E48	10 22.4		B	CSO	80	11	3	3
5753		LEAR	10 19 0010	S22 E44	10 22.4		B	CSO	50	9	5	3
5753		CULG	10 19 0210	S23 E43	10 22.4		B	CRO	20	5	2	2
5753		RAMY	10 19 1228	S21 E36	10 22.3		B	CAO	30	9	4	4
5753		HOLL	10 19 1529	S22 E36	10 22.4		B	CRO	10	8	4	3
5753		BOUL	10 19 1614	S22 E34	10 22.3		B	CSO	40	6	2	3
5753		LEAR	10 20 0040	S22 E31	10 22.4		B	CAO	30	6	3	4
5753		BOUL	10 20 1450	S22 E23	10 22.4		B	CSO	30	3	2	1
5753		HOLL	10 20 1600	S22 E24	10 22.5		A	AX	20	3	2	2
5753		PALE	10 20 2100	S21 E21	10 22.5		A	HS	30	2	2	2
5753		LEAR	10 21 0035	S22 E18	10 22.4		B	CSO	30	6	4	3
5753		CULG	10 21 0300	S22 E18	10 22.5		B	CRO	10	4	1	3
5753		RAMY	10 21 1220	S22 E13	10 22.5		A	HA	20	4	2	4
5753		BOUL	10 21 1445	S21 E12	10 22.5		B	BXO	10	4	2	2
5753		HOLL	10 21 1609	S22 E11	10 22.5		B	CRO	20	6	3	4
5753		PALE	10 21 1730	S21 E11	10 22.6		B	CSO	10	4	3	3
5753		LEAR	10 22 0040	S22 E05	10 22.4		B	CRO	20	2	1	3
5753		CULG	10 22 0445	S22 E02	10 22.3		B	CRO	10	2	1	1
5753		HOLL	10 22 1440	S22 W01	10 22.5		A	HR	10	3	2	2
5753		BOUL	10 22 1532	S22 W02	10 22.5		B	BXO		4	2	2
5753		PALE	10 22 1945	S22 W04	10 22.5		A	HA	30	2	2	3
5753		CULG	10 23 0400	S22 W12	10 22.2		B	BXO	10	2	1	1
5753		RAMY	10 23 1245	S22 W12	10 22.6		B	CAO	20	8	4	4
5753		BOUL	10 23 1400	S22 W15	10 22.4		B	BXO	20	2	1	1
5753		HOLL	10 23 1510	S22 W15	10 22.5		B	BXO	10	5	3	4
5753		PALE	10 23 1957	S22 W16	10 22.6		A	AX	10	6	1	3
5753		LEAR	10 24 0013	S22 W19	10 22.5		B	BXO	20	4	3	3
5753		RAMY	10 24 1221	S16 W30	10 22.2		B	BXO	10	3	3	4
5753		LEAR	10 25 0010	S22 W33	10 22.5		B	BXO	20	5	5	3
5752		RAMY	10 17 1304	S22 E74	10 23.2		B	CAO	90	6	5	3
5759		LEAR	10 22 0040	S13 E19	10 23.5		A	AX	10	1	1	3
5759		CULG	10 22 0445	S14 E17	10 23.5		A	AX		1		1
5759		HOLL	10 22 1440	S13 E12	10 23.5		A	AX		3	1	2
5759		BOUL	10 22 1532	S13 E10	10 23.4		B	BXO		4	3	2
5759		PALE	10 22 1945	S12 E11	10 23.6		A	AX	10	5	1	3
5757		RAMY	10 21 1220	N25 E31	10 23.9		A	AX	10	2	1	4
5757		BOUL	10 21 1445	N25 E29	10 23.9		A	AX		2	1	2
5757		HOLL	10 21 1609	N25 E29	10 23.9		A	AX		2	1	4
5757		PALE	10 21 1730	N25 E28	10 23.9		A	AX	10	2	1	3
5757		LEAR	10 22 0040	N23 E24	10 23.9		B	BXO	10	2	1	3
5757		HOLL	10 22 1440	N25 E18	10 24.0		B	CRO	20	3	3	2
5757		BOUL	10 22 1532	N25 E16	10 23.9		B	BXO		6	3	2
5757		PALE	10 22 1945	N24 E15	10 24.0		B	BXO	20	6	4	3
5757		CULG	10 23 0400	N24 E12	10 24.1		A	HR	10	1	1	1
5757		RAMY	10 23 1226	N23 E05	10 23.9		B	CAO	10	2	4	4
5757		BOUL	10 23 1400	N25 E04	10 23.9		B	BXO	20	2	3	1
5757		HOLL	10 23 1510	N24 E02	10 23.8		B	CRO	10	3	4	4
5757		PALE	10 23 1957	N25 E01	10 23.9		B	BXO		2	5	3
5757		LEAR	10 24 0013	N26 E00	10 24.0		B	CSO	10	2	2	3
5757		RAMY	10 24 1221	N24 W07	10 24.0		B	BXO	10	3	6	4
5757		BOUL	10 24 1400	N26 W07	10 24.0		A	AX	10	1		1
5757		HOLL	10 24 1540	N23 W08	10 24.0		A	AX		1		3
5757		PALE	10 24 2000	N26 W10	10 24.0		A	AX		1		2

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5757		LEAR	10 25 0010	N26 W12	10 24.1		A	AX	10	1	1	3
5757		RAMY	10 25 1230	N25 W20	10 24.0		A	AX	10	2	2	4
5757		HOLL	10 25 1534	N24 W22	10 23.9		A	AX	10	1	1	2
5757A		RAMY	10 23 1245	S12 E13	10 24.5		A	AX	10	5	1	4
5760		RAMY	10 23 1226	N11 E19	10 24.9		B	BXO	10	4	2	4
5760		BOUL	10 23 1400	N12 E17	10 24.9		B	BXO	30	3	3	1
5760		HOLL	10 23 1510	N11 E16	10 24.8		B	BXO	10	7	4	4
5760		PALE	10 23 1957	N11 E16	10 25.0		B	BXO	20	11	6	3
5760		LEAR	10 24 0013	N12 E12	10 24.9		B	DAO	50	14	6	3
5760		RAMY	10 24 1221	N11 E06	10 25.0		B	DAO	40	17	7	4
5760		BOUL	10 24 1400	N12 E02	10 24.7		B	DSO	60	7	5	1
5760		HOLL	10 24 1540	N12 E02	10 24.8		B	DAI	60	14	7	3
5760		PALE	10 24 2000	N11 E00	10 24.8		B	DSO	50	11	6	2
5760		LEAR	10 25 0010	N11 W03	10 24.8		B	DAO	40	17	7	3
5760		RAMY	10 25 1230	N10 W11	10 24.7		B	DAO	150	21	7	4
5760		HOLL	10 25 1534	N10 W12	10 24.7		B	DAI	140	16	8	2
5760		PALE	10 25 1910	N10 W14	10 24.7		B	DAI	90	17	8	2
5760		BOUL	10 26 1457	N11 W26	10 24.7		B	DAO	230	5	6	1
5760		RAMY	10 26 1458	N10 W25	10 24.7		B	DAO	170	18	9	3
5760		HOLL	10 26 1600	N10 W27	10 24.6		B	CAO	100	23	8	2
5760		PALE	10 26 1912	N10 W29	10 24.6		B	CAI	120	21	8	3
5760		LEAR	10 27 0110	N10 W32	10 24.6		B	DAO	120	17	9	3
5760		CULG	10 27 0255	N10 W33	10 24.6		B	DAI	110	11	10	1
5760		BOUL	10 27 1452	N12 W39	10 24.7		B	DAO	250	6	9	1
5760		HOLL	10 27 1720	N10 W40	10 24.7		B	DSO	210	15	7	2
5760		PALE	10 27 1936	N10 W41	10 24.7		B	DAI	200	12	9	3
5760		LEAR	10 28 0007	N10 W45	10 24.6		B	DAO	210	12	9	3
5760		CULG	10 28 0240	N12 W47	10 24.6		B	DAO	120	6	9	2
5760		RAMY	10 28 1220	N09 W50	10 24.8		B	EAO	140	15	11	2
5760		HOLL	10 28 1430	N09 W53	10 24.6		B	DAO	90	8	10	3
5760		BOUL	10 28 1550	N09 W53	10 24.7		B	DAO	130	6	10	1
5760		PALE	10 28 1930	N10 W57	10 24.5		B	DAO	110	7	10	3
5760		LEAR	10 29 0100	N11 W58	10 24.7		B	DAO	90	5	8	2
5760		HOLL	10 29 1630	N10 W68	10 24.6		B	CSO	70	3	8	3
5760		RAMY	10 29 1642	N10 W67	10 24.7		B	DAO	70	4	11	1
5760		BOUL	10 29 1700	N10 W67	10 24.7		B	CAO	70	2	9	2
5760		PALE	10 29 2045	N09 W70	10 24.6		B	CAO	50	2	8	2
5760		CULG	10 30 0335	N11 W74	10 24.6		B	CSO	60	2	10	3
5767		RAMY	10 28 1220	N26 W42	10 25.2		B	BXO	10	3	3	2
5767		HOLL	10 28 1430	N27 W44	10 25.2		B	BXO	10	5	4	3
5767		BOUL	10 28 1550	N27 W43	10 25.3		B	BXO		5	4	1
5767		PALE	10 28 1930	N28 W47	10 25.1		B	CSO	20	6	4	3
5767		LEAR	10 29 0100	N28 W50	10 25.1		B	BXO	30	4	4	2
5767		HOLL	10 29 1630	N27 W58	10 25.2		B	DAO	50	3	6	3
5767		RAMY	10 29 1642	N28 W58	10 25.2		B	DAO	40	3	7	1
5767		BOUL	10 29 1700	N27 W58	10 25.2		B	DSO	40	2	7	2
5767		PALE	10 29 2045	N28 W60	10 25.2		B	CAO	40	4	6	2
5767		CULG	10 30 0335	N29 W64	10 25.1		B	BXO	10	4	8	3
5767		BOUL	10 30 1421	N28 W68	10 25.3		B	BXO	40	3	4	1
5767		PALE	10 30 1803	N28 W73	10 25.0		B	BXO	30	2	10	3
5767		HOLL	10 30 1825	N28 W73	10 25.1		B	BXO	30	3	10	2
5767		LEAR	10 31 0025	N27 W71	10 25.5		B	BXO	30	3	7	3
5756		BOUL	10 20 1450	N11 E77	10 26.4		A	AX	10	1	1	1
5756		HOLL	10 20 1600	N11 E77	10 26.4		A	AX	10	1		2
5756		PALE	10 20 2100	N11 E75	10 26.5		A	AX	20	1	1	2
5756		RAMY	10 21 1220	N11 E64	10 26.3		A	AX	20	2	1	4
5756		BOUL	10 21 1445	N11 E65	10 26.5		A	AX		1	1	2
5756		HOLL	10 21 1609	N12 E63	10 26.4		A	AX		1		4
5756		PALE	10 21 1730	N11 E63	10 26.5		A	AX	10	1	1	3
5756		LEAR	10 22 0040	N11 E58	10 26.4		A	AX	10	1	1	3
5754		LEAR	10 20 0040	S21 E77	10 25.9		A	HS	90	1	2	4
5754		BOUL	10 20 1450	S20 E75	10 26.3		B	DAO	160	4	10	1
5754		HOLL	10 20 1600	S18 E72	10 26.1		B	CSO	220	8	9	2
5754		PALE	10 20 2100	S20 E75	10 26.6		B	DAO	200	7	11	2

SUNSPOT GROUPS
(Ordered by Central Meridian Passage Date)

OCTOBER 1989

NOAA/ USAF Group	Mt Wilson Group	Sta	Observation Time Mo Day (UT)	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
5754		LEAR	10 21 0035	S19 E69	10 26.3		B	DSO	270	9	9	3
5754		CULG	10 21 0300	S19 E69	10 26.4		B	EAO	170	12	10	3
5754		RAMY	10 21 1220	S19 E64	10 26.4		B	DAO	380	21	10	4
5754		BOUL	10 21 1445	S19 E61	10 26.3		B	ESI	220	10	11	2
5754		HOLL	10 21 1609	S20 E62	10 26.4		B	ESI	350	19	11	4
5754		PALE	10 21 1730	S20 E63	10 26.5		B	DAI	220	12	10	3
5754		LEAR	10 22 0040	S20 E57	10 26.4		B	DSO	260	13	9	3
5754		HOLL	10 22 1440	S20 E51	10 26.5		B	DSI	270	10	10	2
5754		BOUL	10 22 1532	S21 E49	10 26.4		B	ESI	290	14	11	2
5754		PALE	10 22 1945	S21 E49	10 26.6		B	DSI	210	13	10	3
5754		CULG	10 23 0400	S23 E43	10 26.5		B	CSO	130	9	9	1
5754		RAMY	10 23 1226	S21 E39	10 26.5		B	DAO	380	18	9	4
5754		BOUL	10 23 1400	S21 E36	10 26.3		B	DAI	250	10	9	1
5754		HOLL	10 23 1510	S22 E37	10 26.5		B	DAI	340	23	10	4
5754		PALE	10 23 1957	S20 E36	10 26.6		B	DSI	200	19	9	3
5754		LEAR	10 24 0013	S20 E32	10 26.4		B	DHI	190	15	10	3
5754		RAMY	10 24 1221	S22 E27	10 26.6		B	DKO	300	19	10	4
5754		BOUL	10 24 1400	S21 E23	10 26.3		B	DAO	190	5	7	1
5754		HOLL	10 24 1540	S21 E24	10 26.5		B	DHI	320	14	9	3
5754		PALE	10 24 2000	S21 E23	10 26.6		B	DSI	300	18	9	2
5754		LEAR	10 25 0010	S20 E20	10 26.5		B	DHO	280	12	8	3
5754		HOLL	10 25 1534	S21 E11	10 26.5		B	DHO	300	13	9	2
5754		PALE	10 25 1910	S21 E10	10 26.6		B	DHO	220	6	9	2
5754		BOUL	10 26 1457	S20 W03	10 26.4		B	DSO	210	4	7	1
5754		RAMY	10 26 1458	S21 W01	10 26.5		B	DKO	220	5	8	3
5754		HOLL	10 26 1600	S21 W03	10 26.4		B	CKO	200	7	8	2
5754		PALE	10 26 1912	S20 W05	10 26.4		B	CHO	300	14	9	3
5754		LEAR	10 27 0110	S21 W07	10 26.5		B	CSO	200	8	9	3
5754		CULG	10 27 0255	S21 W10	10 26.3		B	CSO	230	3	7	1
5754		BOUL	10 27 1452	S19 W17	10 26.3		B	CSO	170	2	3	1
5754		HOLL	10 27 1720	S21 W15	10 26.6		B	CHO	240	6	11	2
5754		PALE	10 27 1936	S22 W18	10 26.4		B	CHO	190	10	13	3
5754		LEAR	10 28 0007	S20 W20	10 26.5		B	CSO	200	5	8	3
5754		CULG	10 28 0240	S21 W26	10 26.1		A	HS	150	1	2	2
5754		RAMY	10 28 1220	S21 W25	10 26.6		B	CSO	250	10	9	2
5754		HOLL	10 28 1430	S21 W27	10 26.5		B	CSO	170	5	9	3
5754		BOUL	10 28 1550	S18 W28	10 26.5		B	CSO	170	3	7	1
5754		PALE	10 28 1930	S20 W30	10 26.5		B	CSO	200	3	7	3
5754		LEAR	10 29 0100	S21 W34	10 26.4		B	CHO	120	3	7	2
5754		HOLL	10 29 1630	S22 W45	10 26.2		A	HS	160	1	2	3
5754		RAMY	10 29 1642	S21 W44	10 26.3		A	HA	160	1	2	1
5754		BOUL	10 29 1700	S21 W44	10 26.3		A	HA	140	2	2	2
5754		PALE	10 29 2045	S22 W47	10 26.2		A	HS	160	1	3	2
5754		CULG	10 30 0335	S21 W51	10 26.2		A	HS	110	1	3	3
5754		BOUL	10 30 1421	S21 W57	10 26.2		A	HA	130	1	3	1
5754		PALE	10 30 1803	S22 W60	10 26.1		A	HS	130	1	1	3
5754		HOLL	10 30 1825	S21 W58	10 26.3		B	CSO	200	3	3	2
5754		LEAR	10 31 0025	S21 W59	10 26.5		A	HA	130	1	5	3
5754		RAMY	10 31 1355	S23 W60	10 26.9		A	HA	180	1	2	3
5754		BOUL	10 31 1418	S21 W69	10 26.3		A	HA	130	1	2	1
5754		HOLL	10 31 1700	S22 W70	10 26.3		A	HA	120	1	2	2
5754		PALE	10 31 1746	S18 W72	10 26.2		A	HS	40	1	5	3
5754		LEAR	11 01 0055	S21 W72	10 26.6		A	HS	90	1	2	2
5754		CULG	11 01 0345	S20 W80	10 26.1		A	HS	130	1	2	3
5754		RAMY	11 01 1328	S23 W80	10 26.5		A	HA	90	1	2	3
5758		RAMY	10 21 1220	S11 E71	10 26.8		A	AX	30	5	2	4
5758		BOUL	10 21 1445	S14 E74	10 27.2		B	BXO		2	3	2
5758		HOLL	10 21 1609	S12 E73	10 27.2		B	BXO	10	4	5	4
5758		PALE	10 21 1730	S11 E71	10 27.1		B	BXO	10	2	3	3
5758		LEAR	10 22 0040	S16 E67	10 27.1		B	BXO	30	4	4	3
5758		HOLL	10 22 1440	S13 E62	10 27.3		B	CRO	40	10	7	2
5758		BOUL	10 22 1532	S13 E62	10 27.3		B	DAO	20	4	4	2
5758		PALE	10 22 1945	S13 E58	10 27.2		B	BXO	30	5	5	3
5758		CULG	10 23 0400	S17 E54	10 27.3		B	BXO	10	3	5	1
5758		RAMY	10 23 1226	S12 E49	10 27.2		B	DRO	60	12	5	4
5758		BOUL	10 23 1400	S13 E46	10 27.0		B	CAI	60	6	6	1
5758		HOLL	10 23 1510	S13 E47	10 27.2		B	DAI	80	16	6	4
5758		PALE	10 23 1957	S12 E45	10 27.2		B	BXO	20	9	6	3

S U N S P O T G R O U P S
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OCTOBER 1989

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
5758		LEAR	10	24	0013	S13	E41	10	27.1		B	DAO	90	16	7	3
5758		RAMY	10	24	1221	S13	E36	10	27.2		B	DAO	70	17	7	4
5758		BOUL	10	24	1400	S13	E30	10	26.8		B	CAI	70	10	11	1
5758		HOLL	10	24	1540	S13	E33	10	27.1		B	DAI	60	15	7	3
5758		PALE	10	24	2000	S13	E31	10	27.2		B	DAI	70	13	7	2
5758		LEAR	10	25	0010	S13	E28	10	27.1		B	DAO	70	13	8	3
5758		RAMY	10	25	1230	S14	E21	10	27.1		B	DAO	70	14	8	4
5758		HOLL	10	25	1534	S13	E19	10	27.1		B	CRO	70	11	7	2
5758		PALE	10	25	1910	S13	E18	10	27.1		B	DAO	40	8	7	2
5758		BOUL	10	26	1457	S11	E06	10	27.1		B	DSO	60	3	8	1
5758		RAMY	10	26	1458	S13	E07	10	27.1		B	CRO	60	12	8	3
5758		HOLL	10	26	1600	S13	E06	10	27.1		B	BXO	30	16	8	2
5758		PALE	10	26	1912	S13	E03	10	27.0		B	CAO	40	8	8	3
5758		LEAR	10	27	0110	S13	E01	10	27.1		B	BXO	40	14	9	3
5758		CULG	10	27	0255	S14	W03	10	26.9		B	BXO	10	5	6	1
5758		BOUL	10	27	1452	S13	W05	10	27.2		B	BXO	10	2	1	1
5758		HOLL	10	27	1720	S13	W08	10	27.1		B	BXO	20	7	7	2
5758		PALE	10	27	1936	S13	W06	10	27.4		A	AX	10	7	2	3
5758		LEAR	10	28	0007	S14	W10	10	27.2		B	BXO	20	4	3	3
5758		CULG	10	28	0240	S13	W12	10	27.2		A	HR	20	2	1	2
5758		RAMY	10	28	1220	S13	W15	10	27.4		A	AX	10	5	1	2
5758		HOLL	10	28	1430	S14	W15	10	27.5		A	AX		3	1	3
5758		BOUL	10	28	1550	S13	W17	10	27.4		B	BXO		3	2	1
5758		PALE	10	28	1930	S13	W19	10	27.4		A	AX	10	2	1	3
5758		LEAR	10	29	0100	S13	W22	10	27.4		B	BXO	20	3	3	2
5758		RAMY	10	31	1355	S15	W53	10	27.6		B	CAO	30	3	3	3
5758		LEAR	11	01	0055	S14	W56	10	27.9		B	BXO	20	3	3	2
5758		RAMY	11	01	1328	S17	W64	10	27.8		A	AX		1	1	3
5762		PALE	10	25	1910	N31	E28	10	28.0		A	AX		1		2
5762		BOUL	10	26	1457	N31	E16	10	27.9		B	DSO	60	3	5	1
5762		RAMY	10	26	1458	N31	E15	10	27.8		B	BXO	20	4	6	3
5762		HOLL	10	26	1600	N31	E14	10	27.8		B	BXO	20	4	6	2
5762		PALE	10	26	1912	N31	E14	10	27.9		B	BXO	10	4	6	3
5762		LEAR	10	27	0110	N32	E10	10	27.8		B	BXO	20	6	6	3
5762		CULG	10	27	0255	N30	E09	10	27.8		B	BXO	10	4	6	1
5762		BOUL	10	27	1452	N33	W02	10	27.5		A	HS	20	1	1	1
5762		HOLL	10	27	1720	N31	E01	10	27.8		B	BXO	10	3	4	2
5762		PALE	10	27	1936	N31	W03	10	27.6		A	AX		1		3
5762		LEAR	10	28	0007	N31	W05	10	27.6		B	BXO	20	2	3	3
5762		CULG	10	28	0240	N33	W07	10	27.5		A	AX	10	1		2
5762		RAMY	10	28	1220	N32	W10	10	27.7		B	BXO	10	3	6	2
6762A		LEAR	10	27	0110	N24	E16	10	28.3		B	BXO	10	2	2	3
5765		RAMY	10	25	1230	S24	E43	10	28.8		A	AX		2	1	4
5765		PALE	10	26	1912	S27	E27	10	28.9		A	AX		2	1	3
5765		LEAR	10	27	0110	S25	E23	10	28.8		A	AX	20	3	2	3
5765		BOUL	10	27	1452	S25	E16	10	28.8		B	CSO	30	3	4	1
5765		HOLL	10	27	1720	S25	E15	10	28.9		B	BXO	20	4	6	2
5765		PALE	10	27	1936	S24	E13	10	28.8		A	AX		1		3
5765		LEAR	10	28	0007	S24	E09	10	28.7		A	AX	10	1	1	3
5765		CULG	10	28	0240	S25	E07	10	28.6		A	HR	10	1		2
5765		RAMY	10	28	1220	S22	E03	10	28.7		A	AX	10	3	2	2
5765		HOLL	10	28	1430	S25	E04	10	28.9		B	BXO		2	7	3
5765		BOUL	10	28	1550	S23	W01	10	28.6		A	AX		1		1
5765		PALE	10	28	1930	S23	W02	10	28.6		A	AX		1		3
5765		LEAR	10	29	0100	S23	W07	10	28.5		A	AX	10	1	1	2
5765		BOUL	10	29	1700	S22	W15	10	28.5		A	AX		1		2
5765		HOLL	10	30	1825	S23	W27	10	28.7		A	AX		2	1	2
5765		RAMY	10	31	1355	S29	W31	10	29.1		A	AX		1	1	3
5765		LEAR	11	02	0730	S23	W58	10	28.9		A	AX	20	1	1	3
5765		RAMY	11	02	1420	S25	W64	10	28.7		A	AX		1	1	3
5768		RAMY	10	28	1220	S11	E01	10	28.6		B	CRO	20	5	3	2
5768		HOLL	10	28	1430	S11	W02	10	28.4		B	BXO	10	4	3	3
5768		BOUL	10	28	1550	S11	W03	10	28.4		B	DSO	20	3	3	1
5768		PALE	10	28	1930	S11	W06	10	28.4		B	CSO	20	7	4	3
5768		LEAR	10	29	0100	S11	W09	10	28.4		B	CSO	30	7	4	2

S U N S P O T G R O U P S
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OCTOBER 1989

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
5768		HOLL	10	29	1630	S11	W17	10	28.4		B	DRO	30	12	6	3
5768		RAMY	10	29	1642	S12	W17	10	28.4		B	DAO	60	8	5	1
5768		BOUL	10	29	1700	S10	W17	10	28.4		B	BXO	10	13	5	2
5768		PALE	10	29	2045	S11	W19	10	28.4		B	DAO	30	10	6	2
5768		CULG	10	30	0335	S11	W23	10	28.4		B	CRO	20	15	6	3
5768		BOUL	10	30	1421	S10	W28	10	28.5		B	BXO	50	4	4	1
5768		PALE	10	30	1803	S11	W32	10	28.3		B	BXO	20	14	5	3
5768		HOLL	10	30	1825	S13	W32	10	28.3		B	BXO	40	11	6	2
5768		LEAR	10	31	0025	S11	W35	10	28.4		B	DAO	50	3	6	3
5768		RAMY	10	31	1355	S12	W41	10	28.5		B	CSO	30	3	4	3
5768		BOUL	10	31	1418	S10	W45	10	28.2		B	BXO	30	3	10	1
5768		HOLL	10	31	1700	S13	W48	10	28.1		B	BXO	30	7	12	2
5768		PALE	10	31	1746	S13	W49	10	28.0		B	BXO	10	6	12	3
5768		LEAR	11	01	0055	S10	W48	10	28.5		B	BXO	20	5	4	2
5768		CULG	11	01	0345	S12	W57	10	28.0		B	BXO		2	4	3
5768		RAMY	11	01	1328	S13	W59	10	28.2		A	AX		1	1	3
5768		PALE	11	01	1805	S13	W61	10	28.2		A	AX	10	1	1	3
5768		BOUL	11	01	1843	S11	W62	10	28.2		A	AX	10	1	1	3
5768		HOLL	11	01	1850	S11	W60	10	28.4		A	AX	20	1		3
5768		CULG	11	02	0320	S09	W68	10	28.1		A	AX	10	1	1	2
5761A		PALE	10	27	1936	S27	E17	10	29.1		A	AX		1		3
5761A		LEAR	10	28	0007	S26	E14	10	29.1		A	AX	10	1	1	3
5761		HOLL	10	23	1510	S12	E72	10	29.0		A	AX		1		4
5761		PALE	10	23	1957	S12	E72	10	29.2		A	AX		1		3
5761		LEAR	10	24	0013	S12	E69	10	29.2		A	AX	30	1	1	3
5761		RAMY	10	24	1221	S12	E63	10	29.3		A	AX	10	1	1	4
5761		HOLL	10	24	1540	S13	E60	10	29.2		A	AX		1		3
5761		LEAR	10	25	0010	S12	E55	10	29.1		A	AX	10	1	1	3
5761		RAMY	10	29	1642	S16	W02	10	29.5		A	AX	10	2	1	1
5761B		HOLL	10	28	1430	N26	E13	10	29.6		A	AX		2	1	3
5763		BOUL	10	26	1457	N22	E38	10	29.5		A	HS	50	1	1	1
5763		RAMY	10	26	1458	N22	E39	10	29.6		A	AX	10	2	2	3
5763		HOLL	10	26	1600	N23	E37	10	29.5		A	AX	10	1	1	2
5763		PALE	10	26	1912	N22	E36	10	29.6		A	AX		1		3
5763		LEAR	10	27	0110	N23	E33	10	29.6		A	AX	10	2	2	3
5763		BOUL	10	27	1452	N21	E28	10	29.8		B	DAO	40	3	5	1
5763		HOLL	10	27	1720	N21	E28	10	29.9		B	BXO	20	10	5	2
5763		PALE	10	27	1936	N20	E27	10	29.9		B	BXO	40	10	5	3
5763		LEAR	10	28	0007	N20	E23	10	29.8		B	DAO	100	12	7	3
5763		CULG	10	28	0240	N20	E23	10	29.9		B	DAO	80	6	5	2
5763		RAMY	10	28	1220	N21	E17	10	29.8		B	DAO	160	19	9	2
5763		HOLL	10	28	1430	N21	E16	10	29.8		B	DAO	110	10	7	3
5763		BOUL	10	28	1550	N21	E15	10	29.8		B	DAO	110	10	8	1
5763		PALE	10	28	1930	N21	E14	10	29.9		B	DSO	200	13	8	3
5763		LEAR	10	29	0100	N20	E12	10	29.9		B	DSO	230	14	9	2
5763		HOLL	10	29	1630	N20	E03	10	29.9		B	DKI	310	24	10	3
5763		RAMY	10	29	1642	N22	E03	10	29.9		B	DKO	270	15	9	1
5763		BOUL	10	29	1700	N21	E01	10	29.8		B	DAO	170	22	9	2
5763		PALE	10	29	2045	N21	E00	10	29.9		B	DKI	360	17	9	2
5763		CULG	10	30	0335	N21	W04	10	29.8		B	DAI	260	26	10	3
5763		BOUL	10	30	1421	N21	W11	10	29.7		B	DAO	230	9	6	1
5763		PALE	10	30	1803	N20	W13	10	29.7		B	EKI	350	28	11	3
5763		HOLL	10	30	1825	N20	W12	10	29.8		B	EHI	320	29	11	2
5763		LEAR	10	31	0025	N20	W16	10	29.8		B	DAO	310	9	10	3
5763		RAMY	10	31	1355	N18	W25	10	29.7		B	DHO	50	4	7	3
5763		BOUL	10	31	1418	N20	W24	10	29.8		B	DAO	220	5	7	1
5763		HOLL	10	31	1700	N20	W25	10	29.8		B	DKO	310	8	8	2
5763		PALE	10	31	1746	N20	W26	10	29.7		B	DHO	260	8	8	3
5763		LEAR	11	01	0055	N20	W30	10	29.8		B	DSO	280	5	7	2
5763		CULG	11	01	0345	N22	W30	10	29.9		B	DSO	300	7	9	3
5763		RAMY	11	01	1328	N19	W36	10	29.9		B	DKO	290	7	9	3
5763		PALE	11	01	1805	N19	W38	10	29.9		B	DHO	290	7	8	3
5763		BOUL	11	01	1843	N21	W38	10	30.0		B	DAO	260	9	9	3
5763		HOLL	11	01	1850	N20	W39	10	29.9		B	DHO	350	8	9	3
5763		CULG	11	02	0320	N22	W46	10	29.7		B	DHO	220	7	9	2

S U N S P O T G R O U P S
(Ordered by Central Meridian Passage Date)
OCTOBER 1989

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
5763		LEAR	11 02	0730	N20 W46	10 29.9		B	CHO	270	10	9	3
5763		RAMY	11 02	1420	N19 W50	10 29.9		B	DHO	300	9	10	3
5763		BOUL	11 02	1534	N22 W51	10 29.8		B	CKO	270	6	10	2
5763		HOLL	11 02	1600	N20 W51	10 29.9		B	CHO	270	12	10	3
5763		PALE	11 02	1810	N19 W52	10 29.9		B	DHO	260	7	10	2
5763		CULG	11 03	0325	N21 W58	10 29.8		B	CSO	190	2	9	2
5763		RAMY	11 03	1220	N20 W65	10 29.6		B	CSO	260	4	8	3
5763		BOUL	11 03	1536	N21 W68	10 29.5		A	HK	290	3	3	1
5763		HOLL	11 03	1635	N20 W67	10 29.7		A	HH	220	1	3	3
5763		PALE	11 03	2003	N20 W68	10 29.7		B	CHO	220	2	3	3
5763		LEAR	11 04	0108	N23 W69	10 29.8		A	HS	150	1	2	3
5763		CULG	11 04	0225	N22 W73	10 29.6		A	HS	180	1	4	3
5763		RAMY	11 04	1310	N20 W79	10 29.6		A	HH	240	1	3	3
5763		HOLL	11 04	1615	N20 W78	10 29.8		A	HH	150	1	3	4
5763		BOUL	11 04	1815	N20 W85	10 29.3		A	HS	100	1	2	1
5763		LEAR	11 05	0047	N21 W86	10 29.5		A	HS	60	1	2	3
5763		CULG	11 05	0140	N21 W87	10 29.5		A	HS	60	1	4	2
5763A		RAMY	10 29	1642	S12 E11	10 30.5		A	AX	10	1	1	1
5763A		PALE	10 31	1746	S11 W16	10 30.5		A	AX		1	1	3
5763B		RAMY	10 26	1458	S15 E61	10 31.2		A	AX		2	1	3
5766		LEAR	10 27	0110	S29 E57	10 31.5		B	BXO	20	6	3	3
5766		BOUL	10 27	1452	S28 E48	10 31.4		B	DSO	70	2	4	1
5766		HOLL	10 27	1720	S29 E48	10 31.5		B	BXO	40	5	4	2
5766		PALE	10 27	1936	S29 E49	10 31.6		B	BXO		2	4	3
5766		LEAR	10 28	0007	S30 E44	10 31.5		B	BXO	30	6	4	3
5766		CULG	10 28	0240	S31 E41	10 31.3		A	HR	10	1		2
5766		RAMY	10 28	1220	S28 E39	10 31.6		B	CAO	30	7	5	2
5766		HOLL	10 28	1430	S29 E38	10 31.6		B	BXO	10	3	5	3
5766		BOUL	10 28	1550	S29 E36	10 31.5		B	BXO		2	6	1
5766		PALE	10 28	1930	S29 E34	10 31.5		B	BXO	10	2	5	3
5766		LEAR	10 29	0100	S28 E28	10 31.2		A	AX	10	1	1	2
5775		LEAR	10 28	0007	S12 E45	10 31.4		B	BXO	30	3	3	3
5775		RAMY	10 28	1220	S10 E37	10 31.3		B	BXO	10	4	8	2
5775		HOLL	10 28	1430	S09 E32	10 31.0		A	AX		1		3
5775		HOLL	10 30	1825	S14 E08	10 31.4		B	BXO	10	6	4	2
5775		LEAR	10 31	0025	S13 E04	10 31.3		B	BXO	20	6	5	3
5775		RAMY	10 31	1355	S13 W03	10 31.3		B	DAO	60	10	8	3
5775		BOUL	10 31	1418	S12 W04	10 31.3		B	BXO	50	3	6	1
5775		HOLL	10 31	1700	S13 W05	10 31.3		B	CAO	40	17	7	2
5775		PALE	10 31	1746	S13 W06	10 31.3		B	CRI	40	15	7	3
5775		LEAR	11 01	0055	S12 W10	10 31.3		B	CAO	50	12	7	2
5775		CULG	11 01	0345	S12 W13	10 31.2		B	CAO	30	7	7	3
5775		RAMY	11 01	1328	S13 W16	10 31.3		B	CRO	30	11	6	3
5775		PALE	11 01	1805	S13 W18	10 31.4		B	CRO	20	9	7	3
5775		BOUL	11 01	1843	S12 W18	10 31.4		B	DAO	30	10	8	3
5775		HOLL	11 01	1850	S12 W19	10 31.3		B	BXO	20	12	7	3
5775		CULG	11 02	0320	S12 W25	10 31.2		B	CRO	10	6	7	2
5775		LEAR	11 02	0730	S14 W24	10 31.5		B	BXO	40	10	4	3
5775		RAMY	11 02	1420	S14 W29	10 31.4		A	HA	20	2	2	3
5775		BOUL	11 02	1534	S13 W31	10 31.3		B	CAO	30	4	3	2
5775		HOLL	11 02	1600	S15 W32	10 31.2		B	BXO	20	10	7	3
5775		PALE	11 02	1810	S16 W31	10 31.4		B	BXO	10	6	3	2
5775		CULG	11 03	0325	S12 W39	10 31.2		A	AX	10	1	1	2
5775		RAMY	11 03	1220	S13 W42	10 31.3		B	BXO	10	5	3	3
5775		BOUL	11 03	1536	S13 W44	10 31.3		B	CAO	40	2	3	1
5775		HOLL	11 03	1635	S13 W45	10 31.3		B	BXO	10	4	3	3
5775		PALE	11 03	2003	S13 W48	10 31.2		B	BXO	10	4	3	3
5775		LEAR	11 04	0108	S12 W50	10 31.3		B	CRO	20	2	3	3
5775		CULG	11 04	0225	S12 W51	10 31.2		A	AX	10	1	1	3
5775		RAMY	11 04	1310	S13 W55	10 31.4		A	AX	20	3	1	3
5775		HOLL	11 04	1615	S13 W58	10 31.3		A	AX	10	3	2	4
5775		BOUL	11 04	1815	S14 W59	10 31.3		A	AX		1		1
5775		LEAR	11 05	0047	S13 W62	10 31.3		A	AX	20	3	2	3
5775		CULG	11 05	0140	S13 W63	10 31.3		A	HA	10	2	1	2
5775		RAMY	11 05	1351	S15 W69	10 31.3		A	AX	10	1	1	2
5775		PALE	11 05	2251	S17 W73	10 31.4		A	AX		1		3

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	LF-SES	Flare (UT)	X-ray Class	NOAA Region
01	0007	0126	0213D	2	5	1		1			0007	C6.8	
01	0219	0229	0249	1-	1			1			0212	C3.4	5712
01	0324	0346	0409	1-	1			1			0318	C3.1	
01	0803	0829	0900	1-	1			1			0812	C2.8	5712
01	0910	0913	0927	1-	1			1			No flare		
01	2306	2311	2353	1	5	1		1		1	2305	C7.7	
02	0427	0444	0541	1-	1			1			0426	C3.9	
02	0747	0805	0847D	1-	5		1	1		1	0755	C3.8	5708
02	0845	0915	1113	2	5	2	3	1	1	2	0841	M1.5	5712
02	1056	1100	1120	1-	3				1	1	No flare		
02	1205	1221	1237	1-	1			1			1201		5721
02	1426	1430	1435	1-	5					2	1427		
02	1807	1809	1820	1-	1					1	1803	C2.8	
03	0616	0619	0629	1-	1			1			No flare		
03	0812	0822	0905	1+	1	1	2	1	1	2	0811	C5.6	5721
03	1010	1015U	1030	1	1					1	1010	C5.1	5721
03	1048	1052	1100	1-	3					2	1048		5715
03	1221	1230	1300	2	1					1	1218	C3.5	5721
03	1408	1411	1434	1	1		1				No flare		
03	1422	1428	1445	1	1					1	1427		5716
03	2252	2312	0014	1-	5			1		1	2258	C6.6	5714
04	0505	0519	0640	1-	1			1			0506	C4.0	5709
04	0835	0852	0929	2	5	2	2	1	1	4	0834	C7.1	5721
04	0935	0955	1020	1-	1		1		1	2	0935	C6.6	5714
04	1253	1304	1330	1-	5		1	1	1	2	1238	C4.1	5721
04	1433	1437	1446	1	3		2				1417	C5.3	5721
04	1449	1521	1531	1	3		2				1448		5721
05	0319	0345	0539	1-	1			1			0331		5721
05	0606	0617	0647	1-	1			1			0608	C4.5	5712
05	0633E	0653	0726	1-	5			1		1	0647E	C3.7	
05	0844	0848	0901		3		1		1	1	0846E	C2.9	5721
05	0910	0925	0950	1+	1		1				No flare		
05	1155	1212	1309	1-	5	2	2	1	1	4	1158E	C6.7	5715
05	1400	1405	1421	1	1					1	1401	C5.1	5714
05	1628	1628	1631U	1-	1					1	1628		5714
05	1906	1915	1930	1	1					1	1906	C3.2	5721
06	0606	0629	0702	1-	5			1		1	0607		5721
06	1110	1116	1134	1	1		1				No flare		
06	1745	1747	1800	1-	1					1	1742	C2.5	5721
06	2128	2135	2204	1-	1			1			2129	C3.4	
06	2239	2256	0007	1-	1			1			2243		5721
07	0355	0417	0452D	1-	1			1			0352	C5.9	5721
07	0453E	0509	0649	1	5		1	1		1	No flare		
07	1418	1428U	1507	1	1		1				No flare		
07	1601	1602	1610	1-	5					2	1601		5721
07	2300	2306	2320	1	1					1	2302		5721
08	0347	0400	0453	1-	1			1			0344	C3.9	
08	1810	1811	1816	1-	3					2	No flare		
09	0151	0214	0357	1+	1			1			0152	C6.9	5728
09	0738	0817	1039	2	1		2				No flare		
09	2033	2034	2048	1-	1					1	2031		5734
09	2315	2319	2353	1-	1			1			2311	C2.6	5725
10	0355	0403	0429	1-	1			1			0358	C2.7	5725
10	0543	0551	0607	1-	1			1			No flare		
10	0709	0724	0821D	2-	5	1	1	1	1	2	0712	C3.6	
10	0821E	0830	0855	1-	5		4	1	1	3	0819	C3.9	
10	1226	1233	1244	1	1		1				No flare		
10	1330	1339	1419	1-	5		4	1	1	9	1333	C6.8	
10	1646	1649	1706	1-	5					6	1646	C2.9	

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1989

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide Spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	LF-SES	Flare (UT)	X-ray Class	NOAA Region
11	0232	0241	0315	1-	1			1			0233		5725
11	0440	0458	0624	1-	5			1		2	0438	C5.0	
11	0650	0653	0659	1-	1			1			No flare		
11	1407	1408	1412	1-	1					1	1407		5721
11	1445	1453	1458	1-	1					1	1445		5736
11	1623	1626	1638	1-	3					3	1622	C3.1	5735
11	1643	1653	1705	1	3					2	1642	C3.7	5721
11	2224	2252	2329D	1-	1			1			No flare		
11	2329E	2344	0029	1-	1			1			2332	C3.3	
12	0317	0328	0415	2+	1					1	0324	C2.1	
12	0430	0510	0624	1-	1			1		1	0451E		5721
12	1219	1228	1300	1-	3	1	1		1		1206		5721
12	1500	1510	1530	1-	5		1		1	5	1506	C3.7	5726
12	2340	0002	0130	1	5	1		1		2	2342E	M1.1	
13	0141	0204	0236	1-	1			1			No flare		
13	0257	0306	0403	2+	5	1		1		1	0255	M1.0	
13	0418	0429	0452D	1-	5			1		2	0418	C4.9	
13	0458	0601	0601D	3	5	1		1		3	0500	M4.1	
13	1342	1400	1417	1	3		2				1332		5738
13	1552	1554	1614	1	3					3	1551		5744
13	2353	2358	0107	1-	1			1			2346		5740
14	0655	0700	0740	2	1					1	0659	C2.6	5723
14	0745	0754	0831	1-	5			1	1	1	0750	C4.8	5723
14	0832	0841	0915	1-	5	1	1	1	1	4	0836	C4.9	5740
14	1111	1116	1140	1-	3				1	1	1108	C3.6	
14	1314	1315	1328	1-	3					2	1314		5744
14	1427	1428	1434	1-	5					3	1432	C2.6	
14	1749	1752	1805	1-	3					8	1750	C4.8	5723
14	1811	1813	1835	1	3					7	1804	C4.3	5740
14	1858	1900	1912	1-	3					4	1857	C2.7	
14	2113	2119	2158	1-	1			1			2106	C5.0	5740
14	2239	2245	2320D	2	5	1		1			2237	M1.3	5747
14	2338	0010	0132	1-	5	1		1		1	2333	M1.0	5747
15	0212	0227	0442	1-	1			1			0230		5728
15	1239	1252	1321	1-	5	1	1	1	1	4	1240	C7.7	5723
15	1425	1435	1531	1+	5	2	4	1	1	11	1420	M1.6	5740
15	1507	1514	1542	1	1		1				No flare		
15	1720	1721	1733	1-	3					2	1716		5747
15	2228	2229	2234	1-	1					1	2229		5728
15	2251	2257	2322D	1-	1			1			2249	C2.3	5747
15	2322E	2332	0026	1-	1			1			2323		5747
16	0420	0432	0453	1-	1			1			0415	C3.1	5736
16	0504	0515	0546	1-	1			1			0508	C2.0	5740
16	0626	0640	0731	1+	3		2				No flare		
16	0737	0757	0840	2-	3		3				0727		5748
16	0944	1001	1017	2-	3		2			1	No flare		
16	1038	1040	1055	1-	1					1	No flare		
16	1255	1307	1345	1+	3		1		1	1	1300	C4.3	5747
16	1505	1520	1548	1+	5		2			1	1508E		5747
16	1644	1645	1658	1-	1					1	*		
16	1915	1926	1956	2	5					2	*		
16	2253	2307	2339	1-	1			1			No flare		
16	2353	2358	0021	1-	1			1			No flare		
17	0040E	0049	0116	1-	5	1		1			0036E	C2.9	
17	0203	0209	0325	1-	1			1			0201E	C2.4	
17	0523E	0527	0659	1	1			1			0521	C3.9	5747
17	1257	1259	1310	1-	1					1	No flare		
17	1850	1856	1915	1-	5			1		7	1850	M1.0	5747
18	0003E	0011	0119	1-	1			1			No flare		
18	0011	0120	0258D	3	3	1		1			0022		5747
18	0255E	0302	0438D	2+	1			1			0254		5753

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1989

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
18	0438E	0443	0748	3-	5	1		1		2	0437	M1.6	5747
18	0501	0502	0510	1-	1					1	*		
18	0907	0913	1015	1-	5	1		1	1	1	No flare		
18	1052	1109	1210	1-	5	1	1	1	1	2	No flare		
18	1210	1214	1220U	1-	1					1	1122	C5.4	5753
18	1502	1507	1535	1+	5				1	6	1457E	C6.6	5747
18	1512	1517	1540	1-	5		1	1		4	1500		5747
18	1656	1658	1722	1	3					8	1650	C5.9	5747
18	1748	1752	1804	1-	3					4	No flare		
18	1801	1813	1932	3-	3					3	1806	M7.4	5747
18	1813	1822	1920	2	5	2				5	1808		5744
18	2133	2139	2152	1-	1			1			*		
18	2236E	2247	2308	1-	1			1			2233		5740
18	2325	2335	0003D	1-	1			1			2328		
19	0002E	0012	0145	1-	1			1			No flare		
19	0217	0228	0302	1-	1			1			No flare		
19	0415	0421	0511	1-	1			1			0411		5753
19	0703	0714	0805	1-	1			1			0650E	C3.4	
19	0832	0917	0956D	2-	5	1	2	1	1	3	0845	M1.6	5747
19	0956E	1012	1114	2-	1			1			0956		5740
19	1105	1117	1147	1	1		1				1048E		5747
19	1228	1242	1448	2+	5		2			6	1229		5747
19	1238	1303	1711	3	5	3	5	1	1	6	1229	X13.0	5747
19	1856	2003	2301	1	1	1					No flare		
20	0009	0016	0031	1-	1			1			No flare		
20	0335	0343	0518D	2+	5	1		1		1	0339	M1.1	5747
20	0518E	0524	0646	2+	5	1		1		2	0519	C9.8	5747
20	0701	0707	0736	1-	3		2		1	1	0707	C3.7	5747
20	0750	0754	0829	2-	5	1	2	1	1	2	0742	C9.1	5747
20	0942	0944	1004	1-	1					1	0941	C2.3	
20	1010	1034	1140	1	3		2			1	No flare		
20	1117	1121	1202	1	1					1	1117		5747
20	1305	1351	1609	2	1			1			1303		
20	1411	1421	1454	1+	1					1	1415	M1.6	5747
20	1441	1505	1548	2	5		1			3	1445		
20	2032	2047	2054	1-	1	1					*		
20	2128	2142	2222D	1+	5			1		3	2130E	M1.4	
20	2218E	2234	2309D	1-	1			1			No flare		
20	2309E	2317	2359	1-	1			1			2310E		5754
21	0047	0100	0109D	1-	1			1			No flare		
21	0109E	0117	0142	1-	1			1			No flare		
21	0152	0158	0309	2+	3	1		1			0153	M2.4	5747
21	0333E	0337	0422	1-	1			1			No flare		
21	0516	0521	0530	1-	1			1			0512	C3.2	5753
21	0640	0703	0711D	2-	1			1			0640E	M1.9	
21	0738E	0749	0823D	3	5	1	1	1	1	2	No flare		
21	0823E	0829	1017	2	5	1		1	1	1	0818		5747
21	1257	1300	1300D	1-	3	1	1		1	1	1248	C4.5	5747
21	1310	1314	1325	1-	3	1	1		1	1	1310	C4.3	
21	1326	1330	1350	1-	5		2		1	1	1326		5754
21	1411	1420	1442	1-	5			1		2	No flare		
21	1452	1502	1527	1	5		2			2	1453		5747
21	1821	1829	1916	1+	5			1		7	1829	C2.6	5754
21	1917	1921	1949	1+	3					3	No flare		
21	2001	2010	2045	1	5			1		1	2000	C5.0	5747
21	2041	2044	2110	1+	1					1	2048	C2.5	5754
21	2201	2207	2239D	1-	5	1		1		1	2201	C6.4	5754
21	2239E	2245	2337	1-	1			1			2239		5747
21	2346	2358	0101D	3	5	1		1			2353	M3.1	5747
22	0102E	0107	0217	2	1			1			0102E		5754
22	0221	0224	0304	1-	1			1			0219	C4.1	5747
22	0309	0321	0454D	1+	1			1			0309	C6.1	5747
22	0454E	0506	0519D	1-	1			1			No flare		
22	0519E	0523	0543D	1	1			1			0520	C5.4	

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1989

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
22	0543E	0556	0616D	2-	1			1			0548	C5.9	
22	0616E	0627	0707D	2	1			1			0616	C7.2	5747
22	0707E	0716	0743	1-	1			1			0711		5754
22	0744	0758	0837	1	1		1				No flare		
22	0804	0813	0828	1-	5			1	1		0806		5747
22	0846	0856	0922	1	1		1				No flare		
22	1117	1129	1237	2	5	3	6	1	1	3	1115E	M1.5	
22	1250	1255	1317	1+	3					2	1244		5747
22	1309	1317	1322	1-	5	1	2		1	1	1306	C8.9	5754
22	1337	1348	1408	1-	5		4	1	1	2	1333E		5747
22	1414	1417	1431	1-	1					1	1411		5754
22	1515	1522	1533	1-	1					1	1513		5748
22	1551	1608	1652	1-	5		1	1		8	1554	M1.3	5747
22	1708	1737U	1807U	2+	1					1	1708	X2.9	5747
22	1742	1805	1850	2	5	1				7	1749		5754
22	1752	1837	2345	2	3	1				1	1753		5750
22	2041	2049	2133	1-	1			1			No flare		
22	2227	2229	2251	1-	1			1			No flare		
22	2256	2303	2318	1-	1			1			2301		5750
22	2322E	2330	0020	1-	1			1			2319		5747
23	0026	0031	0043	1-	1			1			No flare		
23	0049	0121	0144D	1	1			1			0059		5750
23	0144E	0158	0158D	2	1			1			0150		5747
23	0301E	0308	0322	1-	1			1			No flare		
23	0342	0359	0412D	2	3	1		1			0342	C7.3	5747
23	0412E	0427	0551D	2+	3	1		1			0411	M1.0	5747
23	0548	0559	0612D	1-	1			1			No flare		
23	0612E	0616	0631D	1-	1			1			0625		5748
23	0630	0634	0646	1-	1	1					0632		5747
23	0631E	0654	0715D	3	3	1		1			0632	M1.7	5747
23	0718E	0725	0823	2+	1			1			No flare		
23	0902	0913	0930D	1-	5			1	1		0857E	C5.5	5750
23	0930E	0939	1013	1-	5	1		1	1		0929E		5754
23	1105	1119	1155	1-	5			1	1		1055		5747
23	1237	1247	1448	3	5	4	4	1	1	8	1235	X1.5	5747
23	1402	1409	1445	2	1					1	1402		5747
23	1404	1427	1514	1+	3		2				1404		5747
23	1851	1855	1920	1+	3					2	1842	C4.9	5747
23	2015	2019	2034	1	1					1	No flare		
23	2110	2122	2157	1-	1			1			2100		5754
23	2215	2219	2247	1-	1			1			2215	C2.5	5747
23	2333	2344	2357D	1	1			1			2331	C4.7	5747
24	0118E	0125	0154D	1-	1			1			0117		5747
24	0154E	0158	0231	1-	1			1			0153	C4.0	5747
24	0251	0306	0341D	1-	1			1			0259	C3.5	5747
24	0338	0351	0418	1-	1			1			No flare		
24	0426	0439	0509D	1-	1			1			0421	C3.6	5748
24	0509E	0525	0539D	1	1			1			No flare		
24	0539E	0544	0638	1-	1			1			0540	C4.7	
24	0642	0653	0719	1-	1			1			0644	C3.8	5747
24	0719	0733	0801	1-	1			1			No flare		
24	0943	0956	1021	1-	5		1	1			No flare		
24	1054	1117	1156	1-	5		1	1		1	1118		5747
24	1356	1407	1435	1-	5			1		1	1355	C6.7	
24	1804	1804U	0043	3	3	1				8	No flare		
24	2307	2337	0025	1-	1			1			2257		5754
25	0052	0057	0134	1-	1			1			0051		5747
25	0459	0504	0545	1-	5			1		1	0459	M1.1	5747
25	0938	0941	1050	1+	1					1	*		
25	1636	1642	1812	1+	5			1		7	1637E	M8.7	5747
25	2236	2242	2335	1-	1			1			2235		5747
26	0056	0105	0222	1-	1			1			No flare		
26	1201	1207	1310	1-	5		1	1	1	3	1204	C4.9	5747
26	1725	1728	1736	1-	3					2	1724	C3.2	

* = No flare patrol.

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1989

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
26	2044	2050	2221	3-	5	1		1		6	2046	M8.1	5747
26	2321	2338	0157	3	3	2		1			2319	M4.1	
27	0217	0225	0253	1-	1			1			No flare		
27	0305	0318	0402	1-	1			1			*		
27	0418	0428	0513	1-	1			1			*		
27	0544	0548	0616	1-	1			1			*		
27	1046	1110	1130	1	3		2				*		
27	1124	1144	1239D	3	5	4	5	1	1	4	1131	M6.2	5747
27	1213	1222	1233	1	3	1				1	No flare		
27	1239E	1248	1456	2+	5		2	1	1	1	No flare		
27	1334	1336	1354	1	1		1				No flare		
27	1848	1850	1910	1	1					1	1901		5747
27	1856	1909	1957	2-	5	2		1		5	1901	X1.0	5747
27	2241	2247	2329	1-	1			1			No flare		
28	0335	0348	0411D	1-	1			1			No flare		
28	0411E	0449	0509D	2-	1			1			No flare		
28	0509E	0536	0843	3-	3	1		1			0510	M2.1	
28	0944	0946	1003	1	3		1			1	No flare		
28	1038	1042	1057	1	1		1				No flare		
28	1103	1108	1120D	1-	5			1		2	No flare		
28	1120E	1133	1343	3	5	3	5	1	1	2	1120	M1.6	
29	0224	0326	0347D	3	1			1			0221	M4.0	
29	0403E	0421	0836	3	5	1		1		1	No flare		
29	1915	1923	1955	1-	1			1			*		
29	2131	2203	0016	2	5	1		1		1	2129	M2.3	5769
30	0209	0219	0249	1-	1			1			0221		5769
30	0852	0855	0908	1-	1					1	No flare		
30	1014	1015	1022	1-	1					1	No flare		
30	1327	1350	1413	2+	1					1	1347	C3.0	
30	1945	1946	2030	2	1					1	No flare		
30	2107	2119	2155	1-	5	1		1		3	2110	C8.6	5769
30	2233	2242	2305	1-	1			1			No flare		
30	2341	2345	0016	1-	1			1			2341		5765
31	0051	0103	0134	1-	1			1			0058		5769
31	0219	0224	0251	1-	1			1			0219	C3.1	5769
31	0341	0343	0448	1	3	1		1			0339	C8.8	
31	0507	0540	0716	2	1			1			0511	M1.4	5769
31	0811	0818	0839	1+	3		1			1	No flare		
31	1010	1015	1040	1+	1					1	No flare		
31	1126	1128	1135	1-	1				1		1123	C5.7	5769
31	1557	1628	1744	1-	5			1		1	1613	M1.1	
31	1850	1902	1939	2	1					1	1855	C7.7	5769
31	2039	2047	2156	2-	5			1		2	2037	M1.9	

* = No flare patrol.

OBSERVATORIES REPORTING FOR OCTOBER 1989

Amherst, New Hampshire, USA	SES	Latrobe, Pennsylvania, USA	SES
Darmstadt, Fed Rep of Germany	SWF	Locust Grove, Georgia, USA	SES
Edenvale, Rep of S. Africa	SES	Maui, Hawaii, USA	SWF
Farsta, Sweden	SES	Nerja, Spain	SES
Gainesville, Florida, USA	SES	Panska Ves, Czechoslovakia	SES, SEA, SWF
Hiraiso, Japan	SWF	Paterson, New Jersey, USA	SES
Houston, Texas, USA	SES	Sofia, Bulgaria	SES
Hudson, Ohio, USA	SES	Somersworth, New Hampshire, USA	SES
Iruma, Japan	SPA	Uccle, Belgium	SEA
Johannesburg, Rep of S. Africa	SES	Upice, Czechoslovakia	SEA
Julisruh, German Dem Rep	SWF	Valley Cottage, New York, USA	SES
Kandilli, Turkey	SEA	Vlasim, Czechoslovakia	SEA
Kuhlungsborn, German Dem Rep	SEA, SPA		

Observations are not necessarily continuous.

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1989

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.																															
5708		1																													
5709				1																											
5712	2	1			1																										
5714			1	1	2																										
5715			1		1																										
5716			1																												
5721		1	3	4	3	3	3				2	2																			
5723														3	1																
5725									1	1	1																				
5726												1																			
5728									1						2																
5734									1																						
5735											1																				
5736											1					1															
5738													1																		
5740													1	3	1	1		1	1												
5744													1	1				1													
5747														2	3	2	2	6	4	6	7	8	12	5	4	2	3				
5748																1						1	1	1							
5750																						2	2								
5753																		2	1		1										
5754																				1	4	4	2	1							
5765																														1	
5769																													1	2	5

Number of events with X-Ray flares

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

Number of events with no flare reported

1	1	2		1	1	2	1	1	2	2		1		1	5	1	4	3	3	6	5	5	5		1	5	5	1	4	2

Number of events with no flare patrol

															2		2		1					1		4		1		

Total SID event

6	7	8	6	9	5	5	2	4	7	9	5	7	12	8	12	5	17	10	15	20	25	22	14	5	5	12	7	4	8	10

SOLAR RADIO EMISSION
Spectral Observations

OCTOBER 1989

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	0600	1640	WEIS										
			PALE				1944.0	1958.0	2				II
			SGMR				1944.0	1948.0	2				II
			SGMR				1957.0	1958.0	2				II
02			LEAR				0012.0	0013.0	2				III
			PALE				0013.0	0013.0	1				III
			LEAR				0014.0	0016.0	2				III
			PALE				0015.0	0016.0	2				III
			LEAR				0112.0	0113.0	2				III
			LEAR				0135.0	0141.0	2				III
			PALE				0135.0	0135.0	2				III
			LEAR				0201.0	0210.0	2				III
			PALE				0210.0	0210.0	1				III
			LEAR				0225.0	0226.0	3				III
			PALE				0225.0	0225.0	2				III
			LEAR				0425.0	0428.0	2				III
			LEAR				0511.0	0511.0	2				III
	0600	1145	WEIS										
	1152	1638	WEIS										
03			LEAR				0824.0	0844.0	1				CONT
			SVTO				0825.0	0857.0	1				CONT
	0601	1634	WEIS				0826.4	0827.1	1				RS
			LEAR				2332.0	2332.0	1				III
04			LEAR				0145.0	0146.0	2				III
			LEAR				0426.0	0429.0	2				III
			SVTO				0446.0	0447.0	3				III
			SVTO				0517.0	0518.0	2				III
			LEAR				0518.0	0527.0	2				II
			LEAR				0518.0	0527.0	2				III
			LEAR				0537.0	0547.0	2				III
			SVTO				0537.0	0538.0	2				III
			SVTO				0601.0	0601.0	2				III
			LEAR				0610.0	0611.0	1				III
	0603	1634	WEIS				0935.2	0939.7	2				IIIGG,RS
			LEAR				0937.0	0939.0	1				III
			SVTO				0937.0	0940.0	2				III
			WEIS				0941.7	0941.9	2				IIIG
			WEIS				0950.7	0951.1	2				IIIG
			WEIS				0955.8	1011.0	2				II HB
			LEAR				0956.0	1006.0	1				II
			SVTO				0956.0	1010.0	2				II
			WEIS				1058.1	1059.3	2				IIIG
			WEIS				1147.7	1148.4	1				IIIGG,Spikes
			SGMR				1251.0	1251.0	1				III
			WEIS				1251.2	1251.3	1				IIIB
			SGMR							1323.0	1323.0	1	III
			SGMR				1323.0	1323.0	1				III
			WEIS				1323.3	1323.4	2				IIIG
			SGMR				1345.0	1347.0	2				V
			SVTO				1345.0	1346.0	2				III
			WEIS				1345.7	1346.8	3				IIIG
			SGMR				1417.0	1421.0	2				V
			SVTO				1417.0	1418.0	2				III
			WEIS				1417.7	1418.5	3				IIIG
			SGMR				1515.0	1515.0	1				III
			WEIS				1515.0	1515.2	1				IIIB
			SGMR				1558.0	1559.0	2				V
			SVTO				1558.0	1558.0	1				III
			WEIS				1558.3	1559.0	3				IIIG
			SGMR				1625.0	1628.0	2				III
			WEIS				1625.4	1625.5	1				IIIB
			WEIS				1628.6	1629.3	2				IIIG
			SGMR				1754.0	2023.0	1				CONT
			SGMR				1919.0	1920.0	2				III
			SGMR				2001.0	2001.0	2				III
			LEAR				2310.0	2311.0	2				III

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05		LEAR				0058.0	0058.0	2				III
		LEAR				0117.0	0118.0	2				III
		LEAR				0151.0	0152.0	1				III
		LEAR				0203.0	0204.0	3				III
		LEAR				0434.0	0435.0	2				III
		LEAR				0600.0	0600.0	1				III
		LEAR				0718.0	0722.0	3				III
		SVTO				0718.0	0726.0	2				V
	0604	WEIS				0718.3	0722.2	2				IIIGG,Spikes,RS
		LEAR				0725.0	0726.0	2				III
		WEIS				0725.7	0726.4	2				IIIG
		LEAR				0829.0	0831.0	1				III
		LEAR				0906.0	0907.0	1				III
		SVTO				0906.0	0907.0	1				III
		WEIS				0906.6	0906.9	1				IIIG
		SVTO				1032.0	1039.0	2				III
		WEIS				1032.5	1032.7	3				IIIB
		WEIS				1038.2	1039.7	3				IIIGG
		WEIS				1041.1	1043.1	2				IIIG
		WEIS				1113.3	1113.5	1				IIIB
		SGMR				1151.0	1156.0	2				V
		SVTO				1151.0	1155.0	3				V
		WEIS				1151.7	1155.3	3				IIIGG
		SGMR				1216.0	1228.0	1				S
		WEIS				1221.1	1222.2	1				IIIG
		WEIS				1225.3	1225.4	1				IIIB
		SGMR				1332.0	1500.0	1				CONT
		WEIS				1332.1	1332.2	1				IIIB
		WEIS				1340.3	1345.0	1				IIIGG
		WEIS				1404.4	1404.7	1				IIIG
		WEIS				1423.7	1423.9	1				IIIB
		SGMR				1621.0	1621.0	2				III
		WEIS				1621.7	1621.8	2				IIIB
		SGMR				1645.0	2024.0	1				CONT
		LEAR				2316.0	2317.0	1				III
06		LEAR				0909.0	0910.0	1				III
		LEAR				0921.0	0930.0	1				III
	0606	WEIS				1105.2	1105.4	1				IIIB
		SGMR				1106.0	1106.0	1				III
		SVTO				1106.0	1107.0	2				III
		WEIS				1106.7	1107.6	3				IIIG
		WEIS				1123.2	1123.3	1				IIIB
		SGMR				1145.0	1146.0	2				III
		SVTO				1145.0	1146.0	3				III
		WEIS				1145.7	1146.4	3				IIIG
		WEIS				1218.6	1218.7	1				IIIB
		WEIS				1619.6	1620.9	2				IIIG
		LEAR				2215.0	2216.0	1				III
		PALE				2215.0	2216.0	1				III
07		LEAR				0238.0	0238.0	1				III
		SVTO				0554.0	0554.0	2				III
		LEAR				0610.0	0611.0	2				III
		LEAR				0807.0	0807.0	1				III
		SVTO				0807.0	0815.0	2				S
		SVTO				0927.0	0940.0	2				S
		LEAR				0928.0	0929.0	1				III
	0609	WEIS				1032.5	1032.8	1				IIIB
		WEIS	1034.1	1034.8	1							Cont
		WEIS				1047.4	1047.8	1				Spikes
		WEIS				1341.8	1341.9	2				IIIB
		SGMR				1425.0	1426.0	2				III
		SVTO				1425.0	1425.0	1				III
		WEIS				1425.4	1425.9	1				IIIG
		SGMR				1500.0	1503.0	1				III
		WEIS				1500.6	1500.7	2				IIIG
		WEIS				1503.1	1503.5	2				IIIG
		SGMR				1545.0	1547.0	2				V

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07		WEIS				1545.0	1545.3	2				IIIB
		WEIS				1546.6	1546.9	2				IIIG
		PALE				1715.0	1715.0	2				III
		SGMR				1715.0	1716.0	2				V
		PALE				1843.0	1843.0	1				III
		PALE				1921.0	1921.0	1				III
08		LEAR				0137.0	0144.0	2				III
		LEAR				0137.0	0144.0	3				V
		PALE				0139.0	0155.0	3				S
		LEAR				0144.0	0150.0	3				V
		LEAR				0150.0	0159.0	2				V
		LEAR				0521.0	0522.0	1				III
		LEAR				0839.0	0840.0	1				III
	0609	1625 WEIS				1240.8	1243.5	1				IIIG
		SGMR				1254.0	0000.0	1				CONT
		WEIS				1254.3	1254.5	1				IIIB
		WEIS				1256.6	1257.1	1				IIIG
		SGMR				1341.0	1345.0	1				V
		SVTO				1446.0	1455.0	2				III
		SVTO				1534.0	1540.0	2				III
		PALE				2041.0	2041.0	1				III
		LEAR				2218.0	1008.0	1				CONT
		PALE				2218.0	2228.0	2				S
09		PALE				0031.0	0031.0	1				III
		LEAR				0131.0	0132.0	3				III
		PALE				0131.0	0131.0	2				III
		LEAR				0439.0	0443.0	2				III
		SVTO				0536.0	0537.0	2				III
		SVTO				0926.0	0926.0	2				III
	0610	1120 WEIS				0926.0	0926.2	1				IIIB
		SVTO				1014.0	1017.0	2				V
		WEIS				1014.5	1016.6	3				IIIGG
		WEIS				1018.1	1018.2	1				IIIB
		SVTO				1225.0	1225.0	2				III
	1131	1622 WEIS				1225.3	1225.6	1				IIIG
		SVTO				1239.0	1240.0	2				III
		WEIS				1241.1	1241.3	1				IIIB
		SVTO				1304.0	1308.0	3				III
		SVTO				1335.0	1345.0	3				III
		SVTO				1354.0	1357.0	2				III
		SGMR				1632.0	1634.0	1				V
		SGMR				1647.0	2000.0	1				CONT
		PALE				1933.0	1934.0	1				III
		PALE				2112.0	2113.0	1				III
10		LEAR				0015.0	0016.0	1				III
		LEAR				0036.0	0036.0	1				III
		LEAR				0050.0	0051.0	1				III
		LEAR				0328.0	0329.0	2				III
		PALE				0328.0	0329.0	1				III
		LEAR				0400.0	0400.0	1				III
	0614	1621 WEIS				1328.9	1337.0	1				IIIGG
		SGMR				1330.0	1335.0	2				III
		SVTO				1330.0	1335.0	2				III
		WEIS				1336.9	1338.2	2	II		HB	
		SGMR				1353.0	1406.0	3				S
		SVTO				1353.0	1405.0	3				S
		WEIS				1353.2	1406.2	3				IIIGG
		SVTO				1405.0	1428.0	2				CONT
		WEIS				1414.8	1422.6	2				I
		SGMR				1415.0	0000.0	1				CONT
		WEIS				1603.2	1606.2	2				IIIG
		LEAR				2317.0	2317.0	1				III
		LEAR				2330.0	2336.0	2				III
		LEAR				2353.0	0000.0	2				III
11		LEAR				0028.0	0030.0	1				III

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11			LEAR				0107.0	0111.0	3				III
			LEAR				0132.0	0140.0	3				III
			LEAR				0153.0	0202.0	3				III
			LEAR				0220.0	0235.0	3				S
			LEAR				0301.0	0326.0	3				S
			PALE				0319.0	0325.0	2				III
			LEAR				0410.0	0411.0	1				III
			LEAR				0432.0	0434.0	2				III
			LEAR				0440.0	0441.0	1				III
			LEAR				0510.0	0515.0	1				III
			LEAR				0544.0	0548.0	2				III
			SVTO				0547.0	0548.0	1				III
			LEAR				0616.0	0629.0	2				S
			SVTO				0621.0	0627.0	2				III
	0613	1114	WEIS				0621.0	0623.7	1				IIIGG
			WEIS				0625.4	0626.3	1				IIIG
			LEAR				0649.0	0653.0	2				III
			SVTO				0652.0	0653.0	2				III
			WEIS				0652.8	0653.1	2				IIIB,U
			LEAR				0703.0	0709.0	3				III
			WEIS				0708.7	0709.2	2				IIIG
			SVTO				0709.0	0709.0	2				III
			WEIS				0714.3	0714.5	1				IIIG
			SGMR				1207.0	1207.0	1				III
			SVTO				1207.0	1207.0	1				III
	1121	1619	WEIS				1207.2	1207.5	2				IIIB
			WEIS				1211.9	1212.9	1				IIIG
			SGMR				1235.0	1235.0	1				III
			WEIS				1235.7	1235.8	1				IIIG
			SGMR				1358.0	1359.0	1				III
			WEIS				1358.8	1400.0	1				IIIG
			WEIS				1445.1	1445.6	1				IIIG
			WEIS				1543.3	1543.8	1				IIIG,Spikes
			SGMR				1544.0	1545.0	2				III
			WEIS				1544.7	1546.2	2				IIIGG
			WEIS				1615.8	1615.9	1				IIIB
			WEIS				1617.2	1617.5	1				IIIG
			PALE				1714.0	1714.0	1				III
			PALE				2056.0	2057.0	2				V
			LEAR				2229.0	2237.0	2				III
			LEAR				2317.0	2317.0	1				III
			LEAR				2330.0	2336.0	2				III
			LEAR				2353.0	0000.0	2				III
12			LEAR				0059.0	0059.0	1				III
			LEAR				0111.0	0112.0	2				III
			LEAR				0211.0	0212.0	3				III
			PALE				0211.0	0212.0	2				V
			LEAR				0322.0	0322.0	1				III
			LEAR				0721.0	0723.0	1				III
			LEAR				0747.0	0751.0	1				III
			LEAR				0757.0	0758.0	2				III
	0615	1616	WEIS				0757.7	0758.2	2				IIIG
			SVTO				0758.0	0758.0	2				III
			LEAR				0848.0	0849.0	1				III
			SVTO				0848.0	0857.0	2				III
			WEIS				0848.6	0849.0	2				IIIG
			LEAR				0856.0	0859.0	2				III
			WEIS				0856.5	0858.0	2				IIIG
			LEAR				0929.0	0932.0	1				III
			SVTO				0930.0	0932.0	2				III
			WEIS				0930.9	0933.3	2				IIIGG,Spikes
			WEIS				1004.2	1004.3	1				IIIB
			WEIS				1018.1	1018.3	1				IIIB
			WEIS				1040.1	1043.3	1				Spikes
			WEIS				1056.7	1056.8	1				IIIB
			WEIS				1113.9	1115.1	1				IIIG
			WEIS				1145.4	1145.7	1				IIIB
			WEIS				1156.3	1156.7	2				IIIB

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12		SGMR				1328.0	1329.0	1				III
		WEIS				1328.7	1329.5	1				IIIG
		WEIS				1556.0	1556.2	1				IIIB
		SGMR				1641.0	1643.0	2				V
		PALE				1718.0	1718.0	2				III
		SGMR				1718.0	1719.0	3				III
		SGMR				1728.0	1730.0	3				III
		PALE				1729.0	1729.0	2				III
		PALE				1754.0	1754.0	2				III
		SGMR				1754.0	1754.0	2				III
		LEAR				2230.0	0315.0	1				CONT
		LEAR				2325.0	2326.0	2				III
13		LEAR				0119.0	0135.0	3				S
		PALE				0119.0	0134.0	2				S
		LEAR				0233.0	0234.0	2				III
		LEAR				0436.0	0900.0	1				CONT
		LEAR				0631.0	0636.0	2				III
		SVTO				0631.0	0636.0	2				III
	0618 1117	WEIS				0631.2	0632.2	2				IIIG
		WEIS				0635.9	0636.3	2				IIIB
		WEIS				0900.1	0900.3	1				IIIB
		SGMR				1123.0	1129.0	1				III
		SVTO				1123.0	1129.0	2				V
	1127 1615	WEIS				1127.7	1127.9	1				DCIM
		WEIS				1127.8	1131.3	3				IIIG
		WEIS				1158.7	1159.1	1				IIIB
		SGMR				1443.0	1443.0	1				III
		SVTO				1443.0	1443.0	2				III
		WEIS				1443.0	1443.5	3				IIIG
		SGMR				1607.0	1607.0	1				III
		PALE				1951.0	1951.0	1				III
		PALE				2100.0	2101.0	1				V
14		LEAR				0012.0	0015.0	3				III
		LEAR				0022.0	0028.0	2				III
		LEAR				0034.0	0034.0	1				III
		LEAR				0141.0	0149.0	1				III
		LEAR				0200.0	0200.0	1				III
		LEAR				0224.0	0230.0	2				III
		LEAR				0257.0	0257.0	1				III
		LEAR				0458.0	0512.0	3				S
		SVTO				0509.0	0510.0	3				III
		LEAR				0540.0	0541.0	1				III
		LEAR				0658.0	0701.0	3				III
	0618 1613	WEIS				0658.8	0700.3	3				IIIGG
		SVTO				0659.0	0700.0	3				III
		WEIS				0711.3	0711.5	2				IIIG
		WEIS				0714.2	0715.3	2				IIIG
		SVTO				0715.0	0725.0	2				III
		LEAR				0746.0	0747.0	2				III
		WEIS				0746.0	1603.0					IIIS
		LEAR				0748.0	0758.0	3				V
		SVTO				0749.0	0754.0	3				V
		WEIS				0749.2	0751.9	3				IIIGG
		LEAR				0804.0	0809.0	2				III
		SVTO				0804.0	0809.0	2				III
		WEIS				0806.7	0809.2	3				IIIGG
		WEIS				0834.7	0839.8	2				IIIGG,Spikes
		LEAR				0837.0	0842.0	1				III
		SVTO				0839.0	0840.0	1				III
		WEIS				0841.2	0842.0	2				Spikes,DCIM
		LEAR				0854.0	0857.0	2				III
		SVTO				0854.0	0857.0	2				V
		SVTO				0949.0	0950.0	2				III
		LEAR				0950.0	0950.0	1				III
		WEIS				0957.0	1602.0	1				IN
		SVTO				1038.0	1041.0	2				III
		SGMR				1101.0	1101.0	1				III

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14		SVTO				1101.0	1101.0	2				III
		WEIS				1101.3	1101.6	2				IIIG,U
		WEIS				1108.7	1109.3	2				Spikes,DCIM
		SVTO				1111.0	1112.0	2				V
		WEIS				1111.1	1112.3	3				IIIG,Spikes,DCIM
		WEIS				1111.2	1113.2	2				IIIG,U
		SGMR				1112.0	1113.0	1				III
		SGMR				1131.0	1133.0	1				III
		SVTO				1131.0	1133.0	2				III
		SGMR				1154.0	1159.0	2				III
		SVTO				1159.0	1159.0	2				JII
		SGMR				1220.0	1236.0	2				S
		SVTO				1220.0	1221.0	3				V
		WEIS				1220.3	1221.7	3				IIIG
		SVTO				1229.0	1230.0	2				III
		SGMR				1237.0	1239.0	3				V
		SVTO				1237.0	1239.0	3				V
		SGMR				1305.0	1308.0	2				III
		SVTO				1305.0	1308.0	2				III
		WEIS				1305.3	1308.3	3				IIIGG,Spikes
		SGMR				1311.0	1832.0	1				CONT
		SVTO				1339.0	1346.0	1				III
		SVTO				1432.0	1433.0	1				III
		WEIS				1449.6	1451.3	2				IIIG,Spikes,DCIM
		SVTO				1450.0	1451.0	1				III
		SVTO				1512.0	1512.0	2				III
		SGMR				1750.0	1753.0	3				V
		LEAR				2229.0	2232.0	1				III
		LEAR				2312.0	0400.0	2				CONT
		LEAR				2334.0	2340.0	1				II
		LEAR				2336.0	2338.0	2				III
		LEAR				2354.0	2357.0	1				III
15		LEAR				0102.0	0105.0	3				III
		LEAR				0246.0	0251.0	3				III
		LEAR				0310.0	0310.0	2				III
		LEAR				0314.0	0319.0	3				III
		LEAR				0515.0	0522.0	2				V
		LEAR				0647.0	0647.0	1				III
		LEAR				0700.0	0703.0	2				III
		LEAR				0713.0	0716.0	3				III
	0619 1610	WEIS				0713.7	0714.7	2				IIIG
		SVTO				0714.0	0716.0	2				V
		SGMR				1103.0	2100.0	1				CONT
		WEIS				1103.7	1104.2	2				IIIG
		SVTO				1104.0	1104.0	2				III
		WEIS				1119.7	1121.3	3				IIIG
		SVTO				1120.0	1121.0	2				III
		WEIS				1124.3	1126.2	2				IIIG
		WEIS				1215.9	1216.2	2				IIIG
		SVTO				1235.0	1244.0	3				V
		WEIS				1235.5	1236.3	2				IIIG
		SGMR				1240.0	1243.0	3				V
		WEIS				1240.3	1244.2	3				IIIG/V
		WEIS				1346.3	1354.7	2				IIIG,U
		WEIS				1405.4	1406.2	1				IIIG
		SGMR				1409.0	1410.0	2				III
		SVTO				1409.0	1409.0	2				III
		WEIS				1409.1	1409.7	3				IIIG
16		LEAR				0244.0	0246.0	1				III
		LEAR				0401.0	0422.0	3				III
		LEAR				0418.0	0422.0	3				III
		LEAR				0653.0	0654.0	2				III
		LEAR				0654.0	0755.0	1				CONT
	0623 1610	WEIS				1054.1	1055.3	2				IIIG
		WEIS				1253.7	1259.2	2				IIIG
		SGMR				1254.0	0000.0	1				CONT
		SGMR				1350.0	1351.0	2				V

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

OCTOBER 1989

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
16			WEIS				1351.1	1351.3	2				IIIG
			WEIS				1413.1	1413.2	1				IIIB
17			LEAR				0736.0	0736.0	2				III
	0623	0809	WEIS				0736.5	0736.6	1				IIIB
			LEAR				0800.0	0815.0	1				S
			LEAR				0824.0	1010.0	2				CONT
			LEAR				0847.0	0848.0	2				III
	0815	1608	WEIS				0847.0	1120.0	2				IIIN,Cont
			SVTO				0857.0	0918.0	1				CONT
			SVTO				0918.0	1439.0	2				CONT
			WEIS				0925.0	1127.0	2				I
			SGMR				1120.0	1827.0	1				CONT
			LEAR				2356.0	1011.0	3				CONT
18			LEAR				0020.0	0026.0	3				V
			SVTO				0524.0	0529.0	2				MWB
			SVTO				0602.0	1423.0	2				CONT
	0624	1604	WEIS				0630.0	1555.0	2				IS
			WEIS				0705.0	0708.2	2				II
			WEIS				0708.2	0708.8	3				IIIB
			WEIS				0847.9	0848.2	2				IIIG
			WEIS				0852.7	0852.9	2				IIIG
			WEIS				0907.6	0909.1	2				IIIG
			SGMR				1139.0	0000.0	1				CONT
			SGMR				1653.0	1655.0	2				V
			SGMR				1807.0	1807.0	2				III
			LEAR				2206.0	0135.0	1				CONT
19			LEAR				0206.0	0210.0	2				III
			LEAR				0437.0	0442.0	1				III
			LEAR				0723.0	0724.0	1				III
			LEAR				0753.0	0754.0	1				III
			LEAR				0813.0	0820.0	3				III
	0627	0818	WEIS				0813.1	0819.8	3				IIIGG
			SVTO				0814.0	0831.0	2				S
			LEAR				0820.0	1011.0	2				CONT
	0853	1606	WEIS				0823.0	1235.0	2				IN
			SVTO				0833.0	1542.0	2				CONT
			WEIS				0841.3	0841.5	2				IIIB
			WEIS				0844.0	1026.0	3				Cont
			WEIS				1006.0	1151.0	1				Cont
			SGMR				1116.0	2133.0	1				CONT
			WEIS				1124.2	1124.5	1				IIIG
			WEIS				1137.1	1137.2	1				IIIB
			WEIS				1145.9	1146.0	1				IIIB
			WEIS				1241.6	1248.9	2				Spikes,DCIM
			WEIS				1243.6	1244.3	2				IIIG
			SGMR				1245.0	1310.0	3				IV
			WEIS				1245.9	1311.0	3				IV
			SVTO				1246.0	1249.0	2				V
			WEIS				1246.7	1251.2	3				IIIGG,RS
			SVTO				1249.0	1253.0	3				II
			WEIS				1250.6	1313.0	3				II H,HB
			WEIS				1250.7	1307.3	3				Spikes,RS
			WEIS				1325.0	1601.0	2				I
			WEIS				1331.0	1332.1	2				IIIG
			WEIS				1335.0	1452.0	2				IV P
			WEIS				1433.0	1512.0	3				Spikes,DCIM
			SGMR				1754.0	1756.0	2				III
			LEAR				2339.0	0131.0	1				CONT
20			LEAR				0237.0	0240.0	3				III
			LEAR				0357.0	0359.0	1				III
			LEAR				0612.0	0613.0	2				III
			LEAR				0703.0	0704.0	1				III
			SVTO				1114.0	1115.0	1				III
	0627	1602	WEIS				1144.4	1145.6	2				IIIB
			SGMR				1145.0	1945.0	1				CONT

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OCTOBER 1989

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
Day 20												
		WEIS				1335.4	1336.5	2				IIIG
		SVTO				1336.0	1336.0	1				III
Day 21												
		LEAR				0114.0	0123.0	3				III
		PALE				0114.0	0115.0	2				V
		LEAR				0257.0	0623.0	1				CONT
		LEAR				0330.0	0337.0	3				III
0629	0940	WEIS				0640.9	0643.4	3				IIIG
		LEAR				0641.0	0655.0	3				S
		SVTO				0641.0	0643.0	2				V
		WEIS				0645.7	0646.1	1				IIIG
		WEIS				0648.4	0651.1	3				IIIG
		SVTO				0649.0	0654.0	2				III
		WEIS				0654.2	0655.4	2				IIIG
		LEAR				0807.0	1012.0	1				CONT
1014	1559	WEIS				1016.3	1016.6	2				IIIB
		WEIS				1057.4	1058.6	2				IIIG
		WEIS				1101.6	1102.4	3				IIIG
		WEIS				1124.9	1126.0	2				IIIG
		SGMR				1133.0	1134.0	2				III
		SVTO				1133.0	1134.0	2				III
		WEIS				1133.6	1134.1	3				IIIG
		SGMR				1246.0	1246.0	1				III
		WEIS				1246.7	1246.8	1				IIIB
		SGMR				1309.0	1310.0	2				V
		WEIS				1309.1	1310.4	2				IIIG
		SVTO				1310.0	1310.0	2				III
		SGMR				1354.0	1356.0	1				V
		WEIS				1354.8	1355.0	2				U
		SGMR				1512.0	1513.0	1				III
		SGMR				1540.0	1545.0	1				III
		SGMR				1808.0	1808.0	1				III
Day 22												
		LEAR				0148.0	0149.0	1				III
		LEAR				0219.0	0223.0	2				III
		LEAR				0238.0	0239.0	1				III
		LEAR				0328.0	0332.0	1				III
0632	1558	WEIS				1029.7	1030.0	3				IIIG
		SVTO				1323.0	1323.0	2				III
		SGMR				1342.0	1343.0	1				III
		SGMR				1742.0	1743.0	1				III
		SGMR				1744.0	1842.0	3				IV
		PALE				1745.0	1759.0	3				II
		PALE				1745.0	1830.0	3				IV
		SGMR				1746.0	1756.0	3				II
Day 23												
		LEAR				0054.0	0112.0	2				S
		LEAR				0143.0	0144.0	2				III
0632	1136	WEIS				1009.7	1009.8	2				IIIB
1219	1556	WEIS										
		SGMR				1425.0	1730.0	1				CONT
Day 24												
		LEAR				0153.0	0154.0	1				III
		LEAR				0726.0	0727.0	2				III
0633	1553	WEIS				0726.1	0726.9	1				IIIG
		LEAR				0836.0	0839.0	1				III
		LEAR				0844.0	0847.0	1				III
		WEIS				1056.1	1100.7	3				IIIGG,Spikes
		SGMR				1613.0	1617.0	2				V
		PALE				1740.0	1744.0	2				V
		SGMR				1740.0	1744.0	2				V
		SGMR				1800.0	1801.0	1				II
		SGMR				1801.0	1816.0	3				IV
		PALE				1802.0	1810.0	3				V
		PALE				1806.0	1810.0	3				II
		SGMR				1816.0	2030.0	1				CONT
		PALE				1832.0	1840.0	3				V
		PALE				1836.0	1840.0	3				II
		PALE				1838.0	1839.0	2				III

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

OCTOBER 1989

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
24			LEAR				2240.0	2243.0	2				III
			PALE				2240.0	2241.0	1				III
			LEAR				2251.0	2251.0	1				III
25			LEAR				0645.0	0646.0	1				III
			LEAR				0808.0	0809.0	2				III
	0637	1354	WEIS				0808.9	0809.1	1				IIIG
			SVTO				0809.0	0809.0	2				III
			WEIS				1010.9	1011.3	2				IIIG
	1402	1553	WEIS										
			PALE				2001.0	2001.0	2				III
			SGMR				2001.0	2001.0	1				III
26			LEAR				0251.0	0252.0	2				III
			LEAR				0547.0	0547.0	2				III
	0637	1551	WEIS										
			LEAR				0805.0	0808.0	1				III
			LEAR				2320.0	2321.0	1				III
			LEAR				2323.0	2331.0	2				II
			PALE				2326.0	2331.0	1				II
			LEAR				2331.0	0005.0	1				IV
27			LEAR				0359.0	0400.0	1				III
			LEAR				0439.0	0441.0	1				III
			SGMR				1352.0	1353.0	2				V
	0638	1529	WEIS				1352.6	1353.2	2				IIIG
			SVTO				1353.0	1353.0	2				III
			SGMR				1719.0	1720.0	1				III
			LEAR				2342.0	2343.0	2				III
28			LEAR				0522.0	0535.0	1				S
			LEAR				0547.0	0643.0	1				CONT
	0658	1547	WEIS				1121.8	1124.2	3				DCIM,Spikes
			WEIS	1412.7	1413.7	1							Spikes
			WEIS	1417.7	1418.0	1							DCIM
			SGMR				1956.0	1956.0	2				III
29			LEAR				0302.0	0313.0	2				II
			PALE				0302.0	0304.0	1				II
			LEAR				0313.0	0316.0	2				III
			LEAR				0316.0	0432.0	3				IV
			LEAR				0501.0	0503.0	2				III
			LEAR				0919.0	0929.0	1				III
	0642	1546	WEIS				0924.8	0924.9	1				IIIB
			WEIS				0926.8	0928.0	2				IIIG
			SVTO				0927.0	0927.0	2				III
			WEIS				1147.6	1147.9	1				IIIG
			SGMR				1410.0	1412.0	1				III
			SGMR				1442.0	1442.0	1				III
30			PALE				0030.0	0031.0	2				V
			LEAR				0839.0	0839.0	1				III
			SVTO				0839.0	0839.0	1				III
	0644	1542	WEIS				0839.2	0839.3	1				IIIB
			WEIS				1113.1	1113.9	1				IIIG
			SGMR				1402.0	1404.0	1				III
			WEIS				1402.2	1403.3	1				IIIG
			SVTO				1404.0	1404.0	1				III
			PALE				2159.0	2159.0	1				III
			LEAR				2223.0	2223.0	1				III
			PALE				2223.0	2223.0	1				III
			LEAR				2253.0	2256.0	2				III
			LEAR				2300.0	2301.0	3				III
			PALE				2300.0	2301.0	3				III
			LEAR				2309.0	2311.0	2				III
			LEAR				2329.0	2342.0	3				S
			PALE				2329.0	2329.0	2				III
			PALE				2337.0	2342.0	3				V

S O L A R R A D I O E M I S S I O N
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OCTOBER 1989

Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
31		LEAR				0000.0	0007.0	3				III
		PALE				0000.0	0000.0	2				V
		PALE				0006.0	0007.0	2				V
		LEAR				0017.0	0020.0	3				III
		PALE				0017.0	0018.0	1				III
		LEAR				0023.0	0030.0	2				III
		PALE				0023.0	0035.0	1				S
		LEAR				0033.0	0035.0	3				III
		LEAR				0100.0	0110.0	3				III
		PALE				0100.0	0100.0	2				V
		LEAR				0117.0	0120.0	1				III
		LEAR				0157.0	0159.0	3				III
		PALE				0157.0	0157.0	2				III
		LEAR				0214.0	0225.0	3				S
		PALE				0218.0	0220.0	2				V
		LEAR				0248.0	0253.0	1				III
		LEAR				0308.0	0314.0	2				III
		LEAR				0322.0	0328.0	3				III
		PALE				0322.0	0322.0	1				III
		LEAR				0340.0	0343.0	3				III
		PALE				0340.0	0341.0	3				V
		LEAR				0401.0	0406.0	3				III
		LEAR				0431.0	0438.0	1				III
		SVTO				0653.0	0654.0	1				III
		SVTO				0707.0	0714.0	2				III
0647	1542	WEIS				0713.4	0714.3	3				IIIG
		LEAR				0722.0	0723.0	3				III
		WEIS				0722.7	0722.9	3				IIIB
		SVTO				0723.0	0723.0	2				III
		LEAR				0752.0	0753.0	1				III
		LEAR				0811.0	0813.0	2				III
		WEIS				0811.9	0814.2	3				IIIG
		SVTO				0813.0	0813.0	2				III
		LEAR				0907.0	0909.0	1				III
		WEIS				1054.7	1054.8	1				IIIB
		WEIS				1057.8	1057.9	2				IIIB
		SVTO				1100.0	1102.0	2				III
		WEIS				1100.2	1111.9	3				IIIGG
		SVTO				1102.0	1107.0	2				V
		SVTO				1107.0	1110.0	2				II
		SGMR				1123.0	1127.0	1				II
		WEIS				1123.9	1127.1	3				IIIGG
		SVTO				1124.0	1127.0	3				III
		WEIS				1130.2	1130.3	1				IIIB
		SGMR				1150.0	1157.0	1				III
		WEIS				1150.8	1151.1	1				IIIB
		SVTO				1151.0	1157.0	2				III
		WEIS				1157.1	1157.7	3				IIIG
		SGMR				1424.0	1424.0	1				III
		WEIS				1424.5	1424.7	2				IIIG
		SGMR				1610.0	1615.0	1				S
		SGMR				1708.0	1715.0	2				S
		PALE				1714.0	1714.0	1				III
		PALE				1757.0	1758.0	2				III
		SGMR				1757.0	1758.0	2				III
		PALE				1854.0	1904.0	3				S
		PALE				2016.0	2016.0	1				III
		PALE				2034.0	2035.0	1				III
		PALE				2038.0	2041.0	3				V
		SGMR				2039.0	2045.0	2				III
		LEAR				2224.0	2225.0	1				III
		LEAR				2244.0	2244.0	1				III
		LEAR				2313.0	2314.0	2				III
		PALE				2313.0	2313.0	1				III
		LEAR				2329.0	2342.0	3				S
		LEAR				2331.0	2336.0	3				III
		PALE							2331.0	2333.0	1	V
		LEAR				2348.0	2349.0	1				III

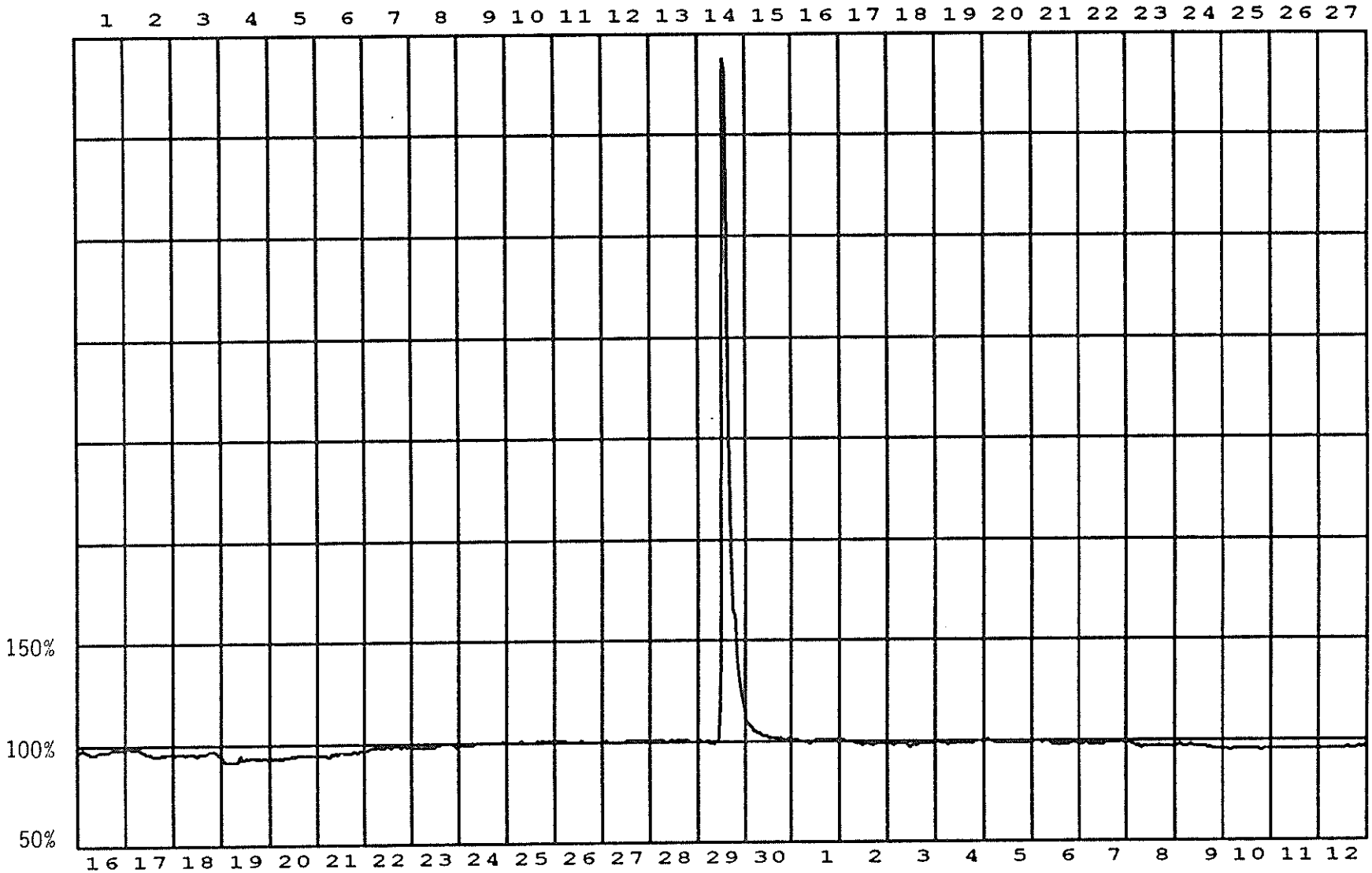
C O S M I C R A Y I N D I C E S
(Neutron Monitor)

OCTOBER 1989

Day	THULE Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	3909	6117.8	5493.2	3517.1	3440.1	
2	3856	6022.7	5425.1	3464.7	3409.4	
3	3837	6027.8	5420.4	3451.4	3399.7	
4	3852	6081.1	5422.7	3476.4	3415.7	
5	3854	6049.2	5411.1	3463.5	3400.3	
6	3840	5976.2	5371.7	3419.5	3380.2	
7	3831	5998.8	5397.1	3420.1	3381.2	
8	3775	5937.6	5319.7	3379.5	3383.4	
9	3752	5912.8	5292.1	3348.0	3371.9	
10	3709	5881.4	5268.4	---	3370.7	
11	3721	5872.2	5271.4	---	3369.8	
12	3730	5857.8	5270.2	---	3364.6	
13	3726	5823.6	5243.3	3305.1	3363.9	
14	3728	5888.0	5279.7	3333.5	3374.7	
15	3694	5838.5	5235.3	3314.5	3378.5	
16	3704	5833.0	5238.6	3327.1	3379.9	
17	3700	5854.7	5235.8	3327.8	3393.0	
18	3689	5866.7	5250.1	3327.3	3390.7	
19	4142	6538.8	5476.0	3471.5	3383.3	
20	3809	6006.3	5199.1	3283.3	3365.0	
21	3311	5234.1	4655.8	2913.6	3216.1	
22	3546	5574.6	4930.1	3072.6	3287.5	
23	3619	5702.4	5053.7	3190.8	3349.5	
24	4141	6427.2	5388.0	3364.0	3310.1	
25	3866	6107.4	5112.9	3186.3	3300.4	
26	3580	5590.0	5028.8	3129.4	3302.2	
27	3479	5511.5	4944.8	3092.1	3291.7	
28	3495	5531.5	4959.1	3105.3	3295.0	
29	3584	5648.8	5066.1	3212.0	3342.7	
30	3685	5804.6	5197.6	3318.7	3387.4	
31	3694	5812.6	5221.4	3300.0	3382.1	
Mean	3737	5881.6	5228.4	3304.2	3360.6	

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

THULE NEUTRON MONITOR



BARTELS ROTATION 2133

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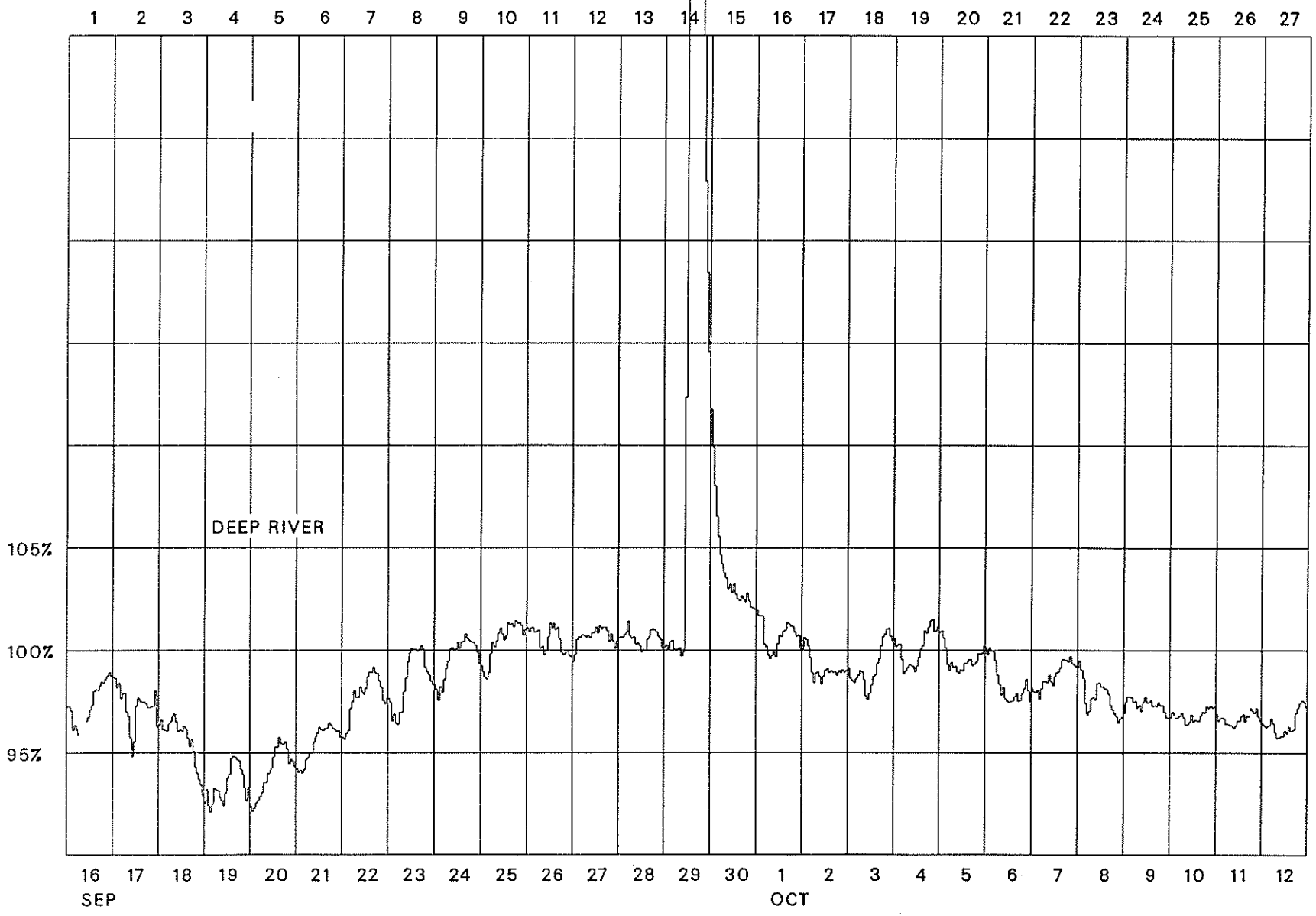
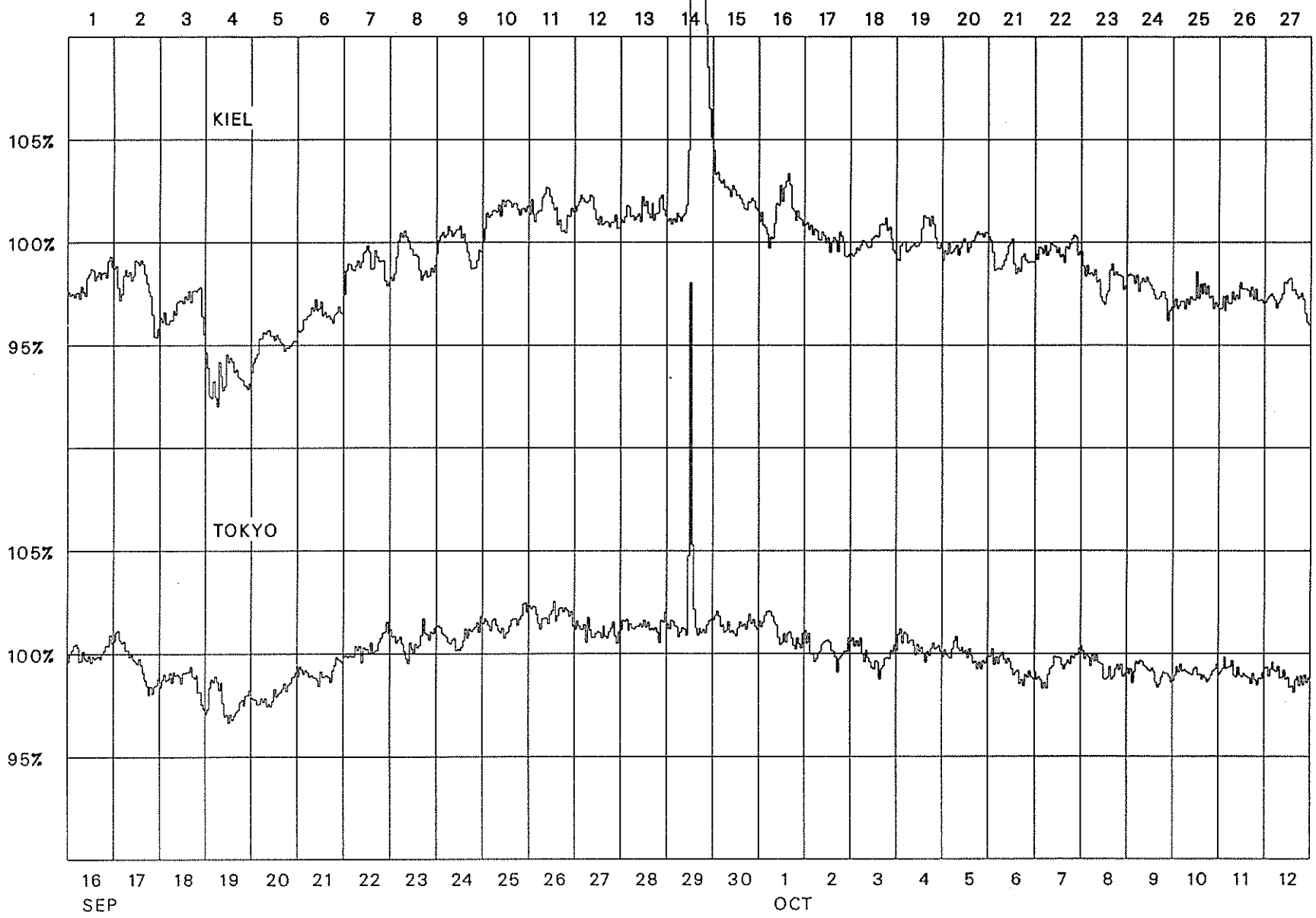
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2133 (September 1989-October 1989)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2133 (September 1989-October 1989)



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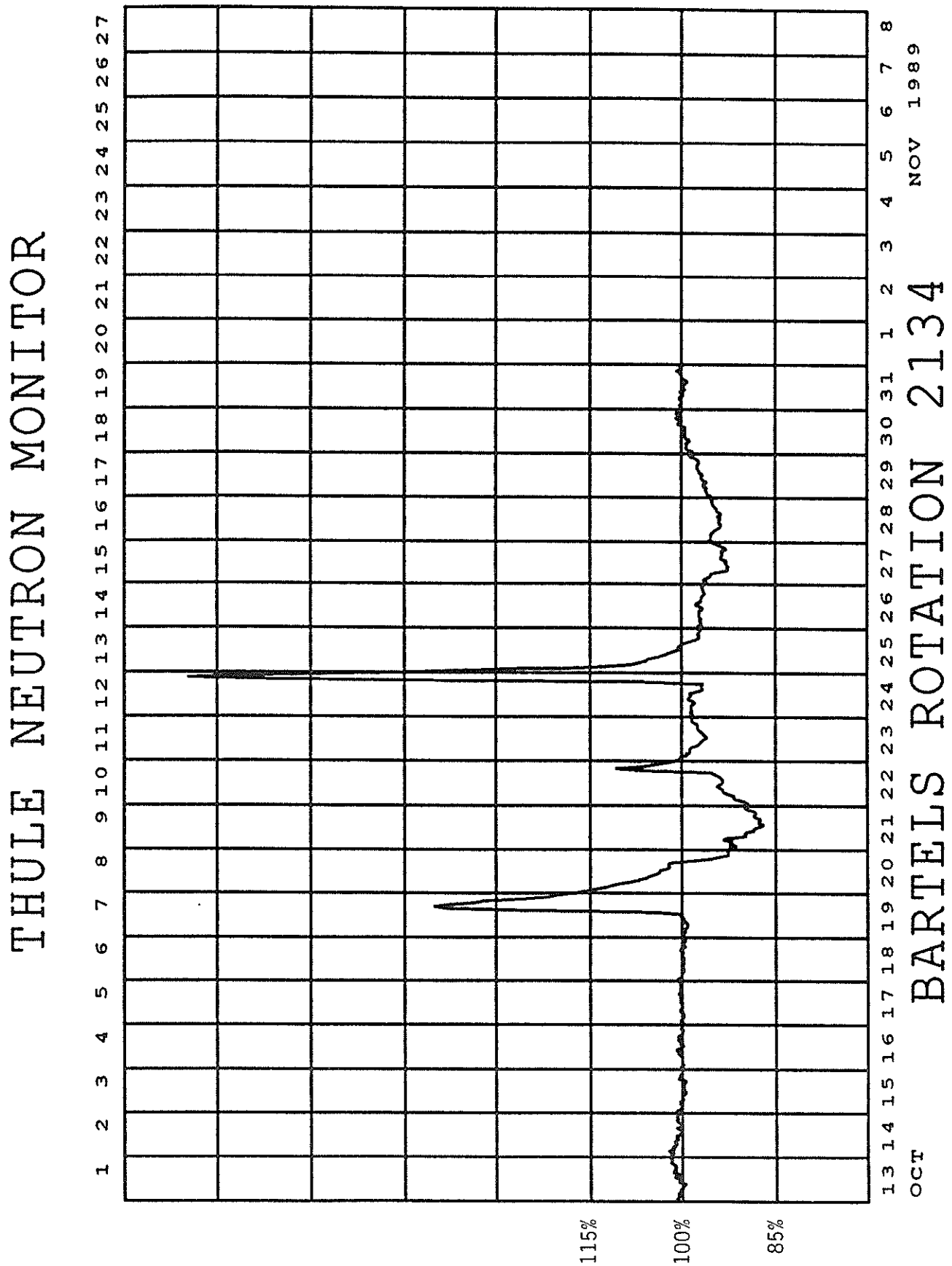
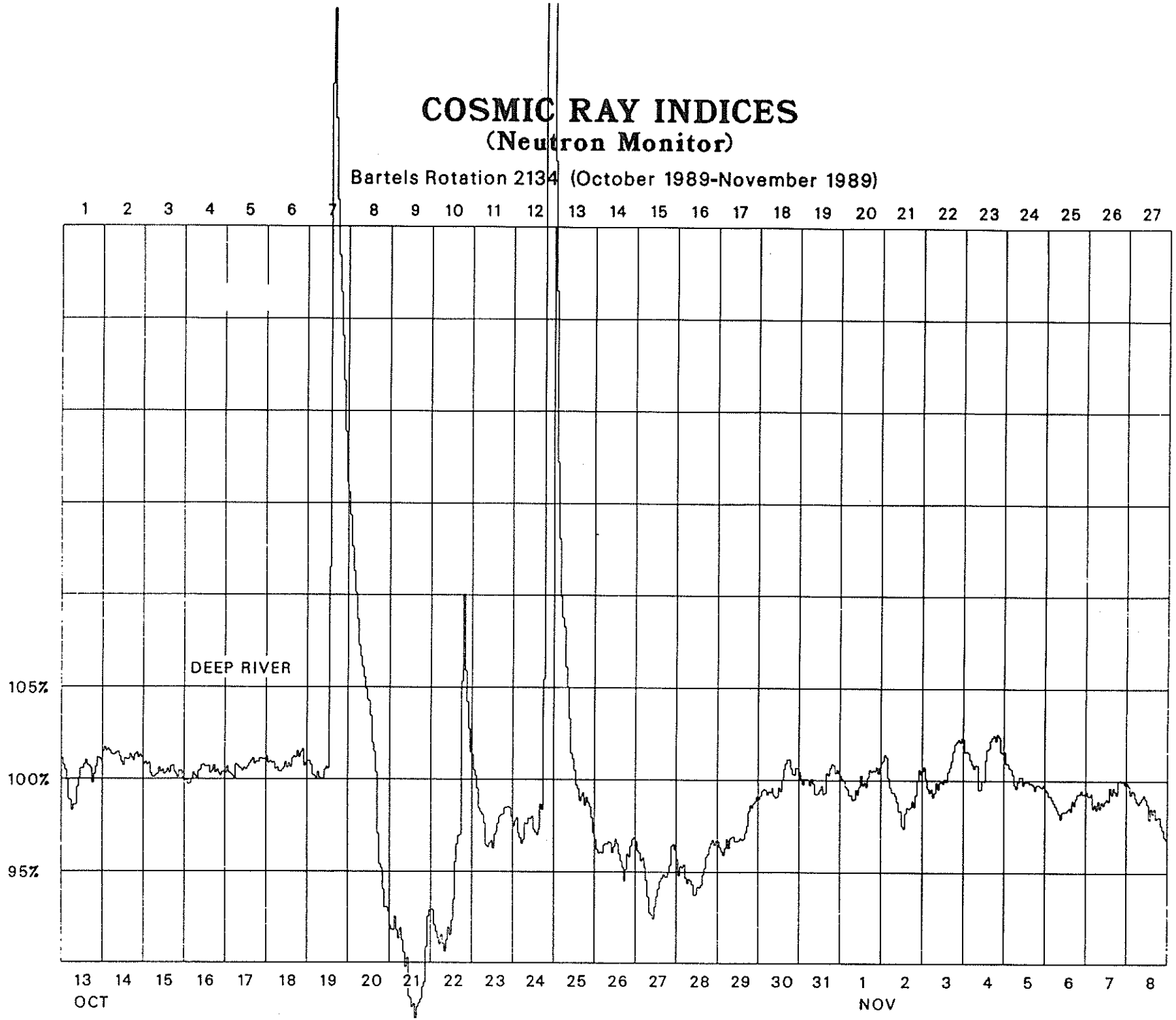
Oct 89

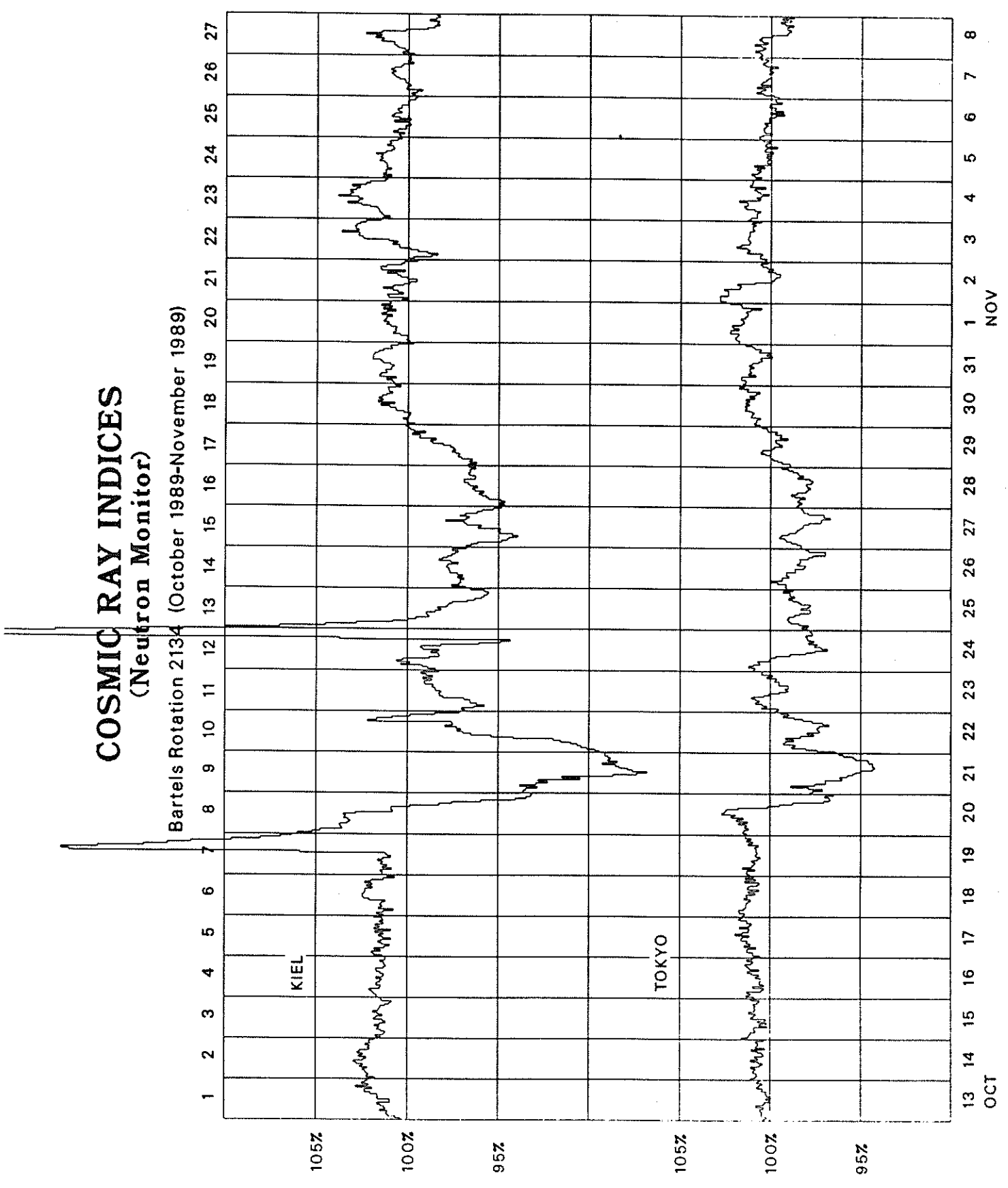

THULE NEUTRON MONITOR
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
115%
100%
85%
13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8
OCT
NOV 1989
BARTELS ROTATION 2134

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2134 (October 1989-November 1989)



145
Oct 89


COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2134 (October 1989-November 1989)
KIEL
TOKYO
105%
100%
95%
105%
100%
95%
13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8
OCT
NOV

GEOMAGNETIC ACTIVITY INDICES

October 1989

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+	3+	3+	2+	3-	3+	2	2-	22	13	0.8												
2	Q9A	1+	4-	3-	2	2	2+	2-	1	17-	9	0.5												
3		1-	1	2	3-	4-	3+	4-	2+	19+	12	0.7												
4	Q5	2	2	1	1-	2	2+	1	2	13	6	0.3												
5	Q4	2+	1	0	1	2	1	1	2-	10	5	0.2												
6	Q10A	2	1	2	3-	3-	3	2+	3	19-	10	0.6												
7		3+	3+	2	1+	3-	2+	3-	3+	21	12	0.7												
8	Q8A	3-	3-	2+	2-	2	1+	1	3	17-	9	0.5												
9	Q2A	3+	4-	2+	2-	2	1+	2	3	19+	11	0.6												
10	Q6A	3-	3	3-	2+	3-	3+	2	2	21-	12	0.7												
11	Q6A	2+	3-	3-	2	2-	2-	1-	1	15-	7	0.4												
12	Q7A	1+	3-	2+	2	2	2	2	2	16+	8	0.4												
13	Q2	2-	0+	0	0	0	0	0	0	2	1	0.0												
14	Q1	0	0+	0	0+	1-	0	0	0	1+	1	0.0												
15	Q3	1-	1-	0+	1-	1	1+	3-	1-	8	4	0.2												
16		2-	2-	2-	3-	3+	3	3-	2	19-	10	0.6												
17		3	3+	3	3	2+	2	3-	2-	21	12	0.7												
18		4+	4-	1+	3+	3+	2+	2+	4-	24+	17	0.9												
19	D4	5+	5-	4+	4	4-	2-	2+	1+	27+	24	1.2												
20	D2	2+	3	4+	7-	8-	8-	8+	7	47	112	1.9												
21	D1	6+	7-	7	8+	8-	7-	8	6+	57	146	2.0												
22	D3	6+	6-	4+	5-	5-	5+	5+	4	40+	51	1.6												
23		3	6-	5	2+	2	2	3-	3	26-	22	1.1												
24		4-	3	4+	2+	3-	2+	4-	3+	25+	17	0.9												
25		5	5	5-	4-	1+	2	1	2+	25	23	1.1												
26	D5	2-	4	3-	2+	4+	4-	5	4+	28	24	1.1												
27		4+	3+	3+	4-	2+	2	3	3	25	17	0.9												
28		1	2	2	2	1+	4-	3	2	17	9	0.5												
29		2+	3	2+	2-	3-	2	4-	4-	21+	13	0.7												
30		5	4-	4-	4-	3	2+	3+	4	29-	23	1.1												
31		4	3	2	2	3+	3+	3-	1	21+	14	0.8												
Mean											21	0.76												

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																			198.4	129	144	152	
2																			208.5	143	146	163	
3																			222.4	159	161	178	
4																			234.1	186	186	191	
5																			223.2	209	190	179	
6																			220.5	189	193	176	
7																			225.7	168	201	182	
8																			210.1	166	177	165	
9																			201.9	187	190	156	
10																			195.5	178	196	149	
11																			191.5	191	191	145	
12																			203.2	154	161	157	
13																			224.2	148	157	180	
14																			225.9	159	177	182	
15																			225.4	189	188	181	
16																			237.0	209	209	194	
17																			225.3	206	195	181	
18																			221.3*	184	180	177	
19																			214.7a	159	160	170	
20																			205.4	140	142	160	
21																			206.2	152	167	161	
22																			217.8	158	149	173	
23																			210.4	145	141	165	
24																			214.2	131	133	169	
25																			183.3*	121	104	136	
26																			171.7	109	98	123	
27																			176.9	97	102	129	
28																			173.0	116	123	125	
29																			172.0	131	138	124	
30																			186.3	156	152	139	
31																			202.0*	144	141	156	
Mean																			207.4	158.5	161.0	162.0	

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

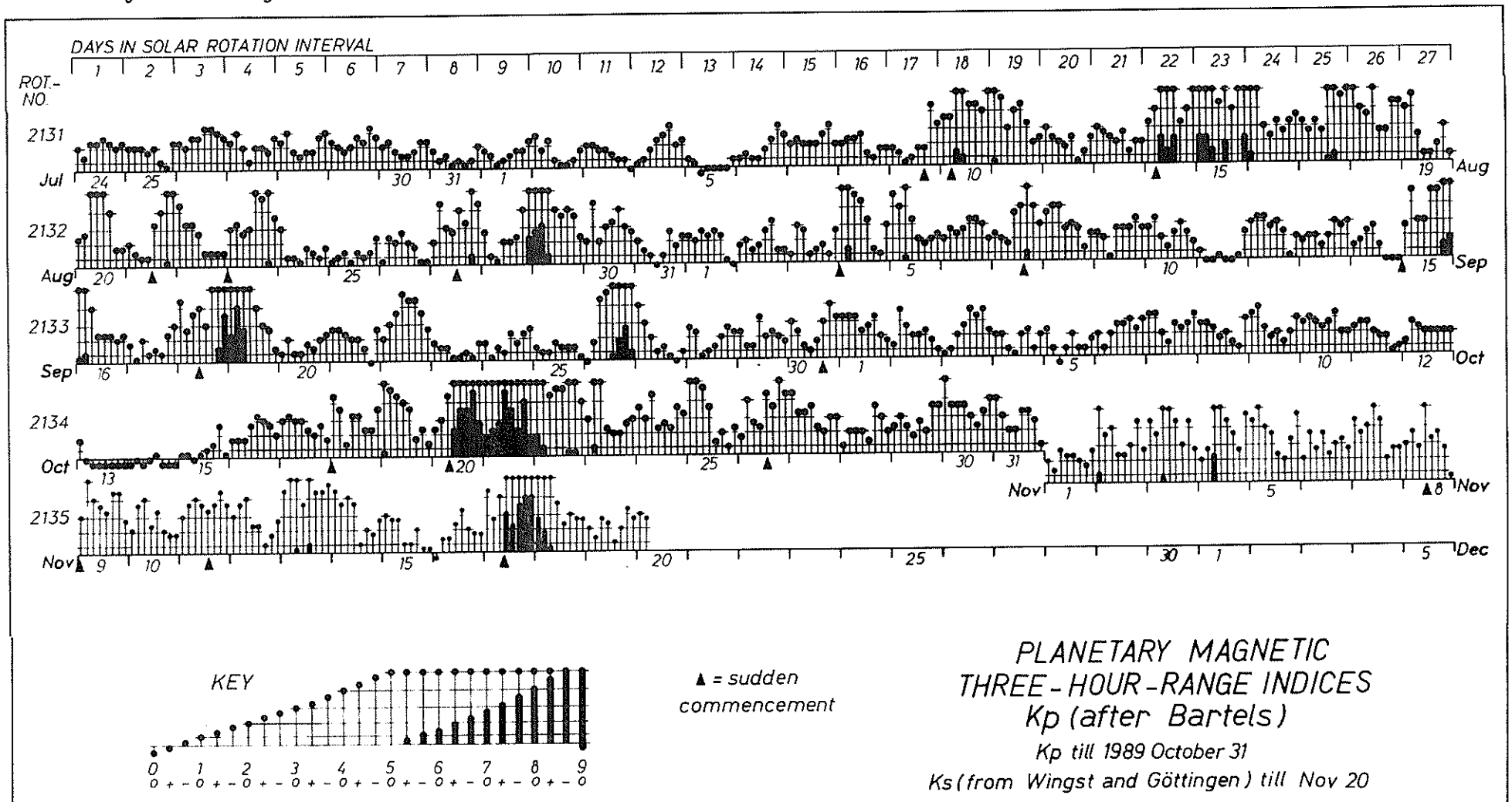
November 1988 to October 1989

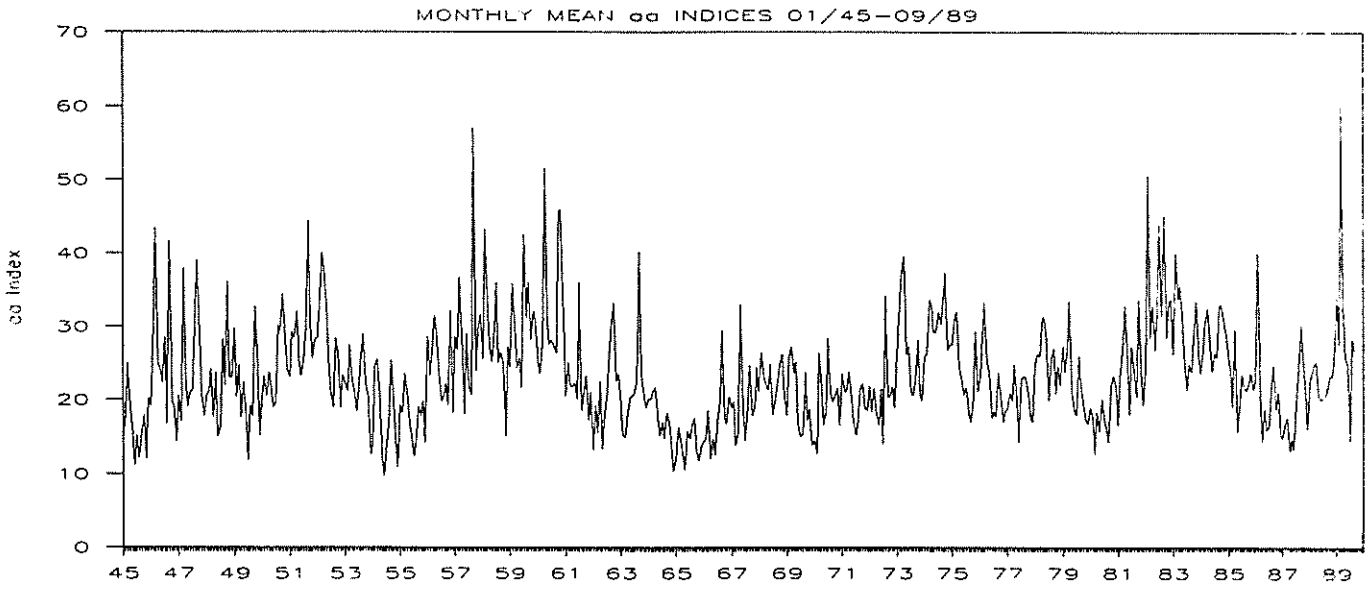
DAY	1988 NOV	DEC	1989 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	7	5	15	29	12	42	10	11	26	6	8	13
2	30	15	6	21	25	26	18	19	5	6	8	9
3	26	18	4	44	37	21	12	14	3	5	8	12
4	8	10	9	24	13	46	20	14	3	8	30	6
5	10	4	33	22	30	42	44	7	15	2	21	5
6	13	3	10	23	24	14	14	11	11	8	12	10
7	17	3	10	25	18	27	46	34	8	9	22	12
8	18	5	17	14	24	20	5	23	4	7	16	9
9	12	4	16	19	31	15	5	34	6	10	11	11
10	14	8	12	12	19	8	4	78	11	41	10	12
11	10	17	37	10	17	14	6	22	4	25	3	7
12	18	14	20	14	23	6	11	12	3	8	12	8
13	8	20	11	21	246	17	9	16	7	9	9	1
14	11	13	14	14	158	24	10	50	4	55	5	1
15	13	10	38	14	49	27	13	37	6	77	42	4
16	18	25	43	17	50	20	7	9	2	26	24	10
17	11	35	28	5	34	10	7	5	13	34	7	12
18	8	25	15	9	15	10	6	5	13	29	52	17
19	4	20	7	9	55	6	6	8	4	14	70	24
20	2	7	45	21	14	10	15	28	4	26	6	112
21	6	11	28	11	22	7	8	4	5	21	8	146
22	4	13	30	13	39	7	12	5	7	12	23	51
23	2	4	22	5	36	12	47	5	11	28	4	22
24	4	4	10	9	16	8	68	10	8	6	7	17
25	7	22	12	7	10	34	24	7	6	5	5	23
26	20	25	10	4	14	76	17	8	13	6	54	24
27	12	20	12	6	44	49	16	6	8	26	8	17
28	9	14	13	13	39	39	14	7	9	22	8	9
29	8	20	10		71	28	14	13	10	58	8	13
30	37	11	12		47	17	9	10	7	17	12	23
31		12	32		52		13		4	6		14
MEAN	12	13	19	15	41	23	16	17	8	20	17	21

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

University of Göttingen

Kp through October 31, 1989





Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1945	16.1	16.4	25.0	19.1	15.4	11.1	15.3	12.1	15.6	17.9	12.0	20.2	16.3
1946	19.2	30.2	43.5	25.0	24.1	22.3	28.6	16.7	41.7	19.6	19.3	14.3	25.4
1947	20.6	17.1	37.9	23.3	19.1	21.1	21.4	32.9	39.1	31.3	20.7	17.9	25.2
1948	20.8	21.0	24.2	17.7	23.7	15.0	16.2	28.3	22.0	36.1	23.1	23.0	22.6
1949	29.8	20.4	24.7	17.6	22.4	17.9	11.8	19.2	17.8	32.7	24.6	15.1	21.2
1950	19.5	23.2	20.6	23.8	21.7	19.0	19.5	30.2	29.3	34.5	28.0	24.0	24.4
1951	23.1	29.2	28.5	32.1	25.5	23.2	25.2	29.7	44.4	30.3	25.7	28.2	28.8
1952	28.5	34.3	40.1	38.0	33.1	23.8	20.7	19.0	28.5	26.4	18.9	23.4	27.9
1953	22.3	21.2	27.4	22.7	21.4	18.4	22.5	26.1	29.0	22.4	20.2	12.6	22.2
1954	13.9	24.5	25.5	20.6	12.0	9.7	13.1	16.5	25.4	21.1	14.5	10.9	17.3
1955	19.3	18.2	23.6	21.1	16.7	15.1	12.3	14.3	19.1	17.8	19.9	14.1	17.6
1956	28.7	23.3	27.6	31.7	29.3	23.5	19.8	20.7	22.4	19.3	32.3	18.2	24.7
1957	28.7	26.8	36.7	28.8	18.1	29.1	21.7	20.7	57.0	24.0	29.5	31.7	29.4
1958	25.5	43.2	36.1	27.6	25.2	29.7	36.0	25.1	26.5	24.7	15.0	27.2	28.5
1959	24.3	35.9	29.9	24.2	25.7	21.6	42.5	31.2	36.1	28.2	32.1	30.8	30.2
1960	25.2	23.5	27.6	51.5	31.6	27.6	28.1	27.2	26.4	45.6	45.9	34.5	32.9
1961	20.6	25.1	22.0	21.8	22.3	20.1	36.0	18.5	20.7	23.3	17.3	21.1	22.4
1962	13.2	19.2	15.5	22.6	13.4	18.1	21.0	26.2	29.8	33.3	22.5	23.5	21.5
1963	19.3	15.3	14.9	18.2	20.4	20.5	20.8	22.5	40.2	23.5	20.7	18.9	21.3
1964	20.1	20.1	21.0	21.7	17.5	15.1	16.9	14.8	18.2	16.9	13.8	10.3	17.2
1965	11.8	16.3	14.3	12.6	10.5	15.7	14.7	16.8	17.5	13.1	11.7	13.8	14.1
1966	14.2	14.8	18.6	12.0	14.8	12.5	17.1	20.0	29.4	17.5	16.8	20.5	17.3
1967	18.9	19.8	13.8	15.5	33.1	18.6	14.4	17.5	24.7	17.8	18.9	24.5	19.8
1968	21.1	26.5	23.3	22.2	21.4	24.9	18.0	20.1	22.0	24.8	26.2	20.3	22.6
1969	17.8	25.8	27.3	23.6	25.2	16.7	15.0	15.3	23.8	17.2	18.7	13.8	20.0
1970	14.4	12.7	26.4	23.1	16.6	18.3	28.4	21.0	19.7	20.6	21.6	16.5	19.9
1971	23.5	21.2	21.1	23.9	21.1	17.0	15.2	17.1	21.4	22.2	18.8	18.6	20.1
1972	21.9	18.3	21.5	18.1	16.6	21.5	14.0	34.2	20.4	20.4	21.8	18.9	20.6
1973	26.1	32.7	36.9	39.6	26.1	27.3	20.9	20.6	22.8	28.2	20.7	19.9	26.8
1974	25.8	26.4	33.7	32.9	29.2	29.2	32.0	30.2	33.7	37.3	26.8	27.5	30.4
1975	27.6	31.1	32.0	24.3	22.7	20.7	21.7	18.1	16.9	20.2	29.3	21.1	23.8
1976	23.3	28.5	33.4	25.4	23.7	17.5	18.4	17.7	23.7	20.4	16.9	18.6	22.3
1977	18.7	21.0	19.9	24.9	20.1	14.2	22.9	23.2	23.0	20.9	17.3	17.0	20.3
1978	24.6	26.2	25.9	31.3	31.2	28.3	19.9	25.6	27.0	20.8	24.6	22.0	25.6
1979	27.3	23.7	26.9	33.5	21.0	18.3	17.9	26.0	22.0	19.3	17.1	16.8	22.5
1980	19.0	17.3	12.7	18.4	15.6	20.0	17.0	15.9	14.2	21.9	23.3	21.7	18.1
1981	16.5	23.1	26.6	32.8	26.9	18.0	27.2	24.0	20.4	33.7	24.1	19.3	24.4
1982	24.2	50.6	28.5	32.9	26.7	32.1	43.9	31.4	45.1	28.5	33.0	33.8	34.2
1983	26.2	40.0	33.6	35.7	31.6	24.9	21.3	24.9	23.7	28.3	33.5	26.0	29.1
1984	23.5	26.7	30.7	32.5	27.2	23.7	26.4	25.8	32.6	33.1	31.0	29.0	28.5
1985	25.7	24.1	19.0	29.5	15.6	19.9	23.4	22.0	21.2	22.2	23.7	21.4	22.3
1986	22.4	40.0	21.1	14.3	18.8	15.9	16.3	22.3	24.7	18.6	21.2	15.3	20.9
1987	14.8	16.6	17.6	12.9	14.7	13.2	19.3	24.3	30.3	25.8	22.4	16.0	19.0
1988	22.4	23.4	24.8	25.2	20.5	20.0	20.2	20.6	21.4	23.2	23.3	25.5	22.5
1989	33.9	27.5	60.1	32.8	25.7	24.9	14.4	28.4	26.7				30.5

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

OCTOBER 1989

Sta	Geomag Lat	Commencement Time Day	(UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
GUA	04.0N	01	22--	..	..	..	..	02(2)	5	10	120	30	02	20
KRC	16.4N	02	0313	SC	- 2	30	13	02(2)	6	-5	99	50	03	00
HYB	07.6N	02	0313	SC	- .6	29	- 3 0	2(2)	5	7	146	30	02	23
ETT	00.6S	02	0313	SC	- 1.2	48	26		-	6	237	90	02	22
GUA	04.0N	08	22--	..	..	..	..	09(1)	5	10	100	20	09	09
GUA	04.0N	09	21--	..	..	..	..	10(1)	5	10	120	10	10	10
HYB	07.6N	12	0742	SC	- .2	17	- 2		-	--	--	--	--	--
ETT	00.6S	12	0742	SC*	1.0	42	23		-	--	--	--	--	--
HYB	07.6N	16	0000	..	..	..	..	16(5,6)	5	8	138	41	17	04
ETT	00.6S	16	0000	..	..	..	..		-	7	227	49	17	13
HYB	07.6N	18	0049	SC	- .5*	8	- 1	19(1)	5	5	123	34	19	13
GUA	04.0N	18	0012	SC*	- .1	46	- 14	18(1)	5	--	110	30	18	06
GUA	04.0N	18	22--	..	..	..	..	19(1)	5	--	150	40	19	13
ETT	00.6S	18	0049	SC	- .7	10	10		-	5	193	73	19	21
HER	33.7S	18	23--	..	..	..	..	19(1)	5	30	86	90	19	14
KGL	56.5S	18	0049	SC	3	12	4	19(1,2,3,4)	4	30	172	216	20	00
COL	64.6N	20	07--	..	..	..	..	20(6,7)	8	466	2720	2275	22	22
SIT	60.0N	20	07--	..	..	..	..	20(5)	8	--	--	--	23	10
FRD	49.6N	20	0917	SC*	- 4.5	- 13	- 3	21(4)	8	91	394	393	23	09
BJI	28.5N	20	0915	SC	1.1	18	..	21(4)	9	22	363	77	23	09
KRC	16.4N	20	0918	SC	- 1.4	23	10	20(6)	8	9	365	160	23	09
HYB	07.6N	20	0917	SC	.2*	17	- 2	21(4)	9	10	404	40	22	23
GUA	04.0N	20	0916	SC	..	14	- 6	20(6)	7	10	190	30	21	09
ETT	00.6S	20	0916	SC	- .6	33	21		-	12	467	251	23	10
HER	33.7S	20	0916	SC	1	22	12	20(5,6,7) 21(4)	7	67	325	269	22	06
GNA	43.2S	20	0915	SC	2.2	28	12	21(4,5,7)	7	58	270	330	22	16
CNB	43.9S	20	05--	..	..	..	..	20(5) 21(4,5)	7	40	340	214	23	08
KGL	56.5S	20	0917	SC	8	80	16	20(5,7,8) 21(4,5,7)	9	365	2490	1147	25	12
GUA	04.0N	21	09--	..	..	..	..	21(4)	9	--	340	50	22	15
HYB	07.6N	23	1500	..	..	..	..	24(1,3,7)	4	6	104	23	25	04
FRD	49.6N	24	----	..	..	..	..	25(2,3)	5	18	69	40	25	12
ETT	00.6S	24	0215	SC	- .8	28	15		-	7	176	54	25	18
FRD	49.6N	26	1428	SC*	11	14	- 3	26(5)	5	21	50	32	27	--
HYB	07.6N	26	1428	SC	- .5	32	- 2	26(5,6)	5	3	89	19	27	23
ETT	00.6S	26	1428	SC	- .6	27	28		-	4	140	57	27	22
HER	33.7S	26	1427	SC	4	31	24	26(7)	5	20	79	109	27	02
KGL	56.5S	26	1427	SC	6	48	16	26(7)	6	34	267	146	28	00

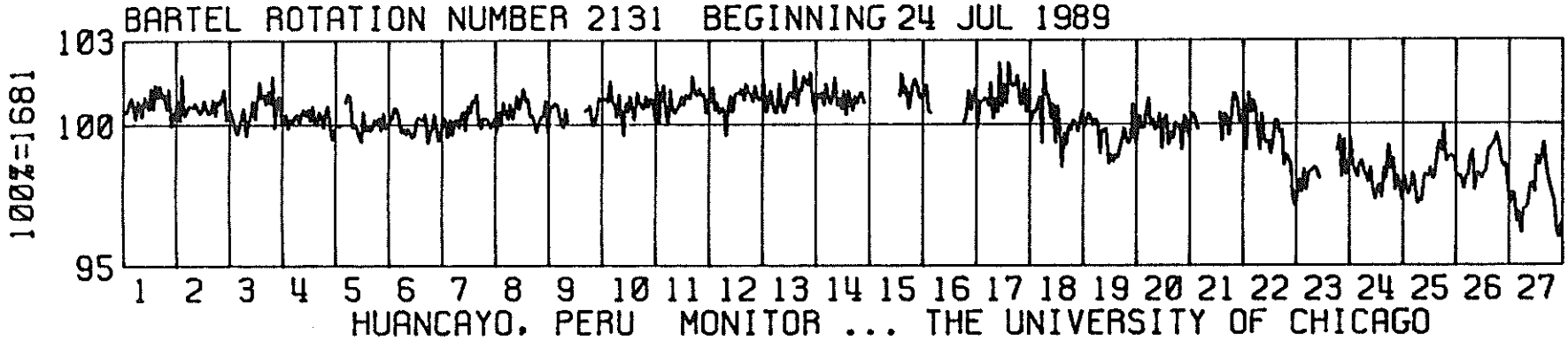
Stations:

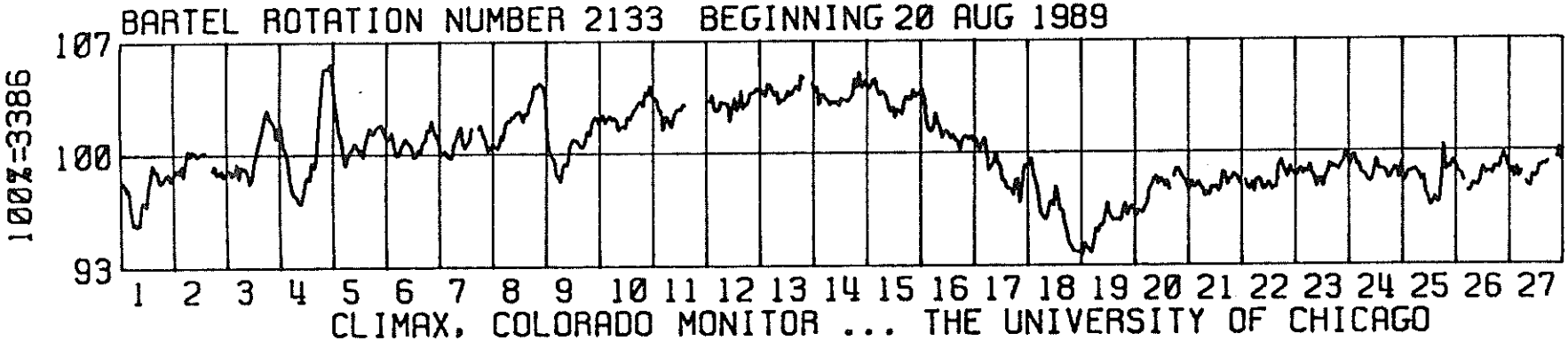
ABG = ALIBAG
ANN = ANNAMALAINAGAR
API = APIA
BJI = BEIJING
CNB = CANBERRA
COL = COLLEGE
ETT = ETAIYAPURAM
FRD = FREDERICKSBURG
GNA = GNANGARA
GUA = GUAM
HER = HERMANUS
HON = HONOLULU
HYB = HYDERABAD
JAI = JAIPUR
KGL = KERGUELEN
KRC = KARACHI
PMG = PORT MORESBY
SHL = SHILLONG
SIT = SITKA
TRD = TRIVANDRUM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

C O N T E N T S

Prompt Reports LATE DATA Number 544 Part I

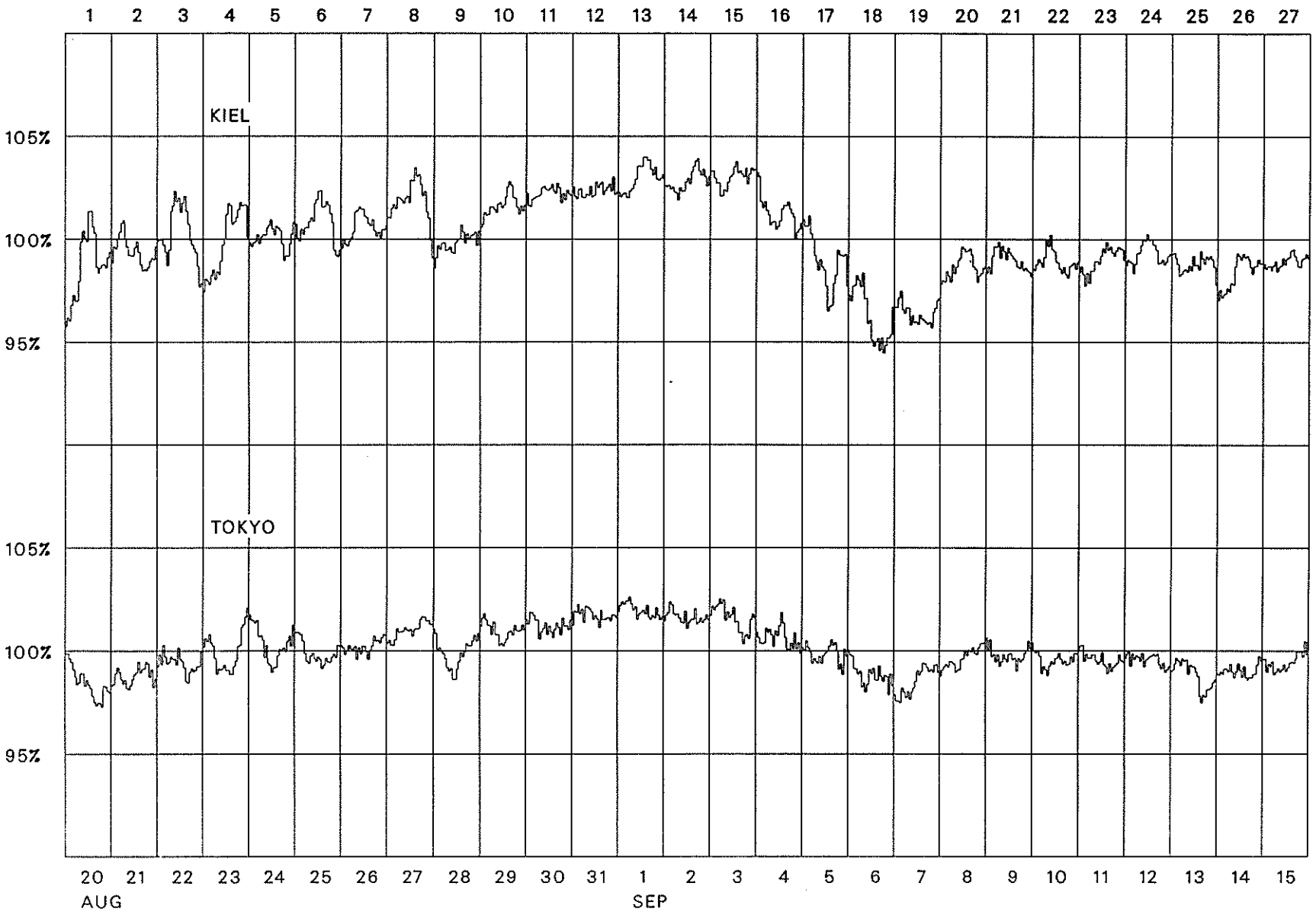
COSMIC RAY INDICES
(Neutron Monitor)





COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2132 (August 1989-September 1989)



155
Late
Aug 89

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

AUGUST 1989

Day	THULE Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1	3978	6225.4	5619.8	3577.4	3458.1	1688.1(32)
2	3980	6250.2	5611.2	3600.5	3465.6	1692.3
3	3999	6243.8	5625.1	3606.8	3470.8	1695.4
4	4003	6230.0	5628.3	3613.6	3489.2	1695.2
5	3998	6253.7	5628.8	3618.8	3489.7	1698.0
6	4005	6258.2	5627.7	3618.6	3477.4	1696.5
7	4012	6297.8	5644.0	3631.6	3480.6	1700.5(22)
8	4011	6314.4	5637.3	3632.2	3483.8	1693.8(20)
9	4000	6307.6	5638.6	3641.6	3479.2	1698.1
10	3920	6145.7	5532.8	3541.6	3462.0	1683.8
11	3909	6093.0	5479.2	3509.0	3437.3	1673.7
12	3912	6116.0	5500.4	3520.8	3463.2	1679.7
13	3921	6149.6	5538.1	3544.0	3493.9	1685.1(30)
14	3844	6066.0	5435.5	3503.2	3436.5	1672.2
15	3799	5942.1	5347.2	3439.3	3406.4	1652.9(34)
16	3944	6133.0	5439.0	3466.6	3398.5	1650.5
17	3814	6012.2	5385.0	3439.1	3399.8	1652.5
18	3775	5983.6	5370.8	3437.0	3387.6	1655.7
19	3731	5835.6	5258.0	3335.3	3345.0	1638.5
20	3727	5805.0	5255.1	3310.3	3334.5	1622.3
21	3771	5882.4	5294.3	3366.5	3346.4	1634.4(26)
22	3788	5945.3	5340.3	3390.7	3367.4	1630.4(14)
23	3790	5909.3	5319.4	3400.8	3386.7	1645.4
24	3809	5970.6	5331.0	3418.1	3399.5	1647.4
25	3842	5968.4	5369.9	3409.5	3384.4	1647.5
26	3810	5969.3	5356.4	3407.8	3395.1	1650.7
27	3836	6047.8	5424.5	3469.5	3421.9	1668.4
28	3781	5926.3	5316.1	3398.5	3384.5	1646.5
29	3821	5993.9	5412.9	3470.9	3420.6	1670.0
30	3857	6038.8	5444.0	3470.9(30)	3429.3	1669.0
31	3877	6074.7	5452.7	3492.5	3446.0	1678.7
Mean	3879	6077.1	5460.1	3493.0	3427.1	1668.1

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.

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

JULY 1989

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)		
Day	Time	Quality: Station Group*	Day	Begin-End	Station(s)
01	0717	A: COI* BJI SPT PEN	04	0000-0010	MMB KAK KNY
		B: WNG NAG FRD QUE HYD ETT GNA		1444-1506	BDV EBR
		C: NGK BDV GCK EBR	09	0128-0131	LNP
			19	0403-0408	LNP
01	1546	A: NAG BJI PEN LNP	21	0543-0600	MMB KAK HTY KNY LNP
		B: WNG NGK CLF EBR QUE HYD ETT	25	0818-0833	NAG (SSC: QUE)
		CNB*		0837-0910	WNG NAG KNY EBR LNP
					HYD (SSC: BJI)
17	0155	A: SOD* DOB* NAG* COI BJI SPT PEN	26	0507-0512	LNP
		LNP HYD ETT* CZT			
		B: WNG* NGK BDV CLF* GCK* EBR QUE			
		GNA*			
		C: FRD* KGL			
		-: NUR			

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

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

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

ERRATA: The June 1989 SSC data published in the September 1989 issue of SGD 541 Part I on page 145 has an error. The SSC listed on day 06 at 2311 UT actually occured on day 06 at 2314 UT.

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

AUGUST 1989

Storm Sudden Commencements (ssc)

Day	Time	Quality: Station Group*
09	1831	A: DOB WNG* NAG* COI BJI PEN LNP MPO
		B: BDV* CLF GCK MMB* EBR* SPT FRD* KAK* KNY* QUE GNA
		C: NGK KGL
		-: NUR
10	0727	A: MPO
		B: WNG* NGK* BJI* PEN QUE AMS* CZT* KGL*
		C: GCK* SPT*
14	0152	B: WNG* MPO GNA*
		C: BDV* CLF EBR* SPT QUE
		sfe: LNP
14	0613	A: WNG* MMB* BJI* FRD KAK* KNY QUE LNP* GNA* CNB
		C: NGK* GCK* EBR* AMS* CZT* KGL*
17	1541	B: CLF* EBR* FRD PEN
		C: SPT
21	1415	A: PEN
		B: WNG* NAG MPO
		C: NGK BDV CLF* GCK EBR SPT QUE
23	0047	B: WNG* BDV* EBR LNP GNA*
		C: NGK CLF* NAG* GCK MMB* BJI SPT
		-: NUR
23	1427	B: WNG*
		C: NGK* CLF* SPT* KGL
27	1337	A: WNG EBR COI BJI SPT FRD PEN LNP MPO
		B: NGK BDV GCK MMB* KAK KNY QUE GNA* CNB KGL*
		C: NAG
		-: NUR

Solar Flare Effects (sfe)

Day	Begin-End	Station(s)
01	0732-0749	MPO
02	2318-2323	LNP
06	0049-0100	MMB KAK KNY LNP
	0748-0754	LNP
	2345-2348	LNP
07	0328-0334	LNP
	0921-0929	MPO
08	0513-0544	BDV MMP KAK KNY LNP
11	2309-2314	LNP
12	0238-0252	LNP
	1212-1236	NGK CLF
	1400-1600	WNG
14	0041-0115	MMB KAK KNY CNB
	0154-0159	LNP (see SSC)
17	0726-0745	CLF MPO
18	0429-0458	LNP
22	0823-0845	WNG NGK CLF
27	0900-0958	WNG NGK
29	1517-1538	BDV
30	0245-0252	LNP

Reporting Observatories: (up to the 3rd of October 1989)

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

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

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

SEPTEMBER 1989

Storm Sudden Commencements (ssc)

Day	Time	Quality: Station Group*
04	0027	A: WNG* HRB NAG GCK COI SPT PEN LNP
		B: NGK BDV* CLF EBR BJI QUE CNB*
07	1650	A: CLF HRB NAG* COI BJI SPT PEN
		B: WNG NGK QUE CNB*
		C: BDV EBR
09	0909	C: NGK CLF GCK BJI QUE (see sfe)
12	1228	B: HRB NAG
		C: WNG BDV* CLF* COI SPT QUE
		si: EBR
		sfe: NGK
15	0047	A: DOB BJI PEN LNP
		B: WNG* HRB MMB* EBR COI KAK* KNY* GNA* CNB KGL
		C: NUR NGK BDV* CLF* GCK SPT QUE
17	0743	A: GNA*
		B: SOD* WNG* COI BJI
		C: BDV* CLF* NAG* SPT* QUE
		si: LNP
		sfe: NGK
18	1027	A: SOD* WNG* HRB* NAG* MMB EBR* COI BJI PEN KAK KNY LNP KGL*
		B: DOB NGK* BDV* CLF* GCK* SPT* QUE CNB AMS* CZT*
		C: NUR
22	0742	B: COI LNP
		C: SPT* PEN QUE KGL*
26	0544	B: WNG HRB KGL
		C: BDV* NAG QUE LNP
30	1716	A: SOD* WNG* HRB* COI BJI
		B: BDV* NAG* GCK* CNB*
		C: NGK EBR* SPT* QUE KGL
		si: LNP

Solar Flare Effects (sfe)

Day	Begin-End	Station(s)
01	0815-0847	NGK BDV CLF NAG MMB EBR SPT KAK KNY LNP GNA
	2349-2425	MMB KAK KNY LNP
02	0619-0632	MMB KNY LNP
	0823-0847	NGK
	1137-1202	WNG NGK BDV
03	1037-1055	NGK
	1427-1456	NGK BDV CLF EBR SPT
04	0628-0632	LNP
	0753-0756	CLF
05	0157-0204	LNP
	0458-0504	LNP
06	0043-0047	LNP
	0052-0605	MMB
08	0407-0424	LNP
09	0451-0459	LNP
	0527-0533	LNP
	0909-0940	WNG BDV MMB KAK KNY LNP (see ssc)
	1009-1024	NAG
10	0412-0418	LNP
	0627-0632	LNP
12	1230-1240	NGK (see ssc)
13	0330-0409	MMB KAK KNY LNP
14	0636-0701	LNP
	1102-1122	NGK
17	0743-0755	NGK (see ssc)
	1333-1358	NGK
21	0313-0322	LNP
25	2341-2400	MMB KAK KNY
28	0921-0935	WNG BDV
	2319-2324	LNP
29	1124-1342	WNG NGK BDV CLF EBR
30	0250-0255	LNP

Reporting Observatories: (up to the 31st of October 1989)

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

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

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."