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Solar - Geophysical Data

NO. 435 NOVEMBER 1980

Part I (Prompt Reports)

DATA FOR
OCTOBER 1980
SEPTEMBER 1980

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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To standardize referencing these reports in the open literature, the following format is recommended:
Solar-Geophysical Data, 426 Part I (or Part II), pages, February 1980, U.S. Department of Commerce (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 435

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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C.1d	Flare Patrol Observations													
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Notes:

"424A 50" listed under 1979 Oct means that the sunspot drawings for Oct 1979 were contained in *Solar-Geophysical Data* Number 424 - Part I, beginning on page 50.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

OCTOBER 1980 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

OCTOBER 1980

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

02 OCTOBER 1980 PRESTO TOYOKAWA 02/0215Z TENFLARE 140 UNITS 02/0156Z DURATION 5 MINUTES
02 OCTOBER 1980 PRESTO BOULDER 02/2210Z TENFLARE 190 Flux Units 02/2158Z DURATION 2 MINUTES
03 OCTOBER 1980 PRESTO TOYOKAWA 03/0018Z TENFLARE 180 UNITS 02/2158Z DURATION 5 MINUTES
03 OCTOBER 1980 PRESTO MEUDON 03/0920Z FLARE START AROUND 0818Z IN AR 2701 SOUTH OF THE FOLLOWING SPOTS N12E08 IN PROGRESS AT 0915Z DOUBLE RIBBONS
05 OCTOBER 1980 PRESTO KAKIOKA 05/0100Z MAGSTORM 04/0000Z
06 OCTOBER 1980 PRESTO SYDNEY 06/0000Z MAGSTORM ENDS 05/1600Z
07 OCTOBER 1980 PRESTO BOULDER 07/2327Z SOFLARE M5/2B N15E51 07/2308Z 53 MINUTE DURATION TENFLARE 250 FLUX UNITS 07/2308Z 20 MINUTE DURATION
PRESTO SYDNEY 07/2335Z 2B FLARE N14E65 REGION 2717 START 2203Z MAX 2315Z SWF TENFLARE FLEURS ST 2305Z MAX 2307Z END 2327Z 280 FLUX UNITS
09 OCTOBER 1980 PRESTO BOULDER 09/1259Z TENFLARE 360 FLUX UNITS 09/1124Z DURATION 43 MINUTES.
13 OCTOBER 1980 PRESTO BOULDER 13/0443Z SOFLARE M1/2B S13E03 13/0418Z 23 MINUTE DURATION
14 OCTOBER 1980 PRESTO SYDNEY 14/0625Z TENFLARE FLEURS 362 FLUX UNITS 14/0601Z IN PROGRESS SOFLARE 2B FLARE REGION 2725 S05W07 14/0620Z
PRESTO TOYOKAWA 14/0708Z TENFLARE 230 FLUX UNITS 14/0540Z DURATION 60 MINUTES
PRESTO BOULDER 14/1400Z SOFLARE X3/2B S09W06 14/0613Z DURATION 54 MINUTES TENFLARE 290 FLUX UNITS 14/0619Z DURATION 40 MINUTES
15 OCTOBER 1980 PRESTO SYDNEY 15/0630Z LEARMONTH M1/2B FLARE REGION 2741 N19W51 Parallel Ribbon START 0515Z MAX. 0530Z
PRESTO BOULDER 15/1350Z SOFLARE M2/2B N19E54 15/0524Z DURATION 23 MINUTES
18 OCTOBER 1980 PRESTO KAKIOKA 18/0620Z MAGSTORM 18/0113Z
19 OCTOBER 1980 PRESTO BOULDER 19/0915Z POLCAP ABSORPTION BEGAN AT 19/0800Z 0.9 DB ABSORPTION ON 30 MHZ RIOMETER.
23OCTOBER 1980 PRESTO TOYOKAWA 23/0100Z TENFLARE 190 FLUX UNITS 22/2358Z DURATION 32 MINUTES
23/0830Z TENFLARE 140 FLUX UNITS 23/0735Z DURATION 6 MINUTES
PRESTO BOULDER 23/1000Z SOFLARE M3/1B N20W34 23/0741Z DURATION 50 MINUTES TENFLARE 640 FLUX UNITS 23/0732Z DURATION 8 MINUTES
PRESTO BOULDER 23/1234Z MAGNETIC A GREATER THAN 40 PREDICTED.
25 OCTOBER 1980 PRESTO BOULDER 25/1040Z SOFLARE X3/1B N19W59 25/0950Z DURATION 20 MINUTES TENFLARE 330 FLUX UNITS 25/0950Z DURATION 10 MINUTES

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No. of Flares Total	M	X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Desc*	Alert Situations
275	01	30	195	174	008	S27W65	0	0	0		01	S27W65	Q	SOLQUIET
						N09W63	0	0	0			N09W63	Q	MAGQUIET
						N16W50	2	0	0			N16W50	Q	
						S30W37	0	0	0			S30W37	Q	
						N07W20	0	0	0			N07W20	Q	
						N11W18	1	0	0			N11W18	Q	
						S18W13	2	0	0			S18W13	E	
						S16W04	0	0	0			S16W04	Q	
						N30E20	0	0	0			N30E20	Q	
						N21E26	2	0	0			N21E26	Q	
						N14E36	6	1	0			N14E36	A	
						N15E68	0	0	0			N15E68	Q	
276	02	01	198	171	003	S28W80	0	0	0		02	S28W80	Q	SOLQUIET
						S14W64	0	0	0			S14W64	Q	MAGQUIET
						S30W51	0	0	0			S30W51	Q	
						N08W34	0	0	0			N08W34	Q	
						N11W31	0	0	0			N11W31	Q	
						S18W26	0	0	0			S18W26	E	
						N30E07	0	0	0			N30E07	Q	
						N13E13	0	0	0			N13E13	Q	
						N22E13	2	0	0			N22E13	Q	
						N15E23	10	0	0			N15E23	A	
						N15E57	3	0	0			N15E57	Q	
277	03	02	171	176	006	S13W78	0	0	0	Presto Toyokawa 02/0215Z Tenflare 140 Units 02/0156Z Duration 5 minutes Presto Boulder 02/2210Z Tenflare 190 Flux Units 02/02158Z Duration 2 minutes.	03	S13W78	Q	SOLQUIET
						S07W67	0	0	0			S07W67	Q	MAGQUIET
						N08W47	0	0	0			N08W47	Q	
						N12W44	0	0	0			N12W44	Q	
						S18W40	1	0	0			S18W40	E	
						N29W04	1	0	0			N29W04	Q	
						N22W01	1	0	0			N22W01	E	
						N15E10	5	1	0			N15E10	E	
						N14E44	2	0	0			N14E44	Q	
						S26E67	2	1	0			S26E67	E	
278	04	03	199	174	006	S05W79	0	0	0		04	S05W79	Q	SOLQUIET
						S07W65	1	0	0			S07W65	Q	MAGQUIET
						N07W63	1	0	0			N07W63	Q	
						N13W57	1	0	0			N13W57	Q	
						S17W51	4	0	0			S17W51	E	
						N21W26	0	0	0			N21W26	Q	
						N30W17	0	0	0			N30W17	Q	
						N22W15	0	0	0			N22W15	E	
						N14W04	10	0	0			N14W04	E	
						N18E07	1	0	0			N18E07	Q	
						N14E30	1	0	0			N14E30	Q	
						S07E53	0	0	0			S07E53	Q	
						S25E53	0	0	0			S25E53	Q	
279	05	04	195	175	015	S06W92	0	0	0	Presto Kakioka 05/0100Z Magstorm 04/0000Z	05	S06W92	Q	SOLQUIET
						S08W79	0	0	0			S08W79	Q	MAGALERT 05/06
						N07W74	2	0	0			N07W74	E	
						N13W71	0	0	0			N13W71	Q	
						S17W64	2	0	0			S17W64	E	
						N22W35	0	0	0			N22W35	Q	
						N29W30	1	0	0			N29W30	Q	
						N21W26	1	0	0			N21W26	Q	
						N14W17	3	0	0			N14W17	E	
						N18E08	0	0	0			N18E08	Q	
						N14E17	2	0	0			N14E17	E	
						S25E40	2	0	0			S25E40	Q	
						S14E62	0	0	0			S14E62	Q	
						N14E83	0	0	0			N14E83	Q	
280	06	05	198	183	020	S08W92	0	0	0	Presto Sydney 06/0000Z Magstorm ends 05/1600Z	06	S08W92	Q	SOLQUIET
						N07W88	1	0	0			N07W88	E	MAGNIL
						S19W78	2	0	0			S19W78	Q	
						N33W40	0	0	0			N33W40	Q	
						N19W33	0	0	0			N19W33	Q	
						N13W31	5	0	0			N13W31	E	
						N15E03	0	0	0			N15E03	Q	
						N17E11	0	0	0			N17E11	Q	
						S25E27	0	0	0			S25E27	E	
						S09E32	2	0	0			S09E32	Q	
						S14E48	0	0	0			S14E48	Q	
						N15E72	1	0	0			N15E72	E	
						S12E75	0	0	0			S12E75	Q	
						S31E75	0	0	0			S31E75	Q	
281	07	06	207	189	016	N22W54	0	0	0		07	N22W54	Q	SOLQUIET
						N13W42	1	0	0			N13W42	E	MAGQUIET
						N18W37	0	0	0			N18W37	Q	
						N19W20	0	0	0			N19W20	Q	
						N14W08	1	0	0			N14W08	E	
						S25E15	0	0	0			S25E15	Q	
						S08E17	4	0	0			S08E17	E	
						N10E25	0	0	0			N10E25	Q	
						S15E36	0	0	0			S15E36	Q	

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						S24E45	0	0	0			S24E45	Q	
						N11E52	0	0	0			N11E52	Q	
						N15E62	3	0	0			N15E62	A	
						S29E63	0	0	0			S29E63	Q	
282	08	07	208	204	010	N14W56	1	0	0	Presto Boulder	08	N14W56	Q	SOLALERT 08/XX
						N18W50	0	0	0	07/2327Z Soflare		N18W50	Q	MAGQUIET
						N15W20	1	0	0	M5/2B N15E51		N15W20	Q	
						S26E02	0	0	0	07/2308Z 53 Minute		S26E02	Q	
						S08E03	0	0	0	Duration. Tenflare		S08E03	Q	
						N12E10	0	0	0	07/2327Z 250 Flux		N12E10	Q	
						S23E32	0	0	0	Units 07/2308Z		S23E32	Q	
						N11E38	0	0	0	20 Minute Duration		N11E38	Q	
						S29E47	0	0	0			S29E47	Q	
						N15E49	8	3	0			N15E49	A	
						S12E61	0	0	0			S12E61	Q	
						S10E75	3	2	0			S10E75	A	
						S14E76	0	0	0			S14E76	Q	
283	09	08	280	212	012	N14W70	3	1	0		09	N14W70	Q	SOLALERT 09/XX
						N17W63	0	0	0			N17W63	Q	MAGALERT MINOR 09/10
						N13W35	1	0	0			N13W35	Q	
						S09W11	1	0	0			S09W11	Q	
						S27W10	0	0	0			S27W10	Q	
						S19W05	0	0	0			S19W05	Q	
						N10W01	0	0	0			N10W01	Q	
						S13E14	0	0	0			S13E14	Q	
						S23E17	0	0	0			S23E17	Q	
						N12E23	1	0	0			N12E23	E	
						N14E36	11	1	0			N14E36	A	
						S30E36	0	0	0			S30E36	Q	
						S09E37	0	0	0			S09E37	Q	
						S10E45	0	0	0			S10E45	Q	
						S13E61	5	1	0			S13E61	E	
						S08E62	6	1	0			S08E62	A	
284	10	09	338	226	013	N14W85	0	0	0	Presto Boulder	10	N14W85	Q	SOLALERT 10/12
						N16W43	0	0	0	09/1259Z Tenflare		N16W43	Q	MAGALERT 10/11
						S07W39	0	0	0	09/1124Z 360 Flux		S07W39	Q	
						S09W24	0	0	0	Units Duration		S09W24	Q	
						S27W24	0	0	0	43 Minutes.		S27W24	Q	
						S18W18	0	0	0			S18W18	Q	
						N07W08	0	0	0			N07W08	Q	
						S12W01	0	0	0			S12W01	Q	
						S24E04	0	0	0			S24E04	Q	
						N12E08	4	0	0			N12E08	Q	
						S30E21	0	0	0			S30E21	Q	
						N14E22	3	0	0			N14E22	A	
						S10E33	0	0	0			S10E33	Q	
						S13E48	7	2	0			S13E48	E	
						S09E49	7	0	0			S09E49	A	
						S22E65	0	0	0			S22E65	Q	
						N16E71	0	0	0			N16E71	Q	
285	11	10	330	233	012	N16W64	2	0	0		11	N16W64	Q	SOLALERT 11/XX
						S07W52	0	0	0			S07W52	Q	MAGALERT 11/XX
						S08W38	2	0	0			S08W38	Q	
						S27W37	0	0	0			S27W37	Q	
						S18W32	0	0	0			S18W32	Q	
						N07W20	0	0	0			N07W20	Q	
						S09W14	0	0	0			S09W14	Q	
						S23W08	0	0	0			S23W08	Q	
						N12W05	8	0	0			N12W05	E	
						S10W06	0	0	0			S10W06	Q	
						S30E08	0	0	0			S30E08	Q	
						N14E10	2	0	0			N14E10	A	
						S11E20	0	0	0			S11E20	Q	
						S13E34	12	0	0			S13E34	A	
						S12E35	7	1	0			S12E35	A	
						S22E53	0	0	0			S22E53	Q	
						N15E61	0	0	0			N15E61	Q	
286	12	11	407	242	032	S08W51	2	0	0		12	S08W51	E	SOLALERT 12/XX
						S27W51	0	0	0			S27W51	Q	MAGALERT 12
						S17W47	0	0	0			S17W47	Q	
						N06W40	1	0	0			N06W40	Q	
						N07W40	0	0	0			N07W40	Q	
						S22W22	0	0	0			S22W22	Q	
						S24W22	0	0	0			S24W22	Q	
						N12W21	7	0	0			N12W21	E	
						S12W20	0	0	0			S12W20	Q	
						N14W05	3	0	0			N14W05	A	
						S31W05	0	0	0			S31W05	Q	
						S08E21	5	0	0			S08E21	A	
						S12E21	8	1	0			S12E21	A	
						S21E39	0	0	0			S21E39	Q	
						N17E48	0	0	0			N17E48	Q	
						S29E62	0	0	0			S29E62	Q	
						S29E64	0	0	0			S29E64	Q	

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287	13	12	393	259	011	S08W66	2	0	0		13	S08W66	E	SOLALERT 13/XX
						S27W63	0	0	0			S27W63	Q	MAGNIL
						S18W62	0	0	0			S18W62	Q	
						N06W54	0	0	0			N06W54	Q	
						N12W33	10	0	0			N12W33	A	
						S13W33	0	0	0			S13W33	Q	
						S24W31	1	0	0			S24W31	Q	
						N14W18	3	0	0			N14W18	E	
						S30W17	0	0	0			S30W17	Q	
						S12W04	0	0	0			S12W04	Q	
						N21E07	0	0	0			N21E07	Q	
						S09E09	10	0	0			S09E09	A	
						S12E09	0	0	0			S12E09	A	
						S13E21	0	0	0			S13E21	Q	
						S21E26	1	0	0			S21E26	Q	
						N17E39	0	0	0			N17E39	Q	
						S29E52	0	0	0			S29E52	Q	
						N10E72	0	0	0			N10E72	Q	
288	14	13	326	257	007	S08W78	1	0	0	Presto Boulder	14	S08W78	E	SOLALERT 14/15
						S17W76	0	0	0	13/0443Z Soflare		S17W76	Q	MAGQUIET
						S27W75	0	0	0	M1/2B S13E03		S27W75	Q	
						N05W66	2	0	0	13/0418Z Duration		N05W66	Q	
						N12W48	8	1	0	23 Minutes		N12W48	A	
						S24W46	0	0	0			S24W46	Q	
						S30W31	0	0	0			S30W31	Q	
						N14W29	4	0	0			N14W29	E	
						S08W21	0	0	0			S08W21	Q	
						S13W16	0	0	0			S13W16	Q	
						S09W05	7	1	0			S09W05	A	
						S21E13	0	0	0			S21E13	Q	
						N06E25	0	0	0			N06E25	Q	
						N17E26	0	0	0			N17E26	Q	
						S28E37	0	0	0			S28E37	Q	
						N09E57	3	0	0			N09E57	Q	
						S34E73	0	0	0			S34E73	Q	
289	15	14	311	252	007	N12W61	12	0	0	Presto Boulder	15	N12W61	A	SOLALERT 15/17
						S24W58	0	0	0	14/1400Z Soflare		S24W58	Q	MAGALERT 15/16
						S29W43	0	0	0	S09W06 X3/2B		S29W43	Q	
						N14W42	2	0	0	14/0613Z Duration		N14W42	E	
						S08W35	0	0	0	54 Minutes.Tenflare		S08W35	Q	
						S10W20	4	0	1	290 Flux Units		S10W20	A	
						S21W00	0	0	0	14/0619Z Duration		S21W00	Q	
						N05E10	0	0	0	40 Minutes.		N05E10	Q	
						N15E10	0	0	0			N15E10	Q	
						S29E26	0	0	0			S29E26	Q	
						N06E42	2	0	0			N06E42	E	
						N19E56	0	0	0			N19E56	Q	
						S35E60	0	0	0			S35E60	Q	
290	16	15	255	238	015	N12W75	7	1	0	Presto Soflare M2/2B	16	N12W75	A	SOLALERT 16/18
						S25W72	2	0	0	N19E54 15/0524Z		S25W72	Q	MAGALERT 16/17
						N13W57	2	0	0	Parallel Ribbons		N13W57	E	
						S30W55	0	0	0	Duration 23 Minutes		S30W55	Q	
						S07W50	0	0	0			S07W50	Q	
						S11W32	3	0	0			S11W32	A	
						S21W14	0	0	0			S21W14	Q	
						N16W07	0	0	0			N16W07	Q	
						N06W04	0	0	0			N06W04	Q	
						S29E14	1	0	0			S29W14	Q	
						N07E28	0	0	0			N07E28	E	
						N20E43	3	1	0			N20E43	E	
						S34E45	0	0	0			S34E45	Q	
291	17	16	271	216	003	S25W89	1	0	0		17	S25W89	Q	SOLALERT 17/18
						N12W88	9	0	0			N12W88	E	MAGNIL
						N15W70	5	0	0			N15W70	E	
						S31W69	1	0	0			S31W69	Q	
						S06W61	0	0	0			S06W61	Q	
						S10W45	2	0	0			S10W45	A	
						S07W35	0	0	0			S07W35	Q	
						S21W27	0	0	0			S21W27	Q	
						N15W20	0	0	0			N15W20	Q	
						N06W17	0	0	0			N06W17	Q	
						S28W00	12	0	0			S28W00	E	
						N08E17	0	0	0			N08E17	Q	
						S34E31	0	0	0			S34E31	Q	
						S21E60	0	0	0			S21E60	Q	
						S16E76	0	0	0			S16E76	E	
292	18	17	223	203	005	N14W85	0	0	0		18	N14W85	E	SOLALERT 18/XX
						S31W80	0	0	0			S31W80	Q	MAGALERT MINOR 18
						S07W77	3	0	0			S07W77	Q	
						S09W58	7	0	0			S09W58	A	
						N16W33	0	0	0			N16W33	Q	
						N07W31	1	0	0			N07W31	Q	
						S28W13	2	0	0			S28W13	E	
						N08E03	0	0	0			N08E03	E	
						N16E10	0	0	0			N16E10	Q	

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						S34E18	0	0	0			S34E18	E	
						S31E32	0	0	0			S31E32	Q	
						N14E33	0	0	0			N14E33	Q	
						S18E72	14	1	0			S18E72	A	
293	19	18	222	20	020	S07W90	0	0	0		19	S07W90	Q	SOLALERT 19/21
						S10W72	6	0	0			S10W72	E	MAGNIL
						N16W46	0	0	0			N16W46	Q	
						N08W43	0	0	0			N08W43	Q	
						S28W25	0	0	0			S28W25	Q	
						N08W13	0	0	0			N08W13	Q	
						N17W03	0	0	0			N17W03	Q	
						N20E05	0	0	0			N20E05	Q	
						S34E07	6	0	0			S34E07	E	
						N24E10	0	0	0			N24E10	Q	
						N15E19	0	0	0			N15E19	Q	
						S16E58	18	1	0			S16E58	A	
						S14E67	1	0	0			S14E67	E	
294	20	19	210	220	010	S12W83	2	0	0	Presto Boulder	20	S12W83	E	SOLALERT 20/21
						N16W60	0	0	0	19/1309Z Polcap		N16W60	Q	MAGQUIET
						S29W38	0	0	0	Absorption began		S29W38	Q	
						N07W25	0	0	0	19/0800Z 0.9 db.		N07W25	Q	
						N13W17	0	0	0			N13W17	Q	
						S34W05	7	0	0			S34W05	E	
						N22W02	0	0	0			N22W02	Q	
						N12E03	0	0	0			N12E03	Q	
						N20E07	0	0	0			N20E07	Q	
						S18E47	12	1	0			S18E47	A	
						S15E60	0	0	0			S15E60	E	
295	21	20	237	202	005	N17W70	0	0	0		21	N17W70	Q	SOLALERT 21/23
						S28W51	0	0	0			S28W51	Q	MAGQUIET
						N08W39	0	0	0			N08W39	Q	
						N14W32	0	0	0			N14W32	Q	
						S34W16	0	0	0			S34W16	E	
						N22W15	1	0	0			N22W15	Q	
						N13W11	0	0	0			N13W11	Q	
						N21W06	0	0	0			N21W06	Q	
						S22E13	0	0	0			S22E13	Q	
						S17E32	5	1	0			S17E32	A	
						N16E44	0	0	0			N16E44	Q	
						S13E44	1	0	0			S13E44	E	
						N06E64	0	0	0			N06E64	Q	
						S09E64	0	0	0			S09E64	Q	
296	22	21	217	206	007	N07W53	0	0	0		22	N07W53	Q	SOLALERT 22/XX
						S34W32	0	0	0			S34W32	E	MAGQUIET
						N13W24	0	0	0			N13W24	Q	
						N20W19	12	0	0			N20W19	E	
						N13W13	0	0	0			N13W13	Q	
						S17E19	6	0	0			S17E19	A	
						N16E30	4	0	0			N16E30	E	
						S13E33	3	0	0			S13E33	E	
						N09E50	1	0	0			N09E50	Q	
						S05E50	0	0	0			S05E50	Q	
297	23	22	213	209	020	N07W65	0	0	0		23	N07W65	Q	SOLALERT MINOR 23
						S07W51	5	0	0			S07W51	Q	MAGQUIET
						S35W46	1	0	0			S35W46	Q	
						N19W33	2	0	0			N19W33	E	
						S17E07	3	0	0			S17E07	A	
						N17E17	0	0	0			N17E17	Q	
						S13E18	5	0	0			S13E18	E	
						S09E37	0	0	0			S09E37	Q	
						N07E38	0	0	0			N07E38	Q	
298	24	23	222	198	038	S08W67	1	0	0	Presto Soflare M3/1	24	S08W67	E	SOLALERT 24/26
						S35W60	0	0	0	23/0741Z N20W34		S35W60	Q	MAGALERT MINOR 24/25
						N19W46	6	2	0	Tenflare 23/0732Z		N19W46	A	
						S18W07	4	0	0	640 Flux Units		S18W07	A	
						N17E04	0	0	0	Tenflare 190 Flux		N17E04	Q	
						S13E04	2	0	0	Units 22/2358Z		S13E04	E	
						N08E24	0	0	0			N08E24	Q	
						S08E24	0	0	0			S08E24	Q	
299	25	24	191	195	013	S08W81	1	0	0		25	S08W81	E	SOLALERT 25/27
						S34W74	0	0	0			S34W74	Q	MAGALERT 25/26
						N19W60	3	0	0			N19W60	A	
						S18W21	3	0	0			S18W21	E	
						N16W10	0	0	0			N16W10	Q	
						S13W10	4	0	0			S13W10	E	
						N07E08	0	0	0			N07E08	Q	
						N17E62	0	0	0			N17E62	Q	
						N21E67	1	0	0			N21E67	Q	
300	26	25	169	185	016	S08W94	0	0	0		26	S08W94	E	SOLALERT 26/28
						S35W86	0	0	0			S35W86	Q	MAGALERT 27/XX
						N19W73	4	1	1			N19W73	A	
						S19W33	4	0	0			S19W33	E	

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SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions Location Lat-Long	Active Regions No of Flares Total	Active Regions No of Flares M	Active Regions No of Flares X	Outstanding events	Forecasts Date	Forecasts Location Lat-Long	Forecasts Desc*	Alert Situations
						S12W24	1	0	0	Presto Soflare		S12W24	E	
						N16W21	0	0	0	X3/1B N19W59		N16W21	Q	
						N07W06	0	0	0	25/0950Z Duration		N07W06	Q	
						S07W04	0	0	0	20 Minutes.		S07W04	Q	
						S13E37	0	0	0	Tenflare 330 Flux		S13E37	Q	
						N18E48	0	0	0	Units 25/0950Z		N18E48	Q	
						N22E54	0	0	0	Duration 10 minutes		N22E54	Q	
301	27	26	169	185	014	N19W86	1	0	0		27	N19W86	A	SOLALERT 27/28
						S19W47	8	0	0			S19W47	E	MAGALERT MINOR 27/28
						S13W37	4	0	0			S13W37	E	
						N06W20	0	0	0			N06W20	Q	
						S07W17	0	0	0			S07W17	Q	
						S12E25	1	0	0			S12E25	Q	
						N19E35	1	0	0			N19E35	E	
						S04E39	3	0	0			S04E39	E	
						N23E40	0	0	0			N23E40	E	
302	28	27	177	180	004	S19W59	4	0	0		28	S19W59	E	SOLALERT 28/29
						S12W50	1	0	0			S12W50	E	MAGALERT MINOR 28
						S12W04	0	0	0			S12W04	Q	
						S11E11	0	0	0			S11E11	Q	
						N19E20	4	0	0			N19E20	E	
						N22E27	1	0	0			N22E27	E	
						S04E25	6	0	0			S04E25	E	
						N14E36	0	0	0			N14E36	Q	
						N08E49	5	0	0			N08E49	Q	
						N29E75	0	0	0			N29E75	Q	
303	29	28	257	177	001	S18W74	7	1	0		29	S18W74	E	SOLQUIET
						S12W64	0	0	0			S12W64	E	MAGNIL
						S09W48	0	0	0			S09W48	Q	
						N13W43	0	0	0			N13W43	Q	
						S11W05	0	0	0			S11W05	Q	
						N19E08	3	0	0			N19E08	E	
						S04E10	7	0	0			S04E10	E	
						N23E16	0	0	0			N23E16	E	
						N14E22	1	0	0			N14E22	Q	
						N18E27	0	0	0			N18E27	Q	
						N08E35	4	0	0			N08E35	E	
						N16E35	0	0	0			N16E35	Q	
						N29E64	6	0	0			N29E64	Q	
						S08E64	0	0	0			S08E64	Q	
						N18E69	0	0	0			N18E69	Q	
304	30	29	297	189	002	S11W78	1	0	0		30	S11W78	Q	SOLQUIET
						S16W21	0	0	0			S16W21	Q	MAGQUIET
						S11W18	0	0	0			S11W18	Q	
						N21W05	2	0	0			N21W05	E	
						S03W04	3	0	0			S03W04	E	
						N24E05	1	0	0			N24E05	Q	
						N14E08	2	0	0			N14E08	E	
						N20E13	0	0	0			N20E13	Q	
						N08E21	4	0	0			N08E21	E	
						N16E22	1	0	0			N16E22	Q	
						N29E52	3	0	0			N29E52	Q	
						N18E56	0	0	0			N18E56	Q	
						S09E61	0	0	0			S09E61	Q	
						N22E69	0	0	0			N22E69	Q	
						N03E78	2	0	0			N03E78	Q	
305	31	30	324	205	009	N06W72	0	0	0		31	N06W72	Q	SOLQUIET
						S16W33	0	0	0			S16W33	E	MAGQUIET
						S10W32	0	0	0			S10W32	Q	
						N21W19	0	0	0			N21W19	E	
						S04W18	4	0	0			S04W18	E	
						N23W08	1	0	0			N23W08	Q	
						N15W07	0	0	0			N15W07	Q	
						N18E06	0	0	0			N18E06	Q	
						N09E09	0	0	0			N09E09	E	
						N16E09	0	0	0			N16E09	Q	
						N29E40	1	0	0			N29E40	E	
						N19E42	0	0	0			N19E42	Q	
						S09E47	0	0	0			S09E47	Q	
						N22E56	3	0	0			N22E56	Q	
						N03E64	0	0	0			N03E64	E	
						N04E79	0	0	0			N04E79	Q	
						N10E80	0	0	0			N10E80	E	
306	01	31	287	215	020	S18W46	2	0	0		01	S18W46	E	SOLQUIET
						N18W35	4	0	0			N18W35	E	MAGQUIET
						S05W31	2	0	0			S05W31	E	
						N13W21	3	0	0			N13W21	Q	
						N20W21	0	0	0			N20W21	Q	
						N08W08	2	0	0			N08W08	E	
						N16W04	0	0	0			N16W04	Q	
						N30E25	1	0	0			N30E25	E	
						N20E28	0	0	0			N20E28	Q	
						N22E40	7	0	0			N22E40	Q	
						N03E49	4	0	0			N03E49	E	
						N06E62	0	0	0			N06E62	Q	
						N12E71	4	0	0			N12E71	E	

A=Active C=Caution D=Doubtful E=Eruptive MF=Major Flare OG=Other Groups P=Proton Q=Quiet

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

	1979 FINAL		1980 PROVISIONAL									
DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	224	122	153	208	181	185	121	152	101	78	208	151
2	157	156	158	187	168	145	149	124	108	63	226	135
3	155	187	148	185	151	133	140	128	97	65	232	139
4	172	218	173	182	136	123	166	141	85	65	233	121
5	166	232	190	178	130	154	192	150	96	53	188	96
6	203	206	207	215	132	185	145	131	98	72	179	116
7	240	212	218	248	120	200	147	149	97	64	136	135
8	280	262	225	230	101	199	157	156	87	90	140	181
9	279	280	262	172	103	229	168	164	78	125	108	186
10	302	260	224	140	69	214	144	168	86	130	119	235
11	295	242	245	148	67	245	142	172	87	181	125	260
12	248	261	210	135	70	257	143	166	98	174	128	234
13	183	235	181	131	71	259	150	161	105	172	133	197
14	218	230	178	146	68	203	166	136	128	193	100	232
15	186	225	146	168	52	182	157	129	161	192	83	209
16	166	215	166	163	36	154	148	134	198	196	98	187
17	238	180	160	132	67	126	173	129	211	190	93	173
18	172	151	130	122	63	127	215	146	241	195	114	150
19	174	138	118	129	119	134	218	166	213	185	137	137
20	153	126	115	139	108	173	230	179	212	179	150	167
21	124	124	121	114	105	143	233	191	217	152	118	155
22	116	111	123	99	130	122	244	196	201	139	147	164
23	142	116	124	100	149	95	246	190	184	154	158	140
24	162	130	120	122	175	112	256	193	155	122	178	127
25	155	143	107	121	176	139	229	179	151	109	168	123
26	141	116	127	152	191	171	220	166	138	101	209	119
27	115	93	128	175	205	156	223	185	117	98	231	134
28	119	98	130	197	221	149	190	188	127	124	181	136
29	98	121	122	181	191	145	170	149	118	158	166	173
30	116	139	145		182	138	150	97	108	184	149	170
31		135	174		183		138		81	194		167
MEAN	183.3	176.3	162.2	159.3	126.5	166.6	179.7	157.2	135.0	135.4	154.5	162.9

1979 YEARLY MEAN = 155.4

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1979		1980									
DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	211.6	161.9	189.1	212.6*	175.7	181.9	218.5	191.2	160.0*	131.9	213.2*	171.1
2	209.5	172.0*	199.9	217.9	172.9	181.1*	223.0	184.0	154.9	131.8	224.5*	167.9*
3	207.5	195.1*	211.9*	225.7	170.2*	176.1	221.2	178.8	147.7	133.2	232.1	174.1
4	214.2	221.0	212.4*	231.7	172.7*	184.3*	223.1*	181.5	146.7	130.9	225.1	175.2
5	235.5	223.4*	207.7	218.9	171.8	209.7*	221.9	178.4	152.5*	132.6	215.6*	182.6
6	273.2*	223.4	222.1	221.7	169.4	238.4*	203.5	172.4	150.1	143.2*	210.9	185.3*
7	286.9*	222.6	228.0	223.9*	166.3	236.1*	203.4	165.7*	152.5	142.3	213.0	198.7*
8	310.1	228.9*	228.1*	218.7	164.9	241.7	200.2*	172.4*	152.8	146.4	200.9	212.1*
9	314.4*	232.4	240.9*	208.2*	161.3	244.7*	193.6	174.3*	155.2	156.5	189.7	223.4*
10	367.0*	230.3	253.0*	204.6*	153.9	249.0	191.1	176.1	162.3*	173.5	188.7	232.7
11	325.7*	230.6*	255.7*	213.7	147.8	249.9	191.4*	182.9	173.3	184.1	188.1	240.7
12	294.4	232.3	245.1*	213.7	138.6	245.6	189.5	189.3*	178.0	189.6	178.9	247.8*
13	272.7	231.7	221.6	217.9	144.6	232.8	192.9	186.5	196.8	193.3*	171.9	253.3*
14	256.4	238.3	203.8	201.0	141.2	226.3	202.9	188.8*	209.7	191.7*	163.4	251.1
15	239.7*	231.8	200.0	201.2*	139.3	206.1*	199.8	186.4	218.4	191.9	153.8	237.0
16	230.6	216.3	188.6	200.2	137.3	192.4	202.9*	193.3	235.4*	195.7	159.6	214.9
17	231.8	202.2	186.9	182.8*	142.9	191.9	207.5*	197.4	250.2*	197.7*	158.0	201.1
18	231.9	187.4	177.5	180.0*	147.4	201.4	214.3*	207.6	249.8*	204.3*	154.4	200.6
19	214.8	183.0	164.4	177.3	162.3	214.5*	234.2	219.8*	255.2*	201.4	160.1*	203.3
20	205.9	180.8*	156.5	174.7	162.1	215.8	244.7*	227.9*	258.0	193.0	167.5	200.5
21	189.8	176.7*	153.4	169.6	162.4	207.7	252.6	228.0	254.0	194.1	159.6	204.2
22	182.5	175.3	158.2*	167.3	162.5	199.2	276.6	250.0*	248.7	178.3*	178.6	205.3*
23	183.2	168.6	166.7	160.1	172.4*	186.2	289.5	251.5	235.1	174.1	188.7*	196.1
24	175.2*	160.2	171.1*	157.2*	172.4	186.3	290.2	245.9*	222.2	164.3*	191.3	192.5
25	165.8*	162.0	171.3*	165.7	182.5*	185.9	292.8	238.8*	206.4	153.8*	183.8	182.9
26	161.6	159.7	178.8*	169.0	185.2	186.6	284.2	226.3	197.4	154.6	184.3	180.3*
27	155.7	153.6*	190.6*	173.2	195.3*	200.6*	281.2*	212.6	188.4	159.3	183.2*	177.2
28	150.1	163.1	194.0	171.7*	203.5	203.7	280.8*	199.7*	169.5	168.3	185.2	178.2*
29	154.0	174.0	197.0	176.7*	199.9	203.5*	252.3	188.8	155.3	178.5	178.2*	186.4
30	152.2	185.5	197.9	.	194.3*	200.9	222.7	183.4	143.3	191.4*	174.1	201.8
31	.	188.9	213.9*	.	187.2*	.	200.6	.	136.5	198.7*	.	211.5
MEAN	226.8	197.2	199.6	195.1	166.5	209.3	229.1	199.3	190.8	170.3	185.9	202.9

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

OCTOBER 1980

	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$		AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	275	23	151	124	170.8	515	327	182	171.1	174	131		39	
2	276	24	135	118	167.7*	508	325	176	167.9*	165	132			
3	277	25	139	128	173.9	473	332	184	174.1	171	138		36	
4	278	26	121	101	175.2	526	341	186	175.2	178	139		37	
5	279	27	96	96	182.6	521	342	189	182.6	182	135		35	
6	280	1	116	109	185.5*	519	384	209	185.3*	194	143		41	
7	281	2	135	156	198.9*	498	391	217	198.7*	194	141		41	
8	282	3	181	184	212.5*	525	385	238	212.1*	215	147		43	
9	283	4	186	225	224.1*	534	382	247	223.4*	218	148		39	
10	284	5	235	246	233.4	536	378	249	232.7	226	151		52	
11	285	6	260	249	241.7	480	378	249	240.7	233	168		47	
12	286	7	234	257	248.8*	547	415	280	247.8*	254	171		52	26
13	287	8	197	237	254.6*	536	436	276	253.3*	245	170		57	
14	288	9	232	232	252.4				251.1					
15	289	10	209	221	238.4	554	417	253	237.0	232	163		74	
16	290	11	187	184	216.4				214.9					
17	291	12	173	150	202.5				201.1					
18	292	13	150	144	202.2	492	363	225	200.6	191	142		40	
19	293	14	137	133	204.9	534	404	231	203.3	194	138		43	
20	294	15	167	127	202.3	532	366	232	200.5	197	134		40	
21	295	16	155	146	206.1	484	368	220	204.2	196	138		40	
22	296	17	164	159	207.4*	521	389	223	205.3*	195	130		35	
23	297	18	140	140	198.1	528	367	218	196.1	192	131		43	
24	298	19	127	145	194.6	522	376	208	192.5	182	126		45	
25	299	20	123	103	185.1	534	369	205	182.9	177	126		38	
26	300	21	119	137	182.5*	522			180.3*					
27	301	22	134	119	179.5	523	374	199	177.2	176	124		39	
28	302	23	136	165	180.5*	467	362	196	178.2*	176	134		38	
29	303	24	173	150	189.0	533	370	199	186.4	180	133		39	
30	304	25	170	188	204.7	539	389	216	201.8	197	141		40	
31	305	26	167	180	214.7	536	384	220	211.5	203	145		44	
MEAN			162.9	163.0	204.2	519	375	219	202.9	198	141		42	26

*ADJUSTED FOR BURST.

NOTE: DATA GAPS IN AFGL SAGAMORE HILL DATA ARE DUE TO EQUIPMENT PROBLEMS.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Nov 77	29.1	52	28.4	50	36.9	56	91.6	109
Dec	43.2	57	42.8	55	44.8	61	98.9	114
Jan 78	51.9	61	48.8	59	52.6	66	106.1	118
Feb	93.6	64	90.9	61	91.1	69	141.8	122
Mar	76.5	70	73.9	66	89.5	73	140.3	125
Apr	99.7	77	97.5	72	100.5	79	150.5	130
May	82.7	83	79.6	78	99.7	84	149.7	135
Jun	95.1	89	88.0	84	96.5	90	146.8	141
Jul	70.4	97	58.1	92	84.2	97	135.2	147
Aug	58.1	104	48.1	98	64.3	104	116.9	153
Sep	138.2	108	128.1	103	110.4	108	159.6	158
Oct	125.1	111	116.0	105	107.7	111	157.1	160
Nov	97.9	113	92.8	107	98.1	113	148.2	162
Dec	122.7	118	121.0	111	121.6	116	170.0	165
Jan 79	166.6	124	164.4	116	150.2	119	196.5	168
Feb	137.5	131	136.8	123	153.0	124	199.1	172
Mar	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	156*	140.5	145	123.1	145	171.4	192
Aug	142.2	157*	125.1	144	129.2	145	177.0	192
Sep	188.4	157*	184.0	143	156.5	144	202.3	191
Oct	186.2	158*	178.2	144	171.7	145	216.4	192
Nov	183.3	163*	176.5	149	182.9	149	226.8	196
Dec	176.3	165*	157.6	152	151.0	152	197.2	199
Jan 80	162.2*	165*	146.7	153	153.6	154	199.6	200
Feb	159.3*	163*	131.0	154	148.7	155	195.1	200
Mar	126.5*	162*	111.0	153	117.8	153	166.5	200
Apr	166.6*	159*	148.7	151	164.0	152	209.3	198
May	179.7*	159(± 6)*	176.5	151	185.4	152	229.1	---
Jun	157.2*	156(±11)*	158.8	148	153.2	149	199.3	---
Jul	135.0*	153(±17)*	144.7	145	144.1	146	190.8	---
Aug	135.4*	150(±20)*	134.5	143	121.9	144	170.3	---
Sep	154.5*	148(±22)*	151.4	141	138.8	142	185.9	---
Oct	162.9*	147(±24)*	163.0	141	157.1	141	202.9	---
Nov	---	146(±26)*	---	140	---	140	---	---
Dec	---	145(±29)*	---	139	---	140	---	---
Jan 81	---	145(±33)*	---	139	---	140	---	---
Feb	---	145(±33)*	---	138	---	139	---	---
Mar	---	142(±31)*	---	136	---	136	---	---
Apr	---	139(±31)*	---	133	---	133	---	---

*An asterisk denotes a value of the observed monthly mean, or the observed 12-month running mean, or the predicted 12-month average that is based only on preliminary observations of the Zurich relative sunspot number (Rz). Parentheses enclose the 90% confidence limits. Hatched boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

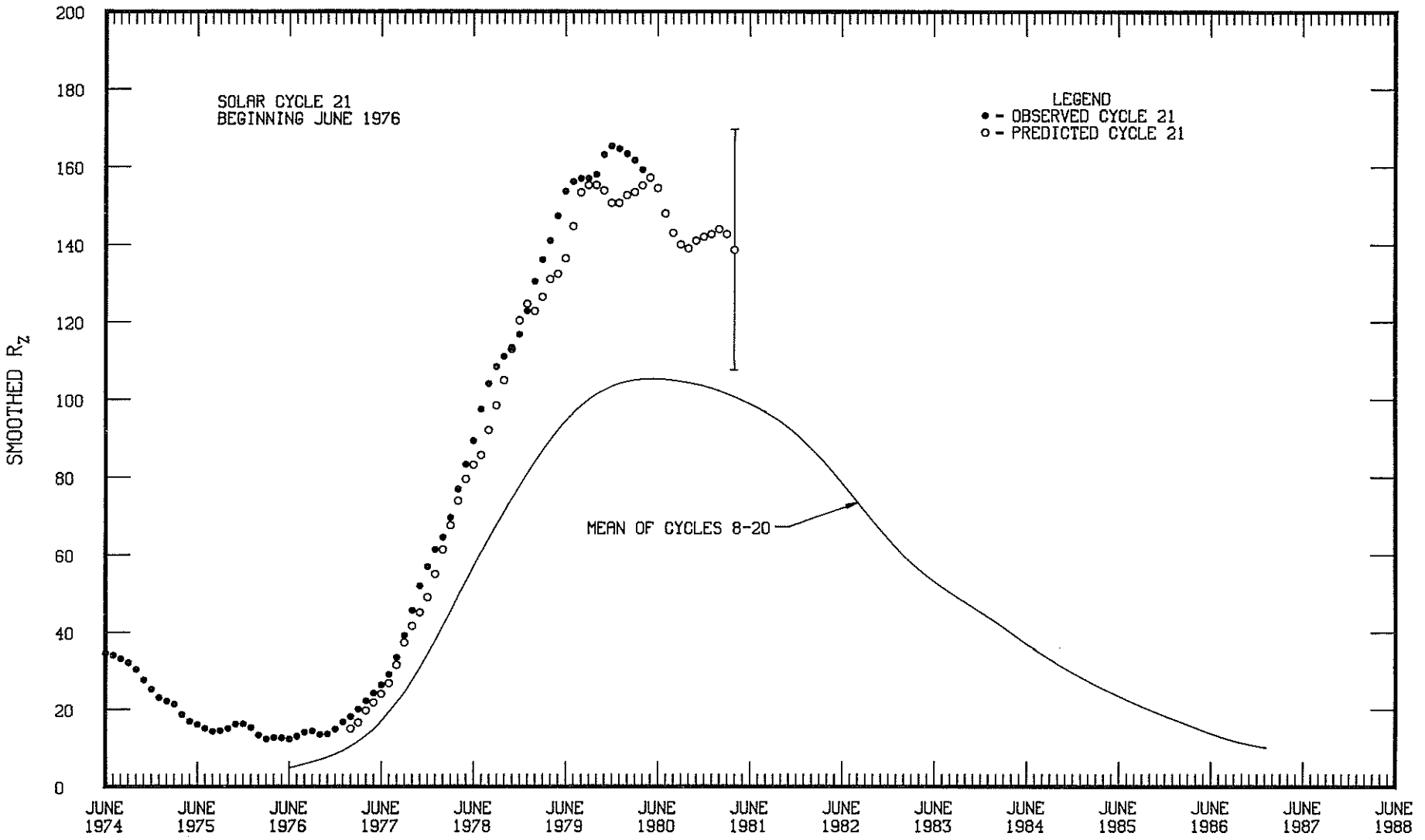
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	156	157	157	159	163	165*
1980	165*	163	162	159	159	156	153	150	148	147	146	145
					(6)	(11)	(17)	(20)	(22)	(24)	(26)	(29)
1981	145	145	142	139	136	133	131	130	129	128	125	121
	(33)	(33)	(31)	(31)	(32)	(33)	(33)	(32)	(32)	(32)	(32)	(30)
1982	118	115	112	110	107	104	100	95	90	85	82	78
	(28)	(28)	(27)	(26)	(24)	(23)	(21)	(20)	(19)	(17)	(16)	(17)
1983	74	71	69	67	64	62	60	58	56	55	54	54
	(17)	(18)	(19)	(20)	(20)	(21)	(23)	(25)	(27)	(28)	(29)	(30)
1984	52	50	47	43	41	40	40	38	37	35	34	32
	(30)	(29)	(29)	(29)	(30)	(31)	(32)	(31)	(31)	(29)	(28)	(28)
1985	31	30	29	28	28	26	25	24	24	23	22	21
	(28)	(27)	(26)	(26)	(26)	(25)	(24)	(23)	(23)	(23)	(24)	(24)
1986	21	20	19	18	16	15	13	13	12	12	12	12
	(25)	(25)	(24)	(23)	(22)	(21)	(20)	(19)	(18)	(17)	(16)	(14)
1987	12	12	13	14	15	16	17					
	(12)	(12)	(12)	(13)	(14)	(14)	(15)					

The table gives observed Zürich *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1979 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1980 are included. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports,* February 1980). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

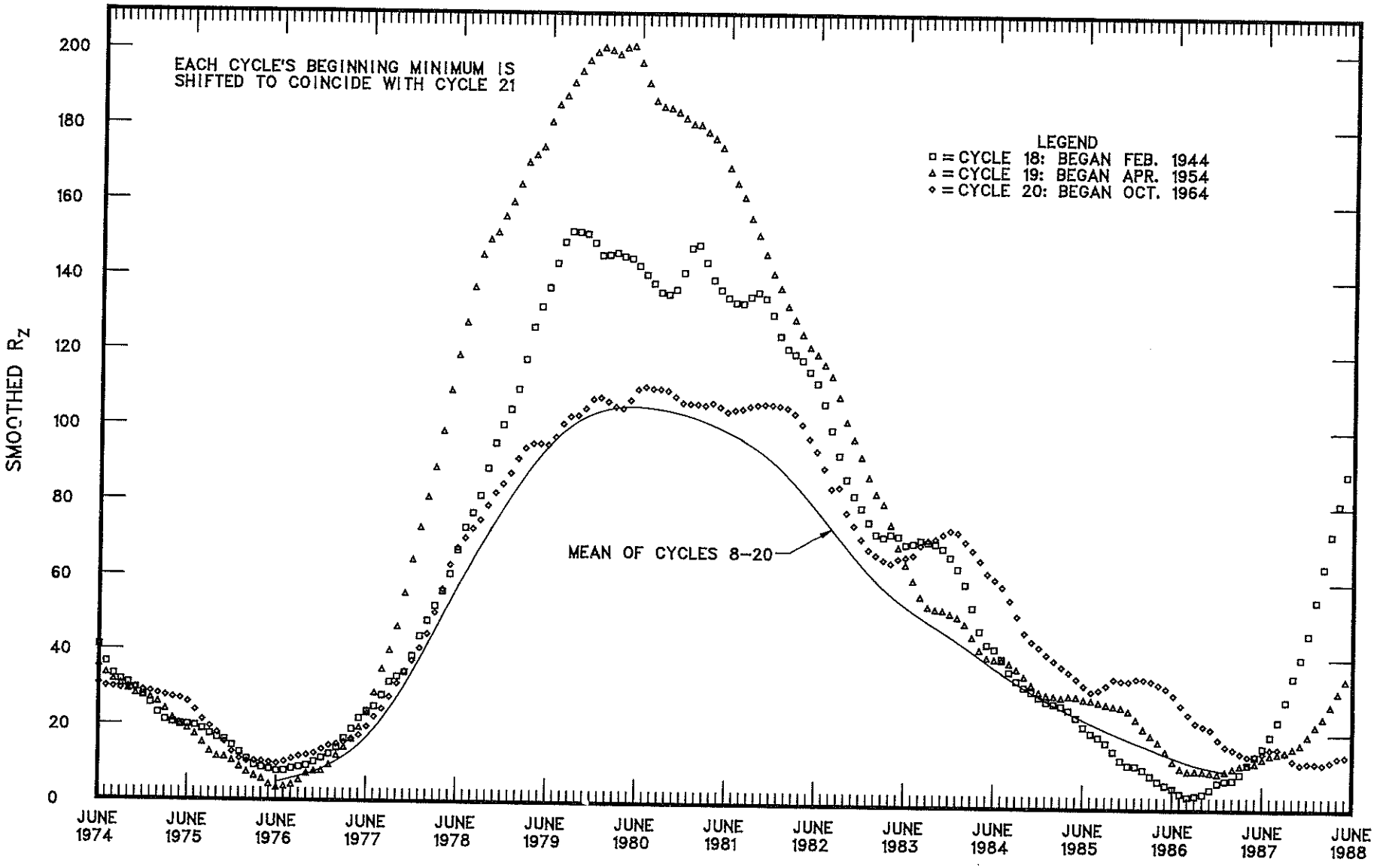
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21. The most recent observed smoothed sunspot value suggests the maximum occurred in the interval December 1979 - January 1980. The uncertainties, however, in the predicted numbers indicate it is still too early to claim these 2 months as the period in which the true peak in the curve occurred.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



Hα SOLAR FLARES

OCTOBER 1980

OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
LEAR	01	0022	0040	0050	N13	E34	.560		3.6	28	SB	3	C		42		
MANI	01	0039E	0042U	0042D	N15	E35	.578		3.7	30	SF	1	V		20	.2	
LEAR	01	0136	0139	0154	N12	E34	.558		3.6	18	SN	3	C		75		
LEAR	01	0157	0202	0212	N17	E32	.543		3.5	15	SN	3	C		33		
LEAR	01	0336	0337	0342	N22	E18	.393		2.5	6	SF	3	C		39		
LEAR	01	0412	0416	0422	N13	E32	.532		3.6	10	SN	3	C		45		
BERN	01	1205	1219	1234	N12	E66	.908		6.5	29	1F				350		
RAMY	01	1212	1213	1253	N16	E66	.907		6.5	41	SN	3	C		28		
HOLL	01	1741	1746	1800	N23	E14	.360		2.8	19	SF	3	C		56		
PALE	01	1749	1750	1805	N19	E60	.862		6.2	16	SF	3	C		39		
HOLL	01	1751	1752	1755	N16	E71	.939		7.1	4	SF	3	C		14		
HOLL	01	1758	1802	1817	N18	E28	.493		3.8	19	SF	3	C		24		
HOLL	01	1924	1926	1945	N14	E22	.388		3.5	21	SF	3	C		39		
HOLL	01	1950	2004	2030	N13	E23	.399		3.6	40	SN	3	C		79		
HOLL	01	2058	2105	2129	N14	E22	.388		3.5	31	SF	3	C		33		
HOLL	01	2156	2201	2214	N14	E21	.373		3.5	18	SF	3	C		26		
HOLL	01	2207	2209	2217	N16	E59	.852		6.3	10	SF	3	C		18		
LEAR	02	0030	0045	0050	S25	E87	1.000		8.5	20	SF	2	C				
LEAR	02	0311	0314	0328	N12	E18	.318		3.5	17	SB	3	C		114		
MANI	02	0312	0314	0322D	N14	E17	.313		3.4	10D	SF	2	P		50	.5	
LEAR	02	0437	0438	0446	N16	E55	.815		6.3	9	SN	3	C		37		
LEAR	02	0530	0549	0606	N14	E21	.373		3.8	36	1N	3	C		273		
LEAR	02	0745	0749	0822	N16	E18	.341		3.7	37	SF	3	C		130		
MANI	02	0746	0750	0800D	N15	E18	.334		3.7	14D	SF	2	P		60	.6	
PALE	02	1705E	1705U	1716	N27	W00	.347		2.7	11D	SF	3	C		50		
PALE	02	1705E	1705U	1724	N25	E03	.318		2.9	19D	SN	3	C		39		
PALE	02	1800	1800	1808	N16	E13	.272		3.7	8	SF	3	C		23		
HOLL	02	2127	2128	2203	S21	W36	.706		30.2	36	SF	3	C		30		
HOLL	02	2154	2200	2200D	N13	E07	.162		3.4	60	1B	3	C		231		
PALE	02	2159	2159	2206	N14	E08	.186		3.5	7	SB	3	C		138		
LEAR	02	2357	0001	0023	N13	E45	.704		6.4	26	SF	3	C		99		
LEAR	03	0040	0043	0048	N13	E07	.163		3.6	8	SF	3	C		27		
LEAR	03	0817	0824	0851	N14	E05	.154		3.7	34	SN	3	C		98		
MANI	03	0827E	0828	0838D	N13	E07	.163		3.9	11D	SF	2	P		25	.3	F
HOLL	03	1612	1615	1640	S18	W49	.812		30.0	28	SF	3	C		36		
WEND	03	1616		1627D	S15	W48	.791		30.1	11D	SF		C	1621	62	1.0	
WEND	03	1623	1625	1639D	N13	E04	.130		4.0	16D	SF		C	1625	68	.7	
HOLL	03	1637	1637	1643	N12	E03	.107		3.9	6	SF	3	C		32		
HOLL	03	1703	1709	1715	N12	E01	.095		3.8	12	SN	3	C		41		
HOLL	03	1731	1751	1836	N12	E01	.095		3.8	65	SN	3	C		102		
HOLL	03	1818	1858	1904	S20	W48	.811		30.2	46	SN	3	C		33		
PALE	03	1828	1829	1846	S19	W47	.798		30.2	18	SF	3	C		21		
PALE	03	1834	1850U	1903D	N14	E08	.187		4.4	29D	SN	2	C		33		
RAMY	03	1925	2023	2031	S20	W48	.811		30.2	66	SF	3	C		22		
HOLL	03	2001	2005	2042	N12	E02	.100		4.0	41	SF	3	C		55		
RAMY	03	2006	2032	2037	N13	W01	.112		3.8	31	SF	3	C		65		
HOLL	03	2112	2122	2158	S10	W63	.906		29.2	46	SN	3	C		52		
HOLL	03	2200	2218	2304	N17	E06	.206		4.4	64	1N	3	C		268		
HOLL	03	2227	2309	2354	S20	W49	.820		30.3	87	1N	3	C		270		
LEAR	03	2249E	2310	0011	S18	W51	.829		30.1	82D	1N	3	C		342		
HOLL	03	2317	2328	2343	N07	W56	.825		29.8	26	SN	3	C		29		
LEAR	03	2326	2328	2337	N11	W56	.824		29.8	11	SN	3	C		19		
HOLL	03	2331	2333	2342	N15	W04	.161		3.7	11	SN	3	C		47		
LEAR	03	2331	2332	2342	N14	W04	.145		3.7	11	SN	3	C		56		
LEAR	03	2357	0001	0023	N13	E45	.704		7.4	26	SF	3	C		99		
LEAR	04	0044	0044	0048	N22	W16	.372		2.8	4	SF	3	C		34		
LEAR	04	0249	0251	0309	N14	W05	.155		3.7	20	SN	3	C		136		
PALE	04	0253E	0255U	0258D	N16	W06	.193		3.7	5D	SF	2	C		31		
LEAR	04	0740	0741	0745	N02	W71	.945		29.0	5	SF	3	C		32		
LEAR	04	0747	0758	0812	N27	W20	.468		2.8	25	SF	3	C		44		
HOLL	04	1757	1808	1845	N16	W14	.286		3.7	48	SF	3	C		46		
HOLL	04	1814	1814	1834	N14	E23	.403		6.5	20	SF	3	C		28		
HOLL	04	2101	2104	2122	S19	E45	.779		8.3	21	SN	3	C		91		
HOLL	04	2122	2122	2155	N16	W17	.328		3.6	33	SF	3	C		21		
HOLL	04	2143	2159	2255	S24	E47	.820		8.4	72	SF	3	C		71		
HOLL	04	2152	2153	2212	S19	W66	.939		30.0	20	SN	3	C		26		
LEAR	04	2249E	2310	0011	S18	W51	.829		1.1	82D	1N	3	C		342		
HOLL	04	2320	2320	2329	N07	W70	.936		29.7	9	SF	3	C		16		
HOLL	04	2344	2351	0014D	N20	E27	.491		7.0	30D	SF	3	C		33		

Hα SOLAR FLARES

OCTOBER 1980

OBSERV-ATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURA-TION MIN.	IM POR-TANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
LEAR	05	0146	0153	0214	S09	E48	.769		8.7	28	SF	3	C		66		
RAMY	05	1107	1127	1136	S18	W70	.958		30.2	29	SF	3	C				
RAMY	05	1119	1126	1200	N13	W23	.400		3.7	41	SF	3	C		37		
RAMY	05	1226	1237	1311	N11	W24	.409		3.7	45	SN	3	C		45		
RAMY	05	1249	1253	1255	N16	E77	.969		11.3	6	SF	3	C		26		
RAMY	05	1312	1312	1324	N14	W24	.419		3.8	12	SF	3	C		21		
HOLL	05	1415E	1416U	1432	N12	W25	.427		3.7	17D	SF	3	C		36		
HOLL	05	1539	1629	1737	N12	W26	.442		3.7	118	SF	3	C		53		
HOLL	05	1555	1603	1639	N04	W82	.989		29.5	44	SF	3	C				
RAMY	05	1557	1558	1633	N03	W90	1.000		28.9	36	SF	3	C				
LEAR	06	0009	0011	0022	S10	E33	.599		8.5	13	SN	3	C		56		
LEAR	06	0121	0124	0132	N07	W90	1.000		29.3	11	SN	3	C				
LEAR	06	0205	0208	0213	N14	E71	.940		11.4	8	SF	3	C		45		
LEAR	06	0409	0412	0421	S10	E28	.536		8.3	12	SN	3	C		34		
LEAR	06	0456	0458	0513	N14	E02	.135		6.4	17	SN	3	C		66		
LEAR	06	0721	0723	0738	N11	E61	.869		10.9	17	SF	3	C		20		
LEAR	06	0722	0725	0739	N12	W33	.545		3.8	17	SF	3	C		76		
LEAR	06	0805	0808	0817	S10	E25	.498		8.2	12	SF	3	C		28		
ISTA	06	0806		0817	S09	E27	.516		8.4	11	SF						D
MANI	06	0807	0809	0820	S09	E26	.503		8.3	13	SF	2	P		30	.4	
WEND	06	1043E		1103D	S09	E22	.451		8.1	20D	SN		C	1043	100	1.1	
WEND	06	1205		1216	N19	W38	.629		3.7	11	SF		C	1209	88	1.2	
RAMY	06	1354	1359	1427	N14	E58	.843		10.9	33	SF	3	C		46		
PALE	06	2312	2315U	2324D	N14	E63	.885		11.7	12D	SF	3	C		85		
LEAR	06	2312	2316	2325	N14	E66	.908		11.9	13	SN	3	C		112		
LEAR	07	0118	0120	0128	N14	W05	.157		6.7	10	SF	3	C		24		
LEAR	07	0204	0205	0212	N15	E65	.901		12.0	8	SF	3	C		56		
LEAR	07	0900	0902	0913	S08	E89	1.000		14.1	13	SF	3	C				
LEAR	07	0922	0930	0940	S07	E83	.994		13.6	18	1B	3	C				
RAMY	07	1133	1133	1143	N13	W52	.784		3.6	10	SN	3	C		48		
RAMY	07	1414	1415	1418	S07	E90	1.000		14.3	4	SN	3	C				D
HOLL	07	1421	1432	1715	N13	E49	.751		11.3	174	1B	3	C		163		D
RAMY	07	1428	1432	1457	N17	E57	.835		11.9	29	SB	3	C		84		D
RAMY	07	1502	1512U	1523	N18	E51	.777		11.5	21	SN	3	C		55		
RAMY	07	1602	1608	1631	N19	E57	.836		11.9	29	SN	3	C		43		
HOLL	07	2006	2030	2101	N16	E54	.806		11.9	55	SN	3	C		86		
HOLL	07	2012	2014	2022	N15	W20	.365		6.3	10	SF	3	C		30		
HOLL	07	2115	2119	2219	N12	W54	.804		3.8	64	SN	3	C		52		
HOLL	07	2120	2308	2313D	N16	E54	.806		11.9	113D	2B	3	C		475		
PALE	07	2123	2127	2155	N15	E52	.785		11.8	32	1N	2	C		157		D
PALE	07	2212	2216	2223	N16	E49	.753		11.6	11	SF	3	C		57		D
MANI	07	2305	2312	2319D	N14	E51	.773		11.8	14D	2B	1	V		550	8.8	ZE
LEAR	07	2306	2316	0008	N14	E53	.794		11.9	62	2B	3	C		872		
PALE	07	2308	2309	2311D	N15	E51	.774		11.8	3D	2B	3	C		496		
LEAR	08	0124	0142	0145	S12	E83	.995		14.3	21	SN	3	C				
PALE	08	0143	0143	0156	S10	E73	.964		13.5	13	SN	2	C				
LEAR	08	0206	0207	0215	N16	E45	.708		11.5	9	SN	3	C		22		
PALE	08	0206	0209	0228	N16	E43	.684		11.3	22	SF	2	C		60		
LEAR	08	0223	0235	0254	N12	E35	.573		10.7	31	SN	3	C		63		
PALE	08	0229	0235	0243	N13	E34	.561		10.7	14	SF	2	C		45		
LEAR	08	0259	0306	0328	S07	E75	.970		13.7	29	SN	3	C				
LEAR	08	0404	0405	0417	N11	E45	.703		11.5	13	SN	3	C		30		
LEAR	08	0756	0756	0802	S09	E77	.979		14.1	6	SF	3	C				
ISTA	08	0800	0805	0815	N11	E46	.715		11.8	15	SN						D
LEAR	08	0802	0805	0821	N10	E45	.703		11.7	19	SF	3	C		28		
LEAR	08	0841	0844	0851	N13	W23	.401		6.6	10	SF	3	C		21		
ATHN	08	0851E	0952	0955D	S09	W07	.290		7.8	64D	SB	2	C		48		D
RAMY	08	1123	1157	1233	N13	E41	.655		11.5	70	1B	3	C		213		D
RAMY	08	1212	1219	1223	N16	W58	.844		4.2	11	SN	3	C		36		
RAMY	08	1247	1247	1253	N15	W59	.852		4.1	6	SF	3	C		28		
RAMY	08	1313	1315	1321	S09	E72	.958		14.0	8	SN	3	C				
RAMY	08	1413	1413	1441	N12	E40	.641		11.6	28	SN	3	C		57		
RAMY	08	1533E	1537U	1618	N16	E38	.622		11.5	45D	1B	3	C		275		
HOLL	08	1540	1540	1624	N11	E37	.600		11.4	44	1B	3	C		346		D
HOLL	08	1648	1703	1812	N18	W73	.951		3.2	84	1N	3	C				
HOLL	08	1909	1909	1936	N16	E43	.684		12.0	27	SN	3	C		19		
HOLL	08	1910	1914	1941	S12	E63	.908		13.5	31	1N	3	C		159		
PALE	08	1917	1919	2005	S13	E62	.903		13.5	48	SF	2	C		29		

Hα SOLAR FLARES

OCTOBER 1980

OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
PALE	08	1922	1932	1953	N15	E41	.658		11.9	31	SF	2	C		21		
PALE	08	1939	1939	1953	S06	E65	.914		13.7	14	SF	2	C		22		
HOLL	08	1939	1940	1953	S05	E67	.926		13.8	14	SF	3	C		15		
HOLL	08	2003	2027	2105	S06	E67	.927		13.9	62	1B	2	C		207		
PALE	08	2010	2028	2114	S07	E65	.915		13.7	64	2N	2	C		280		
HOLL	08	2120	2308	2358D	N16	E54	.806		12.9	158D	2B	3	C		475		
HOLL	08	2129	2130	2138	N12	E36	.587		11.6	9	SN	3	C		47		
HOLL	08	2134	2153	2209	S10	E61	.890		13.5	35	1N	3	C		137		
PALE	08	2148E	2149U	2157D	S12	E61	.894		13.5	9D	SF	2	C		20		
LEAR	08	2255	2301	2329	N14	E40	.643		12.0	34	1B	3	C		296		D
HOLL	08	2255	2258	2337	N16	E37	.609		11.7	42	1B	3	C		198		
PALE	08	2304E	2304U	2333D	N14	E38	.617		11.8	29D	SN	2	C		316		
PALE	08	2308	2309	0011	N15	E51	.774		12.8	63	2B	2	C		496		
HOLL	08	2324	2331	2338	S07	E66	.922		13.9	14	SF	3	C		16		
LEAR	08	2348	2350	2358	S09	E69	.942		14.2	10	SF	3	C		22		
LEAR	09	0034	0037	0040	S12	E61	.894		13.6	6	SF	3	C		13		
LEAR	09	0142	0144	0151	S09	E67	.930		14.1	9	SF	3	C		23		
LEAR	09	0155	0200	0206	N10	E23	.392		10.8	11	SF	3	C		30		
LEAR	09	0216	0219	0228	N16	W37	.609		6.3	12	SF	3	C		28		
LEAR	09	0226	0237	0257	S12	E59	.878		13.5	31	SN	3	C		58		
LEAR	09	0231	0242	0311	N10	E34	.557		11.7	40	SB	3	C		133		
LEAR	09	0236	0237	0247	S10	E56	.849		13.3	11	SN	3	C		64		
MANI	09	0240E	0242U	0245D	N14	E36	.591		11.8	5D	SB	1	V		50	.6	
LEAR	09	0404	0406	0415	N15	W35	.580		6.5	11	SN	3	C		89		
LEAR	09	0513	0514	0531	N15	W35	.580		6.6	18	SN	3	C		88		
LEAR	09	0700	0701	0715	S13	E58	.873		13.6	15	SF	3	C		19		
ATHN	09	1124E	1127	1226	S17	E50	.815		13.2	62D	1B	3	C		254		D
RAMY	09	1125E	1128	1308	S11	E53	.824		13.5	103D	1B	3	C		215		
RAMY	09	1142	1148	1208	N13	E27	.461		11.5	26	SB	3	C		194		
RAMY	09	1227	1244	1252	N13	E16	.295		10.7	25	SF	3	C		58		
HOLL	09	1416	1417	1425	S05	E56	.839		13.8	9	SN	3	C		70		
HOLL	09	1534	1537	1542	S12	E52	.818		13.5	8	SF	3	C		17		
HOLL	09	1714	1715	1724	N11	E14	.252		10.8	10	SF	3	C		22		
HOLL	09	1749	1750	1811	S10	E49	.782		13.4	22	SB	3	C		105		
HOLL	09	1852	1854	1902	S04	E53	.808		13.8	10	SN	3	C		40		
HOLL	09	1951	1958	2033	S10	E49	.782		13.5	42	1B	3	C		173		
RAMY	09	1933E		1939	S07	E51	.794		13.6	6D	SN	3	C		42		
RAMY	09	2002E		2004D	S11	E50	.795		13.6	2D	1B	3	C		232		
HOLL	09	2030	2034	2053	N12	E24	.412		11.7	23	SF	3	C		22		
MANI	09	2256	2302	2304D	N14	E37	.604		12.7	8D	SB	1	V		150	1.9	F
PALE	09	2329E	2342U	2342D	S10	E48	.772		13.6	13D	SF	2	C		90		
HOLL	09	2335	2336	2346	S07	E49	.773		13.7	11	SN	3	C		22		
HOLL	09	2343	2351	2351D	S06	E61	.884		14.6	8D	SF	3	C		35		
PALE	10	0000E	0008U	0010D	S10	E47	.761		13.5	10D	SF	2	C		126		
PALE	10	0032E	0032U	0042D	S10	E47	.761		13.5	10D	SF	2	C		92		
LEAR	10	0034	0035	0110	N12	W00	.101		10.0	36	SF	2	C		37		
PALE	10	0046E	0054U	0056D	S10	E47	.761		13.6	10D	SF	2	C		72		
LEAR	10	0123	0127	0142	N15	E30	.511		12.3	19	SB	2	C		47		D
PALE	10	0126E	0127U	0142	N17	E28	.491		12.2	16D	SF	2	C		30		
LEAR	10	0134	0134	0142	S12	E47	.768		13.6	8	SN	2	C		46		
LEAR	10	0202	0202	0212	S08	W26	.494		8.1	10	SF	3	C		20		
LEAR	10	0212	0215	0225	N15	W47	.730		6.6	13	SF	3	C		36		
LEAR	10	0300	0300	0303	S08	E49	.776		13.8	3	SF	3	C		18		
LEAR	10	0301	0310	0401	N14	E21	.376		11.7	60	SN	3	C		147		
PALE	10	0306	0308U	0322D	N19	E24	.448		11.9	16D	SF	2	C		37		
LEAR	10	0517	0523	0537	N15	W51	.775		6.4	20	SF	3	C		46		
LEAR	10	0631	0645	0716	S08	E47	.755		13.8	45	1B	3	C		174		
MANI	10	0638E	0639	0654D	S10	E53	.821		14.3	16D	SN	1	V		80	1.4	F
ISTA	10	0640	0645	0650	N08	W47	.727		6.8	10	1N						E
ATHN	10	0647E	0648U	0727	S12	E50	.798		14.0	40D	SN	2	C		143		
LEAR	10	0650	0651	0658	S13	E41	.708		13.4	8	SN	3	C		37		
LEAR	10	0701	0704	0710	N11	E06	.132		10.7	9	SF	3	C		40		
ISTA	10	0755		0805	S15	W28	.573		8.2	10	SF						E
ATHN	10	1049E	1051	1119	S13	E40	.696		13.5	30D	1B	3	C		175		
BERN	10	1049	1052	1110	S15	E40	.707		13.5	21	1B				200		
RAMY	10	1126E	1129U	1131D	S08	E40	.674		13.5	5D	SB	3	C		121		
ATHN	10	1128	1130	1147	S14	E39	.690		13.4	19	SB	3	C		80		
HOLL	10	1452	1454	1510	N11	W02	.090		10.5	18	SF	2	C		91		
HOLL	10	1500	1513	1526	S11	E36	.640		13.3	26	SN	2	C		67		
HOLL	10	1500	1513	1526	S09	E40	.678		13.6	26	SN	2	C		67		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	10	1608	1619	1632	S04	E41	.672		13.7	24	SF	2	C		38		
HOLL	10	1636	1641	1655	S09	W33	.591		8.2	19	SF	2	C		19		
RAMY	10	1636	1640U	1640D	N11	W03	.098		10.5	4D	SF	3	C		43		
HOLL	10	1637	1637	1652	N12	W02	.106		10.5	15	SN	2	C		62		
HOLL	10	1702	1715	1735	S11	E39	.675		13.6	33	SN	2	C		82		
HOLL	10	1723	1723	1727	N11	W02	.090		10.6	4	SF	2	C		32		
RAMY	10	1723	1723	1729	N09	W01	.051		10.6	6	SF	3	C		50		
HOLL	10	1841	1841	1859	N11	W02	.090		10.6	18	SF	3	C		35		
PALE	10	1856	1857U	1859D	S11	E34	.615		13.3	3D	SF	2	C		26		
HOLL	10	1904	1916	1938	N11	W03	.098		10.6	34	SF	3	C		27		
HOLL	10	1917	1946	1948D	S07	E39	.657		13.7	31D	SB	3	C		157		
HOLL	10	1921	1922	1926	S09	E37	.641		13.6	5	SN	3	C		25		
HOLL	10	2039	2044	2047	S07	E38	.645		13.7	8	SF	3	C		36		
HOLL	10	2045	2045	2050	S11	E35	.627		13.5	5	SF	3	C		29		
HOLL	10	2103	2106	2143	S12	E32	.597		13.3	40	SB	3	C		54		
PALE	10	2108E	2110U	2130D	S08	E36	.624		13.6	22D	SF	3	C		80		
HOLL	10	2119	2217	2339	S09	E39	.666		13.8	140	SN	3	C		140		
HOLL	10	2219	2219	2229	N11	W04	.108		10.6	10	SF	3	C		24		
PALE	10	2329E	2342U	2342D	S10	E48	.772		14.6	13D	SF	2	C		90		
LEAR	11	0048	0050	0109	S12	E35	.633		13.7	21	SN	3	C		67		
LEAR	11	0209	0209	0213	S12	E34	.621		13.6	4	SF	3	C		46		
LEAR	11	0223	0233	0309	S12	E34	.621		13.6	46	SB	3	C		112		D
LEAR	11	0325	0326	0330	N15	W63	.886		6.4	5	SF	3	C		18		
LEAR	11	0339	0359	0450	S13	E33	.615		13.6	71	1B	3	C		415		
LEAR	11	0412	0413	0426	N16	E06	.199		11.6	14	SN	3	C		48		
LEAR	11	0453	0548	0639	S13	E30	.580		13.5	106	SB	3	C		150		
LEAR	11	0716	0730	0734	N10	W14	.248		10.3	18	SN	3	C		22		
LEAR	11	0815	0816	0827	S13	E29	.568		13.5	12	SB	3	C		74		D
LEAR	11	0842	0845	0852	N11	W14	.253		10.3	10	SN	3	C		104		
RAMY	11	1312E	1312U	1316D	S08	E34	.598		14.1	4D	1N	3	C		237		
HOLL	11	1439	1448	1453	S07	E33	.580		14.1	14	SF	3	C		38		
HOLL	11	1502	1536	1602	S13	E27	.544		13.7	60	SN	3	C		62		
HOLL	11	1512	1515	1528	N05	W35	.571		9.0	16	SF	3	C		28		
HOLL	11	1656	1704	1725	S08	E32	.572		14.1	29	SF	3	C		49		
HOLL	11	1726	1748	1820	S08	E31	.559		14.1	54	1B	3	C		208		
HOLL	11	1804	1816	1851	N10	W17	.297		10.5	47	SN	3	C		54		
HOLL	11	1810	1811	1817	N17	E05	.206		12.1	7	SF	3	C		27		
HOLL	11	1927	1928	1933	N11	W16	.285		10.6	6	SN	3	C		26		
HOLL	11	1941	1942	1954	S10	W52	.812		7.9	13	SN	3	C		66		
HOLL	11	2016	2021	2034	N09	W21	.358		10.3	18	SB	3	C		134		D
HOLL	11	2048	2049	2111	S08	E27	.506		13.9	23	SN	3	C		29		
HOLL	11	2218	2224	2237	N10	W23	.392		10.2	19	SN	3	C		56		
HOLL	11	2240	2316	2326	S13	E20	.463		13.4	46	SN	3	C		54		
PALE	11	2344	2348	2355	N09	W22	.374		10.3	11	SF	3	C		100		
LEAR	11	2344	2348	2359	N10	W23	.392		10.3	15	SB	3	C		93		D
LEAR	11	2357	0013	0056	S13	E20	.463		13.5	59	SN	3	C		161		
LEAR	11	2359	0003	0015	S08	W52	.807		8.1	16	SF	3	C		28		
LEAR	12	0140	0140	0153	S09	W57	.855		7.8	13	SN	3	C		36		
LEAR	12	0154	0206	0216	N10	W19	.329		10.7	22	SN	3	C		90		
LEAR	12	0157	0159	0201D	S13	E18	.441		13.4	4D	SB	3	C		97		D
PALE	12	0157	0158	0201D	S12	E19	.441		13.5	4D	SF	3	C		100		
LEAR	12	0302	0303	0308	S13	E17	.430		13.4	6	SN	3	C		35		
LEAR	12	0310	0311	0320	N10	W24	.408		10.3	10	SN	3	C		29		
LEAR	12	0427	0432	0437	N09	W27	.453		10.2	10	SN	3	C		24		
LEAR	12	0431	0433	0446	S09	W59	.872		7.8	15	SB	3	C		62		
LEAR	12	0435	0439	0454	S24	W24	.617		10.4	19	SB	3	C		114		
LEAR	12	0610	0611	0622	N16	W01	.173		12.2	12	SN	3	C		40		
LEAR	12	0709	0723	0741	N09	W29	.483		10.1	32	1B	3	C		232		
MANI	12	0721	0725	0730D	N11	W29	.486		10.1	9D	1N	2	P		180	2.1	F
ATHN	12	0724E	0725	0758	N13	W30	.505		10.1	34D	SB	2	C		190		
LEAR	12	0724	0727	0736	S14	E17	.442		13.6	12	SB	3	C		117		
MANI	12	0725	0729	0734	S12	E16	.408		13.5	9	SN	2	P		110	1.2	F
LEAR	12	0927	0932	0941	S13	E13	.392		13.4	14	SN	3	C		164		
LEAR	12	0936	0940	0946	S22	E32	.670		14.8	10	SF	2	C		150		
RAMY	12	1353	1357	1400	S14	E11	.389		13.4	7	SF	3	C		34		
RAMY	12	1420	1455	1513	N09	W33	.542		10.1	53	SN	3	C		74		
RAMY	12	1429	1431	1502	N16	W19	.360		11.2	33	SN	3	C		38		
HOLL	12	1441E	1441U	1501	N15	W19	.353		11.2	20D	SF	3	C		52		
RAMY	12	1446	1450	1502	S08	E20	.414		14.1	16	SF	3	C		40		
HOLL	12	1450	1451	1523	S12	E22	.476		14.3	33	SF	3	C		40		

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OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
RAMY	12	1519	1522	1536	N16	W07	.209		12.1	17	SB	3	C		177		
HOLL	12	1519	1523	1540	N15	W07	.195		12.1	21	SB	3	C		138		D
RAMY	12	1553	1554	1612	S12	E12	.369		13.6	19	SN	3	C		126		
HOLL	12	1554	1554	1612	S13	E11	.375		13.5	18	SN	3	C		68		
HOLL	12	1728	1804	1832	N10	W32	.529		10.3	64	SN	3	C		62		
PALE	12	1821	1821	1827	S10	E10	.324		13.5	6	SF	2	C		39		
HOLL	12	1845	1907	1913	N09	W31	.513		10.5	28	SN	3	C		39		
PALE	12	1900	1903	1907	S10	E10	.324		13.5	7	SF	2	C		41		
HOLL	12	1916	1917	1952	N09	W31	.513		10.5	36	SN	3	C		36		
PALE	12	2042	2042	2047	N10	W29	.484		10.7	5	SF	2	C		53		
HOLL	12	2042	2043	2051	N09	W32	.528		10.5	9	SN	3	C		52		
HOLL	12	2152	2154	2206	S11	E08	.323		13.5	14	SN	3	C		34		
PALE	12	2256	2259	2302	N07	W36	.585		10.3	6	SF	3	C		41		
LEAR	12	2259	2331	2347	N11	W38	.614		10.1	48	SN	3	C		60		
LEAR	12	2359	0003	0015	S08	W52	.806		9.1	16	SF	3	C		28		
LEAR	13	0005	0007	0010	N06	W55	.816		8.9	5	SF	3	C		20		
PALE	13	0006	0009	0013	S11	E05	.305		13.4	7	SF	3	C		32		
LEAR	13	0021	0021	0028	S08	W71	.952		7.7	7	SF	3	C				
LEAR	13	0118	0132	0140	S10	E07	.300		13.6	22	SN	3	C		80		
LEAR	13	0150	0150	0154	N07	E74	.959		18.6	4	SF	3	C				
LEAR	13	0220	0221	0226	N05	W54	.806		9.0	6	SF	3	C		35		
LEAR	13	0301	0301	0307	S10	E06	.294		13.6	6	SF	3	C		29		
PALE	13	0312	0324	0326	N07	W39	.626		10.2	14	SF	2	C		26		
LEAR	13	0407	0417	0456	S13	E03	.330		13.4	49	2B	3	C		594		
LEAR	13	0616	0621	0636	N15	W14	.283		12.2	20	1B	3	C		362		
ATHN	13	0618	0621	0636	N14	W16	.303		12.1	18	SB	3	C		95		
LEAR	13	0719E	0752	0932	N12	W37	.602		10.5	133D	SB	3	C		169		
ISTA	13	0733		0748	N25	W90	.999		6.6	15	SN						AD
ATHN	13	0755	0756	0801D	N14	W42	.670		10.2	6D	SB	3	C		80		D
LEAR	13	0941	0947	0951D	N12	W41	.655		10.3	10D	1B	2	C		303		
HOLL	13	1443	1447	1509	N09	W42	.666		10.5	26	SN	3	C		34		
HOLL	13	1504	1517	1536	S09	E04	.268		13.9	32	SN	3	C		77		
HOLL	13	1514	1521	1523	N09	W42	.666		10.5	9	SF	3	C		20		
PALE	13	1926	1956	2012	S08	W01	.243		13.7	46	SN	3	C		68		D
PALE	13	1956	2000	2012	N08	E56	.825		18.0	16	1N	3	C		141		D
PALE	13	2018	2034	2103	N15	W23	.412		12.1	45	1N	3	C		213		D
HOLL	13	2040E	2040U	2108	N14	W24	.421		12.1	28D	1N	3	C		227		
HOLL	13	2040E	2216	2258	S10	E01	.277		13.9	138D	1B	3	C		229		
HOLL	13	2138	2138	2144	N09	W44	.691		10.6	6	SB	3	C		27		
HOLL	13	2154	2204	2226	N15	W34	.567		11.4	32	SF	3	C		99		
HOLL	13	2239	2249	2257	N09	W46	.715		10.5	18	SB	3	C		40		
HOLL	13	2317	2322	2326D	N09	W46	.715		10.5	9D	SB	3	C		33		
LEAR	13	2322	2323	2331	N11	W47	.728		10.4	9	SB	3	C		25		
HOLL	13	2322	2331	2348D	N11	W24	.411		12.2	26D	SN	3	C		60		
HOLL	13	2332	2333	2348	S08	W04	.252		13.7	16	SN	3	C		25		
LEAR	13	2336	2338	2347	N07	E61	.871		18.6	11	SF	3	C		22		
LEAR	13	2357	0001	0013	N14	W30	.508		11.7	16	SB	3	C		134		
PALE	13	2359	0000	0005	N11	W25	.426		12.1	6	SF	3	C		68		
LEAR	14	0008	0013	0027	N07	E71	.943		19.3	19	SB	3	C		94		
PALE	14	0011	0012	0022	N08	E53	.795		18.0	11	SN	3	C		71		
MANI	14	0013E	0014U	0016D	N11	W48	.740		10.4	3D	SN	1	V		25	.4	F
LEAR	14	0025	0035	0045	N12	W47	.728		10.5	20	SB	3	C		86		
LEAR	14	0045	0057	0059	N12	W47	.728		10.5	14	SB	3	C		50		
MANI	14	0056E	0056U	0059D	N11	W49	.751		10.4	3D	SB	1	V		70	1.1	
LEAR	14	0123	0123	0149	S11	W10	.337		13.3	26	SN	3	C		30		
LEAR	14	0238	0238	0241	N10	W55	.815		10.0	3	SB	3	C		26		
LEAR	14	0244	0252	0306	N12	W26	.444		12.2	22	SB	3	C		127		
LEAR	14	0433	0445	0450	S10	W08	.306		13.6	17	SN	3	C		49		
LEAR	14	0456	0456	0500	N11	W49	.751		10.5	4	SN	3	C		35		
LEAR	14	0542	0613	0734	S09	W07	.284		13.7	112	3B	3	C		1941		D
LEAR	14	0551	0554	0559	N12	W49	.751		10.6	8	SB	3	C		21		
ATHN	14	0610	0613	0721	S10	W06	.293		13.8	71	1B	3	C		318		
ISTA	14	0625E		0725	S05	W05	.209		13.9	60D	2B						F
ISTA	14	0626		0636	N09	W59	.853		9.8	10	SN						D
LEAR	14	0628	0631	0639	N09	W58	.844		9.9	11	SB	3	C		98		
MANI	14	0629E	0631	0633D	N11	W59	.853		9.8	4D	SN	2	P		80	1.5	
MANI	14	0629E	0629U	0749D	S08	W07	.269		13.7	80D	2B	2	P		1100	11.1	ZE
LEAR	14	0654	0658	0702	N06	E49	.751		18.0	8	SF	3	C		43		
HOLL	14	1401	1401	1405D	N09	W46	.715		11.1	4D	SB	3	C		80		D
HOLL	14	1630	1637	1710	N09	W57	.834		10.4	40	SN	3	C		39		

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OBSERV-ATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURA-TION MIN.	IM-POR-TANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
HOLL	14	1631	1639	1700	S08	W15	.350		13.6	29	SF	3	C		44		
HOLL	14	1727	1732	1931D	N09	W58	.844		10.4	124D	SN	3	C		48		
PALE	14	1802E	1811	1833	N09	W58	.844		10.4	31D	1N	3	C		273		
PALE	14	1858	1859	1907	N11	W56	.825		10.6	9	SF	3	C		26		
HOLL	14	2322	2331	2348D	N11	W24	.411		13.2	26D	SN	3	C		60		
LEAR	14	2357	0001	0013	N14	W30	.509		12.7	16	SB	3	C		134		
PALE	14	2359	0000	0005	N11	W25	.426		13.1	6	SF	3	C		68		
LEAR	15	0039	0042	0050	S26	W61	.921		10.5	11	SF	3	C		32		
LEAR	15	0118	0132	0140	S26	W62	.927		10.4	22	SF	3	C		31		
LEAR	15	0127	0134	0144	N12	W61	.870		10.5	17	SN	3	C		43		
LEAR	15	0230	0231	0249	S10	W20	.430		13.6	19	SN	3	C		113		
LEAR	15	0322	0328	0334	N12	W62	.878		10.5	12	SF	3	C		35		
LEAR	15	0335	0352	0400	N12	W62	.878		10.5	25	SN	3	C		55		
LEAR	15	0422	0422	0426	N13	W45	.706		11.8	4	SF	3	C		23		
LEAR	15	0437	0438	0505	S10	W21	.443		13.6	28	SN	3	C		48		
LEAR	15	0508	0524	0812	N19	E54	.810		19.3	184	2B	2	C		627		D
ISTA	15	0600E		0715	N21	E58	.849		19.6	75D	3F						F
LEAR	15	0628	0633	0709	N11	W66	.909		10.3	41	SN	3	C		34		
ISTA	15	0630		0705	N13	W63	.886		10.5	35	1F						E
LEAR	15	0756E	0848	0956D	N11	W67	.916		10.3	120D	1N	3	C		236		
ATHN	15	0835	0837	0900	N14	W64	.894		10.6	25	SB	3	C		95		D
ATHN	15	1022	1023	1033	N15	W70	.935		10.2	11	SB	3	C		64		D
ATHN	15	1247	1250	1258	N15	W70	.935		10.3	11	1B	3	C		159		D
ATHN	15	1248	1251	1305	S28	E20	.629		17.0	17	SB	3	C		64		D
HOLL	15	1555E	1555U	1621	N10	W48	.739		12.1	26D	1B	2	C		189		
HOLL	15	1555E	1555U	1638	S10	W30	.557		13.4	43D	SN	2	C		94		
LEAR	15	2312	2315	2329	N08	E33	.542		18.4	17	SF	3	C		25		
LEAR	16	0028	0029	0040	N10	W80	.982		10.0	12	SF	3	C				
LEAR	16	0116	0118	0143	N11	W74	.957		10.5	27	SF	3	C				
LEAR	16	0208	0210	0221	S28	E14	.594		17.1	13	SF	3	C		38		
LEAR	16	0250	0253	0306	S25	W78	.989		10.3	16	SF	3	C				
LEAR	16	0309	0313	0317	S28	E12	.584		17.0	8	SN	3	C		90		
LEAR	16	0330	0342	0400	S08	W33	.583		13.7	30	SN	3	C		87		
LEAR	16	0337	0341	0345	S28	E14	.594		17.2	8	SF	3	C		35		
LEAR	16	0527	0527	0536	S28	E13	.589		17.2	9	SF	3	C		20		
LEAR	16	0649	0653	0657	S28	E12	.584		17.2	8	SF	3	C		27		
ISTA	16	0700		0720	N28	W12	.422		15.4	20	SN						E
ISTA	16	0710		0720	N27	W10	.394		15.5	10	SF						E
LEAR	16	0717	0717	0727	N15	W62	.879		11.7	10	SF	3	C		19		
LEAR	16	0753	0756U	0814	S28	E11	.580		17.2	21	SF	3	C		121		
ISTA	16	0755		0825	N35	W41	.740		13.3	30	SF						D
ATHN	16	0800E	0805U	0815D	S28	E12	.584		17.2	15D	SN	4	C		127		D
ATHN	16	0832E	0835U	0845D	N15	W80	.981		10.4	13D	SF	4	C		95		D
LEAR	16	0949	0956	0959D	N15	W63	.887		11.7	10D	1F	3	C		172		
RAMY	16	1119	1125	1125D	S28	E12	.584		17.4	6D	SB	3	C		82		
ATHN	16	1127E	1132U	1148	S30	W12	.610		15.6	21D	SB	4	C		159		
RAMY	16	1157E	1158	1202	S28	E11	.580		17.3	5D	SF	3	C		22		
RAMY	16	1318	1319	1341	S28	E10	.576		17.3	23	SN	3	C		61		
RAMY	16	1400	1402	1435	S28	E10	.576		17.3	35	SB	3	C		90		
HOLL	16	1404E	1453	1519	S28	E07	.566		17.1	75D	1B	3	C		212		
RAMY	16	1448	1452	1454D	S28	E10	.576		17.4	6D	SB	3	C		154		
RAMY	16	1454	1457	1519	N11	W64	.894		11.8	25	SN	3	C		18		
HOLL	16	1454	1457	1522	N11	W60	.862		12.1	28	SF	2	C		24		
HOLL	16	1519	1534	1542	N11	W81	.985		10.6	23	SF	2	C				
RAMY	16	1608	1610	1613	N09	W62	.879		12.0	5	SF	3	C		15		
HOLL	16	1647	1653	1655D	N09	W85	.995		10.3	8D	1N	3	C				
HOLL	16	1753	1759	1805	S16	W40	.710		13.7	12	SF	3	C		20		
HOLL	16	2223E	2223U	2228	N11	W68	.923		11.8	5D	SF	2	C		42		
LEAR	16	2336	2341	2350	N12	W84	.992		10.7	14	SN	3	C		19		
LEAR	17	0005	0006	0017	S10	W49	.791		13.3	12	SN	3	C		57		
LEAR	17	0012	0013	0017	S18	E88	1.000		23.6	5	SF	3	C				
LEAR	17	0024	0024	0035	S29	E01	.612		17.1	11	SN	3	C		37		
LEAR	17	0152	0208	0230	S11	W47	.774		13.6	38	SN	3	C		106		
LEAR	17	0245	0250	0317	S07	W63	.904		12.4	32	SF	3	C		97		
LEAR	17	0257	0259	0306	S11	W48	.784		13.5	9	SF	3	C		33		
LEAR	17	0505	0505	0513	S21	E88	1.000		23.8	8	SF	3	C				
LEAR	17	0650	0658	0704	S29	W02	.613		17.1	14	SF	3	C		56		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	17	0700		0840	S15	E90	1.001		24.0	100	1N						AE
LEAR	17	0808	0823	0831	S10	E89	1.000		24.0	23	SF	3	C				
LEAR	17	0855	0858	0901	S20	E88	1.000		24.0	6	SF	3	C				
RAMY	17	1212	1227	1235	S17	E67	.946		22.5	23	SF	3	C		57		
RAMY	17	1349	1352	1456	S18	E80	.993		23.6	67	SN	3	C				
HOLL	17	1352E	1358U	1544	S15	E90	1.001		24.3	112D	SN	1	C				
RAMY	17	1422	1423	1430	N04	W24	.412		15.8	8	SF	3	C		48		
HOLL	17	1445	1459	1502	S09	W52	.817		13.7	17	SF	2	C		33		
HOLL	17	1514	1524	1531	S10	W55	.847		13.5	17	SF	2	C		48		
HOLL	17	1533	1535	1546	S12	W58	.877		13.3	13	SF	3	C		46		
HOLL	17	1615	1617	1634	S09	W70	.951		12.4	19	SB	3	C		29		D
RAMY	17	1624E	1624U	1635	S07	W69	.943		12.5	11D	SF	3	C		31		
HOLL	17	1633	1638	1704	S16	E75	.979		23.3	31	SN	3	C				
HOLL	17	1636	1638	1642	S10	W55	.847		13.6	6	SF	3	C		38		
HOLL	17	1705	1710	1717	S18	E75	.981		23.3	12	SF	3	C				
HOLL	17	1731	1738	1755	S11	W72	.963		12.3	24	SF	3	C				
RAMY	17	1749	1758	1811	S18	E76	.984		23.4	22	SN	3	C				
HOLL	17	1850	1909	1953	S16	E73	.972		23.3	63	SN	3	C				
HOLL	17	2003	2015	2038	S17	E73	.973		23.3	35	1B	3	C				
HOLL	17	2106	2134	2151	S17	E72	.969		23.3	45	1N	3	C				
HOLL	17	2155	2156	2224	S17	E70	.960		23.2	29	SN	3	C				
HOLL	17	2326	2337	2348	S19	E72	.971		23.4	22	SB	3	C				
LEAR	17	2336	2337	2349	S19	E72	.971		23.4	13	SB	3	C				D
PALE	17	2337	2338	2347	S17	E74	.976		23.5	10	SF	3	C				
LEAR	17	2353	2354	0006	S18	E70	.962		23.2	13	SF	3	C				
LEAR	18	0012	0019	0036	S18	E71	.961		23.3	24	SB	3	C				D
MANI	18	0142E	0144	0202D	S18	E71	.961		23.4	20D	SF	1	V		50	1.3	
LEAR	18	0236	0240	0301	S15	W56	.859		13.9	25	SN	3	C		111		
RAMY	18	1147	1215	1247	S21	E69	.955		23.7	60	SN	3	C				
RAMY	18	1159	1159	1233	S39	E31	.799		20.8	34	SF	3	C		152		
RAMY	18	1236	1245	1247	S10	W66	.924		13.6	11	SF	3	C		20		
RAMY	18	1354	1412	1428	S18	E60	.897		23.1	34	SF	3	C		41		
RAMY	18	1405	1406	1416	S09	W66	.923		13.6	11	SF	3	C		44		
HOLL	18	1418E	1436	1449	S11	W68	.938		13.5	31D	SF	2	C		40		
RAMY	18	1435	1438	1456D	S33	E12	.647		19.5	21D	SF	3	C		40		
HOLL	18	1436	1443	1452	S33	E12	.647		19.5	16	SN	2	C		48		
HOLL	18	1457	1504	1515	S19	E65	.931		23.5	18	SB	3	C		47		D
RAMY	18	1509E	1524	1531	S20	E66	.938		23.6	22D	SN	3	C		41		
RAMY	18	1544	1600	1607	S34	E12	.659		19.6	23	SF	3	C		20		
HOLL	18	1604	1612	1624	S18	E64	.923		23.5	20	SN	3	C		31		
RAMY	18	1627	1629	1648	S34	E12	.659		19.6	21	SN	3	C		36		
HOLL	18	1659	1702	1705	S15	E63	.912		23.4	6	SF	3	C		19		
HOLL	18	1743	1744	1803	S15	E63	.912		23.5	20	SN	3	C		47		
HOLL	18	1819	1837	1850	S17	E61	.902		23.3	31	SB	3	C		46		
HOLL	18	1857	1902	1917	S33	E10	.640		19.5	20	SN	3	C		60		
HOLL	18	1934	1938	2006	S18	E62	.910		23.5	32	SB	3	C		28		D
PALE	18	2023	2024	2027	S16	E61	.900		23.4	4	SF	2	C		40		
HOLL	18	2043	2046	2056	S16	E61	.900		23.4	13	SN	3	C		25		
HOLL	18	2129	2131	2137	S15	E52	.824		22.8	8	SB	3	C		61		
PALE	18	2129	2131	2140	S15	E54	.842		22.9	11	SF	2	C		46		
HOLL	18	2144	2144	2146D	S18	E62	.910		23.6	2D	SB	3	C		14		
LEAR	18	2244	2248	2314D	S33	E08	.635		19.5	30D	SB	3	C		152		
HOLL	18	2246	2248	2305	S33	E09	.637		19.6	19	SB	3	C		129		D
HOLL	18	2305	2308	2320	S11	E68	.938		24.1	15	SF	3	C		17		
PALE	18	2329	2332	2343	S16	E61	.900		23.6	14	SF	2	C		51		
LEAR	18	2330	2334	2344	S18	E60	.897		23.5	14	SN	3	C		26		
LEAR	18	2353	2354	0006	S18	E70	.956		24.2	13	SF	3	C				
LEAR	19	0001	0002	0009	S20	E59	.894		23.4	8	SB	3	C		63		D
PALE	19	0003E	0003	0007	S18	E60	.896		23.5	4D	SF	2	C		30		
MANI	19	0003E	0003U	0010	S19	E60	.899		23.5	7D	SN	1	V		60	1.3	
MANI	19	0045	0048	0055D	S32	E07	.618		19.6	10D	SN	2	P		60	.8	
LEAR	19	0046	0048	0058	S34	E08	.647		19.6	12	1N	3	C		187		
PALE	19	0047	0048	0051	S33	E08	.634		19.6	4	SF	2	C		39		
LEAR	19	0128	0132	0136	S34	E07	.645		19.6	8	SF	3	C		28		
LEAR	19	0150	0157U	0219D	S08	W74	.966		13.5	29D	SF	3	C				
PALE	19	0202	0203	0208	S18	E60	.896		23.6	6	SF	2	C		44		
LEAR	19	0203E	0204	0214D	S20	E60	.901		23.6	11D	SN	3	C		27		
LEAR	19	0210E	0213U	0226D	S34	E07	.645		19.6	16D	SF	3	C		73		
MANI	19	0213	0214	0216D	S09	W74	.967		13.5	3D	SF	2	P		15	.4	
LEAR	19	0221	0221	0237	S18	E55	.858		23.2	16	SF	3	C		15		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
LEAR	19	0312	0315	0332D	S19	E57	.877		23.4	20D	SN	3	C		60		
LEAR	19	0433	0434U	0448D	S17	E58	.879		23.5	15D	SF	2	C		23		
LEAR	19	0544E	0545	0558D	S18	E53	.842		23.2	14D	SB	2	C		92		
LEAR	19	0610	0615	0621	S33	E03	.625		19.5	11	SN	3	C		175		
LEAR	19	0640	0643U	0655	S19	E56	.869		23.5	15	SB	3	C		66		
LEAR	19	0837	0839	0842	S34	E03	.639		19.6	5	SF	3	C		19		
LEAR	19	0856	0917	0925	S20	E53	.848		23.3	29	SB	3	C		34		
LEAR	19	0934	0937	0942	S35	W01	.651		19.3	8	SF	3	C		21		
LEAR	19	0939	0939	0949D	S20	E52	.840		23.3	10D	SB	3	C		71		
HOLL	19	1653	1655	1711	S18	E51	.825		23.5	18	SN	3	C		17		
LEAR	20	0405	0405	0423	S17	E44	.754		23.5	18	SB	3	C		49		
LEAR	20	0446	0451	0503	S18	E42	.739		23.3	17	SB	3	C		117		D
LEAR	20	0632	0632	0641	S18	E41	.729		23.3	9	SN	3	C		40		
WEND	20	0817	0818	0830	N20	E05	.264		20.7	13	SF		C	0818	40	.4	
LEAR	20	0901	0903	0913	S19	E40	.724		23.4	12	1N	3	C		293		
WEND	20	0904E		0915	S18	E40	.718		23.4	11D	1B		C	0904	230	3.3	
WEND	20	0904E		0927	S37	W09	.686		19.7	23D	SN		C	0904	130	1.7	
RAMY	20	1454	1459	1508	N23	W01	.301		20.5	14	SF	3	C		31		
RAMY	20	1516	1521	1613	S14	E45	.751		24.0	57	SN	3	C		37		
BOUL	20	1831	1834	1839	S17	E45	.764		24.1	8	SB	3	C		100		
LEAR	20	2346	2354	0006	N17	E47	.736		24.5	20	SN	3	C		53		
LEAR	21	0002	0003	0022	N22	W02	.287		20.9	20	SB	3	C		136		
PALE	21	0003E	0005U	0010D	N22	W03	.290		20.8	7D	SF	2	C		65		
LEAR	21	0537	0538	0545	S18	E32	.633		23.6	8	SN	3	C		44		
LEAR	21	0612	0617	0625	N22	W08	.314		20.7	13	SF	3	C		52		
LEAR	21	0647	0647	0652	S18	E29	.601		23.5	5	SF	3	C		31		
LEAR	21	0708	0709	0716	N22	W08	.314		20.7	8	SF	3	C		35		
WEND	21	0741E		0804D	N23	W08	.329		20.7	23D	SN		C	0746	88	1.0	
LEAR	21	0745	0753	0810	N22	W09	.321		20.6	25	SN	3	C		60		
LEAR	21	0827	0832	0844	S18	E28	.591		23.5	17	SF	3	C		50		
LEAR	21	0912	0922	0925	N22	W10	.329		20.6	13	SF	3	C		39		
WEND	21	0917E		0947D	N21	W09	.307		20.7	30D	SN		C	0922	75	.8	
LEAR	21	0926	0929	0939	N22	W09	.321		20.7	13	SF	3	C		44		
WEND	21	1359		1420	S23	E30	.654		23.8	21	SF		C	1406	22	.3	
WEND	21	1416E		1424D	N17	E39	.641		24.5	8D	SN		C	1422	63	.9	
HOLL	21	1418E	1422U	1443	N16	E38	.626		24.4	25D	SN	3	C		100		
HOLL	21	1418E	1419U	1443	N22	W13	.355		20.6	25D	SN	3	C		38		
HOLL	21	1529	1535	1622	N09	E52	.784		25.5	53	1N	3	C		166		
HOLL	21	1533	1543	1652	N22	W14	.365		20.6	79	SN	3	C		56		
RAMY	21	1733	1735	1745	S21	E24	.579		23.5	12	SF	3	C		27		
HOLL	21	1755	1759	1811	N19	W14	.330		20.7	16	SF	3	C		30		
HOLL	21	1815	1819	1838	N17	E36	.603		24.5	23	SF	3	C		40		
HOLL	21	1820	1823	1835	S09	E33	.587		24.2	15	SN	3	C		26		
HOLL	21	1957	1958	2004	S13	E34	.622		24.4	7	SN	3	C		31		
HOLL	21	2054	2054	2102	N20	W17	.375		20.6	8	SF	3	C		33		
HOLL	21	2145	2151	2201	N23	W19	.429		20.5	16	SF	3	C		38		
HOLL	21	2306	2307	0003D	N22	W19	.419		20.5	57D	SF	3	C		28		
LEAR	21	2346	2354	0006	N17	E47	.736		25.5	20	SN	3	C		53		
HOLL	21	2348	2351	0003D	S09	E30	.548		24.2	15D	SN	3	C		47		
LEAR	22	0124	0126	0138	S34	W25	.718		20.2	14	SF	3	C		37		
LEAR	22	0455	0514	0553	S13	E29	.561		24.4	58	1B	3	C		250		D
HOLL	22	1527	1533	1600	N18	W29	.515		20.5	33	SB	3	C		74		
HOLL	22	1642	1642	1659	S08	W50	.784		18.9	17	SF	3	C		26		
HOLL	22	1758	1758	1808	S12	E22	.468		24.4	10	SN	3	C		31		
HOLL	22	1808	1812	1816	S08	W47	.752		19.2	8	SF	3	C		26		
HOLL	22	1918	1931	1940	S08	W49	.773		19.1	22	SF	3	C		19		
HOLL	22	1923	1928	1939	S19	E13	.462		23.8	16	SF	3	C		25		
HOLL	22	1954	1955	1958	S09	W52	.807		18.9	4	SF	3	C		24		
HOLL	22	1954	1955	1958	S13	E15	.401		24.0	4	SN	3	C		29		
HOLL	22	2058	2103	2111	S08	W53	.814		18.9	13	SF	3	C		29		
HOLL	22	2239	2246	2255	N21	W31	.558		20.6	16	SN	3	C		25		
HOLL	22	2305	2306	2324	S19	E08	.432		23.6	19	SF	3	C		39		
LEAR	22	2333	2336	2347	S19	E06	.423		23.4	14	SF	3	C		45		
LEAR	22	2359	0008	0123	N22	W32	.576		20.6	84	1B	3	C		299		
HOLL	23	0000	0006	0009C	N22	W34	.600		20.5	9D	1B	3	C		213		D
MANI	23	0005E	0008	0017D	N19	W32	.560		20.6	12D	SB	1	V		150	1.9	
LEAR	23	0047	0048	0051	S19	E06	.422		23.5	4	SN	3	C		41		

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OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
LEAR	23	0050	0051	0100	S07	W53	.812		19.1	10	SF	3	C		23		
LEAR	23	0230	0231	0241	S19	E15	.476		24.2	11	SF	3	C		29		
LEAR	23	0446	0457	0512D	N21	W34	.595		20.6	26D	SB	3	C		48		D
LEAR	23	0518	0522	0540	S17	E02	.380		23.4	22	SF	3	C		44		
LEAR	23	0525	0526	0536	S15	E17	.444		24.5	11	SF	3	C		57		
LEAR	23	0606	0608	0614	S19	E03	.414		23.5	8	SF	3	C		33		
LEAR	23	0736	0741	0815	N20	W34	.590		20.8	39	1B	3	C		207		
ATHN	23	0740E	0743	0808	N23	W37	.641		20.5	28D	SB	2	C		64		D
ATHN	23	1035	1037	1046	N37	W82	.986		17.3	11	SB	2	C		64		D
WEND	23	1035		1054	N07	W75	.964		17.8	19	1N		C	1037	63		CG
WEND	23	1044E		1100D	N19	W36	.611		20.7	16D	SF		C	1048	31	.4	
WEND	23	1227E		1243	N19	W37	.624		20.7	16D	SN		C	1227	113	1.5	
ATHN	23	1228E	1230	1241	N25	W41	.694		20.4	13D	SB	2	C		80		D
HOLL	23	1414E	1455	1519	N18	W42	.681		20.4	65D	SN	3	C		81		
HOLL	23	1553	1557	1610	N18	W38	.632		20.8	17	SB	3	C		114		D
HOLL	23	1713	1714	1722	S18	W02	.396		23.6	9	SF	3	C		31		
HOLL	23	2336	2336	0001	S16	E09	.391		24.7	25	SF	3	C		25		
LEAR	23	2359	0008	0010D	N21	W31	.558		21.7	11D	1B	3	C		299		
LEAR	24	0030	0036	0057	N20	W42	.687		20.9	27	SN	3	C		24		
LEAR	24	0040	0042	0054	S16	W08	.384		23.4	14	SF	3	C		25		
RAMY	24	1337	1340	1410	S17	W02	.379		24.4	33	SN	3	C		112		
RAMY	24	1350	1351	1400	S08	W77	.978		18.8	10	SF	3	C				
HOLL	24	1407E	1417	1420	S17	W04	.383		24.3	13D	SF	2	C		40		
HOLL	24	1435	1443	1502	S21	W15	.500		23.5	27	SF	2	C		65		
RAMY	24	1441	1443	1455	S20	W16	.495		23.4	14	SF	3	C		41		
RAMY	24	1450	1458	1502	S12	W03	.299		24.4	12	SF	3	C		21		
HOLL	24	2153	2153	2201	S20	W16	.495		23.7	8	SF	3	C		21		
HOLL	24	2219	2236	2323	S13	W07	.333		24.4	64	SF	3	C		43		
HOLL	24	2220	2230	2327	N21	W57	.843		20.7	67	SB	3	C		133		D
LEAR	24	2229	2245	2320	N24	W57	.847		20.7	51	SN	3	C		97		
LEAR	24	2314	2314	2328	N22	E69	.931		30.1	14	SF	3	C		24		
LEAR	25	0219	0222	0226	N18	W57	.840		20.8	7	SF	3	C		29		
LEAR	25	0308	0309	0316	S15	W08	.368		24.5	8	SF	3	C		37		
LEAR	25	0311	0313	0321	S16	W20	.483		23.6	10	SF	3	C		58		
LEAR	25	0410	0411	0415	S21	W19	.531		23.7	5	SF	3	C		27		
LEAR	25	0535	0542	0621	N19	W59	.858		20.8	46	SB	2	C		40		
LEAR	25	0802	0821	0855	N19	W60	.866		20.8	53	SN	3	C		29		
LEAR	25	0942	0950	1010D	N19	W59	.858		21.0	28D	2B	2	C		372		
HOLL	25	2213	2214	2226D	S15	W30	.586		23.7	13D	SB	3	C		97		
LEAR	26	0001	0002	0013	S22	W35	.690		23.4	12	SN	3	C		55		
LEAR	26	0117	0120	0139	S11	E37	.645		28.8	22	SN	3	C		34		
LEAR	26	0216	0216	0223	S22	W36	.699		23.4	7	SF	3	C		19		
LEAR	26	0359	0400	0410	S11	W26	.506		24.2	11	SN	3	C		86		
LEAR	26	0406	0406	0411	N21	W70	.937		20.9	5	SF	3	C		11		
LEAR	26	0439E	0439U	0520	S04	E51	.785		30.0	41D	SN	3	C		48		
LEAR	26	0644	0646	0702	N17	E56	.830		30.5	18	SF	3	C		52		
LEAR	26	0715	0717	0720	S18	W38	.694		23.5	5	SN	3	C		32		
RAMY	26	1437	1440	1451	S20	W45	.775		23.2	14	SB	3	C		152		
HOLL	26	1443E	1443U	1456	S21	W47	.798		23.1	13D	SN	3	C		92		
HOLL	26	1637	1638	1652	S11	W32	.583		24.3	15	SF	3	C		65		
HOLL	26	1728	1729	1753	S19	W42	.741		23.6	25	SF	3	C		38		
HOLL	26	1737	1740	1753	S03	E42	.678		29.9	16	SF	3	C		23		
HOLL	26	1826	1826	1858D	S18	W41	.725		23.7	32D	SN	3	C		141		
PALE	26	2014	2016	2022	S14	W34	.625		24.3	8	SF	3	C		40		
LEAR	26	2241	2242	2249	S04	E40	.655		29.9	8	SF	2	C		45		
PALE	26	2242E	2244U	2250	S02	E40	.650		29.9	8D	SF	3	C		62		
LEAR	26	2242	2255	2311	S11	W41	.692		23.9	29	SF	2	C		88		
MANI	26	2243E	2243U	2252D	S04	E39	.643		29.9	9D	SF	1	V		50	.7	F
MANI	26	2251E	2251U	2305D	S12	W42	.708		23.8	14D	SF	1	V		15	.2	
PALE	26	2253E	2306U	2306D	S18	W45	.766		23.6	13D	SF	3	C		38		
LEAR	27	0106	0125	0148	S13	W36	.642		24.3	42	1N	3	C		272		
MANI	27	0110E	0115U	0126D	S14	W36	.648		24.3	16D	SF	1	V		100	1.4	F
PALE	27	0118E	0125U	0135D	S14	W36	.648		24.4	17D	SF	3	C		46		
LEAR	27	0118	0119	0152	S04	E38	.629		29.9	34	SN	3	C		60		
LEAR	27	0146	0146	0153	N26	E41	.701		30.1	7	SF	3	C		20		
LEAR	27	0155	0216	0244	N16	E33	.563		29.6	49	1N	3	C		189		
MANI	27	0218E	0221	0230D	N20	E35	.605		29.7	12D	1F	1	V		200	2.6	
PALE	27	0221E	0223U	0305	N20	E36	.618		29.8	44D	1F	3	C		221		

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OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
LEAR	27	0300	0303	0307	S04	E37	.616		29.9	7	SF	3	C		22		
LEAR	27	0335	0344	0356	S04	E37	.616		29.9	21	SF	3	C		27		
LEAR	27	0617	0621	0636	S21	W49	.815		23.6	19	SN	3	C		46		
LEAR	27	0722	0730	0807	S04	E34	.575		29.9	45	SB	3	C		147		
LEAR	27	0825	0827	0851	N18	E29	.518		29.5	26	SF	3	C		36		
WEND	27	1010	1012	1025	N21	E30	.549		29.7	15	SN		C	1012	44	.6	
WEND	27	1151E		1200D	N29	E87	.996		3.0	9D	SN		C	1155	13		
WEND	27	1310E		1343D	N28	E86	.995		3.0	33D	SN		C	1317	9		
HOLL	27	1544	1550	1601	N08	E54	.806		31.7	17	SF	2	C		21		
HOLL	27	1634	1655	1734	N07	E53	.796		31.7	60	SF	3	C		20		
HOLL	27	1638	1645	1708	S04	E30	.519		29.9	30	SN	2	C		131		
HOLL	27	1723	1727	1808	S22	W55	.867		23.6	45	SN	2	C		84		
HOLL	27	1739	1739	1754	N08	E53	.796		31.7	15	SF	3	C		22		
HOLL	27	1812	1822	1834	S21	W55	.864		23.6	22	SF	3	C		52		
LEAR	27	2310	2319	2343	N07	E50	.763		31.7	33	SB	3	C		41		D
LEAR	28	0049	0052	0100	S04	E24	.431		29.8	11	SN	3	C		45		
LEAR	28	0114	0114	0123	S04	E24	.431		29.9	9	SF	3	C		31		
LEAR	28	0139E	0144	0201	N19	E20	.409		29.6	22D	SN	3	C		46		
LEAR	28	0139E	0144	0205	S20	W60	.898		23.6	26D	SN	3	C		49		
LEAR	28	0213	0226	0240	S20	W61	.905		23.5	27	SN	3	C		81		
LEAR	28	0353	0355	0410	S04	E22	.401		29.8	17	SN	3	C		99		
LEAR	28	0407	0410	0414	S21	W62	.914		23.5	7	SN	3	C		44		
LEAR	28	0421	0426	0435	N07	E47	.729		31.7	14	SN	3	C		51		
LEAR	28	0425	0432	0452	S19	W65	.929		23.3	27	SN	3	C		67		
LEAR	28	0443	0446	0449	N29	E74	.960		2.7	6	SF	3	C				
LEAR	28	0458	0459	0502	N30	E78	.975		3.1	4	SF	3	C		12		
LEAR	28	0744	0745	0749	N22	E18	.415		29.7	5	SF	3	C		21		
LEAR	28	0845	0850	0902	S19	W64	.923		23.6	17	SN	3	C		37		
WEND	28	0923E		1001D	N28	E73	.955		2.9	38D	SN		C	0934	12		G
LEAR	28	0930	0938	0955	N29	E69	.936		2.6	25	SB	3	C		22		D
BERN	28	0932	0937	0958	N28	E75	.964		3.0	26	SN				50		
WEND	28	1020	1022	1041	S04	E20	.372		29.9	21	SN		C	1022	44	.5	
WEND	28	1238	1242	1303	S04	E19	.357		30.0	25	SN		C	1242	31	.3	E
WEND	28	1404	1413	1433D	N28	E73	.955		3.1	29D	SN		C	1413	19		G
PALE	28	1727E	1728U	1741	N09	E39	.628		31.7	14D	SF	3	C		29		
PALE	28	1808	1812	1818	N09	E38	.615		31.6	10	SF	3	C		29		
PALE	28	1810	1810	1813	N30	E65	.914		2.6	3	SF	3	C		31		
PALE	28	2024E	2029	2044	N19	E26	.486		30.8	20D	SN	3	C		139		
BOUL	28	2129	2225	2235	S20	W72	.965		23.5	66	1N	3	C		150		D
PALE	28	2218	2226	2234	S21	W72	.966		23.5	16	1F	2	C				
LEAR	28	2345	2351	0011	S04	E11	.243		29.8	26	SN	3	C		64		
LEAR	29	0018	0019	0041	N07	E35	.572		31.6	23	SN	3	C		26		
PALE	29	0019	0023	0032	N09	E36	.588		31.7	13	SF	2	C		24		
PALE	29	0104	0110	0113	N18	E23	.440		30.8	9	SF	2	C		23		
LEAR	29	0145	0145	0206	N19	E07	.273		29.6	21	SF	3	C		29		
LEAR	29	0147	0149	0200	S19	W74	.972		23.5	13	SN	3	C		46		
LEAR	29	0532	0539	0550	N08	E34	.558		31.8	18	SB	3	C		71		D
LEAR	29	0605	0618	0630	S18	W76	.979		23.6	25	SN	3	C				
WEND	29	0733E		0803D	N02	E85	.996		4.7	30D	SF		C	0733	25		
LEAR	29	0749	0759	0807	N29	E61	.887		2.9	18	SF	3	C		20		
LEAR	29	0834	0836	0853	N19	E06	.266		29.8	19	SN	3	C		85		
WEND	29	0836	0838	0847	N19	E06	.266		29.8	11	SB		C	0838	75	.8	
LEAR	29	0928	0930	0934	N29	E62	.894		3.0	6	SF	3	C		17		
WEND	29	1144E		1155	S03	E06	.169		29.9	11D	SN		C	1144	100	1.0	
ATHN	29	1144	1146	1154	S02	E06	.156		29.9	10	SB	2	C		64		D
WEND	29	1251	1253	1302	N08	E31	.515		31.9	11	SF		C	1253	44	.5	
WEND	29	1346	1352	1409	N08	E30	.500		31.8	23	SN		C	1352	125	1.5	
HOLL	29	1403E	1411	1422	N09	E28	.471		31.7	19D	SF	2	C		23		
HOLL	29	1434	1444	1445	N23	E00	.314		29.6	11	SF	3	C		27		
HOLL	29	1505	1506	1541	N04	E82	.990		4.8	36	SF	3	C				
BOUL	29	1526E	1536	1542	N28	E55	.840		2.8	16D	SB	3	C		80		
HOLL	29	1550	1551	1600	S03	E05	.160		30.0	10	SF	3	C		24		
HOLL	29	1638	1640	1656	N05	E83	.992		4.9	18	SF	3	C				
HOLL	29	1643	1643	1657	S23	W82	.995		23.5	14	SF	3	C				
HOLL	29	2157	2323	2352D	S18	W16	.464		28.7	115D	SF	3	C		112		
HOLL	29	2202	2225	2239	N15	E08	.224		30.5	37	SN	3	C		31		
LEAR	29	2321	2329	2336	S17	W19	.480		28.5	15	SF	3	C		154		
HOLL	29	2323	2331	2350	S04	W04	.166		29.7	27	SN	3	C		152		
LEAR	29	2328	2332	2348	S04	W02	.155		29.8	20	SB	3	C		109		D
PALE	29	2330	2332	2336	S03	W02	.138		29.8	6	SN	2	C		43		

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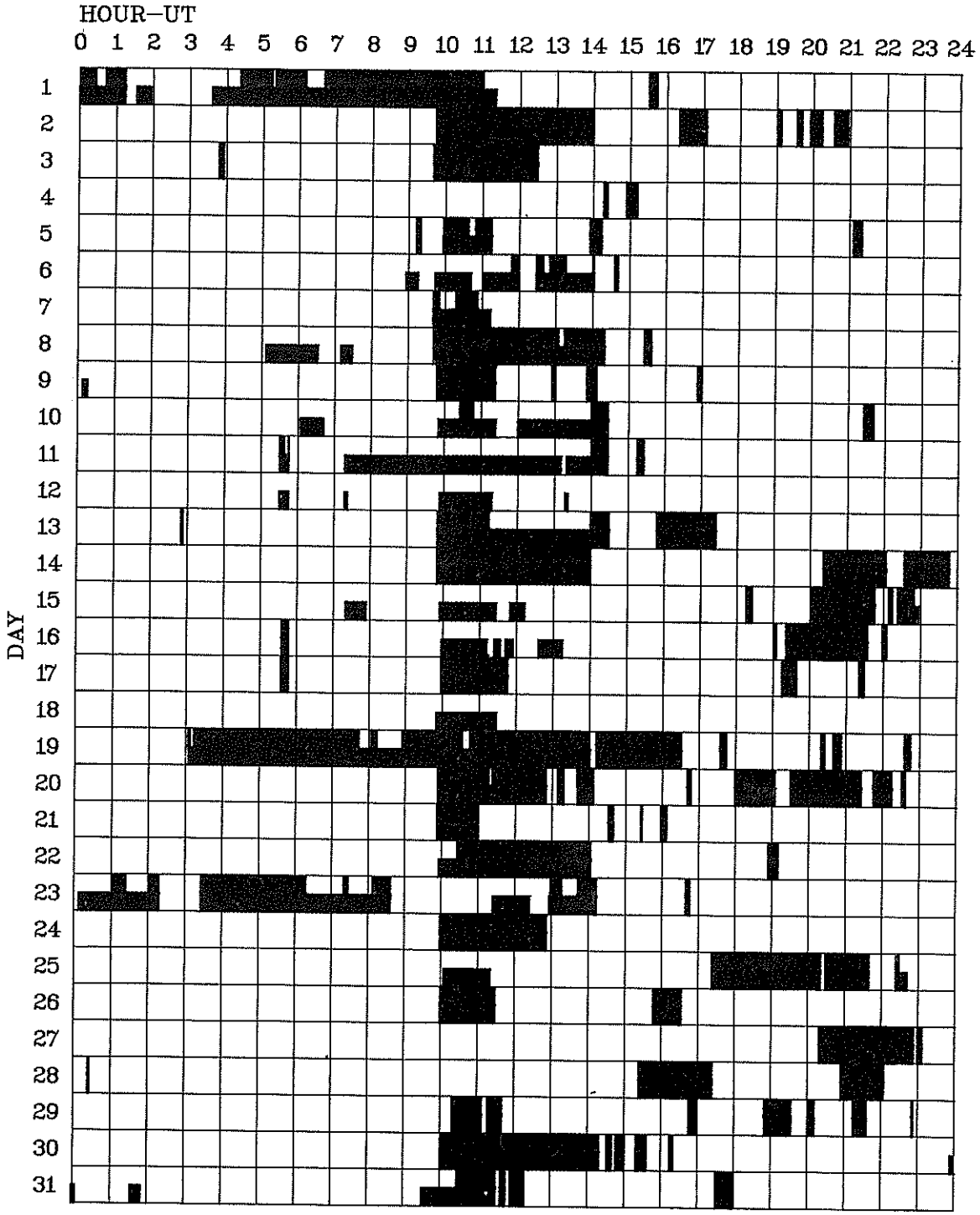
OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	REMARKS
LEAR	30	0120	0124	0132	N30	E50	.804		2.8	12	SN	3	C		27		
LEAR	30	0125	0125	0129	N23	E00	.316		30.1	4	SF	3	C		25		
LEAR	30	0126	0126	0133	S03	W01	.133		30.0	7	SN	3	C		60		
LEAR	30	0203	0207	0233D	S03	W02	.137		29.9	30D	SB	3	C		107		D
MANI	30	0206E	0206U	0213	S02	W03	.126		29.9	7D	SF	1	V		50	.5	
LEAR	30	0232	0233	0242	N15	E08	.226		30.7	10	SF	3	C		34		
LEAR	30	0310	0320	0342	S03	W04	.149		29.8	32	SN	3	C		113		
MANI	30	0318E	0318U	0329D	S03	W04	.149		29.8	11D	SF	1	V		20	.2	
LEAR	30	0716	0716	0721	N22	E65	.907		4.2	5	SN	3	C		31		
LEAR	30	0722	0726	0744	S16	W89	1.000		23.6	22	1N	3	C				
LEAR	30	0906	0908	0930	N17	E08	.253		31.0	24	SN	3	C		173		
HOLL	30	1613	1641	1646	N23	E58	.856		4.0	33	SF	3	C		30		
HOLL	30	1639	1640	1650	S03	W10	.217		29.9	11	SN	3	C		35		
LEAR	31	0050	0052	0057	N07	E09	.162		31.7	7	SF	3	C		22		
LEAR	31	0156	0206U	0214	N21	E54	.818		4.1	18	SN	3	C		36		
LEAR	31	0206E	0207U	0208D	S16	W32	.612		28.7	2D	SB	3	C		55		
MANI	31	0207E	0207U	0212D	S16	W31	.600		28.8	5D	SF	1	V		20	.3	
LEAR	31	0649E	0651U	0713	N21	E50	.780		4.0	24D	SB	2	C		101		
LEAR	31	0702	0703	0717	N07	E03	.068		31.5	15	SF	3	C		41		
WEND	31	1134E		1141D	N21	E49	.769		4.2	7D	SN		C	1134	62	1.0	
RAMY	31	1221	1239	1307	N14	W19	.358		30.1	46	1B	3	C		280		D
RAMY	31	1253	1253	1309	S05	W23	.420		29.8	16	SF	3	C		28		
RAMY	31	1355	1356	1424	N17	W30	.529		29.3	29	SF	3	C		23		
HOLL	31	1356	1357	1431	N22	E46	.741		4.0	35	1N	1	C		221		
HOLL	31	1405	1407	1416	N15	E77	.972		6.4	11	SF	2	C				
HOLL	31	1405	1420	1437	N10	E75	.963		6.2	32	SF	3	C				
HOLL	31	1419	1420	1448	N14	W14	.288		30.5	29	SF	3	C		72		
RAMY	31	1509	1511	1516	N05	E53	.797		4.6	7	SF	3	C		30		
HOLL	31	1509	1510	1518	N04	E56	.827		4.8	9	SF	3	C		21		
HOLL	31	1637	1643	1724	N15	W14	.298		30.6	47	SF	3	C		44		
HOLL	31	1644	1650	1704	N04	E52	.786		4.6	20	SF	3	C		20		
HOLL	31	1956	1956	2023	N18	E73	.953		6.3	27	SN	3	C				
HOLL	31	2027	2027	2046	S04	W30	.517		29.6	19	SF	3	C		59		
HOLL	31	2136	2151	2221	N04	E52	.786		4.8	45	SN	3	C		51		

"REMARKS":

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

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE
OCTOBER 1980



Observatories included in total patrol:

Athens	Istanbul	Manila	Ramey
Holloman	Learmonth	Palehua	Wendelstein

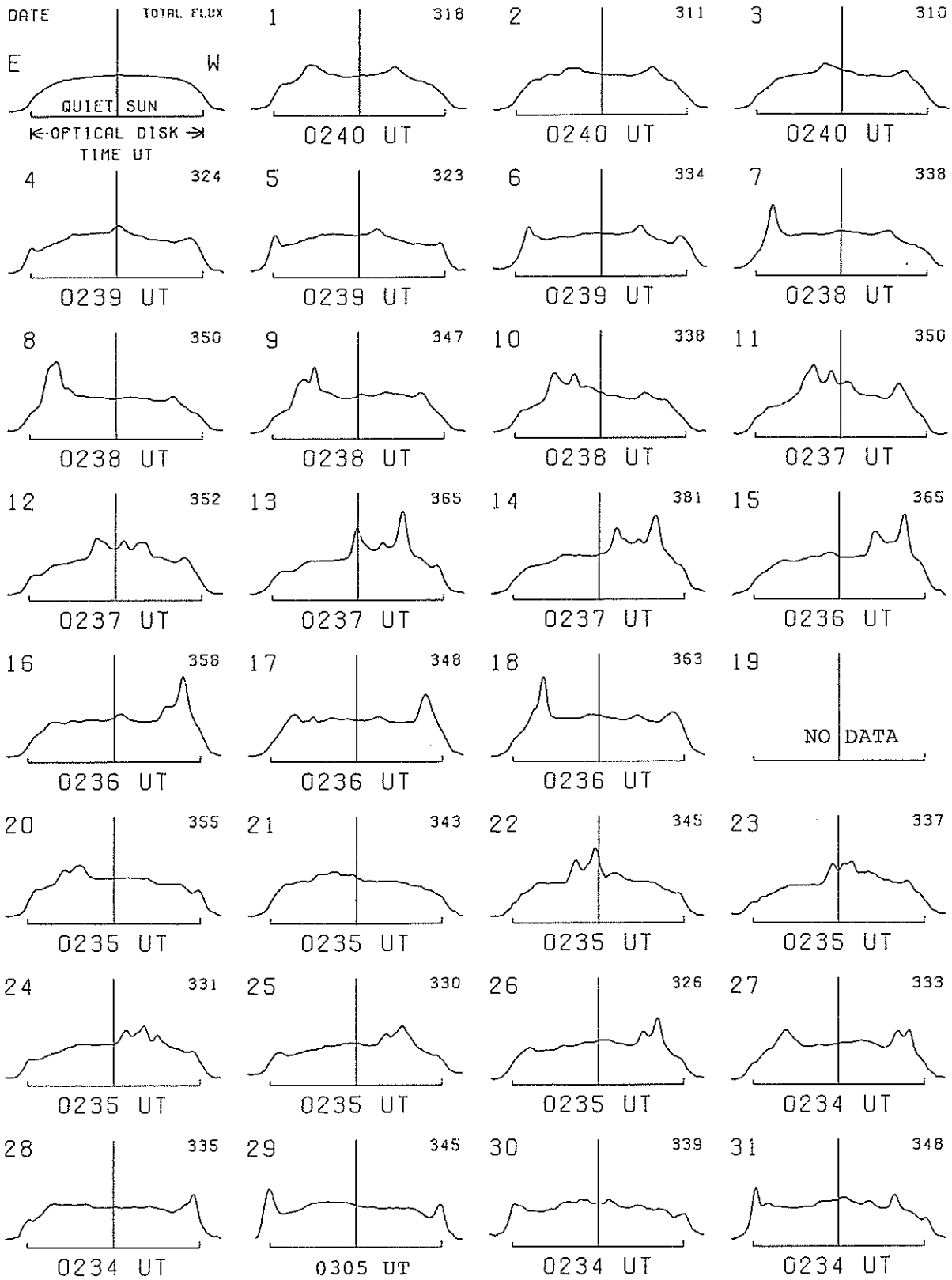
Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

28
Oct 80

EAST-WEST SOLAR SCANS
OCTOBER 1980

TOYOKAWA, JAPAN

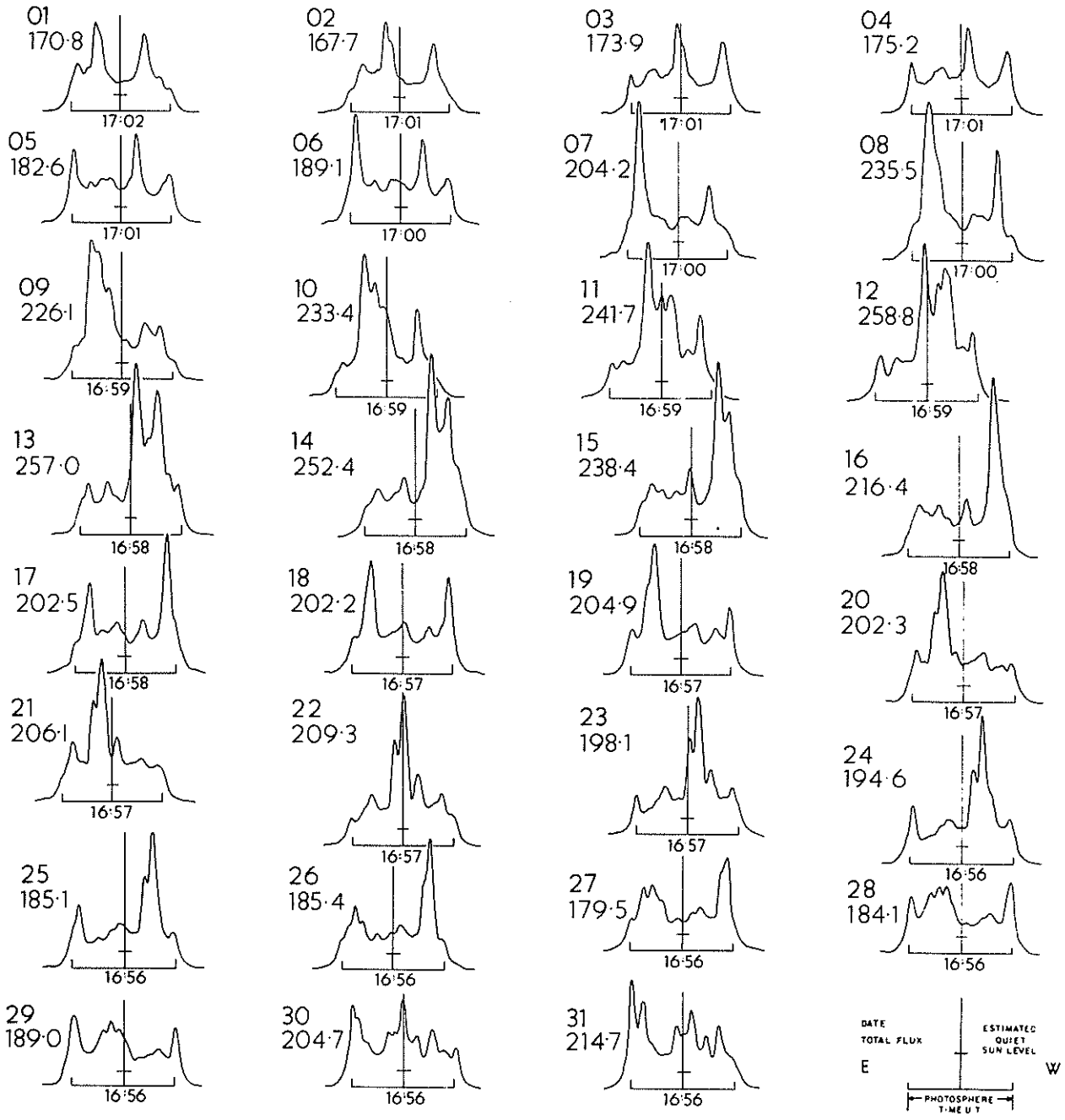
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST-WEST SOLAR SCANS
OCTOBER 1980

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



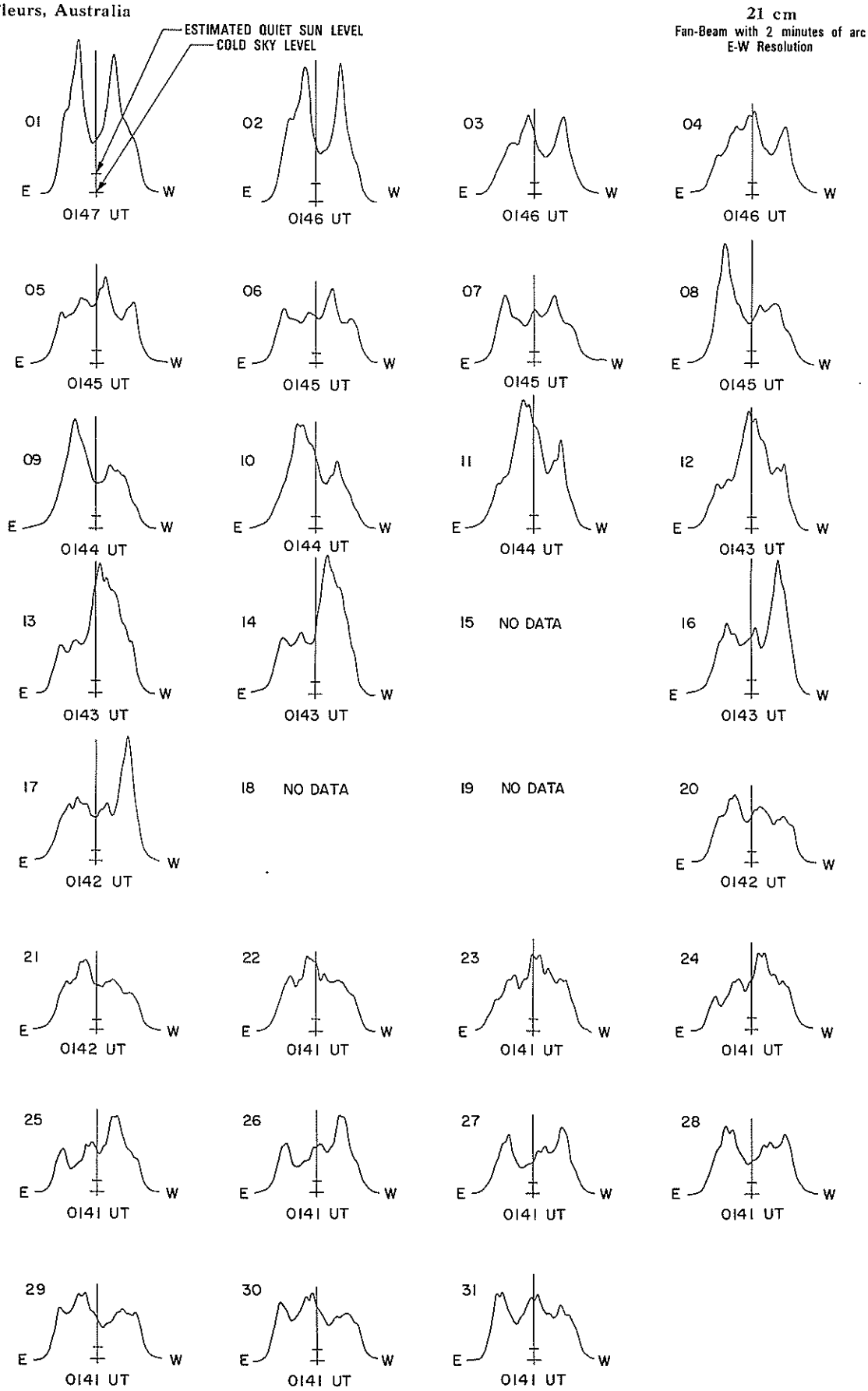
30
Oct 80

EAST-WEST SOLAR SCANS

OCTOBER 1980

Fleurs, Australia

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

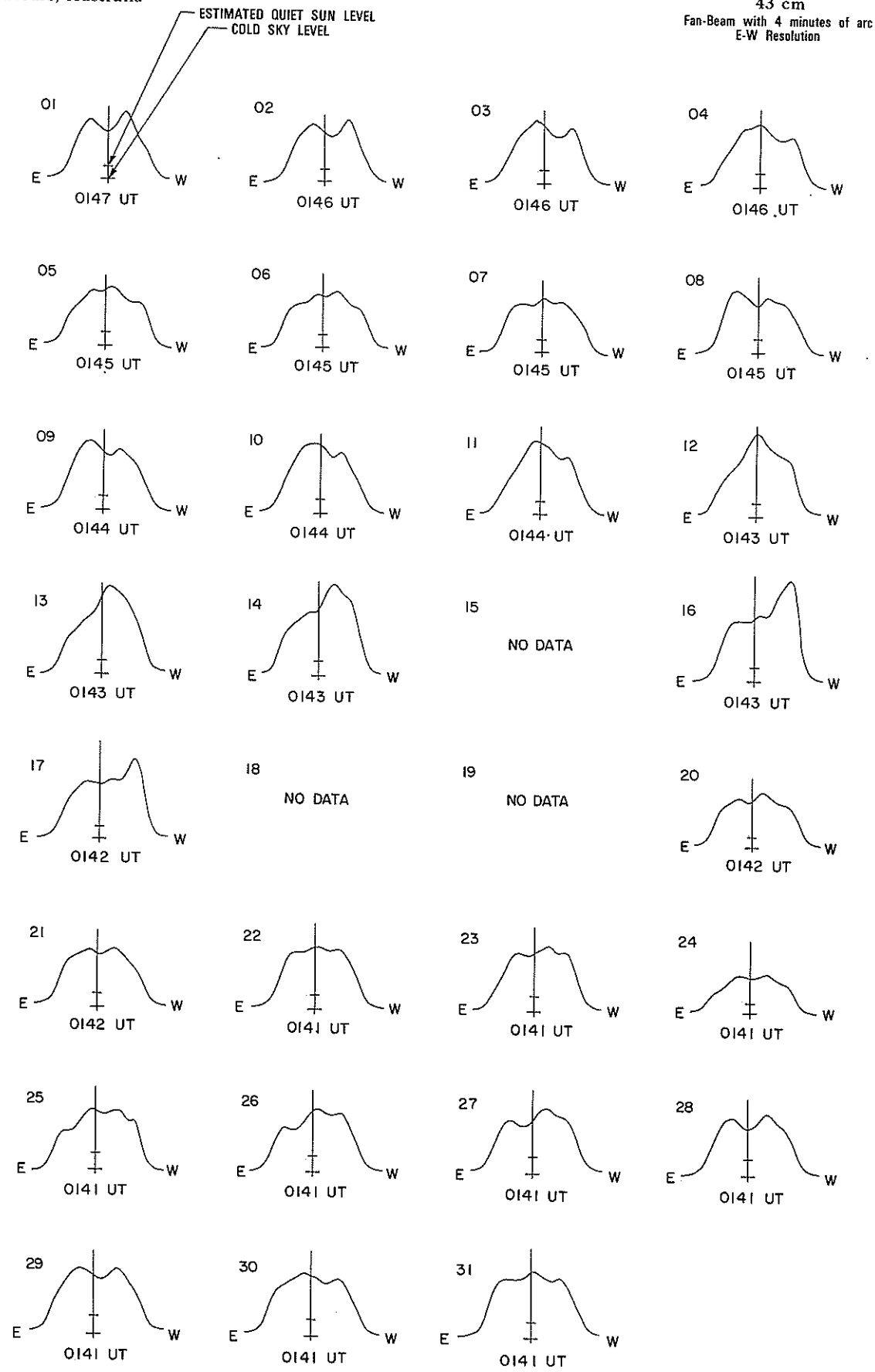


EAST-WEST SOLAR SCANS

OCTOBER 1980

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1980

DAY OF MONTH	FREQUENCY STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
01	3200 BERN	8		1010.0	1010.5	.7	.0			OPR
	8400 BERN	4		1022.0	1026.5	27.0	10.0			OPR
	3200 BERN	4		1024.0	1026.5	10.0	.0			OPR
	3200 BERN	1		1249.2	1254.3	28.0	.0			OPR
	8400 BERN	1		1251.0	1254.3	18.0	17.0			OPR
	2800 OTTA	3	S	1252.0	1253.5	8.0	12.6	4.2		
	3200 BERN	1		1336.0	1336.7	6.0	.0			OPR
	2800 OTTA	1	S	1442.0	1443	4.0	3.8	1.9		
	3200 BERN	3		1504.0	1507.0	15.0	.0			OPR
	8400 BERN	3		1504.0	1507.0	12.0	35.0			OPR
	2800 OTTA	3	S	1506.5	1507.4	3.0	23.6	8.0		
	8400 BERN	20		1539.00	1541.5U	12.0U	11.0			OPR
	2695 PENT	45	C	2002.0	2002.5	5.0	11.2	2.8		
02	2800 OTTA	21	GRF	1645.0	1720	95.0	3.6	1.8		
	2800 OTTA	2	S/F	1648.0	1650	4.0	4.4	2.2		
	2800 OTTA	2	S/F	1703.0	1705	9.0	7.0	3.0		
	2800 OTTA	8	S	1732.0	1732	.1	16.6			
	2800 OTTA	3	S	2158.3	2159.8	4.7	195.0	34.0		
	2695 PENT	31	ABS	2203.0	2225	60.0	-3.4	-1.7		
03	3200 BERN	3		0821.0	0822.0	30.0	.0			OPR
	2800 OTTA	20	GRF	1600.0	1625	65.0	3.2	1.6		
	2800 OTTA	21	GRF	1720.0	1748	80.0	6.4	3.0		
	2800 OTTA	8	S	1735.9	1736	.8	2.8	1.4		
	2695 PENT	20	GRF	2140.0	2300	160.0D	13.4			
04	2800 OTTA	21	GRF	2005.0	2200	250.0	6.0	3.0		
	2800 OTTA	20	GRF	2120.0	2125	15.0	3.6	2.0		
	2800 OTTA	40	F	2139.0	2140.5	15.0	35.0			
	2695 PENT	1	S	2209.9	2210.2	1.0	2.6	1.3		
	2695 PENT	1	S	2211.7	2212	1.0	3.4	1.7		
05	2800 OTTA	20	GRF	1225.0	1305	120.0	6.0	3.6		
06	2695 PENT	1	S	0009.6	0010	1.5	9.4	4.7		
	3200 BERN	3		0854.0	0854.3	22.0	.0			OPR
	8400 BERN	3		0854.9	0855.3	36.0	420.0			
	2800 OTTA	20	GRF	1327.0	1400	45.0	2.8			
	2800 OTTA	3	S	1436.2	1436.6	1.0	11.8	5.8		
	2800 OTTA	21	GRF	1500.0	1553	95.0	8.0	2.6		
	2800 OTTA	1	S	1546.5	1547	1.5	4.0	2.0		
	2800 OTTA	2	S/F	2115.0	2115.7	2.0	6.2	3.0		
07	8400 BERN	3		0924.1	0928.6	40.0	50.0			
	2800 OTTA	20	GRF	1420.0	1430	70.0D	9.0			
	2800 OTTA	21	GRF	1540.0	1615	170.0	7.8	4.0		
	2800 OTTA	3	S	1720.9	1721.3	2.0	14.6	5.0		
	2800 OTTA	22	GRF	1910.0	2035	115.0	3.4	2.0		
	2800 OTTA	21	GRF	2110.0	2125	45.0	4.4	2.2		
	2800 OTTA	1	S	2117.2	2118.2	2.0	3.4	1.7		
	2695 PENT	20	GRF	2210.0	2225	30.0	2.8	1.6		
	2695 PENT	4	S/F	2306.0	2309	7.0	222.0	104.0		
	2695 PENT	30	PBI	2313.0	2313	70.0D	27.0			
	2695 PENT	46F	C	2315.0	2318	11.0	33.0	11.2		
08	3200 BERN	42		0751.0	0831.3	75.0	.0			OPR
	8400 BERN	42		0905.3	1303.7	374.0	5.0			
	8400 BERN	42		0905.3	1052.5	374.0	28.0			
	3200 BERN	42		0905.3	1412.6	374.0	.0			OPR
	8400 BERN	42		0905.3	1155.1	374.0	25.0			
	3200 BERN	42		0905.3	1155.0	374.0	.0			OPR
	8400 BERN	42		0905.3	1412.7	374.0	18.0			
	3200 BERN	20		1411.5	1430.5	80.0	.0			OPR
	2800 OTTA	21	GRF	1530.0	1550	205.0	14.4	7.2		
	8400 BERN	4		1530.8	1535.5	48.0	77.0			
	3200 BERN	4		1531.0	1535.5	50.0D	.0			OPR
	2800 OTTA	4	S/F	1534.0	1536.1	7.0	183.0	33.0		
	2800 OTTA	21	GRF	1645.0	1715	90.0	13.2	9.0		
	2695 PENT	1	S	1702.0	1704	8.0	9.4	4.7		
	2800 OTTA	8	S	1914.9	1914.9	.2	15.8			
	2800 OTTA	3	S	1916.0	1916.4	1.5	11.8	6.0		
	2800 OTTA	29	PBI	1917.5	1917.5	9.0	3.6	1.8		
	2800 OTTA	4	S/F	2023.0	2028.4	12.0	138.0	39.0		
	2800 OTTA	29	PBI	2035.0	2035	65.0	7.2	3.6		
	2695 PENT	21	GRF	2255.0	2300	55.0	15.8	4.6		
	2695 PENT	3	S	2256.2	2257.4	1.0	22.8	5.7		
09	3200 BERN	3		0719.0	0743.3	57.0	.0			OPR
	3200 BERN	47		1109.0	1124.6	93.0	.0			OPR
	8400 BERN	47		1123.1	1124.8	93.0U	1015.0			
	2800 OTTA	20	GRF	1200.0	1300	195.0	18.4	10.0		
	3200 BERN	20		1246.0	1319.5	100.0	.0			OPR
	2800 OTTA	22	GRF	1655.0	1715	45.0	4.0	1.8		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
09	2800	OTTA	21	GRF	1955.0	2105	135.0	6.4	3.2		
	2800	OTTA	1	S	1957.0	1959.5	7.0	5.6	2.4		
10	3200	BERN	20		0648.0	0650.0	28.0	.0			OPR
	3200	BERN	22		1043.5	1050.1	72.0	.0			OPR
	3200	BERN	20		1254.0	1323.5U	80.0	.0			OPR
	2800	OTTA	22	GRF	1300.0	1323	90.0	10.0	4.6		
	3200	BERN	1		1509.0	1510.7	9.0	.0			OPR
	2800	OTTA	1	S	1510.0	1511	2.0	2.4	1.2		
	2800	OTTA	20	GRF	1700.0	1707	50.0	4.0	2.8		
	2800	OTTA	20	GRF	1800.0	1810	22.0	3.6	1.8		
	2800	OTTA	24O	R	1920.0	1955	35.0	6.8	3.8		
	2695	PENT	8	S	2011.8	2011.8	.1	13.8			
	2800	OTTA	21	GRF	2104.0	2110	25.0	3.6			
	2800	OTTA	3	S	2104.2	2105.2	3.0	15.8	5.4		
	2695	PENT	20	GRF	2145.0	2215	95.0	6.8	3.5		
11	3200	BERN	3		0838.0	0845.2	14.0	.0			OPR
	2800	OTTA	21	GRF	1305.0	1420	105.0	7.2	4.0		
	3200	BERN	41		1318.0	1324.5	30.0	.0			OPR
	2800	OTTA	3	S	1324.8	1325	1.0	15.8	7.6		
	2800	OTTA	20	GRF	1520.0	1537	45.0	4.4	2.2		
	2695	PENT	20	GRF	1655.0	1700	12.0	2.4	1.2		
	2800	OTTA	22	GRF	1730.0	1835	195.0	8.2	4.1		
	2800	OTTA	24OAR		2104.0	2111	6.0	4.8	2.4		
	2800	OTTA	1	S	2107.0	2108	3.8	5.4	2.8		
	2695	PENT	1	S	2203.0	2203.3	1.5	5.2	2.6		
	2695	PENT	1	S	2344.9	2345	1.0	8.6	4.0		
12	3200	BERN	20		0715.0	0728.2	28.0	.0			OPR
	2800	OTTA	24O	R	1300.0	1310	10.0	4.6	2.3		
	2800	OTTA	21	GRF	1350.0	1447	310.0	21.4	10.0		
	3200	BERN	4		1404.3	1521.5	130.0	.0			OPR
	2800	OTTA	8	S	1453.5	1453.6	.8	4.6	2.3		
	2800	OTTA	4	S/F	1519.0	1521	6.0	65.0	13.0		
	2800	OTTA	4	S/F	1636.5	1637.3	3.0	55.0	7.2		
	2800	OTTA	8	S	1656.1	1656.3	.5	3.2	1.6		
	2800	OTTA	20	GRF	2140.0	2155	40.0	4.0	2.0		
	2695	PENT	20	GRF	2145.0	2155	20.0	2.8	1.4		
	2695	PENT	21	GRF	2240.0	2255	50.0	7.8	4.8		
	2695	PENT	1	S	2258.8	2259.1	2.0	2.0	1.0		
13	3200	BERN	3		0616.5	0617.5	9.0	.0			OPR
	3200	BERN	20		0715.0	0825.1	129.0	.0			OPR
	3200	BERN	4		0939.5	0942.1	13.0	.0			OPR
	2800	OTTA	20	GRF	1310.0	1320	30.0	3.0	1.5		
	2800	OTTA	20	GRF	1653.0	1700	15.0	3.4	1.7		
	2800	OTTA	23	GRF	1925.0	2123	220.0	11.6	6.7		
	2800	OTTA	1	S	1932.0	1932.5	2.0	4.0	2.2		
	2800	OTTA	1	S	1957.5	1958	2.5	3.6	2.4		
	2695	PENT	4	S/F	2010.0	2010.7	1.2	36.8	9.2		
	2695	PENT	4	S/F	2214.7	2215	5.3	12.2	3.1		
14	3200	BERN	2		0840.1	0842.5	45.0	.0			OPR
	3200	BERN	1		0942.0	0943.8	9.0	.0			OPR
	2800	OTTA	20	GRF	2040.0	2117	100.0	13.4	6.6		
	2695	PENT	1	S	2243.0	2243.2	1.0	2.8			
	2695	PENT	1	S	2308.5	2308.7	1.0	4.2	2.0		
15	3200	BERN	21		0755.1	0806.5	70.0	.0			OPR
	8400	BERN	21		0755.1	0806.7	70.0	15.0			
	8400	BERN	20		1034.8	1037.1	12.0U	4.0			
	8400	BERN	41		1233.0	1244.0	70.0	40.0			
	3200	BERN	41		1237.0	1244.0	80.0	.0			OPR
	2800	OTTA	24OAR		1238.0	1249	11.0	10.0			
	2800	OTTA	2	S/F	1243.5	1244.2	3.5	9.6	4.8		
	2800	OTTA	4	S/F	1549.0	1549.8	4.5	18.0	5.0		
	2800	OTTA	30	PBI	1553.5	1553.5	45.0	7.4	5.2		
	2800	OTTA	1	S	1602.0	1603	2.0	5.6	2.0		
	2800	OTTA	1	S	1733.5	1733.7	1.0	4.0	2.0		
	2800	OTTA	26O	FAL	1900.0	2040	100.0	-6.0	-3.0		
16	2800	OTTA	21	GRF	1300.0	1330	105.0	5.6	2.3		
	3200	BERN	21		1317.0	1319.0	32.0	.0			OPR
	2800	OTTA	1	S	1318.0	1319	2.0	8.4	4.2		
	2800	OTTA	23	GRF	1810.0	2025	310.0	5.4	2.7		
	2695	PENT	8	S	2014.0	2014.4	.6	4.2	2.1		
	2695	PENT	1	S	2016.0	2016.7	2.0	5.0	2.0		
	2800	OTTA	8	S	2053.0	2053.2	.8	5.8	2.8		
17	2800	OTTA	20	GRF	1300.0	1415	175.0	6.6	3.3		
	2800	OTTA	20	GRF	1605.0	1630	55.0	3.6	2.0		
	2800	OTTA	23	GRF	1725.0		155.0	4.0			
	2800	OTTA	1	S	1759.0	1759.3	2.0	5.0	2.5		
18	8400	BERN	21		0832.6	0836.1	14.0	60.0			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
18	8400	BERN	21		1031.6	1044.5	35.0U	40.0			
	8400	BERN	20		1244.0	1503.0	160.0U	18.0			
	2800	OTTA	21	GRF	1520.0	1550	80.0	3.6	2.3		
	2800	OTTA	1	S	1525.0	1525.5	1.0	1.8	.9		
	2800	OTTA	21	GRF	1830.0	1850	45.0	3.2	2.0		
	2800	OTTA	8	S	1834.5	1834.5	.3	50.0			
	2800	OTTA	8	S	1900.6	1900.6	.2	293.0			
	2800	OTTA	21	GRF	1920.0	2020	90.0	2.2	1.4		
	2800	OTTA	8	S	1947.2	1947.3	.5	285.0			
	2800	OTTA	21	GRF	2128.0	2133	12.0	5.0	2.5		
	2800	OTTA	3	S	2129.0	2129.5	2.0	28.4	7.6		
	2695	PENT	2A	S/F	2146.0	2146.5	4.5	3.4	1.7		
	2695	PENT	8	S	2149.0	2149	.1	19.0			
	2695	PENT	3	S	2247.2	2247.9	1.0	24.6	12.0		
19	8400	BERN	21		0933.5	0938.8	63.0	18.0			
	8400	BERN	21		1232.7	1241.0	114.0	35.0			
	2800	OTTA	20	GRF	1305.0	1335	125.0	4.6			
	2800	OTTA	8	S	2127.7	2127.9	.5	16.0	8.0		
20	8400	BERN	3		0859.0	0903.0	18.0	40.0			
	2800	OTTA	20	GRF	1455.0	1522	110.0	13.6	5.0		
	2800	OTTA	20	GRF	1740.0	1750	25.0	3.2	1.6		
	2695	PENT	20	GRF	2150.0	2220	55.0	4.4	2.0		
21	8400	BERN	21		0953.7	0955.3	60.0	12.0			
	2800	OTTA	24O	R	1445.0	1535	50.0	6.8			
22	2800	OTTA	2	S/F	1333.7	1334	2.0	9.6			
	2800	OTTA	40	F	1420.0	1421.2	2.0	9.6			
	2800	OTTA	21	GRF	1435.0	1635	165.0	6.2	3.1		
	2800	OTTA	8	S	1508.5	1508.5	.5	3.8			
	2800	OTTA	2	S/F	1528.0	1532	8.0	7.2	3.0		
	8400	BERN	21		1529.8	1532.1	6.0	22.0			
	3200	BERN	21		1529.8	1532.0	8.0	.0			OPR
	2695	PENT	1	S	2237.0	2237.8	2.0	8.0	2.7		
23	8400	BERN	46		0734.0	0738.6	45.0	264.0			
	3200	BERN	46		0734.1	0737.7	56.0	.0			OPR
	8400	BERN	3		1013.0	1034.0	42.0	230.0			
	3200	BERN	3		1031.6	1033.8	20.0	.0			OPR
	8400	BERN	22		1218.6	1221.6	18.0	16.0			
	3200	BERN	22		1218.8	1221.5	18.0	.0			OPR
	2800	OTTA	4	S/F	1220.8	1221.5	2.5	17.8	8.9		
	2800	OTTA	4	S/F	1225.0	1226	4.0	17.0	5.8		
	2800	OTTA	20	GRF	1435.0	1500	55.0	3.8	2.0		
	2800	OTTA	3	S	1550.0	1553.5	7.0	69.0	23.0		
	3200	BERN	3		1550.0	1553.5	8.0	.0			OPR
	8400	BERN	3		1551.0	1553.4	6.0	41.0			
	2800	OTTA	29	PBI	1557.0	1557	13.0	3.2	1.6		
	2800	OTTA	1	S	1801.3	1802	2.5	4.0	2.0		
	2800	OTTA	8	S	2035.0	2035.2	.7	3.6	1.8		
24	2800	OTTA	3	S	1336.0	1337	9.0	10.6	3.6		
	2800	OTTA	20	GRF	1649.0	1655	15.0	2.2	1.1		
	2800	OTTA	22	GRF	1720.0	1950	210.0	6.8	3.2		
	2695	PENT	20	GRF	2055.0	2120	45.0	2.2	1.1		
	2695	PENT	1	S	2219.0	2224	8.0	8.0	2.8		
25	3200	BERN	22		0750.0	0820.5	36.0	.0			OPR
	8400	BERN	22		0750.0	0820.6	36.0	24.0			
	3200	BERN	46		0932.0	0948.0	57.0	.0			OPR
	8400	BERN	46		0938.0	0948.2	45.0	488.0			
	2800	OTTA	20	GRF	1629.0	1633	25.0	3.8	1.3		
	2800	OTTA	20	GRF	1830.0	1839	50.0	9.6	4.6		
26	2800	OTTA	27A	RF	1315.0		240.0	3.6	3.2		
	2800	OTTA	24	R	1315.0	1355	40.0	3.6	2.0		
	2800	OTTA	24P	R	1355.0		190.0	3.6			
	2800	OTTA	40	F	1436.0	1437.5	6.0	7.4			
	2800	OTTA	20	GRF	1620.0	1633	30.0	2.6	1.3		
	2800	OTTA	26	FAL	1705.0	1715	10.0	-3.6	-1.8		
	2800	OTTA	20	GRF	1726.0	1732	40.0	3.6	1.6		
	2800	OTTA	1	S	1826.0	1826.5	2.0	3.6	1.6		
	2800	OTTA	20	GRF	1945.0	2020	60.0D	5.4			
27	3200	BERN	3		1008.0	1010.1	30.0	.0			OPR
	8400	BERN	3		1009.1	1010.4	30.0	21.0			
	2800	OTTA	20	GRF	1545.0	1725	125.0	3.6	1.8		
	2695	PENT	24O	R	1925.0	2020	55.0	3.4	1.7		
	2800	OTTA	1	S	2051.0	2052.5	3.0	3.4	1.6		
28	3200	BERN	1		1010.0	1010.8	1.0	.0			OPR
	3200	BERN	3		1238.2	1239.5	20.0	.0			OPR
	2800	OTTA	4	S/F	1238.7	1239.5	2.3	36.0	18.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
28	2800	OTTA	23	GRF	1500.0	1725	255.0	6.2	3.2		
	2800	OTTA	1	S	1607.5	1608.2	2.0	5.4	1.8		
	2800	OTTA	8	S	1635.0	1635.1	.3	2.6			
	2800	OTTA	1	S	1946.8	1947.5	3.0	3.6	1.6		
	2800	OTTA	20	GRF	2020.0	2030	20.0	2.4	1.2		
	2695	PENT	24O	R	2050.0	2120	30.0	3.4	1.7		
	2695	PENT	21	GRF	2225.0		35.0	2.4			
	2695	PENT	3	S	2228.5	2229	1.0	16.2	8.0		
29	3200	BERN	4		1139.0	1141.5	38.0	.0			OPR
	8400	BERN	4		1139.1	1141.5	29.0	36.0			
	2800	OTTA	2	S/F	1511.0	1512	10.0	3.2	1.6		
	2800	OTTA	40	F	1531.5	1534.4	3.5	15.2			
	3200	BERN	4		1532.1	1534.0	4.0	.0			OPR
	2800	OTTA	32	ABS	1536.0	1552	45.0	-3.6	-1.8		
	2800	OTTA	8	S	1624.1	1624.2	.3	3.6			
	2800	OTTA	20	GRF	1650.0	1723	75.0	2.2	1.1		
30	2800	OTTA	24O	R	1255.0	1315	20.0	5.8	2.9		
	2800	OTTA	24	R	1320.0	1330	10.0	3.6	1.8		
	2800	OTTA	27	RF	1320.0		290.0	3.6	3.4		
	2800	OTTA	24P	R	1330.0		270.0	3.6			
	2800	OTTA	26	FAL	1800.0	1810	10.0	-3.6	-1.8		
	2695	PENT	24	R	2005.0	2025	20.0	3.6	1.8		
	2695	PENT	27	RF	2005.0		125.0	3.6	3.0		
	2695	PENT	24P	R	2025.0		85.0	3.6			
	2695	PENT	26	FAL	2150.0	2210	20.0	-3.6	-1.8		
31	2800	OTTA	20	GRF	1730.0	1740	45.0	2.8	1.8		
	2800	OTTA	24O	R	1930.0	2010	40.0	3.2	1.6		
	2800	OTTA	1	S	2026.0	2027.5	3.0	3.6	1.8		
	2695	PENT	20	GRF	2100.0	2145	80.0	4.0	3.0		

Observatories:

BERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

Explanation of Type Code:

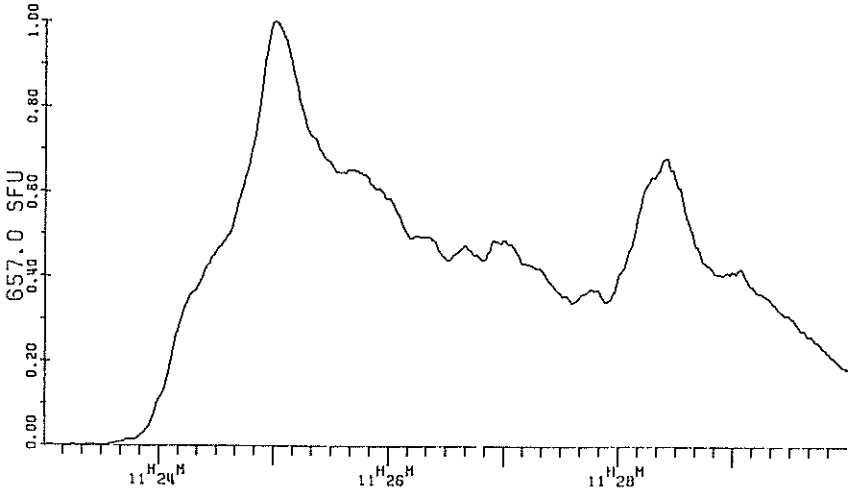
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of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

SELECTED SOLAR NOISE BURSTS

OCTOBER 9-25, 1980

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

I 5.2, F=5.2 GHZ, BW=100.0 MHZ, T=1.0 SEC



UT ON OCT. 9 1980

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

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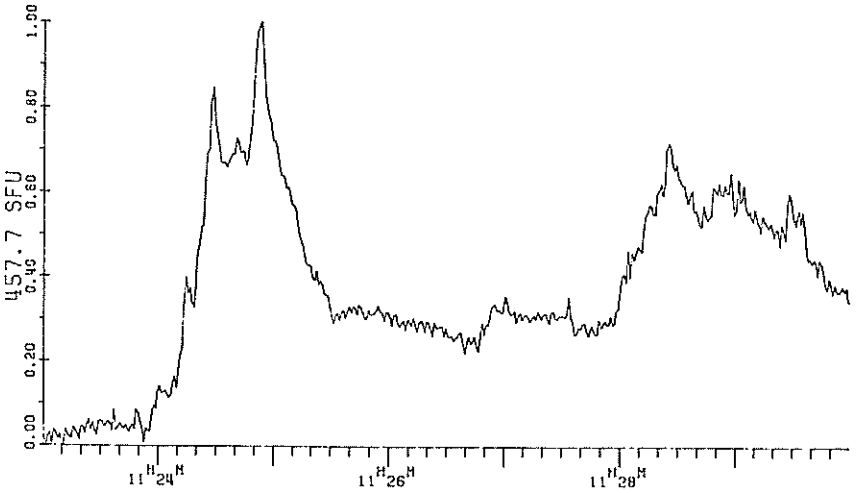

UT ON OCT. 9 1980

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

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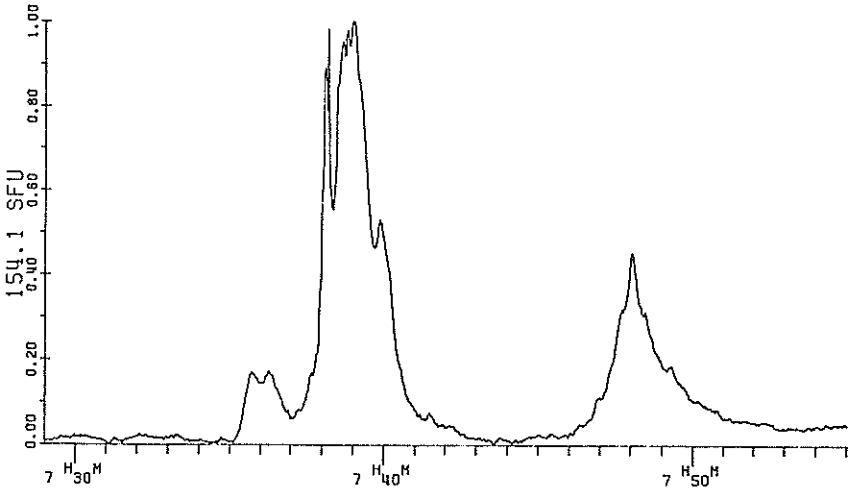

UT ON OCT. 23 1980

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

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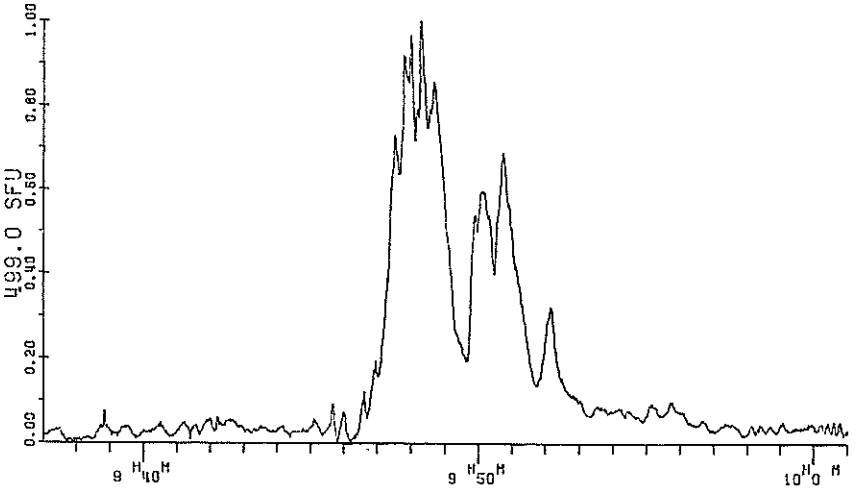


UT ON OCT. 25 1980

SOLAR WIND

Interplanetary Scintillations

OCTOBER 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
801001	275	10	365	32	377	17	2	3C144-	105	5	1.12	15	1.72	1699.97
	275	13	343	19	387	14	3	3C144	105	5	1.12	16	1.77	1699.96
	275	14	293	61	308	18	2	3C161	91	-2	1.05	15	1.38	1699.94
	275	17	340	39	330	86	2	3C222	45	-7	0.71	43	1.65	1699.97
	275	18	407	77	385	30	2	3C237	38	-3	0.62	52	2.17	1699.98
	275	20	305	44	345	17	2	3C283	21	-32	0.36	-59	-8.45	1700.32
	275	22	322	8	329	9	4	3C298	28	44	0.47	-56	-7.37	1700.29
801002	276	10	276	15	291	52	2	3C144-	106	5	1.12	15	1.90	1699.94
	276	13	276	13	288	26	3	3C144	106	5	1.12	15	1.90	1699.94
	276	14	299	8	260	7	2	3C161	92	-2	1.05	15	1.43	1699.98
	276	15	468	24	366	306	2	3C144+	106	5	1.12	15	1.55	1700.06
	276	16	411	101	435	103	2	3C216	66	16	0.91	23	1.31	1700.05
	276	17	291	14	266	43	2	3C222	46	-6	0.72	42	1.33	1699.98
	276	18	320	42	329	17	2	3C237	39	-3	0.63	50	1.61	1699.99
	276	20	449	18	472	84	2	3C283	20	-34	0.34	-59	-7.25	1700.38
	276	21	320	99	282	62	2	3C295	60	36	0.87	7	-0.28	1700.07
	276	22	354	23	338	15	3	3C298	28	45	0.47	-57	-7.15	1700.34
801003	277	10	323	20	259	16	2	3C144-	107	5	1.12	15	1.82	1700.01
	277	13	328	12	324	75	2	3C144	107	5	1.12	14	1.75	1700.02
	277	14	325	19	385	11	2	3C161	93	-2	1.06	14	1.40	1700.04
	277	17	293	13	267	27	2	3C222	47	-6	0.73	42	1.45	1700.02
	277	18	315	12	286	37	2	3C237	40	-3	0.64	49	1.59	1700.03
	277	20	406	88	449	226	2	3C283	19	-36	0.33	-59	-7.61	1700.42
	277	22	361	50	381	51	3	3C298	27	47	0.45	-57	-7.20	1700.38
801004	278	4	387	50	392	41	2	3C409	113	17	1.15	-9	0.04	1700.14
	278	13	424	24	422	14	3	3C144	108	5	1.13	16	1.75	1700.11
	278	14	320	14	358	55	3	3C161	94	-2	1.06	14	1.38	1700.07
	278	15	303	30	285	17	2	3C144+	108	5	1.13	16	1.97	1700.04
	278	15	343	58	283	13	2	3C196	79	13	0.99	17	1.17	1700.09
	278	16	373	58	352	55	2	3C216	68	15	0.93	21	1.22	1700.11
	278	17	324	14	311	13	3	3C237	41	-2	0.66	50	1.76	1700.07
	278	17	313	10	347	34	3	3C222	48	-6	0.74	41	1.56	1700.06
	278	22	567	62	441	71	2	3C298	26	48	0.44	-57	-6.24	1700.45
801005	279	10	268	42	282	36	2	3C144-	108	5	1.13	15	2.00	1700.04
	279	13	291	15	303	10	3	3C144	109	5	1.13	16	2.02	1700.06
	279	14	257	32	304	14	3	3C161	94	-2	1.06	14	1.47	1700.05
	279	16	274	10	273	10	2	3C216	69	15	0.93	20	1.01	1700.09
	279	17	300	12	328	35	2	3C222	49	-5	0.75	40	1.45	1700.09
	279	18	362	13	337	42	3	3C237	42	-2	0.67	47	1.83	1700.12
	279	22	423	10	401	10	4	3C298	25	50	0.42	-56	-6.82	1700.47
801006	280	10	320	51	571	586	2	3C144-	109	5	1.13	14	1.84	1700.12
	280	17	291	18	297	38	2	3C222	50	-5	0.77	39	1.41	1700.13
	280	17	296	13	329	13	3	3C237	43	-2	0.68	47	1.52	1700.13
	280	22	373	9	457	12	3	3C298	25	52	0.42	-56	-7.19	1700.50
801007	281	17	306	49	308	33	2	3C237	44	-2	0.69	46	1.57	1700.17
	281	21	369	13	313	25	2	3C295	60	35	0.87	9	-0.04	1700.27
	281	22	513	28	411	28	2	3C298	24	53	0.41	-57	-6.51	1700.56
801008	282	10	338	56	351	52	2	3C144-	111	5	1.14	15	1.92	1700.20
	282	12	400	23	432	19	3	3C144	112	5	1.15	15	1.79	1700.24
	282	14	325	10	382	12	2	3C161	97	-3	1.08	14	1.47	1700.22
	282	15	378	50	331	97	2	3C216	71	13	0.95	18	1.06	1700.26
	282	18	357	13	351	13	2	3C237	45	-2	0.71	45	1.83	1700.23
801009	283	10	309	18	432	106	2	3C144-	112	5	1.15	14	1.93	1700.22
	283	13	349	68	342	20	2	3C144	113	5	1.15	15	1.87	1700.25
	283	13	365	17	450	15	3	3C161	98	-3	1.08	14	1.42	1700.28
	283	15	379	122	442	63	2	3C144+	113	5	1.15	15	1.83	1700.27
	283	15	456	38	446	67	2	3C216	72	13	0.95	18	1.15	1700.33
	283	16	373	20	456	25	2	3C222	52	-4	0.79	37	1.68	1700.28
	283	17	378	42	439	14	3	3C237	46	-2	0.72	45	1.97	1700.27
	283	22	470	117	411	48	2	3C298	23	57	0.39	-56	-6.69	1700.63
801010	284	10	516	61	344	20	2	3C144-	113	5	1.15	15	1.62	1700.36
	284	12	333	15	465	21	2	3C144	114	5	1.16	14	1.91	1700.28

SOLAR WIND

Interplanetary Scintillations

OCTOBER 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	284	13	359	29	473	19	2	3C161	99	-3	1.09	14	1.48	1700.31
	284	14	406	31	437	178	2	3C196	84	13	1.01	16	1.25	1700.34
	284	15	318	44	386	230	2	3C144+	114	5	1.16	14	1.95	1700.27
	284	15	395	14	353	70	2	3C216	73	13	0.96	17	1.05	1700.34
	284	16	345	23	368	25	2	3C222	53	-4	0.80	36	1.58	1700.30
	284	17	318	16	378	24	3	3C237	47	-2	0.73	43	1.65	1700.28
	284	21	409	95	314	22	2	3C295	61	34	0.87	9	0.07	1700.39
	284	22	487	55	453	75	2	3C298	23	59	0.39	-54	-6.47	1700.67
801011	285	4	530	121	539	152	2	3C409	108	17	1.13	-9	-0.25	1700.46
	285	12	424	13	451	63	3	3C144	114	5	1.16	14	1.67	1700.36
	285	13	510	14	508	38	3	3C161	100	-3	1.09	14	1.35	1700.41
	285	14	314	23	331	24	2	3C196	85	13	1.02	16	1.27	1700.32
	285	15	396	57	389	58	2	3C216	74	12	0.96	17	1.06	1700.38
	285	17	424	14	485	17	2	3C237	48	-2	0.74	41	1.98	1700.36
	285	20	503	34	459	31	3	3C295	61	34	0.87	10	0.24	1700.46
801012	286	4	443	112	464	158	2	3C409	107	17	1.12	-10	-0.26	1700.47
	286	10	412	104	502	74	2	3C144-	115	5	1.16	13	1.70	1700.39
	286	11	291	43	245	21	2	3C147	110	12	1.14	14	1.94	1700.32
	286	12	438	24	478	29	3	3C144	115	5	1.16	15	1.74	1700.41
	286	13	516	83	495	73	2	3C161	100	-3	1.09	13	1.32	1700.45
	286	14	325	36	305	28	2	3C196	86	13	1.02	17	1.40	1700.37
	286	15	436	27	399	16	2	3C216	75	12	0.97	17	1.11	1700.43
	286	16	413	51	429	53	2	3C222	55	-4	0.82	35	1.78	1700.40
	286	17	479	37	494	31	3	3C237	49	-1	0.75	41	2.10	1700.41
801013	287	10	509	50	537	44	2	3C144-	116	5	1.16	14	1.65	1700.46
	287	12	523	15	462	19	3	3C144	116	4	1.16	15	1.67	1700.47
	287	13	391	15	418	52	2	3C161	101	-3	1.10	14	1.45	1700.43
	287	15	351	14	331	17	2	3C216	76	12	0.97	16	1.06	1700.43
	287	17	480	19	460	43	3	3C237	50	-1	0.77	39	2.03	1700.45
	287	21	388	67	368	17	2	3C298	21	65	0.36	-49	-6.84	1700.75
801014	288	10	355	40	603	108	2	3C144-	117	4	1.17	14	1.88	1700.43
	288	21	524	33	614	65	2	3C298	21	67	0.36	-47	-5.90	1700.80
801015	289	12	554	21	658	25	2	3C144	118	4	1.17	14	1.57	1700.55
	289	14	417	24	437	94	2	3C196	88	12	1.03	16	1.30	1700.52
	289	17	323	25	518	170	2	3C237	52	-1	0.79	39	1.66	1700.47
801016	290	9	244	12	464	129	2	3C144-	119	4	1.18	13	2.30	1700.40
	290	13	455	24	542	99	2	3C161	104	-3	1.11	13	1.37	1700.57
	290	17	379	14	341	26	2	3C237	53	-1	0.80	37	1.76	1700.53
801017	291	13	473	20	453	71	2	3C161	105	-3	1.12	13	1.37	1700.61
	291	15	363	13	308	62	2	3C216	79	12	0.99	17	1.16	1700.58
	291	16	323	18	363	60	2	3C222	60	-3	0.87	30	1.44	1700.55
	291	17	426	18	418	18	2	3C237	54	-1	0.81	36	1.84	1700.59
	291	18	309	53	357	28	2	3C273	18	14	0.31	74	1.40	1700.55
801018	292	3	504	20	494	10	3	3C409	103	17	1.11	-10	-0.43	1700.71
	292	9	478	27	506	15	2	3C144-	121	4	1.18	13	1.64	1700.64
	292	11	476	32	460	60	2	3C147	115	11	1.16	13	1.55	1700.64
	292	12	472	9	466	9	3	3C144	121	4	1.18	13	1.66	1700.64
	292	13	420	31	426	34	3	3C161	106	-3	1.12	13	1.48	1700.63
	292	15	404	11	436	43	2	3C216	80	11	0.99	16	1.15	1700.64
	292	16	465	24	423	26	2	3C222	61	-2	0.87	28	1.60	1700.64
	292	17	429	32	315	16	2	3C237	55	-1	0.82	35	1.80	1700.62
	292	20	481	81	447	43	2	3C295	63	31	0.89	11	0.37	1700.70
801019	293	3	304	16	303	38	2	3C409	103	17	1.11	-10	-0.14	1700.65
	293	9	447	45	426	16	2	3C144-	122	4	1.19	12	1.67	1700.66
	293	11	345	14	463	49	2	3C147	116	11	1.16	13	1.80	1700.62
	293	12	436	32	532	70	3	3C144	122	4	1.19	13	1.72	1700.66
	293	13	328	14	321	22	2	3C161	106	-3	1.12	13	1.60	1700.62
	293	16	290	15	320	11	2	3C222	62	-2	0.88	28	1.31	1700.60
	293	17	378	39	347	25	2	3C237	55	-1	0.82	35	1.74	1700.64
801020	294	9	526	21	443	27	2	3C144-	123	4	1.19	12	1.54	1700.72
	294	12	432	25	514	71	2	3C144	123	4	1.19	13	1.75	1700.69
	294	13	400	75	416	146	2	3C161	107	-3	1.12	13	1.56	1700.69
801021	295	9	528	23	565	22	3	3C144-	124	4	1.19	13	1.63	1700.76

SOLAR WIND

Interplanetary Scintillations

OCTOBER 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	295	13	310	87	331	34	2	3C161	108	-3	1.13	12	1.65	1700.67
	295	15	392	12	351	28	3	3C216	83	11	1.01	17	1.31	1700.74
801022	296	4	423	33	426	14	2	3C446	127	7	1.20	-11	-0.00	1700.82
	296	12	354	19	331	175	2	3C144	125	4	1.20	12	1.94	1700.73
	296	14	275	36	286	56	2	3C196	95	11	1.07	16	1.64	1700.69
	296	16	365	39	440	28	2	3C237	58	0	0.85	32	1.64	1700.75
801023	297	9	435	15	334	17	2	3C144-	126	4	1.20	13	1.78	1700.80
	297	11	400	9	437	16	2	3C144	126	4	1.20	12	1.79	1700.79
	297	13	476	23	518	25	2	3C196	95	11	1.07	15	1.39	1700.83
	297	15	398	28	445	38	2	3C216	85	11	1.02	17	1.31	1700.81
	297	15	334	11	365	12	3	3C222	66	-1	0.91	23	1.25	1700.78
	297	17	497	32	454	17	3	3C237	59	0	0.86	30	1.71	1700.83
	297	18	348	14	341	26	3	3C273	24	10	0.41	67	1.85	1700.77
	297	22	396	49	448	36	2	3C298	19	74	0.33	27	-1.14	1700.91
801024	298	5	473	32	552	28	2	3C459	140	8	1.24	-8	0.31	1700.90
	298	9	411	22	370	13	3	3C144-	127	4	1.20	12	1.76	1700.83
	298	11	496	11	455	45	3	3C144	127	4	1.20	12	1.63	1700.86
	298	13	396	9	412	15	3	3C161	111	-3	1.14	12	1.51	1700.84
	298	14	513	56	528	30	2	3C144+	127	4	1.20	12	1.60	1700.87
	298	16	514	18	547	19	2	3C237	60	0	0.87	30	1.76	1700.87
	298	18	561	19	440	38	2	3C273	25	9	0.42	66	3.05	1700.84
	298	20	384	15	293	30	2	3C295	64	28	0.90	12	0.38	1700.88
801025	299	9	526	47	449	83	2	3C144-	128	4	1.21	12	1.61	1700.91
	299	11	276	10	498	26	2	3C144	128	4	1.21	11	2.20	1700.77
	299	12	264	41	399	22	2	3C161	111	-4	1.14	12	1.89	1700.77
	299	15	395	48	304	32	2	3C216	86	11	1.02	17	1.35	1700.88
	299	16	724	59	545	21	2	3C237	61	0	0.87	29	1.82	1700.95
	299	17	334	59	334	11	2	3C273	26	9	0.44	65	1.78	1700.84
801026	300	9	402	25	463	32	2	3C144-	129	3	1.21	11	1.81	1700.90
	300	11	697	36	591	64	2	3C144	129	3	1.21	12	1.42	1700.99
	300	12	407	28	424	55	2	3C161	112	-4	1.15	11	1.49	1700.91
	300	14	489	16	454	56	2	3C216	87	10	1.03	17	1.35	1700.95
	300	17	479	51	420	65	2	3C273	27	8	0.45	64	2.71	1700.90
	300	21	388	27	429	32	2	3C298	20	69	0.34	45	0.20	1700.97
801027	301	9	628	35	562	28	2	3C144-	130	3	1.21	11	1.43	1701.01
801028	302	9	790	40	782	228	2	3C144-	131	3	1.22	12	1.36	1701.07
	302	11	276	11	479	130	2	3C144	131	3	1.22	11	2.27	1700.88
	302	17	277	40	219	31	2	3C273	29	7	0.48	62	1.16	1700.93
801029	303	21	245	*	671	*	2	3C298	20	62	0.34	55	-0.85	1701.01
801030	304	10	415	109	437	156	2	3C147	126	10	1.20	11	1.73	1701.05
	304	11	519	37	583	268	2	3C144	133	3	1.22	11	1.57	1701.09
	304	12	392	8	387	8	3	3C161	116	-4	1.16	11	1.54	1701.05
	304	15	509	60	546	53	2	3C222	73	0	0.96	17	1.12	1701.11
801031	305	2	429	22	415	12	2	3C409	94	16	1.06	-10	-0.55	1701.17
	305	3	374	14	371	66	2	3C446	118	7	1.17	-12	-0.13	1701.13
	305	5	416	10	401	20	2	3C459	133	7	1.22	-10	0.22	1701.14
	305	8	461	39	476	85	3	3C144-	134	3	1.23	11	1.72	1701.10
	305	11	418	18	428	39	3	3C144	134	3	1.23	11	1.84	1701.09
	305	12	372	29	359	22	3	3C161	117	-4	1.17	10	1.59	1701.08
	305	16	450	72	483	61	2	3C237	67	0	0.92	22	1.32	1701.12
	305	17	444	14	419	13	3	3C273	32	6	0.53	59	2.48	1701.08

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

INFERRED IP MAGNETIC FIELD

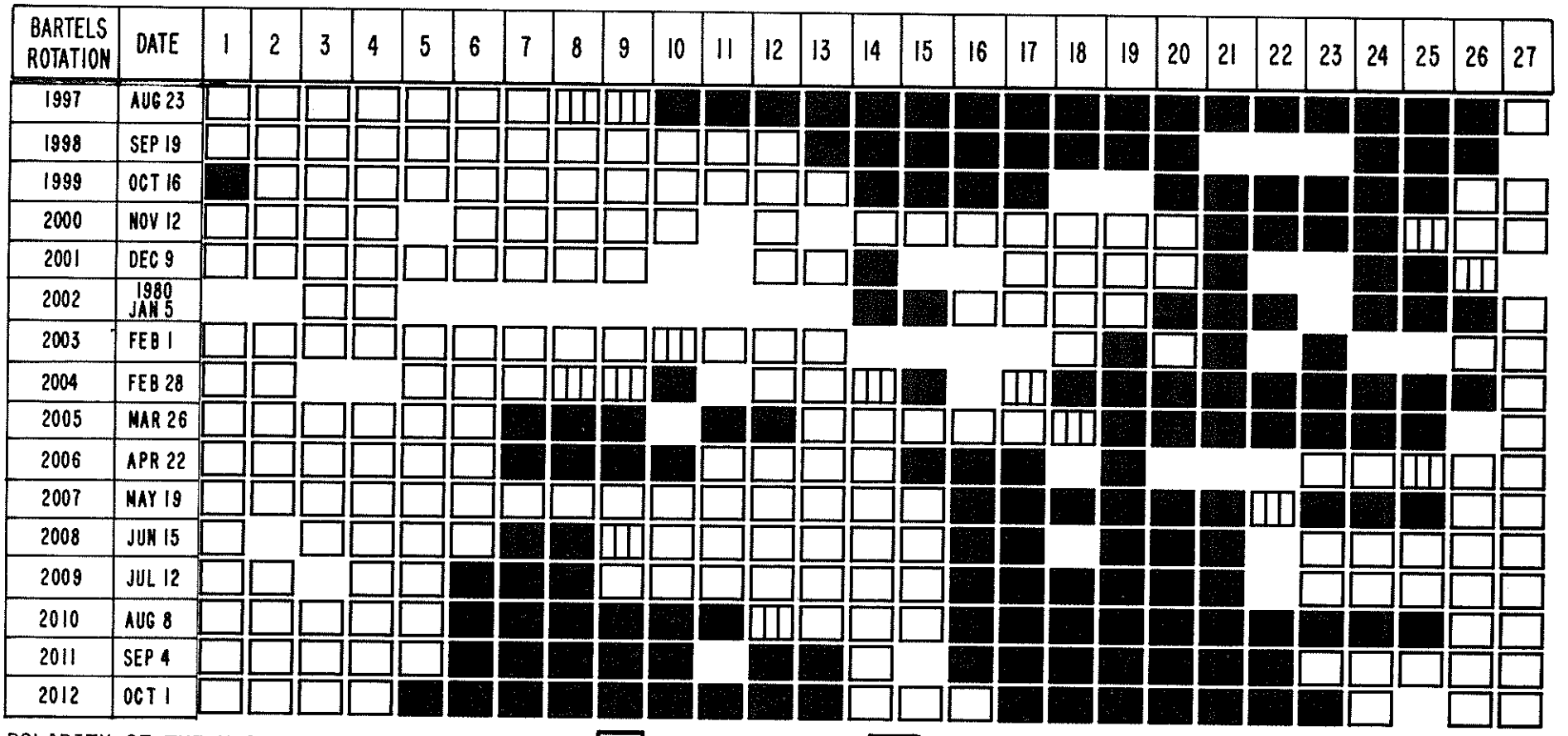
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1994	JUN 8	TA	TA A*		TA						-	AT		-					T*	-	TA		TA T*			AT T*	-	TA
1995	JUL 5	TA	TA	AT		TA		AT A*	TA		TA -			TA		AT				*				TA T*				TA
1996	AUG 1			AT	A*	-			TA -	-	-		T*				*	-			AT					AT *		
1997	AUG 28			-	A*						AT							-		-		T*	-	AT	TA -		TA AT	
1998	SEP 24						A*		AT	-		TA		A*	*			TA		-			TA			TA	TA -	*
1999	OCT 21								T*			TA	-		-					AT	AT *		AT					
2000	NOV 17	-	TA -			AT					*				AT				AT -	TA	-	-	TA		-	TA	-	
2001	DEC 14				-				TA		TA	-	-	AT -				AT		AT *			TA AT	T*				-
2002	1980 JAN 10						AT	-		-			-	TA AT		T*		TA	AT							TA	A*	
2003	FEB 6		TA			-				A*							TA				-			*	TA	TA		
2004	MAR 4		AT		TA		AT	-	-	TA		-			T*		AT AT			TA		AT	AT TA			TA -	-
2005	MAR 31		TA	AT AT	AT		AT	TA	T*			AT				TA TA					TA		TA	AT AT	AT AT	TA TA		
2006	APR 27		AT			AT -						TA	AT		TA			TA AT	AT						TA	AT	*	TA
2007	MAY 24			AT	AT			*	* -	-	- -	-	TA		AT				*	TA		-	TA		TA		- TA	
2008	JUN 20		-				AT		-	-					-	-							TA		TA		TA	
2009	JUL 17		-	AT		-						-			TA	TA	-	AT AT			-		-	-	-	- A*	-	-
2010	AUG 13		AT					-	AT -							-		- AT					TA		-	A*		
2011	SEP 9							TA	AT						TA	TA										TA		
2012	OCT 6							*		TA	TA		AT	A*	A*							TA			TA			

= definitely towards the sun = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: ☐ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT
No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

DAY	1979 NOV.	DEC.	1980 JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
01	-6	16	-37	94	.	-10	-7	37	-51	-5	-19	44
02	.	-3	-28	96	.	-26	9	13	.	.	5	59
03	.	-24	1	87	50	-21	26	-16	-25	8	8	53
04	-5	-18	.	72	53	.	55	-45	-23	7	29	26
05	-8	-6	.	72	12	-44	21	-57	-19	10	42	-4
06	-17	-1	.	57	-1	-17	-13	-42	.	24	42	-36
07	-12	18	54	49	1	9	-34	-25	8	53	23	-62
08	-3	35	59	31	-8	4	-42	-11	11	53	9	-73
09	-6	75	.	10	.	7	.	-1	13	44	-27	-72
10	6	99	.	0	9	7	-17	-6	23	37	-68	-39
11	29	83	.	10	21	5	.	-18	44	27	-77	-41
12	46	60	.	11	1	2	.	-4	42	8	-84	-45
13	52	32	.	3	-7	-15	.	12	34	-37	-62	-10
14	45	44	.	.	.	-18	5	56	.	-63	.	10
15	26	29	.	.	-2	-12	5	54	57	-65	-39	38
16	.	20	.	.	-10	-14	-1	.	26	-56	-16	20
17	13	18	.	.	-9	-8	16	63	-42	-44	7	-15
18	41	.	-17	5	-8	-10	50	71	-69	-24	.	-8
19	35	.	-8	-13	-18	-5	73	55	-43	1	-18	-2
20	35	7	33	3	-42	.	78	15	5	23	-38	-16
21	50	6	32	-7	-41	30	92	-40	32	24	-31	-14
22	.	-6	10	.	-39	95	120	-43	47	11	-15	-17
23	22	.	3	-32	-24	113	122	-1	53	-11	-7	-8
24	.	.	-12	.	-20	113	46	33	57	-31	-22	31
25	12	35	-25	.	13	100	14	49	53	-38	-21	.
26	20	40	-31	6	43	56	25	37	27	-27	8	54
27	27	27	.	43	53	8	64	46	-8	-27	18	52
28	24	23	-34	58	64	-27	57	54	-33	-18	18	48
29	39	-18	-26	57	84	-28	62	6	-42	-14	18	44
30	37	.	-13		75	-16	49	-22	-29	-18	25	57
31		.	29		25		49		-6	-10		.

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

PIONEER XII

OCTOBER 1980

DATE OCT 80	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$°K)
1	2241	067.7	336.	37.7	0.067
2	2246		446.	16.4	.196
3	2335		457.	11.3	.141
4	2204		332.	17.1	.046
5	2009		292.	36.	.024
6	2020		294.	24.4	.063
7	2227		322.	27.1	.019
8	2035		409.	17.5	.141
9	2045		477.	14.3	.129
10	2357		401.	25.	.111
11	2357		381.	60.	.052
12	2048		439.	27.6	.193
13	2259		539.	10.4	.175
14	2031		496.	11.7	.186
15	---	076.5	---	---	---
16	2034		499.	9.8	.276
17	2126		427.	13.2	.055
18	2225		493.	10.2	.349
19	2045		433.	10.2	.136
20	2159		371.	18.1	.026
21	2126		373.	12.	.076
22	1303		501.	21.4	.089
23	2306		415.	14.5	.089
24	1554		389.	16.9	.08
25	1809		411.	21.	.236
26	1817		385.	30.	.159
27	2131		376.	28.5	.093
28	2223		570.	9.5	.192
29	0511		638.	10.9	.369
30	1818		641.	6.4	.348
31	1257		548.	8.	.299

BOULDER GEOMAGNETIC SUBSTORM LOG

OCTOBER 1980

DATE	ONSET TIME	DIR	COMMENTS
10/01			Quiet day
10/02			Quiet day
10/03			Field slightly unsettled.
10/04			Field moderately unsettled.
	1115	West	Moderate SS, numerous injections with recovery near 1600 UT.
10/05	0540	East	
	0915	West	Moderate SS.
	1125	West	
	1325	West	
10/06			Field active 0600-1200 UT.
	0730	West	
	0855	West	
10/07	0930		Localized SS; Ft. Yukon, College, Talkeetna.
	1230	West	
10/08			Field intermittently unsettled, no distinctive SS activity.
10/09			Field intermittently unsettled.
	0620	East	SS evident eastward of Norman Wells only.
	1020		Localized SS; College to Talkeetna.
10/10			Field unsettled.
	0725	≈ center	Weak SS.
	1215		Localized SS; Ft. Yukon, College, Talkeetna.
	2145	SSC	
10/11			Magstorm conditions 0400-1400 UT.
	0600	Center	Sharp onset and strong D-component response at Boulder.
	0855		Numerous injections with recovery near 1330 UT.
10/12			Field intermittently unsettled.
10/13			Quiet day
10/14	1640		Slow onset, Polar Cap SS only.
	1950		Sharp positive impulse H-component all mid/low latitude stations.
10/15			Field moderately unsettled 0700-1400 UT.
	1055	West	
10/16			Quiet day
10/17			Field unsettled 0600-1500 UT with no distinctive SS activity.
10/18	0120		Small sharp positive impulse H-component all mid/low latitude stations.
	0810		Weak SS with variable response.
	1120	West	
10/19			Field unsettled after 0500 UT.
	1525		Slow onset at College, slow expansion north and east.
10/20			Field unsettled 0900-1700 UT with no significant SS activity.
10/21			Field unsettled 0500-1600 UT with no significant SS activity.
10/22			Field unsettled after 0300 UT.
	1105	West	
	1840		
	2135		Boulder in partial ring current sector.
10/23			Gradual onset to magstorm after 0500 UT. Field recovery near 1900 UT.
	1200		Strong SS.
10/24	0850	West	Weak SS
	1115		Localized SS vicinity College.
	1255		Weak SS
	1350		Weak SS
10/25			Field active after 0600 UT.
	0650	West	Moderate SS, several injections with recovery near 0930 UT.
	1030	West	Weak SS
	1340		Slow onset, several minor injections with recovery near 1730 UT.
10/26			Field unsettled 0500-1200 UT.
	0830		SS along Auroral oval only.
10/27			Quiet day
10/28			Quiet day
10/29			Quiet day
10/30			Field intermittently unsettled with no distinctive SS activity.
10/31	0700	East	Several minor injections with recovery near 0915 UT.
	1225	West	Several injections with recovery near 1800 UT.

SEPTEMBER 1980 DATA

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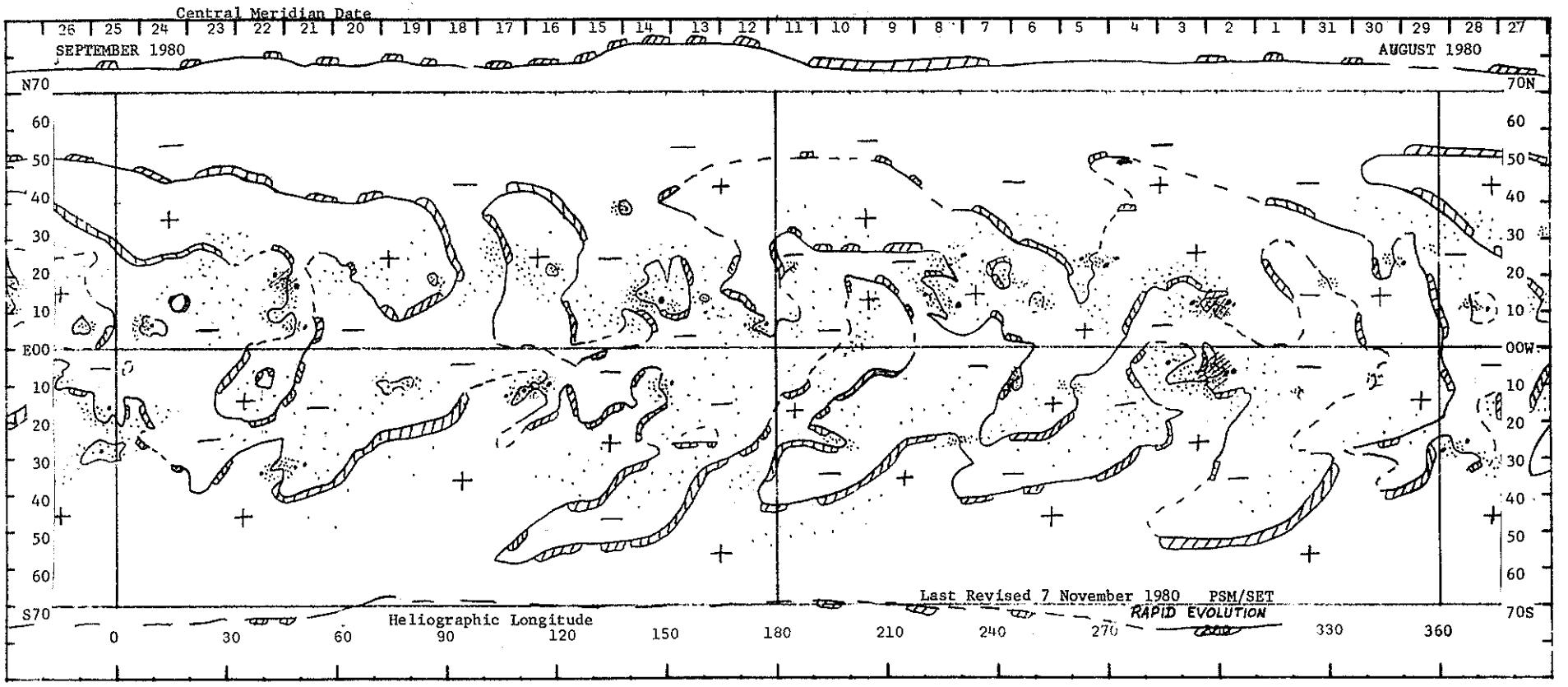
Hα SYNOPTIC CHART

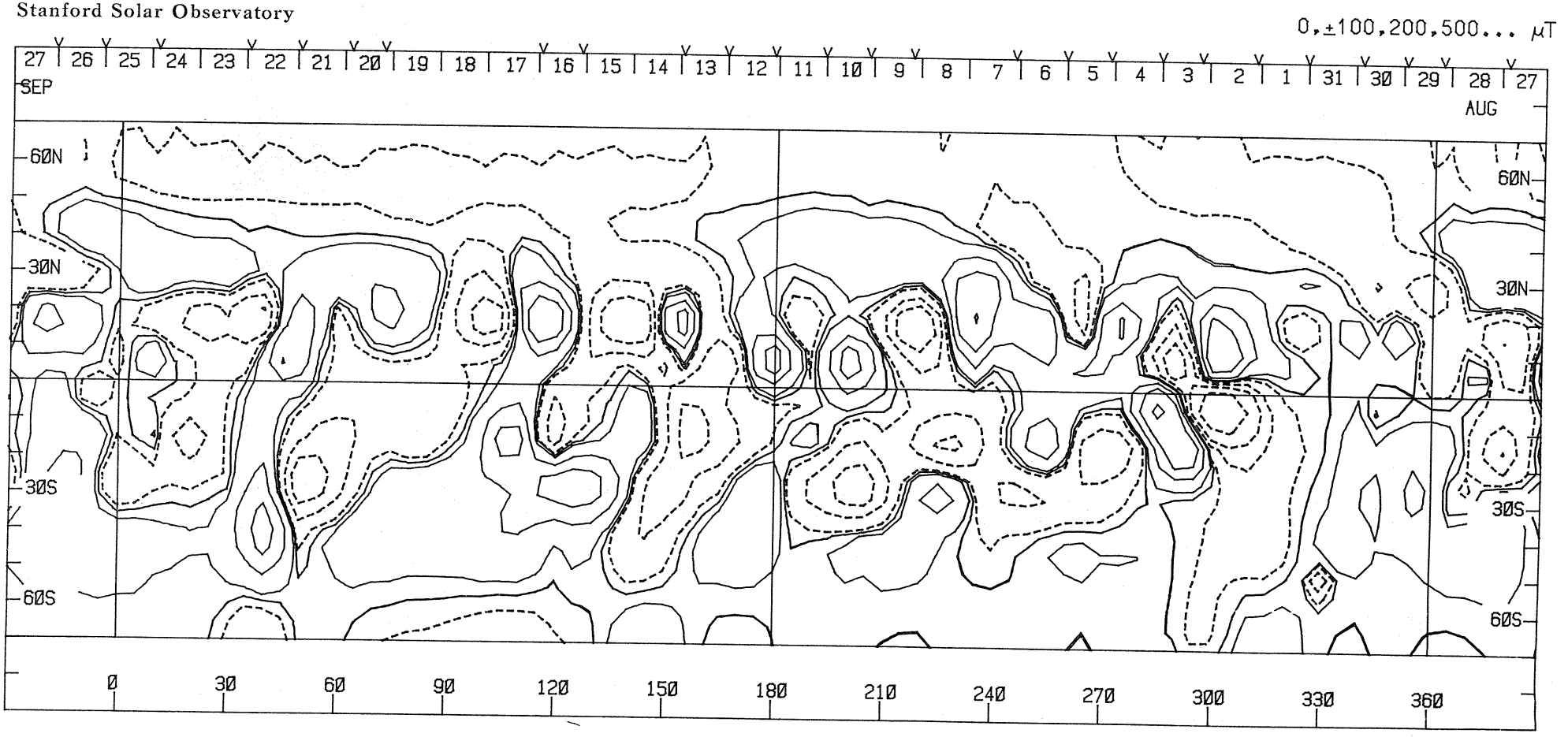
CARRINGTON ROTATION 1699 (PRELIMINARY)

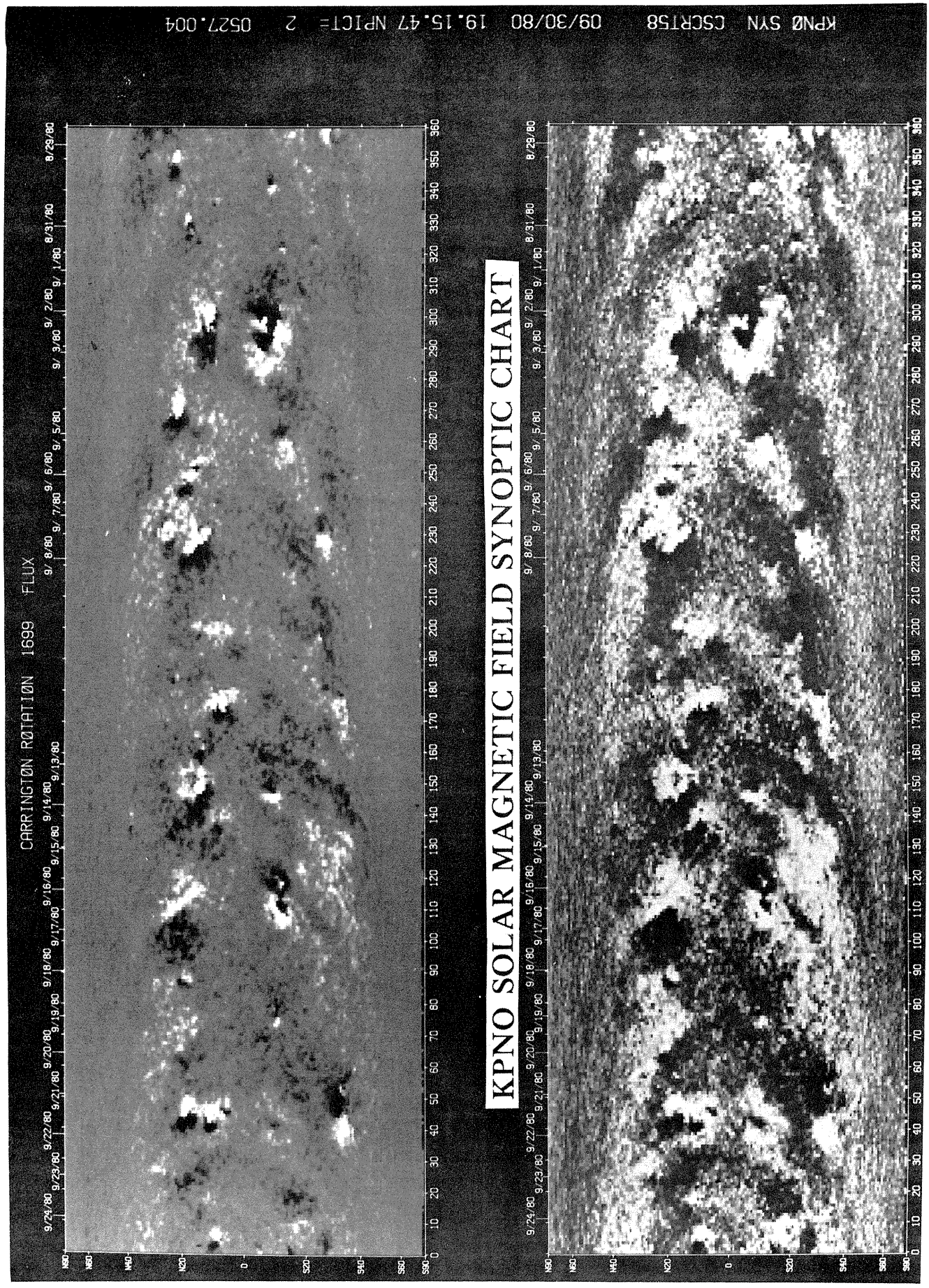


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1699

Stanford Solar Observatory

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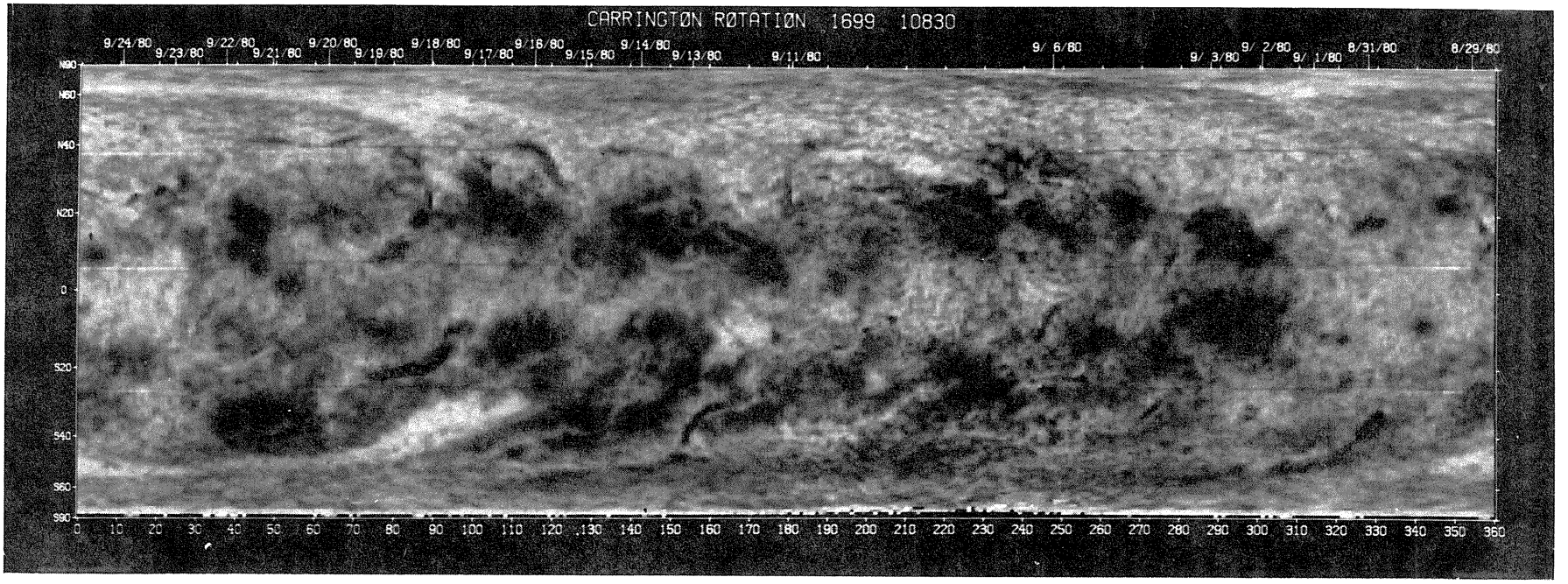
CARRINGTON ROTATION 1699 FLUX
KPNO SYN CSCR158 09/30/80 19.15.47 NPICT= 2 0527.004

HELIUM 10830A SYNOPTIC MAPS
CARRINGTON ROTATION 1699

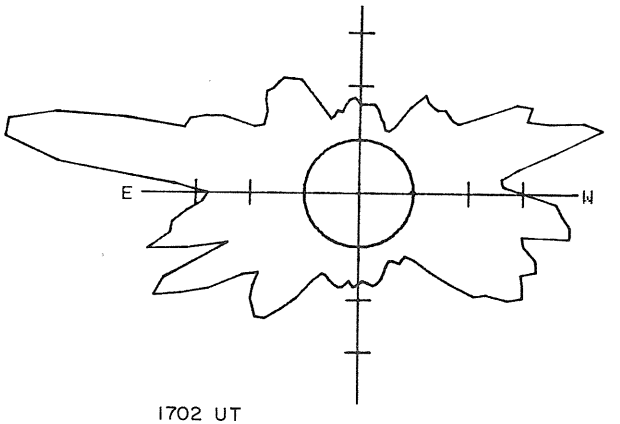
KITT PEAK NATIONAL OBSERVATORY



SEPTEMBER 1, 1980 (P = 21.14, B_o = 7.20, L_o = 323.29)

SACRAMENTO PEAK

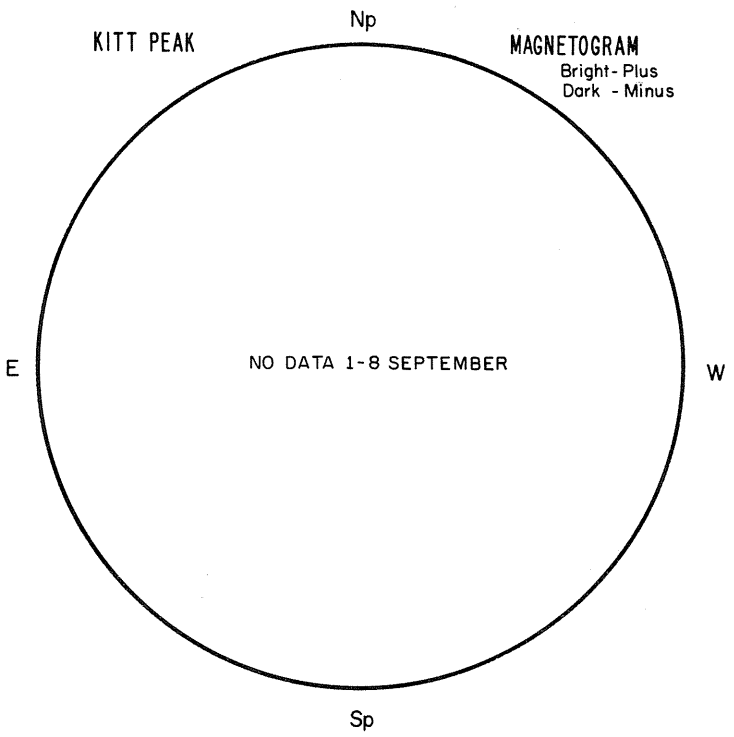
CORONA (1.15 $R_\odot$)
5303 Å



1702 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

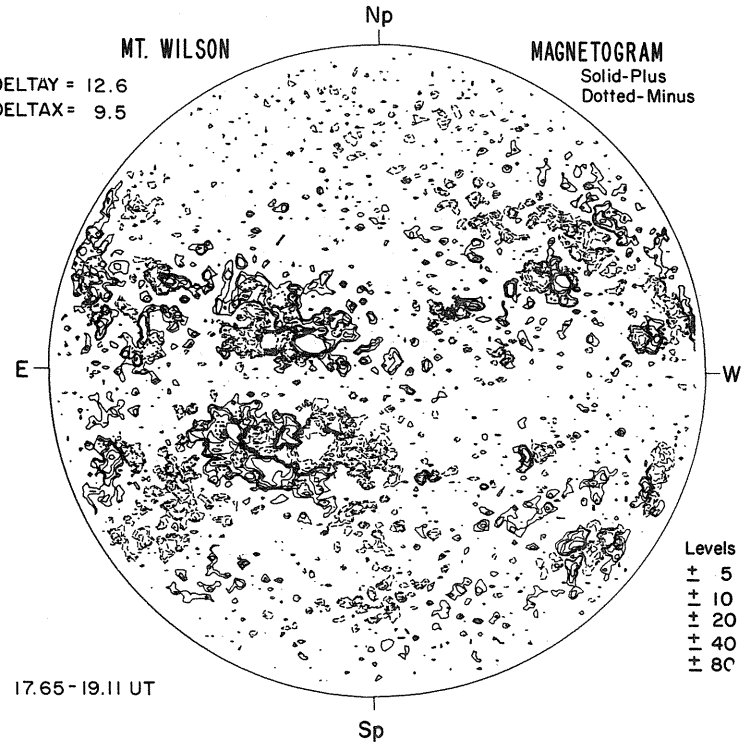


NO DATA 1-8 SEPTEMBER

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus

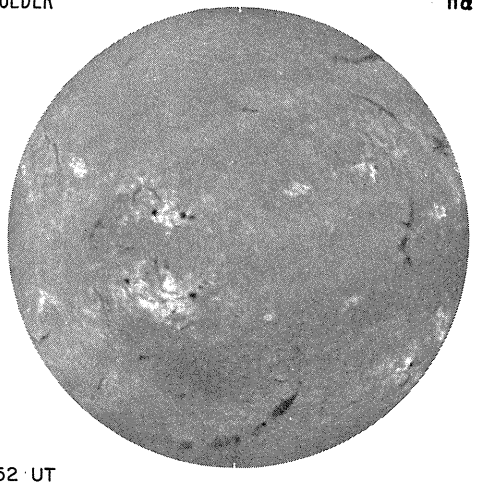


Levels
± 5
± 10
± 20
± 40
± 80

17.65 - 19.11 UT

01

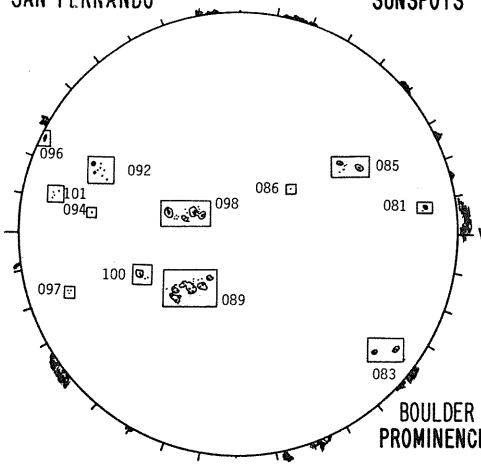
BOULDER Np Hα



E W

1452 UT Sp

SAN FERNANDO Np SUNSPOTS



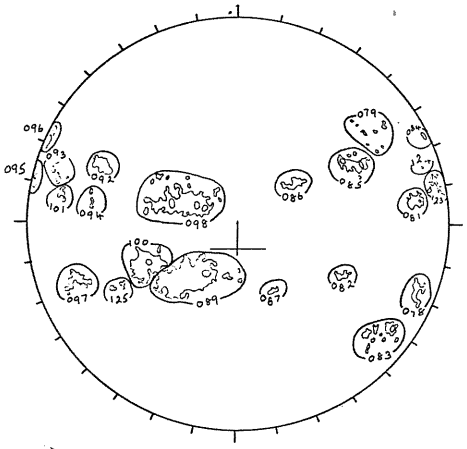
E W

1745 UT Sp

BOULDER PROMINENCES

1452 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1905 UT Sp

GOOD	JA
78-	1000-3.0
79-	0600-3.0
81-	1000-3.5
82-	0300-3.0
83-	1300-3.0
84-	0200-3.5
85-	1000-3.5
86-	0500-3.5
87-	0200-3.0
89-	6200-4.0
92-	1000-3.5
93-	0400-3.0
94-	0200-2.5
95-	0600-3.5
96-	0600-3.0
97-	1000-3.5
98-	4700-3.5
00-	2500-3.5
01-	0300-3.5
23-	0700-2.5
24-	0100-2.5
25-	0200-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

SCHEDULE

E W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

SCHEDULE

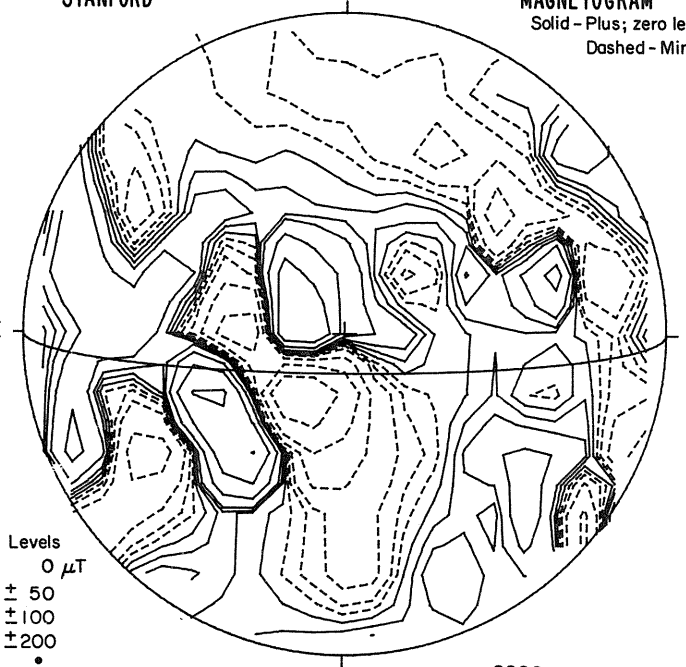
E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

± 100

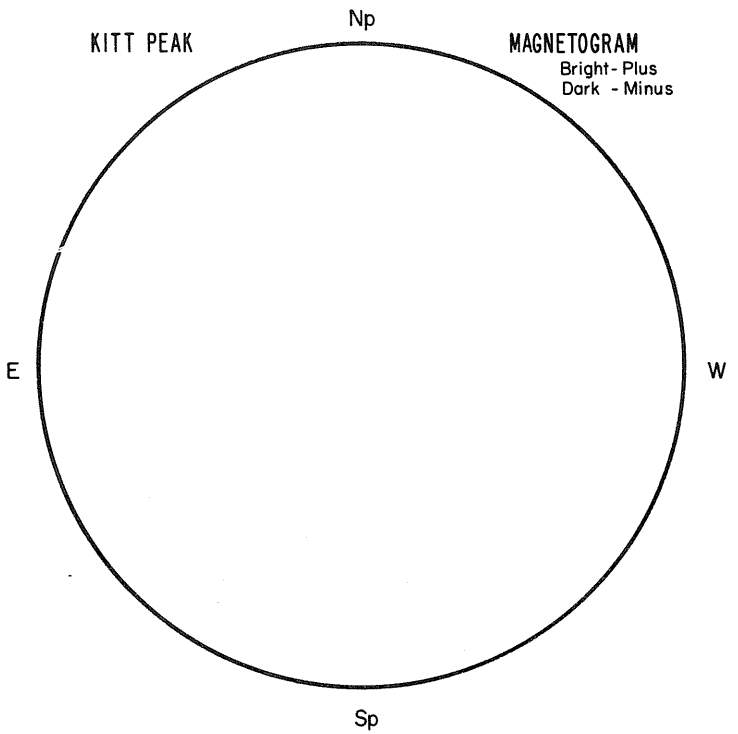
± 200

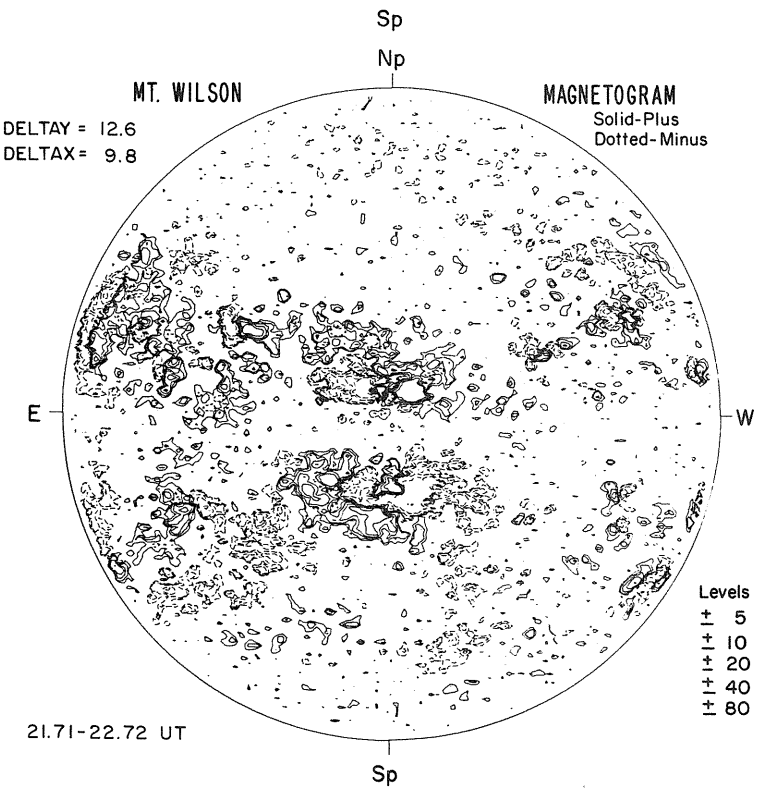
Sp 2226 UT

SEPTEMBER 2, 1980 (P = 21.39, B_o = 7.21, L_o = 310.09)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

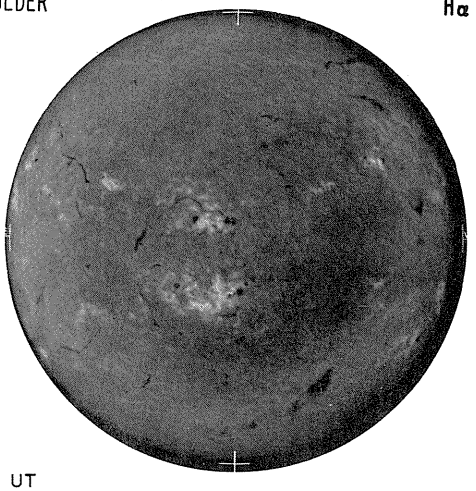
E NO DATA 2-11 SEPTEMBER W





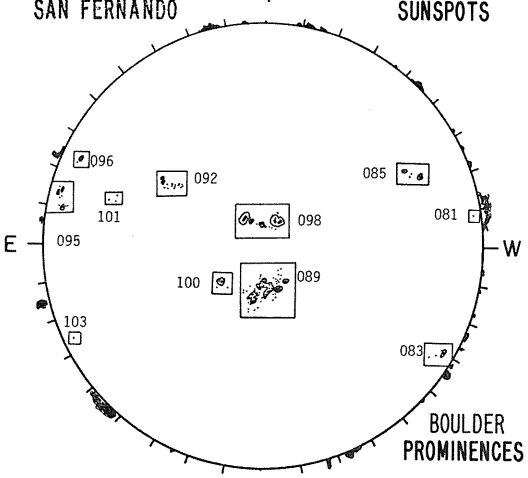
02

BOULDER Hα



1411 UT

SAN FERNANDO SUNSPOTS

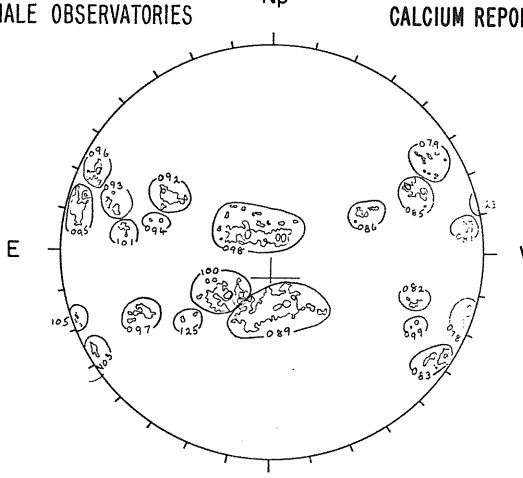


1830 UT

BOULDER PROMINENCES

1411 UT

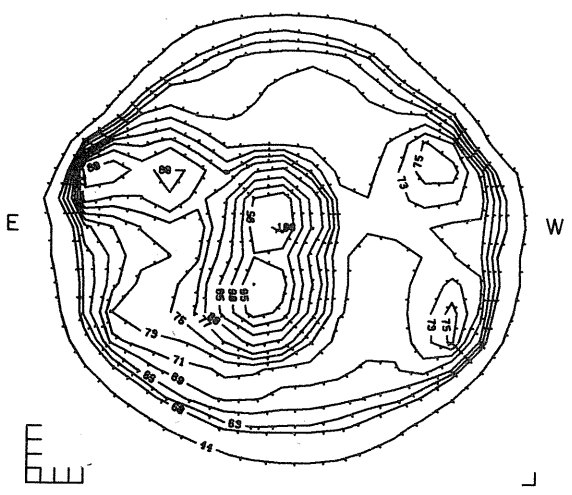
HALE OBSERVATORIES CALCIUM REPORT



1809 UT

GOOD	JA
78-	0900-3.0
79-	0600-3.0
81-	0500-3.5
82-	0300-3.0
83-	0700-3.0
85-	0900-3.5
86-	0300-3.5
89-	5400-3.5
92-	1000-3.5
93-	0500-3.0
94-	0100-2.5
95-	2300-3.5
96-	0700-3.0
97-	0600-3.5
98-	2500-3.5
99-	0100-2.5
00-	1600-3.0
01-	0200-3.0
03-	0300-3.5
05-	0200-2.5
25-	0100-2.5

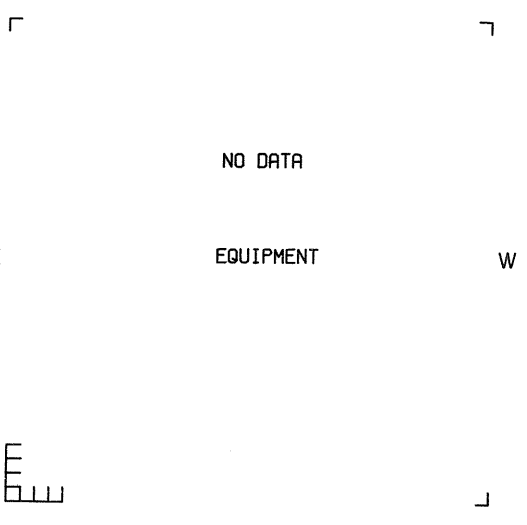
NOSC LA POSTA 2.0 CM



1603 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM



NO DATA

EQUIPMENT

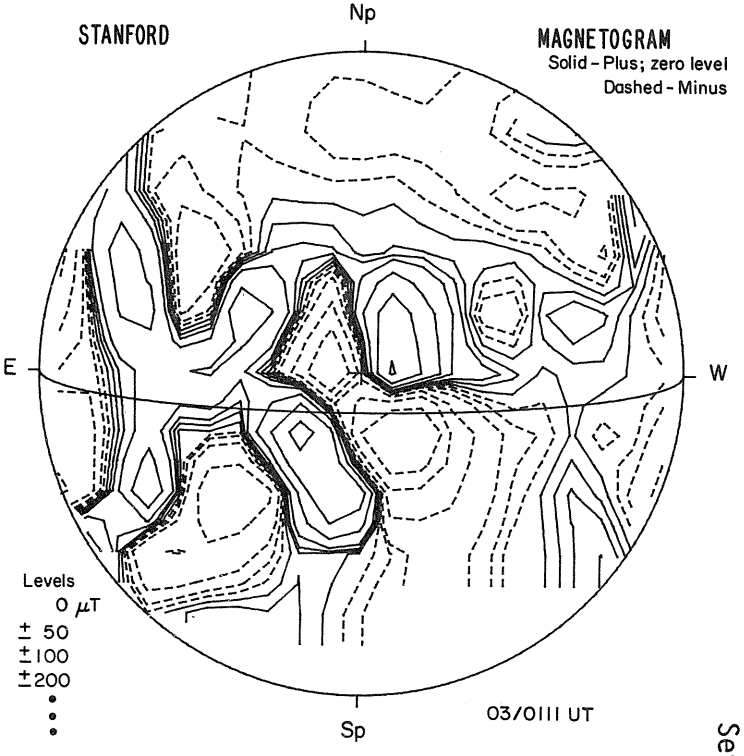
---- UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

±100

±200

•

•

•

03/0111 UT

SEPTEMBER 3, 1980 (P = 21.63, B_o = 7.22, L_o = 296.88)

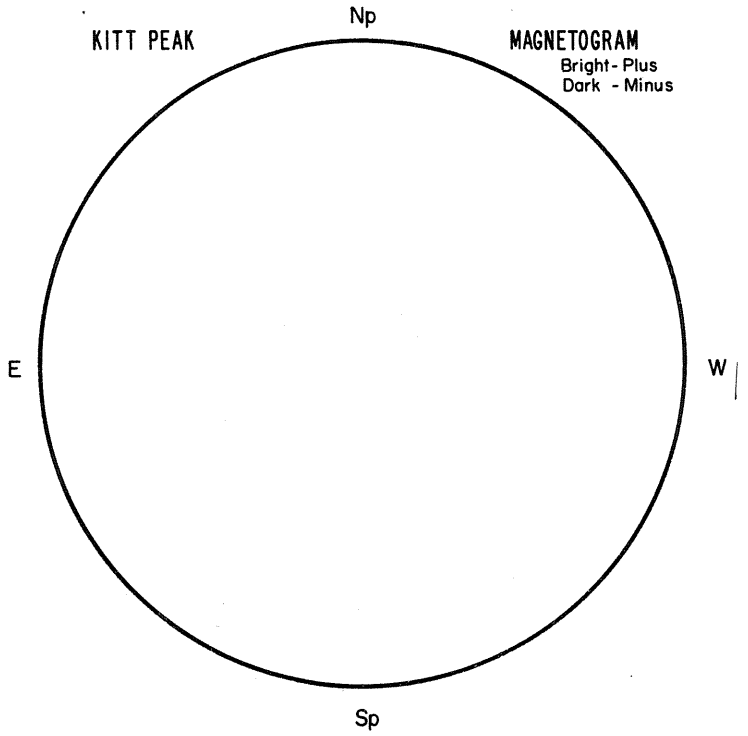
SACRAMENTO PEAK

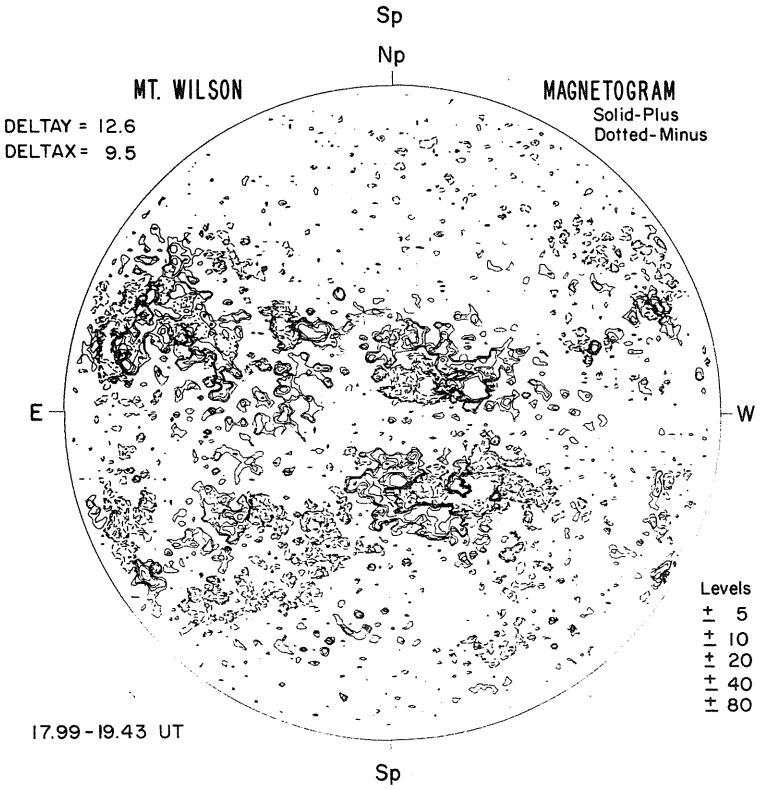
Np

CORONA (1.15 $R_\odot$)
5303 Å

E

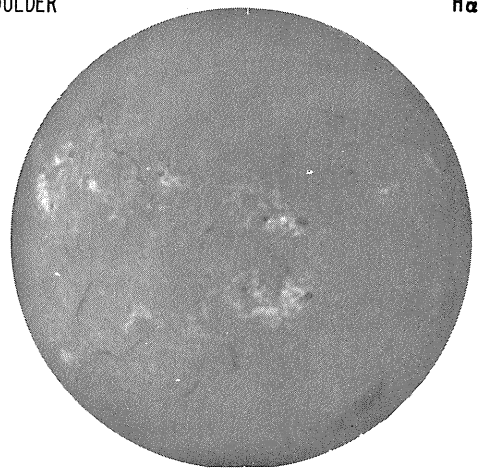
W





03

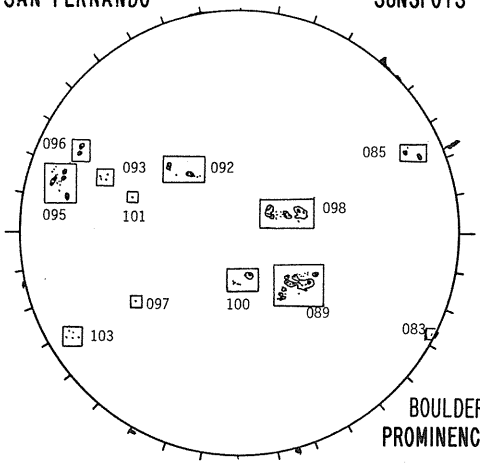
BOULDER Np Hα



E W

1600 UT Sp

SAN FERNANDO Np SUNSPOTS



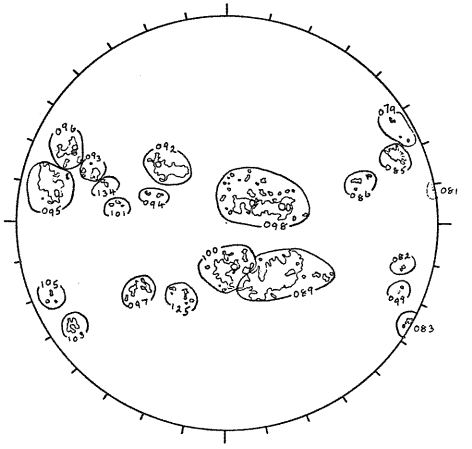
E W

2040 UT Sp

BOULDER PROMINENCES

1600 UT

HALE OBSERVATORIES Np CALCIUM REPORT

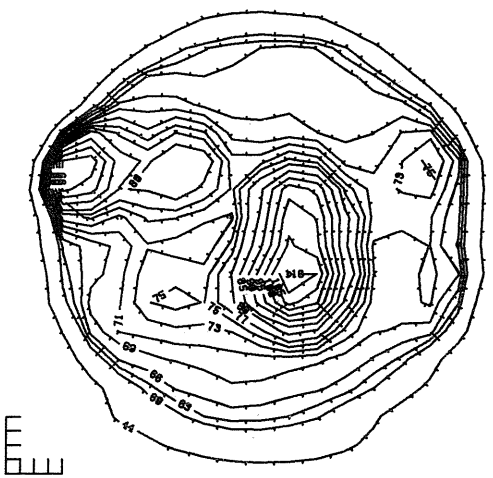


E W

1953 UT Sp

GOOD	JA
81- 0100-3.0	
85- 0500-3.0	
86- 0200-3.0	
89- 5300-3.5	
92- 1400-3.5	
93- 0300-3.5	
94- 0200-2.5	
95- 3000-3.5	
96- 0800-3.0	
97- 0400-3.5	
98- 3200-3.5	
99- 0100-2.5	
00- 1600-3.0	
01- 0100-3.0	
03- 0500-3.5	
05- 0200-2.5	
34- 0100-2.5	

NOSC LA POSTA Np 2.0 CM



E W

1550 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

EQUIPMENT

E W

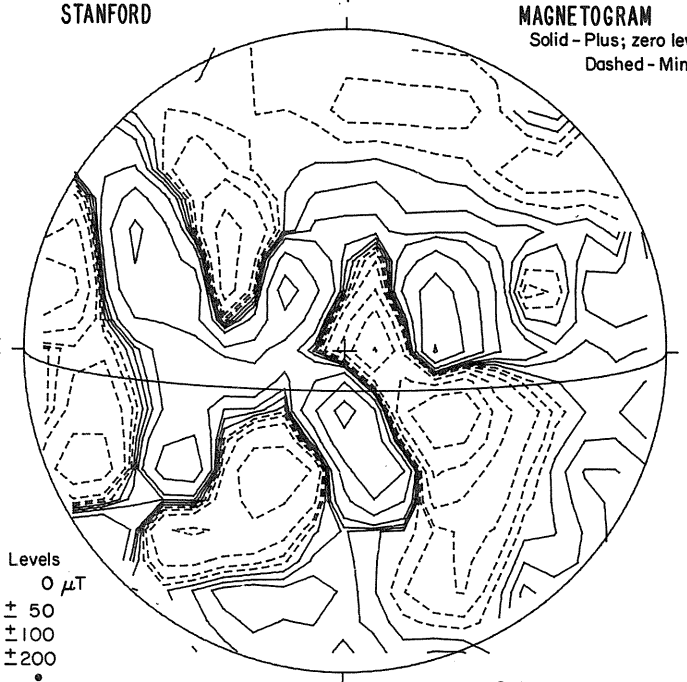
---- UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2124 UT Sp

55

Sep 80

SEPTEMBER 4, 1980 (P = 21.87, B_o = 7.23, L_o = 283.67)

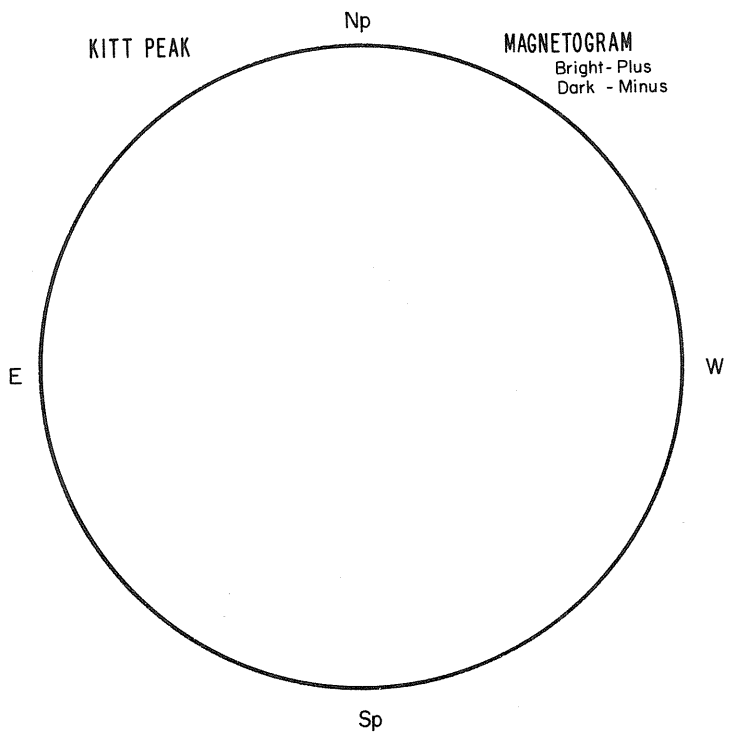
SACRAMENTO PEAK

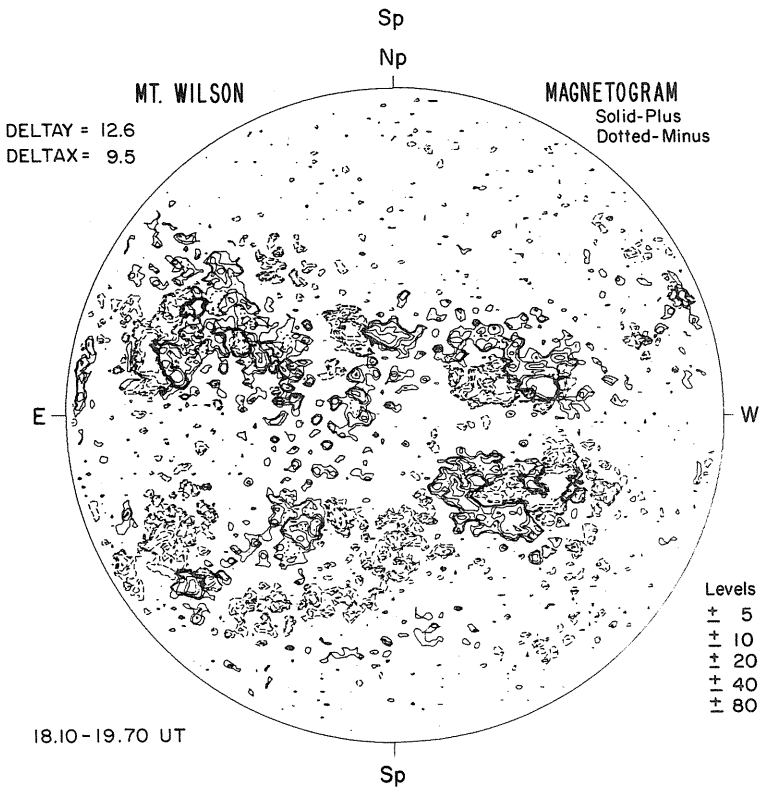
Np

CORONA (1.15 $R_\odot$)
5303 Å

E

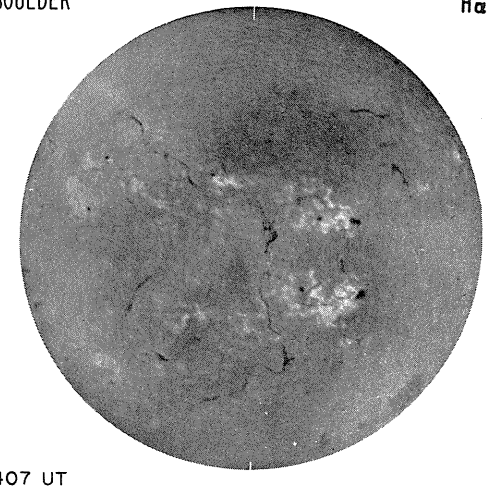
W





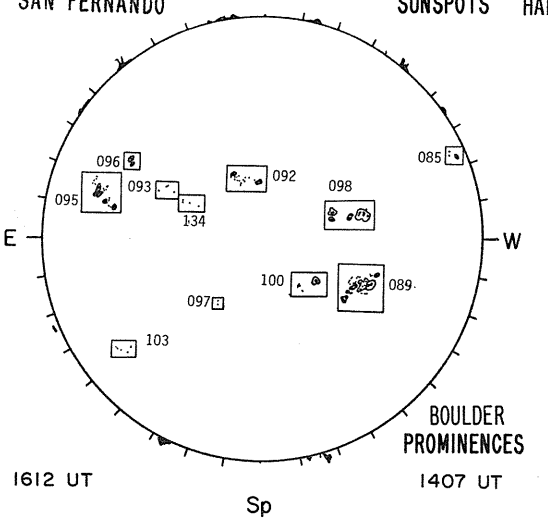
04

BOULDER Hα



1407 UT

SAN FERNANDO SUNSPOTS

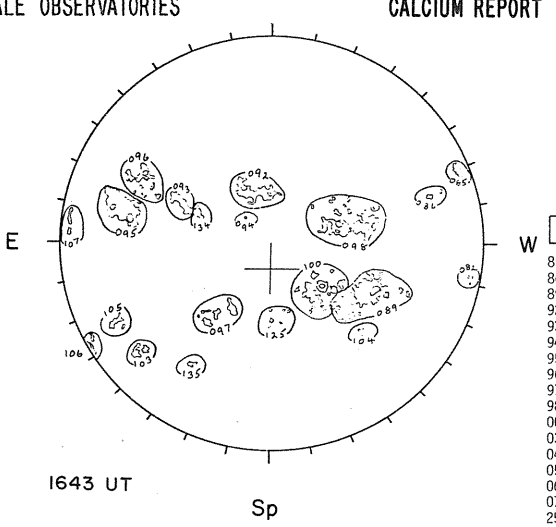


1612 UT

BOULDER PROMINENCES

1407 UT

HALE OBSERVATORIES CALCIUM REPORT

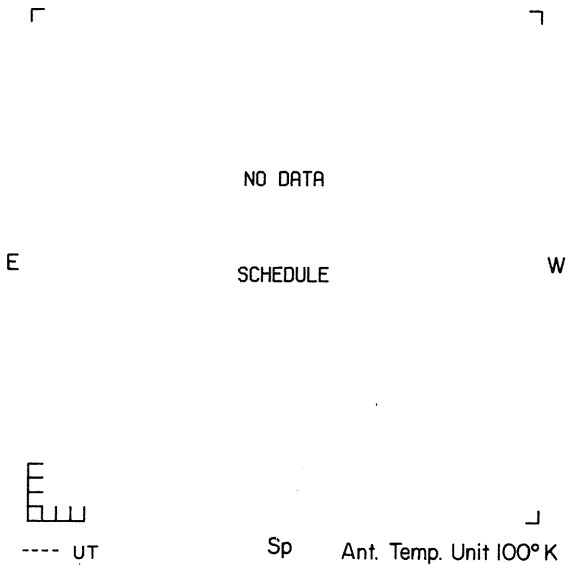


1643 UT

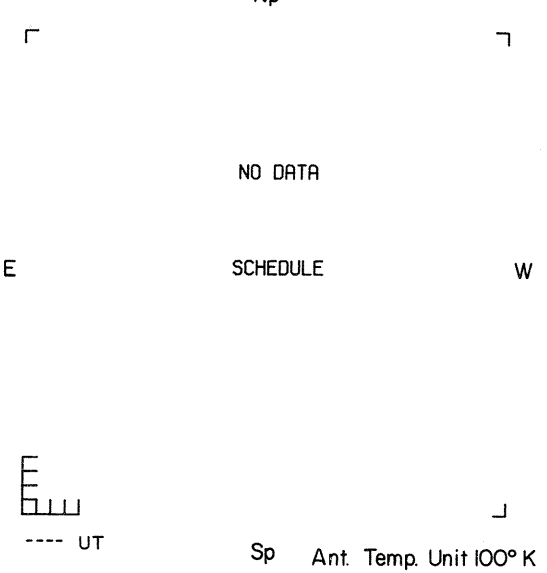
GOOD	JA

85- 0600-3.0
86- 0200-3.0
89- 4100-3.5
92- 1200-3.5
93- 0700-3.0
94- 0100-3.0
95- 3600-4.0
96- 1300-3.5
97- 0900-3.0
98- 3000-3.5
00- 1500-3.5
03- 0500-3.5
04- 0100-3.0
05- 0400-3.0
06- 0600-3.0
07- 0600-3.0
25- 0200-2.5
34- 0300-3.0
35- 0100-2.5

NOSC LA POSTA 2.0 CM

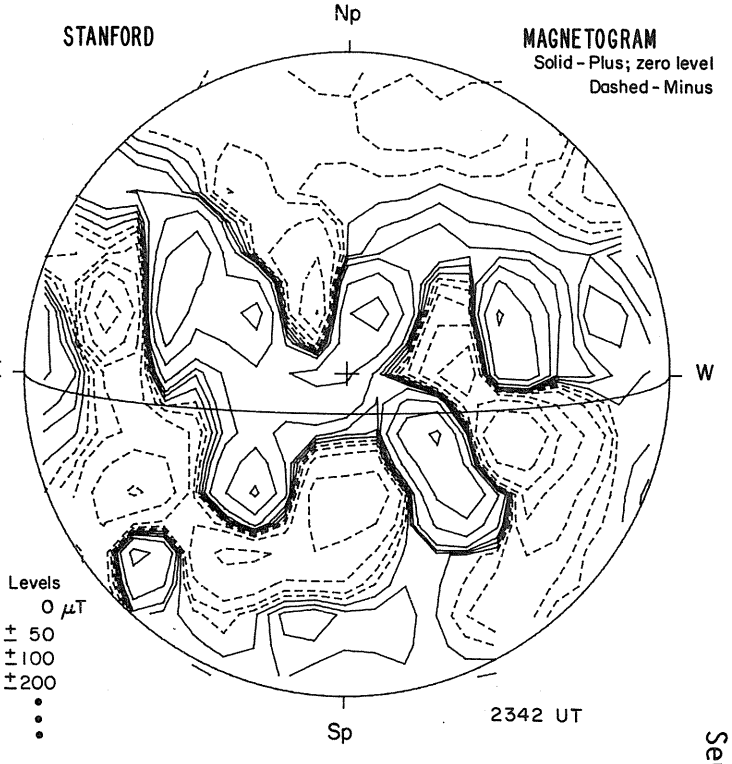


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200
•
•
•

2342 UT

SEPTEMBER 5, 1980 (P = 22.10, B_o = 7.24, L_o = 270.46)

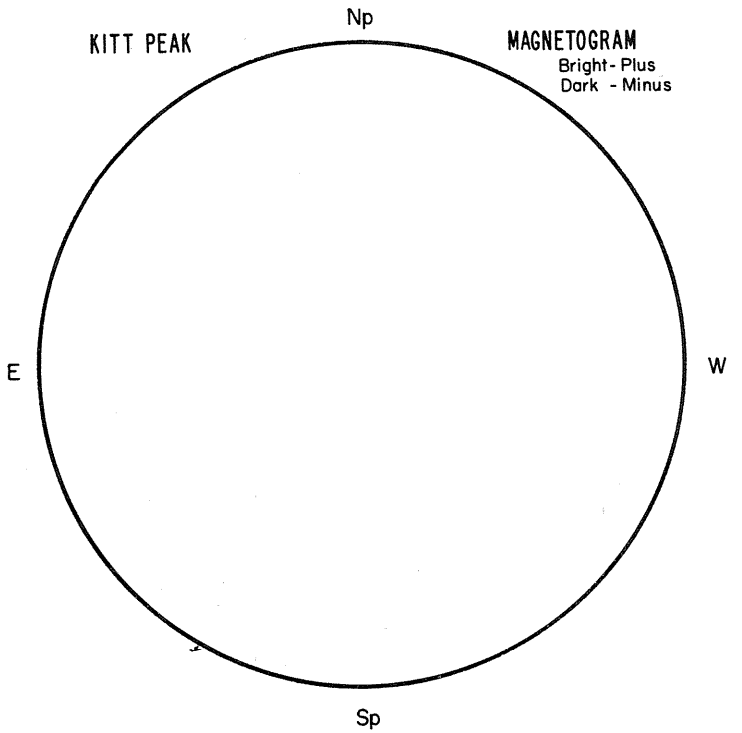
SACRAMENTO PEAK

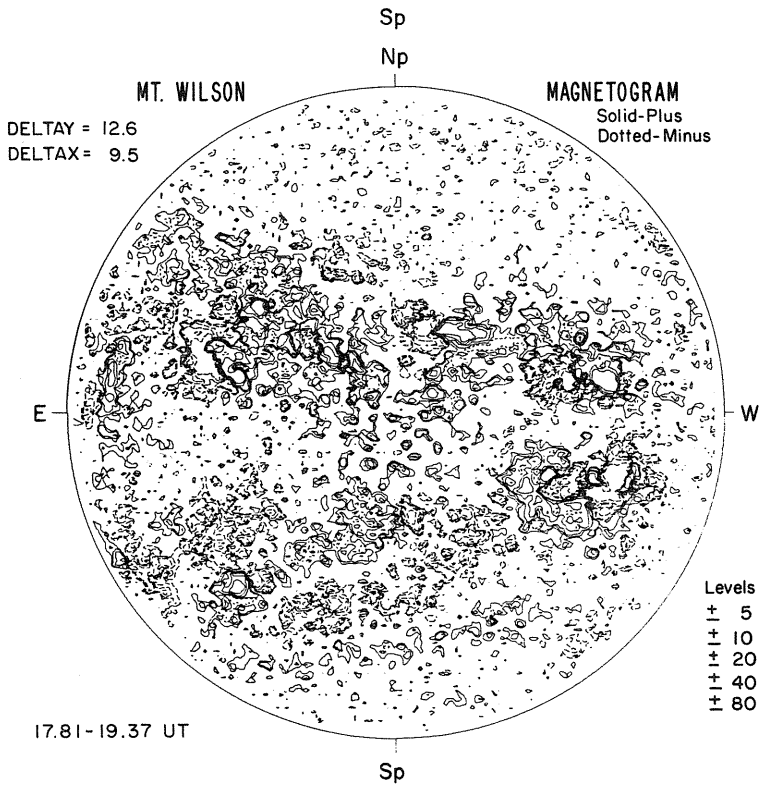
Np

CORONA (1.15 $R_\odot$)
5303 Å

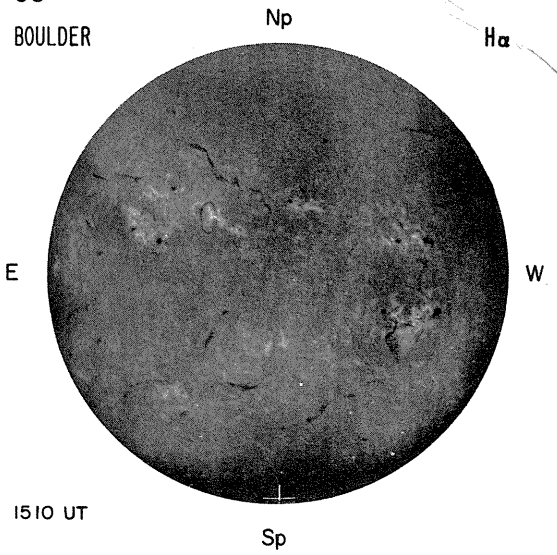
E

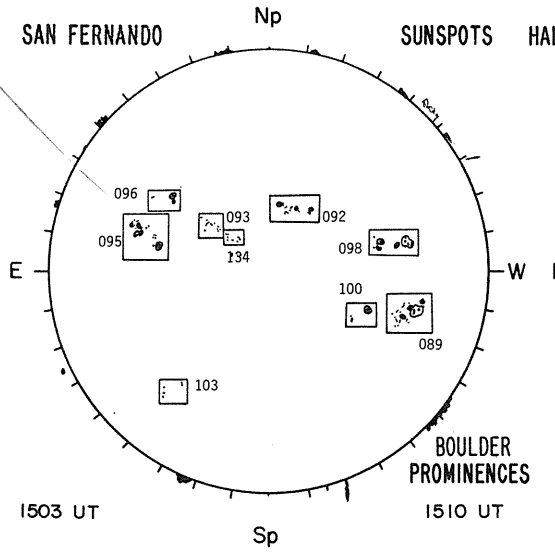
W

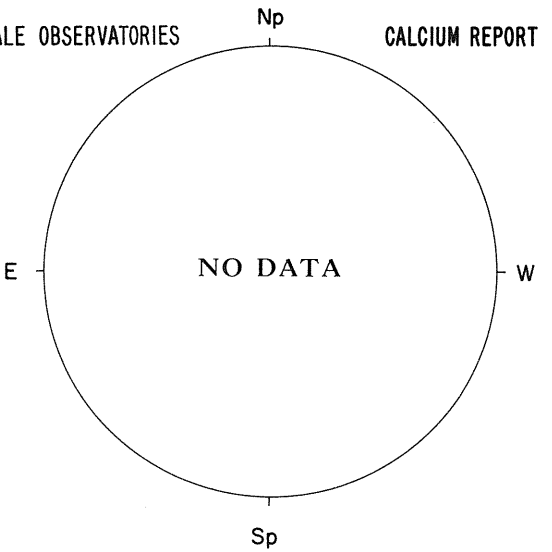


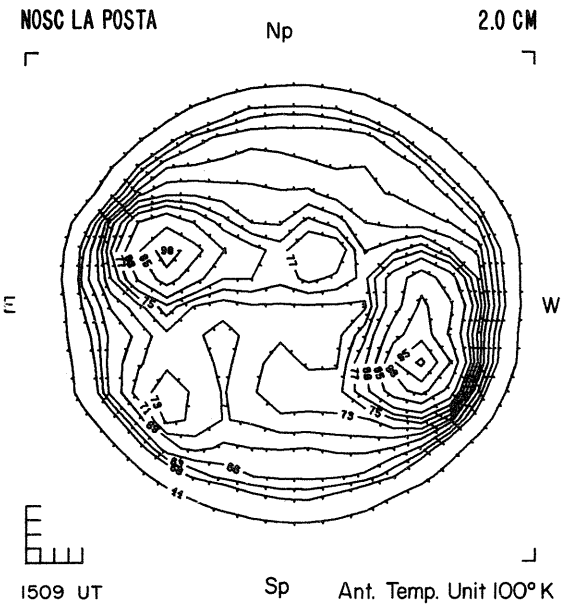


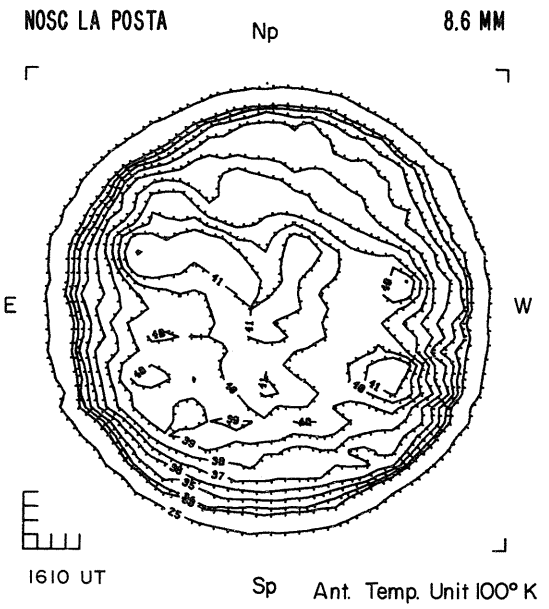
05

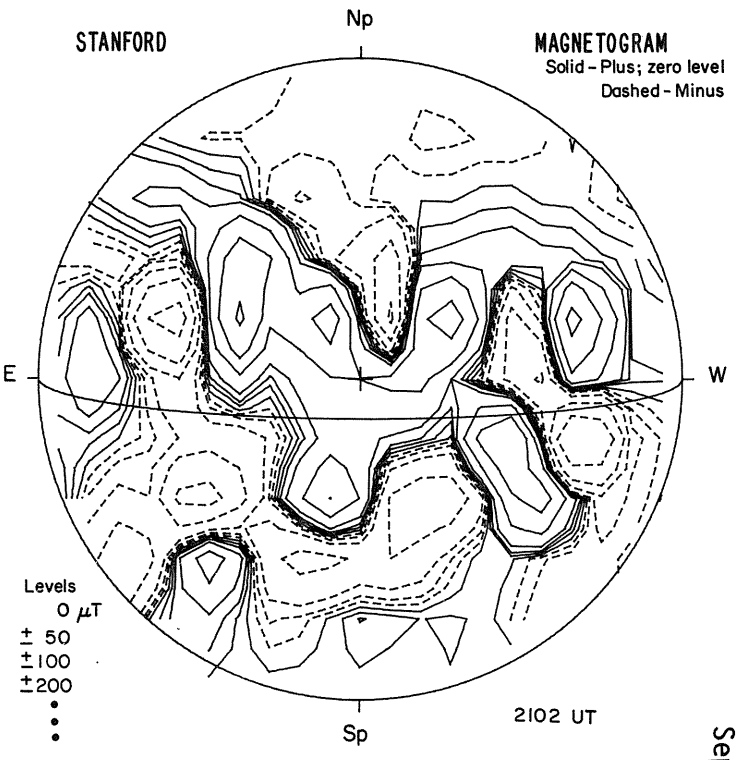

BOULDER
Np
Hα
E
W
1510 UT
Sp


SAN FERNANDO
Np
SUNSPOTS
096
095
093
134
092
098
100
089
103
E
W
BOULDER
PROMINENCES
1503 UT
1510 UT
Sp


HALE OBSERVATORIES
Np
CALCIUM REPORT
NO DATA
E
W
Sp


NOSC LA POSTA
Np
2.0 CM
E
W
1509 UT
Sp
Ant. Temp. Unit 100° K


NOSC LA POSTA
Np
8.6 MM
E
W
1610 UT
Sp
Ant. Temp. Unit 100° K


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
2102 UT

SEPTEMBER 6, 1980 (P = 22.33, B_o = 7.25, L_o = 257.26)

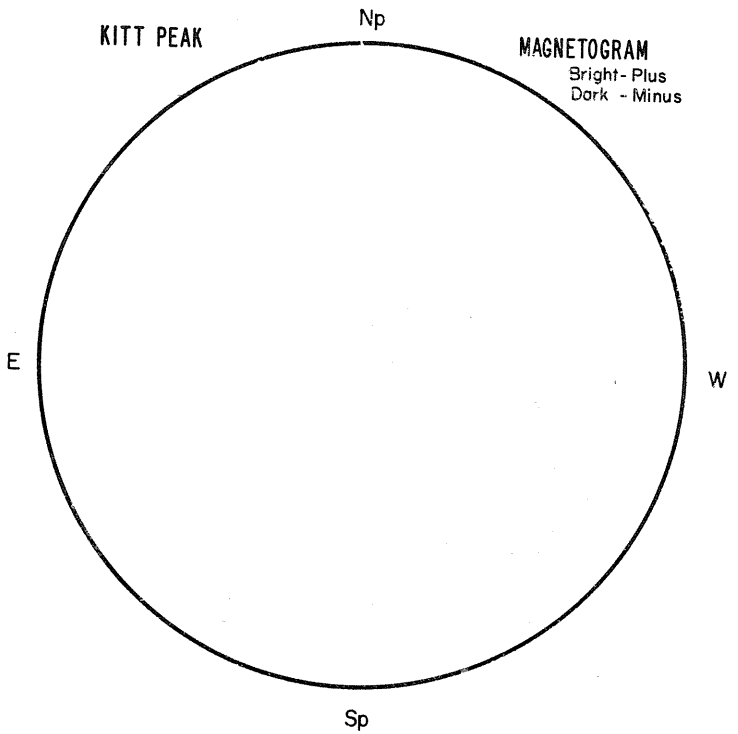
SACRAMENTO PEAK

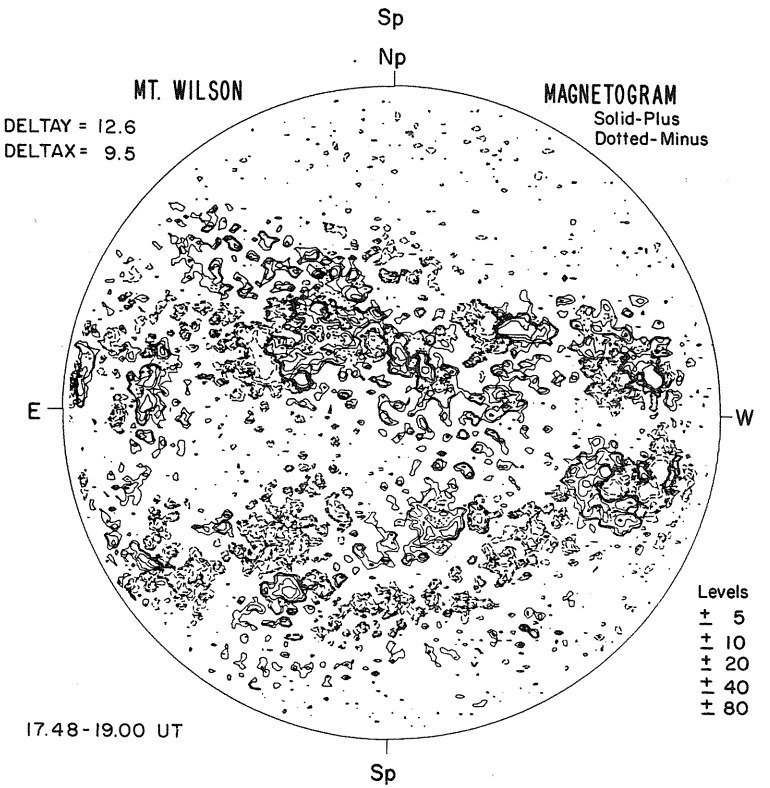
Np

CORONA (1.15 $R_\odot$)
5303 Å

E

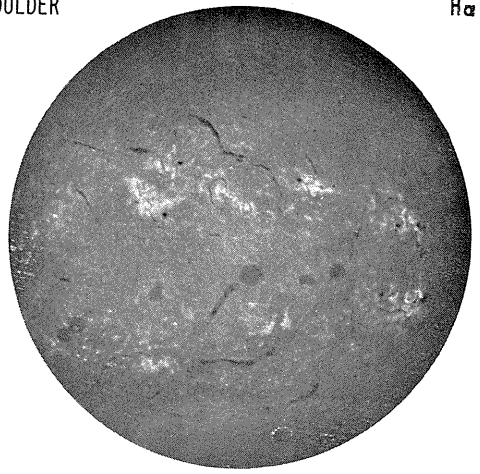
W





06

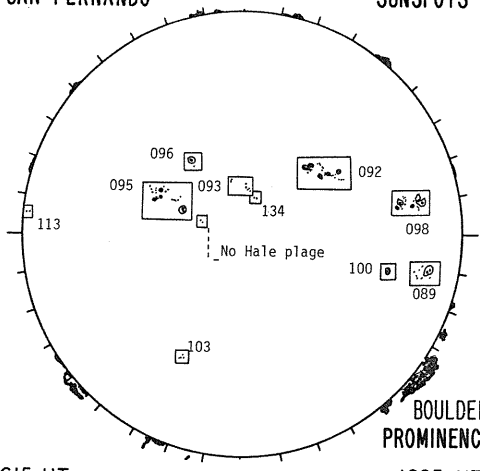
BOULDER Np Hα



E W

1605 UT Sp

SAN FERNANDO Np SUNSPOTS



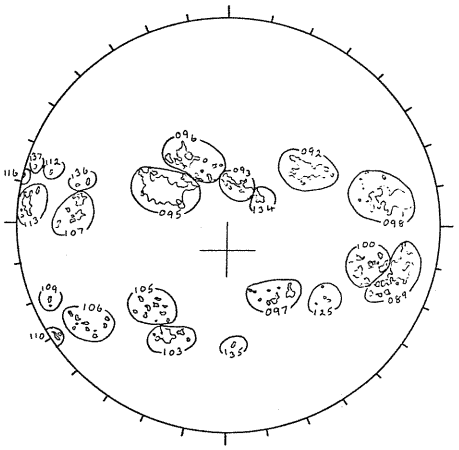
E W

1615 UT Sp

BOULDER PROMINENCES

1605 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

2059 UT Sp

GOOD	JA
89-	3800-3.5
92-	1900-3.5
93-	0900-3.5
95-	3900-4.0
96-	1400-3.5
97-	0700-3.0
98-	3200-3.0
00-	1100-3.0
03-	0900-3.5
05-	0600-3.0
06-	0800-3.0
07-	1100-3.0
09-	0200-2.5
10-	0400-2.5
12-	0100-2.5
13-	0900-3.5
16-	0200-3.0
34-	0300-3.5
35-	0100-2.5
36-	0200-3.0
37-	0100-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

SCHEDULE

E W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

SCHEDULE

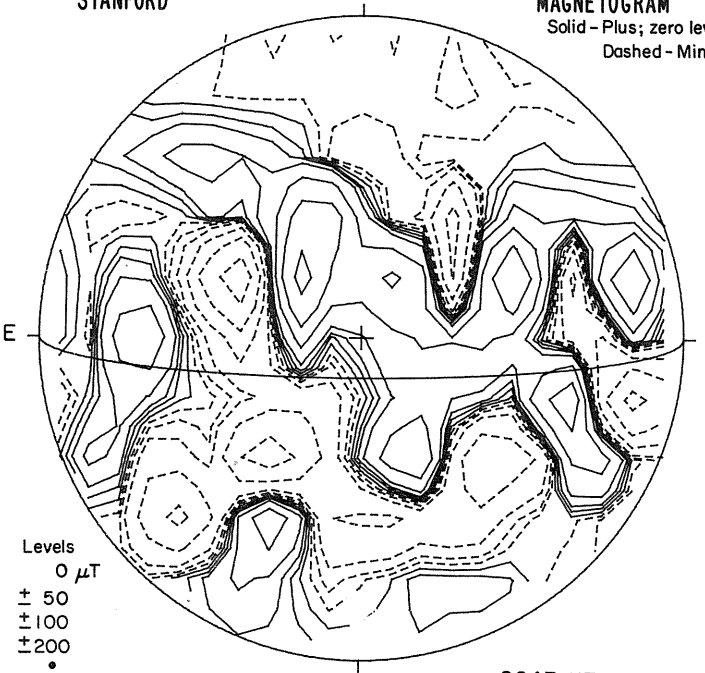
E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

Sp 2247 UT

SEPTEMBER 7, 1980 (P = 22.55, B_o = 7.25, L_o = 244.05)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

W

KITT PEAK

Np

MAGNETOGRAM
Bright- Plus
Dark - Minus

E

W

Sp

MT. WILSON

Sp

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

E

W

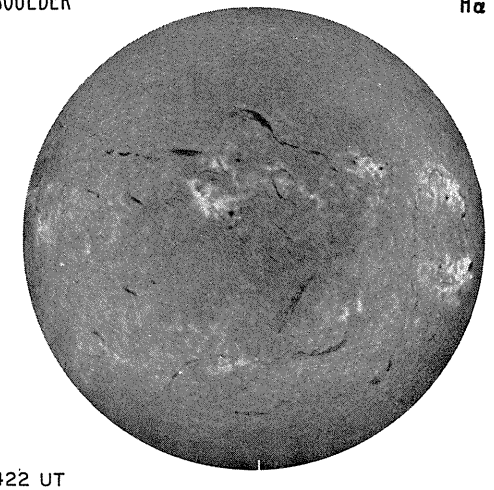
Levels
± 5
± 10
± 20
± 40
± 80

17.06-18.60 UT

Sp

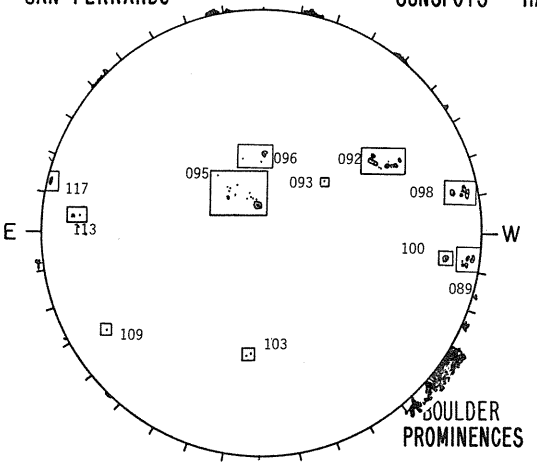
07

BOULDER Hα



1422 UT

SAN FERNANDO SUNSPOTS

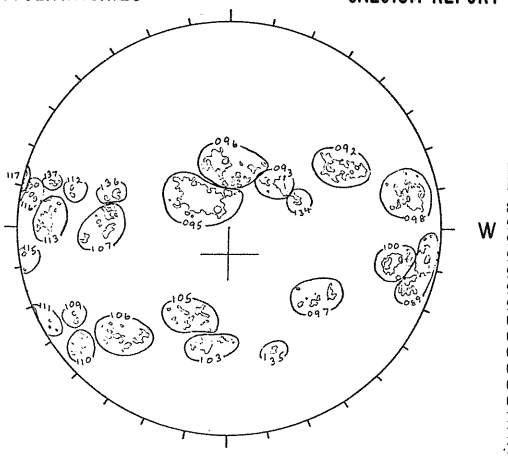


2210 UT

BOULDER PROMINENCES

1422 UT

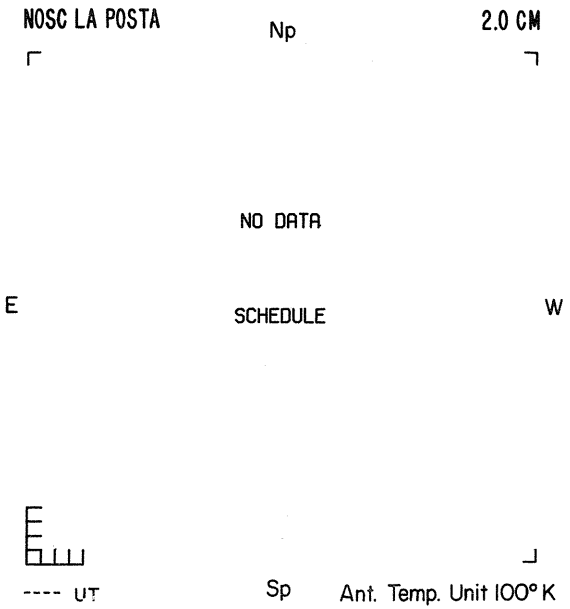
HALE OBSERVATORIES CALCIUM REPORT



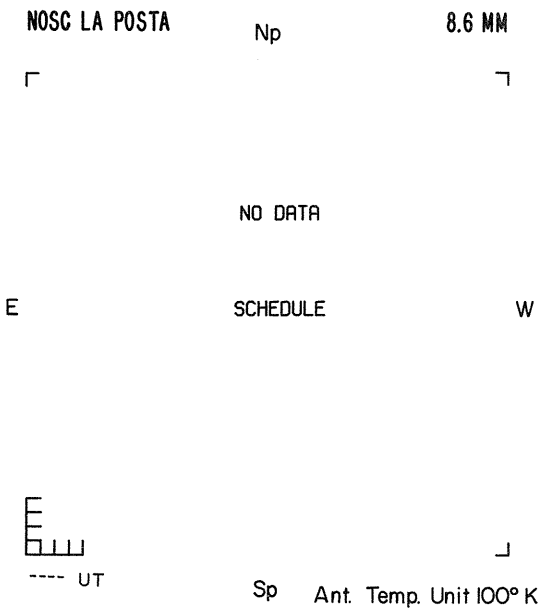
1750 UT

GOOD	JA
89-	3600-3.5
92-	1900-3.5
93-	0700-3.5
95-	4100-4.0
96-	2100-3.5
97-	0700-3.0
98-	3200-3.5
00-	1400-3.5
03-	0900-3.5
05-	1100-3.0
06-	1500-3.5
07-	1200-3.5
09-	0200-3.0
10-	0700-3.0
11-	0300-2.5
12-	0200-3.0
13-	1400-3.5
16-	0500-3.0
17-	0400-3.0
34-	0300-3.0
35-	0200-2.5
36-	0300-3.0
37-	0200-3.0

NOSC LA POSTA 2.0 CM

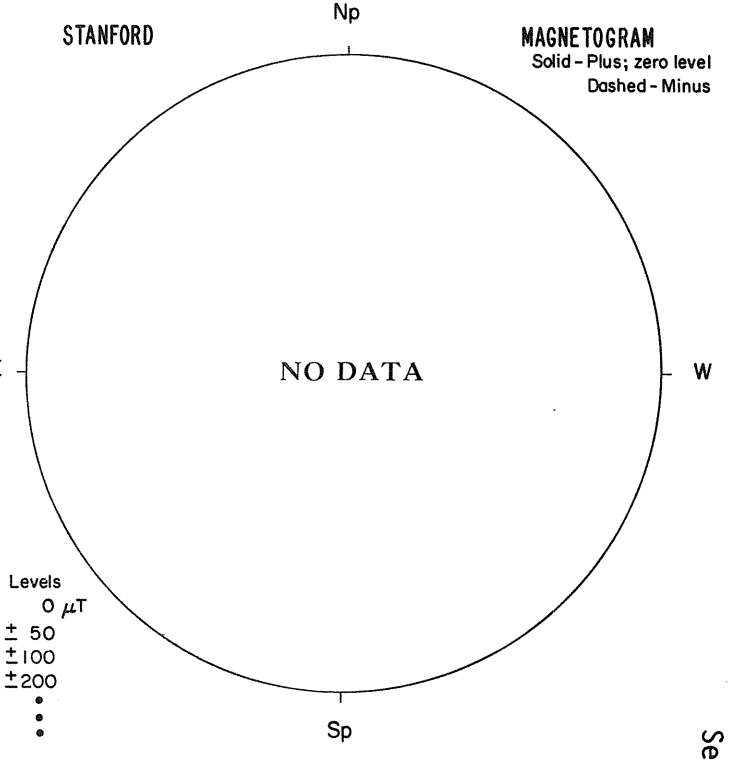


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



SEPTEMBER 8, 1980 (P = 22.77, B_o = 7.25, L_o = 230.85)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

W

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

Sp

Sp

Np

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

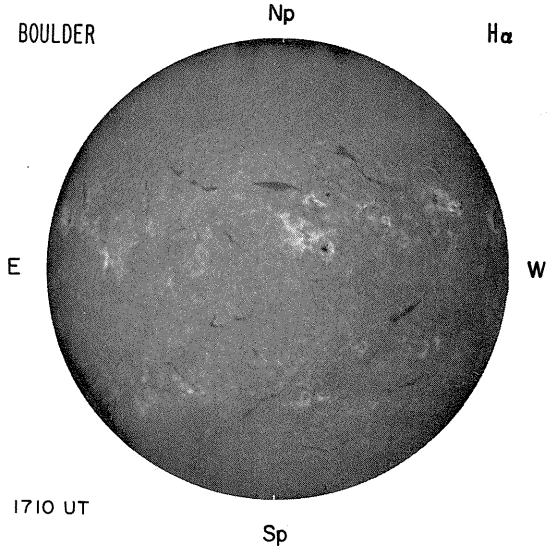
W

Levels
± 5
± 10
± 20
± 40
± 80

16.57-18.09 UT

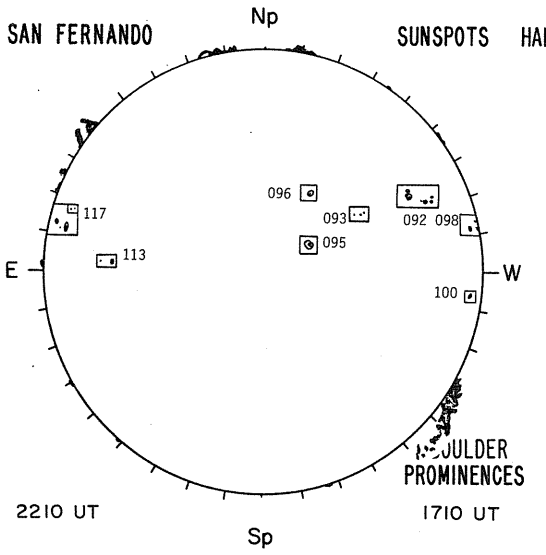
Sp

BOULDER Hα



1710 UT

SAN FERNANDO SUNSPOTS

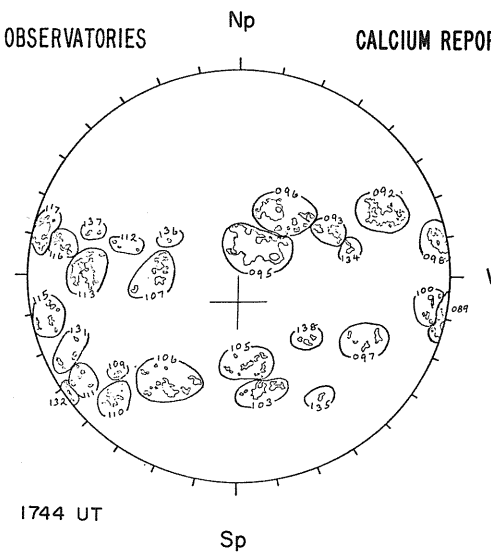


2210 UT

BOULDER PROMINENCES

1710 UT

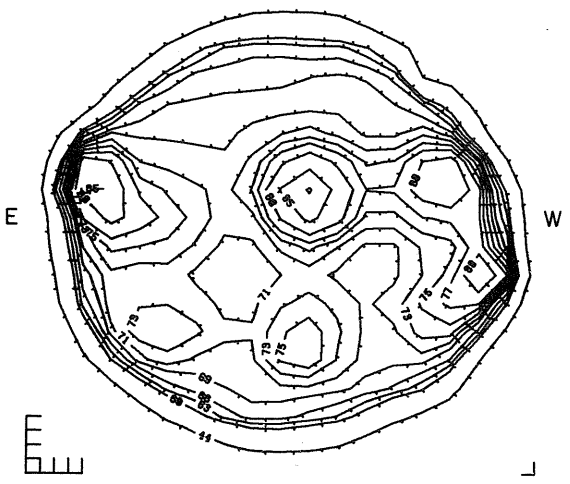
HALE OBSERVATORIES CALCIUM REPORT



1744 UT

GOOD	JA
89-	3500-3.5
92-	1800-3.5
93-	0600-3.0
95-	3800-4.0
96-	2100-3.5
97-	0500-3.0
98-	1700-3.5
00-	0500-3.0
03-	0900-3.0
05-	0900-2.5
06-	1400-3.0
07-	0900-3.5
09-	0200-3.0
10-	0700-3.0
11-	0400-3.0
12-	0200-3.0
13-	2300-3.5
15-	0800-2.5
16-	0600-3.0
17-	2600-3.5
31-	0400-2.5
32-	0200-2.5
34-	0300-3.0
35-	0200-2.5
36-	0100-3.0
37-	0200-3.0

NOSC LA POSTA 2.0 CM



1712 UT Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

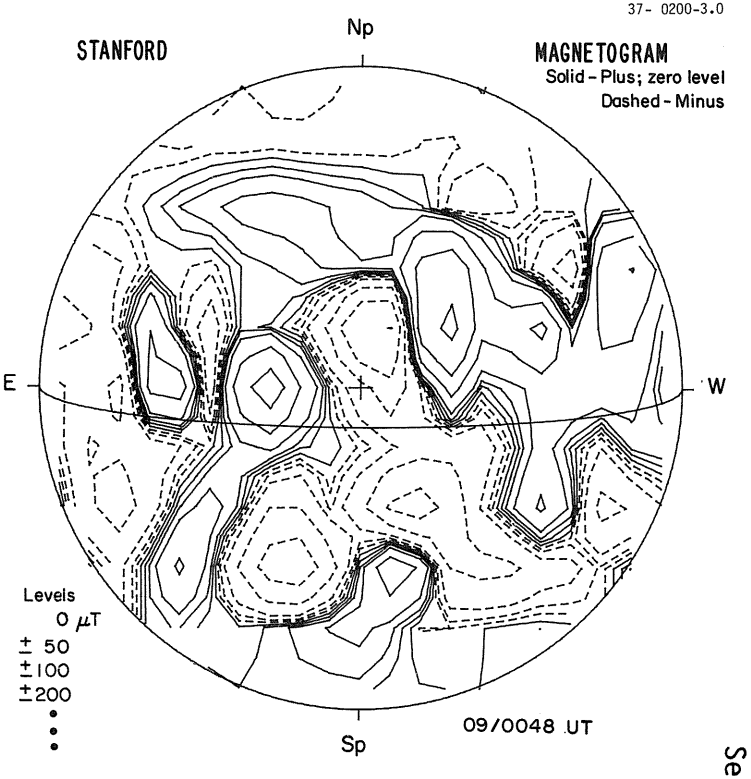
NO DATA

CALIBRATION

1752 UT Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
± 100
± 200
•
•
•

09/0048 UT

SEPTEMBER 9, 1980 (P = 22.98, B_o = 7.25, L_o = 217.64)

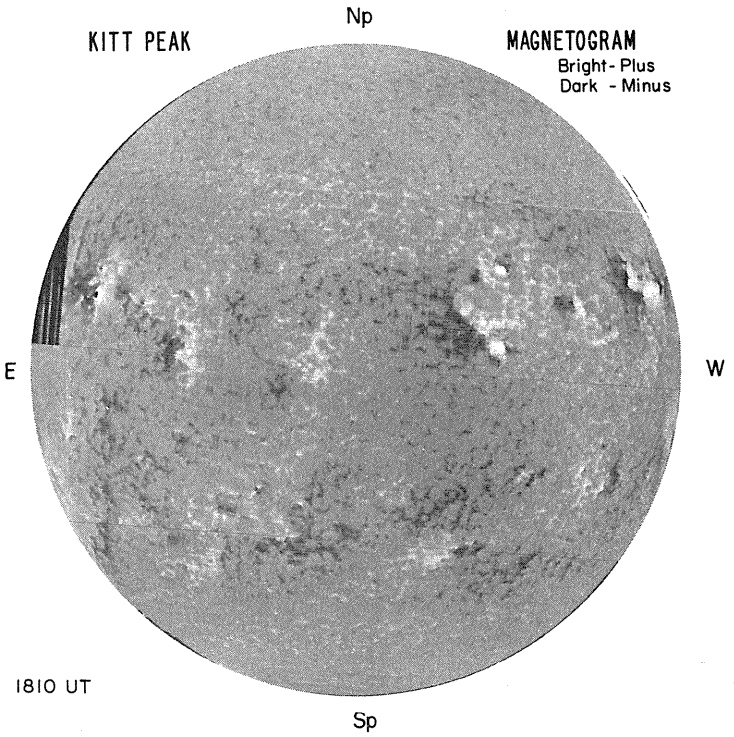
SACRAMENTO PEAK

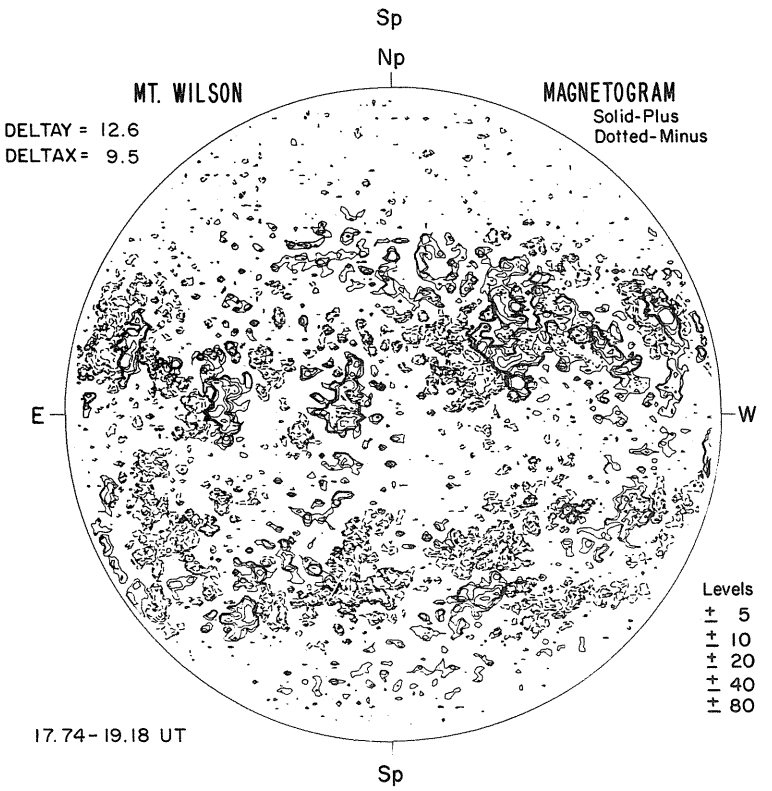
Np

CORONA (1.15 $R_\odot$)
5303 Å

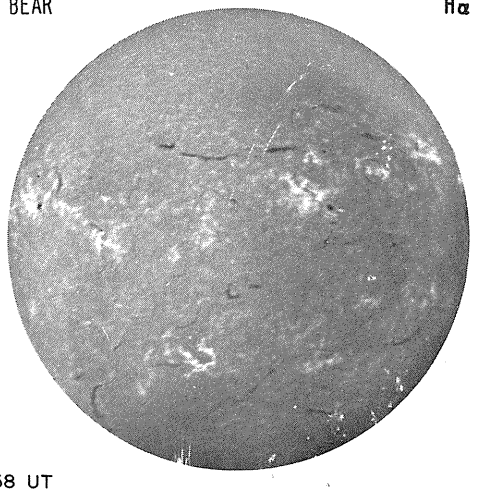
E

W



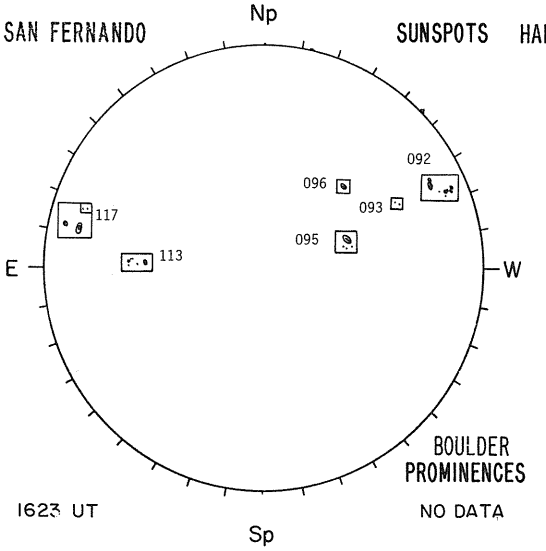


BIG BEAR Hα



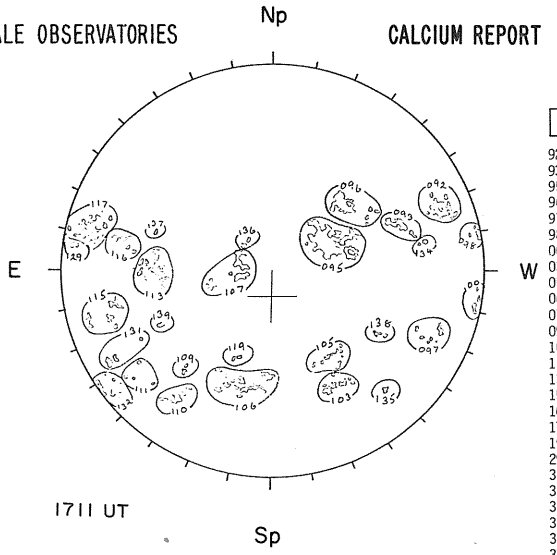
1858 UT

SAN FERNANDO SUNSPOTS



1623 UT

HALE OBSERVATORIES CALCIUM REPORT



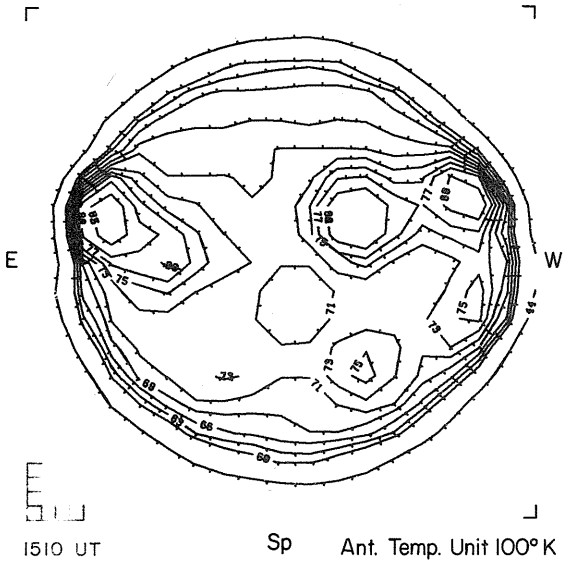
1711 UT

POOR	JA
92-	2200-3.0
93-	0600-3.0
95-	2800-3.5
96-	1200-3.0
97-	0500-3.0
98-	0400-3.0
00-	0400-2.5
03-	0600-3.0
05-	0400-2.5
06-	1000-3.0
07-	0900-3.5
09-	0100-2.5
10-	0600-3.0
11-	0200-2.5
13-	1500-3.5
15-	0800-3.0
16-	0700-3.0
17-	2000-4.0
19-	0200-2.5
29-	0300-3.5
31-	0400-3.0
32-	0900-3.0
34-	0200-2.5
35-	0100-2.5
36-	0200-3.0
37-	0100-3.0
38-	0200-2.5
39-	0100-3.0

BOULDER PROMINENCES

NO DATA

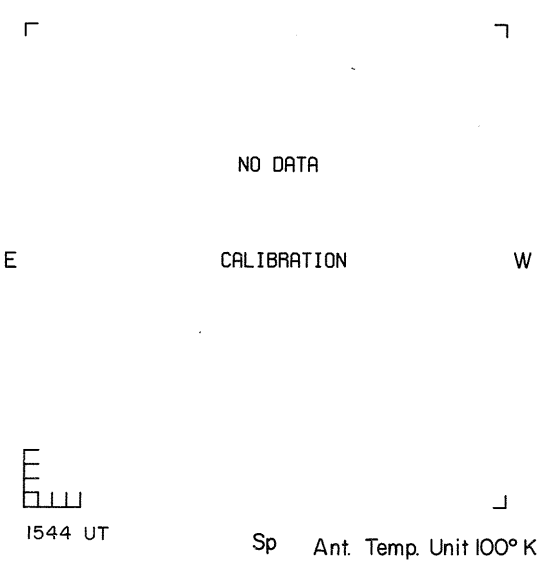
NOSC LA POSTA 2.0 CM



1510 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM



NO DATA

CALIBRATION

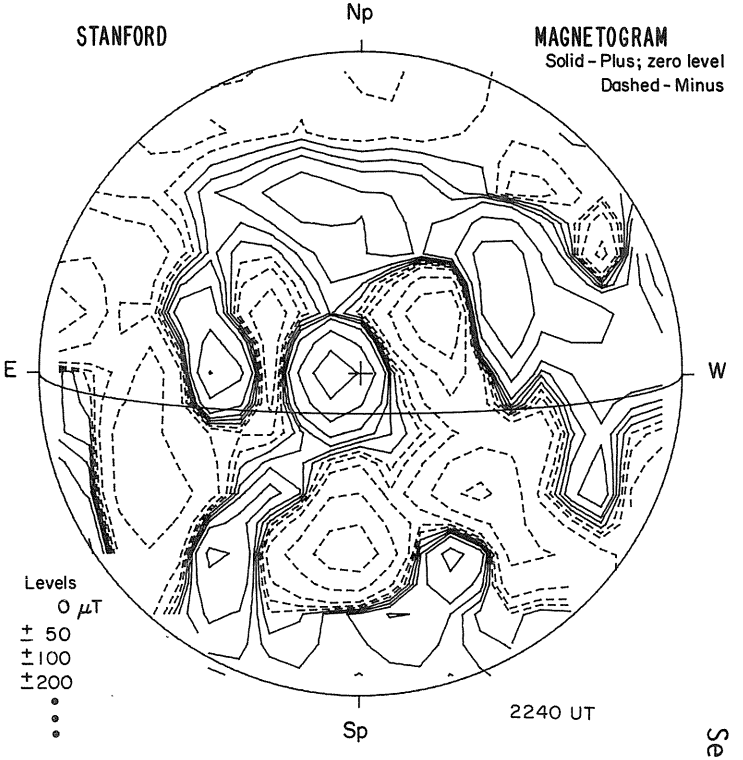
1544 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

± 100

± 200

2240 UT

SEPTEMBER 10, 1980 ($P = 23.18$, $B_o = 7.25$, $L_o = 204.44$)

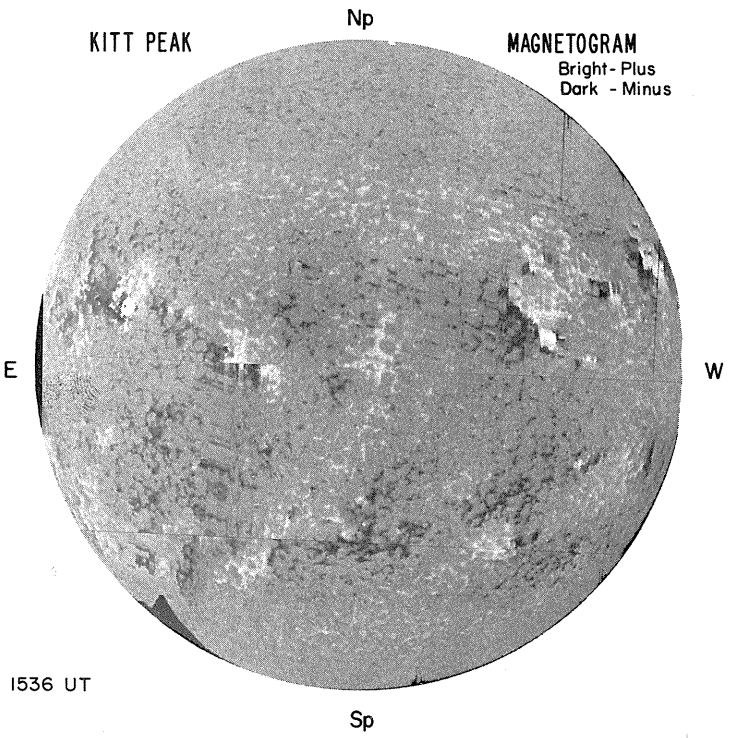
SACRAMENTO PEAK

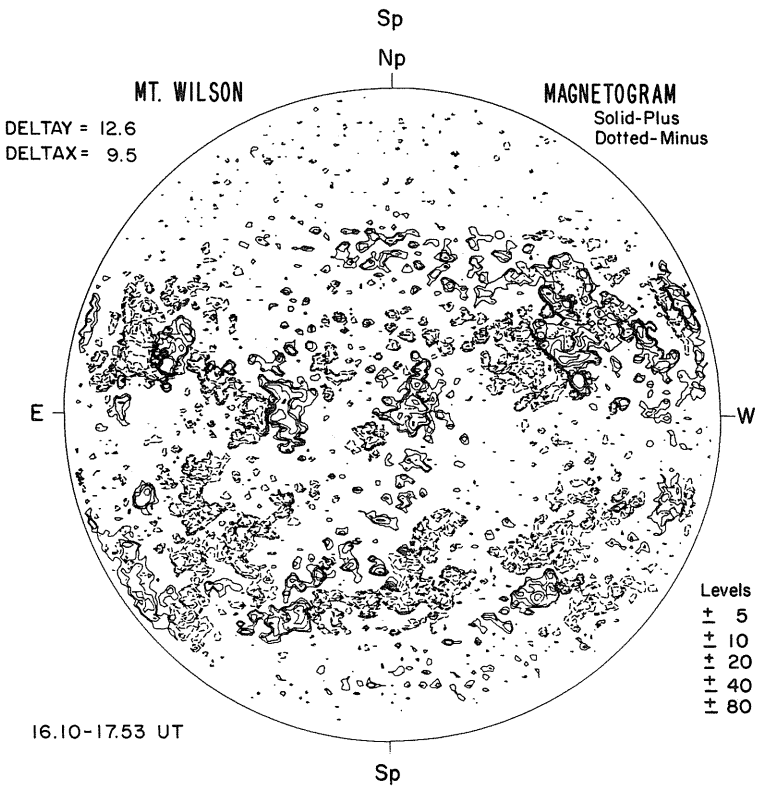
Np

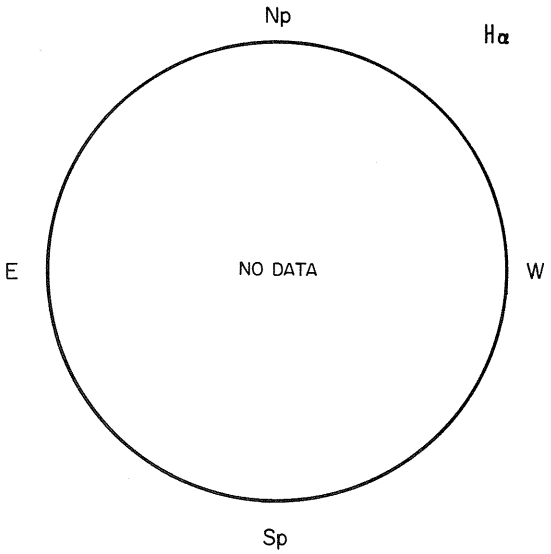
CORONA ($1.15\ R_\odot$)
5303 Å

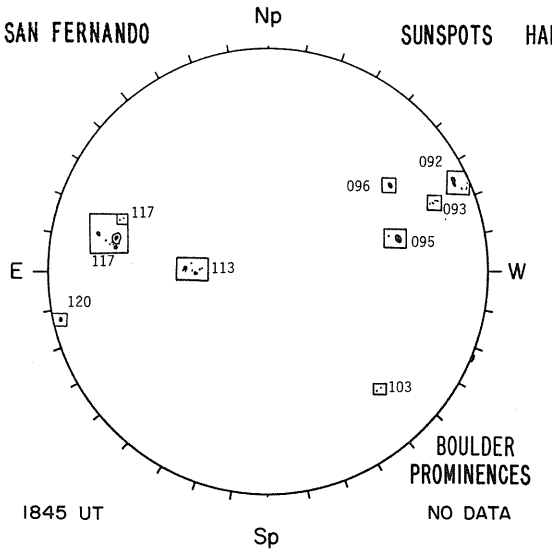
E

W



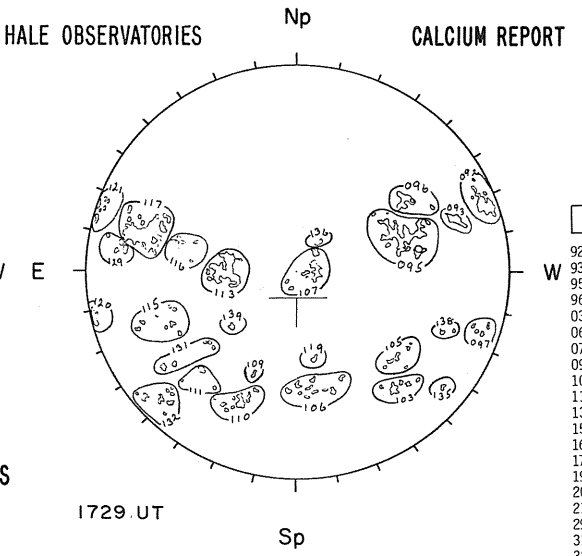




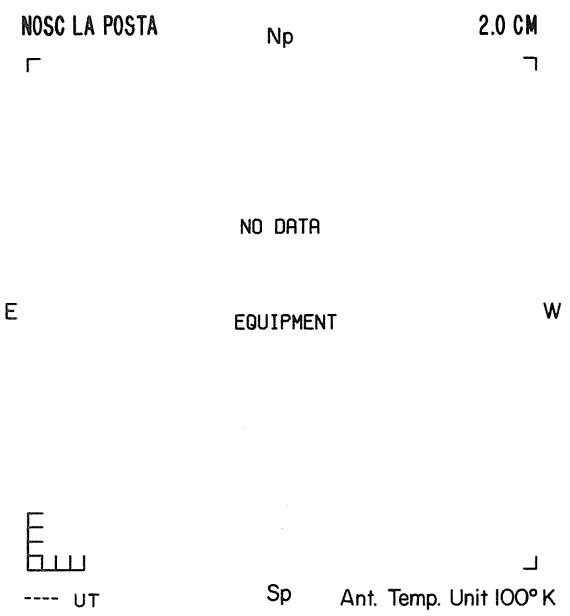


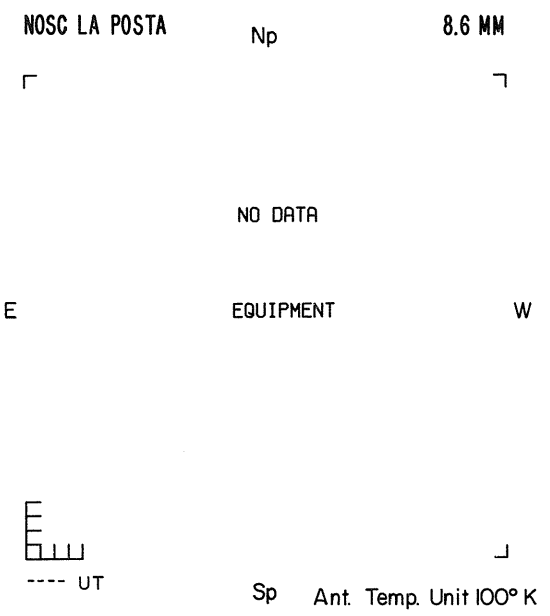
BOULDER PROMINENCES

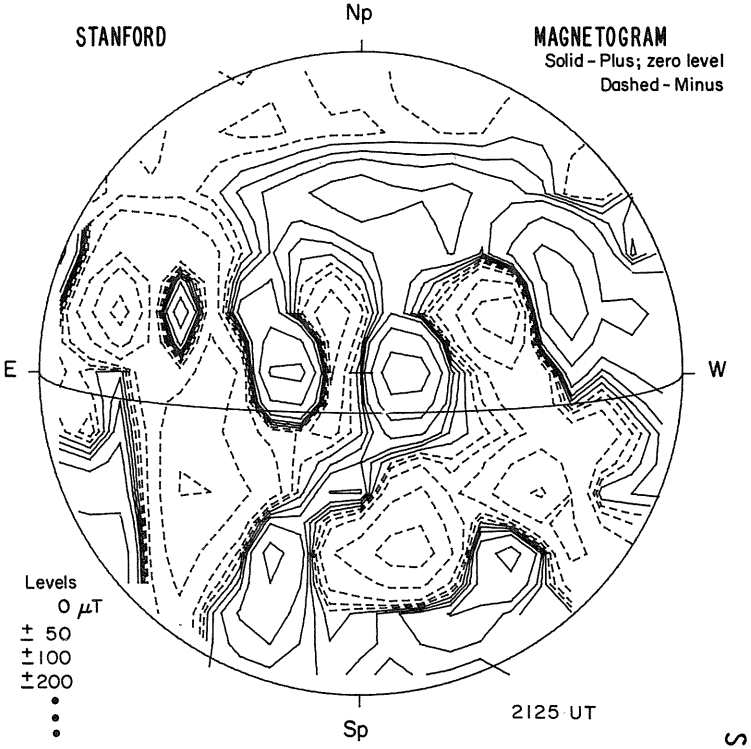
NO DATA



FAIR	JA
92- 2300-3.0	
93- 0600-3.0	
95- 2700-3.0	
96- 0700-3.0	
03- 0700-2.5	
06- 0700-2.5	
07- 0700-3.0	
09- 0100-3.0	
10- 0800-3.0	
11- 0200-2.5	
13- 2100-3.5	
15- 0500-3.0	
16- 0400-3.0	
17- 4600-4.0	
19- 0100-2.5	
20- 0500-3.5	
21- 0700-3.0	
29- 0500-3.0	
31- 0400-3.0	
32- 0700-2.5	
36- 0100-3.0	
38- 0200-2.5	
39- 0100-3.0	







SEPTEMBER 11, 1980 (P = 23.38, B_o = 7.24, L_o = 191.23)

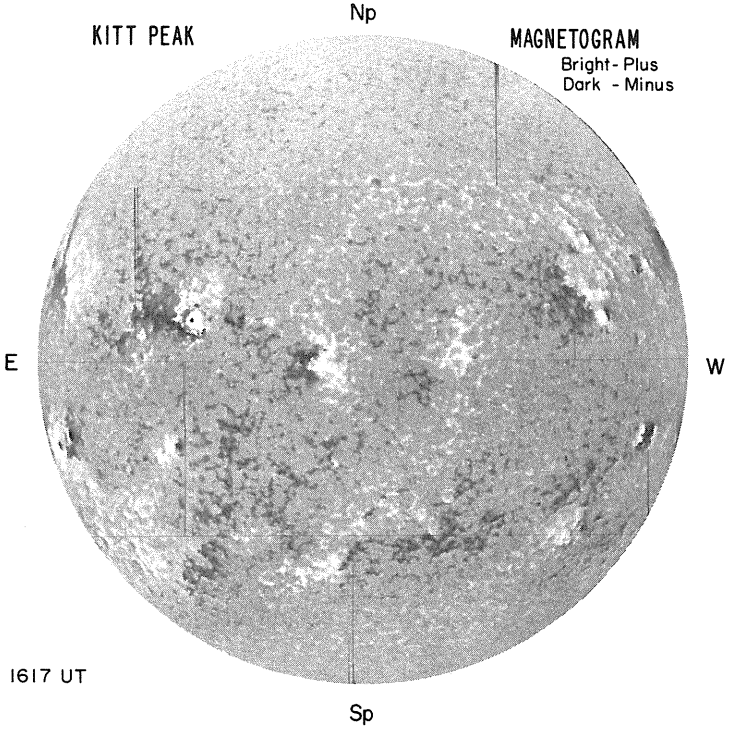
SACRAMENTO PEAK

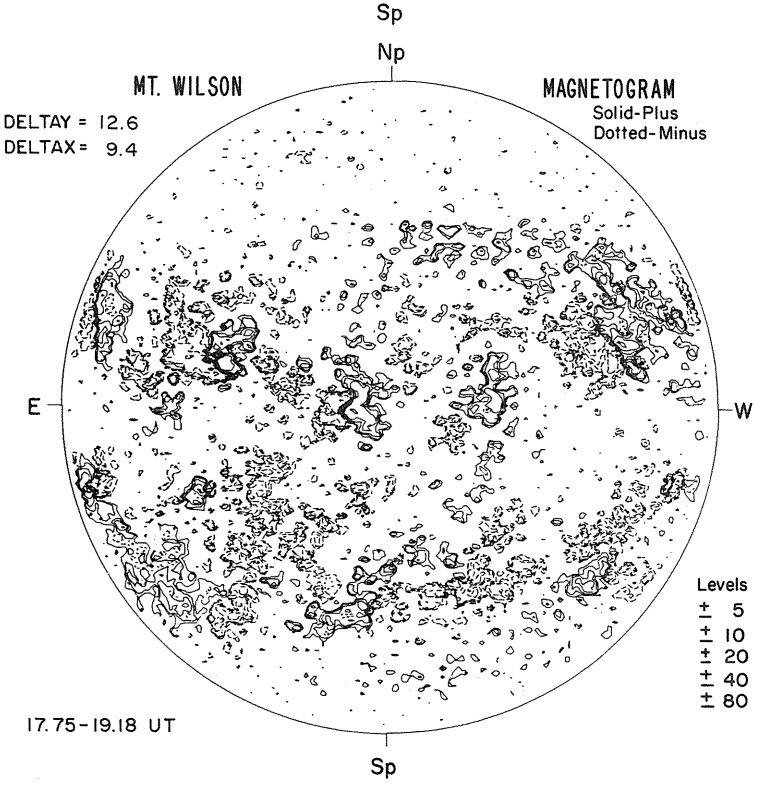
Np

CORONA (1.15 $R_\odot$)
5303 Å

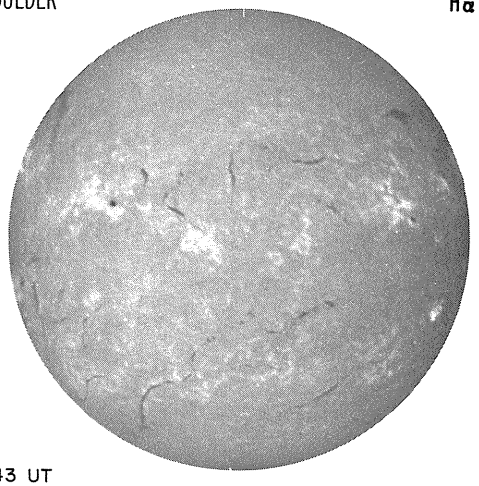
E

W





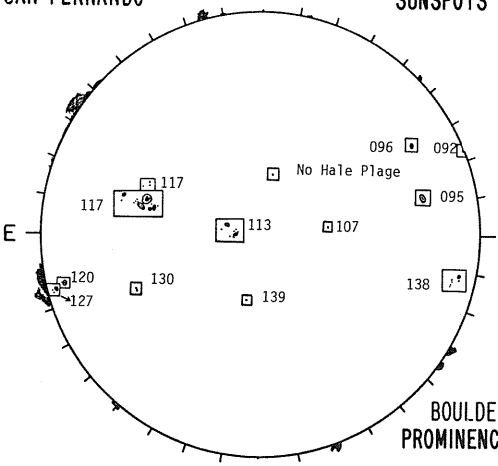
BOULDER Np Hα



E W

1443 UT Sp

SAN FERNANDO Np SUNSPOTS



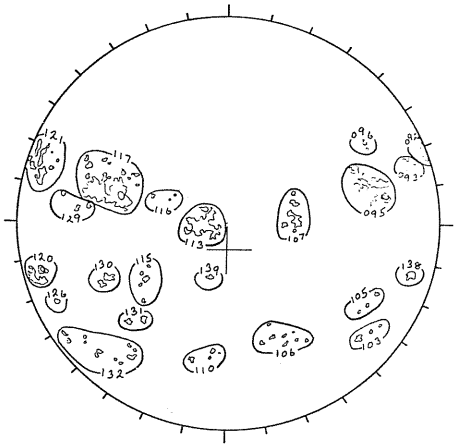
E W

1635 UT Sp

BOULDER PROMINENCES

1443 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1726 UT Sp

FAIR	JA
92-	0900-3.0
93-	0500-2.5
95-	1600-2.5
96-	0100-2.5
03-	0300-2.5
05-	0100-2.5
06-	0400-2.5
07-	0700-3.0
10-	0200-3.0
13-	1500-3.5
15-	0200-3.0
16-	0100-3.0
17-	3400-3.5
20-	1900-3.0
21-	1300-3.5
26-	0100-3.0
29-	0200-3.0
30-	0300-3.0
31-	0200-3.0
32-	0600-3.0
38-	0300-2.5
39-	0100-3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

EQUIPMENT

E W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

EQUIPMENT

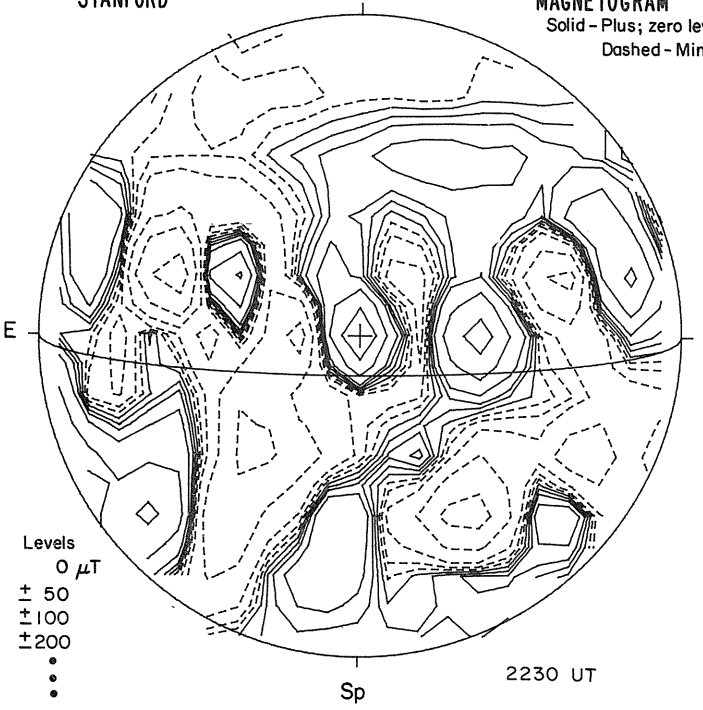
E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

± 100

± 200

2230 UT Sp

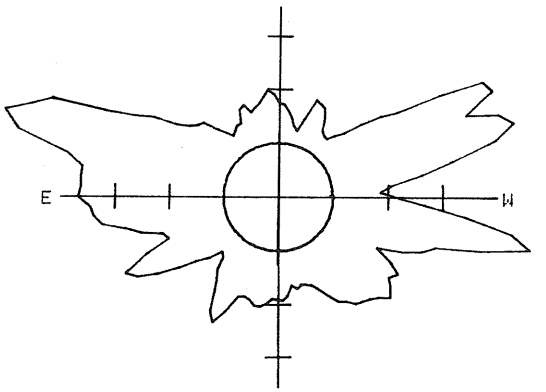
71

Sep 80

SEPTEMBER 12, 1980 ($P = 23.58$, $B_o = 7.23$, $L_o = 178.03$)

SACRAMENTO PEAK

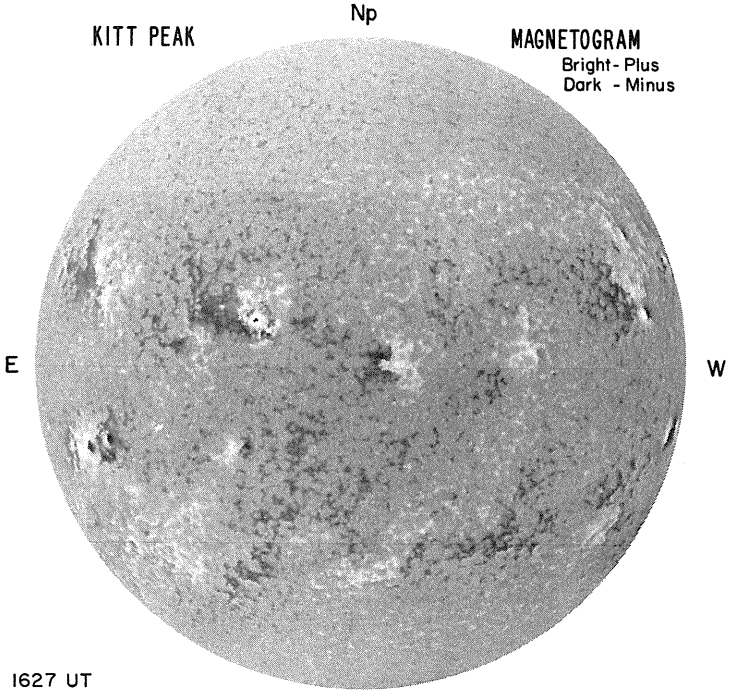
CORONA (1.15 $R_\odot$)
5303 Å



2004 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



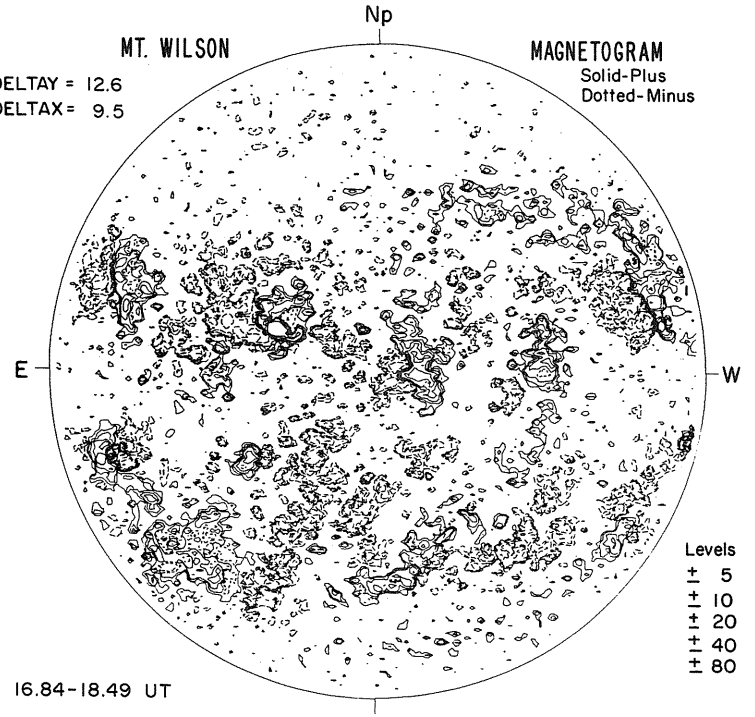
1627 UT

Sp

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus

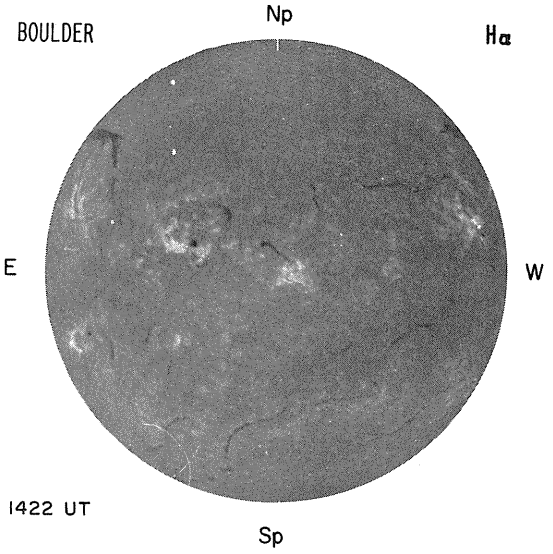


Levels
± 5
± 10
± 20
± 40
± 80

16.84-18.49 UT

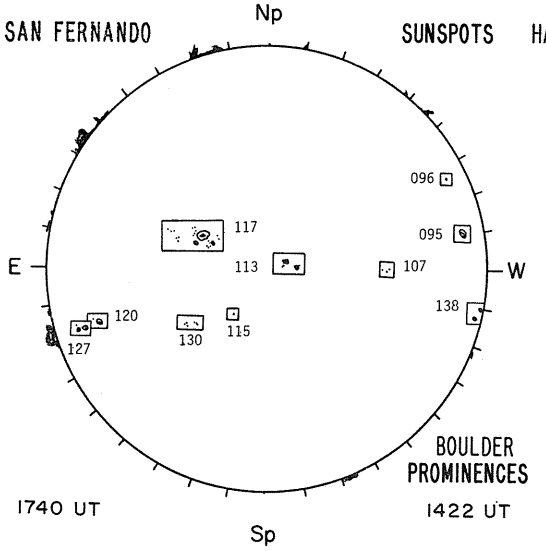
Sp

BOULDER Hα



1422 UT

SAN FERNANDO SUNSPOTS

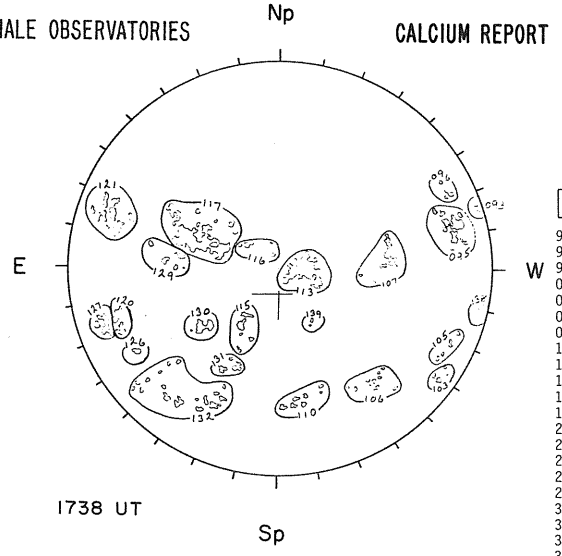


1740 UT

BOULDER PROMINENCES

1422 UT

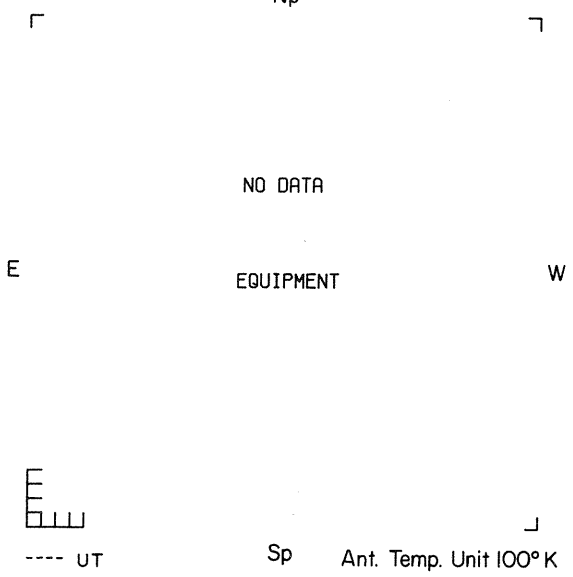
HALE OBSERVATORIES CALCIUM REPORT



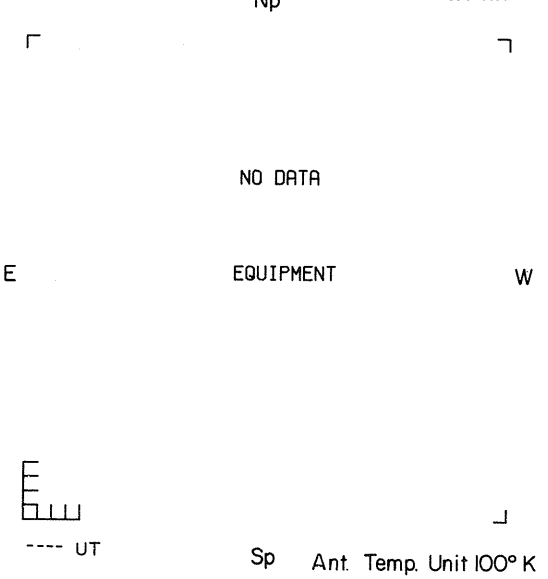
1738 UT

FAIR	JA
93-	0200-2.5
95-	2100-3.0
96-	0300-2.5
03-	0200-2.5
05-	0300-2.5
06-	0400-2.5
07-	0600-3.0
10-	0500-2.5
13-	2100-3.5
15-	0400-3.0
16-	0200-3.0
17-	4000-3.5
20-	0800-3.0
21-	2400-3.5
26-	0200-3.0
27-	1000-3.0
29-	0400-3.0
30-	0400-3.0
31-	0300-2.5
32-	1100-3.0
38-	0400-3.0
39-	0100-3.0

NOSC LA POSTA 2.0 CM

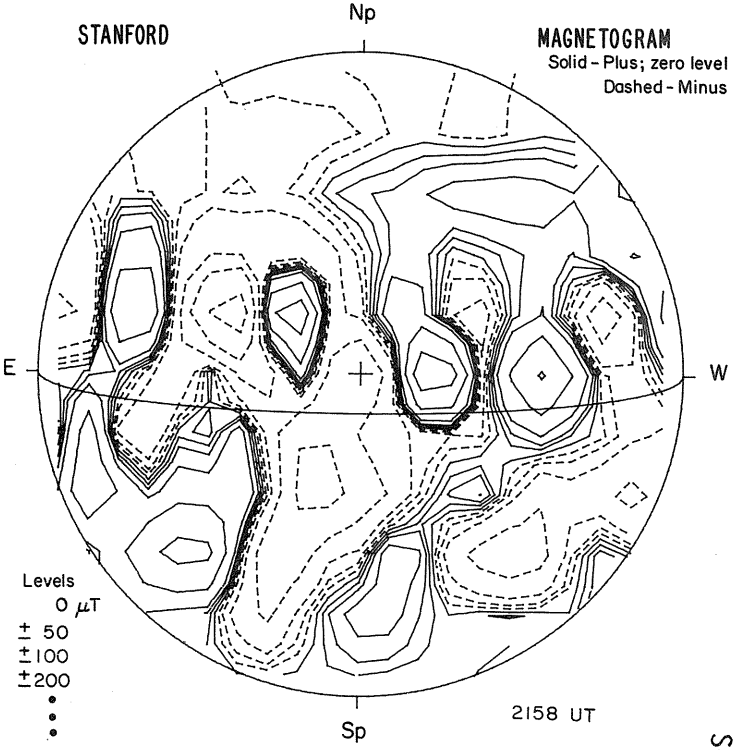


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



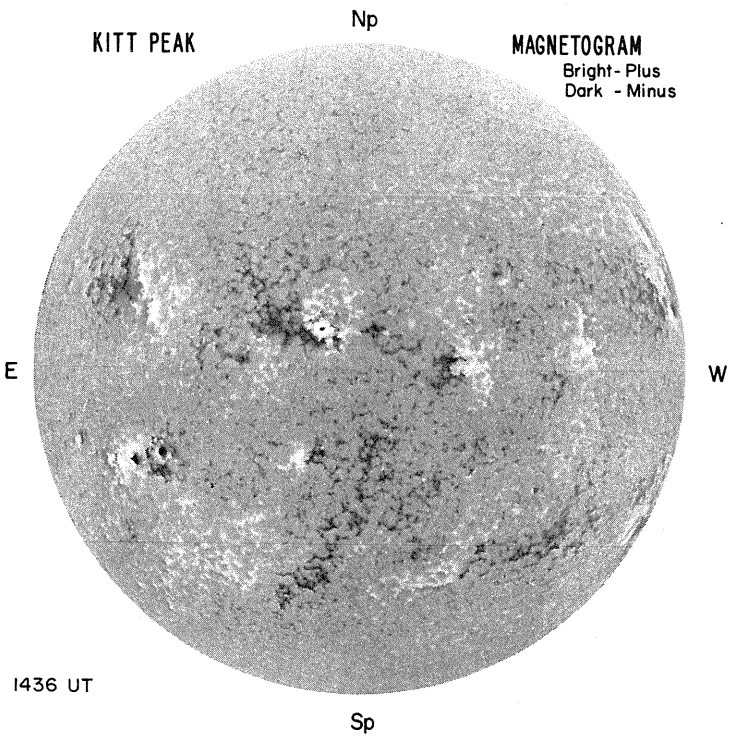
2158 UT

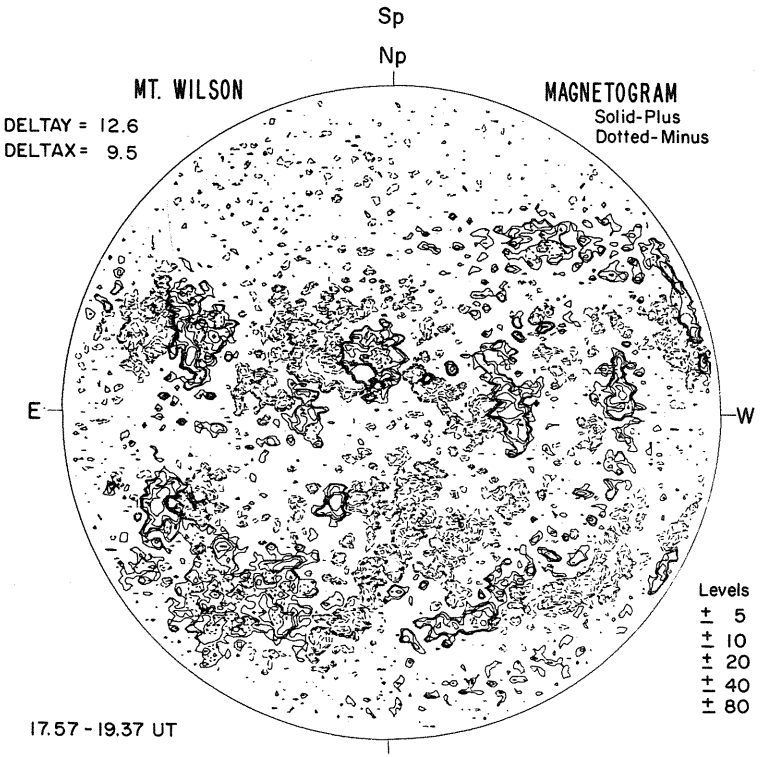
73
Sep 80

SEPTEMBER 13, 1980 (P = 23.76, B_o = 7.22, L_o = 164.83)

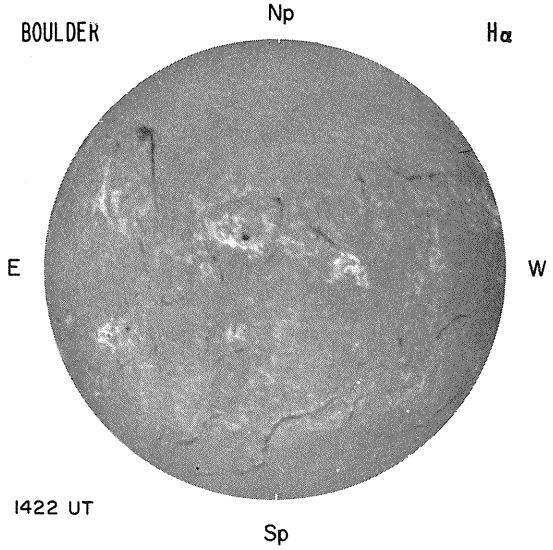
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA 13-15 SEPTEMBER W



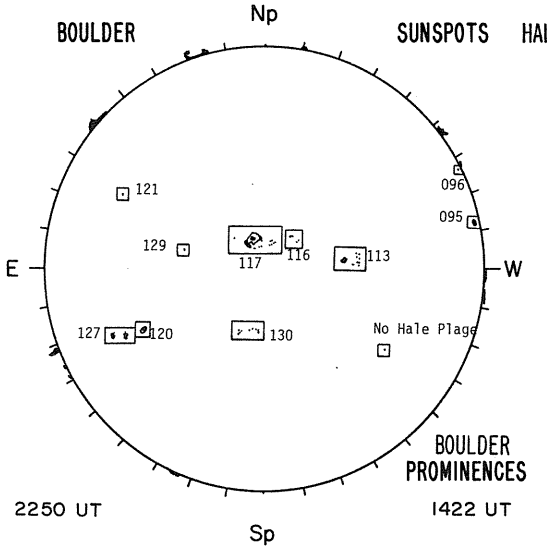


BOULDER Hα



1422 UT

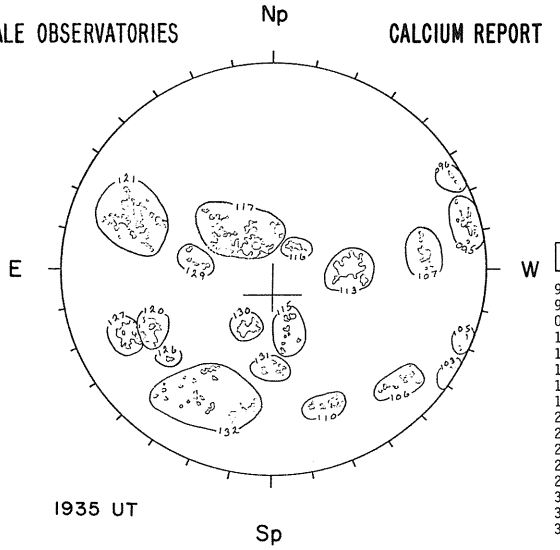
BOULDER SUNSPOTS



2250 UT 1422 UT

BOULDER PROMINENCES

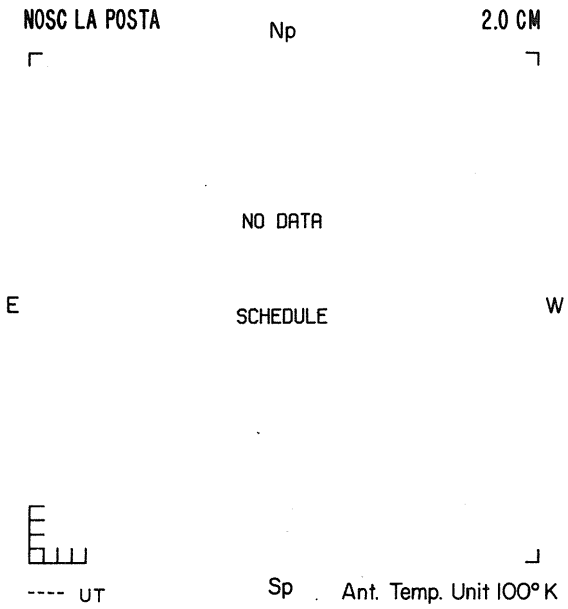
HALE OBSERVATORIES CALCIUM REPORT



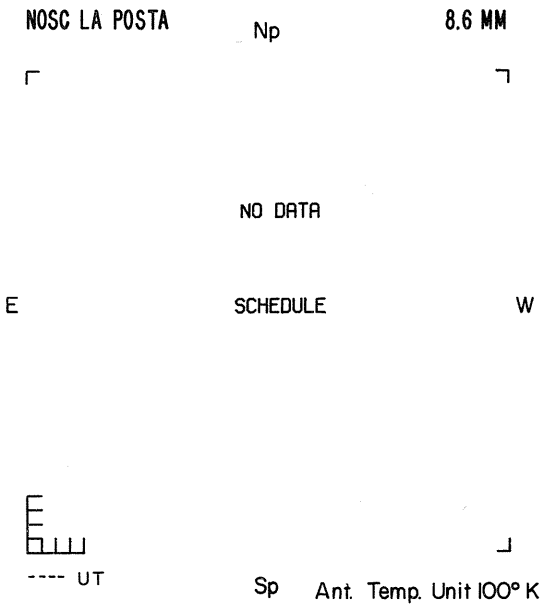
1935 UT

GOOD	JA
95-	1500-2.5
96-	0200-2.5
07-	0700-3.0
10-	0400-2.5
13-	1700-3.0
15-	0400-2.5
16-	0300-2.5
17-	3200-3.5
20-	0800-3.0
21-	3300-3.5
26-	0100-3.0
27-	1900-3.5
29-	0300-3.0
30-	0700-3.5
31-	0400-2.5
32-	1500-3.0

NOSC LA POSTA 2.0 CM

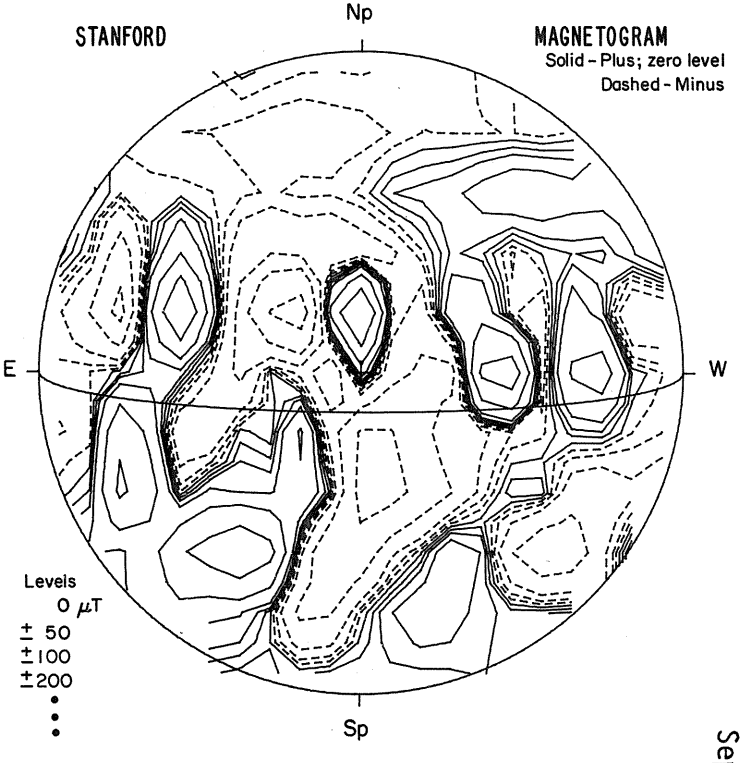


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



75
Sep 80

SEPTEMBER 14, 1980 (P = 23.94, B_o = 7.21, L_o = 151.62)

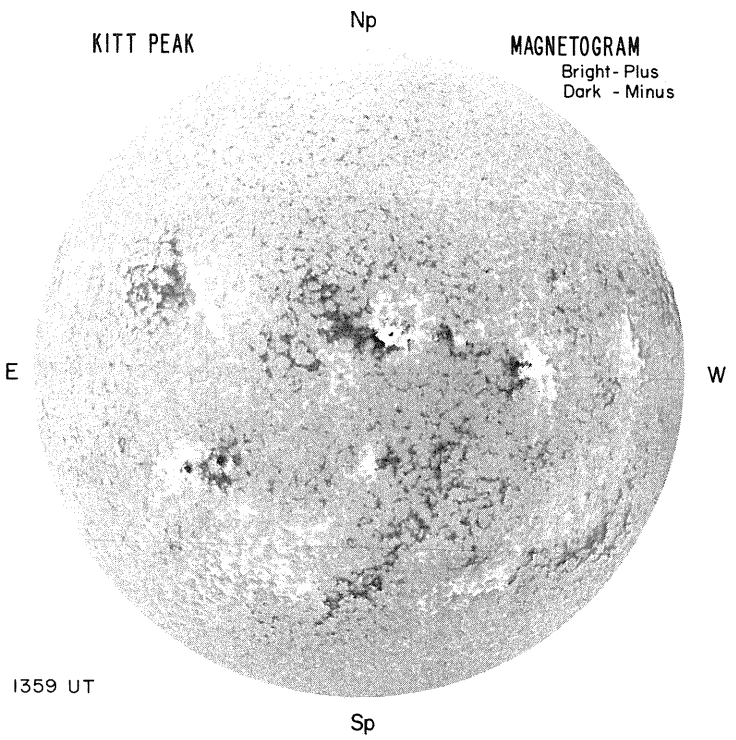
SACRAMENTO PEAK

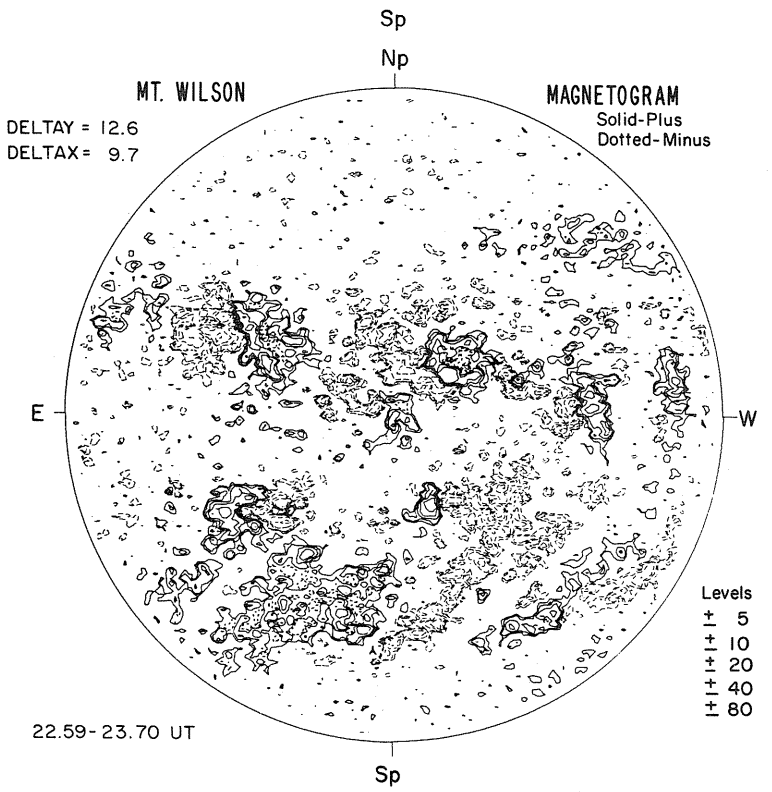
Np

CORONA (1.15 $R_\odot$)
5303 Å

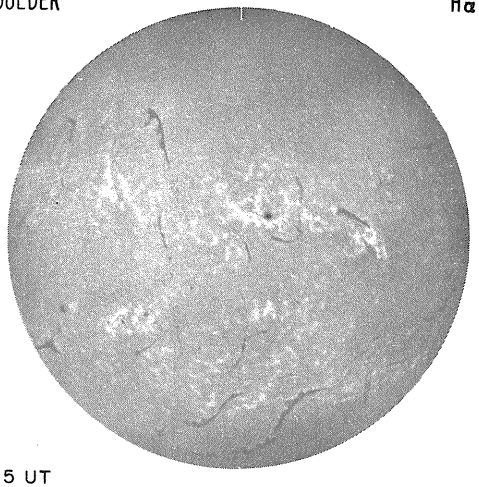
E

W



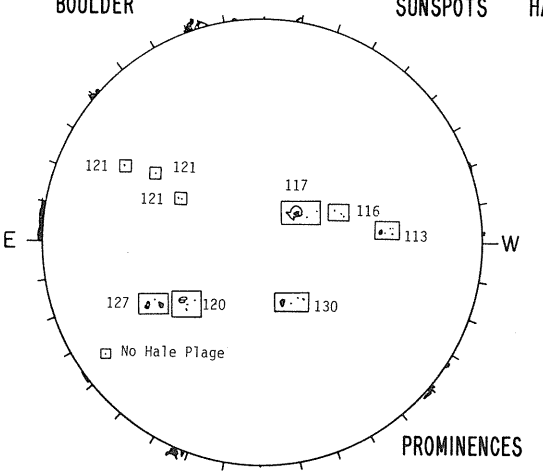


BOULDER Hα



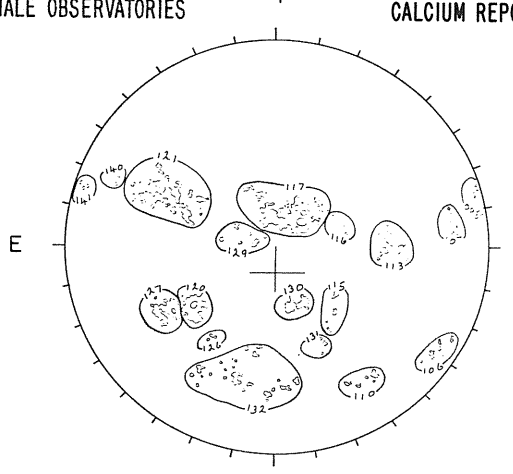
1515 UT

BOULDER SUNSPOTS



1920 UT

HALE OBSERVATORIES CALCIUM REPORT



1708 UT

GOOD	JA
07-	0600-2.5
10-	0400-2.5
13-	1500-3.0
16-	0400-2.5
17-	4200-3.5
20-	1400-3.5
21-	3300-3.5
26-	0100-2.5
27-	1300-3.5
29-	0300-3.0
30-	0600-3.5
32-	1400-3.0

PROMINENCES

1515 UT

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

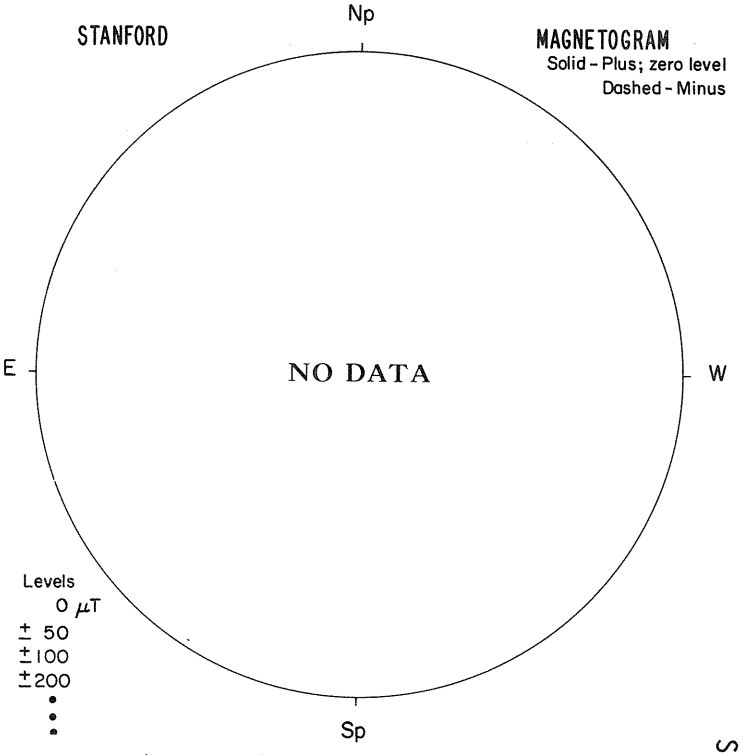
NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
±100
±200
•
•
•

77
Sep 80

SEPTEMBER 15, 1980 (P = 24.12, B_o = 7.20, L_o = 138.42)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

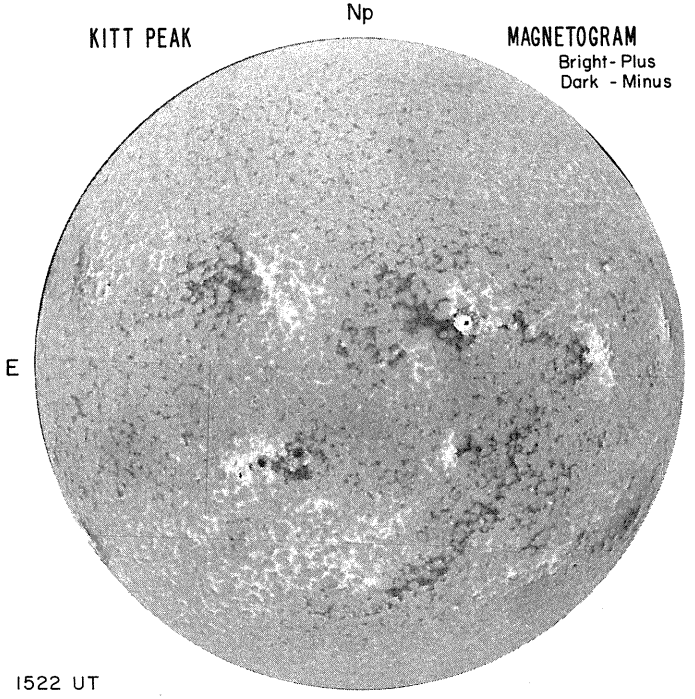
W

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1522 UT

Sp

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

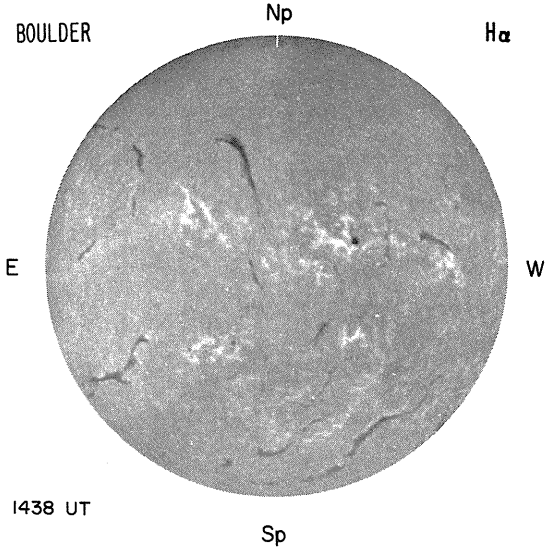
NO DATA SEPTEMBER 15-22

W

Levels
± 5
± 10
± 20
± 40
± 80

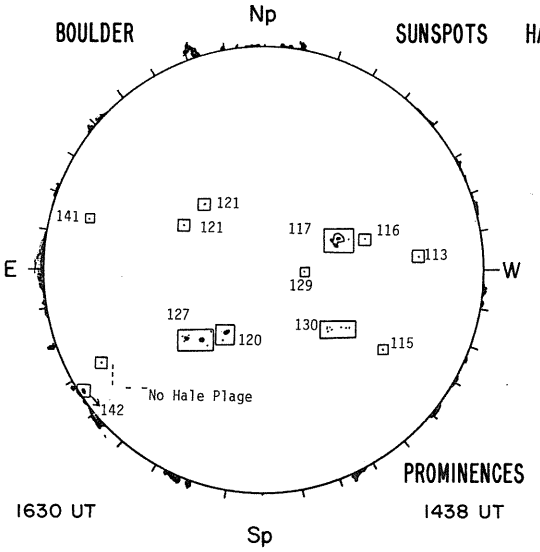
Sp

BOULDER Hα



1438 UT

BOULDER SUNSPOTS

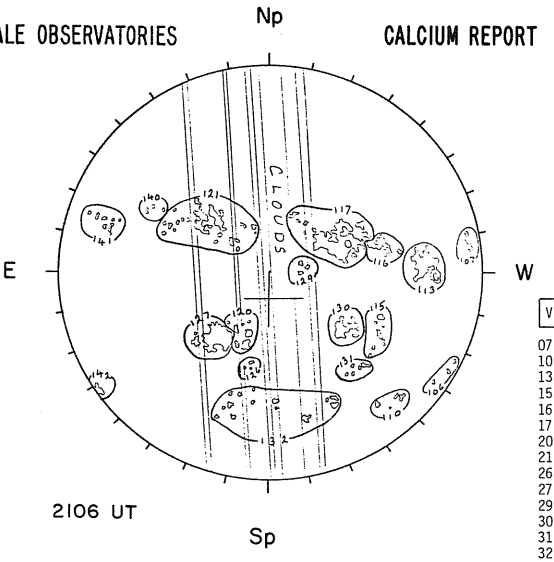


1630 UT

PROMINENCES

1438 UT

HALE OBSERVATORIES CALCIUM REPORT

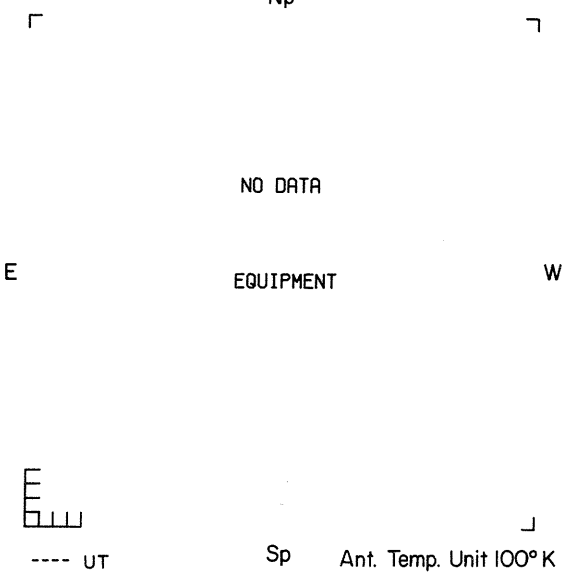


2106 UT

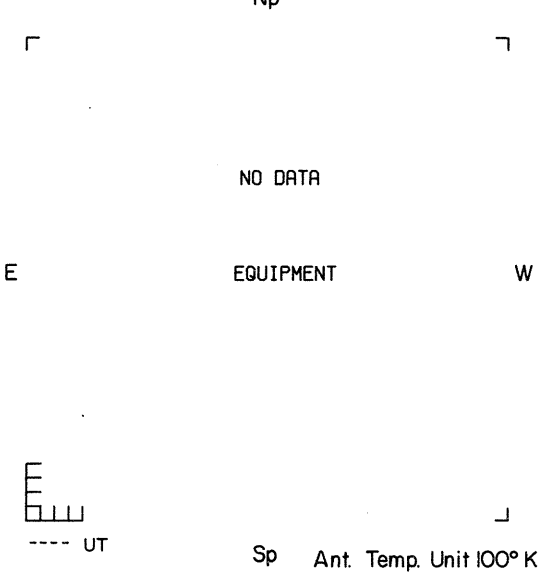
V POOR	JA

07- 0600-2.5
10- 0400-3.0
13- 2700-3.5
15- 0500-3.0
16- 0700-3.0
17- 4000-4.0
20- 0900-3.0
21- 3000-3.5
26- 0100-3.0
27- 2300-3.5
29- 0300-3.0
30- 1000-4.0
31- 0300-3.0
32- 1400-3.0
40- 0200-2.5
41- 0500-3.0
42- 0400-3.5

NOSC LA POSTA 2.0 CM

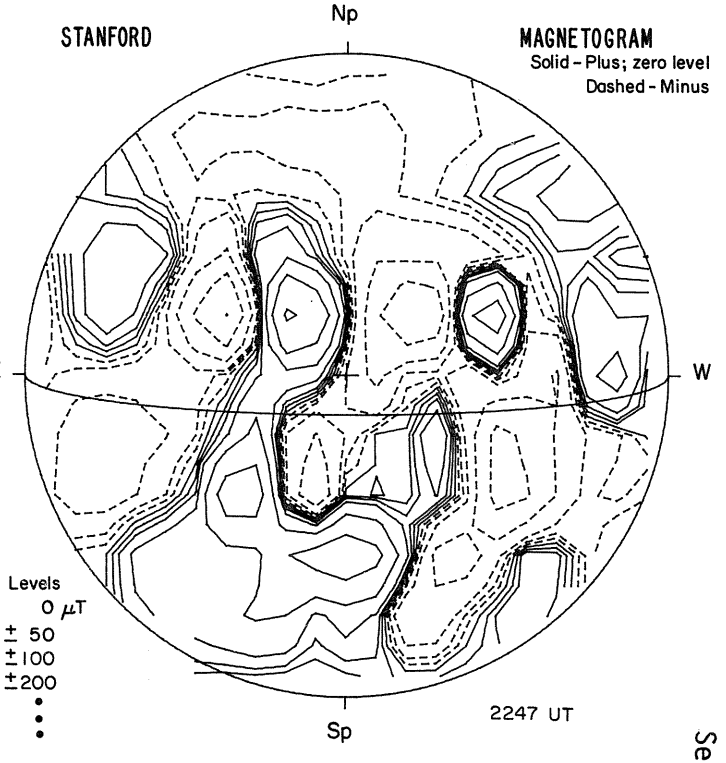


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



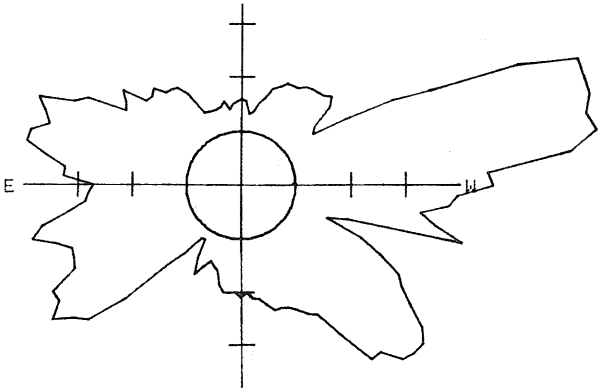
2247 UT

SEPTEMBER 16, 1980 (P = 24.28, B_o = 7.18, L_o = 125.22)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



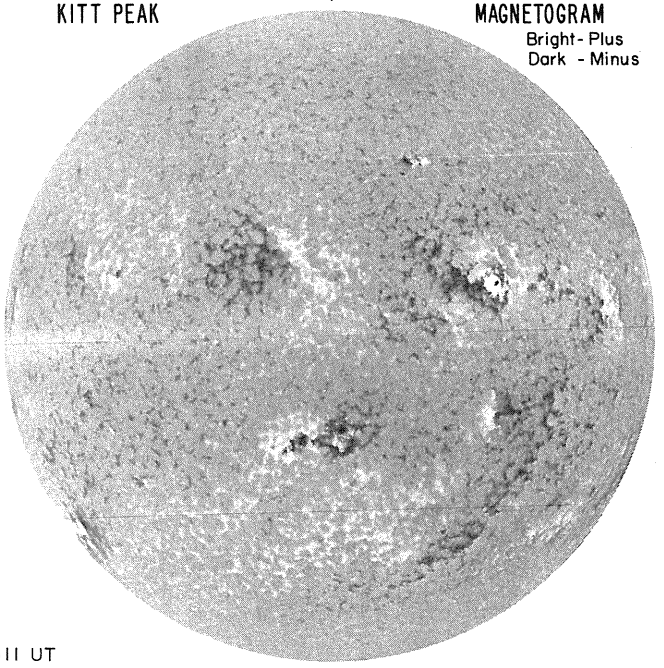
1816 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1511 UT

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

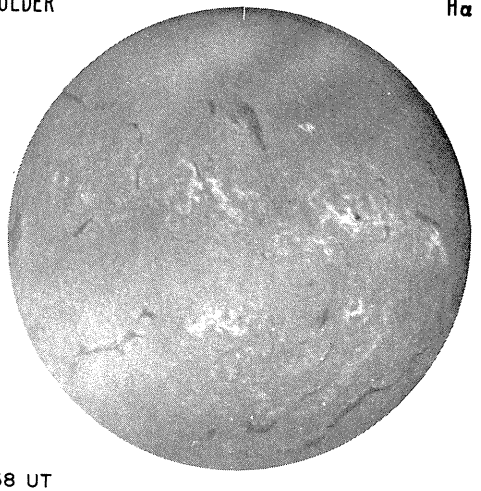
E

W

Levels
± 5
± ± 10
± ± ± 20
± ± ± 40
± ± ± 80

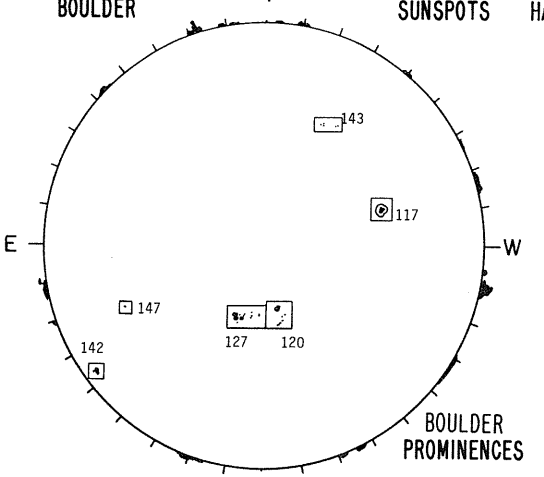
Sp

BOULDER Hα



1438 UT

BOULDER SUNSPOTS

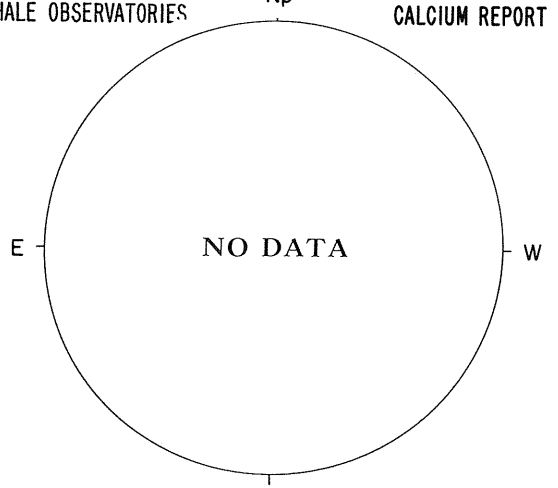


1630 UT

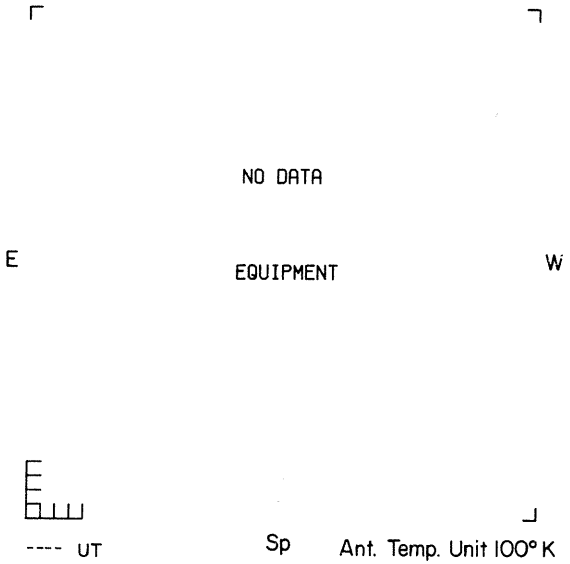
BOULDER PROMINENCES

1438 UT

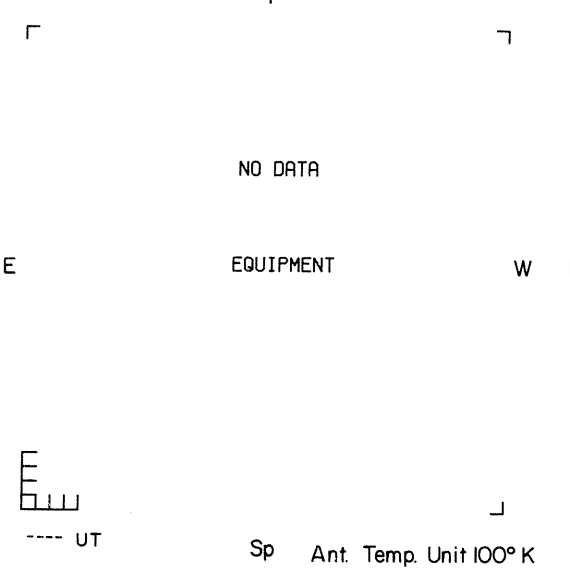
HALE OBSERVATORIES CALCIUM REPORT



NOSC LA POSTA 2.0 CM

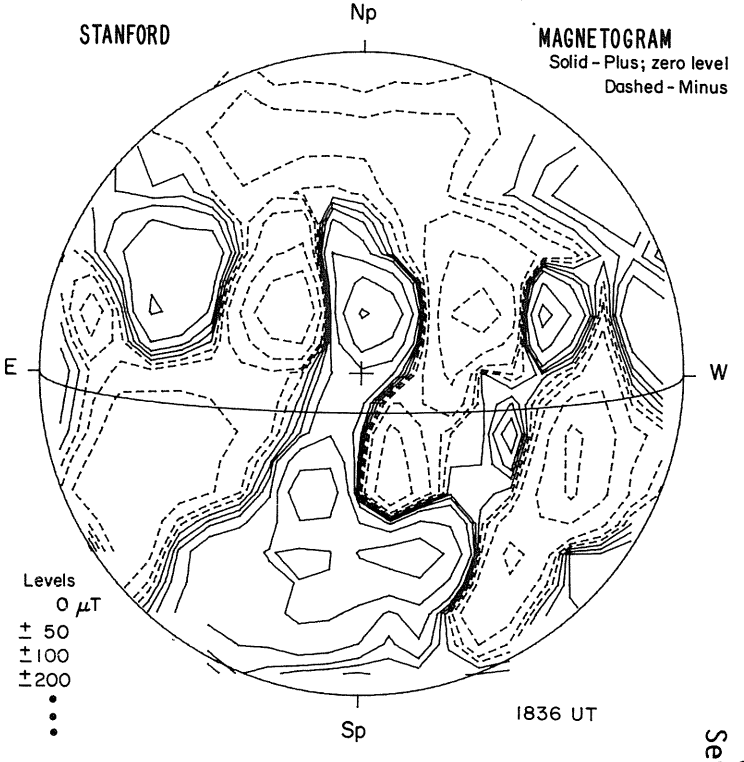


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



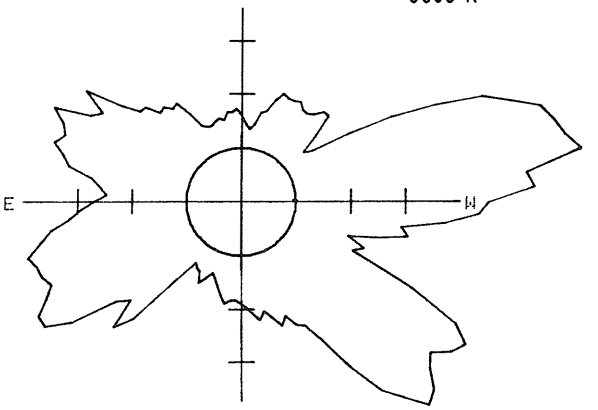
1836 UT

SEPTEMBER 17, 1980 (P = 24.45, B_o = 7.16, L_o = 112.02)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



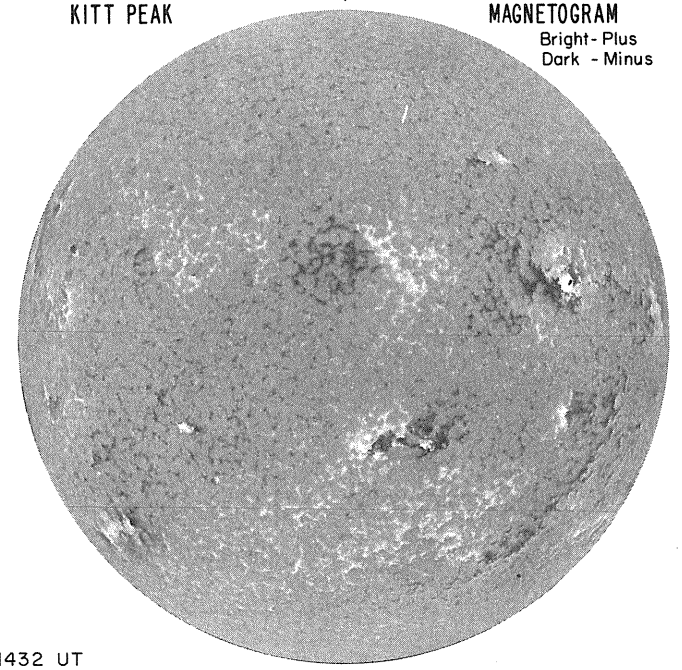
1749 UT

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1432 UT

Sp

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

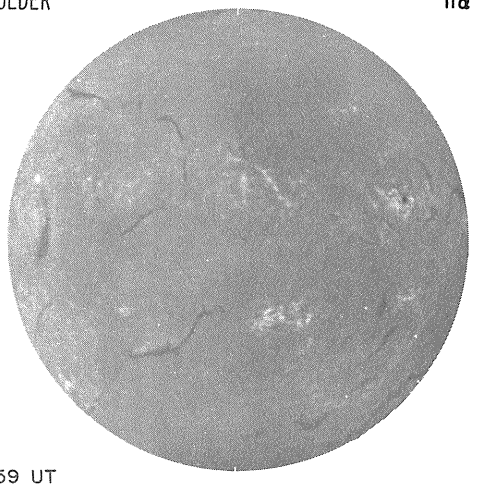
E

W

Levels
± 5
± 10
± 20
± 40
± 80

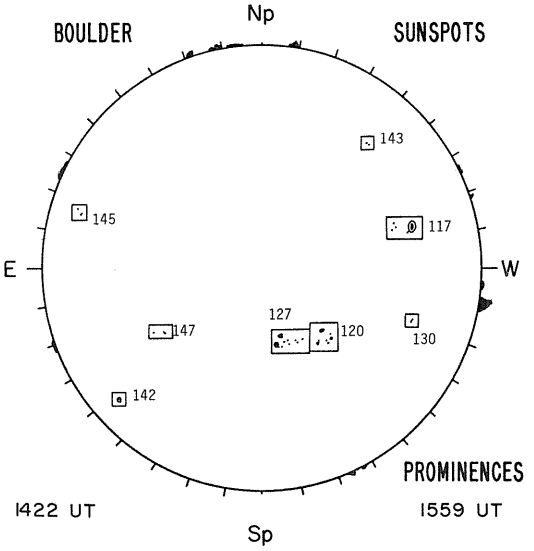
Sp

BOULDER Hα



1559 UT

BOULDER SUNSPOTS

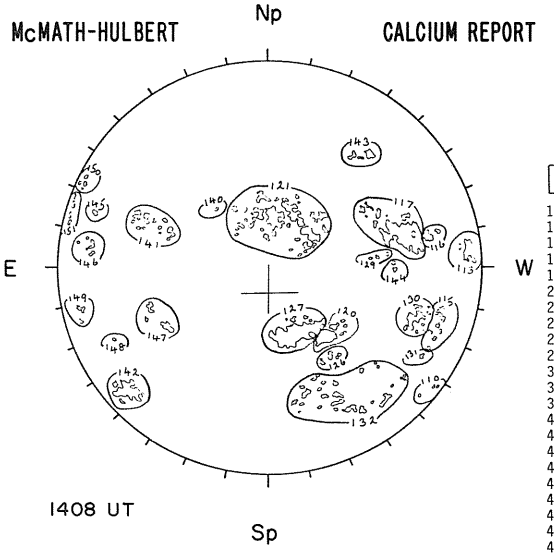


1422 UT

PROMINENCES

1559 UT

McMATH-HULBERT CALCIUM REPORT



1408 UT

GOOD	JA
10-	0300-3.0
13-	1400-3.5
15-	0700-3.0
16-	0500-2.5
17-	4300-4.0
20-	1000-4.0
21-	4400-3.5
26-	0300-3.0
27-	2600-4.0
29-	0200-2.5
30-	1000-3.5
31-	0100-3.0
32-	2600-3.0
40-	0100-3.0
41-	0700-3.0
42-	2100-3.5
43-	0500-3.5
44-	0200-3.0
45-	0100-3.5
46-	0400-3.0
47-	0500-3.5
48-	0100-3.0
49-	0300-3.0
50-	0300-3.0
51-	0400-3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

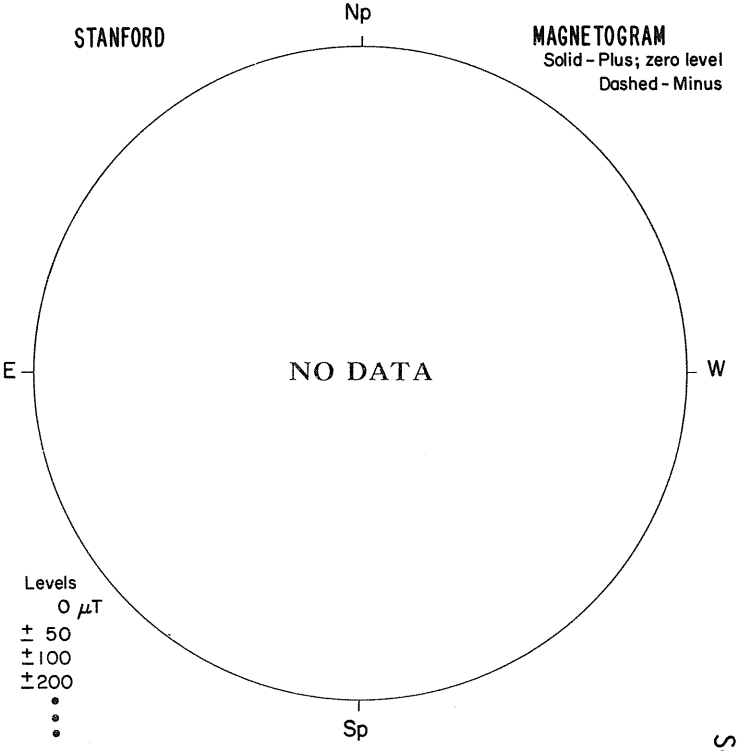
NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



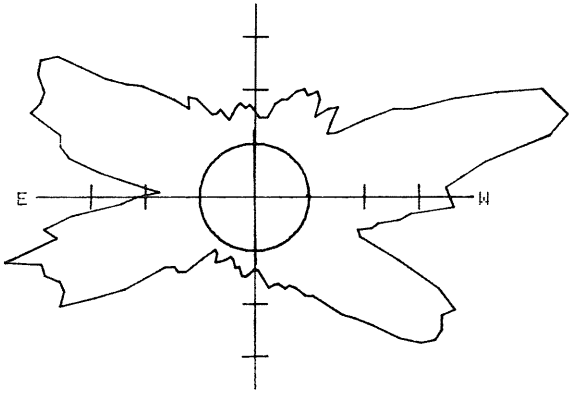
Levels
0 μT
± 50
± 100
± 200
•
•
•

SEPTEMBER 18, 1980 (P = 24.60, B_o = 7.14, L_o = 98.82)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



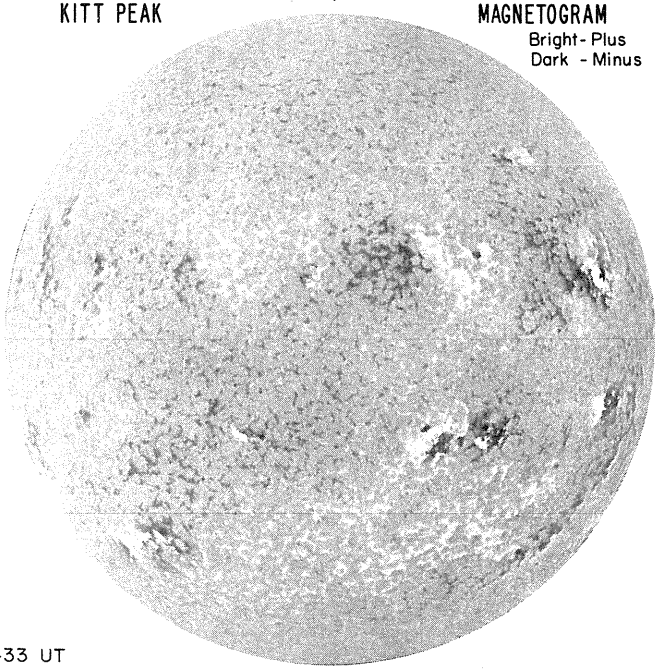
1703 UT

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus



E

W

1433 UT

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

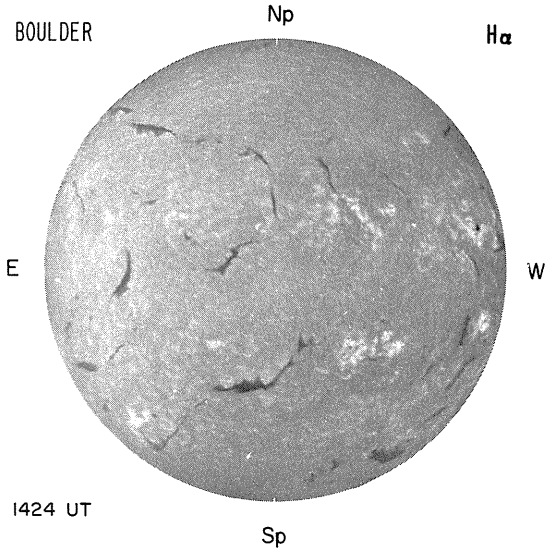
E

W

Levels
± 5
± 10
± 20
± 40
± 80

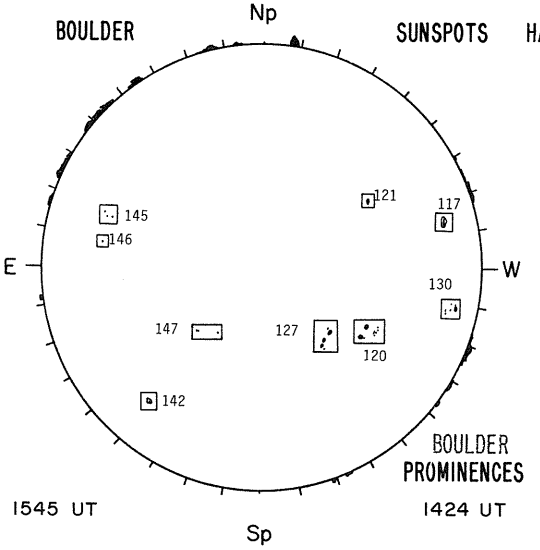
Sp

BOULDER Hα



1424 UT

BOULDER SUNSPOTS

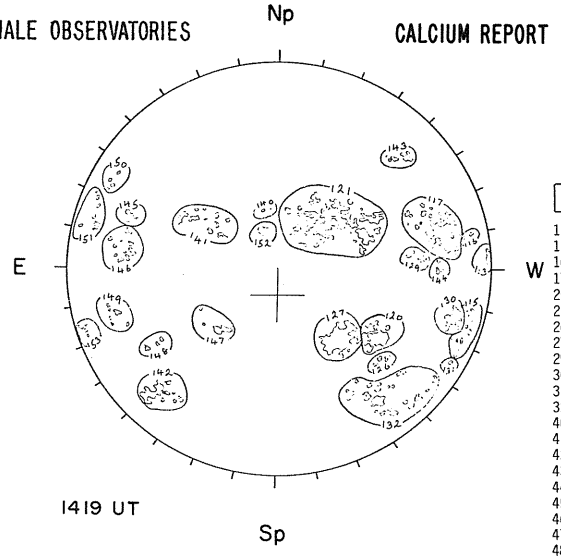


1545 UT

BOULDER PROMINENCES

1424 UT

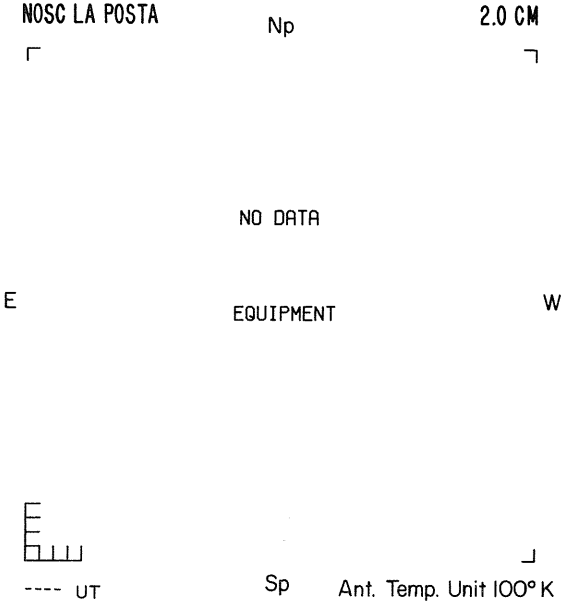
HALE OBSERVATORIES CALCIUM REPORT



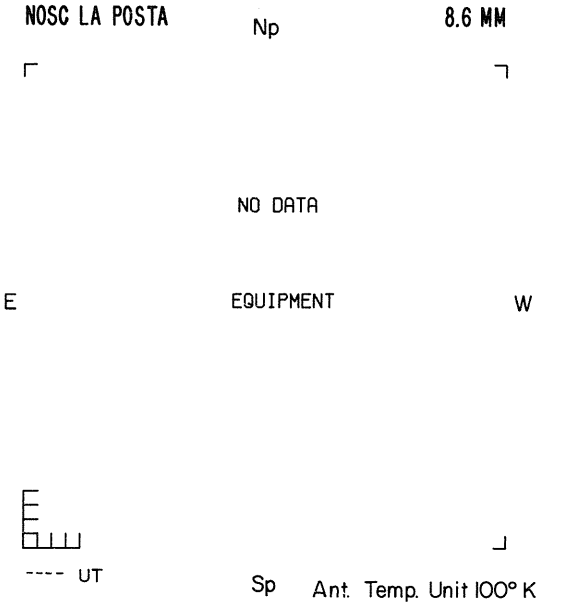
1419 UT

GOOD	JA
13-	0900-2.5
15-	0800-3.0
16-	0200-2.5
17-	4200-4.0
20-	1700-3.5
21-	5100-3.5
26-	0300-3.0
27-	2500-3.5
29-	0300-3.0
30-	1200-4.0
31-	0100-2.5
32-	2300-3.0
40-	0200-3.0
41-	1100-3.0
42-	1600-3.5
43-	0500-3.0
44-	0200-3.0
45-	0500-3.5
46-	1000-3.0
47-	0500-3.0
48-	0200-2.5
49-	0400-2.5
50-	0300-3.0
51-	0500-2.5
52-	0300-3.0

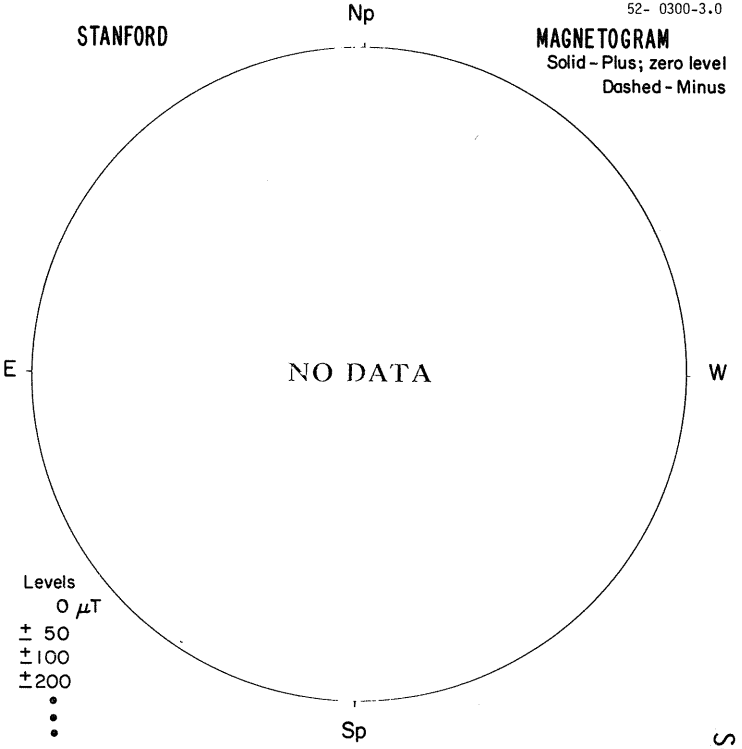
NOSC LA POSTA 2.0 CM



NOSC LA POSTA 8.6 MM



STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
± 100
± 200
•
•
•

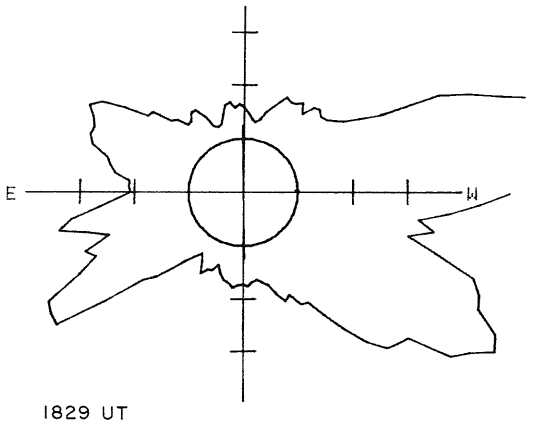
85
Sep 80

SEPTEMBER 19, 1980 (P = 24.75, B_o = 7.12, L_o = 85.62)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



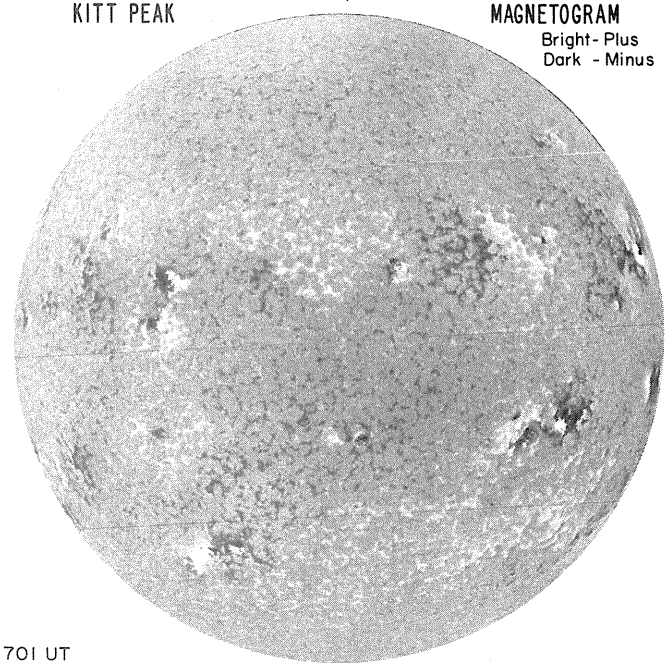
1829 UT

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1701 UT

Sp

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

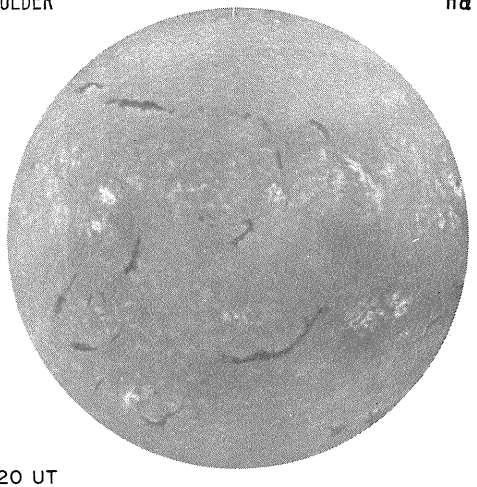
E

W

Levels
± 5
± 10
± 20
± 40
± 80

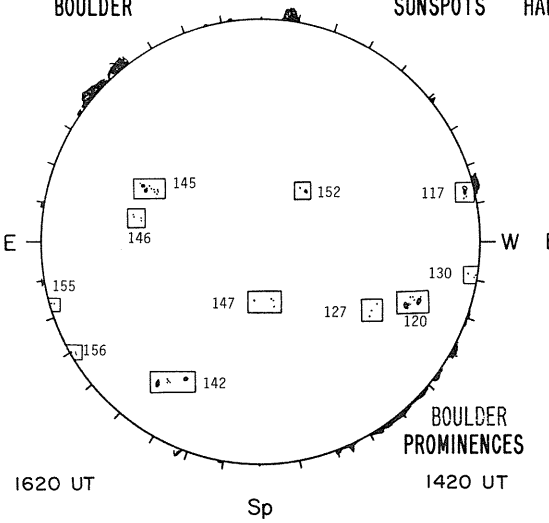
Sp

BOULDER Hα



1420 UT

BOULDER SUNSPOTS

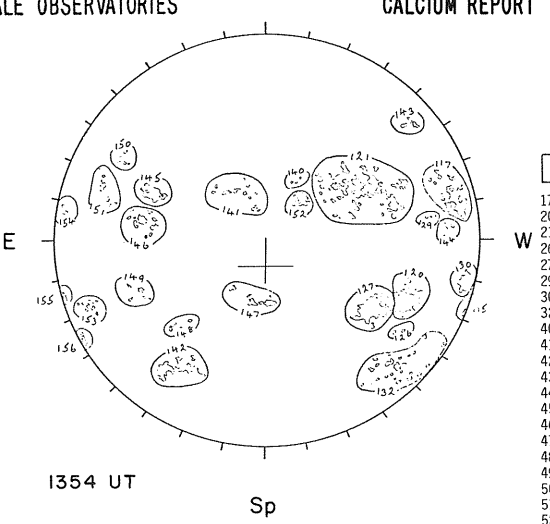


1620 UT

BOULDER PROMINENCES

1420 UT

HALE OBSERVATORIES CALCIUM REPORT

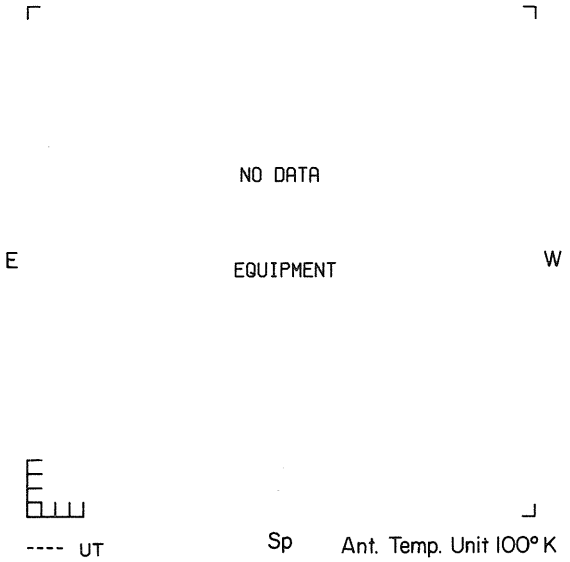


1354 UT

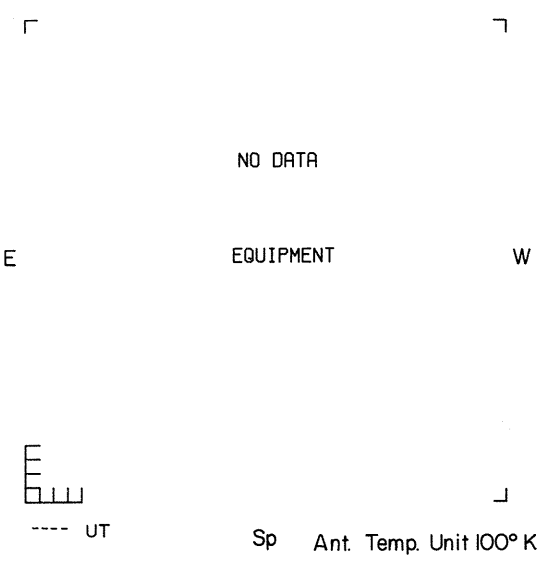
GOOD	JA

17- 3200-4.0
20- 2200-3.5
21- 4300-3.5
26- 0300-3.0
27- 2600-3.5
29- 0200-2.5
30- 1000-3.0
32- 1600-3.0
40- 0100-2.5
41- 0600-3.0
42- 2100-4.0
43- 0300-3.0
44- 0400-3.0
45- 1100-3.5
46- 0900-3.5
47- 0500-3.0
48- 0200-3.0
49- 0300-3.0
50- 0300-3.0
51- 0500-3.0
52- 0400-3.0
53- 0400-2.5
54- 0300-3.0
55- 0200-3.0
56- 0300-2.5

NOSC LA POSTA 2.0 CM

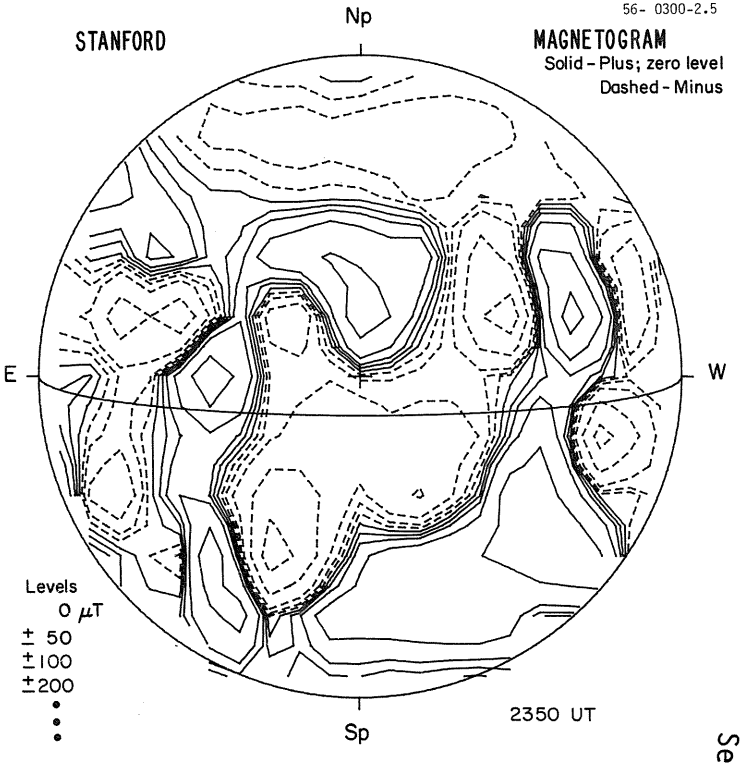


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2350 UT

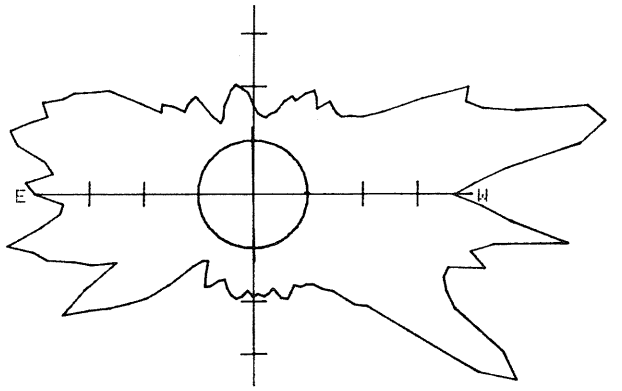
87
Sep 80

SEPTEMBER 20, 1980 (P = 24.89, B_o = 7.10, L_o = 72.42)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



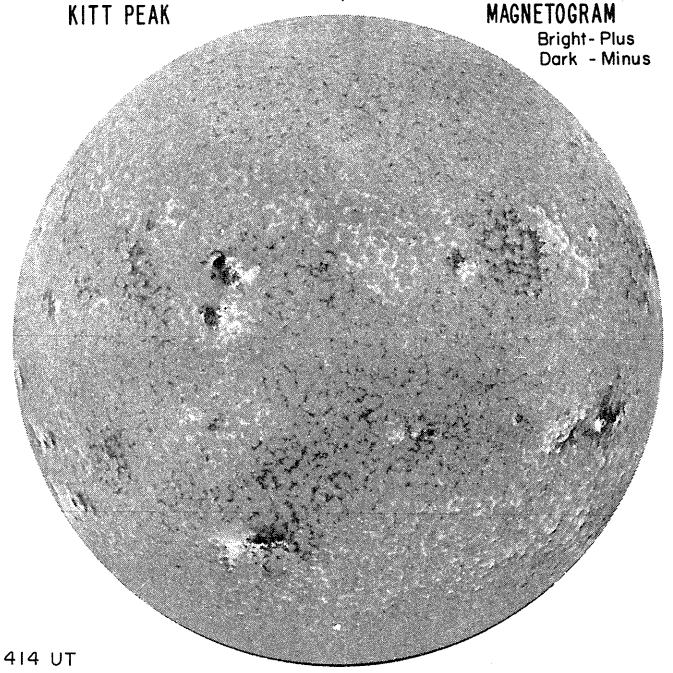
1711 UT

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1414 UT

Sp

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

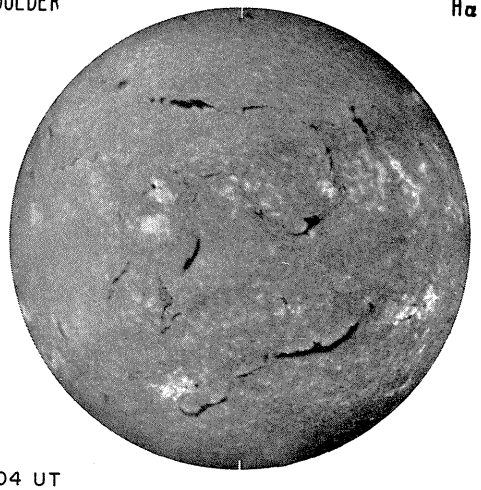
E

W

Levels
± 5
± 10
± 20
± 40
± 80

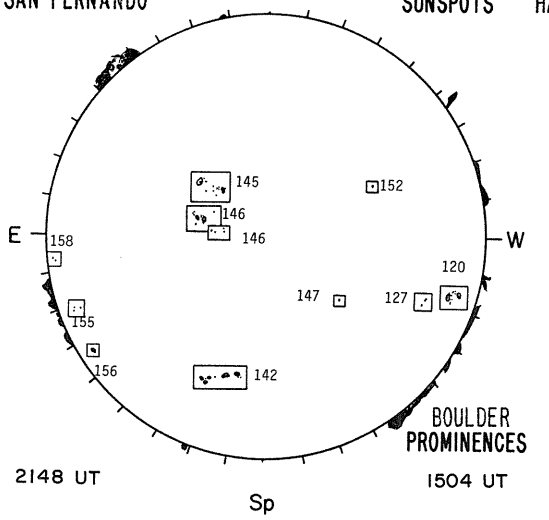
Sp

BOULDER Hα



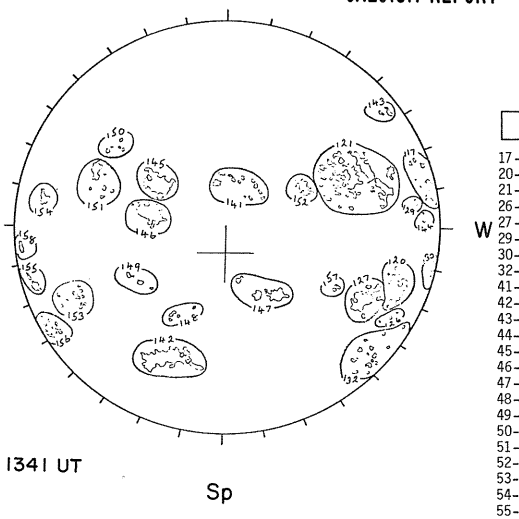
1504 UT

SAN FERNANDO SUNSPOTS



2148 UT 1504 UT

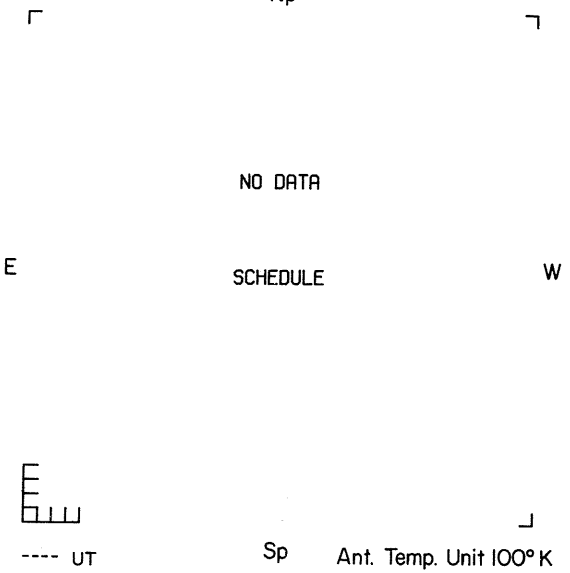
HALE OBSERVATORIES CALCIUM REPORT



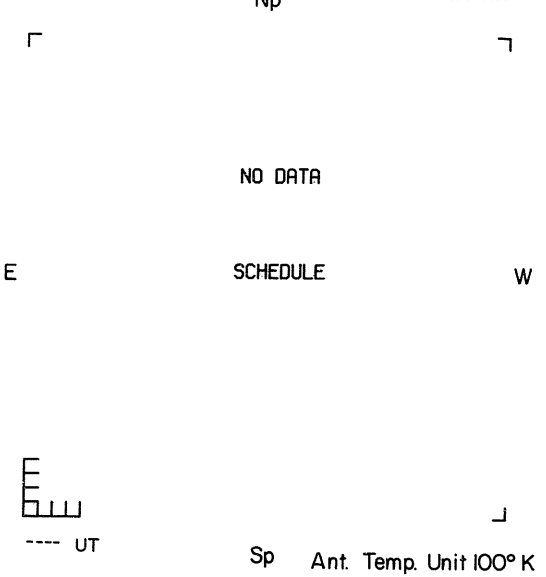
1341 UT

GOOD	JA
17-	1600-4.0
20-	2100-3.5
21-	4500-3.5
26-	0200-3.0
27-	2000-3.5
29-	0100-2.5
30-	0500-3.0
32-	1100-3.0
41-	0600-3.0
42-	3200-3.5
43-	0300-3.0
44-	0200-3.5
45-	1700-3.5
46-	1600-4.0
47-	1000-3.0
48-	0200-2.5
49-	0200-3.0
50-	0300-3.0
51-	0700-3.0
52-	0500-3.5
53-	0600-2.5
54-	0500-3.0
55-	0500-3.5
56-	0700-3.0
57-	0100-3.0
58-	0600-2.5

NOSC LA POSTA 2.0 CM

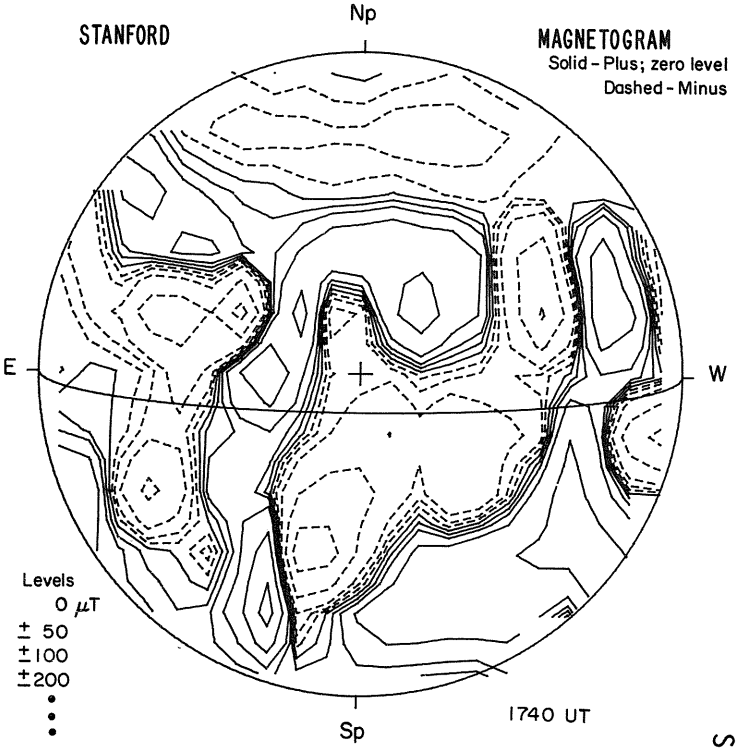


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1740 UT

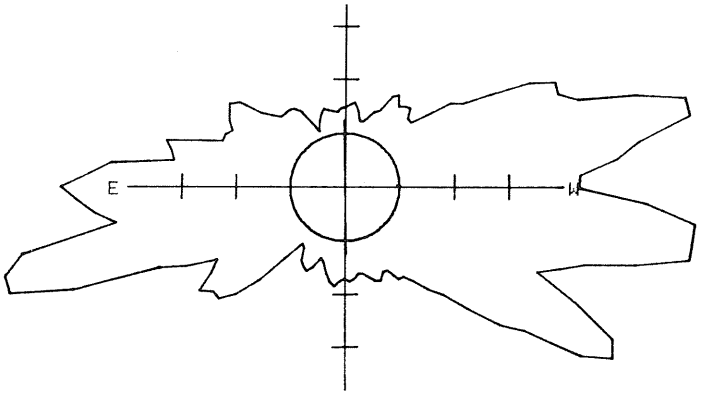
89
Sep 80

SEPTEMBER 21, 1980 (P = 25.03, B_o = 7.07, L_o = 59.22)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



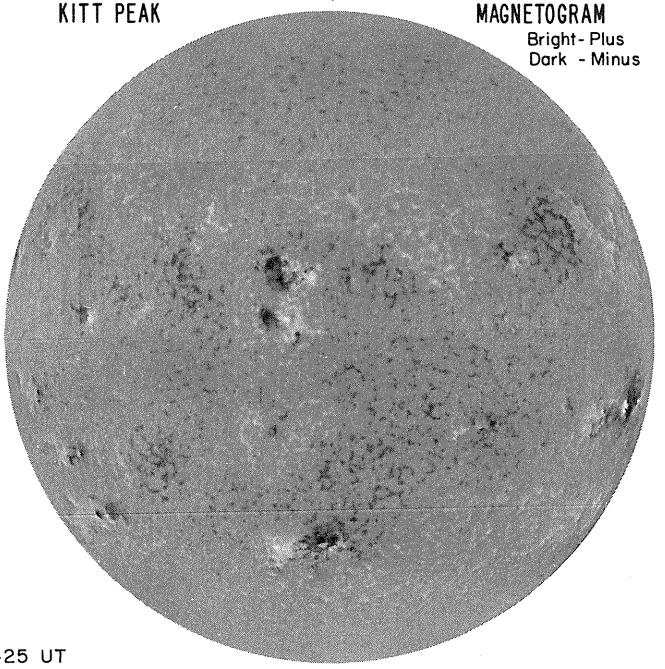
1722 UT

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1425 UT

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

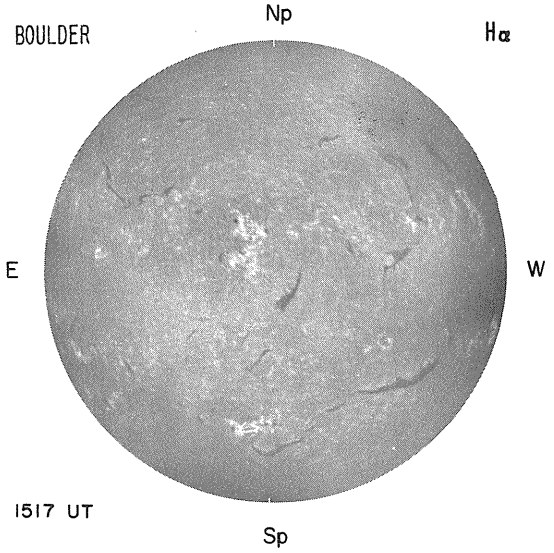
E

W

Levels
± 5
± 10
± 20
± 40
± 80

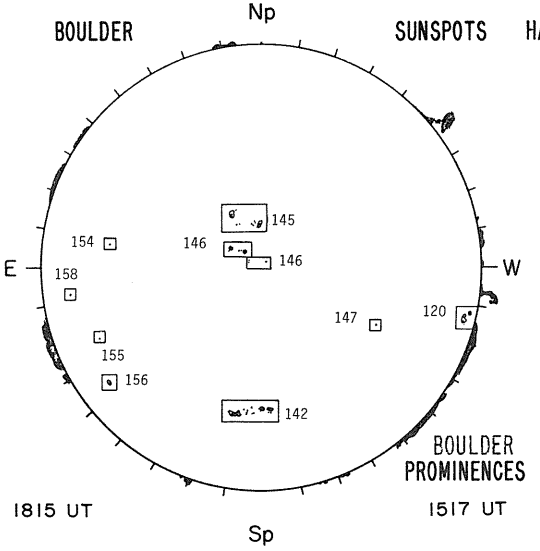
Sp

BOULDER Hα



1517 UT

BOULDER SUNSPOTS

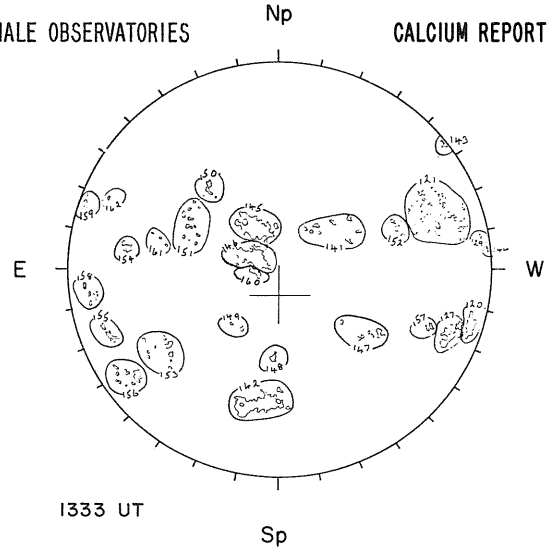


1815 UT

BOULDER PROMINENCES

1517 UT

HALE OBSERVATORIES CALCIUM REPORT



1333 UT

GOOD	JA

20- 1200-3.5
21- 2700-3.0
27- 1000-3.0
41- 0600-3.0
42- 2800-3.5
43- 0200-3.0
45- 2000-3.5
46- 1600-3.5
47- 0400-3.0
48- 0200-3.0
49- 0200-3.0
50- 0300-3.0
51- 0500-3.0
52- 0400-3.5
53- 0600-3.0
54- 0300-3.0
55- 0400-3.0
56- 0700-3.0
57- 0200-3.0
58- 0400-3.0
59- 0300-3.0
60- 0200-3.0
61- 0100-2.5
62- 0100-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

SCHEDULE

E W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

SCHEDULE

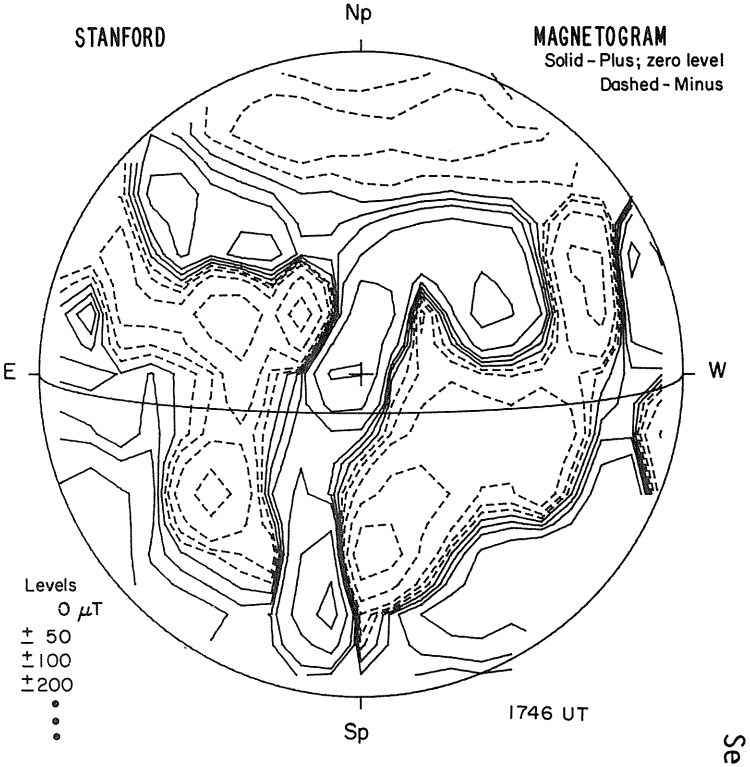
E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

± 100

± 200

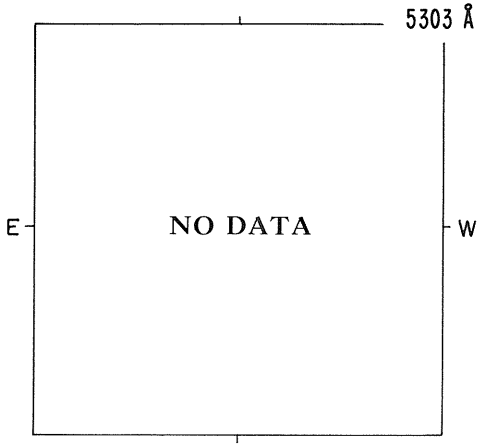
1746 UT

91
Sep 80

SEPTEMBER 22, 1980 (P = 25.16, B_o = 7.04, L_o = 46.02)

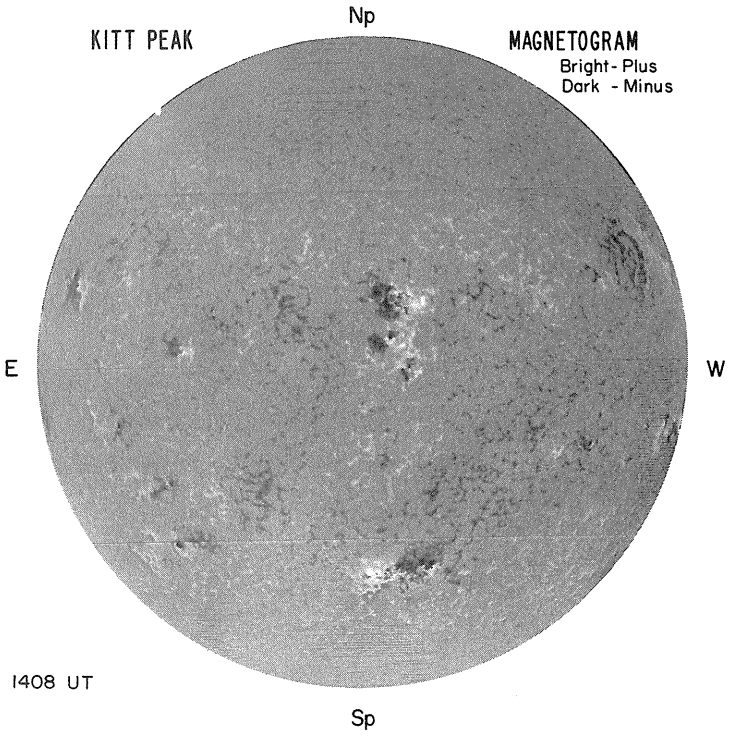
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

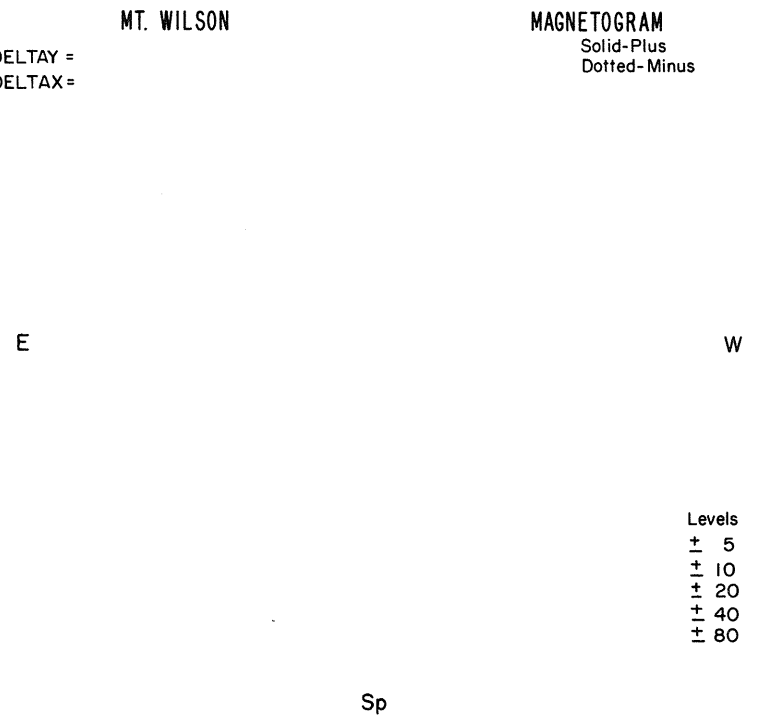


1408 UT

MT. WILSON

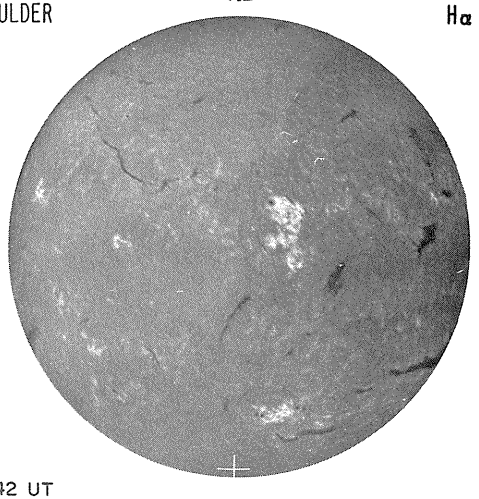
MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =



Levels
± 5
± 10
± 20
± 40
± 80

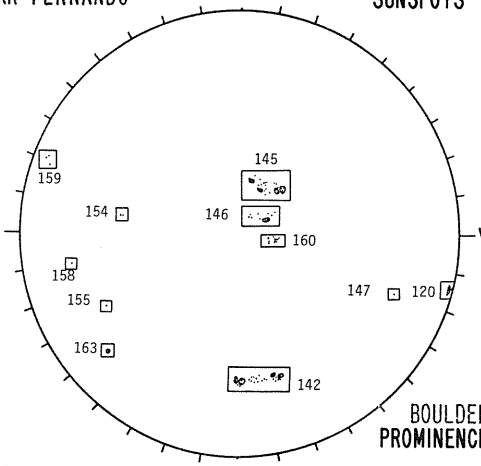
BOULDER Np Hα



E W

1842 UT Sp

SAN FERNANDO Np SUNSPOTS



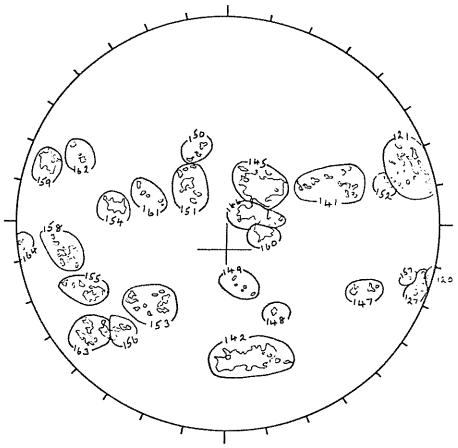
E W

1510 UT Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1722 UT Sp

FAIR	JA
20-	0500-3.5
21-	2300-3.0
27-	0700-3.0
41-	1000-3.0
42-	3600-3.5
45-	2800-4.0
46-	1600-3.5
47-	0500-3.0
48-	0100-3.0
49-	0200-3.0
50-	0300-3.0
51-	0800-3.0
52-	0200-3.0
53-	0900-3.0
54-	0800-3.0
55-	1000-3.0
56-	0600-3.0
57-	0100-3.0
58-	1000-3.0
59-	1300-4.0
60-	0600-3.5
61-	0300-3.0
62-	0300-3.0
63-	1500-3.0
64-	0300-3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

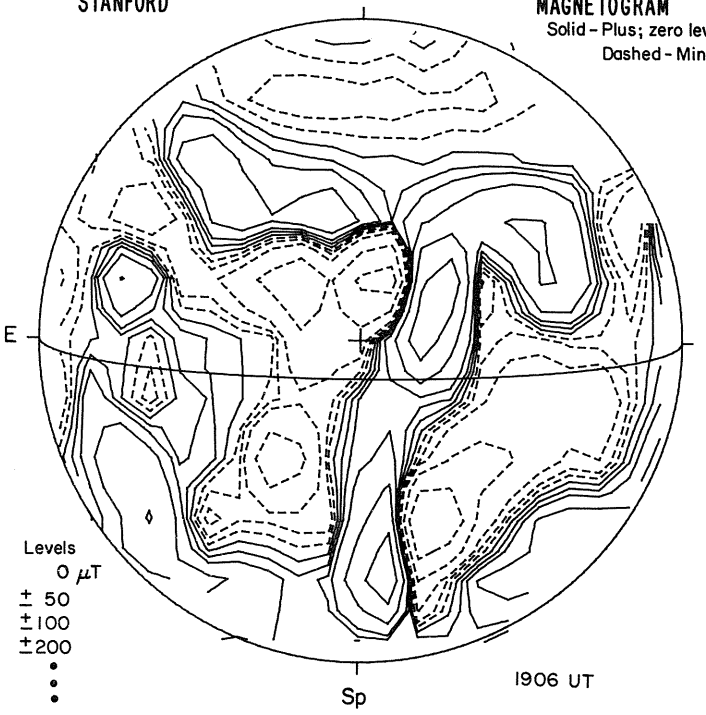
E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

Sp 1906 UT

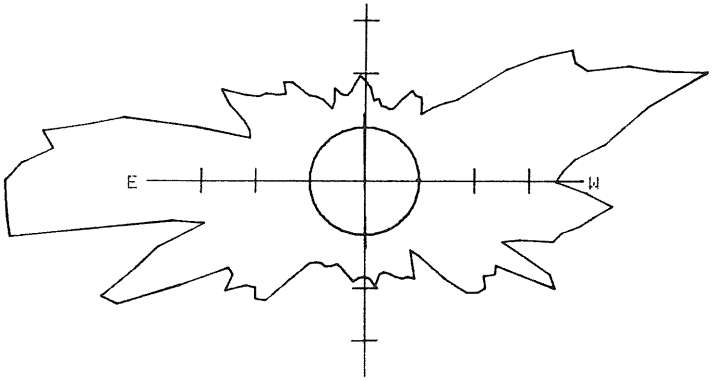
93

Sep 80

SEPTEMBER 23, 1980 (P = 25.28, B_o = 7.01, L_o = 32.82)

SACRAMENTO PEAK

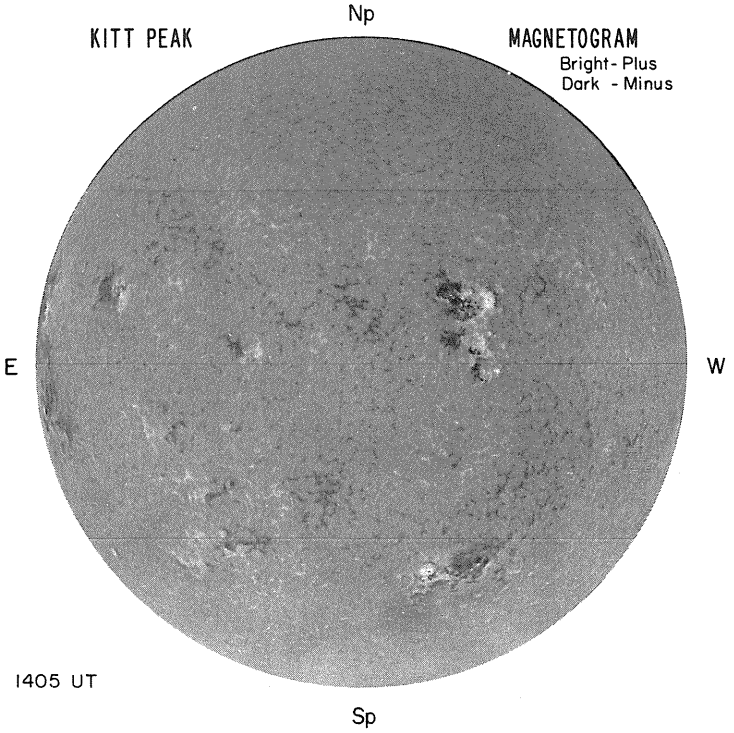
CORONA (1.15 $R_\odot$)
5303 Å



1653 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

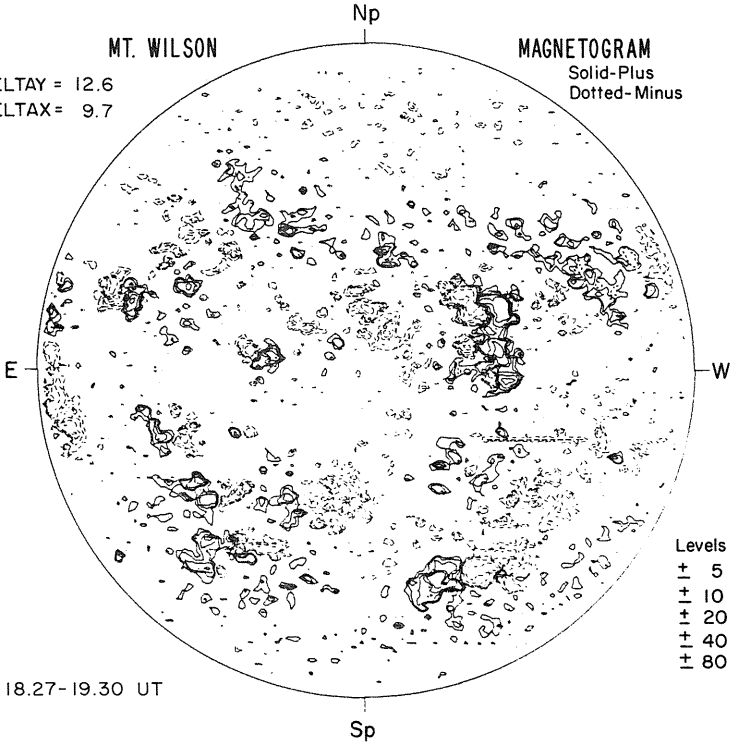


1405 UT

MT. WILSON

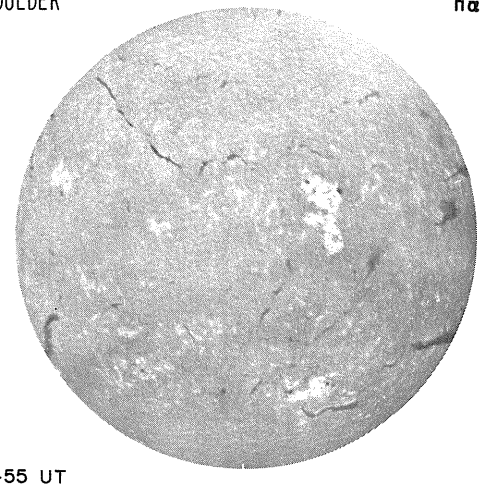
DELTAY = 12.6
DELTAX = 9.7

MAGNETOGRAM
Solid-Plus
Dotted-Minus



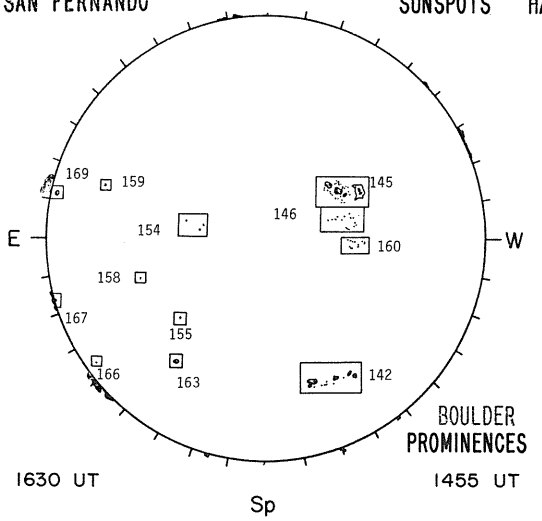
18.27-19.30 UT

BOULDER Hα



1455 UT

SAN FERNANDO SUNSPOTS

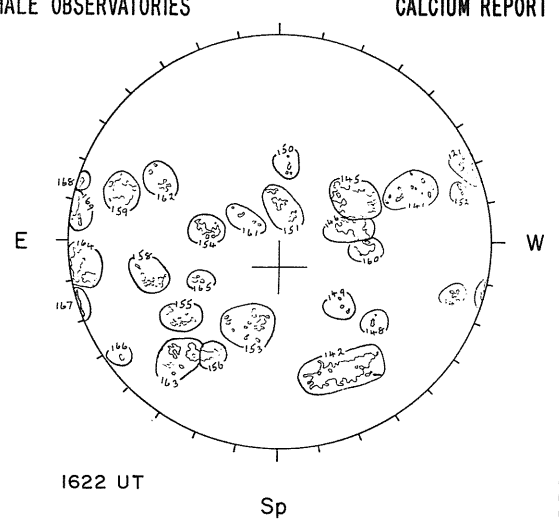


1630 UT

BOULDER PROMINENCES

1455 UT

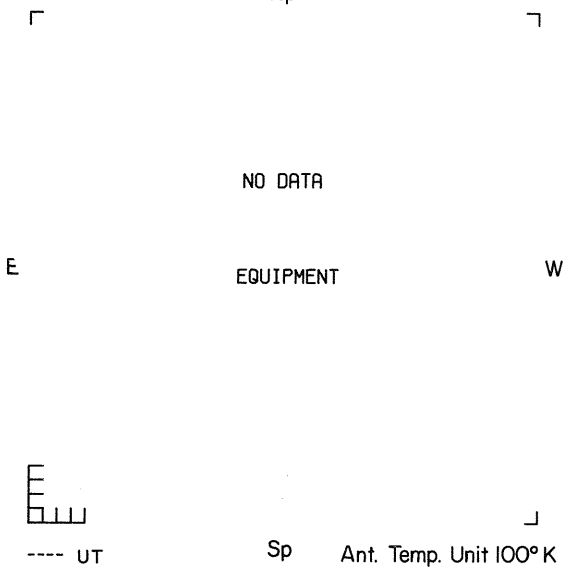
HALE OBSERVATORIES CALCIUM REPORT



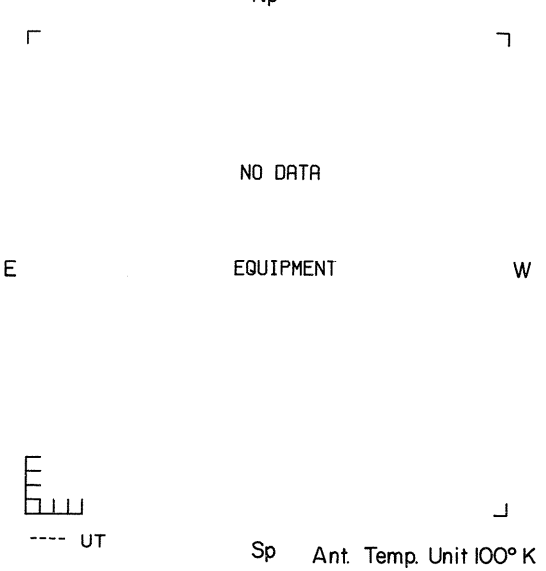
1622 UT

GOOD	JA
21-	0800-2.5
27-	0500-2.5
41-	0500-3.0
42-	4400-3.5
45-	3700-4.0
46-	1300-4.0
47-	0200-3.0
48-	0100-3.0
49-	0100-3.0
50-	0200-3.0
51-	0600-3.0
52-	0200-3.0
53-	0700-3.0
54-	0500-3.5
55-	0400-3.0
56-	0700-3.0
58-	0500-3.0
59-	2000-3.5
60-	0600-3.5
61-	0200-3.0
62-	0400-3.0
63-	1800-3.0
64-	2200-3.0
65-	0200-3.0
66-	0100-3.5
67-	0700-3.5
68-	0400-3.0
69-	2300-3.0

NOSC LA POSTA 2.0 CM

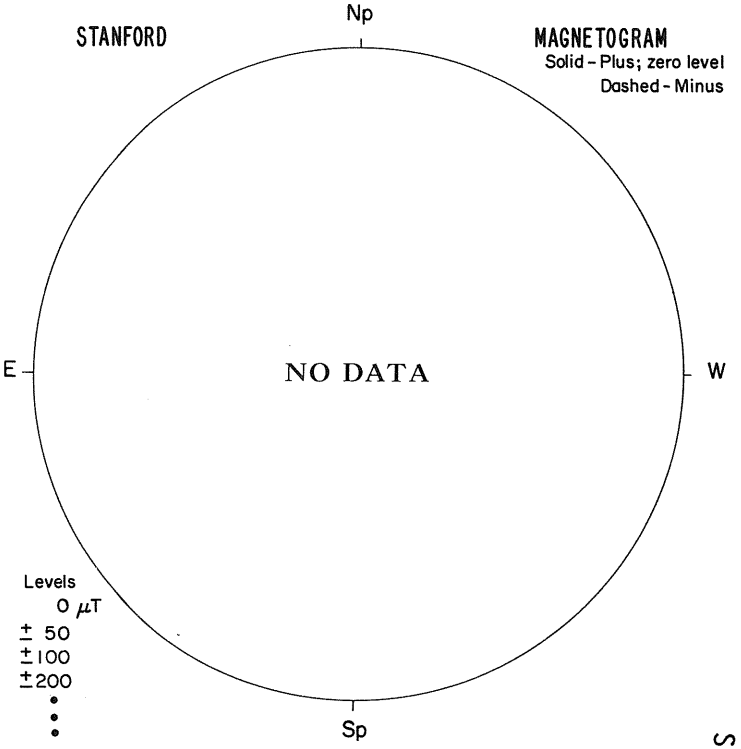


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

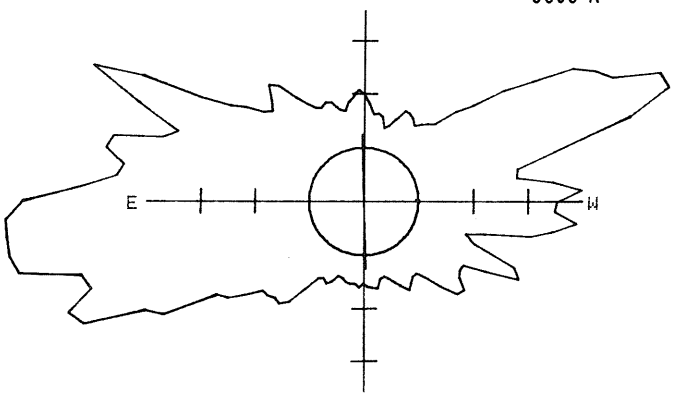
Solid - Plus; zero level
Dashed - Minus



SEPTEMBER 24, 1980 (P = 25.40, B_o = 6.98, L_o = 19.62)

SACRAMENTO PEAK

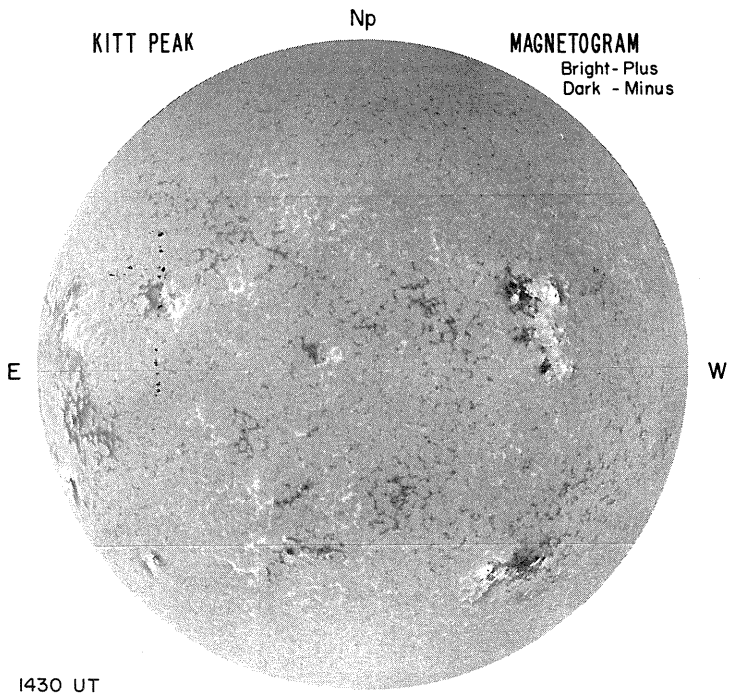
CORONA (1.15 $R_\odot$)
5303 Å



1804 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

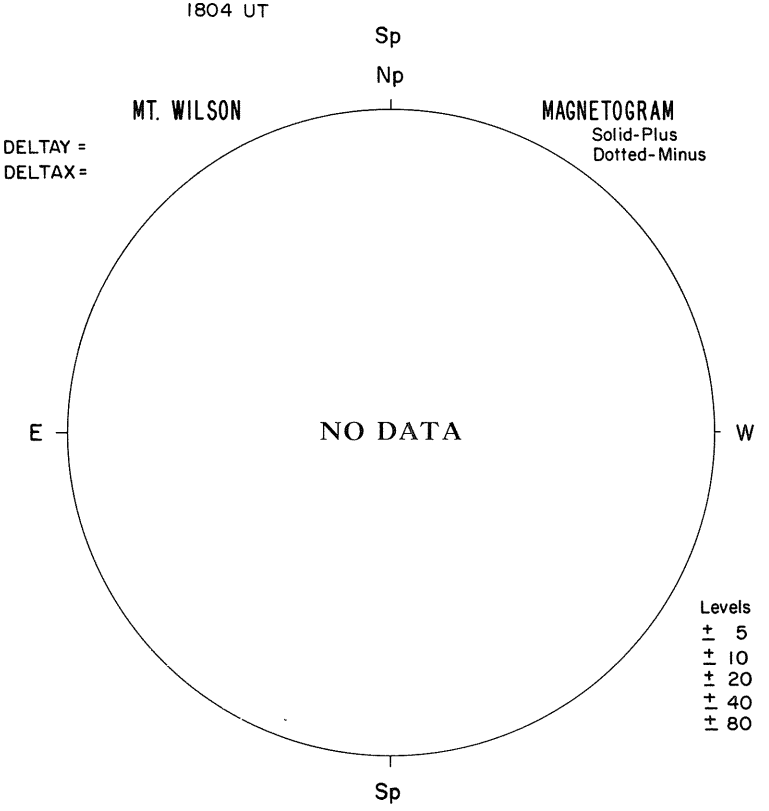


1430 UT

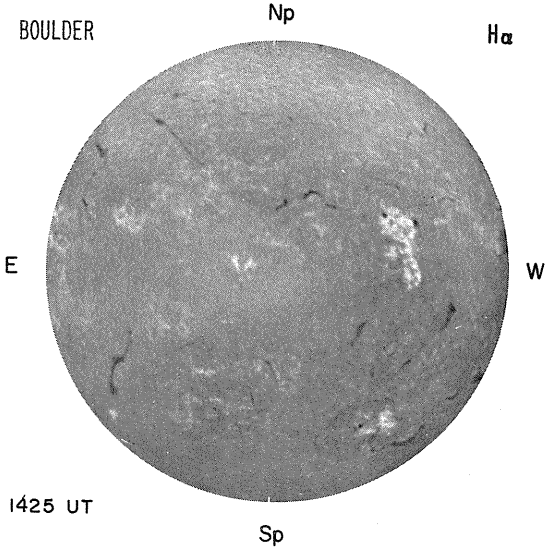
MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

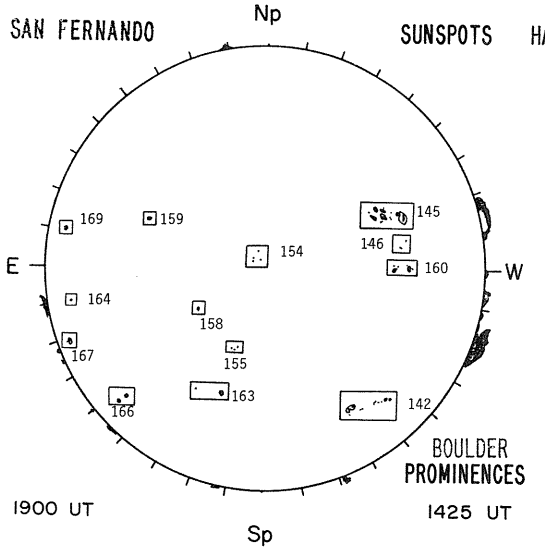


BOULDER Hα



1425 UT

SAN FERNANDO SUNSPOTS

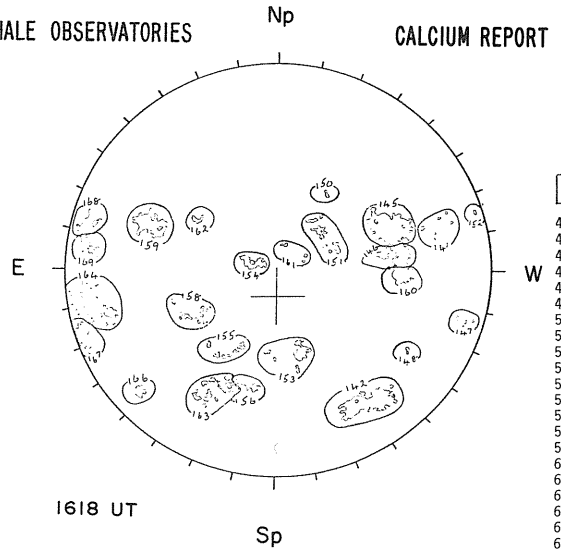


1900 UT

BOULDER PROMINENCES

1425 UT

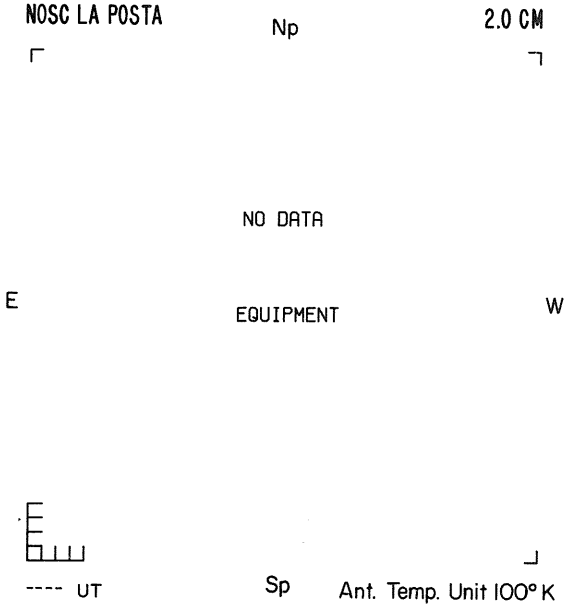
HALE OBSERVATORIES CALCIUM REPORT



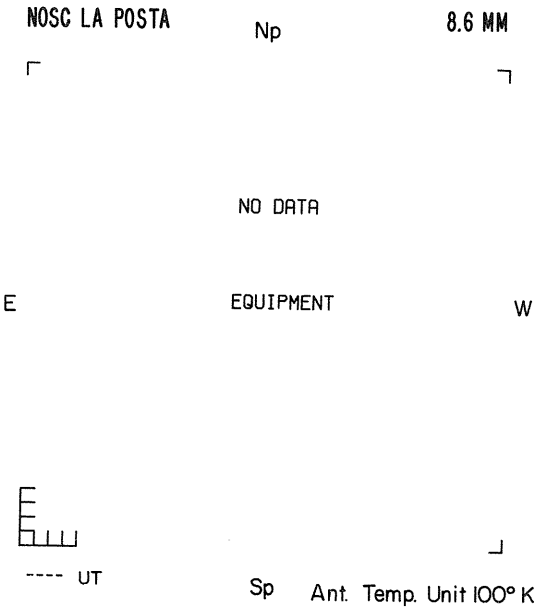
1618 UT

GOOD	JA
41-	0300-3.0
42-	3900-4.0
45-	4400-4.0
46-	1600-3.5
47-	0200-3.0
48-	0100-3.0
50-	0100-3.0
51-	0800-3.0
52-	0100-3.0
53-	0600-3.0
54-	0500-3.5
55-	0500-3.0
56-	0400-3.0
58-	0600-3.0
59-	2000-4.0
60-	1200-4.0
61-	0100-3.0
62-	0200-3.0
63-	1200-3.0
64-	3300-3.0
66-	0500-3.5
67-	2100-4.5
68-	1300-3.5
69-	1100-3.0

NOSC LA POSTA 2.0 CM

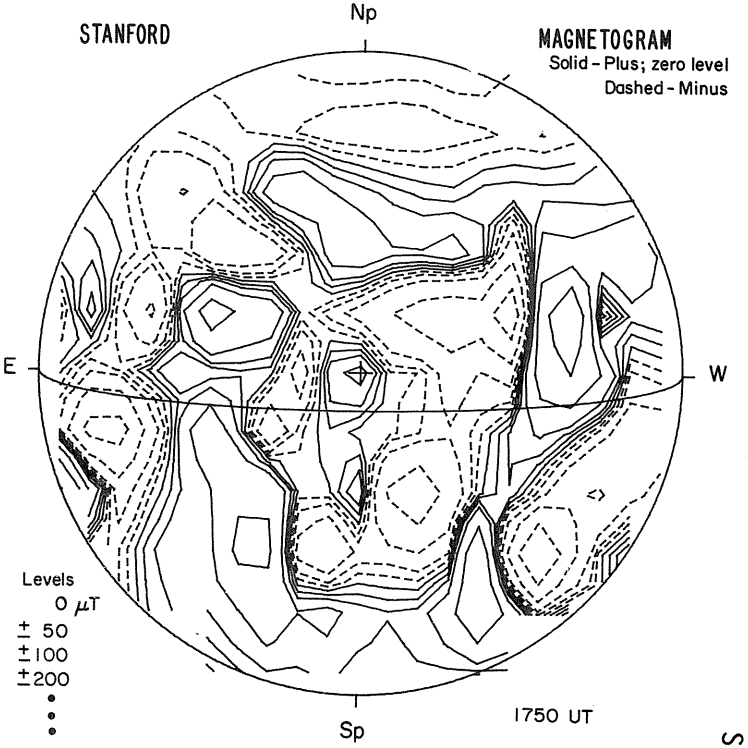


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



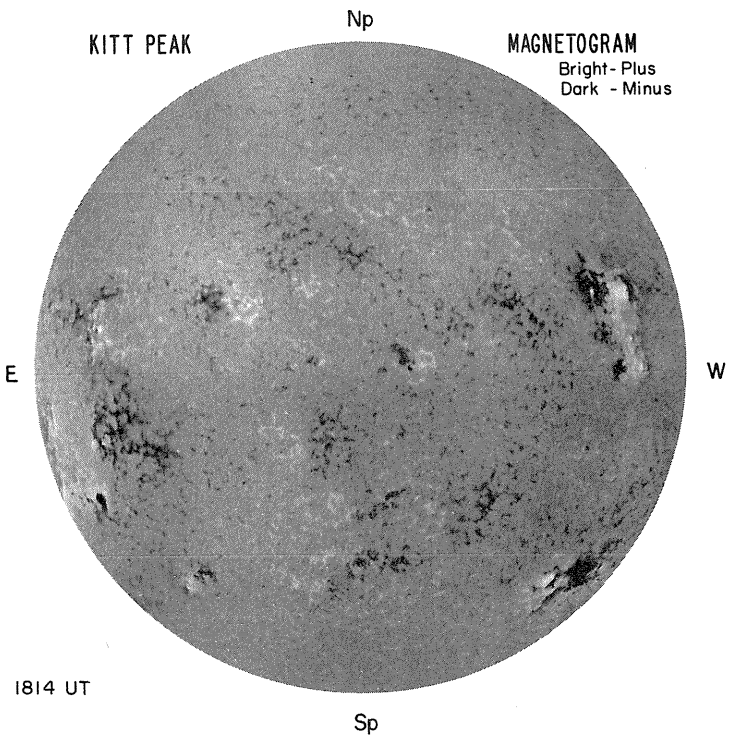
1750 UT

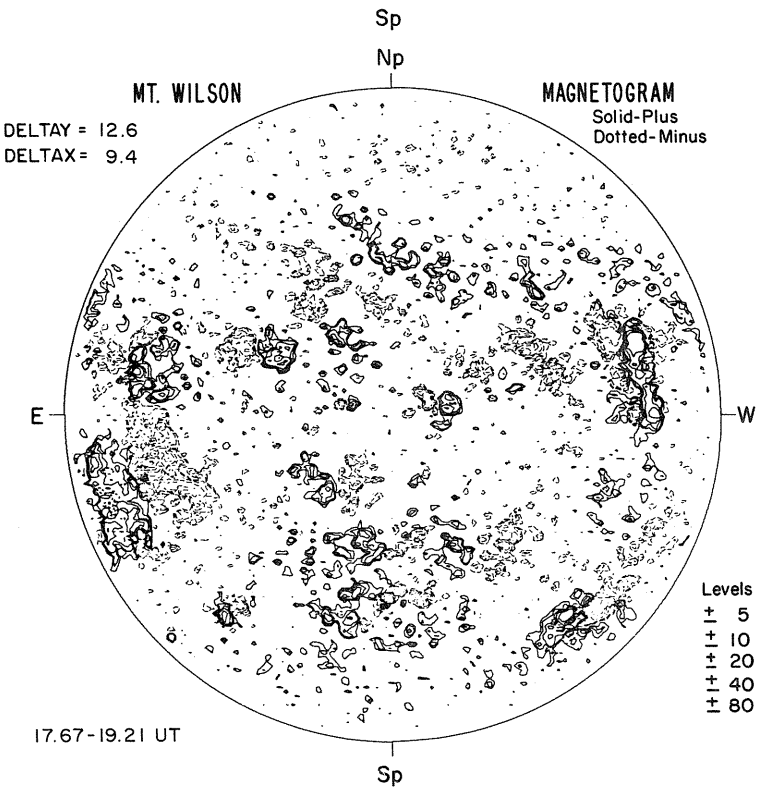
97
Sep 80

SEPTEMBER 25, 1980 (P = 25.51, B_o = 6.95, L_o = 6.42)

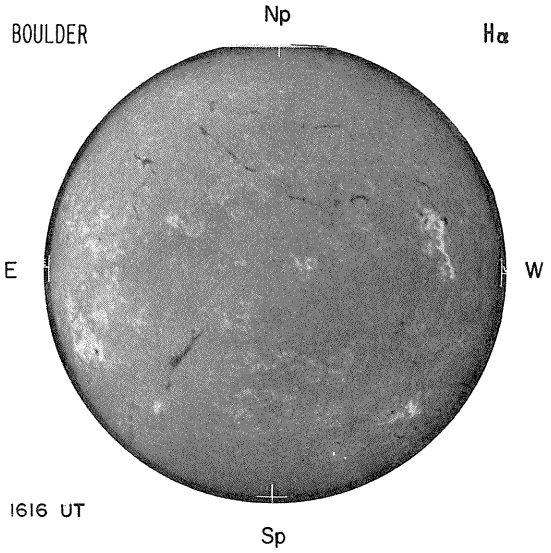
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA 25-30 SEPTEMBER W



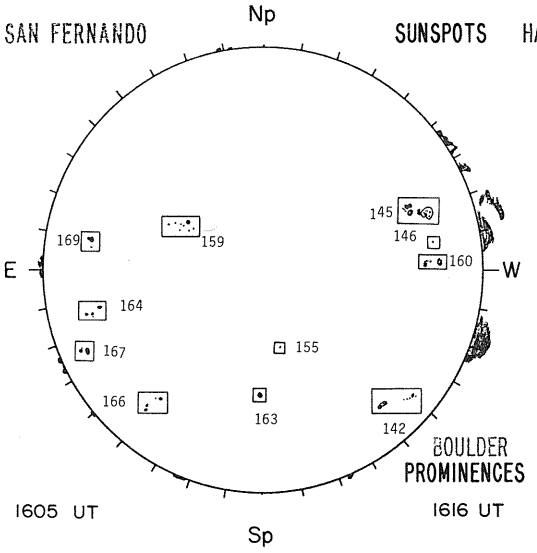


BOULDER Hα



1616 UT

SAN FERNANDO SUNSPOTS

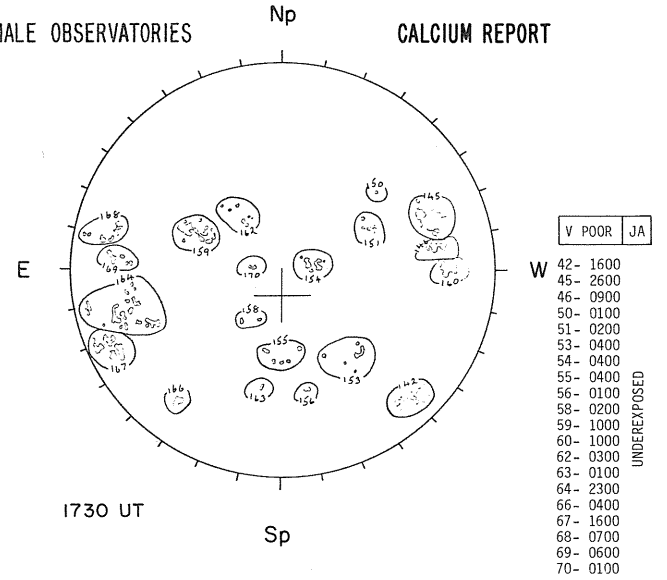


1605 UT

BOULDER PROMINENCES

1616 UT

HALE OBSERVATORIES CALCIUM REPORT



1730 UT

NOSC LA POSTA 2.0 CM

Np

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

Np

NO DATA

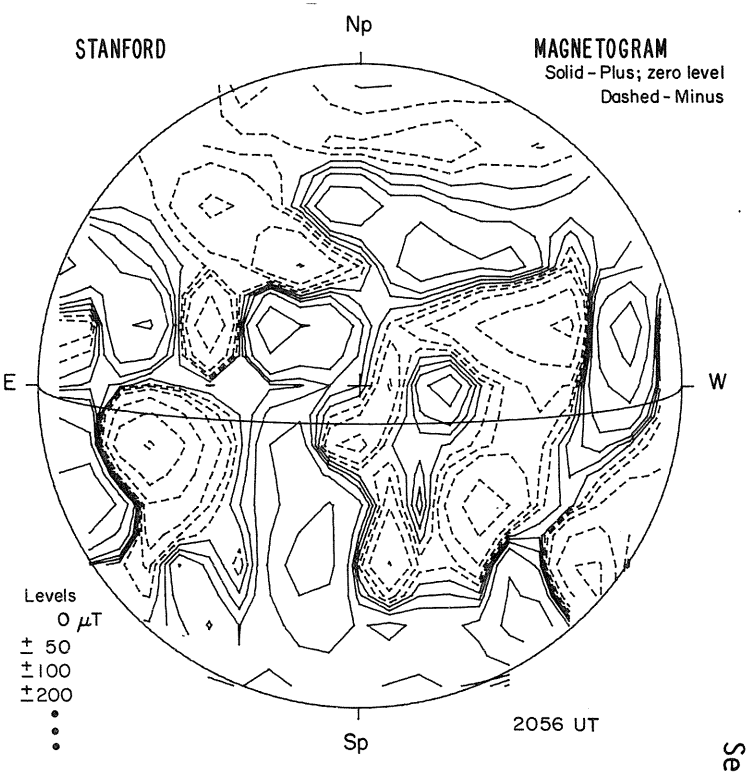
E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



2056 UT

SEPTEMBER 26, 1980 (P = 25.61, B_o = 6.91, L_o = 353.22)

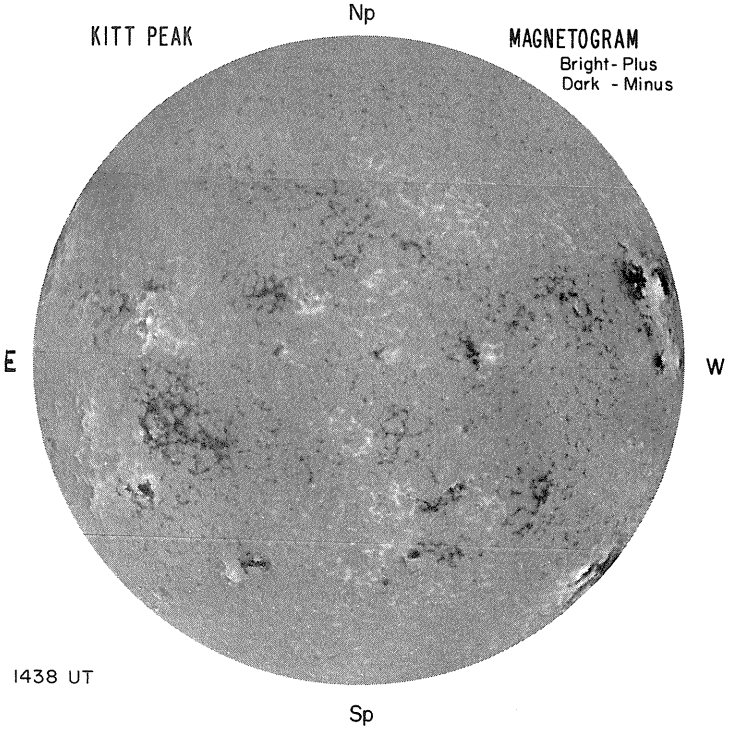
SACRAMENTO PEAK

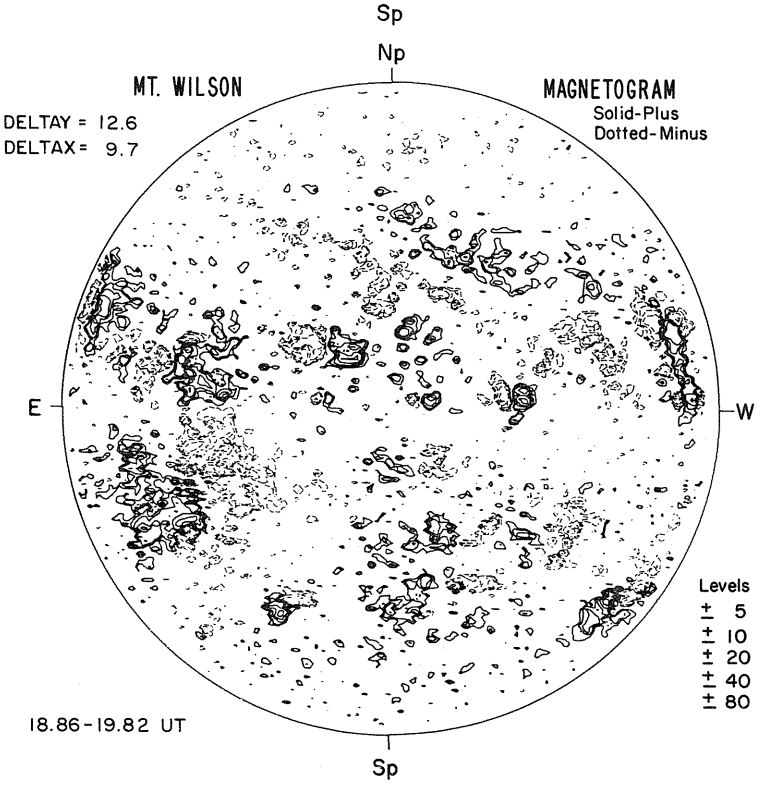
Np

CORONA (1.15 $R_\odot$)
5303 Å

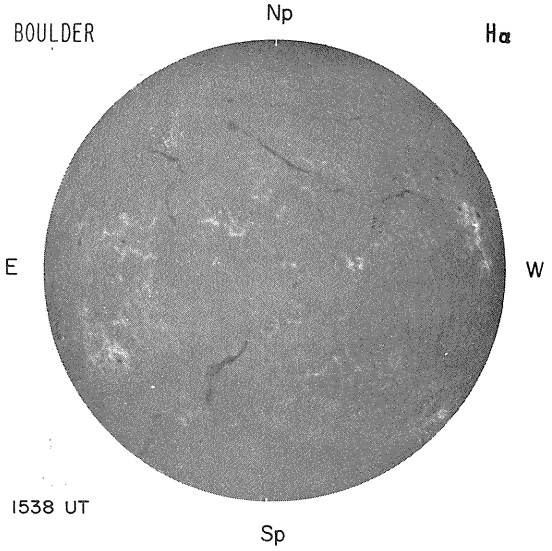
E

W



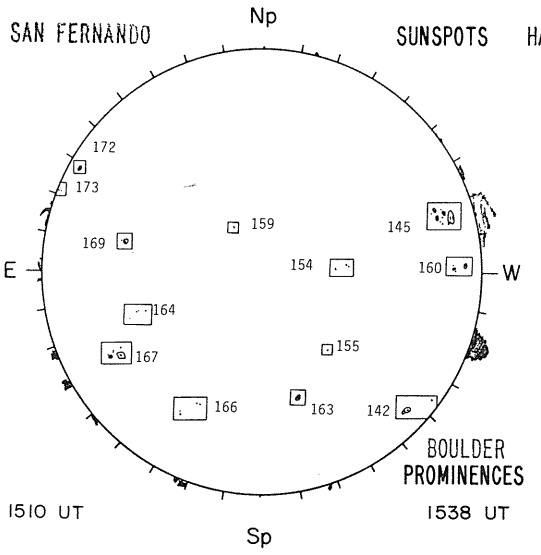


BOULDER Hα



1538 UT

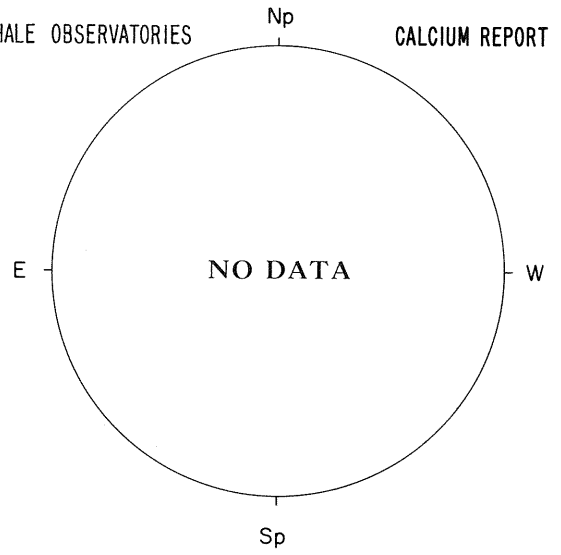
SAN FERNANDO SUNSPOTS



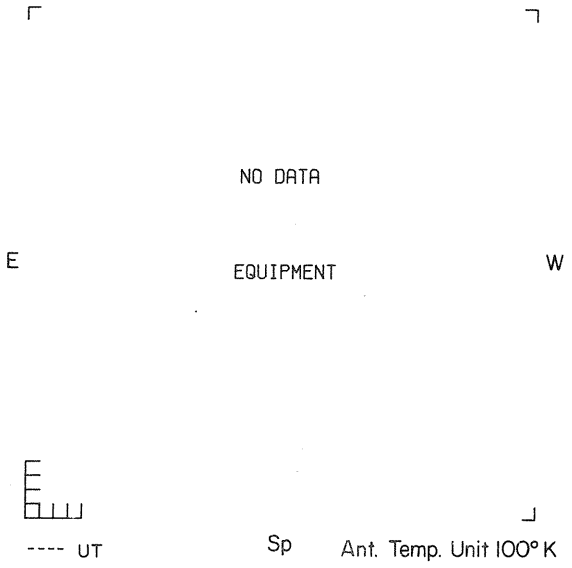
BOULDER PROMINENCES

1510 UT 1538 UT

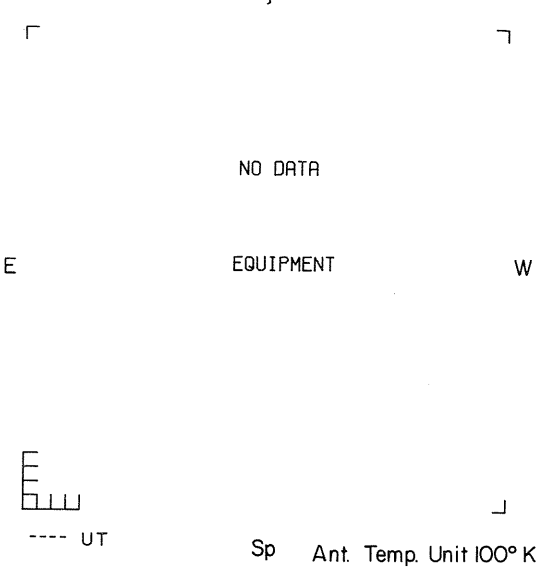
HALE OBSERVATORIES CALCIUM REPORT



NOSC LA POSTA 2.0 CM

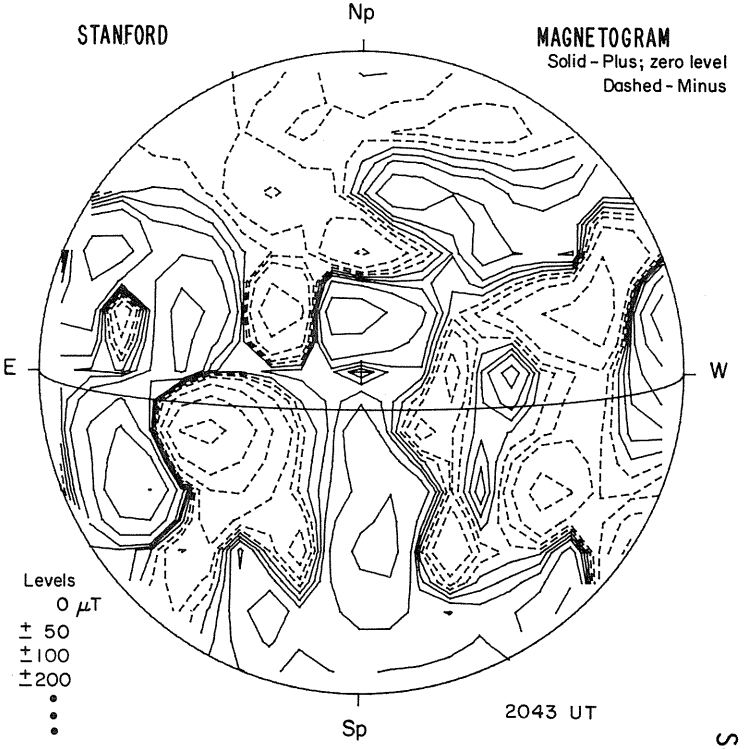


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

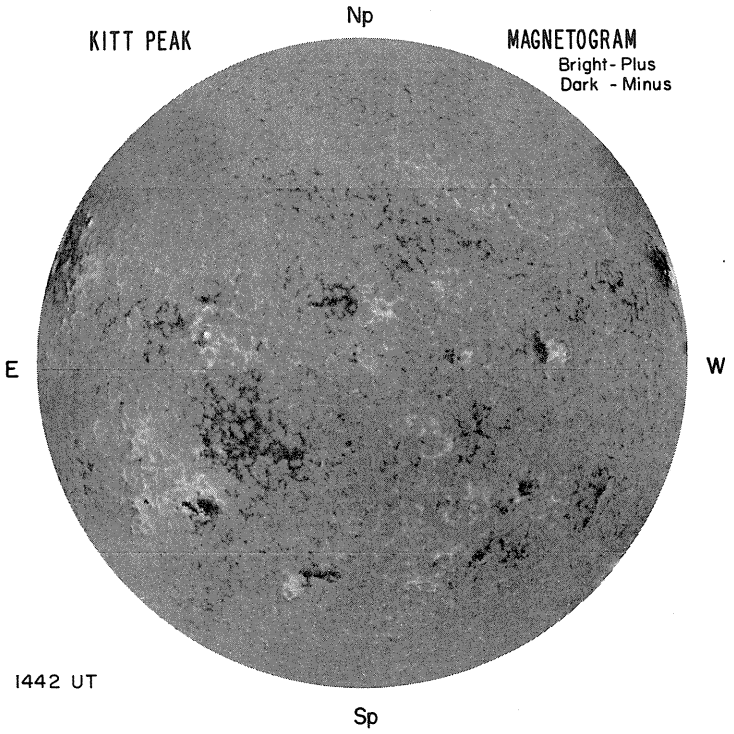


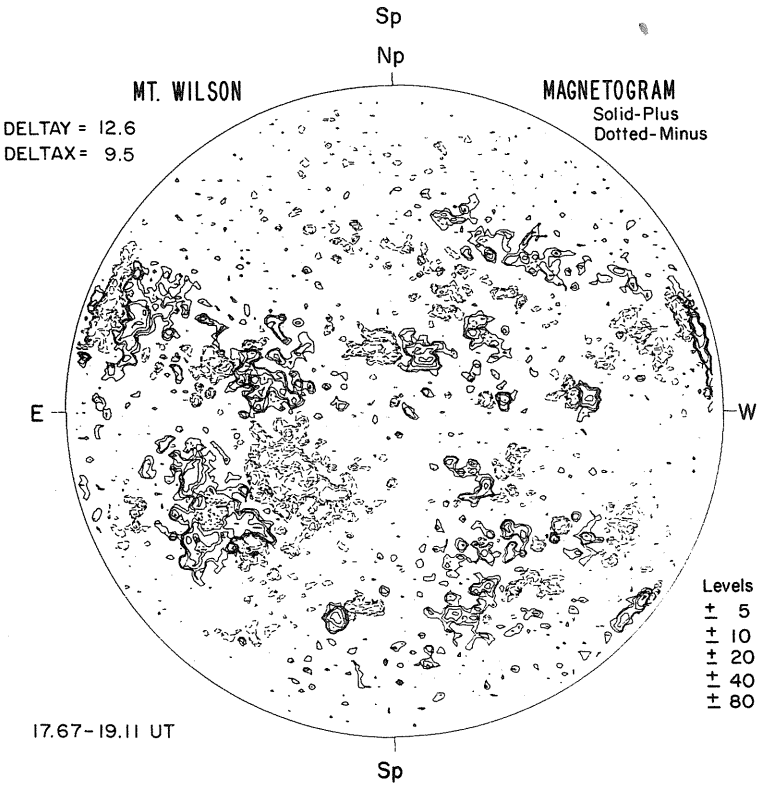
2043 UT

SEPTEMBER 27, 1980 (P = 25.71, B_o = 6.87, L_o = 340.03)

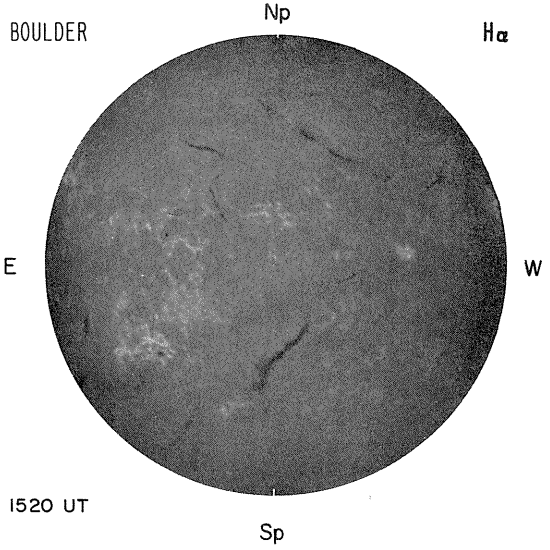
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W



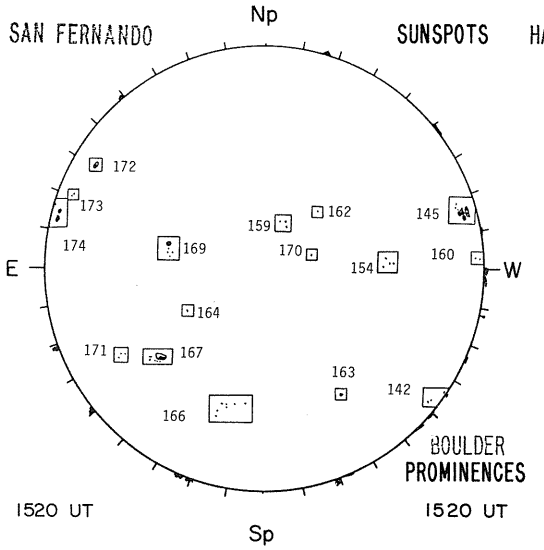


BOULDER Hα



1520 UT

SAN FERNANDO SUNSPOTS

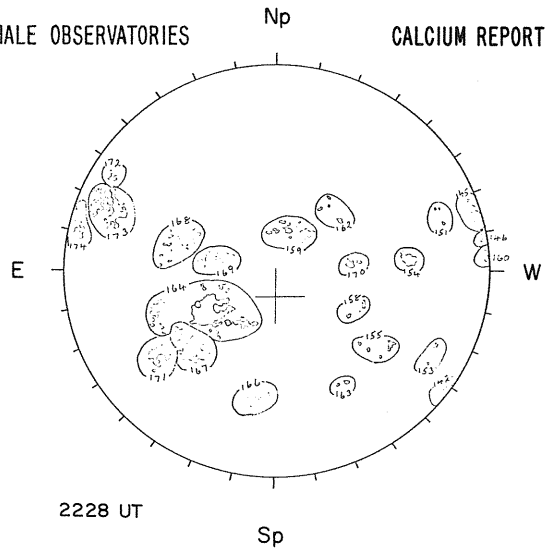


1520 UT

BOULDER PROMINENCES

1520 UT

HALE OBSERVATORIES CALCIUM REPORT



2228 UT

POOR	JA
42-	1000-3.0
45-	1400-3.5
46-	0100-3.0
53-	0200-2.5
54-	0600-3.5
55-	0300-2.5
58-	0300-2.5
59-	0700-3.0
60-	0300-3.0
62-	0300-2.5
63-	0100-2.5
64-	4400-3.0
66-	0600-3.5
67-	1900-3.5
68-	0800-3.0
69-	0600-3.0
70-	0200-3.0
71-	1000-3.5
72-	0300-3.0
73-	2700-3.5
74-	1100-4.0

NOSC LA POSTA 2.0 CM

Np

NO DATA

SCHEDULE

E W

Sp

---- UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

Np

NO DATA

SCHEDULE

E W

Sp

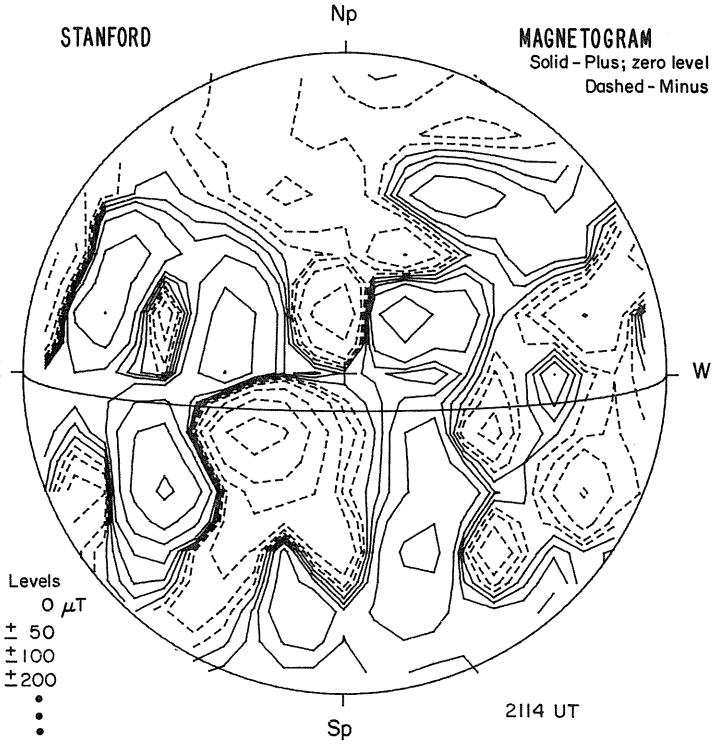
---- UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

± 100

± 200

2114 UT

SEPTEMBER 28, 1980 (P = 25.79, B_o = 6.83, L_o = 326.83)

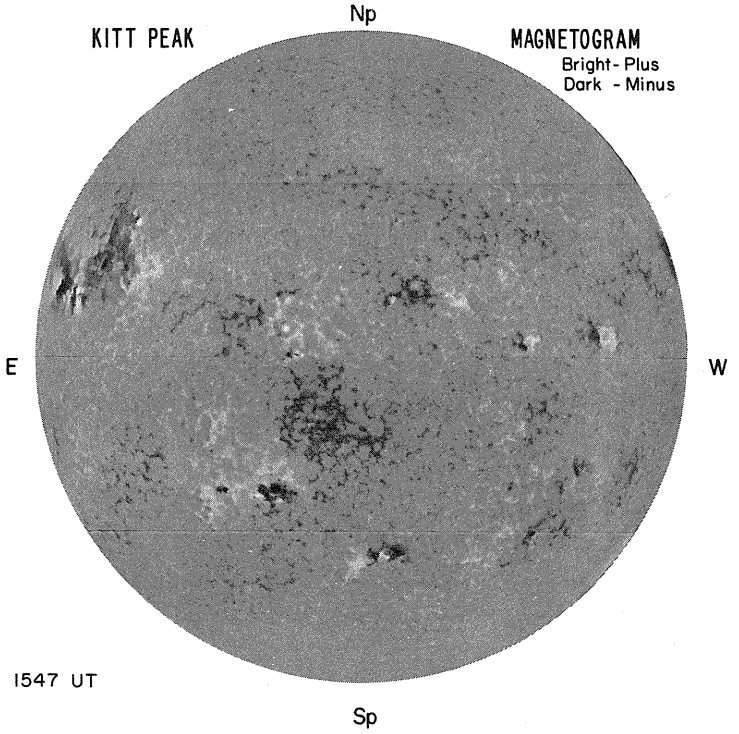
SACRAMENTO PEAK

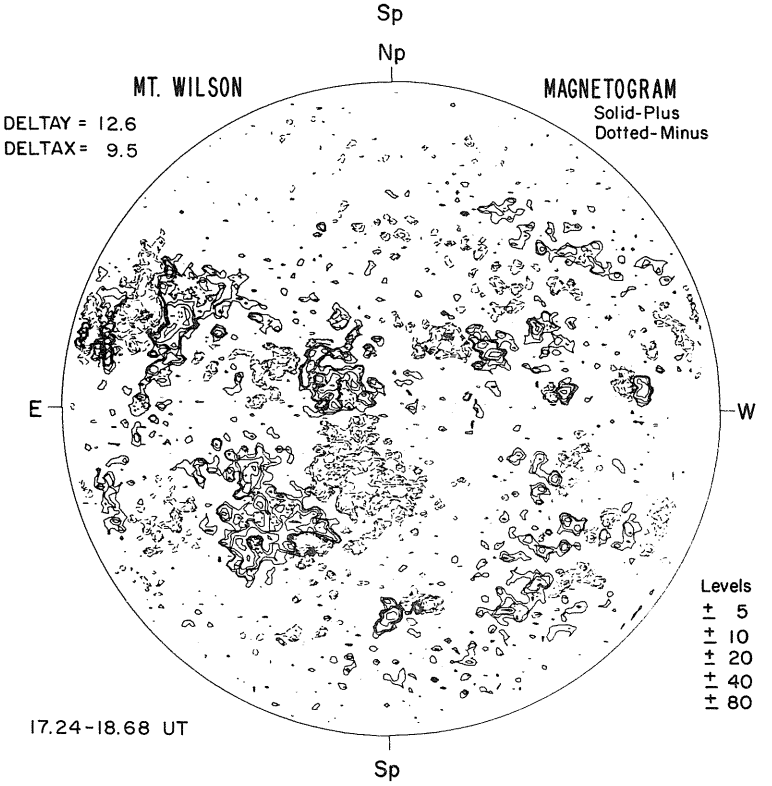
Np

CORONA (1.15 $R_\odot$)
5303 Å

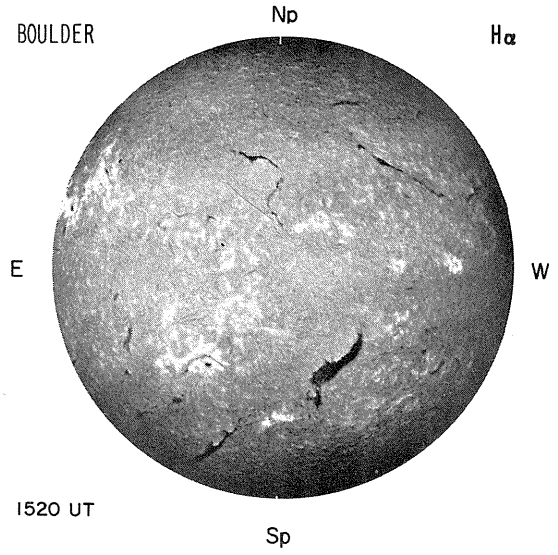
E

W



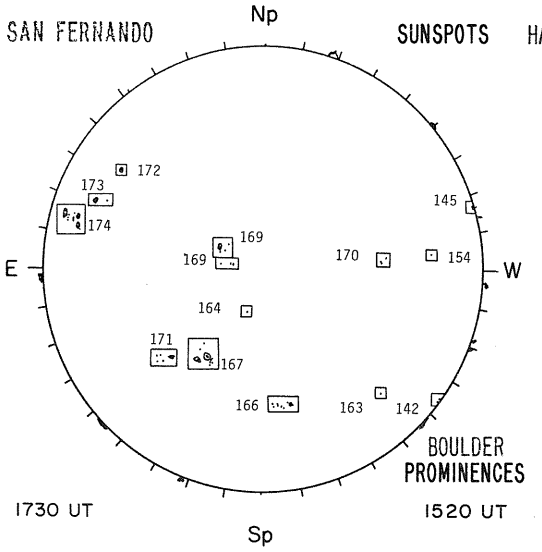


BOULDER Hα



1520 UT

SAN FERNANDO SUNSPOTS

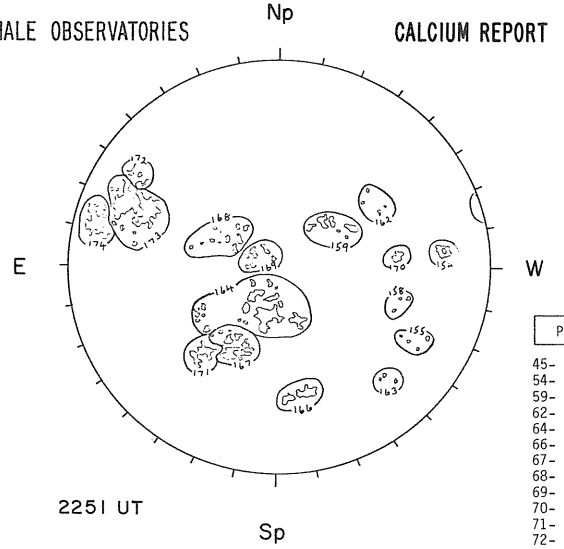


1730 UT

BOULDER PROMINENCES

1520 UT

HALE OBSERVATORIES CALCIUM REPORT

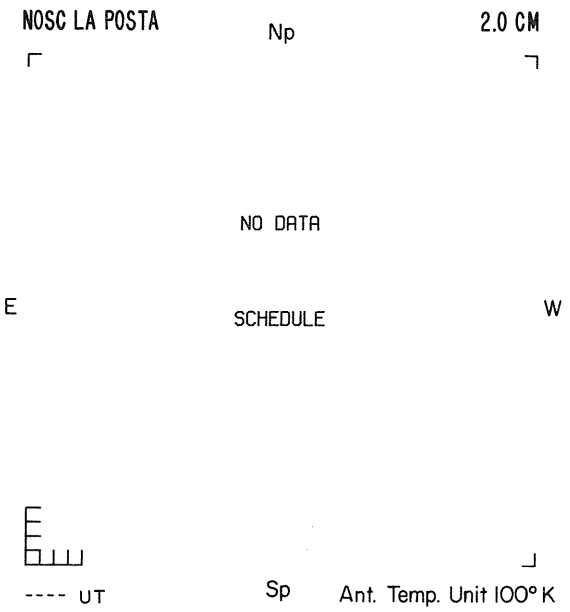


2251 UT

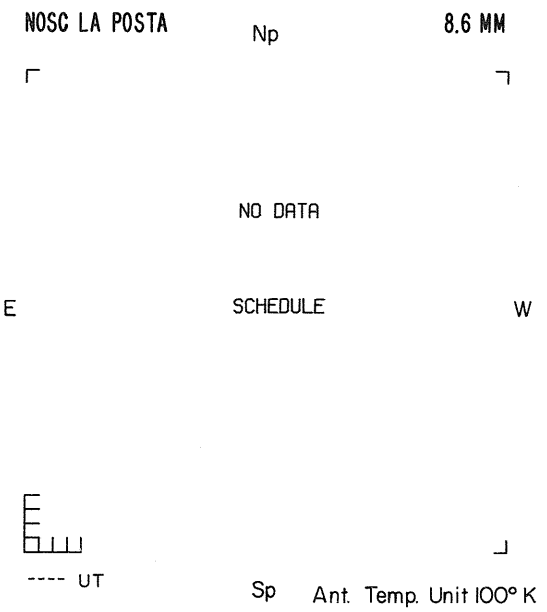
POOR	JA

45- 0500-3.0
54- 0600-3.0
59- 1000-3.0
62- 0200-2.5
64- 3000-3.0
66- 1000-3.5
67- 1400-3.5
68- 0800-3.0
69- 0500-3.0
70- 0300-3.0
71- 0900-3.5
72- 0600-3.0
73- 5500-3.5
74- 2000-4.0

NOSC LA POSTA 2.0 CM

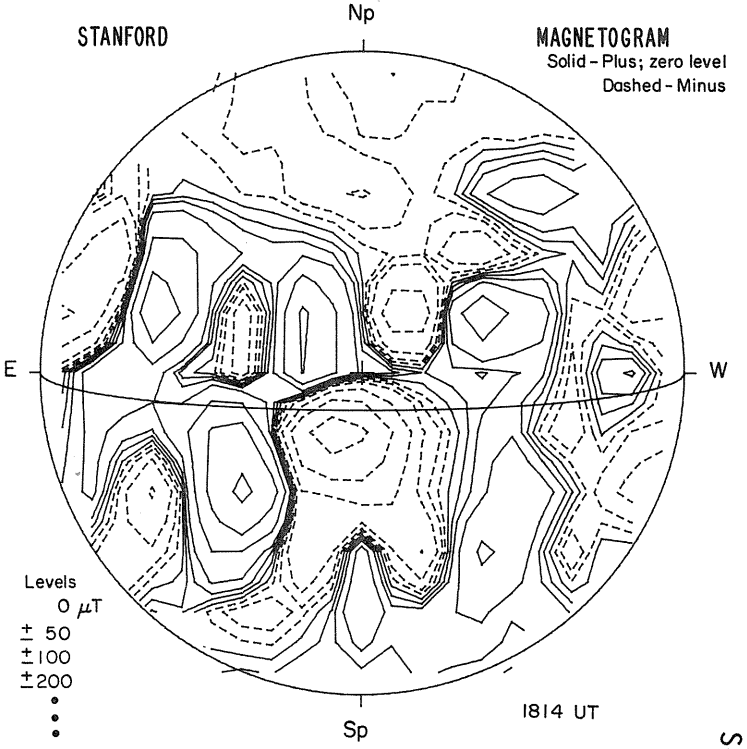


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1814 UT

105
Sep 80

SEPTEMBER 29, 1980 (P = 25.88, B_o = 6.79, L_o = 313.63)

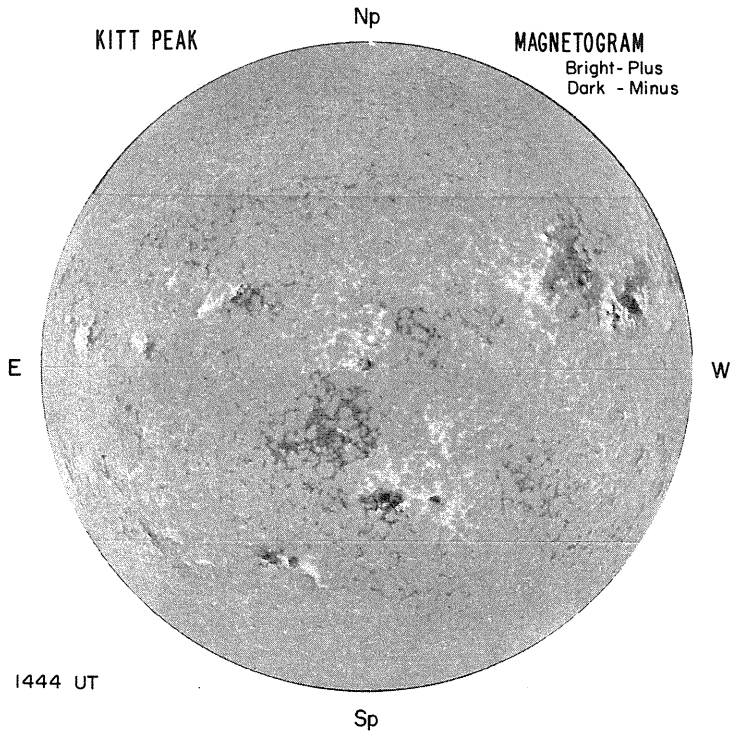
SACRAMENTO PEAK

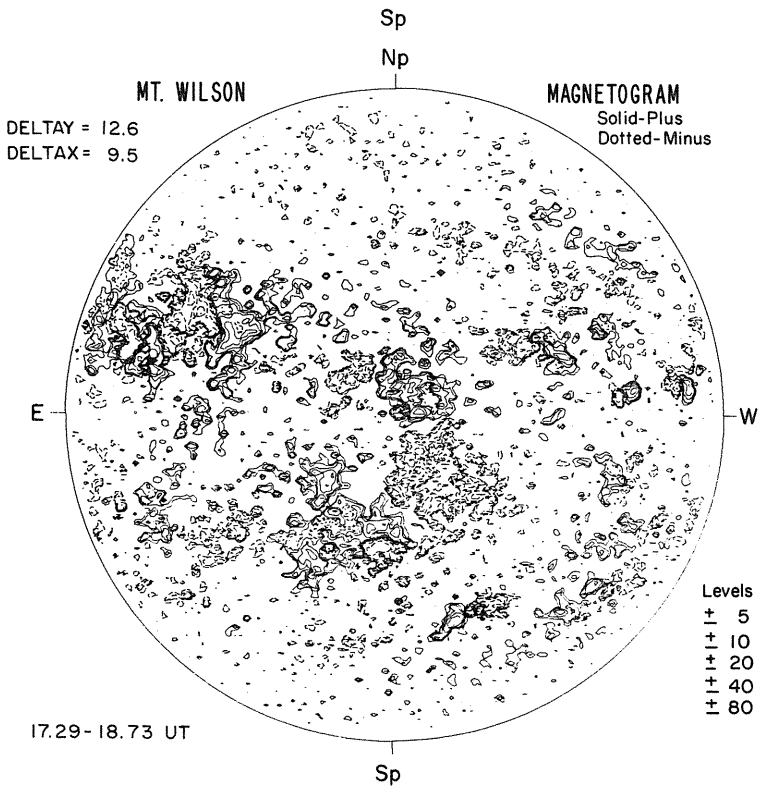
Np

CORONA (1.15 $R_\odot$)
5303 Å

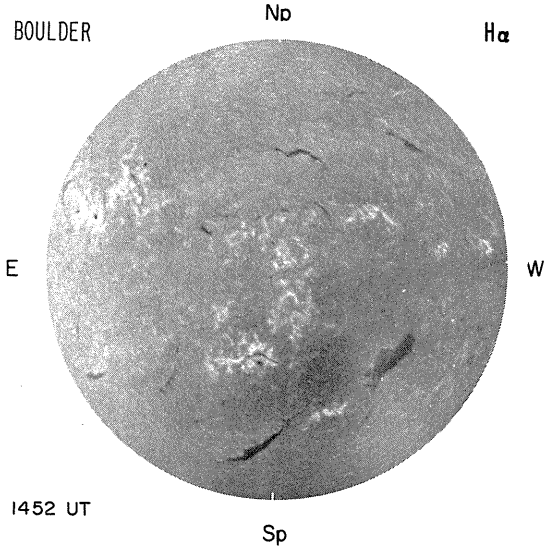
E

W



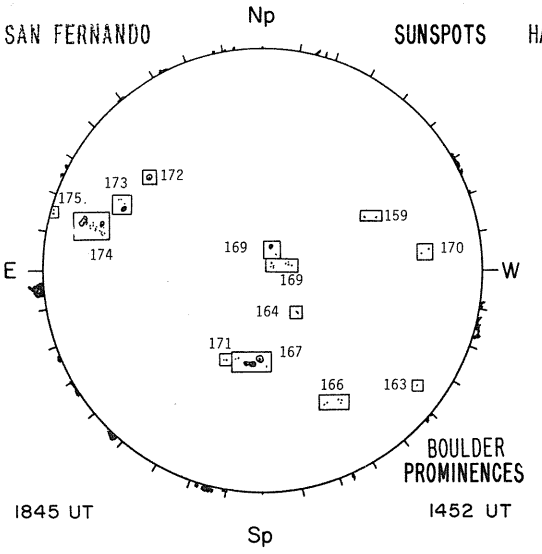


BOULDER Hα



1452 UT

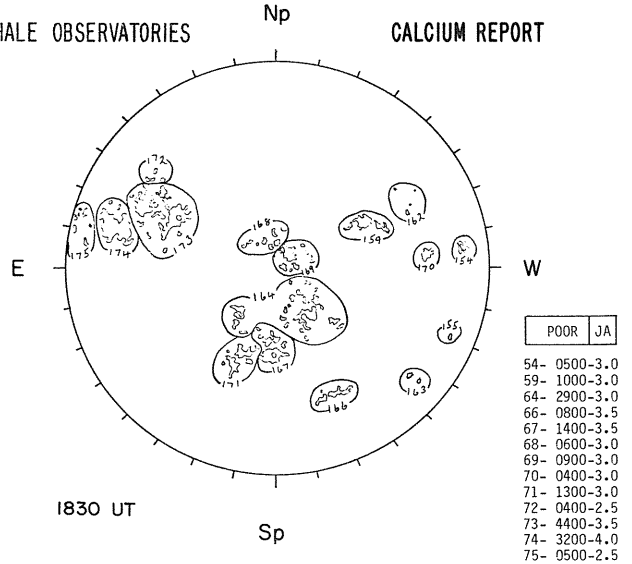
SAN FERNANDO SUNSPOTS



BOULDER PROMINENCES

1845 UT 1452 UT

HALE OBSERVATORIES CALCIUM REPORT



1830 UT

POOR	JA

54- 0500-3.0
59- 1000-3.0
64- 2900-3.0
66- 0800-3.5
67- 1400-3.5
68- 0600-3.0
69- 0900-3.0
70- 0400-3.0
71- 1300-3.0
72- 0400-2.5
73- 4400-3.5
74- 3200-4.0
75- 0500-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

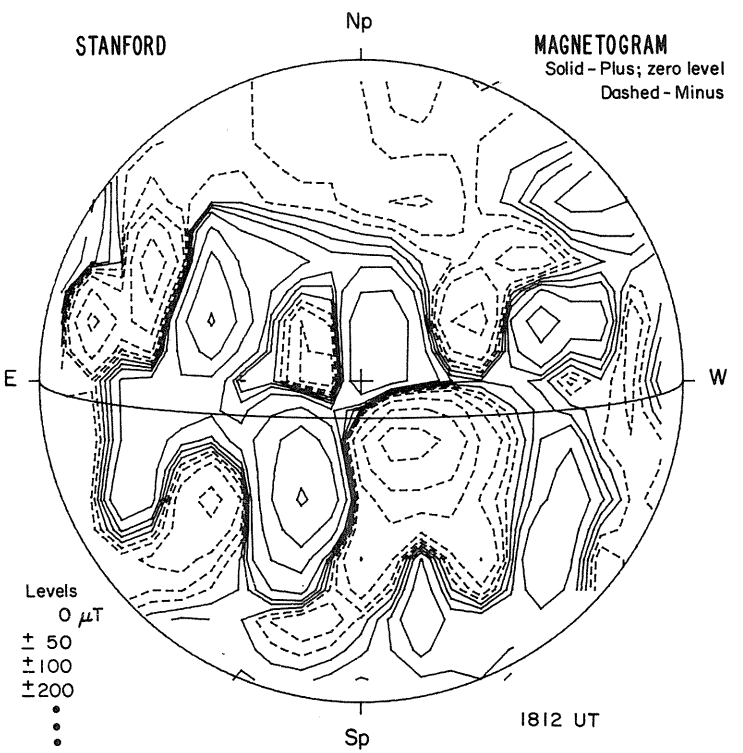
NOSC LA POSTA Np 8.6 MM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
± 100
± 200

1812 UT

SEPTEMBER 30, 1980 (P = 25.95, B_o = 6.74, L_o = 300.44)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

W

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1525 UT

Sp

Sp

Np

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

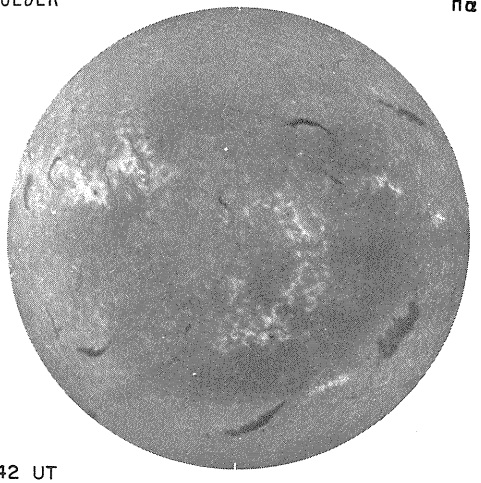
NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

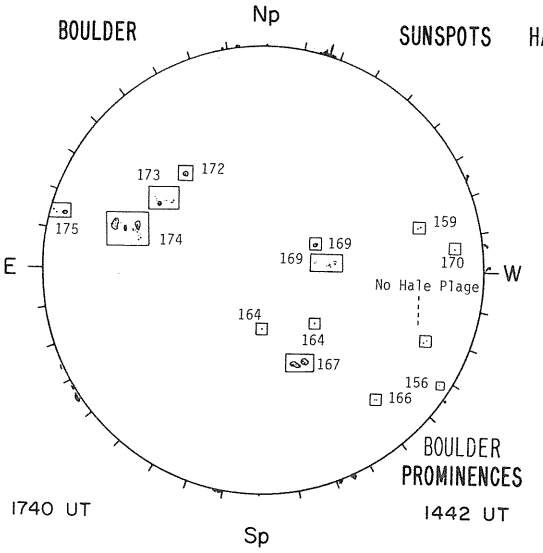
Sp

BOULDER Hα



1442 UT

BOULDER SUNSPOTS

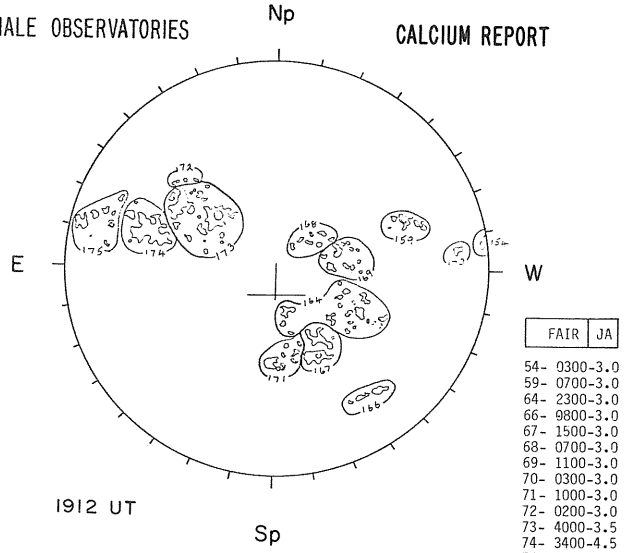


1740 UT

BOULDER PROMINENCES

1442 UT

HALE OBSERVATORIES CALCIUM REPORT

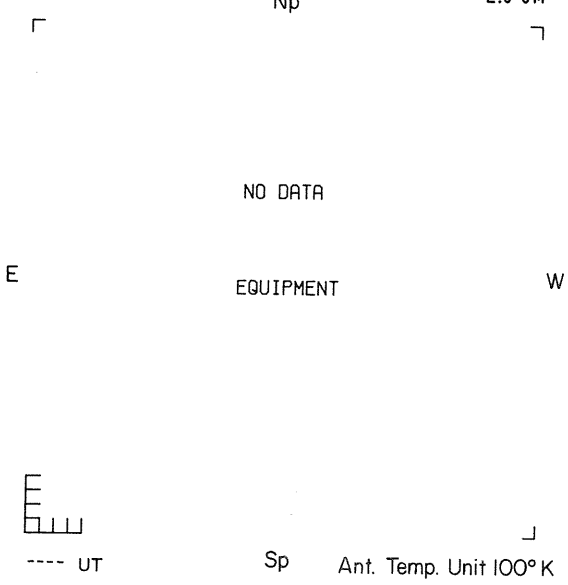


1912 UT

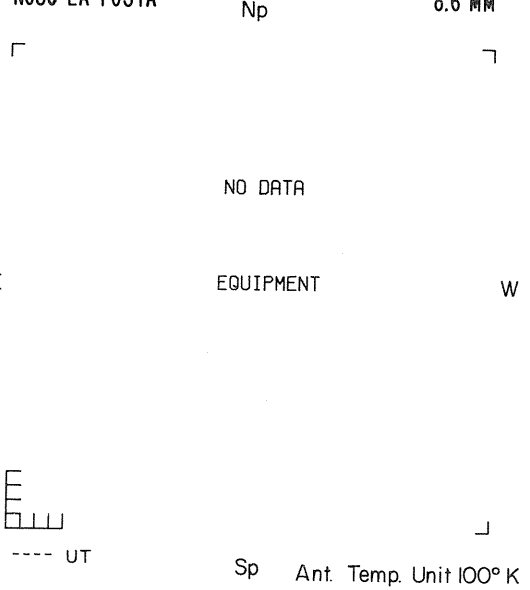
FAIR	JA

54- 0300-3.0
59- 0700-3.0
64- 2300-3.0
66- 0800-3.0
67- 1500-3.0
68- 0700-3.0
69- 1100-3.0
70- 0300-3.0
71- 1000-3.0
72- 0200-3.0
73- 4000-3.5
74- 3400-4.5
75- 1600-3.5

NOSC LA POSTA 2.0 CM

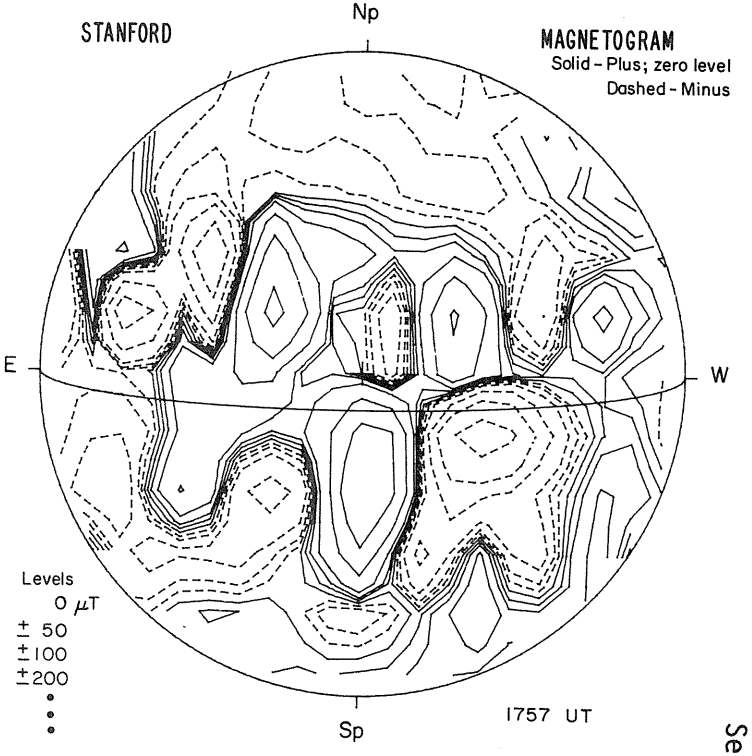


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



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REGIONS OF SOLAR ACTIVITY

SEPEMBER 1980

HALE REGION 17087 CMP DATE 1.0

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	08	31	17087	S13	E05	321	100	3.0	21708	S12	E04	323	(B)	2				
80	09	1	17087	S13	W10	322	200	3.0	21708	S12	W08	323	(AP)	2	H		1	AXX

HALE REGION 17104 CMP DATE 2.6

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	4	17104	S18	W27	301	100	3.0	21722	S18	W34	309	(AP)	2				

HALE REGION 17089 CMP DATE 2.7 NEW REGION IN LOCATION OF 17027&17023

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	08	27	17089	S08	E79	301	500	3.5	21700	S06	E78	302	(AP)	3	B	350	3	DHO
80	08	28	17089	S06	E68	298	1700	3.5	21700	S07	E67	300	(B)	4	B	440	12	FSI
80	08	29	17089	S07	E55	298	3400	4.0	21700	S08	E55	298	(BP)	5	H	990	16	EKI
80	08	30	17089	S07	E42	298	5000	3.5	21700	S10	E43	298	(BP)	5	H	790	39	EAI
80	08	31	17089	S07	E27	299	5600	4.0	21700	S08	E27	300	(BY)	5	H	790	68	EAI
80	09	1	17089	S07	E14	298	6200	4.0	21700	S07	E15	300	(D)	5	H	620	66	EKI
80	09	2	17089	S07	W01	300	5400	3.5	21700	S08	E02	299	(D)	5	H	780	58	EKI
80	09	3	17089	S07	W14	300	5300	3.5	21700	S07	W14	302	(D)	5	B	620	38	EKI
80	09	4	17089	S07	W25	299	4100	3.5	21700	S07	W26	301	(D)	5	B	660	63	FKC
80	09	5	17089						21700	S07	W39	300	(BY)	5	B	690	34	EKI
80	09	6	17089	S07	W54	300	3800	3.5	21700	S07	W54	302	(BY)	5	B	480	20	EKI
80	09	7	17089	S07	W65	299	3600	3.5	21700	S07	W66	301	(B)	5	B	420	7	DKI
80	09	8	17089	S09	W78	299	3500	3.5	21700	S07	W80	302	B	3	H	480	4	EKO

HALE REGION 17098 CMP DATE 3.1 NEW REGION IN LOCATION OF 17022&17025

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	08	27	17098	N11	E80	300	300	3.5		N10	E80				B	10	1	AXX
80	08	28	17098	N13	E68	298	2200	4.0	21702	N11	E66	301	(BP)	4	B	90	6	CSO
80	08	29	17098	N13	E55	298	1400	3.5	21702	N11	E55	298	(BP)	5	H	480	7	FKI
80	08	30	17098	N13	E43	297	2200	4.0	21702	N09	E42	299	(BP)	5	H	630	18	FAO
80	08	31	17098	N13	E28	298	2400	3.5	21702	N12	E29	298	(D)	5	H	860	20	EKI
80	09	1	17098	N13	E15	297	4700	3.5	21702	N12	E16	299	(D)	5	H	870	24	EKI
80	09	2	17098	N13	E04	295	2500	3.5	21702	N12	E04	297	(D)	5	H	700	33	EKI
80	09	3	17098	N13	W10	296	3200	3.5	21702	N12	W10	298	(D)	5	B	580	17	EKI
80	09	4	17098	N12	W24	298	3000	3.5	21702	N12	W23	298	(D)	5	B	540	26	EKI
80	09	5	17098						21702	N11	W36	297	(BY)	5	B	660	16	EKO
80	09	6	17098	N12	W51	297	3200	3.0	21702	N11	W49	297	(B)	4	B	550	22	EKI
80	09	7	17098	N13	W62	296	3200	3.5	21702	N11	W62	297	(B)	5	B	240	8	EAO
80	09	8	17098	N13	W73	294	1700	3.5	21702	N11	W76	298	(B)	4	H	310	3	EAO
80	09	9	17098	N13	W79	287	400	3.0	21702	N11	W85	293	AF	2	R	190	1	HSX

HALE REGION 17100 CMP DATE 3.8

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	08	28	17100	S06	E78	288	400	4.0		S07	E80				B	120	1	HSX
80	08	29	17100	S07	E66	287	1500	4.0	21705	S05	E67	286	(AP)	3	H	150	6	CAO
80	08	30	17100	S06	E54	286	1100	4.0	21705	S05	E54	287	(AP)	5	H	240	19	CSO
80	08	31	17100	S06	E38	288	2600	3.5	21705	S05	E40	287	(BF)	5	H	240	18	CSO
80	09	1	17100	S05	E26	286	2500	3.5	21705	S05	E27	288	(BY)	5	B	240	6	DSO
80	09	2	17100	S05	E13	286	1600	3.0	21705	S05	E14	287	(BF)	5	H	170	3	CHO
80	09	3	17100	S05	E00	286	1600	3.0	21705	S05	E01	287	(AF)	5	P	200	5	CSO
80	09	4	17100	S06	W14	288	1500	3.5	21705	S05	W13	288	(AF)	5	B	130	4	CSO

CONT

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HALE REGION 17100 (CONT) CMP DATE 3.8

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	5	17100						21705	S05	W26	287	(AF)	5	B	130	2	CSO
80	09	6	17100	S06	W42	288	1100	3.0	21705	S05	W40	288	(AF)	4	B	140	2	CSO
80	09	7	17100	S05	W52	286	1400	3.5	21705	S05	W53	288	(AF)	5	B	160	1	HSX
80	09	8	17100	S05	W64	285	500	3.0	21705	S05	W67	289	(AF)	4	H	80	1	HSX
80	09	9	17100	S06	W75	283	400	2.5	21705	S05	W80	288	AF	2	R	120	1	HSX

HALE REGION 17125 CMP DATE 4.5

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	1	17125	S12	E35	277	200	2.5		S15	E27				H	190	9	DKO
80	09	2	17125	S12	E23	276	100	2.5										
80	09	3	17125	S12	E13	273	200	2.0		S08	E14				P	1010	57	EKI
80	09	4	17125	S14	W02	276	200	2.5										
80	09	6	17125	S14	W28	274	200	2.0										

HALE REGION 17092 CMP DATE 5.1 NEW REGION IN LOCATION OF 17029

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	08	30	17092	N22	E72	268	300	3.0										
80	08	31	17092	N22	E59	267	300	3.5	21709	N23	E62	265	(AF)	2				
80	09	1	17092	N22	E44	268	1000	3.5	21709	N21	E46	269	(BF)	4	H	80	12	DAO
80	09	2	17092	N22	E31	268	1000	3.5	21709	N22	E33	268	(B)	4	H	160	22	DSO
80	09	3	17092	N22	E17	269	1400	3.5	21709	N22	E20	268	(B)	4	B	110	10	DSI
80	09	4	17092	N22	E05	269	1200	3.5	21709	N22	E05	270	(B)	4	B	120	25	CAI
80	09	5	17092						21709	N22	W06	267	(B)	4	P	170	18	ESO
80	09	6	17092	N22	W24	270	1900	3.5	21709	N22	W20	268	(B)	4	B	210	33	DAI
80	09	7	17092	N23	W35	269	1900	3.5	21709	N23	W34	269	(B)	5	B	340	20	EKI
80	09	8	17092	N23	W47	268	1800	3.5	21709	N23	W46	268	(B)	4	H	310	9	EKO
80	09	9	17092	N23	W58	266	2200	3.0	21709	N23	W60	268	(B)	4	R	600	22	EKO
80	09	10	17092	N22	W72	266	2300	3.0	21709	N23	W70	266	(B)	4	R	410	20	EAO
80	09	11	17092	N23	W86	267	900	3.0	21709	N23	W82	264	B	2	H	5090	2	DSO

HALE REGION 17094 CMP DATE 5.2 NEW REGION IN LOCATION OF 17034

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	08	31	17094						21710	N10	E59	268	(AP)	2	H	10	2	CSO
80	09	1	17094	N13	E45	267	200	2.5	21710	N11	E46	269	(AP)	3	H	10	1	AXX
80	09	2	17094	N13	E33	266	100	2.5										
80	09	3	17094	N13	E21	265	200	2.5		N14	E31				P	20	1	AXX
80	09	4	17094	N14	E07	267	100	3.0										

HALE REGION 17097 CMP DATE 5.8

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	08	30	17097	S12	E78	262	400	3.0		S11	E78				H	60	2	CSO
80	08	31	17097	S12	E66	260	800	3.5	21712	S11	E66	261	(AP)	3	H	40	1	HSX
80	09	1	17097	S12	E50	262	1000	3.5	21712	S11	E54	261	(AP)	3	H	30	3	CSO
80	09	2	17097	S12	E39	260	600	3.5	21712	S12	E40	261	(AP)	3	B	20	1	HRX
80	09	3	17097	S12	E25	261	400	3.5	21712	S12	E27	261	(B)	2	B	20	1	HRX
80	09	4	17097	S13	E15	259	900	3.0	21712	S11	E12	263	(B)	2	B	10	3	BXO
80	09	5	17097						21712	S12	W02	263	(AP)	2	P	10	2	HXX
80	09	6	17097	S13	W14	260	700	3.0										
80	09	7	17097	S13	W25	259	700	3.0										
80	09	8	17097	S13	W38	259	500	3.0										
80	09	9	17097	S13	W51	259	500	3.0										

CONT

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HALE REGION 17097 (CONT) CMP DATE 5.8

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	10	17097	S13	W65	259	400	2.0										

HALE REGION 17101 CMP DATE 6.2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	1	17101	N12	E58	254	300	3.5		N12	E61				H	40	2	CSO
80	09	2	17101	N12	E46	253	200	3.0		N13	E46				H	10	3	CRO
80	09	3	17101	N12	E32	254	100	3.0		N13	E32				B	20	1	AXX

HALE REGION 17134 CMP DATE 6.3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	3	17134	N17	E37	249	100	2.5		N18	E42				B	40	3	CRO
80	09	4	17134	N16	E22	252	300	3.0		N13	E21				B	10	3	BXO
80	09	6	17134	N15	W08	254	300	3.5	21723	N10	W08	256	(AP)	2				
80	09	7	17134	N16	W18	252	300	3.0		N17	W12				B	20	3	BXO
80	09	8	17134	N14	W33	254	300	3.0		N18	W28				H	50	13	CRO
80	09	9	17134	N14	W46	254	200	2.5		N17	W38				R	30	7	BXO

HALE REGION 17093 CMP DATE 6.6 NEW REGION IN LOCATION OF 17037

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	08	31	17093	N14	E76	250	400	3.0	21711	N14	E75	252	(B)	2	H	20	4	CSO
80	09	1	17093	N16	E64	248	400	3.0	21711	N14	E61	254	(B)	4	H	40	2	CSO
80	09	2	17093	N17	E51	248	500	3.0	21711	N14	E47	254	(BP)	3	H	10	3	CRO
80	09	3	17093	N17	E43	243	300	3.5	21711	N14	E33	255	(AP)	3	B	20	1	AXX
80	09	3	17093	N17	E43	243	300	3.5	21721	N18	E43	245	(B)	3	B	40	3	CRO
80	09	4	17093	N17	E26	248	700	3.0	21711	N15	E21	254	(BP)	3	B	10	3	BXO
80	09	4	17093	N17	E26	248	700	3.0	21721	N18	E28	247	(B)	3	B	20	10	BXI
80	09	5	17093						21721	N18	E15	246	(B)	3	B	10	8	BXO
80	09	5	17093						21711	N15	E11	250	(B)	3	B	10	5	BXO
80	09	6	17093	N17	W04	250	900	3.5	21711	N15	W03	251	(B)	2	B	20	11	BXO
80	09	6	17093	N17	W04	250	900	3.5	21721	N19	E03	245	(B)	3	B	10	3	AXX
80	09	7	17093	N18	W14	248	700	3.5	21721	N21	W08	243	(B)	3	B	10	1	AXX
80	09	8	17093	N18	W27	248	600	3.0	21721	N18	W26	248	(B)	3	H	50	13	CRO
80	09	9	17093	N18	W39	247	600	3.0	21721	N20	W39	247	(B)	2	R	30	7	BXO
80	09	10	17093	N18	W53	247	600	3.0	21721	N20	W51	247	(B)	3	R	70	7	CRO
80	09	11	17093	N19	W68	249	500	2.5	21721	N20	W65	247	(B)	3	H	20	3	CSO
80	09	12	17093	N19	W80	248	200	2.5										

HALE REGION 17135 CMP DATE 6.6 NEW REGION IN LOCATION OF LEADING EDGE OF REGION 17039

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	4	17135	S28	E26	248	100	2.5										
80	09	6	17135	S28	W03	249	100	2.5										
80	09	7	17135	S28	W14	248	200	2.5										
80	09	8	17135	S28	W26	247	200	2.5										
80	09	9	17135	S28	W38	246	100	2.5										
80	09	10	17135	S28	W52	246	100	2.0										

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HALE REGION 17138 CMP DATE 7.4

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	8	17138	S12	W18	239	300	2.0	21730	S11	W18	240	(AP)	3	H	10	2	BXO
80	09	9	17138	S12	W32	240	200	2.5	21730	S12	W35	243	(AP)	2	R	30	7	BXO
80	09	10	17138	S12	W47	241	200	2.5										
80	09	11	17138	S10	W63	244	300	2.5	21738	S10	W62	244	(B)	3	B	80	8	DSO
80	09	12	17138	S10	W78	246	400	3.0	21738	S11	W74	244	(B)	3	H	70	2	DSO

HALE REGION 17096 CMP DATE 8.0 RETURN OF REAR OF 17037&FRONT OF 17090 ROTATIONS 6 AND 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	1	17096	N25	E79	233	600	3.0	21713	N26	E81	234	(AP)	3	H	140	1	HSX
80	09	2	17096	N25	E66	233	700	3.0	21713	N25	E69	232	(BP)	4	H	110	4	DSO
80	09	3	17096	N25	E55	231	800	3.0	21713	N25	E55	233	(AP)	5	B	900	2	DSO
80	09	4	17096	N24	E42	232	1300	3.5	21713	N25	E42	233	(AP)	5	B	160	4	CSO
80	09	5	17096						21713	N26	E30	231	(BP)	4	B	110	2	HSX
80	09	6	17096	N26	E13	233	1400	3.5	21713	N26	E16	232	(BP)	4	B	130	4	HSX
80	09	7	17096	N25	E03	231	2100	3.5	21713	N25	E03	232	(AP)	4	B	130	2	HSX
80	09	8	17096	N25	W12	233	2100	3.5	21713	N26	W09	231	(BP)	4	H	90	1	HAX
80	09	9	17096	N26	W22	230	1200	3.0	21713	N26	W24	232	(AP)	4	R	50	1	HSX
80	09	10	17096	N26	W37	231	700	3.0	21713	N26	W35	231	(AP)	4	R	80	1	HSX
80	09	11	17096	N27	W47	228	100	2.5	21713	N26	W49	231	(AP)	3	H	40	1	HSX
80	09	12	17096	N26	W60	228	300	2.5	21713	N26	W61	231	(AP)	3	H	20	1	HSX
80	09	13	17096	N27	W72	226	200	2.5	21713	N26	W75	231	(AP)	2	L		1	AXX
80	09	13	17096	N27	W72	226	200	2.5	21745	N30	W72	228	AP	1	L		1	AXX

HALE REGION 17103 CMP DATE 8.3 RETURN OF REAR PART OF REGION 17039 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	2	17103	S25	E67	232	300	3.5	21717	S25	E70	231	(AF)	2				
80	09	3	17103	S25	E54	232	500	3.5	21717	S25	E57	231	(BP)	3	B	10	3	BXO
80	09	3	17103	S25	E54	232	500	3.5	21720	S29	E45	243	AP	1	P	10	4	CRO
80	09	4	17103	S26	E44	230	500	3.5	21717	S25	E43	232	(BF)	4	B	20	5	BXO
80	09	5	17103						21717	S25	E30	231	(BF)	4	B	10	4	BXO
80	09	6	17103	S25	E17	229	900	3.5	21717	S26	E20	228	(BF)	3	B	10	3	AXX
80	09	7	17103	S26	E07	227	900	3.5	21717	S27	E08	227	(AF)	3	B	20	3	CRO
80	09	8	17103	S26	W06	227	900	3.0	21717	S27	W05	227	(AF)	2	B	10	4	BXO
80	09	9	17103	S27	W19	227	600	3.0	21717	S27	W19	227	(AF)	3				
80	09	10	17103	S27	W33	227	700	2.5	21717	S27	W31	227	(AF)	2				
80	09	11	17103	S27	W51	232	300	2.5		S22	W61				H	50	8	DSO
80	09	12	17103	S27	W60	228	200	2.5										
80	09	13	17103	S27	W73	227	200	2.0										

HALE REGION 17095 CMP DATE 8.4

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	1	17095	N14	E80	232	600	3.5		N16	E80				P	10	1	AXX
80	09	2	17095	N14	E69	230	2300	3.5	21718	N12	E72	229	(AP)	4	H	280	12	EAO
80	09	2	17095	N14	E69	230	2300	3.5	21719	N16	E77	224	(B)	3	H	280	12	EAO
80	09	3	17095	N14	E60	226	3000	3.5	21718	N15	E63	225	(B)	4	B	1600	15	EAI
80	09	4	17095	N15	E47	227	3600	4.0	21718	N15	E49	226	(D)	4	B	300	31	DKC
80	09	5	17095						21718	N15	E35	226	(D)	4	B	350	25	ESI
80	09	6	17095	N16	E18	228	3900	4.0	21718	N15	E23	225	(B)	5	B	170	17	DSO
80	09	7	17095	N16	E08	226	4100	4.0	21718	N14	E07	228	(BY)	5	B	200	19	EAI
80	09	8	17095	N16	W04	225	3800	4.0	21718	N14	W04	226	(BY)	5	H	260	10	CKO
80	09	9	17095	N15	W15	223	2800	3.5	21718	N12	W22	230	(BP)	4	R	160	6	CHO
80	09	10	17095	N15	W32	226	2700	3.0	21718	N12	W34	230	(BP)	5	R	170	10	DHO
80	09	10	17095	N15	W32	226	2700	3.0	21734	N07	W45	241	(AP)	3				
80	09	11	17095	N15	W45	226	1600	2.5	21718	N12	W48	230	(AP)	4	H	150	5	CSO
80	09	12	17095	N15	W60	228	2100	3.0	21718	N12	W61	231	(AP)	3	H	120	2	HSX
80	09	13	17095	N15	W72	226	1500	2.5	21718	N12	W75	231	(AP)	3	H	[illegible]	3	CAO
80	09	14	17095	N15	W80	222	400	2.0										

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HALE REGION 17105 CMP DATE 8.4 RETURN OF SOUTHERN PART OF REGION 17042 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	2	17105	S17	E72	227	200	2.5										
80	09	3	17105	S17	E60	226	200	2.5		S20	E66				B	10	2	BXO
80	09	4	17105	S17	E49	225	400	3.0		S22	E46				R	50	7	DRO
80	09	6	17105	S16	E22	224	600	3.0	21727	S20	E24	224	(AP)	2				
80	09	7	17105	S17	E12	222	1100	3.0										
80	09	8	17105	S17	W04	225	900	2.5										
80	09	9	17105	S17	W17	225	400	2.5										
80	09	10	17105	S17	W30	224	400	2.0		S19	W20				L		1	AXX
80	09	11	17105	S17	W45	226	100	2.5										
80	09	12	17105	S17	W57	225	300	2.5										
80	09	13	17105	S18	W71	225	300	2.0										

HALE REGION 17106 CMP DATE 10.3 FRONT NEW, REAR IS FRONT OF 17044 ROTATIONS 1 AND 5

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	4	17106	S27	E71	203	600	3.0										
80	09	6	17106	S24	E46	200	800	3.0										
80	09	7	17106	S26	E33	201	1500	3.5	21728	S26	E31	204	(AP)	2				
80	09	8	17106	S26	E22	199	1400	3.0		S28	E21				P	10	1	AXX
80	09	9	17106	S26	E08	200	1000	3.0										
80	09	10	17106	S26	W05	199	700	2.5	21736	S27	W03	199	(AP)	3	R	30	3	BXX
80	09	11	17106	S26	W19	200	400	2.5	21736	S27	W17	199	AP	1				
80	09	12	17106	S26	W30	198	400	2.5										
80	09	13	17106	S26	W43	197	500	2.0	21744	S16	W33	189	(AF)	3				
80	09	14	17106	S26	W58	200	600	2.0										
80	09	15	17106	S26	W66	192	300	2.0										

HALE REGION 17119 CMP DATE 10.3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	9	17119	S17	E10	198	200	2.5	21733	S16	E20	188	(AF)	2				
80	09	10	17119	S17	W05	199	100	2.5	21735	S21	W12	208	(AP)	2	R	30	5	BXX
80	09	10	17119	S17	W05	199	100	2.5	21733	S16	W03	199	(B)	3	R	30	5	BXX

HALE REGION 17136 CMP DATE 10.3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	6	17136	N16	E45	201	200	3.0										
80	09	7	17136	N16	E34	200	300	3.0										
80	09	8	17136	N16	E21	200	100	3.0										
80	09	9	17136	N15	E07	201	200	3.0										
80	09	10	17136	N15	W06	200	100	3.0										

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HALE REGION 17107 CMP DATE 10.4 FRONT NEW, REAR IS FRONT OF 17049 ROTATIONS 1 AND 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	4	17107	N07	E75	199	600	3.0										
80	09	6	17107	N07	E46	200	1100	3.0										
80	09	7	17107	N07	E36	198	1200	3.5		N05	E26				R	10	2	BXO
80	09	8	17107	N07	E23	198	900	3.5	21731	N05	E24	198	(AP)	3	H	50	6	CRO
80	09	9	17107	N07	E09	199	900	3.5										
80	09	10	17107	N07	W04	198	700	3.0										
80	09	11	17107	N10	W20	201	700	3.0	21739	N08	W18	200	(AP)	2				
80	09	12	17107	N10	W31	199	600	3.0	21739	N07	W31	201	(AP)	2	R	20	5	BXI
80	09	13	17107	N10	W46	200	700	3.0										
80	09	14	17107	N10	W58	200	600	2.5										
80	09	15	17107	N10	W71	197	600	2.5										

HALE REGION 17112 CMP DATE 11.4 RETURN OF REGION 17048 ROTATIONS 3 AND 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	6	17112	N18	E61	185	100	2.5										
80	09	7	17112	N16	E50	184	200	3.0										
80	09	8	17112	N15	E35	186	200	3.0										

HALE REGION 17109 CMP DATE 11.7

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	6	17109	S18	E62	184	200	2.5	21725	S23	E67	181	(AF)	3	B	10	1	AXX
80	09	7	17109	S22	E50	184	200	3.0	21725	S23	E54	181	(AF)	3	B	10	1	AXX
80	09	8	17109	S23	E38	183	200	3.0	21725	S23	E41	181	(AP)	2				
80	09	9	17109	S22	E26	182	100	2.5										
80	09	10	17109	S22	E13	181	100	3.0		S17	E06				L		2	BXO

HALE REGION 17139 CMP DATE 12.1

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	9	17139	S12	E32	176	100	3.0										
80	09	10	17139	S08	E18	176	100	3.0										
80	09	11	17139	S07	E05	176	100	3.0	21740	S11	E05	177	(B)	3				
80	09	12	17139	S07	W08	176	100	3.0										

HALE REGION 17110 CMP DATE 12.2 RETURN OF REAR HALF OF REGION 17044 ROTATION 5

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	6	17110	S29	E68	178	400	2.5	21724	S26	E65	183	(AF)	2	B	10	1	AXX
80	09	7	17110	S30	E54	180	700	3.0										
80	09	8	17110	S31	E45	176	700	3.0										
80	09	9	17110	S31	E31	177	600	3.0										
80	09	10	17110	S32	E18	176	800	3.0										
80	09	11	17110	S32	E06	175	200	3.0										
80	09	12	17110	S32	W08	176	500	2.5										
80	09	13	17110	S33	W17	171	400	2.5										
80	09	14	17110	S33	W30	172	400	2.5										
80	09	15	17110	S33	W44	170	400	3.0										
80	09	17	17110	S33	W62	166	300	3.0										

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HALE REGION 17113 CMP DATE 12.3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	6	17113	N07	E74	172	900	3.5	21726	N07	E78	170	(X)	2	B	20	2	BXO
80	09	7	17113	N06	E59	175	1400	3.5	21726	N07	E64	171	(B)	3	B	30	2	CRO
80	09	8	17113	N06	E47	174	2300	3.5	21726	N07	E50	172	(B)	4	H	80	2	DSO
80	09	9	17113	N06	E34	174	1500	3.5	21726	N06	E35	173	(B)	4	R	40	5	DRO
80	09	10	17113	N06	E20	174	2100	3.5	21726	N07	E23	173	(B)	4	R	110	10	DAO
80	09	11	17113	N06	E06	175	1500	3.5	21726	N07	E09	173	(B)	3	H	90	18	DSO
80	09	12	17113	N06	W06	174	2100	3.5	21726	N07	W04	174	(B)	4	H	90	18	DSO
80	09	13	17113	N06	W22	176	1700	3.0	21726	N08	W18	174	(B)	4	H	80	18	DAO
80	09	14	17113	N06	W34	176	1500	3.0	21726	N08	W32	175	(BF)	4	H	60	8	CRO
80	09	15	17113	N06	W46	172	2700	3.5	21726	N08	W43	172	(AF)	3	H	10	1	AXX
80	09	17	17113	N06	W70	174	1400	3.5										
80	09	18	17113	N05	W78	168	900	2.5										

HALE REGION 17137 CMP DATE 12.4

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	6	17137	N18	E73	173	100	2.5										
80	09	7	17137	N16	E59	175	200	3.0		N16	E69				L	10	2	CSO
80	09	8	17137	N16	E46	175	200	3.0										
80	09	9	17137	N16	E35	173	100	3.0										

HALE REGION 17111 CMP DATE 13.0 NEW, PART IN LOCATION OF REGION 17060

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	7	17111	S24	E70	164	300	2.5		S21	E63				M	10	1	AXX
80	09	8	17111	S24	E55	166	400	3.0										
80	09	9	17111	S24	E43	165	200	2.5										
80	09	10	17111	S23	E30	164	200	2.5										

HALE REGION 17116 CMP DATE 13.2 RETURN OF REAR OF 17053 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	6	17116	N14	E82	164	200	3.0		N09	E76				R	40	2	BXO
80	09	7	17116	N14	E72	162	500	3.0		N14	E77				R	250	9	CKO
80	09	8	17116	N14	E60	161	500	3.0		N18	E68				M	10	1	AXX
80	09	9	17116	N14	E48	160	700	3.0		N17	E56				P	10	1	AXX
80	09	10	17116	N14	E33	161	400	3.0										
80	09	11	17116	N14	E18	163	100	3.0										
80	09	12	17116	N13	E06	162	200	3.0		N13	E12				R	20	3	BXO
80	09	13	17116	N13	W06	160	300	2.5	21746	N14	W03	159	(AF)	3	H	10	4	BXO
80	09	14	17116	N13	W18	160	400	2.5	21746	N14	W14	157	(B)	4	H	20	1	HAX
80	09	15	17116	N14	W33	159	700	3.0	21746	N13	W28	157	(AF)	3	H	30	5	CRO
80	09	16	17116							N15	W31				H	290	8	CKO
80	09	17	17116	N14	W50	154	500	2.5		N15	W45				H	270	7	CKO

HALE REGION 17115 CMP DATE 13.5

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	7	17115	S06	E76	158	200	2.0										
80	09	8	17115	S06	E65	156	800	2.5		S08	E57				L	50	3	CSO
80	09	9	17115	S06	E52	156	800	3.0										
80	09	10	17115	S07	E40		500	3.0										
80	09	11	17115	S07	E22	159	200	3.0										

CONT

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HALE REGION 17115 (CONT) CMP DATE 13.5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	12	17115	S10	E10	158	400	3.0
80	09	13	17115	S10	W04	158	400	2.5
80	09	14	17115	S10	W17	159	300	2.0
80	09	15	17115	S11	W32	158	500	3.0
80	09	16	17115					
80	09	17	17115	S12	W53	157	700	3.0
80	09	18	17115	S14	W65	155	800	3.0
80	09	19	17115	S16	W78	156	200	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21742	S05	E10	160	(AP)	3	R	10	1	AXX
	S12	W11				B		1	AXX
	S09	W07				P	100	9	DSO
21752	S16	W34	163	(AF)	1				
	S08	W34				H	20	4	BXO
	S08	W49				H		1	AXX
	S10	W58				R	90	9	DRI

HALE REGION 17131 CMP DATE 13.8 RETURN OF CENTER OF REGION 17061 ROTATION 5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	8	17131	S17	E56	165	400	2.5
80	09	9	17131	S21	E52	156	400	3.0
80	09	10	17131	S21	E33	161	400	3.0
80	09	11	17131	S22	E27	154	200	3.0
80	09	12	17131	S22	E15	153	300	2.5
80	09	13	17131	S22	E00	154	400	2.5
80	09	14	17131	S21	W14	156	100	2.0
80	09	15	17131	S21	W26	152	300	3.0
80	09	17	17131	S21	W49	153	100	3.0
80	09	18	17131	S23	W62	152	100	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 17130 CMP DATE 14.3 NEW, IN LOCATION OF REGION 17057

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	11	17130	S10	E36	145	300	3.0
80	09	12	17130	S10	E21	147	400	3.0
80	09	13	17130	S09	E06	148	700	3.5
80	09	14	17130	S09	W06	148	600	3.5
80	09	15	17130	S08	W22	148	1000	4.0
80	09	16	17130					
80	09	17	17130	S08	W44	148	1000	3.5
80	09	18	17130	S08	W56	146	1200	4.0
80	09	19	17130	S08	W70	148	1000	3.0
80	09	20	17130	S08	W78	143	500	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21741	S09	E35	147	(B)	3	H	30	4	CSO
21741	S09	E23	147	(B)	4	H	50	8	DSO
21741	S09	E09	147	(B)	4	H	90	10	DAO
21741	S09	W05	148	(B)	4	H	60	8	DSO
21741	S08	W19	148	(B)	3	H	40	7	CRO
	S08	W34				H	20	4	BXO
	S08	W49				H		1	AXX
	S08	W61				H	150	8	DSO
	S08	W77				H	90	5	CRO
	S08	W79				M	60	2	CRO

HALE REGION 17117 CMP DATE 14.4 RETURN OF REGIONS 17054 AND 17067 ROTATIONS 2 AND 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	7	17117	N15	E80	154	400	3.0
80	09	8	17117	N14	E77	144	2600	3.5
80	09	8	17117	N14	E77	144	2600	3.5
80	09	9	17117	N14	E62	146	2000	4.0
80	09	9	17117	N14	E62	146	2000	4.0
80	09	10	17117	N14	E50	144	4600	4.0
80	09	10	17117	N14	E50	144	4600	4.0
80	09	11	17117	N14	E37	144	3400	3.5
80	09	12	17117	N14	E23	145	4000	3.5
80	09	12	17117	N14	E23	145	4000	3.5
80	09	13	17117	N14	E08	146	3200	3.5
80	09	14	17117	N14	W04	146	4200	3.5
80	09	15	17117	N14	W18	144	4000	4.0
80	09	16	17117					
80	09	17	17117	N15	W41	145	4300	4.0
80	09	18	17117	N14	W53	143	4200	4.0
80	09	19	17117	N14	W65	143	3200	4.0
80	09	20	17117	N14	W75	140	1600	4.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21729	N14	E85	150	(X)	2	B	70	1	HSX
21729	N14	E77	145	(B)	4	H	500	3	EAO
21732	N17	E74	148	(AP)	3	H	500	3	EAO
21729	N13	E61	147	(B)	5	R	440	10	DKO
21732	N17	E59	149	(AP)	3	R	440	10	DKO
21729	N13	E49	147	(B)	5	R	370	14	EHO
21732	N18	E47	149	(AP)	3	R	370	14	EHO
21729	N13	E33	149	(B)	5	H	490	24	EHI
21732	N18	E19	151	(AP)	2	H		1	AXX
21729	N13	E20	150	(BY)	5	H	450	33	EHI
21729	N13	E07	149	(BY)	5	H	400	28	EKI
21729	N14	W05	148	(BY)	5	H	380	13	EKI
21729	N13	W18	147	(D)	6	H	340	17	CKO
	N15	W31				H	290	8	CKO
	N15	W45				H	270	7	CKO
	N15	W61				H	430	3	CHO
	N15	W73				H	380	3	CKO
	N14	W85				H	140	5	CAO

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HALE REGION 17144 CMP DATE 14.9

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	17	17144	N06	W35	139	200	3.0										
80	09	18	17144	N06	W48	138	200	3.0										
80	09	19	17144	N06	W58	136	400	3.0										
80	09	20	17144	N06	W67	132	200	3.5										
80	09	21	17144	N07	W79	130	100	1.5										

HALE REGION 17143 CMP DATE 15.0

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	16	17143							N39	W20				H	40	6	DRO
80	09	17	17143	N38	W34	138	500	3.5		N39	W38				H		1	AXX
80	09	18	17143	N37	W46	136	500	3.0		N38	W51				R	10	1	AXX
80	09	19	17143	N37	W58	136	300	3.0										
80	09	20	17143	N37	W67	132	300	3.0										
80	09	21	17143	N38	W80	131	200	3.0										

HALE REGION 17129 CMP DATE 15.3 RETURN OF REGION 17058 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	9	17129	N09	E70	138	300	3.5		N14	E70				L	350	9	EAO
80	09	10	17129	N09	E60	134	500	3.0		N13	E50				R	370	14	EHO
80	09	11	17129	N09	E49	132	200	3.0		N13	E44				L	490	24	EKI
80	09	12	17129	N07	E33	135	400	3.0										
80	09	13	17129	N08	E22	132	300	3.0	21747	N10	E26	130	(AP)	2				
80	09	14	17129	N09	E09	133	300	3.0										
80	09	15	17129	N08	W08	134	300	3.0	21753	N05	W09	138	(AF)	2				
80	09	17	17129	N08	W32	136	200	2.5										
80	09	18	17129	N08	W42	132	300	3.0										
80	09	19	17129	N11	W51	129	200	2.5										
80	09	20	17129	N11	W65	130	100	2.5										
80	09	21	17129	N11	W74	125	100	2.0										

HALE REGION 17132 CMP DATE 15.7 RETURN OF REGION 17052 ROTATIONS 6, 5 & 3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	8	17132	S32	E70	151	200	2.5										
80	09	9	17132	S32	E63	145	900	3.0										
80	09	10	17132	S32	E51	143	700	2.5										
80	09	11	17132	S33	E47	134	600	3.0										
80	09	12	17132	S32	E33	135	1100	3.0										
80	09	13	17132	S32	E22	132	1500	3.0										
80	09	14	17132	S32	E10	132	1400	3.0										
80	09	15	17132	S33	W03	129	1400	3.0										
80	09	17	17132	S33	W24	128	2600	3.0		S37	W25				L		1	AXX
80	09	18	17132	S34	W38	128	2300	3.0										
80	09	19	17132	S34	W47	125	1600	3.0										
80	09	20	17132	S34	W55	120	1100	3.0										

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HALE REGION 17126 CMP DATE 16.3 RETURN OF SOUTHERN PART OF 17064 ROTATIONS 5 AND 4

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	11	17126	S20	E59	122	100	3.0										
80	09	12	17126	S18	E46	122	200	3.0										
80	09	13	17126	S18	E30	124	100	3.0										
80	09	14	17126	S18	E18	124	100	2.5		S19	E21				B	120	7	CAO
80	09	15	17126	S18	E06	120	100	3.0										
80	09	17	17126	S18	W17	121	300	3.0										
80	09	18	17126	S18	W32	122	300	3.0										
80	09	19	17126	S20	W42	120	300	3.0										
80	09	20	17126	S21	W55	120	200	3.0										

HALE REGION 17120 CMP DATE 16.4 NEW, IN LOCATION OF N PORTION OF 17064

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	10	17120	S12	E80	114	500	3.5	21737	S10	E80	116	(X)	2	R	250	1	HSX
80	09	11	17120	S12	E68	113	1900	3.0	21737	S11	E69	113	(B)	3	H	250	4	DSO
80	09	12	17120	S10	E51	117	800	3.0	21737	S09	E51	119	(AP)	4	H	220	11	ESO
80	09	13	17120	S10	E36	118	800	3.0	21737	S10	E38	118	(BP)	4	H	230	11	ESO
80	09	14	17120	S10	E23	119	1400	3.5	21737	S10	E24	119	(BY)	4	H	110	8	CSO
80	09	15	17120	S10	E07	119	900	3.0	21737	S10	E12	117	(B)	4	H	90	2	HAX
80	09	16	17120							S12	W02				H	70	12	DAO
80	09	17	17120	S13	W16	120	1000	4.0		S11	W16				H	80	9	DAO
80	09	18	17120	S13	W28	118	1700	3.5		S12	W32				H	140	8	DAO
80	09	19	17120	S13	W42	120	2200	3.5		S12	W44				H	180	6	DAI
80	09	20	17120	S13	W54	119	2100	3.5		S12	W58				H	250	12	DAO
80	09	21	17120	S13	W66	117	1200	3.5		S12	W69				H	450	6	DKO
80	09	22	17120	S13	W79	115	500	3.5		S11	W73				H		1	AXX

HALE REGION 17127 CMP DATE 17.0

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	12	17127	S12	E59	109	1000	3.0	21743	S12	E59	111	(B)	3	H	220	11	ESO
80	09	13	17127	S13	E44	110	1900	3.5	21743	S12	E46	110	(B)	4	H	230	11	ESO
80	09	14	17127	S12	E32	110	1300	3.5	21743	S12	E33	110	(B)	4	H	110	8	DSO
80	09	15	17127	S12	E15	111	2300	3.5	21743	S12	E20	109	(BY)	4	H	90	5	DAO
80	09	16	17127							S13	E07				H	80	12	DAO
80	09	17	17127	S12	W08	112	2600	4.0		S12	W06				H	70	16	DAO
80	09	18	17127	S13	W16	106	2500	3.5		S14	W19				H	110	7	DAO
80	09	19	17127	S13	W31	109	2600	3.5		S11	W31				H	50	5	DAO
80	09	20	17127	S14	W42	107	2000	3.5		S13	W44				H	40	2	DSO
80	09	21	17127	S15	W55	106	1000	3.0		S11	W58				H	30	1	HRX
80	09	22	17127	S14	W69	105	700	3.0		S11	W73				H		1	AXX
80	09	23	17127	S13	W78	101	500	2.5										

HALE REGION 17121 CMP DATE 17.2 RETURN OF REGION 17062 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	10	17121	N18	E82	112	700	3.0										
80	09	11	17121	N18	E72	109	1300	3.5										
80	09	12	17121	N18	E59	109	2400	3.5										
80	09	13	17121	N20	E45	109	3300	3.5	21748	N20	E48	108	B	1	H		1	AXX
80	09	13	17121	N20	E45	109	3300	3.5	21749	N23	E49	107	(AP)	3	H		1	AXX
80	09	14	17121	N20	E32	110	3300	3.5	21749	N23	E37	106	(B)	3	H	10	3	BXO
80	09	14	17121	N20	E32	110	3300	3.5	21750	N16	E27	116	(AP)	3	H	10	6	BXO
80	09	15	17121	N21	E18	108	3000	3.5	21749	N22	E18	111	(AP)	2	B	10	1	AXX
80	09	15	17121	N21	E18	108	3000	3.5	21750	N16	E12	117	B	1				
80	09	16	17121							N24	E07				H	20	4	BXO
80	09	17	17121	N21	W05	109	4400	3.5		N22	W01				R	10	1	AXX
80	09	18	17121	N19	W18	108	5100	3.5		N20	W12				R	20	2	BXO
80	09	19	17121	N20	W28	106	4300	3.5		N22	W36				M	10	1	AXX

CONT

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HALE REGION 17121 (CONT) CMP DATE 17.2 RETURN OF REGION 17062 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	20	17121	N19	W42	107	4500	3.5
80	09	21	17121	N19	W53	104	2700	3.0
80	09	22	17121	N18	W68	104	2300	3.0
80	09	23	17121	N23	W75	98	800	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 17157 CMP DATE 18.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	20	17157	S11	W32	97	100	3.0
80	09	21	17157	S11	W46	97	200	3.0
80	09	22	17157	S12	W62	98	100	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S13	W36				M	50	4	DRO
	S14	W52				B	10	1	AXX

HALE REGION 17140 CMP DATE 18.9

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	14	17140	N23	E54	88	100	2.0
80	09	15	17140	N23	E36	90	200	2.5
80	09	17	17140	N23	E16	88	100	3.0
80	09	18	17140	N24	E04	86	200	3.0
80	09	19	17140	N24	W08	86	100	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N25	E44				H	20	4	BXO
21755	N17	E25	104	(AF)	3	B	10	1	AXX
	N18	E09				H		1	AXX
	N20	W11				H	20	2	DRO

HALE REGION 17152 CMP DATE 19.0

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	18	17152	N17	E05	85	300	3.0
80	09	19	17152	N17	W11	89	400	3.0
80	09	20	17152	N17	W23	88	500	3.5
80	09	21	17152	N17	W36	87	400	3.5
80	09	22	17152	N17	W53	89	200	3.0
80	09	23	17152	N17	W64	87	200	3.0
80	09	24	17152	N18	W75	85	100	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N18	E01				H	20	1	HSX
	N20	W11				H	20	2	DRO
	N19	W25				H	20	2	CAO
	N20	W36				B	30	3	BXO

HALE REGION 17147 CMP DATE 19.8

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	16	17147					
80	09	17	17147	S07	E33	71	500	3.5
80	09	18	17147	S09	E16	74	500	3.0
80	09	19	17147	S11	E03	75	500	3.0
80	09	20	17147	S12	W13	78	1000	3.0
80	09	21	17147	S12	W25	76	400	3.0
80	09	22	17147	S12	W42	78	500	3.0
80	09	23	17147	S11	W56	79	200	3.0
80	09	24	17147	S11	W63	73	200	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S10	E39				P	10	3	AXX
	S11	E29				H	30	6	DRO
	S11	E12				H	70	3	DRO
	S11	E04				R	40	4	CRO
	S11	W17				H	20	1	HAX
	S10	W31				H	30	1	HRX
	S10	W47				H		1	AXX
	S10	W48				M	10	1	AXX

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HALE REGION 17141 CMP DATE 20.3 RETURN OF REGION 17069 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	14	17141	N19	E73	69	200	2.0										
80	09	15	17141	N18	E55	71	500	3.0	21757	N16	E56	73	(B)	3	H	20	2	BXO
80	09	16	17141							N16	E42				H	20	3	BXO
80	09	17	17141	N18	E35	69	700	3.0										
80	09	18	17141	N18	E23	67	1100	3.0										
80	09	19	17141	N20	E08	70	600	3.0										
80	09	20	17141	N19	W04	69	600	3.0										
80	09	21	17141	N18	W15	66	600	3.0										
80	09	22	17141	N17	W33	69	1000	3.0										
80	09	23	17141	N18	W42	65	500	3.0										
80	09	24	17141	N17	W52	62	300	3.0										

HALE REGION 17148 CMP DATE 21.8 EXTREME SOUTHERN PORTION OF 17075

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	17	17148	S15	E49	55	100	3.0										
80	09	18	17148	S16	E36	54	200	2.5										
80	09	19	17148	S17	E25	53	200	3.0										
80	09	20	17148	S17	E13	52	200	2.5										
80	09	21	17148	S17	E03	48	200	3.0										
80	09	22	17148	S17	W14	50	100	3.0										
80	09	23	17148	S17	W27	50	100	3.0										
80	09	24	17148	S17	W40	50	100	3.0										

HALE REGION 17142 CMP DATE 22.0 NEW, IN LOCATION OF REGION 17073

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	15	17142	S32	E70	56	400	3.5	21758	S32	E75	54	(AP)	2	H	60	1	HAX
80	09	16	17142							S31	E61				H	60	1	HSX
80	09	17	17142	S32	E51	53	2100	3.5		S32	E49				H	60	2	CAO
80	09	18	17142	S32	E42	48	1600	3.5		S31	E35				H	80	1	HSX
80	09	19	17142	S32	E28	50	2100	4.0		S32	E29				H	120	6	ESO
80	09	20	17142	S32	E18	47	3200	3.5		S32	E16				H	190	15	EAO
80	09	21	17142	S33	E06	45	2800	3.5		S32	E05				H	230	26	EAO
80	09	22	17142	S33	W07	43	3600	3.5		S32	W09				H	400	23	EAI
80	09	23	17142	S32	W22	45	4400	3.5		S32	W20				H	250	20	EAI
80	09	24	17142	S33	W32	42	3900	4.0	21758	S32	W33	43	(B)	4	H	260	19	FAI
80	09	25	17142	S33	W48	44	1600		21758	S32	W45	42	(B)	4	B	410	15	FKO
80	09	26	17142						21758	S32	W58	42	(BF)	4	B	200	13	EAO
80	09	27	17142	S33	W75	42	1000	3.0	21758	S34	W70	41	(AF)	3	B	90	8	CSI
80	09	28	17142						21758	S34	W85	43	AF	2	B	110	8	CSI

HALE REGION 17145 CMP DATE 22.1

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	17	17145	N18	E60	44	100	3.5		N18	E61				H		1	AXX
80	09	18	17145	N18	E47	43	500	3.5		N18	E45				H	10	3	BXO
80	09	19	17145	N18	E34	44	1100	3.5		N19	E33				H	130	7	DAI
80	09	20	17145	N18	E20	45	1700	3.5		N19	E19				H	200	17	DAI
80	09	21	17145	N18	E07	44	2000	3.5		N18	E07				H	190	13	EAO
80	09	22	17145	N17	W08	44	2800	4.0		N18	W08				H	310	45	EAI
80	09	23	17145	N17	W23	46	3700	4.0		N18	W23				H	530	41	EKI
80	09	24	17145	N17	W34	44	4400	4.0	21761	N18	W35	45	(D)	5	H	460	31	EKI
80	09	25	17145	N17	W48	44	2600		21761	N18	W47	44	(B)	4	B	690	33	EKI
80	09	26	17145						21761	N18	W62	46	(BP)	4	B	700	21	EKI
80	09	27	17145	N17	W78	45	1400	3.5	21761	N18	W76	47	(BP)	4	B	520	30	EHI
80	09	28	17145	N18	W80	34	500	3.0	21761	N18	W85	43	AP	3	B	250	30	EHI

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HALE REGION 17146 CMP DATE 22.1 NEW, PARTLY IN LOCATION OF 17076

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	17	17146	N10	E58	46	400	3.0
80	09	18	17146	N10	E47	43	1000	3.0
80	09	19	17146	N12	E36	42	900	3.5
80	09	20	17146	N12	E22	43	1600	4.0
80	09	21	17146	N11	E07	44	1600	3.5
80	09	22	17146	N10	W08	44	1600	3.5
80	09	23	17146	N10	W22	45	1300	4.0
80	09	24	17146	N10	W35	45	1600	3.5
80	09	25	17146	N11	W49	45	900	
80	09	27	17146	N11	W78	45	100	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N10	E48				H		1	AXX
	N11	E35				H	30	6	CRO
	N10	E21				H	80	16	DAO
	N11	E09				H	90	5	DAO
	N11	W08				H	100	20	DAI
	N11	W24				H	60	18	DAO
21759	N11	W38	48	(AP)	4	H	30	4	CSO
21759	N10	W52	49	(AP)	3	B	50	1	HSX
	N15	W75				R	600	24	EKI

HALE REGION 17160 CMP DATE 22.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	21	17160	N06	E07	44	200	3.0
80	09	22	17160	N05	W09	45	600	3.5
80	09	23	17160	N04	W24	47	600	3.5
80	09	24	17160	N04	W36	46	1200	4.0
80	09	25	17160	N05	W52	48	1000	
80	09	26	17160					
80	09	27	17160	N05	W80	47	300	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N07	E04				H	30	5	BXO
	N06	W10				H	60	9	CAO
	N06	W24				H	60	17	DSO
21760	N04	W37	47	(B)	4	H	90	13	DSO
21760	N04	W51	48	(B)	4	B	180	14	DSO
21760	N04	W65	49	(B)	4	B	130	5	DAO
21760	N04	W80	51	B	2	B	70	1	HSX

HALE REGION 17149 CMP DATE 22.4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	17	17149	S08	E65	39	300	3.0
80	09	18	17149	S08	E52	38	400	2.5
80	09	19	17149	S08	E38	40	300	3.0
80	09	20	17149	S08	E25	40	200	3.0
80	09	21	17149	S08	E12	39	200	3.0
80	09	22	17149	S10	W04	40	200	3.0
80	09	23	17149	S12	W18	41	100	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 17150 CMP DATE 23.4 RETURN OF REGION 17084 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	17	17150	N26	E78	26	300	3.0
80	09	18	17150	N27	E62	28	300	3.0
80	09	19	17150	N27	E49	29	300	3.0
80	09	20	17150	N27	E36	29	300	3.0
80	09	21	17150	N28	E23	28	300	3.0
80	09	22	17150	N27	E09	27	300	3.0
80	09	23	17150	N27	W03	26	200	3.0
80	09	24	17150	N27	W15	25	100	3.0
80	09	25	17150	N27	W29	25	100	

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

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HALE REGION 17151 CMP DATE 23.5 RETURN OF REGIONS 17123 AND 17124 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	17	17151	N17	E79	25	400	3.0										
80	09	18	17151	N17	E66	24	500	2.5										
80	09	19	17151	N18	E54	24	500	3.0										
80	09	20	17151	N20	E41	24	700	3.0										
80	09	21	17151	N18	E26	25	500	3.0										
80	09	22	17151	N18	E11	25	800	3.0										
80	09	23	17151	N17	W02	25	600	3.0		N18	W12				M	310	25	EKI
80	09	24	17151	N17	W14	24	800	3.0										
80	09	25	17151	N17	W25	21	200											
80	09	27	17151	N18	W55	22	200	2.0										

HALE REGION 17153 CMP DATE 24.1 RETURN OF REGION 17078 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	18	17153	S14	E70	20	300	2.0										
80	09	19	17153	S14	E59	19	400	2.5										
80	09	20	17153	S14	E45	20	600	2.5										
80	09	21	17153	S15	E36	15	600	3.0		S11	E29				R	20	1	HRX
80	09	22	17153	S15	E22	14	900	3.0										
80	09	23	17153	S15	E06	17	700	3.0										
80	09	24	17153	S16	W07	17	600	3.0										
80	09	25	17153	S16	W22	18	400											
80	09	27	17153	S18	W51	18	200	2.5										

HALE REGION 17161 CMP DATE 24.3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	21	17161	N14	E35	16	100	2.5		N09	E45				P	10	1	HRX
80	09	22	17161	N14	E24	12	300	3.0										
80	09	23	17161	N14	E09	14	200	3.0										
80	09	24	17161	N13	W05	15	100	3.0										

HALE REGION 17154 CMP DATE 25.1

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	19	17154	N11	E75	3	300	3.0										
80	09	20	17154	N12	E61	4	500	3.0										
80	09	21	17154	N12	E47	4	300	3.0		N08	E47				H	30	1	HRX
80	09	22	17154	N12	E33	3	800	3.0		N08	E32				H	30	2	HRX
80	09	23	17154	N10	E21	2	500	3.5		N08	E18				H		2	BXO
80	09	24	17154	N09	E06	4	500	3.5	21762	N07	E05	5	(AP)	2	H	10	3	BXO
80	09	25	17154	N08	W07	3	400			N07	W08				P	10	4	AXX
80	09	26	17154						21762	N07	W22	6	(B)	3	B	30	7	DSO
80	09	27	17154	N08	W38	5	600	3.5	21762	N08	W35	6	(B)	3	B	20	5	CRO
80	09	28	17154	N08	W52	6	600	3.0	21762	N08	W46	4	(BF)	3	B	80	3	CRI
80	09	29	17154	N08	W62	5	500	3.0										
80	09	30	17154	N08	W78	7	300	3.0										

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HALE REGION 17156 CMP DATE 25.2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	19	17156	S26	E72	6	300	2.5
80	09	20	17156	S26	E65	0	700	3.0
80	09	21	17156	S26	E52	359	700	3.0
80	09	22	17156	S25	E37	359	600	3.0
80	09	23	17156	S26	E25	358	700	3.0
80	09	24	17156	S27	E12	358	400	3.0
80	09	25	17156	S27	W07	3	100	

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S27	E79				R	40	2	HAX
	S28	E63				H	60	1	HSX
	S28	E53				H	60	1	HSX
	S28	E38				H	60	1	HSX
	S28	E26				H	30	1	HSX
	S28	E14				H	30	1	HSX
	S26	W01				B	60	1	HSX

HALE REGION 17165 CMP DATE 25.4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	23	17165	S04	E23	0	200	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S06	E33				H		1	AXX

HALE REGION 17155 CMP DATE 25.6

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	19	17155	S14	E78	0	200	3.0
80	09	20	17155	S14	E67	358	500	3.5
80	09	21	17155	S14	E56	355	400	3.0
80	09	22	17155	S14	E42	354	1000	3.0
80	09	23	17155	S15	E29	354	400	3.0
80	09	24	17155	S16	E14	356	500	3.0
80	09	25	17155	S16	W01	357	400	
80	09	26	17155					
80	09	27	17155	S16	W32	359	300	2.5
80	09	28	17155	S16	W44	358	200	2.0
80	09	29	17155	S16	W57	0	100	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S17	E75				P	10	2	AXX
	S17	E65				H	30	1	HAX
	S16	E51				H	10	1	AXX
	S16	E36				H	20	1	HRX
	S16	E22				H		1	AXX
21763	S15	E10		(AP)	3	H	20	1	HSX
21763	S15	W04	1	(AP)	3	B	40	1	HRX
21763	S15	W18	2	(AP)	3	B	20	1	HRX
21763	S15	W30	1	(B)	3	B	30	3	CSO

HALE REGION 17158 CMP DATE 26.3 NEW, IN LOCATION OF REGION 17082

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	20	17158	S04	E76	349	600	2.5
80	09	21	17158	S04	E62	349	400	3.0
80	09	22	17158	S04	E49	347	1000	3.0
80	09	23	17158	S06	E36	347	500	3.0
80	09	24	17158	S06	E24	346	600	3.0
80	09	25	17158	S07	E08	348	200	
80	09	27	17158	S05	W24	351	300	2.5
80	09	28	17158	S04	W36	350	200	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S07	E76				H		1	AXX
	S06	E62				H	10	1	AXX
	S06	E47				H		1	AXX
	S06	E33				H		1	AXX
21765	S05	E22	348	(AP)	2	H		2	BXO
	S06	E17				M	10	1	AXX

HALE REGION 17163 CMP DATE 26.3 RETURN OF REGION 17083 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	22	17163	S26	E48	348	1500	3.0
80	09	23	17163	S27	E35	348	1800	3.0
80	09	24	17163	S29	E23	347	1200	3.0
80	09	25	17163	S27	E07	349	100	
80	09	26	17163					
80	09	27	17163	S26	W22	349	100	2.5
80	09	28	17163	S26	W35	349	200	2.0
80	09	29	17163	S27	W45	348	200	2.0
80	09	30	17163					

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S28	E38				H	60	1	HSX
	S28	E26				H	30	1	HSX
21764	S28	E19	351	(BP)	4	H	30	1	HSX
21764	S28	E02	355	(AP)	4	R	60	1	HSX
21764	S28	W12	356	(AP)	4	B	30	1	HSX
21764	S28	W24	355	(BP)	4	B	40	1	HSX
21764	S27	W36	354	(AP)	3	B	60	2	HSX
21764	S27	W49	354	(AP)	3	H	20	1	HSX
21764	S27	W61	353	(AP)	3	H		1	AXX

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HALE REGION 17170 CMP DATE 26.3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	25	17170	N07	E08	348	100	
80	09	26	17170					
80	09	27	17170	N08	W22	349	200	3.0
80	09	28	17170	N08	W34	348	300	3.0
80	09	29	17170	N08	W45	348	400	3.0
80	09	30	17170	N08	W59	348	300	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N09	E06				M		1	AXX
21771	N09	W03	347	(AP)	3	P	10	1	AXX
21771	N09	W16	347	(AF)	3	B		2	AXX
21771	N09	W31	349	(B)	3	B	140	7	CSI
21771	N08	W45	350	(B)	3	H	10	3	BXO
21771	N09	W58	350	(B)	2	H		4	BXO

HALE REGION 17162 CMP DATE 26.6

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	21	17162	N24	E61	350	100	2.5
80	09	22	17162	N24	E51	345	300	3.0
80	09	23	17162	N23	E37	346	400	3.0
80	09	24	17162	N21	E24	346	200	3.0
80	09	25	17162	N22	E12	344	300	
80	09	27	17162	N23	W17	344	300	2.5
80	09	28	17162	N23	W29	343	200	2.5
80	09	29	17162	N23	W42	345	200	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N17	E20				B	50	7	CRO
21776	N20	W15	346	(AP)	2	B		1	AXX

HALE REGION 17159 CMP DATE 27.5 NEW, IN LOCATION OF REGION 17086

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	21	17159	N21	E78	333	300	3.0
80	09	22	17159	N20	E65	331	1300	4.0
80	09	23	17159	N18	E42	341	2000	3.5
80	09	24	17159	N18	E38	332	2000	4.0
80	09	25	17159	N17	E26	330	1000	
80	09	26	17159					
80	09	27	17159	N17	W06	333	700	3.0
80	09	28	17159	N18	W16	330	1000	3.0
80	09	29	17159	N18	W26	329	1000	3.0
80	09	30	17159	N18	W40	329	700	3.0
80	10	2	17159	N18	W66	331	500	3.0
80	10	3	17159	N18	W77	328	200	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N18	E65				H	80	5	CRO
	N18	E48				H	30	1	HSX
21766	N17	E40	330	(B)	3	H	20	3	CRO
21766	N18	E22	335	(AP)	3	B	50	7	CRO
21766	N17	E07	337	(AP)	3	B	20	4	CSO
21766	N18	W01	332	(B)	4	B	20	7	BXO
21766	N18	W11	329	(BY)	3	B	160	14	EAI
21766	N18	W28	333	(B)	3	H	10	5	BXO
21766	N16	W45	337	(AP)	3	R	10	2	BXO

HALE REGION 17166 CMP DATE 28.5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	23	17166	S30	E58	325	100	3.5
80	09	24	17166	S31	E48	322	500	3.5
80	09	25	17166	S33	E36	320	400	
80	09	26	17166					
80	09	27	17166	S32	E07	320	600	3.5
80	09	28	17166	S31	W08	322	1000	3.5
80	09	29	17166	S30	W18	321	800	3.5
80	09	30	17166	S30	W32	321	800	3.0
80	10	1	17166					
80	10	2	17166	S31	W52	317	300	2.5
80	10	3	17166	S30	W70	321	200	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S32	E60				H		1	AXX
21767	S32	E50	320	(B)	3	H	30	3	CAO
21767	S32	E37	320	(B)	3	B	100	11	DSI
21767	S31	E23	321	(B)	3	B	20	4	CRO
21767	S31	E10	321	(BP)	4	B	50	8	CSO
21767	S30	W04	322	(BY)	3	B	140	19	DSI
21767	S30	W19	324	(B)	3	H	70	11	DSO
21767	S31	W29	321	(B)	3	H	10	4	BXO
21767	S31	W41	319	(B)	3				
21767	S30	W60	325	(AP)	3				

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HALE REGION 17176 CMP DATE 29.3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	2	17176	S19	W45	310	100	2.5		S17	W35				H	120	5	CAO
80	10	3	17176	S18	W59	310	100	3.0										

HALE REGION 17164 CMP DATE 29.4 RETURN OF REGIONS 17089 AND 17100 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	22	17164	S05	E78	318	300	3.0										
80	09	23	17164	S06	E72	311	2200	3.0		S07	E76				H		1	AXX
80	09	24	17164	S06	E62	308	3300	3.0	21768	S06	E63	307	(AF)	3	H		1	AXX
80	09	25	17164	S08	E48	308	2300		21768	S07	E51	306	(B)	3	B	60	8	CRO
80	09	26	17164						21772	S08	E23	321	(X)	1	P	20	3	AXX
80	09	26	17164						21768	S05	E34	310	B	2	B	10	2	BXX
80	09	27	17164	S05	E18	309	4400	3.0	21768	S05	E21	310	(AP)	3	B	40	4	CSO
80	09	28	17164	S06	E05	309	3000	3.0	21768	S05	E08	310	(AP)	2	P	10	2	BXO
80	09	29	17164	S06	W05	308	2900	3.0	21768	S05	W06	311	(AP)	3	H	10	3	BXO
80	09	30	17164	S06	W20	309	2300	3.0	21768	S06	W22	314	AP	1	H		1	AXX
80	10	1	17164						21786	S02	W35	313	(AF)	2				
80	10	2	17164	S04	W43	308	2100	3.0										
80	10	3	17164	S05	W59	310	1600	3.0	21795	S08	W64	316	(BP)	3	H	10	3	BXO
80	10	3	17164	S05	W59	310	1600	3.0	21794	S06	W78	330	(B)	3	H	40	2	DRO
80	10	4	17164	S06	W70	307	400	3.0	21795	S09	W72	311	(B)	3	H	10	4	CRO

HALE REGION 17169 CMP DATE 29.5 PARTLY NEW, PARTLY LEADING EDGE 17098 ROTATIONS 1 AND 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	23	17169	N12	E78	305	2300	3.0		N12	E78				H	70	1	HSX
80	09	24	17169	N09	E66	304	1100	3.0		N12	E67				H	70	3	CSO
80	09	25	17169	N09	E52	304	600			N11	E52				B	70	6	DSO
80	09	27	17169	N10	E17	310	600	3.0		N12	E26				B	60	3	CSO
80	09	28	17169	N10	E06	308	500	3.0	21780	N07	E12	306	(B)	3	B	50	3	CSI
80	09	29	17169	N11	W04	307	900	3.0	21780	N07	W02	307	(B)	3	H	40	5	DSO
80	09	30	17169	N11	W17	306	1100	3.0	21780	N07	W15	307	(B)	3	H	30	9	CAO
80	10	1	17169						21780	N08	W30	308	(B)	3				
80	10	2	17169	N08	W44	309	1500	3.0	21780	N07	W44	309	(B)	3	H	10	2	BXO
80	10	3	17169	N10	W56	307	1200	3.5	21780	N07	W58	310	(B)	3	H	20	5	BXO
80	10	4	17169	N08	W70	307	200	3.0	21780	N06	W70	309	(BY)	3	H	20	4	BXO
80	10	5	17169	N08	W79	303	400	3.0	21780	N07	W87	312	AP	1	B	20	5	BXO

HALE REGION 17167 CMP DATE 30.0 N PART CENTER 17089, REST NEW ROTATIONS 2 AND 1

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	23	17167	S16	E79	304	700	3.5		S18	E85				B	130	1	HSX
80	09	24	17167	S16	E70	300	2100	4.5	21769	S17	E71	299	(AP)	4	H	90	2	CSO
80	09	25	17167	S17	E59	297	1600		21769	S18	E57	300	(AP)	4	B	190	10	CAI
80	09	26	17167						21769	S17	E44	300	(D)	4	B	140	6	DSO
80	09	27	17167	S16	E25	302	1900	3.5	21777	S12	E29	302	B	1	B	30	9	CRO
80	09	27	17167	S16	E25	302	1900	3.5	21769	S18	E30	301	(BY)	5	B	300	25	DHI
80	09	28	17167	S16	E13	301	1400	3.5	21769	S18	E18	300	(D)	4	B	470	31	DHI
80	09	29	17167	S17	E03	300	1400	3.5	21769	S18	E05	300	(D)	5	H	140	13	DAO
80	09	30	17167	S15	W13	302	1500	3.0	21783	S08	W12	304	(AP)	2	H		1	AXX
80	09	30	17167	S15	W13	302	1500	3.0	21769	S18	W07	299	(BP)	4	H	140	11	DAO
80	10	1	17167						21769	S18	W21	299	(B)	5	H	150	13	DSO
80	10	2	17167	S15	W35	300	1400	3.0	21769	S18	W35	300	(BP)	3	H	120	5	CAO
80	10	3	17167	S16	W48	299	800	3.0	21769	S18	W47	299	(BP)	3	H	130	5	CAO
80	10	4	17167	S15	W65	302	400	3.0	21769	S18	W58	297	(BP)	3	H	50	3	CAO
80	10	5	17167	S16	W74	298	300	2.5	21769	S17	W70	295	(B)	2	B	20	3	BXO

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HALE REGION 17168 CMP DATE 30.0 RETURN OF REGION 17098 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	23	17168	N17	E79	304	400	3.0		N12	E78				H	70	1	HSX
80	09	24	17168	N14	E68	302	1300	3.5	21770	N12	E67	303	(BP)	3	H	70	3	CSO
80	09	25	17168	N14	E58	298	700		21770	N12	E54	303	(AP)	4	B	70	6	DSO
80	09	26	17168						21770	N12	E40	304	(AP)	4	B	30	1	HSX
80	09	27	17168	N14	E28	299	800	3.0	21770	N11	E26	305	(AP)	4	B	60	3	CSO
80	09	28	17168	N14	E14	300	800	3.0	21770	N12	E14	304	(AP)	4	B	110	8	HSX
80	09	28	17168	N14	E14	300	800	3.0	21781	N17	E15	303	(BP)	2	B	60	3	CRI
80	09	29	17168	N14	E03	300	600	3.0	21770	N12	E01	304	(AP)	4	H	30	4	CAO
80	09	30	17168	N15	W10	299	700	3.0	21770	N12	W13	305	(AP)	4	H	20	4	CAO
80	10	1	17168						21770	N12	W26	304	(AP)	4				
80	10	2	17168	N15	W34	299	400	3.0	21770	N12	W39	304	(AP)	4	H	10	1	HRX
80	10	3	17168	N14	W46	297	400	3.0	21770	N12	W55	307	(AP)	3	H	10	1	AXX
80	10	4	17168	N15	W62	299	200	3.0	21770	N11	W65	304	(AP)	2	H	20	1	AXX
80	10	5	17168	N14	W69	293	100	2.5										

HALE REGION 17171 CMP DATE 30.6 N PART REAR OF 17089, REST NEW ROTATIONS 2 AND 1

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	27	17171	S17	E35	292	1000	3.5	21778	S18	E41	290	(B)	3	B	30	9	CRO
80	09	28	17171	S17	E23	291	900	3.5	21778	S18	E28	290	(B)	3	B	130	14	DSI
80	09	29	17171	S18	E11	292	1300	3.0	21778	S17	E11	294	(BP)	3	H	20	4	CSO
80	09	30	17171	S18	W02	291	1000	3.0	21784	S09	E02	290	(AF)	2				
80	10	1	17171						21787	S21	W10	288	(AF)	3	H	150	13	DSO
80	10	2	17171	S17	W28	293	800	3.0		S17	W35				H	120	5	CAO
80	10	3	17171	S17	W42	293	900	3.0		S17	W46				H	130	5	CAO
80	10	4	17171	S16	W56	293	400	3.0		S17	W59				H	50	3	CAO
80	10	5	17171	S14	W69	293	400	2.5		S17	W66				L	30	2	CSO

DAILY CALCIUM PLAGE INDEX

SEPTEMBER 1980

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
80	9	1	66.2	80	9	11	28.8	80	9	21	40.7
80	9	2	48.3	80	9	12	41.5	80	9	22	55.4
80	9	3	49.7	80	9	13	43.3	80	9	23	58.7
80	9	4	53.5	80	9	14	45.9	80	9	24	64.7
80	9	5	*	80	9	15	55.6	80	9	25	*
80	9	6	56.3	80	9	16	*	80	9	26	*
80	9	7	64.5	80	9	17	64.5	80	9	27	40.8
80	9	8	57.2	80	9	18	68.3	80	9	28	45.0
80	9	9	42.8	80	9	19	55.6	80	9	29	48.1
80	9	10	43.7	80	9	20	56.9	80	9	30	48.6

NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT MT WILSON OBSERVATORY ON SEPTEMBER 5, 16, and 26, 1980.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT WILSON OBSERVATORY ON SEPTEMBER 16-23, 1980.

CONTIGUOUS PLAGES FOR SEPTEMBER 1980: 17089 - 17100
17093 - 17134
17146 - 17160
17156 - 17163

SUDDEN IONOSPHERIC DISTURBANCES

SEPTEMBER 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0130	0156	0136	1-	3	1			1				0130	17098
01	0208	0250U	0210	1-	1	1							0205	17089
01	0230	0300	0238	1-	3				2				0227	17089
01	0414	0503	0439	1-	1				1				0416	17100
01	0520	0635	0527	1	3	1			2				0519	17089
01	0939	1025	0950	1	3	1		1		1			*	
01	1201	1215D	1215	1-	1				1				*	
01	1256	1315	1306	1-	3	1		1	1				1301E	17098
01	1407	1414D	1414	1-	5				1		5		1403	17098
01	1459	1503D	1503	1-	3				1		1		NF	
01	1544	1601D	1601	1-	3				1		1		NF	
01	1623	1708	1634	1-	5			1	1		9		1618	17098
01	1854	1925	1859	2	3						4		1855	17089
01	1932	2020	1945	2+	3						4		1931	17089
02	0015	0055	0020	1	3	1			2				*	
02	0111	0130	0117	1-	1				1				0110	17089
02	0140	0158	0148	1-	1				1				0141	17089
02	0248	0316	0255	1-	1				1				0249	17089
02	0344	0430	0357	2	3						2		*	
02	0642	0810	0705	2	5	2			2				0641	17089
02	1135	1222	1200	2	3	1			1				*	
02	1312	1335	1325	1	5	1			2		4		1312	17089
02	1633	1738	1644	1-	5				1		6		1633E	17098
02	1810	1851	1828	1-	5				1		5		1806	17098
02	2224	2322	2239	1-	3				1		2		*	
03	0140	0213	0144	1	1	1							0137	17098
03	0213	0303U	0216	1	1	1							0211	17092
03	0321	0344	0324	1-	1				1				0317	17096
03	0357	0512D	0419	2+	3	2			1				0353	17100
03	0512E	0613	0522	1	3	1			1				0510	17098
03	0636	0716	0644	1-	1				1				0634	17100
03	0742	0824	0748	1-	5	2			1	1	2		0742	17098
03	1344	1408D	1408	1-	5	1			1	1	4		NF	
03	1423	1440	1429	1-	5	1			1	1	6		1421	17100
03	1719	1818	1729	1-	5				1		8		*	
03	1924	2038	1944	1-	5	1			1		10		1936E	17089
03	2046	2138D	2105	1-	5				1		5		2053E	17089
03	2140E	2212	2152	1-	1				1				*	
03	2323	2351	2330	1-	1				1				NF	
04	0052E	0152D	0131	1	3				2		1		*	
04	0150	0355	0218	3	5	2			1		1		0152	17089
04	0418	0520	0444	1-	3				2				0418	17089
04	0640	0655D	0644	1-	5			3	2				0640	17098
04	0655E	0805	0712	1-	1				1				NF	
04	1711	1802	1719	1-	5				1		5		1719E	17100
04	2136	2154	2142	1-	1				1				2135	17089
04	2215	2316	2222	1	5	2			1		4		2214	17100
05	0227	0300	0233	1-	5	1			2		1		0225	17092
05	1430	1507	1439	1-	1				1				1429	17096
05	1808	1820D	1820	1-	3				1		5		*	
06	0144	0220	0154	1-	3				2		1		0144	17092
06	0855	0930	0900	1	5	1			1	1	2		0854	17100
06	1255	1328	1308	1-	3				1	1	1		*	
06	1343	1355D	1355	1-	3			3	1		1		*	
06	1426	1520	1447	1-	3			3					*	
07	0157	0216	0202	1-	1				1				0158	17096
07	0320	0343	0325	1-	3				2				0319	17096
07	0731	0810	0734	1-	1				1				0727	17093
07	1301	1346	1309	1-	5				1	1	4		*	
07	1429	1441	1435	1-	5	1			1	1	7		*	
07	1916	1919D	1919	1-	1				1		1		1910	17096
08	0502	0523D	0509	3	5	2			2		1		0504	17117
08	0523E	0826	0531	3	5	3		1	1	1	1		0523	17100
08	1912	2007	1921	1-	5	2			1		7		1910	17117
08	2207	2223	2210	1-	1				1				2205E	17096
08	2304	2336	2312	1-	1				1				2300E	17092
09	0146	0213	0150	1-	3	1			1				0146	17095
09	0328	0401	0339	1-	3	1			1				*	
09	1531	1602	1539	1-	3				1		1		*	
09	1859	2030	1915	2	3						4		1859E	17100

SUDDEN IONOSPHERIC DISTURBANCES

SEPTEMBER 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
10	0656	0725	0701	1-	1				1				0659E	17117
10	2155	2314	2209	1	5	1			1		4		*	
11	0144	0241	0157	1-	3	2			2				0144	17117
11	0826	0842	0829	1-	3				2				0822	17117
11	1333	1347	1338	1-	5	1			1	1	4		*	
11	1419	1533	1431	1-	3				1		3		*	
11	1525	1540	1527	1-	3						3		1524	17117
12	0050	0141	0102	1-	3	2			2		1		NF	
12	0202	0315	0207	1	5	2			2		1		*	
12	0509	0535	0512	1-	1				1				0507E	17117
12	0547	0656	0553	1	3				2		1		0547E	17117
12	1242	1338	1257	1-	1				1				1247E	17117
13	0202	0224	0209	1-	1				1				0201	17121
13	0514	0600	0528	1-	1				1				*	
14	1353	1516	1438	1-	1				1				*	
14	1420	1534	1444	1-	1				1				*	
15	0250	0310	0258	1-	3	1			1				*	
15	0732	0805	0734	1-	3				1		1		0729	17127
15	0846	0925	0856	1	3	1			1	1	1		0845	17117
15	2347	0016	2354	1-	1				1				*	
16	0616	0640	0622	1-	1				1				0611	17117
16	2047	2145	2057	1-	3						2		2041	17127
17	1822	1912	1830	1-	5				1		7		1817	17117
17	1833	1945	1839	2+	1						1		1834E	17127
18	1803	1848	1812	1-	3				1		4		1759	17117
20	1015	1100	1042	1	3			1		1	1		NF	
20	1937	2034	1951	1-	5				1		8		*	
20	2014	2100	2017	1-	3						5		2010	17127
21	0523	0634	0545	1-	3				2				0517	17145
22	0037	0103	0044	1-	1				1				0038	17145
22	0539	0655D	0558	1	3				2				*	
22	0655E	0912	0735	2	3				1		1		NF	
22	2212	2334	2227	1-	3				1		3		*	
23	0224	0330	0233	1-	1				1				0222	17145
23	0439	0622	0447	2	3	1			2				0439	17145
23	1552	1825	1615	2	5	3			1	1	7		*	
24	0732	0820	0741	2+	5	3		2	1	1	2		0732	17145
24	1637	1755	1646	1-	5				1		9		1631	17164
25	0941	1055	0956	2+	5	1		4	2	1	3		0933	17155
26	0259	0347	0311	1-	1				1				*	
26	1747	1815	1752	1	3						5		*	
27	0122	0158D	0127	1	3	1			2		1		0120	17151
27	0158E	0239	0209	1-	1				1				0158	17155
27	1719	1755	1722	1+	3						7		*	
27	2147	2221	2153	1-	3	1			1		2		2142E	17173
29	0321	0410	0326	1-	3				2				*	
29	0505	0605	0510	1	3				2		1		*	
29	2223	0007	2256	1-	3				1		1		*	
30	1150	1220	1157	1-	3	1		2	1	1			1149	17173
30	1412	1450	1421	1-	1				1				1417E	17173
30	1813	1833D	1833	1-	5	1			1		6		1805E	17173

SUDDEN IONOSPHERIC DISTURBANCES

SEPTEMBER 1980

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) AND STATION	DATE	TIME (UT) AND STATION
01	0000-2400 A05, A52	17	0000-2400 A05, A52
02	0000-2400 A05, A52; 0710-1345 UM	18	0000-2400 A05, A52
03	0000-2400 A05, A52	19	0000-2400 A05, A52
05	0000-2400 A05, A52; 1429-1505 UM	20	0000-2400 A05
06	0000-2400 A05, A52	21	0000-2400 A05
07	0000-2400 A05, A52	22	0000-2400 A05
08	0000-2400 A05, A52; 2115-2400 UM	23	0000-2400 A05; 1015-1436 UM
09	0000-2400 A05, A52; 0000-2400 UM	24	0000-2400 A05, A52
10	0000-2400 A05, A52; 0000-2600 UM	25	0000-2400 A05, A52
11	0000-2400 A05, A52; 0900-1257 UM	26	0000-2400 A05, A52
12	0000-2400 A05, A52	27	0000-2400 A52
13	0000-2400 A05, A52; 1300-1407 UM	28	0000-2400 A52
14	0000-2400 A05, A52; 0000-2400 KA	29	0000-2400 A52
15	0000-2400 A05, A52; 0000-2400 KA	30	0000-2400 A52
16	0000-2400 A05, A52; 0000-2400 KA 1020-1324 UM		

STATIONS REPORTING FOR SEPTEMBER 1980:

Cleveland, Ohio USA	SES	Mahwah, New Jersey, USA	SES
Garden City, New York, USA	SES	Maui, Hawaii, USA	SWF
Glenorchy, Tasmania, Australia	SWF	Missoula, Montana, USA	SES
Hiraiso, Japan	SWF	Panska Ves, Czechoslovakia	SWF, SEA, SES
Hobart, Tasmania, Australia	SEA	Portage, Michigan, USA	SES
Houston, Texas, USA	SES	Sao Paulo, Brasil	SPA, SES
Huancayo, Peru	SWF	Sofia, Bulgaria	SES
Inubo, Japan	SPA	St. Cloud, Minnesota, USA	SES
Juliusruh, GDR	SWF	Thornwood, New York, USA	SES
Kasugai, Japan	SPA	Trenton, New Jersey, USA	SES
Kuhlungsborn, GDR	SEA, SPA	Upice, Czechoslovakia	SES
Lake Hiawatha, New Jersey, USA	SES	Valley Cottage, New York	SES
Latrobe, Pennsylvania, USA	SES	Vsetin, Czechoslovakia	SEA
Louisville, Kentucky, USA	SES	Zilina, Czechoslovakia	SEA

SIDs BY HALE REGION

SEPTEMBER 1980

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
17089	5	5	2	3																											
17092			1		1	1		1																							
17093							1																								
17095									1																						
17096			1		1		3																								
17098	4	2	3	1																											
17100	1		3	2		1		1	1																						
17117								2		1	3	3			1	3															
17121													1																		
17127															1	1	1			1											
17145																					1	1	2	1							
17151																											1				
17155																									1		1				
17164																								1							
17173																											1			3	
NO FLARE	2		1	1								1								1		1									
NO FLARE PATROL	2	4	2	1	1	3	2		2	1	2	1	1		2					1		2	1		2	2	1		3		
EVENT TOTALS	10	7	10	6	2	2	4	4	2	1	3	3	1		2	4	1			1	1	1	2	2	1		3			3	

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0732	CULG										
			CULG				0000	0300					IS,W
			CULG	0000	0550	1							IS
			CULG				0231	0530					IIIN,W
			CULG				0300	0458	1				IS,DC
			CULG	0309	0309.5	1	0309	0309.5	2				IIIB
			PALE				0309.3	0345.8	1				S
			LEAR				0309.3	0346.2	1				S
			CULG				0311		3				IIIB
			CULG				0339.5		3	0339.5		1	IIIB
			CULG				0345.5	0346	3				IIIG
			CULG				0346.5		1				IIIB
			CULG				0353.5	0354.5	1				IIIG
			LEAR				0453.1	0453.4	1				III
			CULG				0458	0549	2				IS,C,DC
	1322	1735	WEIS				0513	1636	2				IN,DC
	0512	1309	WEIS				0517	1658	2				IIIN
			LEAR				0529.3	0957.0	1				B
			CULG				0530	0541	1				IIIS
			CULG				0541	0732					IIIN,W
			LEAR				0543.4	0545.0	3				V
			CULG	0543.5	0544	2	0543.5	0544.5	3	0543.5	0544	2	IIIG,V
	0450	1710	BLEN				0543.5	0544.0	2				IIIGG
			WEIS				0543.8	0544.6	3				IIIG
			CULG				0549	0732					IS,W
			CULG				0551	0700	1				IIIN
			LEAR				0553.6	0603.2	1				II
			CULG				0554	0600	1				II
			BLEN				0555	1720 D	2				I,DC
			CULG				0639.5	0642	3				IIIGG,V
			LEAR				0639.7	0641.7	2				V
			BLEN				0639.8	0641.5	2				IIIGG
			WEIS				0640.2	0643.6	3				IIIGG
			CULG				0642	0644.5	1				DC
			BLEN				0651.5	0706.2	2				IIIGG
			LEAR				0701.5	0702.9	2				V
			CULG				0701.5	0702.5	2				IIIG
			WEIS				0701.7	0702.5	3				IIIG
			CULG	0705	0707	3	0705	0707.5	3				IIIGG,V
			LEAR				0705.2	0707.9	3				V
			WEIS				0705.7	0708.2	3				IIIGG
			WEIS				0729.5	0829.7	3				IIIG
			LEAR				0829.0	0829.3	2				III
			BLEN				0858.8	0959.9	1				IIIGG
	0745	1715	DWIN	0920.5	0925.0	1							IV
			BLEN				0920.5	0924.0	1				IIIGG
			WEIS				0920.9	0925.4	3				IIIGG
			LEAR				0923.6	0924.2	2				V
			BLEN				1026.3	1027.0	1				IIIG
			BLEN				1044.9	1055.7	2				IIIGG,U,RS
			WEIS				1135.5	1143.3	1				II
			BLEN				1200.2	1200.3	1				IIIB,U
			WEIS				1224.7	1226.6	3				IIIGG
			BLEN				1245.5	1245.8	1				IIIG
			BLEN				1254.5	1256.1	1				IIIG
	1302	2255	HARV				1303	1304	2				IIIG
			BLEN				1303.0	1303.6	2				IIIG
			WEIS				1303.7	1304.1	3				IIIG
			HARV	1359	1400	3							IIIB
			BLEN				1438.2	1438.5	2				IIIG
			HARV	1513	1514	1							IIIG,W
			BLEN				1513.5	1513.7	2				IIIG
			HARV				1543	1550	1				I
			HARV				1608	1609	1				IIIG
			BLEN				1620.2	1621.4	2				IIIG
			HARV	1621		2							IIIG
			BLEN				1642.9	1642.9	2				IIIB
			HARV	1656	1657	3							IIIG
			BLEN				1656.5	1656.7	2				IIIG
			DWIN	1712.9	1713.6	2							IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
01			BLEN	1712.9	1713.1	2							IIIG
			HARV				1802	1806	2				IIIG
			HARV				1821	1932	1				IN,IIIN
			PALE				1929.8	1950.5	2				S
			HARV	1934		2	1934		2	1934		2	IIIB
			HARV				1938	1939	2	1938	1939	1	IIIG
			HARV				1946		2				IIIB
			PALE				2010.2	2043.6	2				S
			HARV				2011		2	2011		3	IIIG
	2032	2400	CULG				2032	2400					IS,W
			CULG				2037	2315					IIIS,W
			CULG				2043	2319	1				IIIN
			HARV				2043		2	2043		2	IIIG
			HARV				2106		1	2106		2	IIIB
			CULG				2106		2				IIIB
			PALE				2134.6	2140.8	1				CONT
			CULG				2140.5		2				IIIB
			PALE				2227.6	2251.3	2				S
			HARV				2229	2231	1				IIIG
			CULG				2250.5	2251	3	2250.5	2251	2	IIIB
			CULG				2251		2	2251		1	IIIB
			PALE				2314.9	2330.0	2				S
			CULG				2315	2400					IIIN,W
			CULG				2318.5		3	2318.5		2	IIIB
			LEAR				2318.6	2318.8	1				III
			CULG				2329.5		3	2329.5		2	IIIB
			LEAR				2329.8	0010.9	1				S
			PALE				2342.2	0010.8	2				S
			CULG				2342.5		2				IIIB
			LEAR				2355.3	2355.6	2				V
			CULG				2355.5		3				IIIB
02	0000	0732	CULG				0000	0732					IS,W
			CULG				0010.5		1	0010.5		1	IIIB
			CULG				0013	0732					IIIN,W
			CULG				0034.5		1				RS,DP
			LEAR				0051.0	0651.0	1				B
			PALE				0051.1	0120.2	1				S
			CULG				0120	0732	1				IIIN
			CULG				0208.5	0210	2	0208.5		1	IIIG
			PALE				0208.6	0209.6	1				V
			CULG				0252		2				IIIB
			CULG				0346	0349.5	1				IIIGG
			LEAR				0346.9	0349.0	2				V
			CULG				0347		2				IIIB
	0512	1833	WEIS				0517	1710	2				IS,DC
	0550	1710	BLEN				0550 E	1710 D	2				I,DC
			WEIS				0614	1557	2				IIIN
	0655	1710	DWIN	1003.8	1004.2	2							IIIG
			BLEN	1003.9	1004.2	2							IIIG
			WEIS				1130	1730	1				CONT
	1303	2240	HARV	1309	1312	1							IW
			DWIN	1310.5	1313.5	1						IV	P
			HARV	1311	1313	1							IIIG,W
			BLEN	1311.2	1313.0	1	1310.5	1313.0	1				IIIG
			HARV				1343		1				IIIB
			HARV				1351	1813	1				IN,W
			WEIS				1418.6	1421.8	3				IIIGG
			HARV				1419	1421	2	1419		1	IIIG
			WEIS				1446.6	1449.3	3				IIIGG
			HARV				1447	1448	2	1447	1448	1	IIIG
			HARV				1517	1518	2	1517	1518	1	IIIG
			HARV				1530		2	1530		1	IIIG
			HARV	1538	1539	1	1538	1539	3	1538	1539	3	IIIG
			WEIS				1538.7	1539.9	3				IIIGG
			HARV				1627	1628	3	1627	1628	3	IIIG
			WEIS				1627.4	1628.5	3				IIIG
			HARV				1634	1635	3	1634	1635	3	IIIG
			WEIS				1634.8	1635.1	3				IIIG
			PALE				1742.0	1744.0	1				CONT

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
02			HARV				1743	1745	2	1743	1745	2	IIIGG
			HARV							1748		2	IIIB
			HARV				1811		3	1811		3	IIIG
			HARV				1815		1	1815		1	IIIB
			HARV	1926	1927	1							I
			CULG				2032	2206					IS,W
	2032	2400	CULG				2032	2140					IIIS,W
			CULG				2140	2400					IIIN,W
			CULG				2206	2333					IN,W
03	0000	0731	CULG				0022	0650					IIIN,W
			LEAR				0057.9	0058.1	1				III
			CULG				0058		1				IIIB
			PALE				0058.0	0058.1	1				III
			CULG				0126		1	0126		1	IIIB
			CULG				0335.5	0336.5	1				IIIG
			LEAR				0335.9	0336.2	1				III
			CULG				0402	0403.5	1				IIIG
			LEAR				0407.0	0408.5	1				V
			CULG							0409	0430		SWF
			CULG				0411	0454					IS,W
			CULG				0411.5	0413	3	0411.5	0412.5	2	IIIG
			PALE				0411.7	0412.4	1				CONT
			LEAR				0411.8	0412.5	2				V
			LEAR				0532.7	0641.0	2				CONT
			CULG				0533	0534	3	0533	0533.5	3	IIIG
			CULG				0535	0731					IS,W
			CULG				0536		1				IIIB
	0550	1710	BLEN				0550 E	1710 D	3				I,DC
			CULG				0551	0551.5	2				IIIB,U
	0557	0841	WEIS				0619	1715	2				IDC
			LEAR				0637.6	0638.9	1				CONT
	0851	1735	WEIS				0637.9	0638.7	1				IIIG
			CULG				0650	0731					IIIS,W
			CULG				0656		1				IIIB,U
			WEIS				0656.4	0656.7	2				U
			WEIS				0707.4	0707.5	1				IIIB
			WEIS				0826.3	0826.5	1				IIIG
			WEIS				0941.6	0941.7	1				IIIB
			WEIS				0951.7	0952.4	3				IIIG,U
			WEIS				1009.2	1009.3	1				IIIB
			WEIS				1010.4	1010.5	1				IIIB
			WEIS				1013.0	1013.2	1				IIIB
			WEIS				1015.3	1015.5	1				IIIG
			WEIS				1021.4	1021.7	1				IIIG
			WEIS				1041.5	1042.4	1				IIIG,U
			WEIS				1045.4	1045.6	3				RS
			WEIS				1108.8	1108.9	1				IIIB
			WEIS				1117.7	1117.9	1				IIIB
			WEIS				1121.5	1121.6	1				IIIB
			WEIS				1123.9	1124.0	1				IIIB
			WEIS				1125.4	1125.7	2				IIIB,U
			WEIS				1127.2	1127.4	3				IIIG,U
			WEIS				1144.7	1146.8	1				IIIG
			WEIS				1156.7	1156.8	1				IIIB
			WEIS				1240.2	1240.4	2				IIIB
			WEIS				1249.1	1249.3	2				IIIB
	1303	2245	HARV				1305	2245	2				I
			HARV				1421		2				IIIG
			WEIS				1421.0	1421.4	2				IIIG
			WEIS				1422.6	1423.2	2				IIIG
			WEIS				1446.5	1449.8	2				IIIG
			HARV				1449		2				IIIG
			WEIS				1451.6	1451.7	1				IIIB
	0525	1710	DWIN	1455.1	1455.4	1							IIIG
			HARV	1500		1	1500	1501	3	1500		1	IIIG,V
			DWIN	1500.4	1500.6	2							IIIG
			WEIS				1500.4	1501.9	3				IIIG
			HARV				1555	1556	2				U
			WEIS				1555.5	1556.4	3				IIIG,U

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
03			WEIS				1638.9	1639.9	3				IIIG,RS
			HARV				1639		1				IIIG
			HARV				1652		3				IIIB
			WEIS				1652.1	1652.2	2				IIIB
			HARV	1805	1807	2							I
			HARV				1829		2				IIIG
			HARV				1842	1843	2				IIIG
			PALE				1842.2	1849.5	1				CONT
			HARV				1848	1849	2				IIIG
			PALE				1921.9	1927.2	1				CONT
			HARV	1927	1938	1							I
			PALE				1935.7	1937.1	2				CONT
			PALE				1956.0	1956.3	2				III
			PALE				2030.8	2031.1	2				III
			CULG				2031	2200					IS,W
	2031	2400	CULG				2031	2141					IIIS,W
			CULG				2054		1				IIIB
			CULG				2141	2400					IIIN,W
			CULG				2157.5	2158	1				IIIG
			PALE				2157.5	2157.7	1				III
			CULG				2200	2400					IN,W
			CULG	2302	2400								IS,W
			CULG				2320	2320.5	1				IIIB,Z
04	0000	0627	CULG	0000	0550								IS,W
			CULG				0005	0440					IIIN,W
			CULG				0141	0222					IS,W
			LEAR				0153.2	0500.0	1				B
			CULG							0159	0235	2	SWF
			CULG	0201.5	0202	2							IIIGG
			CULG	0208	0208.5		0208	0212	1				II
			CULG	0215	0510	2	0220	0510	2				IV
			CULG				0222	0628	1				IS,DC
			LEAR				0223.2	0224.8	2				V
			LEAR				0234.4	0233.5	2				V
			LEAR				0304.4	0305.4	2				V
			CULG				0304.5	0305	2	0305		1	IIIG
			PALE				0304.7	0305.0	1				III
			CULG				0316		1				IIIB
			CULG				0439		1				IIIB
	1358	1719	WEIS				0515	1716	2				IN,DC
	0550	1140	BLEN				0550 E	0810	1				I,DC
	0513	1355	WEIS				0631	1717	2				IIIN
			WEIS				1055.6	1056.2	3				IIIG
	1302	2245	HARV				1303	1600	2				I
			HARV				1351	2011	2				IIIN
			HARV				1600	1840	3				I
	0700	1710	DWIN	1627.0	1627.2	2							IIIG
			WEIS				1700.7	1700.9	2				IIIG
			PALE				1813.4	1813.5	1				III
			HARV				1840	2100	2				I
			PALE				1930.3	1936.3	2				CONT
			HARV				1936		2				IIIG
	2032	2400	CULG										
			CULG	2032	2243	1	2032	2243	1				IS
			CULG				2032	2243					IIIS,W
			HARV				2100	2245	1				I
			HARV				2142	2143	3				IIIG
			CULG				2142.5	2143.5	3				IIIG,V,U
			PALE				2142.5	2143.5	2				CONT
			CULG				2201.5	2218.5	1				IIIN
			CULG	2243	2400		2243	2400					IS,W
			CULG				2243	2353					IIIN,W
			CULG				2252.5	2253.5	3				IIIG
			LEAR				2252.7	2253.3	1				V
			PALE				2252.8	2253.7	2				V
05	0000	0730	CULG				0000	0151					IIIN,W
			CULG	0000	0730								IN,W
			CULG				0021		1				IIIB

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
05			CULG				0148	0730					N,RS,DP
			CULG				0151	0247					IIIS,W
			PALE				0222.3	0224.4	2				V
			LEAR				0223.2	0224.8	2				V
			CULG	0223.5	0224.5	2	0223	0224.5	3	0223	0224.5	3	IIIG,V
			CULG	0226	0646								IIIN,W
			CULG				0234	0307	1				IIIN
			CULG				0247	0730					IIIN,W
			LEAR				0253.6	0306.9	1				S
			CULG	0258		2	0258		1				IIIB
			LEAR				0453.2	0504.3	1				S
			CULG				0456	0458	1				IIIGG
			CULG				0456.5	0457	2				IIIG
			CULG				0501.5	0504	1				IIIGG
	0523	1717	WEIS				0647.8	0748.0	1				IIIB
			WEIS				0718.8	0719.2	1				IIIG
			WEIS				0757.7	0757.9	1				IIIG
			WEIS				0815.7	0815.9	1				IIIG
			WEIS				0830.7	0830.8	1				IIIB
			WEIS				0918.8	0918.9	1				IIIB
			WEIS				0944.5	0945.0	2				IIIG
			WEIS				1020.8	1021.2	2				IIIG
			WEIS				1058.3	1058.5	2				IIIG,U
			WEIS				1102.7	1103.3	2				IIIG
	1119	1710	BLEN				1241.5	1241.8	1				IIIG
			WEIS				1241.9	1244.7	2				IIIG
	1303	2245	HARV	1310		2	1310		3				IIIG
			WEIS				1310.2	1310.3	2				IIIG
	0530	1700	DWIN	1318.5	1319.3	2							IIIG
			WEIS				1318.9	1320.2	3				IIIG
			HARV	1319	1320	1	1319	1320	3				IIIG
			BLEN	1319.2	1319.2	2	1318.5	1319.7	2				IIIGG
			HARV				1322	2235	1				IN,W
			WEIS				1322.4	1322.6	1				IIIB
			WEIS				1326.0	1326.2	1				IIIB
			HARV	1346	1347	3	1346	1347	3				IIIG
			DWIN	1346.0	1347.2	2						IV	P
			BLEN	1346.1	1347.2	2	1346.1	1347.2	2				IIIGG
			WEIS				1346.6	1348.6	3				IIIGG
			WEIS				1351.0	1351.2	1				IIIB
			HARV	1357		2	1357		2				IIIG
			WEIS				1357.5	1357.9	2				IIIG
			HARV				1437	1438	3				IIIG,U
			WEIS				1437.8	1439.2	3				IIIG
			WEIS				1527.0	1535.5	2				IIIGG
			HARV				1528	1532	2				IIIG
	2031	2400	CULG				2031	2400					IIIN,W
			CULG				2102		1				IIIB
			CULG				2217.5	2218.5	1				IIIG
			HARV				2218		2				IIIG
06	0000	0730	CULG				0057	0718					IIIN,W
			CULG				0104.5	0106	2				IIIG
			LEAR				0104.6	0106.0	1				V
			CULG				0127.5		1				IIIB,U
			CULG	0229.5		1	0229.5	0230	2	0229.5	0230	2	IIIG
			LEAR				0229.5	0230.1	2				V
			CULG	0257.5	0258	1	0257.5	0258	1				IIIG
			LEAR				0257.6	0258.0	1				CONT
			CULG	0434	0555	1							IN
			CULG	0555	0703	1							IS
	0525	0900	WEIS				0601	1427	1				IN
			CULG				0629.5	0630	2				IIIB
			LEAR				0629.8	0631.3	1				CONT
	0913	0958	WEIS				0630.0	0631.9	2				IIIG
			CULG				0631	0631.5	1				IIIG
			CULG				0703		1				IIIB
	1132	1716	WEIS				0703.6	0703.8	2				IIIB
	0530	1700	DWIN	0826.1	0827.0	1							IIIG
			LEAR				0826.8	0827.1	1				III

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06			WEIS				0827.0	0827.6	3				IIIG
			WEIS				0828.8	0829.2	2				IIIG
			LEAR				0941.4	0941.6	1				III
			WEIS				0941.7	0942.6	3				IIIG
	0550	1535	BLEN				1100	1535 D	2				I,DC
			BLEN				1159.0	1159.3	1				IIIG
			WEIS				1159.5	1201.1	2				IIIG
			BLEN	1301.1	1302.5	2	1301.1	1305.3	3				IIIGG
			DWIN	1301.1	1302.0	1							IIIG
			WEIS				1301.7	1303.9	3				IIIG
	1303	2245	HARV				1303	2245	1				IN,W
			HARV				1305	1328	1				IIIN,W
			WEIS				1305.5	1305.7	2				IIIG
			WEIS				1307.3	1308.7	2				IIIG
			WEIS				1309.7	1309.9	2				IIIB
			WEIS				1631.1	1635.9	2				IIIGG
			HARV				1948	1949	2				IIIG
			PALE				1948.2	1949.3	1				CONT
	2030	2400	CULG										
			CULG				2030	2400					IIIN,W
			CULG				2134	2135	2				IIIG
			HARV				2134	2135	2				IIIG
			PALE				2134.2	2134.8	1				III
			CULG				2224		1				IIIB,V
			CULG				2319	2321	1				IIIG
			LEAR				2319.8	2320.0	1				III
			PALE				2319.8	2320.0	1				III
			CULG	2355	2400								I,W
07	0000	0730	CULG				0022	0036	1				IIIS
			CULG				0036	0730					IIIN,W
			CULG				0042		1				IIIB
			LEAR				0042.1	0042.4	1				CONT
			LEAR				0055.3	0055.5	1				V
			CULG				0055.5		2	0055.5	0056	1	IIIB
			CULG				0132.5		1				IIIB,U
			CULG				0218.5		1				IIIB
			LEAR				0218.7	0218.9	1				III
			CULG				0302	0302.5	3				IIIG,U
			LEAR				0302.0	0302.1	1				III
			CULG				0314.5	0315					UNCLF
			LEAR				0314.9	0315.1	1				V
			LEAR				0424.4	0428.0	1				CONT
			CULG				0424.5	0425	1	0424.5	0425	1	IIIG
			CULG				0428		2	0428		2	IIIB
			CULG				0453	0636	1				IIIN
			LEAR				0453.4	0453.9	1				CONT
			LEAR				0537.9	0538.1	1				III
	0525	1713	WEIS				0537.9	0538.0	1				IIIB
			LEAR				0548.7	0548.9	1				III
			WEIS				0549.3	0552.7	2				IIIG
			WEIS				0605.1	0605.4	2				IIIG
			WEIS				0627.9	0636.3	2				IIIGG
			LEAR				0633.1	0635.9	1				CONT
			WEIS				0706.2	0706.3	1				IIIB
	0600	1302	BLEN	0759.5	0759.6	2							IIIB
	0530	1700	DWIN	0759.5	0759.9	2							IIIG
			DWIN	1000.0	1000.8	2							IIIG
			BLEN	1000.9	1002.1	3							IIIG,U
			WEIS	1000.9	1001.2	1							IIIG
			DWIN	1002.2	1003.1	1							IIIG
			DWIN	1230.5	1231.0	2							IIIG
			BLEN	1230.7	1230.9	2							IIIG,U
			WEIS				1251.1	1251.3	1				IIIB
			WEIS				1308.3	1310.3	1				IIIG
			WEIS				1342.0	1342.1	1				IIIB
			DWIN	1347.1	1349.3	1							IIIG
			DWIN	1420.1	1420.3	2							IIIG
	1303	2245	HARV				1619	1700	1				IIIN
			WEIS				1625.3	1627.4	2				IIIGG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
07			HARV				1626	1749	1				IN,W
			WEIS				1638.5	1642.7	2				IIIGG
			WEIS				1648.2	1650.8	2				IIIG
			WEIS				1654.3	1654.6	1				IIIB
			HARV				1815	1816	2				IIIG
			HARV				1949	1954	1				IIIG,W
	2030	2400	CULG				2030	2036					IIIS,W
			CULG				2116						IIIB,W
			CULG				2206.5						IIIB,W
			CULG				2226	2227					IIIG,W
08	0000	0730	CULG				0000	0040					IIIN,W
			CULG	0151	0450								IS,W
			CULG				0406	0407.5	1				IIIG
			LEAR				0407.1	0409.3	1				CONT
			CULG							0504	0511	1	SWF
			CULG	0504.5	0506	3							II
			CULG				0504.5	0505.5	2				UNCLF
			CULG				0505	0505.5	1				IIIG
			LEAR				0505.0	0508.1	1				CONT
			CULG				0507	0508	2				IIIG
			CULG							0525	0545	2	SWF
			CULG	0526	0529	2	0526	0534	2				II H
	0527	0759	WEIS				0527	0532	1				II HARM
			CULG	0530	0730	1							IS
			WEIS				0533	0743	1				IS
	0600	1110	BLEN				0550 E	1110 D	2				I,DC
			CULG	0550	0630	1	0550	0705	1				IV
			CULG				0554	0730	1				IS
			LEAR				0554.5	0718.0	1				B
	0620	1700	DWIN										
			WEIS				0653.3	0658.6	2				IIIGG
			CULG				0653.5	0654	2				IIIG,V,U
			CULG				0655	0658	2				IIIGG
			WEIS				0701.5	0701.7	2				IIIB
			WEIS				0715.5	0717.7	2				IIIGG
			CULG				0716	0718	2				IIIGG,U
	0804	1711	WEIS				0816.0	0816.3	2				IIIB
			WEIS				0824.3	0824.7	2				IIIG
			WEIS				0906.4	0906.5	3				IIIB
			WEIS				0919.9	0920.9	2				IIIG
			WEIS				0942.3	0943.0	1				IIIG
			WEIS				0943.9	0944.2	1				IIIG
			WEIS				0946.6	0946.7	1				IIIB
			WEIS				1013.2	1015.3	3				IIIGG
			WEIS				1039.2	1039.9	1				IIIG
			WEIS				1042.0	1044.4	1				IIIG
	1303	2245	HARV				1307	1308	3				I
			HARV	1308		1	1308		3				IIIG
			WEIS				1308.2	1308.3	2				IIIB
			WEIS				1408.6	1408.8	2				IIIG
			HARV	1409		1	1409		3				IIIG
			WEIS				1431.2	1431.3	1				IIIG
			HARV	1534		1	1534		2				IIIB
			HARV	1630		1							IIIB
			HARV				1657	1658	1				IIIG
			HARV	1815	1817	1							IIIGG
			HARV				1924		2				IIIB
	2030	2400	CULG	2138	2139								IIIG,W
09	0000	0044	CULG	0005	0022								IIIN,W
			CULG	0027	0027.5	2							IIIG
			CULG				0040	0042					IIIN,W
	0126	0727	CULG	0126	0140								IS,W
			CULG	0614	0621	1							IIIN
	0600	1710	BLEN	0614.9	0619.3	2	0614.9	0619.3	2				IIIGG
			CULG				0658	0704					IIIN,W
	0529	1608	WEIS				0938.2	0938.5	1				IIIB
			WEIS				0958.2	0959.4	2				IIIG,RS
			BLEN				0958.2	0959.3	2				IIIGG

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09			WEIS				1016.7	1017.2	1				IIIG
			BLEN				1017.2	1017.2	1				IIIB
			BLEN				1149.3	1149.3	2				IIIB
	0650	1700	DWIN	1154.8	1155.2	1							IIIG
			WEIS				1315.2	1315.4	1				IIIB
	1303	2240	HARV				1318		2				IIIG
			WEIS				1318.3	1319.7	1				IIIG
			HARV				1409	1638	1				IN
			HARV				1422		1				IIIB,W
			WEIS				1422.2	1422.4	1				IIIG
			HARV				1504		1				IIIB,W
	1617	1709	WEIS				1640.2	1641.9	1				IIIG
			DWIN	1641.3	1642.0	2							IIIG
			BLEN	1641.9	1641.9	2							IIIB,U
			HARV	1642		3	1641	1642	3				IIIG
			HARV				1758	1810	1				IN,W
			PALE				1831.9	1841.1	2				CONT
			HARV				1834	1841	2	1834	1841	2	IIIGG
			HARV				1835	1841	2				I
	2030	2400	CULG	2030	2105								IS,W
			CULG				2045	2116					IIIN,W
10	0000	0729	CULG				0048	0721					
			CULG				0154.5	0155	1				IIIN,W
			CULG	0230	0350								IIIG
	0535	1655	DWIN										IS,W
	0600	1710	BLEN										
	0529	1710	WEIS				1223.3	1223.6	1				
			WEIS				1253.3	1253.4	1				IIIG
	1304	2245	HARV				1322	1323	1				IIIB
			HARV				1345		2				IW
			HARV				1418		3				IIIG
			WEIS				1508.6	1509.4	2				IIIB
			HARV				1509		2	1509		2	IIIG,U
			HARV				1514	1640	2				IIIG,U
			HARV				1552	1555	1				I
			HARV				1804	1806	3	1805	1806	2	IIIG
			PALE				1804.9	1805.3	2				IIIG
			HARV				1818	1820	1				V
	2029	2400	CULG				2031	2139					IIIG,W
			HARV				2111	2112	2				IIIN,W
			CULG				2119.5	2120	1				IIIG
			HARV	2135	2139	1	2135	2139	2				IIIB,U
			HARV				2156	2245	2				IIIG
11	0000	0729	CULG	0245	0250								I
			CULG	0318		1							IIIN,W
			CULG	0522.5	0523		0522	0523.5					IIIB
	0600	0658	BLEN										IIIG,W
			CULG	0610	0611	1							
	0625	1650	DWIN										I
	0528	1252	WEIS				0815.1	0815.7	1				
			LEAR				0815.3	0815.4	1				IIIG
			WEIS				0845.4	0846.1	2				III
			WEIS				0928.3	0928.5	1				IIIG
	1304	2245	HARV				1312	1840	1				IIIB
	1257	1709	WEIS				1328	1517	1				I
			HARV				1358		2				IN
	1410	1700	BLEN										IIIG
			WEIS				1508.7	1509.2	2				
			HARV				1509		2				IIIG
			HARV				1531	1539	1				IIIG
			HARV				1840	2000	2				IIIS
			HARV				2000	2245	1				I
	2029	2400	CULG	2029	2040								IN
			CULG				2138	2139					IS,W
			CULG	2245	2322								IIIG,W
			CULG				2302	2305	1				IS,W
			PALE				2303.0	2305.0	1				IIIGG
			LEAR				2304.2	2304.8	1				CONT
													V

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12	0000	0728	CULG				0034	0425					IS,W
			CULG				0043	0048	1				IIIGG
			CULG	0108	0108.5	1	0108	0109	3				IIIG,V
			PALE				0108.2	0108.5	1				III
			CULG				0131	0213					IIIS,W
			CULG				0202.5	0211	1				IIIGG
			CULG				0205	0207	1				N,RS,DP
			CULG				0233	0250					IIIN,W
			CULG	0309.5	0312								IIIG,W
			CULG				0425	0728					IN,W
	0540	1248	DWIN										
	0600	1700	BLEN										
	0530	1705	WEIS				0622	1213	1				IN
			WEIS				0754.7	0754.9	1				IIIB
			BLEN				0909.0	0915.0	1				I,DC
			WEIS				1143.1	1145.9	2				IIIGG
			WEIS				1257.3	1257.4	1				IIIB
	1304	2245	HARV				1305	1306	1				I
	1310	1750	DWIN										
			HARV				1330	1331	2				IIIG
			HARV				1538		1				IIIB,W
	2028	2400	CULG	2203.5									IIIB,W
			CULG				2233.5	2234.5					IIIG,W
			CULG	2259.5	2300	1							DCIM
			CULG	2304		1							IIIG
			CULG				2332.5						IIIB,W
13	0000	0728	CULG	0051		1							IIIB
			LEAR				0128.4	0129.9	1				CONT
			CULG				0128.5	0130	1	0128.5	0130	1	IIIG
			PALE				0128.5	0130.0	1				CONT
			LEAR				0244.9	0245.1	1				III
			CULG				0245	0400					IIIN,W
			LEAR				0346.5	0351.5	1				CONT
			CULG				0347.5	0348.5	2				IIIG
			CULG				0351		1				IIIB
			CULG				0358.5		1				IIIB
			CULG	0359	0442								IN,W
			CULG	0449	0449.5	2							IIIG,RS
	0540	1640	DWIN										
	0600	1700	BLEN	0858.3	0858.3	1							IIIB
	0531	0929	WEIS				1351.7	1356.3	2				IIIGG
	1304	2255	HARV				1352	1355	2			2	IIIGG
	0940	1703	WEIS				1542.1	1542.2	1				IIIB
			HARV				1649	1650	1	1649	1650	3	IIIG
			WEIS				1649.6	1649.8	1				IIIG
			HARV				1657		1				IIIB,W
			HARV	1711	1712	1	1711	1712	2				IIIG
			HARV	1911		1	1911	1915	2				IIIG
	2028	2400	CULG	2039.5	2040.5	2							IIIG
			HARV	2040		3	2040		1				IIIG
			CULG	2125	2125.5		2125	2125.5					UNCLF,W
			HARV				2126	2131	1				I
			CULG	2128.5	2129.5	1	2131	2131.5	1				UNCLF
			CULG	2138.5	2142.5								IIIG,N
			HARV	2139		1	2139		1				IIIB
			CULG	2144.5	2146.5	2							IIIG
			HARV	2145		3	2145	2146	3				IIIG
14	0000	0722	CULG	0114.5		1							IIIB
			CULG	0142	0142.5	1							IIIG
			CULG	0239.5	0240	2							IIIG
			CULG	0247	0247.5	2	0247	0247.5	1				IIIG
			CULG	0255	0553								IN,W
			CULG	0301	0304	1	0301	0304	1				IIIGG
			CULG	0339	0340	1	0339	0340	1				IIIG
			CULG				0645.5						IIIB,W
			CULG				0719.5		1				IIIB
	0533	1701	WEIS				0812.4	0812.6	1				IIIG
			WEIS				0814.8	0815.9	2				IIIG

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14			LEAR				0814.8	0815.2	1				V
			WEIS				0829.1	0829.3	1				IIIB
			WEIS				0953.3	0954.1	2				IIIG
	0600	1700	BLEN				0953.3	0953.7	2				IIIG
			BLEN	1125.3	1126.6	1	1121.5	1140.9	3				IIIGG,RS
	0545	1645	DWIN	1125.3	1126.7	2							IIIGG
			WEIS				1125.4	1126.6	2				IIIG,RS
			DWIN	1130.4	1130.5	1							IIIG
			WEIS				1137.4	1141.6	2				IIIGG
	1304	2245	HARV	1320		1	1320		2				IIIG
			WEIS				1353.7	1353.8	2				IIIG
			BLEN				1353.9	1358.8	3				IIIGG,RS
			WEIS				1355.8	1355.9	2				IIIG
			HARV	1356	1357	1	1354	1359	3				IIIGG
			WEIS				1435.7	1436.2	1				IIIG
			BLEN				1435.8	1436.2	1				IIIG
			HARV	1436		1	1436		3				IIIG
			HARV				1918		2				IIIB
			HARV				2039	2040	3				IIIG
	2027	2400	CULG	2039	2041	2	2039.5	2040.5	1				IIIGG
			HARV				2145		1				IIIB,W
			HARV				2156	2159	2				IIIG
			CULG	2156.5	2157.5	1							IIIG
			CULG	2158.5	2159	1							IIIG
			CULG	2243	2329								IN,W
			CULG				2308.5						IIIB,W
			CULG				2312	2314					IIIG,W
15	0000	0727	CULG	0004	0005	1							I
			CULG	0006	0006.5	1							I
			CULG				0225.5	0226.5	1				IIIG,V
			LEAR				0225.8	0226.1	1				V
			CULG	0422	0427	1							I
			CULG	0423	0427.5	1	0423	0426	1				IIIGG
			LEAR				0423.2	0426.1	1				V
	0615	0714	WEIS										
	0620	1640	DWIN	0729.2	0730.6	1							IIIG
	0610	1700	BLEN	0729.8	0730.4	1	0729.1	0730.5	2				IIIGG
	0731	1703	WEIS				1139.3	1141.7	2				IIIGG
	1304	2245	HARV				1327		1				IW
			WEIS				1332.8	1332.9	1				IIIB
			HARV				1333	1334	2				IIIG
			HARV				1347		1				IIIG,W
			HARV				1441	1442	1				IIIG
			HARV	1808	1809	2	1808	1809	3				IIIG
			HARV				1845	1907	1				I
			HARV				1943	1945	3				IIIGG
			HARV				2044	2045	1				IIIG
	2027	2400	CULG				2044.5	2045					IIIG,W
			HARV				2130	2133	1				IIIG
			CULG	2131	2131.5	1							IIIG
			CULG	2153	2216	1	2156	2216	1				IIIN
			HARV				2154	2157	3				IIIG
			HARV	2215		1	2212	2216	3				IIIG
			CULG				2354	2356					IIIG,W
16	0000	0727	CULG				0131						IIIB,W
			CULG	0157.5	0158	1							IIIG
			CULG	0234.5	0235	1							IIIG
			CULG	0321.5	0702		0321.5	0702					IIIN,W
			CULG	0344		1	0344		1				IIIB
			CULG				0608	0608.5	1				IIIB
	0533	1618	WEIS				0608.2	0608.4	2				IIIB
			WEIS				0701.6	0706.4	2				IIIG,RS
	0610	0746	BLEN				0702.4	0702.4	2				IIIB
	0545	1645	DWIN	0702.5	0704.7	2							IIIG
			CULG	0705.5	0706.5								IIIG
			BLEN	0706.2	0706.2	1							IIIB
			CULG	0718	0719.5	1	0719	0719.5	1				IIIG
			WEIS				0718.8	0719.5	2				IIIG

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16			BLEN				0719.2	0719.2	2				IIIB
			WEIS				0835.3	0837.6	2				IIIG
	0830	1317	BLEN	1103.7	1104.4	1							IIIG
			BLEN				1146.4	1146.4	1				IIIB
			BLEN				1248.9	1251.2	2				IIIG
			WEIS				1348.7	1351.3	2				IIIG
	1304	2250	HARV				1422	1430	3				IIIGG
			WEIS				1427.3	1428.6	2				IIIG
			HARV				1545		1				I
			HARV				1608		2				IIIB
			WEIS				1608.3	1608.4	1				IIIB
	1624	1701	WEIS				1626.8	1627.3	2				IIIG
			HARV	1627		2	1627		3				IIIG
			HARV	1700		2	1700		2				IIIG
			HARV	1714		1	1714		1				IIIB,W
			HARV	1739	1741	3	1739	1741	3				IIIG
			HARV	1823		1	1823		1				IIIG,W
			HARV	1846	1851	2	1846	1851	2				IIIG
			HARV	2014		2	2014		3				IIIG
	2026	2400	CULG										
17	0000	0727	CULG				0343	0344	2				IIIG
	0550	1635	DWIN										
	0600	1830	WEIS										
	0610	1600	BLEN										
	1304	2245	HARV	1401	1402	2	1359	1402	3				IIIG
			HARV				1408		2				I
			HARV				1411	1412	2				IIIG
			HARV				1652		1				IIIG,W
			HARV				1945	2135	1				IN,W
	2027	2400	CULG				2027	2200					IS,W
			CULG				2027	2314					IIIN,W
			HARV				2140		2				IIIB
			CULG				2140.5	2142	1				IIIG
			CULG				2200	2400					IN,W
18	0000	0726	CULG				0000	0315					IS,W
			CULG				0019	0334					IIIN,W
	0610	1630	BLEN										
	0613	0834	WEIS										
	0715	1635	DWIN										
	0855	1136	WEIS										
	1141	1655	WEIS										
	1318	2245	HARV				1903		1				IIIG,W
			HARV				1946		1				IIIG,W
	2026	2400	CULG										
19	0000	0725	CULG	0302.5	0303								IIIG,W
			CULG				0309.5	0311					IIIG,W
			CULG				0621	0621.5	1				IIIG
	0555	0845	DWIN	0727.5	0728.0	2							IIIG
	0538	1652	WEIS				0908.4	0909.3	1				IIIG
	0915	1630	DWIN										
	0610	1255	BLEN				1045.9	1046.6	1				IIIG
	1432	1630	BLEN	1059.5	1101.4	1							DCIM
			WEIS				1105.8	1106.1	1				IIIB
			WEIS				1150.4	1151.9	2				IIIG
			WEIS				1332.8	1333.1	1				IIIB
			WEIS				1358.8	1358.9	1				IIIB
			WEIS				1409.5	1412.4	2				IIIG
	1318	2255	HARV	1412		2	1410	1412	2				IIIG
			HARV	1509	1510	1	1509	1510	1				IIIG,W
			WEIS				1531.4	1531.7	1				IIIB
			WEIS				1533.3	1533.6	1				IIIG
			HARV				1549		3				IIIG
			HARV	2000	2003	2	2000	2003	2				IIIG
	2027	2400	CULG				2043	2307					IIIN,W
			CULG	2221	2221.5	1	2221	2221.5	2				IIIG
			HARV	2221		2	2221		2				IIIG
			CULG	2338.5		1							IIIB

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
20	0000	0725	CULG	0003.5	0004.5	1	0004	0004.5	1				IIIG
			CULG				0057.5						IIIB,W
			CULG	0057.5	0058.5	1							IIIG
			CULG	0101	0401								IIIN,W
			CULG				0115	0115.5					IIIG,W
			CULG				0339	0340					IIIG,W
			CULG	0340.5	0342	1							IIIG
			CULG				0341	0342					IIIG,W
			CULG	0402	0501								IS,W
			CULG	0408.5	0413	1							IIIGG
			CULG				0409.5	0412.5					IIIG,W
	0555	1630	DWIN										
			CULG				0719.5	0725	1				IIIS
	0541	0913	WEIS				0719.7	0724.7	2				IIIGG
			CULG				0720	0725	1				UNCLF
			LEAR				0720.4	0723.8	1				CONT
			CULG	0721	0722	1							IIIG
	0610	1620	BLEN				0721.7	0725.9	2				I,DC
			CULG	0723.5	0724								IIIG,W
	0920	1649	WEIS										
	1319	2245	HARV				1321	1322	2				IIIG
			HARV				1410	1411	2				IIIG
			HARV				1916	1917	2				IIIG
			HARV				1940	2240	1				IN
			HARV				2105		1				IIIB,W
			HARV				2124		3				IIIG
	2025	2400	CULG				2124		2				IIIB
			CULG				2303						IIIB,W
21	0000	0725	CULG				0002	0725					IIIN,W
			CULG	0110.5	0112	2	0110.5	0112.5	2	0112	0112.5	1	IIIGG
			LEAR				0111.5	0112.6	2				CONT
			CULG	0112	0718								IIIN,W
			CULG				0116		1				IIIB
			LEAR				0116.3	0116.5	1				III
			CULG				0221.5	0223.5	1				IIIG
			CULG				0221.5	0223.5	1				UNCLF
			LEAR				0223.3	0223.4	1				III
			CULG	0518	0639								IS,W
	0555	1630	DWIN										
	0610	0937	BLEN										
	0542	1643	WEIS				0716.7	0716.8	1				IIIB
			WEIS				0841.4	0841.7	1				IIIG
			LEAR				0841.5	0842.8	1				CONT
	1318	2245	HARV				1358	2245	1				IN
			HARV	1412		2	1412		2				IIIG
			HARV				1647		1				IIIB
			HARV				1954	2000	3				IIIGG
	2025	2400	CULG	2025	2309	1	2050	2305	1				IS
			CULG				2305	2400	1				IN
			CULG				2354						IIIB,W
22	0000	0725	CULG	0000	0130	1	0010	0330	1				IS
			CULG				0136	0410					IIIN,W
			CULG	0222.5	0224	1	0223.5	0224.5	1				IIIG
			CULG				0330	0441					IN,W
			CULG	0539	0541	2	0539	0541.5	2				IIIGG,V
			LEAR				0540.0	0541.3	1				CONT
			CULG	0542	0543	2	0542	0553	2				II,H
	0544	0709	WEIS										
	0630	1630	DWIN										
	1318	2245	HARV				1329	2240	1				IN
			HARV				1512	1513	1				IIIG
	0715	1644	WEIS				1541.9	1544.1	2				IIIG
			HARV				1542	1544	2				IIIG
			HARV				1610	1612	1				IIIG
	1023	1615	BLEN				1610.5	1612.5	1				IIIG
			WEIS				1622.8	1625.2	1				II HARMHB
			HARV				1623	1625	3				I
			HARV				1634		1				IIIB

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
22			HARV				1946	1947	2				IIIG
	2025	2218	CULG										
	2218	2400	CULG										
			HARV	2224		2	2224		3				IIIG
			CULG				2238.5	2239	1				IIIG
23	0000	0206	CULG				0042.5	0044	2				IIIG
			CULG	0112	0112.5	1							IIIG
			CULG				0152.5		1				IIIB
	0206	0348	CULG	0206	0348		0230	0348					IS,W
	0357	0724	CULG	0359	0724		0359	0410					IS,W
			CULG				0404	0612					IIIN,W
			CULG				0448	0724					IN,W
			LEAR				0524.6	0524.8	1				CONT
	0610	1615	BLEN				0610 E	1615 D	1				I
	0600	1620	DWIN	0654.2	0657.0	2						IV	DCIM
			BLEN	0654.3	0656.7	2	0654.6	0656.7	3				IIIGG,DCIM
	0552	1643	WEIS				0654.7	0656.9	3				IIIGG
			CULG	0655	0658	3	0655.5	0658	3				IIIGG,V,U
			LEAR				0656.0	0656.8	2				CONT
			BLEN	0713.3	0713.7	1	0713.3	0713.7	1				IIIG
			WEIS				0713.3	0713.4	1				IIIB
			DWIN	0713.3	0713.8	2							IIIG
			BLEN	0751.1	0751.3	1							IIIG
			BLEN	0916.0	0932.4	1							DCIM
			DWIN	0926.4	0933.5	2							IIIG
			BLEN	1026.9	1027.9	1							IIIG
			WEIS				1028.2	1028.3	2				U
			BLEN	1114.9	1116.0	1	1113.2	1115.8	1				IIIG,DCIM
			WEIS				1115.7	1116.1	2				IIIG
			WEIS				1119.9	1120.3	2				IIIG
			WEIS				1124.6	1124.7	1				IIIB
			WEIS				1126.7	1126.9	1				IIIG
			DWIN	1309.7	1310.5	2							IIIG
			BLEN	1309.7	1311.9	1							IIIG,RS
			HARV				1325	1452	1				IN,W
	1318	2245	HARV				1328	1759	1				IN
			HARV	1359	1400	2	1359	1400	2				IIIG
			BLEN				1359.5	1359.7	1				IIIG
			WEIS				1401.7	1402.3	2				IIIG
			HARV				1402		1				IIIG
			WEIS				1451.6	1451.8	1				IIIB
			HARV				1453		3				IIIG
			WEIS				1457.7	1457.9	1				IIIB
			HARV				1519		1				IIIG
			BLEN				1558.7	1558.8	1				IIIG
			WEIS				1603.5	1613.3	1			II	HARM
			HARV				1604	1613	3			II	
	2024	2400	CULG										
			CULG				2125						IIIB,U,W
			HARV				2125		3				IIIG,U
			HARV	2144	2146	1	2144	2146	2				IIIG
			CULG	2145	2145.5	1	2145	2145.5	1				IIIG
			CULG				2216	2253					IIIN,W
			HARV				2216	2217	1				IIIG
			CULG				2242.5	2243	1				IIIG
			HARV				2243		1				IIIG
			CULG	2304.5	2306	1							IIIG
24	0000	0724	CULG	0144	0145	1							IIIG
			CULG	0150	0454								IS,W
			CULG	0454	0724								IN,W
			CULG	0528	0528.5	1	0528	0528.5	1				IIIG
			LEAR				0528.3	0528.9	1				V
			CULG	0532	0532.5	1	0532	0532.5	3				IIIB,V
			LEAR				0532.1	0532.8	2				V
			CULG				0602						IIIB,W
	0547	1641	WEIS				0602.3	0605.3	2				IIIG
			CULG	0603	0603.5	1	0603	0603.5	1				IIIG,U
			CULG	0605		1	0605		1				IIIB,U

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
24	0600	1620	DWIN	0605.0	0605.2	1							IIIG
			DWIN	0728.1	0745	2							IV DCIM
	0710	1303	BLEN	0728.2	0744.5	2	0728.5	0744.5	2				IIIGG,DCIM
			WEIS	0728.4	0728.7	2							IIIG
			WEIS				0730.6	0733.3	1				IIIG
	1410	1615	BLEN				0735	1300	2				I,DC
			WEIS				0735.1	0742.0	2				II HARM
			WEIS				0736.2	0736.4	1				IIIG
			LEAR				0736.3	0743.3	1				II
			WEIS				1106.5	1106.7	1				IIIG
			BLEN	1119.2	1120.8	1							IIIG
	1318	2245	HARV				1509	2116	1				IN
			WEIS				1522.7	1522.9	1				IIIB
			HARV				1523		2				IIIB
			WEIS				1545.1	1548.8	2				IIIG
			HARV				1546		3				IIIG
			HARV				1850	1851	3				IIIG
			HARV				1900		2				IIIG
			HARV	2016	2017	1	2016	2017	3				IIIG,U
	2024	2400	CULG	2030	2400								IN,W
			CULG				2126	2127					IIIG,W
			CULG				2137						IIIB,W
			CULG	2145	2145.5	3							IIIG
			HARV	2145		3	2145		3				IIIG
			CULG				2145.5						IIIB,W
			CULG	2223.5	2224	3							IIIG
			HARV	2224		3	2224		3				IIIG
			CULG				2300.5	2301					IIIG,W
25	0000	0030	CULG										
	0030	0530	CULG										
			CULG	0102.5	0104	2	0102	0104	1				IIIG
			CULG				0150.5						IIIB,W
			CULG				0311.5						IIIB,W
			CULG				0424.5	0427.5	1				IIIG
			LEAR				0424.8	0426.0	1				CONT
	0530	0723	CULG	0558	0723								IN,W
	0630	1625	DWIN										
	0549	1454	WEIS				0725.1	0729.2	1				IIIGG
			BLEN	0727.1			0727.1	1615 D	2				I,DC
	0620	1242	BLEN				0755.0	0729.2	2				IIIGG
			BLEN				0832.8	0837.3	1				IIIG
			BLEN				0934.0	0935.1	1				IIIG
			BLEN				1153.2	1157.5	2				IIIGG
			WEIS				1156.1	1157.2	2				IIIGG
	1318	2245	HARV				1336	2000	1				IN
	1345	1615	BLEN				1408.7	1408.9	2				IIIG
			WEIS				1408.7	1408.8	1				IIIG
			HARV				1409		2				IIIG
			HARV				1456		2				IIIG
	1503	1639	WEIS										
			HARV				2000	2120	2				I
	2024	2400	CULG	2024	2108	1							IS
			CULG	2108	2234								IN,W
			HARV				2120	2245	1				IN
			HARV				2136		1				IIIB
			HARV				2207		2				IIIB
			CULG	2207.5		1							IIIB
			CULG	2234	2400								IS,W
			CULG	2241	2242	1							IIIG
			HARV	2242	2243	1	2242	2243	1				IIIG
26	0000	0723	CULG	0000	0723								IS,W
			CULG	0012			0012						IIIB,W
			CULG				0414						IIIB,W
	0605	0820	DWIN										
	0610	1615	BLEN	0610 E	1415	2	0610 E	1415	2				I,DC
	0549	1637	WEIS				0804.7	0809.7	2				IIIGG
			LEAR				0806.2	0810.3	1				CONT
			BLEN	1009.1	1009.6	2	1009.1	1009.6	2				IIIG,DCIM

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
26	0845	1615	DWIN	1009.1	1009.7	2							IIIG,DCIM
			WEIS	1009.2	1009.6	1	1009.2	1009.6	1				IIIG
			WEIS				1037.7	1038.2	3				IIIG,RS
			DWIN	1037.8	1038.3	2							IIIG,DCIM
			BLEN	1037.9	1038.3	2	1037.9	1038.3	3				IIIG,DCIM
			BLEN				1203.8	1204.4	1				IIIG
	1318	2245	HARV				1318	2245	2				I
			BLEN	1333.2	1333.3								IIIB,U
			HARV				1925	1926	1				IIIB
			HARV				1959		2				IIIG,U
	2024	2400	CULG	2024	2305								IS,W
			CULG				2028	2400					IN,W
			CULG	2156	2311	1							IIIN
			HARV	2201	2203	3	2201	2203	3				IIIGG
			CULG	2201	2202.5	3	2201	2201.5	2				IIIGG
			CULG				2202	2202.5	1				IIIG
			HARV				2206	2207	2				IIIG
			CULG	2300	2300.5	1							IIIG
			CULG	2305	2400	1							IS
27	0000	0723	CULG	0000	0220	1							IS
			CULG				0020	0723					IIIN,W
			CULG	0059	0100	2							IIIG
			CULG	0100	0723	1							IIIN
			CULG	0118.5	0119.5	3							IIIG
			CULG				0119	0203					IN,W
			CULG	0120.5	0123.5	3	0120.5	0122	1				IIIGG,V
			CULG	0125	0127	2	0125	0125.5	1				IIIGG
			CULG				0125.5	0130					POSSII,W
			CULG	0137	0137.5	3	0137	0137.5	2				IIIG
			CULG	0139	0139.5	1	0139	0139.5	1				IIIG,U
			CULG	0152.5		2	0152.5	0153	1				IIIG
			CULG	0220	0723		0203	0220					IS,W
			LEAR				0703.9	0708.1	1				CONT
			CULG				0704	0704.5	1				IIIG,U
	0555	1327	WEIS				0707.9	0708.7	1				IIIG
			CULG				0708	0709	2				IIIG,U
			LEAR				0737.8	0739.7	2				CONT
			WEIS				0737.9	0739.7	2				IIIGG
	1303	2245	HARV				1332	1333	1				IIIG
			HARV				1451	1452	2				IIIG
	0610	1610	BLEN				1451.2	1451.5	2				IIIG
	1333	1635	WEIS				1451.3	1451.6	2				IIIG
	0605	1615	DWIN	1459.3	1500.0	2							IIIG
			BLEN	1459.4	1500.2	3	1459.4	1459.8	3				IIIGG,U
			WEIS	1459.5	1459.7	1	1459.5	1459.7	1				IIIG
			HARV	1500	1740	1							IN,W
			BLEN	1607.0	1607.5	1	1607.0	1607.5	1				IIIG
			HARV	1915	1916	2							IIIG
			HARV				1950	2245	1				IN,W
	2023	2400	CULG	2023	2400								IS,W
			CULG				2147.5						IIIB,W
			CULG				2236						IIIB,W
			CULG	2312.5	2316								N,DCIM
28	0000	0723	CULG	0000	0723								IS,W
			CULG	0354	0641	1							IIIN
			CULG				0433	0647					IIIN,W
			LEAR				0448.5	0449.0	1				V
			CULG				0448.5		1				IIIB
	0553	1633	WEIS				0620.9	0621.1	2				IIIB
			WEIS				0646.7	0646.8	2				IIIB
	0618	1600	BLEN				0720.3	0721.9	1				IIIG
			WEIS				0932.6	0932.7	1				IIIB
	0605	1615	DWIN	0955.5	0956.5	2							IIIG
			BLEN	0955.6	0956.5	2	0956.1	1008.6	2				IIIG
			WEIS				1111.5	1111.6	1				IIIB
			BLEN	1230.7	1231.0	1							IIIG
			DWIN	1230.8	1231.1	1							IIIG
	1319	2342	HARV				1404	2340	1				IN,W

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
28			HARV	1423	1424	1							IIIG
			BLEN	1423.4	1426.5	2							IIIG,U
			DWIN	1423.4	1423.8	3							IIIG
			WEIS				1526.1	1526.5	1				IIIG
	2023	2400	CULG	2023	2400								IN,W
			CULG	2319	2327	1							IIIN
			CULG				2321	2325					IIIN,W
			HARV				2322	2323	3				IIIG
			CULG				2322.5	2323	2				IIIG
			HARV	2325		1	2325		2				IIIG
29	0000	0723	CULG	0001	0001.5		0001						IIIG,W
			CULG	0037	0041								IN
			CULG	0254.5	0255	1	0254.5		1				IIIG
			CULG				0541.5		2				IIIB,U
			CULG	0542	0723	1							IS
			CULG				0606	0723					IIIN,W
			LEAR				0608.6	0608.8	1				III
	0620	1555	BLEN				0620 E	0730	2				I,DC
			LEAR				0638.5	0704.0	1				B
			BLEN	0709.7	0710.2	1	0709.7	0710.2	1				IIIG
	0730	1615	DWIN	0840.0	0840.1	2							IIIG
			BLEN	0840.0	0840.2	2	0840.0	0840.2	2				IIIG
	0554	1211	WEIS				0857.2	0857.3	2				IIIB
			WEIS				0903.7	0904.2	2				IIIG
			LEAR				0903.8	0904.0	1				III
			WEIS				1135.7	1136.3	2				IIIG
			WEIS				1140.6	1141.2	1				I/U
			DWIN	1222.5	1223.1	1							IIIG
			BLEN	1222.6	1226.7	1							IIIG
			DWIN	1226.6	1226.7	1							IIIG
	1215	1631	WEIS				1319.7	1319.9	2				IIIG
			WEIS				1331.0	1332.4	1				IIIG
			WEIS				1334.2	1334.3	1				IIIB
			WEIS				1336.5	1336.7	2				IIIB
	1318	2255	HARV				1402	2255	1				IN,W
			HARV				1907	1908	3				IIIG
			HARV	2010		2	2010		2				IIIG
	2023	2400	CULG				2053	2053.5					IIIG,W
			HARV				2054		1				IIIB
			CULG				2117.5		1				IIIB
			CULG				2230.5		1				IIIB
			HARV				2231		1				IIIB
			HARV	2239		1	2239		3				IIIG,U
			CULG				2239						IIIB,W
			CULG	2239		1							IIIB,U
			HARV	2246	2247	2							IIIG
			CULG				2357	2358.5	2	2357.5	2358	1	IIIG,U
			PALE				2357.3	2358.2	1				III
			LEAR				2357.4	2358.2	2				CONT
30			LEAR				0041.4	0042.1	1				CONT
	0000	0722	CULG				0041.5	0042	1				IIIG
			CULG				0046	0046.5					IIIG,W
			CULG				0142.5		1				IIIB
			LEAR				0142.6	0143.0	1				V
			CULG				0234						IIIB,W
			LEAR				0252.1	0253.1	2				V
			CULG				0253	0254	2				IIIGG
			CULG				0317						IIIB,W
			CULG				0440.5						IIIB,W
			CULG				0627	0627.5	1				IIIG
	0555	1240	WEIS				0627.2	0629.0	2				IIIG
			LEAR				0627.3	0628.8	1				CONT
	0625	1555	BLEN				0628.1	0628.2	2				IIIG
			CULG				0628.5	0629	2				IIIG
			CULG				0635.5						IIIB,W
			WEIS				0635.5	0635.7	1				IIIB
			WEIS				0707.5	0707.7	2				IIIB
			CULG				0707.5	0708					IIIG,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

SEPTEMBER 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
30			BLEN				0743.3	0745.4	2				IIIG
			WEIS				0743.3	0748.4	3				IIIGG
			LEAR				0743.9	0746.0	2				V
			WEIS				0805.4	0805.6	1				IIIB
			LEAR				0857.9	0858.1	1				III
			WEIS				0857.9	0858.1	2				IIIG
	0720	1615	DWIN	0923.1	0923.3	1							IV Z
			WEIS				0939.4	0939.8	1				IIIG
			WEIS				0952.5	0952.9	2				IIIG
			BLEN				0952.5	0953.0	2				IIIG
			WEIS				1148.7	1153.5	3				IIIGG
			DWIN	1150.0	1153.1	2							IIIG
			BLEN	1150.1	1153.2	2	1148.8	1154.9	3				IIIGG,V
			WEIS				1237.3	1237.6	1				IIIG
	1344	1626	WEIS										
			BLEN	1551.2	1551.6	1							IIIG,U
	1318	2245	HARV	1817	1818	2	1817	1818	2				IIIG,U
	2023	2400	CULG				2032						IIIB,W
			CULG				2040.5	2041.5	1				IIIG,V
			HARV				2041	2047	3				IIIG
			CULG				2041.5	2042					IIIB,W
			CULG				2042	2043					UNCLF
			CULG	2043	2043.5	1	2042.5	2043.5	2				IIIG,V,U,R
			CULG				2044	2044.5					IIIB,W
			CULG	2045.5	2046	1							IIIG
			CULG	2058	2059	1	2057.5	2058.5	1				IIIG
			HARV				2058	2059	2				IIIG
			HARV				2213		1				IIIG

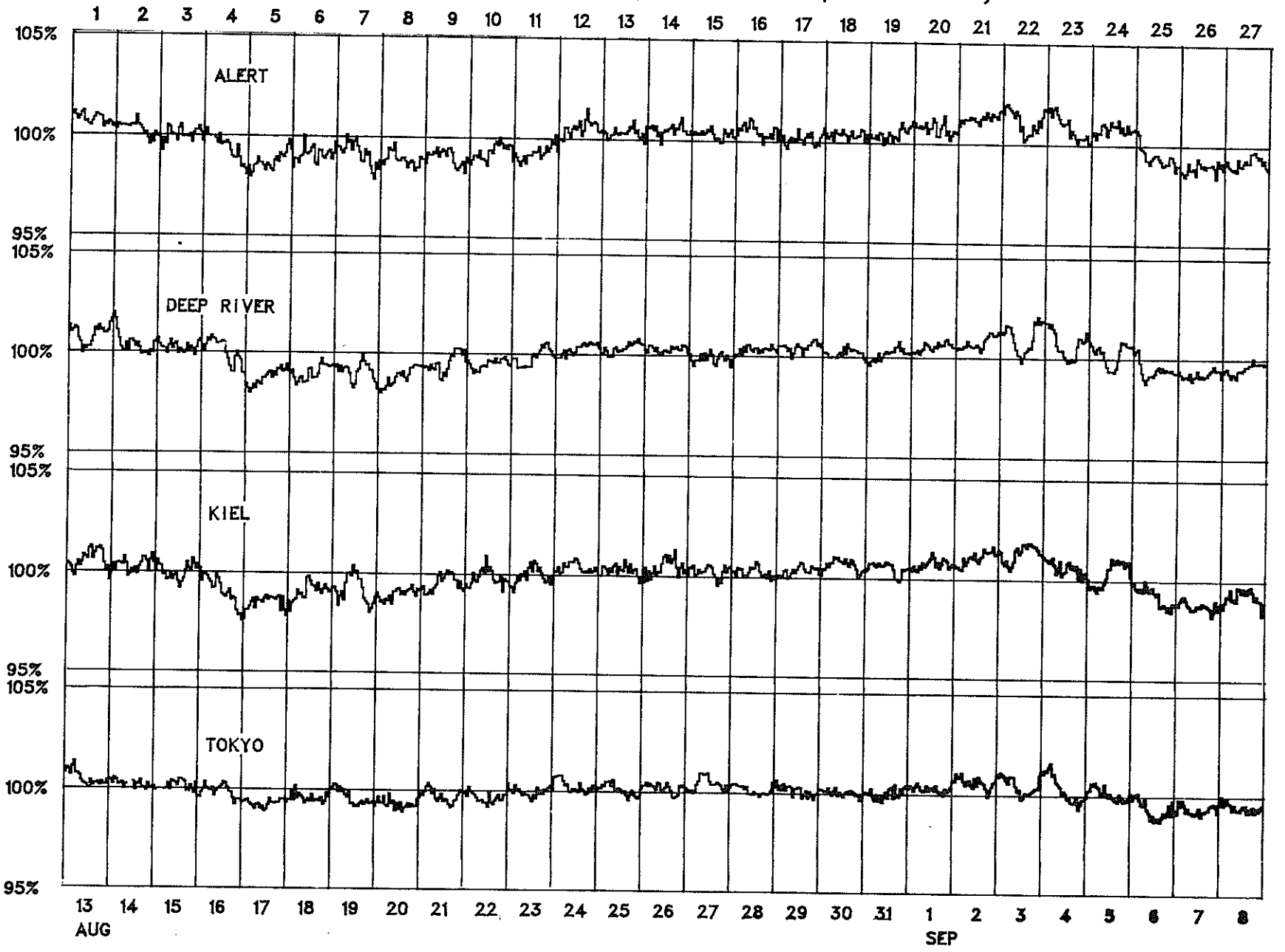
The symbols used under the column heading SPECTRAL TYPE have the following definitions:

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

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

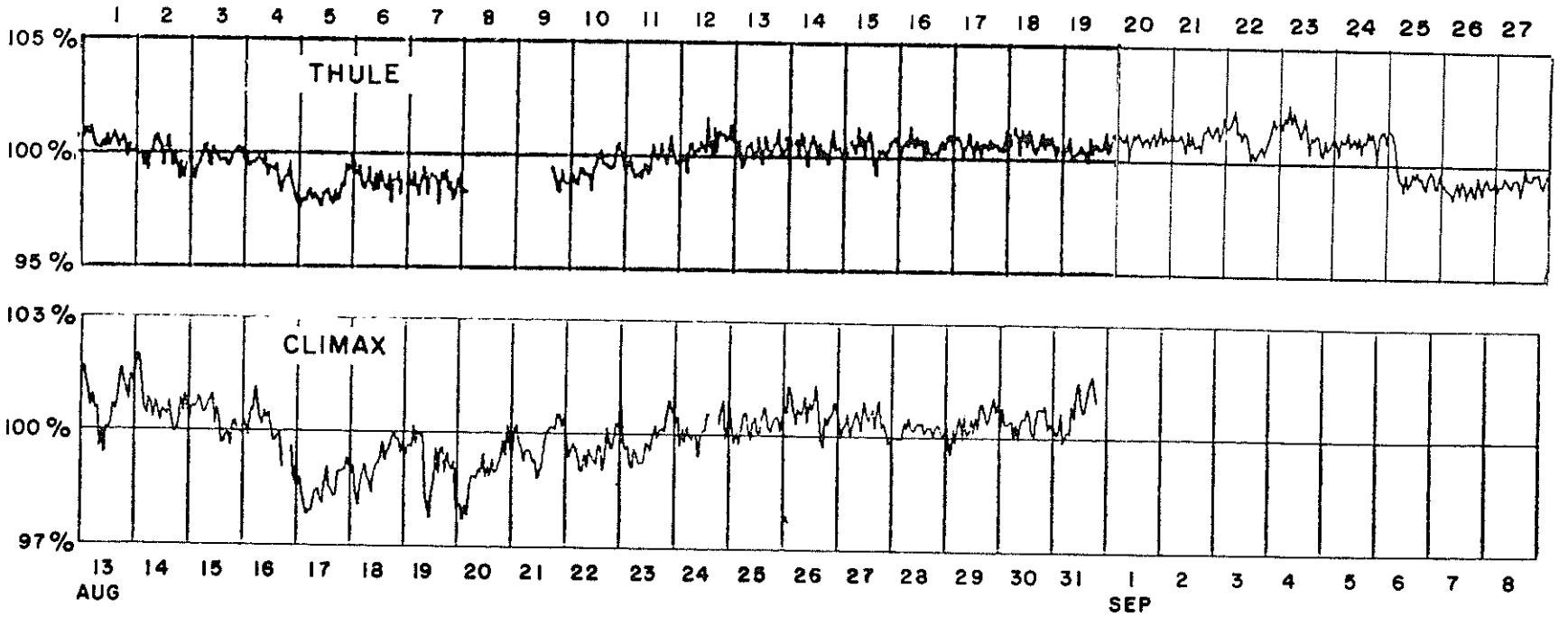
COSMIC RAY INDICES
(Neutron Monitor)

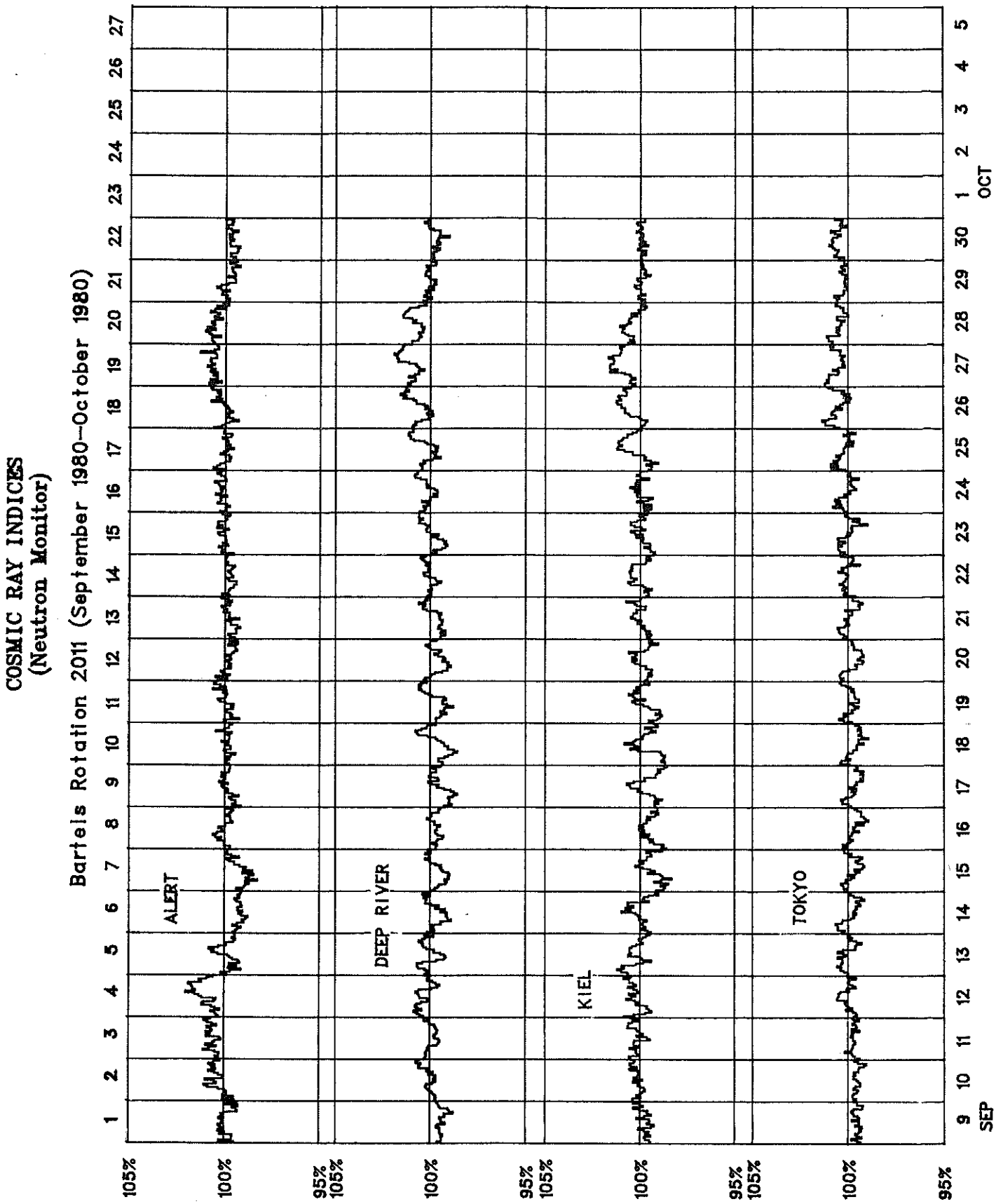
Bartels Rotation 2010 (August 1980–September 1980)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2010 (August - September 1980)




COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2011 (September 1980–October 1980)
ALERT
DEEP RIVER
KIEL
TOKYO
105%
100%
95%
SEP
OCT

COSMIC RAY INDICES

(Neutron Monitors)

SEPTEMBER 1980

September 1980	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	CALGARY Average (cts/h/100	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	4161	6738.1	6325.7	Data not available at time of publication.	5749.5	Data not available at time of publication.	3555.6	Data not available at time of publication.
2	4167	6774.3	6340.3		5768.1		3567.6	
3	4169	6766.3	6357.3		5783.5		3563.8	
4	4176	6747.0	6338.2		5744.1		3558.8	
5	4164	6741.9	6307.6		5725.9		3549.4	
6	4105	6649.3	6258.1		5665.0		3523.9	
7	4082	6616.4	6244.8		5636.1		3523.0	
8	4095	6636.4	6264.8		5663.6		3527.9	
9	4102	6654.2	6257.4		5683.6		3524.6	
10	4114	6684.0	6299.3		5707.6		3525.6	
11	4116	6704.3	6289.7		5711.6		3531.3	
12	4138	6732.3	6315.7		5712.4		3541.8	
13	4100	6649.3	6301.7		5715.1		3544.4	
14	4115	6609.5	6277.5		5696.7		3537.3	
15	4097	6607.0	6270.5		5658.9		3534.4	
16	4117	6660.7	6276.3		5668.2		3529.1	
17	4112	6648.7	6257.6		5670.5		3530.4	
18	4106	6652.0	6270.4		5671.4		3528.7	
19	4112	6660.3	6277.6		5683.4		3537.6	
20	4111	6648.0	6271.9		5686.7		3532.2	
21	4112	6643.3	6278.7		5698.1		3540.0	
22	4116	6645.9	6299.5		5701.5		3544.4	
23	4121	6667.4	6291.5		5692.0		3543.2	
24	4116	6674.6	6309.4		5695.4		3544.2	
25	4112	6661.2	6315.8		5715.5		3550.0	
26	4121	6670.2	6339.5		5732.5		3561.7	
27	4144	6704.2	6369.5		5758.2		3564.7	
28	4134	6698.7	6345.0		5723.6		3559.8	
29	4105	6648.4	6298.5		5694.8		3550.9	
30	4110	6640.1	6281.8		5694.6		3562.3	
MEAN	4122	6674.5	6297.7		5703.6		3543.0	

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

GEOMAGNETIC ACTIVITY INDICES

SEPTEMBER 1980

Day		Three-Hourly Indices Kp 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Three-Hourly Indices Km 1	2	3	4	5	6	7	8	Am	aa N	S	M	
1		3+	2+	3-	1	1	1+	1-	1	13+	7	0.4	3+	2	3-	1+	1	1	1	1	13	14	10	16	8 KC
2	Q3	2-	2-	1	1	1+	1-	0+	1+	9	4	0.2	2-	2-	1+	1	1+	0	0+	1+	8	9	6	9	6 CC
3		0+	0	1+	2	3	4	3+	4-	18-	12	0.7	1-	1-	1+	2	3	4-	4-	3+	23	23	17	7	33
4	D5*	4+	3	2	1+	2	2+	3-	2	20-	12	0.7	4	3-	2	2-	2+	2	3-	2+	22	23	15	20	19
5		2+	3-	2-	2-	2	3	3	3-	19	10	0.6	2	2-	2-	2	2	3	3-	3	20	16	21	16	22
6		2	2	2	2-	3-	3+	1	3-	17+	9	0.5	2+	2+	3-	2	3-	3	1+	3-	20	20	21	17	24
7		3	3-	1	2+	1+	2-	2	3+	17+	10	0.5	3	3-	1	2+	2-	2-	2	3+	19	19	17	18	19
8		3+	2-	1+	2+	2+	3-	1	1+	16	8	0.5	3	1+	1+	2+	2	2+	1+	2-	15	20	9	14	16
9	D4*	2-	2	2+	2+	3+	4	2	3-	20+	12	0.7	2-	2	2+	2+	3	3+	2-	2+	21	23	17	11	30
10	Q5	2+	2-	1-	0+	0+	1	1	2-	9	4	0.2	2	1+	1-	0+	1-	1+	1	2-	8	10	5	8	8 CK
11	Q0	1+	2-	1	2-	2-	2+	1+	2-	13-	6	0.3	1	2	1	1+	2-	2+	1+	2	12	10	11	9	12 CK
12	D1*	2-	2+	4+	2+	4-	4	3	4	25+	18	1.0	1+	2-	4	3	3+	4-	3-	4+	34	37	23	22	38
13	D2*	4-	4	3	3	4	3-	2	1+	24-	16	0.9	3	3	3-	3	4	3-	2	1+	28	23	31	25	28
14		2+	3-	1	2+	1+	1-	1	4-	15	8	0.5	2+	2+	1+	2	1+	1-	1-	3	14	21	8	14	16
15		3-	2	2	2-	2	2	2	2+	17-	8	0.4	2+	2	2-	1+	2-	2	2+	2+	15	20	16	17	20
16		1-	2-	2	2-	2-	1+	3+	2+	15-	8	0.4	1	1+	2	1+	1+	1+	3	2+	13	12	13	7	19 K
17	D3*	3-	2+	3-	4	3+	2+	2-	3	22	14	0.8	2+	2	2+	3+	3	2+	2	3	23	18	31	27	22
18	Q6	1-	0+	2+	1+	0+	1-	2	1+	9	4	0.2	1	0+	2	3-	1	1+	2	2	12	9	9	9	9 CK
19	Q9	1-	0+	0+	2-	2	2-	2-	3-	11	6	0.2	1-	0+	1	1+	2-	1+	2-	3-	10	11	10	5	16 CK
20		3+	3-	1+	1+	1+	2-	1	1-	13+	7	0.4	3-	2	1	1+	2-	2-	1	1	11	13	12	16	10 KK
21	Q1	0+	0	0+	0+	1-	1-	0+	0+	3	2	0.0	1+	1-	0	0+	1	1-	1-	1-	4	3	3	2	4 CC
22		0	2-	2-	2+	4-	3-	2	1+	15+	8	0.5	1-	1+	2-	2	3	2+	1+	1	13	13	18	11	20 K
23	Q7	1-	2-	1	2	1-	1	2-	1+	10	5	0.2	1-	1	1-	2-	2	1+	2-	1+	10	10	7	8	9 CK
24	Q2	0+	0+	1+	1	1-	1+	1+	1+	8-	4	0.1	0+	0+	1	1+	1	1	1+	1+	7	8	6	4	9 CC
25		2-	3	2-	2-	1+	2-	2-	1	14-	7	0.3	1+	2+	2-	1+	1+	2-	2-	1-	11	11	10	11	10 CC
26	Q4	1-	2-	1+	2-	2-	1	1+	0+	10-	5	0.2	1-	2-	1+	1+	1+	1+	1+	0	8	8	7	8	8 CC
27		1-	2	1-	2-	2-	2	3-	2	13+	6	0.3	1-	1+	1	1+	1	2-	2+	2+	10	11	11	7	16 CC
28		2	1-	2-	1-	2+	2+	2-	2+	14-	6	0.3	2	1-	1+	1-	2	2	2	3-	12	10	16	9	18 KK
29		1+	1-	2	1+	2-	2+	4	2	15+	9	0.5	2-	1-	2-	1	2-	2+	3+	2	15	16	11	9	19 K
30	Q8	2+	2-	1	1-	0+	1	2+	0+	10-	5	0.2	2	1	1	1	0+	1-	2+	1	9	7	7	9	5 CK
										Mean	8	0.42									14.7	14.9	13.3	14.3	

Day	Three-Hourly Indices Kn 1	2	3	4	5	6	7	8	An	Three-Hourly Indices Ks 1	2	3	4	5	6	7	8	As
1	3	2	3-	1+	1+	1+	1	1	14	4-	2+	2+	1	1-	1-	1-	1-	13
2	2-	2-	1	1+	2-	0+	0+	1+	8	2	2-	2-	1	1-	0	0+	2-	8
3	1-	0+	1+	2+	3	4-	3	3+	22	1	1	1+	2-	3-	4-	4	3	24
4	4-	2+	2-	1+	2+	2+	2+	2+	19	4	3	2+	2-	2+	2	3-	3-	25
5	2-	2	2-	2+	2-	3	3-	3-	18	2	2-	2-	2	2+	3	3	3+	21
6	2-	2	2+	2	3	3+	2-	3-	20	3-	3-	3-	2	3-	3-	1+	3-	21
7	3-	2+	1+	2+	2-	2	2	3+	19	3+	3-	1	2	2-	2-	2	3	19
8	3-	1+	1+	3-	2+	2+	1+	1+	15	3	2-	1+	2	2	2	1	2	14
9	1+	2-	2+	2+	3	3+	2-	2	20	2+	3-	2+	2+	3-	3	2	3-	21
10	2	1+	1-	1-	1-	1+	1	2-	8	2	1+	1-	0	1	1+	1	2-	8
11	1	2-	1	1+	2-	2+	1+	2+	12	1+	2+	1	2-	2-	2	2-	2	12
12	1+	2-	4+	3-	4-	4	3-	4	35	1+	2-	4-	3	3	4-	3	5-	34
13	3	3+	3-	3	4	3-	2+	1+	29	3+	3	3	3	4-	3	2-	1+	27
14	2-	2	1	2	1+	1	1-	3+	13	3	2+	1+	2	1	1-	1-	3	15
15	2+	2+	2-	1+	2	2	3-	2	16	2+	2	2-	2-	2-	2-	2-	3-	15
16	0+	1+	2	2-	2-	1+	3+	2+	14	1+	2-	2+	1+	1	1+	3-	2+	13
17	2	2-	2+	4	3+	3-	1+	3-	25	2+	2+	2+	3-	3-	2	2+	3	21
18	0+	0+	2	1+	0+	1	2+	1+	8	1+	1-	2	3+	2-	2-	2-	2+	15
19	1-	1-	0+	2-	2	1+	2-	3-	10	1-	0+	1+	1	2-	1+	2-	2+	9
20	3-	3-	1	1+	1+	2-	1-	1-	12	3-	2-	1-	1+	2-	1+	1+	1+	11
21	0+	0+	0	0+	1	0+	0+	0+	3	2	1	0	0+	1	1-	1	1	6
22	0+	1+	2-	3-	4-	2+	2-	1	16	1	2-	1+	1+	2+	2	1+	1-	10
23	0+	1	1-	2-	1-	1	2-	1+	7	1-	1+	1	1+	3-	2	2	2-	12
24	0	0+	1+	1+	1-	1+	1+	1+	7	1-	1-	1	1+	1+	1-	1+	1+	7
25	1+	3-	2-	1+	1+	2-	2-	1-	11	2-	2+	2-	1+	1+	2-	1+	1-	11
26	0+	1+	1+	1+	1+	1+	1+	0	7	1	2-	1+	2-	2-	1+	1+	0	9
27	1-	2-	1-	1+	1+	2	3-	3-	12	1	1	1	1	1-	1+	2-	2	8
28	2-	1	1+	1-	2+	2	2-	2+	12	2	1-	1	1-	1+	2-	2+	3-	12
29	1+	1-	2-	1+	1+	2+	3+	2	14	2-	1	2	1-	2+	2+	3+	2	16
30	2	1+	1	1-	0	1-	2+	0+	8	2+	1	1+	1+	1-	1	2+	1+	10
								Mean	14.5									14.9

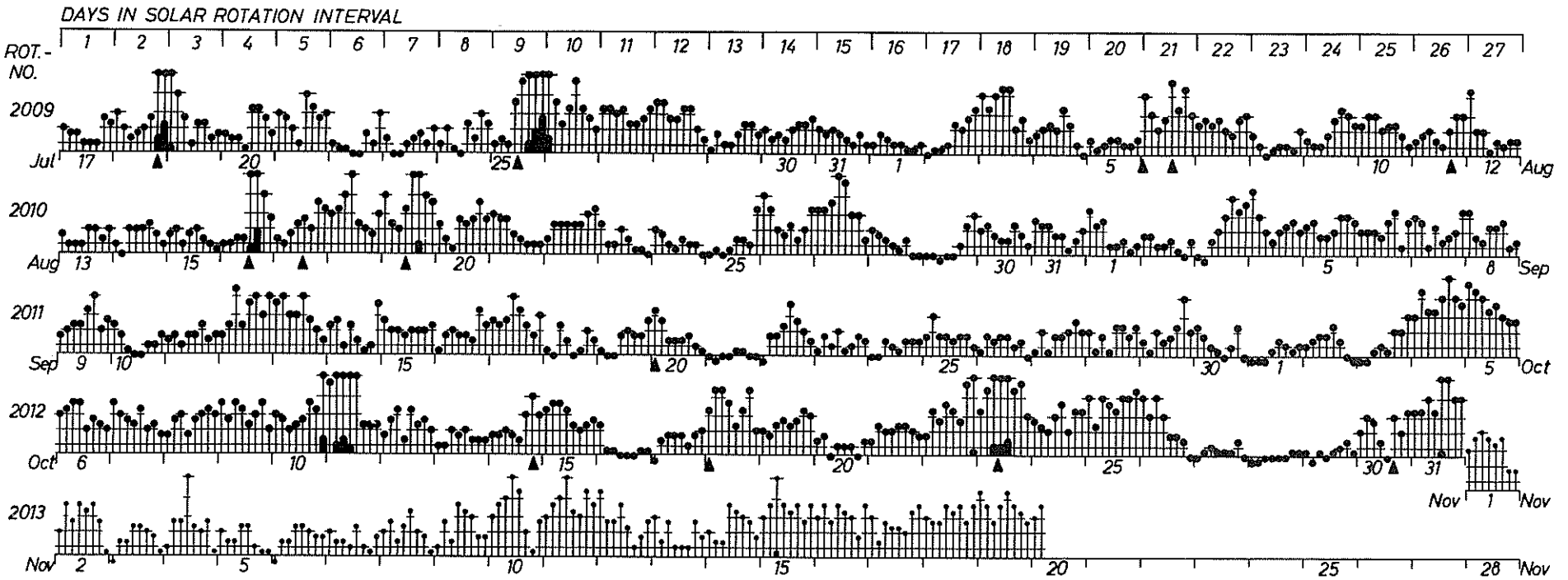
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp≥30 or two Kp values≥3-"). An asterisk means "not really disturbed" (Ap<20).

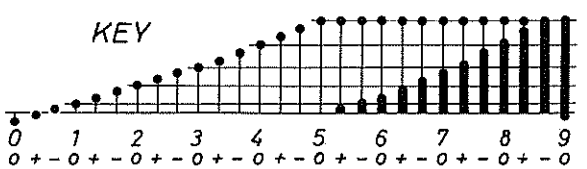
Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit inT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

DAY	1979 OCT	NOV	DEC	1980 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	16	9	24	10	3	4	8	22	5	4	7
2	7	12	11	12	9	3	3	4	7	3	7	4
3	13	10	9	18	3	5	7	3	9	4	20	12
4	9	10	16	16	4	5	11	4	5	7	8	12
5	6	2	7	12	3	7	7	7	4	15	4	10
6	36	3	6	8	33	9	28	12	16	10	21	9
7	32	12	4	5	12	7	18	9	27	13	10	10
8	37	14	10	6	17	6	17	7	23	14	4	8
9	23	19	7	3	11	7	20	18	14	8	9	12
10	17	6	5	3	4	4	22	8	33	4	9	4
11	10	10	5	11	4	4	30	38	59	10	8	6
12	8	7	4	4	3	1	28	23	32	5	8	18
13	12	35	4	23	2	7	18	14	27	9	6	16
14	6	13	4	9	18	5	10	17	10	9	6	8
15	8	3	9	6	33	2	20	6	5	6	5	8
16	8	12	10	9	40	4	12	3	9	6	26	8
17	4	8	13	13	6	5	11	3	3	6	10	14
18	3	4	7	4	10	4	4	4	3	30	18	4
19	5	7	6	4	10	10	5	8	8	16	28	6
20	6	10	4	6	6	4	6	5	6	9	10	7
21	10	6	4	6	4	18	5	4	6	14	8	2
22	14	2	15	5	4	16	9	6	6	5	10	8
23	6	4	3	5	9	6	6	11	6	4	5	5
24	12	24	7	5	6	4	7	12	13	7	4	4
25	14	15	2	7	13	6	9	34	8	46	5	7
26	8	4	10	6	14	30	5	7	15	26	12	5
27	6	4	12	24	14	7	5	3	3	15	22	6
28	9	2	16	27	10	7	4	4	3	14	4	6
29	11	4	32	26	7	8	6	6	5	6	4	9
30	5	15	20	10		11	8	10	8	8	6	5
31	5		9	5		21		16		6	7	
MEAN	12	10	9	10	11	8	11	10	13	11	10	8

GEOMAGNETIC ACTIVITY INDICES





▲ = sudden commencement

PLANETARY MAGNETIC THREE-HOUR-RANGE INDICES Kp (after Bartels)

Kp till 1980 October 31

Ks (from Wingst and Göttingen) till Nov 20

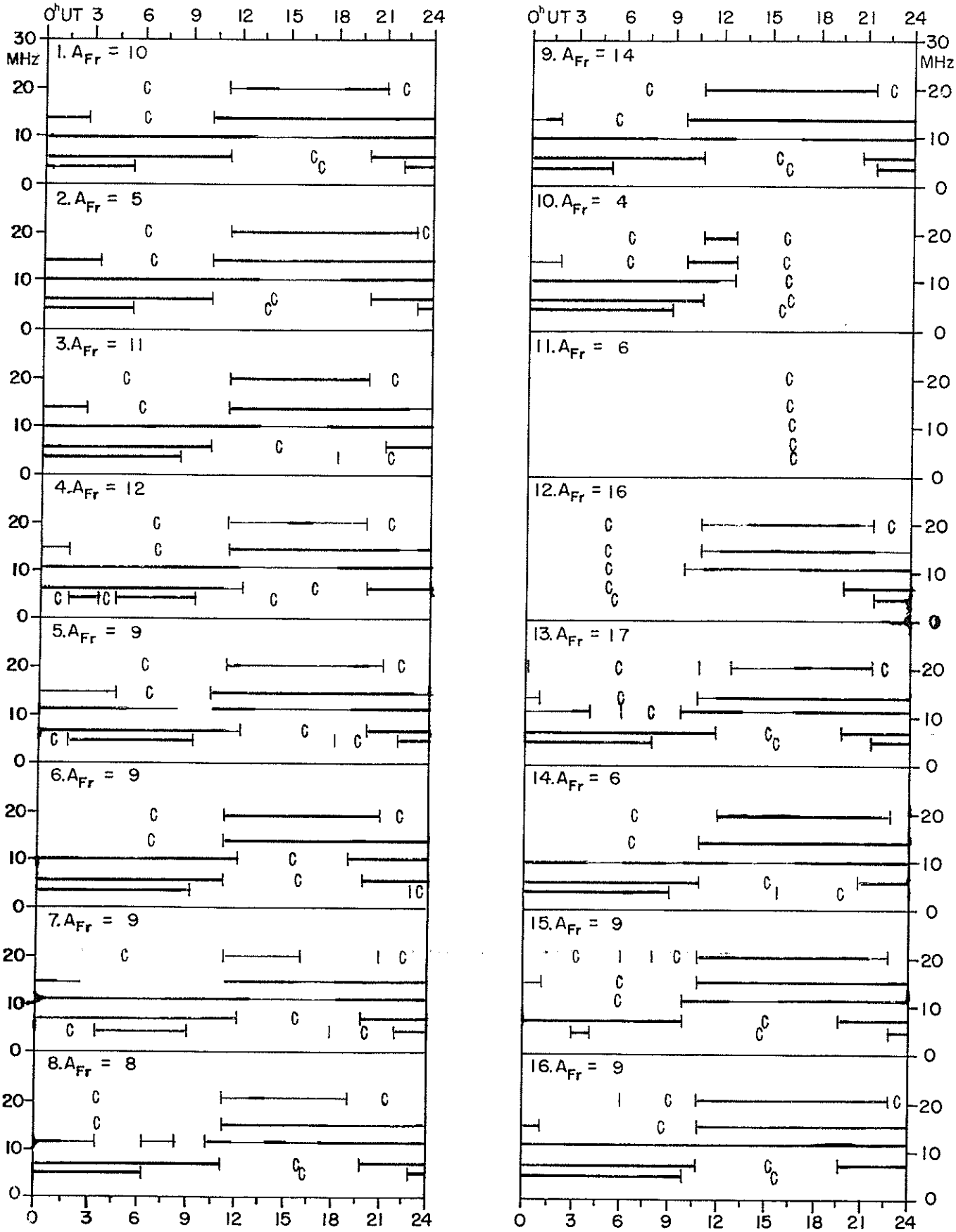
PRINCIPAL MAGNETIC STORMS

SEPTEMBER 1980

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
SHL	14.7N	03	0730	..	..	..	..		-	9	98	39	04	22
UJJ	13.5N	03	0730	..	..	..	..		-	8	97	35	04	22
HYB	07.6N	03	0730	..	..	..	..	03(6)	5	7	124	29	04	22
HUA	00.6S	03	1336	SC*	1	24	1	03(5,6)	5	6	256	39	04	03
TRD	01.1S	03	0730	..	..	..	..		-	5	205	91	04	22
HYB	07.6N	06	0329	SC	- .3	14	- 2	06(2,3,4,5,6,8)	3	9	118	34	08	03
SHL	14.7N	06	0500	..	..	..	..		-	9	85	48	08	18
UJJ	13.5N	06	0500	..	..	..	..		-	9	82	53	08	18
								07(1,2)						
HUA	00.6S	06	0325	..	..	..	..	06(6)	5	4	203	28	07	04
TRD	01.1S	06	0500	..	..	..	..		-	7	237	109	08	18
KGL	56.5S	10	2133	SC	11	5	- 2	10(8) 11(2)	2				11	09
NEW	55.1N	11	22--	..	..	..	..	13(2)	-	23	127	162	14	08
FRD	49.6N	11	----	..	..	..	..	12(3)	5	21	115	54	14	--
HYB	07.6N	11	1400	..	..	..	..	12(8)	4	8	131	38	13	20
SIT	60.0N	12	05--	..	..	..	..	13(5)	7	70	--	330	13	20
JAI	17.3N	12	0600	..	..	..	..		-	9	81	45	13	19
SHL	14.7N	12	0600	..	..	..	..		-	8	106	33	13	19
UJJ	13.5N	12	0600	..	..	..	..		-	8	93	51	13	19
TRD	01.1S	12	0600	..	..	..	..		-	4	195	80	13	19
KGL	56.5S	14	2211	SC*	- 6	- 8	- 3	14(8) 15(1)	3				15	08
HYB	07.6N	16	1700	..	..	..	..	\17(5)	5	7	120	21	17	23
KGL	56.5S	17	1051	SC*	-10	-18	- 3	17(8)	4				18	00
KGL	56.5S	18	1902	SC*	18	38	3	18(7)	3				19	00
HYB	07.6N	19	1000	..	..	..	..	20(1,2)	3	7	83	39	20	18
KGL	56.5S	20	0139	SC*	17	5	- 2	20(1,2)	2				20	07
HYB	07.6N	22	0300	..	..	..	..	22(5)	4	6	78	32	22	21
HYB	07.6N	27	0600	..	..	..	..	29(7)	4	4	112	46	29	22

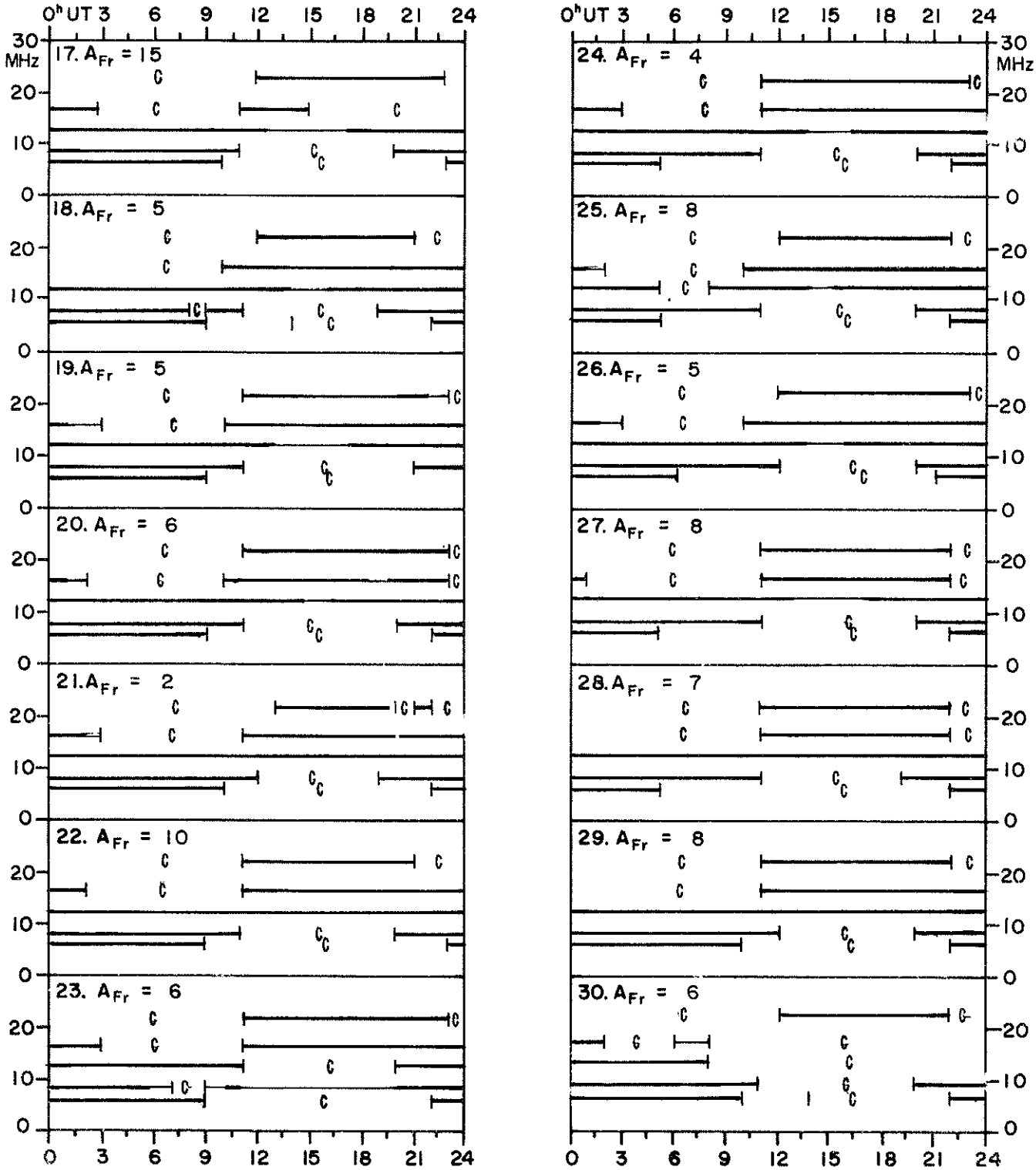
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

SEPTEMBER 1980



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

SEPTEMBER 1980



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, 8 MHz, observed on a Luchow - New Yorkcircuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

SEPTEMBER 1980

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	4.9	9.2	7.9	13.6	14.7
2	5.1	9.3	7.5	13.7	15.0
3	4.4	9.2	7.5	13.4	14.8
4	4.4	8.4	7.6	13.5	14.1
5	4.5	7.9	7.8	13.0	14.4
6	4.8	8.9	6.0	13.1	14.4
7	4.4	8.0	7.0	12.8	13.5
8	5.1	8.8	7.1	13.7	14.5
9	4.8	9.1	7.6	13.3	14.8
10	C	C	C	C	C
11	C	C	C	C	C
12	4.0	8.1	7.6	13.1	14.1
13	4.2	7.8	7.2	13.3	14.4
14	5.1	8.7	7.6	13.1	14.5
15	6.4	9.0	7.6	13.5	14.8
16	5.8	9.7	7.6	13.4	14.8
17	5.3	9.4	7.8	13.4	14.6
18	5.5	9.1	7.7	13.4	14.6
19	5.2	9.1	7.8	13.1	14.6
20	5.6	8.9	6.9	13.3	14.6
21	5.7	9.4	7.0	13.4	14.6
22	5.5	9.0	7.5	13.4	15.0
23	5.0	10.3	7.2	12.2	14.6
24	5.5	9.1	7.4	13.6	15.1
25	5.2	9.3	6.9	13.0	15.3
26	5.5	9.3	6.1	12.5	15.1
27	5.9	9.5	5.6	12.9	14.8
28	5.7	9.7	5.3	12.4	15.1
29	5.8	9.6	5.1	12.5	15.0
30	6.3	9.6	7.4	13.0	14.9
MEAN	5.1	9.0	7.1	13.1	14.6

SGD 435 Part I (Prompt)

LATE DATA

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PIONEER XII

SEPTEMBER 1980

DATE SEP 80	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$°K)
1	2312	048.9	288.	25.1	0.0316
2					
3					
4	1801		396.	24.1	.113
5	1839		415.	11.5	.147
6	2400		282.	17.6	---
7					
8	1834		419.	28.9	.13
9	2232		374.	16.4	.196
10					
11	0015		400.	15.1	---
12	2206		314.	14.9	.061
13	1833		328.	37.3	.067
14	1912		503.	15.1	.344
15		057.7			
16	2140		376.	81.6	.079
17					
18	1848		536.	5.1	.215
19	1948		545.	8.8	.158
20	1854		464.	9.4	.207
21	2056		392.	21.6	.087
22	2312		322.	19.3	.065
23	2027		300.	12.3	.043
24	2004		264.	50.3	.037
25	2136		293.	46.7	.096
26	2221		518.	15.2	.262
27	1926		355.	24.7	.102
28	2343		387.	16.8	.053
29	2111		345.	25.1	.057
30	2150		356.	27.1	.041

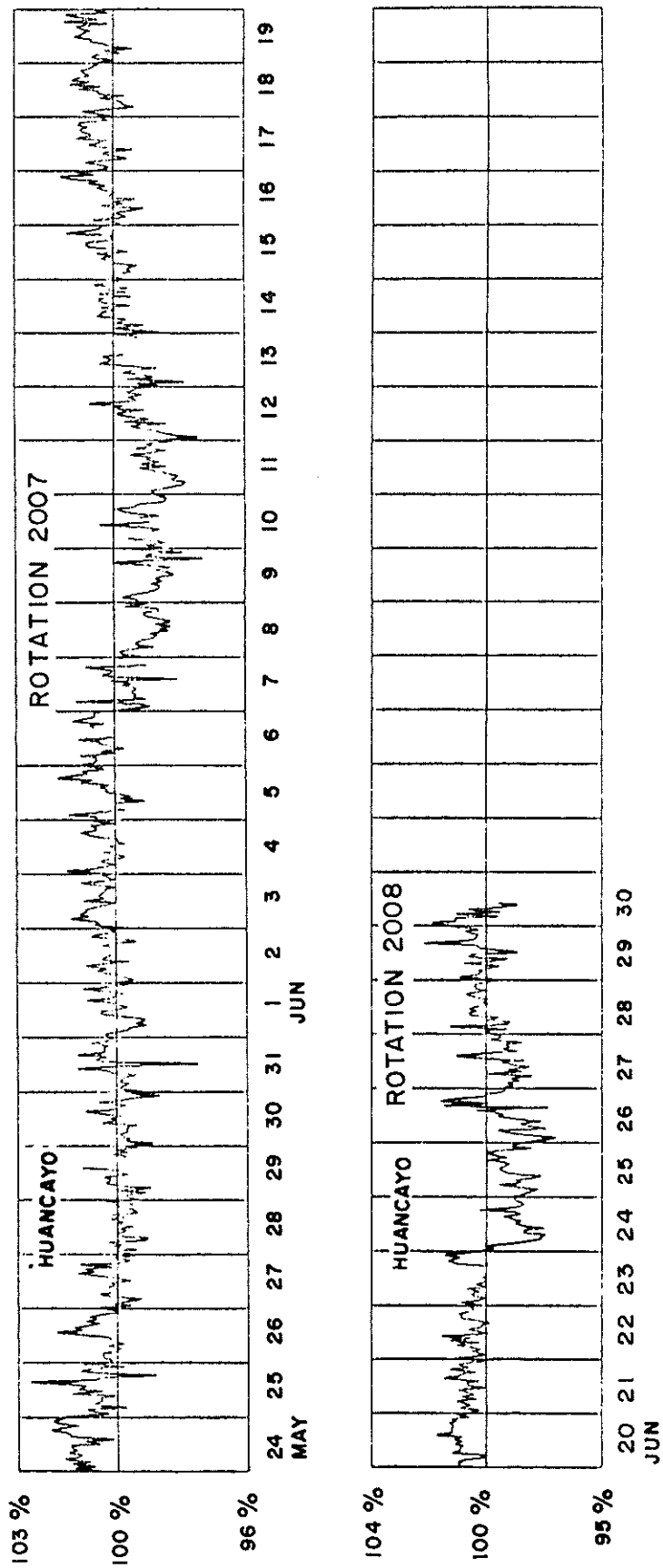
COSMIC RAY INDICES
(Neutron Monitors)

Day	CLIMAX August 1980 Average (cts/h)/100	HUANCAYO June 1980 Average (cts/h)/300
1	3702.4	1721.1
2	3719.3	1724.0
3	3771.1	1731.0
4	3775.5	1727.6
5	3743.3	1728.0
6	3702.2	1731.4
7	3696.0	1715.8
8	3715.0	1703.8
9	3726.1	1701.5
10	3743.6	1705.0
11	3759.7	1698.0
12	3750.5	1708.3
13	3737.3	1711.9 (36)
14	3734.6	1720.5
15	3721.0	1724.2
16	3710.1	1725.0
17	3654.4	1729.6
18	3679.0	1729.8
19	3679.8	1731.9
20	3669.2	1734.7
21	3699.7	1729.9
22	3692.3	1727.5
23	3704.4	1726.6
24	3714.8	1699.1
25	3719.6	1703.0
26	3732.7	1697.5 (26)
27	3723.2	1703.3
28	3716.0	1720.2
29	3723.5	1723.4
30	3725.3	1726.3
31	3735.7	
MEAN	3718.3	1719.0

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

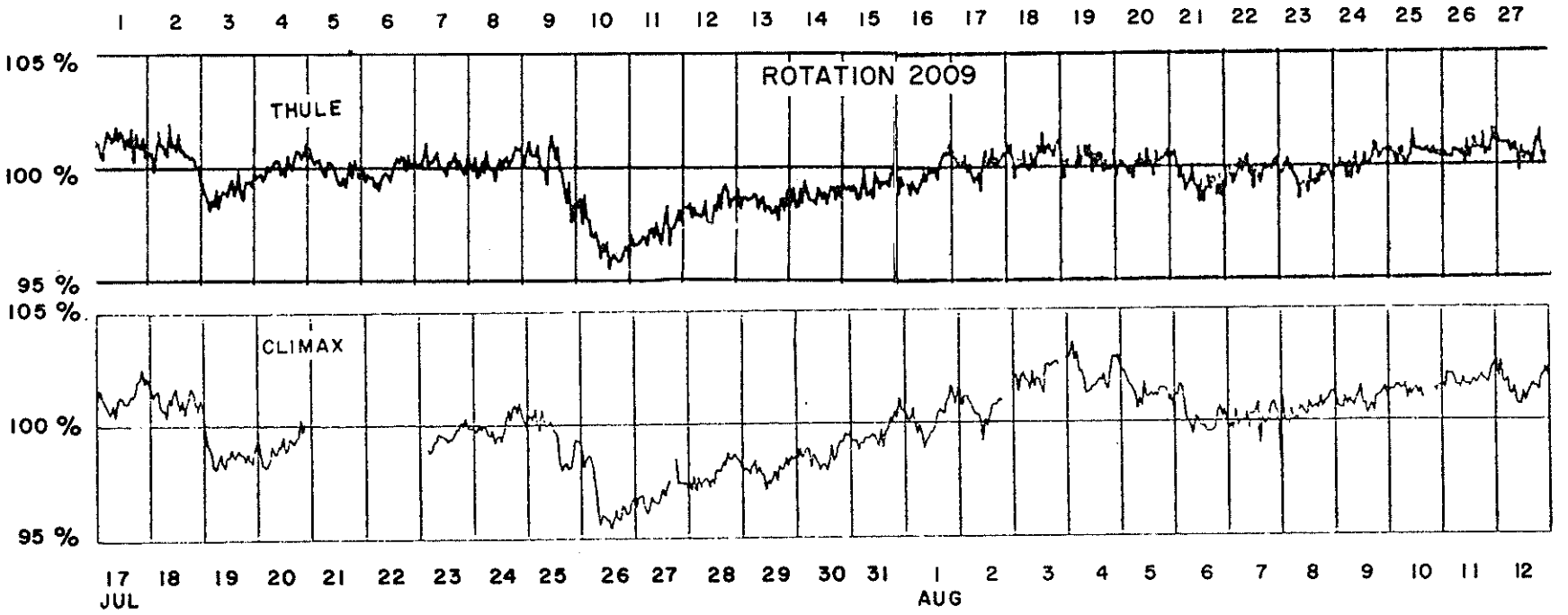
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2007–2008 (May–June 1980)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2009 (July–August 1980)



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Late
Aug 80

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

AUGUST 1980

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h, page 106-116.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

06 0010: A: NUR DOU FUR COI TOL FRD BNG; B: SOD WNG WIT AQU EBR MPO KGL;
C: NGK HAD HAZ CZT DUM

06 1332: A: WNG DOU FUR; B: NGK MPO; C: MMB KAK KNY (si: A: WIT; B: TOL)

11 1656: B: WNG WIT FUR BNG; C: HAD TOL (sfe: SOD MPO)

16 1240: A: SOD NUR WNG WIT DOU FUR AQU EBR COI TOL FRD HAZ BNG MPO;
B: NGK HAD MMB KGL DUM; C: KAK KNY

19 1024: A: NUR DOU FUR BNG MPO; B: SOD WNG WIT AQU TOL KGL; C: NGK HAD
MMB KAK HAZ KNY CZT DUM

Solar-flare effects (sfe)

Effects confirmed by ionosperic or solar observations are underlined.

03 1820 - .... BNG (b: A: MPO)
07 1430 - 1442 MPO
12 1340 - 1354 MPO
13 1254 - 1348 WNG
15 0330 - 0342 MPO
17 2202 - .... BNG (ssc: A: COI)
21 2349 - 2358 HAZ
22 0516 - 0540 HAZ
23 0025 - 0033 MPO
24 1437 - 1447 SOD
25 0634 - 0642 HAZ
27 1321 - 1407 WNG

Rectification

In the preliminary report of July 1980 in the ssc's of 171936, 181926 and 25 1111 and in sfe of 140823 instead of HRB please read BDV

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."