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Solar - Geophysical Data

NO. 418 JUNE 1979

Part I (Prompt Reports)

DATA FOR
MAY 1979
APRIL 1979

**NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO**

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SOLAR-GEOPHYSICAL DATA

No. 418

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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"411A 46" listed under 1978 Sep means that the sunspot drawings for September 1978 were contained in *Solar-Geophysical Data* Number 411 - Part I, beginning on page 46.

A = Part I, B = Part II.

---- = no data available.

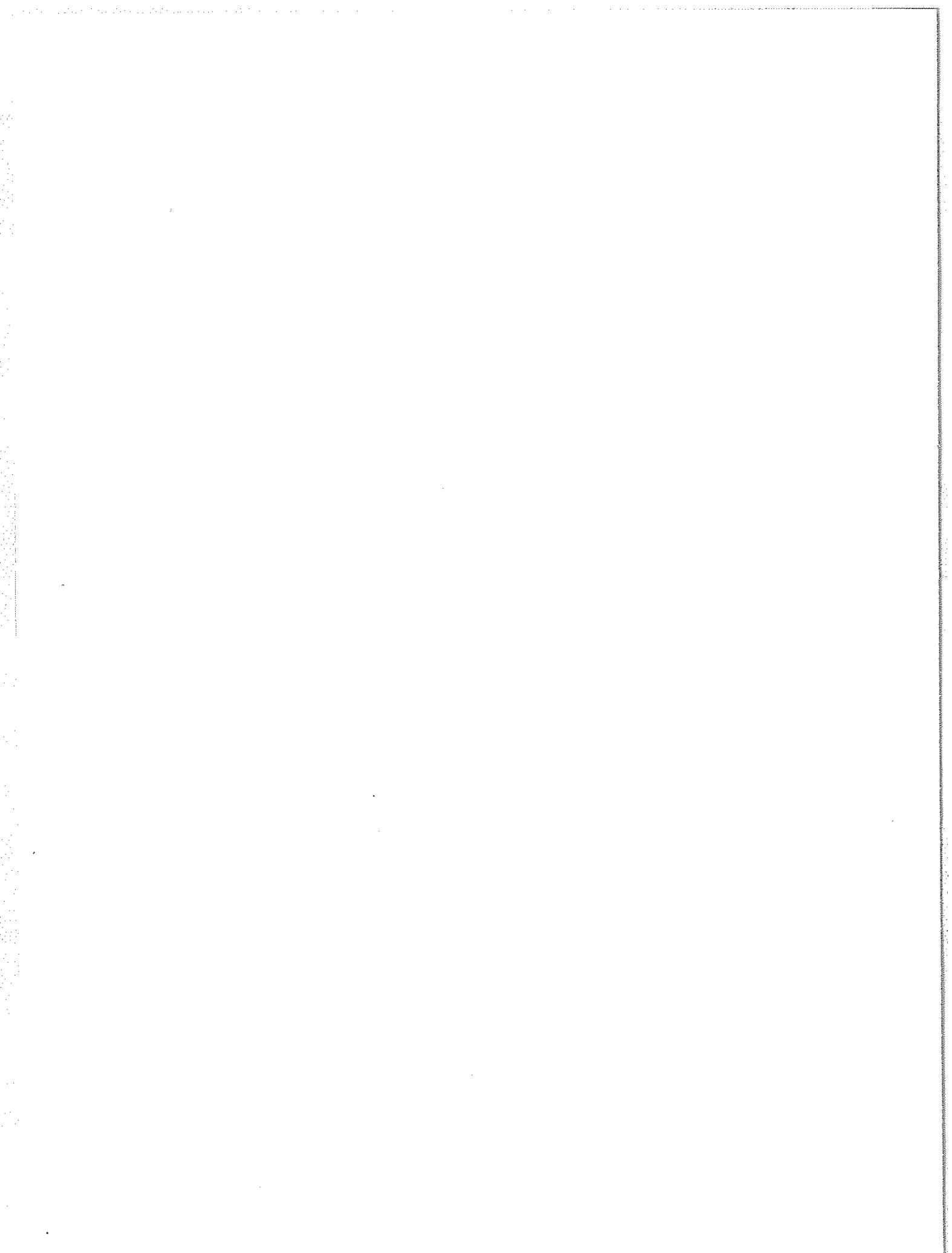
blank = data not yet received.

SGD 418 Part I (Prompt)

MAY 1979 DATA

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ALERT PERIODS
INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

MAY 1979

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

PRESTO BOULDER 02/1803Z SOFLARE M9/1B N19W55 02/1651Z DURATION 19 MINUTES NORTH-SOUTH PARALLEL RIBBONS.
TENFLARE 200 FLUX UNITS 02/1651Z DURATION 14 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				Outstanding events	Forecasts			Alert Situations							
						Location	No. of Flares				Date	Location	Desc*								
							Lat-Long	Total	M						X						
121	01	30	206	186	025	N18W29	0	0	0		01	N18W29	E	SOLALERT 01/03 MAGALERT MINOR 01/02							
						S23W14	1	0	0			S23W14	E								
						N23E02	3	0	0			N23E02	Q								
						N16E20	13	0	0			N16E20	A								
						S28W07	0	0	0			S28W07	Q								
						N12E25	4	0	0			N12E25	E								
						S25E75	0	0	0			S25E75	Q								
						S33E14	0	0	0			S33E14	Q								
						122	02	01	232			178	014		N18W43	2	1	0		02	N18W43	E	SOLALERT 02/03 MAGNIL
S25W44	1	0	0	S25W44	Q																
S24W28	1	0	0	S24W28	Q																
N24W11	1	0	0	N24W11	Q																
N16E07	5	1	0	N16E07	A																
N12E11	0	0	0	N12E11	Q																
S25E63	0	0	0	S25E63	Q																
S20W49	0	0	0	S20W49	Q																
N12E19	1	0	0	N12E19	Q																
S37W03	0	0	0	S37W03	Q																
123	03	02	173	178	014	N19W60	14	1	0	PRESTO BOULDER SOFLARE M9/1B N19W55 IN REGION 1705 AT 02/1651Z. A 10-CM RADIO BURST OF 200 FLUX UNITS WAS OBSERVED.	03	N19W60	E	SOLALERT 03/04 MAGALERT MINOR 04/05							
						S24W40	3	0	0			S24W40	Q								
						N26W26	0	0	0			N26W26	Q								
						N16W06	7	0	0			N16W06	A								
						N11W02	0	0	0			N11W02	Q								
						S24E51	3	0	0			S24E51	Q								
						S19W63	0	0	0			S19W63	Q								
						N13E07	0	0	0			N13E07	Q								
						N20E59	0	0	0			N20E59	Q								
124	04	03	138	163	005	N18W72	3	0	0		04	N18W72	CA	SOLALERT MAGALERT MINOR 04/05							
						S25W52	0	0	0			S25W52	Q								
						N25W38	0	0	0			N25W38	Q								
						N15W20	2	0	0			N15W20	A								
						S26E40	1	0	0			S26E40	Q								
						S20W78	0	0	0			S20W78	Q								
						N20E47	0	0	0			N20E47	Q								
						S26E71	0	0	0			S26E71	Q								
						125	05	04	179			173	005		N18W88	0	0	0		05	N18W88	E	MAJOR FLARE ALERT MAGALERT MINOR 05
S25W68	0	0	0	S25W68	Q																
N16W33	0	0	0	N16W33	DP																
N14W29	0	0	0	N11W29	Q																
S25E26	1	0	0	S25E26	Q																
N12W21	0	0	0	N12W21	A																
N21E35	0	0	0	N21E35	Q																
S27E59	0	0	0	S27E59	Q																
N22E67	0	0	0	N22E67	Q																
N04E40	0	0	0	N04E40	Q																
S28E73	1	0	0	S28E73	Q																
N24E59	2	0	0	N24E59	Q																
126	06	05	150	166	005	S25W81	0	0	0		06	S25W81	Q	SOLALERT 06/XX MAGNIL							
						N15W45	2	0	0			N15W45	DA								
						S26W12	0	0	0			S26W12	Q								
						N11W35	0	0	0			N11W35	DA								
						N19E22	0	0	0			N19E22	Q								
						S27E45	0	0	0			S27E45	Q								
						N21E56	3	0	0			N21E56	Q								
						S30E59	0	0	0			S30E59	Q								
						N25E45	2	0	0			N25E45	Q								
127	07	06	165	171	007	N15W57	0	0	0		07	N15W57	E	SOLALERT 07/XX MAGQUJET							
						S26W03	0	0	0			S26W03	Q								
						N12W48	4	0	0			N12W48	E								
						S32E27	0	0	0			S32E27	Q								
						N21E42	4	0	0			N21E42	CA								
						S30E44	0	0	0			S30E44	Q								
						N25E32	4	0	0			N25E32	DA								
						N17E60	0	0	0			N17E60	Q								
						S22E65	0	0	0			S22E65	Q								
						N04E72	0	0	0			N04E72	Q								
128	08	07	279	175	011	N16W69	0	0	0		08	N16W69	Q	SOLNIL MAGQUJET							
						S26W16	0	0	0			S26W16	Q								
						N12W61	3	0	0			N12W61	E								
						S26E22	0	0	0			S26E22	Q								
						N22E29	2	0	0			N22E29	E								
						S30E33	0	0	0			S30E33	Q								
						N24E21	1	0	0			N24E21	Q								
						N18E49	0	0	0			N18E49	Q								
						S22E55	0	0	0			S22E55	Q								
						N04E61	0	0	0			N04E61	Q								
N26W68	2	0	0	N26W68	Q																
S33E65	0	0	0	S33E65	Q																
S15E74	0	0	0	S15E74	Q																
N08E54	0	0	0	N08E54	Q																

ALERT PERIODS
INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE
MAY 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	IO cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations									
						Location	No. of	Flores			Date	Location	Desc*										
								Lat-Long	Total						M	X	Lat-Long						
129	09	08	271	184	008	N16W75	2	0	0		09	N16W75	Q	SOLQUITET MAGQUIET									
						S26W16	0	0	0			S26W16	Q										
						N12W74	2	0	0			N12W74	Q										
						S26E08	0	0	0			S26E08	Q										
						N22E17	2	0	0			N22E17	E										
						S29E21	0	0	0			S29E21	Q										
						N24E08	1	0	0			N24E08	Q										
						N19E36	0	0	0			N19E36	Q										
						S21E41	0	0	0			S21E41	Q										
						N04E48	2	0	0			N04E48	E										
						S33E54	0	0	0			S33E54	Q										
						S15E62	3	0	0			S15E62	E										
						N08E33	0	0	0			N08E33	Q										
						S30W75	0	0	0			S30W75	Q										
						N28E31	0	0	0			N28E31	Q										
						N28E71	0	0	0			N28E71	Q										
S16E76	0	0	0	S16E76	Q																		
130	10	09	213	178	014	N12W83	0	0	0		10	N12W83	Q	SOLQUITET MAGQUIET									
						S26W04	0	0	0			S26W04	Q										
						N22E04	1	0	0			N22E04	E										
						S28E08	0	0	0			S28E08	Q										
						N24W04	0	0	0			N24W04	Q										
						N20E22	0	0	0			N20E22	Q										
						S21E27	0	0	0			S21E27	Q										
						N05E36	2	0	0			N05E36	Q										
						S33E39	0	0	0			S33E39	Q										
						S15E47	0	0	0			S15E47	Q										
						N08E18	0	0	0			N08E18	Q										
						N29E58	2	0	0			N29E58	Q										
						S16E63	0	0	0			S16E63	Q										
						131	11	10	184			171	008		S26W17	0	0	0		11	S26W17	Q	SOLQUITET MAGQUIET
															N21W09	2	0	0			N21W09	E	
															S29W05	0	0	0			S29W05	Q	
N24W17	0	0	0	N24W17	Q																		
N19E09	0	0	0	N19E09	Q																		
S21E14	0	0	0	S21E14	Q																		
N05E21	0	0	0	N05E21	Q																		
S15E32	0	0	0	S15E32	Q																		
N08E05	8	0	0	N08E05	E																		
N28E41	0	0	0	N28E41	Q																		
S15E49	0	0	0	S15E49	Q																		
132	12	11	215	175	016					S26W31	1			0	0		12	S26W31			Q	SOLALERT 12/XX MAGALERT 12/13	
										N21W23	4			0	0			N21W23			E		
										S28W18	0			0	0			S28W18			Q		
										N24W31	0			0	0			N24W31			Q		
										S21E02	2			0	0			S21E02			Q		
						N04E08	0	0	0	N04E08	Q												
						S14E19	1	0	0	S14E19	Q												
						N08W08	10	0	0	N08W08	A												
						N28E28	1	0	0	N28E28	Q												
						S15E36	0	0	0	S15E36	Q												
						N13E72	4	0	0	N13E72	E												
						N16E50	0	0	0	N16E50	Q												
						133	13	12	228	180	010	N23W45	0	0	0				13	N23W45	Q		SOLALERT 13/XX MAGNIL
												S26W44	0	0	0					S26W44	Q		
												N22W35	2	0	0					N22W35	E		
												N08W23	5	0	0					N08W23	A		
S21W12	3	0	0	S21W12	E																		
N04W06	0	0	0	N04W06	Q																		
S14E06	0	0	0	S14E06	Q																		
N15E12	0	0	0	N15E12	Q																		
N27E17	1	0	0	N27E17	Q																		
S15E23	0	0	0	S15E23	Q																		
N16E37	2	0	0	N16E37	CE																		
N15E56	1	0	0	N15E56	CE																		
S15E58	0	0	0	S15E58	Q																		
N25E76	0	0	0	N25E76	Q																		
134	14	13	260	182	009							S23W56	0	0	0		14			S23W56	Q	SOLALERT 14/XX MAGQUIET	
												N22W48	4	0	0					N22W48	E		
						S19W25	1	0	0	S19W25	Q												
						N05W19	0	0	0	N05W19	Q												
						S13W09	0	0	0	S13W09	Q												
						N09W35	1	0	0	N09W35	DA												
						N28E04	0	0	0	N28E04	Q												
						S14E10	0	0	0	S14E10	Q												
						N13E45	0	0	0	N13E45	Q												
						N15E24	2	0	0	N15E24	E												
						S15E44	0	0	0	S15E44	Q												
						N24E68	0	0	0	N24E68	Q												
						N15W02	2	0	0	N15W02	E												
						N08W22	0	0	0	N08W22	Q												
						S37E28	0	0	0	S37E28	Q												

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Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location		No. of Flares			Date	Location	Desc ^m	
						Lat-Long	Total	M	X						Lat-Long
135	15	14	287	178	012	S26W71	0	0	0		15	S26W71	Q	SOLALERT MINOR 15 MAGQUIET
						N20W68	2	0	0			N20W68	Q	
						S21W38	0	0	0			S21W38	Q	
						N04W33	0	0	0			N04W33	Q	
						S14W24	0	0	0			S14W24	Q	
						N08W50	0	0	0			N08W50	Q	
						N29W11	0	0	0			N29W11	Q	
						S15W03	0	0	0			S15W03	Q	
						N14E29	2	0	0			N14E29	Q	
						N15E09	7	0	0			N15E09	E	
						N26E49	0	0	0			N26E49	Q	
						N16W17	1	0	0			N16W17	E	
						N39E14	0	0	0			N39E14	Q	
						S27W55	0	0	0			S27W55	E	
						S29E10	2	0	0			S29E10	E	
						N26E61	0	0	0			N26E61	Q	
136	16	15	297	177	009	S26W83	0	0	0		16	S26W83	Q	SOLNIL MAGQUIET
						N21W80	0	0	0			N21W80	Q	
						S21W51	2	0	0			S21W51	Q	
						N04W45	0	0	0			N04W45	Q	
						S14W36	2	0	0			S14W36	Q	
						N08W64	1	0	0			N08W64	Q	
						N30W20	0	0	0			N30W20	Q	
						S16W15	0	0	0			S16W15	Q	
						N13E15	0	0	0			N13E15	Q	
						N15W04	2	0	0			N15W04	E	
						N25E36	0	0	0			N25E36	Q	
						N16W30	0	0	0			N16W30	E	
						N37E01	0	0	0			N37E01	Q	
						S29W03	2	0	0			S29W03	E	
						N26E48	1	0	0			N26E48	Q	
						S29E32	0	0	0			S29E32	Q	
S17E68	0	0	0	S17E68	Q									
137	17	16	238	172	005	S21W67	4	0	0		17	S21W67	E	SOLQUIET MAGQUIET
						N04W57	0	0	0			N04W57	Q	
						S14W47	0	0	0			S14W47	Q	
						N08W73	0	0	0			N08W73	Q	
						N28W38	0	0	0			N28W38	Q	
						S15W28	0	0	0			S15W28	Q	
						N13E07	0	0	0			N13E07	Q	
						N15W17	1	0	0			N15W17	Q	
						N22E28	0	0	0			N22E28	Q	
						N15W43	2	0	0			N15W43	E	
						N36W11	0	0	0			N36W11	Q	
						S30W15	0	0	0			S30W15	Q	
						S16E55	0	0	0			S16E55	Q	
						S10E67	0	0	0			S10E67	Q	
						N16E63	0	0	0			N16E63	Q	
						138	18	17	216			184	004		S20W81	11	2	0		18	S20W81	A	SOLALERT 18/XX MAGQUIET
N05W70	0	0	0	N05W70	Q									
N29W48	1	0	0	N29W48	Q									
S14W41	1	0	0	S14W41	Q									
N13W06	2	0	0	N13W06	Q									
N16W29	0	0	0	N16W29	Q									
N25E17	3	0	0	N25E17	E									
N16W57	4	0	0	N16W57	CA									
N40W22	0	0	0	N40W22	Q									
S29W28	0	0	0	S29W28	Q									
S15E43	0	0	0	S15E43	Q									
S09E54	0	0	0	S09E54	Q									
S15W06	0	0	0	S15W06	Q									
139	19	18	185	169	012	N05W84	0	0	0		19	N05W84	Q	SOLNIL MAGALERT MINOR 19/20
						N29W62	1	0	0			N29W62	Q	
						S16W54	1	0	0			S16W54	Q	
						N13W19	0	0	0			N13W19	Q	
						N16W43	2	0	0			N16W43	E	
						H24E02	0	0	0			N24E02	CE	
						N17W72	1	0	0			N17W72	CA	
						S30W40	0	0	0			S30W40	Q	
						S15E29	0	0	0			S15E29	Q	
						S13E35	0	0	0			S13E35	Q	
						S28E72	0	0	0			S28E72	Q	
S20E76	0	0	0	S20E76	Q									

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						Location	No. of Flares				Date	Location	Desc*										
							Lat-Long	Total	M						X	Lat-Long							
140	20	19	195	159	020	N29W74	0	0	0		20	N29W74	Q	SOLQUIET MAGALERT MINOR 20/XX									
						S15W68	0	0	0			S15W68	Q										
						N13W32	0	0	0			N13W32	Q										
						N15W56	0	0	0			N15W56	E										
						N24W12	0	0	0			N24W12	Q										
						N16W85	2	1	0			N16W85	CA										
						S30W52	0	0	0			S30W52	Q										
						S15E15	0	0	0			S15E15	Q										
						S12E21	0	0	0			S12E21	Q										
						S29E55	0	0	0			S29E55	Q										
						S19E61	0	0	0			S19E61	Q										
						N14E23	0	0	0			N14E23	Q										
						N13E44	0	0	0			N13E44	Q										
						N17E80	0	0	0			N17E80	Q										
141	21	20	145	153	016	N29W85	0	0	0		21	N29W85	Q	SOLQUIET MAGNIL									
						N15W67	2	0	0			N15W67	CE										
						N24W26	2	0	0			N24W26	CE										
						S28W69	0	0	0			S28W69	Q										
						S16E01	0	0	0			S16E01	Q										
						S13E04	0	0	0			S13E04	Q										
						S30E43	0	0	0			S30E43	Q										
						N20E48	2	0	0			N20E48	CE										
						N17E65	0	0	0			N17E65	Q										
						N27E17	0	0	0			N27E17	Q										
						S21E36	4	0	0			S21E36	DA										
						142	22	21	191			152	010		N16W79	1	0	0		22	N16W79	Q	SOLQUIET MAGQUIET
															N23W39	0	0	0			N23W39	Q	
															N37W72	0	0	0			N37W72	Q	
S28W82	0	0	0	S28W82	Q																		
S18W09	0	0	0	S18W09	Q																		
S13W09	0	0	0	S13W09	Q																		
S29E31	3	0	0	S29E31	E																		
S18E33	1	0	0	S18E33	Q																		
N14W04	0	0	0	N14W04	Q																		
N17E52	0	0	0	N17E52	Q																		
N26E02	0	0	0	N26E02	Q																		
S21E24	8	0	0	S21E24	E																		
N24W28	0	0	0	N24W28	Q																		
S34E77	0	0	0	S34E77	Q																		
143	23	22	173	154	025	N23W53	0	0	0		23	N23W53	Q	SOLQUIET MAGALERT MINOR 23									
						S17W18	0	0	0			S17W18	Q										
						S29E19	0	0	0			S29E19	Q										
						S20E25	0	0	0			S20E25	E										
						N17E43	0	0	0			N17E43	Q										
						N26W09	1	0	0			N26W09	E										
						S21E12	0	0	0			S21E12	E										
						N24W43	1	0	0			N24W43	Q										
						S34W58	0	0	0			S34W58	Q										
						S29W56	0	0	0			S29W56	Q										
						S32W03	0	0	0			S32W03	Q										
						144	24	23	161			152	010		N23W67	0	0	0		24	N23W67	Q	SOLQUIET MAGNIL
															S15W35	1	0	0			S15W35	Q	
															S30E07	0	0	0			S30E07	Q	
S20E13	1	0	0	S20E13	Q																		
N18E31	0	0	0	N18E31	Q																		
N25W22	0	0	0	N25W22	Q																		
S22W00	1	0	0	S22W00	E																		
S34E48	0	0	0	S34E48	Q																		
S30W69	0	0	0	S30W69	Q																		
N16E70	0	0	0	N16E70	Q																		
145	25	24	169	159	018					N24W78	0			0	0		25	N24W78			Q	SOLQUIET MAGALERT MINOR 25/26	
										S30W05	0			0	0			S30W05			Q		
										S20W01	1			0	0			S20W01			E		
										N17E17	0			0	0			N17E17			Q		
						N25W36	0	0	0	N25W36	Q												
						S22W15	2	0	0	S22W15	E												
						S34W34	0	0	0	S34W34	Q												
						N14E53	0	0	0	N14E53	Q												
						N13W54	0	0	0	N13W54	Q												
						S33E67	0	0	0	S33E67	Q												
						146	26	25	144	152	021	S30W18	0	0	0				26	S30W18	Q		SOLQUIET MAGALERT 26/XX
												S19W19	1	0	0					S19W19	E		
												N17E04	0	0	0					N17E04	Q		
												S22W28	0	0	0					S22W28	E		
S35E23	0	0	0	S35E23	Q																		
N14E40	0	0	0	N14E40	Q																		
N14W67	0	0	0	N14W67	Q																		
S33E55	0	0	0	S33E55	Q																		
N13W38	0	0	0	N13W38	Q																		
N29W12	0	0	0	N29W12	Q																		

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Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations									
						Location		No. of Flares			Date	Location	Desc*										
						Lat-Long	Total	M	X			Lat-Long											
147	27	26	168	145	016	S31W28	0	0	0		27	S31W28	Q	SOLQUIET MAGALERT MINOR 27/28									
						S18W25	1	0	0			S18W26	Q										
						N18W08	0	0	0			N18W08	Q										
						N25W62	1	0	0			N25W62	Q										
						S21W40	0	0	0			S21W40	Q										
						S33E11	0	0	0			S33E11	Q										
						S16E26	1	0	0			S16E26	Q										
						N13W80	0	0	0			N13W80	Q										
						S32E41	0	0	0			S32W41	Q										
						N14W52	0	0	0			N14W52	Q										
						N30W24	1	0	0			N30W24	Q										
						148	28	27	155			146	022		S31W41	0	0	0		28	S31W41	Q	SOLQUIET MAGALERT MINOR 28
															S18W45	0	0	0			S18W45	Q	
N18W20	0	0	0	N18W20	Q																		
N25W75	0	0	0	N25W75	Q																		
S21W54	0	0	0	S21W54	Q																		
S32W03	0	0	0	S32W03	Q																		
N16E15	0	0	0	N16E15	Q																		
S32E30	0	0	0	S32E30	Q																		
N14W65	0	0	0	N14W65	Q																		
N30W37	0	0	0	N30W37	Q																		
S24E10	0	0	0	S24E10	Q																		
N24E32	0	0	0	N24E32	Q																		
149	29	28	150	145	010					S18W58	0			0	0		29	S18W58			Q	SOLQUIET MAGNIL	
						N18W34	0	0	0	N18W34	Q												
						S22W67	1	0	0	S22W67	Q												
						S35W13	1	0	0	S35W13	Q												
						N16E03	0	0	0	N16E03	Q												
						S32E18	0	0	0	S32E18	Q												
						N23E19	0	0	0	N23E19	Q												
						S08E07	0	0	0	S08E07	Q												
						N13E76	2	0	0	N13E76	Q												
						S23E18	0	0	0	S23E18	Q												
						150	30	29	141	146	020	S20W70	0	0	0			GEOMAGNETIC STORM STARTED WITH SC AT 29/1850Z.	30	S20W70	Q		SOLQUIET MAGALERT 30
												N17W48	0	0	0					N17W48	Q		
												S34W26	0	0	0					S34W26	Q		
N16W12	0	0	0	N16W12	Q																		
S33E11	0	0	0	S33E11	Q																		
N25E06	0	0	0	N35E06	Q																		
S09W07	0	0	0	S09W07	Q																		
N14E63	1	0	0	N14E63	Q																		
S24W33	0	0	0	S24W33	Q																		
151	31	30	129	154	015							N17W63	0	0	0		31			N17W63	Q	SOLQUIET MAGNIL	
												S35W39	0	0	0					S35W39	Q		
												N15W26	0	0	0					N15W26	Q		
												S08W23	0	0	0					S08W23	Q		
						N16E52	0	0	0	N16E52	Q												
						S25W47	0	0	0	S25W47	Q												
						N10W54	0	0	0	N10W54	Q												
						S17E50	0	0	0	S17E50	Q												
						152	01	31	150	170	007	N18W74	0	0	0				01	N18W74	Q		SOLQUIET MAGQUIET
												N15W39	0	0	0					N15W39	Q		
												N15E39	0	0	0					N15E39	E		
												N23E63	0	0	0					N23E63	Q		
												N12W67	0	0	0					N12W67	Q		
N21W21	0	0	0	N21W21	Q																		
S21W14	0	0	0	S21W14	Q																		
S31W13	0	0	0	S31W13	Q																		
N20E70	1	0	0	N20E70	DA																		
S21E76	0	0	0	S21E76	Q																		
N07E82	0	0	0	N07E82	Q																		

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS
ZURICH, R_Z

DAY	1978 FINAL							1979 PROVISIONAL				
	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	119	64	42	136	96	109	110	158	116	116	131	108
2	98	61	48	167	112	122	110	158	127	138	134	106
3	78	51	38	159	105	125	117	191	148	141	135	103
4	60	48	62	162	100	129	115	157	123	142	138	112
5	51	54	74	177	73	121	104	146	134	135	109	113
6	31	63	66	177	74	108	122	173	146	144	91	122
7	39	84	58	147	95	112	138	163	144	146	77	148
8	45	105	62	120	103	118	148	172	142	143	69	165
9	36	108	64	109	121	108	152	165	139	146	61	162
10	29	115	67	99	149	120	144	163	137	140	87	145
11	57	127	58	84	158	118	170	157	137	156	109	148
12	62	111	71	72	158	99	188	159	138	170	107	158
13	62	114	93	92	156	90	165	159	152	169	113	163
14	64	109	93	113	170	78	150	162	163	159	116	203
15	89	102	77	133	166	59	140	178	161	155	117	207
16	94	110	52	143	163	77	143	164	159	130	119	187
17	103	98	50	136	143	92	146	164	160	142	107	184
18	115	84	50	156	135	93	132	146	162	142	98	148
19	109	77	42	159	154	85	95	138	166	138	79	109
20	109	76	30	163	151	76	84	177	169	120	68	107
21	154	77	30	171	144	68	68	181	171	134	68	114
22	158	48	36	148	125	77	63	178	155	140	79	121
23	158	38	45	156	116	55	59	188	127	139	79	117
24	154	38	48	163	134	61	65	209	99	118	80	119
25	135	30	55	168	96	85	81	209	88	114	85	124
26	152	13	45	152	102	101	93	173	108	114	118	123
27	143	22	57	142	115	118	110	162	97	117	125	118
28	130	31	57	126	117	118	122	157	95	114	132	110
29	115	48	59	122	137	111	135	153		110	132	113
30	103	39	72	94	128	103	159	149		127	120	96
31		36	100		111		177	130		147		120
MEAN	95.1	70.4	58.1	138.2	125.1	97.9	122.7	165.8	138.0	137.0	102.8	134.6

1978 yearly mean = 92.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S₁₁

DAY	1978							1979				
	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	149.1	142.9	106.0	159.8	139.0	152.0	166.6	194.1*	185.8	168.5	202.6*	180.4
2	147.0*	127.6	106.0	171.7*	137.8	159.0	167.6	200.1	185.6	170.7	203.4	179.2
3	130.8	116.5	109.6	167.0	131.7	169.9	164.2	203.5*	187.4*	173.3	194.2	164.3
4	118.6	117.4	112.3	174.4*	132.0*	177.4	165.3	192.7*	187.7	181.4	183.5	176.0
5	116.9	118.9	117.6	179.4	138.7*	181.2	169.5	194.9	197.4	180.1*	179.3	169.6
6	109.8	119.3*	122.6	181.1	137.4	172.2*	164.5	190.9	206.5	182.4	176.3	171.1*
7	110.6	128.9	128.2	177.5	141.6	174.6	178.5*	186.2	203.4	183.1*	166.7	178.0
8	109.3	135.9	130.6	167.1	150.1	168.0*	189.9	200.1	207.2*	178.9	169.0*	182.4*
9	106.5	147.1*	128.1*	157.6*	155.8	164.9*	189.6	192.6	193.7	181.4	169.6	181.3
10	108.4	156.0*	127.5	149.8	162.3	166.3	204.7	186.2	198.4*	180.6	173.0	174.7
11	113.2	163.2*	121.7	141.5	171.6*	163.7	210.5	179.5	202.2*	181.7*	170.0*	178.6
12	116.4*	174.2*	124.5	138.5	177.2	150.4	217.3	174.5	195.4	188.7	174.5	184.2
13	120.3*	165.5	134.9	138.0	178.5	145.3	210.6*	193.9	195.4	186.3	175.8	186.6
14	126.4*	163.1	132.7	143.5*	150.1	136.3	197.0	200.0*	204.2*	189.4	170.9	182.0
15	132.5	169.5	130.0*	152.6	132.0	133.8	192.7	192.1*	205.0*	181.3	168.1	181.9
16	139.5*	163.4	123.6	161.5	176.7*	128.8	180.5	189.9*	209.2	183.5*	171.7	176.4
17	149.0	159.5	119.3*	161.8	171.5	128.1	177.7	175.7	213.1	177.7	168.0	187.7
18	153.5*	154.1*	115.6	169.3*	169.4	127.4	161.5	177.6	237.7	186.6*	158.7	171.3*
19	162.0*	148.6	111.6	168.8*	170.4	128.9	152.9	187.8	237.8	177.6	159.4	161.5
20	174.2	142.9*	107.5	168.6	171.0	134.9	138.1	197.2	230.1*	184.1	156.1	155.6
21	185.4*	140.2	104.8	172.5	166.9*	126.0	132.1*	210.3	225.1	182.2	161.5	155.7
22	190.3	127.0	106.0	171.5*	161.4	127.1	132.7	226.9	223.3	181.1	159.7*	156.5*
23	196.7	123.4*	104.1	165.5*	161.4	121.9	133.4	225.1	196.0	188.5	162.3	156.0
24	194.8	118.5	105.4	158.9	156.9	123.5	135.2*	208.5	182.8	188.3	161.9	159.2*
25	183.5	113.7	104.2	157.2	156.1	124.7*	138.0	206.1	167.5	188.2	172.5	153.3*
26	182.4*	112.2	100.7	148.5	154.4	132.7	144.2	192.9	165.0	200.2	182.0	149.1
27	179.5	110.8	107.3*	146.2*	150.7	144.4*	148.7*	205.4	162.7	187.9	195.1*	149.4
28	174.1	109.9	107.7*	147.8	148.4	154.1	164.1	209.6	163.6	188.6	182.1*	149.2
29	167.4	109.2	116.2	148.1	149.8	162.2	166.2	209.3		191.4	185.7	150.2
30	154.6*	109.2	124.1	142.6	146.5	167.8	181.7	194.1*		186.6	185.2*	158.4
31		108.8	133.9*		144.0		195.1	193.7		201.4*		174.9
MEAN	146.8	135.4	116.9	159.6	157.1	148.2	170.0	196.5	199.1	184.0	175.0	168.9

* adjusted for burst
A = interpolated data point

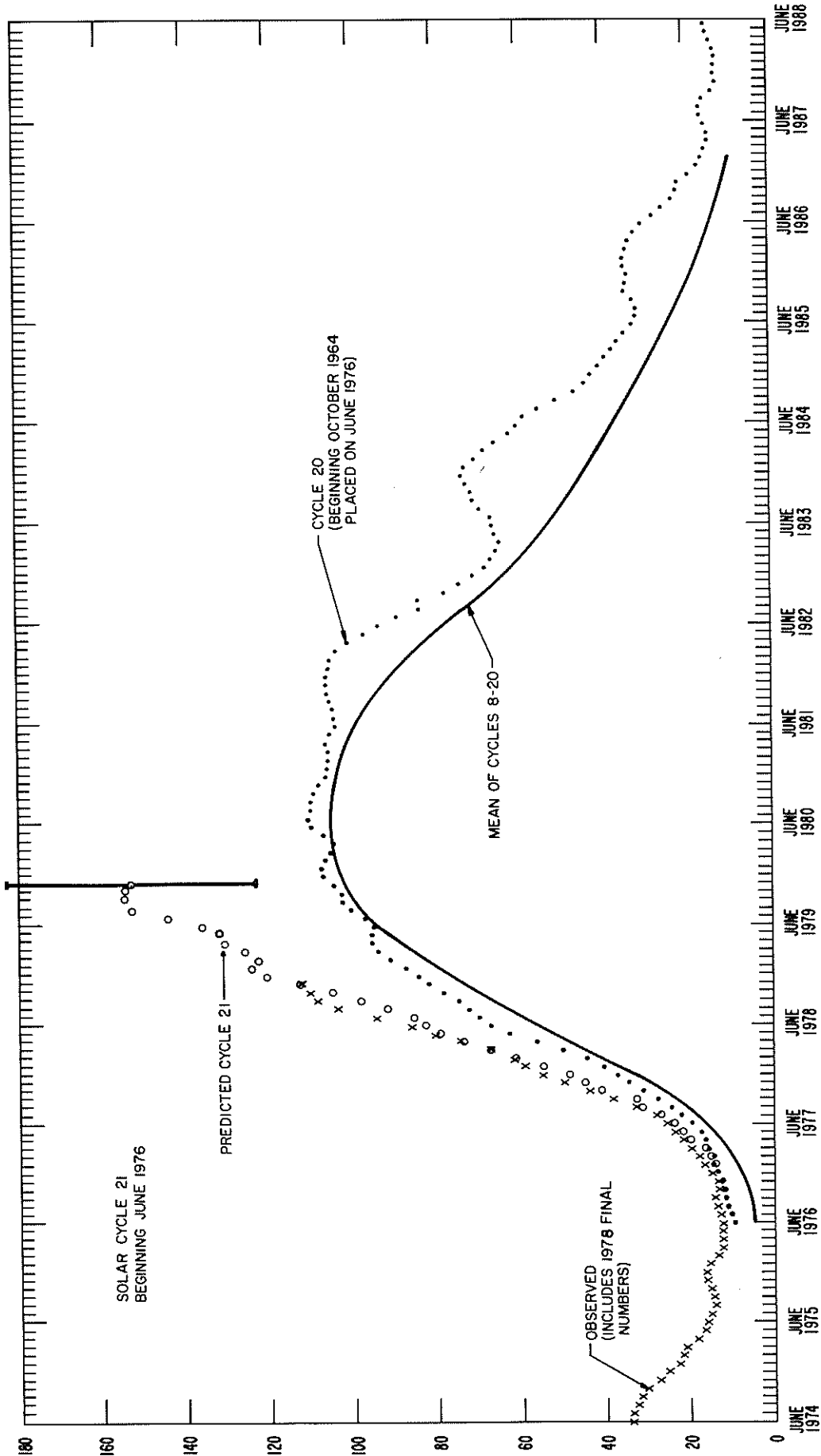
DAILY SOLAR INDICES

MAY 1979

MAY 1979	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 AU.								
			R _Z	R _A *		AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	121	17	108	111	177.6	592	360	195	180.4	191.0	103.7	78.6	39.2	18.1
2	122	18	106	104	176.4	596	362	197	179.2	181.8	102.0	78.5	35.7	17.5
3	123	19	103	99	161.6	586	357	187	164.3	171.2	95.3	74.8	32.0	11.5
4	124	20	112	115	173.1	589	360	196	176.0	181.6	103.3	78.0	37.6	14.9
5	125	21	113	110	166.6	601	348	187	169.6	172.4	98.1	77.1	38.2	20.5
6	126	22	122	119	168.1*	597	368	194	171.1*	178.5	96.5	74.4	33.2	15.9
7	127	23	148	145	174.7	606	361	203	178.0	188.0	102.2	77.0	31.8	14.4
8	128	24	165	144	179.0*	602	368	209	182.4*	185.0	109.2	76.1	30.3	11.8
9	129	25	162	125	177.9	591	372	203	181.3	180.8	106.3	75.1	31.6	13.2
10	130	26	145	120	171.3	585	366	192	174.7	174.3	103.6	78.1	31.3	12.2
11	131	27	148	126	175.1	587	378	206	178.6	177.6	106.1	82.7	40.3	13.1
12	132	1	158	156	180.4	599	377	210	184.2	180.0	109.7	81.1	33.4	13.3
13	133	2	163	181	182.8	589	374	208	186.6	188.0	113.9	85.0	36.9	11.9
14	134	3	203	185	178.1	592	370	203	182.0	183.4	113.6	82.9	32.2	16.7
15	135	4	207	184	178.0	595	369	203	181.9	182.5	111.4	80.7	35.2	16.7
16	136	5	187	173	172.4	598	369	204	176.4	184.0	102.3	78.6	42.5	14.3
17	137	6	184	152	183.5	611	388	212	187.7	197.1	102.5	79.2	36.4	15.5
18	138	7	148	133	167.3*	588	370	194	171.3*	173.3	100.6	83.5	33.2	13.3
19	139	8	109	118	157.7	580	355	187	161.5	158.7	94.3	72.0	30.4	13.9
20	140	9	107	82	152.0	571	352	177	155.6	157.4	85.9	69.5	29.3	13.3
21	141	10	114	96	151.9	584	347	181	155.7	156.4	87.8	64.8	32.3	11.3
22	142	11	121	99	152.7*	605	358	184	156.5*	160.1	92.8	70.2	30.3	11.0
23	143	12	117	108	152.0	592	344	178	156.0	162.1	97.1	73.2	35.5	18.5
24	144	13	119	102	155.2*	590	338	175	159.2*	157.0	101.2	77.8	34.9	16.2
25	145	14	124	115	149.4*	584	336	173	153.3*	153.0	99.0	74.9	30.9	11.7
26	146	15	123	104	145.2	588	337	174	149.1	161.0	96.5	80.6	30.0	10.2
27	147	16	118	101	145.5	590	338	173	149.4	153.4	96.6	76.1	31.8	11.5
28	148	17	110	101	145.3	586	335	169	149.2	148.9	95.0	75.0	37.3	10.2
29	149	18	113	89	146.1	588	336	175	150.2	153.1	93.3	75.0	33.4	13.3
30	150	19	96	77	154.1	592	346	189	158.4	162.9	91.5	73.2	29.5	12.6
31	151	20	120	102	170.1	597	357	204	174.9	172.8	96.4	80.1	34.1	13.6
MEAN			134.6	121.8	165.2	592	358	192	168.9	171.8	100.2	76.9	33.9	13.9

* Adjusted for burst.

Note: Data gaps in AFGL Sagamore Hill are due to equipment problems.



OBSERVED AND PREDICTED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	29.0	33.4	39.1	45.6	51.9	56.9
1978	61.3	64.5	69.5	76.9	83.2	89.3	97.4	104.0	108.4	111.0	113.3	119.1 (4)
1979	124.0 (8)	128.4 (9)	132.8 (11)	135.8 (16)	138.4 (20)	142.8 (22)	147.2 (25)	150.1 (27)	152.3 (28)	153.5 (29)	153.9* (30)	153.5 (31)
1980	152.1 (32)	150.7 (31)	149.9 (30)	150.1 (31)	149.6 (32)	146.3 (35)	142.7 (38)	139.8 (39)	138.0 (40)	137.0 (41)	135.7 (43)	134.5 (45)
1981	134.4 (48)	134.0 (47)	131.5 (46)	128.6 (44)	126.0 (45)	123.2 (45)	121.9 (44)	121.4 (43)	120.5 (43)	119.0 (43)	116.5 (41)	113.3 (40)
1982	110.3 (37)	107.1 (36)	104.7 (35)	102.8 (33)	100.6 (31)	98.4 (29)	94.8 (27)	90.3 (25)	86.1 (24)	81.5 (22)	78.1 (20)	74.6 (20)
1983	70.4 (20)	67.4 (20)	65.3 (21)	63.0 (22)	60.7 (22)	58.2 (23)	56.1 (24)	54.2 (26)	52.5 (27)	51.4 (29)	50.6 (30)	49.7 (30)
1984	48.5 (31)	46.6 (30)	43.7 (29)	40.4 (29)	37.9 (30)	36.8 (31)	35.9 (31)	34.3 (31)	32.7 (30)	31.4 (29)	30.1 (28)	28.6 (27)
1985	27.4 (27)	26.7 (26)	25.9 (26)	25.4 (26)	24.7 (26)	23.7 (24)	22.9 (23)	22.2 (22)	21.4 (22)	20.6 (23)	19.7 (24)	19.0 (24)
1986	18.5 (24)	17.7 (24)	16.8 (24)	15.8 (23)	14.5 (22)	13.3 (21)	12.3 (20)	11.7 (19)	11.5 (17)	11.3 (16)	11.2 (15)	11.2 (13)
1987	11.6 (12)	12.2 (11)	13.1 (11)	14.1 (12)	15.2 (13)	16.3 (13)	17.5 (14)					

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 1978 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1979 are received. The number, after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1978). 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 method is very sensitive to the identification of a minimum epoch. In SGD 390-401 issues, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 minimum.

*Prediction of Sunspot Maximum -- The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly towards the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1979) indicates that the most probable value for sunspot maximum is 154 ± 29 .

H α SOLAR FLARES

MAY 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IN- POR- TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
					LAT.	MER. DIST.											
BIGB	01	0002	0009	0023	N15	E13	.393		2.0	21	SN	1	C	0009	100	1.1	
BIGB	01	0010E	0010	0039	N17	E22	.505		2.7	29D	SN	2	P	0010	130	1.4	
PALE	01	0018E	0019U	00230	S 4	W 1	.018		30.9	50	1B	3	C		263		FDE
MANI	01	0354E	0358	0415	N15	E18	.441		2.5	21D	SB	3	C		150		
MCMA	01	1353	1408	1422D	N15	E10	.368	15947	2.3	29D	SN	C	C	1408	90	1.0	E
RAMY	01	1353	1406	1412	N17	E10	.397		2.3	19	SN	3	C		71		
MCMA	01	1407	1431	1502D	N18	W43	.741	15967	28.4	55D	SB	C	C	1415	50	.7	DK
MCMA	01	1407	1415	1502D	N18	W43	.741		28.4	55D	SB						
BIGB	01	1425	1428	1503	N18	W42	.731		28.5	38	SN	2	C	1428	60	.8	
RAMY	01	1428	1428	1432	N17	W37	.672		28.8	4	SB	3	C		35		
BIGB	01	1509	1515	1636	N14	E17	.420		2.9	87	SN	2	C	1515	20	.2	D
BIGB	01	1512	1530	1537	N18	W42	.731		28.5	25	SN	2	C	1530	60	.8	
BIGB	01	1810	1812	1819	N14	E06	.328		2.2	9	SN	2	C	1812	20	.2	E
BIGB	01	1859	1900	1903	N17	W45	.757		28.4	4	SN	2	C	1900	20	.3	
BIGB	01	1958	2040	2133	N20	W47	.789	15967	28.3	95	2B	2	P	2040	390	5.9	
PALE	01	2024	2033U	2105D	N18	W46	.771	15974	28.4	41D	1B	2	C		172		F
BIGB	01	2030	2036	2133	N26	W50	.839		28.1	63	SN	2	P	2036	50	.8	
MCMA	01	2052E		2055D	S30	W24	.564	15968	30.1	30	SF	P	P	2053	40	.5	E
MCMA	01	2052E		2055D	N20	W47	.789	15967	28.3	30	1B	P	P	2053	150	2.5	E
HOLL	01	2356	0021	0049	N16	E20	.474	15974	3.5	53	1B	2	C		206		FDE
RAMY	02	1246	1247	1253	N17	W50	.806		28.8	7	SN	3	C		33		
RAMY	02	1309	1312	1317	N17	W51	.815		28.7	8	SN	3	C		27		
RAMY	02	1530	1533	1536	N17	W52	.824		28.7	6	SN	3	C		78		
BIGB	02	1547	1555	1617	N17	W57	.867	15967	28.4	30	1N	2	C	1555	120	2.2	
RAMY	02	1549	1555	1610	N17	W52	.824		28.8	21	SB	3	C		137		
HOLL	02	1558E	1602U	1630D	N19	W55	.856		28.5	32D	SB	2	C		90		F
HOLL	02	1649	1652	1702	S23	W36	.637		30.0	13	SN	3	C		28		
HOLL	02	1651	1659	1759	N23	W55	.867	15967	28.6	68	2B	3	C		390		UDE
BIGB	02	1652		1714	S27	W34	.639		30.2	22	SN	1	C	1652	150	1.8	
RAMY	02	1659E	1659	1800	N20	W54	.850	15967	28.7	61D	2B	3	C		546		Z F
BIGB	02	1700E	1700	1759	N18	W55	.853	15967	28.6	59D	2N	2		1700	450	8.0	
MCMA	02	1859	1903	1920	N20	W58	.881	15967	28.4	21	SN	C	C	1903	50	1.1	E
HOLL	02	1900	1904	1920	N20	W57	.874		28.5	20	SB	3	C		33		F
HOLL	02	1925	1928	1934	N14	E 1	.311		2.9	9	SN	3	C		20		F
BIGB	02	1925	1926	1926D	N13	E02	.296		3.0	10	SF	1		1926	100	1.0	
MCMA	02	1925	1925	1930	N13	E03	.298	15974	3.0	5	SB	C	C	1925	40	.4	E
MCMA	02	1942	1945	1955	N20	W58	.881	15967	28.5	13	SF	C	C	1945	40	.9	E
MCMA	02	2041E		2057D	N20	W58	.881	15967	28.5	16D	SF	C	C	2045	40	.9	E
MANI	03	0127	0130	0147D	N10	W 4	.251	15974	2.8	20D	1B	3	C		210		F
MANI	03	0128E	0130	0148D	N12	W 4	.284		2.8	20D	SB	3	C		180		F
MANI	03	0138	0140	0147D	N19	W61	.901		28.5	90	SN	3	C		30		
MANI	03	0141E	0141U	0148D	N20	W61	.903		28.5	7D	SN	3	V		30		
ISTA	03	0705		0715	N19	W65	.927		28.4	10	SN						D
ISTA	03	0710		0730	S25	E90	1.000		10.0	20	SB						A
HOLL	03	1418	1418	1426	S25	E45	.744		7.0	8	SN	3	C		17		F
BIGB	03	1418E	1418U	1512	S24	E53	.817		7.6	54D	SN	2	P	1418	70	1.2	
HUAN	03	1500	1502	1507	N18	W59	.884		29.2	7	SN	1	C	1502	20	.4	E
RAMY	03	1720	1730	1735	N19	W70	.954		28.5	15	SB	3	C		37		
BIGB	03	1738	1739	1747	S25	E43	.723		7.0	9	SN	2	C	1739	70	1.0	
RAMY	03	1811	1814	1816	N19	W70	.954		28.5	5	SN	3	C		22		
BIGB	03	2002	2008	2021	N11	W17	.384		2.6	19	SN	2	C	2008	50	.5	
BIGB	03	2003	2007	2039	N17	W21	.493		2.3	36	SN	2	C	2007	40	.4	
BIGB	03	2043	2048	2057	N11	W07	.285		3.3	14	SN	2	C	2048	50	.5	
BIGB	03	2122	2137	2143	N10	W10	.295		3.1	21	SN	2	C	2137	20	.2	
BIGB	03	2244	2245	2302	N10	W10	.295		3.2	18	SN	1	C	2245	30	.3	
BIGB	04	0041	0043	0050	N17	W75	.974		28.4	9	SF	2	C	0043	30		
HUAN	04	1458	1459	1501	N21	E85	.998		11.0	3	SF	1	C	1459	30		E
HOLL	04	1746	1747	1752	S24	E31	.588		7.1	6	SN	3	C		32		
HOLL	04	1940	1942	1952	N24	E62	.916		9.5	12	SN	3	C		38		
HUAN	04	1941	1943	1952D	N29	E66	.947		9.8	11D	SN	1	P	1943	20		D
HUAN	04	1947		1952D	N21	E78	.986		10.7	5D	SF	1	P				D
BIGB	04	2005	2018	2030	N11	W20	.420		3.3	25	SF	3	C	2018	120	1.3	
BIGB	04	2020	2023	2042	N21	W37	.694		2.1	22	SF	3	C	2023	30	.4	
BIGB	04	2030	2034	2047	N25	W63	.924		30.1	17	SF	3	C	2034	30	.7	
HOLL	04	2031	2035	2048	N25	E62	.918		9.5	17	SB	3	C		80		DE
HOLL	04	2133	2135	2147	S31	E71	.950		10.2	14	SB	3	C		79		DE
BIGB	04	2133	2134	2143	S28	E75	.966		10.5	10	SF	2	C	2134	50		
ISTA	05	0810		0825	N11	E90	1.000		12.1	15	SB	7					A

H α SOLAR FLARES

MAY 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IM-PORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
					LAT.	MER. DIST.											
ISTA	05	0820		0845	N22	E70	.957		10.6	25	SB						D
RAMY	05	1532	1533	1534	N21	E65	.929		10.5	2	SN	3	C		18		
HOLL	05	1537	1540	1548	N22	E65	.930		10.5	11	SN	3	C		12		
HOLL	05	1718	1721	1729	N25	E50	.833		9.5	11	SN	3	C		16		
RAMY	05	1718	1719	1723	N26	E50	.837		9.5	5	SN	3	C		21		
HOLL	05	1739	1740	1756	N16	W50	.801		2.0	17	SB	3	C		40		DE
PALE	05	1740	1741	1744	N18	W49	.798		2.1	4	SN	2	C		20		DE
RAMY	05	1740	1740	1744	N16	W44	.741		2.4	4	SN	3	C		27		
RAMY	05	1855	1857	1901	N21	E63	.917		10.5	6	SN	3	C		20		
BIGB	05	2013	2014	2023	N11	W47	.755		2.3	10	SF	3	C	2014	20	.3	
HOLL	05	2029	2032	2043	N16	W52	.820		2.0	14	SB	3	C		136		DE
BIGB	05	2029	2031	2045	N17	W50	.804	15974	2.1	16	IN	3	C	2031	220	3.5	
HUAN	05	2035E		2044D	N17	W52	.823		2.0	90	SN	1	P	2035	60	1.1	CE
HOLL	05	2255	2306	2330	N23	E46	.791		9.4	35	SB	3	C		73		F
MANI	05	2259	2305	2315	N25	E46	.800		9.4	16	SN	2	C		60		
RAMY	06	1126	1126	1130	N24	E40	.740		9.5	4	SN	3	C		22		
RAMY	06	1148	1148	1155	N21	E54	.851		10.5	7	SN	3	C		17		
RAMY	06	1203	1205	1206	N21	E54	.851		10.6	3	SN	3	C		16		
BIGB	06	1505	1506	1511	N20	E54	.848		10.7	6	SN	2	C	1506	60	1.1	
HOLL	06	1506	1507	1511	N21	E53	.843		10.6	5	SN	3	C		18		
HOLL	06	1555	1556	1611	N12	W50	.789		2.9	16	SB	3	C		33		F
BIGB	06	1555	1601	1609	N10	W50	.784		2.9	14	SN	2	C	1601	100	1.6	
RAMY	06	1555	1558	1659	N12	W49	.779		3.0	64	SB	3	C		37		
HOLL	06	1614	1616	1632	N12	W46	.747		3.2	18	SB	3	C		68		
BIGB	06	1616	1617	1631	N11	W48	.766		3.1	15	SN	2	C	1617	60	.9	
HOLL	06	1639	1644	1658	N12	W46	.747		3.2	19	SB	3	C		61		
BIGB	06	1640	1643	1700	N11	W48	.766		3.1	20	SN	2	C	1643	70	1.1	
MCMA	06	1644E	1702	1729D	N21	E47	.791	15990	10.2	450	SN		C	1702	80	1.4	E
RAMY	06	1644	1647	1725	N21	E51	.826		10.5	41	SN	3	C		30		
MCMA	06	1644E		1654D	N12	W48	.768	15974	3.1	100	SN		P	1644	30	.5	D
HOLL	06	1645	1649	1708	N21	E51	.826		10.5	23	SB	3	C		20		
BIGB	06	1651	1659	1725	N21	E47	.791		10.2	34	SN	2	C	1659	80	1.2	
MCMA	06	1746	1749	1757D	N24	E36	.703	15990	9.4	110	SF		C	1749	30	.4	D
RAMY	06	1748	1748	1800	N24	E37	.712		9.5	12	SN	3	C		22		
HOLL	06	1748	1748	1801	N24	E37	.712		9.5	13	SN	3	C		27		
RAMY	06	1859	1902	1906	N24	E36	.703		9.5	7	SN	3	C		27		
RAMY	06	1929	1947	2050D	N21	E50	.818		10.6	81D	SB	3	C		73		F
HOLL	06	1948	2013	2019	N24	E35	.693		9.5	31	SN	3	C		26		DE
RAMY	06	2025	2028	2036	N12	W48	.768		3.3	11	SN	3	C		25		
BIGB	06	2028E	2028	2120	N25	E46	.799		10.3	52D	SN	1	P	2028	50	.7	
BIGB	06	2031	2043	2128	N18	E46	.769		10.3	57	SN	2	C	2043	130	1.9	
BIGB	06	2045	2056	2115	N35	W90	1.001		30.1	30	SN	2	C	2056	30		
BIGB	06	2230	2231	2240	N13	W56	.848		2.7	10	SN	2	C	2231	20	.4	
BIGB	06	2335	2336	2351	N24	E34	.684		9.5	16	SB	2	C	2336	150	1.9	
MANI	06	2335	2340	2353	N24	E34	.684		9.5	18	SB	3	C		140		
RAMY	07	1102	1110	1119	N12	W56	.846		3.3	17	SN	3	C		35		
MCMA	07	1231	1235	1246	N09	W59	.867	15974	3.1	15	SN		C	1235	60	1.2	E
RAMY	07	1232	1232	1245	N13	W59	.873		3.1	13	SN	3	C		53		
MCMA	07	1236	1242	1410	N26	E25	.619	15990	9.4	94	SN		C	1242	30	.4	D
RAMY	07	1325	1326	1331	N13	W60	.881		3.1	6	SN	3	C		55		
MCMA	07	1436	1438	1445	N26	W70	.960	15976	2.4	9	SN		C	1438	25	1.0	D
HOLL	07	1440E	1442U	1503	N25	W68	.950		2.5	230	SN	1	C		70		
BIGB	07	1442E	1442	1445	N25	W70	.959		2.4	30	SN	1	P	1442	30		
MCMA	07	1454	1500	1550D	N26	E25	.619	15990	9.5	560	SB		C	1500	20	.3	D
BIGB	07	1455	1500	1500D	N25	E26	.617		9.6	50	SN	1	P	1500	40	.5	
HOLL	07	1458	1502	1524	N24	E25	.599		9.5	26	SB	3	C		29		
RAMY	07	1458	1500	1518	N24	E26	.608		9.6	20	SB	3	C		41		
BIGB	07	1651	1655	1708	N06	E69	.937		12.9	17	SF	2	C	1655	30		
BIGB	07	1744	1754	1829	S34	E62	.906		12.4	45	SN	2	C	1754	20	.4	G
MCMA	07	1835	1838	1850	N19	E34	.647	15990	10.3	15	SN		C	1838	60	.8	E
RAMY	07	1836	1839	1848	N18	E30	.596		10.0	12	SN	3	C		49		
HOLL	07	1839	1839	1846	N21	E37	.692		10.6	7	SN	3	C		42		
RAMY	07	1935	1937	1941	N25	W67	.945		2.8	6	SN	3	C		15		
MCMA	07	1936E	1938	1945	N26	W70	.960	15976	2.6	90	SN		C	1938	25	1.0	D
HOLL	07	1937	1938	1949	N26	W68	.951		2.7	12	SN	3	C		14		
RAMY	07	1944	1945U	1945D	N19	E32	.626		10.2	10	SB	3	C		31		
MANI	08	0050E	0051	0104	N24	E20	.554		9.5	140	SB	3	C		30		
MCMA	08	1321E	1337	1355D	N06	E56	.836	15995	12.8	340	SN		C	1337	50	.9	E
MCMA	08	1341	1405	1448	N20	E21	.519	15990	10.1	67	SN		C	1405	100	1.2	E

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IM-PORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
					LAT.	MER. DIST.											
MCMA	08	1342	1357	1412	S15	E68	.926	16001	13.7	30	SF	C	1357	60	1.6	E	
RAMY	08	1356	1358	1431	N21	E27	.588		10.6	35	SN	3 C		52			
MCMA	08	1415	1445	1454D	S15	E68	.926	16001	13.7	39D	1B	C	1445	80	2.2	EH	
MCMA	08	1426	1427	1435	N14	W77	.979	15974	2.8	9	SN	C	1427	30	1.6	DHV	
RAMY	08	1427	1428	1437	N14	W71	.954		3.3	10	SB	3 C		0			
HOLL	08	1428	1445	1457	S15	E68	.926		13.7	29	SB	3 C		107			
HOLL	08	1428E	1428U	1441D	N15	W78	.983		2.8	13D	SB	3 C		41			
RAMY	08	1456	1456	1458	N21	E26	.578		10.6	2	SN	3 C		27			
HOLL	08	1459	1517U	1521	N 3	E5D	.770		12.4	22	SN	3 C		25		DE	
RAMY	08	1502	1503	1509	N14	W72	.959		3.2	7	SN	3 C		0			
MCMA	08	1517	1517	1523	N03	E5D	.770	15995	12.4	6	SN	C	1517	30	.5	E	
HOLL	08	1519E	1519	1526	S15	E66	.913		13.6	7D	SN	3 C		29			
MCMA	08	1546	1552	1601	N07	E54	.818	15995	12.7	15	SN	C	1552	60	1.1	E	
HOLL	08	1549	1549	1603	N 3	E5D	.770		12.4	14	SN	2 C		21			
RAMY	08	1555	1555	1557	N 1	E47	.734		12.2	2	SN	3 C		32			
MCMA	08	1751	1757	1808	S16	E67	.920	16001	13.8	17	SF	C	1757	40	1.0	E	
MCMA	08	1751	1757	1806	N08	E38	.637	15992	11.6	15	SF	C	1757	40	.5	E	
BIGB	08	1846	1852	1920	S13	E66	.912	16001	13.7	34	1N	2	1852	150	3.8		
HOLL	08	1848	1852	1910	S15	E64	.899	16001	13.6	22	1B	3 C		211			
MCMA	08	1849	1851	1901D	S16	E67	.920	16001	13.8	12D	SN	C	1851	50	1.3	EH	
BIGB	08	2217	2220	2230	N11	W76	.974		3.2	13	SN	2	2220	50			
HOLL	08	2218	2220	2230	N11	W75	.970		3.3	12	SN	3 C		30			
BIGB	08	2254	2300	2332	S21	E68	.929	16001	14.1	38	1N	2	2300	150		H	
BERN	09	0731E	0735	0849	N17	W29	.575	15986	7.1	78D	1N	P					
BERN	09	0818	0834	0940	N24	E08	.476	15990	9.9	82	1N	P					
MCMA	09	1231E		1315D	N22	E12	.468	15990	10.4	44D	SF	C	1231	50	.6	E	
MCMA	09	1231E		1332	N33	E69	.963	16003	14.7	61D	1N	C	1231	125	4.5	AEF	
MCMA	09	1348	1359	1450D	N22	E12	.468	15990	10.5	62D	SB	C	1359	60	.7	EW	
HOLL	09	1351	1351	1415	N31	E66	.948		14.5	24	SN	3 C		27		F	
RAMY	09	1354E	1354U	1410D	N20	E11	.434		10.4	16D	SB	3 C		57		F	
HOLL	09	1355	1400	1452	N21	E 8	.432		10.2	57	SB	3 C		57		F	
BIGB	09	1434	1439	1446	N14	W9D	1.000		2.9	12	SN	2 C	1439	60			
RAMY	09	1440	1441	1452	S 4	E4D	.642		12.6	12	SN	2 C		22		H	
MCMA	09	1935	1943	1955	N22	E1D	.457	15990	10.6	20	SN	C	1943	50	.6	E	
HOLL	09	1940		2010D	N21	E 5	.420		10.2	30D	SN	3 C		36			
MCMA	09	2006	2017	2048	N06	E22	.405	15992	11.5	42	SN	C	2017	40	.4	E	
MCMA	09	2027	2028	2048	N07	E37	.620	15995	12.6	21	SN	C	2028	35	.5	E	
RAMY	09	2035	2035	2043	N 7	E36	.607		12.6	8	SN	2 C		23			
WEND	10	0720E	0730	0750	S32	E37	.708		13.1	30D	SN	C		90	1.4	G	
WEND	10	0720E	0744	0807	N07	E15	.311		11.4	47D	SN	C		160	1.7	E	
WEND	10	0820	0835	0900D	N07	E14	.298		11.4	40D	SN	C		260	2.1	E	
MANI	10	0905E	0905U	0915D	N 7	E14	.298		11.4	10D	SN	2 C		60		F	
HOLL	10	1654	1654	1712	N21	W 7	.426		10.2	18	SN	3 C		37			
BIGB	10	1745	1752	1807	N06	E07	.201		11.3	22	SF	2 C	1752	110	1.1	FDE	
HOLL	10	1746	1746	1805	N 7	E11	.259		11.6	19	SB	3 C		39		F	
RAMY	10	1750E	1752U	1834	N 7	E 8	.225		11.3	44D	SB	2 C		158			
BIGB	10	1820	1825	1838	N05	E4D	.653		13.8	18	SF	2 C	1825	50	.7	G	
BIGB	10	1943	1944	2000	N13	E9D	1.000		17.6	17	SN	2 C	1944	20			
BIGB	10	1948	1950	1953	N08	E07	.229		11.4	5	SF	2 C	1950	120	1.2		
HOLL	10	1949	1950	1955	N 7	E1D	.247		11.6	6	SB	3 C		49		F	
MCMA	10	2007E		2012D	N06	E08	.212	15992	11.4	5D	SB	P	2012	30	.3	D	
BIGB	10	2009	2011	2017	N06	E09	.223		11.5	8	SN	2 C	2011	30	.3		
HOLL	10	2011	2012	2019	N 7	E1D	.247		11.6	8	SB	3 C		72			
HOLL	10	2044	2048	2058	N 7	E 9	.236		11.5	14	SN	3 C		32			
HOLL	10	2052	2055	2059	N21	W 9	.435		10.2	7	SN	3 C		34			
HOLL	10	2128	2130	2139	N 5	E11	.237		11.7	11	SN	3 C		31			
BIGB	10	2129	2130	2138	N05	E1D	.224		11.6	9	SF	2 C	2130	50	.5		
BIGB	10	2231	2233	2247	N20	W46	.775		7.5	16	SF	2 C	2233	40	.6	G	
MANI	10	2244E	2244U	2247	N20	W45	.765		7.6	3D	SN	2 C		20			
MANI	10	2302	2304	2313	N 7	E 5	.198		11.3	11	SB	3 C		90		F	
HOLL	10	2303	2304	2320	N 8	E 6	.220		11.4	17	SB	3 C		112		F	
BIGB	10	2311	2314	2357	N08	E05	.213		11.3	46	SF	2 C	2314	80	.8		
BIGB	11	0038	0042	0049	N20	W08	.414		10.4	11	SF	2 C	0042	30	.3		
MANI	11	0121E	0121U	0125D	N 7	E 4	.189		11.4	4D	SN	3 C		20			
MANI	11	0121E	0121U	0125D	N20	W 6	.405		10.6	4D	SN	3 C		60		F	
MANI	11	0720E	0721	0736	S3D	W19	.535		9.9	16D	SN	3 C		50			
RAMY	11	1057	1058	1113	N 7	W 1	.177		11.4	16	SN	3 C		48			
RAMY	11	1057	1057	1109	S22	E 9	.355		12.1	12	SN	3 C		42			
RAMY	11	1134	1135	1140	S23	E1D	.376		12.2	6	SN	3 C		21			

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IM-PORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.		
					LAT.	MER. DIST.												
HOLL	11	1246E	1248	1304	N 7	E 1	.177		11.6	18D	SN	3	C		90			
HUAN	11	1359		1419	S16	E27	.493		13.6	20	SF	1	C	1407	15	.2		D
HOLL	11	1359	1424	1436	S18	E30	.544		13.8	37	SN	3	C		31			F
MCMA	11	1402E		1455	S17	E28	.512	16001	13.7	53D	SF		C	1402	80	.9		E
HUAN	11	1421		1426	N03	W00	.107		11.6	5	SF	1	C					E
MCMA	11	1422	1426	1455	N05	E02	.146	15992	11.7	33	SN		C	1426	110	1.1		E
HOLL	11	1423	1424	1437	N 3	W 0	.107		11.6	14	SB	3	C		74			U F
HOLL	11	1423	1439	1442	N14	E76	.975		17.3	19	SF	3	C		0			
HUAN	11	1427		1458	N12	E78	.981		17.5	31	SF	1	C	1441	15			D
RAMY	11	1441	1501	1536	N14	E75	.971		17.2	55	SF	3	C		13			
HUAN	11	1441		1445	N08	W03	.200		11.4	4	SF	1	C					
BIGB	11	1442	1443	1452	N08	W02	.196		11.5	10	SN	3	C	1443	90	1.0		
HOLL	11	1443	1444	1455	N 7	W 0	.176		11.6	12	SB	3	C		99			
MCMA	11	1443	1445	1458	N08	W04	.205	15992	11.3	15	SN		C	1445	80	.8		E
HUAN	11	1457		1500	N24	W26	.603		9.7	3	SF	1	C					
BIGB	11	1458	1459	1500	N25	W25	.604		9.7	2	SF	3	C	1459	20	.2		
MCMA	11	1500	1500	1506	N23	W26	.594	15990	9.7	6	SN		C	1500	30	.4		DH
HUAN	11	1530		1536	N08	W03	.200		11.4	6	SF	1	C					
MCMA	11	1531	1536	1545	N08	W04	.205	15992	11.3	14	SN		C	1536	60	.6		E
BIGB	11	1533	1535	1540	N08	W04	.205		11.3	7	SF	3	C	1535	30	.3		
HOLL	11	1534	1534	1545	N 7	W 1	.177		11.6	11	SB	3	C		65			F
RAMY	11	1534	1535	1541	N 7	W 3	.183		11.4	7	SN	3	C		41			
HOLL	11	1627	1628	1635	N21	W19	.507		10.3	8	SN	3	C		27			
MCMA	11	1636	1650	1703	N21	W21	.526	15990	10.1	27	SN		C	1650	35	.4		E
BIGB	11	1641	1646	1660	N21	W17	.490		10.4	19	SF	3	C	1646	40	.4		
HOLL	11	1642	1642	1701	N21	W19	.507		10.3	19	SB	3	C		48			
BIGB	11	1643	1645	1652	N07	W05	.196		11.3	9	SF	3	C	1645	30	.3		
MCMA	11	1741E	1751	1805D	N21	W21	.526	15990	10.2	24D	SF		C	1751	60	.7		E
MCMA	11	1741E	1743	1758	N29	E39	.758	16003	14.7	17D	SN		C	1743	40	.6		E
HOLL	11	1742	1743	1754	N28	E32	.692		14.1	12	SB	3	C		56			
HOLL	11	1744	1745	1747	N14	E76	.975		17.4	3	SN	3	C		10			
HOLL	11	1745	1745	1752	N21	W20	.516		10.2	7	SN	3	C		31			
MCMA	11	1801	1804	1813	N08	W05	.211	15992	11.4	12	SN		C	1804	50	.5		E
HOLL	11	1803	1804	1811	N 7	W 2	.179		11.6	8	SN	3	C		44			
MCMA	11	1818		1819D	N21	W22	.535	15990	10.1	10D	SF		P	1818	30	.4		D
MCMA	11	1834E		1836D	N08	W10	.258	15992	11.0	2D	SF		P	1834	50	.5		E
HOLL	11	1837	1838	1849	N 7	W 3	.183		11.6	12	SB	3	C		56			F
BIGB	11	2031	2039	2049	N16	E55	.845		16.0	18	SF	3	C	2039	40	.7		
HOLL	11	2122	2122	2138	N 7	W 4	.189		11.6	16	SB	3	C		27			F
HOLL	11	2130	2131	2139	N12	E73	.962		17.4	9	SN	3	C		15			
HOLL	11	2222	2226	2238	N 7	W 5	.196		11.6	16	SB	3	C		49			F
HOLL	12	0047	0051	0105	N 7	W 6	.202		11.6	18	SB	2	C		39			
RAMY	12	1328	1329	1339	N 7	W16	.323		11.4	11	SB	3	C		25			
HOLL	12	1330	1330	1344	N 7	W13	.282		11.6	14	SB	3	C		48			F
HOLL	12	1331	1332	1340	S22	W 6	.340		12.1	9	SN	3	C		39			
HOLL	12	1412	1419	1438	N21	W31	.625		10.3	26	SN	3	C		51			
HOLL	12	1506	1506	1513	N 7	W14	.296		11.6	7	SN	3	C		22			
HOLL	12	1538	1539	1557	N21	W32	.636		10.3	19	SB	3	C		27			F
RAMY	12	1616	1621	1639D	S22	W 8	.350		12.1	23D	SB	3	C		29			F
HOLL	12	1617	1621	1635	S22	W 9	.357		12.0	18	SB	3	C		102			FDE
BIGB	12	1619	1620	1631	S22	W09	.357		12.0	12	SN	3	C	1620	40	.4		
BIGB	12	1620	1621	1626	S27	W19	.501		11.3	6	SF	3	C	1621	20	.2		
HUAN	12	1720		1726	N23	E90	1.000		19.5	6	SF	1	C					D
BIGB	12	1837	1845	1901	N18	E40	.703		15.8	24	SF	3	C	1845	70	.9		
HUAN	12	1845		1848D	N17	E40	.698		15.8	3D	SF	1	P					
HOLL	12	1845	1847	1851	N15	E38	.665		15.6	6	SN	3	C		24			
BIGB	12	1951	1956	2013	S27	W70	.945		7.6	22	SF	3	C	1956	80			G
HOLL	12	2148	2149	2156	N11	E57	.852		17.2	8	SN	3	C		19			
BIGB	12	2151	2153	2203	N17	E40	.698		15.9	12	SN	3	C	2153	50	.7		
HOLL	12	2152	2152	2205	N15	E37	.654		15.7	13	SN	2	C		36			F
HOLL	12	2225E	2225	2230	S22	W11	.371		12.1	5D	SN	2	C		31			
BIGB	12	2230	2254	2258	N25	E90	1.000		19.7	28	SB	3	C	2254	50			
HOLL	13	0033	0034	0041	N 7	W19	.365		11.6	8	SN	3	C		27			F
PALE	13	0227	0228	0236	S21	W12	.367		12.2	9	SB	3	C		65			F
BIGB	13	1437	1443	1452	N17	E27	.549		15.6	15	SF	3	C	1443	20	.2		
MCMA	13	1501E		1511D	N16	E00	.324	15999	13.6	10D	SN		C	1503	50	.5		E
MCMA	13	1501E	1503	1511D	N16	E26	.529	16014	15.6	10D	SF		C	1503	35	.4		D
BIGB	13	1502	1503	1511	N16	E26	.529		15.6	9	SN	3	C	1503	30	.3		
BIGB	13	1554	1555	1604	N09	W31	.546		11.3	10	SN	3	C	1555	40	.5		
HUAN	13	1611		1620	N31	E05	.563		14.0	9	SF	1	C	1615	20	.2		D

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCNATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
					LAT.	MER. DIST.											
BIGB	13	1618	1623	1630	N16	E25	.517		15.6	12	SF	3	C	1623	20	.2	
MCMA	13	1640E		1652D	N17	E03	.344	15999	13.9	12D	SF		C	1642	30	.3	
HOLL	13	1805	1817	1821	N15	E25	.508		15.6	16	SN	3	C		23		E
MCMA	13	1807	1810	1828	N16	E24	.505	16014	15.6	21	SF		C	1810	40	.5	F
MCMA	13	1816	1817	1822	N15	W03	.312	15999	13.5	6	SF		C	1817	35	.4	E
HOLL	13	1816	1816	1821	N15	E 2	.309		13.9	5	SN	3	C		32		D
MCMA	13	1840	1851	1858D	N19	W49	.798	15990	10.1	18D	SF		C	1851	60	1.0	E
BIGB	13	1841	1852	1915	N20	W48	.792		10.2	34	SN	3	C	1852	70	1.1	E
HOLL	13	1844	1852	1906	N18	W50	.804		10.0	22	SB	3	C		88		F
HUAN	13	1844		1855	N19	W50	.807		10.0	11	SF	1	C	1846	30	.5	
PALE	13	1852	1852U	1859	N20	W49	.801		10.1	7	SN	2	C		26		FDE
HUAN	13	1856		1904	N25	E75	.977		19.4	8	SF	1	C				
BIGB	13	1946	1948	2006	N27	E76	.981		19.5	20	SB	3	C	1948	80		
HOLL	13	1946	1949	1953	N15	E 1	.308		13.9	7	SN	3	C		27		
HOLL	13	2033	2034	2043	N18	W50	.804		10.1	10	SN	3	C		22		F
BIGB	13	2040	2053	2053D	N23	E70	.956		19.1	13D	SN	3	P	2053	20		
BIGB	13	2057	2105	2105D	N15	E23	.484		15.6	8D	SN	3	P	2105	20	.2	E
HOLL	13	2058	2100	2114	N15	E23	.484		15.6	16	SB	3	C		37		F
HOLL	13	2230	2234	2249	N19	W52	.825		10.0	19	SN	3	C		23		
HOLL	14	0003	0003	0009	N19	W51	.816		10.2	6	SN	3	C		24		
BIGB	14	0005	0006	0016	N16	E23	.492		15.7	11	SB	3	C	0006	80	.9	
HOLL	14	0006	0007	0048	N15	E21	.460	16014	15.6	42	1B	3	C		227		U F
PALE	14	0007	0007	0015	N14	E25	.499	16010	15.9	8	1B	3	C		265		FDE
HOLL	14	0052	0053	0105	N15	W 2	.308		13.9	13	SN	3	C		29		
BERN	14	0933	0945	1005	N35	E65	.948	16012	19.3	32	1F		P				
BERN	14	1012	1014	1023	S27	W28	.589		12.3	11	SN		P				
HOLL	14	1308	1310	1325	N14	E14	.371		15.6	17	SB	3	C		38		F
HOLL	14	1415	1423	1429	S32	E17	.549		15.9	14	SN	3	C		76		
HOLL	14	1540	1541	1606	N15	E14	.384		15.7	26	SB	3	C		35		
HOLL	14	1540	1548	1606	N15	E14	.384		15.7	26	SN	3	C		108		
BIGB	14	1540	1550	1608	N16	E25	.516		16.5	28	SB	3	C	1550	100	1.1	
MCMA	14	1540E	1553	1613	N15	E14	.384	16014	15.7	33D	SB		C	1553	100	1.1	E
BERN	14	1540	1549	1614	N18	E10	.391	16014	15.4	34	1F		P				
HOLL	14	1625	1626	1649	S32	E16	.542		15.9	24	SF	3	C		21		
HOLL	14	1735	1742	1747	S32	E16	.542		15.9	12	SN	3	C		24		
BIGB	14	1858	1909	1917	S30	E13	.498		15.8	19	SN	3	C	1909	50	.5	
BIGB	14	1929	1934	1950	N38	E19	.700		16.2	21	SN	3	C	1934	40	.4	
BIGB	14	1930	1940	2016	N15	E13	.374		15.8	46	SB	3	C	1940	80	.8	
HOLL	14	1931	1936	2010	N15	E11	.356		15.6	39	SB	3	C		87		
HUAN	14	1932		2000	N15	E14	.384		15.9	28	SF	1	C	1942	45	.5	E
BIGB	14	1937	1939	1944	N22	E54	.850		18.9	7	SB	3	C	1939	30	.5	
PALE	14	1939	1939	1948	N14	E14	.371		15.9	9	SN	3	C		44		F
HOLL	14	2023	2025	2131	N15	E11	.356		15.7	8	SB	3	C		23		
HOLL	14	2109	2110	2116	N12	E34	.600		17.4	7	SN	3	C		42		
BIGB	14	2135	2141	2224	S30	E50	.814		18.6	49	SN	3	C	2141	30	.5	
HOLL	14	2156	2157	2202	S22	W37	.652		12.1	6	SN	3	C		26		
BIGB	14	2156	2158	2221	N23	W53	.845		10.9	25	SB	3	C	2158	50	.9	
HOLL	14	2157	2159	2203	N19	W63	.911		10.2	6	SN	3	C		17		
HOLL	14	2210	2221	2243	N12	E33	.588		17.4	33	SN	3	C		23		
HOLL	14	2210	2210	2243	N12	E33	.588		17.4	33	SB	3	C		20		
BIGB	14	2217	2218	2228	N24	E34	.676		17.5	11	SB	3	C	2218	40	.5	
HOLL	14	2250	2253	2329	N15	E10	.348		15.7	39	SB	3	C		97		F
HOLL	15	0008	0014	0038	S22	W38	.664		12.2	30	SB	3	C		109		
MCMA	15	1351E	1405	1417	S31	E03	.476	16017	15.8	26D	SF		C	1405	40	.4	E
MCMA	15	1427	1437	1450	S31	E03	.476	16017	15.8	23	SN		C	1437	30	.4	E
BIGB	15	1440	1450	1459	N25	E47	.802		19.1	19	SN	2	C	1450	40	.6	
BIGB	15	1450	1451	1458	N20	W25	.551		13.7	8	SN	2	C	1451	20	.2	
MCMA	15	1451	1451	1459	N20	W23	.530	15999	13.9	8	SN		C	1451	30	.4	E
MCMA	15	1505	1506	1513	S31	E03	.476	16017	15.9	8	SF		C	1506	35	.4	E
MCMA	15	1534	1539	1543	N16	E04	.327	16014	15.9	9	SF		C	1539	40	.4	E
RAMY	15	1535	1538	1549D	N14	E 2	.289		15.8	14D	SN	3	C		35		
BIGB	15	1539	1542	1547	S27	E25	.561		17.5	8	SN	2	C	1547	60	.7	
MCMA	15	1540	1546	1615D	S19	E26	.503	16009	17.6	35D	SF		C	1546	80	.9	EJ
MCMA	15	1600	1603	1615	S31	E02	.475	16017	15.8	15	SF		C	1603	35	.4	
HUAN	15	1611	1620	1633	S16	W28	.509		13.6	22	SN	1	C	1620	45	.5	E
HOLL	15	1612	1618	1648	S15	W31	.544		13.4	36	SB	3	C		152		U
MCMA	15	1612		1647	S16	W29	.522	16001	13.5	35	SB		C	1623	90	1.1	E
WEND	15	1612	1623	1651	S15	W31	.544	16001	13.4	39	1N		C		400	5.0	CE
RAMY	15	1615	1618	1641	S16	W28	.509		13.6	26	SB	3	C		93		F
BIGB	15	1703	1704	1715	N15	E00	.304		15.7	12	SN	2	C	1704	60	.6	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IM- POR- TANCE	OBS.		MEASUREMENTS			REMARKS	
	DAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.		
					LAT.	MER. DIST.												
HOLL	15	1704	1707	1711	N14	E 0	.287		15.7	7	SN	3	C		36			
MCMA	15	1724	1724	1729	S21	W46	.747	15996	12.3	5	SB		C	1724	50	.8		E
HOLL	15	1724	1724	1730	S22	W47	.761		12.2	6	SN	3	C		35			
BIGB	15	1802	1805	1824	N15	E02	.306		15.9	22	SN	2	P	1805	40	.4		
MCMA	15	1803E		1816	N15	E02	.306	16014	15.9	130	SN		C	1808	50	.6		E
BIGB	15	1824	1826	1837	N27	E01	.496		15.8	13	SN	2	C	1826	20	.2		
BIGB	15	1829	1830	1833	N03	W57	.841		11.5	4	SN	2	C	1830	20	.4		
BIGB	15	1929	1941	1947	N26	E38	.727		18.7	18	SN	2	C	1941	30	.4		
HOLL	15	2015	2021	2032	N 9	W61	.882		11.3	17	SB	3	C		23			
BIGB	15	2103	2105	2112	N14	E18	.414		17.2	9	SB	2	C	2105	20	.2		
BIGB	15	2106	2111	2130	N15	E00	.304		15.9	24	SN	2	C	2111	90	.9		
HOLL	15	2141	2144	2152	S15	W34	.584		13.4	11	SN	3	C		27			
BIGB	15	2218	2224	2300	N23	E45	.775	16012	19.3	42	1B	2	C	2224	300	4.4		
HOLL	15	2219	2224	2304	N26	E47	.806	16012	19.5	45	2B	3	C		479			UDE
PALE	15	2225E	2225U	22300	N26	E54	.862		20.0	50	SB	3	V		140			FDE
MCMA	16	1207	1222	12550	N14	W12	.349	16014	15.6	480	SN		C	1222	60	.6		E
MCMA	16	1210E	1215	1229	N14	W40	.682	15999	13.5	190	SF		C	1215	30	.4		E
MCMA	16	1226	1229	13000	N14	E11	.339	16010	17.3	340	SF		C	1229	30	.3		E
MCMA	16	1301	1303	1310	S16	W40	.664	16001	13.5	9	SF		C	1303	50	.7		E
MCMA	16	1305	1309	1325	N14	W40	.682	15999	13.5	20	SN		C	1309	40	.5		E
MCMA	16	1405	1437	1518	N14	W43	.716	15999	13.4	73	1N		C	1437	140	2.0		E
HUAN	16	1412		1440	N15	W45	.742		13.2	28	SF	1	C	1430	50	.7		E
BIGB	16	1438E	1438	1520	N13	E43	.712		19.8	420	SN	1	P	1438	110	1.6		
BIGB	16	1500	1508	1530	S22	W66	.919		11.7	30	SB	2	P	1508	100			
HOLL	16	1501	1504	1550	S22	W59	.870		12.2	49	SN	3	C		39			
MCMA	16	1504	1508	1520	S20	W66	.918	15996	11.7	16	SF		C	1508	40	1.0		E
MCMA	16	1529	1543	1558	N14	W13	.358	16014	15.7	29	SN		C	1543	50	.9		E
HUAN	16	1558	1603	1620	N15	W42	.709		13.5	22	SN	1	C	1603	30	.4		
MCMA	16	1559	1601	1618	N14	W44	.727	15999	13.4	19	SN		C	1601	25	.4		D
WEND	16	1601	1635	16410	N14	W39	.670		13.7	400	SN		C		200	2.7		E
HUAN	16	1634	1635	1644	N14	W42	.705		13.5	10	SN	2	C	1635	35	.5		E
HOLL	16	1636	1636	1653	N14	W41	.693		13.6	17	SB	3	C		46			
MCMA	16	1637E	1638	1649	N14	W44	.727	15999	13.4	120	SF		C	1638	40	.6		E
HUAN	16	1806		1808	N21	W39	.705		13.8	2	SF	1	C					E
HOLL	16	1807	1811	1828	S21	W62	.891		12.1	21	SB	3	C		26			
HUAN	16	1810		18170	S20	W67	.924		11.7	70	SF	1	P					
BIGB	16	1827	1830	1836	N07	W80	.986		10.8	9	SB	3	C	1830	20			
BIGB	16	1844	1851	1912	N16	W45	.745		13.4	28	SN	3	C	1851	60	.9		
BIGB	16	1847	1851	1912	S22	W66	.919		11.8	25	SN	3	C	1851	50			
MCMA	16	1847	1851	1855	S21	W66	.919	15996	11.8	8	SF		C	1851	40	1.0		D
HUAN	16	1847		1858	S20	W66	.918		11.8	11	SF	1	C	1853	20			D
MCMA	16	1848	1852	1856	N14	W44	.727	15999	13.5	8	SF		C	1852	25	.3		D
HOLL	16	1850	1852	18530	N15	W42	.709		13.6	30	SB	3	C		27			
HOLL	16	1850	1853	18530	S21	W62	.891		12.1	30	SB	3	C		28			
MCMA	16	1855	1857	1917	N13	E05	.281	16010	17.2	22	SB		C	1857	110	1.2		E
BIGB	16	1855	1857	1913	N15	W06	.318		16.3	18	SB	3	C	1857	140	1.5		
HUAN	16	1855	1857	1910	N14	E05	.297		17.2	15	SN	2	C	1857	80	.8		E
MCMA	16	1955	2003	20080	S21	W66	.919	15996	11.9	130	SN		C	2003	50	1.3		E
MCMA	16	1958	2008	20080	N14	W15	.379	16014	15.7	100	SN		C	2008	50	.5		D
MCMA	16	1958	2001	2004	S11	E77	.973	16023	22.6	6	SF		C	2001				D
HUAN	16	2000E		2005	S21	W68	.931		11.7	50	SF	1	P					C
HUAN	16	2008		2028	N14	W15	.379		15.7	20	SF	1	C	2018	20	.2		D
BIGB	16	2127	2129	2132	S20	W63	.897		12.2	5	SN	2	C	2129	30	.7		
BIGB	16	2133	2146	2158	S20	W63	.897		12.2	25	SN	2	C	2146	30	.7		
PALE	16	2133	2146	2154	N15	W17	.412		15.6	21	SN	3	C		65			FDE
BIGB	16	2134	2144	2213	N16	W16	.413		15.7	39	SN	3	C	2144	90	1.0		
PALE	16	2145	2145	2150	S21	W67	.925		11.9	5	SN	3	C		12			DE
PALE	17	0033	0034	0036	N14	E 5	.296		17.4	3	SB	3	C		51			F H
PALE	17	0039	0039	0100	S21	W69	.937		11.9	21	SN	3	C		32			DE
PALE	17	0107	0122	01390	S21	W69	.937		11.9	320	SB	3	C		69			F
BIGB	17	0117	0119	01190	N22	W67	.938		12.0	20	SB	3	C	0119	100			
HUAN	17	1341	1347	1352	S21	W84	.994		11.3	11	SN	1	C	1347	25			D
MCMA	17	1343	1347	1353	S22	W78	.978	15996	11.7	10	SB		C	1347	30	1.5		D
MCMA	17	1351	1354	14050	N17	W58	.870	15999	13.2	140	SN		C	1354	25	.5		D
HUAN	17	1352	1354	1357	N17	W56	.853		13.4	5	SF	1	C	1354	20	.3		D
MCMA	17	1410	1413	1418	S22	W78	.978	15996	11.7	8	SF		C	1413	30	1.5		E
HOLL	17	1426	1510	15120	N15	W54	.831		13.6	460	SB	3	V		126			DE
MCMA	17	1507	1510	1524	N19	W59	.881	15999	13.2	17	SB		C	1510	20	.4		D
BIGB	17	1507	1509	1528	N18	W56	.855		13.4	21	SB	3	C	1509	20	.4		
HUAN	17	1510	1512	1516	N19	W57	.866		13.4	6	SF	1	C	1512	30	.6		E

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OBSERVATORY	OBSERVED UT				LOCATION				DURATION MIN.	IM- POR- TANCE	OBS.		MEASUREMENTS			REMARKS		
	DAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCMATH PLAGE REGION			CMP. DAY	COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk		CORR. AREA Sq. Deg.	
					LAT.	MER. DIST.												
HOLL	17	1511	1524	1539	S21	W74	.962		12.1	28	SN	3	C		25			F
HOLL	17	1522	1523	1535	N25	E22	.570		19.3	13	SN	3	C		20			
HOLL	17	1540	1543	1549	N25	E22	.570		19.3	9	SN	3	C		23			
HUAN	17	1620	1621	1624	S20	W83	.992		11.5	4	SN	2	C	1621	25			D
BIGB	17	1632	1647	1731	S22	W80	.984		11.7	59	SB	3	C	1647	160			
MCMA	17	1640	1645	1705	S22	W75	.967	15996	12.1	25	IN	C	C	1645	50	2.0		D
HUAN	17	1641		1712	S20	W80	.984		11.7	31	SN	1	C	1647	30			E
MCMA	17	1734	1748	1808	N18	W60	.887	15999	13.2	34	SN	C	C	1748	40	.9		E
MCMA	17	1826	1829	1833	S22	W80	.984	15996	11.8	7	SF	C	C	1829	25	1.5		D
BIGB	17	1845	1847	1908	N16	W56	.851		13.6	23	SN	3	C	1847	80	1.5		
MCMA	17	1845	1847	1854	N16	W55	.842	15999	13.7	9	SB	C	C	1847	50	1.0		DV
HUAN	17	1847	1848	1852	N16	W55	.842		13.7	5	SN	1	C	1848	25	.4		D
BIGB	17	1912	1916	1930	S16	W39	.652		14.9	18	SN	3	C	1916	30	.4		
BIGB	17	1916	1920	1948	S20	W80	.984		11.8	32	SB	3	C	1920	90			
BIGB	17	1939	1943	1958	S14	W60	.869		13.3	19	SN	3	C	1943	30	.6		
HOLL	17	1953	2003	2027	S22	W74	.962		12.3	34	SB	3	C		20			
BIGB	17	1956	2005	2031	S20	W80	.984		11.8	35	SB	3	C	2005	90			
MCMA	17	2007E	2012	2025D	S22	W82	.989	15996	11.7	18D	SF	C	C	2012				E
HUAN	17	2010		2020	S21	W80	.984		11.8	10	SF	1	C					
HUAN	17	2031		2036	N16	W56	.851		13.7	5	SF	1	C					D
MCMA	17	2031	2033	2038	N16	W56	.851	15999	13.7	7	SN	C	C	2033	50	1.0		E
HOLL	17	2127	2128	2135	N15	W58	.866		13.5	8	SB	3	C		21			
BIGB	17	2145	2146	2155	S21	E85	.995		24.3	10	SB	3	C	2146	20			
HOLL	17	2316	2318	2333	S19	W76	.970		12.3	17	SB	2	C		14			F
HOLL	18	0017	0019	0031	S19	W75	.966		12.4	14	SB	2	C		21			
BIGB	18	0022E	0022	0038	S21	W85	.995		11.6	160	SN	2	P	0022	80			
BIGB	18	0040	0051	0106	S21	W85	.995		11.7	26	SN	2	C	0051	40			
HUAN	18	1534	1538	1540	S19	W90	1.000		11.9	6	SF	1	C	1538	15			
BIGB	18	1535	1538	1555	S12	E42	.678		21.8	20	SN	2	C	1538	30	.4		
MCMA	18	1536	1538	1552	S13	E40	.656	16022	21.7	16	SN	C	C	1538	30	.4		E
HOLL	18	1537	1537	1541	N14	W39	.669		15.7	4	SN	3	C		36			
HOLL	18	1538	1538	1550	S12	E41	.666		21.7	12	SB	3	C		45			F
MCMA	18	1547	1551	1558D	N16	W70	.948	15999	13.4	11D	SF	C	C	1551				E
BIGB	18	1623	1625	1625D	S12	E42	.678		21.8	20	SN	2	P	1625	20	.3		
BIGB	18	1834	1838	1842	S18	W90	1.000		12.0	8	SN	3	C	1838	30			
BIGB	18	1846	1856	1905	S18	W90	1.000		12.0	19	SB	3	C	1856	60			
PALE	18	1912	1915	1928	N15	W70	.948		13.6	16	SB	3	C		18			F
PALE	18	1925	1930	1943D	N15	W42	.708		15.7	18D	SB	3	V		121			DE
BIGB	18	1925	1928	1957	N16	W41	.701		15.7	32	SB	3	C	1928	120	1.3		
MCMA	18	1933E		1952	N16	W40	.689	16014	15.8	19D	SB	P	1933	50	.7		E	
BIGB	18	2242	2245	2251	S25	E85	.995		25.3	9	SN	2	C	2245	20			
HOLL	18	2345	2353	2354D	N26	W50	.829		15.2	90	SN	2	C		30			
MANI	19	0428	0431	0442	N16	W72	.958		13.8	14	SN	3	C		40			
BUCA	19	0732E		0755D	N25	E01	.458		19.4	23D	SF	C	C	0735	107	1.2		E
PALE	19	2035	2036	2053D	N16	W84	.996		13.6	180	SB	2	C		0			
MCMA	20	1523	1534	1558D	S22	E42	.712	16025	23.8	35D	SN	C	C	1534	50	.7		E
BIGB	20	1525	1540	1600	S24	E44	.741		23.9	35	SN	2	C	1540	40	.6		
BIGB	20	1526	1529	1544	N15	W60	.881		16.1	18	SN	2	C	1529	30	.6		
MCMA	20	1534	1538	1551	S27	E42	.735	16026	23.8	17	SN	C	C	1538	20	.3		D
BIGB	20	1625	1626	1631	N21	W21	.514		19.1	6	SF	2	C	1626	20	.2		
PALE	20	1728	1728	1735	S20	E40	.681		23.7	7	SF	3	C		27			DE
PALE	20	1746	1747	1800D	S20	E39	.670		23.7	14D	SF	3	C		65			DE
PALE	20	1748	1750	1807	N15	W67	.930		15.7	19	SB	3	C		19			DE
PALE	20	1749	1749	1800D	N24	W21	.547		19.2	11D	SN	3	C		21			DE
PALE	20	1806	1840	1918	S20	E39	.670		23.7	72	SN	3	C		104			DE H
BIGB	20	1824	1828	1929	S24	E43	.731		24.0	65	SB	2	C	1828	120	1.7		K
BIGB	20	1851	1852	1918	S21	E60	.877		25.3	27	SB	2	C	1852	30	.6		
PALE	20	1852	1852	1906	S20	E55	.834		24.9	14	SN	3	C		16			DE
HOLL	20	1909	1909	1947	S22	E41	.701		23.9	38	SF	3	C		56			
PALE	20	2112	2112	2121	N24	W23	.565		19.2	9	SN	3	C		43			DE
HOLL	20	2339	2342	2350	N14	W67	.929		16.0	11	SN	3	C		16			
BIGB	20	2341	2345	2345D	S21	E40	.686		24.0	4D	SB	2	P	2345	120	1.6		
HOLL	20	2342	2346	0108	S22	E39	.679		23.9	86	SB	3	C		143			U F
PALE	20	2342	2349	0034	S22	E37	.657	16025	23.8	52	1B	3	C		162			FDE
HOLL	21	0014	0018	0037	N14	W68	.935		15.9	23	SB	3	C		52			
BIGB	21	0016	0018	0028	N13	W70	.946		15.8	12	SN	3	C	0018	60			
HOLL	21	0016	0022	0103	S29	E42	.746		24.2	47	SN	3	C		17			
PALE	21	0018	0018	0023	N14	W68	.935		15.9	5	SN	3	C		30			DE

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
					LAT.	NER. DIST.											
PALE	21	0146	0148	0152	S22	E37	.658		23.8	6	SB	3	C		58		FDE
PALE	21	0238	0238	0247	S20	E51	.798		24.9	9	SN	3	C		17		DE
PALE	21	0312	0319	0323	S22	E36	.647		23.8	11	SB	3	C		64		DE
MCMA	21	1356E	1406	1425	S22	E33	.613	16025	24.1	290	SN		C	1406	60	.7	E
MCMA	21	1410	1411	1424	S23	E47	.768	16030	25.1	14	SN		C	1411	65	1.1	E
BIGB	21	1445	1448	1502	S21	E30	.572		23.9	17	SB	3	C	1448	60	.7	
MCMA	21	1445	1449	1500	S23	E33	.619	16025	24.1	15	SN		C	1449	80	1.0	E
HOLL	21	1446	1448	1545	S21	E31	.583		23.9	59	SB	3	C		127		U F
HOLL	21	1553	1605	1615	S21	E30	.572		23.9	22	SB	3	C		43		
BIGB	21	1553	1604	1615	S21	E30	.572		23.9	22	SB	3	C	1604	40	.5	
WEND	21	1634E		16580	N14	E58	.863		26.0	240	SN		V				E
BIGB	21	1639	1643	1702	N18	E54	.837		25.7	23	SB	3	C	1643	40	.7	
MCMA	21	1640	1644	1656	N19	E54	.839	16041	25.7	16	SB		C	1644	40	.8	E
MCMA	21	1654E	1655	1700	S20	E35	.624	16030	24.3	60	SN		C	1655	30	.4	E
BIGB	21	1734	1736	1754	S21	E30	.572		24.0	20	SN	3	C	1736	50	.6	
PALE	21	1745	1745	1749	S22	E28	.556		23.8	4	SN	3	C		24		DE
BIGB	21	1806	1807	1813	S33	E80	.986		27.8	7	SB	3	C	1807	30		
BIGB	21	1811	1813	1824	S21	E29	.560		23.9	13	SN	3	C	1813	20	.2	
BIGB	21	1854	1859	1916	N20	W53	.833		17.8	22	SF	3	C	1859	20	.3	F
BIGB	21	1915	1920	1930	S21	E30	.572		24.1	15	SN	3	C	1920	30	.4	
PALE	21	2006	2006	2010	S22	E27	.545		23.9	4	SN	3	C		36		DE
BIGB	21	2033	2038	2050	S21	E30	.572		24.1	17	SB	3	C	2038	50	.6	
HOLL	21	2033	2037	2059	S21	E28	.548		24.0	26	SB	3	C		55		F
MCMA	21	2034	2037	2047	S23	E30	.586	16025	24.1	13	SB		C	2037	40	.5	E
PALE	21	2034	2036	21470	S22	E27	.545		23.9	730	SB	3	C		59		F H
BIGB	21	2043	2044	2051	S21	E41	.697		24.9	8	SN	3	C	2044	20	.3	
BIGB	21	2118	2119	2128	S32	E37	.719		24.7	10	SN	3	C	2119	20	.3	
HOLL	21	2119	2121	2128	S30	E37	.706		24.7	9	SN	3	C		20		F
HOLL	21	2222	2229	2233	S20	E25	.505		23.8	11	SB	3	C		39		
HOLL	21	2342	0014	0108	S22	E39	.680		24.9	86	SB	3	C		82		U F
PALE	22	0217E	0219	02290	N23	W32	.641		19.7	120	SN	3	C		35		DE
WEND	22	1111	1149	1242	S19	E38	.655	16030	25.3	91	2N		C		670	6.9	
MCMA	22	1118E		1250	S21	E35	.631	16030	25.1	920	2N		C	1147	400	5.3	BFKU
MCMA	22	1139	1203	1255	S31	W51	.831	16021	18.7	76	SF		C	1203	20	.4	D
MCMA	22	1150E	1203	1255	S22	E18	.449	16025	23.8	650	SN		C	1203	60	.7	E
MCMA	22	1150E	1154	12200	N26	W02	.469	16024	22.3	300	SF		C	1154	30	.3	E
WEND	22	1200		1242	S21	E17	.427	16025	23.8	42	1N		C		290	3.0	
MCMA	22	1221	1227	1239	N24	W42	.747	16012	19.4	18	SN		C	1227	50	.7	E
MCMA	22	1250	1307	1318	S34	E74	.969	16034	28.1	28	SB		C	1307	20	.8	E
WEND	22	1305E		13210	S34	E70	.953		27.8	160	SN		C				D
MCMA	22	1347	1351	1359	S22	E22	.490	16025	24.2	12	SN		C	1351	30	.4	E
BIGB	22	1906	1909	1924	N25	W45	.779		19.4	18	SN	3	C	1909	70	1.0	
MCMA	22	1907	1909	1914	N25	W45	.779	16012	19.4	7	SN		C	1909	40	.7	E
BIGB	22	2224	2227	2233	S34	E66	.935		27.9	9	SN	3	C	2227	30		
BIGB	22	2233	2237	2255	N26	W10	.493		22.2	22	SF	3	C	2237	30	.3	
HOLL	22	2235	2237	2250	N29	W 7	.524		22.4	15	SN	3	C		57		
BIGB	23	0001	0005	0021	S22	E16	.431		24.2	20	SN	3	C	0005	30	.3	
BIGB	23	0046	0047	0055	N23	W49	.806		19.4	9	SN	3	C	0047	20	.3	E
WEND	23	0602E		0617	S29	E60	.892	16032	27.8	150	1N		C		290	3.0	D
HUAN	23	1356		1413	N23	W53	.841		19.6	17	SF	1	C				
HUAN	23	1406	1407	14170	S20	E14	.388		24.6	110	SN	2	C	1407	50	.5	E
HUAN	23	1424		1443	S23	W53	.825		19.6	19	SF	1	C				
HUAN	23	1424		1438	N17	E30	.574		25.9	14	SN	1	C				
MCMA	23	1430E		14400	N25	W52	.839	16012	19.7	100	SF		P	1431	40	.8	E
MCMA	23	1431	1436	14400	N18	E30	.581	16031	25.9	90	SF		P	1436	25	.3	D
MCMA	23	1707	1710	17300	N16	W24	.494	16020	21.9	230	SF		C	1710	40	.4	E
MCMA	23	1738	1741	17500	S22	E18	.450	16030	25.1	120	SN		C	1741	30	.3	E
PALE	23	1739	1741	1748	S19	E11	.347		24.6	9	SN	3	C		20		DE
MCMA	23	1754E	1754	1800	S34	E53	.857	16034	27.7	60	SB		C	1754	15	.3	D
MCMA	23	1835	1836	1840	S17	W32	.573	16022	21.4	5	SF		C	1836	40	.5	E
HOLL	23	1920	1921	1930	S19	W33	.597		21.3	10	SN	3	C		52		
BIGB	23	2032	2039	2107	N17	E26	.527		25.8	35	SN	3	C	2039	60	.7	
BIGB	23	2043	2057	2201	S32	E90	1.000		30.6	78	SN	3	C	2057	40		
BIGB	23	2209	2212	2231	N25	W55	.862		19.8	22	SN	2	C	2212	60	1.1	
BIGB	23	2321	2322	2346	N24	W56	.867		19.8	25	SN	2		2322	20	.4	
WEND	24	0716E		07570	S18	E02	.283		24.5	410	SN		C				D
WEND	24	1018E		10270	S23	W01	.364		24.4	90	SN		C				BE
BIGB	24	1740	1741	1750	S25	W15	.461		23.6	10	SB	3	C	1741	70	.7	
PALE	24	1741	1742	1747	S24	W17	.466		23.5	6	SB	3	C		61		U H

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OBSERVATORY	OBSERVED UT				LOCATION				DURATION MIN.	IM- POR- TANCE	OBS.		MEASUREMENTS			REMARKS	
	DAY	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCMATH PLAGE REGION			CMP. DAY	COND.	TYPE	TIME UT	MEAS. AREA MIL. OF DISK		CORR. AREA Sq. Deg.
					LAT.	MER. DIST.											
BIG3	24	1816	1818U	1825	S23	W08	.386		24.2	9	SF	3	P	1818	30	.3	
BIG3	24	1928	1936	1944	N23	E75	.974		30.4	16	SN	3	C	1936	60		
BUCA	25	0732E		0800	S18	W12	.346		24.4	280	SF		P	0735	107	1.2	E
HUAN	25	1254		1307	N14	W35	.616		22.9	13	SF	1	C				
HUAN	25	1406	1414	1430	S16	W16	.365		24.4	24	SN	1	C	1414	25	.2	D
HUAN	25	1415	1416	1420	S34	E66	.936		30.5	5	SN	2	C	1416	20	.2	D
BIG3	25	1417E	1417U	1421	S33	E64	.924		30.4	40	SN	3	P	1417	80	1.9	
BIG3	25	1418E	1418	1431	S17	W14	.354		24.5	130	SN	3	P	1418	40	.4	
HUAN	25	1604		1612	N14	W34	.603		23.1	8	SF	1	C	1606	15	.2	D
BIG3	25	1824	1826	1826D	S32	E64	.923		30.6	20	SB	3	P	1826	50	1.2	
ISTA	26	0605		0615	S21	W12	.388		25.4	10	SN						E
BIG3	26	1614	1617	1631	S20	W19	.443		25.3	17	SB	2	C	1617	30	.3	E
BIG3	26	1632	1640	1656	S20	E56	.846		30.9	24	SB	3	C	1640	30	.6	E
HOLL	26	1857	1900	1932	N14	E33	.590		29.3	35	SB	3	C		144		FDE
BIG3	26	1903E	1903U	1903C	N16	E33	.631		29.3		SB	3	P	1903	90	1.1	
HOLL	26	1942	1943	1954	S21	E56	.842		31.0	12	SF	3	C		17		
HOLL	26	2047	2052	2105	N27	W60	.901		22.4	18	SN	3	C		45		DE
HOLL	26	2056	2056	2106D	S16	W24	.466		25.1	100	SN	3	C		29		
HANI	27	0752E	0755U	0756D	S20	E47	.761		30.9	40	SF	2	V		40		F
ISTA	27	0755		0815	S21	E45	.744		30.7	20	SF	7					D
BIG3	27	1453	1454	1502	N18	W14	.432		26.6	9	SN	3	C	1454	30	.3	
BIG3	27	1802	1804	1811	S21	E39	.680		30.7	9	SN	3	C	1804	30	.4	E
BIG3	27	1848	1850	1859	S21	E29	.566		30.0	11	SN	3	C	1850	30	.4	
BIG3	27	2032	2036	2112	N27	E30	.648		30.1	40	SF	3	C	2036	30	.4	
BIG3	27	2243	2244	2250	N14	E16	.375		29.1	7	SN	3	C	2244	20	.2	
ISTA	28	0741		0744	S35	E20	.624		29.8	3	SF						E
ISTA	28	0825		0827	S26	E08	.438		29.0	2	SF						D
BIG3	28	1522	1528	1539	N13	E90	1.000		4.4	17	SB	3	C	1528	90		
HOLL	28	1526	1527	1538	N16	E90	1.000		4.4	12	SB	2	C		0		
BIG3	28	1532	1536	1544	N16	E90	1.000		4.4	12	SB	3	C	1536	30		
BIG3	28	1552	1554	1615	S23	W63	.905		23.9	23	SN	3	P	1554	60	1.4	
HOLL	28	1553	1554	1559	S23	W63	.905		23.9	6	SN	3	C		20		
BIG3	28	1805	1817	1837	N11	E85	.997		4.1	32	SB	3	C	1817	50		
HOLL	28	1812	1819	1835	N13	E89	1.000		4.4	23	SB	3	C		0		
PALE	28	1816	1819	1827	N12	E77	.976		3.5	11	SB	3	C		24		FDE
HOLL	28	1934	1934	1941	S34	W10	.561		28.1	7	SN	3	C		21		
BIG3	28	1953	2032	2157	N12	E90	1.000		4.6	124	SN	3	P	2032	60		
BIG3	28	2223	2243	2325	S33	E20	.601		30.4	62	SB	3	C	2243	70	.8	
BIG3	28	2249	2251	2310	N25	W06	.451		28.5	21	SB	3	C	2251	100	1.0	
BIG3	28	2344	2354	2354C	N15	E80	.987		4.0	100	SB	3	P	2354	150		
BIG3	29	0035	0037	0046	N18	E75	.971		3.6	13	SN	3	P	0037	100		
BIG3	29	0043	0044	0050	S33	E16	.578		30.2	7	SF	3	C	0044	20	.2	
ISTA	29	0620		0635	N14	W02	.262		29.1	15	SN	4					B
ISTA	29	0635		0635C	N23	W03	.410		29.0		SB						E
ISTA	29	0639		0636C	N16	E00	.937		4.3		SB						A
WEND	29	0743E		0823D	N14	E74	.965	16046	3.9	400	IN		C		400		E
WEND	29	1219E	1227	1253D	S18	W37	.644	16032	26.7	340	IN		C		300	4.1	E
BIG3	29	1443	1445	1501	N13	E70	.944		3.9	18	SB	3	C	1445	20		
BIG3	29	1711	1715	1729	N16	W11	.346		28.9	18	SF	3	C	1715	20	.2	
BIG3	29	1732	1737	1741	N13	E70	.944		4.0	9	SB	3	C	1737	50		
PALE	29	1733	1737	1759	N14	E68	.933		3.8	26	SB	3	C		35		F
BIG3	29	1745	1752	1804	N13	E70	.944		4.0	19	SB	3	C	1752	70		
BIG3	29	1959	2000	2012	N13	E70	.944		4.1	13	SB	3	C	2000	20		
BIG3	29	2111	2127	2136	N13	E67	.926		3.9	25	SB	3	C	2127	120		
HOLL	29	2111	2128	2134	N12	E66	.919		3.8	23	SB	3	C		107		FDE
PALE	29	2119E	2129U	2136	N14	E66	.921		3.8	180	SB	3	C		101		F
BIG3	30	0024	0029	0037	N24	E74	.969		4.6	13	SF	3	C	0029	20		
BIG3	30	0107	0108	0110	S35	E09	.575		30.7	3	SF	3	C	0108	20	.2	G
BIG3	30	1457	1458	1505	N19	E90	1.000		6.4	8	SN	3	C	1458	30		
BIG3	30	1617	1618	1624	N19	E90	1.000		6.4	7	SN	3	C	1618	30		
BIG3	30	1710	1714	1735	N19	E90	1.000		6.5	25	SN	3	C	1714	20		
BIG3	30	2316	2316	2319	N19	E90	1.000		6.7	3	SN	3	C	2316	20		
MCHA	31	1308	1328	1345	N24	W17	.497	16041	30.3	37	SN		C	1328	75	.9	E
PALE	31	1858E	1858U	1934D	N19	E78	.981		6.6	360	SB	1	C		30		DE

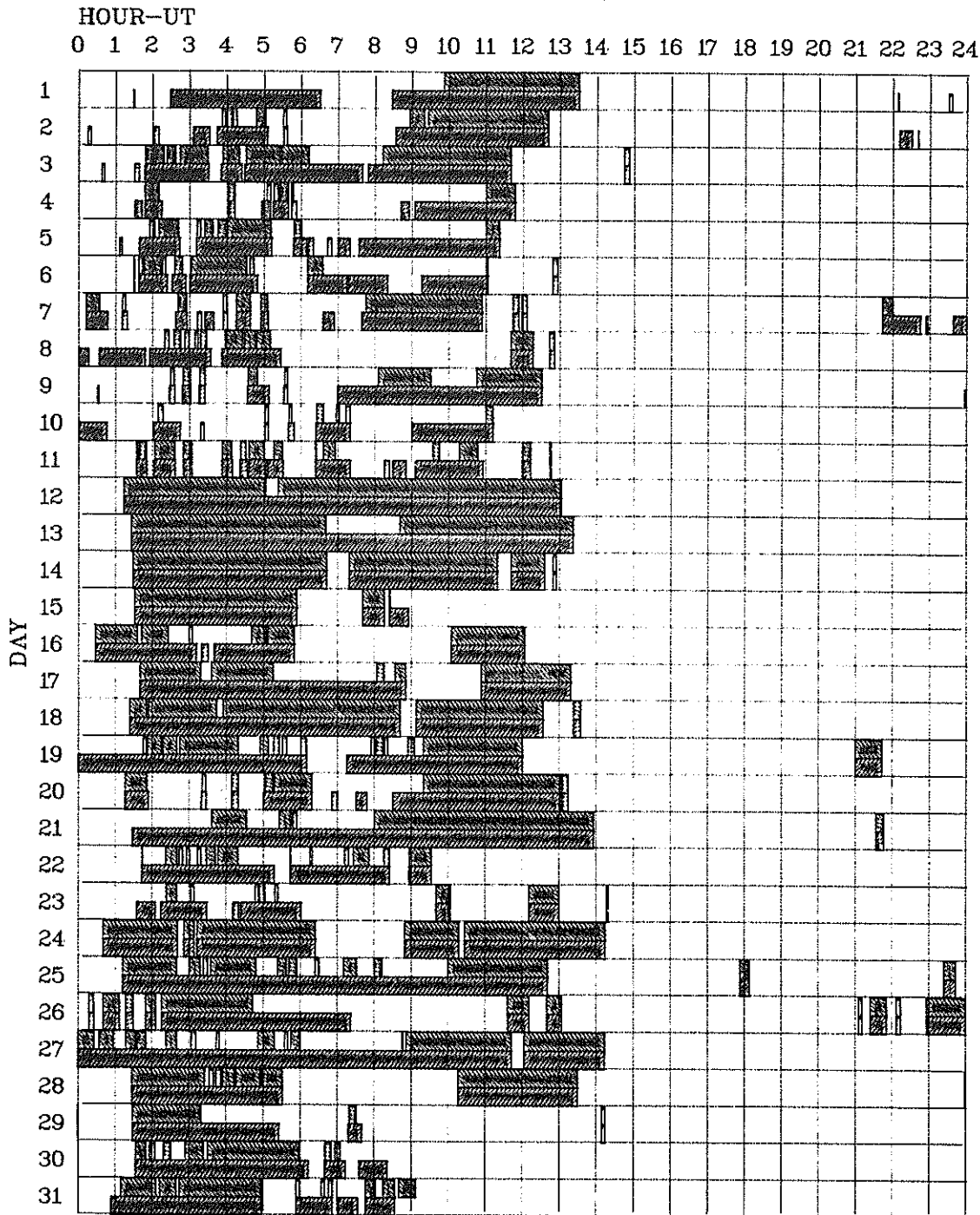
"Remarks":

- 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 a 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 calcium II lines H and K.
- P = Flare shows helium D₃ in emission.
- Q = Flare shows the Balmer continuum in emission.
- R = Marked asymmetry in H α line suggests ejection of high velocity material.
- S = Brightness follows disappearance of filament (same position).
- T = Region active all day.
- U = Two bright branches, parallel (||) or converging (Y).
- V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
- W = Great increase in area after time of maximum intensity.
- X = Unusually wide H α 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

MAY 1979



Observatories included in total patrol:

Athenes	Bucharest	Istanbul	Palehua	Upice
Berne	Holloman	Manila	Ramey	Wendelstein
Big Bear	Huancayo	McMath-Hulbert		

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).

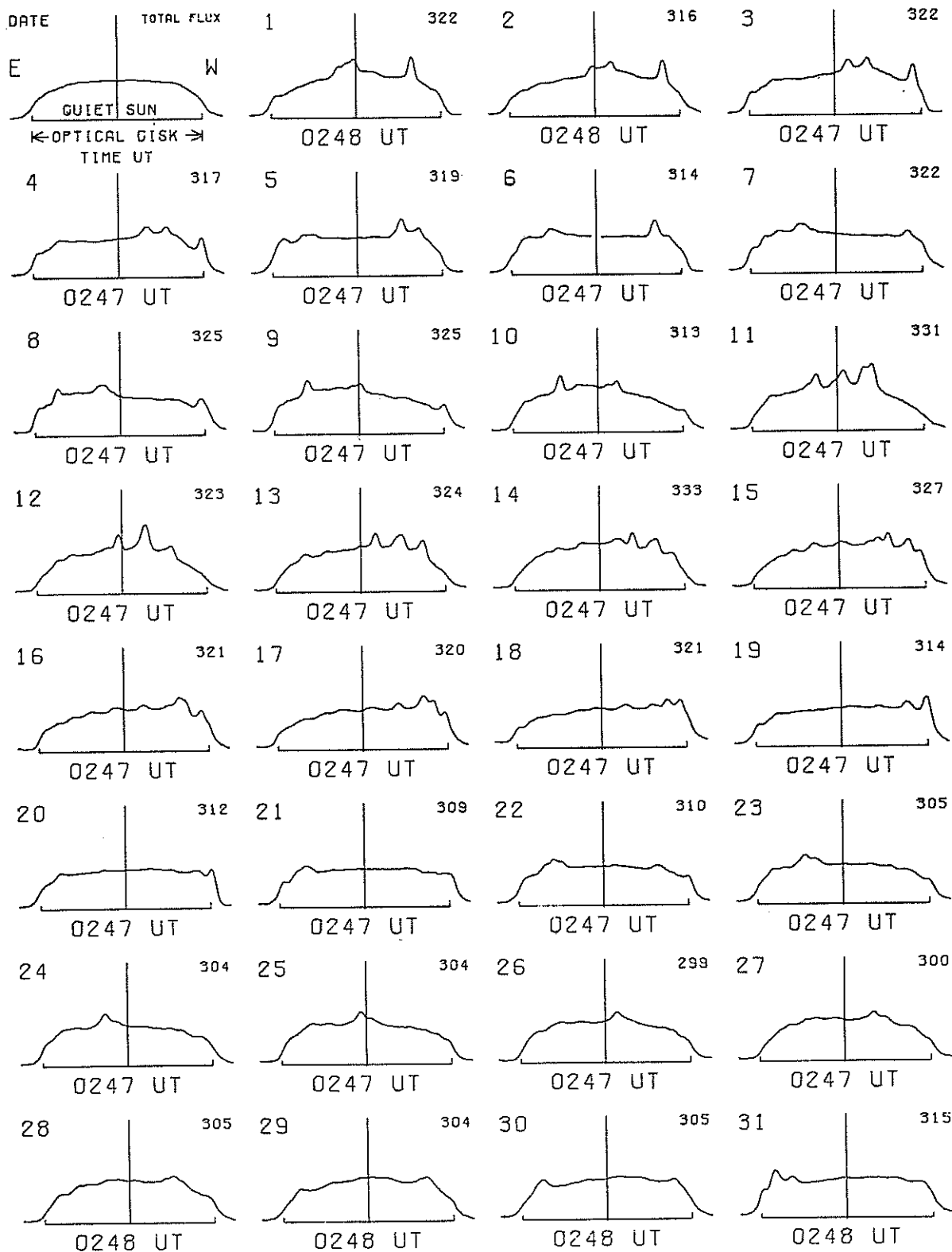
24
May 79

EAST-WEST SOLAR SCANS

MAY 1979

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

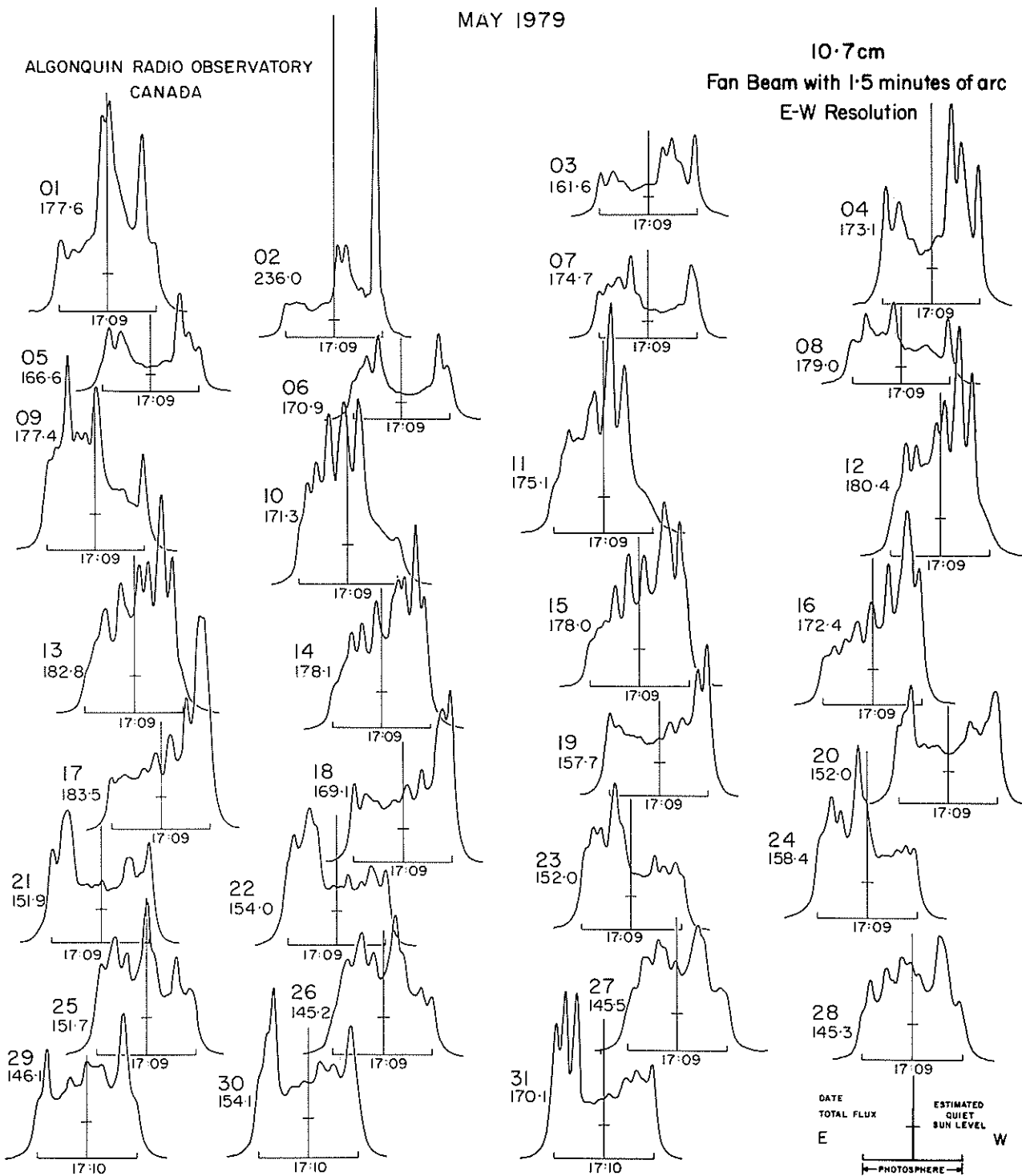


EAST-WEST SOLAR SCANS

MAY 1979

ALGONQUIN RADIO OBSERVATORY
CANADA

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



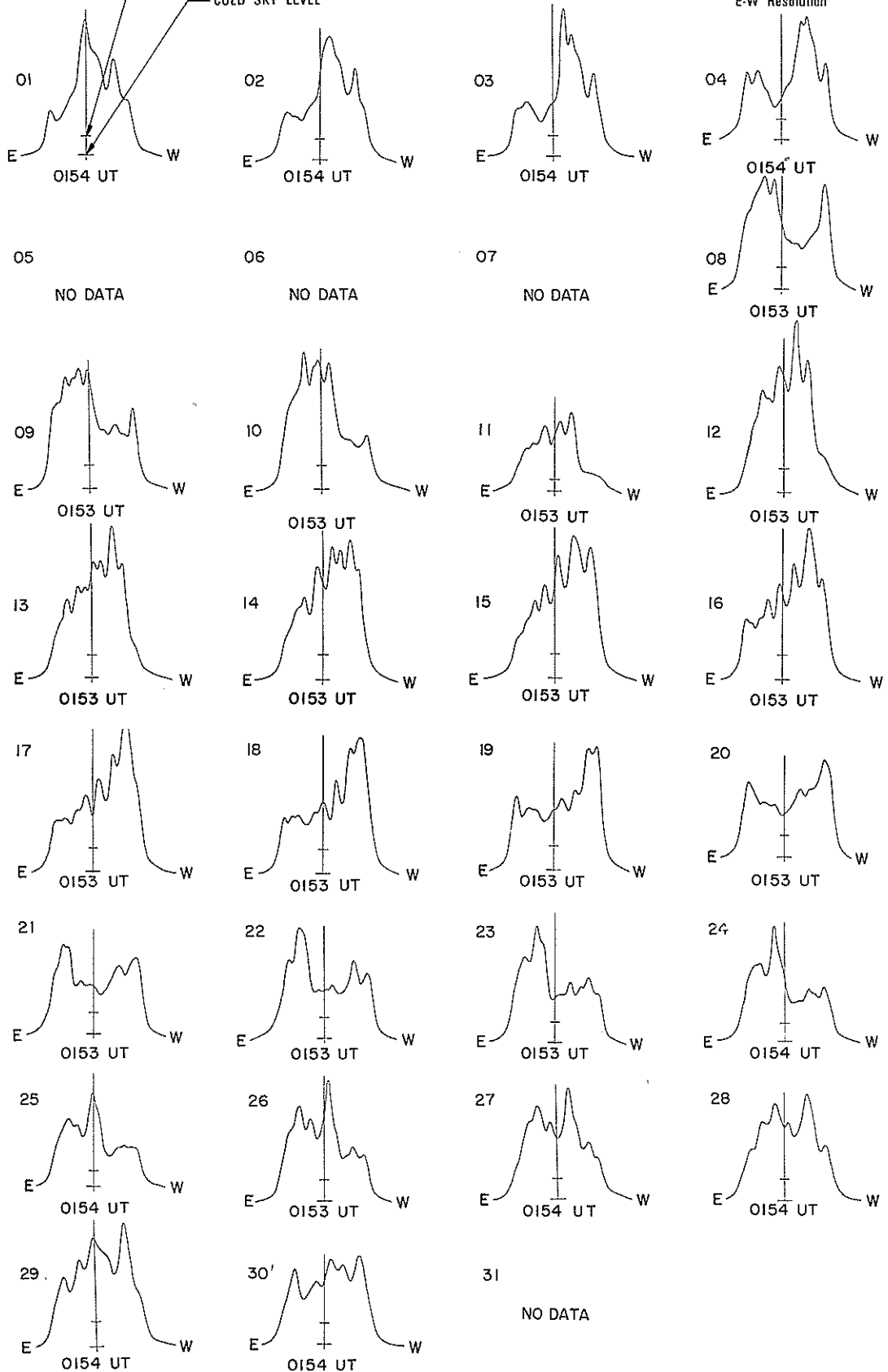
DATE
TOTAL FLUX
E
ESTIMATED QUIET SUN LEVEL
W
PHOTOSPHERE
TIME U.T.

EAST-WEST SOLAR SCANS
MAY 1979

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL
COLD SKY LEVEL

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

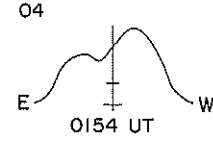
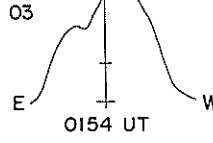
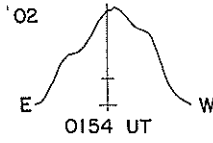
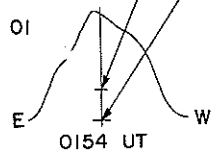


EAST-WEST SOLAR SCANS
MAY 1978

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL
COLD SKY LEVEL

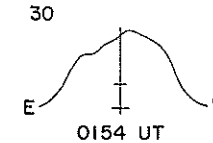
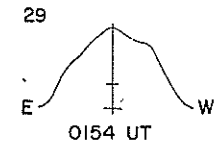
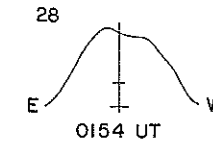
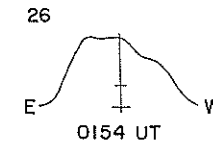
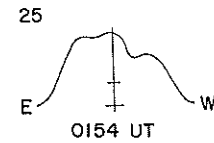
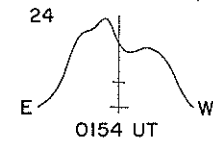
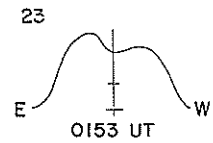
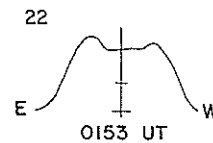
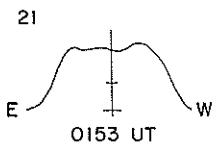
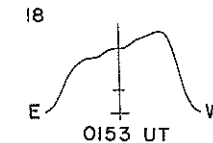
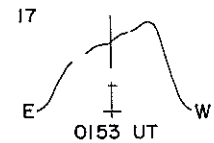
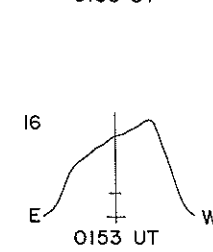
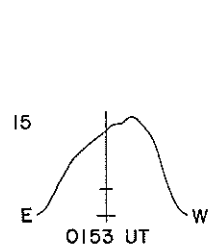
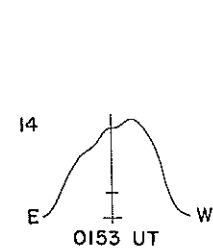
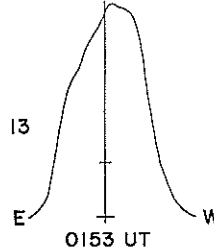
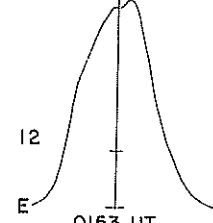
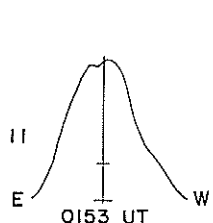
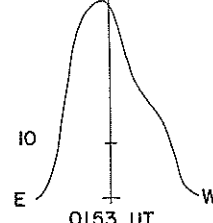
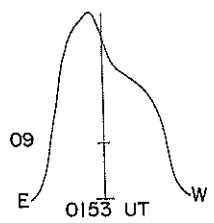
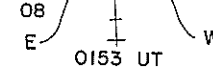
43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



05
NO DATA

06
NO DATA

07
NO DATA



31
NO DATA

SOLAR RADIO EMISSION SELECTED FIXED FREQUENCY EVENTS

MAY 1979

DAY OF MONTH	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{22} \text{ Wm}^{-2} \text{ Hz}^{-1}$		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	2800 OTTA	24C R	1125	1145	20		4.8	2.4	
	2800 OTTA	1 S	1506	1507	2		2	1	
	2800 OTTA	1 S	1737.5	1738.8	3		2.6	1.3	
	2800 OTTA	21 GRF	1915	1935	215		11	3.6	
	2695 BOUL	4 SF	2024.5E	2026.5	5.50		27	9	
	2800 OTTA	4 S/F	2024	2026.4	12		24	10	
2	2800 OTTA	20 GRF	1210	1230	85		7	5.4	
	2800 OTTA	21 GRF	1430	1610	290		7.8		
	2800 OTTA	1 S	1525	1525.5	2		3.8	1.9	
	8800 SGMR	3 S	1650.5	1700	32.4		369	111	SWF
	8400 BERN	46	1650.6	1659.7	30		334		7R
	2800 OTTA	46F C	1650.8	1700	21.2		188	58	
	2695 SGMR	3 S	1651.2	1700.3	32		195	59	SWF
	2695 BOUL	45 C	1651.5E	1701	20 D		165	55	
	2800 OTTA	30 PBI	1712	1712	78		9	4.5	
	2800 OTTA	4 S/F	1713	1716.2	8		120	33	
	2695 BOUL	4 SF	1715 E	1717	5.50		117	39	
	2800 OTTA	1 S	1722	1722.3	1.2		3.6	1.8	
	2800 OTTA	40 F	1737	1738	4		4.6		
	2800 OTTA	3 S	1925	1925.9	8		52	6.8	
	2695 BOUL	3 S	1926 E	1926.5	1 D		25	8	
	2800 OTTA	1 S	2114	2114.5	2		8.6	3	
	2695 PENT	21 GRF	2250	2254	30		3.4	1.7	
	2695 PENT	8 S	2253.6	2253.6	.1		6.2		
3	2695 PENT	21 GRF	0100	0140	50 D		20.6		
	2695 MANI	S	0124.7	0128.7	6.8	3	31	10.3	III
	2695 PENT	3 S	0124	0126.8	13		47	18.4	
	2800 OTTA	20 GRF	2000	2010	50		3.4	1.8	
4	2800 OTTA	20 GRF	1850	1925	50		2.8	1.4	
	2800 OTTA	1 S	1948.5	1949.5	3		1.8	.9	
	2800 OTTA	20 GRF	2010	2025	40		1.8	.9	
	2800 OTTA	4 S/F	2133.7	2134.5	4.3		85	32	
	2695 BOUL	45 C	2134 E	2135	3 D		141	47	
	2800 OTTA	29 PBI	2138	2138	8		3.6	1.2	
2695 PENT	20 GRF	2240	2330	120		3.4	1.7		
5	2695 MANI	S	0214.7	0214.3	2.3	3	11.9	7.9	
	2800 OTTA	4 S/F	2030.2	2030.5	1.5		10.8	3	
	2695 PENT	20 GRF	2240	2257	50		3.4	1.7	
6	2800 OTTA	21 GRF	1540	1644	190		4.6	2.4	
	2800 OTTA	2 S/F	1543	1544	3		2.8	1.4	
	8400 BERN	1	1554	1555.2	4		9		9L
	2800 OTTA	1 S	1615	1615.5	6		4	1.6	
	2800 OTTA	240 R	1925	1943	18		4.4	2.2	
	2800 OTTA	27 RF	1945		135		2.8	2.2	
	2800 OTTA	24 R	1945	1952	7		2.8	1.4	
	2800 OTTA	24P R	1952		73		2.8		
	2800 OTTA	26 FAL	2105	2100	55		-2.8	-1.4	
	2800 OTTA	1 S	2207	2208	2		6.2	2.9	
	2695 PENT	20 GRF	2230	2300	50		2	1	
	2695 PENT	4 S/F	2334.5	2336.1	7.5		100	30	
	2695 MANI	S	2335	2335.8	6	3	76.5	25.5	
	8800 MANI	S	2335.2	2336.3	3	3	24.5	8.2	
2695 BOUL	45 C	2335.5E	2336.5	6 D		117	39		
2695 PENT	29 PBI	2342	2342	65		2.8	1.6		
7	2695 PENT	1 S	1458	1458.5	2		3.6	1.8	
	2800 OTTA	20 GRF	1830	1838	130		3.4	2	
	2800 OTTA	20 GRF	2130	2207	125		3.8	1.9	
8	2695 PENT	45 C	0046	0048.3	7		28	7	
	2695 BOUL	3 S	0046 E	0047	2.50		16	5	
	2695 PENT	29 PBI	0053	0053	27		3.6	1.8	
	2800 OTTA	22 GRF	1255	1440	365		7.6	4.5	
	2800 OTTA	240AR	2025	2030	5		3.2	1.6	
	2800 OTTA	8 S	2027.2	2027.9	.8		8.6		
9	8400 BERN	20	0720.1	0839.7	180		21		OPR
	2800 OTTA	20 GRF	1120	1128	20		5.8	1.9	
	2800 OTTA	23 GRF	1200	1423	250		19	9.5	
	2800 OTTA	20 GRF	1215	1220	30		4.2	2.1	
	8400 BERN	20	1216	1222.5	32		21		4R
	2800 OTTA	26 FAL	1735	1810	35		-3.4	-1.7	
2800 OTTA	22 GRF	2010	2030	100		5.4	1.8		
10	2800 OTTA	1 S	1650	1654	10		2.2	1.1	
	2800 OTTA	21 GRF	2000	2023	60		3.2	1.6	
	2695 PENT	1 S	2009	2009.5	1		3.6	1.8	
	2800 OTTA	22 GRF	2110	2130	33		4.6	1.6	
	2695 PENT	240 R	2230	2305	35		5	2.5	

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1979

DAY OF MONTH	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{22} \text{ Wm}^{-2} \text{ Hz}^{-1}$		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
11	2695 PENT	21 GRF	0000	0120	110 0	18.4			
	2695 PENT	2 S/F	0031	0003.3	8	8.8	3		
	2695 PENT	20 GRF	0036	0041	12	11	5.5		
	2695 PENT	1 S	0053	0056	9	8	4		
	2800 OTTA	20 GRF	1240	1255	40	3.6	1.8		
	2800 OTTA	20 GRF	1400	1424	95	4.4	2.2		
	2800 OTTA	20 GRF	1614	1655	45	3.4	1.7		
	2800 OTTA	40 F	1742	1742.5	1	12.4			
	2800 OTTA	240 R	2017	2110	53	6	3		
2800 OTTA	20 GRF	2120	2122	17	3.4	1.7			
12	2695 PENT	3 S	0033	0034	5	21.8	5.4		
	2695 PENT	1 S	0045	0045.7	1	2.2	1.1		
	2695 PENT	1 S	0110	0110.7	1.5	3.6	1.8		
	8400 BERN	3	0935.1	0936.3	5	20			0
	2800 OTTA	240 R	1240	1330	50	3.6	1.8		
	2800 OTTA	1 S	1619	1619.5	3	2.6	1.3		
	2800 OTTA	240 R	2123	2147	24	2.4	1.2		
13	2800 OTTA	240 R	1625	1645	20	2.4	1.2		
14	2695 MANI	S	0035.5	0006.5	1.9	3	6	2	
	2695 PENT	240 R	2245	2300	15	3.2	1.6		
15	2800 OTTA	8 S	1451.7	1451.7	.1	9.8			
	2800 OTTA	3 S	2218	2220.3	4	16	5.4		
	2800 OTTA	30 PBI	2222	2222	68	3.6	1.8		
	2695 PENT	1 S	2316	2317	2	3	1.5		
16	2800 OTTA	20 GRF	1240	1430	220	5.8	2.9		
	2800 OTTA	8 S	1804.2	1804.2	.1	5			
	2800 OTTA	2 S/F	1827	1827.4	1.4	7.8	3		
	2800 OTTA	20 GRF	1840	1900	40	3	1.5		
	2800 OTTA	20 GRF	1955	2025	65	2.4	1.2		
	2800 OTTA	240 R	2127	2137	10	2.4	1.2		
17	2695 PENT	4 S/F	0117	0120.5	6	11.6	3.8		
	2800 OTTA	24 R	1410	1540	90	10.6	5		
	2800 OTTA	27A RF	1410		490	10.6	8.2		
	2800 OTTA	24P R	1540		270	10.6			
	8800 SGMR	3 S	1637.5	1644.2	11.6	108	32.4		
	8400 BERN	46	1639.7	1644.1	20	78			OPR
	2800 OTTA	46F C	1640	1641.2	8	25.2	5		
	2695 SGMR	3 S	1641	1641.6	9	15.5	4.6		
	2695 BOUL	45 C	1641	1642	9	16	5		
	2800 OTTA	21 GRF	1720	1745	100	4.6	2		
	2800 OTTA	1 S	1736	1737.8	3	5	2.4		
	2800 OTTA	26 FAL	2010	2220	130	-10.6	-5.3		
	2695 PENT	20 GRF	2250	2410	170	5	2.5		
18	8400 BERN	20	0535.4	0544.8	15	15			OPR
	2800 OTTA	21 GRF	1534	1550	115	6.4	3.2		
	8400 BERN	1	1538.9	1539.6	3	12			OPR
	2800 OTTA	3 S	1539	1539.8	3	18	8		
	2800 OTTA	4 S/F	1544.1	1544.2	1	11.6	5.8		
	2800 OTTA	20 GRF	1925	1928.5	25	3.6	1.8		
	2800 OTTA	1 S	2153	2154	2	1.8	.9		
	2800 OTTA	20 GRF	2035	2110	80	6.6	3.6		
19	2800 OTTA	20 GRF	2225	2300	100	6.6	3.4		
20	8400 BERN	4	0731.2	0731.7	5	19			32L
	2800 OTTA	21 GRF	1105	1130	60	4.8	2.6		
	2800 OTTA	2 S/F	1107	1113	8	6	3.2		
	2800 OTTA	20 GRF	1310	1340	150	4.2	2.4		
	2800 OTTA	1 S	2111.5	2112	1	3	1.2		
	2695 PENT	2 S/F	2341	2346	7	6	2.9		
	2800 OTTA	20 GRF	2010	2055	150	3.6	2.2		
21	2695 MANI	S	0636.3	0636.5	.3	1	6.3	2.1	
	2800 OTTA	26 FAL	1240	1255	15	-3.6	-1.8		
	2800 OTTA	20 GRF	1445	1455	65	2.4	1.4		
	2800 OTTA	20 GRF	2010	2055	150	3.6	2.2		
	2800 OTTA	4 S/F	1112	1114.8	4	73.8	21.6		
	2695 SGMR	3 S	1113	1114.8	5.7	73.9	7.4		
	8800 SGMR	3 S	1113	1115.4	4	11.8	1.2		
	2800 OTTA	29 PBI	1116	1116	104	8.6	6.9		
	2800 OTTA	20 GRF	1450	1535	90	1.8	.9		
	2800 OTTA	20 GRF	1635	1840	255	3	1.5		
2800 OTTA	21 GRF	2125	2240	185	2.6	1.3			
2695 PENT	8 S	2347.9	2347.9	.1	3.6				
23	2800 OTTA	20 GRF	1130	1155	85	3.2	1.8		
	2800 OTTA	21 GRF	1348	1430	57	2	1		

30
May 79

SOLAR RADIO EMISSION SELECTED FIXED FREQUENCY EVENTS

MAY 1979

DAY OF MONTH	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} W_m^{-2} Hz^{-1}$		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
	2695 PENT	1 S	1406	1406.6	2	3.6	1.6		
	2800 OTTA	26 FAL	2039	2040	5	-2.2	-1.1		
	2695 PENT	27 RF	2110		225	2.8	2.4		
	2695 PENT	24 R	2110	2130	20	2.8	1.4		
	2695 PENT	24P R	2130	2410	160	2.8			
	2695 PENT	26 FAL	2410	2455	45	-2.8	-1.4		
24	2800 OTTA	21 GRF	1258	1303	65	2	1		
	8800 SGMR	3 S	1332.8	1333.8	2	15	3		SWF
	2800 OTTA	1A S	1332	1333	3	5.4	2.7		
	2695 SGMR	3 S	1333.2	1333.3	1.6	13	2.5		SWF
	2800 OTTA	8 S	1333	1333	.3	19.4			
	2800 OTTA	24 R	1505	1520	15	3.2	1.4		
	2800 OTTA	27A RF	1505		180	3.2	2.9		
	2800 OTTA	24P R	1520		144	3.2			
	2800 OTTA	1 S	1740	1741.2	2	6.4	3		
	2800 OTTA	26 FAL	1744	1805	21	-3.2	-1.6		
	2800 OTTA	20 GRF	2130	2240	180	3.6	1.6		
25	2800 OTTA	20 GRF	1055	1205	185	4.8	2.4		
	2800 OTTA	20 GRF	1404	1416	70	2	1		
	2800 OTTA	20 GRF	1600	1640	125	2.8	1.4		
	2800 OTTA	8 S	2208.6	2208.6	.1	19.4			
26	2800 OTTA	1 S	1857	1858.3	3	4.2	2.1		
	2800 OTTA	20 GRF	2040	2105	45	2.2	1.1		
27	2800 OTTA	21 GRF	1910	2020	130	2.6	1.4		
	2800 OTTA	1 S	1914.6	1915	2.5	3.8	1.4		
28	2800 OTTA	20 GRF	1112	1140	90	2.8	1.4		
	2800 OTTA	20 GRF	2220	2255	110	5	2.6		
29	2800 OTTA	2 S/F	2125.5	2126.7	3	4			
30	2800 OTTA	20 GRF	1230	1340	170	3.4	1.8		
	2800 OTTA	240AR	1640	1710	30	2.8	1.4		
	2800 OTTA	8 S	1653	1653	.3	2.2			
	2800 OTTA	240 R	1910	1920	10	2.4	1.2		
31	2800 OTTA	20 GRF	1130	1143	60	4.2	2.1		
	2800 OTTA	20 GRF	1305	1330	50	3.6	1.8		
	2800 OTTA	240 R	1410	1500	50	3.2	1.6		
	2800 OTTA	240 R	1635	1700	25	2.2	1.1		
	2800 OTTA	20 GRF	1850	1857	70	1.6	1.1		
	2800 OTTA	20 GRF	2110	2135	110	2.2	1.6		
	2695 PENT	240 R	2310	2330	20	2.2	1.1		

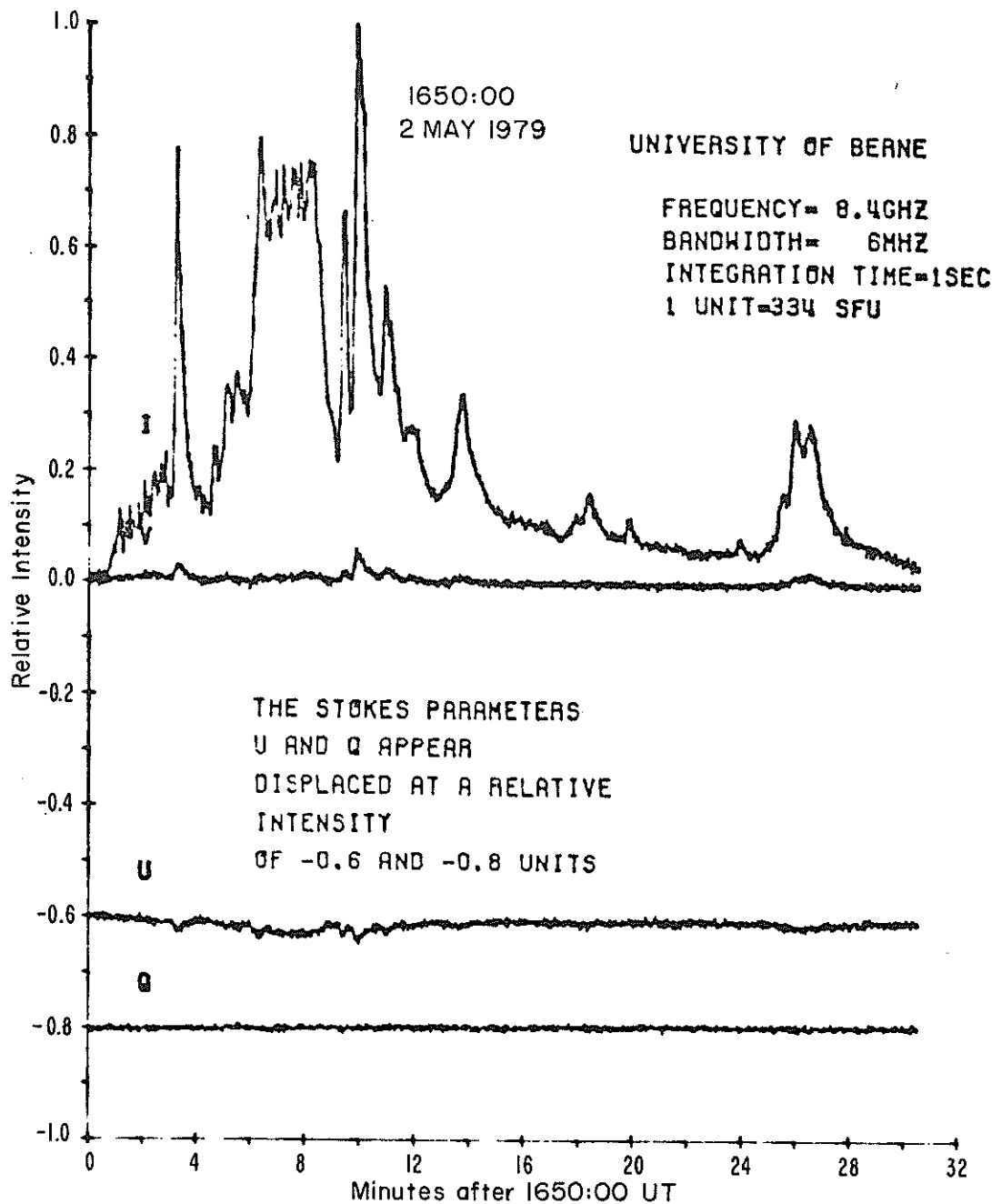
Observatories:

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

Explanation of Type Code:

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

SELECTED SOLAR NOISE BURST
MAY 1979



PIONEER XII

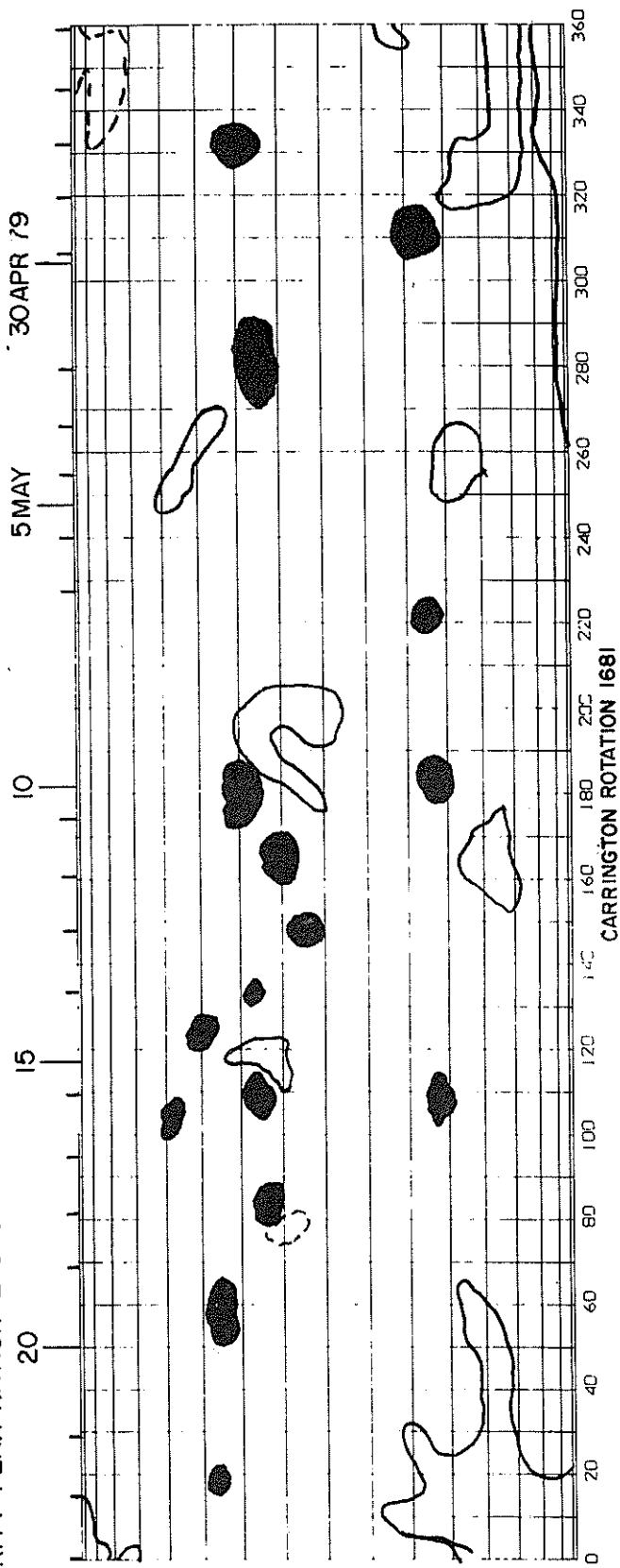
MAY 1979

DATE May 79	TIME (UT)	ESV (°)	UH+ (Km/sec)	NH+ (H+/CC)	TH+ ($\times 10^{50}K$)
1	0602	105	518.	13.5	0.224
2	1326		338.	19.	.098
3	1206		339.	41.	.077
4	1222		323.	16.2	.073
5	1120		295.	36.8	.036
6	1051		400.	17.2	.101
7	0754		490.	22.3	.293
8	1400		472.	9.5	.182
9	0501		484.	15.2	.384
10	1155		596.	85.6	.044
11	0704		452.	26.3	----
12	0746		449.	15.8	.188
13	0858		433.	77.6	.076
14	0601		334.	19.	.084
15	1301		---	23.1	.082
16	0839	114.	330.	34.3	.041
17	0759		401.	17.8	.072
18	0900		431.	23.4	.242
19	0842		400.	15.7	.12
20	0851		452.	15.9	.155
21	0757		412.	17.7	.105
22	1257		---	---	.13
23	1100		499.	17.6	.229
24	1455		346.	22.5	.108
25	---		---	---	----
26	1205		338.	13.8	.1
27	0912		299.	32.4	.094
28	1307		355.	23.2	.03
29	0901		417.	42.3	.051
30	1227		503.	31.3	.145
31	0658	123.	444.	14.9	.151

HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1681

KITT PEAK NATIONAL OBSERVATORY

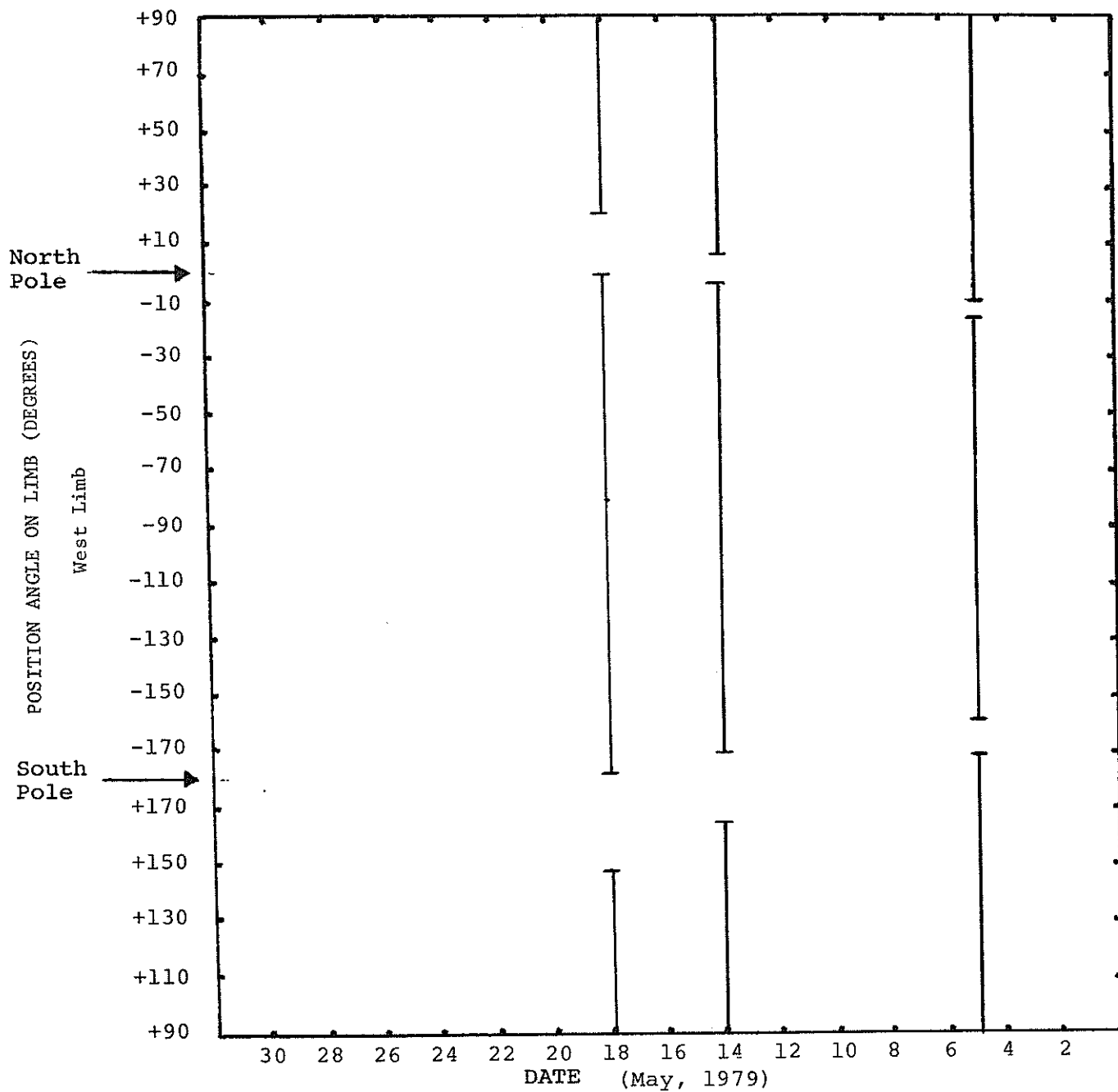


CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

MAY 1979

Big Bear Solar Observatory



SOLAR WIND
Interplanetary Scintillations
MAY 1979

DAY	3C48 VEL ERR		3C144 VEL ERR		3C147 VEL ERR		3C161 VEL ERR		3C237 VEL ERR		3C273 VEL ERR		3C298 VEL ERR		3C459 VEL ERR	
1	591	64					379	63							440	40
2	385	37	334	6	292	7									453	25
3			364	7	231	29	374	10							331	19
3							312	19								
4	399	86	378	5			329	13							366	5
5	410	18	374	5	372	46	379	6							394	16
6	372	26	371	6			430	8	427	62	396	4			404	19
7	374	66					391	8	354	8	484	68			397	29
8	347	25	457	34	535	22	370	9			439	55			398	20
9	457	5	374	6	419	68	443	16	401	5	451	4			377	11
10	543	153	372	12			446	15	290	9	382	44			464	22
11	306	30	461	89			398	16	387	12	496	4			473	38
12	326	27	372	23			484	27			506	4			453	36
13	465	11	512	41			464	8			594	79			446	46
14	381	6	383	8	324	16	391	6			489	16			543	70
15	364	4	368	4	388	7	407	6							468	10
16	317	4	476	10	489	44	394	5								
17	339	7	478	10			414	30							331	16
18	261	3	506	6	374	64	524	10	347	25	345	51			390	79
19	290	11	481	7			465	10	447	74	430	6			407	16
20	345	8	440	33	369	28	499	20	431	23	446	4			451	14
21	429	4	466	6			598	37	458	25	449	11			502	88
22	465	22	383	11			603	8			472	11			588	7
23	410	11	333	12	377	96	526	8	517	51						
24			339	5	486	57	554	11			506	22				
25	383	5			294	8					587	5			396	25
26	367	7	387	15	447	102	531	32			558	84			448	81
27	350	5	502	8			591	22	285	76	489	117	450	17		
28			532	-87												
29			495	37	303	31	411	15			349	9	382	33	345	5
30	362	4	552	41	242	62			379	32	544	18	514	84	412	40
31	475	30							344	11					323	67

MAY	5	15	25
	UT LAT DIST DLON	UT LAT DIST DLON	UT LAT DIST DLON
3C48	19. 57. 0.40 32.	18. 44. 0.48 44.	18. 34. 0.59 43.
3C144	23. -8. 0.63 -51.	22. -9. 0.49 -61.	22. -10. 0.33 -70.
3C147	22. 17. 0.74 -37.	21. 25. 0.65 -43.	21. 35. 0.56 -45.
3C161	0. -23. 0.85 -26.	24. -29. 0.77 -31.	23. -36. 0.68 -34.
3C237	4. -6. 1.12 -15.	3. -5. 1.07 -16.	2. -4. 1.03 -17.
3C273	6. -3. 1.25 -9.	5. -2. 1.22 -11.	4. -1. 1.18 -13.
3C298	8. 0. 1.28 -4.	7. 1. 1.27 -6.	6. 2. 1.25 -8.
3C459	16. 6. 0.81 34.	16. 4. 0.90 25.	15. 3. 0.96 17.

Note: 3C 161 observed at 0 hr. U.T. before May 3rd and at 23 hr. U.T. after May 3rd.

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								
1977	MAR 6	TA							AT			T*	*					TA			AT	AT			*TA											
1978	APR 2							*		AT												AT														
1979	APR 29	TA			*		TA	AT	AT	TA			T*							TA	TA		AT													
1980	MAY 26							AT	AT							AT	TA																			
1981	JUN 22	TA						A*					-TA	TA	TA	AT		*				*AT		AT			AT									
1982	JUL 19									TA										TA								TA								
1983	AUG 15						TA		AT		AT	AT			TA						A*							TA								
1984	SEP 11			TA			AT		TA	TA	T*					A*												A*TA								
1985	OCT 8	*	TA					AT											TA	TA		AT														
1986	NOV 4								-AT									*	AT			AT	AT													
1987	DEC 1	AT										TA			-AT						A*		*						-AT							
1988	DEC 28									-AT	*		TA	TA	T*															-TA						
1989	JAN 24											TA	TA																		AT					
1990	FEB 20	TA		-TA			TA			-TA	TA	TA	TA			TA	A*	TA	A*	TA	A*															
1991	MAR 19		AT											*								TA	T*	TA									TA			
1992	APR 15			A*TA	T*AT				TA	TA	T*						TA	*																		
1993	MAY 12											AT				*		TA				AT														

= 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

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
1977	MAR 1																											
1978	MAR 28																											
1979	APR 24																											
1980	MAY 21																											
1981	JUN 17																											
1982	JUL 14																											
1983	AUG 10																											
1984	SEP 6																											
1985	OCT 3																											
1986	OCT 30																											
1987	NOV 26																											
1988	DEC 23																											
1989	JAN 19																											
1990	FEB 15																											
1991	MAR 14																											
1992	APR 10																											
1993	MAY 7																											

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 which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

1979

1978

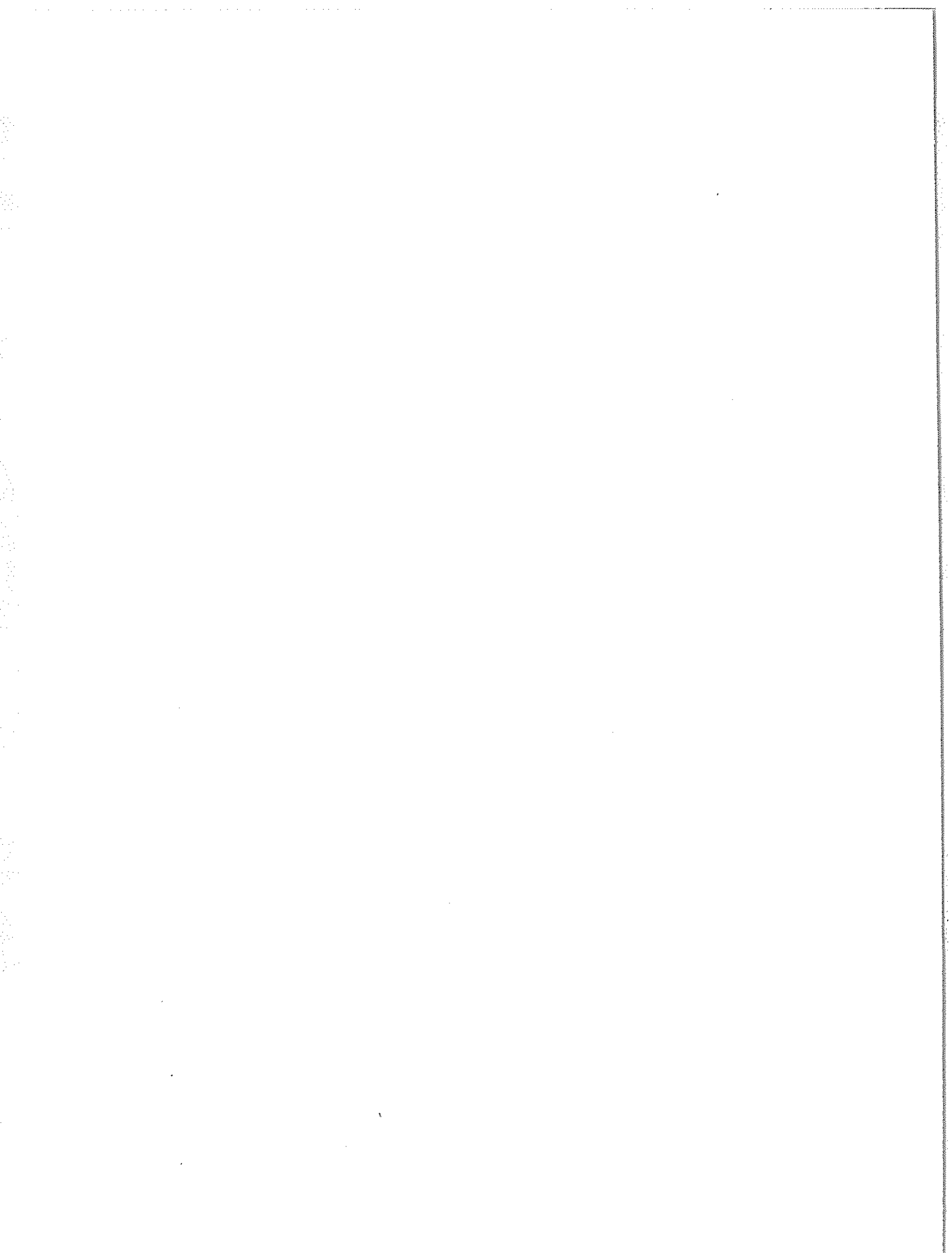
DAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY
01	-28	1	40	26	-11	-18	-72	11	.	-36	-4	26
02	-22	13	39	32	-20	-21	-39	.	-1	.	16	13
03	-12	15	42	15	-14	-36	-7	15	30	.	57	6
04	-5	18	39	18	-8	-28	17	-6	27	-24	44	10
05	6	24	31	2	-3	-19	19	-25	-13	-6	11	45
06	5	43	29	-24	-7	-12	9	-26	1	46	9	68
07	21	42	30	-12	-20	3	5	.	50	64	14	101
08	33	36	17	-7	-29	-6	-15	.	88	56	67	134
09	41	16	-11	.	-37	-17	-26	.	59	.	102	126
10	40	-11	-10	-35	-29	-3	-37	27	39	.	124	75
11	23	-17	-15	-34	-32	5	-19	.	40	21	138	31
12	12	-12	-22	-42	-14	9	-16	27	30	63	100	-13
13	8	-38	-33	-36	2	.	13	.	.	100	51	-66
14	0	.	-43	-27	7	16	31	45	78	106	-12	-104
15	-24	.	-31	-26	8	20	43	21	62	.	-51	.
16	-38	.	-9	-36	9	.	65	36	27	24	.	.
17	.	.	5	-48	5	34	.	48	6	45	-121	.
18	.	.	13	-44	-1	42	59	59	.	.	-117	-27
19	.	.	7	-50	.	.	30	37	-52	-56	-72	-29
20	-16	23	7	-33	4	55	18	18	.	-81	-40	-36
21	0	21	5	-21	3	35	32	9	-86	-81	-27	-34
22	24	16	4	-14	19	40	27	-15	.	.	-32	-43
23	51	6	-1	5	20	28	-3	.	-80	-51	-40	-56
24	52	3	1	31	25	27	-20	-54	-52	-41	.	-51
25	48	3	5	43	23	18	-26	-64	.	-28	.	-30
26	30	-7	18	42	24	2	-32	-70	19	.	-99	-16
27	12	-13	.	40	29	-17	-63	-64	10	-29	-92	-17
28	3	-6	.	29	30	-48	-51	-27	0	-36	-57	-4
29	-5	14	41	15	17	-61	-36	12	.	-12	.	19
30	-10	27	41	2	-3	-65	-22	.	.	-26	3	10
31	.	33	35	.	-16	.	-21	.	.	-28	.	9

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

MAY 1979

DATE	ONSET TIME	DIRECTION	COMMENTS	DATE	ONSET TIME	DIRECTION	COMMENTS
01	0345 0930	East West	Strong SS Field unsettled throughout network; active north of Inuvik after 1730 UT; no distinct SS activity.	17	1210		Field became active on most network stations after 1640 UT. From Cape Parry to Johnson Point magnetometers became very active.
02	0025 0615	East West	Slow onset; repeated minor injections; SS recovery at 0340 UT.	19	0130 0410 0855 0955 1155	East East West West West	Field active all day.
03	0115 1210 1305	East West West	Weak SS Field unsettled after 1800 UT; no distinctive SS activity.	20	0355 0515 1150	East = center West	Field intermittently active throughout day.
04	2330	East		21	0810 1330 1400	West	1st of double onset 2nd of double onset
05	0850 0910 1005	West West West	Weak SS Weak SS Weak SS	22	0125 0815 0855	East = center = center	Field active throughout the day.
06			Field slightly unsettled; no distinct SS activity.	23	0435 0505	East East	Field became unsettled after 1800 UT.
07	0925 1145 1800	West West	Slow onset	24	0210 0230 0300 0655 1025 1215 1310 1650	East East East West West	Field active throughout the day. Strong SS at Boulder Slow onset
08	0645	East		25	0325 0725 1030	East = center	Field active throughout the day. Initiation of numerous substorms/injections lasting through 2000 UT.
09	0520 0540	East East	1st of double onset 2nd of double onset	26	0135 0330 0620 1145 1455 1605	East = center West	Current systems distorted both temporally and spatially within network. Slow onset; response only from stations along auroral oval. Slow onset Substorm expansion northward through Alaskan network.
10			Field unsettled after 1300 UT; no distinct SS activity.	27	0200		Initiation of numerous substorms/injections lasting through 1700 UT.
11	0640 0830 0855 1310 1400 1440 1535 1615 2100 2220	= center	1st of double onset, Alaska only 2nd of double onset, Alaska only 1st of multiple onset 2nd of multiple onset 3rd of multiple onset 4th of multiple onset 5th of multiple onset	28	0105 0500 0535	East East East	Weak SS Weak SS
12	0210 0530 0830 1220 1250	East = center West West West	Weak SS Weak SS 1st of double onset, weak SS 2nd of double onset, weak SS	29	1850		Positive impulse on H component at nearly all network stations; very sharp response at 2045 UT. Effect strongest north of oval, at mid and low latitudes, and at synchronous orbit.
13	0540 0725	East = center	Weak SS	30			Disturbance continued through 0800 UT.
14	1400		Field active north of auroral oval after 1525 UT, Cape Parry to Johnson Point.	31			No distinctive SS activity.
15	0415 0500 1445	East East	Field generally unsettled throughout the day. Weak SS Field active north of oval after 1430 UT, Inuvik to Johnson Point.				
16	0625 0700	= center = center	1st of double onset 2nd of double onset				
17			Field slightly unsettled; no distinctive SS activity.				



SGD 418 Part I (Prompt)

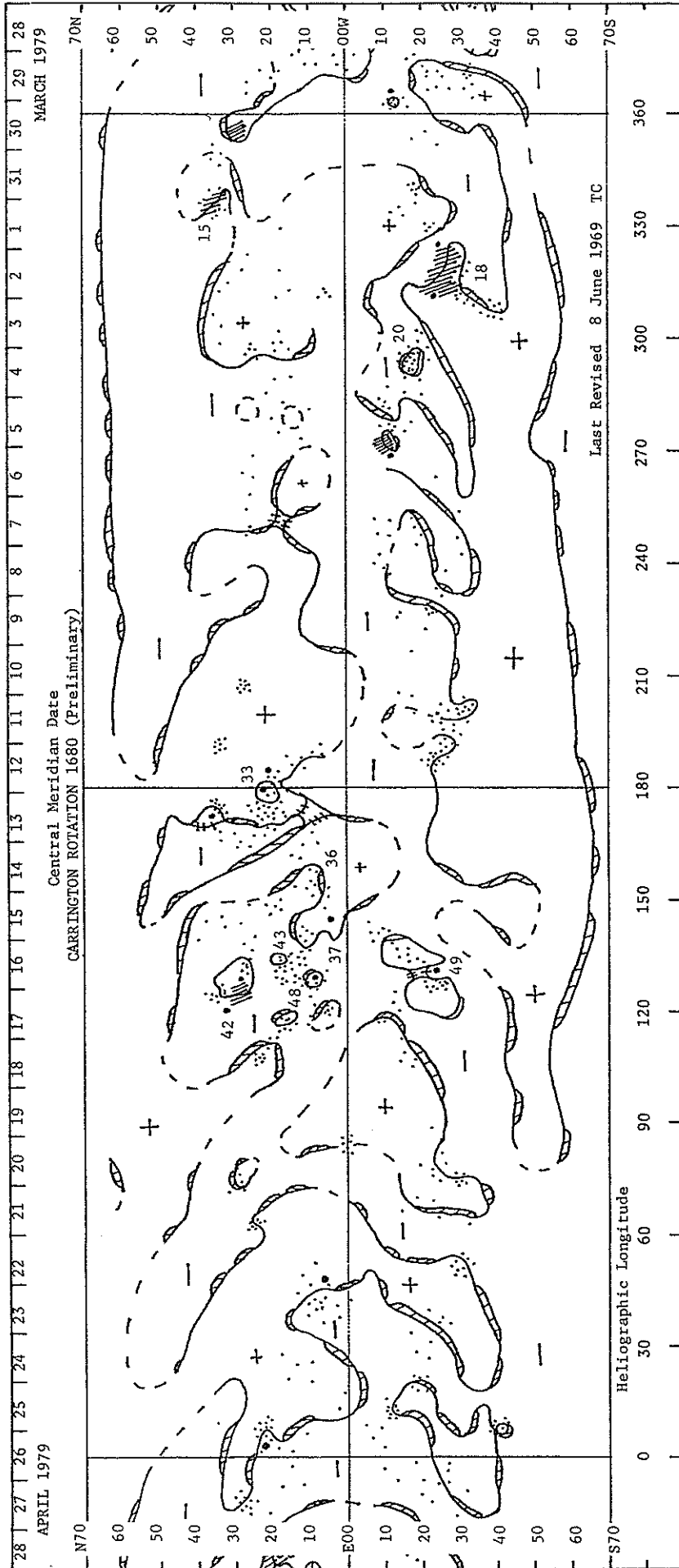
APRIL 1979 DATA

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H α SYNOPTIC CHART

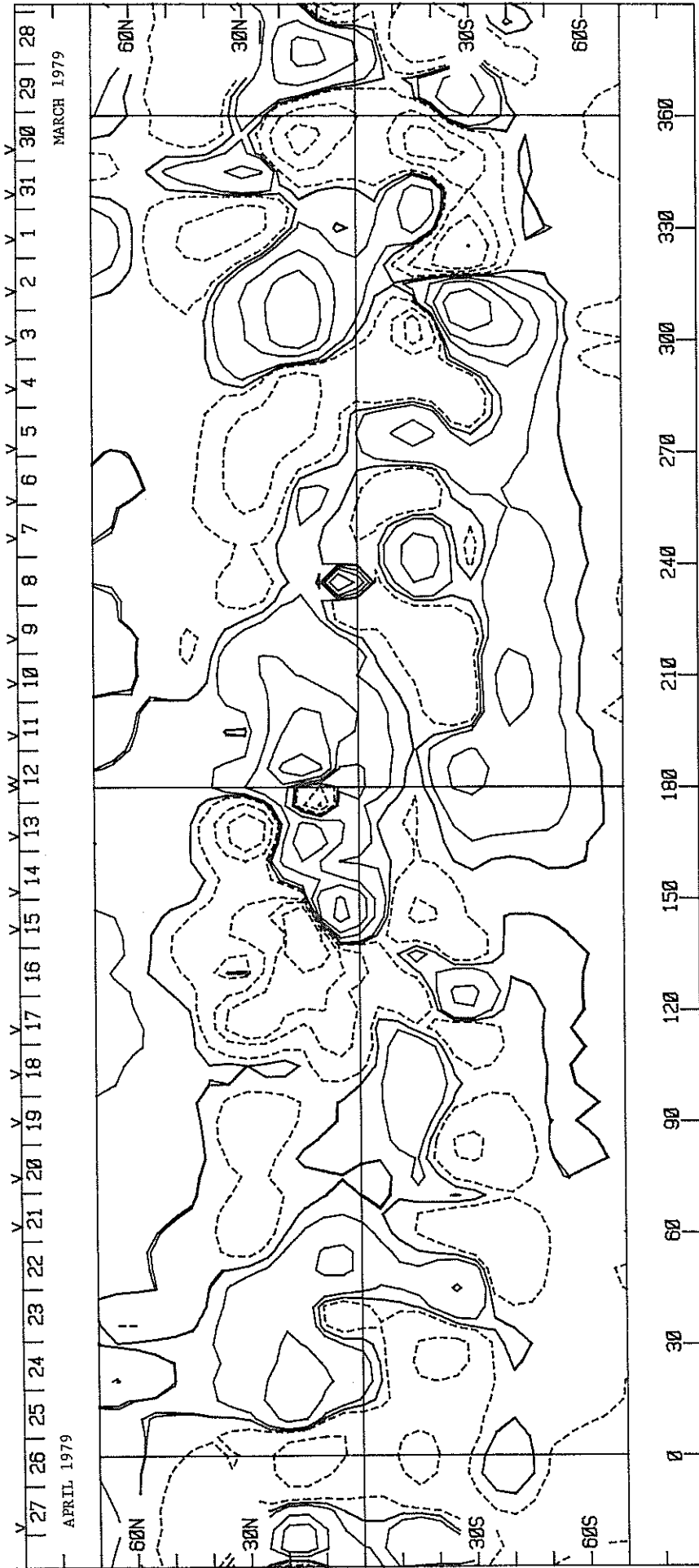
CARRINGTON ROTATION 1680 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1680

Stanford Solar Observatory

0, ±100, 200, 500... μT

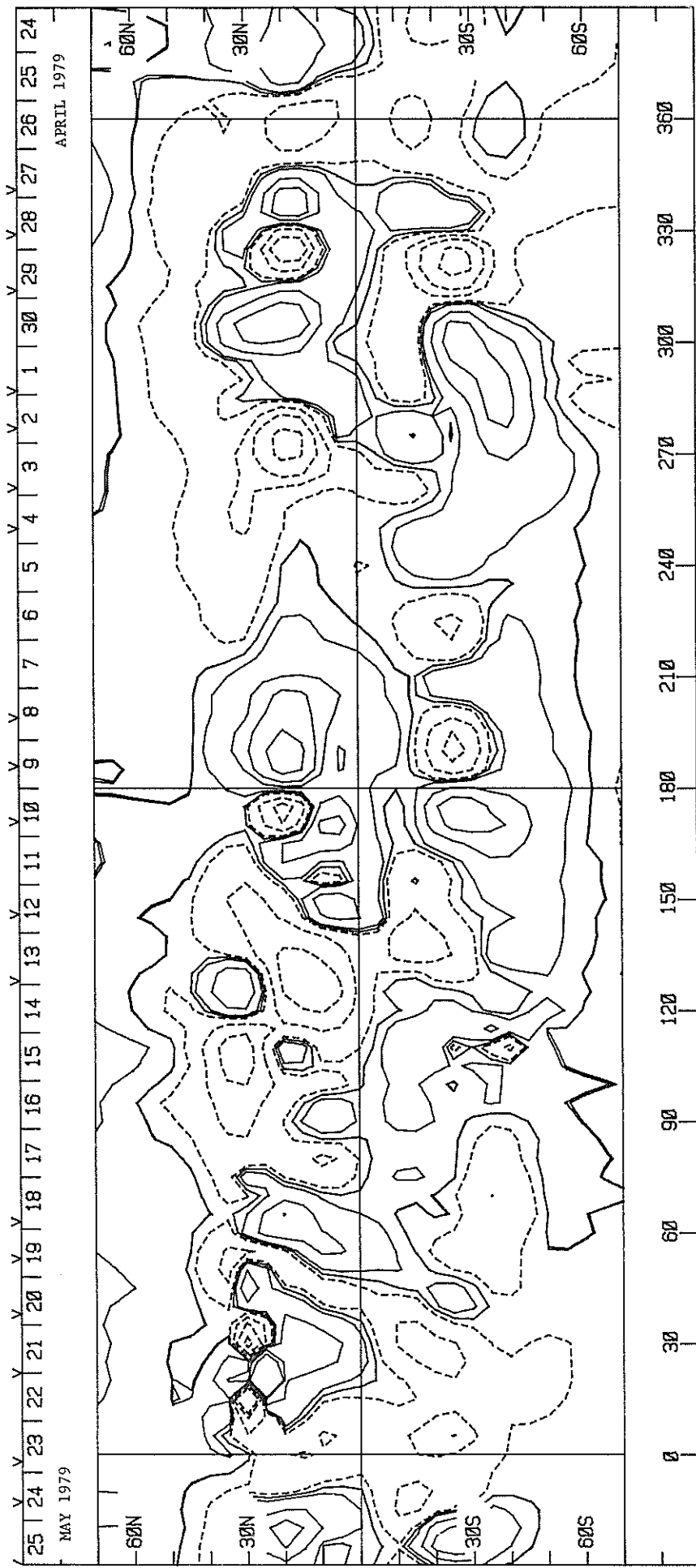


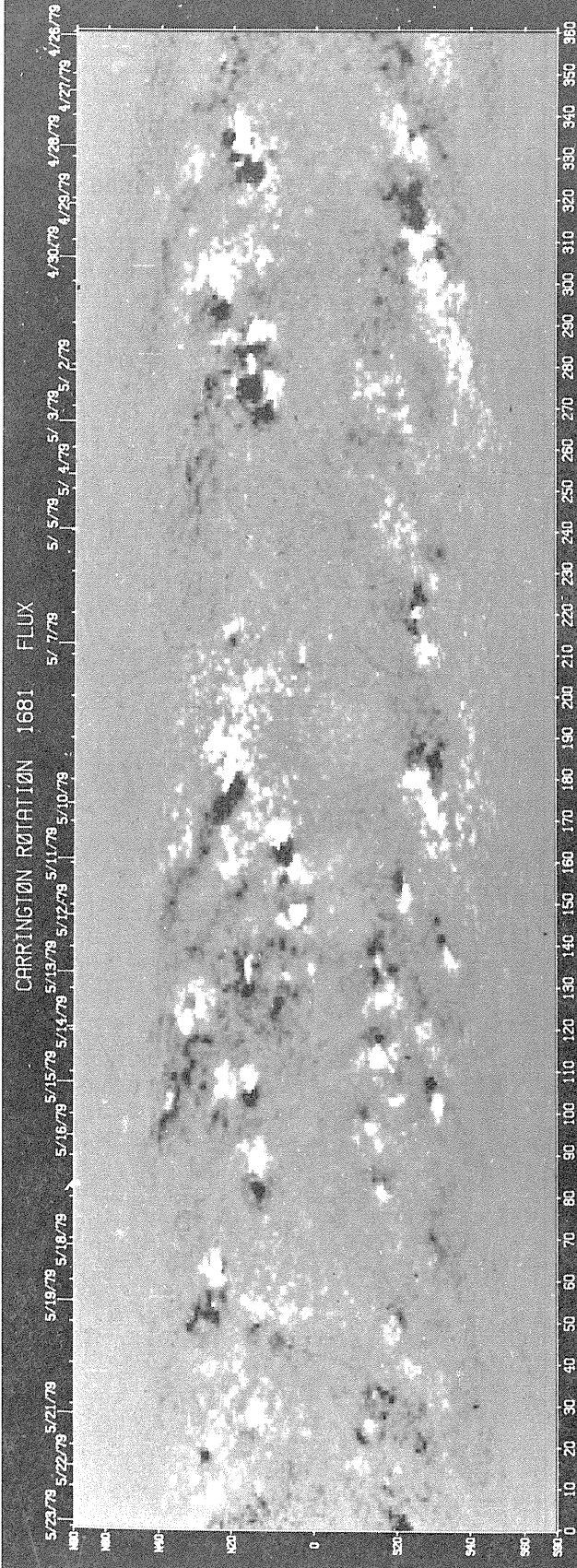
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1681

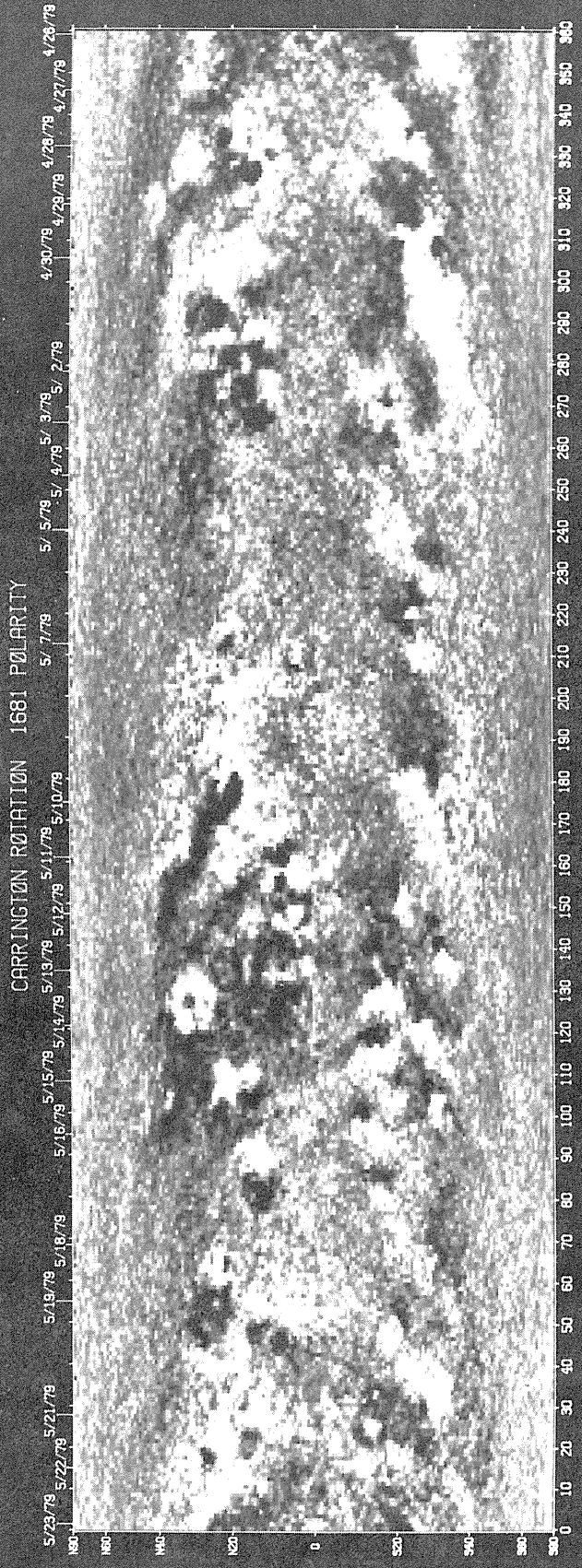
Stanford Solar Observatory

0, ±100, 200, 500... μT



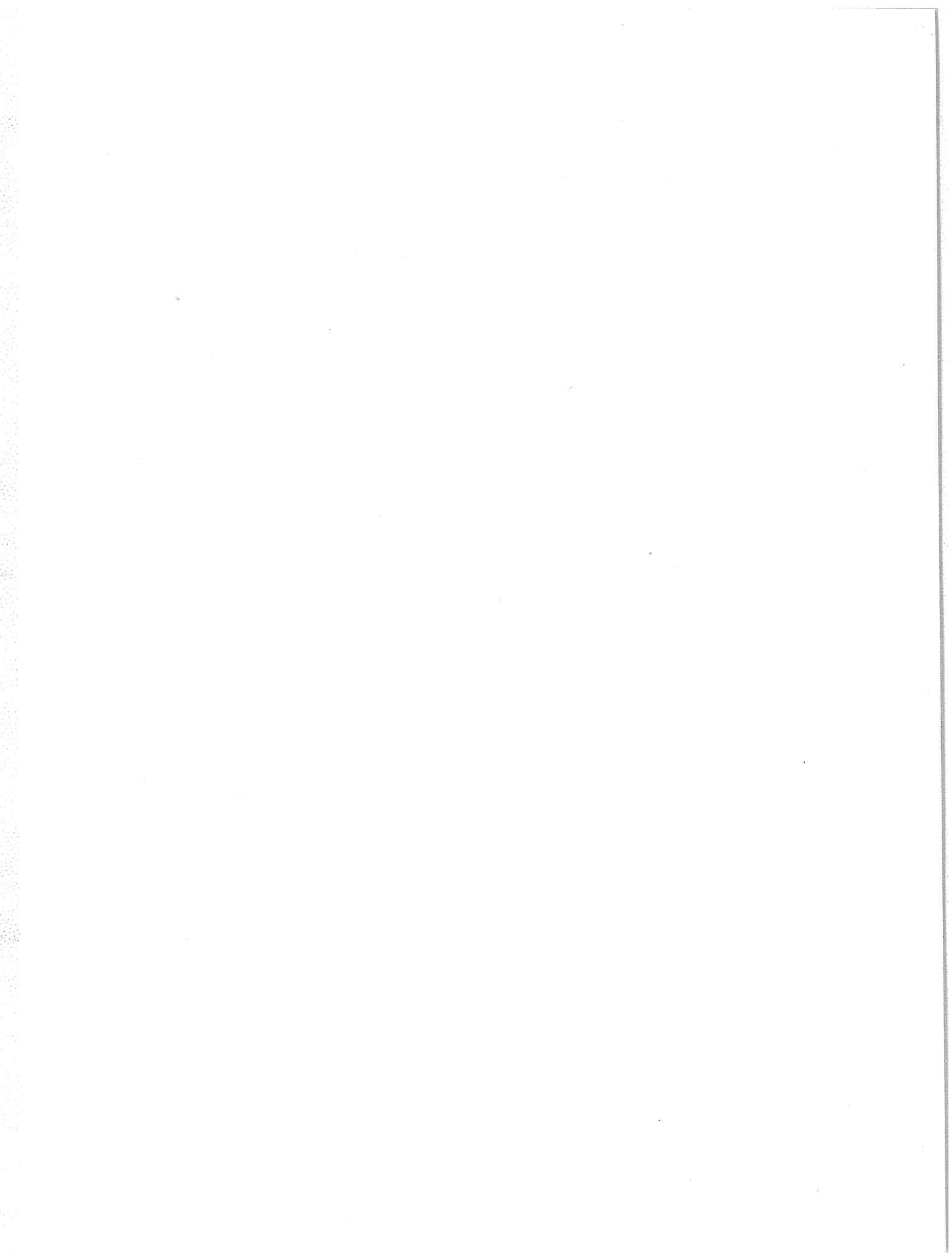


KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART



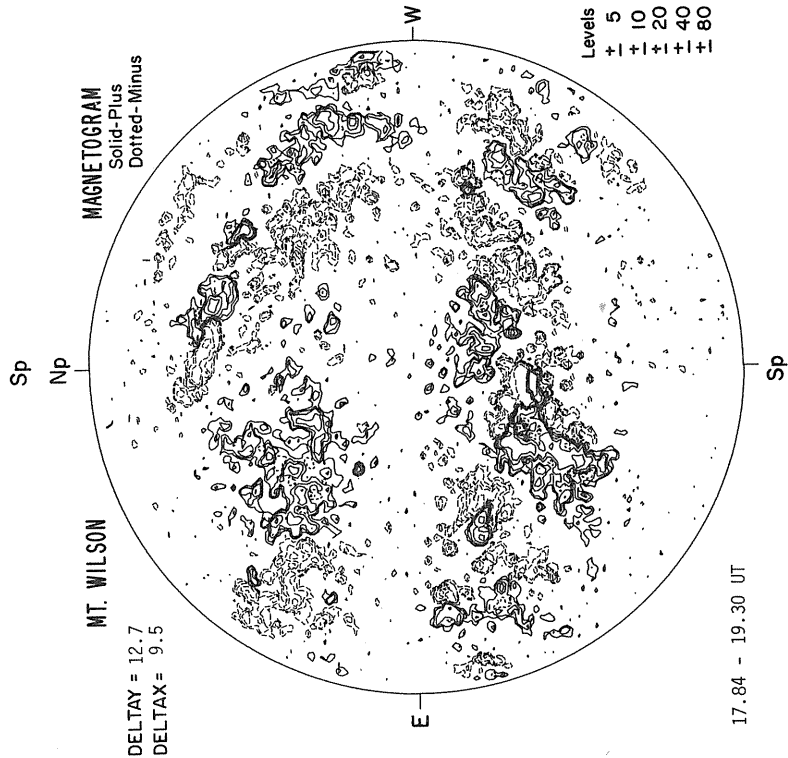
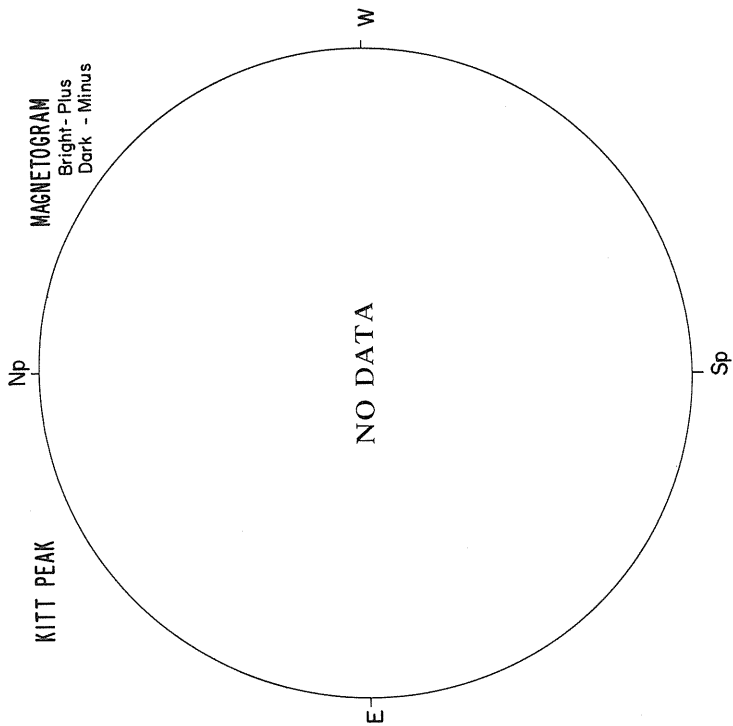
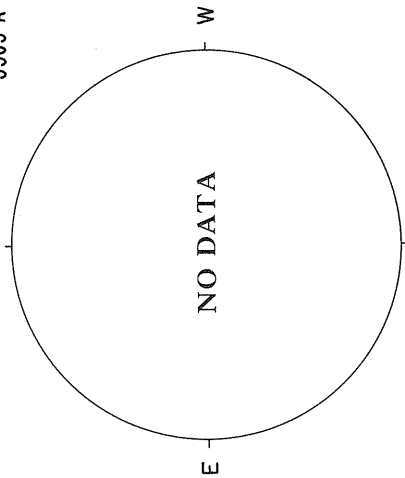
DESCRIPTION OF
KITT PEAK NATIONAL OBSERVATORY SOLAR MAGNETIC FIELD SYNOPTIC CHART

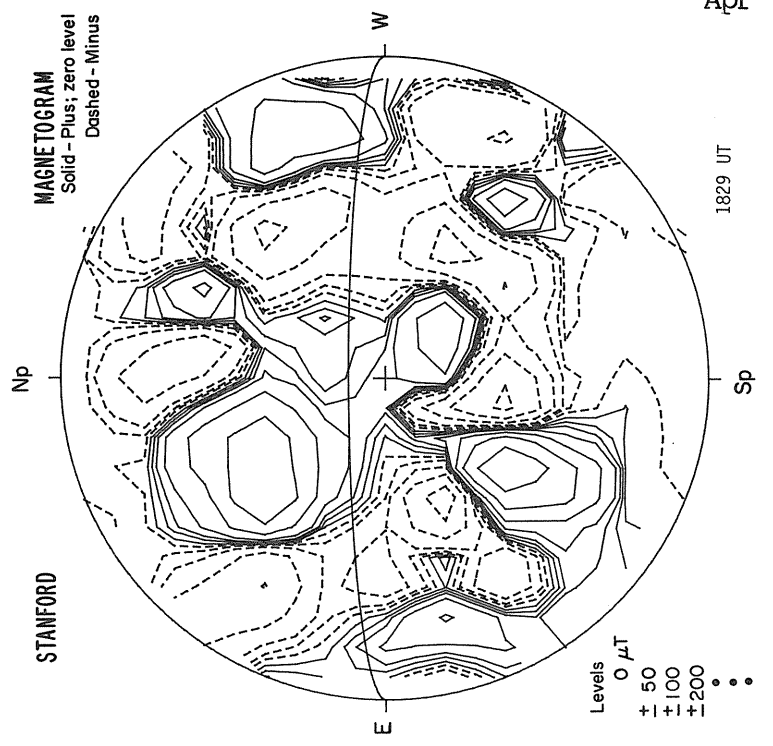
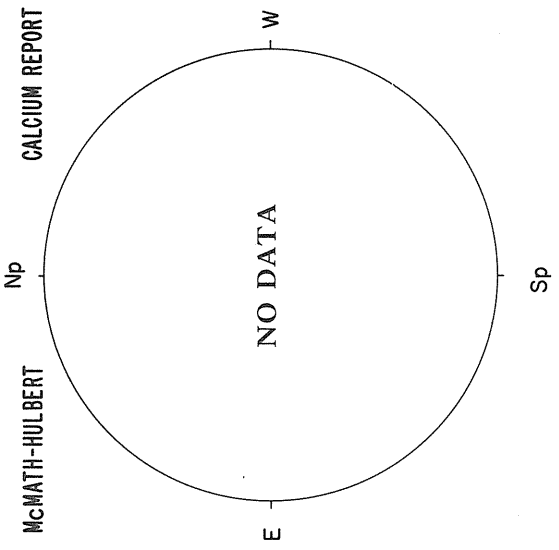
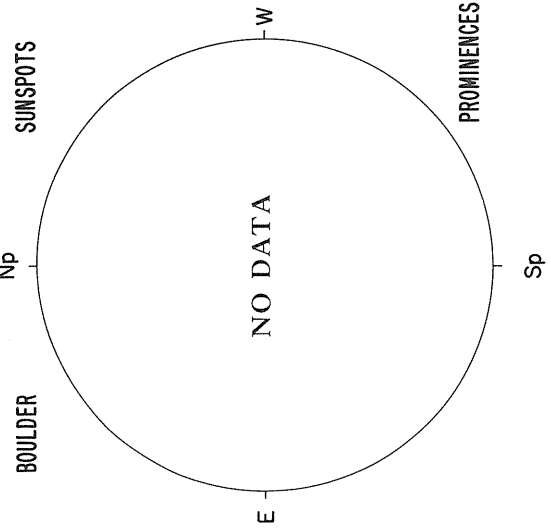
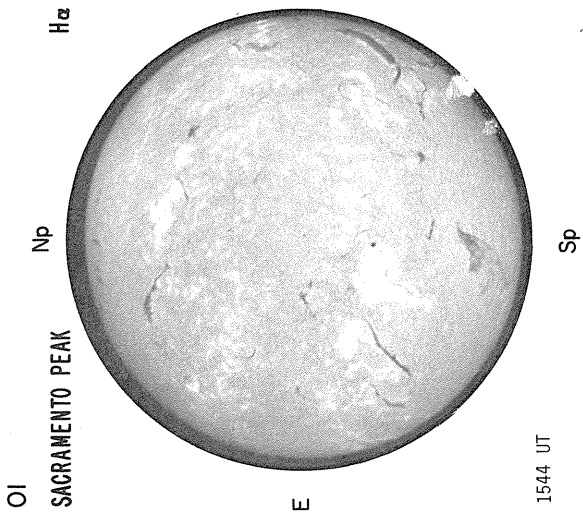
The format of these maps matches the standard width of the other synoptic charts in *Solar Geophysical Data*. The maps are derived from arrays of 360 elements in longitude (1° bins) and 180 elements equally spaced in sine of the latitude. The projection is an equal area cylindrical projection. The map labeled "flux" shows the average field strength in each bin weighted heavily toward the central meridian observations. Grey is no field, white is positive, and black is negative. The map labeled "polarity" shows the average polarity in each bin. Full white (black) means all the magnetic measurements were positive (negative) polarity. Intermediate shades of grey represent mixtures of positive and negative values.



APRIL 1, 1979 (P = -26.18, B₀ = -6.56 L₀ = 337.22)

SACRAMENTO PEAK
CORONA (1.15 R₀)
5303 Å



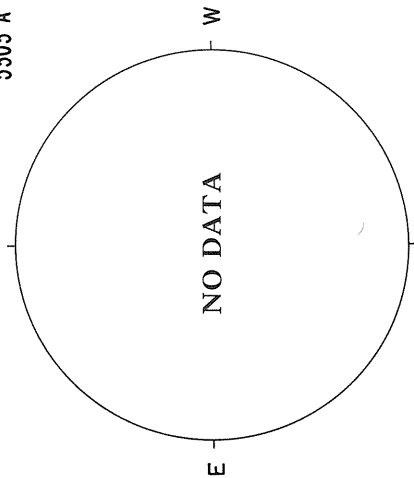


APRIL 2, 1979 (P = -26.22, B₀ = -6.50, L₀ = 324.03)

CORONA (1.15 R_☉)
5303 Å

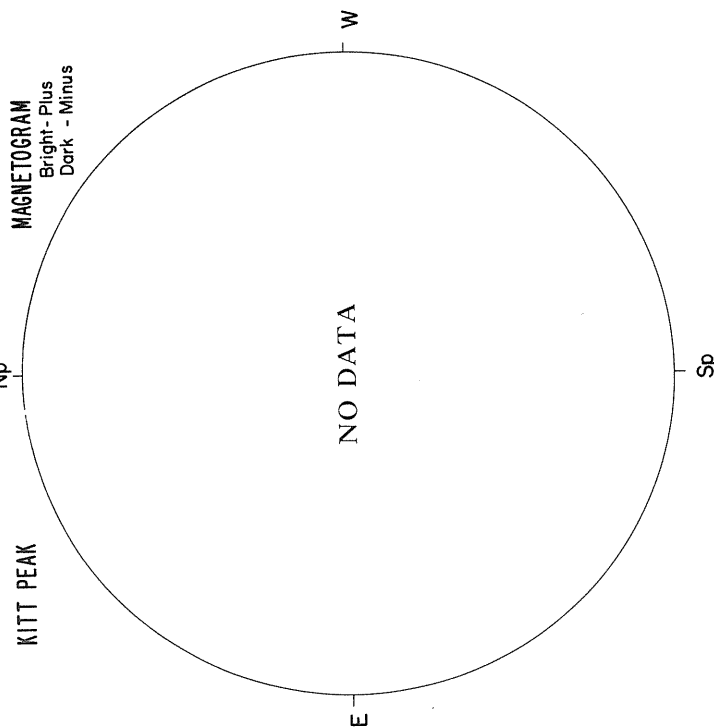
SACRAMENTO PEAK

Np



KITT PEAK

Np

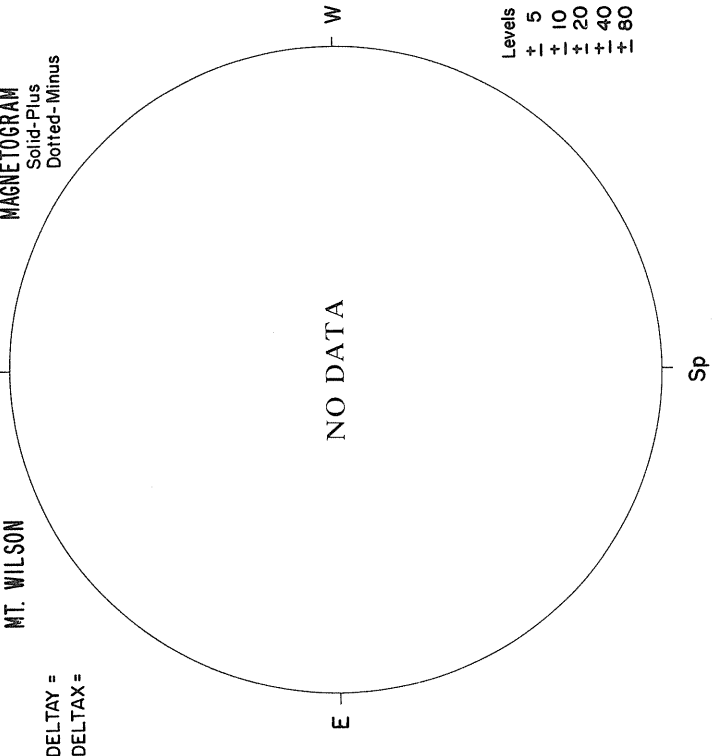


MAGNETOGRAM
Bright- Plus
Dark - Minus

MT. WILSON

Sp
Np

MAGNETOGRAM
Solid- Plus
Dotted- Minus



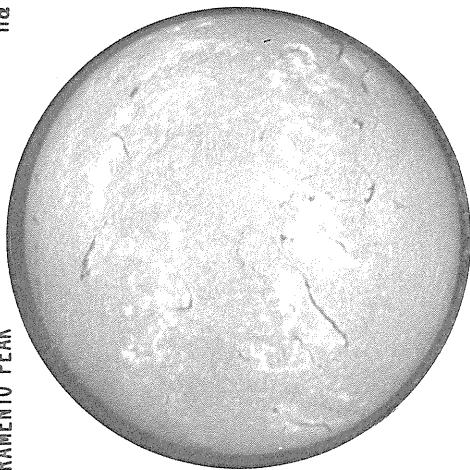
DELTA Y =
DELTA X =

Levels
+ 5
+ 10
+ 20
+ 40
+ 80

O2

SACRAMENTO PEAK

Np



E

1509 UT

H α

BOULDER

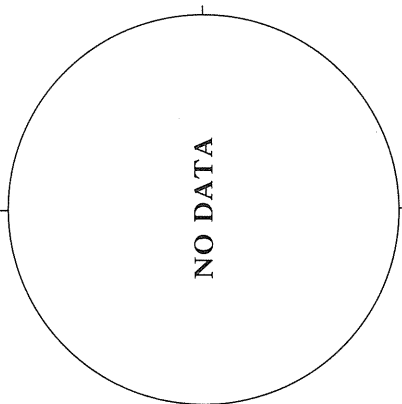
Np

SUNSPOTS

McMATH-HULBERT

Np

CALCIUM REPORT



NO DATA

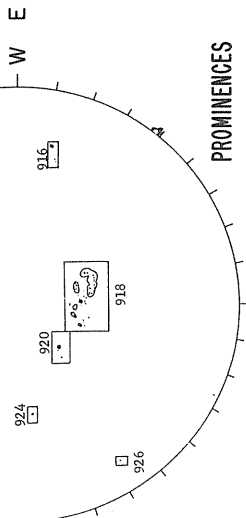
W

PROMINENCES

1558 UT

Sp

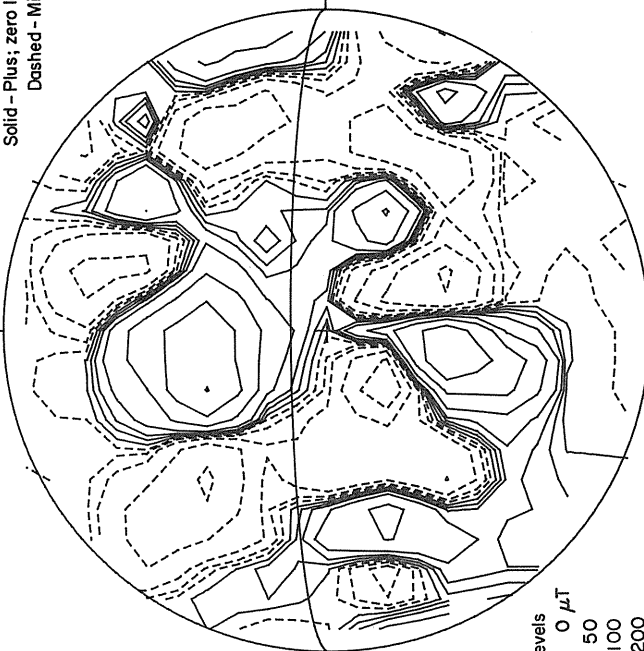
1558 UT



STANFORD

Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



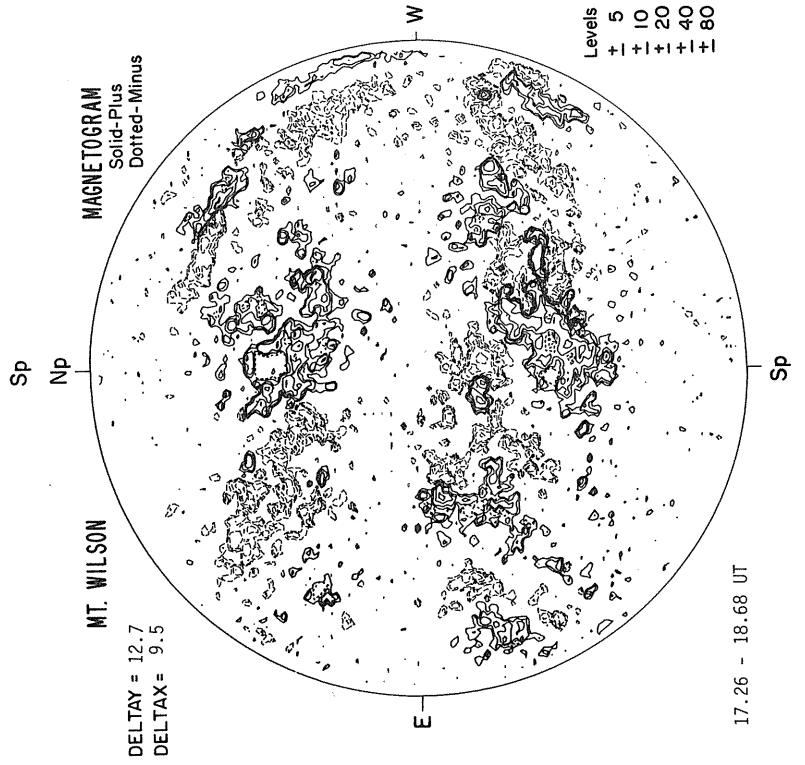
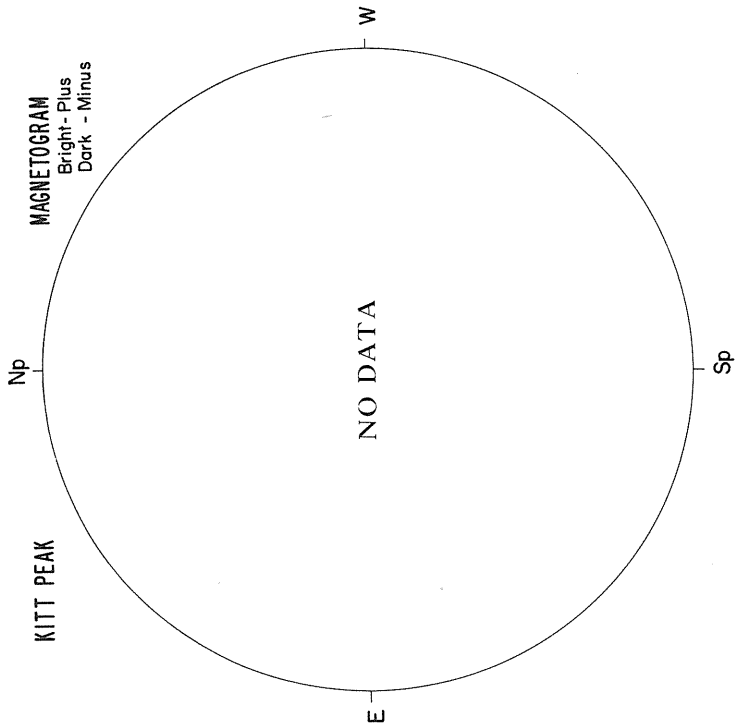
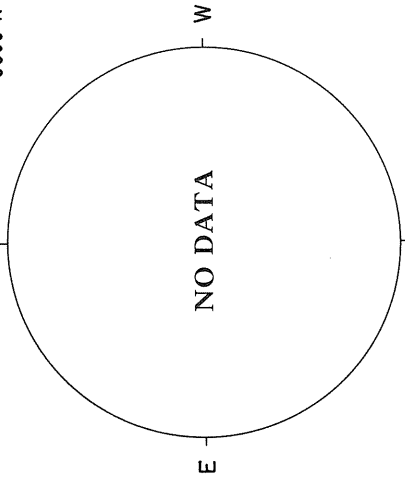
Levels
0 μT
 ± 50
 ± 100
 ± 200
 ± 300

1918 UT

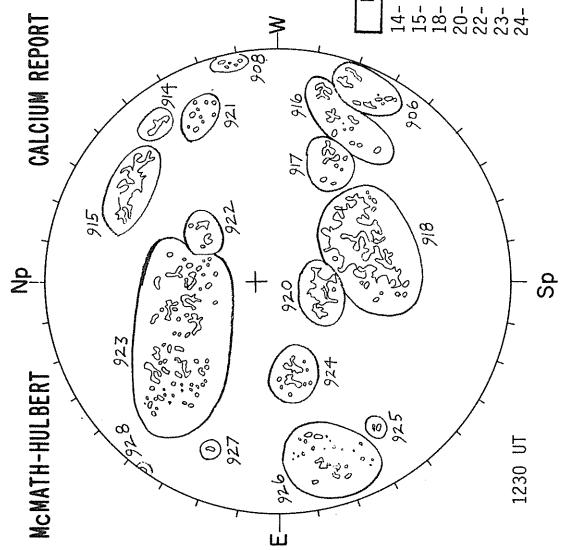
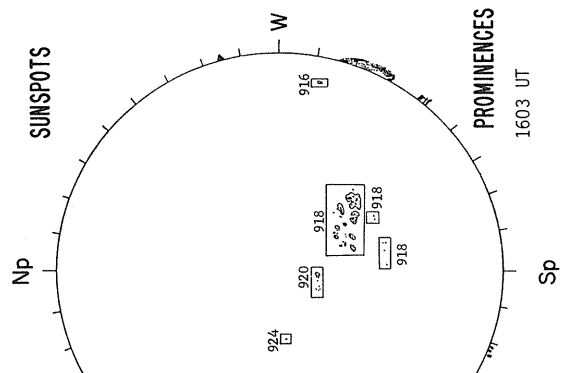
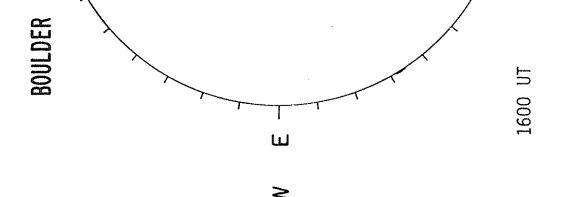
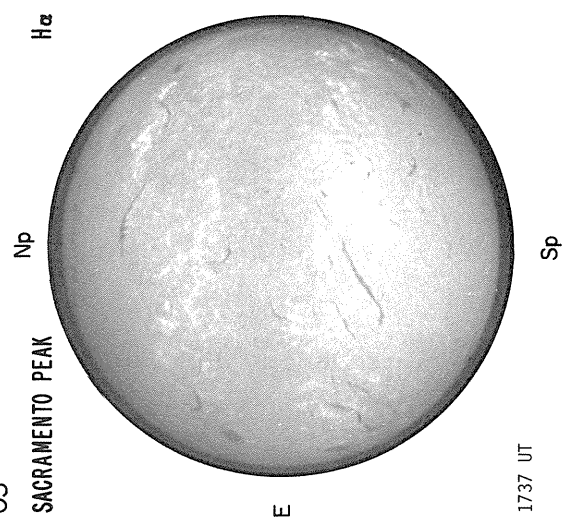
Sp

APRIL 3, 1979 (P = -26.26, B₀ = -6.45, L₀ = 310.83)

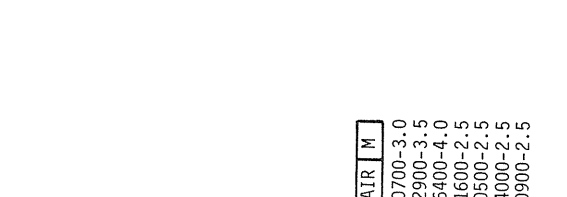
SACRAMENTO PEAK
CORONA (1.15 R₀)
5303 Å



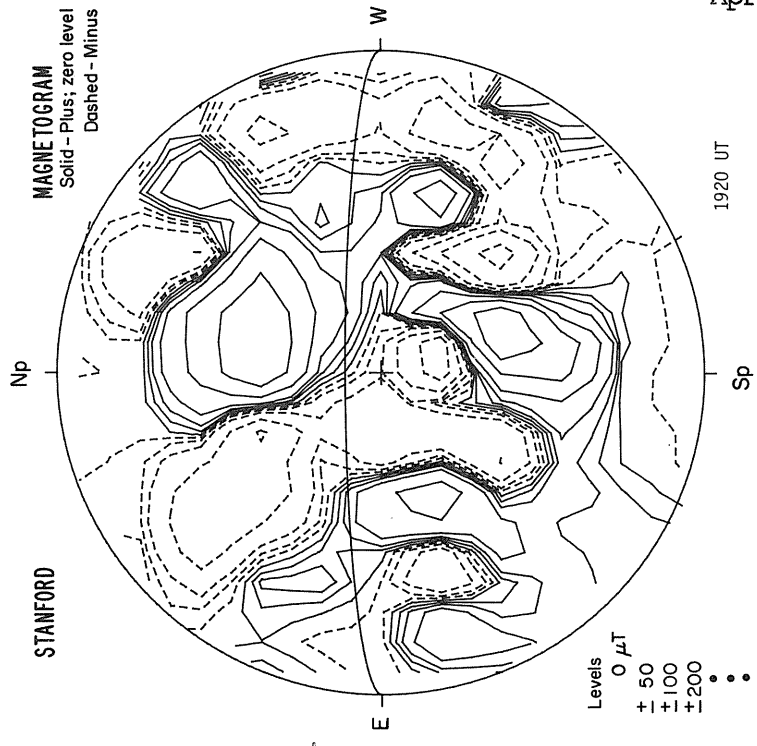
O3



FAIR	M
14-	0700-3.0
15-	2900-3.5
18-	6400-4.0
20-	1600-2.5
22-	0500-2.5
23-	4000-2.5
24-	0900-2.5



STANFORD



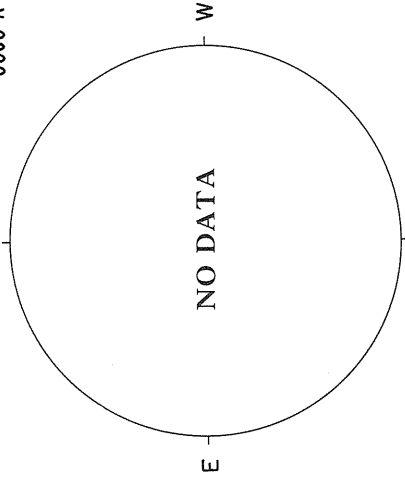
Levels
0 μT
± 50
± 100
± 200

APRIL 4, 1979 (P = -26.28, B₀ = -6.39, L₀ = 297.64)

CORONA (1.15 R₀)
5303 Å

SACRAMENTO PEAK

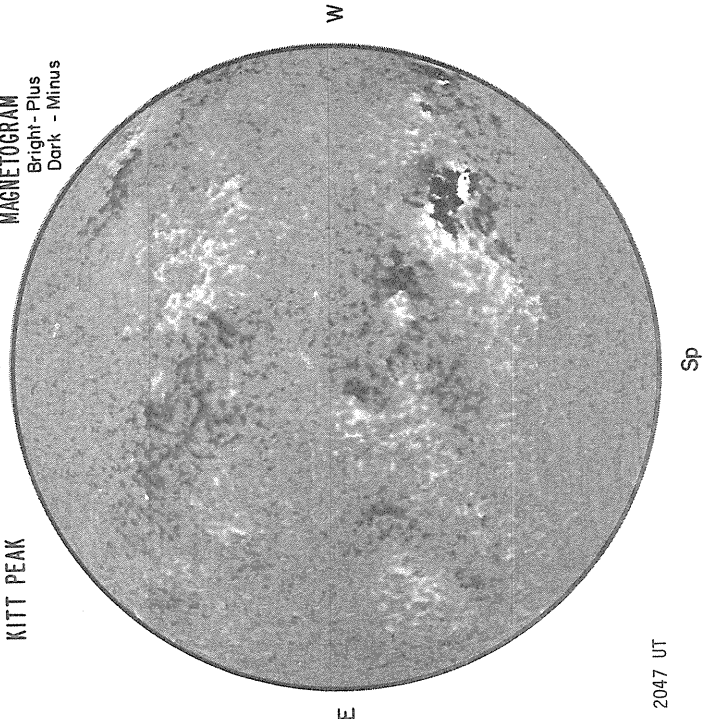
Np



KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

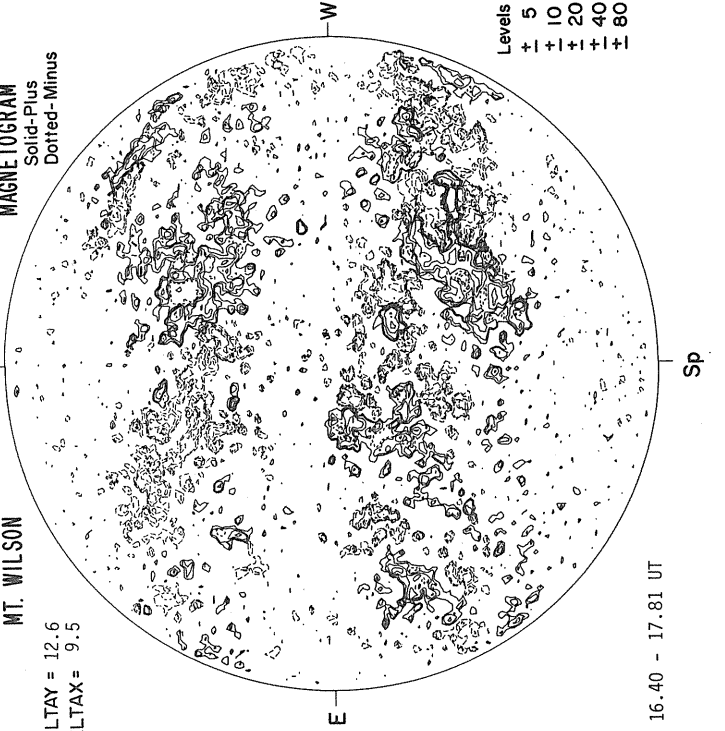


MT. WILSON

Sp
Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

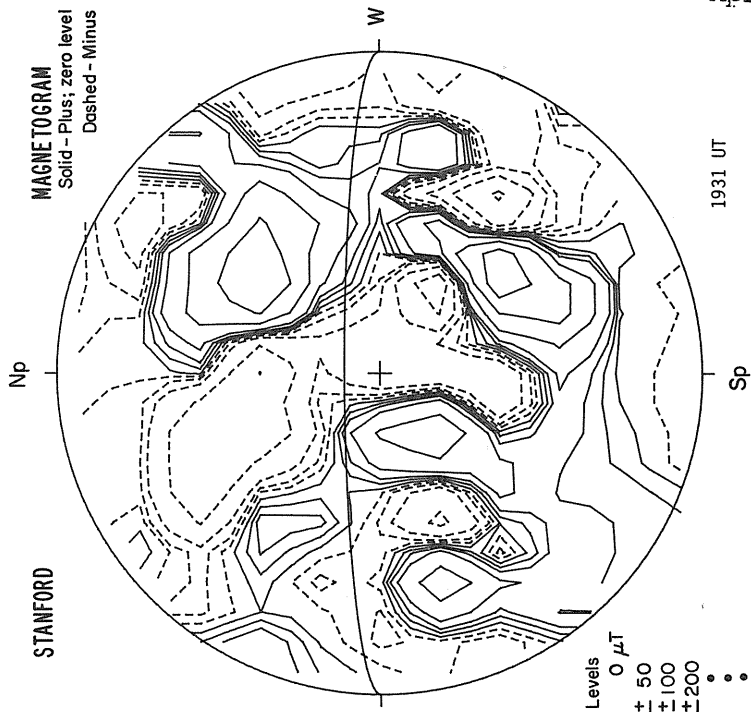
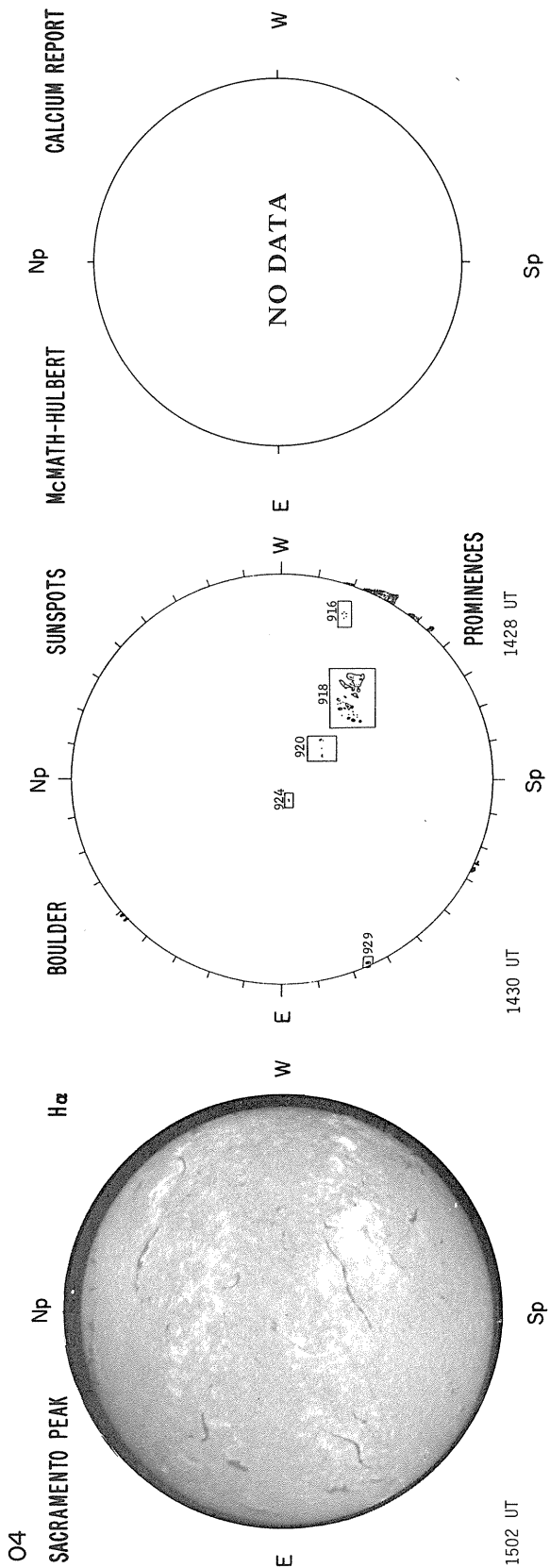
DELTA TAY = 12.6
DELTA TAX = 9.5



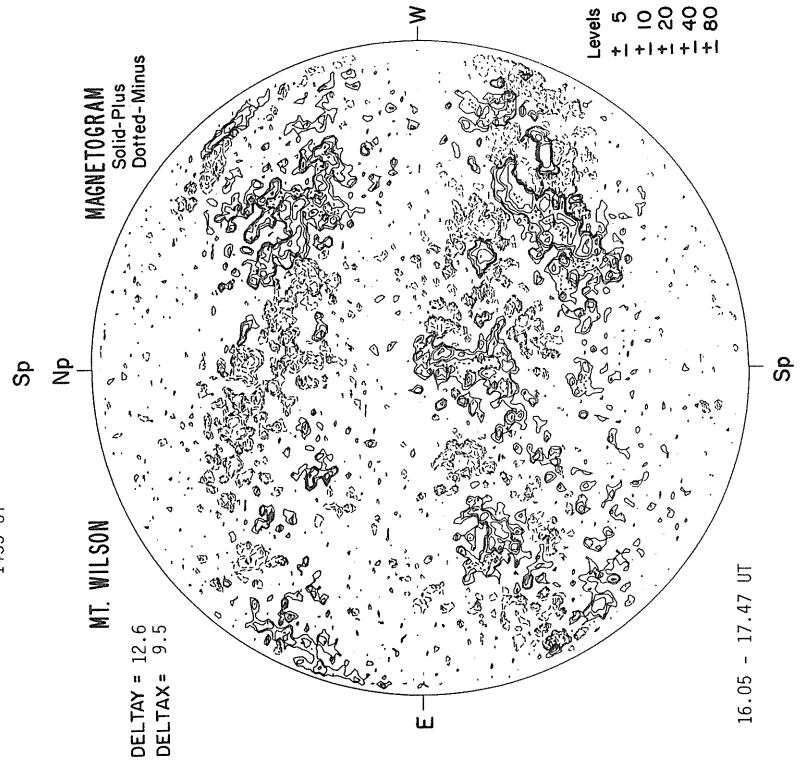
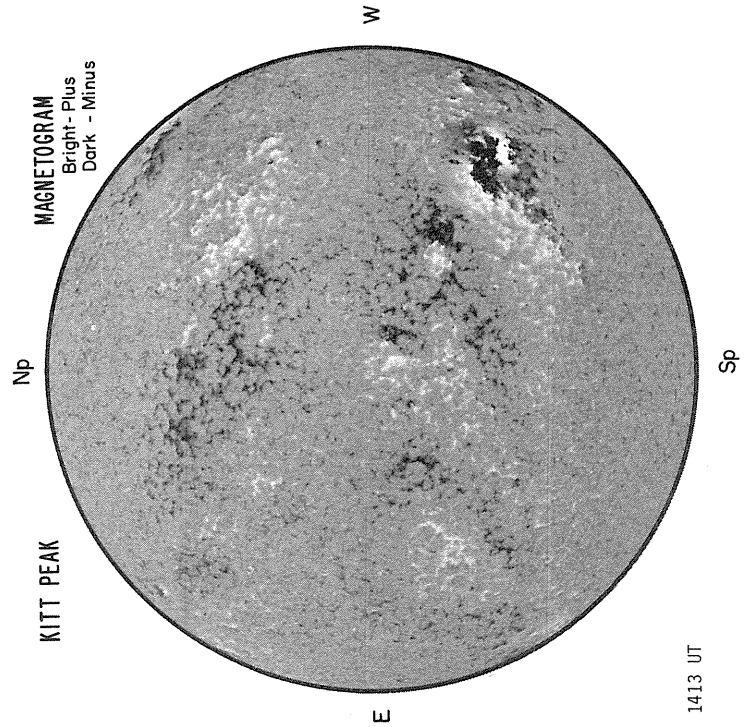
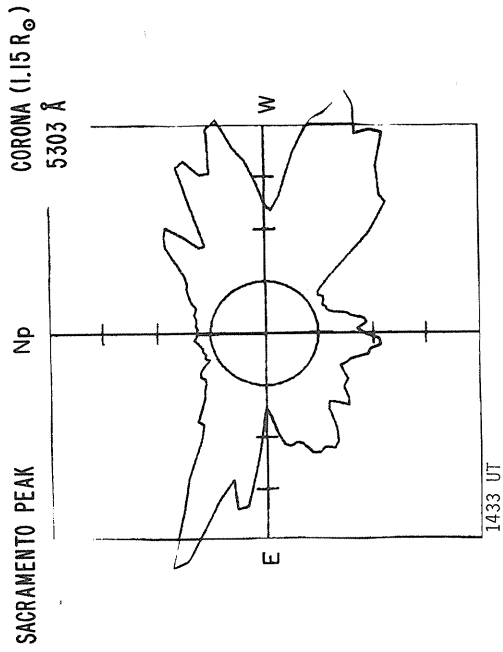
Levels
+ 5
+ 10
+ 20
+ 40
+ 80

2047 UT

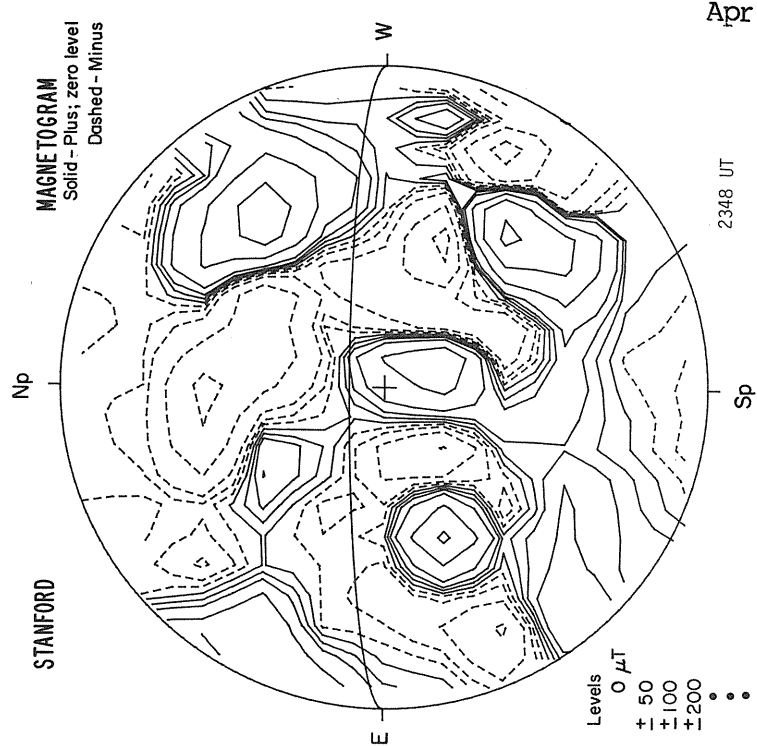
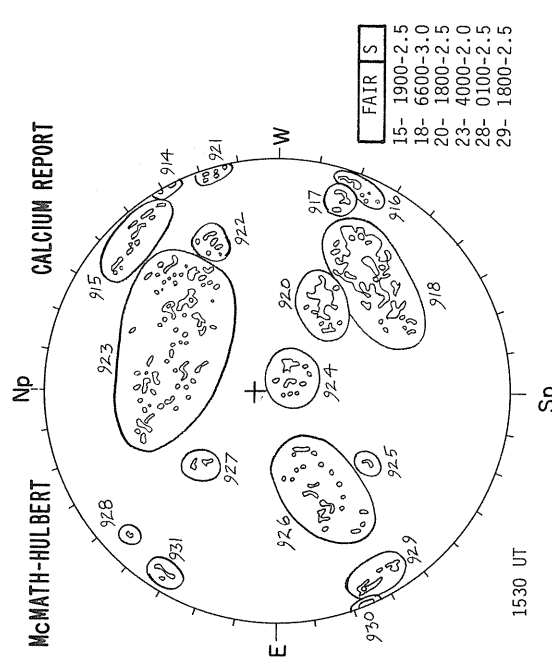
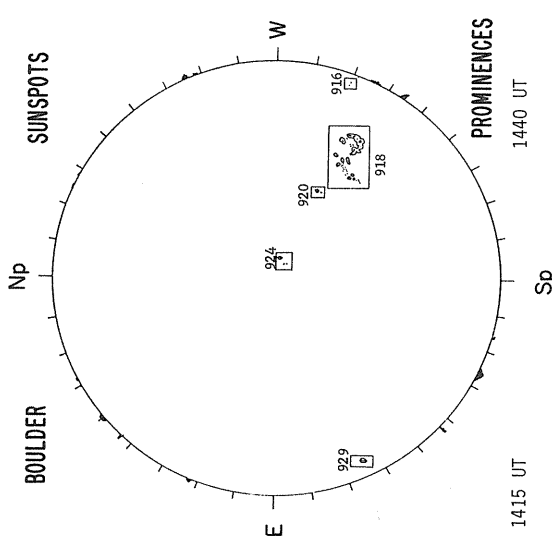
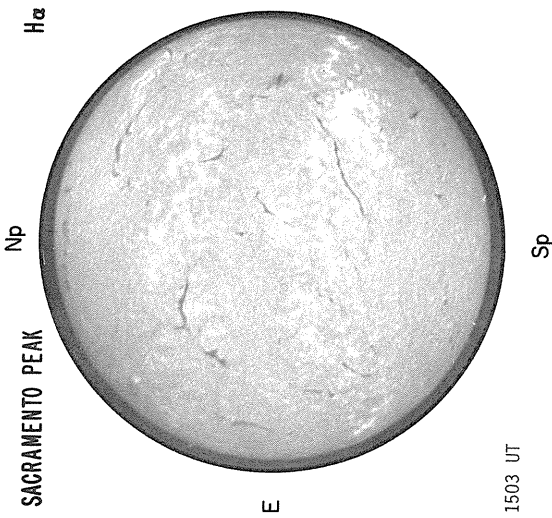
16.40 - 17.81 UT



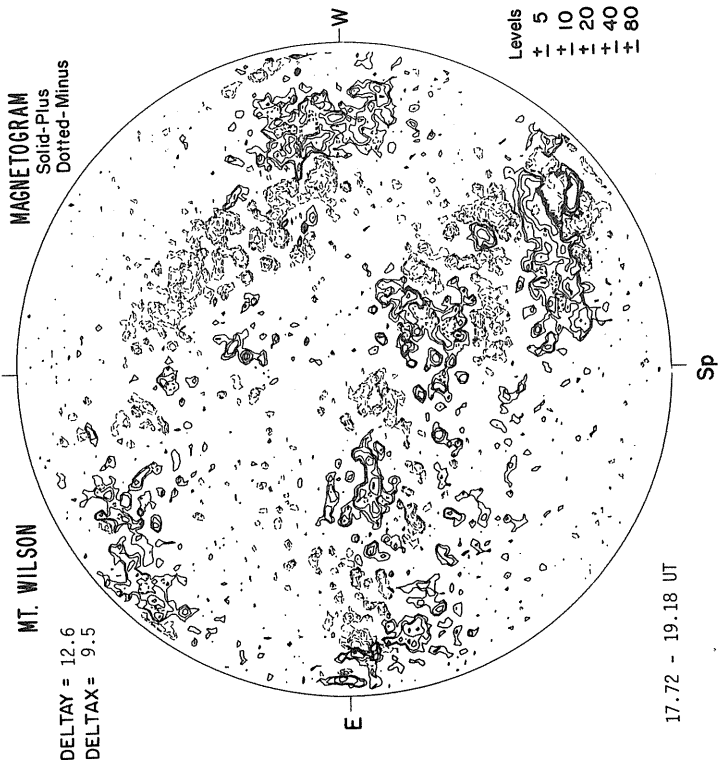
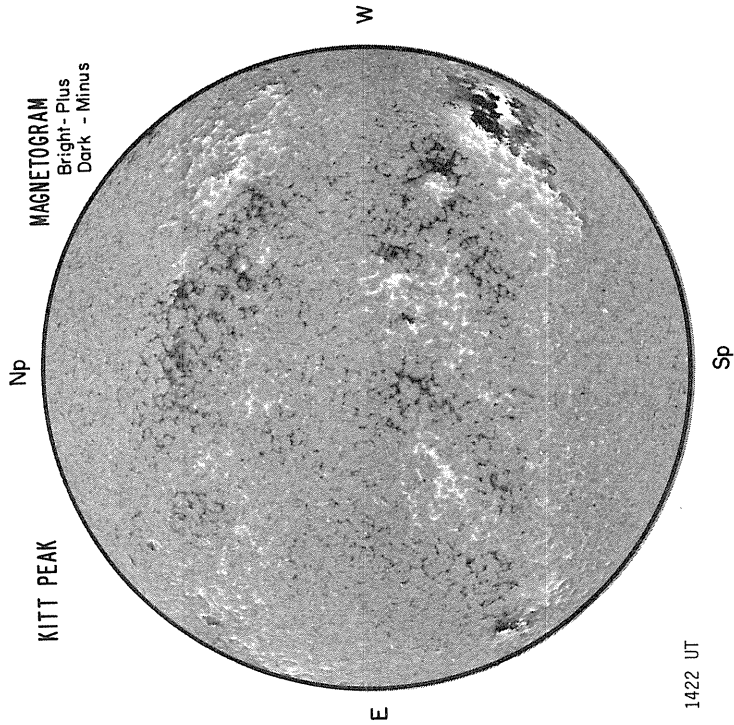
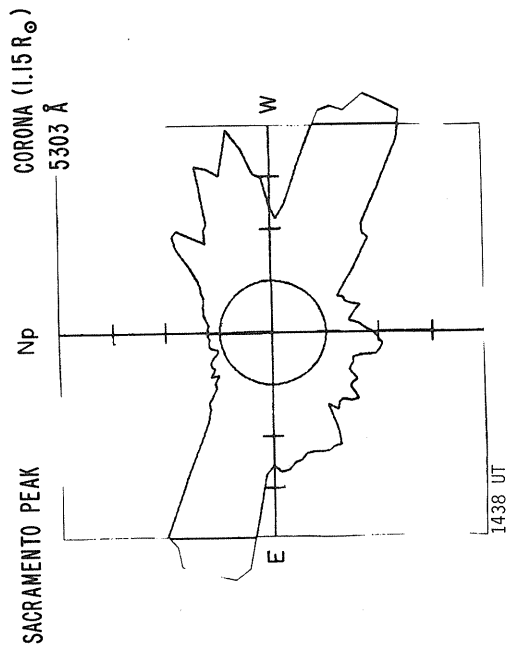
APRIL 5, 1979 (P = -26.30, B₀ = -6.33, L₀ = 284.44)



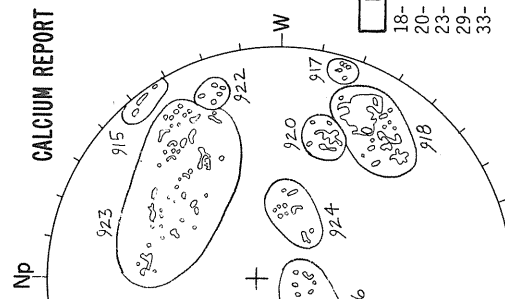
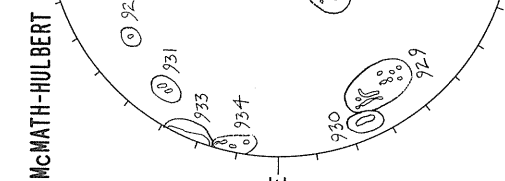
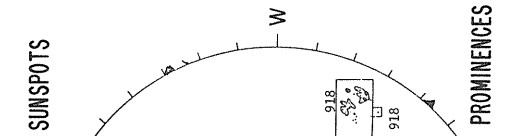
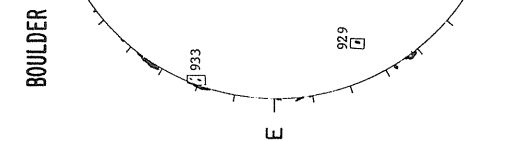
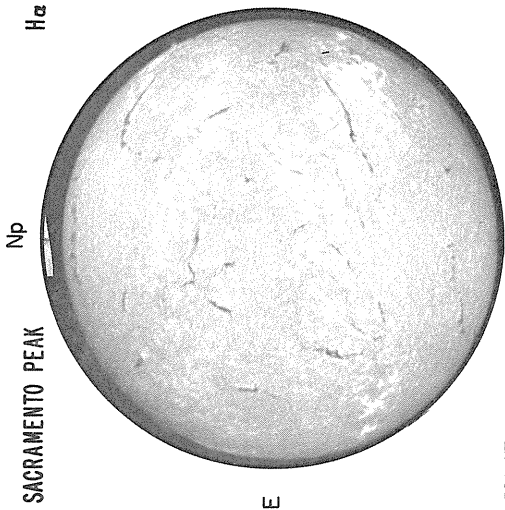
O5



APRIL 6, 1979 (P = -26.32, B₀ = -6.27, L₀ = 271.25)



06



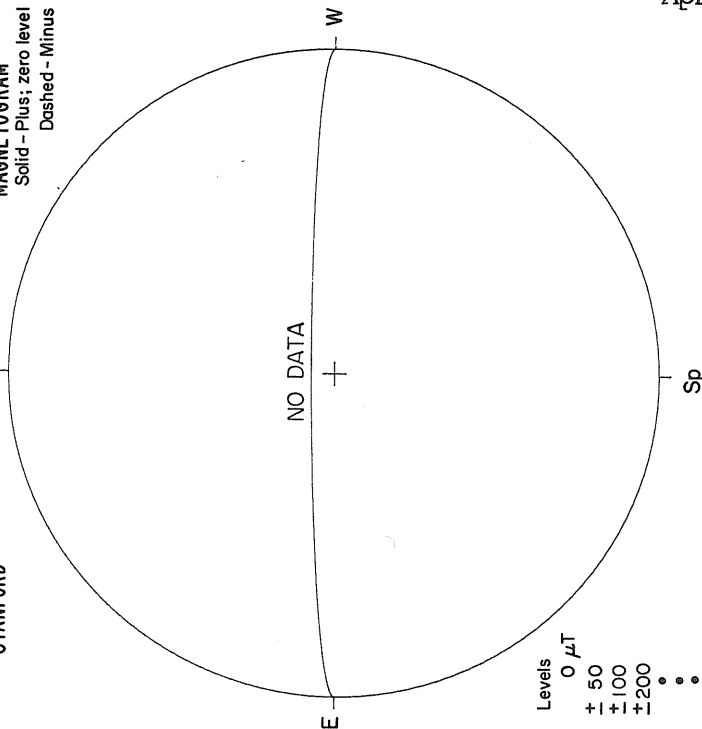
POOR	S
18-	6500-3.0
20-	1400-2.5
23-	3500-2.0
29-	1700-2.5
33-	2700-3.5

PROMINENCES

STANFORD

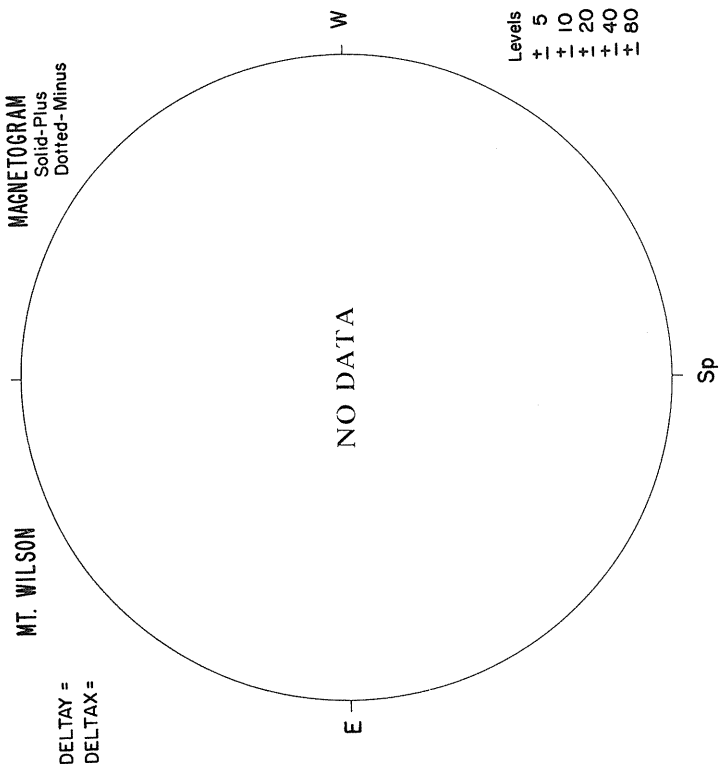
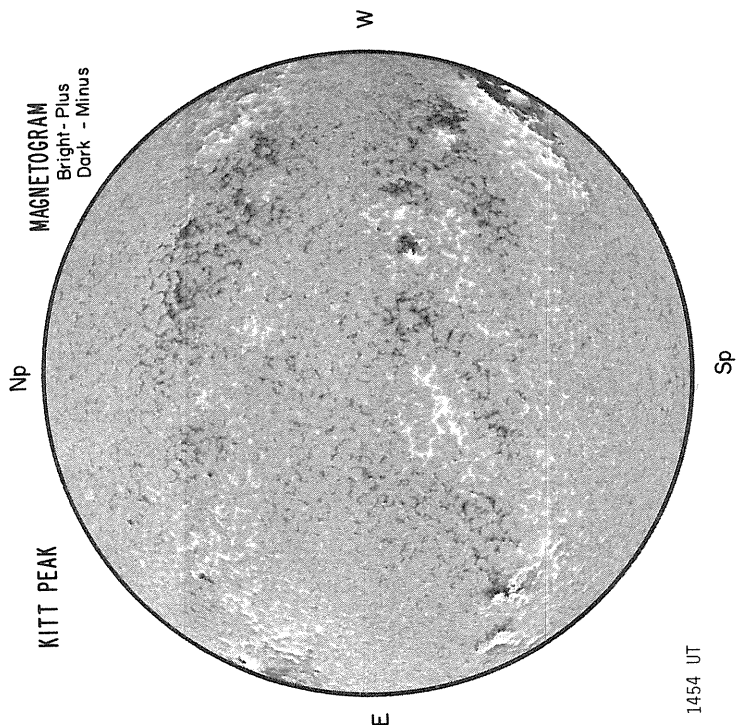
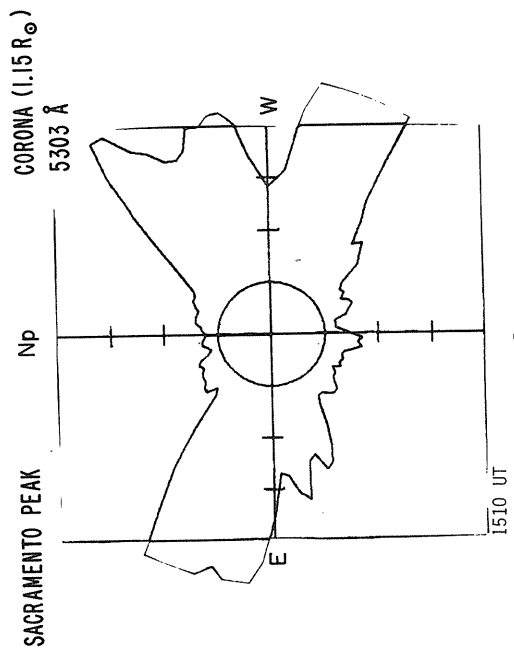
Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

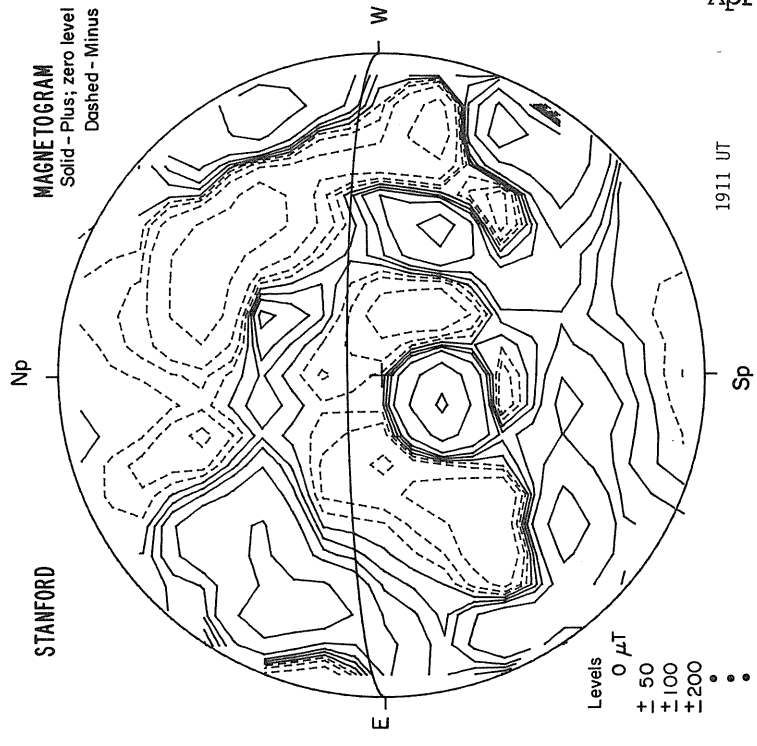
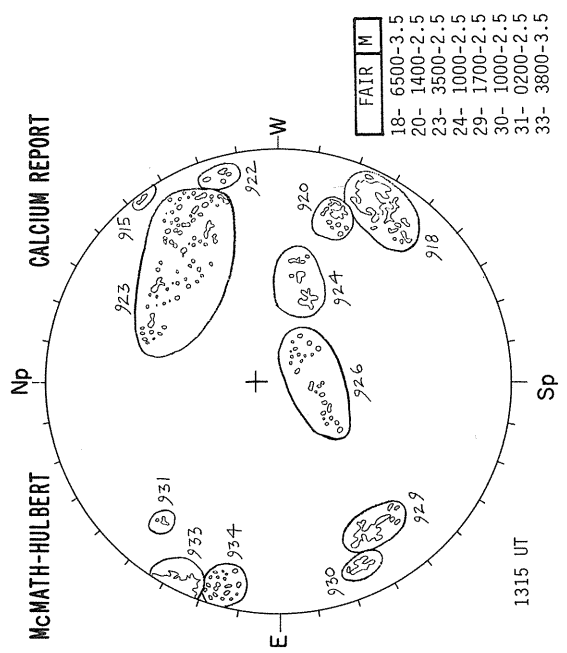
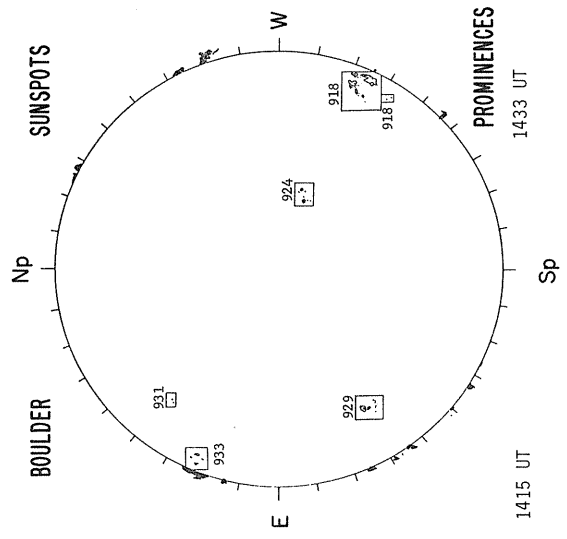
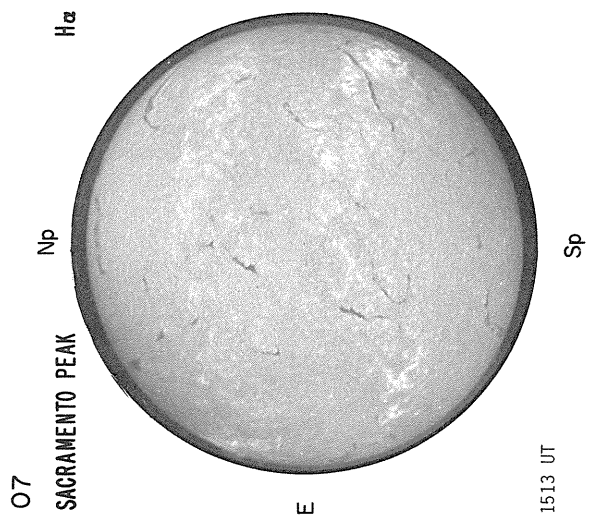


Levels
0 μ T
+ 50
+ 100
+ 200
•
•

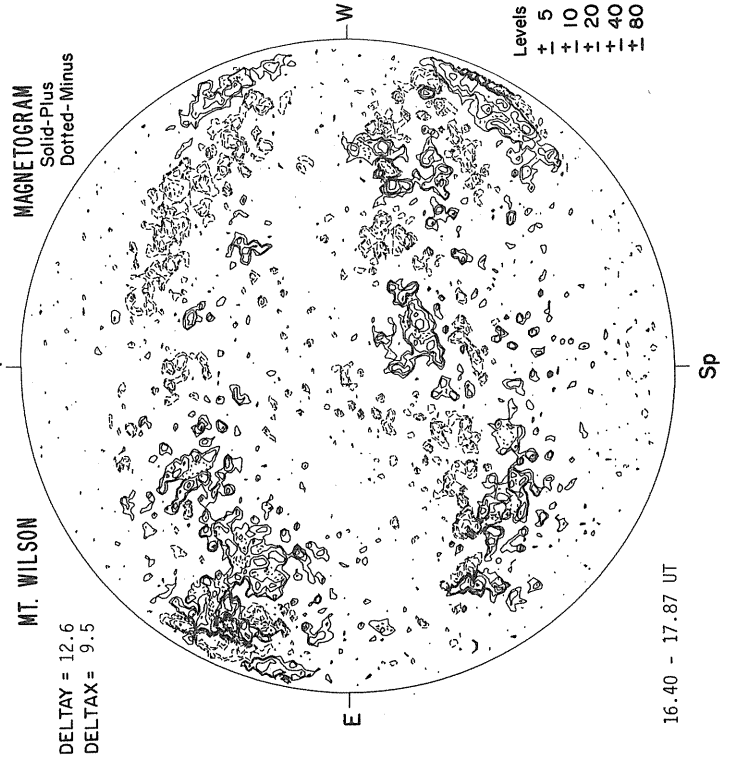
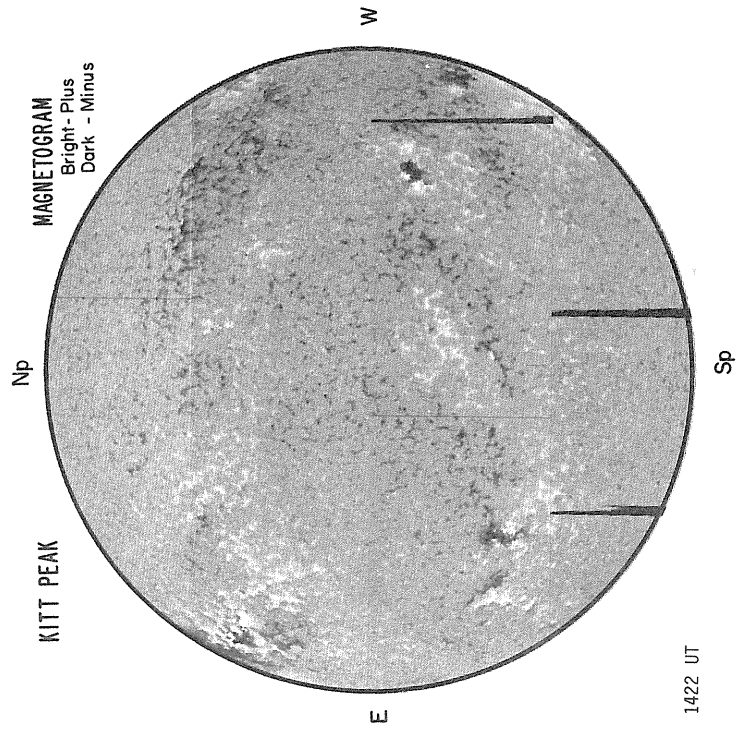
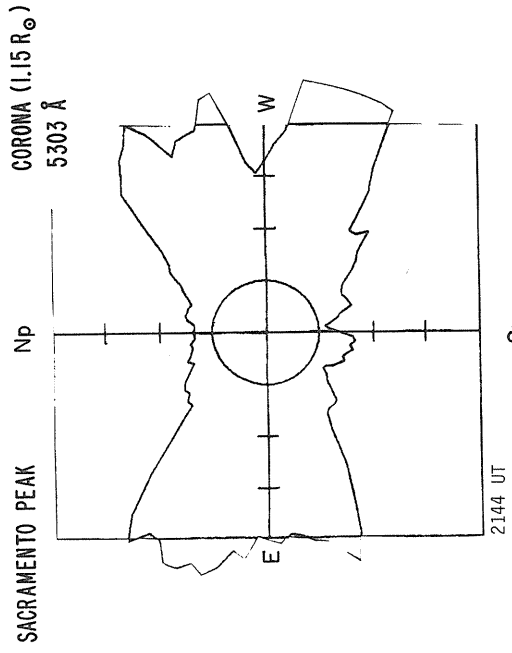
APRIL 7, 1979 (P = -26.33, B₀ = -6.20, L₀ = 258.05)



Levels
+ 5
+ 10
+ 20
+ 40
+ 80



APRIL 8, 1979 (P = -26.32, B₀ = -6.14, L₀ = 244.85)

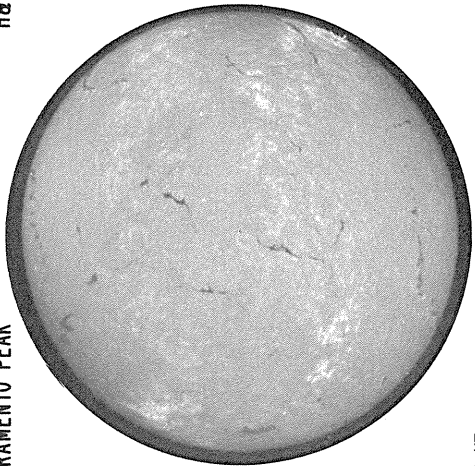


O8

SACRAMENTO PEAK

Np

H α



E

1510 UT

Sp

BOULDER

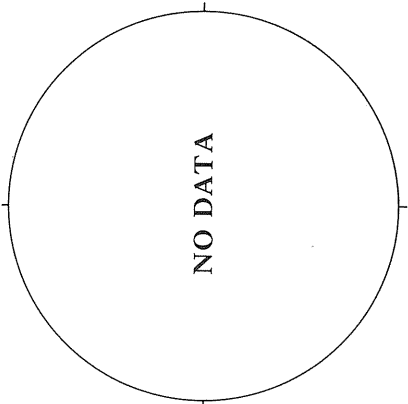
Np

SUNSPOTS

McMATH-HULBERT

CALCIUM REPORT

Np



W

Sp

W E

PROMINENCES

1452 UT

Sp

1445 UT

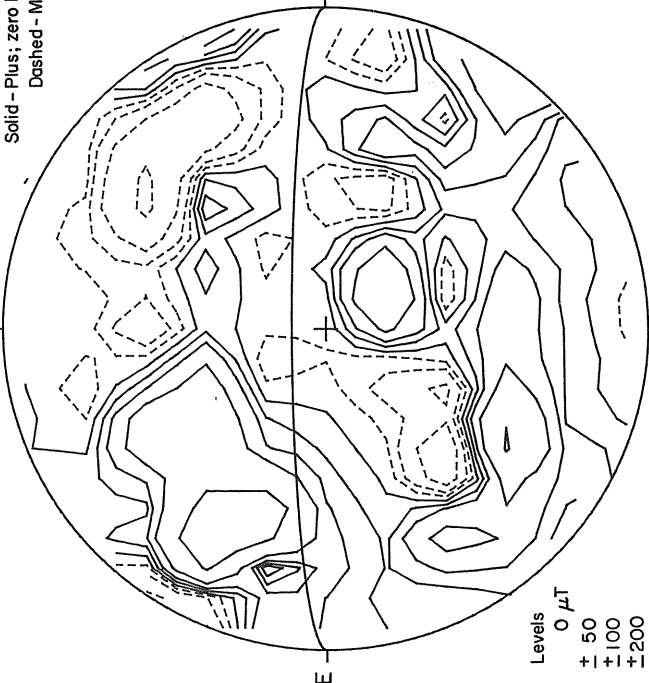
E

W

STANFORD

Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



Levels
0 μ T
+ 50
+ 100
+ 200
- 50
- 100
- 200

W

1916 UT

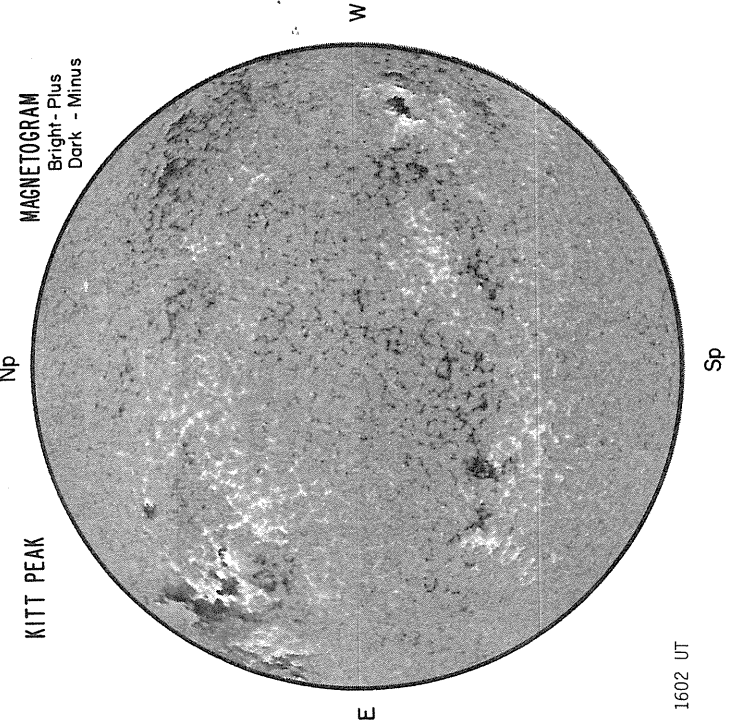
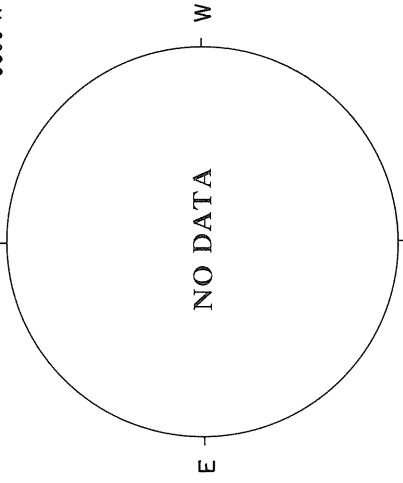
Sp

E

APRIL 9, 1979 (P = -26.32, B₀ = -6.07, L₀ = 231.65)

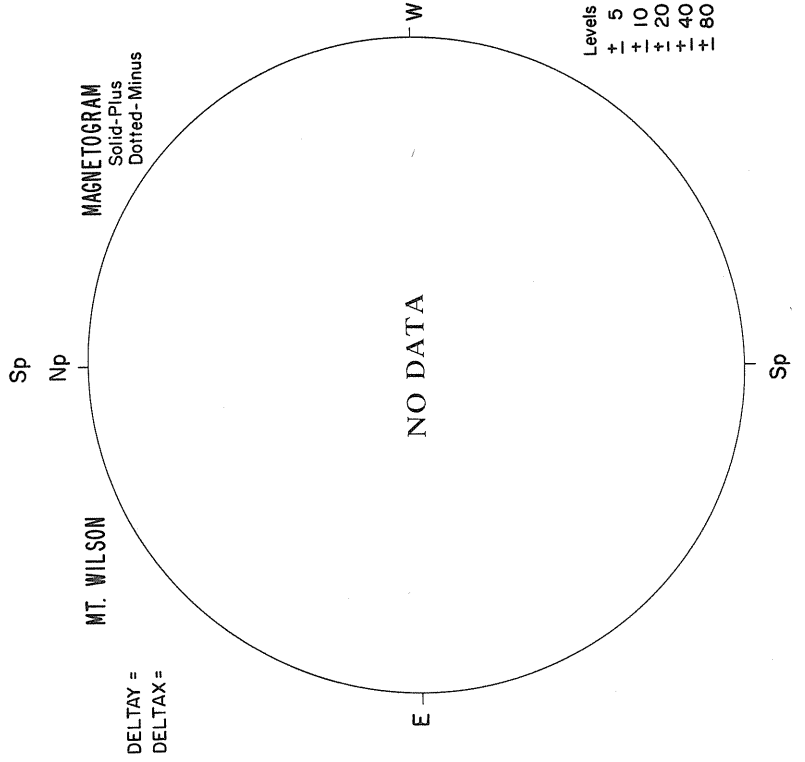
CORONA (1.15 R_⊙)
5303 Å

SACRAMENTO PEAK



MAGNETOGRAM
Bright - Plus
Dark - Minus

KITT PEAK



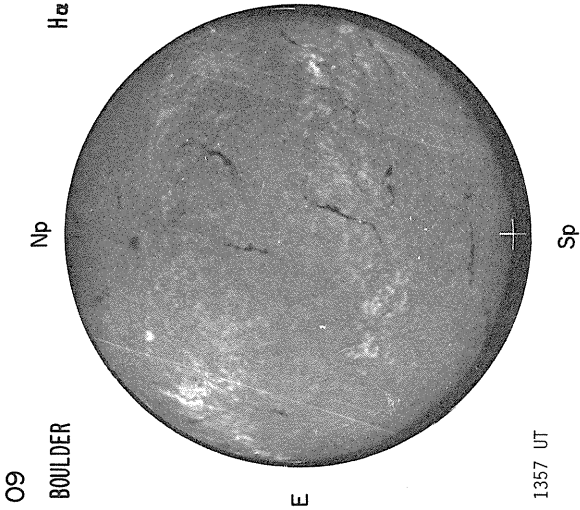
MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

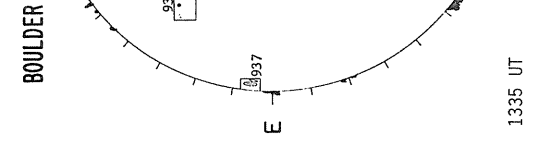
DELTA Y =
DELTA X =

Levels
+ 5
+ 10
+ 20
+ 40
+ 80

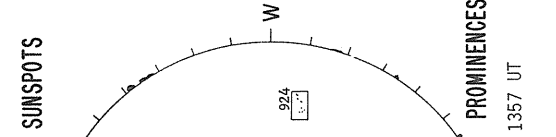
1602 UT



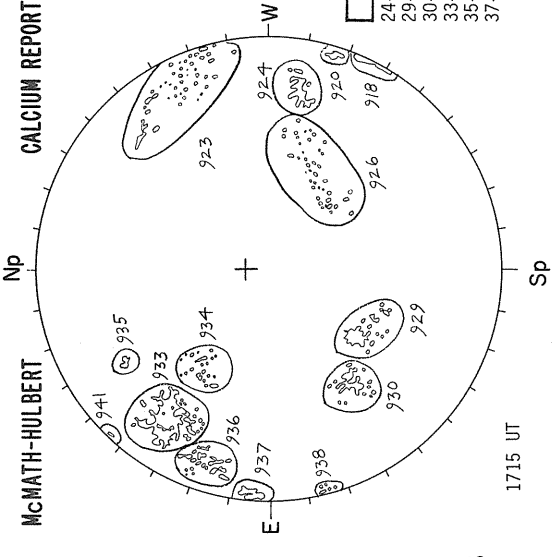
H α



SUNSPOTS



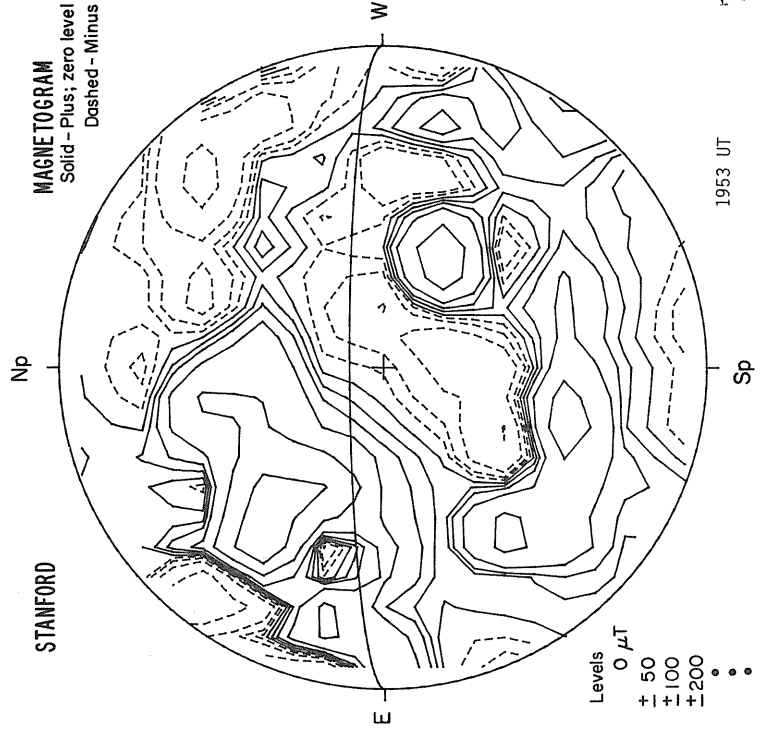
McMATH-HULBERT



CALCIUM REPORT

GOOD	M
24-	1700-3.0
29-	1700-2.5
30-	1100-2.5
33-	4000-4.0
35-	0300-3.0
37-	1900-2.5

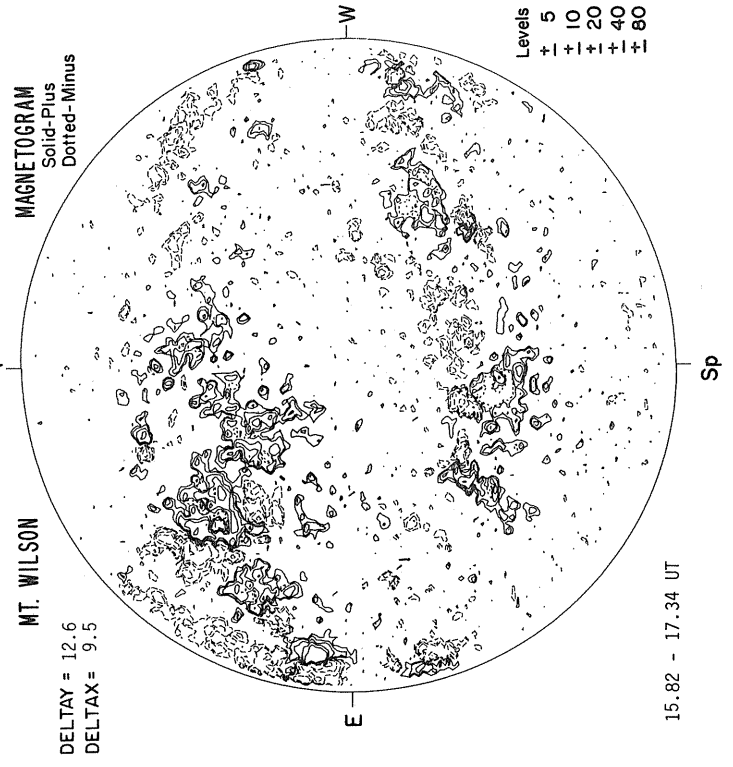
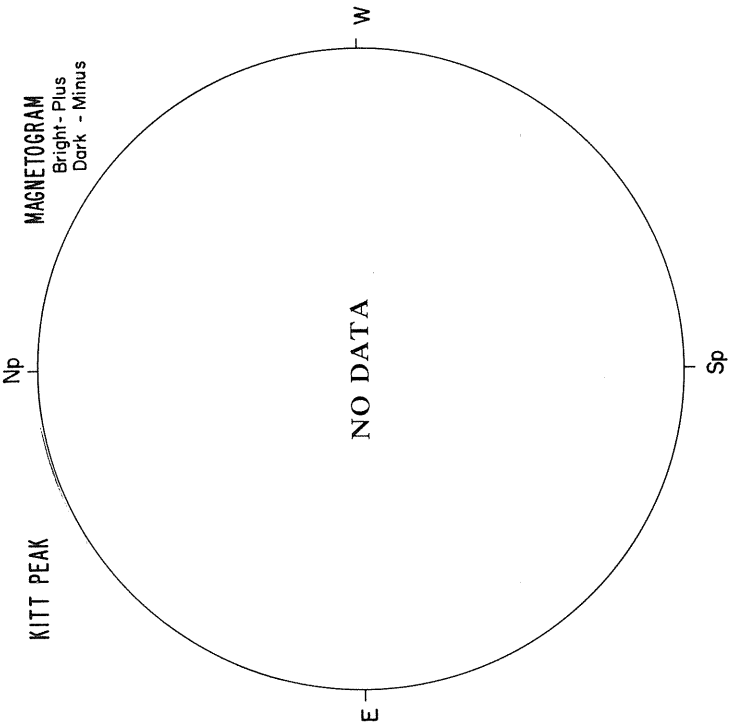
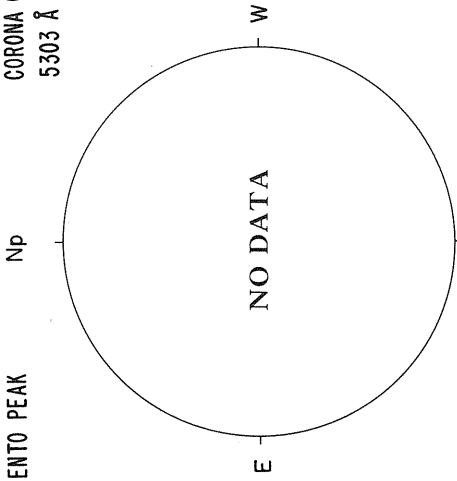
STANFORD

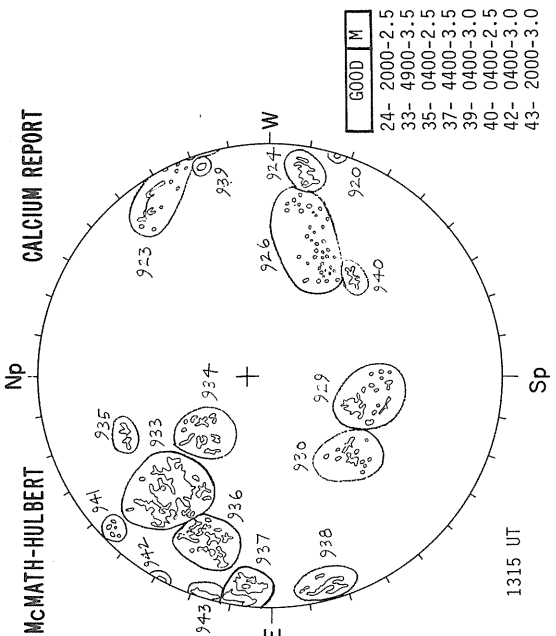
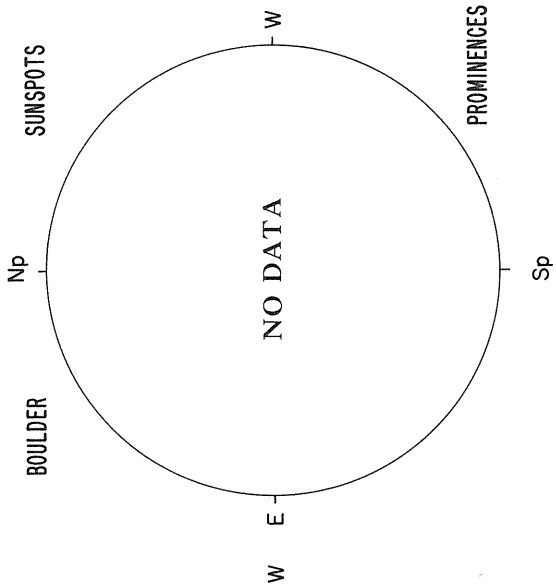
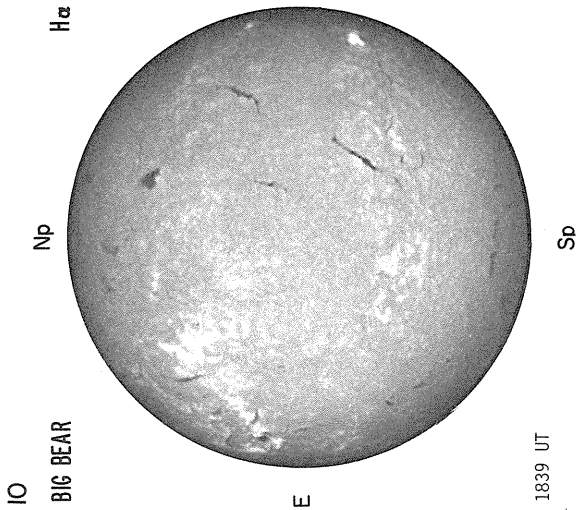


MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

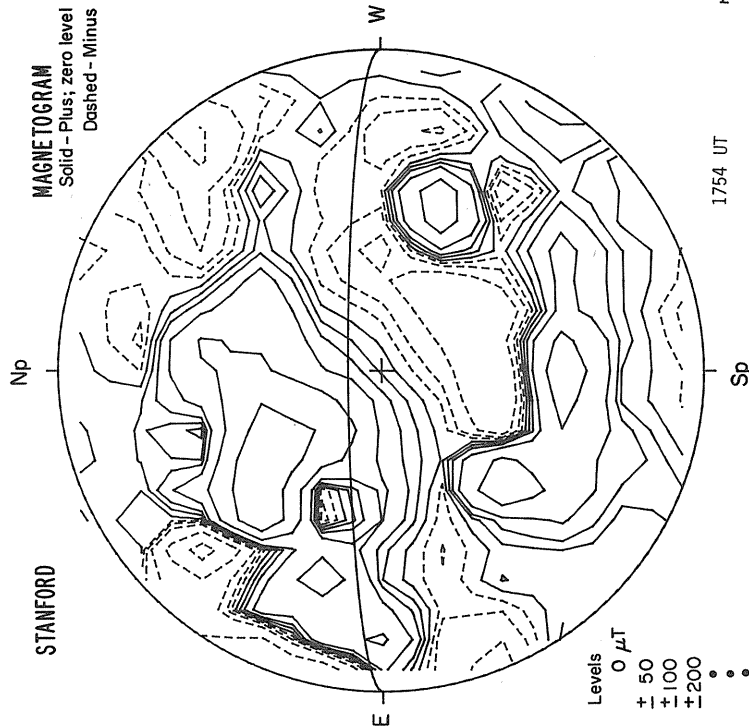
APRIL 10, 1979 (P = -26.30, B₀ = -6.00, L₀ = 218.46)

SACRAMENTO PEAK
CORONA (1.15 R₀)
5303 Å



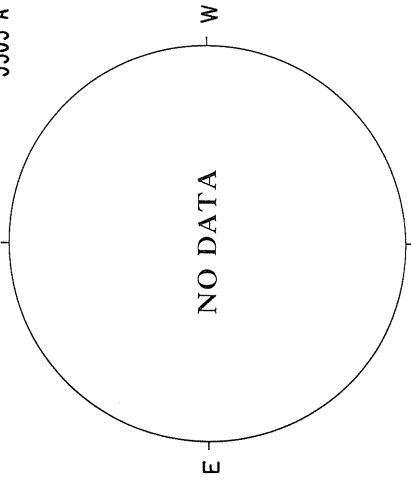


Photographs From -
Solar Observatory
City, California
4-10-79



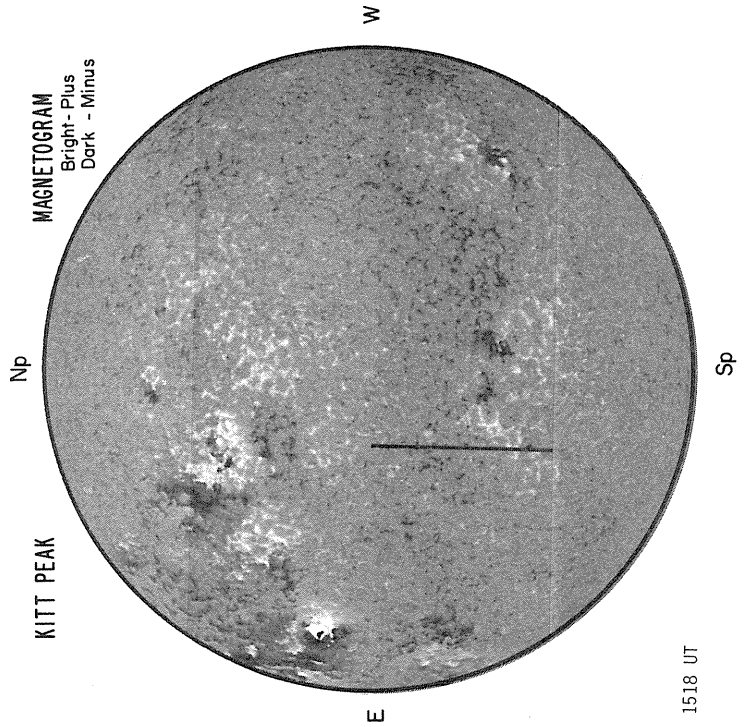
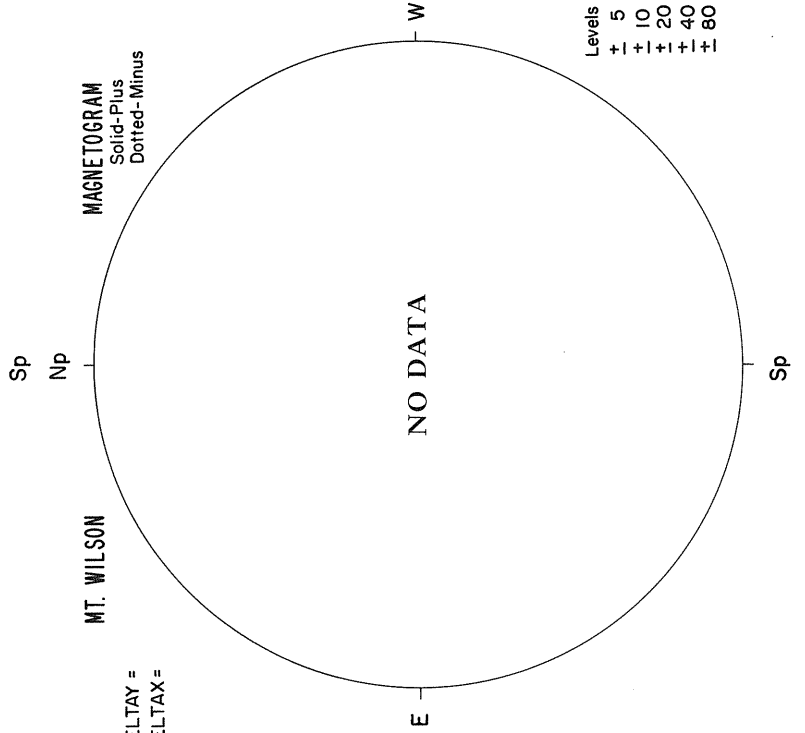
APRIL 11, 1979 (P = -26.28, B₀ = -5.93, L₀ = 205.25)

SACRAMENTO PEAK
CORONA (1.15 R_☉)
5303 Å



DELTA Y =
DELTA X =

MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus



1518 UT

II

BIG BEAR

Np

H α

BOULDER

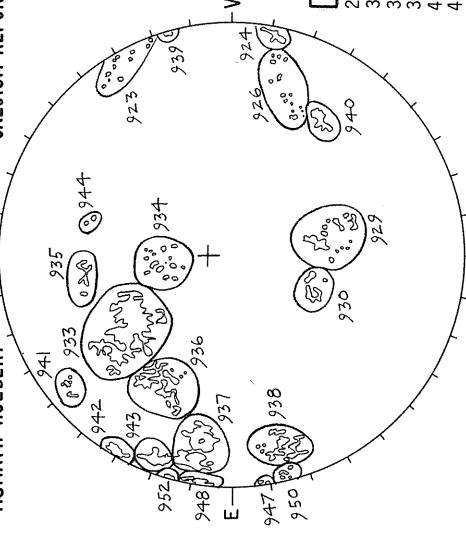
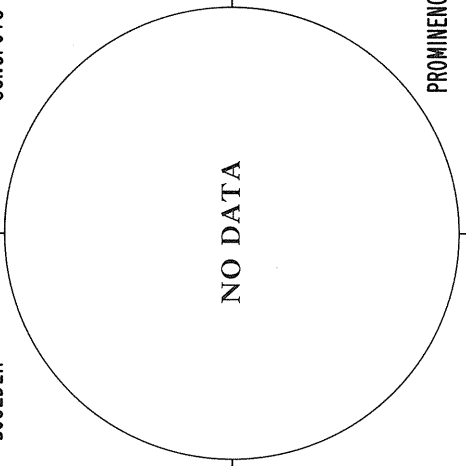
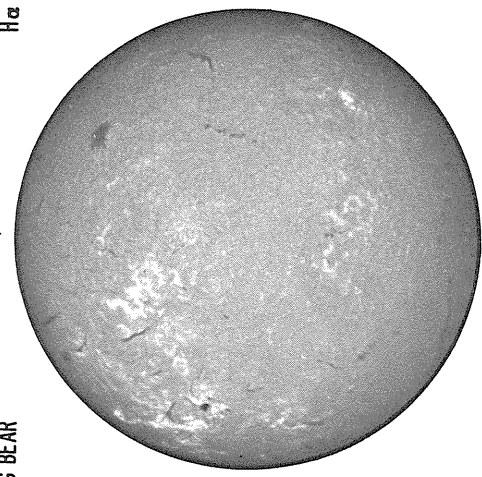
Np

SUNSPOTS

McMATH-HULBERT

Np

CALCIUM REPORT



PROMINENCES

2054 UT

1215 UT

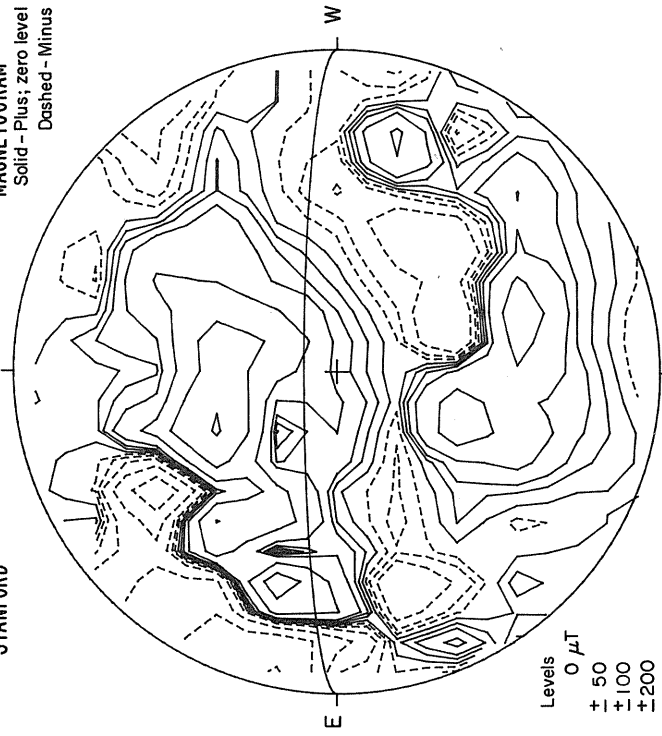
Reports from —
Solar Observatory
Pasadena, California
Date: 4-11-79

STANFORD

Np

MAGNETOGRAM

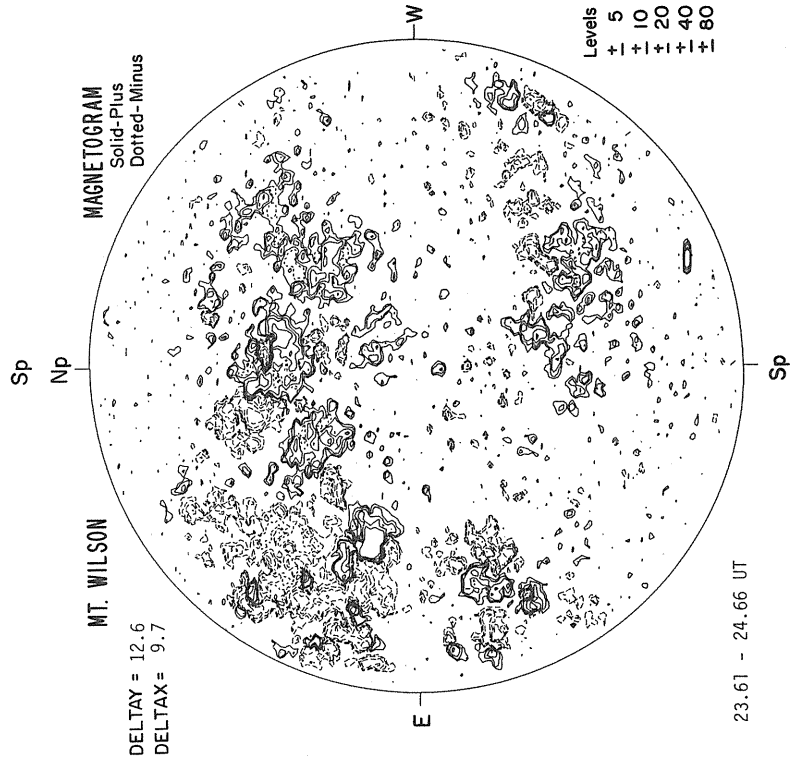
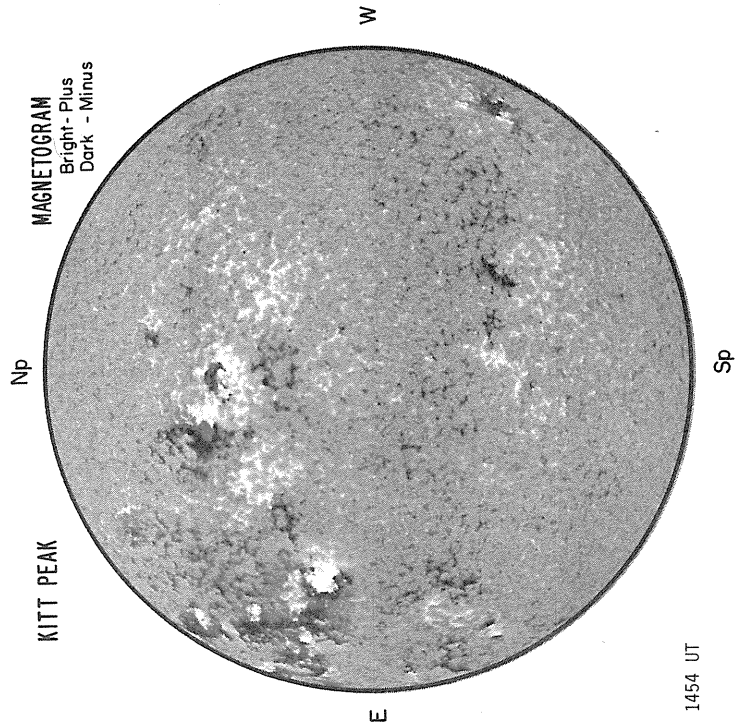
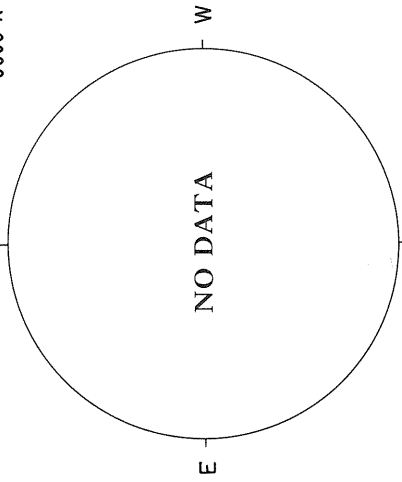
Solid - Plus; zero level
Dashed - Minus



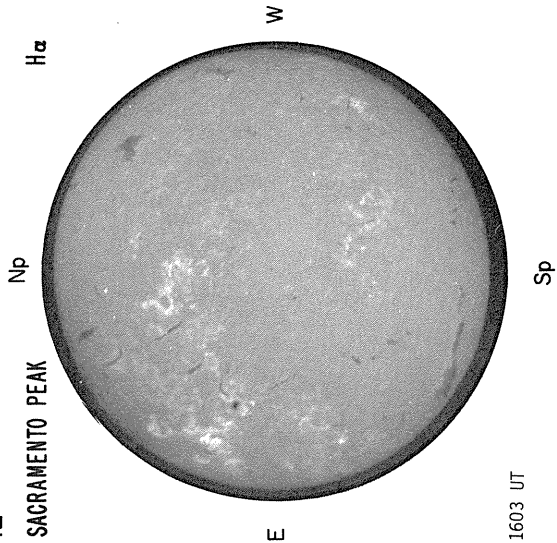
2034 UT

APRIL 12, 1979 (P = -26.25, B₀ = -5.86, L₀ = 192.05)

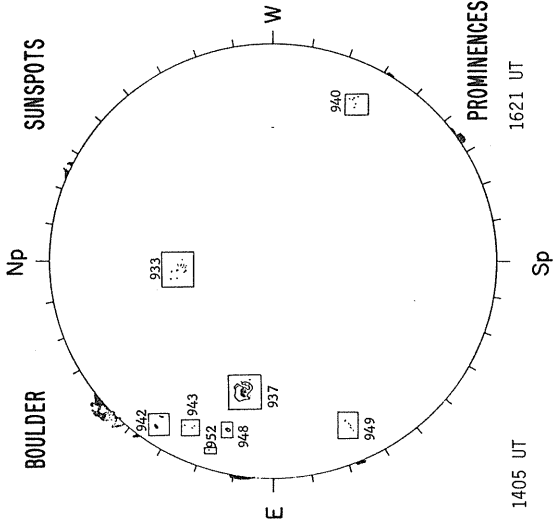
SACRAMENTO PEAK
Np
CORONA (1.15 R_☉)
5303 Å



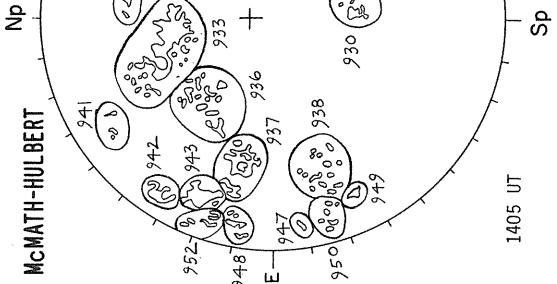
SACRAMENTO PEAK



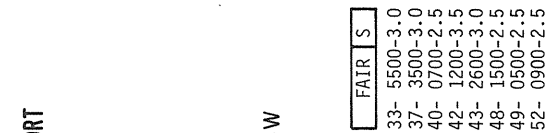
BOULDER



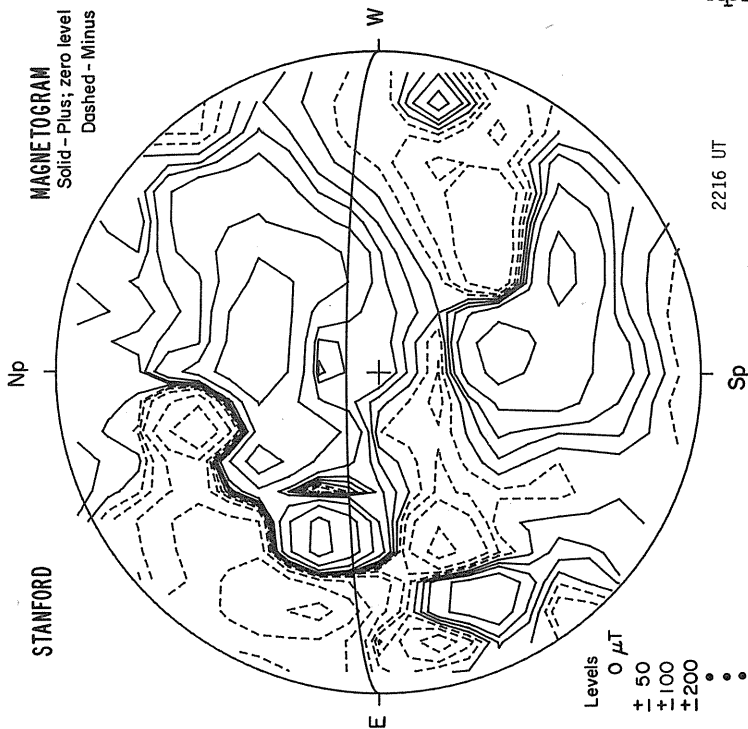
SUNSPOTS



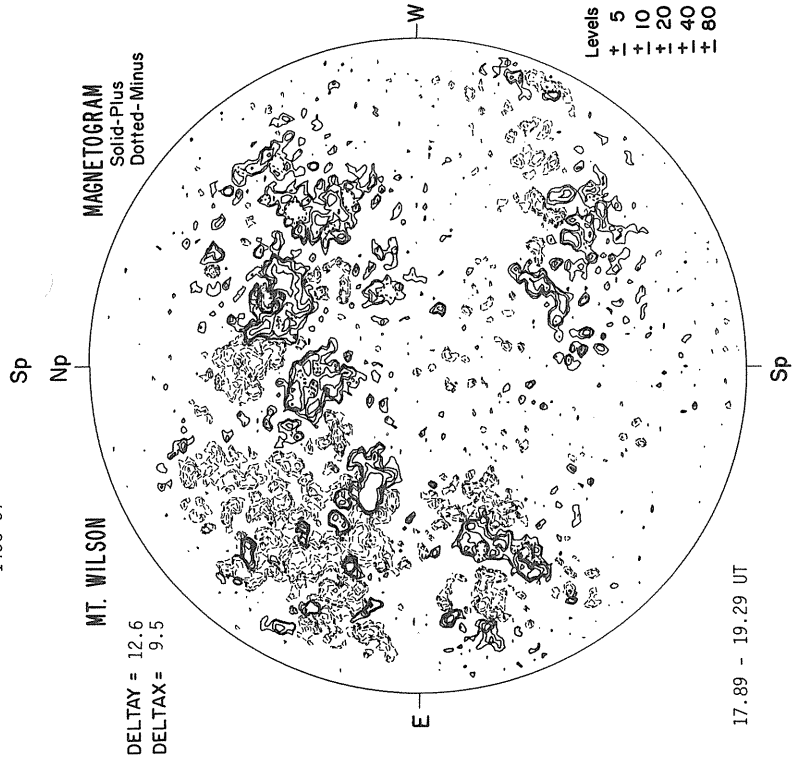
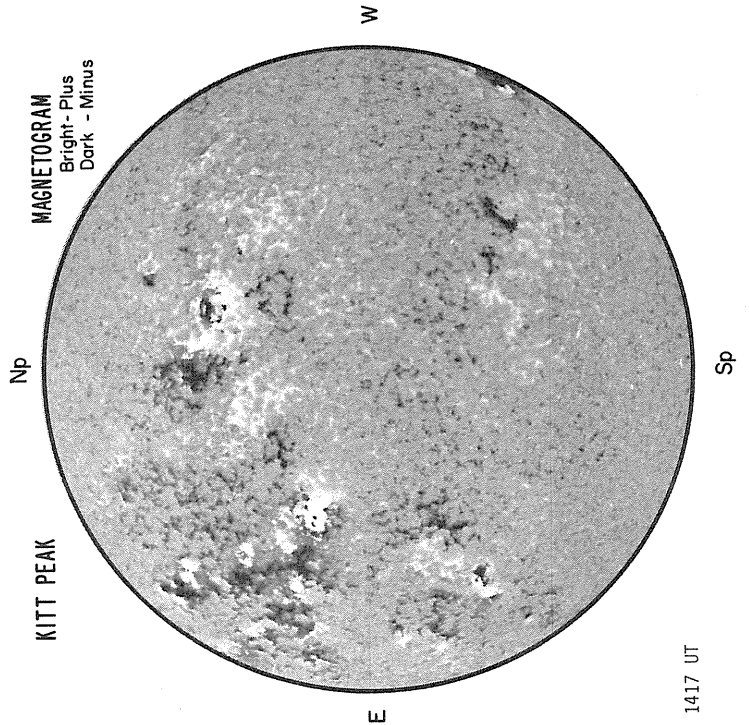
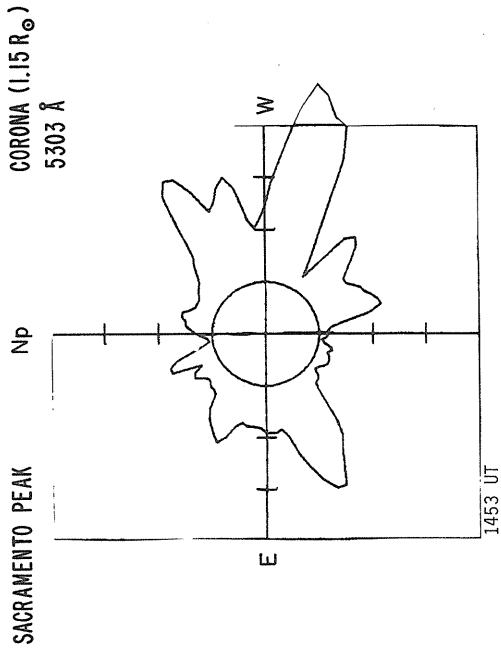
CALCIUM REPORT

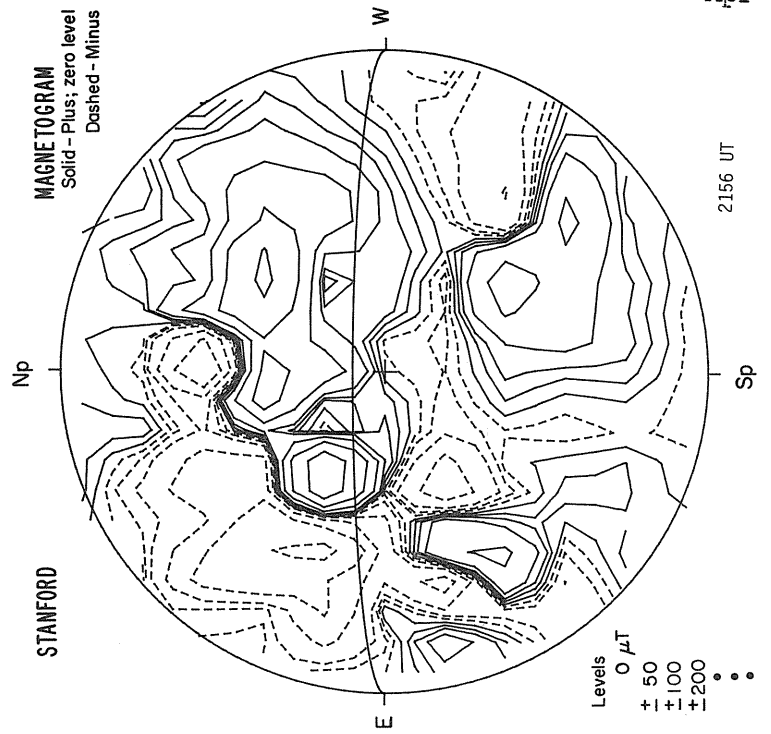
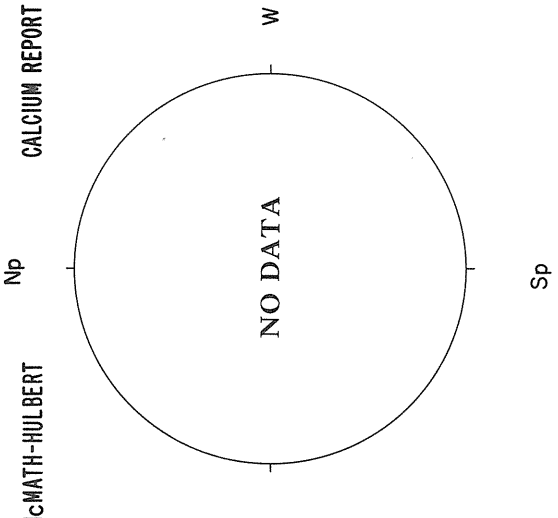
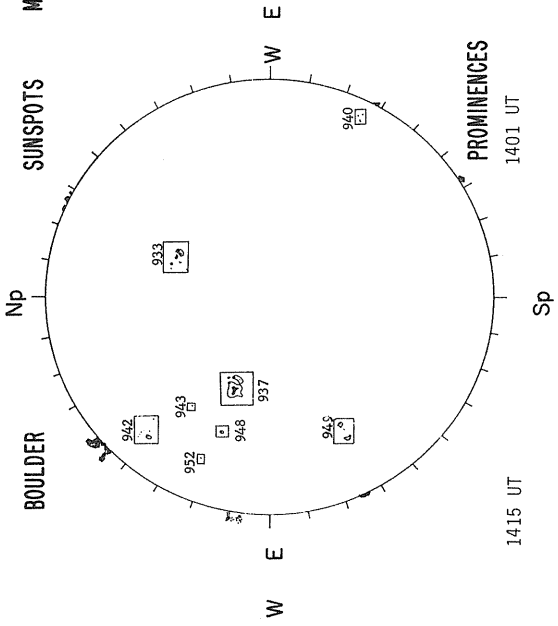
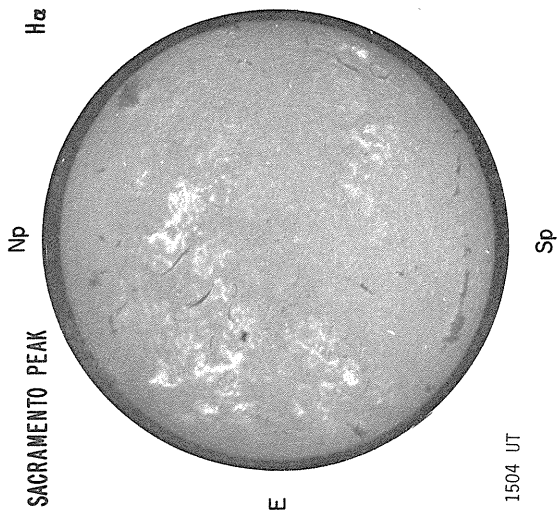


STANFORD

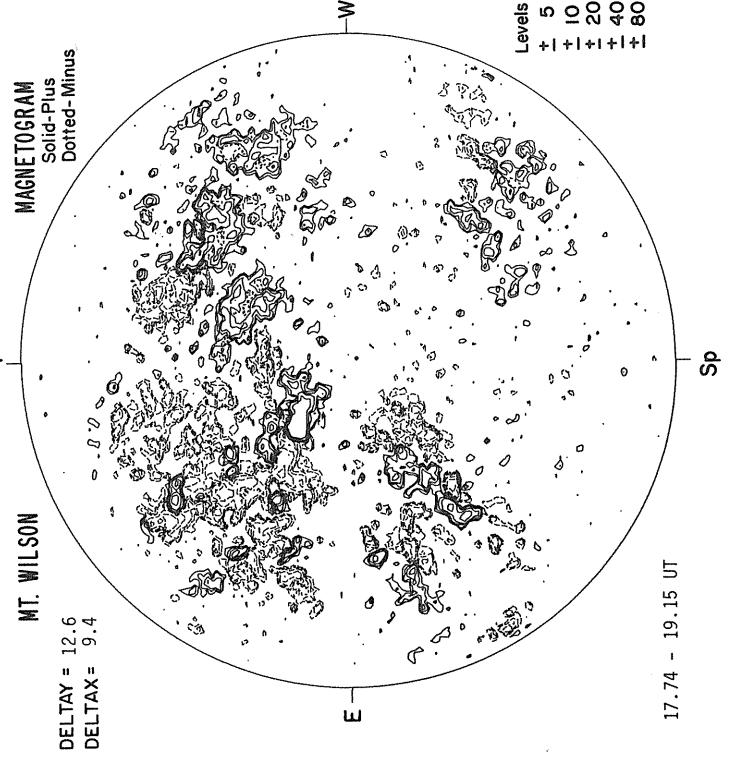
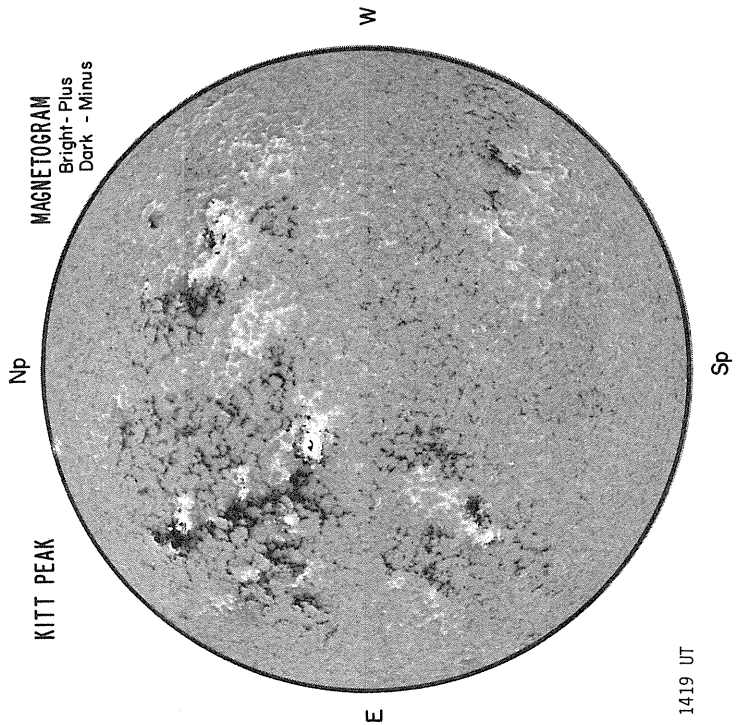
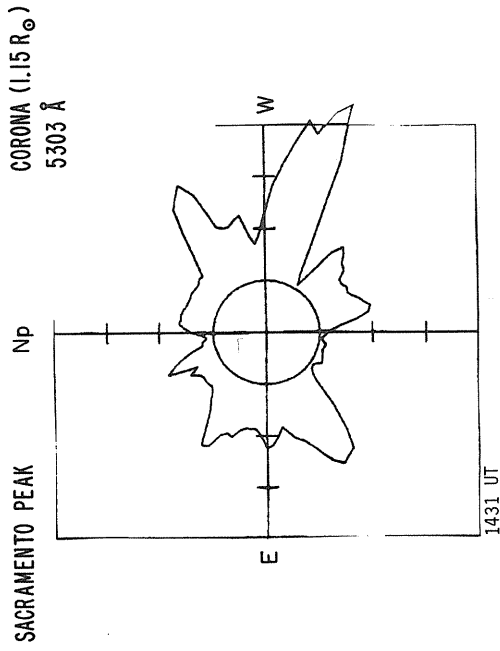


APRIL 13, 1979 (P = -26.21, B₀ = -5.78, L₀ = 178.85)

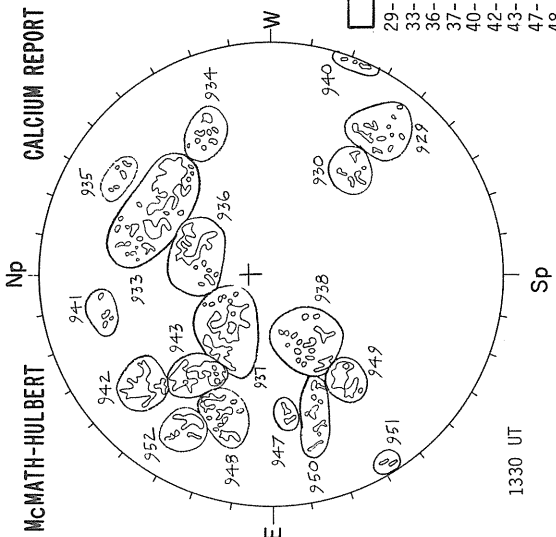
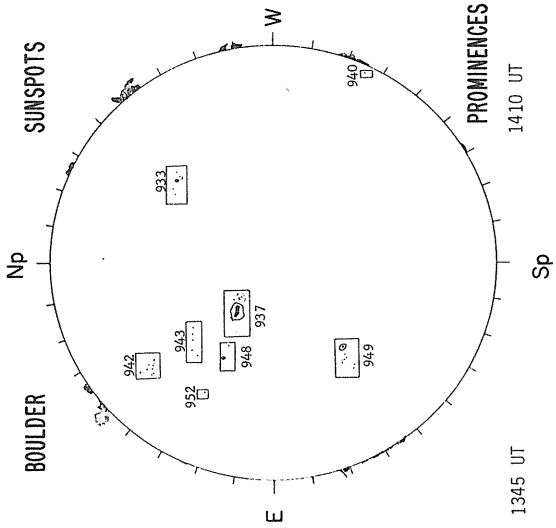
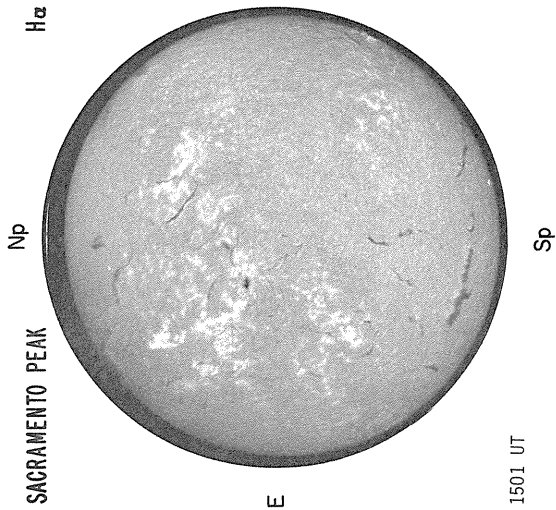




APRIL 14, 1979 (P = -26.17, B₀ = -5.71, L₀ = 165.65)



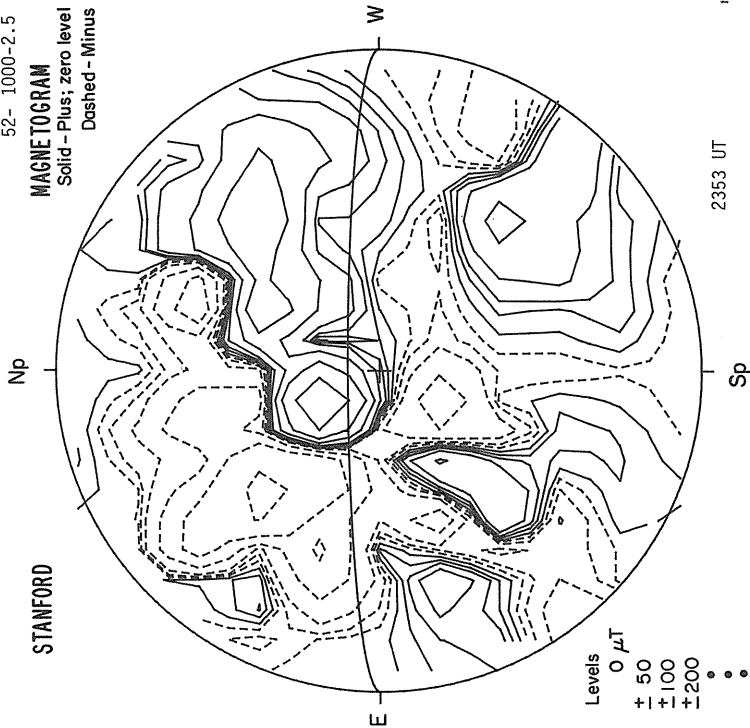
I4



GOOD S

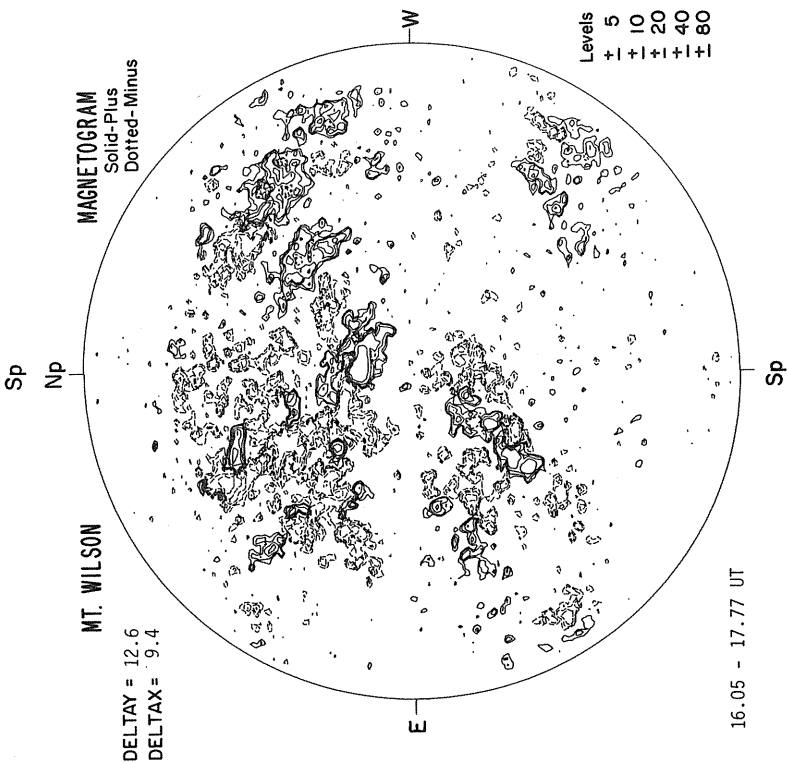
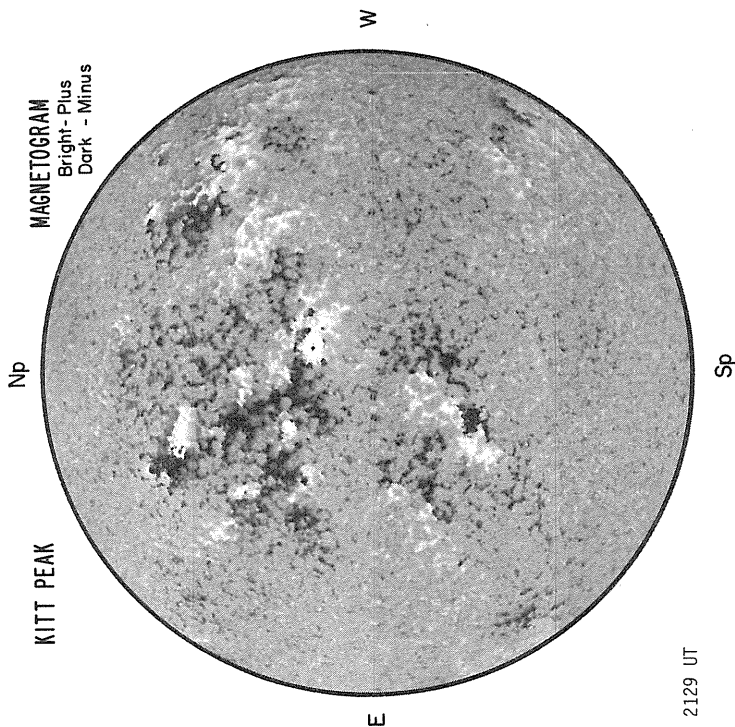
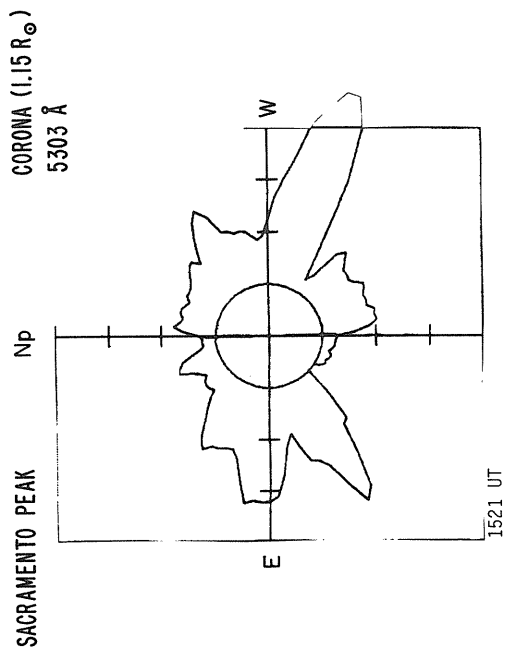
29-	1200-2.5
33-	5500-3.5
36-	2000-2.5
37-	3000-3.0
40-	0700-2.5
42-	2000-4.0
43-	2800-3.0
47-	0400-2.5
48-	1600-3.0
49-	1500-3.0
50-	0900-2.5
52-	1000-2.5

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
± 100
± 200
•••

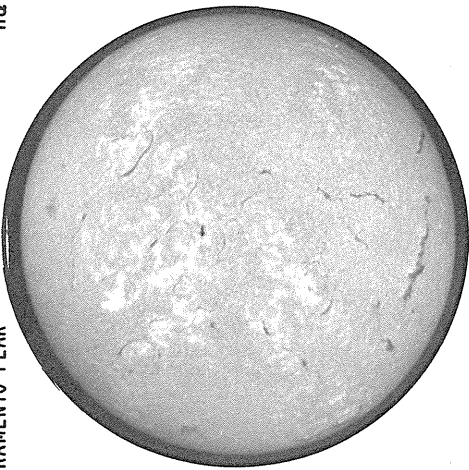
APRIL 15, 1979 (P = -26.11, B₀ = -5.63, L₀ = 152.45)



SACRAMENTO PEAK

Np

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E

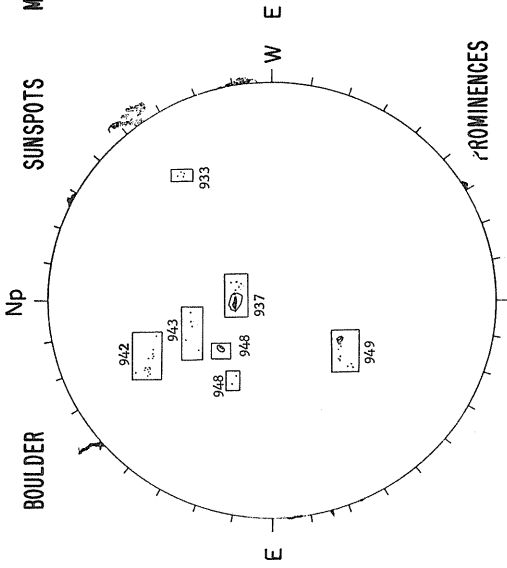
1520 UT

Sp

BOULDER

Np

SUNSPOTS



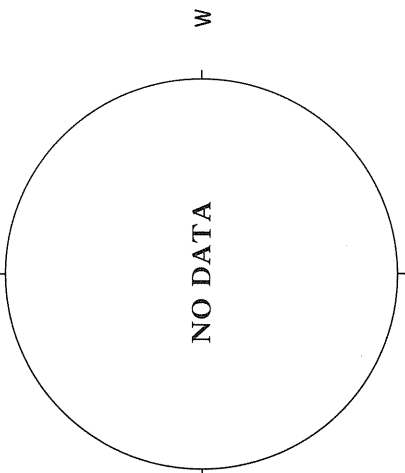
1345 UT

Sp

McMATH-HULBERT

Np

CALCIUM REPORT

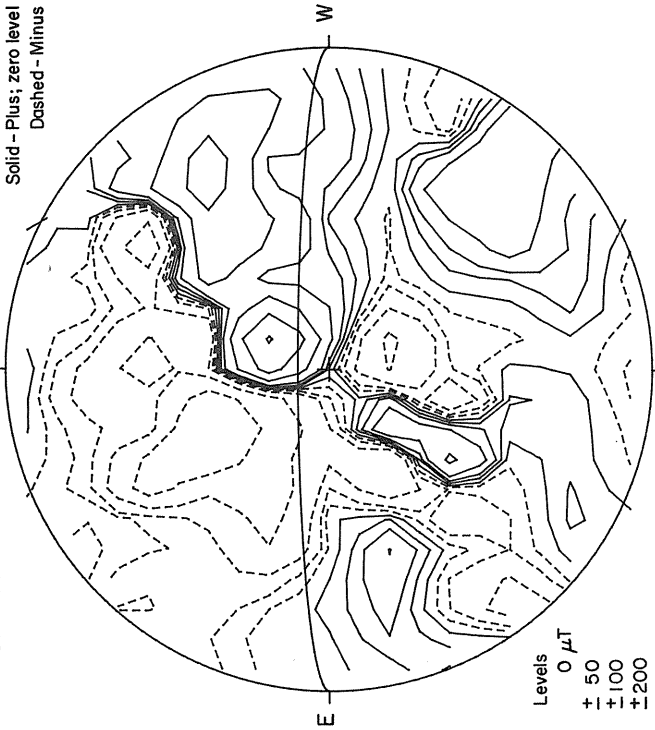


Sp

STANFORD

Np

MAGNETOGRAM
 Solid - Plus; zero level
 Dashed - Minus

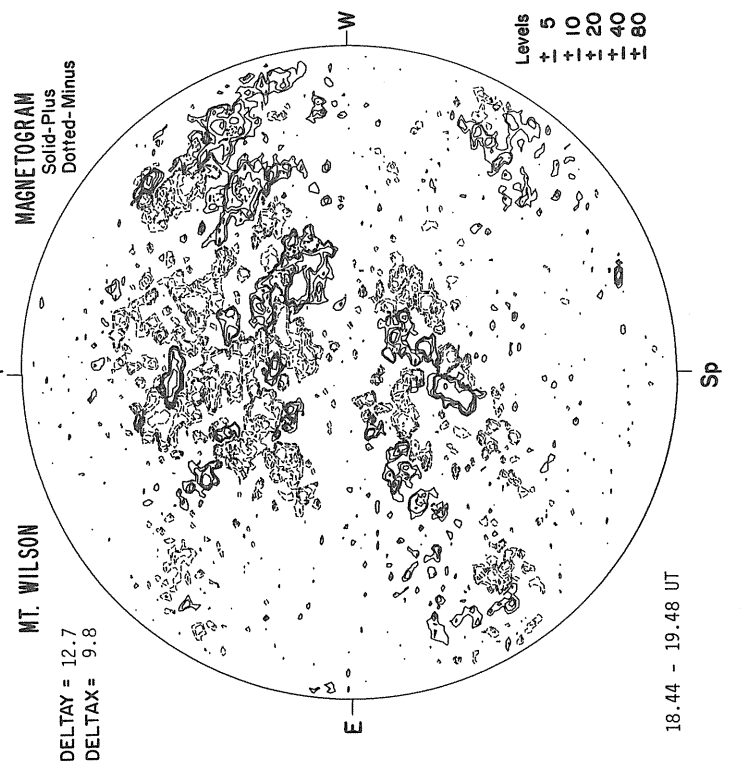
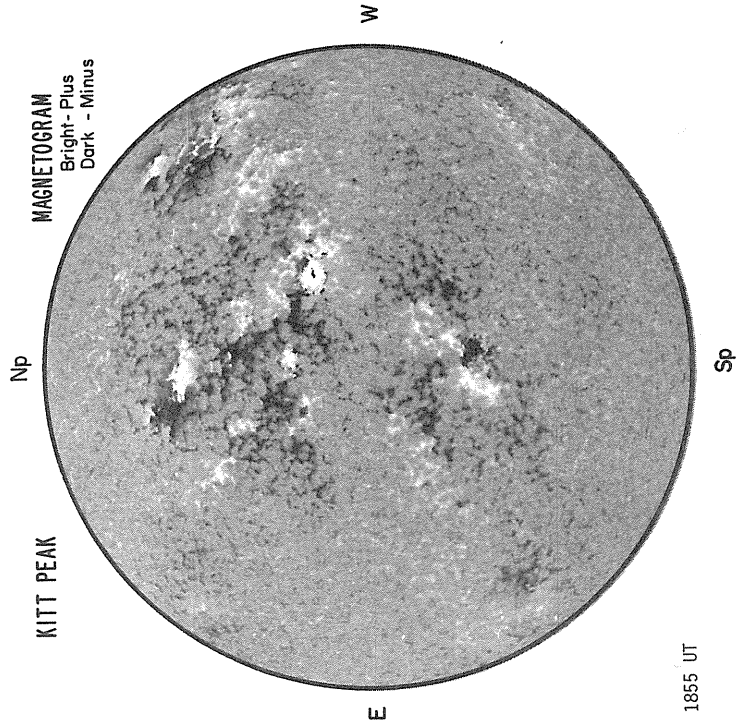
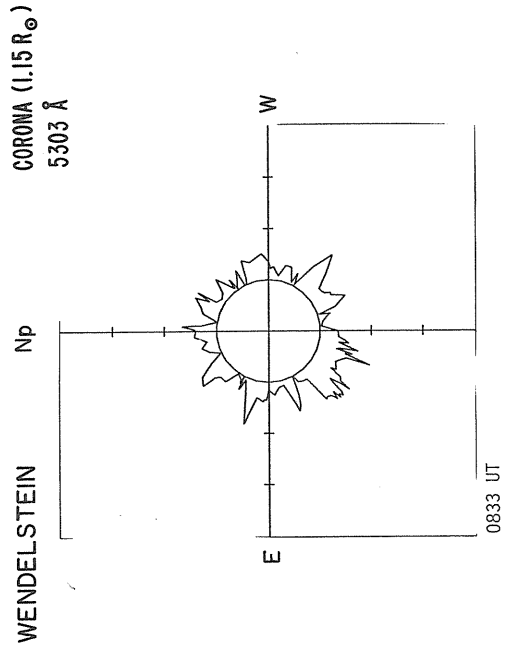


Levels
 0 μ T
 + 50
 + 100
 + 200
 • • •

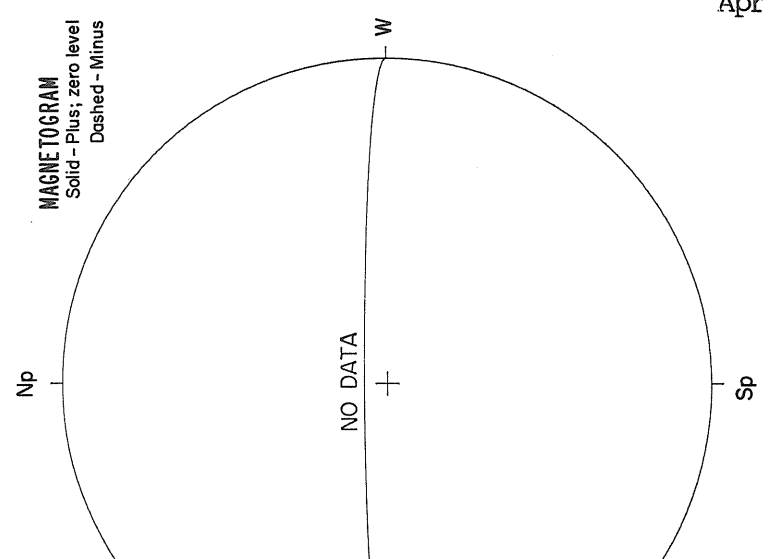
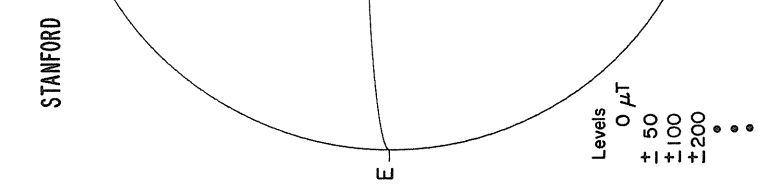
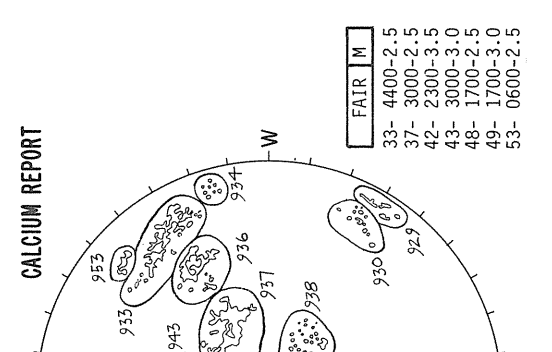
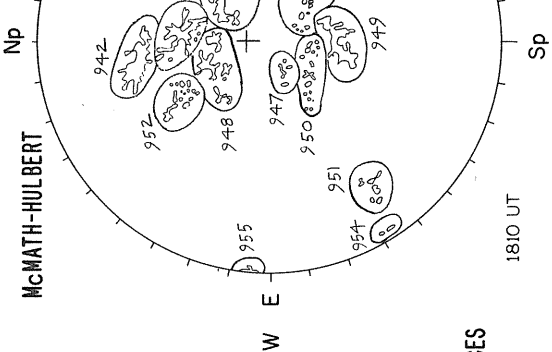
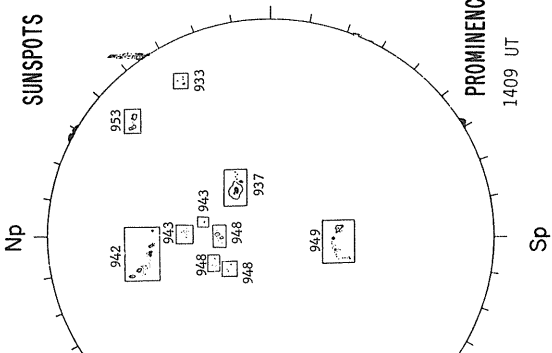
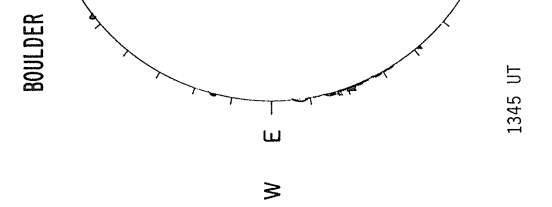
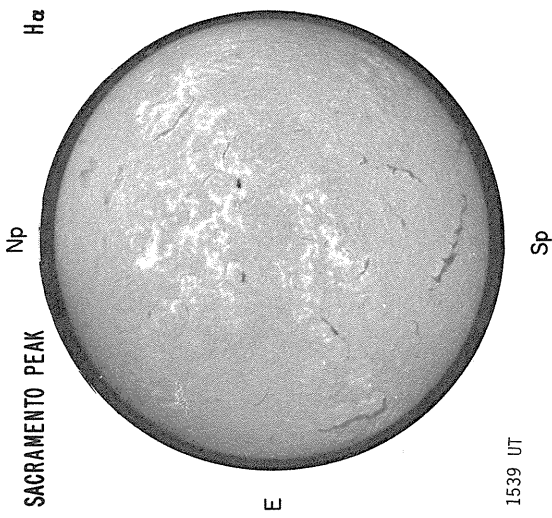
1838 UT

Sp

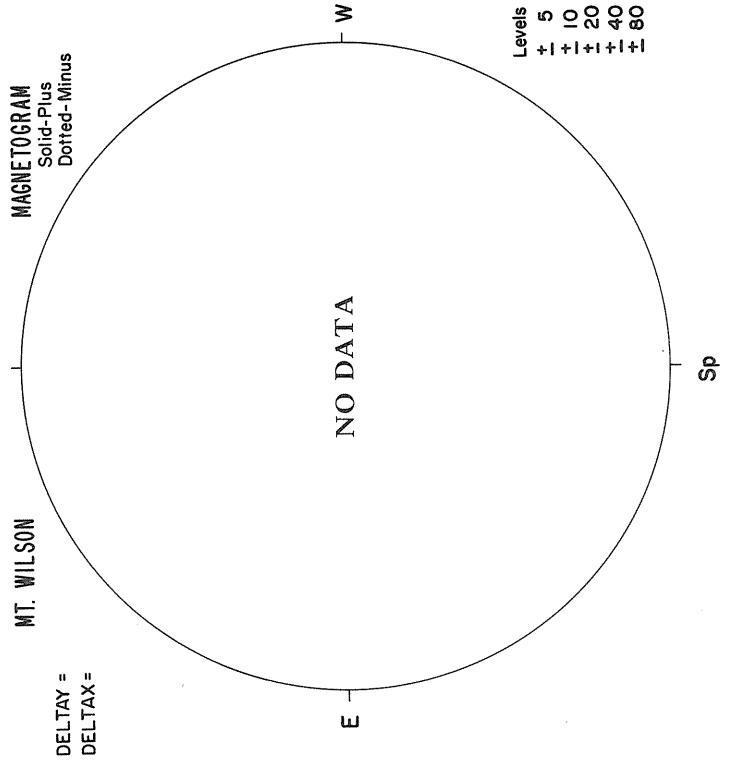
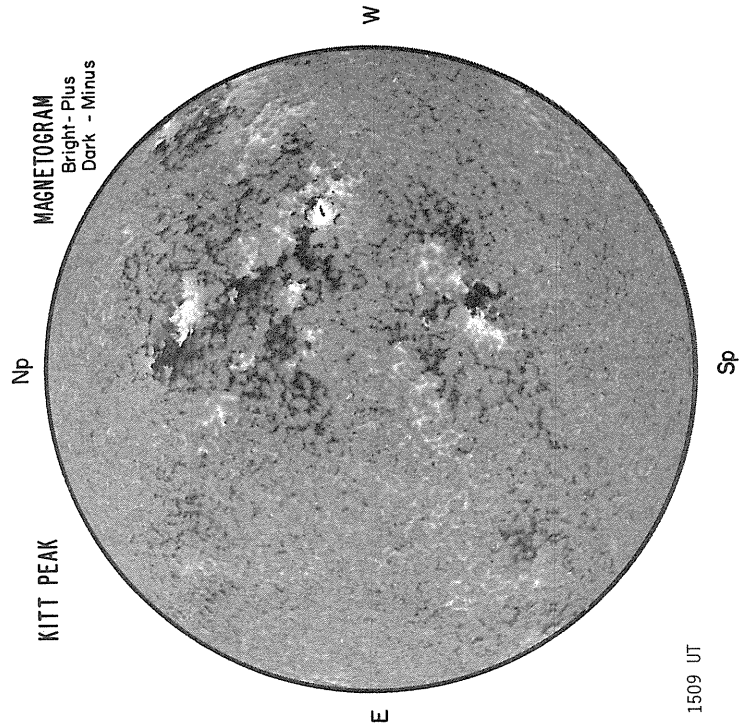
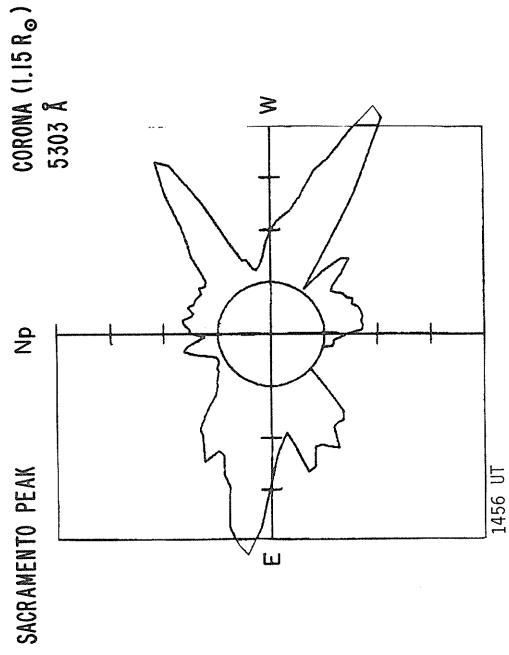
APRIL 16, 1979 (P = -26.05, B₀ = -5.55, L₀ = 139.24)



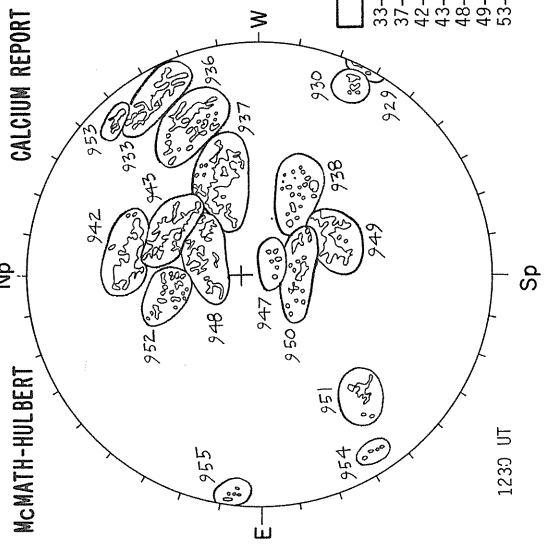
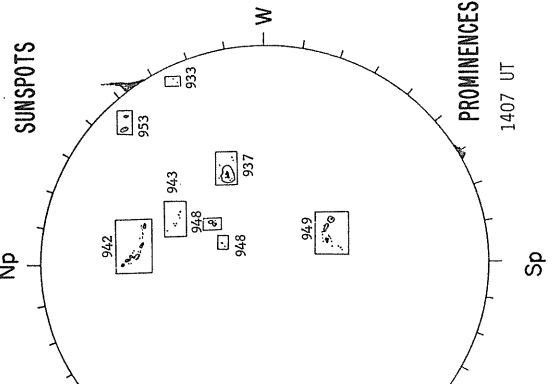
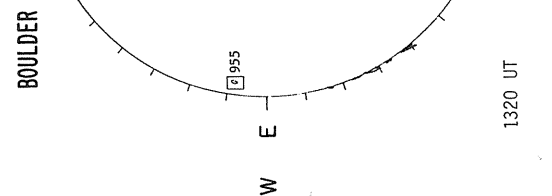
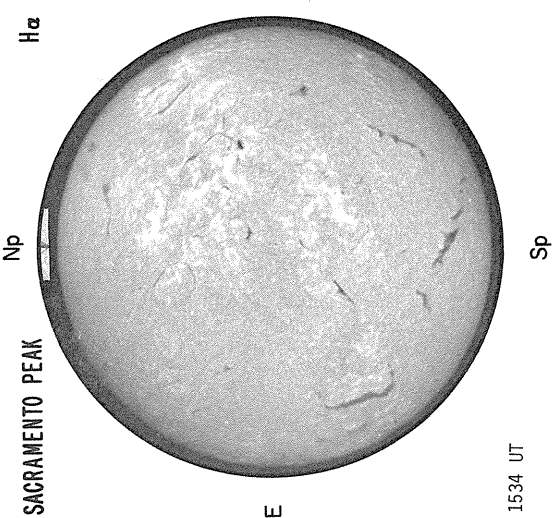
16



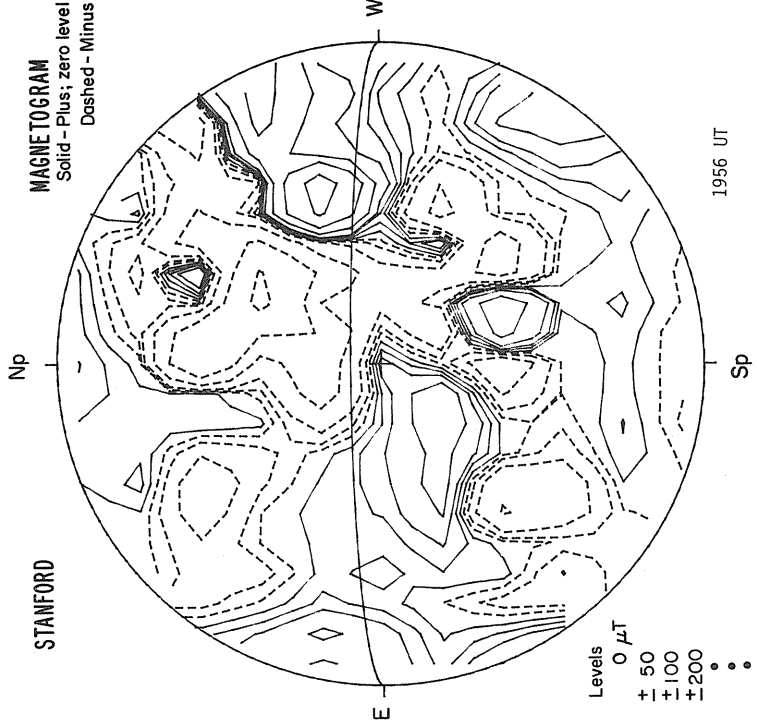
APRIL 17, 1979 (P = -25.99, B₀ = -5.47, L₀ = 126.04)



17

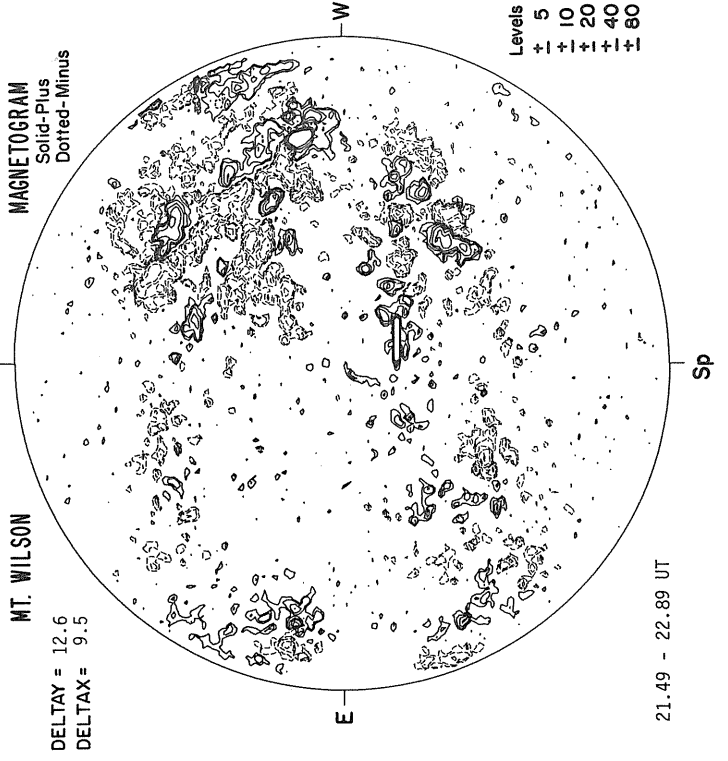
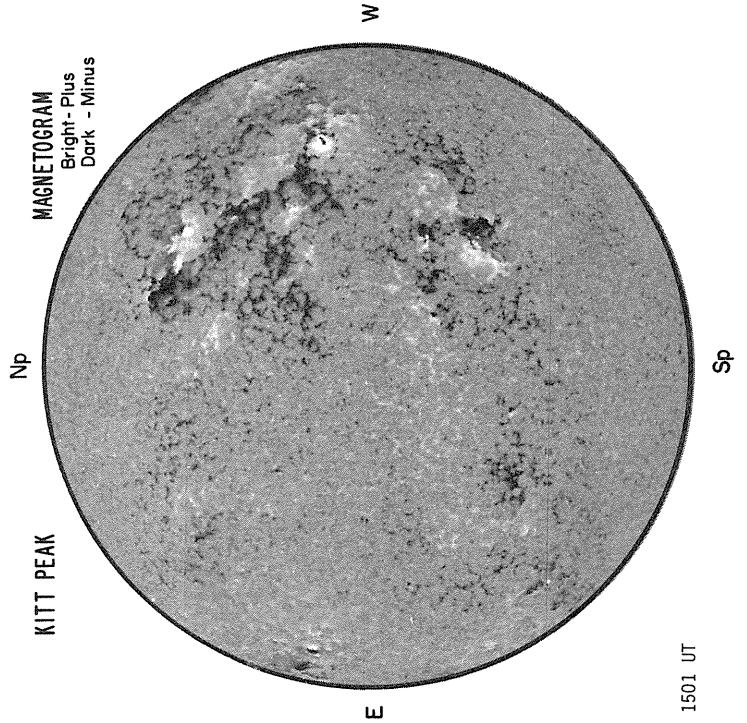
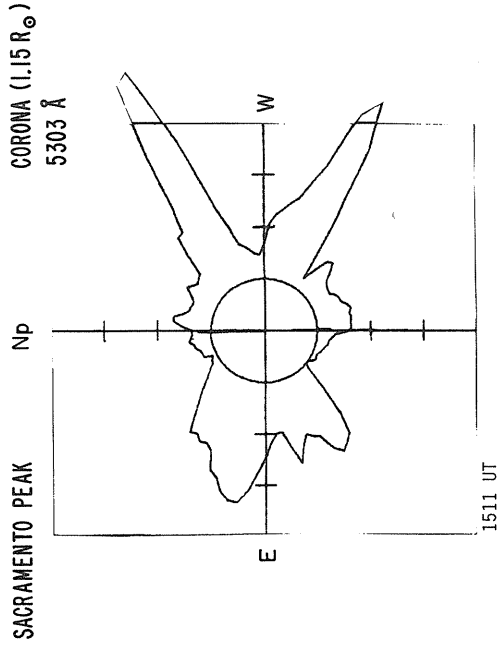


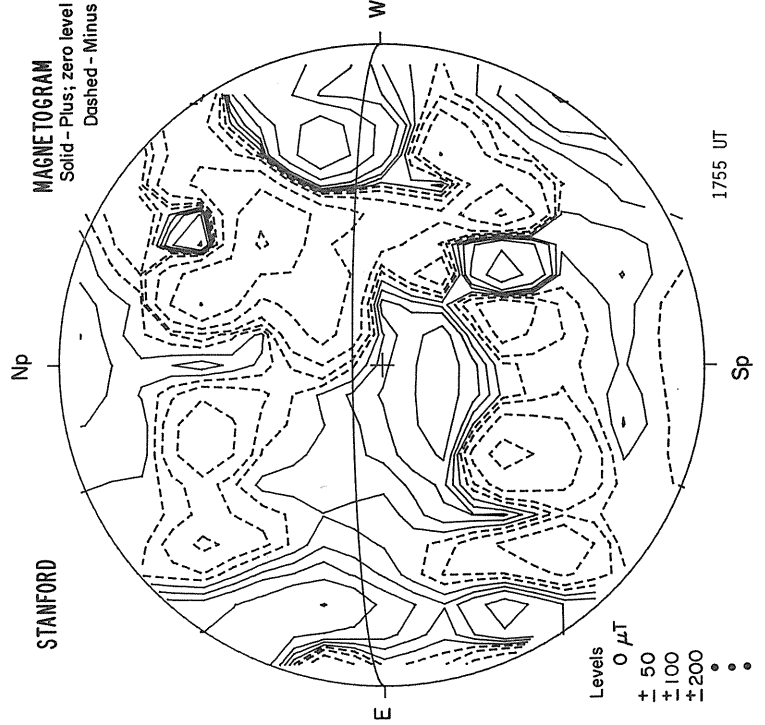
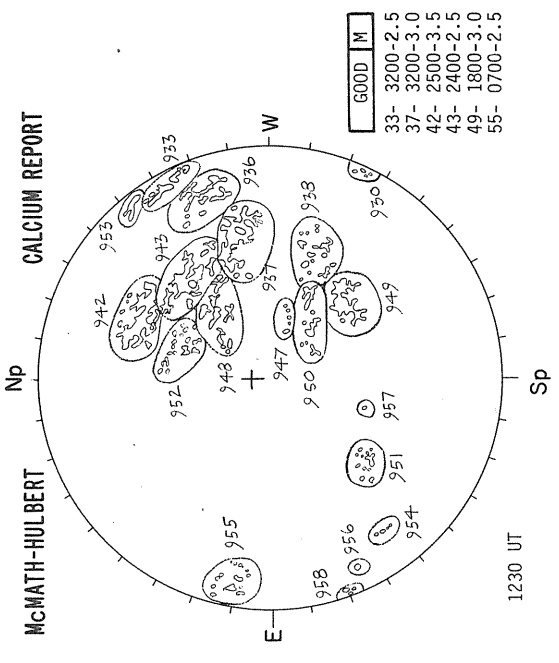
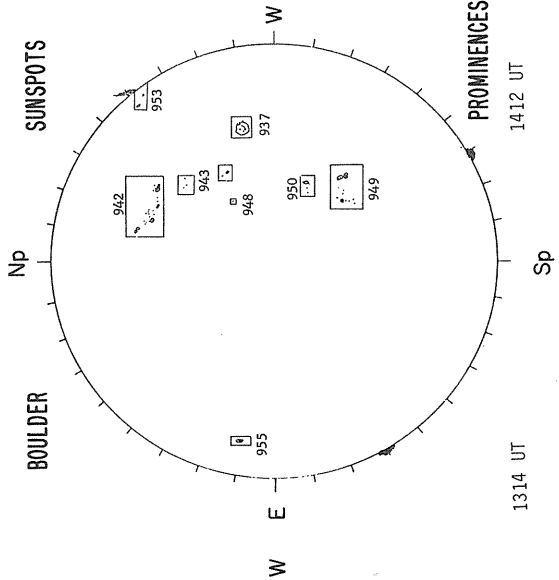
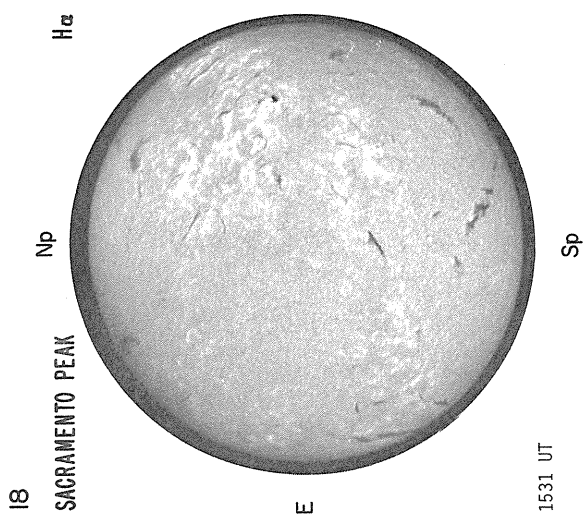
FAIR	M
33-	4100-2.5
37-	2700-3.0
42-	2400-3.5
43-	2500-3.0
48-	1400-2.5
49-	1800-3.0
53-	0900-2.5



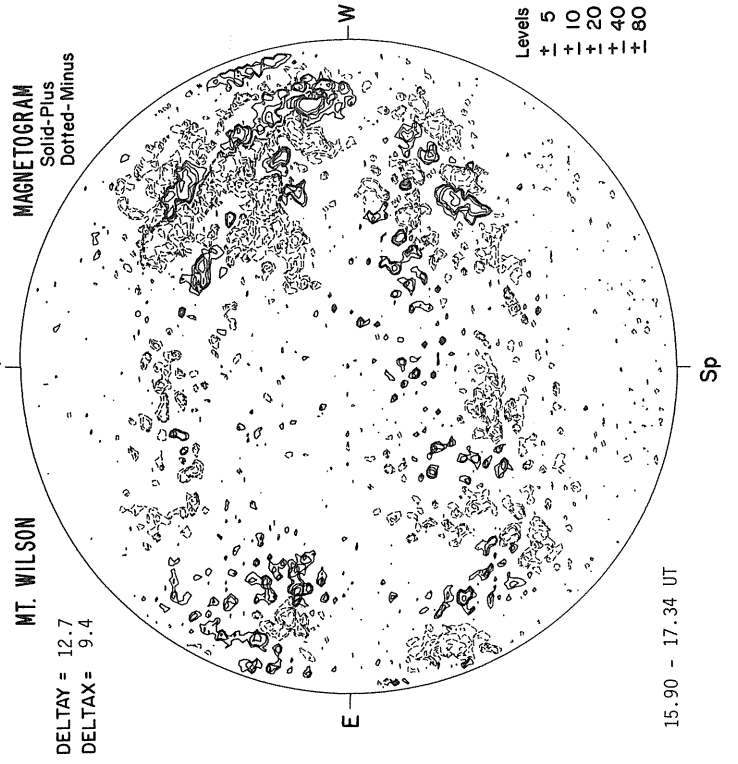
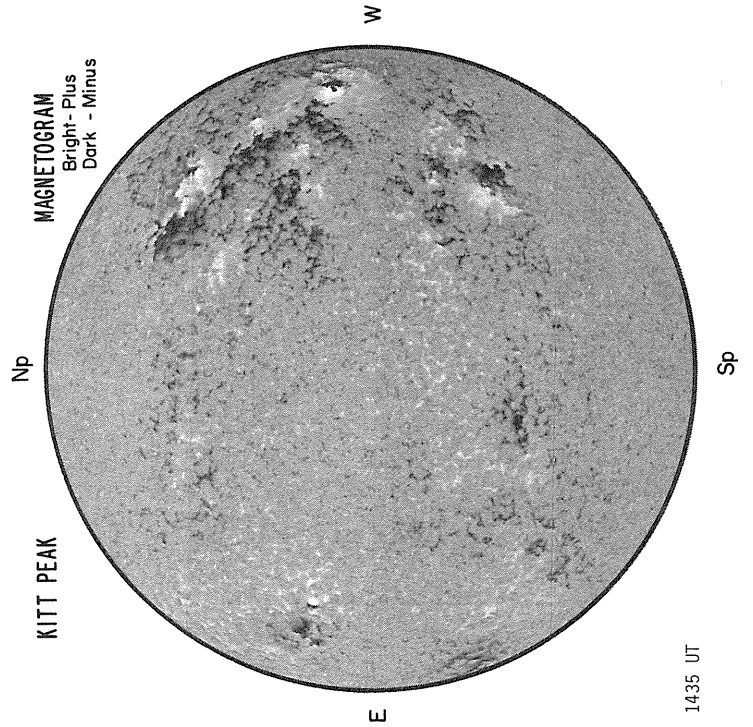
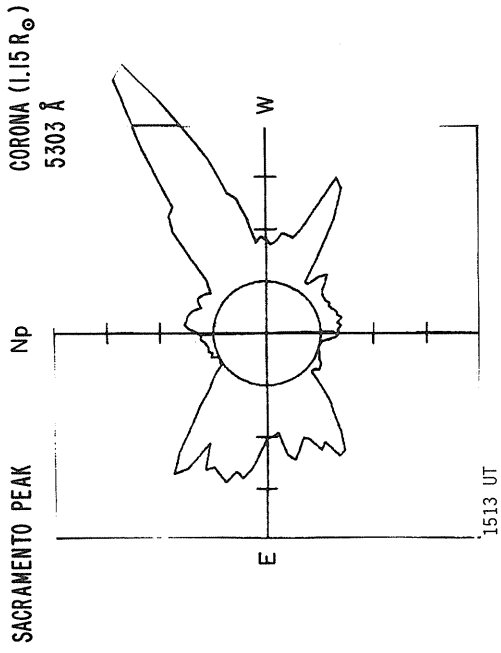
Levels
0 μT
+ 50
+ 100
+ 200
•
•

APRIL 18, 1979 (P = -25.9l, B₀ = -5.39, L₀ = 112.83)

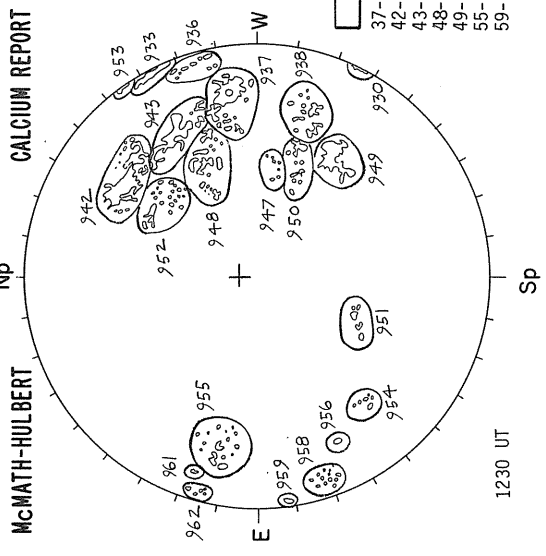
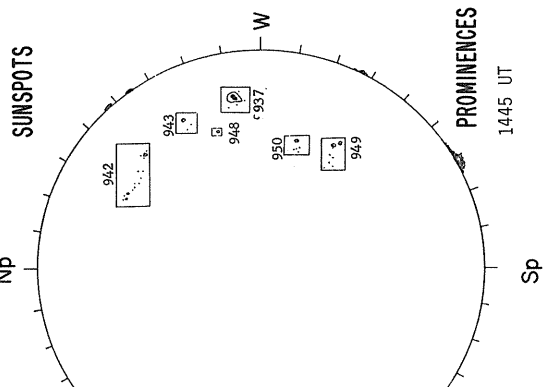
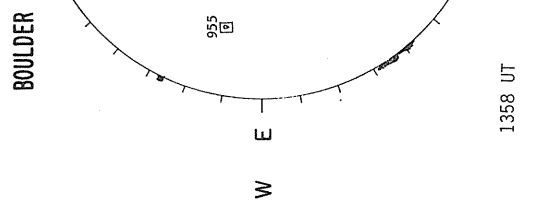
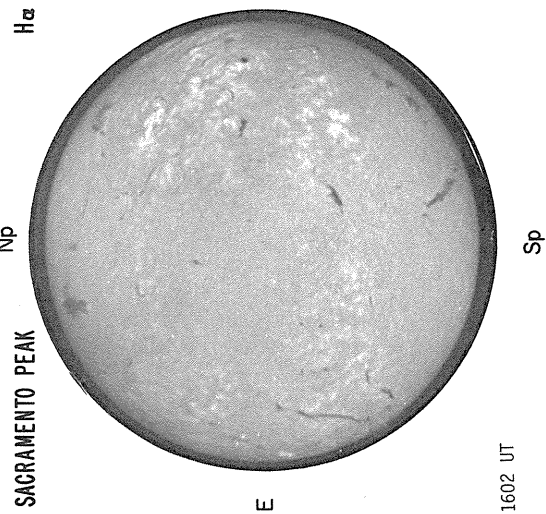




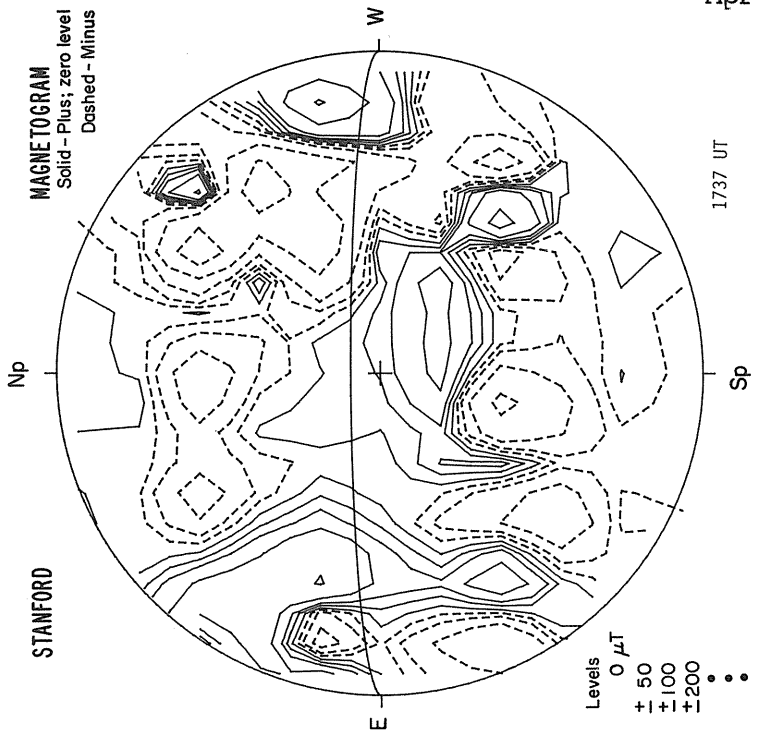
APRIL 19, 1979 (P = -25.83, B₀ = -5.31, L₀ = 99.62)



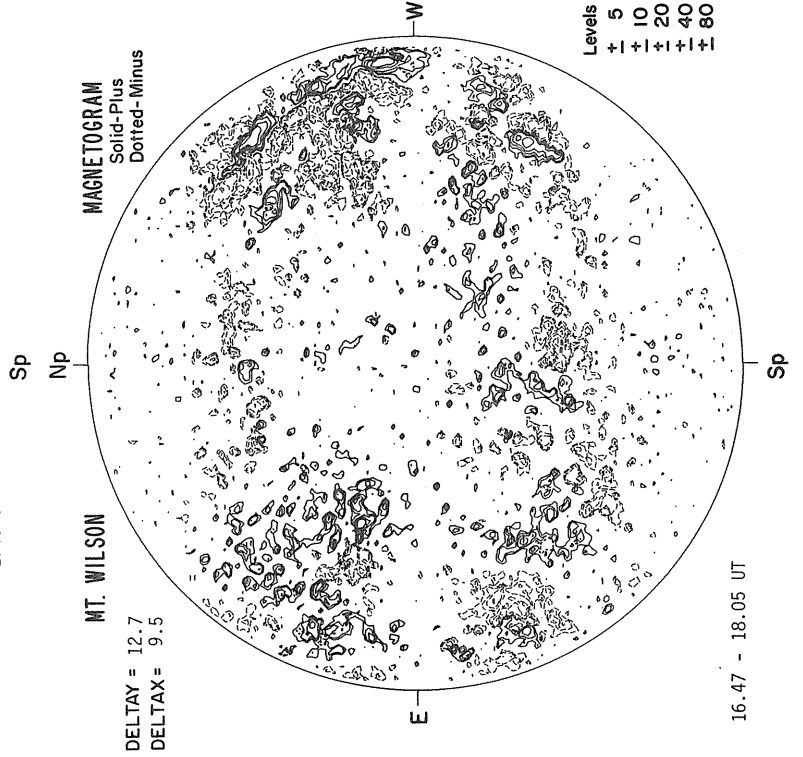
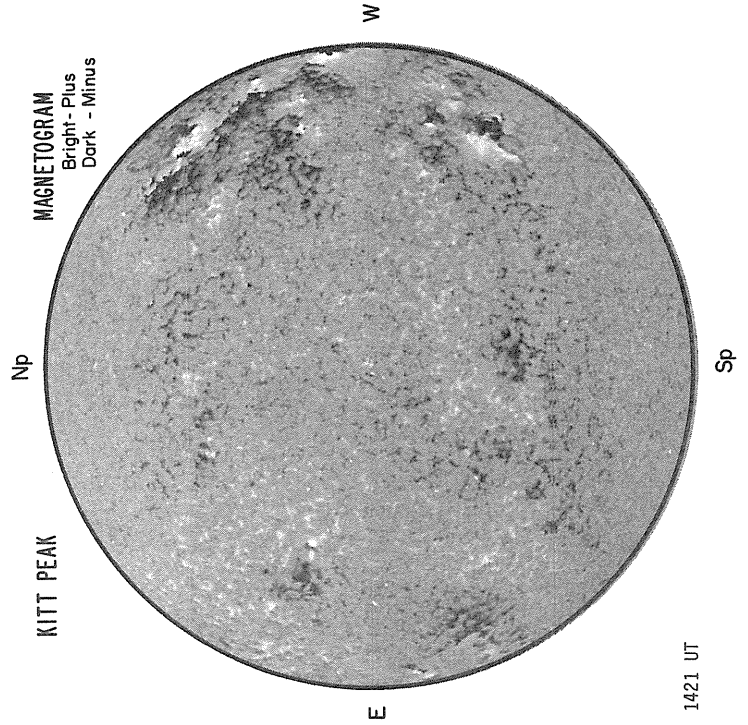
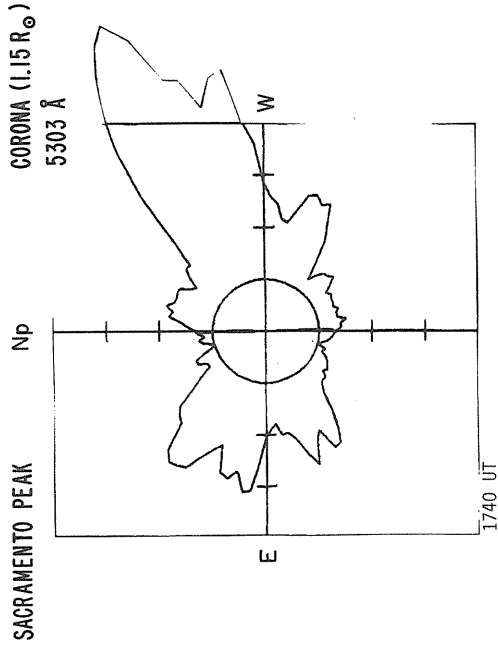
19



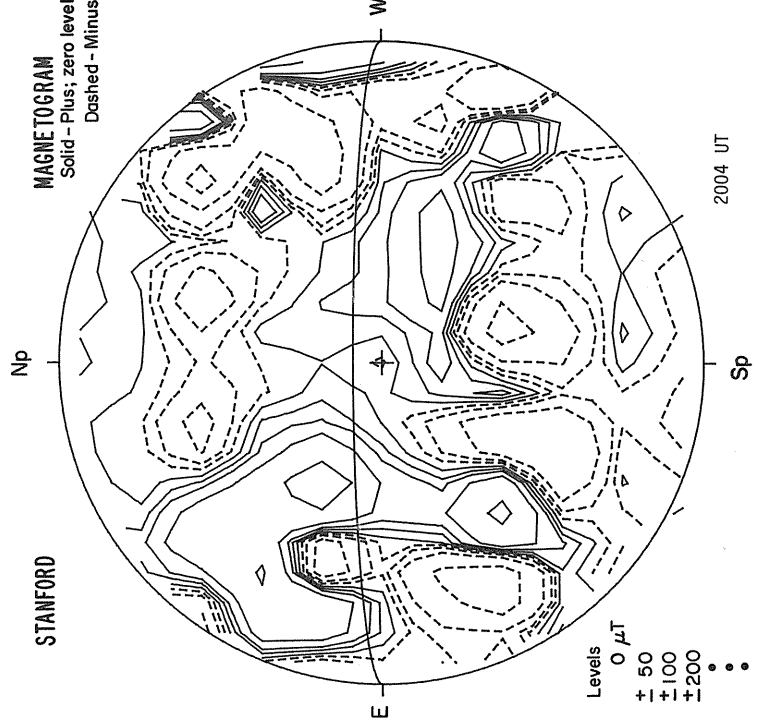
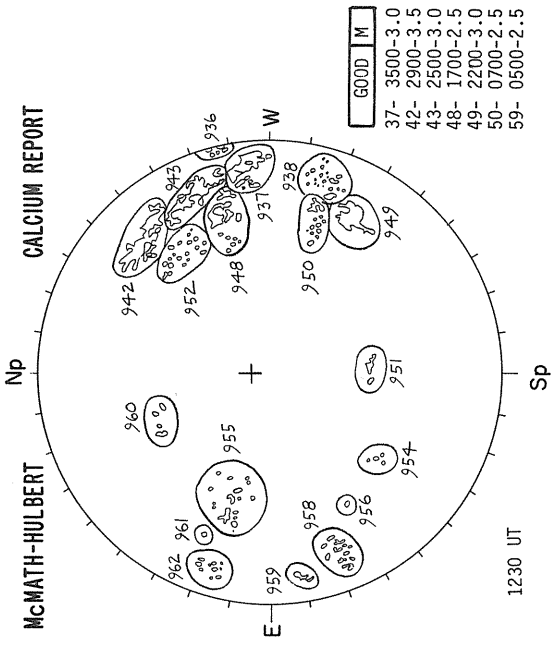
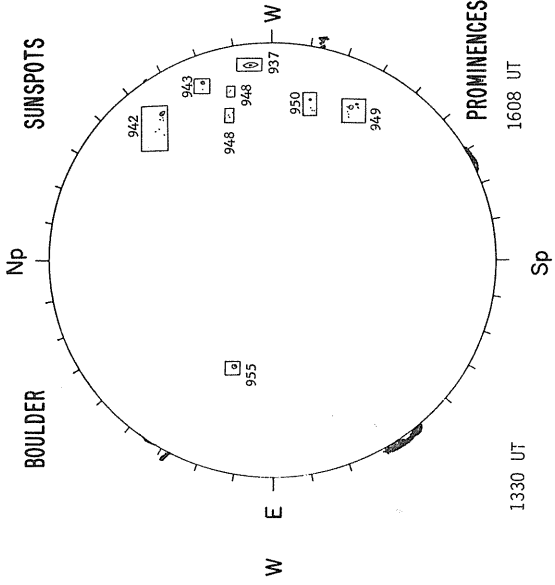
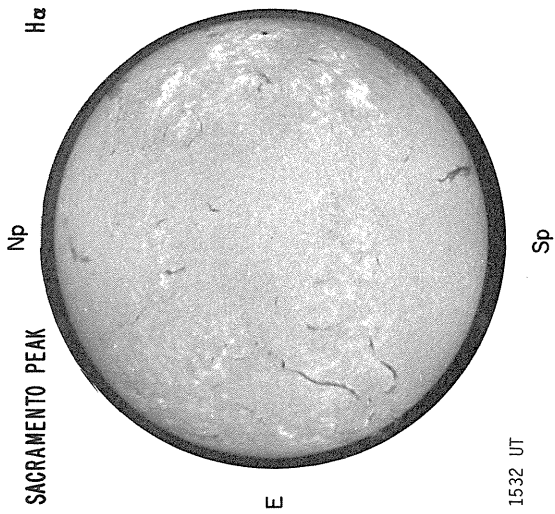
FAIR	M
37-	3300-3.5
42-	2700-3.5
43-	2400-3.5
48-	1500-2.5
49-	1900-3.0
55-	0600-2.5
59-	0200-3.5



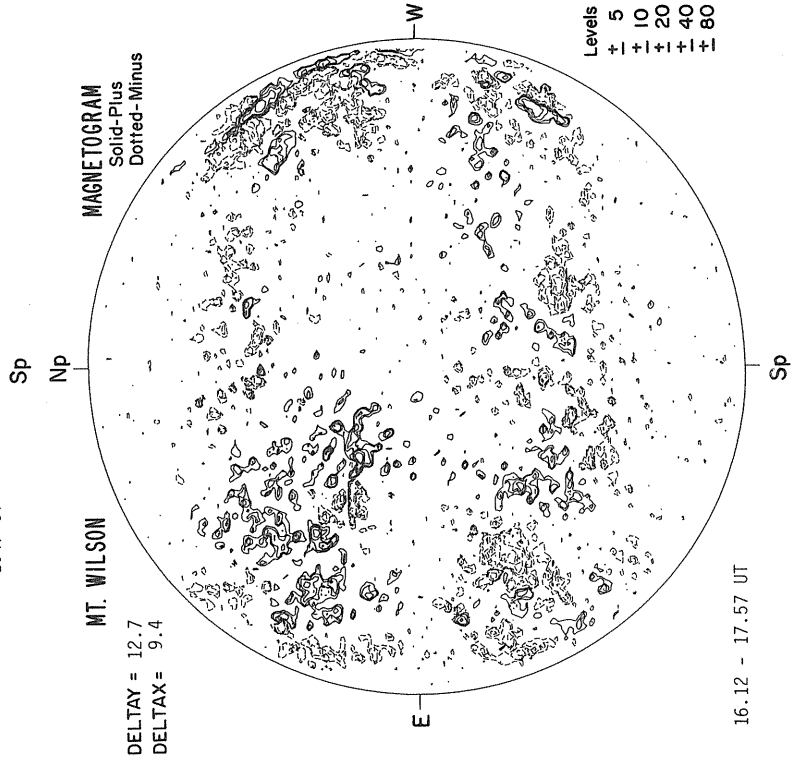
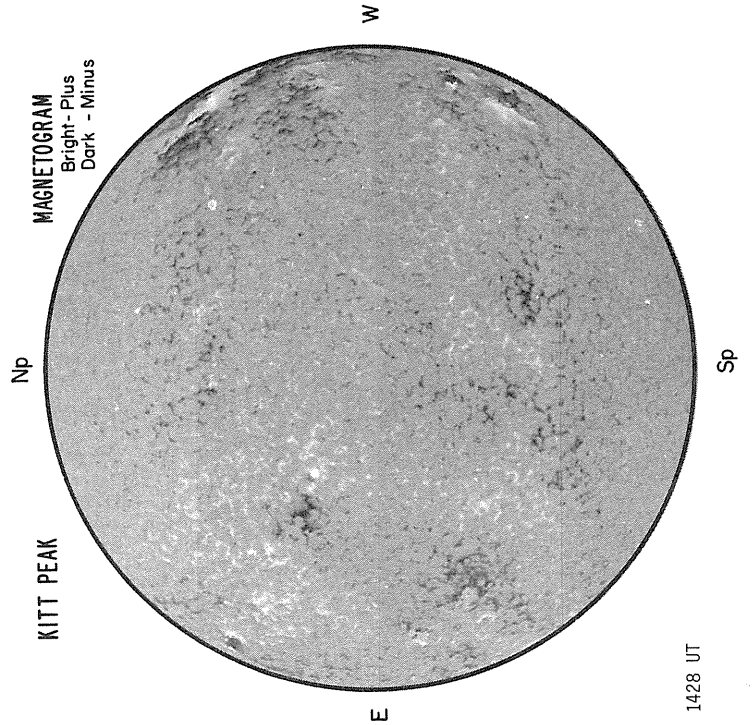
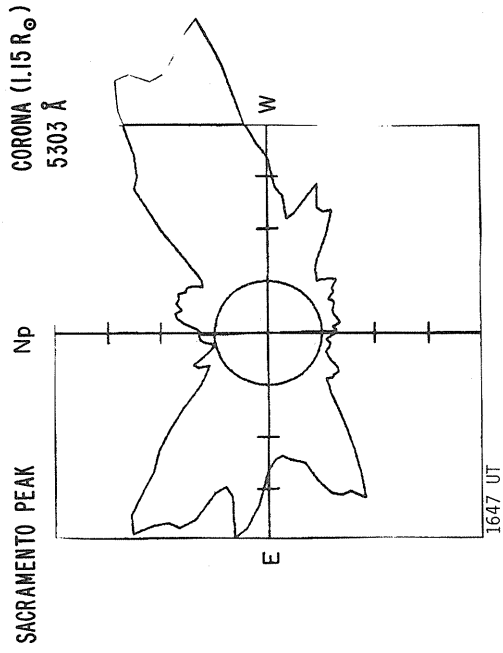
APRIL 20, 1979 (P = -25.74, B₀ = -5.22, L₀ = 86.42)



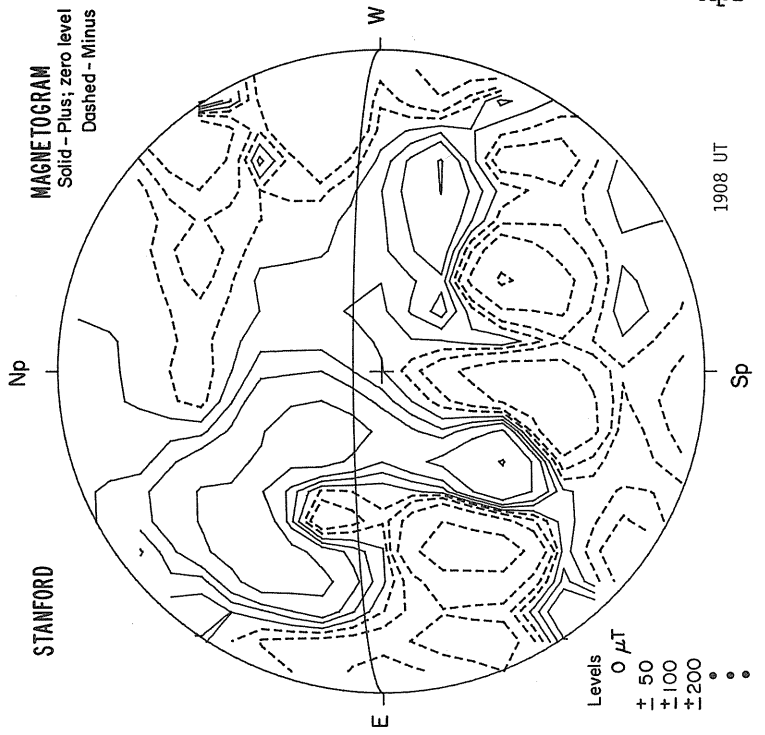
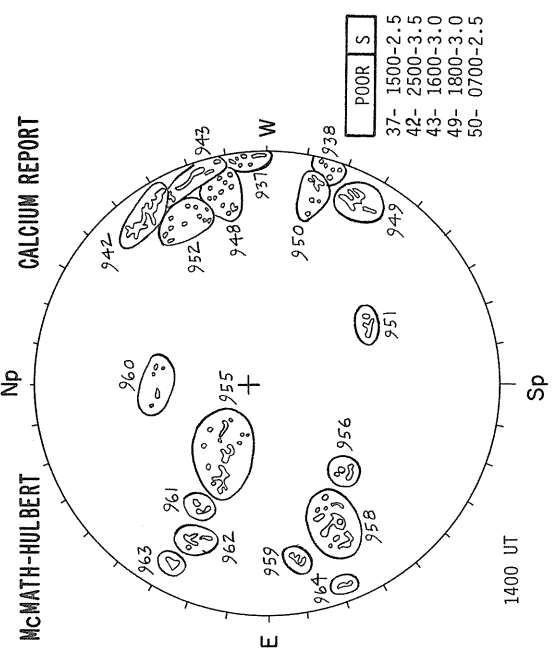
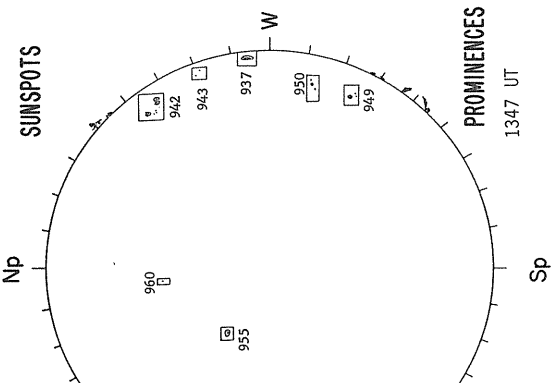
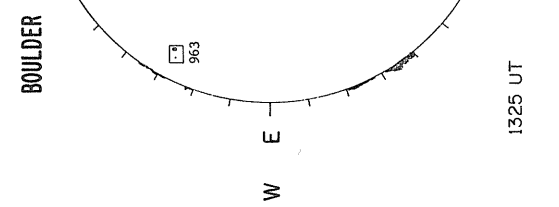
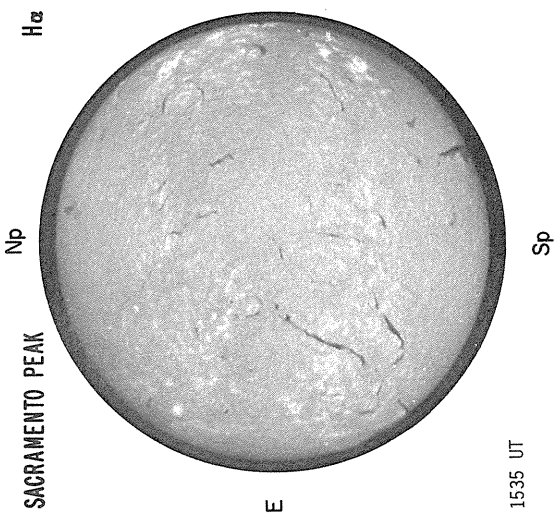
Levels
± 5
± 10
± 20
± 40
± 80



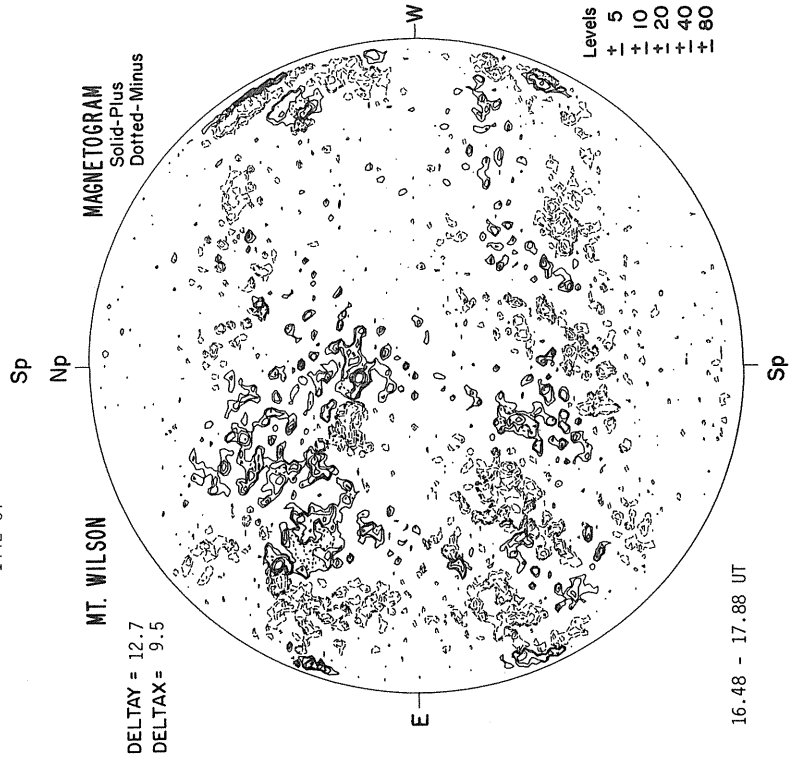
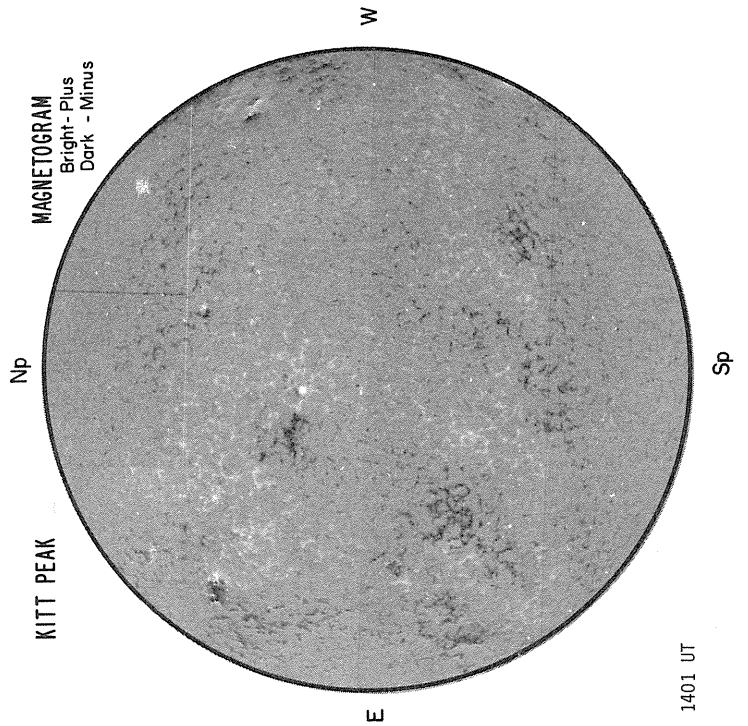
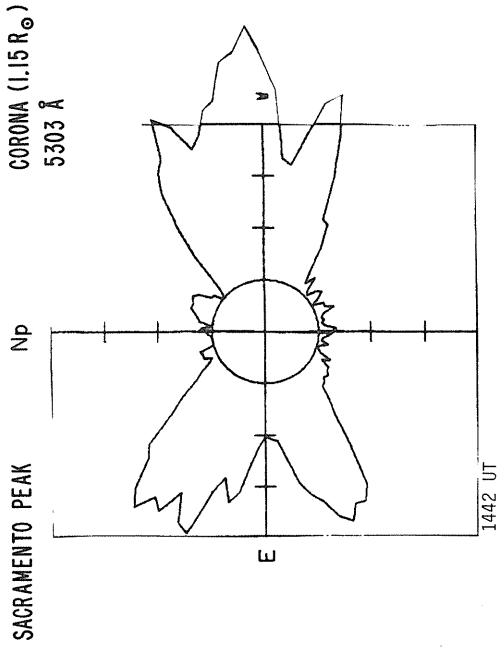
APRIL 21, 1979 (P = -25.65, B₀ = -5.13, L₀ = 73.21)



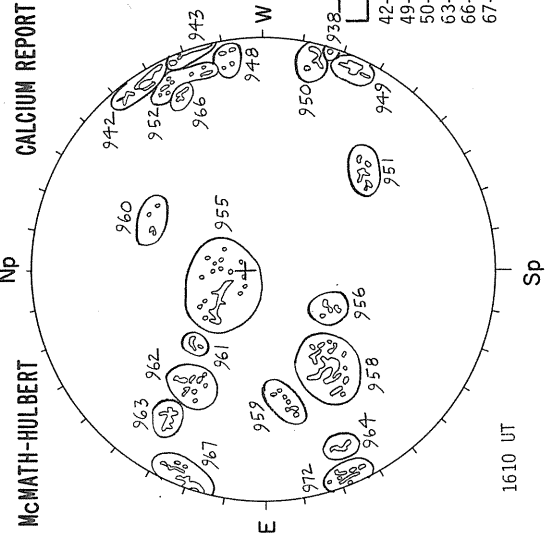
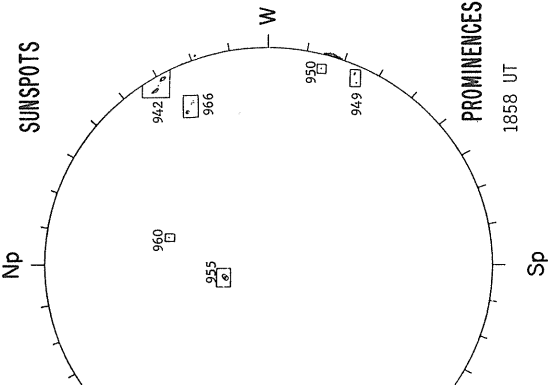
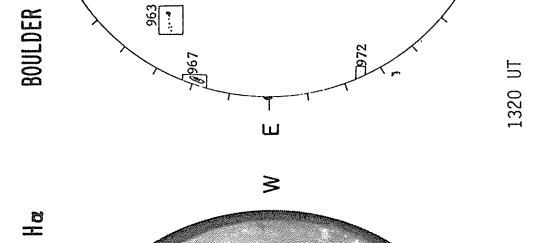
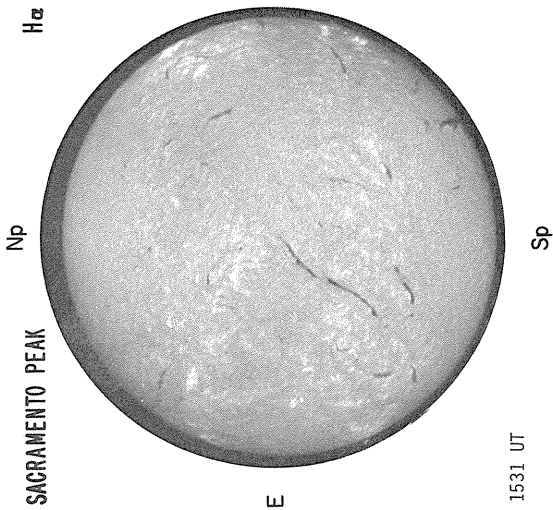
21



APRIL 22, 1979 (P = -25.54, B₀ = -5.05, L₀ = 60.00)

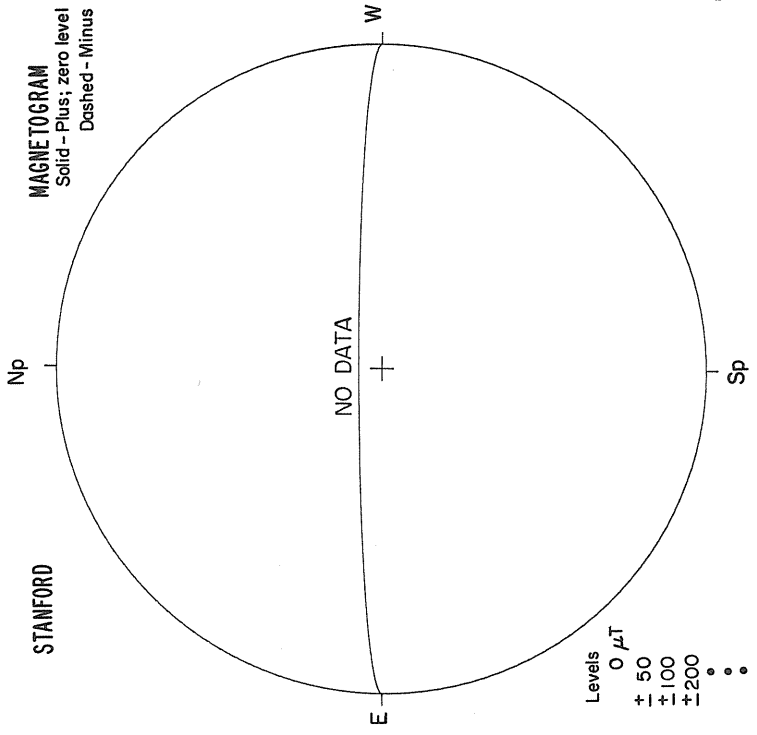


22

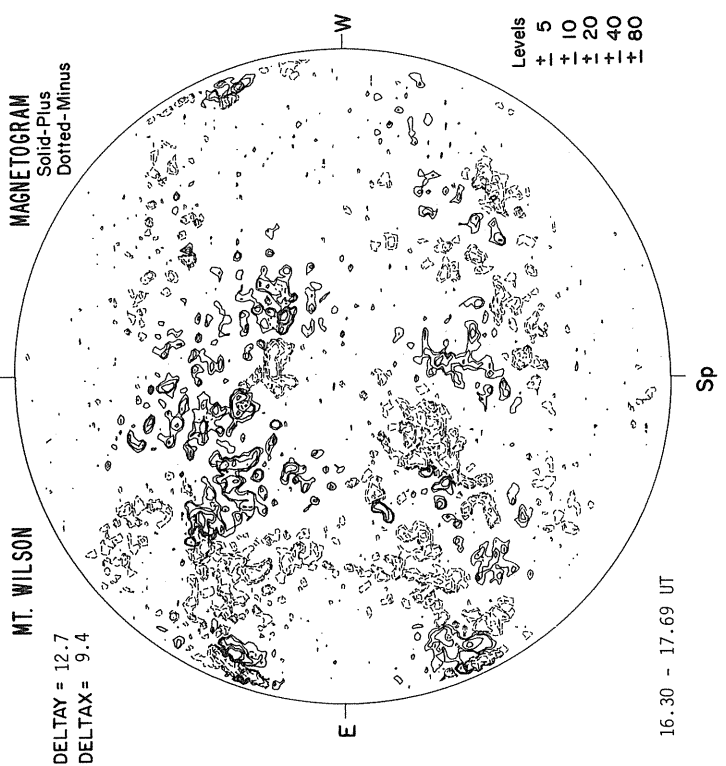
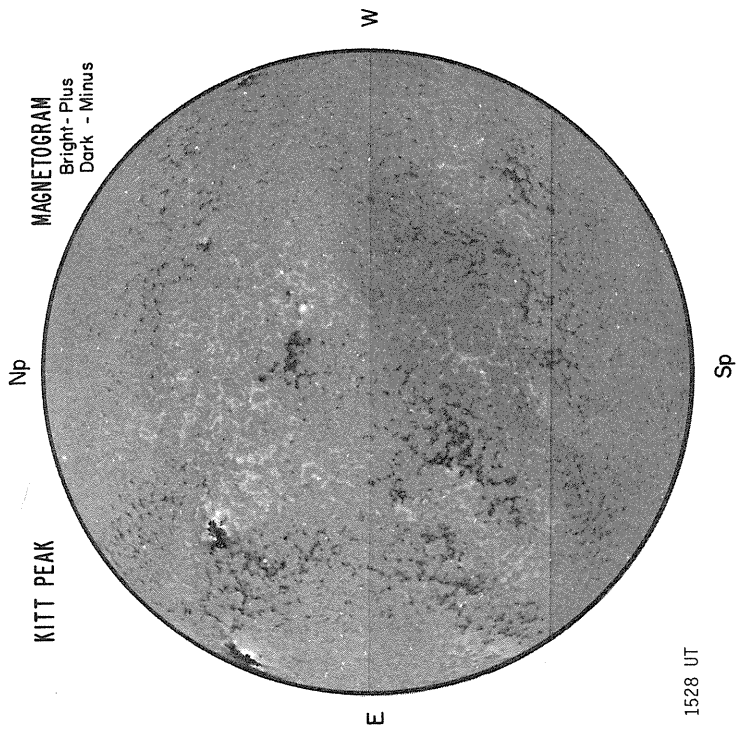
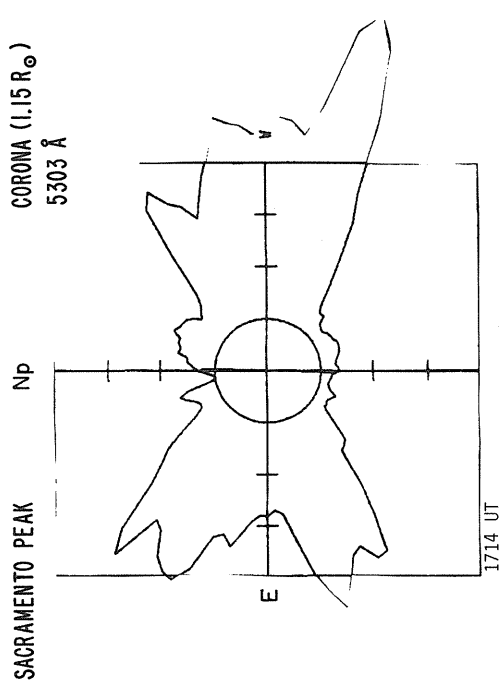


GOOD S
42- 2500-3.0
49- 1600-3.0
50- 0800-2.5
63- 0900-3.0
66- 0400-3.0
67- 2000-3.5

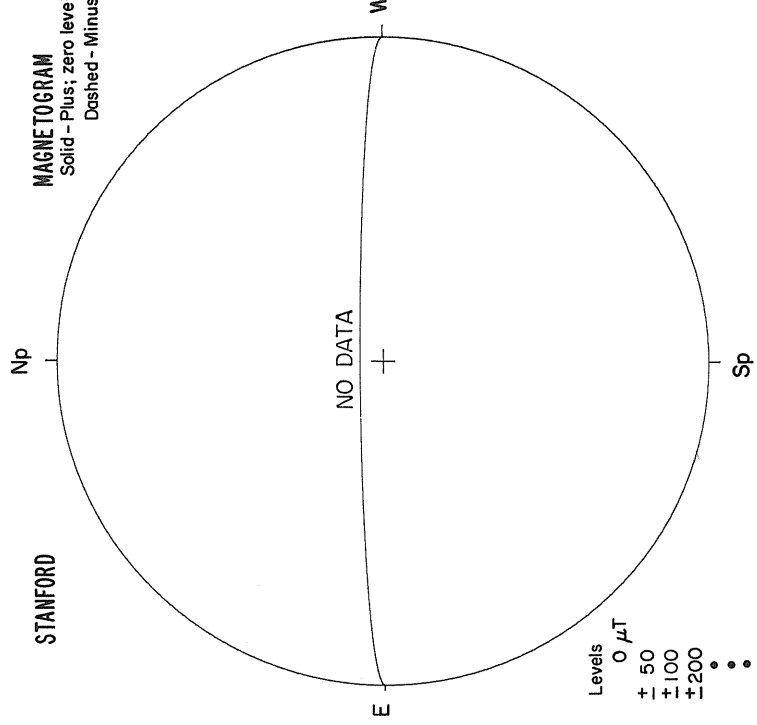
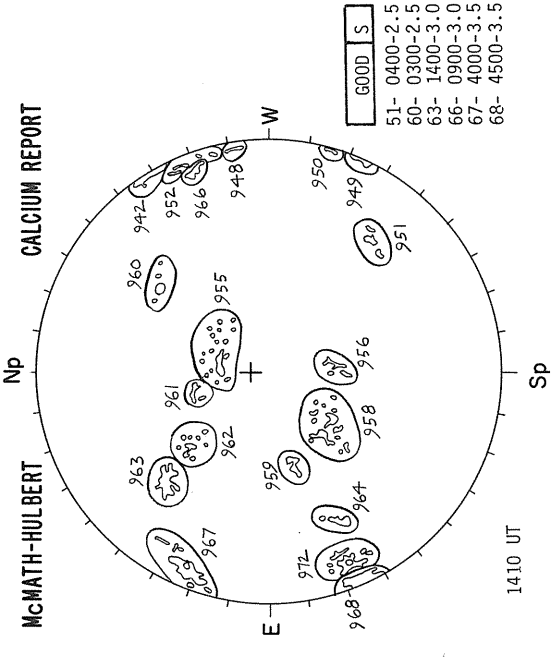
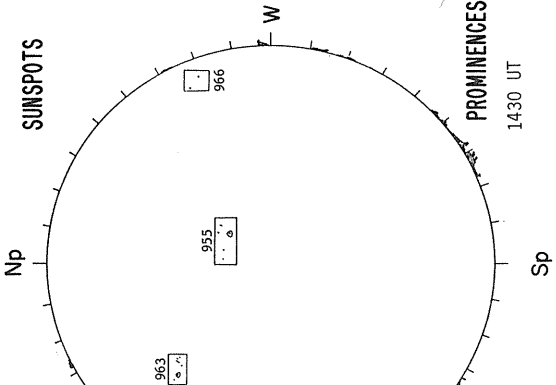
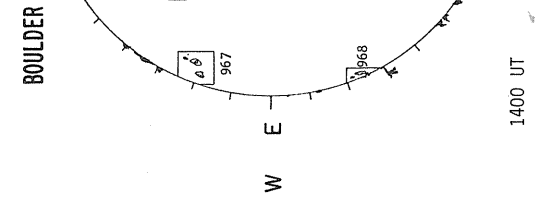
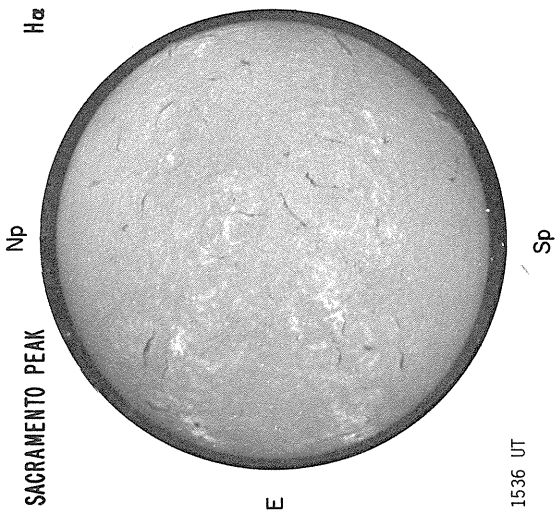
PROMINENCES



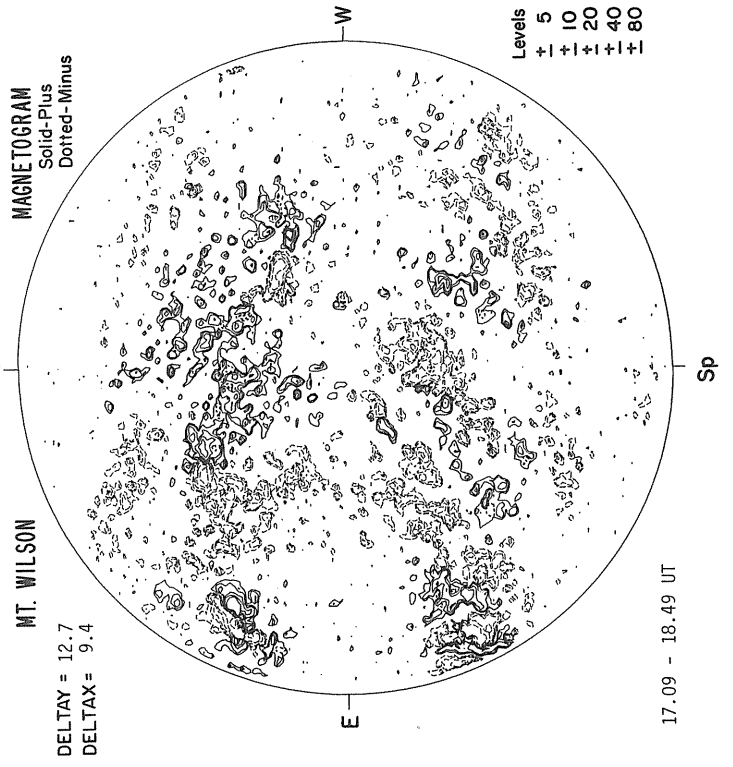
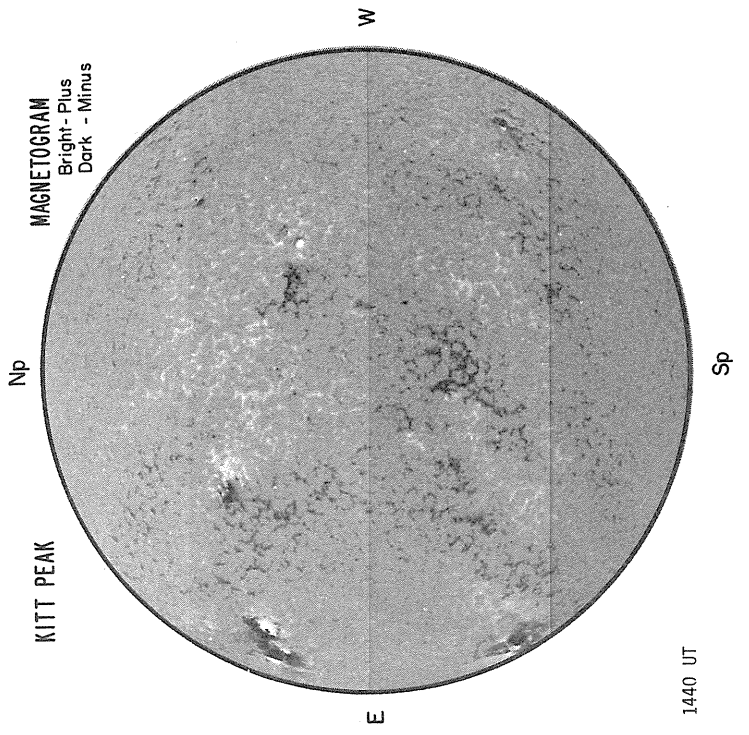
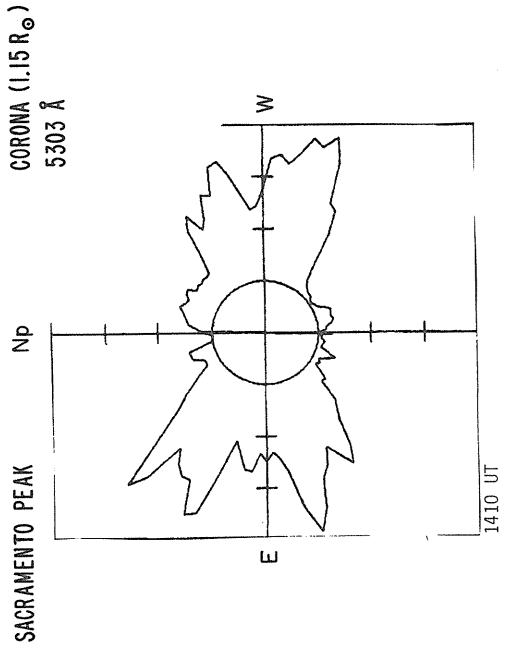
APRIL 23, 1979 (P = -25.43, B₀ = -4.96, L₀ = 46.79)



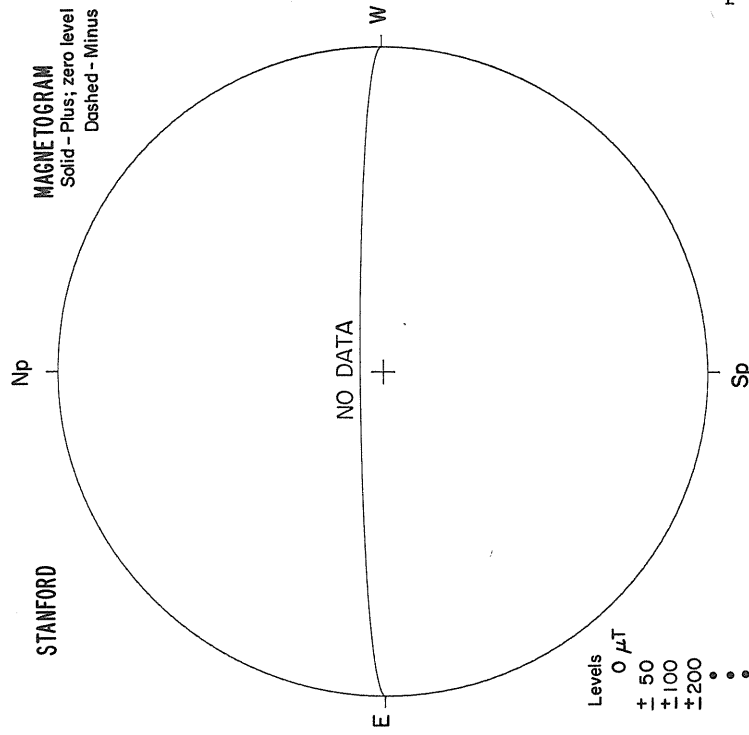
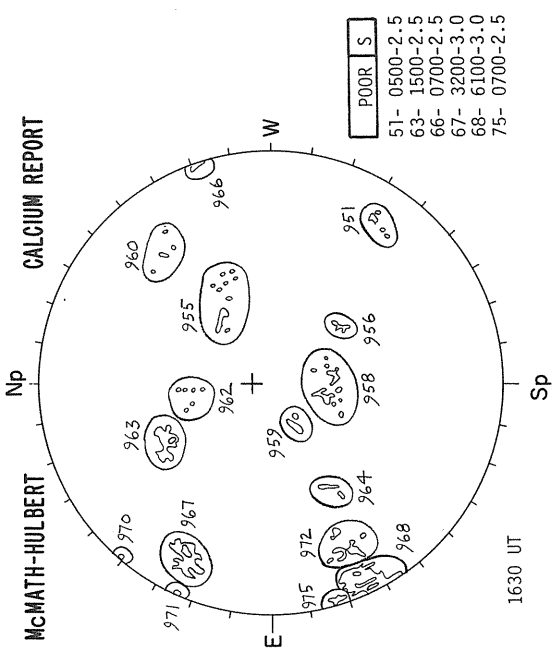
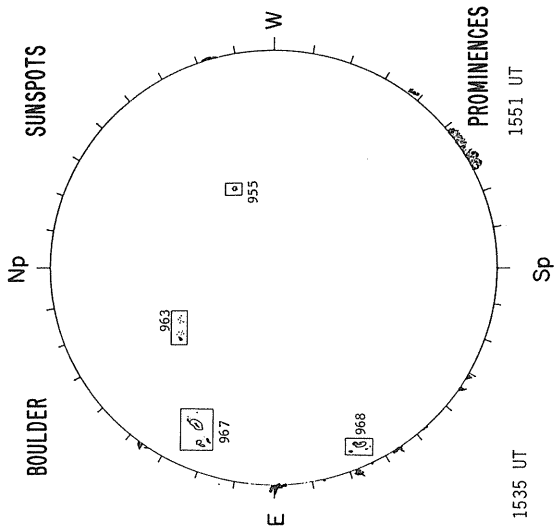
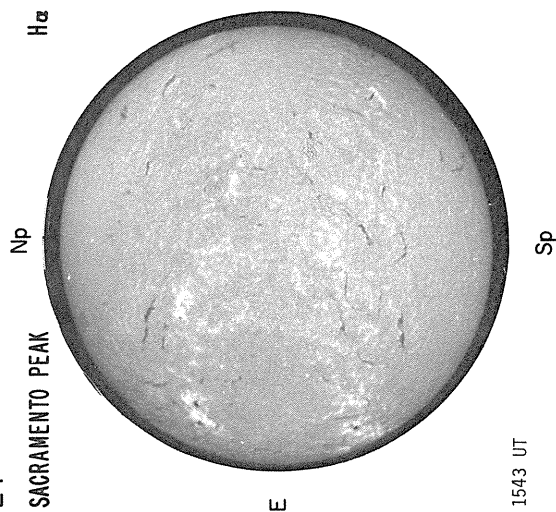
Levels
5
± 10
± 20
± 40
± 80



APRIL 24, 1979 (P = -25.31, B₀ = -4.87, L₀ = 33.58)

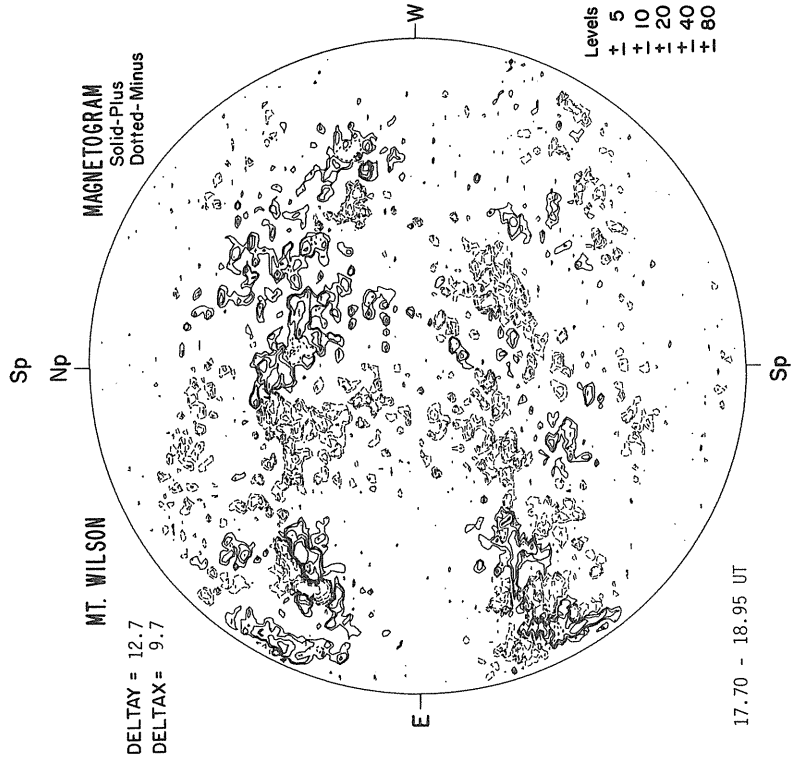
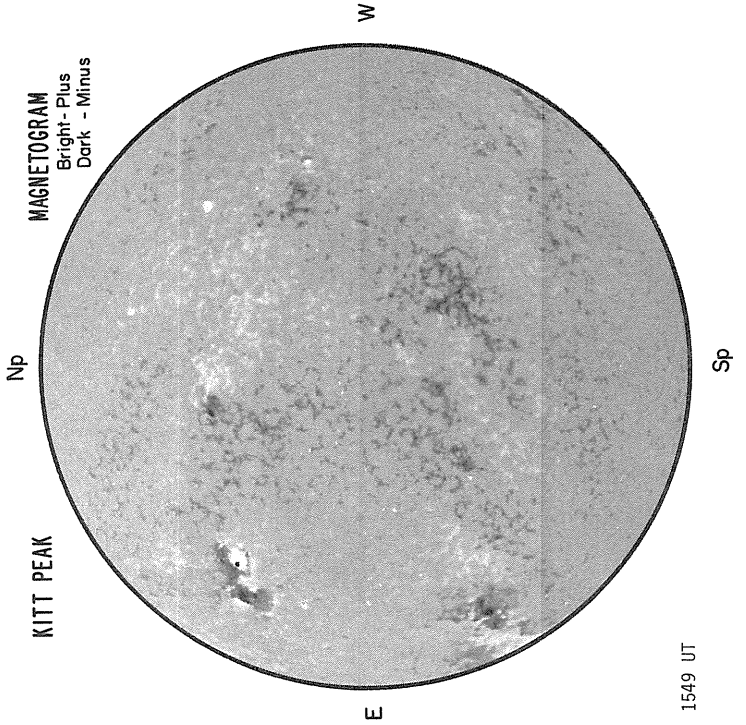
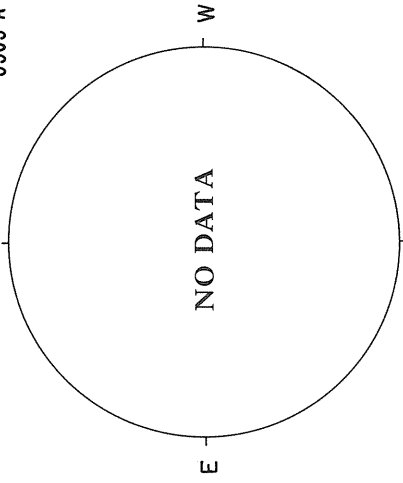


24

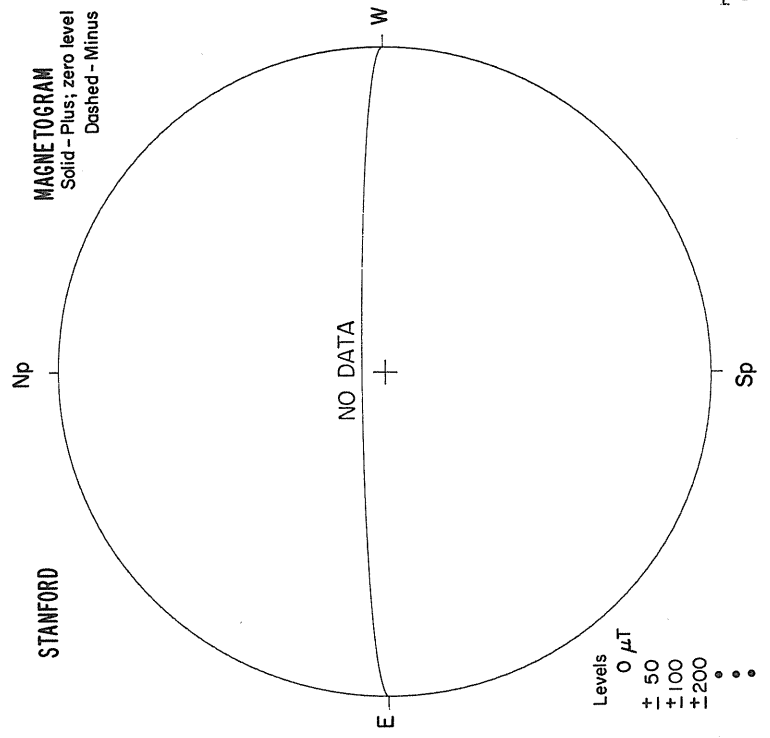
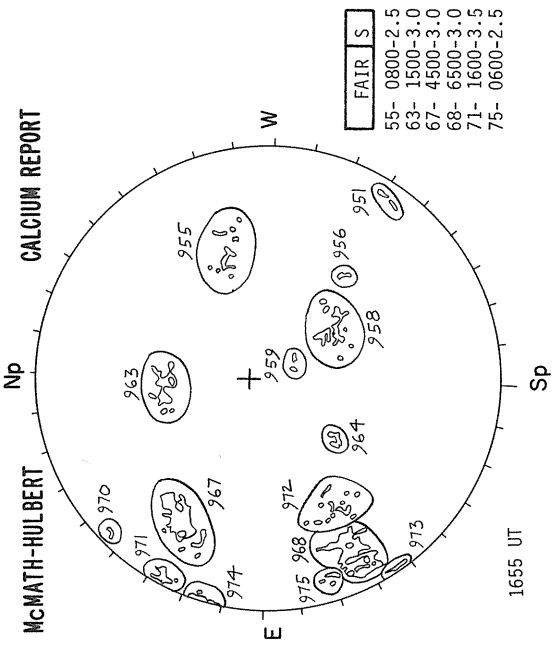
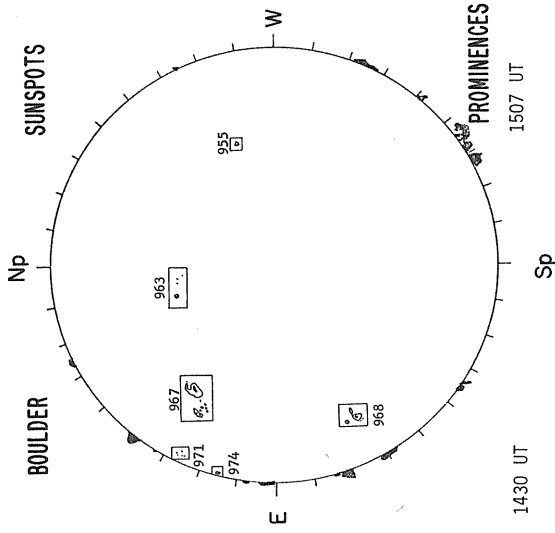
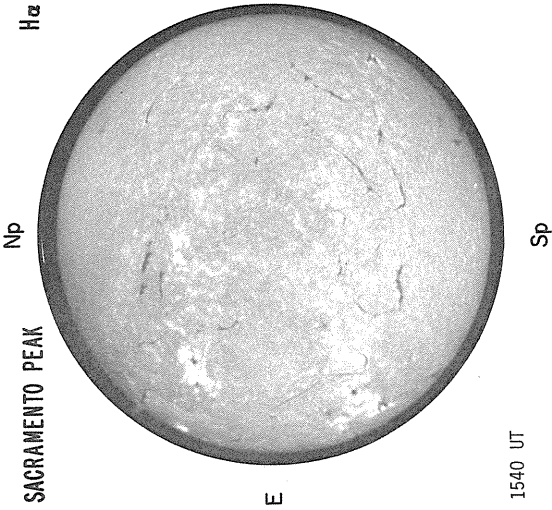


APRIL 25, 1979 (P = -25.19, B₀ = -4.77, L₀ = 20.37)

SACRAMENTO PEAK
CORONA (1.15 R_☉)
5303 Å

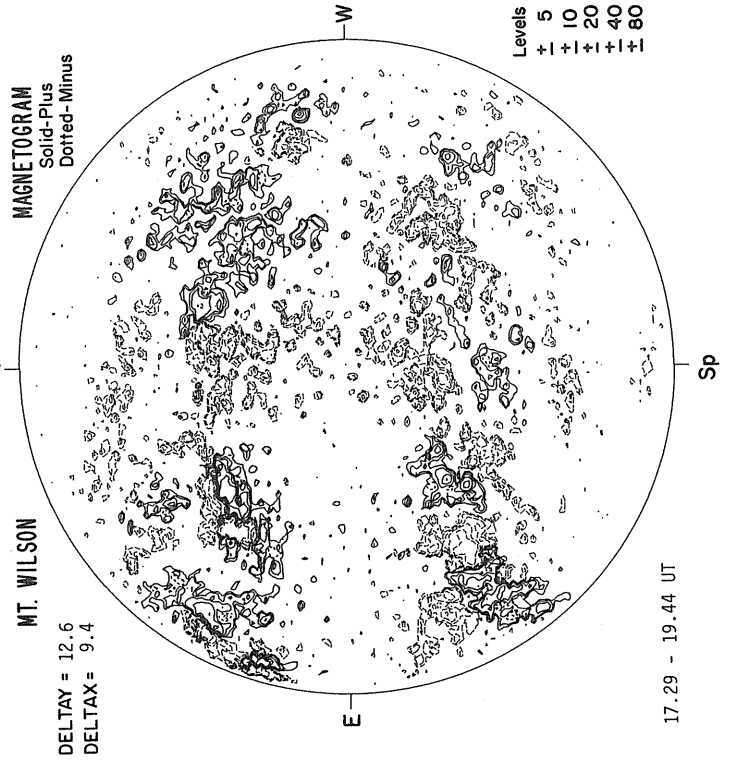
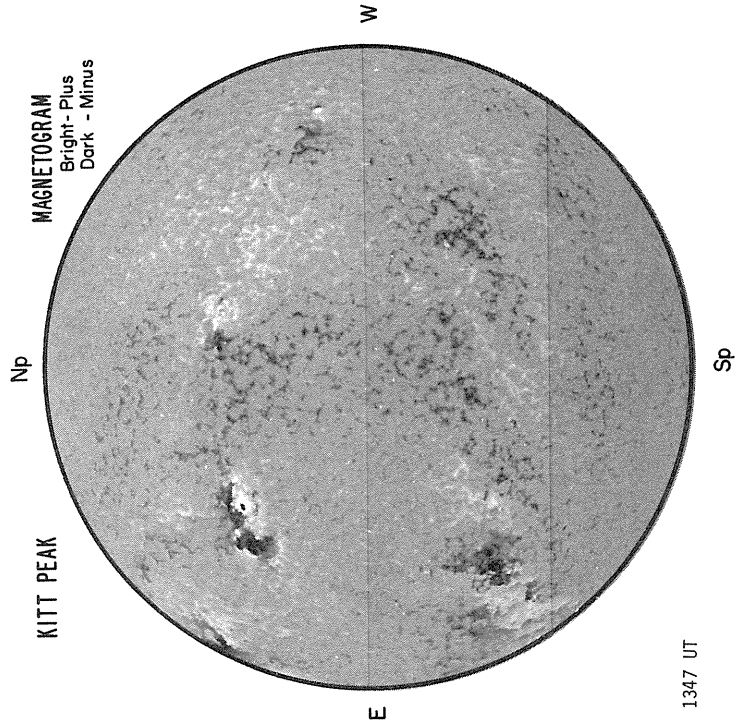
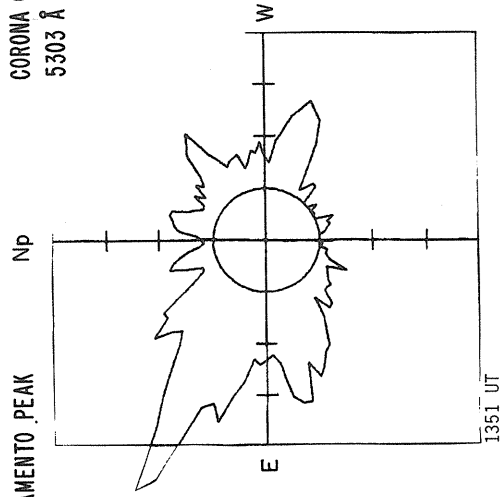


25

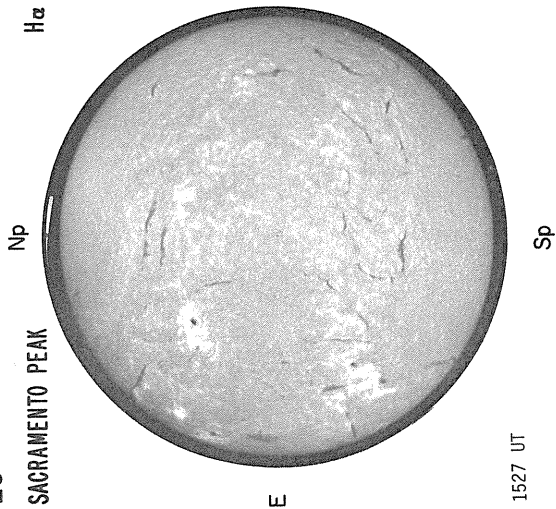


APRIL 26, 1979 (P = -25.06, B₀ = -4.68, L₀ = 7.16)

SACRAMENTO PEAK
CORONA (1.15 R_☉)
5303 Å

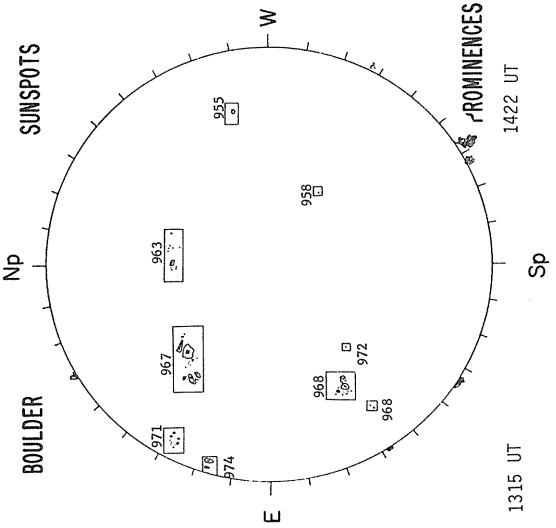


SACRAMENTO PEAK



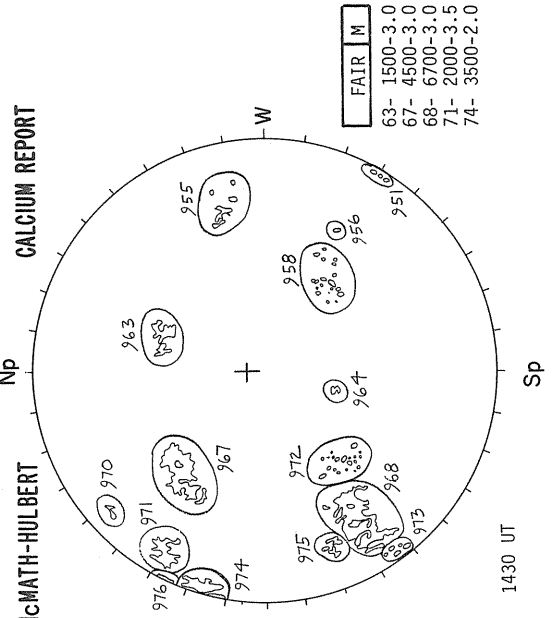
H α

BOULDER



SUNSPOTS

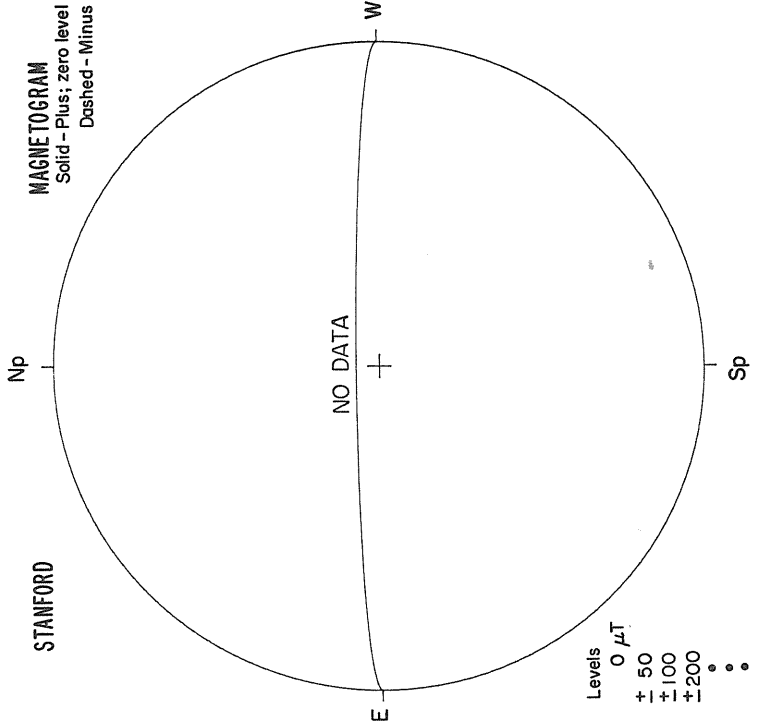
McMATH-HULBERT



CALCIUM REPORT

63- 1500-3.0	FAIR	M
67- 4500-3.0		
68- 6700-3.0		
71- 2000-3.5		
74- 3500-2.0		

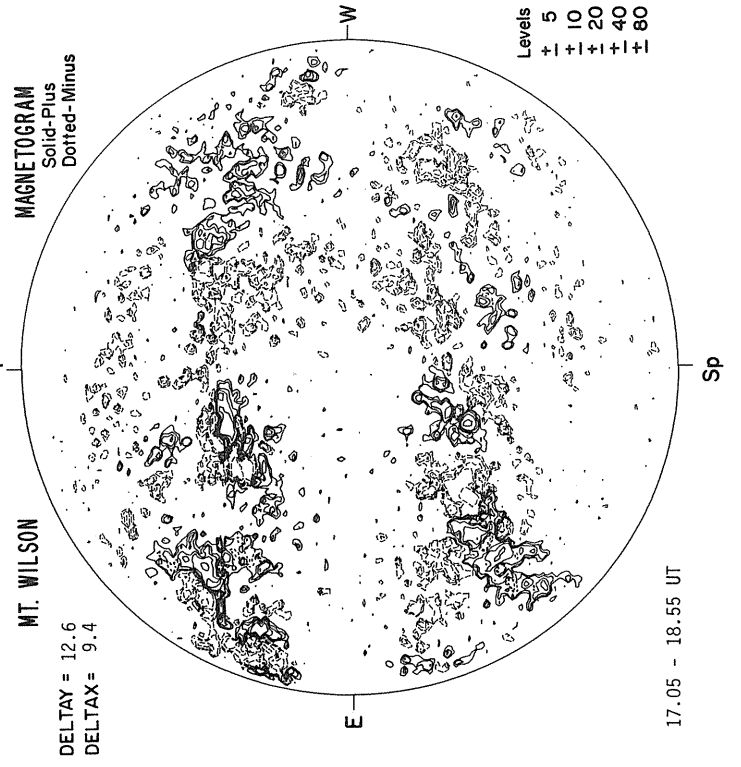
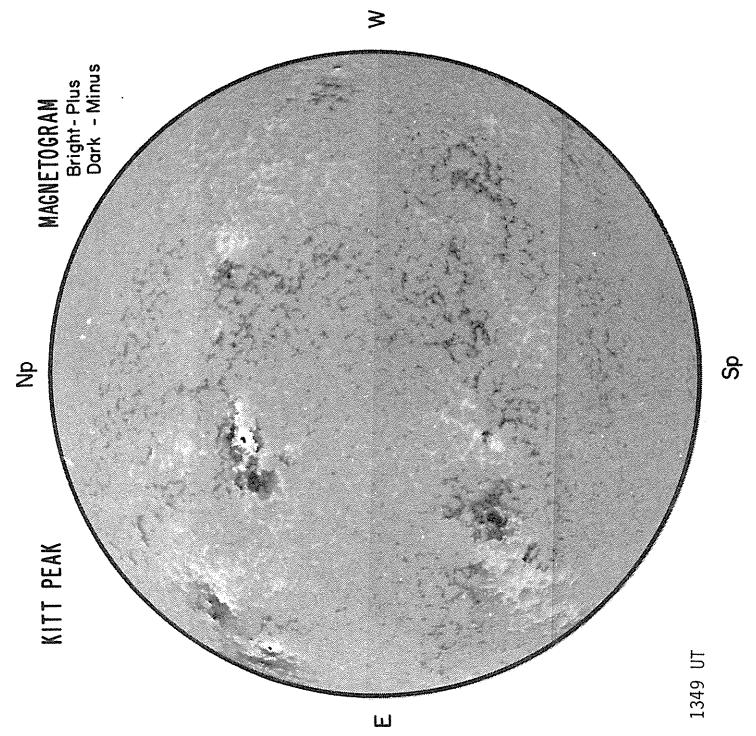
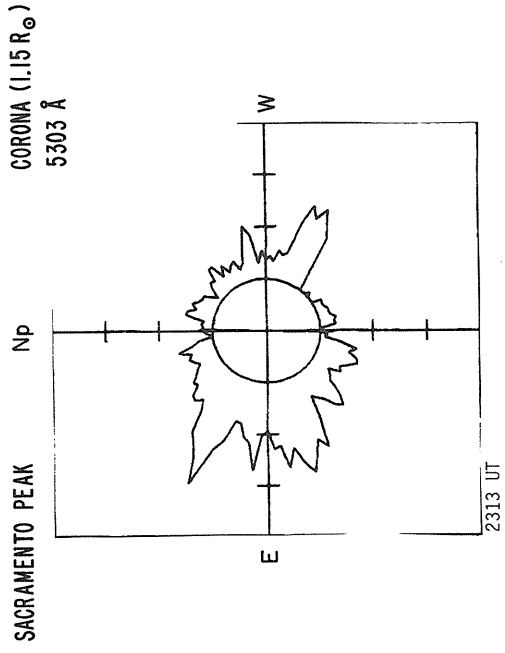
STANFORD



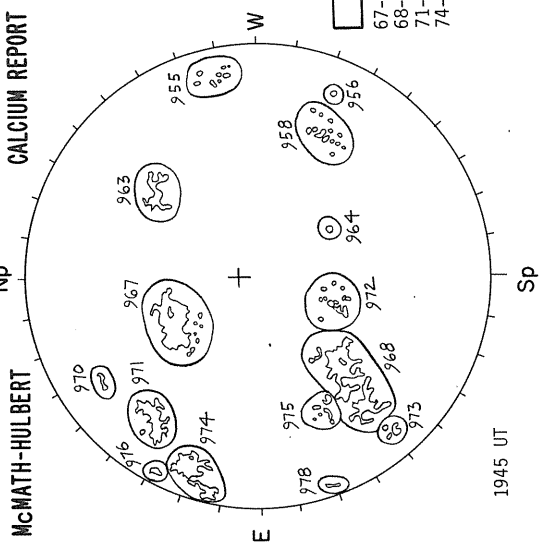
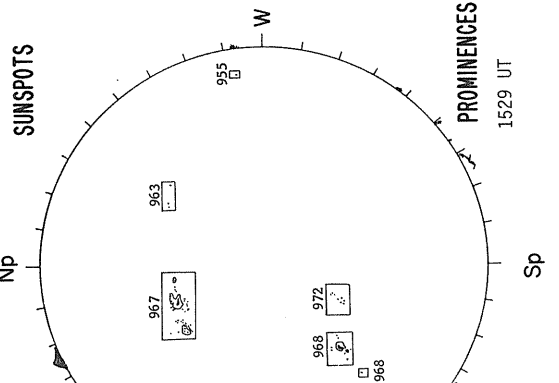
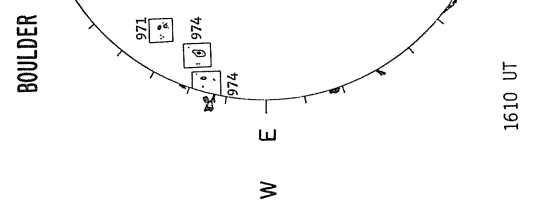
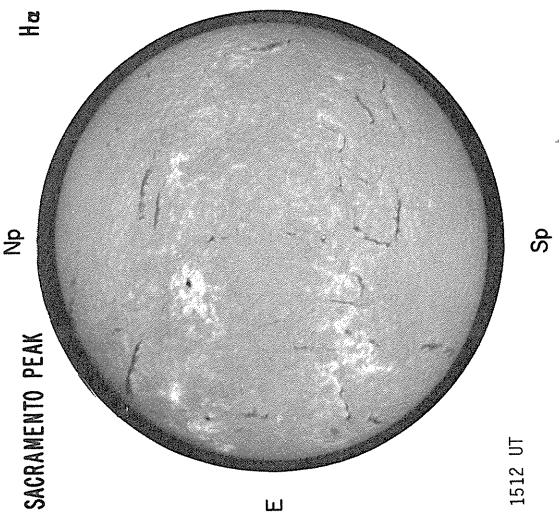
MAGNETOGRAM
 Solid - Plus; zero level
 Dashed - Minus

Levels
 0 μ T
 + 50
 \pm 100
 \pm 200
 •••

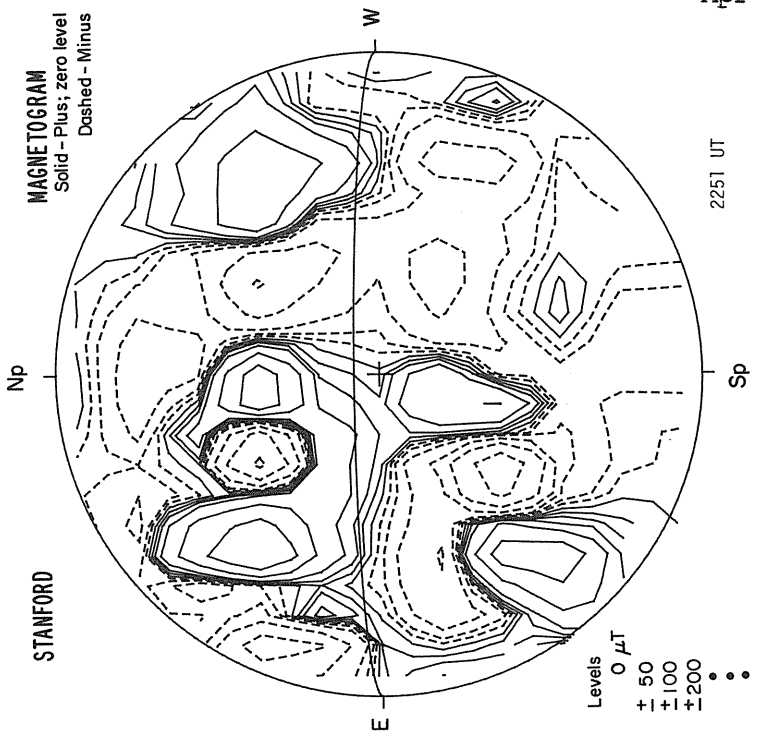
APRIL 27, 1979 (P = -24.92, B₀ = -4.59, L₀ = 353.95)



27



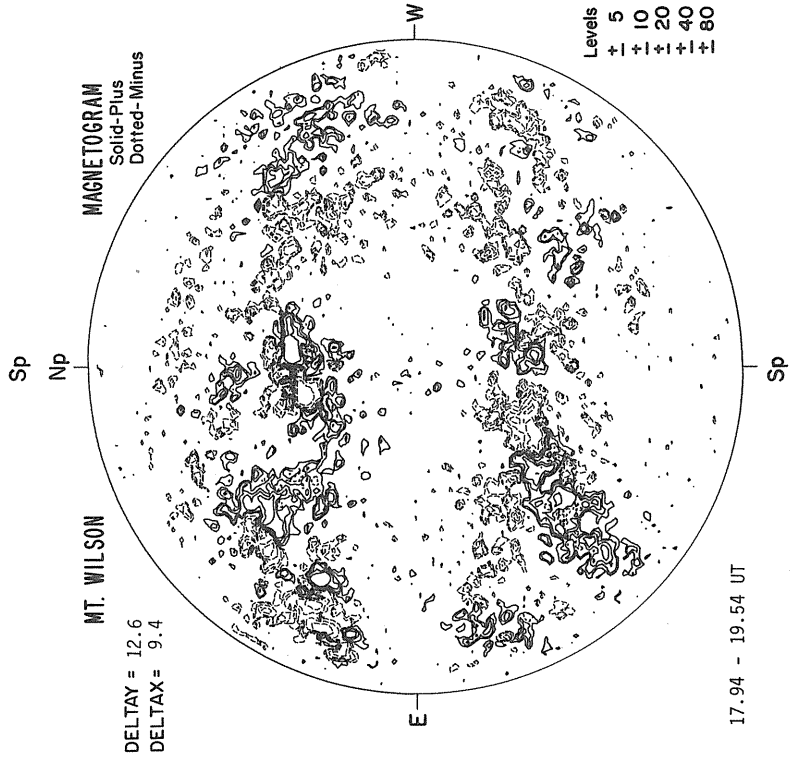
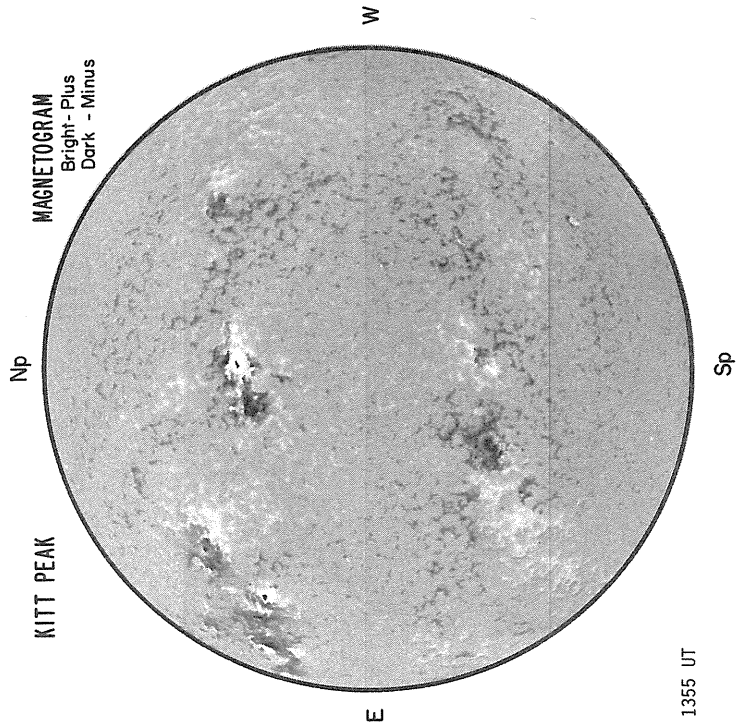
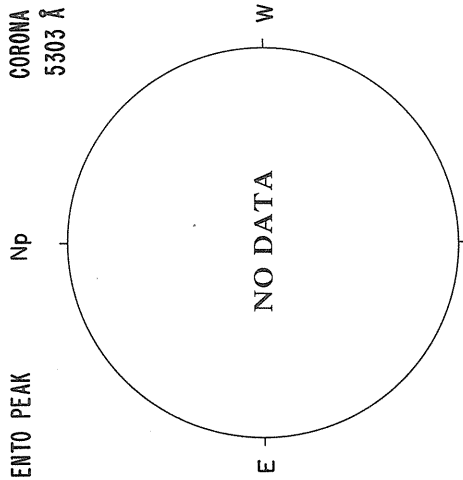
POOR	M
67- 4500-3.5	
68- 5800-3.0	
71- 2400-3.0	
74- 5000-3.0	



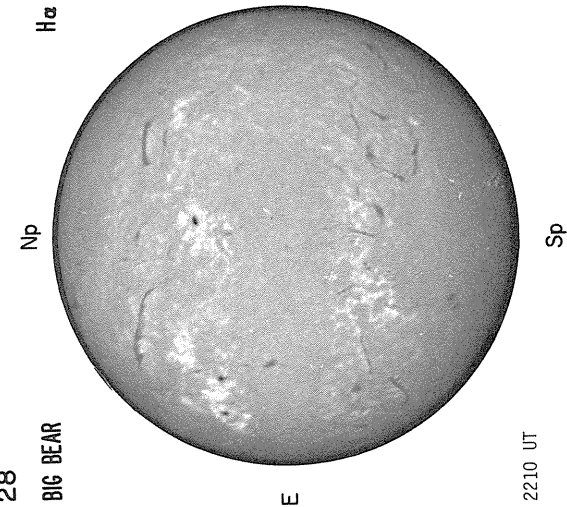
Levels
0 μ T
+ 50
+ 100
+ 200
• • •

APRIL 28, 1979 (P = -24.77, B₀ = -4.49, L₀ = 340.73)

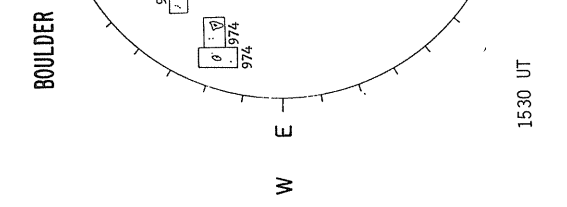
SACRAMENTO PEAK
CORONA (1.15 R_☉)
5303 Å



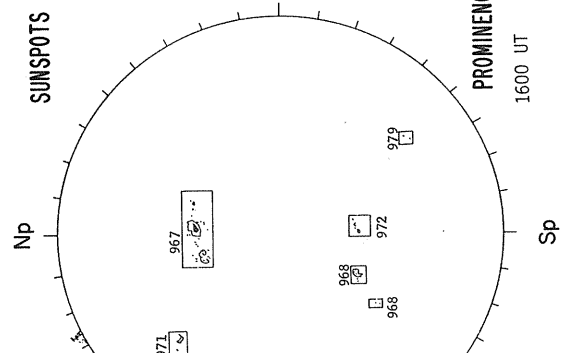
28
BIG BEAR



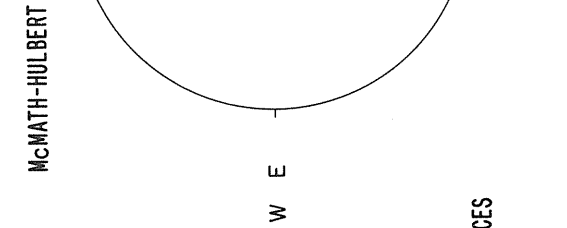
2210 UT



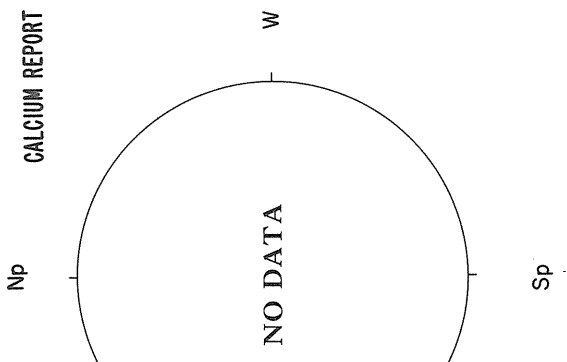
1530 UT



1600 UT

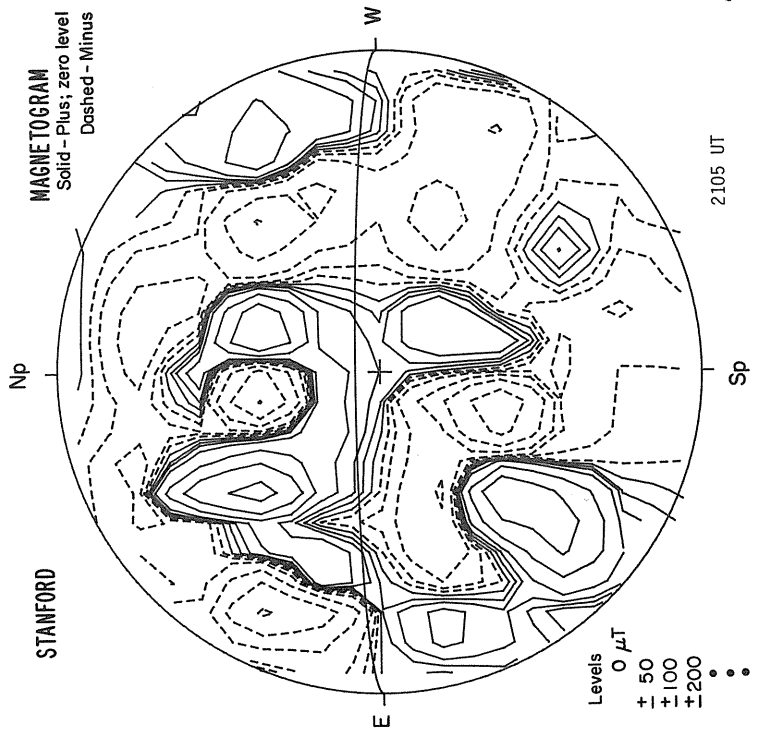


PROMINENCES



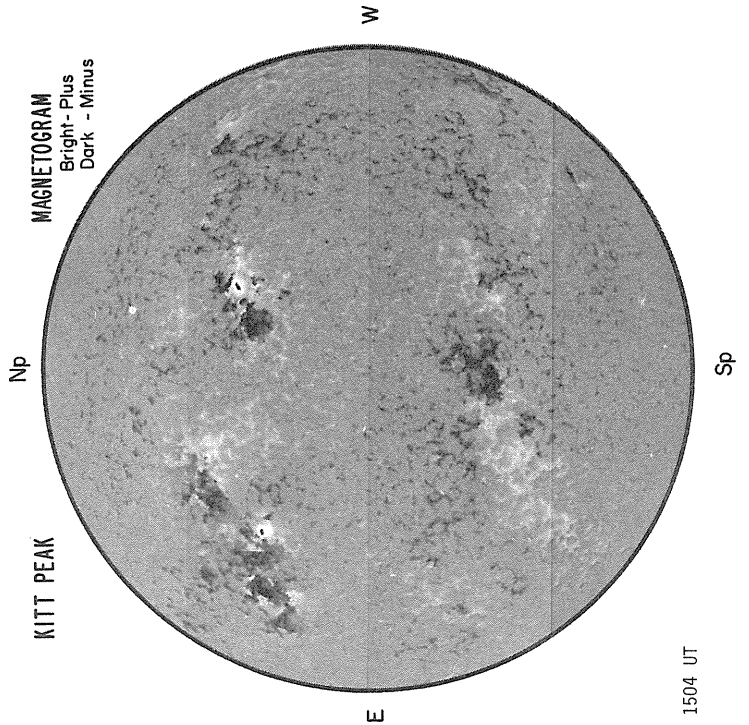
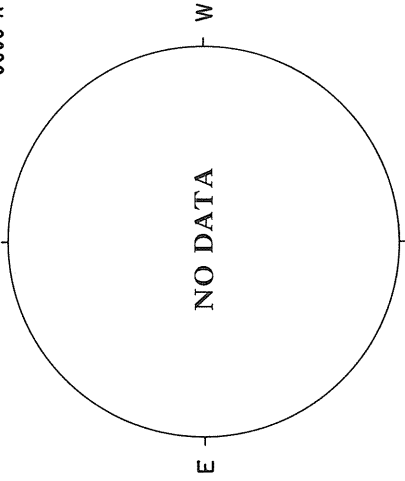
1600 UT

Photographs From —
Big Bear Solar Observatory
Big Bear City, California
Date: 4-28-79

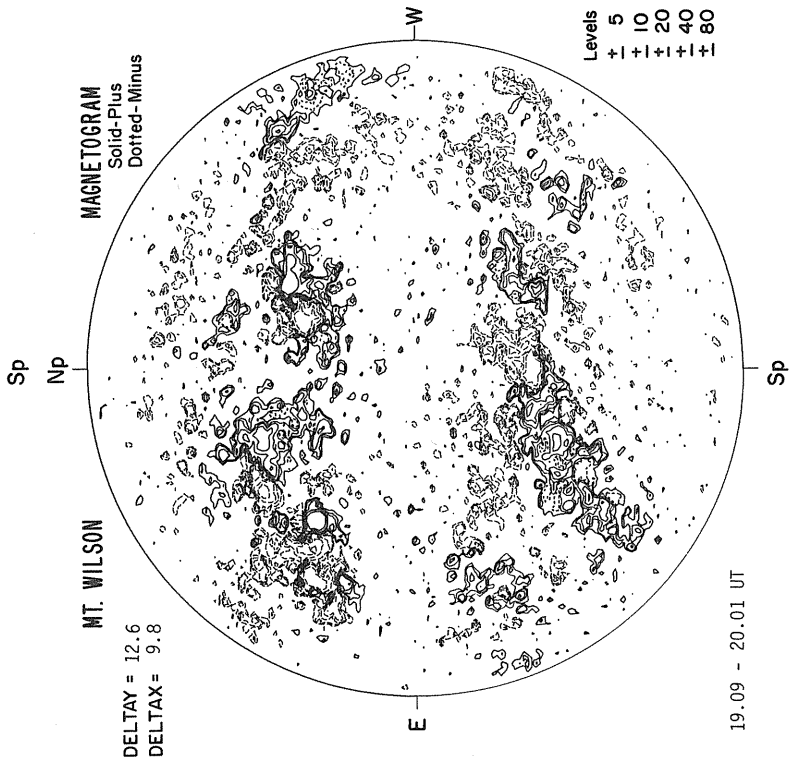


APRIL 29, 1979 (P=-24.6l, B₀=-4.39, L₀=327.52)

SACRAMENTO PEAK
CORONA (1.15 R₀)
5303 Å

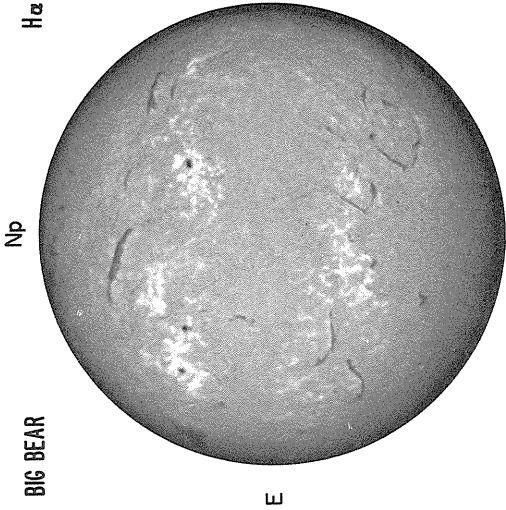


1504 UT

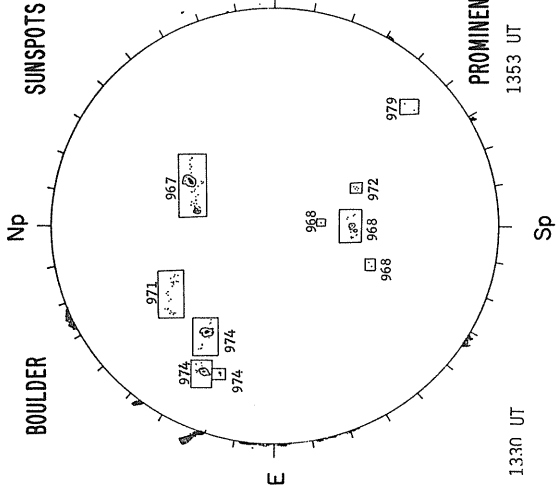


29

BIG BEAR

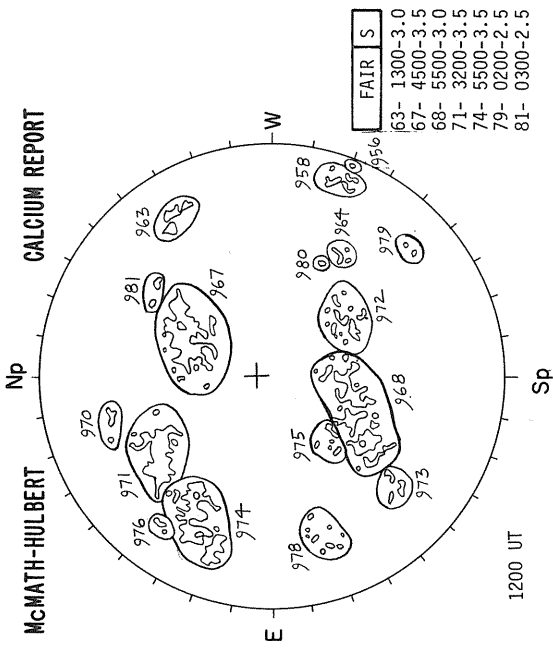


BOULDER



SUNSPOTS

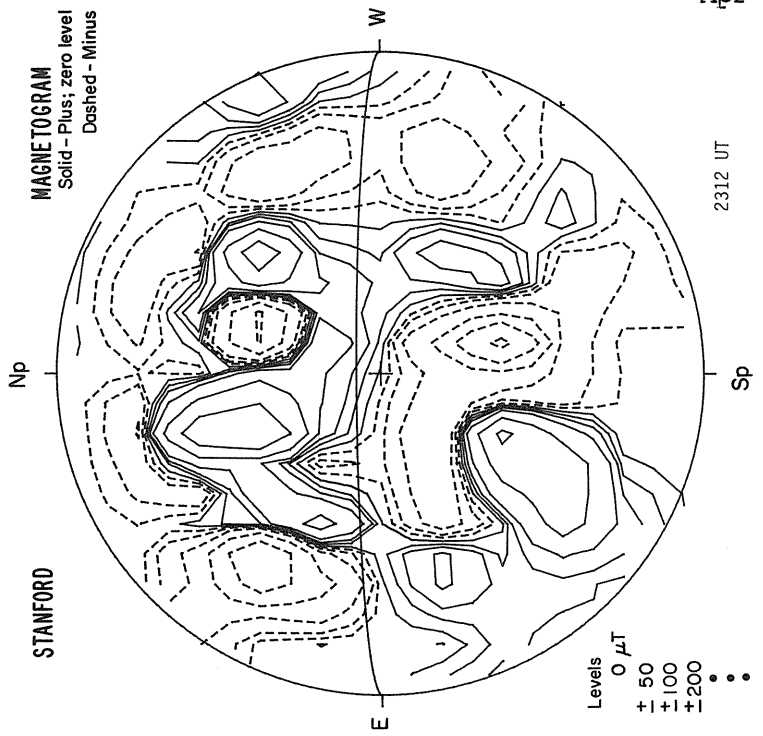
McMATH-HULBERT



CALCIUM REPORT

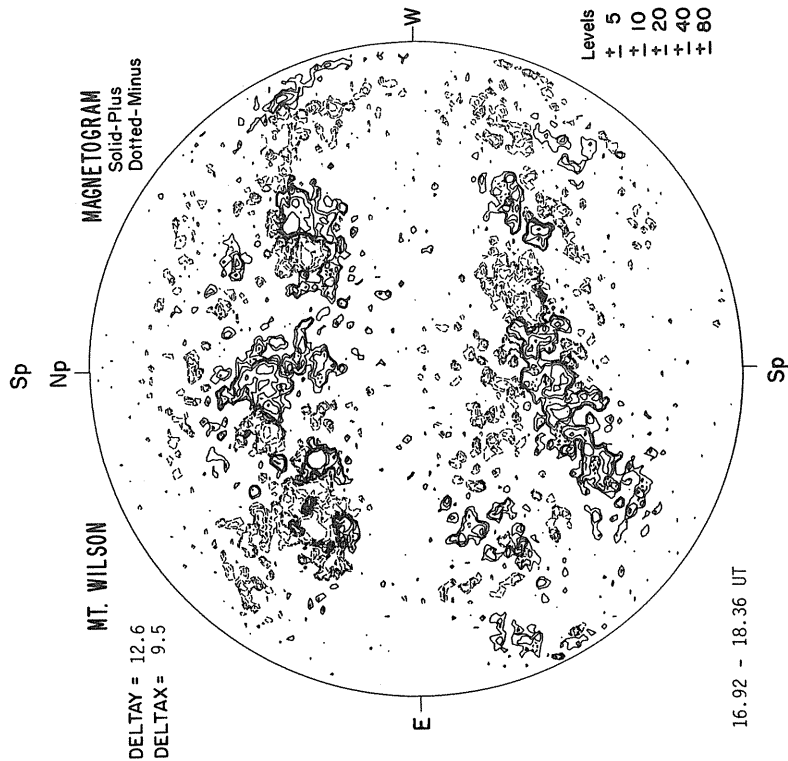
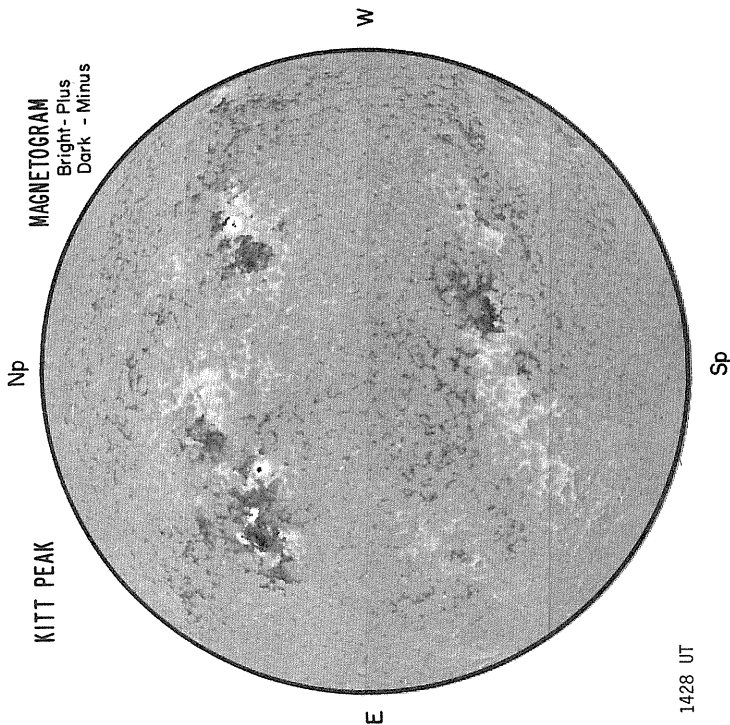
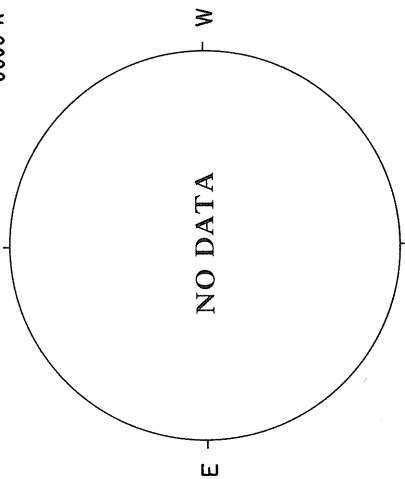
Plotted from —
 Big Bear Solar Observatory
 Big Bear City, California
 Date: 4-29-79

STANFORD

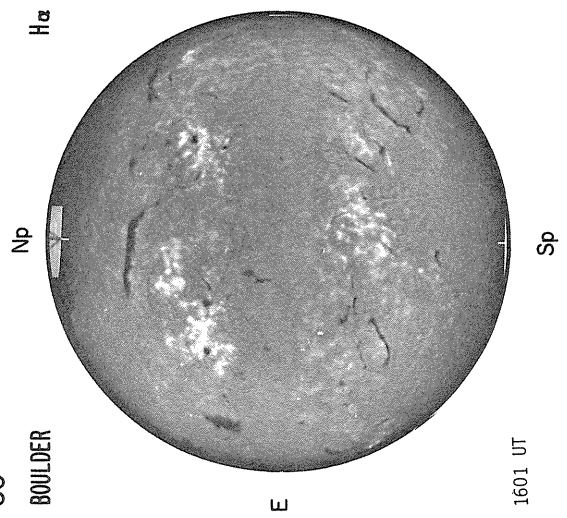


APRIL 30, 1979 (P = -24.45, B₀ = -4.30, L₀ = 314.30)

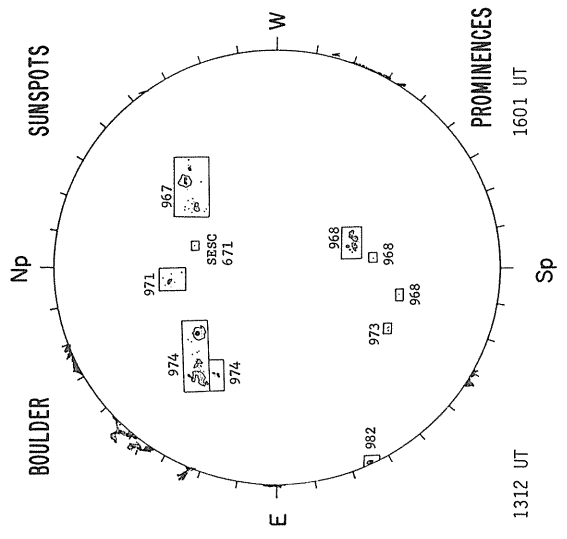
SACRAMENTO PEAK
CORONA (1.15 R_☉)
5303 Å



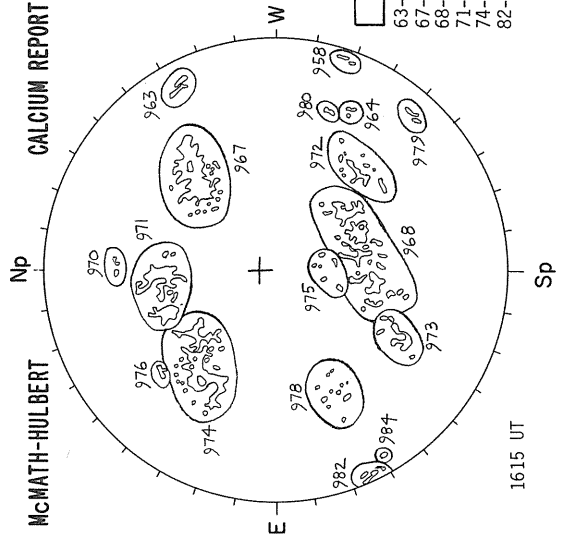
30
BOULDER



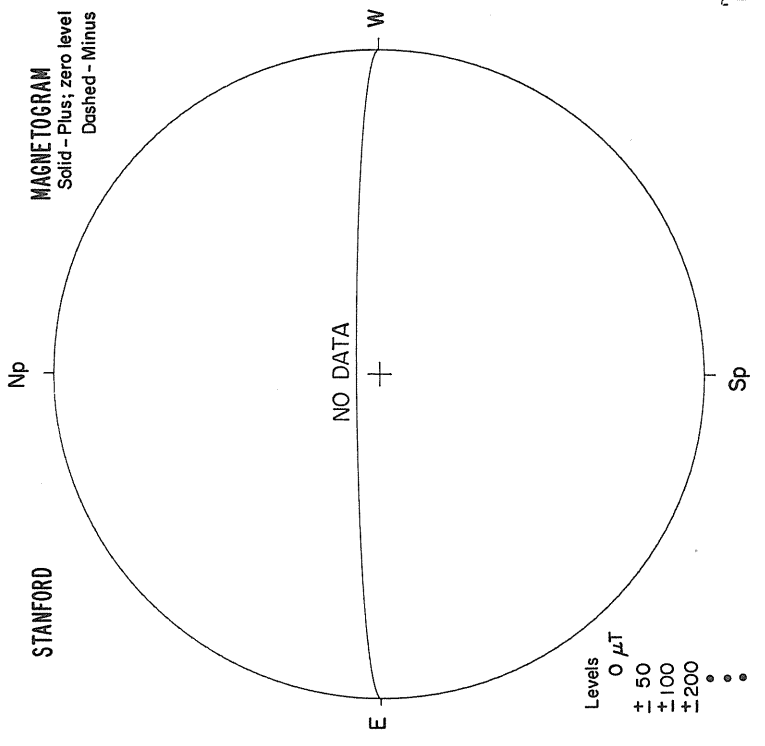
BOULDER



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STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

REGIONS OF SOLAR ACTIVITY

APRIL 1979

MCMATH REGION 15915 CMP DATE 1.3 RETURN OF REGION 15860 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	3	26	15915	N35 E74	335	1200	3.5	20529	N32 E65	344	(AP)	2				
79	3	27	15915	N34 E60	336	1800	3.5		N31 E40				B	70	12	DSI
79	3	28	15915	N34 E47	336	2300	3.5		N31 E14	342	B	3	B	80	10	DSI
79	3	30	15915					20529	N32 E00	344	(B)	3	R	30	9	BXO
79	3	31	15915					20529	N32 W11	339	(AP)	3				
79	4	1	15915					20529	N33 W24	339	(AP)	2				
79	4	2	15915					20529	N33 W35	337	(AP)	3				
79	4	3	15915	N34 W29	332	2900	3.5									
79	4	5	15915	N34 W57	332	1900	2.5									
79	4	6	15915	N35 W71	330	900	2.0									
79	4	7	15915	N35 W81	330	500	2.0									

MCMATH REGION 15922 CMP DATE 2.5 RETURN OF REGION 15862 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	3	27	15922	N13 E66	330	400	1.0									
79	3	28	15922	N13 E53	330	400	1.0									
79	4	3	15922	N13 W13	316	500	2.5									
79	4	5	15922	N13 W42	317	500	2.0	20548	N12 W37	313	(AF)	2				
79	4	6	15922	N14 W55	314	500	1.5									
79	4	7	15922	N14 W65	314	500	1.5									

MCMATH REGION 15918 CMP DATE 2.7

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	3	26	15918	S25 E85	324	1500	2.5	20530	S24 E80	329	(AP)	3				
79	3	27	15918	S27 E77	319	3800	3.5		S24 E70				B	240	7	EHO
79	3	28	15918	S27 E65	318	5000	4.0		S24 E61				B	570	17	FKO
79	3	30	15918					20530	S26 E29	327	Y	4				
79	3		15918					20533	S22 E37	319	B	3	B	980	40	FKI
79	3	31	15918					20530	S27 E17	327	(D)	5				
79	3		15918					20533	S22 E26	318	(B)	4	R	840	42	FKI
79	4	1	15918					20530	S27 E06	322	(D)	5				
79	4		15918					20533	S23 E13	315	(D)	4				
79	4	2	15918					20530	S26 W07	322	(D)	4				
79	4		15918					20533	S22 E00	315	(D)	4				
79	4		15918					20541	S32 W03	318	(B)	2				
79	4	3	15918	S27 W11	314	6400	4.0	20530	S26 W20	322	(C)	5				
79	4		15918					20533	S23 W13	315	(BY)	4	B	1070	59	FKI
79	4		15918					20541	S32 W17	319	(AP)	3	B	10	2	BXO
79	4	4	15918					20530	S27 W34	323	(D)	4				
79	4		15918					20533	S23 W26	315	(BY)	4	B	1020	56	FKI
79	4	5	15918	S27 W39	314	6600	3.0	20530	S27 W45	321	(D)	4				
79	4		15918					20533	S23 W40	316	(Y)	4	B	840	57	EKI
79	4	6	15918	S27 W52	311	6500	3.0	20530	S27 W59	322	(D)	4	B	1080	34	FKI
79	4		15918					20533	S22 W54	317	(BD)	3				
79	4		15918					20541	S32 W55	318	(AP)	3	B	0	1	AXX
79	4	7	15918	S27 W63	312	6500	3.5	20530	S27 W71	320	Y	3	B	1070	33	FKI
79	4		15918					20533	S22 W66	315	(B)	3				
79	4		15918					20541	S32 W69	318	(AP)	2	B	10	2	BXO
79	4	8	15918					20530	S27 W85	320	Y	3	B	760	12	EKI
79	4		15918					20533	S22 W80	315	B	3				
79	4		15918					20541	S30 W75	310	(AP)	3	B	20	2	CSO
79	4	9	15918	S27 W90	311	1100	2.0									

MCMATH REGION 15920 CMP DATE 3.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	3	26	15920	S15 E85	298	1200	2.0		S15 E80				B	0	1	AXX
79	3	29	15920						S16 E68				B	10	2	CRO
79	3	30	15920					20534	S17 E50	306	AP	2				
79	3		15920					20535	S09 E69	287	AP	3				
79	3		15920					20536	S15 E59	297	AP	1	B	10	2	BXO
79	3	31	15920					20534	S17 E42	302	(B)	2	R	30	8	BXO
79	3		15920					20535	S09 E58	286	(AP)	3				
79	4	1	15920					20534	S18 E27	301	(BP)	3				
79	4	2	15920					20534	S17 E14	301	(BP)	4				
79	4	3	15920	S17 E04	299	1600	2.5	20534	S17 E02	300	(B)	3	B	20	9	CSI
79	4	4	15920					20534	S17 W11	300	(BP)	4	B	40	4	CRO
79	4	5	15920	S17 W25	300	1800	2.5	20534	S17 W26	302	(AP)	3	B	20	2	HSX

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MCMATH REGION 15941				CMP DATE 15.5				RETURN OF REGION 15880				ROTATION 2			
				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	9	15941	N40 E78	143	200	1.0								
79	4	10	15941	N40 E63	147	300	1.5								
79	4	11	15941	N40 E50	148	300	1.5								
79	4	12	15941	N40 E37	146	300	1.5								
79	4	14	15941	N40 E13	144	400	1.5								

MCMATH REGION 15937				CMP DATE 15.8				RETURN OF PART OF REGION 15887				ROTATION 2			
				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	9	15937	N05 E80	141	1900	2.5	20551	N03 E80	143	(AP)	4	B	590	2 DHO
79	4	10	15937	N05 E71	139	4400	3.5	20551	N04 E67	143	(AP)	4	M	620	10 EKC
79	4	11	15937	N05 E59	139	4000	3.0	20551	N03 E51	145	(Y)	4			
79	4	12	15937	N09 E43	140	3500	3.0	20551	N04 E40	143	(Y)	4	B	920	20 EKC
79	4	13	15937					20551	N04 E26	144	(D)	5	B	640	10 EKC
79	4	14	15937	N04 E14	143	3000	3.0	20551	N03 E12	145	(BY)	5	B	580	13 EKO
79	4	15	15937					20551	N03 E00	144	(Y)	5	B	590	9 DHI
79	4	16	15937	N04 W13	142	3000	2.5	20551	N04 W13	144	(AP)	5	B	620	12 DHI
79	4	17	15937	N04 W24	142	2700	3.0		N04 W26						
79	4	18	15937	N04 W37	142	3200	3.0	20551	N04 W40	144	(AP)	5	B	550	9 DHC
79	4	19	15937	N04 W50	142	3300	3.5	20551	N04 W55	146	(BP)	5	B	550	7 DKC
79	4	20	15937	N04 W64	143	3500	3.0	20551	N04 W68	146	(AP)	5	B	520	1 HHX
79	4	21	15937	N04 W80	145	1500	2.5	20551	N05 W85	150	AP	5	B	420	2 HHX

MCMATH REGION 15938				CMP DATE 16.0				RETURN OF REGION 15886				ROTATION 2			
				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	9	15938	S15 E82	139	600	1.5								
79	4	10	15938	S15 E73	137	1600	1.5								
79	4	11	15938	S15 E61	137	1900	1.5								
79	4	12	15938	S15 E46	137	1400	2.0								
79	4	14	15938	S16 E18	139	1300	2.0								
79	4	16	15938	S16 W10	139	900	2.0								
79	4	17	15938	S16 W20	138	900	2.0								
79	4	18	15938	S16 W33	138	900	2.0	20563	S14 W25	129	(AP)	2			
79	4	19	15938	S16 W45	138	800	2.0	20563	S15 W38	129	(AP)	2			
79	4	20	15938	S16 W60	139	800	2.0	20563	S14 W51	129	(B)	2	B	30	4 CSO
79	4	21	15938	S16 W75	140	400	1.5	20563	S14 W66	131	(AP)	2	B	30	3 CRO
79	4	22	15938	S18 W85	135	200	1.0								

MCMATH REGION 15943				CMP DATE 16.5				SUNSPOT DATA							
				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	10	15943	N16 E85	125	2000	3.0								
79	4	11	15943	N16 E71	128	2500	3.0								
79	4	12	15943	N15 E53	130	2600	3.0								
79	4	13	15943					20557	N16 E37	133	(B)	3	B	0	1 AXX
79	4	14	15943	N14 E25	132	2800	3.0	20557	N16 E22	135	(B)	2	B	10	5 BXI
79	4	15	15943					20557	N16 E08	136	(B)	3	B	10	5 BXO
79	4	16	15943	N15 W03	132	3000	3.0								
79	4	17	15943	N13 W12	130	2500	3.0	20561	N18 E00	131	(AF)	3	B	10	8 BXI
79	4	18	15943	N15 W25	130	2400	2.5								
79	4	19	15943	N16 W38	130	2400	3.5								
79	4	20	15943	N17 W52	131	2500	3.0								
79	4	21	15943	N17 W70	135	1600	3.0		N17 W72			B	10	2	BXO
79	4	22	15943	N17 W83	133	1000	2.0								

MCMATH REGION 15949				CMP DATE 16.9				SUNSPOT DATA							
				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	12	15949	S24 E58	125	500	2.5	20556	S23 E56	127	(B)	3	B	40	4 CRO
79	4	13	15949					20556	S24 E43	127	(B)	4	B	130	8 DAO
79	4	14	15949	S23 E31	126	1500	3.0	20556	S24 E30	127	(B)	4	B	110	9 CSO
79	4	15	15949					20556	S24 E15	129	(BP)	4	B	110	11 CSO
79	4	16	15949	S24 E02	127	1700	3.0	20556	S23 E03	128	(BP)	4	B	120	30 DAI
79	4	17	15949	S24 W09	127	1800	3.0		S22 W10			B	170	24 DAI	
79	4	18	15949	S24 W21	126	1800	3.0	20556	S23 W24	128	(BP)	3	B	130	17 DAI

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APRIL 1979

MCMATH REGION 15949 (CONT) CMP DATE 16.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	19	15949	S24 W34	126	1900	3.0	20556	S25 W38	129	(BP)	4 B	110	7	DAO
79	4	20	15949	S24 W47	126	2200	3.0	20556	S25 W54	132	(AP)	3 B	120	7	DSO
79	4	21	15949	S24 W61	126	1800	3.0	20556	S25 W67	132	(AP)	3 B	100	3	CSO
79	4	22	15949	S24 W74	124	1600	3.0	20556	S25 W80	130	(AP)	2 B	20	2	BXO
79	4	23	15949	S24 W86	124	500	2.0								

MCMATH REGION 15942 CMP DATE 17.3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	10	15942	N29 E87	123	400	3.0		N29 E85			M	110	2	BXO
79	4	11	15942	N29 E76	122	1000	3.5	20555	N28 E70	126	B	2 M	90	4	DRO
79	4	12	15942	N28 E61	122	1200	3.5	20555	N29 E58	125	(B)	3 B	40	2	DSO
79	4	13	15942					20555	N29 E45	125	(B)	3 B	60	7	CSO
79	4	14	15942	N29 E34	123	2000	4.0	20555	N29 E33	124	(B)	3 B	30	10	BXI
79	4	15	15942					20555	N29 E20	124	(B)	4 B	80	15	BXI
79	4	16	15942	N29 E07	122	2300	3.5	20555	N30 E08	123	(B)	4 B	240	42	EAI
79	4	17	15942	N29 W06	124	2400	3.5		N29 W06			B	260	29	EAI
79	4	18	15942	N29 W19	124	2500	3.5	20555	N30 W19	123	(B)	4 B	260	30	ESI
79	4	19	15942	N30 W31	123	2700	3.5	20555	N29 W31	122	(B)	4 B	100	16	FAI
79	4	20	15942	N30 W44	123	2900	3.5	20555	N28 W49	127	(B)	4 B	130	9	EAI
79	4	21	15942	N30 W58	123	2500	3.5	20555	N28 W62	127	(B)	3 B	210	12	DAI
79	4	22	15942	N30 W73	123	2500	3.0	20555	N29 W79	129	(B)	2 B	250	7	EAO
79	4	23	15942	N30 W85	123	2100	2.0								

MCMATH REGION 15947 CMP DATE 17.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	11	15947	S08 E83	115	200	1.0								
79	4	12	15947	S09 E68	115	300	2.0								
79	4	14	15947	S08 E38	119	400	2.5								
79	4	16	15947	S09 E09	120	300	1.5								
79	4	17	15947	S09 W02	120	300	1.0								
79	4	18	15947	S09 W15	120	200	1.0								
79	4	19	15947	S09 W28	120	200	1.0								

MCMATH REGION 15948 CMP DATE 17.4

RETURN OF PART OF REGION 15887

ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	11	15948	N09 E80	118	1800	2.0	20553	N07 E63	133	(AP)	3 M	60	3	DSO
79	4	12	15948	N07 E68	115	1500	2.5	20553	N08 E54	129	(AP)	3 B	60	1	HSX
79	4	13	15948					20558	N14 E52	118	(AP)	2			
79	4	14	15948	N08 E40	117	1600	3.0	20553	N08 E40	130	(AP)	4 B	20	1	HSX
79	4	15	15948					20553	N08 E27	130	(BP)	4 B	40	1	HXX
79	4	16	15948					20558	N14 E37	120	(AP)	2 B	0	1	AXX
79	4	17	15948					20560	N05 E23	121	(B)	2 B	0	2	BXO
79	4	18	15948					20553	N08 E14	130	(AP)	4 B	60	2	HSX
79	4	19	15948	N08 E08	121	1700	2.5	20560	N05 E09	122	(B)	2 B	10	3	BXO
79	4	20	15948					20553	N08 E01	130	(AP)	3 B	40	6	DSI
79	4	21	15948	N08 W04	122	1400	2.5		N06 W04			B	30	2	BXO
79	4	22	15948	N08 W17	122	1500	2.0	20553	N08 W27	131	(AP)	2 B	30	2	CSO
79	4	23	15948	N08 W30	122	1500	2.5	20553	N08 W41	132	(AP)	3			
79	4	24	15948	N08 W43	122	1700	2.5	20553	N07 W55	133	(AP)	2			
79	4	25	15948	N08 W55	120	1200	2.0								
79	4	26	15948	N08 W69	119	400	1.5								
79	4	27	15948	N08 W81	119	200	1.0								

MCMATH REGION 15950 CMP DATE 17.5

RETURN OF REGION 15890

ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	11	15950	S16 E80	118	700	1.0								
79	4	12	15950	S17 E67	116	600	1.5								
79	4	14	15950	S16 E40	117	900	2.5								
79	4	16	15950	S16 E10	119	700	2.0								
79	4	17	15950	S16 W01	119	800	2.0								
79	4	18	15950	S15 W15	120	900	2.0								
79	4	19	15950	S15 W29	121	800	2.0		S13 W37			B	30	5	CSO
79	4	20	15950	S15 W42	121	700	2.5								

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MCMATH REGION 15985

CMP DATE 30.3

CALCIUM				PLAGE DATA			SUNSPOT DATA										
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MH NO.	LAT	CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	5	02	15985	S09	W29		100	1.5									

MCMATH REGION 15993

CMP DATE 30.4

CALCIUM				PLAGE DATA			SUNSPOT DATA										
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MH NO.	LAT	CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	5	06	15993	N39	W80		100	2.5									
79	5	07	15993	N40	W89		300	1.0									

MCMATH REGION 15970

CMP DATE 30.4

RETURN OF REMNANTS OF REGION 159

ROTATION 2

CALCIUM				PLAGE DATA			SUNSPOT DATA										
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MH NO.	LAT	CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	24	15970	N39	E80	304	200	1.5									
79	4	25	15970	N39	E66	305	200	1.5									
79	4	26	15970	N39	E54	306	300	1.5									
79	4	27	15970	N39	E38	305	300	1.5									
79	4	29	15970	N39	E12	309	300	1.5									
79	4	30	15970	N40	W01	307	300	1.0									

MCMATH REGION 15975

CMP DATE 30.8

RETURN OF REGION 15920

ROTATION 2

CALCIUM				PLAGE DATA			SUNSPOT DATA										
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MH NO.	LAT	CMD	L	MAG.	H STA	AREA	CNT	CLASS
79	4	24	15975	S18	E82	302	700	2.5									
79	4	25	15975	S18	E82	304	600	2.5									
79	4	26	15975	S20	E82	305	700	2.0									
79	4	27	15975	S20	E40	303	600	2.0									
79	4	29	15975	S19	E16	315	400	1.5									
79	4	30	15975	S18	E01	315	400	1.5									
79	5	01	15975	S18	W10	315	400	1.5									
79	5	02	15975	S18	W23	300	300	1.5									
79	5	05	15975	S18	W62	300	200	1.0									

Note: No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on April 1, 2, 4, 8, 13, 15, and 28, 1979.
No sunspot observations were made at Mt. Wilson on April 17, 1979.

DAII. CALCIUM PLAGE INDEX

APRIL 1979

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
79	4	1	*	79	4	11	34.7	79	4	21	16.6
79	4	2	*	79	4	12	42.8	79	4	22	13.9
79	4	3	53.1	79	4	13	*	79	4	23	19.6
79	4	4	*	79	4	14	61.5	79	4	24	21.4
79	4	5	33.1	79	4	15	*	79	4	25	31.6
79	4	6	25.7	79	4	16	49.1	79	4	26	35.6
79	4	7	28.5	79	4	17	45.0	79	4	27	45.4
79	4	8	*	79	4	18	40.0	79	4	28	*
79	4	9	24.6	79	4	19	35.5	79	4	29	60.9
79	4	10	30.7	79	4	20	28.4	79	4	30	3.1

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1979

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TIME								KNOWN FLARE	McMATH REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD			
01	0752	0820D	0801	1-	5	1		1	3		1			0749	15918
01	1129	1200	1143	1-	5	1		5	3		1			1120	15918
01	1208	1223D	1223	1-	1			1	1		1			1208	15918
01	1245	1315	1255	1-	5			1	2		1			NF	
01	1326	1350	1336	1-	5			2	2		1			1335	15918
01	1422	1444	1426	1-	1			1	1					1426E	15918
01	1441	1503D	1503	1-	3				1		3			NF	
01	1540	1725	1620	1	5	2		3	2		3			1555E	15918
02	0012	0138	0030	1	1				1					0009	15918
02	1021	1035	1027	1	3			2	1		1			1021	15918
02	1220	1244D	1244	1-	5			4	1		1			1222	15918
02	1333	1430	1400	1-	3	1		4	1					1342	15918
02	1418E	1500	1418	1-	5	1		1	1		1			1407	15918
02	1628	1715	1638	1-	1						1			1624	15918
02	1830	185E	1834	1-	1						1			1828	15918
02	1943	2018	1952	1-	1						1			1940	15918
02	2004	2200	2010	1	1	1								2002	15918
02	2033	2055	2039	1-	1						1			2033	15918
03	0106	0415D	0214	2+	5	1			2		1			0109	15918
03	0415E	0639	0423	2+	3	1			1					0417E	15918
03	0700	0740	0710	1-	3				2					0701	15918
03	0824	0848	0832	1-	5	1		1	3		1			0825	15918
03	1155	1235	1212	1-	5	3	1	6	4		3			1154	15918
03	1409	1420	1414	1-	3			3	1					1404	15918
03	1641	1731	1650	1-	1						1			1637	15918
04	0711	0732	0722	1	5			1	2		1			0713E	15918
04	1320	1430	1352	1-	1				1		1			1320	15918
04	2052	2123	2105	1-	3				2		1			2058	15918
05	0357	0510	0406	1-	1				1					0359	15918
05	0524	0608	0544	1-	1				1					0523	15918
05	0806	0930	0817	1	5	3		2	3		2			NF	
05	1458	1633	1507	2	5	3		6	4		5			1459	15933
05	1721	1749	1732	1-	5				2		1			NF	
06	0906	1055	0914	1+	5	4		4	4		3			0900	15933
06	1410	1520	1435	1-	1				1		1			1405	15918
06	1817	1913	1824	1-	1						1			1818	15918
07	0950	1008	0953	1	1		1							*	
07	1700	1805	1730	1-	1				1		1			1653	15918
08	1008	1038	1020	1-	3			1	2		1			*	
08	1236	1305	1248	1-	3				2		1			1237	15933
08	1512	1633	1528	1-	5	1		1	2		2			1508	15018
08	1822	1858	1828	1-	1				1					1822	15933
09	1045	1104D	1104	1-	3				1		2			1042	15937
09	1142	1210	1147	1-	3	1			1		1			1142	15937
09	1216	1320	1225	3-	5	2	1	7	4		6			1214	15939
09	1352	1420	1401	1-	5			3	3		5			NF	
09	1516	1606	1529	1-	5				1		3			1518	15933
09	2222	2304	2233	1-	5				2		1	1		*	
10	0459	0626D	0508	2	3	1			1					0458	15937
10	0626E	0739	0633	1-	3				1		1			0632E	15924
10	1728	1816	1746	1-	5	1			1		3			1720	15937
10	1845	1925	1852	1-	5	1			1		3			1837	15924
10	2050	2125	2100	1-	1				1					2052E	15938
10	2247	2320	2256	1-	1				1					2247	15942
11	0835	0926	0902	2-	5	1		1	2					0842E	15948
11	1135	1210	1143	1-	5	2		1	2		3			1131E	15940
11	1338	1520	1346	2	5	3		6	6		4			1327	15940
11	1500	1533	1504	1-	3			2						1500	15933
11	2134	2244	2149	1-	5				2		1	3		2135	15948
12	0416	0512	0426	1-	1				1					*	
12	1557	1608	1602	1-	3				2		1			1547	15943
12	1644	1742	1709	1-	1				1		1			1649	15949
13	0239	0312	0244	1-	1				1					0242E	15937
13	0609	0650	0616	1-	3			1	1					0612E	15937
13	0901	0921	0912	1-	3				1		1			0900	15933
13	1049	1103	1054	1-	5	2		1	3		3			1050E	15936
13	1224	1235D	1235	1-	1				1		1			1228	15933
13	2340	0108	2400	1+	5	1			2		2			2340	15936
14	0121	0236	0131	1+	5	1		1	2					NF	
14	0312	0522	0343	1+	1				1					0322E	15942
14	0720	0825	0738	1	5	2		3	3		1			0720	15942
14	1023	1038	1029	1-	1			1	1					1017	15937
14	1106	1115	1109	1-	1			1						1106	15937
14	1158	1305	1230	1-	1				1		1			1202	15942
14	1303	1308	1318	1-	1		1							1307	15933
14	1413	1546	1414	1-	1			1						1416	15948
14	1440	1605	1448	1+	5	4		6	4		1	6		1441	15937

SUDDEN IONOSPHERIC DISTURBANCES
APRIL 1979

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE								KNOWN FLARE	McMATH REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD			
15	0525	0615		1-	1			1					*		
15	0736	0750	0743	1-	5	1			2		1		0730	15943	
15	0840	0855	0849	1-	1				1				*		
15	1035	1044	1039	1-	3				2		1		1030	15937	
15	2009	2100	2013	1-	5	2			2	1	2		2007	15937	
15	2242	2400	2307	1-	1				1				2241	15943	
16	0510	0648	0518	2	5	2		1	2				*		
16	1134	1139D	1139	1-	5	1			3		2		1134	15937	
16	1157	1235	1203	1-	5	1		1	3		2		1155	15937	
16	1645	1746	1705	1-	5	1		1	3		3		1649	15937	
16	2345	0018	2351	1-	1				1				2345	15943	
17	1328	1350	1337	1-	3			2					*		
17	1835	1918	1843	1-	1					1			1835	15943	
17	2057	2200	2120	1-	1				1				2051E	15943	
19	0945	1007		1-	1		1						*		
19	1048	1111	1057	1-	1			1					*		
21	1518	1605	1530	1	5				1	1	4		NF		
22	1020	1043	1024	1-	1			1					*		
22	1208	1225	1218	1-	3				2		1		*		
22	1545	1644	1558	1-	5	1		5	3		6		NF		
22	1946	2025	1958	1-	1					1			1952	15950	
23	1319	1332D	1332	1-	1				1		1		*		
23	2148	2224	2154	1-	5				2		2		*		
24	0208	0300	0228	1-	1				1				*		
24	1632	1645	1637	1-	5	1			3	1	3		1633	15971	
24	1806	1848	1817	1-	1				1	1			1801	15968	
25	0653	0728	0658	1-	3				3				0655E	15971	
25	1520	1616	1532	1-	1					1			1529	15968	
25	2138	2343	2200	1	5				2	1	3		2134	15968	
26	0916	0950	0923	1-	3			1	2		1		0916	15967	
26	1024	1040	1028	1-	5	1		1	2		1		1026E	15968	
26	1532	1605	1540	1-	5			1	2	1	1		1524	15968	
26	1810	1904	1815	1-	5				2	1	1		1810	15976	
26	2004	2120	2016	1-	5	1			2	1			2001	15967	
27	0140	0256	0206	1-	1				1				0145E	15968	
27	0535	0950	0652	3	5	1		4	2				0523E	15963	
27	0637	0720	0642	1	5	5	1	6	2		2		0643E	15967	
27	1048	1130	1100	1-	1				1		1		*		
27	1457	1530	1503	1-	1						2		1457	15962	
27	1632	1700	1635	2+	5	5	1	7	3	1	2		1628	15967	
27	1937	2006	1944	1-	5	1			1		3		1932	15967	
27	2043	2130	2052	1-	3				2	1			2040	15967	
28	0145	0304	0200	1	1				1				0140	15967	
28	0648	0721	0654	1-	3				2				*		
28	0751	0812U	0755	1-	1				1				0755	15973	
28	1700	1727	1704	1-	1						1		1700	15967	
29	0733	0908	0738	1+	5	3		3	2		2		0731	15974	
29	1605	1717	1620	2	5	2		5	3		6		1603	15974	
30	0024	0117	0036	1-	3				2				0025	15974	
30	0518	0606	0532	1-	3				1		1		0522	15974	
30	0614	0640	0616	1-	1						1		0613	15974	
30	1617	1715	1642	1-	3				2	1	1		1616	15974	
30	1748E	1827	1753	1-	1						1		1747	15974	
30	2158	2237	2204	1-	1						1		2158	15976	

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION	DATE	TIME (UT) and STATION
01-02	0000-2400 CL	24	1010-1335 UM (16 kHz)
02	0050-0148 TM	25	1100-1230 UM (10 and 13 kHz)
03	1000-1345 UM (16 kHz)	26	0613-0652 TM
04	0545-2400 UM (10 and 13 kHz)	27-29	0000-2400 TM
10	1000-1400 UM (16 kHz)	29	1516-2222 TM
17	0730-1340 UM (16 kHz)		

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1979

STATIONS REPORTING FOR APRIL 1979

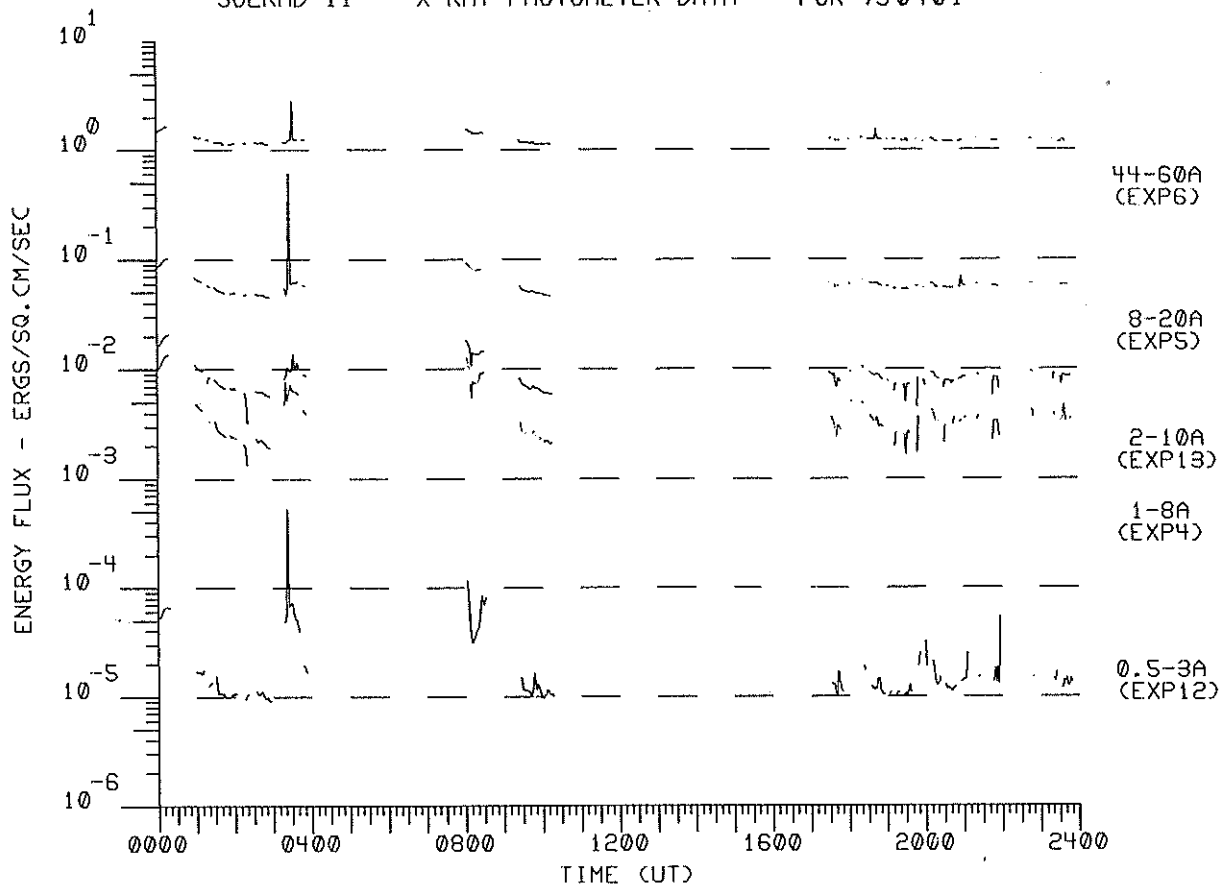
AAVSO (A21) (SES)
 CHILWORTH (CL) (SGNA)
 DARMSTADT (DA) (SWF)
 HERSTMONCEUX (HC) (SEA)
 HIRALSO (HI) (SWF)
 HOBART (HA) (SEA)
 HUANCAYO (HU) (SWE)
 INUBO (IN) (SPA)
 JULIUSRUH (JH) (SWF)
 KANDILLI (KD) (SEA)
 KUHLLUNGSBORN (KU) (SEA, SPA)
 MC MATH (ME) (SWF)

NEW JERSEY (NJ) (SES)
 PANSKA VES (PU) (SWF, SEA, SES)
 PRESTON (LP) (SEA)
 SAO PAULO (UM) (SES, SPA)
 SOFIA (SF) (SES)
 SOMERTON (SO) (SWF)
 ST CLOUD (SC) (SES)
 TABLE MOUNTAIN (TM) (SPA, LF-SPA)
 TORINO (TN) (SPA)
 UPICE (UI) (SEA)
 VSETIN (VS) (SEA)
 ZILINA (ZL) (SEA)

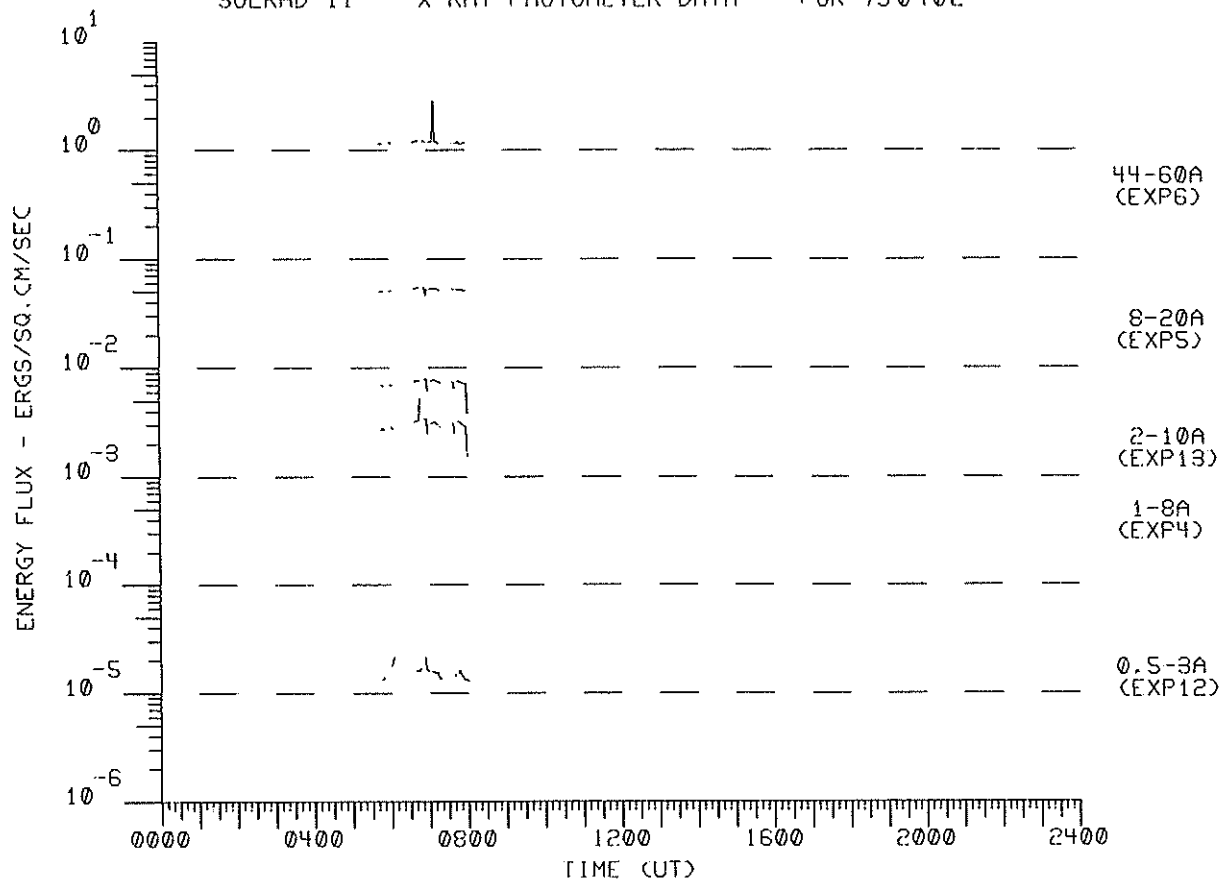
SIDs BY McMATH REGION
 APRIL 1979

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
REGION																														
15918	6	10	7	3	2	2	1	1																						
15924											2																			
15929											1																			
15933				1	1		2	1		1		2	1																	
15936													2																	
15937											2	2		2	2	2	3													
15938											1																			
15940												2																		
15942										1				3																
15943												1			2	1	2													
15948												2		1																
15949												1																		
15950																							1							
15963																														
15967																												1		
15968																											2	5	2	
15971																										1	2	1		
15973																														
15974																												1		
15976																													2	5
																											1			1
X-RAY																														
UNKNOWN	2				2					1				1								1	1							
NO FP										1	1	1		1		2	1	1		2			2	2	1			1	1	

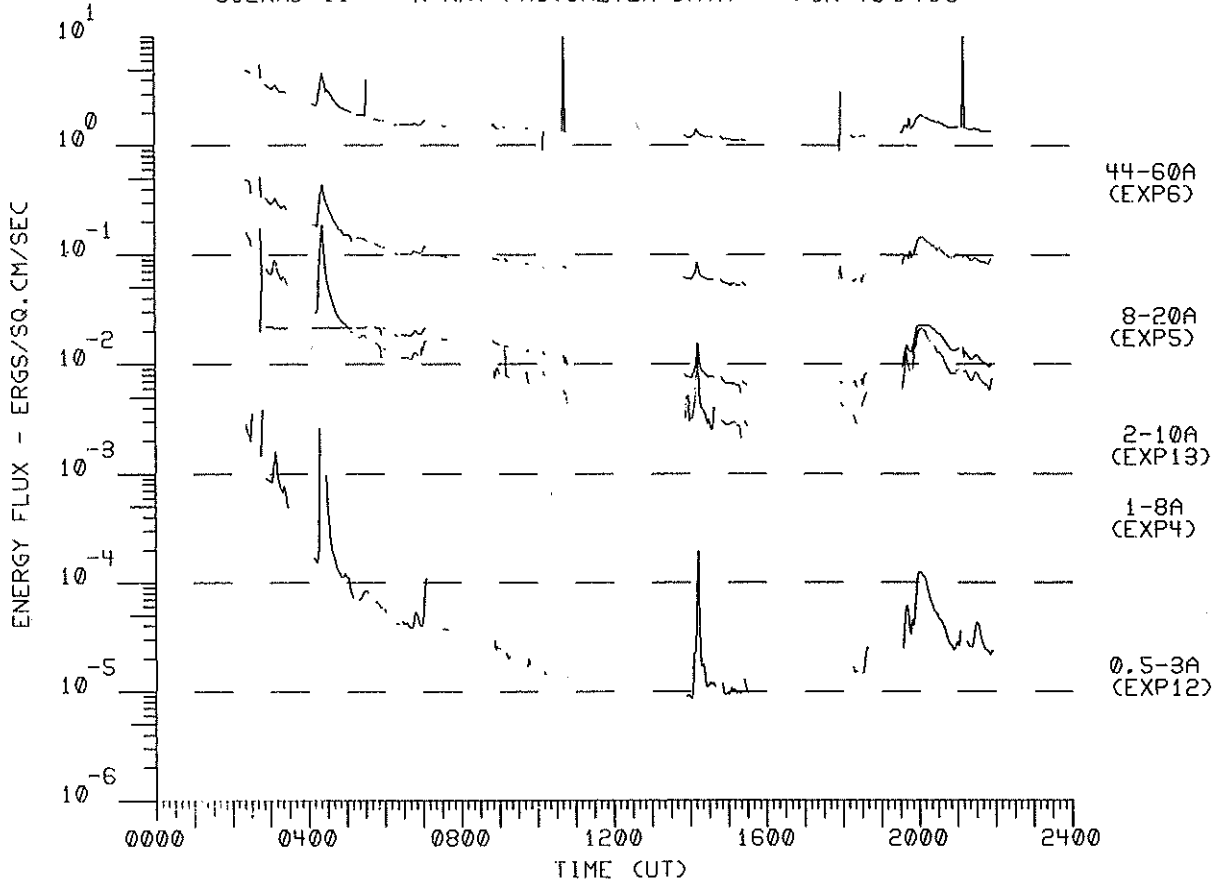
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790401



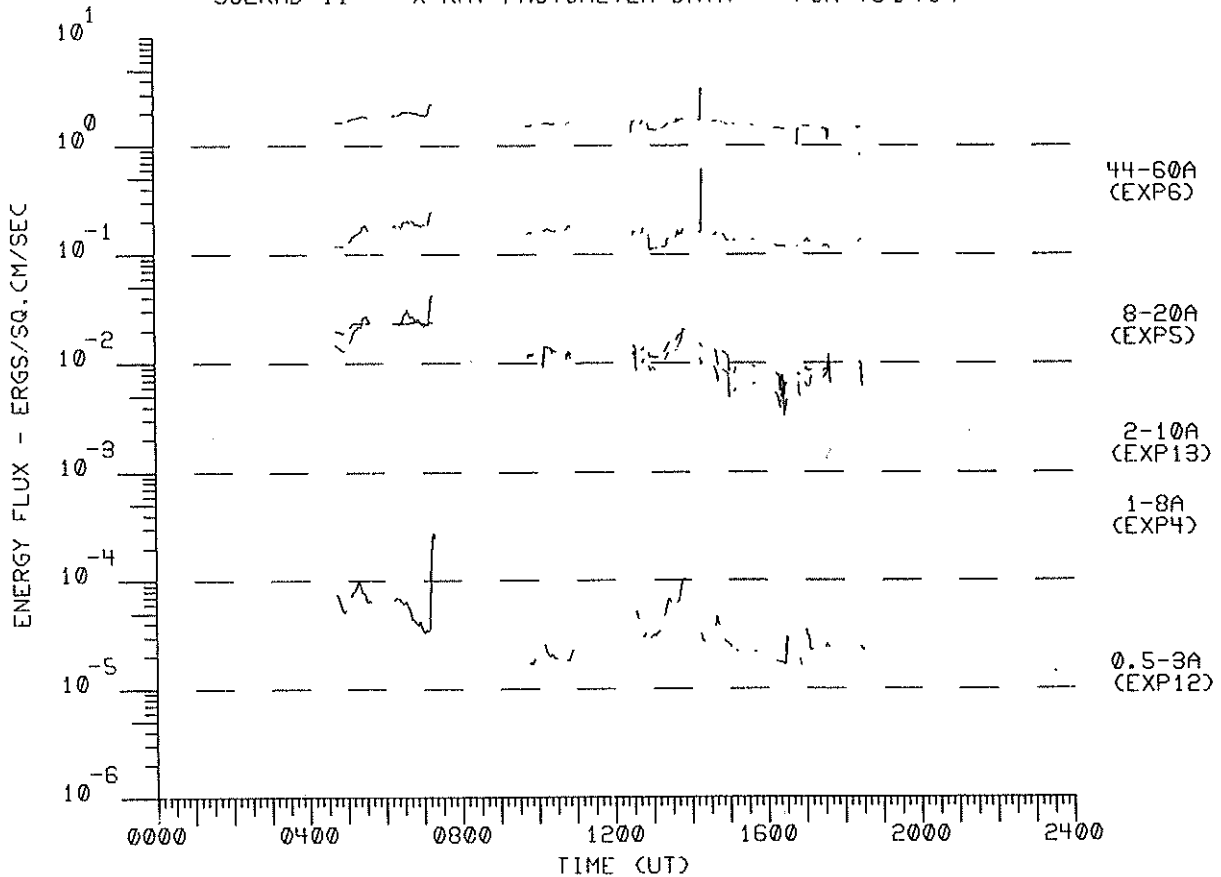
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790402



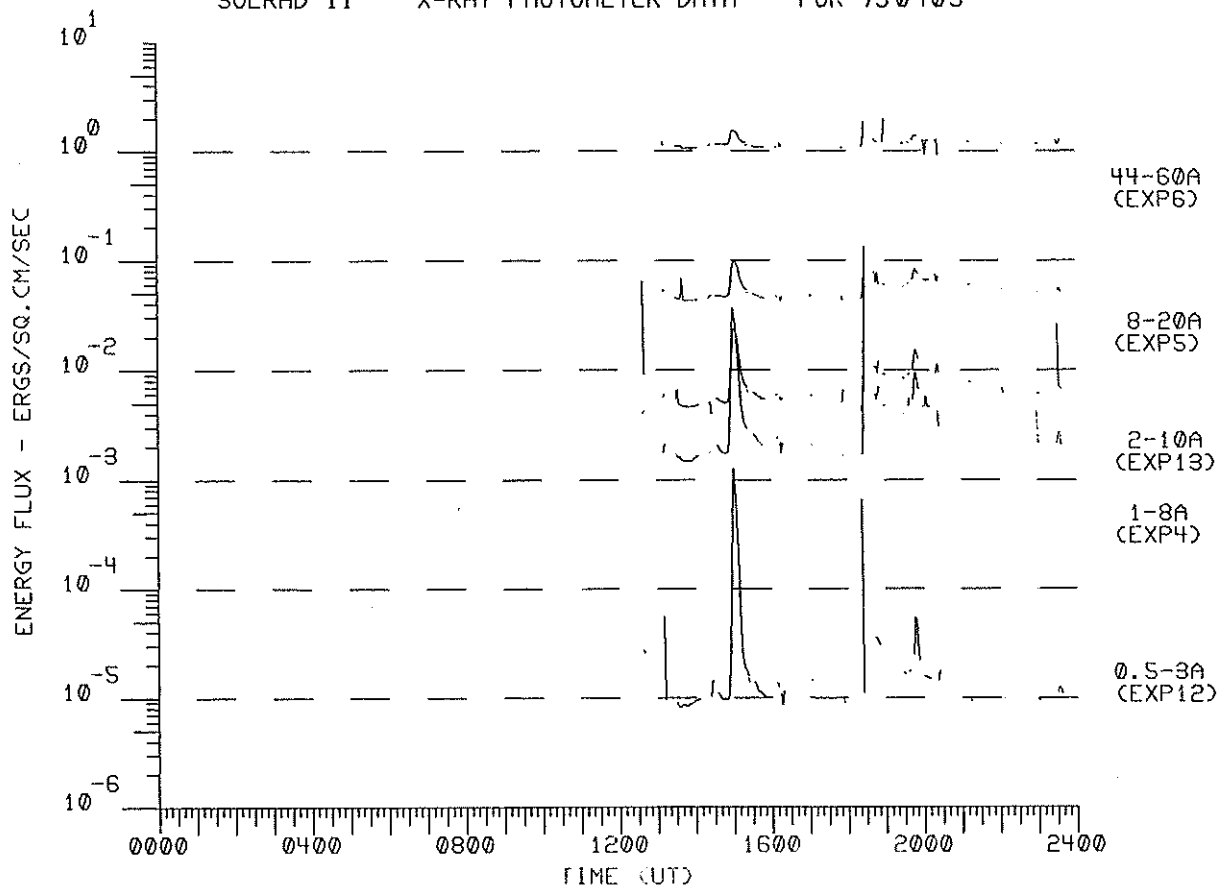
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790403



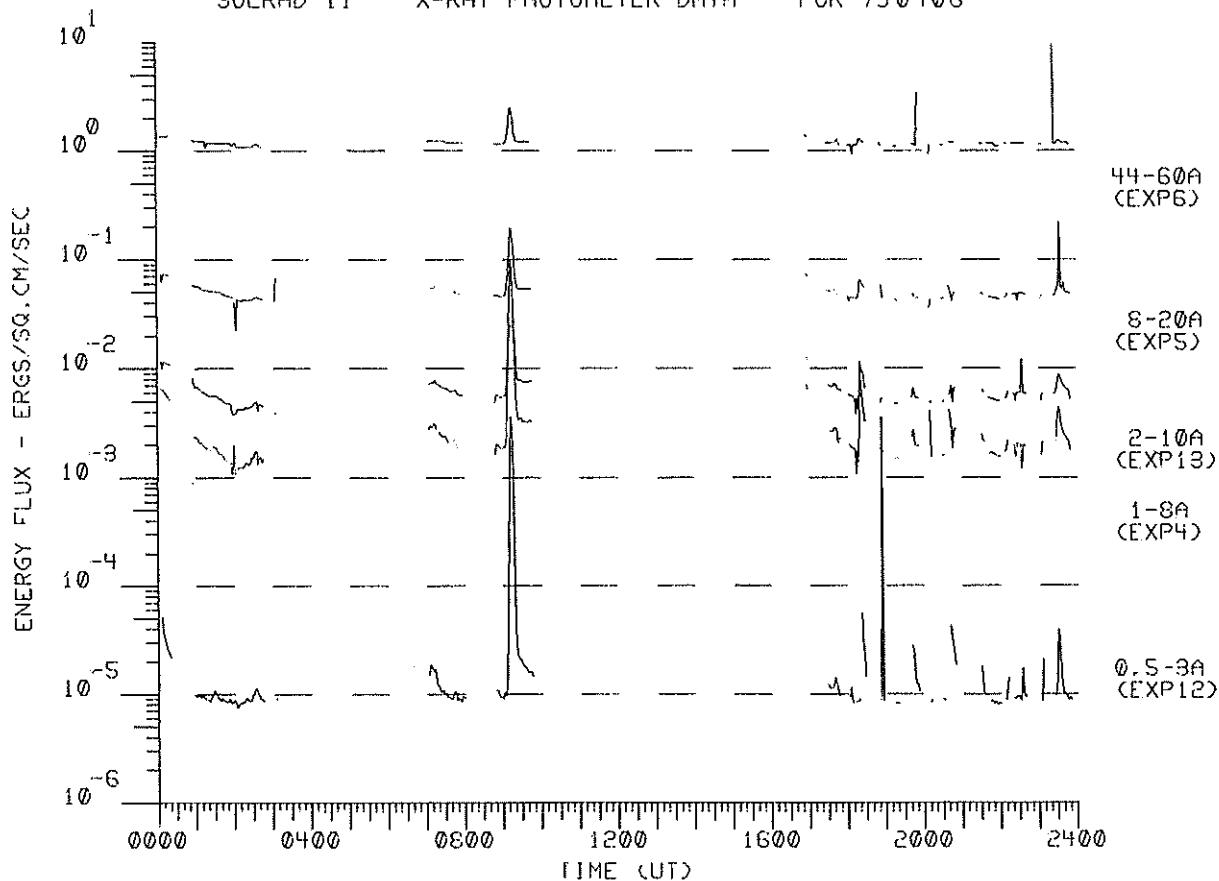
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790404



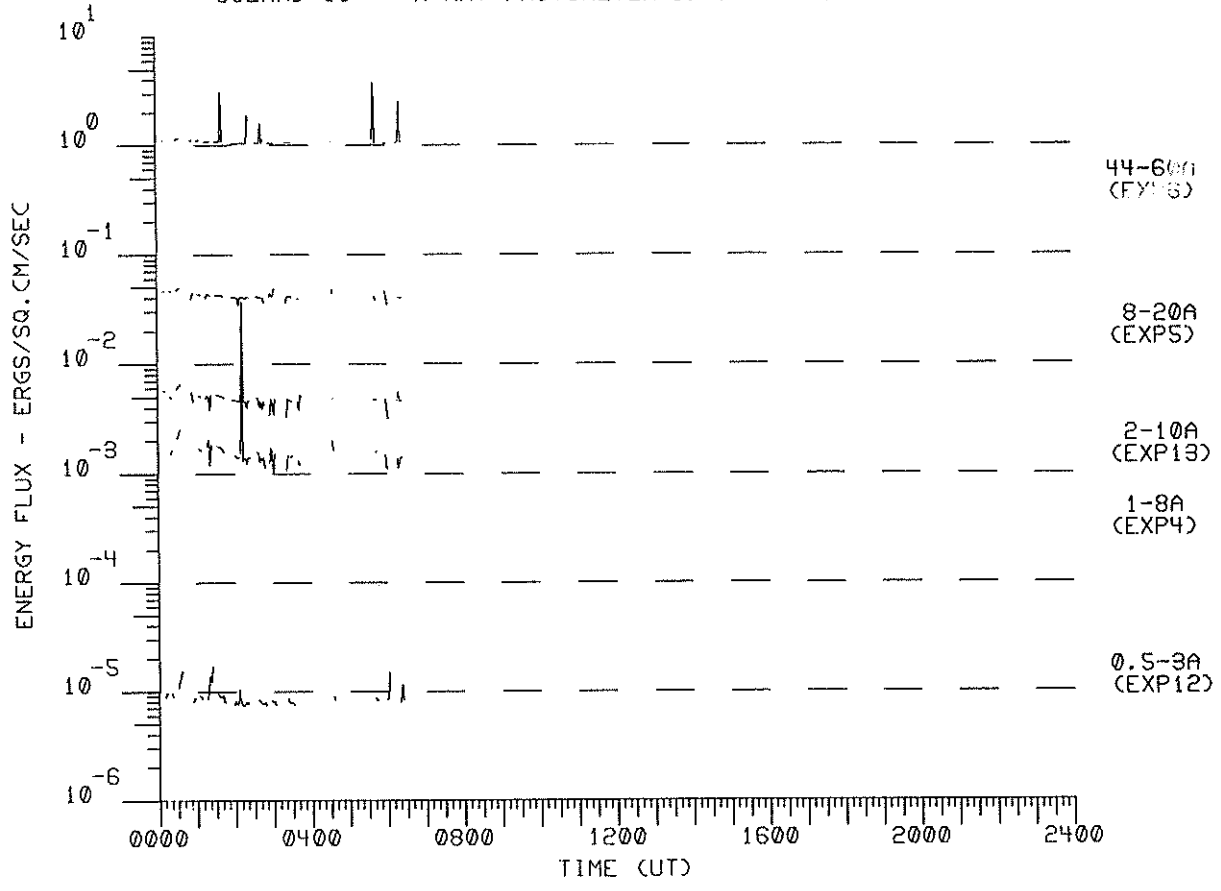
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790405



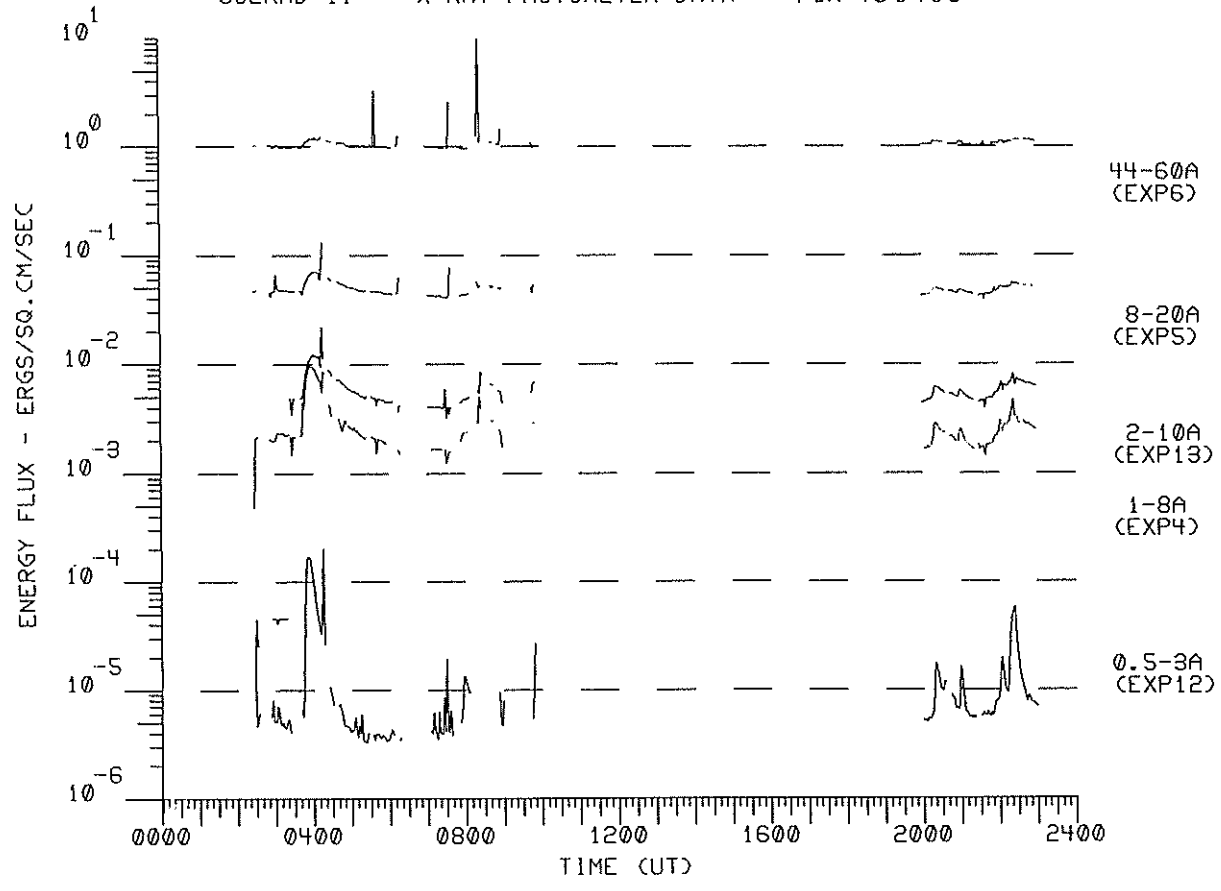
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790406



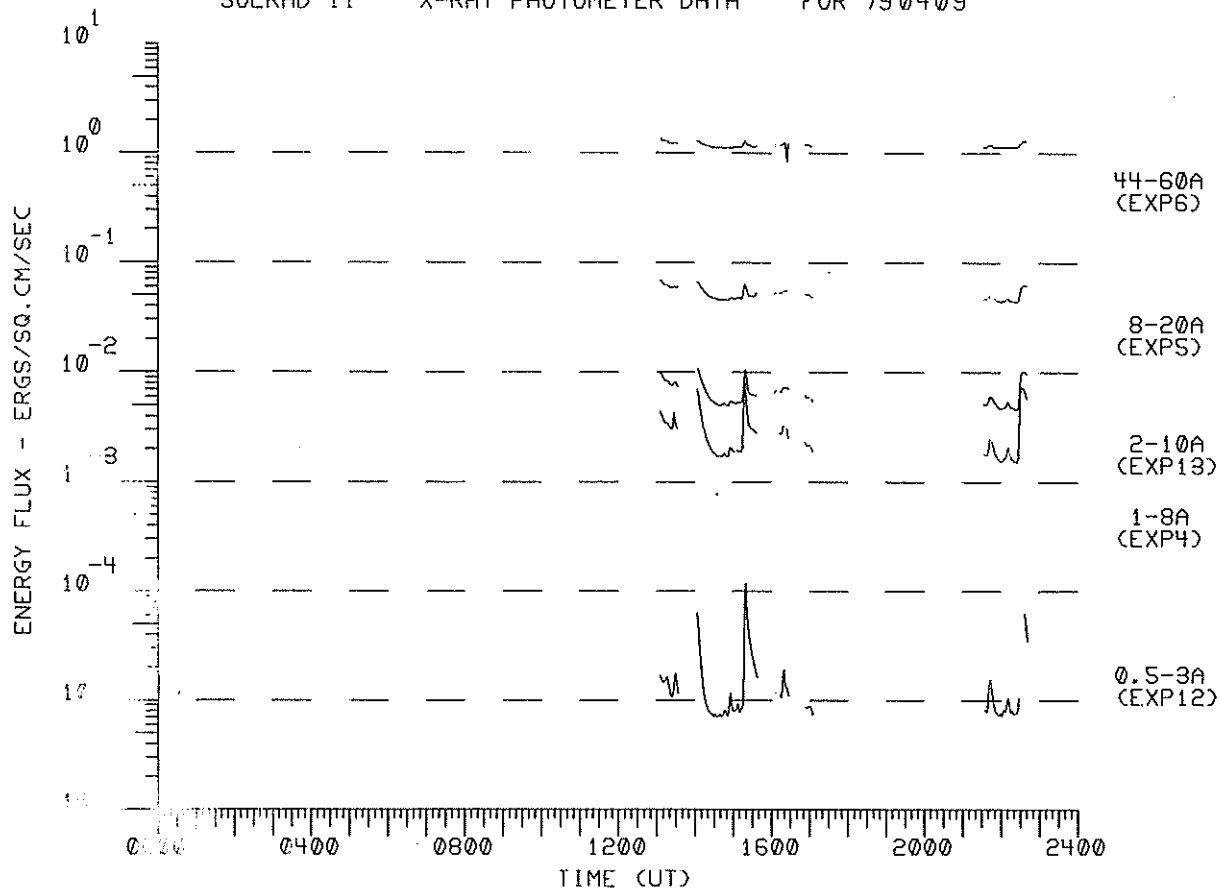
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790407



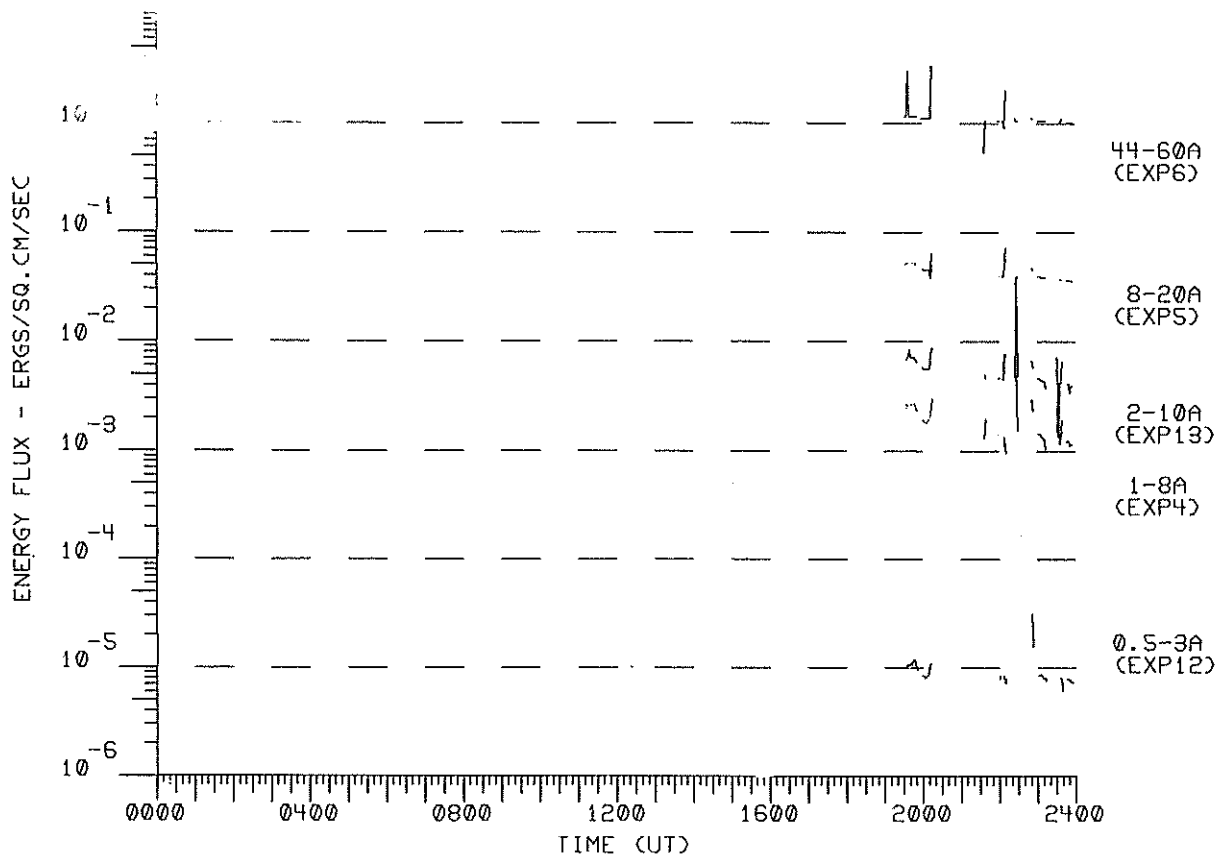
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790408



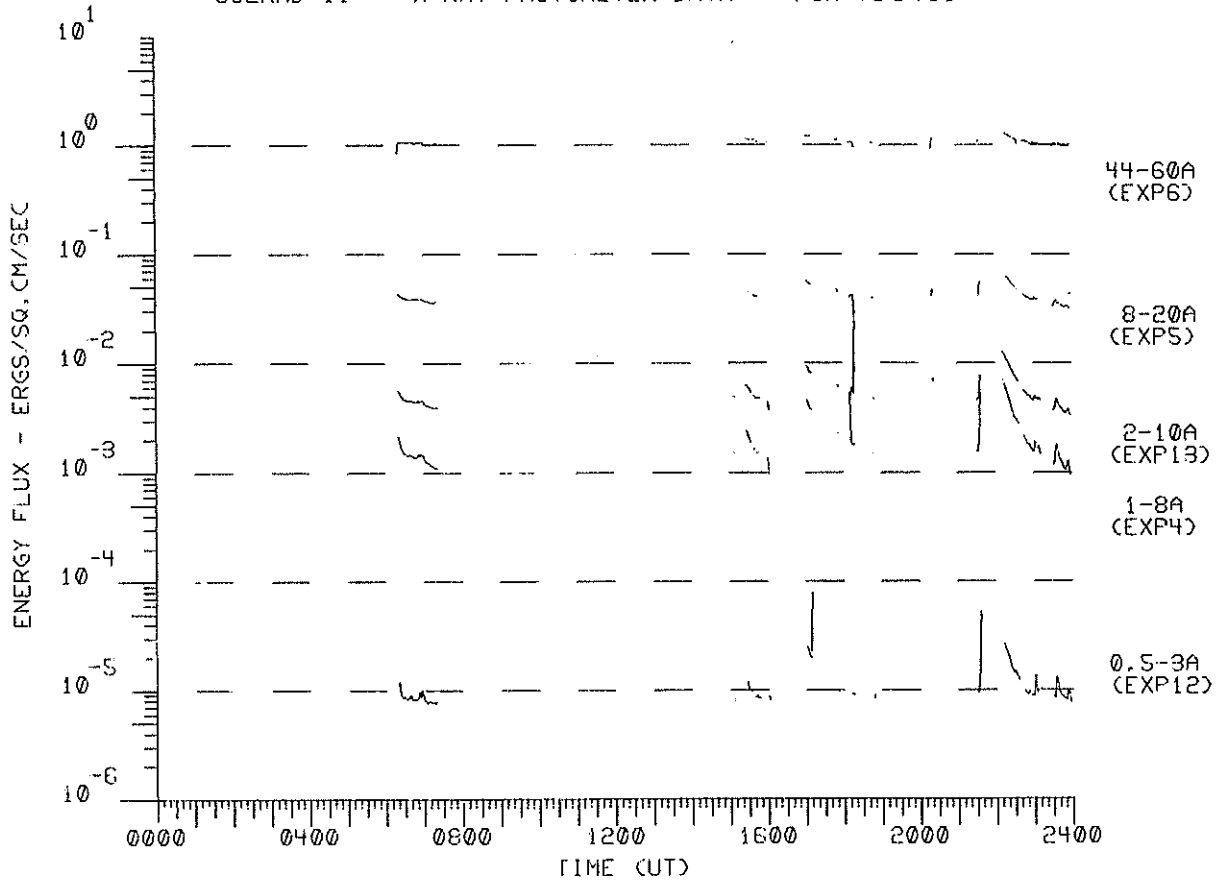
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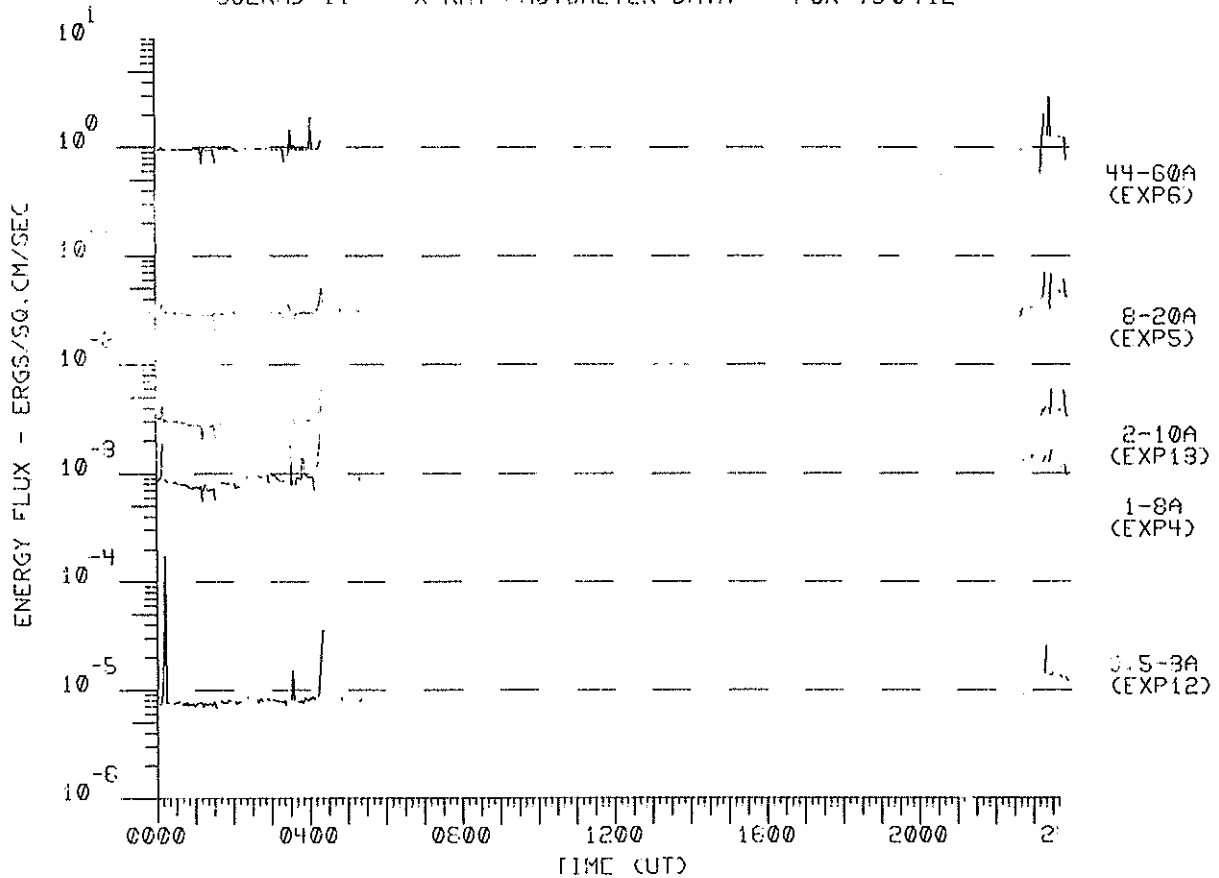
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790410

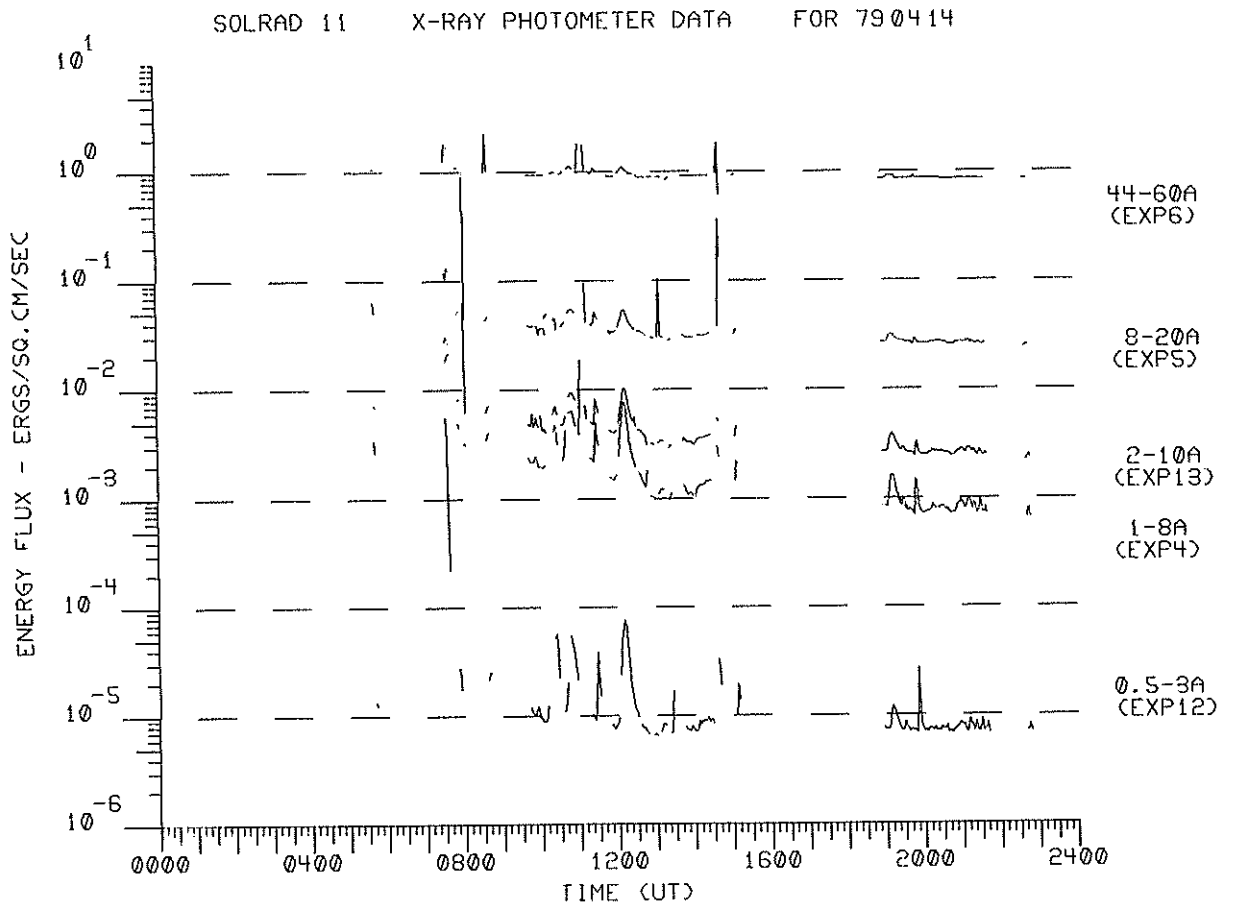
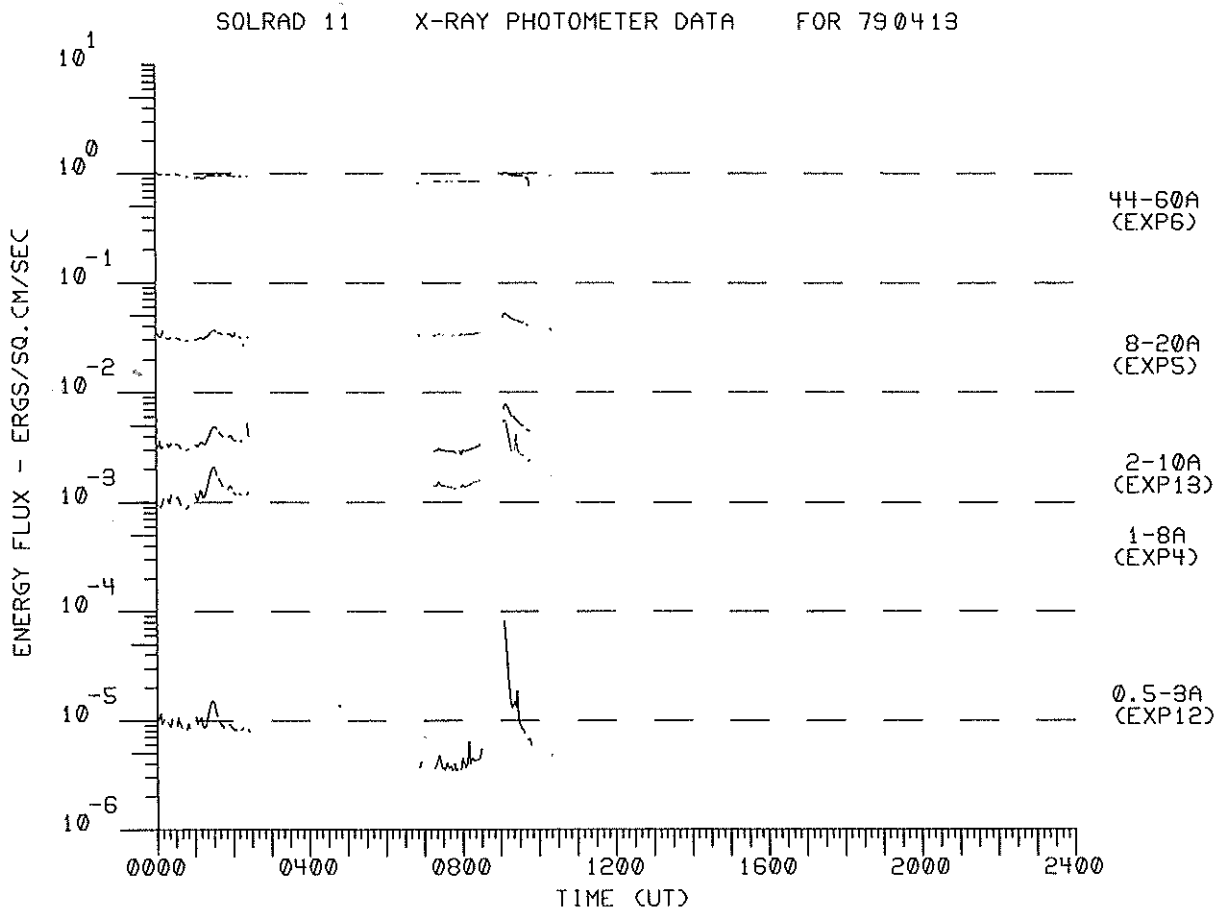


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790411

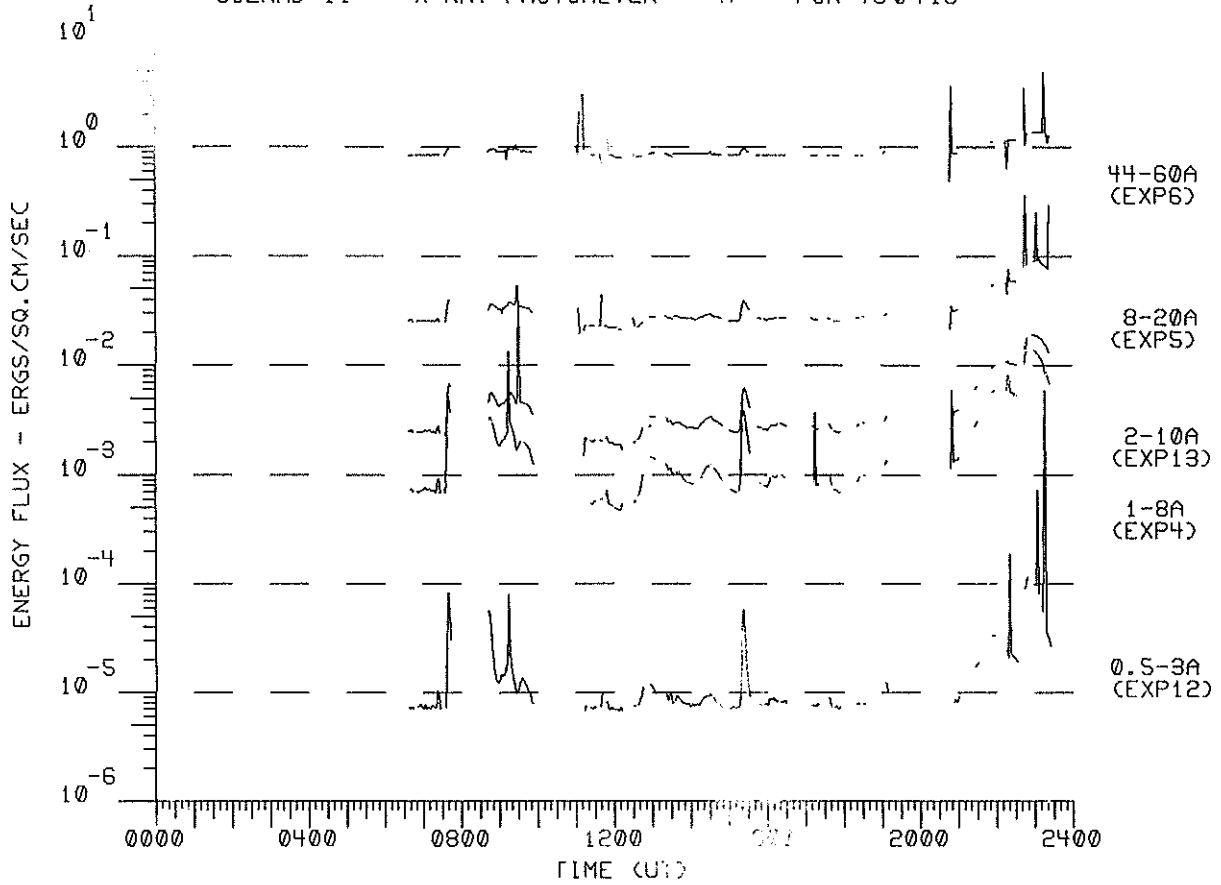


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790412

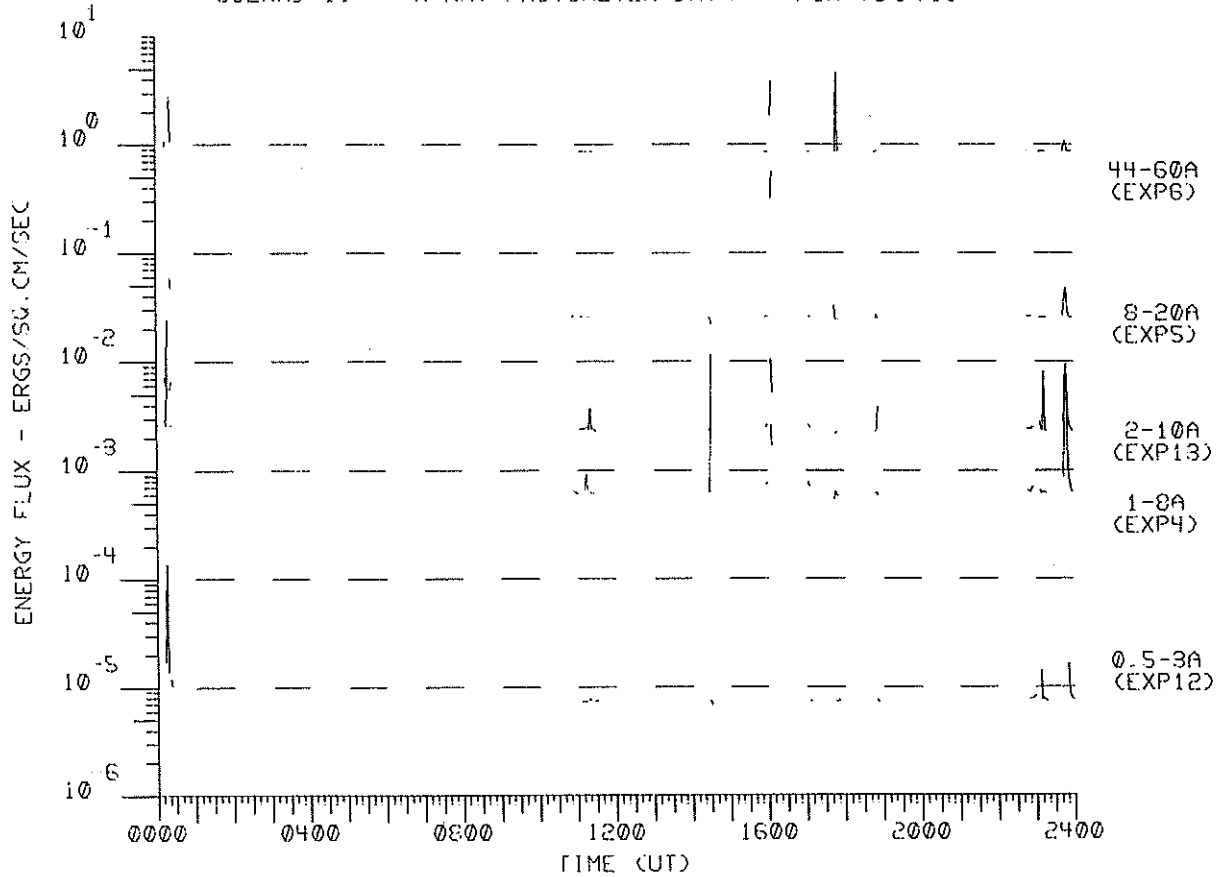




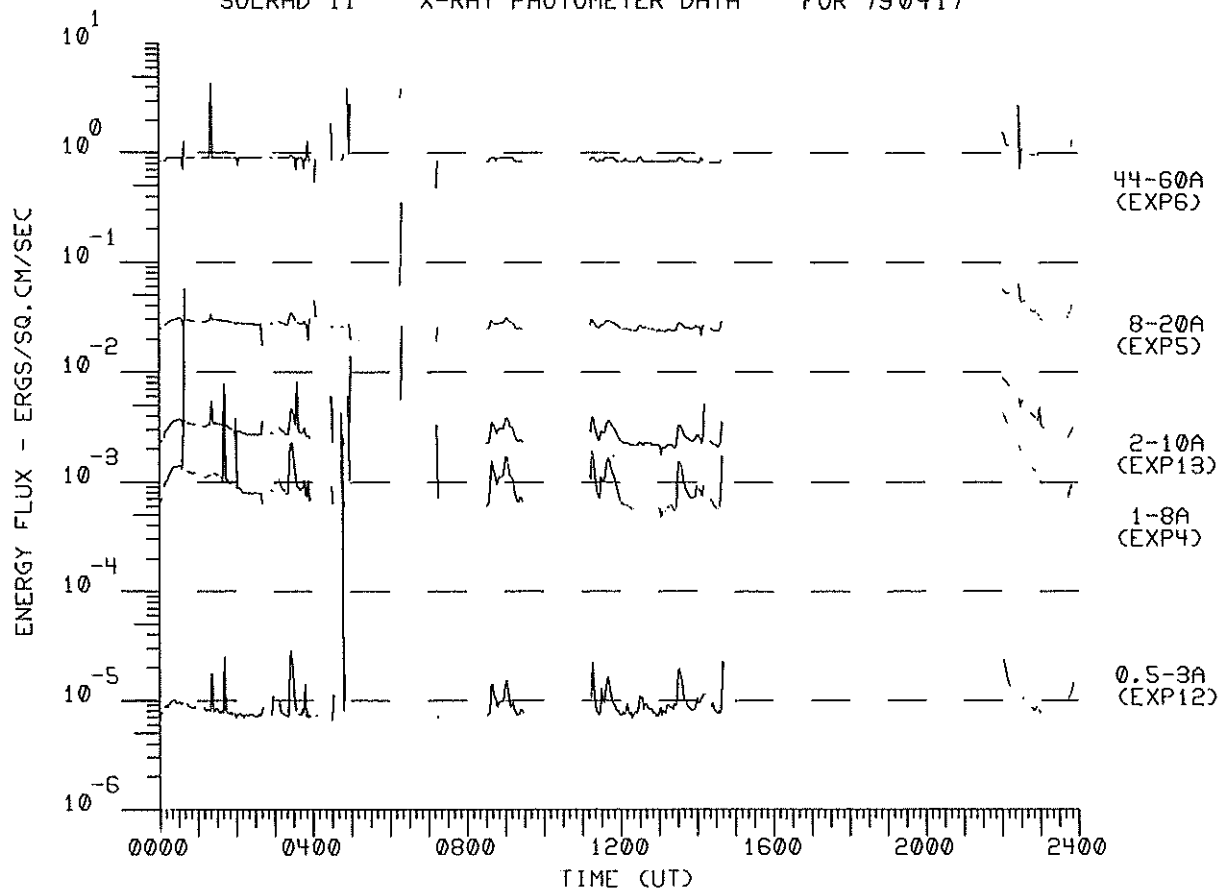
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790415



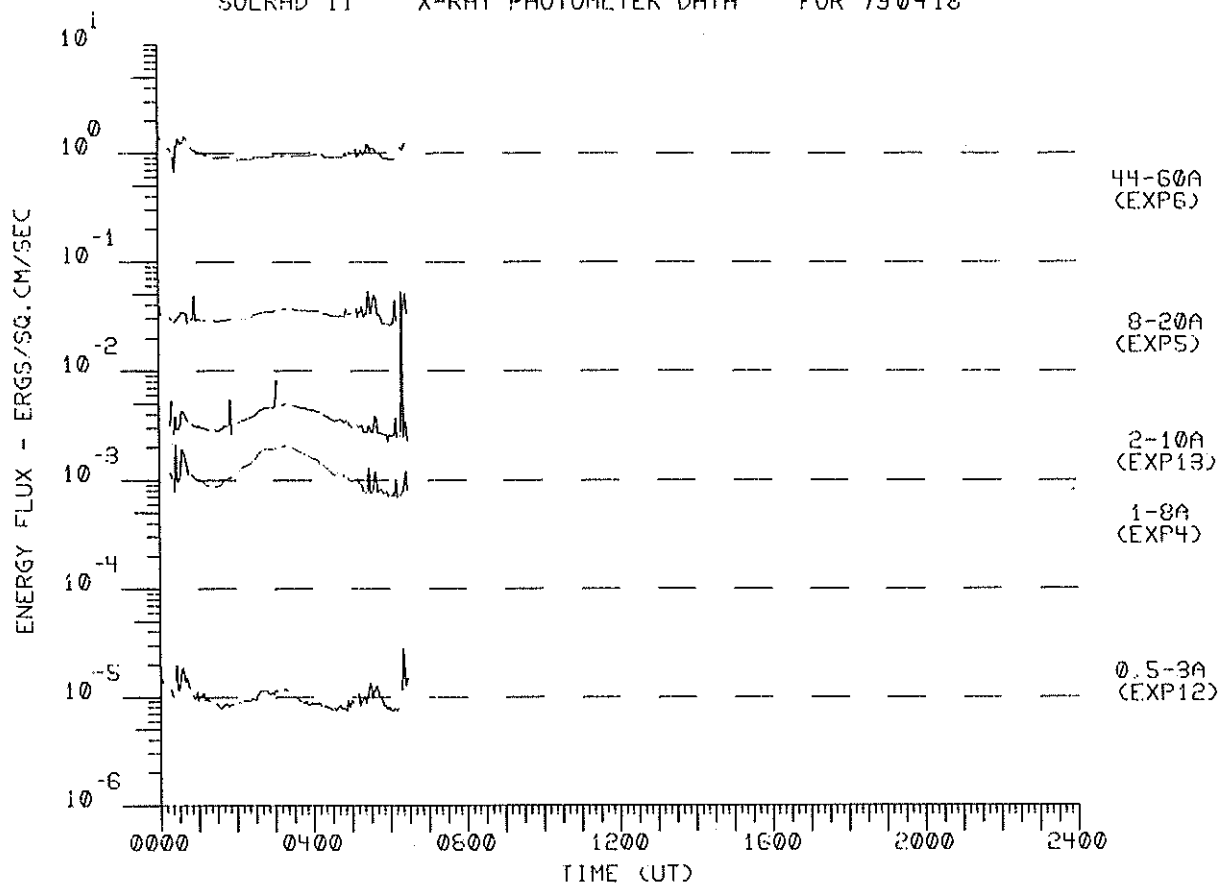
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790416

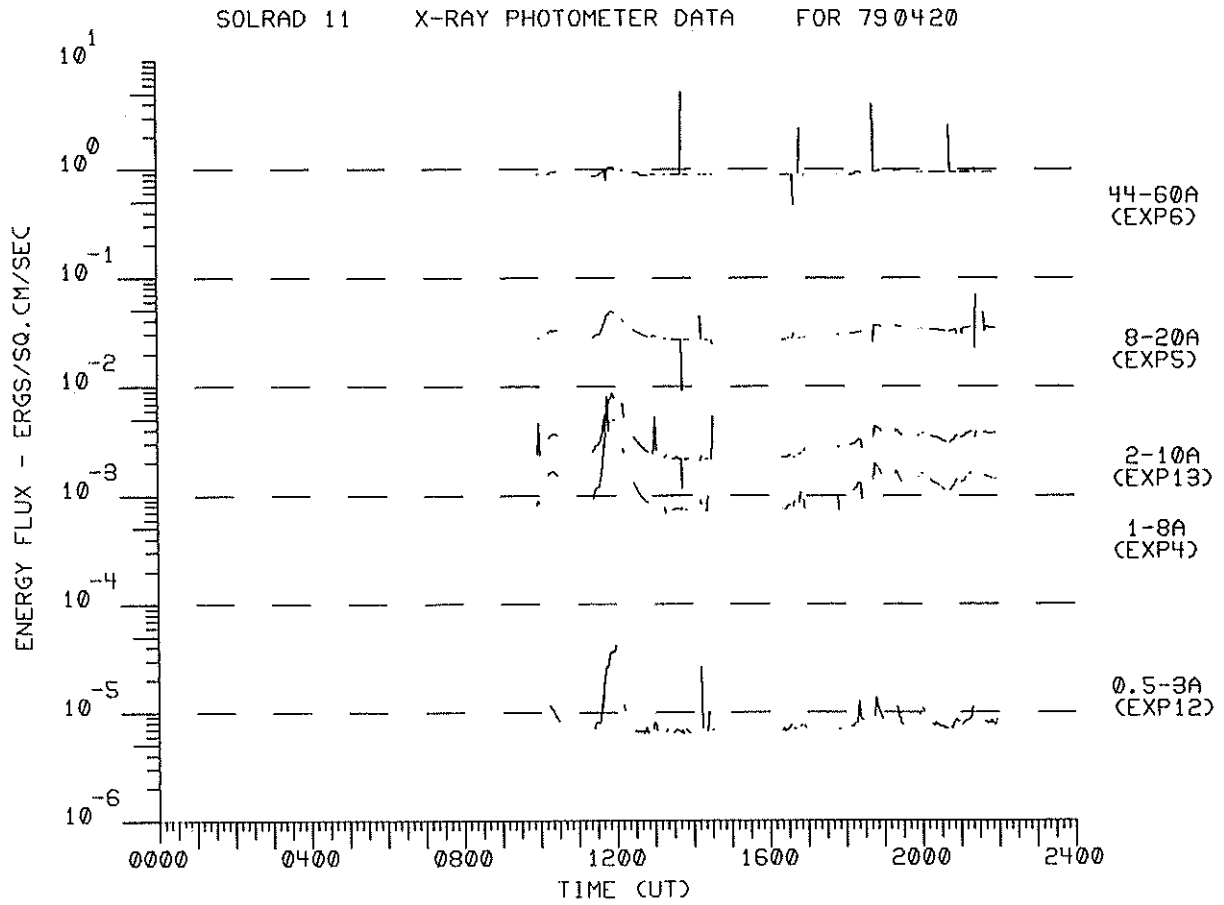
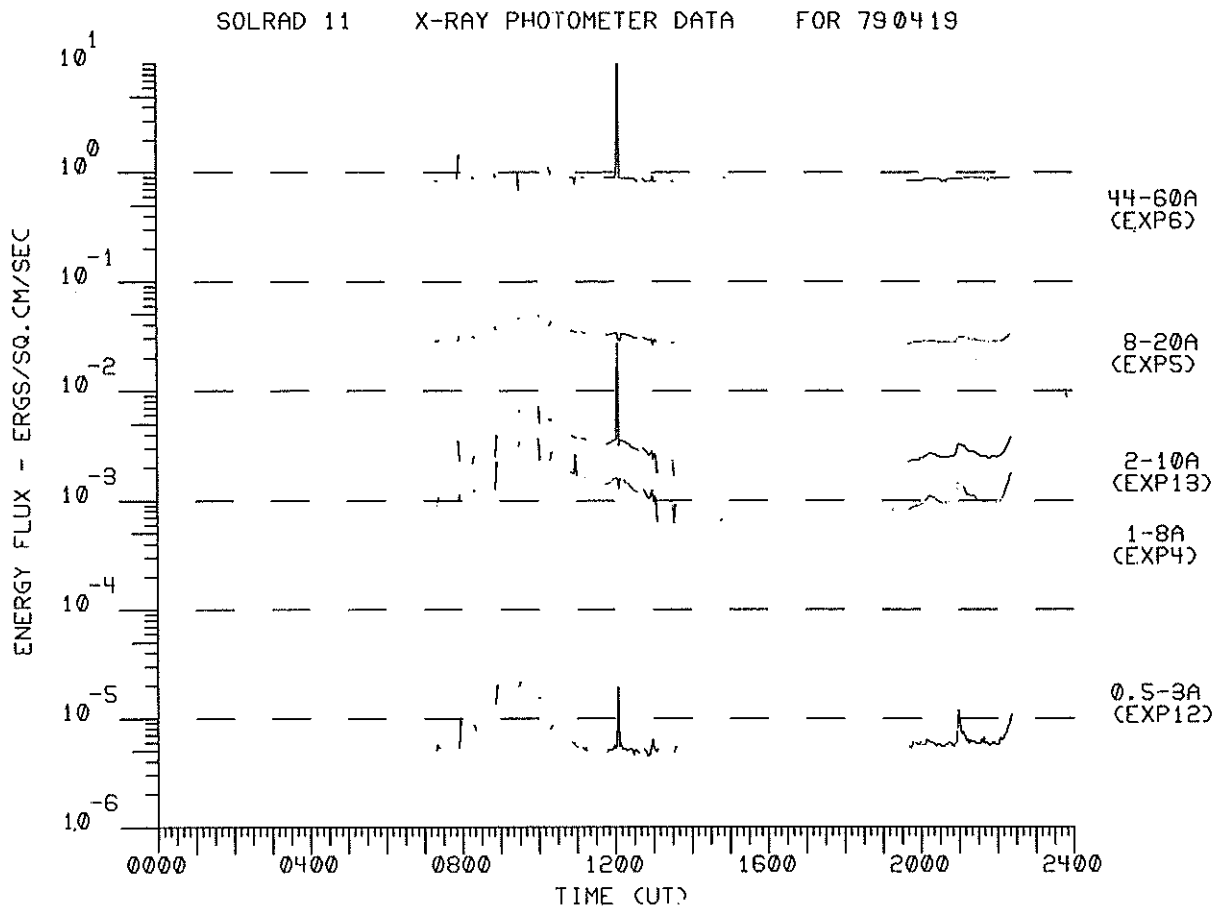


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790417

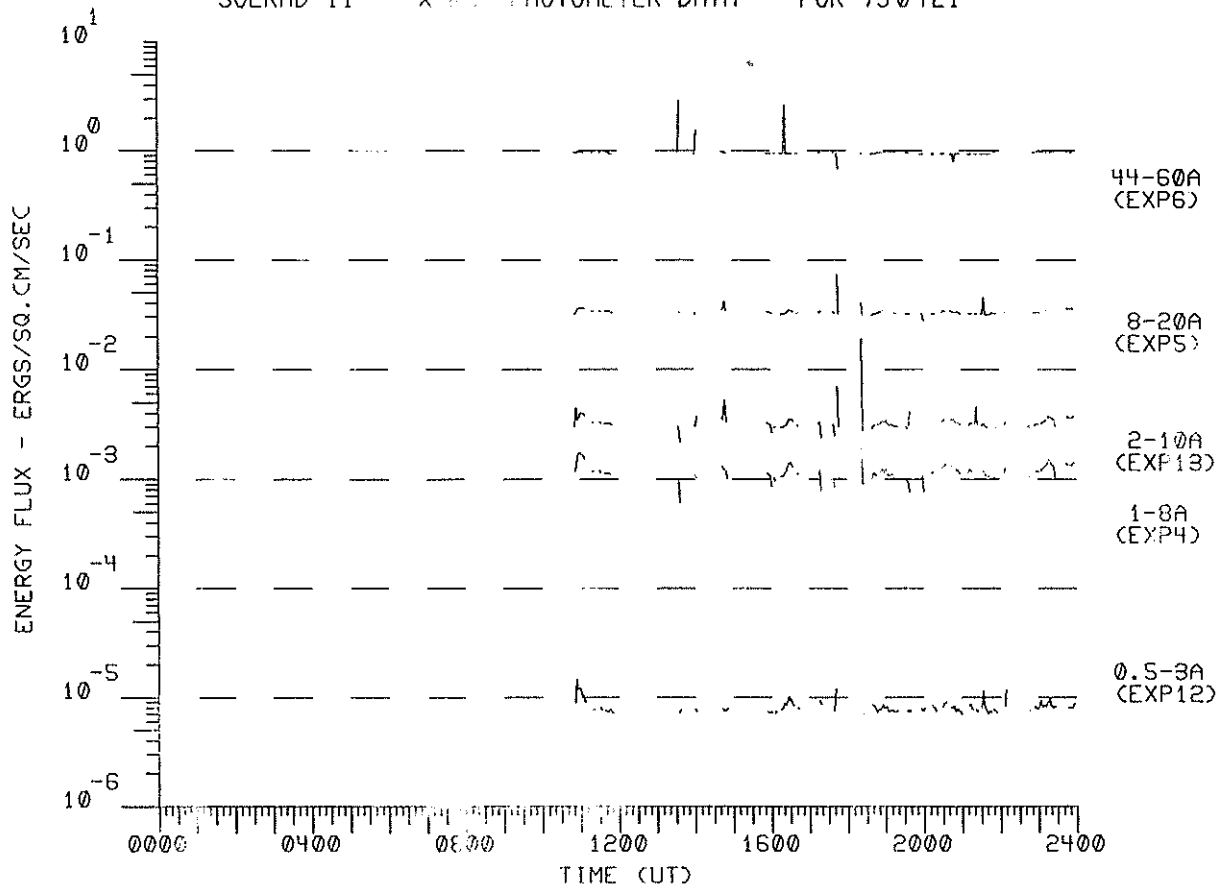


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790418

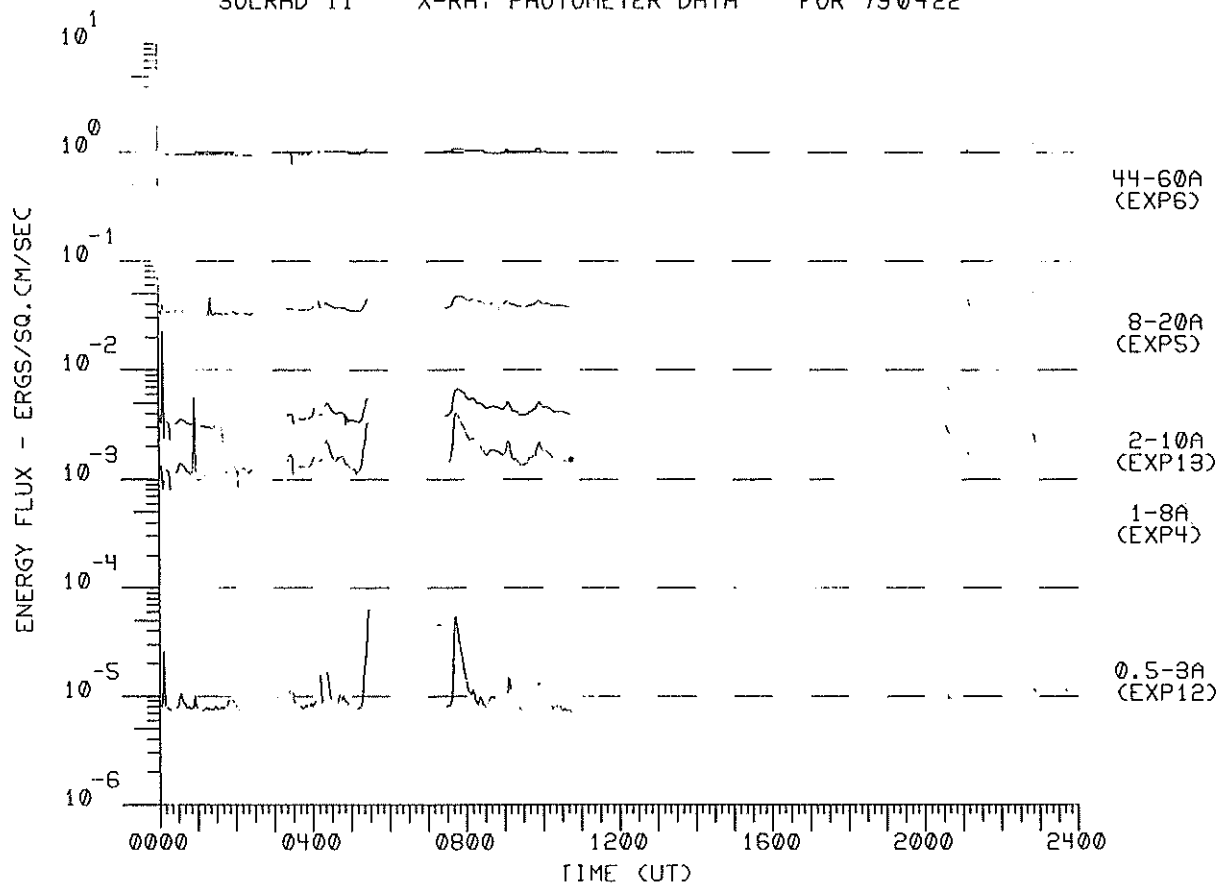




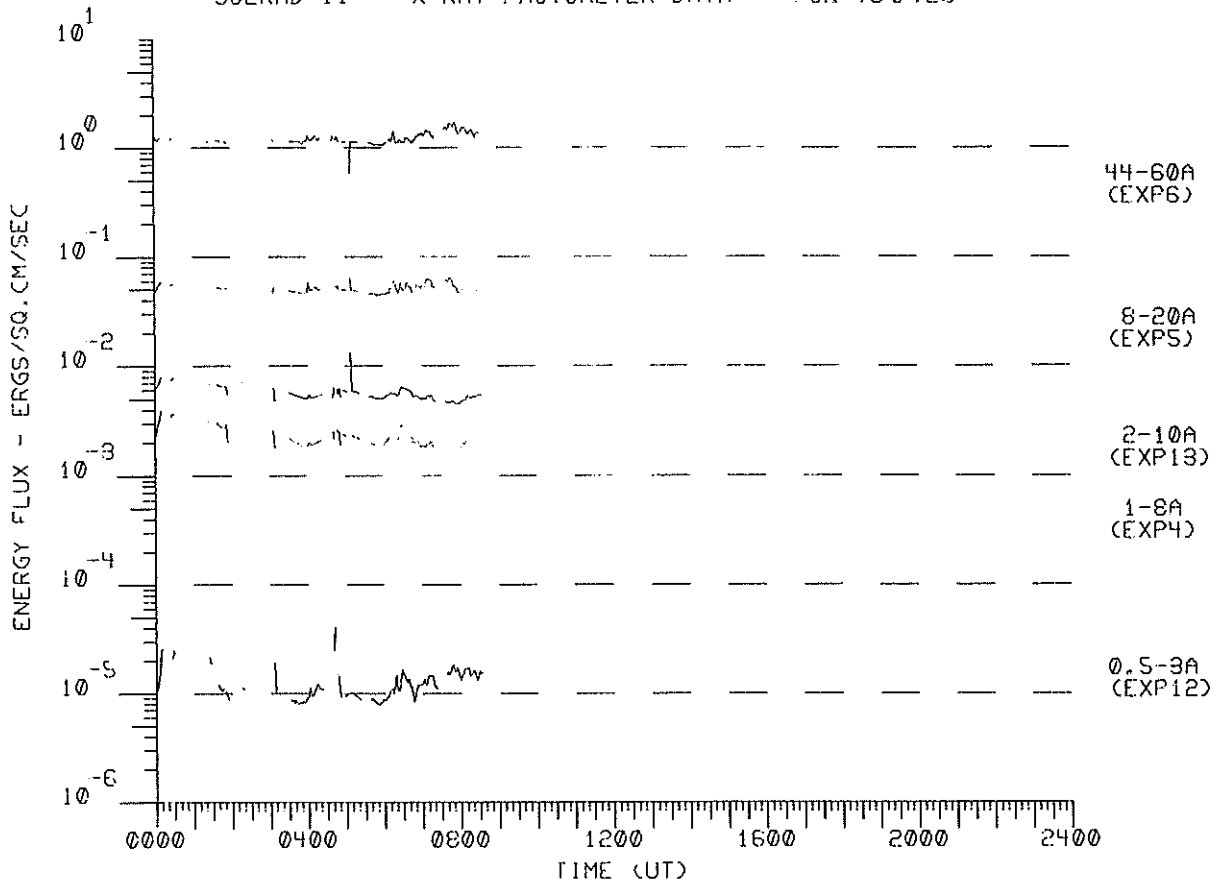
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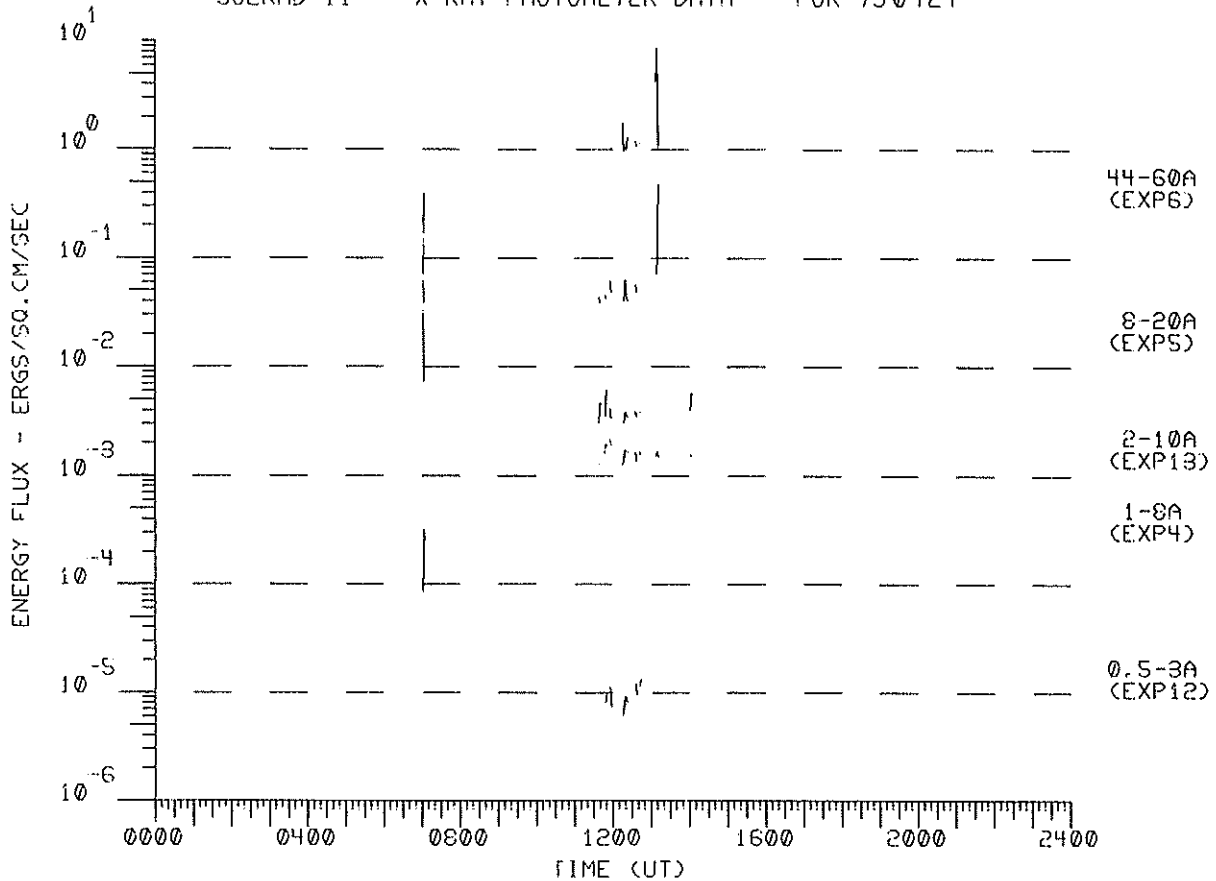
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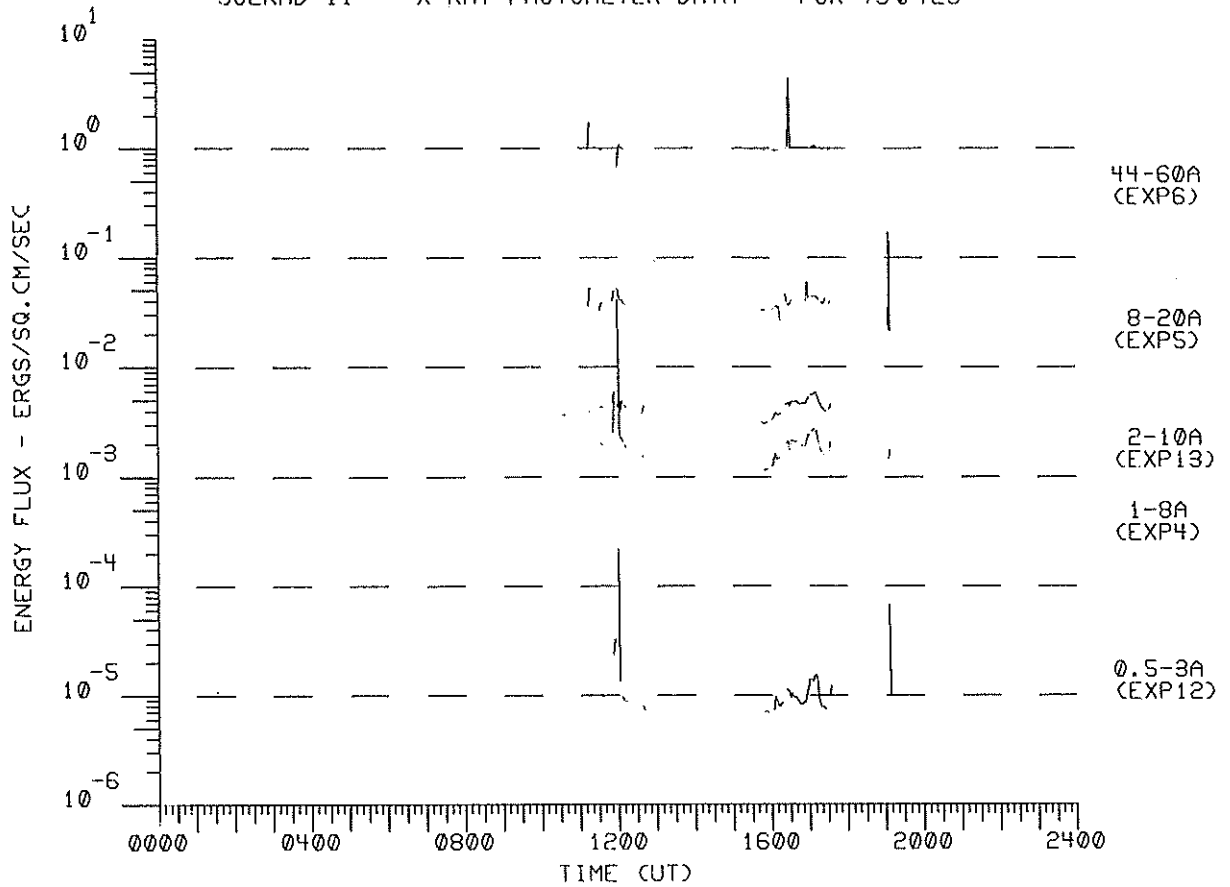
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790423



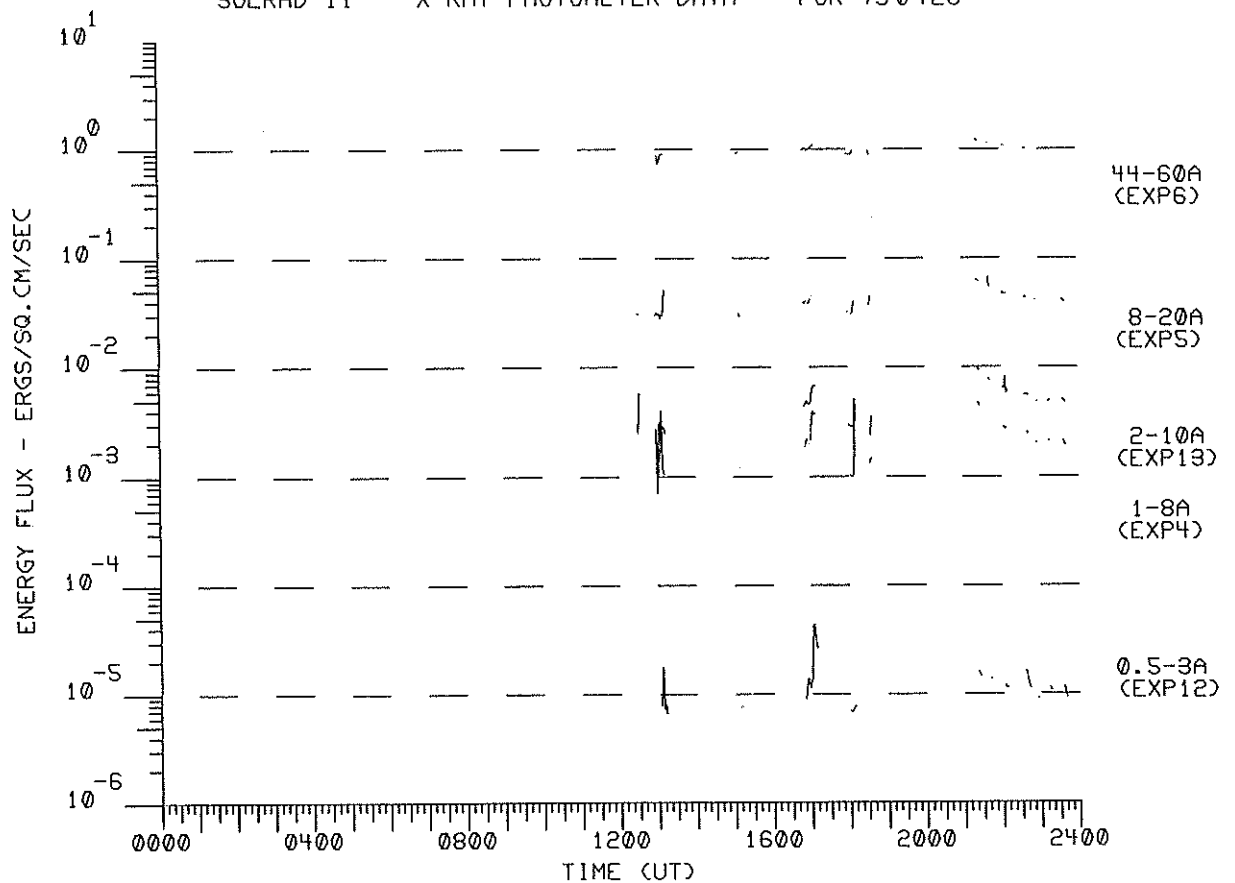
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790424



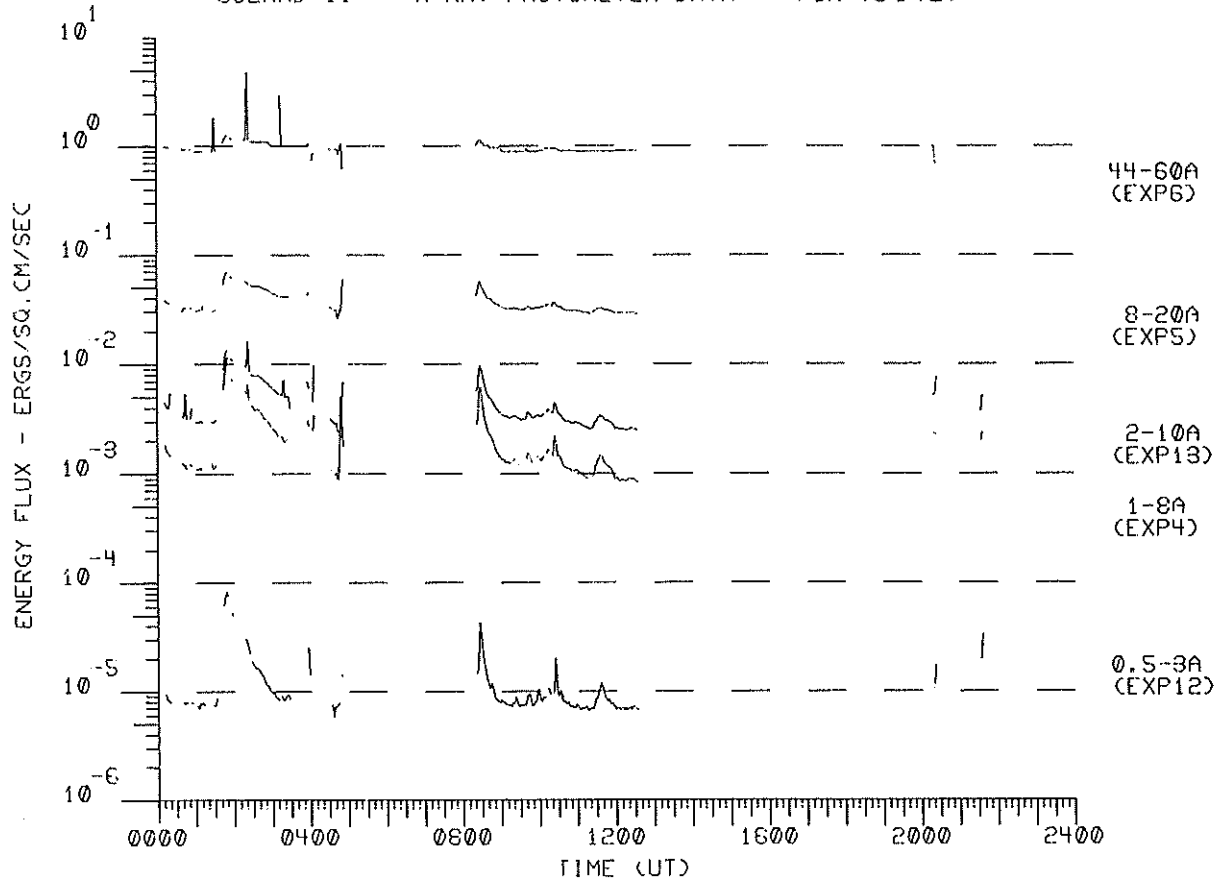
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790425



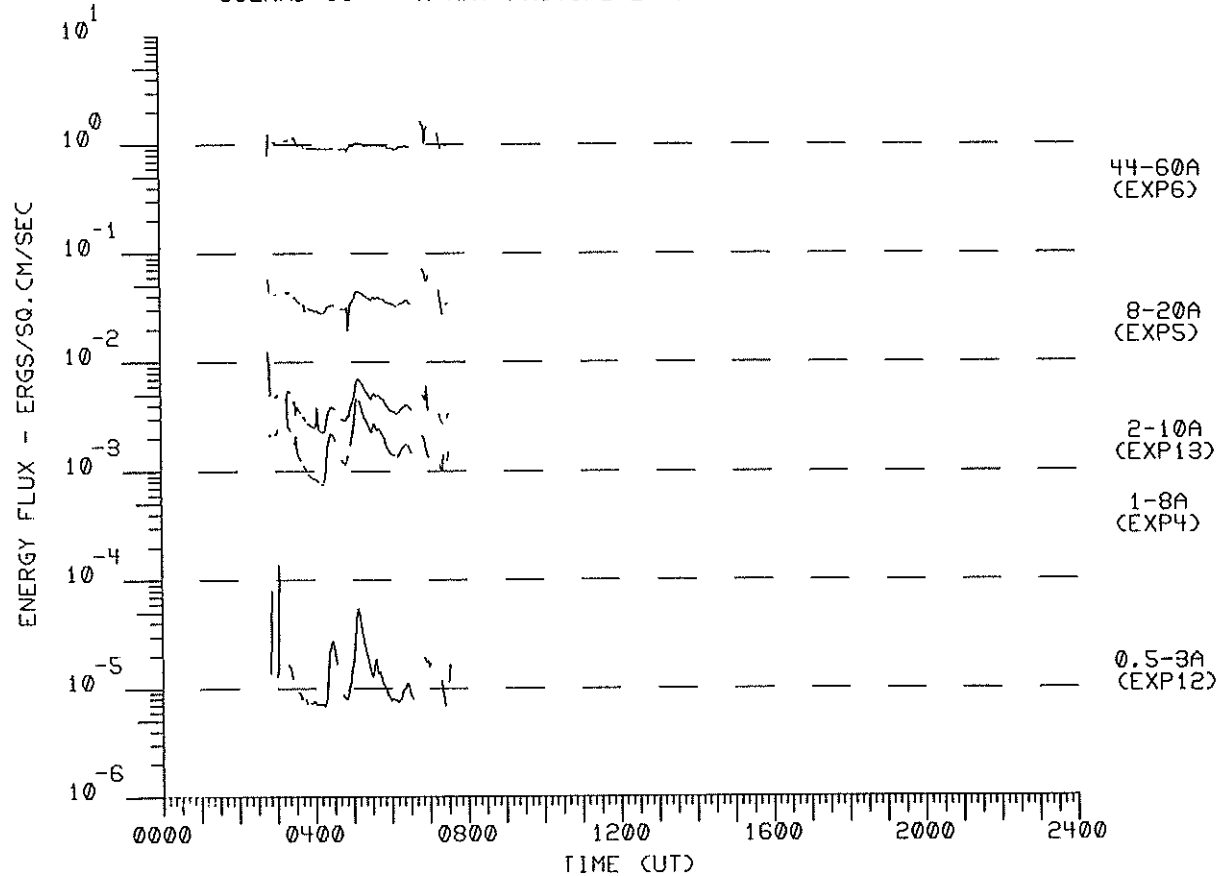
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790426



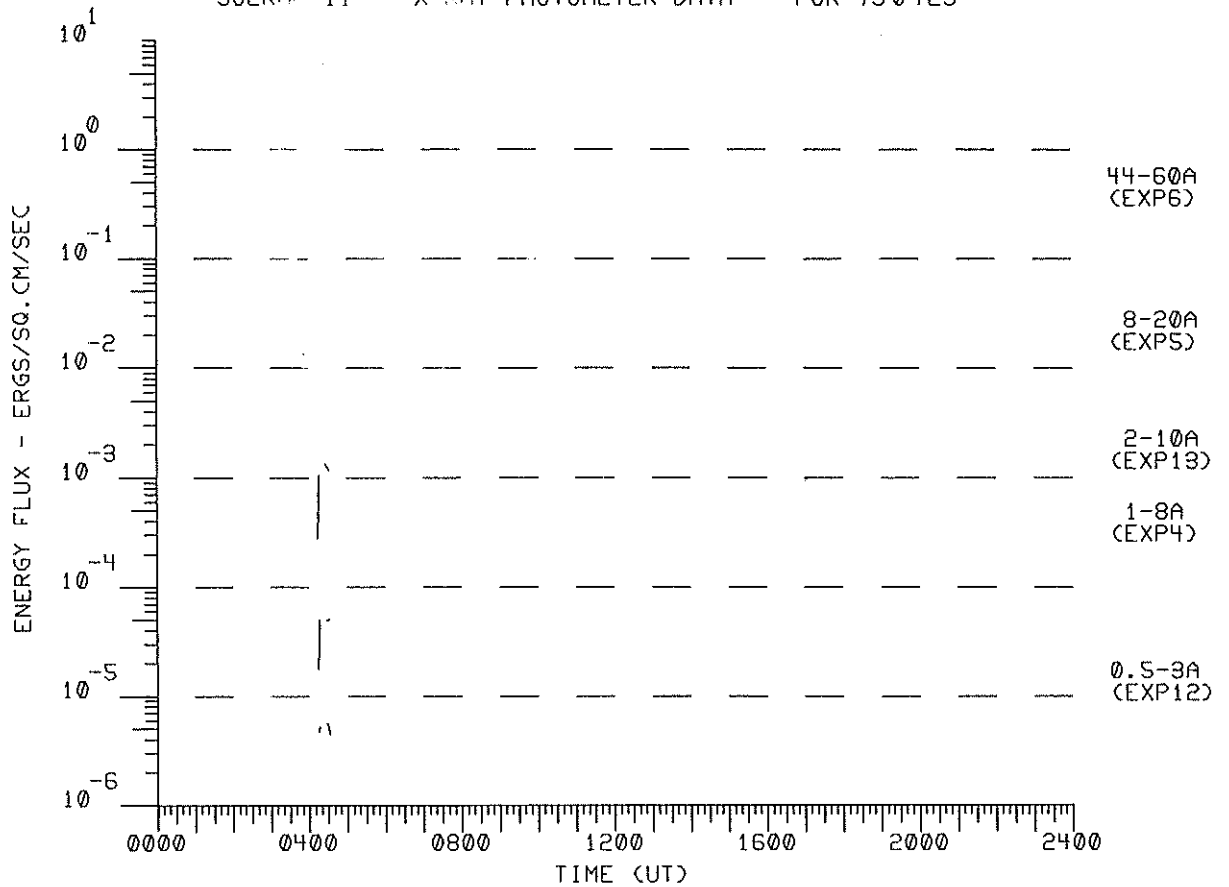
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790427



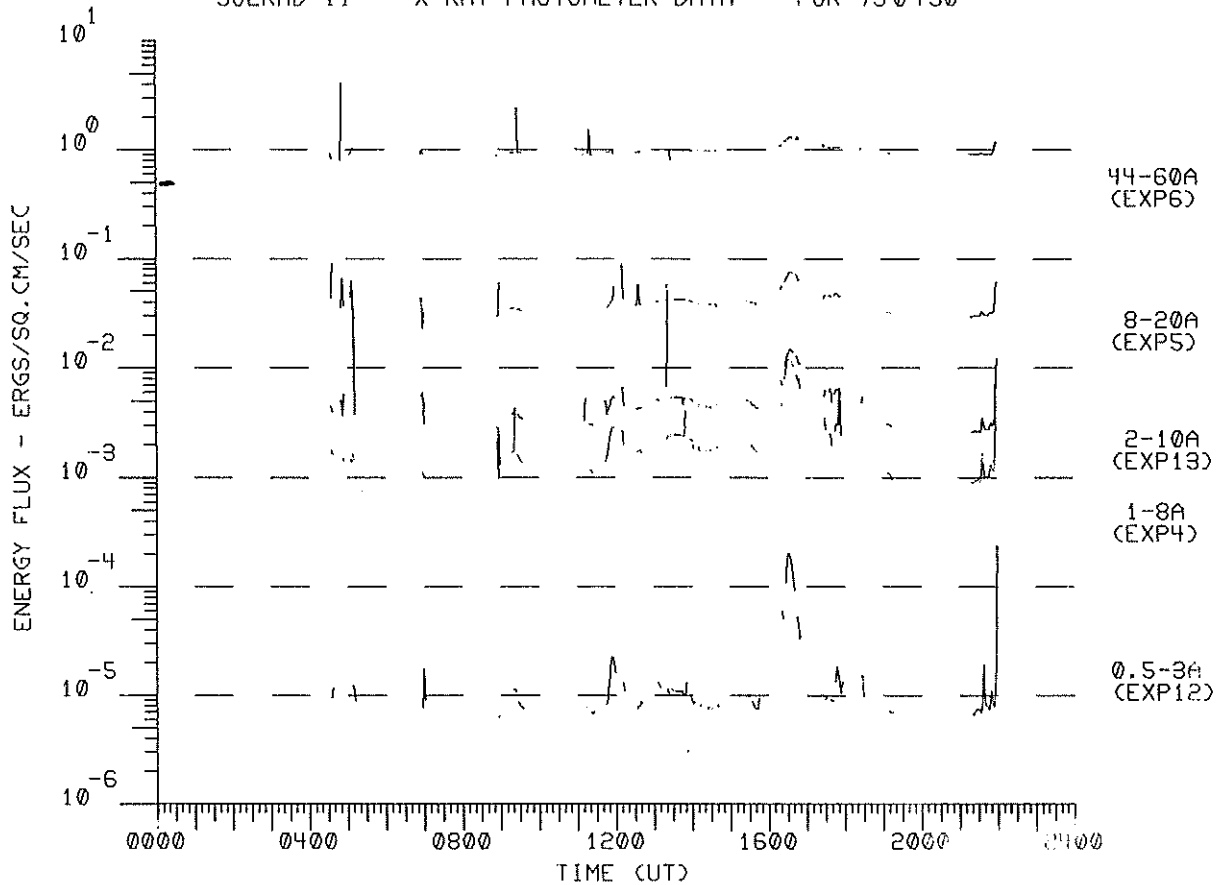
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790428



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790429



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790430



SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE		
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND					
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT			
03	2035	2400	CULG				2035	2400	1						IS,DC
			CULG				2035	2400	1						SCINTLLTNS
	CULG				2051	2400								IIIN,W	
	CULG			2100.5	2101	1								IIIG	
	CULG			2107.5		1	2107.5		1					IIIB	
	CULG						2108		1					IIIB	
	CULG			2115	2143									IN,W	
	CULG			2143	2310	1								IS	
	2200	2400	MANI												
	CULG						2208.5		2						IIIB
	CULG			2310	2400										IN,W
	CULG			2342	2342.5	1									IIIG
	CULG			2344.5											IIIB,W
	04	0000	0735	CULG	0000	0017		0000	0629						
0000				0957	MANI										
CULG				0017	0351										IN,W
CULG							0024	0040	1						DC
CULG							0116.5	0119.5	1						DC
CULG							0152	0154	1						DC
CULG				0351	0735										IS,W
CULG				0428	0428.5	1	0425	0429.5	1						IIIG
							0445	0447							IIIG,W
0529		1150	DURN				0529	E 1150	2						I,DC
CULG				0534	0534.5	1									IIIG
CULG							0617	0628							IIIS,W
CULG							0629	0735	1						IS,DC
DURN							0709.9	0712.1	3						IIIGG
CULG				0710.5	0713	2	0710.5	0714.5	2						IIIGG
CULG							0715.5	0716.5	1						IIIG
WEIS							0735.8	1047.0	1						IN
							0748.0	0748.3	2						IIIB
0723		1648	WEIS												
0856		1159	DWIN												
1025		2200	SGMR												
1203		1210	DURN	1204.5	1205.0	1	1204.7	1205.0	3						IIIG
1238		1413	DURN												
1433		1746	DURN				1500	1746	D 1						I,DC
1655		1718	WEIS												
DURN				1739.2	1742.1	3	1739.2	1742.1	3						IIIG
CULG				2035	2122										IN,W
CULG							2035	2148							IS,W
2035		2400	CULG				2035	2049							IIIS,W
CULG							2036	2036.5	1						IIIG
CULG						2104.5								IIIB,W	
CULG						2114								IIIB,W	
CULG			2122	2400										IS,W	
CULG						2152.5		1						IIIB	
2159	2400	MANI													
CULG			2337	2343	1									FAST DRIFT	
CULG						2346	2347	1						I	
05	0000	0735	CULG	0000	0048										IS,W
			0000	0958	MANI										
	CULG			0016	0017	1									IIIGG
	CULG			0018.5	0019	1									IIIG
	CULG			0020	0020.5	1									IIIG
	CULG						0152		1	0152		1			IIIB
	CULG			0207	0213	1									I
	CULG			0315	0735		0300	0709							IN,W
	CULG						0517	0517.5	1						UNCLF
	CULG						0518.5		1						IIIB
	0531	1137	WEIS				0607.2	0609.4	2						IIIG
	CULG						0607	0608	2						IIIG
	CULG						0608.5	0609.5							IIIG,W
	CULG						0648	0649	1						IIIG
	1147	1723	WEIS				0649.3	0648.9	2						IIIG
	0524	1746	DURN				0650	1500	1						I,DC
	CULG						0709	0735	1						IS
	0803	1201	DWIN												
WEIS						0938.7	1429.3	2						I	

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE	
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT		
05	1023	2200	SGMR											
			DURN	1457.0	1457.3	2	1457.0	1457.3	2					IIIG
			DURN	1659.6	1701.1	3	1659.6	1659.9	3					IIIGG
	2035	2400	CULG	2139	2141	2	2139.5	2141	1					IIIGG
	2157	2400	MANI											
06	0000	0957	MANI											IS,W
	0000	0735	CULG	0154	0401									IIIGG
			CULG	0356	0358	1								IIIB
			CULG				0422.5	0423	2					IIIG,W
			CULG				0423	0424.5	2					IIIB,U
			CULG				0426	0426.5	1					IIIG
	0527	1657	WEIS				0652.0	0653.0	1					UNCLF
			CULG				0652	0653	1					IIIG
			WEIS				0740.6	0740.8	2					IIIB
			WEIS				0745.4	0745.7	1					IIIG
	0535	1747	DURN				0909.5	0910.0	3					IIIG
			DURN	0911.0	0911.3	3								IIIG
	0741	1240	OWIN	0911.0	0911.5	2								IIIB
			WEIS				1151.5	1151.7	2					IIIG
	1022	1900	SGMR				1238.3	1239.4	1					IIIG
			WEIS				1239.2	1239.6	2					IIIG
	1724	1737	WEIS											IIIGG
	2035	2400	CULG	2054	2055	1								IN,W
		CULG	2147	2153										
2154	2400	MANI	2358	2400									I,W	
		CULG												
07	0000	0735	CULG	0000	0148									IS,W
	0000	0957	MANI											IN,W
			CULG	0340	0735									IIIG
			CULG	0419.5	0420	2								UNCLF,W
			CULG				0437.5	0438.5						IIIG
	0525	0639	WEIS				0541.7	0542.7	1					IIIG,W
			CULG				0649.5	0650.5						I
	0527	1335	DURN				0730	0900	1					IIIB
	0807	1723	WEIS				0946.1	0946.2	1					IIIG
	1021	2200	SGMR				1522.6	1523.0	1					IIIG
			WEIS				1525.1	1525.7	1					U
			WEIS				1703.4	1703.5	2					
	2035	2400	CULG											
	2201	2400	MANI											
08	0000	0639	MANI											IIIG,U
	0000	0734	CULG	0144.5	0145	1	0144.5	0145	1					IIIG
			CULG	0146.5	0147	1	0146.5	0147	1					I,W
			CULG				0314	0314.5						IIIG,U
			CULG				0412.5	0413	2					IIIG,W
			CULG				0451	0451.5						IIIG
	0523	1552	WEIS	0543.5	0544	1	0700.7	0702.5	1					IIIG
			CULG				0701							IIIB,W
			CULG				0702.5							IIIB,W
			WEIS				0732.2	0732.4	2					IIIG
			CULG				0732.5							IIIB,W
	0740	1002	MANI											U
			WEIS				0832.3	0832.5	1					IIIG
			WEIS				0840.3	0840.8	1					IIIB
			WEIS				1032.3	1032.7	2					IIIB
			WEIS				1045.4	1045.5	2					I
	0732	1750	DURN				1200	1600	1					IIIG
			WEIS				1211.8	1212.2	2					IIIB
			WEIS				1214.0	1214.4	1					IIIB
			WEIS				1230.9	1231.0	1					IIIB
			WEIS				1232.2	1232.3	1					IIIG,DP
			WEIS				1233.8	1240.0	2					IIIS
1020	2200	SGMR				1234.5	1240.0	1					IIIG	
		DURN	1407.0	1407.1	1	1406.9	1407.4	1					IIIG	
		DURN				1508.0	1508.6	3					IIIG	

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

APRIL 1979

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
08			WEIS				1508.0	1508.9	1				IIIG
			DURN				1517.1	1517.8	3				IIIGG
			WEIS				1517.2	1517.8	2				IIIG
	2034	2400	CULG	2045	2046.5	1	2044.5	2045.5	1				IIIG
	2150	2400	CULG				2113						IIIB,W
		MANI											
		CULG	2343.5	2344	1	2249	2250	1					IIIB
		CULG											I
09	0000	0958	MANI										
			CULG				0053.5	0056	2				IIIG
	0000	0734	CULG				0053.5	0054	1				UNCLF
			CULG	0244.5	0245	1	0244.5	0245	1				IIIG
			CULG	0319	0319.5								IIIG,W
			CULG	0331.5	0332.5	1	0331.5	0332.5	1				IIIG
			CULG				0404.5	0405	1				UNCLF
	0612	1726	WEIS				0755.5	0755.8	1				IIIB
	0521	1752	DURN				0943.8	0944.3	3				IIIGG
			DURN	1056.8	1057.0	1	1056.8	1057.0	1				IIIG
			WEIS				1141.8	1142.2	2				IIIG
			DURN				1351.5	1354.1	3				IIIGG
			WEIS				1352.6	1354.1	2				IIIG
			WEIS				1505.2	1505.7	2				IIIG
			DURN				1508.6	1508.9	1				IIIG
			WEIS				1508.7	1511.1	2				IIIG
	1020	2200	SGMR				1511.0	1511.3	2				V
	2034	2400	CULG				2118						IIIB,W
	2150	2400	MANI										
			CULG				2210.5	2211	1				IIIG
			CULG				2216	2217					UNCLF,W
			CULG				2251.5						IIIB,W
		CULG				2254	2254.5	1				IIIB	
10	0000	0955	MANI										
	0000	0734	CULG	0131.5	0132		0141.5	0153	1				IIIG,W
			CULG				0457.5	0458					UNCLF
			CULG				0457.5	0458					IIIG,W
			CULG	0457.5	0503.5	2							IIIGG,U
			CULG				0501	0502	2				IIIG
			CULG				0507.5						IIIB,W
			CULG	0508	0509								IIIG,W
	0519	1727	WEIS				0610.0	0611.3	2				IIIG,U
			CULG				0610	0610.5	1				IIIG
			CULG				0611	0611.5					UNCLF,W
			CULG				0618	0621					IIIG,W,U
			WEIS				0619.3	0621.8	1				IIIG
			CULG				0621.5	0622	1				IIIB
			WEIS				0711.0	0711.5	1				IIIG
			CULG				0711	0711.5	2				IIIB,V
	0518	1753	DURN				0834.9	0838.3	3				IIIGG
			WEIS				0835.2	0838.7	2				IIIGG
	1019	2200	SGMR				1249.5	1250.1	1				III
			WEIS				1249.6	1250.2	2				IIIG
			WEIS				1454.7	1456.4	2				IIIG
			SGMR				1718.1	1727.0	2				IIIS
			WEIS				1718.6	1721.0	2				IIIGG
			WEIS				1724.3	1725.7	2				IIIG
			DURN	1724.4	1726.0	1	1724.5	1725.8	3				IIIGG,RS
	2033	2400	CULG				2041.5	2043	2				IIIG
	2150	2400	MANI										
		CULG	2240	2241	1								IIIG
		CULG	2302	2302.5	1								I
		CULG				2315	2315.5	1					IIIG
11	0000	0958	MANI										
			CULG	0011.5	0013								IIIG,W
	0000	0729	CULG	0019.5			0019.5						IIIB,W
			CULG	0029.5									IIIB,W
			CULG	0039	0039.5								IIIG,W
		CULG				0200.5	0201					IIIG,W	

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

APRIL 1979

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
21			CULG	2203.5	2204.5	2								IIIG
			CULG	2234	2234.5	1								IIIG
			CULG				2241.5	2242	2					IIIG
			CULG				2251	2251.5						IIIG,W
22	0000	0730	CULG	0000	0448									IS,W
	0000	0955	MANI				0049.5							IIIB,W
			CULG				0443.5	0444	2					IIIG
			CULG				0446	0447	2					IIIG
			CULG	0448	0540	1								IS
	0501	0521	DURN											
	0500	0720	WEIS				0521.3	0522.3	1					IIIG
			CULG				0521	0522	1					IIIG
			CULG				0527.5	0528	1					IIIG
			WEIS				0527.5	0529.0	1					IIIG
			CULG	0528.5	0532	1								IIIGG
			CULG				0528	0641						IIIN,W
			CULG	0532	0730									IS,W
			WEIS				0558.2	0558.4	1					IIIG
			WEIS				0614.7	0615.0	1					IIIB
			CULG				0617.5	0618	2					IIIG
			WEIS				0617.7	0618.1	2					IIIG
	0528	1130	DURN				0617.7	0618.1	2					IIIG
			DURN				0630	1130	D 1					I
			WEIS				0632.2	0633.7	1					IIIG
	0928	1745	WEIS				0950.5	1011.0	2					IIIGG
			WEIS				1104.3	1104.5	1					IIIB
			WEIS				1110.5	1110.7	1					IIIB
			WEIS				1208.1	1208.9	2					IIIG
	0956	2200	SGMR				1208.2	1208.6	2					IIIS
	1237	1759	DURN				1237	1759	D 1					I
			WEIS				1726.0	1726.2	1					IIIB
	2031	2400	CULG	2031	2330	1								IS
			SGMR				2039.5	2039.8	2					III
	2141	2400	MANI											
			CULG				2141	2141.5	3					IIIG
			CULG				2211	2357						IIIN,W
			CULG				2231.5	2233	1					IIIG
			CULG				2305.5	2316	1					IIIS
			CULG				2311.5	2313.5	2					II POSSIBLE
			CULG	2330	2400									IS,W
23	0000	0730	CULG	0000	0259									IS,W
	0000	1000	MANI											
			CULG				0134	0144						IN,W
			CULG				0144	0158	1					UNCLFSLOWD
			CULG				0148	0204						IWM POSSIBLE
			CULG				0155.5	0201	1					II POSSIBLE
			CULG	0159	0200	1	0159	0200	1					IIIG
			CULG	0259	0653									IN,W
			CULG				0443	0443.5						IIIG,W
	0448	1135	DURN				0446	1135	D 1					I,DC
			CULG	0653	0720	1								IS
			DURN	0659.3	0659.4	3								IIIG
			CULG				0659.5							IIIB,W
			CULG	0659	0659.5	2								IIIG
	0455	1718	WEIS				1218.7	1219.4	1					IIIG
	1237	1255	DURN				1237	1255	D 1					I
			DURN				1240.0	1240.2	2					IIIG
			WEIS				1240.0	1241.4	2					IIIGG
	0955	2200	SGMR				1240.2	1246.5	2					IIIG
			WEIS				1244.7	1245.0	1					IIIG
			WEIS				1246.3	1246.5	1					IIIG
	1322	1800	DURN				1322	1800	D 1					I
			WEIS				1447.7	1509.0	1					IIIGG
			SGMR				1447.9	1454.1	1					IIIG
	2031	2400	CULG	2031	2400	1								IS
	2148	2400	MANI											
			CULG				2241.5	2242.5						IIIG,W

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE			
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND						
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT				
24	0000	0730	CULG	0000	0730	1									IS	
	0000	0957	MANI												I	
	0448	1135	DURN				0448	E	1135	D	2				IIIG,U	
			CULG	0533.5	0534	2	0533.5		0534.5		2				IIIG	
			DURN	0533.6	0534.1	2	0533.6		0534.1		3				IIIG,W	
			CULG				0626.5		0627.5						IIIG	
			CULG	0626	0626.5	1									IIIG	
	0953	2200	SGMR													
	1242	1800	DURN				1242	E	1800	D	2				I	
			WEIS				1351.0		1736.0		1				IS	
	1350	1743	WEIS				1543.5		1543.7		1				IIIB	
	2030	2400	CULG	2030	2400	2									IS	
			CULG				2039		2400						IS,W	
			CULG				2044		2400						IIIS,W	
	2140	2400	MANI													
		CULG				2333				1				IIIB		
25	0000	0730	CULG				0000		0302						IS,W	
			CULG	0000	0730	2									IS	
	0000	1001	MANI													
			CULG				0008		0009		1				I	
			CULG				0020		0302						IIIN,W	
			CULG	0213	0213.5	2	0213		0213.5		1				IIIG	
			CULG	0215.5	0216	2									IIIG	
			CULG				0302		0505						IIIS,W	
			CULG				0302		0730		2				IS,DC	
			CULG				0413.5		0414		2				IIIG	
			CULG				0438				1				IIIB	
	0457	1125	DURN				0457	E	1125	D	3				I,DC	
	0451	1113	WEIS				0500.3		1712.3		2				IN,DC	
			CULG				0505		0730						IIIN,W	
			WEIS				0602.3		1729.0		1				IIIN	
			WEIS				0646.8		0647.5		2				IIIG	
			CULG				0647		0647.5		2				IIIG	
			CULG				0713				2				IIIB,U	
			CULG				0723		0724		1				IIIG	
			DURN				0828.7		0828.8		3				IIIG	
			DURN	0913.8	0913.8	2									IIIG	
	1232	1400	DURN				1232	E	1400	D	3				I,DC	
	0952	2200	SGMR				1553.3		1553.8		2				IIIG	
	1130	1749	WEIS				1553.3		1555.6		2				IIIG	
			WEIS				1607.6		1609.0		2				IIIG	
			WEIS				1612.7		1613.0		1				IIIG	
			WEIS				1641.8		1642.5		1				IIIG	
			SGMR				1955.2		1959.1		3				V	
	2030	2400	CULG	2030	2316	1									IS	
			CULG	2045.5		1	2045.5				1				IIIB	
			CULG	2130.5	2131.5	1									IIIG	
			CULG				2130.5		2154						IS,W	
			CULG	2134.5	2141	2	2134		2141.5		2				IIIGG,U	
			SGMR				2136.8		2142.0		2				IIIG	
			CULG				2137.5		2141		1				RS,OP	
		CULG				2142		2400						IIIN,W		
		CULG	2145.5	2146	1									IIIG		
2146	2400	MANI														
		CULG				2151.5				1				IIIB		
		CULG				2154		2400		1				IS		
		CULG				2227				1				IIIB		
		CULG				2228.5				1				IIIB		
		CULG	2253		1									IIIB		
		CULG	2316	2400	2									IS		
26	0000	0655	CULG	0000	0655	2	0000		0106		1				IS	
			CULG				0000		0655						IIIN,W	
			CULG				0017				1				IIIB	
			CULG				0106		0655						IN,W	
			CULG				0155.5				1				IIIB	
			CULG				0211				2				IIIB	

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

APRIL 1979

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			CULG				0214.5	0215	2				IIIB			
			CULG				0214	0217	1				IIIG			
			CULG				0216.5	0217	1				IIIB			
			CULG				0243.5	0249	1				IIIB			
			CULG				0305.5	0307	3				IIIG,V			
	0000	0950	MANI								0306	0307	2	III		
			CULG								0306.0	0306.6	1	I		
			CULG				0311	0312	1					IIIG		
			CULG				0533	0533.5	2					IIIG		
			CULG				0545	0547.5	2					IIIB		
			CULG				0551		1					IIIG		
	0643	1126	DURN				0554	0554.5	2					I,OC		
			CULG				0643	1126	0 3					IIIB		
			CULG				0649.5		1					IIIB		
			CULG				0651		1					IS,OC		
	0736	1749	WEIS				0749.0	1726.0	2					IIIB		
			WEIS				0926.8	0927.1	1					IIIG		
			WEIS				1000.5	1001.3	1					IIIG,V		
			WEIS				1025.3	1027.3	3					IIIGG		
			DURN				1025.8	1026.6	3					V		
	0951	2200	SGMR				1025.8	1026.8	2					IIIG		
			WEIS				1050.3	1058.8	2					IIIB		
			WEIS				1250.2	1250.3	1					I,OC		
	1301	1800	DURN				1301	1800	3					IIIB		
			WEIS				1340.9	1341.1	1					IIIG		
			WEIS				1349.2	1349.5	1					IIIG		
			WEIS				1516.2	1516.5	1					IIIG		
			WEIS				1522.9	1523.6	3					IIIG		
			DURN			1536.4	1536.7	1	1536.7	1536.7	2			IIIB		
			WEIS				1605.1	1605.5	2					III		
		SGMR				1625.1	1625.4	1					II			
		SGMR				2015.0	2035.4	2					CONT			
2030	2400	SGMR				2028.0	2200.00	1					IS,C,DC			
		CULG				2030	2400	2					IS,C			
2146	2400	MANI											IIIS			
		CULG					2204	2400	1				IIIS,N			
		CULG					2204	2400	2				IIIB			
		CULG				2301	2301	2					IIIB			
		CULG				2304.5		2					IIIG			
		CULG				2325.5	2326	2	2325.5	2326	3		IS,C,DC			
27			CULG				0000	0337	2				IS,C			
			CULG				0000	0230	1				IIIS			
	0000	0730	CULG				0000	0112	2				IIIG			
			CULG				0020	0021	2				IIIG			
			CULG				0029	0031	1				IIIG			
			CULG				0033	0034	1				IIIG			
			CULG				0112	0146	1				IIIS			
			CULG				0117	0118	1				IIIGG			
			CULG				0146	0641					IIIN,H			
			CULG				0156	0158.5	1	0156.5	0158	1		IIIGG		
			CULG				0159	0200	2	0159	0200	2		IIIG		
			CULG				0230	0422	1					IS		
			CULG				0334.5	0335.5	1	0334.5	0336	2	0335	0335.5	1	IIIG
			CULG											IIIB		
			CULG											IS		
			CULG											IIIB		
			CULG				0422	0645						IS,W		
			CULG				0423	0643	1					IIIN		
	0453	0501	DURN				0500.6	0500.8	3					IIIG		
	0545	0853	WEIS				0505.0	1650.0	2					IN		
	0528	0541	DURN				0529	0541	D 1					I,OC		
			DURN				0530.1	0530.4	3					IIIG		
			CULG				0532.5	0533.5	2	0532.5	0533.5	2		IIIG		
			DURN				0532.6	0533.5	3					IIIGG		
			DURN				0536.1	0540.8	3					IIIGG		
			CULG				0538	0542.5	2					IIIG,V		
	0549	1137	DURN				0549	1137	D 1					I,OC		
		CULG				0554.5	0555	1					IIIG			
		WEIS				0600.6	0600.7	1					IIIG			

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

APRIL 1979

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	
29			CULG				2206	2400						IIIN,W	
			CULG				2233.5	2235.5	2					IIIGG,V	
			CULG				2237		1					IIIB	
			CULG				2305	2400	1					IS	
			CULG				2317		2					RS,DP	
			CULG				2347.5	2348	1					IIIG	
			CULG	2351.5	2354	1	2351.5	2354	2					IIIGG,V	
30	0000 0730		CULG	0000	0053	1								IS	
			CULG				0000	0040						IIIS,W	
			CULG				0000	0730						IS,W	
			CULG				0018	0019	1					IIIG	
			CULG				0023.5								DP,W
			CULG				0040	0730							IIIN,W
			CULG	0053	0730										IN,W
			CULG				0121.5	0122	1					IIIG	
			CULG				0158.5	0159	1					IIIG,U	
			CULG	0222	0223	1								IIIG	
			CULG				0353.5	0355	3					IIIG,V	
		0000 1000	MANI								0353.5	0354.6	1	IIIG	
			CULG				0406.5	0407.5	1					IIIG	
		0449 1115	DURN				0449	1115	D 1					I,DC	
		0545 0755	WEIS				0453.6	0454.5	1					IIIG	
			WEIS				0521.5	0524.5	3					IIIG/V	
			MANI								0522.0	0523.7	1	III	
			CULG	0522	0523	1	0522	0524.5	3					IIIG,V,U	
			WEIS				0541.3	0549.3	2					IIIGG	
			CULG				0544.5	0546	2					IIIG	
			WEIS	0613.4	0613.9	1								IIIG	
			CULG	0613	0614	2								FAST DRIFT	
			WEIS				0724.6	0726.6	3					IIIG	
			CULG				0725		1					IIIB	
		0944 2200	SGMR				1223.9	1224.1	1					III	
		1323 1800	DURN				1323	1800	1					I	
			DURN	1645.4	1645.6	3	1645.4	1645.8	3					IIIG	
			DURN	1657.7	1658.1	3	1657.7	1658.1	3					IIIGG	
		2030 2400	CULG	2037	2145									IN,W	
			CULG				2040	2120						IIIS,W	
		CULG				2048	2204						IS,W		
		CULG				2120	2254						IIIN,W		
	2142 2400	MANI											IS		
		CULG	2145	2211	1								IIIG		
		CULG	2200.5	2201.5	2								IN,W		
		CULG	2211	2400									IIIG		
		CULG	2223	2223.5	2								IIIG		
		CULG	2224	2225.5	2								IIIG		
		CULG	2233	2233.5	1								IIIG		

The symbols used in connection with the spectral type in describing the important bursts are as follows:

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

COSMIC RAY INDICES
(Neutron Monitors)

APRIL 1979

Apr. 1979	THULE	ALERT	DEEP RIVER	CALGARY	KIEL	CLIMAX	TOKYO	KULA	HUANCAYO
	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr
1		6943.9	6543.3		5933.2	3930.0	3599.2		
2		6942.0	6549.5		5945.4	3955.0	3597.6		
3		6896.0	6508.1		5928.2	3906.6	3586.8		
4		6823.0	6442.8		5868.2	3902.8	3575.7		
5		6717.0	6356.8		5748.6	3791.6	3541.2		
6		6650.2	6335.6		5724.4	3747.5	3517.4		
7		6764.8	6386.2		5746.3	3779.1	3533.8		
8		6804.9	6434.0		5807.2	3813.8	3541.0		
9		6823.6	6443.7		5813.7	3825.0	3550.2		
10		6836.4	6470.8		5841.4	3864.7	3566.0		
11		6947.6	6543.8		5905.1	3914.2	3583.0		
12		6960.5	6599.0		5950.7	3958.1	3579.8		
13		6972.7	6593.1		5942.3	3945.6	3571.3		
14		7022.1	6639.0		5967.6	3956.2	3577.4		
15		7020.0	6630.4		5947.5	3952.0	3589.5		
16		7031.8	6642.8		5985.8	3958.8	3605.9		
17		7036.0	6649.8		5982.3	3957.0	3610.9		
18		7012.4	6658.9		5965.1	3962.5	3609.5		
19		6996.8	6607.8		5940.8	3916.2	3607.5		
20		7036.6	6621.0		5968.3	3927.0	3604.4		
21		7039.3	6616.7		5987.0	3933.5	3614.8		
22		6944.3	6527.0		5935.6	3910.4	3589.0		
23		6893.2	6507.7		5908.8	3879.4	3574.5		
24		6904.3	6520.2		5907.8	3887.7	3571.2		
25		6712.0	6337.0		5749.0	3801.9	3541.8		
26		6644.3	6269.1		5676.8	3763.6	3533.5		
27		6767.9	6381.2		5780.3	3811.5	3541.1		
28		6816.5	6448.0		5827.0	3855.5	3566.1		
29		6878.6(22)	6499.6		5886.4	3894.8	3577.6		
30		----	6564.0		5928.0	3927.9	3584.9		
31									
MEAN		6890.9	6510.9		5883.3	3887.4	3574.6		

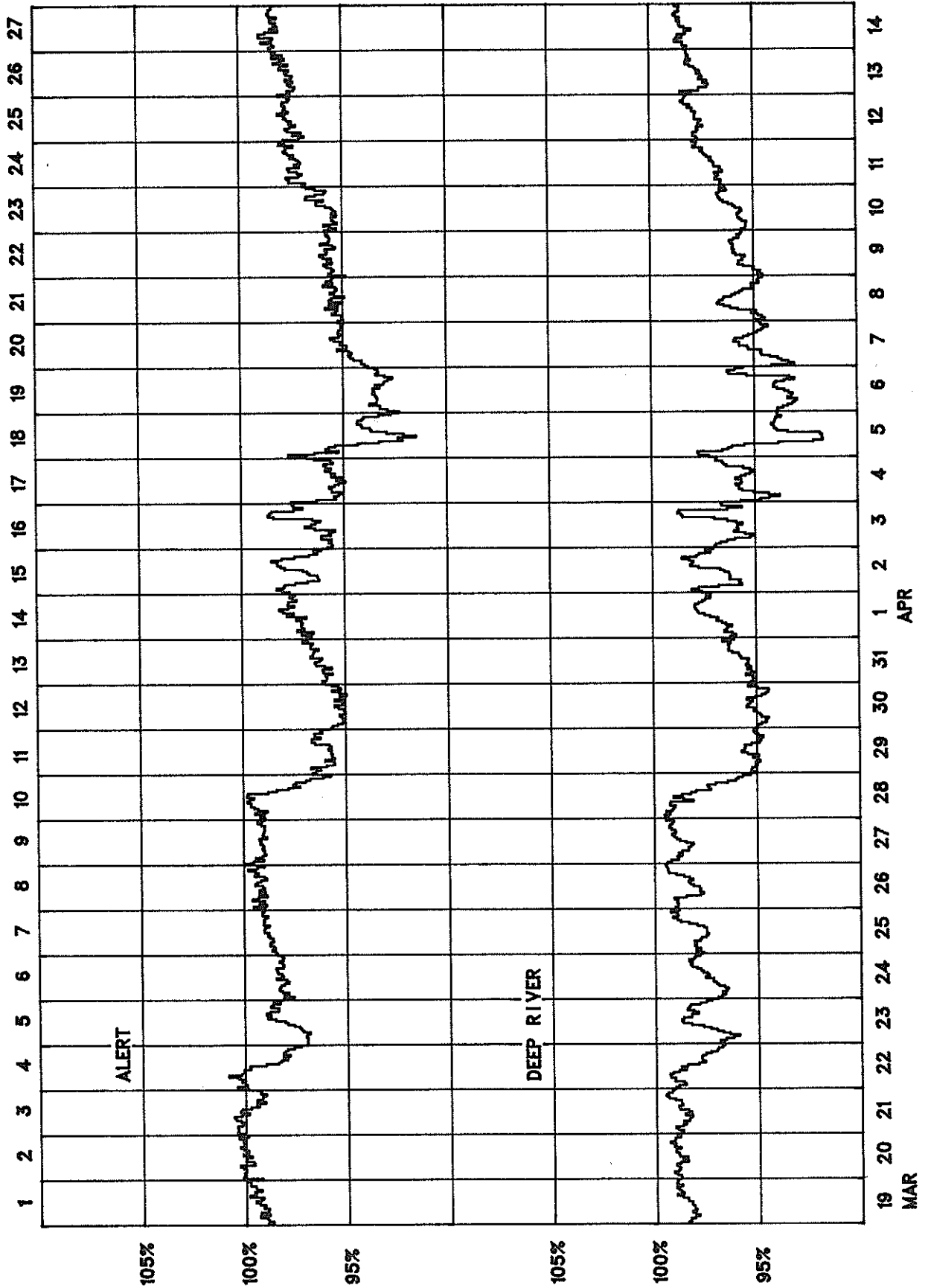
() is the number of hours for which data are available if less than 24. Number of Section Hours at Climax if sum of both sections is less than 40 hours.

Scaling Factors: 100 for Thule, Alert, Calgary, Sulphur Mountain, Kiel, Climax and Kula; 300 for Deep River; 256 for Tokyo.

NOTE: SULPHUR MOUNTAIN STATION CLOSED AUGUST 1978.

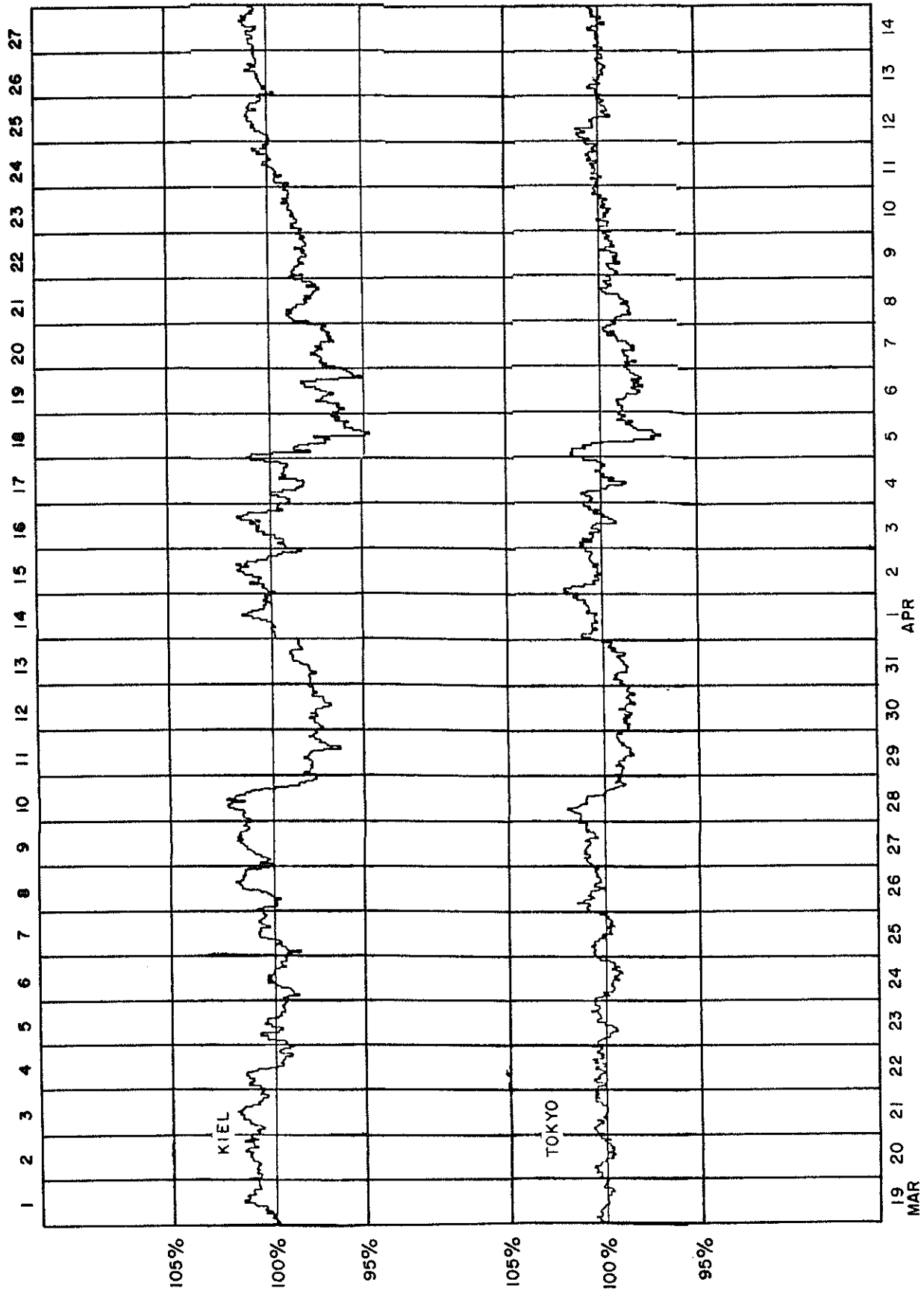
**COSMIC RAY INDICES
(Neutron Monitor)**

Bartels Rotation 1991 (March 1979-April 1979)



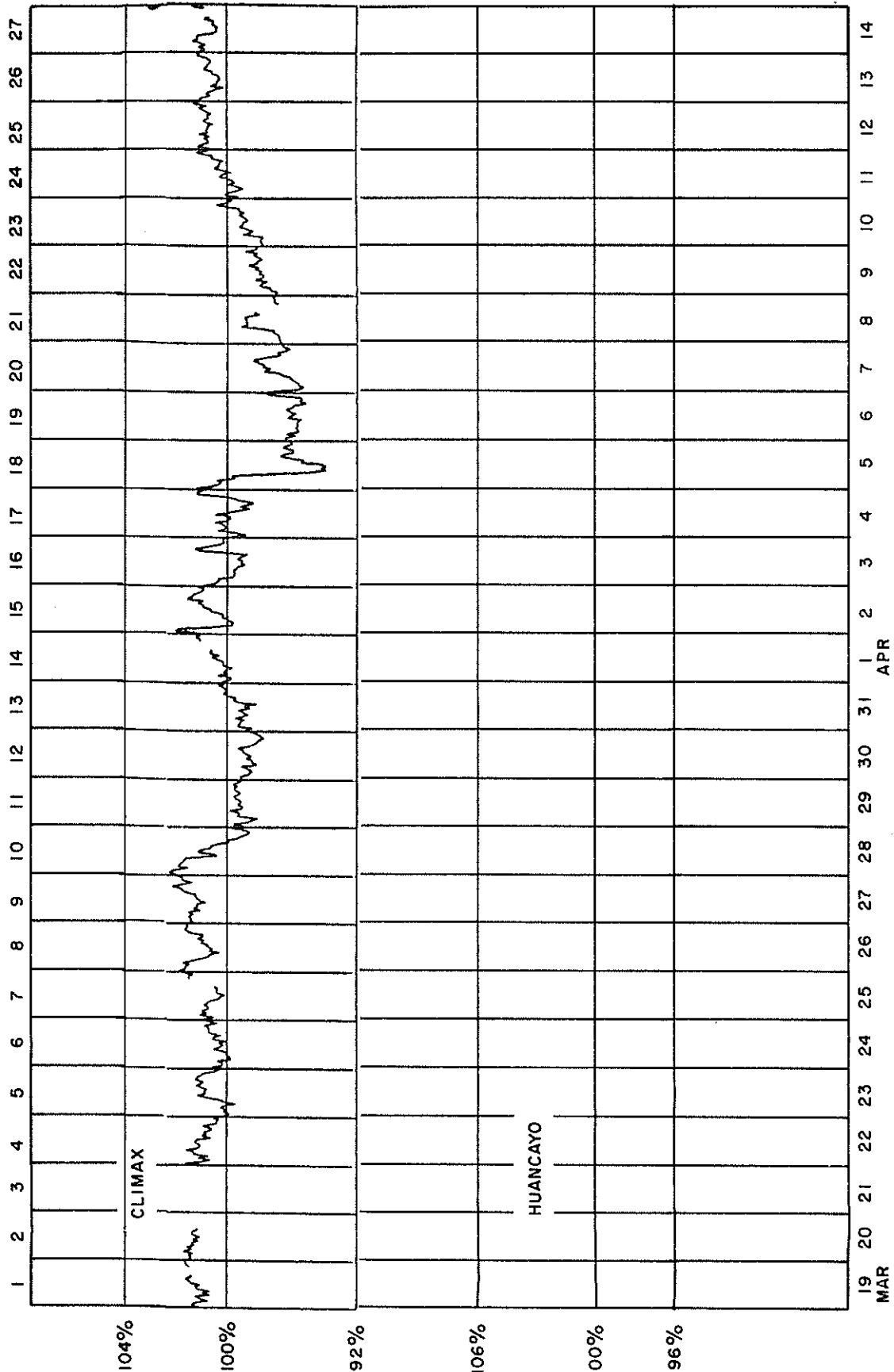
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1991 (March-April 1979)



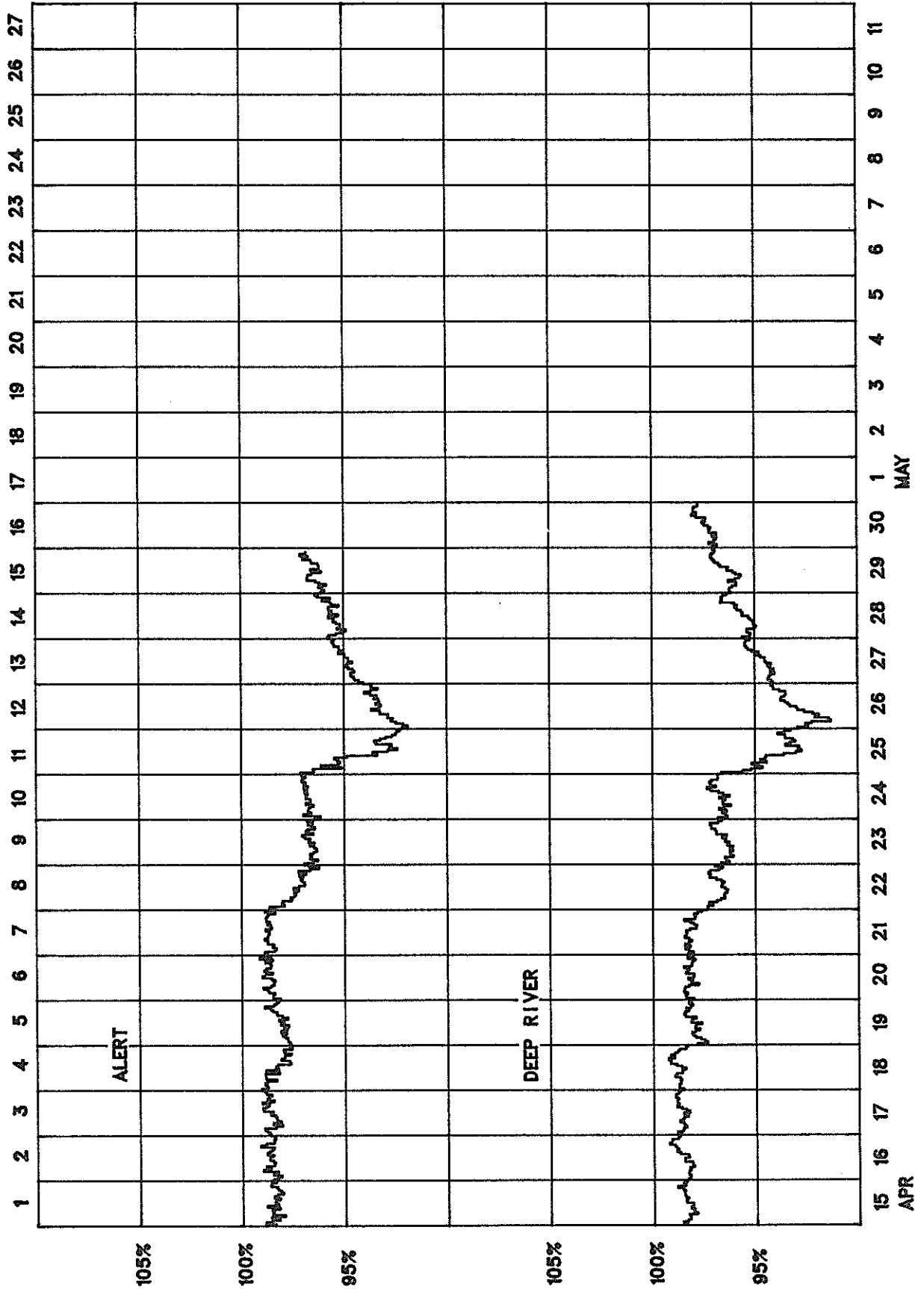
COSMIC RAY INDICES (Neutron Monitors)

Bartels Rotation 1991 (March - April 1979)

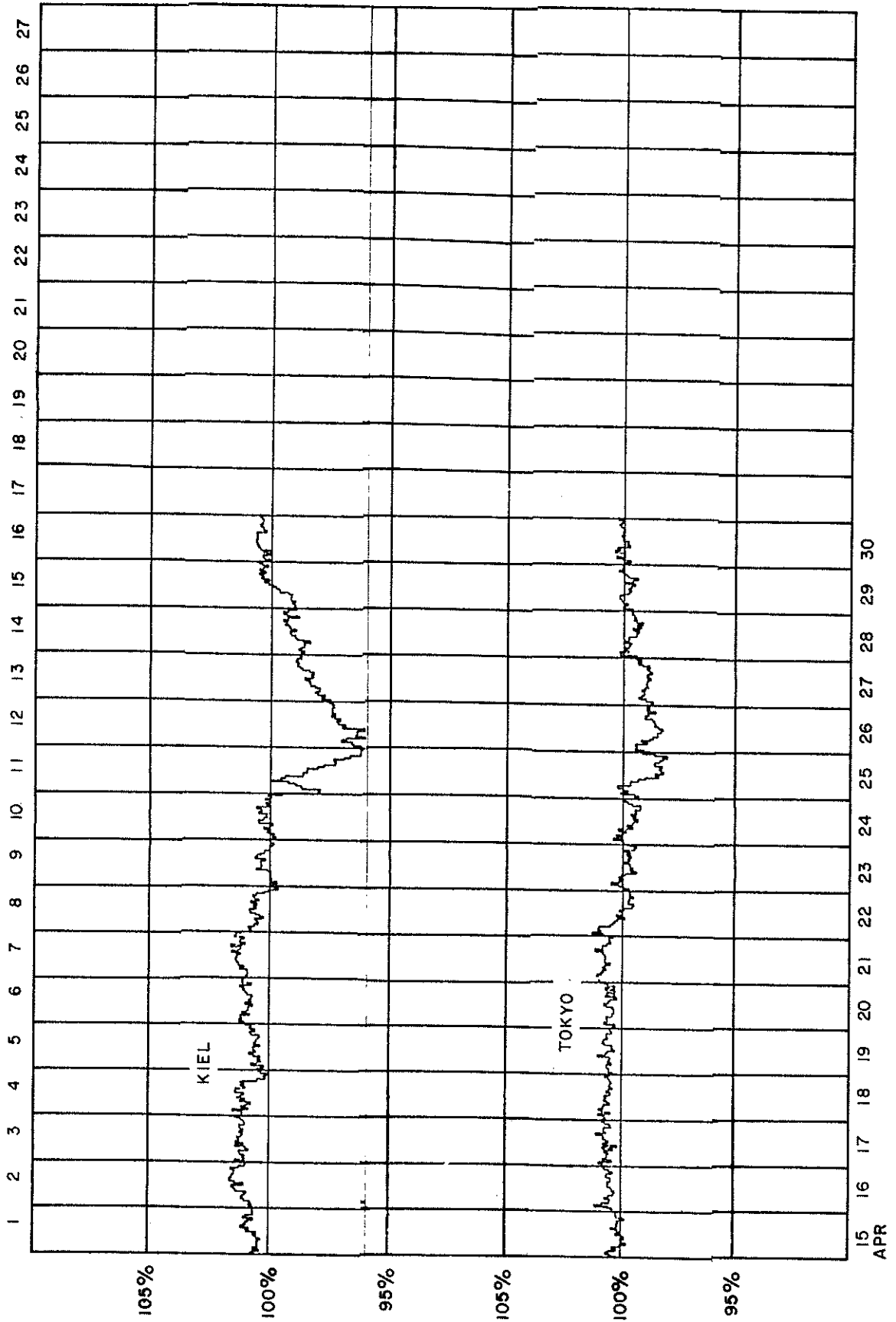


COSMIC RAY INDICES (Neutron Monitor)

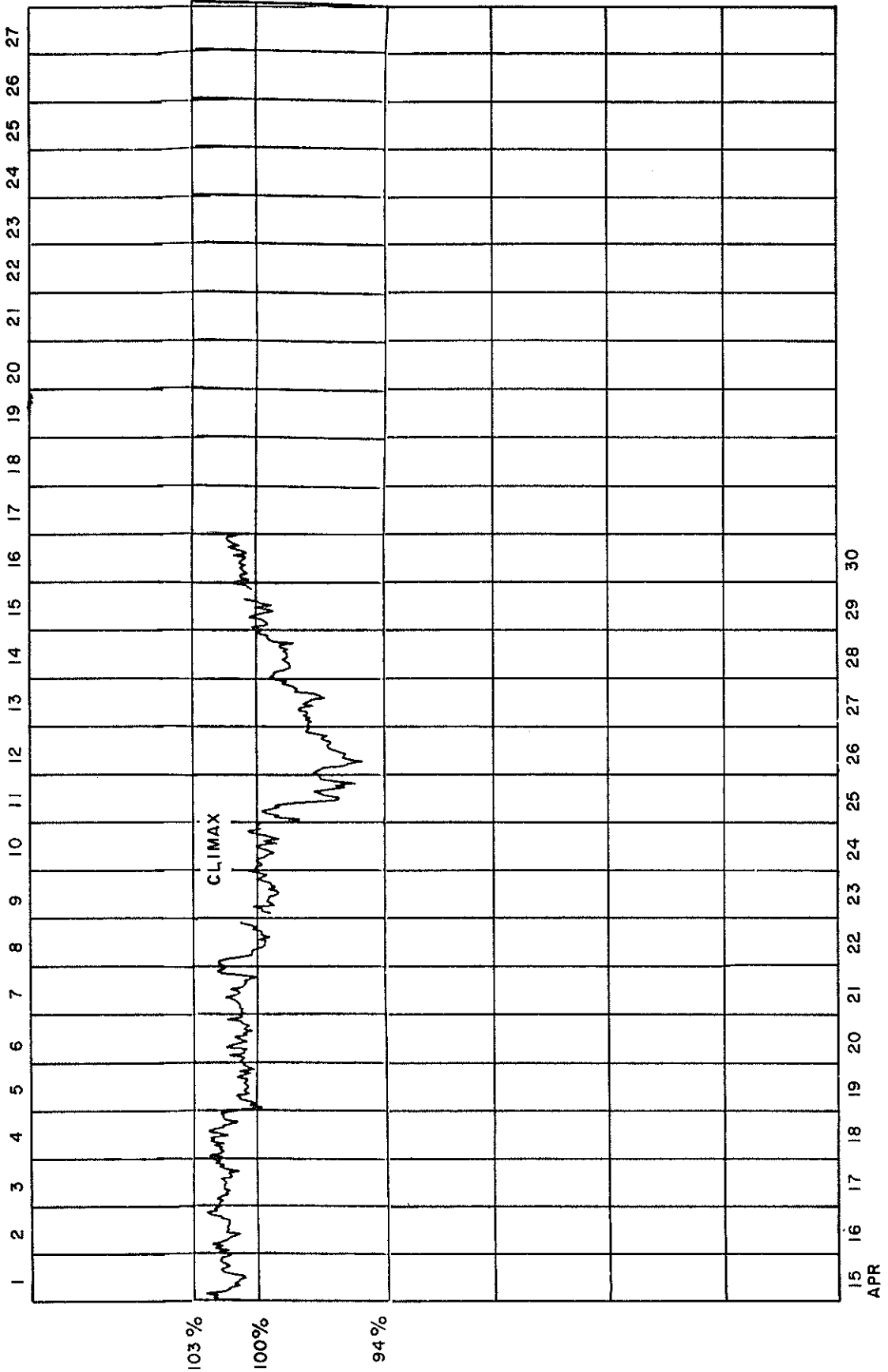
Bartels Rotation 1992 (April 1979-May 1979)



COSMIC RAY INDICES
(Neutron Monitors)
Bartels Rotation 1992 (April 1979)



COSMIC RAY INDICES
(Neutron Monitors)
Bartels Rotation 1992 (April 1979)



GEOMAGNETIC ACTIVITY INDICES

APRIL 1979

Day	Three-Hourly Indices Kp									Three-Hourly Indices Km									Ap	aa *					Cp
	1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8	N		S	M				
1	4+	5-	3	4	4+	3+	2+	6+	32+	4	4	3-	4	4-	3+	2	5+	33	34	46	41	39	1.3		
2	6+	5	3+	4-	4-	5-	4-	4-	34	6	4+	3	3	3	4+	3	3	36	59	56	56	58	1.4		
3	3	2+	3-	3-	3-	5-	7-	8	33+	3	2+	3	3-	2+	5-	6-	7-	54	32	31	45	19	1.6		
4	7-	6+	5+	5+	5-	2	2-	2+	34+	6-	5+	5	5-	5-	1+	2-	2-	47	88	93	100	81	1.5		
5	4+	4	5-	6	7-	6+	4-	3-	38+	5-	4+	4+	5	5	5	3	3	52	40	71	36	75	1.6		
6	4-	3-	3	1+	3-	3+	2+	2	21	3	2+	2+	1	2-	2	2-	2-	12	61	24	68	18	0.7		
7	2+	3	3	3-	2-	2+	2+	3+	21-	2	2	2+	3-	1	2	2-	3	12	22	15	17	21	0.7		
8	3+	3-	2+	2	2-	2+	3	3+	21-	3-	3-	2+	2-	1+	2	3	3	12	19	16	17	19	0.7		
9	4	3+	1	1-	1+	2-	2-	1+	15	4-	3	2+	1	1	1-	1-	9	25	18	22	22		0.5		
10	1	3-	3+	2+	3	3	3-	2	20	1	3+	3	2	3-	2+	2	2	12	12	15	9	18	K	0.7	
11	1-	1	1+	1+	1+	3	1+	2	12	1-	1+	1	1	1+	2	1	1+	6	12	10	17	6	CK	0.3	
12	2	3	3	3+	2+	3	3	4	24-	1+	3-	3-	3	2	2+	2+	3+	15	20	18	11	26		0.9	
13	2+	2+	2+	3-	3+	3+	2-	2+	20+	2	2	2	2-	3	3-	2-	2	11	25	16	28	14		0.6	
14	2+	2+	2	3-	3-	4-	3-	5-	23	2-	2	2-	2	2-	3-	3-	4	15	18	14	21	12		0.9	
15	4	3	2	3-	4+	3+	3-	3+	25+	4-	3	1	2+	3	3	2+	3-	18	34	19	35	20		1.0	
16	4	5-	3+	3	2+	3-	2	1	23	4-	4	3-	2	2-	2	2-	1	16	34	25	32	27		0.9	
17	3	3-	3	2+	2	2-	3-	2+	20-	3-	2+	2+	3-	2-	1+	3-	2	11	17	16	14	20		0.6	
18	2	2	1+	2+	1	1	1+	2-	13-	2-	1+	1+	2+	1	0+	1-	2-	6	16	13	17	13		0.3	
19	1	2	2-	1	1	2+	1+	1+	12-	1+	2+	2-	1	0+	2	1-	1-	6	11	7	8	10	CC	0.2	
20	1-	0	1-	0+	0+	1-	1-	0+	4-	0+	0	0+	0	0	0	0+	0+	2	9	6	12	3	CC	0.0	
21	1	2-	2+	3-	4	4+	4	5	25	1-	2-	2	2+	4-	3+	4-	5-	21	8	10	4	13	C	1.1	
22	6-	6-	4	5	4+	5	5-	4+	39-	5-	4	3+	4	3	4	4+	4-	45	59	52	53	58		1.5	
23	5	5	3+	3+	3+	3+	3-	2	28	5-	4+	3	3	3+	3	2	1+	23	52	39	48	43		1.1	
24	3+	3+	3+	2+	2+	2	2-	4	22+	3+	3	3-	2	2	2+	2-	3	14	24	25	26	24		0.8	
25	8-	8	8-	7	7	5	6-	6-	54-	7-	6-	7-	6	6+	5-	4+	5	126	109	66	27	148		1.9	
26	4	2+	1	2	1	3-	3	3	19	4-	3-	1+	1+	1+	1+	2+	2+	12	51	66	103	15		0.7	
27	3+	3+	3	3-	3+	5	5-	5	30+	4-	4-	2+	3	3	4-	4-	5-	27	26	17	18	26		1.2	
28	5-	4	5+	4+	4-	3+	4	4	33+	4+	4-	4-	4-	3-	3-	3+	4-	31	45	50	48	48		1.3	
29	4	5+	5+	4+	4+	5+	5	6-	39+	4+	4	5-	4-	4-	4-	4+	5-	47	43	36	34	45		1.5	
30	5+	4+	3+	4+	4+	3	3	3-	30+	5-	4	4-	4-	4-	2	3-	2-	26	66	52	75	43		1.2	
Mean												25	35.7	31.4	33.8	0.96									

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

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 2γ) 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-Q10) 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 ≥ 3 or two Kp values ≥ 3-"). An * means "not really disturbed" (Ap < 20). Geomagnetic three-hourly indices (Kn), (Ks) and (Km) as in IAGA-Bulletin No. 32 and indices (aa), "antipodal", as in IAGA-Bulletin No. 33 prepared by P. N. Mayaud of the Institut de Physique du Globe, Paris, France. Really quiet (C) and quiet but slightly disturbed three-hourly intervals (K) are given for 24-hour and 48-hour intervals centered on 12 UT.

DAILY AVERAGE INDICES Ap

1979

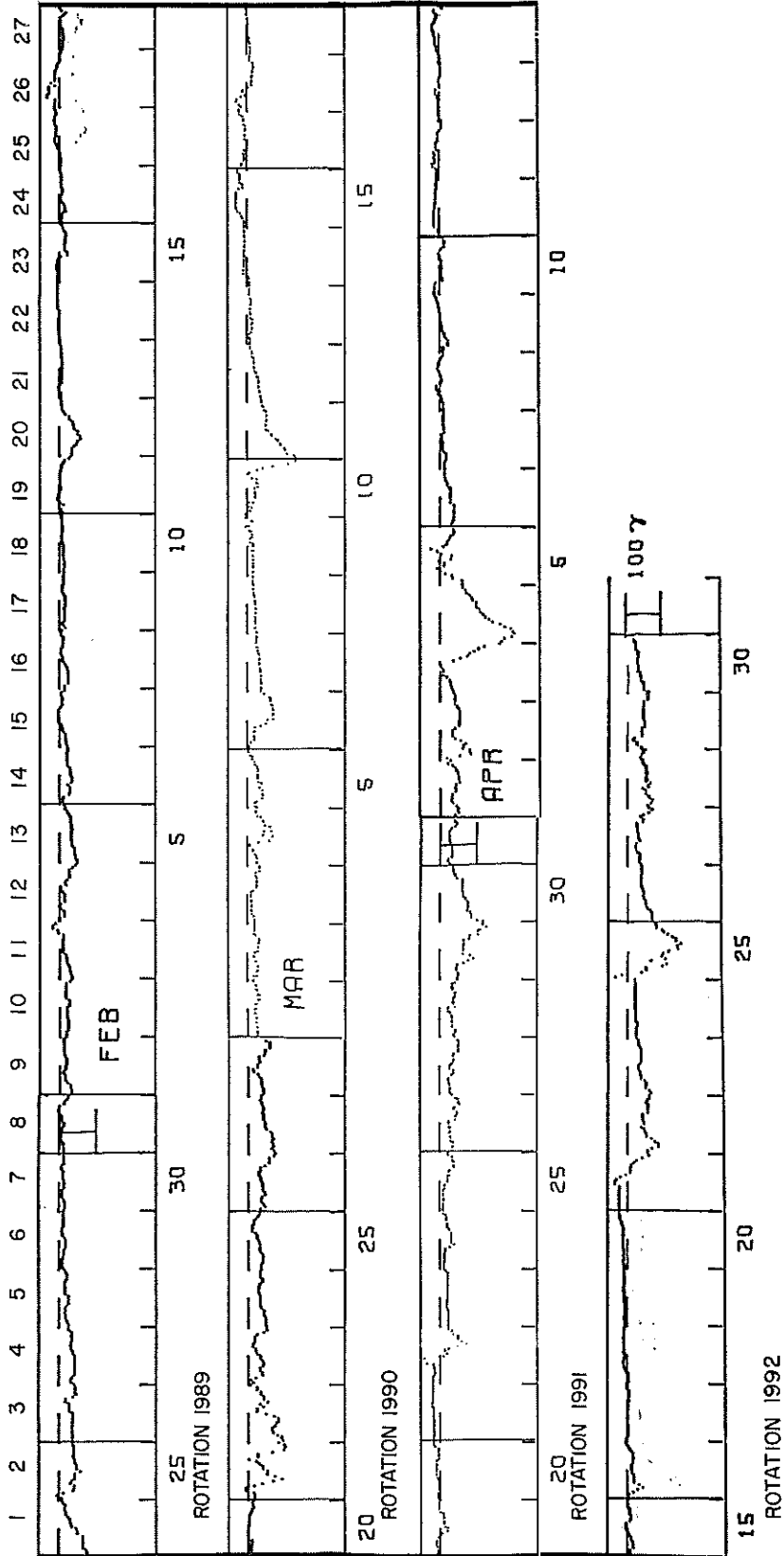
1978

DAY	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	88	9	6	4	21	13	13	11	10	6	12	33
2	94	82	5	4	20	12	10	3	19	10	20	36
3	83	31	11	16	11	8	12	5	19	9	13	54
4	96	26	80	30	8	17	5	12	45	19	27	47
5	7	38	53	22	7	8	6	10	23	9	13	52
6	5	8	13	16	14	4	2	5	18	16	30	12
7	7	11	14	7	6	4	9	2	32	6	7	12
8	16	10	14	6	24	5	14	3	8	9	7	12
9	85	4	8	5	31	11	8	3	15	9	15	9
10	10	24	10	6	12	15	16	1	4	6	54	12
11	30	17	6	11	12	5	10	1	4	12	18	6
12	18	10	4	21	13	14	53	4	10	17	6	15
13	11	7	20	13	6	8	22	7	5	3	7	11
14	9	4	48	6	5	5	11	28	8	2	3	15
15	5	6	6	3	3	5	8	28	15	11	8	18
16	7	6	6	4	6	4	6	14	12	7	11	16
17	8	9	6	9	8	5	6	9	7	5	21	11
18	5	11	18	24	3	32	5	48	11	22	7	6
19	4	17	11	11	2	22	13	24	19	15	11	6
20	8	11	5	3	5	9	22	26	12	6	6	2
21	26	33	6	6	9	13	16	12	11	59	4	21
22	24	15	8	6	12	10	28	19	14	33	45	45
23	24	18	8	4	11	6	12	7	27	31	12	23
24	26	19	6	4	10	5	18	6	23	17	15	14
25	10	24	8	9	36	7	60	21	34	14	21	126
26	7	46	5	4	36	18	33	8	28	22	26	12
27	5	15	4	29	51	23	17	14	23	24	18	27
28	7	12	6	124	50	14	5	14	13	17	39	31
29	8	32	4	40	109	16	4	20	13		68	47
30	18	31	3	31	11	25	5	27	16		16	26
31	12		2	45		20		18	13		19	
MEAN	25	20	13	17	18	12	15	13	16	15	19	25

GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



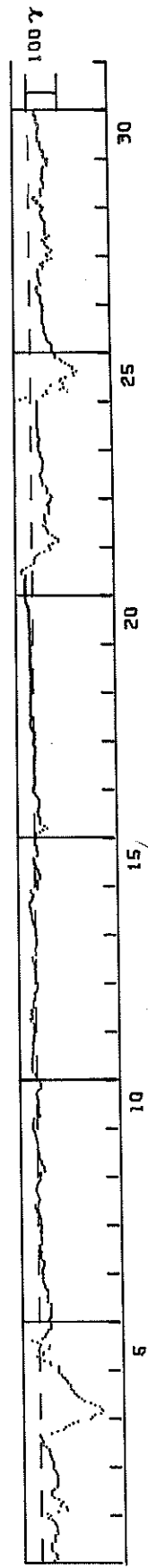
Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

APRIL 1979

NASA/GODDARD SPACE FLIGHT CENTER

DAY	(Time-UT)																														(Units-Gammas)			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
1	-46	-54	-47	-53	-44	-36	-21	-36	-34	-36	-44	-44	-44	-47	-55	-49	-48	-45	-46	-43	-39	-33	-21	-32										
2	-25	-56	-85	-78	-60	-65	-71	-55	-40	-34	-35	-37	-44	-53	-56	-55	-53	-55	-56	-52	-49	-45	-39	-40										
3	-41	-39	-38	-35	-32	-31	-27	-25	-25	-18	-10	-11	-12	-4	-1	2	-38	-58	-82	-77	-69	-65	-59	-58										
4	-164	-171	-195	-197	-168	-182	-167	-156	-136	-128	-118	-112	-105	-101	-95	-92	-92	-86	-82	-77	-69	-65	-59	-58										
5	-57	-57	-33	-51	-13	-1	7	-14	-16	2	-32	-36	-3	6	23	-13	-24	-24	-29	-32	-38	-41	-35	-29										
6	-30	-37	-40	-41	-39	-41	-41	-39	-36	-28	-27	-28	-31	-29	-29	-25	-19	-19	-15	-13	-12	-14	-15	-13										
7	-11	-12	-18	-21	-19	-17	-10	-7	-8	-12	-13	-4	-5	-4	-14	-12	-13	-9	-9	-12	-12	-10	-15	-9										
8	-13	-13	-11	-6	-3	-1	3	7	9	3	-5	-10	-6	-3	-1	2	6	6	-2	-3	-6	-10	-13	-12										
9	-13	-15	-25	-23	-23	-16	-12	-13	-8	-5	-5	-4	-1	0	-1	-1	1	2	3	4	6	8	10	13										
10	13	10	8	8	5	-12	-5	-5	-4	-9	-10	-7	-9	-4	-1	0	3	-5	-9	-15	-16	-13	-8	-2										
11	1	4	6	13	14	14	14	12	10	11	9	10	7	6	9	10	10	9	5	3	7	6	2	2										
12	7	6	5	10	17	18	8	10	15	6	14	4	9	9	4	0	-1	-1	5	-5	-9	-5	-5	-5										
13	1	3	4	2	2	3	4	3	6	7	11	9	8	-4	-1	2	-2	-5	-7	-5	-2	-3	-1	-2										
14	-1	-2	0	4	8	6	10	12	10	12	14	11	14	13	18	16	9	6	2	7	13	12	-12	-11										
15	-10	-12	-9	-18	-15	-13	-10	-8	-4	-2	4	4	3	-1	-9	-13	-11	-6	-5	-4	0	-4	-4	-7										
16	-3	-8	-19	-29	-42	-31	-18	-17	-21	-16	-12	-10	-11	-15	-18	-19	-17	-18	-18	-10	-5	-2	3	1										
17	-2	-5	-5	-3	-1	-1	-2	-1	-1	0	-2	-4	-5	-2	-2	-4	-8	-8	-4	-6	-4	1	0	-4										
18	-7	-6	-2	-2	4	7	10	11	9	6	5	7	10	9	7	7	8	10	10	7	5	7	7	3										
19	3	3	1	5	2	2	5	5	6	9	10	8	7	10	11	9	7	5	7	10	10	10	7	8										
20	5	11	11	10	10	7	9	11	13	13	12	11	10	10	11	12	13	15	16	20	23	22	24	24										
21	22	20	20	22	21	23	23	21	18	23	34	34	27	17	3	-8	-12	-12	-13	-19	-26	-40	-62	-54										
22	-53	-67	-85	-85	-73	-63	-50	-43	-45	-42	-36	-46	-41	-38	-42	-43	-56	-54	-58	-54	-48	-56	-62	-60										
23	-56	-58	-48	-47	-53	-44	-35	-37	-32	-31	-27	-30	-35	-38	-36	-39	-39	-39	-40	-37	-33	-29	-30	-22										
24	-25	-26	-26	-27	-31	-31	-21	-21	-22	-21	-19	-20	-20	-21	-20	-20	-21	-21	-21	-24	-24	-25	-24	-19										
25	33	12	-46	-56	-52	-100	-109	-65	-103	-95	-101	-115	-142	-136	-148	-134	-132	-124	-112	-100	-94	-79	-82	-76										
26	-69	-68	-69	-69	-64	-58	-52	-52	-50	-46	-45	-48	-49	-43	-40	-39	-39	-40	-42	-45	-42	-44	-42	-38										
27	-35	-35	-36	-4	-21	-25	-22	-21	-29	-38	-32	-30	-30	-27	-31	-26	-30	-46	-49	-37	-48	-61	-74	-60										
28	-50	-71	-77	-64	-58	-50	-53	-42	-55	-68	-51	-52	-53	-53	-51	-51	-52	-45	-41	-43	-37	-38	-46	-50										
29	-38	-28	-25	-18	-15	-43	-43	-42	-41	-52	-52	-48	-44	-41	-48	-48	-46	-49	-51	-54	-63	-61	-59	-66										
30	-51	-48	-52	-47	-40	-35	-40	-39	-31	-36	-34	-33	-33	-34	-38	-35	-34	-28	-29	-29	-29	-28	-22	-21										



APR

PRINCIPAL MAGNETIC STORMS

APRIL 1979

OBS. 3 letter IAGA code	GEOMAG- NETIC LATI- TUDE	COMMENCEMENT			SC - AMPLITUDES			MAXIMUM 3 HOUR - INDEX K		RANGES			UT END	
		DAY	hr min (UT)	TYPE	D(°)	H(γ)	Z(γ)	DAY(3 HOUR PERIOD)	K	D(°)	H(γ)	Z(γ)	DAY	HOURL
HER	33.7S	31	2000	..	..	..	..	31(8) 01(1)	5	31	73	63	01	18
SIT	60.0N	1	01--	..	..	..	..	04(3)	8	--	1040	520	06	09
NEW	55.1N	1	2150	SC*	4	66	6	01(8) 02(1,2)	5	27	150	161	03	05
HON	21.1N	1	2149	SC	--	9	4	01(2,4)	4	3	123	27	02	23
JAI	17.3N	1	2150	SC	-1.3	21	-6	--	-	4	63	24	02	23
SHL	14.7N	1	2150	SC	- .4	10	3	--	-	5	74	51	02	23
UJJ	13.5N	1	2150	SC	- .8	25	-7	--	-	3	69	26	02	23
ABG	09.5N	1	2150	SC	- .7	13	-6	02(2)	5	2	81	23	02	23
GUA	04.0N	1	2150	SC*	1	27	-9	02(1)	6	10	130	20	02	18
ANN	01.5N	1	2150	SC	-1	19	10	--	-	4	157	54	02	23
TRD	01.1S	1	2150	SC	- .2	14	22	--	-	3	197	127	02	23
HER	33.7S	1	2150	SC	3	38	23	01(8) 02(1)	5	30	120	80	03	07
GNA	43.2S	1	2150	SC*	4.9*	-17*	16*	02(1)	6	23	120	100	02	23
KGL	56.5S	1	2151	SC*	16	-56	--	02(1)	8	--	--	--	02	00
COL	64.6N	3	15--	..	..	..	..	03(6)	8	543	2170	1320	04	13
NEW	55.1N	3	1002	SC	3	22	3	03(8) 04(1,2)	7	54	485	477	05	02
WIT	54.2N	3	1001	SC*	2*	23*	0	03(8)	7	47	325	185	04	09
SJG	29.9N	3	1001	SC	.5	5	2	03(8)	7	14	264	68	04	13
HON	21.1N	3	1002	SC	--	4	2	03(8)	6	3	172	41	04	15
JAI	17.3N	3	1000	SC	- .6	14	-4	--	-	10	165	36	04	15
SHL	14.7N	3	1000	SC	- .4	14	3	--	-	7	188	26	04	15
UJJ	13.5N	3	1000	SC	- .4	18	-5	--	-	9	201	34	04	15
AEG	09.5N	3	1000	SC	- .4	14	-5	03(6,8)	6	9	185	48	04	15
GUA	04.0N	3	1001	..	..	..	..	03(8)	6	10	150	30	04	13
ANN	01.5N	3	1000	SC	-1.1	32	9	--	-	8	245	65	04	15
TRD	01.1S	3	1000	SC	.1	34	38	--	-	--	--	92	04	15
HER	33.7S	3	1002	SC*	-1	14	--	03(6)	6	29	147	140	04	18
GNA	43.2S	3	1001	SC*	1.6	17*	6	03(6,7,8) 04(1,5)	5	23	200	170	04	14
KGL	56.5S	3	1000	SC*	-26	-32	8	03(7,8) 04(1)	9	--	--	--	04	15
COL	64.6N	5	0156	SC*	-26	327	--	05(4,5,6)	5	99	700	320	06	10
NEW	55.1N	5	0155	SC*	5	70	3	05(5,6)	6	48	203	90	06	24
WIT	54.2N	5	0156	SC*	-9*	34	0	05(4,5,6)	6	36	215	75	05	20
SJG	29.9N	5	0155	SC	.5	19	8	05(5)	6	10	150	15	06	03
HON	21.1N	5	0155	SC	--	12	6	05(5)	6	3	114	16	06	03
JAI	17.3N	5	0155	SC	-1.8	31	-11	--	-	10	150	52	05	20
SHL	14.7N	5	0155	SC	- .6	33	5	--	-	8	178	65	05	20
UJJ	13.5N	5	0155	SC	-1	40	-8	--	-	7	181	46	05	20
ABG	09.5N	5	0155	SC	-1.2	28	-13	05(4)	7	7	166	50	05	20
GUA	04.0N	5	0156	SC	--	61	-18	05(4)	6	--	190	40	06	03
ANN	01.5N	5	0155	SC	-2.8	58	21	--	-	7	280	115	05	20
TRD	01.1S	5	0155	SC	.6	63	60	--	-	4	270	235	05	20
HER	33.7S	5	0156	SC	4	39	28	05(4)	7	33	124	116	06	05
GNA	43.2S	5	0156	SC*	-11.5*	27*	-41*	05(4,5,6)	5	28	110	130	05	19
KGL	56.5S	5	0155	SC*	92	-117	-24	05(6)	6	--	--	--	06	03
KGL	56.5S	12	2002	SC*	-5	8	2	12(8)	4	--	--	--	13	10
KGL	56.5S	17	0037	SC	4	6	2	17(3)	3	--	--	--	17	15
COL	64.6N	21	07--	..	..	..	..	22(4,6) 23(4)	6	116	1150	660	23	21
SIT	60.0N	21	07--	..	..	..	..	22(4)	6	70	580	500	23	21
NEW	55.1N	21	06--	..	..	..	..	22(1,4) 23(1)	5	50	150	348	24	13
JAI	17.3N	21	0800	..	..	..	..	--	-	11	134	48	23	02
SHL	14.7N	21	0800	..	..	..	..	--	-	9	162	47	23	02
UJJ	13.5N	21	0800	..	..	..	..	--	-	10	136	51	23	02
ABG	09.5N	21	0800	..	..	..	..	21(5) 22(2,4)	5	10	141	64	23	02
GUA	04.0N	21	0748	..	..	..	..	22(1)	5	10	110	20	23	09
ANN	01.5N	21	0800	..	..	..	..	--	-	9	179	84	23	02
TRD	01.1S	21	0800	..	..	..	..	--	-	6	230	114	23	02
HER	33.7S	21	1000	..	..	..	..	21(8) 22(2,4) 23(1,2)	5	29	133	112	23	18
GNA	43.2S	21	02--	..	..	..	..	22(1,7)	5	15	120	110	23	21
KGL	56.5S	21	1942	SC*	22	22	6	22(1,7,8)	6	--	--	--	23	21
KGL	56.5S	21	2031	SC*	13	12	3	22(1,7,8)	6	--	--	--	23	21
COL	64.6N	24	2358	SC*	-17	319	51	25(3,4)	7	379	2110	1420	26	02
SIT	60.0N	24	2359	SC*	--	--	--	25(3)	8	--	--	770	26	02
NEW	55.1N	24	2357	SC*	9	119	6	25(2,3)	8	84	1138	813	26	06
WIT	54.2N	24	2358	SC*	-9*	94	0	25(1,2,3)	7	73	340	190	26	01
SJG	29.9N	24	2358	SC	1	20	12	25(1)	7	16	166	50	26	03
HON	21.1N	24	2358	SC	2	12	6	25(1,3)	7	11	265	49	26	01
JAI	17.3N	24	2357	SC	-1.4	33	-9	--	-	13	309	51	26	02
SHL	14.7N	24	2357	SC	- .4	31	4	--	-	14	459	75	26	02
UJJ	13.5N	24	2357	SC	- .9	39	-9	--	-	11	329	76	26	02
ABG	09.5N	24	2357	SC	-1	30	-8	25(3,4)	7	10	296	88	26	02
GUA	04.0N	24	2358	SC*	--	47	-15	25(3)	7	10	390	60	26	02
ANN	01.5N	24	2357	SC	-1.1	43	19	--	-	12	--	113	26	02
TRD	01.1S	24	2357	SC	--	32	40	--	-	6	--	--	26	02
HER	33.7S	24	2358	SC*	6	48	35	25(3,4)	7	41	265	174	26	08
GNA	43.2S	24	2358	SC*	-11.3*	-32*	-44*	25(1,4)	7	34	280	250	26	12
KGL	56.5S	24	2357	SC*	91	38	-11	25(1)	8	--	--	--	26	08

PRINCIPAL MAGNETIC STORMS

APRIL 1979

OBS. 3 letter IAGA code	GEOMAG- NETIC LATI- TUDE	COMMENCEMENT		SC - AMPLITUDES			MAXIMUM 3 HOUR - INDEX K		RANGES			UT END	
		DAY	hr min (UT)	D(°)	H(γ)	Z(γ)	DAY (3 HOUR PERIOD)	K	D(°)	H(γ)	Z(γ)	DAY	HOURL
COL	64.6N	27	15--	..	..	..	29(2)	7	252	1440	640	30	15
SIT	60.0N	27	08--	..	..	..	29(3)	7	--	550	590	30	21
NEW	55.1N	27	12--	..	..	..	28(3)	6	39	273	239	02	12
JAI	17.3N	27	1400	..	..	..	--	--	7	64	37	28	12
SHL	14.7N	27	1400	..	..	..	--	--	7	93	37	28	12
UJJ	13.5N	27	1400	..	..	..	--	--	--	--	--	28	12
ABG	09.5N	27	1400	..	..	..	27(6)	5	5	87	44	28	12
ANN	01.5N	27	1400	..	..	..	--	--	6	179	79	28	12
TRD	01.1S	27	1400	..	..	..	--	--	4	194	116	28	12
HER	33.7S	27	1200	..	..	..	27(6,8)	5	25	93	78	30	18
WIT	54.2N	28	19--	..	..	..	29(6)	6	33	165	100	30	03
JAI	17.3N	28	1900	..	..	..	--	--	9	84	46	30	01
SHL	14.7N	28	1900	..	..	..	--	--	9	115	49	30	01
UJJ	13.5N	28	1900	..	..	..	--	--	7	98	42	30	01
ABG	09.5N	28	1900	..	..	..	29(2,8)	5	6	108	52	30	01
GUA	04.0N	28	0100	..	..	..	28(4)	5	10	160	40	30	15
ANN	01.5N	28	1900	..	..	..	--	--	6	197	97	30	01
TRD	01.1S	28	1900	..	..	..	--	--	4	226	123	30	01
KGL	56.5S	28	1900	..	..	..	29(8)	7	--	--	--	30	12

Reports were received from the following observatories:

ALIBAG	ANNAMALAINAGAR	COLLEGE	GNANGARA	GUAM	HERMANUS	HONOLULU	JAITPUR	KERGUELEN	NEWFORT
SAN JUAN	SHILLONG	SITKA	TRIVANDRUM	UJJAIN	WITTEVEEN				

RADIO PROPAGATION QUALITY INDICES

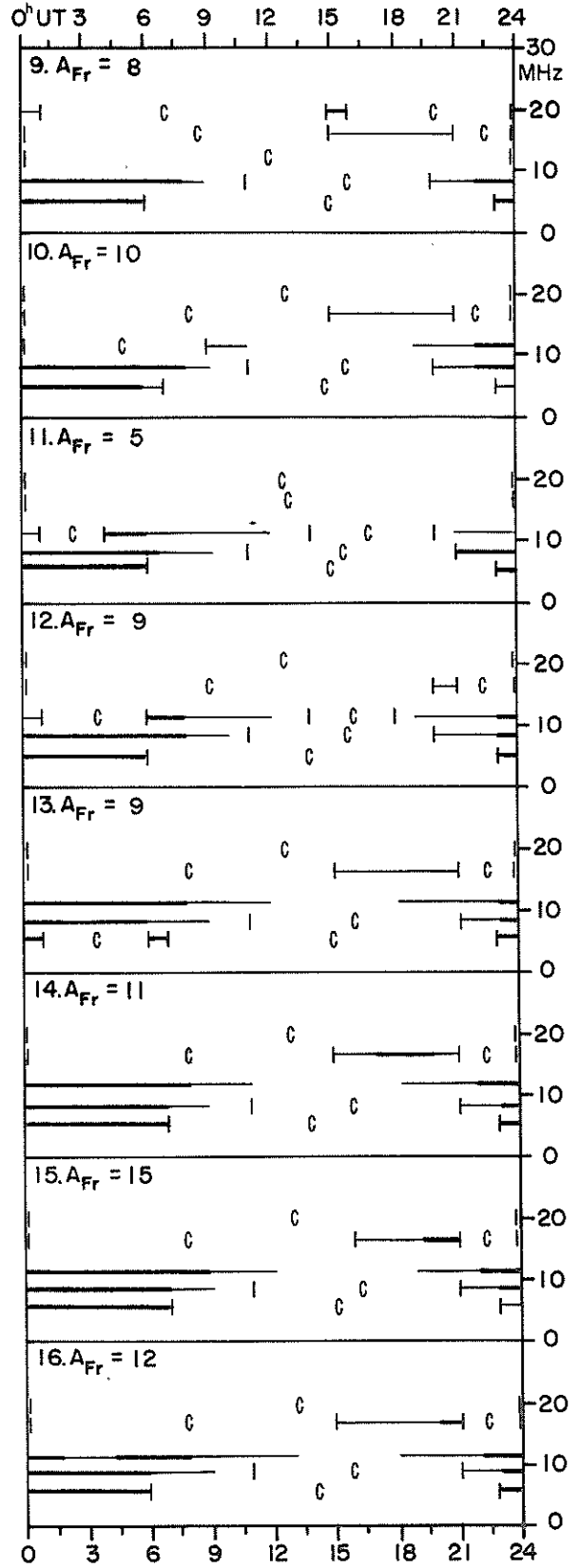
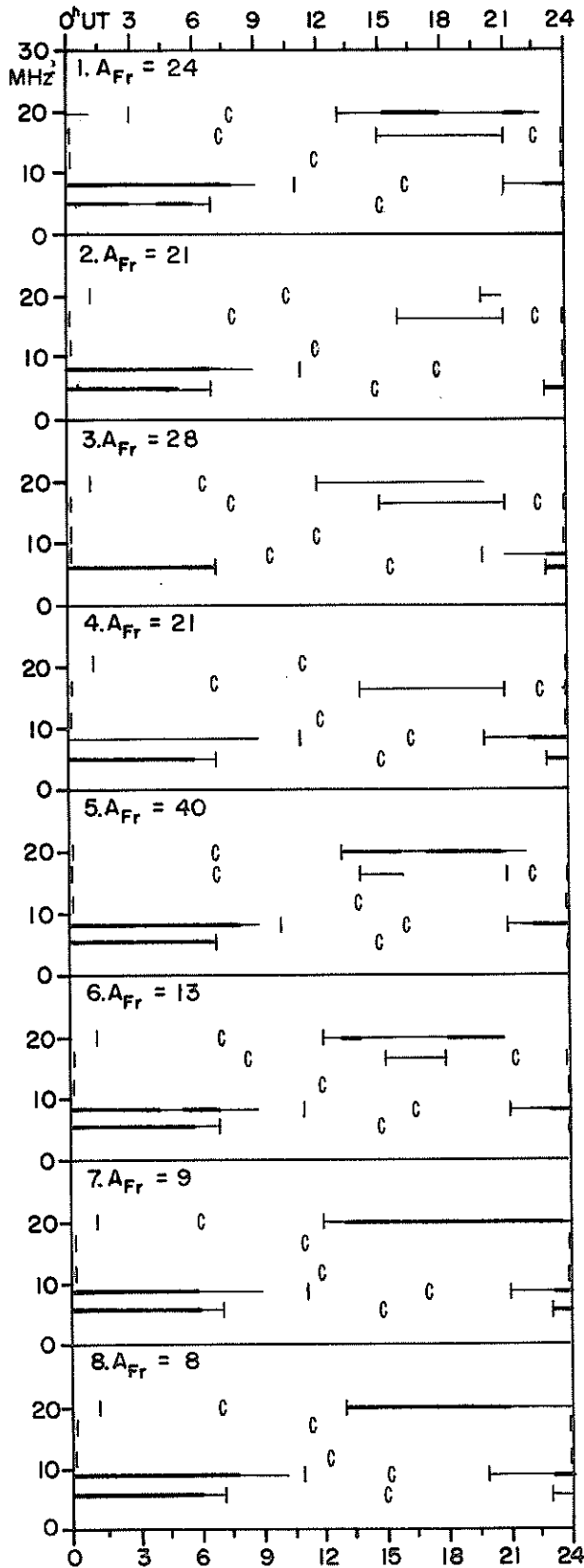
APRIL 1979

Quality Indices calculated for reception at Lüchow

DAY	TOKYO	NORFOLK	MOSCOW	CANBERRA	BRACKNELL
1	3.8	5.1	12.6	3.8	12.4
2	2.7	5.2	12.3	4.0	12.2
3	2.8	4.9	12.6	4.3	12.3
4	2.7	5.0	11.4	3.6	10.6
5	2.4	5.6	12.4	4.1	12.5
6	2.9	4.9	11.3	4.0	11.5
7	4.2	6.0	12.6	4.2	12.2
8	5.3	6.1	12.5	4.6	13.3
9	5.3	6.1	12.6	5.1	12.9
10	5.1	5.8	12.8	4.8	12.8
11	4.8	5.5	12.7	4.8	12.6
12	4.5	5.4	13.2	4.8	12.4
13	4.6	5.2	13.4	4.4	12.4
14	4.1	4.9	12.5	4.3	13.1
15	3.3	5.1	11.4	4.1	11.8
16	4.5	5.2	12.4	4.2	12.0
17	5.1	5.4	12.8	4.9	12.9
18	5.0	5.5	12.5	5.0	13.0
19	4.5	5.6	13.2	4.7	11.9
20	5.1	5.4	13.2	5.2	13.2
21	3.6	4.7	13.2	4.4	13.2
22	1.5	4.7	11.4	4.2	11.8
23	3.1	5.1	11.8	4.0	12.2
24	3.0	5.0	12.0	4.7	12.6
25	1.5	5.1	10.7	3.5	11.0
26	2.8	5.0	11.4	2.6	11.3
27	3.2	4.5	12.2	1.9	12.1
28	2.7	4.6	10.2	2.3	11.8
29	1.9	4.2	11.6	2.1	12.0
30	2.5	4.6	11.5	3.5	12.7
MEAN	3.6	5.2	12.2	4.1	12.3

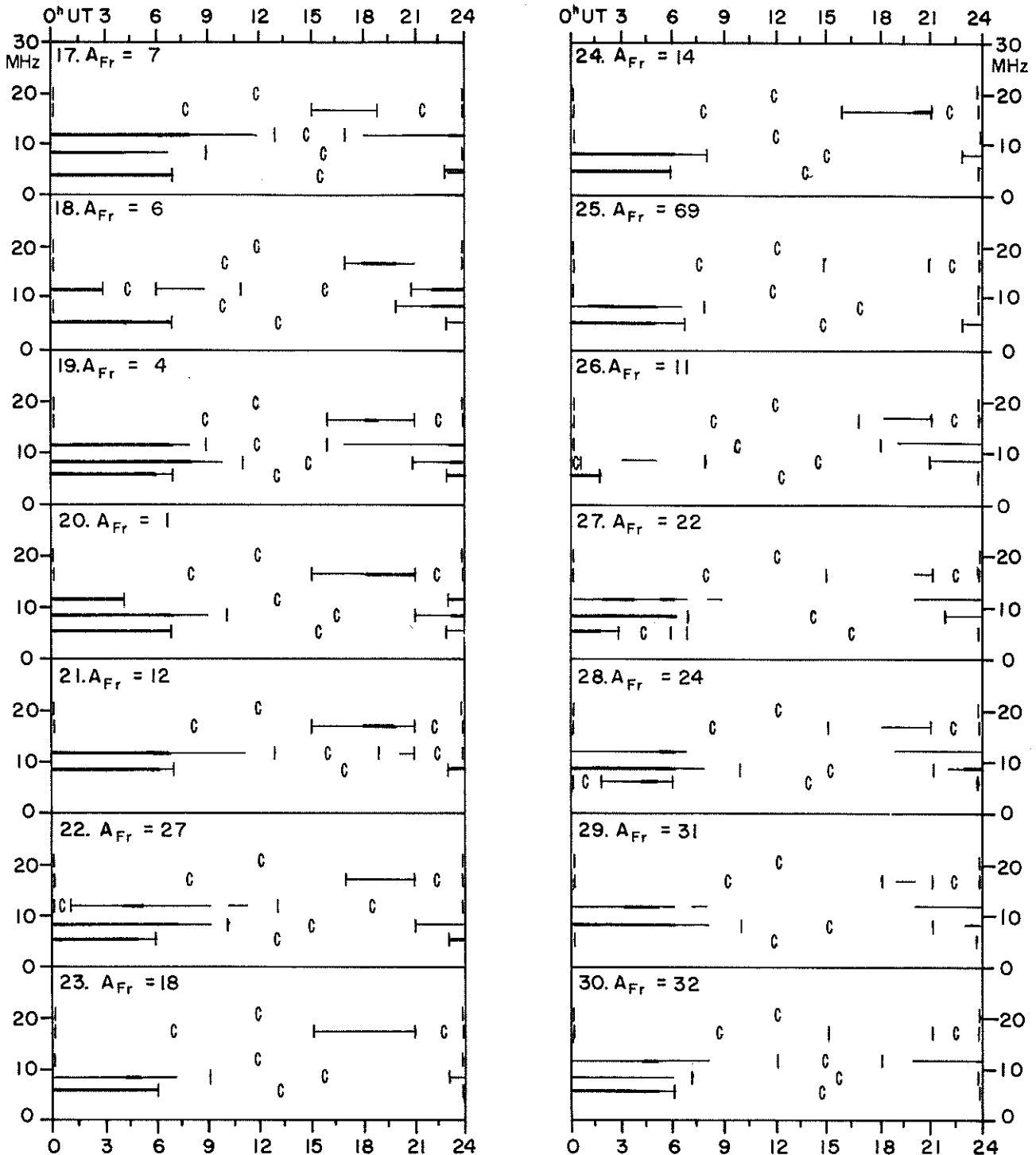
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1979



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1979



Field strengths from five frequencies, 5.0, 8.1, 10.9, 16.4 and 20.0 MHz, observed on a Lüchow - Norfolk circuit are represented above. Heavy solid lines represent field strengths ≥ -12 dB above $1 \mu\text{V/m}$ (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above $1 \mu\text{V/m}$ and -40 dB above $1 \mu\text{V/m}$ are represented by the fine line.

Adapted from Observations by Deutsche Bundespost



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."