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Solar - Geophysical Data

NO. 410 OCTOBER 1978

Part I (Prompt Reports)

DATA FOR
SEPTEMBER 1978
AUGUST 1978

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR-GEOPHYSICAL DATA

No. 410

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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blank = data not yet received.

SEPTEMBER 1978 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE
SEPTEMBER 1978

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No. of Flares Total	Active Regions: No. of Flares M	Active Regions: No. of Flares X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
244	1	31	187	137	31	N20W64	0	0	0		31	N20W64	Q	SOLALERT 01/XX MAGALERT MINOR 01/02
						N15W23	0	0	0			N15W23	Q	
						N20E04	3	0	0			N20E04	E	
						N32E12	0	0	0			N32E12	Q	
						S20E32	1	0	0			S20E32	Q	
						N17E47	5	0	0			N17E47	C.A.	
						S30E54	5	0	0			S30E54	D.A	
						S19E75	0	0	0			S19E75	Q	
245	2	1	239	156	18	N22W63	0	0	0		1	N22W63	Q	SOLALERT 02/XX MAGNIL
						N12W38	1	0	0			N12W38	Q	
						N20W08	4	0	0			N20W08	D.A.	
						N36E12	0	0	0			N36E12	Q	
						S21E18	1	0	0			S21E18	Q	
						N16E22	2	0	0			N16E22	C.A.	
						N17E30	5	0	0			N17E30	C.A.	
						S29E42	10	1	0			S29E42	A	
						S34E58	3	1	0			S34E58	A	
						S18E63	0	0	0			S18E63	Q	
246	3	2	240	172	14	N19W22	2	0	0	PRESTO TOYOKAWA	2	N19W22	D.A.	PROTON FLARE ALERT 03/XX MAGQUIET
						S21E04	0	0	0	02/0603Z TENFLARE		S21E04	Q	
						N17E20	3	0	0	210 FLUX UNITS		N17E20	D.P.	
						S31E26	16	5	0	02/0550Z DURATION		S31E26	C.P.	
						N13W53	0	0	0	10 MINUTES		N13W53	Q	
						S18E49	0	0	0			S18E49	Q	
						N17E11	1	0	0			N17E11	C.P.	
						S34E47	3	0	0			S34E47	D.A.	
						N36W02	0	0	0			N36W02	Q	
						S15E66	0	0	0			S15E66	Q	
247	4	3	277	164	10	N20W33	0	0	0		3	N20W33	Q	MAJOR FLARE ALERT 04/XX PROTON
						S21E08	1	0	0			S21E08	Q	FLARE ALERT 04/XX MAGQUIET
						N17E08	0	0	0			N17E08	Q	
						S31E14	15	0	0			S31E14	D.P.	
						S20E34	0	0	0			S20E34	Q	
						N16W01	1	0	0			N16W01	Q	
						S34E32	2	0	0			S34E32	E	
						N37W14	0	0	0			N37W14	Q	
						S15E52	1	0	0			S15E52	Q	
						S21E07	0	0	0			S21E07	Q	
						S22E18	0	0	0			S22E18	Q	
248	5	4	311	178	07	N20W47	0	0	0		4	N20W47	Q	PROTON FLARE ALERT 05/XX MAGQUIET
						S21W19	0	0	0			S21W19	Q	
						N16W06	0	0	0			N16W06	Q	
						S30E04	8	0	0			S30E04	P	
						S20E23	0	0	0			S20E23	Q	
						N16W15	2	0	0			N16W15	E	
						S34E21	0	0	0			S34E21	Q	
						N37W27	2	0	0			N37W27	E	
						S14E43	1	1	0			S14E43	Q	
						S21W05	0	0	0			S21W05	Q	
						S21E04	0	0	0			S21E04	Q	
						S18E64	1	0	0			S18E64	Q	
249	6	5	296	177	06	N20W60	2	0	0		5	N20W60	Q	PROTON FLARE ALERT 06/XX MAGQUIET
						S21W33	0	0	0			S21W33	Q	
						N16W18	1	0	0			N16W18	P	
						S30W08	4	0	0			S30W08	P	
						S20E08	0	0	0			S20E08	Q	
						N16W27	0	0	0			N16W27	P	
						S35E06	0	0	0			S35E06	Q	
						N36W42	4	0	0			N36W42	Q	
						S15E27	0	0	0			S15E27	Q	
						S25W13	0	0	0			S25W13	Q	
						S21W09	4	0	0			S21W09	A	
						S18E51	1	0	0			S18E51	Q	
						N33E73	7	0	0			N33E73	A	
250	7	6	302	180	10	N19W74	1	0	0	PRESTO TOYOKAWA	6	N19W74	Q	PROTON FLARE ALERT 06 MAGQUIET
						S23W46	1	0	0	06/0245Z TENFLARE		S23W46	Q	
						N16W29	0	0	0	150 FLUX UNITS		N16W29	Q	
						S31W20	8	0	0	06/0220Z DURATION		S31W20	P	
						S19W03	0	0	0	10 MINUTES		S19W03	Q	
						N16W40	2	0	0	40 PERCENT		N16W40	E	
						S35W07	1	0	0			S35W07	Q	
						N36W54	0	0	0			N36W54	Q	
						S15E18	0	0	0			S15E18	Q	
						S22W22	10	0	0			S22W22	A	
						S18E38	0	0	0			S18E38	Q	
						N32E66	3	0	0			N32E66	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

SEPTEMBER 1978

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No. of Flares Total	Active Regions: No. of Flares M	Active Regions: No. of Flares X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
251	8	7	233	175	04	S24W62	0	0	0		7	S24W62	Q	SOLALERT 08/09 MAGALERT 08/XX
						N16W47	1	0	0			N16W47	Q	
						S31W35	6	0	0			S31W35	C.P.	
						N18W59	2	0	0			N18W59	C.A.	
						N38W72	0	0	0			N38W72	Q	
						S23W36	3	0	0			S23W36	D.A.	
						S30E13	0	0	0			S30E13	Q	
						N32E54	3	0	0			N32E54	E	
252	9	8	197	167	24	N15W61	1	0	0		8	N15W61	Q	SOLALERT 09/XX MAGALERT 09/XX
						S30W45	3	0	0			S30W45	A	
						N17W74	4	0	0			N17W74	E	
						S22W50	7	0	0			S22W50	A	
						S16E11	0	0	0			S16E11	Q	
						N32E39	1	0	0			N32E39	Q	
						N19W42	0	0	0			N19W42	Q	
						N15E69	0	0	0			N15E69	Q	
253	10	9	209	159	16	N15W75	0	0	0		9	N15W75	Q	SOLALERT 10/XX MAGALERT MINOR 10/XX
						S30W59	3	0	0			S30W59	A	
						N17W85	0	0	0			N17W85	Q	
						N37W94	5	0	0			N37W94	Q	
						S22W64	0	0	0			S22W64	A	
						S19W01	1	0	0			S19W01	Q	
						N32E27	0	0	0			N32E27	A	
						N20W53	0	0	0			N20W53	Q	
						N15E64	0	0	0			N15E64	A	
						S36W41	0	0	0			S36W41	Q	
						S16W25	0	0	0			S16W25	Q	
254	11	10	166	148	10	N15W87	0	0	0		10	N15W87	Q	SOLALERT MAGNIL
						S31W73	3	0	0			S31W73	D.A.	
						S23W77	1	0	0			S23W77	E	
						N32E14	1	0	0			N32E14	Q	
						N18W71	0	0	0			N18W71	Q	
						N16E51	3	0	0			N16E51	Q	
						N38E82	0	0	0			N38E82	Q	
						N20W05	0	0	0			N20W05	Q	
255	12	11	146	141	12	S33W87	0	0	0		11	S33W87	D.A.	SOLALERT MAGQUIET
						S19W49	0	0	0			S19W49	Q	
						S21W88	1	0	0			S21W88	Q	
						N32E03	0	0	0			N32E03	E	
						N16W82	0	0	0			N16W82	Q	
						N17E38	4	0	0			N17E38	Q	
						N37E74	0	0	0			N37E74	Q	
						N30E83	0	0	0			N30E83	Q	
256	13	12	140	137	12	N32W09	0	0	0		12	N32W09	Q	SOLNIL MAGQUIET
						N18E25	2	0	0			N18E25	Q	
						N38E63	1	0	0			N38E63	D.A.	
						N32E71	0	0	0			N32E71	Q	
						N17W20	0	0	0			N17W20	Q	
						S23E13	0	0	0			S23E13	Q	
						S34E82	0	0	0			S34E82	Q	
257	14	13	169	136	06	N32W21	0	0	0		13	N32W21	Q	SOLQUIET MAGQUIET
						N17E13	1	0	0			N17E13	Q	
						N37E49	1	0	0			N37E49	D.A.	
						N27E58	0	0	0			N27E58	E	
						S22W01	0	0	0			S22W01	Q	
						N30E70	0	0	0			N30E70	Q	
						N20E42	0	0	0			N20E42	Q	
						N33E64	3	0	0			N33E64	Q	
						S29E69	0	0	0			S29E69	Q	
						N18W37	0	0	0			N18W37	Q	
258	15	14	198	144	04	N30W34	2	0	0		14	N30W34	Q	SOLQUIET MAGQUIET
						N17E00	0	0	0			N17E00	Q	
						N36E38	0	0	0			N36E38	C.E.	
						N28E43	0	0	0			N28E43	E	
						N18W47	0	0	0			N18W47	Q	
						S22W14	0	0	0			S22W14	Q	
						N29E59	1	0	0			N29E59	C.E.	
						S20E28	0	0	0			S20E28	Q	
						N34E57	1	0	0			N34E57	C.E.	
						S28E55	0	0	0			S28E55	Q	
259	16	15	206	151	02	N30W50	0	0	0		15	N30W50	D.E.	SOLALERT MAGQUIET
						N17W14	0	0	0			N17W14	D.E.	
						N36E24	1	0	0			N36E24	C.E.	
						N29E31	2	0	0			N29E31	E	
						S24W28	0	0	0			S24W28	Q	
						N32E44	0	0	0			N32E44	Q	
						N20E15	0	0	0			N20E15	Q	
						N35E43	4	0	0			N35E43	C.A.	
						S27E45	0	0	0			S27E45	E	
						S16E02	0	0	0			S16E02	Q	
						S19E75	0	0	0			S19E75	D.E.	
						S10E18	0	0	0			S10E18	Q	

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260	17	16	180	160	06	N30W65	0	0	0	PRESTO BOULDER	16	N30W65	Q	SOLALERT MAGQUIET
						N17W28	0	0	0	SOFLARE 2B/C9		N17W28	Q	
						N37E11	2	0	0	N19E14 16/1927Z		N37E11	E	
						N29E17	2	0	0	MAX AT 1959Z END		N29E17	D.A.	
						N31E32	0	0	0	AT 2026Z		N31E32	Q	
						N20E02	0	0	0			N20E02	Q	
						N36E29	3	0	0			N36E29	C.A.	
						S27E32	0	0	0			S27E32	E	
						S16W10	0	0	0			S16W10	Q	
						S20E61	0	0	0			S20E61	Q	
						N17W08	0	0	0			N17W08	Q	
261	18	17	228	160	07	N30W73	0	0	0		17	N30W73	Q	SOLALERT MAGQUIET
						N17W41	0	0	0			N17W41	Q	
						N37E00	0	0	0			N37E00	E	
						N29E07	0	0	0			N29E07	E	
						N31E20	0	0	0			N31E20	Q	
						N20W11	0	0	0			N20W11	Q	
						N36E17	6	2	0			N36E17	A	
						S28E20	2	0	0			S28E20	C.A.	
						S17W22	0	0	0			S17W22	Q	
						S19E49	0	0	0			S19E49	Q	
						N17W21	0	0	0			N17W21	Q	
						N12E47	0	0	0			N12E47	Q	
						N28E76	0	0	0			N28E76	Q	
262	19	18	201	170	02	N16W56	0	0	0		18	N16W56	Q	SOLALERT MAGQUIET
						S17W37	0	0	0			S17W37	Q	
						N37W18	0	0	0			N37W18	E	
						N28W08	0	0	0			N28W08	E	
						N36E04	3	0	0			N36E04	A	
						S28E04	3	0	0			S28E04	D.A.	
						N29E08	0	0	0			N29E08	Q	
						S20E36	0	0	0			S20E36	Q	
						N14E36	0	0	0			N14E36	Q	
						N25E66	0	0	0			N25E66	Q	
						S22E55	0	0	0			S22E55	Q	
263	20	19	234	169	01	N16W70	0	0	0		19	N16W70	Q	SOLALERT MAGQUIET
						S17W52	3	0	0			S17W52	D.A.	
						N37W27	1	0	0			N37W27	Q	
						N28W19	0	0	0			N28W19	Q	
						S28W10	0	0	0			S28W10	C.E.	
						N14E26	0	0	0			N14E26	Q	
						S24E42	0	0	0			S24E42	Q	
						N24E53	1	0	0			N24E53	Q	
						S14E55	1	0	0			S14E55	Q	
						N35W07	2	0	0			N35W07	C.A.	
						N30W02	0	0	0			N30W02	Q	
						S22E21	1	0	0			S22E21	Q	
264	21	20	269	167	03	N17W85	0	0	0		20	N17W85	Q	SOLNIL MAGQUIET
						S17W66	0	0	0			S17W66	Q	
						N37W40	1	0	0			N37W40	Q	
						N28W32	0	0	0			N28W32	Q	
						S28W23	0	0	0			S28W23	0	
						N36W19	0	0	0			N36W19	E	
						N31W17	0	0	0			N31W17	Q	
						S23E07	0	0	0			S23E07	Q	
						N13E11	1	0	0			N13E11	Q	
						N23E40	1	0	0			N23E40	E	
						S14E40	3	0	0			S14E40	E	
						N27E72	0	0	0			N27E72	0	
265	22	21	202	172	14	N37W54	0	0	0	PRESTO TOYOKAWA	21	N37W54	Q	SOLALERT MAGQUIET
						N28W46	0	0	0	21/0455Z TENFLARE		N28W46	Q	
						N31W29	0	0	0	520 FLUX UNITS		N31W29	Q	
						N35W31	4	0	0	21/1411Z DURATION		N35W31	C.A.	
						S28W27	0	0	0	20 MINUTES		S28W27	Q	
						S22W05	1	0	0			S22W05	D.A.	
						N14W02	1	0	0			N14W02	Q	
						N23E24	1	1	0			N23E24	C.A.	
						S14E28	0	0	0			S14E28	Q	
						N29E60	0	0	0			N29E60	Q	
266	23	22	183	178	10	N37W67	0	0	0		22	N37W67	Q	SOLALERT MAGQUIET
						N28W58	0	0	0			N28W58	0	
						N35W43	2	0	0			N35W43	C.A.	
						S21W16	1	0	0			S21W16	D.A.	
						N14W15	0	0	0			N14W15	E	
						N24E12	0	0	0			N24E12	D.A.	
						S13E12	0	0	0			S13E12	E	
						N27E43	3	0	0			N27E43	D.A.	

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267	24	23	263	170	10	N37W81	0	0	0	PRESTO BOULDER	23	N37W81	Q	PROTON FLARE ALERT 24/25
						N28W69	1	0	0	23/1315Z SOFLARE		N28W69	E	MAGALERT 24/26
						N35W55	1	0	1	X1(3B) N35W50		N35W55	D.P.	
						S21W29	0	0	0	0941Z 73 MINUTES		S21W29	E	
						N14W29	0	0	0	DURATION. TENFLARE		N14W29	E	
						N24E01	0	0	0	1300 FLUX UNITS		N24E01	E	
						S12W01	0	0	0	0940Z. COSMIC RAY		S12W01	E	
						N28E28	4	0	0	INCREASE BEGAN 23/		N28E28	D.A.	
						S16W45	0	0	0	1030Z. 10% ABOVE		S16W45	Q	
						S19E64	0	0	0	NORMAL AT 23/1215Z.		S19E64	Q	
						S13E74	0	0	0	PCA BEGAN 23/1245Z		S13E74	Q	
										2.5dB ABSORPTION				
										AT 23/1330Z. PROTON				
										EVENT BEGAN AT 23/				
										1035Z. 320 PROTONS/				
										cm^2/sec/ster AT				
										GREATER THAN 10				
										MeV AT 1315Z.				
268	25	24	256	158	09	N28W83	0	0	0	PRESTO BOULDER	24	N28W83	Q	PROTON FLARE ALERT 25/XX
						N36W68	0	0	0	24/2344Z SOFLARE		N36W68	D.P.	MAGALERT 25/27
						S14W43	1	1	0	M1(1B) N25W09		S14W43	Q	
						N14W43	0	0	0	24/1718Z WEAK PAR-		N14W43	Q	
						N25W13	2	1	0	ALLEL RIBBONS. TEN-		N25W13	E	
						S12W15	0	0	0	FLARE 190 FLUX		S12W15	Q	
						N28E14	0	0	0	UNITS 24/1720Z		N28E14	D.A.	
						S17W59	0	0	0	DURATION 14 MIN.		S17W59	Q	
						S18E49	0	0	0	PCA MAX OF 9.6dB		S18E49	Q	
						S13E56	0	0	0	AT 24/1800Z. PRO-		S13E56	Q	
						S18W12	0	0	0	TON EVENT MAX OF		S18W12	Q	
						N15E72	0	0	0	2200 PROTONS/cm^2/		N15E72	Q	
						N17E76	0	0	0	sec/ster, GREATER		N17E76	Q	
										THAN 10 MeV AT				
										24/0400Z.				
269	26	25	256	157	24	N35W83	1	0	0		25	N35W83	C.A.	SOLALERT 26/XX MAGALERT 26/27
						S23W57	1	0	0			S23W57	E	
						N14W56	0	0	0			N14W56	Q	
						N25W25	0	0	0			N25W25	E	
						S13W28	0	0	0			S13W28	Q	
						N28E01	0	0	0			N28E01	Q	
						S17W73	0	0	0			S17W73	Q	
						S19E38	0	0	0			S19E38	Q	
						S13W43	0	0	0			S13W43	Q	
						S18W26	0	0	0			S18W26	Q	
						N36E59	0	0	0			N36E59	Q	
						N17E64	0	0	0			N17E64	Q	
						N31W37	0	0	0			N31W37	Q	
						S13E31	0	0	0			S13E31	Q	
270	27	26	233	148	24	S22W69	0	0	0		26	S22W69	Q	SOLALERT MAGALERT 27/29
						N14W69	0	0	0			N14W69	E	
						N25W36	0	0	0			N25W36	E	
						S13W41	0	0	0			S13W41	Q	
						N28W10	0	0	0			N28W10	E	
						S18E25	0	0	0			S18E25	Q	
						S12E28	0	0	0			S12E28	Q	
						S19W39	1	0	0			S19W39	Q	
						N35E46	0	0	0			N35E46	Q	
						N17E51	0	0	0			N17E51	Q	
						S13E14	0	0	0			S13E14	Q	
						N20W25	0	0	0			N20W25	Q	
						S17E41	0	0	0			S17E41	Q	
						N38E63	0	0	0			N38E63	Q	
						S25E70	0	0	0			S25E70	E	
271	28	27	230	152	25	N14W79	1	0	0	PRESTO MEUDON	27	N14W79	Q	SOLALERT MAGALERT 28/29
						N25W49	0	0	0	27/1518Z METRIC		N25W49	Q	
						S14W56	0	0	0	TYPE IV BURST		S14W56	Q	
						N30W23	4	3	0	NANCAY/TEN CM		N30W23	A	
						S18E12	0	0	0	BURST NERA SID		S18E12	Q	
						S12E16	0	0	0	POITIERS/FLARE AT		S12E16	Q	
						S19W51	0	0	0	N27W20 PRESTO		S19W51	Q	
						N36E35	0	0	0	BOULDER 27/1520Z		N36E35	Q	
						N18E38	0	0	0	TENFLARE 420 FLUX		N18E38	Q	
						N12W00	0	0	0	UNITS DURATION 50		N12W00	Q	
						N20W38	0	0	0	MINUTES M3/2N		N20W38	Q	
						S17E28	0	0	0	FLARE.		S17E28	Q	
						N37E51	0	0	0			N37E51	Q	
						S22E54	0	0	0			S22E54	Q	
						S14W48	0	0	0			S14W48	Q	

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272	29	28	213	147	26	N28W62	0	0	0		28	N28W62	Q	SOLNIL MAGALERT 29/30
						S14W70	0	0	0			S14W70	Q	
						N30W37	1	0	0			N30W37	C.A.	
						S18W00	0	0	0			S18W00	Q	
						S12W00	0	0	0			S12W00	Q	
						S18W64	0	0	0			S18W64	E	
						N35E22	0	0	0			N35E22	Q	
						N18E25	0	0	0			N18E25	Q	
						S12W13	0	0	0			S12W13	Q	
						N20W51	0	0	0			N20W51	Q	
						S17E14	0	0	0			S17E14	Q	
						N37E38	3	0	0			N37E38	E	
						S22E41	0	0	0			S22E41	E	
						S13W61	0	0	0			S13W61	Q	
						S17E15	0	0	0			S17E15	Q	
						S17E67	0	0	0			S17E67	Q	
273	30	29	199	147	65	S13W84	0	0	0	PRESTO BOULDER 29/1410Z STRONG MAGSTORM IN PROGRESS SSC 29/0300Z	29	S13W84	Q	SOLALERT 30/01 MAGALERT 30/XX
						N30W50	2	0	0			N30W50	E	
						S13W13	0	0	0			S13W13	Q	
						S18W78	0	0	0			S18W78	Q	
						N35E10	0	0	0			N35E10	Q	
						N17E12	0	0	0			N17E12	Q	
						S12W27	0	0	0			S12W27	Q	
						N20W65	0	0	0			N20W65	Q	
						S17W02	0	0	0			S17W02	Q	
						N38E24	7	0	0			N38E24	C.A.	
						S22E29	0	0	0			S22E29	Q	
						S18E03	0	0	0			S18E03	Q	
						S18E55	0	0	0			S18E55	Q	
						S14E75	0	0	0			S14E75	Q	
274	01	30	196	142	09	N31W63	0	0	0		30	N31W63	Q	SOLNIL MAGNIL
						S17W14	0	0	0			S17W14	Q	
						S17W10	0	0	0			S17W10	Q	
						N36W03	0	0	0			N36W03	Q	
						N18W02	0	0	0			N18W02	Q	
						N39E10	0	0	0			N39E10	Q	
						S21E17	0	0	0			S21E17	Q	
						S12E27	0	0	0			S12E27	Q	
						N20E28	0	0	0			N20E28	Q	
						S14E60	2	0	0			S14E60	E	
						N17E64	1	0	0			N17E64	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

	1977 FINAL			1978 PROVISIONAL								
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	44	20	84	128	93	70	77	119	46	42	127
2	37	40	20	88	120	83	68	85	93	61	48	167
3	47	25	31	102	131	95	71	91	74	47	38	151
4	47	22	47	102	138	103	75	76	60	34	62	161
5	48	25	58	73	137	76	94	74	51	54	74	175
6	55	27	58	69	129	67	92	73	29	57	66	178
7	57	34	55	42	121	90	88	70	39	84	58	148
8	52	27	45	36	89	99	105	56	45	105	62	120
9	47	31	58	36	94	85	126	59	36	108	64	109
10	38	25	75	15	96	92	111	57	29	115	67	105
11	28	26	71	18	95	85	109	63	57	127	58	84
12	33	27	62	26	92	78	107	65	62	111	71	72
13	53	28	44	26	93	65	93	72	56	114	85	88
14	48	31	37	36	82	62	75	72	62	109	93	113
15	54	39	41	30	59	72	61	78	89	102	72	133
16	53	49	39	23	64	70	85	91	97	110	42	148
17	51	51	29	24	56	66	99	79	103	98	49	136
18	50	54	33	14	55	72	100	85	115	78	53	158
19	54	52	40	8	53	64	107	84	109	74	42	150
20	54	38	23	7	52	51	115	74	109	76	28	163
21	42	32	23	20	63	77	112	73	154	77	26	172
22	35	28	17	30	74	82	109	73	158	48	36	148
23	30	24	23	43	69	85	105	72	158	33	45	156
24	29	18	31	37	78	82	102	82	154	38	45	167
25	28	10	35	32	94	70	139	86	135	30	54	163
26	30	9	41	47	86	53	115	84	152	13	37	152
27	38	14	50	69	79	50	90	97	134	21	55	140
28	37	9	45	79	88	49	75	90	130	31	58	122
29	42	10	58	90		48	72	103	115	48	59	122
30	45	23	64	104		44	70	107	99	35	70	91
31	52		67	118		70		109		36	100	
MEAN	43.8	29.1	43.2	49.3	89.8	73.5	94.7	79.3	94.1	68.4	56.7	137.3

¯1977 yearly mean = 27.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1977			1978								
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93.8*	94.4	88.4	126.9*	139.1	136.3	130.0	181.4	149.1	142.9	106.0	159.8
2	93.2	93.6	91.2	133.9	152.6	141.1	129.8	183.0	147.0*	127.6	106.0	171.7*
3	97.4	90.4	93.7	130.2	156.6*	146.6	134.5	182.2A	130.8	116.5	109.6	167.0
4	98.8	89.4	95.9	124.8	154.0	148.4	143.3*	178.4	118.6	117.4	112.3	174.4*
5	104.0*	90.6	96.9	119.2	159.0	154.5	146.7*	173.9*	116.9	118.9	117.6	179.4
6	103.5	91.1	102.0*	118.7*	156.1	162.8	145.3*	173.1	109.8	119.3*	122.6	181.1
7	105.5	90.2	105.5	111.6	157.3	165.2	146.9	162.6*	110.6	128.9	128.2	177.5
8	103.8	90.3	106.7	102.8	157.0*	168.7	148.6	143.4	109.3	135.9	130.6	167.1
9	100.7	91.1	112.6*	97.0	155.2	183.7	156.1	135.1	106.5	147.1*	128.1*	157.6*
10	96.4	93.1	114.7	93.5	148.7	179.1	155.4	129.5	108.4	156.0*	127.5	149.8
11	95.3	94.9	107.4	93.1	154.2	175.2	162.8*	133.8	113.2	163.2*	121.7	141.5
12	100.8	91.4	111.0	92.1	159.0	169.8	156.2	138.2	116.4*	174.2*	124.5	138.5
13	98.5	94.0	100.6	90.3	151.2	160.9	145.6	140.2	120.3*	165.5	134.9	138.0
14	98.9	97.9	93.7*	88.6	148.4	160.5	139.1	143.7	126.4*	163.1	132.7	143.5*
15	98.2	97.9	92.5	89.6	136.8	154.2	141.4	146.1	132.5	169.5	130.0*	152.6
16	96.8	95.9	92.5	86.4	130.2	143.3	137.6	147.8*	139.5*	163.4	123.6	161.5
17	94.9	100.4	91.1	83.8	125.9	135.4	133.4	143.8	149.0	159.5	119.3*	161.8
18	95.4	102.0*	93.6	84.7	124.9	132.3	134.1	135.6	153.5*	154.1*	115.6	169.3*
19	105.0	99.2	91.0	85.4	119.1	128.1	139.5*	133.6	162.0*	148.6	111.6	168.8*
20	99.6*	95.7*	88.7	87.0	122.2	125.3	138.1	132.3*	174.2	142.9*	107.5	168.6
21	98.6*	92.8	87.8	91.4	122.2	118.2	138.4*	132.7	185.4*	140.2	104.8	172.5
22	93.9	89.3	89.9	96.9	127.7	117.0	146.4	135.7*	190.3	127.0	106.0	171.5*
23	87.3	88.0	91.2	99.6	131.8	116.4	162.9	142.9*	196.7	123.4*	104.1	165.5*
24	88.3	86.7	93.9	100.4	135.6	117.5	159.8	146.5*	194.8	118.5	105.4	158.9
25	88.1	84.7	96.3	103.3	139.3	118.2	159.1*	147.6	183.5	113.7	104.2	157.2
26	88.6	84.1	99.3	112.7	134.8	112.5	166.7	152.8	182.4*	112.2	100.7	148.5
27	88.5	83.8	98.3	116.4	137.5	114.1	172.8	150.6*	179.5	110.8	107.3*	146.2*
28	90.3*	85.6	98.9	127.7*	135.4	112.7	176.6*	147.1*	174.1	109.9	107.7*	147.8
29	90.3	85.6	105.6*	132.2*		111.1	185.2	148.6	167.4	109.2	116.2	148.1
30	94.9	85.3	114.7	134.9		115.4*	182.1*	147.2*	154.6*	109.2	124.1	142.6
31	95.9		120.2	133.3*		124.5		152.6		108.8	133.9*	
MEAN	96.3	91.6	98.9	106.1	141.8	140.3	150.5	149.7	146.8	135.4	116.9	159.6

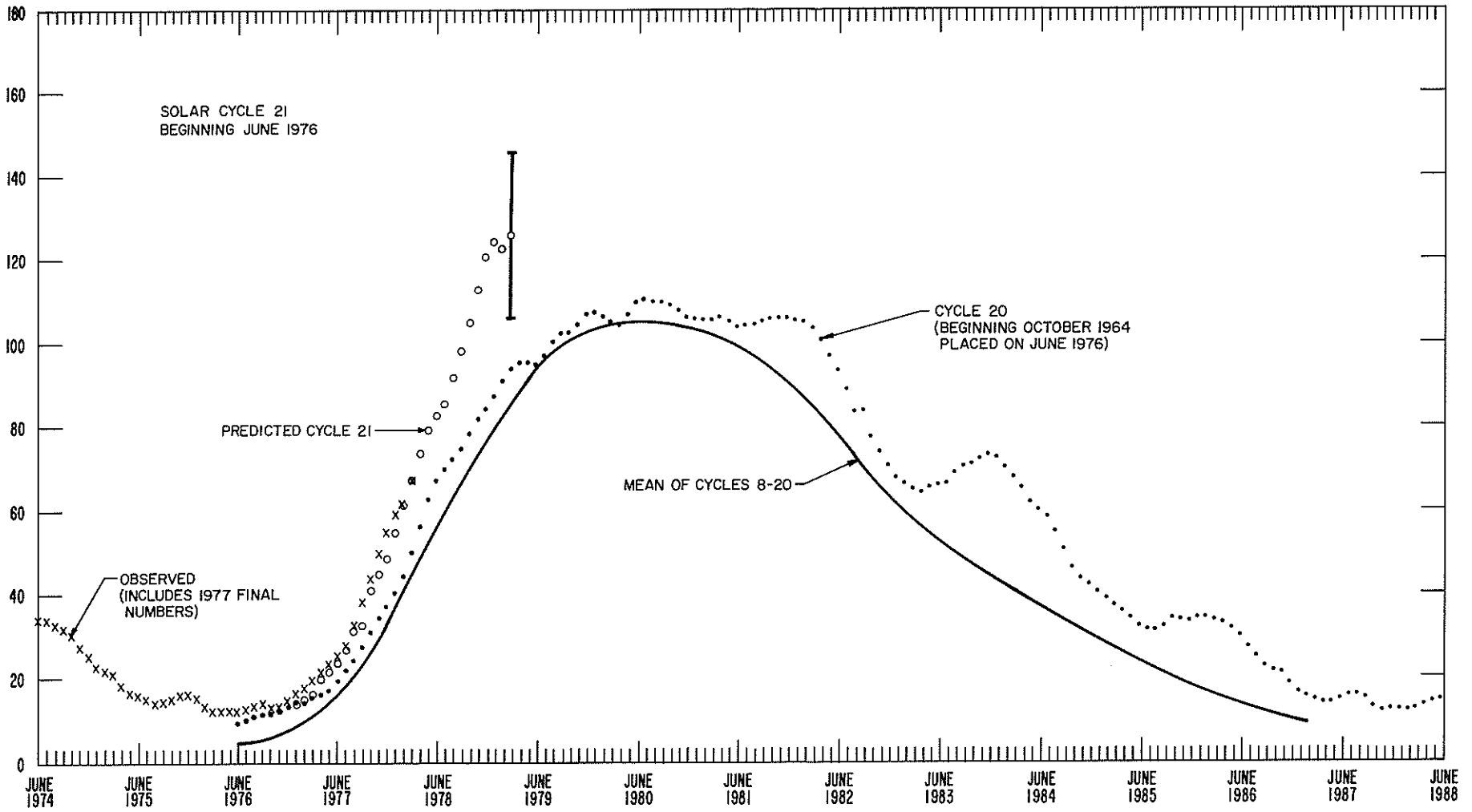
* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

SEPTEMBER 1978

SEP 1978	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$		AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	244	18	127	110	157.0	581	344	202	159.8	171.1	104.1	66.4	35.7	16.2
2	245	19	167	152	168.7*	589	373	210	171.7*	172.8	115.9	67.4	33.4	15.6
3	246	20	151	149	164.2	581	373	211	167.0	178.7	113.5	71.8	36.1	23.5
4	247	21	161	143	171.5*	594	384	219	174.4*	188.9	122.7	75.7	37.4	25.8
5	248	22	175	166	176.6	581	384	215	179.4	181.9	123.4	81.6	50.4	85.4
6	249	23	178	157	178.2	582	354	215	181.1	190.2	123.3	76.5	39.6	33.9
7	250	24	148	136	174.9	592	366	216	177.5	185.8	117.7	73.5	34.9	17.0
8	251	25	120	124	164.6	592	345	203	167.1	178.4	116.2	70.9	32.5	20.1
9	252	26	109	108	155.4*	589	342	190	157.6*	167.6	109.0	67.8	31.9	16.8
10	253	27	105	90	147.7	587	337	181	149.8	154.9	104.3	67.2	32.0	13.6
11	254	1	84	66	139.7	586	332	172	141.5	146.9	101.8	65.2	34.0	15.3
12	255	2	72	65	136.7	583	332	170	138.5	140.3	99.0	65.8	31.0	15.6
13	256	3	88	81	136.2	583	331	170	138.0	143.7	99.6	66.2	32.1	15.2
14	257	4	113	95	141.7*	583	333	179	143.5*	151.1	104.6	66.8	32.1	12.8
15	258	5	133	115	150.9	580	346	190	152.6	157.5	112.9	69.3	30.9	10.7
16	259	6	148	129	159.7	577	344	197	161.5	164.9	112.8	67.7	29.8	11.7
17	260	7	136	135	160.2	594	365	209	161.8	173.2	115.1	73.1	31.4	10.3
18	261	8	158	139	167.8*	579	364	212	169.3*	179.0	124.6	70.8	29.7	14.5
19	262	9	150	142	167.3*	590	360	214	168.8*	173.0	118.1	70.0	31.0	17.2
20	263	10	163	166	167.3	588	346	201	168.6	176.2	117.3	70.1	36.3	21.8
21	264	11	172	159	171.1	574	340	195	172.5	173.3	121.7	73.0	32.7	31.7
22	265	12	148	146	170.3*	581	350	200	171.5*	184.2	131.1	86.8	53.9	56.4
23	266	13	156	152	164.3*	598	353	202	165.5*	177.1	123.0	75.7	35.5	22.8
24	267	14	167	156	158.0	591	339	187	158.9	161.5	114.6	69.1	32.4	16.9
25	268	15	163	166	156.4	585	336	187	157.2	165.1	114.4	66.7	31.1	15.3
26	269	16	152	154	147.8	586	334	187	148.5	157.7	111.1	65.6	32.7	17.5
27	270	17	140	133	145.6*	604	344	187	146.2*	161.5	115.3	69.0	34.0	21.4
28	271	18	122	123	147.2	595	340	180	147.8	155.1	114.9	69.0	25.6	11.5
29	272	19	122	100	147.7	591	333	174	148.1	152.8	109.2	68.9	30.4	11.4
30	273	20	91	86	142.2	582	327	169	142.6	146.6	113.2	69.7	31.7	11.6
MEAN			137.3	12.8	157.9	587	348	195	159.6	167.2	110.8	70.6	34.1	21.0

* Adjusted for burst.



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	28.8	33.0	38.5	44.6	50.5	55.4
1978	59.6	62.7	67.7	73.7	80.4	86.3	91.0	95.3	99.4	103.0	107.4	113.3
				(2)	(5)	(8)	(11)	(14)	(17)	(18)	(17)	(16)
1979	118.2	122.5	126.4	129.1	131.7	135.8	140.0	142.7	144.5	145.4	145.6	145.0
	(15)	(16)	(20)	(24)	(27)	(29)	(31)	(34)	(36)	(38)	(40)	(41)
1980	143.8	142.6	142.1	142.6	142.0	139.0	135.9	133.3	131.8	131.0	129.6	128.1
	(41)	(41)	(39)	(39)	(40)	(42)	(44)	(45)	(45)	(45)	(47)	(50)
1981	127.6	126.9	124.6	121.8	119.6	117.5	116.5	116.3	115.5	114.2	112.1	109.3
	(53)	(53)	(51)	(50)	(49)	(49)	(47)	(46)	(45)	(45)	(44)	(41)
1982	106.5	103.4	100.9	99.0	96.7	94.2	90.5	86.3	82.5	78.4	75.4	71.9
	(39)	(38)	(37)	(35)	(34)	(32)	(31)	(28)	(26)	(23)	(22)	(21)
1983	68.0	65.2	63.3	61.2	59.2	57.0	55.1	53.2	51.4	50.1	49.1	48.3
	(21)	(21)	(22)	(22)	(22)	(23)	(24)	(26)	(27)	(29)	(30)	(30)
1984	47.3	45.6	43.0	39.9	37.4	36.1	35.1	33.6	32.2	31.2	30.0	28.5
	(31)	(30)	(29)	(28)	(29)	(31)	(31)	(31)	(30)	(29)	(27)	(27)
1985	27.4	26.4	25.5	25.0	24.3	23.4	22.7	21.9	21.1	20.2	19.3	18.7
	(26)	(26)	(26)	(26)	(25)	(24)	(23)	(22)	(22)	(23)	(23)	(24)
1986	18.3	17.8	17.1	16.2	15.1	14.0	13.2	12.6	12.4	12.1	11.9	11.8
	(24)	(24)	(23)	(22)	(21)	(20)	(19)	(18)	(17)	(16)	(15)	(13)
1987	12.1	12.6	13.4	14.3	15.3	16.2	17.1					
	(11)	(11)	(11)	(11)	(12)	(13)	(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 1977 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1978 are received. The numbers 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 mimimum.

*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 1978) indicates that the most probable value for sunspot maximum is 149 ± 35.

Hα SOLAR FLARES

SEPTEMBER 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PALE	01	0037	0052	0110	N20	E 3	.441		1.3	33	SN	3	C		42		DE
PALE	01	0101	0102	0108	S21	E32	.565		3.4	7	SB	3	C		54		FDE
PALE	01	0212	0213	0217	N15	W25	.537		30.2	5	SF	3	C		32		DE
PALE	01	0235E	0308	0315	N17	E45	.767		4.5	40D	SN	2	C		30		FDE
PALE	01	0255	0255	0259	N20	E 2	.440		1.3	4	SN	3	C		21		DE
PALE	01	0323	0324	0340	N20	E 2	.440		1.3	17	SN	2	C		75		FDE
PALE	01	0325	0330	0335	N17	E45	.767		4.5	10	SN	2	C		80		FDE
TEHR	01	0610	0623	0631	S30	E56	.846		5.5	21	SB	1	C		64		F
TEHR	01	0734	0737	0751	S30	E54	.829		5.4	17	SB	1	C		127		FDE
RAMY	01	1135	1137	1208	S27	E45	.739		4.9	33	SB	4	C		94		
RAMY	01	1149	1242	1320	S33	E65	.912		6.4	91	SB	4	C		61		HDE
TEHR	01	1221E	1222	1231	S30	E54	.829		5.6	10D	SB	2	C		127		F
MCMA	01	1237	1242	1300	S38	E72	.952	15509	6.9	23	SN		C	1242	25	1.0	EH
TEHR	01	1244E	1247	1305	S30	E62	.890		6.2	21D	SB	2	C		64		FDE
MCMA	01	1310	1312	1340	S32	E50	.802	15509	5.3	30	SN		C	1312	30	.6	E
RAMY	01	1313	1347	1429	N18	E35	.670		4.2	76	SB	4	C		47		
RAMY	01	1313	1313	1320	S28	E46	.752		5.0	7	SB	4	C		84		F
MCMA	01	1318	1322	1343	N18	W06	.418	15496	1.1	25	SF		C	1322	50	.5	E
RAMY	01	1323	1323	1326	N19	W 4	.428		1.3	3	SN	4	C		31		
MCMA	01	1404	1408	1419	S32	E50	.802	15509	5.3	15	SF		C	1408	40	.8	E
RAMY	01	1430	1430	1437	N18	E35	.670		4.2	7	SB	4	C		24		
MCMA	01	1437	1441	1505	N22	E57	.886	15517	5.9	28	SN		C	1441	40	.7	EH
RAMY	01	1452	1458	1523	N18	E34	.659		4.2	31	SN	4	C		23		
MCMA	01	1518	1519	1525	S32	E39	.703	15509	4.6	7	SF		C	1519	30	.5	E
RAMY	01	1627	1632	1649D	S28	E44	.732		5.0	22D	SB	4	C		119		DE
MCMA	01	1628E		1720D	S33	E48	.788	15509	5.3	52D	SN		C	1633	60	1.2	E
MCMA	01	1708	1714	1725	S39	E69	.939	15509	6.9	17	SB		C	1714	40	1.2	EH
RAMY	01	1711	1712	1725D	S32	E60	.879		6.2	14D	SB	4	C		45		DE H
MCMA	01	1722	1723	1755	N15	E30	.594	15508	4.0	33	SN		C	1723	30	.4	EH
HOLL	01	1729	1734	1740	N17	E28	.588		3.8	11	SF	3	C		0		
MCMA	01	1807	1812	1825	S39	E68	.935	15509	6.9	18	SN		C	1812	40	1.2	E
MCMA	01	1836	1837	1841	N15	E41	.716	15508	4.9	5	SN		C	1837	50	.7	DHV
HOLL	01	1839	1839	1844	N17	E27	.577		3.8	5	SF	3	C		0		
HOLL	01	1842	1850	1856	S30	E43	.731		5.0	14	SN	3	C		30		
MCMA	01	2011	2013	2017	N15	E41	.716	15508	4.9	6	SN		C	2013	30	.4	D
PALE	01	2022E	2034U	2042D	S30	E43	.731		5.1	20D	SN	3	C		21		FDE
PALE	01	2144	2154	2259	S30	E42	.722		5.1	75	SB	3	C		52		FDE
PALE	02	0004	0011	0158	S30	E42	.721	15509	5.2	114	1B	3	C		154		U F
PALE	02	0004	0125	0158	S30	E42	.721		5.2	114	SN	3	C		122		U F
PALE	02	0004	0157	0158	S30	E42	.721		5.2	114	SN	3	C		122		U F
TEHR	02	0546E	0550	0614	S29	E40	.696		5.2	28D	SB	2	C		127		FDE
MITK	02	0551E	0559	0643D	S33	E44	.753	15509	5.5	52D	2B		C	0559	380	7.2	E
BUCA	02	0557E		0626	S31	E42	.726	15509	5.4	29D	2N		P	0600	429	7.9	BE
ISTA	02	0740E		0757	N18	E23	.546		4.0	17D	SN						E
ISTA	02	0740E		0800	S30	E43	.731		5.5	20D	SF						Z
ISTA	02	0820E		0824	S30	E39	.692		5.3	4D	SF						E
ISTA	02	0822E		0840D	N17	E25	.557		4.2	18D	SN						D
TEHR	02	1047	1053	1120	S29	E40	.696		5.4	33	SB	2	C		127		F
RAMY	02	1056	1059	1115D	S30	E38	.682	15509	5.3	19D	1B	3	C		211		F
TEHR	02	1131E	1134	1145D	S29	E40	.696	15509	5.5	14D	1B	2	C		159		F
RAMY	02	1144E	1146	1222	S30	E37	.672	15509	5.3	38D	1B	4	C		226		DE
RAMY	02	1147	1150	1204	N20	W17	.515		1.2	17	SB	4	C		62		
MCMA	02	1204E		1225D	S38	E52	.837	15509	6.4	21D	1F		C	1204	100	2.4	BE
MCMA	02	1204E	1209	1220D	N16	E18	.475	15508	3.9	16D	SF		C	1209	60	.7	E
RAMY	02	1220	1223	1230	N18	E25	.566		4.4	10	SB	4	C		23		
MCMA	02	1226	1229	1250	S38	E56	.864	15509	6.7	24	SN		C	1229	40	1.0	E
RAMY	02	1229	1230	1242	S32	E53	.826		6.5	13	SB	4	C		37		
TEHR	02	1246E	1250	1255D	S29	E40	.696		5.5	9D	SB	2	V		127		FDE
MCMA	02	1247	1254	1307	N13	E19	.452	15508	4.0	20	SB		C	1254	100	1.1	EV
TEHR	02	1249	1253	1305	N15	E23	.516		4.3	16	SB	2	C		127		
RAMY	02	1258	1308	1415	S30	E38	.682	15509	5.4	77	1B	4	C		184		
MCMA	02	1305	1310	1330	S34	E41	.732	15509	5.6	25	SB		C	1310	50	.9	E
TEHR	02	1305E	1308	1314	S30	E40	.701		5.5	9D	SB	2	C		95		
MCMA	02	1354E	1358	1408	S30	E90	.999	15518	9.3	14D	SF		C	1358			A
RAMY	02	1415	1425	1554	S30	E37	.672	15509	5.4	99	1B	-4	C		283		DE
MCMA	02	1420	1424	1600	S35	E36	.694	15509	5.3	100	SB		C	1424	60	1.0	E
MCMA	02	1431	1432	1435	N18	E28	.597	15508	4.7	4	SF		C	1432	30	.4	
MCMA	02	1450	1452	1500D	N12	E23	.487	15508	4.3	10D	SF		C	1452	30	.3	D
RAMY	02	1451	1451	1458	N16	E26	.558		4.6	7	SN	4	C		34		
MCMA	02	1513	1516	1539	N14	E20	.473	15508	4.1	26	SN		C	1516	50	.5	E
MCMA	02	1600	1620	1650	N17	W47	.787	15493	30.1	50	SF		C	1620	50	.8	E

Hα SOLAR FLARES

SEPTEMBER 1978

OBSERVATORY	OBSERVED UT DATE SEP	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill of Disk	CORR. AREA Sq. Deg.	REMARKS
MCMA	02	1644	1648	1730	S32	E23	.554	15509	4.4	46	SN		C	1648	35	.5	D
MCMA	02	1644	1654	1720	N12	E22	.475	15508	4.3	36	SN		C	1654	40	.4	E
RAMY	02	1648	1652	1700	N16	E25	.547		4.6	12	SN	4	C		24		
MCMA	02	1810E	1815	1827	S33	E36	.681	15509	5.5	17D	SN		C	1815	60	1.0	E
PALE	02	1812	1815	1853	S30	E32	.622		5.2	41	SB	3	C		66		FDE
MCMA	02	1832		1905	N14	E13	.405	15508	3.7	33	SN		C	1851	60	.6	E
PALE	02	1902	1906	1925	S30	E32	.622		5.2	23	SB	3	C		66		U
MCMA	02	1902	1906	1915	S33	E34	.662	15509	5.3	13	SN		C	1906	50	.8	E
PALE	02	1928	1929	1940	S30	E32	.622		5.2	12	SN	3	C		29		FDE
PALE	02	1944	1944	1949	S30	E32	.622		5.2	5	SN	3	C		27		DE
PALE	02	1952	2011	2017	S30	E31	.612		5.2	25	SB	3	C		27		DE
RAMY	02	2008	2037	2042	S30	E34	.642		5.4	34	SN	3	C		30		
RAMY	02	2008	2010	2042	S30	E34	.642		5.4	34	SB	3	C		24		
HOLL	02	2008	2012	2019	S30	E30	.602		5.1	11	SB	3	C		17		FDE
HOLL	02	2018	2020	2032	S33	E50	.805		6.6	14	SN	3	C		18		FDE
RAMY	02	2019	2019	2021	S33	E47	.779		6.4	2	SN	3	C		16		
PALE	02	2019	2019	2028	S34	E50	.808		6.6	9	SN	3	C		14		F
PALE	02	2020	2020	2030	N20	W21	.549		1.3	10	SN	3	C		89		U
RAMY	02	2020	2021	2026	N19	W20	.528		1.3	6	SB	3	C		144		
HOLL	02	2020	2021	2025	N22	W22	.579		1.2	5	SB	3	C		112		FDE
PALE	02	2034	2047	2211	S30	E31	.612		5.2	97	SB	3	C		146		DE F
HOLL	02	2035	2049	2203	S30	E29	.592		5.0	88	SB	3	C		118		FDE
PALE	02	2347	2355	0047	S30	E29	.592		5.2	60	SB	3	C		140		DE F
PALE	03	0213	0215	0249	S32	E44	.748	15519	6.4	36	1B	3	C		242		DE F
TEHR	03	0745	0749	0754	S31	E26	.571		5.3	9	SN	2	C		95		UDE
TEHR	03	0935	0938	0946	S31	E24	.552		5.2	11	SN	2	C		95		UDE
RAMY	03	1604	1604	1626	S12	E59	.852		8.1	22	SN	4	C		14		FDE
RAMY	03	1604	1605	1622	S30	E23	.533		5.4	18	SB	4	C		37		FDE
PALE	03	1655E	1655U	1701	S32	E24	.562		5.5	6D	SB	3	C		31		F
PALE	03	1746	1748	1804	S30	E21	.515		5.3	18	SB	3	C		44		FDE
PALE	03	1806	1807	1812	S30	E21	.515		5.3	6	SB	3	C		29		FDE
PALE	03	1822E	1823	1825	N16	E11	.418		4.6	3D	SB	3	C		29		F
PALE	03	1828	2017	2036	S30	E20	.506		5.3	128	SB	3	C		120		FDE
PALE	03	1828	1838	1916D	S30	E21	.515		5.3	48D	SB	3	C		68		FDE
HOLL	03	1838	1850	1900	S30	E20	.506		5.3	22	SB	3	C		48		F
MCMA	03	1840E		1843D	S33	E25	.581	15509	5.7	3D	SN		P	1841	80	1.2	E
HOLL	03	1906	1906	1910	S30	E20	.506		5.3	4	SN	3	C		20		
HOLL	03	1921	1926	1948	S30	E19	.497		5.2	27	SB	3	C		88		U F
MCMA	03	1925E		1932D	S33	E24	.572	15509	5.6	7D	SB		C	1925	120	1.7	E
PALE	03	2039	2041	2048	S30	E20	.506		5.4	9	SB	3	C		61		FDE
PALE	03	2158	2158	2210	S21	W 6	.275		3.5	12	SN	3	C		25		F
HOLL	03	2159	2200	2211	S20	W 8	.274		3.3	12	SN	3	C		35		
PALE	03	2223	2226U	2227D	S30	E18	.489		5.3	4D	SB	3	C		56		DE F
PALE	03	2318	0003	0020	S30	E18	.489		5.3	62	SB	3	C		78		F
HOLL	03	2326	2327	2330	S30	E17	.481		5.3	4	SB	3	C		18		
PALE	03	2348	2358U	0020	S36	E35	.692		6.6	32	SB	3	C		150		DE F
PALE	04	0149	0154	0209	S30	E17	.480		5.4	20	SB	3	C		88		DE F
PALE	04	0259	0308	0324	S30	E16	.472		5.3	25	SB	3	C		42		DE F
PALE	04	0408	0408	0416D	S30	E16	.472		5.4	8D	SN	3	C		69		DE F
TEHR	04	0420E	0440	0507	S29	E15	.451		5.3	47D	SB	2	C		127		U F
BUCA	04	0800	0813	0819	S31	E15	.477	15509	5.5	19	1F		C	0813	214	3.0	
BUCA	04	0812	0827	0920D	S15	E53	.796	15521	8.3	68D	2N		C	0827	429	8.2	GV
TEHR	04	0820	0823	0903	S14	E53	.795	15521	8.3	43	1B	2	C		190		U F
WEND	04	0825E		0833D	S14	E51	.774	15521	8.2	8D	1N		V		300	5.0	EG
HERS	04	0900E	0900	0933	S16	E50	.765	15521	8.1	33D	1N		P	0900	113	2.3	U
RAMY	04	1221	1221	1242	N36	W21	.727		2.9	21	SN	3	C		22		
MCMA	04	1250	1254	1316	S32	E08	.452	15509	5.1	26	SN		C	1254	40	.5	E
RAMY	04	1251	1252	1313	S30	E11	.437		5.4	22	SB	3	C		25		
MCMA	04	1340	1345	1415	N37	W22	.742	15522	2.9	35	SF		C	1345	50	.6	E
HOLL	04	1344	1351	1405	N36	W23	.736		2.8	21	SN	3	C		38		
MCMA	04	1355	1405	1420	S32	W02	.436	15509	4.4	25	SF		C	1405	35	.5	E
MCMA	04	1408	1412	1430	N14	W11	.390	15508	3.8	22	SF		C	1412	30	.3	EL
MCMA	04	1436	1450	1515	N16	W13	.433	15508	3.6	39	SN		C	1450	75	.8	EL
RAMY	04	1449	1450	1457	N16	W10	.412		3.9	8	SN	3	C		62		
HOLL	04	1558	1619	1702	N16	W12	.426	15508	3.8	64	1B	3	C		194		F
MCMA	04	1558	1620	1712D	N16	W13	.433	15508	3.7	74D	SB		C	1620	150	1.5	EHU
RAMY	04	1600	1611	1709	N16	W11	.419		3.8	69	SB	3	C		162		Z F
PALE	04	1720	1720	1728	S18	E69	.928		9.9	8	SN	3	C		19		F
PALE	04	1907	1910	1917	S30	E 8	.422		5.4	10	SN	3	C		29		F
PALE	04	1943	2035	2039	N32	E90	1.002		11.6	56	SN	3	C		31		F

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR. AREA Sq. Deg.	
PALE	04	2038	2043	2051	N37	W26	.761		2.9	13	SN	3	C		37		F
HOLL	04	2039	2042U	2042D	N36	W26	.752		2.9	3D	SN	3	C		37		F
PALE	04	2318	0003	0020	S30	E18	.488		6.3	62	SB	3	C		78		F
HOLL	04	2347	2359	0021	S33	E35	.670	15518	7.6	34	1B	3	C		181		U F
HOLL	04	2351	0004	0014	S30	E17	.480		6.3	23	SB	3	C		32		U F
BUCA	05	0720		0729	N16	W05	.388		4.9	9	SF		C	0725	64	.7	D
TEHR	05	0724	0729	0739	N17	W 4	.401		5.0	15	SB	2	C		63		H
RAMY	05	1048	1050	1057	S20	E 1	.238		5.5	9	SB	2	C		57		
RAMY	05	1053	1112	1134D	N35	E85	1.000		11.8	41D	SN	3	C		0		
RAMY	05	1225	1234	1246	N35	E85	1.000		11.9	21	SN	4	C		0		
RAMY	05	1336	1342	1346	N35	W38	.815		2.7	10	SN	4	C		19		
RAMY	05	1350	1353	1406	N19	W55	.864		1.5	16	SB	4	C		148		
HOLL	05	1350	1353	1401	N18	W56	.869		1.4	11	SB	2	C		131		F
HOLL	05	1413	1414	1416	S30	W 3	.405		5.4	3	SN	2	C		25		
RAMY	05	1431	1432	1437	N35	W38	.815		2.8	6	SN	4	C		17		
RAMY	05	1451	1452	1459	S22	W 3	.275		5.4	8	SB	4	C		21		
MCMA	05	1525E		1529D	S35	W00	.480	15509	5.6	4D	SN		C	1528	40	.5	E
RAMY	05	1538	1541	1543	N35	E83	.999		11.9	5	SN	4	C		0		
RAMY	05	1538	1539	1549	N35	W39	.822		2.7	11	SB	4	C		25		
RAMY	05	1630	1631	1637	N35	E83	.999		11.9	7	SB	4	C		17		
HOLL	05	1635	1635	1645	N36	W36	.810		3.0	10	SN	3	C		19		
RAMY	05	1641	1643	1658	N19	W57	.879		1.4	17	SN	4	C		18		
HOLL	05	1718	1718	1732	N36	W37	.816		2.9	14	SN	3	C		19		
HOLL	05	1724	1724	1728	S30	W 5	.409		5.4	4	SB	3	C		22		
RAMY	05	1724	1724	1734	S30	W 2	.403		5.6	10	SN	4	C		23		
HOLL	05	1752	1758	1803	S21	W 5	.267		5.4	11	SN	3	C		26		
MCMA	05	1850	1852	1900	S35	W04	.484	15509	5.5	10	SF		D	1852	75	1.0	E
MCMA	05	1853	1855	1900	S25	W30	.563	15507	3.5	7	SF		C	1855	30	.4	DH
RAMY	05	1947	2023	2036	S22	W 6	.288		5.4	49	SB	3	C		37		
MCMA	05	2009		2011D	N32	E88	1.000	15525	12.4	2D	SF		C	2010			D
RAMY	05	2013	2016	2022	N34	E81	.998		11.9	9	SB	3	C		23		
RAMY	05	2024	2043	2058	S30	W 4	.407		5.6	34	SB	3	C		73		
MCMA	05	2045E		2055D	S34	W07	.477	15509	5.3	10D	SN		C	2045	40	.5	E
MCMA	05	2051E		2055D	N32	E88	1.000	15525	12.5	4D	SF		C	2051			E
RAMY	05	2105	2106	2110	N34	E80	.997		11.9	5	SB	3	C		18		
RAMY	05	2115	2123	2127	S22	W 6	.288		5.4	12	SN	3	C		24		
PALE	06	0023E	0023U	0031	N33	E78	.994		11.9	8D	SN	3	C		29		F
PALE	06	0031E	0036	0038	S21	W11	.311		5.2	7D	SN	3	C		29		FDE
PALE	06	0220	0225	0237	S31	W 9	.439		5.4	17	SB	3	C		46		F
PALE	06	0249	0249	0258	S23	W11	.338		5.3	9	SN	3	C		22		DE
RAMY	06	1052	1056	1210D	S23	W15	.375		5.3	78D	SB	3	C		90		FDE
RAMY	06	1118	1126	1128D	S30	W11	.435		5.6	10D	SB	3	V		63		
TEHR	06	1129E	1132	1134	S30	W11	.435		5.7	5D	SB	2	C		64		U
RAMY	06	1218	1219	1226	S20	W42	.681		3.4	8	SN	4	C		22		
MCMA	06	1222	1223	1227	N32	E80	.996	15525	12.5	5	SN		C	1223			D
MCMA	06	1308	1325	1344	N18	W41	.734	15508	3.5	36	SN		C	1325	35	.5	E
MCMA	06	1314	1330	1415	S32	W03	.435	15509	6.3	61	SN		C	1330	150	1.9	EFK
MCMA	06	1314	1316	1415	S32	W03	.435		6.3	61	SN			1316	125	1.6	
RAMY	06	1315	1316	1318D	S32	W13	.475		5.6	3D	SB	4	V		102		FDE
TEHR	06	1320E	1323	1330	S31	W11	.450		5.7	10D	SB	2	C		127		F
RAMY	06	1325	1325	1331	N18	W40	.724		3.6	6	SN	4	C		28		
HOLL	06	1328	1330	1358	S33	E 3	.451		6.8	30	SN	2	C		32		U
HOLL	06	1338	1349	1426	S23	W15	.375		5.4	48	SB	2	C		35		F
RAMY	06	1347	1348	1410	S23	W16	.386		5.4	23	SB	4	C		19		
MCMA	06	1347	1348	1355	S22	W15	.364	15526	5.4	8	SF		C	1348	20	.3	D
MCMA	06	1448	1453	1500	S22	W16	.374	15526	5.4	12	SN		C	1453	50	.5	E
RAMY	06	1448	1452	1502	S23	W17	.396		5.3	14	SB	4	C		68		FDE
HOLL	06	1449	1452	1501	S23	W16	.386		5.4	12	SB	3	C		54		U F
RAMY	06	1600	1601	1615	S23	W18	.407		5.3	15	SB	4	C		46		
RAMY	06	1617	1618	1621	S32	W15	.488		5.6	4	SN	4	C		27		
HOLL	06	1641	1654	1709	S23	W17	.396		5.4	28	SB	3	C		65		F
RAMY	06	1647	1647	1715	S23	W18	.407		5.3	28	SB	4	C		19		F
MCMA	06	1651E		1731D	S22	W17	.386	15526	5.4	40D	SN		C	1655	125	1.6	E
PALE	06	1655E	1703	1710	S23	W19	.418		5.3	15D	SN	3	C		76		DE
PALE	06	1759	1759	1806	N16	W36	.670		4.0	7	SN	3	C		25		F
RAMY	06	1759	1800	1811	N16	W38	.692		3.9	12	SB	4	C		34		
MCMA	06	1759	1800	1811	N19	W46	.787	15508	3.3	12	SN		C	1800	40	.6	D
PALE	06	1856	1856	1907	S23	W20	.430		5.3	11	SN	3	C		36		DE
HOLL	06	1921	1940	2008	N35	E67	.967		11.8	47	SB	3	C		98		F
MCMA	06	1921E		1935D	N28	E72	.976	15525	12.2	14D	SF		C	1928			D

Hα SOLAR FLARES

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OBSERVATORY	OBSERVED UT DATE SEP	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	OBS. CORD.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill of Disk	CORR. AREA Sq. Deg.	REMARKS
PALE	06	1934	1935	1939	S31	W18	.498		5.5	5	SB	3	C		40		F
HOLL	06	1935	1935	1937	S32	W15	.488		5.7	2	SN	3	C		46		
RAMY	06	1935	1935	1944	S32	W16	.495		5.6	9	SB	3	C		62		
RAMY	06	1935	1939	1955	N34	E68	.969		11.9	20	SB	3	C		41		
PALE	06	1938	1939	1947	N33	E69	.971		12.0	9	SN	3	C		22		F
RAMY	06	2006	2006	2011	S32	W17	.502		5.6	5	SN	3	C		29		F
RAMY	06	2047	2050	2053	N17	W72	.965		1.5	6	SN	3	C		15		
HOLL	06	2219	2223	2250	S23	W20	.430		5.4	31	SB	3	C		79		FDE
PALE	06	2223E	2223U	2301D	S23	W22	.453		5.3	38D	SB	3	C		89		FDE
HOLL	06	2327	2332	2353	S32	W17	.502		5.7	26	SN	3	C		47		F
HOLL	06	2330	2333	2354	N35	E65	.960		11.9	24	SN	3	C		57		FDE
PALE	06	2330E	2332U	2350D	S31	W20	.514		5.5	20D	SB	3	C		46		FDE
PALE	06	2331E	2341U	2349D	S23	W22	.453		5.3	18D	SN	3	C		29		FDE
HOLL	06	2332	2336	2350	S23	W21	.441		5.4	18	SN	3	C		31		
TEHR	07	0608E	0612	0619	S30	W21	.512		5.7	11D	SB	2	C		95		F
ISTA	07	0700E		0740	S32	W24	.559		5.5	40D	SF						E
ISTA	07	0755E		0805D	N16	W36	.670		4.6	10D	SF						E
ISTA	07	0840E		0855D	S38	W20	.594		5.9	15D	SF						D
RAMY	07	1232	1233	1247	S23	W29	.537		5.3	15	SN	3	C		27		
HOLL	07	1353	1414	1547	N35	E58	.930	15525	11.9	114	1B	2	C		260		U F
RAMY	07	1356E	1359	1422	N33	E57	.919		11.9	26D	SB	3	C		46		
MCMA	07	1403E		1550	N28	E61	.928	15525	12.2	107D	1B		C	1415	110	2.4	E
RAMY	07	1422E	1425U	1508	N33	E57	.919		11.9	46D	SB	3	C		110		
RAMY	07	1427	1427	1430	S32	W26	.577		5.7	3	SN	3	C		26		
MCMA	07	1536	1537	1548	N19	W58	.887	15508	3.3	12	SF		C	1537	30	.6	D
RAMY	07	1537	1538	1546	N15	W50	.809		3.9	9	SN	3	C		20		
MCMA	07	1620E	1632	1650	N32	E63	.946	15525	12.4	30D	SF		C	1632	40	.9	E
RAMY	07	1750	1751	1809	S23	W32	.573		5.3	19	SB	3	C		20		
RAMY	07	1809	1811	1814	N15	W52	.827		3.9	5	SB	3	C		41		
RAMY	07	1828	1830	1836	N33	E55	.909		11.9	8	SN	3	C		25		
RAMY	07	1908	1909	1912	N15	W52	.827		3.9	4	SN	3	C		19		
RAMY	07	1936	1936	1942	S32	W29	.605		5.6	6	SB	3	C		57		
RAMY	07	2026	2028	2042	N16	W42	.734		4.7	16	SB	3	C		36		
MCMA	07	2027	2029	2045D	N21	W46	.797	15508	4.4	18D	SN		C	2029	30	.4	E
RAMY	07	2048	2049	2104	N15	W53	.836		3.9	16	SN	3	C		30		
RAMY	07	2132	2134	2136	S32	W30	.614		5.6	4	SB	3	C		47		
PALE	07	2330E	2332U	2350D	S31	W20	.514		6.5	20D	SB	3	C		46		FDE
MITK	07	2331E	2351	2439	S25	W15	.399	15518	6.9	68D	2F		C	2351	570	7.1	ES
PALE	08	0122E	0123U	0142D	S23	W36	.621		5.4	20D	SB	3	C		103		FDE
MANI	08	0124E	0125	0132	S21	W36	.612		5.4	8D	SN	3	V		100	1.4	F
TEHR	08	0230E	0234U	0307	S31	W37	.675		5.3	37D	SB	1	C		63		
PALE	08	0239E	0243U	0302D	S30	W38	.679		5.3	23D	SB	3	C		76		FDE
TEHR	08	0357	0403	0420	S21	W38	.636		5.3	23	SB	1	C		63		
RAMY	08	1115	1117	1124	S32	W37	.681		5.7	9	SB	3	C		69		
RAMY	08	1152	1152	1202	N33	E46	.856		11.9	10	SB	3	C		23		
RAMY	08	1208	1215	1222	N15	W62	.907		3.9	14	SN	3	C		46		
RAMY	08	1251	1253	1257	S23	W42	.690		5.4	6	SB	3	C		152		DE
MCMA	08	1252	1255	1335D	S23	W44	.712	15526	5.2	43D	1B		C	1255	120	2.0	E
TEHR	08	1253E	1254	1302	S22	W41	.675		5.5	9D	SB	2	C		127		F
RAMY	08	1257	1301	1319	S23	W42	.690		5.4	22	1B	3	C		169		DE
RAMY	08	1320	1325	1347	S23	W42	.690		5.4	27	SB	3	C		38		
RAMY	08	1618	1618	1622	S23	W44	.712		5.4	4	SB	3	C		20		
MCMA	08	1625E	1629	1657	S27	W47	.756	15526	5.2	32D	1N		C	1629	110	2.1	E
MCMA	08	1626	1629	1632	N18	W72	.966	15508	3.3	6	SN		C	1629	25	.8	D
RAMY	08	1628	1629	1641D	S26	W42	.701		5.5	13D	SB	3	C		65		F
RAMY	08	1635	1639	1641D	N15	W64	.920		3.9	6D	SB	3	C		19		
RAMY	08	1639	1639	1641D	N16	W53	.839		4.7	2D	SN	3	C		19		
PALE	08	1739	1740	1744	S22	W46	.731		5.3	5	SB	3	C		35		DE
MCMA	08	1740E		1743D	S23	W49	.765	15526	5.1	3D	SN		P	1742	50	.9	E
MCMA	08	1804E		1810D	N16	W64	.922	15508	4.0	6D	SF		P	1809	30	.7	E
PALE	08	1804	1810	1813	N15	W64	.920		4.0	9	SB	3	C		27		DE
PALE	08	1836	1839	1926	N15	W64	.920		4.0	50	SB	3	C		39		FDE
MCMA	08	1838E		1900D	N16	W68	.945	15508	3.7	22D	1N		C	1840	130	3.5	E
MITK	08	2338E	2339	2343D	N32	E41	.817		12.1	5D	SF		C	2339			E
HOLL	09	0006	0007	0014	S32	W43	.736		5.8	8	SB	3	C		29		FDE
RAMY	09	1404	1433	1438	N35	W88	1.001		3.0	34	SN	3	C		0		
RAMY	09	1440	1441	1450	N35	W88	1.001		3.0	10	SN	3	C		0		
RAMY	09	1458	1502	1522	N35	W89	1.001		2.9	24	SB	3	C		0		
RAMY	09	1548	1550	1608	N35	W89	1.001		3.0	20	SN	3	C		0		

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MCMA	09	1716E		1750D	N36	W88	1.001	15522	3.1	34D	SN		C	1746			K
PALE	09	1747	1747	1750	N37	W85	1.000		3.4	3	SN	3	C		9		F
HOLL	09	2355	2355	2359	S33	W56	.849		5.8	4	SN	3	C		12		
PALE	10	0129	0130U	0140	S31	W60	.875		5.6	11	SB	3	C		42		DE
TEHR	10	1150	1153	1207	N33	E21	.699		12.1	17	SB	1	C		159		DE
RAMY	10	1151E	1151U	1221	N33	E20	.693	15525	12.0	30D	1B	3	C		296		DE
HOLL	10	1436	1441	1455	S33	W64	.904		5.8	19	SN	3	C		54		
RAMY	10	1438	1438	1448	S33	W52	.818		6.7	10	SN	3	C		15		
MCMA	10	1438E	1441	1455D	S35	W61	.888	15509	6.0	17D	1N		C	1441	70	2.1	EL
WEND	10	1510E		1520D	N18	E54	.854		14.7	10D	SN		P				E
HOLL	10	1515	1515	1521	N20	E56	.876		14.8	6	SN	3	C		21		
RAMY	10	1542	1544	1549	S23	W69	.928		5.5	7	SB	4	C		12		
MCMA	10	1542	1547	1551D	S23	W78	.972	15526	4.8	9D	SN		P	1547			DH
RAMY	10	1628	1631	1648	S32	W68	.926		5.6	20	SB	4	C		47		F H
HOLL	10	1629	1630	1648	S33	W65	.910		5.8	19	SB	3	C		48		FDE
WEND	10	1630E		1648	S33	W58	.864	15509	6.3	18D	2N		P		500	11.6	AH
MCMA	10	1631E		1638D	S35	W68	.929	15509	5.6	7D	1N		P	1636	60	2.2	EH
RAMY	10	1708	1730	1801D	N19	E54	.857	15530	14.8	53D	1B	3	C		168		
HOLL	10	1722	1734	1802	N20	E54	.860	15530	14.8	40	1B	3	C		169		
PALE	10	1730	1737	1749	N18	E55	.862		14.9	19	SB	3	C		65		FDE
HOLL	10	2154	2155	2204	N20	E52	.845		14.8	10	SN	3	C		53		F
RAMY	11	1110	1114	1145D	N19	E44	.770		14.8	35D	SB	3	C		82		
MCMA	11	1625	1630	1635	N26	E90	1.001	15536	18.4	10	SF		C	1630			D
MCMA	11	1656E	1659	1703D	N17	E43	.750	15530	14.9	7D	SN		C	1659	60	.9	E
MCMA	11	1830	1833	1855D	N10	E45	.741		15.1	25D	SF			1833			
MCMA	11	1830	1841	1855D	N16	E45	.766	15530	15.1	25D	SF		C	1841	40	.6	EK
HOLL	11	1841	1841	1847	N20	E41	.747		14.9	6	SN	2	C		26		
HOLL	11	2248	2305	2331	N20	E38	.718		14.8	43	SN	2	C		74		F H
PALE	11	2249	2308	2332	N18	E39	.716		14.9	43	SB	3	C		60		DE F
RAMY	12	1459	1459	1506	N35	E60	.940		17.1	7	SN	3	C		28		
HOLL	12	2057	2100	2117	N19	E25	.582		14.7	20	SN	3	C		36		
PALE	12	2111E	2111U	2149D	N19	E27	.602		14.9	38D	SN	3	C		36		
PALE	12	2256	2256	2343	N19	E26	.592		14.9	47	SB	3	C		160		F
PALE	13	0306E	0306	0313	N19	E24	.573		14.9	7D	SB	3	C		67		F
ISTA	13	0943		0947	N20	E27	.611		15.4	4	SF						E
PALE	14	0053	0110	0217	N37	E67	.971	15543	19.1	84	1N	3	C		134		DE F
HOLL	14	1506	1541	1625	N38	E59	.944		19.1	79	SB	3	C		106		
HOLL	14	1507	1514	1528	N30	W33	.749		12.2	21	SN	3	C		21		
HOLL	14	1534	1610	1615	N30	W33	.749		12.2	41	SB	3	C		20		
HOLL	14	1617	1643	1702	N18	E 2	.420		14.8	45	SB	3	C		60		
MCMA	15	1128	1151	1225	N33	E50	.882	15543	19.2	57	1N		C	1151	150	2.7	E
MCMA	15	1352	1418	1530D	N34	E50	.887	15543	19.3	98D	SN		C	1418	80	1.4	EK
MCMA	15	1352	1356	1530D	N34	E50	.887		19.3	98D	SN			1356	60	1.1	
MCMA	15	1453	1457	1509	N25	E40	.769	15536	18.6	16	SN		C	1457	40	.5	E
PALE	15	1714	1722	1809	N36	E45	.867		19.1	55	SB	3	C		130		DE F
PALE	15	1824	1922	2009	N36	E47	.878	15543	19.3	105	1B	3	C		172		DE F
HOLL	15	1909	1928	2028	N38	E45	.877		19.2	79	SB	3	C		112		F
HOLL	15	1927	1929	1932	N39	E26	.786		17.8	5	SN	3	C		51		
HOLL	15	2049	2059	2204	N39	E44	.877		19.2	75	SB	3	C		106		F
PALE	15	2057	2057	2159	N36	E43	.856		19.1	62	SB	3	C		146		FDE
HOLL	15	2235	2237	2251	N29	E30	.719		18.2	16	SB	3	C		49		F
HOLL	15	2252	2254	2306	N39	E43	.872		19.2	14	SB	3	C		17		
TEHR	16	0401	0405	0435	N39	E43	.872		19.4	34	SB	2	C		159		U
TEHR	16	1328	1330	1400	N39	E41	.862		19.6	32	SB	2	C		159		FDE
MCMA	16	1334E		1430	N35	E38	.820	15543	19.4	56D	SN		C	1340	60	.9	E
HOLL	16	1355	1402	1417	N39	E35	.831		19.2	22	SB	3	C		42		FDE
MCMA	16	1450	1454	1529D	N28	E27	.689	15536	18.6	39D	SN		C	1454	35	.4	D
MCMA	16	1530	1543	1607	N28	E27	.689	15536	18.7	37	SB		C	1543	70	.9	EV
HOLL	16	1540	1543	1602	N29	E21	.658		18.2	22	SB	3	C		94		F
WEND	16	1546E		1606	N30	E24	.688	15536	18.5	20D	1N		V		400	5.1	AE
MCMA	16	1741	1757	1815	N28	E27	.689	15536	18.8	34	1N		C	1757	160	2.0	EV
HOLL	16	1742	1756	1820	N29	E19	.646	15536	18.2	38	1B	3	C		246		FDE
MCMA	16	1834	1841	1854	N36	E26	.759	15532	18.7	20	SF		C	1841	100	1.4	E
HOLL	16	1835	1837	1854	N39	E14	.739		17.8	19	SB	3	C		50		
HOLL	16	1927	1958	2026	N39	E13	.736	15532	17.8	59	2B	3	C		600		U F

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HOLL	16	1955	1958	2002	N39	E32	.815		19.2	7	SB	3	C		48		Z
MITK	17	0404E	0410	0509D	N35	E27	.755		19.2	65D	SB		C	0410			E
PALE	17	0404E	0408U	0415D	N36	E30	.781		19.4	11D	SB	1	C		140		F
WEND	17	0840E		0920	N37	E26	.768	15543	19.3	40D	2N		P		600	8.6	AF
WEND	17	1256E		1322	N37	E28	.779		19.6	26D	SN		P				D
WEND	17	1256E		1315	N35	E26	.750		19.5	19D	SN		P				Z
TEHR	17	1300	1302	1317	N35	E30	.772		19.8	17	SB	2	C		159		FDE
HOLL	17	1459	1505	1555	N37	E22	.749	15543	19.3	56	1B	3	C		204		Z U
HOLL	17	1508	1509	1517	S24	E22	.456		19.3	9	SN	3	C		21		
WEND	17	1536E		1622	N36	E23	.744	15543	19.4	46D	2N		P		500	6.9	BFIT
MCMA	17	1819E		1850D	N30	E14	.633	15536	18.8	31D	SF		P	1821	30	.4	D
HOLL	17	1949	1954	2008	N37	E20	.740		19.3	19	SN	3	C		92		U F
PALE	17	1955E	1955U	2004D	N36	E21	.734		19.4	9D	SN	3	C		79		FDE
HOLL	17	2025	2030	2056	N37	E20	.740		19.4	31	SB	3	C		120		FDE
HOLL	17	2125	2128	2205	S24	E18	.411		19.2	40	SB	3	C		135		FDE
HOLL	17	2226	2232	2253	S24	E18	.411		19.3	27	SB	3	C		71		DE
HOLL	17	2242	2243	0019	N37	E18	.732		19.3	97	SB	3	C		138		U F
MITK	17	2323	2343	2428D	N35	E20	.719	15543	19.5	65D	1B		C	2343	180	2.2	E
MITK	18	0119E	0133	0212	N36	E18	.721	15543	19.4	53D	1N		C	0133	260	3.2	E
ISTA	18	0703E		0709	S28	E19	.465		19.7	6D	SN						D
ISTA	18	0730E		0738	N36	E17	.717		19.6	8D	SF			0735			D
TEHR	18	0733	0734	0739	N36	E18	.721		19.7	6	SB	1	C		64		
ISTA	18	0923E		0932	S28	E19	.465		19.8	9D	SB						E
TEHR	18	0929E	0931	0937	S24	E19	.422		19.8	8D	SB	2	C		64		
TEHR	18	1001E	1005	1009	N36	E17	.717		19.7	8D	SB	2	C		127		UDE
PALE	18	1932E	1932U	1942	S27	E 5	.352		19.2	10D	SN	3	C		25		DE
PALE	18	2009E	2012	2021	S17	W37	.609		16.1	12D	SN	3	C		58		FDE
HOLL	18	2242	2342	0019	N37	E18	.732		20.3	97	SN	3	C		122		U F
PALE	19	0147	0147	0150	S17	W40	.647		16.1	3	SN	3	C		78		DE
PALE	19	0235	0235	0245	S17	W40	.647		16.1	10	SN	2	C		41		DE
MITK	19	0410		0435	N34	W11	.673		18.3	25	SN		C	0410			E
MANI	19	0412	0414	0418D	N37	W13	.715		18.2	6D	SF	2	V		80	1.0	F
MONT	19	1043	1045	1110D	N36	E02	.682		19.6	27D	SN		C	1045	70		
TEHR	19	1049	1052	1056	N38	E 2	.707		19.6	7	SN	2	C		95		U
MCMA	19	1405E	1412	1430	N28	W07	.583	15536	19.1	25D	SF		C	1412	30	.4	D
MCMA	19	1434	1450	1605	S14	E62	.876	15549	24.3	91	SF		C	1540	50	1.2	EHK
MCMA	19	1608	1611	1613D	S21	E25	.469	15542	21.5	5D	SN		C	1611	20	.3	D
MCMA	19	1649E	1652	1654	N33	W08	.652	15543	19.1	5D	SF		C	1652	25	.3	D
PALE	19	1814	1815	1821	N25	E56	.892		24.0	7	SN	3	C		35		DE
HOLL	19	1934	1941	1957	N37	W 5	.698		19.4	23	SN	3	C		50		FDE
MCMA	19	2020E		2132D	S14	E60	.860	15549	24.3	72D	SN		C	2020	50	1.1	E
MCMA	19	2046E	2055	2132D	N33	W07	.650	15543	19.3	46D	SN		C	2055	120	1.4	E
HOLL	19	2322	2324	2343	S16	W51	.773		16.1	21	SN	3	C		86		F
PALE	19	2323	2324	2341	S18	W52	.786		16.1	18	SN	3	C		63		DE
MITK	20	0613		0622D	N15	E22	.515		21.9	9D	SF		C	0613			E
TEHR	20	1112	1116	1124	S12	E38	.613		23.3	12	SN	2	C		63		
MCMA	20	1352E		1408	N22	E42	.770	15546	23.7	16D	SN		C	1354	30	.4	D
MCMA	20	1522	1523	1530	N22	E41	.761	15546	23.7	8	SN		C	1523	30	.4	E
MCMA	20	1617	1618	1622	N33	W21	.704	15543	19.1	5	SF		C	1618	30	.4	E
MCMA	20	1645	1700	1830D	S13	E45	.703	15549	24.1	105D	SN		C	1700	40	.6	E
MCMA	20	1651	1652	1655	N30	W13	.630	15543	19.7	4	SF		C	1652	25	.3	DH
HOLL	20	2000	2001	2005	N27	E41	.791		23.9	5	SB	3	C		29		FDE
MCMA	20	2003E		2009	N22	E38	.734	15546	23.7	6D	SF		P	2003	30	.4	EL
MCMA	20	2041	2049	2102D	S13	E43	.678	15549	24.1	21D	SN		C	2049	35	.5	E
PALE	20	2054E	2055	2103	S13	E43	.678		24.1	9D	SN	2	C		135		FDE
HOLL	20	2304	2311	2333	N39	W38	.847		18.1	29	SN	3	C		22		
HOLL	20	2315	2318	2354	S 7	E37	.598		23.7	39	SB	3	C		103		FDE
PALE	20	2315	2318	2357	S13	E41	.653		24.0	42	SB	3	C		115		DE F
TEHR	21	0321E	0324	0327	N36	W19	.727		19.7	6D	SB	2	C		95		U
TEHR	21	0416E	0420	0442	N23	E40	.758	15546	24.2	26D	1B	2	C		222		F
PALE	21	1917	1921	1927	N36	W29	.776		19.6	10	SB	3	C		21		DE
PALE	21	2005	2006	2053	N36	W30	.782		19.6	48	SB	3	C		19		DE
PALE	21	2321E	2321U	2326	N14	W 1	.359		21.9	5D	SN	3	C		52		FDE
PALE	21	2324	2325	2329	N36	W31	.788		19.7	5	SB	3	C		41		FDE

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MONT	22	0915	0924	0955	N28	E56	.902		26.6	40	SN		C	0924	110		E
TEHR	22	0920	0925	0947	N27	E54	.886		26.4	27	SB	1	V		127		FDE
TEHR	22	1056	1103	1115	N27	E54	.886		26.5	19	SB	1	V		127		FDE
MCMA	22	1139E		1145	N30	E49	.865	15551	26.2	6D	SN		C	1139	30	.5	DH
MCMA	22	1240	1258	1310	N30	E49	.865	15551	26.2	30	SB		C	1258	80	1.3	EH
WEND	22	1253E		1304D	N30	E48	.858		26.1	11D	SN		V				D
MCMA	22	1313	1317	1345D	N29	E49	.860	15551	26.2	32D	SN		C	1317	30	.5	E
MCMA	22	1345		1500D	N29	E49	.860	15551	26.2	75D	SN		C	1400	50	.8	E
MCMA	22	1415	1418	1430	N34	W43	.846	15543	19.4	15	SF		C	1418	50	.8	E
MCMA	22	1430E	1448	1535D	S25	W11	.355	15542	21.8	65D	SF		C	1448	150	1.8	E
MCMA	22	1514	1517	1535D	N29	E48	.853	15551	26.2	21D	SN		C	1517	100	1.6	E
MCMA	22	1630E		1631D	N30	E46	.845	15551	26.1	1D	SF		P	1630	25	.4	D
MCMA	22	1649E	1655	1805D	N38	W55	.928	15532	18.6	76D	SN		C	1655	60	1.2	EW
MCMA	22	1649E	1651	1657D	N27	E47	.837	15551	26.2	8D	SN		C	1651	40	.6	D
MCMA	22	1802E		1805D	N30	E46	.845	15551	26.2	3D	SN		P	1803	70	1.1	E
PALE	22	1948	1948	2000	N27	E49	.852		26.5	12	SN	3	C		73		FDE
PALE	23	0230	0233	0326D	N27	E44	.815		26.4	56D	SB	3	C		141		FDE
TEHR	23	0239E	0243U	0404	N29	E39	.789		26.0	85D	SB	2	C		159		F
TEHR	23	0947	1000	1030D	N35	W50	.892	15543	19.7	43D	2B	2	V		732		U F
MCMA	23	1209E		1544D	N35	W50	.892	15543	19.8	215D	1N		C	1209	250	4.3	BLU
MCMA	23	1401E		1417D	S15	W42	.668	15555	20.4	16D	SN		C	1414	30	.4	E
PALE	24	0210E	0230	0232D	N35	W59	.938	15543	19.7	22D	1B	3	C		173		U F
MANI	24	0408E	0410U	0423D	N25	W00	.532		24.2	15D	SN	3	V		100	1.0	F
MANI	24	0625E	0630	0648D	N35	W60	.942		19.8	23D	SN	3	V		90	1.7	F
MCMA	24	1152E		1200	N34	W68	.971	15543	19.4	8D	SF		C	1154	50	1.4	E
MCMA	24	1204	1206	1215	S14	W64	.892	15544	19.7	11	SF		C	1206	50	1.2	E
MCMA	24	1218	1220	1300	S14	W04	.138	15549	24.2	42	SN		C	1220	80	.9	E
MCMA	24	1242	1252	1322	N34	W70	.977	15543	19.3	40	SF		C	1252	30	.9	E
MCMA	24	1559	1603	1609	S15	W55	.813	15555	20.5	10	SF		C	1603	35	.7	EH
MCMA	24	1603	1604	1607	N38	W56	.933	15543	20.5	4	SN		C	1604	30	.6	D
MCMA	24	1701	1702	1706	S15	W55	.813	15555	20.6	5	SF		C	1702	25	.5	D
MCMA	24	1720	1727	1753D	N25	W07	.542	15546	24.2	33D	1B		C	1727	250	2.7	EU
PALE	24	1755E	1758	1837D	N25	W 9	.549		24.1	42D	SN	3	C		128		U F
PALE	24	2112	2121U	2121D	S22	W43	.695		21.7	9D	SB	3	C		127		FDE
MITK	25	0304E	0306	0330	S23	W45	.720		21.8	26D	SF		C	0306			E
MCMA	25	1807E		1810D	N15	W55	.856	15547	21.6	3D	SF		C	1809	30	.5	E
MCMA	25	2022	2024	2030D	S13	E45	.703	15554	1.2	8D	SN		C	2024	25	.4	E
MONT	26	0726	0727	0737	S15	W80	.980		20.3	11	SF		C	0727	40		D
MONT	26	0737	0743	0804	N14	W59	.885		21.9	27	SN		C	0743	180		
ISTA	26	0740		0756	N15	W58	.880		22.0	16	SN						F
BUCA	26	0740		0815	N15	W60	.895	15547	21.8	35	1N		C	0743	214	4.2	
TEHR	26	0746E	0752	0753D	N14	W58	.877	15547	22.0	7D	1B	2	C		222		F
MONT	26	0933	0936	0958	N20	W16	.521		25.2	25	SN		C	0936	80		
WEND	26	0946E		1015	N20	W17	.529	15560	25.1	29D	1N		V		300	3.4	E
PALE	26	2010	2010	2012	S19	W38	.626		24.0	2	SN	3	C		19		DE
MCMA	26	2015E	2028	2101D	N31	W08	.628	15551	26.2	46D	SN		C	2028	50	.6	EKW
BUCA	27	0725		0836	S20	W80	.979	15542	21.3	71	1F		C	0741	161		
TEHR	27	0743E	0746	0754D	N14	W69	.949		22.1	11D	SB	2	C		127		
ISTA	27	0820		0853	N30	W16	.646		26.1	33	SN			0832			F
MONT	27	0823	0830	0935	N30	W14	.637	15551	26.3	72	1N		C	0830	250		
BUCA	27	0825		0922	N30	W18	.656	15551	26.0	57	1B		C	0841	322	3.7	
TEHR	27	0835E	0839	0903	N30	W17	.651		26.1	28D	SB	2	C		159		F
MCMA	27	1328	1330	1340	S13	E23	.397	15554	1.3	12	SF		C	1330	30	.4	E
MCMA	27	1428	1445	1704D	N27	W20	.633	15551	26.1	156D	2B		C	1445	750	9.1	YFLUV
HERS	27	1456E	1456	1524	S29	W21	.492	15562	26.0	28D	1B		P	1508	161	3.3	U
PALE	27	1700E	1705	1825	N30	W21	.673	15551	26.1	85D	1N	3	C		215		U F
PALE	27	1700E	1727	1825	N30	W21	.673	15551	26.1	85D	2B	3	C		602		U F
MCMA	27	1704	1707	1734D	N30	W20	.667		26.2	30D	1B						
MCMA	27	1704	1727	1734D	N30	W20	.667	15551	26.2	30D	1B		P	1707	170	2.0	EK
PALE	27	1813	1814	1824	N39	E54	.927		3.8	11	SN	3	C		36		UDE
PALE	27	1843	1844	1905	N28	W22	.657		26.1	22	SB	3	C		48		FDE
TEHR	28	0400	0404	0435	N39	E48	.899		3.8	35	SB	2	C		127		F
MCMA	28	1402E		1402D	N29	W39	.790	15551	25.7		SN		P	1402	50	.7	D
MCMA	28	1810	1813	1821	N27	W36	.753	15551	26.1	11	SF		C	1813	40	.5	E
PALE	28	1811	1811U	1824	N30	W32	.746		26.4	13	SN	3	C		21		FDE
PALE	28	1831	1849	1857	N39	E39	.854		3.7	26	SN	3	C		66		FDE

Hα SOLAR FLARES

SEPTEMBER 1978

OBSERVATORY	OBSERVED UT DATE SEP	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	OBS COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mil of Disk	CORR. AREA Sq. Deg.	REMARKS
A HOLL	28	1841	1852	1858	N40	E35	.840		3.4	17	SN	3	C		42		
MCMA	28	1847E		1852D	N36	E37	.823	15557	3.6	5D	SF		P	1847	70	1.0	E
MCMA	28	2052E		2100D	N36	E36	.818	15557	3.6	8D	SF		P	2058	70	1.0	E
HOLL	28	2209	2223	2233	N40	E33	.831		3.4	24	SN	3	C		48		
TEHR	29	0450	0456	0504	N39	E37	.844		4.0	14	SB	2	C		127		
TEHR	29	0950	0954	1005	N29	W38	.782		26.6	15	SB	2	C		159		F U
TEHR	29	1049	1054	1227	S32	E50	.794	15564	5.2	98	1B	2	C		254		F
MCMA	29	1217E		1405	S33	E56	.846	15564	5.7	108D	1N		P	1228	150	3.8	E
MCMA	29	1334	1335	1412	N37	E27	.776	15557	3.6	38	SN		C	1335	80	1.1	EFW
RAMY	29	1336	1337	1355	N38	E30	.800		3.8	19	SB	4	C		75		F
RAMY	29	1341	1342	1347	N28	W44	.821		26.3	6	SN	4	C		23		
MCMA	29	1341	1345	1400	S14	E82	.986	15570	7.7	19	SF		C	1345			E
RAMY	29	1503	1506	1517	N38	E29	.795		3.8	14	SB	3	C		63		F
HOLL	29	1504	1506	1511	N40	E24	.790		3.4	7	SB	3	C		35		
RAMY	29	1656	1704	1807	N38	E28	.790		3.8	71	SB	3	C		40		
RAMY	29	1656	1743	1807	N38	E28	.790		3.8	71	SF	3	C		90		
HOLL	29	1700	1707	1714	N40	E23	.785		3.4	14	SN	3	C		30		
MCMA	29	1715E		1751D	N36	E21	.737	15557	3.3	36D	SN		C	1745	120	1.5	E
HOLL	29	1741	1743	1751	N40	E23	.785		3.5	10	SB	3	C		62		
HOLL	29	1754	1756	1802	N40	E23	.785		3.5	8	SB	3	C		43		H
RAMY	29	2128	2130	2137	N38	E26	.780		3.8	9	SN	2	C		47		
HOLL	29	2128	2130	2136	N40	E21	.778		3.5	8	SN	3	C		43		F
HOLL	29	2201	2205	2235	N40	E21	.778		3.5	34	SB	3	C		156		F
RAMY	30	1503	1507	1510	S17	E67	.913		7.7	7	SN	2	C		39		F
HOLL	30	1519	1520	1523	N17	E70	.958		7.9	4	SF	4	C		14		
RAMY	30	1522	1524U	1526	S10	W90	1.000		23.9	4	SB	3	C		0		
RAMY	30	1714	1716	1730	S38	E64	.907		7.5	16	SF	3	C		0		F S

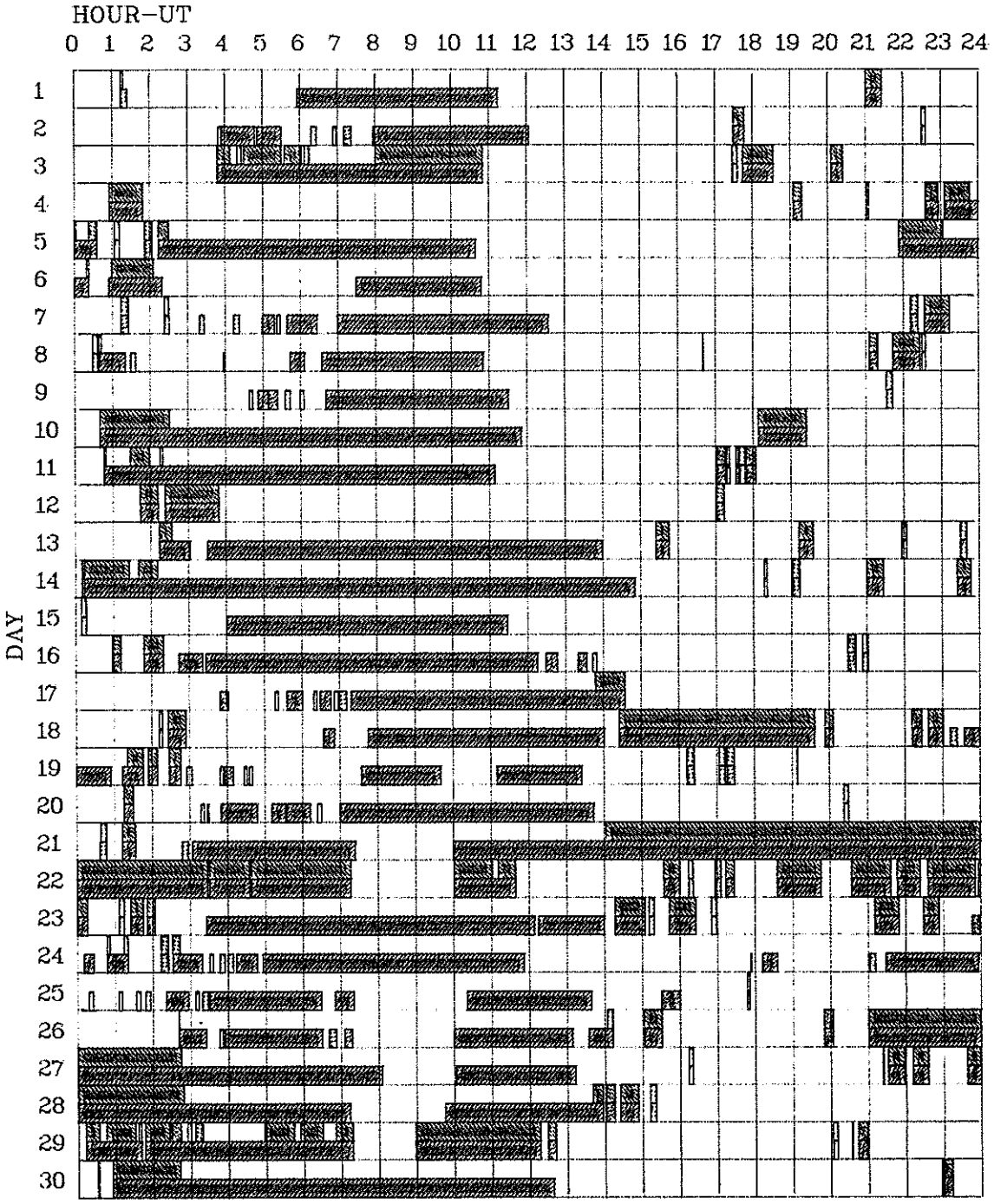
"Remarks":

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 D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα 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 Hα 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

SEPTEMBER 1978



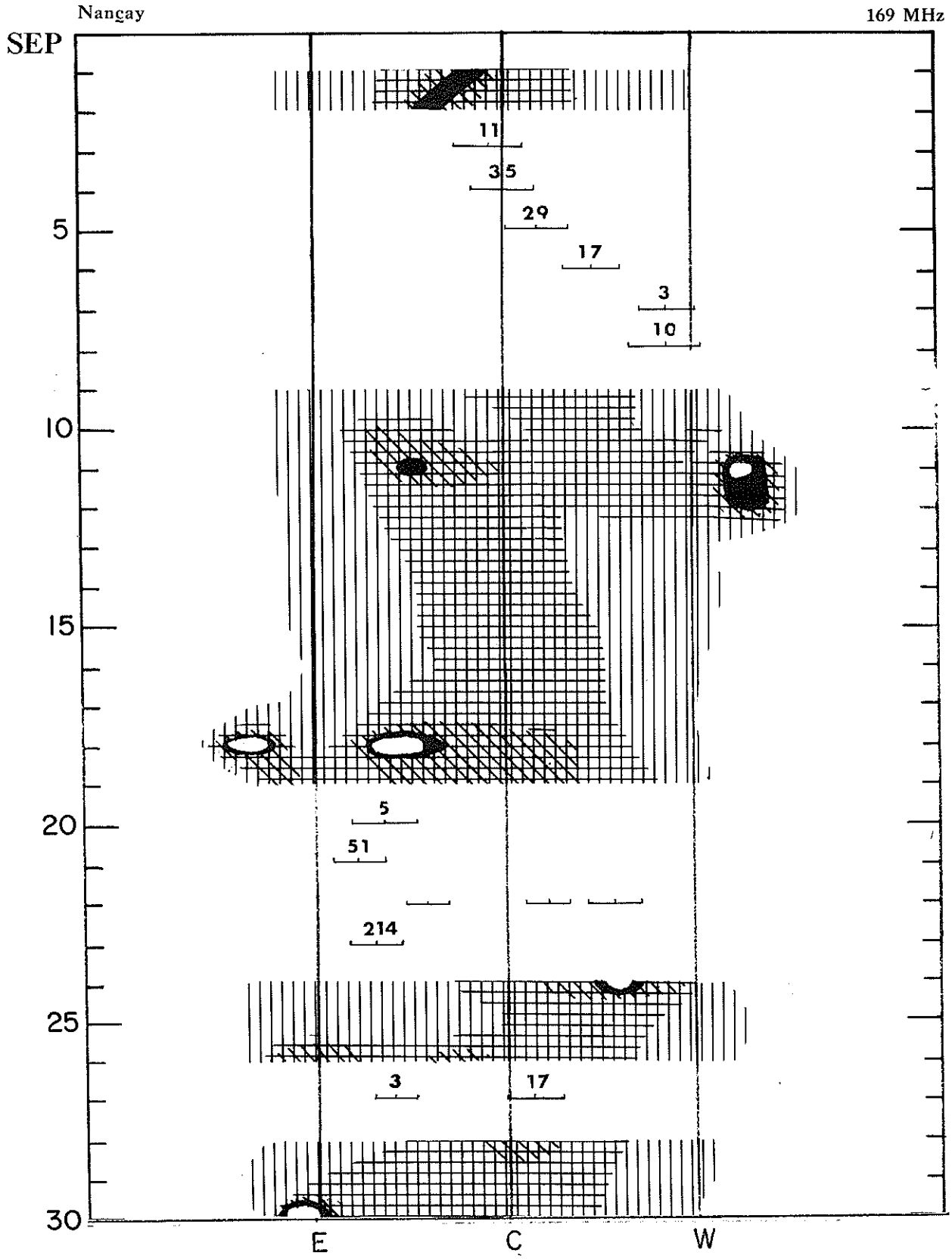
Observatories included in total patrol:

Bucharest	Istanboul	Mitaka	Ramey	Wendelstein
Herstmonceux	Manila	Monte Mario	Tehran	
Holloman	McMath-Hulbert	Palehua	Upice	

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).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

SEPTEMBER 1978



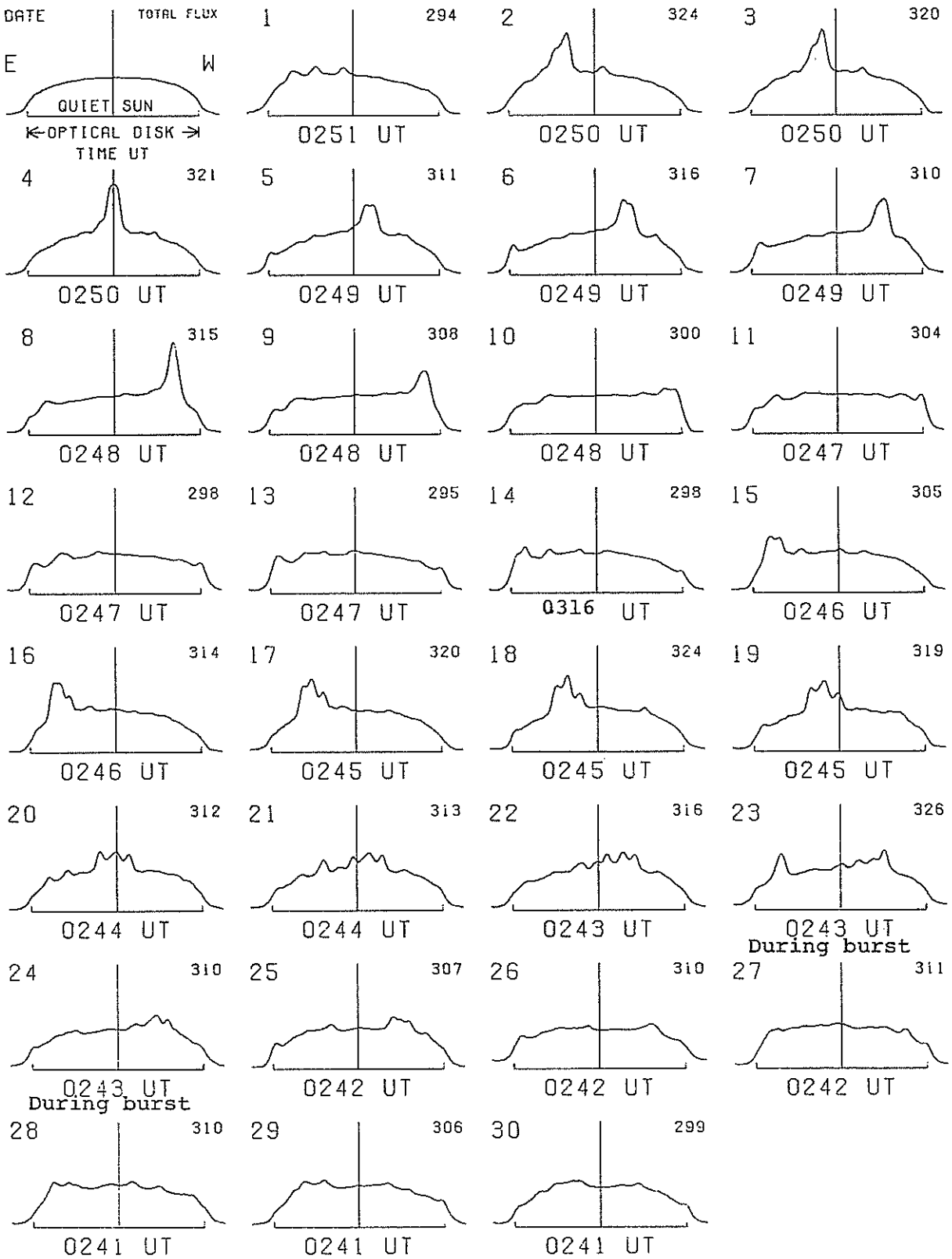
24
Sep 78

EAST-WEST SOLAR SCANS

SEPTEMBER 1978

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

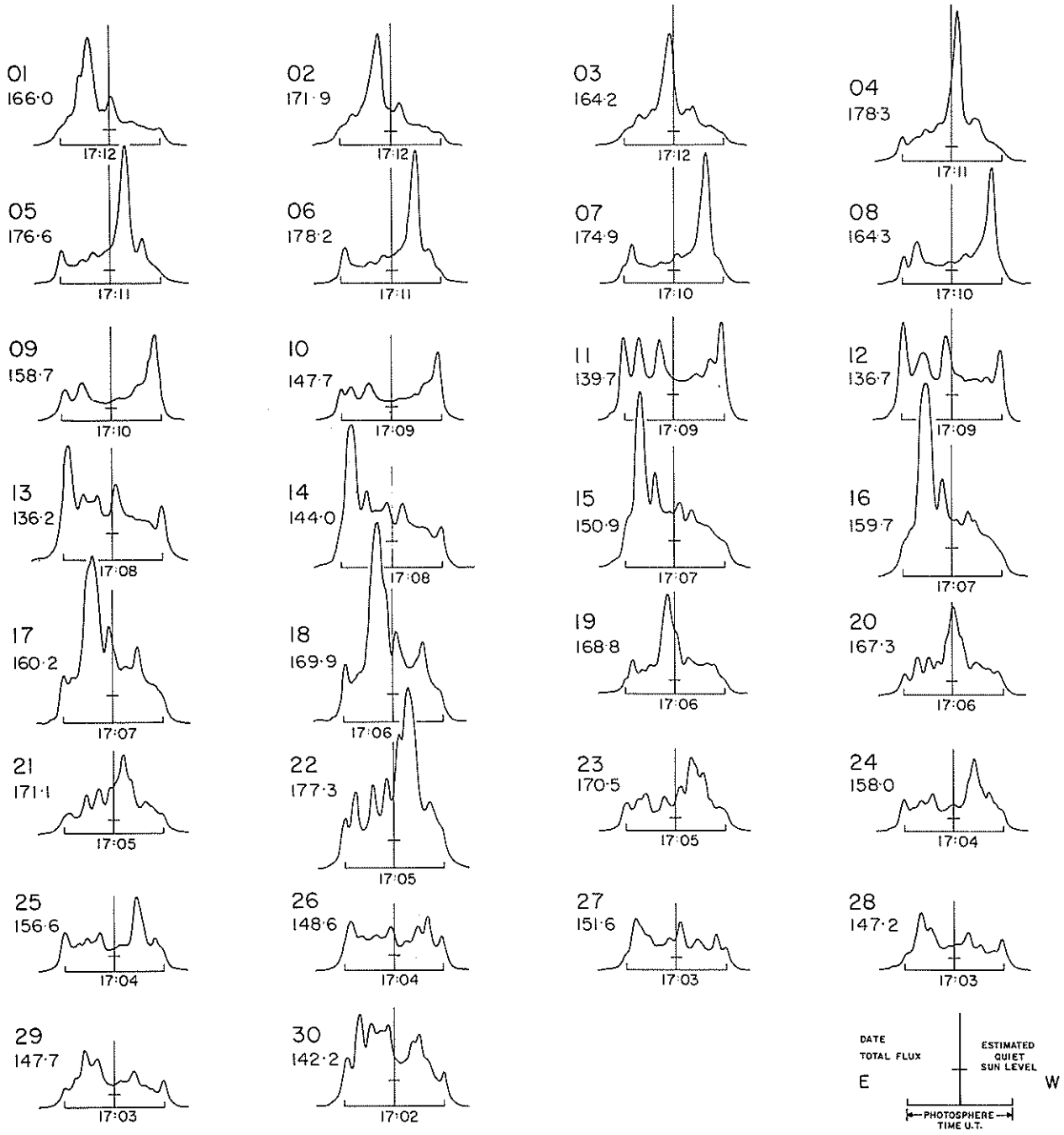


EAST-WEST SOLAR SCANS

SEPTEMBER 1978

ALGONQUIN RADIO OBSERVATORY
CANADA

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



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
1	2800	OTTA	23	GRF	1235	1630	505	8.2	4.4		
	2695	SGHR	1	S	1241.6	1242.6	3.1	6.7	2		
	2800	OTTA	2	S/F	1241.8	1242.4	3	6.4	3		
	8900	BERN	3		1309.2	1311.3	66	21			
	2800	OTTA	1	S	1311	1311.3	1	2.6	1.6		
	2800	OTTA	1	S	1429.5	1430.1	1	2.2	1		
	2800	OTTA	1	S	1437.8	1438.2	1	1.8	.9		
	8900	BERN	46		1710.6	1711.5	7	30			
	2800	OTTA	4	S/F	1710.8	1712	5.5	28.8	12.6		
	2800	OTTA	3	S	1835.2	1835.5	1	20.8	7		
	2695	SGHR	3	S	1835.7	1835.8	1.3	14.4	4.3		CONT
	2695	PENT	8	S	2013.7	2013.7	.1E	2.6			
	2800	OTTA	240	R	2145	2202	17	3	1.6		
	2800	OTTA	4	S/F	2222.8	2225	5	12.4	5.6		
	2695	MANI	3	S	2223.5	2225.3	3	8.3	3.2		
	8800	MANI	3	S	2224.3	2225	2.2	41.4	13.8		
2	8900	BERN	4		0541.4	0552.8	75	695			
	8900	BERN	3		0541.4	0542.1	75	34			
	2695	MANI	4	S/F	0549.4	0553.9	9.6	105.4	35.1		
	8800	MANI	47	GB	0550.5	0553.1	16.8	790	263.9		
	8900	BERN	45		0811.4	0835.1	28	13			
	8900	BERN	45		0811.4	0822.1	28	15			
	8900	BERN	8		1050.9	1053.5	6	23			
	8900	BERN	22		1126	1133.7	73	44			
	2800	OTTA	20	GRF	1130	1136	75	6.4	3.2		
	8900	BERN	3		1252.6	1254	2.5	18			
	2800	OTTA	4	S/F	1252.7	1253.5	1.5	60	25		
	2695	SGHR	3	S	1253	1253.8	4	41.5	16.6		CONT
	2800	OTTA	29	PBI	1254.2	1254.2	7	3.2	1.8		
	8900	BERN	3		1307	1308.1	8.5	14			
	8900	BERN	3		1307	1310.2	8.5	15			
	2800	OTTA	1	S	1307	1308	2	2.4	1.2		
	2800	OTTA	1	S	1310	1310	1	4.4	2.2		
	8900	BERN	23		1332	1335.1	12	17			
	2800	OTTA	2	S/F	1334	1335	4	3.8	1.2		
	8900	BERN	45		1420.4	1438.5	65	38			
	8900	BERN	3		1420.4	1423.8	65	50			
	2800	OTTA	21	GRF	1421		20	3	1.5		
	8800	SGHR	45	C	1422.4	1423.6	29.6	78.1	31.2		
	8800	SGHR	45	C	1422.4	1438.5		65.9			
	2695	SGHR	20	GRF	1422.5	1423.8	29.5	6.5	2.4		
	2800	OTTA	1	S	1423	1424	3	8.4	4		
	2800	OTTA	21	GRF	1437	1513	80	3.2	1.6		
	2800	OTTA	2	S/F	1438	1438.5	4	3	1.5		
	2800	OTTA	4	S/F	1450.1	1450.7	1	15.4	7.5		
	2800	OTTA	1	S	1500.8	1501	1	2.4	1.2		
	2800	OTTA	8	S	1528.5	1528.7	.5	2	1		
	2800	OTTA	20	GRF	1635	1650	80	3.2	2		
	2800	OTTA	1	S	1809.2	1810	2	2.4	1.2		
	2800	OTTA	21	GRF	1809	1815	50	3.6	1.8		
	8800	SGHR	3	S	1904.9	1905.8	3.6	50.2	15.1		
	2695	SGHR	3	S	1905.2	1906.4	3.8	19.8	5.9		
	2800	OTTA	3	S	1905	1906.2	3.5	22.2	7.4		
	2800	OTTA	29	PBI	1908.5	1908.5	11	4.4	2		
	2800	OTTA	21	GRF	1930	2021	110	6.4	3		
	2800	OTTA	1	S	2007	2008	2	6.4	3		
	2800	OTTA	3	S	2020	2020.4	1	13	6.5		
	2800	OTTA	20	GRF	2045	2046.7	12	6.4	2.2		
3	8900	BERN	23		0644.1	0650.3	13	11			
	8900	BERN	3		0731.6	0733.6	7	12			
	8900	BERN	20		0831.2	0844.4	40	6			
	8900	BERN	1		0929.5	0930.3	34	10			
	2800	OTTA	26	FAL	1625	1850	145	-10	-4		
	2800	OTTA	20	GRF	1923	1925	14	1.8	1		
	2800	OTTA	240	R	2015	2033	18	3.4	1.7		
	2800	OTTA	21	GRF	2040	2215	175	6.8	3.6		
	2800	OTTA	8	S	2111.7	2111.7	.1E	15			
	2800	OTTA	8	S	2120	2120.5	.9	1.8	.9		
	2695	PENT	21	GRF	2343	2359	72	5	2.8		
	2695	PENT	1	S	2355	2356	2	4.2	2.1		
4	8900	BERN	20		0802.5	0819.6	88	35			
	8900	BERN	20		0802.5	0804.7	88	8			
	2695	MANI	4	S/F	0813.8	0819.3	11.7	80	26.7		
	2800	OTTA	4	S/F	1555	1610	34	92	32		
	2695	SGHR	3	S	1558.9	1608.9	41.1	117	46.8		CONT
	8800	SGHR	20	GRF	1600.1	1609.5	39.9	31.8	12.7		CONT
	2695	BOUL	3	S	1601	1611	47	117	39		
	2800	OTTA	29	PBI	1629	1629	110	11.8	5.9		
	2695	PENT	8	S	2013.5	2013.9	.6	5.6	2.8		
	2800	OTTA	20	GRF	2015	2058	75	5.8	2.6		
5	2800	OTTA	20	GRF	1520	1600	90	2.6	1.3		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22}Wm^{-2}Hz^{-1}$ PEAK	MEAN	INT	REMARKS
	2800	OTTA	1	S	1950.5	1951	1	1.8	.9		
	2800	OTTA	22	GRF	2007	2025	55	2.6	1.4		
	2695	PENT	1	S	2127	2129	7	1.6	.8		
	2695	PENT	1	S	2207	2207.2	1.5	1.6	.8		
	2695	PENT	21	GRF	2236	2316	155	9			
	2695	PENT	46F	C	2243	2252	11	13.6	6.4		
6	8800	MANI	3	S	0220.2	0221.2	1.8	232.9	77.6		
	8900	BERN	22		0826.5	0840.1	54	19			
	8900	BERN	1		1101	1108.3	17	11			
	8900	BERN	3		1122.1	1124.1	67	50			
	2695	SGHR	3	S	1313.2	1315.5	9.7	12.4	3.7		
	2800	OTTA	3	S	1314.5	1315.2	4	14.8	3.8		
	2800	OTTA	20	GRF	1324	1333	35	2	1		
	8900	BERN	3		1450.8	1451.4	6	15			
	2800	OTTA	22	GRF	1545		90	3	1.5		
	2800	OTTA	3	S	1726	1726.1	1	14	3.6		
	2800	OTTA	2	S/F	1758.8	1759.5	2	4.4			
	2800	OTTA	20	GRF	1909		65	2.6	1.3		
	2800	OTTA	20	GRF	2120	2140	35	2	1		
	2695	PENT	21	GRF	2325	2340	85	7.2	3.6		
	2695	PENT	1	S	2331	2332.5	3	6.4	3.2		
7	8900	BERN	46		0603.4	0604.8	12	34			
	2695	SGHR	1	S	1206.3	1206.6	.5	3.1	.9		5
	2800	OTTA	8	S	1206	1206.4	.7	7.2	3.6		
	2800	OTTA	27	RF	1444		101	2.6	2.3		
	2800	OTTA	24	R	1444	1450	6	2.6	1.3		
	2800	OTTA	24P	R	1450		80	2.6			
	2800	OTTA	26	FAL	1610	1625	15	-2.6	-1.3		
	2800	OTTA	1	S	1748.7	1759.3	4	1.8	.9		
	2800	OTTA	20	GRF	1844	1846	12	2.6	1.3		
	2800	OTTA	20	GRF	1910	1935	40	2.2	1.1		
	2800	OTTA	20	GRF	2025	2045	115	4	2		
	2695	BOUL	45	C	2112.5	2114	2	87	29		
	2800	OTTA			2338		25				
	2695	MANI	3	S	2349.7	2352.3	7.9	30.4	10.1		
8	2800	OTTA	3	S	1251.8	1253	6	27	7		
	8800	SGHR	3	S	1252.3	1252.9	2.5	19.6	5.9		
	2695	SGHR	3	S	1252.5	1253.2	4.5	27.6	8.3		
	8900	BERN	20		1252.5	1252.9	12	17			
	2800	OTTA	20	GRF	1620	1625	20	2	1.2		
	2800	OTTA	21	GRF	1810	1900	100	6.8	3.4		
	2800	OTTA	1	S	1824.5	1825	3	7	3.5		
	2695	SGHR	3	S	1835.5	1844.2	29.2	36.4	10.9		3G,SWF
	2800	OTTA	4	S/F	1835	1844	21	33	18		
	8800	SGHR	3	S	1836.9	1841	23.7	33	9.9		3G,SWF
9	2800	OTTA	21	GRF	1455	1645	170	5	2.4		
	2800	OTTA	2	S/F	1551.4	1552.3	2	2.6			
	2800	OTTA	20	GRF	1910	1930	35	1.4	.7		
10	2800	OTTA	21	GRF	1140	1155	80	6.2	3.1		
	2800	OTTA	3	S	1148	1149	4	15.8	7.9		
	2800	OTTA	1	S	1607.7	1608.2	1	1.2	.6		
	2800	OTTA	1	S	1629	1629.5	2	1.4			
	2800	OTTA	21	GRF	1720	1732	30	3	1.5		
	2800	OTTA	1	S	1723	1723.5	1	1.4	.7		
	2800	OTTA	1	S	1758	1800.5	3	1.6	.8		
11	2800	OTTA	20	GRF	1155	1210	65	2.4	1.2		
	2800	OTTA	1	S	1653	1654	2	2.2	1		
	2695	PENT	20	GRF	2250		110	2.6	2		
12	2695	PENT	20	GRF	2255		65	2.6	1.3		
13	2800	OTTA	240	R	1750	1810	20	2.6	1.3		
	2800	OTTA	1	S	1948	1948.3	2	2.8	1.4		
	2800	OTTA	22	GRF	2025	2110	105	3.4	1.7		
14	2800	OTTA	20	GRF	1158	1205	50	2.6	1.8		
	2800	OTTA	20	GRF	1300	1350	150	4.2	2.4		
	2800	OTTA	20	GRF	1600	1805	205	4.2	2.4		
	2800	OTTA	240	R	2100	2120	20	1.8	.9		
	2695	PENT	240	R	2200	2235	35	2.6	1.3		
15	8900	BERN	3		0946.5	0947.6	2	18			
	2800	OTTA	20	GRF	2040	2120	60	4	2.6		
	2695	PENT	240	R	2230	2253	23	5.2	2.6		
16	8900	BERN	4		1325.5	1327.2	65	105			
	8800	SGHR	3	S	1325.7	1327.1	5.2	106	31.8		SWF
	2800	OTTA	4	S/F	1325.8	1326.5	2.7	17.2	10.4		
	2695	SGHR	3	S	1326	1326.7	3.2	17.7	5.3		SWF

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
	2800	OTTA	29 PBI	1328.5	1328.5	30 D	3			
	2800	OTTA	240FR	1515	1543	28	2.2	.8		
	2800	OTTA	240 R	1605	1608	3	1.2	.6		
	2800	OTTA	1 S	1740	1743	10	3	1.3		
	2800	OTTA	3 S	1754	1754.8	2.5	16.4	9.4		
	2800	OTTA	29 PBI	1756.5	1756.5	19	5.4	2		
	2800	OTTA	20 GRF	1825	1836	33	2.2	1.1		
	2800	OTTA	27A RF	1915		225	2.4	2.1		
	2800	OTTA	24 R	1915	1930	15	2.4	1.2		
	2800	OTTA	24P R	1930		170	2.4			
	2800	OTTA	21 GRF	1950	1958	35	7	3.5		
	2800	OTTA	1 S	1955.5	1956.7	2	9	4.5		
	2695	PENT	26 FAL	2220	2300	40	-2.4	-1		
17	2695	PENT	1 S	0007	0007.5	1	7.8	3.9		
	8900	BERN	4	0825	0827.6	75	208			
	8800	MANI	4 S/F	0826	0827.6	5.1	183.9	61.3		
	2695	MANI	4 S/F	0826.3	0828.3	4.3	64.3	21.4		
	2800	OTTA	22 GRF	1216	1220.5	25	4.8	2		
	8900	BERN	3	1257.5	1259.8	15	38			
	8800	SGMR	3 S	1258.6	1259.8	4.4	37.1	14.8		
	2695	SGMR	1 S	1259.4	1300.3	3.6	7.3	2.9		
	2800	OTTA	1 S.	1259	1300	4	7	4.2		
	2800	OTTA	29 PBI	1303	1303	45	3.6	1.5		
	8900	BERN	46	1458.7	1505.5	19	51			
	8900	BERN	46	1458.7	1500.1	19	104			
	2800	OTTA	45 C	1459.2	1500.5	12.8	19.6	14.6		
	2695	SGMR	3 S	1459.3	1500.6	9.7	20.3	8.1		SWF
	8800	SGMR	3 S	1459.5	1500.1	9.5	94.1	37.6		SWF
	2800	OTTA	29 PBI	1512	1512	110	10.2	5.1		
	2800	OTTA	20 GRF	1800	1840	60	2.4	1.2		
	2800	OTTA	22 GRF	1950	2032	90	5.6	2		
	2800	OTTA	1 S	2125	2127	9	4.6	2.1		
	2800	OTTA	1 S	2228.5	2228.9	1	3.4	1.7		
18	2695	PENT	1 S	0013.5	0014	1	3.4	1.7		
	8900	BERN	3	0733	0733.7	2.5	34			
	2695	MANI	3 S	0925	0926	3.1	63.6	21.2		
	8900	BERN	45	0925.5	0926.8	4	82			
	8900	BERN	1	1128.7	1130.1	3.5	15			
	2800	OTTA	24 R	1245	1330	45	2.4	1.2		
	2800	OTTA	27A RF	1245		305	2.4	2.1		
	2800	OTTA	8 S	1249	1249.2	.8	2.6	1.3		
	8900	BERN	45	1314.3	1314.6	4.5	29			
	2800	OTTA	1 S	1314.5	1314.6	2	6	2		
	2800	OTTA	24P R	1330		235	2.4			
	2800	OTTA	20 GRF	1540	1640	90	2.4	1.2		
	2800	OTTA	26 FAL	1725	1750	25	-2.4	-1.2		
	2800	OTTA	1 S	1930	1931	3	1.6	.8		
	2800	OTTA	20 GRF	2000	2040	120	2.2	1.1		
	2695	PENT	20 GRF	2250		60	2.4			
19	2800	OTTA	20 GRF	1510	1540	50	1.6	.8		
	2800	OTTA	20 GRF	1644	1646	30	4.4	2.2		
	2800	OTTA	20 GRF	1905	1925	70	2			
	2800	OTTA	20 GRF	2045	2105	30	1.8	.9		
20	2800	OTTA	20 GRF	1710	1722	25	2.2	1.1		
	2800	OTTA	20 GRF	1835	1917	60	1.6	1.2		
	2800	OTTA	20 GRF	2010	2035	55	2.2	1.6		
	2695	PENT	240 R	2200	2215	15	2.4	1.2		
	2695	PENT	21 GRF	2300	2330	80	2.4	1.4		
	8800	MANI	3 S	2351.2	2351.6	.7	31.5	10.5		
	2695	MANI	3 S	2351.3	2351.6	1.6	56.6	18.7		
	2695	PENT	3 S	2351	2351.7	5	53	15.6		
21	8800	MANI	3 S	0315.2	0316	2.2	30.1	10		
	2695	MANI	4 S/F	0409.3	0415.2	20.5	317.8	105.9		
	8800	MANI	47 GB	0410.1	0415.3		590			
	8800	MANI	47 GB	0410.1	0413.6	18.8	505	195.9		I
	2800	OTTA	1 S	1328	1329	2	3	2.2		
	2800	OTTA	21 GRF	1420 E	1445	140 D	3			
	2800	OTTA	40 F	1554.2	1554.6	4	20			
	2800	OTTA	1 S	1601	1601.4	1	4.6	1.2		
	2800	OTTA	1 S	1612.7	1613	2	1.8	1.2		
	2800	OTTA	20 GRF	1710	1722	40	2.8	1.4		
22	2800	OTTA	23 GRF	1310	1540	370	9.2	5		
	2800	OTTA	1 S	1514	1516.5	6	4	1.2		
	2800	OTTA	20 GRF	1940	1955	65	2.6	1.3		
	2695	PENT	240 R	2055	2155	60	4.6	2.3		
	2695	PENT	20 GRF	2315	2325	50	2.6	1.3		
23	8900	BERN	46	0932.8	1002.2	276	617			
	2695	SGMR	45 C	1141	1229.7		282			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22}Wm^{-2}Hz^{-1}$ PEAK	FLUX DENSITY $10^{-22}Wm^{-2}Hz^{-1}$ MEAN	INT	REMARKS
	2695	SGMR	45	C	1141	1206.7	76	43.2	113		4
	8800	SGMR	20	GRF	1142.7	1209.3	70.5	20.3	8.1		4
	2800	OTTA	21	GRF	1145 E	1206	385 D	91			
	2800	OTTA			1222	1224.4	3.3	33.4			
	2800	OTTA	45	C	1222	1229.3	15	116	31.9		
	2800	OTTA			1225.3	1226.7	2.1	89.6			
	2800	OTTA			1227.4	1229.3	3.1	116			
	2800	OTTA			1230.5	1232	3	64.8			
	2800	OTTA			1233.5	1234.7	3.5	27			
	2800	OTTA	29	PBI	1237	1237	11	6.6	3.3		
	2800	OTTA	1	S	2129	2130	3	2.2	1.1		
24	2800	OTTA	20	GRF	1215	1223	75	2.8	1.8		
	2800	OTTA	20	GRF	1510	1600	65	1.6	.8		
	2800	OTTA	4	S/F	1719.5	1724.2	10.5	163	67		
	2695	SGMR	3	S	1720	1724.7	14.2	186	55.8		2,4,SWF
	2695	BOUL	3	S	1720.5E	1726	9.5D	180	60		
	8800	SGMR	3	S	1721	1725.2	10.3	78.6	23.6		2,4,SWF
	2695	BOUL	32	ABS	1730	1733 U	5.5D	5	2		
	2800	OTTA	20	GRF	1731.5	1737	140	9	4.5		
	2800	OTTA	21	GRF	2055		175	4.8			
	2800	OTTA	46F	C	2106.5	2118.2	37	54.6	20		
	2695	BOUL	20	GRF	2108 E	2119	32.5D	56	19		
25	2800	OTTA	20	GRF	1417	1426	25	3	1.5		
	2800	OTTA	20	GRF	1850	1935	85	2.2	1.4		
26	2695	MANI	3	S	0738.2	0739.3	2.8	25.9	8.5		
	2800	OTTA	20	GRF	1510	1523	55	2.4	1.2		
	2800	OTTA	20	GRF	1827	1835	20	2.4	1.2		
	2800	OTTA	8	S	1913.9	1913.9	.1E	4.8			
	2800	OTTA	21	GRF	2037	2040	30	6	3		
	2800	OTTA	1	S	2052	2053	2	2.4	1		
	2800	OTTA	40	F	2056.4	2056.4	.6	12.6			
	2800	OTTA	21	GRF	2110	2205	170 D	6.4			
	2800	OTTA	1A	S	2122	2124	9	9.4	5		
	2800	OTTA	1	S	2125.5	2126.3	1.5	6.6	3		
	2800	OTTA	8	S	2205.5	2205.5	.1E	22.8			
27	8900	BERN	22		0718.5	0724.5	26	30			
	2695	MANI	4	S/F	0827.2	0830.3	6.3	55.7	18.6		
	8900	BERN	46		0828.5	0830	38	41			
	8900	BERN	45		1432	1439.4	59	141			
	2695	SGMR	45	C	1432.3	1439.6	44.7	420	168		4,CONT,SWF
	2800	OTTA			1433.5	1439.5	10	406			
	2800	OTTA	46F	C	1433.5	1439.6	46.5	406	85.4		
	8800	SGMR	3	S	1434.2	1439.7	40.8	136	54.4		4,CONT,SWF
	2695	BOUL	28	PRE	1435.5E	1436.5U	2 D	10	3		
	2695	BOUL	45	C	1437.5	1440.5	30.5	446	148		
	2800	OTTA			1443.5	1445	10	200			
	2800	OTTA			1453.5	1459	26.5	145			
	2695	BOUL	30	PBI	1508	1508	10 D	53	18		
	2800	OTTA	29	PBI	1520	1520	280	15.8	7.4		
	2695	SGMR	45	C		1459		180			4,CONT,SWF
28	2800	OTTA	20	GRF	1807	1900	130	2.4	1.4		
	2800	OTTA	20	GRF	2050	2225	195	4.6	2.6		
29	8900	BERN	22		0941.5	0955.5	50	17			
	8900	BERN	22		1042.2	1146.6	160	19			
	2800	OTTA	21	GRF	1140	1203	140 D	9	4.5		
	2800	OTTA	1	S	1334	1335	2	6	2.8		
	2800	OTTA	22	GRF	1645	1730	100	2	1		
	2800	OTTA	26	FAL	1840	1900	20	-3	-1.5		
	2695	PENT	22	GRF	2040	2210	220	3.6	1.6		
30	2800	OTTA	240	R	1433	1503	30	2.4	1.2		
	2800	OTTA	20	GRF	1730	1740	18	1.8	.9		
	2800	OTTA	20	GRF	1753	1820	95	2.4	1.6		
	2695	PENT	20	GRF	2330	2333	20	5.6	2.8		

Observatories:

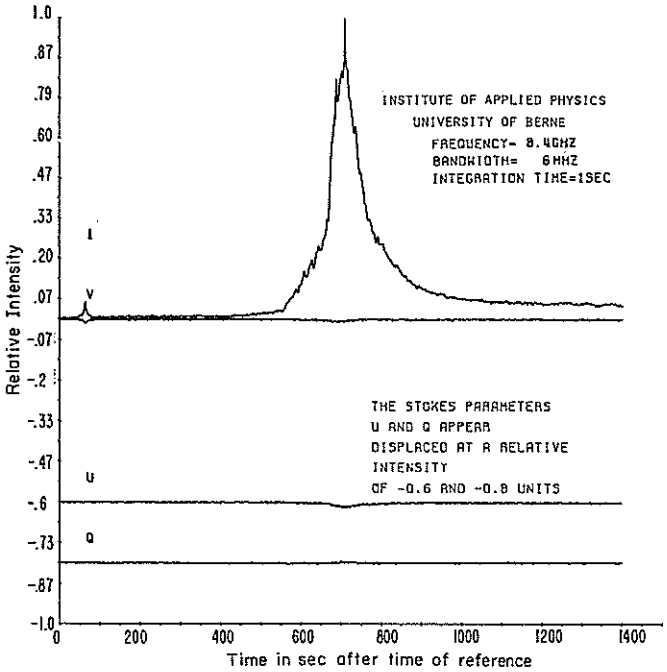
BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

Explanation of Type Code:

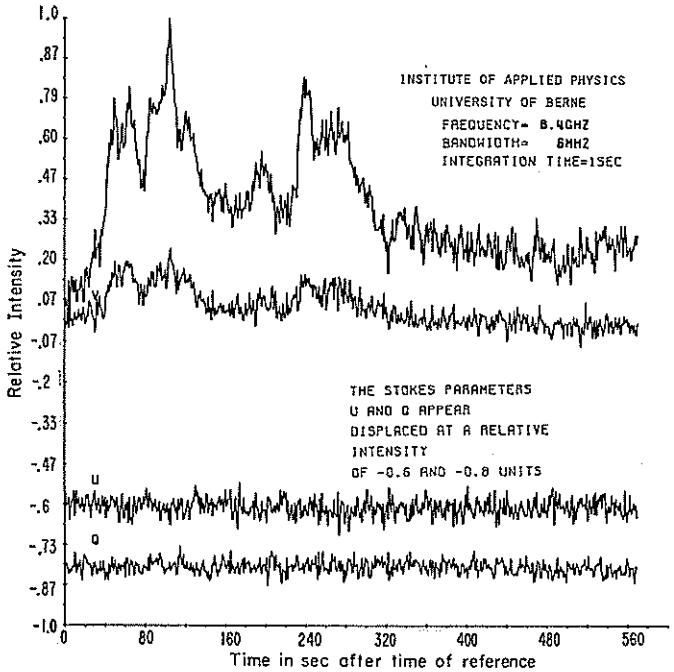
1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase 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 BURSTS

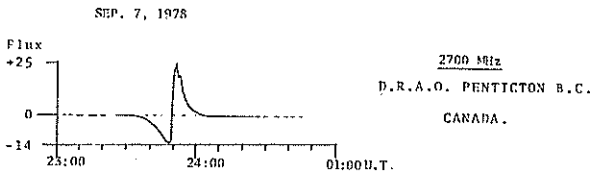
SEPTEMBER 1978



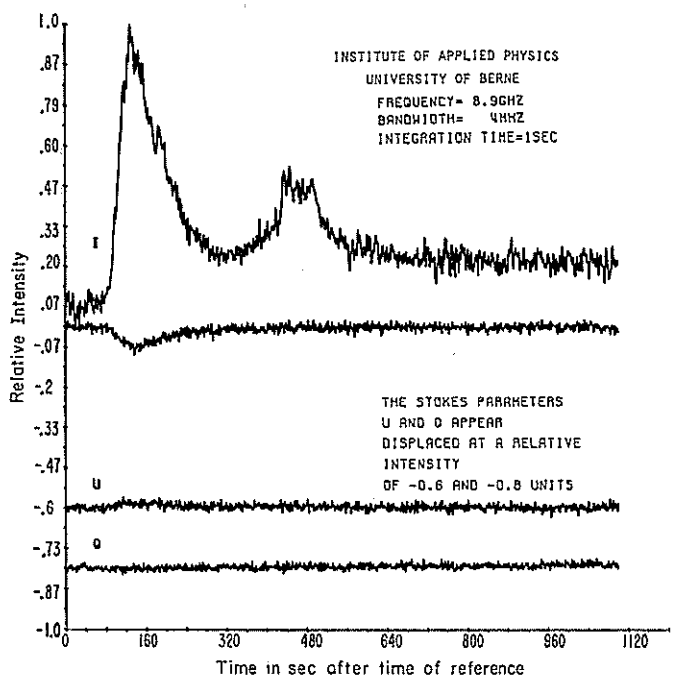
2 SEP 1978 0541 UT
1 UNIT = 739 SFU



7 SEP 1978 0603 UT
1 UNIT = 41 SFU



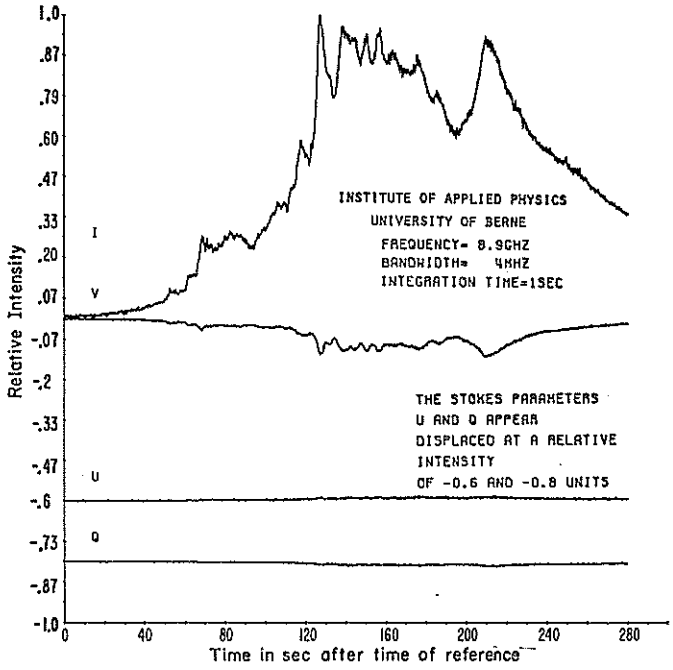
7 SEP 1978 2335 UT



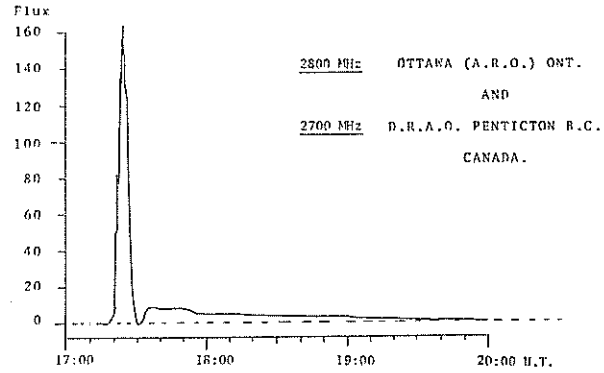
17 SEP 1978 1458 UT
1 UNIT = 104 SFU

SELECTED SOLAR NOISE BURST

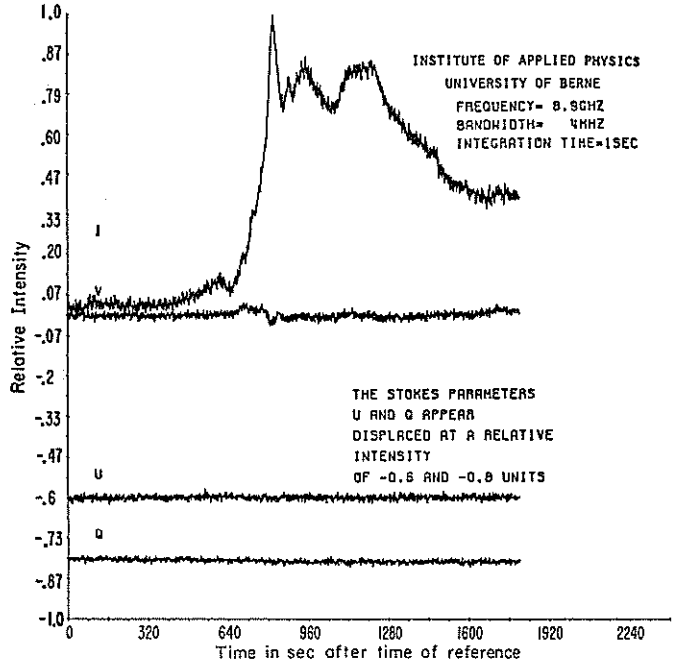
SEPTEMBER 1978



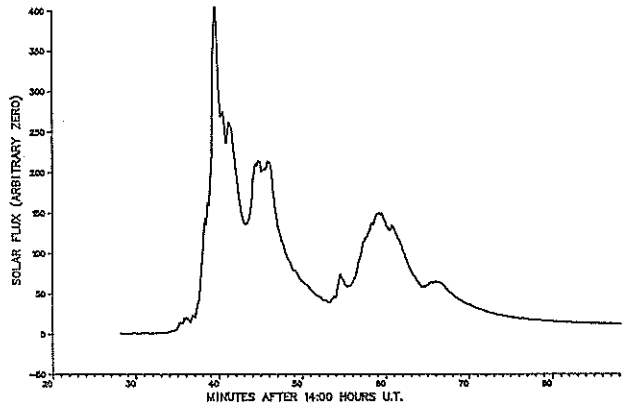
23 SEP 1978 0941 UT
1 UNIT = 608 SFU



24 SEP 1978 1718 UT



27 SEP 1978 1426 UT
1 UNIT = 141 SFU



27 SEP 1978 1433.5 UT

SOLAR X-RAYS BY SATELLITE
SMS GOES
SEPTEMBER 1978

.5 - 4Å Hourly Averages (10^{-5} watts/m^2)

MO DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
9/ 1	.002	B	.002	.003	.002	.001	.010	.017	.004	.007	.004	.006	.018	.005	.003	.001	.014	.019	.009	.003	.008	.008	.053	.002	.008
9/ 2	.017	.024	.003	.008	.010	.326	.099	.003	.009	.002	.020	.093	.005	.016	.091	.020	.002	.007	.016	.020	.038	.043	.002	.003	.036
9/ 3	.005	.016	.007	.009	.002	.016	.004	.004	.008	.014	.002	.003	.004	.003	.003	.003	.019	.004	.014	.031	.010	.003	.005	.007	.008
9/ 4	.006	.007	.006	.004	.025	.007	.015	.001	.065	.009	.002	.002	.003	.002	.002	.001	.016	.005	.003	.007	.004	.002	.001	.002	.007
9/ 5	.002	.002	.003	.003	.002	.002	.002	.004	.003	.002	.001	.002	.003	.004	.003	.002	.002	.002	.003	.002	.003	.001	.003	.006	.003
9/ 6	.004	.002	.004	.002	.002	.001	.005	.002	.014	.002	.002	.011	B	.006	.002	.002	.003	.002	.002	.003	.001	B	.006	.016	.004
9/ 7	.002	.001	.004	.002	B	.003	.011	.002	.003	.002	B	.002	.004	B	.009	.002	.002	.001	.001	.002	.002	.002	.002	.010	.003
9/ 8	.006	.005	.006	.001	.003	.002	.002	.003	.002	.007	.002	B	.011	.008	.002	B	.001	.001	.012	.010	.002	.001	.001	B	.004
9/ 9	.002	B	B	B	B	B	.005	B	B	B	.001	B	B	B	B	B	.002	B	B	.001	.001	B	B	B	.001
9/10	B	.001	B	.002	.001	.005	.001	.002	.001	.001	.004	.007	.001	.001	.001	.001	.002	.003	.002	.001	.001	B	.001	.001	.002
9/11	.001	B	.001	B	B	.001	B	B	B	B	B	.005	B	.001	B	B	.001	B	.003	B	B	B	.001	.003	.001
9/12	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	.001	.002	B
9/13	B	B	B	B	M	B	B	.001	B	.002	.002	.001	.002	B	B	B	B	.003	.007	.005	.003	.008	.049	.002	.004
9/14	.002	.002	.001	.002	M	.005	.002	B	.003	.002	.003	.003	.002	.003	.001	B	B	.001	.001	B	B	.001	.001	.001	.002
9/15	.001	.001	.001	B	M	.006	.004	.002	.001	.014	.005	.003	.003	.003	.004	.002	.002	.002	.002	.012	.002	.006	.003	.002	.004
9/16	B	B	.001	.001	M	.001	.002	.004	.002	.002	B	B	B	.072	.002	.002	B	.005	.005	.008	.005	B	B	B	.005
9/17	B	B	B	B	.180	.002	.001	B	.135	.004	.001	B	.002	.010	.001	.188	B	B	B	.005	.017	.003	.014	.013	.024
9/18	.002	.024	.004	.004	M	.001	.002	.006	B	.004	.005	.003	.002	.003	.003	.001	.002	.013	.001	.001	.001	B	B	B	.004
9/19	B	B	.002	.001	M	.002	.001	.001	B	B	.001	B	B	.001	.001	B	B	B	B	B	.001	B	.001	.002	.001
9/20	B	B	B	B	M	B	.001	B	B	B	B	B	B	B	B	B	M	.001	B	.001	.002	.001	.001	.005	.001
9/21	.001	.001	.001	.007	M	.007	.003	.002	B	B	.001	.001	.001	.001	.003	.002	.001	.002	B	.001	.001	B	B	B	.002
9/22	B	B	.002	.001	M	.001	B	B	B	.005	.004	.002	.005	.004	.003	.004	.002	.002	.003	.003	.002	.001	.001	.001	.002
9/23	B	.002	.017	.008	M	.002	.001	.004	.004	.080	1.38	.387	.149	.064	.027	.015	.011	.007	.004	.002	.001	.002	.001	.001	.054
9/24	.002	.002	.012	.002	M	B	.033	B	B	B	.002	.005	.005	.005	.005	.004	.003	.047	.003	.001	B	.032	.003	.001	.007
9/25	B	B	.001	B	M	B	B	B	.001	B	B	B	B	B	B	B	B	B	.005	.002	B	B	B	.002	.001
9/26	.002	.001	B	B	M	B	B	.007	B	B	B	B	B	B	B	B	B	B	B	B	.001	.009	.005	.003	.002
9/27	.001	B	.001	.001	M	B	.003	.029	.039	.004	.001	B	.002	.005	.134	.102	.013	.052	.004	.003	.002	.002	.001	.001	.017
9/28	B	.002	.001	B	M	.002	.001	.001	B	B	B	B	B	B	B	B	B	B	.003	.002	.002	.002	.002	B	.001
9/29	B	B	.001	.001	M	B	B	.003	.001	.009	.010	.066	.014	.003	.002	.002	.002	.003	.001	B	B	B	.002	B	.006
9/30	B	B	B	B	M	B	B	B	B	B	B	B	B	.001	.003	.003	.003	.004	.004	.002	.002	.002	.002	.002	.001

Note: "B" indicates the flux was below the cut-off levels.
"M" denotes periods of missing data.

SOLAR X-RAYS BY SATELLITE
SMS GOES
SEPTEMBER 1978

1 - 8Å Hourly Averages (10^{-4} watts/m^2)

MO DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
9/ 1	.010	.008	.010	.014	.010	.008	.026	.028	.015	.019	.018	.020	.031	.022	.018	.018	.033	.036	.026	.015	.025	.022	.063	.015	.015
9/ 2	.029	.035	.019	.025	.023	.151	.118	.018	.022	.015	.027	.089	.022	.029	.091	.047	.017	.021	.029	.036	.051	.059	.014	.013	.039
9/ 3	.017	.029	.021	.020	.011	.027	.014	.014	.021	.024	.013	.012	.015	.014	.017	.015	.033	.015	.022	.039	.023	.013	.015	.018	.014
9/ 4	.020	.016	.020	.016	.027	.016	.031	.011	.085	.030	.017	.015	.013	.012	.013	.012	.034	.021	.014	.021	.018	.013	.011	.012	.014
9/ 5	.011	.011	.011	.011	.010	.011	.012	.014	.015	.012	.010	.011	.013	.016	.015	.017	.016	.013	.013	.011	.014	.011	.014	.023	.008
9/ 6	.019	.012	.014	.024	.012	.011	.018	.015	.025	.014	.013	.018	.010	.020	.012	.011	.014	.014	.013	.016	.012	.010	.018	.030	.010
9/ 7	.014	.011	.016	.014	.010	.014	.024	.013	.015	.013	.010	.012	.015	.010	.026	.016	.013	.011	.012	.014	.013	.013	.013	.029	.009
9/ 8	.027	.021	.020	.015	.016	.013	.012	.015	.015	.019	.015	.010	.017	.024	.014	.010	.011	.010	.025	.033	.012	.010	.010	.010	.010
9/ 9	.012	.009	.009	.009	.007	.008	.013	.008	.007	.009	.010	.009	.008	.008	.007	.009	.016	.009	.008	.009	.009	.008	.008	.008	.005
9/10	.008	.010	.009	.013	.011	.021	.012	.013	.011	.010	.017	.018	.012	.010	.011	.011	.012	.013	.012	.010	.010	.009	.010	.010	.007
9/11	.011	.009	.010	.008	.008	.010	.009	.009	.009	.008	.008	.018	.008	.009	.010	.007	.009	.008	.014	.009	.009	.008	.010	.015	.006
9/12	.009	.007	.007	.006	.006	.006	.006	.006	.006	.007	.007	.007	.006	.007	.006	.006	.007	.008	.007	.007	.007	.008	.008	.013	.004
9/13	.006	.006	.006	.007	M	.005	.006	.008	.007	.010	.008	.007	.008	.007	.005	.007	.008	.009	.019	.015	.012	.019	.111	.010	.009
9/14	.010	.010	.009	.013	M	.014	.011	.008	.012	.011	.013	.014	.012	.014	.009	.008	.013	.009	.009	.007	.006	.009	.010	.010	.006
9/15	.010	.009	.009	.007	M	.011	.012	.011	.009	.021	.017	.013	.012	.013	.017	.011	.011	.010	.010	.022	.010	.018	.013	.011	.008
9/16	.010	.008	.008	.008	M	.008	.010	.012	.010	.010	.008	.007	.007	.052	.012	.009	.008	.011	.016	.016	.018	.009	.007	.006	.009
9/17	.007	.007	.006	.007	.290	.009	.008	.006	.085	.019	.009	.008	.009	.017	.007	.125	.010	.006	.006	.011	.026	.013	.022	.025	.027
9/18	.010	.030	.014	.012	M	.007	.009	.013	.016	.010	.015	.010	.010	.011	.012	.010	.011	.022	.008	.009	.010	.007	.007	.007	.008
9/19	.007	.008	.010	.009	M	.011	.010	.010	.009	.008	.008	.008	.007	.007	.008	.007	.007	.007	.007	.007	.008	.008	.008	.010	.005
9/20	.007	.007	.007	.007	M	.006	.009	.007	.007	.007	.007	.007	.007	.007	.007	.007	M	.008	.008	.009	.009	.008	.010	.017	.004
9/21	.017	.009	.009	.016	M	.013	.012	.010	.008	.008	.008	.008	.008	.009	.011	.011	.009	.010	.008	.008	.009	.007	.007	.007	.006
9/22	.008	.007	.010	.010	M	.009	.009	.008	.009	.014	.012	.012	.013	.014	.013	.020	.015	.018	.015	.013	.012	.011	.012	.010	.007
9/23	.010	.013	.034	.030	M	.012	.012	.016	.014	.061	.955	.394	.204	.112	.070	.048	.037	.030	.023	.019	.017	.016	.014	.013	.094
9/24	.013	.012	.025	.012	M	.011	.042	.010	.010	.010	.013	.017	.015	.011	.010	.010	.012	.059	.016	.010	.009	.044	.017	.012	.012
9/25	.010	.010	.010	.010	M	.009	.009	.009	.010	.010	.009	.009	.010	.009	.010	.008	.009	.009	.016	.015	.010	.009	.009	.011	.006
9/26	.014	.012	.009	.009	M	.008	.009	.016	.010	.009	.008	.009	.008	.008	.008	.008	.008	.008	.008	.009	.010	.021	.021	.014	.006
9/27	.011	.010	.018	.010	M	.009	.012	.044	.054	.021	.012	.009	.010	.015	.111	.124	.036	.064	.019	.014	.012	.013	.010	.009	.023
9/28	.008	.011	.011	.010	M	.012	.009	.009	.007	.009	.009	.008	.007	.007	.007	.007	.009	.008	.011	.010	.009	.010	.010	.008	.005
9/29	.007	.007	.009	.008	M	.007	.008	.012	.010	.016	.019	.093	.043	.020	.012	.010	.011	.015	.010	.008	.008	.007	.010	.007	.010
9/30	.006	.006	.006	.006	M	.005	.006	.006	.007	.007	.007	.008	.007	.009	.012	.015	.013	.016	.017	.010	.010	.009	.009	.010	.005

Note: "B" indicates the flux was below the cut-off levels.
"M" denotes periods of missing data.

SOLAR X-RAYS BY SATELLITE

GOES

SEPTEMBER 1978

DAY	BEGIN TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	MAX TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	1/2P TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}
1	0506	1.6E-10	1.4E-09	0623	4.1E-07	4.9E-06	0642	5.5E-09	2.4E-06
1	0729	3.4E-09	1.5E-06	0738	1.0E-06	9.1E-06	0745	1.7E-07	4.4E-06
1	0833	3.2E-09	1.3E-06	0839	1.6E-07	2.9E-06	0844	5.5E-09	2.1E-06
1	0945	2.6E-09	1.4E-06	0950	5.3E-07	5.2E-06	0956	1.3E-07	3.0E-06
1	1132	2.9E-09	1.5E-06	1140	2.0E-07	3.6E-06	1149	9.3E-09	2.5E-06
1	1213	2.3E-09	1.4E-06	1219	9.6E-09	2.3E-06	1224	2.3E-09	1.9E-06
1	1235	1.9E-09	1.7E-06	1246	1.1E-06	9.4E-06	1253	2.4E-07	4.7E-06
1	1309	3.4E-09	2.1E-06	1312	2.5E-07	3.7E-06	1319	1.0E-07	2.9E-06
1	1627	1.3E-07	3.2E-06	1633	5.3E-07	6.1E-06	1640	1.9E-07	4.5E-06
1	1709	2.7E-09	2.1E-06	1713	1.2E-06	1.0E-05	1719	4.2E-07	5.9E-06
1	1932	6.0E-09	2.1E-06	1939	2.3E-07	3.7E-06	1952	9.3E-09	2.7E-06
1	2220	2.2E-07	3.9E-06	2224	3.1E-06	2.3E-05	2231	1.4E-06	1.3E-05
2	0007	4.5E-09	1.9E-06	0011	2.1E-06	1.2E-05	0014	5.6E-07	6.5E-06
2	0036	1.9E-09	1.7E-06	0045	1.3E-07	3.0E-06	0051	6.2E-09	2.3E-06
2	0113	3.4E-08	1.9E-06	0121	1.3E-06	9.9E-06	0129	2.6E-07	5.1E-06
2	0515	4.2E-09	2.4E-07	0556	2.2E-05	9.4E-05	0602	5.5E-06	4.5E-05
2	0648	7.6E-09	2.7E-06	0654	3.1E-07	5.0E-06	0700	1.3E-07	3.7E-06
2	0910	2.0E-09	1.3E-06	0916	4.7E-07	4.7E-06	0922	1.5E-07	3.0E-06
2	1028	1.4E-09	1.4E-06	1032	1.9E-07	3.1E-06	1035	5.0E-09	2.1E-06
2	1050	1.2E-07	2.9E-06	1055	1.7E-06	9.7E-06	1102	5.0E-07	5.9E-06
2	1127	1.0E-07	2.7E-06	1133	3.1E-06	2.1E-05	1150	7.7E-07	1.1E-05
2	1305	8.0E-09	2.2E-06	1311	1.2E-06	9.4E-06	1315	2.6E-07	5.1E-06
2	1418	2.0E-07	3.4E-06	1438	2.3E-06	1.9E-05	1451	7.2E-07	1.0E-05
2	1812	1.7E-07	2.9E-06	1818	6.2E-07	5.6E-06	1825	2.5E-07	4.0E-06
2	1900	2.5E-09	1.7E-06	1906	9.0E-07	6.5E-06	1915	2.2E-07	4.0E-06
2	2005	1.5E-07	3.3E-06	2012	5.1E-07	5.9E-06	2018	2.9E-07	4.6E-06
2	2044	1.4E-07	3.2E-06	2051	1.3E-06	1.0E-05	2100	4.2E-07	6.4E-06
2	2118	1.5E-07	3.9E-06	2124	1.6E-06	1.0E-05	2135	5.2E-07	7.4E-06
2	2315	2.9E-09	1.3E-06	2318	4.7E-09	1.9E-06	2320	3.6E-09	1.4E-06
3	0307	2.5E-09	1.1E-06	0313	3.4E-07	3.4E-06	0319	9.9E-09	2.2E-06
3	0643	1.4E-09	1.1E-06	0650	2.0E-07	3.0E-06	0655	7.1E-09	2.0E-06
3	0734	2.1E-09	1.1E-06	0916	9.9E-09	2.2E-06	0930	2.9E-09	1.6E-06
3	0929	2.7E-09	1.2E-06	0939	4.0E-07	4.6E-06	0951	1.1E-07	2.9E-06
3	1553	1.4E-09	1.2E-06	1610	7.1E-07	6.5E-06	1621	1.5E-07	3.7E-06
3	1744	3.5E-09	1.3E-06	1750	1.3E-07	2.4E-06	1754	4.5E-09	1.9E-06
3	1834	7.8E-09	1.7E-06	1839	4.3E-07	4.2E-06	1904	1.4E-07	3.0E-06
3	1920	5.6E-09	1.9E-06	1926	1.5E-06	9.1E-06	1935	4.7E-07	5.4E-06
3	2005	3.3E-09	1.8E-06	2017	3.9E-07	4.8E-06	2022	1.3E-07	3.1E-06
3	2219	3.9E-09	1.3E-06	2225	1.4E-07	2.6E-06	2232	5.0E-09	1.9E-06
3	2342	8.0E-09	1.6E-06	0003	2.9E-07	4.4E-06	0010	1.1E-07	3.0E-06
4	0149	3.7E-09	1.5E-06	0155	3.0E-07	3.7E-06	0206	1.1E-07	2.6E-06
4	0301	3.7E-09	1.6E-06	0306	1.3E-07	2.6E-06	0315	4.6E-09	2.1E-06
4	0426	4.7E-09	2.0E-06	0432	1.2E-06	9.7E-06	0439	2.9E-07	1.6E-06
4	0519	1.6E-10	2.3E-07	0529	2.7E-07	2.9E-06	0541	3.3E-09	1.5E-06
4	0554	3.4E-09	1.3E-06	0635	4.5E-07	5.1E-06	0646	1.0E-07	3.0E-06
4	0805	2.8E-09	1.2E-06	0826	1.5E-06	2.0E-05	0842	7.0E-07	1.0E-05
4	1247	1.0E-09	1.0E-06	1255	1.4E-07	2.6E-06	1302	2.7E-09	1.7E-06
4	1447	1.9E-09	1.3E-06	1450	3.2E-09	1.9E-06	1452	3.4E-09	1.5E-06
4	1813	3.4E-09	1.6E-06	1817	1.1E-07	2.4E-06	1820	2.9E-09	1.9E-06
4	1912	5.0E-09	2.0E-06	1917	1.7E-07	3.2E-06	1921	7.3E-09	2.5E-06
4	2004	3.6E-09	1.5E-06	2008	1.5E-07	2.6E-06	2015	4.5E-09	2.0E-06
5	0647	4.2E-09	1.3E-06	0652	1.1E-07	1.9E-06	0654	4.9E-09	1.5E-06
5	0723	1.1E-09	1.1E-06	0732	2.9E-07	3.3E-06	0735	9.6E-08	2.2E-06
5	0913	3.3E-09	1.5E-06	0917	1.2E-07	2.5E-06	0919	4.2E-09	1.9E-06
5	0959	2.1E-08	1.3E-06	0902	1.6E-07	2.9E-06	0904	3.0E-09	1.9E-06
5	1226	1.5E-09	1.1E-06	1231	1.3E-07	2.2E-06	1234	4.0E-09	1.5E-06
5	1311	1.7E-09	1.2E-06	1314	1.3E-07	2.3E-06	1317	2.7E-09	1.6E-06
5	1343	3.3E-09	1.6E-06	1347	1.5E-07	2.9E-06	1355	4.4E-09	2.2E-06
5	1449	2.2E-08	1.6E-06	1453	7.1E-08	2.3E-06	1458	3.0E-08	1.9E-06
5	1820	1.7E-08	1.2E-06	1823	4.7E-08	1.9E-06	1825	3.6E-08	1.4E-06
5	2243	1.4E-08	1.2E-06	2301	1.3E-07	2.8E-06	2334	2.6E-08	2.0E-06
5	2351	2.0E-08	1.9E-06	2355	1.2E-07	2.8E-06	2359	4.4E-08	2.3E-06
6	0020	9.2E-09	1.6E-06	0024	2.2E-07	3.5E-06	0030	7.4E-08	2.5E-06
6	0054	1.6E-08	1.3E-06	0058	6.3E-08	2.0E-06	0102	1.8E-08	1.6E-06
6	0217	2.6E-08	1.2E-06	0223	1.7E-07	2.9E-06	0229	3.9E-08	1.9E-06
6	0402	2.4E-08	1.5E-06	0405	3.2E-08	2.1E-06	0409	2.1E-08	1.7E-06
6	0824	2.6E-08	1.6E-06	0832	9.8E-07	8.7E-06	0836	1.6E-07	4.3E-06
6	1047	1.9E-08	1.2E-06	1052	7.7E-08	2.0E-06	1100	3.4E-08	1.5E-06
6	1120	4.6E-08	1.7E-06	1123	1.6E-06	9.3E-06	1126	1.7E-07	3.9E-06
6	1932	2.6E-09	1.5E-06	1935	9.8E-08	2.4E-06	1948	1.9E-08	1.9E-06
6	2216	1.6E-08	1.0E-06	2227	2.3E-07	4.0E-06	2234	5.5E-08	2.4E-06
6	2324	3.0E-08	1.4E-06	2340	5.8E-07	6.6E-06	2350	1.5E-07	3.8E-06
7	0209	4.5E-08	1.4E-06	0212	4.5E-08	2.1E-06	0229	4.4E-08	1.8E-06
7	0601	1.9E-08	1.2E-06	0609	5.1E-07	5.0E-06	0617	1.2E-07	2.9E-06

SOLAR X-RAYS BY SATELLITE

GOES

SEPTEMBER 1978

DAY	BEGIN TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	MAX TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	1/2P TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}
7	1205	2.0E-08	1.3E-06	1211	2.0E-07	3.1E-06	1217	4.2E-08	2.0E-06
7	1358	2.4E-08	1.2E-06	1418	1.8E-07	4.0E-06	1431	7.1E-08	2.6E-06
7	2129	1.9E-08	1.3E-06	2132	3.4E-08	2.1E-06	2134	3.6E-08	1.5E-06
7	2331	2.4E-08	1.4E-06	2354	2.5E-07	5.9E-06	0013	9.6E-08	3.6E-06
8	0118	2.0E-08	1.3E-06	0124	1.6E-07	3.4E-06	0145	4.2E-08	2.3E-06
8	0722	2.6E-08	1.3E-06	0727	7.2E-08	1.9E-06	0748	2.2E-08	1.6E-06
8	0935	2.8E-08	1.3E-06	0943	2.0E-07	3.3E-06	1009	4.7E-08	2.3E-06
8	1249	1.1E-08	9.9E-07	1257	1.0E-06	8.9E-06	1304	2.3E-07	4.4E-06
8	1624	2.0E-08	1.1E-06	1627	3.5E-08	2.1E-06	1630	3.2E-08	1.6E-06
8	1834	3.1E-08	1.3E-06	1858	3.4E-07	6.0E-06	1924	1.0E-07	3.6E-06
9	0003	9.7E-09	9.4E-07	0010	1.0E-07	2.2E-06	0017	3.3E-08	1.5E-06
9	0602	1.7E-08	8.8E-07	0610	2.9E-07	3.1E-06	0615	8.4E-08	1.9E-06
9	0631	1.3E-08	1.0E-06	0636	4.6E-08	1.5E-06	0641	2.6E-08	1.2E-06
9	0914	5.7E-09	7.3E-07	0922	2.1E-08	1.1E-06	0936	8.6E-09	9.5E-07
9	1549	9.8E-09	9.3E-07	1555	5.1E-08	2.2E-06	1637	2.6E-08	1.5E-06
9	2004	9.3E-09	8.0E-07	2007	6.1E-08	1.9E-06	2011	3.7E-08	1.3E-06
10	0124	9.5E-09	9.3E-07	0128	5.3E-08	2.1E-06	0136	2.7E-08	1.5E-06
10	0737	2.2E-08	1.3E-06	0740	3.9E-08	1.9E-06	0753	2.5E-08	1.6E-06
10	1001	2.2E-08	1.1E-06	1018	9.7E-08	2.4E-06	1032	2.4E-08	1.7E-06
10	1142	1.5E-08	1.2E-06	1151	5.5E-07	5.9E-06	1157	1.2E-07	3.4E-06
10	1627	9.8E-09	9.7E-07	1635	8.9E-08	2.0E-06	1639	4.0E-08	1.5E-06
10	1722	1.4E-08	1.0E-06	1731	9.3E-08	2.4E-06	1738	2.0E-08	1.6E-06
10	2025	1.6E-08	1.1E-06	2028	3.3E-06	1.6E-06	2030	1.5E-08	1.1E-06
11	1800	2.4E-08	1.1E-06	1803	4.6E-08	1.8E-06	1818	1.9E-09	1.5E-06
11	2254	3.4E-08	1.4E-06	2257	3.5E-08	2.1E-06	2318	2.8E-08	1.7E-06
12	2248	6.5E-09	7.3E-07	2303	9.1E-08	2.3E-06	2318	2.5E-08	1.5E-06
13	0703	4.7E-09	6.2E-07	0708	6.2E-08	1.4E-06	0714	1.6E-08	9.7E-07
13	1013	4.4E-09	6.8E-07	1022	7.9E-08	2.1E-06	1025	4.5E-08	1.3E-06
13	1638	1.0E-08	7.6E-07	1643	3.4E-08	1.1E-06	1651	1.4E-08	9.4E-07
13	1751	1.3E-08	8.5E-07	1802	3.2E-07	4.4E-06	1812	8.0E-08	2.5E-06
13	1844	2.3E-08	1.0E-06	1847	6.8E-08	1.8E-06	1900	3.8E-08	1.4E-06
13	1946	2.1E-08	1.1E-06	1950	1.8E-07	3.3E-06	1959	5.9E-08	2.1E-06
13	2049	2.4E-08	1.2E-06	2052	4.2E-08	2.1E-06	2055	4.5E-08	1.5E-06
13	2101	3.7E-08	1.4E-06	2108	3.7E-07	4.8E-06	2116	1.3E-07	3.1E-06
13	2207	2.4E-09	7.6E-07	2210	2.7E-09	1.3E-06	2213	6.1E-09	8.0E-07
13	2347	1.9E-08	9.0E-07	2352	4.8E-08	1.3E-06	2357	2.2E-08	1.1E-06
14	0051	2.4E-08	1.2E-06	0057	8.4E-08	2.1E-06	0105	3.5E-08	1.6E-06
14	0319	2.0E-08	1.2E-06	0322	4.6E-08	1.7E-06	0337	2.8E-08	1.4E-06
14	0833	3.4E-08	1.2E-06	0843	6.5E-08	1.8E-06	0853	3.4E-08	1.5E-06
14	1049	2.8E-08	1.4E-06	1052	4.1E-08	2.2E-06	1055	3.8E-08	1.5E-06
14	1301	3.6E-08	1.3E-06	1304	5.2E-08	2.0E-06	1324	2.5E-08	1.6E-06
14	2132	1.1E-08	8.2E-07	2137	4.2E-08	1.3E-06	2147	1.6E-08	1.0E-06
15	0542	9.3E-09	7.8E-07	0551	2.2E-07	2.2E-06	0558	5.6E-08	1.5E-06
15	0942	2.9E-08	1.3E-06	0951	9.1E-07	6.8E-06	0959	2.4E-07	3.8E-06
15	1819	9.0E-09	8.3E-07	1822	8.3E-08	1.7E-06	1826	2.8E-08	1.1E-06
15	1909	2.4E-08	1.1E-06	1924	4.3E-07	4.5E-06	1935	1.2E-07	2.8E-06
15	2056	6.8E-08	1.6E-06	2104	1.4E-07	2.7E-06	2122	4.5E-08	2.1E-06
16	0529	3.4E-09	3.8E-07	0743	2.4E-07	2.6E-06	0750	5.8E-08	1.4E-06
16	1324	1.2E-08	8.1E-07	1329	5.5E-06	2.4E-05	1332	2.3E-06	1.1E-05
16	1539	1.1E-08	8.0E-07	1543	7.1E-08	1.8E-06	1550	3.1E-08	1.3E-06
16	1740	1.3E-08	8.1E-07	1745	6.4E-08	1.9E-06	1748	3.7E-08	1.2E-06
16	1752	2.2E-08	1.0E-06	1758	5.2E-07	5.6E-06	1806	1.1E-07	3.1E-06
16	1950	5.5E-08	1.6E-06	1959	9.3E-07	9.4E-06	2003	1.7E-07	5.1E-06
17	0406	1.0E-06	6.3E-06	0411	2.0E-06	1.0E-05	0418	1.2E-06	8.4E-06
17	0823	1.0E-08	7.0E-07	0830	1.0E-05	4.3E-05	0834	3.6E-06	2.1E-05
17	1219	2.3E-08	9.2E-07	1225	5.8E-08	1.3E-06	1235	2.5E-08	1.1E-06
17	1257	9.0E-09	7.7E-07	1303	5.8E-07	3.8E-06	1312	1.1E-07	2.2E-06
17	1323	3.3E-08	1.3E-06	1327	1.4E-07	2.2E-06	1331	4.5E-08	1.6E-06
17	1456	5.3E-09	6.2E-07	1506	1.1E-05	4.6E-05	1511	4.2E-06	2.1E-05
17	1906	2.2E-08	8.5E-07	1911	7.9E-08	1.5E-06	1916	2.7E-08	1.1E-06
17	1947	1.9E-08	8.3E-07	1954	3.6E-07	3.4E-06	2002	7.5E-08	2.0E-06
17	2023	3.7E-08	1.2E-06	2033	7.9E-07	6.1E-06	2043	1.5E-07	3.6E-06
17	2227	3.0E-08	1.1E-06	2230	5.7E-08	2.1E-06	2232	3.7E-08	1.3E-06
17	2240	2.9E-08	1.1E-06	2246	6.7E-07	6.5E-06	2254	1.9E-07	3.7E-06
17	2336	2.1E-08	1.1E-06	2346	4.4E-07	4.3E-06	2354	1.0E-07	2.6E-06
18	0115	1.1E-08	7.0E-07	0140	7.7E-07	7.5E-06	0146	2.1E-07	4.0E-06
18	0115	1.1E-08	7.0E-07	0140	7.7E-07	7.5E-06	0146	2.1E-07	4.0E-06
18	0302	2.9E-08	1.3E-06	0306	3.5E-07	4.3E-06	0308	9.4E-08	2.2E-06
18	0407	7.2E-09	7.6E-07	0410	3.8E-08	1.1E-06	0419	2.0E-08	9.1E-07
18	1424	2.1E-08	1.1E-06	1427	7.2E-08	1.9E-06	1434	4.4E-08	1.5E-06
18	1845	8.7E-09	7.8E-07	1849	3.3E-08	1.3E-06	1851	1.2E-08	9.2E-07
19	0357	2.8E-08	1.2E-06	0411	5.7E-08	2.2E-06	0419	2.7E-08	1.3E-06
19	1042	9.2E-09	7.8E-07	1047	4.3E-08	1.1E-06	1059	1.7E-08	9.7E-07
19	1120	6.1E-09	7.0E-07	1123	2.9E-08	1.0E-06	1127	1.0E-08	8.5E-07

SOLAR X-RAYS BY SATELLITE

GOES

SEPTEMBER 1978

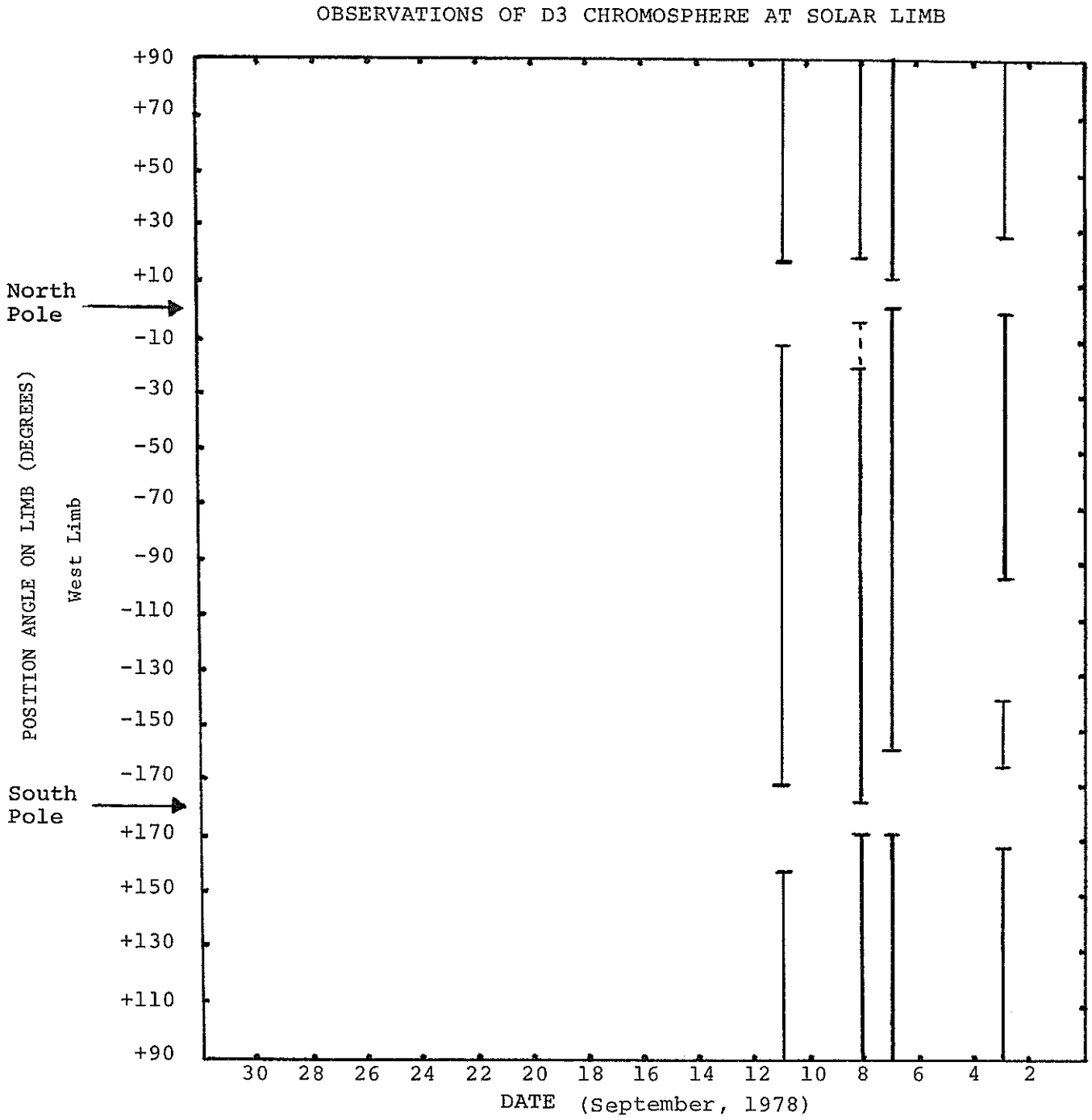
DAY	BEGIN TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	MAX TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	1/2P TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}
19	1300	7.2E-09	6.4E-07	1303	4.8E-08	1.0E-06	1310	1.4E-08	8.3E-07
19	2045	1.2E-08	7.3E-07	2053	3.7E-08	1.2E-06	2111	1.2E-08	9.5E-07
19	2226	7.0E-09	6.9E-07	2229	2.6E-08	1.0E-06	2234	9.3E-09	8.4E-07
19	2239	1.0E-08	8.7E-07	2242	3.8E-08	1.2E-06	2244	1.8E-08	1.0E-06
19	2320	1.2E-08	8.2E-07	2324	7.8E-08	2.1E-06	2327	5.1E-08	1.4E-06
20	0336	4.7E-09	6.5E-07	0339	2.9E-08	1.0E-06	0341	1.1E-08	8.3E-07
20	1346	6.4E-09	6.7E-07	1349	7.0E-08	1.2E-06	1352	2.0E-08	9.4E-07
20	1520	6.4E-09	6.9E-07	1523	3.5E-08	1.0E-06	1526	1.3E-08	8.5E-07
20	2312	2.6E-08	1.3E-06	2323	1.5E-07	3.0E-06	2333	4.1E-08	2.0E-06
21	0312	1.6E-08	9.6E-07	0318	3.9E-07	4.5E-06	0323	9.9E-08	2.4E-06
21	1551	9.0E-09	8.7E-07	1556	1.8E-07	2.8E-06	1559	5.2E-08	1.7E-06
21	1700	9.3E-09	8.4E-07	1704	3.8E-08	1.3E-06	1707	1.6E-08	1.0E-06
21	2027	7.5E-09	7.8E-07	2033	5.0E-08	1.4E-06	2036	2.1E-08	1.1E-06
21	2056	8.3E-09	7.8E-07	2059	3.5E-08	1.2E-06	2101	1.4E-08	9.9E-07
22	0150	6.2E-09	7.0E-07	0153	6.3E-08	1.3E-06	0155	2.1E-08	9.9E-07
22	0205	1.4E-08	8.3E-07	0208	7.7E-08	1.9E-06	0210	3.3E-08	1.2E-06
22	0914	1.9E-08	9.6E-07	0924	1.6E-07	2.7E-06	0932	4.4E-08	1.8E-06
22	1048	1.6E-08	1.0E-06	1055	2.1E-07	3.5E-06	1101	5.9E-08	2.1E-06
22	1227	1.1E-08	1.2E-06	1230	2.3E-08	1.8E-06	1233	2.8E-08	1.3E-06
22	1253	1.2E-08	1.0E-06	1259	1.0E-06	6.8E-06	1302	5.8E-08	2.4E-06
22	1514	3.8E-08	1.8E-06	1519	1.4E-07	2.8E-06	1525	5.7E-08	2.3E-06
22	1944	2.1E-08	1.1E-06	1954	1.2E-07	2.5E-06	2003	2.1E-08	1.8E-06
23	0206	2.8E-08	1.4E-06	0248	2.7E-07	5.5E-06	0316	1.0E-07	3.4E-06
23	0528	4.7E-09	6.1E-07	0703	4.3E-08	2.2E-06	0756	2.4E-08	1.4E-06
23	0804	3.2E-08	1.4E-06	0809	1.4E-07	2.4E-06	0814	4.3E-08	1.9E-06
23	0906	2.4E-08	1.3E-06	0910	1.3E-07	2.3E-06	0915	4.1E-08	1.8E-06
23	0941	1.2E-07	2.5E-06	1021	2.0E-05	1.3E-04	1054	7.0E-06	6.6E-05
24	0206	1.2E-08	1.2E-06	0219	3.4E-07	4.3E-06	0239	8.1E-08	2.6E-06
24	0613	4.7E-09	1.1E-06	0616	4.4E-08	2.0E-06	0619	3.2E-08	1.5E-06
24	0620	3.8E-08	1.5E-06	0635	9.9E-07	9.6E-06	0645	2.6E-07	5.2E-06
24	1028	2.1E-08	1.2E-06	1031	2.5E-08	1.8E-06	1033	3.0E-08	1.3E-06
24	1139	4.8E-08	1.5E-06	1145	1.8E-07	2.8E-06	1149	7.5E-08	2.2E-06
24	1240	3.7E-08	1.1E-06	1243	5.4E-08	1.9E-06	1253	5.8E-08	1.5E-06
24	1558	4.4E-08	1.2E-06	1601	4.6E-08	1.8E-06	1603	4.7E-08	1.2E-06
24	1718	1.7E-08	1.1E-06	1726	2.2E-06	1.9E-05	1737	7.5E-07	1.0E-05
24	2101	2.5E-08	1.1E-06	2124	8.2E-07	8.1E-06	2139	2.0E-07	4.5E-06
25	1831	2.4E-08	1.2E-06	1848	1.4E-07	2.5E-06	1906	2.1E-08	1.9E-06
25	1928	1.9E-08	1.3E-06	1933	6.0E-08	2.1E-06	1937	1.9E-08	1.6E-06
26	0007	4.7E-09	1.4E-06	0010	6.4E-09	2.2E-06	0014	1.8E-10	1.4E-06
26	0737	6.5E-09	9.5E-07	0744	5.3E-07	5.5E-06	0749	1.1E-07	3.1E-06
26	2120	2.8E-08	1.2E-06	2143	1.5E-07	3.1E-06	2229	5.3E-08	2.1E-06
27	0631	6.5E-09	8.7E-07	0734	6.9E-07	8.3E-06	0752	2.1E-07	4.5E-06
27	0825	1.3E-07	3.2E-06	0835	1.4E-06	1.1E-05	0843	4.2E-07	7.1E-06
27	1432	4.6E-08	1.8E-06	1450	4.0E-06	3.1E-05	1517	1.3E-06	1.6E-05
28	0356	3.7E-08	1.4E-06	0359	3.9E-08	2.1E-06	0409	2.9E-08	1.8E-06
28	1008	5.9E-09	8.8E-07	1012	3.4E-08	1.3E-06	1017	1.4E-08	1.1E-06
28	0633	6.7E-09	7.1E-07	0637	3.9E-08	1.2E-06	0639	1.6E-08	9.4E-07
28	0942	1.0E-08	9.2E-07	0954	8.1E-07	6.7E-06	0959	1.7E-07	3.6E-06
28	1043	3.1E-08	1.2E-06	1126	7.7E-07	1.0E-05	1205	2.3E-07	5.9E-06
28	1503	2.9E-08	1.2E-06	1506	5.2E-08	2.0E-06	1508	4.2E-08	1.4E-06
28	1702	2.6E-08	1.3E-06	1705	4.4E-08	2.2E-06	1709	4.0E-08	1.7E-06
28	2200	6.5E-09	7.0E-07	2205	6.7E-08	2.1E-06	2212	5.0E-08	1.3E-06
30	2330	1.2E-08	8.3E-07	2336	7.3E-08	2.0E-06	2343	4.0E-08	1.4E-06

CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

SEPTEMBER 1978

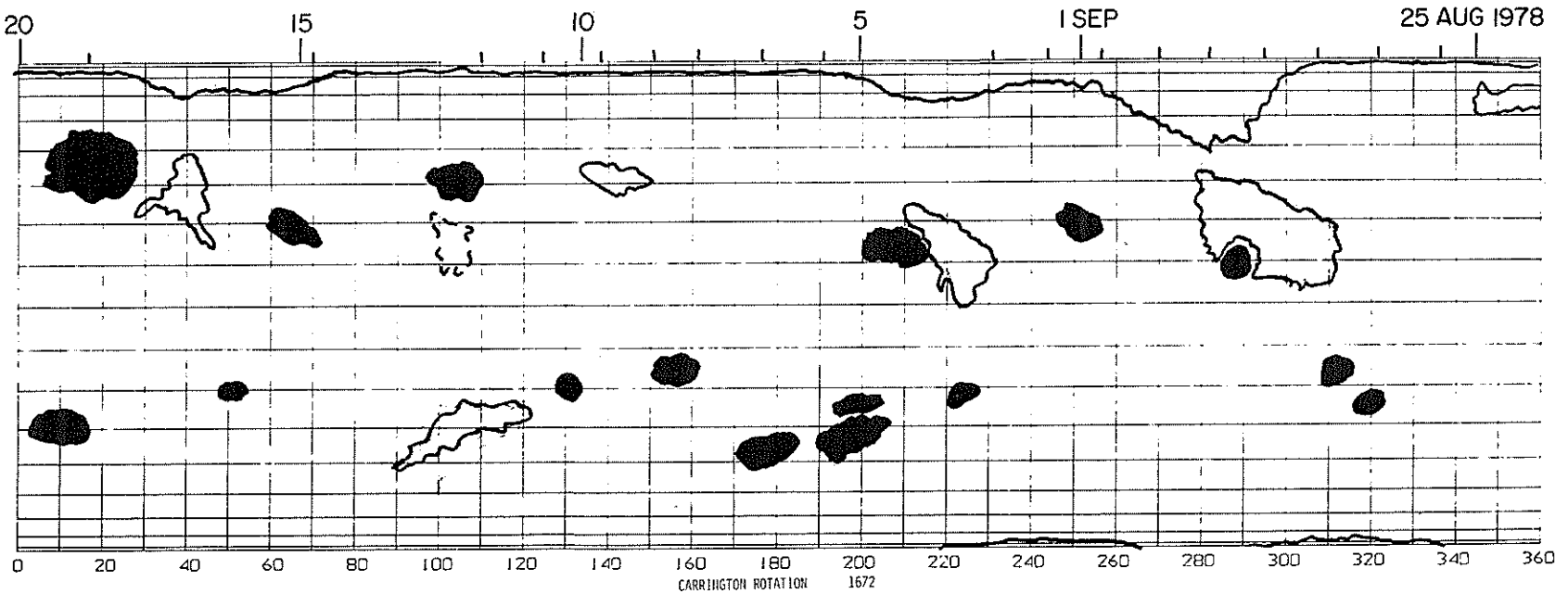
Big Bear Solar Observatory



HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1672

KITT PEAK NATIONAL OBSERVATORY



SOLAR WIND

Interplanetary Scintillations

SEPTEMBER 1978

DAY	3C48 VEL	3C48 ERR	3C144 VEL	3C144 ERR	3C147 VEL	3C147 ERR	3C161 VEL	3C161 ERR	3C237 VEL	3C237 ERR	3C273 VEL	3C273 ERR	3C298 VEL	3C298 ERR	3C459 VEL	3C459 ERR
1	399	32	351	7	385	15							353	8		
2	471	38			438	55							409	13		
3			565	57							303	7				
5			309	8			380	12								
6													345	9		
7			386	22			301	99								
8	332	*	304	8			261	6					335	9		
9	402	4	317	20			343	38					353	4		
10	526	6	418	9			383	6	545	165			346	6		
11			431	6	424	44	391	4					389	35		
12	437	5	401	7			377	15					386	5		
13	279	36	332	7			383	5	271	23			371	10		
14	438	46	335	8			390	15	299	9			337	4		
15	385	59	311	16			348	10	287	6			361	23		
17	294	31					405	18	387	17			320	5		
18	326	12	383	89			292	13	542	73			295	4		
19			263	20			376	9					379	6		
20			282	8			300	14								
21	317	*											319	30		
22			281	12			311	12					376	5		
23	393	29	351	67					332	29			493	8		
24			344	22			402	33	325	49			680	9		
25			487	27	437	32			437	51			540	21		
26			450	9			406	8	421	7			535	15		
27			319	56			389	21					592	7		
28									525	17			720	14		
29							659	214	522	15			489	6		
30			516	33			342	30	577	32			380	12		

SEPTEMBER	5 UT	LAT	DIST	DLON	15 UT	LAT	DIST	DLON	25 UT	LAT	DIST	DLON
3C48	11.	12.	1.20	11.	10.	12.	1.23	9.	10.	11.	1.25	7.
3C144	15.	6.	0.99	17.	14.	6.	1.04	17.	14.	5.	1.09	16.
3C147	14.	14.	0.98	16.	13.	14.	1.03	16.	13.	13.	1.07	15.
3C161	16.	-3.	0.93	18.	16.	-1.	0.98	15.	15.	-2.	1.02	14.
3C237	20.	-14.	0.22	75.	19.	-7.	0.38	66.	18.	-4.	0.53	57.
3C273	22.	13.	0.39	-68.	21.	22.	0.24	-78.	20.	59.	0.10	-90.
3C298	24.	21.	0.76	-39.	23.	27.	0.66	-47.	22.	36.	0.54	-54.
3C459	8.	9.	1.30	2.	8.	9.	1.30	-0.	7.	8.	1.29	-3.

*Indicates data for which no error estimate is available since only two antennas were operating.

INFERRED IP MAGNETIC FIELD

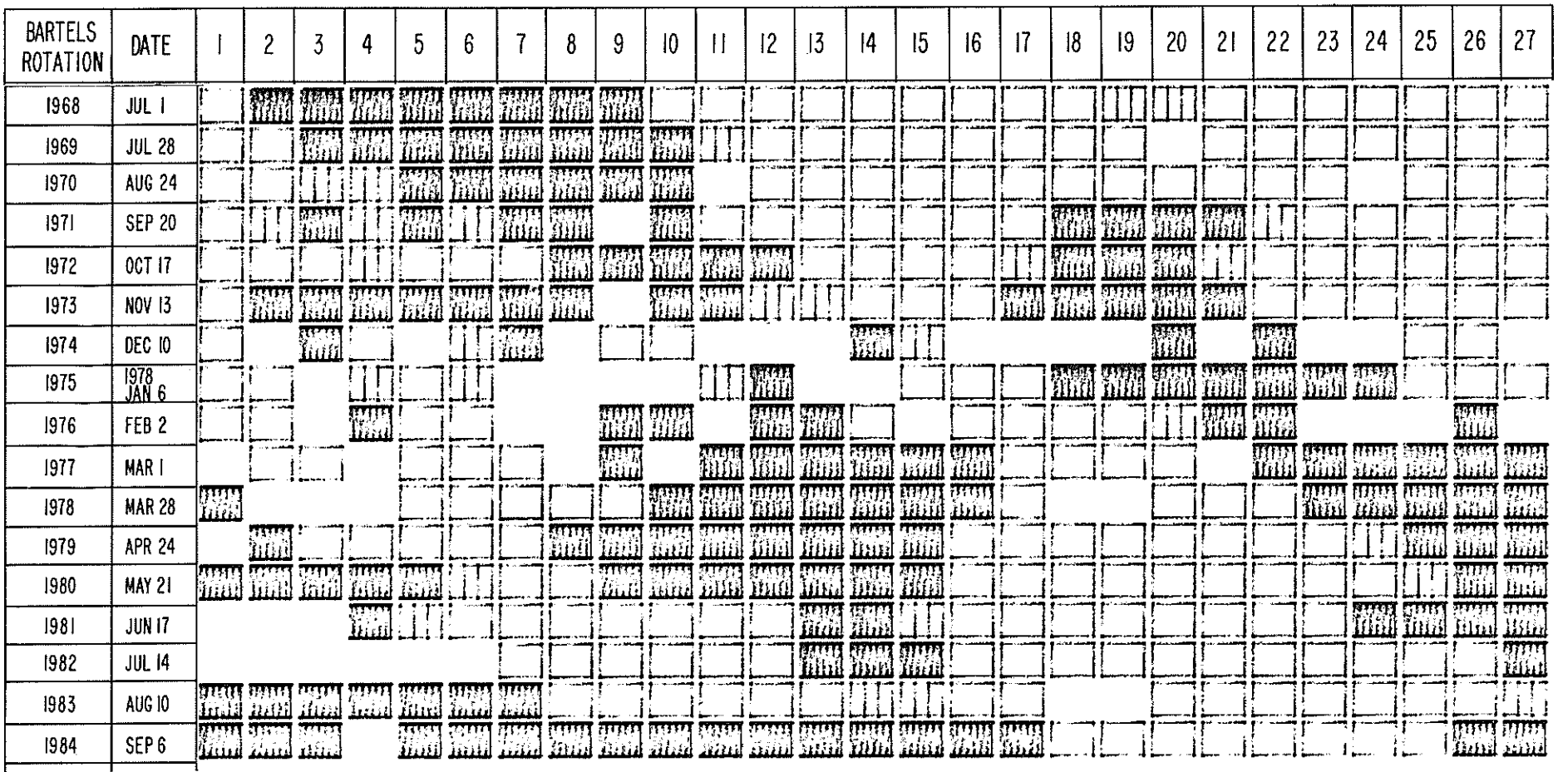
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1967	JUN 9								TA		-			TA						AT	A*				AT	*	A*	TA TA
1968	JUL 6										A*			T*	TA	TA		T*			AT			-	AT		-	
1969	AUG 2		TA						TA	-			TA	*								AT	TA					
1970	AUG 29			-	-	-		TA										AT	AT			AT	TA	TA	-	AT	AT	
1971	SEP 25						-	-	-	-	-	-					TA				TA							
1972	OCT 22					-	AT														AT	AT					*	
1973	NOV 18			TA	AT						-		AT							*			*		*			
1974	DEC 15				-	-	-		AT	-	AT				AT	AT		AT		TA		TA		TA			*	
1975	1978 JAN 11		*	*						*	*	*						*			TA	-	AT			-		-
1976	FEB 7						*	TA				-			-						-		*			TA	A*	TA
1977	MAR 6	TA		-					AT			T*	*					TA			AT	AT	AT	AT	*	TA		
1978	APR 2							*		-	AT											AT AT						
1979	APR 29		TA		*		TA	AT	AT TA		-	-	T*							TA	TA		AT					
1980	MAY 26				TA		AT	AT				-				AT	TA					-				-	-	-
1981	JUN 22	TA					A*					—	TA	TA	TA	AT			*				*	AT	AT	-	AT	
1982	JUL 19									TA							—			TA				AT	AT	*	TA	
1983	AUG 15					TA			AT		AT	AT		AT	TA							A*					TA	
1984	SEP 11			TA		AT				TA	T*						A*		—									

= definitely towards the sun = definitely away from the sun

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

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

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1977			1978								
	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.
DAY												
01	9	6	-14	.	16	.	52	-12	-28	1	40	26
02	6	1	-10	.	31	22	46	-34	-22	13	39	32
03	3	-14	-7	14	26	12	43	-27	-12	15	42	15
04	13	-16	8	31	.	.	13	-27	-5	18	39	18
05	13	-11	26	.	-5	8	4	-29	6	24	31	2
06	11	-1	46	27	4	11	-15	-27	5	43	29	-24
07	-6	11	55	15	9	4	-32	-23	21	42	30	-12
08	-13	31	53	.	.	.	-53	-12	33	36	17	-7
09	-13	46	46	-1	.	-31	-52	3	41	16	-11	.
10	-4	48	26	11	-28	.	-41	24	40	-11	-10	-35
11	2	51	.	0	-43	-70	-32	41	23	-17	-15	-34
12	12	32	-2	.	.	-78	-4	50	12	-12	-22	-42
13	28	14	10	.	-41	-56	22	47	8	-38	-33	-36
14	35	-4	.	.	-23	-49	.	30	0	.	-43	-27
15	46	-10	1	.	3	-28	.	16	-24	.	-31	-26
16	39	-18	-6	0	.	-3	58	5	-38	.	-9	-36
17	20	-24	.	-3	31	18	37	1	.	.	5	-48
18	6	-5	6	.	22	54	11	-29	.	.	13	-44
19	6	-11	8	.	37	48	-9	-49	.	.	7	-50
20	1	-12	.	18	22	24	-30	-75	-16	23	7	-33
21	3	.	.	39	-1	.	-49	-79	0	21	5	-21
22	7	-7	.	10	-18	-23	-50	-59	24	16	4	-14
23	3	-4	-5	-4	-49	-49	-62	-37	51	6	-1	5
24	-3	0	-1	-15	.	-69	.	-21	52	3	1	31
25	-9	2	.	-17	.	-79	-13	-9	48	3	5	43
26	-5	4	.	-36	.	-73	10	1	30	-7	18	42
27	-5	7	.	-48	-34	-53	13	27	12	-13	.	40
28	-6	5	.	-33	.	-28	6	14	3	-6	.	29
29	5	-2	-9	-15		.	13	-10	-5	14	41	15
30	6	-11	.	14		.	18	-20	-10	27	41	2
31	8		-20	10		.		-27		33	35	

Dot symbol entry indicates no data available for the day.

BOULDER GEOMAGNETIC SUBSTORM LOG

SEPTEMBER 1978

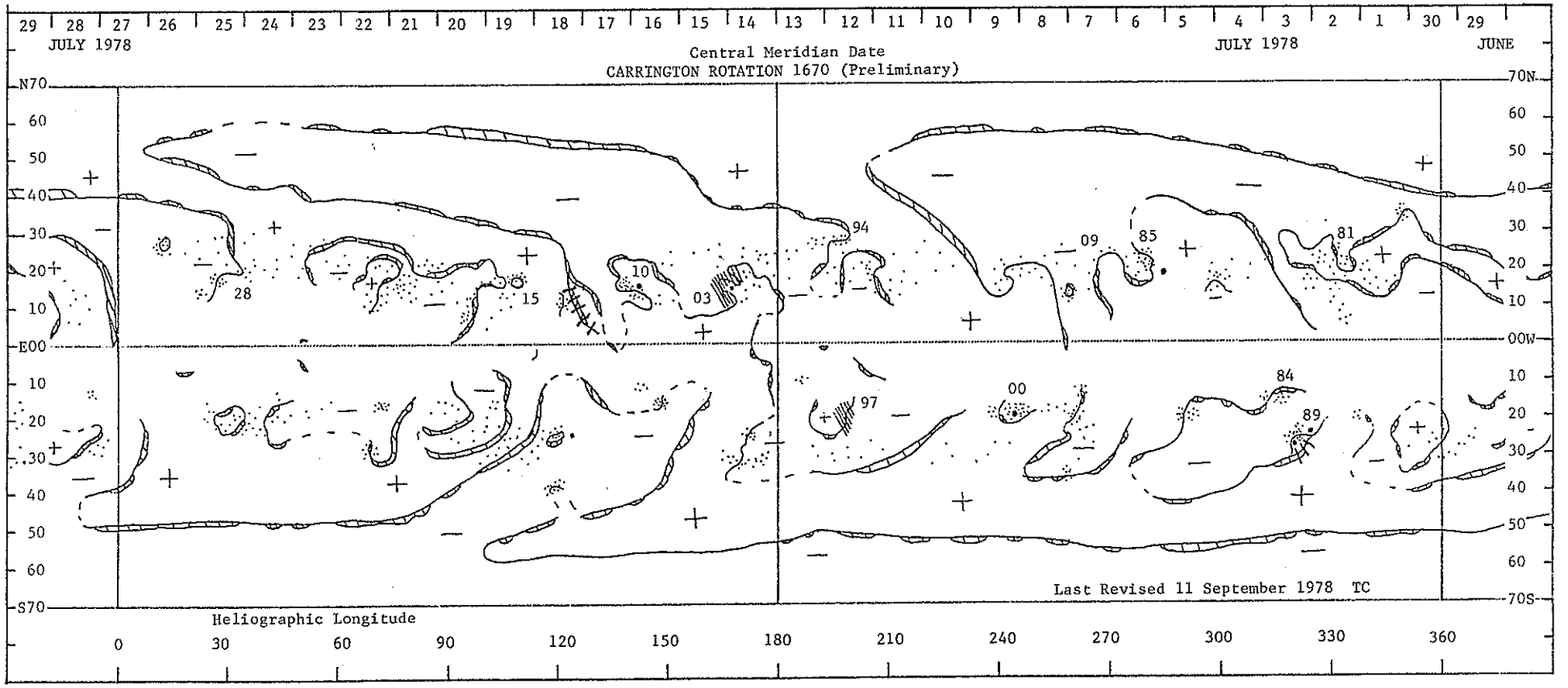
DATE	TIME OF ONSET	DIR.	COMMENTS
1	0345	East	1st of double onset
	0440	East	2nd of double onset
	0610	East	1st of multiple onset
	0630	East	2nd of multiple onset
	0650	≈Center	3rd of multiple onset, moderate SS
	0715	≈Center	4th of multiple onset, moderate SS
	0745	West	5th of multiple onset
	0920	West	1st of multiple onset
	0950	West	2nd of multiple onset
	1035	West	3rd of multiple onset
	1130	West	4th of multiple onset, moderate SS, College and Pacific stations H-component
2	0250	East	Weak
	0655	Center	Strong SS, center Boulder - Ft. Smith
	1115	West	Moderate SS
	1800		
3	0310		Onset of disturbed period lasting through 1600 UT. Numerous small SS with varying onset times/responses throughout network.
4	0345	East	Weak
	0420	East	Weak
	0650	West	1st of multiple onset
	0725	West	2nd of multiple onset
	0810	West	3rd of multiple onset
	1105	West	
5	0510		1st of multiple onset; weak, slow onset Lynn Lake
	0540	West	2nd of multiple onset
	0620	West	3rd of multiple onset
	1855		Small sudden impulse on H-component of all mid and low latitude stations
	2040		
6	0515	East	Onset of disturbed period along oval lasting through 1400 UT.
	0625	≈center	
	0820	West	Strong SS Southern Alaska, center of current system between College - Talkeetna
7	0925	West	Weak
	1010	West	
	2250		
8	0215	East	1st of multiple onset
	0235	East	2nd of multiple onset
	0400	East	3rd of multiple onset
	0500	East	1st of double onset
	0525	East	2nd of double onset
	0740	West	
	0830	West	
9	0245		Slow rising positive impulse on H-component all mid and low latitude stations.
	0730		Onset of mag storm conditions lasting through 1850 UT.
10	0100		Positive sudden impulse on H-component all mid and low latitude stations. Unsettled period 0925-1525 UT, no distinct onset.
11	1220		Weak
	1315		Initiation of strong SS at College
	1400		Nominal initiation of strong SS Norman Wells eastward, SS continues intensification at College.
	1500		Series of injections into strong SS until 1600 UT.
	1700		Network recovered from strong SS.
12	0120		Weak
	0445	East	Weak, Lynn Lake eastward
	0710	West	Weak
	0735	West	Beginning of moderate SS centered near Ft. Smith
	0800		Injection into SS as SS initiation moves westward
	0820		Injection into SS as SS initiation moves westward
	0850	WEst	Beginning of moderate SS at College
	1110		Weak
	1135		Weak
	1210		Weak
	1340		Auroral stations recover from SS activity near 1600 UT.
13	0615	East	Weak, Lynn Lake eastward
	0835	West	Moderate SS centered near Ft. Simpson
14	0100	East	1st of double onset
	0130	East	2nd of double onset
15	0730	West	Weak, oval stations only
	1140	West	Weak, oval stations only
16	0525	East	Weak, SS centered at Back
17	0440	East	SS centered near Back
	0655	East	SS centered near Lynn Lake
	0800	West	
18	1225		Weak; oval stations, Ft. Smith westward
19			Quiet day
20			Quiet day
21	0345	East	Weak
	0435	East	
	0525	East	Weak
22	0350	East	Localized SS, Back - Eskimo Pt.
	0800	≈Center	Moderate SS centered near Ft. Simpson
	1710		Field unsettled 1200-2000 UT.
23			Field generally unsettled in network after 0400 UT, no distinct onsets
24	0355	East	
	0545	≈Center	Weak SS
	0635	≈Center	Weak SS
			Strong H-component disturbance at Cape Parry and Sachs Harbour after 1600 UT.
25			Field became unsettled 0225 UT, disturbed 0525 UT, with a SSC at 0718 UT. - magnetic storm followed.
26			Field disturbed after 0200 UT; only major SS activity listed.
	0425	East	
	0510	East	Strong SS centered near Lynn Lake
	0755	West	Intense SS centered near College
	0825		Injection into existing SS
	0905		Injection into existing SS
	1500		
	1610		
27			Field disturbed all day; only more significant SS listed.
	0025	East	
	0100	East	
	0435	East	
	0820	West	
	0950	West	
	1105	West	
	1705		
	2005		
28			Field disturbed all day; nearly continuous SS activity 03-15 UT.
29			SSC 0300 UT; mag storm through 1900 UT.
30	0535	West	Strong response Inuvik to Sachs Harbour
	0805	West	
	0840	West	

AUGUST 1978 DATA

Contents

Hα SYNOPTIC CHART

CARRINGTON ROTATION 1670 (PRELIMINARY)



Hα SYNOPTIC CHART

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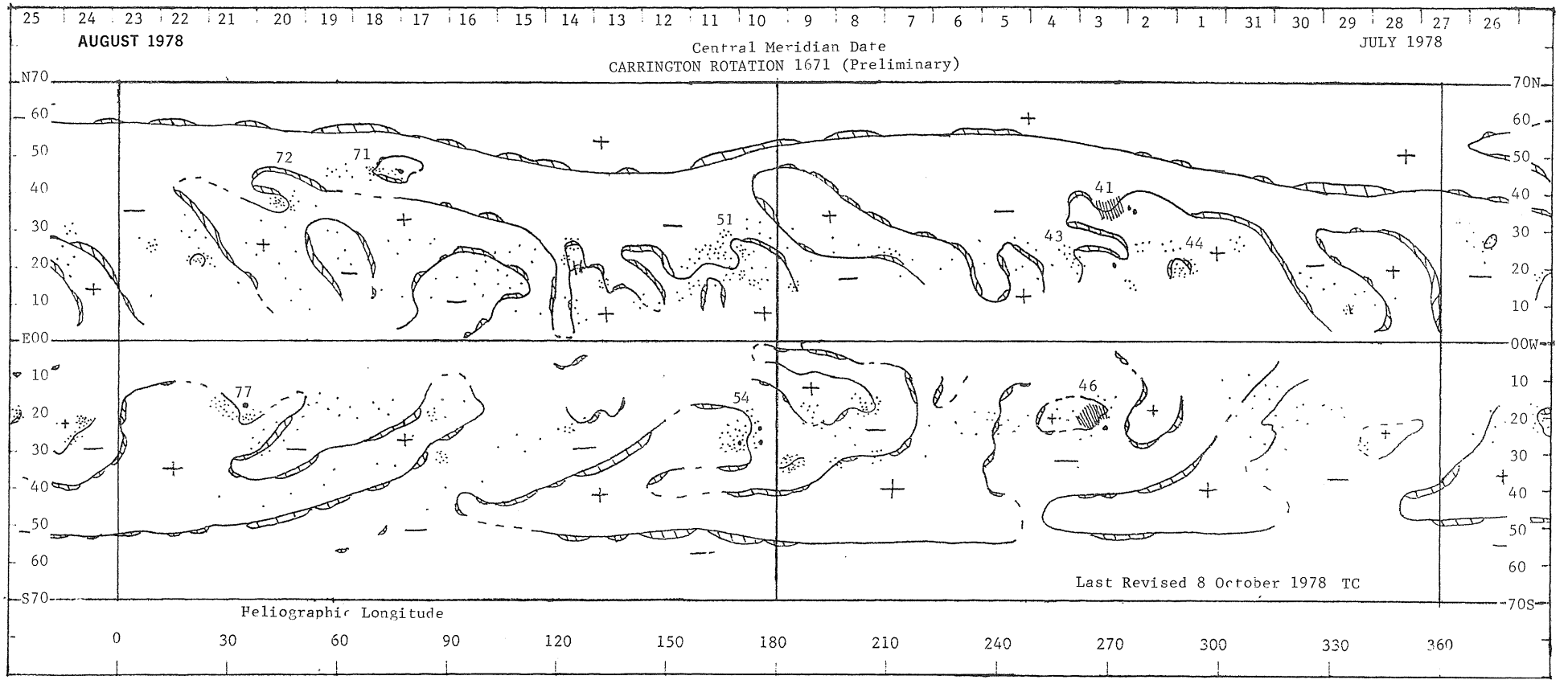

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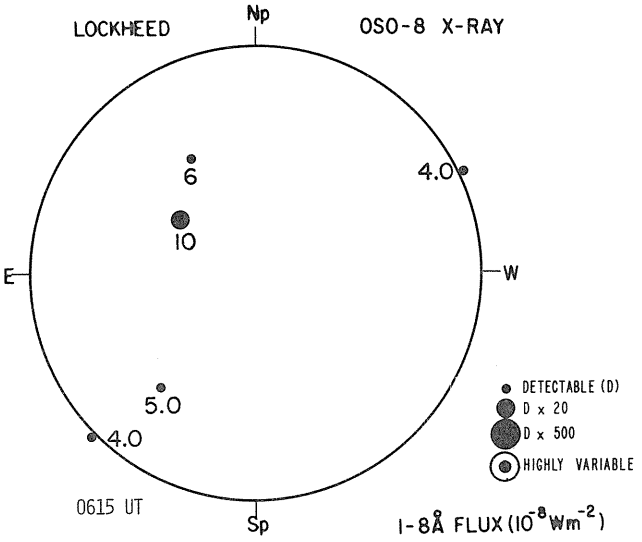
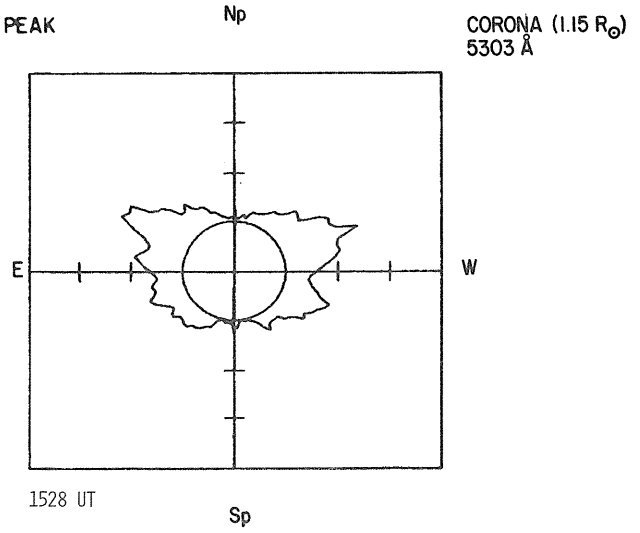
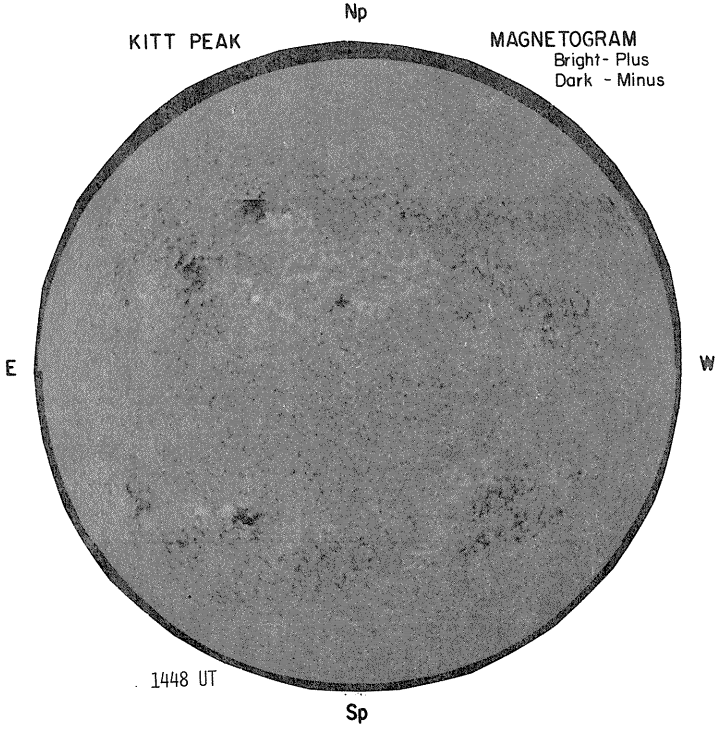
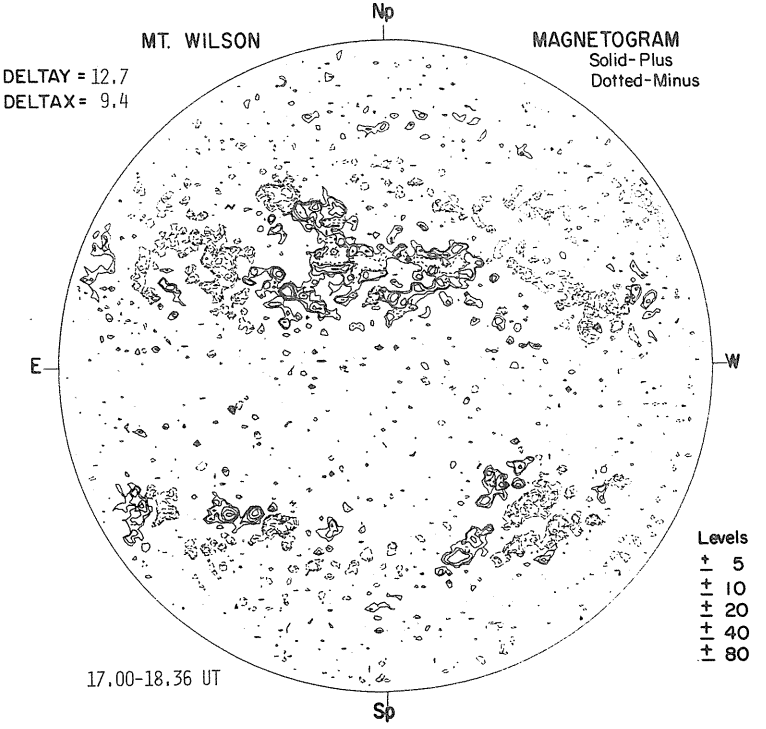
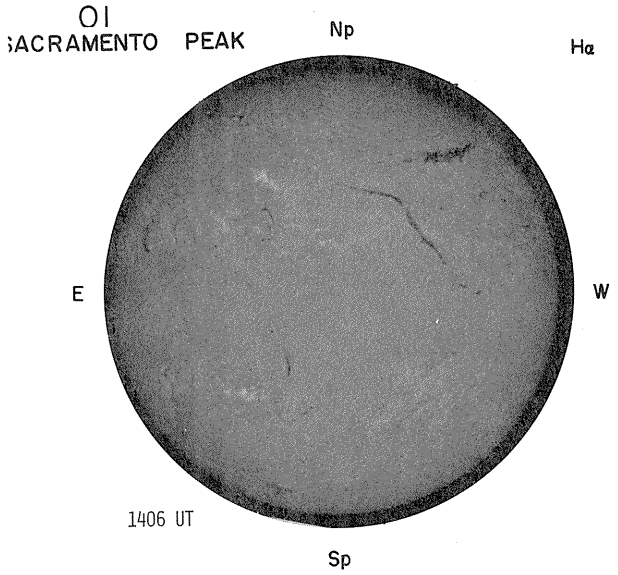
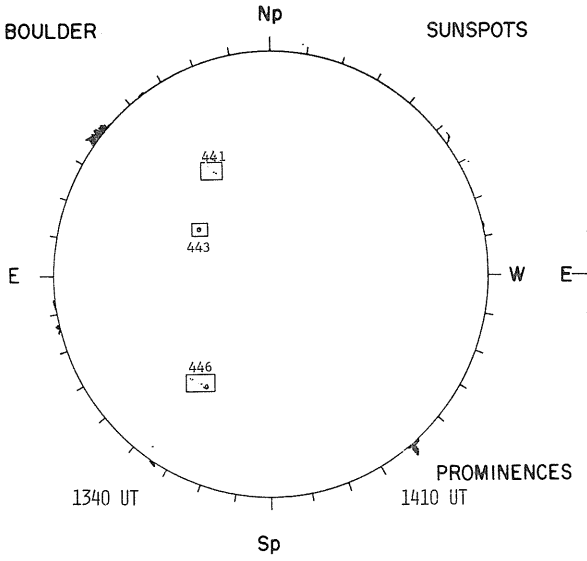


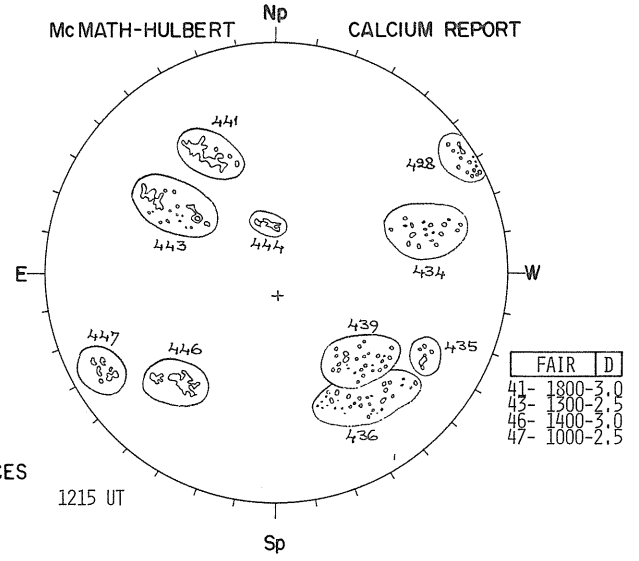


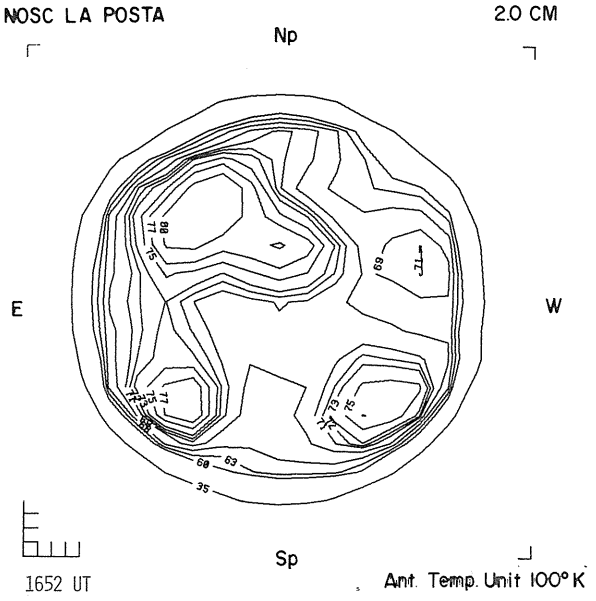


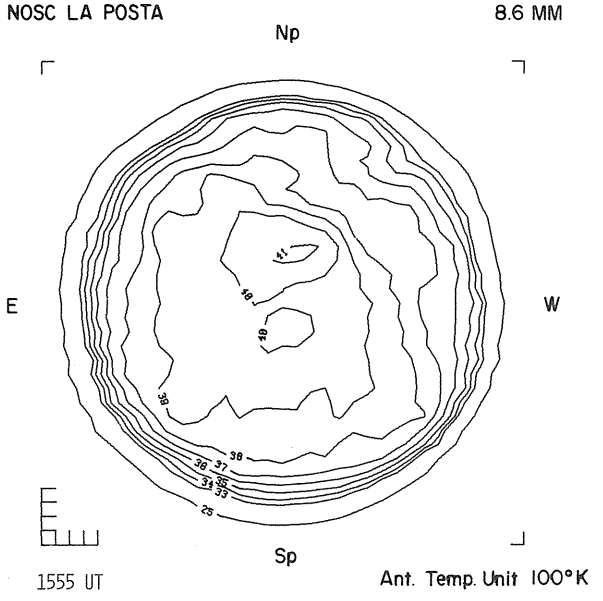



OI
SACRAMENTO PEAK
Np
Hα
E
W
1406 UT
Sp


BOULDER
Np
SUNSPOTS
441
443
446
E
W
1340 UT
Sp
PROMINENCES
1410 UT


McMATH-HULBERT
Np
CALCIUM REPORT
441
498
443
444
434
439
435
447
446
436
E
W
1215 UT
Sp
FAIR D
41- 1800-3.0
43- 1300-2.5
46- 1400-3.0
47- 1000-2.5


NOSC LA POSTA
2.0 CM
Np
E
W
Sp
1652 UT
Ant. Temp. Unit 100° K


NOSC LA POSTA
8.6 MM
Np
E
W
Sp
1555 UT
Ant. Temp. Unit 100° K

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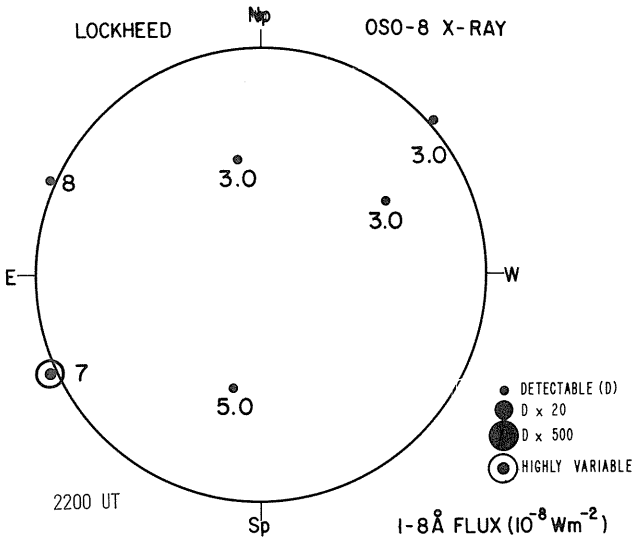
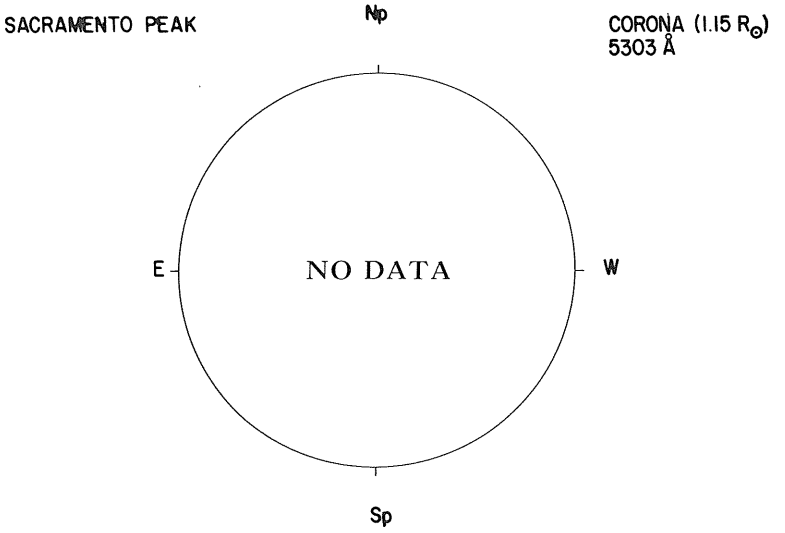
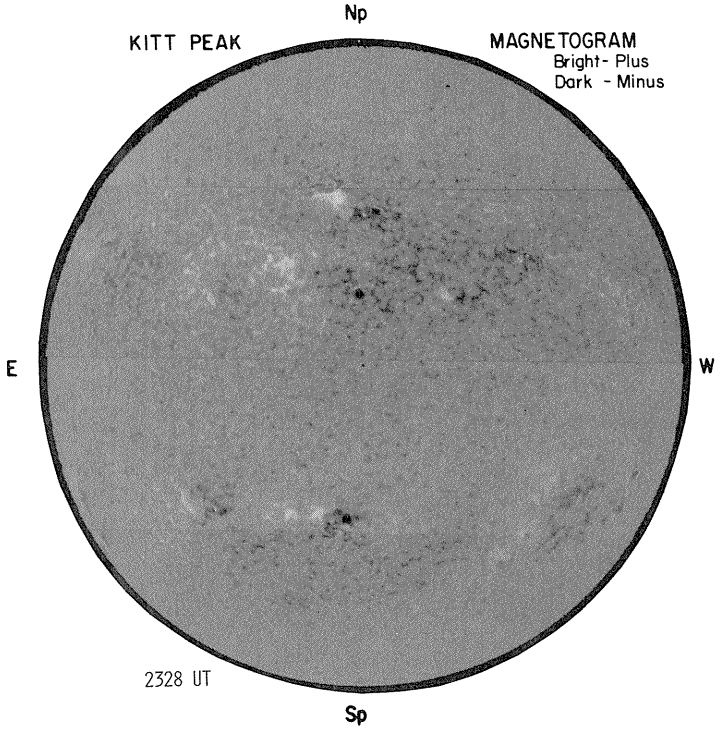
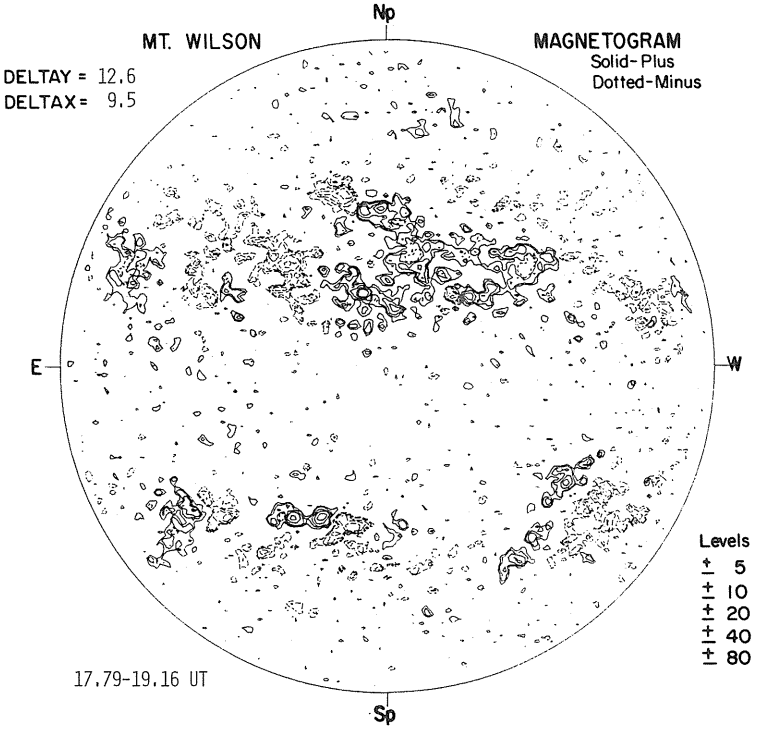


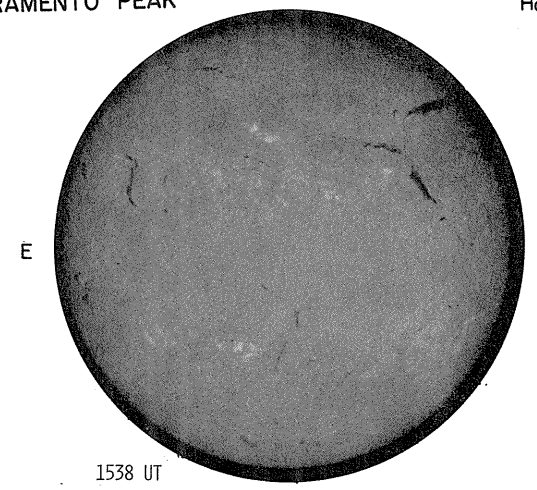






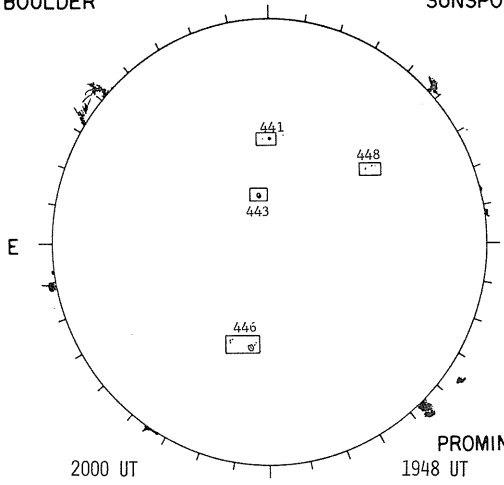
02

ACRAMENTO PEAK Hα



1538 UT

BOULDER SUNSPOTS

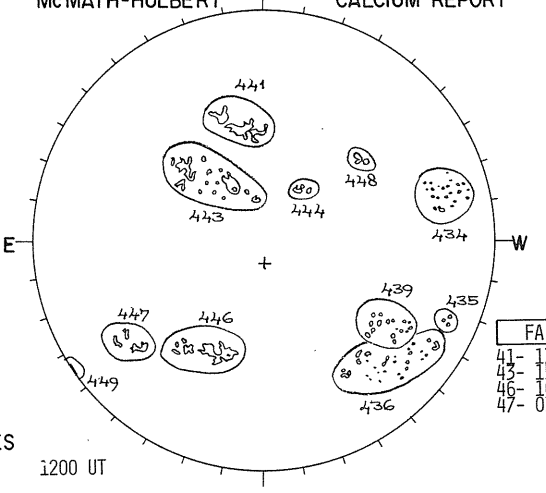


2000 UT

PROMINENCES

1948 UT

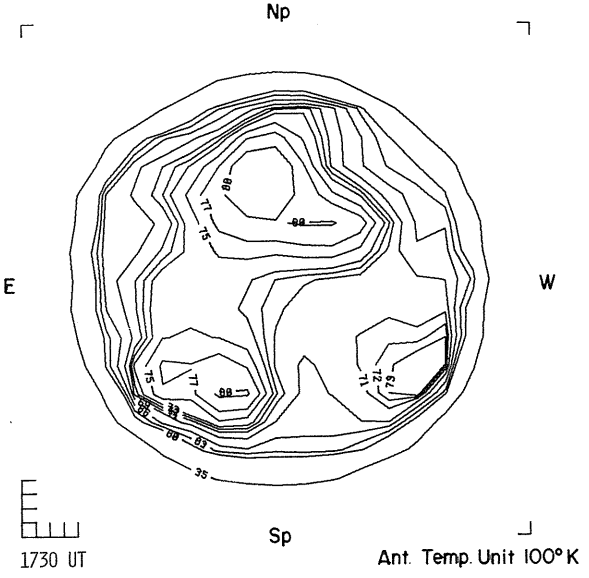
McMATH-HULBERT CALCIUM REPORT



1200 UT

FAIR	D
41- 1700-3.0	
43- 1500-2.5	
46- 1600-3.0	
47- 0700-2.5	

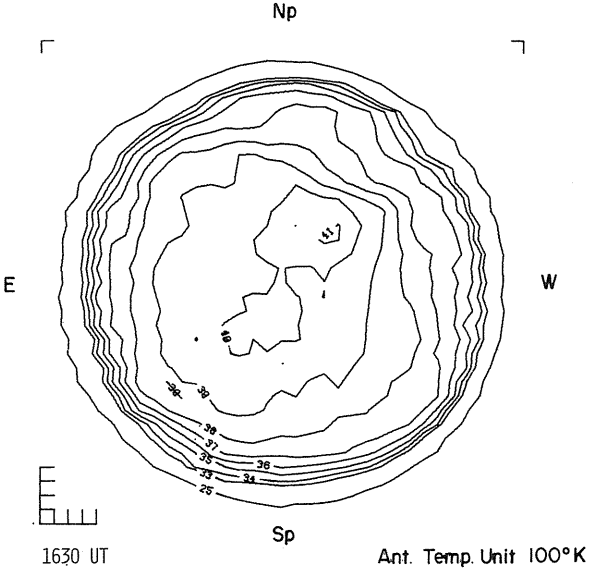
NOSC LA POSTA 2.0 CM



1730 UT

Ant. Temp. Unit 100°K

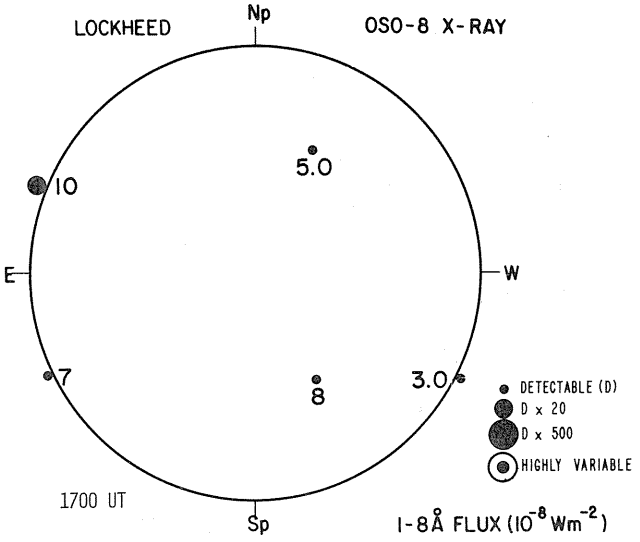
NOSC LA POSTA 8.6 MM

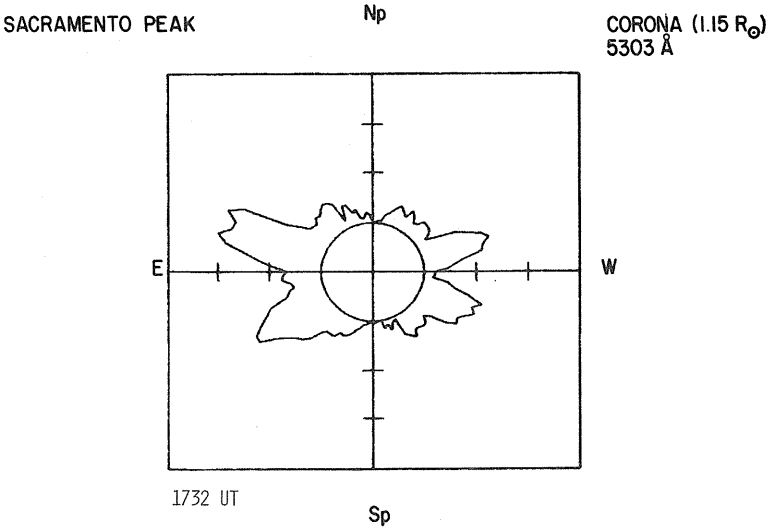


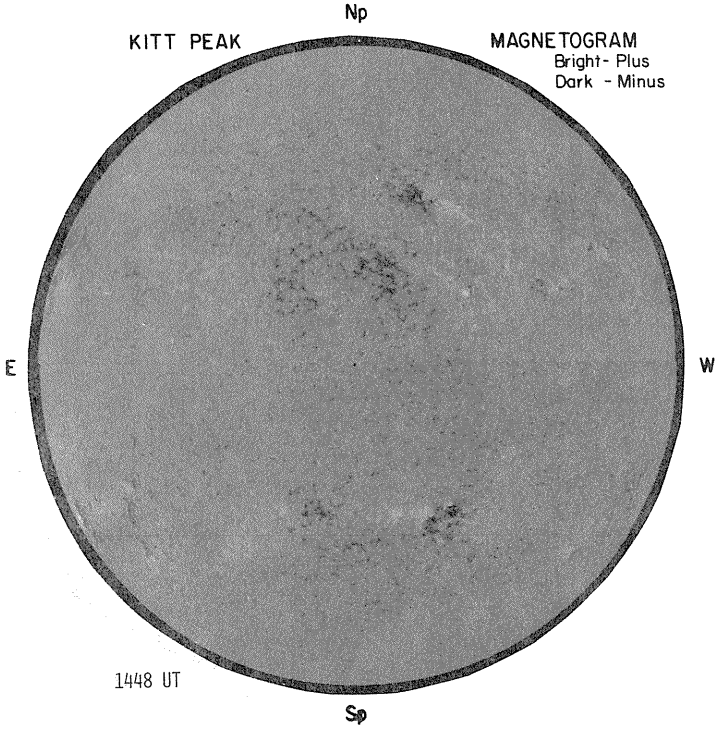
1630 UT

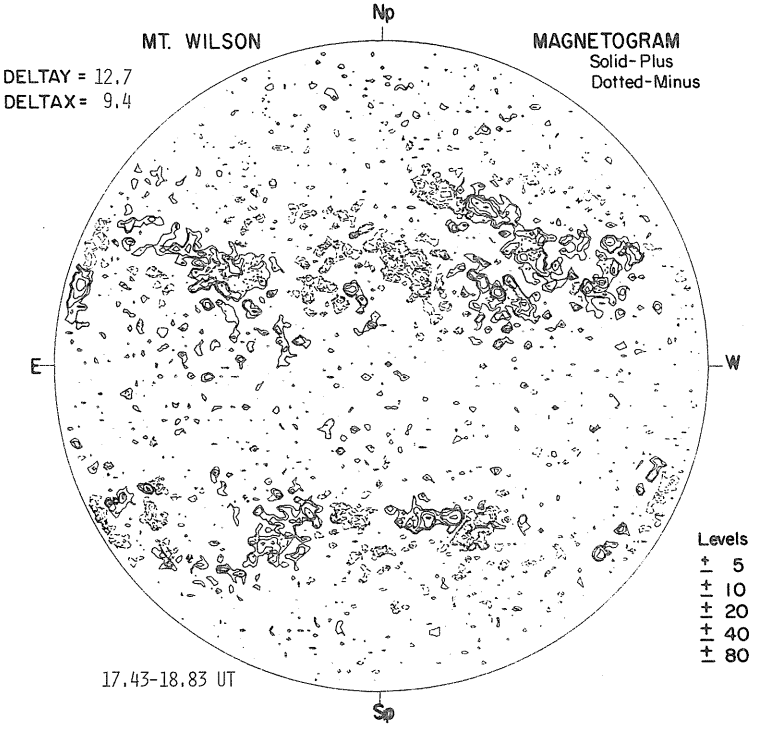
Ant. Temp. Unit 100°K

AUGUST 4, 1978 (P = 11.87, B_o = 5.99, L_o = 261.69)



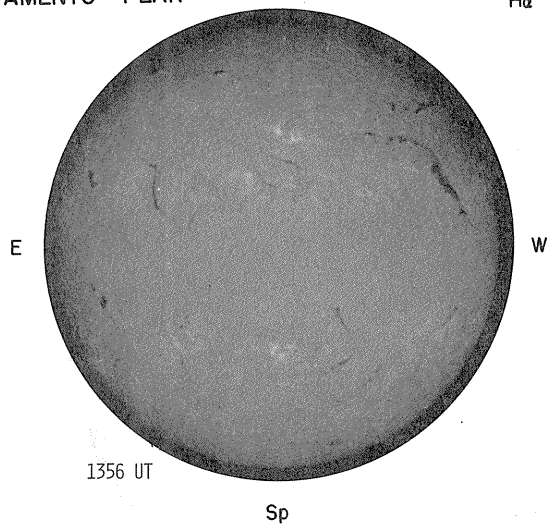




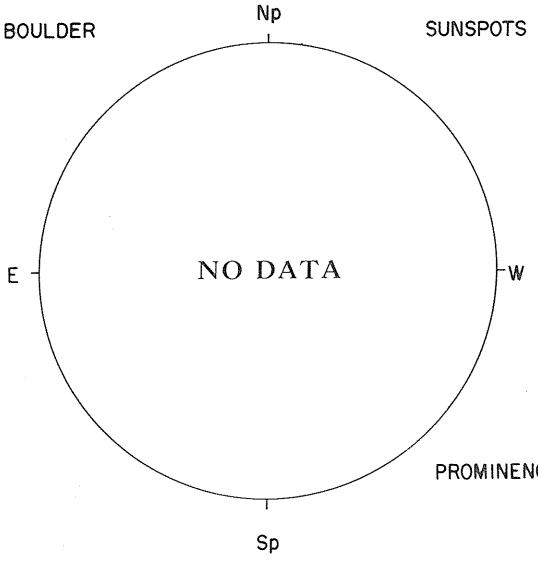


03

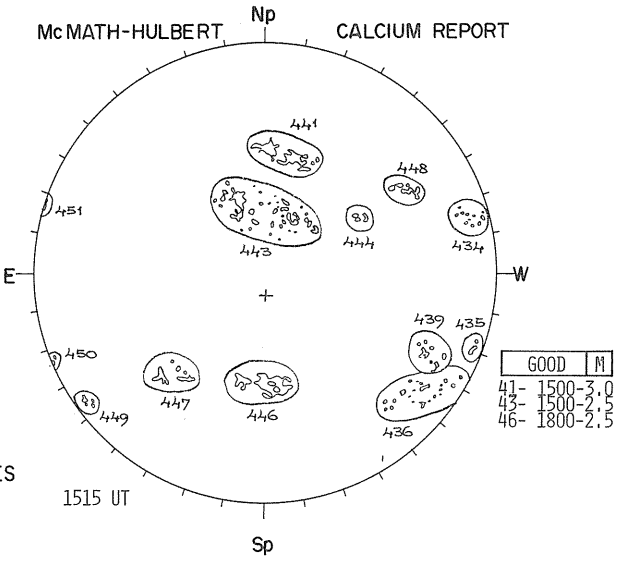
SACRAMENTO PEAK Hα



BOULDER SUNSPOTS

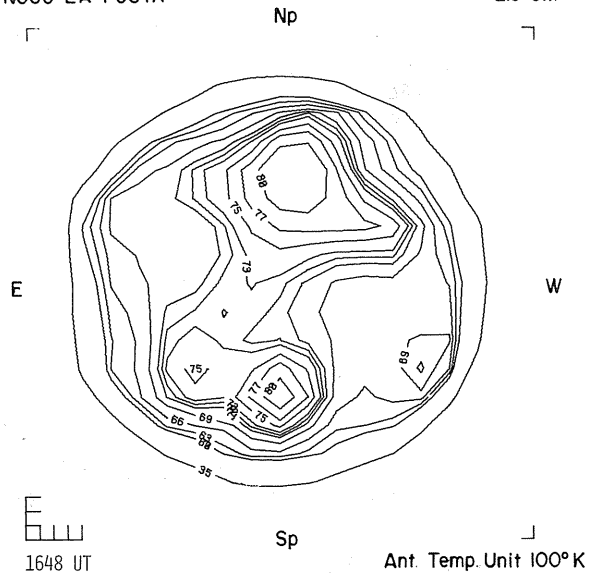


McMATH-HULBERT CALCIUM REPORT

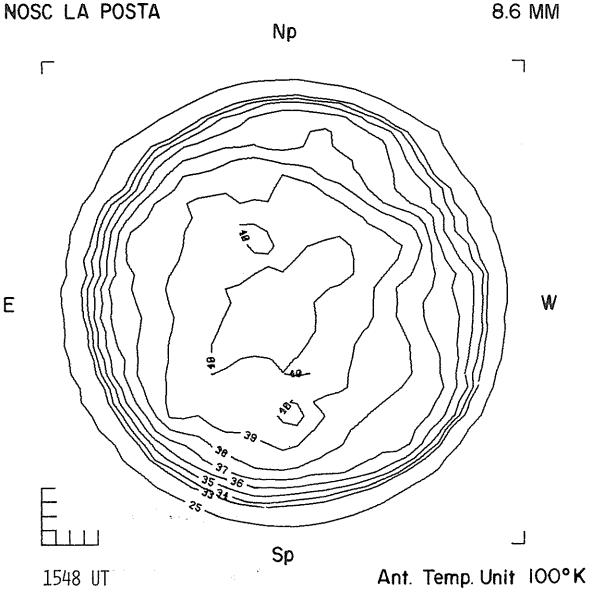


PROMINENCES

NOSC LA POSTA 2.0 CM



NOSC LA POSTA 8.6 MM



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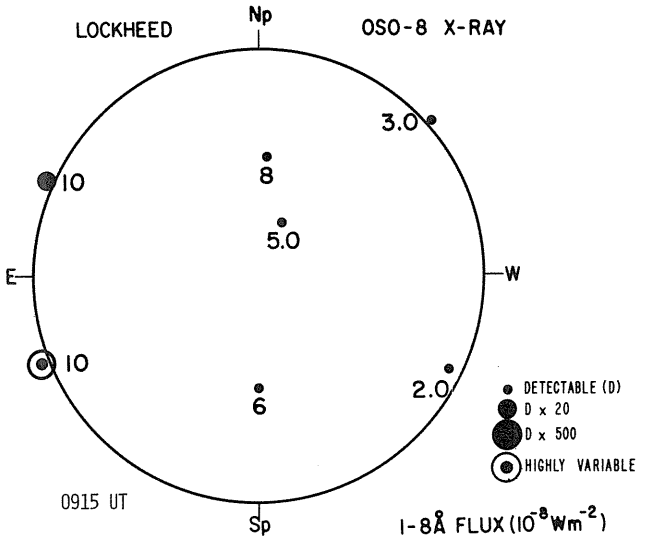
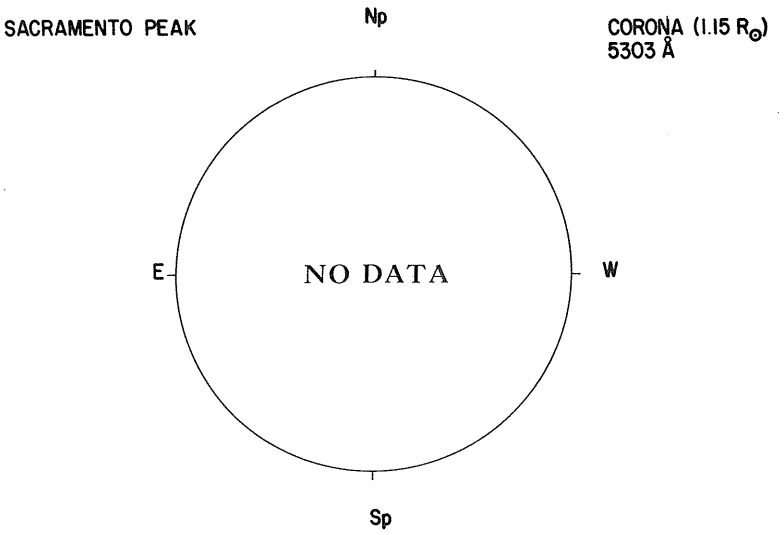
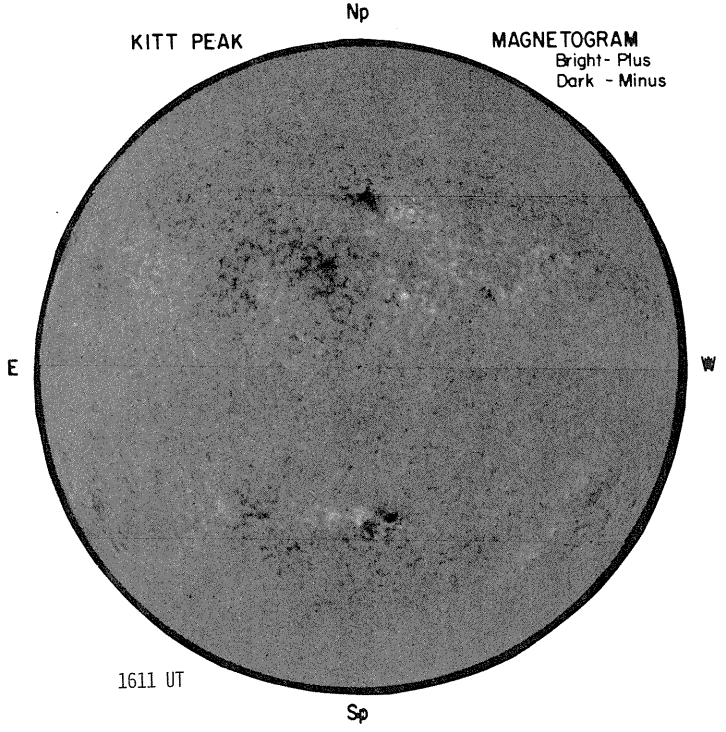
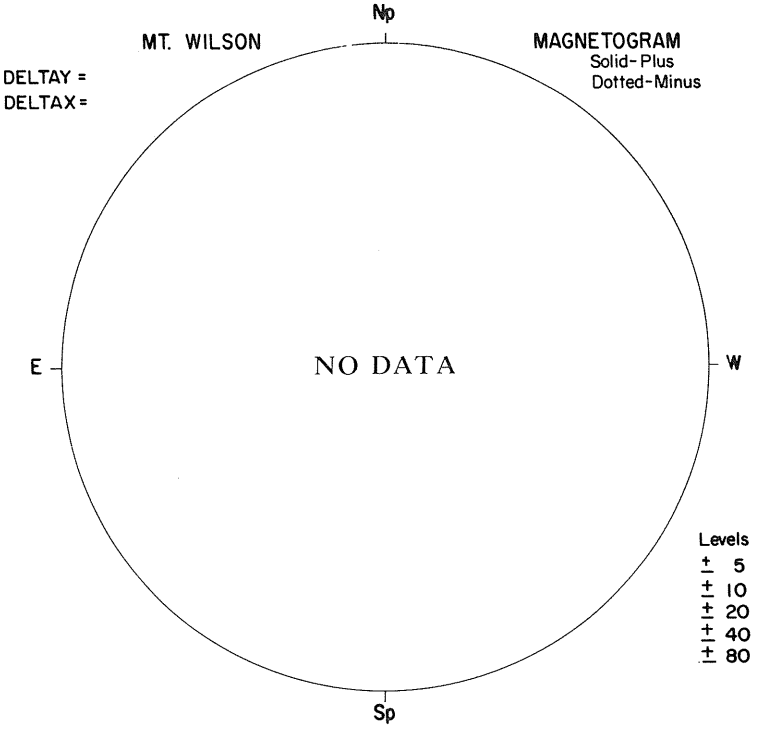
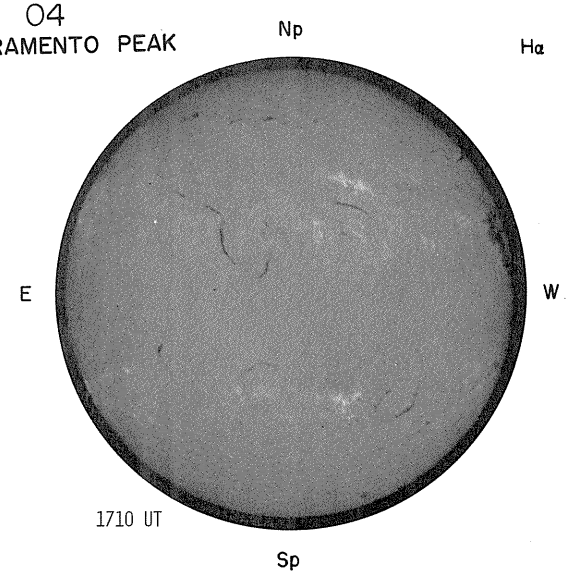




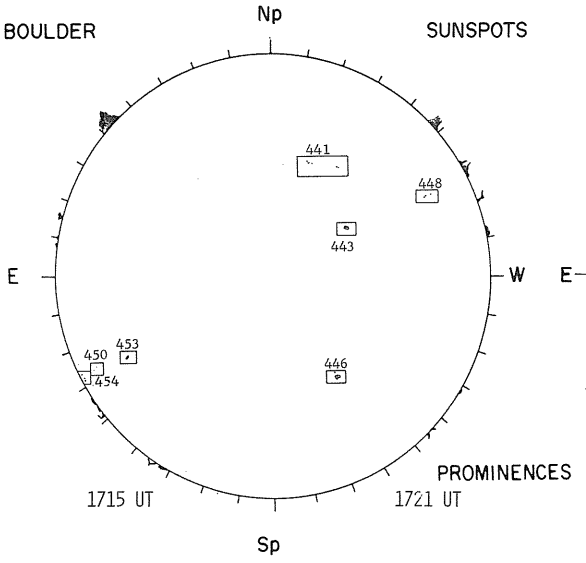




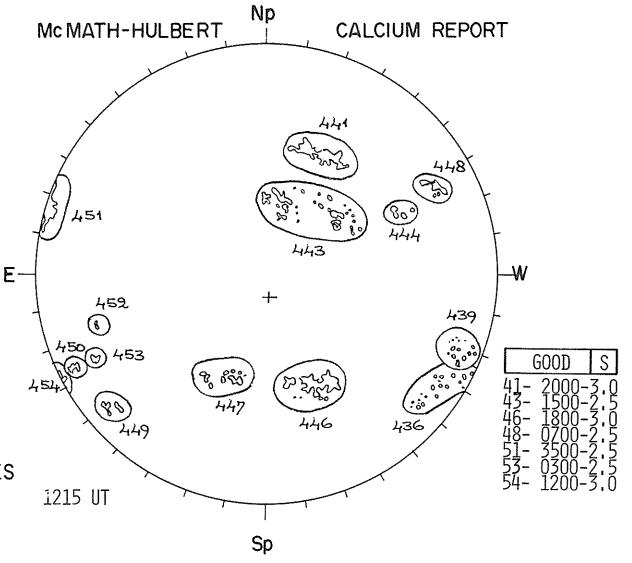
04
SACRAMENTO PEAK



BOULDER SUNSPOTS



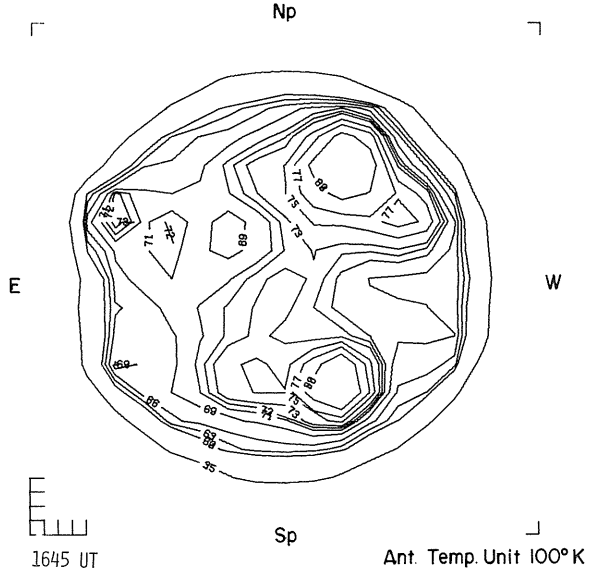
McMATH-HULBERT CALCIUM REPORT



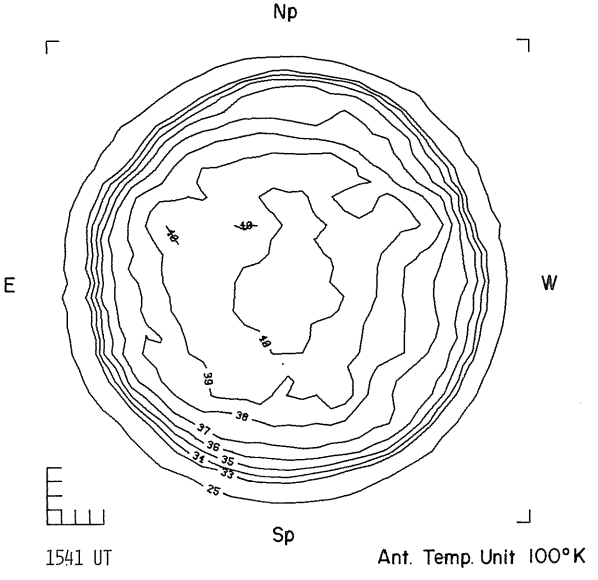
PROMINENCES

GOOD	S
41- 2000-3.0	
43- 1500-2.5	
46- 1800-3.0	
48- 0700-2.5	
51- 3500-2.5	
53- 0300-2.5	
54- 1200-3.0	

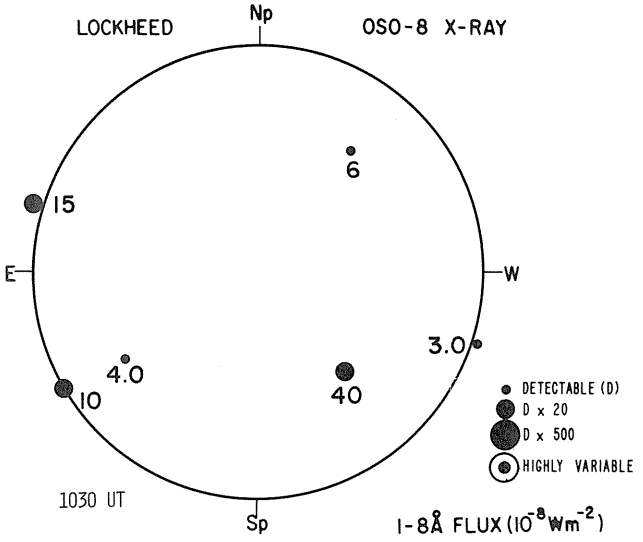
NOSC LA POSTA 2.0 CM

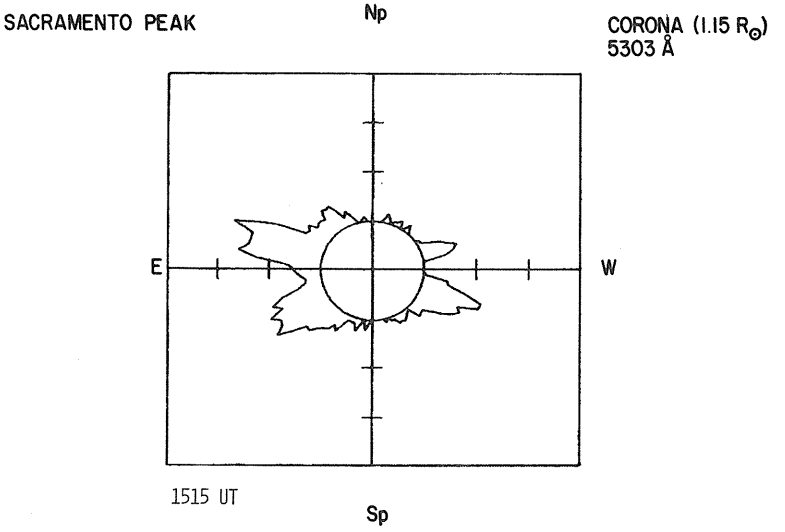


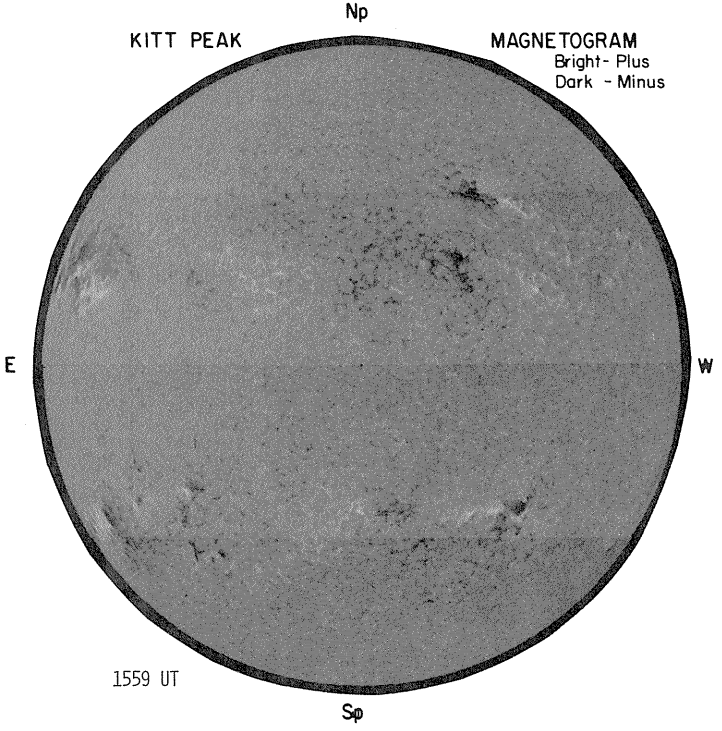
NOSC LA POSTA 8.6 MM

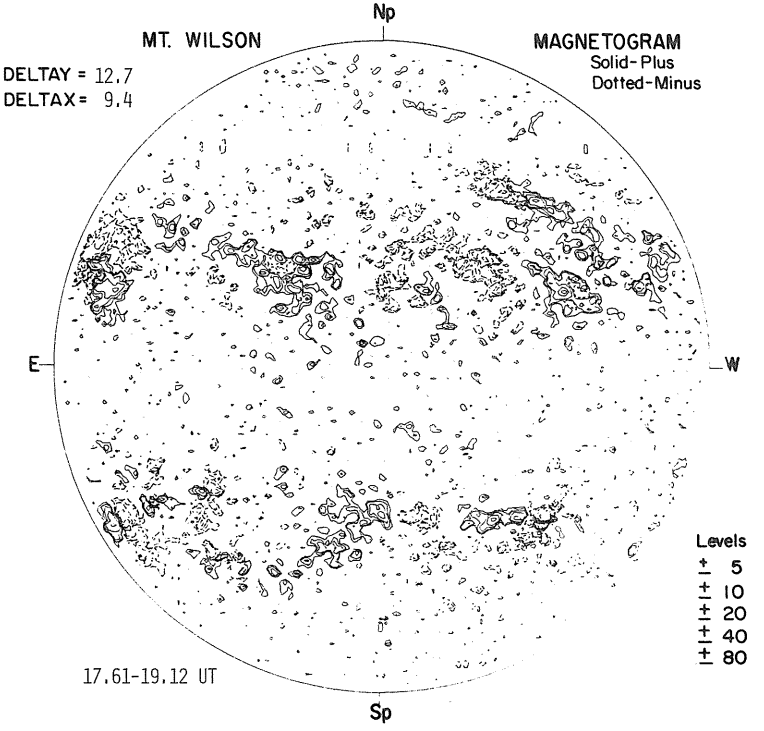


AUGUST 5, 1978 (P = 12.26, B_o = 6.06, L_c = 248.47)

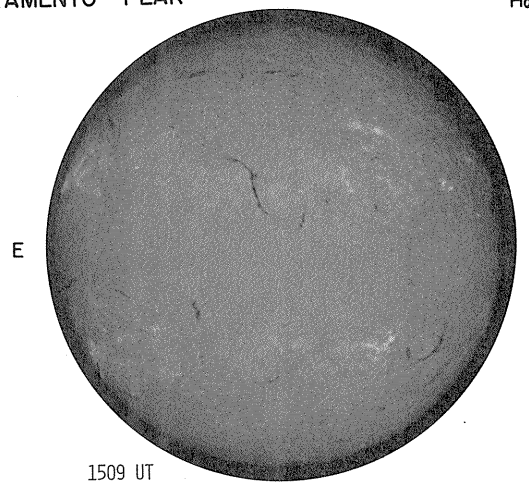






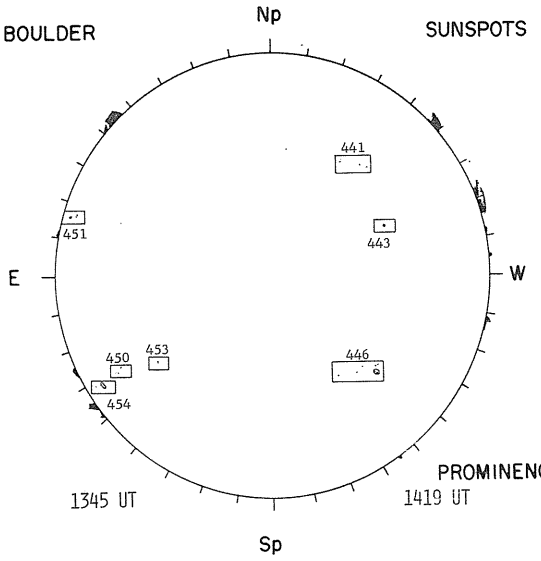


05
SACRAMENTO PEAK Hα



1509 UT

BOULDER SUNSPOTS

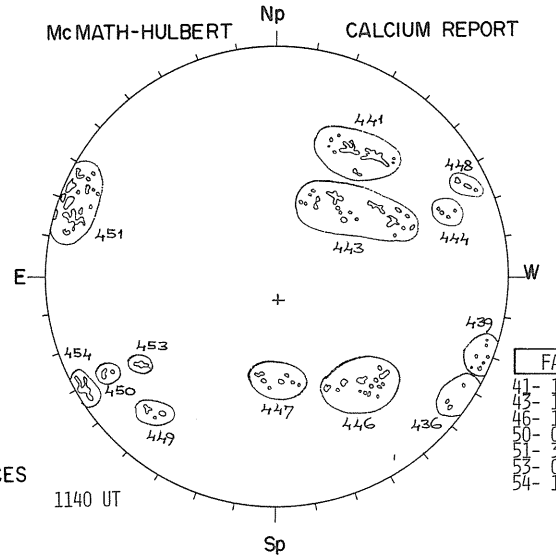


1345 UT

PROMINENCES

1419 UT

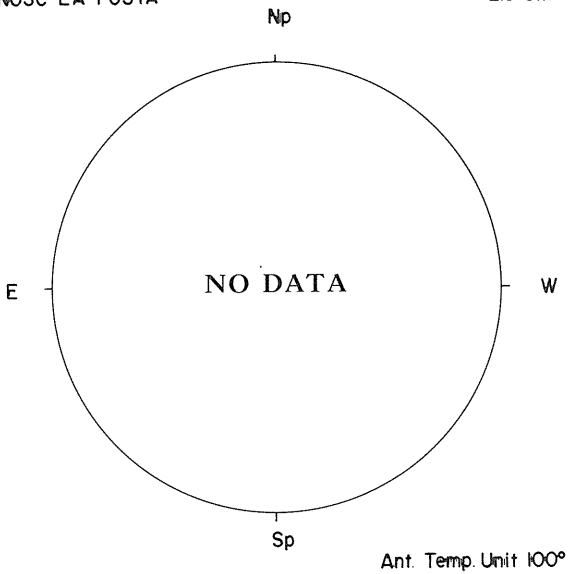
McMATH-HULBERT CALCIUM REPORT



1140 UT

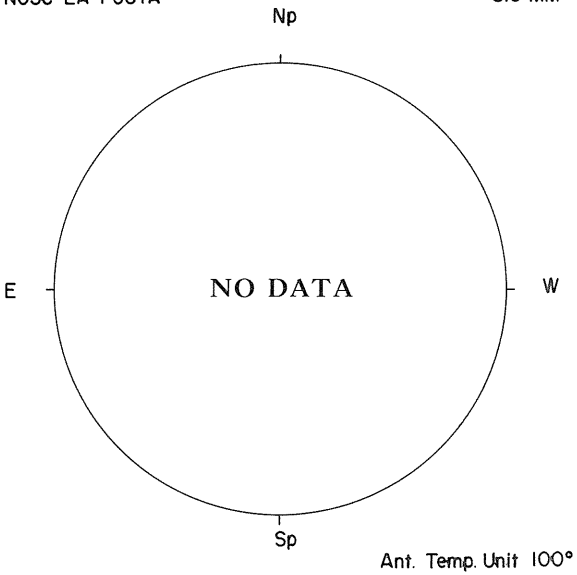
FAIR	D
41- 1800-3.0	
43- 1500-2.5	
46- 1600-3.0	
50- 0500-2.5	
51- 3800-3.0	
53- 0300-2.5	
54- 1500-2.5	

NOSC LA POSTA 2.0 CM



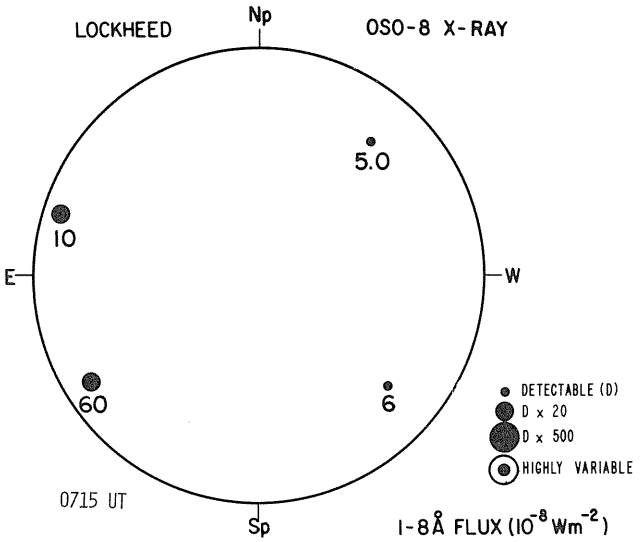
Ant. Temp. Unit 100° K

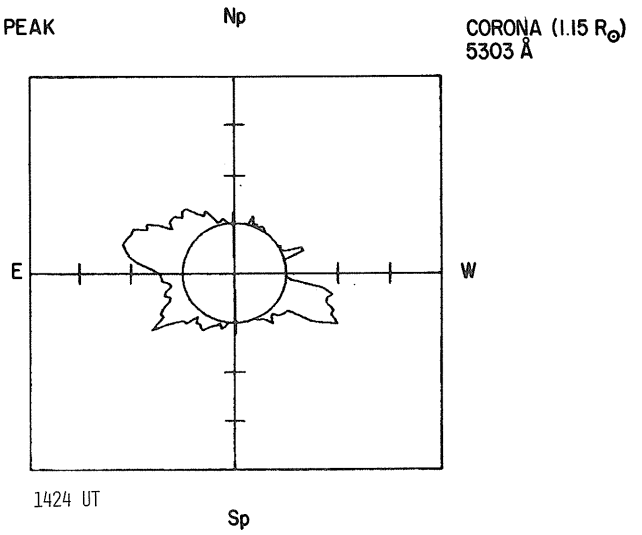
NOSC LA POSTA 8.6 MM

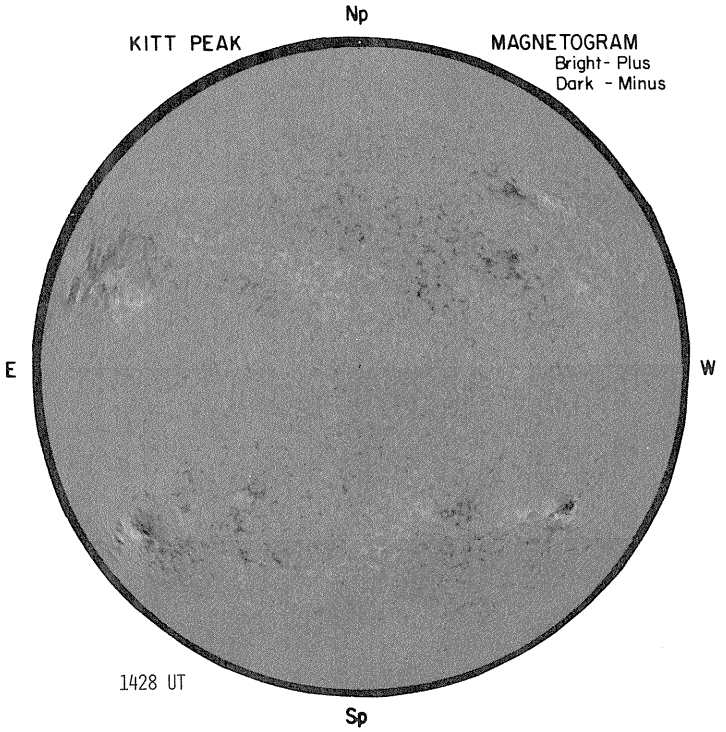


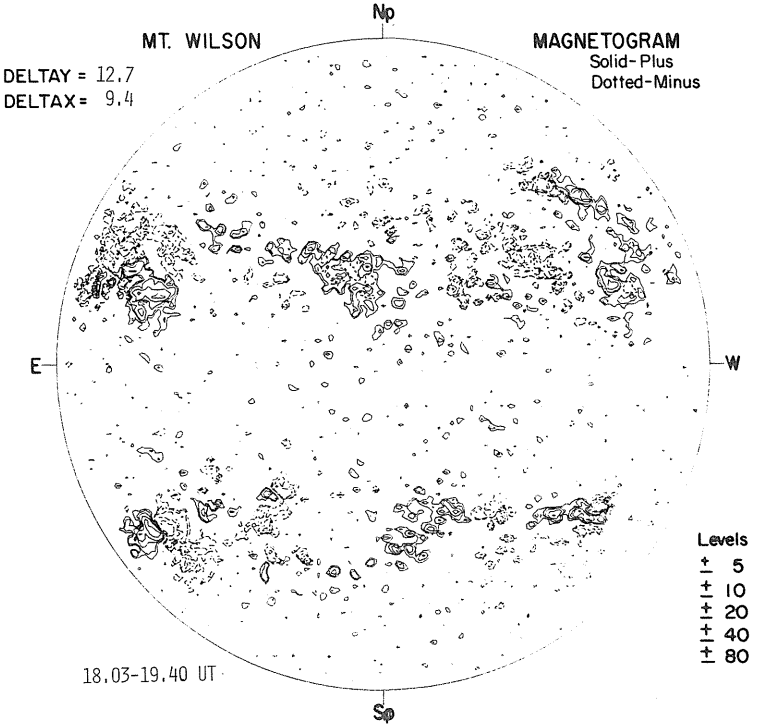
Ant. Temp. Unit 100° K

AUGUST 6, 1978 (P = 12.64 B_o = 6.13, L_o = 235.24)

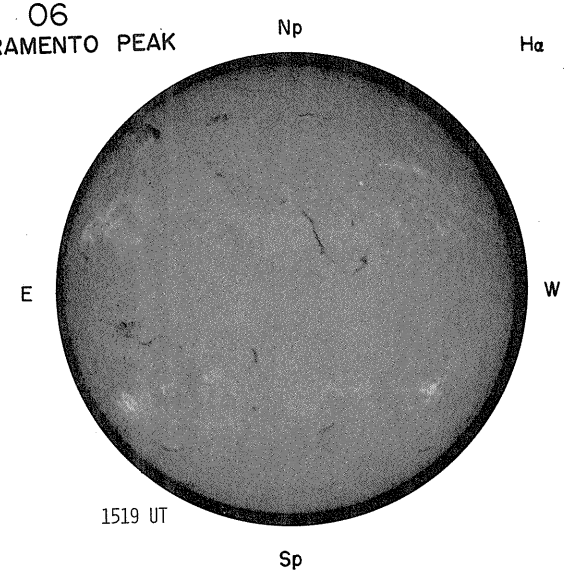




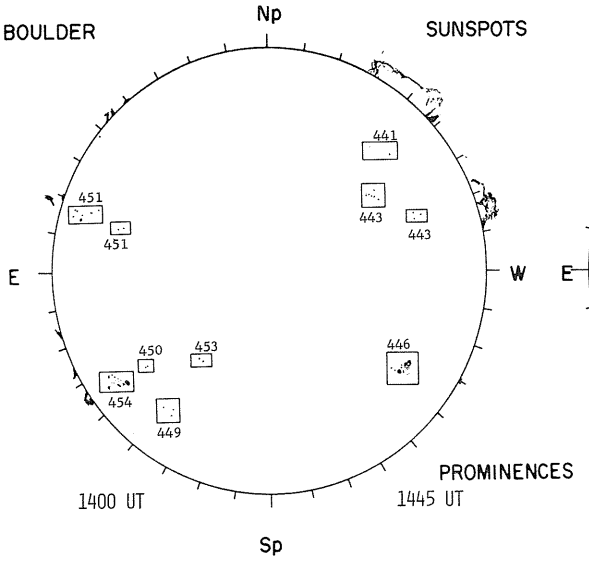




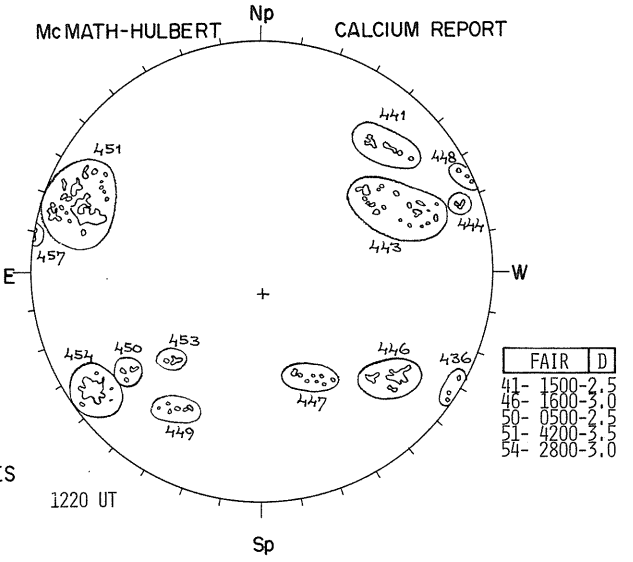
06
SACRAMENTO PEAK



BOULDER

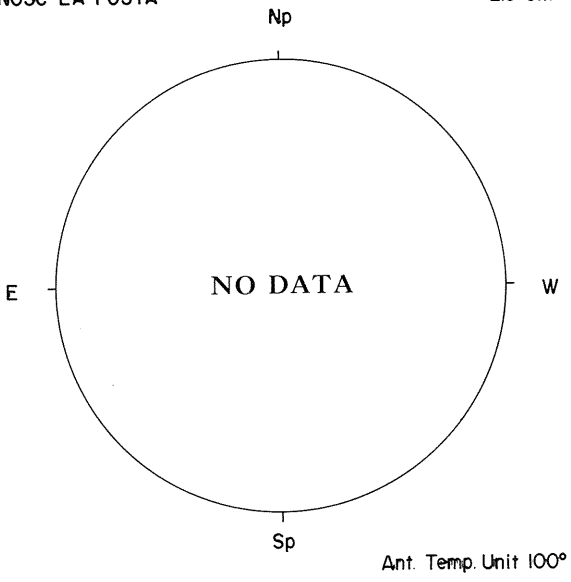


McMATH-HULBERT

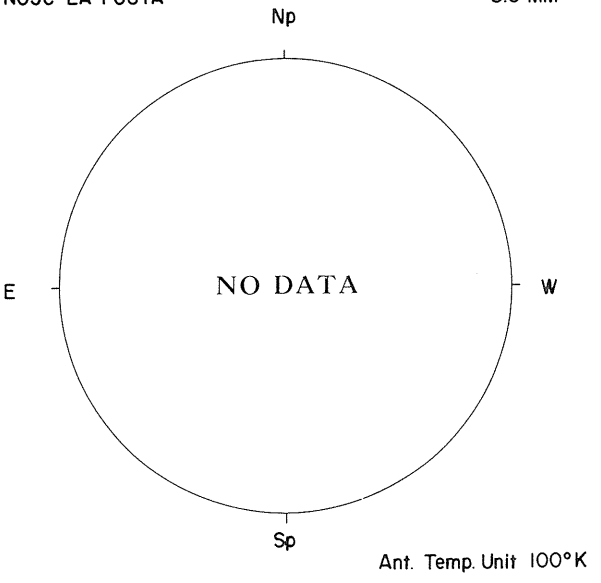


PROMINENCES

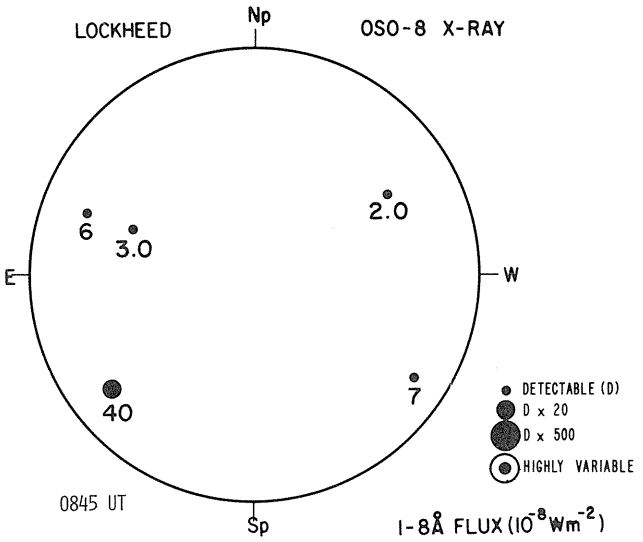
NOSC LA POSTA 2.0 CM

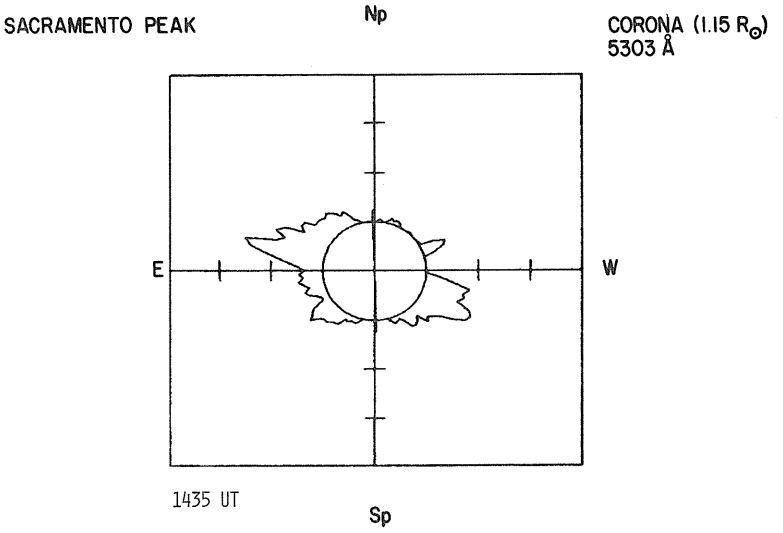


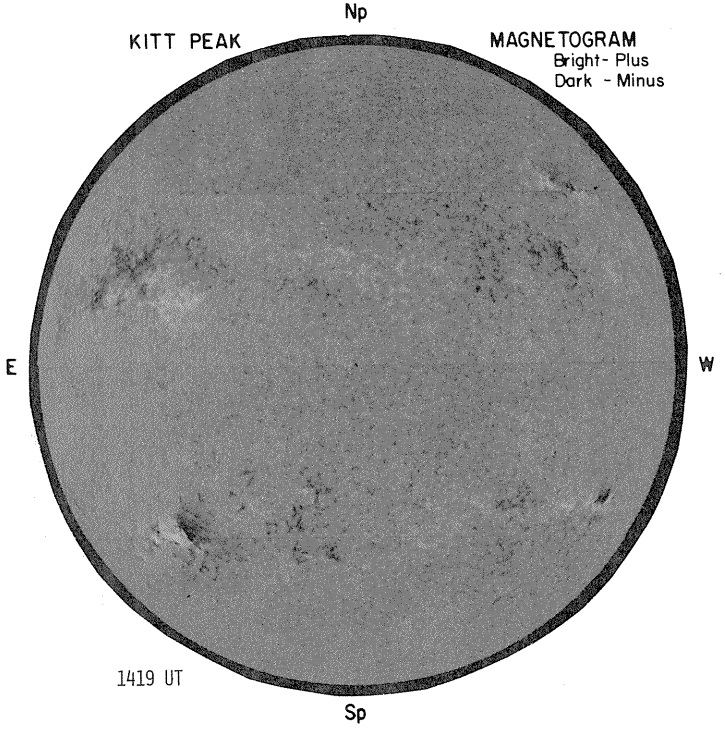
NOSC LA POSTA 8.6 MM

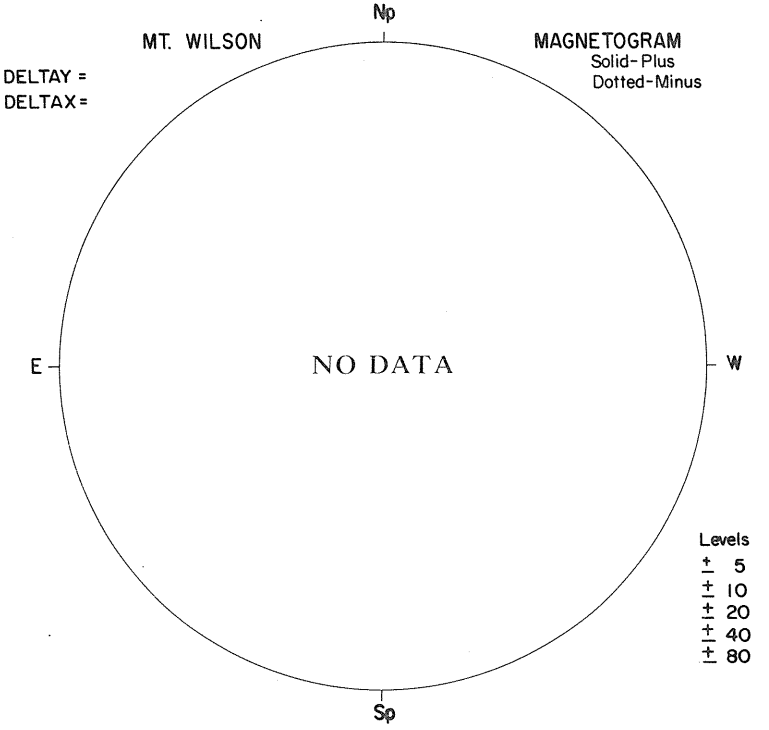


AUGUST 7, 1978 (P = 13.02, B_o = 6.19, L_o = 222.02)



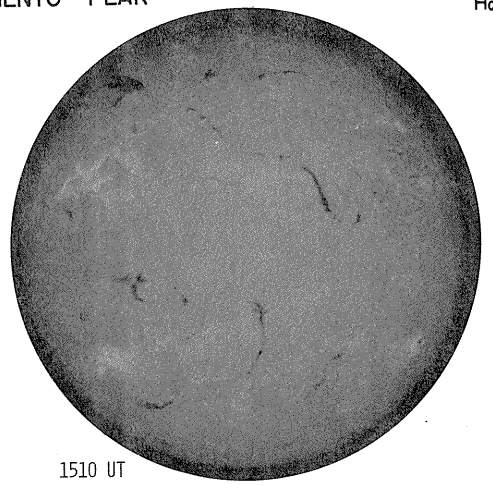






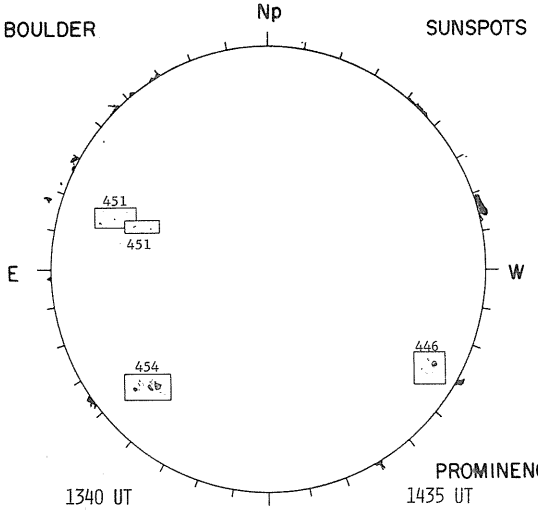
07

ACRAMENTO PEAK Hα



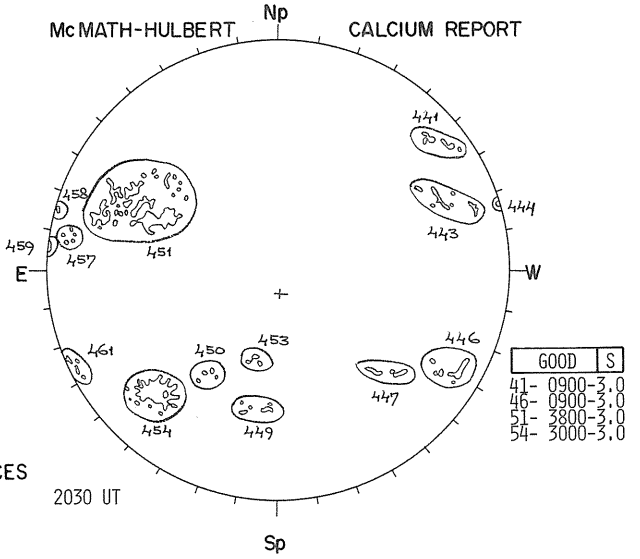
1510 UT

BOULDER SUNSPOTS



1340 UT

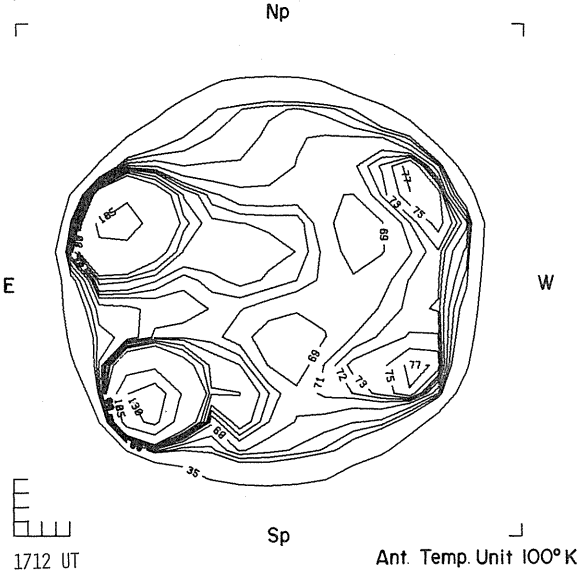
McMATH-HULBERT CALCIUM REPORT



PROMINENCES

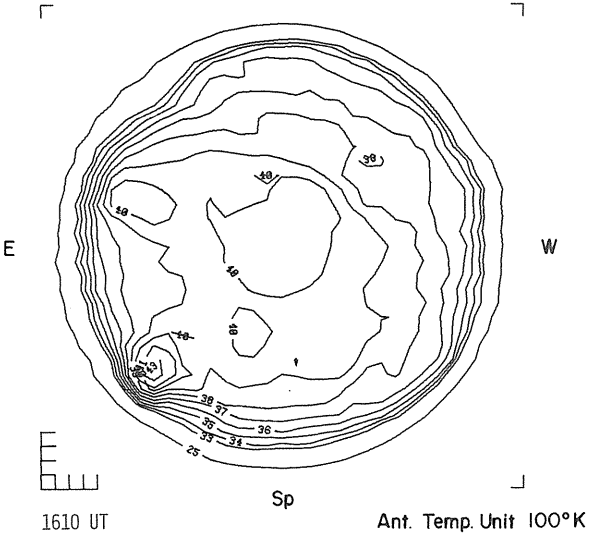
1435 UT 2030 UT

NOSC LA POSTA 2.0 CM



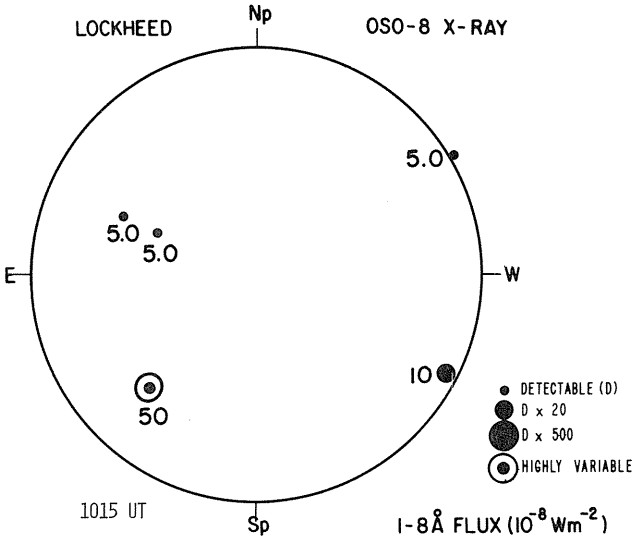
1712 UT Ant. Temp. Unit 100° K

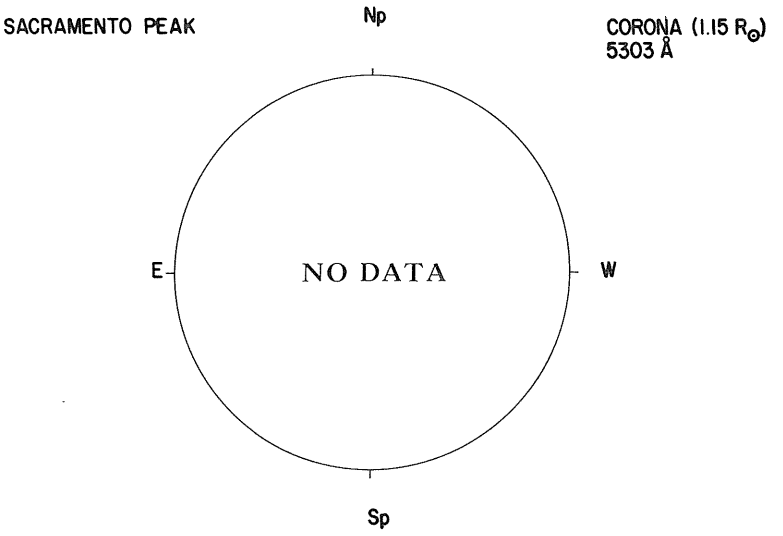
NOSC LA POSTA 8.6 MM

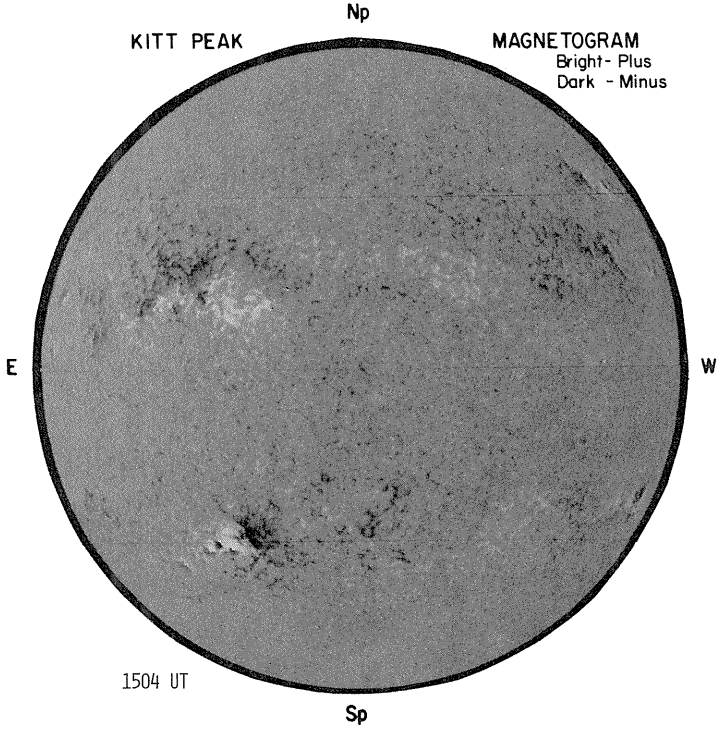


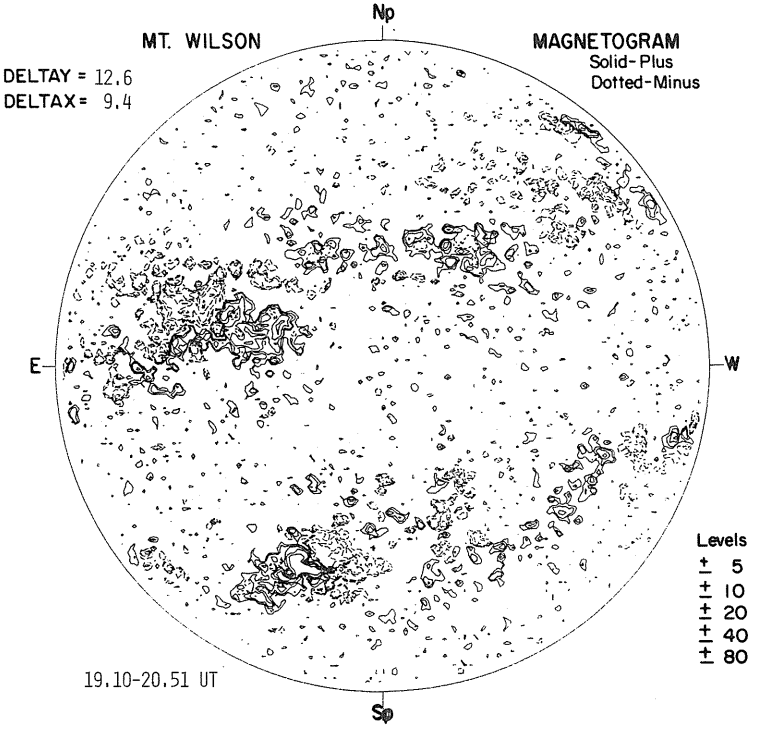
1610 UT Ant. Temp. Unit 100° K

AUGUST 8, 1978 (P = 13.40, B_o = 6.25, L_o = 208.80)

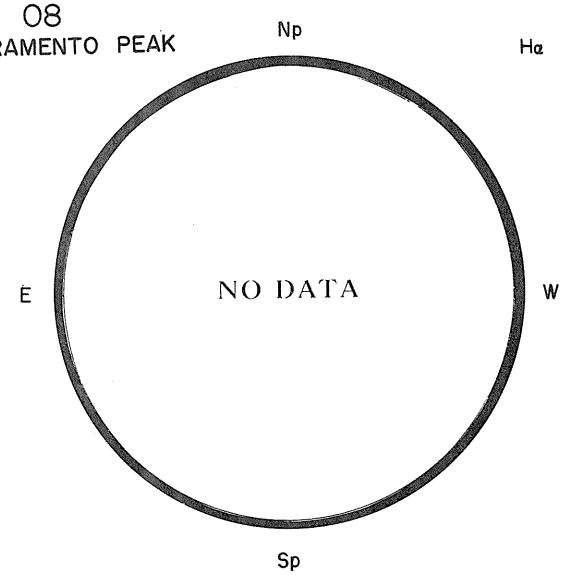




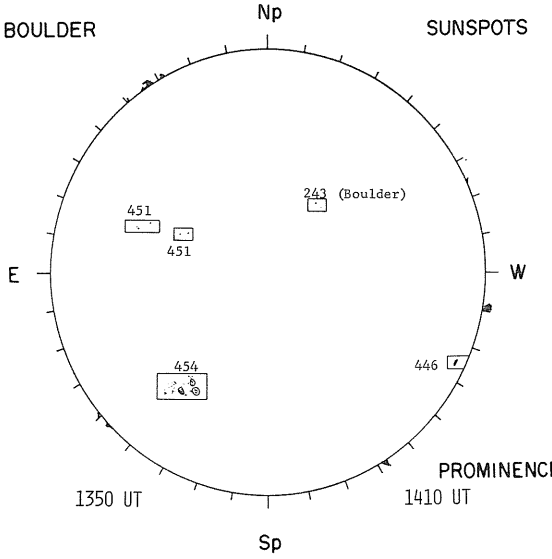




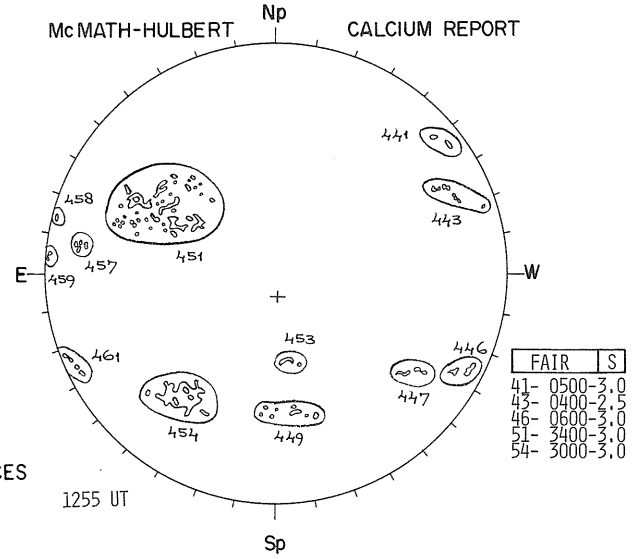
08
ACRAMENTO PEAK



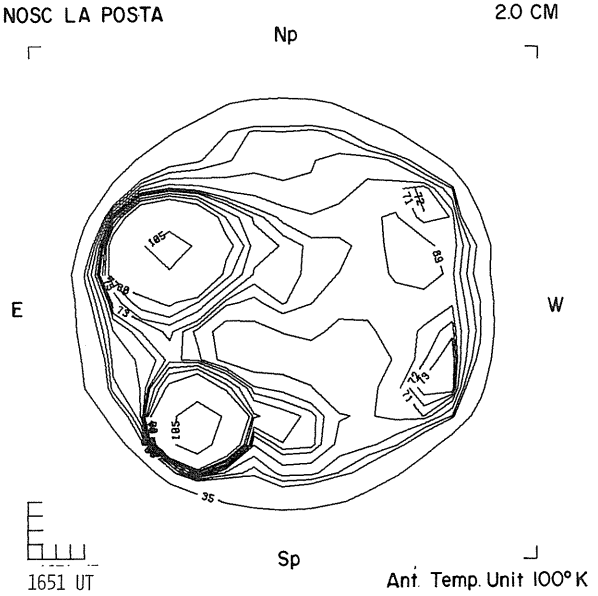
BOULDER



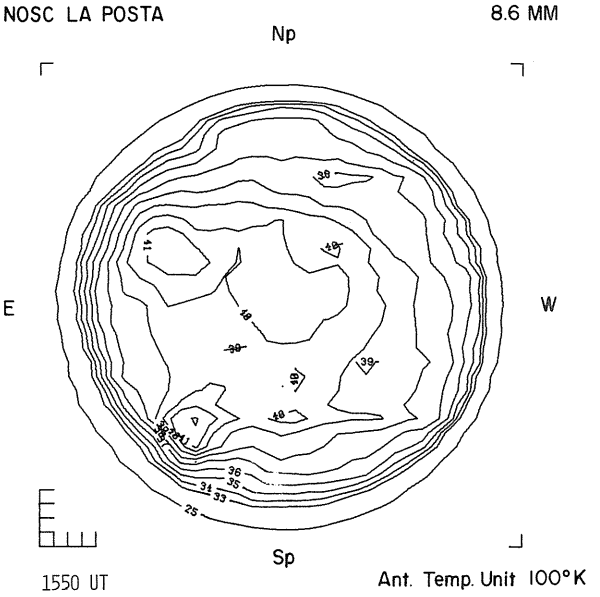
Mc MATH-HULBERT



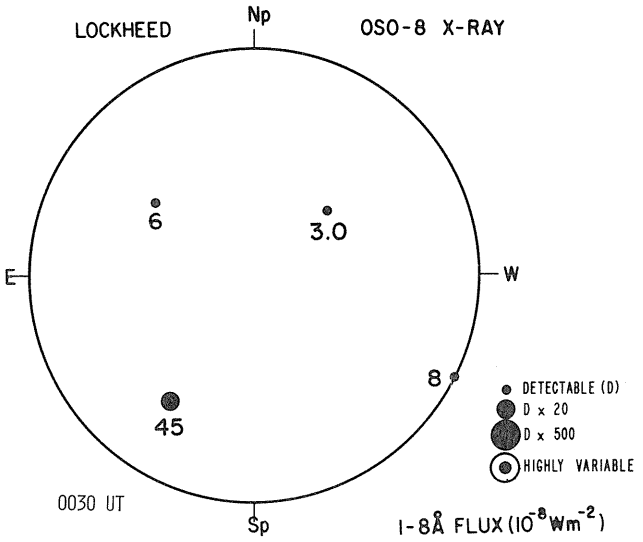
NOSC LA POSTA

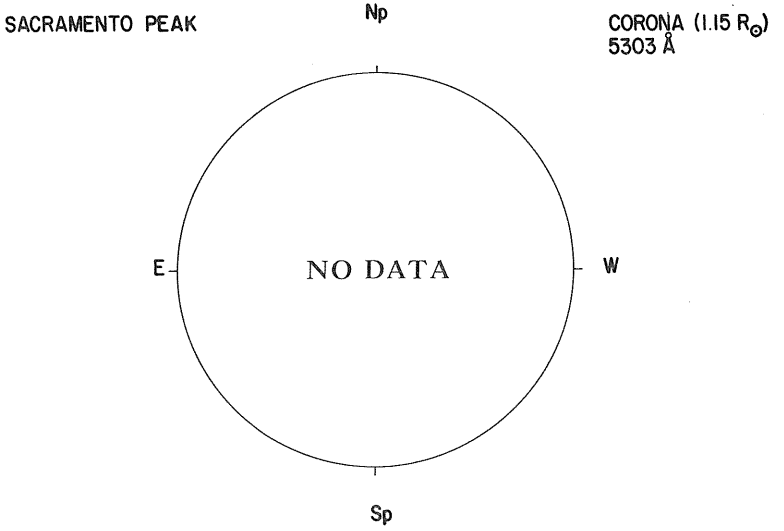


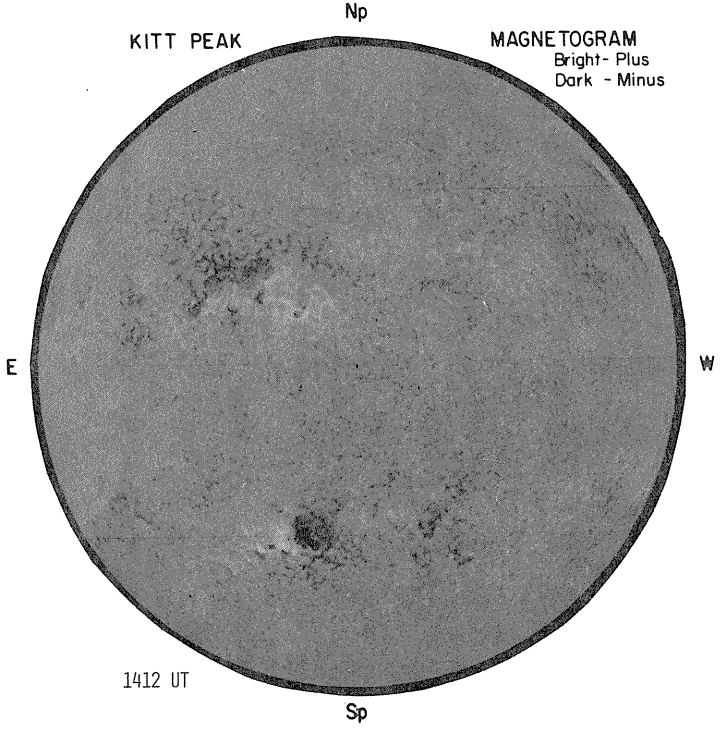
NOSC LA POSTA

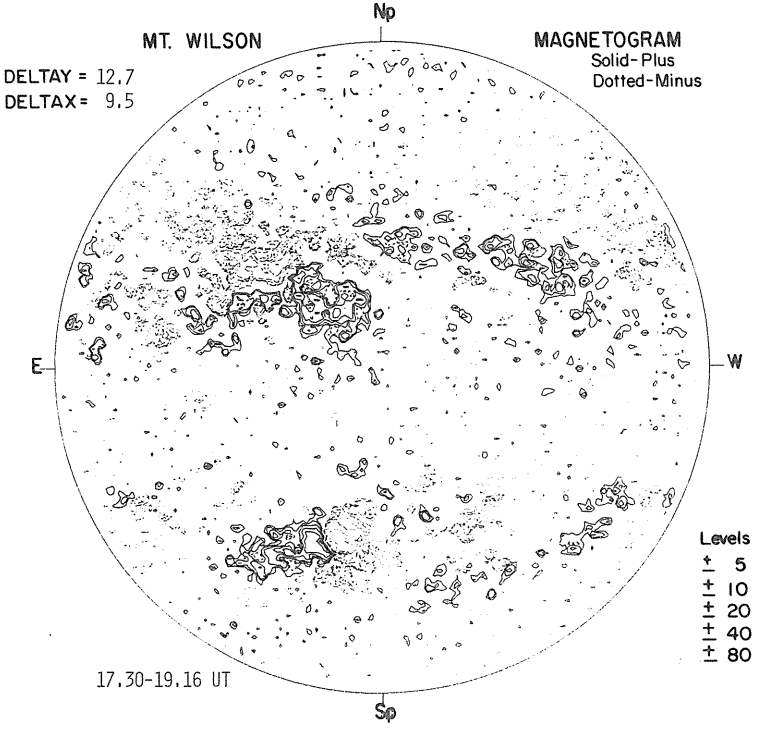


AUGUST 9, 1978 (P = 13.77, B_o = 6.31, L_o = 195.58)

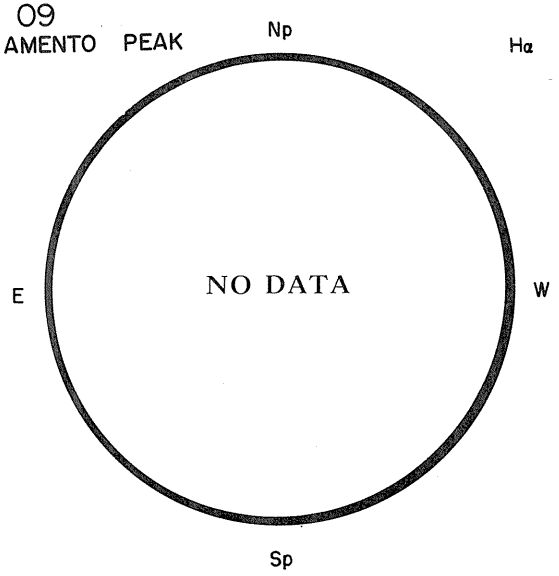




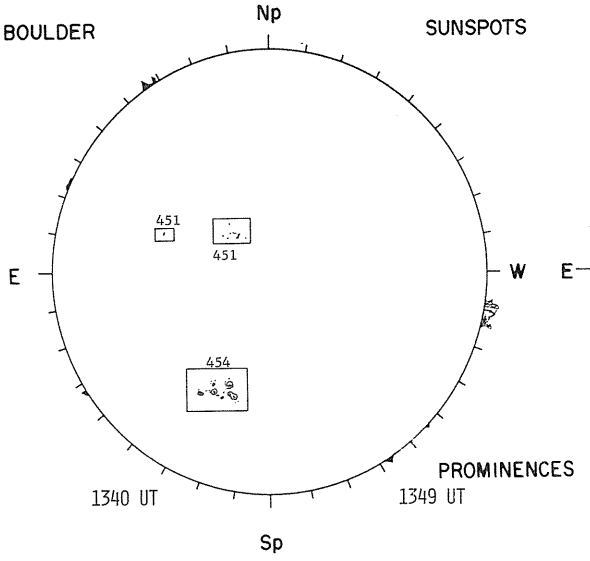




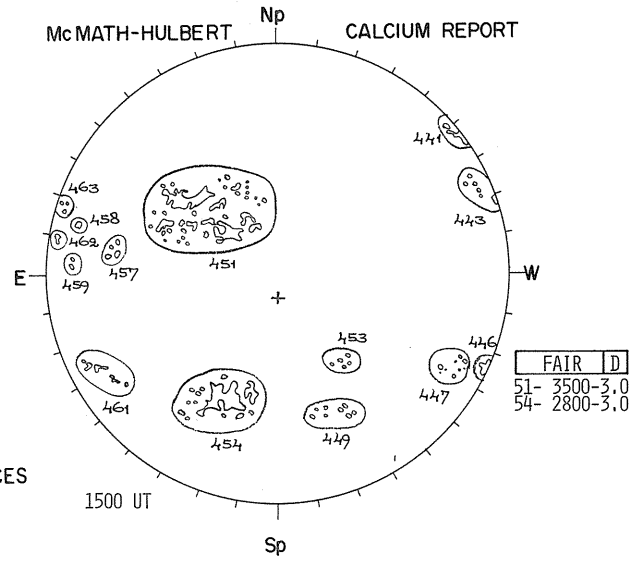
09
SACRAMENTO PEAK



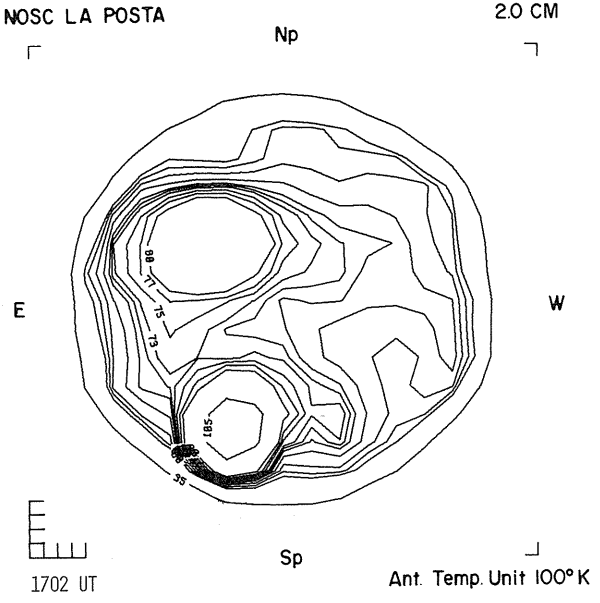
BOULDER



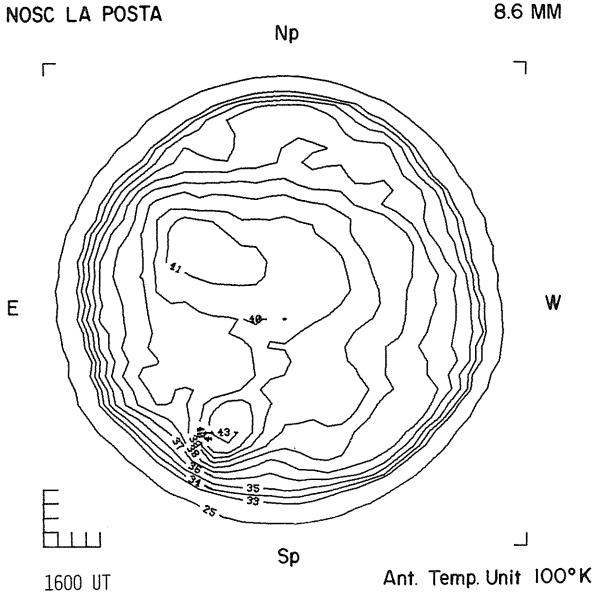
McMATH-HULBERT CALCIUM REPORT



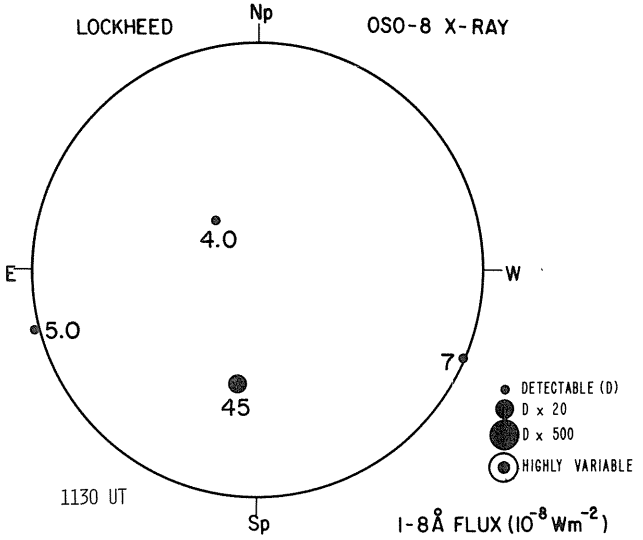
NOSC LA POSTA 2.0 CM

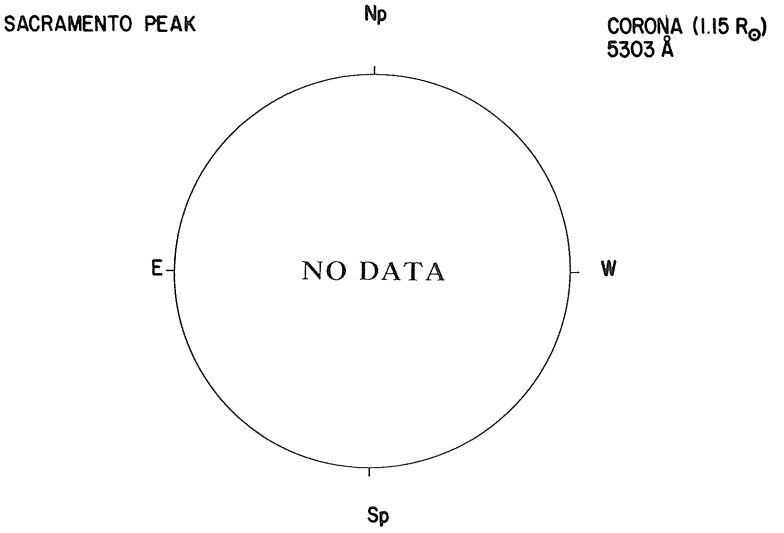


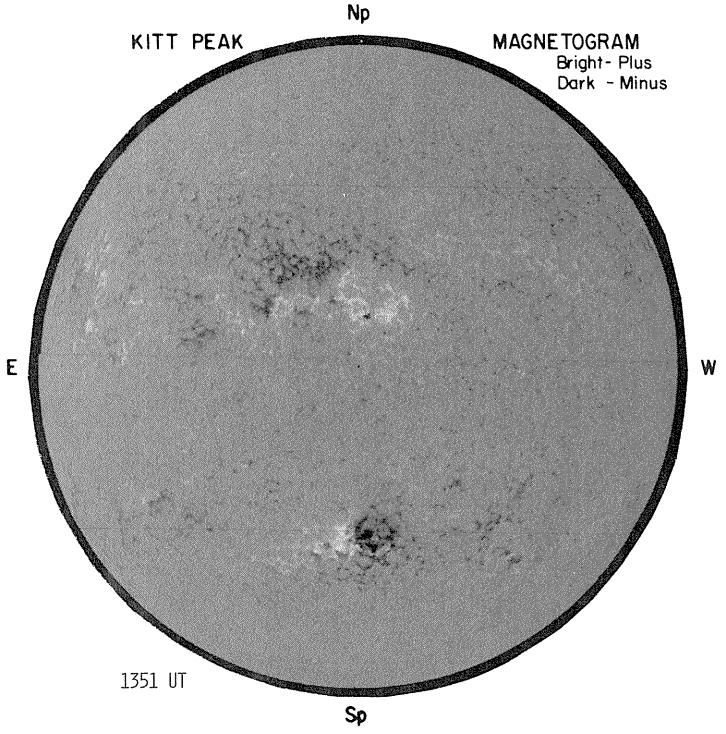
NOSC LA POSTA 8.6 MM

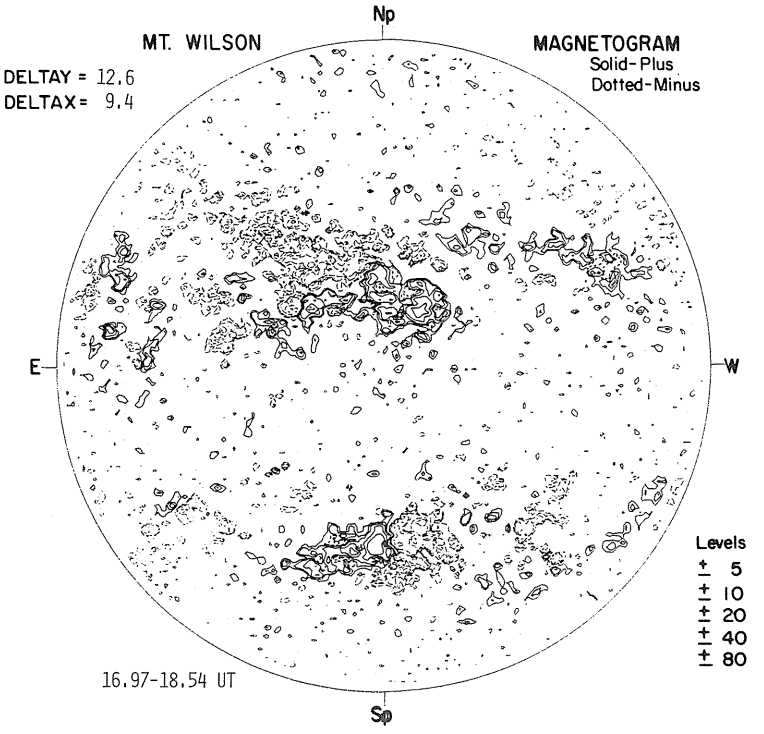


AUGUST 10, 1978 (P = 14.13, B_o = 6.37, L_o = 182.36)



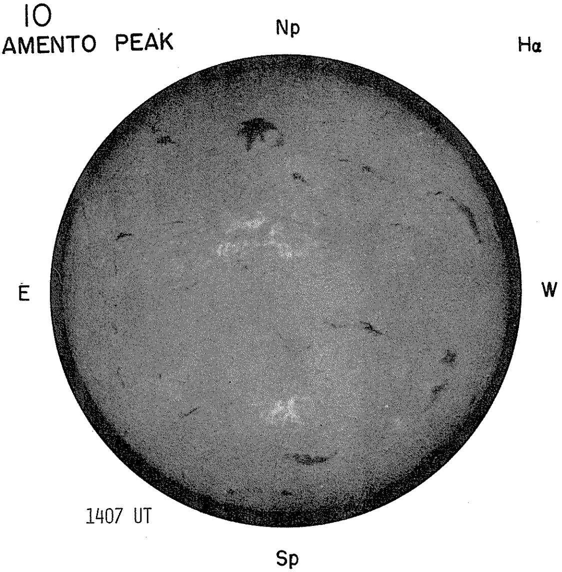






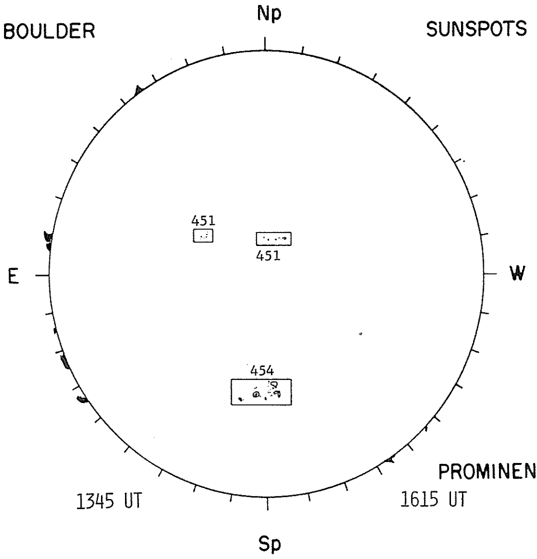
10

SACRAMENTO PEAK Hα



1407 UT

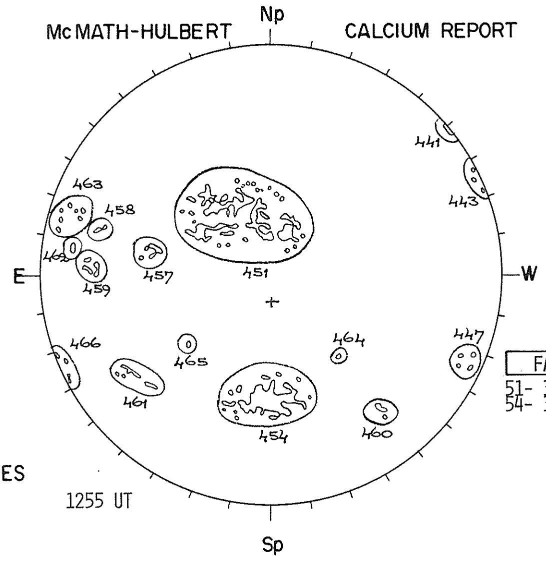
BOULDER SUNSPOTS



1345 UT

PROMINENCES
1615 UT

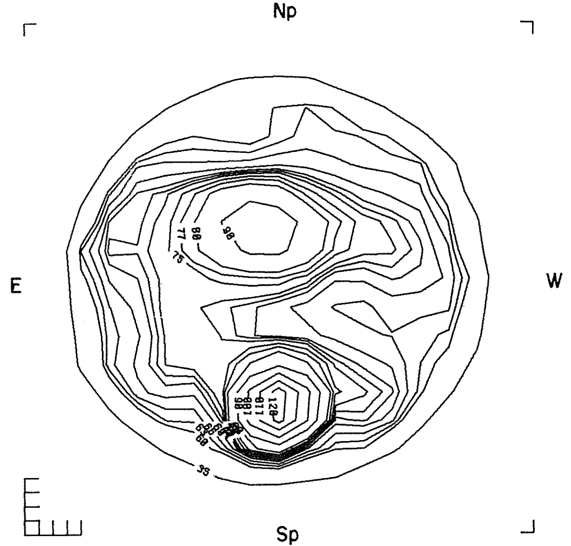
McMATH-HULBERT CALCIUM REPORT



1255 UT

FAIR S
51- 3500-2.5
54- 3200-3.0

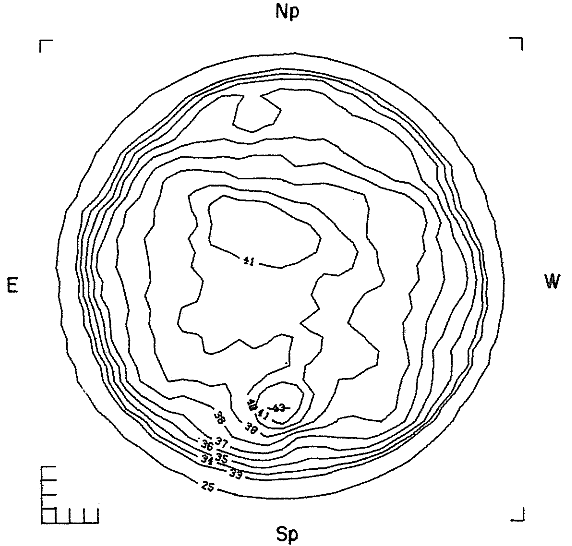
NOSC LA POSTA 2.0 CM



1706 UT

Ant. Temp. Unit 100°K

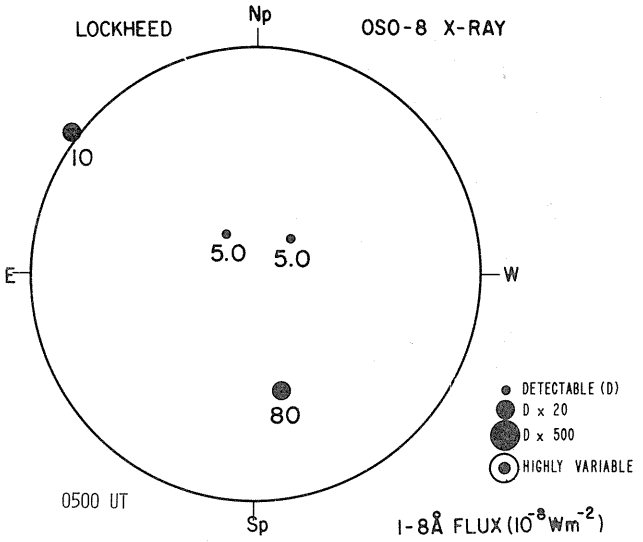
NOSC LA POSTA 8.6 MM

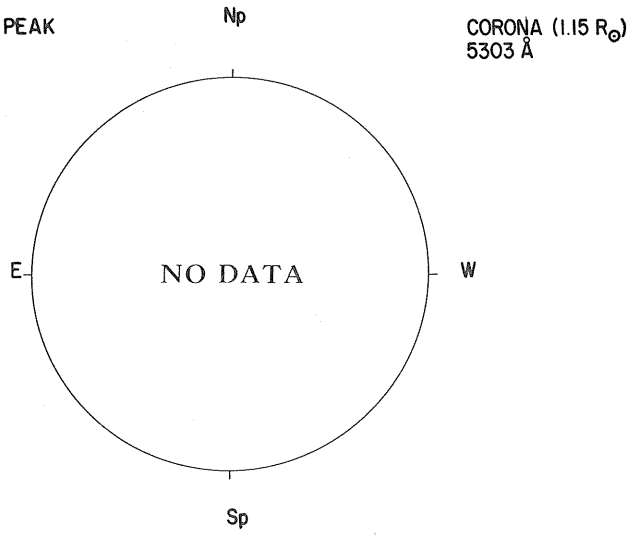


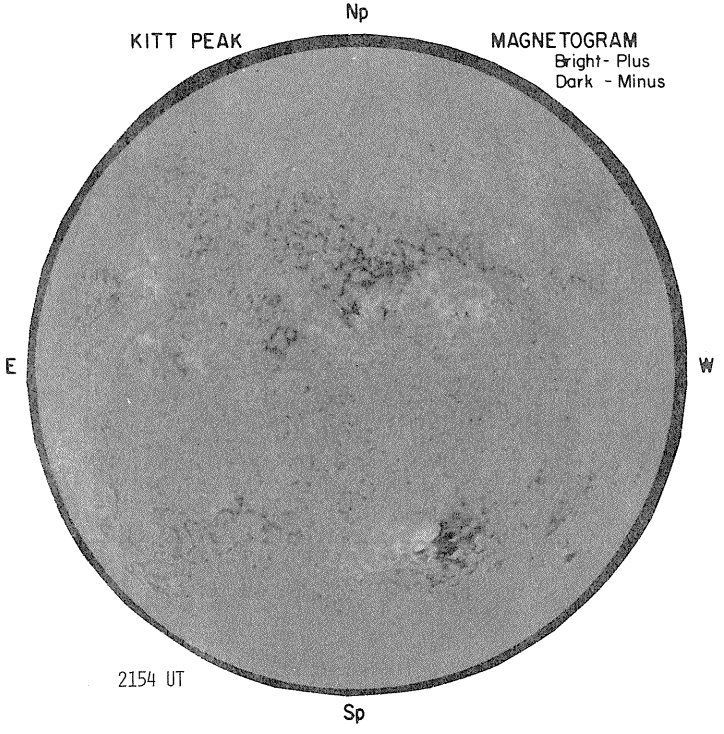
1602 UT

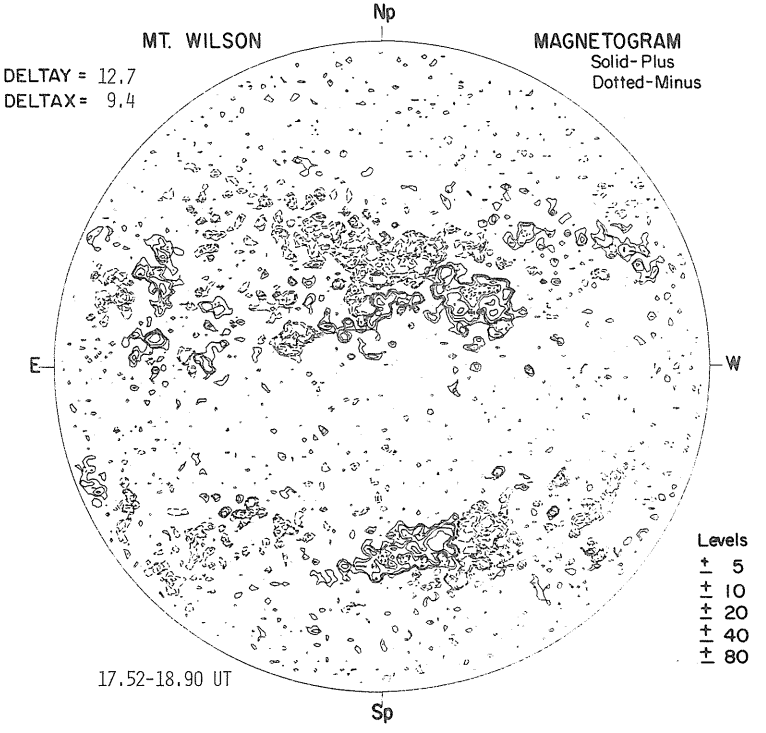
Ant. Temp. Unit 100°K

AUGUST 11, 1978 (P = 14.50, B_o = 6.43, L_o = 169.14)

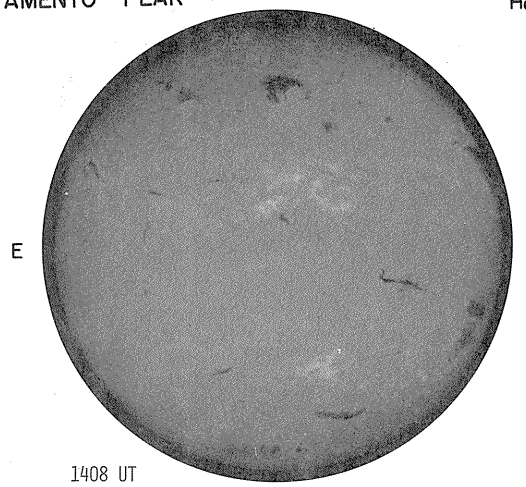






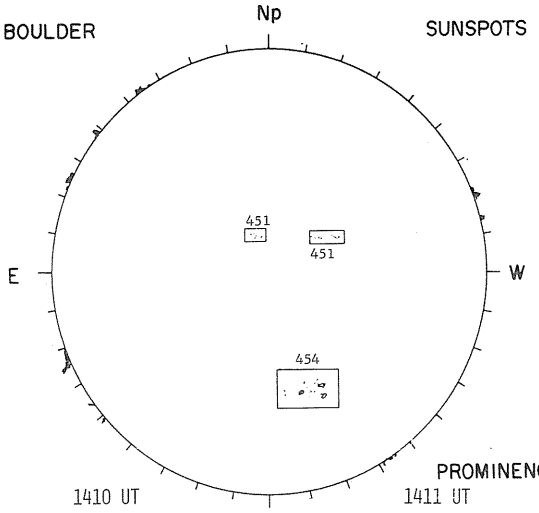


SACRAMENTO PEAK Hα



1408 UT

BOULDER SUNSPOTS

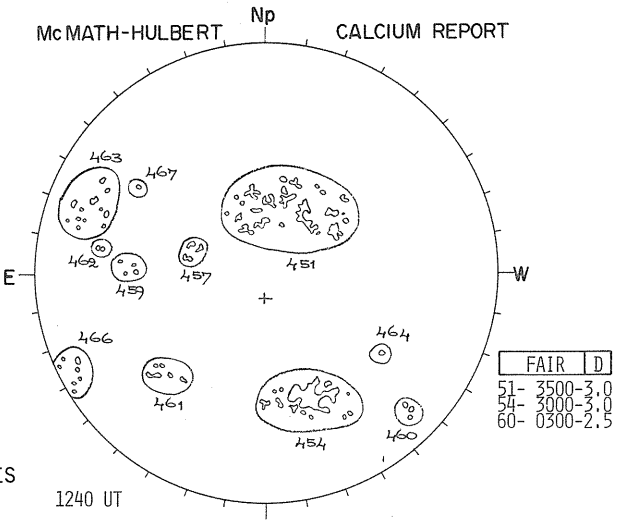


1410 UT

PROMINENCES

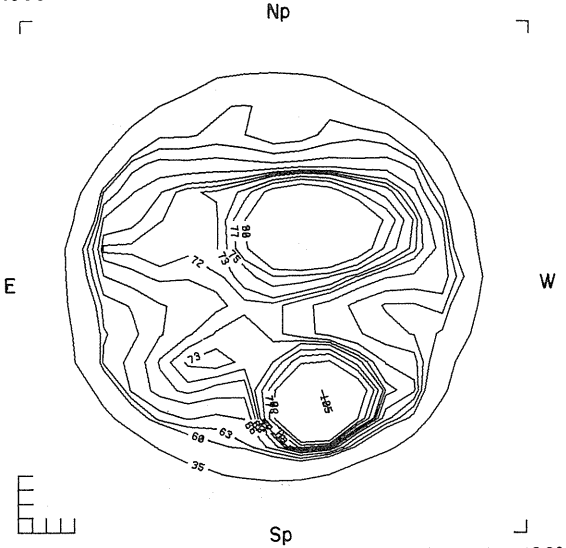
1411 UT

McMATH-HULBERT CALCIUM REPORT



1240 UT

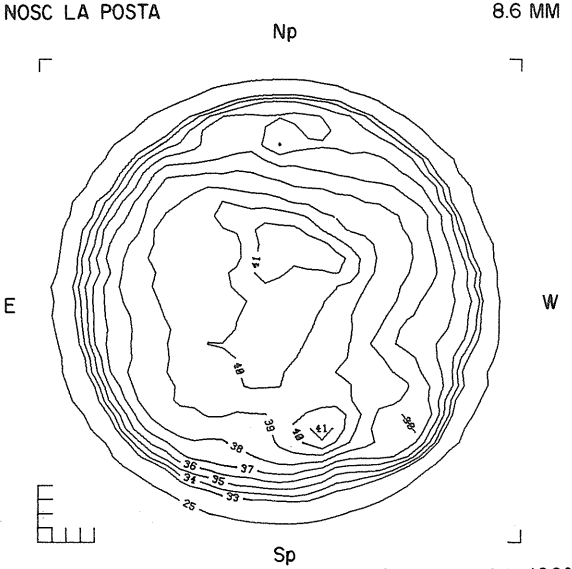
NOSC LA POSTA 2.0 CM



1707 UT

Ant. Temp. Unit 100° K

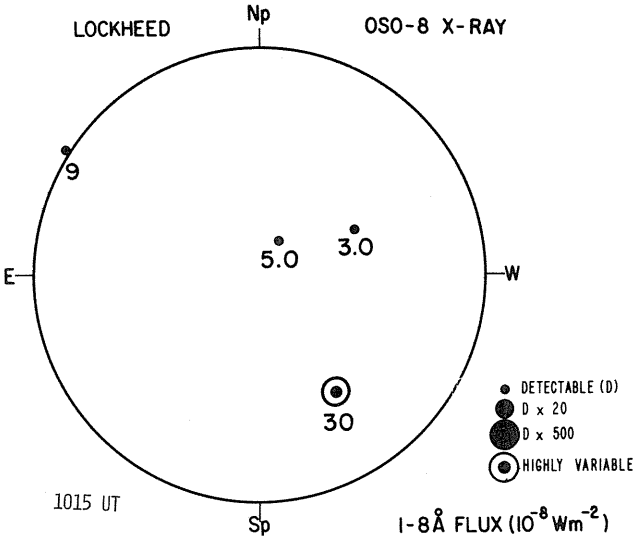
NOSC LA POSTA 8.6 MM

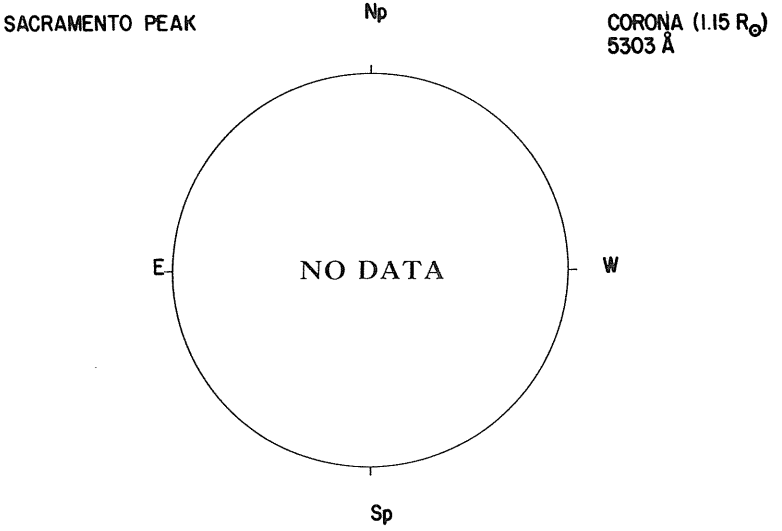


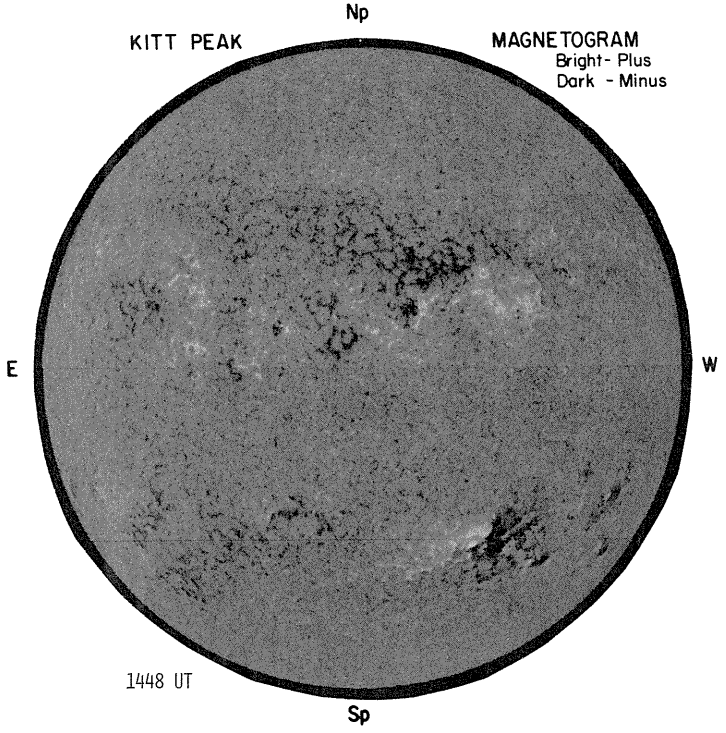
1608 UT

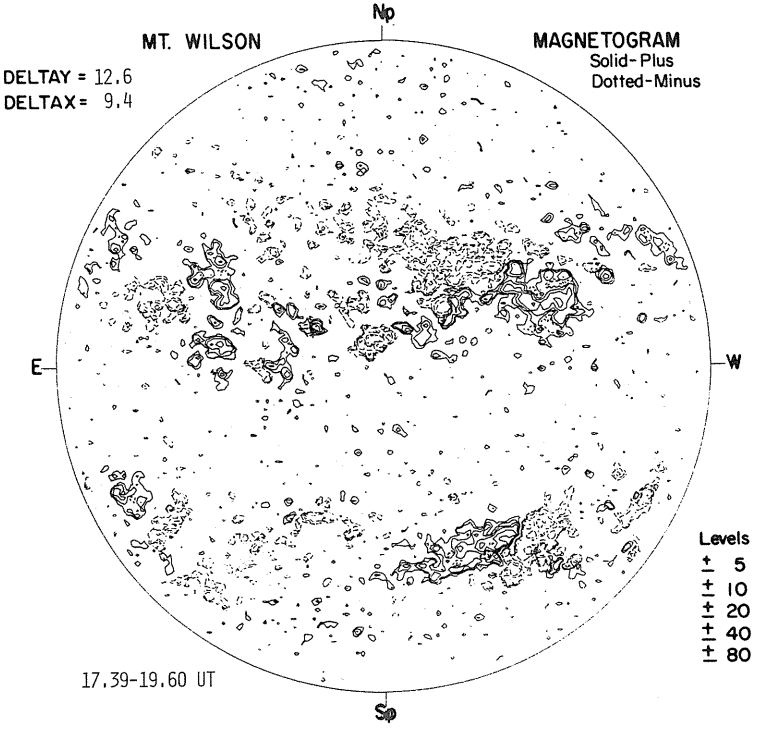
Ant. Temp. Unit 100° K

AUGUST 12, 1978 (P = 14.85, B_o = 6.48, L_o = 155.91)









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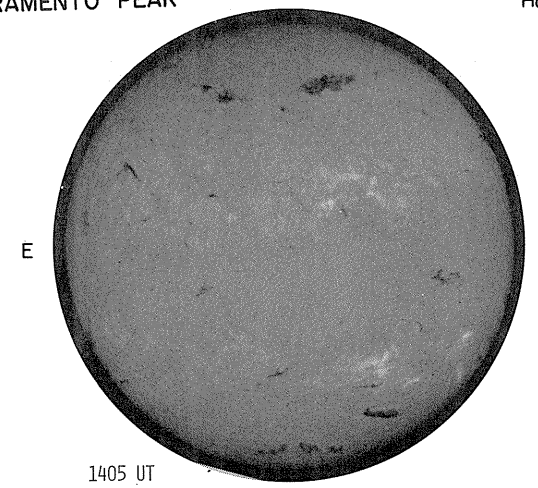
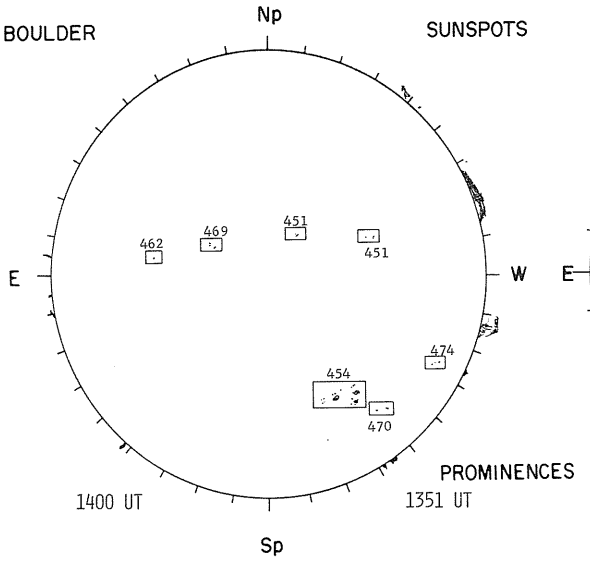
SACRAMENTO PEAK



1405 UT

Hα

BOULDER



1400 UT

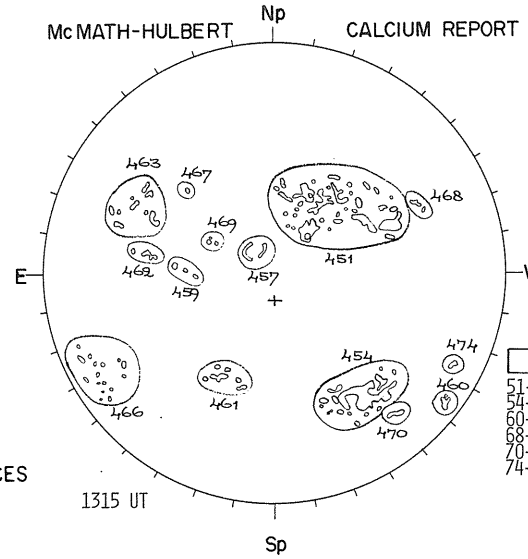
SUNSPOTS

PROMINENCES

1351 UT

McMATH-HULBERT

CALCIUM REPORT

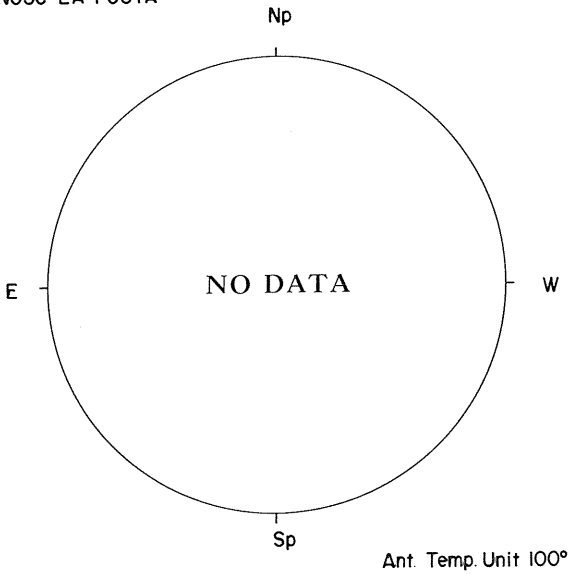


1315 UT

GOOD	S
51-	3800-2.5
54-	3000-3.0
60-	0400-2.5
68-	0300-2.5
70-	0300-3.0
74-	0300-3.5

NOSC LA POSTA

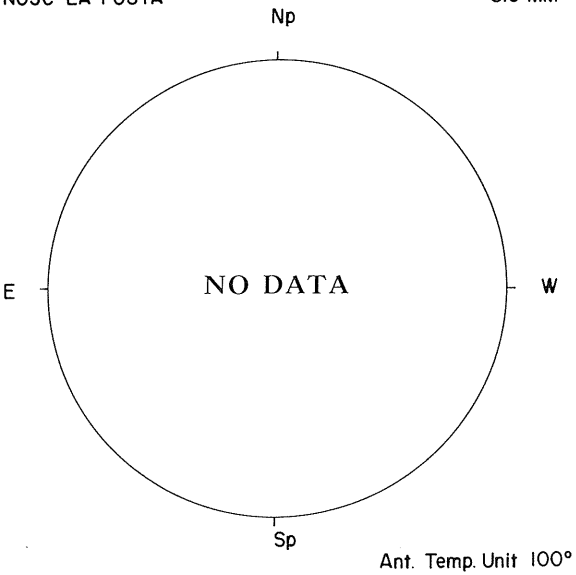
2.0 CM



Ant. Temp. Unit 100° K

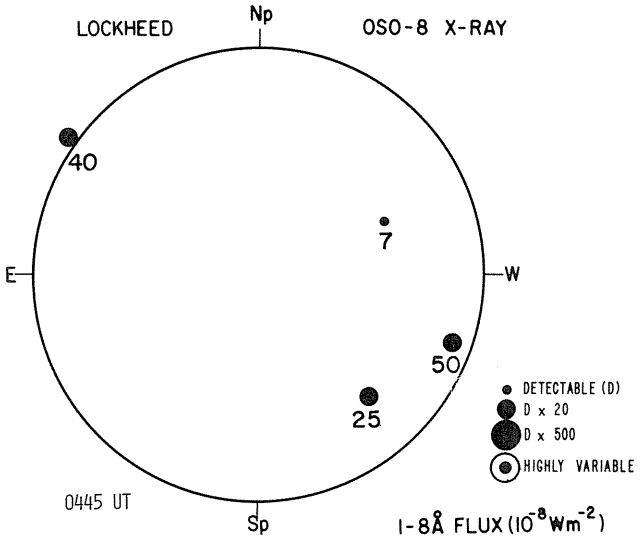
NOSC LA POSTA

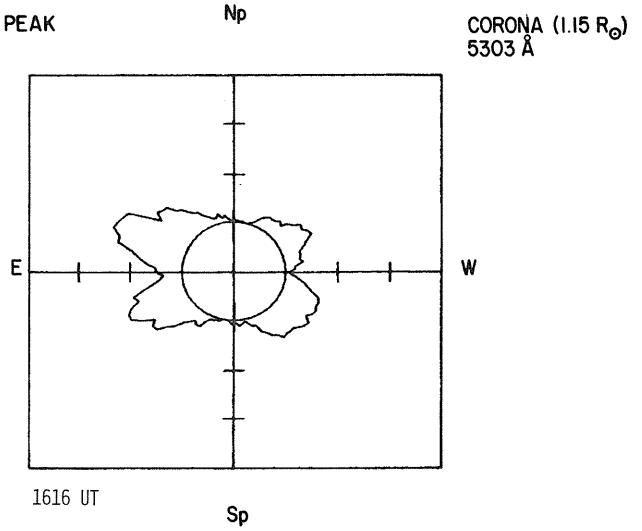
8.6 MM

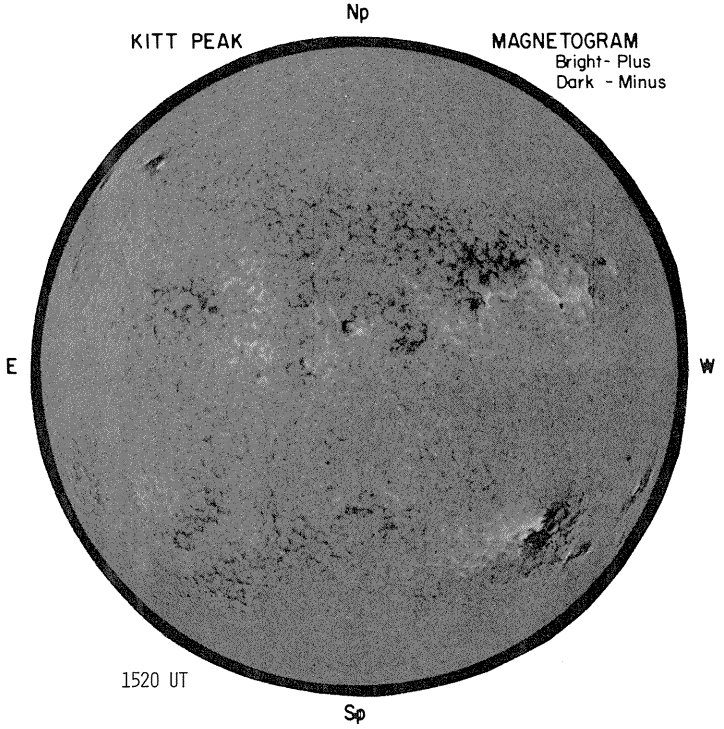


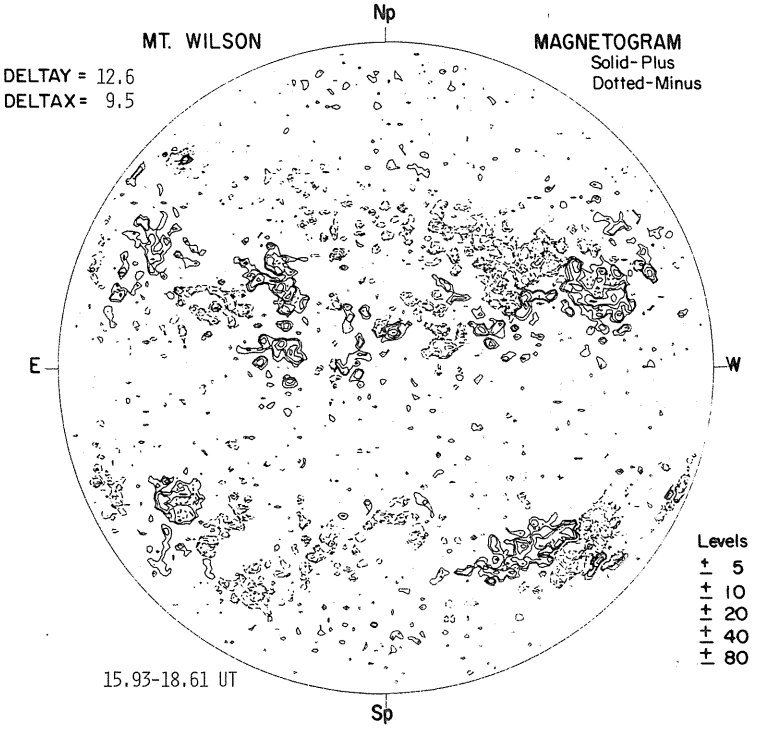
Ant. Temp. Unit 100° K

AUGUST 13, 1978 (P = 15.21, B_o = 6.54, L_o = 142.69)









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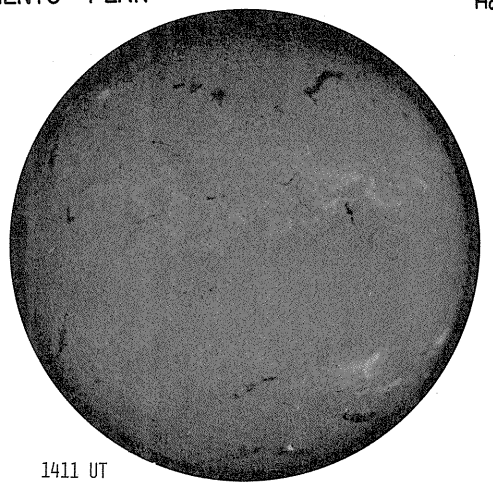
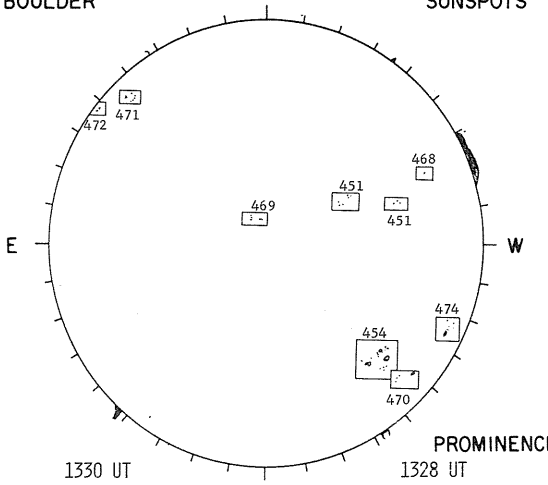
SACRAMENTO PEAK Hα



1411 UT

BOULDER SUNSPOTS

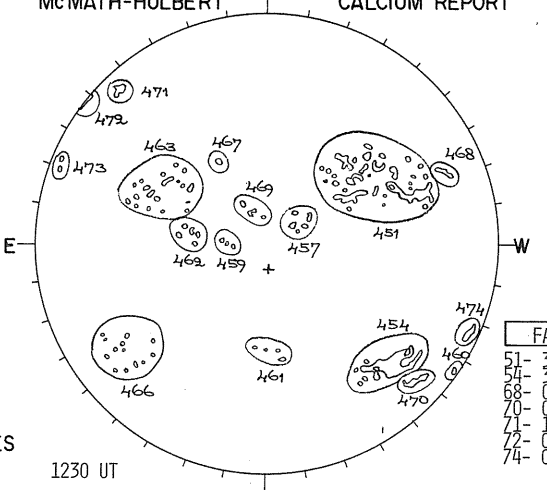


1330 UT

PROMINENCES

1328 UT

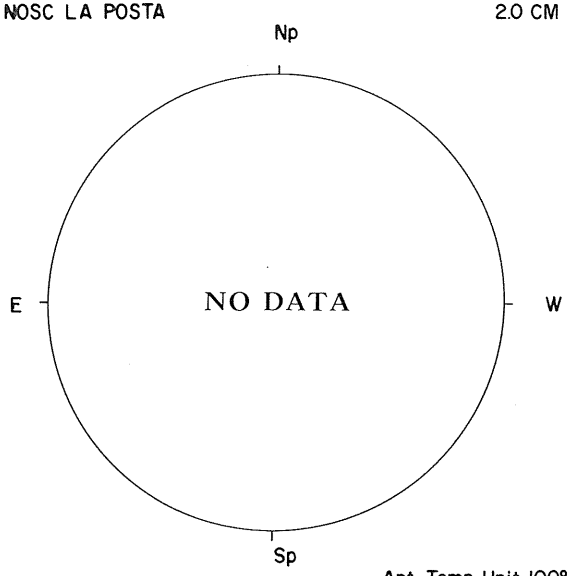
McMATH-HULBERT CALCIUM REPORT



1230 UT

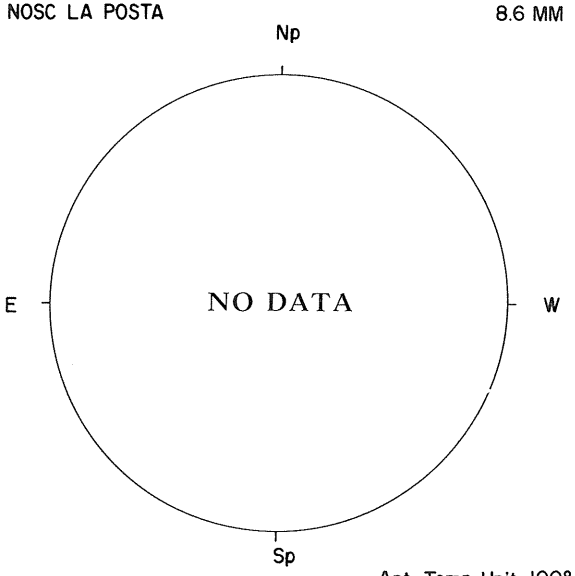
FAIR	S
51-	3800-3.0
54-	3200-3.5
68-	0400-2.5
70-	0600-3.0
71-	1100-4.0
72-	0900-3.5
74-	0800-3.5

NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100° K

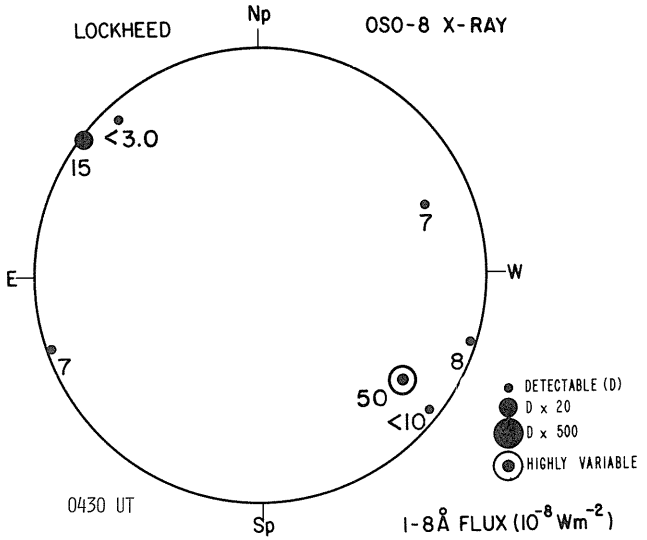
NOSC LA POSTA 8.6 MM

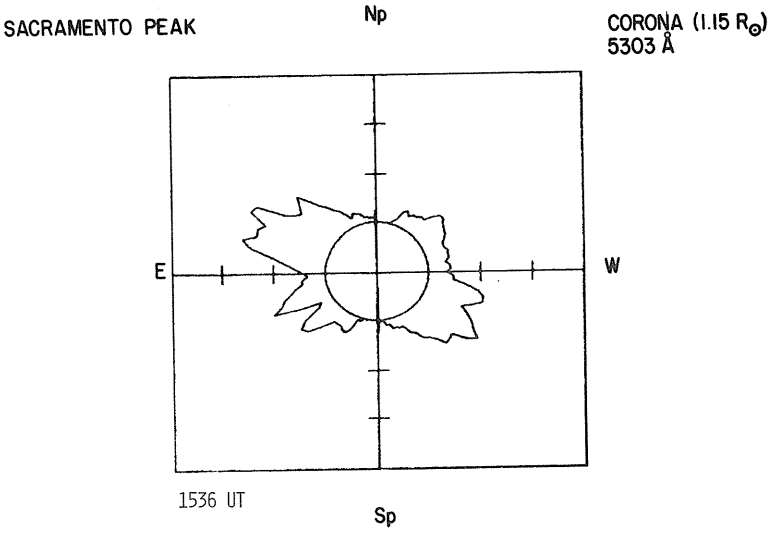


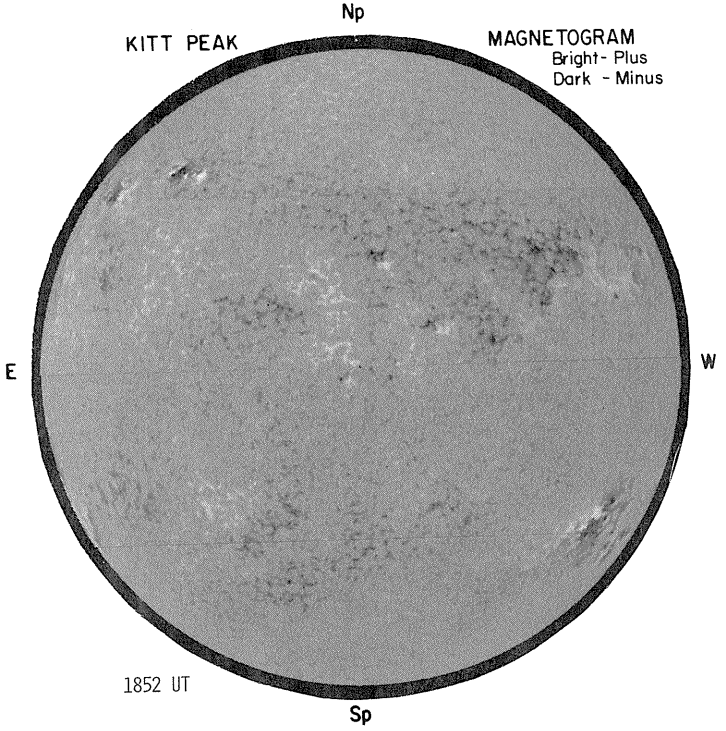
Ant. Temp. Unit 100° K

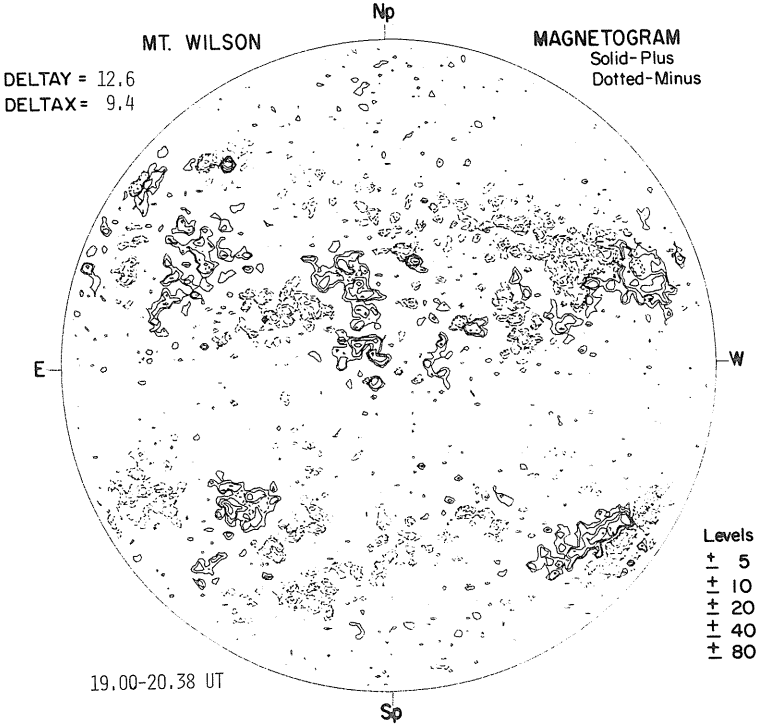
73
Aug 78

AUGUST 14, 1978 (P = 15.56, B_o = 6.59, L_o = 129.48)

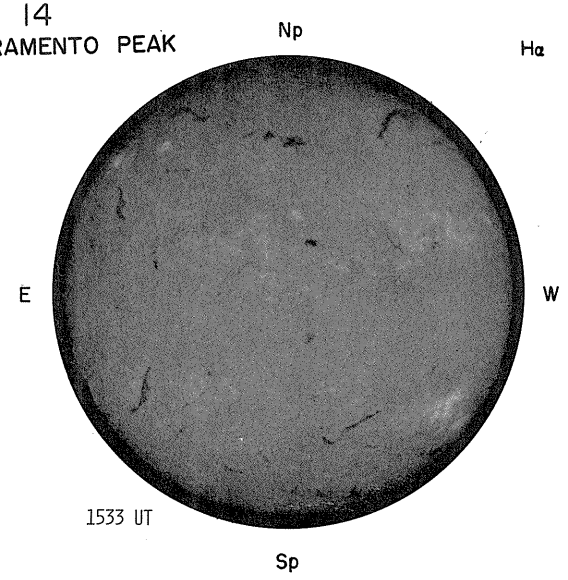






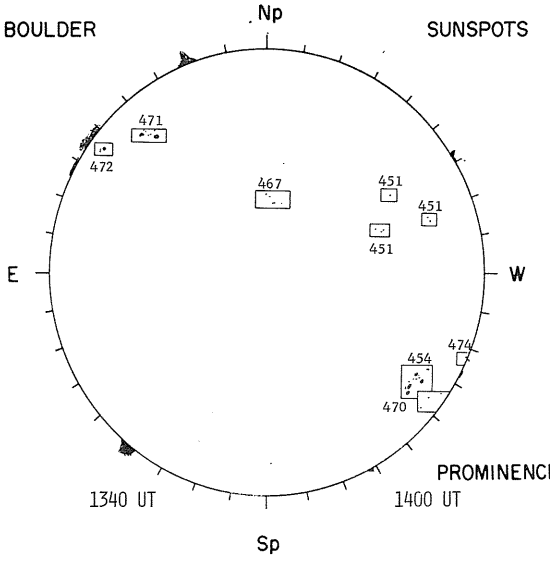


SACRAMENTO PEAK Hα



1533 UT

BOULDER SUNSPOTS

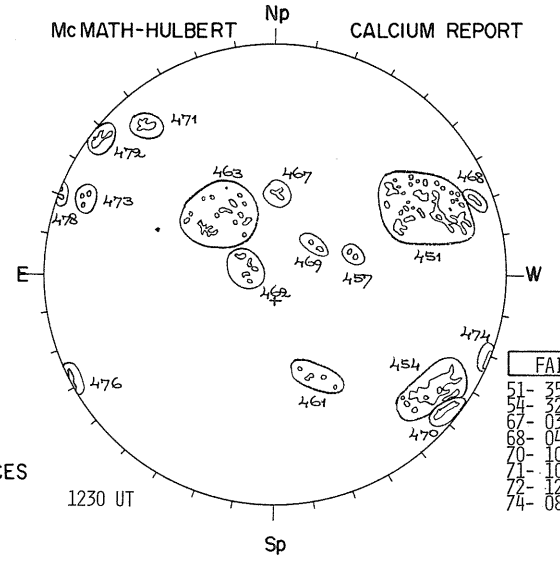


1340 UT

PROMINENCES

1400 UT

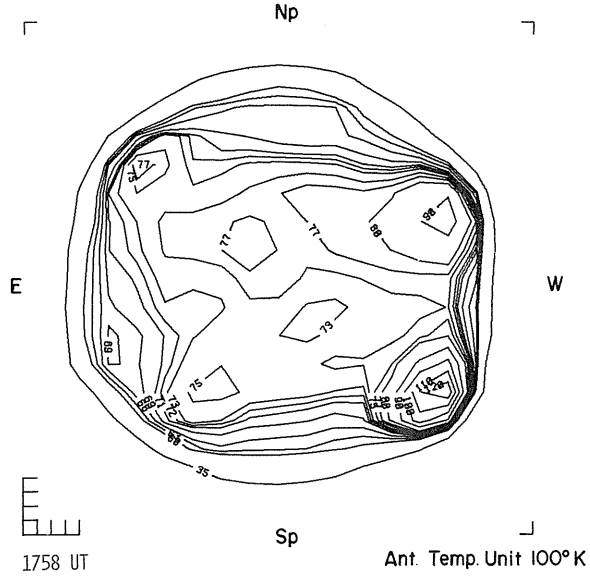
McMATH-HULBERT CALCIUM REPORT



1230 UT

FAIR	D
51- 3500-3.0	
54- 3200-3.5	
67- 0300-2.5	
68- 0400-2.5	
70- 1000-3.5	
71- 1000-3.5	
72- 1200-4.0	
74- 0800-3.0	

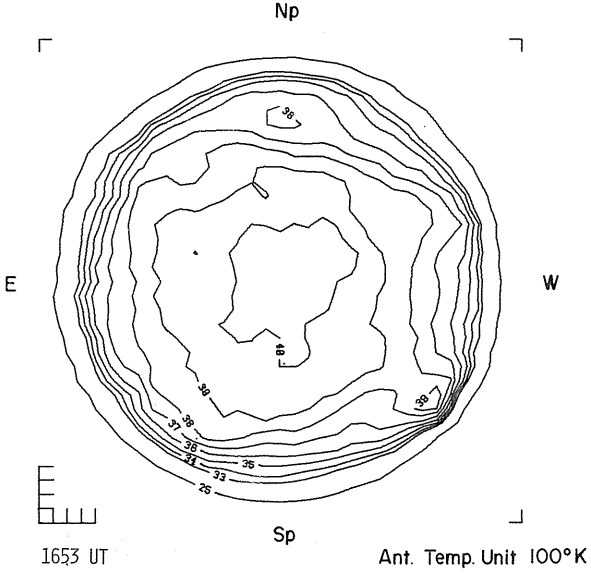
NOSC LA POSTA 2.0 CM



1758 UT

Ant. Temp. Unit 100° K

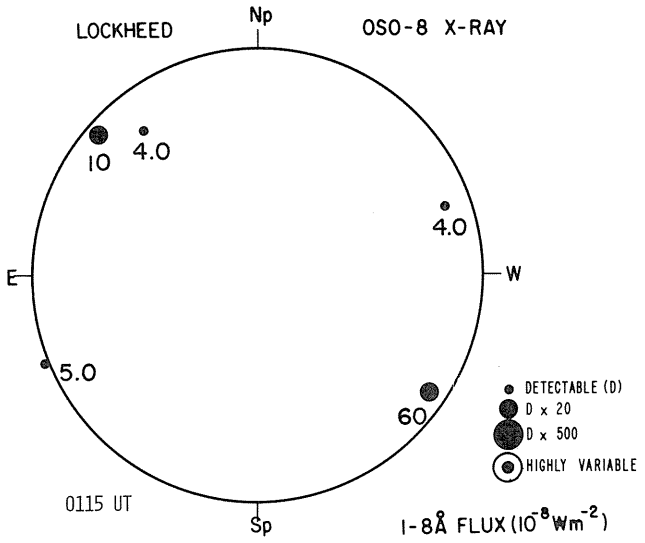
NOSC LA POSTA 8.6 MM

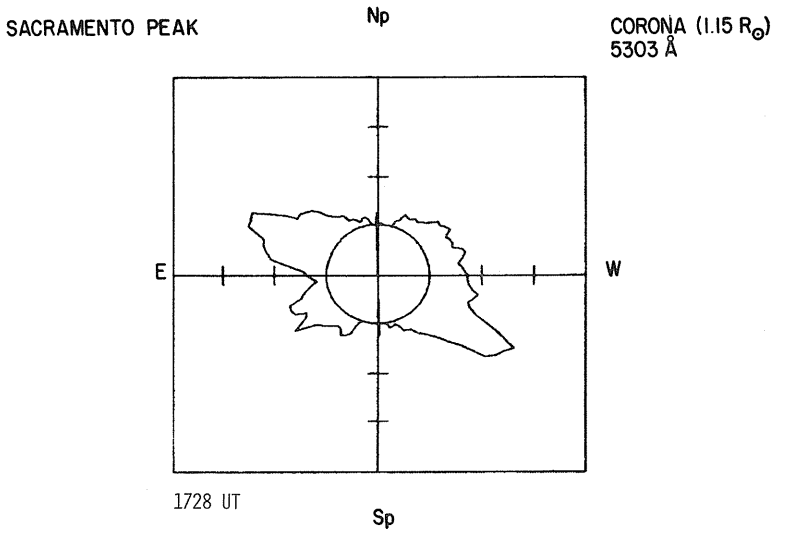


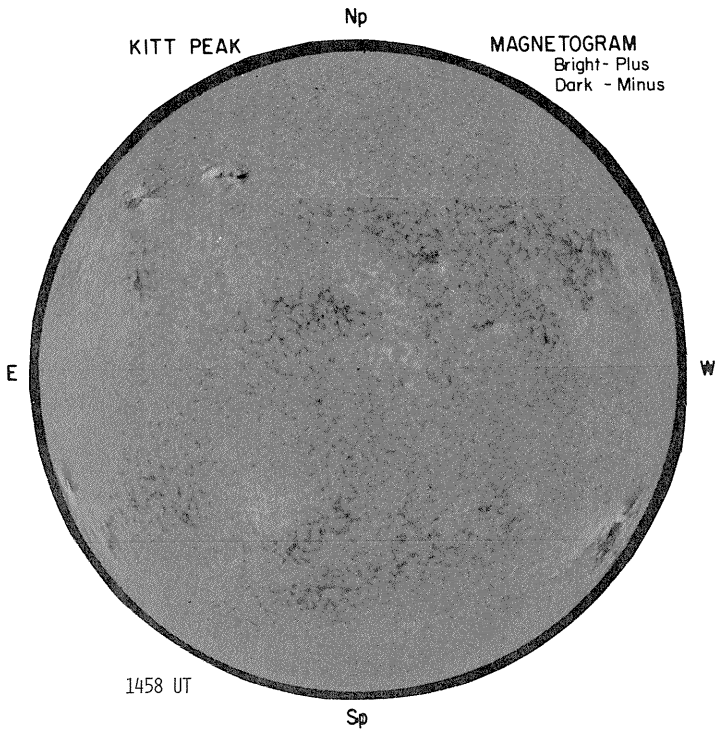
1653 UT

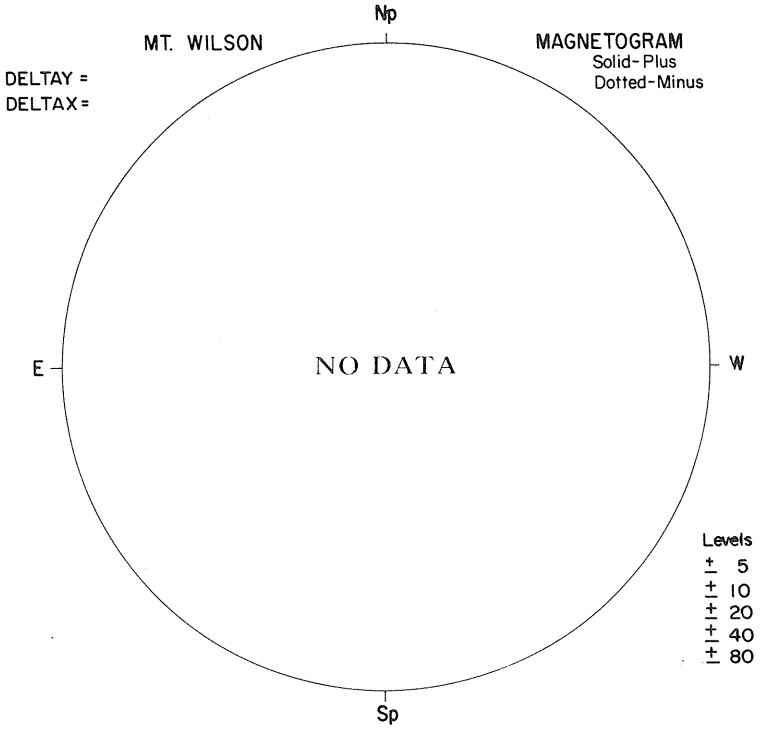
Ant. Temp. Unit 100° K

AUGUST 15, 1978 (P = 15.90, B_o = 6.64, L_o = 116.26)









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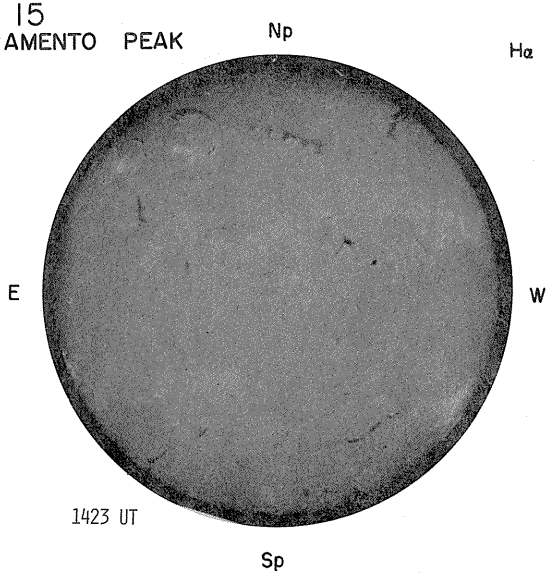
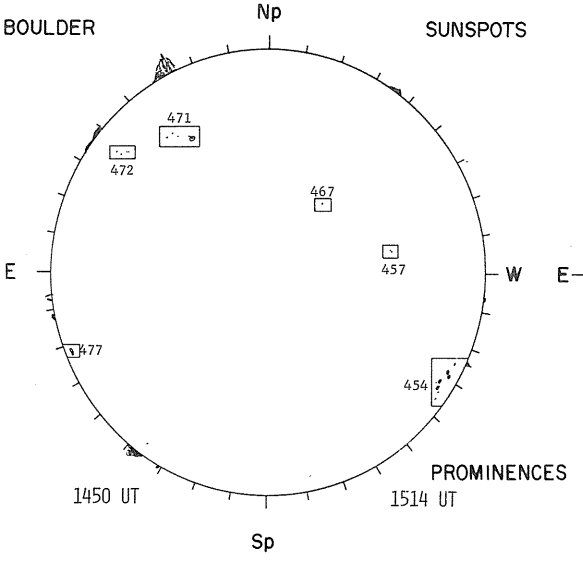
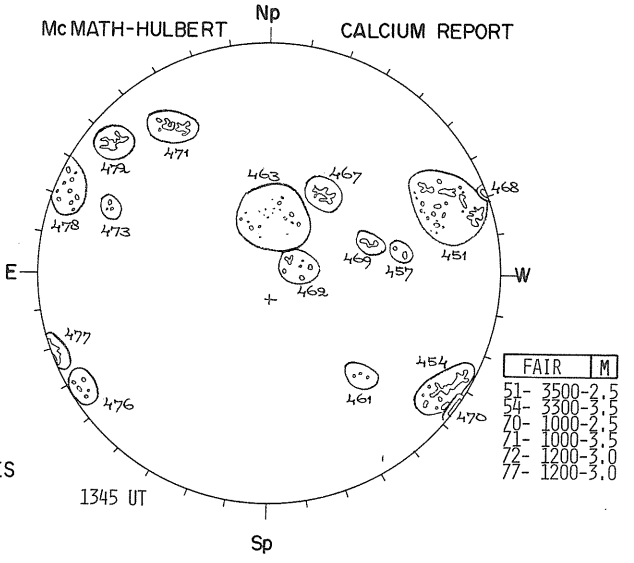
SACRAMENTO PEAK



BOULDER SUNSPOTS



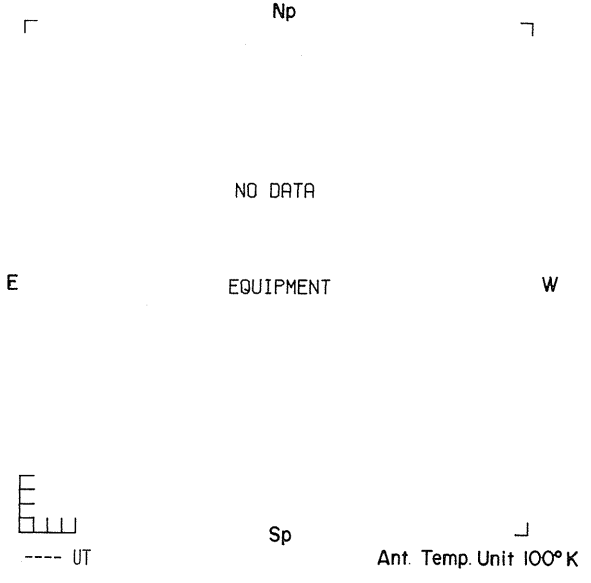
McMATH-HULBERT CALCIUM REPORT



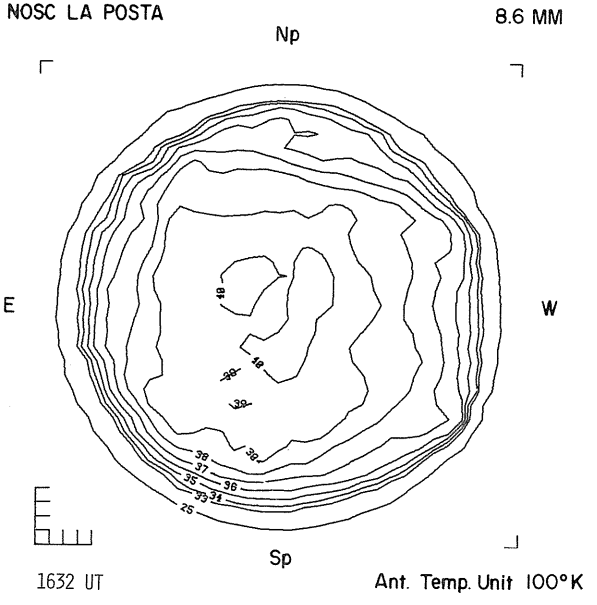
PROMINENCES

1514 UT

NOSC LA POSTA 2.0 CM

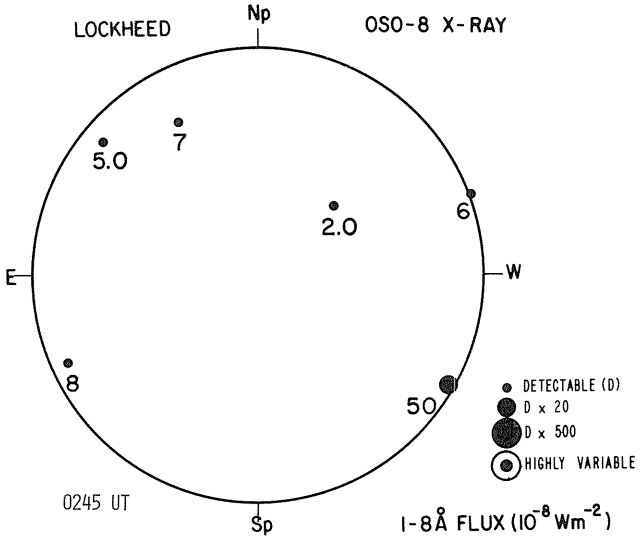


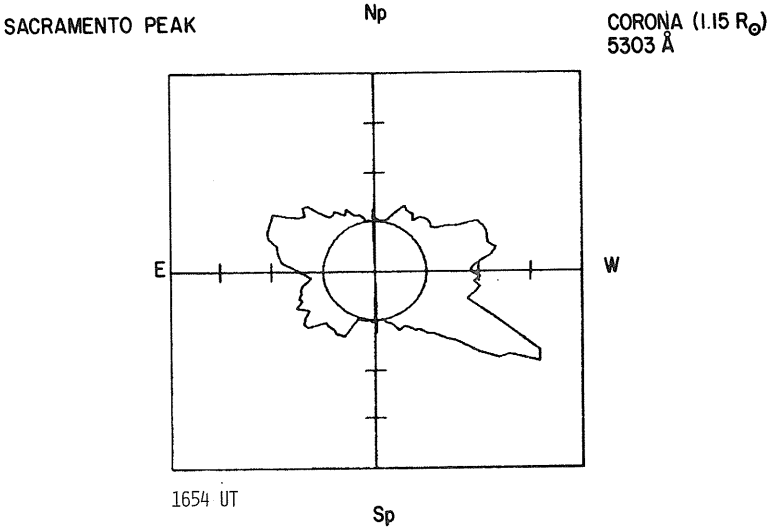
NOSC LA POSTA 8.6 MM

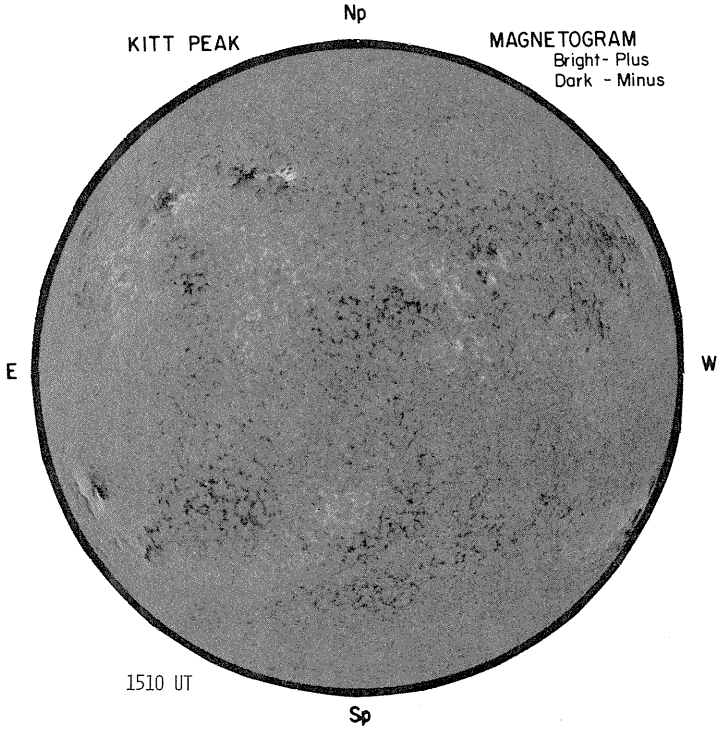


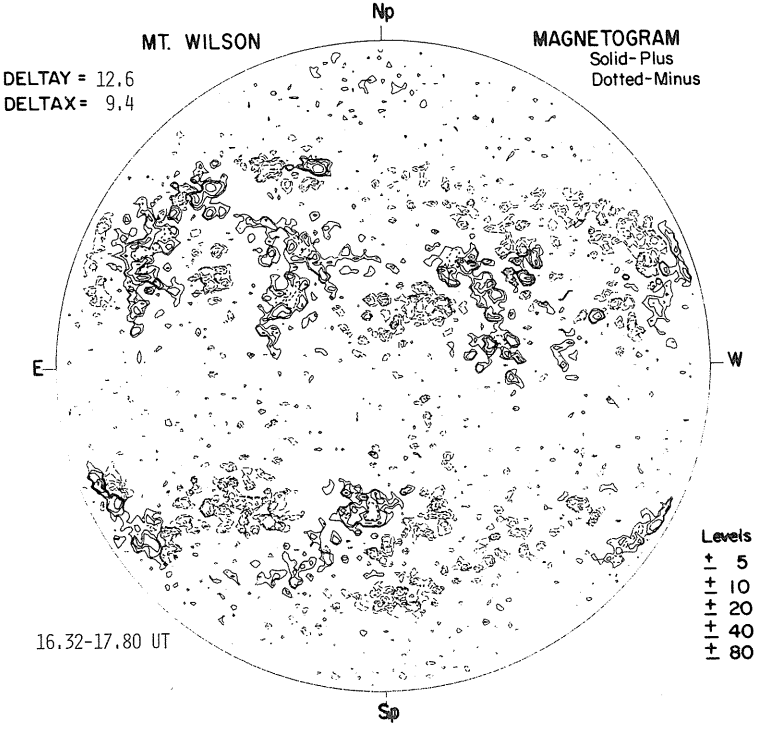
77
Aug 78

AUGUST 16, 1978 (P = 16.24, B_o = 6.69, L_o = 103.04)









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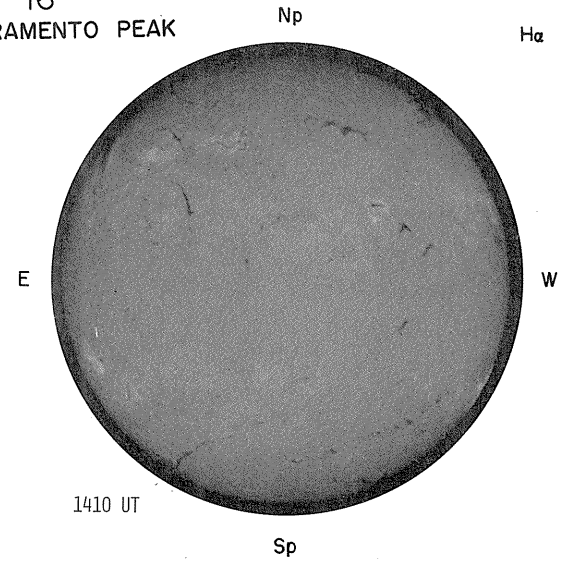
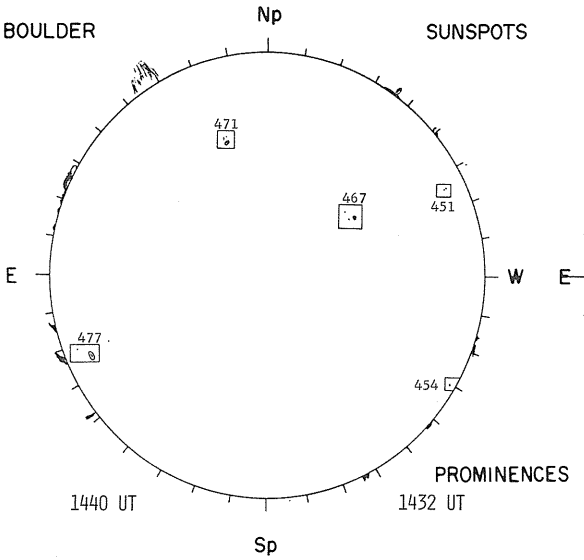
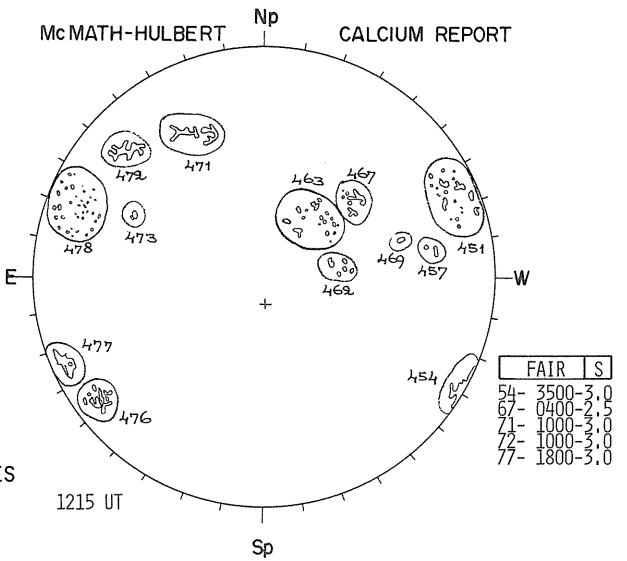
SACRAMENTO PEAK



BOULDER SUNSPOTS

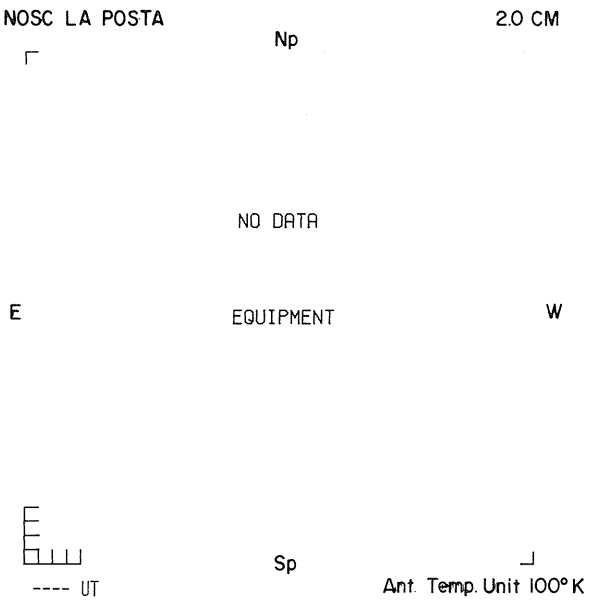


McMATH-HULBERT CALCIUM REPORT

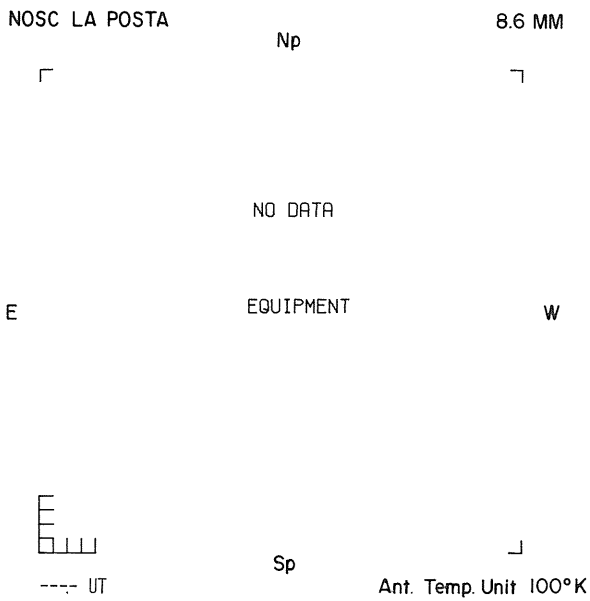


PROMINENCES

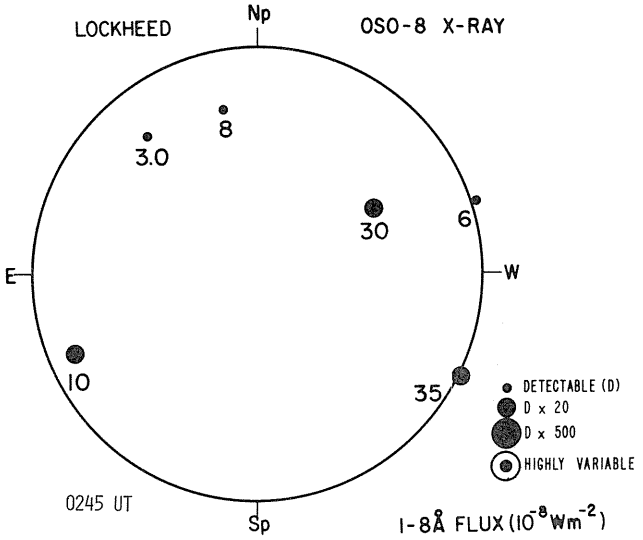
NOSC LA POSTA 2.0 CM

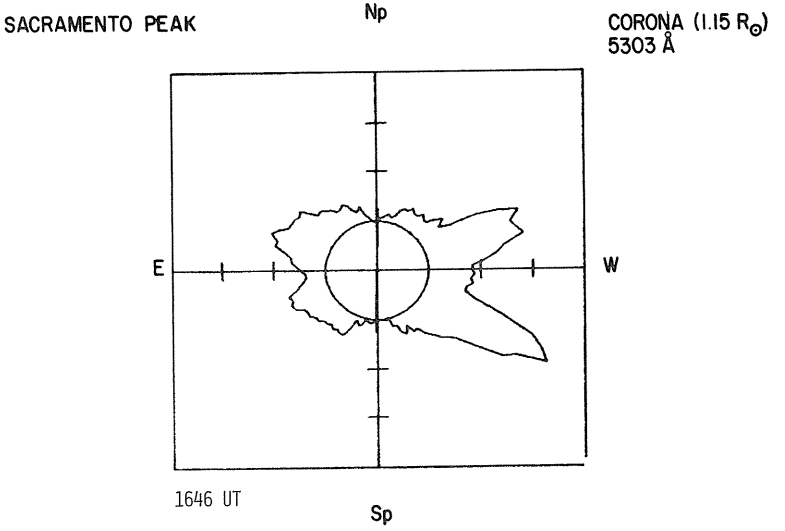


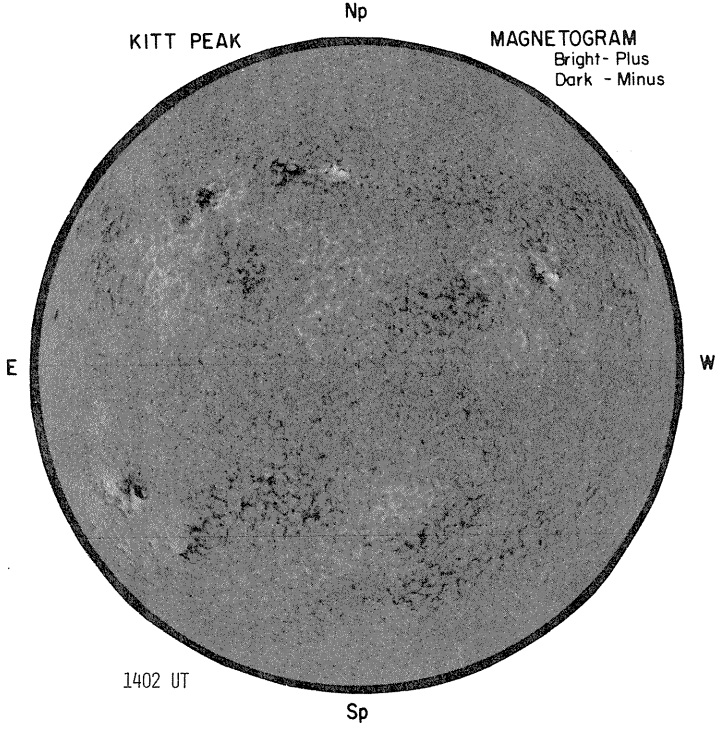
NOSC LA POSTA 8.6 MM

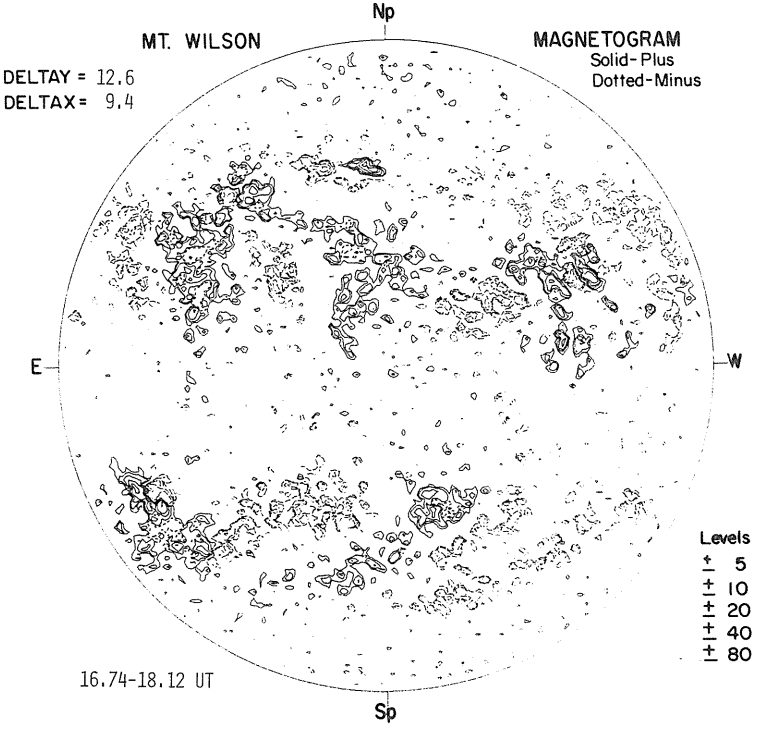


AUGUST 17, 1978 (P = 16.58, B_o = 6.73, L_o = 89.82)

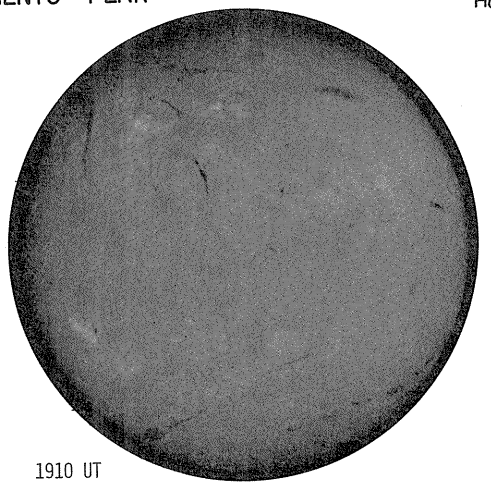






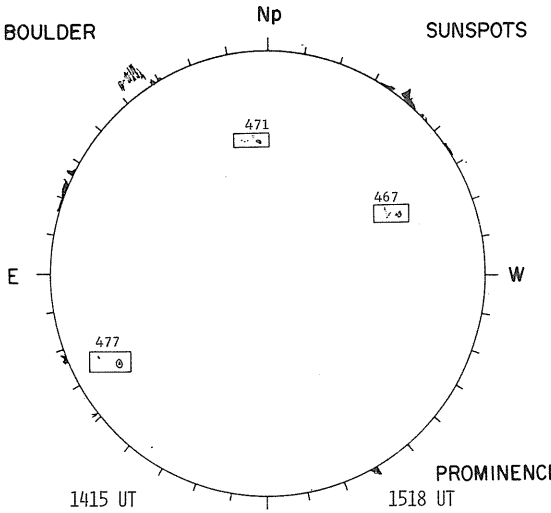


SACRAMENTO PEAK Hα



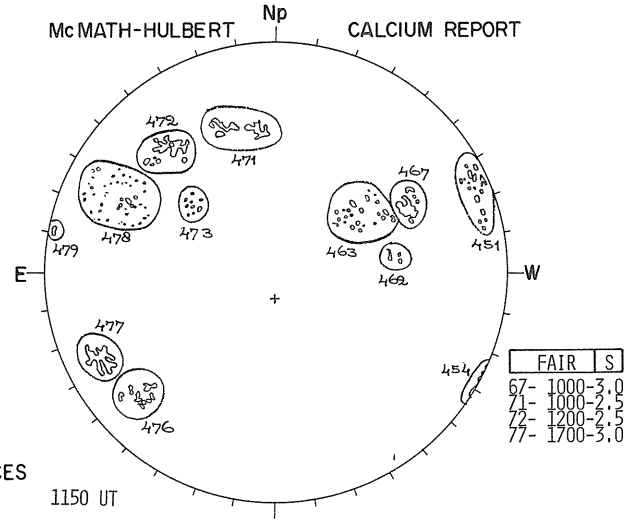
1910 UT

BOULDER SUNSPOTS



1415 UT

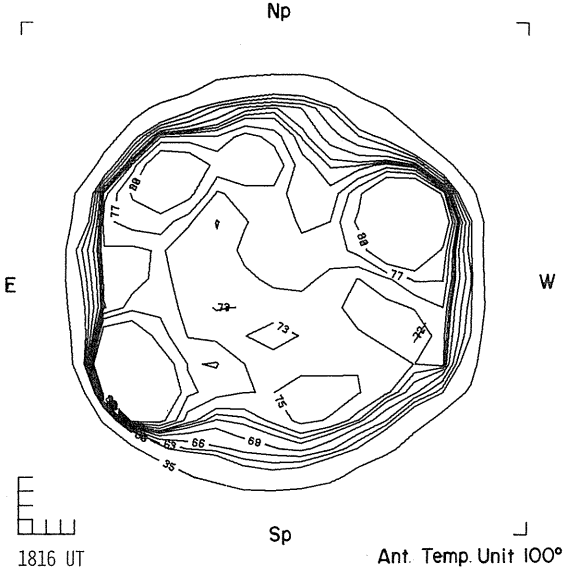
McMATH-HULBERT CALCIUM REPORT



PROMINENCES

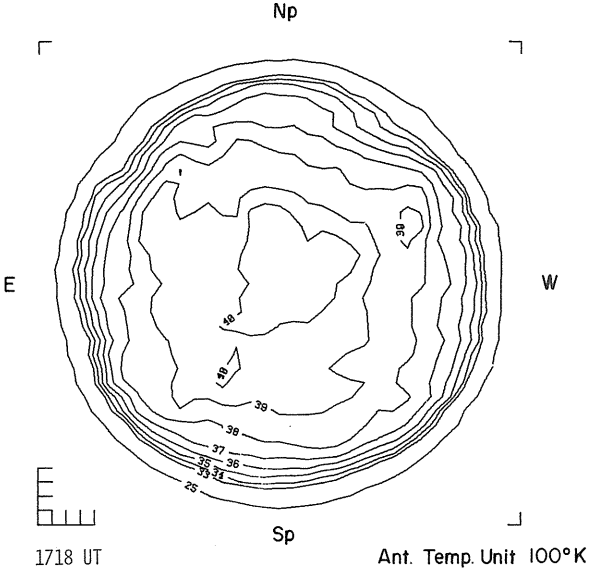
1150 UT

NOSC LA POSTA 2.0 CM



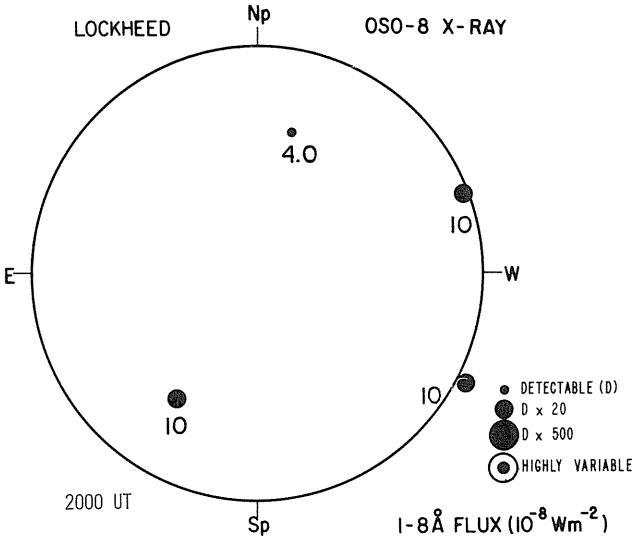
1816 UT Ant. Temp. Unit 100°K

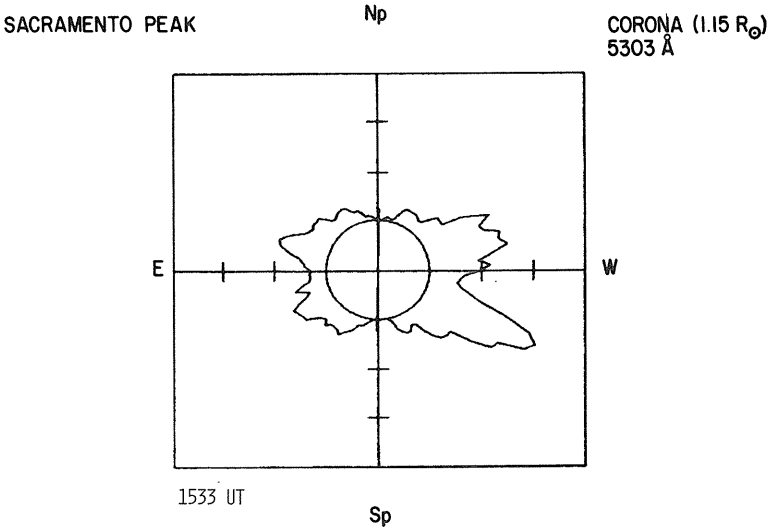
NOSC LA POSTA 8.6 MM

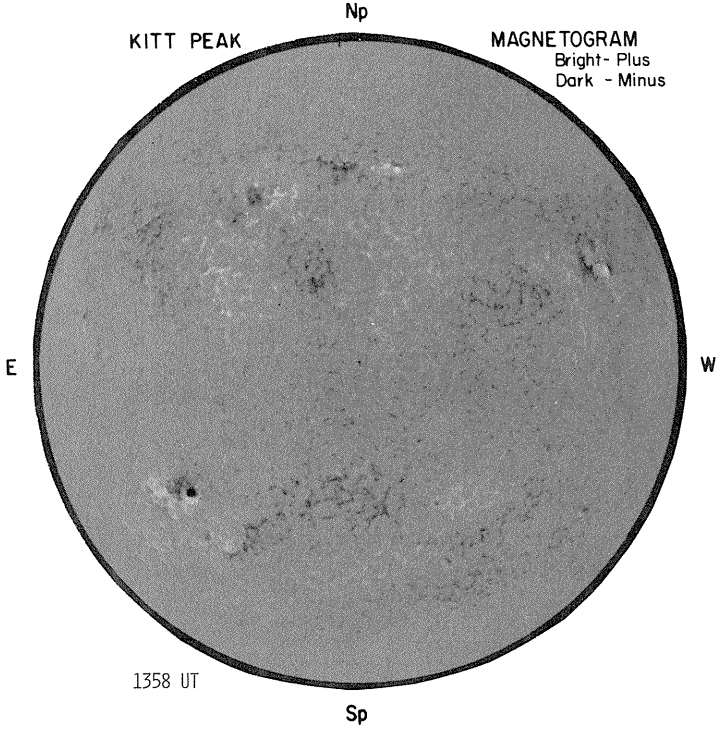


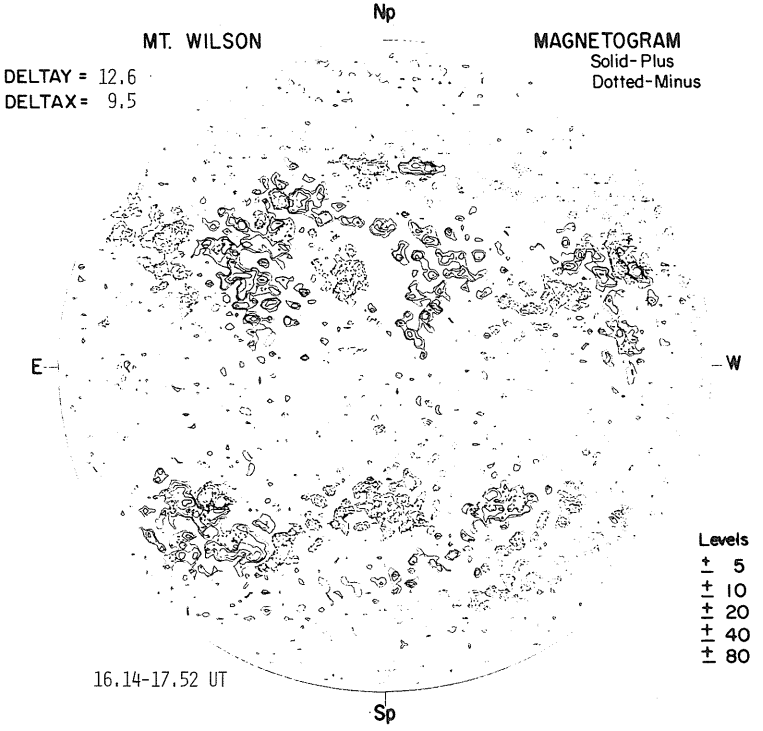
1718 UT Ant. Temp. Unit 100°K

AUGUST 18, 1978 (P = 16.91, B_o = 6.78, L_o = 76.60)

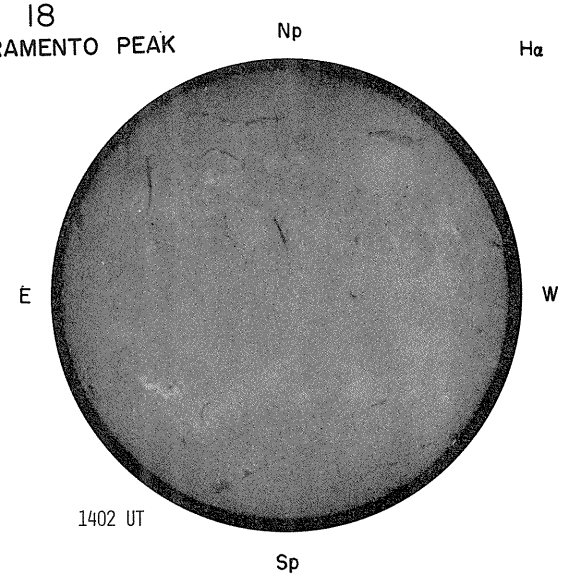






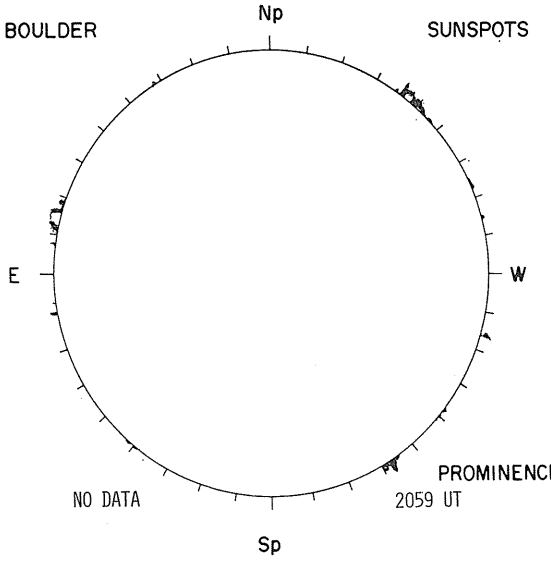


ACRAMENTO PEAK Hα



1402 UT

BOULDER SUNSPOTS

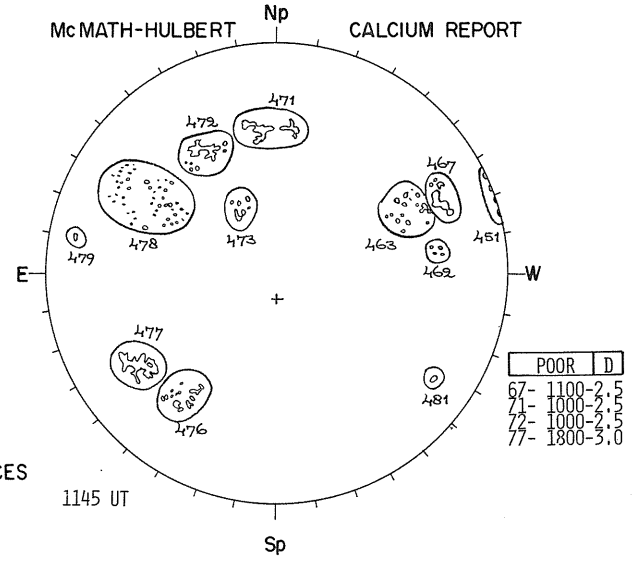


NO DATA

PROMINENCES

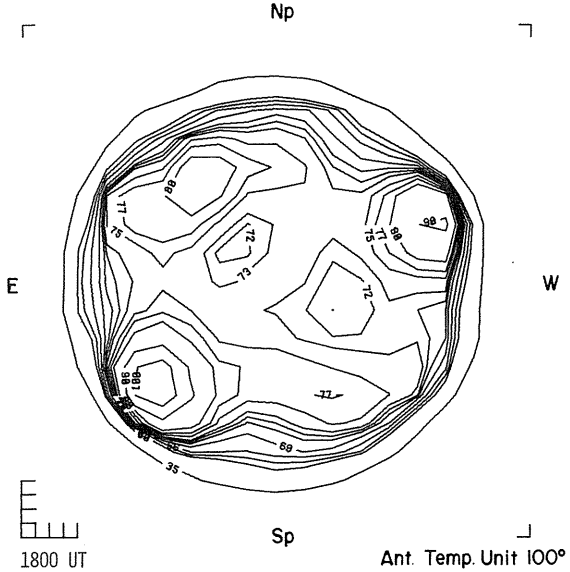
2059 UT

McMATH-HULBERT CALCIUM REPORT



1145 UT

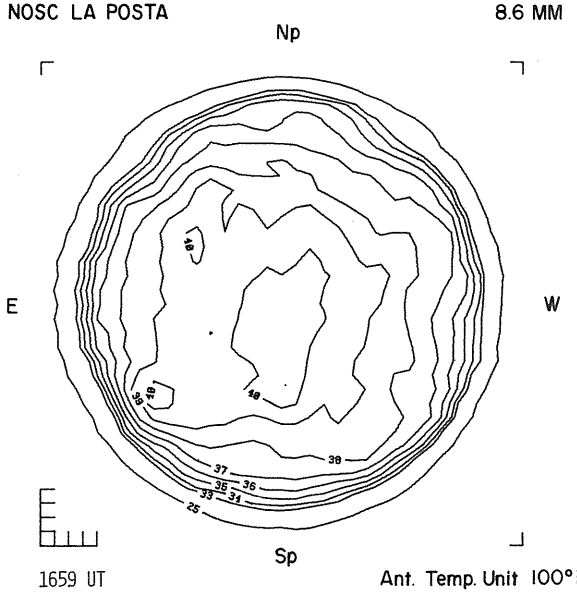
NOSC LA POSTA 2.0 CM



1800 UT

Ant. Temp. Unit 100° K

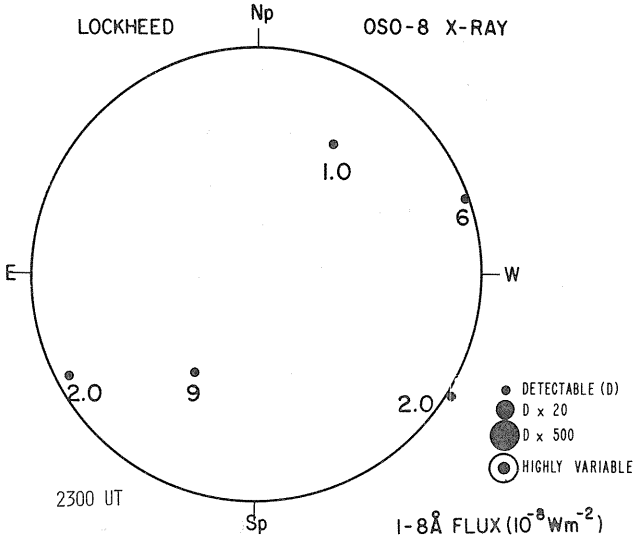
NOSC LA POSTA 8.6 MM

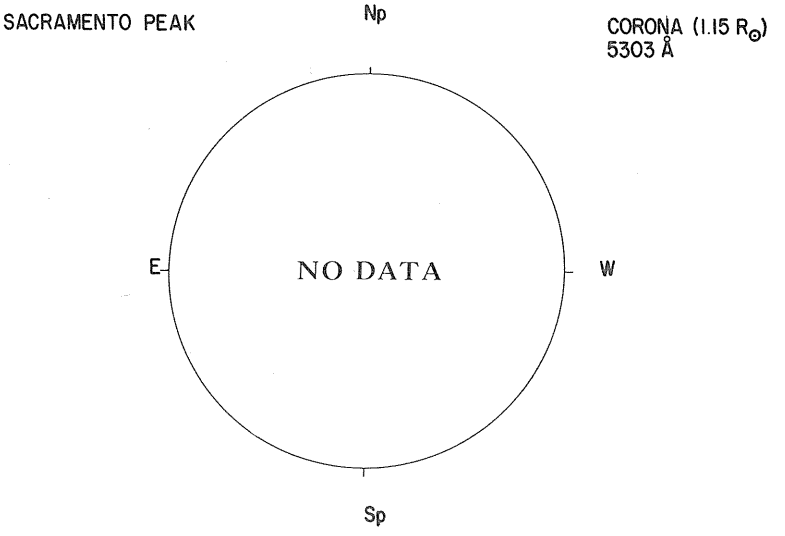


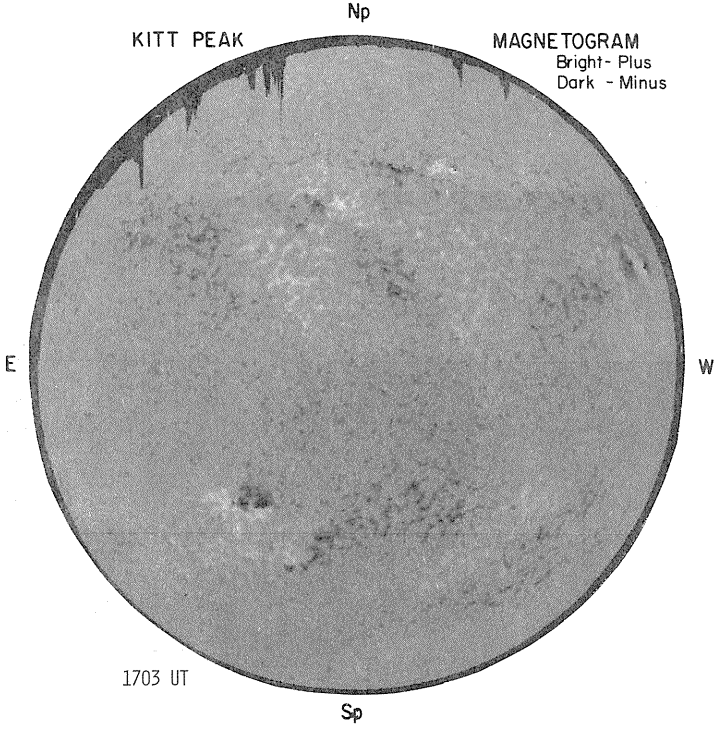
1659 UT

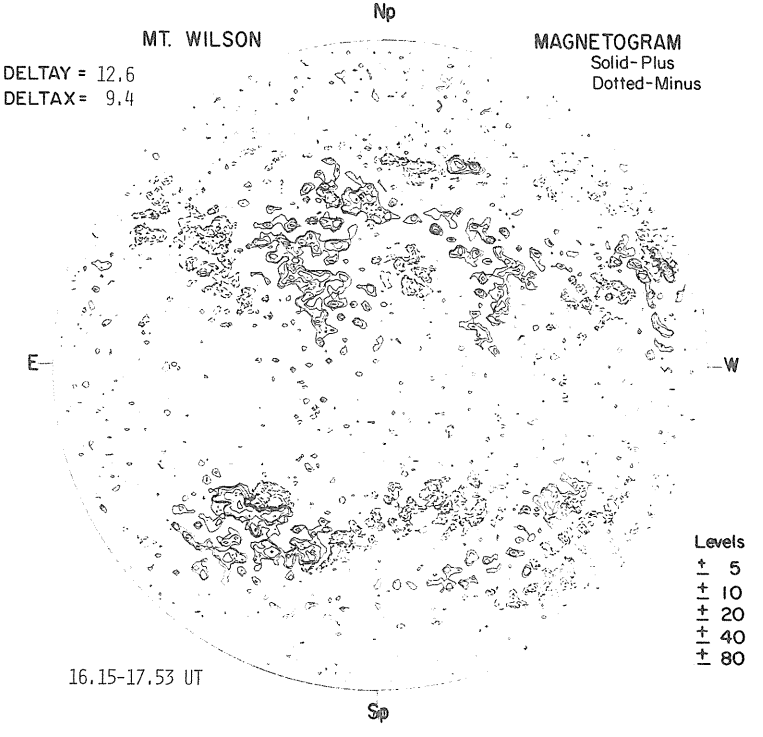
Ant. Temp. Unit 100° K

AUGUST 19, 1978 (P = 17.23, B_o = 6.82, L_o = 63.39)







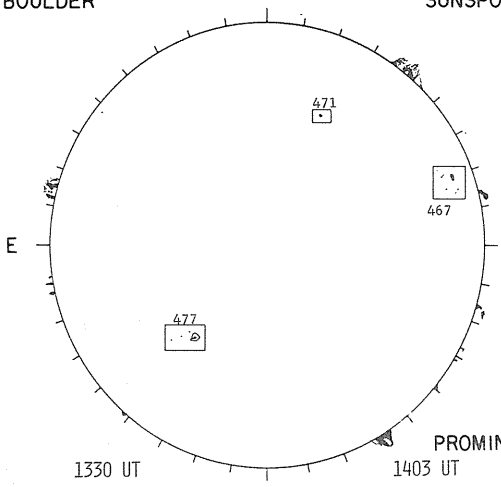


19

SACRAMENTO PEAK Hα

1612 UT

BOULDER SUNSPOTS

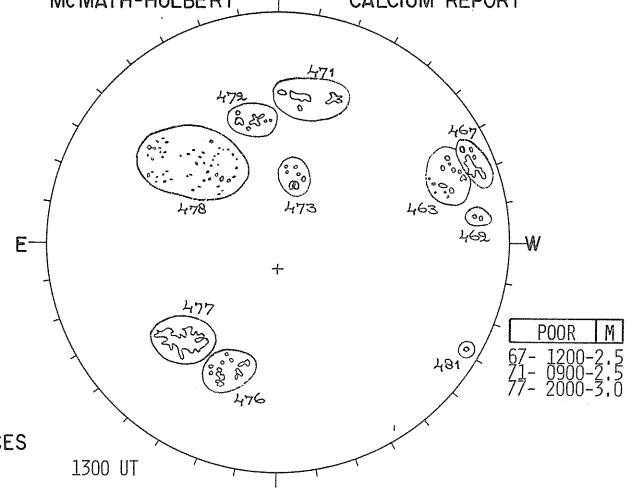


1330 UT

PROMINENCES

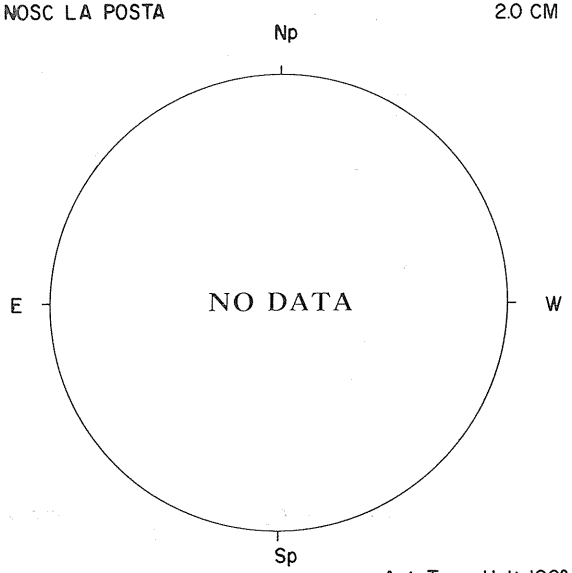
1403 UT

McMATH-HULBERT CALCIUM REPORT



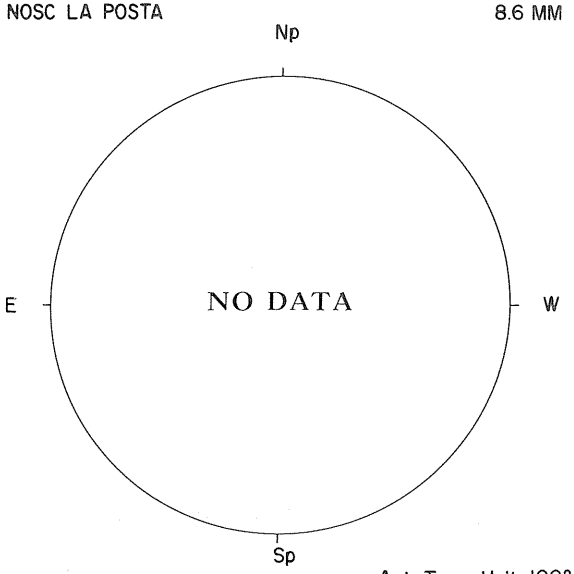
1300 UT

NOSC LA POSTA 2.0 CM



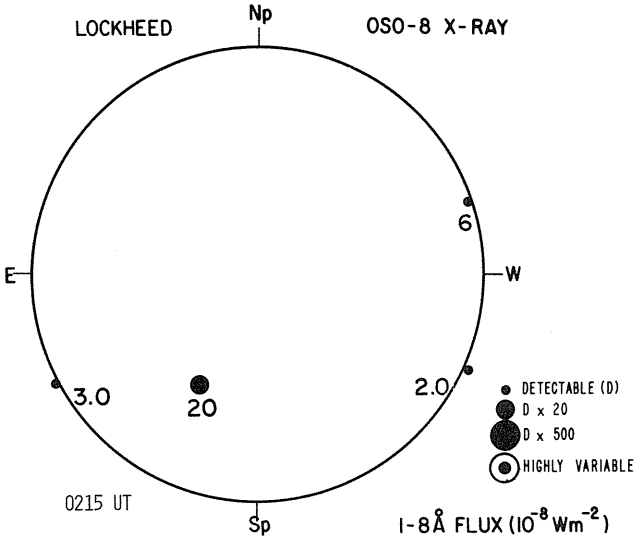
Ant. Temp. Unit 100° K

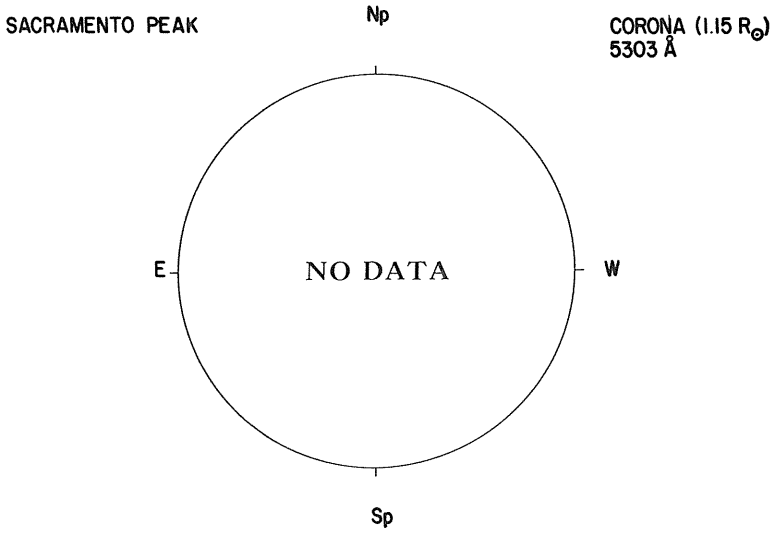
NOSC LA POSTA 8.6 MM

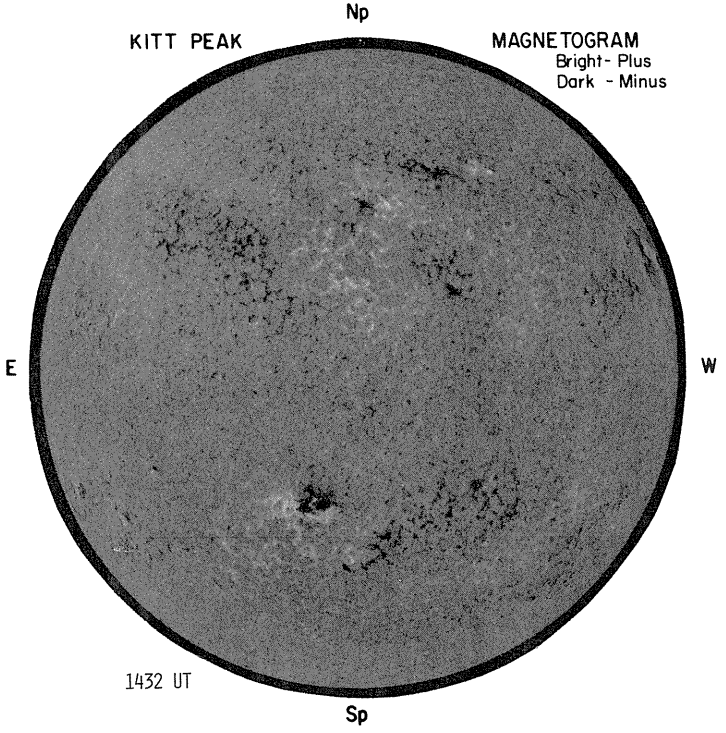


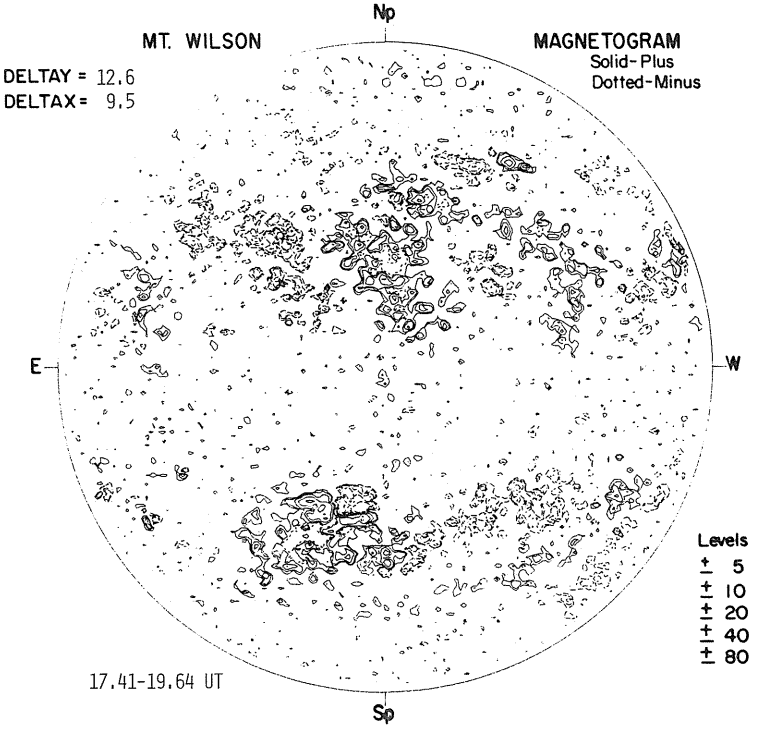
Ant. Temp. Unit 100° K

AUGUST 20, 1978 (P = 17.55, B_o = 6.86, L_o = 50.17)

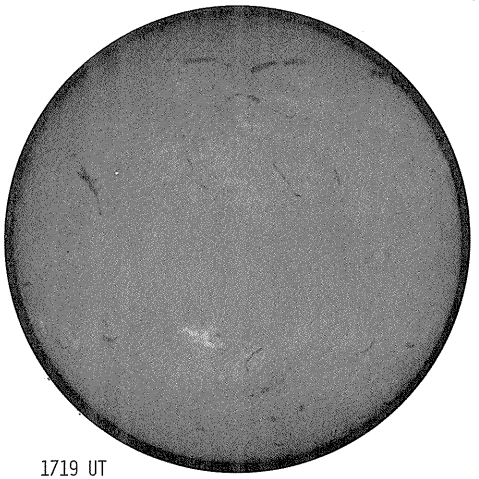






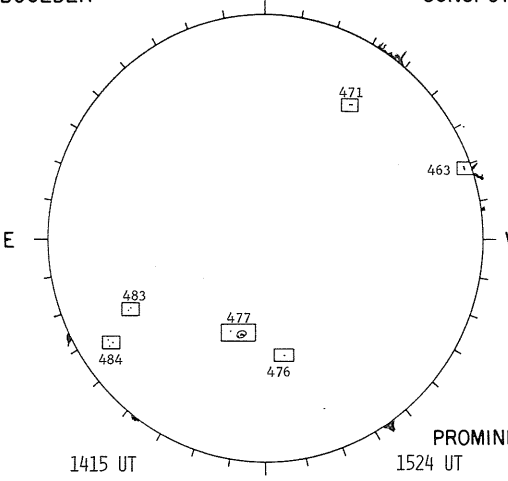


SACRAMENTO PEAK Hα



1719 UT

BOULDER SUNSPOTS

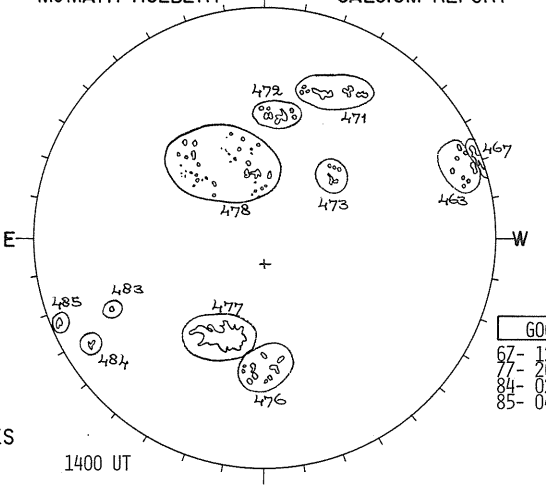


1415 UT

PROMINENCES

1524 UT

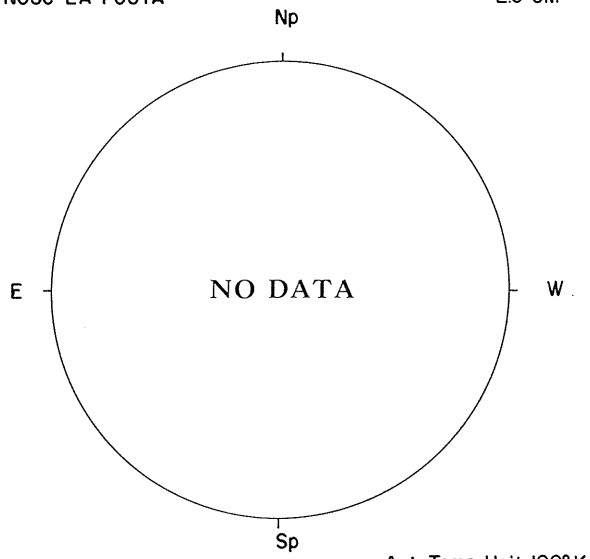
McMATH-HULBERT CALCIUM REPORT



1400 UT

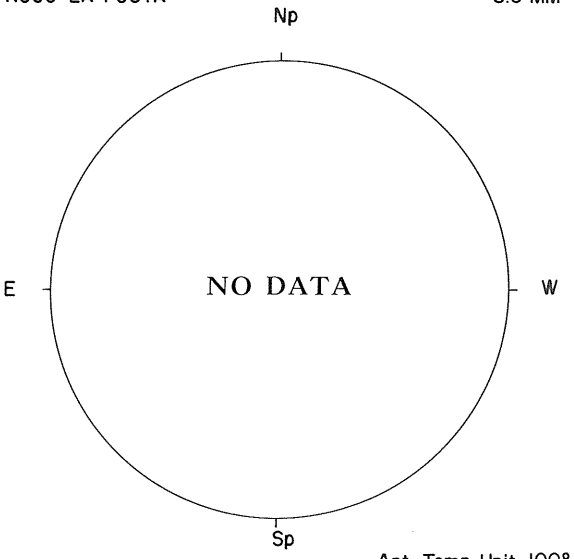
GOOD	M
67- 1200-2.5	
77- 2000-2.5	
84- 0200-2.5	
85- 0400-2.5	

NOSC LA POSTA 2.0 CM



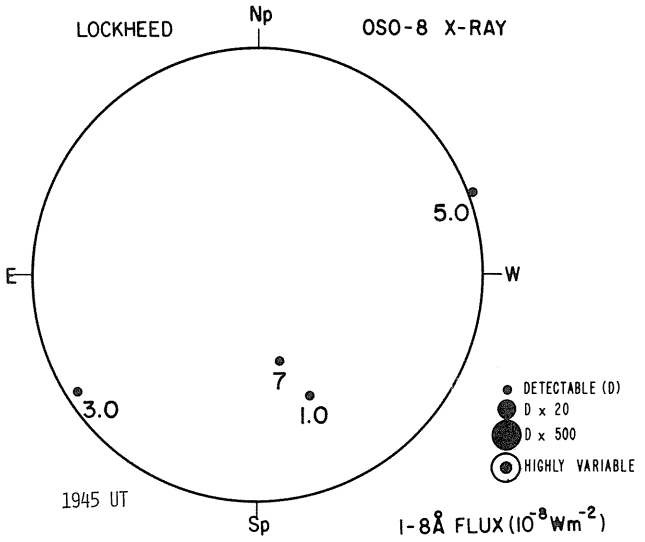
Ant. Temp. Unit 100°K

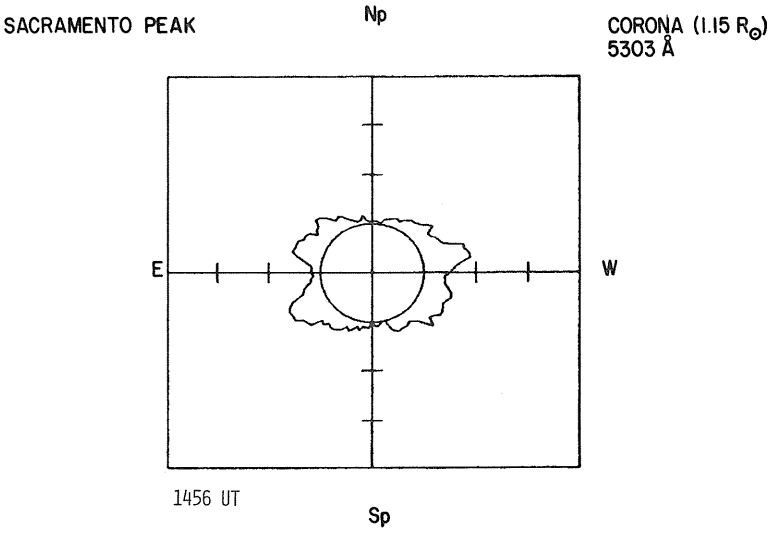
NOSC LA POSTA 8.6 MM

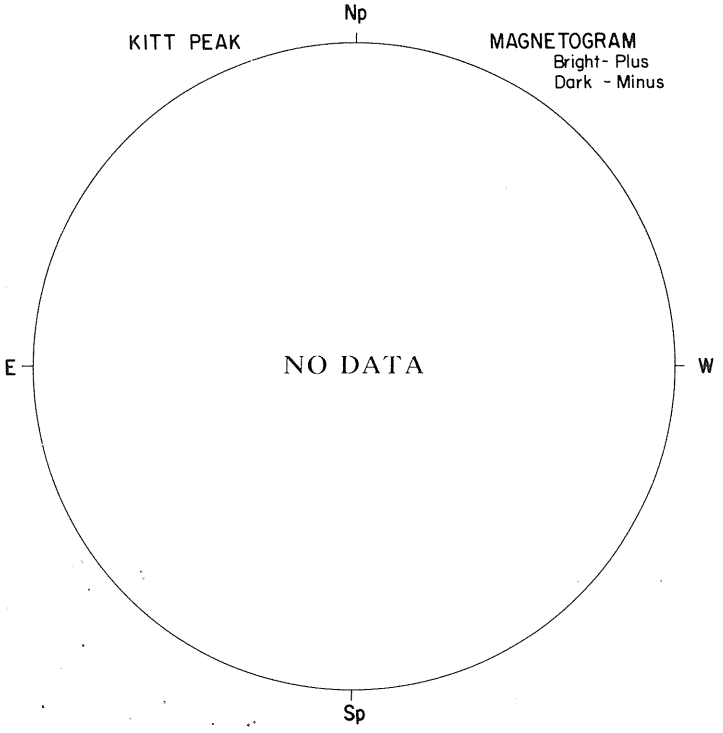


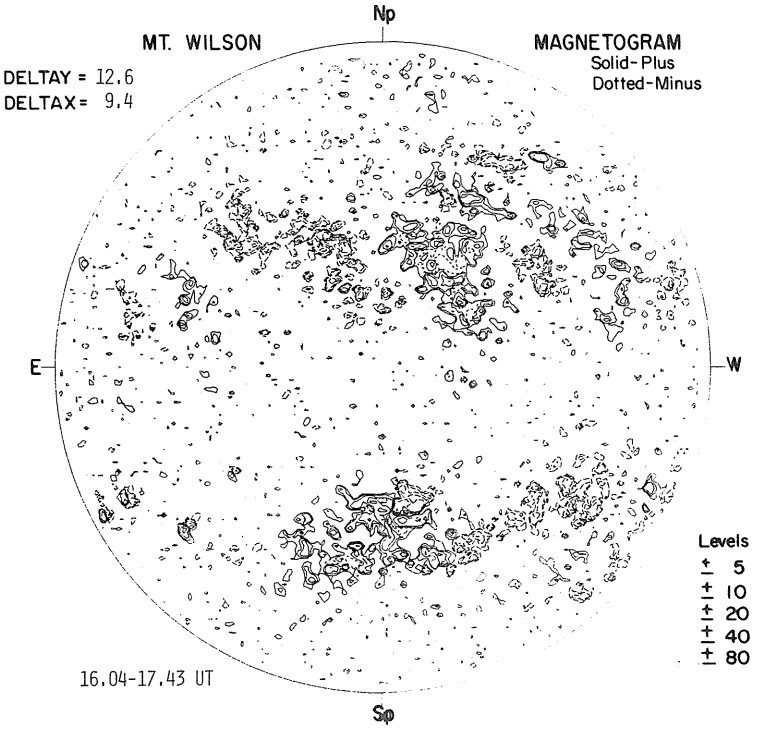
Ant. Temp. Unit 100°K

AUGUST 21, 1978 (P = 17.87, B_o = 6.90, L_o = 36.95)

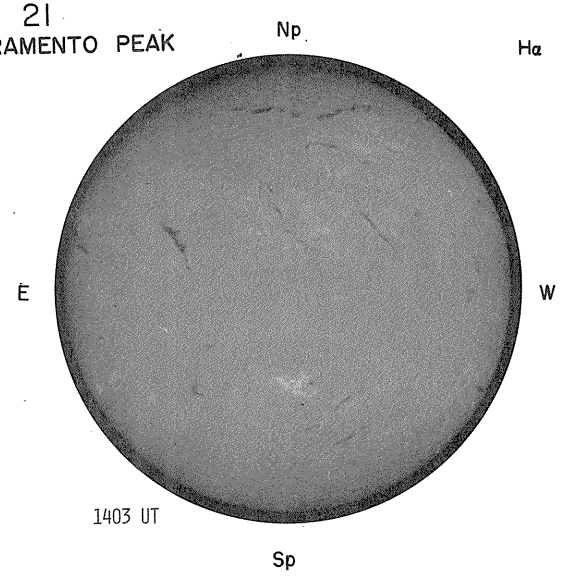






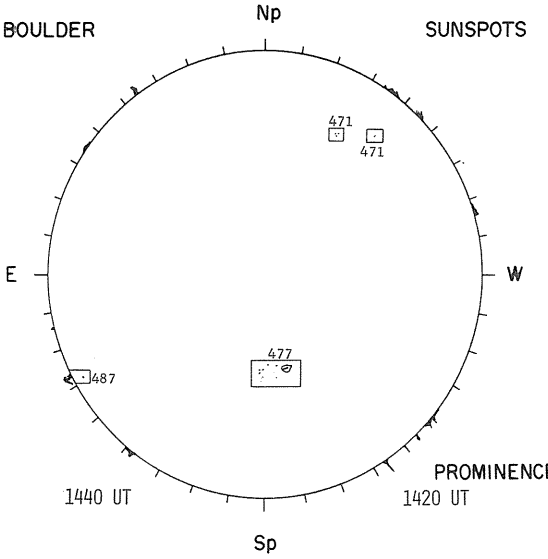


SACRAMENTO PEAK Hα



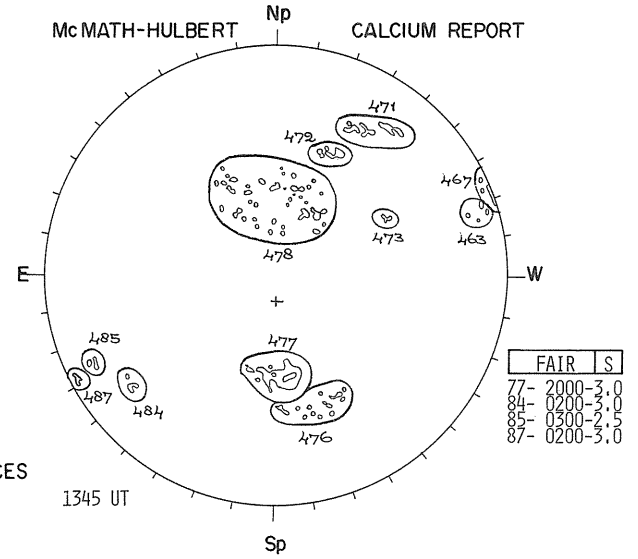
1403 UT

BOULDER SUNSPOTS



1440 UT

McMATH-HULBERT CALCIUM REPORT

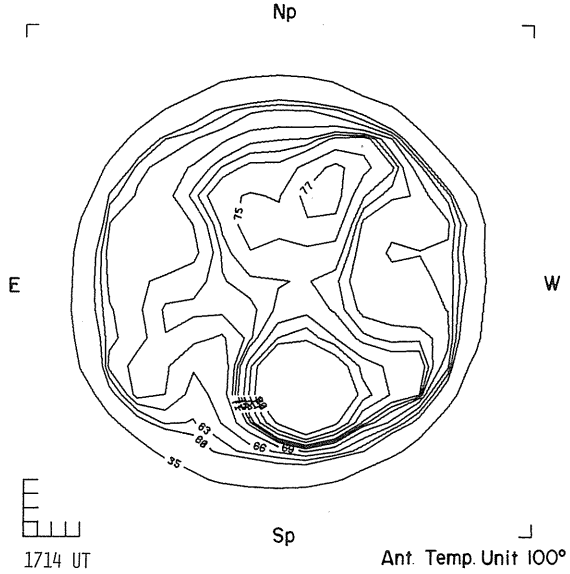


1345 UT

PROMINENCES

1420 UT

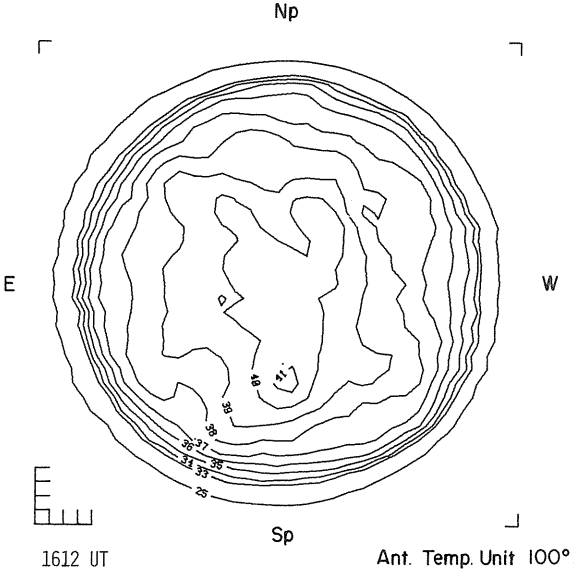
NOSC LA POSTA 2.0 CM



1714 UT

Ant. Temp. Unit 100° K

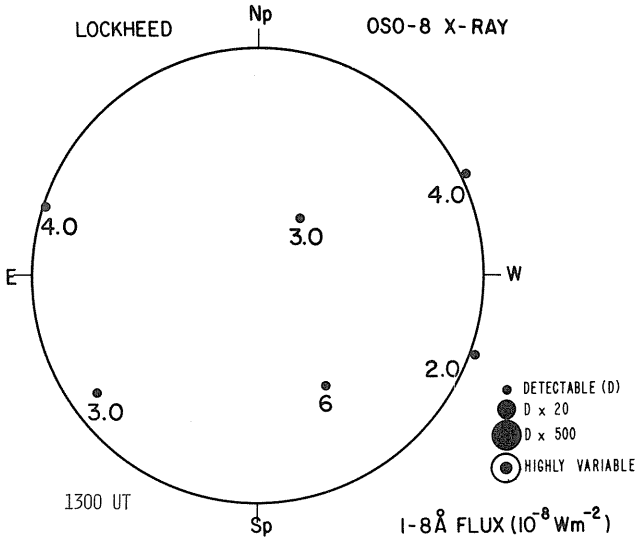
NOSC LA POSTA 8.6 MM

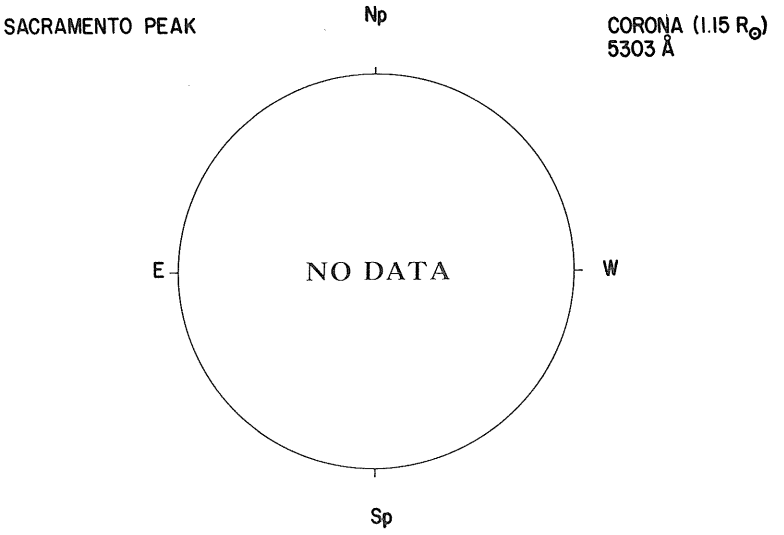


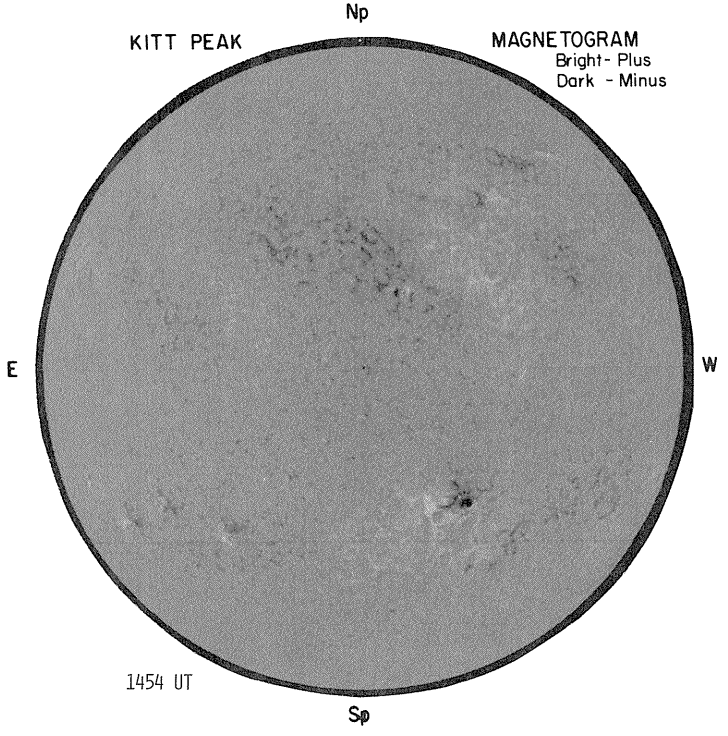
1612 UT

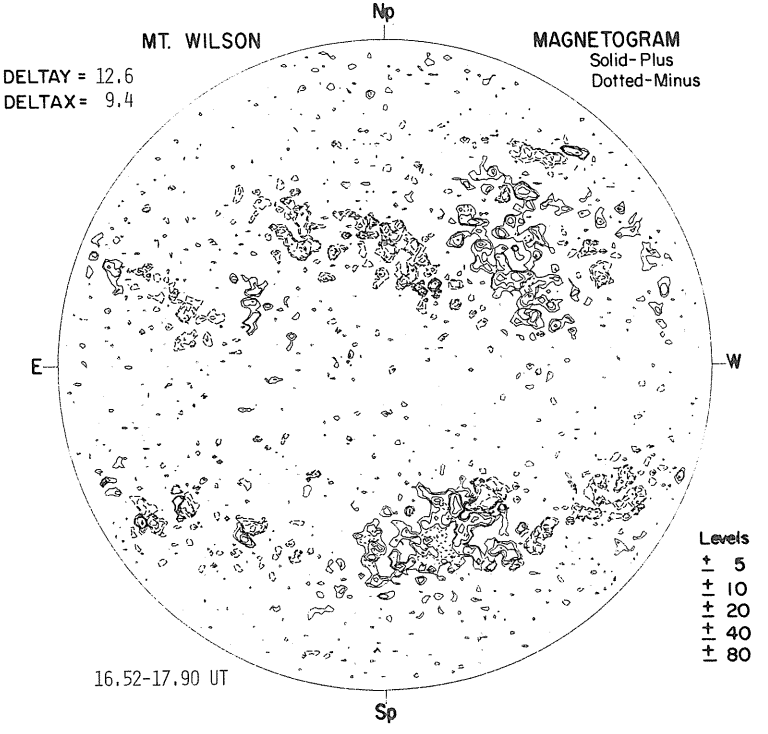
Ant. Temp. Unit 100° K

AUGUST 22, 1978 (P = 18.18, B_0 = 6.94, L_0 = 23.74)



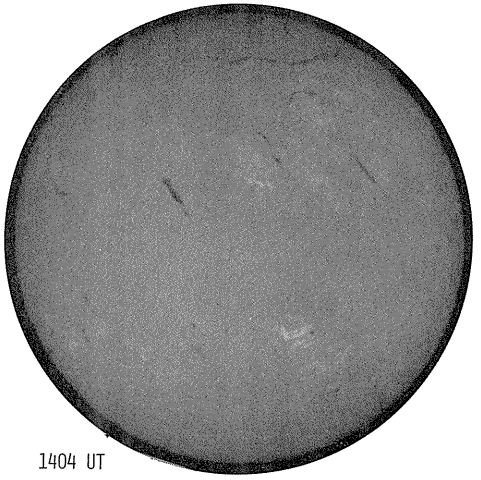






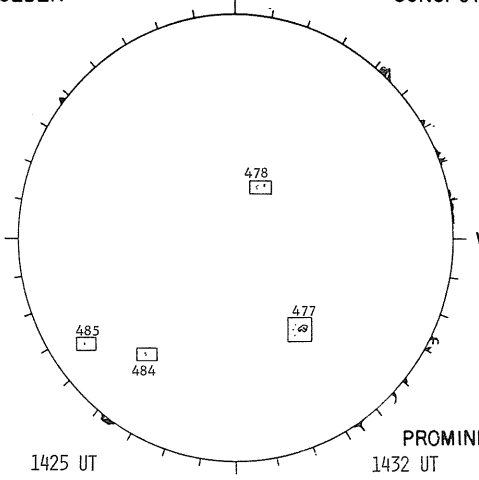
22

SACRAMENTO PEAK Hα



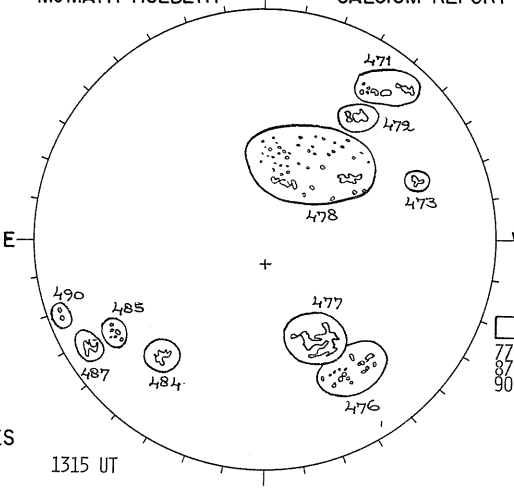
1404 UT

BOULDER SUNSPOTS



1425 UT

McMATH-HULBERT CALCIUM REPORT



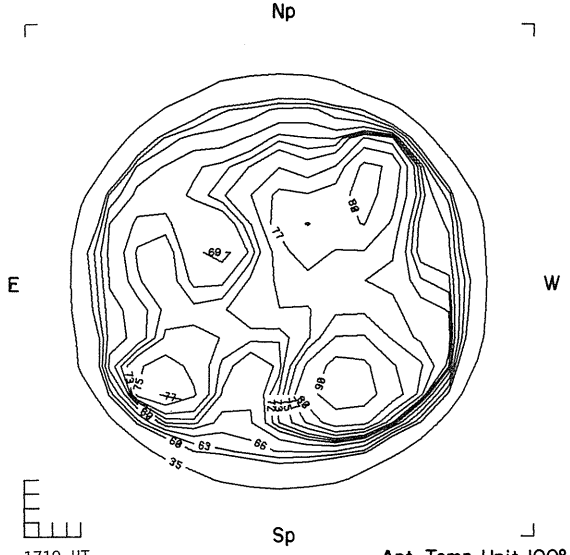
1315 UT

GOOD	M
77- 2000-3.0	
87- 0500-2.5	
90- 0300-2.5	

PROMINENCES

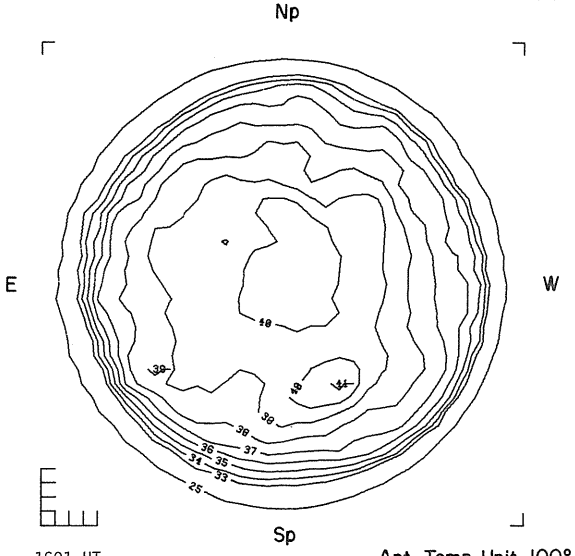
1432 UT

NOSC LA POSTA 2.0 CM



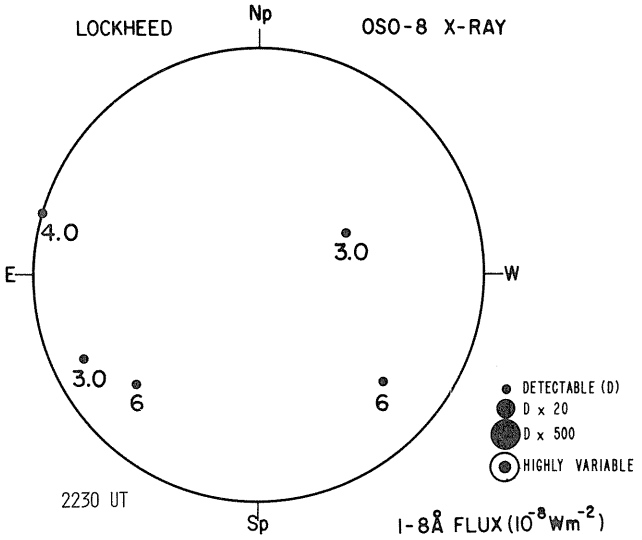
1712 UT Ant. Temp. Unit 100°K

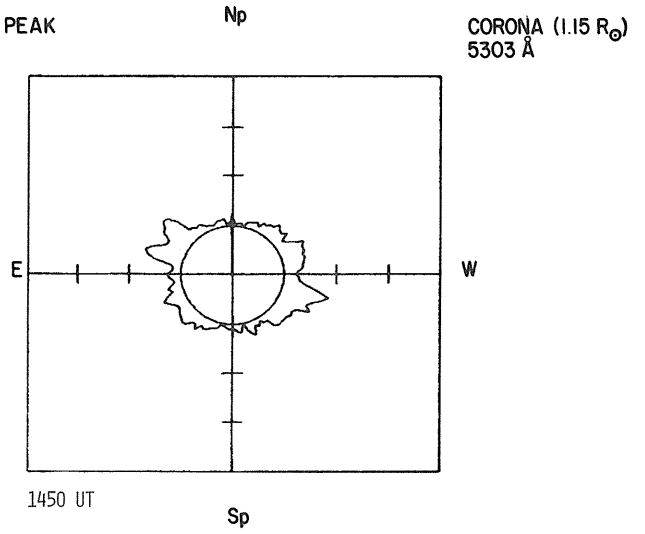
NOSC LA POSTA 8.6 MM

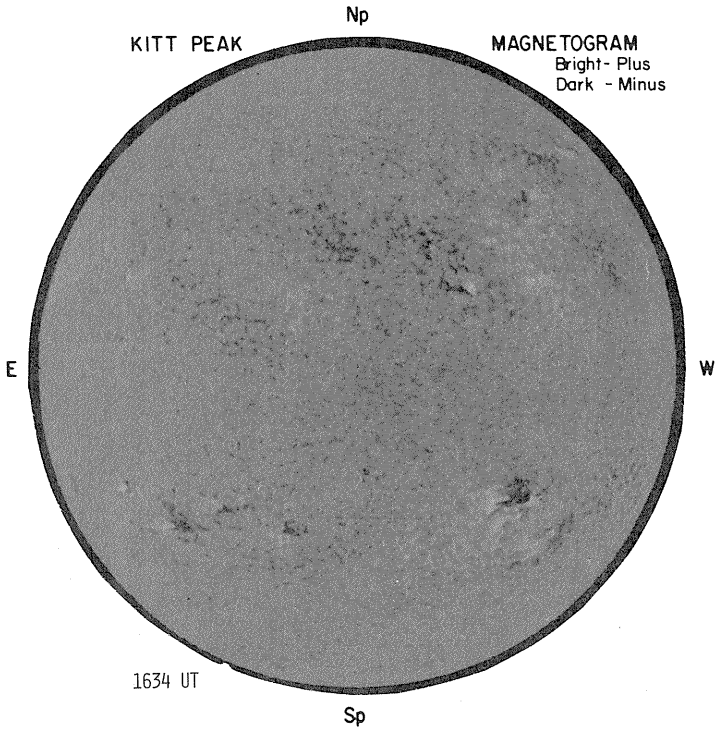


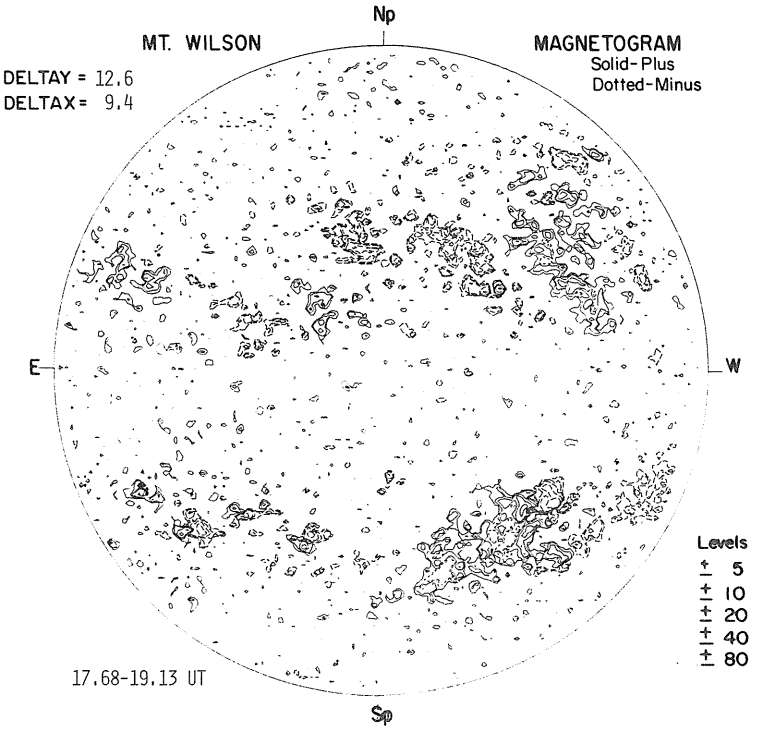
1601 UT Ant. Temp. Unit 100°K

AUGUST 23, 1978 (P = 18.49, B_o = 6.97, L_o = 10.52)



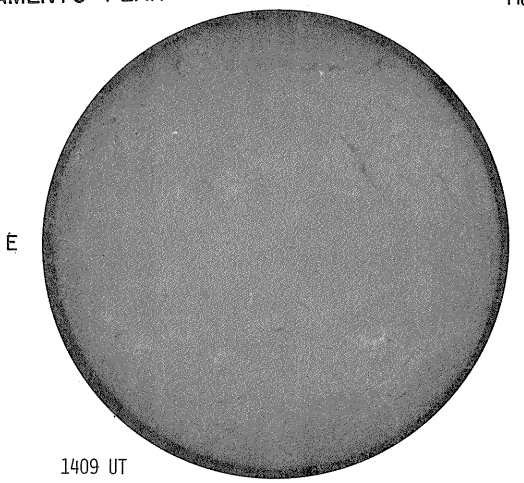






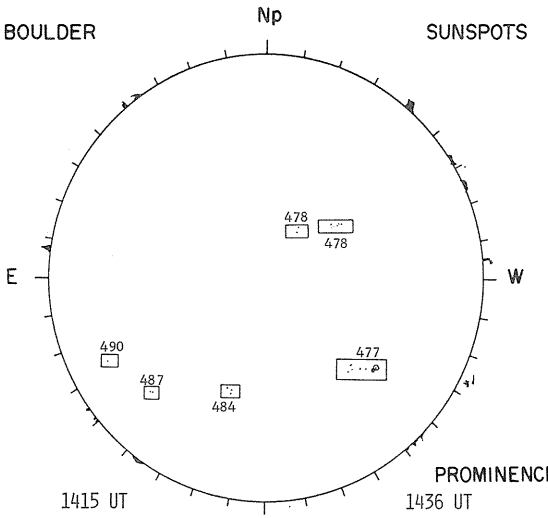
23

ACRAMENTO PEAK Hα



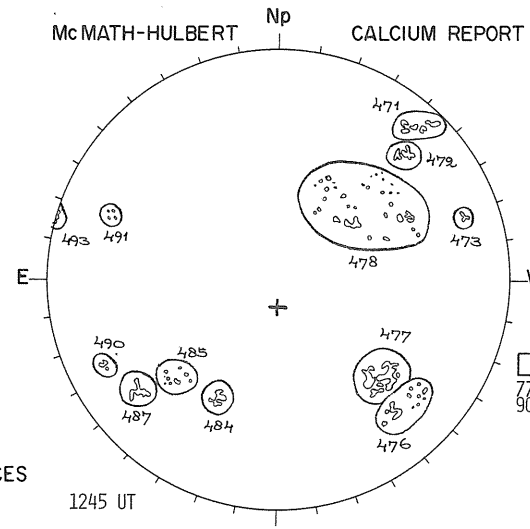
1409 UT

BOULDER SUNSPOTS



1415 UT

McMATH-HULBERT CALCIUM REPORT



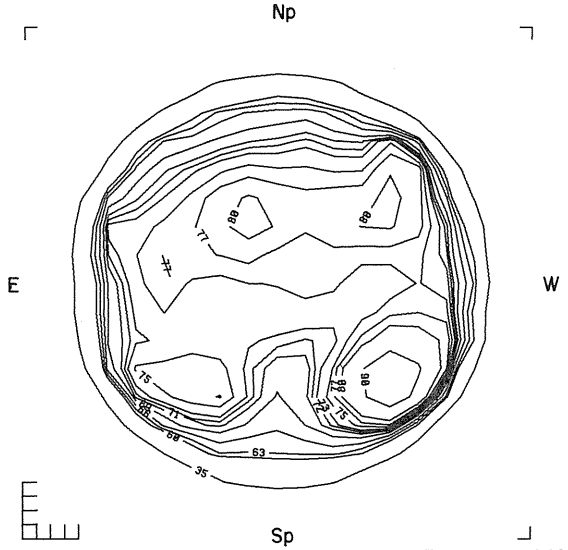
FAIR | M
77- 1700-2.5
90- 0300-2.5

PROMINENCES

1436 UT

1245 UT

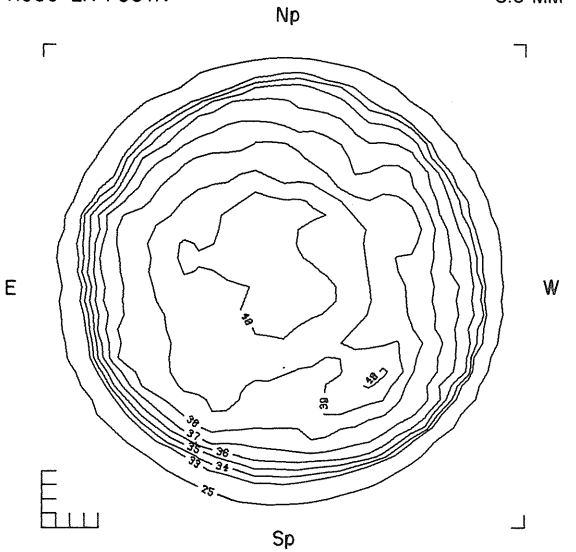
NOSC LA POSTA 2.0 CM



1627 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

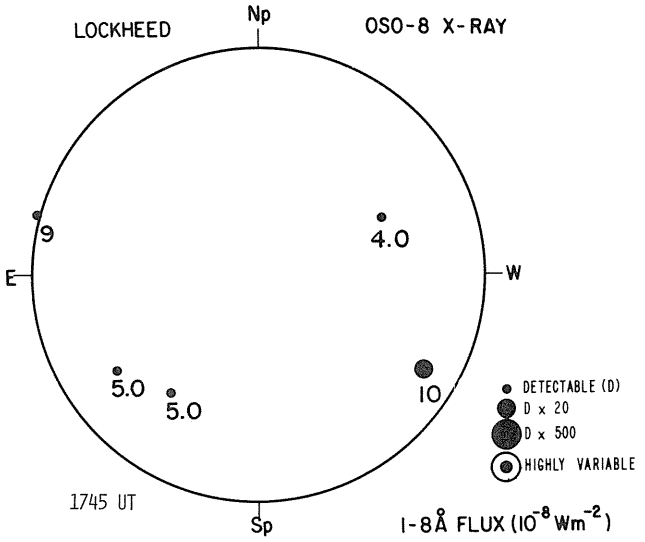


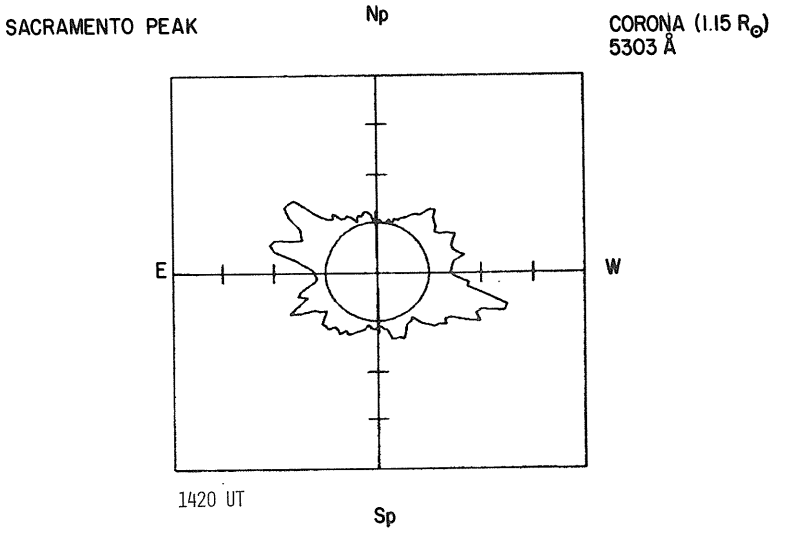
1531 UT

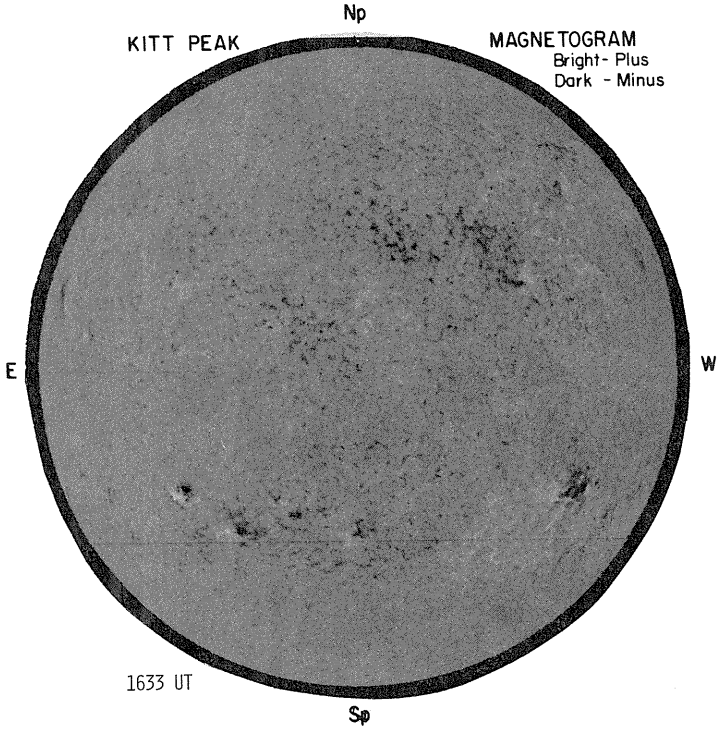
Ant. Temp. Unit 100° K

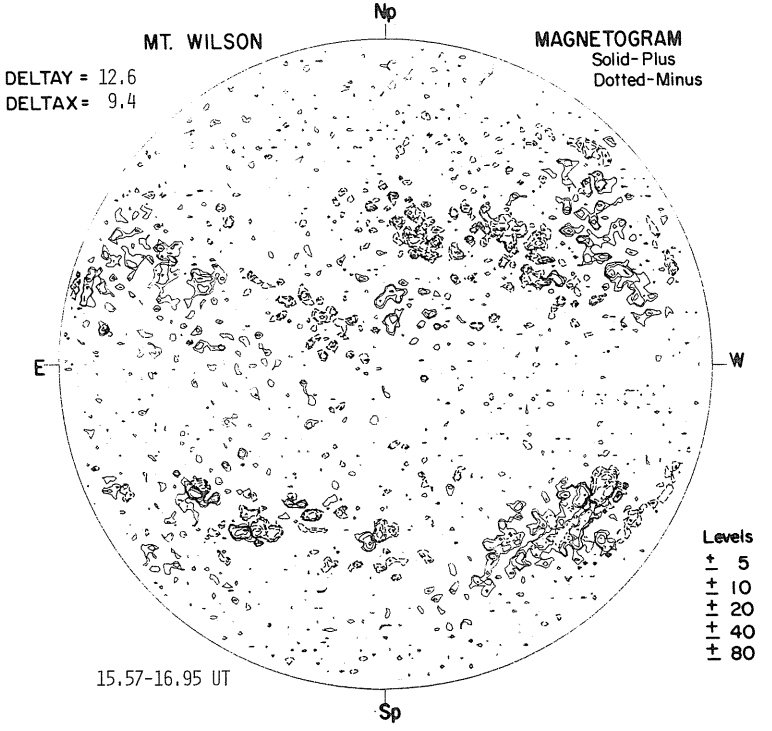
93
Aug 78

AUGUST 24, 1978 (P = 18.79, B_o = 7.00, L_o = 357.31)

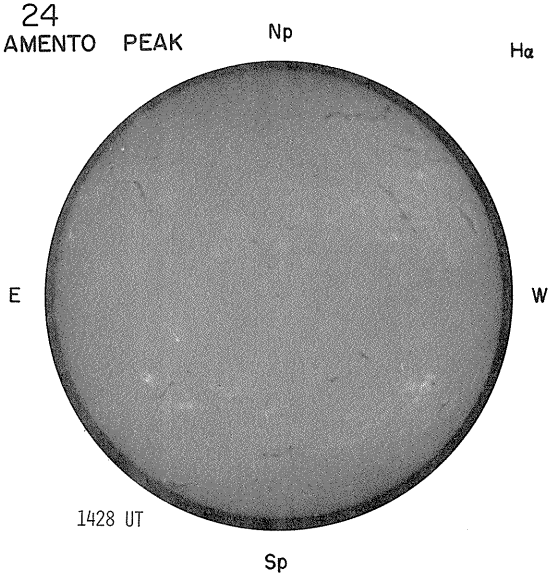






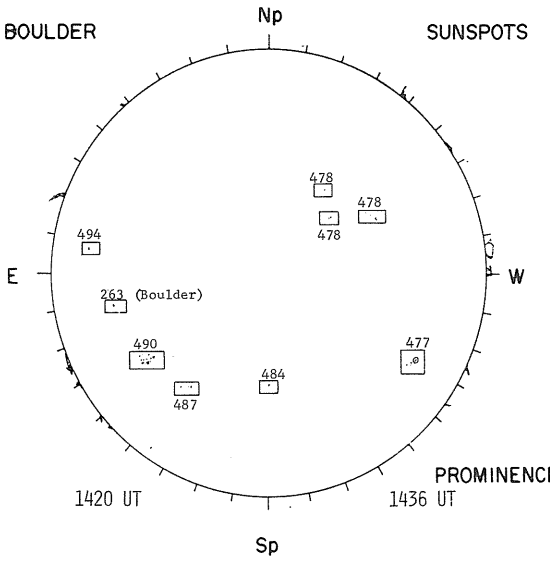


ACRAMENTO PEAK Hα



1428 UT

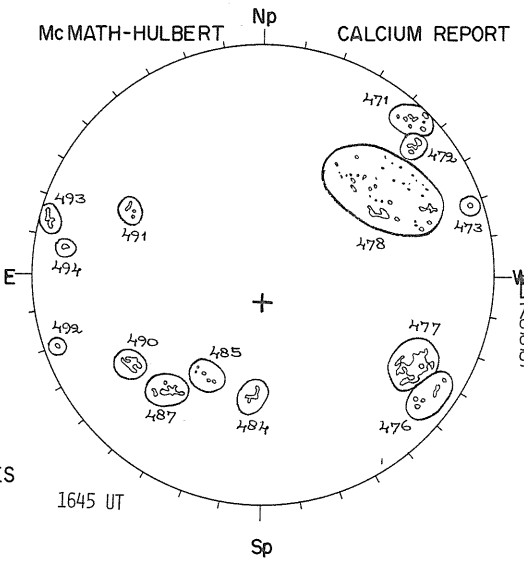
BOULDER SUNSPOTS



1420 UT 1436 UT

PROMINENCES

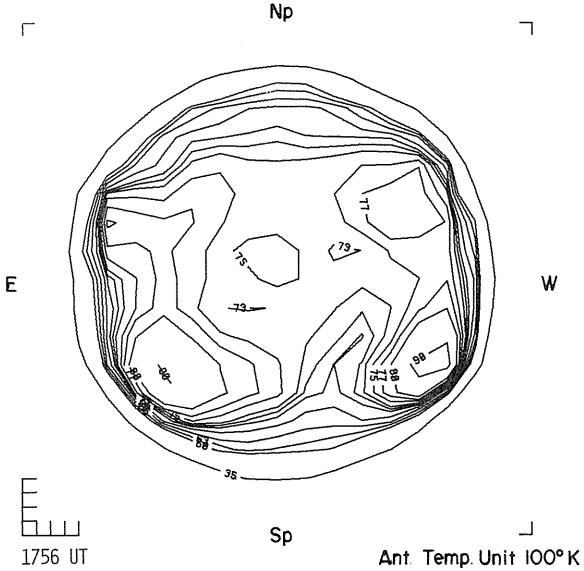
McMATH-HULBERT CALCIUM REPORT



1645 UT

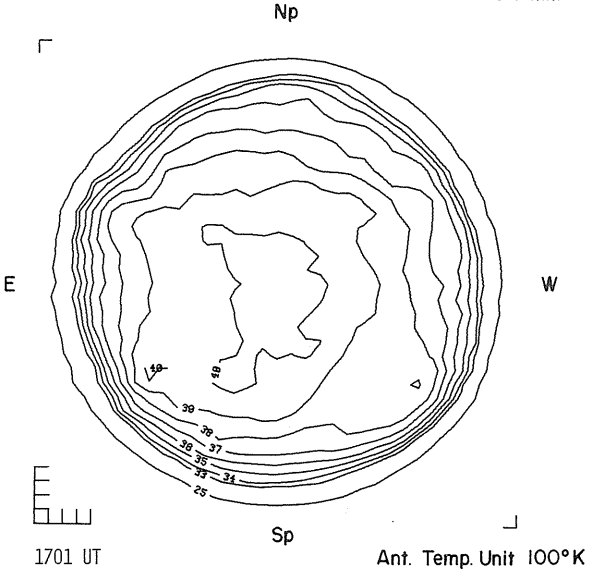
FAIR	M
77- 1700-2.5	
90- 0600-2.5	
93- 0600-2.5	
94- 0100-2.5	

NOSC LA POSTA 2.0 CM



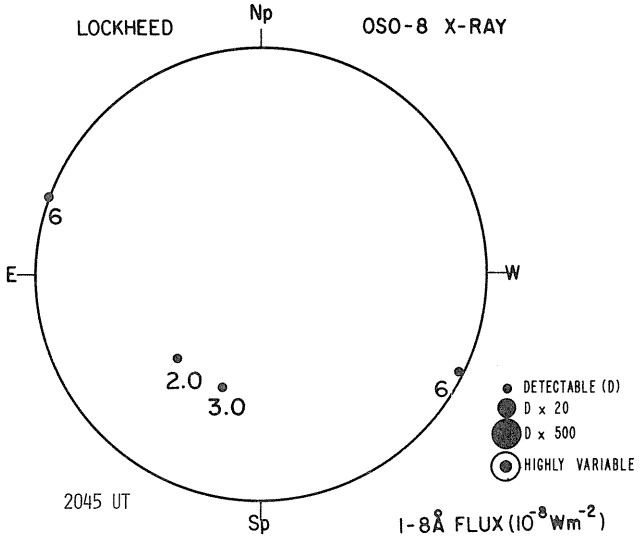
1756 UT Ant. Temp. Unit 100°K

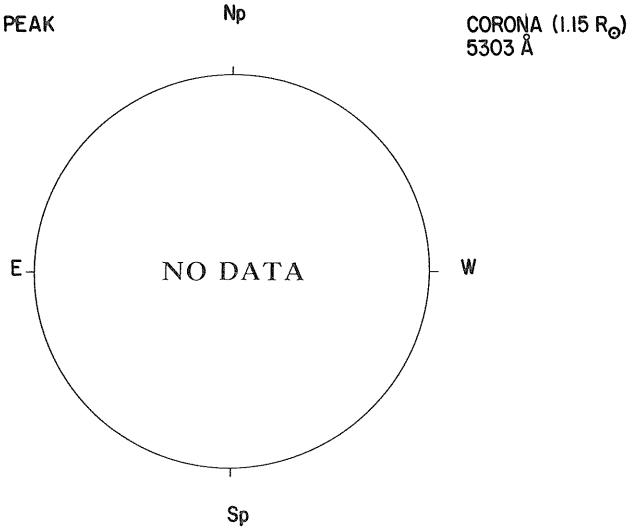
NOSC LA POSTA 8.6 MM

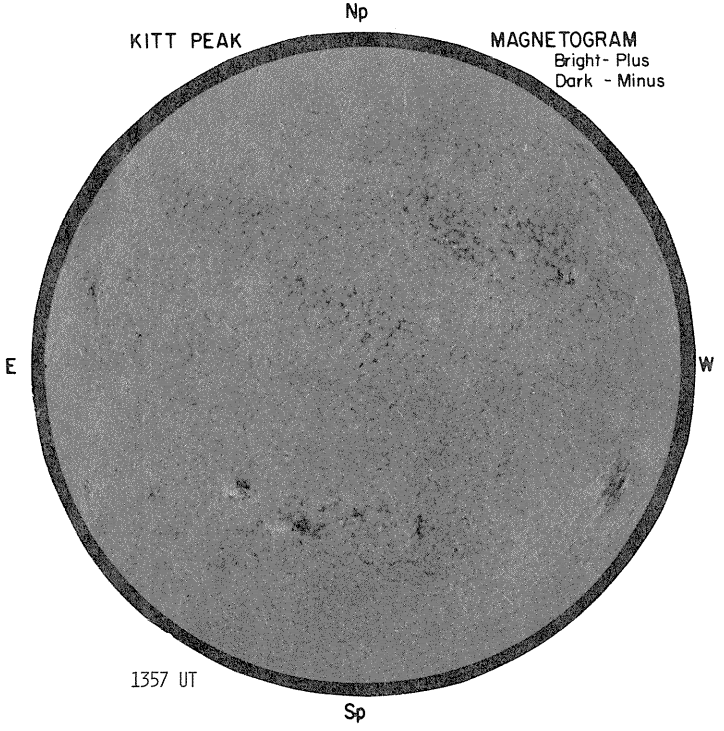


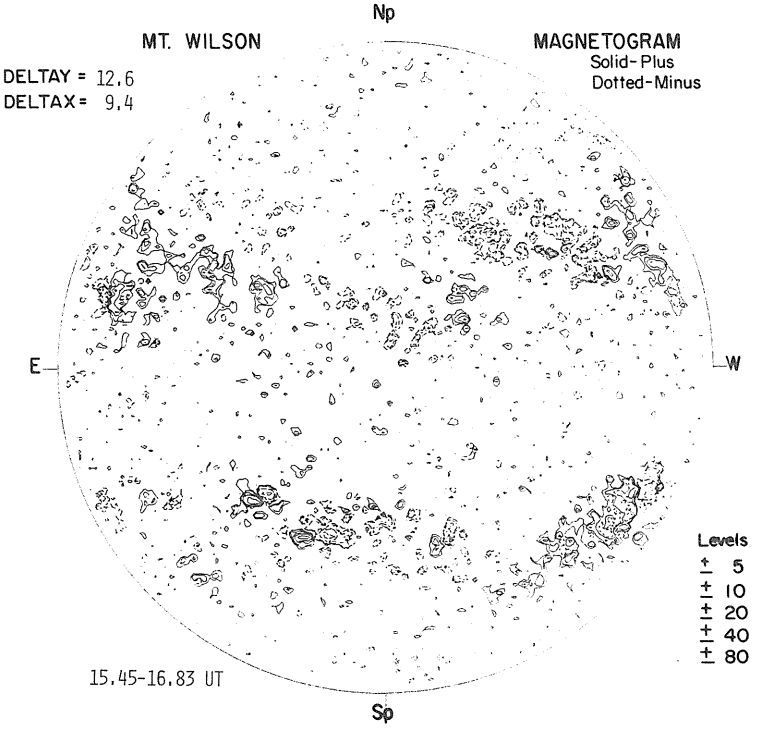
1701 UT Ant. Temp. Unit 100°K

AUGUST 25, 1978 (P = 19.08, B_o = 7.03, L_o = 344.10)

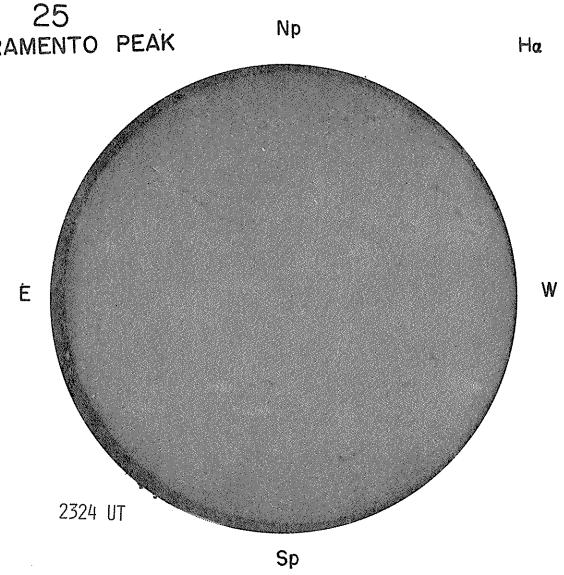




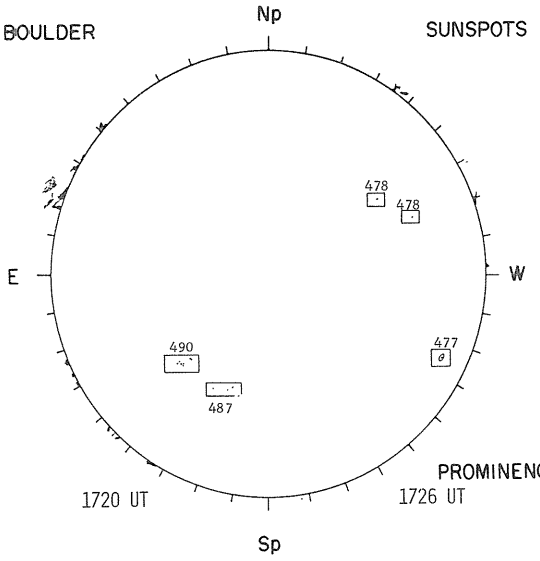




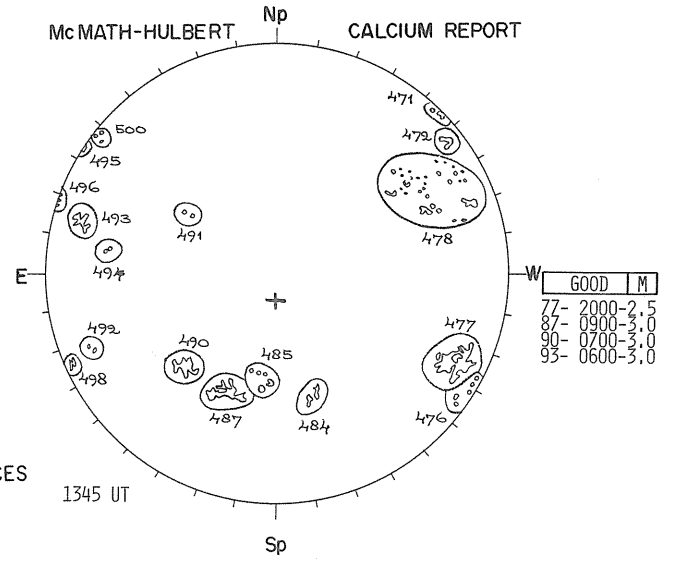
25
SACRAMENTO PEAK



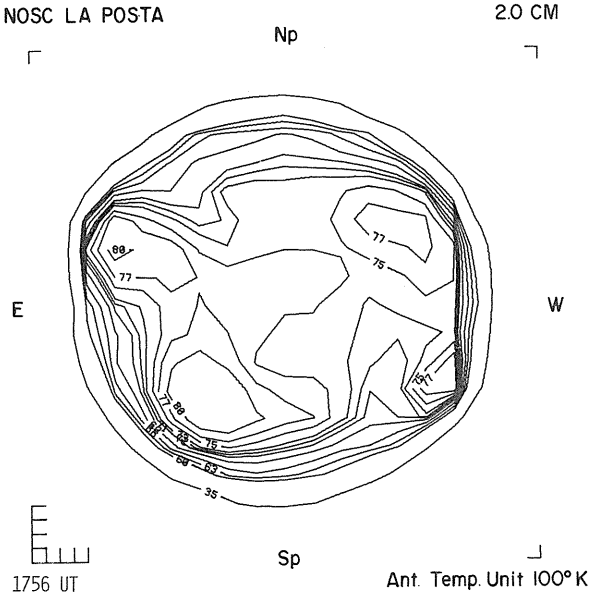
BOULDER



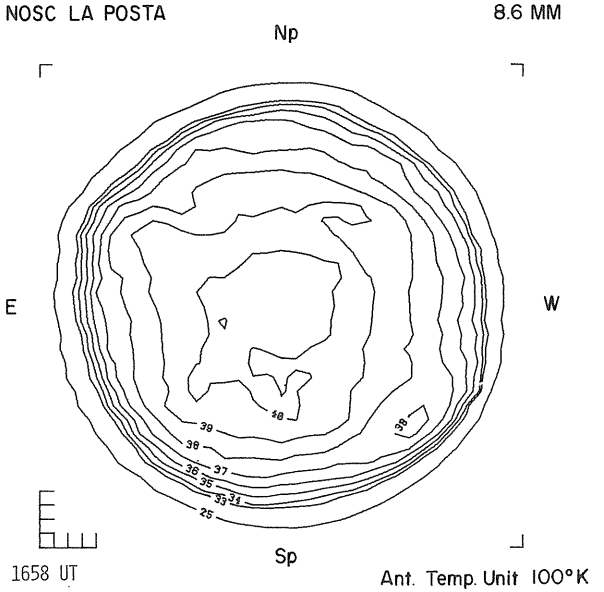
McMATH-HULBERT



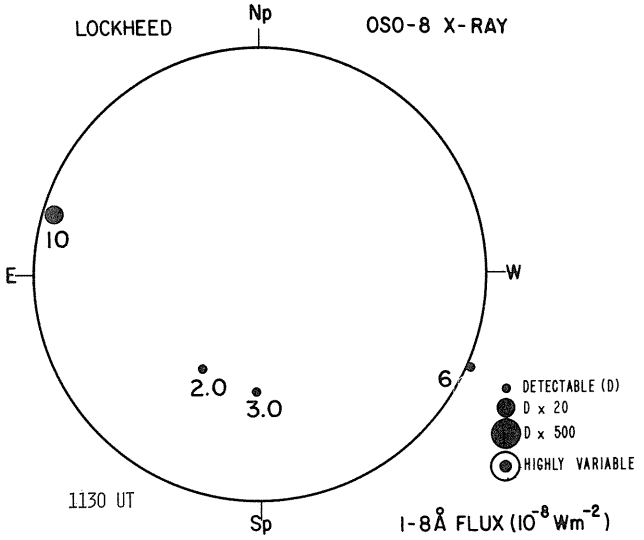
NOSC LA POSTA

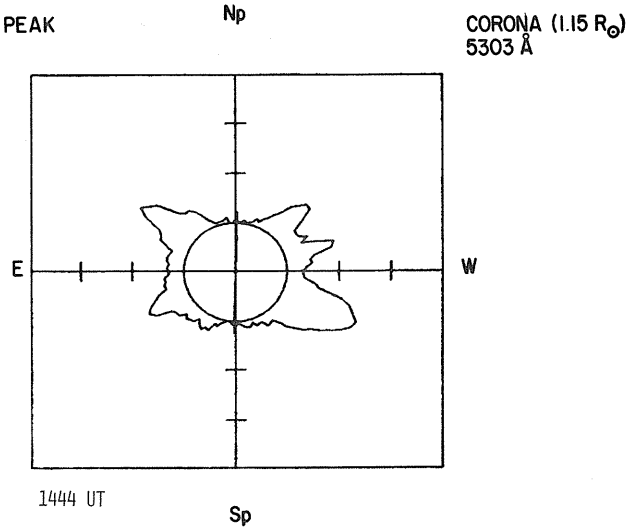


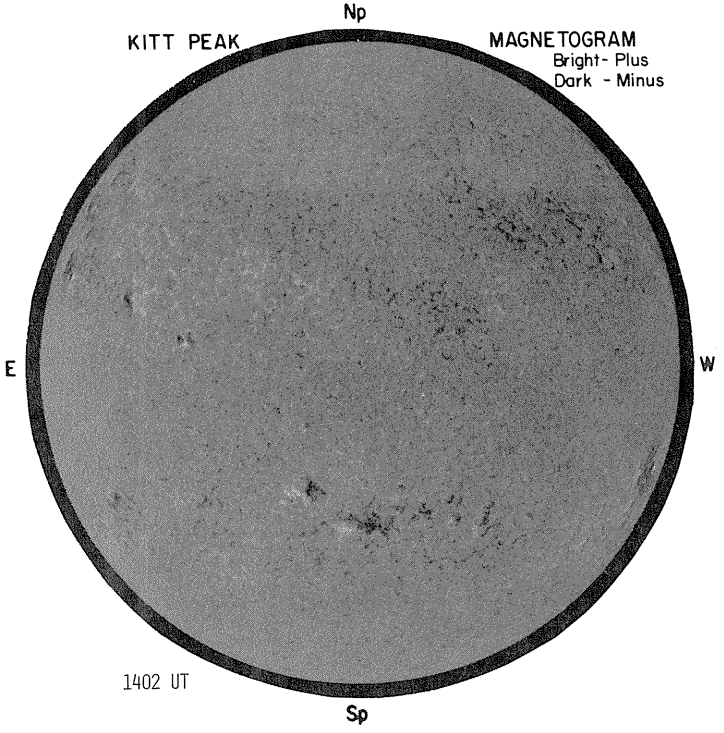
NOSC LA POSTA

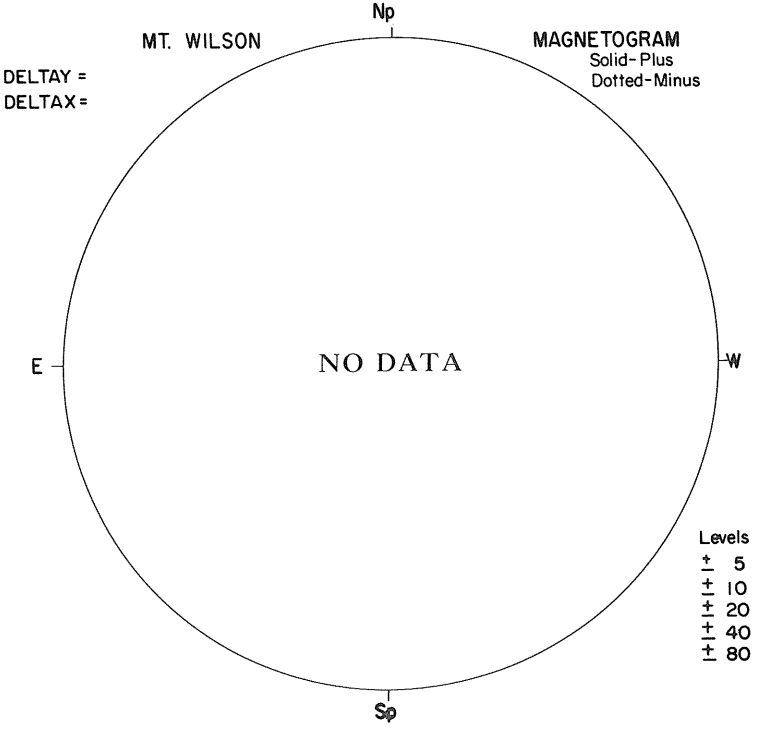


AUGUST 26, 1978 (P = 19.37, B_o = 7.06, L_o = 330.88)



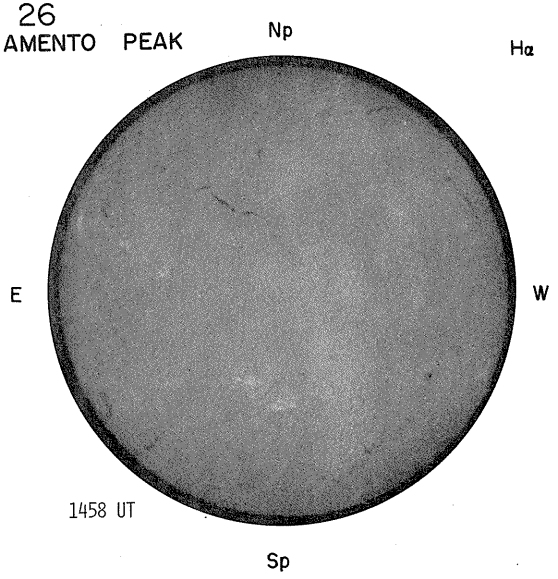




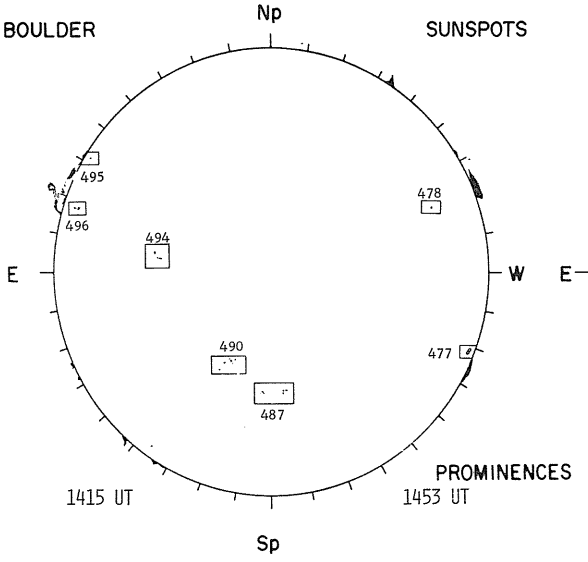


26

SACRAMENTO PEAK



BOULDER



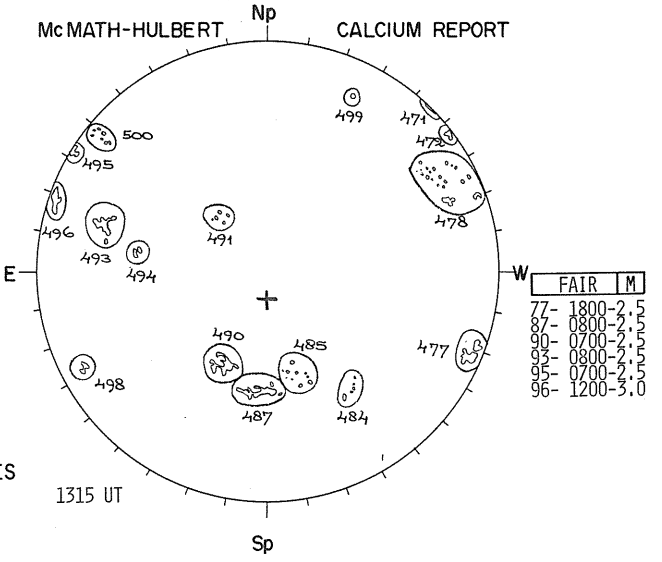
SUNSPOTS

PROMINENCES

1453 UT

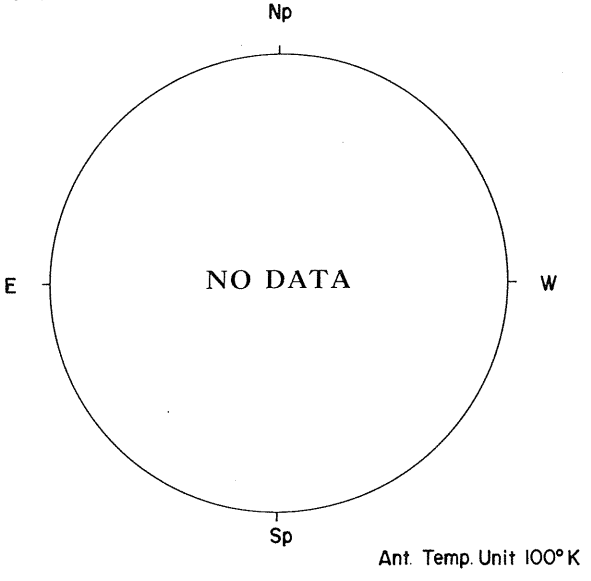
McMATH-HULBERT

CALCIUM REPORT



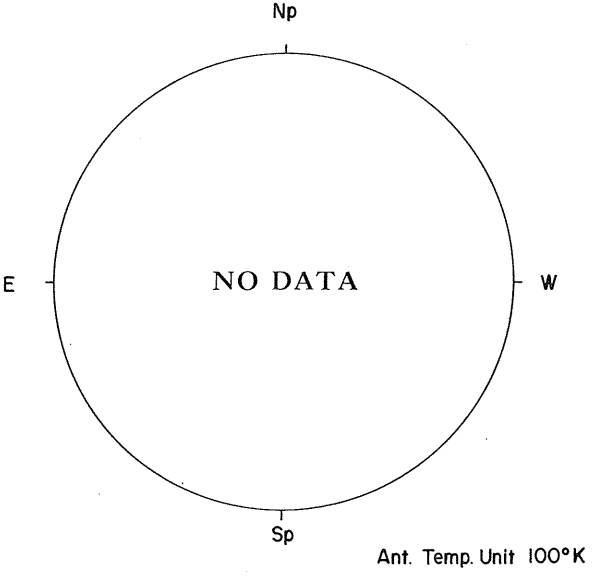
NOSC LA POSTA

2.0 CM

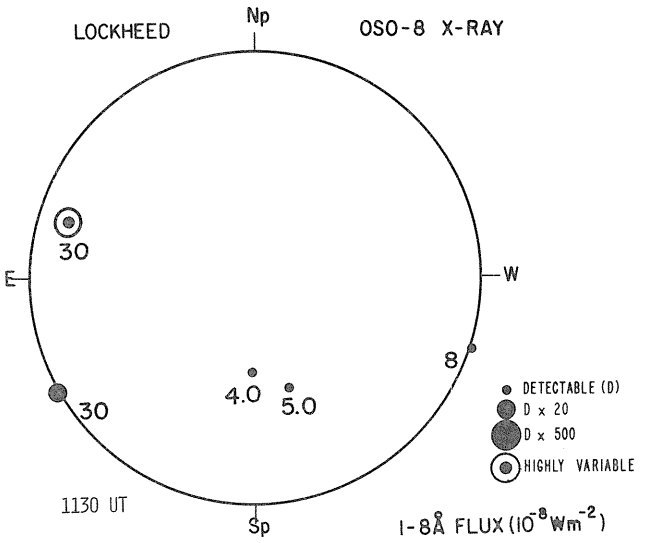


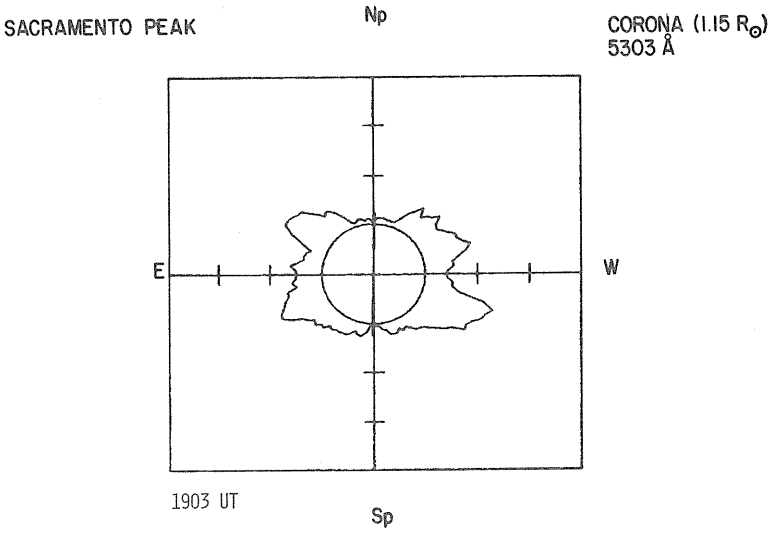
NOSC LA POSTA

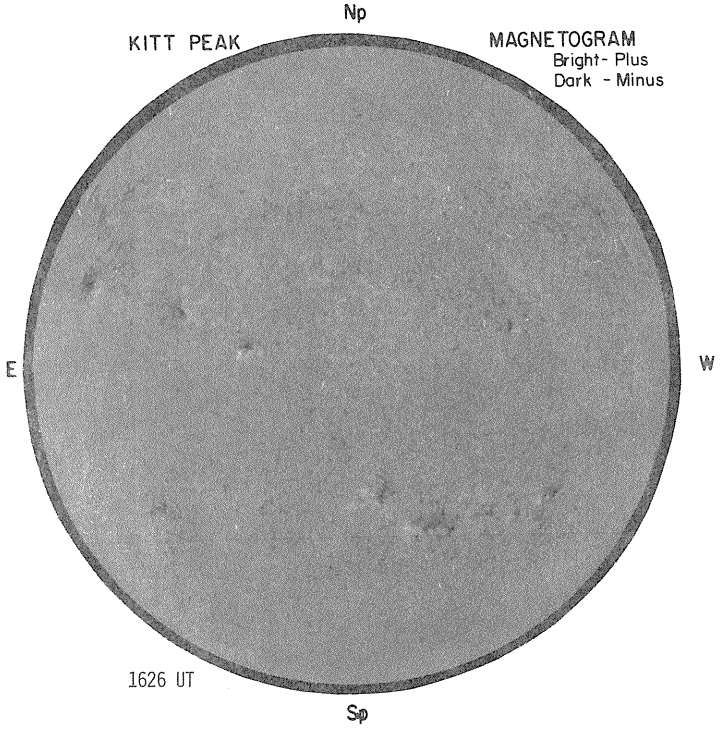
8.6 MM

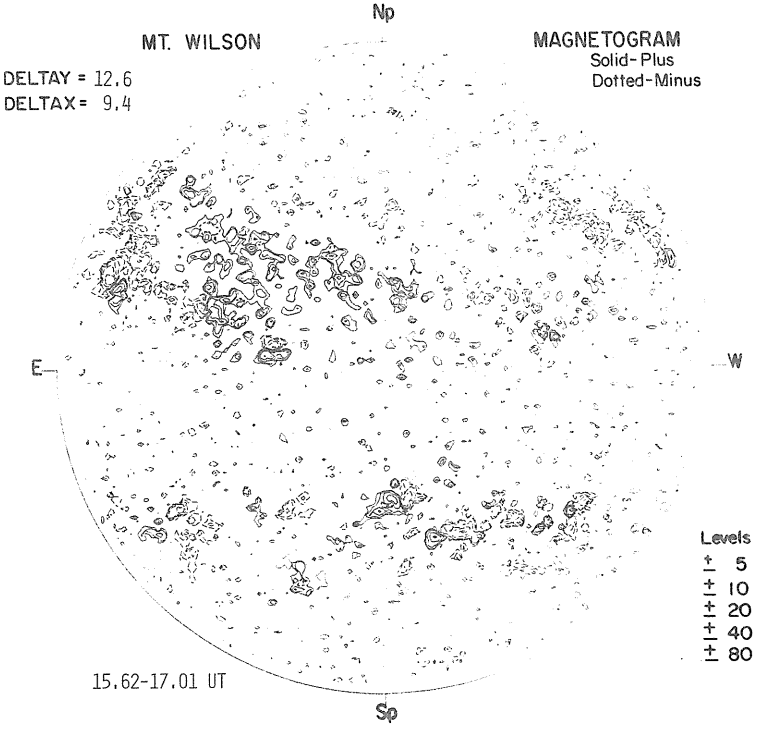


AUGUST 27, 1978 (P = 19.66, B_o = 7.09, L_o = 317.67)



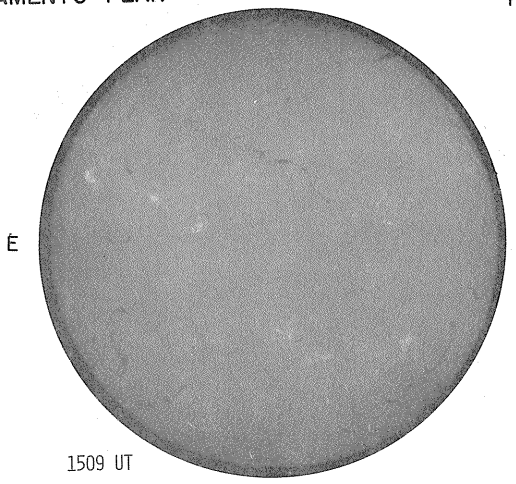






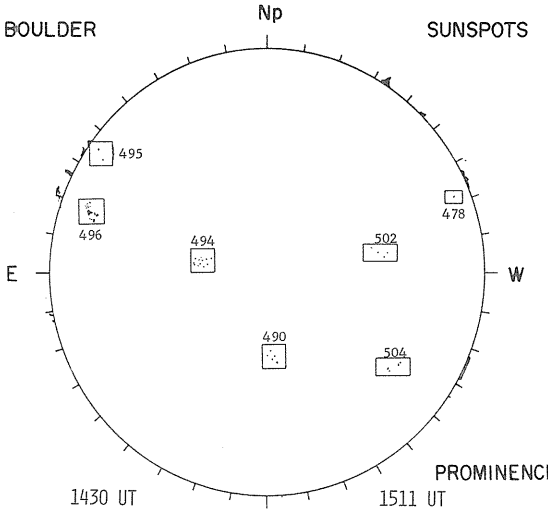
27

SACRAMENTO PEAK Hα



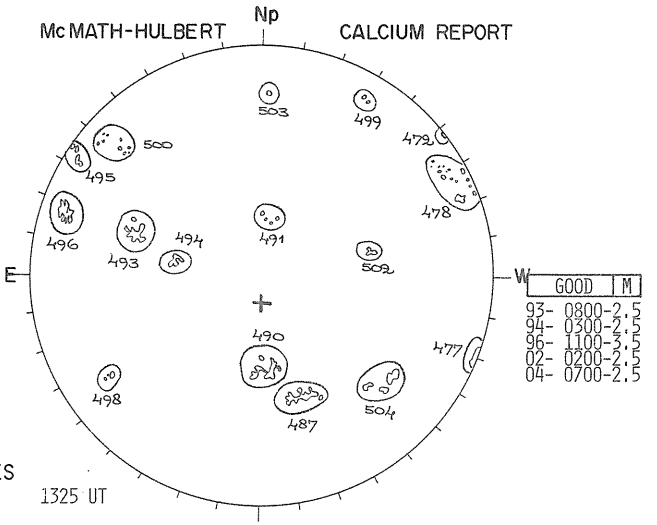
1509 UT

BOULDER SUNSPOTS



1430 UT 1511 UT

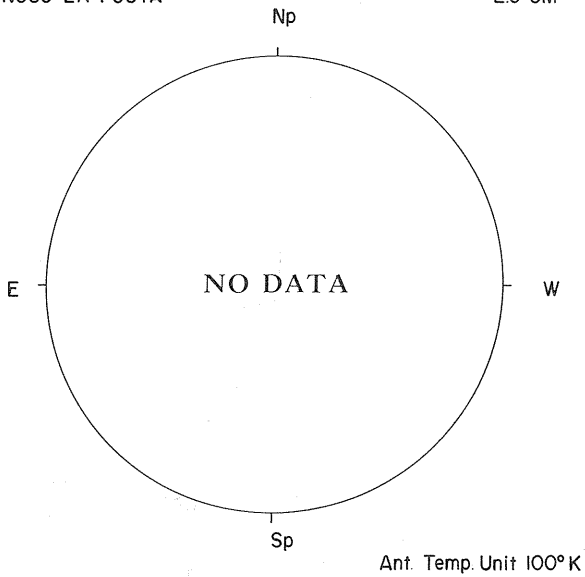
McMATH-HULBERT CALCIUM REPORT



PROMINENCES

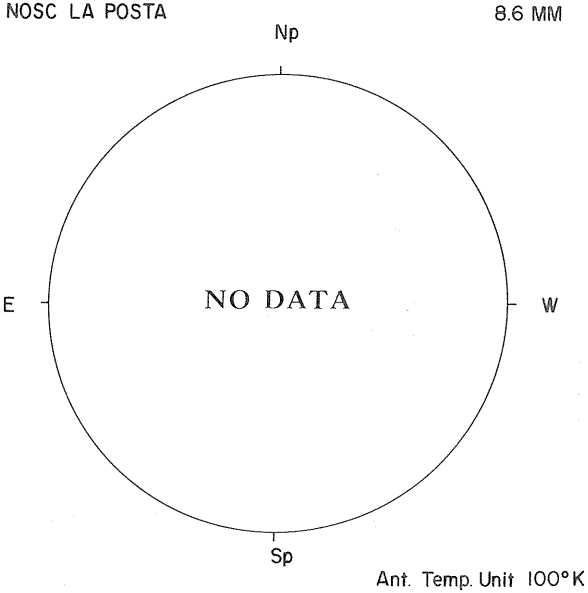
1325 UT

NOSC LA POSTA 2.0 CM



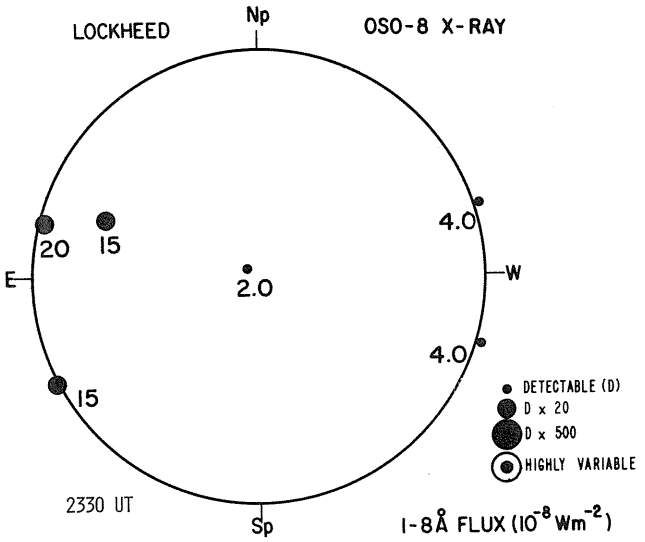
Ant. Temp. Unit 100° K

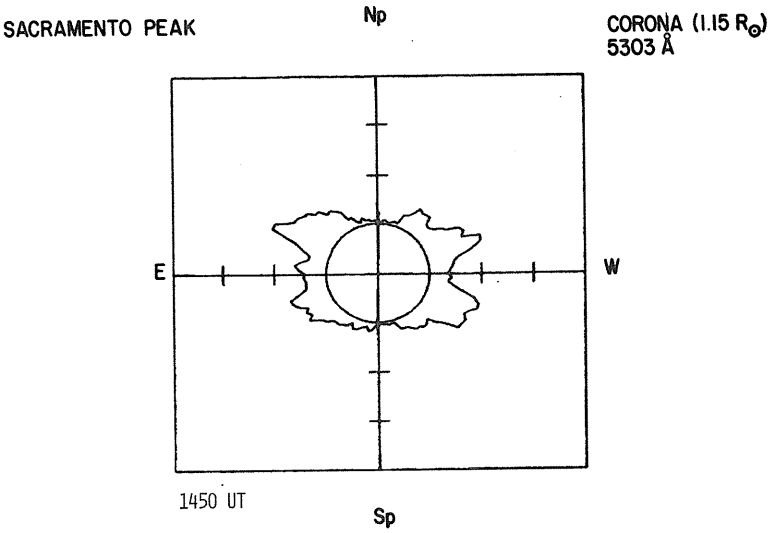
NOSC LA POSTA 8.6 MM

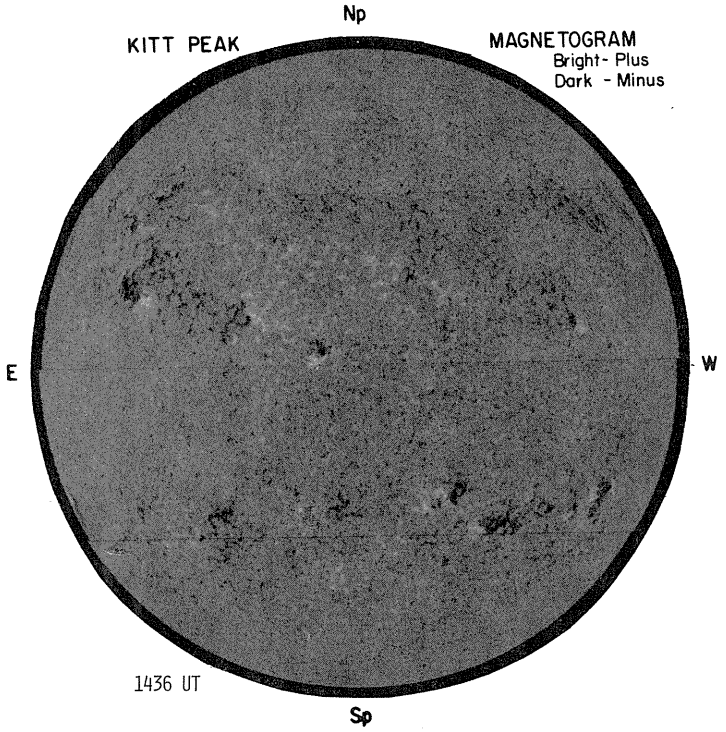


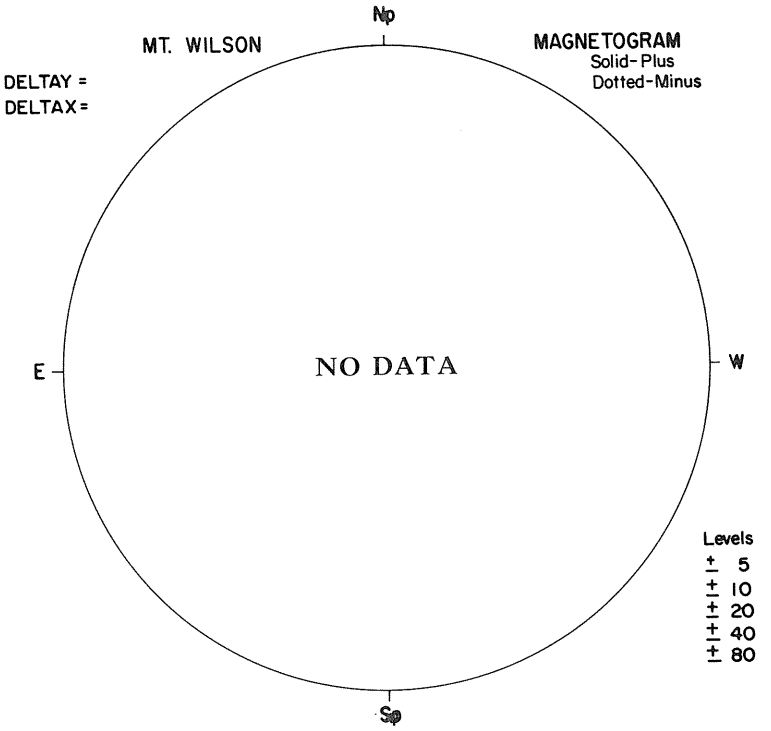
Ant. Temp. Unit 100° K

AUGUST 28, 1978 (P = 19.94, B_o = 7.11, L_o = 304.46)

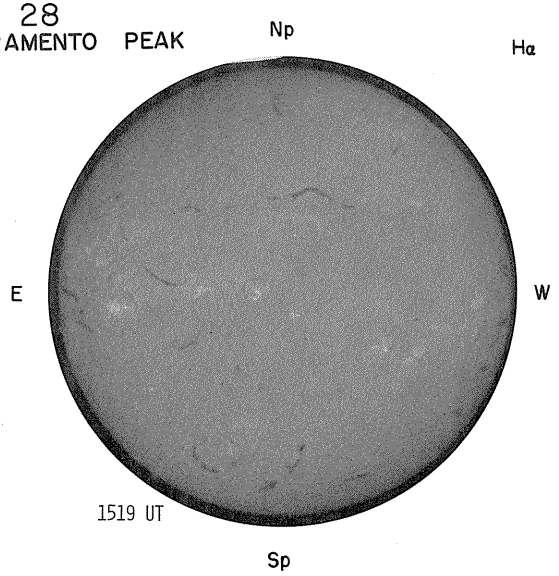




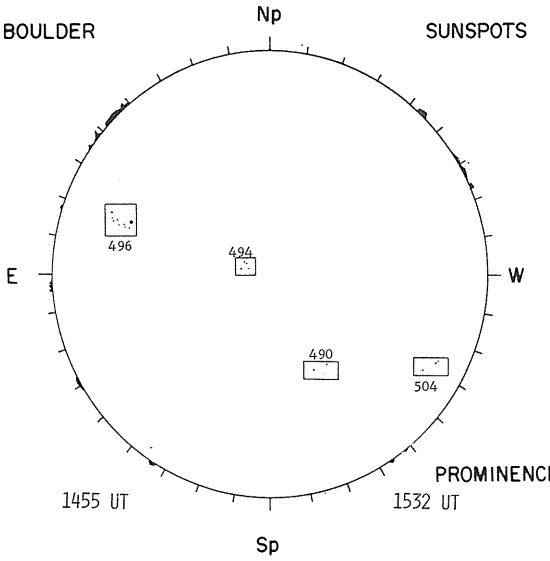




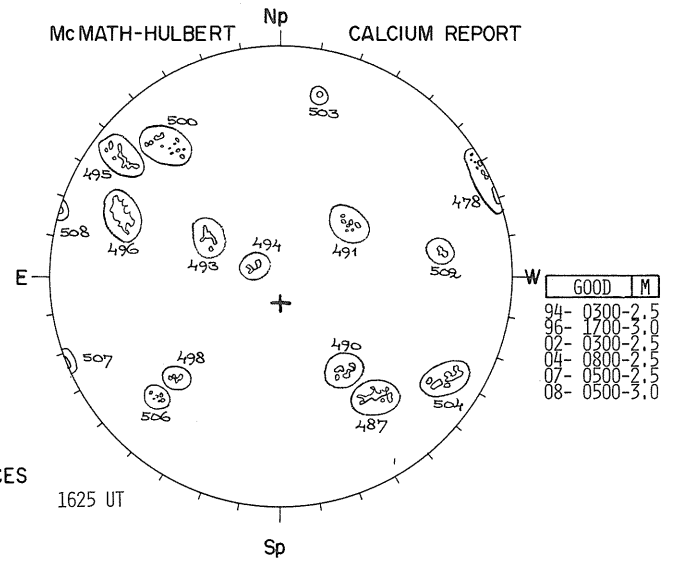
28
SACRAMENTO PEAK



BOULDER SUNSPOTS

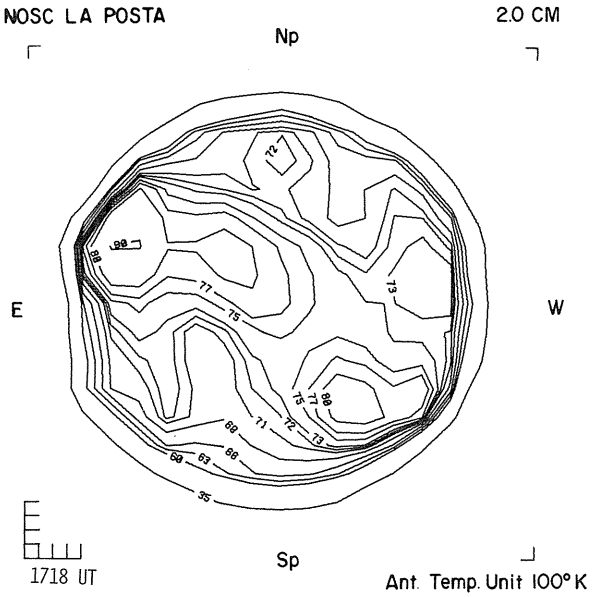


McMATH-HULBERT CALCIUM REPORT

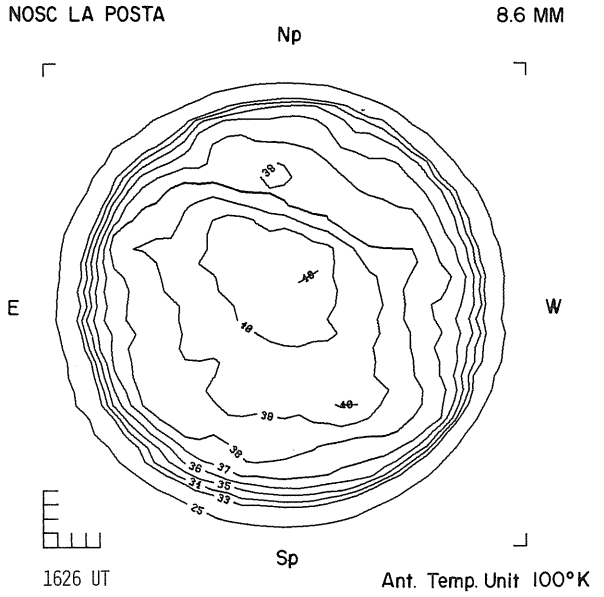


PROMINENCES
1532 UT

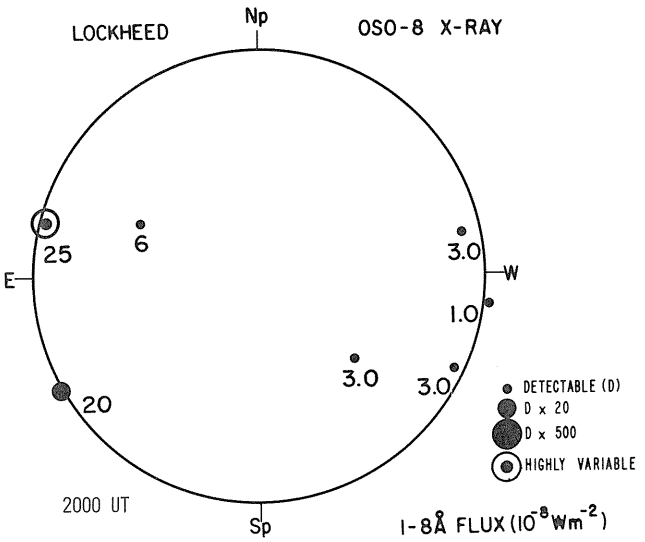
NOSC LA POSTA 2.0 CM

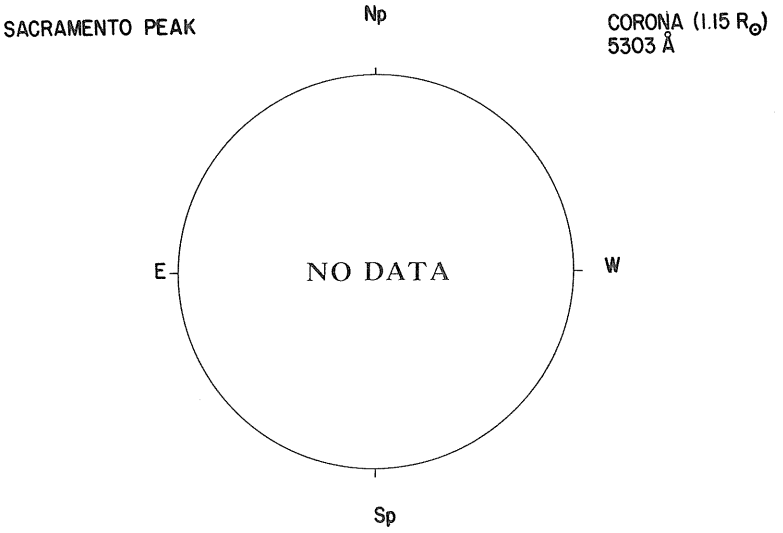


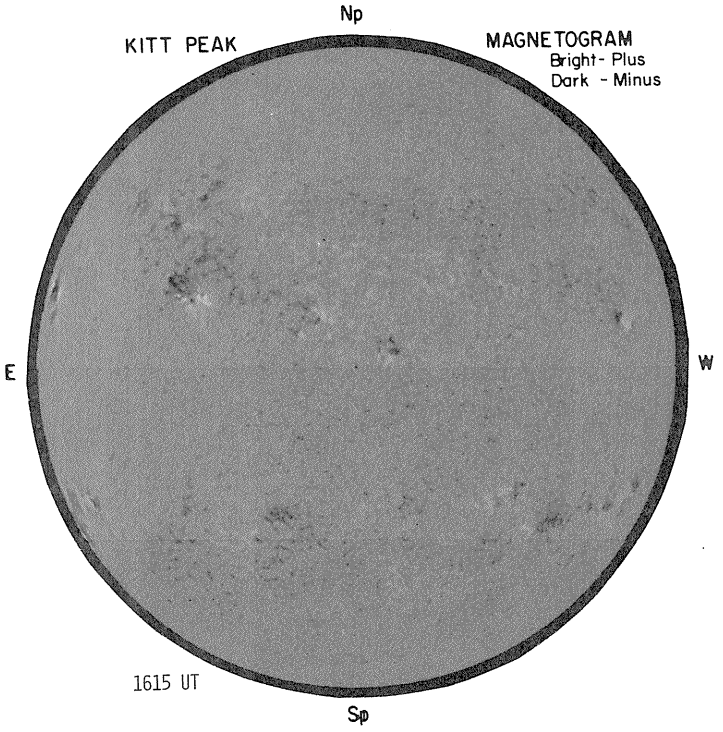
NOSC LA POSTA 8.6 MM

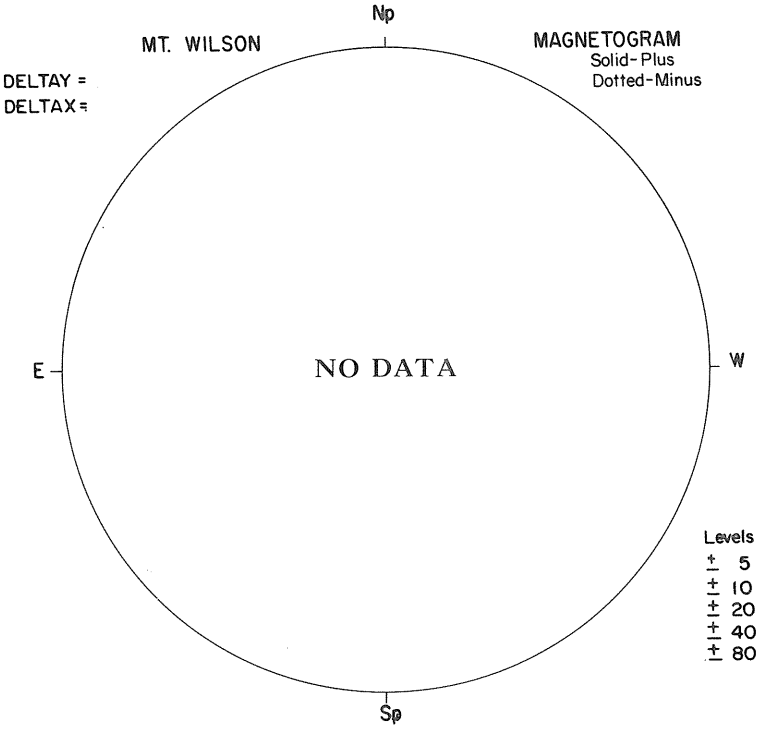


AUGUST 29, 1978 (P = 20.22, B_o = 7.14, L_o = 291.25)









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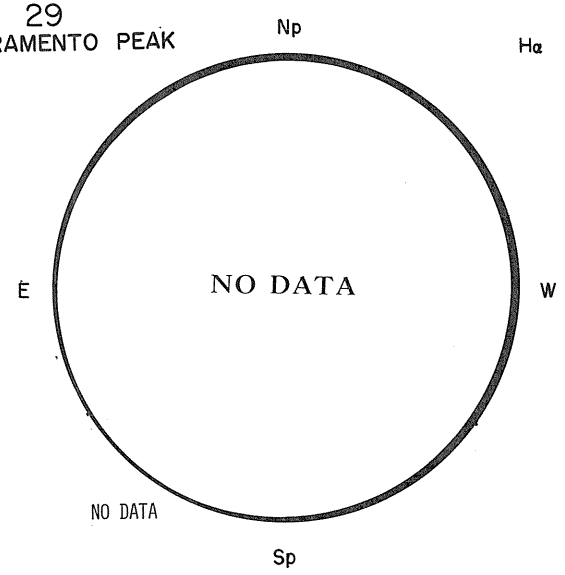
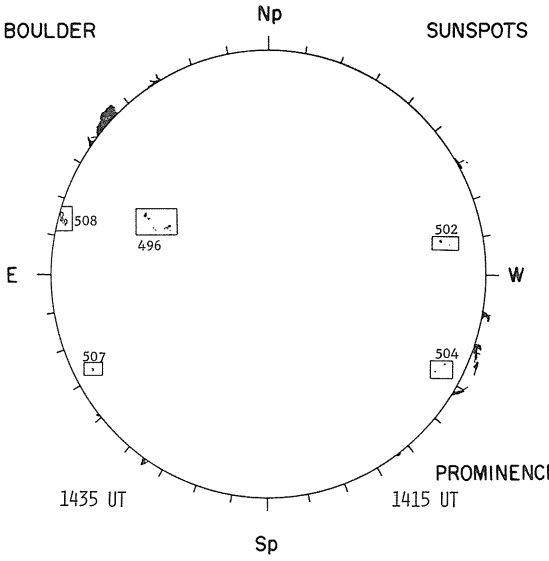
SACRAMENTO PEAK



BOULDER

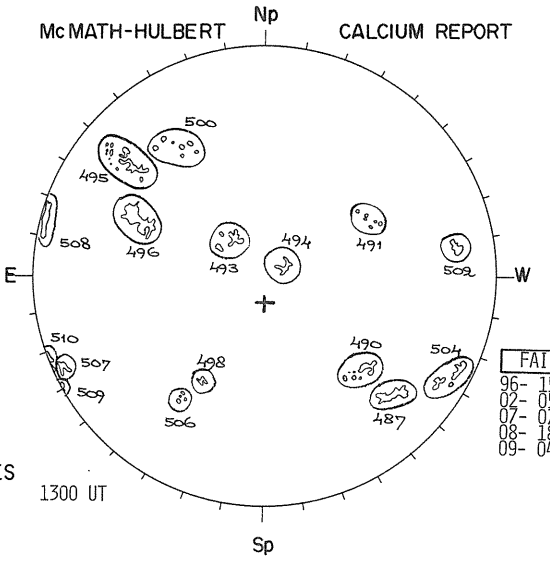


SUNSPOTS

PROMINENCES

1415 UT

McMATH-HULBERT

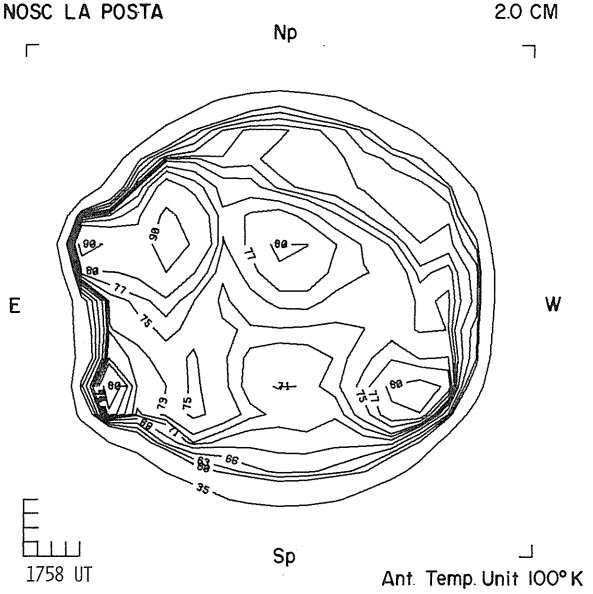


CALCIUM REPORT

FAIR	M
96- 1500-2.5	
02- 0500-3.5	
07- 0700-2.5	
08- 1800-3.5	
09- 0400-2.5	

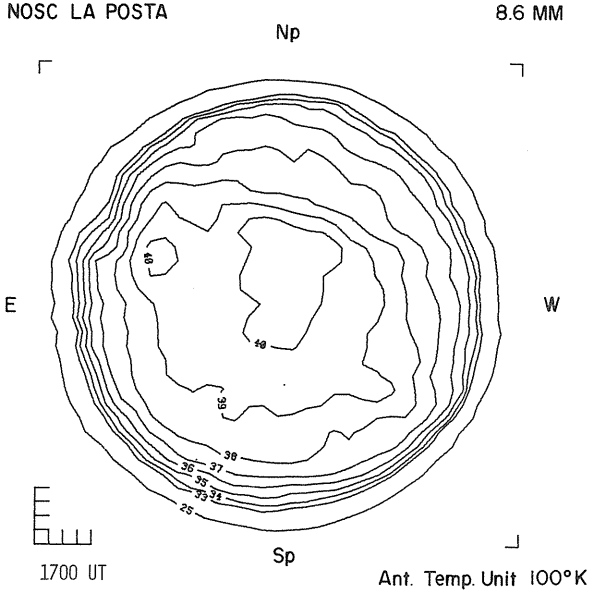
NOSC LA POSTA

2.0 CM



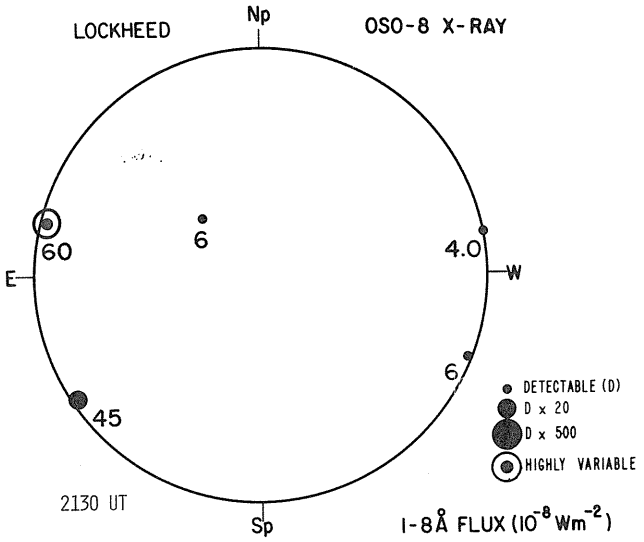
NOSC LA POSTA

8.6 MM

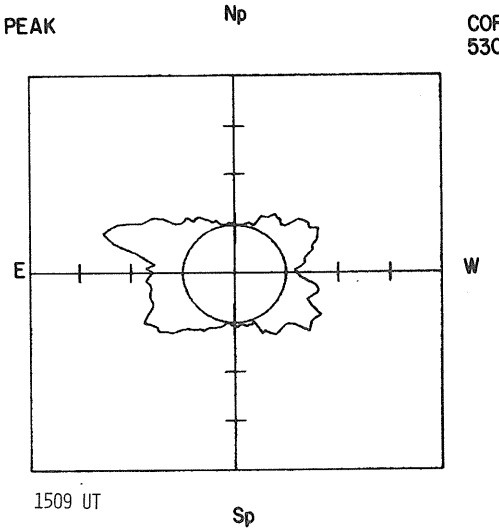


AUGUST 30, 1978 (P = 20.49, B_o = 7.16, L_o = 278.04)

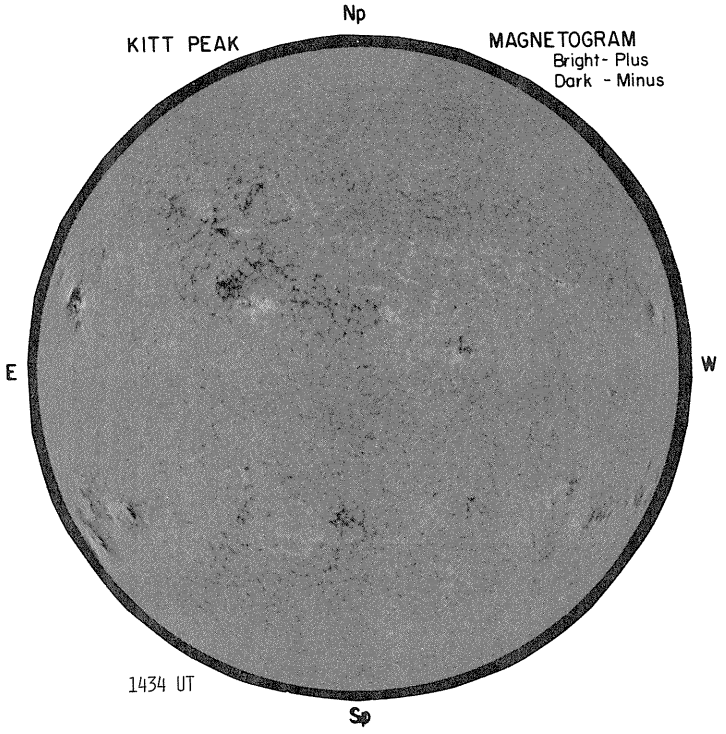
LOCKHEED — OSO-8 X-RAY



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

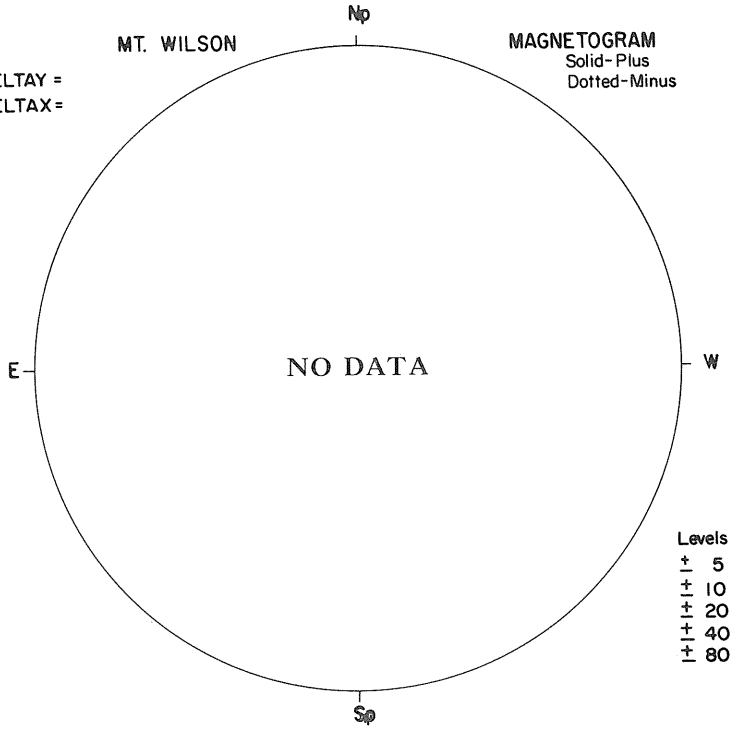


KITT PEAK — MAGNETOGRAM
Bright - Plus
Dark - Minus

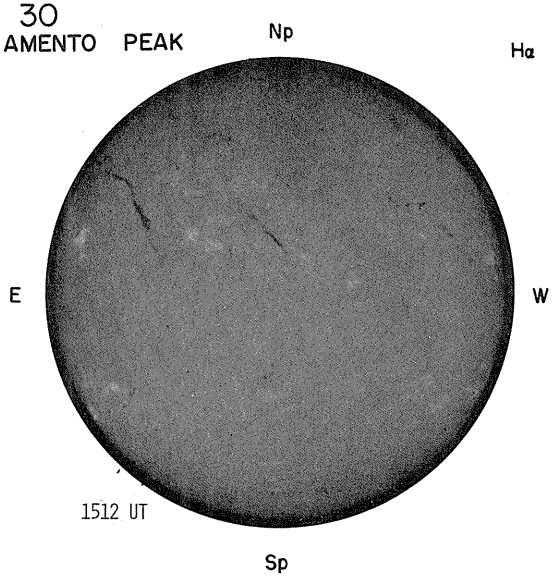


MT. WILSON — MAGNETOGRAM
Solid - Plus
Dotted - Minus

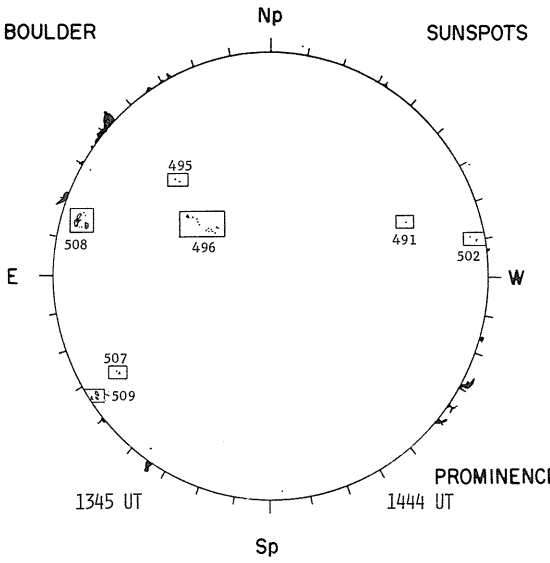
DELTAY =
DELTAX =



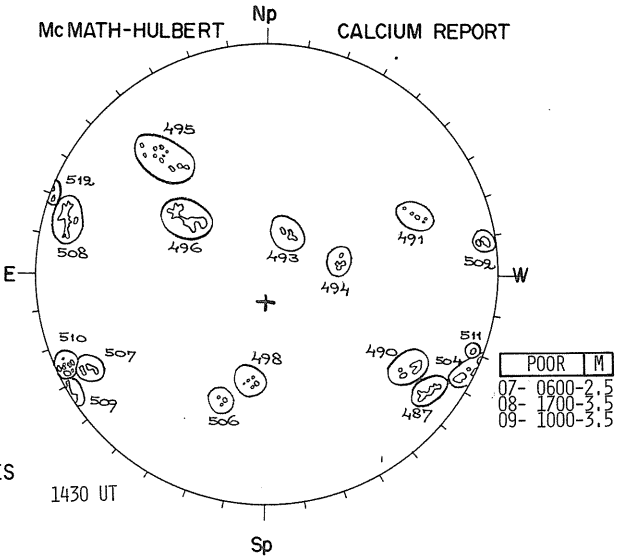
SACRAMENTO PEAK



BOULDER SUNSPOTS

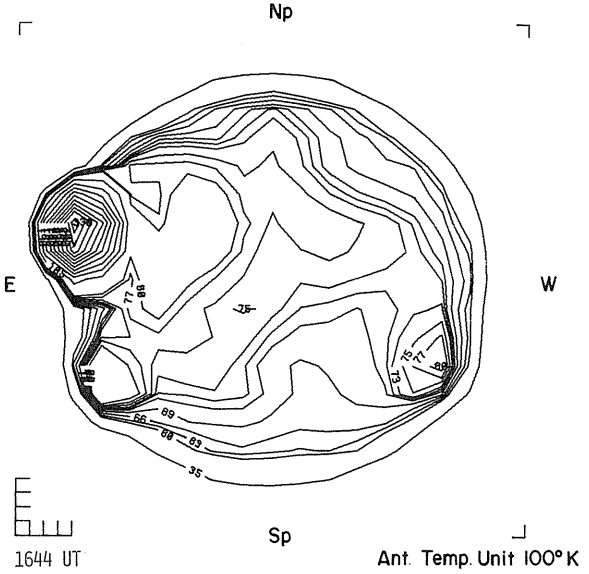


McMATH-HULBERT CALCIUM REPORT

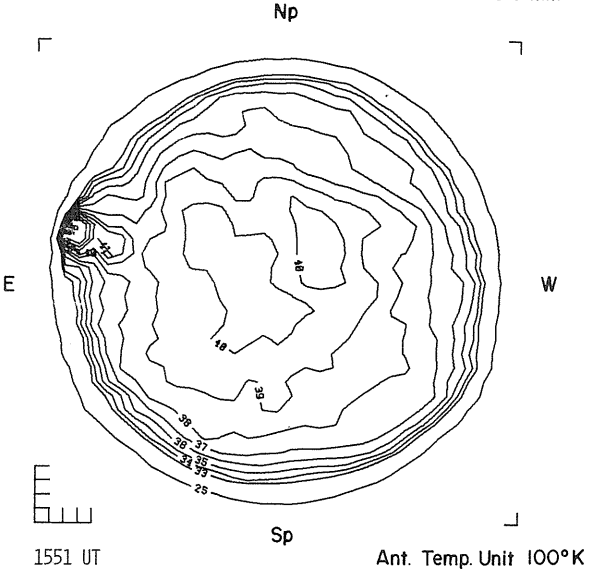


PROMINENCES

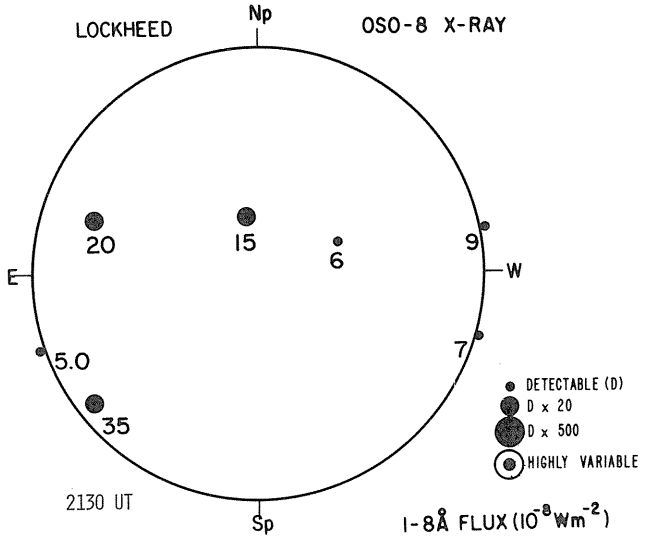
NOSC LA POSTA 2.0 CM

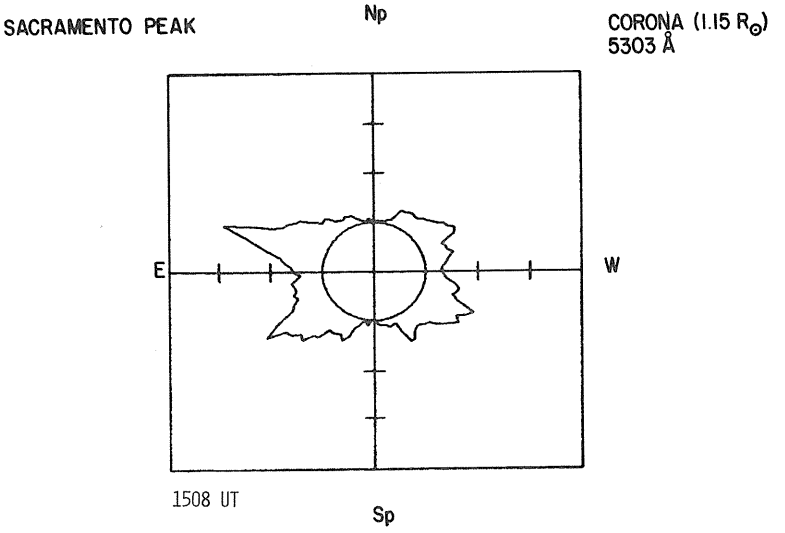


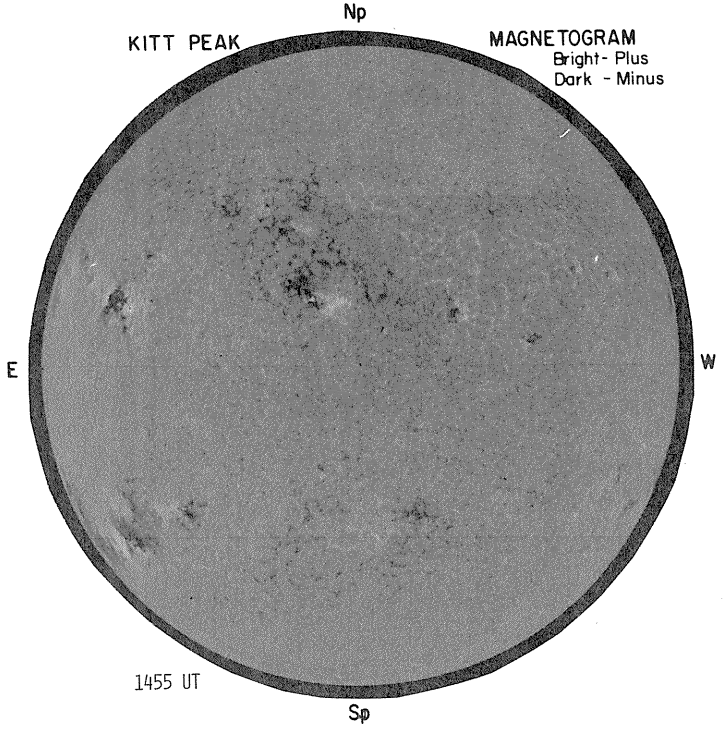
NOSC LA POSTA 8.6 MM

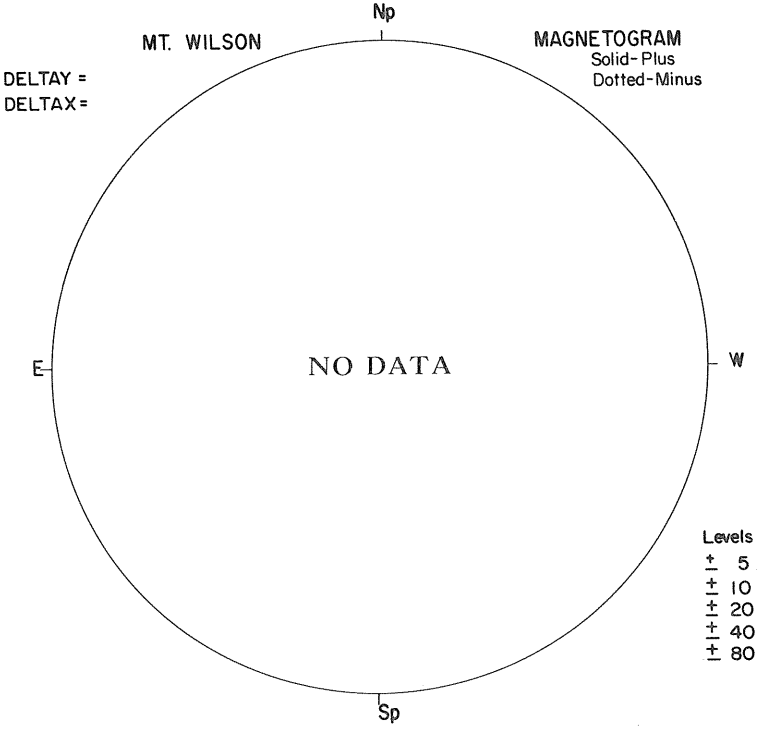


AUGUST 31, 1978 (P = 20.75, B_o = 7.18, L_o = 264.83)









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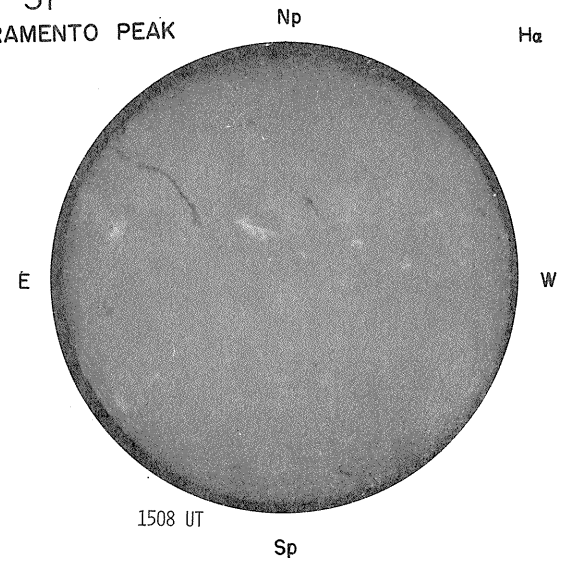
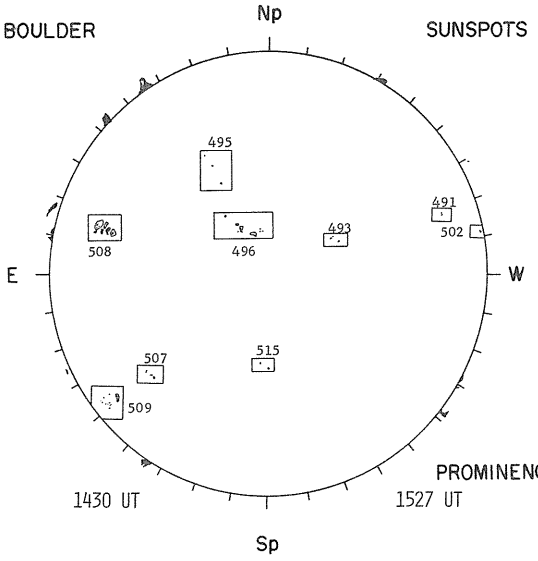
SACRAMENTO PEAK Hα



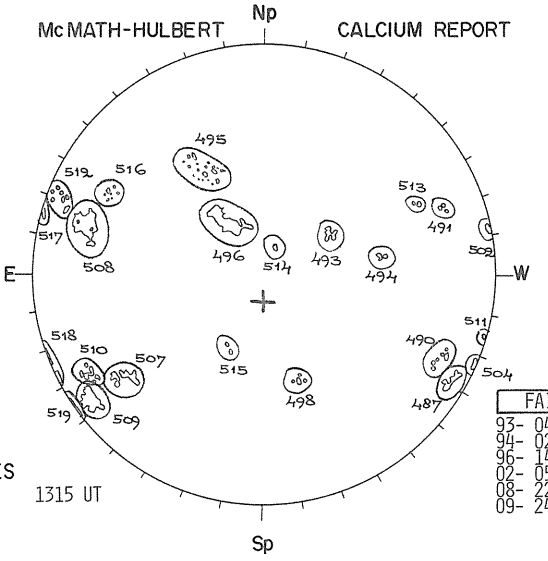
1508 UT

BOULDER SUNSPOTS



1430 UT

McMATH-HULBERT CALCIUM REPORT



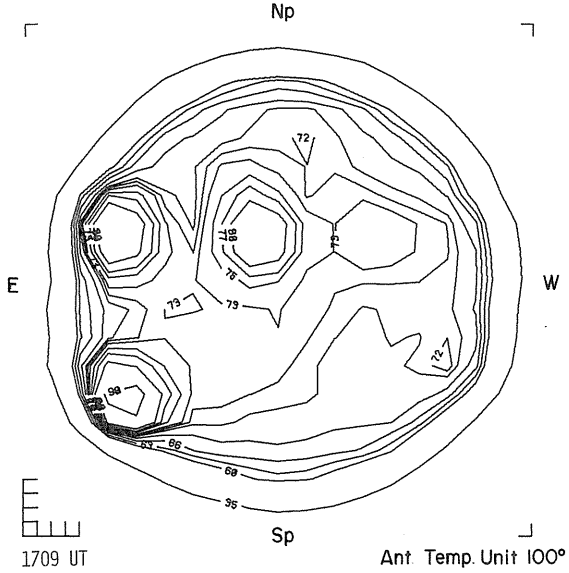
1315 UT

PROMINENCES

FAIR	M
93- 0400-2.5	
94- 0200-3.5	
96- 1400-3.0	
02- 0500-2.5	
08- 2200-3.0	
09- 2400-3.0	

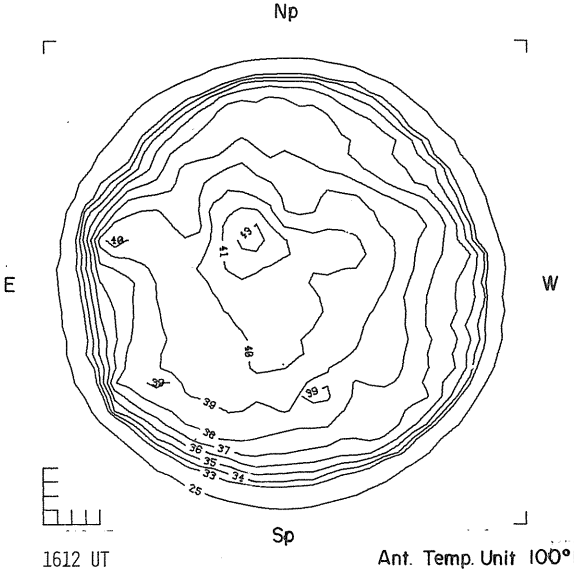
1527 UT

NOSC LA POSTA 2.0 CM



1709 UT Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM



1612 UT Ant. Temp. Unit 100° K

109
Aug 78

REGIONS OF SOLAR ACTIVITY

AUGUST 1978

MCMATH REGION 15444 CMP DATE 1.7

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
78	7	27	15444	N18	E70	291	100	1.5										
78	7	28	15444	N18	E58	291	400	3.5	20153	N18	E55	292	(B)	3	M	10	2	BXO
78	7	29	15444	N18	E43	292	600	3.0	20153	N19	E40	295	(AP)	2	B	0	1	AXX
78	7	30	15444	N18	E29	293	600	2.5	20153	N18	E23	297	(AP)	4	B	0	1	AXX
78	7	31	15444	N18	E16	294	500	2.0										
78	8	1	15444	N18	E03	305	500	2.0										
78	8	3	15444	N19	W25	304	200	2.0										
78	8	4	15444	N20	W37	305	300	2.0										
78	8	5	15444	N20	W50	305	200	2.0										
78	8	6	15444	N20	W65	307	200	2.0										
78	8	7	15444	N19	W82	305	100	1.0										

MCMATH REGION 15441 CMP DATE 3.2 RETURN OF REGION 15407 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
78	7	26	15441	N37	E90	285	200	1.0										
78	7	27	15441	N35	E84	277	700	3.5	20151	N36	E80	280	AP	2	B	10	1	HSX
78	7	28	15441	N36	E75	274	700	3.5	20151	N36	E69	278	(AP)	4	M	60	1	HSX
78	7	29	15441	N37	E61	274	1000	3.0	20151	N36	E58	277	(B)	3	B	50	3	DSO
78	7	30	15441	N37	E48	274	1400	3.0	20151	N35	E41	279	(BP)	4	B	60	7	DRO
78	7	31	15441	N37	E35	275	1800	3.0	20151	N35	E28	280	(BP)	4	R	50	12	CRO
78	8	1	15441	N37	E22	286	1800	3.0	20151	N35	E15	291	(AP)	3	B	20	4	CRO
78	8	2	15441	N36	E09	285	1700	3.0	20151	N35	E02	290	(AP)	4	B	20	3	HRX
78	8	3	15441	N36	W05	284	1500	3.0	20151	N35	W11	290	(AP)	3				
78	8		15441						20156	N38	W02	281	(AF)	2	M	50	2	HSX
78	8	4	15441	N36	W17	285	2000	3.0	20151	N35	W24	290	(B)	3	B	20	5	CRO
78	8	5	15441	N36	W30	285	1800	3.0	20151	N35	W34	287	(AP)	1	B	10	4	BXO
78	8	6	15441	N36	W43	285	1500	2.5		N35	W41				B	0	3	BXO
78	8	7	15441	N37	W60	283	900	3.0										
78	8	8	15441	N37	W68	282	500	3.0										
78	8	9	15441	N37	W81	281	500	2.0										
78	8	10	15441	N40	W85	273	600	1.5										

MCMATH REGION 15445 CMP DATE 3.5

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
78	7	28	15445	N10	E80	269	300	1.0										
78	7	29	15445	N12	E67	268	300	2.0										
78	7	30	15445	N12	E53	269	200	2.0										
78	7	31	15445	N12	E40	270	100	2.0										

MCMATH REGION 15443 CMP DATE 3.7 RETURN OF REGIONS 15385 AND 15409 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
78	7	27	15443	N20	E87	274	500	1.0	20152	N19	E85	275	AP	2	B	10	1	HSX
78	7	28	15443	N22	E80	269	1400	2.5	20152	N19	E72	275	(AP)	5	M	70	1	HSX
78	7	29	15443	N23	E67	268	1600	3.0	20152	N20	E59	276	(AP)	4	B	90	1	HSX
78	7	30	15443	N23	E55	267	1400	2.5	20152	N20	E45	275	(AP)	4				
78	8	1	15443	N22	E29	279	1300	2.5	20152	N20	E19	287	(AP)	4	B	60	1	HSX
78	8	2	15443	N21	E15	279	1500	2.5	20152	N20	E05	287	(AP)	4	B	40	1	HSX
78	8	3	15443	N21	E01	278	1500	2.5	20152	N19	W08	287	(AP)	4	M	50	1	HSX
78	8	4	15443	N21	W12	280	1500	2.5	20152	N19	W22	288	(AP)	4	B	40	1	HSX
78	8	5	15443	N21	W24	279	1500	2.5	20152	N19	W35	288	(AP)	3	B	20	4	HRX
78	8	6	15443	N21	W37	279	1500	2.0	20161	N25	W32	272	(AF)	2	B	10	7	BXO
78	8	7	15443	N21	W51	274	800	2.0										
78	8	8	15443	N22	W60	274	400	2.5										
78	8	9	15443	N22	W73	273	400	1.0										
78	8	10	15443	N24	W84	272	400	1.0										

MCMATH REGION 15446 CMP DATE 3.7

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
78	7	28	15446	S22	E87	262	500	2.0	20154	S21	E81	266	AP	1				
78	7	29	15446	S22	E71	264	700	3.0	20154	S21	E65	270	(BP)	3	B	40	1	HSX
78	7	30	15446	S22	E57	265	800	3.0	20154	S22	E49	271	(AP)	4	B	60	7	DAO
78	7	31	15446	S23	E44	266	1200	3.0	20154	S24	E36	272	(AP)	3	R	90	9	CAO

CONTD

REGIONS OF SOLAR ACTIVITY

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MCMATH REGION 15446 (CONT) CMP DATE 3.7

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
78	8	1	15446	S23 E28	280	1400	3.0	20154	S23 E23	283	(BP)	4	B	50	10	CAO
78	8	2	15446	S23 E15	279	1600	3.0	20154	S23 E09	283	(BP)	4	B	90	10	CSO
78	8	3	15446	S23 E01	278	1800	2.5	20154	S23 W04	283	(BP)	4	M	60	9	CSO
78	8	4	15446	S23 W12	280	1800	3.0	20154	S22 W18	284	(BY)	4	B	50	3	CRO
78	8	5	15446	S23 W24	279	1600	3.0	20154	S22 W32	285	(AP)	4	B	80	9	CAO
78	8	6	15446	S23 W37	279	1600	3.0	20154	S23 W43	283	(B)	3	B	110	22	DAI
78	8	7	15446	S23 W55	278	900	3.0	20154	S22 W58	284	(BP)	4	B	110	8	CAO
78	8	8	15446	S23 W62	276	600	3.0		S22 W69				B	90	2	HSX
78	8	9	15446	S23 W76	276	500	2.0									

MCMATH REGION 15447 CMP DATE 5.4 RETURN OF REGION 15400 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
78	7	30	15447	S23 E82	240	600	1.0									
78	7	31	15447	S23 E66	244	1000	2.5									
78	8	1	15447	S22 E54	254	1000	2.5									
78	8	2	15447	S22 E40	254	700	2.5									
78	8	3	15447	S21 E25	254	600	2.0									
78	8	4	15447	S21 E12	256	600	2.0									
78	8	5	15447	S21 W01	256	600	2.0									
78	8	6	15447	S21 W14	256	500	1.5									
78	8	7	15447	S21 W30	253	600	1.5									
78	8	8	15447	S21 W40	254	300	1.5									
78	8	9	15447	S21 W54	254	400	1.0									
78	8	10	15447	S20 W66	254	400	1.0									

MCMATH REGION 15460 CMP DATE 8.0

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
78	8	10	15460	S31 W34	222	300	2.0									
78	8	11	15460	S31 W47	223	300	2.5									
78	8	12	15460	S31 W60	221	400	2.5									
78	8	13	15460	S30 W71	220	300	1.5									

MCMATH REGION 15452 CMP DATE 8.2

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
78	8	4	15452	S09 E49	219	100	1.5									

MCMATH REGION 15453 CMP DATE 8.2

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
78	8	4	15453	S19 E51	217	300	2.5	20157	S18 E47	219	(AP)	3	B	20	1	HRX
78	8	5	15453	S19 E38	217	300	2.5		S18 E34				B	0	2	BXO
78	8	6	15453	S19 E24	218	300	2.0	20163	S17 E20	220	(AP)	1	B	0	2	BXO
78	8	7	15453	S18 E05	218	400	2.0									
78	8	8	15453	S17 W03	217	400	1.5									
78	8	9	15453	S17 W17	217	300	1.0									

MCMATH REGION 15449 CMP DATE 8.3

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
78	8	2	15449	S34 E90	204	400	1.0									
78	8	3	15449	S32 E65	214	500	2.0									
78	8	4	15449	S33 E53	215	500	2.0									
78	8	5	15449	S33 E40	215	500	2.0									
78	8	6	15449	S33 E26	216	400	1.5	20162	S31 E18	222	(AP)	1	B	10	3	BXO
78	8	7	15449	S32 E06	217	400	1.5									
78	8	8	15449	S31 W04	218	400	1.5									
78	8	9	15449	S31 W18	218	400	1.5									

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MCMATH REGION 15474 CMP DATE 8.3

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
78	8	12	15474	S19 W56	217	300	3.5		20167	S20 W56	216	(B)	3	B	30	3	CRO
78	8	13	15474	S19 W69	218	800	3.5		20167	S21 W68	213	(AF)	3	B	80	7	CSO
78	8	14	15474	S19 W83	219	800	3.0		20167	S21 W80	214	AF	1	B	20	1	AXX

MCMATH REGION 15464 CMP DATE 9.2

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
78	8	10	15464	S15 W18	206	100	1.5										
78	8	11	15464	S15 W31	207	100	1.5										

MCMATH REGION 15450 CMP DATE 9.3 RETURN OF REMNANTS OF REGION 15397 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
78	8	3	15450	S23 E80	199	400	1.5										
78	8	4	15450	S23 E66	202	600	2.0		20158	S21 E61	205	(B)	2	B	10	2	BXO
78	8	5	15450	S22 E53	202	500	2.5		20158	S21 E50	203	(B)	1	B	0	3	BXO
78	8	6	15450	S22 E38	204	500	2.5			S21 E38				B	0	2	BXO
78	8	7	15450	S22 E19	204	400	1.5										

MCMATH REGION 15468 CMP DATE 9.4

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
78	8	12	15468	N23 W42	203	300	2.5		20168	N21 W45	205	(AP)	2	B	10	3	BXO
78	8	13	15468	N23 W56	205	400	2.5		20168	N23 W58	203	(AF)	3	B	10	1	AXX
78	8	14	15468	N23 W69	205	400	2.5										
78	8	15	15468	N22 W85	207	400	1.5										

MCMATH REGION 15470 CMP DATE 9.6

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
78	8	12	15470	S32 W39	200	300	3.0		20169	S32 W40	200	(B)	3	B	20	3	CRO
78	8	13	15470	S32 W50	199	600	3.0		20169	S33 W55	200	(B)	3	B	40	4	CSO
78	8	14	15470	S32 W62	198	1000	3.5		20169	S33 W67	201	(B)	3	B	20	3	BXO
78	8		15470						20173	S35 W61	195	(AF)	3				
78	8	15	15470	S33 W77	199	1000	2.5										

MCMATH REGION 15454 CMP DATE 10.7

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
78	8	4	15454	S27 E85	183	1200	3.0		20159	S26 E77	189	(B)	2	B	60	3	BXO
78	8	5	15454	S27 E70	185	1500	2.5		20159	S27 E64	189	(B)	2	B	110	5	CAO
78	8	6	15454	S27 E56	186	2800	3.0		20159	S27 E53	187	(B)	3	B	130	21	EAI
78	8	7	15454	S27 E36	187	3000	3.0		20159	S27 E39	187	(B)	4	B	200	67	EAC
78	8	8	15454	S27 E28	186	3000	3.0			S26 E27				B	480	51	EAC
78	8	9	15454	S27 E15	185	2800	3.0		20159	S28 E12	188	(BY)	4	B	380	36	EAI
78	8	10	15454	S27 E02	186	3200	3.0		20159	S28 W01	188	(BY)	4	B	280	51	EAI
78	8	11	15454	S27 W10	186	3000	3.0		20159	S28 W14	188	(B)	4	B	150	25	ESI
78	8	12	15454	S27 W24	185	3000	3.0		20159	S27 W26	186	(B)	4	B	120	20	ESI
78	8	13	15454	S27 W36	185	3200	3.5		20159	S25 W40	185	(B)	4	B	120	18	DAI
78	8	14	15454	S26 W49	185	3200	3.5		20159	S26 W52	186	(BY)	4	B	140	14	DAI
78	8	15	15454	S26 W62	184	3300	3.5			S25 W61				B	190	8	OAI
78	8	16	15454	S26 W75	185	3500	3.0			S28 W69				M	170	7	DAO
78	8	17	15454	S26 W90	186	700	1.0										

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MCMATH REGION 15451 CMP DATE 11.1 RETURN OF REGION 15403 ROTATION 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
78	8	3	15451	N17	E90	189	400	1.5										
78	8	4	15451	N17	E80	188	3500	2.5	20160	N18	E85	181	X	1				
78	8	5	15451	N20	E69	186	3800	3.0	20160	N18	E75	178	(B)	2	B	40	3	CRO
78	8	6	15451	N20	E56	186	4200	3.5	20160	N19	E60	180	(B)	3	B	60	9	ERO
78	8		15451						20164	N16	E45	195	(AP)	2	B	0	2	BXO
78	8		15451						20165	N17	E67	173	(AP)	2				
78	8	7	15451	N19	E39	184	3800	3.0	20165	N16	E50	176	(AP)	3	B	10	4	BXO
78	8	8	15451	N20	E31	183	3400	3.0		N17	E38				B	10	3	BXO
78	8	9	15451	N20	E18	182	3500	3.0	20160	N18	E21	179	(B)	2				
78	8		15451						20164	N15	E10	190	(B)	2	B	30	9	BXI
78	8		15451						20165	N17	E30	170	(AP)	1	•B	10	1	AXX
78	8	10	15451	N20	E08	180	3500	2.5	20164	N15	W04	191	(AP)	3	B	40	11	CRI
78	8		15451							N16	E17				B	10	6	AXX
78	8	11	15451	N20	W03	179	3500	3.0	20164	N15	W20	194	(BY)	3	B	20	11	CAO
78	8		15451						20166	N15	E04	170	(Y)	2	B	10	5	BXI
78	8	12	15451	N20	W17	178	3800	2.5	20164	N17	W31	191	(AP)	2				
78	8		15451						20166	N18	W10	170	(B)	3	B	10	3	BXO
78	8	13	15451	N20	W30	179	3800	3.0	20164	N16	W44	189	(AF)	3	B	20	6	BXO
78	8	14	15451	N21	W44	180	3500	3.0	20164	N15	W55	189	(AF)	2	B	0	2	AXX
78	8		15451						20166	N16	W35	169	(AF)	3	B	0	3	BXO
78	8		15451						20174	N26	W43	177	(AF)	2	B	0	1	AXX
78	8	15	15451	N21	W58	180	3500	2.5										
78	8	16	15451	N22	W70	180	2800	2.0										
78	8	17	15451	N22	W80	176	2500	2.0										
78	8	18	15451	N22	W90	173	900	1.0										

MCMATH REGION 15465 CMP DATE 12.1

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
78	8	10	15465	S12	E21	167	100	1.0										

MCMATH REGION 15457 CMP DATE 13.0 RETURN OF PART OF REGION 15410 ROTATION 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
78	8	6	15457	N10	E88	154	400	1.0										
78	8	7	15457	N10	E68	155	400	1.5										
78	8	8	15457	N10	E58	156	200	1.5										
78	8	9	15457	N10	E46	154	300	1.5										
78	8	10	15457	N11	E31	157	300	1.0										
78	8	11	15457	N11	E19	157	300	2.0										
78	8	12	15457	N12	E06	155	300	1.5										
78	8	13	15457	N12	W08	157	300	1.0										
78	8	14	15457	N12	W20	156	200	1.0										
78	8	15	15457	N12	W35	157	200	1.0		N11	W36				B	10	2	AXX
78	8	16	15457	N12	W48	158	200	1.0										

MCMATH REGION 15461 CMP DATE 13.5

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
78	8	7	15461	S22	E76	147	500	1.0										
78	8	8	15461	S21	E68	146	500	1.5										
78	8	9	15461	S21	E52	148	600	1.5										
78	8	10	15461	S21	E39	149	500	1.5										
78	8	11	15461	S21	E26	150	500	1.5										
78	8	12	15461	S21	E13	148	500	2.0										
78	8	13	15461	S20	E01	148	200	1.0										
78	8	14	15461	S20	W11	147	200	1.0										
78	8	15	15461	S20	W25	147	100	1.0										

MCMATH REGION 15469 CMP DATE 13.8

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
78	8	12	15469	N14	E16	145	200	2.0	20170	N14	E14	146	(B)	3	B	20	4	HRX
78	8	13	15469	N14	E04	145	300	1.5	20170	N14	W01	146	(B)	2	B	20	5	CRO
78	8	14	15469	N14	W10	146	200	1.5										
78	8	15	15469	N14	W26	148	200	1.0										

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MCMATH REGION 15469 (CONT) CMP DATE 13.8

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
78	8	16	15469	N15 W38	148	100	1.0									

MCMATH REGION 15458 CMP DATE 14.3

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
78	8	7	15458	N16 E87	136	300	1.0									
78	8	8	15458	N16 E80	134	300	2.0									
78	8	9	15458	N16 E64	136	200	2.0									
78	8	10	15458	N16 E50	138	400	1.0									

MCMATH REGION 15459 CMP DATE 14.4

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
78	8	7	15459	N06 E89	134	300	1.0									
78	8	8	15459	N06 E81	133	300	1.5									
78	8	9	15459	N06 E65	135	300	1.5									
78	8	10	15459	N06 E52	136	500	1.0									
78	8	11	15459	N06 E38	138	300	1.0									
78	8	12	15459	N07 E23	138	300	1.0									
78	8	13	15459	N07 E11	138	100	1.0									

MCMATH REGION 15467 CMP DATE 14.5

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
78	8	11	15467	N27 E38	138	200	2.0									
78	8	12	15467	N27 E25	136	100	1.5									
78	8	13	15467	N27 E13	136	100	1.5									
78	8	14	15467	N27 W01	137	300	2.5	20175	N25 W04	138	(BP)	3	B	10	6	BXO
78	8	15	15467	N27 W15	137	500	2.0		N25 W16				B	10	1	AXX
78	8	16	15467	N27 W26	136	400	2.5		N25 W23				M	10	1	HRX
78	8	17	15467	N25 W38	134	1000	3.0	20176	N21 W40	134	(BP)	4	B	90	15	CAO
78	8	18	15467	N24 W50	133	1100	2.5	20176	N21 W56	136	(BP)	4	M	80	10	DAO
78	8	19	15467	N24 W65	134	1200	2.5		N21 W64				B	80	7	DRO
78	8	20	15467	N24 W80	136	1200	2.5	20176	N20 W85	139	AP	3	B	60	1	HSX
78	8	21	15467	N24 W88	131	500	1.5									

MCMATH REGION 15481 CMP DATE 14.9

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
78	8	18	15481	S23 W48	131	100	1.5									
78	8	19	15481	S24 W63	132	100	1.5									

MCMATH REGION 15462 CMP DATE 15.1

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
78	8	9	15462	N11 E75	125	200	1.0									
78	8	10	15462	N10 E60	128	200	2.0									
78	8	11	15462	N10 E47	129	200	2.0									
78	8	12	15462	N10 E33	128	200	2.0		N10 E32				B	10	1	HRX
78	8	13	15462	N10 E20	129	300	1.5									
78	8	14	15462	N10 E07	129	400	1.5									
78	8	15	15462	N10 W06	128	300	1.5									
78	8	16	15462	N10 W19	129	400	2.0									
78	8	17	15462	N10 W32	128	200	2.0									
78	8	18	15462	N10 W45	128	100	1.0									
78	8	19	15462	N10 W60	129	100	1.0									

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MCMATH REGION 15463 CMP DATE 15.6 RETURN OF REGION 15415 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
78	8	9	15463	N18	E78	122	300	1.0										
78	8	10	15463	N17	E66	122	600	1.5										
78	8	11	15463	N20	E54	122	1000	2.0										
78	8	12	15463	N21	E41	120	1000	2.0										
78	8	13	15463	N20	E29	120	800	2.0										
78	8	14	15463	N21	E14	122	700	1.5										
78	8	15	15463	N21	E00	122	700	1.5										
78	8	16	15463	N21	W13	123	800	1.5										
78	8	17	15463	N21	W25	121	800	2.0										
78	8	18	15463	N22	W38	121	700	2.0										
78	8	19	15463	N22	W52	121	600	1.5										
78	8	20	15463	N22	W66	122	600	1.5										
78	8	21	15463	N20	W74	117	400	1.0										

MCMATH REGION 15466 CMP DATE 16.6 RETURN OF REMNANTS OF REGIONS 15416 AND 15421 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
78	8	10	15466	S23	E82	106	400	1.0										
78	8	11	15466	S23	E69	107	700	1.5										
78	8	12	15466	S22	E55	106	700	1.5										
78	8	13	15466	S22	E41	108	500	1.0										

MCMATH REGION 15471 CMP DATE 18.5

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
78	8	13	15471	N44	E66	83	1100	4.0	20171	N44	E59	86	(B)	4	B	60	6	DRO
78	8	14	15471	N44	E52	84	1000	3.5	20171	N44	E47	87	(BP)	3	B	80	7	DAO
78	8	15	15471	N45	E37	85	1000	3.5		N43	E33				B	90	6	EAO
78	8	16	15471	N45	E26	84	1000	3.0		N45	E26				M	80	7	CAO
78	8	17	15471	N45	E13	83	1000	2.5	20171	N44	E03	91	(BP)	4	B	40	9	CSO
78	8	18	15471	N45	E01	82	1000	2.5	20171	N44	W11	91	(AP)	4	M	70	8	CSO
78	8	19	15471	N45	W11	80	900	2.5		N44	W21				B	20	2	HAX
78	8	20	15471	N45	W24	80	900	2.0	20171	N44	W36	90	(AP)	3	B	20	2	HAX
78	8	21	15471	N45	W37	80	1000	2.0	20171	N44	W50	89	(AP)	3	B	10	1	AXX
78	8	22	15471	N45	W50	79	800	2.0										
78	8	23	15471	N45	W62	79	800	1.5										
78	8	24	15471	N45	W74	75	900	1.5										
78	8	25	15471	N45	W87	78	900	1.5										
78	8	26	15471	N45	W90	68	400	1.0										

MCMATH REGION 15473 CMP DATE 19.3 RETURN OF PART OF REGION 15420 ROTATION 5

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
78	8	13	15473	N22	E73	76	200	1.0										
78	8	14	15473	N23	E62	74	200	1.0										
78	8	15	15473	N22	E48	74	200	1.5										
78	8	16	15473	N22	E37	73	100	1.0										
78	8	17	15473	N22	E24	72	200	1.0										
78	8	18	15473	N22	E11	72	300	1.0										
78	8	19	15473	N22	W05	74	300	1.5										
78	8	20	15473	N22	W18	74	300	1.5										
78	8	21	15473	N21	W31	74	200	1.5										
78	8	22	15473	N21	W44	73	200	2.0										
78	8	23	15473	N21	W58	75	200	1.0										
78	8	24	15473	N21	W72	73	200	1.5										

MCMATH REGION 15472 CMP DATE 20.4 RETURN OF REGION 15442 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
78	8	13	15472	N38	E85	64	900	3.5	20172	N37	E80	65	(AP)	2	B	50	2	CRO
78	8	14	15472	N38	E72	64	1200	4.0	20172	N37	E68	66	(B)	3	B	50	3	CRO
78	8	15	15472	N37	E59	63	1200	3.0		N36	E58				B	10	3	BXO
78	8	16	15472	N37	E48	62	1000	3.0		N36	E53				M	10	3	BXO
78	8	17	15472	N38	E35	61	1200	2.5										
78	8	18	15472	N38	E24	59	1000	2.5										
78	8	19	15472	N38	E11	58	700	2.0										

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MCMATH REGION 15472 (CONT) CMP DATE 20.4 RETURN OF REGION 15442 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
78	8	20	15472	N38 W05	61	600	2.0									
78	8	21	15472	N38 W18	61	500	2.0									
78	8	22	15472	N38 W30	59	500	2.0									
78	8	23	15472	N38 W43	60	600	1.5									
78	8	24	15472	N38 W56	57	600	1.5									
78	8	25	15472	N38 W70	61	1000	2.0									
78	8	26	15472	N38 W83	61	700	2.0									
78	8	27	15472	N38 W90	54	300	1.0									

MCMATH REGION 15476 CMP DATE 20.5 RETURN OF REGION 15429 ROTATION 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
78	8	14	15476	S28 E80	56	500	1.5									
78	8	15	15476	S27 E66	56	500	1.5									
78	8	16	15476	S28 E54	56	700	1.5									
78	8	17	15476	S27 E42	54	700	2.0									
78	8	18	15476	S27 E27	56	500	2.0									
78	8	19	15476	S27 E13	56	500	2.0									
78	8	20	15476	S27 E00	56	600	2.0									
78	8	21	15476	S27 W12	55	600	2.0									
78	8	22	15476	S27 W25	54	600	1.5									
78	8	23	15476	S27 W37	54	600	1.5									
78	8	24	15476	S27 W52	53	600	1.0									
78	8	25	15476	S27 W65	56	600	1.0									

MCMATH REGION 15478 CMP DATE 21.6 RETURN OF REGION 15428 ROTATION 3 AND 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
78	8	14	15478	N22 E85	51	300	1.0									
78	8	15	15478	N24 E73	49	800	1.0									
78	8	16	15478	N25 E60	50	1100	1.0									
78	8	17	15478	N25 E48	48	1200	1.5									
78	8	18	15478	N25 E38	45	1200	1.5									
78	8	19	15478	N25 E26	43	1300	1.5									
78	8	20	15478	N25 E14	42	1300	1.5									
78	8	21	15478	N25 E01	42	1500	1.5									
78	8	22	15478	N25 W14	43	1600	2.0	20180	N21 W10	36	(B)	3	B	20	5	CRO
78	8	23	15478	N25 W26	43	1600	2.0	20180	N21 W21	36	(B)	3	B	20	6	CRI
78	8	24	15478	N26 W38	39	1700	2.0	20180	N21 W32	35	(AF)	2	B	10	4	CRO
78	8	25	15478	N26 W50	41	1600	2.0	20180	N20 W45	36	(AF)	3	B	10	1	AXX
78	8		15478					20184	N26 W34	25	(AP)	3	B	0	1	AXX
78	8	26	15478	N26 W62	40	1400	1.5	20180	N22 W55	32	(AF)	3	B	10	1	AXX
78	8	27	15478	N26 W72	36	1000	1.5	20180	N23 W68	32	(AF)	2	B	0	1	AXX
78	8	28	15478	N26 W86	35	800	2.0									

MCMATH REGION 15477 CMP DATE 21.6

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
78	8	15	15477	S20 E80	42	1200	3.0		S21 E78				B	110	1	HAX
78	8	16	15477	S20 E66	44	1800	3.0		S19 E71				M	160	2	DAO
78	8	17	15477	S20 E54	42	1700	3.0	20177	S18 E49	45	(D)	4	B	180	2	DSO
78	8	18	15477	S19 E40	43	1800	3.0	20177	S19 E31	49	(BY)	4	M	160	3	EHO
78	8	19	15477	S19 E26	43	2000	3.0		S18 E23				B	190	5	CSO
78	8	20	15477	S19 E13	43	2000	2.5	20177	S19 E06	48	(BP)	5	B	190	3	CAO
78	8	21	15477	S19 W02	45	2000	3.0	20177	S19 W09	48	(BP)	4	B	170	16	CAO
78	8	22	15477	S19 W15	44	2000	3.0	20177	S19 W21	47	(BP)	4	B	160	6	CAO
78	8	23	15477	S19 W27	44	1700	2.5	20177	S18 W34	49	(BP)	4	B	110	7	CAO
78	8	24	15477	S19 W43	44	1700	2.5	20177	S18 W45	48	(AP)	5	B	90	6	CSO
78	8	25	15477	S19 W55	46	2000	2.5	20177	S19 W60	51	(AP)	4	B	110	1	HSX
78	8	26	15477	S19 W68	46	1800	2.5	20177	S18 W74	51	(AP)	2	B	110	1	HSX
78	8	27	15477	S19 W81	45	1200	1.5									

MCMATH REGION 15479 CMP DATE 23.3

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
78	8	17	15479	N11 E79	17	200	2.0									
78	8	18	15479	N12 E64	19	100	2.0									

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MCMATH REGION 15499 CMP DATE 23.5

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
78	8	26	15499	N55	W40	18	100	2.0										
78	8	27	15499	N55	W52	16	100	1.0										

MCMATH REGION 15483 CMP DATE 23.8

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
78	8	20	15483	S13	E43	13	100	1.5	20178	S13	E41	13	(B)	2				

MCMATH REGION 15484 CMP DATE 24.8

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
78	8	20	15484	S23	E56	0	200	2.5										
78	8	21	15484	S23	E42	1	200	3.0										
78	8	22	15484	S24	E29	0	400	2.0	20181	S26	E27	0	(AF)	2	B	10	2	AXX
78	8	23	15484	S24	E16	1	400	2.0		S22	E10				B	10	3	BXX
78	8	24	15484	S24	E02	0	300	2.0		S22	W01				B	0	1	AXX
78	8	25	15484	S24	W10	1	300	2.0										
78	8	26	15484	S25	W23	1	200	1.5										

MCMATH REGION 15504 CMP DATE 24.8

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
78	8	27	15504	S21	W36	0	700	2.5	20186	S20	W38	2	(B)	3	B	10	12	DRO
78	8	28	15504	S21	W49	358	800	2.5	20186	S20	W52	2	(B)	4	B	20	3	BXO
78	8	29	15504	S21	W62	0	1000	2.0	20186	S23	W59	356	(B)	3	B	10	2	BXO
78	8	30	15504	S21	W75	0	1200	2.0	20186	S22	W67	352	(AF)	3				
78	8	31	15504	S23	W82	354	600	2.0										

MCMATH REGION 15502 CMP DATE 25.3

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
78	8	27	15502	N13	W30	354	200	2.5	20187	N13	W31	355	(B)	3	B	20	4	BXO
78	8	28	15502	N12	W45	354	300	2.5										
78	8	29	15502	N12	W57	355	500	3.5	20187	N11	W58	355	(B)	4	B	50	4	CRC
78	8	30	15502	N11	W72	357	500	2.0	20187	N11	W75	0	(AP)	4	B	30	3	BXO
78	8	31	15502	N12	W85	357	500	2.5		N10	W88				R	10	1	AXX

MCMATH REGION 15511 CMP DATE 25.3

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
78	8	30	15511	S17	W70	355	100	2.0										
78	8	31	15511	S16	W83	355	100	1.5										

MCMATH REGION 15485 CMP DATE 25.9 RETURN OF REGION 15435 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
78	8	20	15485	S20	E70	347	400	2.5										
78	8	21	15485	S20	E56	348	300	2.5										
78	8	22	15485	S20	E44	346	200	1.5										
78	8	23	15485	S20	E30	348	200	1.5										
78	8	24	15485	S20	E16	346	200	1.5										
78	8	25	15485	S20	E04	347	300	2.0										
78	8	26	15485	S20	W08	346	300	1.0										

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MCMATH REGION 15487 CMP DATE 26.7

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
78	8	21	15487	S25 E69	335	200	3.0	20179	S24 E62	338	(AP)	3	B	0	1	AXX
78	8	22	15487	S24 E56	334	500	2.5	20179	S24 E48	339	(AP)	3				
78	8	23	15487	S24 E43	335	600	2.0	20179	S25 E38	338	(B)	2	B	10	2	BXO
78	8	24	15487	S24 E27	335	600	2.0	20179	S24 E27	337	(B)	3	B	20	3	DRO
78	8	25	15487	S24 E14	337	900	3.0	20179	S24 E14	337	(B)	3	B	20	3	BXO
78	8	26	15487	S24 E02	336	800	2.5	20179	S24 W01	338	(B)	2	B	20	7	CRO
78	8	27	15487	S24 W11	335	700	2.0									
78	8	28	15487	S24 W26	335	600	2.0									
78	8	29	15487	S24 W37	335	700	2.0									
78	8	30	15487	S24 W50	335	600	2.0									
78	8	31	15487	S24 W63	335	600	1.5									
78	9	01	15487	S24 W77		700	1.0									

MCMATH REGION 15503 CMP DATE 27.2

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
78	8	27	15503	N59 W05	329	100	2.0									
78	8	28	15503	N59 W18	327	100	1.5									

MCMATH REGION 15490 CMP DATE 27.5

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
78	8	22	15490	S18 E69	321	300	2.5									
78	8	23	15490	S18 E54	324	300	2.5	20182	S19 E50	326	(AF)	3	B	10	1	AXO
78	8	24	15490	S18 E38	324	600	2.5	20182	S18 E37	327	(B)	4	B	60	16	DRI
78	8	25	15490	S18 E25	326	700	3.0	20182	S17 E24	327	(B)	4	B	20	7	BXO
78	8	26	15490	S18 E12	326	700	2.5	20182	S17 E12	325	(AF)	3	B	20	6	BXO
78	8	27	15490	S18 W01	325	700	2.0	20182	S17 W03	327	(AF)	2	B	10	6	BXO
78	8	28	15490	S18 W16	325	500	2.0	20182	S18 W14	324	(AF)	2	B	0	5	BXO
78	8	29	15490	S18 W28	326	500	2.0									
78	8	30	15490	S18 W41	326	500	2.0									
78	8	31	15490	S18 W54	326	400	1.5									
78	9	01	15490	S19 W67		500	1.0									
78	9	02	15490	S18 W80		200	1.0									

MCMATH REGION 15491 CMP DATE 27.5

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
78	8	23	15491	N21 E51	327	200	1.0									
78	8	24	15491	N21 E37	325	200	1.0									
78	8	25	15491	N21 E25	326	100	1.0									
78	8	26	15491	N20 E12	326	200	1.0									
78	8	27	15491	N21 W01	325	200	1.0									
78	8	28	15491	N20 W16	325	200	1.0									
78	8	29	15491	N20 W28	326	200	1.0									
78	8	30	15491	N20 W42	327	200	1.5		N20 W41				B	0	1	AXX
78	8	31	15491	N20 W56	328	200	1.0									

MCMATH REGION 15513 CMP DATE 28.1

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
78	8	31	15513	N23 W46	318	200	1.5									
78	9	01	15513	N23 W59		200	2.0		N22 W63				B	0	1	A
78	9	02	15513	N22 W72		200	2.0									
78	9	03	15513	N23 W82		100	2.0									

MCMATH REGION 15494 CMP DATE 29.2

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
78	8	24	15494	N10 E60	302	100	2.5	20183	N10 E58	306	(AF)	3	B	0	1	AXX
78	8	25	15494	N10 E48	303	200	2.0	20183	N10 E45	306	(AF)	2				
78	8	26	15494	N10 E35	303	200	2.0	20183	N10 E34	303	(B)	3	B	20	4	BXO

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MCMATH REGION 15494 (CONT) CMP DATE 29.2

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
78	8	27	15494	N10 E21	303	300	2.5	20183	N11 E21	303	(B)	3	B	20	12	BXO
78	8	28	15494	N09 E07	302	300	2.5	20183	N10 E07	303	(AP)	3	B	0	4	BXO
78	8	29	15494	N09 W05	303	300	2.0									
78	8	30	15494	N09 W19	304	200	1.5									
78	8	31	15494	N10 W31	303	200	3.5									
78	9	01	15494	N10 W44		100	1.0									
78	9	02	15494	N10 W58		100	1.5									

MCMATH REGION 15492 CMP DATE 29.7

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
78	8	24	15492	S17 E66	296	100	2.0									
78	8	25	15492	S16 E54	297	100	1.5									

MCMATH REGION 15493 CMP DATE 30.1

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
78	8	23	15493	N16 E90	288	500	2.0									
78	8	24	15493	N16 E75	287	600	2.5									
78	8	25	15493	N16 E63	288	600	3.0									
78	8	26	15493	N17 E49	289	800	2.5									
78	8	27	15493	N17 E35	289	800	2.5									
78	8	28	15493	N17 E20	289	500	2.0									
78	8	29	15493	N17 E08	290	300	2.0	20188	N15 E05	292	(AP)	3				
78	8	30	15493	N17 W05	290	300	1.5									
78	8	31	15493	N17 W18	290	400	2.5									
78	9	01	15493	N17 W32		400	2.0	20192	N16 W35		(AP)	3	B	0	2	A
78	9	02	15493	N16 W45		400	2.0		N13 W53				B	10	1	A
78	9	03	15493	N17 W58		400	2.0									
78	9	04	15493	N16 W71		200	1.0									

MCMATH REGION 15498 CMP DATE 30.9 RETURN OF REMNANTS OF REGION 15446 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
78	8	25	15498	S20 E70	281	500	1.5									
78	8	26	15498	S21 E58	280	400	2.0									
78	8	27	15498	S21 E44	280	200	2.0									
78	8	28	15498	S20 E29	280	300	1.5									
78	8	29	15498	S21 E17	281	200	1.0									
78	8	30	15498	S21 E04	281	100	1.0									
78	8	31	15498	S21 W09	281	200	1.0									
78	9	01	15498	S21 W22		300	1.0									
78	9	02	15498	S20 W37		300	1.0									
78	9	03	15498	S20 W49		300	1.0									
78	9	04	15498	S19 W60		300	1.0									

MCMATH REGION 15514 CMP DATE 31.2

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
78	8	31	15514	N14 W04	276	100	2.0									

MCMATH REGION 15506 CMP DATE 31.5

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
78	8	28	15506	S26 E37	272	300	1.0									
78	8	29	15506	S26 E25	273	200	1.0									
78	8	30	15506	S26 E12	273	100	1.0									

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MCMATH REGION 15500 CMP DATE 31.9

				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
78	8	25	15500	N38	E80	271	200	1.0										
78	8	26	15500	N38	E68	270	400	1.5										
78	8	27	15500	N38	E55	269	400	1.0										
78	8	28	15500	N39	E42	267	500	1.0										
78	8	29	15500	N39	E31	267	400	1.0										

Note: Calcium spectroheliograms were secured at the McMath-Hulbert Observatory every day of August 1978.
No sunspot observations were made at Mt. Wilson on August 8, 15, 16 and 19, 1978.

DAILY CALCIUM PLAGE INDEX

AUGUST 1978

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
78	8	1	15.2	78	8	11	21.6	78	8	21	11.9
78	8	2	16.6	78	8	12	22.2	78	8	22	12.3
78	8	3	15.6	78	8	13	24.2	78	8	23	10.1
78	8	4	19.0	78	8	14	20.8	78	8	24	9.8
78	8	5	19.3	78	8	15	16.4	78	8	25	11.9
78	8	6	22.1	78	8	16	13.1	78	8	26	9.6
78	8	7	20.8	78	8	17	13.0	78	8	27	9.6
78	8	8	18.7	78	8	18	12.6	78	8	28	10.0
78	8	9	19.2	78	8	19	12.3	78	8	29	11.0
78	8	10	19.4	78	8	20	11.2	78	8	30	10.0
								78	8	31	16.7

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1978

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
03	1000	1033	1015	1-	1				1		1		0957	X-RAY
05	1345	1442	1356	1-	1				1		1		1349	15446
07	1045	1130D	1130	1-	1				1		1		1050E	15454
07	1755	1927	1804	1-	5	1			2	1	12		1253	X-RAY
07	2310	0027	2323	1-	5	1			1		7		2311	15454
11	0957	1050	1020	1-	1				1		1		1003E	15454
11	1050	1152	1-	1					1		1		1103E	15454
13	1157	1245	1220	1-	5			2	1		1		1158	15453
13	1221	1300	1231	1-	1				1		1		1221	15474
13	1803	1837	1809	1-	5	1			1		9		1755	15474
14	0006	0113	0025	1-	1				1				0003	X-RAY
14	0607	0706	0622	1-	1				1				0609	X-RAY
14	0822	0955	0906	1-	5			2	1				0825E	15474
14	1737	1824	1742	1-	5			1			10		1736	15454
14	2100	2120	2106	1-	3						2		2056	X-RAY
15	1014	1126	1022	1	5	1		3	1		1		1014E	15454
15	1543	1640	1557	1	5	2		2			8		1547	15454
15	1839	1912	1842	1-	5	1					3		1827	15472
16	0625	0725	0643	1-	1				1				0621	15471
16	1325	1520	1340	2	5	2	1	1	2		14		1326	15454
17	0341	0408	0348	1-	1				1				0343	15471
17	1940	2020U	1946	1-	1	1							1943	15477
18	1414	1443	1421	1-	1			1					1419	15477
26	2155	2220	2200	1-	1						1		2152	15496
27	0137	0208	0139	1-	1				1				0135	X-RAY
27	0240	0306	0249	1-	1				1				*	
27	0916E	1015D	0928	1-	5				3				0909	X-RAY
27	1216	1313	1240	1-	1				1		1		1214	15496
27	1603	1728	1632	1-	5	3	2	1	1	1	7		1559	15496
27	1846	1945	1856	1-	5	1			1		6		1841	15496
27	2039	2102	2042	1-	5	2		1	2		6		2036	15496
28	0344	0412	0353	1-	1				1				0343	15496
28	0533	0625	0543	1-	1				1				0533	X-RAY
29	0102	0236	0133	1-	1				1				0059	X-RAY
29	0605	0632	0613	1-	1				1				0602	X-RAY
29	1805	1830D	1808	1-	1						1		1803	15508
29	2038	2050	2043	1-	1				1		1		2025	15508
30	1417	1507	1444	1-	1				1		1		1418	15508
30	1537	1726	1550	2	5	5	2	2	2		14		1530	15508
30	2242	2314	2245	1-	1				1				2238	15509
31	0340	0525D	0417	1-	5			1	1		1		0339	X-RAY
31	0524E	0730	0535	2	5	1		1	1		1		0527	15508
31	1532	1638	1550	1	5	2					7		NF	
31	1700	1750	1707	1-	5	1			7		2		1657	15510

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01	1003-1317 UM (16 kHz)
03-07	0000-2400 A5
07-08	0000-2400 TN
08	1056-1328 UM (16 kHz)
15	1011-1332 UM (16 kHz)
16	1200-1645 CL
19	1500-1630 CL
22	1004-1345 UM (16 kHz)
23	0800-0900 CL, 0808-0820 UM (16 kHz)
24-31	0000-2400 A45
26	0804-0821 UM (13 kHz), 0807-0815 UM (16 kHz)
	1449-1610 TM
29	1008-1346 UM (16 kHz), 1012-1346 UM (13 kHz)

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1978

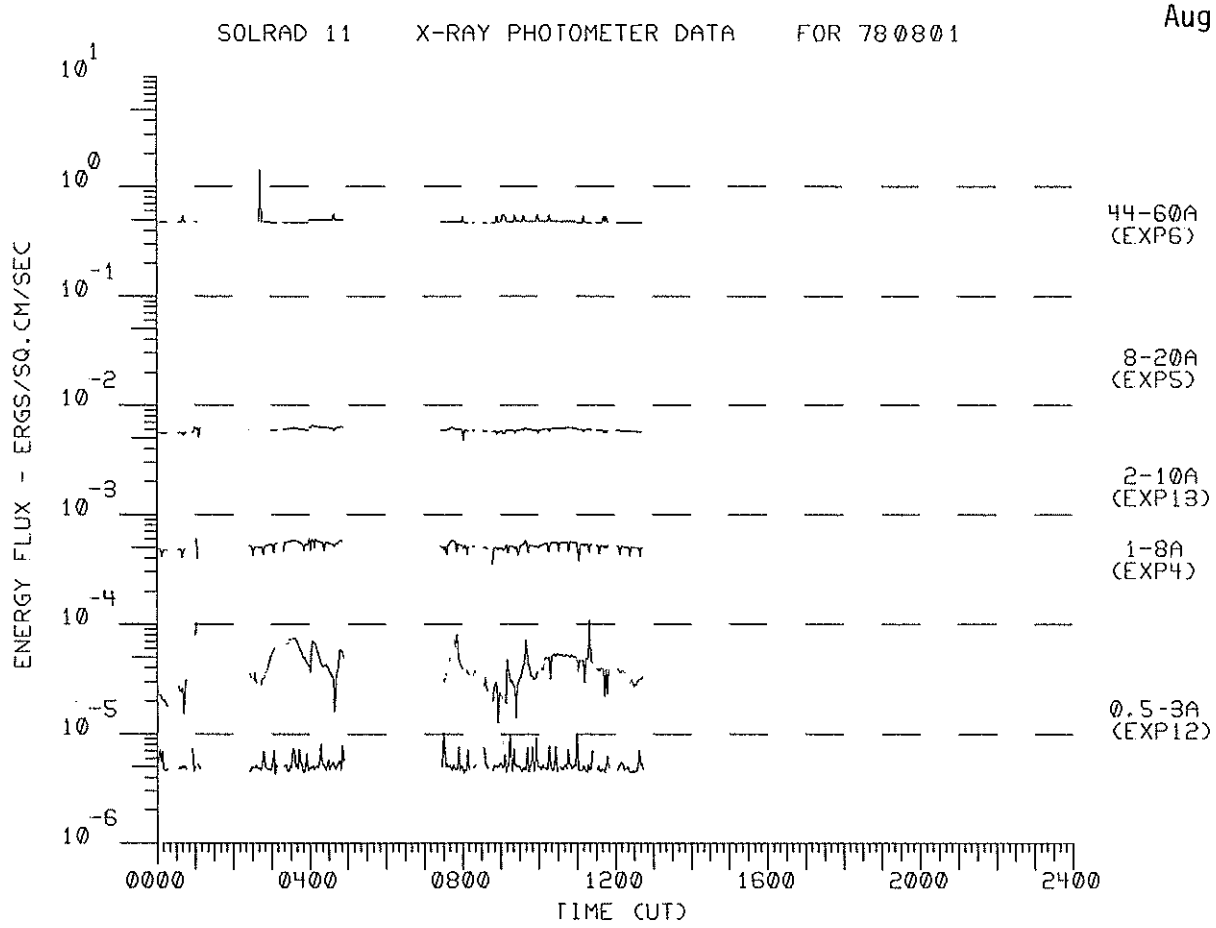
STATIONS REPORTING FOR AUGUST 1978

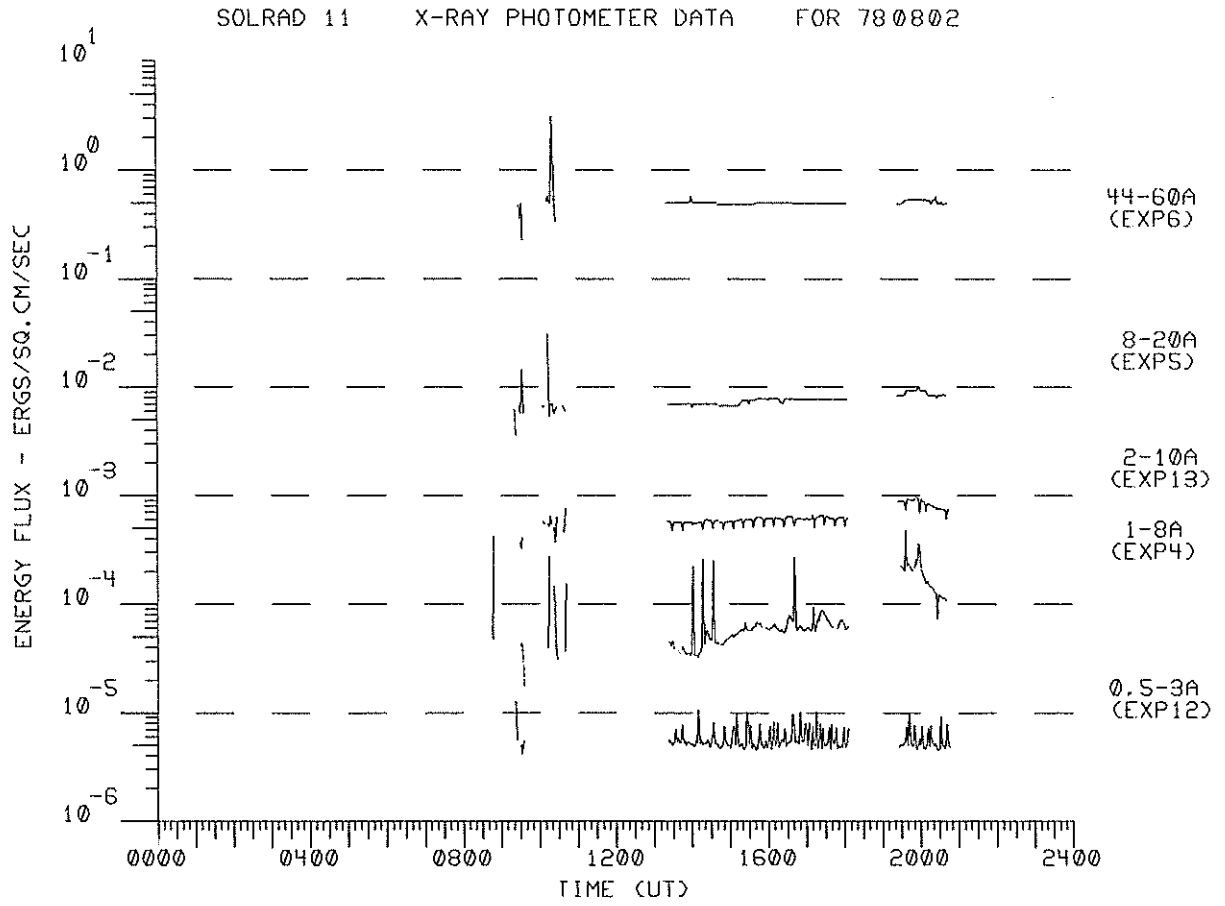
AAVSO (A1, A3, A5, A19, A21, A26,
A28, A31, A34, A37, A45) (SES)
(A1, A31) (SEA) (A31) (SWF)
CHILWORTH (CL) (SCNA)
DARMSTADT (DA) (SWF)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA, SES)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
MC MATH (MC) (SWF, SCNA)
NEW JERSEY (NJ) (SPA)
PANSKA VES (PU) (SWF, SEA, SES)
SAO PAULO (UM) (SES, SPA)
SOFIA (SF) (SES)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)
VSETIN (VS) (SEA)

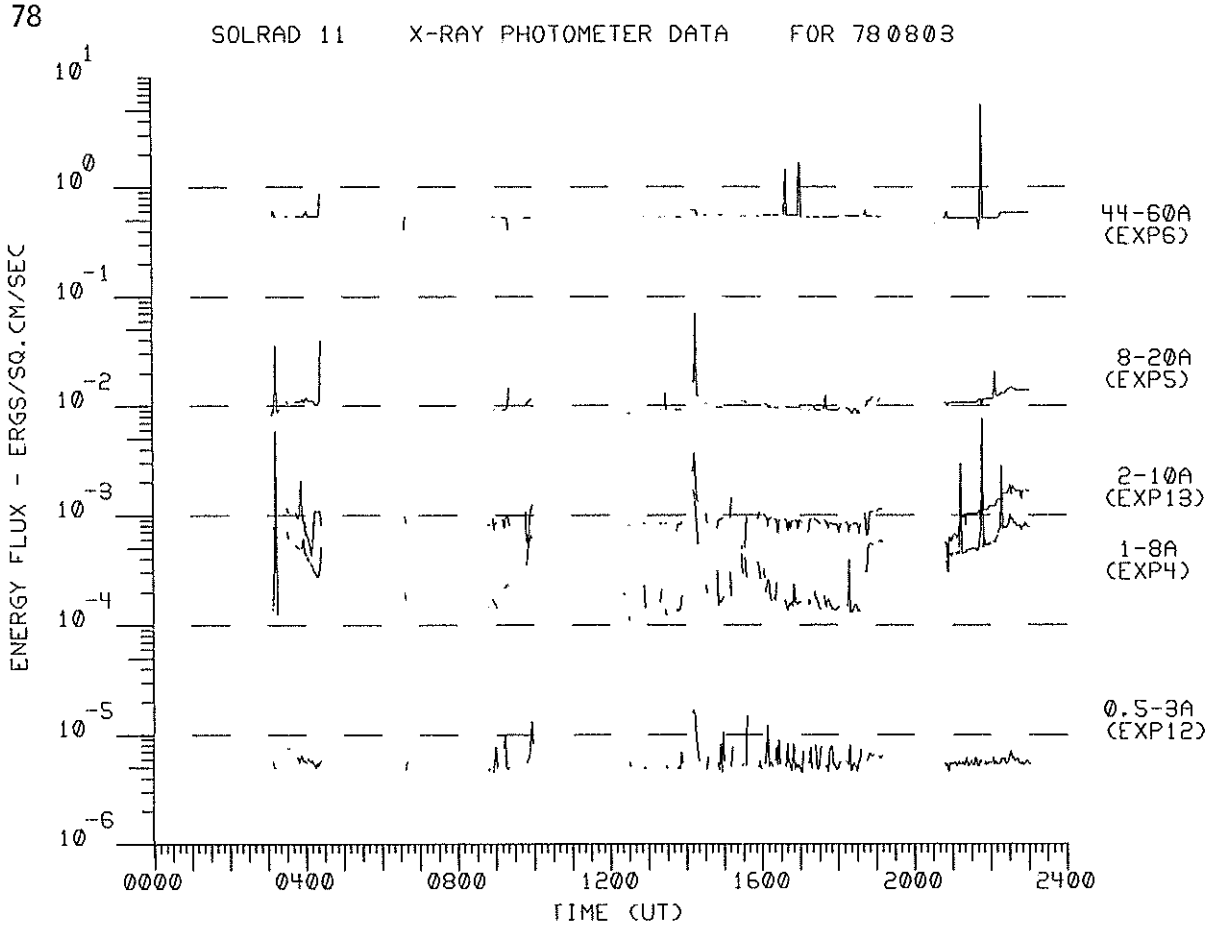
SIDs BY McMATH REGION

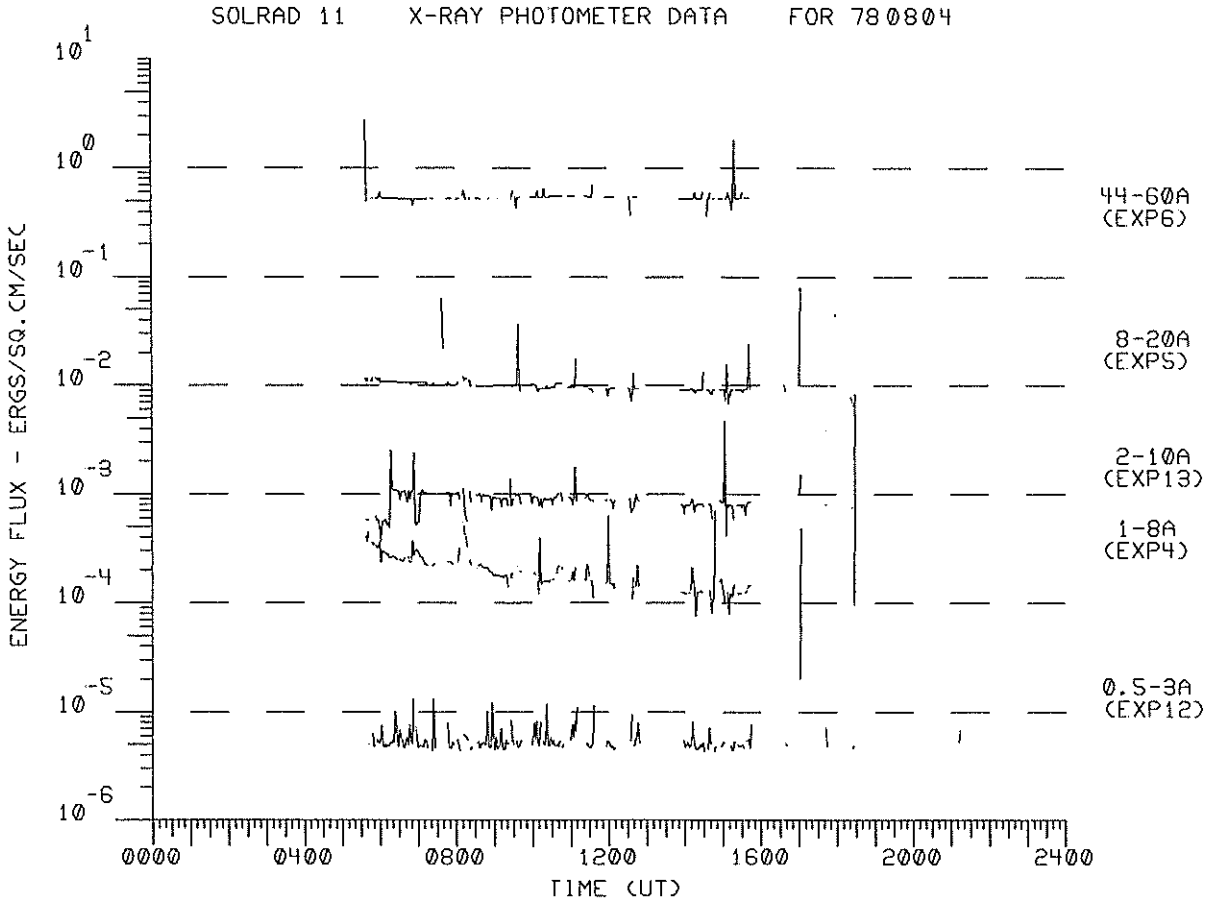
AUGUST 1978

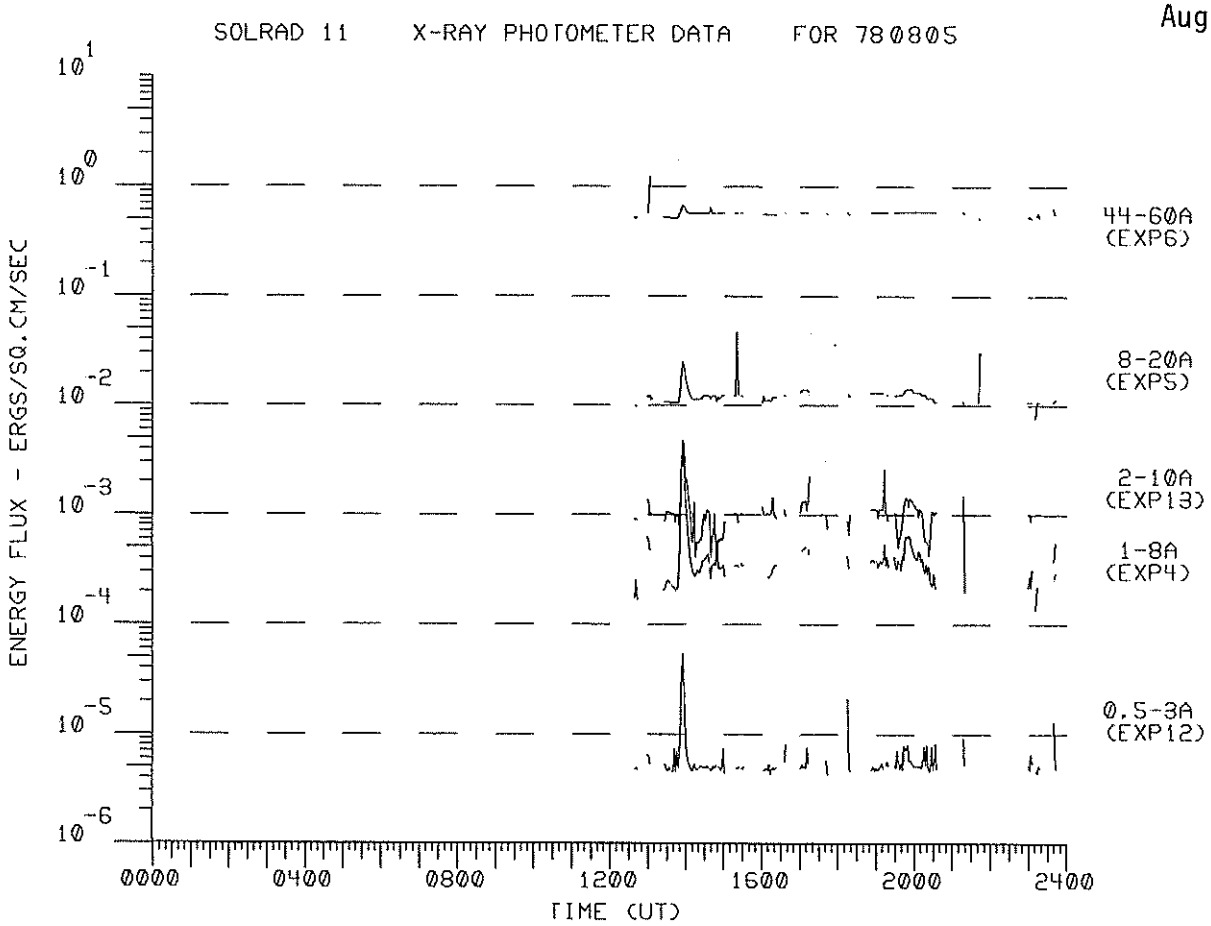
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
15446					1																										
15453													1																		
15454							2				2			1	2	1															
15471																1	1														
15472															1																
15474													2	1																	
15477																	1	1													
15496																										1	4	1			
15508																													2	2	1
15509																														1	
15510																															1
X-RAY			1				1							3													2	1	2		1
UNKNOWN																															1
NO FP																											1				


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780801
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780802
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780803
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780804
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780805
ENERGY FLUX - ERGS/SQ.CM/SEC
TIME (UT)
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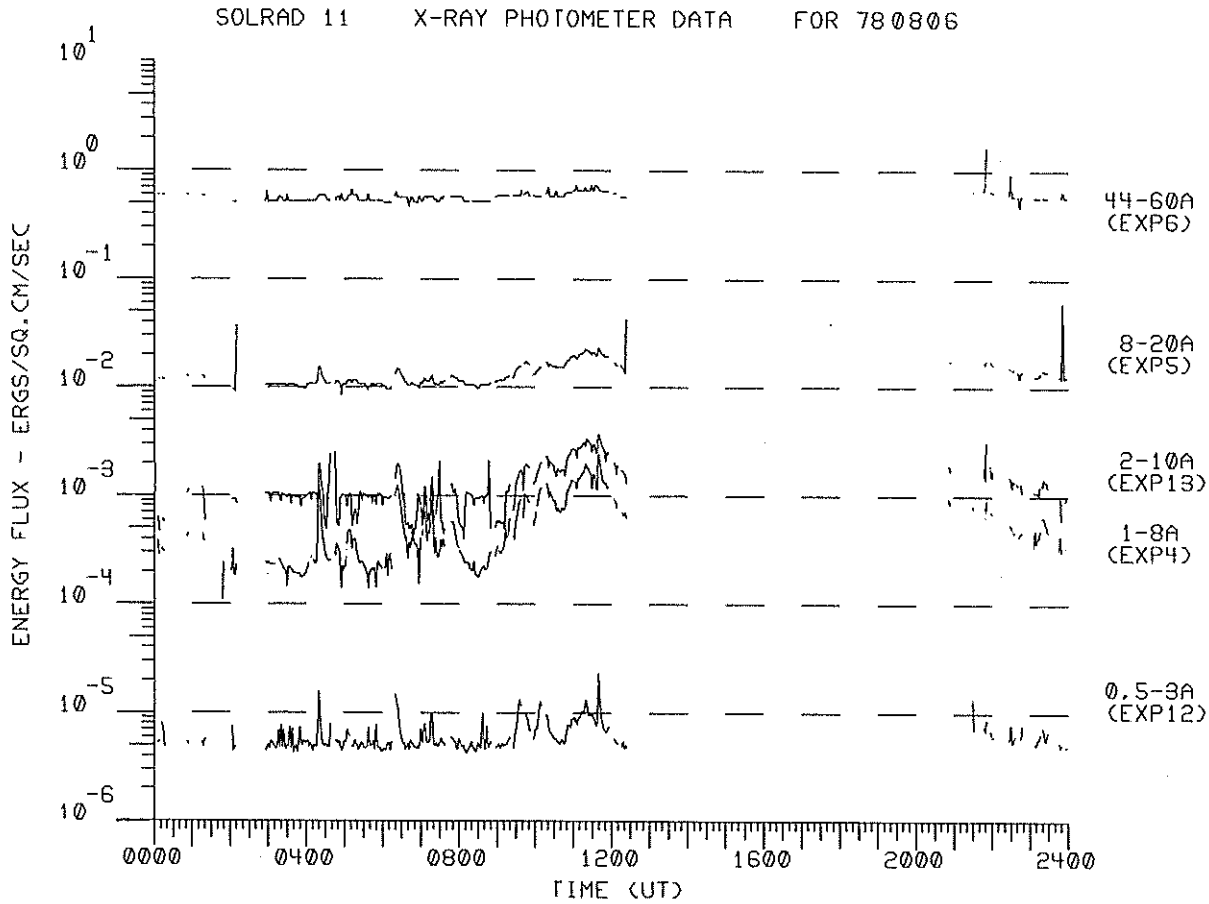
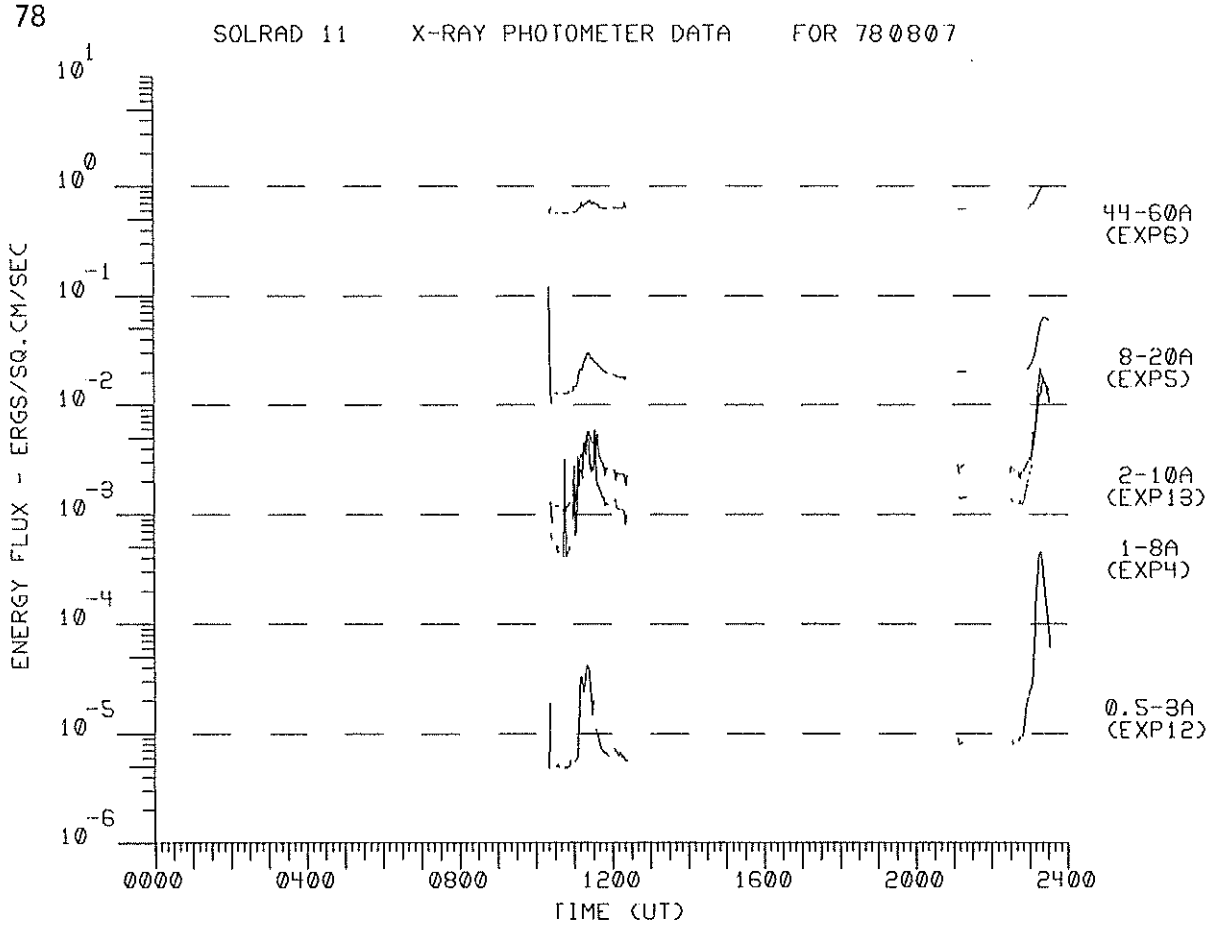
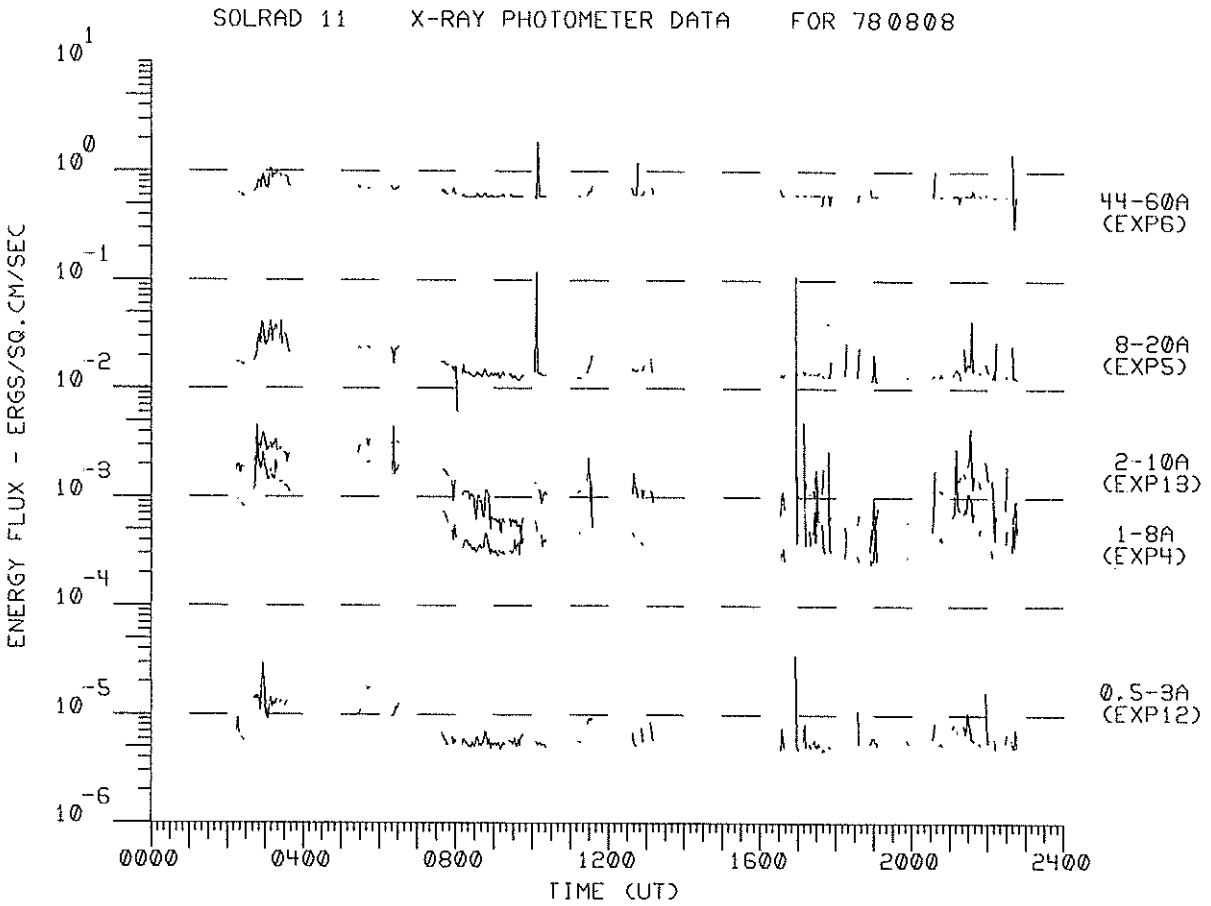
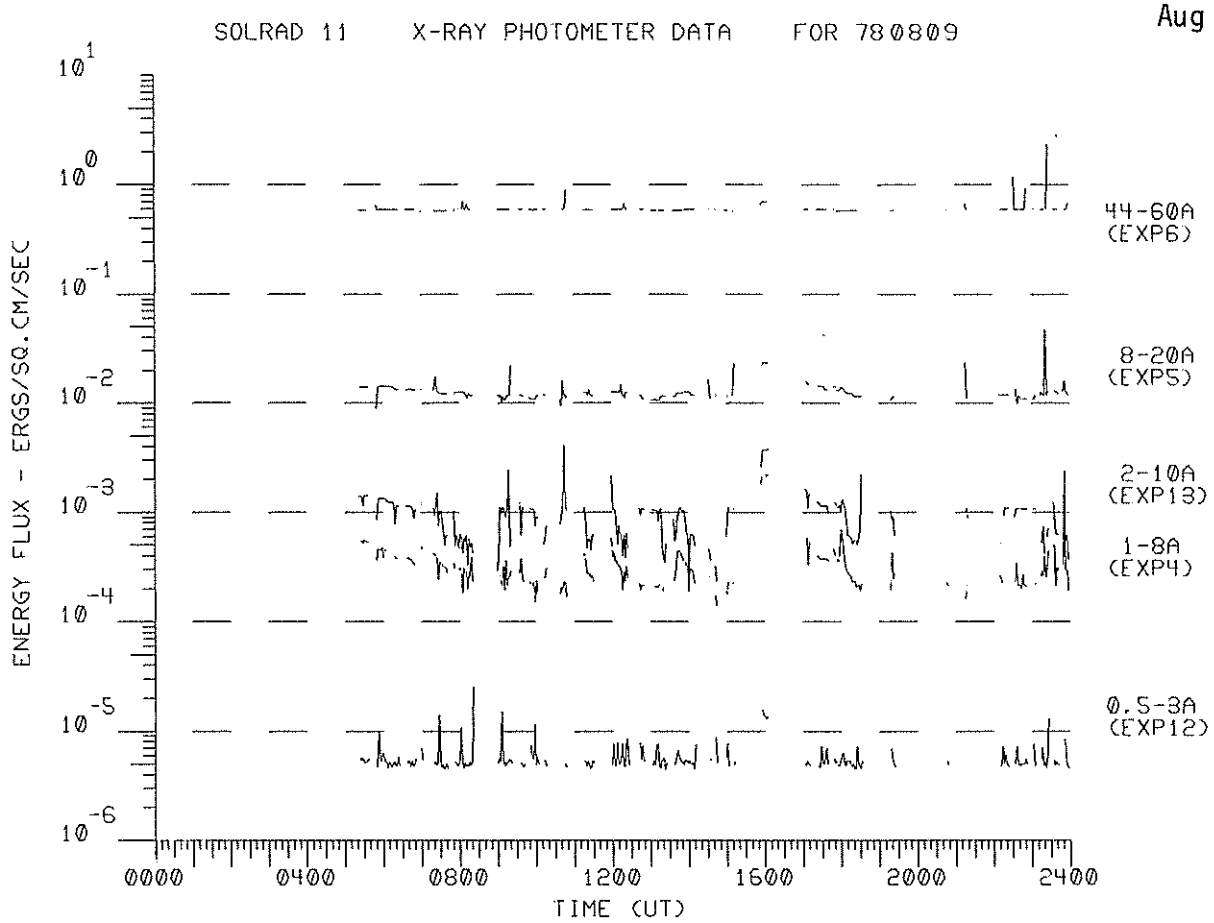
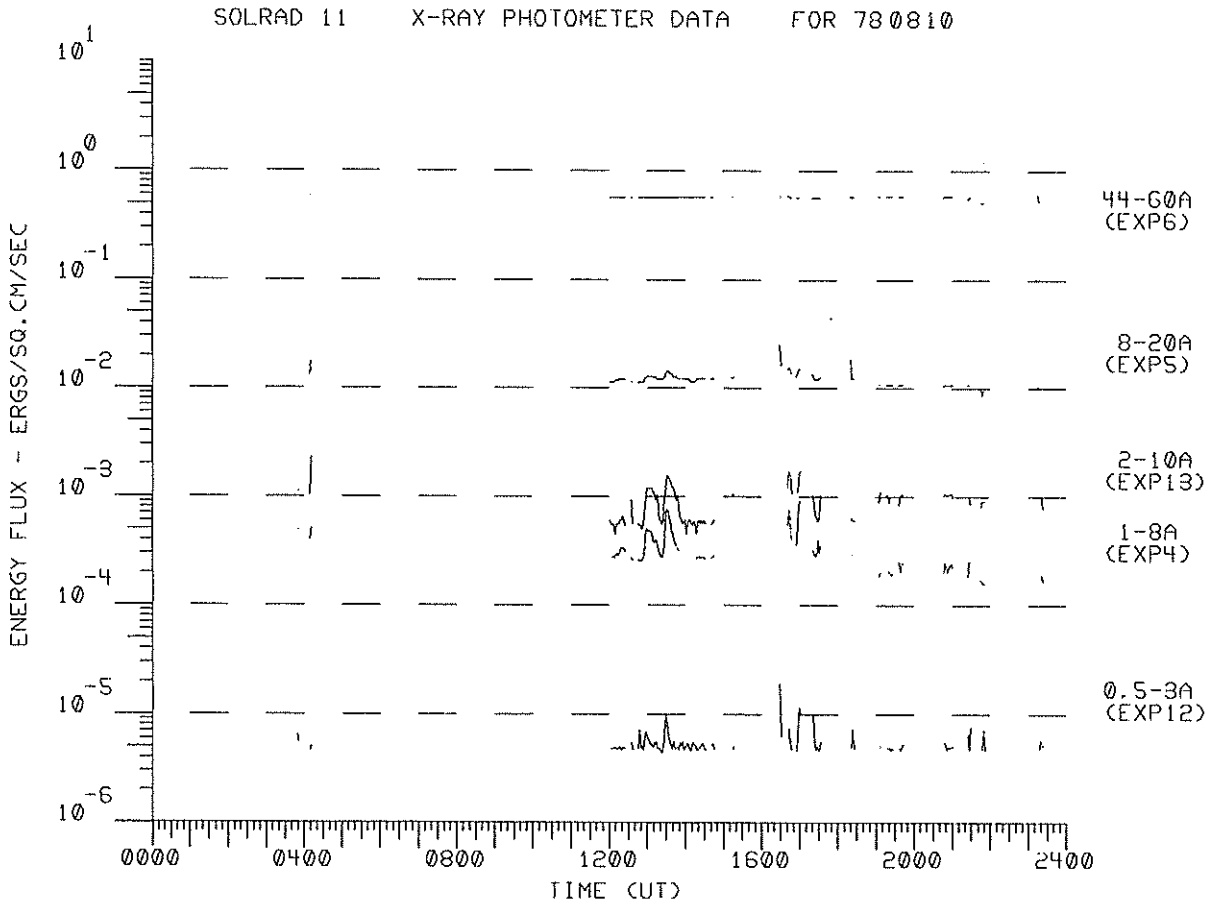
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)

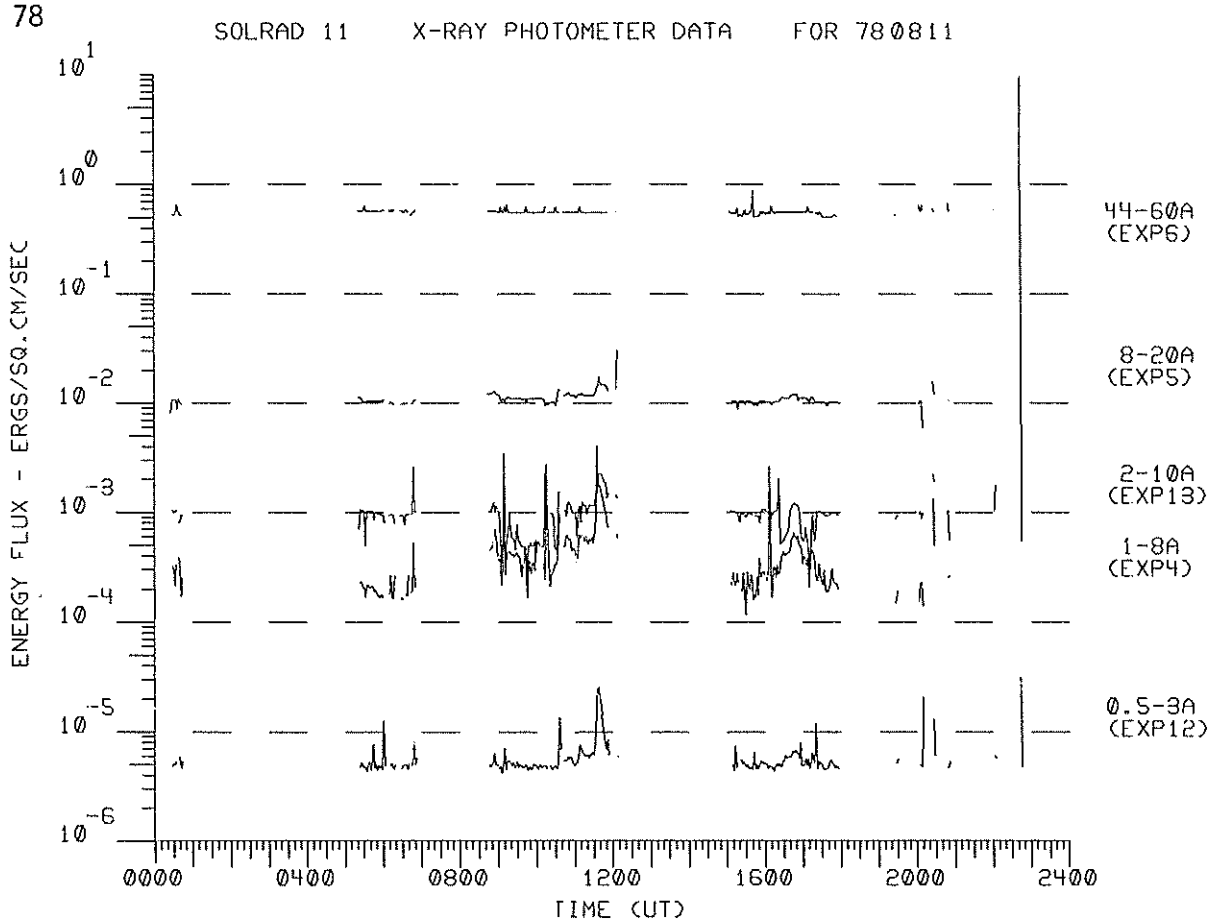

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780806
ENERGY FLUX - ERGS/SQ.CM/SEC
TIME (UT)
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)

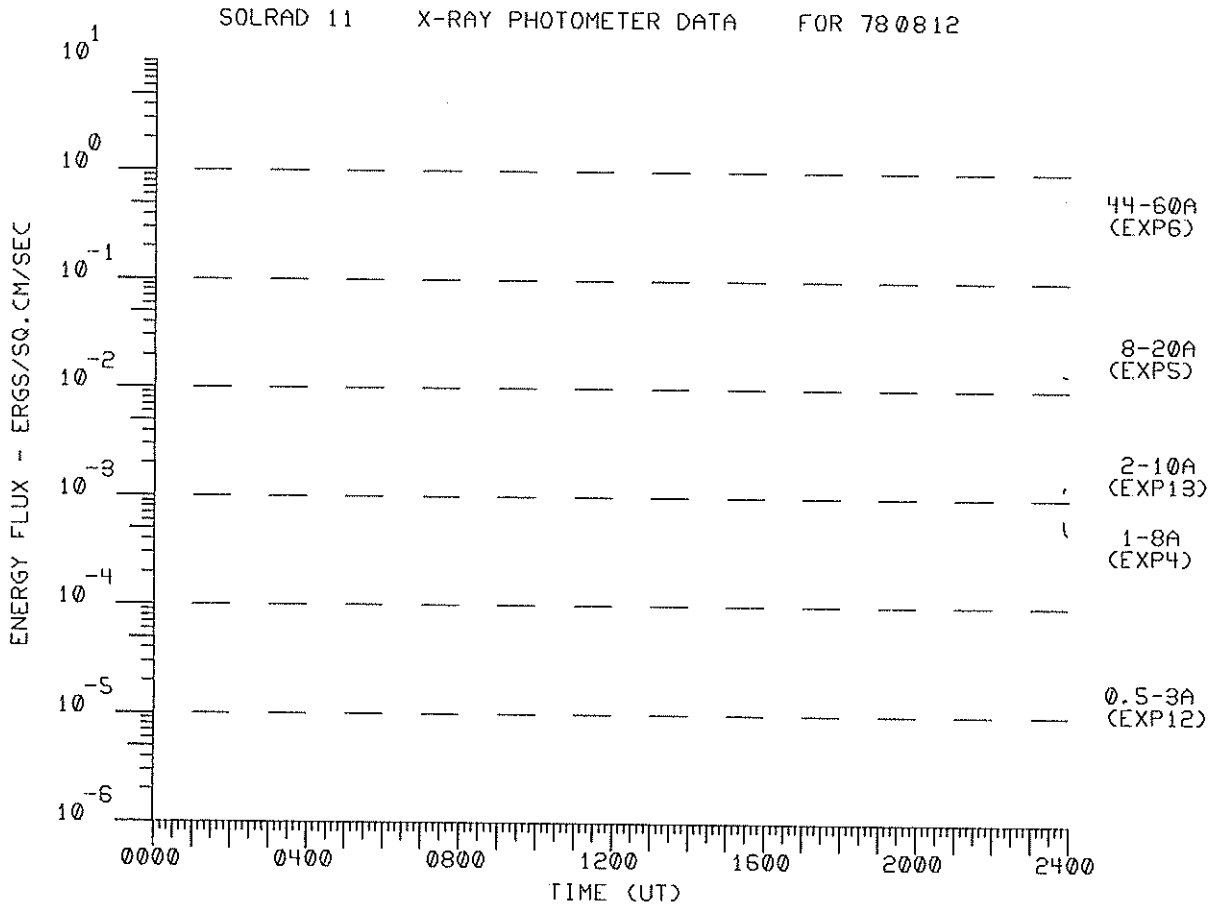

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780807
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

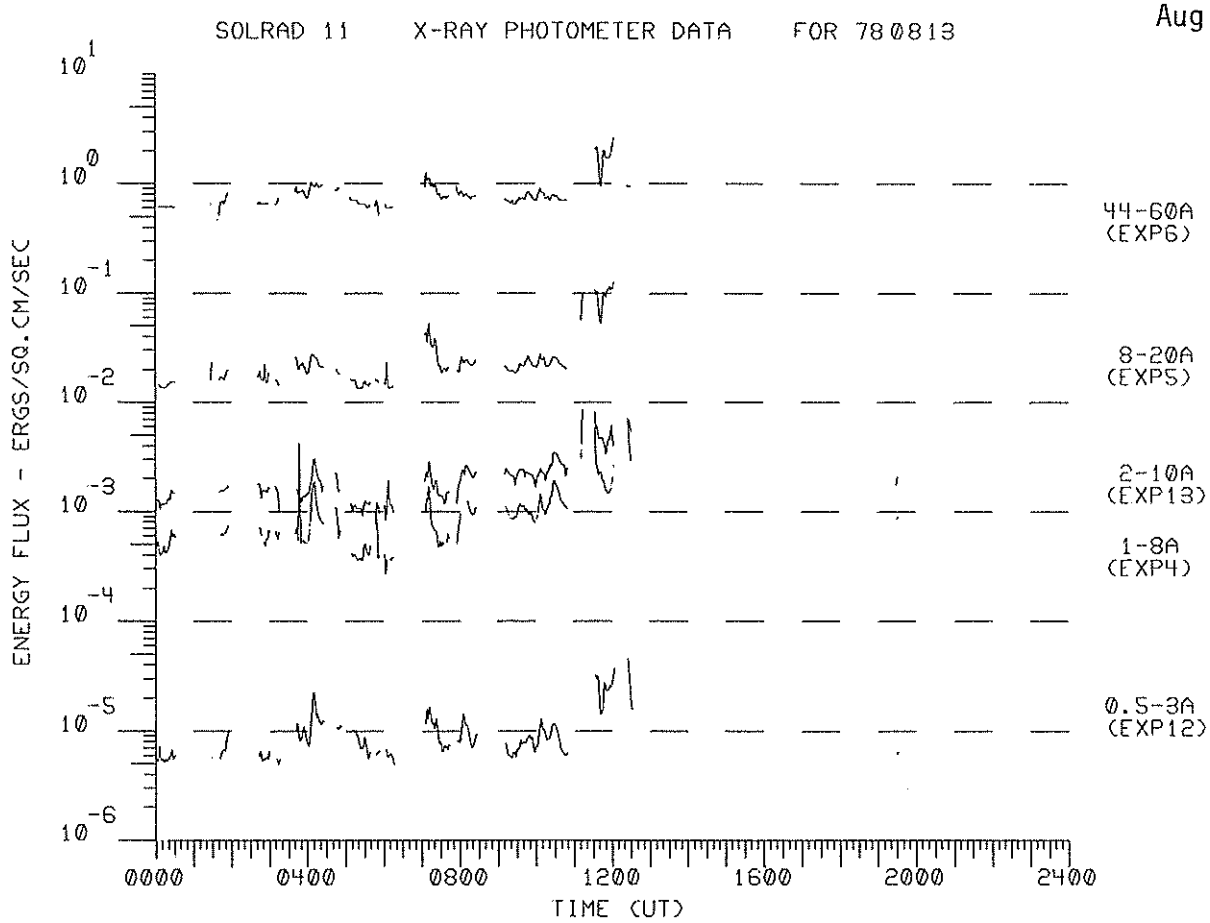

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780808
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

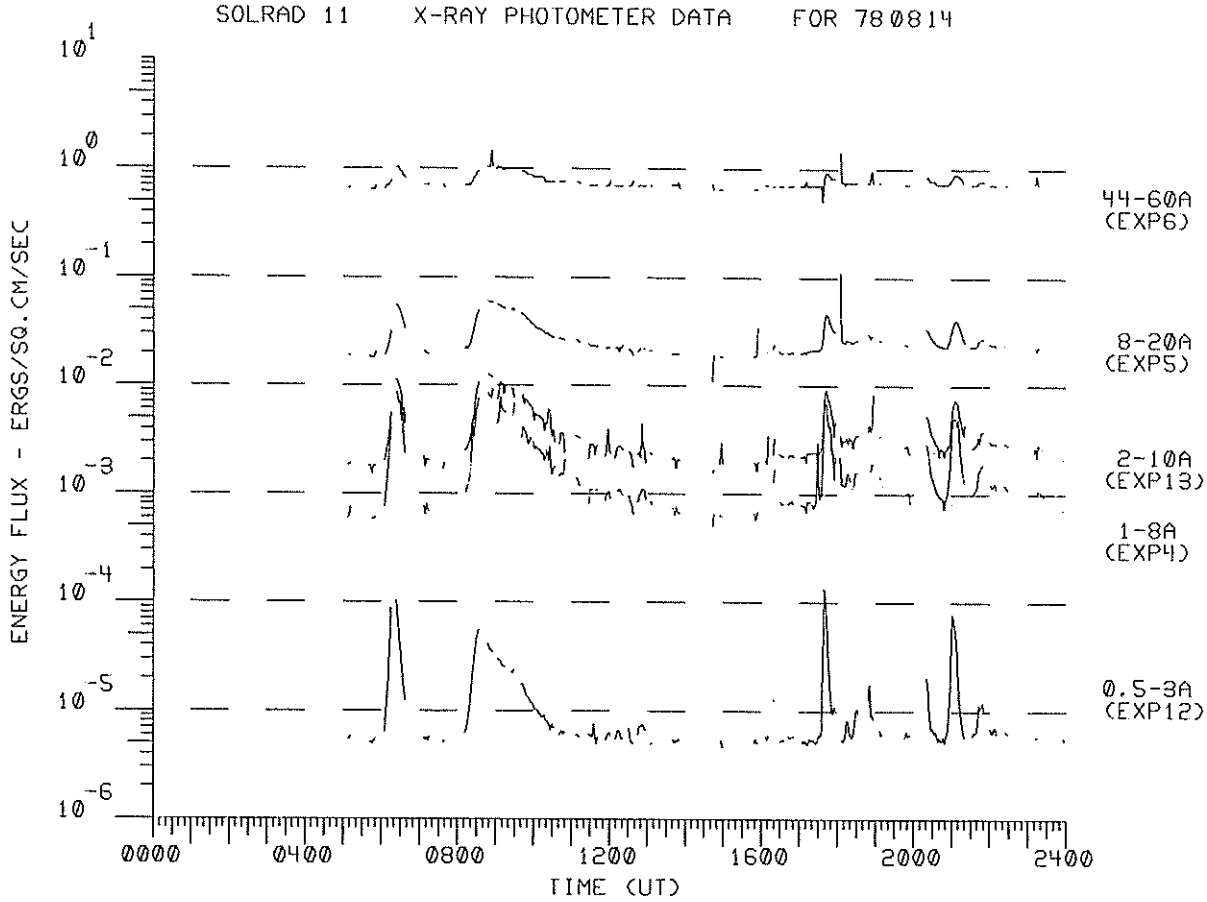

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780809
ENERGY FLUX - ERGS/SQ.CM/SEC
TIME (UT)
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)

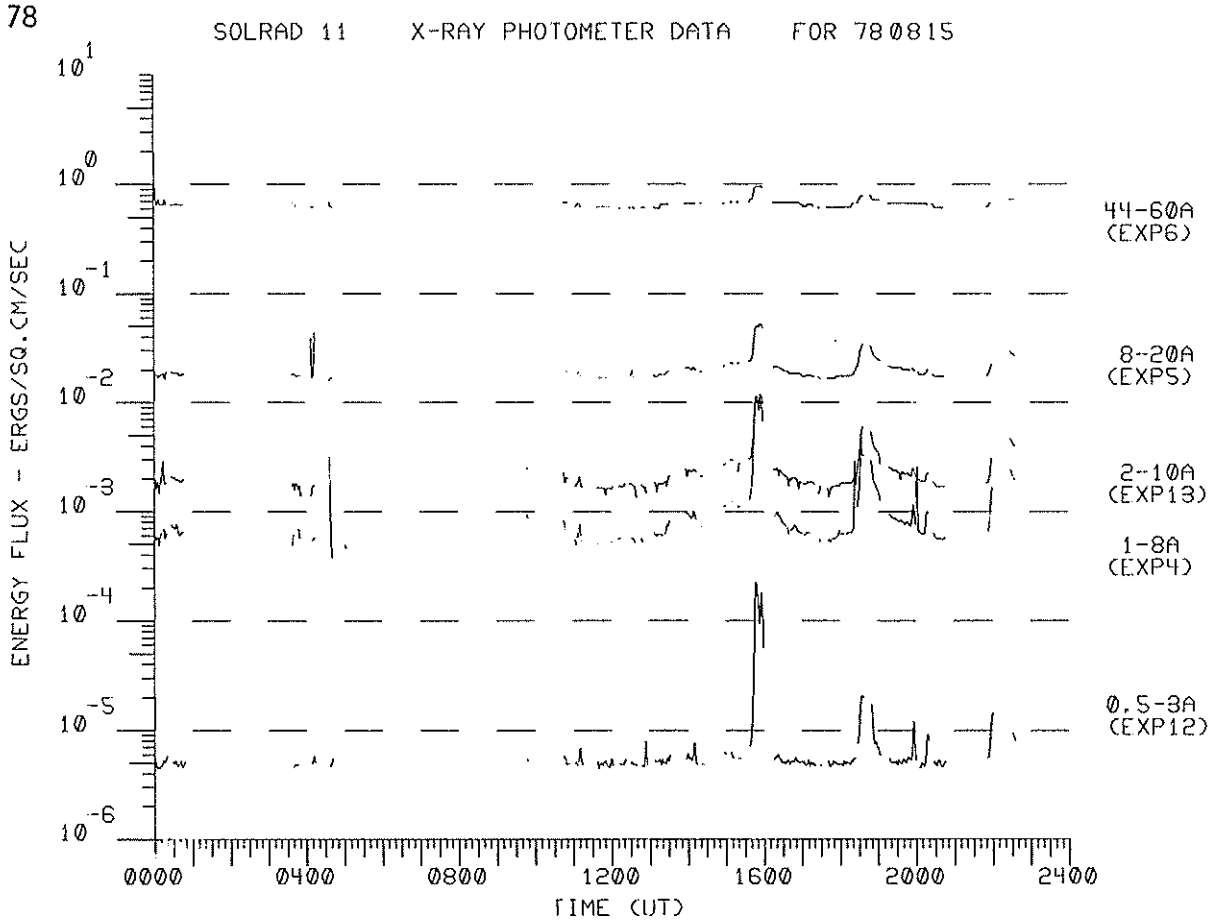

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780810
ENERGY FLUX - ERGS/SQ.CM/SEC
TIME (UT)
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)

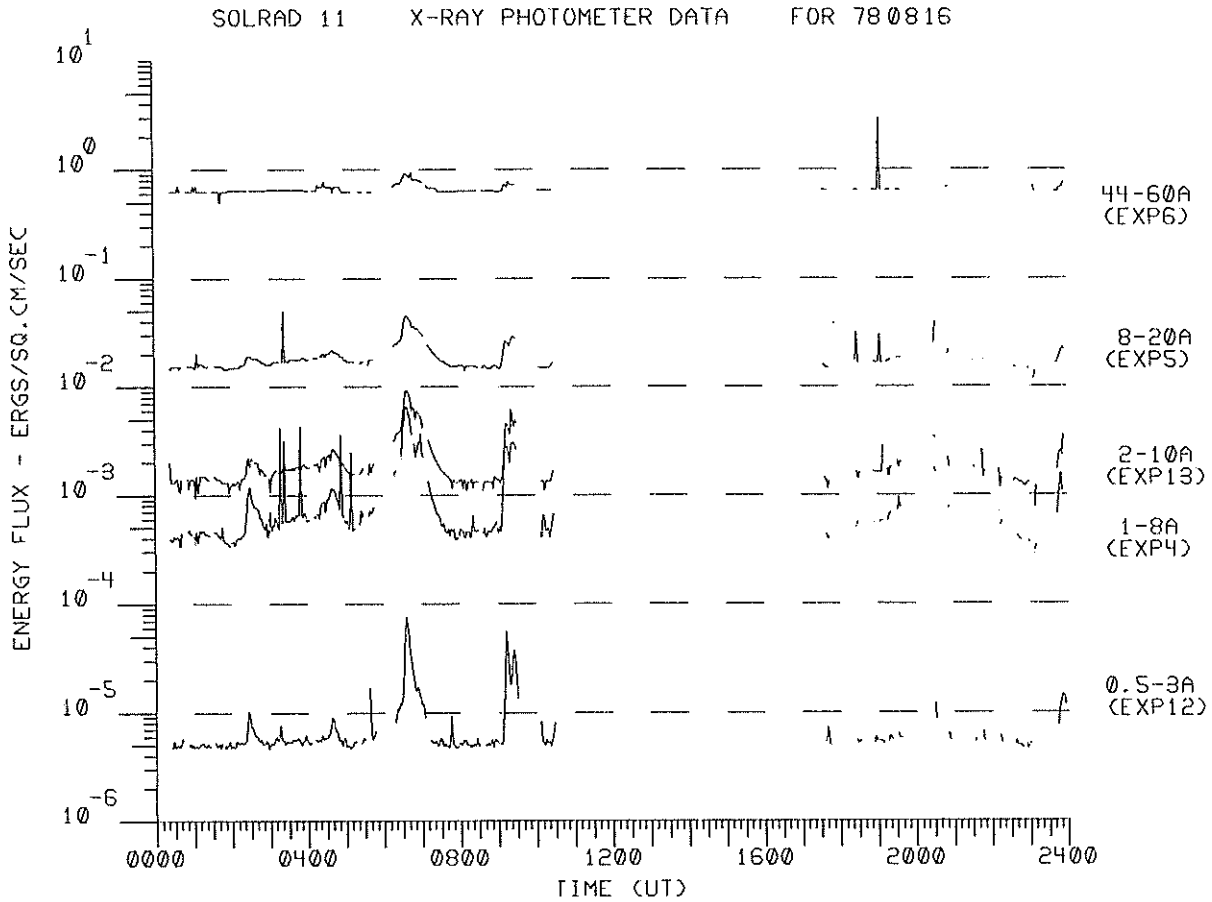

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780811
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

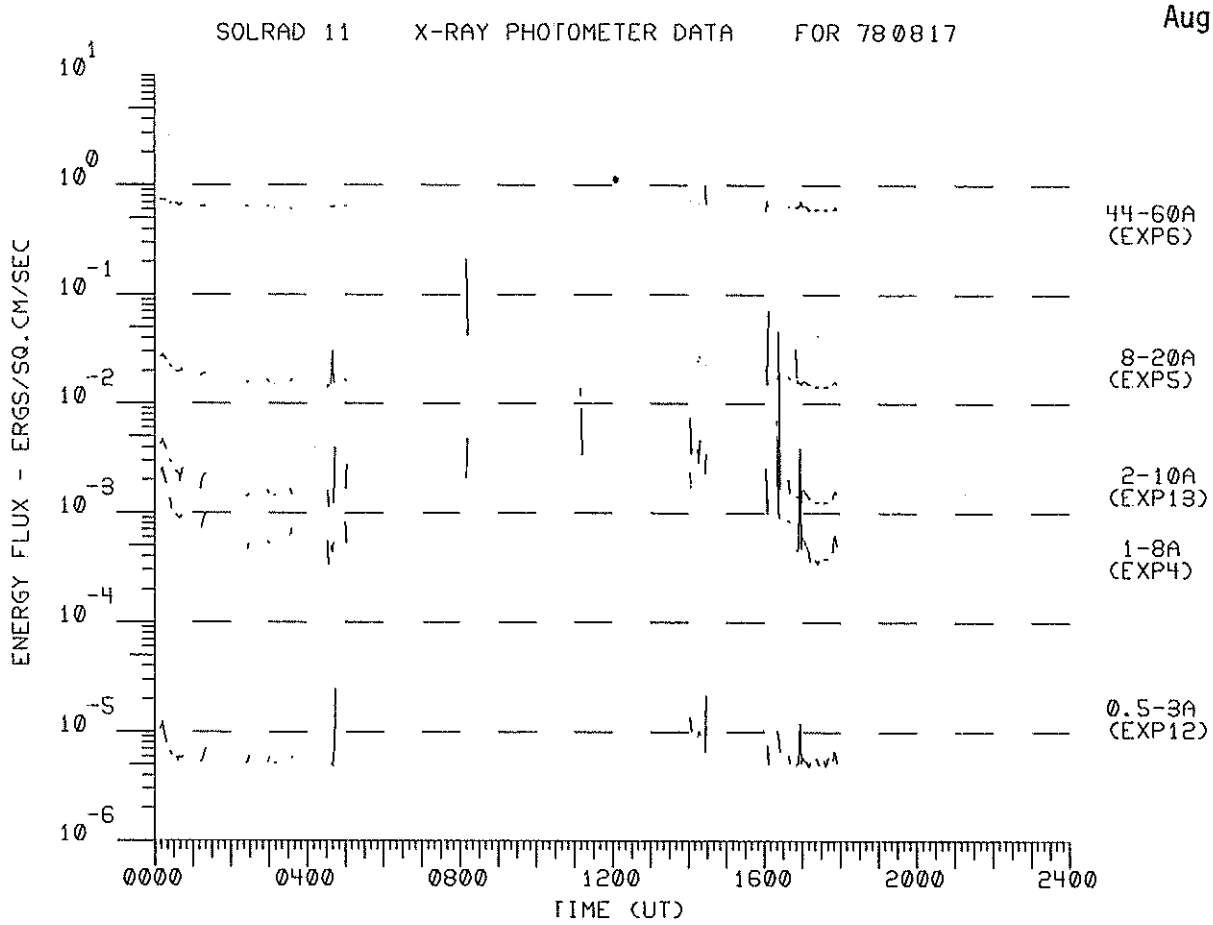

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780812
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

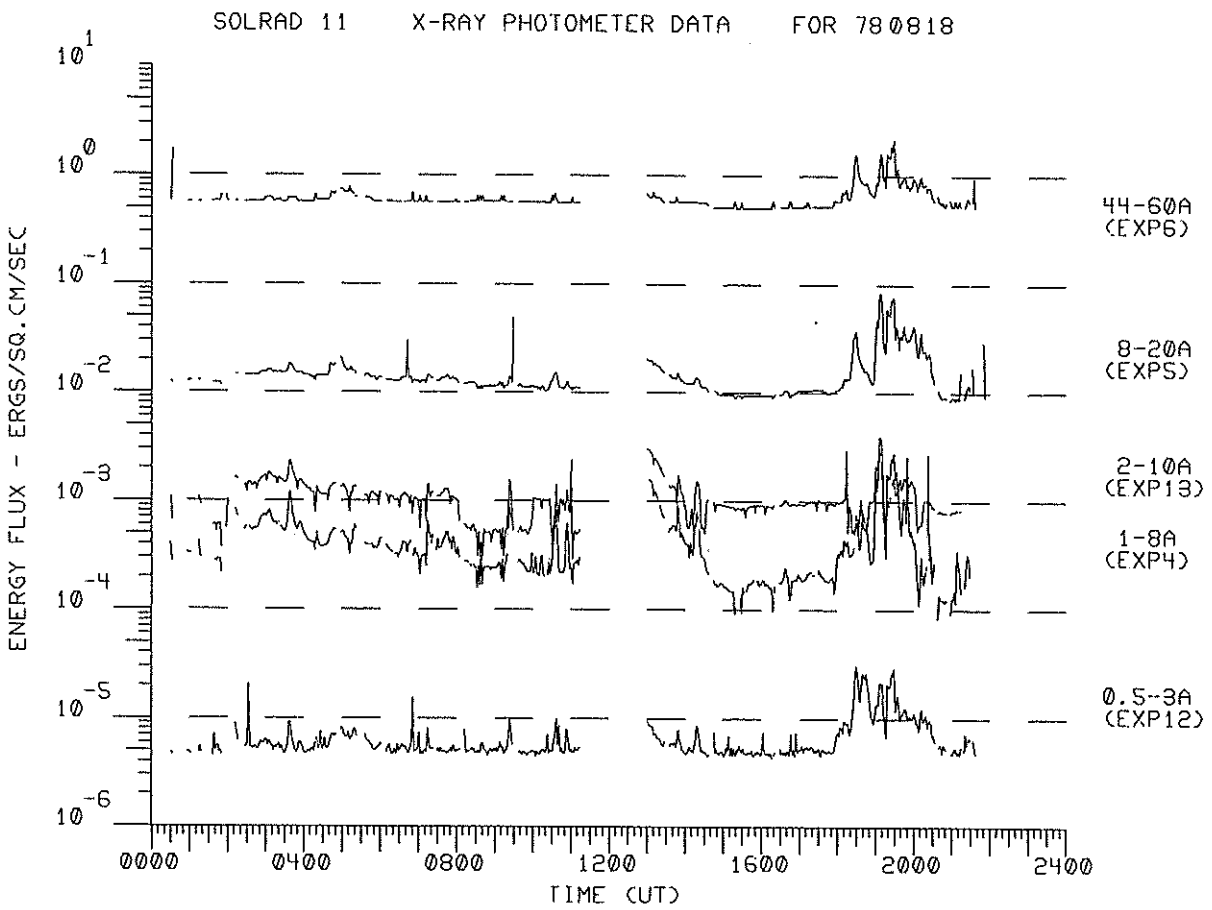

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780813
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

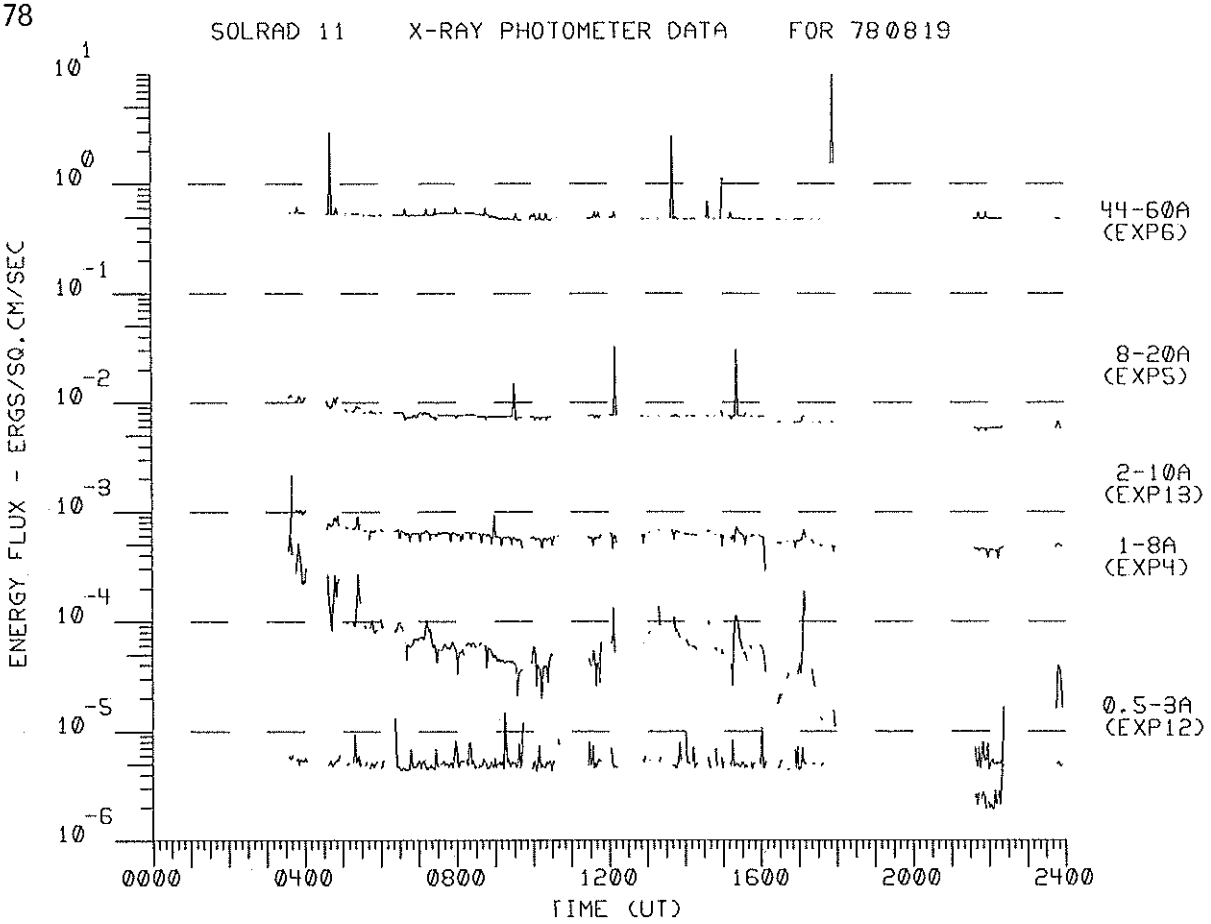

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780814
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

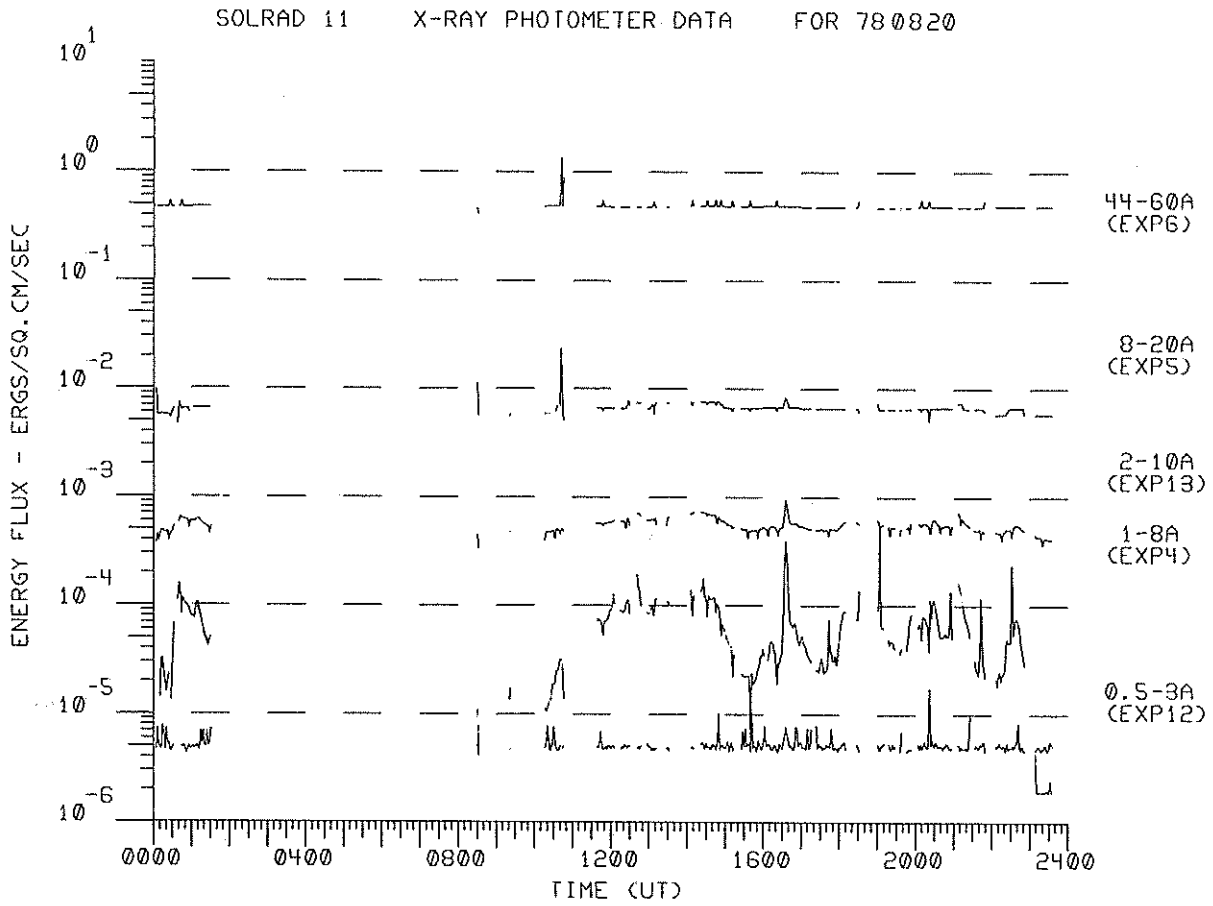

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780815
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

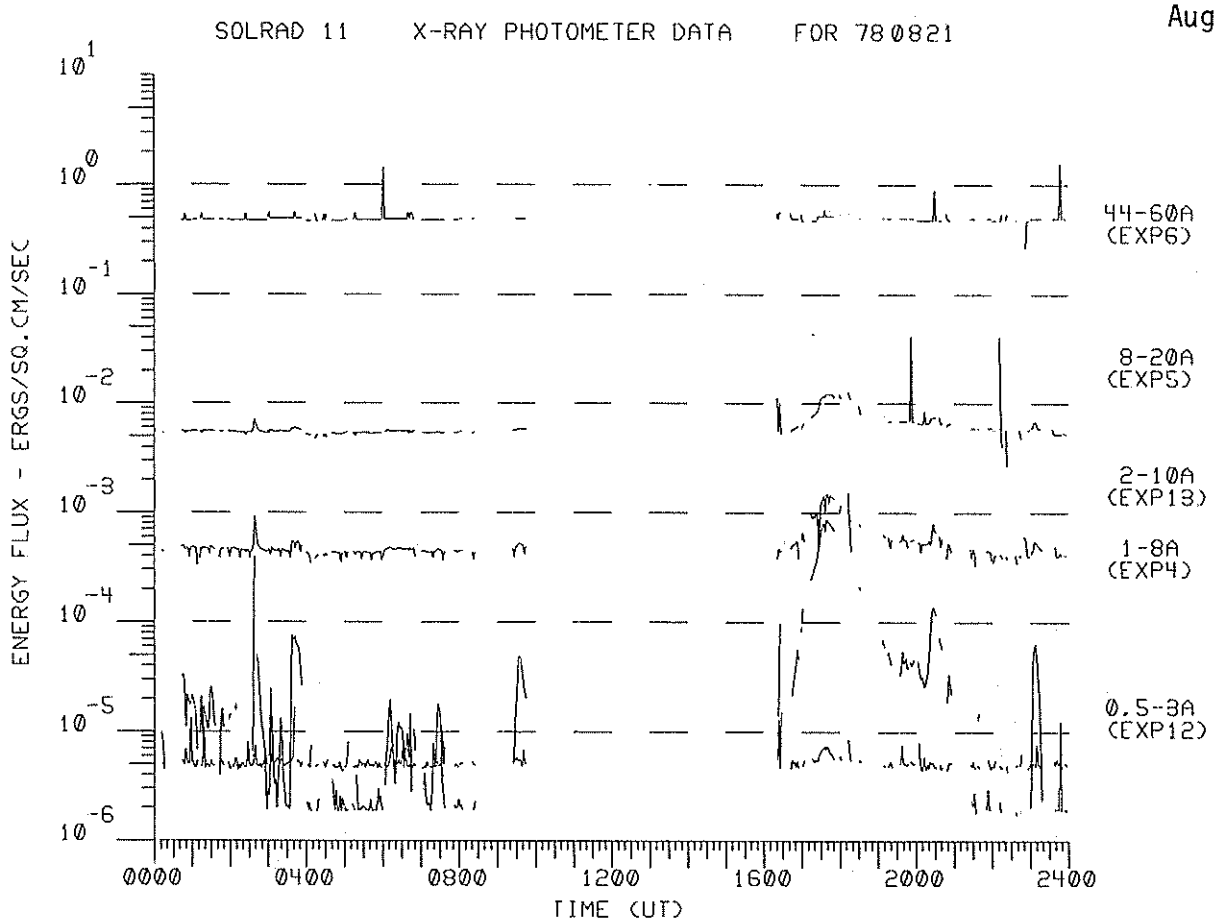

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780816
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

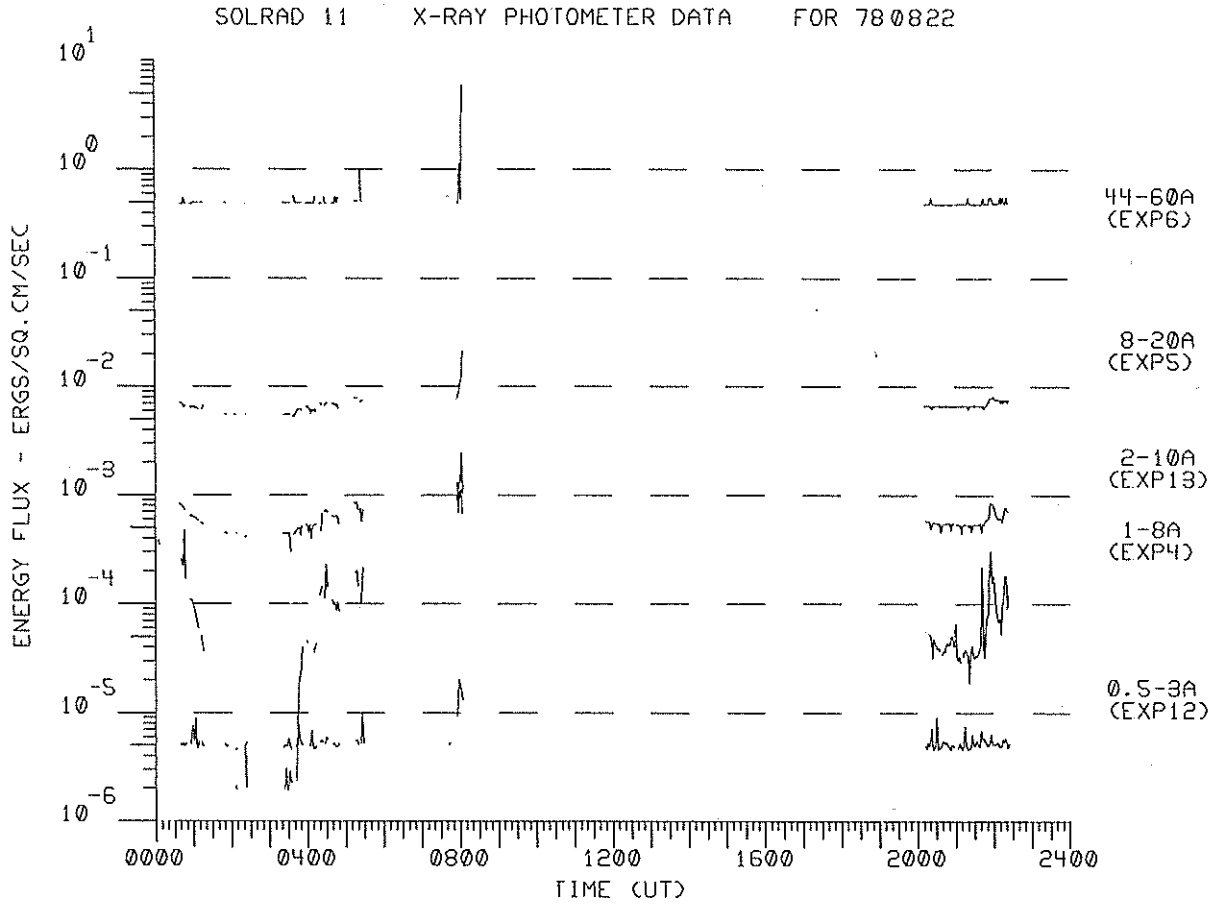

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780817
ENERGY FLUX - ERGS/SQ.CM/SEC
TIME (UT)
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)

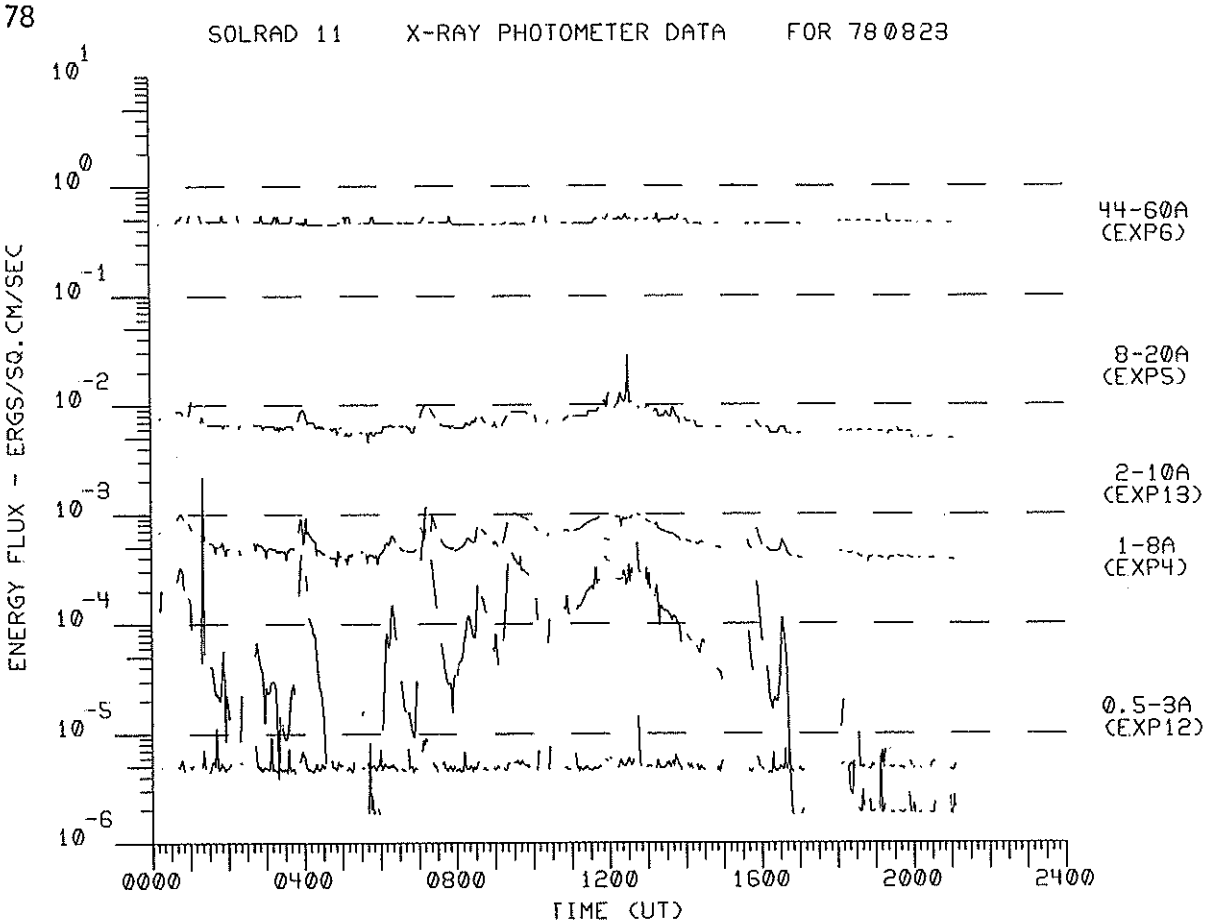

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780818
ENERGY FLUX - ERGS/SQ.CM/SEC
TIME (UT)
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)

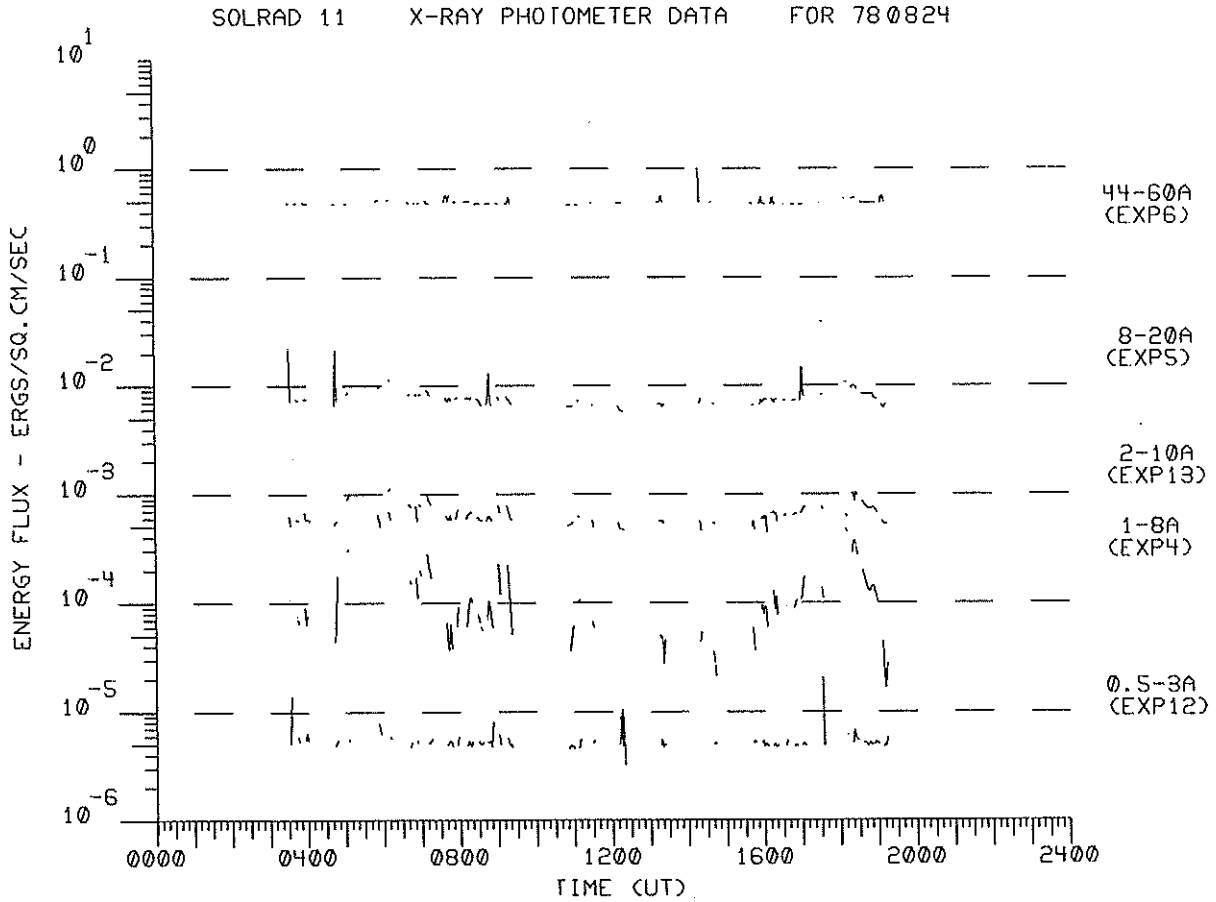

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780819
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

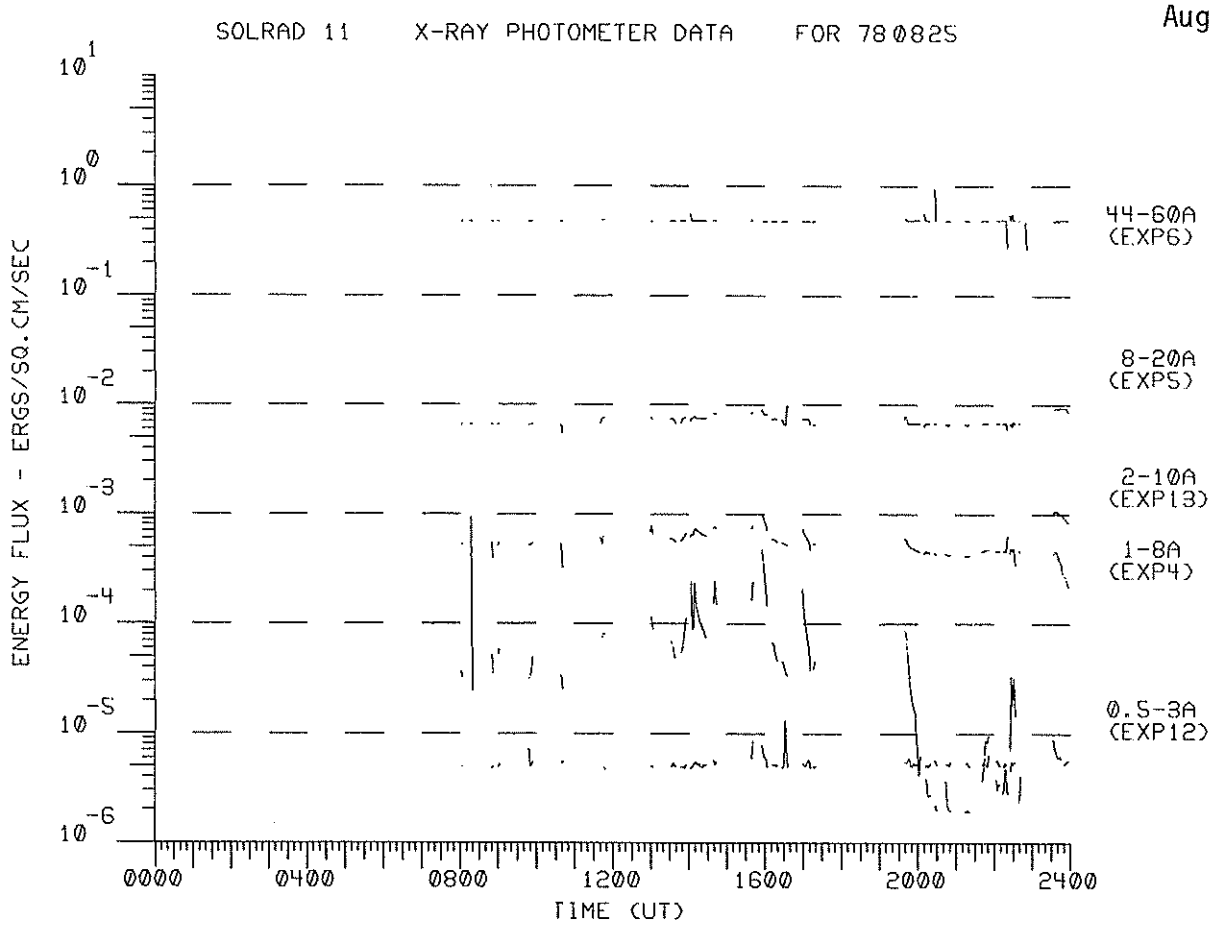

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780820
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

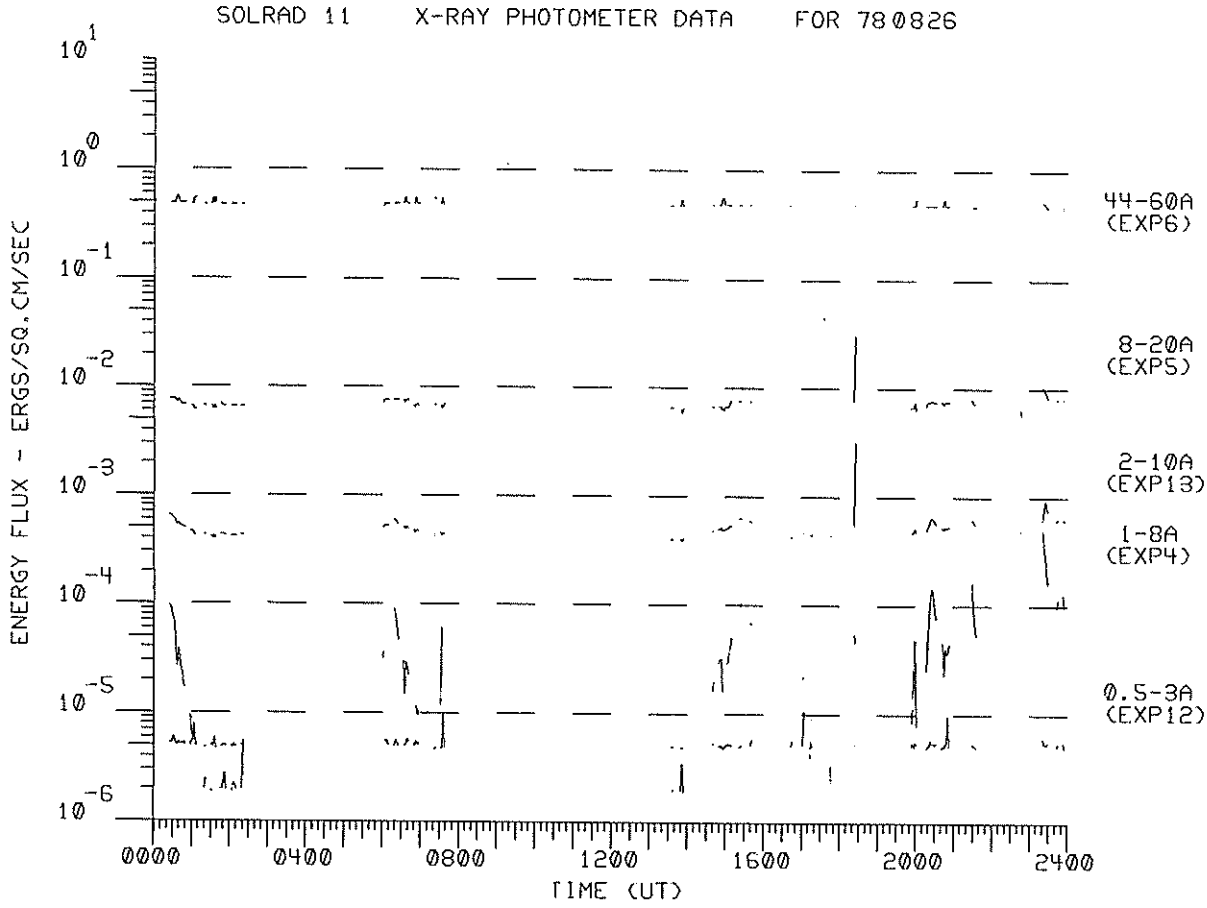

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780821
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

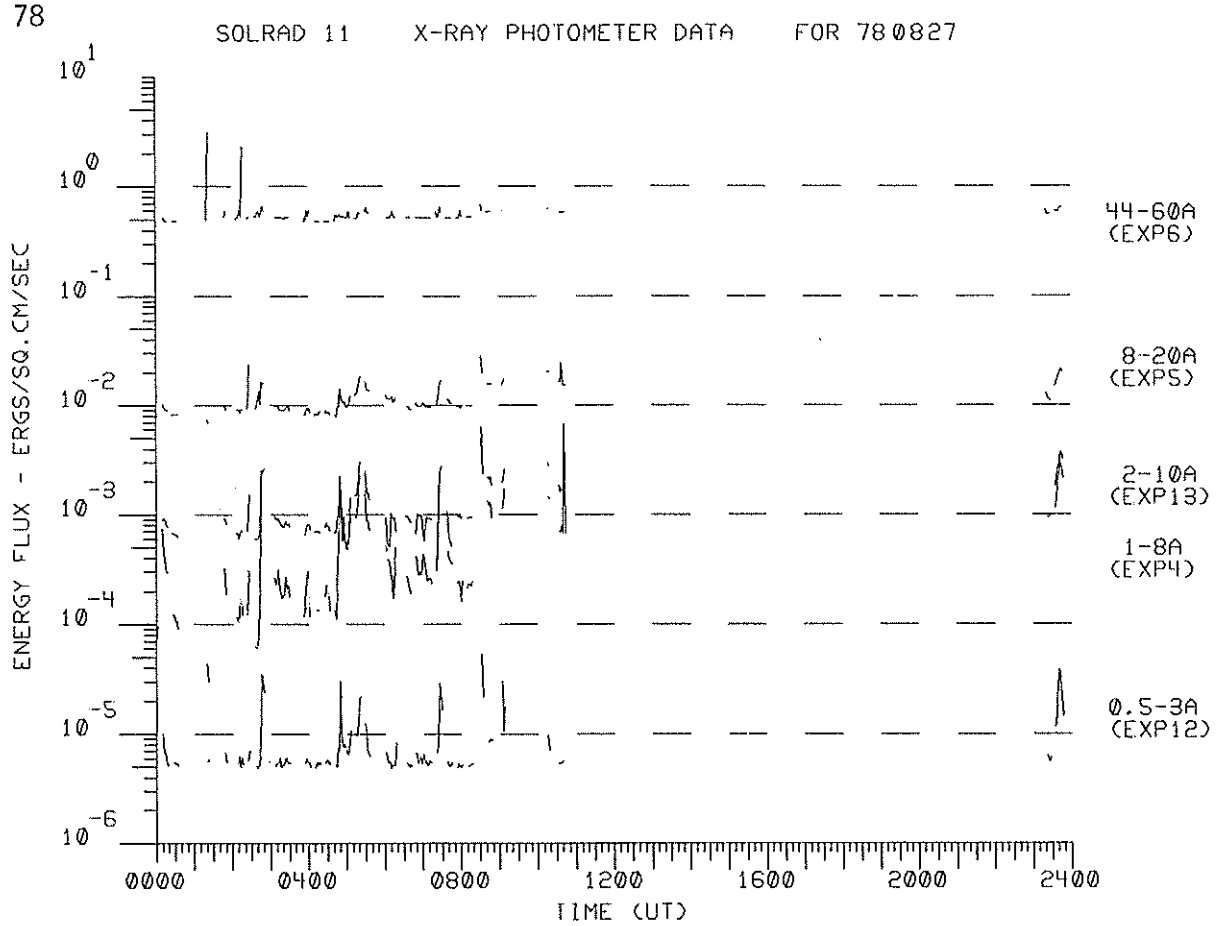

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780822
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780823
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780824
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780825
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780826
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780827
ENERGY FLUX - ERGS/SQ.CM/SEC
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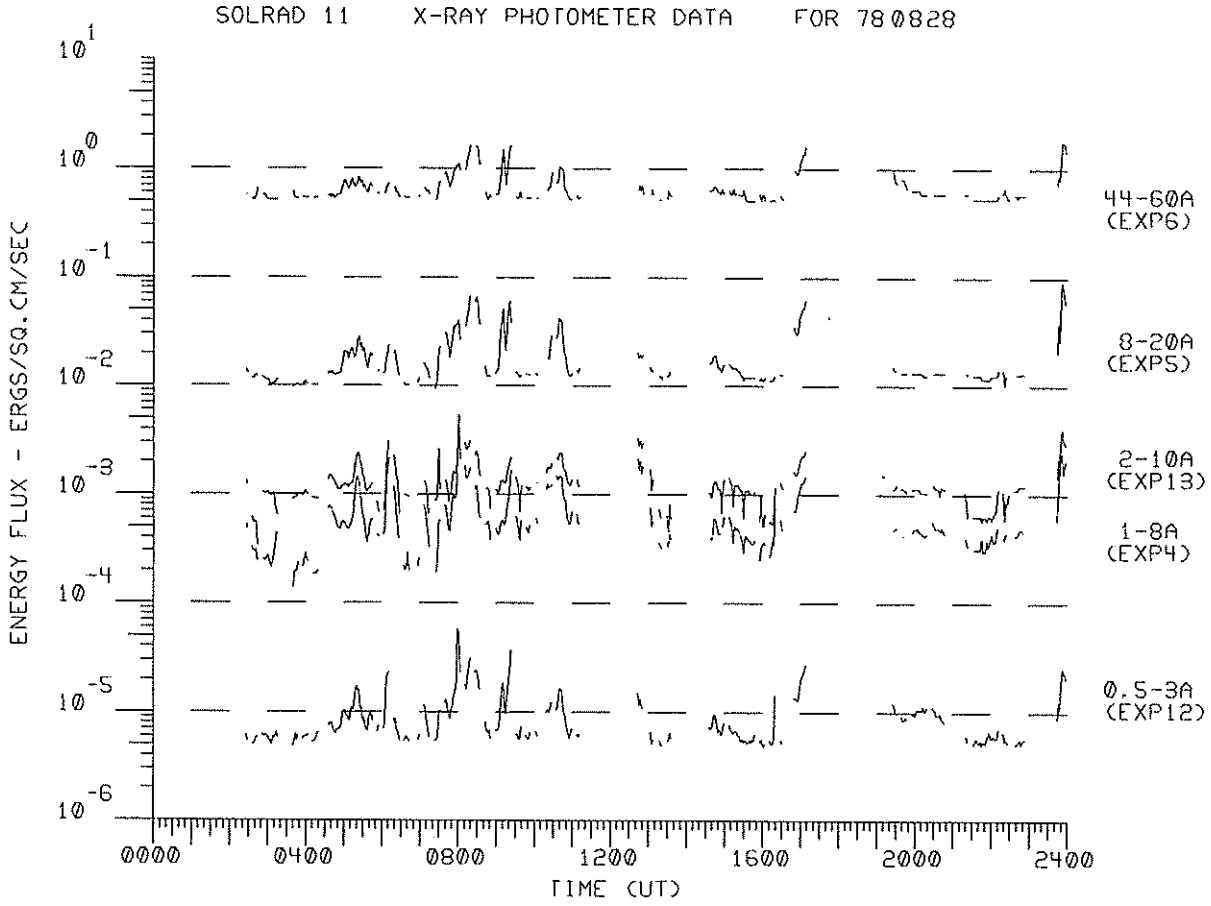
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780828
ENERGY FLUX - ERGS/SQ.CM/SEC
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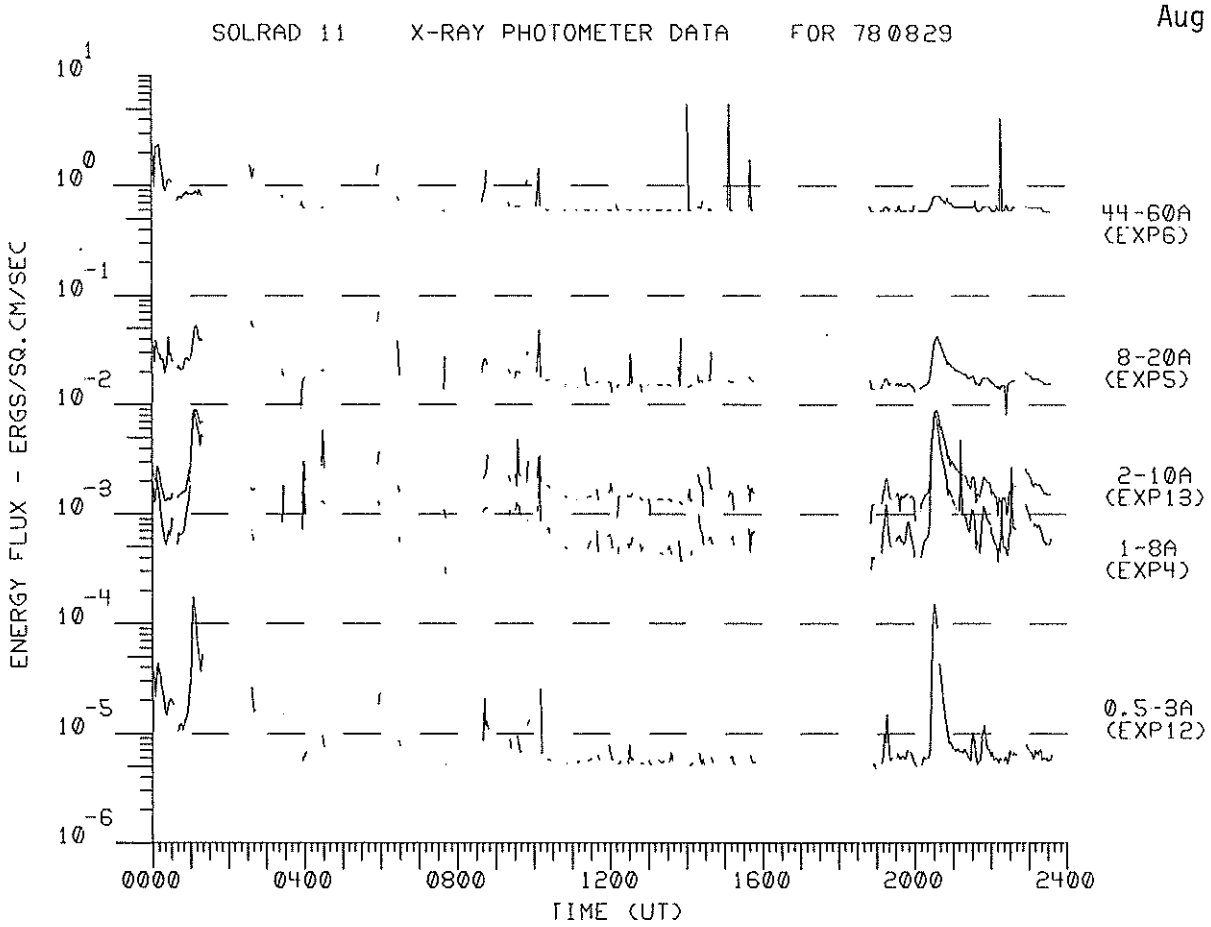
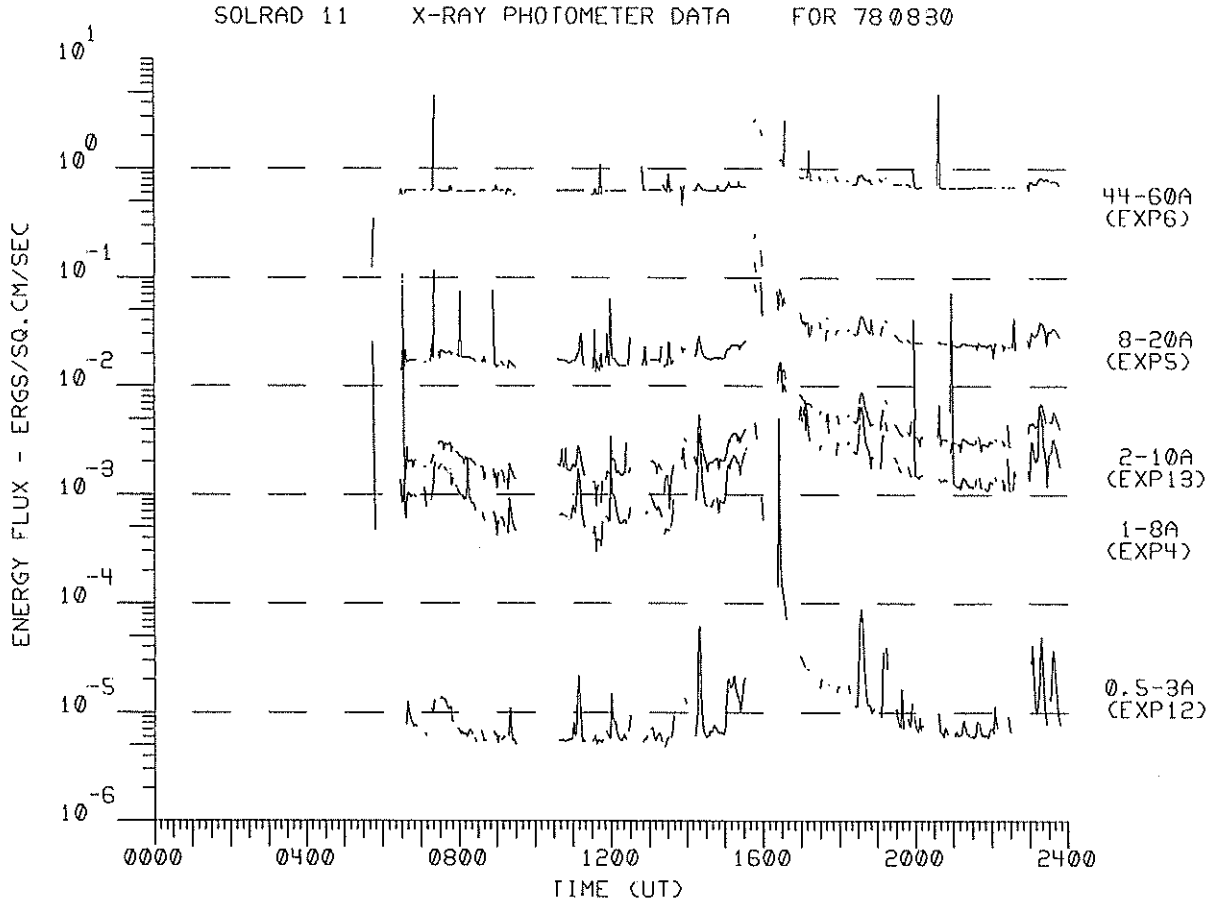
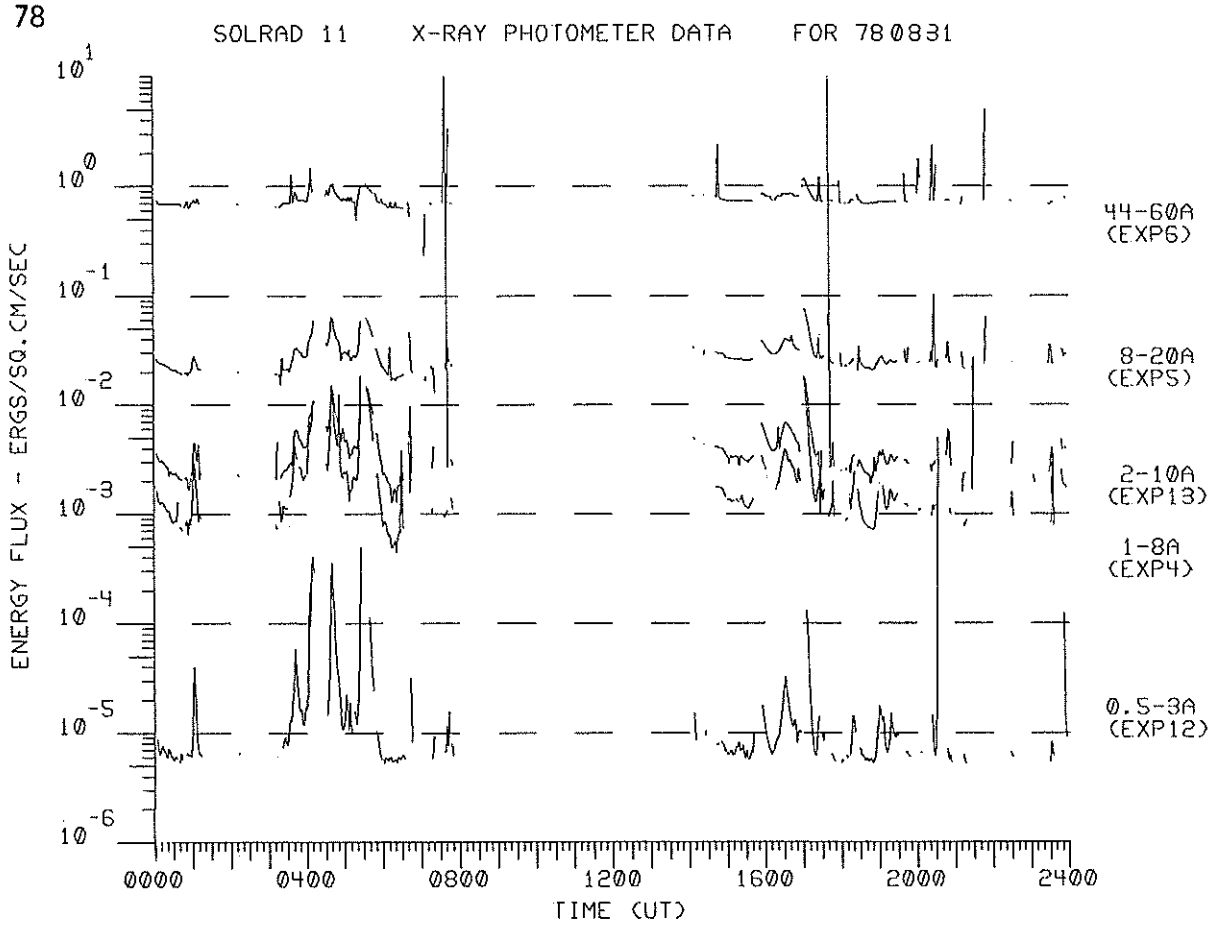
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780829
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780830
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780831
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A
(EXP6)
8-20A
(EXP5)
2-10A
(EXP13)
1-8A
(EXP4)
0.5-3A
(EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	1011	MANI										
	0000	0738	CULG				0013						IIIB,W
			CULG				0054.5						IIIB,W
	0349	0535	DURN										
			CULG				0613.5						IIIB,W
	0939	2359	SGMR										
	0436	1511	WEIS				1120.4	1120.7	2				IIIB
	1525	1800	DURN										
	1546	1820	WEIS										
	2038	2400	CULG										
	2140	2400	MANI										
02	0000	1013	MANI										
	0000	0221	CULG	0018	0102	1							IN
	0439	0950	WEIS										
	0450	1800	DURN				0636	1220	1				I,N
	0307	0738	CULG	0638	0652	1							IN
	0957	1819	WEIS				1245.9	1246.1	2				IIIG
			WEIS				1757.7	1757.9	2				IIIG
	0940	2358	SGMR				2034.5	2034.8	1				III
	2038	2310	CULG	2058	2310	1							IN
			CULG				2117	2310					IIIN,W
	2129	2400	MANI										
03	0000	1000	MANI										
	0050	0738	CULG				0101	0726					IIIN,W
			CULG	0103	0738	1							IN
	0439	1608	WEIS										
	0624	1322	DURN										
	0942	2356	SGMR										
	1430	1800	DURN				1513	1550	2				IC
	1626	1818	WEIS										
	2038	2400	CULG	2102	2106	1							I
			CULG				2115.5	2400					IIIS,W
	2137	2400	MANI										
			CULG				2229.5	2230	2				IIIG
04	0000	0738	CULG				0000	0020					IIIS,W
	0000	1000	MANI										
			CULG				0020	0144					IIIN,W
			CULG				0110	0200					IS,W
			CULG				0144	0252					IIIS,W
			CULG				0200	0346	1				IS
			CULG				0252	0738					IIIN,W
			CULG				0510	0717					IN,W
			CULG	0725.5	0726	1	0725.5	0726	1				IIIB
	0441	1816	WEIS				0725.5	0726.0	3				IIIG
	0452	1800	DURN				0725.5	0725.6	1				IIIG
	0942	2356	SGMR										
			WEIS				0956.6	0957.1	3				IIIG
			WEIS				1431.3	1433.2	1				IIIG
			DURN	1624.5	1628.2	1							DCIM
	2146	2400	MANI										
	2038	2400	CULG				2156.5	2158	1				IIIG
			CULG				2206.5						IIIB,W
			CULG				2213						IIIB,W
05	0000	1000	MANI										
	0000	0650	CULG				0027	0028					IIIG,W
			CULG				0159						IIIB,W
			CULG				0222						IIIB,W
	0441	1000	WEIS										
	0702	0738	CULG										
	0943	2355	SGMR										
	1013	1815	WEIS										
	0452	1514	DURN	1247.8	1248.4	2	1247.8	1248.4	1				IIIG
			DURN	1355.5	1355.6	2	1352.9	1355.6	3				IIIG
	1727	1800	DURN										
	2038	2400	CULG				2131	2131.5	1				IIIG
	2148	2400	MANI										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
05			CULG				2225	2400	1				IIIN,W
06	0000	1000	MANI										
	0000	0738	CULG				0049	0049.5					IIIG,W
			CULG				0054	0224					IIIN,W
			CULG				0212.5	0213.5	2				IIIG,V
			CULG				0411	0718					IIIN,W
	0453	1800	DURN				0530	1134	1				I,C,N
	0443	1617	WEIS				0546.7	0546.8	1				IIIB
			WEIS				0618.5	0618.7	1				IIIB
			WEIS				0655.2	0655.3	1				IIIB
			WEIS				0718.1	0718.2	1				IIIB
			WEIS				0724.8	0724.9	1				IIIB
	0944	2353	SGMR										
			WEIS				0956.1	0956.2	1				IIIB
			DURN				1244.6	1244.7	2				III
	1635	1813	WEIS										
	2136	2400	MANI										
	2038	2400	CULG				2205	2205.5					IIIG,W
07	0000	1000	MANI										
	0000	0738	CULG				0115.5						IIIB,W
			CULG				0336						IIIB,W
			CULG				0640.5	0641.5					IIIG,W
			WEIS				1543.8	1544	1				IIIB
			WEIS				1545.2	1545.3	1				IIIB
	0443	1715	WEIS				1546.8	1547.3	1				IIIG
	1727	1812	WEIS										
	0453	1818	DURN	1745.9	1746.1	3	1741.6	1759.4	2				IIIGG
	0945	2352	SGMR				1800.4	1807.0	1				II
	2141	2400	MANI										
	2038	2400	CULG				2146	2400					IIIN,W
			CULG				2155.5		1				IIIB
			CULG				2207.5	2209	1				IIIG
			CULG	2214	2214.5	3	2214	2214.5	1				IIIG
			CULG	2341.5	2343	1	2341.5	2343	1				IIIG
			CULG	2356	2357	1							FAST DRIFT
08	0000	1000	MANI										
	0000	0738	CULG				0009	0738					IIIN,W
			CULG				0113		1				IIIB
			CULG	0353	0353.5		0353	0354					IIIG,W,U
	0446	0839	WEIS										
			CULG	0525.5		1							FAST DRIFT
			CULG	0631.5	0632	2							FAST DRIFT
	0535	1800	DURN	0631.6	0631.8	2							IIIG
			CULG				0709	0709.5					IIIG,W
	0926	1811	WEIS										
	0946	2351	SGMR										
	2038	2400	CULG	2045	2145	1	2050	2206	1				IS
			CULG				2052	2218					IIIS,W
			CULG				2100	2128	1				IS
	2138	2400	MANI										
09	0000	1001	MANI										
	0000	0710	CULG				0323.5						IIIB,W
			CULG				0402.5						IIIB,W
	0447	1127	WEIS										
	0455	1705	DURN										
			CULG	0458	0458.5		0458	0458.5					IIIG,W,U
			CULG				0624	0710					IIIN,W
	1212	1559	WEIS										
	1615	1809	WEIS				1657.2	1657.6	2				IIIG
	0947	2349	SGMR				1657.3	1657.7	1				IIIG
	2136	2400	MANI										
	2304	2400	CULG				2351.5						IIIB,W
10	0000	1000	MANI										
	0000	0738	CULG				0006.5	0010.5					IIIG,W
			CULG				0007.5		1				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
10			CULG				0105						IIIB,W
			CULG				0122.5	0123	1				IIIG
			CULG				0149.5						IIIB,W
			CULG				0150.5		1				IIIB
			CULG				0151.5						IIIB,W
			CULG	0228.5	0229	1							IIIG
			CULG				0229.5						IIIB,W
			CULG	0237	0237.5	1							FAST DRIFT
			CULG				0254.5	0255.5					IIIG,W
			CULG	0454.5	0455	1							FAST DRIFT
			CULG				0535.5						IIIB,W
			CULG				0537.5						IIIB,W
			CULG				0622.5						IIIB,W
	0948	2348	SGMR				1125.6	1132.5	2				IIIG
	0718	1805	WEIS				1127.5	1128.8	2				IIIG
			WEIS				1132.3	1132.5	2				IIIG
			WEIS				1214.3	1214.5	1				IIIB
			SGMR				1257.9	1324.0	2				IIIG
			WEIS				1306.5	1306.6	1				IIIB
			WEIS				1423.7	1423.9	2				IIIG
			WEIS				1429.8	1429.9	1				IIIB
			WEIS				1504.7	1506.7	1				IIIG
			WEIS				1515.4	1515.6	2				IIIG
			SGMR				1515.5	1515.9	2				V
			WEIS				1631.1	1632.3	1				IIIG
			WEIS				1757.9	1758.0	1				IIIB
			CULG	2044	2049	1	2044	2049.5	1				IIIGG,U
	2040	2141	CULG				2044	2141	1				IIIS
			CULG				2056	2056.5	1				IIIG,U
	2132	2400	MANI										
			CULG	2135.5		1	2135.5		2				IIIB
			CULG	2137.5	2138	1	2137.5	2138	3				IIIG
			CULG	2138	2139	1	2138	2139	1				IIIG
	2156	2400	CULG				2156	2400					IIIN,W
			CULG	2224	2225	1	2224	2225	1				IIIG
			CULG	2258.5		1	2258.5		1				IIIB
			CULG	2301	2301.5	1	2301		1				IIIG
			CULG				2313	2313.5	3				IIIG,U
			CULG	2325	2326.5	1	2325	2327	1				IIIG
			CULG	2345	2347.5	1	2346.5	2347.5	2				IIIG
			CULG	2354.5	2357	1	2354.5	2357	1				IIIG
11	0000	1000	MANI										
	0000	0737	CULG				0027.5	0737					IIIN,W
			CULG	0032.5	0038	1	0032	0039	1				IIIGG
			CULG				0032.5	0034.5	2				IIIG,U
			CULG				0037.5	0038.5	2				IIIG
			CULG				0045.5	0046	3				IIIG,U
			CULG	0119		1	0119		1				IIIB
			CULG	0120.5		2	0120.5		2				IIIB,U
			CULG	0230	0231	1							IIIG
			CULG	0235.5	0237	1	0235.5	0237	1				IIIG
			CULG				0456	0458	2				IIIGG
			CULG	0717.5	0718	2							IIIG
	0924	1005	WEIS										
	0949	2347	SGMR										
	1018	1048	WEIS				1033.2	1034.3	1				IIIG
	1124	1800	DURN										
	1213	1805	WEIS				1339.7	1339.8	1				IIIB
	2037	2400	CULG				2048	2400					IIIS,W
			CULG	2052	2400	1							IN
			CULG				2053	2400	1				IS,DC
	2138	2400	MANI										
12	0000	1001	MANI										
			CULG				0000	0036					IIIS,W
	0000	0737	CULG				0000	0019	1				IS
			CULG				0036	0737					IIIN,W
			CULG	0331	0332	1							IIIG
	0459	0502	DURN										

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	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	
12			CULG				0709	0737	1				IS
	0737	1656	WEIS										
	1030	2000	SGMR										
	0530	1821	DURN	1231.5	1233.2	1	1231.4	1236.3	2				IIIGG,RS
	1713	1805	WEIS										
			DURN				1728.3	1735.0	1				IIIGG
	2037	2225	CULG				2052	2104					IIIN,W
			CULG	2052	2052.5	1							IIIG
			CULG	2124.5	2126.5	2	2125	2126.5	1				IIIGG
	2143	2400	MANI										
			CULG				2209.5	2210					IIIG,W
			CULG				2210.5	2212.5	1				IIIG
13	0000	1000	MANI										
	0130	0737	CULG				0131	0737					IIIN,W
			CULG	0419.5	0434	1							N,FASTDRIF
			CULG				0433.5	0437					IIIG,W
			CULG				0440	0441.5					IIIG,W
	0459	0502	DURN										
			CULG				0617	0617.5					IIIG,W
	0655	1801	WEIS				0656.0	0656.1	1				IIIB
			CULG	0656		1	0655.5	0656	1				IIIG
			WEIS				0801.7	0802.3	1				IIIG
	1030	2000	SGMR										
	0530	1819	DURN	1043.4	1043.5	3							IIIG
			DURN	1636.6	1636.7	2							IIIG
			WEIS				1704.5	1705.7	1				IIIG
	2136	2400	MANI										
	2037	2400	CULG				2336	2400					IIIN,W
14	0000	0736	CULG	0000.5	0001.5	1							FAST DRIFT
			CULG				0000	0214					IIIN,W
	0000	1001	MANI										
			CULG	0016.5		1							IIIB
			CULG	0018.5	0019	1							IIIG
			CULG				0308	0310.5					IIIG,W
			CULG	0557	0558	2							FAST DRIFT
	0531	1822	DURN	0659.4	0659.6	2							DCIM
	0718	1212	WEIS										
	1030	2000	SGMR										
	1331	1801	WEIS				1647.3	1648.3	1				IIIG
	2037	2400	CULG				2044	2332					IIIN,W
			CULG				2138	2246	1				IS
	2139	2400	MANI										
			CULG				2230.5	2232.5	2				IIIG,U
15	0000	0307	MANI										
	0000	0540	CULG				0026	0028					IIIG,W
			CULG				0132	0134					IIIG,W
			CULG				0133	0133.5	1	0133	0133.5	1	IIIB,V
			CULG				0319	0321					IIIG,W
	0404	1000	MANI										
	0531	1101	DURN										
	0620	0736	CULG				0651.5						IIIB,W
			CULG				0718						IIIB,W
	1030	2000	SGMR										
	0716	1759	WEIS	1327.8	1328.4	2							IIIG
	2037	2400	CULG				2107.5	2110	1				IIIGG
	2141	2400	MANI										
			CULG				2241.5						IIIB,W
16	0000	0553	MANI										
	0000	0736	CULG				0402	0416					IS,W
			CULG				0419.5	0421	2				IIIG
			CULG	0420	0421	1	0417.5	0422	1				IIIGG
	0500	0844	WEIS										
			CULG	0503	0503.5		0503	0503.5					IIIG,W
	0759	1005	MANI										
	1030	2000	SGMR										
	0905	1758	WEIS				1656.7	1656.9	1				IIIG

SOLAR RADIO EMISSION
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AUGUST 1978

AUG 1978	TIMES OF OBSERVATION 1978 START UT	END UT	STATION	EVENTS DECIMETRIC BAND START UT	END UT	INT	METRIC BAND START UT	END UT	INT	DEKAMETRIC BAND START UT	END UT	INT	SPECTRAL TYPE
16	2139	2400	MANI										
			CULG				2217						IIIB,W
			CULG				2249.5		1				IIIB
	2036	2400	CULG	2259.5	2300	1	2259.5	2300	2				IIIG
			CULG				2302	2303					IIIG,W
			CULG	2307	2309	1	2307	2309.5	1				IIIGG,U
			CULG	2337		1							IIIB
			CULG				2341.5	2342.5					IIIG,W
			CULG	2400			2400						IIIB,W
17	0000	0239	MANI										
	0000	0736	CULG	0002.5	0006.5	2	0002.5	0013	1				IIIGG,U
			CULG							0004	0010.5	1	IIIN
			CULG				0005	0006	1				IIIG,V
			CULG	0012	0012.5	2	0012	0013	2				IIIG,V
			CULG				0016	0023					POSSIBLEII
			CULG				0023	0038.5	1				II
			CULG				0057	0106					IIIN,W
			CULG	0057		1	0057		1				IIIB
			CULG	0207	0208	1	0207	0208	1				IIIG
			CULG	0209.5									IIIB,W
			CULG	0329	0329.5	1	0329	0329.5	1				IIIG,U
			CULG	0338.5	0349	1							IIIGG
	0405	1001	MANI										
			CULG	0413	0413.5		0413	0413.5					IIIG,W
			CULG	0414.5	0415		0414.5	0415					IIIG,W,U
			CULG				0540	0541					IIIG,W
			CULG				0601.5	0602					IIIG,W
			CULG	0608	0611	1							IIIGG
			CULG				0608	0611.5					IIIGG,W,U
			CULG				0609.5	0610	1				IIIG
			CULG				0615						IIIB,W
	1030	2000	SGMR										
	0648	1631	WEIS				1328.3	1328.4	1				IIIB
			WEIS				1334.4	1334.5	1				IIIB
			WEIS				1437.4	1439.4	2				IIIG
			WEIS				1448.9	1449	1				IIIB
			WEIS				1524.6	1525.3	1				IIIG
			WEIS				1623	1623.3	2				IIIG
	1637	1745	WEIS				1647.6	1647.8	2				IIIB
			CULG				2040.5	2042					IIIG,W
	2036	2400	CULG	2040	2044	1							IIIG
			CULG	2115.5	2116	1	2115.5	2116.5	2				IIIG
	2151	2400	MANI										
			CULG				2301.5	2302					IIIG,W
18	0000	0311	MANI										
	0000	0736	CULG				0215	0217	1	0215	0217	1	IIIG
			CULG				0234.5	0235	1				UNCLF
			CULG				0234	0243					IIIN,W
	0320	1000	MANI										
			CULG				0335	0337.5					IIIGG,W
			CULG				0340.5						IIIB,W
			CULG	0551		1	0551		1				IIIB
			CULG				0553	0553.5					IIIG,W
			CULG	0633	0633.5	1	0633	0633.5	1				IIIG
	0715	1300	WEIS				0743.3	0743.4	1				IIIB
			WEIS				0923.6	0925.7	1				IIIG
	1030	2000	SGMR										
			WEIS				1034.9	1039.3	1				IIIGG
	1304	1822	OURN	1353.1	1353.9	2	1353.1	1353.9	2				IIIGG
			OURN	1420.4	1421.7	2	1420.4	1421.7	2				IIIG
	1444	1800	WEIS										
	2036	2400	CULG										
	2141	2400	MANI										
19	0000	1000	MANI										
	0000	0736	CULG				0001	0002					IIIG,W
			CULG				0053.5		1				IIIB
			CULG				0059	0059.5					IIIG,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
19			CULG				0109.5						IIIB,W
			CULG				0139	0141	1	0140	0141.5	1	IIIG,V
			CULG				0515.5						IIIB,W
	0714	1559	WEIS										
	1030	2000	SGMR										
	1614	1800	WEIS										
	0532	1820	DURN				1742.9	1743.1	3				IIIG
			DURN				1800.9	1811.2	1				IIIG
	2036	2400	CULG										
	2142	2400	MANI										
20	0000	0004	MANI										
	0012	1000	MANI										
	0000	0706	CULG				0310.5						IIIB,W
			CULG				0312.5						IIIB,W
	0532	1812	DURN				1014.7	1014.7	1				III
	1030	2000	SGMR										
	2038	2400	CULG	2040.5	2041								UNCLF
			CULG				2103.5	2104					IIIG,W
	2140	2400	MANI										
21	0000	1000	MANI										
	0000	0735	CULG										
	0753	1750	WEIS										
	1030	2000	SGMR										
	0532	1741	DURN				1417.3	1417.8	1				IIIG
	2140	2400	MANI										
	2035	2400	CULG				2332						IIIB,W
22	0000	0308	MANI										
	0000	0735	CULG	0040.5	0041		0040.5	0041					IIIG,W
	0312	1000	MANI										
	0509	1221	DURN										
			CULG				0525						IIIB,W
	0715	1500	WEIS				0853.2	0853.3	1				IIIB
	1030	2000	SGMR				1456.6	1457.0	1				III
	1605	1700	WEIS										
	2035	2400	CULG										
	2147	2400	MANI										
23	0000	1000	MANI										
	0000	0735	CULG				0058.5	0059					IIIG,W
			CULG	0212.5	0214	2	0213.5	0214	1				IIIG
			CULG	0217	0217.5	1							IIIG
	0704	1640	WEIS										
	1030	2000	SGMR										
	1213	1302	DURN	1234.8	1234.9	1	1234.8	1234.9	1				III
	1318	1742	DURN				1348.7	1350.9	2				IIIGG
			DURN	1533.2	1533.4	1	1533.2	1533.4	1				IIIG
	2142	2400	MANI										
	2035	2400	CULG	2154.5	2155	2							IIIG
			CULG	2205.5	2210	1	2205.5	2208	1				IIIG,N
			CULG	2218.5	2219.5	1							IIIG
24	0000	1000	MANI										
	0000	0734	CULG	0619		1							IIIB
			CULG	0620.5									IIIB,W
			CULG	0637	0638.5	1	0637.5		1				IIIG
	0748	0913	WEIS				0825.0	0825.3	1				IIIG
			WEIS				0910.7	0912.8	2				IIIG
	0509	1742	DURN	0943.3	0944.2	1							IIIG,U
	1030	2000	SGMR										
	2035	2400	CULG										
	2142	2400	MANI										
25	0000	1000	MANI										
	0506	0534	WEIS										
	0000	0725	CULG				0642	0642.5					IIIG,W
	0640	1743	WEIS				1319.3	1321.5	1				IIIG
	0511	1805	DURN				1322.2	1326.0	2				IIIGG

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
25			DURN				1403.8	1432.7	2				IIIGG,N
			WEIS				1520.5	1522.4					IIIG,U
			DURN				1523.4	1547.8	3				IIIGG,N
			WEIS				1543.2	1544.8	2				IIIG
	1030	2000	SGMR				1543.9	1544.0	1				III
			DURN	1617.1	1617.1	2	1617.1	1617.1	2				III
	2035	2400	CULG										
	2141	2400	MANI										
26	0000	1000	MANI										
	0000	0734	CULG	0008	0008.5		0008	0008.5					IIIG,W
			CULG				0331.5	0338					IIIGG,W
			CULG				0334.5	0336	1	0335.5	0336	2	IIIG
			CULG				0334	0334.5					IIIG,W
			CULG				0336	0338					IIIN,W
	0535	1804	DURN										
	1030	2000	SGMR										
	0934	1740	WEIS				1140.8	1141.3	1				IIIG
			WEIS				1201.2	1202.7	1				IIIG
			WEIS				1246.6	1248.3	1				IIIG
	2152	2400	MANI										
	2034	2400	CULG				2202	2210.5					IIIN,W
27	0000	1000	MANI										
	0000	0733	CULG				0123						IIIB,W
			CULG				0219	0219.5	2				IIIG,U
	0900	1000	WEIS										
	0536	1543	DURN	0922.8	0929.0	1							OCIM
	1016	1750	WEIS										
	1030	2000	SGMR				1817.4	1818.1	2				IIIG
			SGMR				1945.0	1946.0	2				IIIG
	2034	2400	CULG				2112						IIIB,W
	2151	2400	MANI										
			CULG				2246.5		1				IIIB
			CULG				2341	2341.5					IIIG,W
28	0000	1000	MANI										
	0000	0733	CULG				0009	0026					IIIN,W
			CULG				0011	0011.5	1				IIIG
			CULG				0215	0217.5	2	0215.5	0216.5	2	IIIG,U
			CULG				0241.5	0242					IIIG,W
	0612	1127	WEIS										
	0859	1506	DURN										
	1030	2000	SGMR										
	1131	1307	WEIS										
	1311	1420	WEIS										
	1536	1802	DURN										
	2033	2400	CULG				2120	2203					IIIN,W
			CULG				2124	2125	2				IIIG
	2140	2400	MANI										
			CULG	2148	2148.5		2148	2148.5					IIIG,W,U
29	0000	1000	MANI										
	0000	0733	CULG	0013	0013.5	1							UNCLF
			CULG				0210.5						IIIB,W
			CULG				0212.5	0214.5					IIIG,W
			CULG	0252	0253	2	0252.5	0255	3				IIIG,V,U
	0533	1804	DURN										
			CULG				0608	0642	2				II
			CULG				0628.5	0629					IIIG,W
	1030	2000	SGMR				1449.2	1449.5	1				III
	2033	2400	CULG				2036.5	2138					IIIN,W
			CULG				2119.5	2120	1				UNCLF
	2139	2400	MANI										
			CULG				2313.5	2314	1				IIIB,U
			CULG				2331.5	2332.5					IIIG,W
30	0000	1000	MANI										
	0000	0608	CULG	0106	0509								IS,W
			CULG				0312	0317					II, W

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
30			CULG				0505	0506					IIIG,W
			CULG	0509	0608	1							IS
			CULG				0529	0606					IIIN,W
	0533	1757	DURN	0533 E	0800	1	0533 E	1620	1				I,DC,N
	0618	0732	CULG	0618	0732								IS
			CULG				0645.5						IIIB,W
	1030	2000	SGMR				1600.0	2000.0D	1				CONT
	2035	2400	CULG	2054.5		1	2054	2054.5	1				IIIG
			CULG	2059	2100	1	2059	2100	2				IIIG
			CULG	2100.5	2101	1	2100.5	2101	1				IIIG
			CULG				2125.5		1				IIIB
			CULG				2129.5						IIIB,W
			CULG	2131	2132	1	2132		1				IIIG
			CULG	2135	2135.5	1	2135	2135.5	1				IIIG
	2142	2400	MANI										
			CULG				2250	2252	1				IIIGG
			CULG	2308	2308.5	1							IIIG
			CULG				2355.5	2356					IIIG,H
31	0000	1000	MANI										
	0000	0732	CULG	0033	0241		0006.5	0241					IIIN,W
			CULG				0036		1				IIIG
			CULG				0041		1				IIIG,U
			CULG	0130	0130.5	2							IIIG
			CULG	0457.5	0458	2							FAST DRIFT
			CULG				0459	0459.5	1				IIIG
			CULG	0459	0503								IIIN,W
			CULG	0513	0732								IN,W
			CULG	0537	0537.5	1	0537	0537.5	1				IIIG
	0533	1756	DURN	0618	0710		0533 E	0730	2				I,DC
			CULG	0642.5		1							FAST DRIFT
			CULG				0649.5	0650.5					IIIG,W
	0855	1732	WEIS				1242.5	1244.5	1				IIIG
	1030	2000	SGMR				1249.0	1252.0	1				II
			WEIS				1308.3	1312.0	2				IIIGG
			SGMR				1310.0	1313.3	2				IV
			WEIS				1331.4	1331.8	1				IIIG
			CULG				2049	2400					IIIN,W
			CULG				2126	2127.5	1				IIIG
			CULG				2129	2130	1				IIIG
	2033	2400	CULG	2129	2230		2033	2400					IS,W
			CULG				2140	2143.5	1				IIIGG
			CULG				2140	2141.5	2	2140	2141.5	2	IIIG
	2145	2400	MANI										
			CULG	2154.5	2157	1	2154.5	2157	1				IIIGG
			CULG	2230	2304								IN,W
			CULG	2256	2258.5	1	2256	2258.5	1				IIIGG
			CULG				2256	2257	2	2256	2257	2	IIIG
			CULG	2259.5		2	2259.5		2	2259.5		2	IIIB
			CULG				2301		1	2301		1	IIIB
			CULG	2334	2334.5	1	2334	2334.5	2				IIIG
			CULG				2339	2339.5	2	2339	2339.5	1	IIIG

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

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

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

Note: The 25-580 MHz solar radio burst observations are being continued at the Harvard Radio Astronomy Station at Fort Davis, Texas, but the preparation of data summaries will be delayed somewhat.

SELECTED SOLAR EVENTS

AUGUST 1978

Culgoora

UT Date 197.8 AUGUST	HELIOGRAPH EVENT Start (UT)	End (UT)	Freq. (MHz)	Positions Central Dist. ($R_\odot$)	Positions Position Angle (Deg.)	Polarization	Intensity (1-3)	Spectral Type	REMARKS
6	0212	0213	43.25				3		
			80	1.0	235	-	2	IIIG,V	*
			160				2		
8	0122		43.25	.2	125	-	2	IIIB,W	
			80				1		
	0137		43.25				2		*Type III's
			80	1.0	270	-	1	IIIG,W	from this
			160				1		region persis-
									ted until 9th.
	0148	0149	80	.9	105	-	1	IIIG,W	
	2304		80	.5	95	-	1	IIIB	
9	0458		80	.8	220	-	1	IIIG,W,U	
			160						
10	0123		80	.7	340	-	2	IIIG	*Type III's
									from this
									region persis-
									ted until 11th.
	0149	0151	43.25		145				
			80	.3	110	-	2	IIIG	*
			160		110				
11	0045	0046	80	.2	355	-	3	IIIG,U	*
			160	.1					
	0456	0501	43.25	1.4	60	-	2	IIIGG	
			80	1.2			1		
13	0434	0436	43.25	1.5	60		2	IIIG,W	*Type III's
			80	1.3					from this
15	0133	0134	43.25	1.3			2		region persis-
			80	1.2	240		2	IIIB,V	ted until 14th.
			160	1.1			1		
16	0417	0423	43.25	.3			3		
			80	.2	330	-	3	IIIGG	
			160	.1			2		
17	0002	0013	43.25	.8	60	-	3		
				1.5	40				
			80	1.0	90	-	3	IIIGG,U	*

Days without Heliograph observations: ...NIL.....

* Other type III's observed from same position during the day.

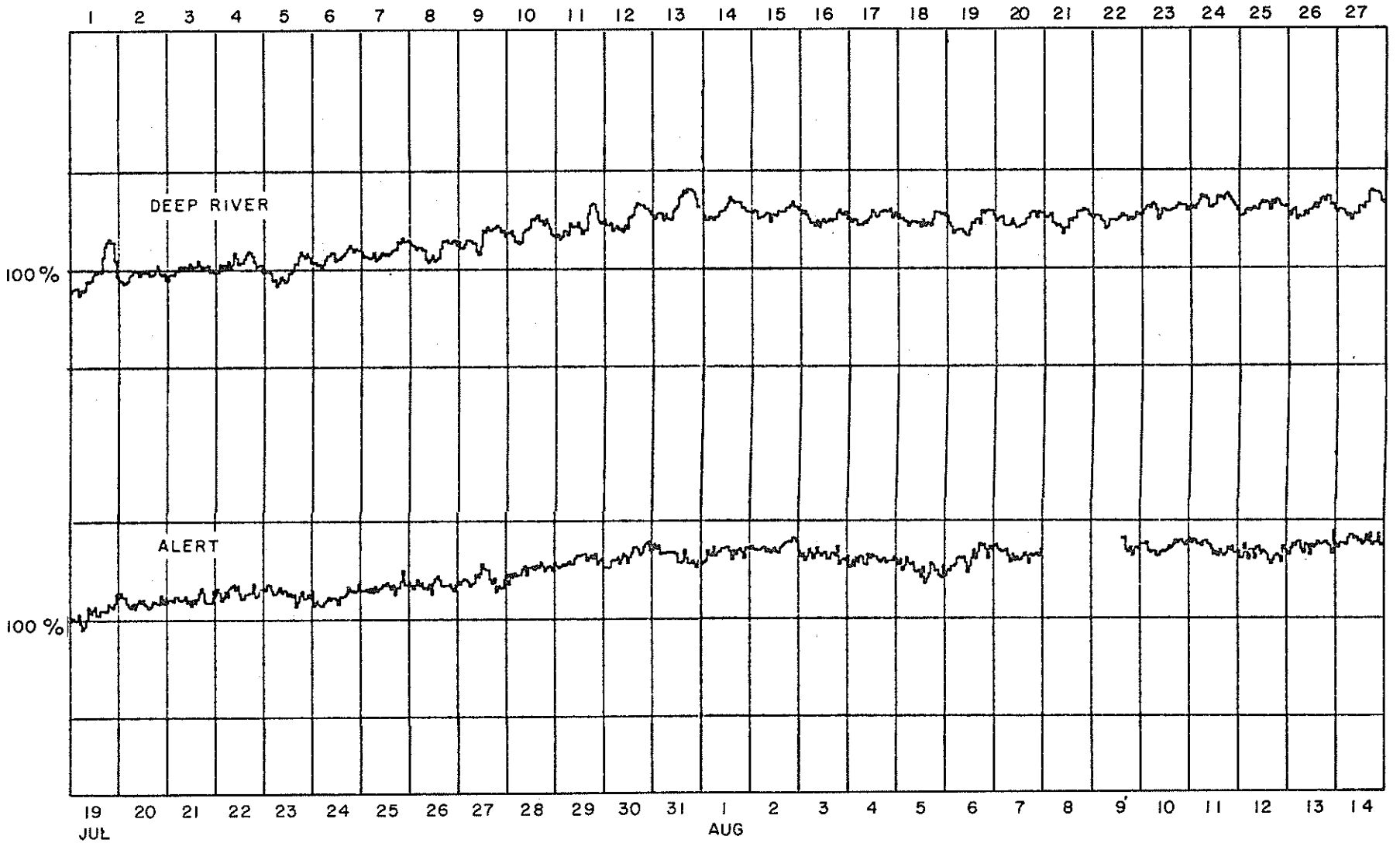
UT Date 197.8 AUGUST	HELIOGRAPH EVENT Start (UT)	End (UT)	Freq. (MHz)	Positions Central Dist. ($R_\odot$)	Positions Position Angle (Deg.)	Polarization	Intensity (1-3)	Spectral Type	REMARKS
17			80	1.5	45			IIIGG,U	*
			160	.9	95		3		
	0020	0038	43.25	1.1	65		3		
			80	1.1	65		1	II	
			160	1.0	360		2		
19	0139	0141	43.25	1.5	300		3	IIIG,V	
			80	1.3			2		
23	0213	0214	80	.6	245		1	IIIG	
			160	.5			2		
26	0331	0338	43.25						
			80	.8	90		2	IIIGG,W	
			160						
27	0219	0220	43.25	1.5	120		2	IIIG,U	
			80	1.3					
29	0253	0255	43.25				3		
			80	.9	250		3	IIIG,V,U	
			160				1		
	2331	2333	80	1.3	290	-	2	IIIG,W	
30	0312	0317	80	1.3	290	L	2	II,W	
	2251	2252	80	1.2	310	-	1	IIIGG	
31	0130	0131	80	1.1	140		2	IIIG	
	2256	2258	43.25	.7	40		3		
			80	.4	50		2	IIIGG	
			160	.3	60		1		

Days without Heliograph observations: NIL

* Other type III's observed from same position during the day.

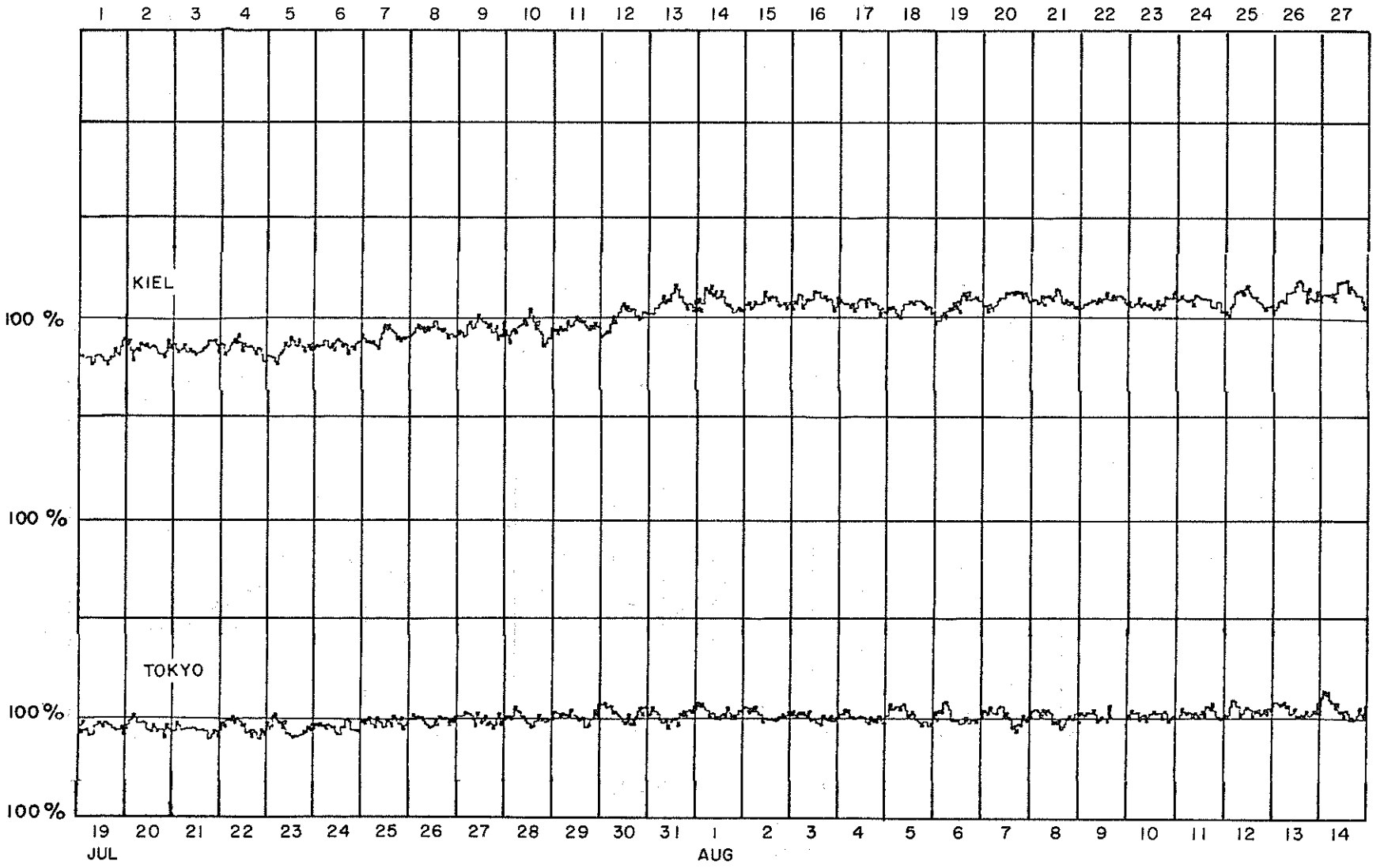
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1982 (July-August 1978)



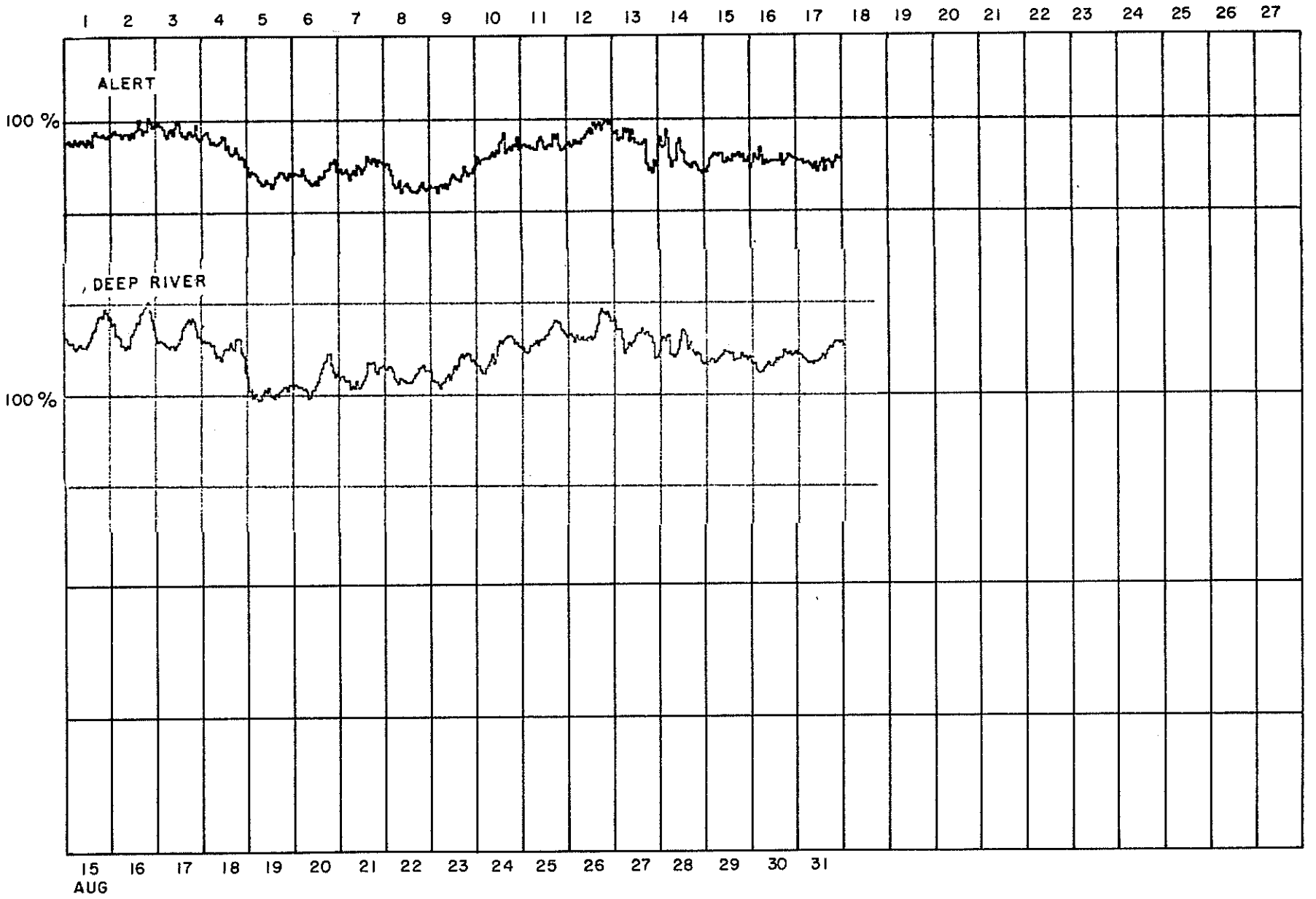
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1982 (July-August 1978)



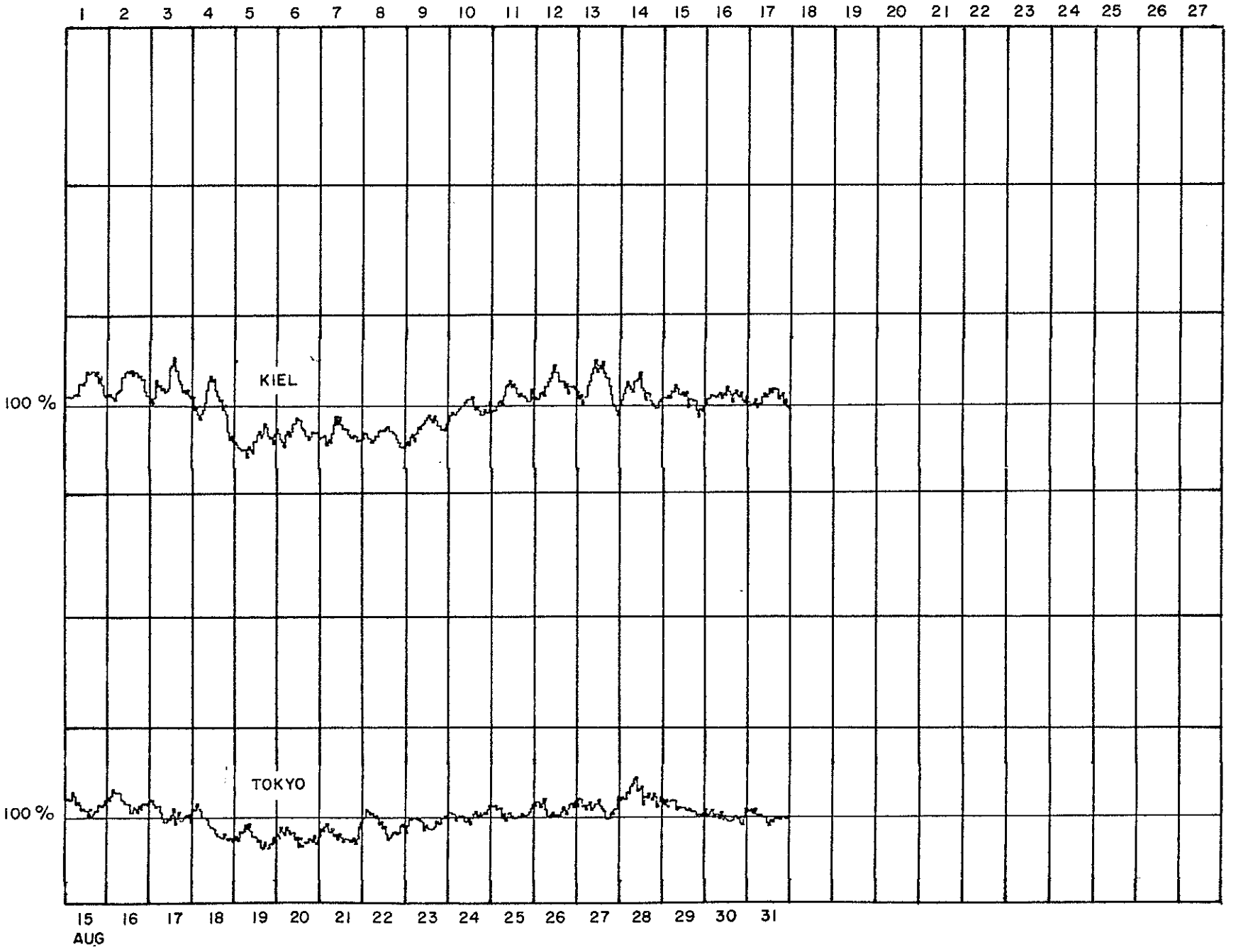
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1983 (August 1978)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1983 (August 1978)



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Aug 78

COSMIC RAY INDICES
(Neutron Monitors)

	THULE	ALERT	DEEP RIVER	CALGARY	SULPHUR MT	KIEL	CLIMAX	TOKYO	KULA
Aug. 1978	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	Data not available at time of publication	7371.4	6941.5	Data not available at time of publication	Data not available at time of publication	6254.7	Data not available at time of publication	3597.8	Data not available at time of publication
2		7392.5	6934.3			6251.8		3593.9	
3		7362.3	6913.2			6258.8		3589.0	
4		7345.2	6917.3			6244.1		3589.1	
5		7312.6	6906.7			6237.2		3593.7	
6		7350.2	6897.3			6239.5		3590.5	
7		7365.4	6906.4			6261.3		3591.0	
8		--	6909.6			6258.3		3590.4	
9		7392.0(9)	6910.7			6259.1		3591.4(18)	
10		7392.2	6944.3			6253.6		3593.0	
11		7390.4	6968.8			6258.5		3596.6	
12		7366.4	6950.5			6261.5		3601.5	
13		7396.0	6945.9			6278.2		3602.8	
14		7414.1	6954.2			6290.2		3605.8	
15		7417.2	6964.7			6298.3		3607.7	
16		7450.5	6992.5			6303.0		3614.3	
17		7449.2	6957.7			6297.2		3590.0	
18		7390.3	6912.1			6226.3		3565.0	
19		7267.1	6752.3			6102.8		3541.1	
20		7278.3	6799.3			6136.6		3542.7	
21		7305.7	6810.3			6130.4		3548.2	
22		7241.9	6815.0			6121.6		3568.8	
23		7253.8	6832.3			6148.6		3571.9	
24		7364.9	6897.4			6216.7		3587.0	
25		7390.9	6952.5			6258.6		3591.9	
26		7436.3	6979.6			6297.1		3599.8	
27		7390.7	6944.8			6294.1		3602.6	
28		7346.6	6912.8			6268.2		3629.4	
29		7335.2	6875.8			6249.1		3601.4	
30		7331.8	6864.0			6259.3		3583.3	
31		7318.1	6890.7			6250.3		3582.3	
MEAN		7360.6	6908.2			6240.8		3588.8	

( ) 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.

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

ERRATA: May 1978 Deep River and Alert graphical plots were reversed in SGD 407 Part I, page 156, July 1978 issue. The upper curve is actually Deep River data and the lower curve is Alert data. Drs. S. P. Agrawal and D. Venkatesan (The University of Calgary) kindly brought this unfortunate error to our attention.

GEOMAGNETIC ACTIVITY INDICES

AUGUST 1978

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	Q4	1-	1	1	1+	1-	0+	1+	2-	8	1-	1	1-	1+	1-	1-	1+	1	4	9	7	8	9	CC	0.1
2	Q6	1-	0+	0	0+	1-	1	2	2	7	1-	0+	0	0	0+	1	2-	2	4	8	7	4	10	CC	0.1
3		2-	3-	2+	3	3+	4-	4-	4	24+	2-	2+	2+	3	3	3+	3	3+	16	35	21	19	38		0.9
4	D5	4+	6-	3	5+	4+	3+	3	2-	31-	4-	5-	3	4+	4-	3-	3	2-	30	54	38	57	36		1.3
5		2	3+	4+	4+	4-	3	4+	4-	29-	2	3-	4-	3+	3+	3-	4-	3	22	43	30	38	36		1.1
6		3-	4-	5-	2	4-	3-	2+	2+	24	3-	3+	4-	2-	3	3-	2	2	16	26	26	27	25		0.9
7		3	1	2-	1	2-	1+	2+	2+	14+	3-	1+	1+	1+	1+	1	2	2	7	15	10	13	12	C	0.4
8		2-	1+	1+	2-	2-	3-	1+	1-	12+	1+	1	1+	2-	2-	2+	1+	1-	6	12	12	9	16	KC	0.3
9	Q8	1	1+	1+	2-	1	1	1+	1+	10	1	1+	1+	2	1-	1-	1+	1	5	7	7	7	8	CC	0.2
10		1+	1+	1+	2-	2+	1+	1+	2+	13	1	1+	2-	2-	2	2	1+	2+	6	10	12	8	15	CC	0.3
11		3-	2-	1+	2-	3	4	3-	1+	18+	2+	2-	1+	2-	2+	3+	2+	1	11	23	14	11	27		0.6
12		2+	4-	5	5-	3	3	2	3	27-	1+	3+	4+	5-	3+	3	2+	3-	21	34	38	48	25		1.1
13		3	2+	2+	3+	3	3-	2+	3	22	3-	2+	2+	3+	4-	2+	2+	3-	13	28	31	25	34		0.7
14		2+	2	2-	1+	1	2-	1+	1-	12	2+	2+	1+	2-	1+	1+	1+	1-	6	16	9	15	11	C	0.3
15	Q3	1-	0	1-	0+	2-	1	2-	1-	7-	1	0	1-	0+	2-	1+	1+	1-	3	9	5	4	10	CC	0.1
16	Q9	0+	0+	0	1	1+	1+	2+	2	9-	0	0	0	1	1	1+	2	2	4	11	9	4	16	CK	0.1
17		1+	1-	1-	3	3+	3-	2+	2+	16+	1+	0+	1-	3	3+	2+	2	2+	9	16	16	13	20		0.5
18		3+	2+	1+	1+	3+	4-	6	4+	26-	3+	2	1+	2-	3	3	5	4+	24	41	33	18	56		1.1
19		4-	1-	3+	3-	3	2	2-	1	18	4-	0+	3	3-	3	2-	1+	1+	11	19	17	21	16		0.6
20	Q1	1-	1	0+	1-	1-	1-	1	1-	6-	1-	1-	0+	0+	0+	1-	1	0+	3	6	4	5	4	CC	0.1
21		1	1-	0+	1-	1-	1+	2	4-	10+	1	1-	0+	1-	1-	1+	1+	3	6	17	10	7	21	KK	0.3
22	Q0	3-	2+	1-	1-	2	1-	1-	1	11-	3-	2	1	1-	1+	0+	0+	1-	6	12	6	11	8	CK	0.2
23	Q5	0+	1	1-	1-	1-	1+	2-	2-	8	0+	1	1-	1-	1-	1	2-	1+	4	11	7	6	13	CC	0.1
24	Q7	2	1	1	1	1	1	1-	1	9-	2	1+	1+	1+	1	1	1-	1-	4	9	9	9	9	CC	0.1
25		2-	1	2-	3	3	2+	2+	2-	17-	1+	1-	2	3-	3-	2+	2	2-	9	16	14	13	18	K	0.5
26	Q2	2-	1	1-	1-	0+	1-	1+	1-	7	1+	1+	0+	0+	1-	1	1+	0+	4	6	7	8	6	C	0.1
27		4	3+	4-	4	5-	4+	4+	4+	33-	4-	3	3	4-	4+	4	4-	4	29	50	41	38	53		1.3
28	D1	4+	7+	8+	8-	8	6+	5-	5	52-	4	6-	7	7	7	5+	4	4+	124	126	156	161	122		1.9
29	D3	6-	5-	6-	5-	5+	3+	3+	3	36-	5	4+	5	4+	5-	3+	3	3-	40	48	67	78	37		1.4
30	D4	4	3	3+	4+	4+	4	5+	5-	33	4-	3	3-	4-	4	4-	5	4	31	46	50	32	65		1.3
31	D2	6-	3+	5-	5	5	6+	4+	3-	37	5-	3	4	4	4+	5	4-	2+	45	55	50	48	58		1.5
																			17	26.5	24.7	25.7			0.63

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	1-	1	1-	1+	1+	1	2-	1+	0+	1	1-	1+	0+	0+	1	1-
2	0+	0+	0+	0+	1-	1	2-	2	1-	0+	0	0	0	1-	1+	2
3	2	3-	2+	3	3+	3+	3	3+	2-	2	2	3-	3-	3	3-	3+
4	4-	5	3	5-	4	3	3-	2	4-	4+	3-	4	3+	3-	3	1+
5	2	3	4	3+	4-	3-	3+	3+	2-	3-	4-	3	3+	3-	4-	3
6	3-	4-	4	2	3	3-	3-	2+	2+	3+	4-	2-	3	3-	2-	2-
7	3-	1+	2-	1+	1+	1+	2	2	3-	1	1-	1	1+	1-	2-	2-
8	1+	1-	2-	2-	2-	3-	1+	1+	1+	1+	1	2-	2	2-	1	0+
9	1+	2-	2-	3-	1-	1	1+	1	0+	1+	1	1+	1-	0+	1+	1-
10	1	1+	2	1+	2	2+	2-	2+	1	1+	1+	2-	2	2-	1	2
11	2+	2-	2-	2	3-	3+	2+	1+	2+	1+	1	1+	2+	3	2+	1-
12	2	3+	4+	5-	3	3	2+	3	1	3	4	5-	3+	3-	2	2+
13	3	2+	2+	4-	3+	3-	2+	2+	3-	2+	2+	3+	4-	2	2	3-
14	2	3-	2-	2-	1+	2	2-	1	3-	2+	1	1+	1	1	1	1-
15	1	0+	1-	0+	2	2-	2-	1	1	0	1-	1-	1	1+	1+	0+
16	0	0	0	1+	1+	2-	2+	2+	0	0	0	1-	1-	1+	2	2-
17	2-	0+	1-	3-	3+	3-	2+	3-	1	0+	0+	3+	3	2	1+	2-
18	3	2+	2-	2	3+	3+	5-	4	3+	2-	1+	2-	2+	3	5+	5-
19	3+	0+	3+	3	3	2	2-	2-	4	0+	2+	2+	3-	1+	1	1-
20	1	1-	0+	1-	1-	1	1+	1	0+	1	0+	0+	0+	0+	1-	0
21	1	1-	0+	1	1	1+	2-	3+	1	1	0+	0+	1-	1+	1+	3
22	2+	2-	1+	1	2-	1-	1	1	3-	2+	1	0+	1-	0+	0	0+
23	0+	1	1-	1	1	1+	2-	1+	0+	1	1-	1-	1-	1-	2-	1+
24	2	1+	1+	1+	1	1+	1	1	2	1	1	1	1-	1-	0+	0+
25	1+	1-	2+	3-	3	3-	2+	2-	1+	1-	2-	3-	2	2	2	1+
26	1+	1+	0+	0+	1-	1	1+	0+	1	1	1-	0+	1-	1	2-	1-
27	4-	3	3	4	4+	4	4	4-	3+	3+	3	3+	4+	4-	3+	4+
28	3+	6	7+	7+	7	5	4-	4+	4+	6-	7-	7-	7-	6-	4+	5-
29	5	4	5	4+	5-	3+	3	3-	5+	5-	5+	4+	5-	3+	3-	3-
30	4-	3	3	4	4	4-	4+	4-	3+	3	3-	4-	4	4-	5+	4
31	5-	3	5-	5-	4+	5+	4-	2+	5-	3	4-	3+	4	5-	4-	2+

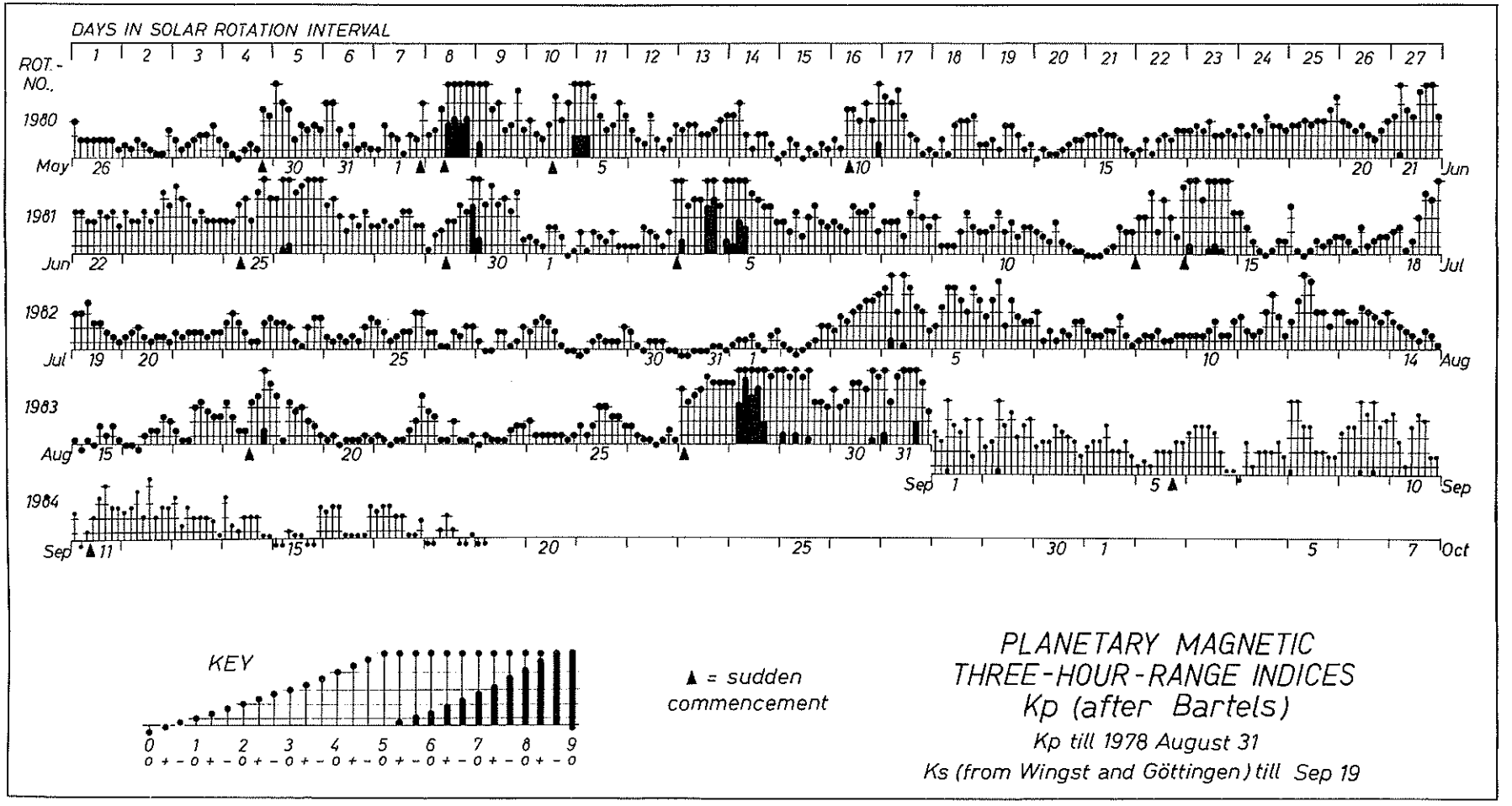
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2γ) prepared by Geophysikalisches Institut at the University of Göttingen,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

	1977				1978							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	4	4	5	6	7	15	33	12	88	9	6	4
2	6	5	6	69	8	14	27	15	94	82	5	4
3	8	10	4	9	13	14	15	41	83	31	11	16
4	6	7	8	14	89	11	3	55	96	26	80	30
5	3	8	10	18	31	17	6	21	7	38	53	22
6	4	8	7	5	34	14	7	9	5	8	13	16
7	6	3	5	3	13	7	9	5	7	11	14	7
8	8	6	3	2	19	10	20	5	16	10	14	6
9	11	2	3	3	23	16	14	6	85	4	8	5
10	13	4	9	4	21	7	12	36	10	24	10	6
11	19	12	6	38	7	5	7	64	30	17	6	11
12	6	28	18	21	4	10	3	29	18	10	4	21
13	28	14	26	16	8	8	12	24	11	7	20	13
14	10	13	42	8	3	11	10	51	9	4	48	6
15	9	19	25	5	2	48	17	19	5	6	6	3
16	7	8	14	9	14	11	24	8	7	6	6	4
17	10	12	8	12	9	10	25	7	8	9	6	9
18	6	22	6	3	12	10	24	19	5	11	18	24
19	42	28	6	3	6	12	15	38	4	17	11	11
20	44	7	4	4	3	12	9	23	8	11	5	3
21	64	5	5	6	1	12	7	9	26	33	6	6
22	63	22	3	6	3	22	13	8	24	15	8	6
23	21	6	2	4	2	6	15	22	24	18	8	4
24	12	6	2	5	6	5	6	48	26	19	6	4
25	10	4	15	5	12	12	3	17	10	24	8	9
26	18	6	19	11	12	37	49	18	7	46	5	4
27	24	62	12	6	5	42	70	16	5	15	4	29
28	9	47	5	10	9	46	17	12	7	12	6	124
29	3	9	6	8	36		14	6	8	32	4	40
30	4	9	12	5	36		16	58	18	31	3	31
31		6		6	23		8		12		2	45
MEAN	16	13	10	10	15	16	16	23	25	20	13	17

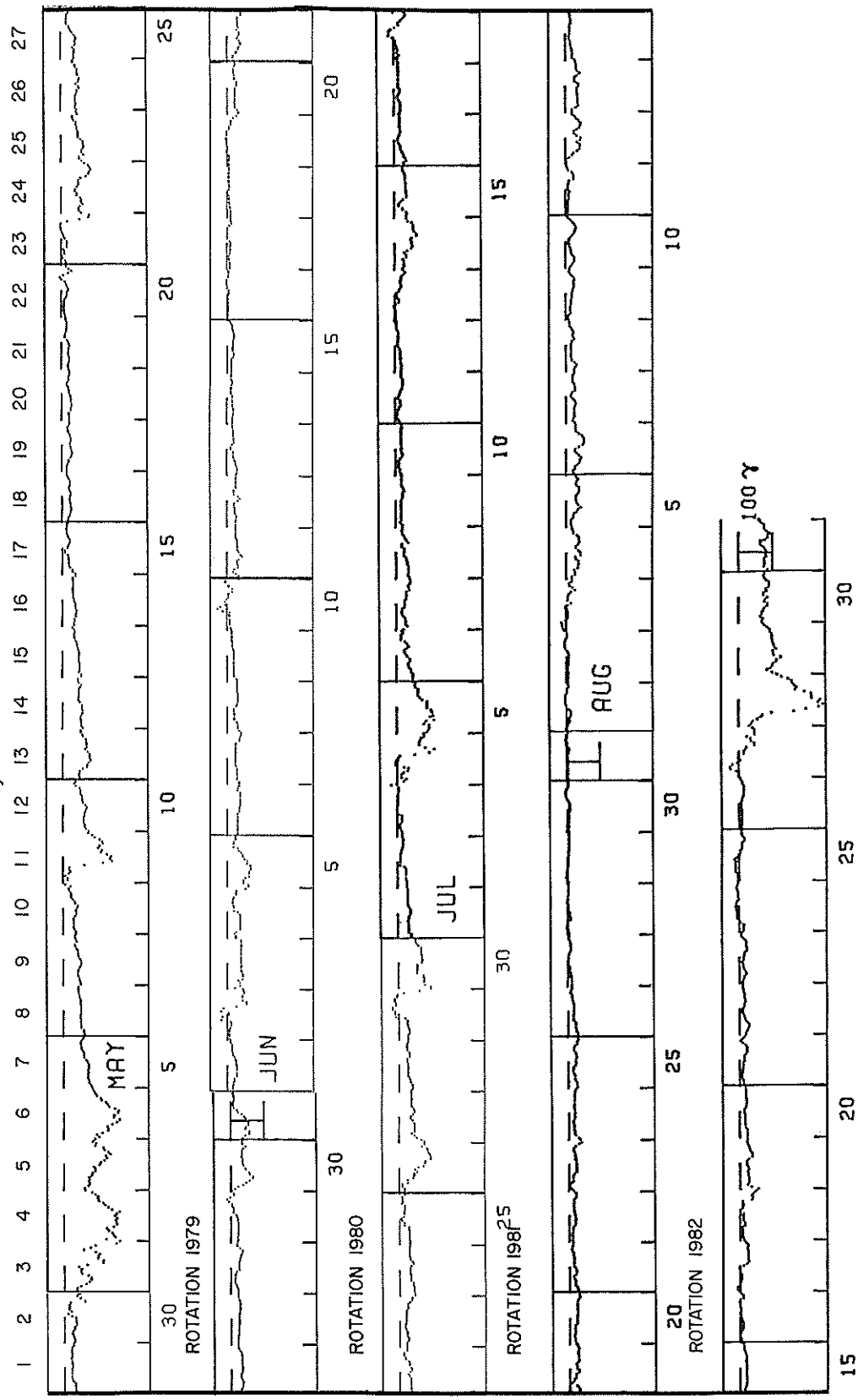
GEOMAGNETIC ACTIVITY INDICES



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.

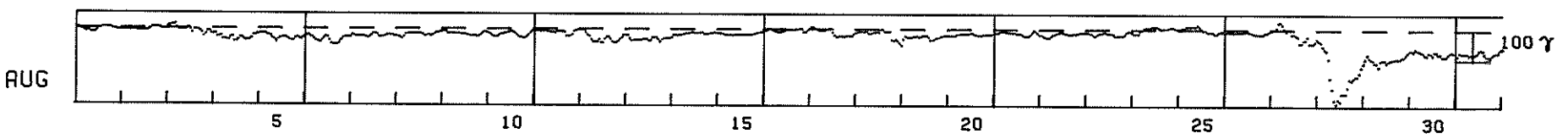
HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

AUGUST 1978

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	3	-1	-5	-8	-11	-11	-11	-14	-13	-14	-9	-1	0	4	4	3	2	2	-2	-3	-4	-7	-6	-7
2	-6	-7	-7	-7	-5	-4	-7	-8	-9	-9	-9	-10	-8	-6	-3	3	5	5	3	1	-3	-3	-2	6
3	10	12	12	14	2	-5	-6	-4	-4	-2	3	-5	-14	-5	-5	-6	-9	-15	-26	-19	-10	-9	-17	-19
4	-16	-27	-26	-24	-35	-37	-38	-37	-29	-27	-43	-42	-37	-30	-31	-37	-40	-37	-37	-32	-22	-20	-17	-16
5	-14	-14	-15	-21	-22	-25	-32	-37	-43	-37	-31	-29	-28	-30	-34	-38	-39	-39	-32	-28	-33	-37	-30	-25
6	-21	-20	-27	-29	-35	-40	-42	-45	-36	-32	-26	-29	-38	-49	-53	-53	-52	-47	-38	-30	-27	-29	-28	-26
7	-20	-23	-26	-26	-26	-25	-25	-28	-30	-26	-21	-15	-16	-19	-26	-27	-27	-24	-20	-19	-21	-21	-25	-25
8	-26	-29	-33	-26	-18	-16	-14	-16	-17	-17	-16	-15	-16	-19	-25	-22	-19	-24	-20	-16	-12	-12	-10	-8
9	-6	-10	-15	-13	-14	-15	-17	-16	-15	-19	-17	-19	-21	-22	-25	-25	-24	-24	-25	-19	-13	-10	-10	-13
10	-17	-22	-26	-27	-24	-18	-15	-14	-13	-11	-9	-10	-10	-14	-20	-26	-28	-30	-29	-25	-19	-13	-7	-7
11	-6	-8	-7	-6	-7	-7	-9	-11	-11	-11	-13	-8	-7	-7	-10	-11	-23	-24	-22	-18	-9	-5	-2	-3
12	-1	-2	-11	-19	-24	-35	-42	-43	-41	-35	-44	-46	-33	-26	-25	-34	-41	-45	-44	-39	-33	-27	-20	-20
13	-20	-31	-38	-37	-36	-36	-35	-36	-34	-34	-34	-39	-37	-28	-28	-28	-35	-42	-35	-31	-32	-31	-29	-27
14	-20	-19	-22	-18	-18	-16	-14	-13	-13	-11	-12	-13	-13	-13	-12	-12	-17	-17	-15	-13	-13	-12	-12	-14
15	-15	-15	-16	-19	-21	-21	-19	-19	-18	-18	-20	-21	-20	-18	-17	-19	-19	-18	-15	-13	-12	-11	-10	-7
16	-4	-2	1	-1	-4	-7	-10	-11	-9	-7	-4	-2	-1	0	-3	-2	0	-1	2	-1	-11	-9	-4	2
17	8	6	1	-2	-5	-6	-6	-4	0	1	2	-11	-20	-26	-23	-24	-24	-23	-24	-21	-24	-22	-16	-12
18	-9	-7	-8	-9	-8	-8	-14	-14	-10	-10	-10	-11	-2	0	-8	-10	-9	-7	-36	-38	-34	-39	-46	-54
19	-33	-23	-27	-28	-27	-24	-23	-22	-26	-24	-20	-20	-19	-26	-36	-37	-33	-29	-27	-25	-22	-20	-22	-22
20	-22	-21	-22	-20	-16	-16	-14	-13	-14	-14	-14	-12	-13	-16	-19	-20	-18	-18	-17	-16	-16	-17	-17	-14
21	-12	-11	-10	-7	-7	-7	-9	-11	-11	-12	-12	-14	-14	-13	-18	-22	-23	-22	-17	-10	-3	-8	-13	-18
22	-18	-23	-26	-28	-26	-21	-16	-14	-12	-9	-10	-10	-13	-14	-17	-17	-13	-13	-13	-12	-10	-9	-10	-10
23	-10	-13	-15	-20	-18	-14	-12	-11	-9	-10	-13	-13	-14	-15	-20	-22	-19	-20	-20	-15	-8	-5	-7	-12
24	-14	-13	-13	-4	0	5	7	7	8	10	10	10	8	4	0	4	3	4	6	8	7	4	2	2
25	3	5	6	11	11	11	11	12	9	14	9	2	-3	-3	-8	-9	-8	-10	-15	-13	-9	-6	-7	-7
26	-8	-9	-9	-10	-11	-11	-11	-10	-8	-7	-6	-8	-10	-11	-13	-15	-15	-16	-15	-14	-11	-9	-6	-2
27	0	0	6	23	25	17	3	-5	2	-2	-15	-15	-19	-23	-45	-43	-36	-33	-23	-46	-46	-44	-39	-31
28	-37	-41	-55	-63	-69	-95	-159	-193	-230	-242	-226	-233	-208	-207	-208	-187	-161	-165	-158	-152	-150	-141	-122	-110
29	-95	-82	-91	-96	-99	-107	-110	-120	-101	-98	-97	-108	-102	-99	-96	-95	-93	-95	-93	-88	-88	-81	-74	-67
30	-66	-70	-62	-66	-68	-71	-74	-82	-84	-74	-76	-83	-71	-70	-80	-77	-86	-88	-87	-79	-74	-71	-75	-84
31	-85	-73	-76	-77	-75	-75	-82	-78	-83	-78	-73	-65	-62	-65	-76	-85	-87	-90	-82	-75	-73	-73	-66	-61



PRINCIPAL MAGNETIC STORMS

AUGUST 1978

OBS. 3 letter IAGA code	GEOMAGNETIC LATITUDE	COMMENCEMENT DAY	COMMENCEMENT hr min (UT)	COMMENCEMENT TYPE	SC - AMPLITUDES D(')	SC - AMPLITUDES H(γ)	SC - AMPLITUDES Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	RANGES H(γ)	RANGES Z(γ)	UT END DAY	UT END HOUR
HYB	07.6N	2	2040	..	..	..	..	04(4)	5	8	151	38	06	22
COL	64.6N	3	02--	..	..	..	..	04(2,4) 05(3,4) 06(3)	6	140	1410	620	06	18
SIT	60.1N	3	11--	..	..	..	..	06(3)	7	90	590	510	06	22
NEW	55.1N	3	03--	..	..	..	..	04(2)	6	37	110	168	07	04
FRD	49.6N	3	19--	..	..	..	..	04(2,4) 05(3) 06(3)	5	20	131	72	06	15
GUA	04.0N	3	2115	..	..	..	..	04(4)	5	10	110	10	04	21
KGL	56.5S	3	03--	..	..	..	..	03(8) 04(1,2,7) 05(7,8)	4	--	--	--	07	03
NEW	55.1N	11	22--	..	..	..	..	12(3)	6	40	137	194	14	08
HYB	07.6N	11	0900	..	..	..	..	12(4,5)	5	5	121	31	13	19
SIT	60.1N	12	02--	..	..	..	..	12(3)	7	--	540	480	13	14
FRD	49.6N	12	02--	..	..	..	..	12(3)	6	26	90	60	14	06
TOO	46.7S	12	05--	..	..	..	..	12(3,4) 13(5)	5	16	130	45	14	11
TOO	46.7S	17	11--	..	..	..	..	18(7)	5	17	80	20	19	16
KGL	56.5S	17	09--	..	..	..	..	18(1)	4	--	--	--	18	06
NEW	55.1N	18	1242	SC	2	9	--	18(6,7)	5	31	146	58	20	03
WIT	54.2N	18	1242	SC*	- 1	+10 *	0	18(7)	6	35	165	45	19	02
HYB	07.6N	18	1241	SC	- .2	+17	- 1	18(7,8)	5	7	87	19	19	20
HUA	00.6S	18	1242	SC	--	7	2	18(6,7)	5	--	278	41	19	03
KGL	56.5S	18	1241	SC*	--	--	--	18(7)	7	--	--	--	19	21
HYB	07.6N	21	2004	SC	- .1	+ 5	- 1	21(8) 22(1)	3	8	72	27	22	15
COL	64.6N	27	0246	SC*	-23	+100	-16	28(3,4,5)	8	499	2430	1710	02	15
SIT	60.1N	27	0248	SC*	- 5.3*	+56.2*	+11.1	28(3)	9	250	--	--	02	19
NEW	55.1N	27	0246	SC*	2	53	6	28(3,4)	9	157	1204	1384	05	09
WIT	54.2N	27	0247	SC*	- 8 *	+39	0	28(2,3)	7	32	460	300	31	21
FRD	49.6N	27	0247	SC*	+ 3	+55	- 9	28(3)	8	90	560	375	03	15
SJG	29.9N	27	0246	SC	+ .5	+26	+ 7	29(1)	6	16	198	60	29	15
GUL	24.5N	27	0246	SC	- .4	26	- 1	--	-	17	347	97	31	23
JAI	17.3N	27	0246	SC	- .5	29	- 5	--	-	13	327	63	31	23
SHL	14.6N	27	0246	SC	.8	32	5	--	-	8	--	51	31	23
UJJ	13.5N	27	0246	SC	--	--	--	--	-	10	416	70	31	23
AEG	09.5N	27	0246	SC	- .4	33	- 5	28(3)	7	13	370	69	31	23
HYB	07.6N	27	2200	..	..	..	..	28(3,4,5)	8	10	295	47	31	22
HYB	07.6N	27	0246	SC	- .2	+37	- 5	27(5,6)	5	5	178	39	27	20
GUA	04.0N	27	0246	SC	--	+43	-12	28(5)	7	10	430	40	31	18
ANN	01.4N	27	0246	SC	- 1.4	57	21	--	-	9	435	--	31	23
HUA	00.6S	27	0246	SC	--	47	7	28(6)	7	--	356	50	29	09
TRD	01.2S	27	0246	SC	.1	52	57	--	-	7	476	237	31	23
PMG	18.7S	27	0246	SC*	+ .2*	+36	+36	28(2,3,5)	7	12	450	140	01	00
HER	33.7S	27	0246	SC*	+ 4	+22	+19	28(3)	7	54	293	150	29	16
GNA	43.3S	27	0246	SC*	- 2.2*	+ 6	- 6 *	28(2,3,4,5,6)	7	41	200	180	29	18
TOO	46.7S	27	0245	SC	- 1	+13	+ 6	28(3,4)	7	80	340	310	03	16
KGL	56.5S	27	0247	SC*	--	--	--	28(5)	9	--	--	--	29	09
HUA	00.6S	30	0110	..	..	..	..	30(6,7)	5	--	274	49	31	00

Reports were received from the following observatories:

Alibag Annamalainagar College Fredericksburg Gnangara Guam Gulmarg Hermanus Huancayo
Hyderabad Irkutsk Jaipur Newport Port Moresby San Juan Shillong Toolangi Trivandrum
Ujjain Witteveen

Please note: The Boulder Geomagnetic Observatory converted to digital format in March 1978. Since that time, data which were reduced from the anolog recordings are no longer available, e.g., Principal magnetic storms and K indices.

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

AUGUST 1978

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS (by Dr. A. Romaná).

The meaning of the station symbols is given in the IAGA-News No. 16.
Times of ssc are mean values.

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

18 1242 B: SOD DOB WNG DOU FUR TOL KAK KSA HUA LMN PAF
C: WIT NGK VIC EBR MMB CZT

27 0246 A: SOD DOB NUR ESK DOU VIC FUR MMB EBR COI TOL FRD KAK KSA HAZ KNY
HUA LMN PAF DRV
B: WNG WIT HAD AQU CZT
C: NGK

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

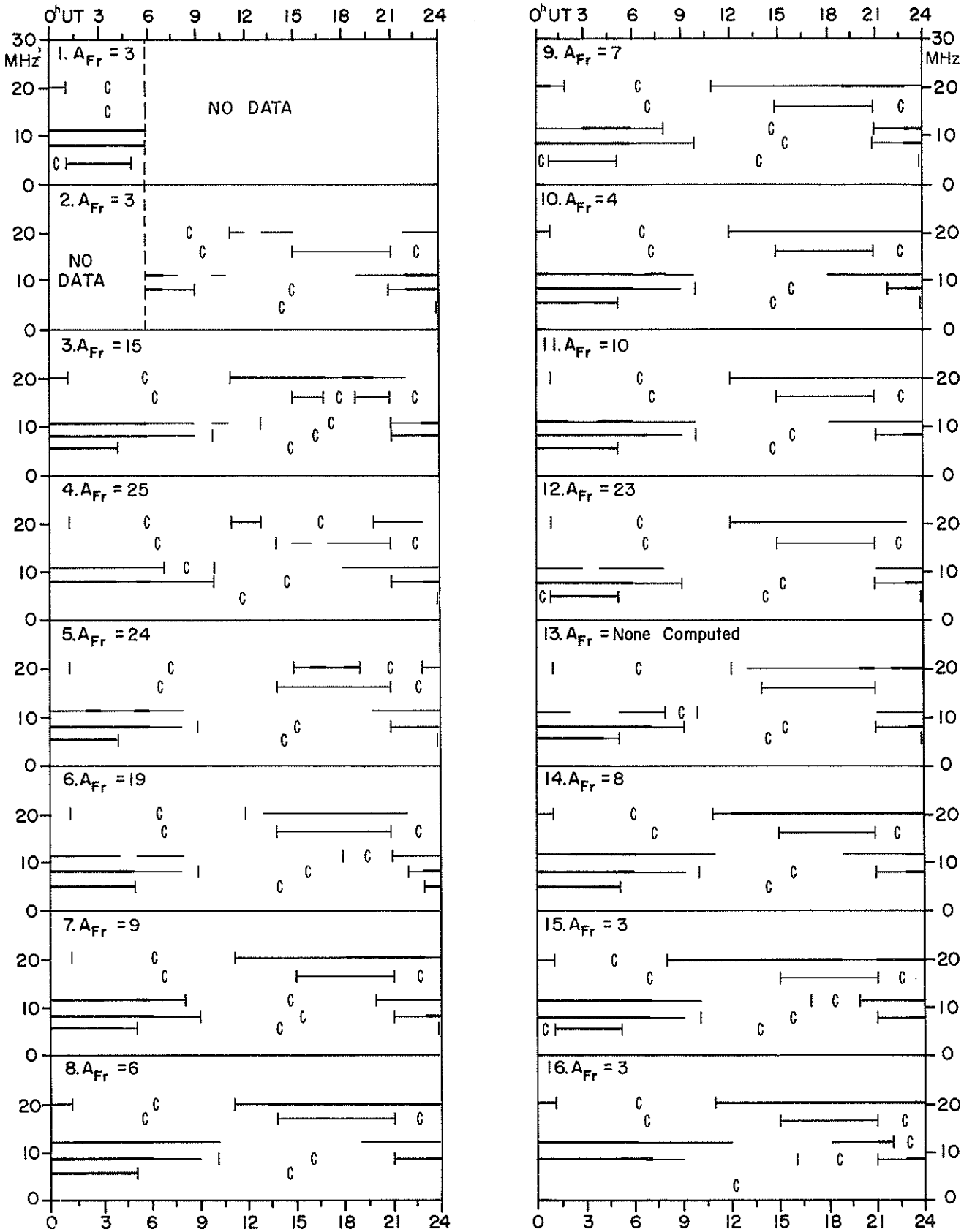
22 0912 - 0922 HUA

Very unusual events

none

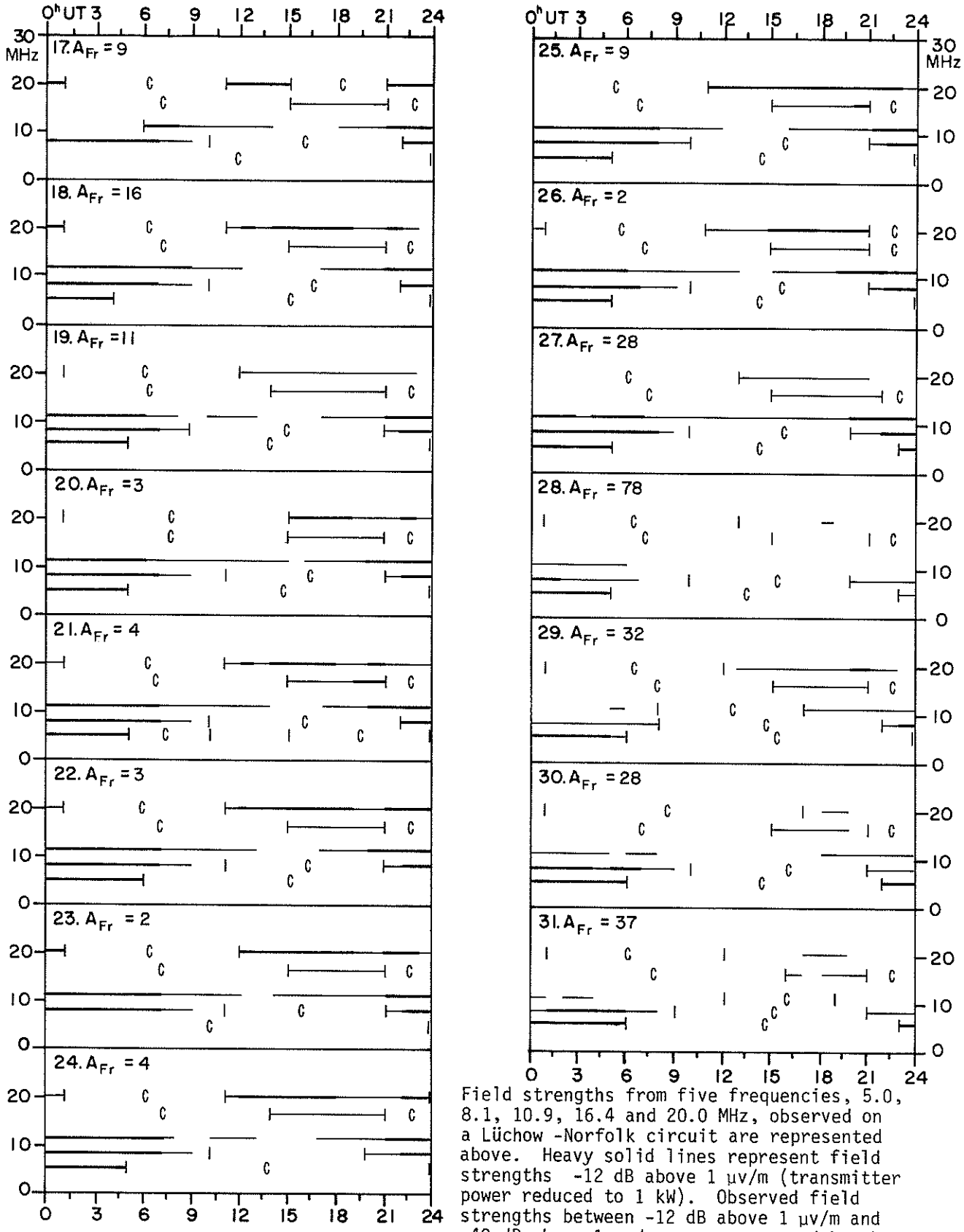
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

AUGUST 1978



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

AUGUST 1978



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 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

AUGUST 1978

Quality indices calculated for reception at Lüchow

DAY	TOKYO	NORFOLK	MOSCOW	CANBERRA	BRACKNELL
1	7.2	5.6	12.5	5.0	13.0
2	7.6	3.9	12.4	5.2	12.8
3	4.9	5.0	11.6	5.0	12.3
4	4.4	4.7	11.6	4.8	11.8
5	3.8	4.1	11.9	4.4	12.6
6	3.5	3.3	11.1	4.5	12.2
7	5.8	4.3	11.1	3.9	11.9
8	6.6	4.9	12.0	4.0	12.0
9	6.4	4.9	12.5	4.5	12.5
10	5.3	4.8	11.4	4.2	12.3
11	6.3	4.2	11.7	4.8	12.1
12	4.3	4.2	11.8	5.2	11.8
13	5.9	4.1	11.5	5.0	12.2
14	7.1	5.6	11.1	5.0	11.9
15	6.8	5.2	11.2	4.8	12.1
16	7.2	5.9	11.2	5.3	12.5
17	6.7	5.5	11.9	5.1	12.7
18	5.2	5.5	11.5	4.3	12.5
19	5.2	4.5	11.6	4.3	12.3
20	5.6	5.4	11.7	4.8	12.1
21	6.0	5.2	12.2	4.8	12.5
22	5.3	5.5	11.4	5.1	11.9
23	5.5	5.7	12.2	4.7	12.6
24	6.1	4.9	11.8	5.0	12.2
25	6.7	5.4	12.1	4.9	12.8
26	5.4	5.0	11.8	4.3	13.0
27	4.8	4.8	11.3	4.3	11.9
28	1.6	2.0	10.3	2.5	10.3
29	2.3	4.5	11.9	4.2	11.7
30	3.0	3.7	11.2	3.0	10.4
31	2.8	2.6	10.2	3.2	10.7
MEAN	5.3	4.7	11.6	4.5	12.1

USCOMM-NOAA-ASHEVILLE, NC-10/78/950

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."