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Solar - Geophysical Data

NO. 403 MARCH 1978

Part I (Prompt Reports)

DATA FOR
FEBRUARY 1978
JANUARY 1978

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR-GEOPHYSICAL DATA

No. 403

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Director
Solar-Terrestrial Data Services Division

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SGD 403 Part I (Prompt)

FEBRUARY 1978 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

FEBRUARY 1978

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS).

08 FEBRUARY 1978, BOULDER 08/0420Z SOFLARE 2B N14E47 08/0344Z DURATION 27 MINUTES.
13 FEBRUARY 1978, BOULDER 13/1354Z PROTON EVENT 0835 GT 10 MEV 30 PROTONS CM^2/SEC/STER AT 1200Z.
13 FEBRUARY 1978, TOYOKAWA 13/0230Z TENFLARE 650 UNITS 13/0120Z 70 MINUTES DURATION.
13 FEBRUARY 1978, CULGOORA IMP 2N FLARE START 0129Z (N15W15) TYPE TWO AND TYPE FOUR BURSTS. FLEURS 1415 MHZ
1900 FLUX UNITS 0209Z, 2695 MHZ 1400 FLUX UNITS AT 0205Z, 4995 MHZ 740 FLUX UNITS 0204Z MAJOR SWF.
13 FEBRUARY 1978, BOULDER 13/0330Z SOFLARE M7 N15W17 13/0300Z MAX. START 13/0122Z, IN PROGRESS.
15 FEBRUARY 1978, TOYOKAWA 15/0755Z TENFLARE 100 UNITS 15/0747Z 5 MINUTES.
25 FEBRUARY 1978, TOYOKAWA 25/0315Z TENFLARE 100 UNITS 25/0307Z 3 MINUTES.
25 FEBRUARY 1978, BOULDER SOFLARE 2B/M4 N20W11 25/0305Z 8 MINUTES.
25 FEBRUARY 1978, BOULDER TENFLARE 100 FLUX UNITS 15/0307Z 3 MINUTES.
25 FEBRUARY 1978, BOULDER SOFLARE 1B N19W18 25/1449Z 23 MINUTES.
25 FEBRUARY 1978, BOULDER TENFLARE 160 FLUX UNITS 25/1448Z 16 MINUTES.
25 FEBRUARY 1978, KAKIOKA MAGSTORM 25/1929Z.

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	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
32	1	31	181	140	18	N19W76	0	0	0		1	N19W76	Q	SOLALERT MINOR 02 MAGALERT MINOR 02
						S27W03	1	0	0			S27W03	E	STRATWARM ALERT /WEDNESDAY/S.TRAT-
						S17W07	0	0	0			S17W07	Q	WARM EXISTS NORTHERN GREENLAND
						N19E12	7	0	0			N19E12	E	EASTWARD TO EURASIAN ARCTIC.
						N14W02	0	0	0			N14W02	Q	
						N13E30	0	0	0			N13E30	Q	
						S27E17	0	0	0			S27E17	Q	
						N26E71	0	0	0			N26E71	Q	
						N27E54	0	0	0			N27E54	Q	
						S26E75	0	0	0			S26E75	Q	
33	2	1	146	143	10	N19E12	7	0	0		2	N19E12	E	SOLALERT MINOR 02 MAGALERT MINOR 02
						S27W03	1	0	0			S27W03	E	STRATWARM ALERT /THURSDAY/ STRATWARM
						S17W03	0	0	0			S17W03	Q	EXISTS EURASIAN ARCTIC.
						N19W76	0	0	0			N19W76	Q	
						N14W02	0	0	0			N14W02	Q	
						N13E30	0	0	0			N13E30	Q	
						S27E17	0	0	0			S27E17	Q	
						N26E71	0	0	0			N26E71	Q	
						N27E54	0	0	0			N27E54	Q	
						S26E75	0	0	0			S26E75	Q	
34	3	2	204	157	11	S28W18	2	0	0		3	S28W18	E	SOLALERT 03/XX MAGALERT MINOR 03
						S17W20	0	0	0			S17W20	Q	STRATWARM ALERT /FRIDAY/ STRATWARM
						N18W00	9	1	0			N18W00	A	EXISTS EURASIAN ARCTIC DECREASING.
						N12W15	0	0	0			N12W15	Q	
						S27E05	0	0	0			S27E05	Q	
						S28E60	0	0	0			S28E60	Q	
						N25E35	0	0	0			N25E35	Q	
						N19E64	0	0	0			N19E64	Q	
						N27E67	0	0	0			N27E67	Q	
						N19E75	0	0	0			N19E75	Q	
35	4	3	227	169	11	S17W38	0	0	0		4	S17W38	Q	SOLALERT 04/XX MAGALERT 04/05
						S29W28	5	0	0			S29W28	E	STRATWARM ALERT /SATURDAY/ DECREAS-
						N14W28	0	0	0			N14W28	Q	ING MAXIMUM TEMPERATURES OVER ASIAN
						N33W22	7	0	0			N33W22	A	ARCTIC. MODERATE WARMING MOVING
						N20W12	3	0	0			N20W12	E	SOUTHEASTWARD.
						N26E25	0	0	0			N26E25	Q	
						S26E46	0	0	0			S26E46	Q	
						N21E49	3	1	0			N21E49	A	
						N27E53	5	1	0			N27E53	A	
						N19E54	5	2	0			N19E54	A	
36	5	4	208	158	07	S16W52	0	0	0		5	S16W52	Q	SOLALERT 05/XX MAGALERT MINOR 05/05
						N13W41	1	0	0			N13W41	Q	
						S28W40	2	0	0			S28W40	E	
						N32W35	4	0	0			N32W35	Q	
						N20W24	0	0	0			N20W24	Q	
						N26E09	0	0	0			N26E09	Q	
						S27E35	1	0	0			S27E35	Q	
						N22E37	0	0	0			N22E37	E	
						N19E40	0	0	0			N19E40	E	
37	6	5	234	164	13	S30W58	2	0	0		6	S30W58	E	SOLALERT 06/XX MAGNIL
						S18W65	0	0	0			S18W65	Q	
						N18W39	0	0	0			N18W39	Q	
						S26E23	2	0	0			S26E23	Q	
						N22E19	2	0	0			N22E19	E	
						N28E27	0	0	0			N28E27	Q	
						N22E28	2	0	0			N22E28	E	
						N32W47	0	0	0			N32W47	Q	
						N19E76	2	0	0			N19E76	E	
						S25W49	0	0	0			S25W49	Q	
38	7	6	214	161	09	S30W73	0	0	0		7	S30W73	E	SOLALERT 07/XX MAGQUIET
						S15W82	0	0	0			S15W82	Q	
						N18W52	3	0	0			N18W52	Q	
						S27E08	1	0	0			S27E08	Q	
						N21E06	0	0	0			N21E06	E	
						N28E14	0	0	0			N28E14	E	
						N20E15	0	0	0			N20E15	Q	
						N30W61	0	0	0			N30W61	E	
						N18E61	5	0	0			N18E61	Q	
						S25W62	0	0	0			S25W62	Q	
						N27W49	0	0	0			N27W49	Q	
39	8	7	195	162	07	S27W86	0	0	0		8	S27W86	Q	SOLALERT 08/XX MAGQUIET
						N21W64	1	0	0			N21W64	E	
						S29W04	0	0	0			S29W04	Q	
						N22W04	0	0	0			N22W04	Q	
						N27E04	5	0	0			N27E04	E	
						N19E05	0	0	0			N19E05	Q	
						N37W83	0	0	0			N37W83	Q	
						N16E51	7	0	0			N16E51	A	
						S23W80	0	0	0			S23W80	Q	
						N27W68	0	0	0			N27W68	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

FEBRUARY 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	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
40	9	8	163	165	10	N10W80	1	0	0		9	N10W80	Q	SOLALERT 09/XX MAGQUIET
						S29W19	0	0	0			S29W19	Q	
						N22W16	1	0	0			N22W16	Q	
						N28W09	6	0	0			N28W09	E	
						N20W03	0	0	0			N20W03	Q	
						N16E36	18	1	0			N16E36	A	
						S22E73	0	0	0			S22E73	Q	
41	10	9	162	160	07	S29W28	2	0	0		10	S29W28	E	SOLALERT 10/XX MAGQUIET
						N21W27	2	0	0			N21W28	Q	
						N26W21	10	2	0			N26W21	E	
						N18W19	0	0	0			N18W19	Q	
						N12E23	24	1	0			N12E23	E	
						S24E60	0	0	0			S24E60	Q	
						S29E51	0	0	0			S29E51	Q	
42	11	10	124	153	07	S29W43	0	0	0		11	S29W43	Q	SOLALERT 11/XX MAGALERT
						N21W42	3	1	0			N21W42	E	
						N26W35	2	0	0			N26W35	E	
						N18W30	1	0	0			N18W30	Q	
						N15E09	16	2	0			N15E09	E	
						S24E47	0	0	0			S24E47	Q	
						S29E38	0	0	0			S29E38	Q	
43	12	11	178	158	07	S29W56	0	0	0		12	S29W56	Q	SOLALERT MAGNIL
						N19W53	3	0	0			N19W53	E	
						N25W48	4	0	0			N25W48	E	
						N17W42	1	0	0			N17W42	Q	
						N17W03	11	1	0			N17W03	E	
						S24E35	0	0	0			S24E35	Q	
						S28E26	0	0	0			S28E26	Q	
						S26W03	0	0	0			S26W03	Q	
44	13	12	170	163	05	N22W66	0	0	0		13	N22W66	Q	SOLALERT 13/XX MAGQUIET
						N27W59	1	0	0			N27W59	Q	
						N17W53	0	0	0			N17W53	Q	
						N14W17	10	1	0			N14W17	E	
						S23E22	0	0	0			S23E22	Q	
						S30E12	0	0	0			S30E12	Q	
						S27W17	0	0	0			S27W17	E	
45	14	13	164	155	06	N23W81	1	0	0	PROTON EVENT START-	14	N23W81	Q	SOLALERT 14/XX MAGALERT 15/XX
						N25W71	0	0	0	ED AT 13/0835Z FROM		N25W71	Q	
						N17W66	3	0	0	2N FLARE WHICH		N17W66	E	
						N14W30	27	2	0	MAXED 13/0155Z FROM		N14W30	A	
						S24E10	0	0	0	N15W15 REGION 1001.		S24E10	Q	
						S28E02	0	0	0	PROTON EVENT STILL		S28E02	Q	
						S28W30	1	0	0	IN PROGRESS		S28W30	Q	
						N31E72	0	0	0			N31E72	Q	
46	15	14	163	152	05	N25W83	0	0	0	PCA STILL IN PROG-	15	N25W83	Q	SOLALERT 16/XX MAGALERT MINOR 15/XX
						N16W86	0	0	0	RESS		N16W86	Q	
						N15W42	10	0	0			N15W42	A	
						S24W03	0	0	0			S24W03	Q	
						S28W12	1	0	0			S28W12	E	
						S28W43	0	0	0			S23W43	Q	
						N31E60	1	0	0			N31E60	E	
						N32E66	0	0	0			N32E66	Q	
47	16	15	96	140	35	N14W53	17	2	0		16	N14W53	A	SOLALERT 16/18 MAGALERT MINOR 16/18
						S24W16	0	0	0			S24W16	Q	
						S26W55	0	0	0			S26W55	Q	
						N30E46	6	0	0			N30E46	E	
						N18E74	5	0	0			N18E74	E	
48	17	16	141	133	08	N13W69	9	0	0		17	N13W69	E	SOLALERT 17/18 MAGALERT
						S25W24	2	0	0			S25W24	Q	
						S30W68	0	0	0			S30W68	Q	
						N33E35	6	0	0			N33E35	A	
						N23E61	0	0	0			N23E61	A	
						N27W34	8	0	0			N27W34	Q	
49	18	17	91	129	06	N16W83	7	2	0		18	N16W83	E	SOLALERT 18/XX MAGNIL
						N32E21	10	0	0			N32E21	Q	
						N23E47	0	0	0			N23E47	Q	
						N24W49	0	0	0			N24W49	A	
						N17E07	0	0	0			N17E07	Q	
50	19	18	96	128	08	N30E11	1	0	0		19	N30E11	Q	PROTON FLARE ALERT 19/20 (49016)
						N19E37	1	0	0			N19E37	Q	MAGQUIET
						N28W59	9	0	0			N28W59	E	
						N21E73	0	0	0			N21E73	Q	
						S26W41	0	0	0			S26W41	Q	
						S26E56	0	0	0			S26E56	Q	
						N16W90	1	0	0			N16W90	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

FEBRUARY 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				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
51	20	19	92	122	09	N30W00	0	0	0		20	N30W00	Q	PROTON FLARE ALERT 20 (49016)
						N19E23	0	0	0			N19E23	Q	MAGQUIET
						N29W72	2	0	0			N29W72	Q	
						N21E59	0	0	0			N21E59	Q	
						S25W55	0	0	0			S25W55	Q	
52	21	20	104	125	10	N31W13	0	0	0		21	N31W13	Q	SOLALERT 21/23 MAGQUIET
						N20E09	0	0	0			N20E09	Q	
						N26W85	2	0	0			N26W85	Q	
						N21E45	4	0	0			N21E45	E	
						S22E75	0	0	0			S22E75	Q	
						N38E78	5	0	0			N38E78	E	
53	22	21	126	125	08	N30W29	0	0	0		22	N30W29	Q	SOLNIL MAGQUIET
						N21W32	0	0	0			N21W32	Q	
						N21E31	2	0	0			N21E31	Q	
						S22E67	0	0	0			S22E67	Q	
						N39E58	1	0	0			N39E58	Q	
						N16E72	0	0	0			N16E72	Q	
54	23	22	124	131	13	N28W41	0	0	0		23	N28W41	Q	SOLQUIET MAGQUIET
						N19W14	2	0	0			N19W14	Q	
						N20E16	1	0	0			N20E16	Q	
						S20E55	0	0	0			S20E55	Q	
						N39E44	0	0	0			N39E44	Q	
						N17E58	0	0	0			N17E58	Q	
						S23E73	0	0	0			S23E73	Q	
55	24	23	135	135	05	N30W52	0	0	0		24	N30W52	Q	SOLQUIET MAGQUIET
						N20W29	0	0	0			N20W29	Q	
						N19W22	0	0	0			N19W22	Q	
						N22E06	3	0	0			N22E06	Q	
						N38E32	0	0	0			N38E32	Q	
						S21E43	0	0	0			S21E43	Q	
						N17E49	0	0	0			N17E49	Q	
						S25E68	1	0	0			S25E68	Q	
						S25E85	0	0	0			S25E85	Q	
56	25	24	155	139	04	N30W65	0	0	0		25	N30W65	Q	SOLQUIET MAGALERT MINOR 25/27
						N21W42	0	0	0			N21W42	Q	
						N22W09	11	0	0			N22W09	E	
						S20E30	0	0	0			S20E30	Q	
						N38E21	0	0	0			N38E21	Q	
						S23E51	0	0	0			S23E51	Q	
						N19W36	0	0	0			N19W36	Q	
						S25E71	0	0	0			S25E71	Q	
						N18E66	0	0	0			N18E66	Q	
57	26	25	155	142	10	N30W75	0	0	0	MAGSTORM 25/1928Z SSC. SOFLARE 2B/ M4 N20W11 25/0305Z, 8 MINUTES. TEN-FLARE 100 FLUX UNITS 25/0307Z, 3 MINUTES. TENFLARE 160 FLUX UNITS 25/1448Z, 16 MIN-UTES. SOFLARE 1B N19W18 25/1449Z, 23 MINUTES.	26	N30W75	Q	SOLQUIET MAGALERT 26/27
						N20W55	0	0	0			N20W55	Q	
						N21W21	7	2	0			N21W21	A	
						S20E18	0	0	0			S20E18	Q	
						N38E08	0	0	0			N38E08	Q	
						S23E39	0	0	0			S23E39	Q	
						S24E60	2	0	0			S24E60	Q	
						N18E55	0	0	0			N18E55	Q	
58	27	26	199	138	22	N30W88	0	0	0		27	N30W88	Q	SOLALERT 27/XX MAGALERT 27
						N22W34	10	0	0			N22W34	A	
						S20E04	0	0	0			S20E04	Q	
						N40W02	0	0	0			N40W02	Q	
						S23E25	0	0	0			S23E25	Q	
						S26E49	3	0	0			S26E49	Q	
						N18E44	0	0	0			N18E44	Q	
						N15E21	0	0	0			N15E21	Q	
						S29E34	0	0	0			S29E34	Q	
59	28	27	179	140	28	N22W46	9	0	0		28	N22W46	E	SOLALERT MINOR 28 MAGALERT MINOR 28
						S20W07	0	0	0			S20W07	Q	
						N38W13	3	0	0			N38W13	Q	
						S22E17	0	0	0			S22E17	Q	
						S25E40	0	0	0			S25E40	Q	
						N18E34	1	0	0			N18E34	Q	
						N17E11	0	0	0			N17E11	Q	
						S28E25	0	0	0			S28E25	Q	
60	1	28	178	138	28	N20W61	2	0	0		1	N20W61	Q	SOLNIL MAGALERT MINOR 01
						S20W22	0	0	0			S20W22	Q	
						N38W28	2	0	0			N38W28	Q	
						S23W00	0	0	0			S23W00	Q	
						S24E23	0	0	0			S24E23	Q	
						N20E16	0	0	0			N20E16	Q	
						N23W51	0	0	0			N23W51	Q	
						N13W04	0	0	0			N13W04	Q	
						S26E09	0	0	0			S26E09	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 PROVISIONAL — 1978

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
1	0	7	15	44	42	17	22	43	44	20	84	128
2	8	11	14	43	45	15	29	37	40	20	88	120
3	8	10	22	43	42	24	29	47	25	31	102	131
4	8	7	23	49	39	19	25	47	22	47	102	138
5	8	7	18	40	40	23	20	48	25	58	73	137
6	9	8	16	39	40	26	26	55	27	58	69	129
7	8	7	12	41	25	28	25	57	34	55	42	121
8	20	0	19	38	20	25	18	52	27	45	36	89
9	20	0	25	33	17	30	30	47	31	58	36	94
10	19	0	29	29	23	25	40	38	25	75	15	96
11	19	8	34	27	9	23	45	28	26	71	18	95
12	14	12	35	22	8	29	51	33	27	62	26	92
13	8	16	26	20	10	40	48	53	28	44	26	93
14	7	22	33	25	7	40	47	48	31	37	36	82
15	0	29	26	8	0	42	53	54	39	41	30	59
16	0	31	25	8	0	38	56	53	49	39	23	64
17	8	32	20	8	0	36	53	51	51	29	24	56
18	0	29	12	21	0	40	60	50	54	33	14	55
19	0	22	0	33	7	35	59	54	52	40	8	53
20	0	12	11	21	8	33	60	54	38	23	7	52
21	0	20	14	28	8	33	58	42	32	23	20	63
22	10	19	7	40	23	38	42	35	28	17	30	74
23	9	18	7	57	30	15	41	30	24	23	43	69
24	7	8	7	60	38	19	48	29	18	31	37	78
25	14	0	0	74	42	25	46	28	10	35	32	94
26	8	14	7	71	42	34	49	30	9	41	47	86
27	9	8	13	74	37	38	54	38	14	50	69	79
28	16	11	16	65	26	36	61	37	9	45	79	88
29	16	10	20	50	16	40	64	42	10	58	90	
30	8	9	30	45	10	36	60	45	23	64	104	
31	8		40		8	31		52		67	118	
MEAN	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2	49.3	89.8

1976 yearly mean = 12.6

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

1977 — 1978

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
1	72.6	74.8	77.2	88.9	102.0	83.0*	83.1	93.8*	94.4	88.4	126.9*	139.1
2	75.4	76.3	78.5	90.9*	100.7	82.8	84.2	93.2	93.6	91.2	133.9	152.6
3	74.8	76.6	81.9	93.0*	97.4	82.3	87.2	97.4	90.4	93.7	130.2	156.6*
4	76.9	76.8	81.4*	94.2	94.0	82.9*	84.2	98.8	89.4	95.9	124.8	154.8
5	77.6	75.5	79.6	90.2*	88.0*	86.4	85.6	104.0*	90.6	96.9	119.2	159.0
6	77.6	76.1	78.5	90.6	90.2	88.2	84.9	103.5	91.1	102.0*	118.7*	156.1
7	77.2	75.5*	77.1*	92.0	85.2	86.9	89.3	105.5	90.2	105.5	111.6	157.3
8	81.6	74.3	77.9	91.9*	82.1	85.1	91.6	103.8	90.3	106.7	102.8	157.0*
9	80.3	74.8	83.6	90.9	79.0	85.9	95.9	100.7	91.1	112.6*	97.0	155.2
10	80.5	76.5	80.8	89.2*	76.9	87.2	99.8	96.4	93.1	114.7	93.5	148.7
11	78.9	79.2	80.8	87.2	76.2	87.6	104.6	95.3	94.9	107.4	93.1	154.2
12	78.6	80.2	79.7	83.3	75.8	86.5	107.8	100.8	91.4	111.0	92.1	159.0
13	77.9	82.7	81.5	84.2	77.8	89.0	112.9	98.5	94.0	100.6	90.3	151.2
14	77.2	83.4	84.8	82.3	76.8	87.5	118.2	98.9	97.9	93.7*	88.6	148.4
15	74.8	86.8	85.0	82.3	76.0	86.9	120.7	98.2	97.9	92.5	89.6	136.8
16	74.1	83.7	85.1	81.4	76.9	87.3	120.4	96.8	95.9	92.5	86.4	130.2
17	74.1	83.6	84.1	82.4	76.5	87.1	120.6	94.9	100.4	91.1	83.8	125.9
18	73.9	80.8	82.9	84.3	76.9	88.6	120.5	95.4	102.0*	93.6	84.7	124.9
19	74.0	79.8*	82.1	85.2	76.9	87.0	104.5	105.0	99.2	91.0	85.4	119.1
20	72.3	80.4*	81.3	86.9	80.1	88.7	108.8	99.6*	95.7*	88.7	87.0	122.2
21	72.8	80.8	81.4	92.4	81.7	90.8	104.9*	98.6*	92.8	87.8	91.4	122.2
22	74.6	80.1	82.9	98.8*	83.1	89.6	102.4	93.9	89.3	89.9	96.9	127.7
23	74.7	77.5	82.4	99.4	85.0	86.0	99.3	87.3	88.0	91.2	99.6	131.8
24	74.8	76.5	79.2	107.4	84.0	86.0	100.6	88.3	86.7	93.9	100.4	135.6
25	74.0	76.4	77.4	113.8	86.0	87.7	98.8	88.1	84.7	96.3	103.3	139.3
26	75.1	75.4	76.8	120.7	86.0	86.4	99.4	88.6	84.1	99.3	112.7	134.8
27	74.5	74.9	77.9	115.9*	85.4	85.4	100.0	88.5	83.8	98.3	116.4	137.5
28	74.4	74.2	79.1	113.4	87.5	82.4	100.0	90.3*	85.6	98.9	127.7*	135.4
29	75.4	74.8	81.7	111.9	86.7	86.1	99.4	90.3	85.6	105.6*	132.2*	
30	74.6	76.6	89.9	106.9	84.1	85.5	97.7	94.9	85.3	114.7	134.9	
31	74.1		92.0		80.4	84.7		95.9		120.2	133.3*	
MEAN	75.8	78.2	81.4	94.5	83.7	86.4	100.9	96.3	91.6	98.9	106.1	141.8

* adjusted for burst

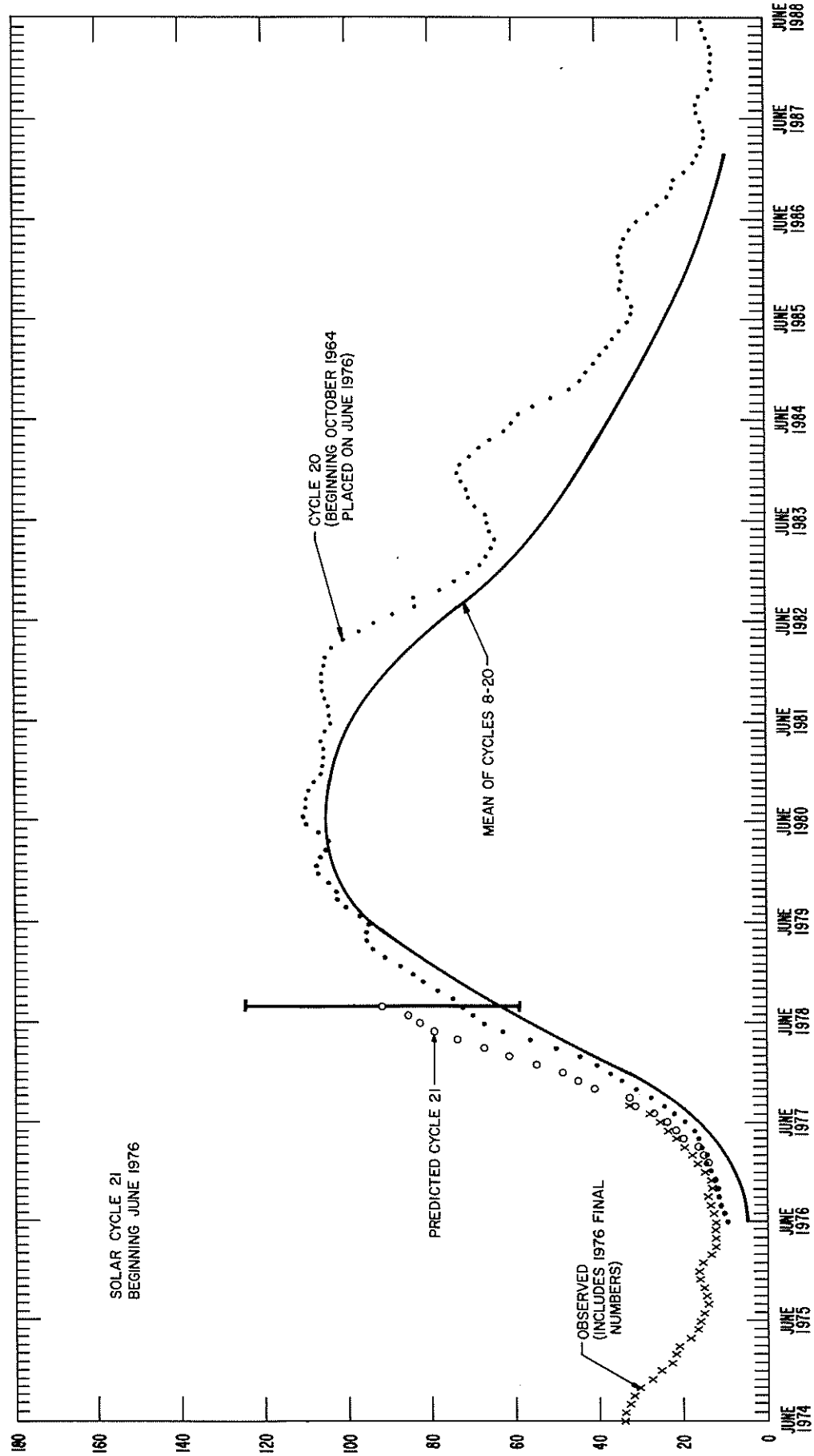
DAILY SOLAR INDICES

FEBRUARY 1978

FEB 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	32	22	128	111	143.3	576	327	177	139.1	151.9	103.3	61.2	29.4	10.6
2	33	23	120	114	157.2	579	340	188	152.6	169.0	114.3	67.8	35.0	20.0
3	34	24	131	124	161.3*	571	358	203	156.6*	181.2	113.5	67.1	31.9	13.7
4	35	25	138	122	158.4	574	341	184	154.0	169.1	112.4	66.4	34.5	13.8
5	36	26	137	126	163.6	581	347	193	159.0	174.7	119.4	65.2	31.1	14.9
6	37	27	129	128	160.6	577	352	190	156.1	172.5	110.3	60.7	29.9	20.2
7	38	1	121	112	161.7				157.3					
8	39	2	89	84	161.4*				157.0*					
9	40	3	94	93	159.5	575	352	204	155.2	170.0	111.8	67.9	39.5	45.5
10	41	4	96	108	152.7	564	343	198	148.7	161.3	102.5	65.2	43.0	50.6
11	42	5	95	129	158.3	563	346	199	154.2	167.3	105.0	71.4	57.8	82.4
12	43	6	92	119	163.2	580	363	213	159.0	175.9	104.6	67.8	46.2	65.6
13	44	7	93	100	155.1	582	355	199	151.2	157.7	103.7	64.0	41.4	52.0
14	45	8	82	82	152.2	580	362	203	148.4	160.1	99.0	64.8	33.0	39.8
15	46	9	59	68	140.3	576	347	188	136.8	144.6	94.4	61.6	35.7	56.1
16	47	10	64	56	133.4	572	337	176	130.2	140.2	89.9	64.3	41.2	46.0
17	48	11	56	53	129.0	563	320	167	125.9	136.1	89.1	60.9	27.4	26.7
18	49	12	55	54	127.8	564	316	161	124.9	134.8	92.2	59.5	21.7	13.9
19	50	13	53	53	121.9	560	314	157	119.1	128.8	90.0	65.1	31.6	18.0
20	51	14	52	61	124.9	562	320	158	122.2	132.3	90.5	60.6	30.9	14.8
21	52	15	63	64	124.9	568	321	157	122.2	131.6	93.2	60.9	27.6	12.8
22	53	16	74	81	130.6	573	322	162	127.7	136.8	95.0	62.3	28.2	15.3
23	54	17	69	88	134.6	575	324	168	131.8	143.8	100.7	60.7	27.9	18.7
24	55	18	78	91	138.5	569	325	169	135.6	145.6	100.1	63.8	27.3	17.4
25	56	19	94	93	142.1	571	326	176	139.3	152.9	107.3	69.4	23.8	10.1
26	57	20	86	77	137.6	569	325	170	134.8	149.5	104.5	67.8	23.4	9.7
27	58	21	79	75	140.2	568	327	174	137.5	149.7	104.0	67.8	24.5	9.3
28	59	22	88	78	138.0	571	336	175	135.4	147.7	103.4	68.8	28.8	10.2
MEAN			89.8	90.9	145.4	572	336	181	141.8	153.3	102.1	64.7	32.8	27.2

* Adjusted for burst.

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



OBSERVED AND PREDICTED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	28.8	33.0	37.5 (1)	41.7 (3)	46.2 (6)	50.6 (9)
1978	55.6 (12)	61.1 (14)	66.5 (17)	72.0 (20)	78.3 (23)	83.8 (26)	88.2 (29)	92.0 (33)	95.6 (35)	99.3 (36)	104.0 (35)	110.2 (35)
1979	115.5 (35)	119.9 (35)	124.1 (37)	127.3 (38)	130.1 (39)	134.2 (41)	138.6 (43)	141.5 (44)	143.0 (47)	143.5* (49)	143.3 (52)	142.3 (54)
1980	140.6 (54)	139.1 (54)	138.5 (52)	138.6 (53)	137.6 (54)	134.7 (54)	131.5 (55)	128.8 (55)	127.4 (54)	126.7 (54)	125.5 (55)	124.4 (57)
1981	124.5 (58)	123.9 (58)	121.6 (56)	118.8 (55)	116.9 (54)	115.3 (52)	114.9 (50)	115.1 (49)	114.8 (48)	113.7 (47)	111.9 (45)	109.0 (43)
1982	105.6 (41)	102.4 (40)	99.9 (39)	98.2 (38)	96.1 (36)	93.2 (35)	89.2 (33)	84.8 (31)	81.0 (29)	76.9 (25)	73.9 (24)	70.6 (23)
1983	67.0 (22)	64.6 (22)	62.9 (22)	61.1 (23)	59.2 (23)	57.0 (23)	55.3 (24)	53.8 (25)	52.3 (27)	51.0 (29)	50.0 (30)	49.3 (30)
1984	48.1 (30)	46.3 (30)	43.6 (29)	40.4 (28)	37.9 (29)	36.6 (31)	35.4 (31)	33.6 (31)	32.2 (30)	31.3 (29)	30.2 (27)	28.8 (27)
1985	27.8 (27)	26.9 (26)	26.0 (26)	25.5 (26)	24.7 (26)	23.8 (24)	23.0 (23)	22.2 (22)	21.5 (22)	20.7 (23)	19.7 (24)	19.2 (24)
1986	19.1 (24)	18.7 (24)	18.2 (23)	17.3 (22)	16.2 (21)	15.2 (20)	14.4 (19)	13.8 (18)	13.4 (17)	13.0 (15)	12.8 (14)	12.5 (13)
1987	12.5 (11)	12.7 (11)	13.3 (11)	14.0 (11)	14.9 (13)							

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 ± 47.

Hα SOLAR FLARES

FEBRUARY 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	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	0124	0145	0223	N21	E27	.619	15126	3.1	59	1N	3	V		195		F
MANI	01	0141	0150	0219D	N19	E27	.600		3.1	38D	SN	3	P		140	1.7	F
MONT	01	0919	0925	0932	N22	E90	1.001		8.1	13	SF		C	0925	20		B
MONT	01	0955	0959	1003	N26	E60	.918		5.9	8	SF		C	0959	50		
PALE	01	2125	2127	2128	N21	E16	.526		3.1	3	SF	3	C		20		DE
PALE	01	2307	2321U	2332	S28	W 4	.371		1.7	25	SF	3	C		27		DE
PALE	01	2315	2315	2321	N21	E15	.519		3.1	6	SF	3	C		28		DE
PALE	01	2359	0002	0016	N21	E15	.519		3.1	17	SN	2	C		44		DE
MANI	02	0817	0823	0835	N21	E13	.505		3.3	18	SN	3	P		80	1.0	F
TEHR	02	0823	0825	0836	N19	E 9	.454		3.0	13	SF	1	C		64		F
HTPR	02	0842	0844	0903	N22	E12	.513		3.3	21	SF		C	0844	20	.2	E
HTPR	02	0859	0902	0906	S17	W17	.336		1.1	7	SF		C	0902	10	.1	
HTPR	02	0907	0908	0921	S33	W14	.493		1.3	14	SF		C	0908	10	.1	
HTPR	02	0945	1002	1017	S28	W15	.435		1.3	32	SF		C	1002	20	.2	E
HTPR	02	1039	1050	1105	S24	W13	.366		1.5	26	SF		C	1050	30	.3	E
HTPR	02	1045	1046	1050	S25	W22	.470		31.8	5	SF		C	1046	10	.1	
HTPR	02	1128	1131	1135	S29	W20	.490		1.0	7	SF		C	1131	20	.2	E
HTPR	02	1133		1150D	N22	E11	.507	15126	3.3	17D	1B		C	1136	250	2.5	E
HTPR	02	1137		1150D	N18	E03	.418		2.7	13D	SF		C	1140	10	.1	
TEHR	02	1137	1141	1155	N19	E 7	.445		3.0	18	SN	1	C		95		F
HTPR	02	1352	1354	1405	N26	E78	.991		8.4	13	SF		C	1354	40	.9	
MCMA	02	1418	1422	1440	S30	W14	.453	15124	1.5	22	SF		C	1422	60	.7	E
MCMA	02	1457	1459	1505	N22	E85	.999	15135	9.0	8	SF		C	1459			D
MCMA	02	1606	1608	1643	S30	W17	.476	15124	1.4	37	SN		C	1608	45	.5	EH
MCMA	02	1608	1610	1630D	N22	E76	.984	15135	8.4	22D	SF		C	1610			D
MCMA	02	1630	1646	1655	N22	E76	.984	15135	8.4	25	SN		C	1646			E
MCMA	02	1720	1730	1738D	S30	W16	.468	15124	1.5	18D	SN		C	1730	60	.6	EH
MCMA	02	1734		1753D	N22	E74	.977	15135	8.3	19D	SN		C	1747			D
MCMA	02	1823	1825	1840	S30	W18	.484	15124	1.4	17	SN		C	1825	35	.4	EH
MCMA	02	1830	1842	1900D	S27	W16	.431	15124	1.6	30D	SN		C	1842	75	.8	E
MCMA	02	1835	1840	1858	N22	E74	.977	15135	8.3	23	SN		C	1840	20		D
PALE	02	1838	1845	1925	S28	W15	.435		1.7	47	SF	3	C		125		F H
PALE	02	1838	1845	1925	S28	W15	.435		1.7	47	SF	3	V		125		F H
PALE	02	1914	1922	1932	N21	E 4	.466		3.1	18	SF	3	V		38		
PALE	02	1914	1922	1932	N21	E 4	.466		3.1	18	SF	3	C		38		
PALE	02	2126	2126	2147	S28	W16	.443		1.7	21	SF	3	C		27		
PALE	02	2126	2126	2147	S28	W16	.443		1.7	21	SF	3	V		27		
PALE	02	2138	2147	2209D	N21	E 3	.464	15128	3.1	31D	1N	3	C		289		FDE
PALE	02	2336E	2337U	2355D	N21	E 3	.464		3.2	19D	SN	3	C		126		FDE
PALE	02	2359	0002	0016	N21	E15	.518		4.1	17	SN	3	C		44		DE
PALE	03	0157	0158	0207	S28	W18	.462		1.7	10	SF	3	C		54		F
PALE	03	0216E	0218U	0252D	N25	E70	.965		8.3	36D	SN	3	C		92		FDE
CATA	03	0750	0750	0755	S28	W26	.541		1.4	5	SB	2	C	0750	56	.6	
CATA	03	0805	0805	0805D	S32	W28	.595		1.2		SB	2	P	0805	56	.7	
HTPR	03	0806E		0820	N21	E60	.906		7.8	14D	SN		C	0806	100	2.0	
HTPR	03	0837	0840	0843	N27	E66	.951		8.3	6	SF		C	0840	50	1.1	
HTPR	03	0837	0840	0843	N20	E60	.904		7.9	6	SF		C	0840	50	1.0	
MONT	03	0837	0841	0846	N27	E67	.955		8.4	9	SF		C	0841	50		
MONT	03	0843	0846	0852	N35	W13	.685		2.4	9	SF		C	0846	40		E
MONT	03	0845	0852	0906	N22	W03	.479		3.1	21	SN		C	0852	100		E
HTPR	03	0847	0851	0912	N23	W02	.492		3.2	25	SF		C	0851	80	.8	
HTPR	03	0850	0856	0906	N22	W10	.501		2.6	16	SF		C	0856	20	.2	
MONT	03	0931	0932	0936	N27	E67	.955		8.4	5	SB		C	0932	50		
HTPR	03	0932	0932	0937	N20	E65	.934		8.3	5	SN		C	0932	60	1.2	
MONT	03	1021	1026	1044	N19	E62	.915		8.1	23	SN		C	1026	80		E
HTPR	03	1104	1106	1109	S31	W29	.596		1.3	5	SF		C	1106	20	.2	
MONT	03	1250	1255	1304	S26	W22	.480		1.9	14	SF		C	1255	40		E
HTPR	03	1305	1307	1310	N20	E65	.934		8.4	5	SF		C	1307	50	1.0	
MONT	03	1306	1307	1313	N27	E65	.946		8.4	7	SB		C	1307	50		
MONT	03	1306	1309	1314	S30	W31	.608		1.2	8	SF		C	1309	40		DH
MCMA	03	1346	1349	1355	S31	W32	.626	15124	1.2	9	SB		C	1349	60	.8	DH
HTPR	03	1348		1349D	S30	W32	.618		1.2	1D	SN		C	1349	50	.6	
RAMY	03	1349	1349	1358	S30	W23	.530		1.9	9	SB	3	C		47		DE H
MCMA	03	1359	1403	1420	N20	E62	.917	15135	8.2	21	SB		C	1403	50	1.2	E
MCMA	03	1410		1445	N34	W17	.689	15136	2.3	35	SN		C	1415	25	.3	D
MCMA	03	1450	1455	1505	N34	W17	.689	15136	2.3	15	SN		C	1455	50	.7	E
MCMA	03	1522		1530D	N22	W10	.501	15126	2.9	8D	SN		C	1524	50	.6	E
MCMA	03	1536	1539	1543	S32	W33	.643	15124	1.2	7	SB		C	1539	50	.7	EH
HTPR	03	1536	1539	1541	S30	W33	.629		1.2	5	SF		C	1539	30	.3	
HTPR	03	1539	1540	1542	S28	W35	.636		1.0	3	SF		C	1540	30	.3	

Hα SOLAR FLARES

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CORD.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MCMA	03	1605	1611	1645	N21	E57	.885	15135	7.9	40	1B		C	1611	150	3.1	E
MCMA	03	1634	1646	1725	N34	W20	.703	15136	2.2	51	SB		C	1646	60	.9	E
MCMA	03	1701	1708	1720	N20	E59	.897	15135	8.1	19	SN		C	1708	75	1.5	E
MCMA	03	1728	1730	1800	N28	E60	.922	15134	8.2	32	SB		C	1730	30	.8	D
MCMA	03	1750	1810	1837D	N34	W20	.703	15136	2.2	47D	SN		C	1810	50	.7	E
┌MCMA	03	1802	1804	1815	N20	E58	.890	15135	8.1	13	SF		C	1804	60	1.2	E
└MCMA	03	1806	1820	1832	N28	E59	.917	15134	8.2	26	SF		C	1820	25	.6	D
MCMA	03	1803	1809	1819	S28	W33	.615	15124	1.3	16	SN		C	1809	30	.4	D
MCMA	03	1838	1845	1915D	N34	W20	.703	15136	2.3	37D	SN		C	1845	50	.7	E
MCMA	03	1850	1856	1915	N28	E59	.917	15134	8.2	25	SN		C	1856	20	.5	D
MCMA	03	1912	1918	1923	S28	W34	.626	15124	1.3	11	SN		C	1918	25	.3	D
MCMA	03	1951E	2003	2013D	S32	W26	.577	15124	1.9	22D	1N		C	2003	170	2.1	E
PALE	03	2012	2343	0017D	N20	E53	.852	15135	7.8	245D	1F	3	C		165		
MCMA	03	2015E		2015D	N34	W22	.713	15136	2.2		SB		P	2015	80	1.2	E
PALE	03	2026E	2027U	2158D	N33	W18	.682		2.5	92D	3N	3	C		594		FDE
PALE	03	2116	2125	2154	N21	W10	.487		3.1	38	SN	3	C		117		DE
┌HTPR	04	0859	0901	0907	S26	W40	.680		1.4	8	SN		C	0901	40	.5	E
└CATA	04	0905	0905	0915	S27	W41	.695	15124	1.3	10	1B	2	C	0905	168	2.4	
HTPR	04	0907	0910	0918	N20	E50	.827		8.1	11	SF		C	0910	10	.1	
HTPR	04	1521	1524	1532	N34	W26	.735		2.7	11	SF		C	1524	30	.3	
MCMA	04	1650	1651	1655	S32	W45	.756	15124	1.3	5	SN		C	1651	25	.4	E
MCMA	04	1710	1713	1734D	N16	W37	.681	15125	1.9	24D	SF		C	1713	80	1.2	E
PALE	04	1814	1817	1858	N20	E42	.755		7.9	44	SF	3	C		67		DE
PALE	04	1853	1857	1906	N33	W30	.750		2.5	13	SN	3	C		31		DE
PALE	04	2249	2249	2301	N25	E45	.807		8.3	12	SF	3	C		69		DE
PALE	05	0107	0109	0112	N21	E36	.703		7.7	5	SF	3	C		25		F
PALE	05	0116	0131	0156	N21	E35	.693	15135	7.7	40	1F	3	C		150		F
HTPR	05	1037	1040	1056	N18	E40	.724		8.4	19	SF		C	1040	30	.4	E
HTPR	05	1054	1058	1110	N24	W26	.636		3.5	16	SF		C	1058	10	.1	
HTPR	05	1122E		1140	S27	W47	.757		1.9	18D	SF		C	1125	20	.3	
CATA	05	1140	1155	1205	N14	E90	1.000	15139	12.2	25	1N	2	C	1155	84		T
RAMY	05	1220E	1226	1232	N19	E34	.669		8.1	12D	SN	3	C		86		DE
CATA	05	1310	1315	1340	N14	E90	1.000	15139	12.3	30	2N	2	C	1315	168		
RAMY	05	1326	1332	1343D	N19	E36	.689		8.3	17D	SF	4	C		42		DE
RAMY	05	1412	1415	1424D	S31	W45	.752		2.2	12D	SF	4	C		28		
MCMA	05	1610E		1650D	N16	E90	1.000	15139	12.4	40D	SN		C	1624			E
RAMY	05	1618	1627	1631	S28	E30	.584		7.9	13	SF	4	C		19		
┌MCMA	05	1623	1628	1640	S28	W48	.769	15124	2.1	17	SN		C	1628	30	.5	E
└RAMY	05	1626	1629	1641	S31	W46	.761		2.2	15	SN	4	C		49		F H
PALE	05	1953	1959	2002	N15	E80	.990		11.8	9	SN	3	C		18		DE
┌CATA	06	0830E	0830	0850	N20	W39	.725		3.4	20D	SB	2	P	0830	84	1.2	
└HTPR	06	0832	0833	0850	N20	W40	.735		3.4	18	SN		C	0833	80	1.0	E
HTPR	06	0928	0931	0936	N20	W40	.735		3.4	8	SF		C	0931	10	.1	
HTPR	06	0950	0956	1002	N20	W40	.735		3.4	12	SF		C	0956	10	.1	
MONT	06	1118	1120	1123	N27	E26	.665		8.4	5	SF		C	1120	20		D
HTPR	06	1203	1207	1214	S27	E21	.482		8.1	11	SF		C	1207	10	.1	
HTPR	06	1215	1219	1222	N20	W39	.725		3.6	7	SF		C	1219	10	.1	
MCMA	06	1431	1433	1437	N18	W44	.763	15126	3.3	6	SN		C	1433	40	.6	E
MCMA	06	1513	1515	1523	N14	E68	.942	15139	11.7	10	SN		C	1515	30	.9	D
MCMA	06	1529	1531	1536	N14	E68	.942	15139	11.7	7	SF		C	1531	30	.9	D
HTPR	06	1552	1554	1556	N25	E16	.572		7.9	4	SF		C	1554	10	.1	
┌HTPR	06	1608	1609	1619	S27	W60	.870		2.2	11	SF		C	1609	20	.4	
└MCMA	06	1612	1614	1622	S28	W61	.879	15124	2.1	10	SF		C	1614	25	.5	D
HTPR	06	1620		1630D	N25	E16	.572		7.9	10D	SF		C	1630	20	.2	
MCMA	06	1733E		1734D	N18	W50	.819	15126	3.0	1D	SN		P	1733	50	.9	E
PALE	06	2159	2228	2255	N20	E25	.587		8.8	56	SF	3	C		28		F
┌PALE	06	2234	2236	2241	N13	E61	.896		11.5	7	SN	3	C		12		F
└PALE	06	2334	2336	2350	N12	E64	.915		11.8	16	SN	3	C		44		F
PALE	07	0118	0220	0231	N12	E59	.878		11.5	73	SN	3	C		70		F
HTPR	07	0822	0837	0900	N17	E08	.415		7.9	38	SN		C	0837	90	.9	E
HTPR	07	0920	0921	0935	N20	E05	.449		7.8	15	SF		C	0921	30	.3	E
HTPR	07	1043	1043	1057	N20	E05	.449		7.8	14	SF		C	1043	30	.3	E
MONT	07	1138	1143	1149	N13	E51	.811		11.3	11	SF		C	1143	50		E
HTPR	07	1324	1330	1335	N13	E27	.544		9.6	11	SF		C	1330	30	.3	
MCMA	07	1425E		1600D	N15	E55	.852	15139	11.7	95D	1N		C	1500	220	4.2	EKL
HTPR	07	1452	1500	1509	N17	E08	.415		8.2	17	SF		C	1500	20	.2	E
┌HTPR	07	1527	1538	1600	N26	E07	.543		8.2	33	SF		C	1538	40	.4	E
└MCMA	07	1527	1538	1620D	N27	E06	.555	15134	8.1	53D	SN		C	1538	80	1.0	E

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CORD.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
MCMA	07	1658	1707	1709D	N35	W74	.987	15136	2.2	11D	SF		C	1707	20	.8	D
MCMA	07	1707	1723	1815	N26	E04	.536	15134	8.0	68	SN		C	1723	120	1.5	EH
PALE	07	1746	1758	1847	N25	E 7	.529		8.3	59	SF	3	C		40		F
MCMA	07	1707	1709	1715	N17	W65	.929	15126	2.8	8	SN		C	1709	20	.7	D
PALE	07	1825	1830	1836	N53	E14	.869		8.8	11	SN	3	C		25		F
PALE	07	1825	1830	1836	N14	E53	.832		11.7	11	SN	3	C		25		F
PALE	07	1842	1858	1937	N14	E54	.841		11.8	55	SB	3	C		102		F
PALE	07	1842	1858	1937	N54	E14	.877		8.8	55	SB	3	C		102		F
PALE	07	1935	1943	1956	N26	W62	.928		3.2	21	SF	3	C		25		F
MCMA	07	1935	1940	1957	N26	W63	.934	15126	3.1	22	SN		C	1940	20	.6	D
PALE	07	1941	1950	2002	N14	E51	.814		11.6	21	SN	3	C		66		F
PALE	07	2013	2114	2310	N13	E49	.791	15139	11.5	177	1N	3	C		185		UDE
PALE	07	2039	2043	2053	N25	E 6	.526		8.3	14	SF	3	C		64		F
PALE	07	2219	2226	2302	N25	E 5	.524		8.3	43	SF	3	C		132		DE F
MANI	08	0355E	0400	0418D	N13	E45	.750	15139	11.5	23D	2N	2	P		400	6.3	F
MANI	08	0449E	0449U	0456D	N14	E48	.785	15139	11.8	7D	1F	2	P		150	2.5	
MANI	08	0712	0716	0732	N26	W03	.534	15134	8.1	20	1B	3	P		250	3.1	
MONT	08	0718E	0809	0825	N27	W01	.547	15134	8.2	67D	1N		C	0809	250		F
HTPR	08	0745E		0801	N26	W04	.535		8.0	16D	SF		C	0748	100	1.0	E
MONT	08	0718E	0723	0726	N14	E47	.775		11.8	8D	SF		C	0723	40		E
HTPR	08	0830	0832	0834	N14	E46	.765		11.8	4	SF		C	0832	20	.3	
HTPR	08	0844	0847	0849	N14	E46	.765		11.8	5	SF		C	0847	20	.3	
MONT	08	0845	0846	0849	N14	E47	.775		11.9	4	SF		C	0846	50		D
HTPR	08	0902	0906	0920	N19	W03	.427		8.2	18	SF		C	0906	30	.3	E
MONT	08	0904	0906	0919	N20	W01	.441		8.3	15	SF		C	0906	60		E
MONT	08	0918	0920	0925	N13	E39	.685		11.3	7	SN		C	0920	70		D
MONT	08	1046	1048	1054	N14	E46	.765		11.9	8	SF		C	1048	50		D
HTPR	08	1047	1048	1052	N14	E45	.754		11.8	5	SF		C	1048	10	.1	
HTPR	08	1111	1114	1138	N27	W05	.552		8.1	27	SF		C	1114	20	.2	E
MONT	08	1112	1122	1155D	N28	W02	.562		8.3	43D	SN		C	1122	80		E
CATA	08	1120E	1145	1210	N26	W03	.534	15134	8.2	50D	1B	1	P	1145	224	2.7	
MONT	08	1119	1121	1125	N13	E38	.673		11.3	6	SF		C	1121	40		E
HTPR	08	1225	1228	1315	N26	W05	.537		8.1	50	SF		C	1228	30	.3	E
HTPR	08	1225	1303	1315	N26	W05	.537		8.1	50	SF		C				
MONT	08	1226	1232	1234D	N28	W02	.562		8.4	8D	SF		C	1232	60		E
HTPR	08	1343	1346	1353	N21	W04	.460		8.3	10	SF		C	1346	20	.2	E
RAMY	08	1406	1406	1415	N15	E41	.717		11.7	9	SB	4	C		22		F
RAMY	08	1418	1419	1440	N15	E41	.717		11.7	22	SB	4	C		49		F H
HTPR	08	1432	1434	1436	N14	E45	.754		12.0	4	SN		C	1434	60	.8	E
HTPR	08	1419	1426	1525	N26	W05	.537		8.2	66	SN		C	1426	80	.9	EK
RAMY	08	1423	1424	1454	N25	W 6	.525		8.1	31	SN	4	C		81		FDE
RAMY	08	1441	1444	1450D	N15	E45	.759		12.0	9D	SB	4	C		63		F H
MCMA	08	1442E		1501	N19	W86	1.000	15126	2.2	19D	SN		C	1449			D
RAMY	08	1449	1450U	1455	N17	E73	.969		14.1	6	SN	4	C		13		DE
HTPR	08	1506	1512	1520	N21	W05	.463		8.3	14	SF		C	1512	20	.2	
HTPR	08	1555	1602	1608	N13	E37	.662		11.4	13	SF		C	1602	20	.2	E
RAMY	08	1603	1605	1610D	N15	E40	.706		11.7	7D	SB	4	C		56		F H
MCMA	08	1620	1622	1624D	N19	W87	1.000	15126	2.2	4D	SN		C	1622			D
RAMY	08	1629	1631	1647	N25	W 7	.528		8.2	18	SN	4	C		59		
MCMA	08	1640E		1654D	N27	W10	.567	15134	7.9	14D	SF		C	1640	50	.6	E
RAMY	08	1638	1640	1643	N15	E44	.748	15139	12.0	5	1N	4	C		89		H
MCMA	08	1640E		1654D	N14	E40	.701	15139	11.7	14D	SN		P	1640	80	1.1	EL
RAMY	08	1756	1759	1802	N15	E39	.695		11.7	6	SB	3	C		29		
RAMY	08	1906	1907	1910	N15	E38	.684		11.6	4	SB	3	C		23		
RAMY	08	1946	1948	1950	N15	E38	.684		11.7	4	SB	3	C		146		
PALE	08	1958	2001	2020	N13	E41	.707		11.9	22	SN	3	C		55		F
PALE	08	2002	2109	2315	N26	W10	.553		8.1	193	SF	3	C		73		F
PALE	08	2114	2116	2320	N13	E41	.707	15139	12.0	126	1B	3	C		290		F H
PALE	08	2317	0203	0257	N14	E48	.785	15139	12.6	220	1B	3	C		255		U F
PALE	08	2150	2152	2201	N21	W15	.513		7.8	11	SF	3	C		34		F
PALE	08	2325	0020	0135	N16	E36	.668		11.7	130	SN	3	C		130		DE F
MANI	09	0449	0450	0517D	N14	E36	.656		11.9	28D	SN	3	P		130	1.8	F
MANI	09	0504	0509	0528D	N27	W12	.574		8.3	24D	SN	3	P		150	1.9	F
MANI	09	0620E	0624	0630	N14	E37	.667		12.0	10D	SN	3	P		140	2.0	F
MCMA	09	1511	1513	1519	N21	W14	.505	15135	8.6	8	SF		C	1513	25	.3	D
MCMA	09	1613	1617	1620	N18	W11	.445	15135	8.9	7	SF		C	1617	30	.3	E
MCMA	09	1739E		1745	N15	W12	.410	15135	8.8	6D	SF		C	1739	25	.3	E
MCMA	09	1823	1824	1831D	N21	W16	.519	15135	8.6	8D	SN		C	1824	30	.3	E
MCMA	09	1825	1831	1920	N15	E28	.571	15139	11.9	55	1B		C	1831	160	2.0	EHY
MCMA	09	1857E		1907	S29	W26	.553	15132	7.8	10D	SF		P	1857	30	.4	E

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		CORD.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
MCMA	09	1926	1930	1954	N28	W18	.619	15134	8.5	28	SB		C	1930	125	1.7	E
MANI	09	2256E	2256U	2307D	N14	E27	.552	15139	12.0	110	1F	2	P		350	4.4	FE
MANI	10	0019	0026	0055	N14	E23	.505	15139	11.7	36	1B	3	P		320	3.9	FE
MANI	10	0217	0221	0240	N14	E25	.528	15139	12.0	23	1N	3	P		200	2.4	F
MANI	10	0522	0525	0554	N14	E22	.494		11.9	32	SF	3	P		60	.7	F
MANI	10	0659	0702	0717	N12	E15	.397		11.4	18	SN	3	P		150	1.7	
MCMA	10	1716E	1739	1808D	N16	E16	.456	15139	11.9	52D	1B		C	1739	300	3.4	EKL
MCMA	10	1835E		1858D	N14	E08	.367	15139	11.4	23D	SN		C	1835	80	.9	E
MCMA	10	1906E	1911	2015D	N25	W35	.720	15134	8.2	69D	SF		P	1911	80	1.2	E
MCMA	10	1911	1934	2015D	N14	E08	.367	15139	11.4	64D	SN		C	1934	75	.9	EFK
MANI	11	0110	0112	0140	N27	W40	.775		8.0	30	SF	3	P		70	1.1	
MANI	11	0203	0205U	0221	N14	E05	.351		11.5	18	SN	3	P		80	.9	F
MANI	11	0205	0208	0218	N17	W25	.555		9.2	13	SF	3	P		40	.5	
MANI	11	0320	0324	0343	N13	W12	.381		10.2	23	SN	3	P		70	.8	
MANI	11	0753	0755	0806	N13	E11	.372		12.2	13	SN	3	P		160	1.8	
MANI	11	0815	0818	0832	N12	E11	.358		12.2	17	SN	3	P		120	1.3	
MCMA	11	1407	1409	1415	N15	W08	.381	15139	11.0	8	SF		C	1409	60	.7	EH
CATA	11	1408	1410	1415	N14	W09	.372		10.9	7	SB	2	C	1410	140	1.5	H
MCMA	11	1425	1428	1448	N14	E07	.360	15139	12.1	23	1B		C	1428	200	2.2	EL
CATA	11	1429	1429	1438	N14	E06	.355	15139	12.1	9	1B	2	C	1429	224	2.4	
MCMA	11	1701	1705	1750	N13	W05	.335	15139	11.3	49	SN		C	1705	100	1.1	EL
MCMA	11	1815E	1820	1828D	N15	W10	.393	15139	11.0	13D	SN		C	1820	40	.5	EL
MCMA	11	1846E		1848	N18	W08	.426	15139	11.2	2D	SN		C	1846	25	.3	EL
MCMA	11	1940		2019D	N14	W07	.360	15139	11.3	39D	SN		C	1950	150	1.6	E
MCMA	11	1942	1952	2019D	N28	W43	.805	15134	8.6	37D	SN		C	1952	40	.7	E
MANI	11	2350E	2350U	0019	N13	W07	.345	15139	11.5	29D	1B	3	P		300	3.3	F
MANI	12	0002E	0002U	0030	N18	E00	.404		12.0	28D	SF	3	P		80	.9	
MANI	12	0138	0144	0150	N18	W11	.442		11.2	12	SF	3	P		150	1.7	
HTPR	12	1103	1105	1205	N13	W19	.449		11.0	62	SB		C	1105	120	1.2	
CATA	12	1105E	1105	1105D	N11	W17	.405	15139	11.2		1B	2	P	1105	196	2.2	
HTPR	12	1153	1201	1205	N15	W22	.503		10.8	12	SF		C	1201	20	.2	
HTPR	12	1307	1310	1346	N14	E04	.346	15139	12.8	39	1N		C	1310	320	3.2	EK
MCMA	12	1332E		1348	N14	W05	.350	15139	12.2	16D	SN		C	1332	100	1.1	E
MCMA	12	1405E		1430D	N28	W53	.877	15134	8.6	25D	SF		C	1411	50	1.2	E
MCMA	12	1520E		1600D	N14	W15	.420	15139	11.5	40D	SF		C	1525	120	1.4	E
MCMA	12	1603	1611	1618D	N14	W15	.420	15139	11.5	15D	SN		C	1611	100	1.2	E
MCMA	12	1830E		1837D	N14	W08	.365	15139	12.2	7D	SN		C	1832	50	.6	E
MCMA	12	1846	1853	1902D	N13	W17	.428	15139	11.5	16D	1B		C	1853	175	2.0	EKL
MANI	13	0139	0143	0400	N13	W24	.505	15139	11.3	141	1N	3	P		180	2.1	F
MANI	13	0139	0151	0400	N13	W24	.505	15139	11.3	141	1B	3	P		200	2.4	
MANI	13	0140	0143	0400	N19	W14	.475		12.0	140	SF	3	P		100	1.2	
MANI	13	0140	0150	0400	N19	W14	.475	15139	12.0	140	1B	3	P		280	3.3	
MANI	13	0408	0414	0422	N13	W32	.601		10.8	14	SN	3	P		120	1.6	
HTPR	13	0818E	0819	0849	N14	W07	.358		12.8	31D	SN		C	0819	120	1.2	EK
MANI	13	0822E	0824	0836	N14	W14	.409		12.3	14D	SN	3	P		180	2.1	F
MANI	13	0836E	0840	0840D	N14	W31	.596		11.0	4D	SF	3	P		80	1.0	
MANI	13	0836	0837	0840D	N08	W25	.477		11.5	4D	SF	3	P		40	.5	
HTPR	13	0858	0859	0902	N14	W31	.596		11.0	4	SN		C	0859	20	.2	
HTPR	13	0948	0950	1002	N14	W31	.596		11.1	14	SF		C	0950	10	.1	
HTPR	13	1036	1037	1045	N10	W27	.518		11.4	9	SB		C	1037	50	.6	E
HTPR	13	1330	1333	1342	N12	W20	.449		12.1	12	SN		C	1333	40	.4	E
HTPR	13	1451E		1456D	N11	W28	.538		11.5	5D	SF		C	1454	20	.2	
HTPR	13	1451E		1456D	N16	W39	.699		10.7	5D	SF		C	1454	20	.2	
HANI	13	2325E	2325U	2340D	N13	W32	.601		11.6	15D	SN	3	V		60	.8	F
MANI	13	2330E	2331	2338D	N18	W37	.689		11.2	8D	SN	3	V		50	.7	
HTPR	14	1110	1112	1140	N12	W41	.700		11.4	30	SN		C	1112	140	1.8	EK
CATA	14	1115	1120	1145	N10	W40	.680		11.5	30	SN	2	C	1120	112	1.5	
HTPR	14	1124	1127	1143	N14	W47	.773		11.0	19	SN		C	1127	20	.3	
HTPR	14	1124	1127	1150	N11	W46	.752		11.0	26	SN		C	1127	20	.3	
CATA	14	1130	1135	1200	N09	W46	.745		11.0	30	SB	2	C	1135	56	.8	
CATA	14	1225	1230	1240	N15	W48	.787		10.9	15	SB	2	C	1230	56	.9	
HTPR	14	1225	1227	1232	N16	W51	.818		10.7	7	SF		C	1227	10	.2	
HTPR	14	1228	1230	1233	N12	W43	.723		11.3	5	SF		C	1230	20	.3	
MCMA	14	1420	1436	1445	N17	W44	.755	15139	11.3	25	SN		C	1435	60	1.0	H
HTPR	14	1421	1428	1442	N17	W45	.765		11.2	21	SF		C	1428	10	.1	
CATA	14	1430E	1435	1435D	N16	W44	.751		11.3	5D	SB	2	P	1435	112	1.7	
RAMY	14	1435	1437	1439	N16	W46	.771	15139	11.2	4	SN	3	C		32		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	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.	
RAMY	14	1529	1532	1536	N27	E66	.949		19.6	7	SB	3	C		28		
MCMA	14	1529	1530	1540	N27	E68	.958	15153	19.7	11	SN		C	1530	30	1.2	E
HTPR	14	1530	1532	1540	N28	E68	.959		19.7	10	SN		C	1532	50	1.1	E
RAMY	14	1620	1623	1626D	N14	W39	.687	15139	11.8	6D	SN	3	V		28		
RAMY	14	1620	1623	1632	N13	W42	.716	15139	11.5	12	SN	3	C		28		F
MCMA	14	1720	1722	1745	N12	W48	.776	15139	11.1	25	SN		C	1722	100	1.7	E
PALE	14	1754	1807	1823	N15	W42	.725		11.6	29	SN	3	C		60		DE
PALE	14	1754	1758	1823	N15	W42	.725		11.6	29	SF	3	C		30		DE
PALE	14	1853	1909	1954	N15	W43	.736		11.6	61	SN	3	C		36		DE
RAMY	14	2001	2004	2021	S32	E12	.479		15.7	20	SN	3	C		41		
RAMY	14	2046	2047	2055	N14	W42	.720		11.7	9	SB	3	C		74		
RAMY	14	2115	2117	2124	S30	W10	.439		14.1	9	SN	3	C		34		
MANI	15	0405E	0405U	0424	N11	W52	.813		11.3	19D	SN	3	V		80	1.4	F
MANI	15	0720E	0720U	0725D	N14	W48	.783		11.7	5D	SF	2	V		30	.5	
BUCA	15	0738		0840	N17	W45	.765		11.9	62	SF		C	0753	53	.9	E
BUCA	15	0746		0811	N15	W49	.796		11.6	25	SN		C	0753	64	1.1	
CATA	15	0750	0755	0835	N14	W48	.783	15139	11.7	45	1B	2	C	0755	151	2.5	
MONT	15	0752E	0756	0845	N15	W47	.776		11.8	53D	SN		C	0756	150		
MANI	15	0753E	0755	0845D	N15	W46	.766		11.9	52D	SF	2	V		80	1.3	F
HTPR	15	0748E		0808	N13	W36	.647		12.6	20D	SN		C	0753	50	.6	E
HTPR	15	0748E		0830	N16	W32	.620		12.9	42D	SN		C	0751	40	.4	E
MONT	15	0906	0915	0932	N11	W56	.850		11.2	26	SN		C	0915	70		E
HTPR	15	0919	0927	0937	N28	E55	.889		19.5	18	SF		C	0927	20	.3	E
MONT	15	0923	0927	0941	N27	E53	.872		19.4	18	SF		C	0927	40		D
MONT	15	1005	1012	1032	N34	E60	.934		19.9	27	SN		C	1012	60		E
HTPR	15	1006		1020D	N33	E56	.911		19.6	14D	SF		C	1010	20	.3	E
TEHR	15	1012E	1015	1032	N27	E55	.886		19.6	20D	SB	2	C		63		
MONT	15	1048	1051	1108	N15	W52	.824		11.6	20	SN		C	1051	100		EF
MONT	15	1110	1113	1120	N18	W41	.729		12.4	10	SF		C	1113	60		E
TEHR	15	1116E	1121	1126	N18	W42	.740		12.3	10D	SB	2	C		95		U F
MONT	15	1114	1124	1134	N32	E58	.919		19.8	20	SF		C	1124	60		E
MONT	15	1129	1137	1146	N15	W57	.867		11.2	17	SF		C	1137	20		D
RAMY	15	1334	1343	1349	N14	W51	.812		11.7	15	SB	3	C		18		
MONT	15	1345	1348	1404	N16	W51	.818		11.7	19	SB		C	1348	80		E
RAMY	15	1350E	1352	1423	N14	W51	.812	15139	11.8	33D	SN	3	C		57		
RAMY	15	1458	1458	1502	N32	E57	.913		19.9	4	SB	3	C		30		
RAMY	15	1534	1537	1542	N32	E56	.908	15153	19.8	8	SN	3	C		23		
RAMY	15	1534	1535	1540D	N32	E56	.908	15153	19.8	6D	SN	3	V		18		
MCMA	15	1534	1539	1545	N34	E60	.934	15153	20.1	11	SF		C	1539	30	.8	E
RAMY	15	1652	1656	1658	N32	E56	.908		19.9	6	SB	3	C		15		DE
MCMA	15	1710E		1723D	N15	W53	.833	15139	11.7	13D	SN		P	1715	35	.7	E
RAMY	15	1838	1841	1858	N32	E55	.902	15153	19.9	20	SN	3	C		173		DE H
PALE	15	1838	1841	1858	N31	E54	.893	15153	19.8	20	2N	3	C		183		DE
MCMA	15	1843E		1852D	N34	E56	.914	15153	20.0	9D	1N		P	1843	110	2.6	EL
PALE	15	1858	1858	1913	N15	W56	.859		11.6	15	SN	3	C		20		DE
PALE	15	1915	1916	1919	S32	W 1	.444		15.7	4	SF	3	C		22		DE
RAMY	15	1916	1916	1933	S33	E 4	.464		16.1	17	SF	4	C		21		H
RAMY	15	1939	1941	1944	N32	E54	.896		19.9	5	SB	4	C		29		DE
PALE	15	2217E	2237U	2253	N16	W49	.800	15139	12.3	36D	2N	3	C		184		DE
PALE	15	2330	0017	0036	N18	W55	.859		11.9	66	SB	3	C		126		FDE
MANI	15	2333E	2334	2358D	N15	W56	.859		11.8	25D	SF	2	V		50	1.0	F
MANI	16	0622E	0622U	0641	N17	W52	.830	15139	12.4	19D	1N	2	V		250	4.5	
RAMY	16	1329	1330	1332	N33	E40	.810		19.6	3	SB	3	C		26		
RAMY	16	1400	1413	1440D	N25	W30	.672	15155	14.3	40D	SN	3	C		43		
RAMY	16	1404	1405	1408	N12	W63	.907		11.9	4	SN	3	C		13		
RAMY	16	1447	1450	1455	N33	E39	.803		19.5	8	SN	3	C		18		
RAMY	16	1453	1460	1502	N12	W63	.907		11.9	9	SN	3	C		14		
RAMY	16	1531	1532	1544	N25	W30	.672		14.4	13	SB	3	C		22		
RAMY	16	1617	1619	1627	N25	W31	.681	15155	14.4	10	SN	3	C		19		
MCMA	16	1714E		1745	N27	W30	.690	15155	14.5	31D	SF		P	1714	30	.4	E
PALE	16	1802	1803	1810	S30	W34	.646		14.2	8	SN	3	C		25		DE
PALE	16	1803	1804	1808	S24	W26	.516		14.8	5	SN	3	C		25		DE
PALE	16	1822	1823	1828	N26	W25	.640		14.9	6	SN	3	C		24		DE
PALE	16	1836	1838	1847	N26	W30	.681		14.5	11	SN	3	C		49		DE
PALE	16	1911	1920	1941	N30	E38	.776		19.6	30	SN	3	C		21		DE
RAMY	16	1912	1915	1941	N33	E36	.783		19.5	29	SN	4	C		33		FDE
PALE	16	1921	1928	1936	N26	W30	.681		14.6	15	SN	3	C		64		DE
PALE	16	1940	1940	1951	N26	W30	.681		14.6	11	SB	3	C		76		DE F
RAMY	16	1940	1942	1951	N25	W33	.698		14.3	11	SB	3	C		46		DE
RAMY	16	1947	1951	1953	N33	E36	.783		19.5	6	SN	3	C		156		F

Hα SOLAR FLARES

FEBRUARY 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS
	DATE FEB	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	16	2011	2011	2017	N26	W30	.681		14.6	6	SN	3	C		30		DE
PALE	16	2022	2022	2026	N26	W30	.681		14.6	4	SN	3	C		24		DE
PALE	16	2027	2027U	2051D	N26	W31	.689		14.5	24D	SN	3	C		20		DE
PALE	16	2152E	2153U	2156	N16	W71	.959		11.6	4D	SN	3	C		25		F
PALE	16	2154E	2155	2210D	N26	W31	.689		14.6	16D	SN	3	C		35		F
PALE	16	2229	2250U	2311D	N27	W33	.714		14.5	42D	SF	3	C		31		F
PALE	16	2229	2237U	2311D	N27	W33	.714		14.5	42D	SN	3	C		135		F
PALE	16	2330	2333	0036	N15	W55	.850		12.9	66	SN	3	C		80		FDE
PALE	16	2342	2343	2347	N27	W33	.714		14.5	5	SN	3	C		24		F
PALE	17	0007	0008	0020	N27	W33	.714		14.5	13	SN	3	C		43		F
PALE	17	0022	0023	0036	N27	W33	.714		14.5	14	SN	3	C		44		F
PALE	17	0109	0110	0129	N27	W34	.722		14.5	20	SF	3	C		123		F
PALE	17	0141	0143	0150	N10	W75	.971	15139	11.4	9	1B	3	C		206		FDE
MANI	17	0144E	0144U	0155	N12	W75	.973	15139	11.4	11D	2N	3	P		360	9.2	F
MANI	17	0313E	0315	0325	N15	W65	.924	15139	12.3	12D	2B	3	V		280	5.9	
MANI	17	0525E	0527	0555D	N12	W77	.980	15139	11.5	30D	2F	2	V		320	7.8	
MANI	17	0525E	0526	0539D	N15	W66	.930	15139	12.3	14D	1F	2	V		200	4.4	
HTPR	17	0844	0851	0856	N27	W40	.772		14.4	12	SF		C	0851	20	.2	E
HTPR	17	0944	0946	0955	N14	W73	.966		11.9	11	SF		C	0946	10		
RAMY	17	1340E	1343U	1349D	N13	W71	.956	15139	12.2	9D	1N	3	C		25		
HTPR	17	1341		1342D	N14	W75	.974		11.9	1D	SF		C	1342	20		E
RAMY	17	1400	1401	1406D	S32	W44	.753		14.3	6D	SN	3	C		22		
PALE	17	1758	1800	1912	N25	W40	.759		14.7	74	SN	3	C		65		F
RAMY	17	1813	1826	1918	N23	W47	.809		14.2	65	SN	3	C		22		F
RAMY	17	1921	1927	1946	N23	W47	.809		14.3	25	SN	2	C		45		F
PALE	17	2215E	2226U	2245D	N25	W44	.793		14.6	30D	SN	3	C		75		DE
PALE	17	2317E	2321U	2338	N25	W44	.793		14.7	21D	SN	3	C		58		DE
PALE	17	2344	2346U	0010	N25	W45	.802		14.6	26	SN	3	C		99		DE F
PALE	18	0040	0045U	0059	N25	W45	.801		14.7	19	SN	3	C		63		DE F
PALE	18	0211	0216	0219	N25	W46	.809		14.6	8	SN	3	C		31		DE F
PALE	18	0317	0322	0348D	N25	W47	.818		14.6	31D	SN	3	C		115		DE F
MONT	18	0804	0806	0810	N28	W55	.888		14.2	6	SF		C	0806	50		E
RAMY	18	1303	1304	1311	S25	E61	.879		23.1	8	SF	3	C		16		
MCMA	18	1447		1530	N21	E80	.992	15161	24.6	43	SF		C	1450			EK
MCMA	18	1613	1616	1625	N21	E80	.992	15161	24.7	12	SN		C	1616			
MCMA	18	1925	1926	1926D	S25	E60	.871	15156	23.3	1D	SF		C	1926	20	.4	D
RAMY	18	1927	1928	1929	N20	E40	.729		21.8	2	SN	3	C		32		
MCMA	18	2000E		2013D	N28	W58	.907	15155	14.5	13D	SN		C	2001	50	1.4	E
RAMY	19	1131	1133	1146	N25	W65	.940		14.6	15	SN	2	C		37		
MCMA	19	1320E		1600	N28	W67	.954	15155	14.5	160D	SN		C	1320	40	1.6	E
MCMA	19	1453E	1454	1457	N23	E68	.952	15161	24.7	4D	SF		C	1454	20	.7	D
MCMA	19	1727	1729	1745	N32	E06	.612	15153	20.2	18	SF		C	1729	50	.7	E
PALE	20	0007	0010	0015	N22	E59	.897		24.4	8	SB	3	C		34		DE
RAMY	20	1529E	1529U	1532D	N24	E50	.837		24.4	3D	SN	2	C		18		
CATA	20	1530E	1540	1555	N28	W07	.558		20.1	25D	SB	2	P	1540	56	.7	
RAMY	20	1609	1610	1625D	N37	E73	.984	15162	26.1	16D	2B	3	C		176		
RAMY	20	1752	1752	1801	N37	E72	.982		26.1	9	SN	3	C		11		
CATA	21	0730	0735	0745	N27	W90	1.001	15155	14.6	15	1N	2	C	0735	56		
CATA	21	0805	0805	0820D	N27	W90	1.001	15155	14.6	15D	1N	2	P	0805	73		
MCMA	21	1518	1520	1532	N23	E40	.745	15161	24.6	14	SF		C	1520	30	.5	DH
RAMY	21	1521	1522	1526	N21	E34	.674		24.2	5	SN	3	C		19		
PALE	21	2252	2300	2330	N37	E60	.939	15162	26.5	38	2N	3	C		334		Y H
PALE	21	2301	2301	2302	N20	E30	.626		24.2	1	SN	3	C		24		DE
PALE	22	0008	0009	0010	N20	E29	.615		24.2	2	SN	3	C		34		DE
CATA	22	1255	1255	1310	N16	W01	.359		22.5	15	SN	2	C	1255	56	.6	
MCMA	22	1722	1733	1752	N22	W12	.492		21.8	30	SF		C				
MCMA	22	1722	1724	1752	N22	W12	.492	15154	21.8	30	SF		C	1733	60	.7	EK
MCMA	22	1826	1833	1905	N22	W12	.492	15154	21.9	39	SN		C	1833	60	.7	E
RAMY	22	1833	1835	1859	N20	W13	.471	15154	21.8	26	1N	2	C		90		DE
RAMY	22	1833	1835	1845D	N20	W13	.471	15154	21.8	12D	1N	2	V		90		DE
PALE	22	1834	1835U	1840D	N20	W13	.471		21.8	6D	SB	3	C		82		DE
MANI	23	0225	0230	0235D	N20	W15	.485		22.0	10D	SF	2	P		80	1.0	F
MONT	23	1011	1012	1017	N35	W43	.837		20.2	6	SF		C	1012	50		D
MCMA	23	1323E		1552D	N21	E14	.490	15161	24.6	149D	SN		P	1323	150	1.8	BE
MCMA	23	1323E		1340D	S26	W04	.365	15156	23.3	17D	SN		P	1325	50	.5	E

Hα SOLAR FLARES

FEBRUARY 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
MCMA	23	1420	1421	1430	S26	W04	.365	15156	23.3	10	SF		C	1421	58	.5	E
PALE	23	1747E	1748U	1756	N22	E 6	.463		24.2	9D	SN	3	C		44		DE
PALE	23	1852E	1855	1900	N24	E68	.952		28.9	8D	SN	3	C		19		DE
MANI	23	2320E	2320U	2327D	N20	E04	.427		24.3	7D	SF	3	V		30	.4	F
PALE	23	2342E	2346U	2353	N20	E 3	.425		24.2	11D	SN	3	C		25		DE
PALE	24	0101	0104	0105	N20	E 3	.423		24.3	4	SN	3	C		20		F
PALE	24	0241	0243	0256	N20	E 2	.422	15161	24.3	15	1N	3	C		173		FDE
PALE	24	0302	0303	0307	N20	E 1	.421		24.2	5	SN	3	C		45		F
MANI	24	0739E	0740	0745	N19	W04	.410		24.0	6D	SF	2	P		100	1.2	
PALE	24	2003	2005	2010	N18	W12	.434		23.9	7	SB	3	C		146		DE
PALE	24	2050	2052	2102	N18	W12	.434		24.0	12	SN	3	C		67		DE
PALE	24	2212E	2213U	2217	N20	W 8	.440		24.3	5D	SN	3	C		25		F
RAMY	25	1418	1421	1430D	N17	W22	.511		23.9	12D	SB	3	C		30		DE S
┌RAMY	25	1449	1450	1509	N18	W22	.522	15161	24.0	20	2N	3	C		241		U F
└CATA	25	1455E	1455	1515	N21	W20	.536		24.1	20D	SB	2	P	1455	140	1.7	
┌PALE	25	1916	1920	1926	N18	W24	.542		24.0	10	SN	3	C		36		F
├RAMY	25	1924	1925	1931	N19	W19	.504		24.4	7	SN	3	V		48		
└RAMY	25	1924	1925	1931	N19	W19	.504		24.4	7	SN	1	C		48		
RAMY	25	1951	1956	2011	S25	E64	.902		30.6	20	SN	2	C		62		
┌PALE	25	2113	2122	2128	N18	W24	.542		24.1	15	SN	3	C		132		F
└PALE	25	2120	2122	2128	N20	W21	.534		24.3	8	SN	3	C		132		F
┌PALE	25	2153	2156	2212	N20	W21	.534		24.3	19	SF	3	C		69		HDE
└PALE	25	2153	2205	2212	N20	W21	.534	15161	24.3	19	1B	3	C		215		HDE
PALE	25	2242	2310	2343	N20	W22	.543		24.3	61	SN	3	C		185		DE F
PALE	26	0027	0029	0034	N20	W22	.542		24.4	7	SN	3	C		102		DE F
PALE	26	0104	0104	0125	N20	W23	.551	15161	24.3	21	1B	3	C		289		DE F
PALE	26	0231E	0232U	0243D	N20	W23	.551		24.4	12D	SB	3	C		102		DE
HTPR	26	1250	1300	1323	N16	E31	.602		28.9	33	SF		C	1300	30	.3	
HTPR	26	1251	1256	1314	S16	E14	.306		27.6	23	SF		C	1256	20	.2	E
HTPR	26	1309	1311	1319	N17	W39	.697		23.6	10	SF		C	1311	10	.1	
┌RAMY	26	1412	1414	1419	N18	W36	.671	15161	23.9	7	SN	3	C		34		
└HTPR	26	1413E		1422	N18	W39	.703		23.7	9D	SN		C	1416	40	.4	B
┌RAMY	26	1419	1421	1428	S25	E54	.825		30.6	9	SB	3	C		18		
└MCMA	26	1421E		1440	S24	E57	.849	15170	30.9	19D	SN		C	1424	40	.8	E
RAMY	26	1719	1721	1810	S25	E54	.825		30.8	51	SN	3	C		47		H
PALE	26	2008	2009	2019	N20	W33	.653		24.4	11	SN	3	C		55		F
┌RAMY	26	2043	2102	2117D	S25	E52	.807		30.8	34D	SB	2	C		87		
└PALE	26	2104	2108	2112	S26	E51	.800		30.7	8	SN	3	C		32		F
RAMY	26	2049	2058	2107	N19	W35	.667		24.2	18	SN	2	C		60		
MANI	26	2331E	2331U	2340	N20	W34	.663		24.4	9D	SF	3	P		80	1.2	F
CATA	27	0850	0850	0855	N18	W60	.893		22.9	5	SN	2	C	0850	56	1.3	
WENO	27	1223		1237	N17	W48	.789		23.9	14	SN						
PALE	27	1809	1811	1818	N37	W53	.902		23.8	9	SN	3	C		23		F
PALE	27	1809	1811	1818	N37	W13	.686		26.8	9	SN	3	C		23		F
┌PALE	27	1902	1906	1909	N37	W13	.686		26.8	7	SF	3	C		51		F
└PALE	27	1902	1903	1909	N37	W13	.686		26.8	7	SN	3	C		26		F
PALE	27	1932	1935	1953	N39	W14	.713		26.8	21	SN	3	C		54		F
PALE	27	1947	1948	2040	S29	E25	.559		29.7	53	SN	3	C		21		F
PALE	27	2138	2139	2142	N39	W15	.716		26.8	4	SN	3	C		24		F
PALE	27	2145	2147	2151	N20	W50	.818		24.2	6	SN	3	C		16		F
┌PALE	28	0147	0152	0207	N39	W17	.722		26.8	20	SN	3	C		79		F
└MANI	28	0149E	0150	0200D	N38	W17	.711		26.8	11D	SF	2	P		70	1.1	F
PALE	28	0306	0307	0309	N39	W18	.726		26.8	3	SN	3	C		38		F
CATA	28	0740E	0745	0755D	N21	W47	.795	15161	24.8	15D	1B	2	P	0745	168	2.9	
HTPR	28	1346	1348	1410	N15	E02	.335		28.7	24	SF		C	1348	20	.2	
HTPR	28	1511	1515	1525	N20	W13	.464		27.7	14	SF		C	1515	20	.2	E
HTPR	28	1558	1604	1612	S20	W18	.397		27.3	14	SF		C	1604	10	.1	

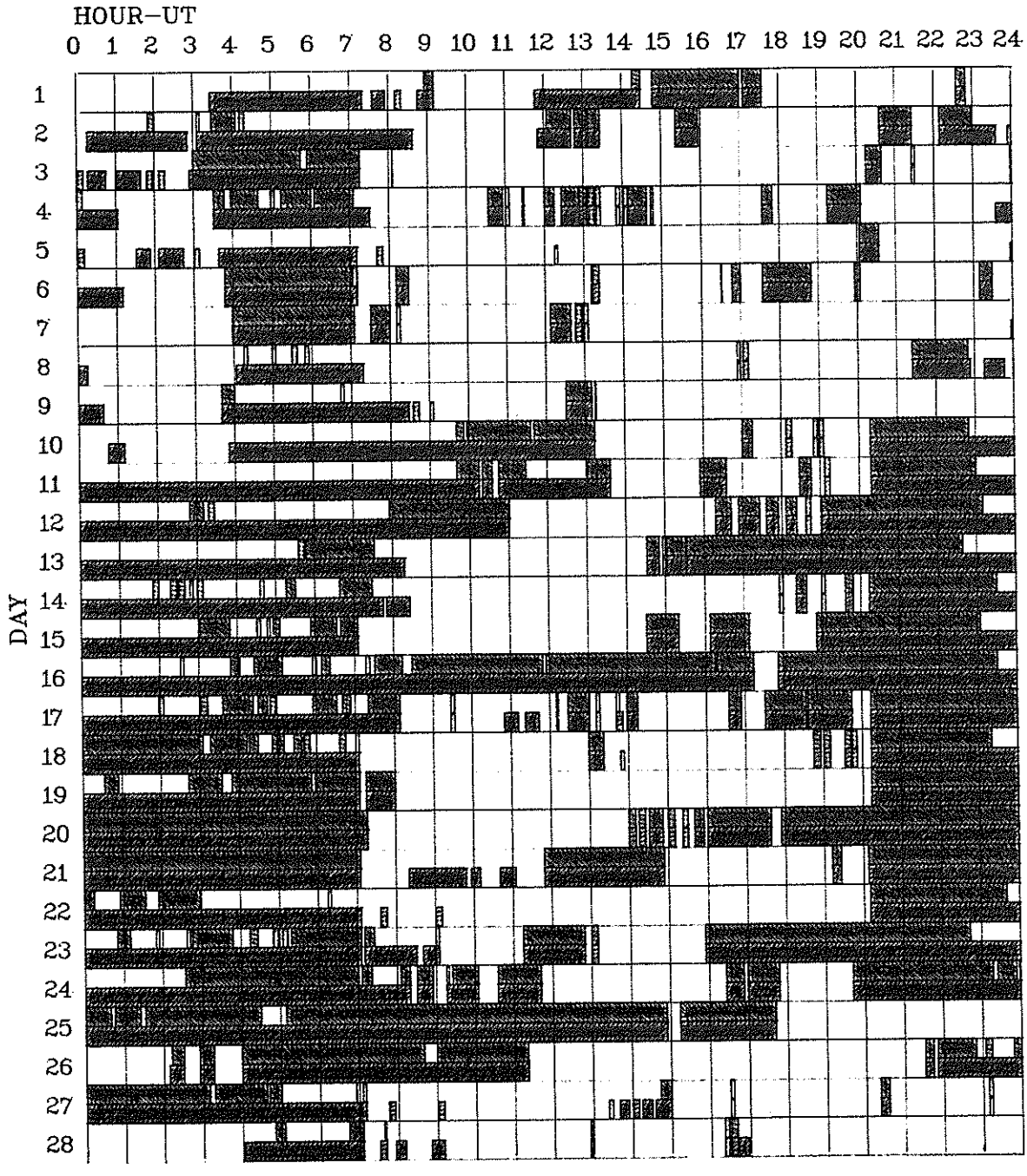
"Remarks":

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

FEBRUARY 1978



Observatories included in total patrol:

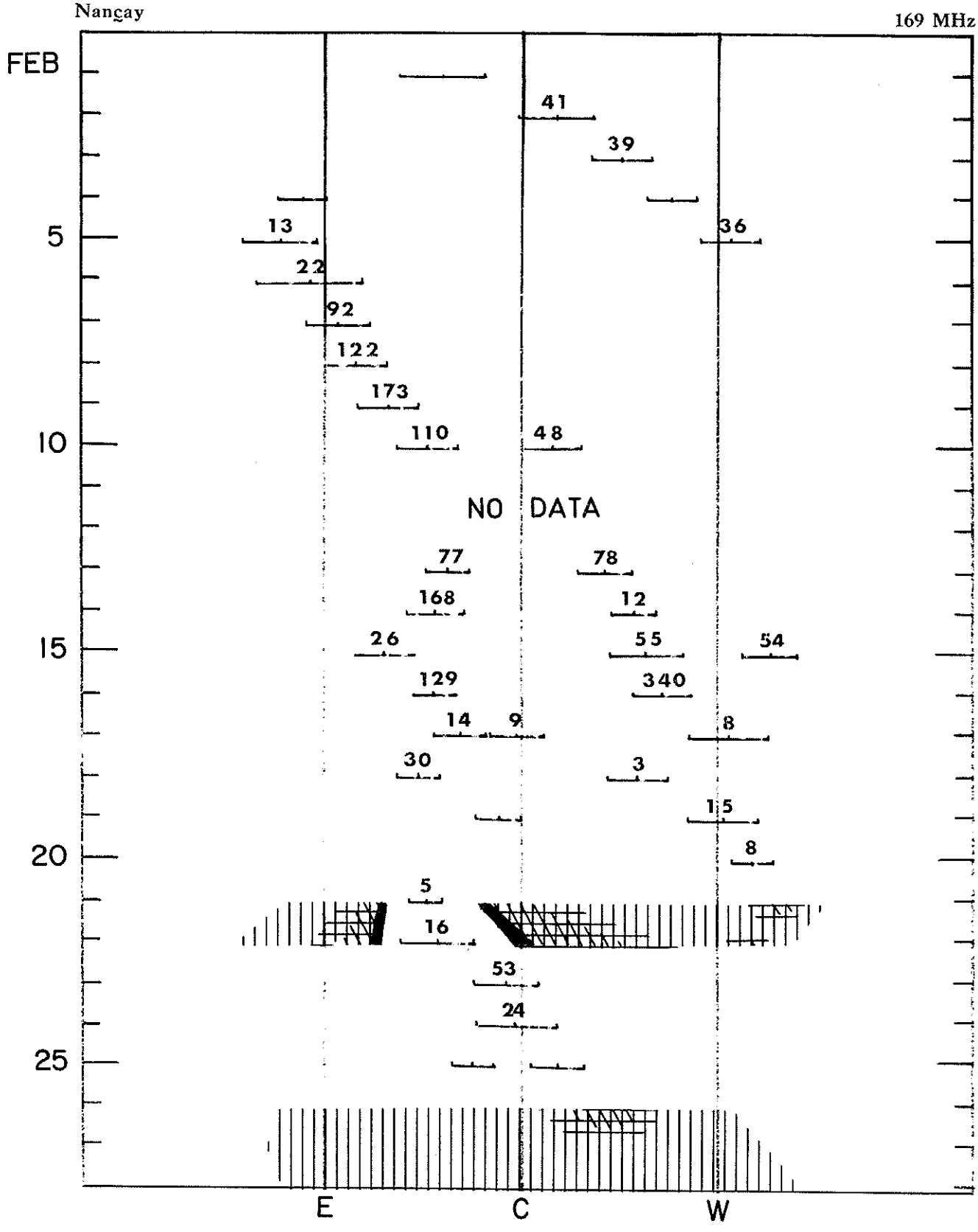
Bucharest	Herstmonceux	Manila	Palehua	Upice
Catania	Istanboul	McMath-Hulbert	Ramey	Wendelstein
Haute Provence	Kandilli	Monte Mario	Tehran	

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).

20
Feb 78

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

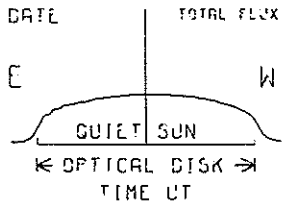
FEBRUARY 1978

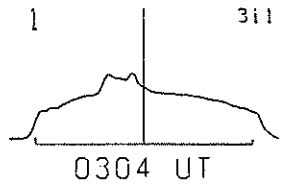


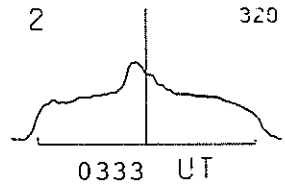
EAST-WEST SOLAR SCANS
FEBRUARY 1978

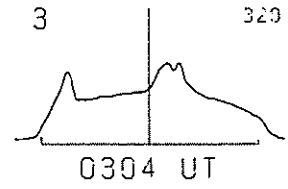
TOYOKAWA, JAPAN

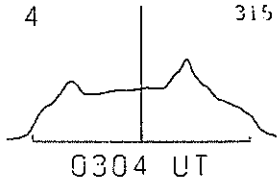
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

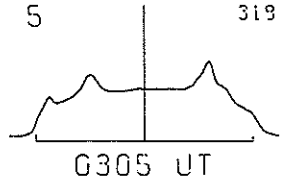


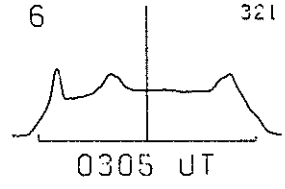


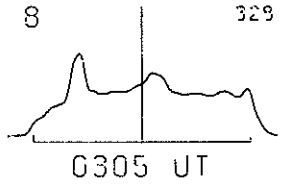


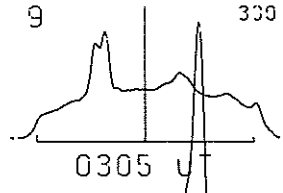


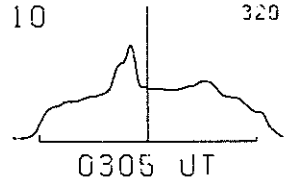


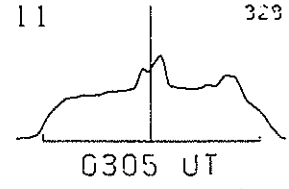


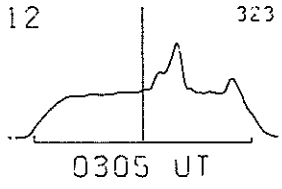


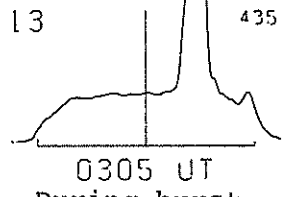




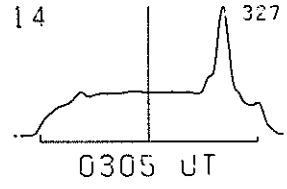


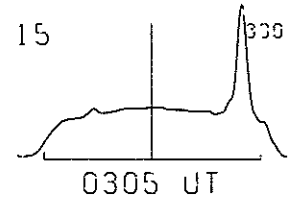


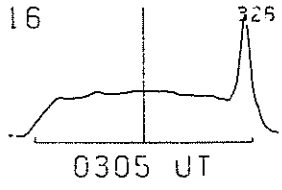


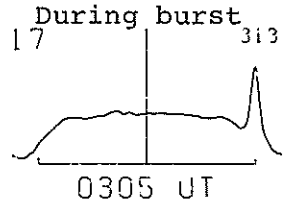


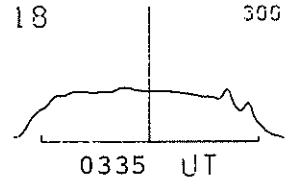
During burst

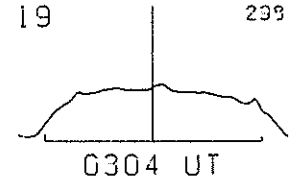


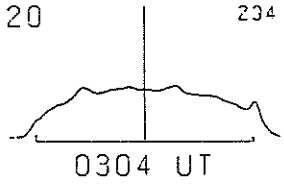


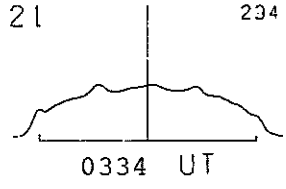


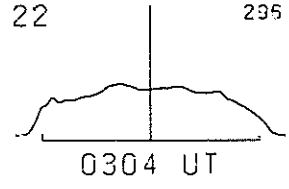


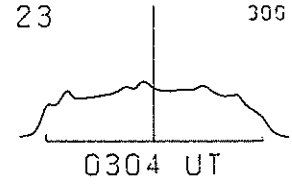


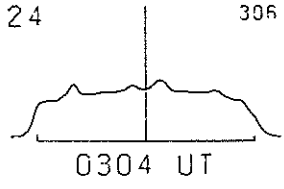


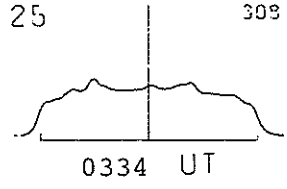


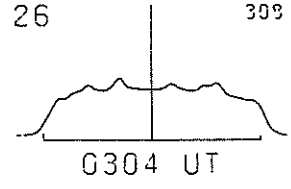


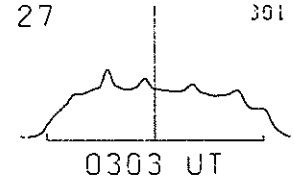




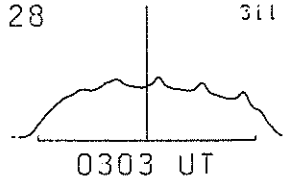








During burst



22
Feb 78

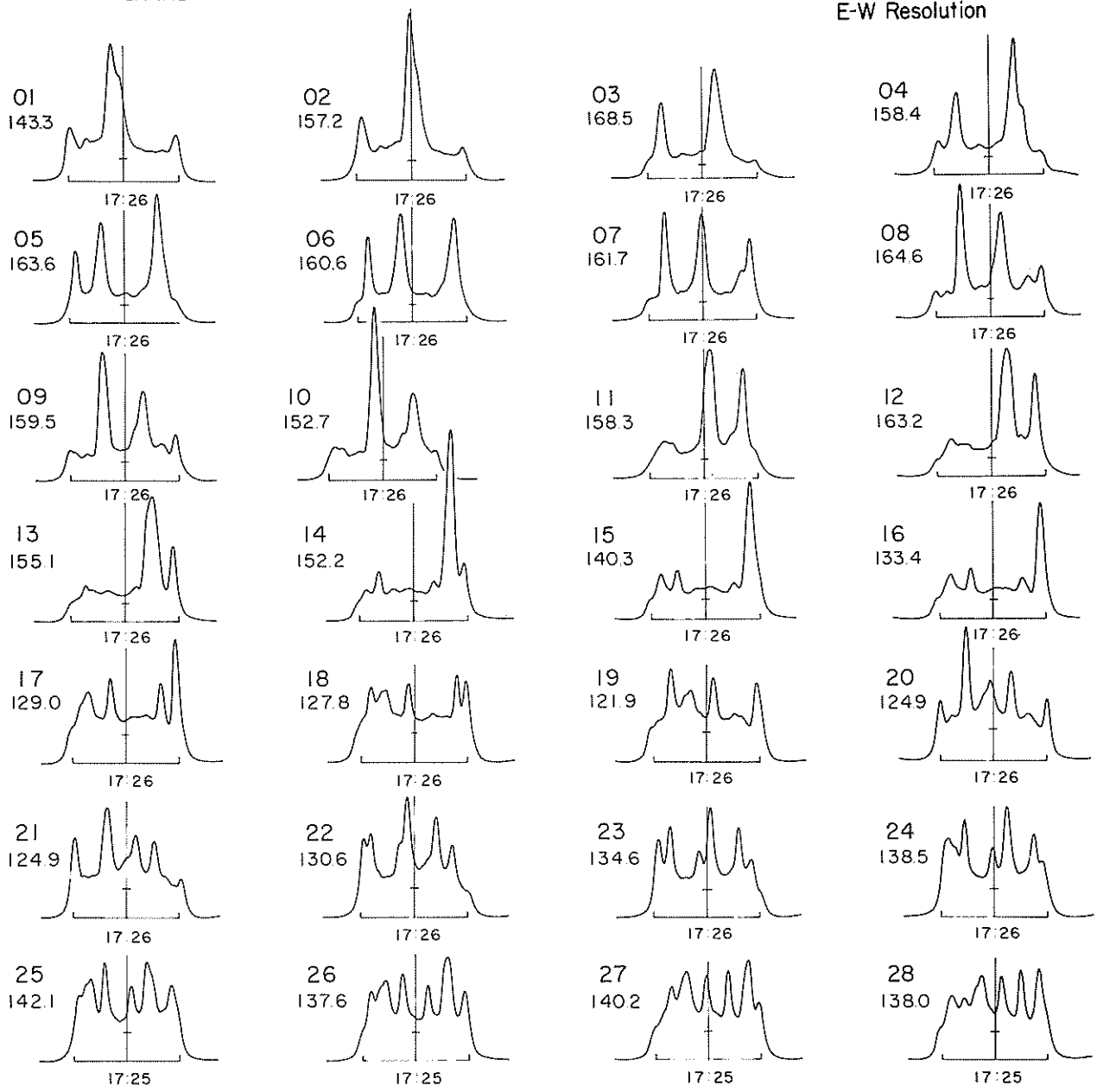
EAST-WEST SOLAR SCANS

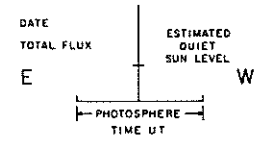
FEBRUARY 1978

10·7cm

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

ALGONQUIN RADIO OBSERVATORY
CANADA



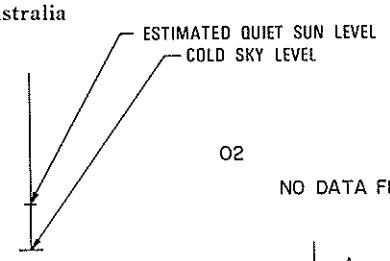


EAST-WEST SOLAR SCANS

FEBRUARY 1978

Fleurs, Australia

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



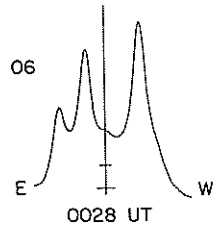
01

02

03

NO DATA FEBRUARY 1-5, 7-8 and 20

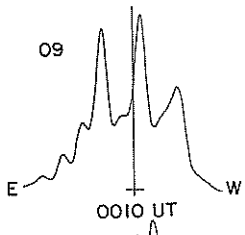
04

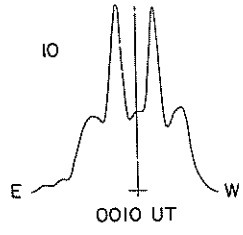


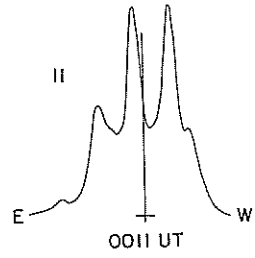
05

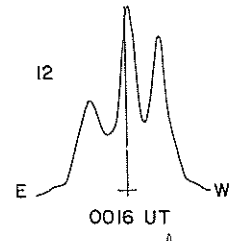
07

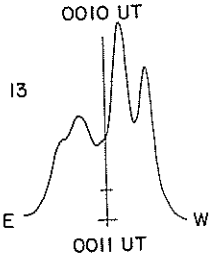
08

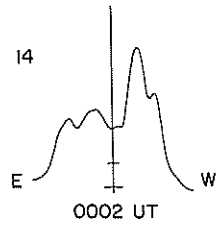


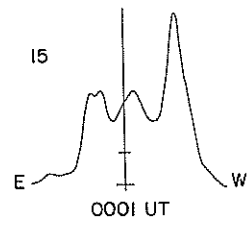


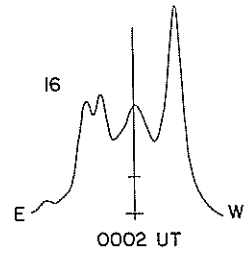


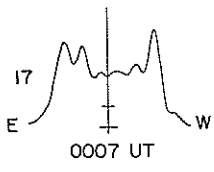


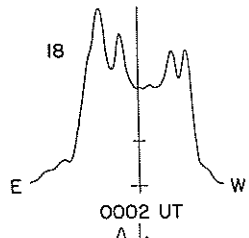


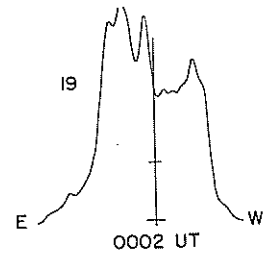












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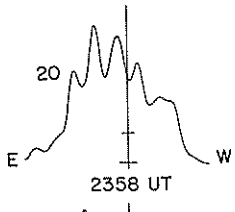
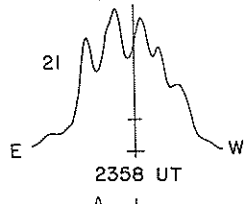
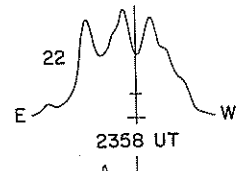
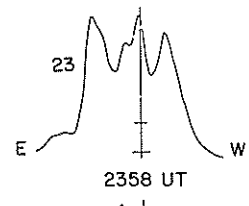
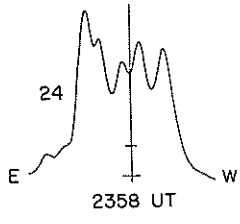
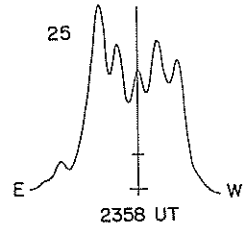


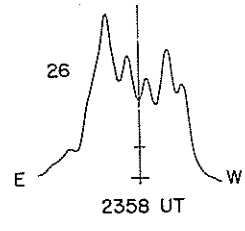


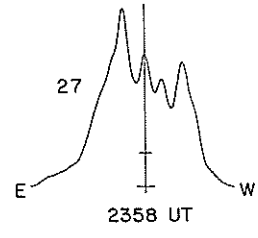










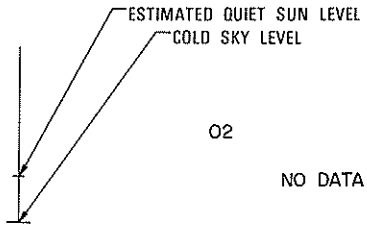


EAST-WEST SOLAR SCANS

FEBRUARY 1978

Fleurs, Australia

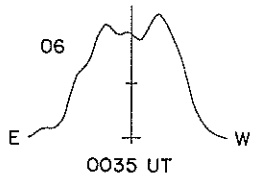
43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution

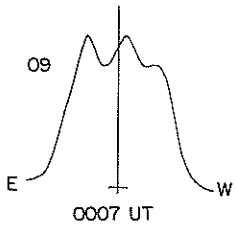


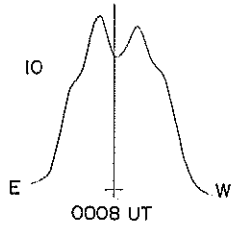
01 02 03 04

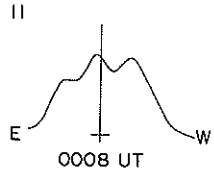
NO DATA FEBRUARY 1-5 and 7-8

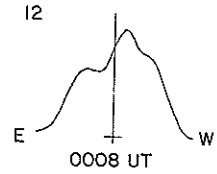
05 06 07 08

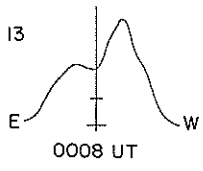


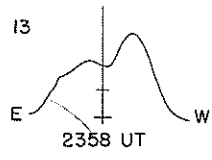


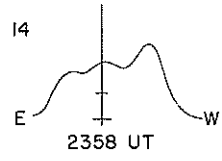


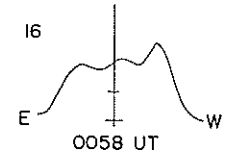


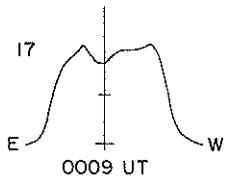


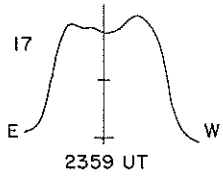


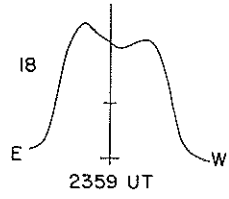


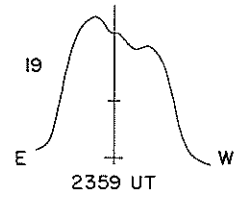


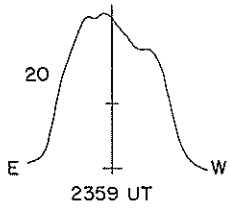


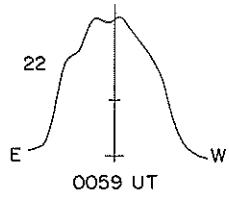


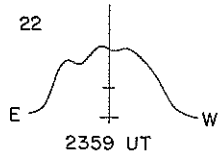


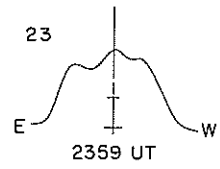


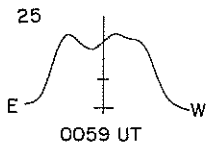


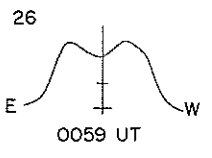


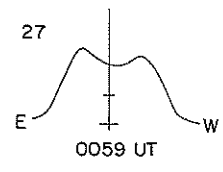


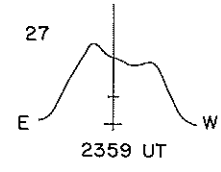












SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
FEBRUARY 1978

FEB 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22}Wm^{-2}\ Hz^{-1}$ PEAK	FLUX DENSITY MEAN	INT	REMARKS
1	2800	OTTA	8 S	1345.7	1346	.8	1	.5		
	2800	OTTA	27 RF	1443		122	2.8	2		
	2800	OTTA	24 R	1443	1520	37	2.8	1.4		
	2800	OTTA	24P R	1520		52	2.8			
	2800	OTTA	26 FAL	1612	1645	33	-2.8	-1.5		
	2800	OTTA	240AR	1817	1830	13	2.8			
	2800	OTTA	1 S	1822	1824	5	2.8	1.4		
	2695	PENT	2 S/F	2250	2250.1	2.5	9.4	4.8		
2	8800	MANI	3 S	0814.8	0816.5	3.2	147.8	97.2		
	2695	MANI	3 S	0814.8	0816.6	3	50.7	30.4		
	2800	OTTA	20 GRF	1340		75	2.2	1.6		
	2800	OTTA	240 R	1512	1530	18	2.8	1.4		
	2800	OTTA	8 S	1607.7	1608.2	.7	3.6	1.6		
	2800	OTTA	20 GRF	1720	1726	20	2	1		
	2800	OTTA	23 GRF	1815	1830	47	2.8	1.5		
	2800	OTTA	1 S	1823.6	1824.2	4.5	8.2	3		
	2695	SGMR	3 S	1824.2	1825.1	3.8	11.6	4.6		
	2800	OTTA	27F RF	1912		88	2.2	2		
	2800	OTTA	24 R	1912	1917	5	2.2	1.1		
	2800	OTTA	24P R	1917		73	2.2			
	2800	OTTA	26 FAL	2030	2040	10	-2.2	-1.1		
	2695	PENT	23 GRF	2043	2140	130	6.8	3.4		
	2800	OTTA	1 S	2121.3	2121.8	1.5	5.4	2.7		
	2695	PENT	1 S	2126.5	2127	1	2.4	1.2		
	2695	PENT	4 S/F	2328.5	2329	4	23	8		
3	2695	MANI	3 S	0446.4	0446.7	.4	15.1	10.1		
	8800	MANI	1 S	0446.5	0446.6	.2	4	2		
	2695	MANI	3 S	0749	0749.4	.6	37.8	22.6		
	8800	MANI	1 S	0749.2	0749.4	.4	8	4		I
	2800	OTTA	23 GRF	1540	1649	125	10	4		
	2800	OTTA	2 S/F	1608.2	1611.2	4.5	6.6	3.3		
	2800	OTTA	26A FAL	1840	1930	50	-6.2	-3.1		
	2800	OTTA	8 S	1916.5	1916.5	.1	5.4			
	2800	OTTA	240 R	1945	1958	13	3	1.5		
	2800	OTTA	2 S/F	2000	2001.9	4	8.4	2.8		
	2695	PENT	29 PBI	2004	2004	8	2	1		
	2695	PENT	4 S/F	2014.2	2016	7.8	56	12		
	2800	**OTTA**	**29 PBI**	**2022**	**2022**	**90**	**2.4**	**2.1**		
	2695	**SGMR**	**3 S**	**2015.2**	**2015.9**	**6.3**	**47.8**	**14.3**		CONT
	8800	**SGMR**	**3 S**	**2015.2**	**2015.9**	**2**	**31.1**	**9.3**		CONT
	2695	BOUL	2 SF	2216.5	2217	2.5	48	16		
	2695	PENT	1 S	2238	2238.8	3	3.6	1.6		
4	2800	OTTA	240 R	1517	1524.5	7.5	2.8	1.4		
	2800	OTTA	1 S	1524.9	1525.1	1	1.6	.6		
	2800	OTTA	22 GRF	1705	1800	170	7.8	3.9		
5	8800	MANI	8 S	0015.3	0016	1.2	341.8	76		
	2800	OTTA	8 S	1500.8	1500.8	.5	2	1		
	2800	OTTA	22 GRF	1715	1835	130	4.6	2.5		
6	2800	OTTA	21 GRF	1725	1755	90	3.2	2		
	2800	OTTA	1 S	1726.7	1727.7	1.5	2.2	1.1		
	2800	OTTA	1 S	1933.2	1933.3	1	2.2	.8		
7	2800	OTTA	20 GRF	1715	1720	17	3.2	1.6		
	2800	OTTA	8 S	2115	2115	.1	4.6			
8	8800	MANI	3 S	0356.8	0356.9	.5	47.3	28.3		
	2695	MANI	1 S	0836.5	0836.6	.2	4.4	1.4		
	8800	MANI	1 S	0836.5	0836.6	.2	9.4	4.7		
	2800	OTTA	3 S	1434.9	1435	1	10.8	2.7		
	2800	OTTA	20 GRF	1622	1632	70	4.8	2.4		
	2800	OTTA	22 GRF	1800	1810	40	3.2	2.2		
	2800	OTTA	3 S	1955.2	1956	7	28	6.8		
	2695	BOUL	3 S	1956.5	1957.5	2	53	18		
9	8800	MANI	3 S	0021.2	0021.5	.7	35.7	23.8		
	2800	OTTA	23 GRF	1330	1500	190	10.2	5.1		
	8800	SGMR	4 S/F	1400	1401	8	13.8	5.5		
	2695	SGMR	4 S/F	1400	1401.4	8	15.4	6.2		
	2800	OTTA	3 S	1400	1408	4	12.2	6		
	2800	OTTA	3 S	1443.2	1445.8	3.8	19	7		
	2800	**OTTA**	**29 PBI**	**1547**	**1547**	**10**	**5.2**	**2.6**		
	2695	**SGMR**	**3 S**	**1444**	**1446**	**10**	**22**	**8.8**		
	2695	SGMR	4 S/F	1558.8	1602.1	11.1	85.7	25.7		SWF
	2800	OTTA	4 S/F	1600	1602	10	66	16		
	8800	SGMR	4 S/F	1601.1	1601.8	4.7	225	67.5		SWF
	2695	BOUL	3 S	1602	1602.5	4	78	26		
	2800	OTTA	20 GRF	1640	1647	16	1.8	1		
	2800	OTTA	1 S	1802	1807	8	3	1.2		
	2800	OTTA	21 GRF	1820	1834	40	11			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1978

FEB 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	20 GRF	1823.5	1827.6	30.1	25.5	7.7		SWF
	8800	SGMR	20 GRF	1824.9	1828.5	33.1	13.1	3.9		SWF
	2800	OTTA	3 S	1826	1827.5	6	17.4	6		
	2695	BOUL	1 S	1827	1828	4	14	5		
	2800	OTTA	21 GRF	1922	1932	20	6	3		
	2695	SGMR	3 S	1926.4	1928.6	6.1	13.1	3.9		
	2800	OTTA	4 S/F	1927.5	1928.9	3	10	4		
	2695	SGMR	20 GRF	2101.8	2105.1	11.6	8.4	2.5		SWF
	2800	OTTA	1A S	2102	2106	10	5	2.5		
	8800	SGMR	3 S	2103.3	2104.7	6.7	16.7	5		SWF
	2800	OTTA	1 S	2104.6	2105	1	3.2	1.6		
	2695	PENT	240 R	2145	2203	18	11	3		
	2695	PENT	28 PRE	2238	2241	8.5	5.6			
	2695	PENT	3 S	2246.5	2251	16.5	79	24.6		
	2695	PENT	29 PBI	2303	2303	40	9	4.5		
	2695	BOUL	2 SF	2248	2252	7	53	18		
	2695	MANI	3 S	2250.3	2251	2.6	32.8	21.9		
10	2695	MANI	3 S	0044.3	0044.7	.9	13.1	8.8		
	8800	MANI	8 S	0044.3	0044.7	.7	132.6	88.4		I
	2800	OTTA	1 S	1656	1657	4	3	1.5		
	2800	OTTA	27A RF	1704		61	6.4	5.2		
	2695	PENT	24 R	1704	1714.5	10.5	6.4	2.1		
	2695	PENT	1 S	1705	1706	2	2.4	1.2		
	8800	SGMR	22 GRF	1709.6	1745.3	50.3	37.3	14.9		5,SWF
	2695	SGMR	22 GRF	1713.2	1745.7	47	17.6	7.4		5,SWF
	2800	OTTA	24P R	1714.5		36.5	6.4			
	2800	OTTA	1 S	1719	1721	5	5	2.4		
	2800	OTTA	1 S	1725	1728	6	3	2.5		
	2800	OTTA	1 S	1734.2	1736.7	5	3.4	1.7		
	2800	OTTA	45 C	1741	1746	6	12.6	5		
	2695	BOUL	45 C	1742.5	1743	5	21	7		
	2800	OTTA	26 FAL	1751	1805	14	-6.4	-2.1		
	2695	SGMR	20 GRF	2103	2111.6	34.3	57.5	23		
	2800	OTTA	21 GRF	2106	2124	120 D	17			
	8800	SGMR	20 GRF	2109.8	2117.1	19	32.7	13.1		
	2800	OTTA	4 S/F	2110.5	2111.6	4	41	10		
	2800	OTTA	45 C	2128	2128.8	4	13	3.2		
	2800	OTTA	3 S	2134	2136.3	4	10	2.5		
11	2695	MANI	3 S	0319.3	0319.9	3.3	44.4	29.6		
	8800	MANI	3 S	0319.5	0321.2	3.1	63.6	42.4		IG
	8800	MANI	3 S	0753	0753.3	3.6	79.5	53		IG
	2695	MANI	3 S	0753.1	0753.4	2.4	20.9	13.9		
	8800	MANI	3 S	0814.4	0814.7	1.5	53	35.3		IG
	2695	MANI	3 S	0814.5	0815	1.4	23.5	15.7		
	8800	MANI	3 S	0819.7	0820.5	3.7	238.5	159		
	2695	MANI	3 S	0820	0820.5	3.4	39.2	26.1		
	8800	SGMR	3 S	1232.1	1232.4	1.4	39	15.6		
	2695	SGMR	3 S	1232.3	1232.5	2.7	34.5	13.8		
	2800	OTTA	21 GRF	1350		120	6.2			
	2800	OTTA	3 S	1424.5	1427.3	9	106	21		
	2695	SGMR	3 S	1426	1427.5	6	117	46.9		
	8800	SGMR	3 S	1426.5	1427.5	4.5	445	17.8		
	2695	PENT	240AR	1650	1720	20	2.8	1.4		
	8800	SGMR	3 S	1659.9	1709	15.1	37.7	15.1		
	2695	SGMR	20 GRF	1701	1709	14	4	1.6		
	2695	PENT	1 S	1704	1704.5	2.5	2.2	1.1		
	2800	OTTA	23 GRF	1920	1955	225	10.4	5.2		
	2800	OTTA	40 F	1924.5	1929.7	7	3			
	2695	PENT	22 GRF	2135	2148	19	5.4	3		
	2695	PENT	21 GRF	2155	2159	15	2.8	1.4		
	2695	PENT	1 S	2157	2157.5	1	3.2	1.6		
	2695	PENT	1 S	2235.8	2237.5	5	2.8	1.4		
	2695	MANI	20 GRF	2344.5	2355 U	14.5D	12.6	6		
12	2695	MANI	3 S	0137.7	0138.3	1.3	10.1	6.7		IG
	8800	MANI	3 S	0523	0523.1	.2	10.8	5.4		IG
	8800	SGMR	3 S	1307	1308.6	2.1	140	56.2		3,CONT
	2695	SGMR	3 S	1307.1	1308.6	2.2	69	27.6		3,CONT
	2800	OTTA	8 S	1532	1532.2	.5	2.6	1.3		
	8800	SGMR	1 S	1602.8	1603.2	1.2	9.9	4		CONT
	2800	OTTA	1 S	1603	1603.5	3	9.4	4.5		
	2695	SGMR	3 S	1603.1	1603.8	4.9	11.3	4.5		CONT
	2800	OTTA	20 GRF	1829	1831	17	3.2	1.8		
	2695	SGMR	3 S	1849.1	1849.2	1.1	32.5	14.5		CONT,SWF
	8800	SGMR	3 S	1849.1	1850.1	1.4	37.2	26.8		CONT,SWF
	2800	OTTA	4 S/F	1848.2	1849.1	8	27	7		
	2800	OTTA	23 GRF	1857	1929	280	16.2			
13	8800	MANI	3 S	0135 E	0202	60 D	317.3	212		NT
	2695	MANI	47 GB	0135 E	0205.5	60 D	737.1	491.4		
	2695	MANI	3 S	0826.5	0826.9	1	35.1	20.5		
	8800	MANI	1 S	0826.8	0827	.3	5.7	2.8		IG
	2800	OTTA	20 GRF	1320		210 D	11			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1978

FEB 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2800	OTTA	27A RF	1645		255	4.4	4.1		
	2800	OTTA	24 R	1645	1652	7	4.4	2.2		
	2800	OTTA	24P R	1652		226	4.4			
	8800	SGHR	1 S	1728.6	1728.9	3.4	9.2	3.7		CONT
	2800	OTTA	23 GRF	1750	1900	145	18.6	6.2		
	2800	OTTA	8 S	1750.6	1750.8	.8	2.8	1.4		
	2800	OTTA	1 S	1821	1822	2	2.2	1.1		
	2800	OTTA	1 S	1856.5	1858	3	3	1.6		
	2695	SGHR	20 GRF	1900	1904.2	39	20	8		CONT,SWF
	8800	SGHR	20 GRF	1900.5	1904	33.5	26.7	10.7		CONT,SWF
	2800	OTTA	3 S	1903.7	1904	2	12.4	6		
	2800	OTTA	1 S	1915.5	1916	2	5.4	2.7		
	2800	OTTA	1 S	1919	1921.5	18	4.4	2.2		
	2695	PENT	26 FAL	2038	2100	22	-4.4	-2.2		
	2695	PENT	21 GRF	2120	2155	100	6	4.5		
	2695	PENT	45 C	2210.5	2211	5	9.4	3.5		
	2695	MANI	3 S	2322.2	2325.4	5.3	32.5	21.6		
	8800	MANI	3 S	2322.4	2325.5	5.2	42.8	28.5		
	2695	PENT	2 S/F	2324.2	2325.5	2	8.2	4.1		
	2695	PENT	1 S	2330.5	2331.6	2	5.4	2.5		
14	8800	MANI	3 S	0807.1	0807.5	.5	23.3	13.9		
	2695	MANI	1 S	0807.4	0807.5	.4	1	.6		
	2800	OTTA	1 S	1434.8	1435	1.5	1.6	.8		
	2800	OTTA	8 S	1507.5	1507.7	.5	1.4	.7		
	2800	OTTA	23 GRF	1717.5	1736	135	7.8	4		
	2695	SGHR	3 S	1718.2	1721.5	6.3	27.2	8.2		CONT
	8800	SGHR	3 S	1720.4	1721.3	1.6	20.2	6.1		CONT
	2800	OTTA	4 S/F	1721	1721.6	4	24.4	9		
	2800	OTTA	20 GRF	1855	1857	25	3.6	1.2		
	2800	OTTA	26 FAL	2045	2100	15	-2.8	-1.4		
	2695	PENT	20 GRF	2130.2	2143	30	2.8	2.4		
15	8800	MANI	3 S	0500.7	0501	.6	35.7	20.4		IG
	2695	MANI	1 S	0544.1	0544.3	.4	4.1	2		
	8800	MANI	3 S	0544.1	0544.3	.4	10.2	5.1		IG
	2695	MANI	3 S	0721	0721.8	1.5	10.3	6.1		
	8800	MANI	3 S	0721.5	0721.8	1	10.2	5.1		
	8800	MANI	3 S	0733.8	0734.3	1.9	30	20.4		
	2695	MANI	3 S	0733.9	0734.7	1.9	32.9	20.6		
	8800	MANI	8 S	0747.3	0748.2	5.5	153.3	102.2		I
	2695	MANI	3 S	0747.3	0748.7	5.7	84.4	55.6		
	2800	OTTA	21 GRF	1330	1400	80	6.4	3.2		
	2800	OTTA	3 S	1347.1	1348.3	7	20	5		
	2695	SGHR	3 S	1347.3	1348.3	5.7	23.8	9.5		5,CONT,SWF
	8800	SGHR	3 S	1347.4	1347.5	1.7	44.5	33.2		5,CONT,SWF
	2695	BOUL	1 S	1840.5	1841	2.5	3	1		
	2695	SGHR	1 S	2011.2	2013.2	4.2	3.6	1.4		CONT
	8800	SGHR	3 S	2011.3	2012.3	4.9	13.9	5.6		CONT
	2695	PENT	1 S	2012	2013	2	4.4	1.5		
	2695	BOUL	8 S	2013.5	2014	1.5	5	2		
	2695	PENT	8 S	2229	2229.2	.8	11.5			
	2695	BOUL	8 S	2229.5	2230	1.5	9	3		
	2695	BOUL	3 S	2236.5	2239	3.5	3	1		
16	2695	MANI	3 S	0016.6	0016.8	.4	10.2	5.1		
	8800	MANI	1 S	0016.6	0016.8	.4	9.8	4.9		I
	8800	MANI	3 S	0607.8	0610	7.2	71.5	45.9		IG
	2695	MANI	3 S	0607.8	0611.8	7.2	13.4	8		
	2800	OTTA	27AFRF	1320		150	3	2.4		
	2800	OTTA	24 R	1320	1400	40	3	1.5		
	2800	OTTA	24P R	1400		85	3			
	2800	OTTA	4 S/F	1522	1523	2	14.4	3.8		
	2695	SGHR	1 S	1522.3	1523	1.4	8.8	3.5		5,CONT
	2695	BOUL	8 S	1523	1524	2	43	14		
	2800	OTTA	26 FAL	1525	1550	25	-3	-2		
	2800	OTTA	21 GRF	1820	1940	150	6	3		
	2800	OTTA	1 S	2026.5	2027.2	3	3	1.5		
	2800	OTTA	4 S/F	2128	2132.5	9	29	9		
	8800	SGHR	20 GRF	2129.8	2132.3	42.20	36.6	11		CONT
	2695	SGHR	20 GRF	2130	2132.4	42 0	26.1	7.8		CONT
	2695	PENT	3 S	2225.2	2226.7	5	14	5		
17	2695	MANI	1 S	0312	0312.5	1	5.4	2.7		
	8800	MANI	3 S	0312	0312.6	1	10.8	5.4		IG
	2695	MANI	1 S	0603.4	0603.5	.2	5.4	2.7		
	8800	MANI	1 S	0603.4	0603.6	.3	5.4	2.7		
	2695	SGHR	1 S	1340.8	1341.6	1.2	4.4	1.3		3G,CONT
	2800	OTTA	1 S	1341	1341.5	1	7.2	3		
	2800	OTTA	21 GRF	1500	1503	30	8.6	3		
	8800	SGHR	3 S	1502.5	1505	5.5	10.4	3.1		CONT
	2695	SGHR	3 S	1502.5	1505.2	5.5	20.8	6.2		CONT
	2800	OTTA	45 C	1503.5	1505	2.2	10.6	5.3		
18	2695	MANI	1 S	0046	0046.5	1.3	6	4.5		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1978

FEB 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22}Wm^{-2}\ Hz^{-1}$ PEAK	FLUX DENSITY MEAN	INT	REMARKS
	8800	MANI	1 S	0046	0046.5	.6	5.1	2.5		
	2695	MANI	3 S	0207.3	0207.7	2.7	24.3	16.2		
	8800	MANI	3 S	0207.6	0207.9	.9	25.5	17		I
	2800	OTTA	40 F	1358	1403	6	7.6			
	2800	OTTA	20 GRF	1604	1614	20	1.4	.7		
	2800	OTTA	20 GRF	1635	1647	15	1.4	.7		
	2800	OTTA	4 S/F	1731	1732.5	8	32.6	6.6		
	2695	SGMR	3 S	1731.2	1732.4	6.8	34.1	13.4		CONT
	2800	OTTA	1 S	1909	1909.3	1	1.8	.9		
	2800	OTTA	1 S	2150	2150.1	1.5	2.6	1.2		
20	2800	OTTA	20 GRF	1435	1445	15	1.6	.8		
	2800	OTTA	20 GRF	1525	1529	20	1.8	.9		
	2800	OTTA	1 S	1607	1608	4	3.4	1.5		
21	2695	PENT	20 GRF	2235	2255	60 D	5			
22	2800	OTTA	27A RF	1322		168	2	1.8		
	2800	OTTA	24 R	1322	1340	18	2	1		
	2800	OTTA	24P R	1340		127	2			
	2800	OTTA	22 GRF	1523	1527	22	1.8	.9		
	2800	OTTA	26 FAL	1547	1610	23	-2	-1		
23	2800	OTTA	27A RF	1315		190	2.6	2.2		
	2800	OTTA	24 R	1315	1328	13	2.6	1.3		
	2800	OTTA	1 S	1317	1318	3	2.6	1.3		
	2800	OTTA	24P R	1328		132	2.6			
	2800	OTTA	26 FAL	1540	1625	45	-2.6	-1.3		
	2695	PENT	1 S	2317.9	2318.2	1	2.8	1.4		
24	2695	MANI	3 S	0241.4	0242.1	2.6	16.3	9.7		
	8800	MANI	1 S	0241.6	0242.1	.9	8	4		
	2695	MANI	3 S	0735.6	0737	2.5	18	11.4		
	2800	OTTA	1 S	2003.2	2003.8	1	5.8	2.8		
	2695	SGMR	1 S	2003.3	2003.6	1	7.4	2.9		
	2695	BOUL	8 S	2004	2005	1.5	6	2		
	2695	PENT	1 S	2204.5	2205	1	1.6	.8		
	2695	BOUL	1 S	2205.5	2206	1.5	2	1		
25	2695	MANI	3 S	0305.8	0308.7	4.3	44.5	29.6		
	8800	MANI	3 S	0307.2	0308.7	2.4	151.2	100.8		
	8800	MANI	3 S	0314.5	0315.2	1.7	14.4	9.6		
	2695	MANI	3 S	0314.5	0315.7	1.8	30.8	20.5		
	2695	MANI	3 S	0808	0809.5	3.2	44.5	29.6		
	8800	MANI	3 S	0808.8	0809.4	2	144	95.9		
	2695	SGMR	3 S	1301.2	1304.3	6.9	10.5	3.2		
	2800	OTTA	4 S/F	1302	1304.5	6	10.4	3.5		
	8800	SGMR	1 S	1302.8	1304.1	5.1	8.4	2.5		
	2695	SGMR	3 S	1447.5	1450.8	16	187	56.1		SWF
	2800	OTTA	4 S/F	1448	1450.5	6	144	30.2		
	2800	OTTA	30 PBI	1454	1454	16	4.2	2.1		
	2695	BOUL	3 S	1448.5	1452	8.5	98	33		
	8800	SGMR	3 S	1448.9	1450.3	15.3	314	94.2		SWF
	2800	OTTA	40 F	1456	1457.5	7	21			
	2800	OTTA	1 S	1652.8	1653.3	3	2.8	1.5		
	2800	OTTA	240 R	2105	2113	8	2	1		
	2695	PENT	1 S	2310.2	2310.8	1	.8	.4		
26	2695	MANI	3 S	0618.5	0618.8	3.3	16.2	10.8		
	8800	MANI	3 S	0618.5	0619	2	23.4	15.6		
	2695	MANI	3 S	0746.5	0746.7	1	11.8	7.8		
	2695	MANI	1 S	0749.7	0750.3	.9	1.5	.7		
	2695	SGMR	1 S	1410.4	1414.9	6.1	5.7	1.7		
	8800	SGMR	3 S	1411.9	1412	3.3	10.5	3.2		
	2800	OTTA	20 GRF	1555	1603	18	1.8	.9		
	2695	PENT	3 S	2325	2327.5	6	37.4	12.5		
	2695	PENT	29 PBI	2331	2331	22	4.8			
	2695	MANI	3 S	2325.7	2327.5	2.8	30.6	20.4		
	2695	BOUL	8 S	2326	2329	14	40	13		
	8800	MANI	1 S	2327	2327.5	1.3	9.5	6.4		
	2695	BOUL	3 S	2357.5	0004	11	42	14		
27	2695	PENT	4 S/F	0001.7	0002.7	4	13.6	6.8		
	2695	MANI	3 S	0001.8	0002.6	4	15.3	10.2		
	8800	MANI	3 S	0001.9	0002.6	1.3	23.8	15.9		
	2695	MANI	41 F	0559.9	0600.4	5.3	6.8	3.4		
	2800	OTTA	20 GRF	1245	1255	265	3	1.5		
	2800	OTTA	27F RF	1750		300	2.4	2.1		
	2800	OTTA	24 R	1750	1810	20	2.4	1.2		
	2800	OTTA	24P R	1810		230	2.4			
	2800	OTTA	26 FAL	2200	2250	50	-2.4	-1.2		
	2695	BOUL	3 S	2359	0003	14	12	4		
28	2800	OTTA	20 GRF	1250	1400	205	5	3		
	2800	OTTA	20 GRF	1914	1916	12	3.6	1.8		

Observatories:

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

Explanation of Type Code:

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

SOLAR X-RAYS BY SATELLITE
SMS GOES
FEBRUARY 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
2/ 1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 2	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 3	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 4	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 5	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 6	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 7	.001	.002	.002	.002	.004	.005	.001	.001	.003	.004	.001	.001	B	B	B	.001	B	.006	.004	.002	B	.010	.002	.001	.002
2/ 8	.002	.002	.002	.017	.013	.005	.003	.015	.001	.038	.002	.013	.002	.002	.009	.003	.005	.002	.002	.003	.009	.004	.002	.002	.007
2/ 9	.013	.004	.003	.004	.009	.024	.003	.002	.003	.004	.002	.028	.003	.001	.027	.041	.152	B	.020	.003	.003	.009	.067	.052	.020
2/10	.066	.009	.022	.004	.009	.013	.003	.007	.012	.002	.098	.001	.001	B	.001	.001	.001	.040	.002	.002	.002	.108	.005	.002	.017
2/11	.003	.005	.001	.002	.001	.003	.003	.002	.006	.002	.001	.002	.002	.001	.010	.001	.002	.004	.003	.010	.009	.006	.002	.033	.005
2/12	.087	.004	.002	.004	.002	.001	.003	.003	.002	.004	.002	.047	.005	.006	.002	.003	.009	.002	.076	.155	.007	.002	.002	.002	.018
2/13	.005	.069	.553	.326	.152	.084	.053	.028	.025	.016	.010	.007	.005	.005	.011	.010	.008	.010	.009	.087	.004	.017	.003	.005	.062
2/14	.001	B	.001	.002	.001	.001	.002	.003	.001	.001	.001	.015	.003	.005	.007	.003	.003	.005	.002	.001	B	.003	.004	.014	.004
2/15	.006	.004	.003	.010	.035	.004	.003	.114	.036	.004	.016	.028	.003	.043	.008	.064	.099	.016	.013	.008	.005	.007	.022	.015	.023
2/16	.004	.003	.026	.013	.002	.002	.014	.001	.001	.002	.001	.002	.004	.002	.004	.004	.003	.002	.002	.005	.003	.012	.004	.001	.005
2/17	.035	.030	.027	.067	.002	.005	.003	.002	.001	.002	.001	.002	.002	.002	.017	.018	.060	.002	.023	.002	.006	.002	.003	.002	.013
2/18	.004	.002	.005	.002	.002	.002	.003	.003	.003	.004	.002	.003	.003	B	B	B	.001	.001	.003	.003	.002	.002	.016	B	.003
2/19	.001	.001	.008	.001	.002	.002	.002	.001	.001	.013	.002	.004	B	B	B	B	B	B	.001	.001	.006	.002	.024	B	.003
2/20	.001	B	B	B	B	.003	B	B	B	.001	B	B	B	B	B	B	.003	B	.002	.002	.001	.001	B	B	B
2/21	.005	B	B	B	.002	.002	.002	.037	.013	.002	B	.002	.001	B	B	.008	B	B	B	B	B	B	.004	.003	.004
2/22	B	B	.001	B	.013	B	B	.002	.001	B	B	.001	B	B	B	B	B	B	.002	B	.002	B	B	B	.001
2/23	B	B	.001	.002	.021	.027	.012	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	.003
2/24	.026	.009	.003	.001	.015	B	.006	B	B	B	B	B	B	B	B	B	B	B	B	B	.001	B	B	B	.003
2/25	B	B	.001	.094	B	B	B	B	.012	B	B	B	B	.002	.103	.009	B	B	B	.001	.001	.002	.001	.003	.010
2/26	.001	.002	.004	B	B	B	.009	.004	B	B	B	B	B	B	.005	B	B	B	B	B	.001	.003	B	.002	.002
2/27	.006	B	.001	.008	.009	.003	.002	.001	.002	.002	.002	.001	.002	B	P	B	B	B	.003	.002	.001	.001	B	B	.002
2/28	B	.001	B	B	B	.002	.001	.007	.003	.001	B	B	B	B	B	M	B	B	.001	.001	B	B	B	B	.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
FEBRUARY 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
2/ 1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 2	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 3	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 4	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 5	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 6	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/ 7	.010	.012	.013	.014	.016	.021	.013	.011	.016	.059	.011	.010	.009	.009	.009	.010	.008	.018	.010	.012	.010	.022	.011	.010	.009
2/ 8	.012	.015	.014	.022	.031	.020	.020	.034	.013	.013	.013	.030	.018	.015	.027	.017	.019	.015	.013	.012	.026	.022	.018	.015	.013
2/ 9	.032	.023	.015	.018	.023	.049	.018	.011	.015	.013	.012	.043	.019	.014	.045	.058	.107	.016	.035	.018	.015	.023	.066	.077	.026
2/10	.066	.023	.036	.013	.023	.028	.011	.021	.013	.010	.012	.009	.008	.007	.010	.010	.010	.055	.011	.010	.010	.120	.024	.017	.020
2/11	.020	.025	.012	.010	.008	.012	.016	.012	.018	.014	.011	.012	.011	.010	.019	.009	.010	.014	.013	.024	.032	.022	.013	.030	.010
2/12	.084	.022	.012	.014	.010	.009	.012	.013	.011	.015	.011	.051	.020	.019	.014	.016	.028	.012	.061	.121	.027	.017	.015	.010	.022
2/13	.015	.058	.379	.361	.199	.129	.099	.072	.067	.056	.040	.031	.026	.024	.032	.023	.028	.026	.025	.084	.022	.018	.014	.015	.070
2/14	.011	.009	.010	.011	.010	.009	.013	.012	.011	.011	.012	.026	.018	.015	.014	.013	.014	.020	.015	.011	.013	.014	.019	.030	.009
2/15	.021	.016	.013	.023	.045	.019	.016	.068	.047	.015	.013	.014	.013	.035	.022	.019	.020	.016	.022	.023	.015	.014	.032	.025	.023
2/16	.017	.014	.011	.010	.011	.011	.026	.010	.011	.011	.010	.010	.017	.012	.021	.013	.011	.009	.012	.018	.015	.023	.016	.010	.010
2/17	.020	.032	.023	.036	.010	.015	.012	.012	.013	.010	.008	.009	.009	.010	.010	.014	.022	.010	.015	.010	.011	.009	.010	.010	.013
2/18	.013	.011	.015	.011	.011	.011	.015	.024	.013	.014	.011	.012	.011	.010	.009	.009	.011	.010	.013	.011	.012	.010	.022	.009	.009
2/19	.010	.010	.029	.011	.011	.012	.011	.010	.011	.010	.011	.015	.009	.008	.008	.008	.008	.008	.008	.008	.008	.009	.007	.006	.007
2/20	.010	.006	.007	.006	.006	.006	.007	.006	.010	.006	.007	.006	.006	.005	.006	.006	.012	.007	.007	.008	.007	.007	.007	.006	.004
2/21	.006	.005	.005	.006	.007	.010	.016	.008	.009	.010	.006	.009	.008	.007	.006	.016	.009	.006	.007	.008	.006	.006	.011	.013	.006
2/22	.008	.006	.008	.006	.008	.007	.007	.008	.008	.007	.006	.008	.007	.006	.006	.006	.006	.006	.009	.006	.130	.006	.006	.005	.007
2/23	.007	.005	.007	.008	.007	.008	.006	.006	.006	.006	.006	.006	.006	.006	.005	.005	.005	.005	.005	.006	.006	.006	.007	.004	
2/24	.030	.021	.010	.008	.008	.006	.008	.006	.005	.006	.005	.005	.006	.005	.005	.005	.005	.005	.005	.005	.006	.005	.005	.005	.005
2/25	.005	.007	.009	.057	.006	.006	.005	.006	.016	.006	.007	.005	.006	.010	.059	.019	.008	.007	.006	.008	.008	.010	.008	.013	.011
2/26	.008	.010	.010	.007	.007	.006	.017	.008	.007	.006	.007	.006	.006	.005	.010	.006	.008	.007	.007	.006	.007	.010	.006	.008	.005
2/27	.013	.007	.009	.025	.034	.016	.019	.016	.014	.014	.013	.011	.012	.009	.007	.008	.009	.008	.013	.016	.011	.010	.008	.006	.008
2/28	.007	.009	.007	.006	.008	.009	.012	.025	.019	.012	.010	.008	.007	.007	.007	M	.007	.008	.008	.008	.007	.006	.007	.006	.005

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

SOLAR X-RAYS BY SATELLITE

GOES

FEBRUARY 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	0051		6.5E-07	0059		1.7E-06	0118		1.1E-06
1	0131		1.1E-06	0152		6.5E-06	0203		3.5E-06
1	0559		1.2E-06	0602		1.7E-06	0604		1.2E-06
1	1513		7.6E-07	1520		1.3E-06	1525		1.0E-06
1	1823		8.9E-07	1829		1.4E-06	1903		1.1E-06
1	2247		1.1E-06	2250		1.6E-06	2253		1.3E-06
1	2350		1.7E-06	0001		4.1E-06	0009		2.9E-06
2	0128		1.7E-06	0131		2.5E-06	0136		2.0E-06
2	0421		1.2E-06	0450		3.0E-06	0506		2.1E-06
2	1133		1.4E-06	1139		1.3E-05	1144		8.8E-06
3	0053		1.3E-06	0056		2.0E-06	0106		1.6E-06
3	0254		4.9E-06	0258		9.4E-06	0300		6.9E-06
3	0441		1.7E-06	0449		1.0E-05	0456		5.8E-06
3	0746		1.1E-06	0750		2.2E-06	0752		1.6E-06
3	0746		1.1E-06	0750		2.2E-06	0752		1.6E-06
3	0759		1.3E-06	0812		9.3E-06	0825		5.2E-06
3	2335		1.1E-06	2338		1.8E-06	2340		1.3E-06
4	0014		8.7E-07	0017		1.4E-06	0024		1.1E-06
4	1852		9.9E-07	1855		1.9E-06	1900		1.4E-06
5	0123		1.0E-06	0128		2.2E-06	0135		1.6E-06
5	0219		1.2E-06	0222		1.8E-06	0224		1.3E-06
5	0245		1.1E-06	0248		2.0E-06	0252		1.4E-06
5	0657		8.8E-07	0700		1.8E-06	0709		1.3E-06
6	0816		1.3E-06	0823		2.0E-06	0827		1.6E-06
6	2143		1.1E-06	2146		1.7E-06	2151		1.4E-06
7	1533		9.8E-07	1536		1.8E-06	1538		1.3E-06
7	1712		1.1E-06	1721		3.4E-06	1732		2.2E-06
7	2109		9.7E-07	2116		6.5E-06	2125		3.6E-06
8	0019		1.0E-06	0022		1.9E-06	0025		1.4E-06
8	0351		1.2E-06	0357		1.7E-05	0400		9.1E-06
8	0545		1.4E-06	0552		3.8E-06	0612		2.5E-06
8	0709		1.4E-06	0716		8.5E-06	0727		4.8E-06
8	1111		1.4E-06	1131		4.7E-06	1148		3.0E-06
8	1420		1.7E-06	1435		4.4E-06	1449		3.0E-06
8	1628		1.3E-06	1639		4.1E-06	1642		2.5E-06
8	1954	2.2E-08	1.2E-06	2006	2.7E-07	4.2E-06	2013	9.6E-08	2.7E-06
9	0025	6.8E-08	2.3E-06	0035	3.3E-07	5.4E-06	0048	1.3E-07	3.9E-06
9	0254	1.6E-08	1.5E-06	0258	1.1E-07	2.5E-06	0300	3.2E-08	1.8E-06
9	0338	4.2E-08	1.7E-06	0344	1.8E-07	3.5E-06	0349	6.9E-08	2.6E-06
9	0804	2.6E-08	1.4E-06	0810	1.0E-07	2.6E-06	0817	4.3E-08	2.0E-06
9	0947	1.3E-08	1.0E-06	0955	1.8E-07	2.8E-06	1001	4.7E-08	1.9E-06
9	1109	7.7E-09	9.2E-07	1122	6.9E-07	7.8E-06	1133	1.3E-07	4.3E-06
9	1154	1.2E-07	3.7E-06	1159	1.5E-06	1.2E-05	1201	1.7E-07	4.3E-06
9	1357	1.5E-08	1.2E-06	1406	3.4E-07	4.4E-06	1427	8.4E-08	2.8E-06
9	1443	1.0E-07	3.1E-06	1454	8.0E-07	9.5E-06	1507	2.6E-07	6.2E-06
9	1518	1.9E-07	4.9E-06	1526	1.0E-06	8.6E-06	1533	6.1E-07	6.7E-06
9	1559	1.2E-07	3.7E-06	1605	1.0E-05	6.2E-05	1609	3.5E-06	3.0E-05
9	1823	1.8E-08	1.6E-06	1834	7.9E-07	7.8E-06	1847	1.4E-07	4.5E-06
9	1926	1.5E-08	1.3E-06	1932	1.1E-07	2.5E-06	1938	3.2E-08	1.9E-06
9	2102	2.5E-08	1.3E-06	2110	3.6E-07	4.5E-06	2121	8.3E-08	2.8E-06
9	2156	4.3E-08	1.9E-06	2256	3.1E-06	1.9E-05	2310	6.9E-07	1.0E-05

SOLAR X-RAYS BY SATELLITE

GOES

FEBRUARY 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}
9	2326	2.7E-07	6.1E-06	2331	1.1E-06	1.0E-05	2335	5.6E-07	8.0E-06
10	0017	2.2E-07	4.0E-06	0023	2.8E-06	1.9E-05	0032	1.3E-06	1.1E-05
10	0656	3.1E-08	1.3E-06	0700	7.8E-07	6.6E-06	0702	2.0E-07	3.7E-06
10	1158	8.6E-09	8.0E-07	1203	6.2E-08	1.6E-06	1207	2.6E-08	1.1E-06
10	1711	7.1E-08	2.0E-06	1733	1.1E-06	1.1E-05	1743	2.0E-07	6.5E-06
10	1816	1.0E-08	9.3E-07	1819	4.4E-08	1.3E-06	1824	1.8E-08	1.1E-06
10	1908	2.1E-08	1.1E-06	1911	3.6E-08	1.9E-06	1913	3.3E-08	1.3E-06
10	2100	2.7E-08	1.3E-06	2103	3.3E-08	1.8E-06	2105	3.5E-08	1.4E-06
10	2105	3.5E-08	1.4E-06	2117	4.5E-06	3.6E-05	2128	1.3E-06	1.8E-05
11	0318	8.0E-09	8.5E-07	0323	8.0E-08	1.8E-06	0327	2.6E-08	1.3E-06
11	0346	1.3E-08	9.3E-07	0350	3.6E-08	1.4E-06	0355	1.8E-08	1.1E-06
11	0507	2.4E-08	1.1E-06	0518	6.2E-08	1.9E-06	0526	2.1E-08	1.5E-06
11	0608	2.0E-08	1.1E-06	0619	6.5E-08	2.2E-06	0629	1.6E-08	1.6E-06
11	0754	4.3E-08	1.6E-06	0757	9.1E-08	2.2E-06	0759	5.3E-08	1.8E-06
11	0814	3.7E-08	1.3E-06	0820	2.9E-07	3.9E-06	0825	7.7E-08	2.4E-06
11	1112	2.0E-08	1.2E-06	1115	2.9E-08	1.8E-06	1118	2.8E-08	1.4E-06
11	1131	2.2E-08	1.1E-06	1135	9.7E-08	2.1E-06	1138	2.4E-08	1.6E-06
11	1250	2.0E-08	1.1E-06	1253	4.8E-08	1.9E-06	1255	3.5E-08	1.4E-06
11	1346	1.0E-08	8.1E-07	1350	4.1E-08	1.3E-06	1353	1.4E-08	1.0E-06
11	1416	2.0E-08	1.2E-06	1419	3.4E-08	1.7E-06	1422	3.3E-08	1.4E-06
11	1424	2.9E-08	1.3E-06	1429	1.0E-06	7.9E-06	1434	1.5E-07	3.9E-06
11	1659	1.3E-08	9.7E-07	1704	1.7E-07	3.0E-06	1711	4.8E-08	1.9E-06
11	1831	4.6E-08	1.5E-06	1839	1.0E-07	2.4E-06	1844	3.6E-08	1.8E-06
11	2116	4.1E-08	1.9E-06	2121	1.1E-07	2.9E-06	2126	6.0E-08	2.3E-06
11	2348	7.0E-07	5.4E-06	0012	2.1E-06	1.7E-05	0019	1.2E-06	1.1E-05
12	0312	1.8E-08	1.0E-06	0317	2.1E-07	3.3E-06	0322	5.8E-08	2.1E-06
12	0420	2.9E-08	1.2E-06	0423	4.3E-08	2.0E-06	0425	3.8E-08	1.3E-06
12	0607	1.5E-08	8.4E-07	0616	4.1E-08	1.7E-06	0621	2.5E-08	1.2E-06
12	0939	2.1E-08	1.2E-06	0943	2.0E-07	3.3E-06	0947	5.5E-08	2.1E-06
12	1059	2.8E-08	1.2E-06	1135	8.3E-07	7.3E-06	1149	2.1E-07	4.2E-06
12	1306	2.1E-08	1.4E-06	1311	2.3E-07	3.9E-06	1320	8.6E-08	2.5E-06
12	1845	1.8E-08	1.5E-06	1907	2.5E-06	1.7E-05	1946	6.6E-07	9.3E-06
13	0148	1.7E-06	1.1E-05	0255	8.0E-06	6.2E-05	0327	3.2E-06	3.6E-05
13	1036	9.9E-08	3.8E-06	1039	3.2E-07	5.7E-06	1041	1.1E-07	4.7E-06
13	1451	8.1E-08	2.8E-06	1454	1.9E-07	9.7E-06	1456	8.2E-08	2.9E-06
13	1548	1.5E-08	1.8E-06	1553	2.3E-06	4.3E-06	1555	5.1E-08	2.3E-06
13	1727	5.3E-08	2.3E-06	1731	3.2E-07	4.5E-06	1734	1.8E-07	3.4E-06
13	1821	6.3E-08	2.2E-06	1824	1.9E-07	3.4E-06	1832	1.1E-07	2.7E-06
13	1858	1.6E-07	3.1E-06	1913	2.0E-06	1.4E-05	1930	5.9E-07	8.5E-06
13	2136	1.6E-08	1.2E-06	2140	3.7E-07	4.2E-06	2144	6.4E-08	2.3E-06
13	2208	2.4E-08	1.4E-06	2212	2.5E-07	3.6E-06	2215	2.8E-08	1.9E-06
13	2321	1.8E-08	9.7E-07	2326	2.7E-07	3.5E-06	2335	7.1E-08	2.1E-06
14	0357	1.6E-08	1.2E-06	0400	2.9E-08	1.7E-06	0403	2.1E-08	1.1E-06
14	0618	3.1E-08	1.5E-06	0621	1.3E-07	2.3E-06	0623	2.7E-08	1.6E-06
14	0657	1.1E-08	1.0E-06	0705	3.4E-07	4.2E-06	0707	7.2E-08	2.4E-06
14	0804	2.8E-08	1.1E-06	0807	3.8E-08	1.7E-06	0809	2.9E-08	1.3E-06
14	0848	1.3E-08	1.1E-06	0851	2.3E-08	1.6E-06	0854	2.6E-08	1.2E-06
14	0858	1.8E-08	1.2E-06	0901	5.2E-08	1.8E-06	0903	2.3E-08	1.5E-06
14	1110	8.9E-08	1.9E-06	1126	3.7E-07	4.5E-06	1133	1.4E-07	3.1E-06
14	2006	9.0E-09	1.1E-06	2009	8.7E-09	2.0E-06	2011	7.9E-09	1.2E-06
14	2125	1.2E-08	1.1E-06	2128	2.2E-08	1.8E-06	2131	1.8E-08	1.4E-06

SOLAR X-RAYS BY SATELLITE

GOES

FEBRUARY 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}
14	2312	4.2E-08	1.8E-06	2322	5.2E-07	6.4E-06	2331	1.6E-07	3.9E-06
15	0100	2.6E-08	1.6E-06	0105	1.3E-07	3.1E-06	0112	5.3E-08	2.3E-06
15	0254	2.6E-08	1.2E-06	0329	1.9E-07	3.4E-06	0339	5.7E-08	2.2E-06
15	0358	4.0E-08	1.5E-06	0407	6.3E-07	7.1E-06	0415	1.5E-07	4.0E-06
15	0439	2.8E-07	3.7E-06	0446	1.0E-06	8.4E-06	0451	4.3E-07	5.9E-06
15	0715	3.6E-08	1.8E-06	0727	6.0E-07	7.1E-06	0732	1.6E-07	4.2E-06
15	0745	1.4E-07	3.0E-06	0754	6.1E-06	2.6E-05	0803	1.8E-06	1.3E-05
15	0903	3.1E-08	1.4E-06	0907	1.1E-07	2.2E-06	0910	3.0E-08	1.7E-06
15	0912	3.2E-08	1.6E-06	0915	1.0E-07	2.2E-06	0918	3.2E-08	1.7E-06
15	0955	1.2E-08	1.0E-06	0958	1.6E-07	1.7E-06	1000	1.0E-08	1.0E-06
15	1006	2.3E-08	1.3E-06	1011	1.5E-07	2.8E-06	1016	2.8E-08	1.9E-06
15	1148	1.1E-08	1.0E-06	1151	4.0E-06	2.6E-06	1153	1.1E-08	1.0E-06
15	1331	5.2E-08	1.4E-06	1351	2.6E-06	1.3E-05	1400	5.6E-07	7.0E-06
15	1837	1.3E-06	1.2E-06	1841	1.1E-06	5.2E-06	1843	5.8E-08	2.3E-06
15	2011	5.3E-08	1.4E-06	2021	7.9E-08	3.5E-06	2023	8.1E-08	2.2E-06
15	2039	3.1E-08	9.2E-07	2043	5.9E-08	1.5E-06	2047	2.5E-08	1.1E-06
15	2111	1.6E-08	1.0E-06	2115	6.2E-08	1.8E-06	2117	2.7E-08	1.2E-06
15	2151	1.9E-08	1.0E-06	2157	5.4E-07	4.3E-06	2205	1.3E-07	2.7E-06
15	2225	2.5E-08	1.6E-06	2239	1.1E-06	9.2E-06	2244	1.7E-07	4.9E-06
15	2327	2.8E-08	1.3E-06	2333	1.0E-06	6.7E-06	2343	1.8E-07	3.9E-06
16	0014	2.3E-08	1.6E-06	0018	2.4E-07	3.8E-06	0021	7.3E-08	2.4E-06
16	0139	4.1E-08	1.3E-06	0143	1.0E-07	2.1E-06	0146	3.2E-08	1.7E-06
16	0435	1.8E-08	1.1E-06	0438	1.2E-07	2.2E-06	0440	4.5E-08	1.5E-06
16	0606	1.7E-08	1.1E-06	0614	8.3E-07	7.0E-06	0620	1.3E-07	3.9E-06
16	0629	3.8E-08	1.8E-06	0639	3.2E-07	4.0E-06	0644	6.4E-08	2.6E-06
16	0924	1.0E-08	9.2E-07	0929	7.3E-08	1.8E-06	0931	3.7E-08	1.3E-06
16	1228	1.4E-08	1.0E-06	1233	1.6E-07	3.1E-06	1238	1.9E-08	1.7E-06
17	0056	4.2E-08	1.2E-06	0108	7.3E-08	1.7E-06	0117	4.6E-08	1.4E-06
17	0136	2.5E-08	1.1E-06	0144	3.6E-06	1.7E-05	0148	5.0E-07	8.0E-06
17	0303	2.8E-08	1.2E-06	0306	4.9E-08	1.9E-06	0308	4.4E-08	1.6E-06
17	0309	4.3E-08	1.6E-06	0315	3.1E-06	1.9E-05	0317	8.8E-07	7.5E-06
17	0748	1.0E-08	9.0E-07	0751	5.9E-08	1.4E-06	0755	1.6E-08	1.1E-06
17	0921	2.4E-08	1.1E-06	0924	5.3E-08	2.1E-06	0926	5.5E-08	1.6E-06
17	1246	5.6E-09	7.6E-07	1250	2.0E-07	2.6E-06	1252	6.0E-08	1.4E-06
17	1338	9.2E-10	7.6E-07	1342	1.4E-07	2.4E-06	1345	2.6E-08	1.2E-06
17	1435	4.9E-10	7.2E-07	1438	7.3E-06	6.2E-06	1442	6.5E-10	8.1E-07
17	1459	4.1E-09	8.8E-07	1509	1.4E-07	2.6E-06	1515	2.3E-08	1.7E-06
17	1551	3.1E-08	1.2E-06	1601	1.5E-05	2.8E-06	1603	3.5E-08	1.4E-06
17	1613	3.5E-08	1.3E-06	1616	4.8E-08	2.1E-06	1618	2.9E-08	1.3E-06
17	2210	3.2E-08	1.1E-06	2213	7.3E-08	1.9E-06	2216	5.2E-08	1.3E-06
17	2217	4.2E-08	1.2E-06	2220	1.4E-07	1.9E-06	2224	4.7E-08	1.4E-06
17	2302	1.0E-08	8.3E-07	2306	6.9E-08	1.3E-06	2309	1.9E-08	9.6E-07
18	0045	3.9E-08	1.4E-06	0048	2.3E-07	3.0E-06	0050	8.4E-08	2.1E-06
18	0206	1.9E-08	1.2E-06	0209	5.1E-07	5.2E-06	0212	3.5E-08	2.0E-06
18	2158	1.6E-08	1.0E-06	2208	1.0E-06	7.5E-06	2214	1.6E-07	4.1E-06
19	1044	8.1E-09	9.5E-07	1049	1.0E-07	2.1E-06	1058	3.0E-08	1.4E-06
19	1109	3.1E-08	1.2E-06	1115	1.4E-07	2.5E-06	1121	4.5E-08	1.8E-06
19	1147	1.4E-08	9.9E-07	1150	6.3E-08	2.0E-06	1153	3.5E-08	1.4E-06
20	0005	6.1E-09	7.3E-07	0009	1.0E-07	1.8E-06	0013	3.1E-08	1.2E-06
20	1045	1.0E-08	7.8E-07	1048	3.2E-08	1.1E-06	1054	9.5E-09	8.5E-07
20	1526	5.7E-09	6.1E-07	1530	2.3E-08	9.5E-07	1537	5.9E-09	7.8E-07

SOLAR X-RAYS BY SATELLITE

GOES

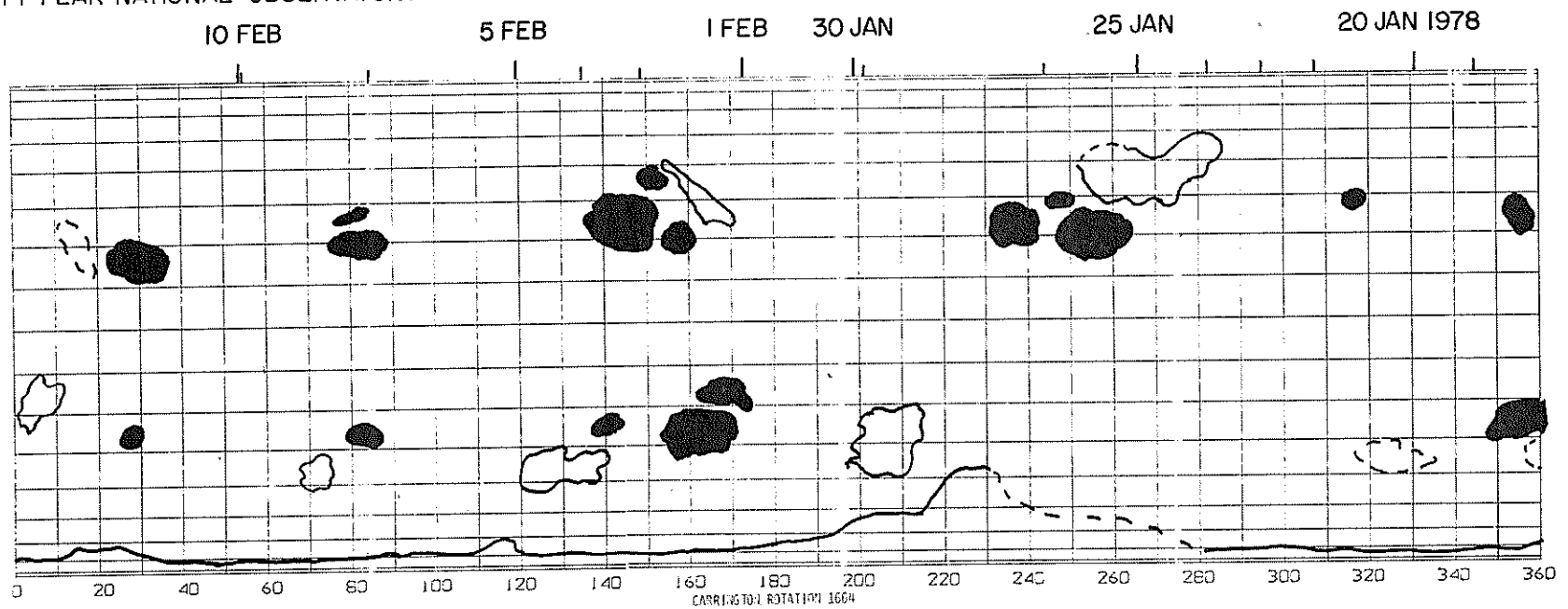
FEBRUARY 1978

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}
20	1605	1.0E-08	7.8E-07	1612	1.6E-07	3.0E-06	1619	3.3E-08	1.8E-06
20	1842	1.2E-08	7.1E-07	1845	3.9E-08	1.0E-06	1849	2.5E-08	8.6E-07
20	2136	1.4E-08	7.1E-07	2139	3.9E-08	1.0E-06	2142	1.5E-08	8.3E-07
21	0842	6.1E-09	6.4E-07	0850	9.6E-08	1.9E-06	0856	4.4E-08	1.2E-06
21	1133	1.1E-08	7.5E-07	1137	9.9E-08	1.8E-06	1145	4.5E-08	1.2E-06
21	1514	2.5E-08	8.9E-07	1521	3.7E-07	3.6E-06	1530	1.1E-07	2.2E-06
21	2220	1.0E-08	6.3E-07	2226	1.2E-07	1.8E-06	2239	4.1E-08	1.2E-06
22	0910	1.2E-08	7.3E-07	0913	4.0E-08	1.0E-06	0916	1.7E-08	7.6E-07
22	1121	9.5E-09	6.8E-07	1126	6.1E-08	1.4E-06	1134	2.1E-08	9.8E-07
22	1829	1.3E-08	6.8E-07	1839	1.3E-07	2.3E-06	1842	4.6E-08	1.3E-06
23	0311	4.7E-09	5.4E-07	0315	9.8E-08	1.9E-06	0323	2.4E-08	1.1E-06
23	1316	9.0E-09	6.9E-07	1320	2.7E-08	1.1E-06	1323	1.2E-08	9.0E-07
24	0240	8.9E-09	7.1E-07	0243	3.6E-07	4.2E-06	0245	3.9E-08	1.3E-06
24	0733	3.1E-09	5.4E-07	0737	5.2E-08	1.4E-06	0739	1.0E-08	7.3E-07
24	2049	3.4E-09	4.8E-07	2054	4.6E-08	1.0E-06	2059	1.2E-08	6.8E-07
25	0805	1.0E-08	6.8E-07	0812	1.1E-06	7.8E-06	0817	1.6E-07	3.7E-06
25	1300	1.3E-08	7.0E-07	1308	5.8E-08	1.3E-06	1314	2.8E-08	9.6E-07
25	1417	1.2E-08	8.1E-07	1422	4.8E-08	1.4E-06	1425	2.0E-08	1.0E-06
25	1445	6.4E-09	6.9E-07	1453	9.6E-06	4.1E-05	1459	2.1E-06	1.9E-05
25	1915	6.4E-09	6.2E-07	1919	4.3E-08	1.2E-06	1921	1.4E-08	8.2E-07
26	0023	1.0E-08	7.3E-07	0026	3.4E-08	1.0E-06	0028	1.3E-08	8.6E-07
26	0108	2.0E-08	1.0E-06	0115	9.7E-08	2.2E-06	0117	3.9E-08	1.5E-06
26	0227	1.3E-08	8.5E-07	0230	4.7E-07	4.3E-06	0232	1.1E-07	2.5E-06
26	0616	4.7E-09	6.7E-07	0619	1.1E-06	7.0E-06	0623	1.7E-07	3.3E-06
26	1409	2.9E-09	5.4E-07	1414	1.0E-06	6.9E-06	1416	1.7E-07	3.4E-06
26	2006	8.6E-09	5.9E-07	2012	3.3E-08	1.0E-06	2015	1.7E-08	7.6E-07
26	2057	1.5E-08	7.5E-07	2100	3.5E-08	1.6E-06	2105	4.1E-08	1.1E-06
26	2324	6.5E-09	5.7E-07	2332	6.7E-08	2.1E-06	2337	3.7E-08	1.3E-06
26	2359	6.9E-09	6.6E-07	0003	1.0E-06	7.7E-06	0006	1.4E-07	3.3E-06
28	0711	2.6E-08	1.4E-06	0741	1.7E-07	4.4E-06	0758	7.1E-08	2.8E-06

HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1664

KITT PEAK NATIONAL OBSERVATORY



CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

FEBRUARY 1978

Big Bear Solar Observatory

Only one D3 limb scan was made during February. These data are presented in numerical form rather than graphically.

Position angles of coronal hole boundaries (in degrees)

Date	North		South	
February 19	+24°	-6°	-171°	+159°

SOLAR WIND

Interplanetary Scintillations

FEBRUARY 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	333	14											436	40	330	39
2	328	50									432	71	346	54		
3	334	23	321	5							429	88	399	19	369	29
4	411	5	339	29									319	53	323	54
5	313	35									439	33	546	65	287	32
6	367	27									442	13	320	24	428	59
7	335	4					394	32			384	19	317	69	363	7
8	359	13	330	10							344	6			326	45
9	392	22	320	5			419	109			382	3	367	24	433	14
10	454	62	369	5	327	6					339	21				
11	259	24	330	6	357	9	277	10			383	48	248	70		
12	278	11	346	28			425	9			535	22	384	16		
13	284	4	259	3			273	30			360	5	361	5		
14			270	7			352	10			275	3				
18	305	5	256	11			270	26								
19			271	38			432	9					415	17		
20	428	6	338	9												
21			366	17												
23	385	7	203	5			332	38					369	18		
23	434	41														
24	448	7	374	52			335	10					305	41		
25			396	7			312	36								
26	385	13														
27	436	15	475	12												
28	344	20	330	7			811	199								

FEBRUARY	5 UT	5 LAT	5 DIST	5 DLON	15 UT	15 LAT	15 DIST	15 DLON	25 UT	25 LAT	25 DIST	25 DLON
3C48	1.	1.	0.99	-16.	24.	2.	0.94	-19.	23.	6.	0.87	-27.
3C144	4.	-5.	1.20	-12.	4.	-6.	1.17	-13.	3.	-7.	1.12	-15.
3C147	4.	0.	1.20	-10.	3.	0.	1.16	-11.	2.	0.	1.13	-13.
3C161	6.	-12.	1.22	-8.	5.	-13.	1.20	-10.	5.	-14.	1.16	-12.
3C237	9.	-7.	1.29	3.	9.	-7.	1.30	1.	8.	-7.	1.30	-1.
3C273	11.	-5.	1.22	11.	11.	-5.	1.25	9.	10.	-6.	1.27	7.
3C298	13.	-1.	1.12	14.	13.	-2.	1.16	13.	12.	-2.	1.20	11.
3C459	22.	10.	0.58	-52.	21.	15.	0.43	-61.	21.	27.	0.28	-68.

Note: 3C48 observed at 0 hr UT before February 19, at 23 hr UT after February 19.

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
1956	AUG 16							TA	T*							*		AT			-	AT -	AT -	AT -	TA -	-	-	-
1957	SEP 12		-	AT -		-	-		-	-	-	AT -	-	AT -	AT -	-	AT -	-	-	-	-			AT			-		
1958	OCT 9	AT *	A*		A*		*				TA	A*			*	-	-	-	*		TA	AT	AT		-			AT
1959	NOV 5	AT	TA			TA		T*		*	AT *		-		*	-											*	
1960	DEC 2							TA		*						AT		*					- *				-	TA -
1961	DEC 29	-	AT -	*	*	*			AT				*			*	A*		*	*								AT
1962	1977 JAN 25			-			-	-	TA -		A*			AT -			*	-			*	-			TA				
1963	FEB 21	AT	-	-	-	-	TA		TA			*									-			-				
1964	MAR 20		TA		AT					*			-	-						A*				-				
1965	APR 16			TA		TA -	AT	TA		TA		AT				-	-	TA		AT	AT			TA				AT
1966	MAY 13	TA	-	-		TA			TA											AT	- -	AT	T* -	T*			AT	AT -
1967	JUN 9								TA		-			TA						AT	A*				*	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		*		-			-						-		*					

▓ = definitely towards the sun □ = definitely away from the sun

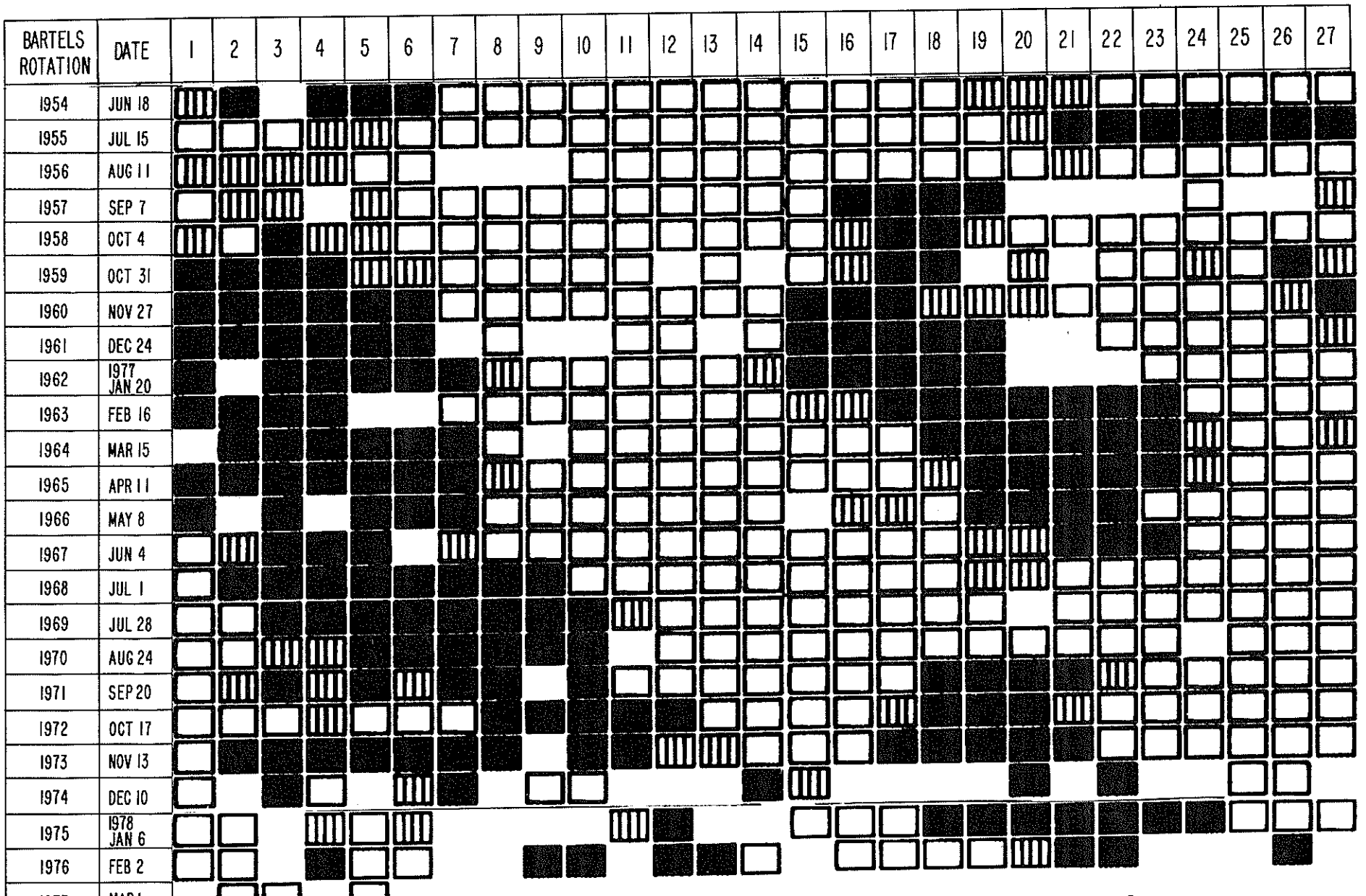
T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

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.

Note: The Bartels Rotation numbers after Rotation number 1955 were incorrect in this Table in SGD issues 385 Part I through 389 Part I.

Errata: Thule data for December 5, 6, 10, 11, 12 and 19, 1976 have been corrected.

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

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

Dot symbol entry indicates no data available for the day.

Solar Proton Event (Provisional) February 1978

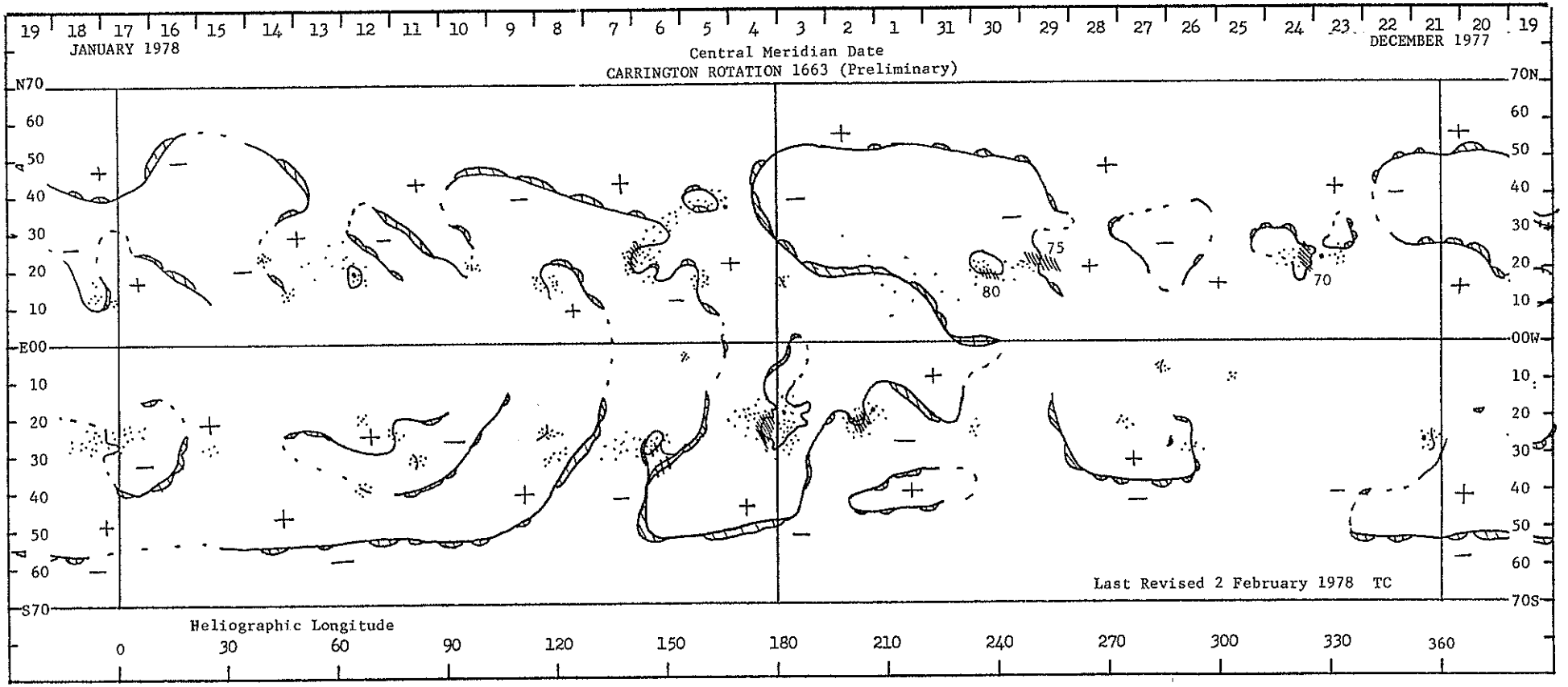
Date/Time(UT)	Detector	Observation	Remarks
13/0144	Hα patrol.	Start time of importance Sb(M7) flare; N22W13.	Max 0255 UT; end 0334 UT; McMath Region 15139. Peak 10-cm flux was 720 units above background. Accompanied by Type II event.
13/0915	SMS-2 >1 and >10 MeV proton channels.	Onset of sharp rise in proton fluxes.	Flux computed from differential energy channels on board the Synchronous Meteorological Satellite (SMS)-2.
13/0930	SMS-2 >10 MeV channel.	Proton event threshold exceeded.	Threshold set at 10 protons/cm^2 s sr.
13/2115	Thule and Alaskan 30 MHz riometer chain.	Station / A(dB) / L: Anchorage 0.1 4.2; Sheep Mt. 0.5 4.5; Paxson 1.0 5.0; College 3.8 5.5; Ft. Yukon 2.9 6.5; Thule 1.1 >50	Sample profile near maximum absorption for the 13th under daylight conditions. Twilight prevailed at Thule.
~14/1000	SM2-2 >10 MeV proton channel.	Max proton flux about 850 particles/cm^2 s sr.	
14/1630	Thule 30 MHz riometer.	Max absorption 3.3 dB.	May not be absolute Max since data for the last 6 hours of the day are missing. Twilight solar illumination.
14/2135	Fredericksburg magnetometer.	Storm sudden commencement (ssc).	Represents a 44-hour delay between the initiating 13/0144 UT flare and the shock front passage. Storm duration about 18 hours.
14/2135	SMS-2 >1 and >10 MeV channels.	Sharp increase in flux.	Arrival of energetic storm particles.
15/0755		Auroral sighting, Boulder, Colorado.	Very intense aurora observed in the northeastern sky. Boulder located at N40° geographic latitude.
15/1200	SMS-2 >10 MeV window.	Particle flux dropped below 10 protons/cm^2 s sr.	Flux below threshold used to define proton event.
15/2400	Fredericksburg Geomagnetic Center.	A index = 32.	Largest K value was 7, occurring between 0900 and 1200 UT.

JANUARY 1978 DATA

Contents

Hα SYNOPTIC CHART

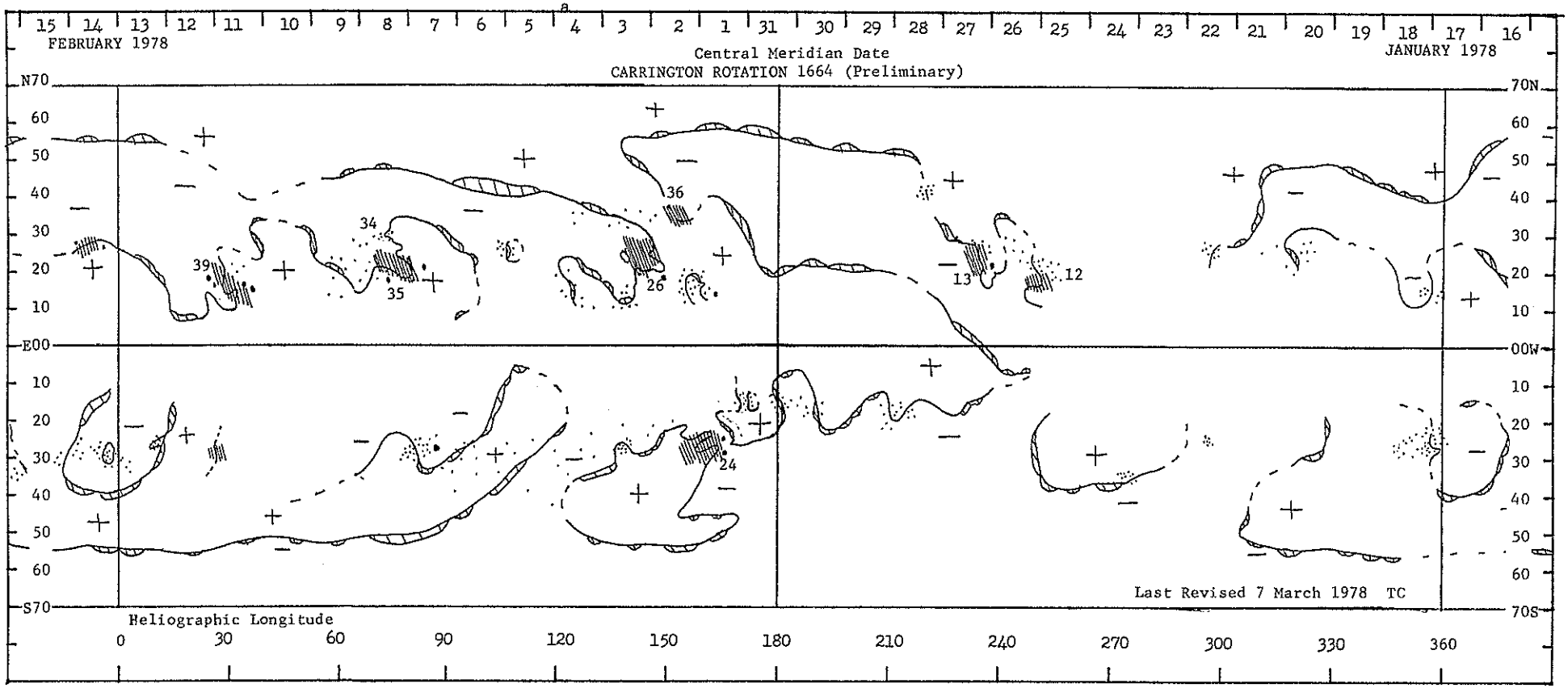
CARRINGTON ROTATION 1663 (PRELIMINARY)



ABBREVIATED CALENDAR RECORD

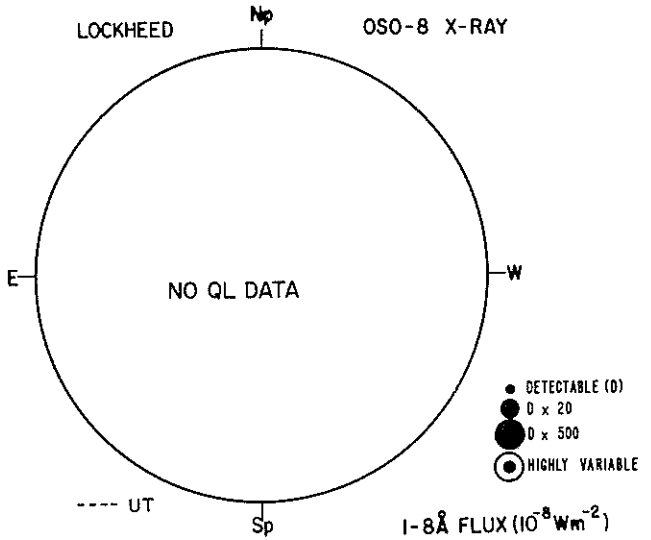
Hα SYNOPTIC CHART

JANUARY - FEBRUARY 1978

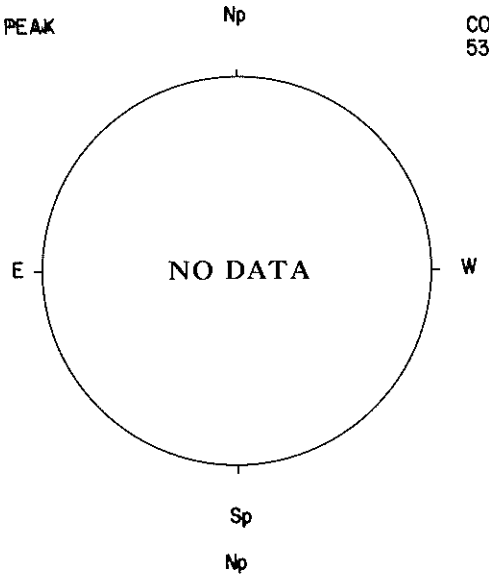


JANUARY 1, 1978 (P =2.19, B_o =-3.03, L_o =220.32)

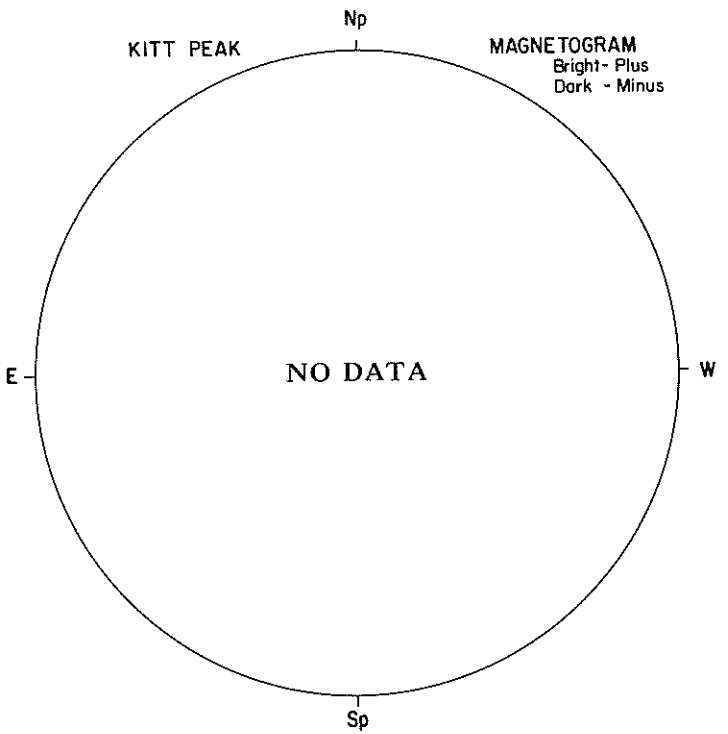
LOCKHEED OSO-8 X-RAY



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 =

E NO DATA JANUARY 1-6 W

Levels
± 5
± 10
± 20
± 40
± 80

Np

Sp

01

SACRAMENTO PEAK

Np

Hα

NO DATA

E

W

Sp

BOULDER

SUNSPOTS

Np

090

080

075

083

081

E

W

1630 UT

PROMINENCES

1655 UT

Sp

McMATH-HULBERT

CALCIUM REPORT

Np

NO DATA

E

W

Sp

NOSC LA POSTA

2.0 CM

Np

E

W

Sp

1832 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA

8.6 MM

Np

E

W

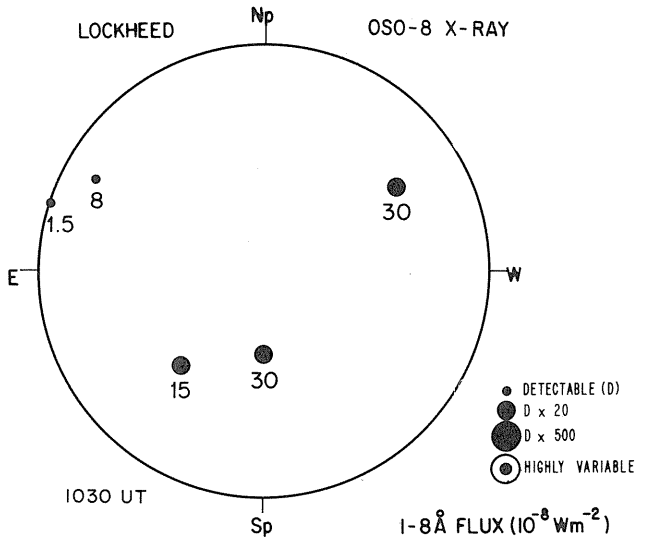
Sp

1918 UT

Ant. Temp. Unit 100°K

JANUARY 2, 1978 (P =1.71, B_o =-3.15, L_o =207.15)

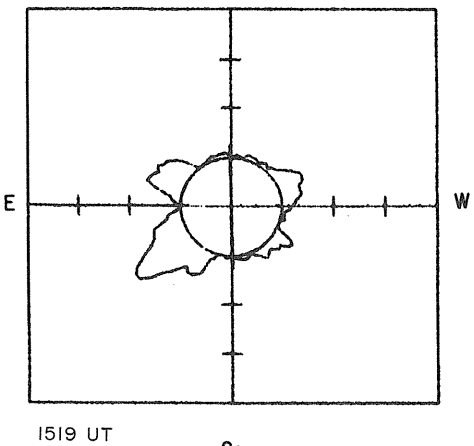
LOCKHEED OSO-8 X-RAY



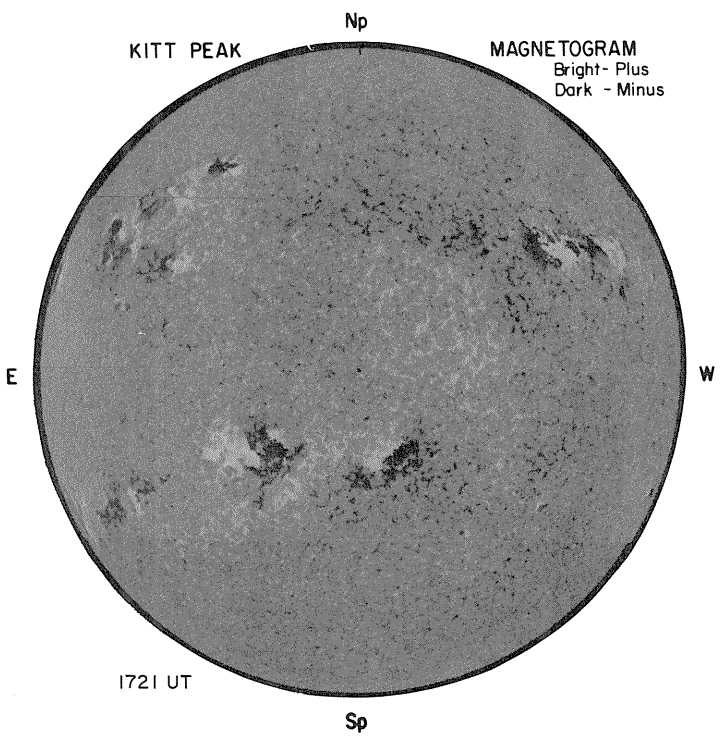
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å

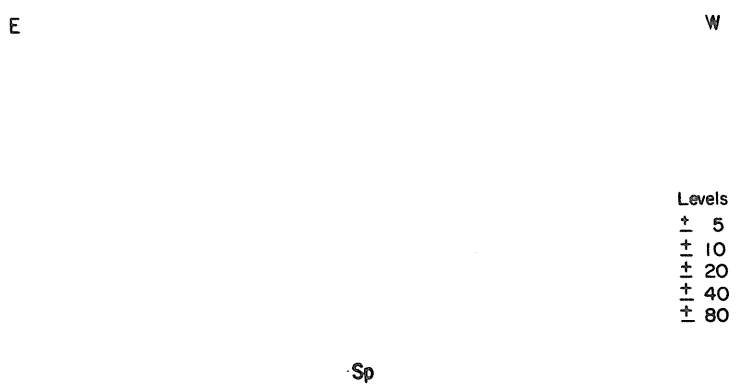


KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid- Plus
Dotted-Minus

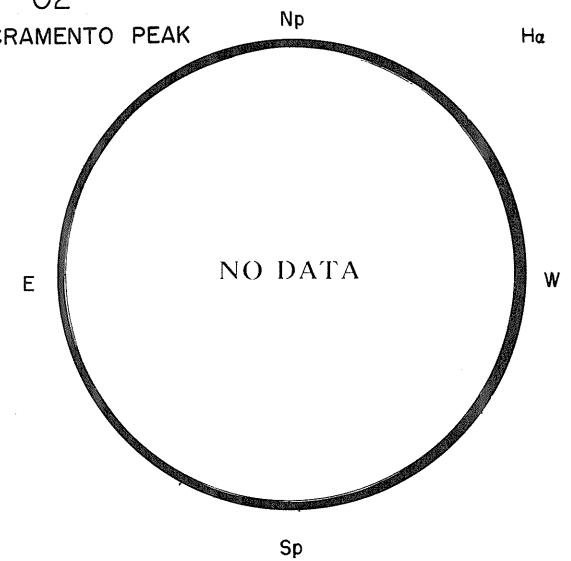
DELTAY =
DELTAX =



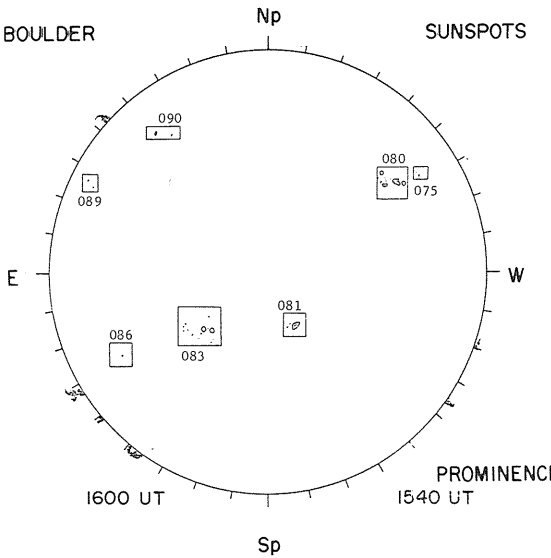
Levels
± 5
± 10
± 20
± 40
± 80

02

SACRAMENTO PEAK



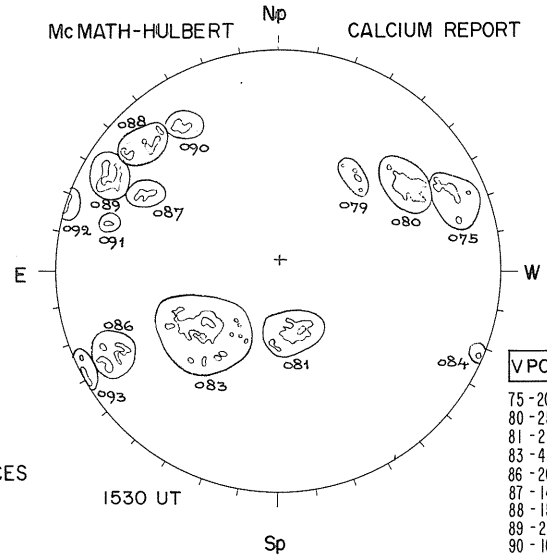
BOULDER



1600 UT

SUNSPOTS

McMATH-HULBERT



1530 UT

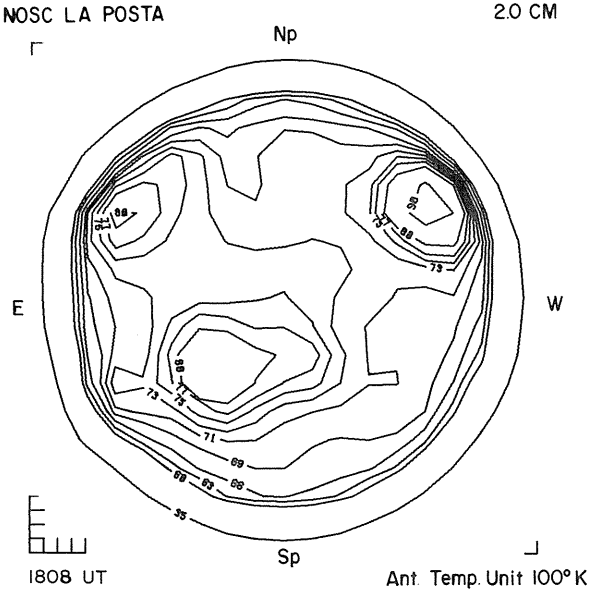
CALCIUM REPORT

V POOR	S
75 - 2000	- 2.5
80 - 2500	- 3.0
81 - 2100	- 3.0
83 - 4300	- 3.0
86 - 2000	- 2.5
87 - 1400	- 3.0
88 - 1500	- 2.5
89 - 2100	- 3.0
90 - 1000	- 3.0

PROMINENCES

1540 UT

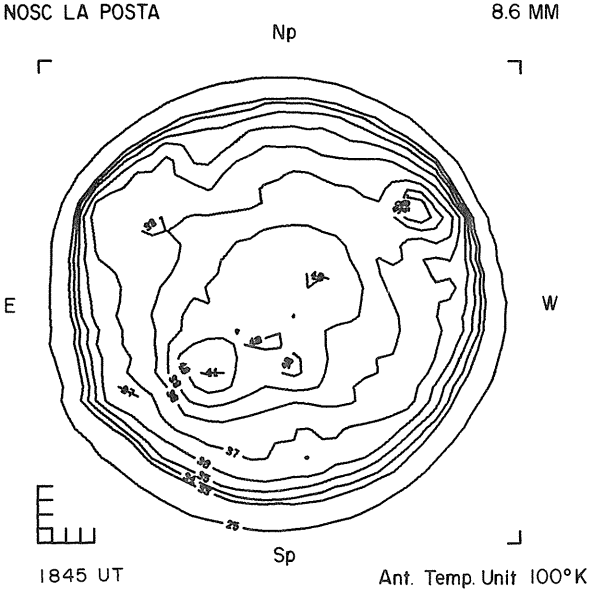
NOSC LA POSTA 2.0 CM



1808 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

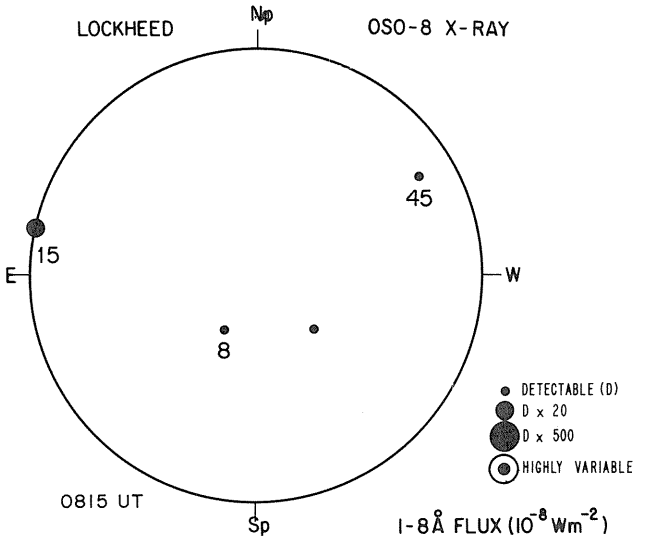


1845 UT

Ant. Temp. Unit 100°K

JANUARY 3, 1978 (P =1.22, B_o =-3.26, L_o =193.98)

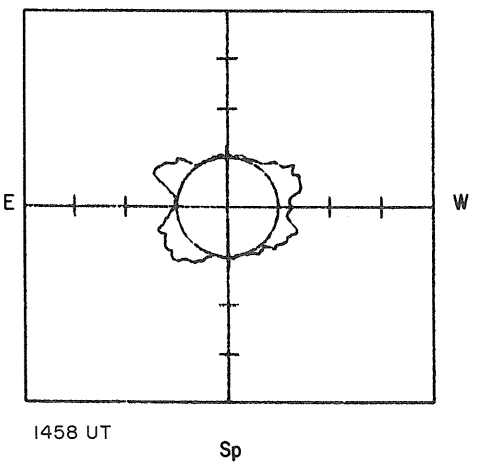
LOCKHEED OSO-8 X-RAY



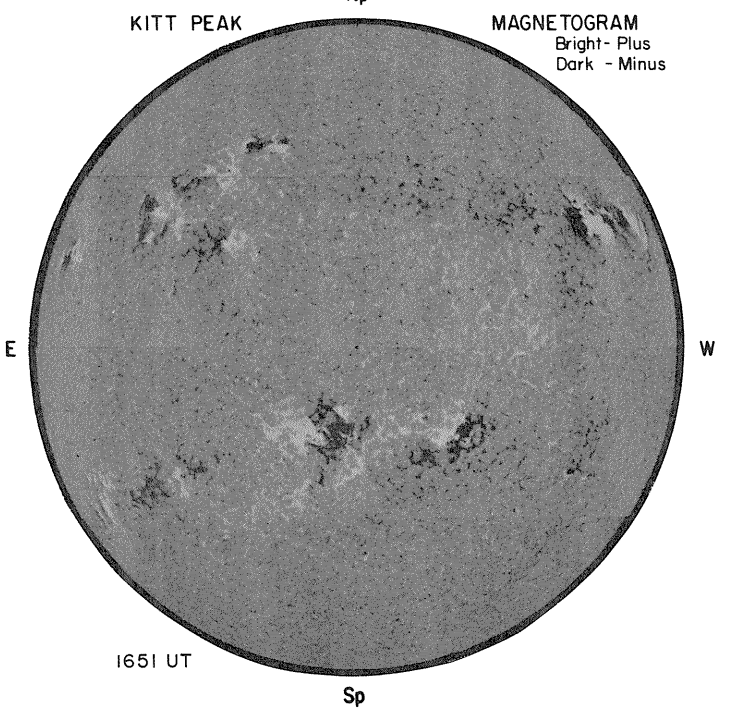
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



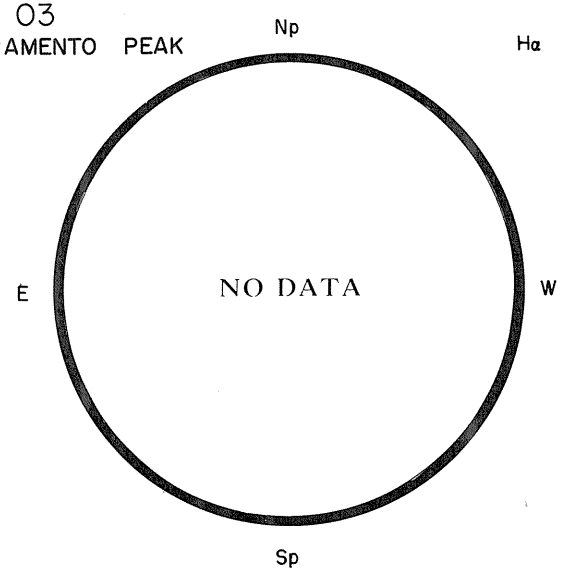
MT. WILSON MAGNETOGRAM
Solid- Plus
Dotted-Minus

DELTAY =
DELTAX =

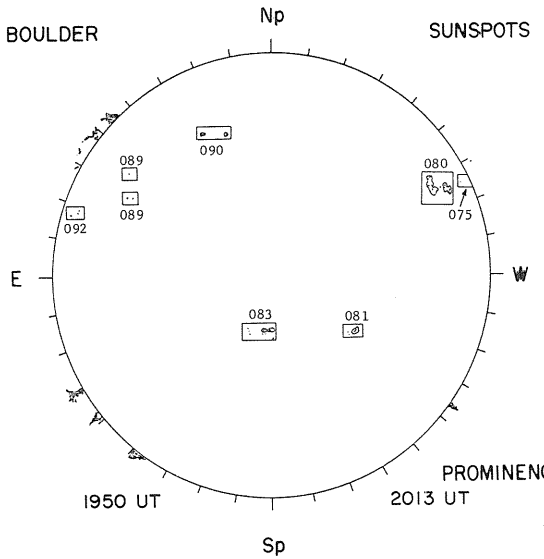
Levels
± 5
± 10
± 20
± 40
± 80

03

SACRAMENTO PEAK



BOULDER SUNSPOTS

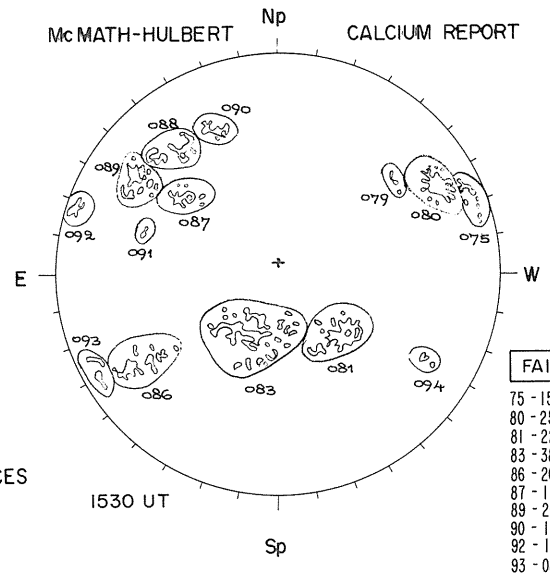


1950 UT

2013 UT

PROMINENCES

McMATH-HULBERT CALCIUM REPORT

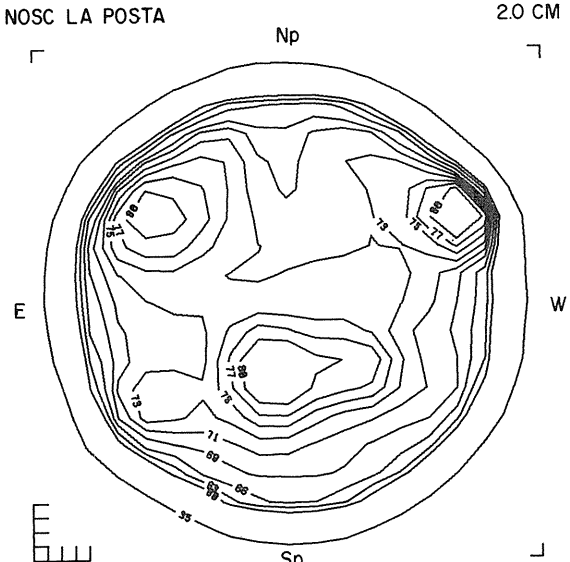


1530 UT

FAIR	S

75 - 1500 - 2.5
80 - 2500 - 3.0
81 - 2200 - 3.0
83 - 3800 - 3.0
86 - 2000 - 2.5
87 - 1100 - 3.0
89 - 2000 - 3.0
90 - 1100 - 2.5
92 - 1200 - 3.5
93 - 0800 - 2.5

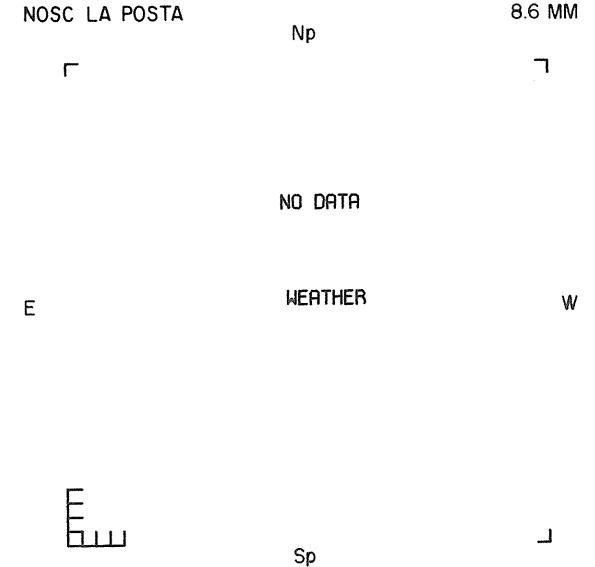
NOSC LA POSTA 2.0 CM



2016 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

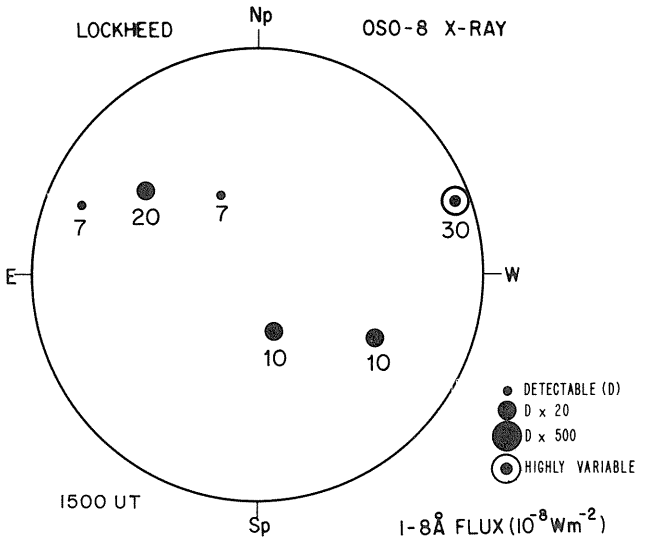


---- UT

Ant. Temp. Unit 100°K

JANUARY 4, 1978 (P =0.74, B_o =-3.38, L_c =180.81)

LOCKHEED OSO-8 X-RAY

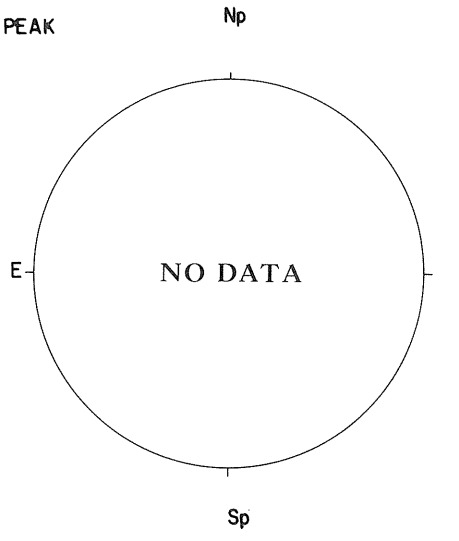


1500 UT

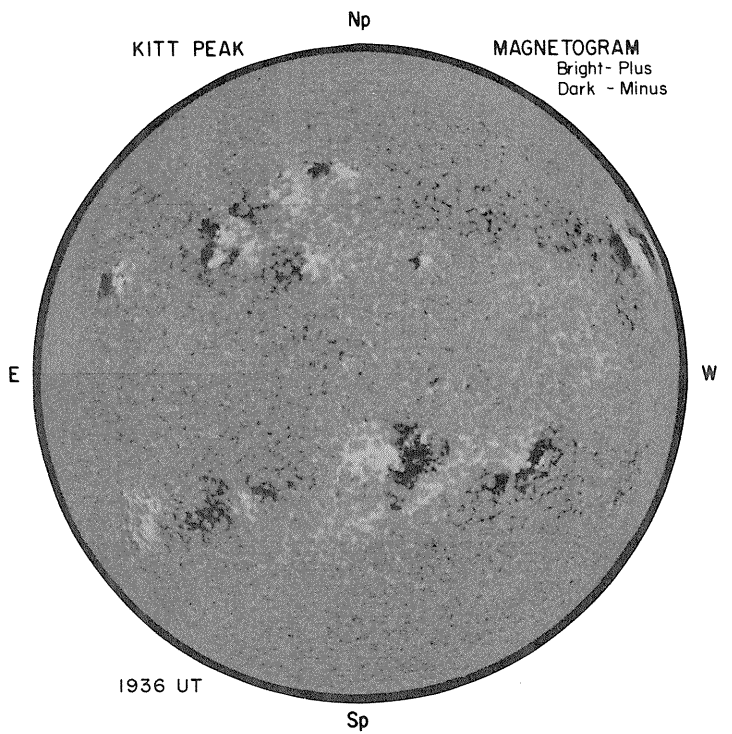
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



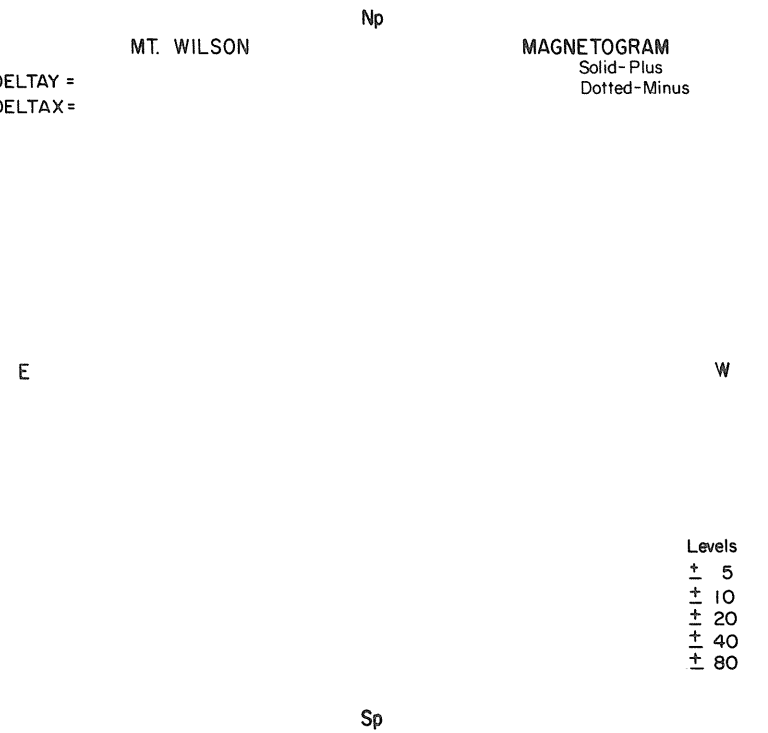
KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



1936 UT

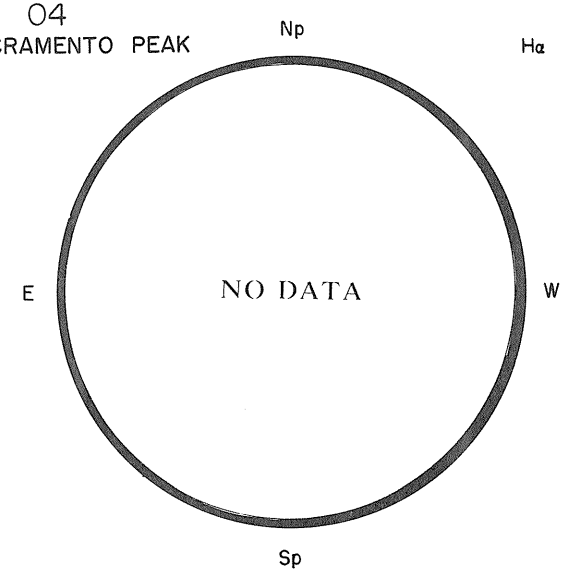
MT. WILSON MAGNETOGRAM
Solid- Plus
Dotted- Minus

DELTAY =
DELTAX =

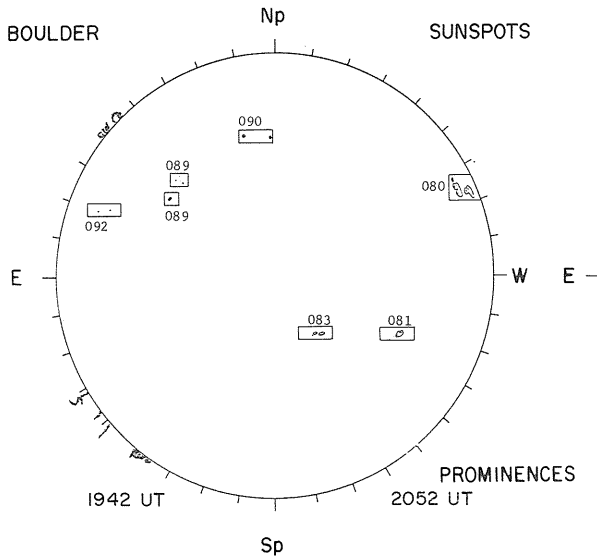


04

SACRAMENTO PEAK



BOULDER



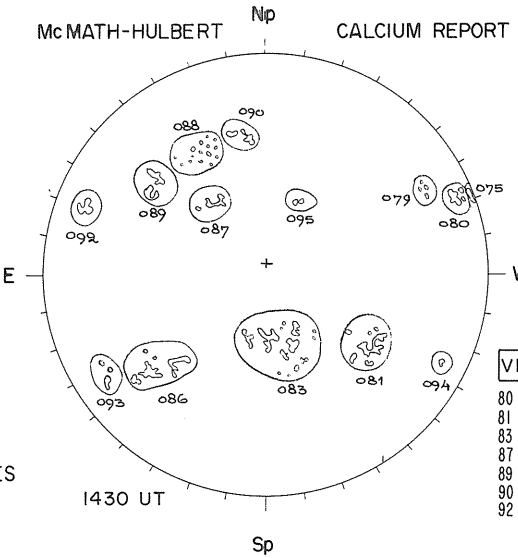
SUNSPOTS

1942 UT

2052 UT

PROMINENCES

McMATH-HULBERT



1430 UT

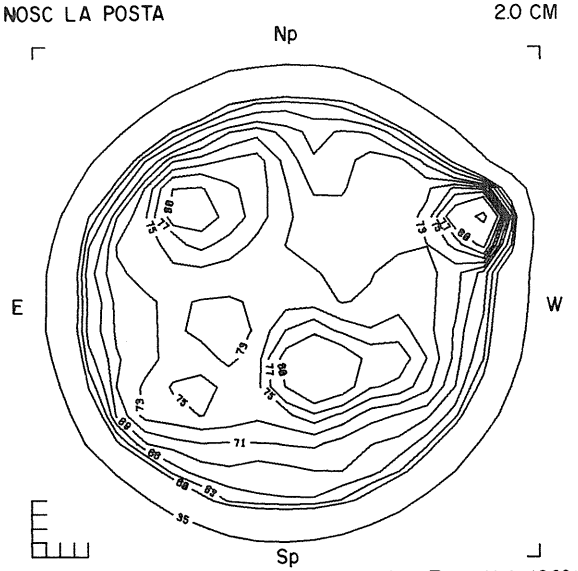
CALCIUM REPORT

VPOOR	S

80 - 1900 - 3.0
81 - 1400 - 3.0
83 - 3200 - 3.0
87 - 0700 - 3.0
89 - 1500 - 3.0
90 - 0700 - 2.5
92 - 0900 - 3.0

NOSC LA POSTA

2.0 CM



1813 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA

8.6 MM

Np

NO DATA

WEATHER

E

W

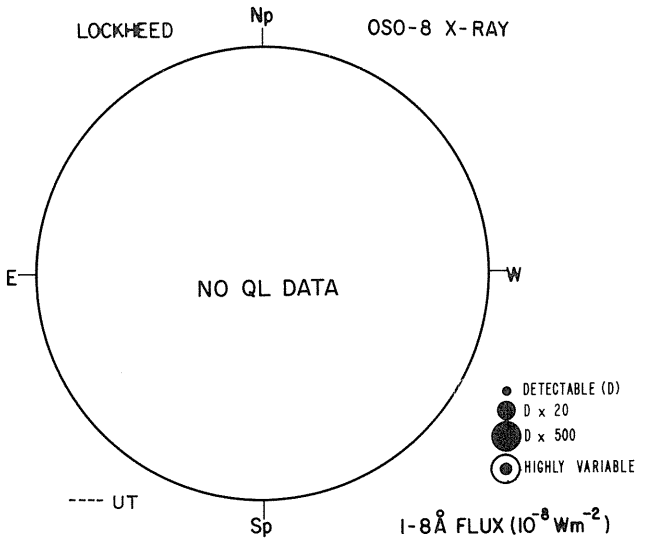
Sp

---- UT

Ant. Temp. Unit 100°K

JANUARY 5, 1978 (P =0.25, B_o =-3.49, L_o =167.64)

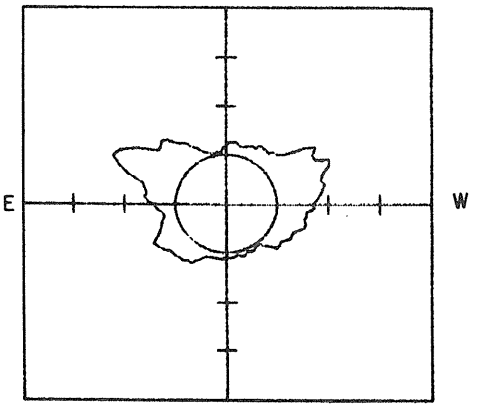
LOCKHEED OSO-8 X-RAY



1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

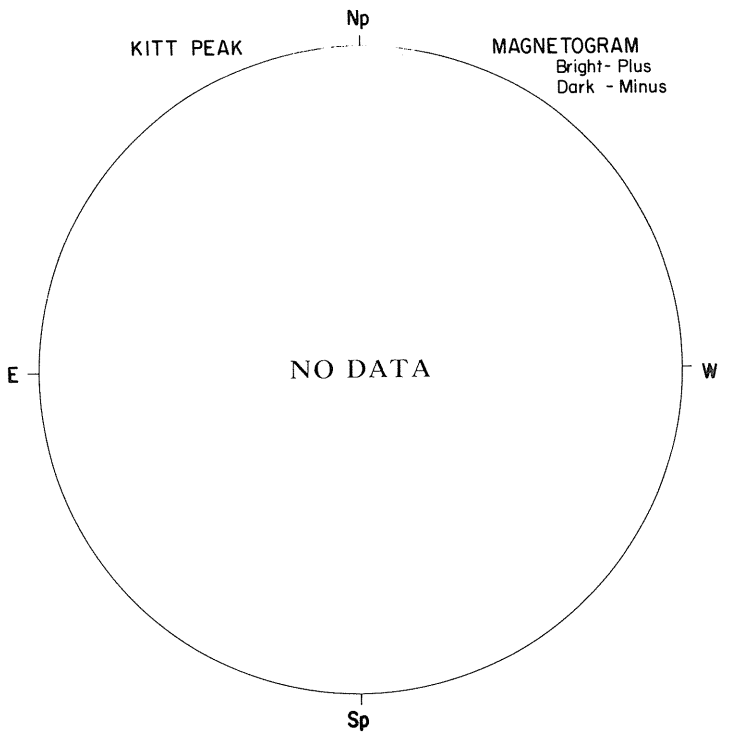
CORONA (1.15 $R_\odot$)
5303 Å



1629 UT

KITT PEAK

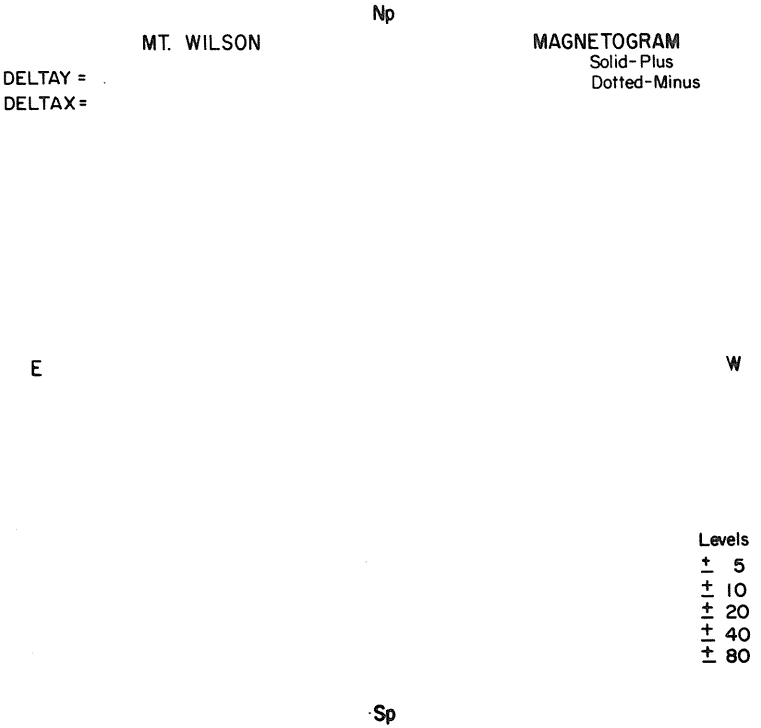
MAGNETOGRAM
Bright- Plus
Dark - Minus



MT. WILSON

MAGNETOGRAM
Solid- Plus
Dotted-Minus

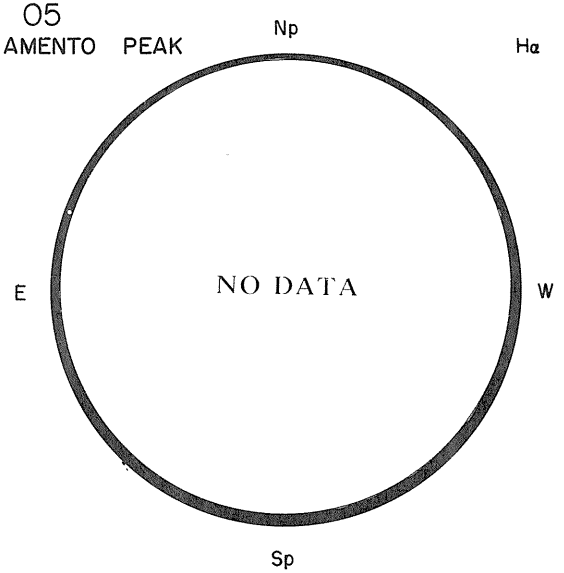
DELTAY =
DELTAX =



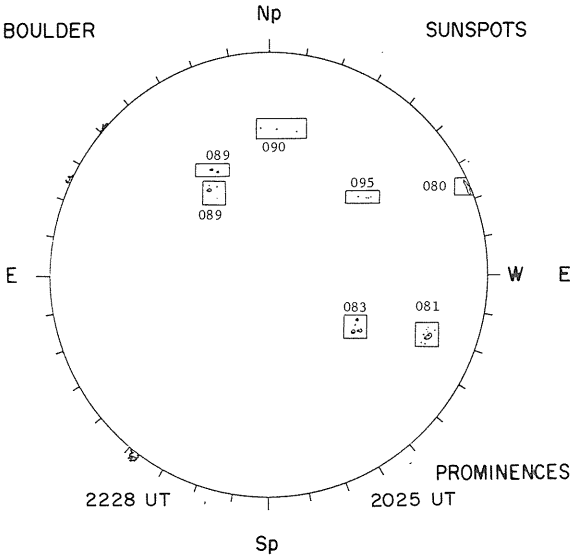
Levels
± 5
± 10
± 20
± 40
± 80

05

SACRAMENTO PEAK



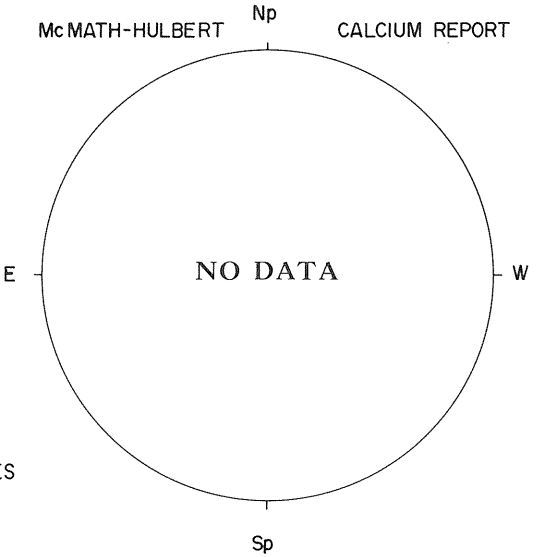
BOULDER SUNSPOTS



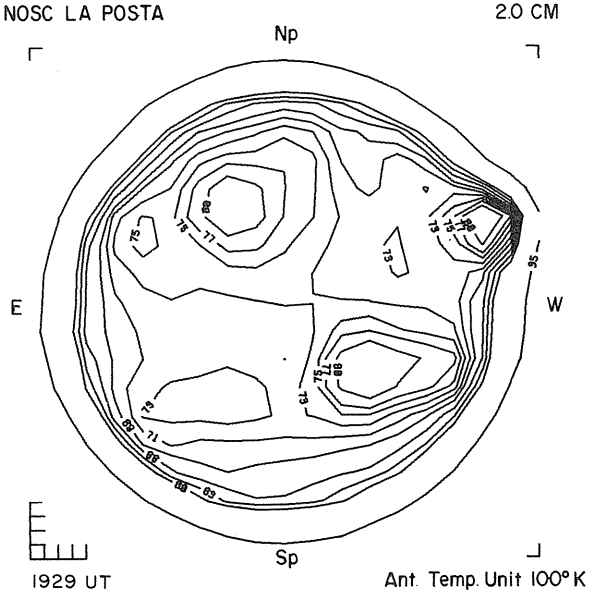
2228 UT 2025 UT

PROMINENCES

McMATH-HULBERT CALCIUM REPORT

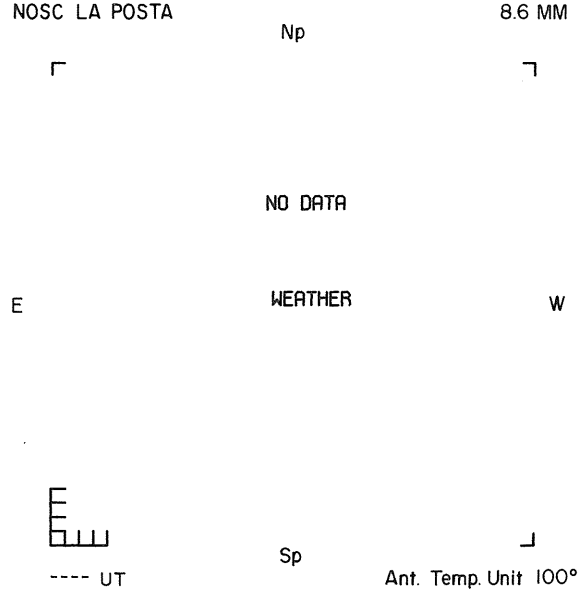


NOSC LA POSTA 2.0 CM



1929 UT Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

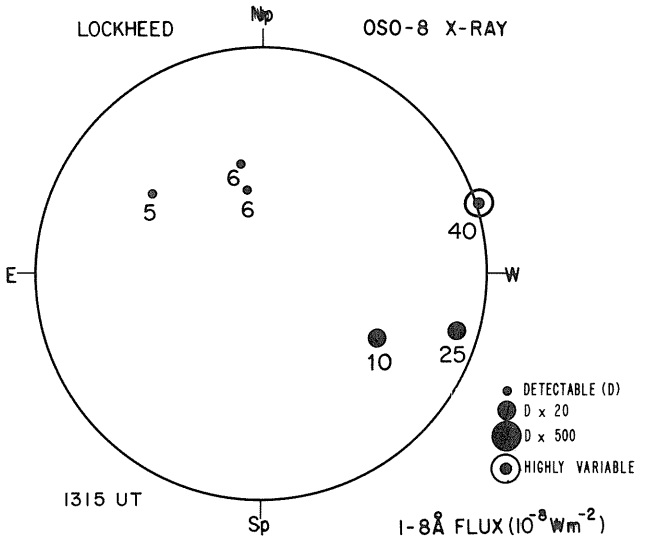


---- UT Ant. Temp. Unit 100°K

55
Jan 78

JANUARY 6, 1978 (P =-0.23, B_o =-3.60, L_o =154.47)

LOCKHEED OSO-8 X-RAY

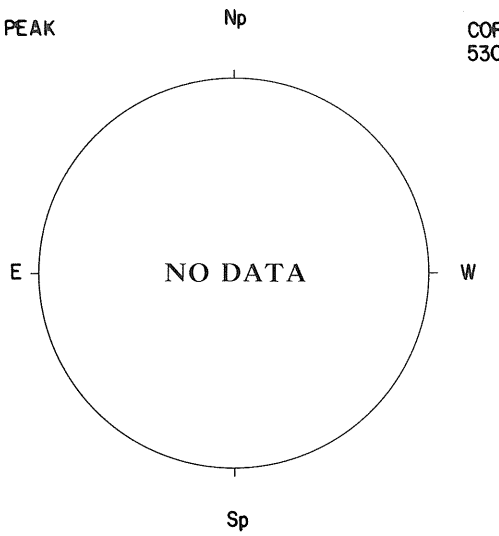


1315 UT

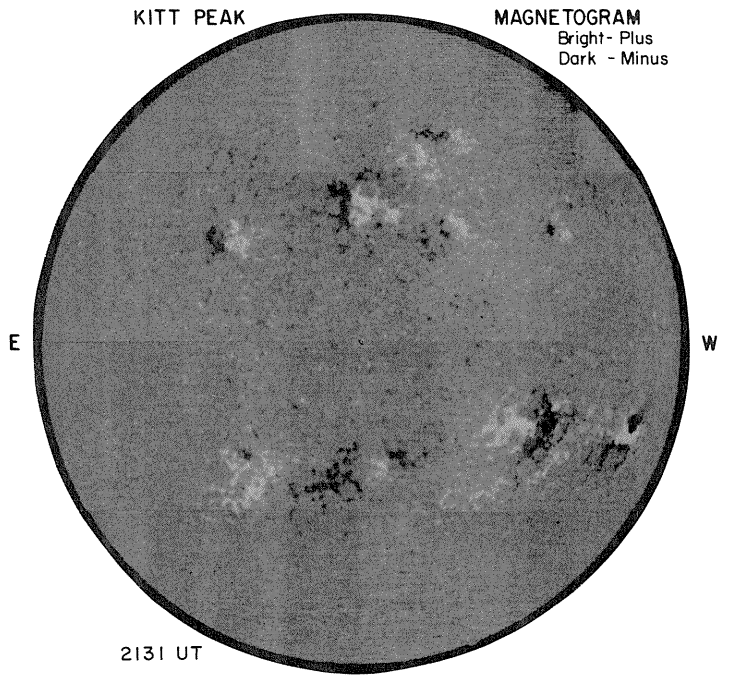
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



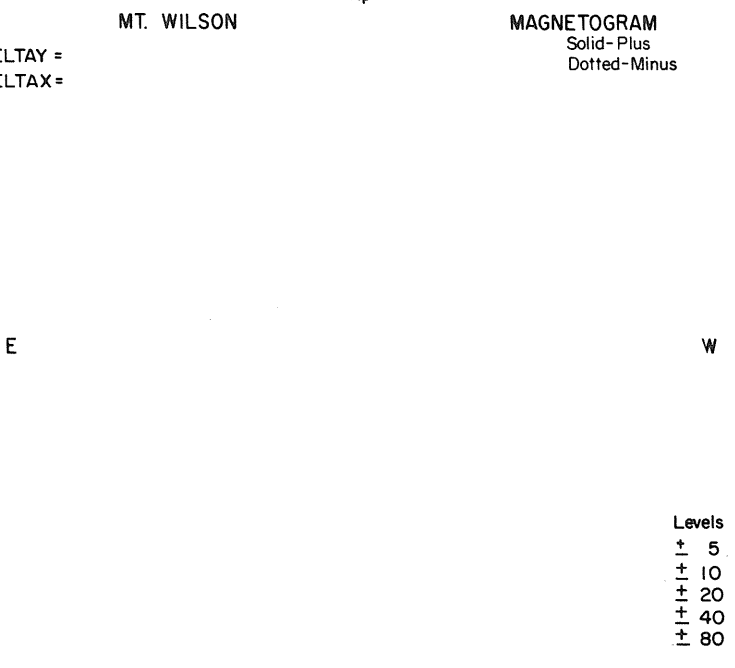
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



2131 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

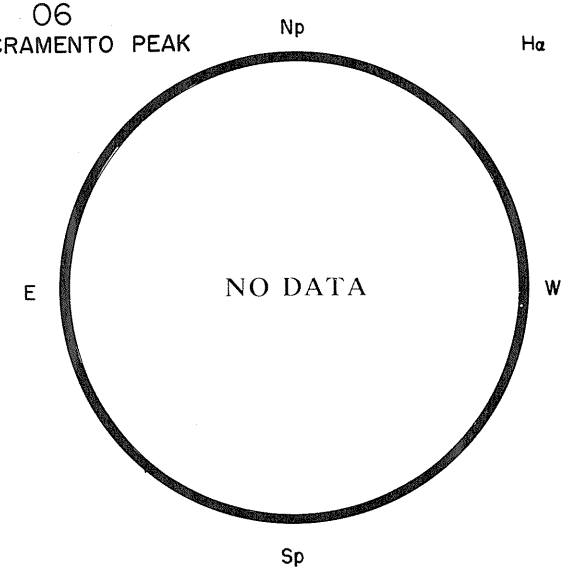
DELTAY =
DELTAX =



Levels
± 5
± 10
± 20
± 40
± 80

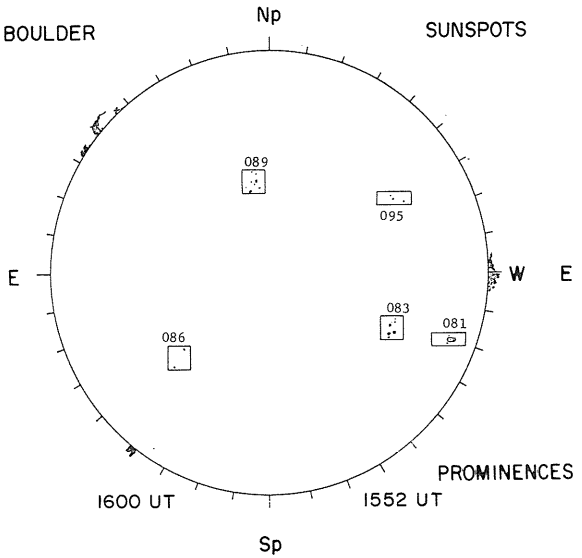
06

SACRAMENTO PEAK



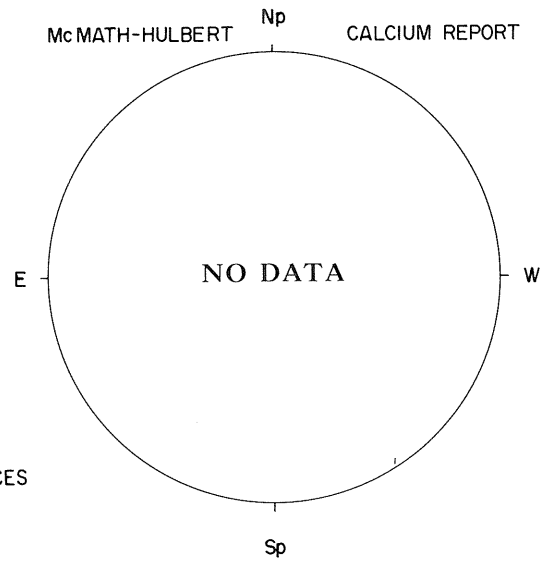
BOULDER

SUNSPOTS



McMATH-HULBERT

CALCIUM REPORT



NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

Sp

---- UT

Ant. Temp. Unit 100°K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

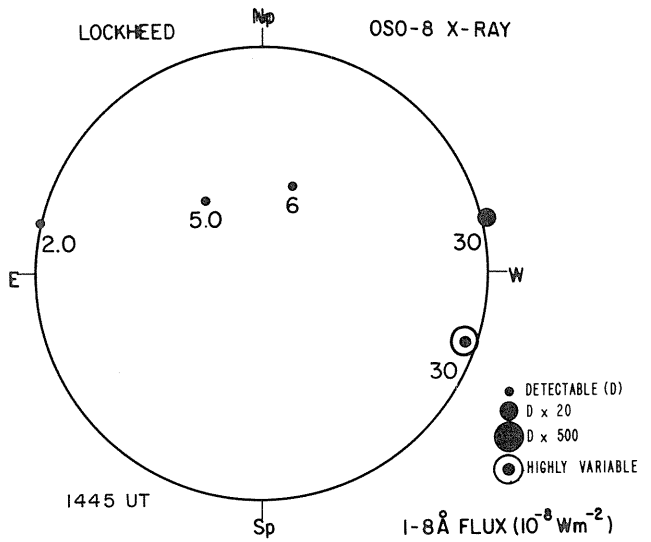
Sp

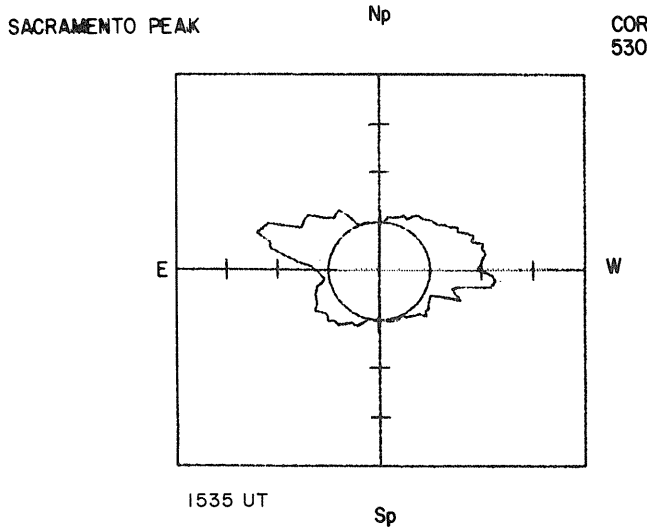
---- UT

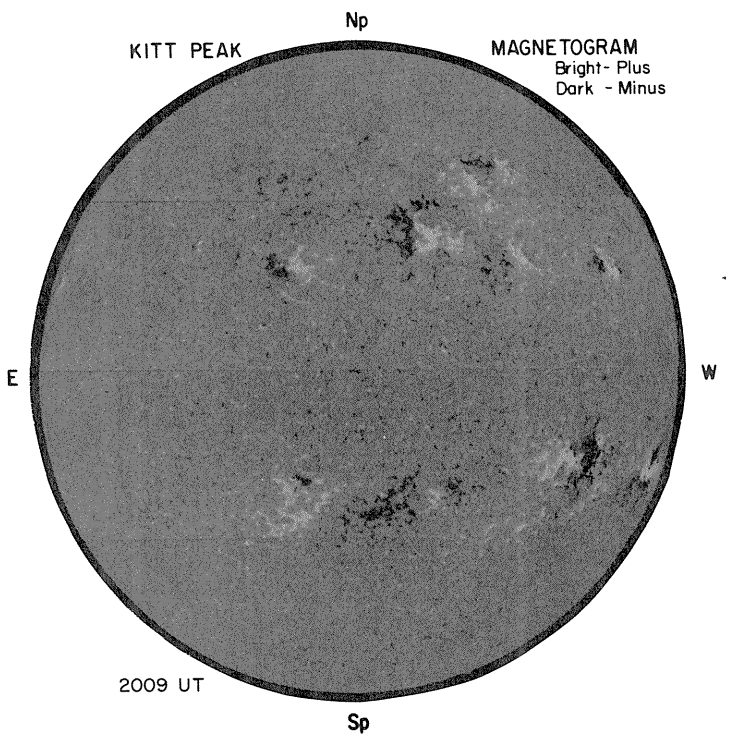
Ant. Temp. Unit 100°K

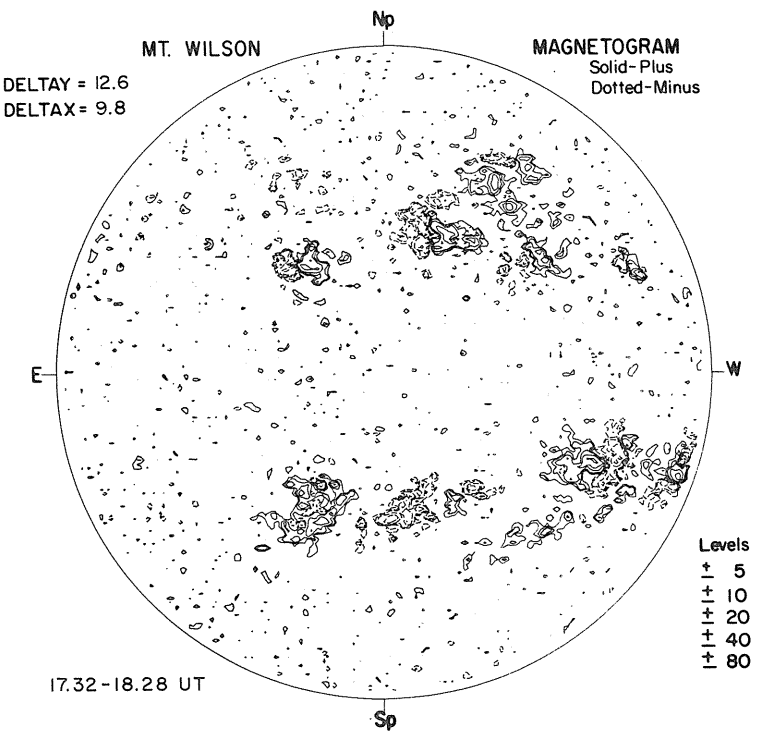
57
Jan 78

JANUARY 7, 1978 (P =-0.72, B_o =-3.71, L_o =141.30)



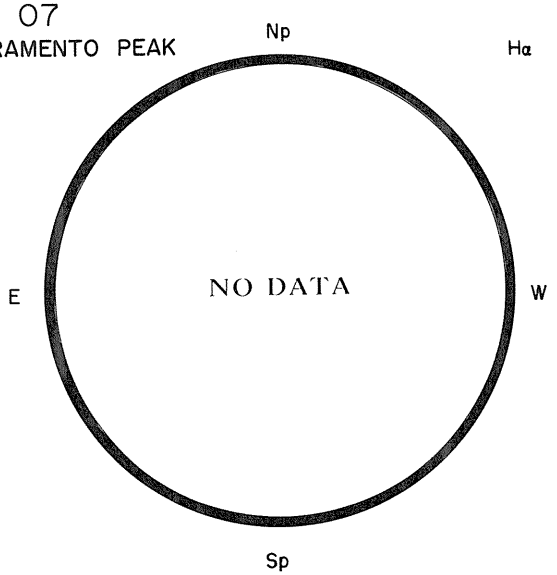




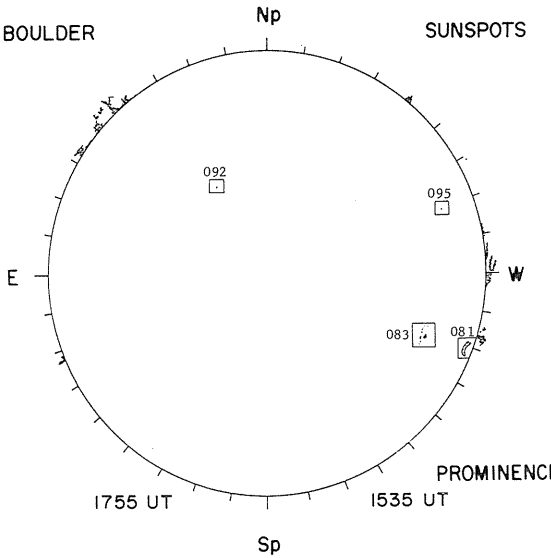


07

SACRAMENTO PEAK



BOULDER SUNSPOTS

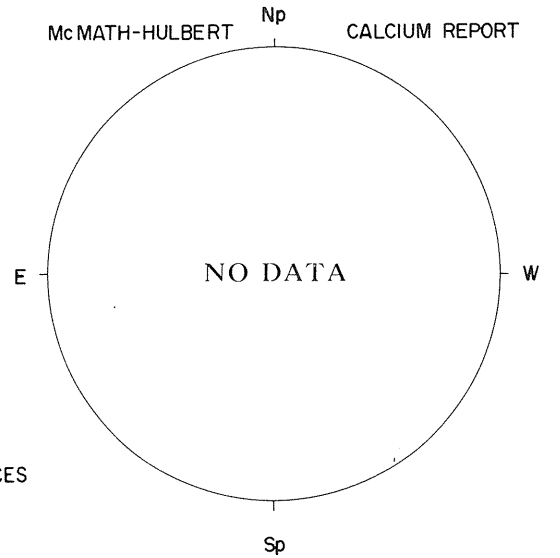


1755 UT

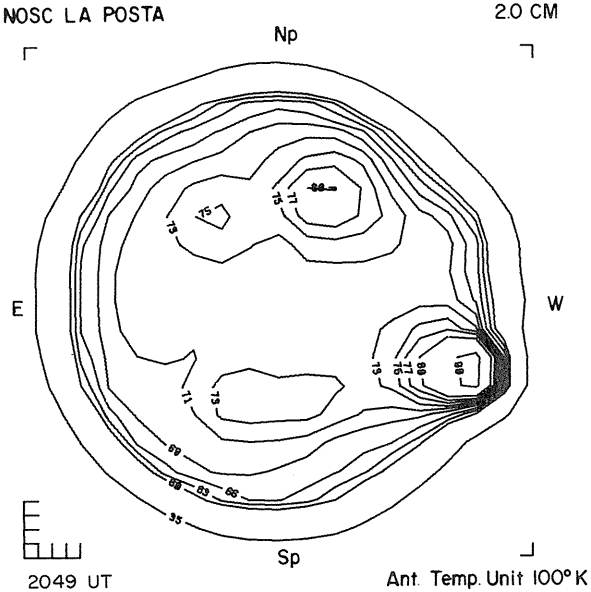
PROMINENCES

1535 UT

McMATH-HULBERT CALCIUM REPORT



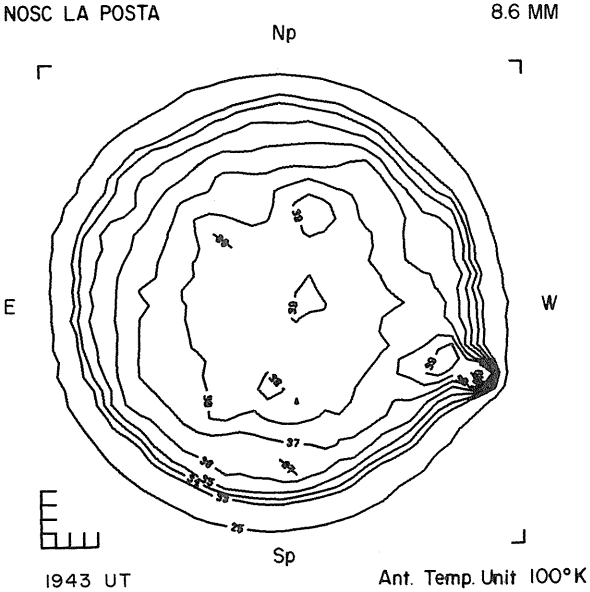
NOSC LA POSTA 2.0 CM



2049 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

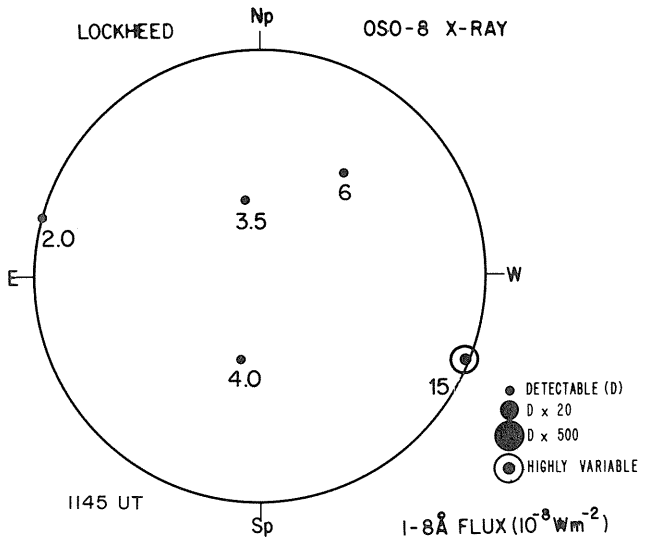


1943 UT

Ant. Temp. Unit 100°K

JANUARY 8, 1978 (P =-1.20, B_o =-3.82, L_o =128.13)

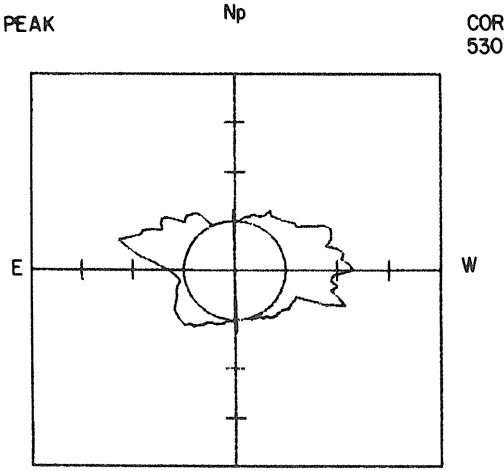
LOCKHEED OSO-8 X-RAY



1145 UT

1-8Å FLUX (10^{-8} Wm^{-2})

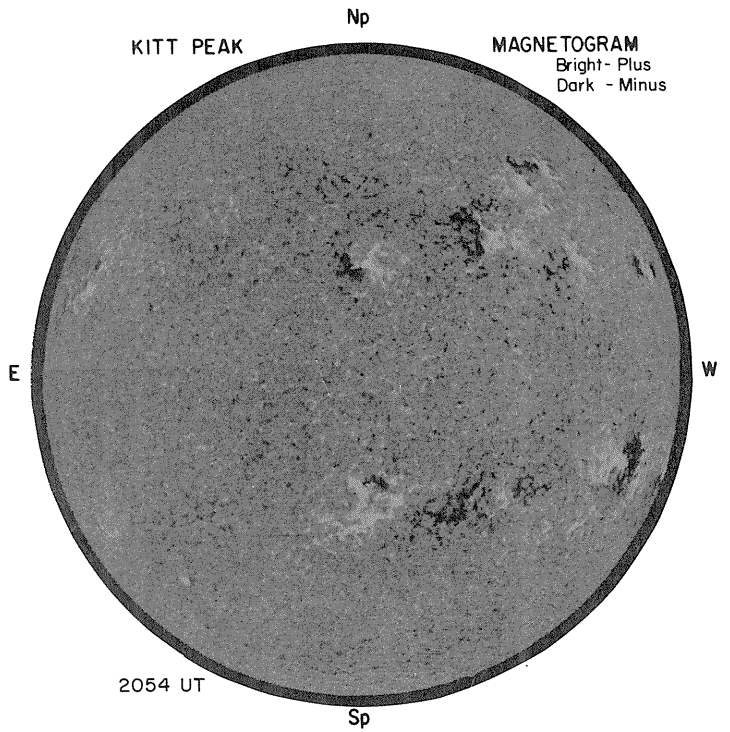
SACRAMENTO PEAK



1518 UT

KITT PEAK MAGNETOGRAM

Bright - Plus
Dark - Minus

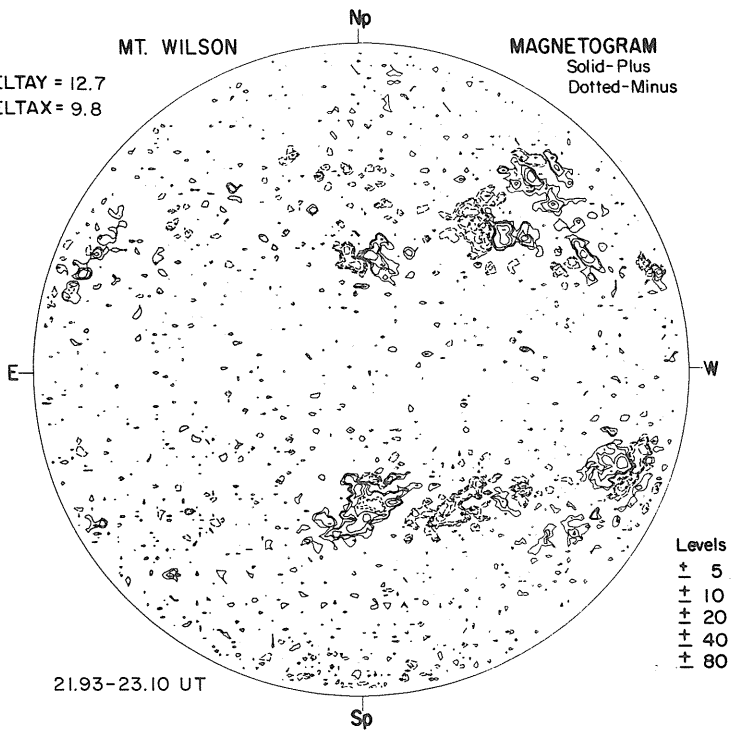


2054 UT

MT. WILSON MAGNETOGRAM

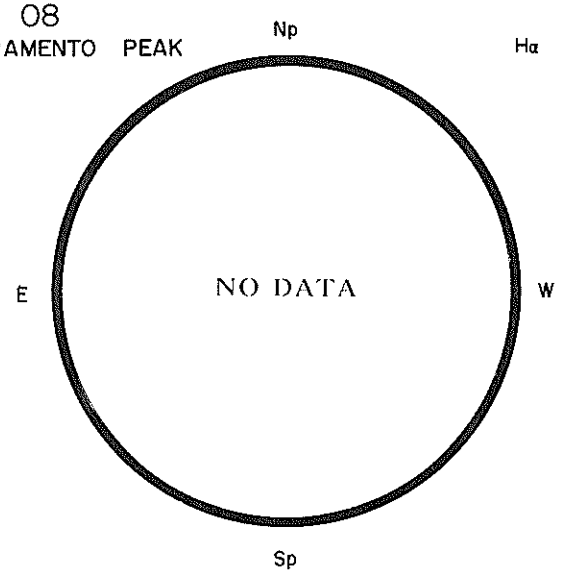
Solid - Plus
Dotted - Minus

DELTAY = 12.7
DELTAX = 9.8

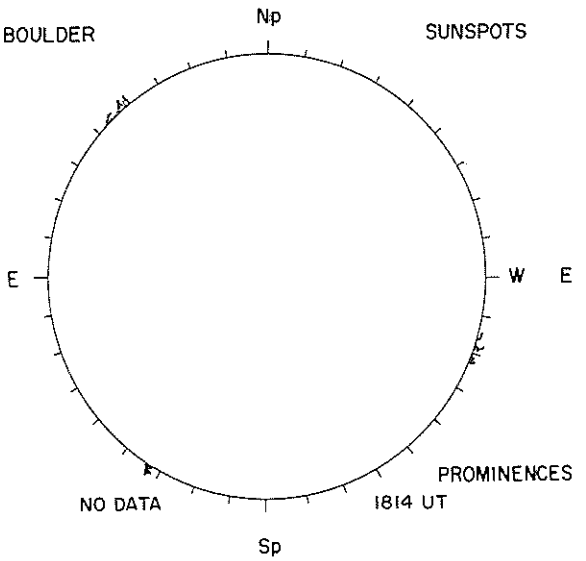


21.93-23.10 UT

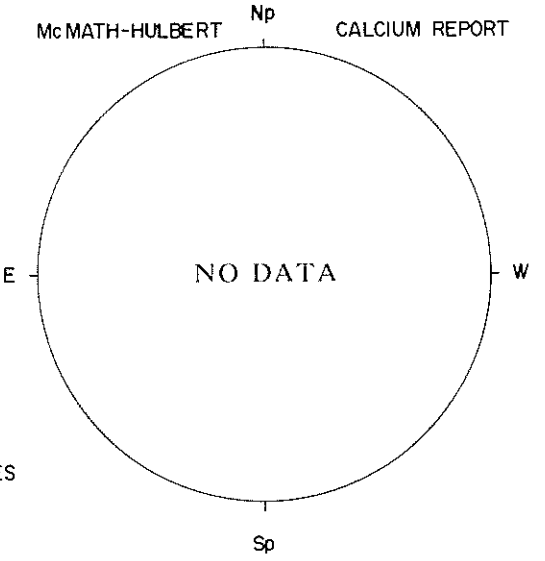
08
SACRAMENTO PEAK



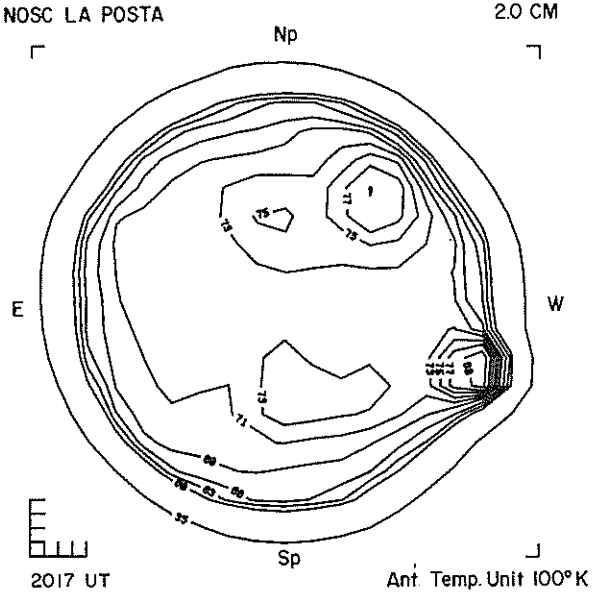
BOULDER SUNSPOTS



McMATH-HULBERT CALCIUM REPORT

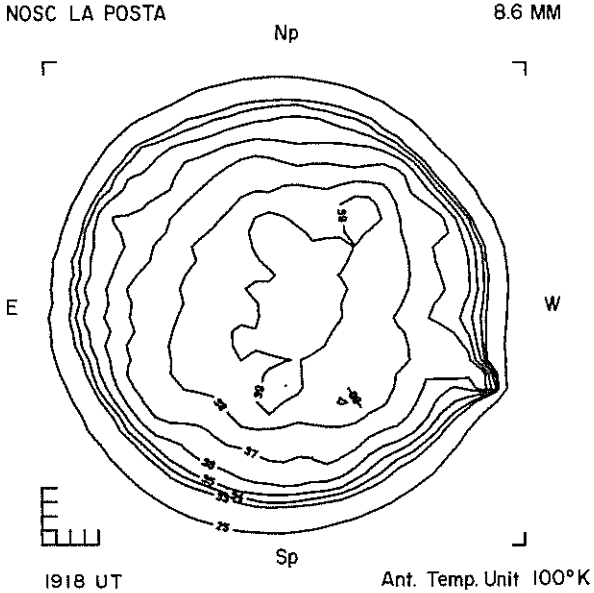


NOSC LA POSTA 2.0 CM



2017 UT Ant. Temp. Unit 100°K

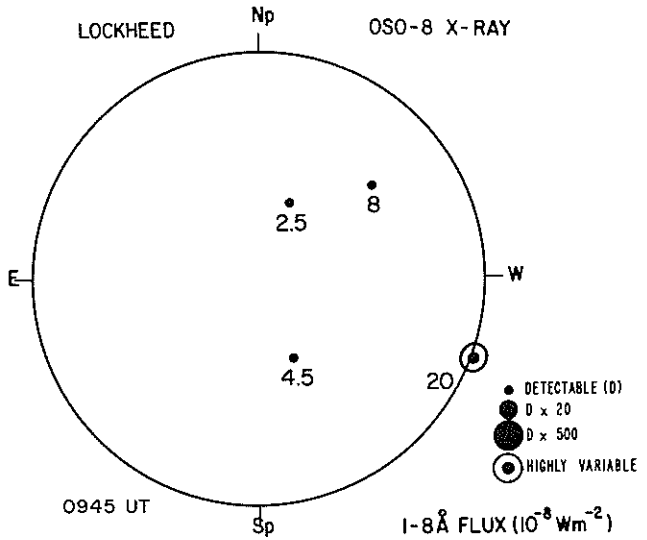
NOSC LA POSTA 8.6 MM



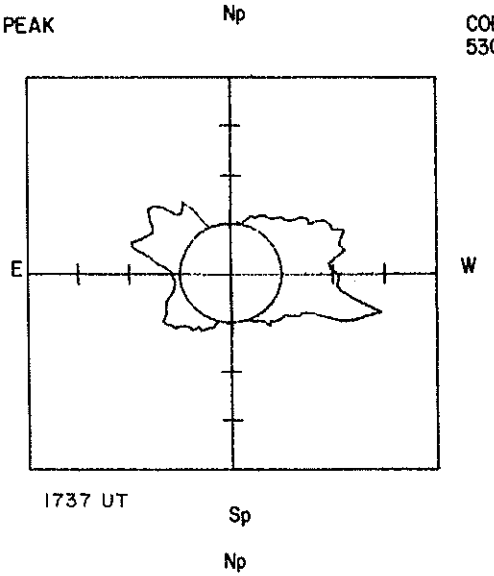
1918 UT Ant. Temp. Unit 100°K

JANUARY 9, 1978 (P =-1.68, B_o =-3.93, L_o =114.96)

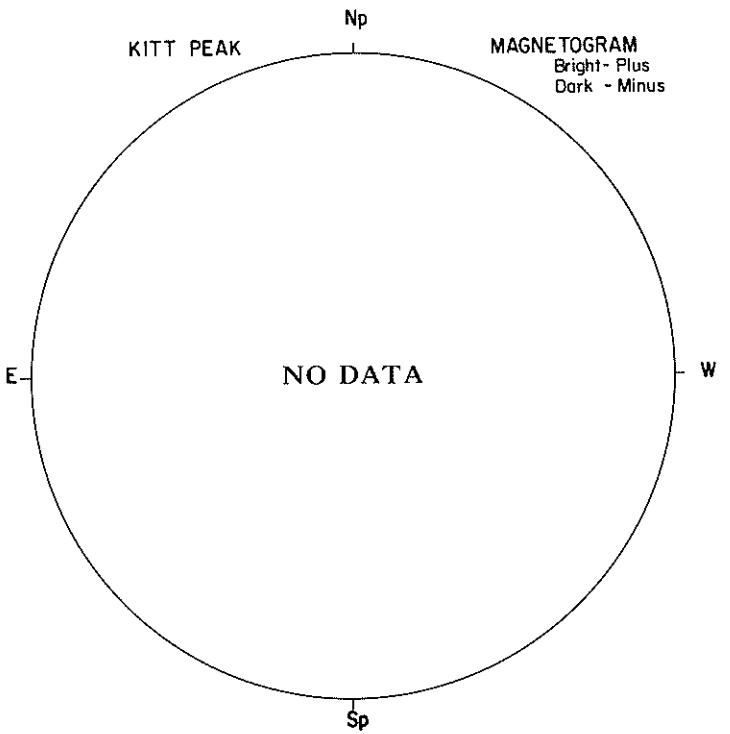
LOCKHEED



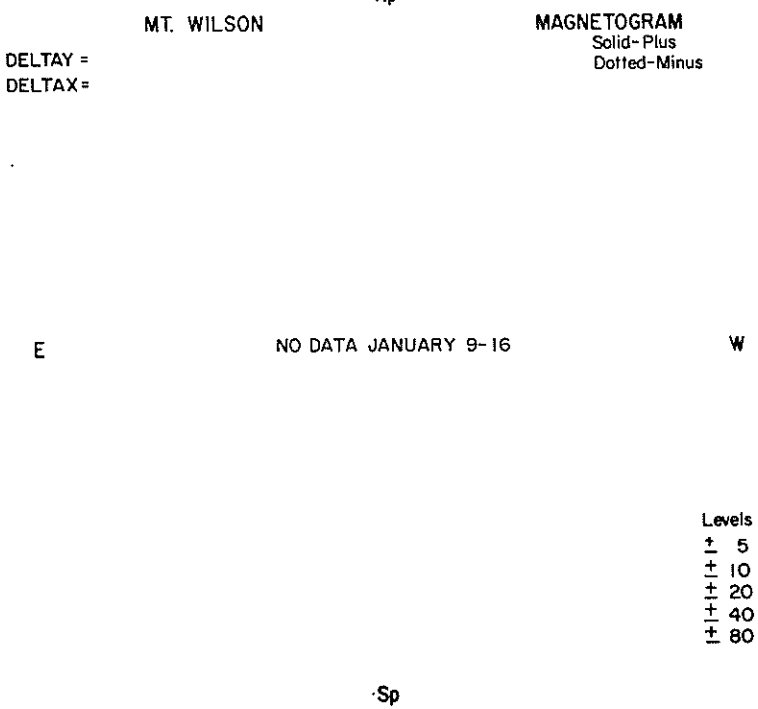
SACRAMENTO PEAK



KITT PEAK

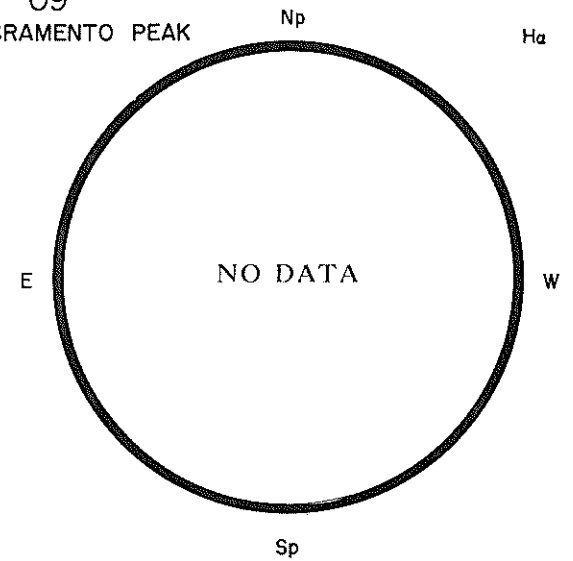


MT. WILSON

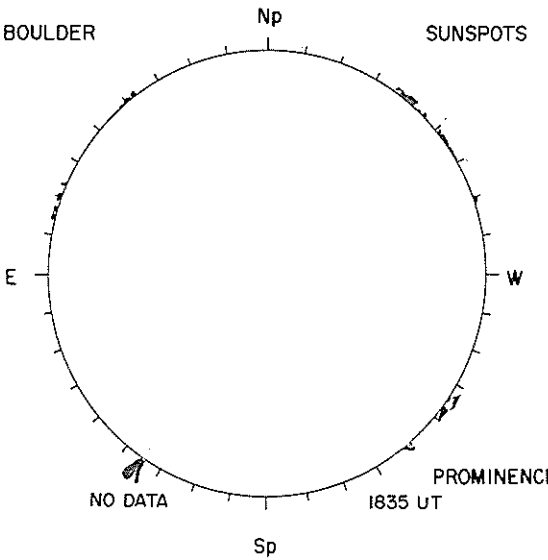


09

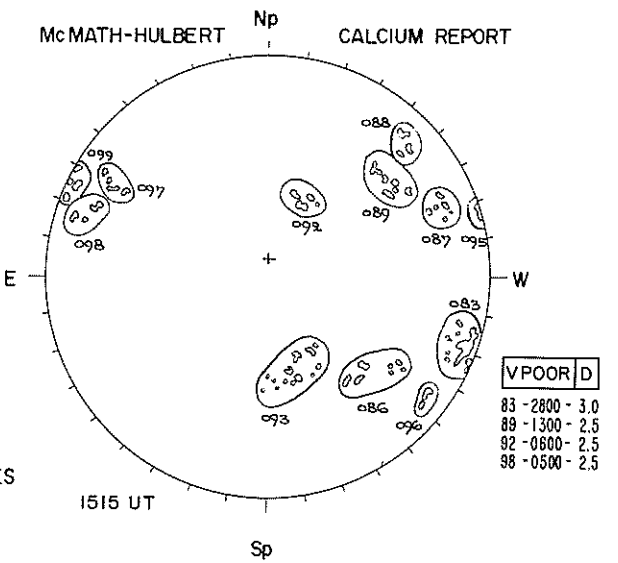
SACRAMENTO PEAK



BOULDER SUNSPOTS



McMATH-HULBERT CALCIUM REPORT



NOSC LA POSTA

Np

NO DATA

E

WEATHER

W

Sp

---- UT

2.0 CM

Ant. Temp. Unit 100°K

NOSC LA POSTA

Np

NO DATA

E

WEATHER

W

Sp

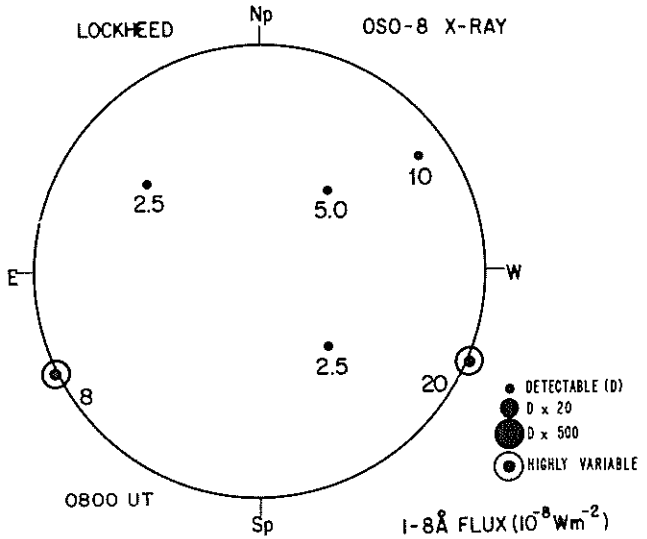
---- UT

8.6 MM

Ant. Temp. Unit 100°K

JANUARY 10, 1978 (P =-2.16, B_o =-4.01, L_o =101.80)

LOCKHEED OSO-8 X-RAY

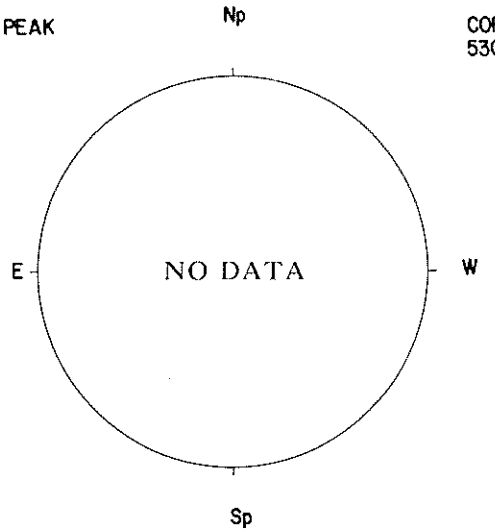


0800 UT

1-8Å FLUX ($10^{-8}Wm^{-2}$)

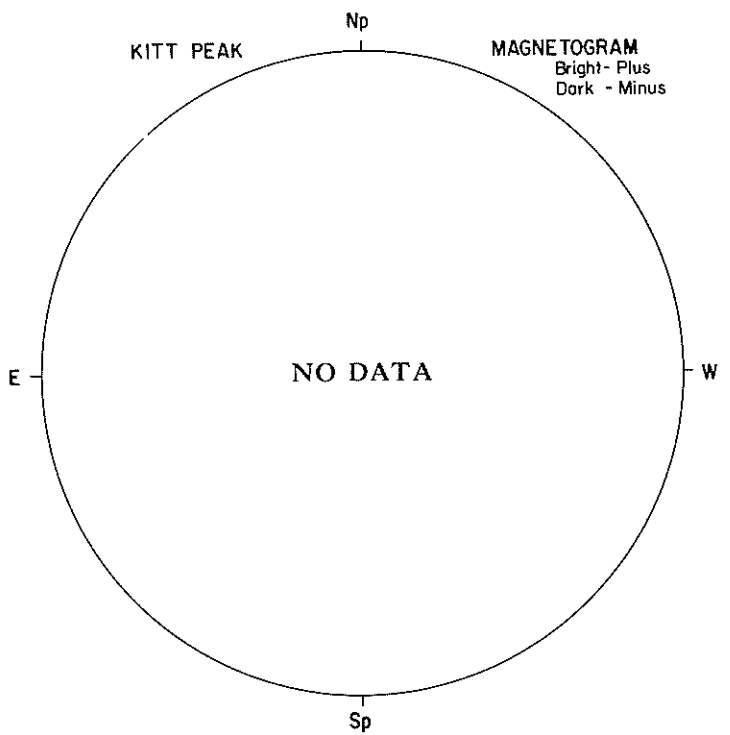
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

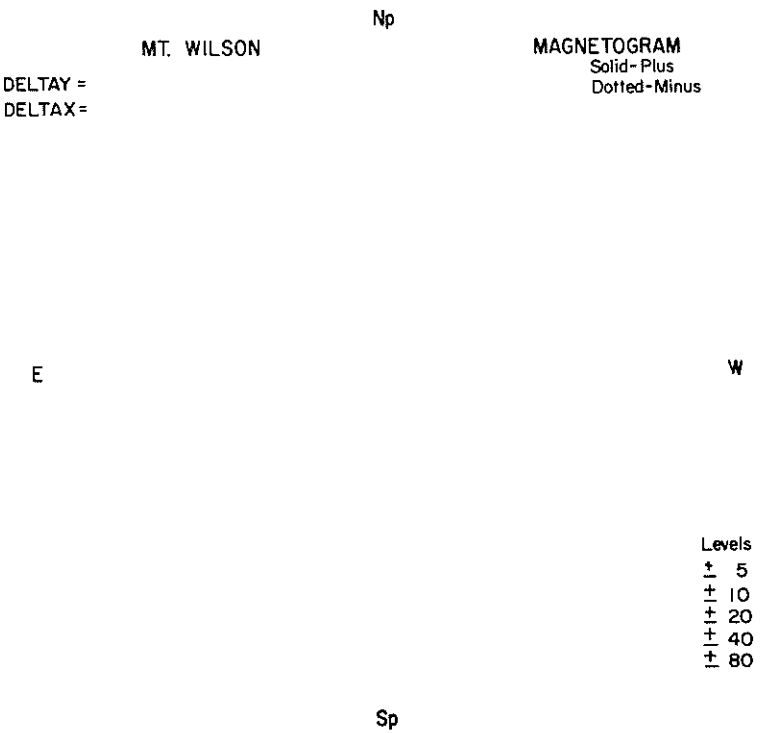
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

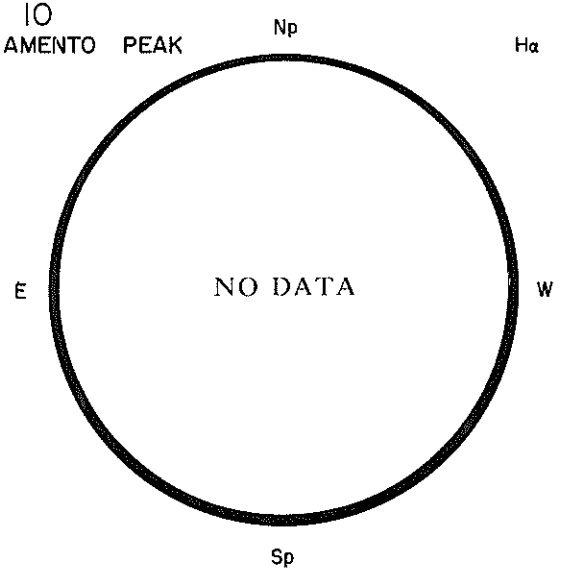
DELTAY =
DELTAX =



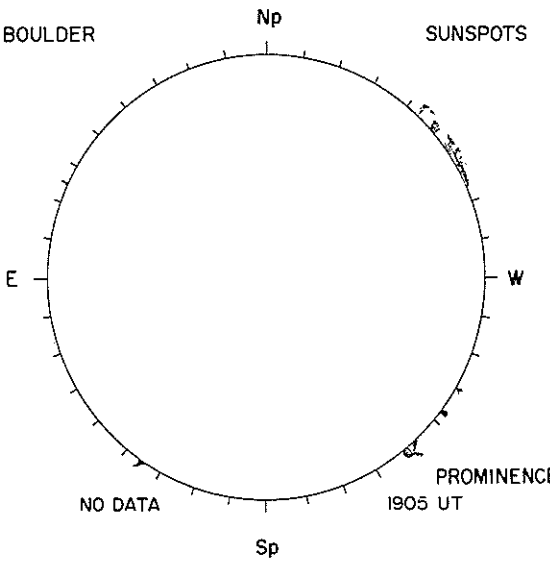
Levels
± 5
± 10
± 20
± 40
± 80

10

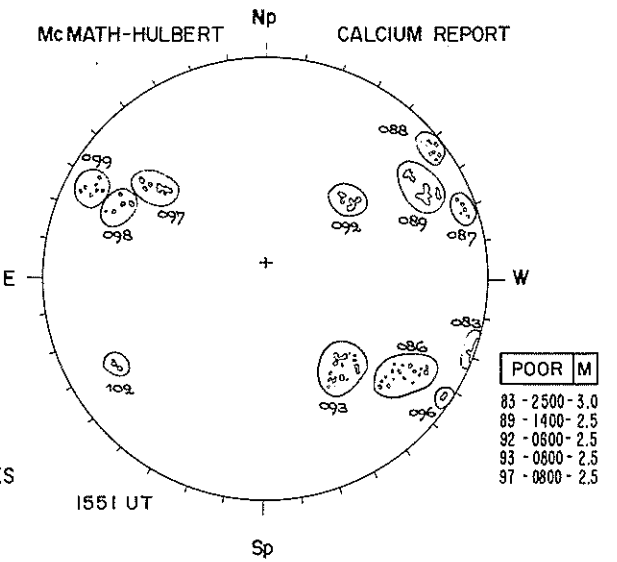
SACRAMENTO PEAK



BOULDER



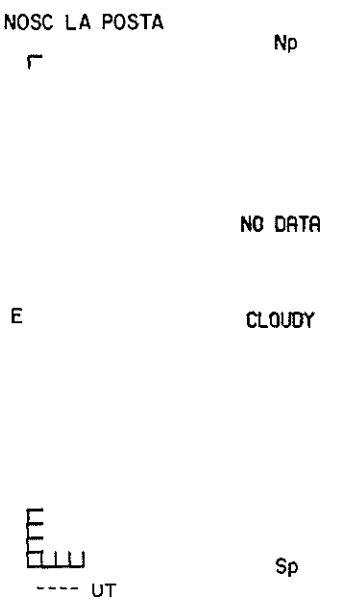
SUNSPOTS



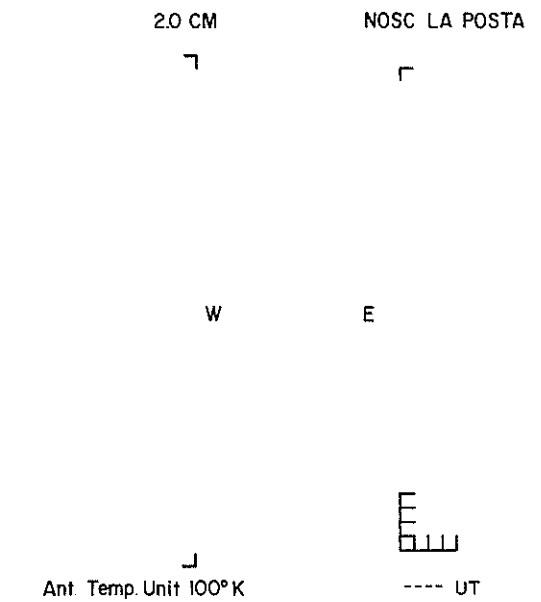
McMATH-HULBERT

CALCIUM REPORT

NOSC LA POSTA

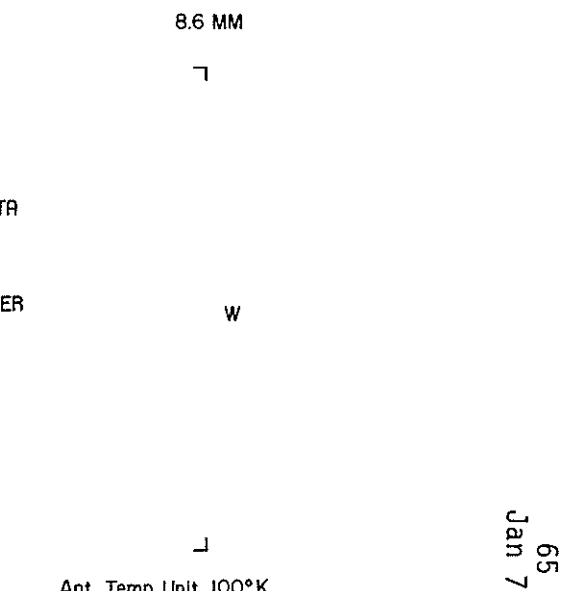


2.0 CM



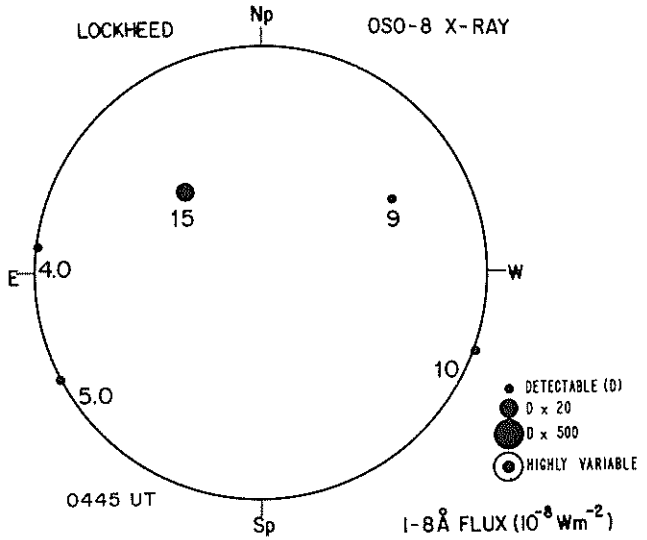
NOSC LA POSTA

8.6 MM



JANUARY 11, 1978 (P =-2.64, B_o =-4.15, L_o =88.63)

LOCKHEED



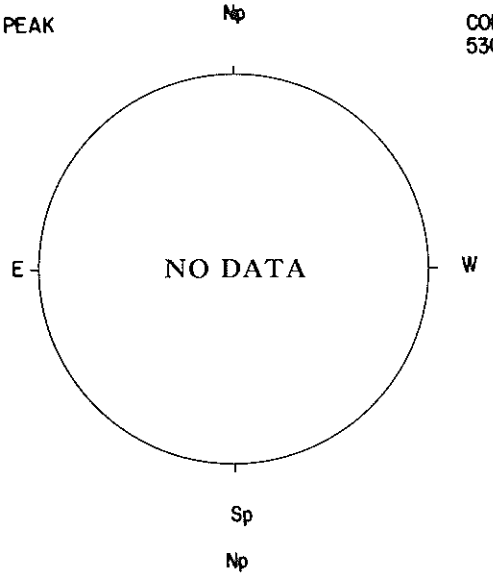
OSO-8 X-RAY

0445 UT

DETECTABLE (D)
D x 20
D x 500
HIGHLY VARIABLE

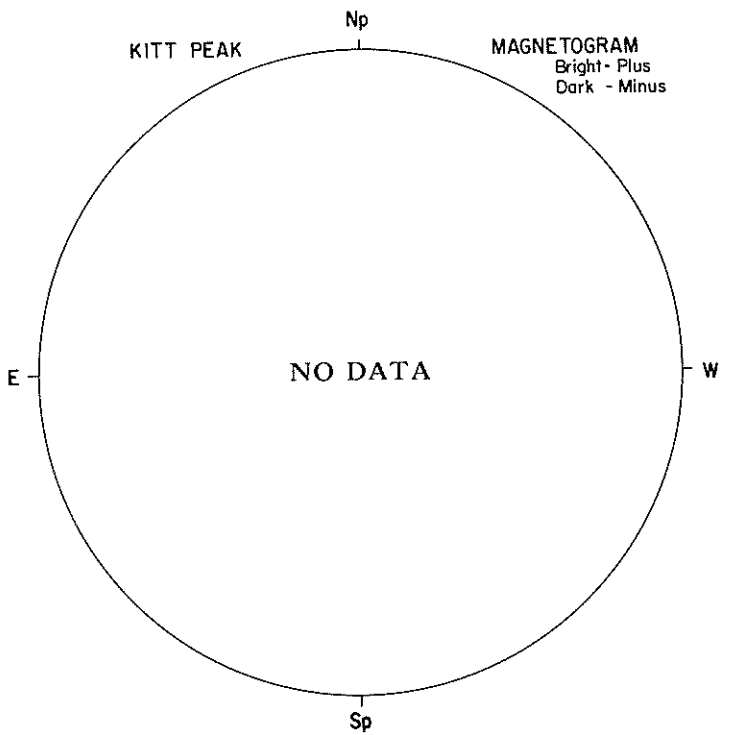
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK



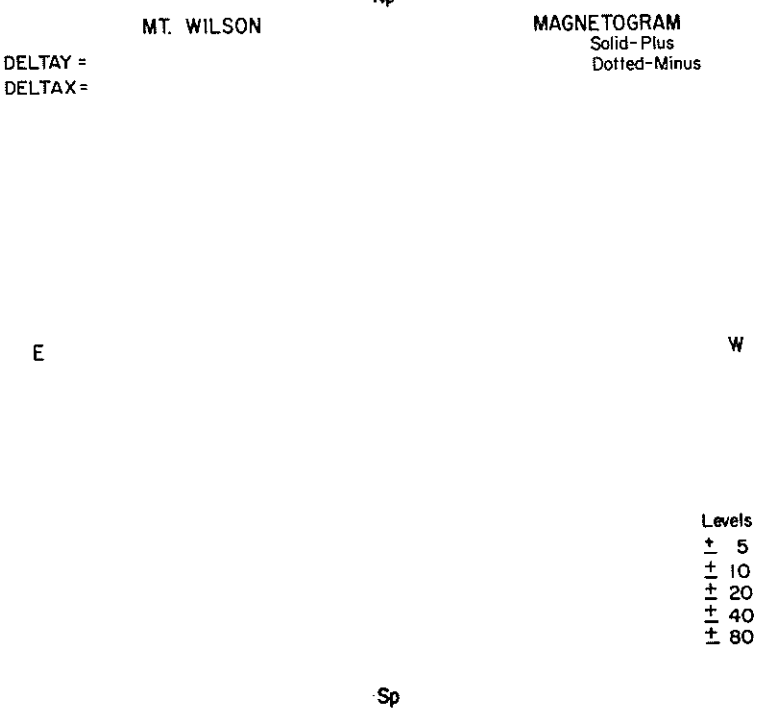
CORONA (1.15 $R_\odot$)
5303 Å

KITT PEAK



MAGNETOGRAM
Bright - Plus
Dark - Minus

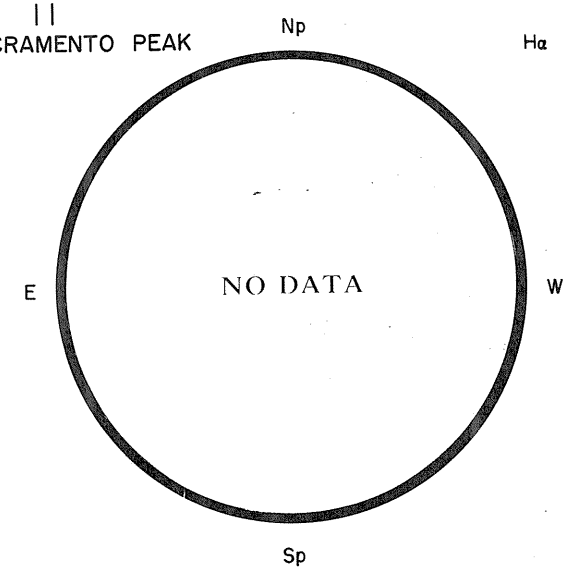
MT. WILSON



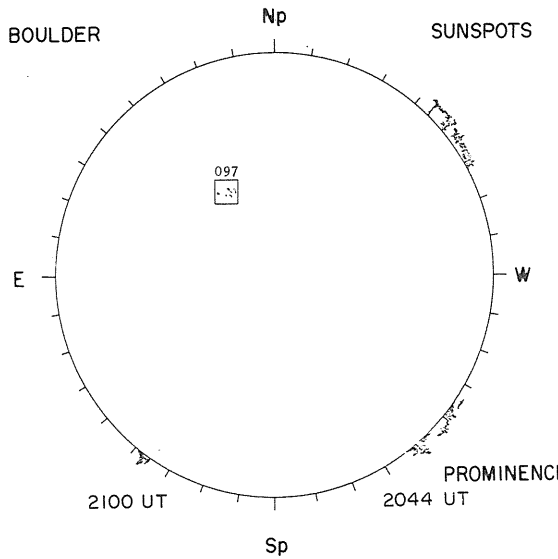
MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80

SACRAMENTO PEAK



BOULDER SUNSPOTS

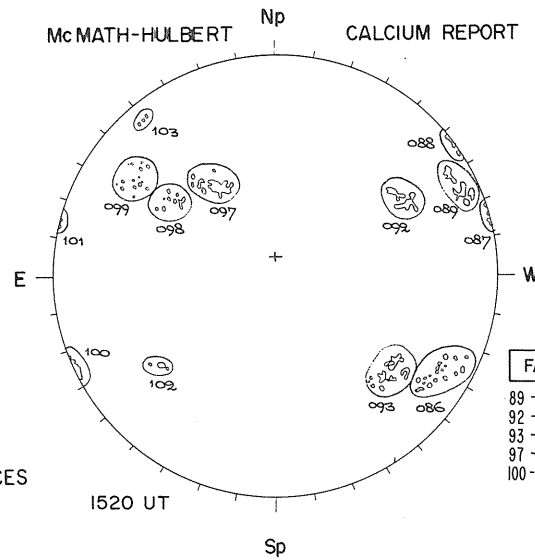


2100 UT

PROMINENCES

2044 UT

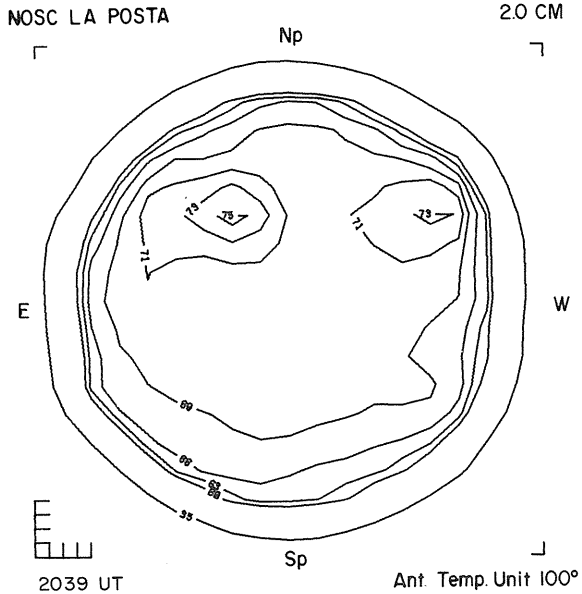
McMATH-HULBERT CALCIUM REPORT



1520 UT

FAIR	M
89 - 1500 - 3.0	
92 - 0800 - 2.5	
93 - 0900 - 2.5	
97 - 1100 - 3.0	
100 - 1800 - 3.5	

NOSC LA POSTA 2.0 CM



2039 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

Np

NO DATA

CLOUDY

E W

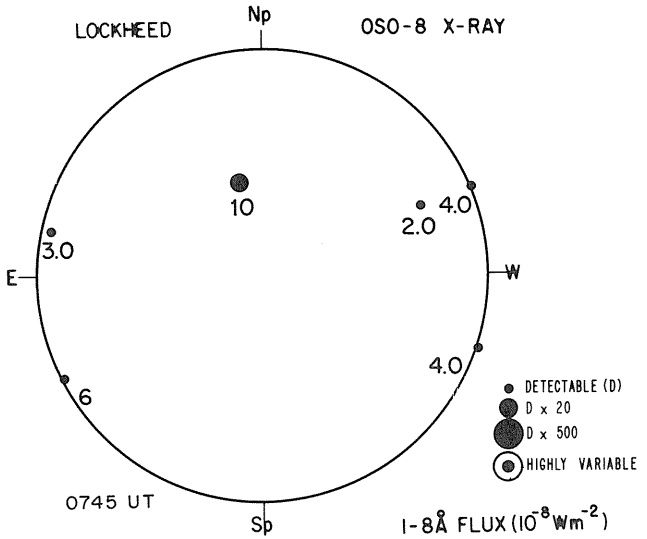
Sp

---- UT

Ant. Temp. Unit 100°K

JANUARY 12, 1978 (P =-3.12 B_o =-4.25, L_o =75.46)

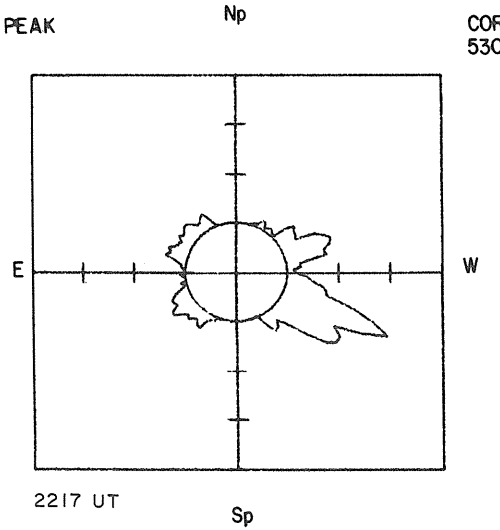
LOCKHEED OSO-8 X-RAY



0745 UT

1-8Å FLUX (10^{-8} Wm^{-2})

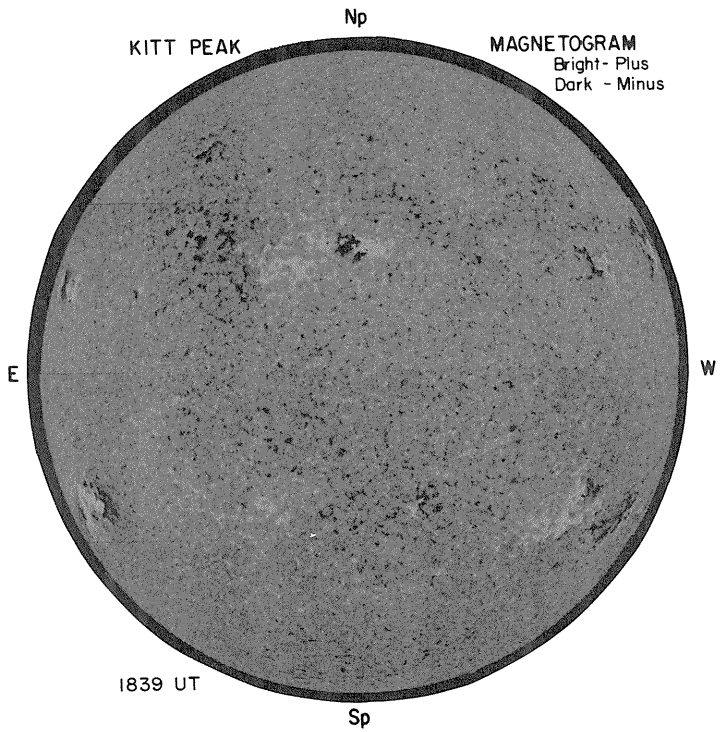
SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

2217 UT

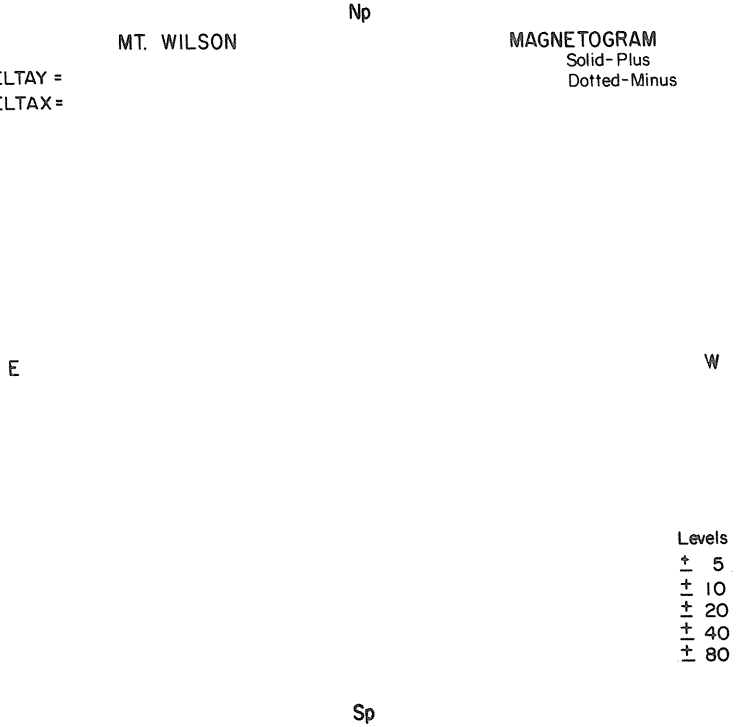
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1839 UT

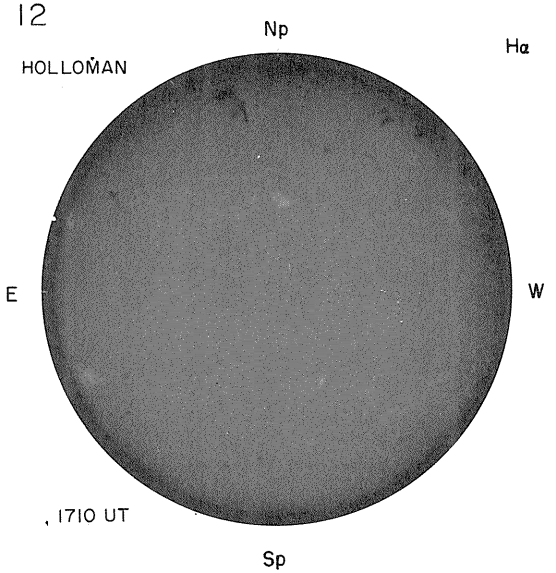
MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =



12

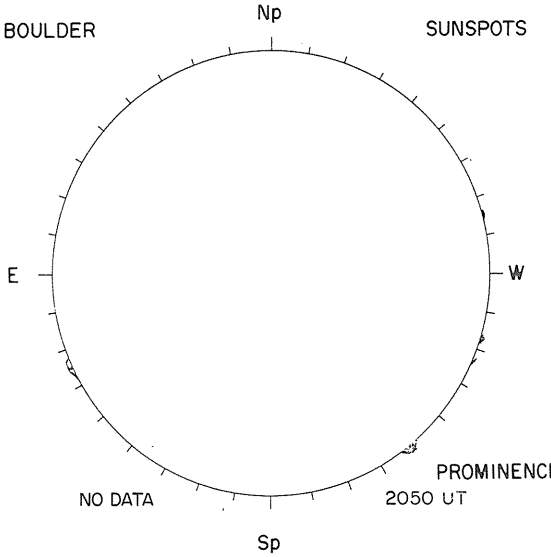
HOLLOMAN



Hα

1710 UT

BOULDER



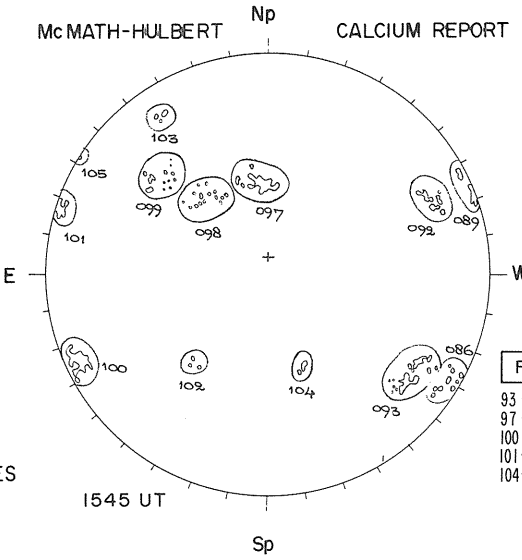
SUNSPOTS

NO DATA

PROMINENCES

2050 UT

McMATH-HULBERT



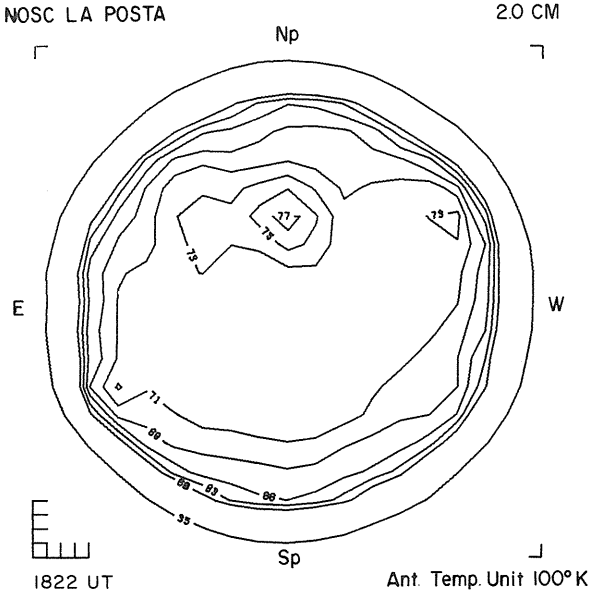
1545 UT

CALCIUM REPORT

FAIR	M
93 - 0900 - 2.5	
97 - 1000 - 3.0	
100 - 2300 - 3.0	
101 - 1100 - 3.0	
104 - 0200 - 2.5	

NOSC LA POSTA

2.0 CM

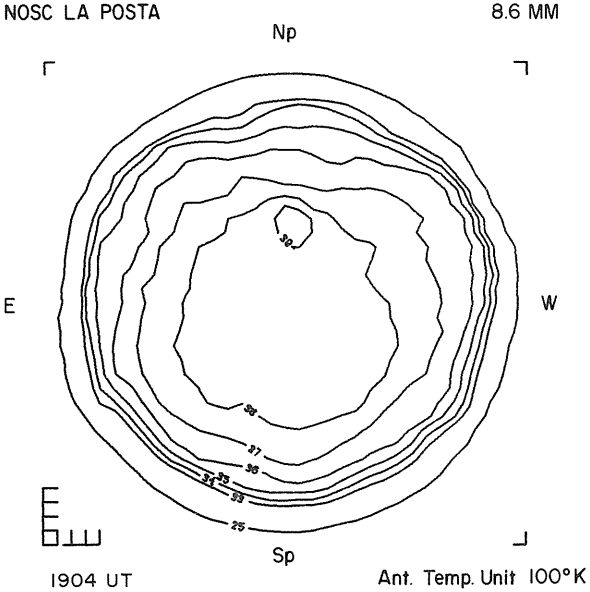


1822 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA

8.6 MM

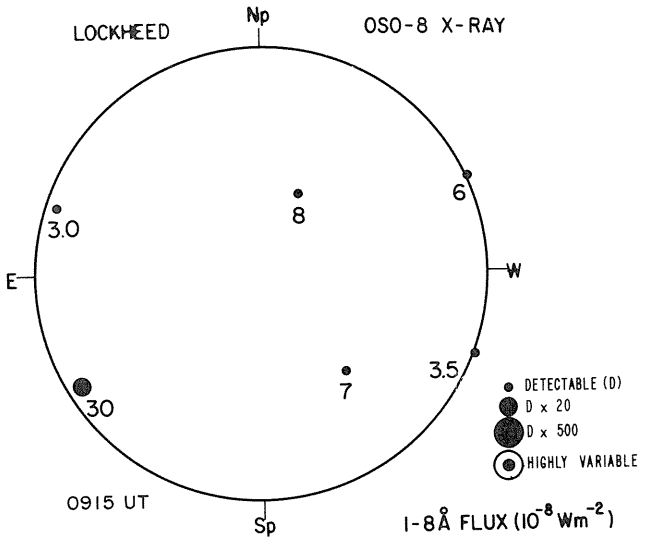


1904 UT

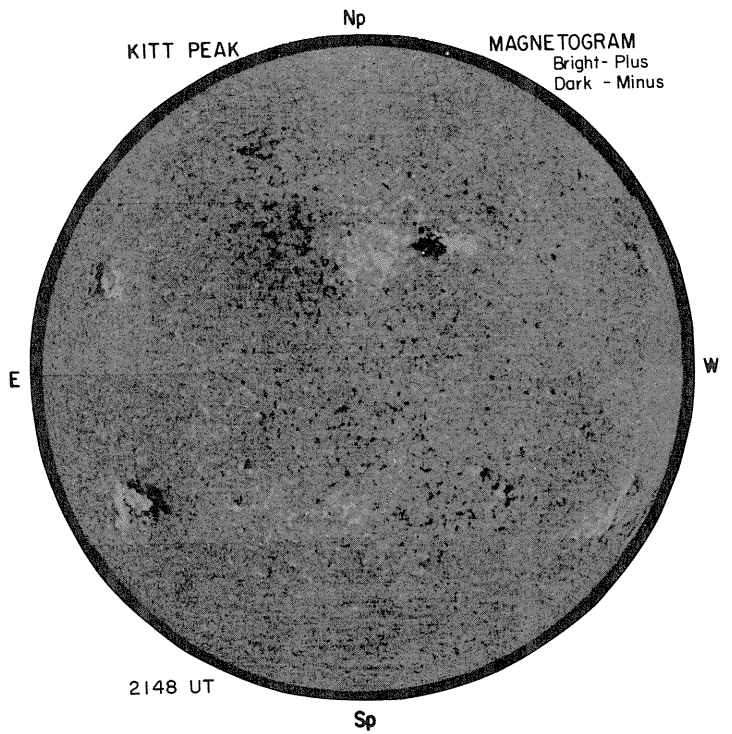
Ant. Temp. Unit 100° K

JANUARY 13, 1978 (P =-3.60, B_o =-4.35, L_o =62.29)

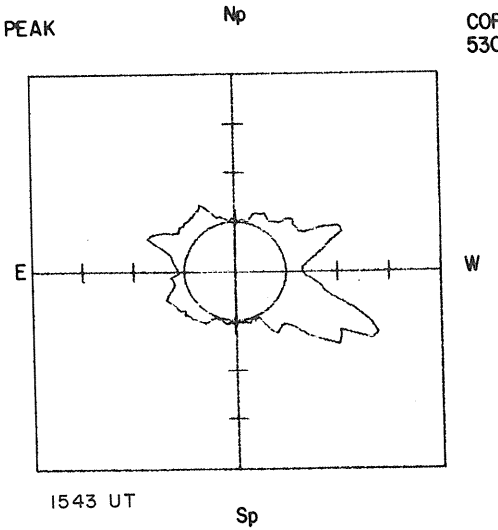
LOCKHEED



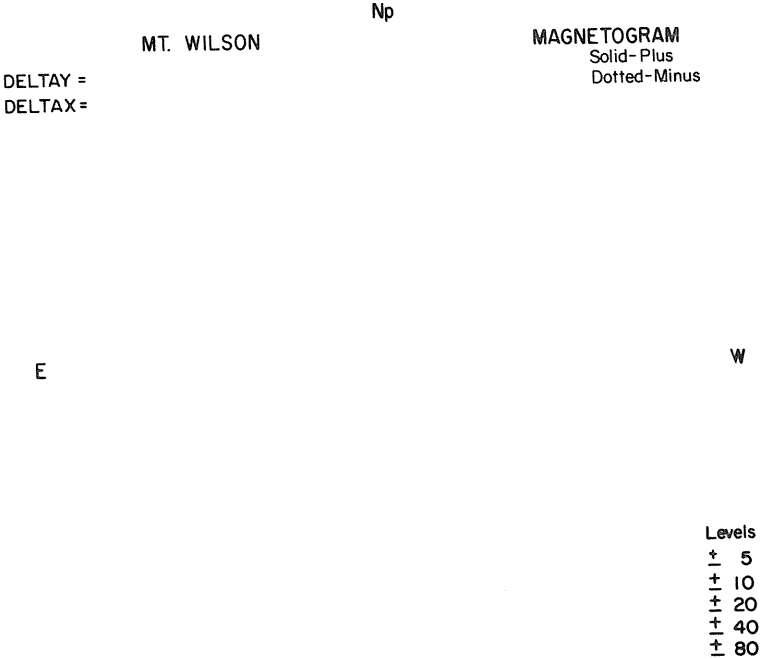
KITT PEAK



SACRAMENTO PEAK



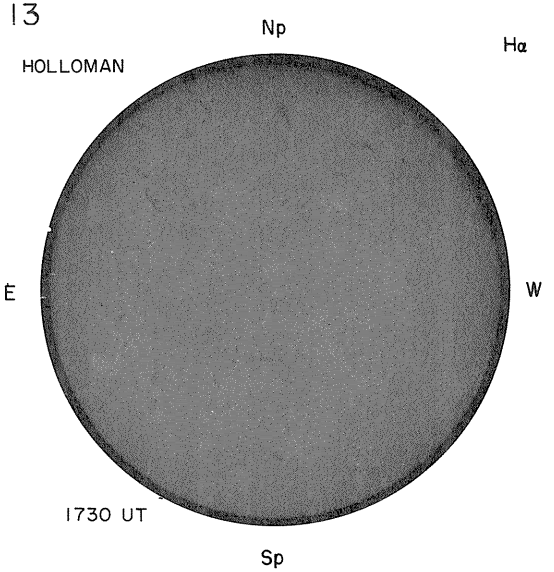
MT. WILSON



13

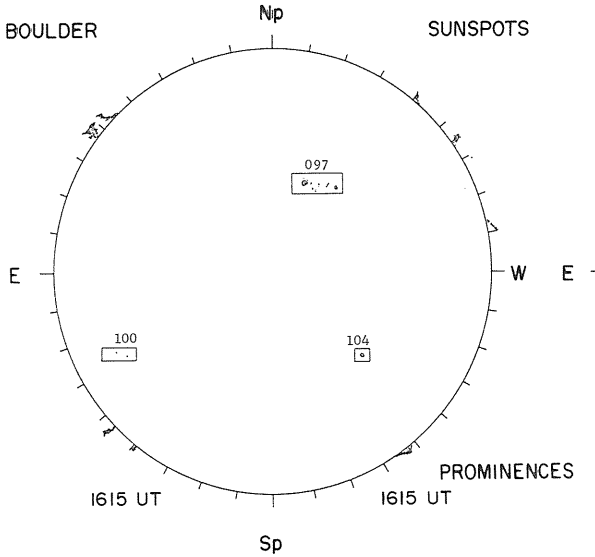
HOLLOMAN

Hα



1730 UT

BOULDER SUNSPOTS

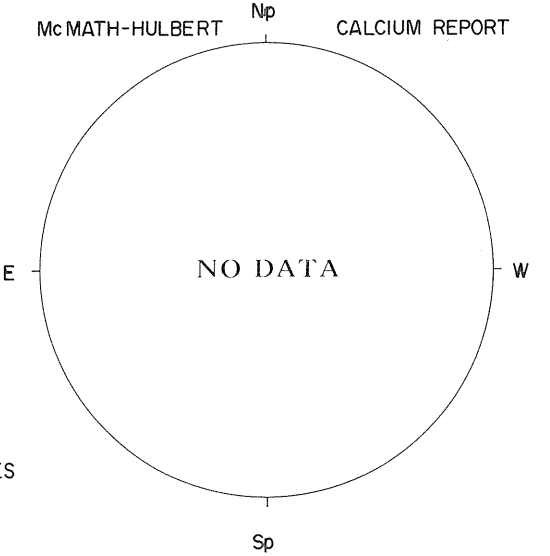


1615 UT

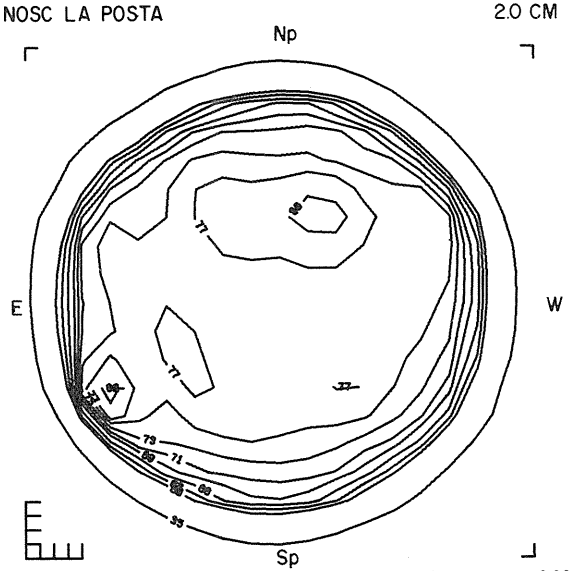
PROMINENCES

1615 UT

McMATH-HULBERT CALCIUM REPORT



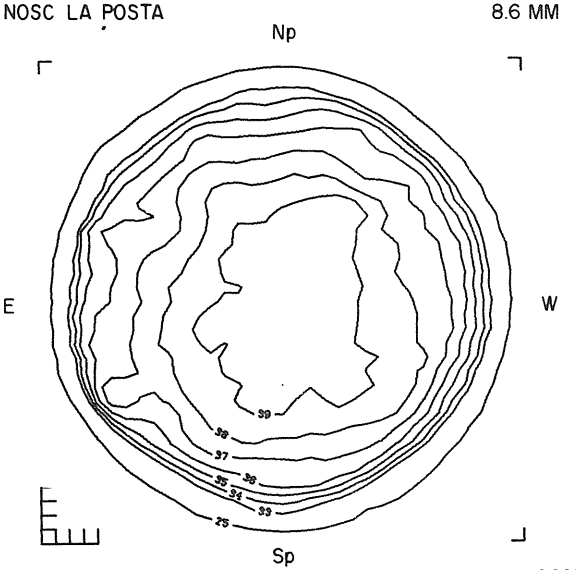
NOSC LA POSTA 2.0 CM



1817 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM



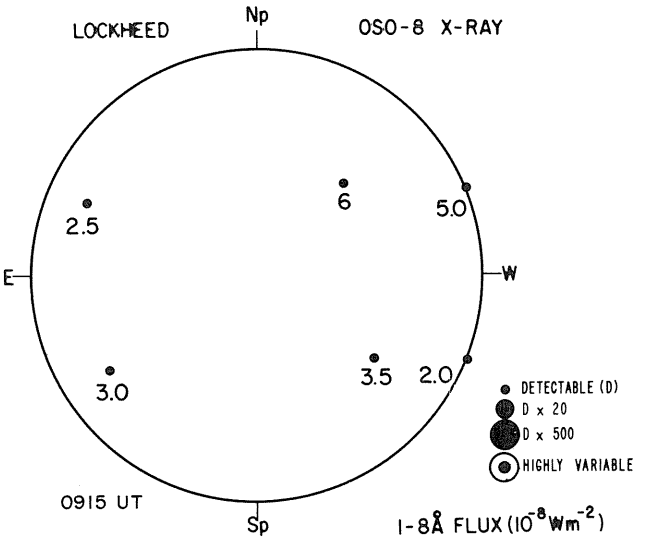
2132 UT

Ant. Temp. Unit 100° K

71
Jan 78

JANUARY 14, 1978 (P =-4.07, B_o =-4.46, L_o =49.13)

LOCKHEED OSO-8 X-RAY

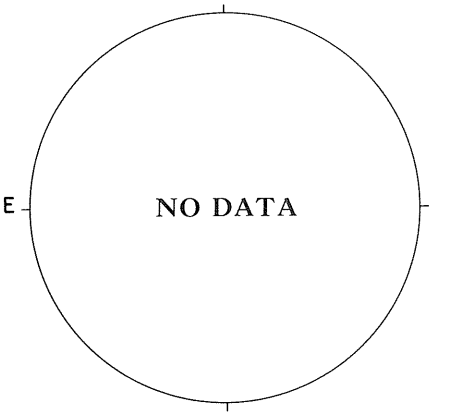


0915 UT

1-8Å FLUX (10^{-8} Wm^{-2})

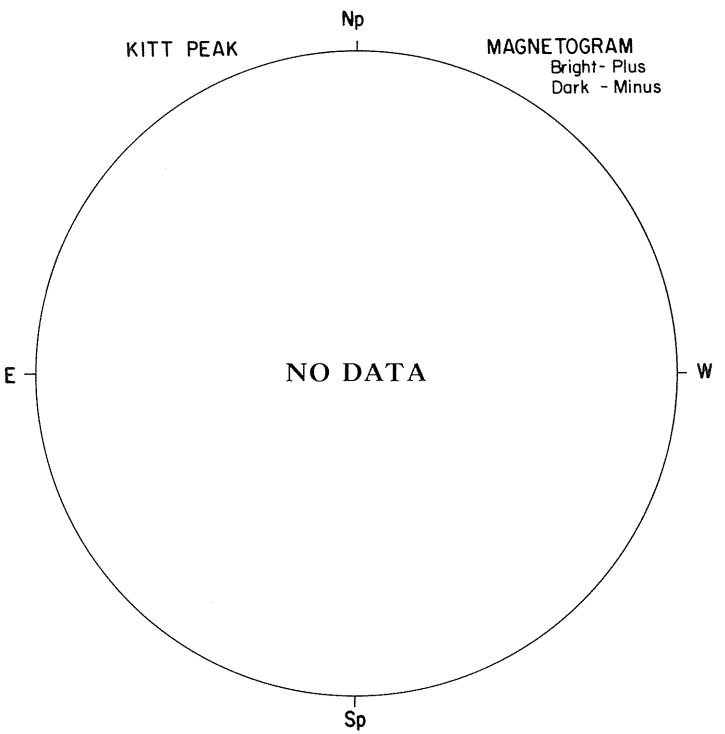
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus



MT. WILSON

MAGNETOGRAM
Solid- Plus
Dotted- Minus

DELTAY =

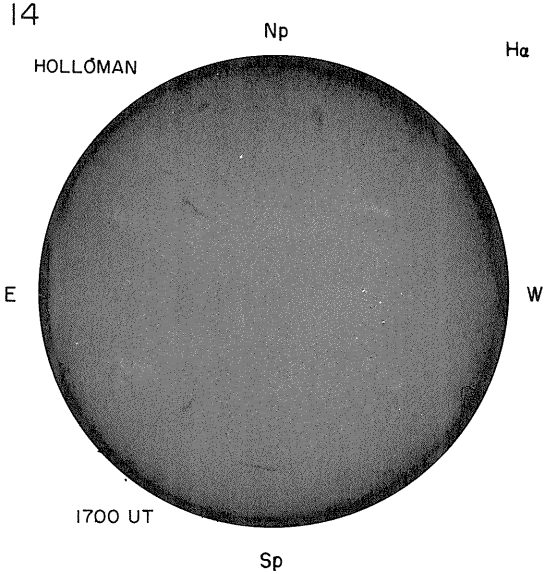
DELTAX =

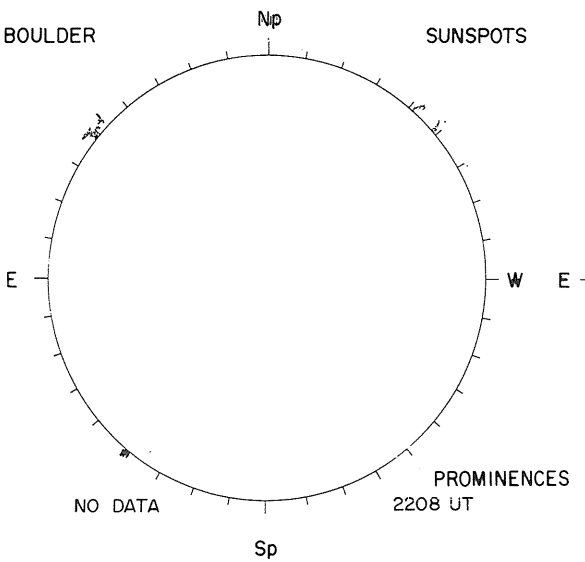
E W

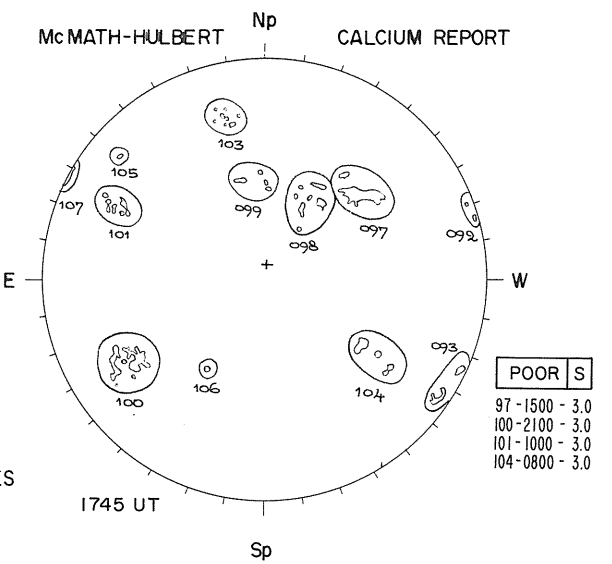
Sp

Levels
+ 5
+ 10
+ 20
+ 40
+ 80

14







NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

Sp

---- UT

Ant. Temp. Unit 100°K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

Sp

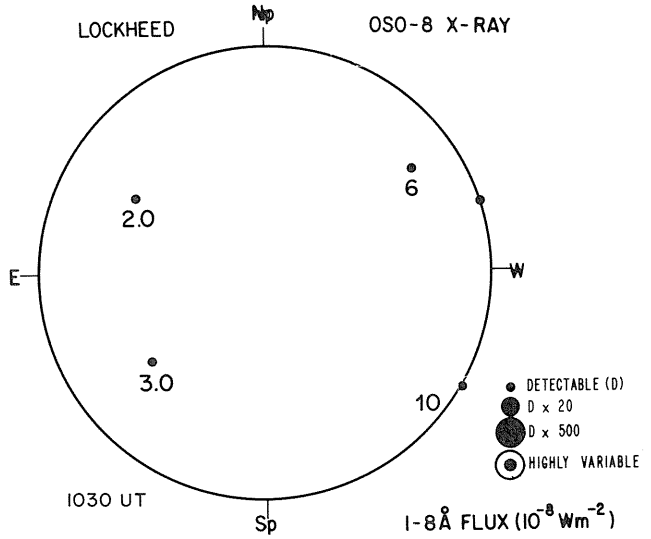
---- UT

Ant. Temp. Unit 100°K

73
Jan 78

JANUARY 15, 1978 (P =-4.54, B_o =-4.56, L_o =35.96)

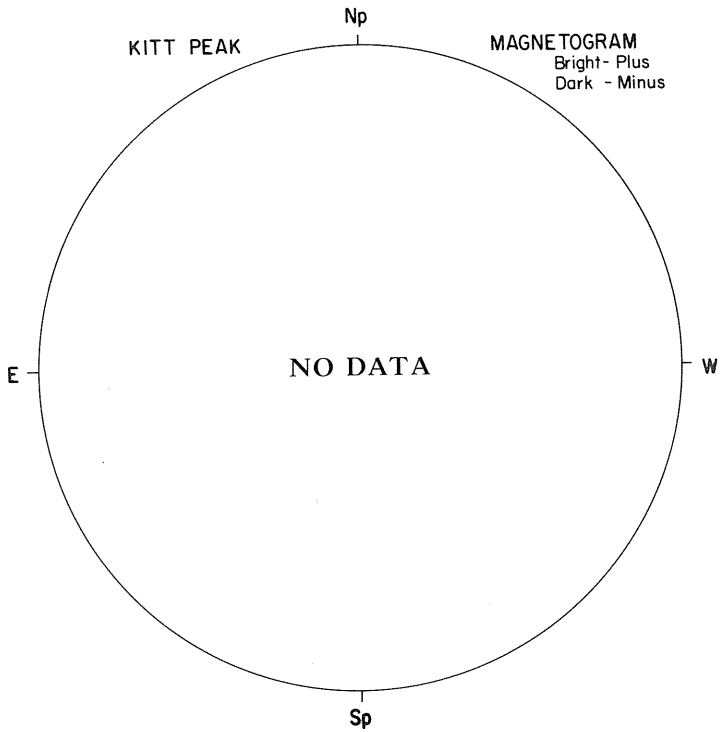
LOCKHEED OSO-8 X-RAY



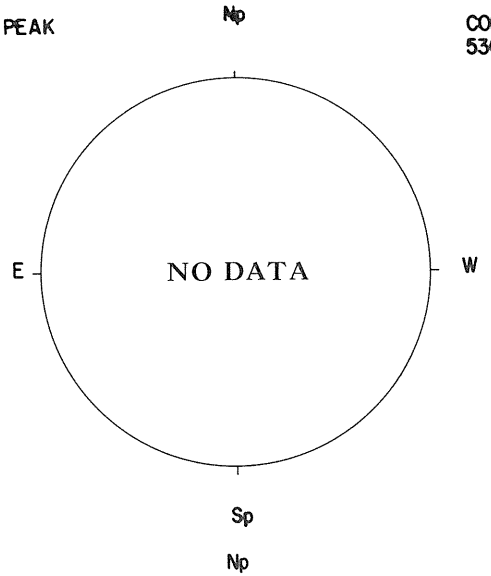
1030 UT

1-8Å FLUX (10^{-8} Wm^{-2})

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



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

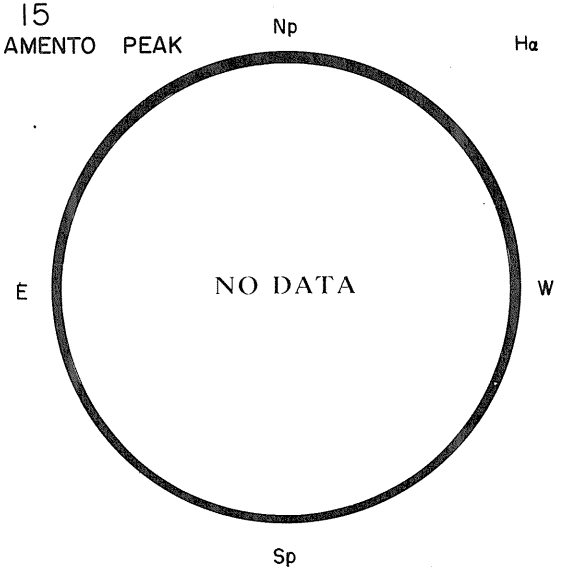


MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

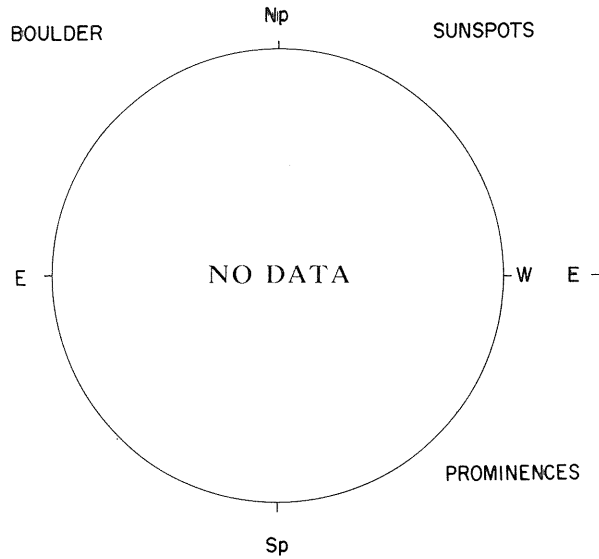
DELTAY =
DELTAX =

15

SACRAMENTO PEAK

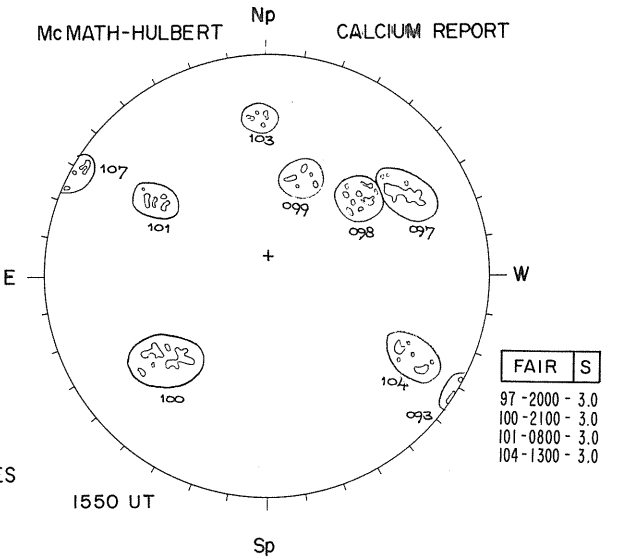


BOULDER SUNSPOTS



PROMINENCES

McMATH-HULBERT CALCIUM REPORT



NOSC LA POSTA

Np

NO DATA

E WEATHER W

Sp

---- UT

2.0 CM

Np

NO DATA

E WEATHER W

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

NO DATA

E WEATHER W

Sp

---- UT

8.6 MM

Np

NO DATA

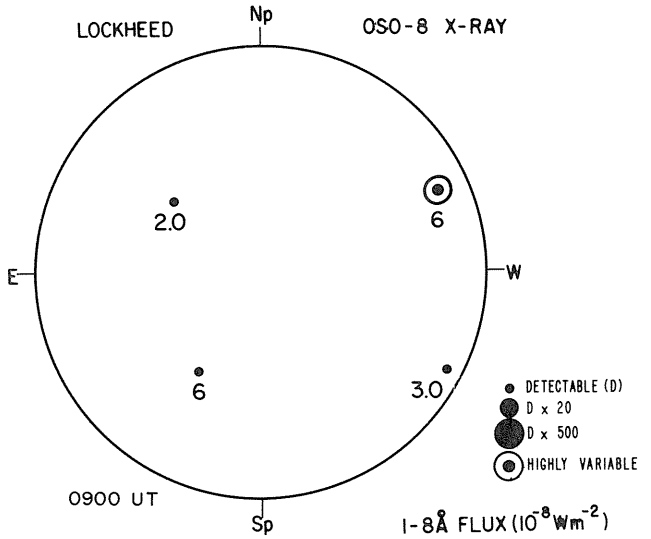
E WEATHER W

Sp

Ant. Temp. Unit 100° K

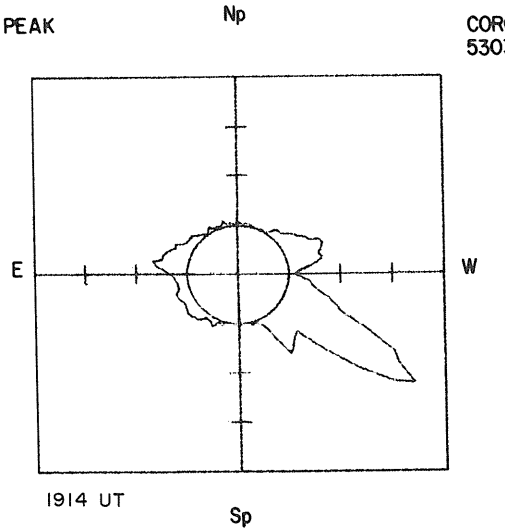
JANUARY 16, 1978 (P =-5.01, B_o =-4.66, L_o =22.79)

LOCKHEED OSO-8 X-RAY

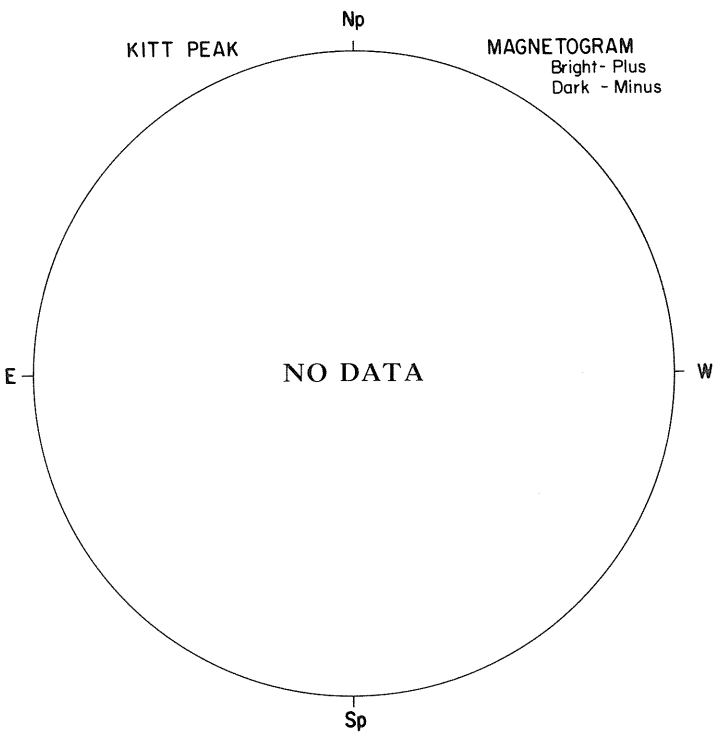


1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

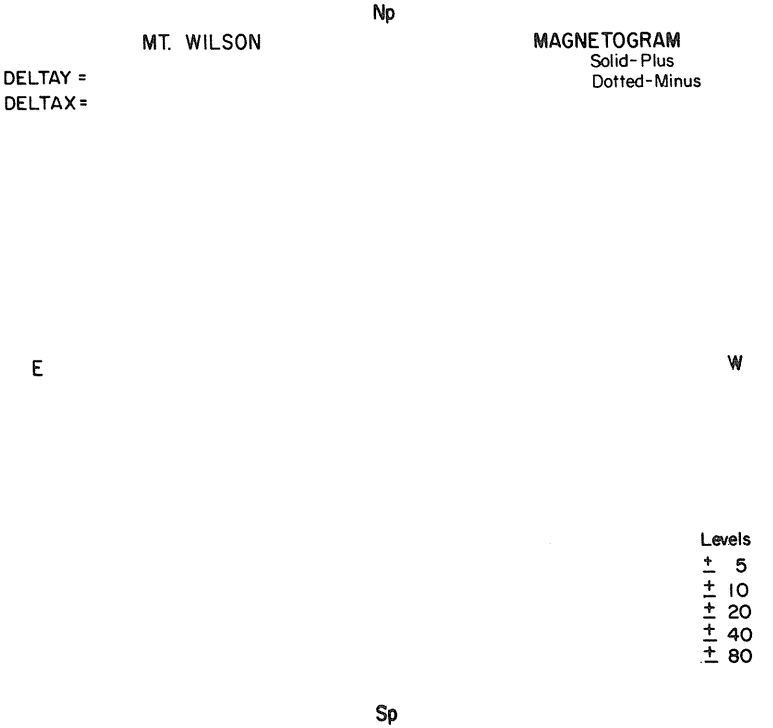


KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



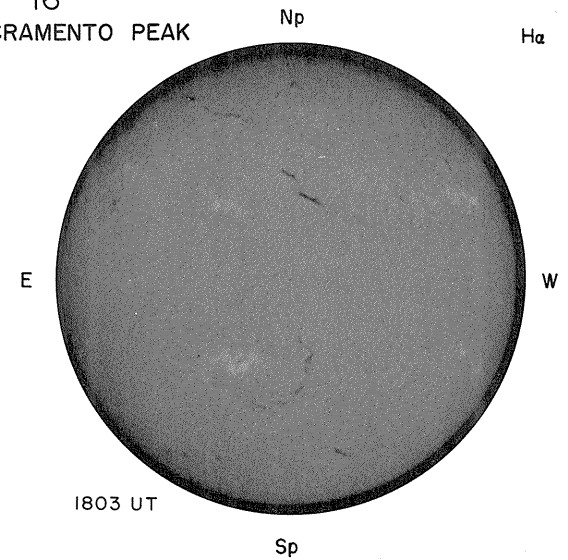
MT. WILSON MAGNETOGRAM
Solid- Plus
Dotted-Minus

DELTAY =
DELTAX =



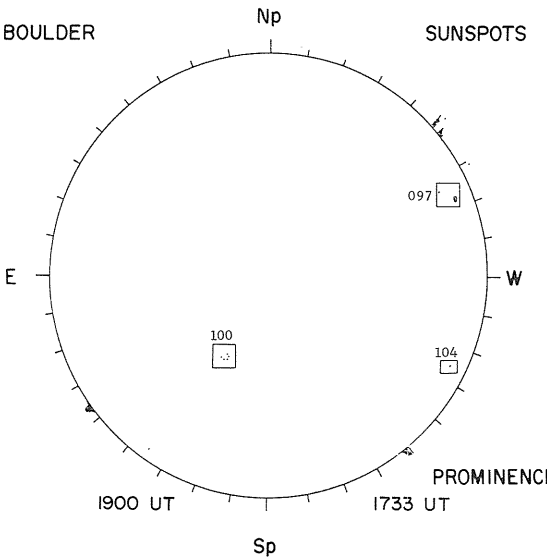
16

SACRAMENTO PEAK



Hα

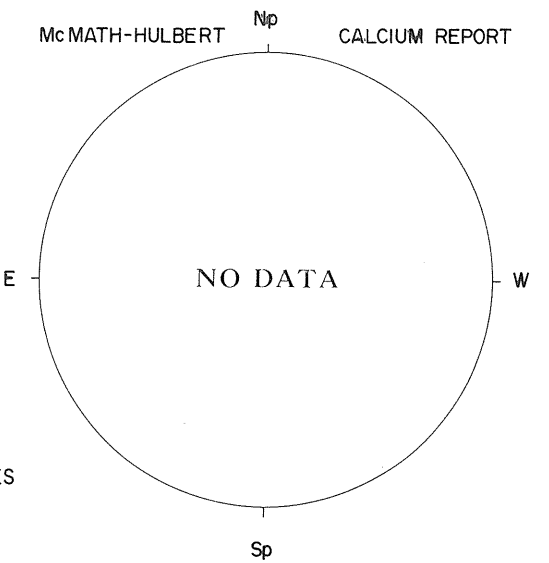
BOULDER



SUNSPOTS

PROMINENCES

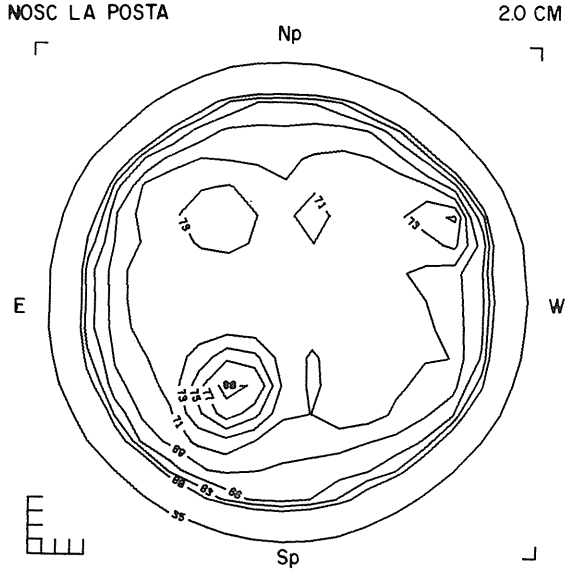
McMATH-HULBERT



CALCIUM REPORT

NOSC LA POSTA

2.0 CM

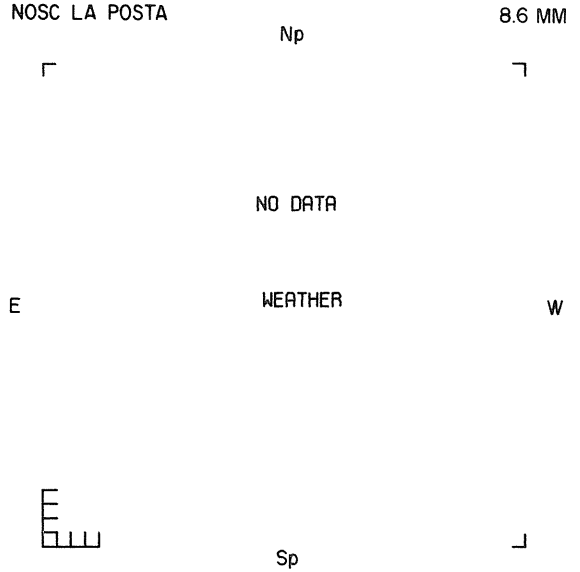


2049 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA

8.6 MM



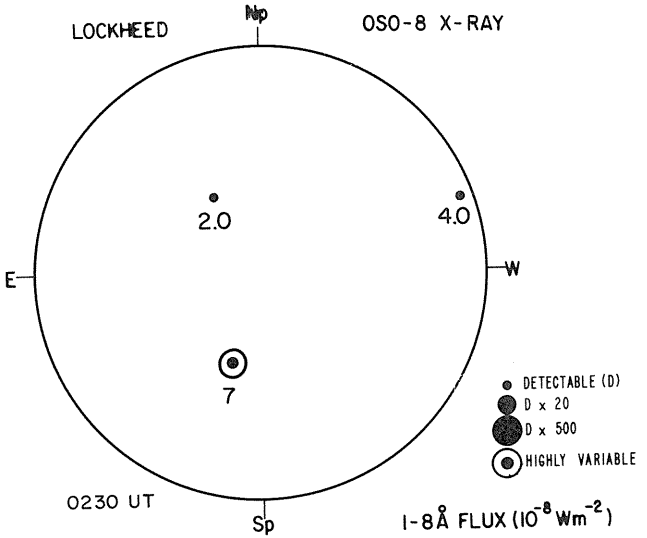
---- UT

Ant. Temp. Unit 100°K

77
Jan 78

JANUARY 17, 1978 (P =-5.48, B_o =-4.76, L_o =9.62)

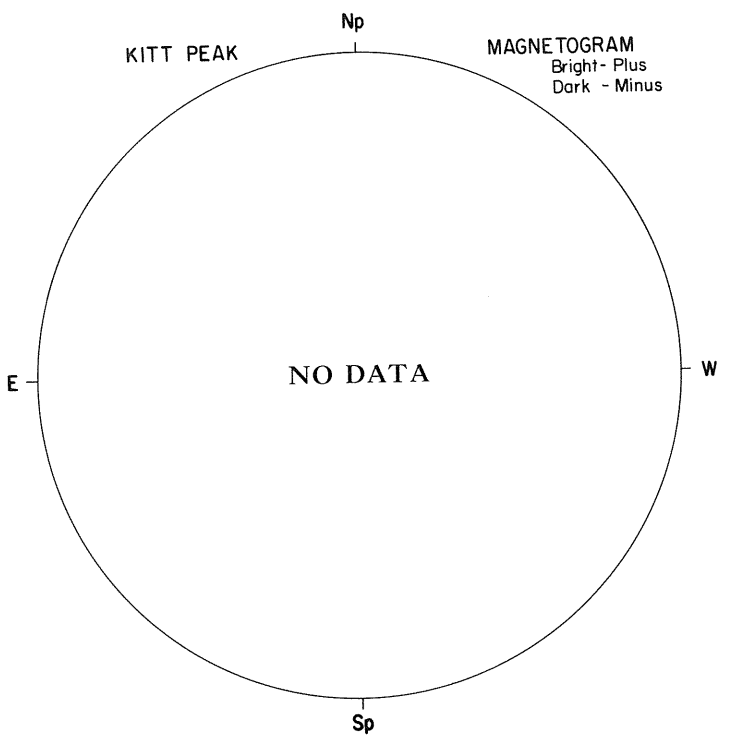
LOCKHEED OSO-8 X-RAY



0230 UT

1-8Å FLUX (10^{-8} Wm^{-2})

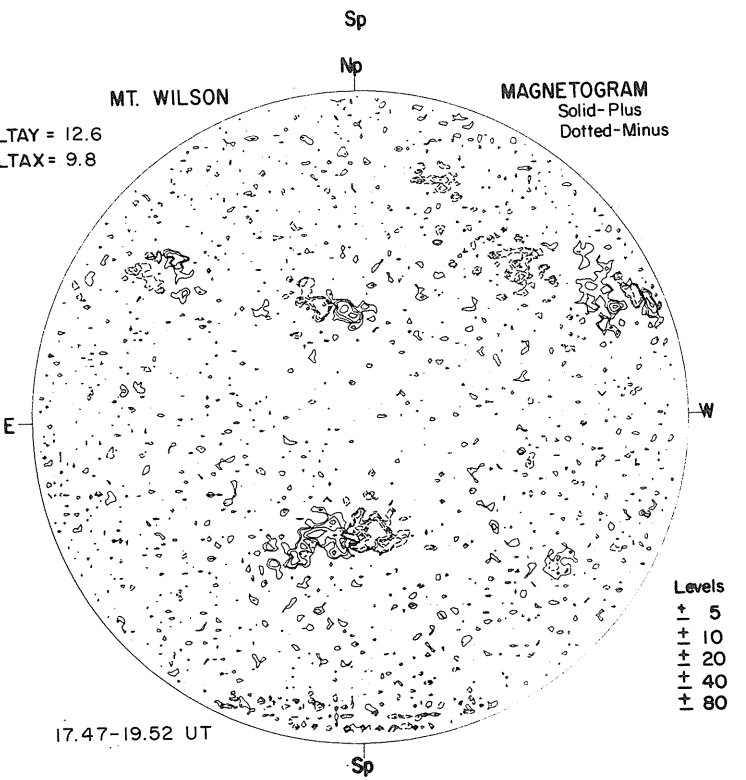
KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



SACRAMENTO PEAK

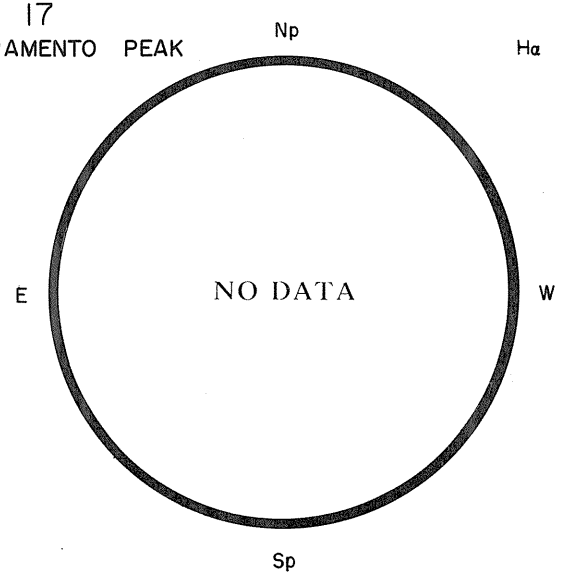
CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA JANUARY 17-25 W

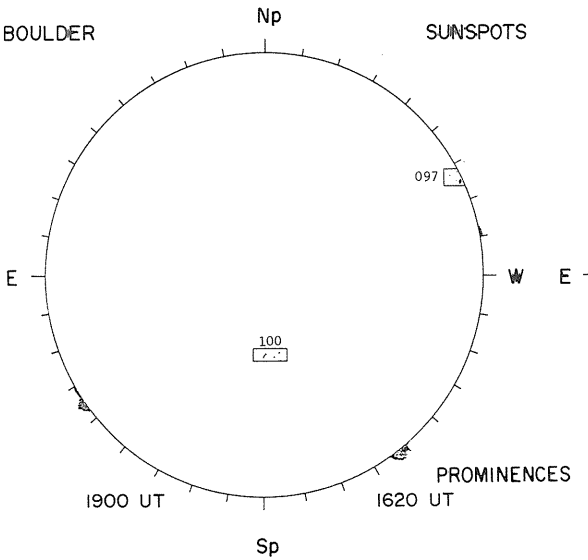


17

SACRAMENTO PEAK

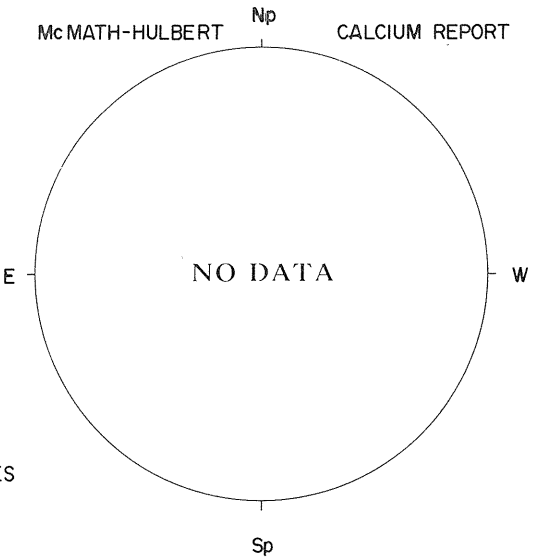


BOULDER SUNSPOTS

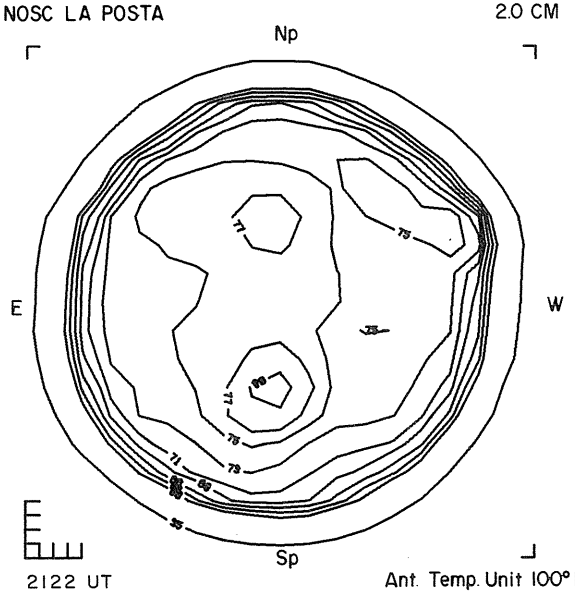


PROMINENCES

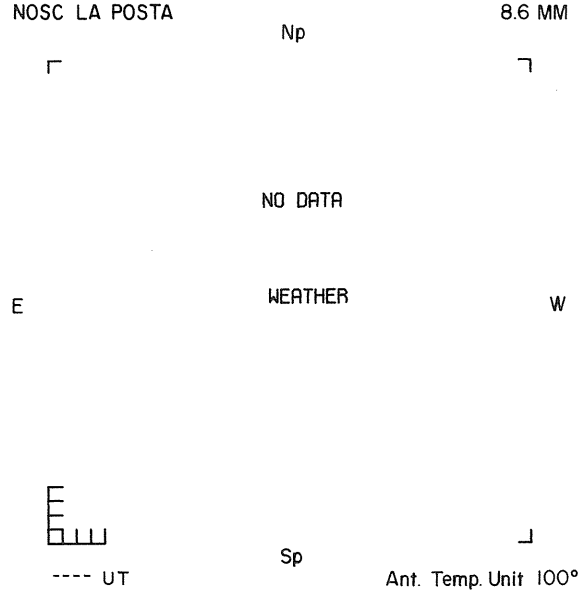
McMATH-HULBERT CALCIUM REPORT



NOSC LA POSTA 2.0 CM



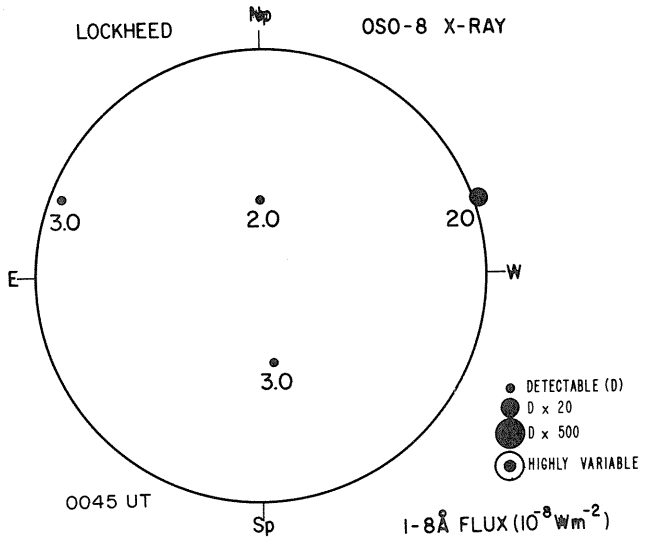
NOSC LA POSTA 8.6 MM



79
Jan 78

JANUARY 18, 1978 (P =-5.94, B_o =-4.85, L_o =356.46)

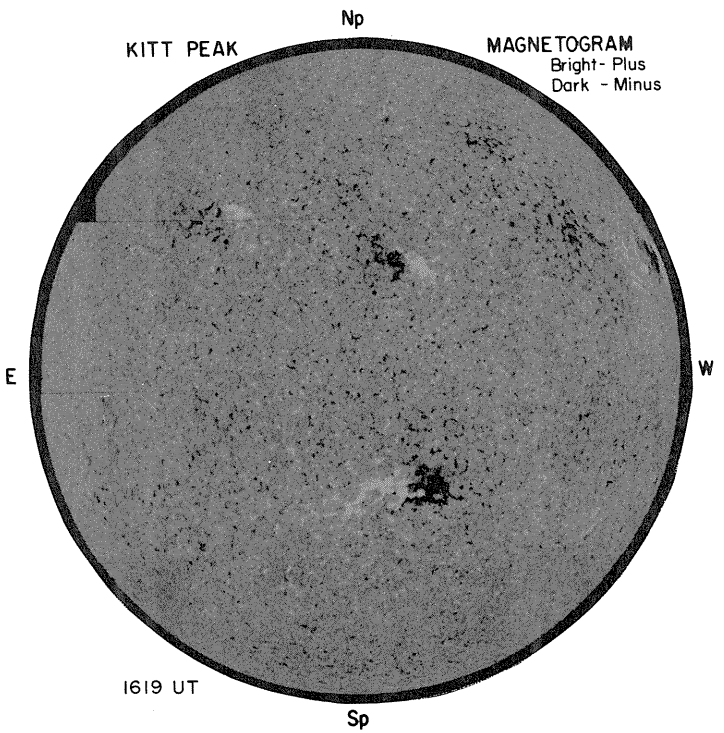
LOCKHEED OSO-8 X-RAY



0045 UT

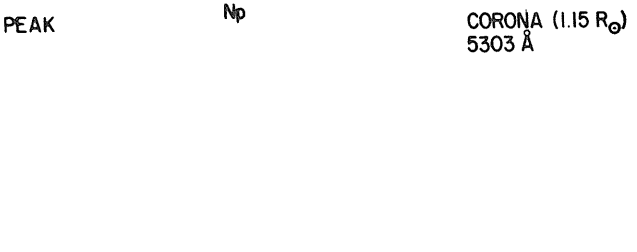
1-8Å FLUX (10^{-8} Wm^{-2})

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1619 UT

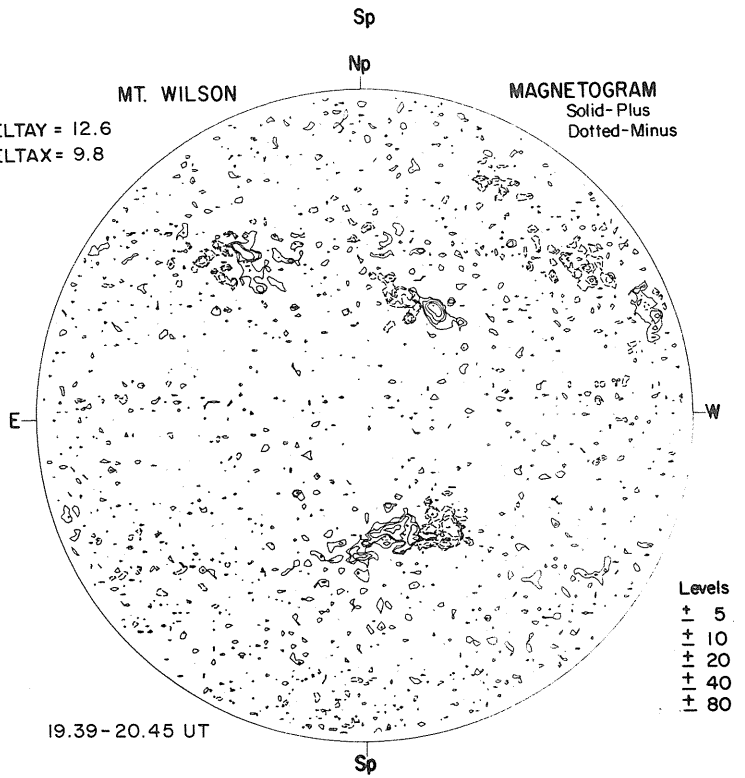
SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

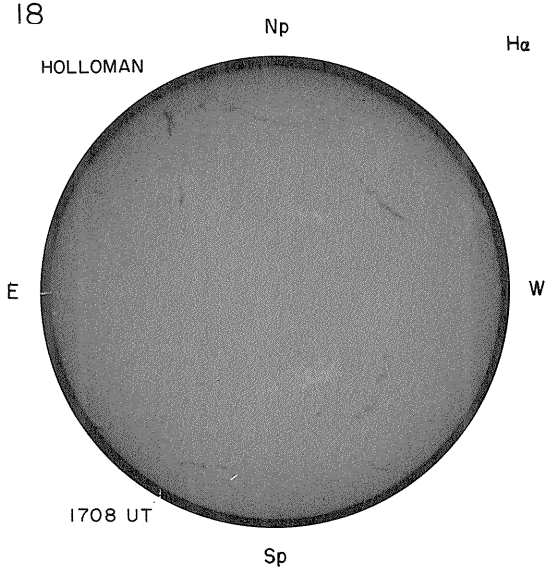
MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

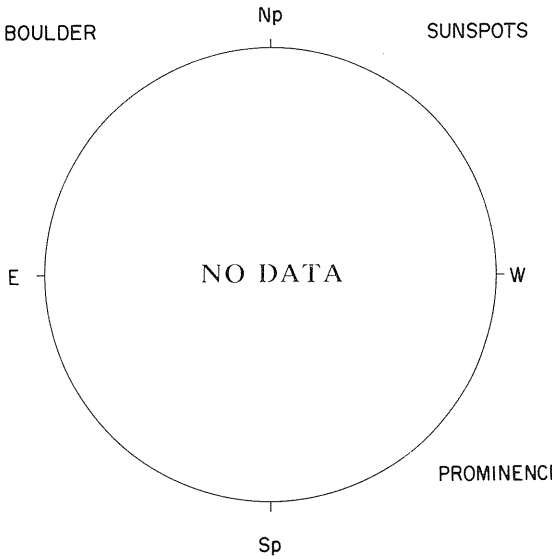
DELTAY = 12.6
DELTAX = 9.8



19.39-20.45 UT

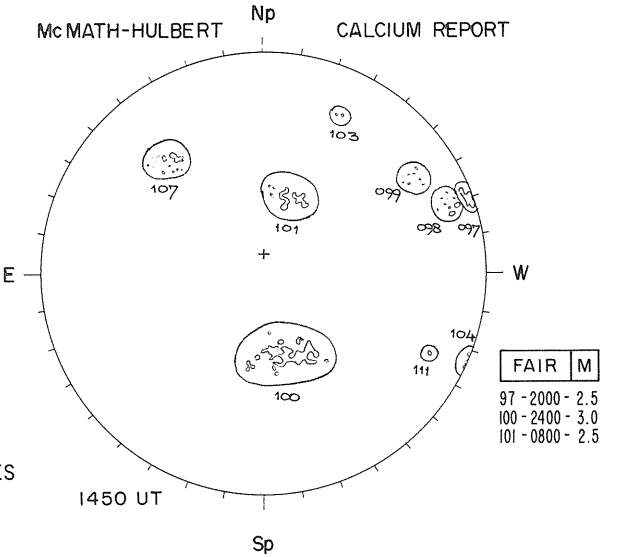
18

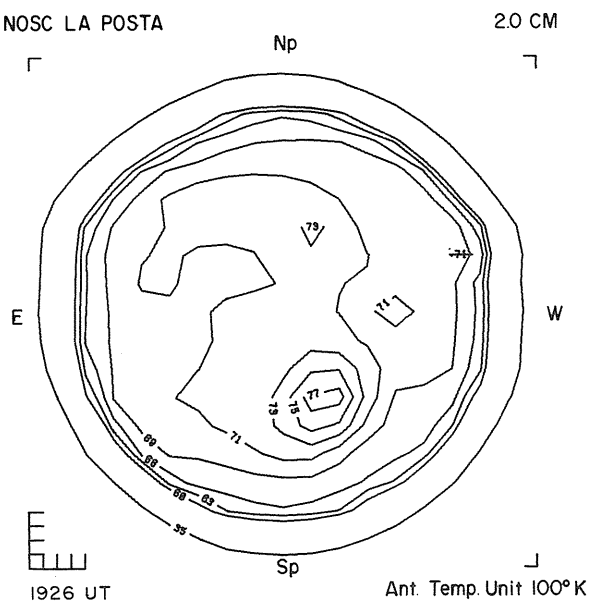


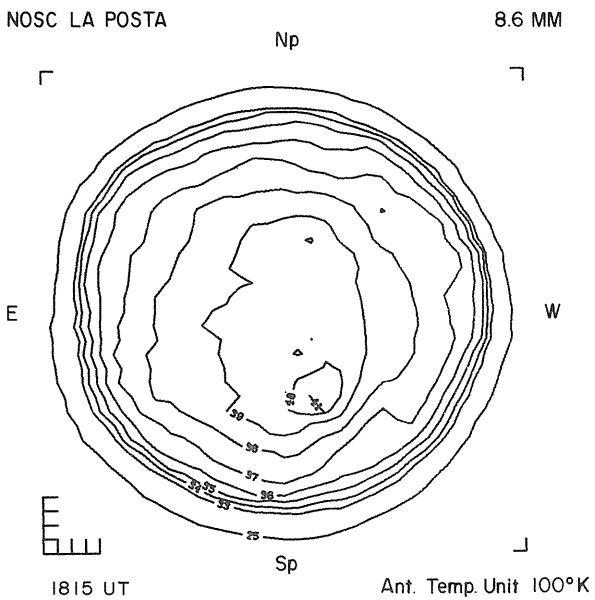


SUNSPOTS

PROMINENCES

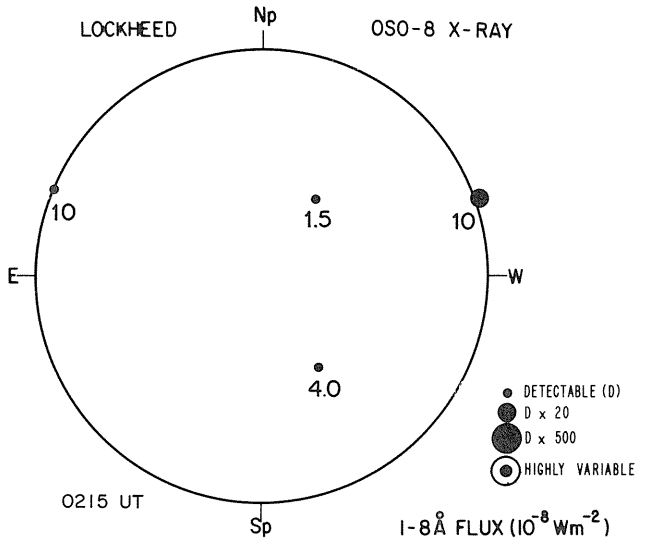






JANUARY 19, 1978 (P =-6.40, B_o =-4.95, L_o =343.29)

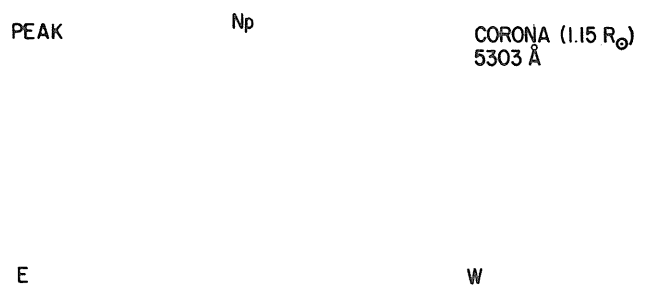
LOCKHEED OSO-8 X-RAY



0215 UT

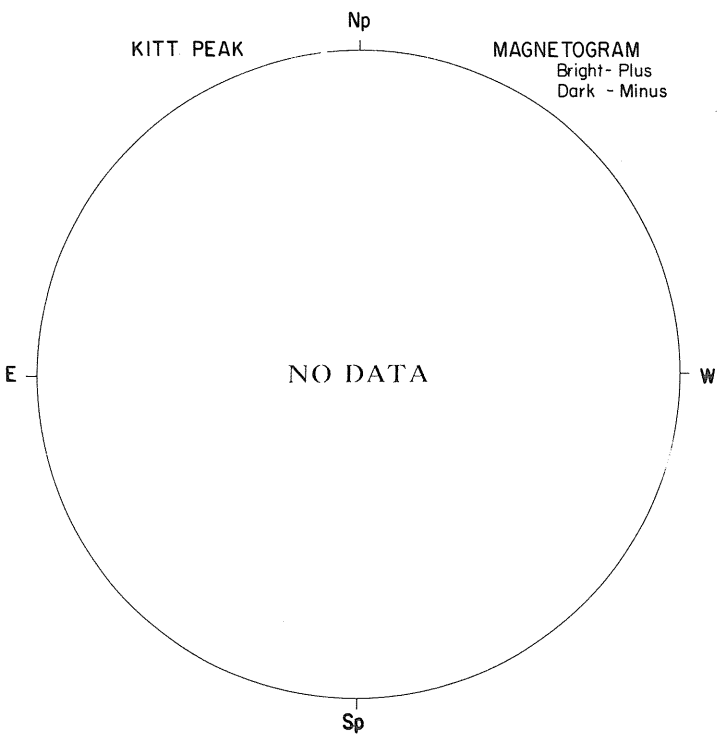
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK



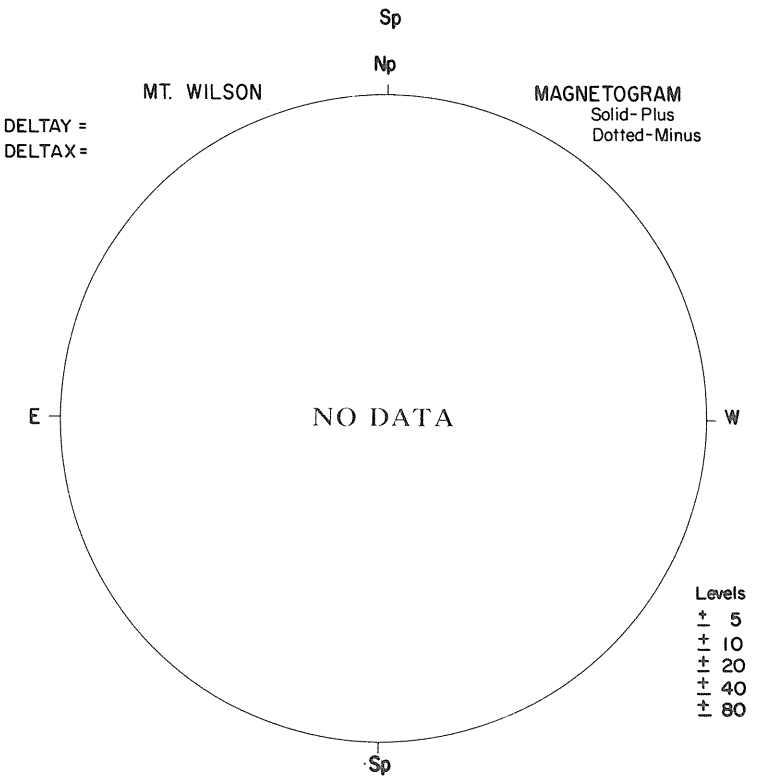
CORONA (1.15 $R_\odot$)
5303 Å

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

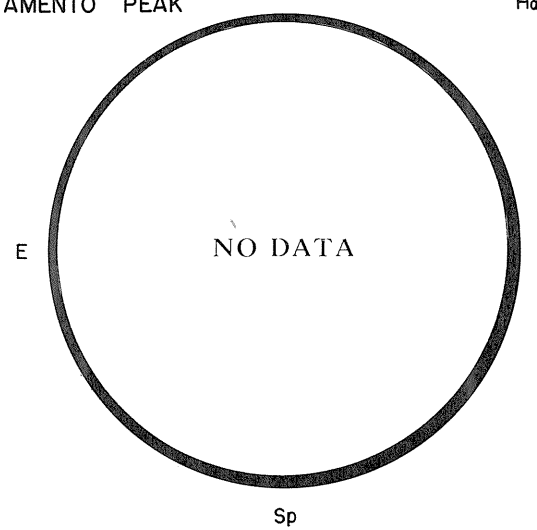


19

SACRAMENTO PEAK

Np

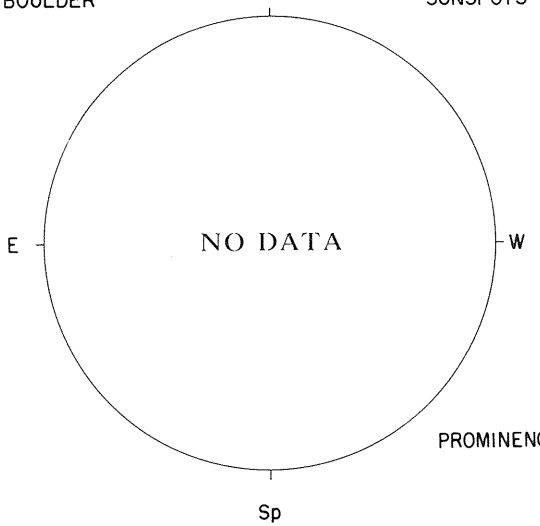
Hα



BOULDER

Np

SUNSPOTS

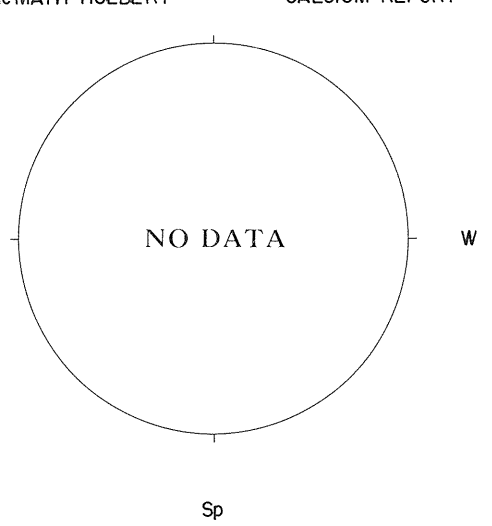


PROMINENCES

McMATH-HULBERT

Np

CALCIUM REPORT



NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

Sp

Ant. Temp. Unit 100°K

---- UT

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

Sp

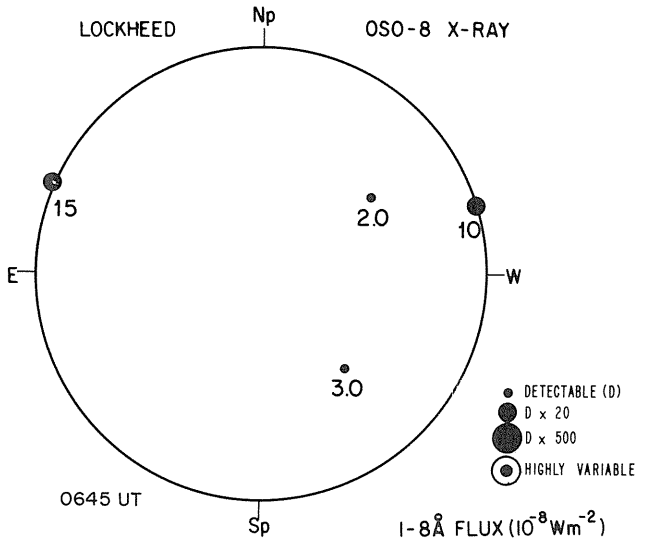
Ant. Temp. Unit 100°K

---- UT

83
Jan 78

JANUARY 20, 1978 (P =-6.86, B_0 =-5.04, L_0 =330.12)

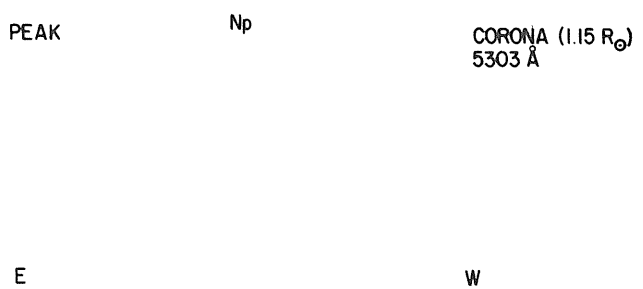
LOCKHEED OSO-8 X-RAY



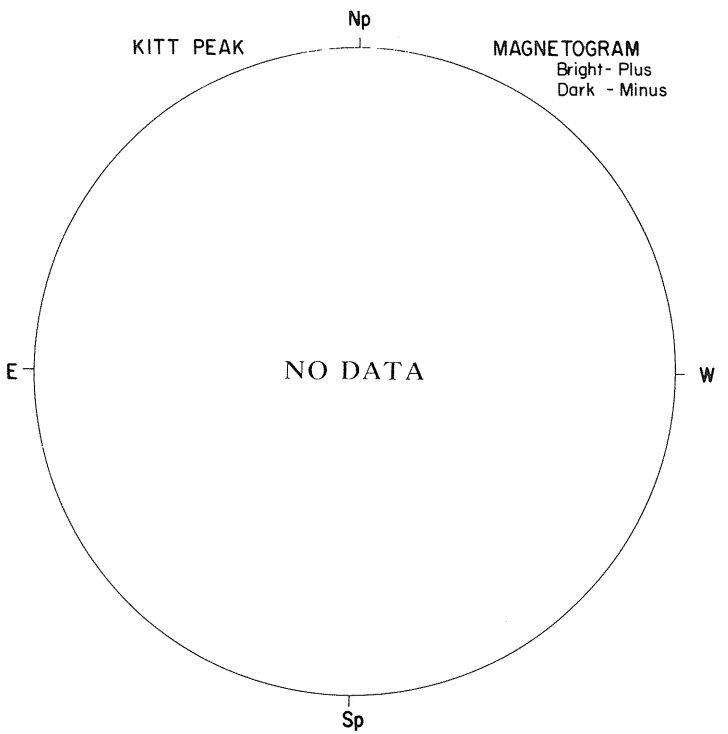
0645 UT

1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

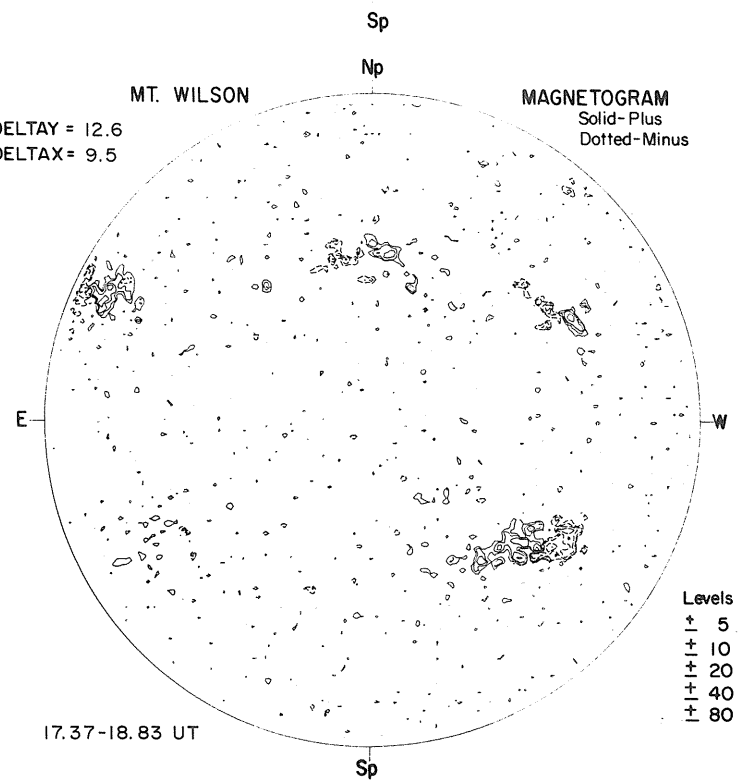


KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

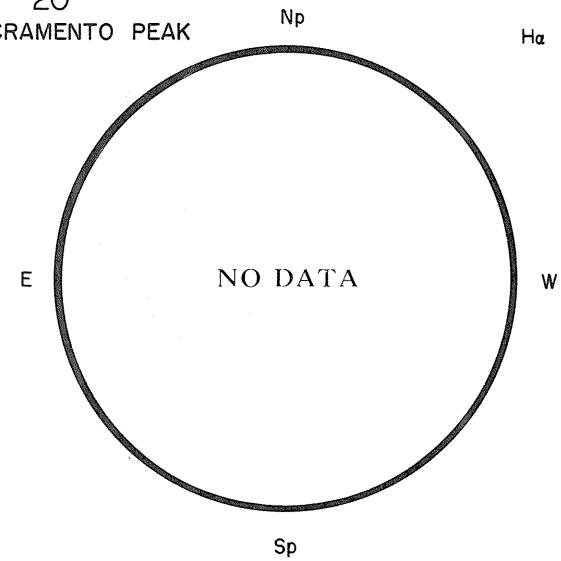
DELTAY = 12.6
DELTAX = 9.5



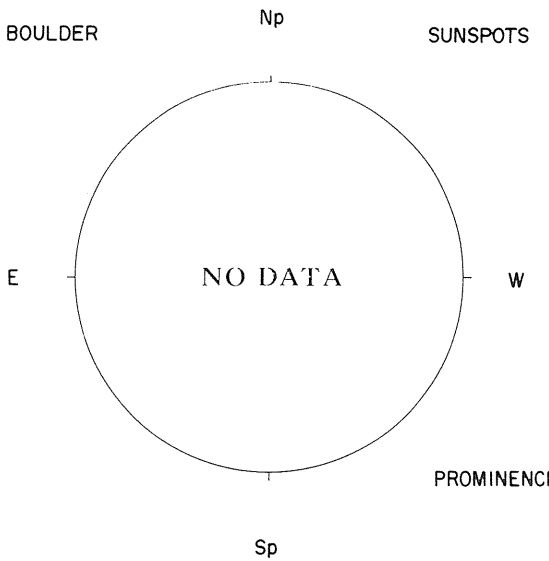
17.37-18.83 UT

20

SACRAMENTO PEAK



BOULDER

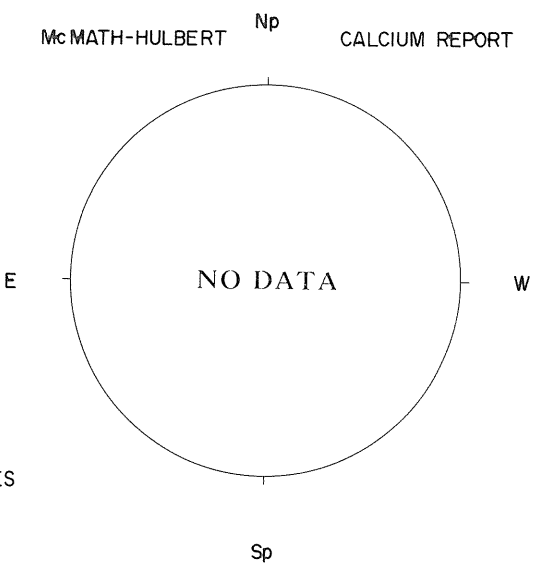


SUNSPOTS

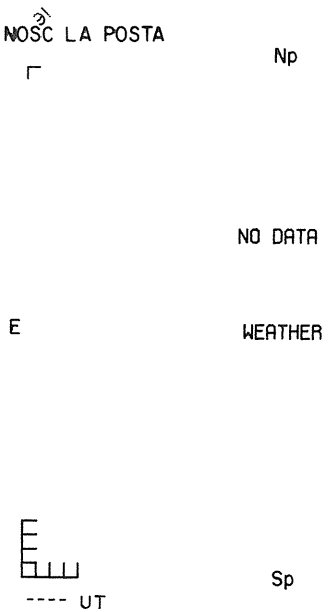
PROMINENCES

McMATH-HULBERT

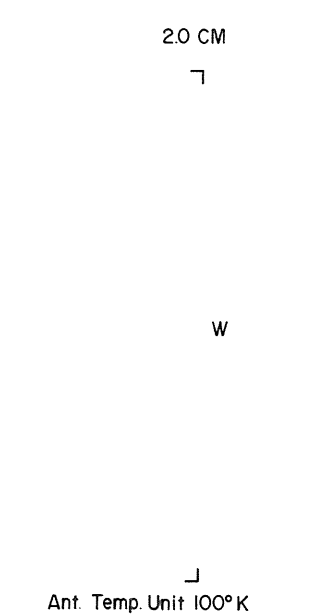
CALCIUM REPORT



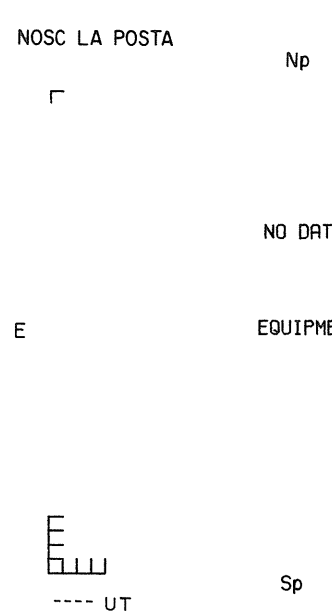
NOSC LA POSTA



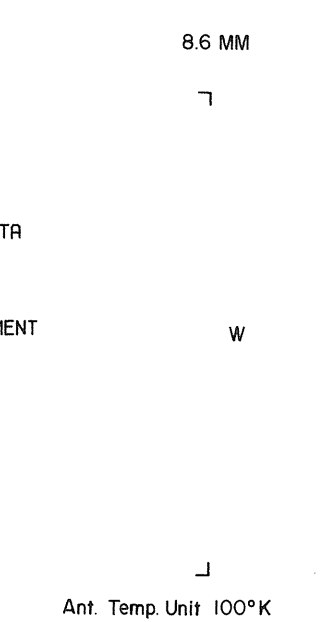
2.0 CM



NOSC LA POSTA

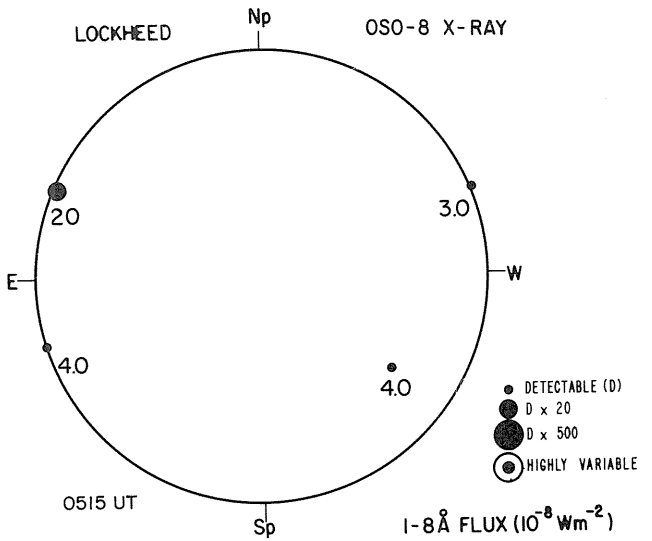


8.6 MM



JANUARY 21, 1978 (P =-7.31, B_o =-5.13, L_o =316.95)

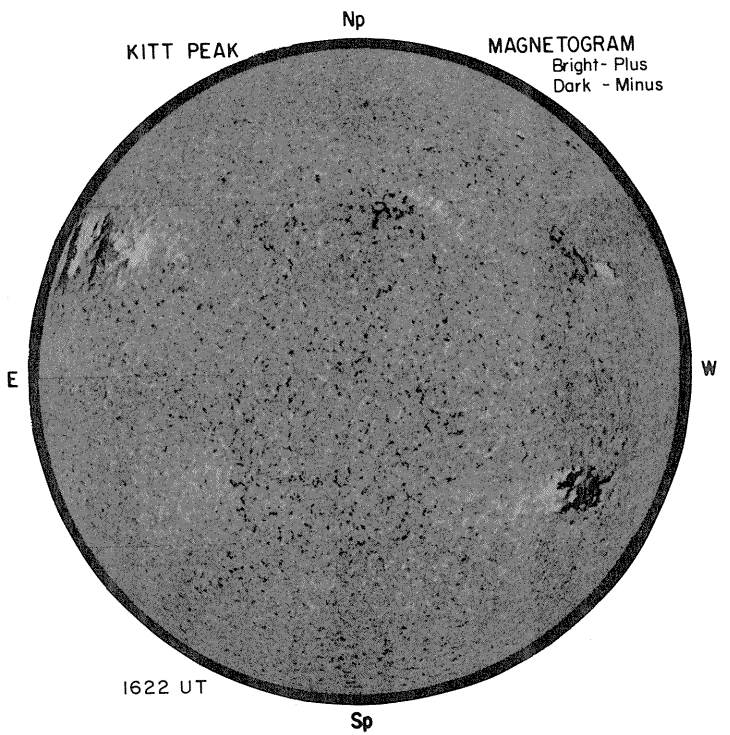
LOCKHEED OSO-8 X-RAY



0515 UT

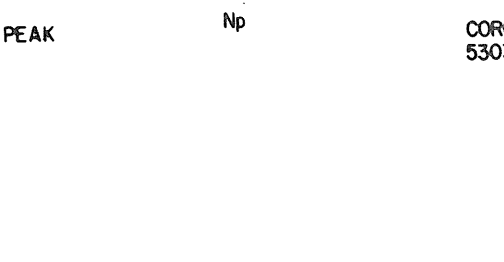
1-8Å FLUX (10^{-8} Wm^{-2})

KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



1622 UT

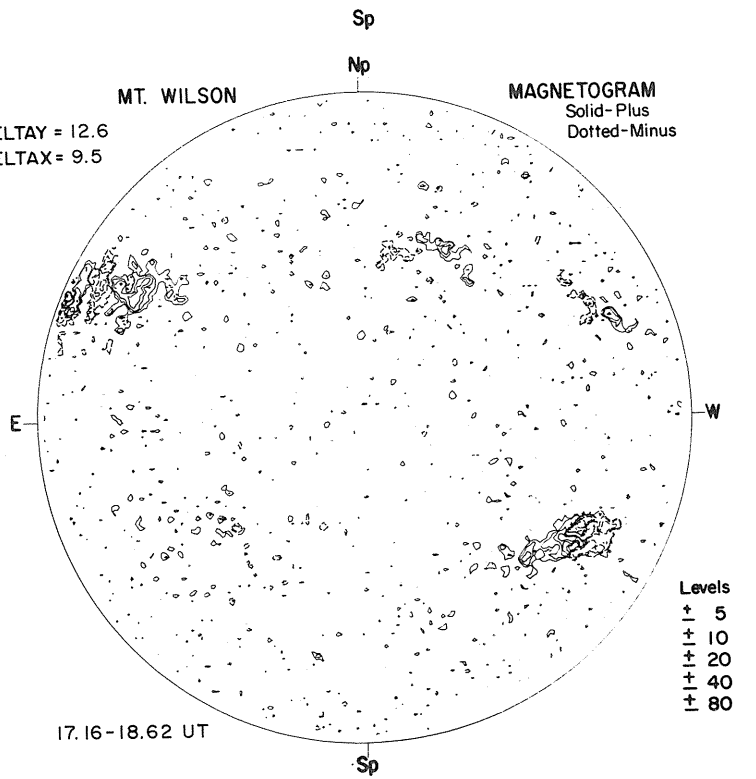
SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

MT. WILSON MAGNETOGRAM
Solid- Plus
Dotted-Minus

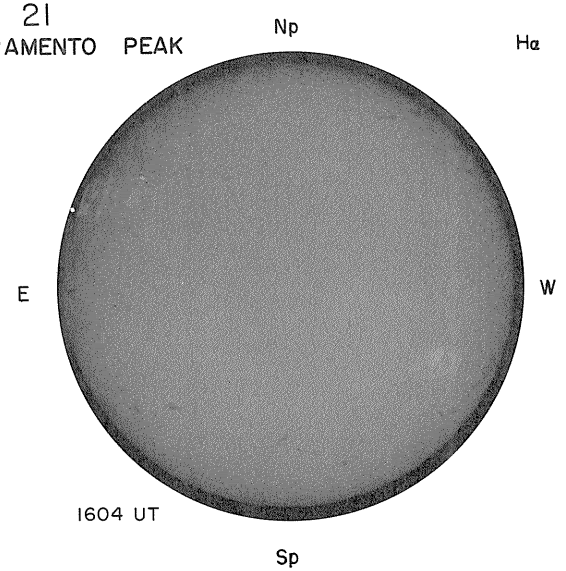
DELTAY = 12.6
DELTAX = 9.5



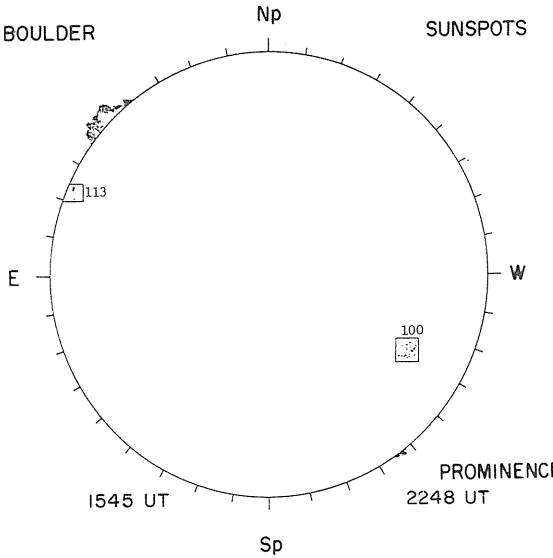
17.16-18.62 UT

21

SACRAMENTO PEAK

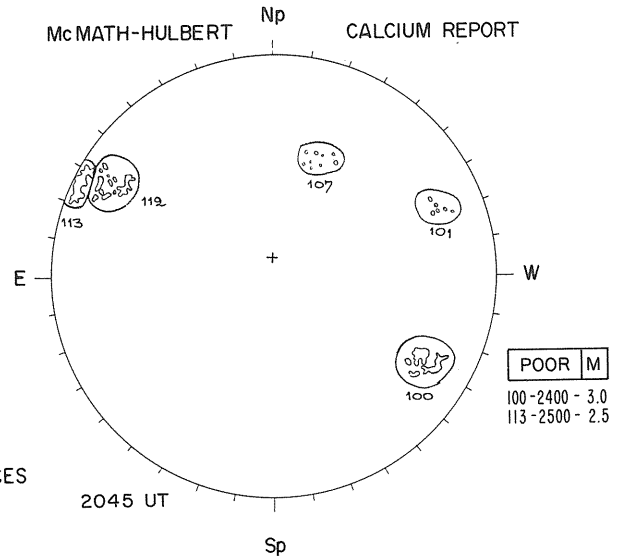


BOULDER SUNSPOTS

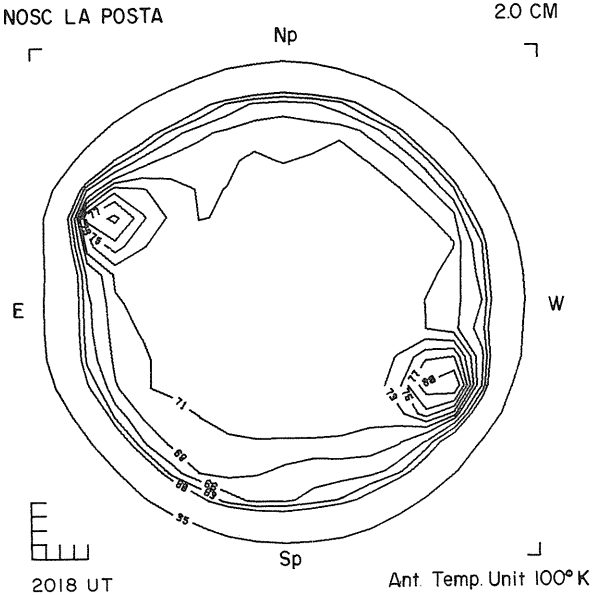


PROMINENCES

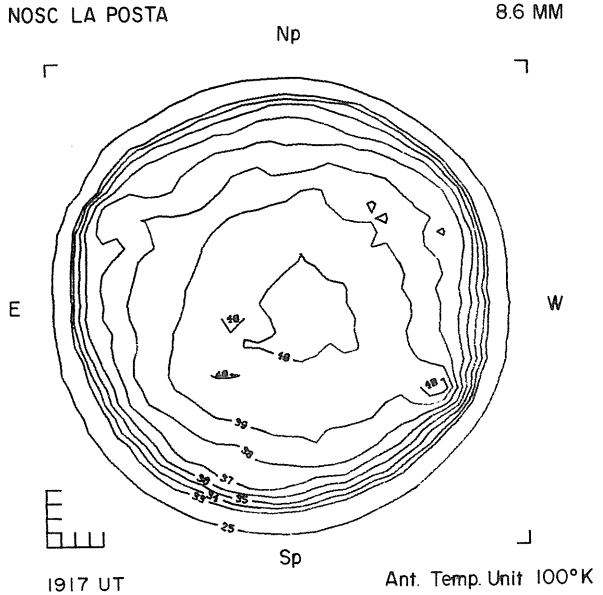
McMATH-HULBERT CALCIUM REPORT



NOSC LA POSTA 2.0 CM

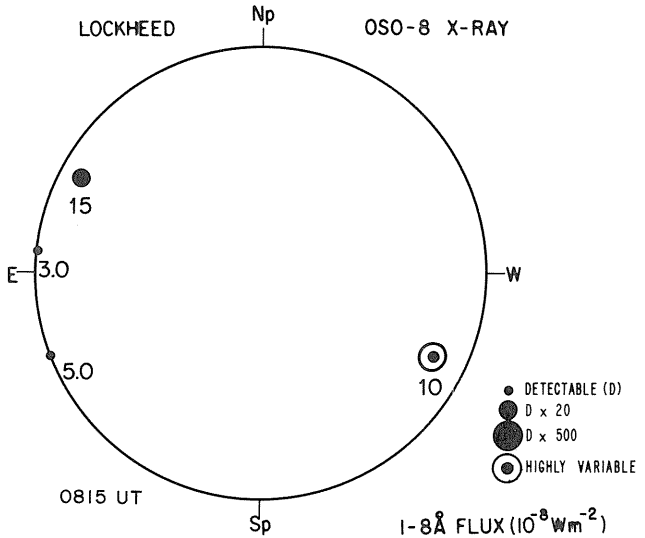


NOSC LA POSTA 8.6 MM



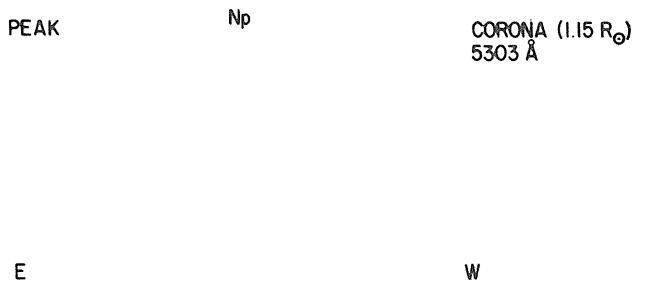
JANUARY 22, 1978 (P =-7.77, B_o =-5.22, L_o =303.79)

LOCKHEED OSO-8 X-RAY

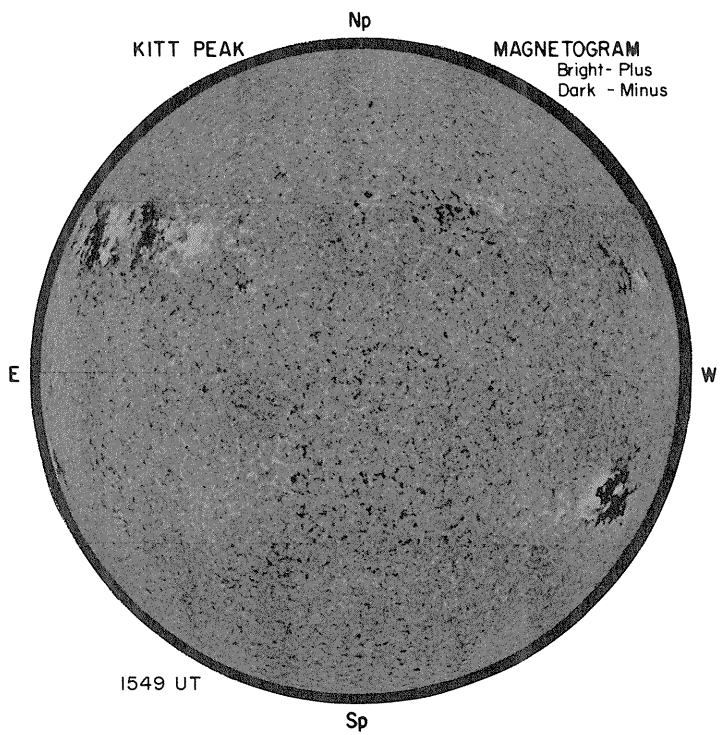


1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

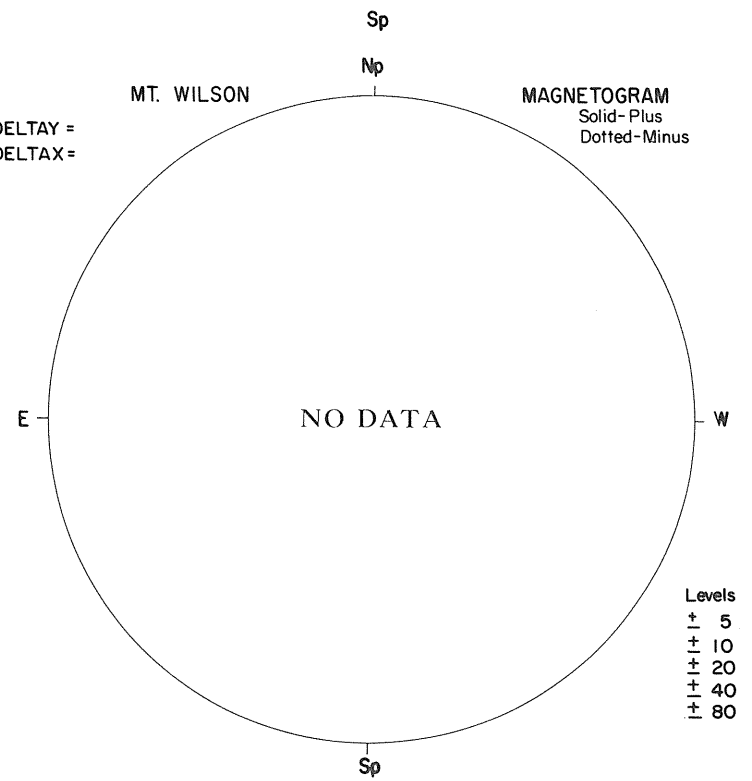


KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



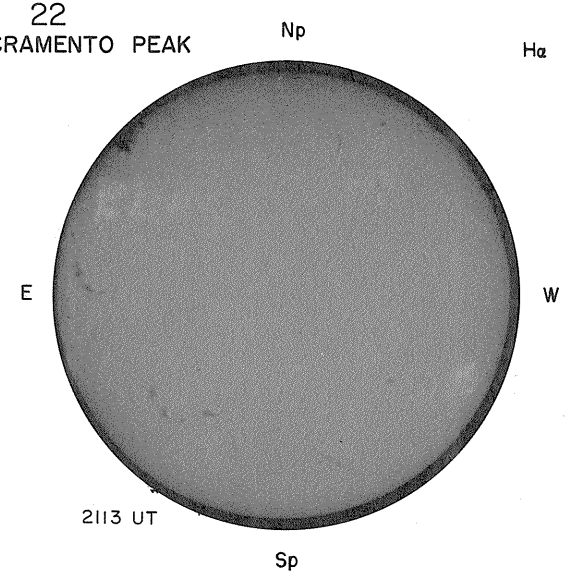
MT. WILSON MAGNETOGRAM
Solid- Plus
Dotted-Minus

DELTAY =
DELTAX =

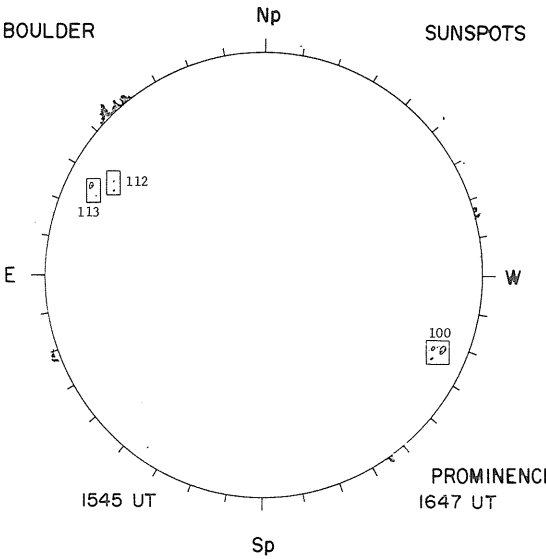


22

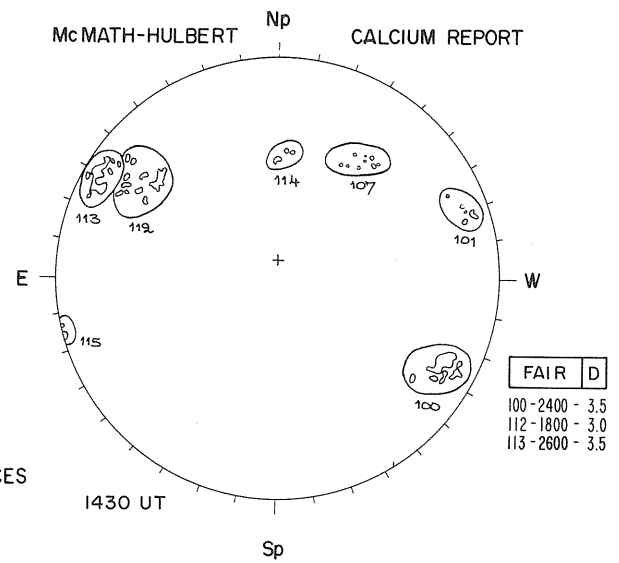
SACRAMENTO PEAK



BOULDER SUNSPOTS



McMATH-HULBERT CALCIUM REPORT



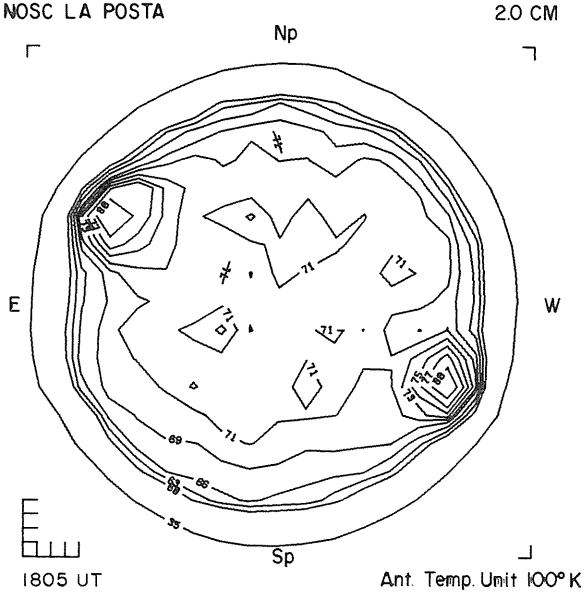
FAIR	D

100 - 2400 - 3.5
112 - 1800 - 3.0
113 - 2600 - 3.5

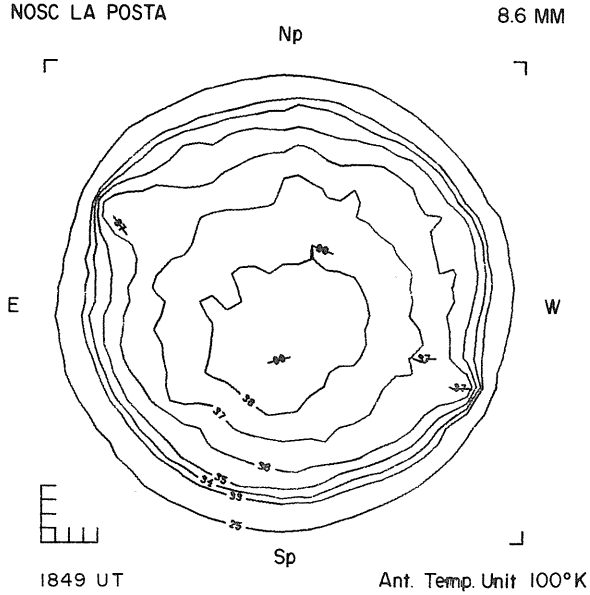
PROMINENCES

1647 UT

NOSC LA POSTA 2.0 CM

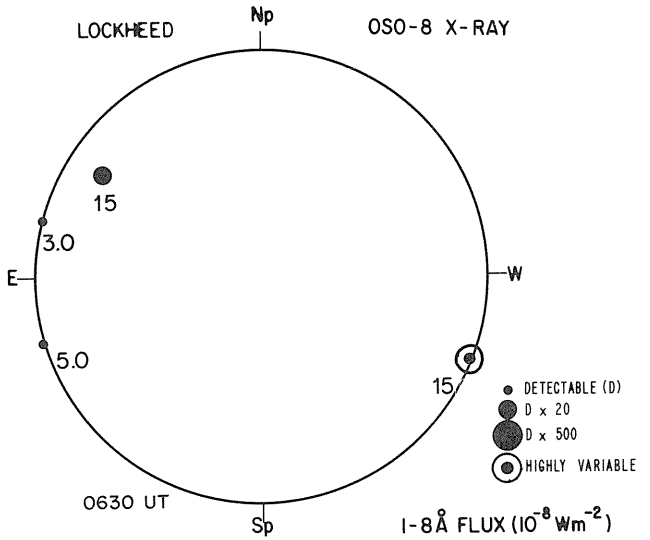


NOSC LA POSTA 8.6 MM



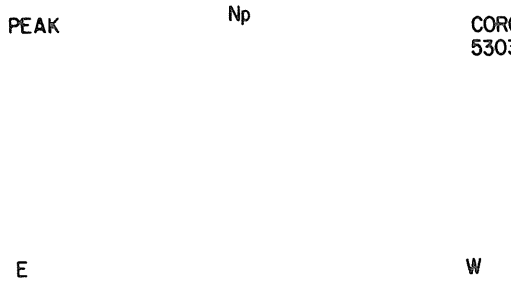
JANUARY 23, 1978 (P =-8.21, B_o =-5.31, L_o =290.62)

LOCKHEED OSO-8 X-RAY



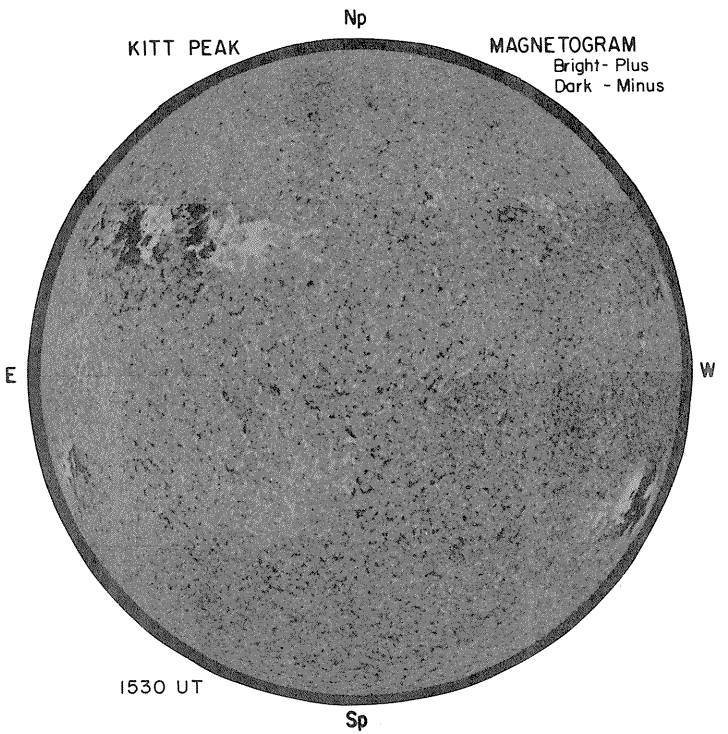
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK



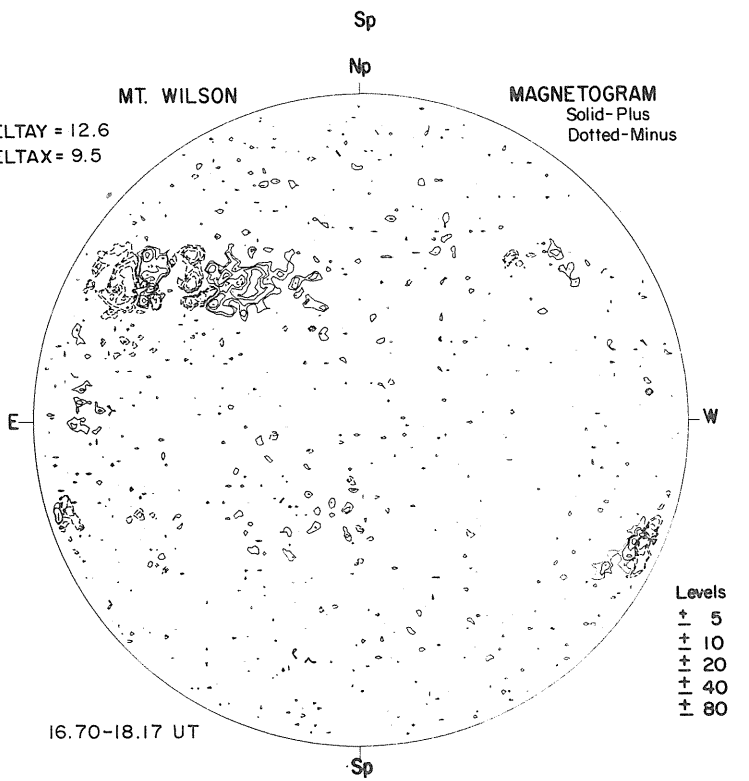
CORONA (1.15 $R_\odot$)
5303 Å

KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



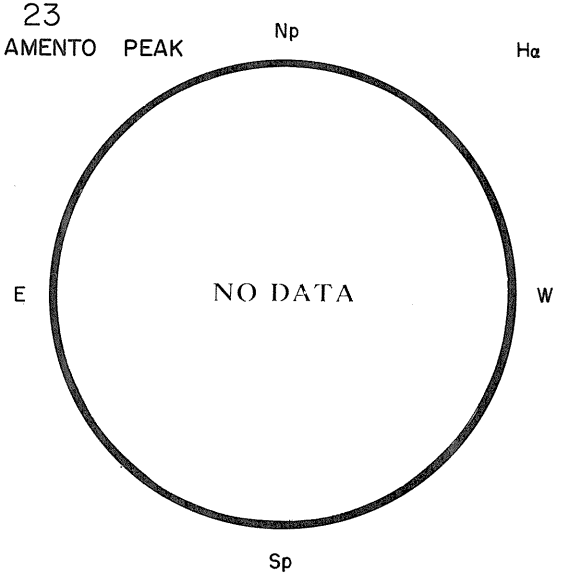
MT. WILSON MAGNETOGRAM
Solid- Plus
Dotted-Minus

DELTAY = 12.6
DELTAX= 9.5

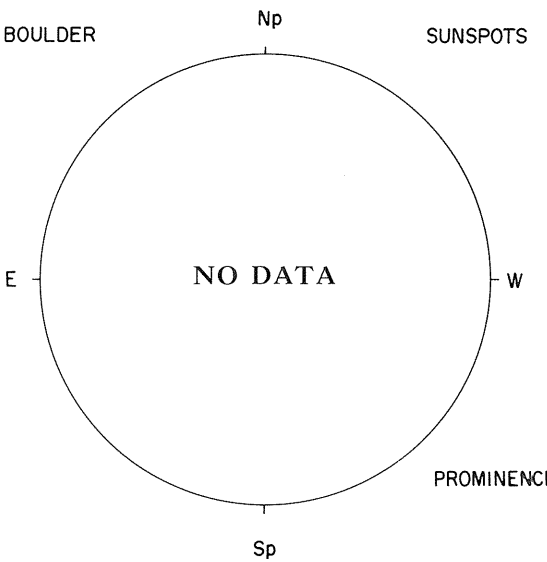


23

SACRAMENTO PEAK



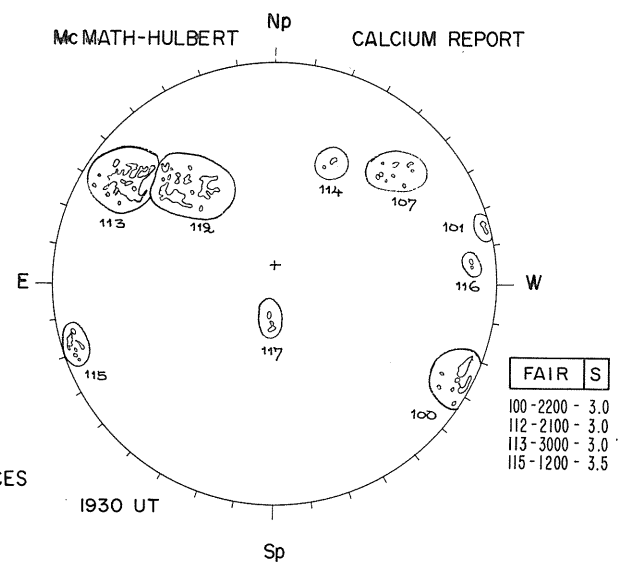
BOULDER



SUNSPOTS

McMATH-HULBERT

CALCIUM REPORT



FAIR | S

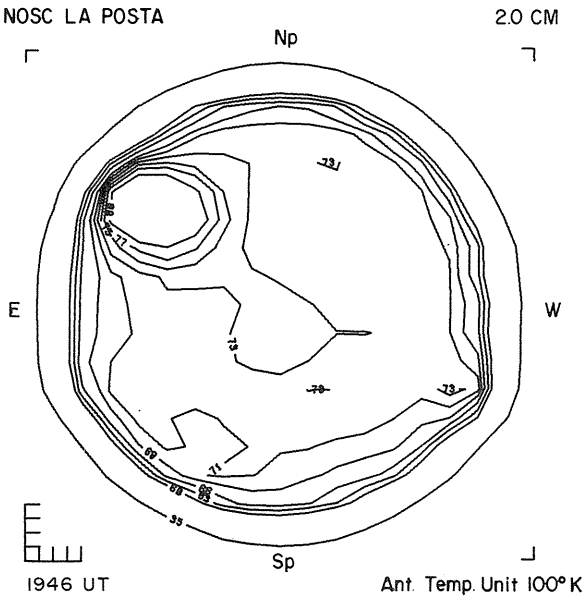
100 - 2200 - 3.0
112 - 2100 - 3.0
113 - 3000 - 3.0
115 - 1200 - 3.5

PROMINENCES

1930 UT

NOSC LA POSTA

2.0 CM

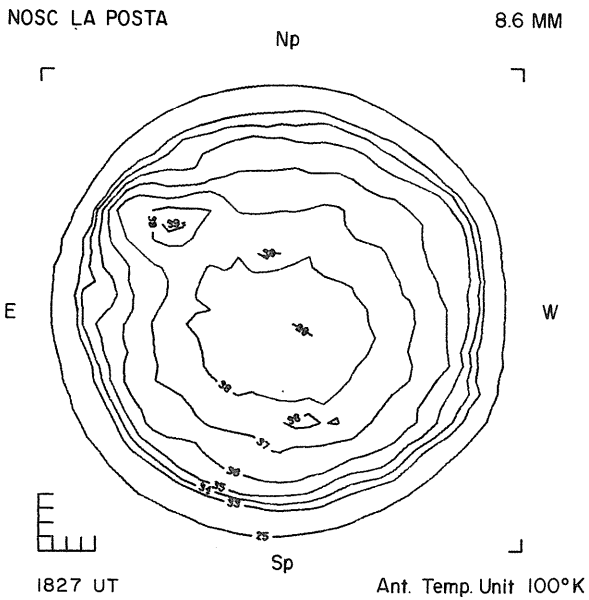


1946 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA

8.6 MM

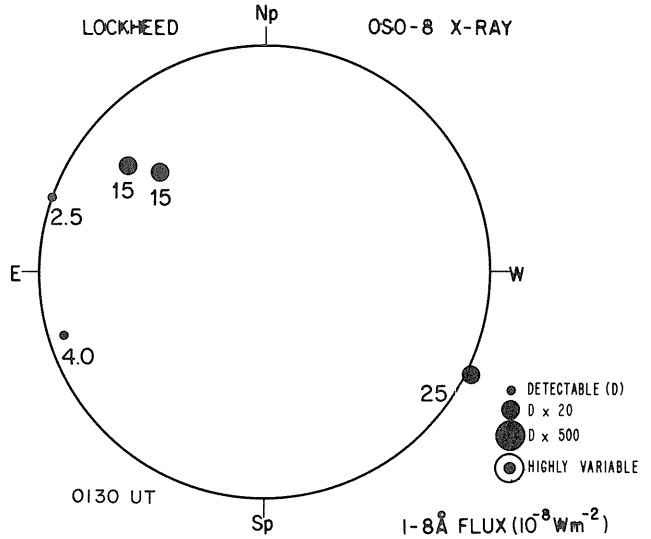


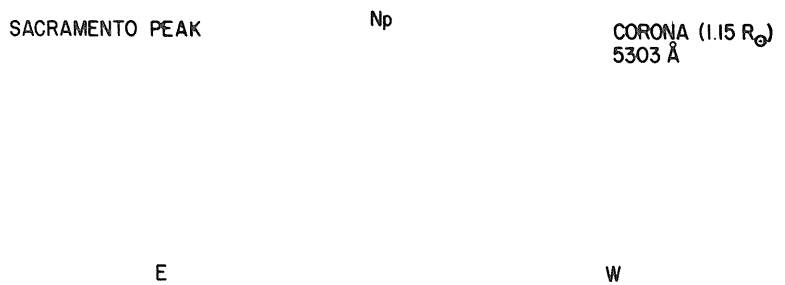
1827 UT

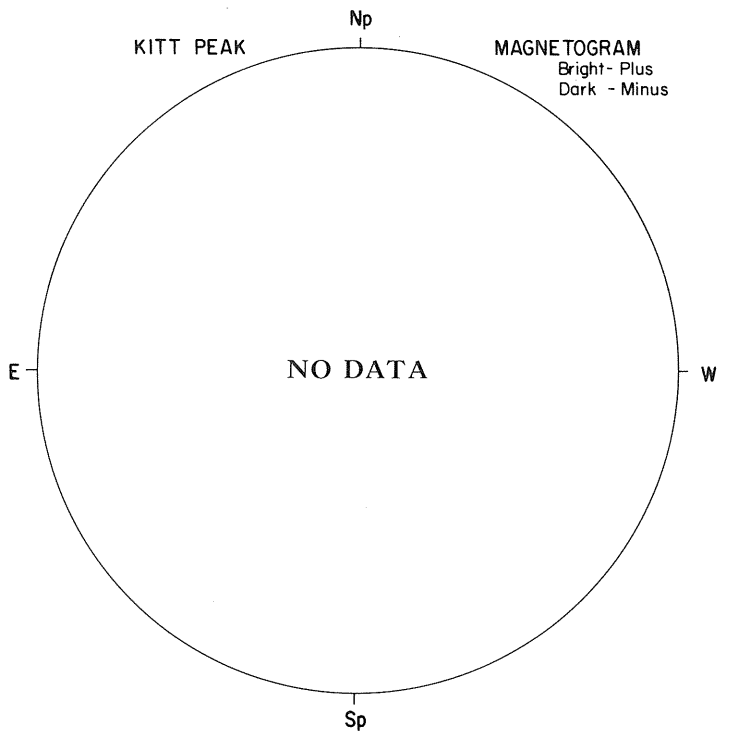
Ant. Temp. Unit 100°K

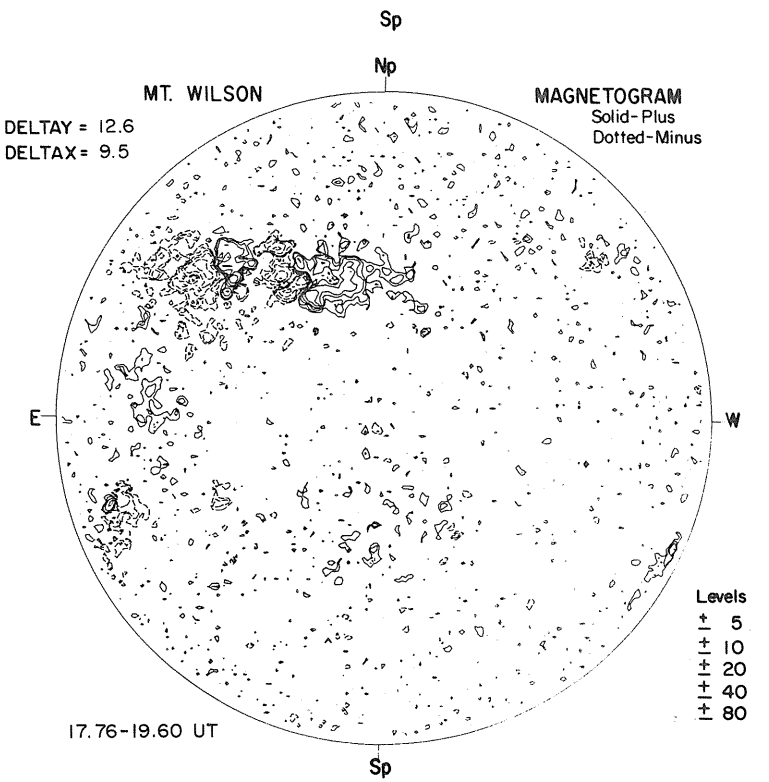
91
Jan 78

JANUARY 24, 1978 (P =-8.66, B_o =-5.40, L_o =277.45)

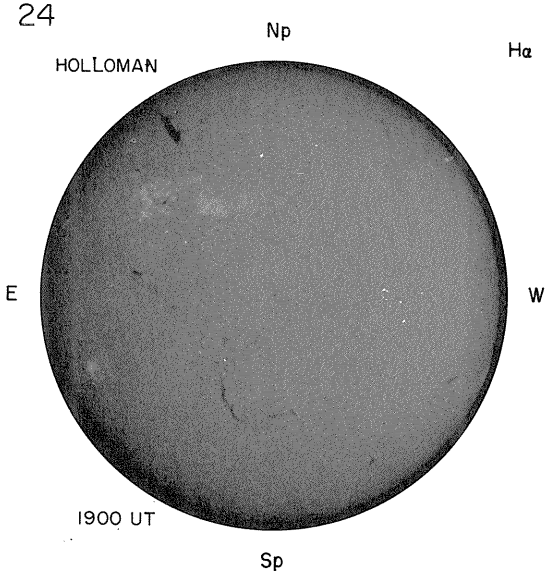


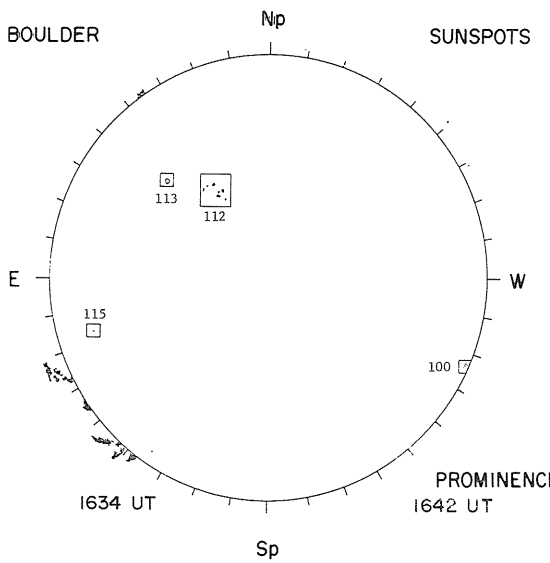


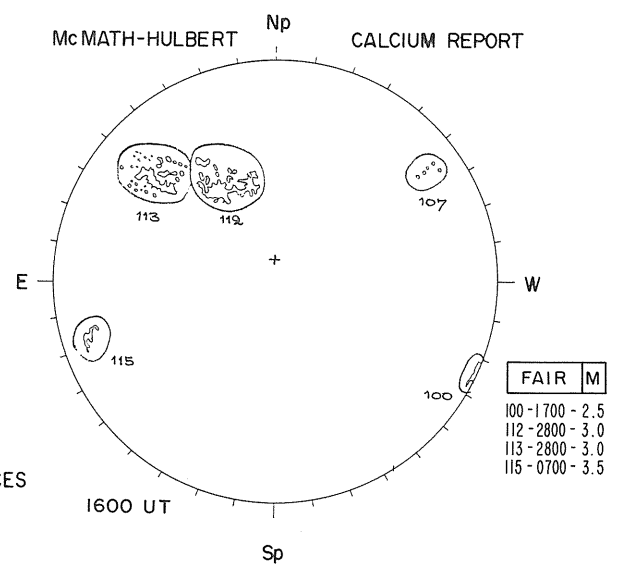


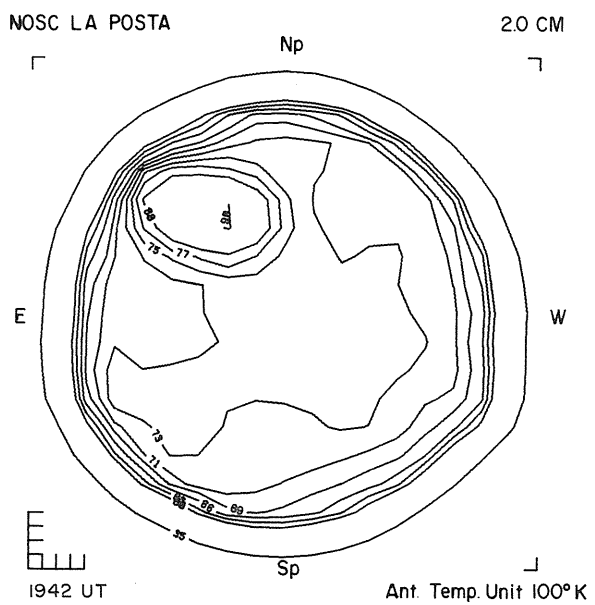


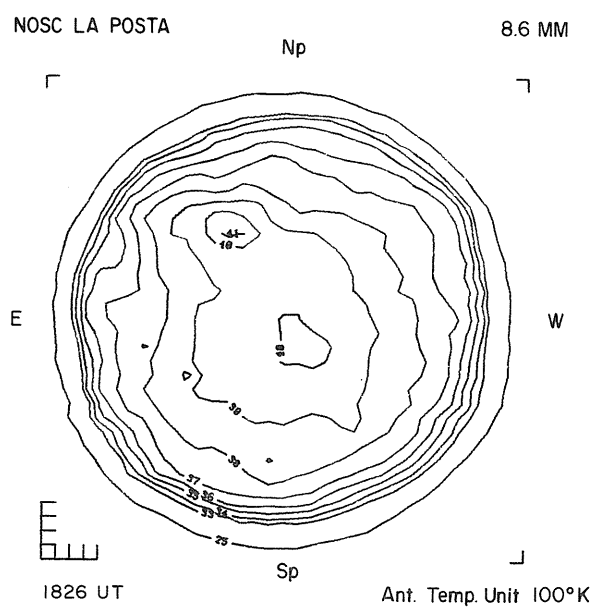
24


Np
HOLLOMAN
Hα
E
W
1900 UT
Sp


Np
BOULDER
SUNSPOTS
113
112
115
100
E
W
1634 UT
Sp
PROMINENCES
1642 UT

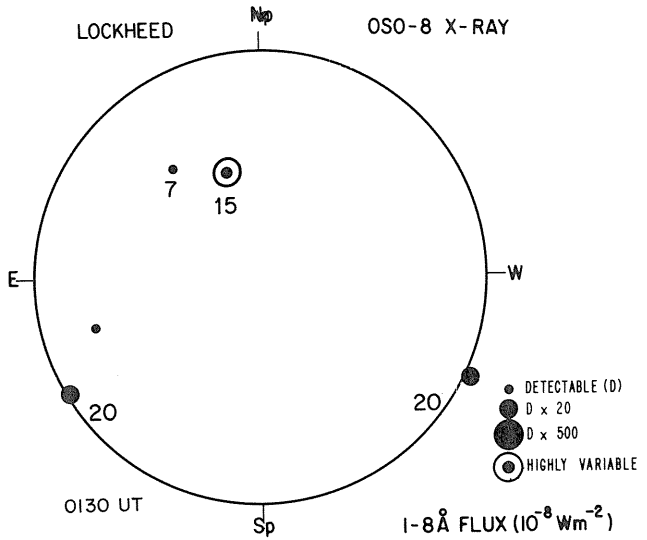

Np
McMATH-HULBERT
CALCIUM REPORT
113
112
107
115
100
E
W
1600 UT
Sp
FAIR M
100 - 1700 - 2.5
112 - 2800 - 3.0
113 - 2800 - 3.0
115 - 0700 - 3.5


NOSC LA POSTA
2.0 CM
Np
E
W
Sp
1942 UT
Ant. Temp. Unit 100°K


NOSC LA POSTA
8.6 MM
Np
E
W
Sp
1826 UT
Ant. Temp. Unit 100°K

JANUARY 25, 1978 (P =-9.10, B_o =-5.48, L_o =264.29)

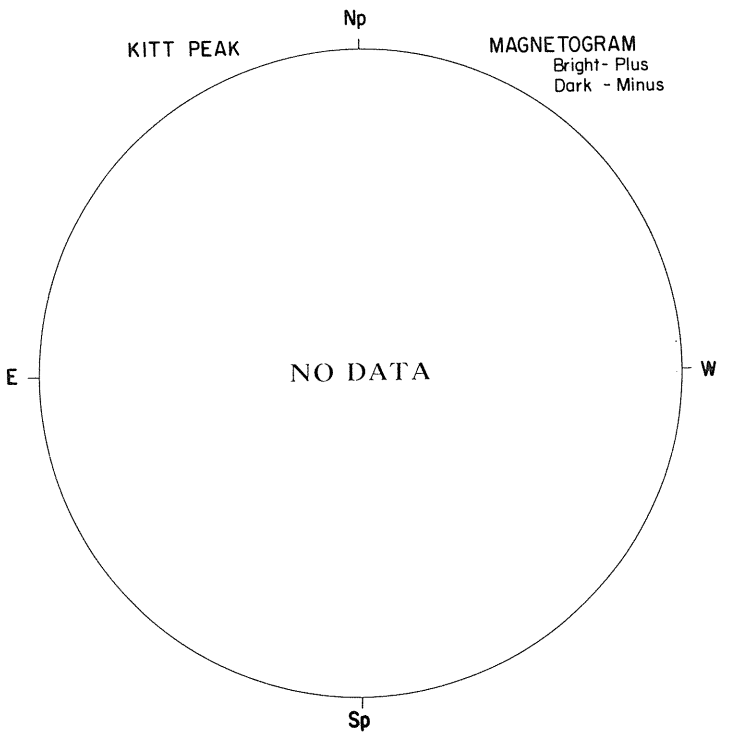
LOCKHEED OSO-8 X-RAY



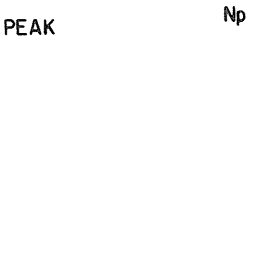
0130 UT

1-8Å FLUX (10^{-8} Wm^{-2})

KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



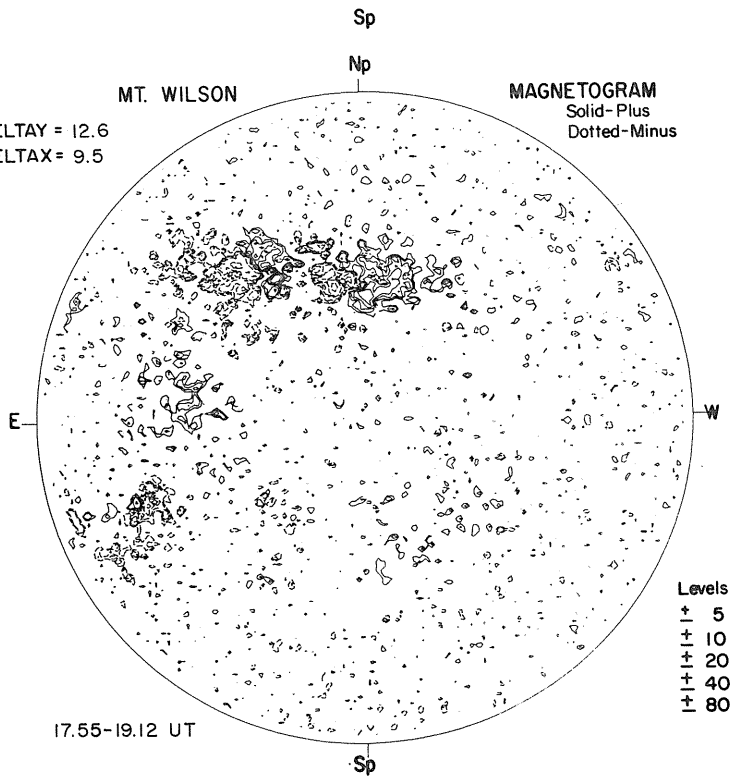
SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

MT. WILSON MAGNETOGRAM
Solid- Plus
Dotted-Minus

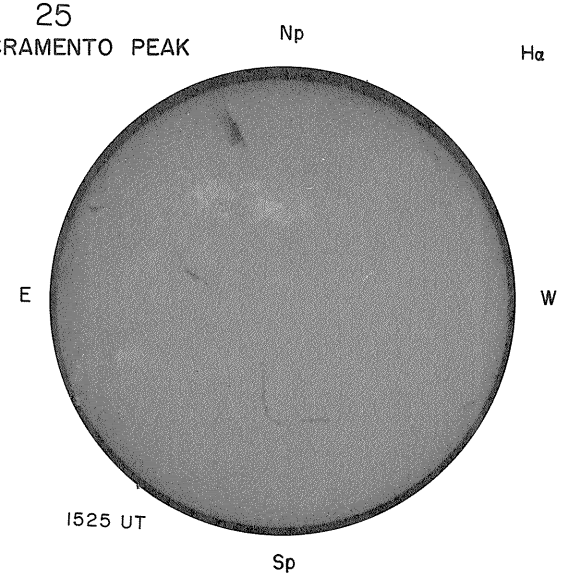
DELTAY = 12.6
DELTAX= 9.5



17.55-19.12 UT

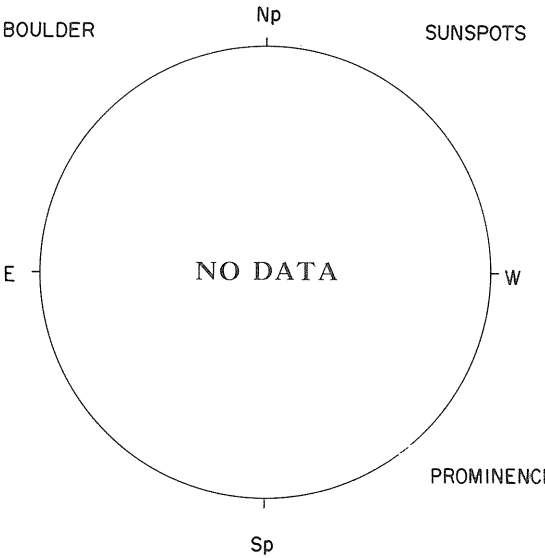
25

SACRAMENTO PEAK



Hα

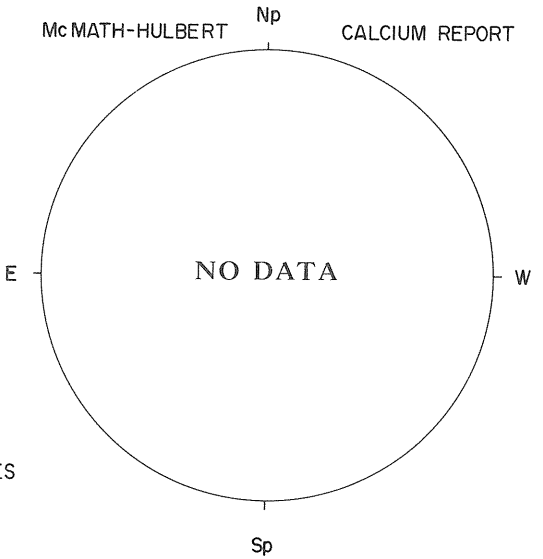
BOULDER



SUNSPOTS

PROMINENCES

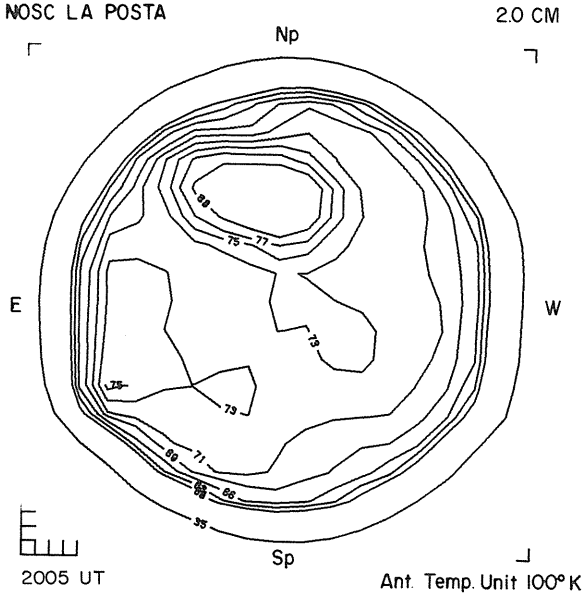
McMATH-HULBERT



CALCIUM REPORT

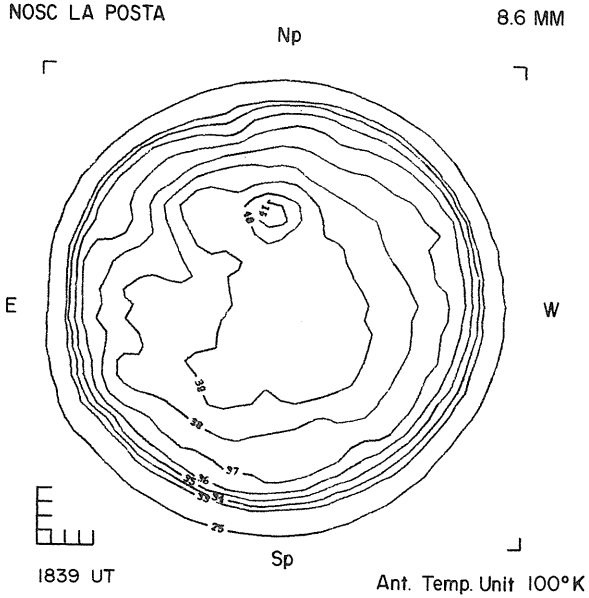
NOSC LA POSTA

2.0 CM



NOSC LA POSTA

8.6 MM

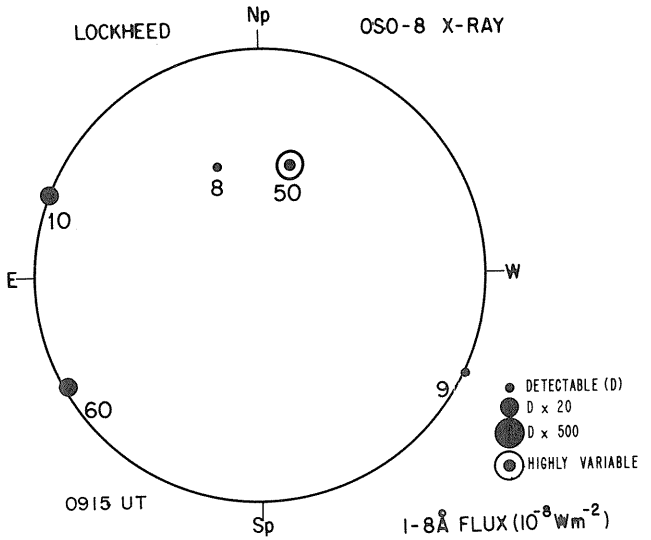


95

Jan 78

JANUARY 26, 1978 (P =-9.54, B_o =-5.57, L_o =251.12)

LOCKHEED OSO-8 X-RAY

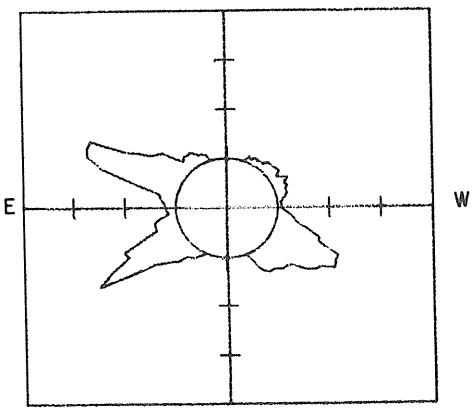


0915 UT

1-8Å FLUX (10^{-8} Wm^{-2})

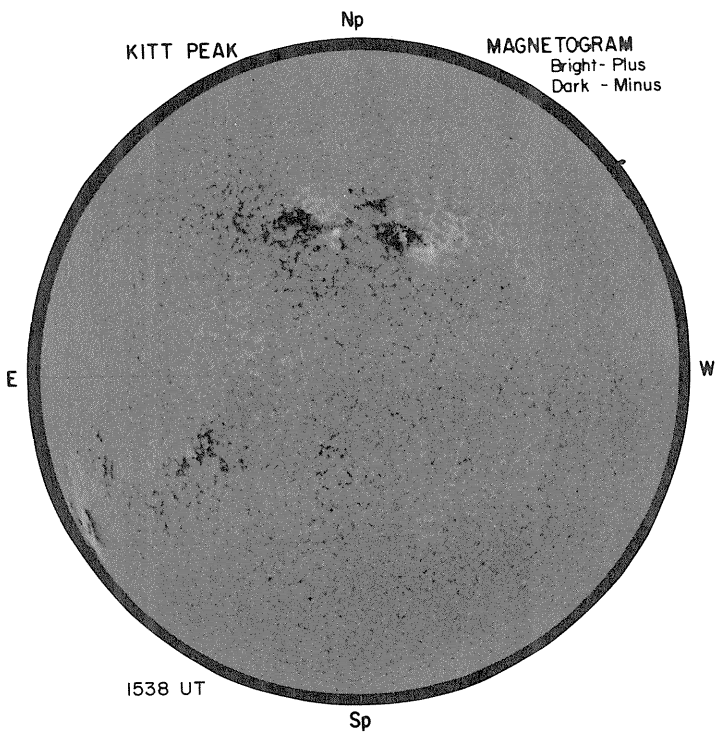
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



1551 UT

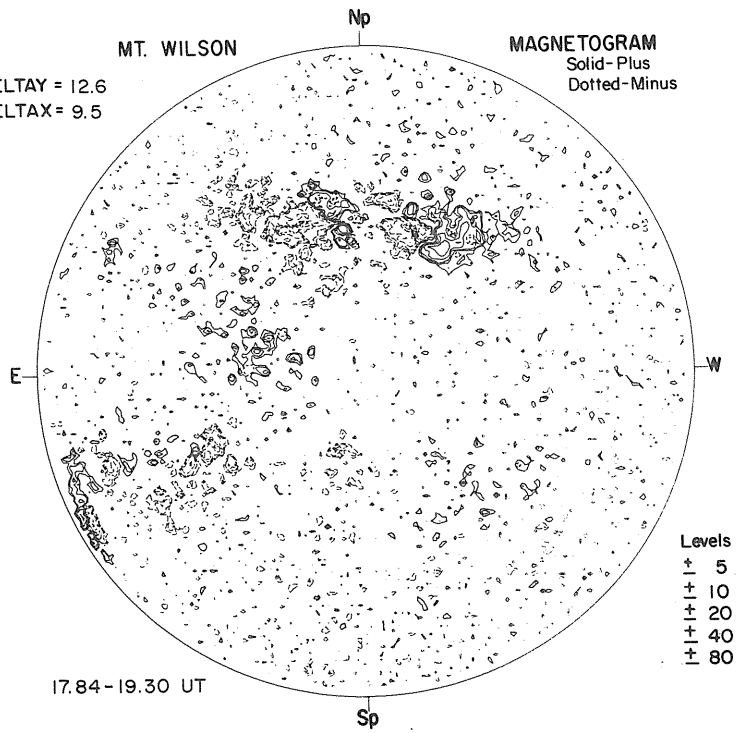
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1538 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

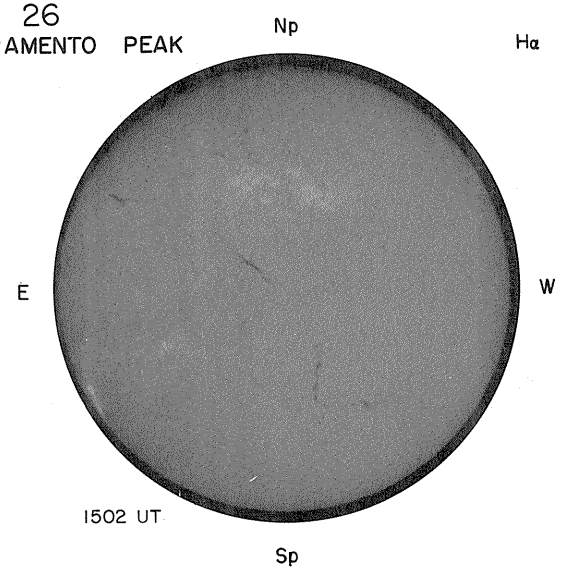
DELTAY = 12.6
DELTAX = 9.5



17.84 - 19.30 UT

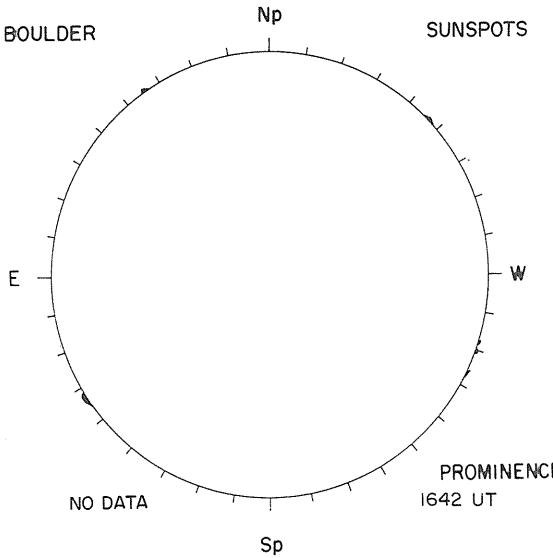
26

SACRAMENTO PEAK



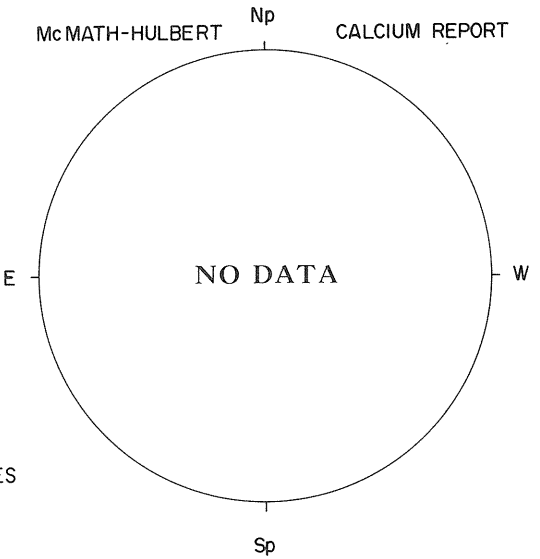
Hα

BOULDER



SUNSPOTS

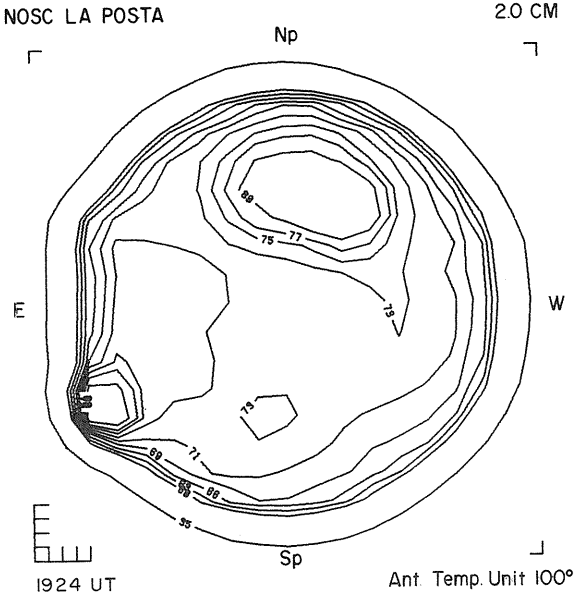
McMATH-HULBERT



CALCIUM REPORT

NOSC LA POSTA

2.0 CM

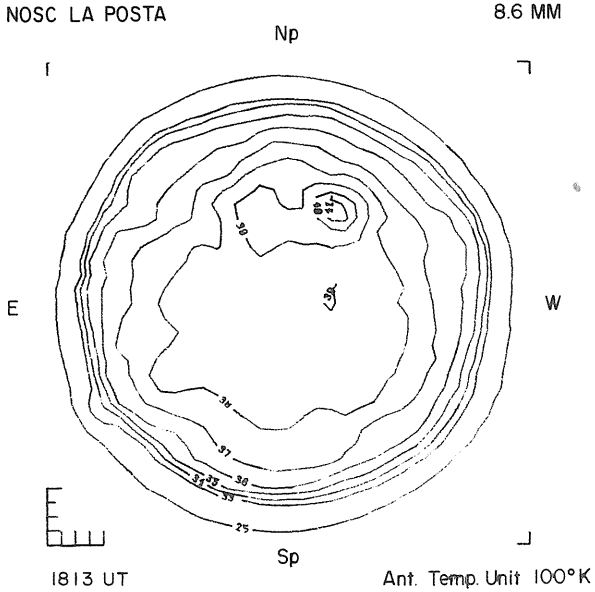


1924 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA

8.6 MM



1813 UT

Ant. Temp. Unit 100° K

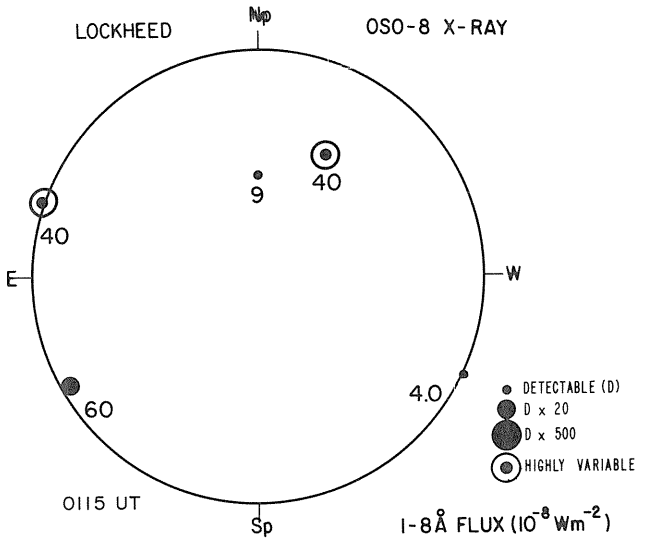
97

Jan 78

JANUARY 27, 1978 (P =-9.97, B_o =-5.65, L_o =237.95)

LOCKHEED

OSO-8 X-RAY



0115 UT

1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

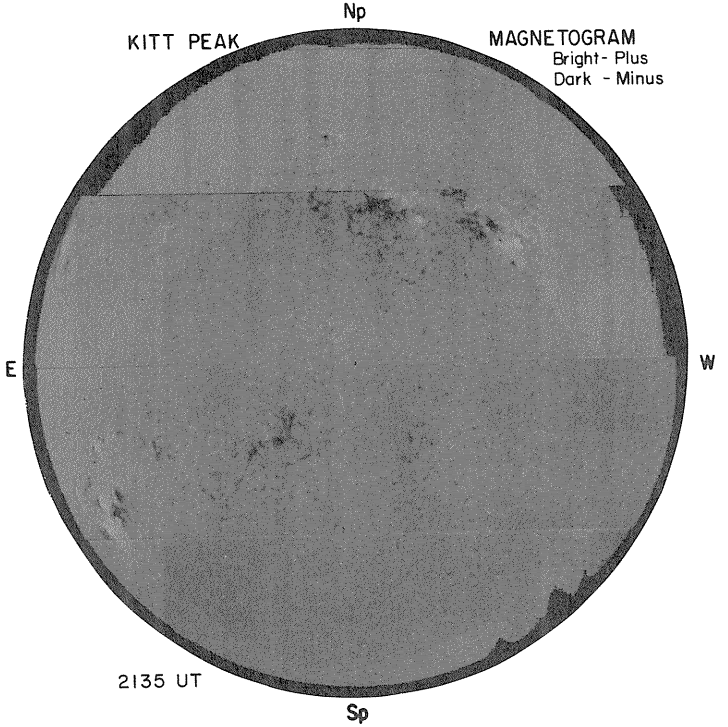
E NO DATA JANUARY 27-31 W

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright- Plus
Dark - Minus



2135 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

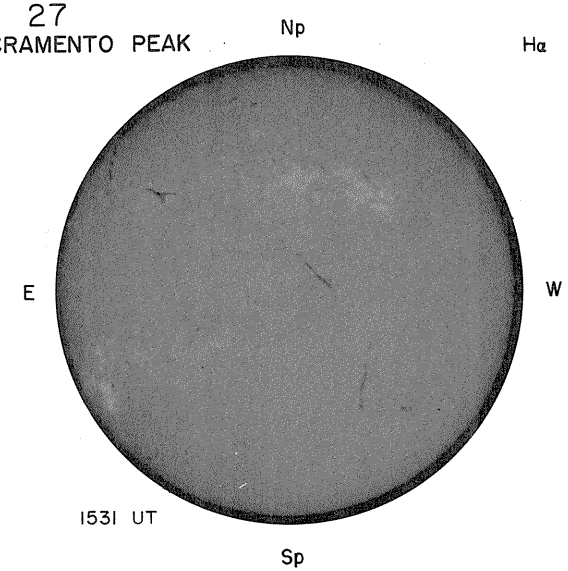
E NO DATA JANUARY 27-31 W

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

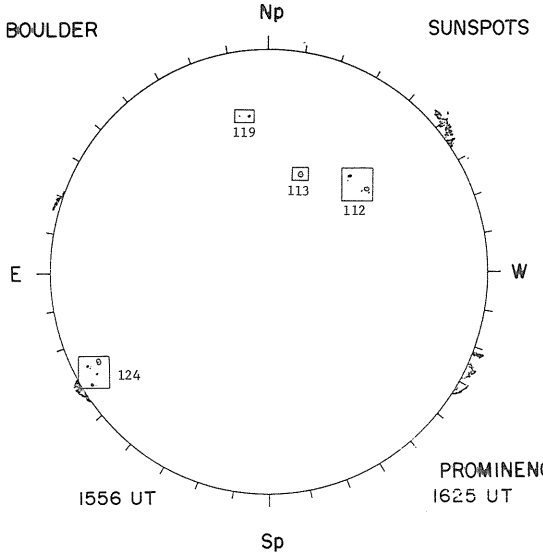
Sp

27

SACRAMENTO PEAK



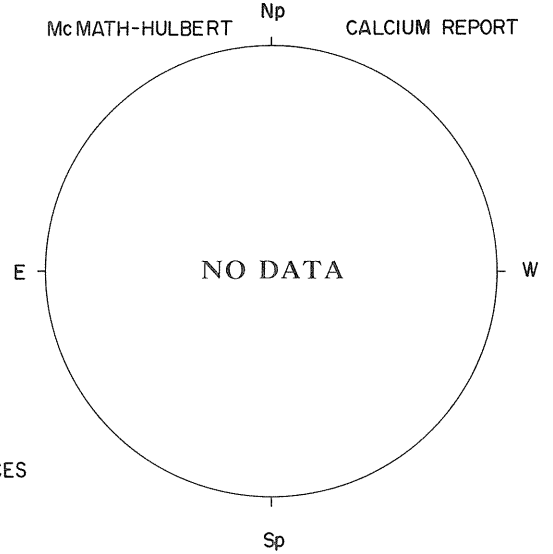
BOULDER SUNSPOTS



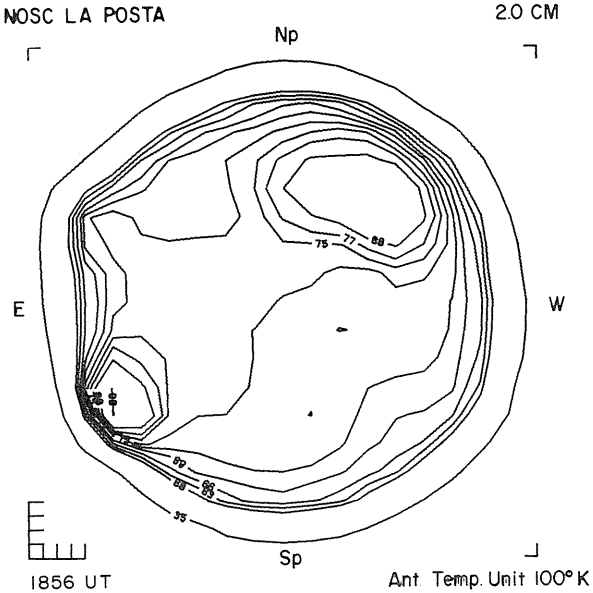
PROMINENCES

1625 UT

McMATH-HULBERT CALCIUM REPORT

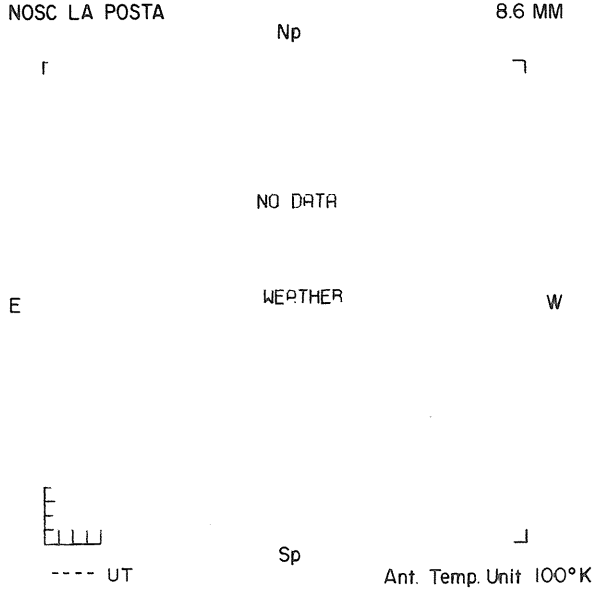


NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM



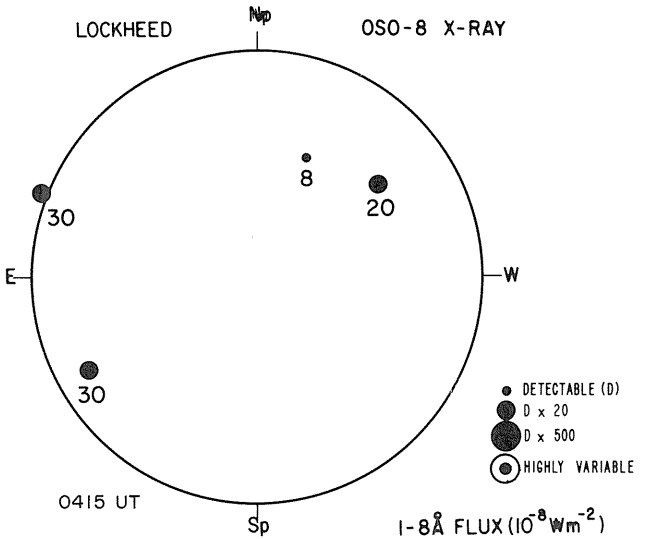
Ant. Temp. Unit 100° K

99

Jan 78

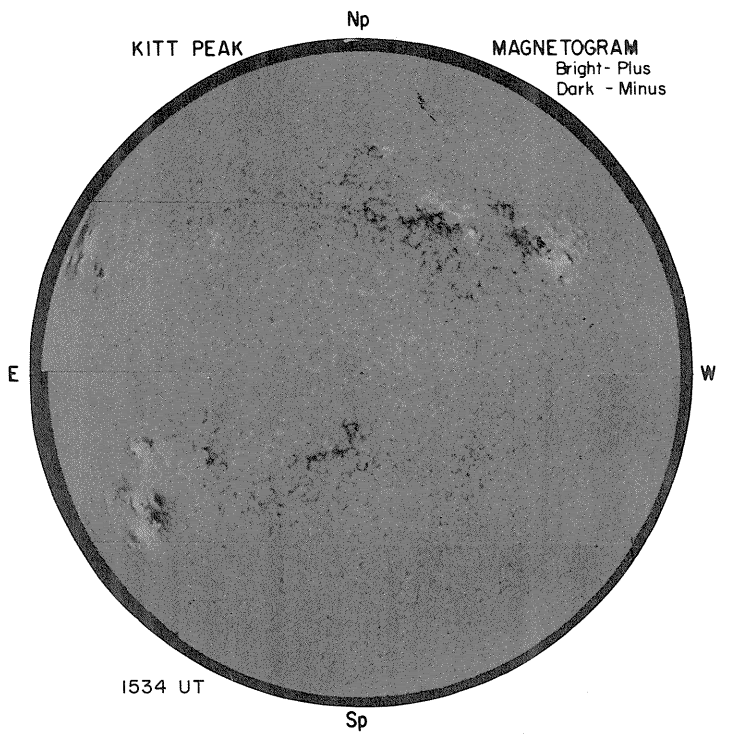
JANUARY 28, 1978 (P =-10.40, B_o =-5.73, L_o =224.79)

LOCKHEED

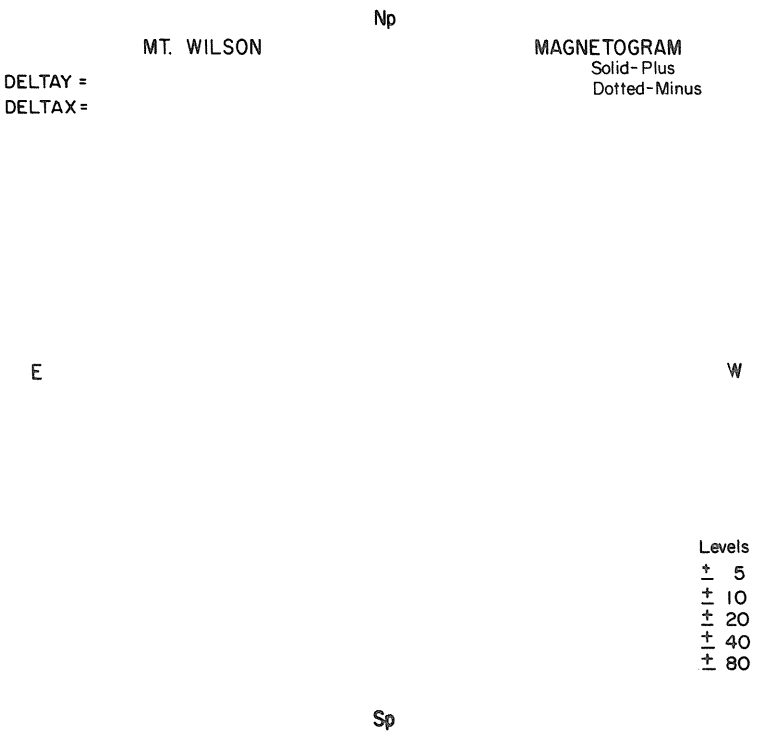


SACRAMENTO PEAK

KITT PEAK

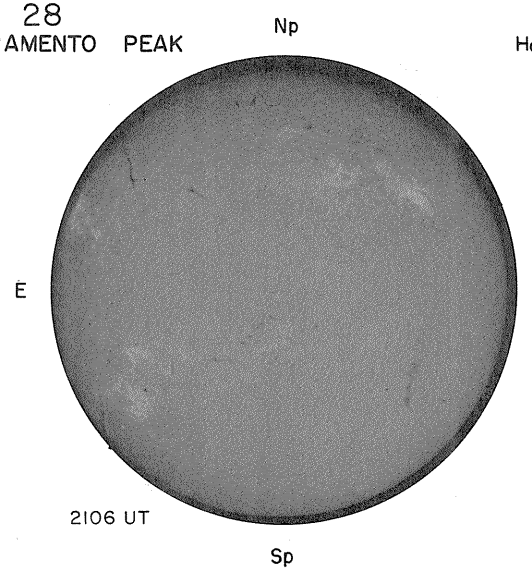


MT. WILSON

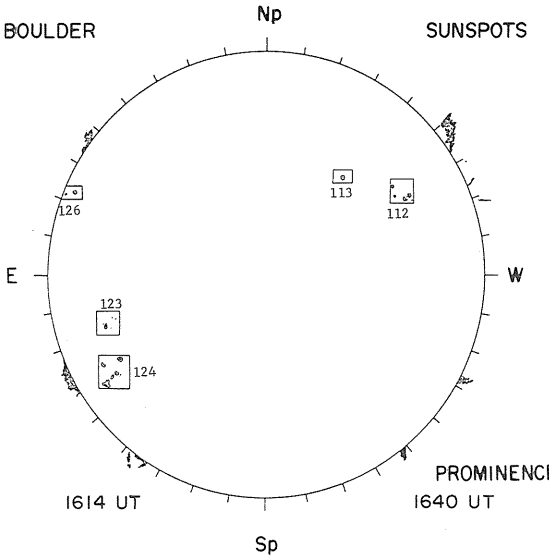


28

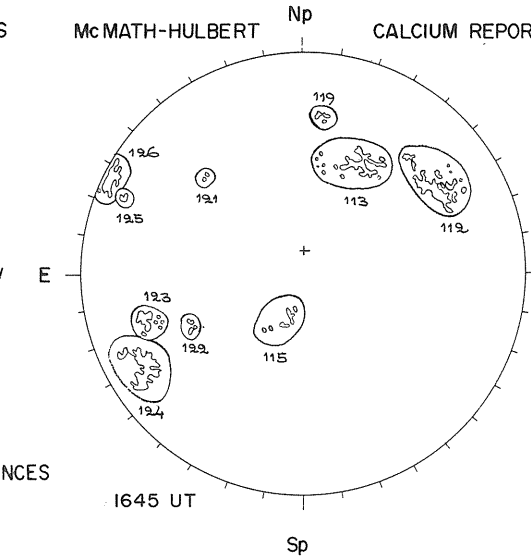
SACRAMENTO PEAK



BOULDER



SUNSPOTS



PROMINENCES

McMATH-HULBERT

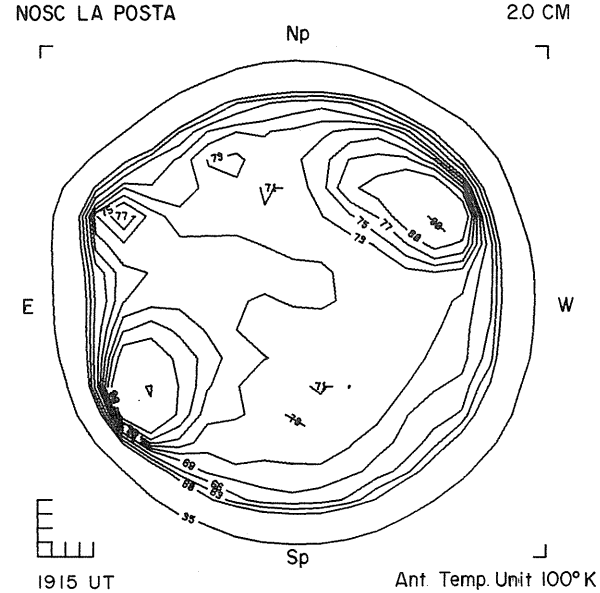
CALCIUM REPORT

FAIR	M

112 - 3300 - 2.5
113 - 2400 - 2.5
123 - 0900 - 3.5
124 - 4300 - 3.5
125 - 0400 - 3.5
126 - 3000 - 3.5

NOSC LA POSTA

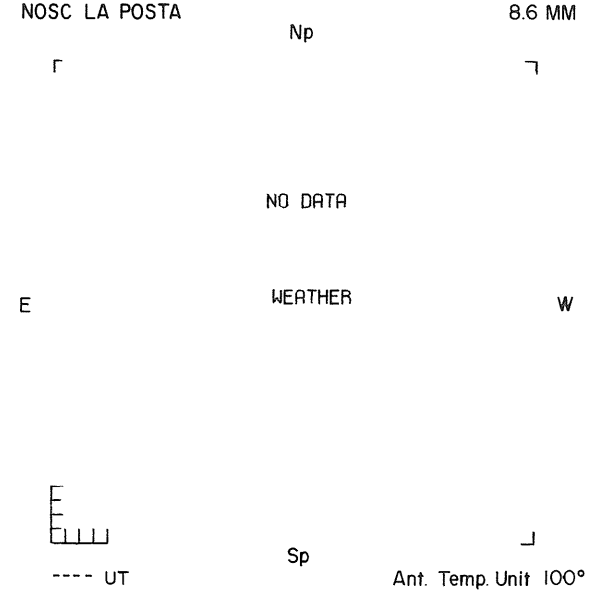
2.0 CM



Ant. Temp. Unit 100° K

NOSC LA POSTA

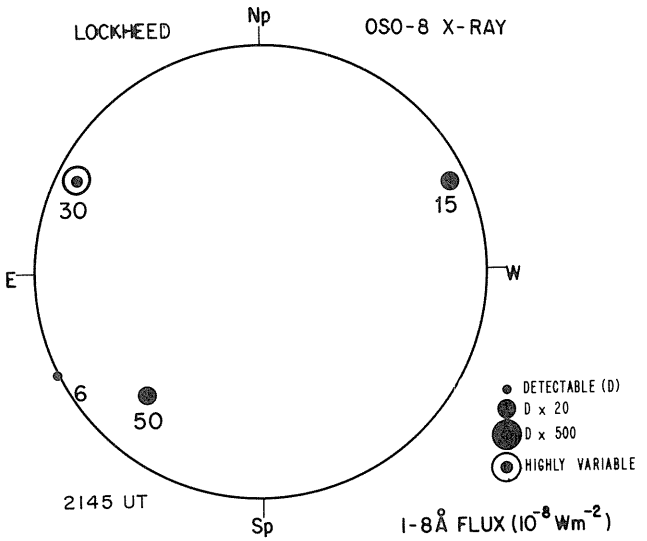
8.6 MM



Ant. Temp. Unit 100° K

JANUARY 29, 1978 (P =-10.82, B_o =-5.80, L_o =211.62)

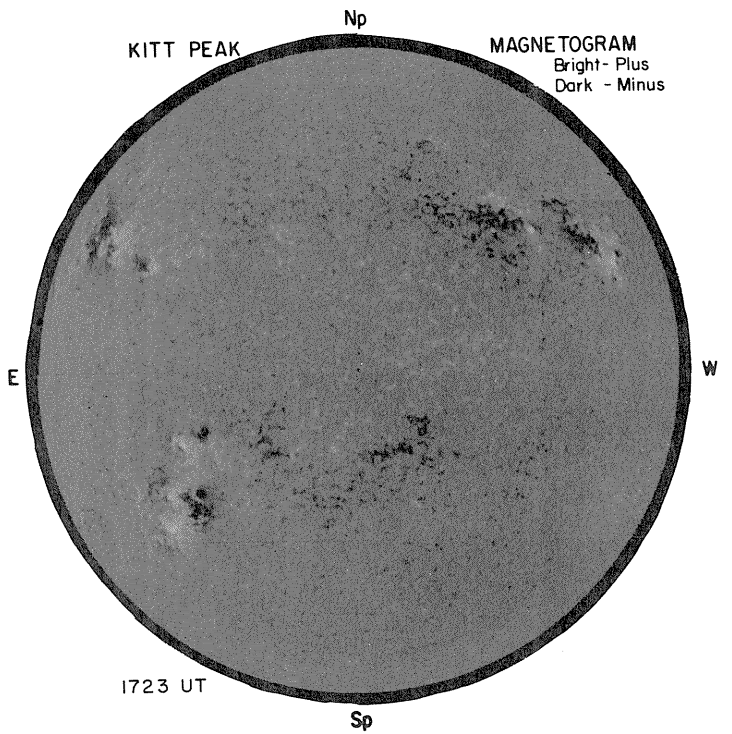
LOCKHEED



OSO-8 X-RAY

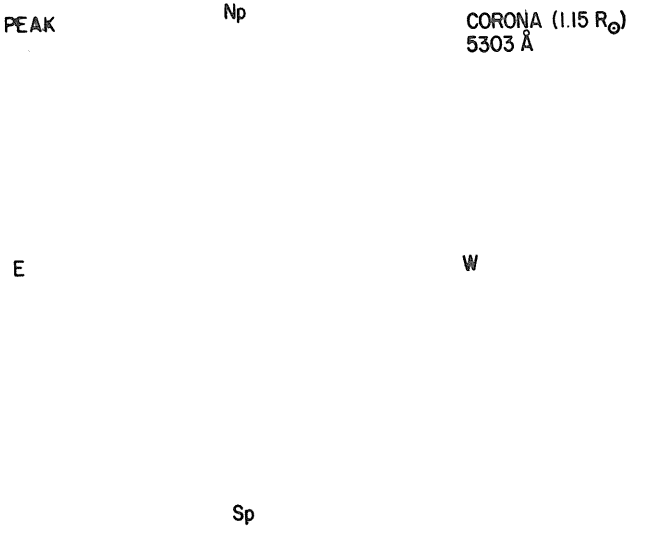
1-8Å FLUX (10^{-8} Wm^{-2})

KITT PEAK



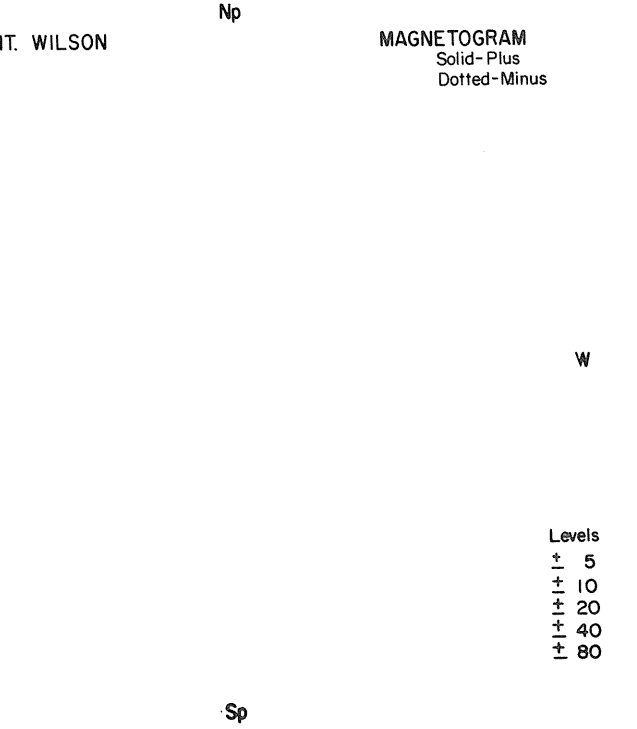
MAGNETOGRAM
Bright- Plus
Dark - Minus

SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

MT. WILSON



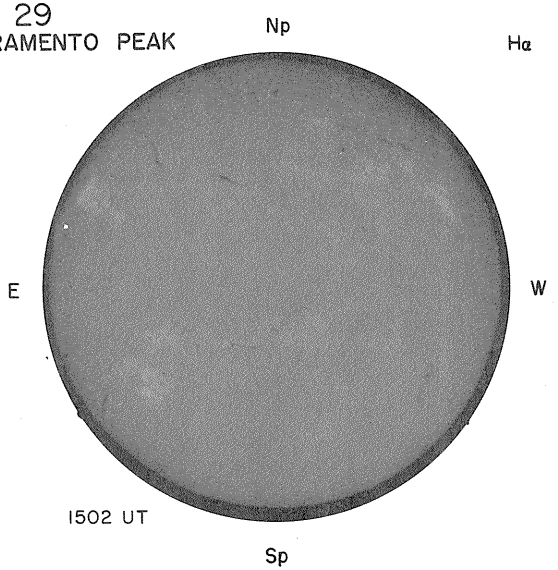
DELTAY =
DELTAX =

MAGNETOGRAM
Solid- Plus
Dotted- Minus

Levels
± 5
± 10
± 20
± 40
± 80

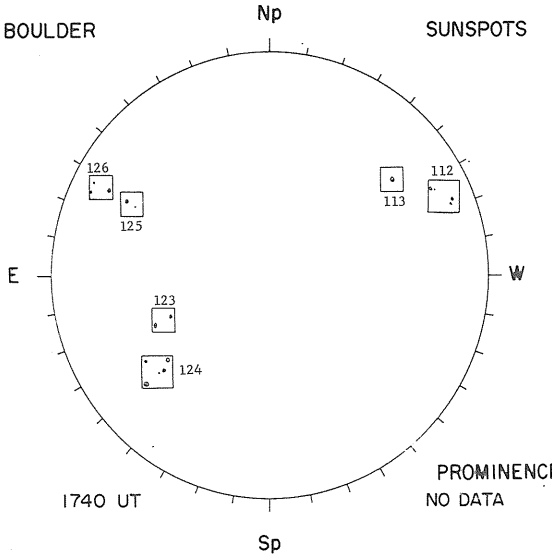
29

SACRAMENTO PEAK



1502 UT

BOULDER SUNSPOTS

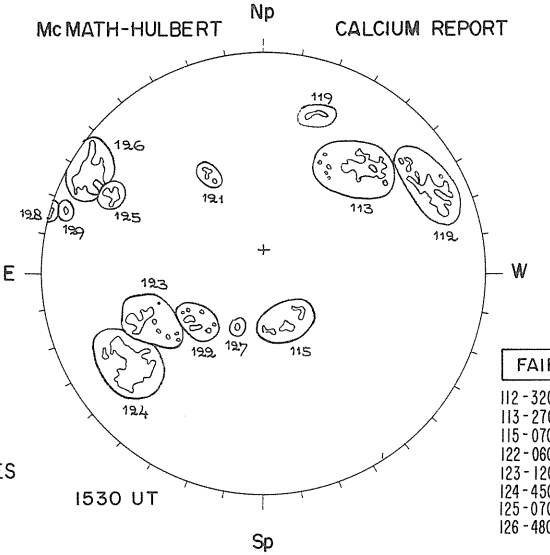


1740 UT

PROMINENCES

NO DATA

McMATH-HULBERT CALCIUM REPORT

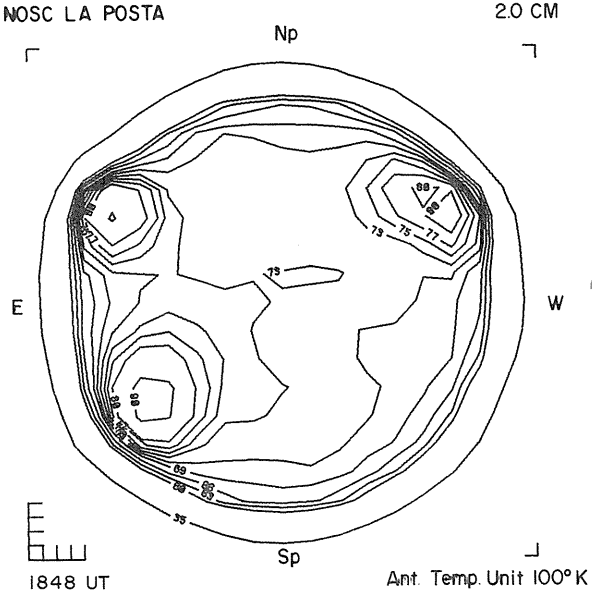


FAIR	S

112 - 3200 - 3.0
113 - 2700 - 2.5
115 - 0700 - 2.5
122 - 0600 - 2.5
123 - 1200 - 3.0
124 - 4500 - 3.5
125 - 0700 - 3.5
126 - 4800 - 3.5

1530 UT

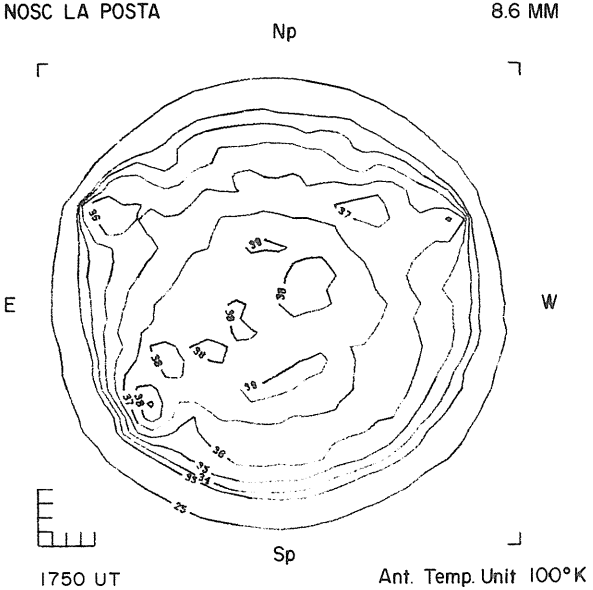
NOSC LA POSTA 2.0 CM



1848 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

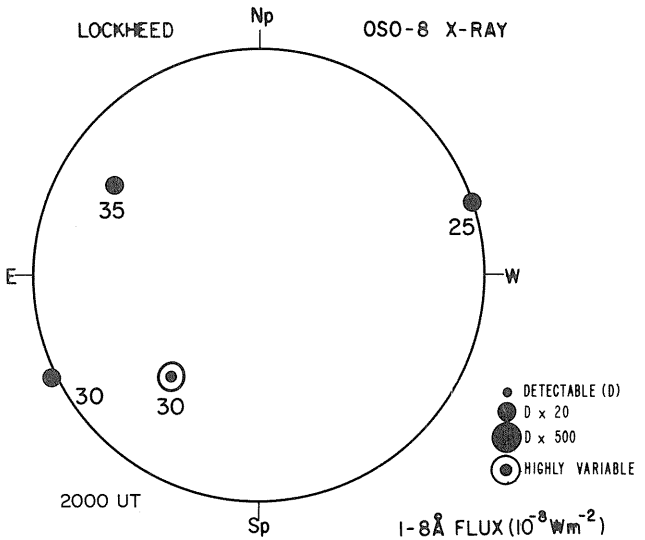


1750 UT

Ant. Temp. Unit 100° K

JANUARY 30, 1978 (P =-11.24, B_0 =-5.88, L_0 =198.45)

LOCKHEED OSO-8 X-RAY



1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

Np

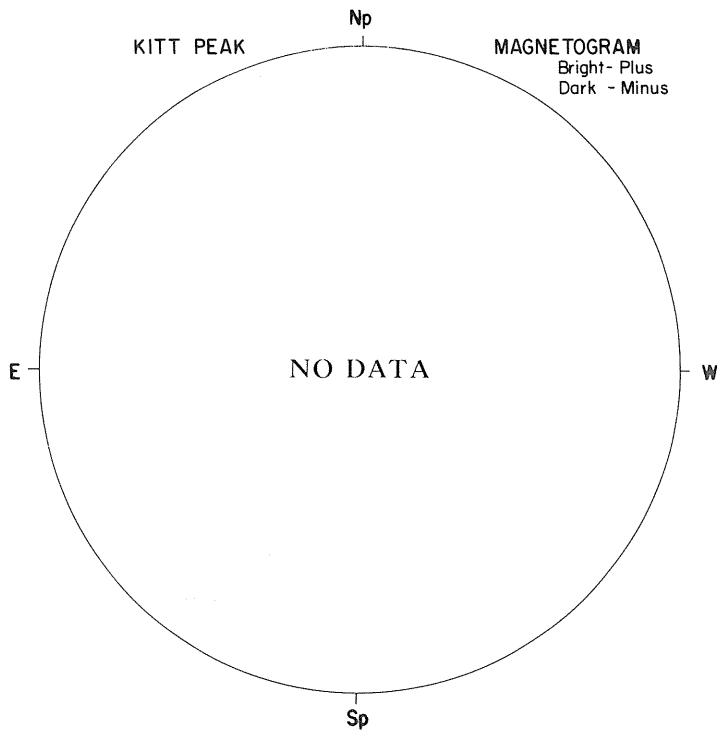
E

W

Sp

CORONA (1.15 $R_\odot$)
5303 Å

KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



Np

MT. WILSON

DELTAY =
DELTAX =

E

Sp

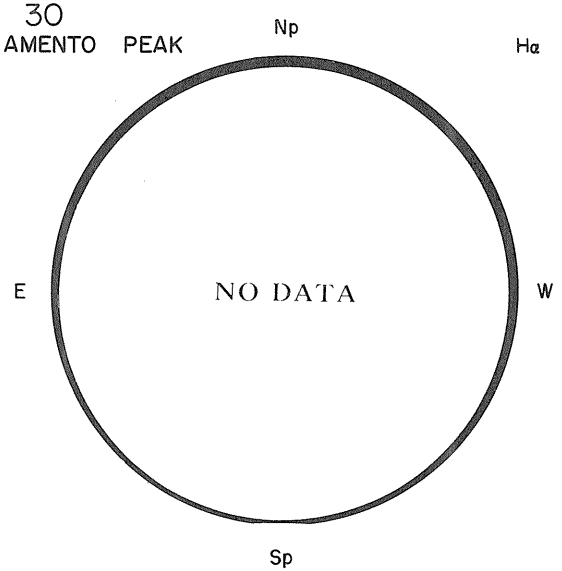
MAGNETOGRAM
Solid-Plus
Dotted-Minus

W

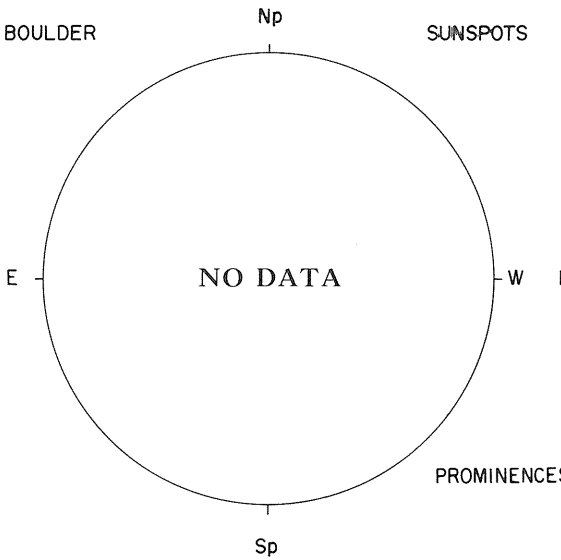
Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± 80

30

SACRAMENTO PEAK

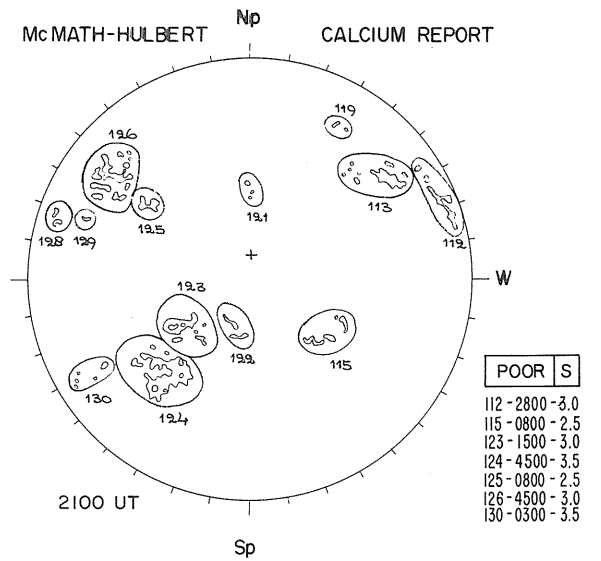


BOULDER



SUNSPOTS

McMATH-HULBERT



CALCIUM REPORT

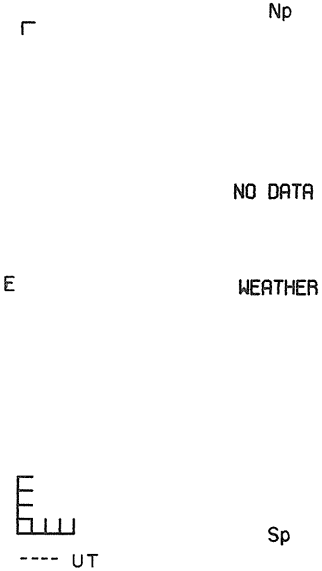
POOR	S

112 - 2800 - 3.0
115 - 0800 - 2.5
123 - 1500 - 3.0
124 - 4500 - 3.5
125 - 0800 - 2.5
126 - 4500 - 3.0
130 - 0300 - 3.5

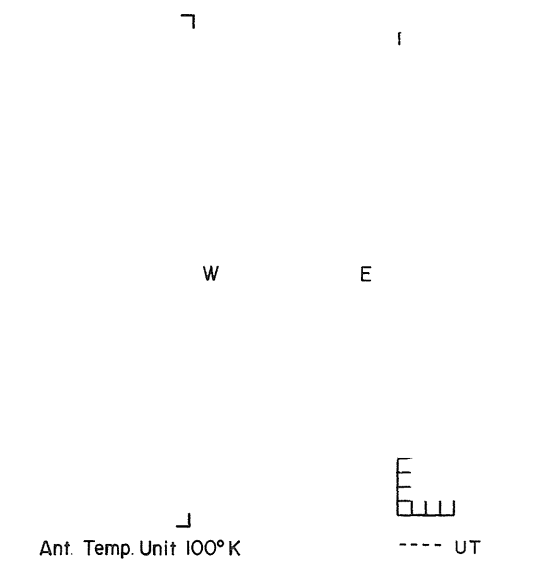
PROMINENCES

2100 UT

NOSC LA POSTA

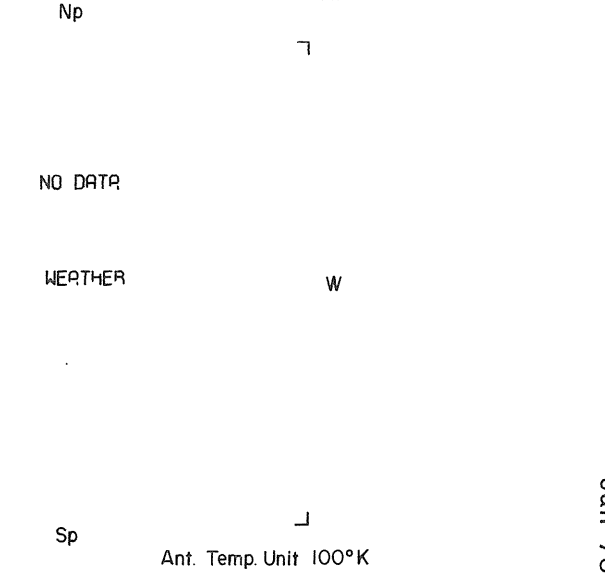


2.0 CM



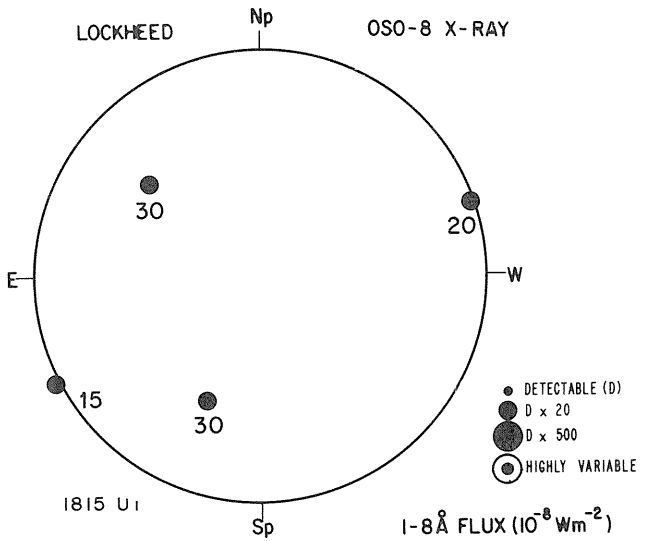
NOSC LA POSTA

8.6 MM



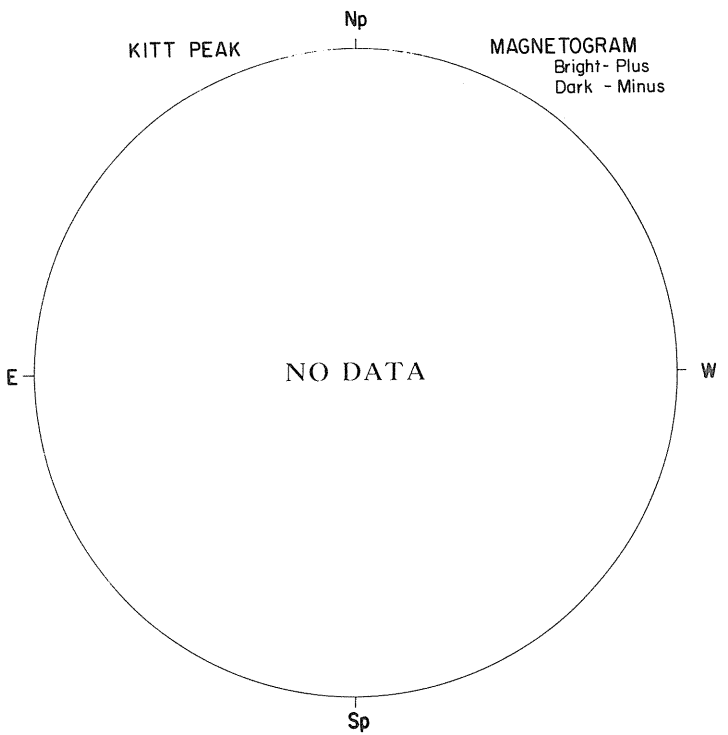
JANUARY 31, 1978 (P =-11.66, B_o =-5.96, L_o =185.29)

LOCKHEED OSO-8 X-RAY



1-8Å FLUX (10^{-8} Wm^{-2})

KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



SACRAMENTO PEAK

MT. WILSON

DELTAY =
DELTAX =

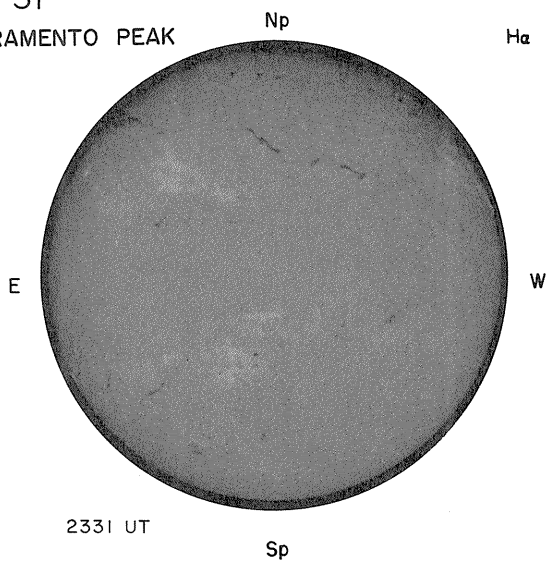
CORONA (1.15 $R_\odot$)
5303 Å

MAGNETOGRAM
Solid- Plus
Dotted-Minus

Levels
± 5
± 10
± 20
± 40
± 80

31

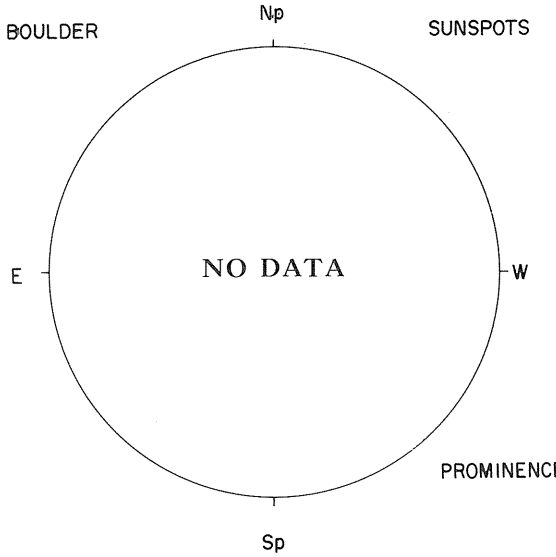
SACRAMENTO PEAK



Hα

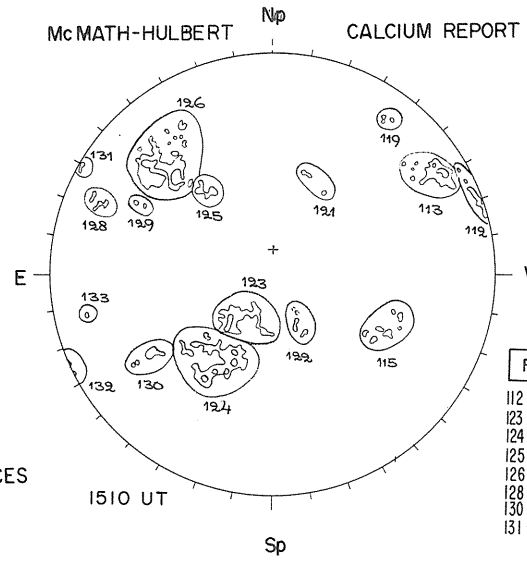
2331 UT

BOULDER SUNSPOTS



PROMINENCES

McMATH-HULBERT CALCIUM REPORT

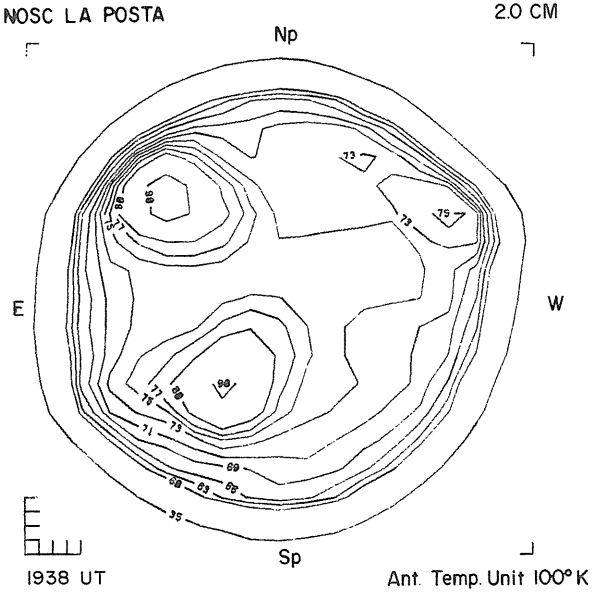


1510 UT

FAIR | S

112 -2600 - 3.0
123 -2000 - 3.5
124 -4500 - 3.5
125 -0800 - 3.0
126 -4900 - 3.5
128 -0500 - 2.5
130 -0600 - 3.0
131 -0500 - 2.5

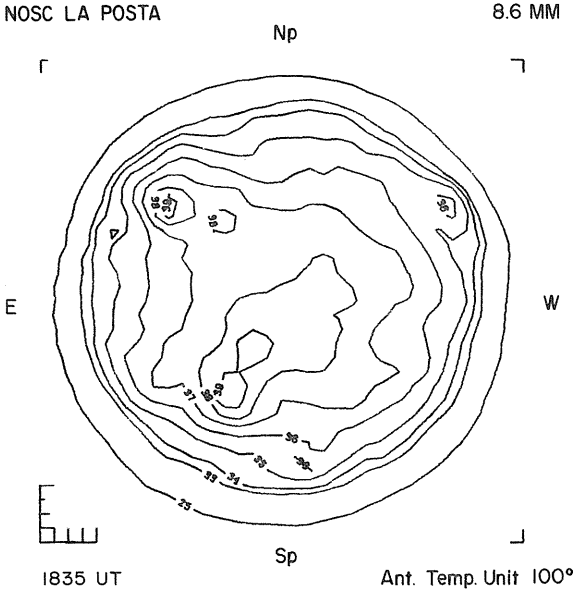
NOSC LA POSTA 2.0 CM



1938 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM



1835 UT

Ant. Temp. Unit 100°K

107
Jan 78

REGIONS OF SOLAR ACTIVITY

JANUARY 1978

MCMATH REGION 15079 CMP DATE 1.1 RETURN OF REGION 15057 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
77	12	25	15079	N20 E86	219	300	1.0									
77	12	26	15079	N20 E74	218	300	2.0									
77	12	27	15079	N21 E61	217	300	2.0		N21 E76				B	40	2	DSO
77	12	28	15079	N21 E47	217	300	2.0									
77	12	31	15079	N21 E06	218	300	2.0									
78	1	2	15079	N21 W23	220	300	1.5									
78	1	3	15079	N21 W36	220	200	1.0									
78	1	4	15079	N20 W49	221	200	1.0									

MCMATH REGION 15081 CMP DATE 2.2 RETURN OF PART OF REGION 15049 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
77	12	26	15081	S16 E85	207	400	2.5		S18 E85				M	170	1	HSX
77	12	27	15081	S16 E75	203	1000	3.5									
77	12	28	15081	S18 E62	202	1500	3.5		S17 E59				B	250	3	DSO
77	12	31	15081	S19 E21	203	2400	3.0		S18 E30				M	190	15	DAI
78	1	2	15081	S19 W06	203	2100	3.0	19923	S18 W12	205	(AP)	4	B	160	3	CSO
78	1	3	15081	S19 W19	203	2200	3.0		S13 W23				B	120	3	CSO
78	1	4	15081	S20 W30	202	1400	3.0		S13 W36				B	20	3	CAO
78	1	5	15081						S18 W50				B	120	11	CAI
78	1	6	15081						S18 W60				B	140	5	CAO
78	1	7	15081					19923	S20 W76	203	(B)	4	B	150	5	CAO
78	1	8	15081					19923	S22 W87	203	D	2	M	220	6	DAO

MCMATH REGION 15095 CMP DATE 3.9

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	1	4	15095	N15 W09	181	200	2.0									
78	1	5	15095						N18 W29				B	20	6	BXO
78	1	6	15095						N18 W37				B	20	3	BXO
78	1	7	15095					19928	N14 W59	186	(AP)	4	B	10	1	AXX
78	1	8	15095					19928	N13 W71	187	AP	3	M	20	1	HRX
78	1	9	15095	N16 W76	181	600	2.0									

MCMATH REGION 15083 CMP DATE 4.2 RETURN PART OF REGION 15049, AND NEW 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
77	12	28	15083	S20 E80	184	800	2.5		S16 E85				B	100	3	DAI
77	12	31	15083	S19 E45	179	3900	3.5		S18 E55				M	220	17	EAI
78	1	2	15083	S18 E20	177	4300	3.0	19924	S19 E13	180	(BP)	4	B	260	14	DSI
78	1	3	15083	S18 E07	177	3800	3.0		S13 E02				B	80	10	CAO
78	1	4	15083	S20 W05	177	3200	3.0		S13 W12				B	60	4	DSO
78	1	5	15083						S18 W25				B	90	5	DSO
78	1	6	15083						S17 W36				B	70	7	DSO
78	1	7	15083					19924	S20 W52	179	(AP)	4	B	70	8	DSO
78	1	8	15083					19924	S20 W63	179	AP	2	M	70	4	DSO
78	1	9	15083	S20 W70	175	2800	3.0		S19 W66				M	20	3	CRO
78	1	10	15083	S20 W83	175	2500	3.0									

MCMATH REGION 15090 CMP DATE 5.2

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
77	12	31	15090	N37 E65	159	800	2.5									
78	1	2	15090	N38 E35	162	1000	3.0	19925	N35 E31	162	(B)	4	B	40	2	BXO
78	1	3	15090	N38 E20	164	1100	2.5		N40 E20				B	50	3	CSO
78	1	4	15090	N37 E08	164	700	2.5		N40 E05				B	40	4	DSO
78	1	5	15090						N38 W04				B	20	5	BXO

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MCMATH REGION 15096 CMP DATE 5.2

				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	1	9	15096	S35 W58	163	300	1.5								
78	1	10	15096	S34 W71	163	400	2.0								

MCMATH REGION 15087 CMP DATE 5.6 POSSIBLE RETURN OF REGION 15Ø65 OR NEW 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
77	12	31	15087	N17 E67	157	2000	3.5								
78	1	2	15087	N17 E39	158	1400	3.0								
78	1	3	15087	N17 E26	158	1100	3.0								
78	1	4	15087	N17 E13	159	700	3.0								
78	1	9	15087	N17 W52	157	600	1.5								
78	1	10	15087	N17 W65	157	500	1.5								
78	1	11	15087	N17 W78	157	500	1.0								

MCMATH REGION 15088 CMP DATE 6.2

				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
77	12	31	15088	N32 E80	144	1000	2.0								
78	1	2	15088	N32 E46	151	1500	2.5								
78	1	3	15088	N32 E33	151	1800	2.0								
78	1	4	15088	N31 E20	152	1000	2.0								
78	1	9	15088	N32 W45	150	1000	1.5								
78	1	10	15088	N32 W59	151	800	1.5								
78	1	11	15088	N32 W73	152	800	1.5								

MCMATH REGION 15091 CMP DATE 6.4

				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	1	2	15091	N10 E50	147	200	1.5								
78	1	3	15091	N09 E37	147	200	1.5								

MCMATH REGION 15086 CMP DATE 7.0 RETURN OF PART OF REGION 15Ø56 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
77	12	31	15086	S24 E76	148	1800	3.0								
78	1	2	15086	S24 E53	144	2000	2.5	19926	S25 E41	152	(AP)	3	B	10	1 AXX
78	1	3	15086	S25 E41	143	2000	2.5								
78	1	4	15086	S26 E30	142	2000	2.0								
78	1	9	15086	S26 W35	140	1200	2.0								
78	1	10	15086	S26 W47	139	900	2.0								
78	1	11	15086	S27 W60	139	900	2.0								
78	1	12	15086	S28 W73	138	800	2.0								

MCMATH REGION 15089 CMP DATE 7.0

				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
77	12	31	15089	N24 E85	139	800	2.5								
78	1	2	15089	N22 E55	142	2100	3.0	19927	N22 E55	138	(B)	3	B	10	2 BXO
78	1	3	15089	N21 E42	142	2000	3.0		N28 E47				B	0	1 AXX
78	1	4	15089	N21 E30	142	1500	3.0		N21 E30				B	20	1 AXX
78	1	5	15089						N21 E16				B	30	5 CAO
78	1	6	15089						N25 E03				B	30	7 DSO
78	1	9	15089	N21 W35	140	1300	2.5								
78	1	10	15089	N21 W48	140	1400	2.5								
78	1	11	15089	N22 W61	140	1500	3.0								
78	1	12	15089	N22 W75	140	1500	2.0								

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MCMATH REGION 15092 CMP DATE 9.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	1	2	15092	N18 E85	112	1200	1.5
78	1	3	15092	N17 E71	113	1200	3.5
78	1	4	15092	N17 E58	114	900	3.0
78	1	7	15092				
78	1	9	15092	N17 W08	113	600	2.5
78	1	10	15092	N17 W21	113	600	2.5
78	1	11	15092	N17 W34	113	800	2.5
78	1	12	15092	N17 W48	113	700	2.0
78	1	14	15092	N17 W76	114	300	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N17 E70				B	20	4	BXX
	N18 E53				B	10	2	BXO
	N18 E13				B	10	1	AXX

MCMATH REGION 15093 CMP DATE 9.0

RETURN OF PART OF REGION 15056 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	1	2	15093	S28 E78	119	800	2.0
78	1	3	15093	S27 E66	118	800	2.5
78	1	4	15093	S27 E54	118	500	2.0
78	1	6	15093				
78	1	8	15093				
78	1	9	15093	S27 W09	114	900	2.0
78	1	10	15093	S27 W22	114	800	2.5
78	1	11	15093	S27 W35	114	900	2.5
78	1	12	15093	S28 W48	113	900	2.5
78	1	14	15093	S28 W75	113	700	2.0
78	1	15	15093	S30 W88	114	500	1.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S23 E22				B	30	2	BXO
19929	S24 E02	114	X	1	M	10	2	BXO

MCMATH REGION 15104 CMP DATE 11.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	1	12	15104	S26 W10	75	200	2.5
78	1	13	15104				
78	1	14	15104	S23 W33	71	800	3.0
78	1	16	15104				
78	1	18	15104	S24 W86	73	400	1.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
19930	S30 W24	74	(AP)	3	B	20	1	HRX
	S26 W30				M	20	5	CRO
	S25 N67				B	10	1	AXX

MCMATH REGION 15097 CMP DATE 12.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	1	9	15097	N22 E48	57	500	2.0
78	1	10	15097	N21 E34	58	800	2.5
78	1	11	15097	N19 E16	63	1100	3.0
78	1	12	15097	N19 E03	62	1000	3.0
78	1	13	15097				
78	1	14	15097	N19 W25	63	1500	3.0
78	1	15	15097	N19 W39	65	2000	3.0
78	1	16	15097				
78	1	17	15097				
78	1	18	15097	N19 W80	67	2000	2.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N19 E29				R	30	6	BXO
	N18 E12				B	100	10	XX
19931	N17 W18	68	(B)	4	B	80	12	DSI
	N18 W34				M	80	8	CRO
	N19 W59				B	80	2	CSO
	N18 W76				B	60	3	CSO
19931	N20 W85	72	AF	2	R	40	3	AXX

MCMATH REGION 15098 CMP DATE 13.8

RETURN OF PART OF REGION 15067 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	1	9	15098	N15 E58	47	500	2.5
78	1	10	15098	N17 E45	47	300	1.5
78	1	11	15098	N17 E31	48	300	1.5
78	1	12	15098	N17 E17	48	400	1.5
78	1	14	15098	N17 W12	50	600	1.5
78	1	15	15098	N17 W27	53	800	1.5
78	1	18	15098	N17 W65	52	400	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N18 E11				M	80	12	DRO
	N18 W18				M	90	13	DRO

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MCMATH REGION 15102 CMP DATE 14.3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
78	1	10	15102	S27 E50	42	200	1.0								
78	1	11	15102	S27 E36	43	200	1.5								
78	1	12	15102	S28 E22	43	100	1.0								

MCMATH REGION 15111 CMP DATE 14.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
78	1	18	15111	S23 W54	41	100	1.5								

MCMATH REGION 15099 CMP DATE 15.1 RETURN OF PART OF REGION 15067 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
78	1	9	15099	N24 E75	30	800	1.0								
78	1	10	15099	N23 E60	32	600	1.0								
78	1	11	15099	N24 E46	33	400	1.5								
78	1	12	15099	N24 E32	33	400	1.5								
78	1	14	15099	N23 E05	33	300	1.5								
78	1	15	15099	N22 W10	36	400	1.5								
78	1	18	15099	N22 W48	35	200	1.0								

MCMATH REGION 15103 CMP DATE 15.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
78	1	11	15103	N42 E55	24	100	1.0								
78	1	12	15103	N42 E42	23	100	1.0								
78	1	14	15103	N42 E14	24	300	1.0								
78	1	15	15103	N41 E02	24	300	1.0								
78	1	18	15103	N41 W29	16	100	1.0								

MCMATH REGION 15106 CMP DATE 15.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
78	1	14	15106	S28 E16	22	100	1.5								

MCMATH REGION 15100 CMP DATE 17.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
78	1	11	15100	S24 E84	356	1800	3.5								
78	1	12	15100	S24 E71	355	2300	3.0		S23 E73				M	20	2 BXO
78	1	13	15100					19932	S18 E51	0	X	1	B	10	2 BXO
78	1	14	15100	S24 E42	357	2100	3.0		S23 E46				M	10	2 BXO
78	1	15	15100	S24 E30	357	2100	3.0		S27 E23				M	20	6 BXO
78	1	16	15100						S26 E12				B	10	5 BXO
78	1	17	15100						S26 W01				B	20	5 BXO
78	1	18	15100	S25 W09	356	2400	3.0	19933	S28 W15	2	X	2	R	10	3 BXO
78	1	19	15100						S27 W16				M	20	3 BXO
78	1	20	15100					19934	S36 W26	347	(AP)	2	M	20	4 CRO
78	1	21	15100	S25 W50	355	2400	3.0	19935	S26 W45	353	(B)	2	B	90	22 DSI
78	1	22	15100	S25 W59	354	2400	3.5	19935	S24 W59	352	B	2	B	270	10 DAO
78	1	23	15100	S25 W72	351	2200	3.0	19935	S23 W71	352	(B)	2	M	290	13 DAO
78	1	24	15100	S25 W85	353	1700	2.5		S24 W75				M	340	9 DRO

MCMATH REGION 15101 CMP DATE 17.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
78	1	11	15101	N14 E87	353	800	1.5								
78	1	12	15101	N16 E75	351	1100	3.0								
78	1	14	15101	N16 E43	356	1000	3.0								

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MCMATH REGION 15101 (CONT) CMP DATE 17.9

				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	1	15	15101	N15 E31	356	800	3.0								
78	1	18	15101	N15 W09	356	800	2.5								
78	1	21	15101	N15 W50	355	400	1.5								
78	1	22	15101	N15 W59	354	400	1.5								
78	1	23	15101	N15 W78	357	400	1.0								

MCMATH REGION 15105 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	1	12	15105	N31 E84	342	100	1.0								
78	1	14	15105	N31 E50	349	100	1.0								

MCMATH REGION 15116 CMP DATE 19.0

				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	1	23	15116	N03 W63	342	200	1.5								

MCMATH REGION 15107 CMP DATE 20.8 RETURN OF REGION 15070 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	1	14	15107	N27 E67	312	700	1.5								
78	1	15	15107	N27 E70	317	900	1.5								
78	1	18	15107	N27 E27	320	700	2.0								
78	1	21	15107	N27 W14	319	300	1.0								
78	1	22	15107	N27 W24	319	400	1.0								
78	1	23	15107	N27 W38	317	400	1.0								
78	1	24	15107	N27 W51	319	200	1.0								

MCMATH REGION 15114 CMP DATE 22.5

				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	1	22	15114	N29 W02	297	300	1.5								
78	1	23	15114	N28 W17	296	300	1.0								

MCMATH REGION 15117 CMP DATE 23.9

				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	1	23	15117	S15 E01	278	200	2.0								

MCMATH REGION 15112 CMP DATE 25.8 RETURN OF REGION 15075 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	1	21	15112	N22 E52	253	1600	2.0								
78	1	22	15112	N21 E43	252	1800	3.0	19937	N21 E44	249	B	2	B	10	2 CRO
78	1	23	15112	N21 E28	251	2100	3.0	19937	N18 E31	250	(B)	2			
78	1	24	15112	N22 E15	253	2800	3.0	19937	N19 E16	251	(B)	3			
78	1	25	15112					19937	N19 E03	252	(B)	4			
78	1	26	15112					19937	N19 W13	254	(B)	4			
78	1	27	15112					19937	N19 W26	253	B	3	H	120	23 DAI
78	1	28	15112	N20 W38	252	3300	2.5	19937	N18 W40	254	(B)	5	B	140	8 DSI
78	1	29	15112	N20 W53	255	3200	3.0	19937	N18 W53	254	(BP)	4	B	120	3 CSO
78	1	30	15112	N20 W68	254	2800	3.0								
78	1	31	15112	N18 W80	256	2600	3.0		N18 W70				H	110	5 CSO

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MCMATH REGION 15113 CMP DATE 27.6 RETURN OF REGION 15080 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	1	21	15113	N24 E77	228	2500	2.5	19936	N19 E75	233	(AP)	3	B	100	2	CSO
78	1	22	15113	N24 E62	233	2600	3.5	19936	N20 E59	234	AP	3	B	70	2	CSO
78	1	23	15113	N24 E46	233	3000	3.0	19936	N21 E44	237	(AP)	3	H	70	2	CSO
78	1	24	15113	N24 E34	234	2800	3.0	19936	N21 E31	236	(AP)	4	H	60	3	CSO
78	1	25	15113					19936	N21 E17	238	(AP)	4	H	80	22	DRI
78	1	26	15113					19936	N21 E04	237	(AP)	4	H	100	24	DAI
78	1	27	15113					19936	N21 W10	237	AP	4	H	60	1	HSX
78	1	28	15113	N24 W15	229	2400	2.5	19936	N21 W22	236	(AP)	4	B	30	1	HSX
78	1	29	15113	N24 W30	232	2700	2.5	19936	N21 W35	236	(AP)	5	B	50	1	HSX
78	1	30	15113	N24 W44	230	2500	2.0									
78	1	31	15113	N24 W56	232	2800	2.0									
78	2	01	15113	N24 W70		2200	1.5	19936	N21 W75		(AP)	3	B	40	1	H
78	2	02	15113	N24 W85		1200	1.5						B	30	1	H

MCMATH REGION 15119 CMP DATE 28.2

				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	1	28	15119	N39 W06	220	300	1.5									
78	1	29	15119	N39 W19	221	400	1.5									
78	1	30	15119	N39 W31	217	300	1.0									
78	1	31	15119	N39 W42	218	300	1.0									
78	2	01	15119	N39 W55		300	1.0									
78	2	02	15119	N40 W68		100	1.5									

MCMATH REGION 15120 CMP DATE 28.4

				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	2	01	15120	N23 W55		200	1.0									
78	2	02	15120	N23 W68		300	1.5									

MCMATH REGION 15115 CMP DATE 29.1 RETURN OF REGION 15081 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	1	22	15115	S15 E86	209	500	1.0									
78	1	23	15115	S17 E70	209	1200	3.5		S17 E78				H	10	1	AXX
78	1	24	15115	S17 E60	208	700	3.5	19938	S17 E56	211	(AP)	3	H	10	1	AXX
78	1	25	15115					19938	S18 E43	212	(AP)	3	H	10	1	AXX
78	1	26	15115					19938	S17 E30	211	(AP)	3	H	10	1	AXX
78	1	28	15115	S17 E05	209	300	2.0									
78	1	29	15115	S18 W08	210	700	2.5									
78	1	30	15115	S19 W23	209	800	2.5									
78	1	31	15115	S19 W33	209	800	1.5									
78	2	01	15115	S19 W46		700	1.5									
78	2	02	15115	S19 W60		600	1.5									

MCMATH REGION 15127 CMP DATE 30.2

				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	1	29	15127	S20 E07	195	100	1.5									

MCMATH REGION 15121 CMP DATE 30.9

				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	1	28	15121	N20 E29	185	100	1.0									
78	1	29	15121	N20 E15	187	300	1.5									
78	1	30	15121	N19 E00	186	200	1.0									
78	1	31	15121	N19 W11	187	300	1.0									
78	2	01	15121	N20 W24		300	1.0									
78	2	02	15121	N21 W40		300	1.0									

REGIONS OF SOLAR ACTIVITY

JANUARY 1978

MCMATH REGION 15122 CMP DATE 31.1 RETURN OF PART OF REGION 15Ø83 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	1	28	15122	S19 E32	182	300	2.0							
78	1	29	15122	S19 E19	183	600	2.5							
78	1	30	15122	S19 E03	183	600	2.0							
78	1	31	15122	S19 W08	184	600	1.5							
78	2	01	15122	S19 W21		300	1.5							
78	2	02	15122	S19 W34		400	1.5							
78	2	03	15122	S19 W46		300	1.0							
78	2	04	15122	S19 W59		200	1.0							

DAILY CALCIUM PLAGE INDEX

JANUARY 1978

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
78	1	1	*	78	1	11	10.6	78	1	21	7.6
78	1	2	39.3	78	1	12	10.2	78	1	22	12.1
78	1	3	39.6	78	1	13	*	78	1	23	14.8
78	1	4	28.8	78	1	14	14.0	78	1	24	15.2
78	1	5	*	78	1	15	15.9	78	1	25	*
78	1	6	*	78	1	16	*	78	1	26	*
78	1	7	*	78	1	17	*	78	1	27	*
78	1	8	*	78	1	18	10.7	78	1	28	25.0
78	1	9	12.9	78	1	19	*	78	1	29	36.5
78	1	10	10.0	78	1	20	*	78	1	30	37.2
								78	1	31	43.7

* NO OBSERVATIONS

Note: No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on January 1, 5, 6, 7, 8, 13, 16, 17, 19, 20, 25, 26 and 27, 1978.
No sunspot observations were made at Mt. Wilson on January 1, 3, 4, 5, 6, 9, 10, 11, 12, 14, 15, 16, 17, 19, 30 and 31, 1978.

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 1978

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TIME SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
01	0513	0546	0516	1-	1				1				0510	X-RAY
01	0550	0816	0603	2	1				1				0554	15083
01	0918	1014	0955	1-	3			1	1				0920	15083
01	2146	2347	2201	1+	5	2			2	1	4	4	2145	15083
02	0344	0417	0352	1-	1				1				0345E	15083
02	1925	2000	1945	1-	3						3		0230	15080
03	0222	0406	0242	1	3	2			2				0230	15080
03	0929	1017D	0934	1-	1				1				0930E	15083
03	1017	1048	1027	1-	5			1	3		1		1015	15083
03	2233	2351	2240	1-	5				2		2		2228	X-RAY
04	0718	0805	0724	1-	1				1				0659	X-RAY
06	0657	0704	0658	1-	1				1				0659	X-RAY
06	1429	1448	1431	1-	1			1					1425	X-RAY
06	2308	2347	2318	1-	1				1				2307	X-RAY
07	0129	0306D	0145	1	1				1				0127	15083
07	0305	0433	0335	1+	1				1				0637E	15081
07	0631	0835	0653	2+	2				4		1		0637E	15081
07	1100	1116D	1116	1-	1				1		1		1103	X-RAY
07	1147	1500	1225	2+	5	2		3	4		2		1145	15081
08	0001	0142	0028	1-	1				1				0000	15083
08	0157	0631	0233	3-	3	1			1		1		0205	15081
08	0707	0921	0720	2	5			2	1				0710	15081
08	1900	2015	1930	1	5			1	1		8		1856	X-RAY
09	1220	1400	1237	2+	5			2	3		2		1213	X-RAY
17	0126	0214	0131	1-	1				1				0125	15100
17	1354	1500	1405	1-	3				2				1359E	15100
22	0639	0840	0651	1-	1				1				0640E	15100
25	0434	0540	0439	1-	1				1				0430	X-RAY
25	0632	0723	0638	1-	1				1				0629	15112
26	0639	0713	0650	1-	1				1				0636	15112
26	2048	2102	2052	1-	1				1				2044	X-RAY
26	2310	0046	2326	1-	3				2				2312	15112
27	0331	0454	0342	1+	3	1			1				0328	15107
27	0738	0820	0744	1-	1				1				0738	X-RAY
27	0850	0934	0856	1-	1				1				0855	15124
27	1020	1125	1038	1-	5			3	4		2		1021	15107
27	1325	1400	1334	1-	3			1	1		1		1322	X-RAY
27	1415	1545	1425	1-	5			1	2		1		1415	15107
27	1600	1715	1607	1+	5				1	1	8		1547	X-RAY
28	0543	0649	0548	1-	1				1				0540	X-RAY
28	0809	0842	0820	1-	1				1				0809	X-RAY
29	1319U	1352	1322	1-	1			1					*	
30	0139	0257D	0152	1	1				1				0139	15124

PERIODS OF NO OBSERVATIONS:

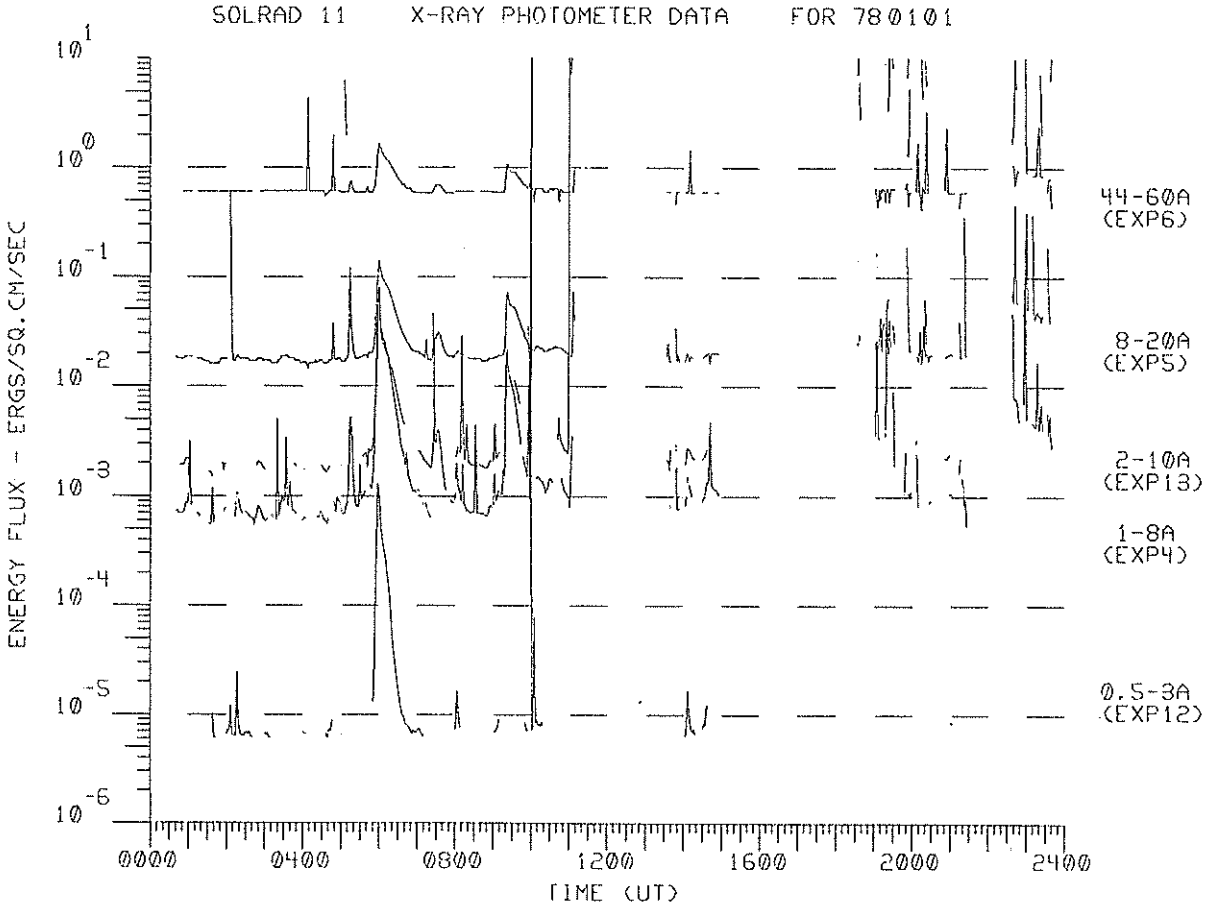
DATE	TIME (UT) and STATION
01	0010-0022 TM
03	1005-1348 UM (16 kHz), 1208-1342 UM (13 kHz)
05	0000-2400 A28
07	0127-1205 UM (13 kHz)
10	1006-1342 UM (16 kHz)
12	0920-1140 UM (16 kHz), 0920-1140 UM (13 kHz), 1915-2055 UM (13 kHz)
13-31	0000-2400 A26
17	1212-1340 UM (16 kHz), 2005-2050 UM (13 kHz)
18	1112-1214 TM
20-29	0000-2400 A28
20	0106-0158 UM (16 kHz), 0705-0755 UM (16 kHz), 1302-1358 UM (16 kHz), 1903-2005 UM (16 kHz)
21	0105-0200 UM (16 kHz), 0705-0755 UM (16 kHz), 1303-1358 UM (16 kHz), 1903-2000 UM (16 kHz)
23	1019-1223 UM (13 kHz), 1347-2400 UM (13 kHz)
24	0000-1032 UM (13 kHz), 1005-1348 UM (16 kHz), 1231-1340 UM (13 kHz), 2029-2102 UM (13 kHz)
25	0810-1345 UM (13 kHz)
26	0000-2400 A34, 0816-0905 UM (13 kHz)
28	0000-2400 A34
29-31	0000-2400 A40
31	0000-2400 A34, 1010-1400 UM (16 kHz), 1515-1528 TM

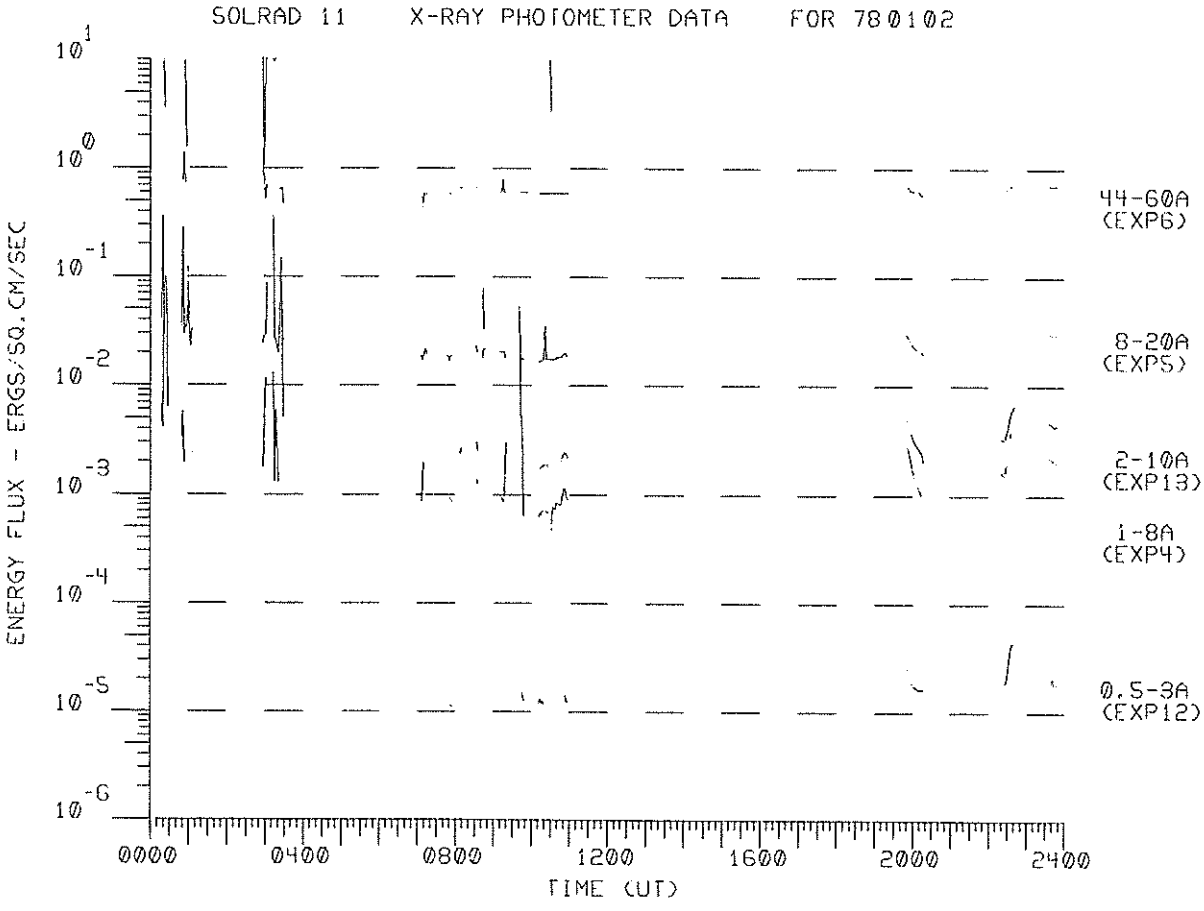
STATIONS REPORTING FOR JANUARY 1978

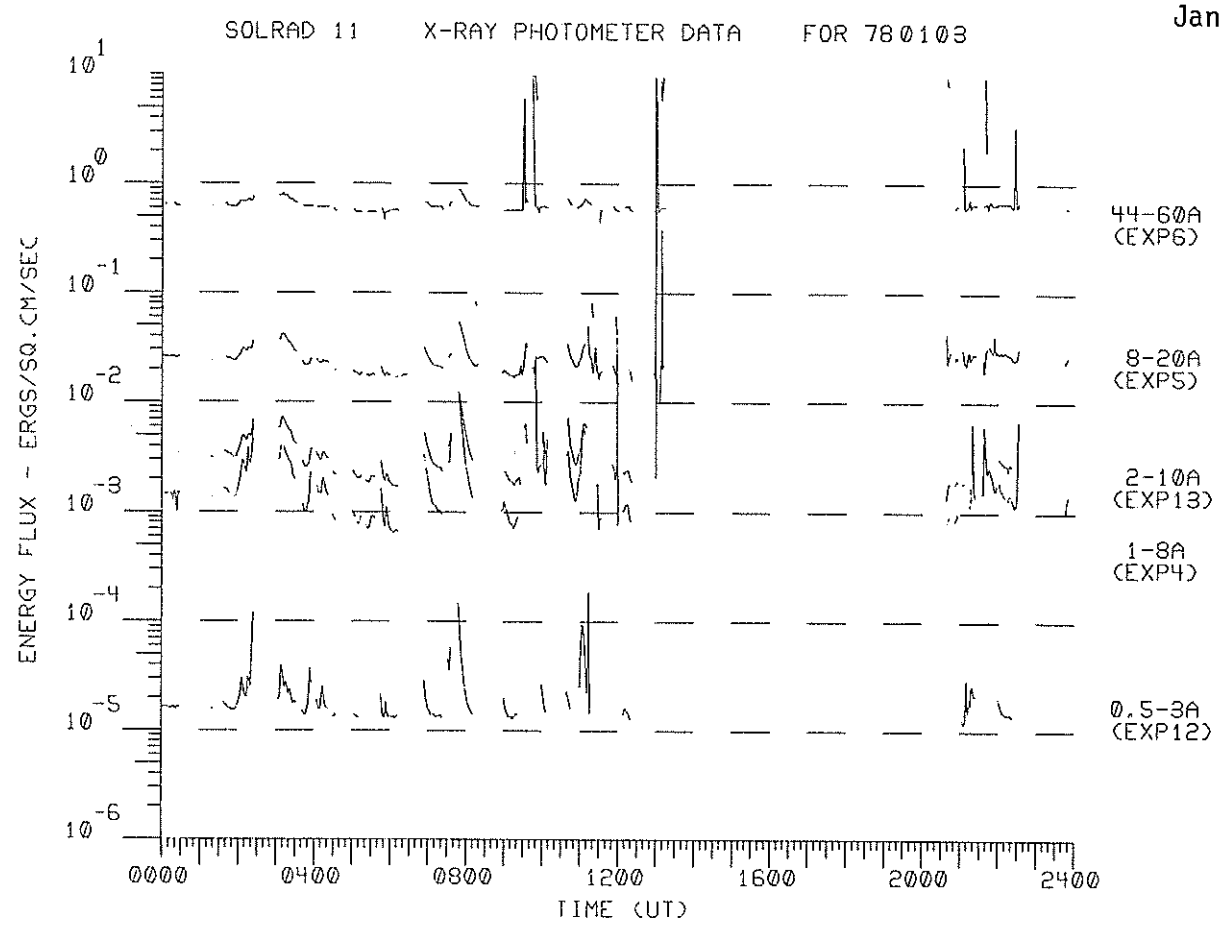
AAVSO (A1, A19, A21, A28, A30, A31, A34, A35, A40) (SES) (A1, A26, A31, A34) (SEA) (A31) (SWF)
DARMSTADT (DA) (SWF)
HAWAII (HA) (SFD)
HWESTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA, SES)
INUBO (IN) (SPA)
KONA (KN) (SFD)
KUHLUNGSBORN (KU) (SEA, SPA)
MAUI (NU) (SFD)
MC MATH (MC) (SWF, SCNA)
NEW JERSEY (NJ) (SES)
PANSKA VES (PU) (SWF, SEA, SES)
SAO PAULO (UM) (SES, SPA)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)

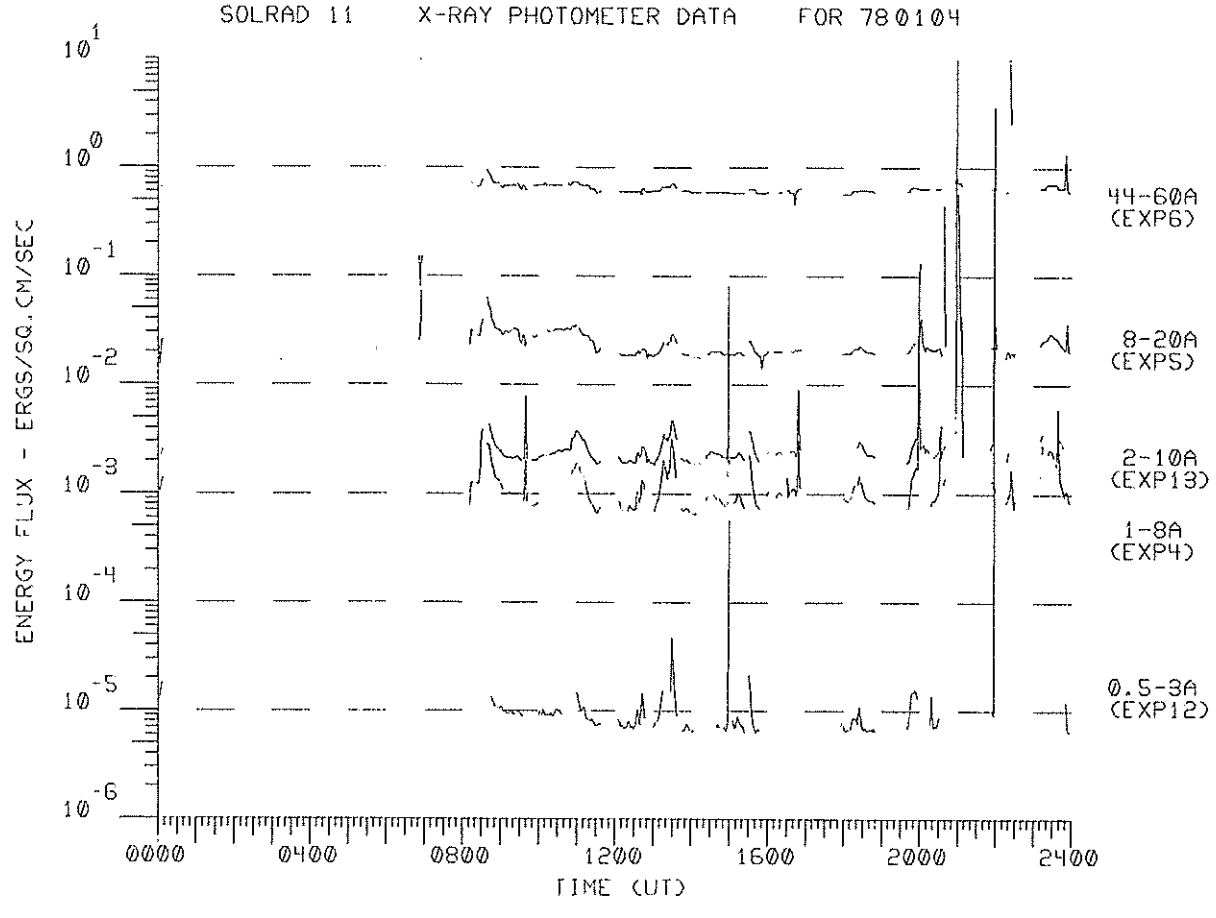
SID's BY McMATH REGION

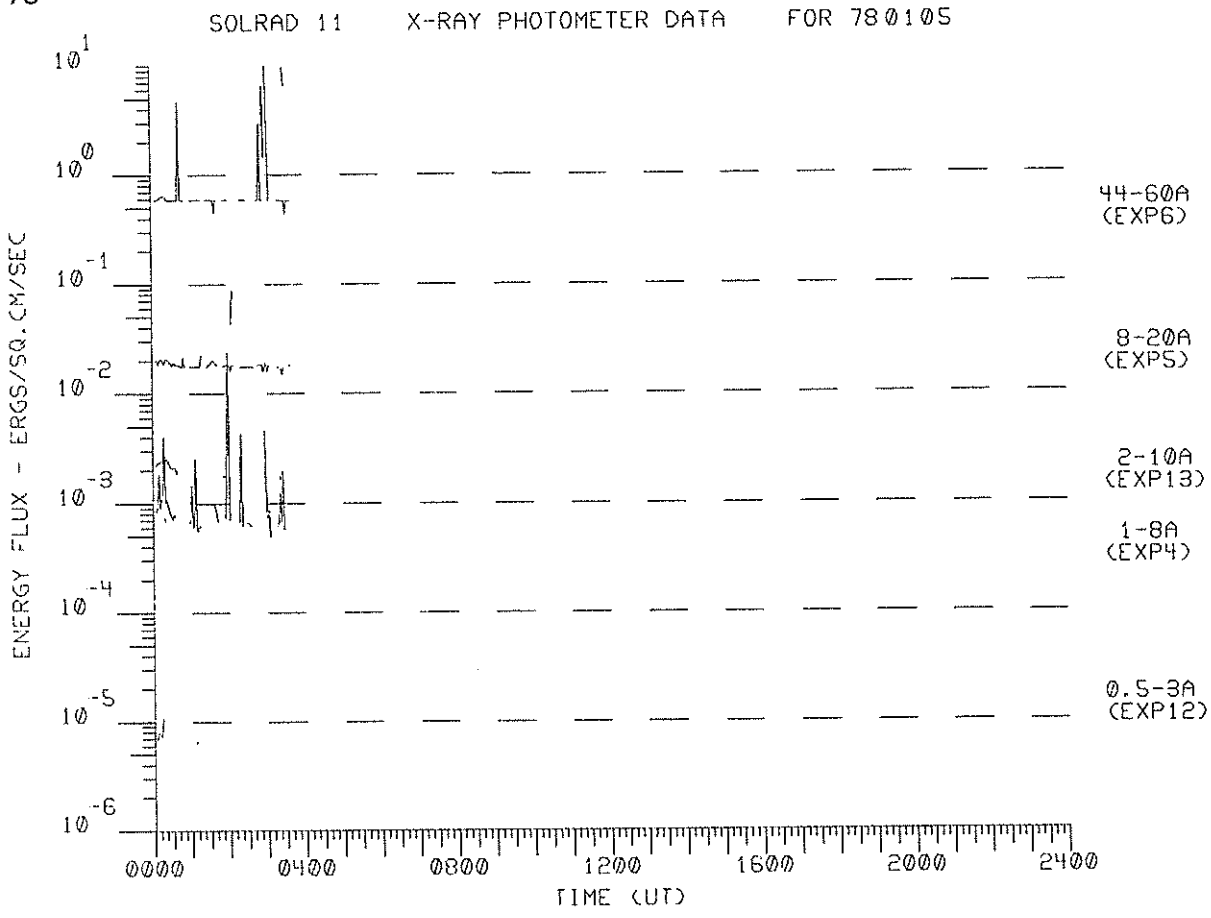
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
15080		1	1																												
15081							2	2																							
15083	3	1	2				1	1																							
15086							1																								
15100																	2					1									
15107																											3				
15112																									1	2					
15124																											1		1		
15126																															3
X-RAY	1		1	1		3	1	1	1																1	1	3	2			2
UNKNOWN																															
NO FP																													1		

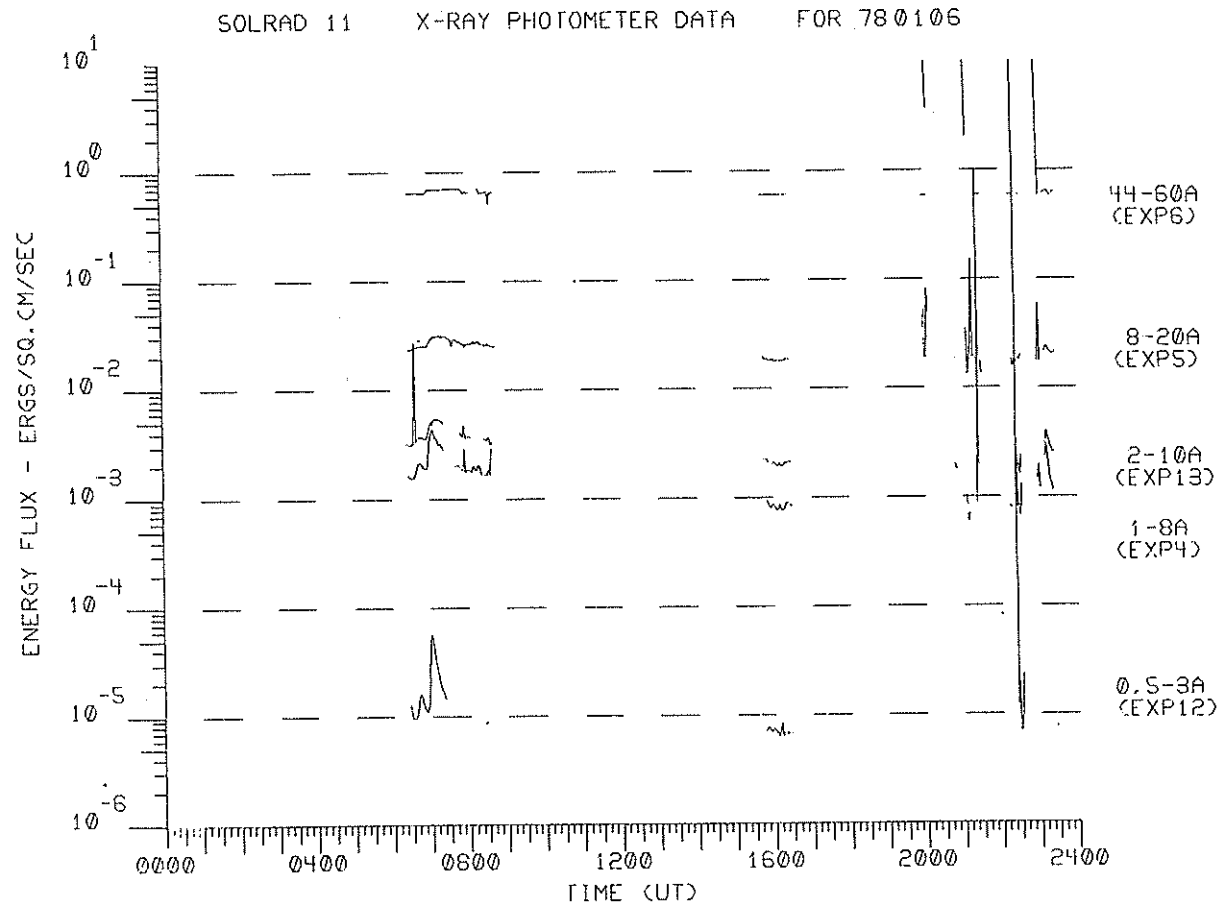

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780101
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

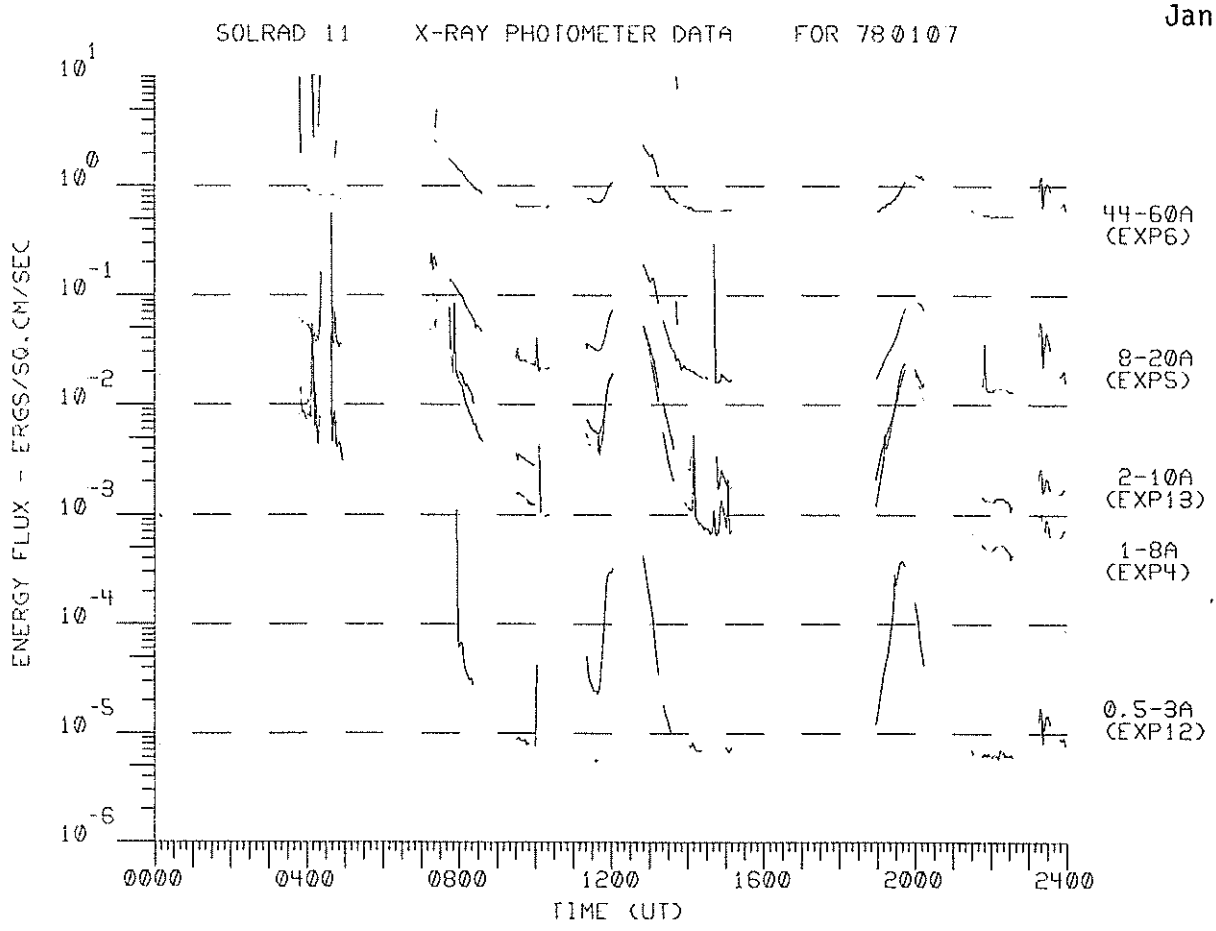

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780102
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

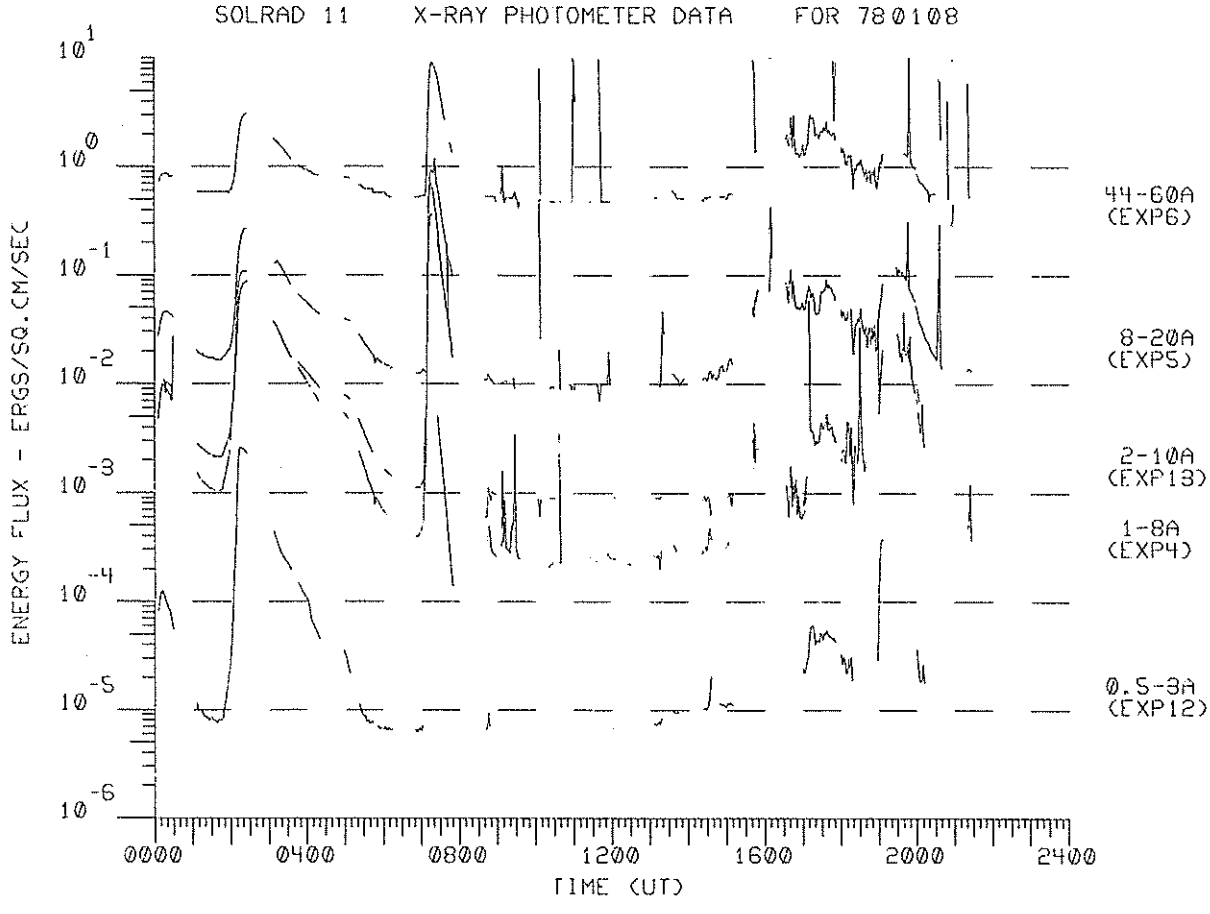

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780103
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

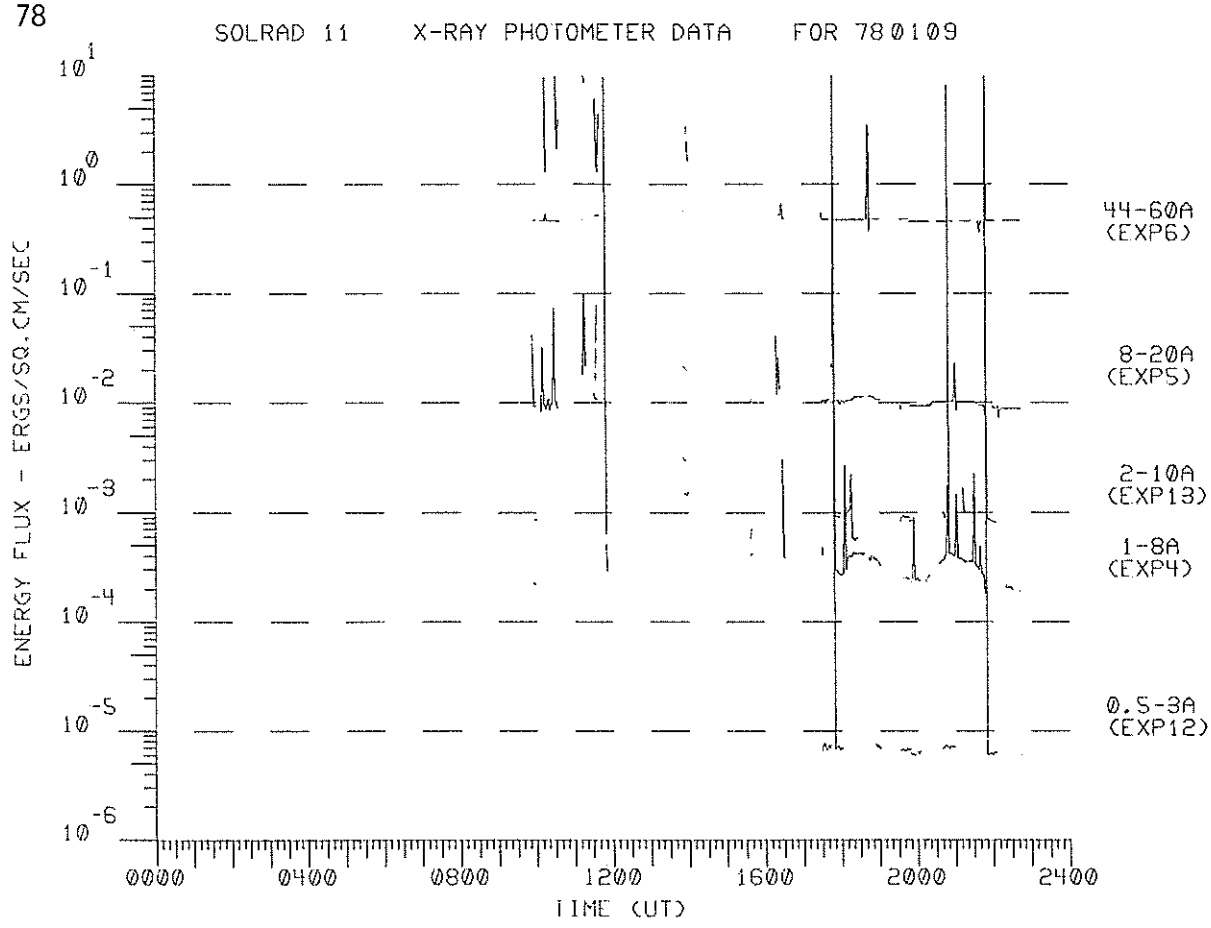

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780104
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

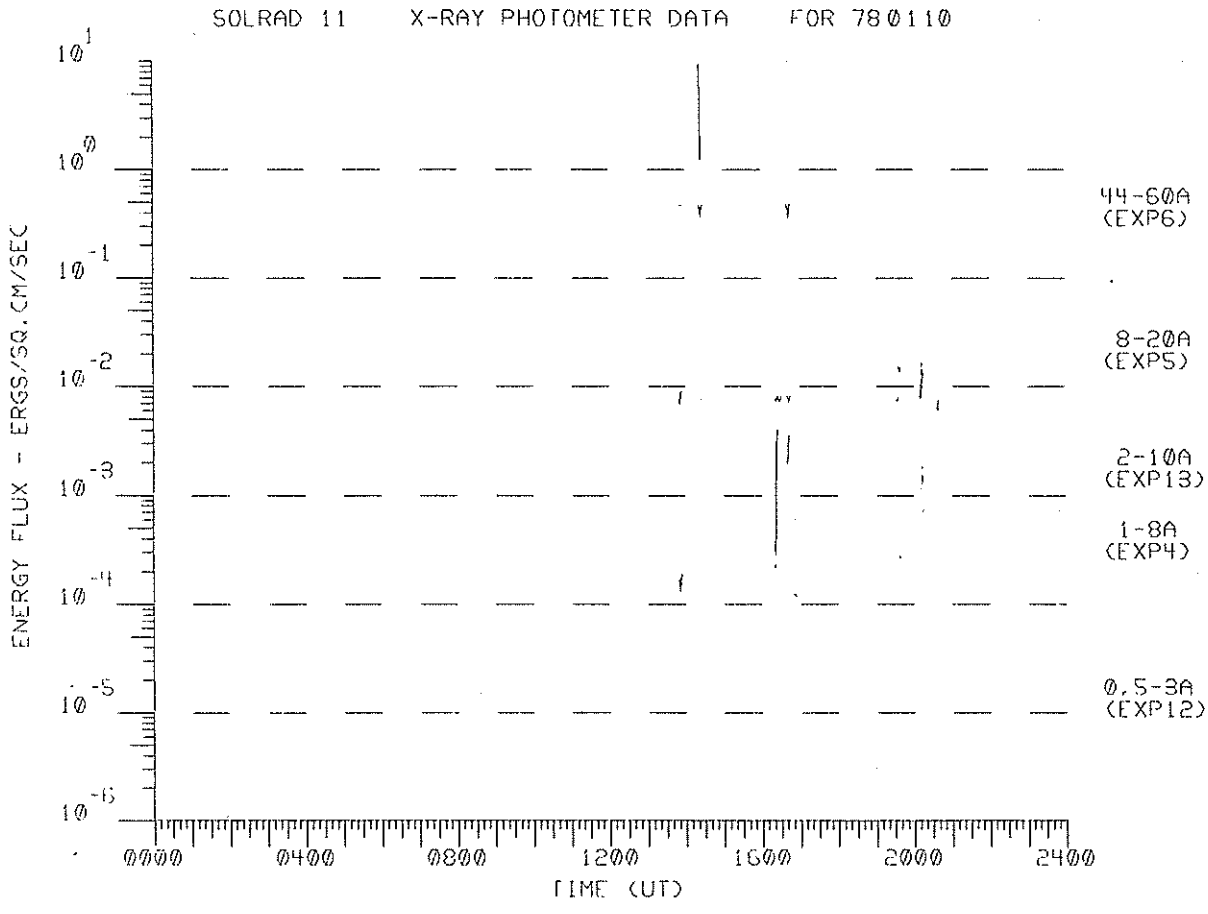

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780105
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780106
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)

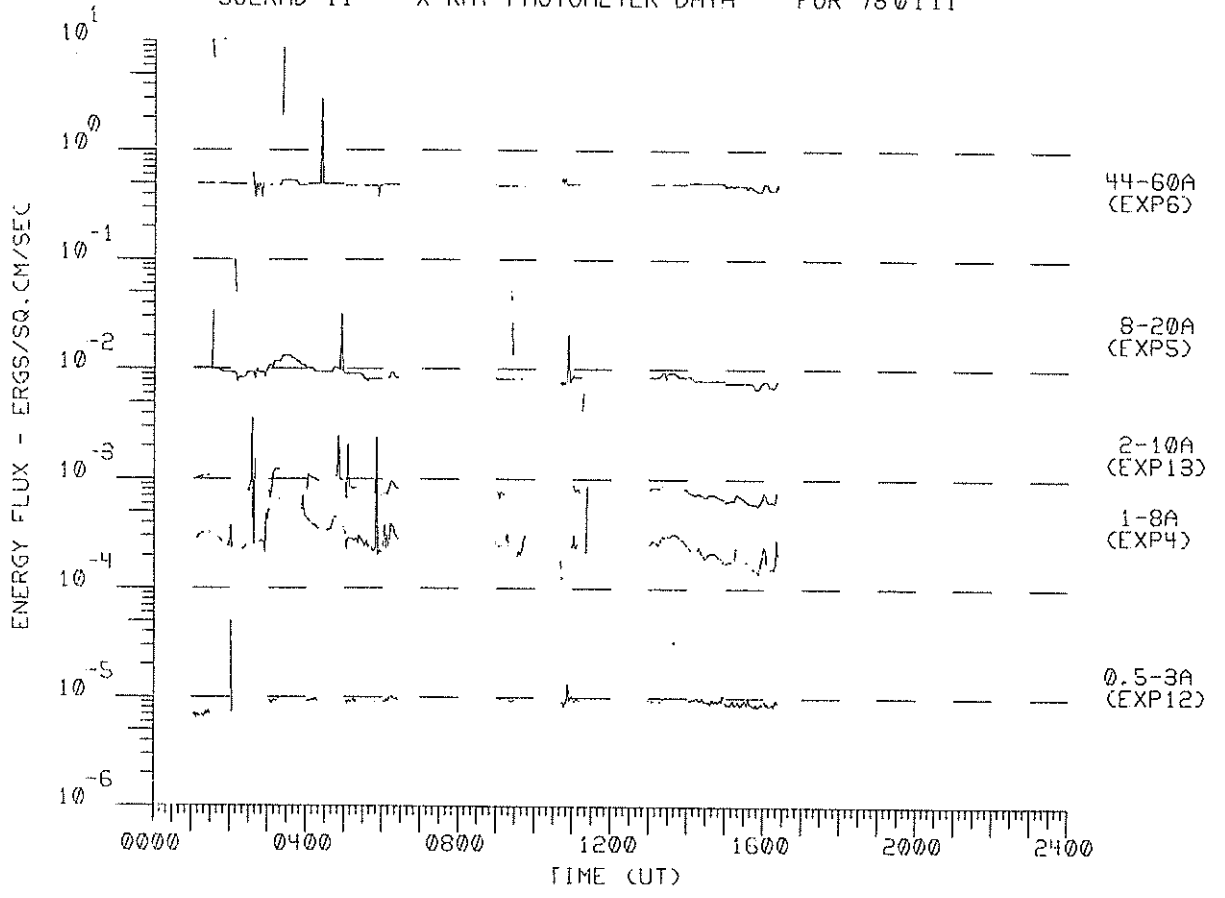

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780107
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780108
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 780109
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 780110
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 780111



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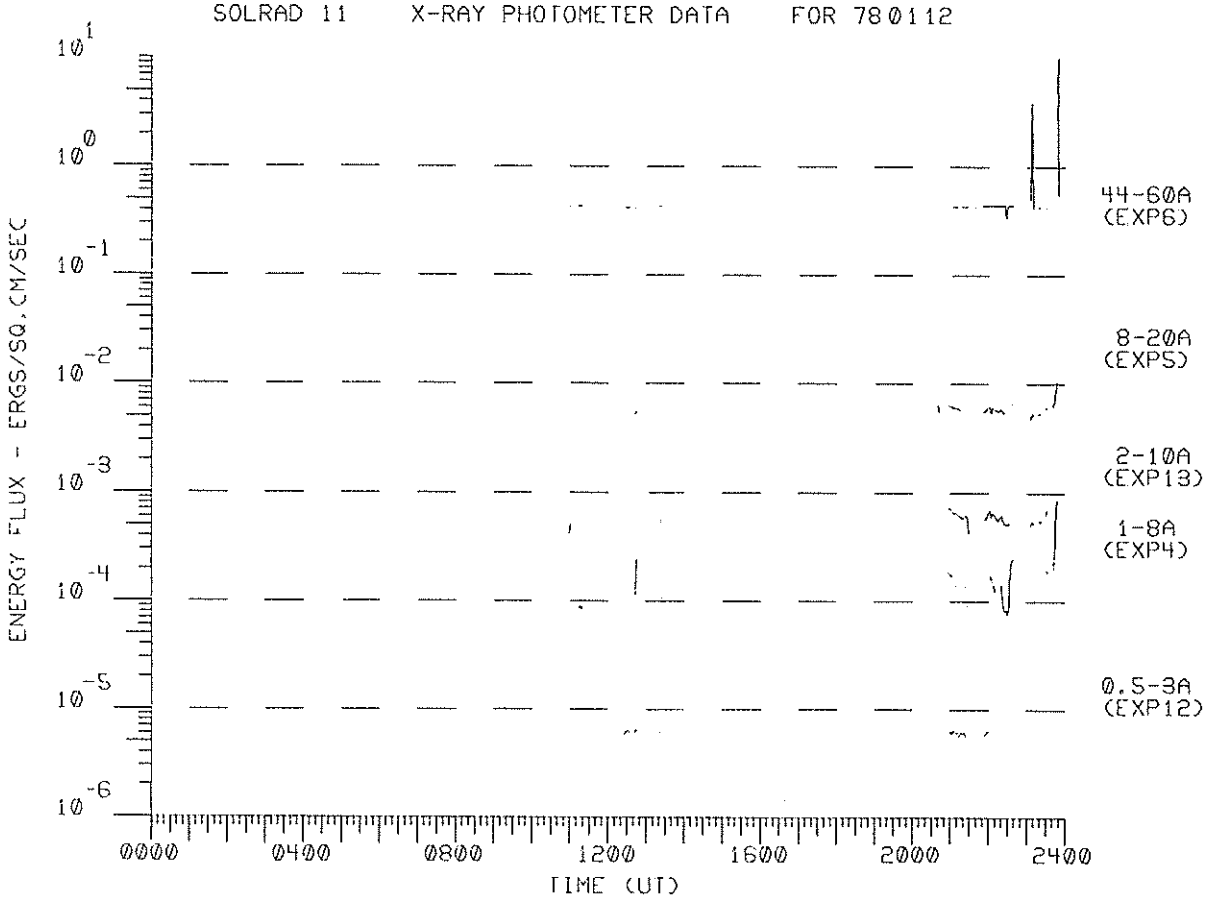
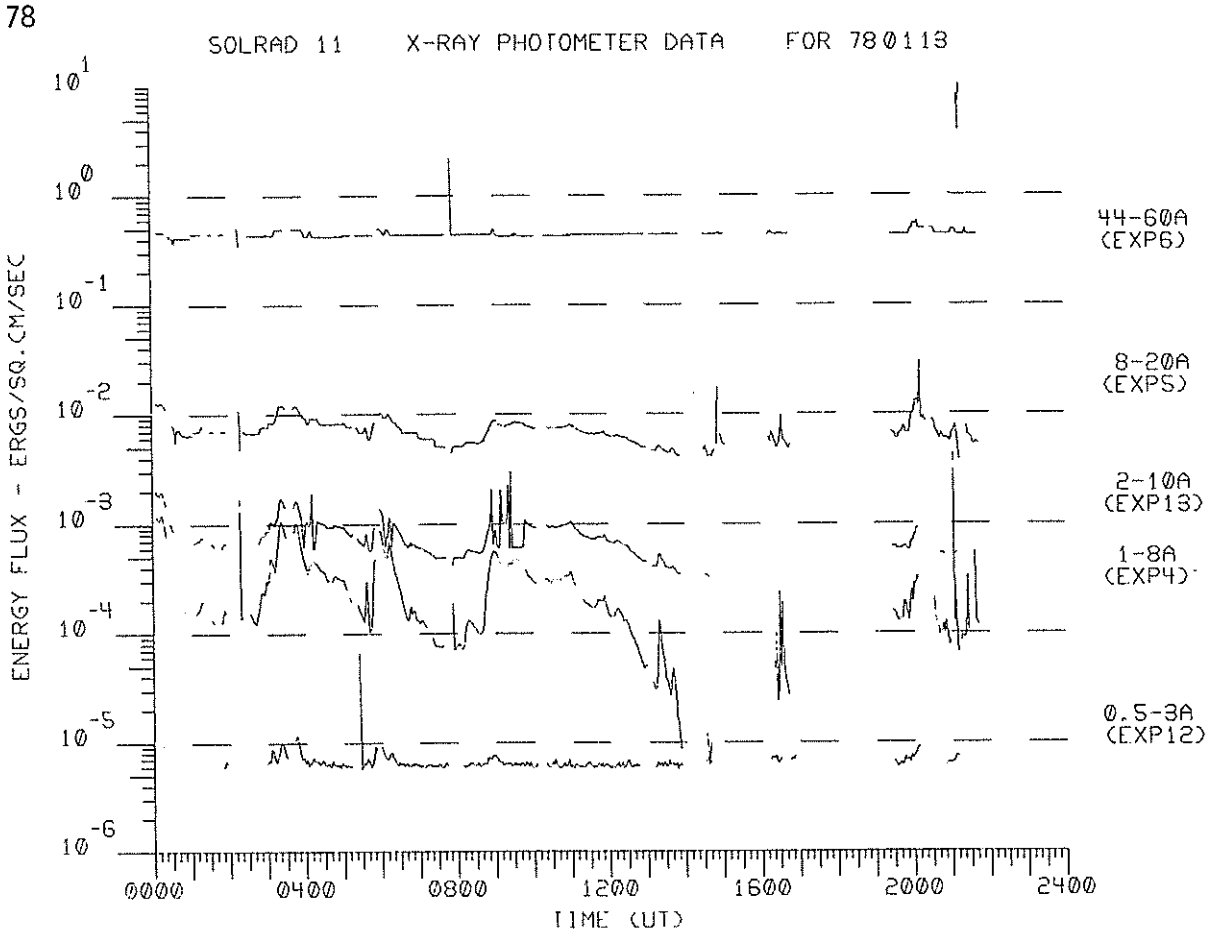
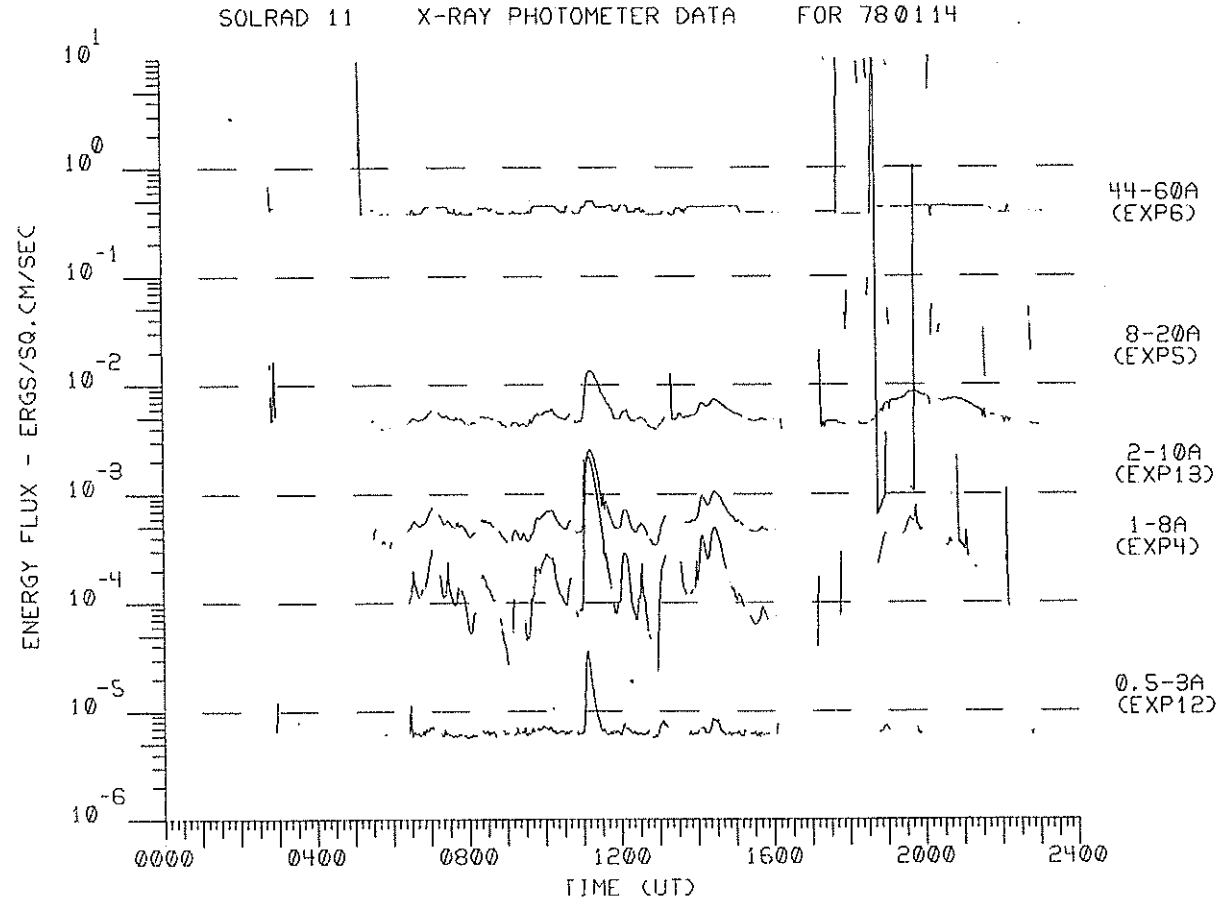
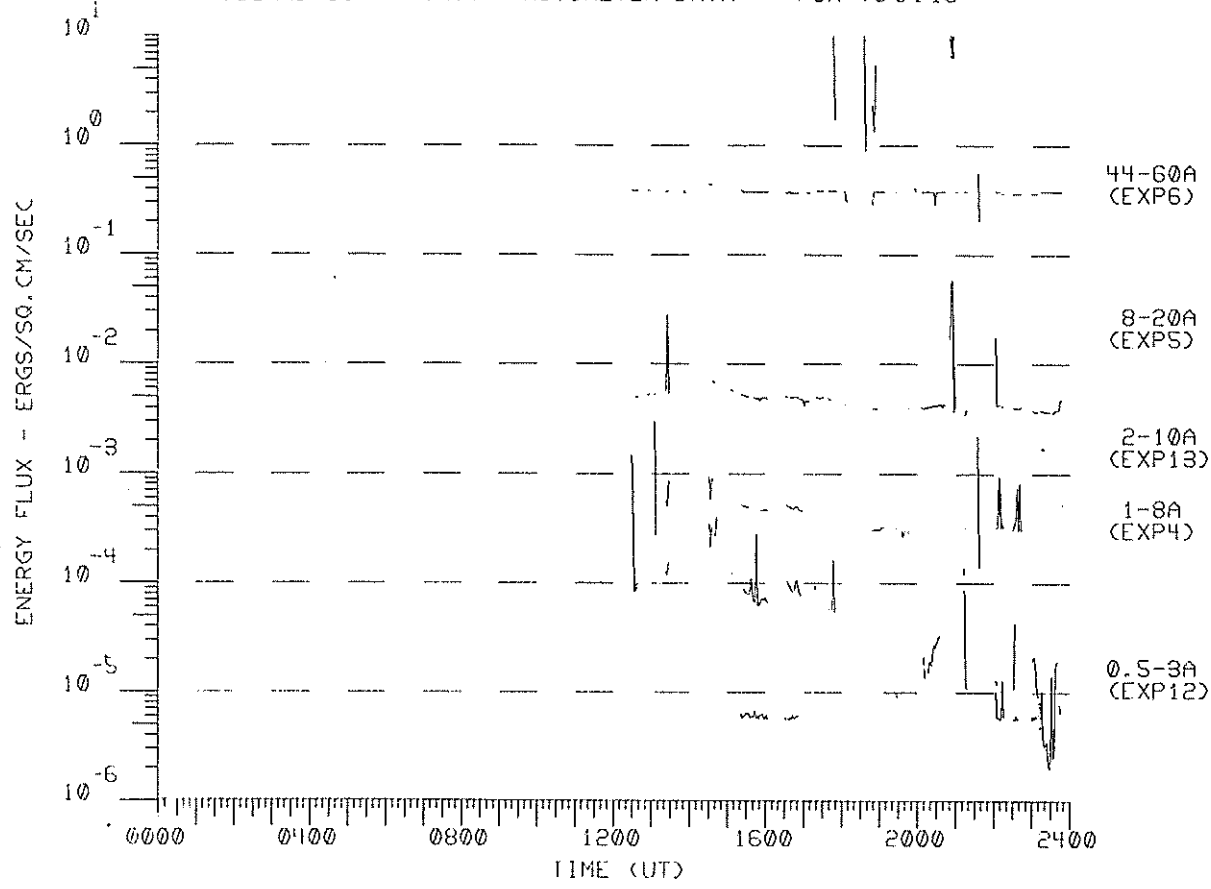
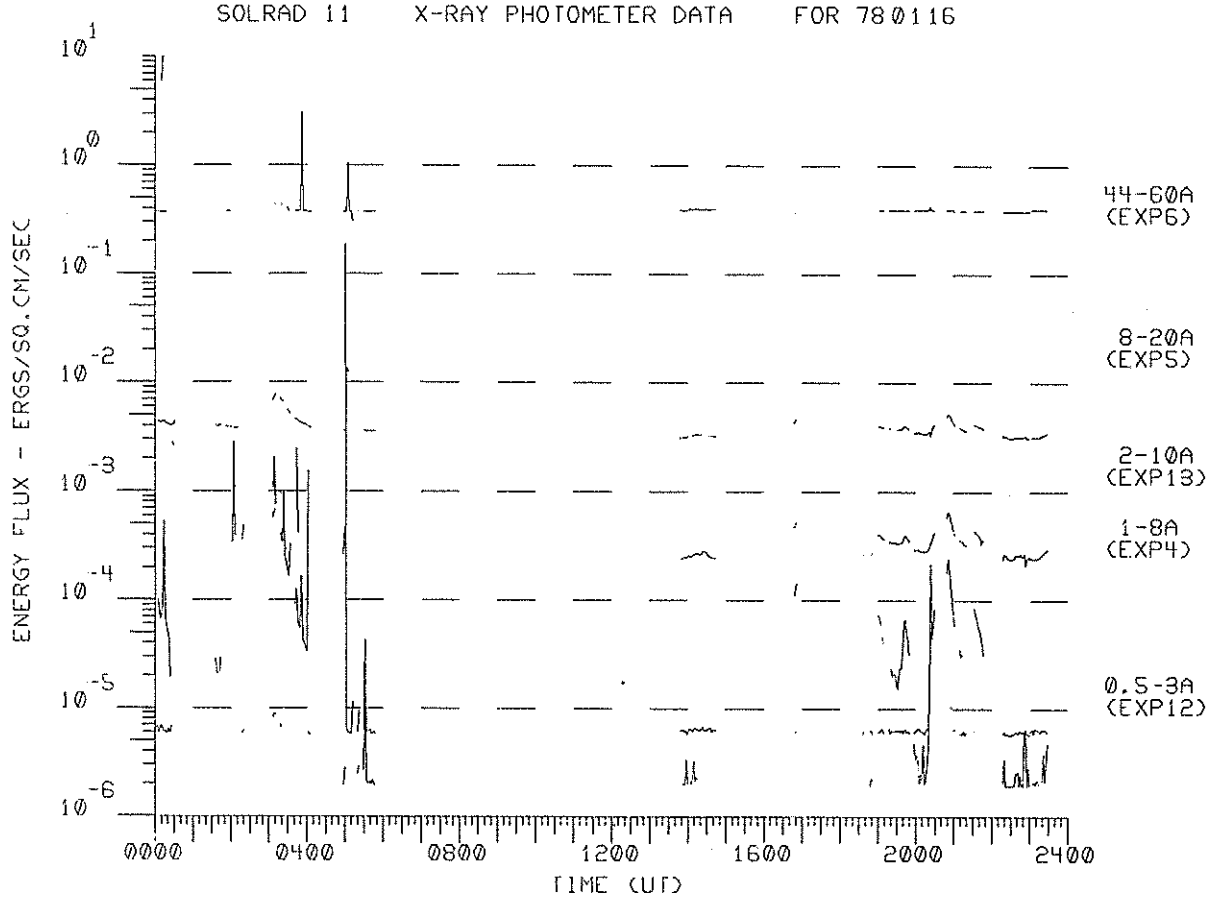


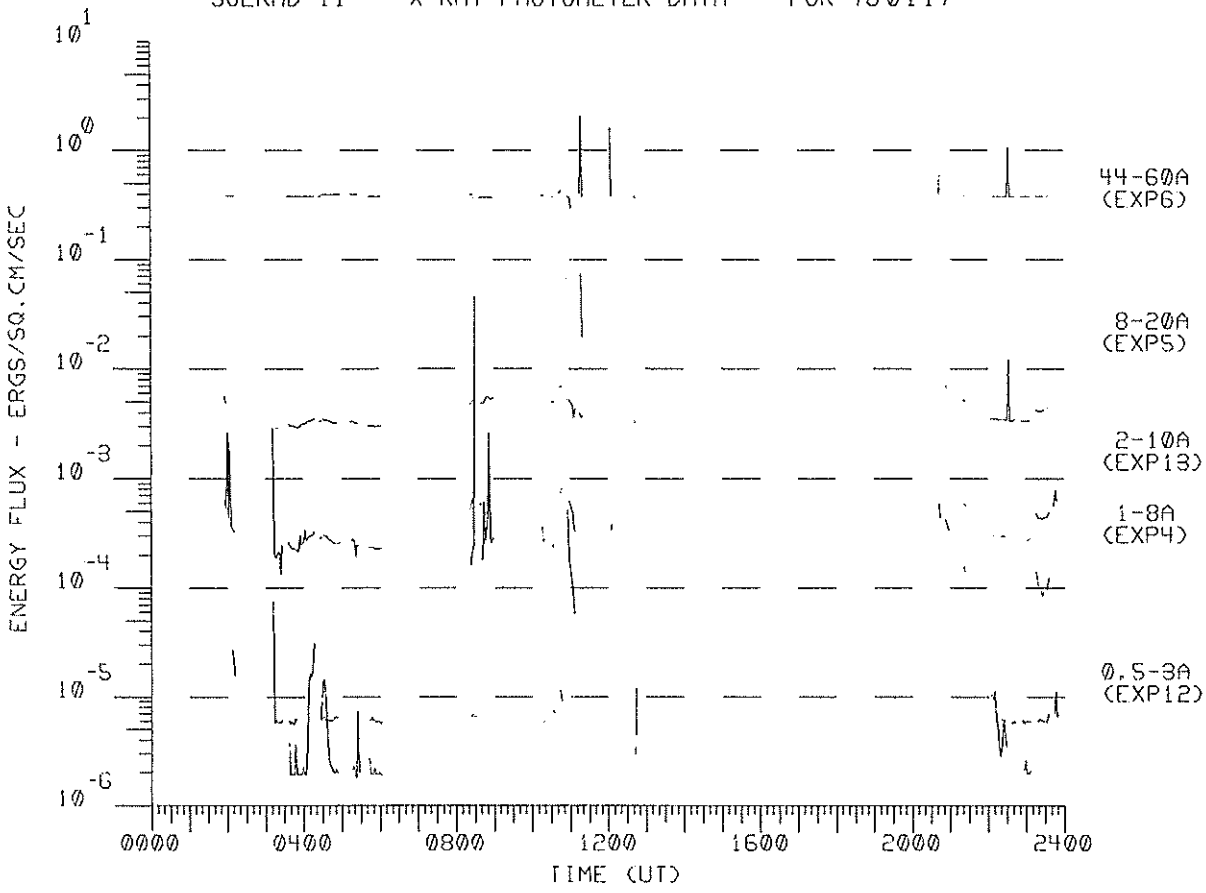

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780113
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780114
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)

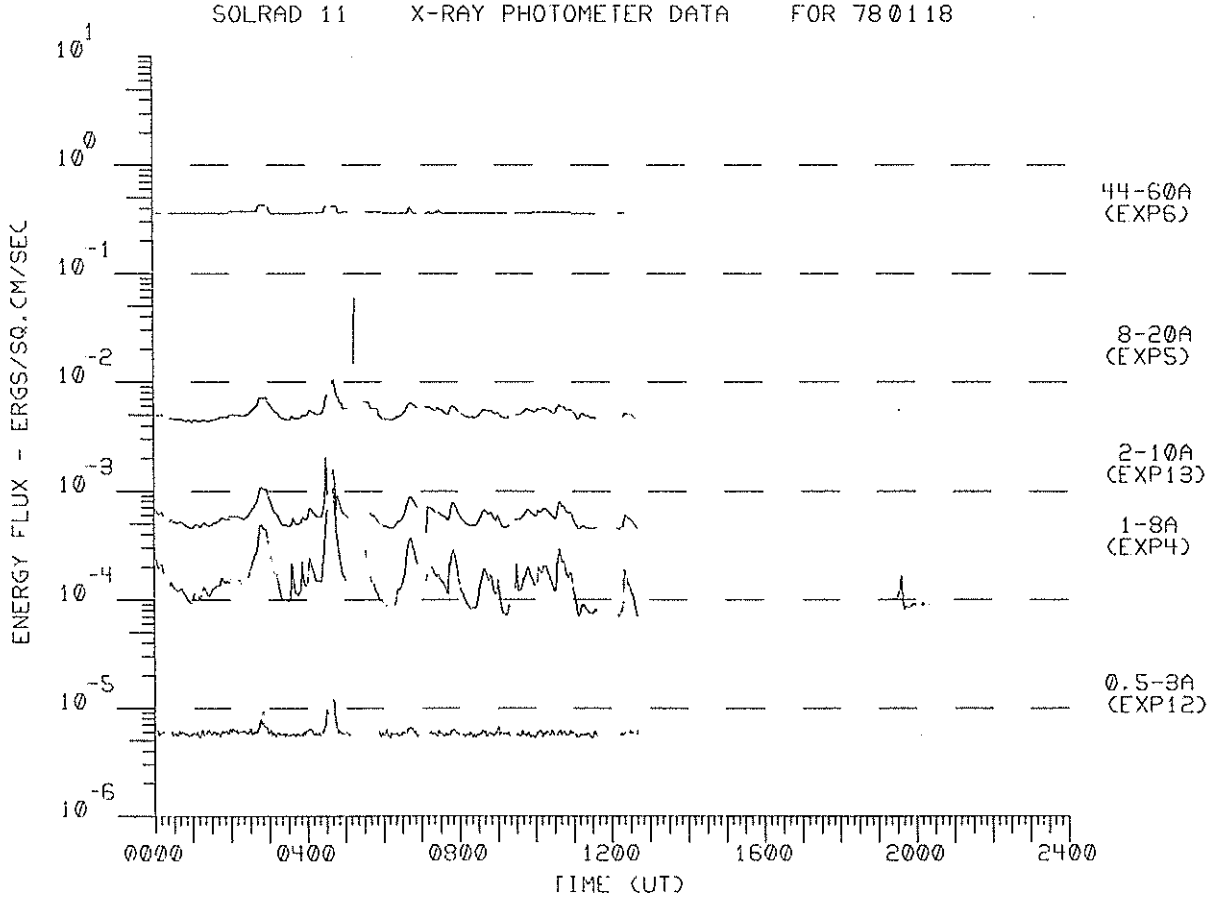

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780115
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

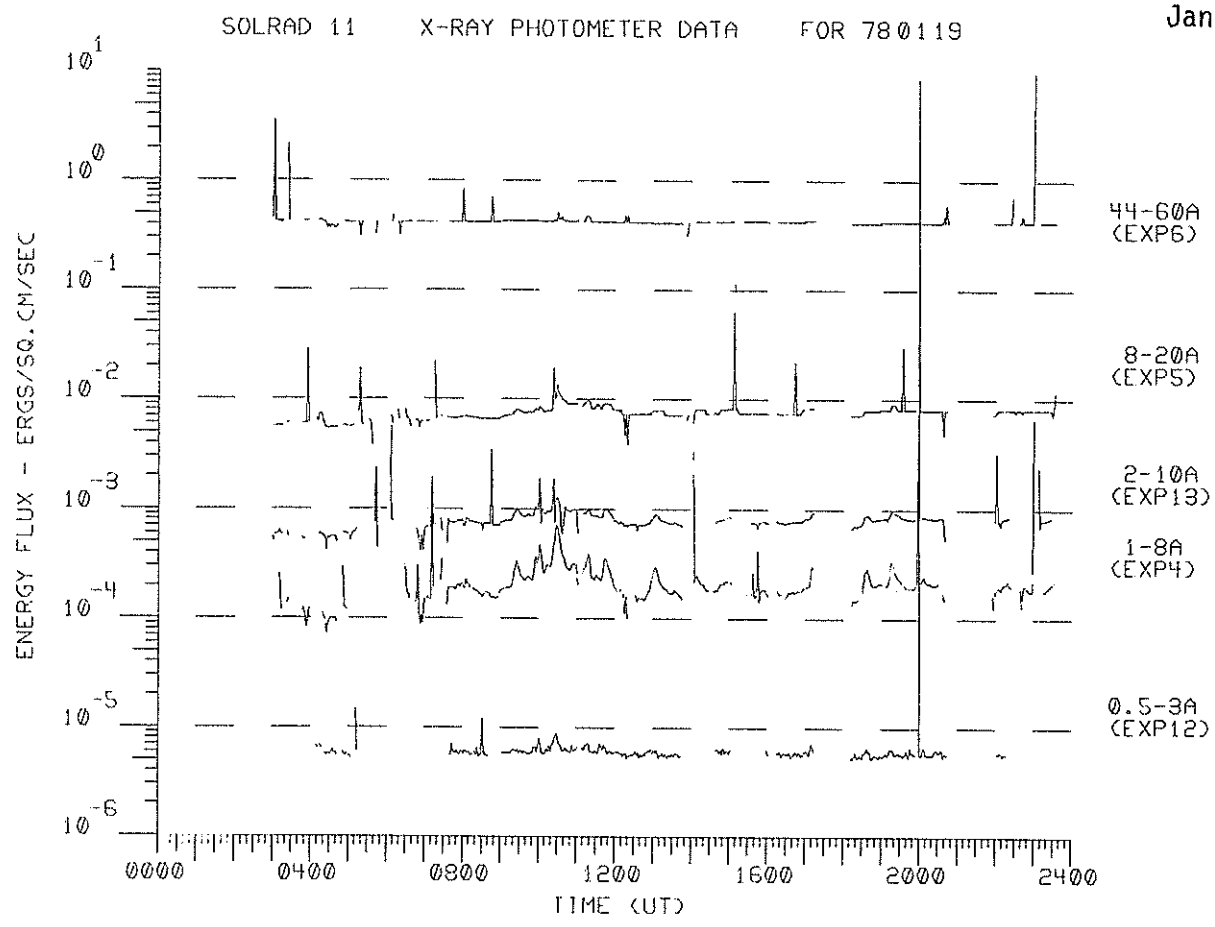

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780116
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

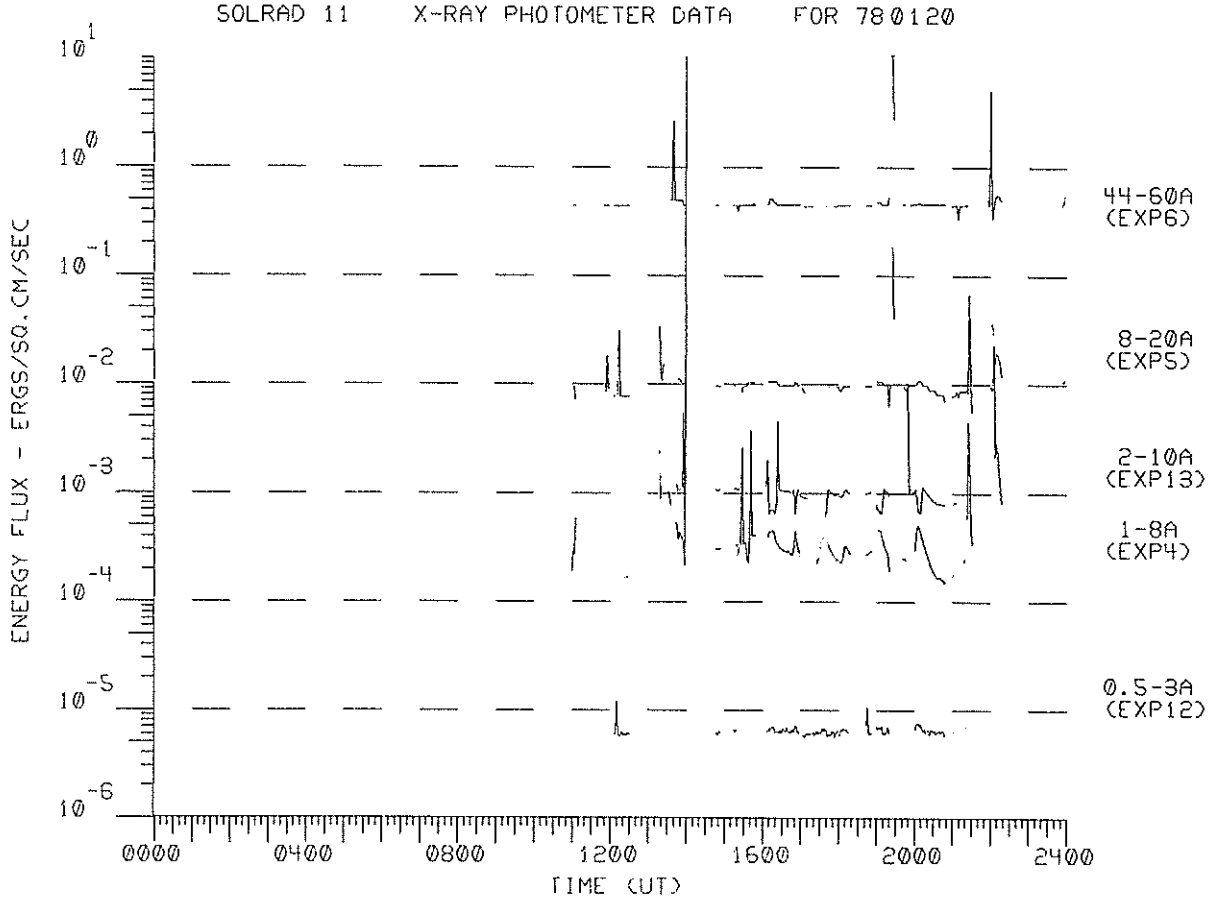
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780117



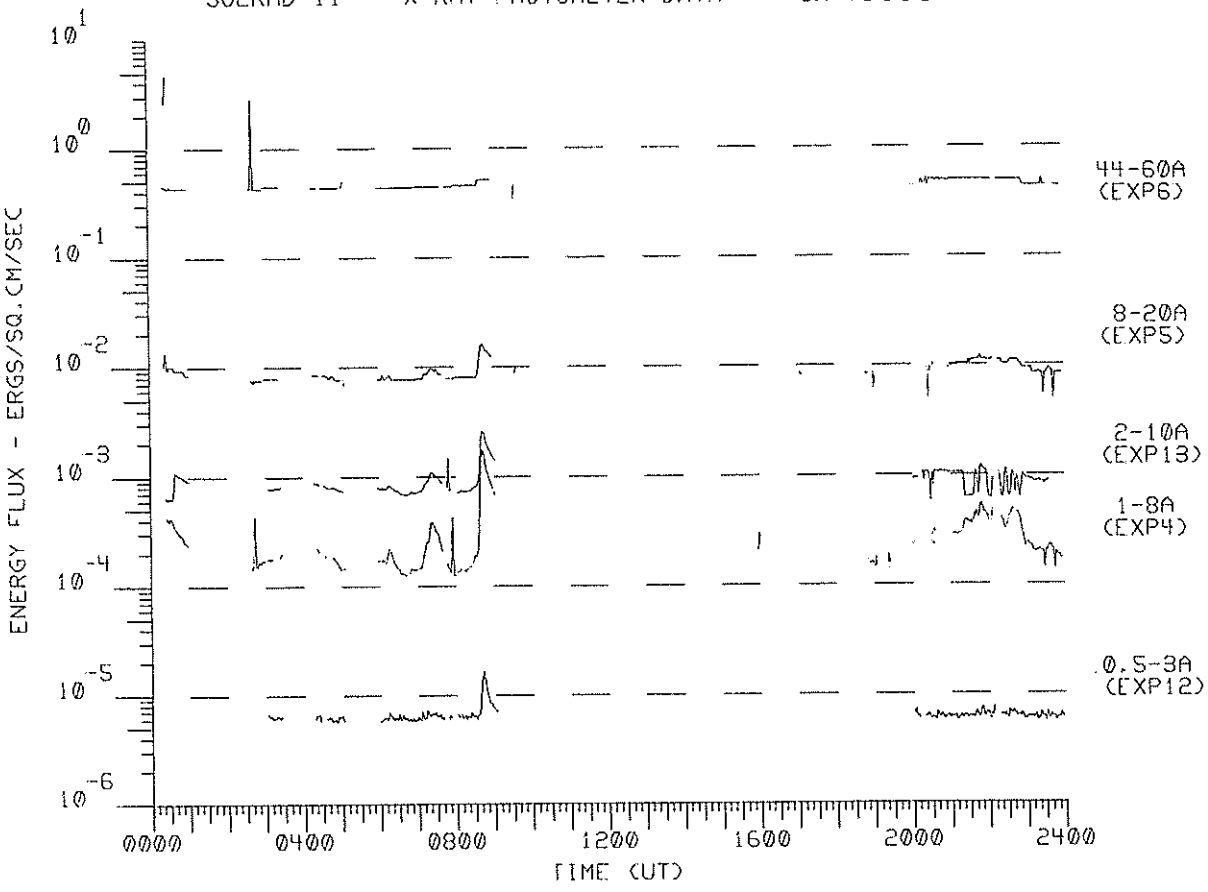
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780118



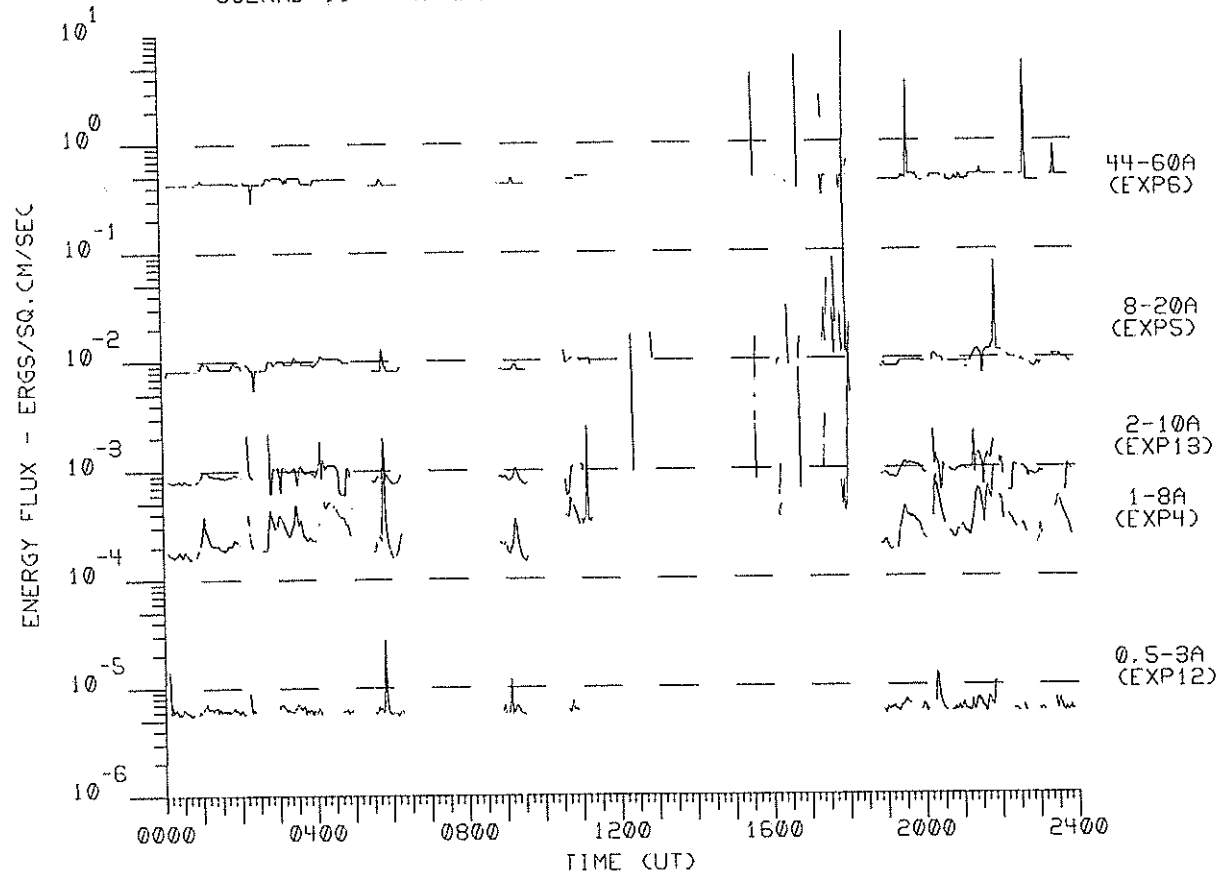

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780119
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

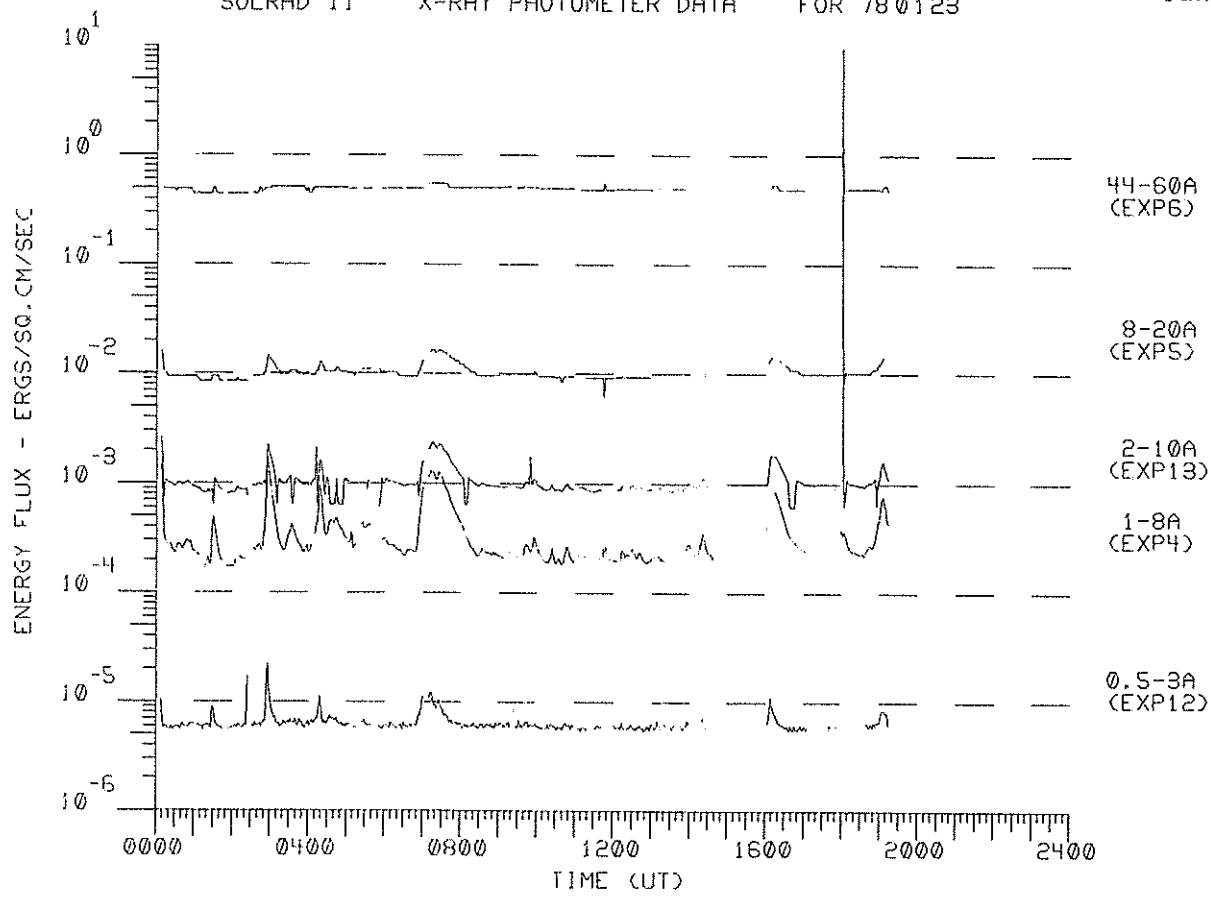

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780120
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

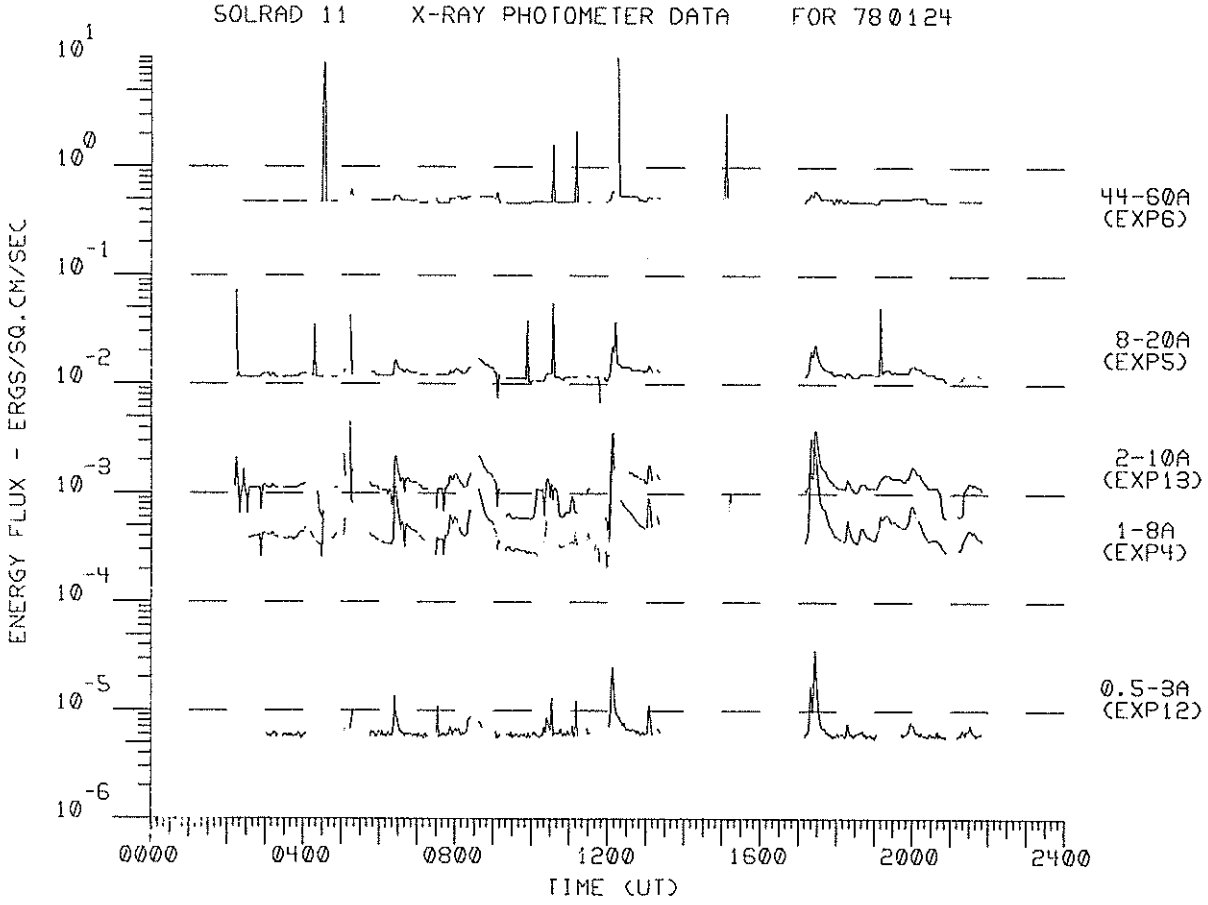
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780121

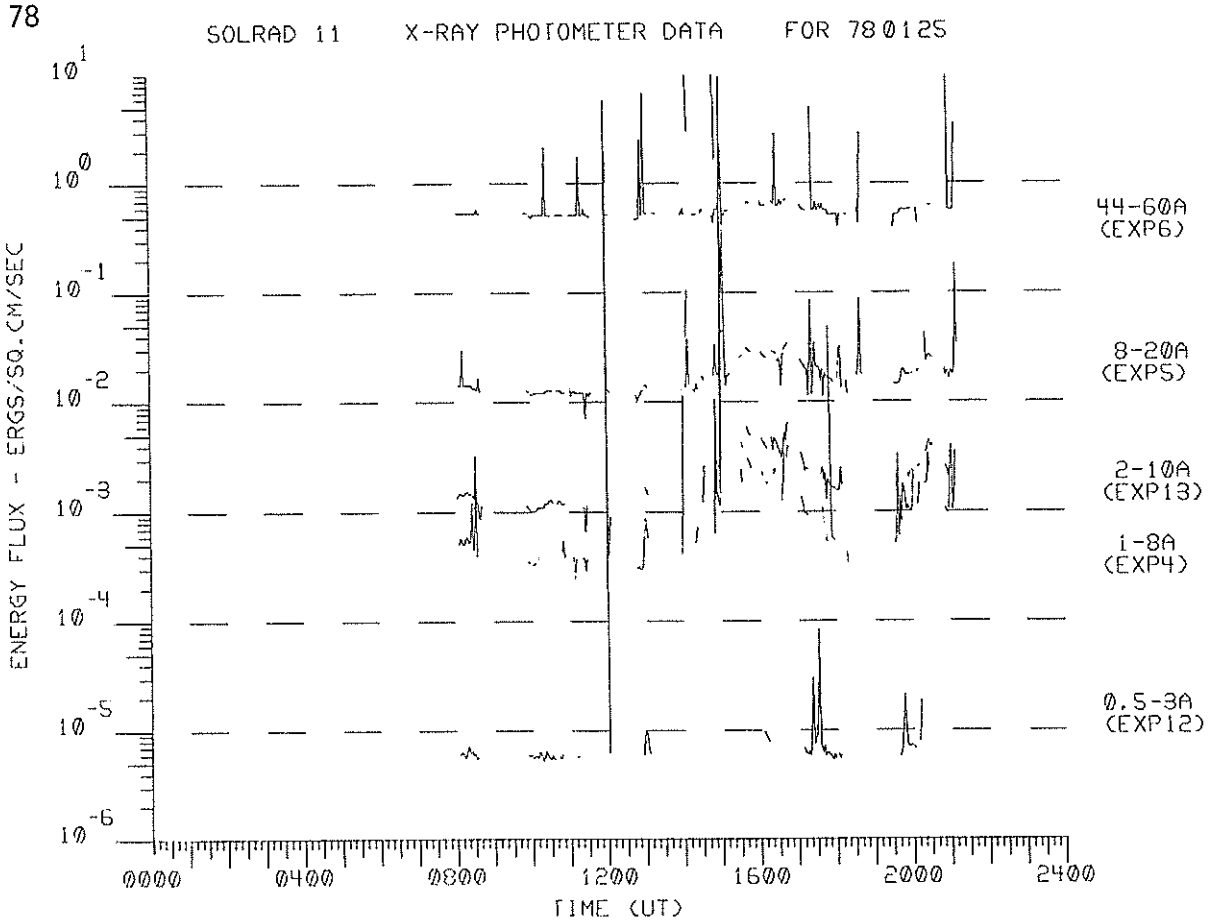


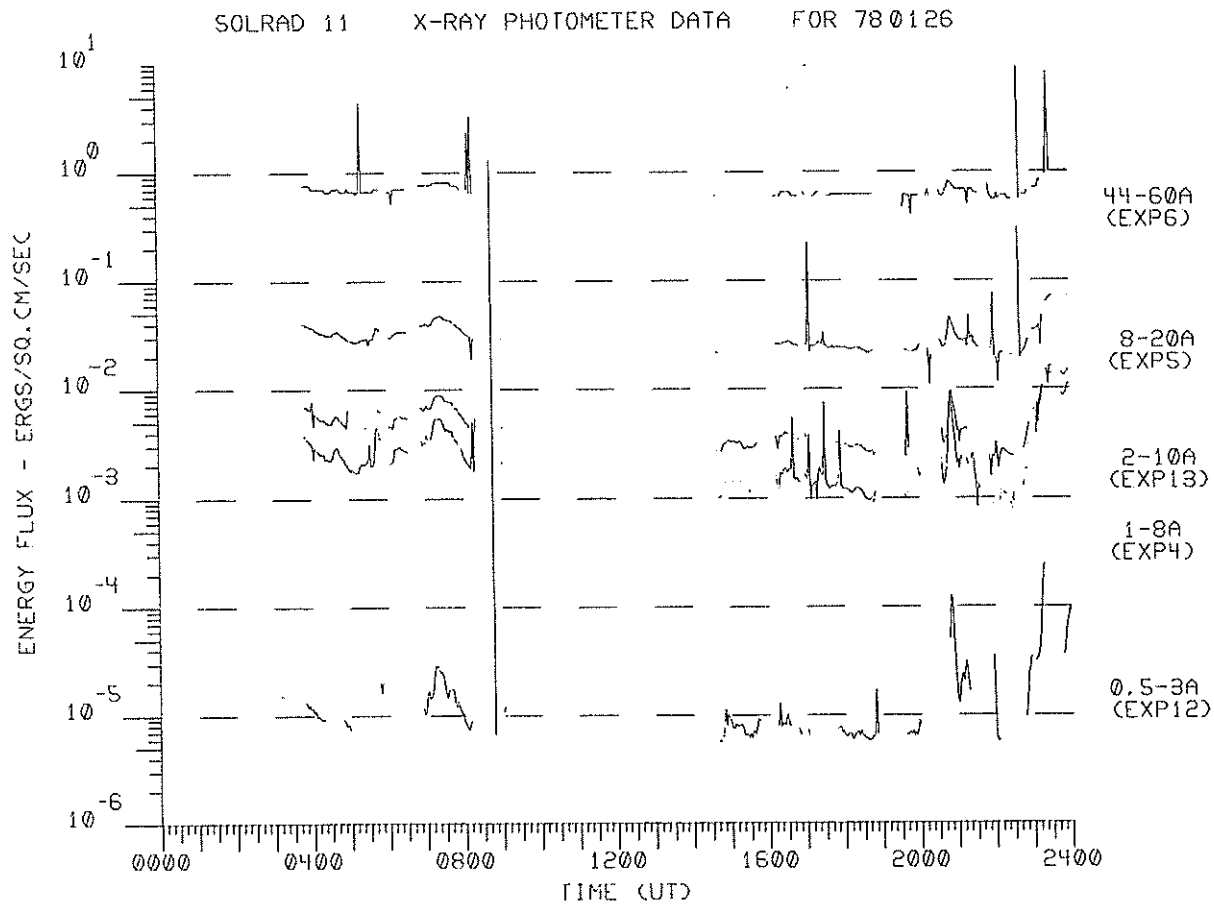
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780122

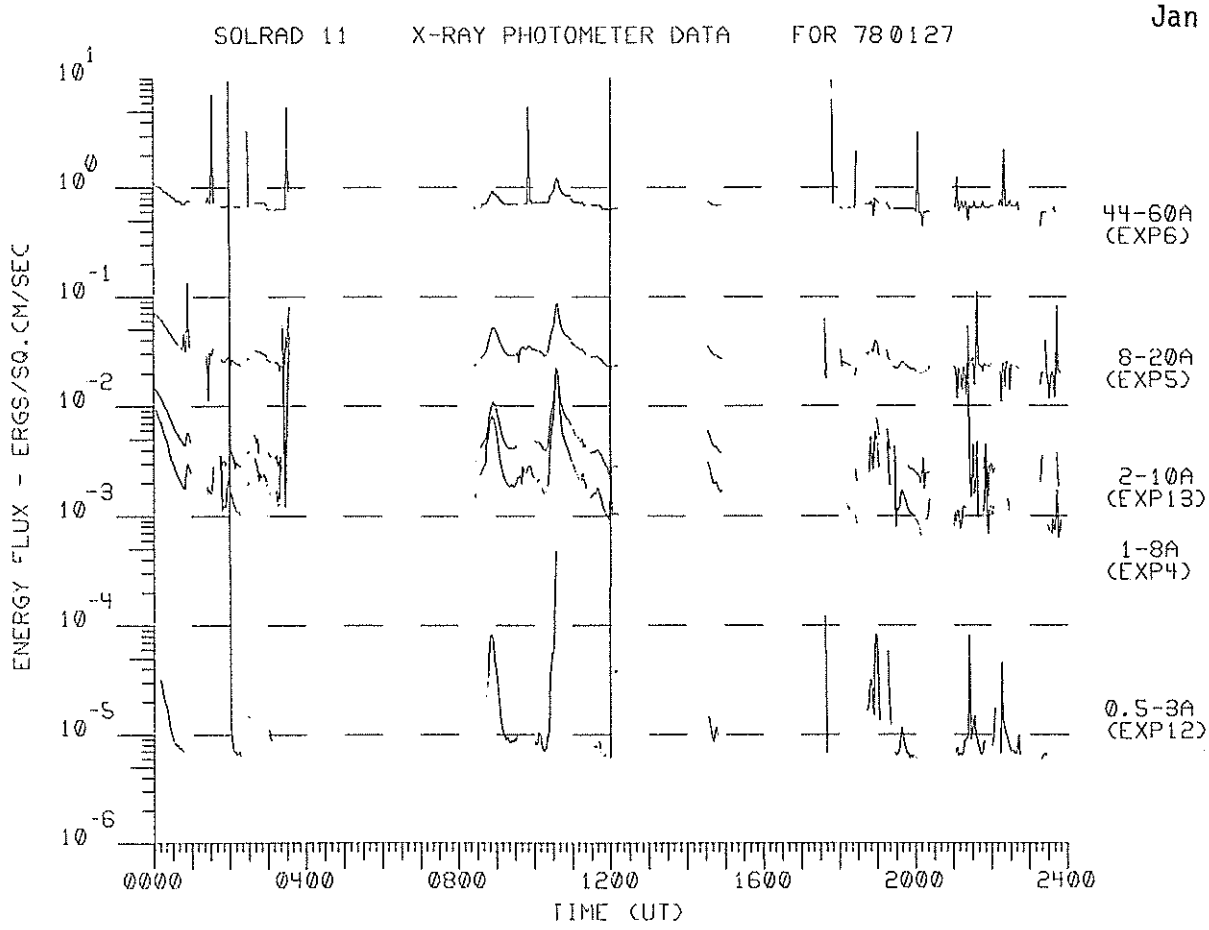


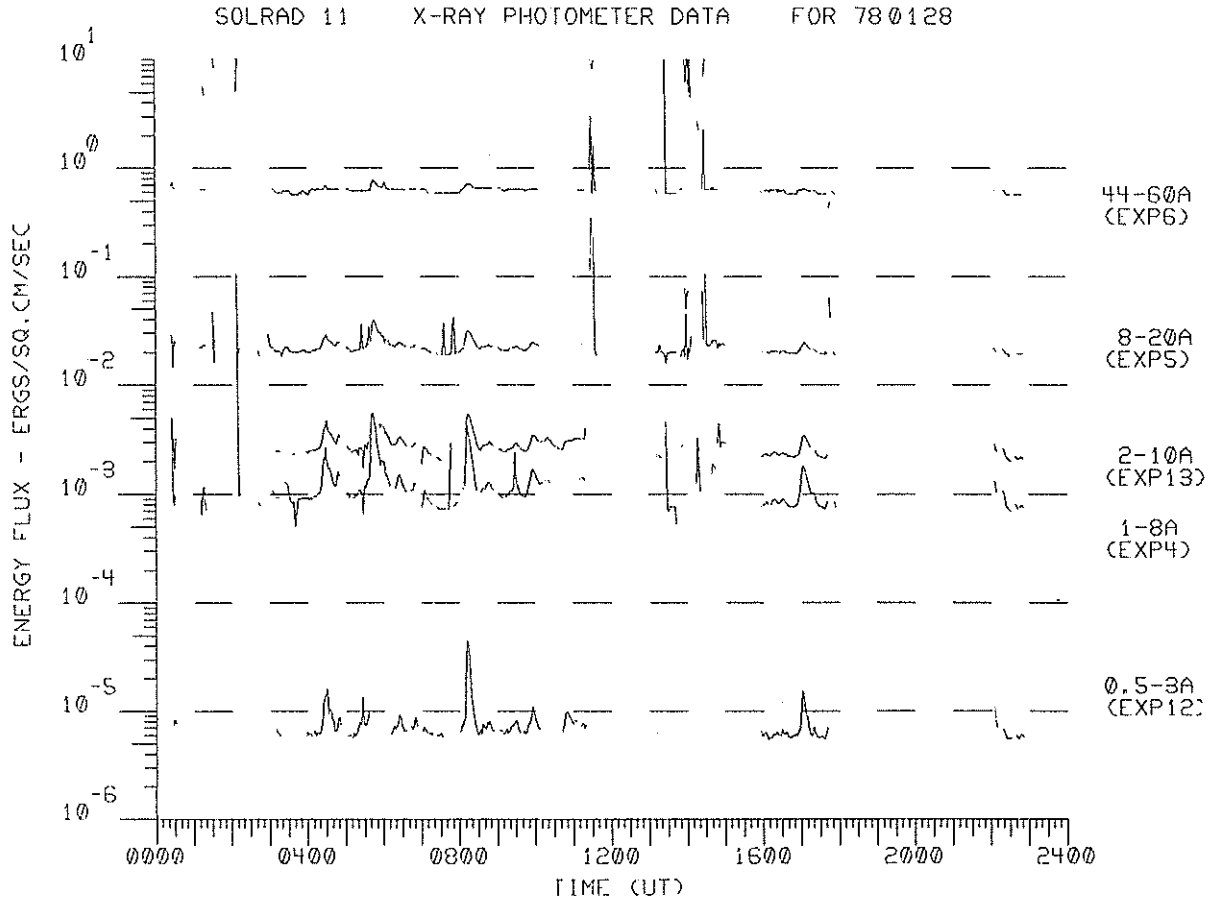

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780123
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

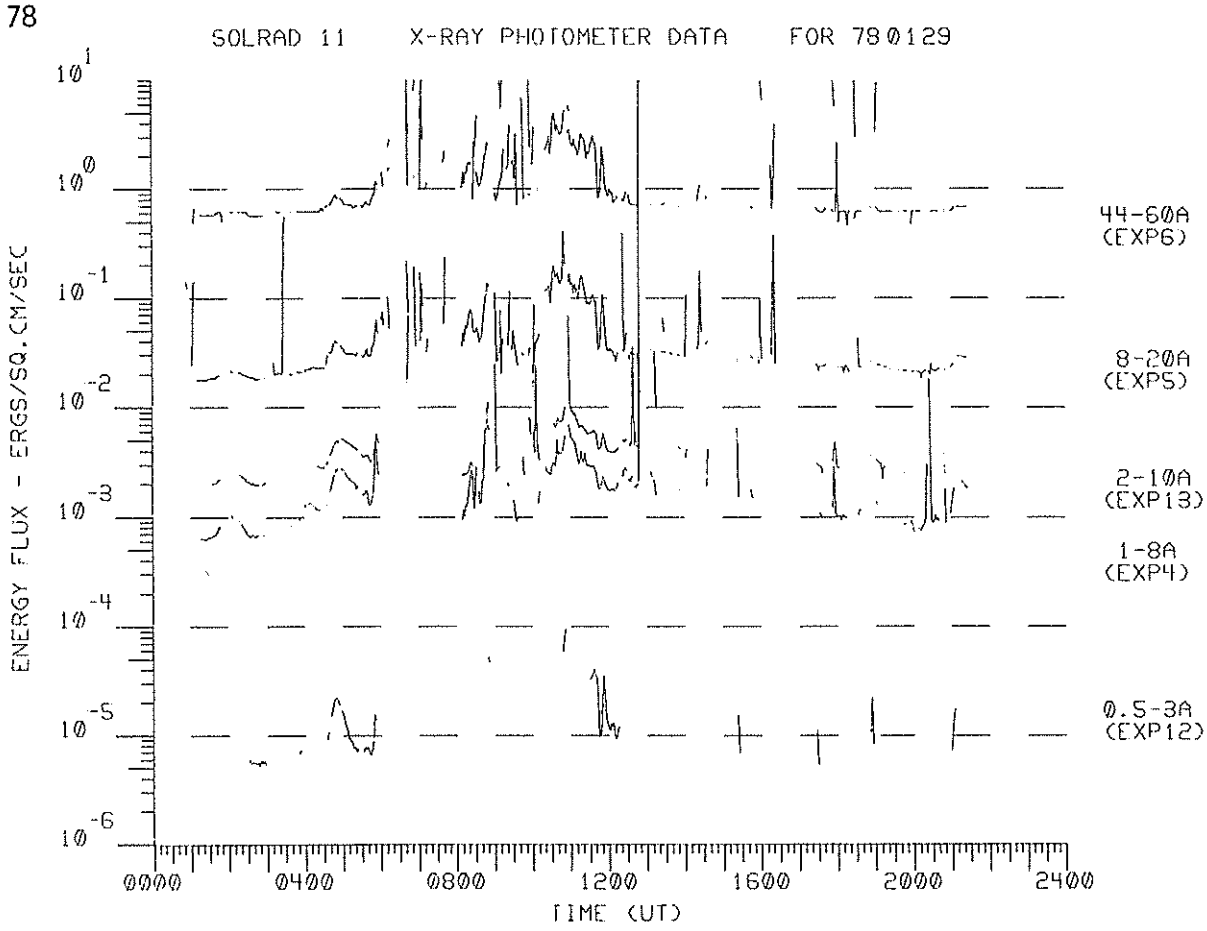

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780124
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

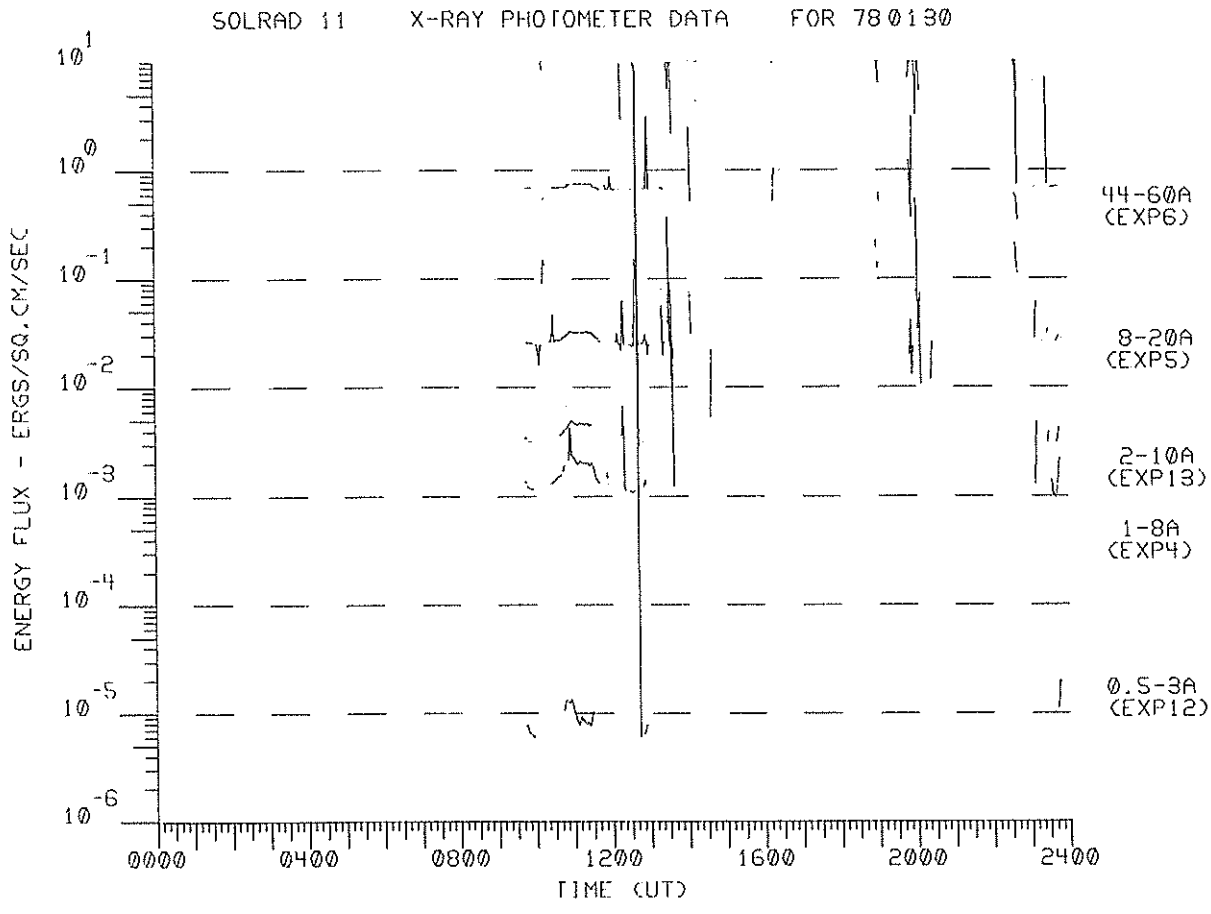

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780125
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

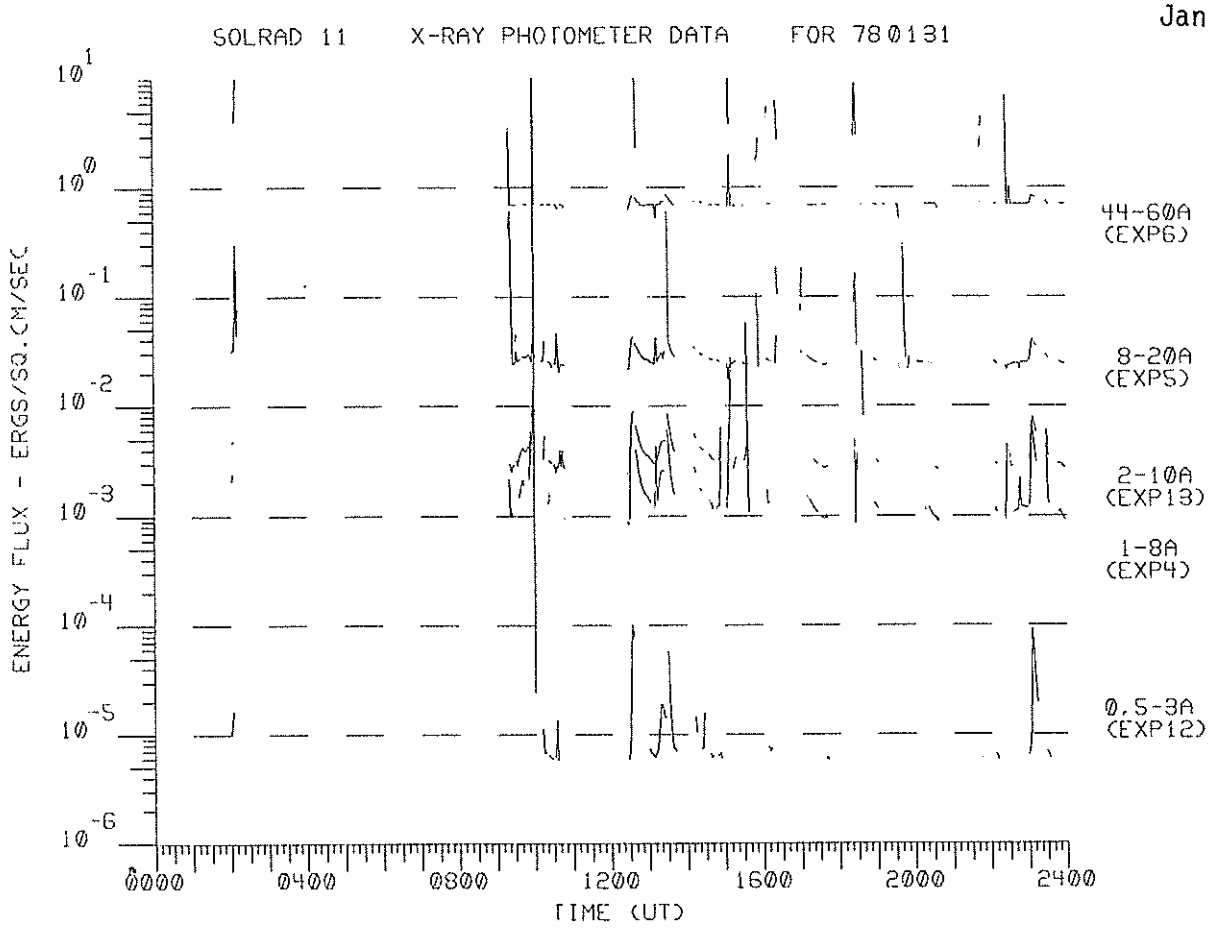

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780126
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780127
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 780128
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 780129
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 780130
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 780131
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
JANUARY 1978

JAN 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
01	0000	0932	MANI										
	0732	1522	DURN	0800	1522 D	1	0800	1522 D	1				IS,DC
	1218	2116	SGMR										
	1415	2345	HARV				2121		1				IIIB
			HARV	2147	2231	1	2145	2231	2				IIIGG
			HARV				2150	2211	3	2152	2211	3	II
	2153	2400	MANI										
02	0000	0923	MANI										
	0733	1527	DURN				0733 E	1230	?				IS,DC
			WEIS				0814.0	1334.0					IN
	0808	1419	WEIS				0827.0	1458.0					IIIN
	1218	2117	SGMR				1304.9	1720.0	1				CONT
	1437	1456	WEIS										
	1415	2345	HARV				1606	2112	1	1606	2112	1	IIIN
			SGMR				1942.6	1942.8	1				III
	2200	2400	MANI										
03	0000	0927	MANI							0308.6-	0308.9	1	III
	0752	0819	WEIS										
			DURN				1014.6	1109.7	3				IV, P,N,F
	0733	1524	DURN	1016.2	1022.0	2							DCIM
	0931	1457	WEIS				1017.4	1019.8	2				IIIG
			WEIS				1020.5	1026.5					IIH
			DURN				1110	1405	1				IS,C
			DURN				1205.2	1207.4	3				IIIG
	1218	2117	SGMR				1218.0	1256.0	2				CONT
			SGMR				1256.0	1344.0	1				IV
			SGMR				1344.0	2117.0	1				CONT
			WEIS				1445.0	1456.0	2				IIIGG
	1415	2345	HARV				1448	1452	3	1448	1452	3	IIIG
			DURN	1449.8	1450.9	2	1449.8	1450.9	2				IIIG
			HARV				1530	1536	2	1530	1536	2	IIIG
			HARV				1605		2	1605		2	IIIB
			HARV				1618	1620	2	1618	1620	2	IIIG
			HARV				1624	1625	3	1624	1625	3	IIIG
			HARV				1644		3	1644		3	IIIB
			HARV				1653		1	1653		1	IIIB
			HARV				1701	1703	3	1701	1703	3	IIIG
			HARV				1734	1737	3	1734	1737	3	IIIG
			HARV				1838	1839	2	1838	1839	2	IIIG
			HARV				1858	1859	3	1858	1859	3	IIIG
			HARV				1904	1915	1	1904	1915	1	IIIN
			HARV				1956		1	1956		1	IIIB
			HARV				2004		1	2004		1	IIIB
			HARV				2027	2042	2	2027	2042	2	IIIN
			HARV				2144		1	2144		1	IIIG
	2203	2400	MANI										
			HARV				2244		1	2244		1	IIIG
04	0000	0930	MANI							0408.3-	0410.5	2	III
	0755	1458	WEIS				0828.5	0833.3	3				IIIGG
	0734	1524	DURN	0828.8	0830.8	3	0828.8	0830.8	3				IIIGG
	1218	2118	SGMR										
	1415	2345	HARV										
	2218	2400	MANI										
05	0000	0633	MANI										
	0732	0929	MANI										
	0733	1524	DURN										
	0754	1404	WEIS				0919.2	0920.6	1				IIIG
	1218	2118	SGMR										
			WEIS				1230.9	1233.2	2				IIIG
			WEIS				1333.0	1333.6	2				IIIG
			WEIS				1348.5	1348.8					IIIG
	1415	2345	HARV				1431		1				IIIG
	1440	1459	WEIS										
	2206	2400	MANI										
06	0000	0930	MANI							0153.1-	0153.3	1	III

SOLAR RADIO EMISSION
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JAN 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	
06	0733	1527	DURN										
	0756	1501	WEIS				0915.8	0919.2	1				IIIG
	1218	2119	SGMR										
			WEIS				1405.8	1406.1	1				IIIG
	1415	2345	HARV				1759		2				IIIB
			HARV				2023		1	2023		1	IIIB
	2214	2400	MANI							2338.3-	2338.6	1	III
07	0000	0947	MANI							0210.5-	0315.0	2	CONT
	0754	1504	WEIS				0851.5	0854.5	1				II
			WEIS				0920.0	0920.3	2				IIIG
	0733	1528	DURN	0922.7	0922.7	2							IIIB
			WEIS				0942.7	0942.8	1				IIIB
			WEIS				0957.9	0958.1	2				IIIG
			DURN	0957.9	0958.0	3	0957.9	0958.1	3				IIIG
			WEIS				1025.0	1339.0	3				IIIS
			DURN	1031.0	1031.0	2	1031.0	1031.0	1				IIIG
			DURN	1103.2	1110.7	2	1103.2	1110.7	2				IIIG,N
			DURN	1124	1303	3	1124	1303	3				IV, P,F
			DURN				1515.4	1526.3	2				IIIG,N
	1415	2345	HARV				1526	1527	2				IIIG
			HARV				1844	2137	2	1844	2137	2	I,IIIN
	1219	2121	SGMR				1908.0	2119.0	1				CONT
			HARV	1909	2024	2							IIIN,IVPN
	2219	2400	MANI										
08	0000	0931	MANI							0024.5-	0025.2	1	III
	0732	1528	DURN										
	0754	1242	WEIS				1109.4	1109.7	1				IIIG
	1357	1506	WEIS										
	1415	2345	HARV				1702	1705	1	1702	1705	1	IIIG
			HARV				1719	1724	2	1719	1724	2	IIIG
			HARV				1738	1831	1	1738	1831	1	IIIN
			HARV				1738	2000	1	1738	2000	1	I
	1218	2122	SGMR				1744.8	1745.0	1				III
			SGMR				1807.0	2122.0	1				CONT
			HARV				1852	1913	3	1852	1913	3	IIIGG
			HARV	1903	1931	2							IVN
			HARV				2159		1				IIIG
	2210	2400	MANI										
09	0000	0930	MANI										
	0732	1527	DURN										
	0754	1507	WEIS				0802.2	0802.4	1				IIIB
			WEIS				1129.0	1248.5	3				II
			WEIS				1225.2	1230.5	3				IIIG
	1218	2123	SGMR				1226.1	1230.5	2				V
	1415	2345	HARV										
	2214	2400	MANI										
10	0000	0929	MANI										
	0732	1527	DURN										
	0752	1509	WEIS				0905.5	0906.2	1				IIIG
			WEIS				0911.0	0911.1	1				IIIB
			WEIS				0943.5	0943.7	1				IIIB
	1217	2125	SGMR										
	2210	2410	MANI										
	1415	2345	HARV				2320	2338	1	2335	2338	1	I
			HARV				2324	2336	2	2335	2336	2	II
11	0000	0811	MANI										
	0732	1527	DURN										
	0817	1319	WEIS										
	0846	0930	MANI										
	1217	2126	SGMR										
	1342	1509	WEIS										
	1415	2345	HARV										
	2206	2400	MANI										
12	0000	0317	MANI										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS
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JAN 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
12	0357	0933	MANI										
	0752	0946	WEIS										
	1217	2127	SGMR				1434.7	1435.1	1				IIIG
	0732	1540	DURN				1535.7	1535.8	3				IIIG
			SGMR				1535.8	1537.0	3				V
	1415	2345	HARV				1536	1541	3	1536	1541	3	IIIG,V
			SGMR				1715.4	1717.0	2				IIIG
			HARV				1715	1717	3	1715	1717	3	IIIGG,V
			HARV				1719	1720	1	1719	1720	1	IIIG
			HARV				1728	1730	3	1728	1730	3	IIIGG
			SGMR				1830.9	2127.0	2				IIIS
			HARV				1831		3	1831		3	IIIB
			HARV				2030	2032	2	2030	2032	2	IIIG,V
	2204	2400	MANI										
13	0000	0928	MANI										
	0732	1540	DURN				0732 E	1023	1				IS
			DURN				1026.8	1027.1	2				IIIG
	1216	2128	SGMR										
	1415	2345	HARV										
	* 2152	2400	MANI										
14	0000	0937	MANI										
	0732	1540	DURN				0732 E	1540 D	1				IS,DC
	1415	2345	HARV				1420	1440	1				I
			HARV				1554		1	1554		1	IIIB
	1216	2129	SGMR				1743.4	1744.0	1				IIIG
			HARV				1743	1744	3	1743	1744	3	IIIG
			HARV				1849	1904	3	1844	1904	3	IIIGG
			HARV				1918	2210	2	1918	2210	2	IIIN,I
	2208	2400	MANI										
15	0000	0938	MANI										
	0731	1540	DURN				0731 E	1540 D	3				IC,DC
	1215	2130	SGMR										
	1415	2345	HARV										
	2208	2400	MANI										
16	0000	0930	MANI										
	0731	1540	DURN				0907	1540 D	2				I,DC
	1215	2132	SGMR										
	1415	2345	HARV										
	2151	2400	MANI										
17	0000	0938	MANI										
	1214	2134	SGMR				1410.1	1410.8	1				IIIG
	0731	1540	DURN	1410.2	1410.2	1							III,RS
	1415	2345	HARV										
	2142	2400	MANI										
18	0000	0933	MANI										
	0730	1541	DURN										
	1214	2134	SGMR										
	1415	2345	HARV				2128		2	2128		2	IIIB
	2132	2400	MANI										
19	0000	0931	MANI										
	0730	1545	DURN										
	0850	1413	WEIS										
	1213	2135	SGMR										
	1415	2345	HARV										
	1443	1519	WEIS										
	2140	2400	MANI										
20	0000	0934	MANI										
	0729	1548	DURN										
	0746	1521	WEIS										
	1415	2000	HARV										
	2152	2400	MANI										
	2200	2345	HARV										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS
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JAN 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
20			SGMR										
21	0000	0940	MANI										
	0728	1548	DURN										
	0745	1522	WEIS										
	1412	2138	SGMR										
	1415	2345	HARV										
	2216	2400	MANI										
22	0000	0934	MANI										
	0727	1549	DURN										
	0742	1336	WEIS										
	1211	2139	SGMR										
	1351	1524	WEIS										
	1415	2345	HARV										
	2141	2400	MANI										
23	0000	0940	MANI										
	0726	1549	DURN				0726 E	1549 D	1				IS
	0744	1526	WEIS										
	1210	2140	SGMR										
	1415	2345	HARV										
	2138	2400	MANI										
24	0000	0937	MANI										
	0742	1527	WEIS										
	0725	1549	DURN	1202.3	1203.5	1							IIIGG
	1210	2142	SGMR										
	1415	2345	HARV										
	2154	2400	MANI										
25	0000	0933	MANI										
	0725	1549	DURN										
	0739	1134	WEIS										
	1152	1529	WEIS										
	1209	2143	SGMR										
	1401	2345	HARV										
	2134	2400	MANI										
26	0000	0935	MANI										
	0725	1347	DURN										
	0739	1531	WEIS										
	1005	1442	DWIN				1005	1442	1				IN
	1208	2144	SGMR										
	1400	2345	HARV										
	1419	1550	DURN										
	2137	2400	MANI										
27	0000	0935	MANI										
	0724	1550	DURN				0724 E	0830	1				IS
	0735	1536	WEIS				0813.0	0834.0	2				I
	1205	2145	SGMR										
	1400	2330	HARV				1712		1	1712		1	IIIB
			HARV				1756		1	1756		1	IIIB
			HARV				1759		1	1759		1	IIIB
			HARV				1813		1				IIIB
			HARV				1834		1	1834		1	IIIB
			HARV				1838	1839	2	1838	1839	2	IIIG
			HARV				1844		1	1844		1	IIIG
			HARV				1951	1954	2	1951	1954	2	IIIG
	2134	2400	MANI										
28	0000	0016	MANI										
	0040	0600	MANI										
	0629	0938	MANI										
	0734	0901	WEIS										
	0724	1553	DURN				0847	1500	1				IS
	1206	2147	SGMR										
			DURN	1304.7	1305.1	3	1304.7	1305.1	3				IIIG,U
	1333	1538	WEIS				1454.9	1455.3	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1978

JAN 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	
28			OURN				1550.5	1550.7	2				IIIG
	1400	2340	HARV				2056		1				IIIG
	2210	2400	MANI										
29	0000	0937	MANI										
	0723	1527	OURN				0723 E	1527 D	2				IS
			OURN				0744.5	0744.7	3				IIIG
			OURN	0830.1	0835.5	1	0830.1	0835.5	3				IIIGG
	0733	1539	WEIS				1013.0	1512.0	2				IS,DC
	1205	2148	SGMR										
	1400	2330	HARV				1716		2	1716		2	IIIG
	2142	2400	MANI										
30	0000	0939	MANI										
	0731	1541	WEIS										
	1204	2149	SGMR										
	1400	2330	HARV										
	2145	2400	MANI										
31	0000	0938	MANI										
	0729	0738	WEIS										
	0722	1554	OURN	0936.7	0942.9	1	0936.7	0942.9	3				IIIGG
	0810	1040	WEIS				0936.8	0937.3	2				IIIG
			WEIS				0939.3	0939.5	3				IIIG
			WEIS				0942.0	0943.0	3				IIIG
			WEIS				1022.8	1029.7	2				IIIG
			OURN	1022.8	1029.7	1	1022.8	1029.7	3				IIIGG
	1057	1543	WEIS										
			OURN				1158.9	1158.9	1				IIIB
	1203	2151	SGMR										
	1400	2345	HARV				1816		1				IIIB
			HARV				1834	1838	2				IIIGG
			HARV				2037		1				IIIG
	2141	2400	MANI										
			MANI							0027.1-	0027.4	1	III
			MANI							0208.5-	0210.6	1	IIIG
			MANI							0335.8-	0336.2	2	III
			MANI							0343.5-	0638.5	3	IV
			MANI							0541.5-	0543.8	1	IIIG
			MANI							0622.8-	0623.4	1	III
			MANI							0829.9-	0831.5	2	III

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 burst
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

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

COSMIC RAY INDICES

(Neutron Monitors)

JANUARY 1978

January 1978	THULE Average cts/hr	ALERT Average cts/hr	DEEP RIVER Average cts/hr	CALGARY Average cts/hr	SULPHUR MT Average cts/hr	KIEL Average cts/hr	CLIMAX Average cts/hr	TOKYO Average cts/hr	KULA Average cts/hr
1	Data not available at time of publication.	7428.4	6948.9	Data not available at time of publication.	Data not available at time of publication.	6241.5	Data not available at time of publication.	3629.7	Data not available at time of publication.
2		6056.5	6954.2			6245.8		3633.8	
3		7414.7(20)	6970.3			6264.7		3623.5	
4		7207.7	6720.5			6083.7		3621.7	
5		7184.3	6785.3			6123.0		3642.2	
6		7323.3	6856.6			6164.3		3644.6	
7		7404.1	6924.5			6233.9		3653.3	
8		7404.6	6946.8			6271.1		3654.2	
9		7429.9	6955.5			6278.0		3662.4	
10		7408.3	7003.8			6310.9		3668.8	
11		7437.1	6919.7			6298.7		3658.4	
12		7456.4	6947.3			6291.7		3640.8	
13		7401.9	6957.9			6249.0		3629.3	
14		7482.4	6980.6			6272.2		3630.0	
15		7531.1	7041.5			6344.3		3637.5	
16		7484.5	7065.2			6375.5		3653.0	
17		7465.1	6998.5			6322.0		3644.9	
18		7466.5	6996.1			6304.0		3626.4	
19		7447.6	7002.2			6331.6		3641.7	
20		7464.9	6999.3			6316.4		3641.2	
21		7447.3	7011.2			6312.7		3652.3	
22		7428.8	7001.6			6322.5		3646.8	
23		7401.1	6988.3			6328.6		3639.5	
24		7424.9	6990.5			6349.8		3640.5	
25		7407.6	6964.2			6310.9		3632.2	
26		7385.4	6966.5			6289.3		3621.4	
27		7390.7	6973.9			6290.7		3616.5	
28		7429.3	6947.7			6312.2		3621.0	
29		7356.0	6872.7			6281.1		3619.9	
30		7210.8	6733.9			6137.5		3572.0	
31		7256.6	6777.0			6149.7		3587.2	
MEAN		7356.1	6942.0			6271.2		3635.0	

( ) 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.

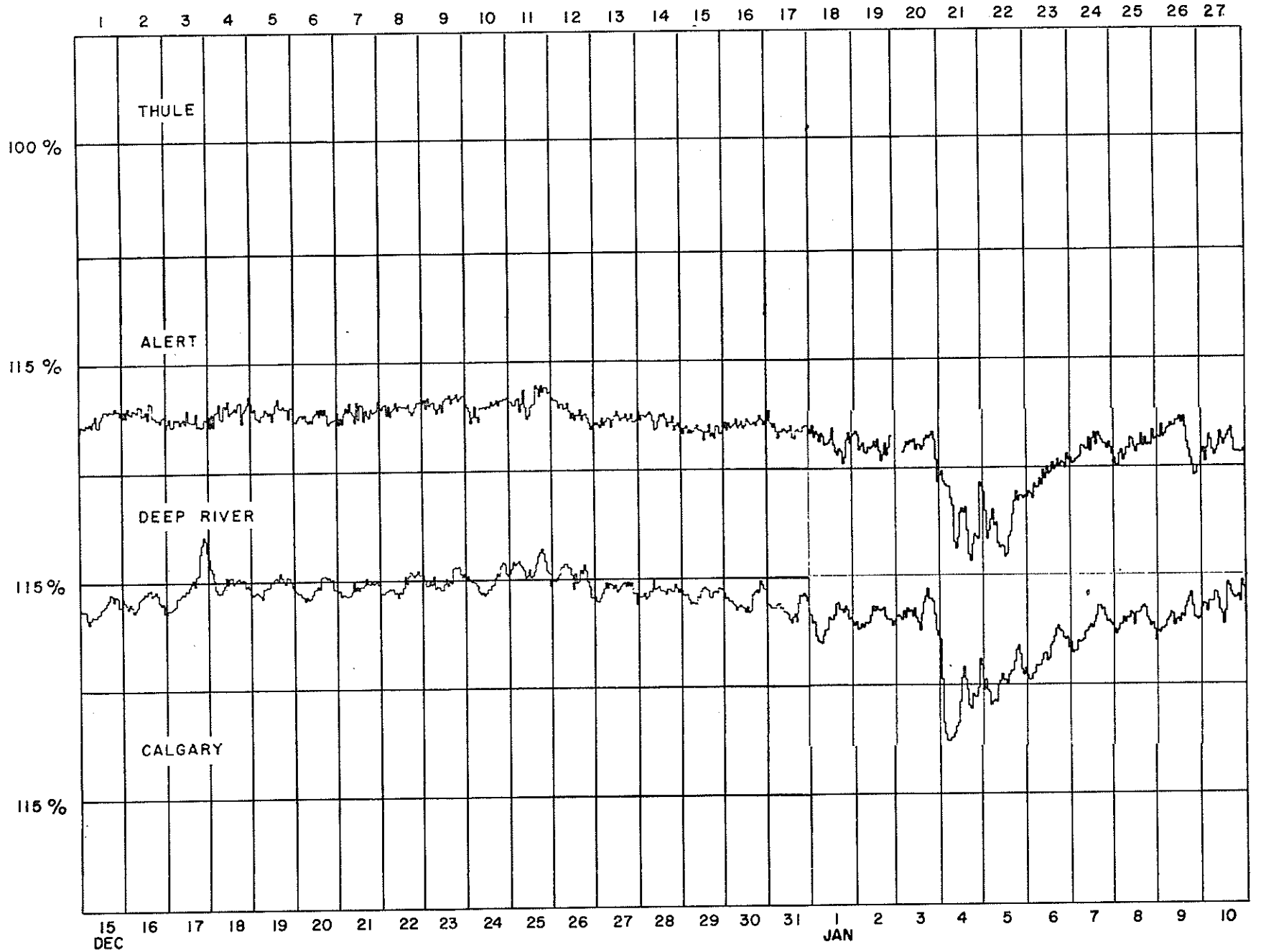
Notes: Tokyo neutron monitor counting rate increased by 2.0/1.5 since the beginning of September 1977. The number of counters changed from 27 to 36. Since the scaling factor has been changed, the listed figures are nearly the same as those in and before May 1977. The level in June, July, and August, 1977 is slightly lower than before. The level in September 1977 has been adjusted, so that direct comparison with the data in and before May, 1977 is possible.

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

Kula data are available on magnetic tape from the World Data Center A for Solar-Terrestrial Physics. These data include the periods July 1967-December 1970 and October 1975 to the present.

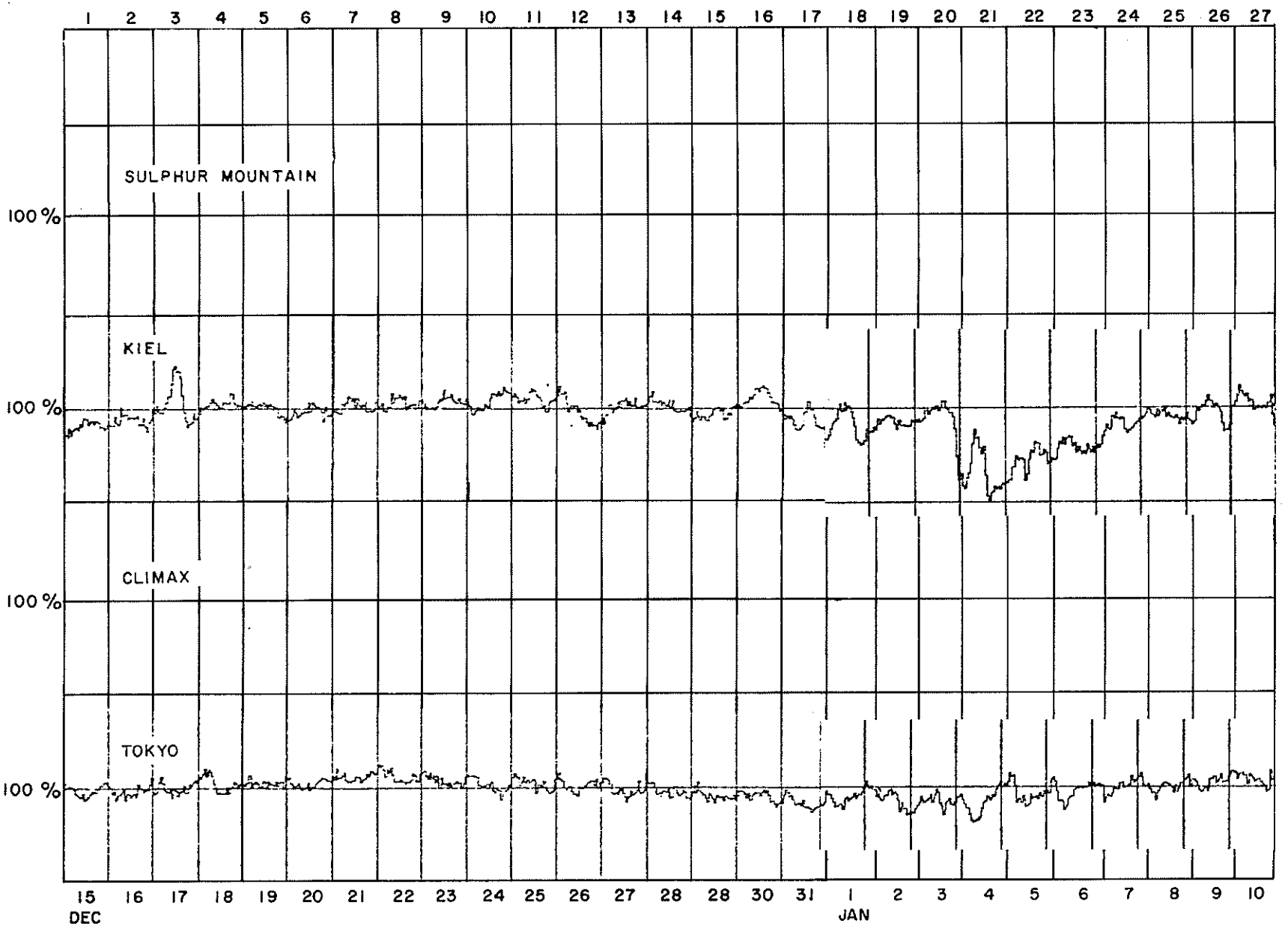
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1974 (December 1977 - January 1978)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1974 (December 1977 - January 1978)



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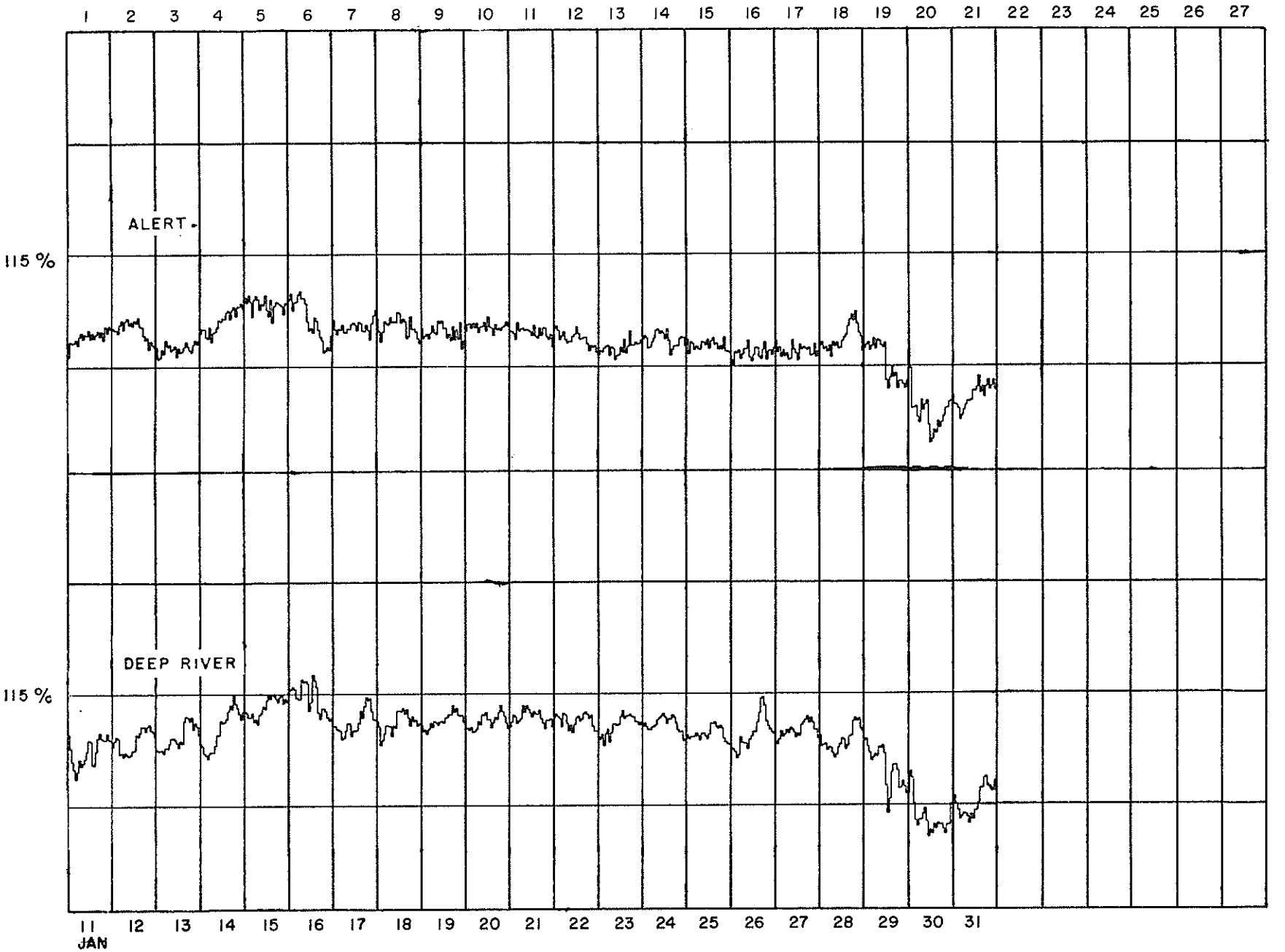
Jan 78

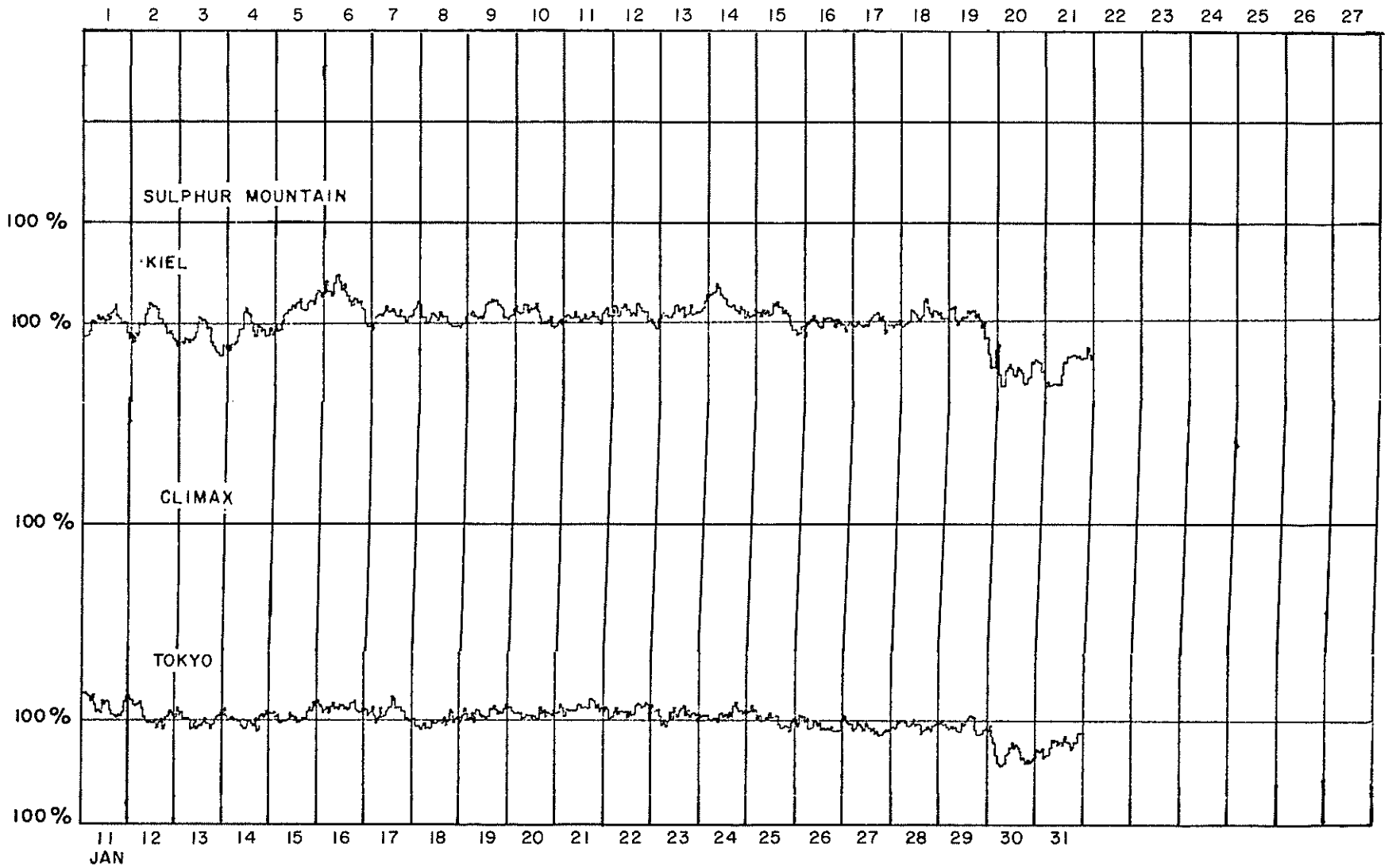
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1975 (January 1978)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1975 (January 1978)



GEOMAGNETIC ACTIVITY INDICES

JANUARY 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		2-	2	2-	1+	1-	1	3-	3-	14-	1+	2-	2-	1+	1	2-	2+	3-	7	15	11	13	14	C	0.3
2		3	4-	2-	1+	1-	0+	1+	1+	13+	3-	3-	1+	1+	1	1	1	1	8	12	13	17	8	CC	0.4
3		1-	0+	1-	1-	2	3	4-	5	16	1-	0+	1-	1-	2-	3	4-	5-	13	17	20	5	32		0.7
4	D1	5+	6	6-	6	6+	7+	7-	6-	49	5-	5	5-	6-	6	6+	6+	5	89	102	127	87	142		1.8
5	D5	6	6-	4+	3-	3-	3	3-	3+	30+	5	4	4-	2+	3-	3	3	4-	31	40	42	54	27		1.3
6	D4	6	5+	4+	3-	3	3	4	4+	33-	6-	5-	4	3	3	3+	4	4-	34	46	68	73	41		1.3
7		3-	2-	2-	1+	1+	4-	2	5-	19	3-	2+	1+	1+	2-	3	2	4-	13	25	20	14	32		0.7
8		5	3+	3-	3+	3+	3+	2	3-	26-	4	3	3-	3+	4-	3+	2+	2+	19	33	43	44	32		1.0
9		3	3-	4-	3-	2+	5-	4	5	28	2+	2	3-	2+	3-	5-	4	5-	23	48	34	27	55		1.1
10		5	4-	3	2+	2	4	3	4	27	4+	3	3-	2+	2+	4-	3-	3+	21	36	28	24	33		1.1
11		2-	3-	2-	2+	2+	2-	1	1+	15-	2-	2	1+	3-	3-	2-	1	1+	7	10	31	27	14		0.4
12	D7	1+	2	1-	0+	1-	0+	2-	2-	9-	1-	1+	1-	0+	1	1-	1+	2-	4	7	14	11	11	CC	0.1
13		2-	3	2-	2	2-	2-	2-	3-	16	2-	2	2	2-	2-	2-	2	2+	8	19	4	13	11	CC	0.4
14	D5	1	0+	2-	1-	0+	0+	0+	2-	6+	1-	0+	1+	0+	1-	0+	0+	1+	3	6	11	8	10	CC	0.1
15	D3	1-	1	0	1	1-	0	0	0	3+	1-	1-	0+	1+	1+	0+	0	1	2	5	4	7	3	CC	0.0
16		0+	0+	2-	2	4-	4	3+	4+	20-	0	1-	2-	2+	4-	4-	3	3+	14	36	15	9	42		0.8
17		4	3	1	1+	1	1-	1+	3-	15	3-	2+	1+	2-	1+	1	1+	2+	9	18	10	19	10		0.5
18		5-	4-	3-	2	1+	1	0+	1	17-	3+	3-	2+	2	1+	1	1	1+	12	22	11	28	5		0.7
19	D0	2+	2	2-	2	2	1+	1	2-	14	2	1+	2-	2	2+	2-	1+	1+	6	14	8	13	9	CC	0.3
20	D6	1-	1-	2	1-	1+	1-	0	0	6	1	1	2-	1	1+	1-	0	0	3	6	3	6	3	CC	0.1
21	D1	0	0	0	0	0+	0	0+	1	2-	0+	0+	0+	1-	0+	0+	0+	1-	1	4	5	4	5	CC	0.0
22	D4	1	0+	1	1	1-	0	0+	0+	5-	1	0+	1	1	1+	0+	0+	0+	3	6	6	8	4	CC	0.0
23	D2	0	0+	0	0	0+	1	1	0+	3	0	1-	1	0+	1-	1+	1+	1-	2	4	5	4	6	CC	0.0
24	D9K	1-	1-	1+	1	1+	3	2+	1-	11	1	0+	1+	1	1+	3-	2+	1-	6	11	8	5	14	CC	0.3
25		0+	2-	1+	1+	3-	3	3+	4+	18	1	2-	2-	2	3-	3+	3+	4	12	22	19	8	33		0.7
26		5-	3	3-	2+	2	2-	2-	1+	19+	4-	3	2+	2+	2	1+	2-	2-	12	26	20	33	13		0.7
27	D8	2-	2	1-	1	0+	0+	2	2-	10-	1+	1+	1-	1+	1-	0+	1+	1	5	10	6	9	8	CC	0.2
28		1-	0	1+	1	1+	3-	3+	4-	14	1-	0+	1+	2-	1+	3+	4-	3+	9	20	12	5	28		0.5
29	D2	3+	4+	4	5	5+	6-	4	3	35-	3+	4-	3+	5-	5	5	4-	3	36	50	42	41	52		1.4
30	D3	3-	4	6+	6	3+	2+	3-	5-	32	3	4-	5+	6-	3+	2	3-	4	36	48	51	65	35		1.4
31		4	3+	4-	4-	4-	4	4-	4-	30-	4-	3-	3+	3	4-	4-	4-	3+	23	43	25	27	41		1.1
																			15	24.7	22.8	23.8			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+	2-	1	1	2-	2+	3-	2-	2	2-	1+	1	2-	2+	3-
2	3-	3-	1+	1	1-	1-	1-	1-	3	3-	1+	2-	1+	1	1+	1+
3	1-	0	1-	0+	2-	3-	3+	4	1	1-	1	1+	2	3	4+	5-
4	5-	5+	5-	6-	6-	6+	6+	5	5-	5-	4	6-	6+	7-	6+	5
5	5-	4+	4-	2+	2	3	3-	4-	5	4-	4-	2+	3-	3+	3	4
6	6-	5-	4-	3-	3-	3	4-	4-	6-	5-	5-	3+	3+	4-	4	3+
7	2+	2	1+	1+	2-	3	2-	4	3-	2+	1+	1	2-	3	2	4-
8	4	3-	2+	3	3+	3	2	2+	4	3+	3-	3+	4-	4-	3-	2+
9	2+	2-	3+	3	3	5-	4	5-	2+	2+	2	2-	2+	4+	4-	5-
10	4+	3+	2+	2+	2	4-	3-	3+	4	3	3	2	2+	4-	3	3
11	1	2	1+	3-	3-	1+	1-	1	2+	2	2-	3-	2+	2-	1	1+
12	0+	1	0	0	0+	0+	1+	2-	1+	1+	1	1	1+	1	1	2-
13	1+	2+	2+	2+	2	2-	2	2+	2	2-	1+	1	2-	2-	2-	2
14	0+	0+	1+	0+	0	0	0	1+	1	1-	1	1-	1	1	1	2-
15	1-	0+	0	1+	1+	0+	0	0+	1	1	1-	1+	1+	0+	0	1+
16	0	0	2-	2-	4	3+	3	3+	0+	1	2	3-	4-	4-	3	3+
17	3	2+	1	1+	1+	1	1	3-	2+	2+	1+	2	1	1-	2-	2+
18	4-	3-	2+	2	2-	1	0+	1-	3+	3	2+	2	1+	1+	2-	2-
19	2	1+	2	2	2-	2	1+	1+	2	1	2-	2	3-	1+	1	1
20	1-	1-	2	1-	1+	1-	0	0	1+	1+	1+	1+	2-	1-	0+	0
21	0	0	0	0+	0	0	0	1-	0+	1-	1-	1	1-	1-	0+	1-
22	1	0	1	1	1	0	0+	0	1+	1-	1	1	2-	1-	0+	0+
23	0	1-	0+	0	0+	1+	1	0	0	1	1+	1-	1-	1+	1+	1
24	1-	0+	1+	1	2-	3	2+	0	1	0+	1+	1	1+	3-	2	1
25	0	1+	2-	2+	3-	3	3+	4-	1+	2	2-	2-	3-	4-	4-	4+
26	4-	2+	2+	3-	2-	1+	2-	1+	4-	3+	2+	2-	2	1+	2	2
27	1+	2-	0+	1+	0+	0+	1+	1	1+	1+	1	1	1+	0+	2-	1+
28	0+	0	1+	2-	1	3	3+	3	1-	1-	1+	1+	1+	3+	4-	3+
29	3-	4-	3+	5	5	5	4-	3-	4-	3+	3	4	5-	5	4-	3
30	3-	3+	5+	6-	3+	2	3-	4-	4-	4-	5	5+	4-	2	3-	4
31	3+	3-	3	3+	4-	4-	3+	3	4	3	3+	3	4-	4	4-	4

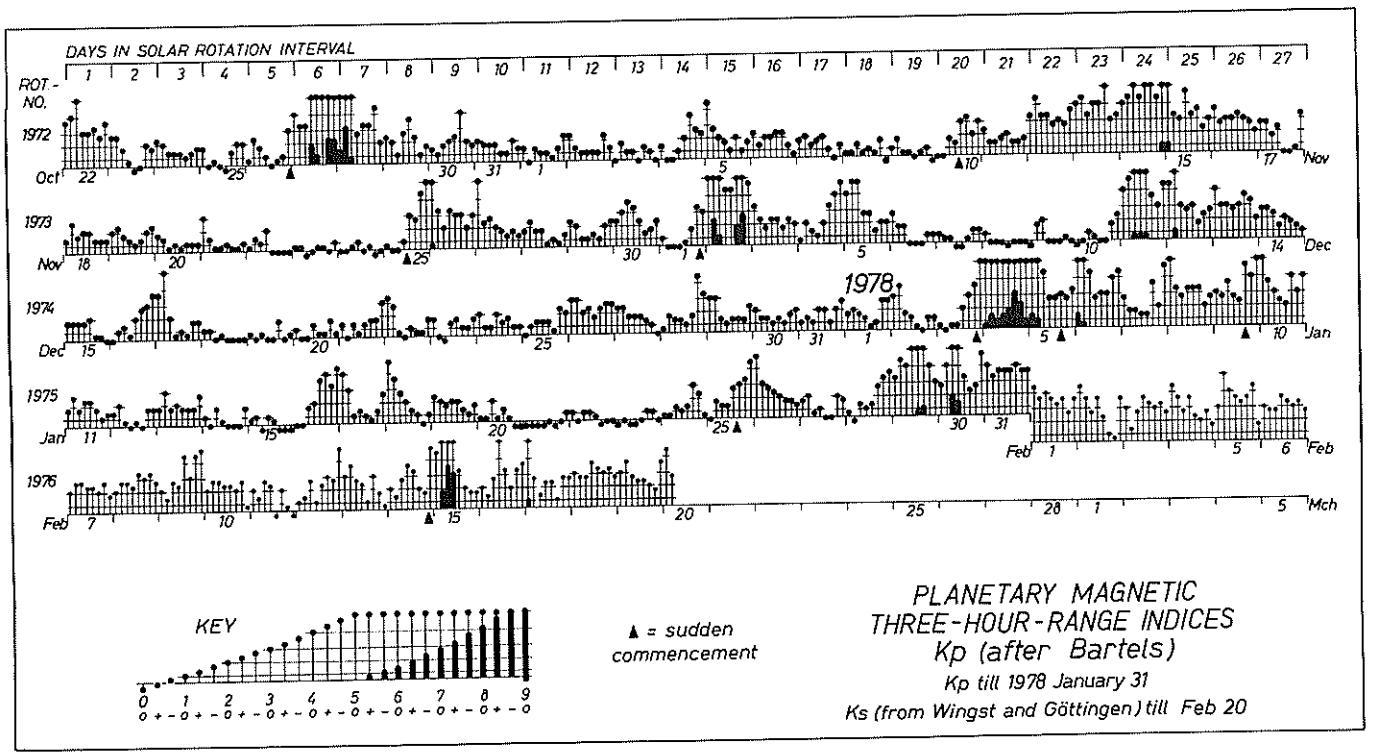
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2γ) prepared by Geophysikalisches Institut at the University of Göttingen, 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	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
1	7	11	4	13	9	15	6	4	4	5	6	7
2	21	5	5	66	14	11	4	6	5	6	69	8
3	11	4	12	15	6	9	7	8	10	4	9	13
4	4	3	24	19	5	8	9	6	7	8	14	89
5	9	4	12	11	7	5	40	3	8	10	18	31
6	14	6	49	10	5	28	21	4	8	7	5	34
7	18	5	48	6	6	15	17	6	3	5	3	13
8	18	12	27	3	6	14	12	8	6	3	2	19
9	25	38	22	7	6	16	20	11	2	3	3	23
10	12	19	13	9	8	14	12	13	4	9	4	21
11	13	18	14	24	4	10	28	19	12	6	38	7
12	7	22	8	19	4	4	11	6	28	18	21	4
13	12	13	5	6	6	9	11	28	14	26	16	8
14	11	12	12	8	9	18	12	10	13	42	8	3
15	8	5	10	14	3	12	11	9	19	25	5	2
16	6	6	17	22	10	27	9	7	8	14	9	14
17	9	9	9	18	8	14	29	10	12	8	12	9
18	17	11	8	11	10	7	13	6	22	6	3	12
19	6	5	48	5	10	23	24	42	28	6	3	6
20	5	13	28	10	11	29	8	44	7	4	4	3
21	7	10	12	4	6	10	5	64	5	5	6	1
22	8	7	6	7	10	11	5	63	22	3	6	3
23	18	14	5	7	10	6	6	21	6	2	4	2
24	14	12	11	8	7	7	10	12	6	2	5	6
25	11	12	22	5	5	5	27	10	4	15	5	12
26	8	16	4	2	6	3	13	18	6	19	11	12
27	3	8	4	4	7	3	14	24	62	12	6	5
28	7	15	4	7	12	4	7	9	47	5	10	9
29		14	18	2	7	61	6	3	9	6	8	36
30		5	8	5	9	17	5	4	9	12	5	36
31		4		7		8	4		6		6	23
MEAN	11	11	16	11	8	14	13	16	13	10	10	15

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

JANUARY 1978

OBS. 2 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
CO	64.6N	3	11--	..	..	..	..	04(4,6)	8	556	2640	1600	06	08
SI	60.0N	3	11--	..	..	..	..	04(5)	8	--	--	800	07	00
NE	55.1N	3	2042	SC*	2	18	--	04(4,5)	7	58	403	439	05	15
HI	54.2N	3	2043	SC*	+ 2 *	+22 *	0	04(6)	8	45	425	115	05	08
FR	49.6N	3	2042	SC*	+ 1	+25	- 6	04(2,6,7) 06(1)	6	45	295	97	10	22
BD	48.9N	3	20--					04(7)	7	44	315	134	05	13
IR	41.0N	3	1936	SC*	- 3.1	35	5	04(5,6,7)	7	36	177	92	05	09
SJ	29.9N	3	2042	SC	--	+12	+03	04(6)	6	13	189	64	05	08
GM	24.5N	3	2042	SC	- 0.6	26	- 2	--	-	13	194	56	07	01
HO	21.1N	3	2036	SC*	+01	+10	+02	05(2)	7	5	32	3	05	13
JP	17.3N	3	2042	SC	- 0.9	25	- 6	--	-	11	187	41	07	01
SH	14.6N	3	2042	SC	- 0.4	23	5	--	-	8	211	44	07	01
UJ	13.5N	3	2042	SC	- 0.6	30	- 7	--	-	9	199	53	07	01
AL	09.5N	3	2042	SC	- 0.7	23	- 6	04(4,7)	6	8	181	45	07	01
HD	07.6N	3	2040	SC	- 0.5	+24	- 2	04(5,6)	7	6	203	35	05	13
GU	04.0N	3	2042	SC	--	20	-06	04(4)	6	10	160	40	05	09
AN	01.5N	3	2042	SC	- 1.5	31	17	--	-	8	243	88	07	01
HU	00.6S	3	1235	SC	--	5	--	04(5,6,7)	6	12	333	63	05	03
PM	18.7S	3	2042	SC	+ 0.5	+25	+16	04(4,5,6,7,8)	6	9	170	100	05	15
HR	33.7S	3	2041	SC	+ 1	+22	+10	04(5,6,7)	6	51	171	187	05	07
GN	43.3S	3	2042	SC*	+ 3.2*	+30	+22	04(4,5,6,7)	7	34	160	220	05	13
TO	46.7S	3	2040	SC	+ 2.4	+22	- 5	04(4,5,6,7)	6	33	317	127	05	09
KG	56.5S	3	20--	..	..	..	..	04(6,7)	8	--	--	--	05	12
NE	55.1N	5	1628	SC*	4	9	--	06(1)	7	56	142	90	07	03
BD	48.9N	5	1629	SC*	+ 3	- 3	+ 1	06(1)	7	45	88	40	06	11
HO	21.1N	5	1627	SC	- 0	+01	+ 0	06(1)	7	5	34	3	07	01
HD	07.6N	5	1625	SC	- 0.2	+11	- 1	06(1,2,3)	5	4	81	22	07	02
GU	04.0N	5	1628	..	..	..	..	06(1)	5	--	140	40	07	05
HU	00.6S	5	1628	SC*	2	56	2	06(6)	6	9	280	33	06	21
PM	18.7S	5	1628	SC	+ 0.4	+12	+10	06(1)	6	6	120	80	07	05
HR	33.7S	5	1628	SC	+ 0	+ 6	+ 4	06(1)	6	13	111	83	07	03
GN	43.3S	5	1629	SC	+ 1.6	+12	+10	06(1)	6	14	110	80	07	01
TO	46.7S	5	1625	SC	+ 2.0	+11	- 2	06(1)	6	17	201	40	07	05
KG	56.5S	5	1627	SC*	--	--	--	06(1)	6	--	--	--	07	09
HD	07.6N	7	1420	..	..	..	..	07(8) 08(2,4)	4	3	107	20	08	23
GU	04.0N	7	2151	..	..	..	..	08(2)	5	--	70	30	08	17
PM	18.7S	7	19--	..	..	..	..	08(4)	6	7	100	60	08	16
CO	64.6N	9	1625	SC*	-26	+168	-22	09(6) 10(1,3,4,6)	5	97	810	330	10	23
NE	55.1N	9	1624	SC*	5	13	--	09(3) 10(1)	5	23	102	103	11	16
HI	54.2N	9	1625	SC*	+ 3 *	+67 *	0	09(8)	6	30	130	50	10	22
BD	48.9N	9	1626	SC*	+ 7	+ 9	- 1	10(1)	5	18	58	46	10	12
IR	41.0N	9	1624	SC	- 2.4	48	8	09(8)	6	24	97	33	10	24
GM	24.5N	9	1625	SC	- 0.8	37	- 3	--	-	5	72	23	10	22
HO	21.1N	9	1624	SC	-01	+03	+02	10(1)	7	2	30	1	10	09
JP	17.3N	9	1625	SC	- 1.3	33	- 9	--	-	4	73	31	10	22
SH	14.6N	9	1625	SC	- 0.4	31	6	--	-	5	67	22	10	22
UJ	13.5N	9	1625	SC	- 0.7	40	- 9	--	-	3	90	26	10	22
AL	09.5N	9	1625	SC	- 0.9	30	- 8	09(6)	5	3	71	26	10	22
HD	07.6N	9	1624	SC	- 0.4	+34	- 2	09(6)	5	3	81	14	10	23
AN	01.5N	9	1625	SC	- 1.8	39	21	--	-	3	99	39	10	22
HU	00.6S	9	1624	SC*	4	141	8	09(6)	6	12	341	48	10	22
PM	18.7S	9	1625	SC*	- 0.2*	+27	+23	09(6)	5	8	60	30	10	12
HR	33.7S	9	1626	SC	+ 2	+27	+17	09(6)	5	21	69	67	10	12
KG	56.5S	9	1625	SC*	--	--	--	09(8) 10(1)	6	--	--	--	11	18
CO	64.6N	16	12--	..	..	..	..	16(5,6)	6	172	1060	430	17	04
GM	24.5N	16	0800	..	..	..	..	--	-	6	147	19	17	01
JP	17.3N	16	0800	..	..	..	..	--	-	4	133	17	17	01
SH	14.6N	16	0800	..	..	..	..	--	-	3	131	14	17	01
UJ	13.5N	16	0800	..	..	..	..	--	-	3	145	14	17	01
AL	09.5N	16	0800	..	..	..	..	16(5)	6	4	146	9	17	01
HD	07.6N	16	0758	SC	0.0	+ 8	0	16(5,6)	6	3	167	27	18	12
AN	01.5N	16	0800	..	..	..	..	--	-	3	174	43	17	01
HU	00.6S	16	0802	..	..	..	..	16(6)	5	8	172	26	16	23
HR	33.7S	16	11--	..	..	..	..	16(5)	5	24	95	107	17	03
HO	21.1N	25	1536	SC	+01	+02	+01	25(7)	5	2	9	2	26	23
HD	07.6N	25	1536	SC	- 0.2	+11	- 2	25(8)	5	3	50	24	26	23
HU	00.6S	25	1525	SC*	2	87	6	25(6,7)	5	10	225	23	26	02
KG	56.5S	25	1337	SC	--	--	--	26(1)	5	--	--	--	26	21
SI	60.0N	28	09--	..	..	..	..	30(4)	8	--	--	--	31	21
NE	55.1N	28	1854	..	..	..	..	30(4)	8	56	501	297	01	06
FR	49.6N	28	18--	..	..	..	..	29(4,5,6) 30(3,4)	5	27	139	72	01	06
BD	48.9N	28	1854	SC	+ 1	+ 5	- 1	29(5)	6	26	110	30	29	21
IR	41.0N	28	15--	..	..	..	..	29(6) 30(3,4)	6	22	180	59	31	23
GM	24.5N	28	1600	..	..	..	..	--	-	7	185	41	31	01
HO	21.1N	28	1853	SC	+01	+04	+01	30(3)	7	11	25	9	01	05
JP	17.3N	28	1600	..	..	..	..	--	-	8	139	40	31	01
SH	14.6N	28	1600	..	..	..	..	--	-	5	186	32	31	01
UJ	13.5N	28	1600	..	..	..	..	--	-	6	140	41	31	01
AL	09.5N	28	1600	..	..	..	..	29(5,6)	6	6	150	41	31	01
HD	07.6N	28	1852	SC	- 0.2	+16	- 2	29(5,6)	6	4	171	31	29	19
GU	04.0N	28	1853	SC	--	15	-03	30(3)	6	10	230	40	31	24

PRINCIPAL MAGNETIC STORMS

JANUARY 1978

OBS. 2 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
AN	01.5N	28	1600	..	..	..	..	--	-	6	207	69	31	01
HU	00.6S	28	1446	..	..	..	..	29(6)	7	13	310	68	30	21
PM	18.7S	28	1854	SC	0	+19	+16	30(3,4)	6	12	180	100	31	00
HR	33.7S	28	18--	..	..	..	..	29(6)	5	20	124	102	30	15
TO	46.7S	28	16--	..	..	..	..	30(4)	6	29	179	90	30	13
KG	56.5S	28	17--	..	..	..	..	29(5,6) 30(4)	6	--	--	--	30	18
CO	64.6N	29	04--	..	..	..	..	29(5) 30(4)	8	558	2590	1450	01	05
WI	54.2N	29	04--	..	..	..	..	29(6)	6	25	175	90	31	24
HD	07.6N	29	2015	SC	- 0.4	+16	- 2	30(4)	6	4	171	27	31	22
GN	43.3S	29	2017	SC	+ 1.8	+20	+11	30(4)	6	25	110	150	30	14
BD	48.9N	30	03--	..	..	..	..	30(4)	6	28	127	76	30	17
HU	00.6S	31	0622	..	..	..	..	31(5,6)	5	9	196	58	31	21

Reports were received from the following observatories:

Alibag Annamalainagar Boulder College Fredericksburg Gnangara Guam Gulmarg Hermanus Honolulu Huancayo Irkutsk Jaipur Kerguelen Newport San Juan Shillong Sitka Toolang Trivandrum Tucson Ujjain Witteveen

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JANUARY 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).

03	2042	A: SOD VIC FUR COI FRD KSA PAF DRV; B: ESK WNG WIT HAD DOU MMB AQU EBR TOL KAK KNY; C: CLF CZT
05	1628	B: SOD ESK WNG HAD DOU VIC FUR AQU COI TOL KAK KNY PAF DRV; C: WIT NGK CLF MMB EBR (si: A: DOB)
09	1625	A: SOD WNG WIT VIC FUR CLF OTT EBR COI TOL PAF; B: DOB ESK NGK HAD DOU AQU KAK KNY CZT DRV; C: MMB (si: B: KSA)
25	1537	B: ESK WNG HAD VIC FUR AQU KSA PAF DRV; C: WIT NGK CLF TOL KNY CZT

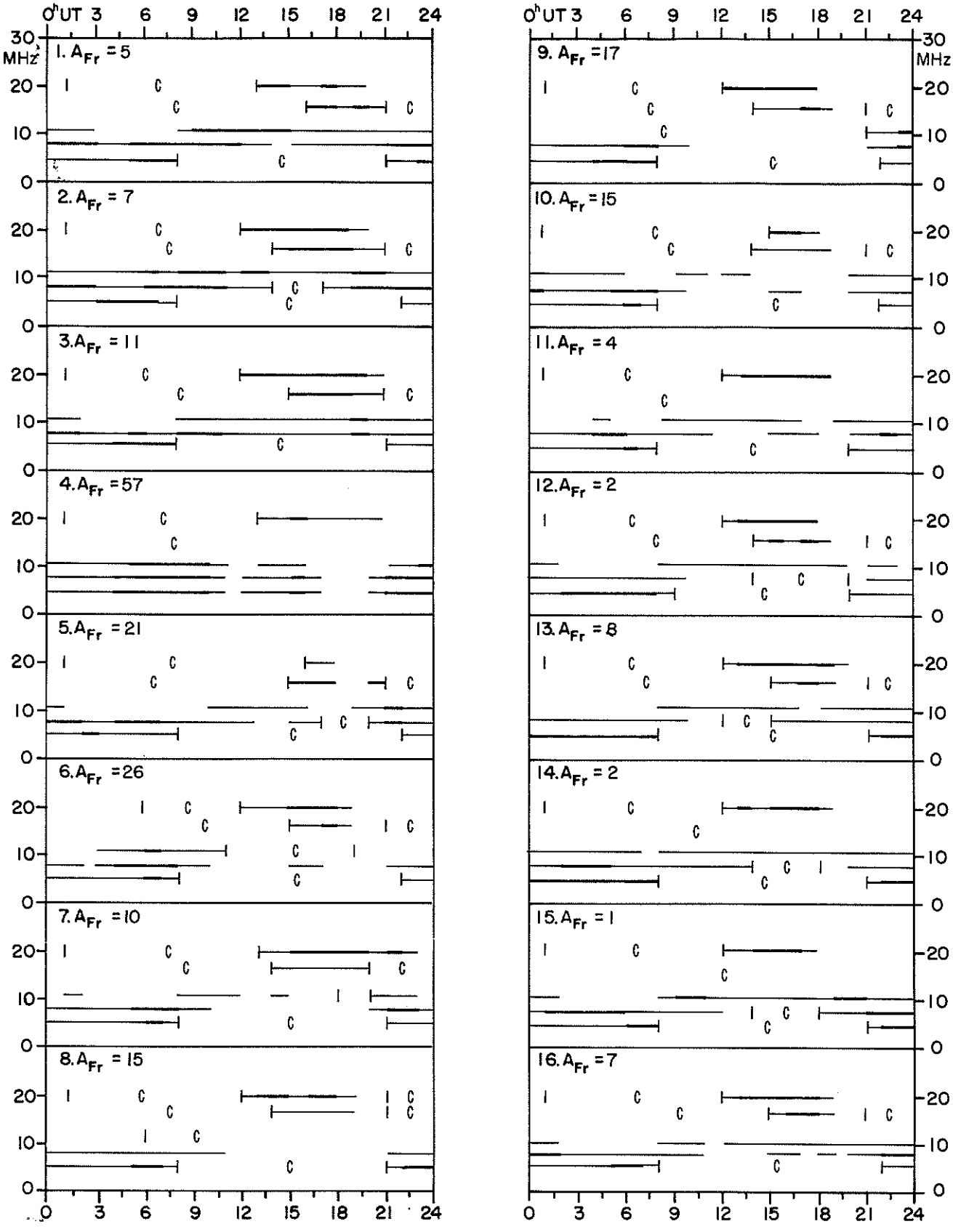
Solar-flare effects (sfe)
None

Very unusual events
Period or duration in minutes or seconds and amplitudes as reported by some stations are added in parentheses. Amplitudes are given in nT, if not otherwise indicated. The plus or minus sign indicates the sense of the sharp movement. Beginning and ending times of the phenomenon are added (in square brackets) if they deviate from the time at the left. Observatories identifying the phenomenon as a "very unusual event" are underlined.

06 0623 ssc: A: COI (+ -); B: CLF* (---); C: MMB* (+22 +27 -7) -
si: A: WNG* (---) WIT (--) PAF (-34 +100 +11) CZT (+20 +10 +5)
DRV (- +85 +80); B: NGK* (+ +) EBR (+ + +) - bs: A: KSA (+N -E) -
pse: A: FUR [- 0626] (50-100s, 10) - pi2: A: MMB [- 0735] (50s y + 0.81nT/s)

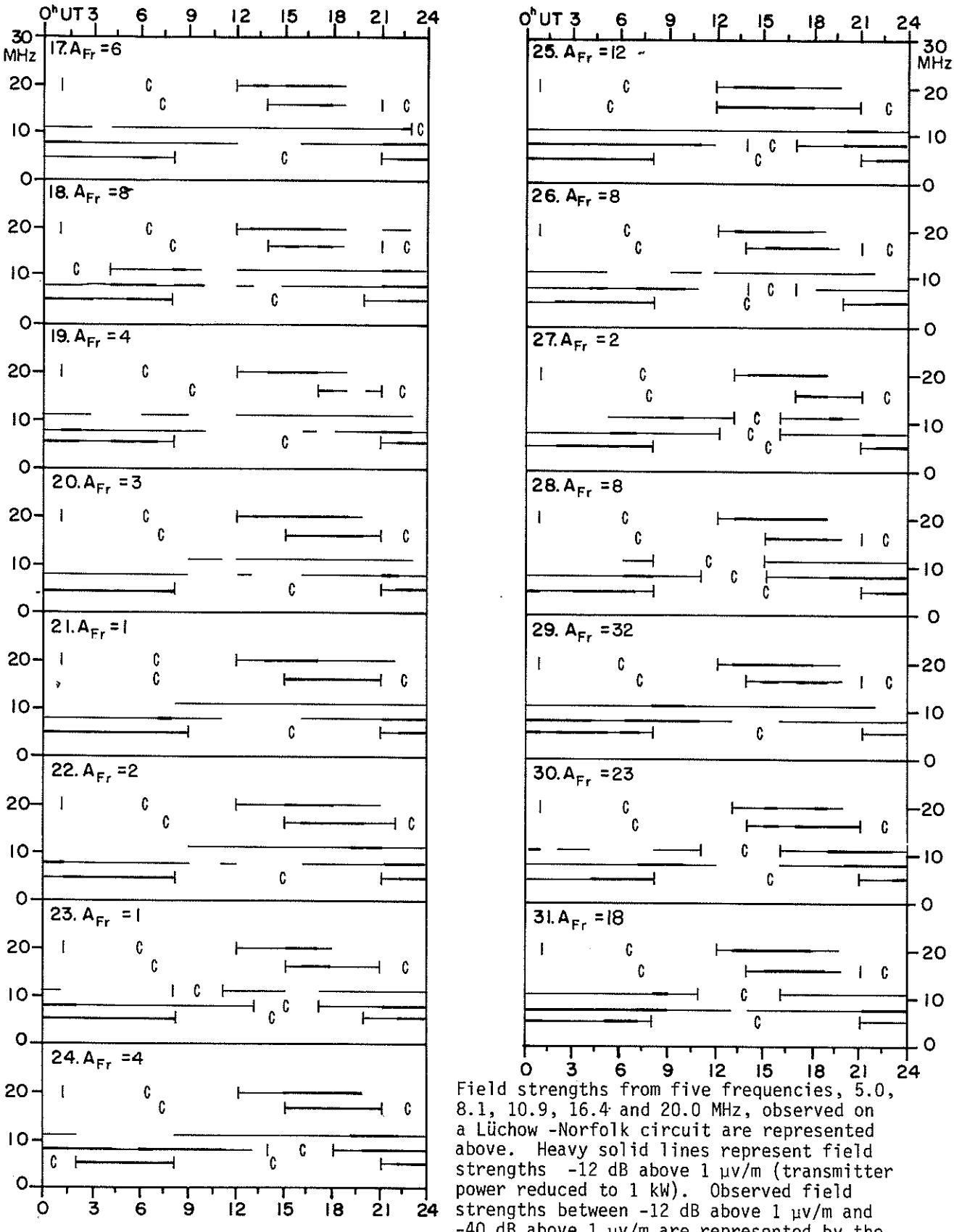
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JANUARY 1978



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JANUARY 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

JANUARY 1978

Quality indices calculated for reception at Lüchow

DAY	TOKYO	NORFOLK	MOSCOW	CANBERRA	BRACKNELL
1	4.7	7.9	11.8	3.9	12.7
2	4.4	8.1	12.9	3.9	13.0
3	5.5	7.7	12.0	4.0	12.8
4	3.8	6.4	11.6	3.4	12.0
5	4.0	5.0	10.2	2.4	10.4
6	4.2	5.7	11.1	2.8	11.7
7	4.7	6.2	10.7	3.2	12.0
8	4.5	6.0	11.1	3.0	12.3
9	3.5	5.4	10.5	3.4	11.2
10	4.0	4.8	8.8	2.9	10.4
11	2.1	4.7	10.5	2.7	10.6
12	2.3	5.2	11.0	3.1	11.6
13	2.9	6.3	11.7	3.2	12.0
14	3.1	6.1	11.1	3.6	12.3
15	2.2	6.2	11.4	3.3	12.8
16	4.7	5.8	11.3	3.5	12.7
17	3.8	6.5	11.2	2.7	12.2
18	3.3	6.3	10.9	2.6	10.7
19	4.2	5.8	12.2	3.1	11.2
20	3.3	6.3	12.1	4.8	12.6
21	3.6	6.7	11.3	4.5	12.6
22	4.2	6.9	12.3	4.8	12.7
23	3.6	7.1	12.5	4.7	12.6
24	4.4	6.7	13.0	5.3	13.4
25	5.5	6.2	12.2	4.9	13.1
26	5.5	7.2	12.3	4.3	12.3
27	4.8	7.5	12.4	4.4	12.9
28	5.5	7.5	12.5	4.7	13.3
29	3.6	6.8	11.4	4.4	12.3
30	4.3	7.2	11.6	3.8	12.1
31	5.3	6.6	11.4	4.0	12.3
MEAN	4.0	6.4	11.5	3.7	12.2

USCOMM-NOAA-ASHEVILLE,NC-4/78-950

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."