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Solar - Geophysical Data

NO. 387 NOVEMBER 1976

Part I (Prompt Reports)

DATA FOR
OCTOBER 1976
SEPTEMBER 1976

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

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SOLAR - GEOPHYSICAL DATA

1

NO. 387

Issued in two parts

Hope I. Leighton, Editor

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Solar - Terrestrial Data Services Division

CONTENTS

Part I (Prompt Reports)

	Page
Index for 1975 and 1976	2
Data for October 1976	3-21
Data for September 1976	23-118

Part II (Comprehensive Reports)

Index for 1975 and 1976	2
Data for May 1976	3-20
Data for April 1976	21-30
Miscellaneous Data	31-36
Radio Emission - Spectral -- August 1976	
Solar Wind - IMP 8 -- April 1976	

OCTOBER 1976 DATA

Contents

	Page
<u>Alert Period</u>	
IUWDS Alert Periods (Advance and Worldwide)	4-5
<u>Daily Solar Indices</u>	
12-Month Tables Sunspot Numbers, R_z , and 2800 MHz Flux Adjusted to 1 A.U.	6
Combined Table Sunspot Numbers and Solar Fluxes	7
Graph of Sunspot Cycles	8
Zürich Smoothed Observed and Predicted Sunspot Numbers	9
<u>Solar Flares</u>	
H α Solar Flares	10
No-Flare-Patrol Chart	11
<u>Solar Radio Waves</u>	
169 MHz Solar Interferometric Chart - Nangay	12
10.7 cm East-West Solar Scans - ARO, Ottawa	13
21 cm East-West Solar Scans - Fleurs (see p. 101 for September data)	
43 cm East-West Solar Scans - Fleurs (see p. 102 for September data)	
Selected Fixed-Frequency Occurrences	14
<u>Solar Wind Measurements</u>	
Scintillation Observations	15
<u>Spacecraft Observations</u>	
Pioneer VI and IX	16-17
<u>Solar X-ray Radiation</u>	
SMS-2 GOES	18-19
<u>Coronal Holes</u>	
Helium D3 Chromosphere	20
<u>Inferred IP Magnetic Field Polarities</u>	21

4
Oct 76

ALERT PERIODS
INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

OCTOBER 1976

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	IO cm solar flux	A index	Active Regions			Outstanding events	Forecasts			Alert Situations
						Location		No. of Flares		Date	Location	Desc*	
						Lat-Long	Total	M						X	Lat-Long
275	1	30	48	72	08	N16E00 S27E01 N28W39 N31W01	0 0 0 0	0 0 0 0		1	N16E00 S27E01 N28W39 N31W01	Q Q Q Q	SOLQUIET MAGQUIET
276	2	1	39	75	12	N16W13 S27W12 N32W14	0 0 0	0 0 0		2	N16W13 S27W12 N32W14	Q Q Q	SOLQUIET MAGQUIET
277	3	2	36	74	21	N16W25 S27W24 S32W26	0 0 0	0 0 0		3	N16W25 S27W24 S32W26	Q Q Q	SOLQUIET MAGALERT MINOR 03
278	4	3	36	74	07	N32W38 N16W37 S27W36	0 0 0	0 0 0		4	N32W38 N16W37 S27W36	Q Q Q	SOLQUIET MAGNIL
279	5	4	33	73	04	N16W51 S27W50 N32W49	0 0 0	0 0 0		5	N16W51 S27W50 N32W49	Q Q Q	SOLQUIET MAGQUIET
280	6	5	34	75	11	N16W64 S27W63 N32W62	0 0 0	0 0 0		6	N16W64 S27W63 N32W62	Q Q Q	SOLQUIET MAGQUIET
281	7	6	41	75	09	N16W78 S26W77 N32W73	0 0 0	0 0 0		7	N16W78 S26W77 N32W73	Q Q Q	SOLQUIET MAGQUIET
282	8	7	34	75	04	N32W87 S03E08 S22E30	0 0 0	0 0 0		8	N32W87 S03E08 S22E30	Q Q Q	SOLQUIET MAGQUIET
283	9	8	00	75	07	-	-	-		9	SPOTNIL		SOLQUIET MAGQUIET
284	10	9	00	75	06	-	-	-		10	SPOTNIL		SOLQUIET MAGQUIET
285	11	10	11	75	07	S23W11	0	0	0	11	S23W11	Q	SOLQUIET MAGQUIET
286	12	11	12	74	06	N24E35	0	0	0	12	N24E35	Q	SOLQUIET MAGQUIET
287	13	12	22	74	06	S11E74 S27E42	0 0	0 0	0 0	13	S11E74 S27E42	Q Q	SOLQUIET MAGALERT MINOR 14/16
288	14	13	23	73	07	S11E58 S27E27	0 0	0 0	0 0	14	S11E58 S27E27	Q Q	SOLQUIET MAGALERT MINOR 15/19
289	15	14	37	75	03	S11E43 S27E17	0 0	0 0	0 0	15	S11E43 S27E17	Q Q	SOLQUIET MAGALERT MINOR 15/19
290	16	15	36	76	20	S10E30 S27E03	1 0	0 0	0 0	16	S10E30 S27E03	Q Q	SOLQUIET MAGALERT MINOR 16/19
291	17	16	32	78	24	S11E18 S27W08	0 0	0 0	0 0	17	S11E18 S27W08	Q Q	SOLQUIET MAGALERT MINOR 17/19
292	18	17	29	78	30	S11E03 S27W30 S25E57	0 0 0	0 0 0	0 0 0	18	S11E03 S27W30 S25E57	Q Q Q	SOLQUIET MAGALERT MINOR 18
293	19	18	28	78	20	S09W09 S26W33	0 0	0 0	0 0	19	S09W09 S26W33	Q Q	SOLQUIET MAGNIL
294	20	19	15	77	04	S26W46	2	0	0	20	S26W46	Q	SOLQUIET MAGQUIET STRATWARM ALERT /WEDNESDAY/ SPRING-TIME TEMPERATURE REVERSAL PROGRESSING OVER ANTARCTICA IN MID-STRATOSPHERE. GRADUAL WARMING OVER NEXT WEEKS WILL LEAD TO CIRCULATION REVERSAL PROGRESSING DOWNWARD FROM UPPER TO LOWER STRATOSPHERE.
295	21	20	24	77	07	S09W35 S26W54	0 0	0 0	0 0	21	S09W35 S26W54	Q Q	SOLQUIET MAGQUIET
296	22	21	24	74	08	S10W49 S28W68	0 0	0 0	0 0	22	S10W49 S28W68	Q Q	SOLQUIET MAGQUIET
297	23	22	31	76	07	S10W64 N29E11	0 1	0 0	0 0	23	S10W64 S29E11	Q Q	SOLQUIET MAGQUIET
298	24	23	47	81	05	N29W04 S27E64	0 0	0 0	0 0	24	N29W04 S27E64	Q Q	SOLQUIET MAGQUIET
299	25	24	46	81	05	N29W15 S27E52	0 0	0 0	0 0	25	N29W16 S27E52	Q Q	SOLQUIET MAGQUIET
300	26	25	51	86	05	N30W26 S29E40	0 0	0 0	0 0	26	N30W26 S29E40	Q Q	SOLQUIET MAGQUIET

ALERT PERIODS
INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

SUMMARY OF THE GEOALERT WWA MESSAGES

OCTOBER 1976

Message serial number	Date of Issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location		No. of Flares			Date	Location	Desc*	
						Lat-Long	Total	M	X						Lat-Long
301	27	26	49	81	04	N29W40 S27E26	0 0	0 0	0 0		27	N29W40 S27E26	Q Q	SOLQUIET MAGQUIET
302	28	27	41	78	05	N30W53 S29E13	0 0	0 0	0 0		28	N30W53 S29E13	Q Q	SOLQUIET MAGALERT MINOR 28/29
303	29	28	31	75	06	N30W66 S29W01	3 0	0 0	0 0		29	N30W66 S29W01	Q Q	SOLQUIET MAGALERT 29/30
304	30	29	25	73	04	N30W80 S29W12	1 0	0 0	0 0		30	N30W80 S29W12	Q Q	SOLQUIET MAGNIL
305	31	30	11	73	12	N28W91	0	0	0		31	N28W91	Q	SOLQUIET MAGQUIET
306	01	31	00	72	22	-	-	-	-		01	SPOTNIL		SOLQUIET MAGALERT 01/01

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

6
Oct 76

RELATIVE SUNSPOT NUMBERS
ZURICH, R_Z

DAY	1975 FINAL		1976 PROVISIONAL									
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	0	7	0	0	0	26	35	0	9	10	17	31
2	0	23	0	0	0	25	26	0	8	18	20	28
3	7	20	0	0	0	22	25	0	14	19	12	30
4	18	23	0	0	0	13	8	0	8	14	11	32
5	22	21	0	0	0	12	22	0	8	17	17	25
6	27	18	0	0	10	9	10	0	10	15	10	24
7	30	20	0	0	12	0	10	0	7	26	9	30
8	33	18	0	0	7	0	9	11	0	30	9	7
9	30	8	0	0	10	8	8	10	0	31	18	14
10	26	0	0	0	12	10	10	7	0	24	22	0
11	30	0	0	0	13	15	16	7	0	22	24	0
12	24	0	20	0	13	17	17	8	0	29	20	14
13	22	0	26	13	13	17	23	8	0	27	12	17
14	29	7	30	16	22	19	30	15	0	16	10	25
15	28	7	20	18	16	19	17	18	0	8	16	27
16	28	7	22	11	11	19	12	12	0	15	14	32
17	30	9	24	8	30	24	18	18	0	19	8	36
18	33	6	20	15	45	27	8	24	0	23	8	28
19	36	7	18	10	51	27	20	23	0	25	7	21
20	35	0	16	12	51	36	20	17	0	19	0	20
21	31	0	11	8	48	39	14	30	0	17	0	15
22	23	0	10	7	36	20	7	31	0	8	0	18
23	12	0	10	0	28	17	15	23	0	9	7	34
24	11	18	6	7	25	16	8	26	0	17	7	33
25	9	14	0	0	22	17	0	19	0	9	16	32
26	7	8	0	0	42	28	7	19	0	14	17	30
27	0	0	7	7	46	23	0	9	0	7	18	26
28	0	0	0	0	50	21	0	16	0	8	18	21
29	0	0	14	0	42	26	0	11	0	9	25	17
30	0	0	8	0	32	38	0	10	0	10	31	9
31		0	0		27		0		0	9		0
MEAN	19.4	7.8	8.5	4.6	23.0	19.5	12.7	12.4	2.1	16.9	13.4	21.8

1975 yearly mean = 15.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S₀

DAY	1975		1976									
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	70.4	72.1	72.1	68.6	67.7	79.6	77.6	68.4	69.3	75.9	76.3	74.6
2	71.4	74.8	71.2	68.5	68.1	76.8	74.2	67.9	69.1	77.8	75.3	73.9
3	73.0	74.3	71.3	68.4	67.4	76.1	71.9	68.1	69.5	82.3	75.7	73.8
4	75.4	74.1	71.5	68.4	67.4	74.7	71.5	68.4	68.6	82.3	75.9	73.1
5	78.9	77.4	71.9	67.6	67.6	73.0	71.1	68.7	69.5	84.2	75.4	74.8
6	80.1	75.8	71.7	68.1	67.5	71.3	69.9	69.3	69.6	84.3	73.1	74.7
7	80.5	73.7	71.6	69.3	67.9	70.3	70.3	69.0	69.5	83.7	73.0	74.5
8	80.9	76.0	70.3	68.4	67.9	71.9	70.2	70.7	69.7	82.0	72.9	74.6
9	78.8	73.3	69.4	68.3	68.2	74.1	70.6	70.1	69.7	82.8	73.2	74.8
10	78.9	73.3	70.5	68.5	68.4	75.3	71.7	71.0	70.1	82.8	75.8	74.9
11	78.6	74.3	72.1	68.4	68.3	77.1	72.5	71.4	70.2	80.4	75.7	73.7
12	79.9	73.4	76.3	67.8	68.9	78.1	72.6	71.7	69.8	80.6	75.7	73.3
13	79.2	72.8	80.6	69.7	70.9	79.6	73.6	72.0	69.8	78.7	74.3	72.6
14	82.7	71.8	82.1*	69.9	70.1	79.5	74.2	73.7	70.7	73.4	74.7	74.4
15	83.7	71.8	80.4	69.6	69.1	79.2	76.9	74.3	71.4	72.8	73.9	75.5
16	87.6	70.5	78.1	69.7	72.5	80.6	79.2	77.1	69.8	72.9	75.8	77.0
17	88.9	70.5	76.6	69.9	74.4*	80.5	76.5	77.1	69.4	77.8	76.5	78.0
18	90.8*	69.6	76.7	70.1	79.0	80.5	75.6*	77.9	70.6	78.2	74.3	77.3
19	93.0*	69.1	75.2	70.1	81.6*	79.3	73.8	76.9	70.2	76.1	73.3	76.6*
20	90.9	69.7	74.6	70.0	85.8	80.0	73.0	76.9	69.4	74.5	72.2	75.8
21	86.6	69.6	72.1	68.8	91.2	78.0	74.0	77.7	70.1	73.2	70.9	73.5
22	81.5	68.9	70.9	68.9	83.0	76.2*	72.5	78.9	70.1	72.3	70.5	75.4
23	77.2	69.6	74.2	69.2	86.9	75.7	71.9	76.5	68.7	70.8	72.0	80.1
24	74.7	71.4	66.5	69.5	82.2*	76.8	70.8	75.2	69.4	70.9	72.5	80.1
25	73.7	71.6	68.2	68.4	85.1	75.7	69.8	74.9	68.8	70.6	73.4	84.7
26	71.9	71.8	68.2	68.5	84.1*	75.7	69.5	74.3	68.5	70.1	72.8	80.4
27	73.7	72.5	67.2	68.5	85.5	74.6	69.6	72.8	69.4	71.5	73.3	77.4
28	76.4	71.5	67.1	67.9	87.1*	73.4	69.0	71.8	69.4	72.8	73.6	73.8
29	70.9	72.5	67.4	67.4	84.0	79.6	68.0	71.3	69.4	73.3	71.9	72.1
30	70.6	71.9	68.9		82.4	79.5*	68.1	70.3	70.7	73.0	72.6	72.1
31		72.1	69.1		82.7		68.7		72.3	73.8		70.4
MEAN	79.1	72.3	72.4	68.8	75.8	76.7	72.2	72.8	69.8	76.6	73.9	75.4

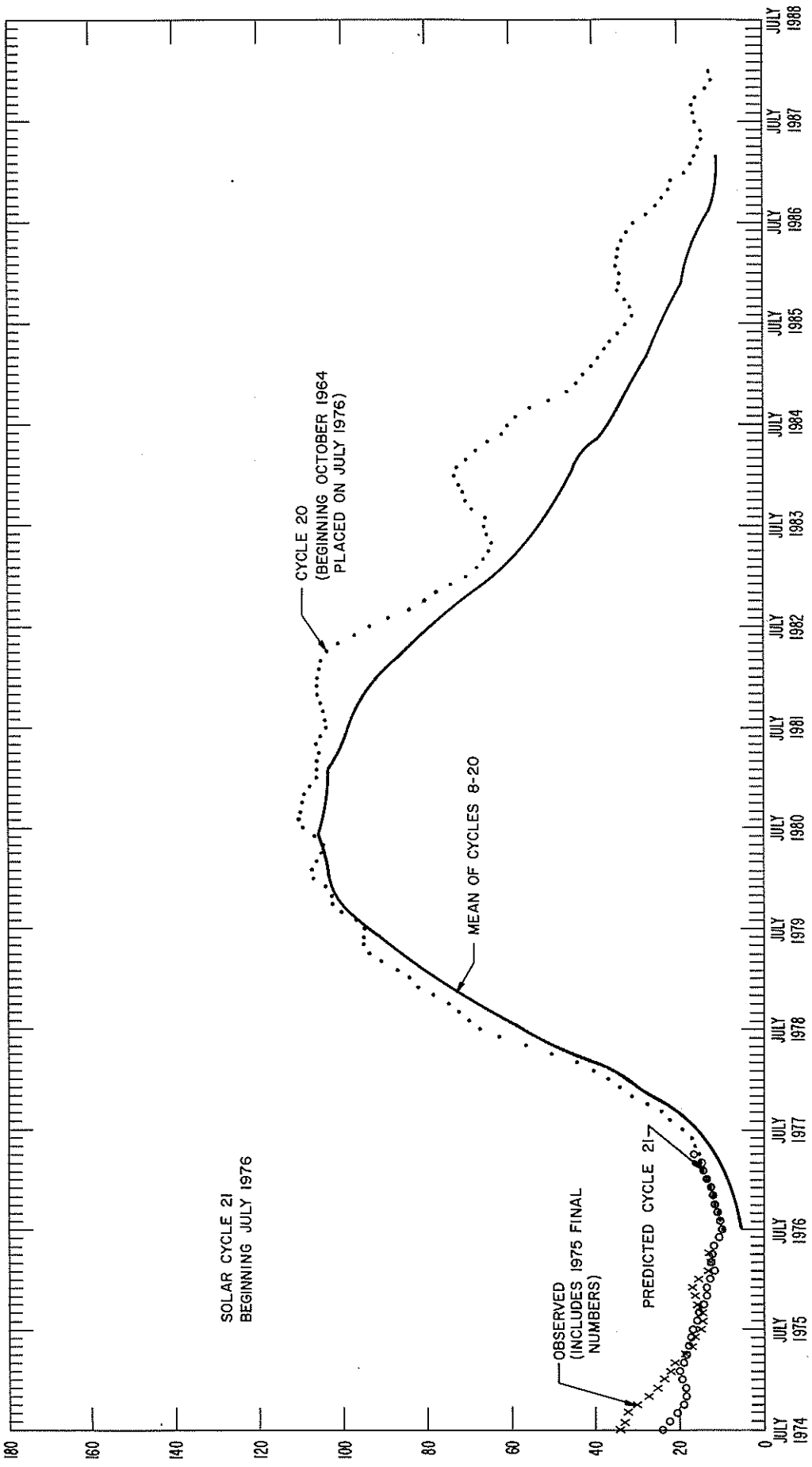
* adjusted for burst

DAILY SOLAR INDICES

OCTOBER 1976

OCT 1976	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U.									
			R _Z	R _A *		AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245	
1	275	20	31	31	74.5	519	265	117	74.6	73.4	46.6	38.9	22.3	8.2	
2	276	21	28	32	73.8	520	267	115	73.9	72.7	46.6	39.4	21.5	8.4	
3	277	22	30	31	73.7	520	270	116	73.8	72.0	45.0	38.7	21.8	10.5	
4	278	23	32	30	73.1	524	269	115	73.1	71.2	43.7	37.8	21.1	7.7	
5	279	24	25	24	74.8	521	268	117	74.8	73.5	48.6	36.0	21.3	7.6	
6	280	25	24	26	74.8	523	265	117	74.7	73.0	48.5	37.2	20.0	7.8	
7	281	26	30	23	74.6	523	267	117	74.5	71.8	47.0	38.1	20.4	8.0	
8	282	27	7	1	74.7	524	267	117	74.6	72.1	48.7	36.9	21.6	8.1	
9	283	1	14	3	75.0	523	267	117	74.8	72.8	48.5	36.1	20.3	7.8	
10	284	2	0	0	75.1	521	267	117	74.9	73.4	48.2	39.1	21.9	7.9	
11	285	3	0	0	74.0	527	273	115	73.7	72.1	47.2	36.2	20.0	7.9	
12	286	4	14	10	73.6	521	269	116	73.3	72.4	48.8	37.6	21.9	8.2	
13	287	5	17	13	73.0	521	267	115	72.6	71.0	47.9	35.8	20.5	7.3	
14	288	6	25	25	74.8	519	271	117	74.4	74.1	48.9	37.8	20.2	8.2	
15	289	7	27	26	76.0	518	273	118	75.5	74.4	49.9	38.7	21.0	7.5	
16	290	8	32	27	77.5	522	272	119	77.0	76.5	49.5	38.5	19.4	7.4	
17	291	9	36	29	78.5	524	277	120	78.0	77.5	50.8	37.3	20.3	7.7	
18	292	10	28	21	77.9	526	282	120	77.3	77.4	50.8	39.6	18.8	7.2	
19	293	11	21	18	77.2*	522	279	118	76.6*	75.4	50.4	37.9	20.1	7.9	
20	294	12	20	16	76.5	521	276	117	75.8	74.5	50.5	38.2	20.6	8.0	
21	295	13	15	13	74.2	522	274	117	73.5	73.3	50.3	38.8	20.7	8.0	
22	296	14	18	14	76.2	525	276	118	75.4	75.0	50.5	37.3	20.0	8.0	
23	297	15	34	29	80.9	526	278	125	80.1	80.4	50.5	39.1	20.1	8.0	
24	298	16	33	26	81.0	524	280	124	80.1	80.6	52.9	37.3	18.6	7.6	
25	299	17	32	32	85.7	522	278	129	84.7	84.5	53.2	40.0	21.2	10.3	
26	300	18	30	28	81.4	519	276	123	80.4	81.2	52.6	38.8	20.4	9.3	
27	301	19	26	22	78.4	516	275	118	77.4	78.0	52.9	37.5	20.3	8.4	
28	302	20	21	19	74.8	519	277	120	73.8	76.7	49.9	39.8	19.2	8.1	
29	303	21	17	13	73.1	508	272	116	72.1	72.3	48.0	38.4	19.8	10.9	
30	304	22	9	5	73.1	516	272	115	72.1	72.6	47.7	36.9	19.6	8.1	
31	305	23	0	0	71.5	273	273	115	70.4	71.8	48.0	36.4	18.5	7.8	
MEAN			21.8	19.1	75.9	521	272	118	75.4	74.8	49.1	37.9	20.4	8.2	

* Adjusted for burst.



PREDICTED AND OBSERVED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.5	13.4	12.5	13.0	10.2 (--)	10.1 (--)	10.0 (--)	10.3 (1)	10.9 (1)	11.5 (2)	12.1 (3)	12.6 (3)
1977	13.6 (4)	14.5 (5)	15.3 (7)	16.8 (8)	18.4 (10)	19.7 (12)	21.7 (14)	24.1 (17)	27.2 (20)	30.8 (23)	33.9 (26)	36.5 (29)
1978	39.4 (32)	42.8 (36)	46.3 (40)	50.3 (43)	54.6 (47)	59.5 (52)	63.8 (55)	66.9 (59)	69.4 (62)	71.7 (65)	75.1 (66)	79.8 (68)
1979	84.4 (71)	88.2 (74)	93.0 (77)	97.3 (79)	100.1 (81)	102.0 (83)	104.1 (87)	107.0 (90)	109.4 (92)	110.5 (93)	110.4 (94)	110.3 (94)
1980	109.7 (93)	108.7 (90)	109.0 (87)	110.4 (84)	112.0 (83)	113.3 (83)	114.4 (79)	115.0 (76)	114.6 (73)	114.4 (70)	114.7 (70)	114.9 (69)
1981	116.5 (69)	119.2 (70)	118.2 (70)	114.6 (68)	111.7 (66)	110.2 (64)	109.5 (62)	110.0 (60)	111.4 (59)	112.4 (58)	112.3 (57)	111.0 (54)
1982	108.2 (51)	104.1 (49)	101.5 (47)	100.0 (46)	98.6 (44)	96.6 (42)	93.3 (41)	88.5 (39)	83.5 (37)	80.4 (33)	75.7 (29)	72.8 (27)
1983	69.8 (26)	67.2 (25)	65.8 (24)	65.1 (23)	64.3 (23)	63.1 (22)	61.6 (23)	61.7 (22)	62.5 (22)	62.4 (23)	62.3 (24)	62.0 (25)
1984	61.5 (25)	60.4 (25)	58.4 (25)	55.8 (24)	53.0 (24)	50.9 (26)	50.0 (27)	48.1 (28)	45.6 (29)	44.1 (28)	42.8 (26)	41.6 (25)
1985	41.0 (24)	40.0 (23)	38.6 (23)	37.6 (22)	37.1 (22)	36.2 (22)	34.6 (21)	33.1 (20)	32.1 (19)	31.3 (19)	30.8 (19)	29.7 (20)
1986	29.2 (20)	29.8 (20)	29.9 (19)	29.2 (18)	27.8 (17)	26.3 (16)	25.0 (15)	23.5 (15)	22.3 (14)	21.5 (13)	20.7 (11)	20.3 (10)
1987	19.4 (9)	18.3 (8)	17.6 (8)	17.4 (9)								

For each month, the upper figure is the observed or predicted Zürich smoothed sunspot number. The lower figure in parenthesis is the corresponding absolute value of the 90% prediction interval, an indication of the uncertainty above and below the predicted number. Observed numbers are those with no prediction intervals. The observed smoothed sunspot numbers are based on final Zürich numbers through 1975.

The predicted sunspot numbers are derived from a regression analysis based on cycles 8 through 20. Tests indicate that earlier cycles are from a different statistical population.

This prediction for the new sunspot cycle is based on an assumption that sunspot minimum occurred in July 1976 with a smoothed number of 10. The predictions will be changed after sunspot minimum has been observed.

10
Oct 76

H α SOLAR FLARES

OCTOBER 1976

OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IM- POR- TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX.		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
					LAT.	MER. DIST.											
RAMY	05	1709	1726	1734	N28	W58	.900		1.4	25	SF	3	C		26		DE
MCMA	05	1725	1726	1732	N30	W60	.917	14454	1.2	7	SN		C	1726	30	.6	D
MCMA	13	1611	1612	1616	S08	E65	.905	14476	18.5	5	SF		C	1612	25	.6	DL
CATA	14	0910	0910	0920	S10	E53	.800		18.4	10	SN	2	C	0910	56	1.0	
MCMA	14	1424	1427	1431	S07	E50	.766	14476	18.4	7	SN		C	1427	25	.4	D
MCMA	15	1846	1858	1914	S09	E33	.551	14476	18.3	28	SN		C	1858	120	1.5	EKL
PALE	19	1701E	1710	1736	S28	W42	.739		16.6	350	SN	2	C		120		U F
PALE	19	1741	1745	1752	S29	W42	.744		16.6	11	SB	3	C		80		OE
MONT	22	0903	0906	0911	S17	W90	1.000		15.6	8	SF		C	0906	20		
MONT	22	0943	0946	0952	N18	E82	.993		28.6	9	SF		C	0946	40		DG
PALE	22	1902	1907U	2003	N29	E12	.544		23.7	61	SF	2	C		64		
MITK	23	0043	0048	0055	S24	W90	1.000	14475	16.3	12	1F		C	0048	120		G
MONT	23	0939	0946	1021	N28	E05	.502		23.8	42	SB		C	0946	40		E
WEND	23	1009		1021	N29	E04	.515		23.7	12	SN						
RAMY	27	1058	1115	1122	N27	W49	.819		23.8	24	SN	4	C		44		F H
UPIC	28	0945E	0945	1000	N29	W67	.943	14494	23.4	150	1F		P	0945	82		
UPIC	28	1130E	1130	1145	N29	W61	.910	14494	23.9	150	1F		P	1130	102		
MCMA	29	1740	1742	1750	N32	W80	.990	14494	23.7	10	SN		C	1742			D
MCMA	29	1826	1828	1832	N29	W78	.985	14494	23.9	6	SN		C	1828			D
RAMY	29	1908E	1913U	1929D	N28	W85	.998		23.4	210	SF	3	C				FDE
RAMY	29	1908E	1913U	1929D	N28	W85	.998		23.4	210	SF	3	V				FDE
MCMA	29	1915	1923	1940	N28	W83	.995	14494	23.6	25	1F		C	1923			E

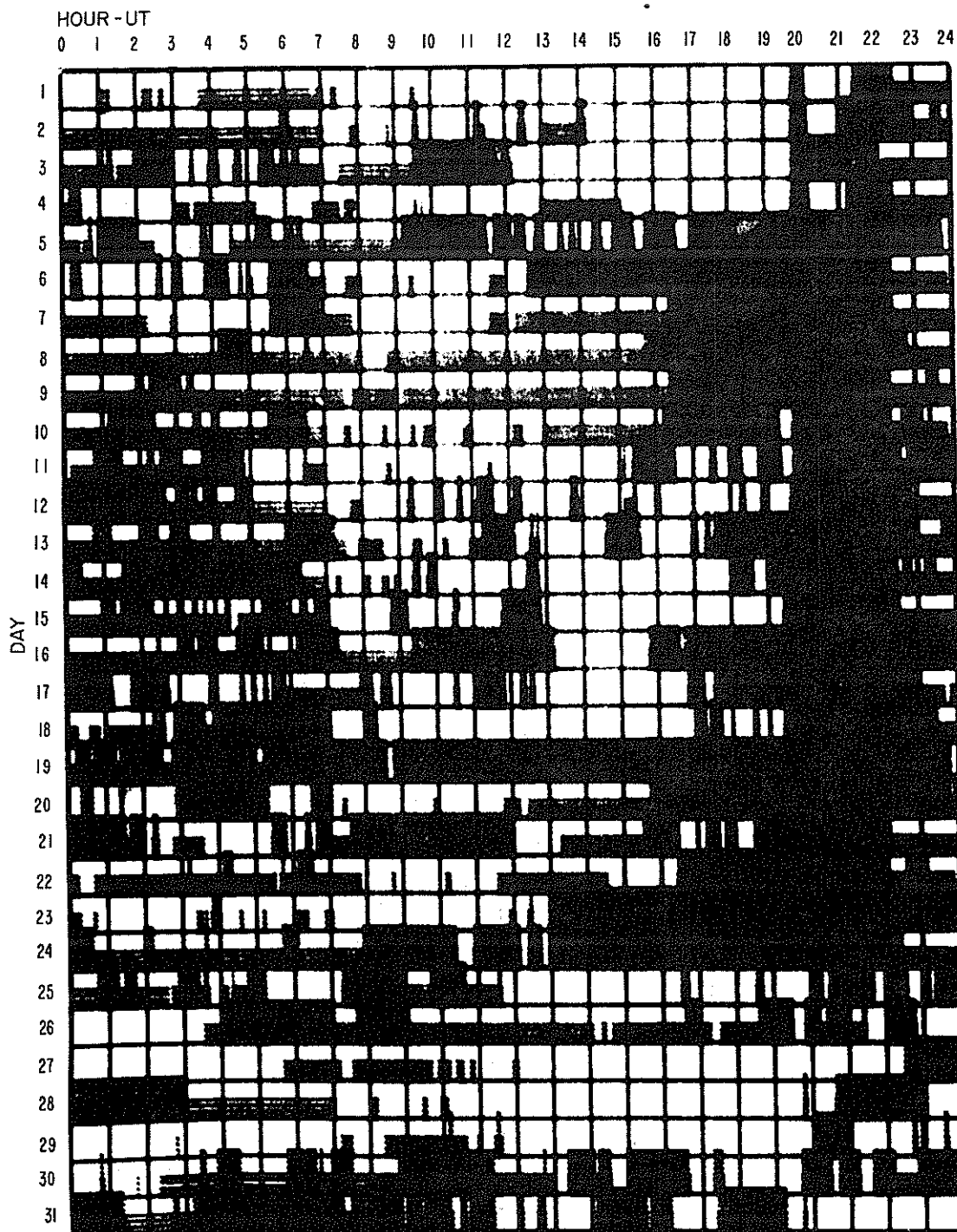
"Remarks":

- A = Eruptive prominence whose base is less than 90° from central meridian.
- B = Probably the end of a more important flare.
- C = Invisible 10 minutes before.
- D = Brilliant point.
- E = Two or more brilliant points.
- F = Several eruptive centers.
- G = No visible spots in the neighborhood.
- H = Flare accompanied by a high speed dark filament.
- I = Active region very extended.
- J = Distinct variations of plage intensity before or after the flare.
- K = Several intensity maxima.
- L = Existing filaments show signs of sudden activity.
- M = White-light flare.

- N = Continuous spectrum shows effects of polarization.
- O = Observations have been made in the calcium II lines H and K.
- P = Flare shows helium D₃ in emission.
- Q = Flare shows the Balmer continuum in emission.
- R = Marked asymmetry in H α line suggests ejection of high velocity material.
- S = Brightness follows disappearance of filament (same position).
- T = Region active all day.
- U = Two bright branches, parallel (||) or converging (Y).
- V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
- W = Great increase in area after time of maximum intensity.
- X = Unusually wide H α line.
- Y = System of loop-type prominences.
- Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

OCTOBER 1976



Observatories included in total patrol:

Athens	Herstmonceux	McMath-Hulbert	Palehua	Upice
Bucharest	Istanbul	Mitaka	Ramey	Wendelstein
Catania	Manila	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).

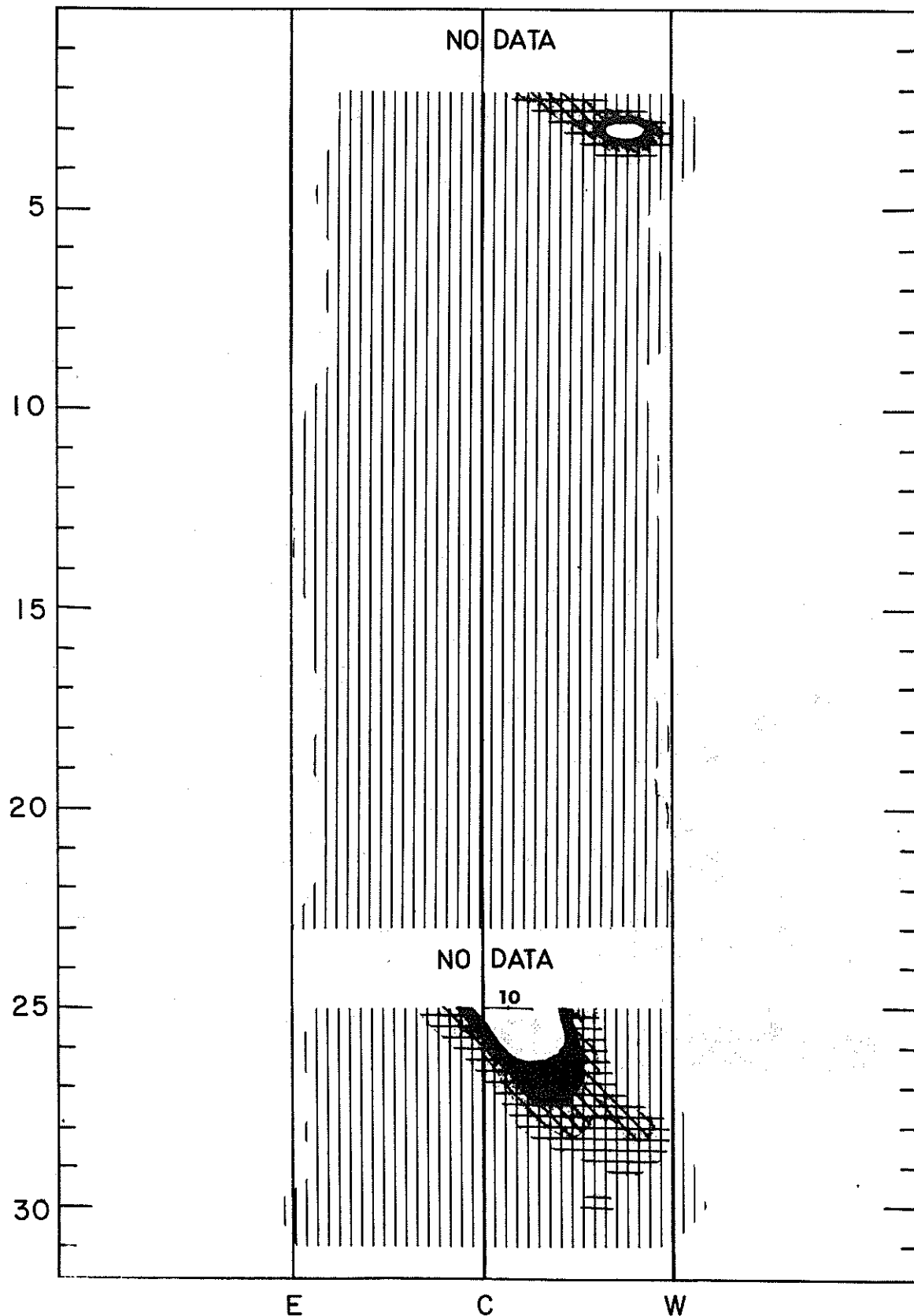
12
Oct 76

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATION

OCTOBER 1976

Nançay

169 MHz

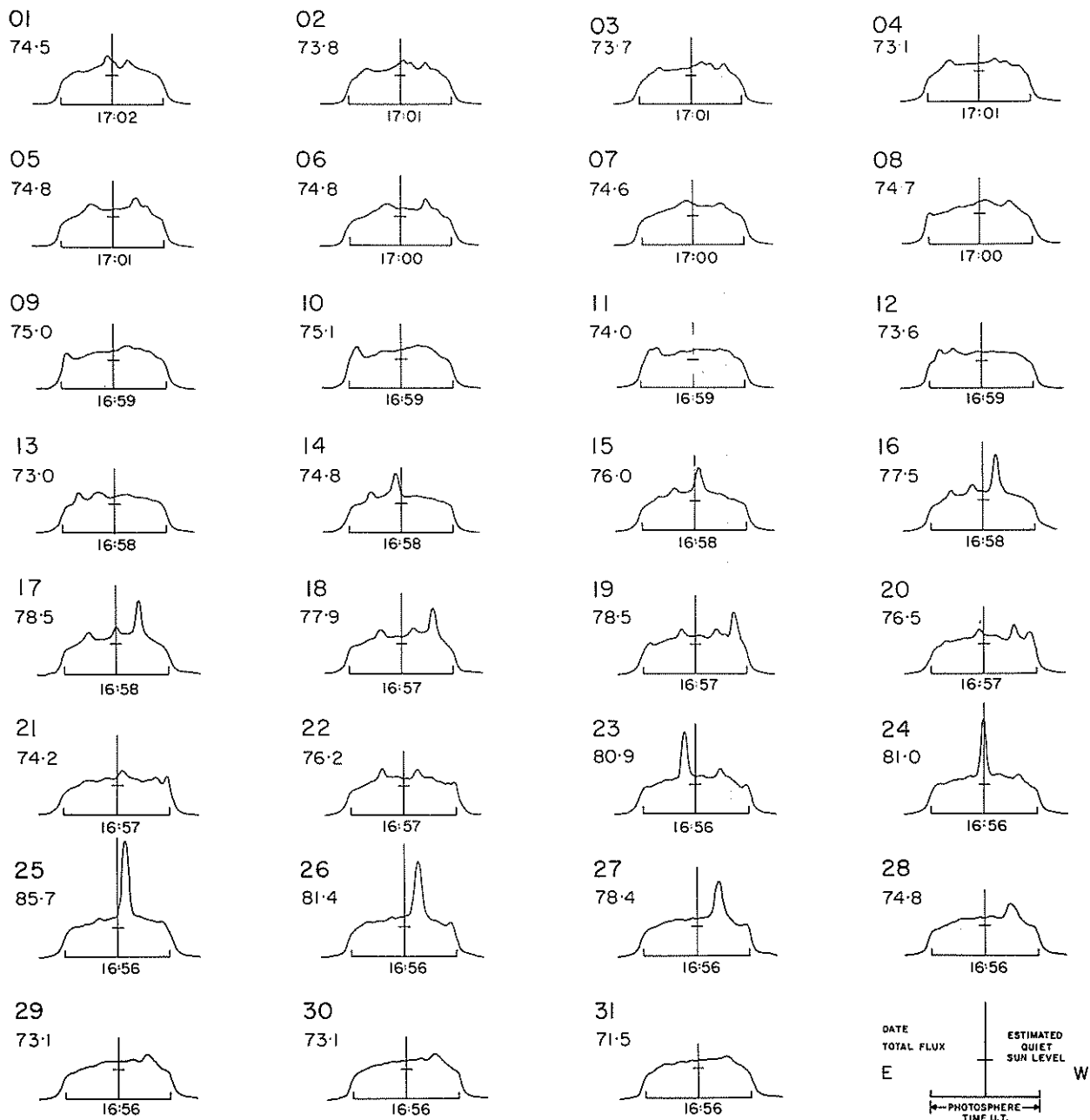


EAST-WEST SOLAR SCANS

OCTOBER 1976

ALGONQUIN RADIO OBSERVATORY
CANADA

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



14
Oct 76

SOLAR RADIO EMISSION SELECTED FIXED FREQUENCY EVENTS

OCTOBER 1976

	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	2695 BOUL	1 S	1536.5	1537.5	1		4	1	
5	2800 OTTA	240 R	1335	1445	70		1.2	0.6	
		24P R	1445		550 D		1.2		
6	2695 BOUL	45 C	2018.5	2019.5	1.5		22	7	
7	2695 BOUL	20 GRF	1555.5	1601	12		4	1	
		240 R	2105	2300	115		2.4	1.2	
		24P R	2300		65 D		2.4		
9	2695 BOUL	2 SF	1636.5	1637.5	2		2	1	
15	2800 OTTA	26 FAL	1410	1500	50		-0.8	-0.4	
		240 R	1805	1900	55		2.2	1.1	
		24P R	1900		120 D		2.2		
		2695 BOUL	1 S	2244	2245	1.5		2	1
19	2800 OTTA	20 GRF	1335	1345	40		2.4	0.8	
		27A RF	1455		255		0.8	0.6	
		24 R	1455	1545	50		0.8	0.4	
		24P R	1545		155		0.8		
		21 GRF	1647	1705	80		3	1.3	
		2 S/F	1657.9	1658.8	9.6		2.6	.8	
		22 GRF	1656.8	1659.4	10.7		11	6.6	
		2 S/F	1657	1659.5	5.5		9.6	3	
		23 GRF	1657	1700	17.5		12	3	
		2 S/F	1742.4	1742.9	1		5.2	2.6	
		4 S/F	1742.5	1742.8	6		11.2	3.3	
		26 FAL	1820	1910	50		-0.8	-0.4	
20	2800 OTTA	20 GRF	1940	2210	200 D		1.4		
24	2800 OTTA	21 GRF	1610	1619	50		1.6	0.8	
		8 S	1616	1616.5	0.7		1	0.5	
		20 GRF	1845	1904	40		1	0.5	
25	2800 OTTA	21 GRF	1300	1306	20 D		1.2		
		1 S	1301	1302.6	3		1.4	0.7	
		21 GRF	1340	1346	20		2.2	1	
		1 S	1343.7	1344	1.5		2.2	1.7	
26	2800 OTTA	23 GRF	1240	1310	210		2	1	
		8 S	1411.7	1411.8	0.6		1	0.5	
		22 GRF	1620	1757	190		2	1	
27	2800 OTTA	20 GRF	1925	2000	120		1.6	0.8	
28	2695 MANI	1	0516.2	0519.2	5.6		5.8	2.3	
		26A FAL	1410	1510	60		-1	-0.5	
		1 S	1454.5	1455	1.5		1.4	0.7	
		1 S	1915	1916	10		0.8	0.4	
29	2800 OTTA	1 S	1740	1743	10		0.6	0.3	
		240AR	1912	2000	48		2	1	
		1 S	1915.2	1916	3		1.6	0.8	
		24P R	2000		180 D		2		
		2 S/F	2204	2204.8	1		1.8	1	
		8 S	2205	2206	2		4	1	

Observatories:

BOUL = Boulder

MANI = Manila

OTTA = Ottawa ARO

PENT = Penticton

SGMR = Sagamore Hill

Explanation of Type Code:

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

SOLAR WIND
Interplanetary Scintillations

OCTOBER 1976

UCSD 74 MHZ SCINTILLATIONS

DAY	3C48 VEL ERR	3C144 VEL ERR	3C147 VEL ERR	3C161 VEL ERR	3C237 VEL ERR	3C273 VEL ERR	3C298 VEL ERR	3C459 VEL ERR
1		269 20					492 1	
3							495 6	
5		416 *		375 *			589 *	
6		350 43			290 4		585 45	
7					304 46		619 39	
8					279 *		616 38	
9		273 69					545 10	
10							522 45	
11							546 18	
12		420 54			296 16		498 9	
13	380 71	507 53		264 57	399 31		496 6	365 25
14					343 30		535 14	
15	427 3	310 45			381 59		571 23	626 78
17							511 *	
18							611 76	
19		212				283 12	529 2	
20					504 9		550 2	
21					442 15	225 21	551 23	
22		489 86						
23		409 4		402 43		304 29	0 0	
24		343 36		318 9			697 13	
25		315 0			250 20	175 8	707 76	
26		339 *				208 12	732 229	
27						273 5		
28						212 6	483 41	
29						221 *		
30						274 7	498 9	
31						603 106	702 33	397 16

OCTOBER	5	15	25
	UT LAT DIST DLON	UT LAT DIST DLON	UT LAT DIST DLON
3C48	9. 11. 1.27 5.	8. 10. 1.28 3.	8. 9. 1.28 1.
3C144	13. 5. 1.14 14.	12. 4. 1.18 13.	12. 3. 1.21 11.
3C147	12. 12. 1.11 14.	11. 11. 1.15 13.	11. 10. 1.19 11.
3C161	14. -2. 1.07 14.	14. -2. 1.11 13.	13. -3. 1.15 11.
3C237	18. -2. 0.67 47.	17. -1. 0.79 37.	17. 0. 0.88 28.
3C273	20. 29. 0.16 83.	19. 12. 0.31 73.	19. 6. 0.47 63.
3C298	22. 50. 0.43 -57.	21. 69. 0.35 -43.	20. 70. 0.33 42.
3C459	6. 8. 1.28 -5.	6. 8. 1.26 -7.	5. 7. 1.24 -9.

* indicates data for which no error estimates are available because only two antennas were operating.

NOTE: This marks the resumed monthly publication of solar wind speeds by the IPS method. For the period August 1975 to July 1976 errors of about 25% were present in the published data. These were caused by an incorrect filter. The data have now been corrected and will be published soon in the Comprehensive Reports. They are also available on request from W. Coles or B. Rickett at UCSD.

16
Oct 76

PIONEER VI
OCTOBER 1976

Date Oct. 1976	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND				COSMIC RAY PROTONS ² (particles/sec)		
				AMES ¹		MIT		6-13 (Mev*)	13-175 (Mev**)	>175 (Mev)
				U _{H⁺} (km/sec) [†]	TAU (days)	U _{H⁺} (km/sec)	N _{H⁺} (H ⁺ /cc)			
27	0244-0423	0300 0400	029.5	339. 339.	2.7	348. 342.	12.5 14.	0.64 .69	0.142 .146	1.36 1.33

¹ Wolfe - NASA/ARC

² Simpson - University of Chicago

* Includes He 0.6-13 Mev/nucleons and electrons ~0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res., 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.

** Includes He >13 Mev/nucleons.

Q Used to indicate that a rate is at its quiescent level.

ESP = Earth-Sun Probe Angle.

† Peak velocity

Note: Data sampled hourly unless otherwise noted.

Note: This coverage was obtained as a result of PN-6 alignment with Helios.

PIONEER IX
OCTOBER 1976

Date Oct. 1976	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND ¹				IP E-FIELD ² 400 Hz (mv)	IMF ³		COSMIC RAY PROTONS ⁴ (particles/sec)	
				U _{H⁺} (km/sec)*	N _{H⁺} (H ⁺ /cc)	T _{H⁺} (x10 ⁶ °K)	TAU (days)		|B| (γ)	φ (°)	>13.9 Mev	>40 Mev
10	2307-0324	2300	056.2	630.	---	---	4.6	0.14	7.8	163.	7.1	0.52
		2400		630.	---	---		.133	7.9	128.	7.1	.54
		0100		585.	---	---		.148	7.4	163.	7.	.53
		0200		608.	---	---		.125	8.5	124.	7.1	.65
		0300		608.	---	---		.21	9.6	120.	7.	.58
20	2354-0346	0000	054.4	376.	---	---	4.1	.155	4.6	125.	7.25	.72
		0100		376.	---	---		.155	3.5	126.	7.26	.66
		0300		376.	---	---		.136	4.6	160.	7.24	.49
		0400		376.	---	---		.117	4.2	172.	7.18	.73
28	0014-0353	0000	053.28	404.	---	---	4.	.148	6.3	124.	7.74	1.31
		0100		404.	---	---		.144	6.	142.	7.5	.8
		0200		417.	---	---		.184	5.5	168.	7.34	.76
		0300		430.	---	---		.121	5.7	115.	7.56	.76
		0400		430.	---	---		.14	5.1	132.	7.51	.6

¹ Wolfe - NASA/ARC
² Scarf - TRW, Inc.
³ Sonett and Colburn - NASA/ARC
⁴ Webber - Univ. of N.H.

* Peak velocity

Note: Data sampled hourly unless otherwise noted.

ESP = Earth-Sun Probe Angle.

Note: This coverage was obtained as a result of PN-9 alignment with Helios.

SOLAR X-RAYS BY SATELLITE
SMS GOES

OCTOBER 1976

		.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
	10/ 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
	10/ 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
	10/ 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
	10/ 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
	10/ 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
	10/ 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
	10/ 7	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
	10/ 8	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
	10/ 9	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
	10/10	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
	10/11	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
	10/12	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
	10/13	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
	10/14	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
	10/15	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
	10/16	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
	10/17	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
	10/18	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
	10/19	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
	10/20	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
	10/21	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
	10/22	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
	10/23	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
	10/24	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
	10/25	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
	10/26	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
	10/27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	10/28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	10/29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	10/30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	10/31	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

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

SOLAR X-RAYS BY SATELLITE
SMS GOES

OCTOBER 1976

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
		1 - 8Å Hourly Averages (10 ⁻⁴ watts/m ²)																								
10/	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
10/	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
10/	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
10/	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
10/	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
10/	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
10/	7	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
10/	8	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
10/	9	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
10/	10	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
10/	11	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
10/	12	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
10/	13	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
10/	14	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
10/	15	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
10/	16	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
10/	17	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
10/	18	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
10/	19	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
10/	20	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
10/	21	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
10/	22	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
10/	23	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
10/	24	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
10/	25	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
10/	26	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
10/	27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
10/	28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
10/	29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
10/	30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
10/	31	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

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

20
Oct 76

CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

OCTOBER 1976

The D3 coronal hole observations have now resumed on a daily basis and will be presented in the usual format. For October, however, only two observations were made, the results of which are as follows:

Date: Position angles of hole boundaries (degrees):

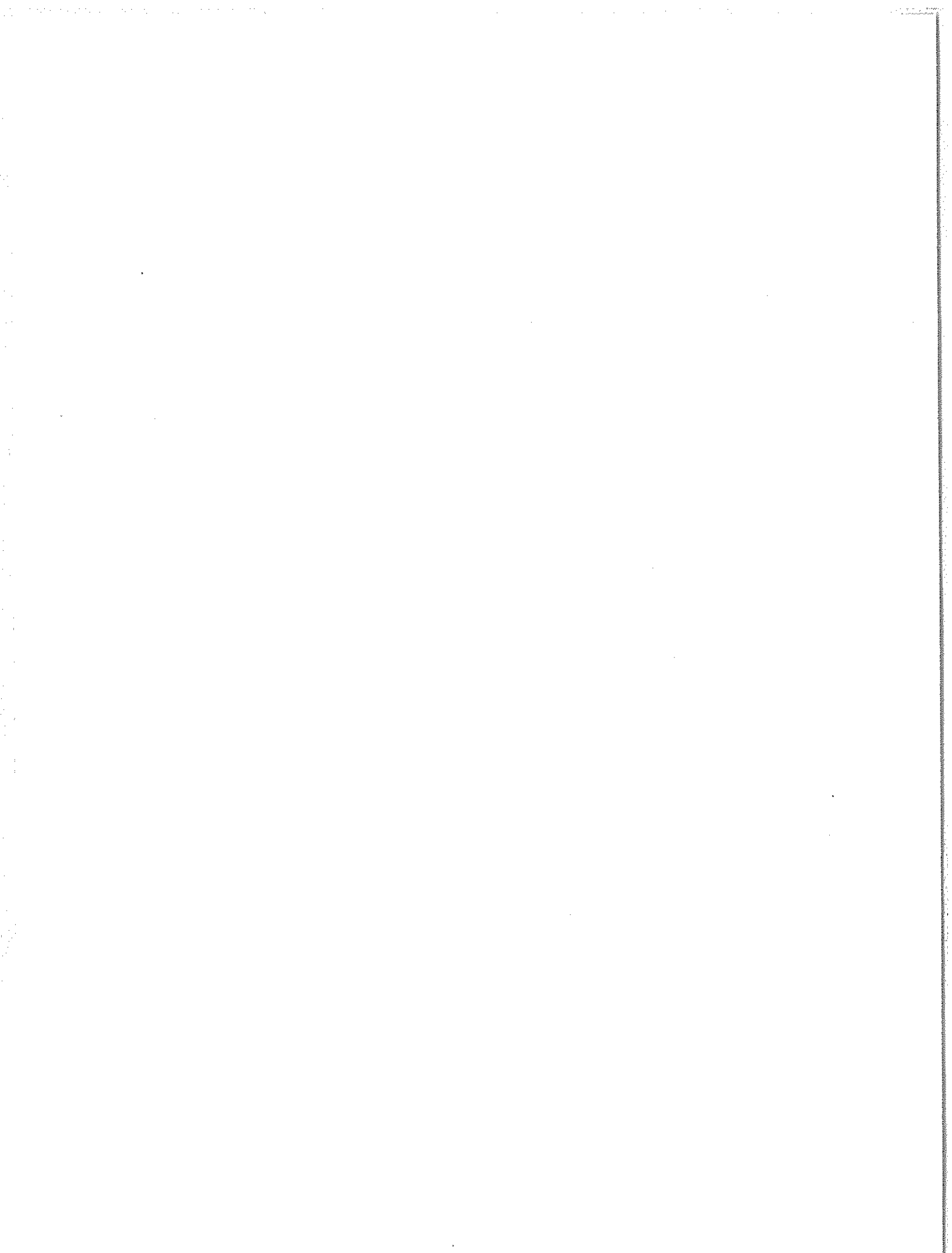
	South:		North:	
October 24	-155	169	-16	24
October 25	-156	159	- 3	16

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	
1938	APR 18	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
1939	MAY 15	T	A	A	T	A	T	A	T	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
1940	JUN 11	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
1941	JUL 8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
1942	AUG 4	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
1943	AUG 31	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
1944	SEP 27	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
1945	OCT 24	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1946	NOV 20	A	T	A	A	T	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
1947	DEC 17	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1948	1976 JAN 13	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1949	FEB 9	T	A	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1950	MAR 7	T	A	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1951	APR 3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1952	APR 30	T	A	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1953	MAY 27	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1954	JUN 23	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1955	JUL 20	T	A	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1966	AUG 16	A	A	T	T	T	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
1967	SEP 12	A	T	-	A	-	T	-	A	-	A	-	A	-	A	-	A	-	A	-	A	-	A	-	A	-	A	-	
1968	OCT 9	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T

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.



SEPTEMBER 1976 DATA

Contents

	Page
<u>Daily Solar Activity Center</u>	
H α Synoptic Chart	24-25
X-ray, EUV, Magnetograms, Calcium Plages, H α Spectroheliograms	
Sunspots, Corona and 2 cm and 8.6 mm Spectroheliograms	26-85
Individual Regions of Solar Activity	86-92
* Daily Calcium Indices	93
<u>Sudden Ionospheric Disturbances</u>	
Table of Events	94
<u>Solar Radio Waves</u>	
Spectral Observations	95-100
21 cm East-West Solar Scans - Fleurs	101
43 cm East-West Solar Scans - Fleurs	102
<u>Cosmic Rays</u>	
Neutron Monitors Daily Values	103
Chart of Variations	104-107
<u>Geomagnetic Indices</u>	
Table of Indices Kp, Kn, Ks, Km, Cp, Ap, aa	108
12-Month Table of Daily Averages Ap	109
Chart of Kp by Bartels 27-day Rotation	110
Chart of Dst by Bartels Rotation	111
Equatorial Indices Dst	112
Principal Magnetic Storms	113
Sudden Commencements and Solar Flare Effects	114
<u>Radio Propagation Indices</u>	
North Atlantic Quality Figures and Forecast	115
Transmission Frequency Ranges - North Atlantic Path	116-117
Quality Indices on Paths to Germany	118

H α SYNOPSIS CHART

AUGUST 1976 - SEPTEMBER 1976

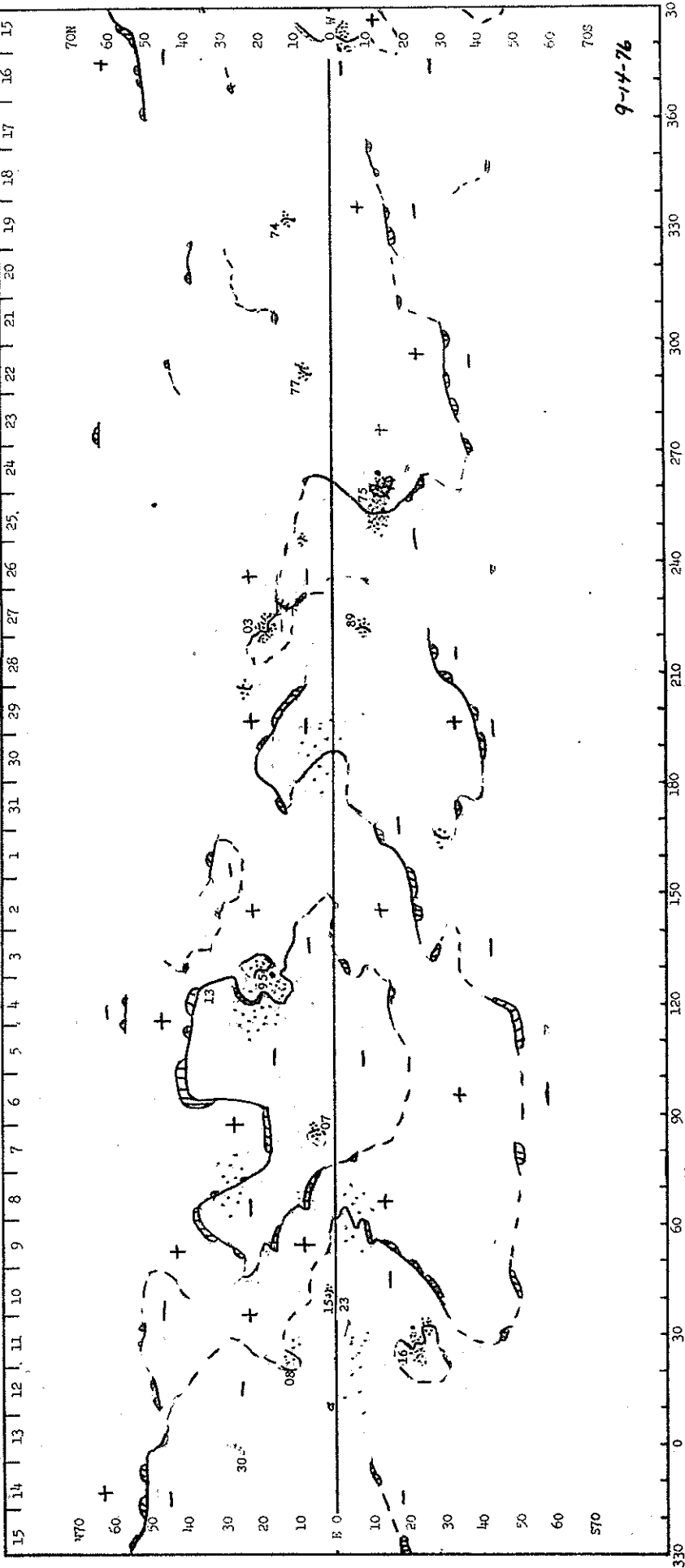
CARRINGTON ROTATION 1645 (preliminary)

AUGUST 1976

CARRINGTON ROTATION 1645 (preliminary)

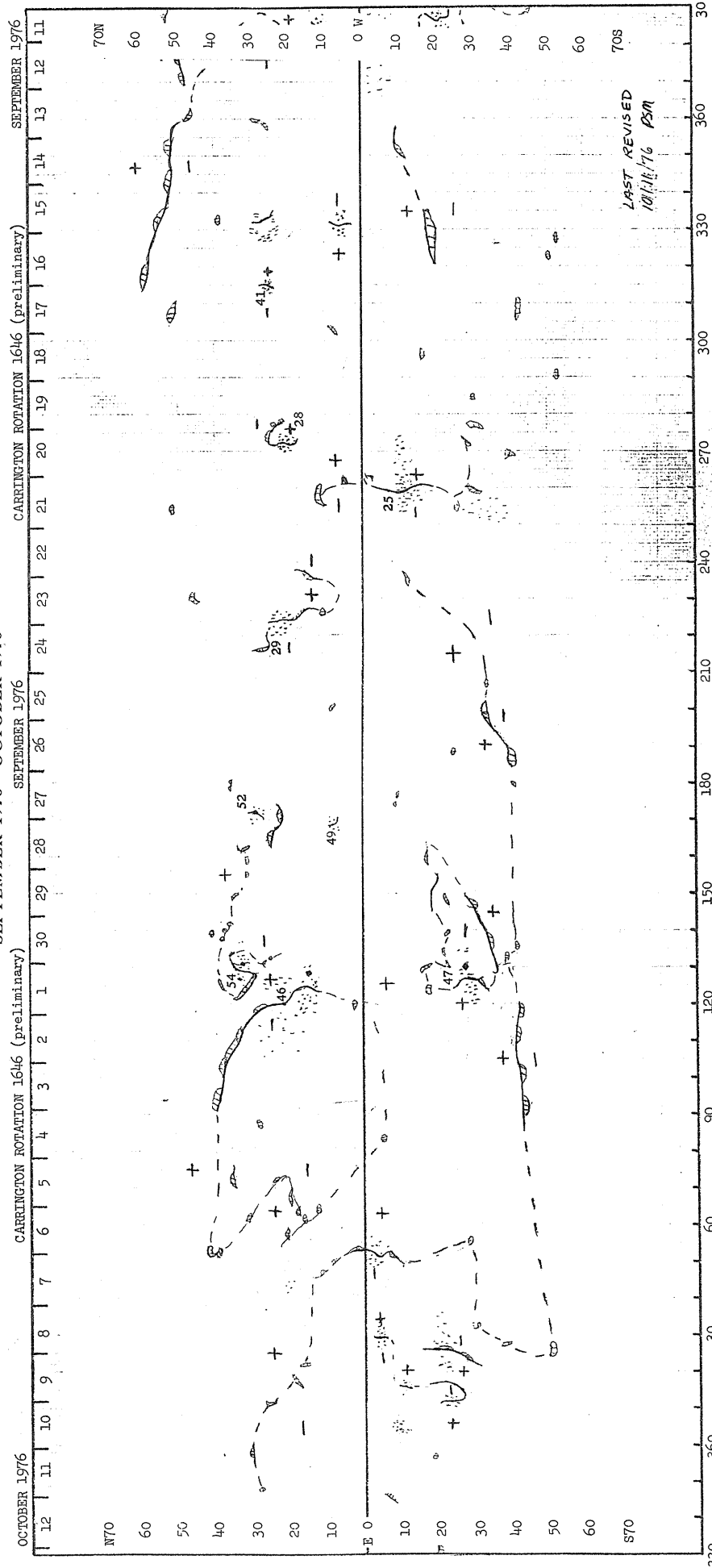
AUGUST 1976

SEPTEMBER 1976

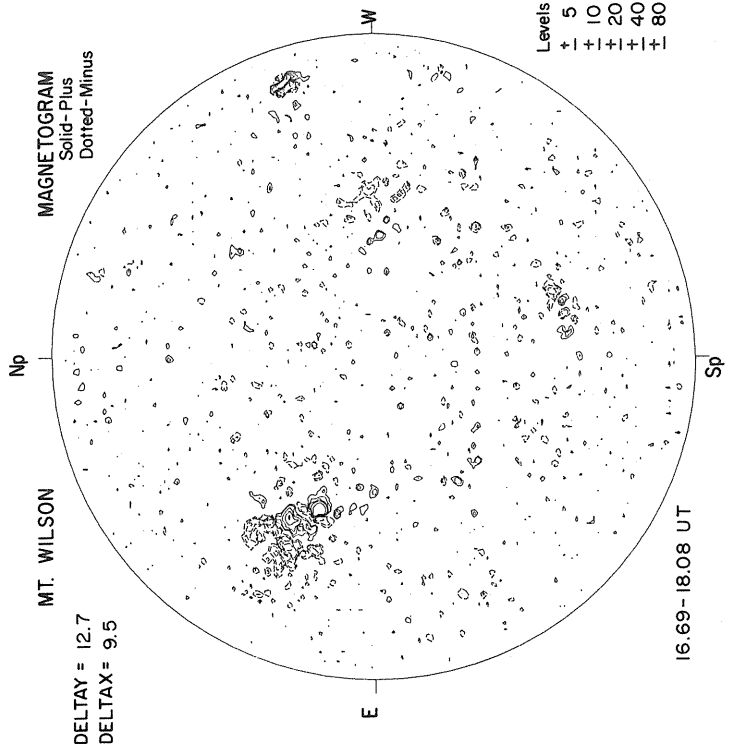
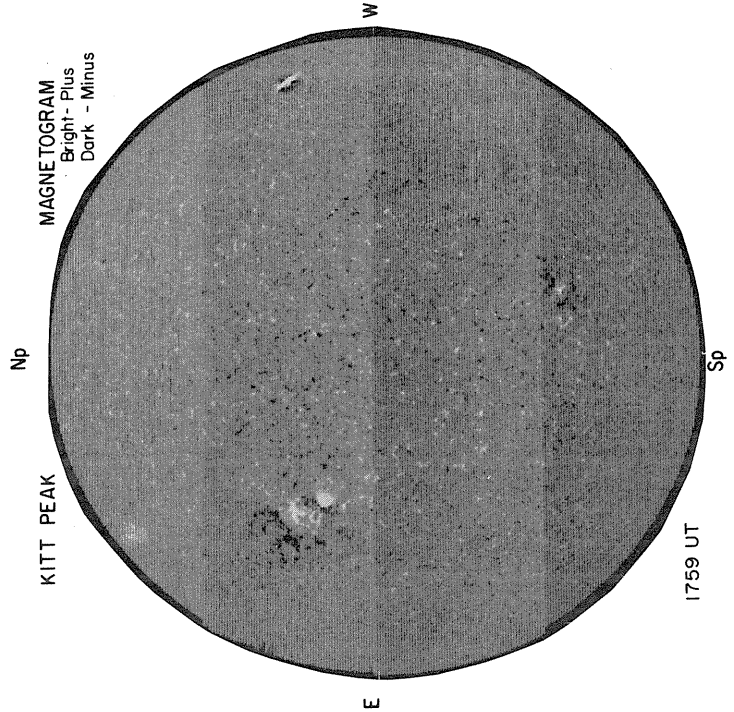
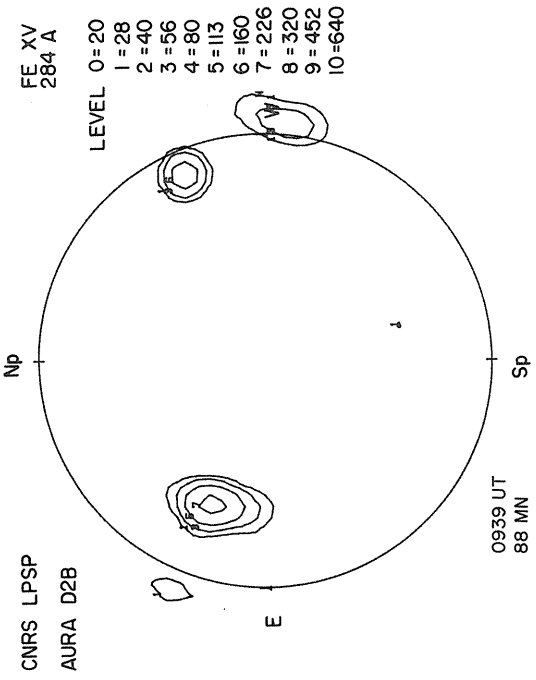
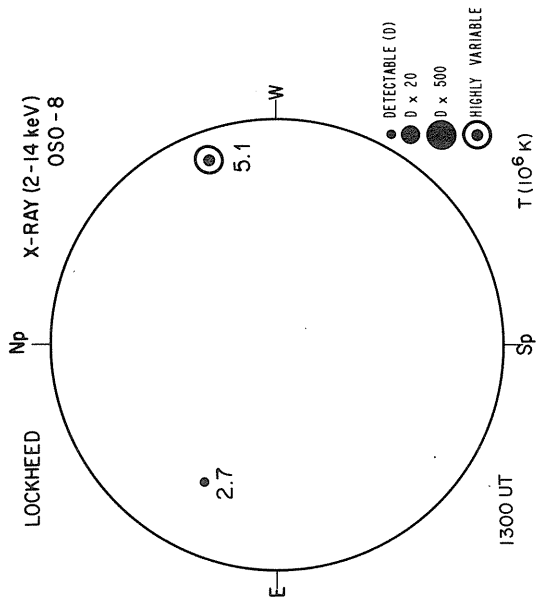


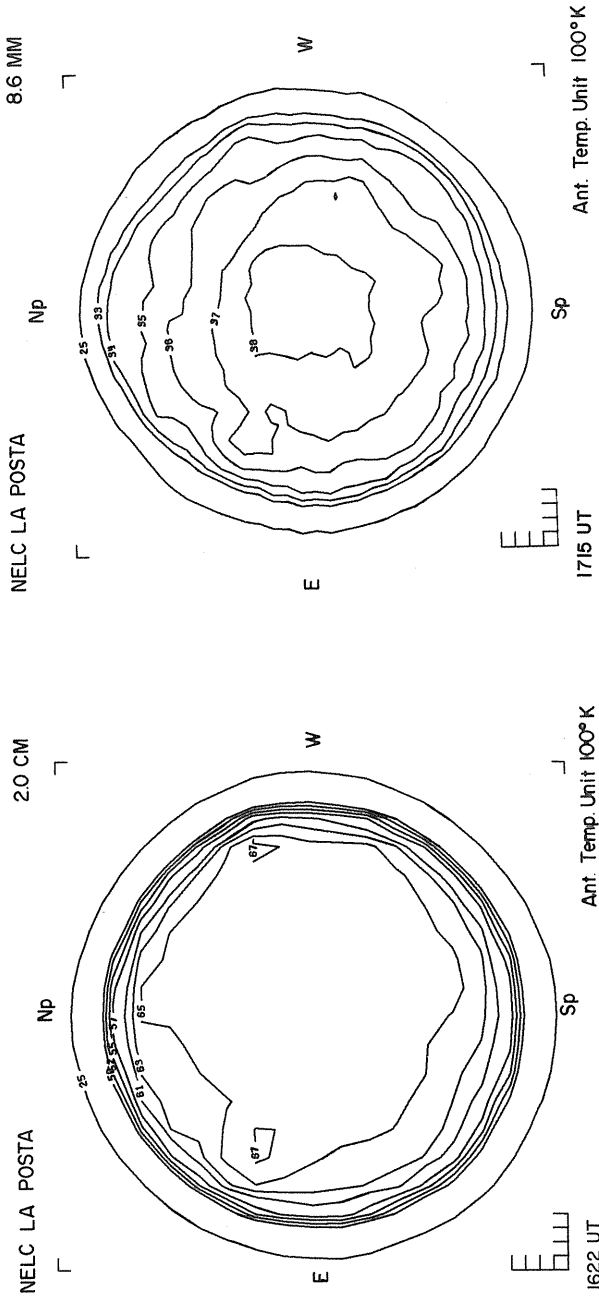
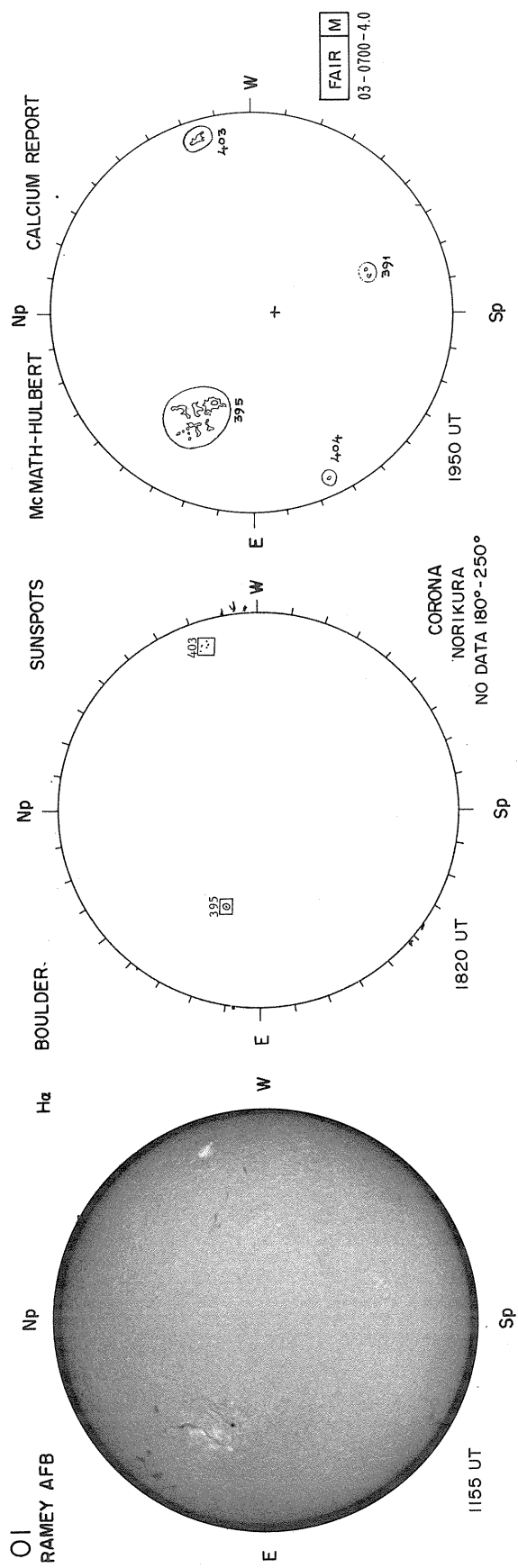
H_a SYNOPTIC CHART

SEPTEMBER 1976 - OCTOBER 1976

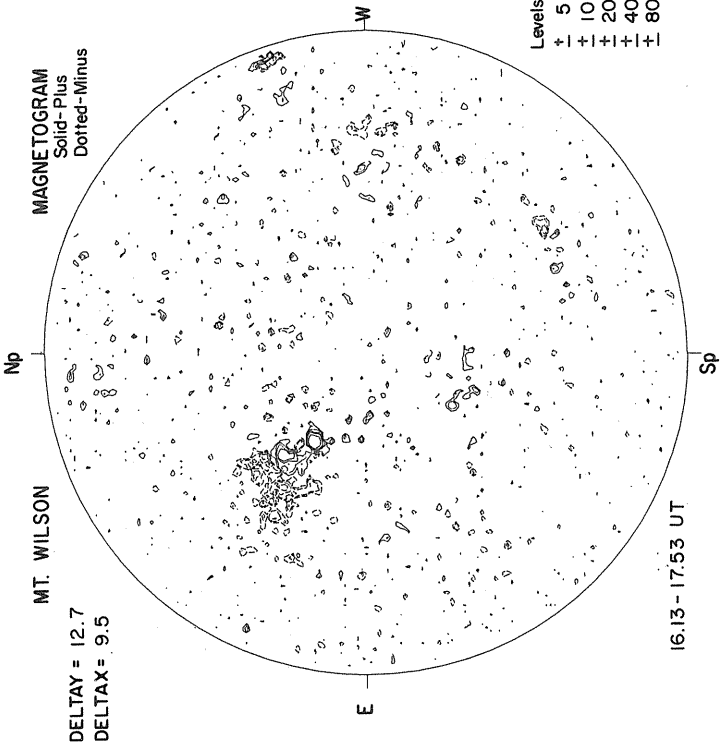
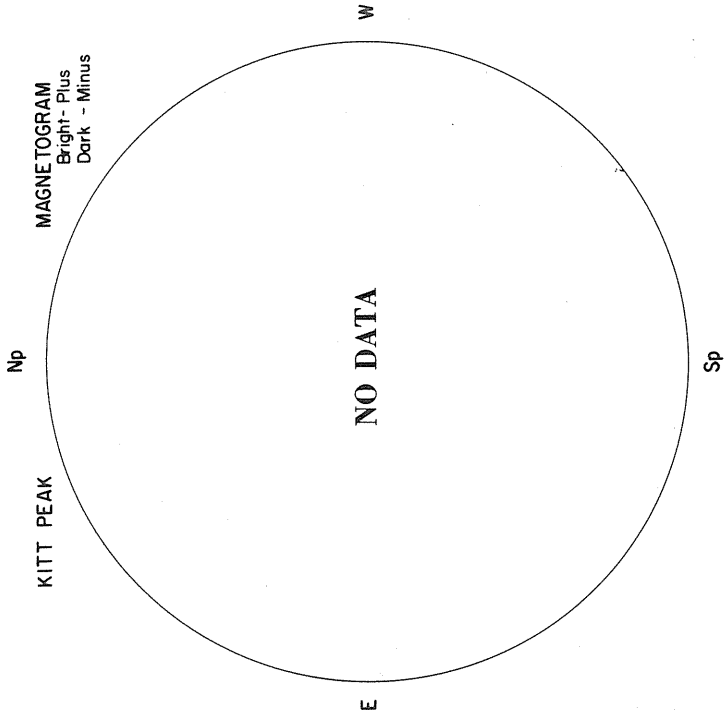
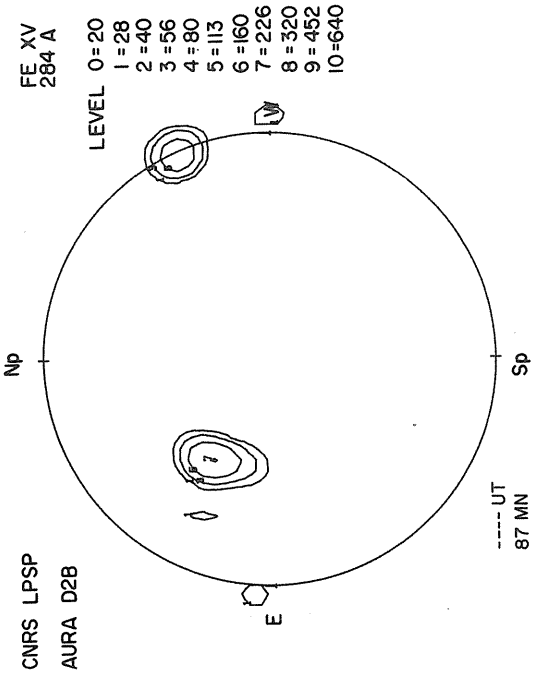
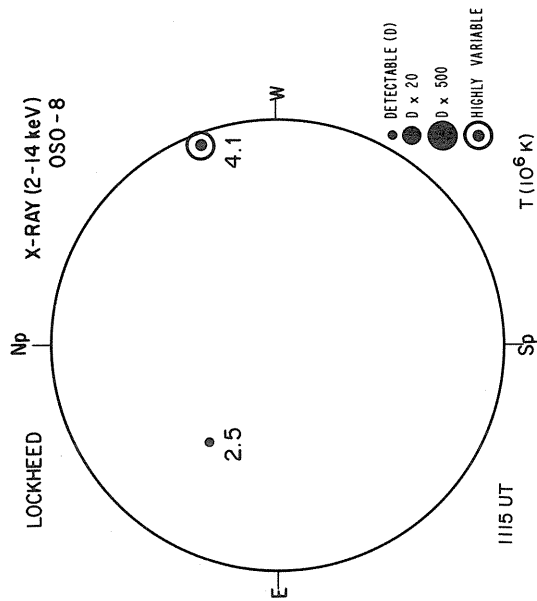


SEPTEMBER 1, 1976 (P = 21.14, B₀ = 7.20, L₀ = 166.73)





SEPTEMBER 2, 1976 (P = 21.39, $B_0 = 7.21$, $L_0 = 153.52$)

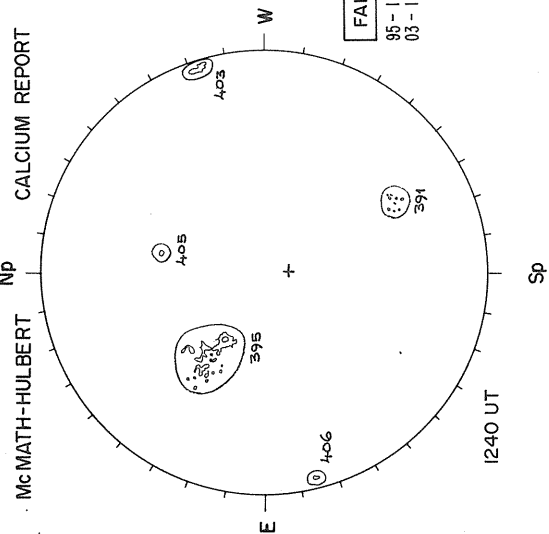


O2
RAMEY AFB

H α BOULDER

SUNSPOTS

McMATH-HULBERT

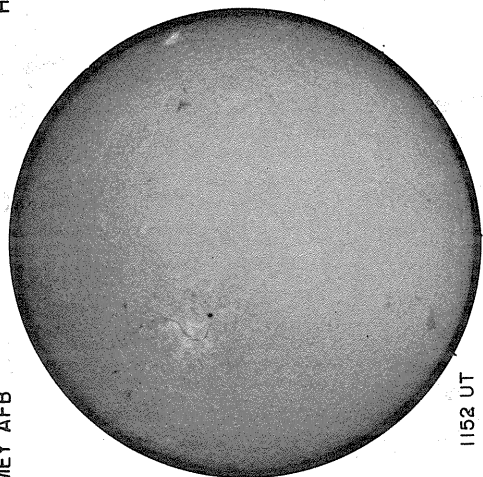


Np

Sp

Np

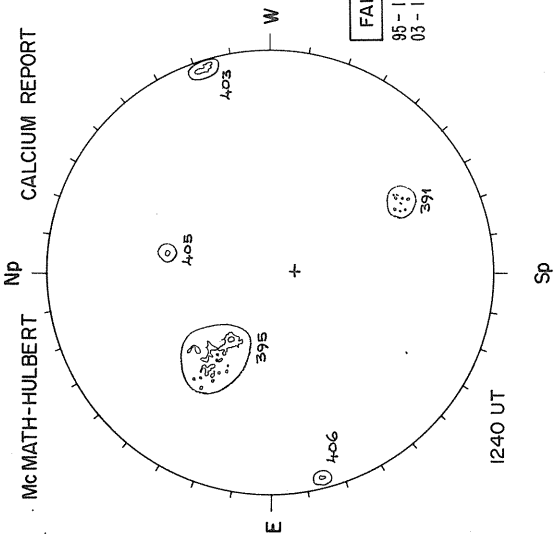
Sp



1152 UT

SUNSPOTS

McMATH-HULBERT

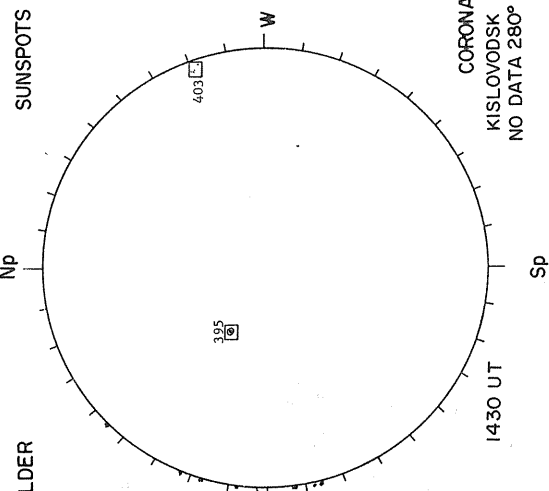


Np

Sp

Np

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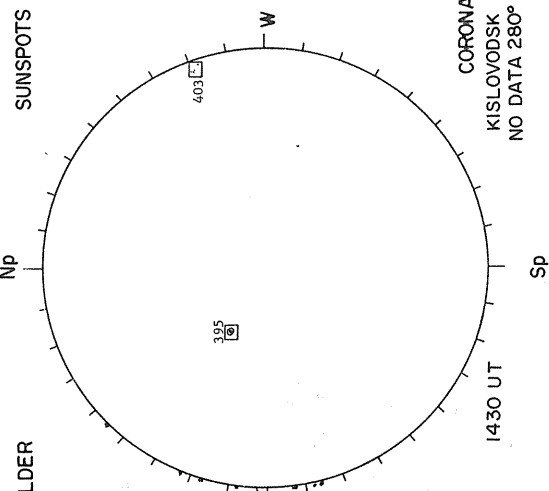


Np

Sp

Np

Sp



Np

Sp

Np

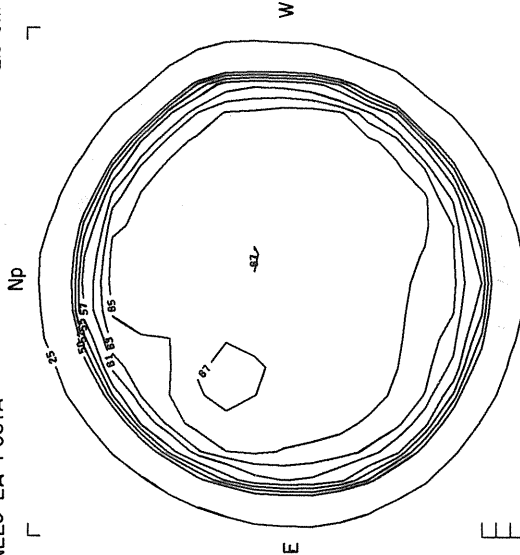
Sp

NELC LA POSTA

2.0 CM

NELC LA POSTA

8.6 MM



Np

Sp

Np

Sp

NELC LA POSTA

8.6 MM

NO DATA

NO DATA

CLOUDY

CLOUDY

W

E

W

Sp

Sp

W

Sp



1702 UT



1751 UT

Ant. Temp. Unit 100°K

Sp

1751 UT

Ant. Temp. Unit 100°K

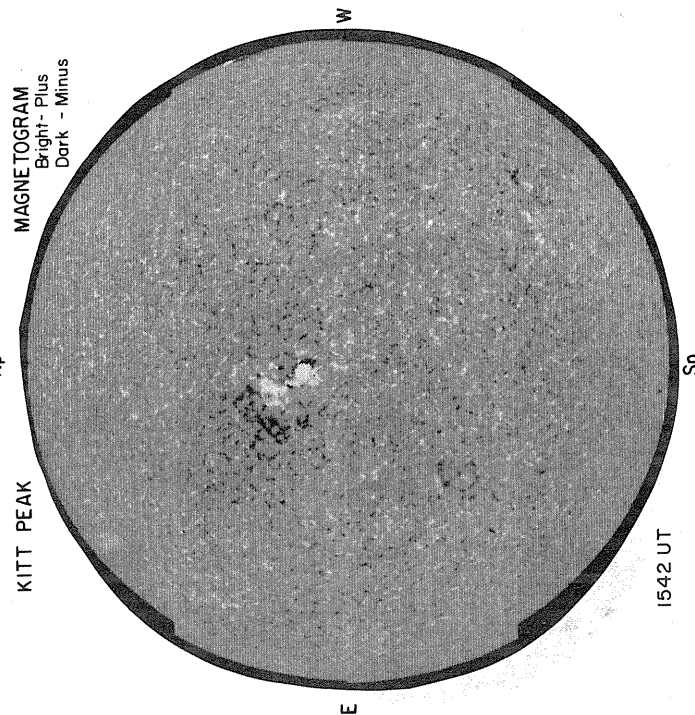
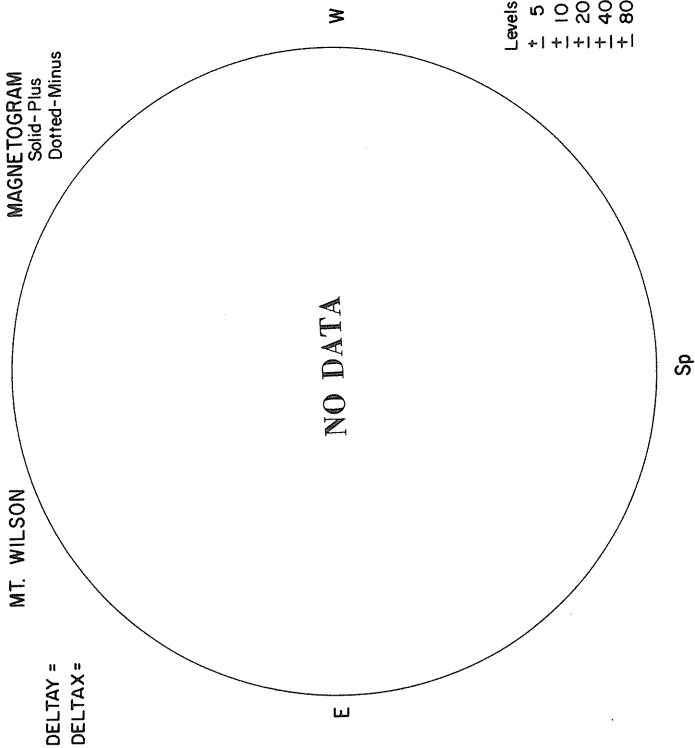
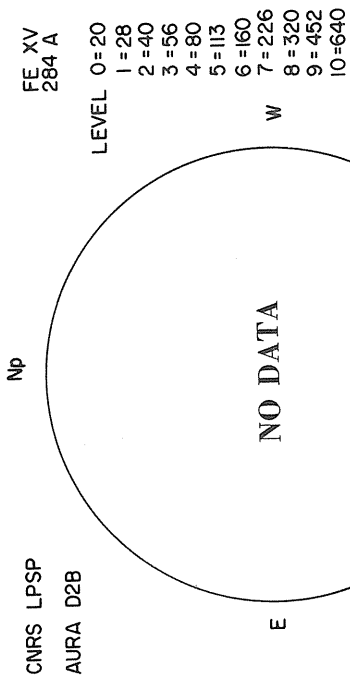
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1702 UT

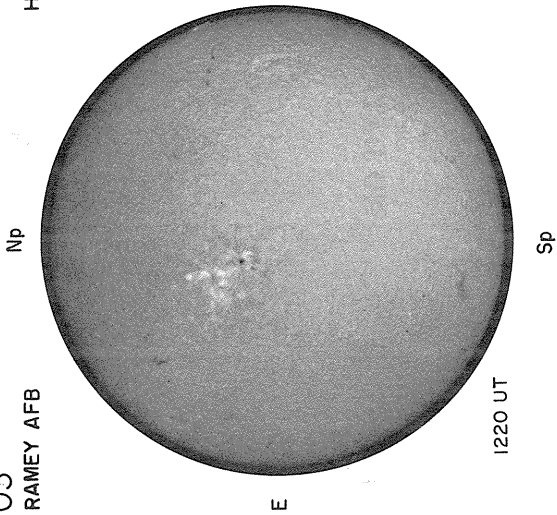
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Sp

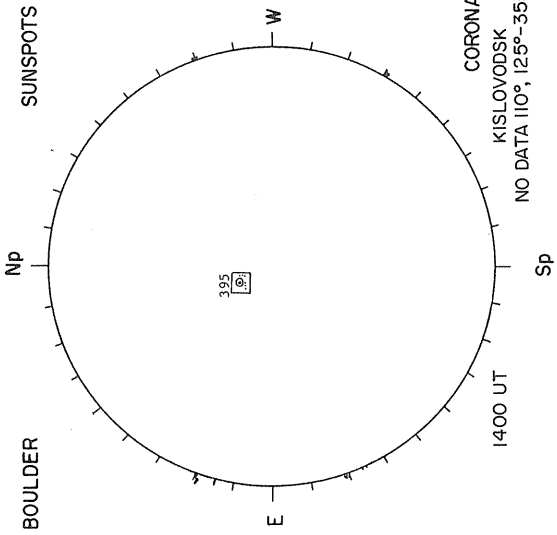
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O3
RAMEY AFB

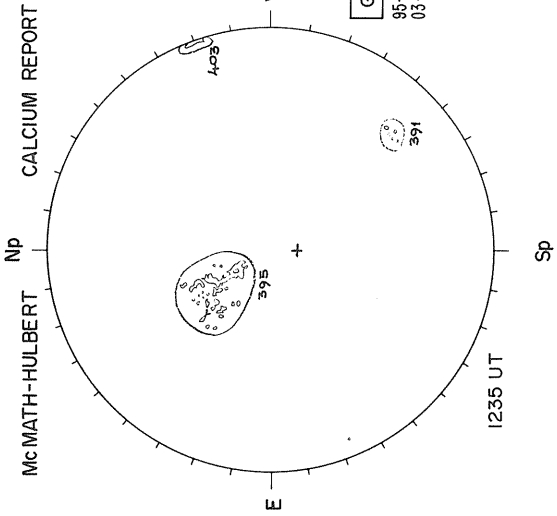


H α BOULDER



SUNSPOTS

CORONA
KISLOVODSK
NO DATA 110°, 125°-355°



McMATH-HULBERT
CALCIUM REPORT

GOOD	M
95-1800	- 3.5
03-1000	- 4.0

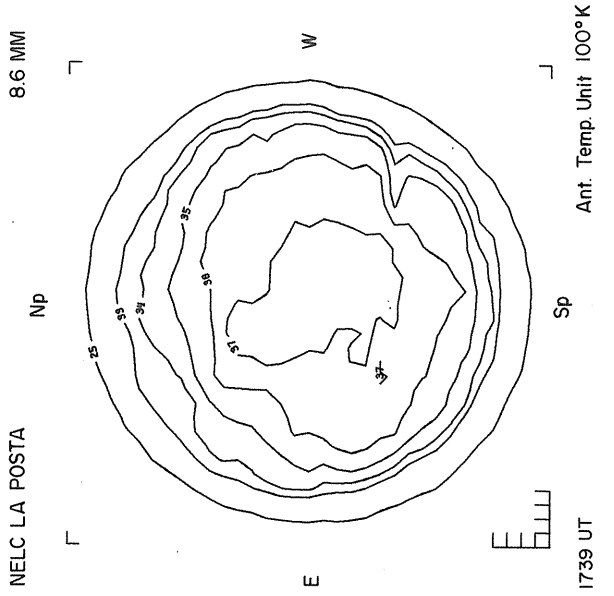
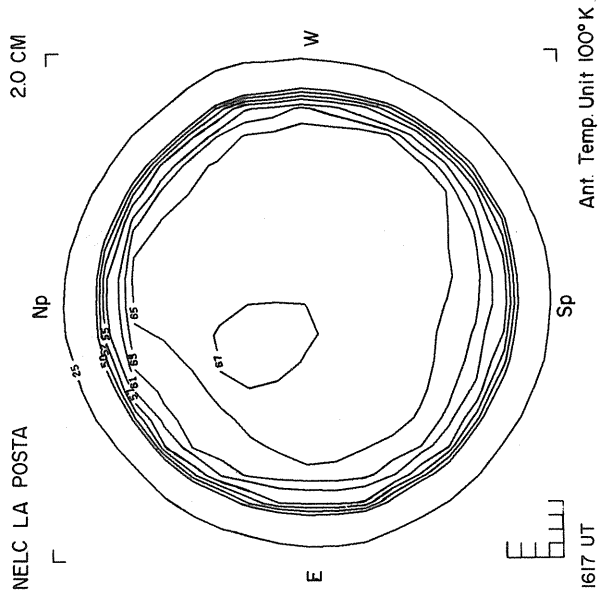
NELC LA POSTA

20 CM

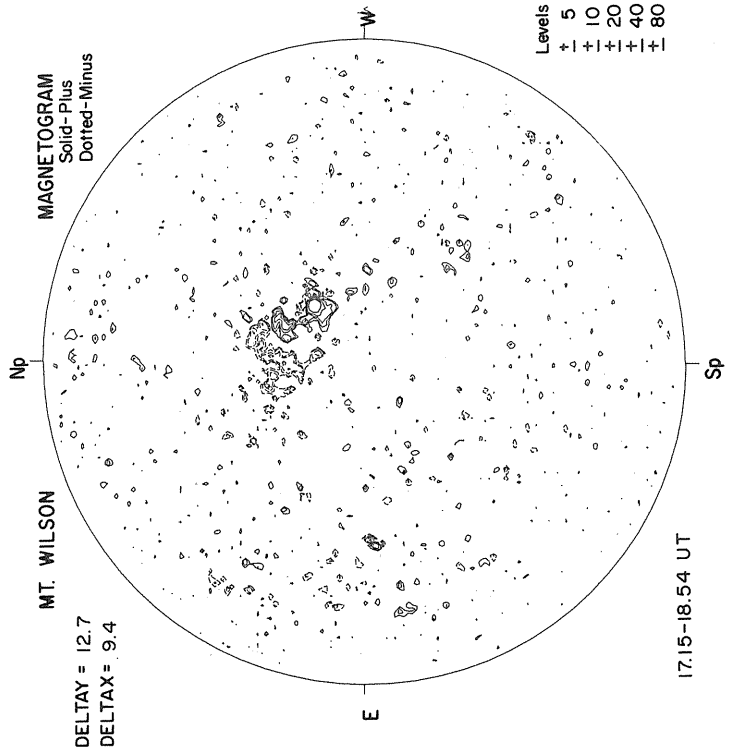
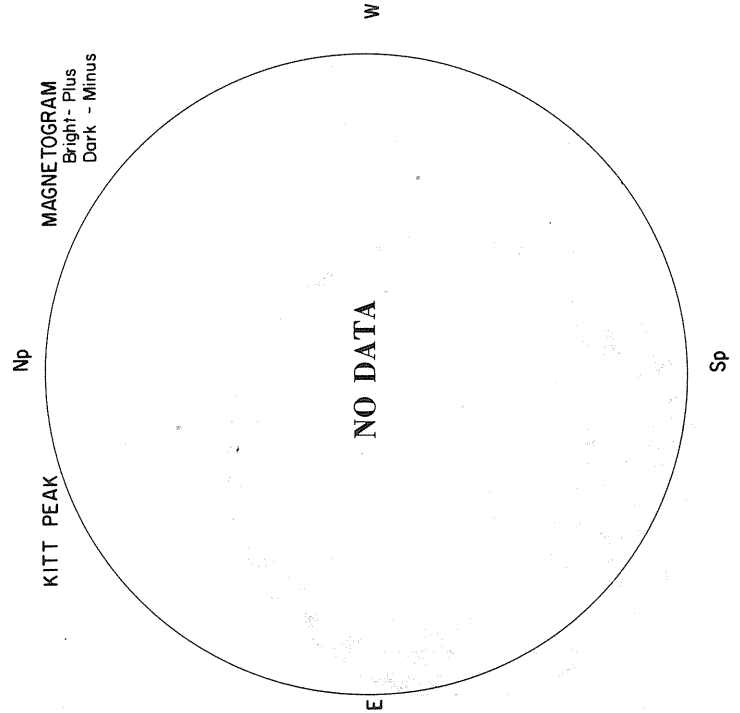
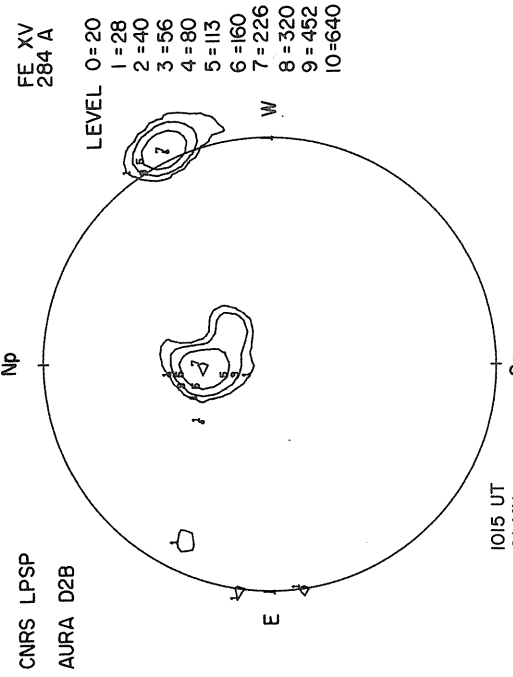
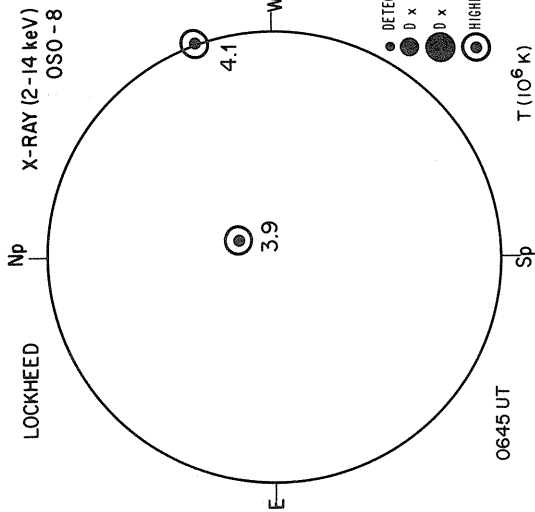
8.6 MM

NELC LA POSTA

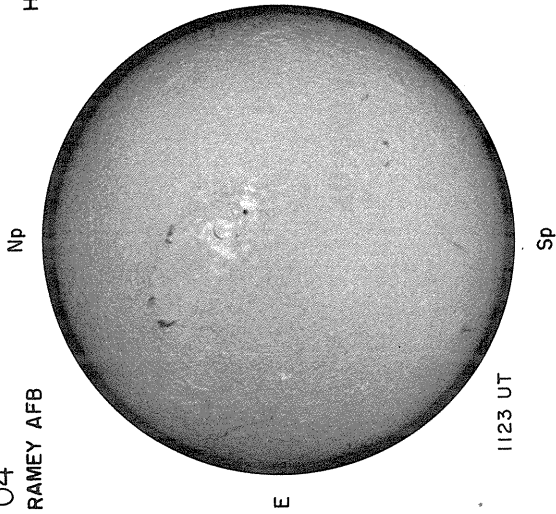
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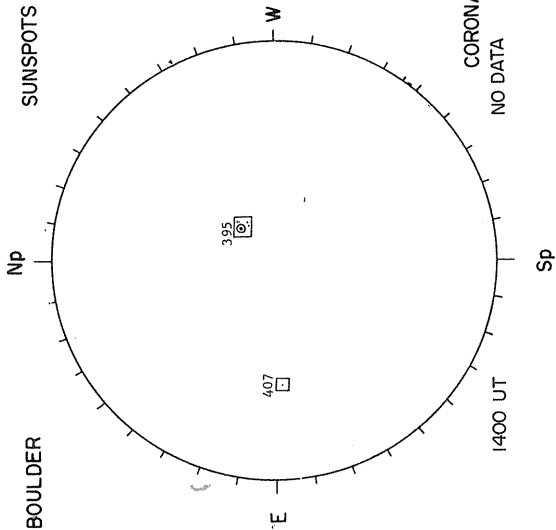
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O4
RAMEY AFB

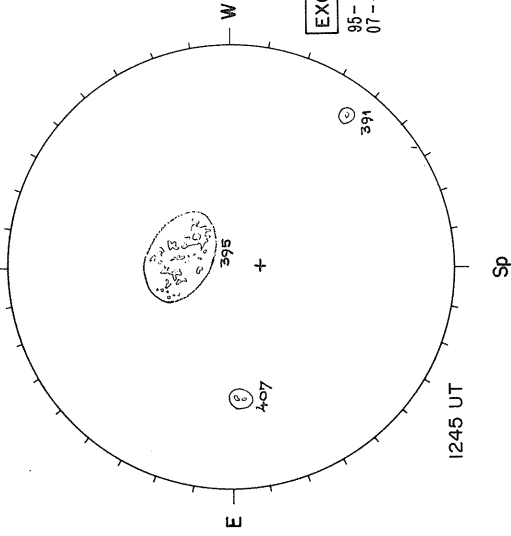


H α BOULDER

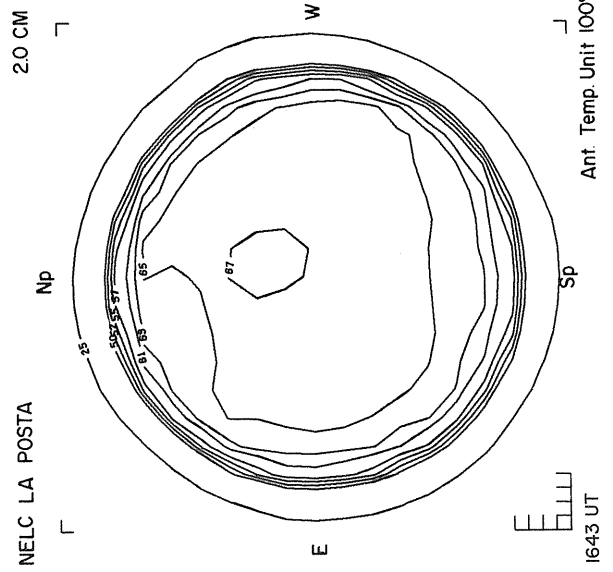


CORONA
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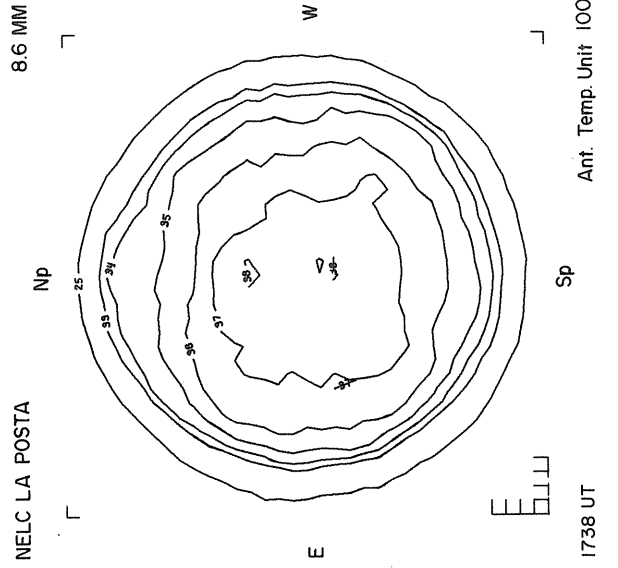
NP CALCIUM REPORT



NELC LA POSTA

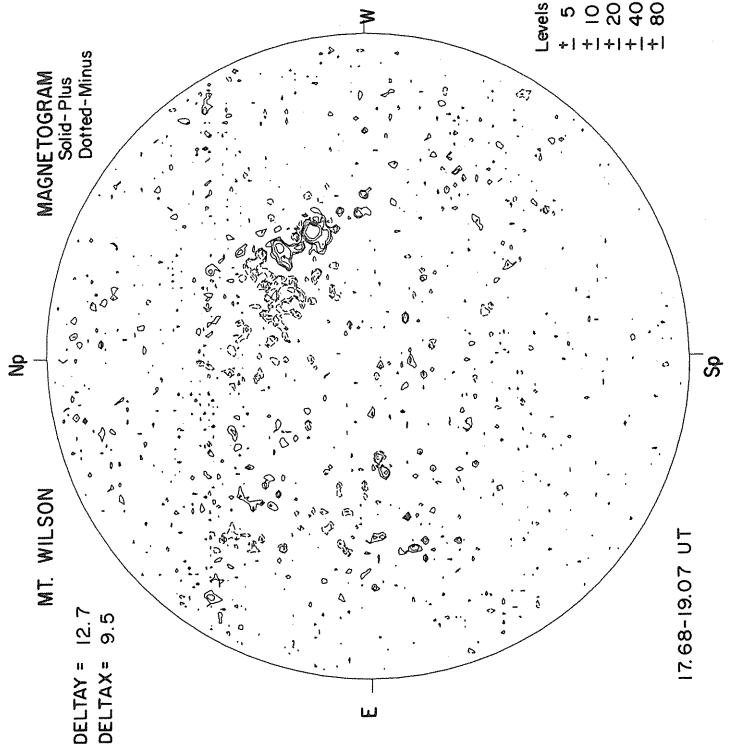
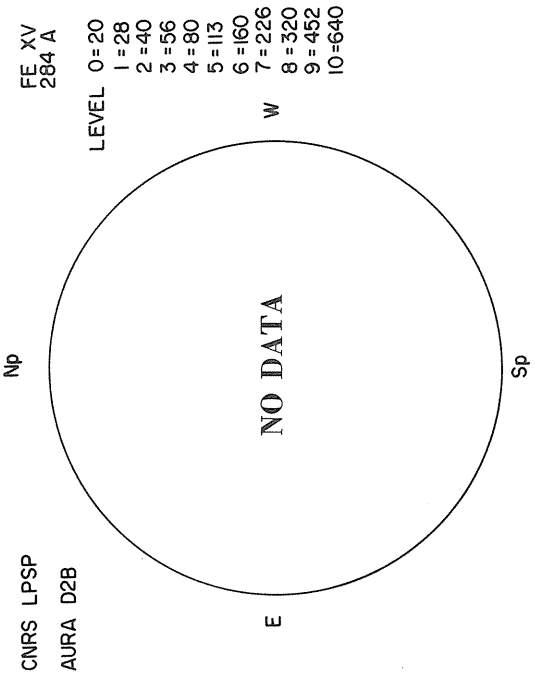
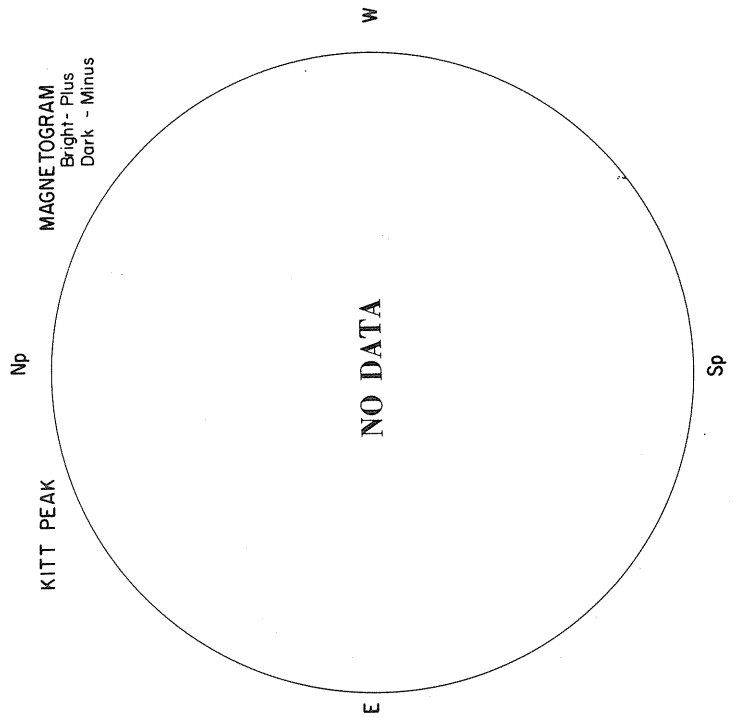
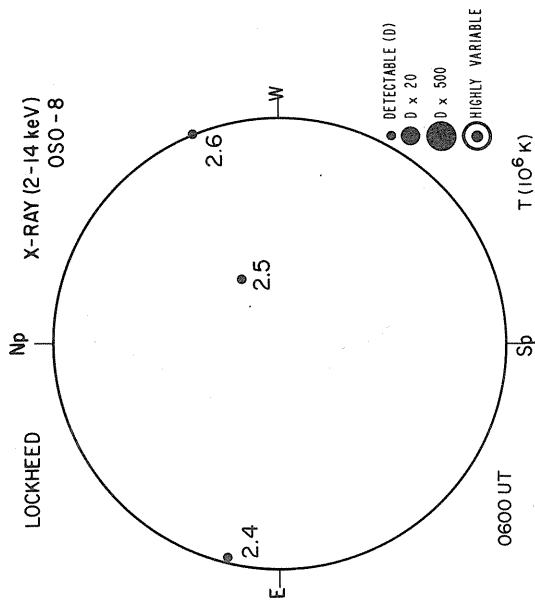


NELC LA POSTA



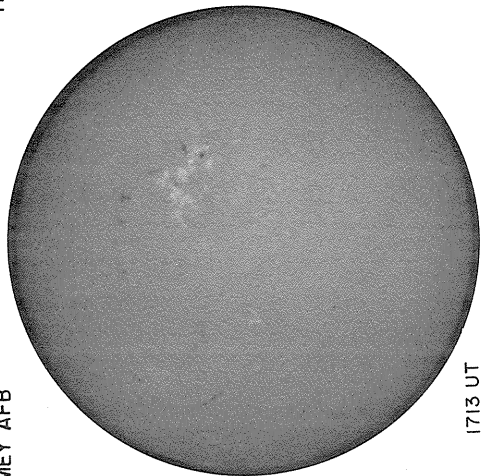
8.6 MM

SEPTEMBER 5, 1976 (P = 22.11, B₀ = 7.24, L₀ = 113.90)



O5
RAMEY AFB

Np



E

1713 UT

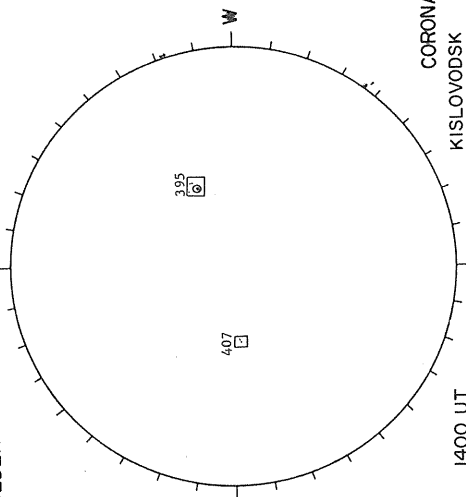
H α BOULDER

W

E

Np

SUNSPOTS



Sp

1400 UT

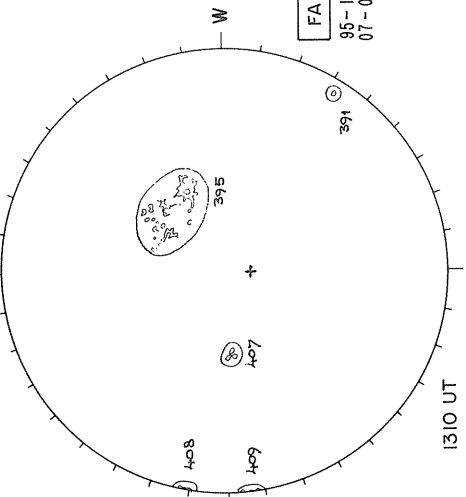
McMATH-HULBERT

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CALCIUM REPORT



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07 - 0300 - 2.5

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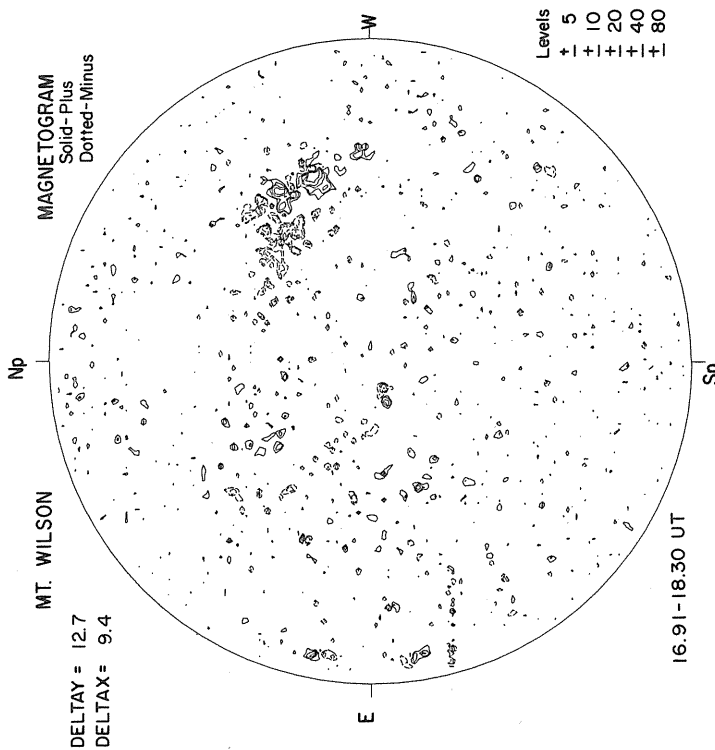
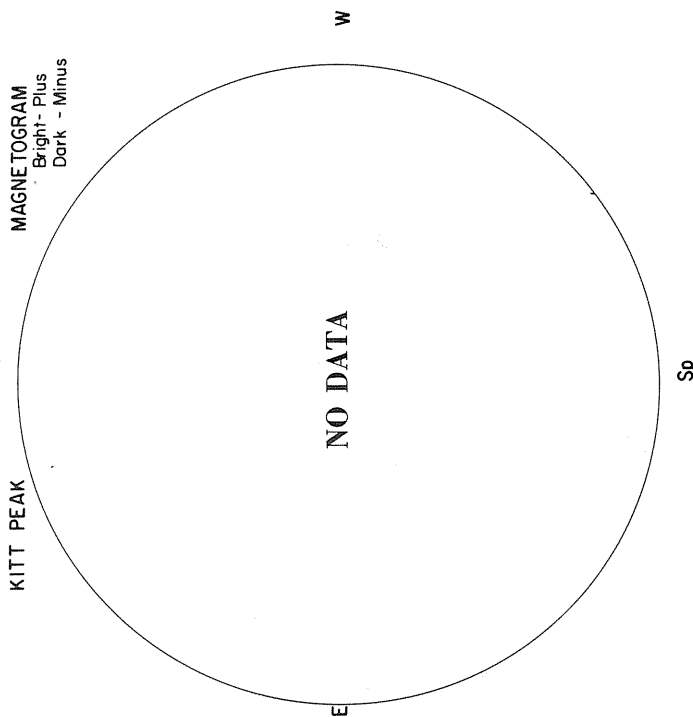
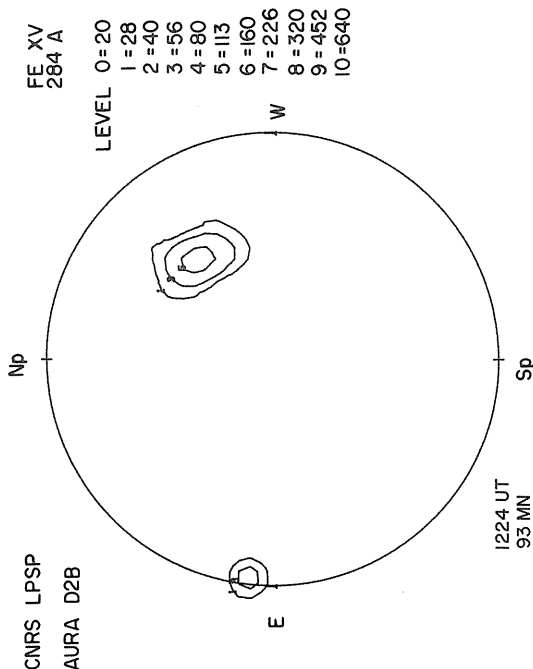
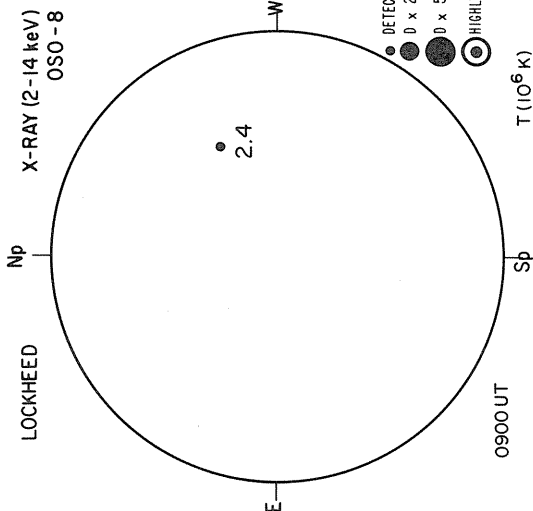
1632 UT

Ant. Temp. Unit 100°K

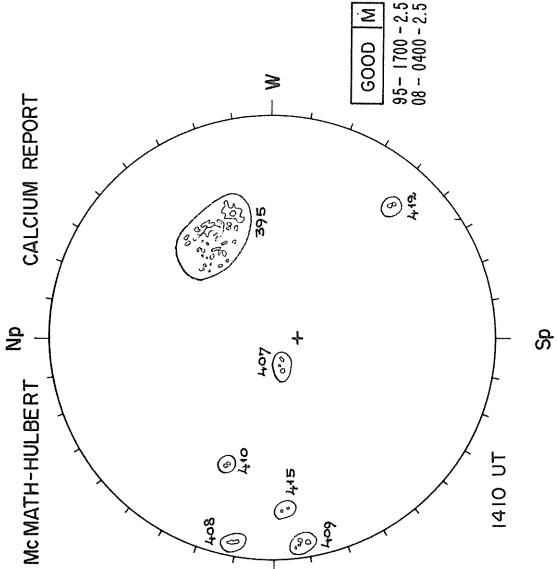
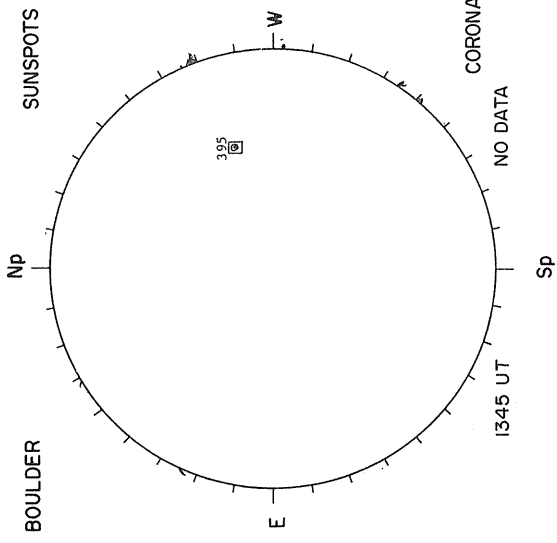
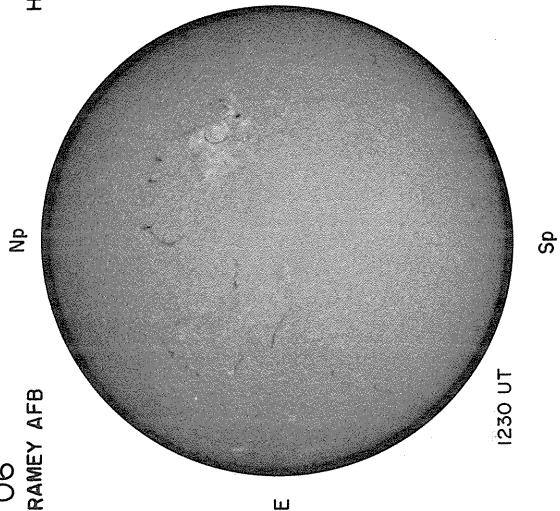
1719 UT

Ant. Temp. Unit 100°K

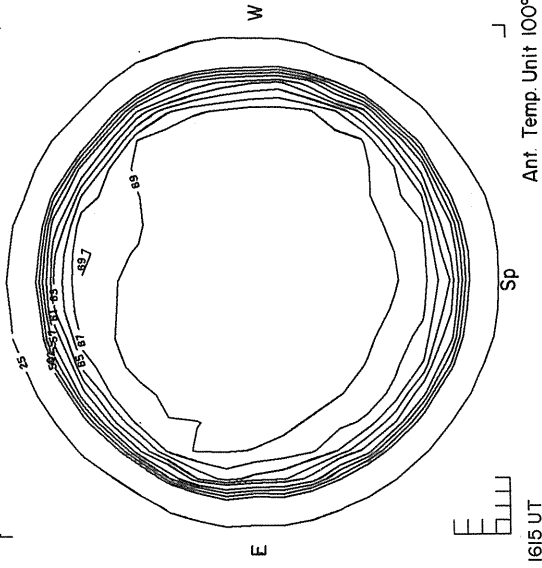
SEPTEMBER 6, 1976 (P = 22.33, B₀ = 7.25, L₀ = 100.69)



06
RAMEY AFB

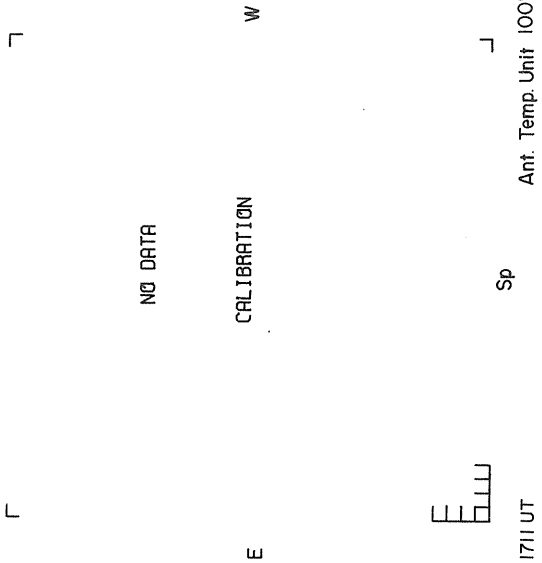


NELC LA POSTA



2.0 CM

NELC LA POSTA

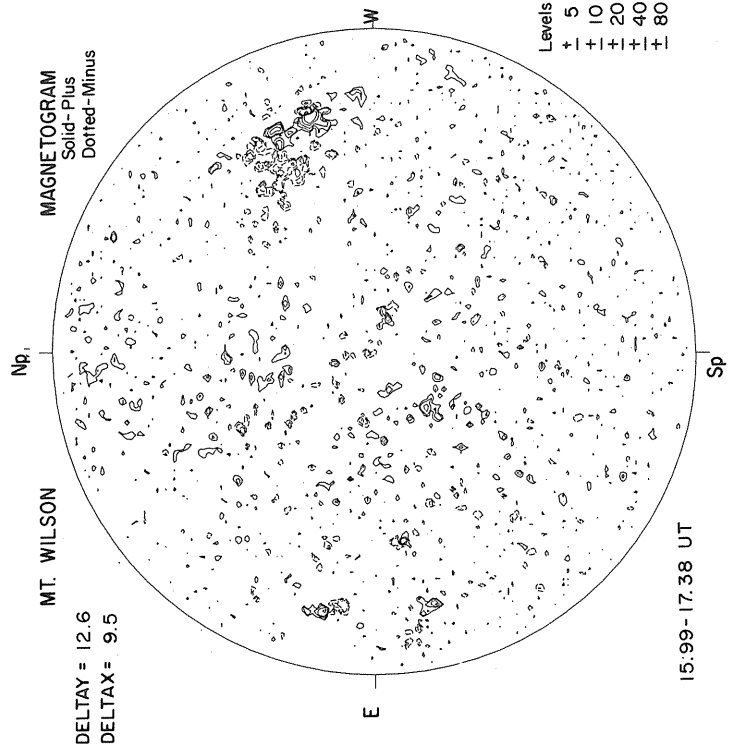
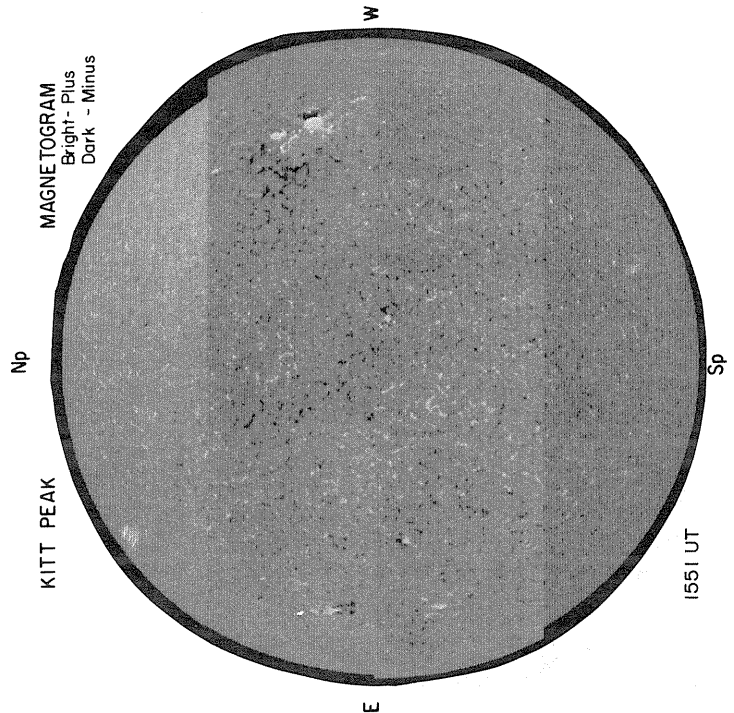
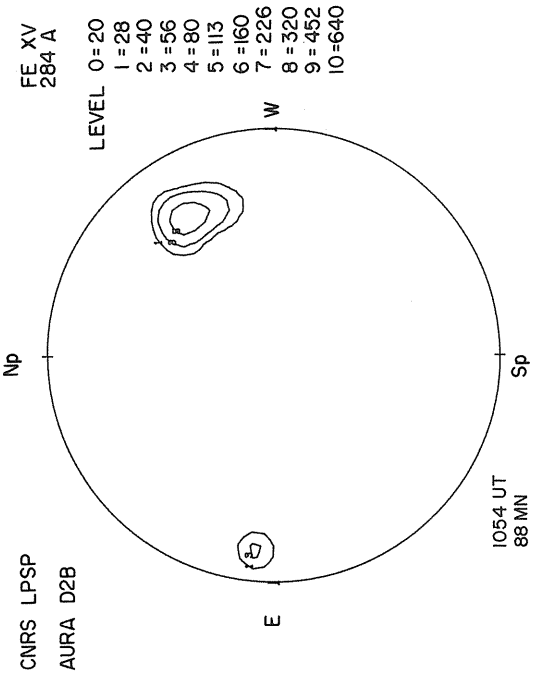
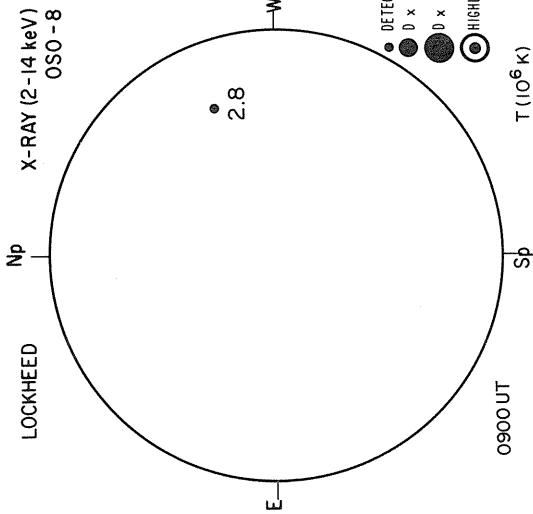


8.6 MM

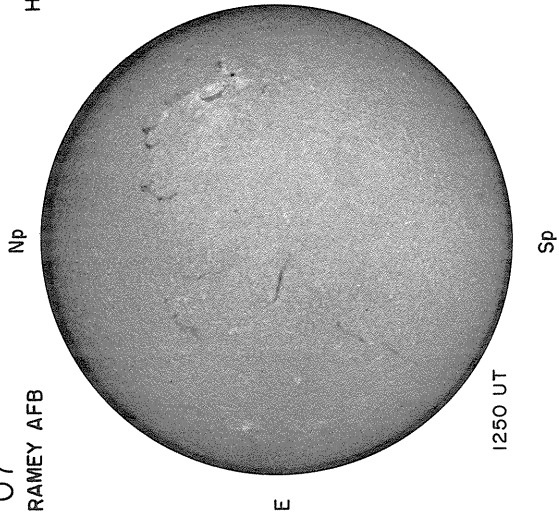
NO DATA

CALIBRATION

SEPTEMBER 7, 1976 (P = 22.56, B₀ = 7.25, L₀ = 87.48)



O7
RAMEY AFB



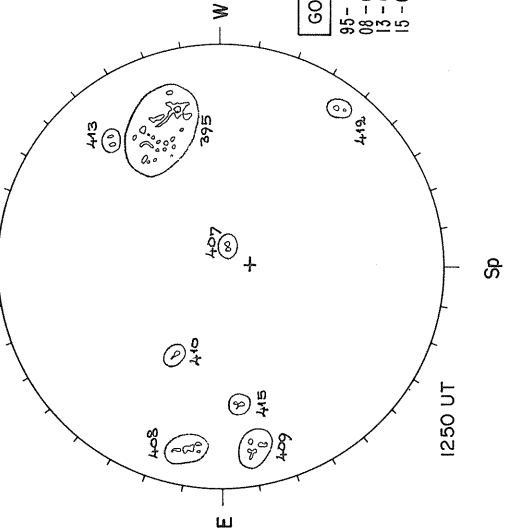
1250 UT

1345 UT

McMATH-HULBERT

1250 UT

CALCIUM REPORT



SUNSPOTS

NP

1345 UT

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1250 UT

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CORONA

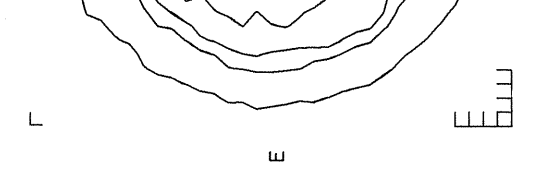
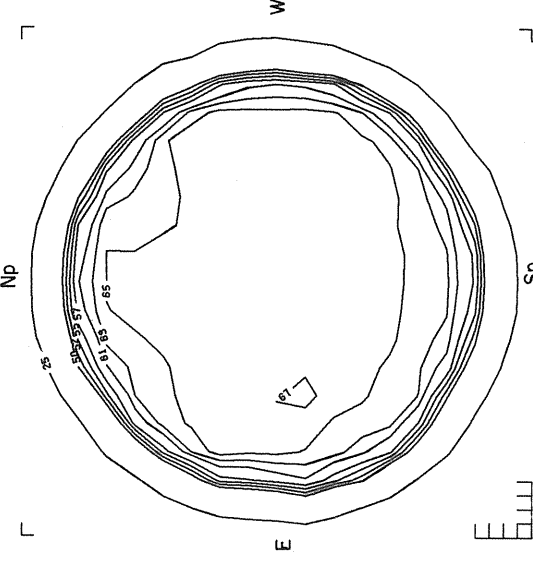
NO DATA

NELC LA POSTA

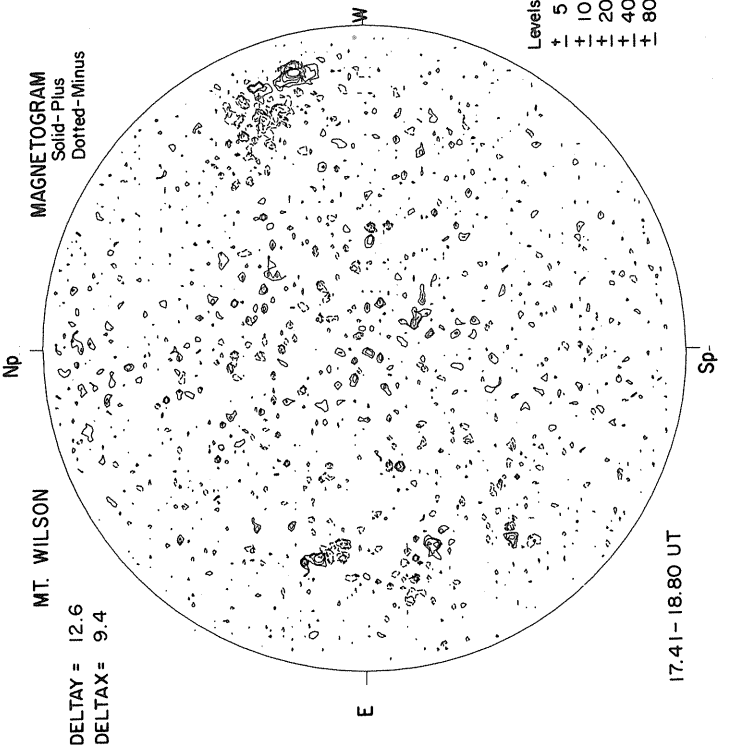
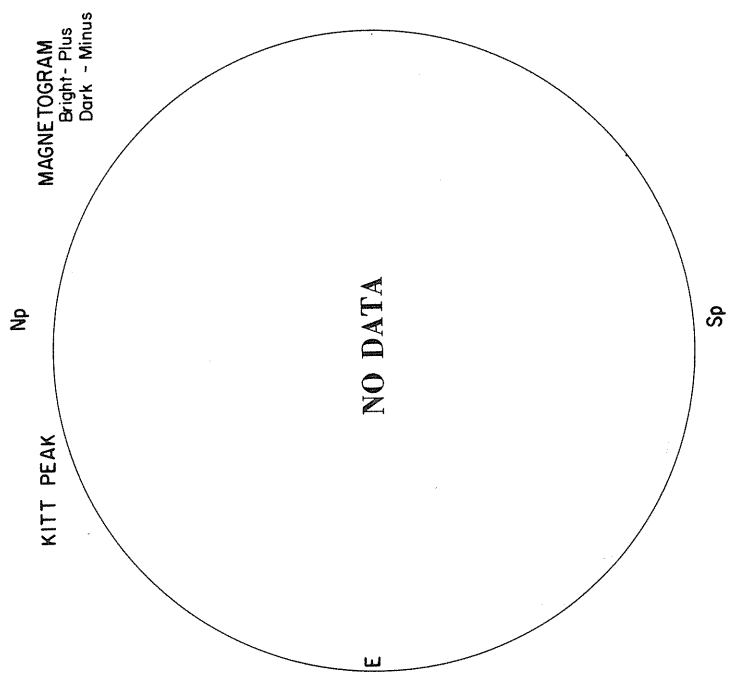
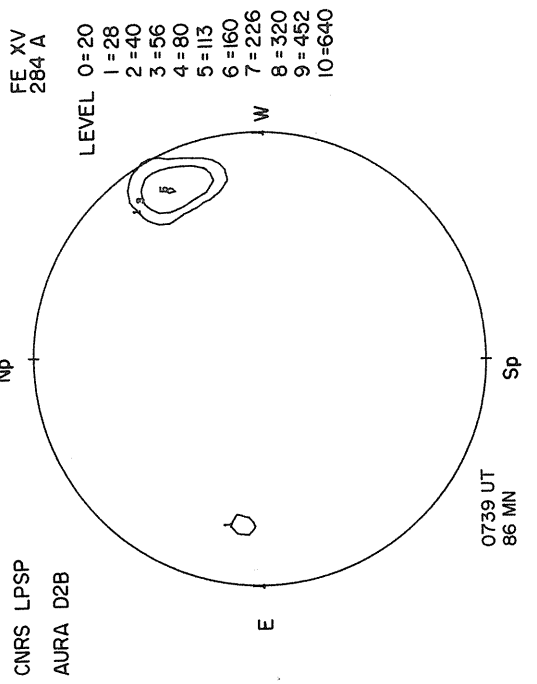
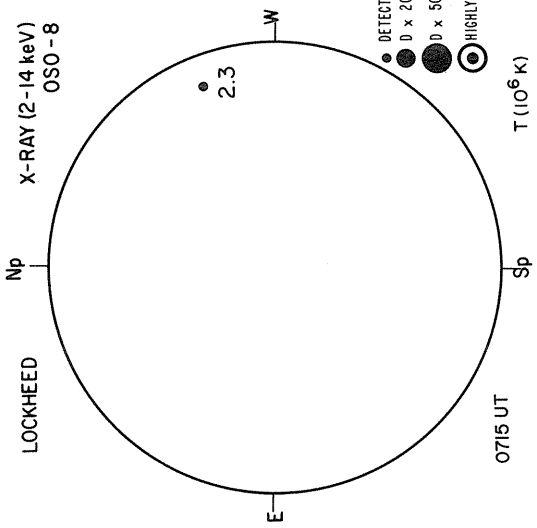
2.0 CM

NELC LA POSTA

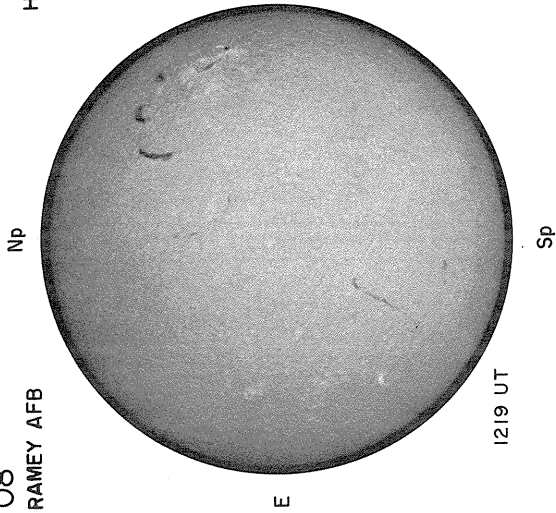
8.6 MM



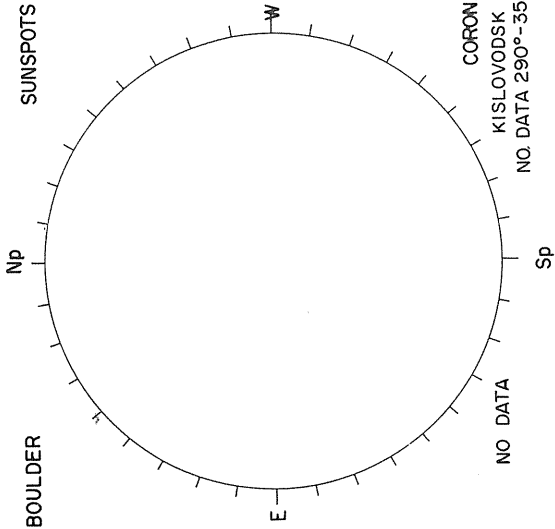
SEPTEMBER 8, 1976 (P = 22.77, B₀ = 7.25, L₀ = 74.28)



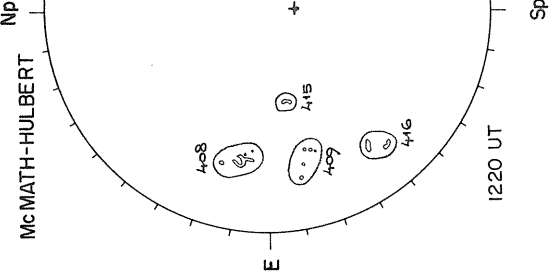
O8
RAMEY AFB



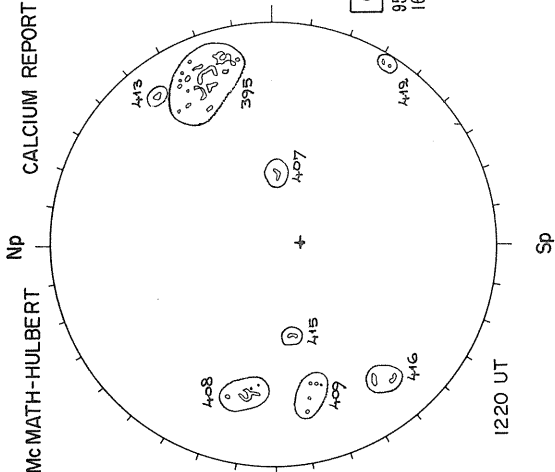
H α BOULDER



SUNSPOTS



McMATH-HULBERT



CALCIUM REPORT

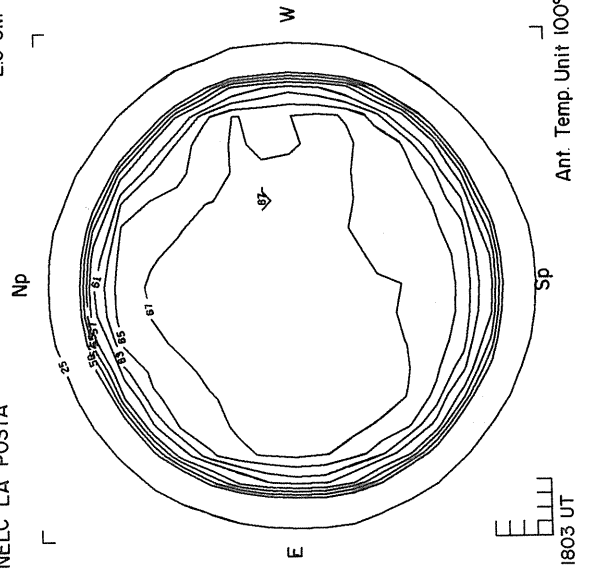
GOOD S
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16 - 0300 - 3.0

NELC LA POSTA

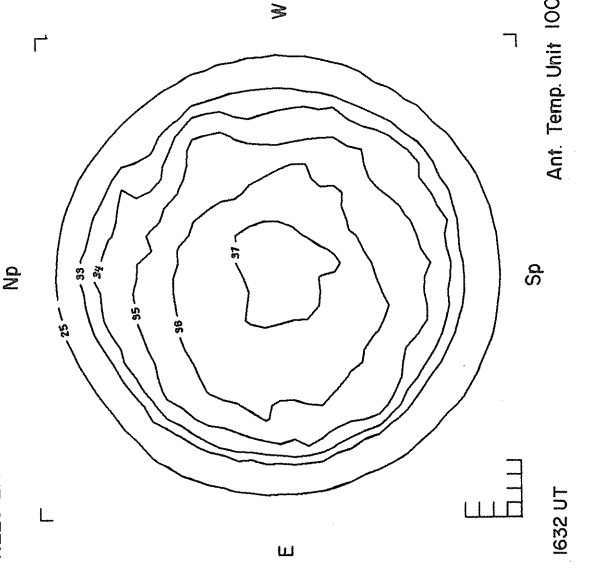
2.0 CM

NELC LA POSTA

8.6 MM



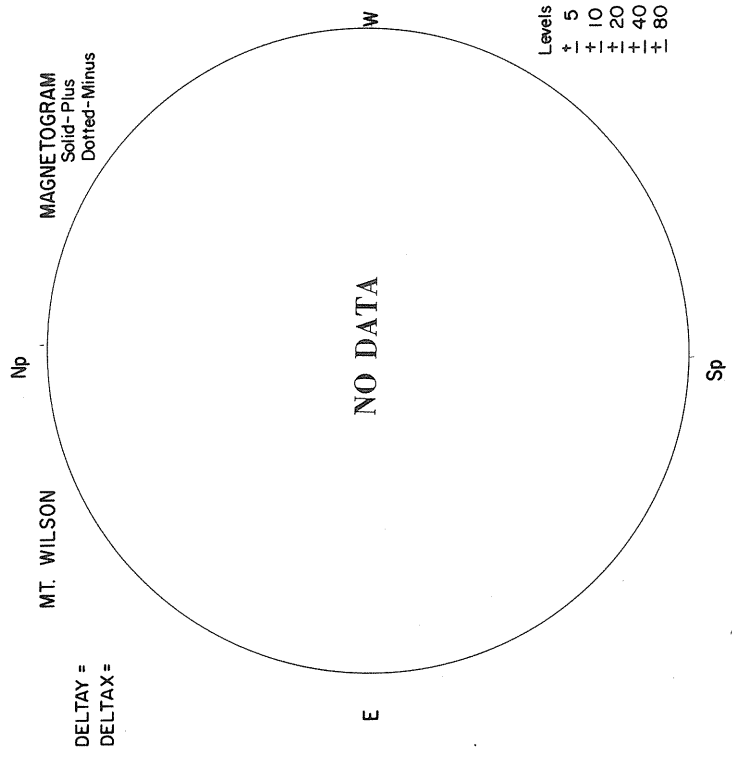
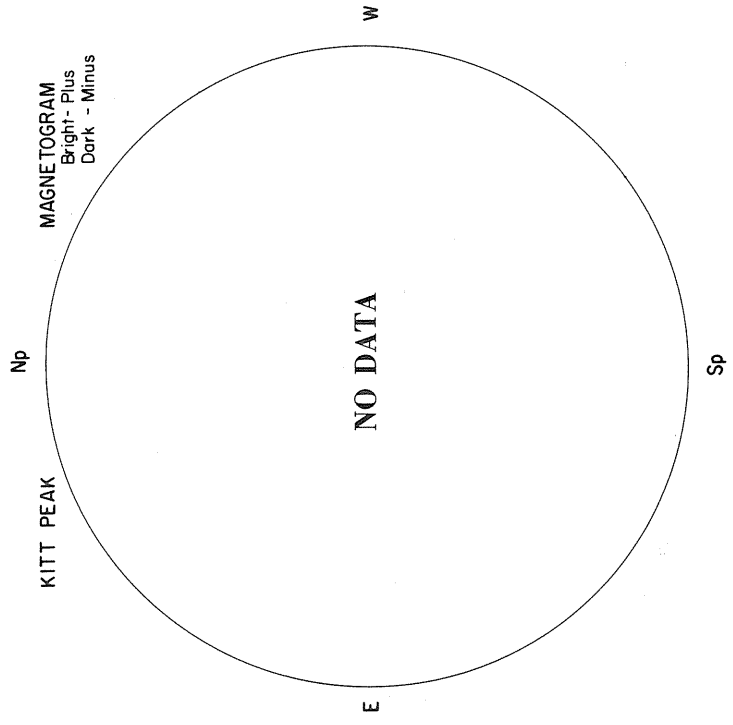
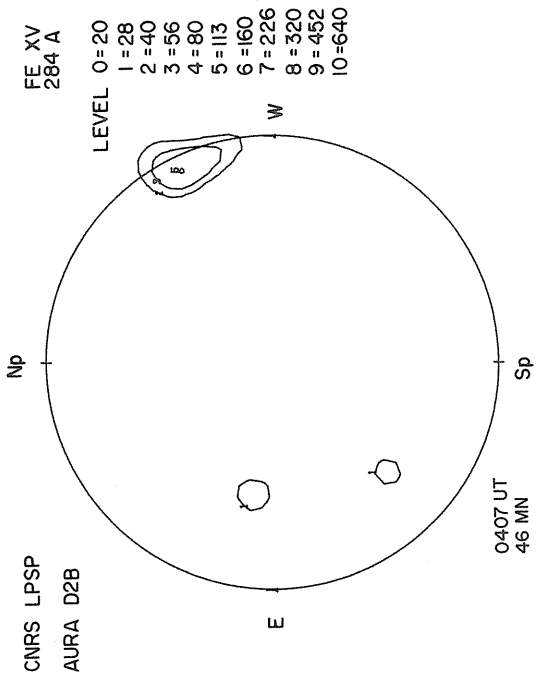
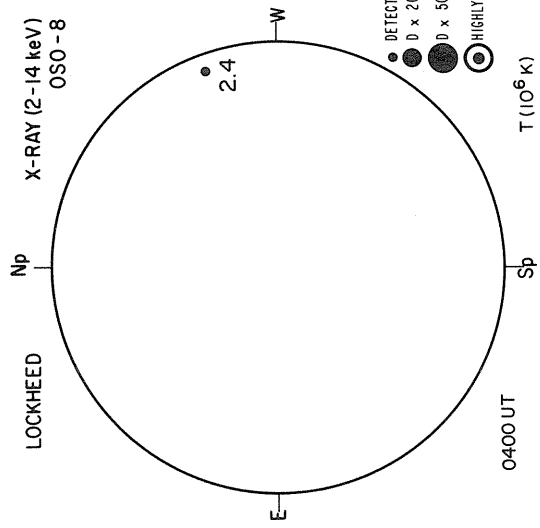
Ant. Temp. Unit 100°K



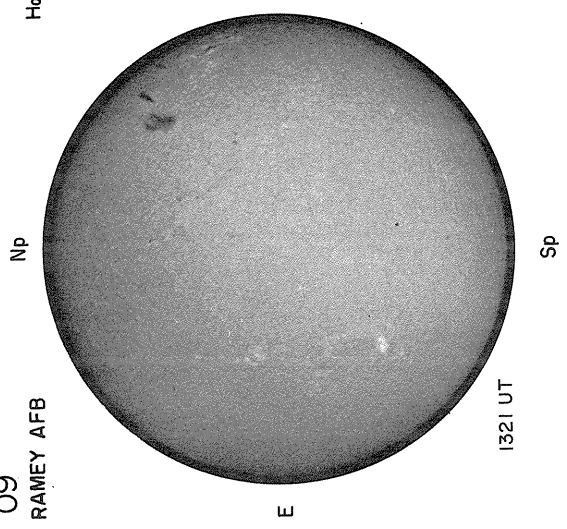
Ant. Temp. Unit 100°K

CORONA
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NO. DATA 290°-355°

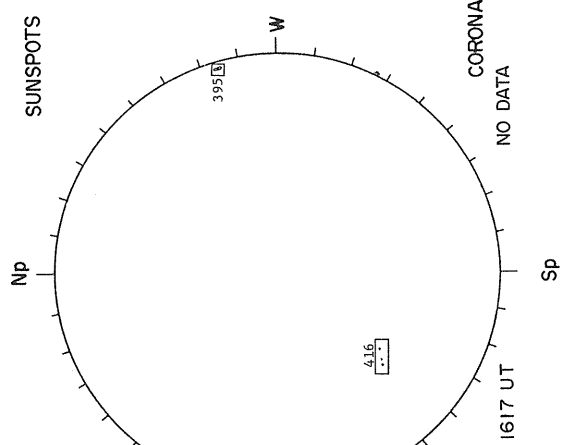
SEPTEMBER 9, 1976 (P = 22.98, B₀ = 7.25, L₀ = 61.07)



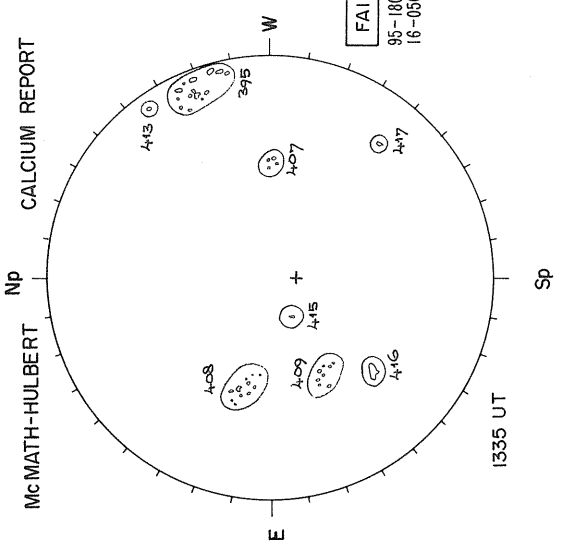
09
RAMEY AFB



H α BOULDER



McMATH-HULBERT



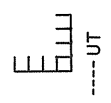
CALCIUM REPORT

NELC LA POSTA
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WEATHER



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Ant. Temp. Unit 100°K

2.0 CM
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NELC LA POSTA
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NO DATA

WEATHER



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Ant. Temp. Unit 100°K

8.6 MM
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NELC LA POSTA
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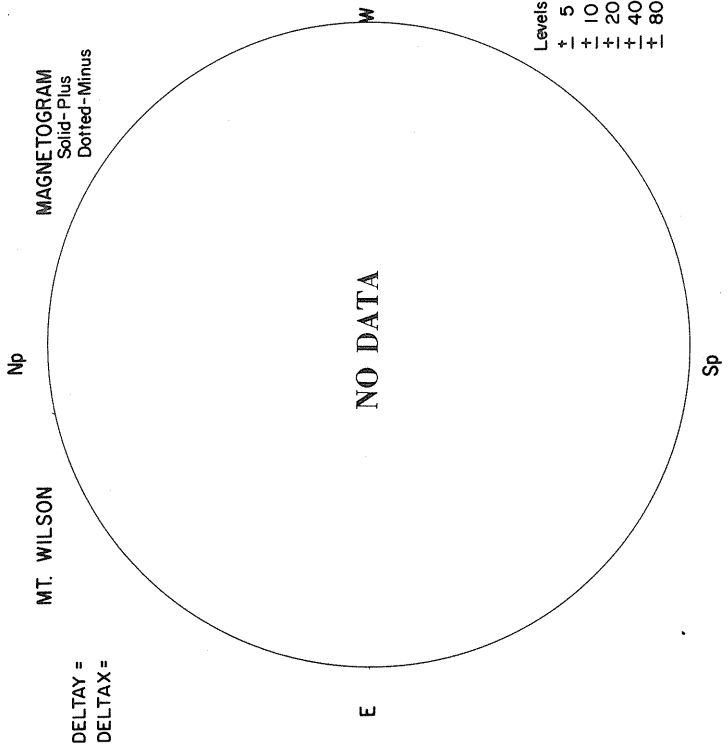
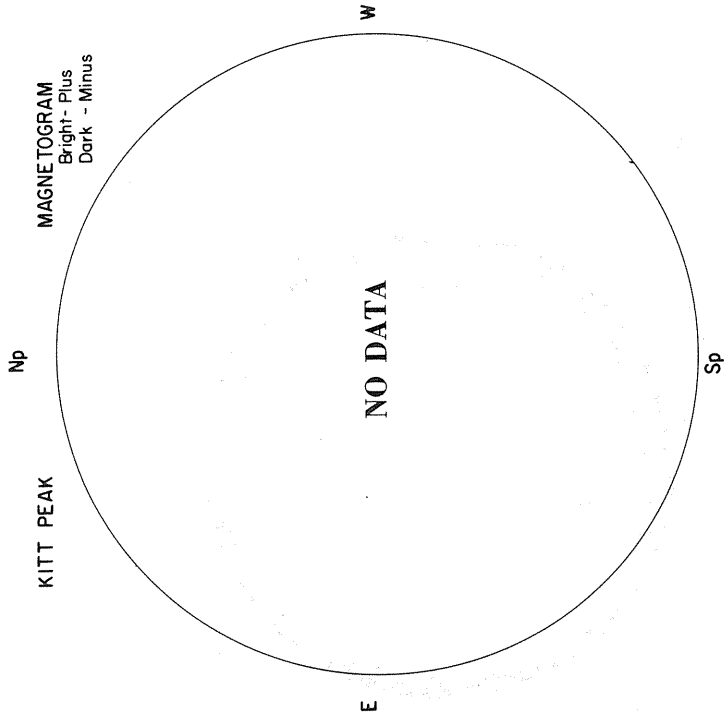
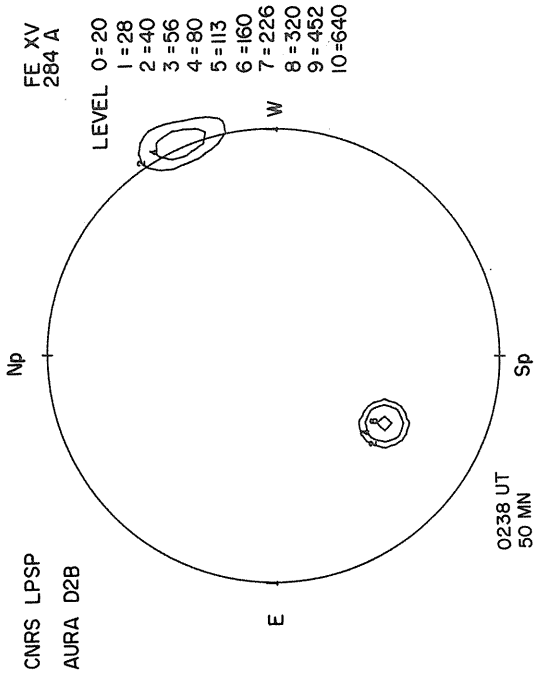
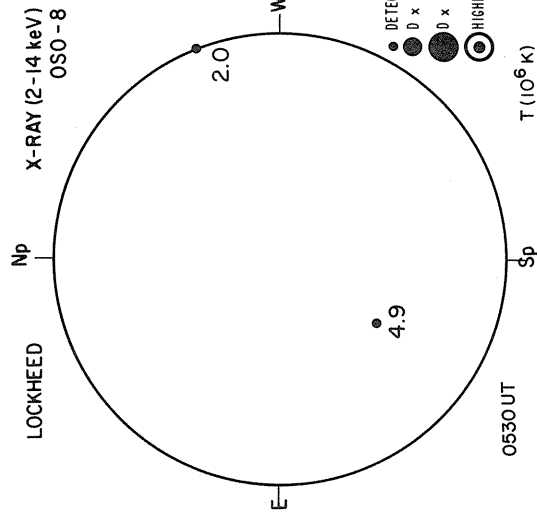
WEATHER

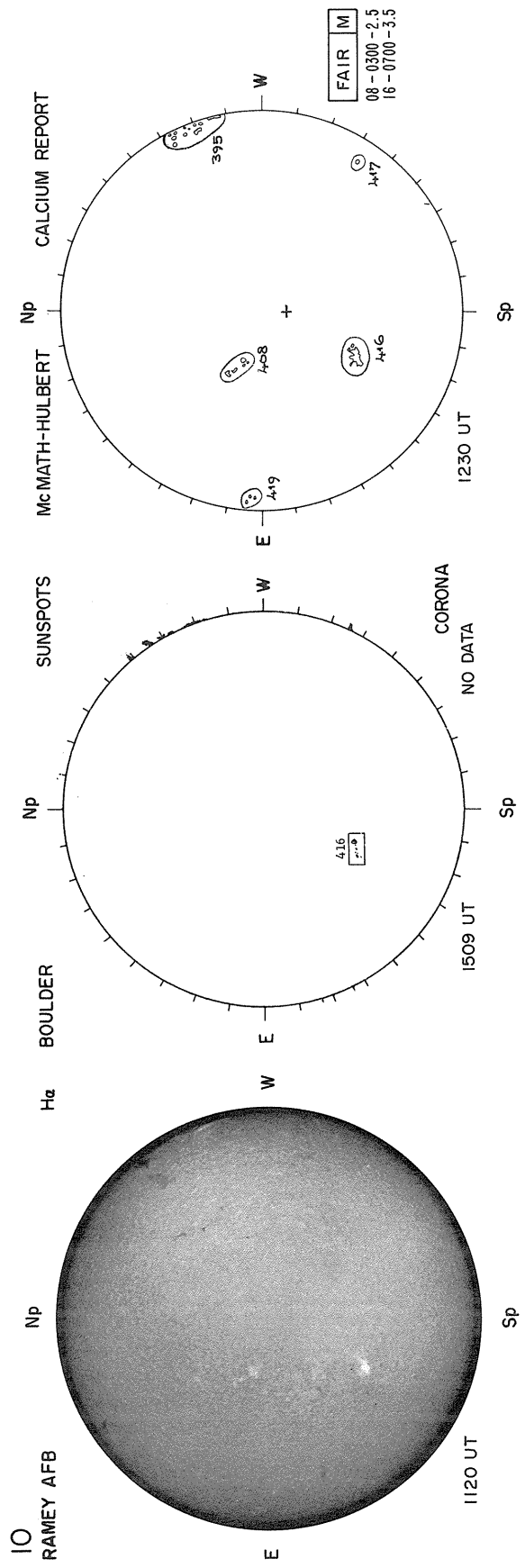


Sp

Ant. Temp. Unit 100°K

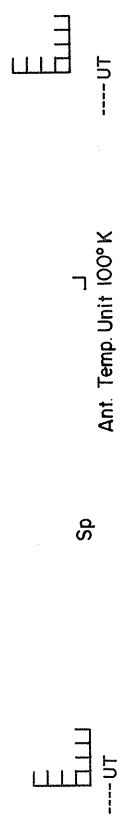
SEPTEMBER 10, 1976 (P = 23.19, $B_0 = 7.25$, $L_0 = 47.87$)



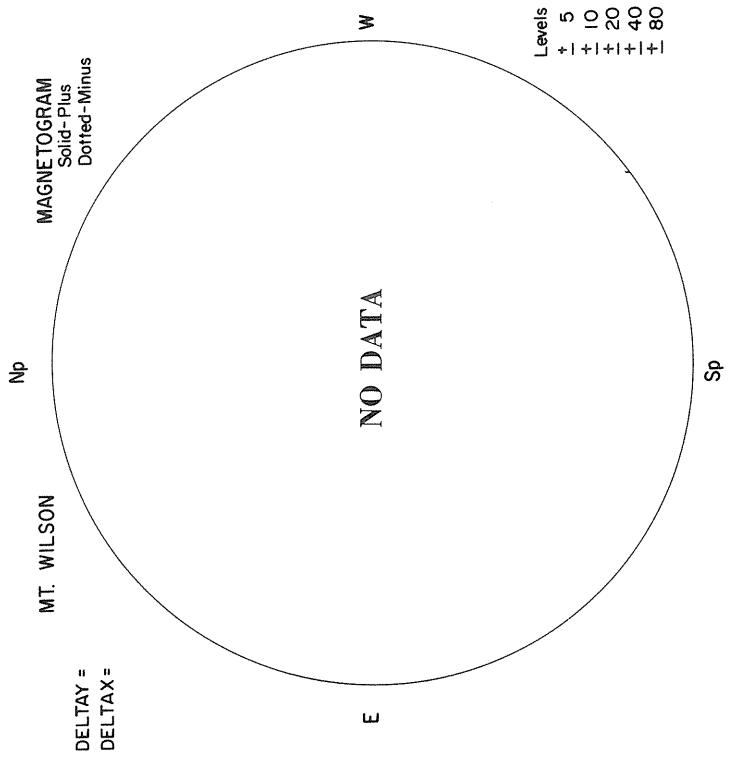
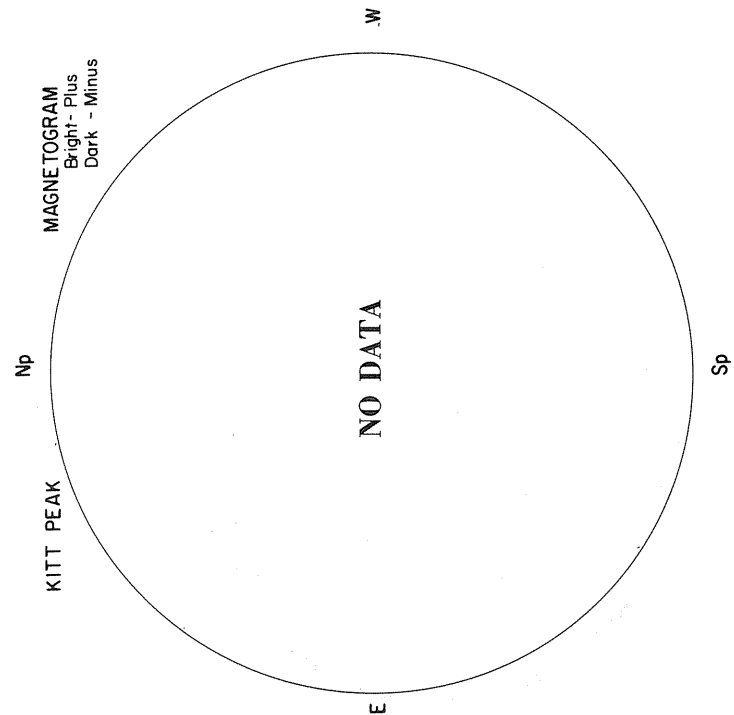
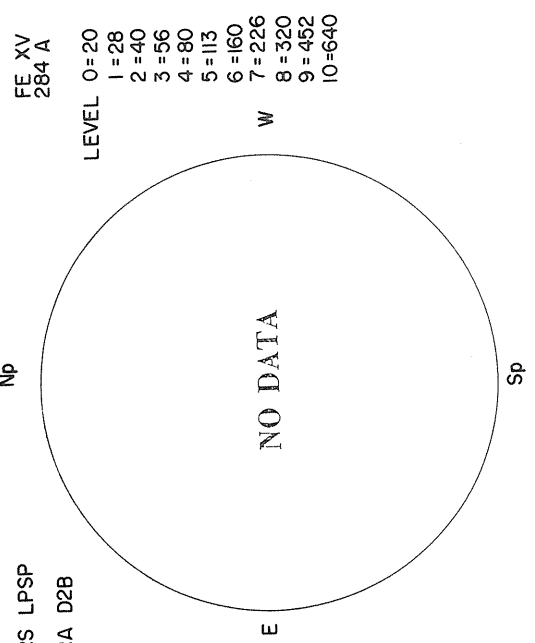
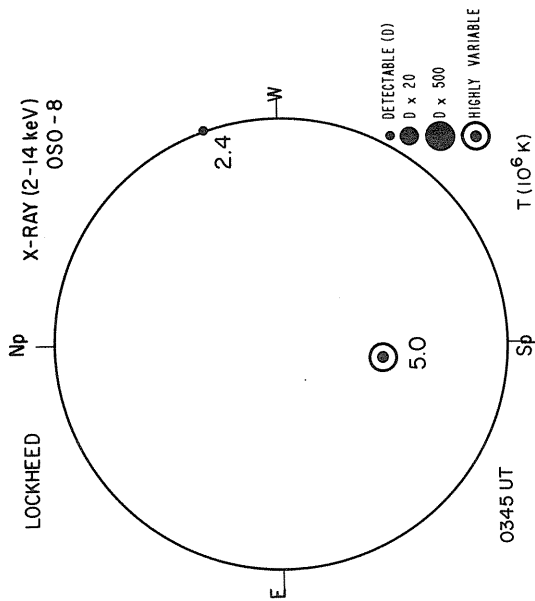


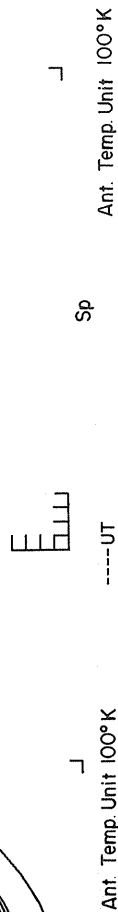
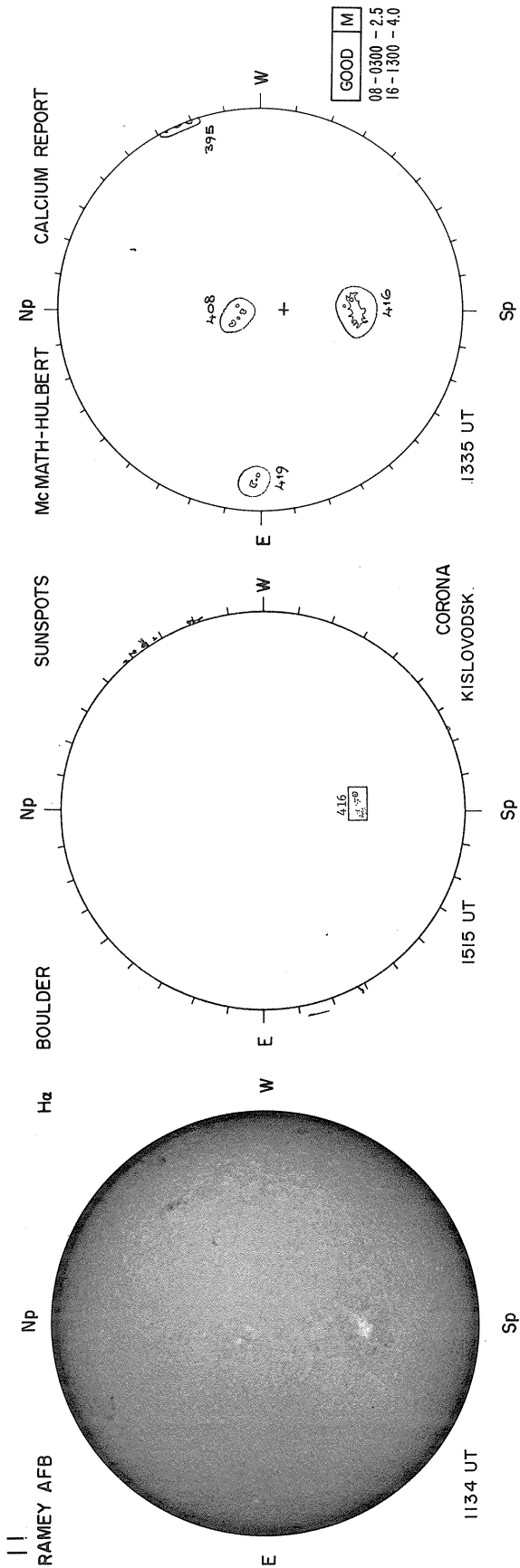
NELC LA POSTA
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 2.0 CM
 8.6 MM
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 WEATHER
 Ant. Temp. Unit 100°K
 Ant. Temp. Unit 100°K

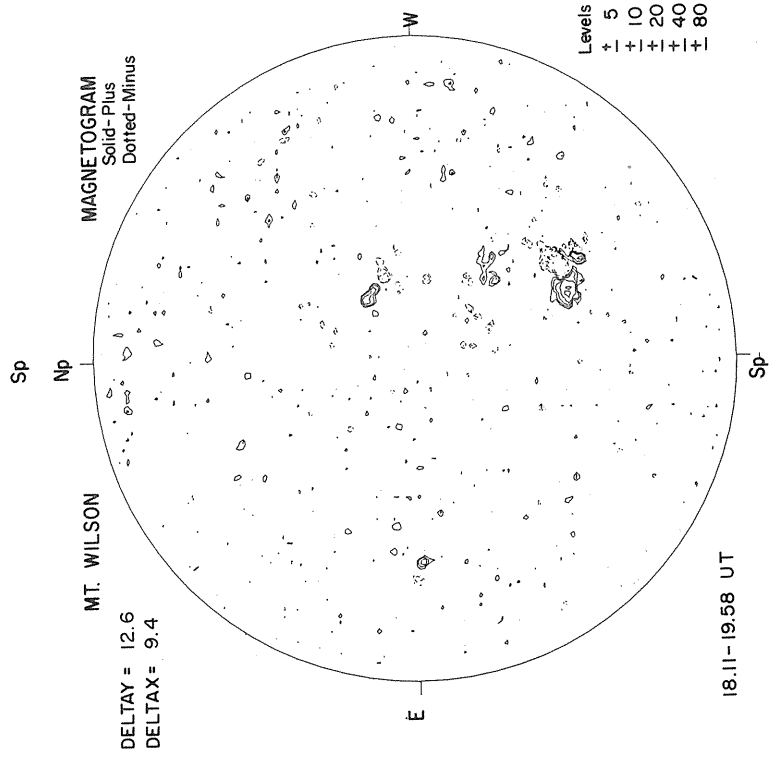
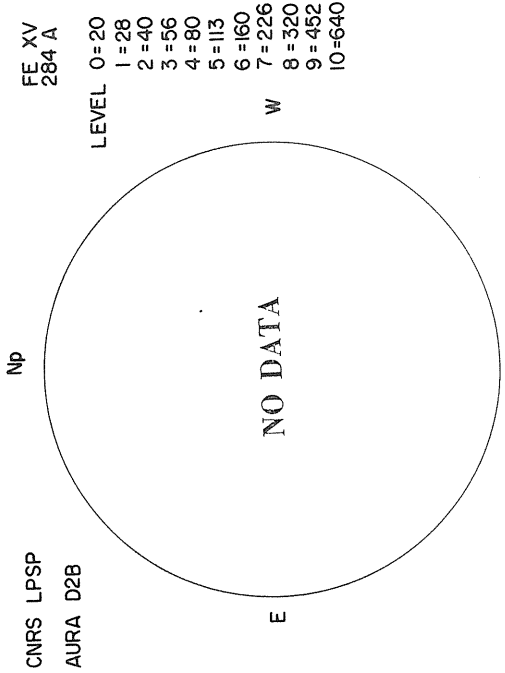
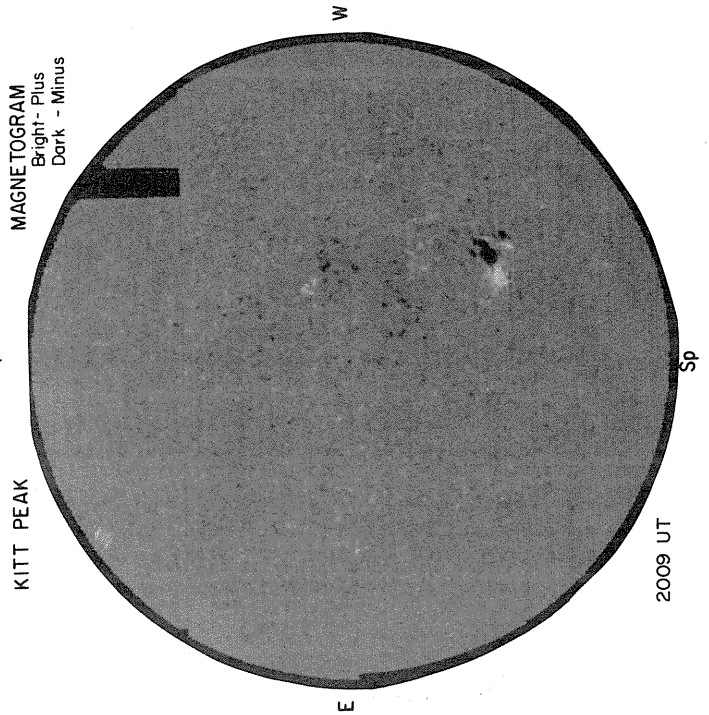
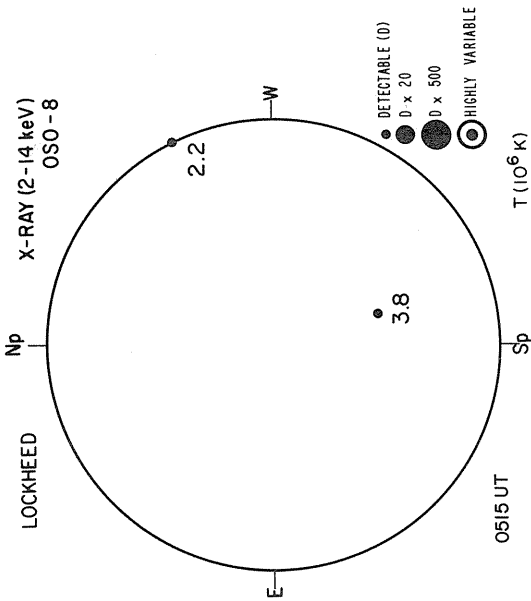


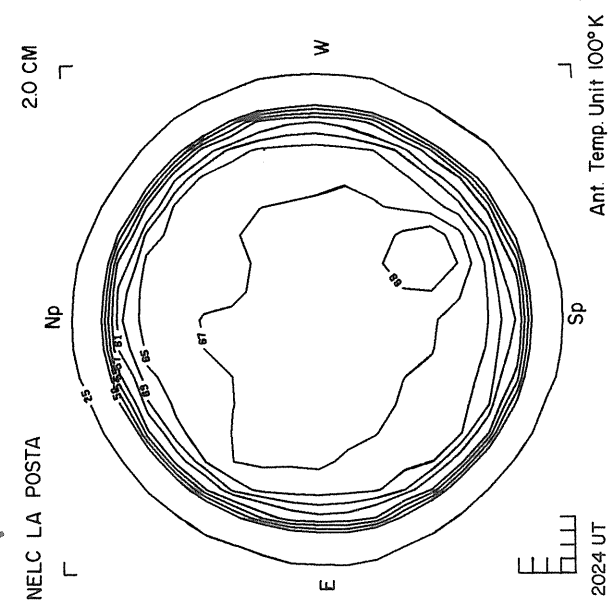
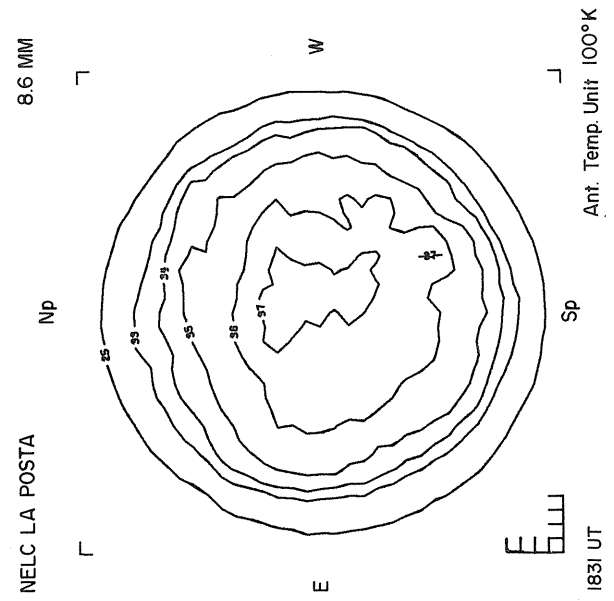
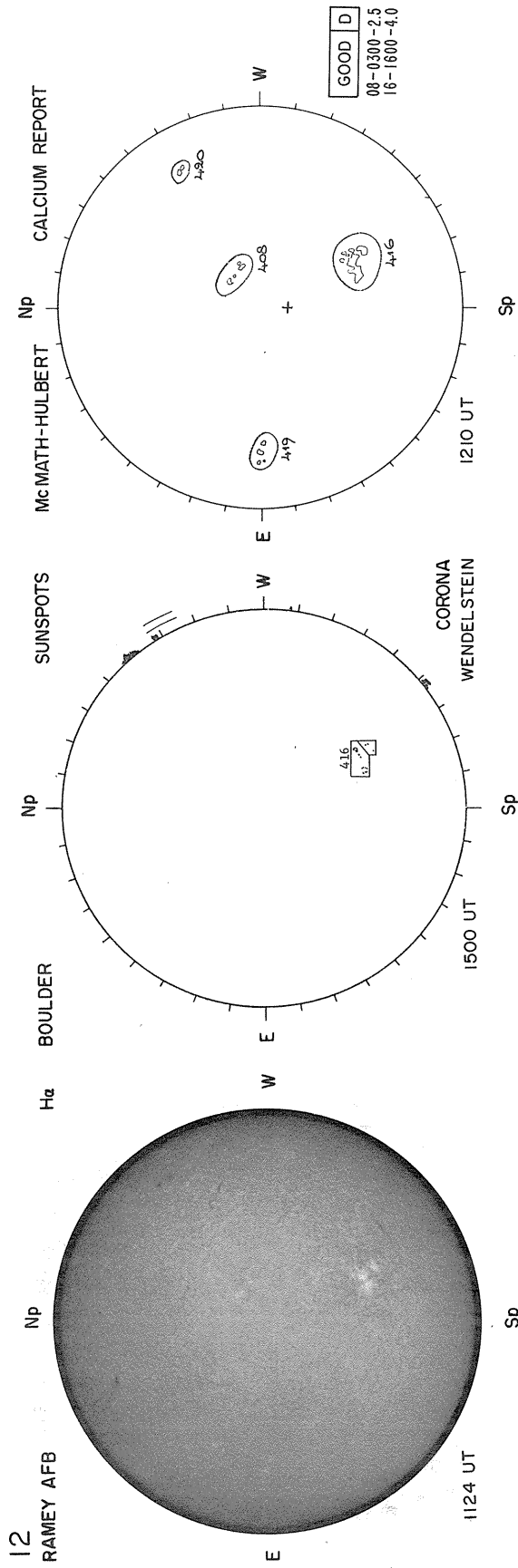
SEPTEMBER 11, 1976 (P = 23.38, B₀ = 7.24, L₀ = 34.66)





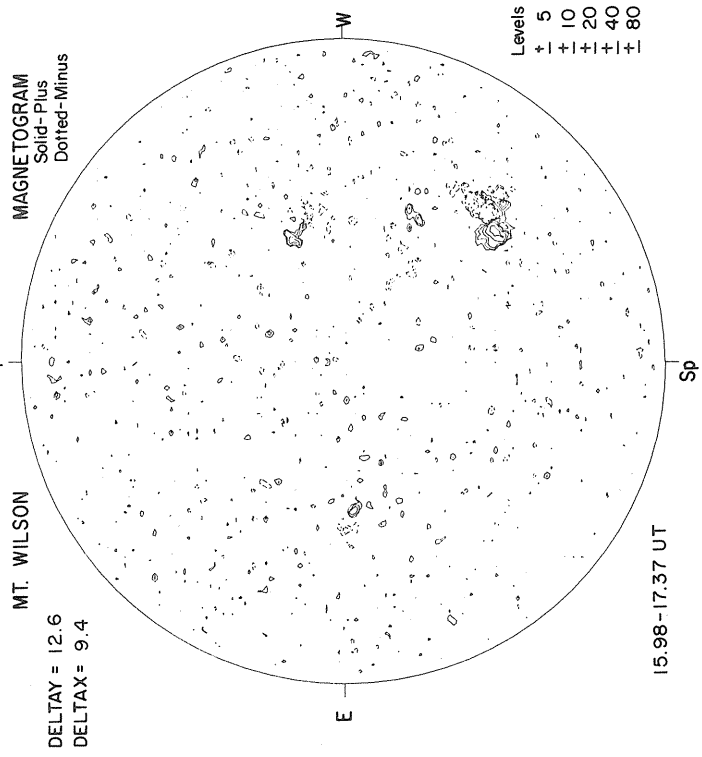
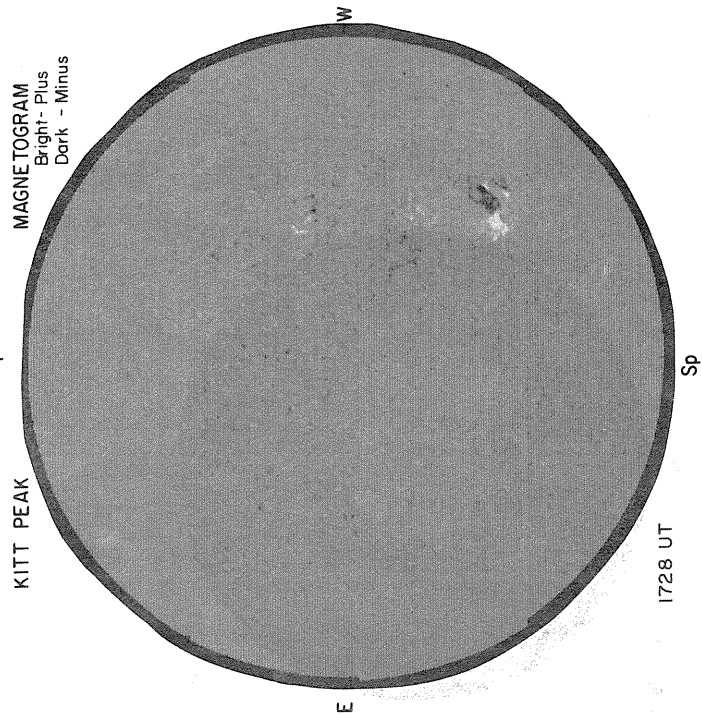
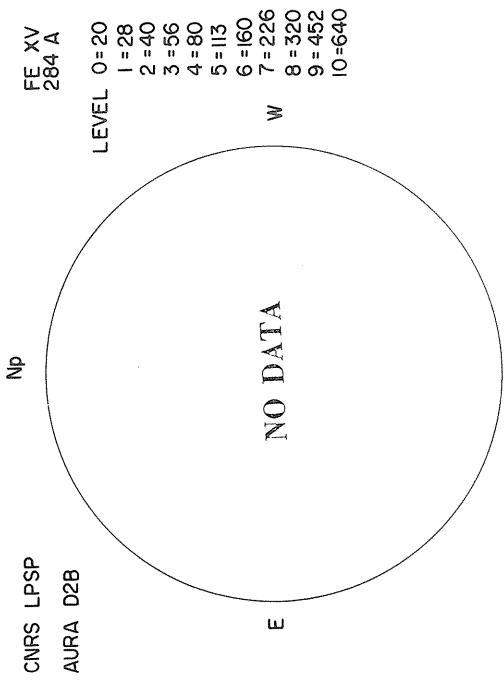
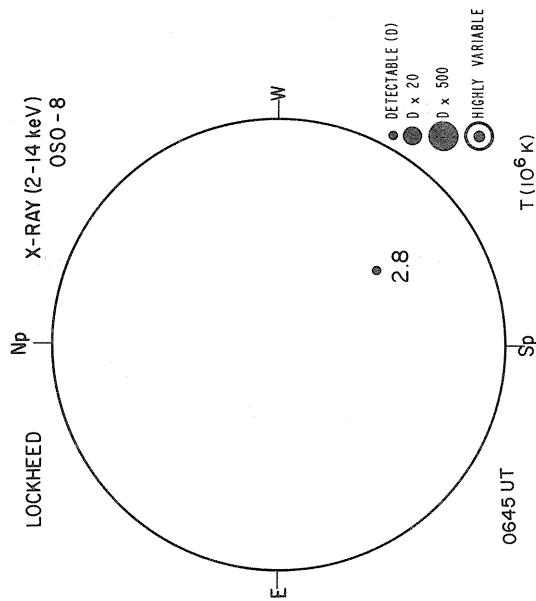
SEPTEMBER 12, 1976 (P = 23.58, B₀ = 7.23, L₀ = 21.46)

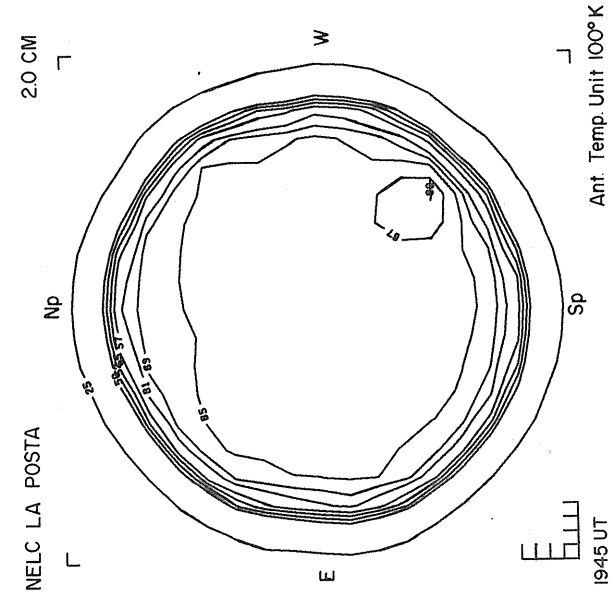
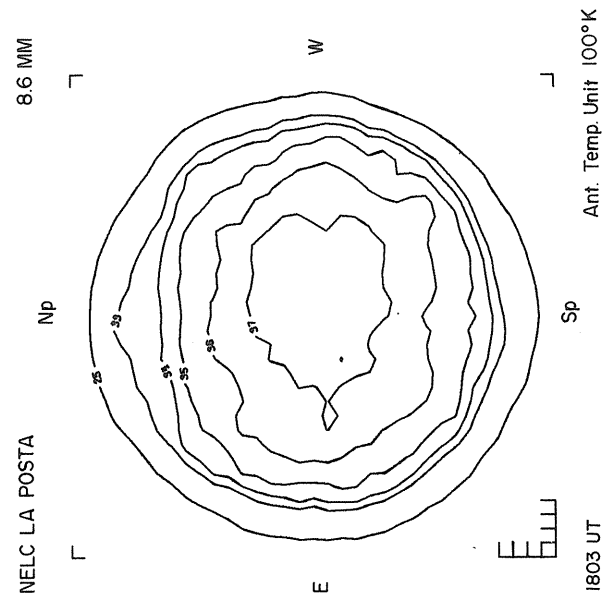
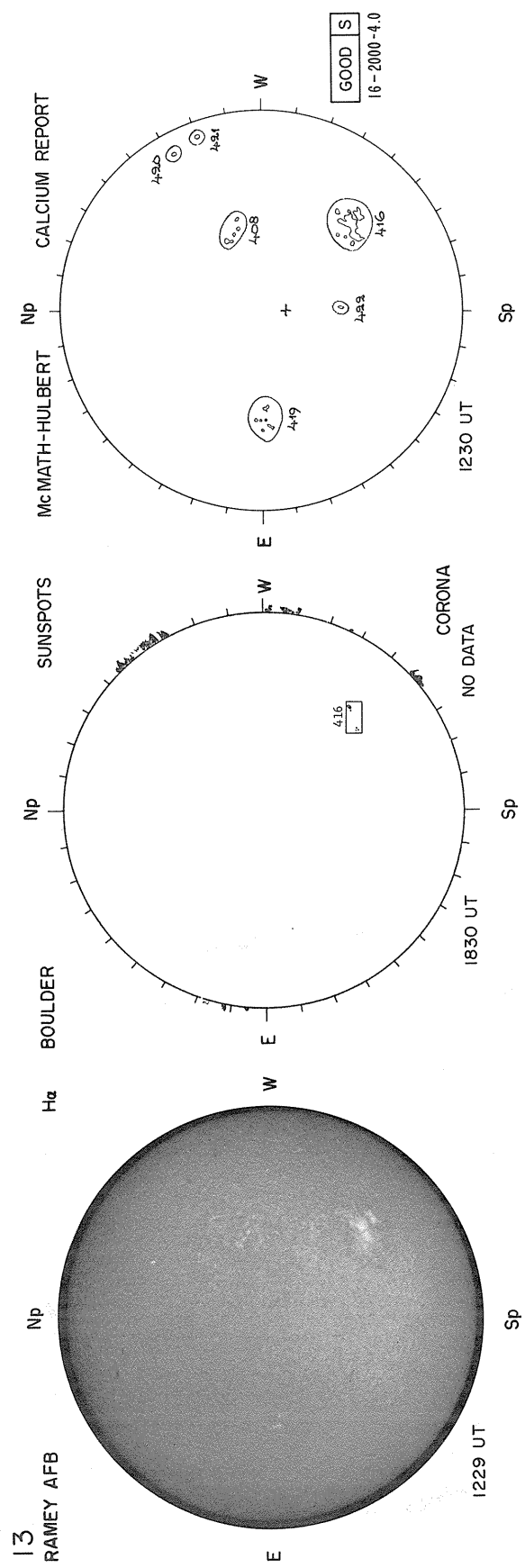




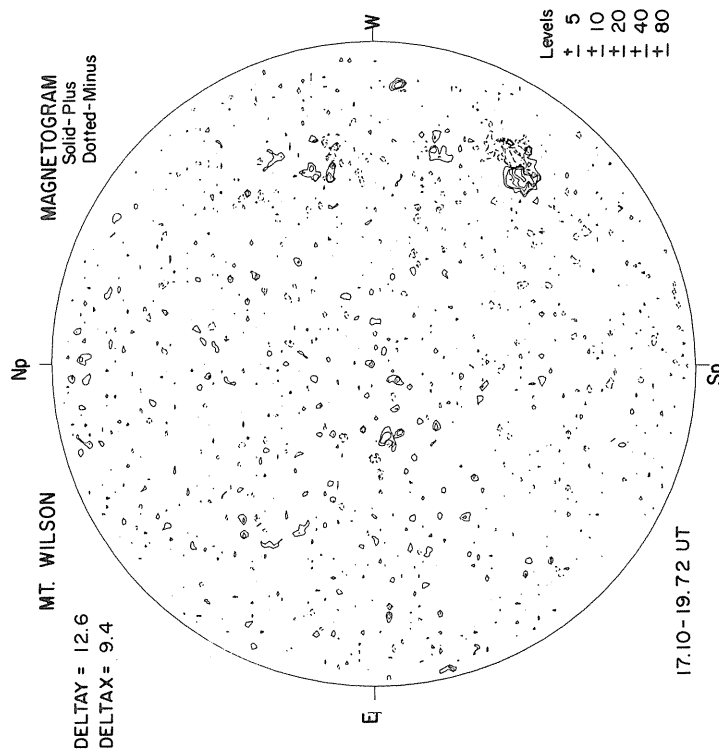
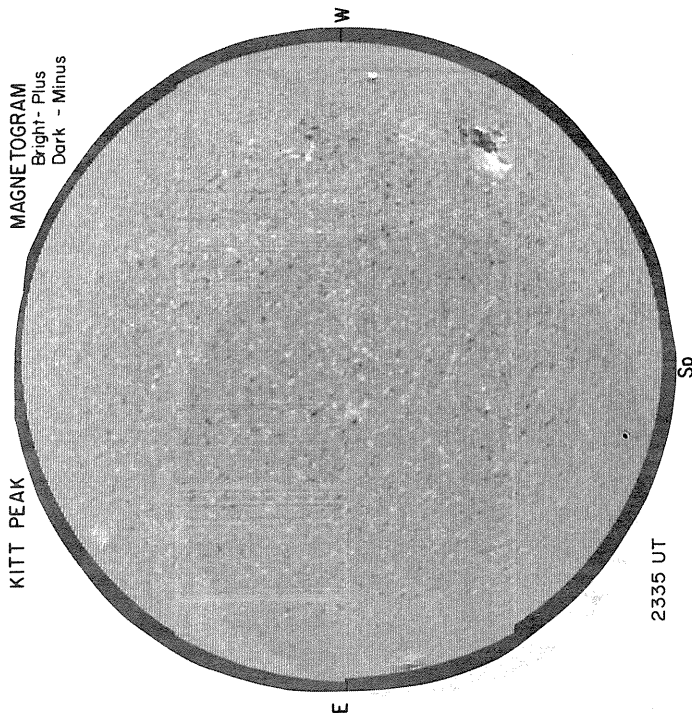
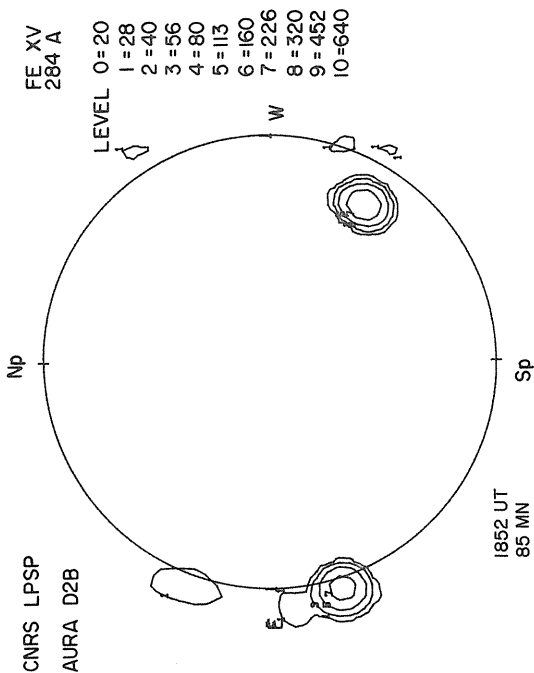
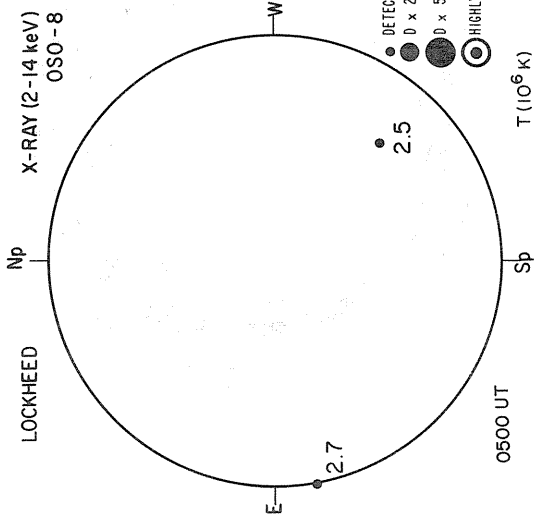
CORONA
WENDELSTEIN

SEPTEMBER 13, 1976 (P = 23.76, B₀ = 7.22, L₀ = 8.25)

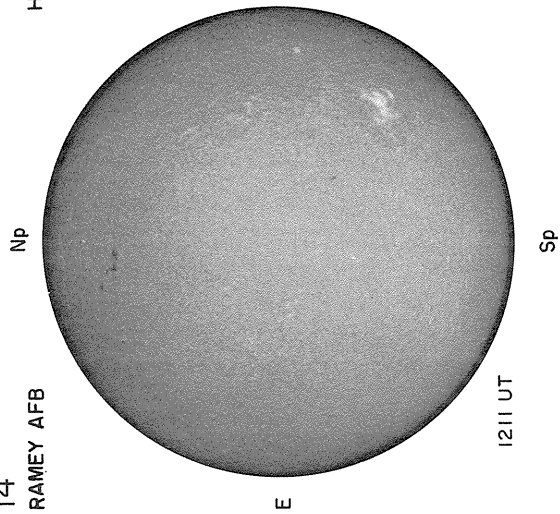




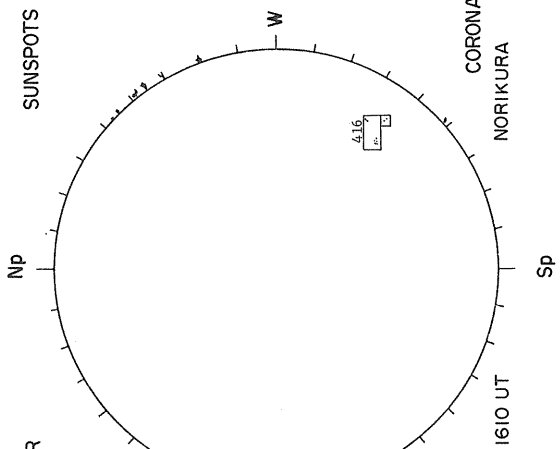
SEPTEMBER 14, 1976 (P = 23.94, B₀ = 7.21, L₀ = 355.05)



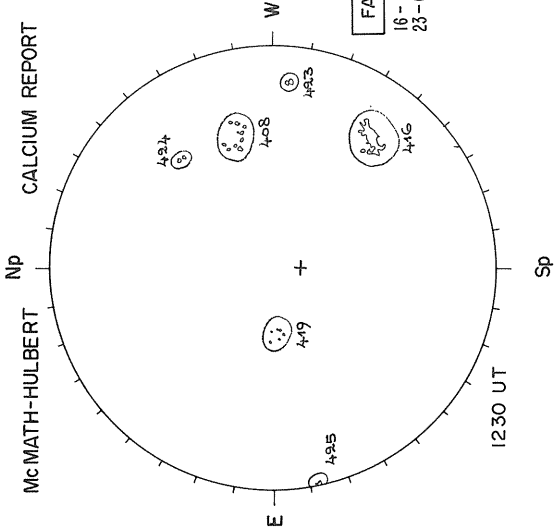
14
RAMEY AFB



H α BOULDER



SUNSPOTS



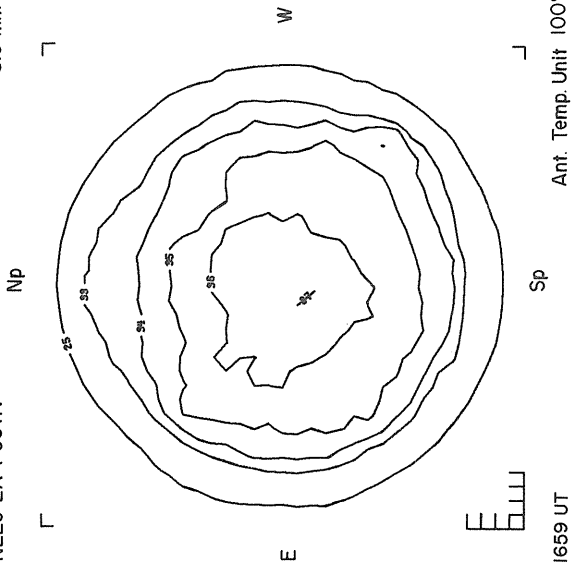
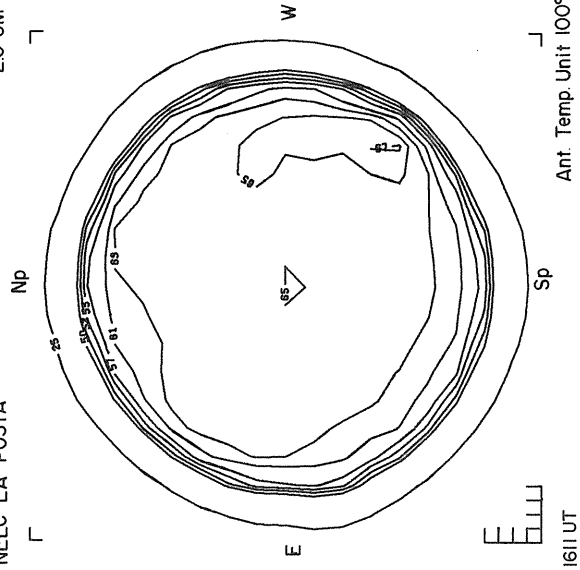
CALCIUM REPORT

NELC LA POSTA

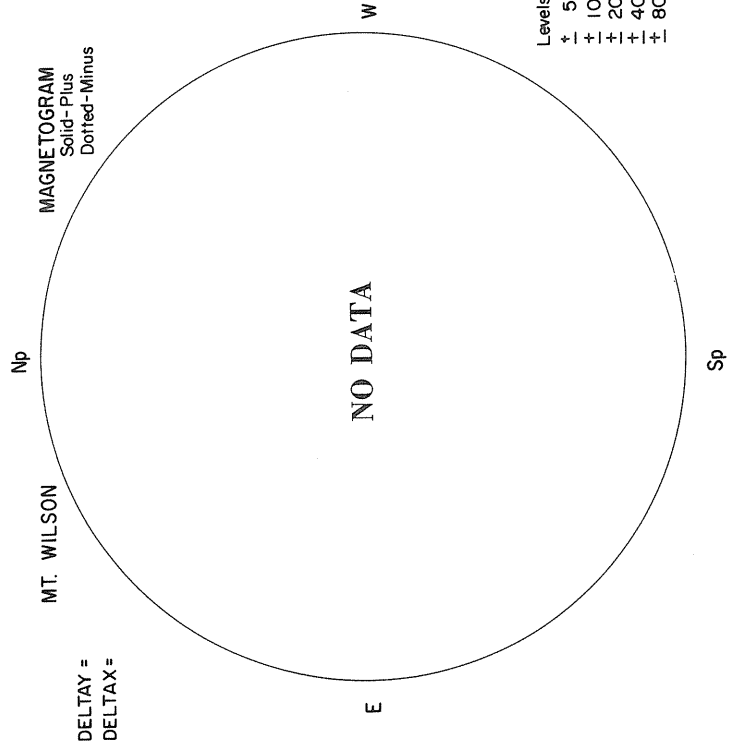
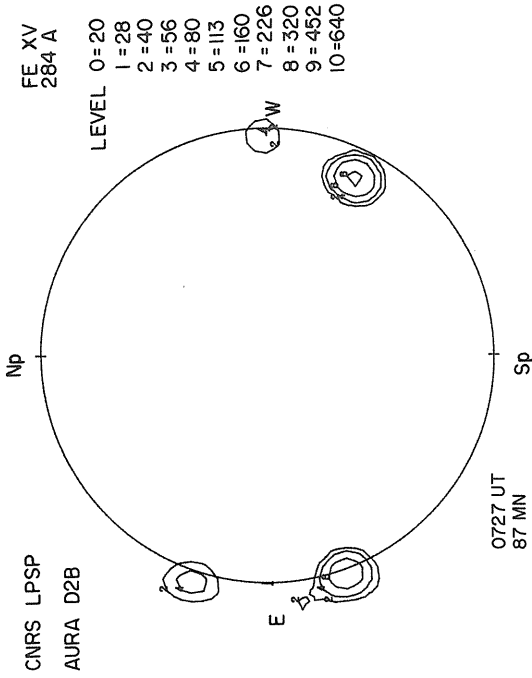
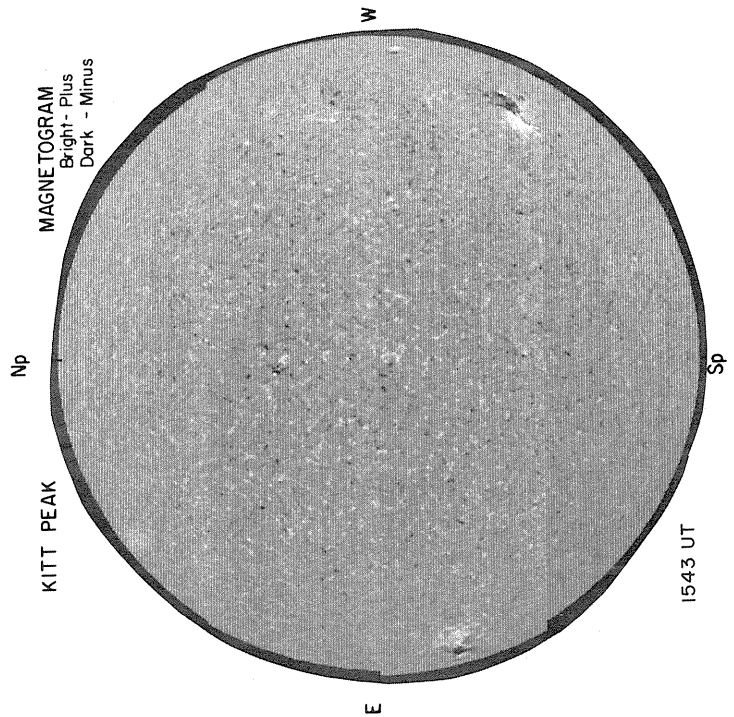
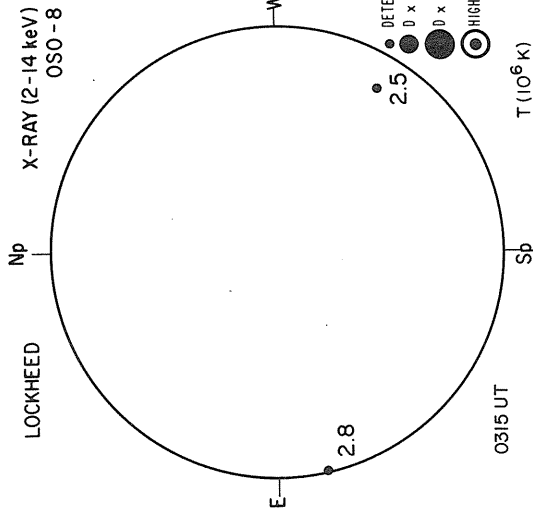
2.0 CM

NELC LA POSTA

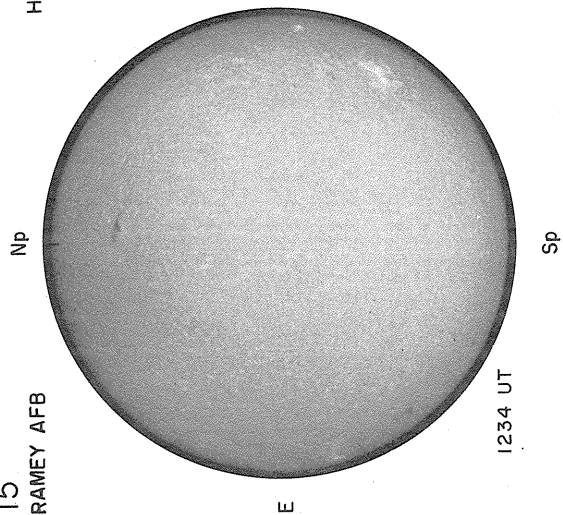
8.6 MM



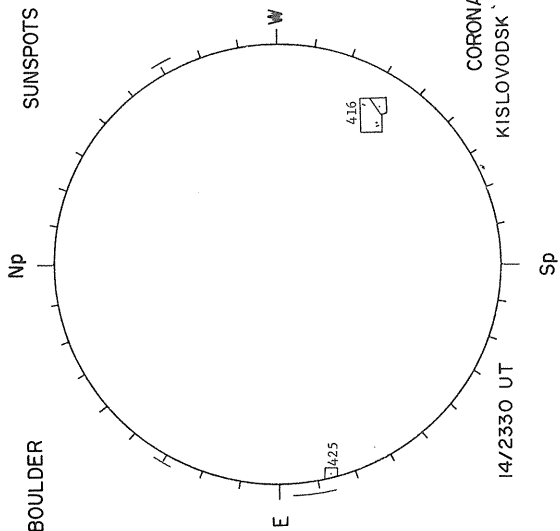
SEPTEMBER 15, 1976 (P = 24.12, B₀ = 7.20, L₀ = 341.85)



15
RAMEY AFB

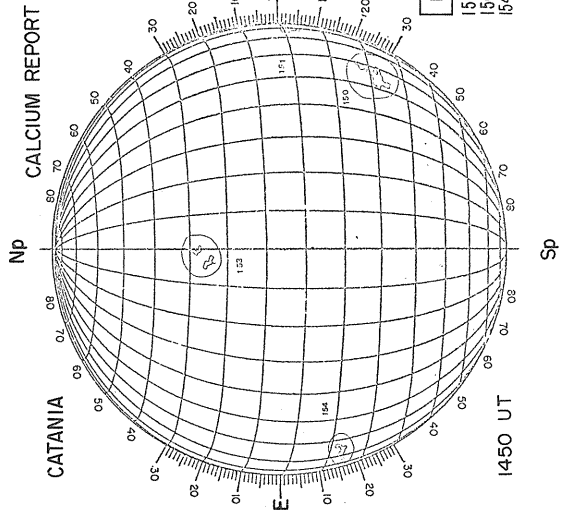


H_α BOULDER



SUNSPOTS

CORONA
KISLOVODSK



CALCIUM REPORT

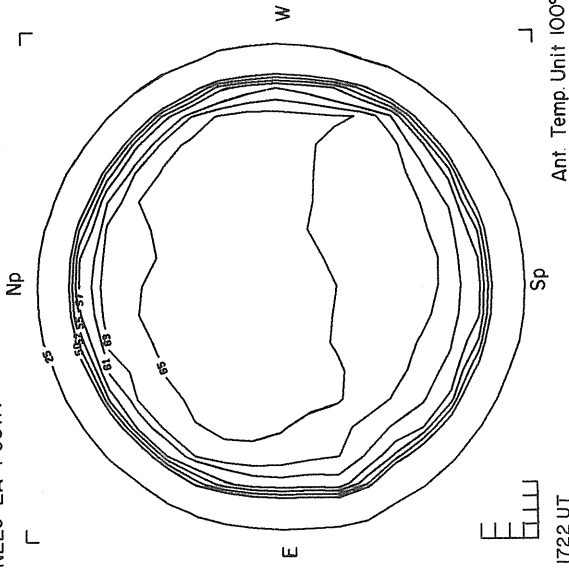
CATANIA

NELC LA POSTA

2.0 CM

NELC LA POSTA

8.6 MM



NO DATA

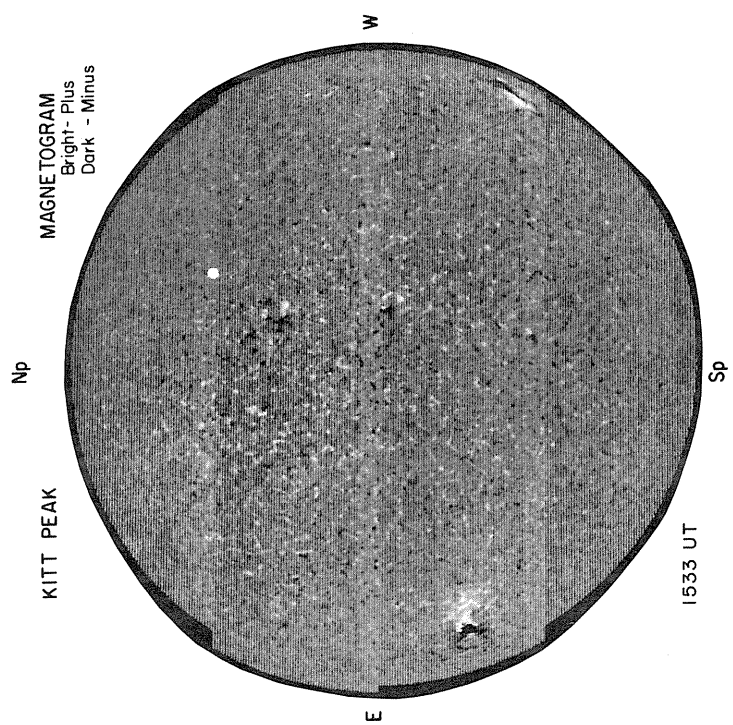
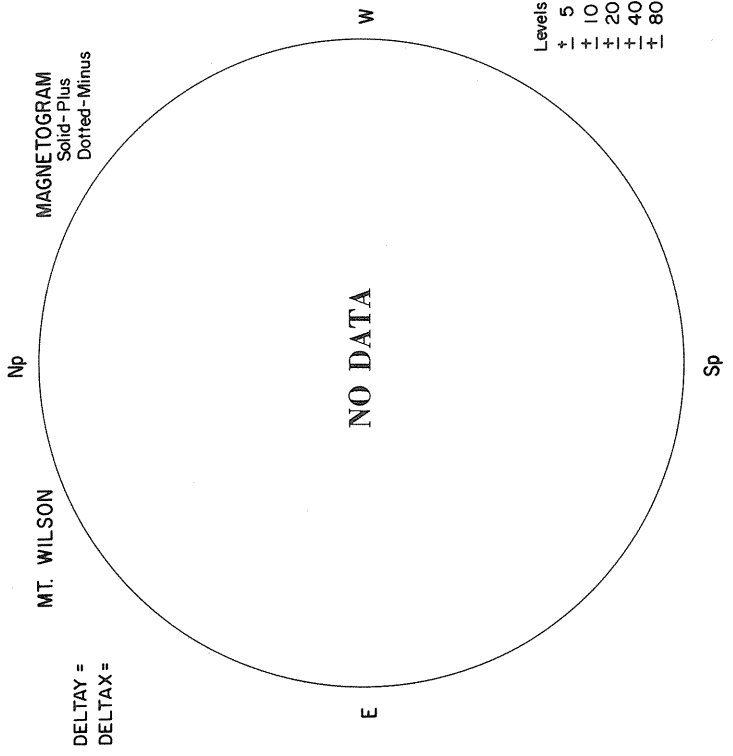
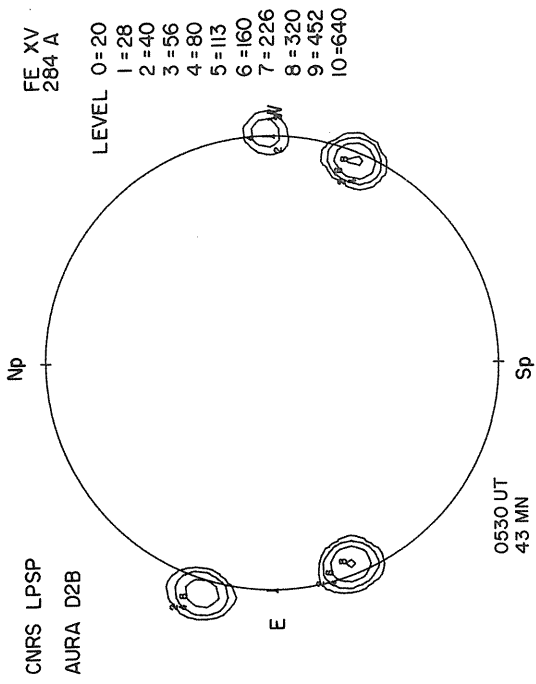
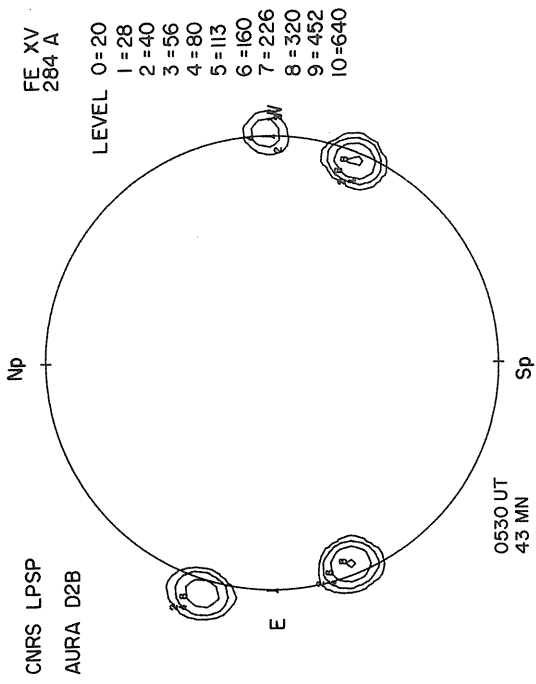
CALIBRATION

Ant. Temp Unit 100°K

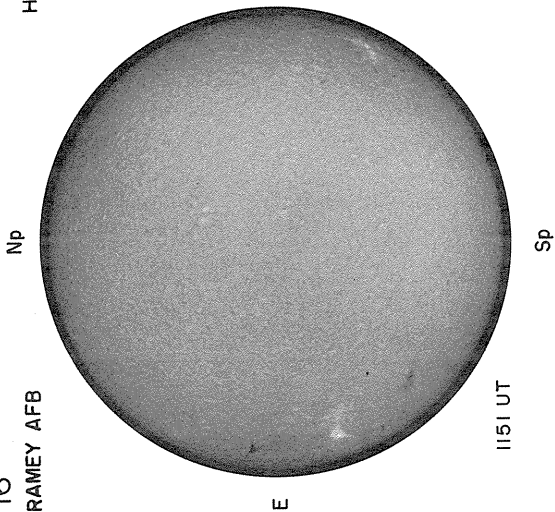
2035 UT

Ant. Temp Unit 100°K

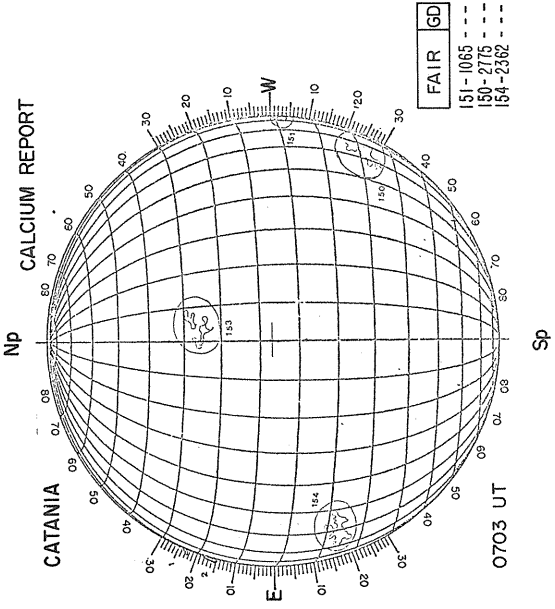
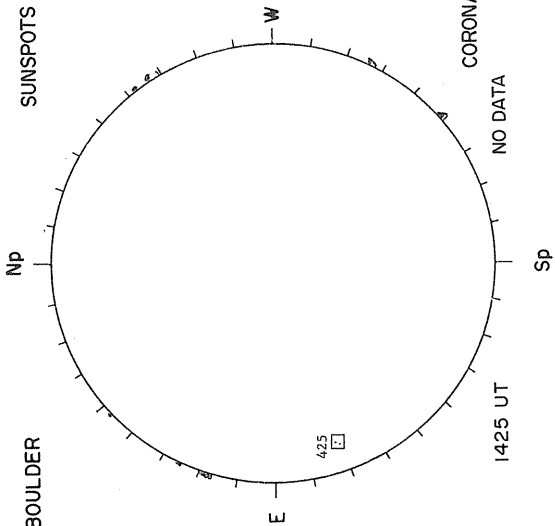
SEPTEMBER 16, 1976 (P = 24.29, B₀ = 7.18, L₀ = 328.65)



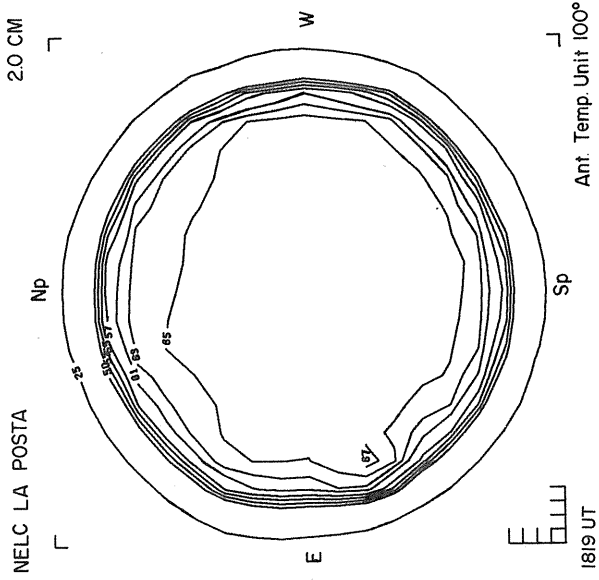
16
RAMEY AFB



H α BOULDER

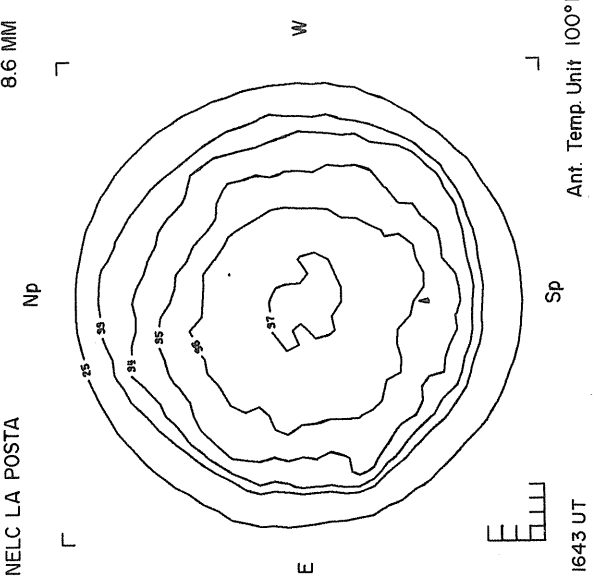


NELC LA POSTA



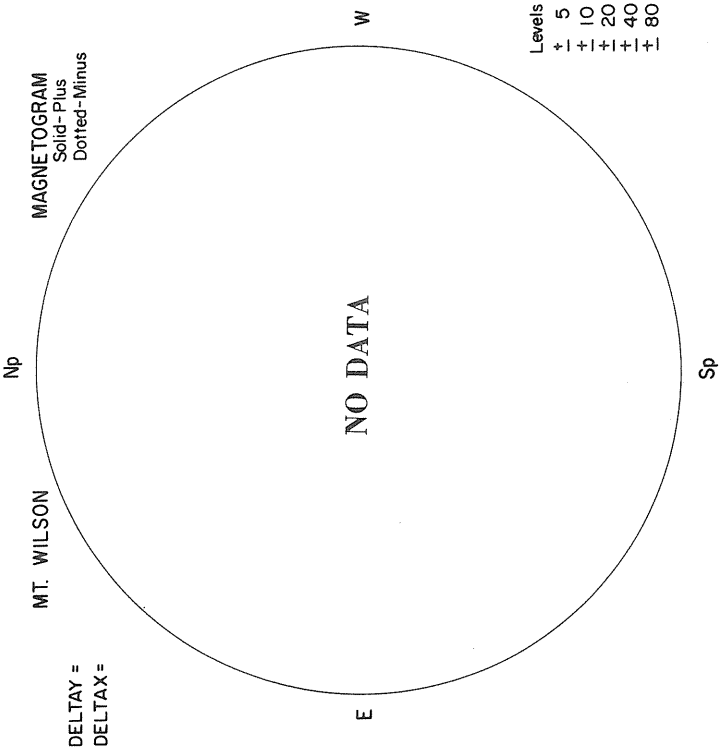
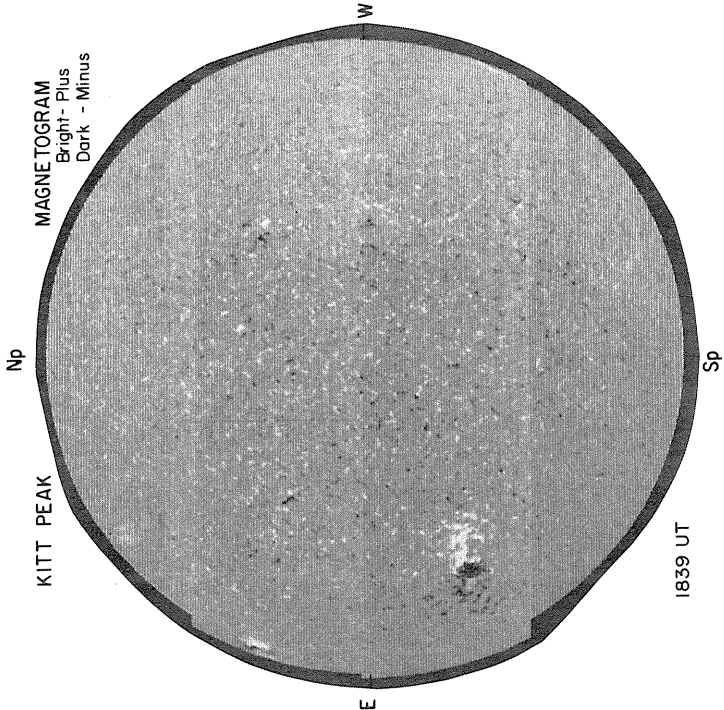
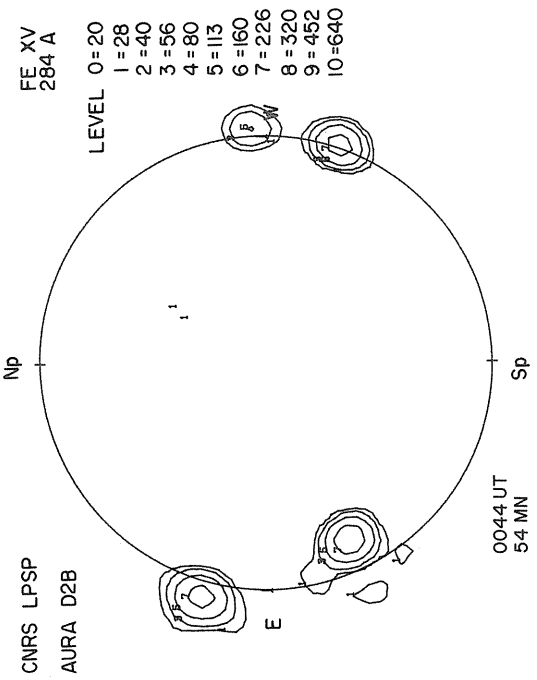
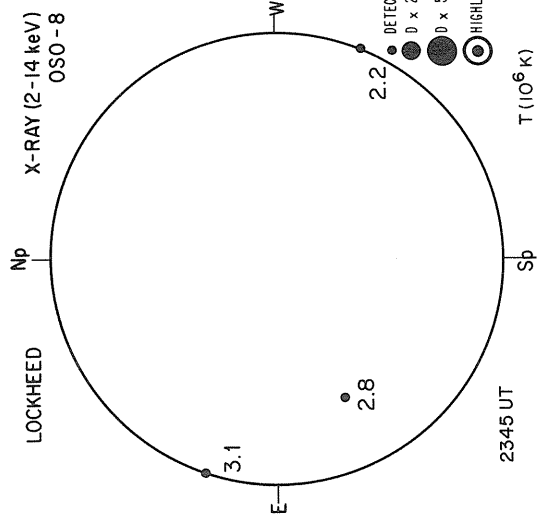
Ant. Temp. Unit 100° K

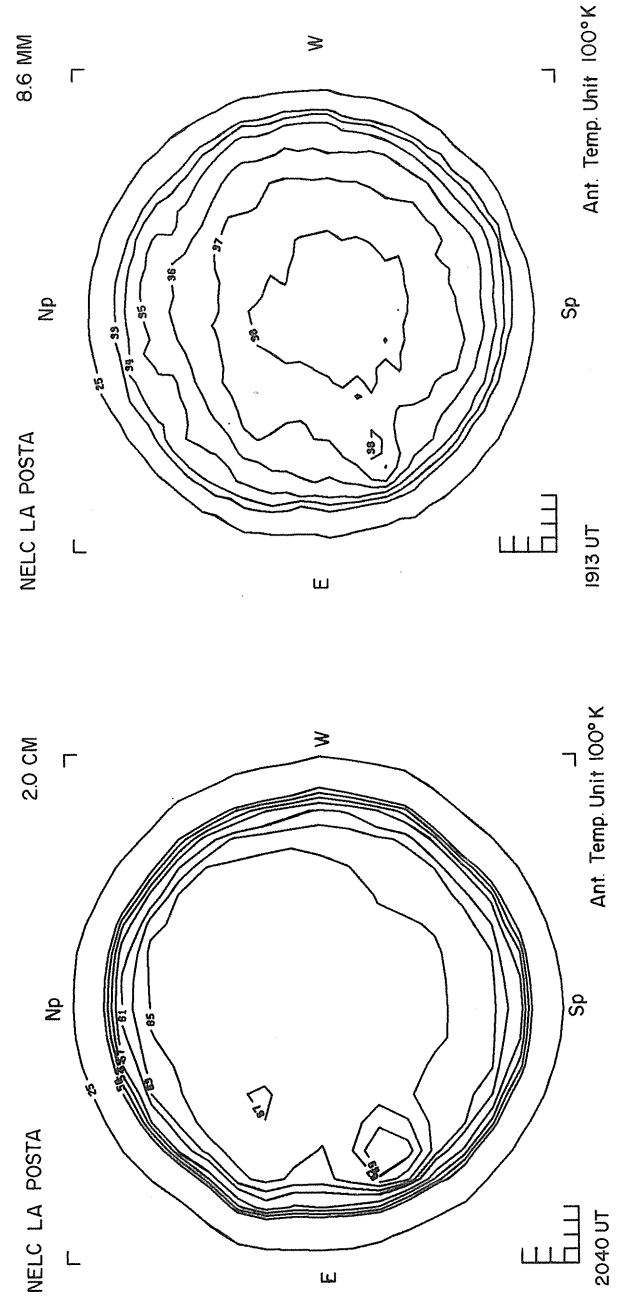
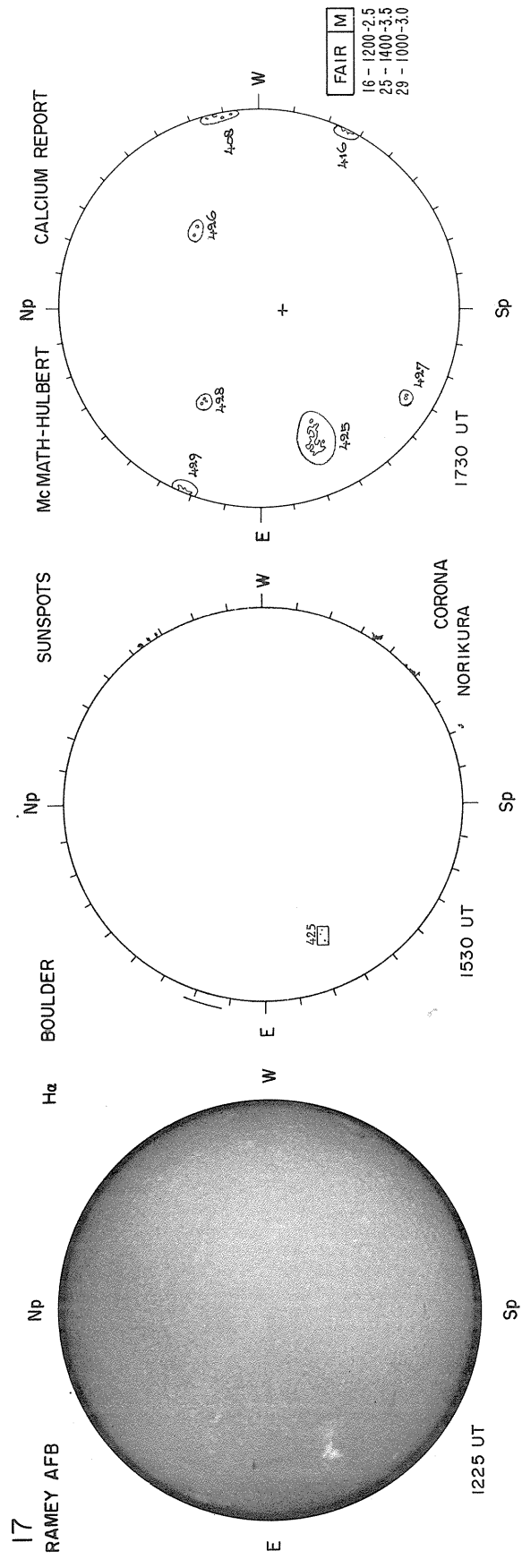
NELC LA POSTA



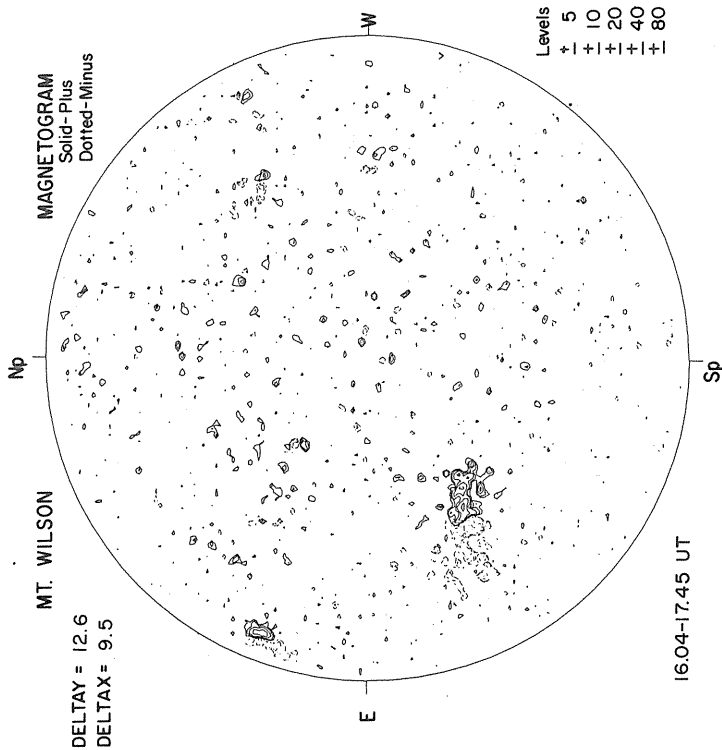
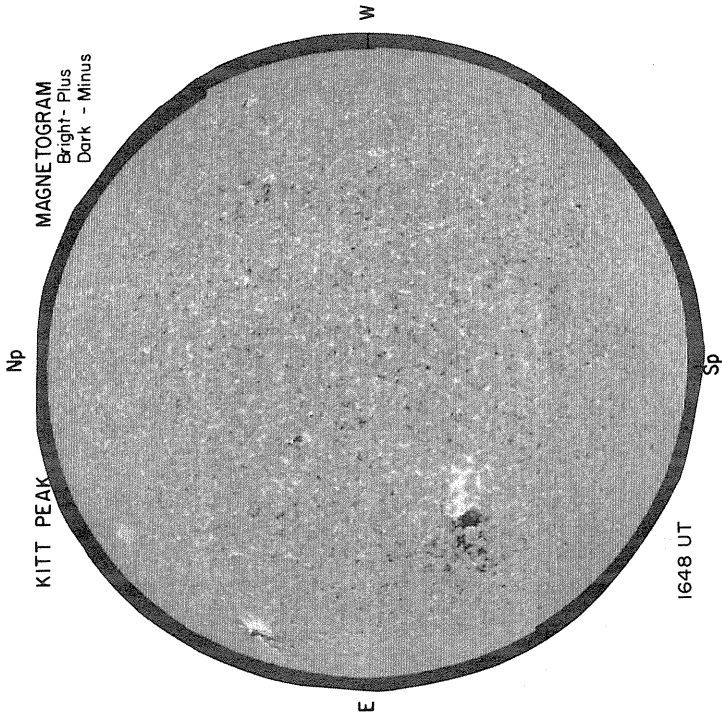
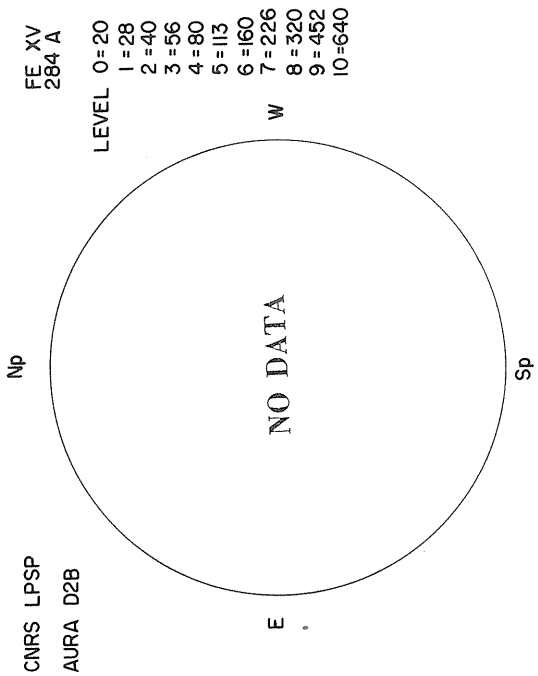
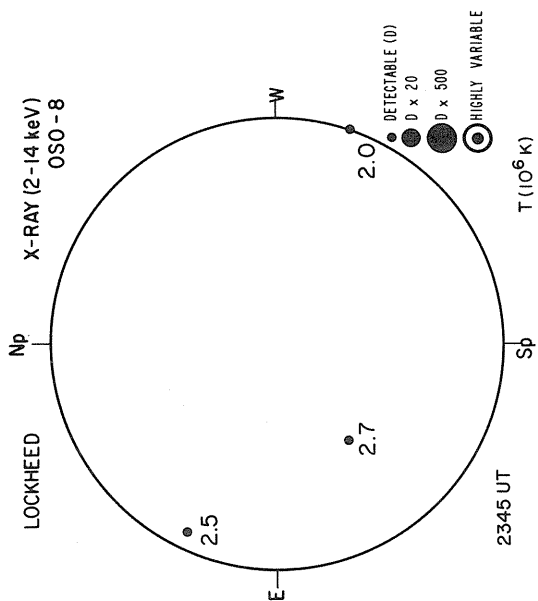
Ant. Temp. Unit 100° K

SEPTEMBER 17, 1976 (P = 24.45, B₀ = 7.16, L₀ = 315.44)

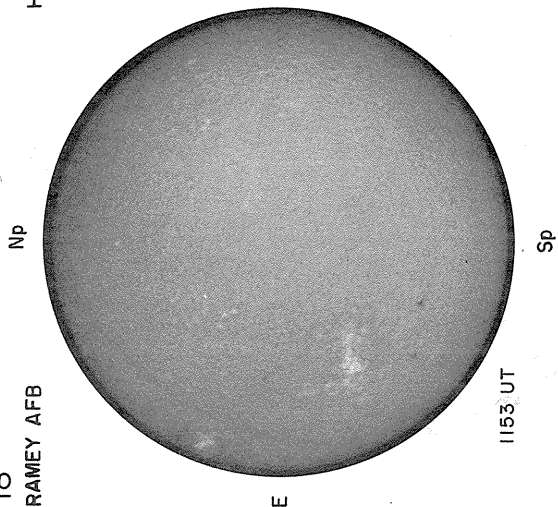




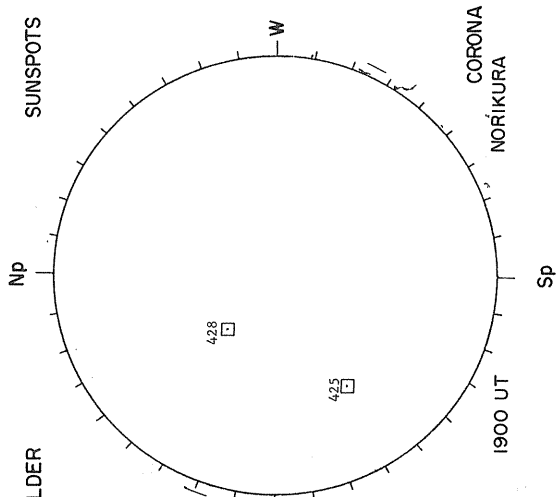
SEPTEMBER 18, 1976 (P = 24.60, B₀ = 7.14, L₀ = 302.24)



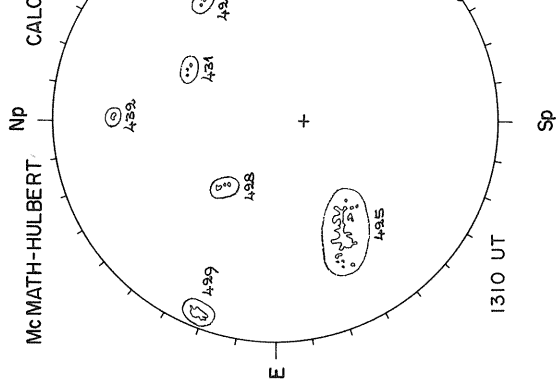
18
RAMEY AFB



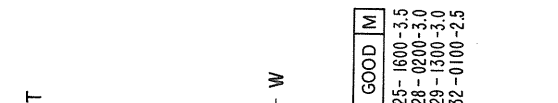
H α BOULDER



SUNSPOTS



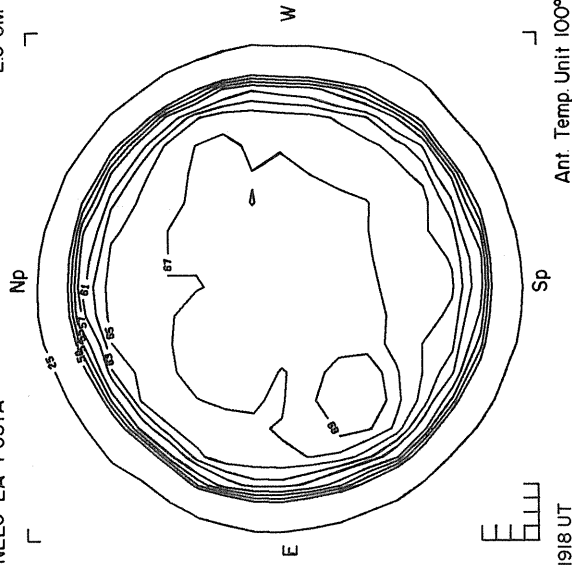
McMATH-HULBERT



GOOD	M
25 - 1600 - 3.5	
28 - 0200 - 3.0	
29 - 1300 - 3.0	
32 - 0100 - 2.5	

NELC LA POSTA

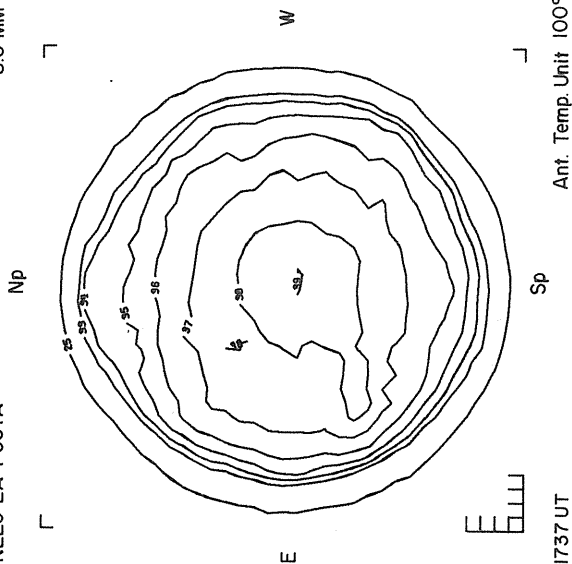
2.0 CM



Ant. Temp. Unit 100°K

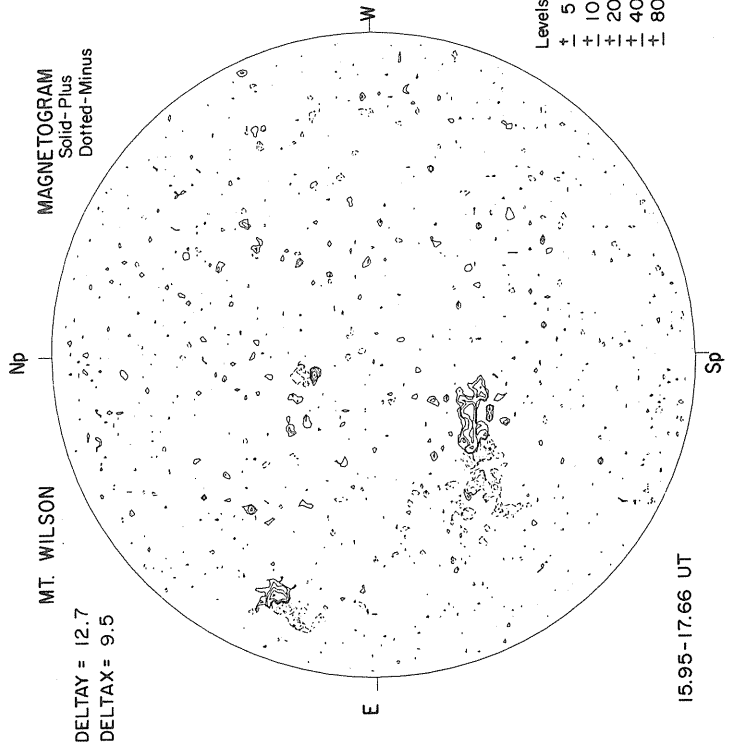
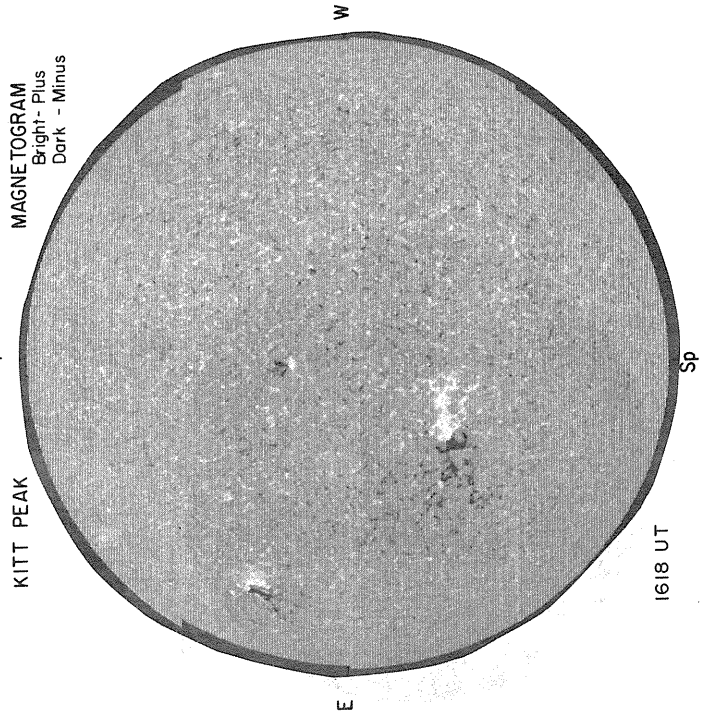
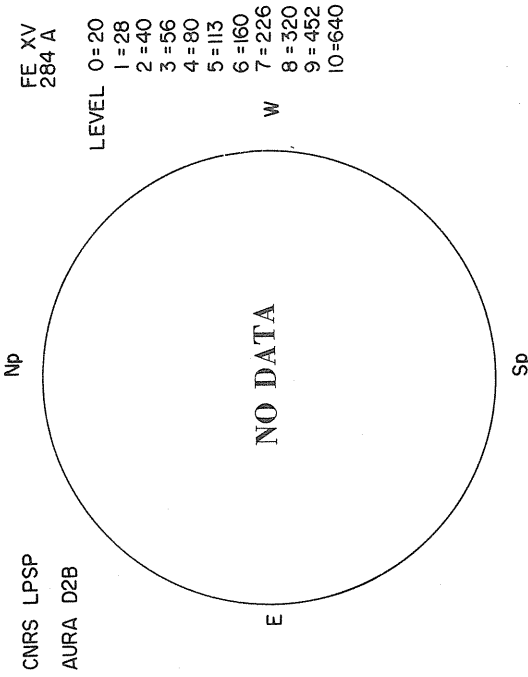
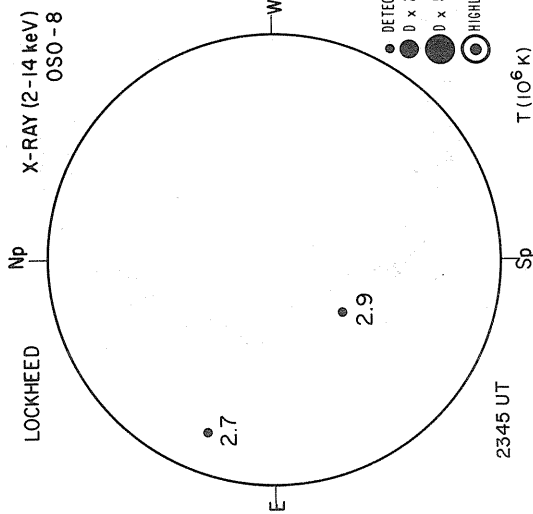
NELC LA POSTA

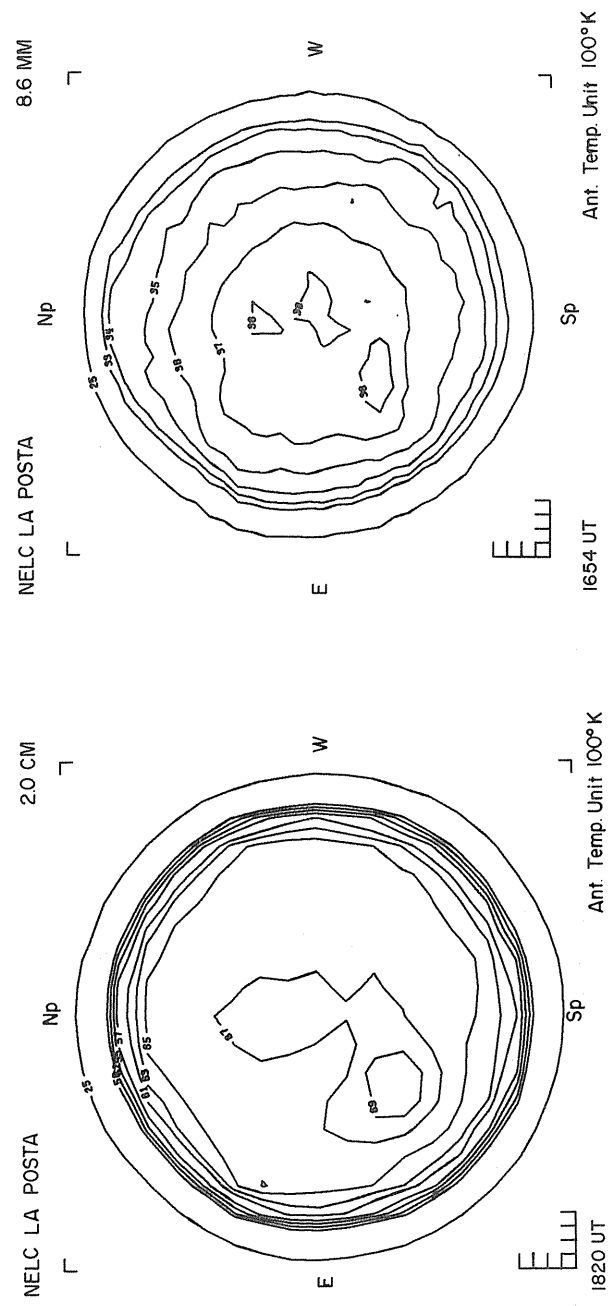
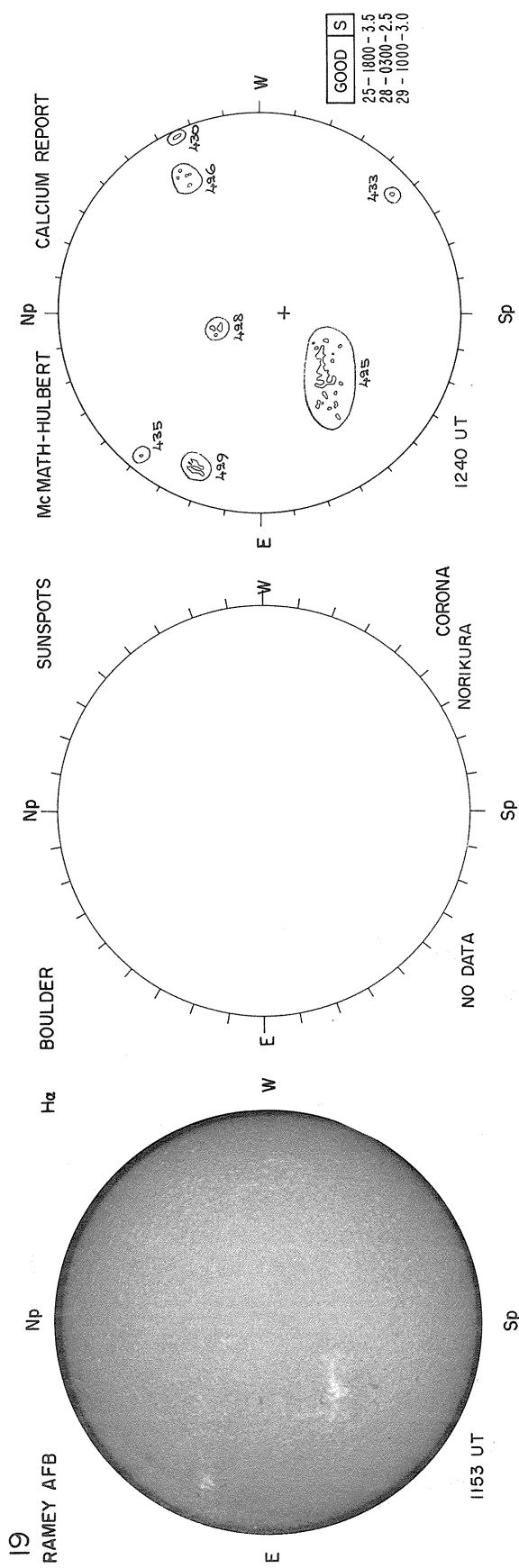
8.6 MM



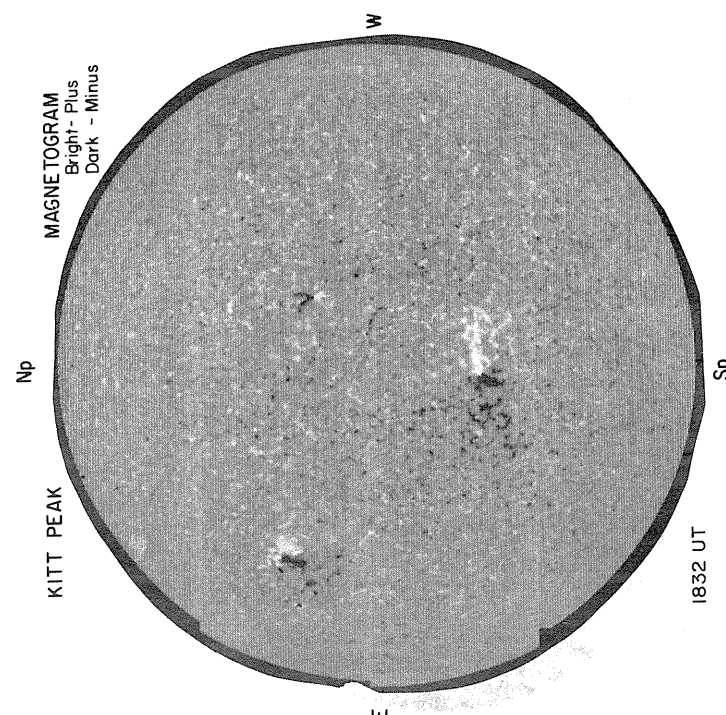
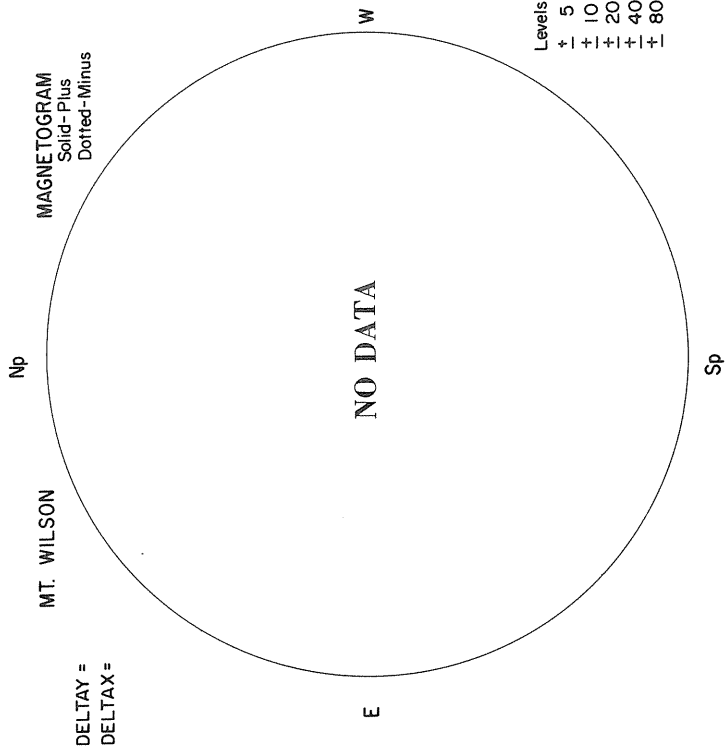
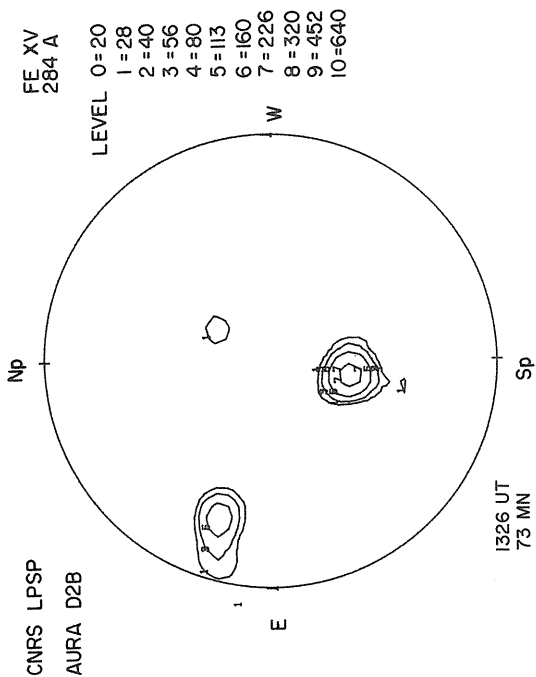
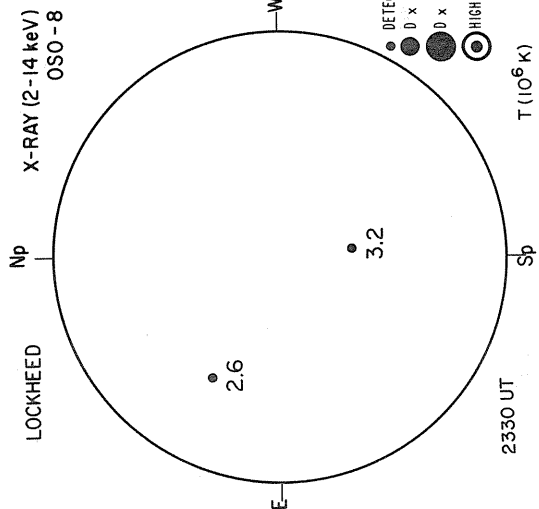
Ant. Temp. Unit 100°K

SEPTEMBER 19, 1976 (P = 24.75, B₀ = 7.12, L₀ = 289.04)

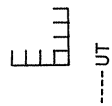
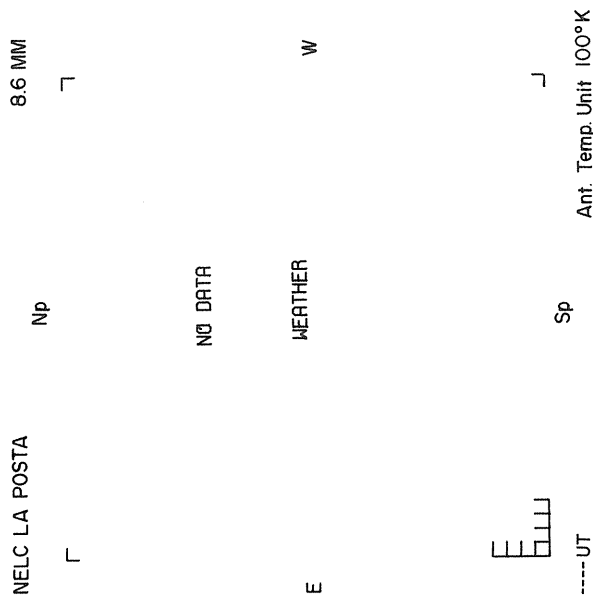
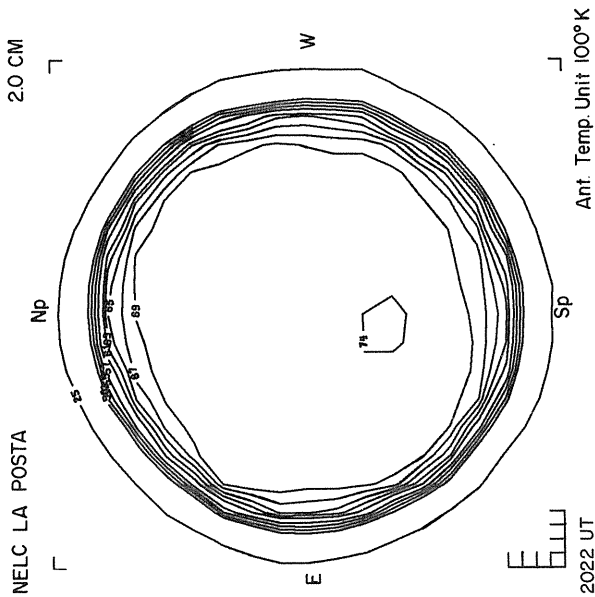
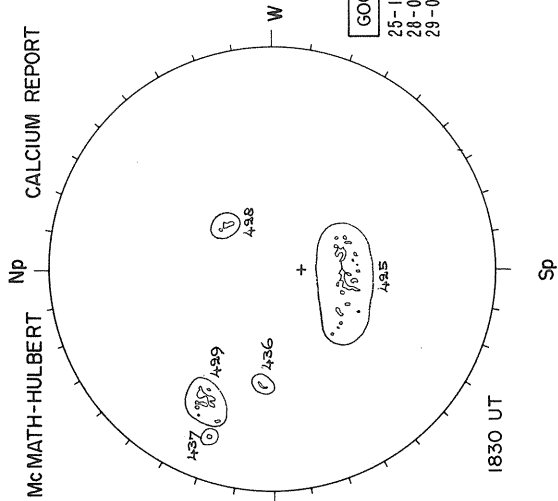
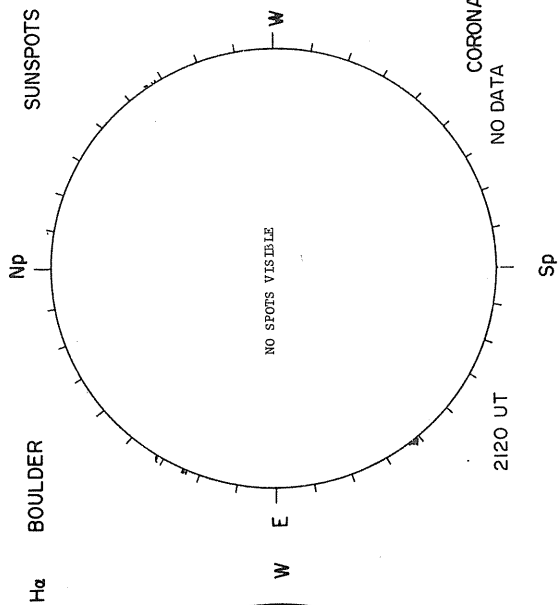
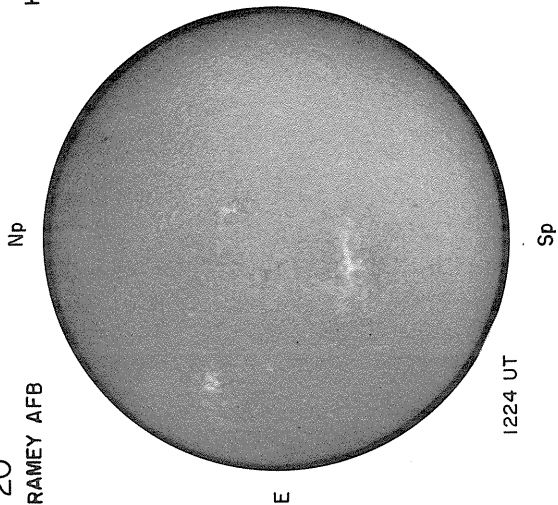




SEPTEMBER 20, 1976 (P = 24.89, B₀ = 7.10, L₀ = 275.84)



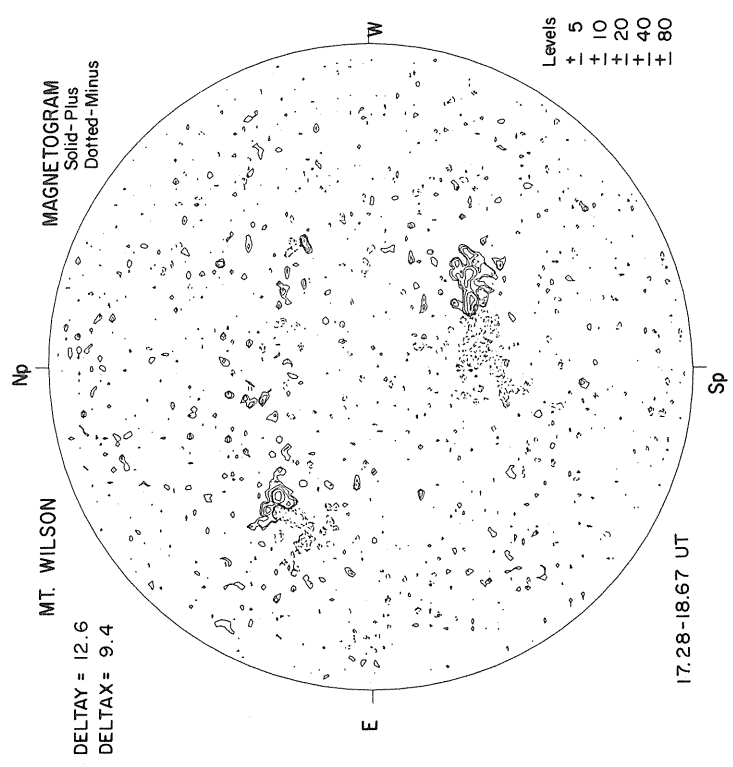
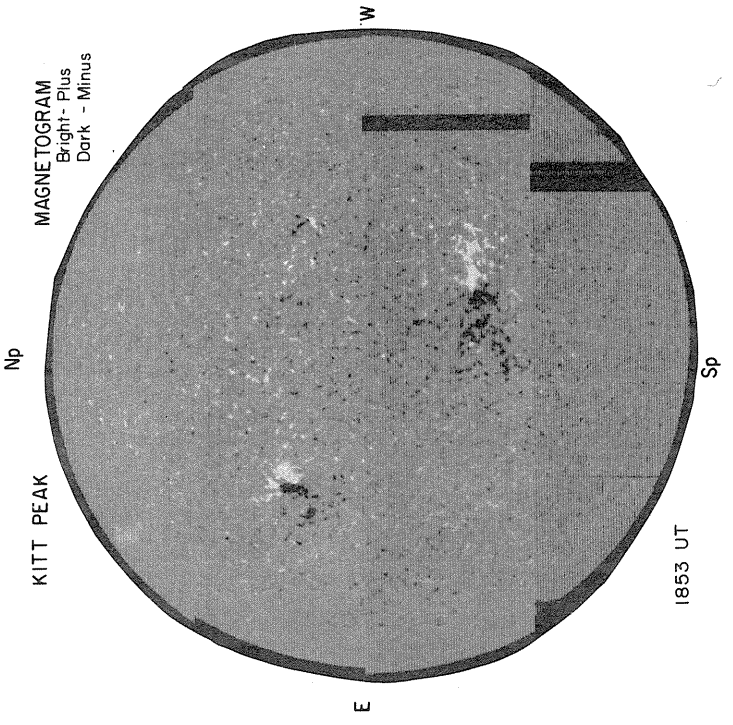
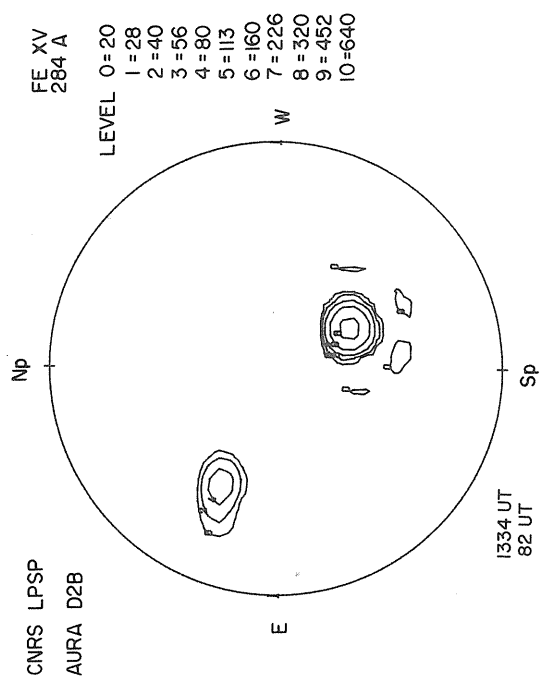
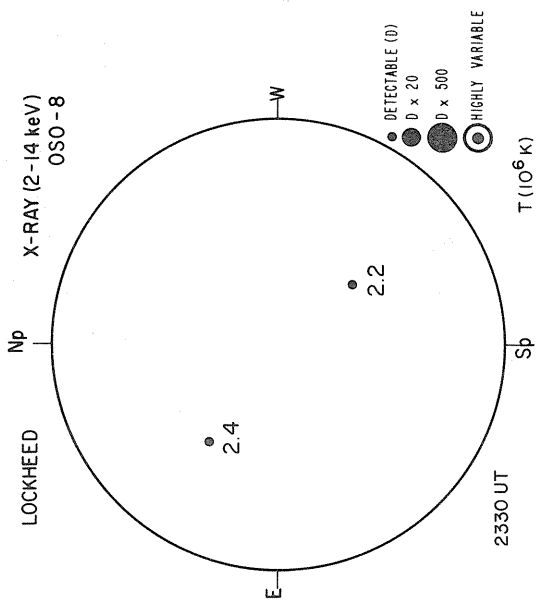
20
RAMEY AFB

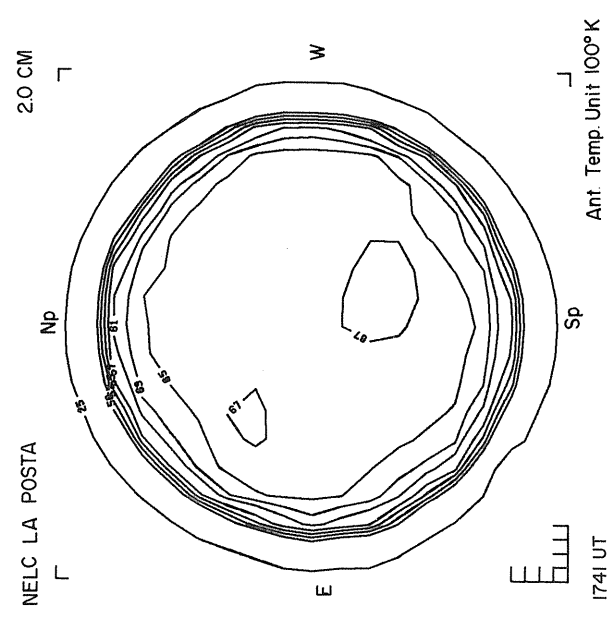
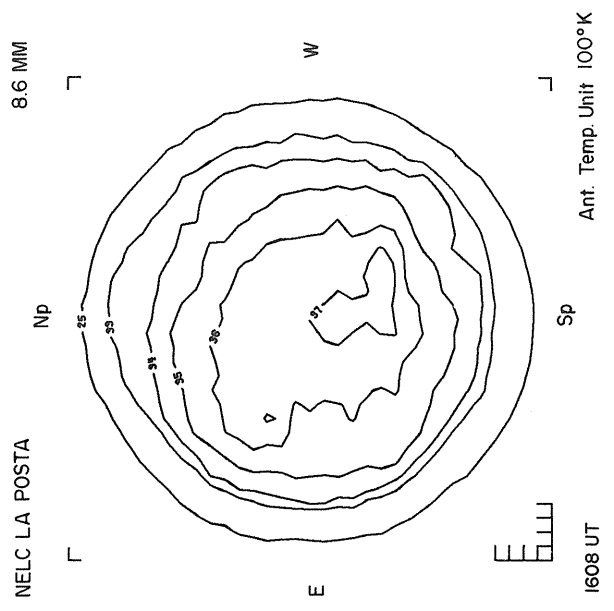
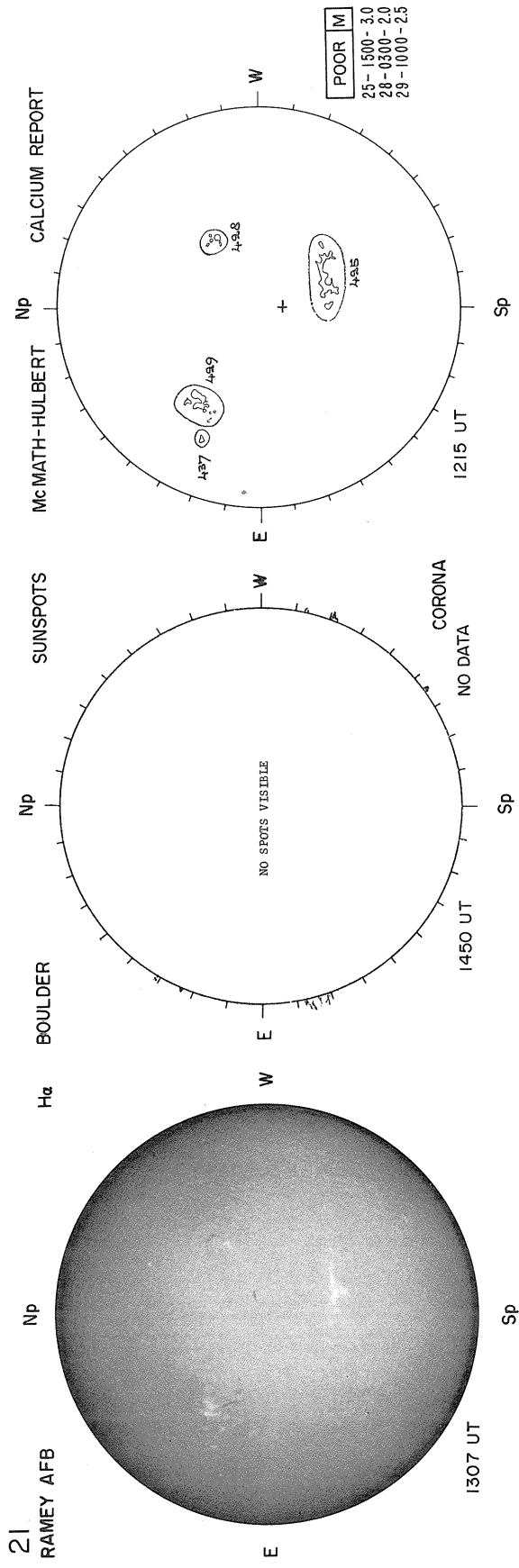


2022 UT

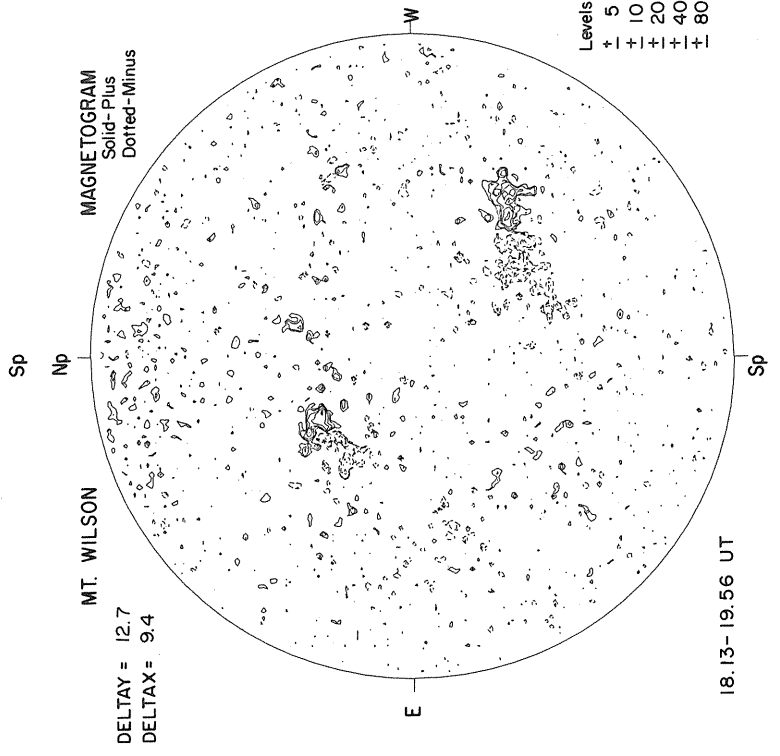
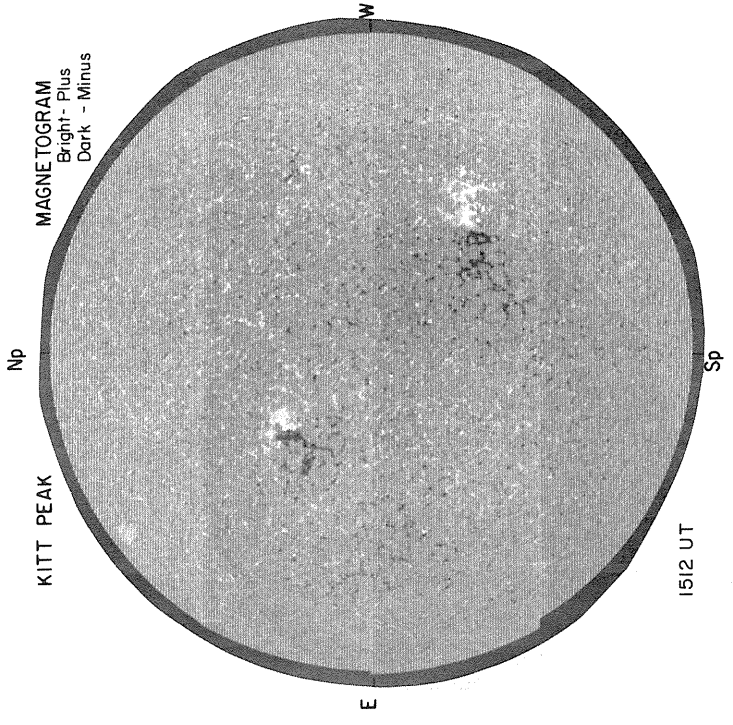
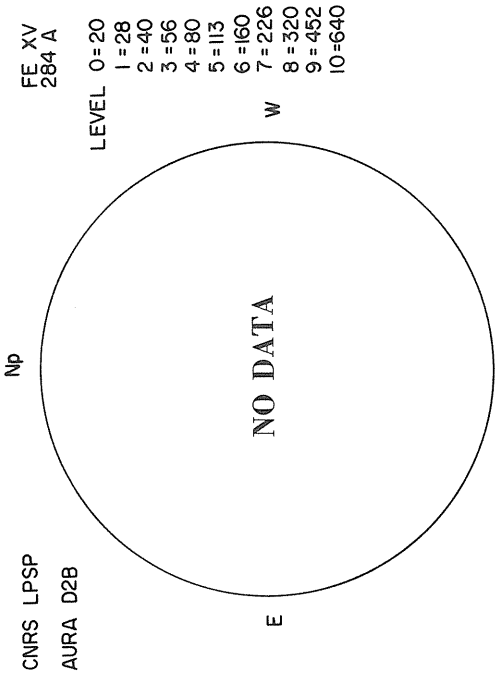
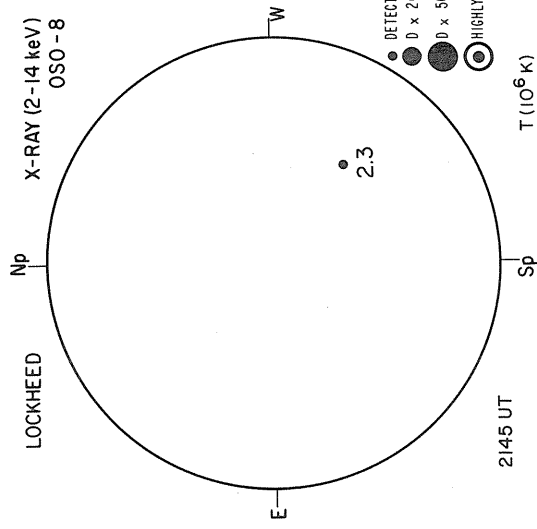
---- UT

SEPTEMBER 21, 1976 (P = 25.03, B₀ = 7.07, L₀ = 262.64)

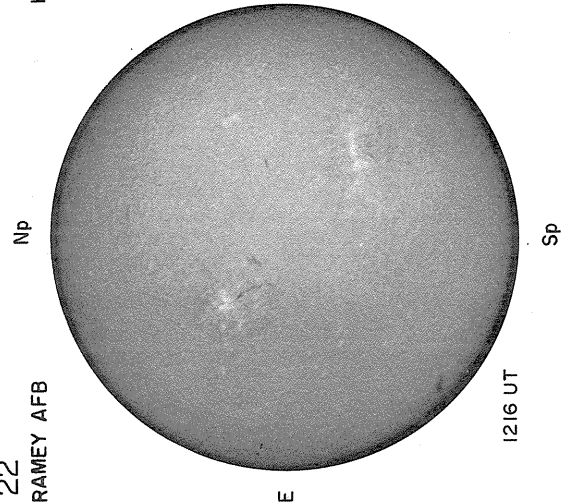




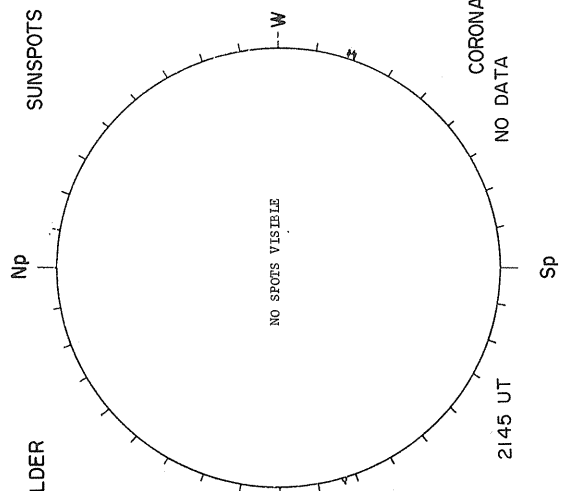
SEPTEMBER 22, 1976 (P = 25.16, B₀ = 7.04, L₀ = 249.44)



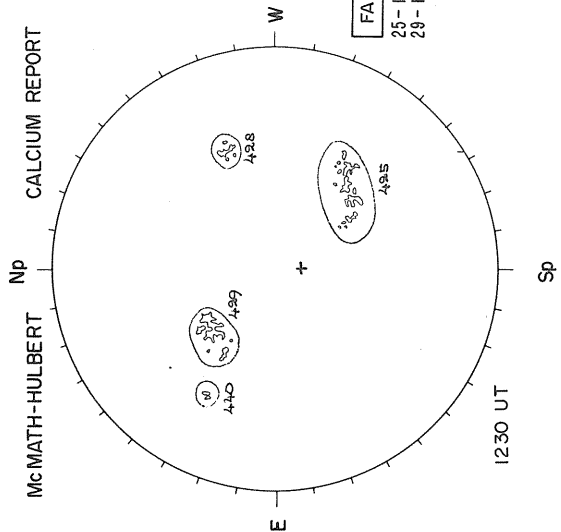
22
RAMEY AFB



H α BOULDER



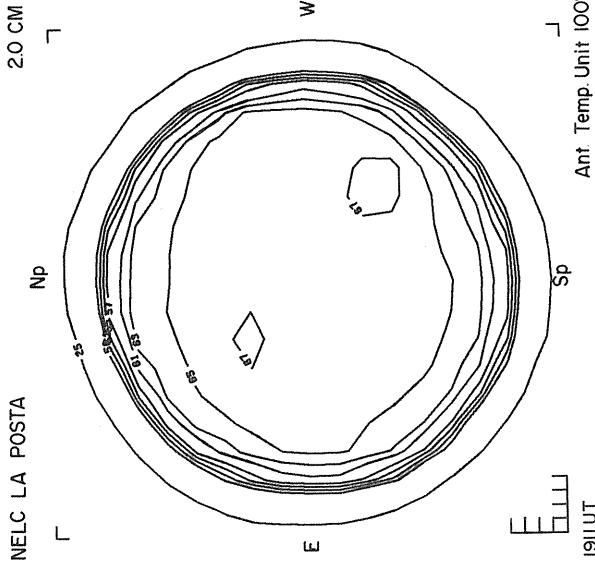
McMATH-HULBERT



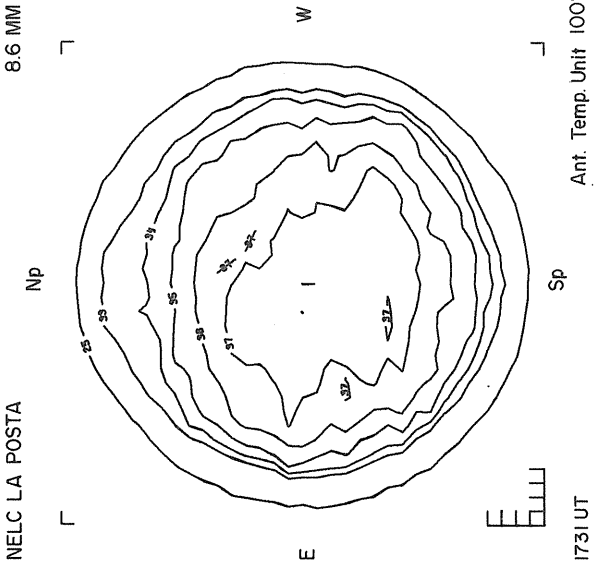
FAIR	S
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25 - 1300 - 3.0
29 - 1200 - 3.0

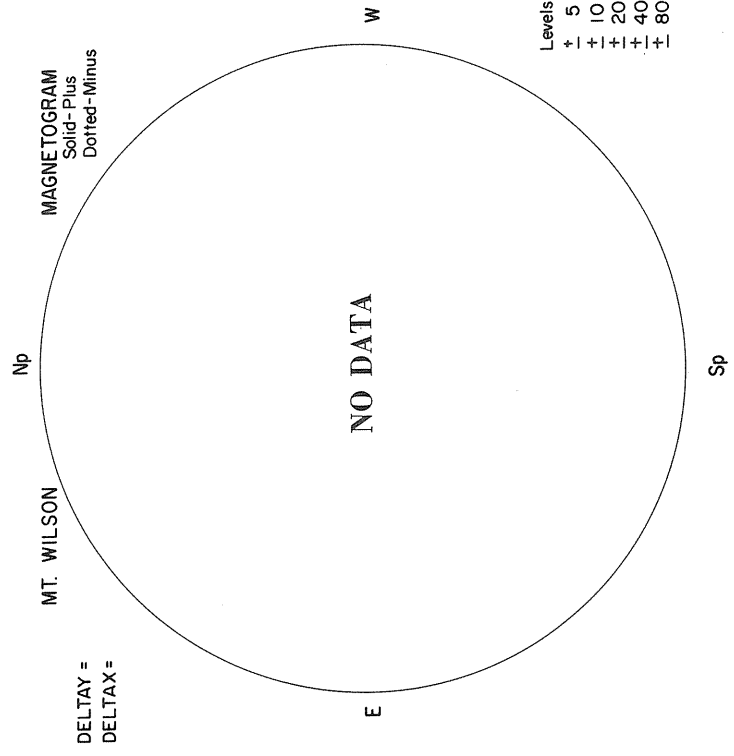
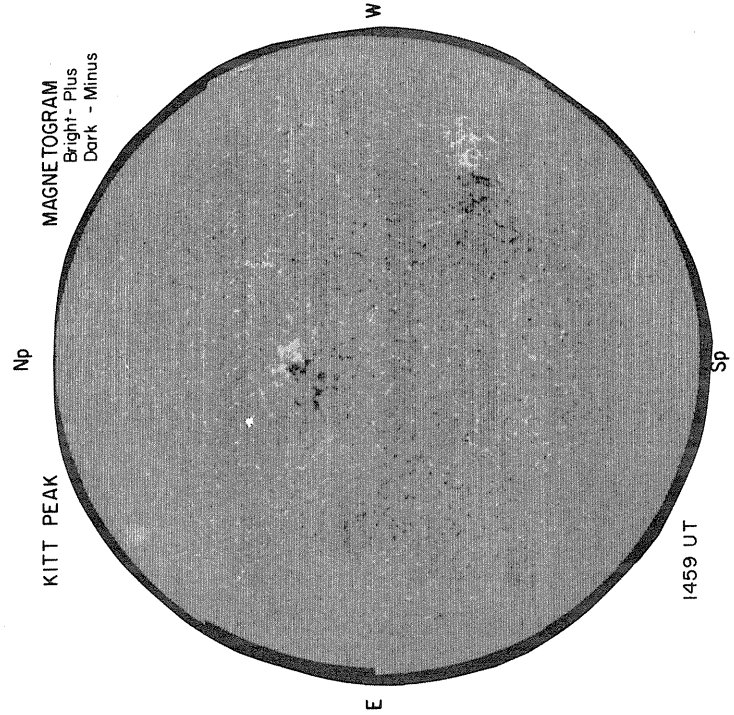
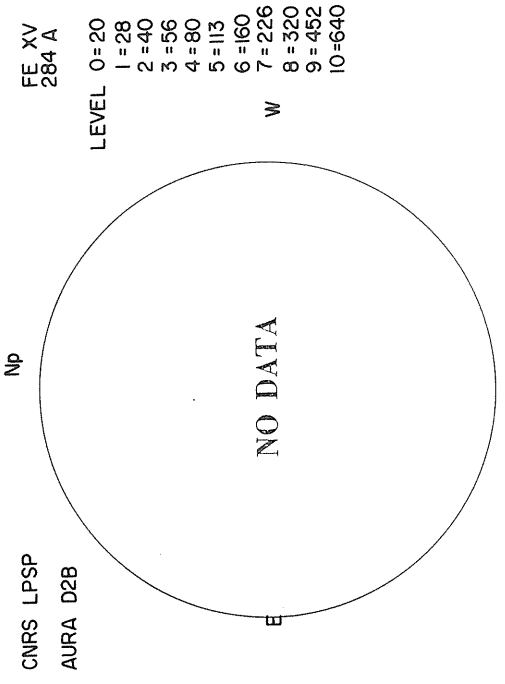
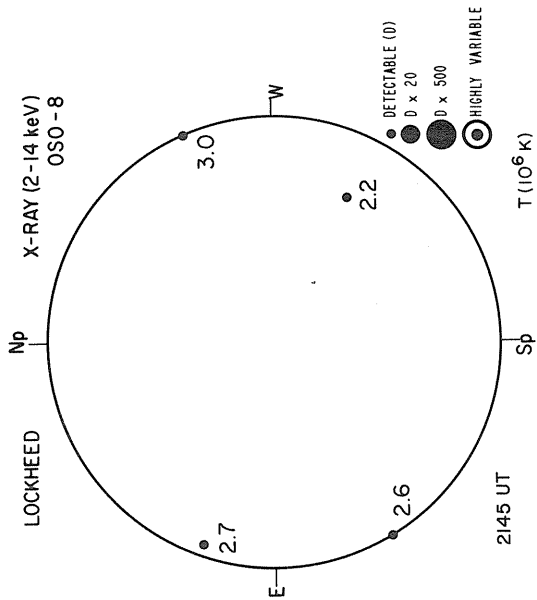
NELC LA POSTA

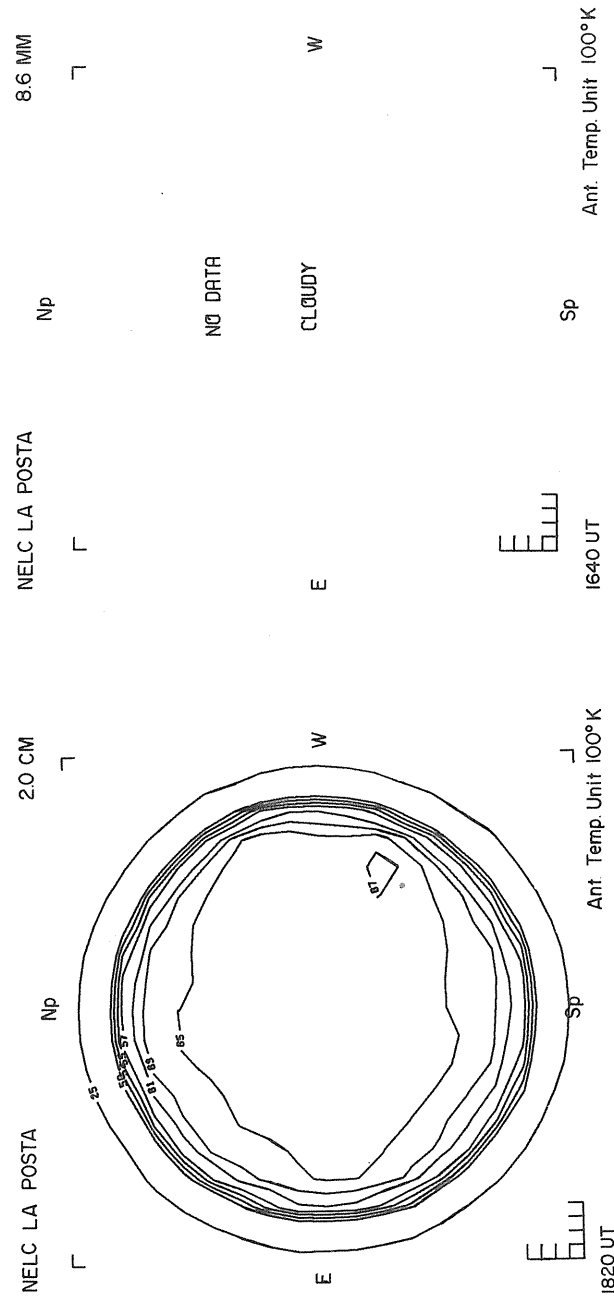
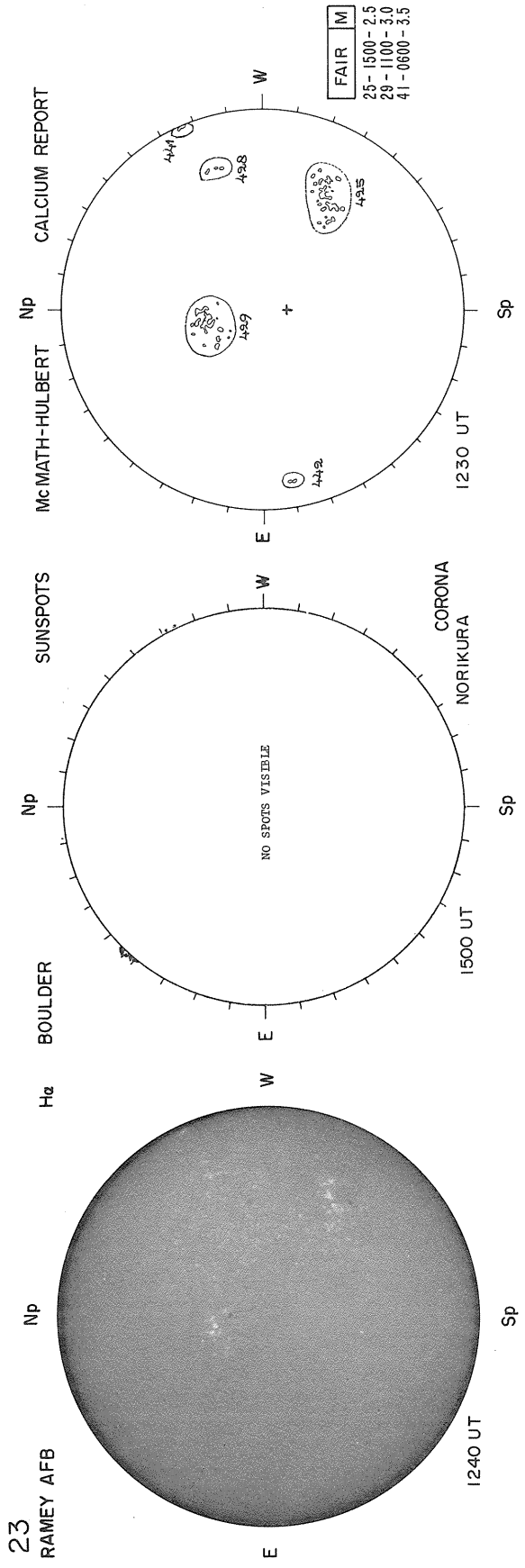


NELC LA POSTA

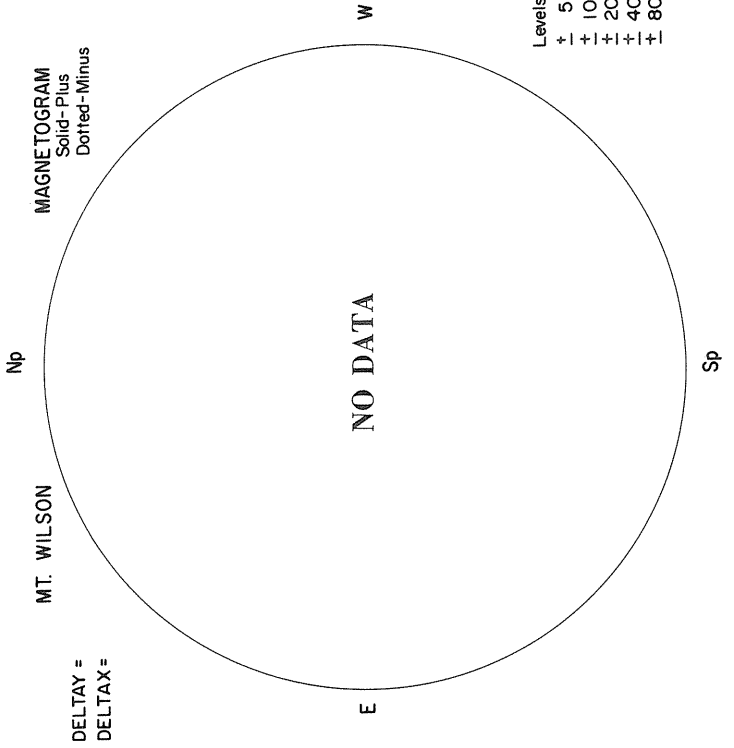
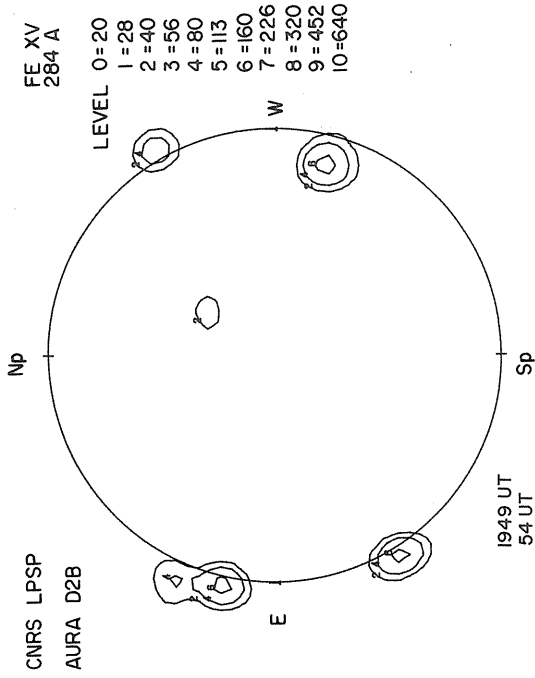
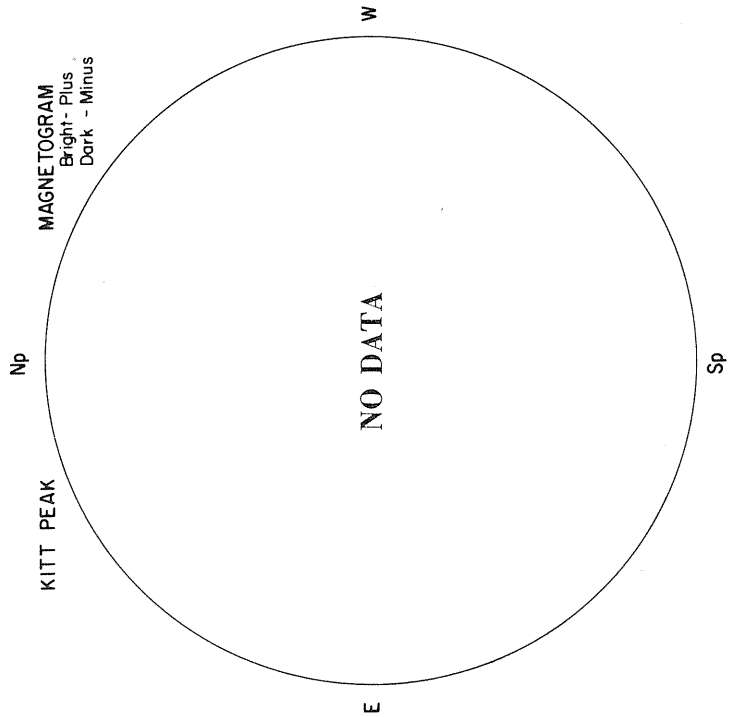
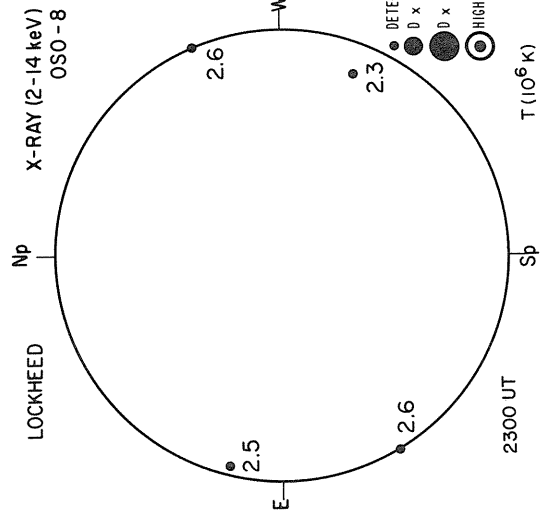


SEPTEMBER 23, 1976 (P = 25.28, B₀ = 7.01, L₀ = 236.25)

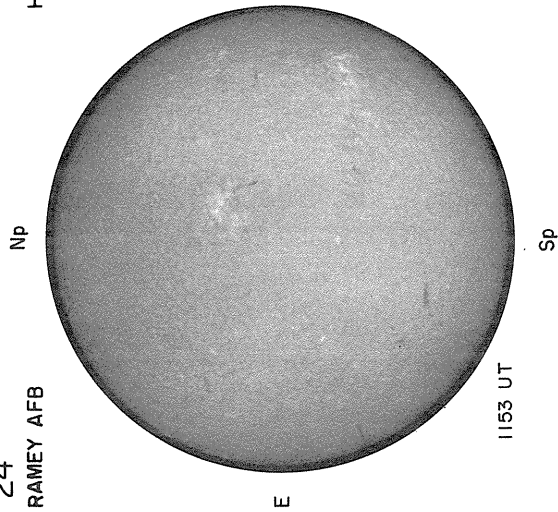




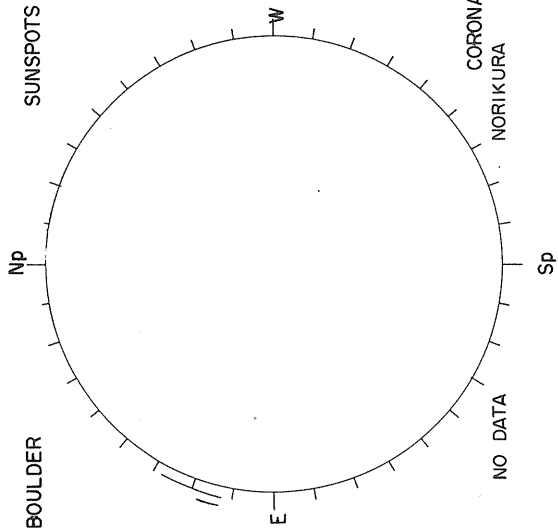
SEPTEMBER 24, 1976 (P = 25.40, B₀ = 6.98, L₀ = 223.05)



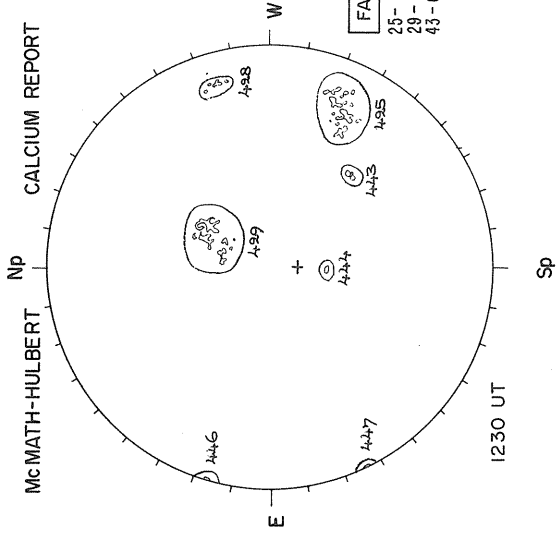
24
RAMEY AFB



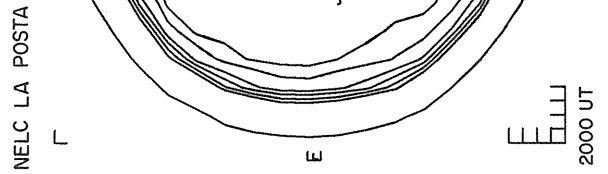
H_α BOULDER
NO DATA



Mc MATH-HULBERT
1230 UT



FAIR	M
25-1500-2.5	
29-1200-2.5	
43-0200-2.5	

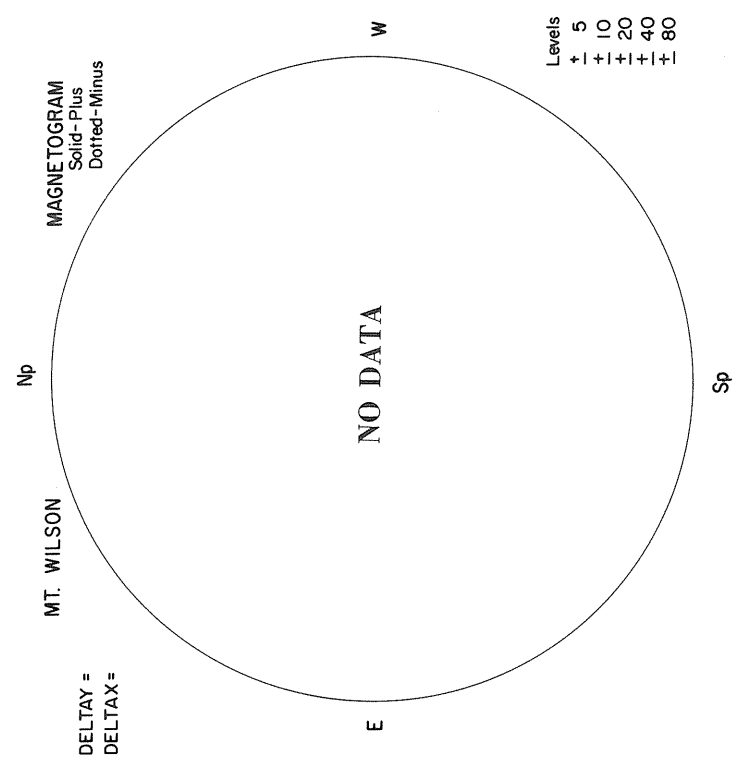
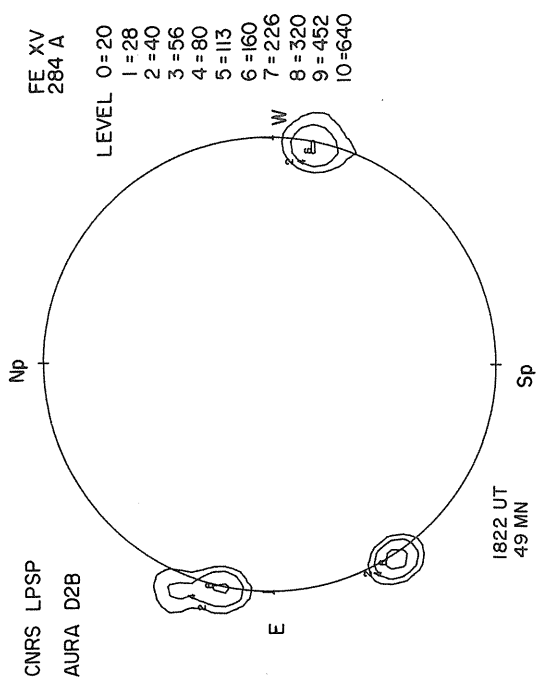
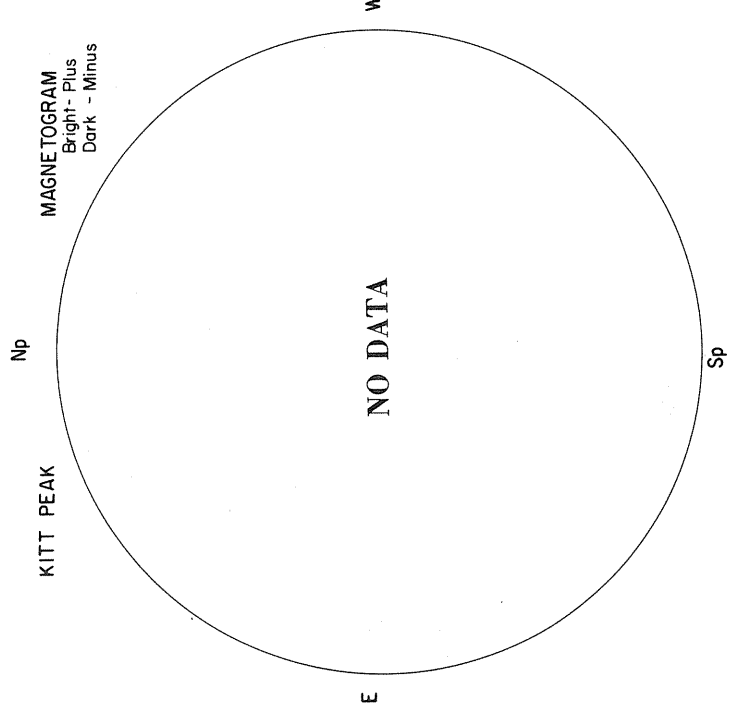
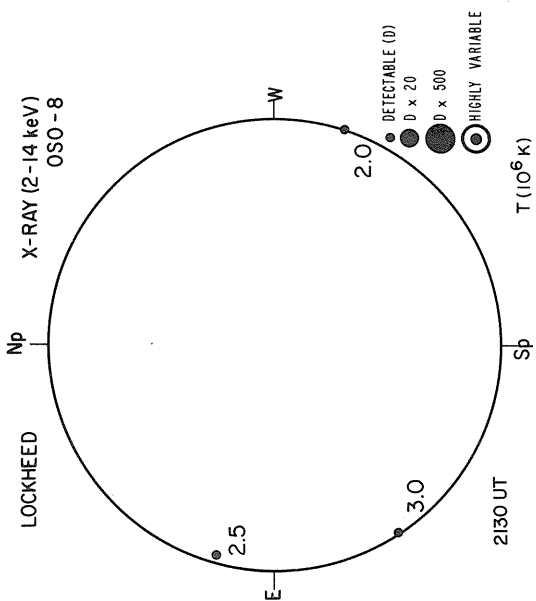


NELC LA POSTA
20.0 CM
Ant. Temp. Unit 100°K



NELC LA POSTA
8.6 MM
NO DATA
WEATHER
Ant. Temp. Unit 100°K

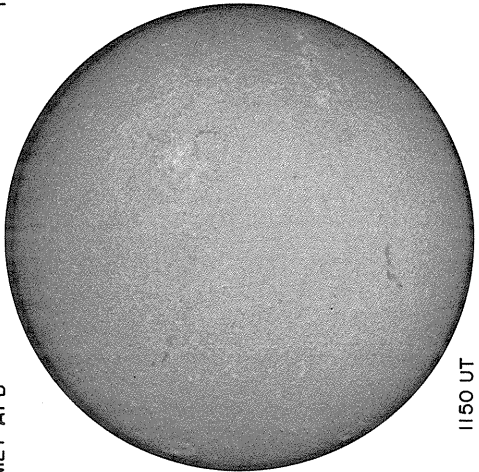
SEPTEMBER 25, 1976 (P = 25.5l, B₀ = 6.95, L₀ = 209.85)



25

RAMEY AFB

Np



E

1150 UT

Sp

H α

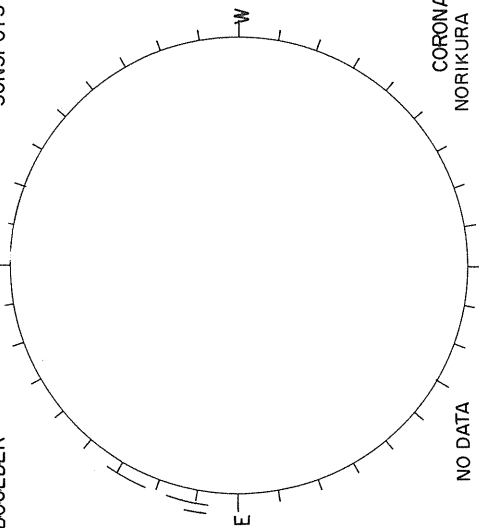
BOULDER

Np

SUNSPOTS

McMATH-HULBERT

CALCIUM REPORT



W

E

NO DATA

Sp

CORONA
NORIKURA

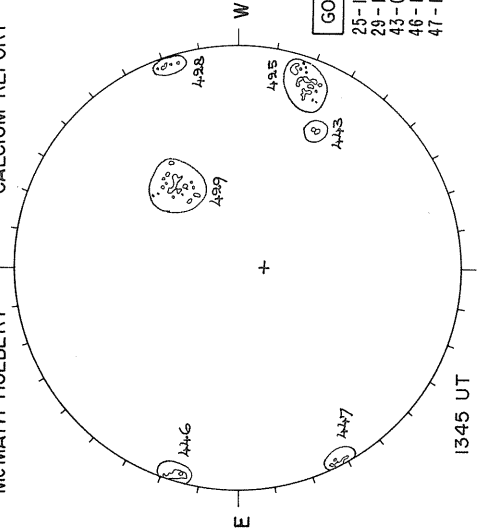
W

E

1345 UT

Sp

GOOD	M
25 - 1500 - 2.5	
29 - 1000 - 2.5	
43 - 0100 - 2.5	
46 - 1500 - 3.0	
47 - 1700 - 3.0	



NELC LA POSTA

20 CM

NELC LA POSTA

8.6 MM

Γ

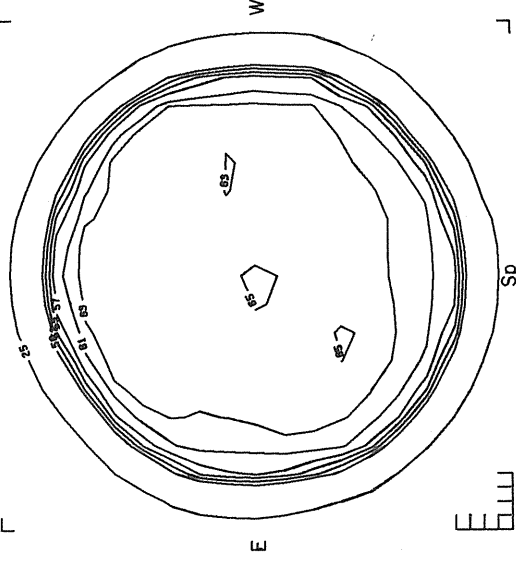
Np

Γ

Γ

Np

Γ



E

Np

W

E

WEATHER

W

NO DATA

1924 UT

Ant. Temp. Unit 100°K

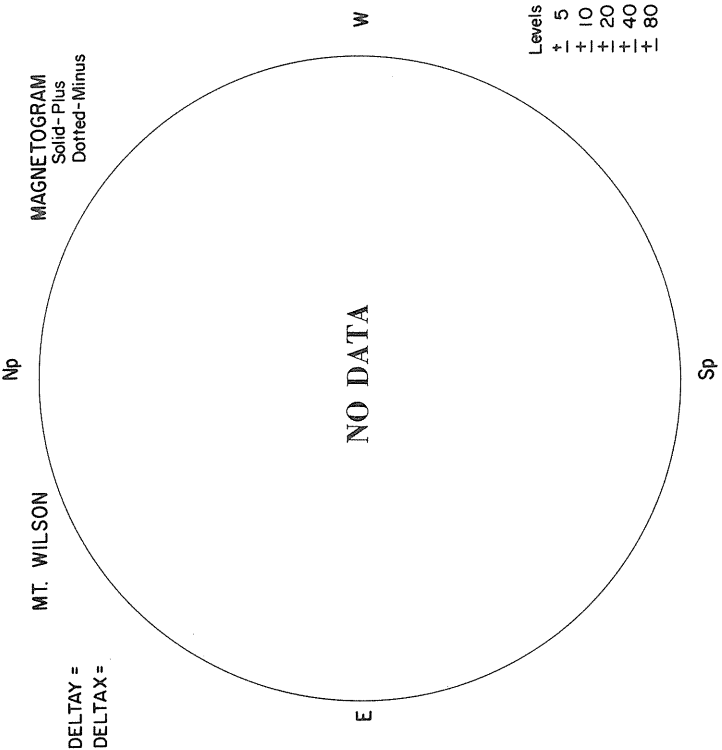
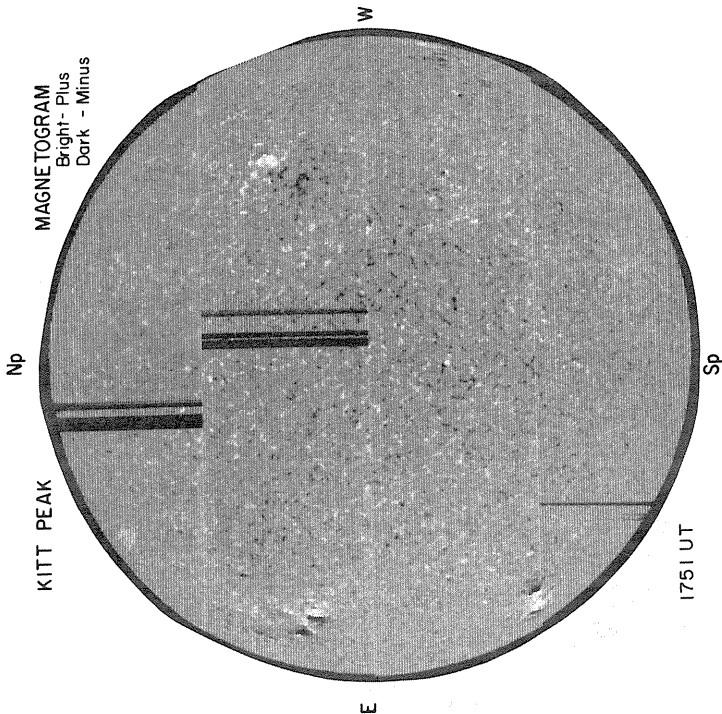
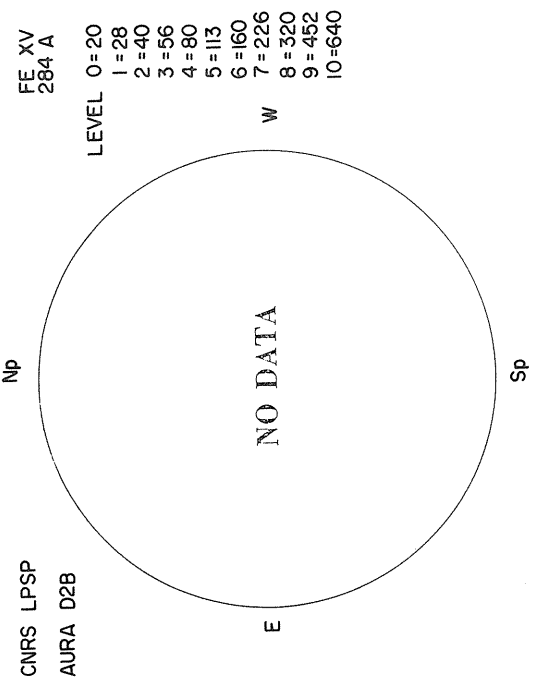
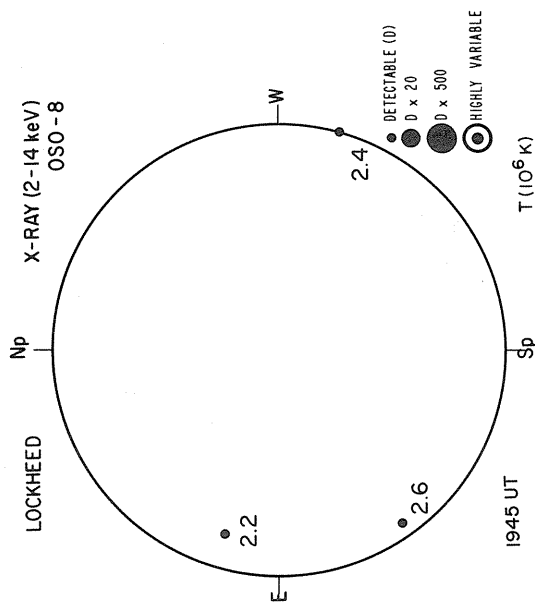
-----UT

Sp

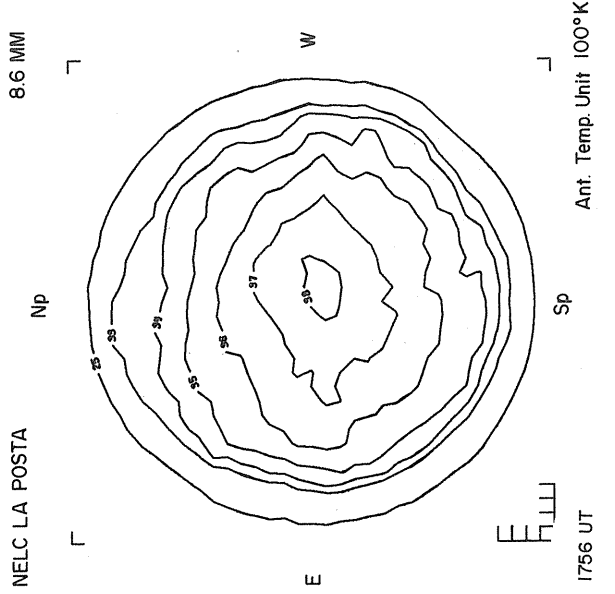
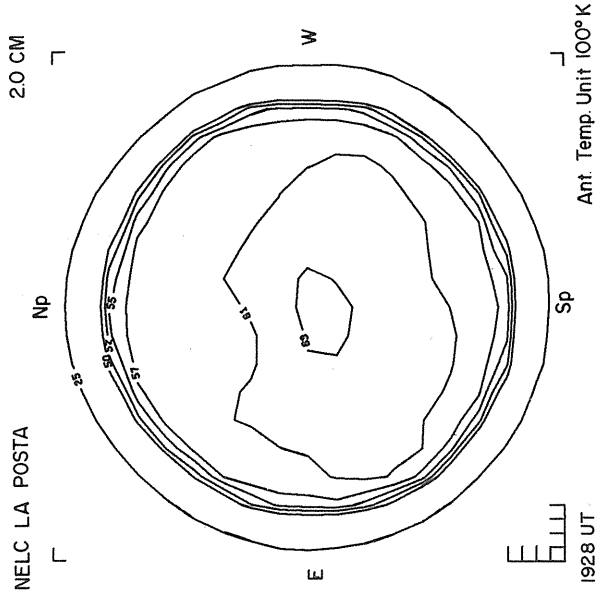
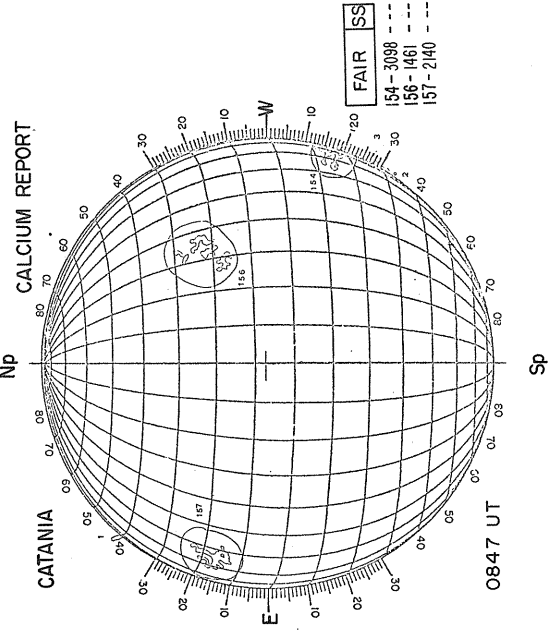
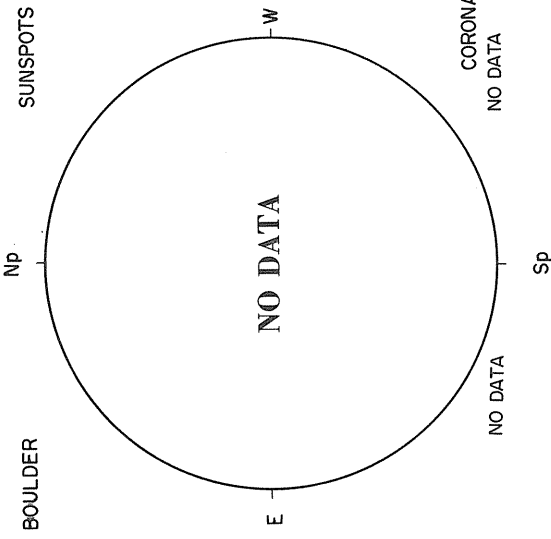
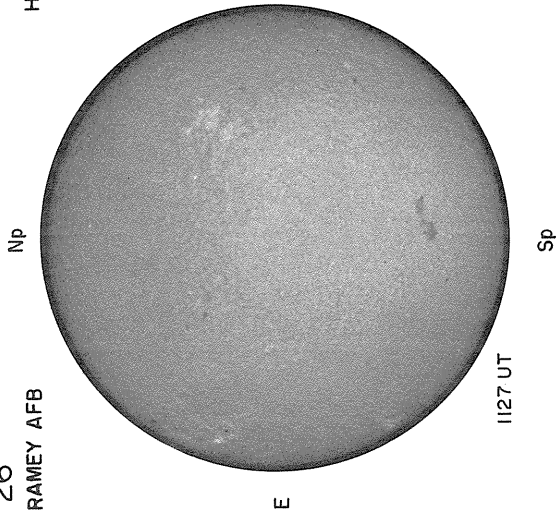
Ant. Temp. Unit 100°K



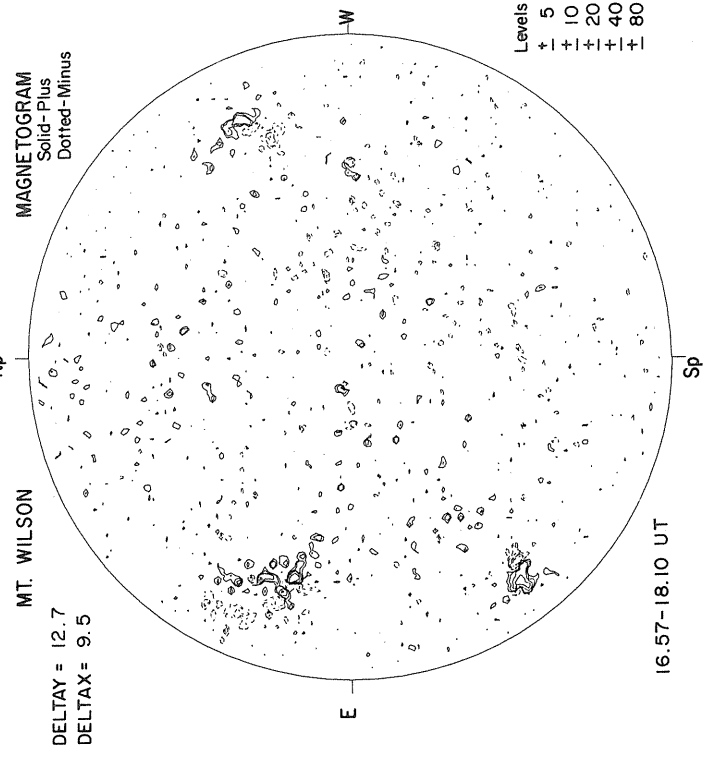
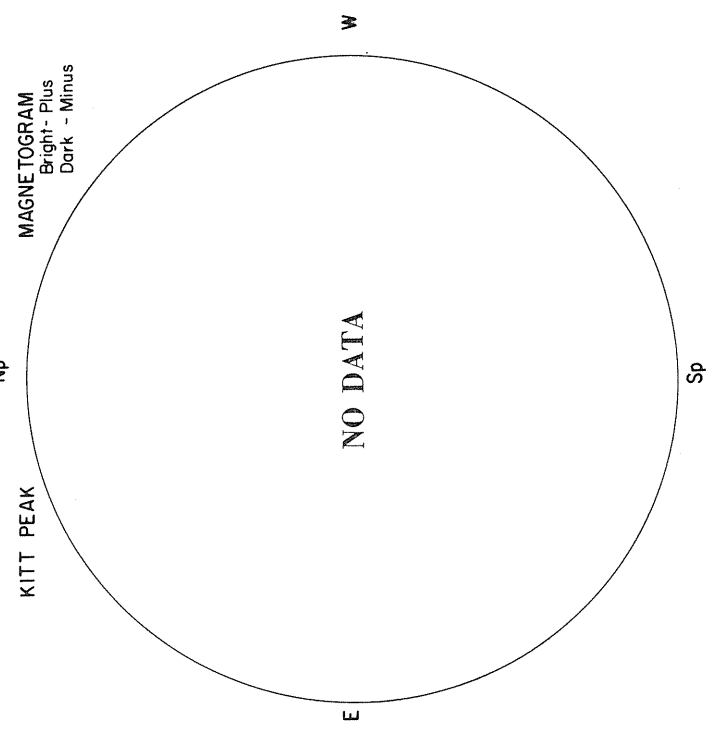
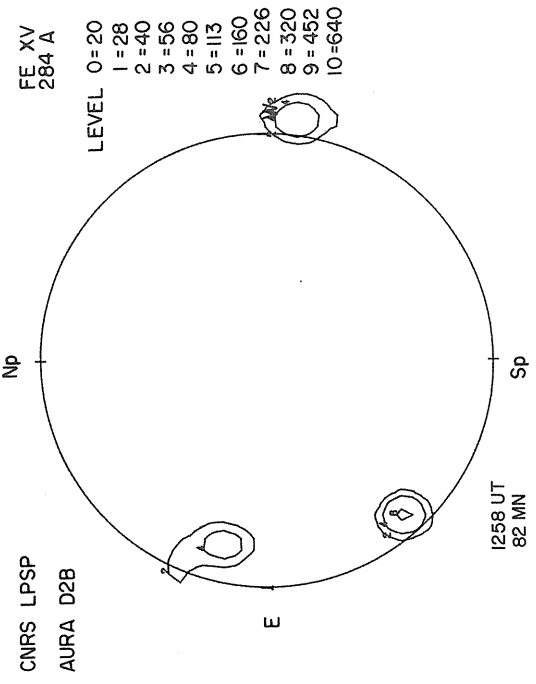
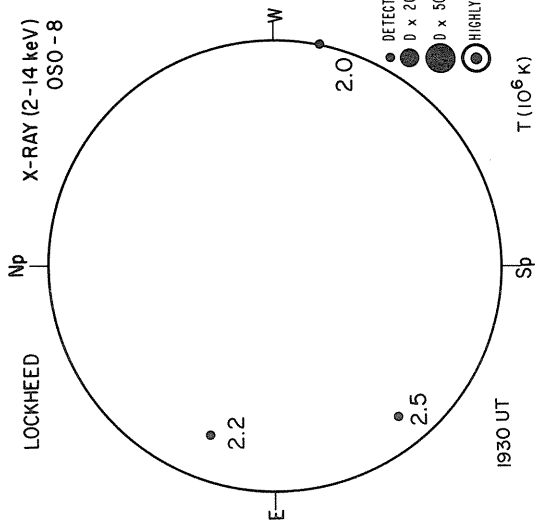
SEPTEMBER 26, 1976 (P = 25.6I, B₀ = 6.9I, L₀ = 196.65)



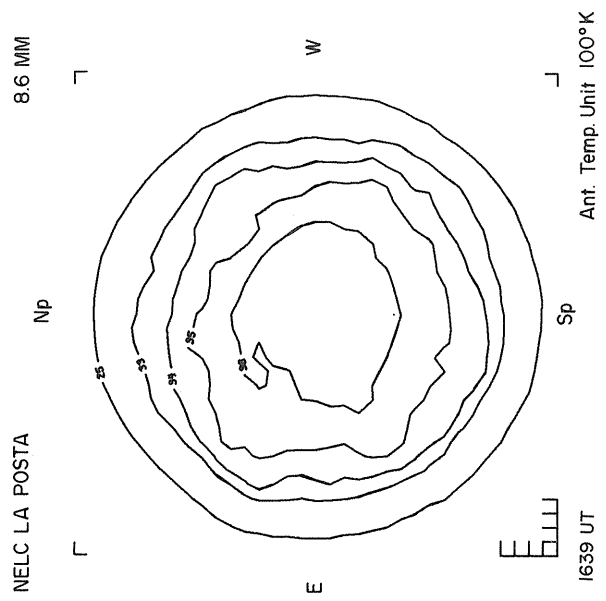
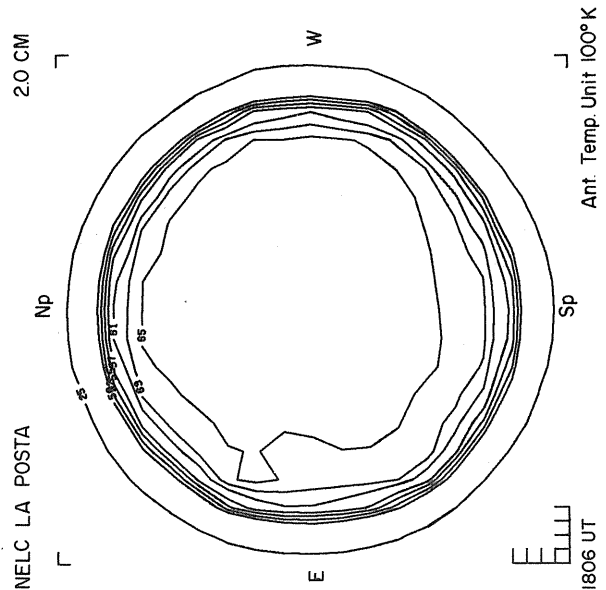
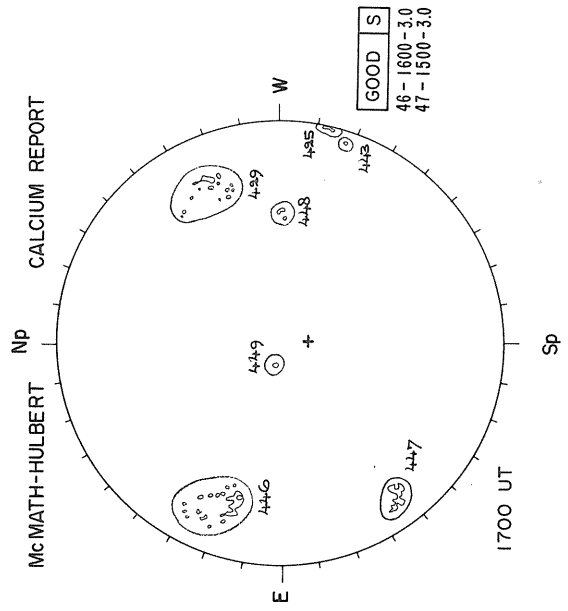
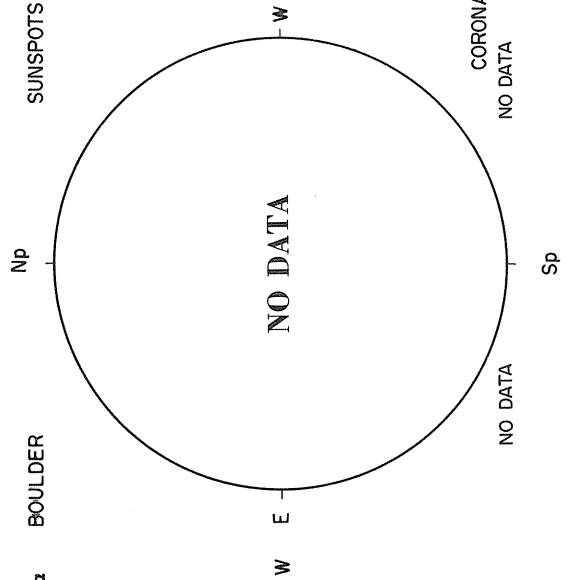
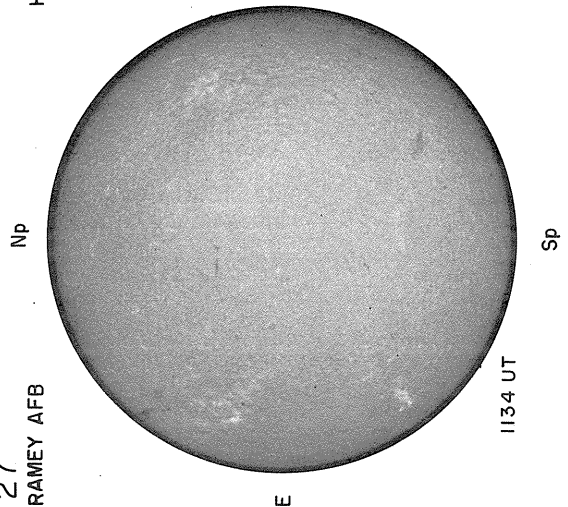
26
RAMEY AFB



SEPTEMBER 27, 1976 (P = 25.7l, B₀ = 6.87, L₀ = 183.46)

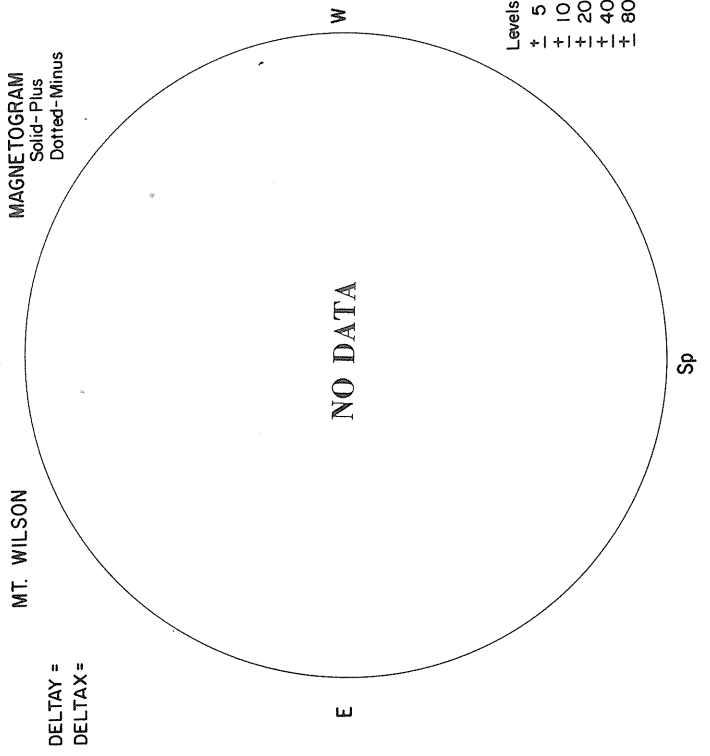
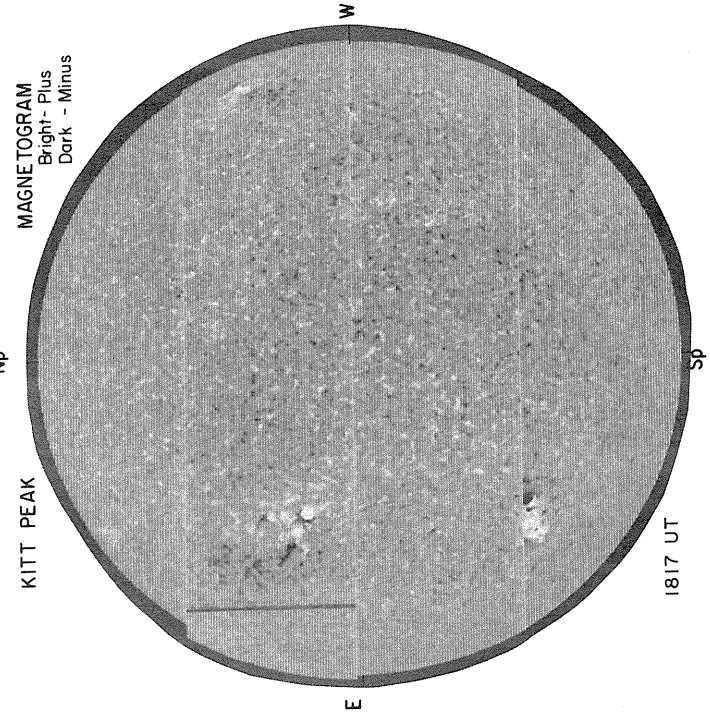
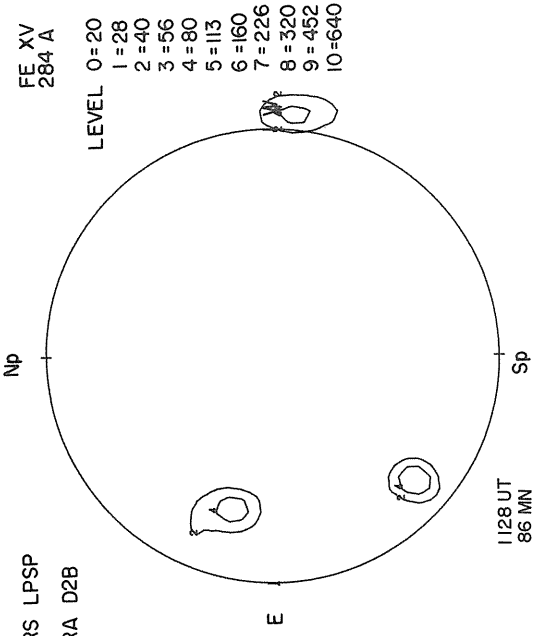
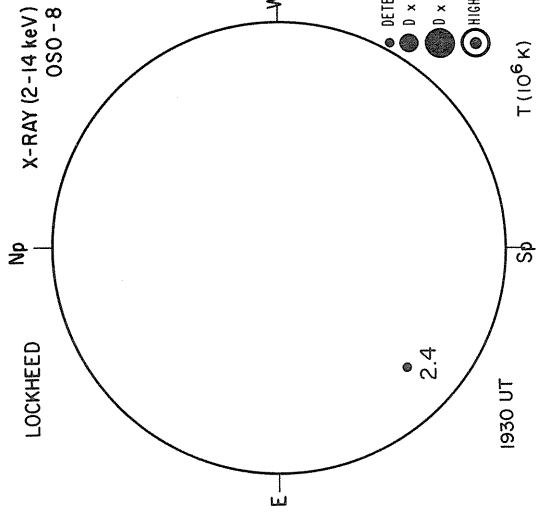


27
RAMEY AFB

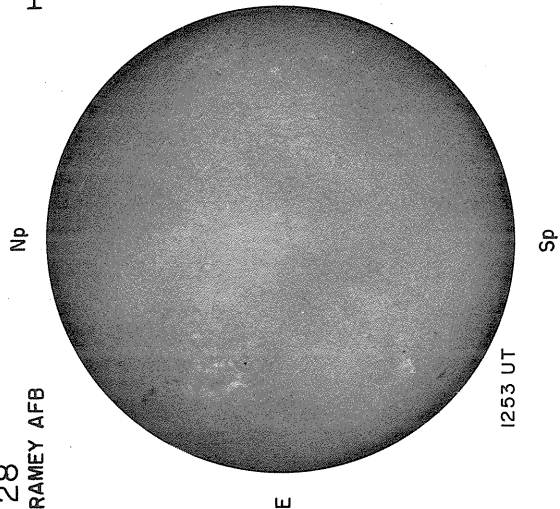


CORONA
NO DATA

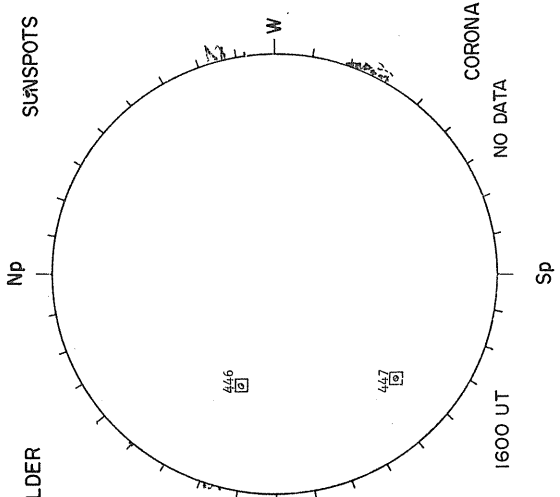
SEPTEMBER 28, 1976 (P = 25.80, B₀ = 6.83, L₀ = 170.26)



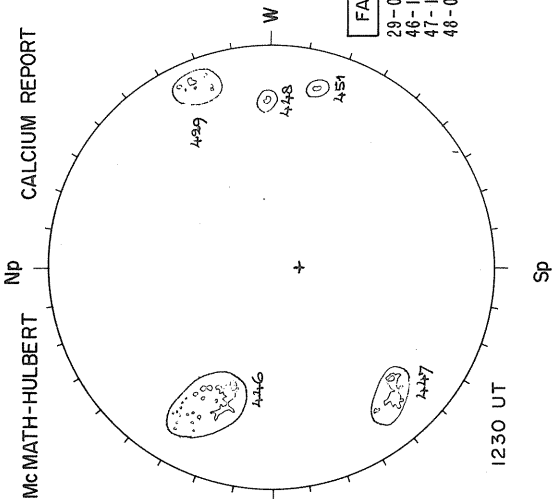
28
RAMEY AFB



H α BOULDER



McMATH-HULBERT
CALCIUM REPORT



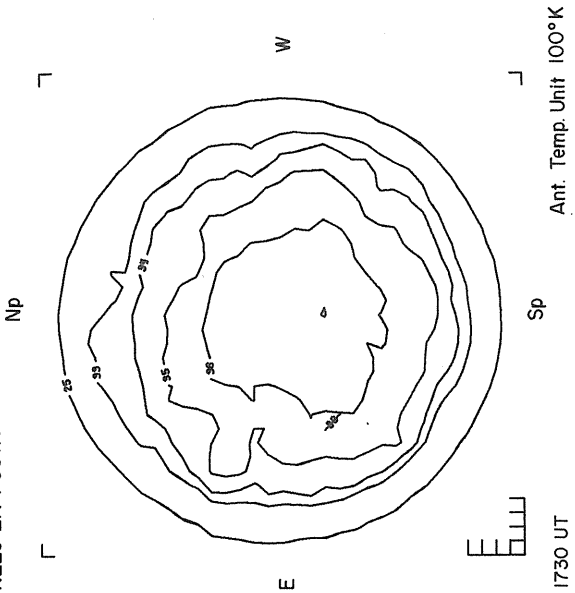
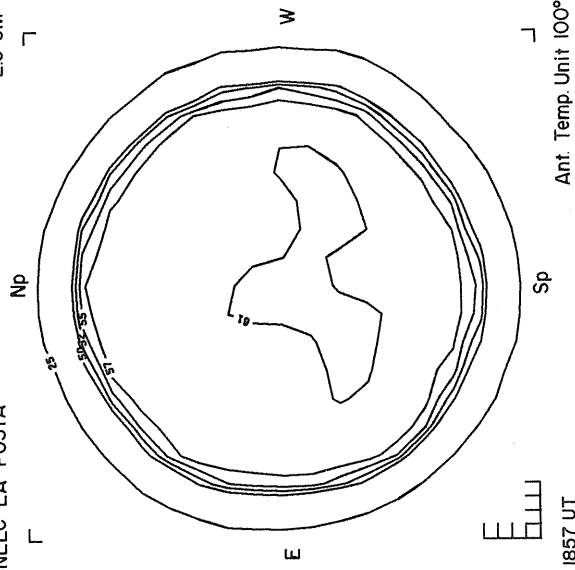
FAIR	M
29-0800-2.5	
46-1500-3.0	
47-1700-3.0	
48-0200-2.5	

NELC LA POSTA

20 CM

NELC LA POSTA

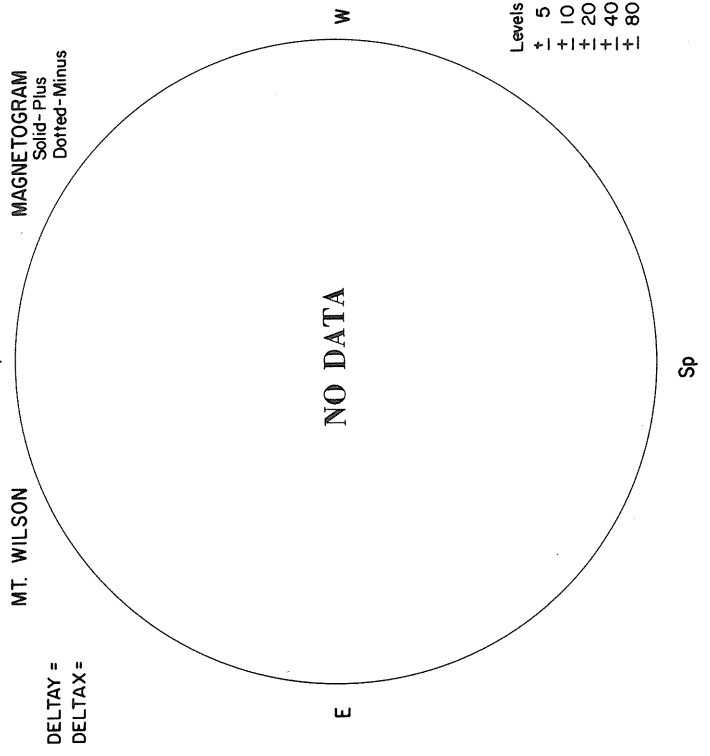
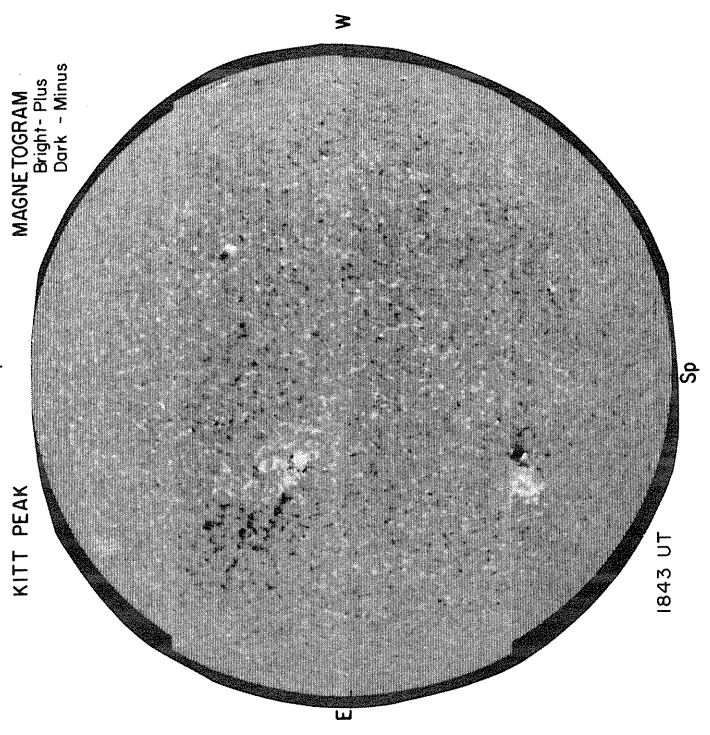
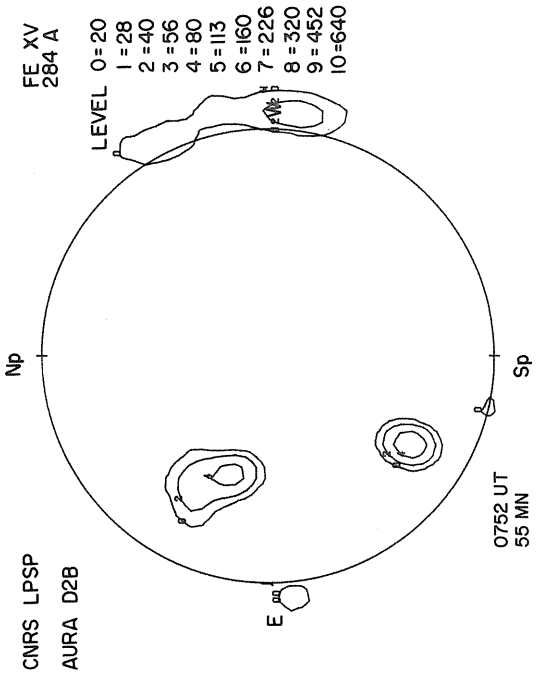
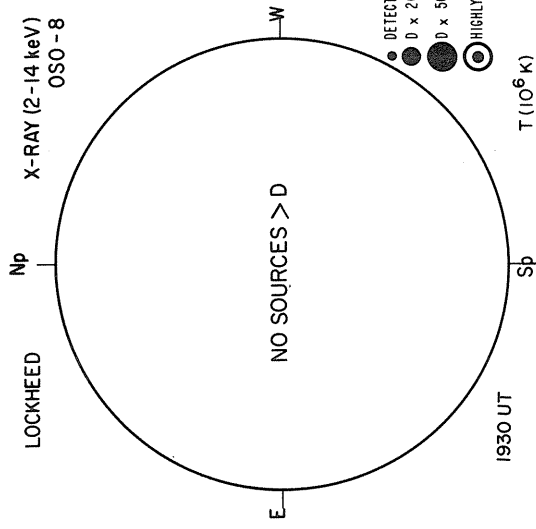
8.6 MM



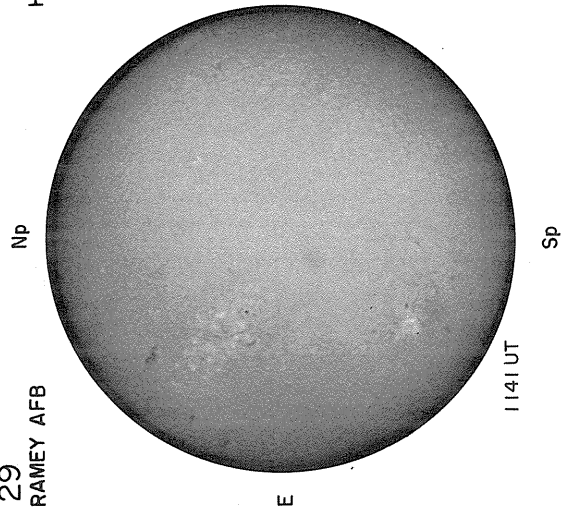
Ant. Temp. Unit 100°K

Ant. Temp. Unit 100°K

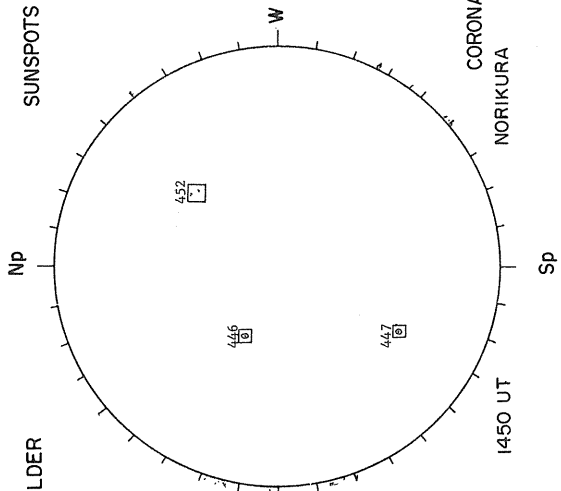
SEPTEMBER 29, 1976 (P = 25.88, B₀ = 6.79, L₀ = 157.06)



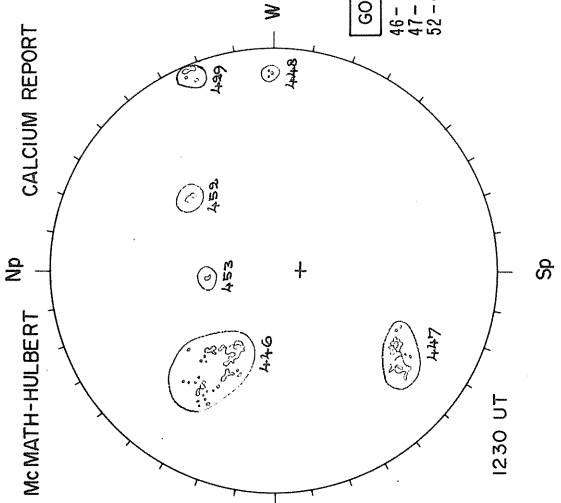
29
RAMEY AFB



H α BOULDER



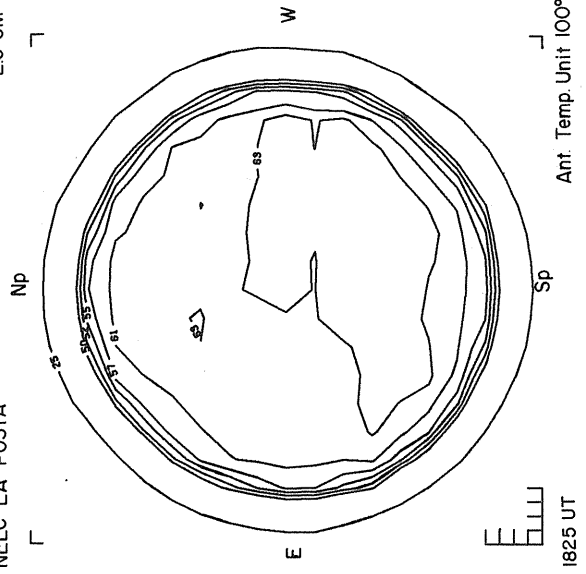
SUNSPOTS



GOOD	S
46 - 1500 - 2.5	
47 - 1500 - 3.0	
52 - 0200 - 3.0	

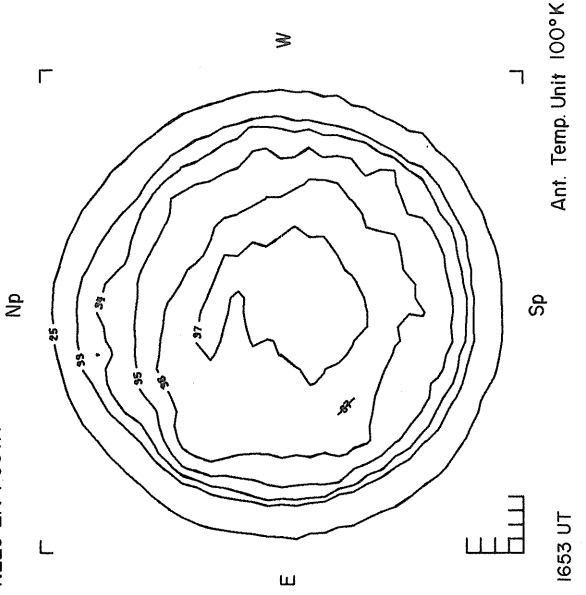
NELC LA POSTA

2.0 CM

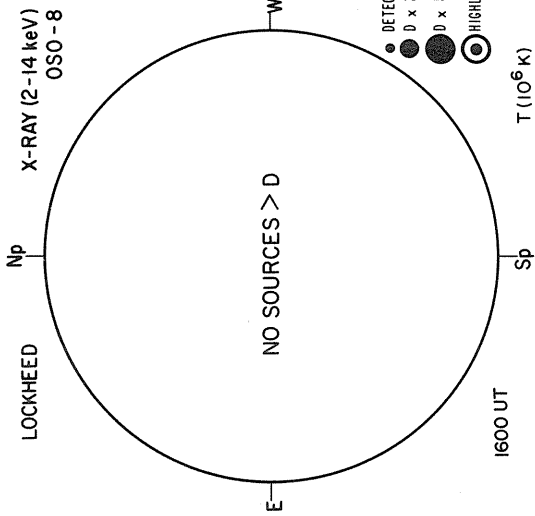


NELC LA POSTA

8.6 MM



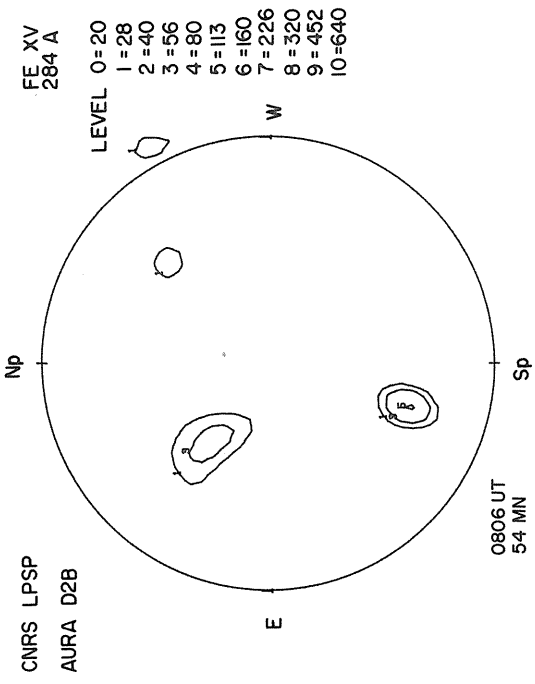
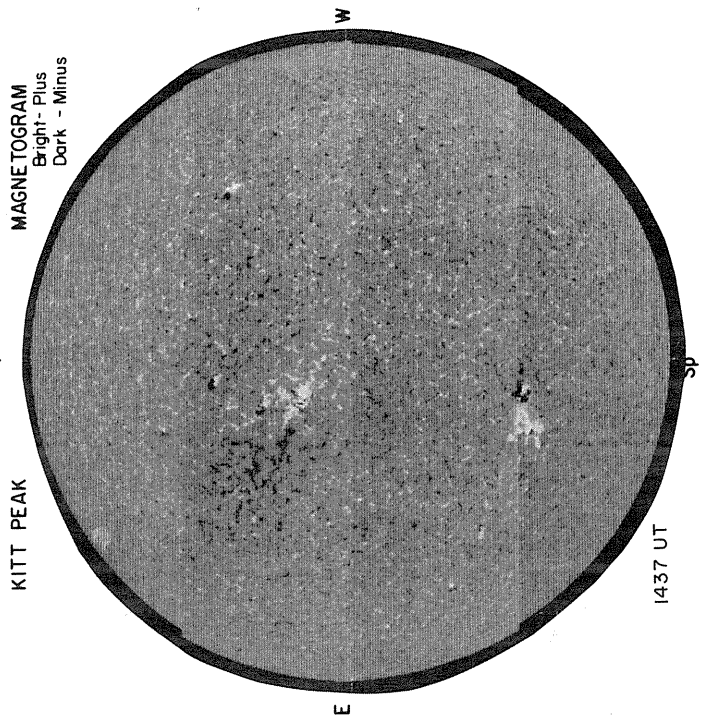
SEPTEMBER 30, 1976 (P = 25.96, B₀ = 6.74, L₀ = 143.87)



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

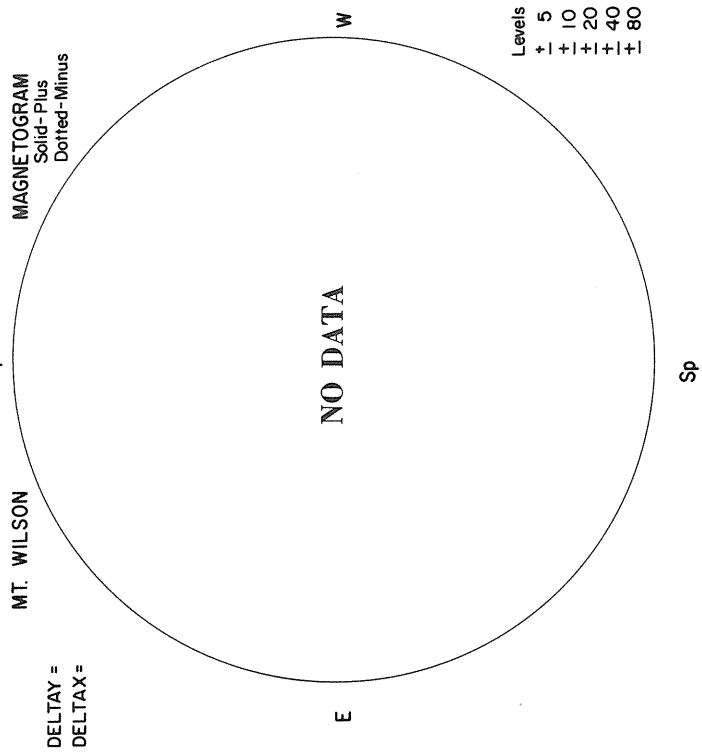
T (10⁶ K)

MAGNETOGRAM
Bright- Plus
Dark - Minus

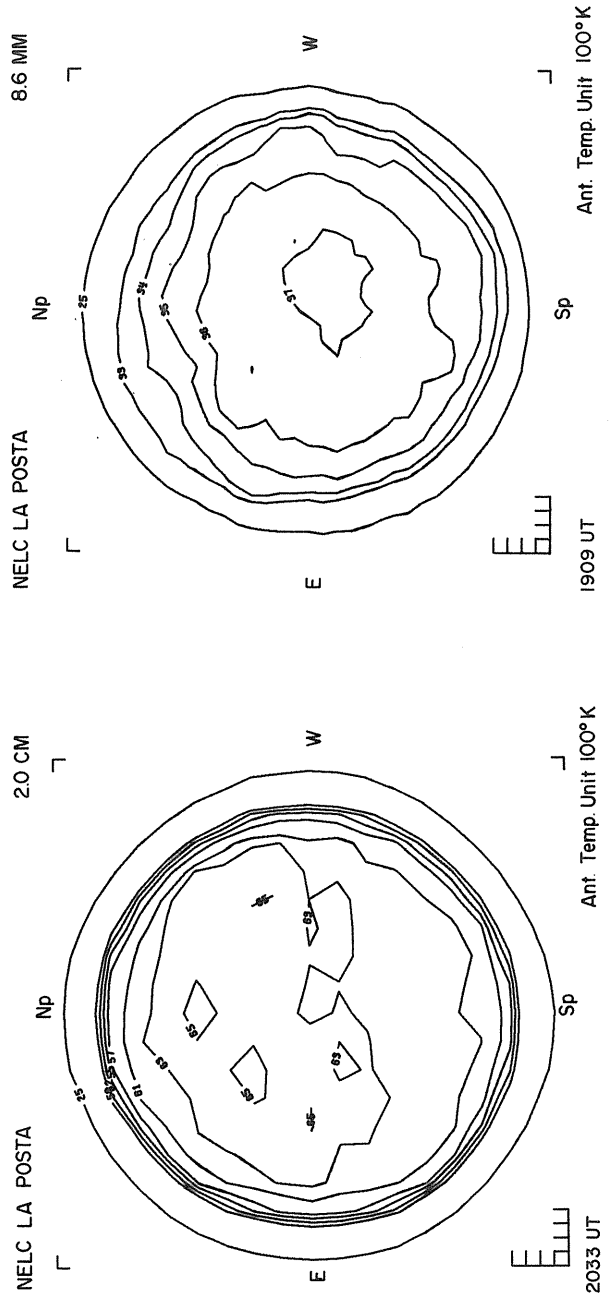
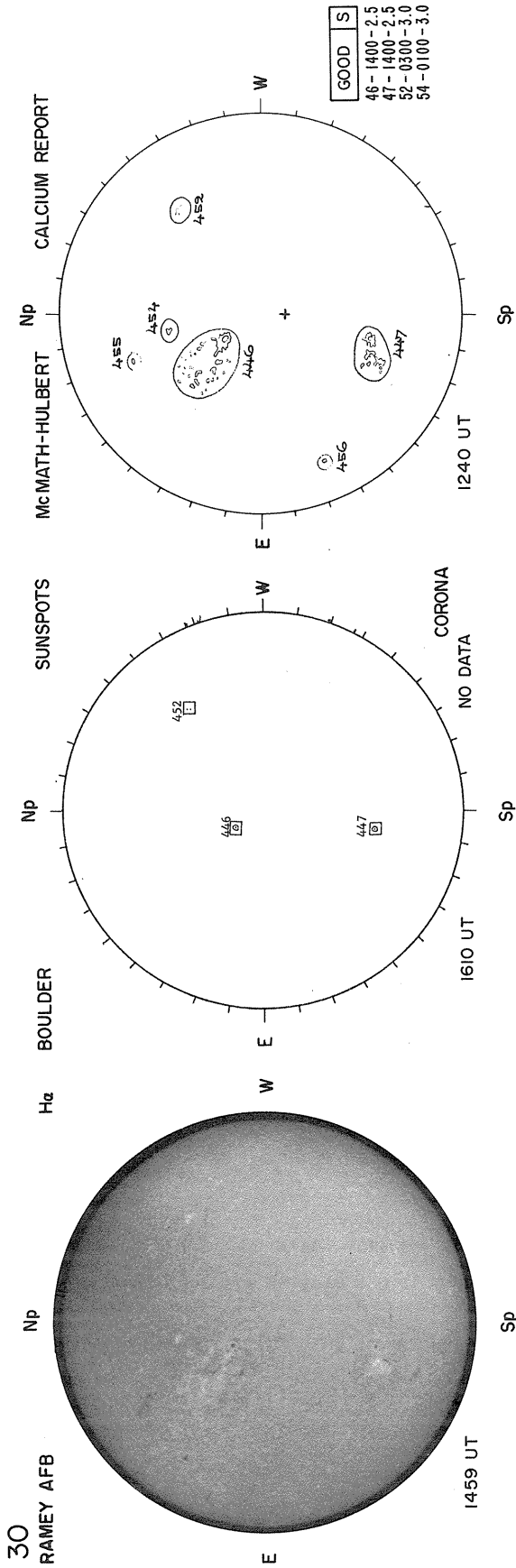


- FE XV 284 Å
- LEVEL
- 0=20
 - 1=28
 - 2=40
 - 3=56
 - 4=80
 - 5=113
 - 6=160
 - 7=226
 - 8=320
 - 9=452
 - 10=640

MAGNETOGRAM
Solid-Plus
Dotted-Minus



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



92
Sep 76

REGIONS OF SOLAR ACTIVITY

SEPTEMBER 1976

MCMATH REGION 14457 CMP DATE 26.2

				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
76	10	1	14457	N03 W69		100	2.0								

MCMATH REGION 14458 CMP DATE 27.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
76	10	1	14458	N23 W51		100	1.5								
76	10	2	14458	N23 W65		200	1.5								
76	10	3	14458	N23 W78		300	1.0								

MCMATH REGION 14452 CMP DATE 27.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
76	9	29	14452	N28 W23	174	200	3.0		N28 W23			B	10	3	BXO
76	9	30	14452	N29 W35	173	300	3.0		N28 W35			B	10	2	BXO
76	10	1	14452	N28 W48		300	3.5								
76	10	2	14452	N28 W63		300	2.0								
76	10	3	14452	N29 W76		300	1.5								

MCMATH REGION 14442 CMP DATE 28.1

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
76	9	23	14442	S04 E60	170	100	1.0								

MCMATH REGION 14449 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
76	9	27	14449	N08 E06	168	100	2.0								

MCMATH REGION 14462 CMP DATE 28.9

				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
76	10	2	14462	N03 W48		300	1.5								
76	10	3	14462	N03 W59		200	1.0								

MCMATH REGION 14453 CMP DATE 29.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
76	9	29	14453	N25 E01	150	100	2.0								

Note: No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on September 15, 16 and 26, 1976.
No sunspot observations were made at the Mt. Wilson Observatory on September 9, 10, 11, 16, 24, 25, 29 and 30, 1976.

DAILY CALCIUM PLAGE INDEX

SEPTEMBER 1976

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
76	9	1	3.6	76	9	11	5.7	76	9	21	7.0
76	9	2	4.7	76	9	12	7.1	76	9	22	7.3
76	9	3	6.1	76	9	13	7.8	76	9	23	6.4
76	9	4	5.2	76	9	14	5.7	76	9	24	5.9
76	9	5	4.6	76	9	15	*	76	9	25	5.1
76	9	6	4.4	76	9	16	*	76	9	26	*
76	9	7	6.2	76	9	17	4.4	76	9	27	7.0
76	9	8	6.1	76	9	18	6.8	76	9	28	7.9
76	9	9	4.0	76	9	19	8.2	76	9	29	7.6
76	9	10	3.3	76	9	20	7.5	76	9	30	7.3

* NO OBSERVATIONS

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

SEPTEMBER 1976

SEP 1976	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE										
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND													
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT											
01	0000	1010	MANI																				
	0514	0606	DURN	0514	D	0606	E	2	0514	D	0606	E	2								IC,DC,N		
	0516	1730	WEIS						0524		1635		2								I,DC		
	0615	1750	DURN	0615	D	1750	E	2	0615	D	1750	E	2								IC,DC,N		
			WEIS						0654.8		0659.5											IIIG	
			DURN	0709.9		0747		3	0709.9		0747		3									IV	
			WEIS						0718		0742		2									CONT,P	
		1012	2312	SGMR																			
		1340	1458	DWIN					1340		1458		1									IS,C	
				WEIS					1502.5		1502.7		1									III B	
		1304	2245	HARV					1814		2245		1									IN	
		2146	2400	MANI																			
				HARV					2241				1									III B	
			HARV					2245				1									III G		
02	0000	1809	MANI																				
	0515	1750	DURN																				
	0516	1036	WEIS						0554.6		0554.7		1								IIIG		
			WEIS						0713.3		0713.4		1									III B	
			WEIS						0833.8		0834		1									III B	
		0903	1445	DWIN					0903		1445		1									IS,C	
		1013	2311	SGMR																			
		1304	2245	HARV																			
		1128	1728	WEIS					1446.3		1446.4		2									III B	
		2146	2400	MANI					1558.2		1558.4		1									III B	
03	0000	1009	MANI								0137.2			0146.5		2					IIIG		
			MANI								0223.9			0224.5		1						III	
			MANI								0245.7			0247.0		2						IIIG	
			MANI								0331.7			0333.4		1							IIIG
			MANI								0416.7			0417.4		1							III
		0517	1726	WEIS					0520.4		0520.5		1										III B
				WEIS					0603		1300		1										IIIS
		0808	1417	DWIN					0808		1417		1										IS
				DWIN					0821.5		0835.0		3										IIIGG
				WEIS					0824.2		0830		3										IIIGG
		0518	1750	DURN	0824.5		0833.4		3	0824.5		0833.4		3									IIIGG
				MANI								0827.9			0828.8		1						III
				WEIS						0831.5		0833.6		3									IIIGG
				DWIN						0840.7		0846.0		1									IIIGG
				WEIS						0905.3		0915.3		3									IIIGG
				DWIN						0905.5		0915.5		3									IIIGG
				DURN	0906.0		0914.6		3	0906.0		0914.8		3									IIIGG
				DURN	0938		1155		2	0938		1155		2									IC,N
				WEIS						0945		1446											IN,DC
				WEIS						0946.9		0948.2		2									IIIGG
				DWIN						0947.0		0947.7		2									IIIG
				DWIN						1012.3		1012.5		2									IIIG
				WEIS						1012.3		1013		3									IIIG
				WEIS						1054.5		1058.3		2									IIIGG
				DWIN						1258.4		1258.5		1									IIIG
		1304	2245	HARV						1305		1548		1									IN
				DWIN						1354.5		1358.7		2									IIIGG
		1014	2310	SGMR								1354.5			1355.5		2						V
				HARV						1354		1357		1									IIIG
				DWIN						1401.5		1401.8		2									IIIG
				WEIS						1401.5		1402.0		2									IIIG
			DURN	1401.5		1401.7		3	1401.6		1401.7		1									IIIG	
			SGMR											1401.6			1402.3		3			IIIG	
			HARV						1401		1402		2									IIIG	
			WEIS						1438.8		1434.7		2									IIIG	
			WEIS						1438		1439.7		1									IIIG	
			SGMR											1439.3			1439.8		2			V	
			HARV						1439		1440		2									IIIGG	
			SGMR											1446.4			1446.6		1			III	
			SGMR											1529.8			1530.4		1			V	
			SGMR											1538.3			1549.1		1			I	

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

SEPTEMBER 1976

SEP 1976	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE					
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND								
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT						
03	2146	2400	WEIS				1543.7	1544.5	1							IIIG		
			WEIS				1545.7	1545.1	1								IIIG	
			WEIS				1547.5	1550	1								IIIG	
			SGMR									1835.8	1835.9	1			III	
			SGMR									1922.3	1923.1	1			V	
			HARV														IIIG	
			SGMR									2011.5	2011.7	1			V	
			HARV														IN	
			MANI															
			MANI															
04	0000	0540	MANI									0035.6	0036.7	1		III		
			MANI														III	
			MANI														III	
			MANI											0214.2	0249.4	1		IIIG
			MANI											0411.8	0412.0	1		III
			WEIS				0542	0657	1								IIIS	
			MANI															
			DURN			0716.1	0718.1	3	0716.1	0718.1	3							IIIGG,RS
			DURN			0727.3	0730	3	0727.3	0730	3							IIIG,RS
			DURN			0730	1057	2	0730	1057	2							IC,N
			DURN			0809.6	0809.7	2	0809.6	0809.7	2							IIIG
			DURN			0815.7	0816.5	3	0815.7	0816.5	3							IIIG
			WEIS						0930	1708	2							IIIS
			SGMR											1015.1	1532.0	1		CONT
			DURN			1035.0	1035.2	2	1035.0	1035.2	3							IIIG
			DURN			1041.3	1041.4	2	1041.3	1041.4	2							IIIG
			DURN			1046.8	1052.7	3	1047.7	1052.7	3							IIIGG,RS
			WEIS						1105	1145	2							CONT,P
			WEIS						1119.5	1125	2							IIIGG
			WEIS						1120.5	1127	2							IIIGG
HARV						1304	1440	1							IN			
SGMR											1329.6	1329.7	2		III			
SGMR											1619.8	1625.1	2		IIIG			
HARV						1619	1623	2							IIIGG			
HARV						1643	1709	1							IIIN			
SGMR											1752.0	1752.1	1		III			
SGMR											1929.5	1929.6	1		III			
HARV						2244	2245	1							IIIG			
MANI											2350.5	2351.2	1		III			
05	0000	1008	MANI															
			DURN															
			WEIS					0542.9	0543.2	2							IIIG	
			WEIS					0547	1608	1								IIIS
			WEIS					0753.8	0755.8	2								IIIGG
			DURN			1329.4	1329.6	3	1329.4	1329.6	3							IIIG
			WEIS						1329.5	1331.1	3							IIIGG
			SGMR										1329.6	1331.7	2		V	
			HARV						1329	1330	1		1329	1330	2		IIIG	
			WEIS						1405.6	1405.7	2							IIIB
			SGMR										1405.7	1405.8	1		III	
			HARV						1554	2117	1		1554	2117	1		IIIN	
			SGMR										1607.5	1607.6	1		III	
			HARV						1608		2		1608		2		IIIB	
			SGMR										1852.7	1854.7	2		V	
			HARV						1852	1855	3		1852	1855	3		IIIGG,V	
			SGMR										2030.8	2031.1	1		III	
			HARV						2030	2032	2		2030	2032	3		IIIG	
			MANI															
			06	0000	1008	MANI												
DURN	0520	0				1742	E	1	0520	D	1742	E	1				IC,DC,N	
WEIS								0712	0732.8	1							IN	
WEIS								0836.1	0837.2	1								IIIG
WEIS								0932.3	0932.4	1								IIIB
WEIS								1000.2	1001.4	2								IIIB
WEIS								1053.3	1410	2								IN,DC
WEIS								1059.1	1059.2	1								IIIB
HARV								1502	1800	1			1502	1800	1			IIIN

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

SEPTEMBER 1976

SEP 1976	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	1018	2304	WEIS SGMR HARV HARV SGMR HARV SGMR HARV				1650.7 1650 1715 1800 1918	1651.5 1653	2 3 2 3 3	1650.7 1650 1715 1800.3 1800 1918.1 1918	1651.7 1653 1800.5 1918.8	1 3 2 1 3 1 3	IIIG V IIIG IIIB III IIIB V IIIG,V	
	2146	2400	MANI											
07	0000	1005	MANI											
	0520	1742	DURN	0520	D	1742	E	2	0520	D	1742	E	2	IC,DC,N IN,DC IIIG IN IIIG IIIB III IIIG
	0522	1535	WEIS						0555	1624			2	
			WEIS						0854.7	0855.4			2	
	0900	1244	DWIN						0900	1244			1	
			WEIS						1128.6	1129.3			2	
			WEIS						1414.3	1414.4			1	
	1019	2303	SGMR								1414.4	1414.6	1	
1540	1718	WEIS												
1304	2245	HARV						1914	1915	2	1914	1915	2	
2146	2400	MANI												
08	0000	1005	MANI											
	0520	1740	DURN											
	0524	1715	WEIS											
	0810	1220	DWIN						0810	1220			1	IN
	1020	2301	SGMR											
	1304	2245	HARV											
	2146	2400	MANI											
09	0000	1005	MANI											
	1021	2259	SGMR											
	0525	1215	WEIS						1210.4	1210.5			2		UNCLF DCIM IIIG
	1304	2245	HARV											
	0521	1521	DURN						1430.9	1431.2			3	
	1220	1714	WEIS						1556.7	1559.8			1	
	2146	2400	MANI											
10	0000	1005	MANI											
	0539	1732	DURN	0539	D	1732	E		0539	D	1732	E		IN,N IS,C IIIB IIIB IIIB
	0819	1343	DWIN						0819	1343			1	
	1022	2258	SGMR											
	0526	1712	WEIS						1508.4	1508.5			1	
	1304	2245	HARV						1508		1508		1	
			HARV						1748		1748		2	
	2146	2400	MANI											
11	0000	1005	MANI											
	0523	1729	DURN	0523	D	1729	E	1	0523	D	1729	E	1	IC,DC,N IIIG I IN
	0528	0846	WEIS						0807.8	0808.8			1	
	1023	2256	SGMR											
	1304	2245	HARV						1304	1512			1	
			HARV						1512	1610			1	
2146	2400	MANI												
12	0000	1005	MANI											
	0523	1724	DURN											
	0544	0604	WEIS											
			WEIS						0813.9	0814			1	IIIG IIIB IIIB IIIB IIIB
	0630	1708	WEIS						0857.4	0857.6			1	
	1024	2254	SGMR											
			WEIS						1204.6	1204.8			1	
			WEIS						1304.3	1304.4			1	
1304	2245	HARV						1925		1925		2		
2146	2400	MANI												
13	0000	1003	MANI											
	0524	1724	DURN											
	0530	1350	WEIS											
	0752	1019	DWIN						0752	1019			1	IN,H

100
Sep 76

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

SEPTEMBER 1976

SEP 1976	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE	
	START UT	END UT		DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
				START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT		
30	1043	2222	SGMR								1443.2	1445.4	1	V
	1316	2245	HARV				1443	1445	1	1443	1445	1	IIIGG	
			SGMR							1604.4	1604.8	1	IIIG	
	2147	2400	HARV				1604	1605	2	1604	1605	2	IIIG	
MANI						1635		1	1635		1	IIIB		

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

<ul style="list-style-type: none"> b = Single burst G = Small group (< 10) of bursts GG = Large group (> 10) of bursts C = Underlying continuum (particularly with type I) S = Storm in the sense of intermittent but apparently connected activity N = Intermittent activity in this period U = U-shaped burst of Type III 	<ul style="list-style-type: none"> RS = Reverse slope burst DP = Drifting pairs DC = Drifting Chains H = Herringbone W = Weak P = Pulsations CONT = Continuum UNCLF = Unclassified activity
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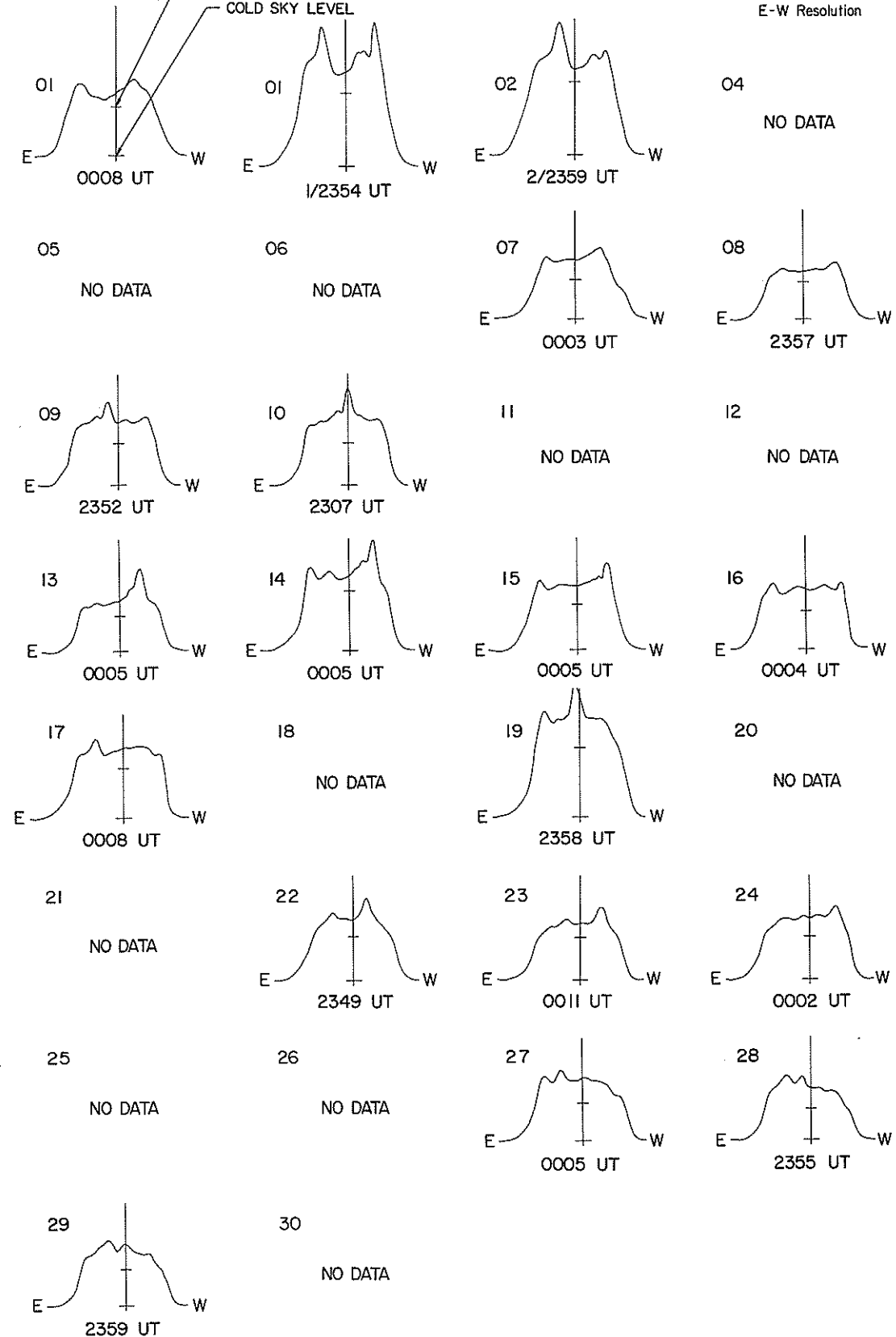
EAST-WEST SOLAR SCANS

SEPTEMBER 1976

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL
COLD SKY LEVEL

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



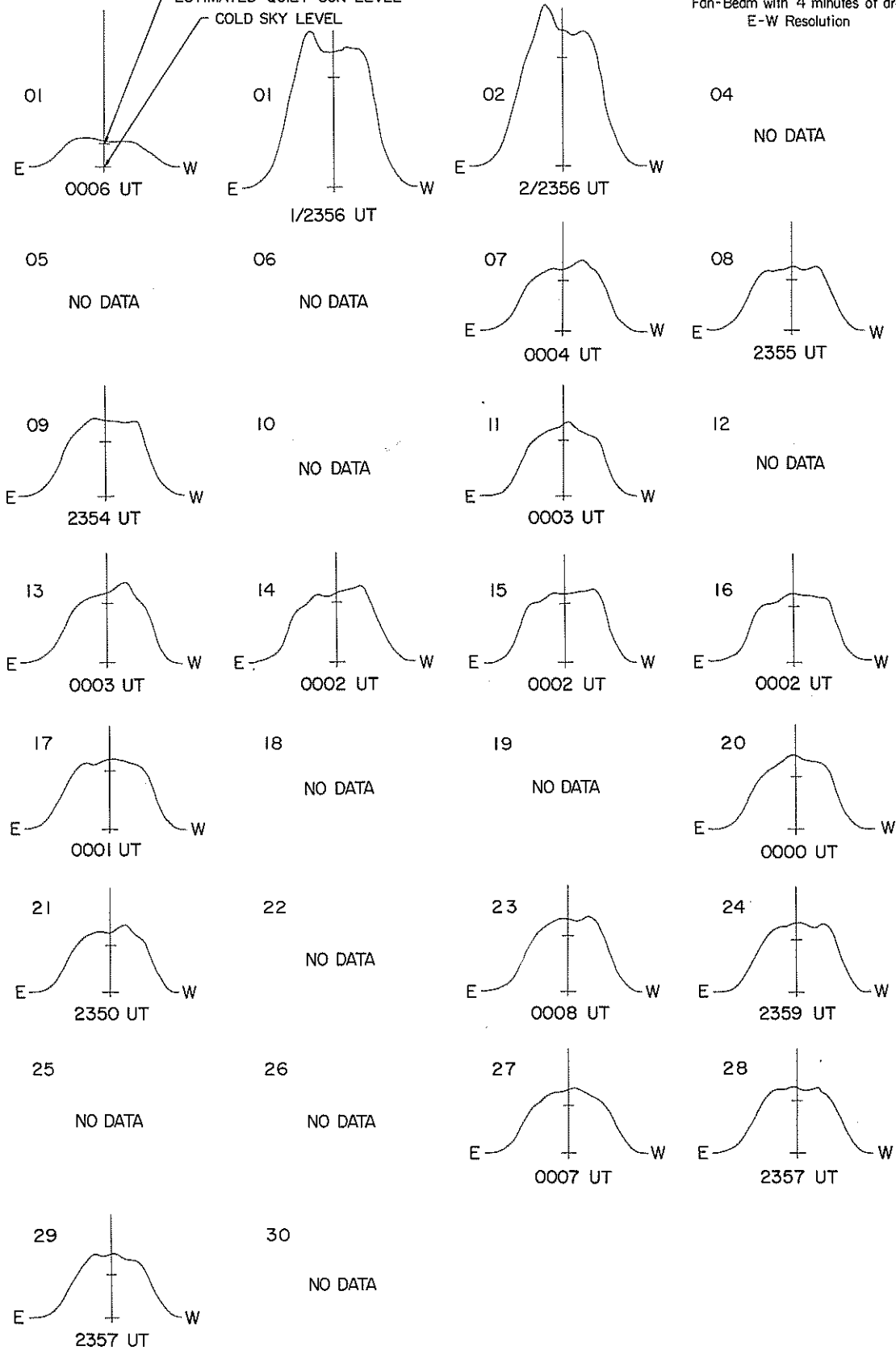
EAST-WEST SOLAR SCANS

SEPTEMBER 1976

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL
COLD SKY LEVEL

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



COSMIC RAY INDICES
(Neutron Monitors)
SEPTEMBER 1976

Sept 1976	THULE*	ALERT	DEEP RIVER	CALGARY	SULPHUR MT	KIEL	CLIMAX	TOKYO
	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr
1		7543.5	7096.5	11799.8	9138.7	6416.9	4285.2	3665.5
2		7531.0	7113.5	11740.1	9129.6	6426.4	4298.9	3671.5
3		7561.5	7116.8	11754.9	9164.7	6411.1	4295.7	3671.3
4		7561.4	7130.8	11808.5	9172.3	6417.6	4297.9	3679.0
5		7562.6	7151.4	11824.3	9203.4	6406.5	4317.0	3683.0
6		7558.0	7147.2	11790.7	9192.2	6390.4	4318.8	3681.7
7		7608.4	7150.4	11775.8	9128.0	6420.6	4332.4	3673.3
8		7625.6	7163.8	11833.3	9113.7	6450.4	4341.7	3675.4
9		7613.8	7142.8	11823.8	9109.1	6455.0	4321.7	3670.0
10		7617.3	7149.6	11827.3	9183.0	6442.2	4296.5	3661.1
11	no observations	7632.0	7184.8	11884.4	9231.9	6434.5	4320.2	3664.5
12		7593.3	7138.4	11812.1	9174.1	6404.4	4317.0	3663.6
13		7595.4	7101.0	11759.4	9170.2	6394.1	4287.1	3657.3
14		7606.4	7112.0	11801.8	9151.1	6415.0	4294.0	3664.6
15		7544.2	7069.3	11769.2	9107.2	6392.5	4277.2	3659.4
16		7555.5	7080.6	11788.1	9133.1	6378.6	4263.2	3658.1
17		7568.0	7090.2	11774.7	9133.0	6384.4	4272.4	3668.8
18		7547.0	7067.3	11737.4	9084.9	6356.4	4284.4(32)	3685.7
19		7495.1	7067.5	11750.6	9084.4	6330.5	4278.1(40)	3669.6
20		7435.3	7013.6	11622.8	8998.1	6304.1	4250.5	3640.7
21		7421.9	7040.6	11622.4	9001.1	6293.5	4235.9	3640.7
22		7413.7	7037.8	11627.4(23)	9012.9	6296.3	4235.8	3645.2
23		7411.0	7010.5	11614.0	8999.8	6313.1	4226.1	3656.3
24		7448.3	7032.5	11647.7	9032.4(21)	6318.2	4231.6	3660.0
25		7471.2	7053.0	11705.5	9068.7	6335.8	4250.8(18)	3666.3
26	7488.5	7059.9	11719.0	9080.2	6341.5	4263.5	3663.8	
27	7508.5	7075.0	11748.3	9105.1	6353.0	4270.2	3663.9	
28	7529.1	7095.5	11778.5	9135.3	6362.1	4281.1	3664.6	
29	7547.6	7112.8	11811.7	9148.4	6365.1	4281.6	3664.8	
30	7545.6	7108.5	11802.3	9130.8	6366.0	4273.2	3661.5	
MEAN		7538.0	7097.1	11758.5	9117.2	6379.2	4283.8	3665.0

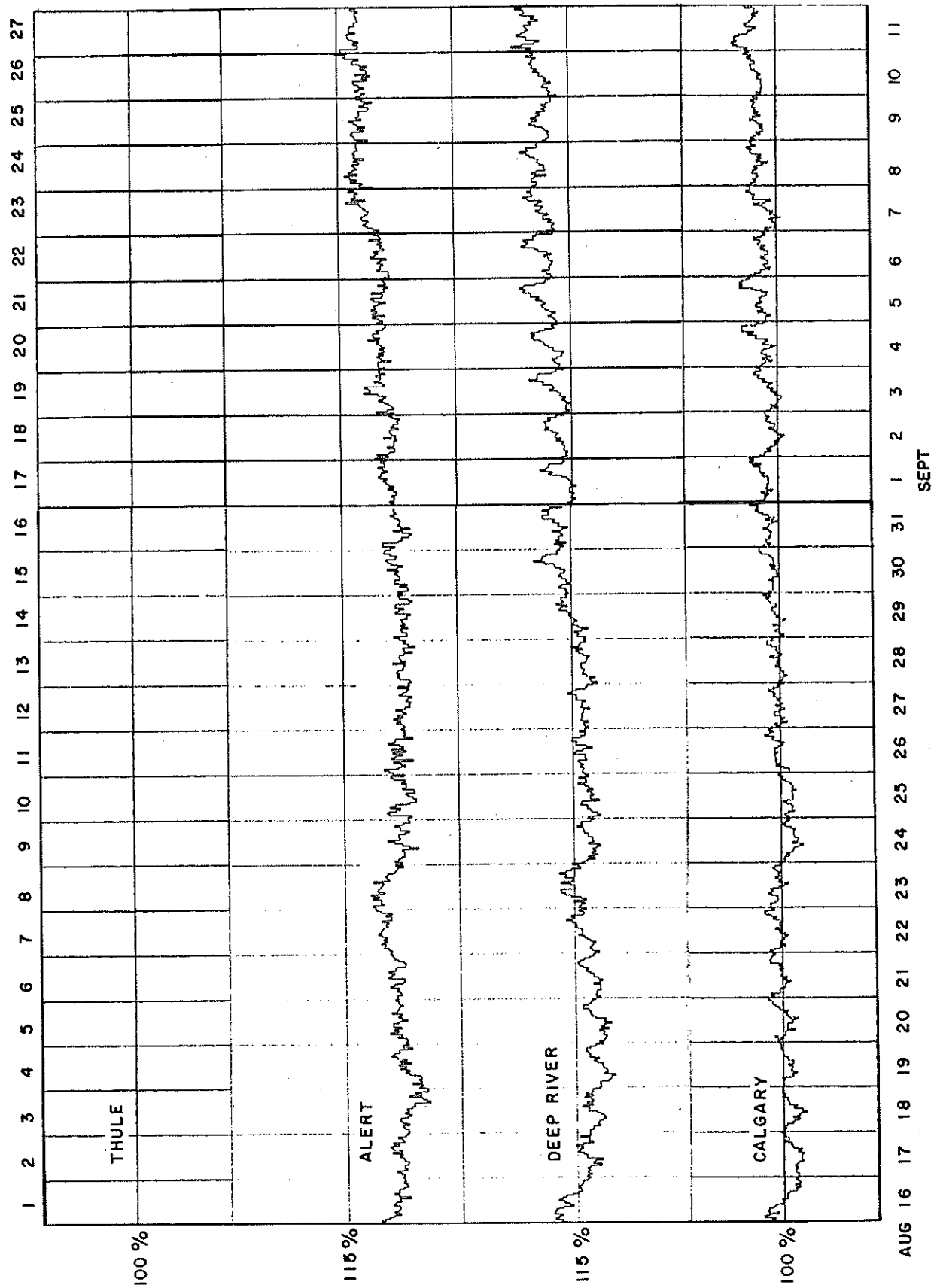
() Number of hours for which data are available if less than 24. Number of Section Hours at Climax if sum of both sections is less than 40 hours.

Thule, Alert, Calgary, Sulphur Mountain, Kiel and Climax Scaling Factors = 100.
Deep River Scaling Factor = 300.
Tokyo Scaling Factor = 128.

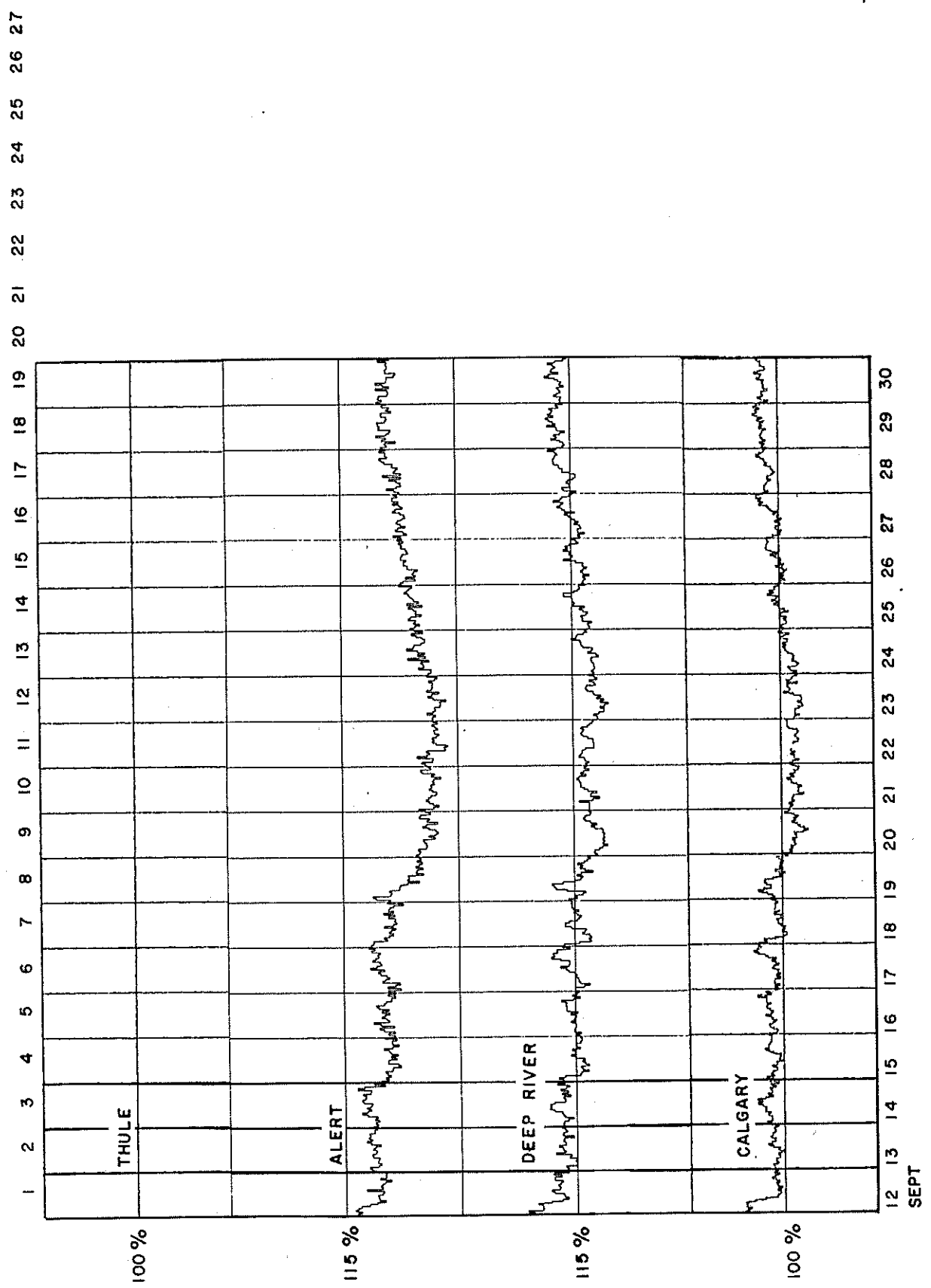
* Due to the closing of the Geopole Station the Thule neutron monitor operations were temporarily suspended at the end of May 1976. It is expected that observations will be resumed in the not too distant future.

COSMIC RAY INDICES (Neutron Monitors)

Bartels Rotation 1956 (August-September 1976)

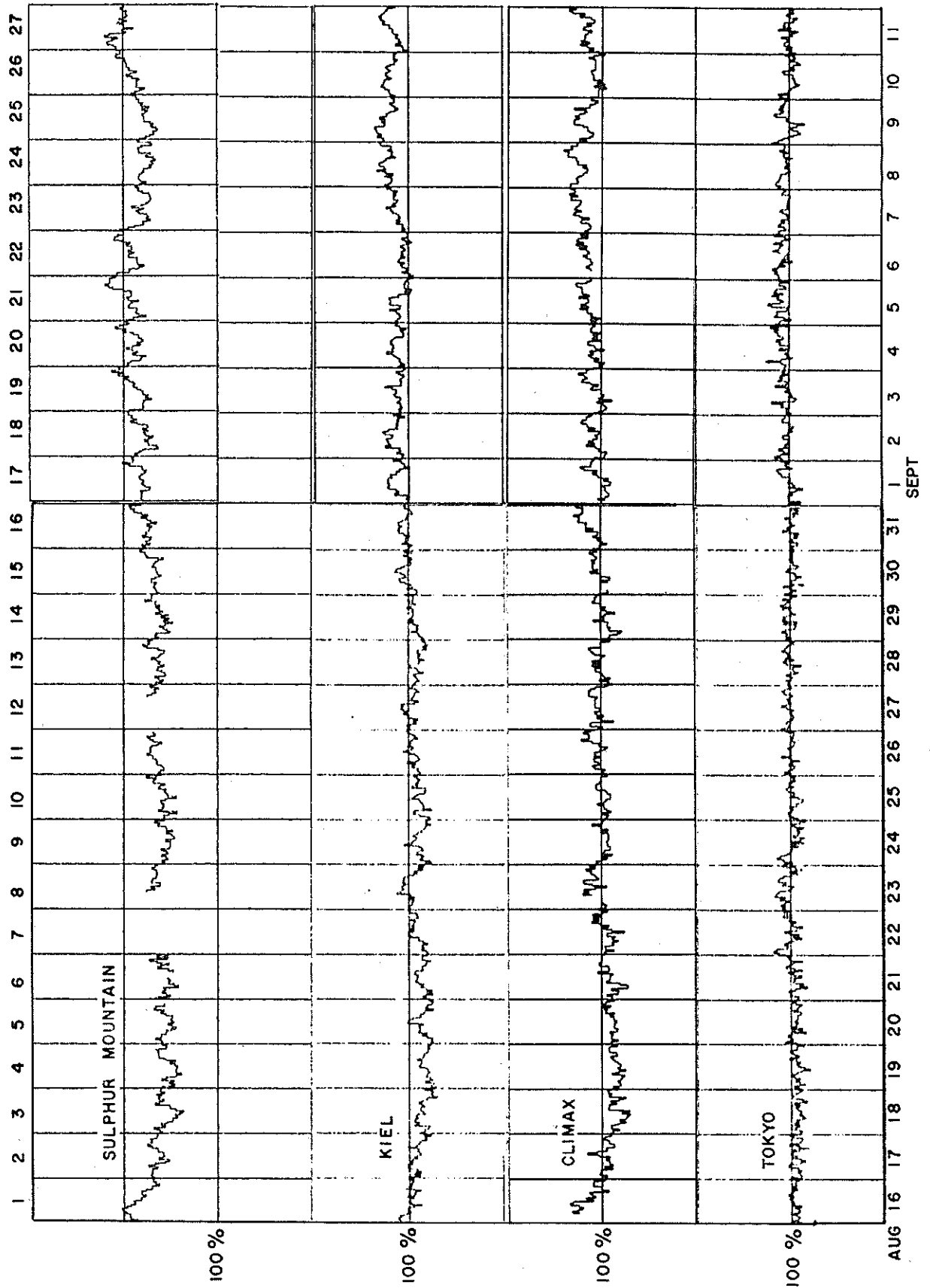


COSMIC RAY INDICES
(Neutron Monitors)
Bartels Rotation 1957 (September 1976)



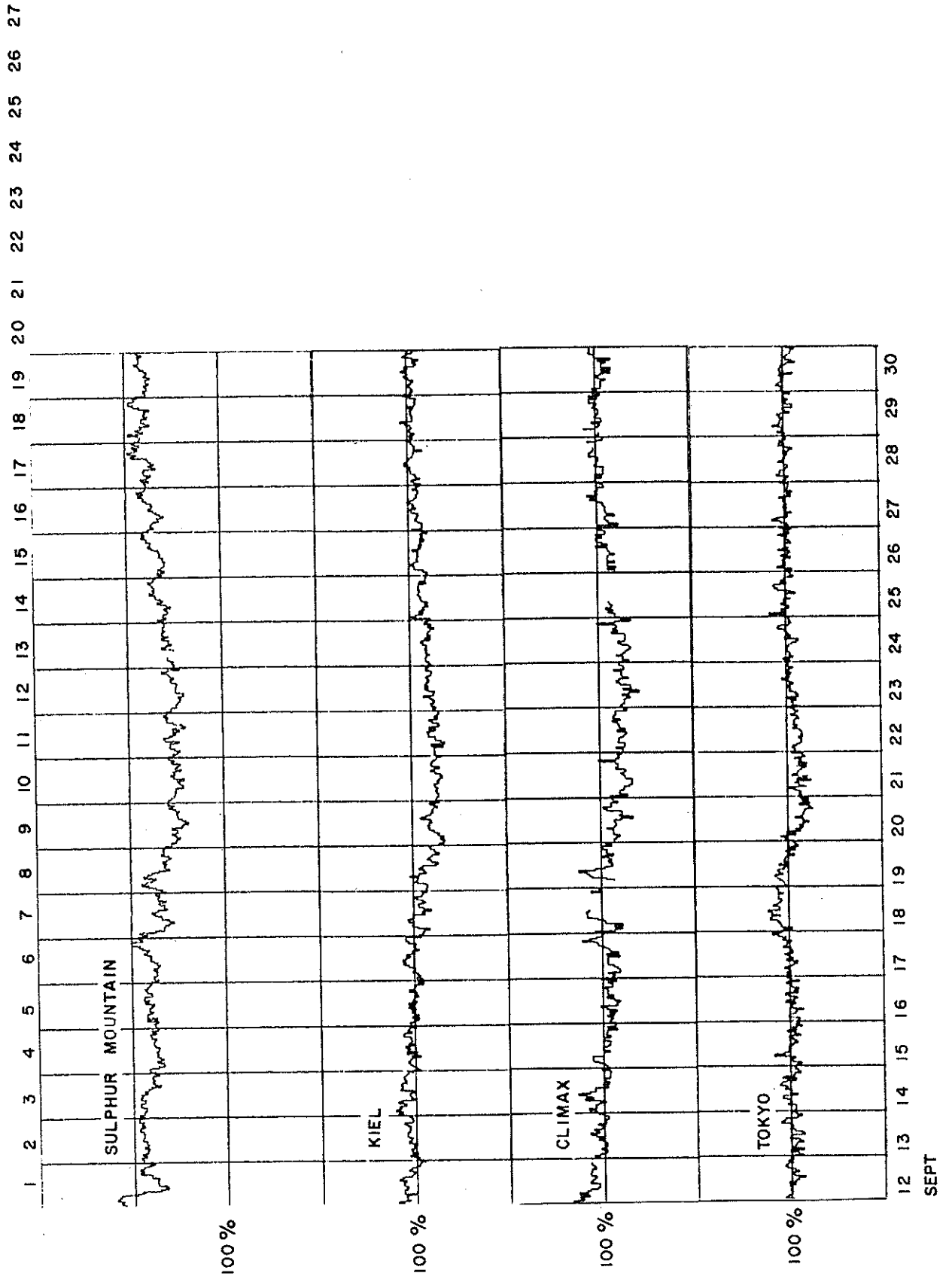
COSMIC RAY INDICES (Neutron Monitors)

Bartels Rotation 1956 (August-September 1976)



COSMIC RAY INDICES (Neutron Monitors)

Bartels Rotation 1957 (September 1976)



GEOMAGNETIC ACTIVITY INDICES

SEPTEMBER 1976

Day	Three-Hourly Indices Kp								Sum	Three-Hourly Indices Km								Ap	aa				Cp	
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		N	S	M			
1	3-	3-	2	1+	2	3	3-	2+	19-	2	2+	2	1+	2	3-	3-	2+	10	21	16	16	22	0.6	
2	D	3+	5-	5	4+	3+	3-	3-	2+	28+	3-	4+	5-	4-	4-	2+	3-	2	24	32	38	43	27	1.1
3		3-	3	2+	2+	1+	2	3-	3	19+	3-	3	3-	3-	2-	2-	3-	3-	10	23	23	24	22	0.6
4		3+	3+	3	2	3+	3	2-	3+	23	2+	3	3	2+	3+	3	1+	3	14	24	24	21	27	0.8
5		4	2+	2	2+	2-	2-	1	2	17	4-	2+	2-	3-	2+	2	1+	2-	9	22	21	27	17	0.5
6	Q	3	3-	2	2-	2-	2-	1	1-	14+	2+	2+	2-	2-	2-	2+	1+	1	7	18	11	17	12	0.4
7		3	3-	3-	2	2-	2-	1+	3	18	3-	2+	3-	2	2-	2-	1+	3-	10	18	18	19	18	0.5
8	Q	3-	2	1	3-	2	1+	2+	1-	15-	2+	2-	1-	2	2	2-	2+	0+	7	17	13	16	15	0.4
9	QQ	3-	2	1+	1+	2	1	1	0	11+	2	1+	1+	2	2-	1	1-	0	6	11	11	14	9	CK 0.2
10	QQ	2-	0+	1-	2-	1	2	1	2	11+	1+	1-	0+	1+	1	2-	2	2	5	12	11	9	15	CC 0.2
11	QQ	1-	2	1+	1-	1+	1-	1-	1+	9-	1-	2-	1+	1-	1+	1-	1	1	4	11	10	11	10	CK 0.1
12	Q	2-	3-	2+	2-	2-	3-	2	2-	16+	2-	2+	2+	2	2-	3-	2+	2-	8	19	17	18	20	0.4
13	QQ	2	2-	1+	1	0+	1-	1+	2	10+	2	2-	1+	1+	0+	1	1+	2-	5	13	7	10	11	C 0.2
14		2	2+	2-	3	3	3-	2-	2+	19-	2	2-	2	3	3	2+	2	2	10	21	17	18	21	0.6
15		1-	4-	3+	3-	2+	0+	1+	2	16+	0+	3+	3	3-	2+	1-	1+	2	10	17	19	24	13	0.5
16	Q	2+	2+	1	1+	2	2	2-	1	14-	2+	2	1+	2-	2-	2-	2-	1	6	16	9	12	13	CC 0.3
17		2	3-	2	2-	2-	1-	3-	4	17+	2+	2+	2	1+	2-	1	3-	4-	10	20	14	14	20	0.6
18	D	3-	5-	6	5+	5-	3-	1+	1+	29+	3-	5	5-	5+	4+	2+	1+	1+	33	36	52	59	30	1.3
19		1	2-	2	4+	4-	4	4+	4	25	1	2	2	4-	4-	4-	4-	4-	20	33	34	22	45	1.0
20	D	5+	6	5	5	5+	5	4	5	41-	4+	5	4+	4+	5-	4	4	4	51	62	61	61	62	1.6
21	D	4	4	3-	3+	4	5-	3+	4-	30-	3+	3	2+	3	4-	4	3+	3+	24	38	35	29	44	1.1
22		3	4-	3+	3	3	4-	3	3	26-	3-	3	3	3	3	3+	3-	3-	17	32	35	32	35	0.9
23		2-	2-	4	4-	3+	2	2+	1+	20	1	1+	4-	3+	3+	2+	2+	1+	12	22	24	25	21	0.7
24	Q	3	1+	1	2+	2-	1	1+	2-	13+	2+	1-	1	2+	1	1	1	2	7	14	11	16	10	K 0.3
25	D	4	3	4-	4-	3+	4	4	4+	30	4-	2+	3	3+	3+	4-	4-	4	24	43	37	34	46	1.1
26		5-	3-	2-	2	2+	2	3-	2+	20+	4+	2+	1+	2-	2	2+	3-	2+	13	29	20	25	24	0.7
27		3	3-	3-	3+	3-	3-	2	3-	22-	3	2+	2+	3+	3	2+	2-	2+	12	23	25	25	22	0.7
28	QQ	2	2+	1+	1-	0+	1-	2	2	11+	2-	2	1	1-	0+	1-	2	2+	5	15	8	12	12	C 0.2
29		1-	3	2	3-	3-	2+	3	2-	18	1	2+	2+	3-	3-	2	3-	2-	10	18	17	15	21	0.6
30		1+	2	1-	2-	2	2-	3+	4-	16+	1+	2	1-	2-	2	2	3+	3	9	21	13	10	25	0.5
																			13	23.4	21.8	22.7		0.62

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

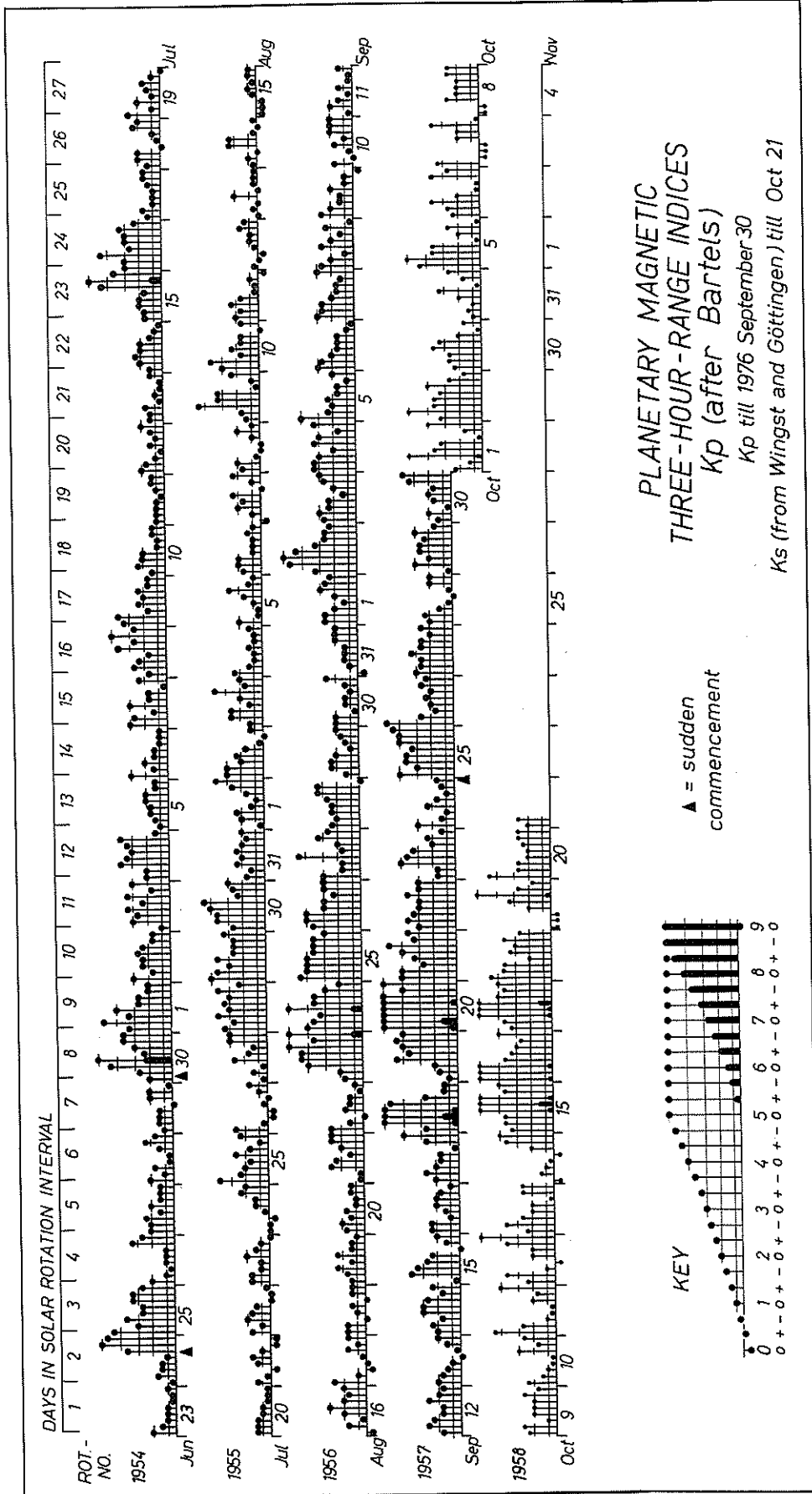
DAILY AVERAGE INDICES Ap

1976

1975

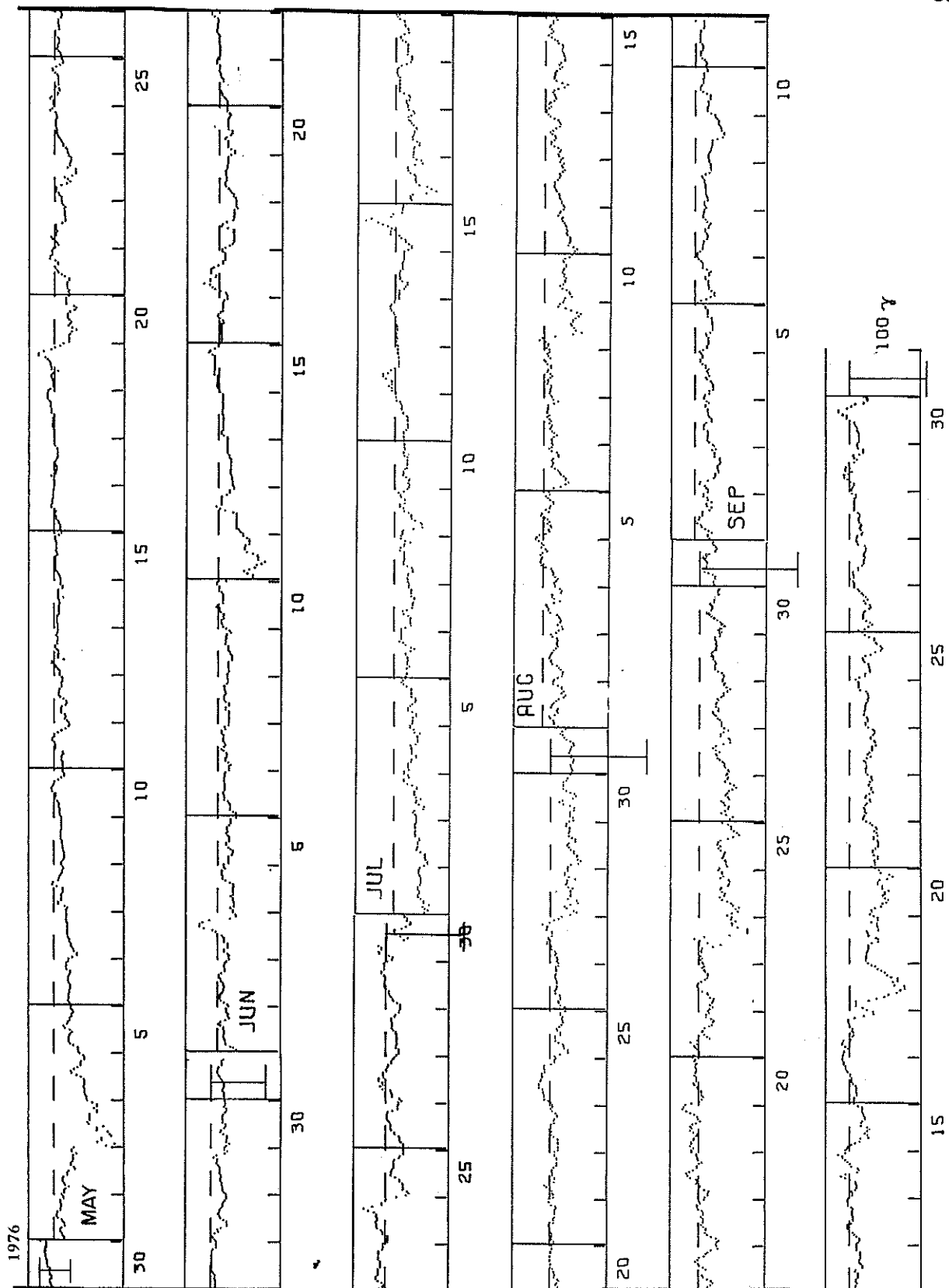
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6	7	32	4	23	17	107	10	6	18	8	10
2	2	36	27	4	20	32	16	58	6	9	8	24
3	11	65	12	15	16	27	44	94	12	12	10	10
4	9	41	13	10	12	12	30	20	20	14	5	14
5	6	22	8	9	8	15	27	14	20	6	6	9
6	25	11	7	13	8	33	30	8	7	6	5	7
7	38	10	4	11	21	26	27	10	13	9	5	10
8	45	7	18	5	29	42	14	10	8	13	4	7
9	37	37	16	4	24	36	16	4	4	10	12	6
10	24	20	8	47	24	32	12	6	6	6	9	5
11	8	13	5	40	12	27	12	11	26	4	5	4
12	12	9	3	13	17	26	9	7	7	5	3	8
13	7	4	3	9	22	11	13	6	4	4	3	5
14	9	3	6	11	17	14	15	4	3	6	4	10
15	5	4	9	7	8	15	4	5	4	19	2	10
16	10	6	14	10	6	18	8	5	5	16	6	6
17	8	17	9	14	14	20	5	4	14	5	5	10
18	4	7	6	9	22	13	2	3	21	6	4	33
19	3	8	6	8	25	11	5	12	4	6	6	20
20	5	9	3	11	19	8	2	19	5	4	5	51
21	6	18	9	20	14	5	5	11	3	3	8	24
22	6	50	10	23	14	3	19	11	3	4	5	17
23	7	8	7	20	4	5	8	14	4	5	30	12
24	4	13	2	21	3	4	16	6	16	4	25	7
25	4	15	18	10	4	4	9	9	18	9	24	24
26	5	14	34	5	9	138	6	6	7	4	18	13
27	5	5	31	6	26	35	11	5	6	8	13	12
28	9	9	15	5	20	15	10	14	5	16	10	5
29	12	29	15	6	34	15	17	22	5	18	6	10
30	9	36	11	9	9	12	10	17	29	19	6	9
31	19		7	29		10		9		7	5	
MEAN	12	18	12	13	16	22	17	14	10	9	9	13

GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst



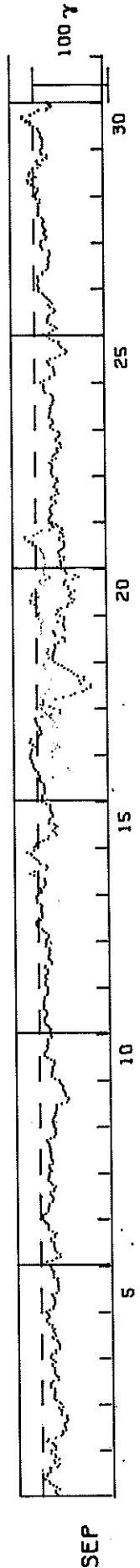
Note the sensitivity indicator for each month on the last day of the month and also note that the zero reference level is different for each month.

HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

SEPTEMBER 1976

NASA/GODDARD SPACE FLIGHT CENTER

DAY	(Time-UT)																								(Units-Gammas)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	-19	-17	-19	-23	-19	-14	-10	-8	-4	-1	-0	-8	-11	-12	-12	-21	-23	-16	-15	-23	-18	-16	-11	-13	
2	-19	-17	-15	-13	-5	-9	-19	-26	-28	-27	-31	-30	-29	-30	-33	-35	-32	-32	-25	-27	-25	-22	-28	-25	
3	-23	-19	-16	-18	-17	-13	-16	-16	-12	-12	-14	-16	-23	-21	-19	-17	-17	-16	-17	-14	-15	-19	-15	-12	
4	-12	-15	-20	-19	-25	-24	-22	-22	-20	-16	-14	-19	-17	-15	-19	-14	-15	-10	-7	-8	-11	-11	-8	-6	
5	-11	-16	-16	-19	-19	-17	-15	-15	-14	-21	-24	-24	-24	-22	-23	-21	-23	-16	-16	-16	-17	-14	-13	-11	
6	-4	-8	-16	-22	-26	-25	-21	-18	-18	-17	-18	-14	-13	-13	-19	-19	-22	-15	-10	-11	-10	-8	-5	-3	
7	-3	-5	-8	-11	-12	-11	-13	-13	-16	-18	-18	-13	-13	-13	-18	-20	-22	-16	-14	-11	-10	-13	-12	-14	
8	-16	-13	-14	-12	-17	-16	-15	-14	-15	-14	-13	-15	-13	-12	-12	-10	-9	-15	-20	-22	-20	-20	-21	-18	
9	-19	-17	-18	-18	-20	-22	-22	-23	-24	-23	-24	-30	-37	-39	-37	-34	-33	-32	-30	-31	-30	-28	-26	-25	
10	-20	-16	-16	-17	-19	-18	-19	-21	-21	-20	-15	-10	-7	-7	-10	-12	-12	-10	-13	-11	-13	-16	-16	-14	
11	-15	-17	-14	-12	-9	-7	-7	-9	-11	-12	-11	-9	-6	-8	-7	-6	-8	-9	-9	-12	-13	-13	-12	-11	
12	-9	-6	-10	-12	-9	-10	-13	-13	-11	-8	-10	-19	-19	-15	-13	-15	-16	-16	-15	-14	-10	-10	-11	-11	
13	-13	-15	-13	-10	-7	-5	0	2	1	1	-3	-6	-5	-5	-4	-4	-5	-7	-3	1	1	2	1	-2	
14	-5	-6	-3	-8	-11	-11	-9	-8	-1	5	10	3	-12	-14	-11	-3	-1	2	5	8	9	14	4	3	
15	1	0	-3	-8	-15	-16	-26	-23	-20	-24	-27	-23	-15	-17	-18	-21	-21	-18	-17	-16	-17	-16	-11	-6	
16	-7	-6	-8	-11	-11	-5	-9	-10	-8	-5	-3	-3	-3	-1	-1	2	4	5	4	7	6	9	7	8	
17	6	5	5	1	5	5	9	6	-3	-5	-7	-7	-4	-4	-1	0	1	2	2	-8	-20	-32	-31	-22	
18	-17	-9	-9	-10	-26	-36	-46	-51	-62	-66	-72	-70	-57	-55	-63	-61	-53	-48	-45	-41	-36	-33	-29	-24	
19	-21	-23	-22	-24	-24	-25	-28	-25	-24	-30	-38	-38	-34	-25	-23	-22	-39	-36	-35	-37	-28	-38	-37	-31	
20	-27	-30	-28	-33	-42	-44	-48	-51	-46	-43	-47	-47	-51	-42	-42	-36	-36	-40	-50	-57	-52	-40	-38	-34	
21	-28	-34	-33	-32	-37	-38	-34	-30	-32	-35	-38	-39	-39	-36	-32	-32	-38	-35	-32	-36	-34	-30	-27	-22	
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30	-14	-15	-13	-14	-13	-11	-10	-10	-8	-7	-6	-1	3	2	8	14	12	1	-3	-9	-20	-25	-22	-19	



PRINCIPAL MAGNETIC STORMS

SEPTEMBER 1976

OBS. 2 letter IAGA code	GEO MAG- NETIC LATI- TUDE	COMMENCEMENT			SC - AMPLITUDES			MAXIMUM 3 HOUR - INDEX K		RANGES			UT END	
		DAY	hr min (UT)	TYPE	D(°)	H(γ)	Z(γ)	DAY(3 HOUR PERIOD)	K	D(°)	H(γ)	Z(γ)	DAY	HOURL
HD	7.6N	1	0720	..	..	..	..	02(2)	5	6	74	30	02	23
NE	55.1N	1	19--	..	..	..	..	02(3)	7	55	125	166	05	18
TU	40.4N	1	19--	..	..	..	..	02(3)	6	13	90	20	02	17
BD	48.9N	2	0518	SC	+12	+82	-25	02(3)	6	28	118	51	02	17
GN	43.2S	2	04--	..	..	..	..	02(2,4)	5	14	70	70	13	12
HD	7.6N	14	0954	SC	- 0.1	+10	- 1	14(4,5,6,8)	3	5	60	34	15	15
AL	9.5N	16	17--	..	..	..	..	18(2,3)	5	7	160	40	18	19
AN	1.5N	16	17--	..	..	..	..	--	-	4	203	58	18	19
TV	1.1S	16	17--	..	..	..	..	--	-	2	255	109	18	19
HD	7.6N	17	1800	..	..	..	..	18(4)	6	5	158	20	18	21
CO	64.6N	17	21--	..	..	..	..	18(3)	7	159	1710	940	18	16
FR	49.6N	17	19--	..	..	..	..	18(2,3,4)	5	20	110	65	18	15
BD	48.9N	17	21--	..	..	..	..	18(4)	6	27	66	52	18	17
KG	56.5S	17	19--	..	..	..	..	18(2,4)	5	--	--	--	18	15
GU	4.0N	18	0352	..	..	..	..	18(4)	6	0	170	10	18	16
SI	60.0N	18	05--	..	..	..	..	18(4)	7	60	--	530	18	15
NE	55.1N	18	03--	..	..	..	..	18(4)	6	43	192	237	18	18
IR	41.0N	18	0300	..	..	..	..	18(4,5) 20(5)	6	24	156	49	21	21
HU	06.1S	18	0100	..	..	..	..	20(5,6)	5	6	208	35	20	24
HR	33.7S	18	03--	..	..	..	..	18(2,3,4)	5	19	93	68	18	16
GN	43.2S	18	04--	..	..	..	..	20(5)	6	24	130	120	23	16
TO	46.7S	18	03--	..	..	..	..	18(4)	6	19	180	80	18	16
AL	9.5N	19	08--	..	..	..	..	19(7) 20(2,5) 21(7)	5	5	87	36	21	21
HD	7.6N	19	0500	..	..	..	..	19(7) 20(5)	5	5	96	24	20	23
GU	4.0N	19	1008	..	..	..	..	20(5)	5	0	80	20	21	01
AN	1.5N	19	08--	..	..	..	..	--	-	4	102	66	21	21
CO	64.6N	19	09--	..	..	..	..	20(4,5)	7	262	1480	980	21	20
SI	60.0N	19	10--	..	..	..	..	20(5)	7	70	710	510	21	20
NE	55.1N	19	0857	..	..	..	..	20(2,3)	6	56	148	179	23	01
WI	54.2N	19	10--	..	..	..	..	20(6)	6	30	160	75	22	02
FR	49.6N	19	10--	..	..	..	..	20(2)	6	32	160	75	23	01
BD	48.9N	19	05--	..	..	..	..	20(2)	7	54	129	87	22	18
TU	40.4N	19	10--	..	..	..	..	20(2,3)	6	23	110	20	22	22
HR	33.7S	19	16--	..	..	..	..	20(2)	5	18	94	70	20	23
TO	46.7S	19	10--	..	..	..	..	20(4,5)	5	24	140	40	20	18
KG	56.5S	19	09--	..	..	..	..	20(5)	6	--	--	--	22	21
TV	1.1S	19	08--	..	..	..	..	--	-	3	133	73	21	21
HD	7.6N	24	2345	SC	- 0.1	+10	- 1	26(1)	5	6	112	38	26	04
CO	64.6N	24	2345	SC*	+ 7	-26	+ 9	25(3,4)	6	175	940	620	25	21
NE	55.1N	24	2345	SC*	1	13	..	25(4)	5	21	76	96	26	07
WI	54.2N	24	2346	SC	- 1	+19	0	25(7,8) 26(1)	5	27	170	60	26	03
HR	33.7S	24	23--	..	..	..	..	25(8) 26(1)	5	17	96	67	25	03
AL	9.5N	25	08--	..	..	..	..	25(5) 26(1)	5	6	93	43	27	03
AN	1.5N	25	08--	..	..	..	..	--	-	5	107	64	27	03
TV	1.1S	25	08--	..	..	..	..	--	-	4	144	67	27	03
HD	7.6N	28	2225	SC	- 0.1	+ 7	- 1	29(2,3,4,5,6,7)	3	5	59	31	29	23

Reports were received from the following observatories:

College Sitka Newport	Witteveen Fredericksburg Boulder	Tucson San Juan Honolulu Irkutsk	Alibag Hyderabad Guam	Annamalaingar Huancayo	Trivandrum Hermandus	Ghangara Toolangi Port-aux-Francais
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114
Sep 76

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

SEPTEMBER 1976

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

The meaning of the station symbols is given in the IAGA-Bulletins nr. 32. Times of ssc are mean values.

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

n o n e

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

n o n e

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

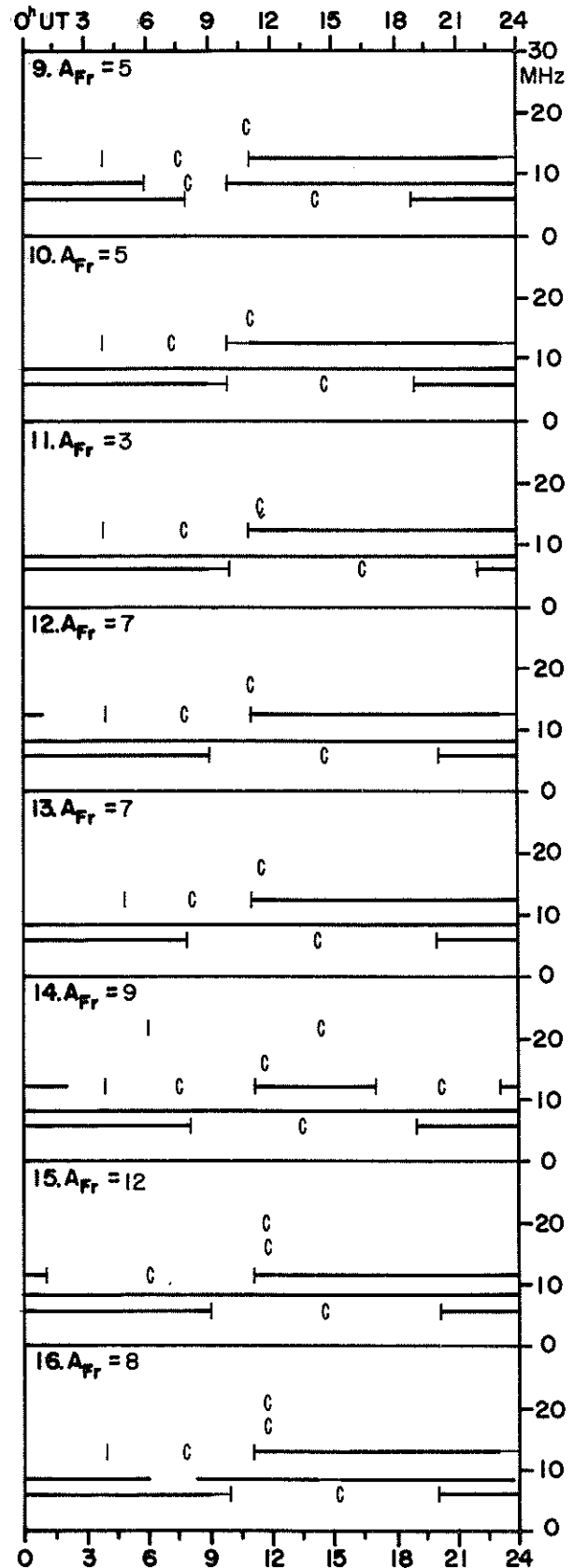
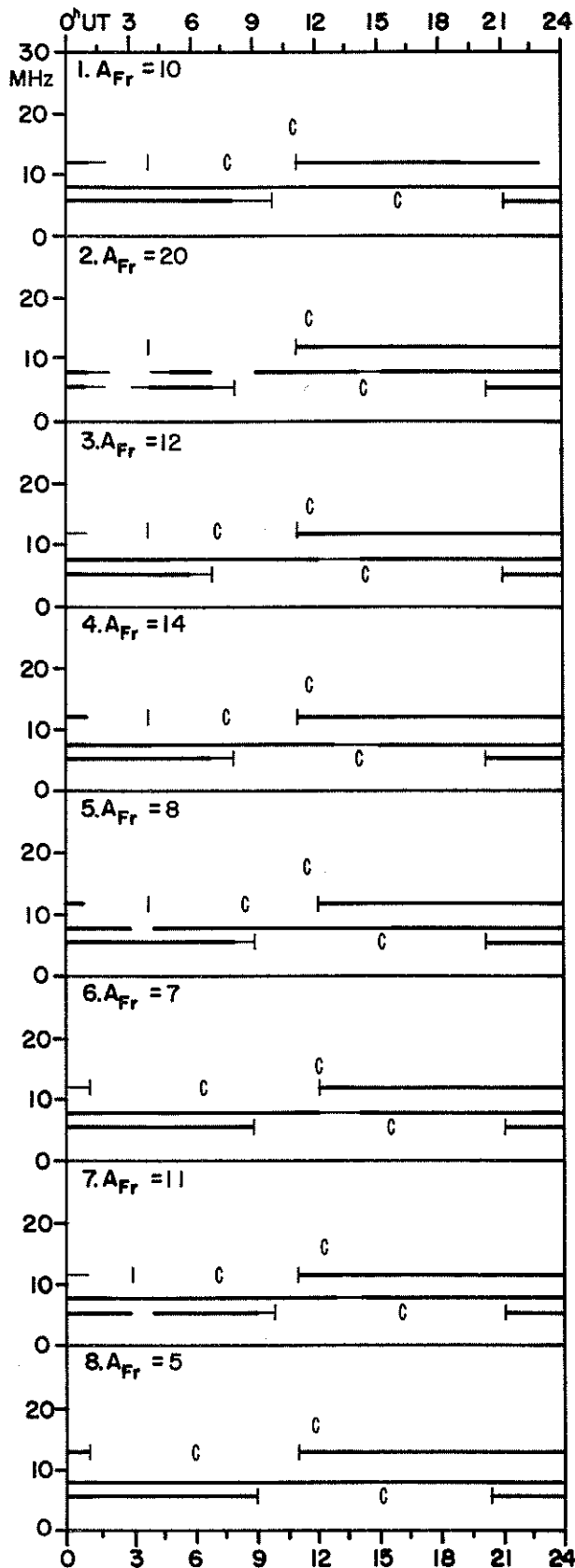
SEPTEMBER 1976

North Atlantic

SEP 1976	WHOLE DAY INDICES NORTH ATLANTIC	ADVANCE FORECASTS (JC- REPORTS) FOR WHOLE DAY	NORTH ATLANTIC								GEOMAGNETIC INDICES		
			6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF				K _{FR}		A _{FR}
			00 TO 06	06 TO 12	12 TO 18	18 TO 24	02	08	14	20	HALF DAY (1) (2)		OBSERVED
01	60	6	60	6-	6+	6-	6	6	6	6	2	2	10
02	5+	6	50	50	60	6-	6	5	5	5	(4)	3	20
03	5+	6	50	4+	6-	60	6	6	6	5	3	2	12
04	6-	6	5+	5+	7-	6+	5	5	5	5	3	2	14
05	6-	5	6-	5-	6+	60	5	5	5	5	3	2	8
06	5+	5	5+	50	6-	6-	5	5	6	6	3	1	7
07	6-	6	6-	50	7-	6+	5	5	6	6	3	2	11
08	6+	6	6-	60	70	6+	5	6	6	6	2	1	5
09	60	6	60	6-	7-	60	6	5	6	6	2	1	5
10	60	6	6-	6-	7-	7-	6	6	6	6	1	2	5
11	6+	6	6+	60	7-	6+	6	6	6	6	1		2
12	60	6	60	6+	60	60	6	6	6	6	2	1	7
13	60	6	6-	6-	7-	6+	6	6	6	6	2	1	7
14	6-	6	6-	5+	6+	60	6	6	6	6	2	3	9
15	6-	6	60	4+	60	6+	6	6	6	5	3	2	12
16	6-	6	50	50	7-	6-	5	5	5	6	2	2	8
17	60	6	60	6-	6+	6+	6	6	6	6	2	2	10
18	5+	6	60	5+	5-	5-	6	5	4	4	(4)	3	25
19	5+	5	5-	6-	6-	6-	5	5	6	5	2	(4)	16
20	5-	5	50	40	5-	5-	5	4	4	4	(5)	(4)	40
21	50	5	5-	40	5+	5+	4	4	5	5	3	3	17
22	5+	5	50	50	6-	6-	5	5	5	5	3	3	16
23	5+	5	50	50	6-	5+	5	5	5	5	3	2	13
24	5+	5	5-	4+	6-	60	5	5	6	6	2	1	6
25	5+	5	6-	50	60	50	6	6	5	5	(4)	3	19
26	5+	5	40	6-	6+	6-	5	5	6	6	2	2	8
27	50	5	50	4+	5+	60	6	6	6	6	3	2	12
28	60	5	6-	6-	6+	6+	6	6	6	6	2	1	5
29	60	5	60	50	6+	7-	6	5	6	5	2	2	9
30	6+	5	60	6-	7-	6+	6	6	6	6	2	2	9

TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

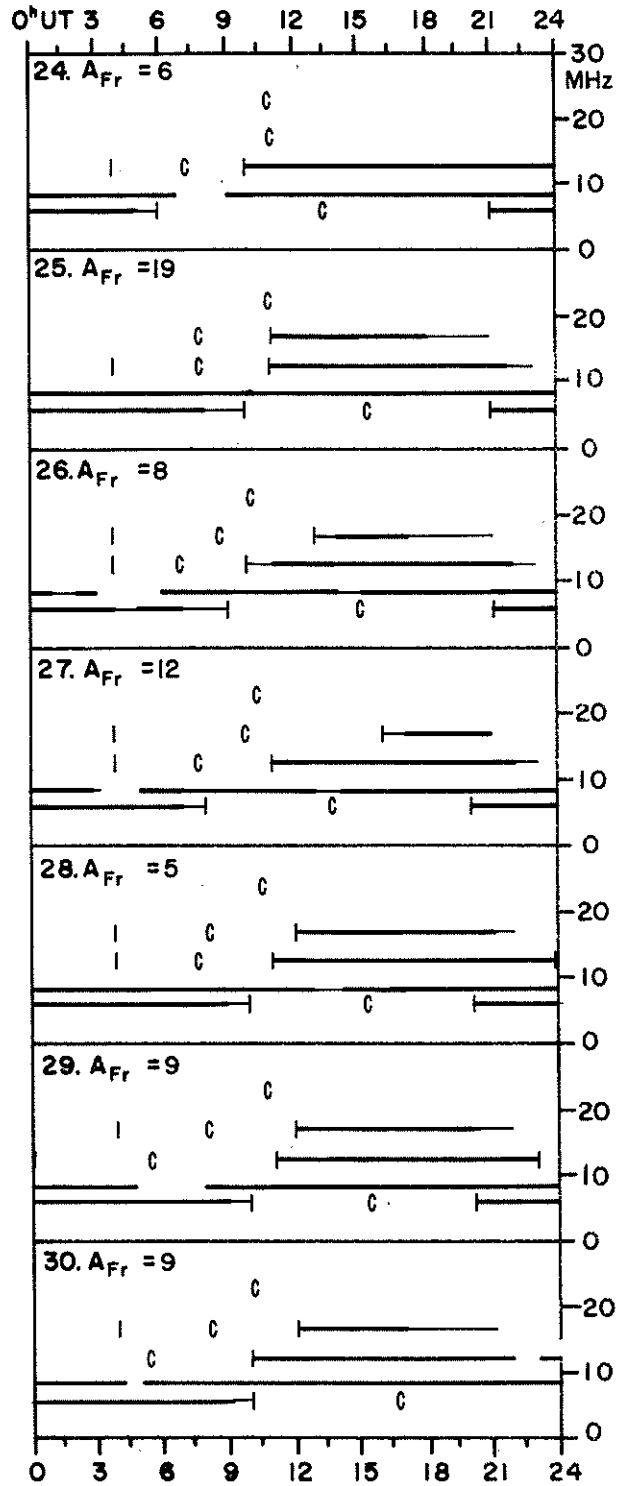
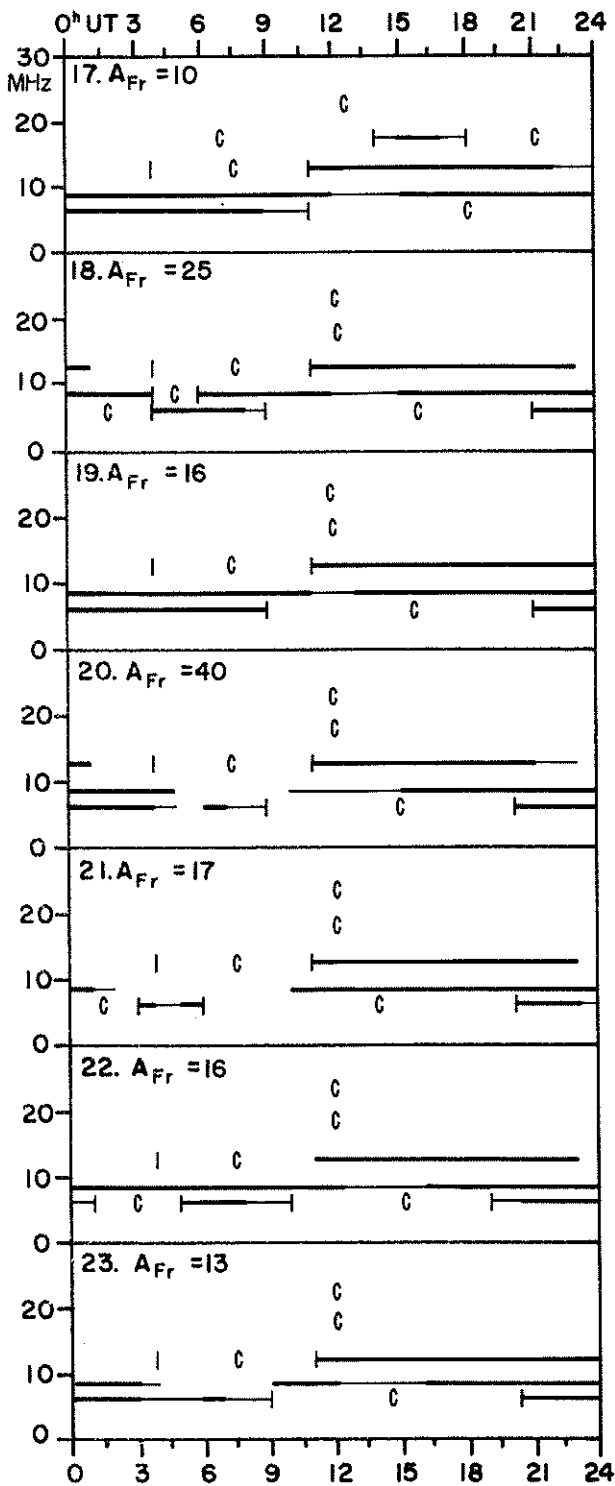
SEPTEMBER 1976



C = no value because of technical trouble or interference.

TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

SEPTEMBER 1976

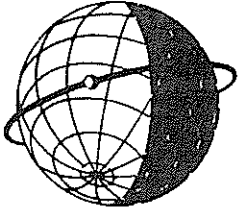


Field strengths from five frequencies, 6.425, 8.542, 12.813, 17.084 and 22.378 MHz, observed on a Lüchow - Halifax circuit are represented above. Heavy solid lines represent field strengths ≥ -12 dB above 1 μV/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μV/m and -40 dB above 1 μV/m are represented by the fine line.

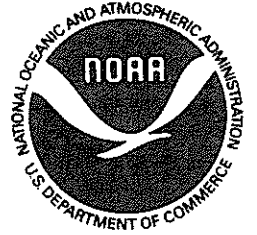
Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES
SEPTEMBER 1976

DATE	TOKYO	HALIFAX	MOSCOW	CANBERRA	BRACKNELL
1	5.6	6.6	12.2	4.2	13.0
2	5.0	6.5	12.5	4.1	12.2
3	5.7	7.0	12.3	4.5	12.7
4	5.4	7.3	12.4	4.6	12.7
5	6.5	7.3	12.6	4.2	12.7
6	5.9	7.3	12.8	4.1	13.0
7	6.0	8.3	13.3	3.6	13.7
8	6.3	7.7	12.8	3.9	12.7
9	5.7	7.6	12.8	4.0	12.2
10	6.3	7.4	13.0	4.4	12.6
11	6.0	7.7	13.0	4.4	13.2
12	6.1	7.8	12.8	4.7	12.9
13	6.9	8.0	12.6	4.3	12.7
14	6.4	8.2	13.0	4.4	13.2
15	5.6	6.9	12.7	4.7	12.8
16	7.1	7.3	12.8	5.1	13.3
17	7.3	7.8	12.6	4.7	13.0
18	6.7	6.9	13.1	5.3	12.7
19	6.9	7.1	13.8	5.5	13.6
20	4.2	5.5	12.7	3.9	12.4
21	4.8	7.2	12.7	3.6	13.3
22	4.5	6.9	11.8	3.5	13.0
23	4.9	6.8	11.6	3.3	13.2
24	5.2	7.2	11.7	4.0	12.8
25	4.6	6.9	12.1	3.6	13.2
26	4.5	6.7	11.8	3.7	12.3
27	4.3	7.4	13.3	3.5	12.5
28	5.9	9.6	13.4	3.7	13.2
29	6.0	9.4	13.1	3.7	13.5
30	6.5	8.3	13.2	4.6	13.4
MEAN	5.8	7.4	12.7	4.2	12.9



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."