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Solar - Geophysical Data

Part I (Prompt Reports)

NO. 462 FEBRUARY 1983

DATA FOR
JANUARY 1983
DECEMBER 1982

Michael A. Chinnery, Director
NATIONAL GEOPHYSICAL DATA CENTER
BOULDER, COLORADO

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4	Jan 59 - Dec 59	Microfilm	12	Oct 66 - Dec 66	Microfilm	20	Jan 71 - Jun 71	Microfilm
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SOLAR-GEOPHYSICAL DATA

No. 461

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

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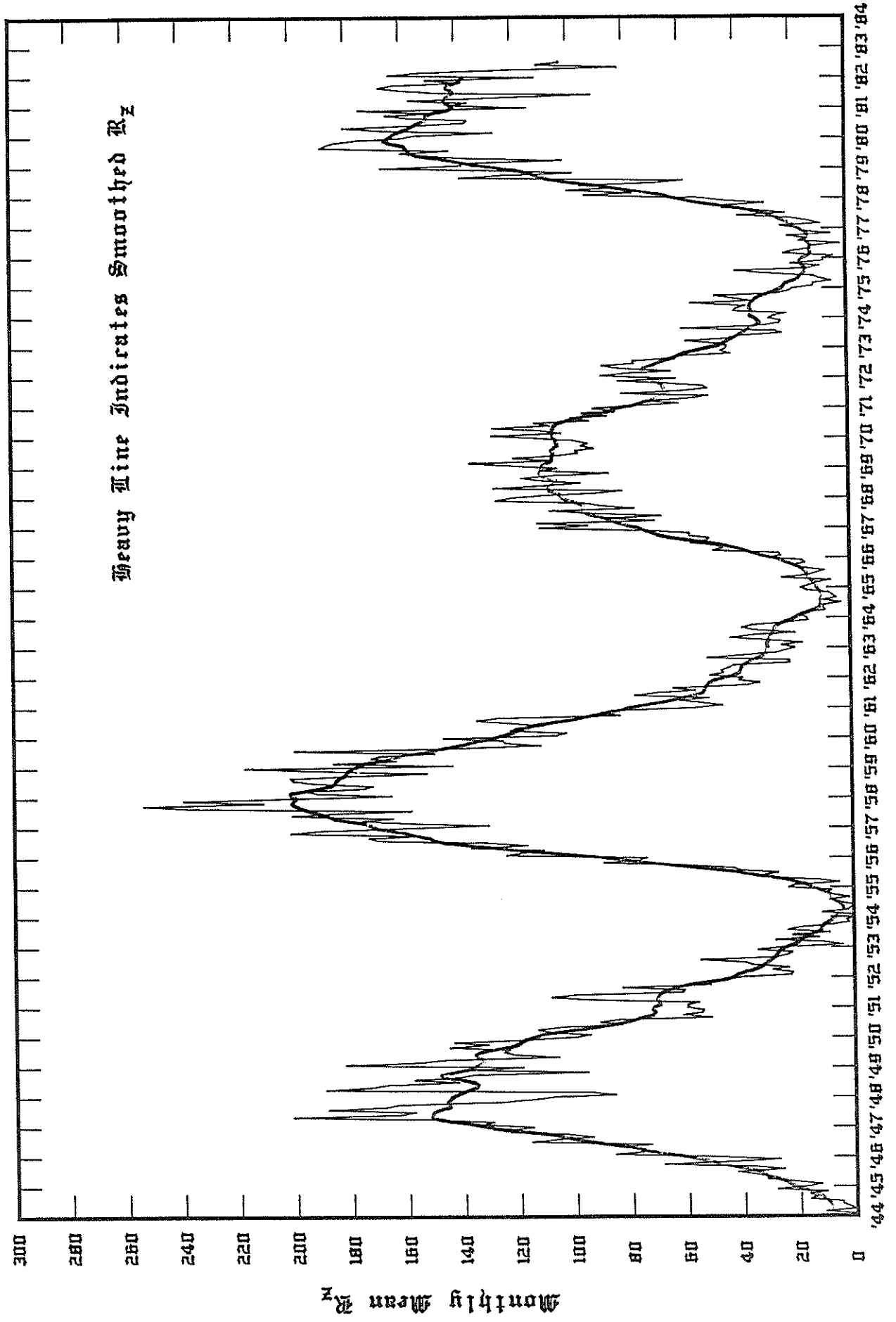
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ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
JANUARY 1983

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Jan 83

SUMMARY OF THE GEOALERT MESSAGES

NO	D1	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
001	01	31	103	139	009	S19W56	1	0	0		01	S19W56	Q	SOLNIL
						S13W56	6	0	0			S13W56	A	MAGQUIET
						S02W31	0	0	0			S02W31	Q	
						S17W26	0	0	0			S17W26	Q	
						N06E28	2	0	0			N06E28	Q	
002	02	01	121	136	011	S13W69	7	0	0		02	S13W69	E	SOLQUIET
						S27W40	1	0	0			S27W40	Q	MAGQUIET
						N08W01	0	0	0			N08W01	Q	
						N24E06	0	0	0			N24E06	Q	
						N07E17	0	0	0			N07E17	Q	
						S16E38	0	0	0			S16E38	Q	
						S15E55	0	0	0			S15E55	Q	
003	03	02	117	136	010	S13W83	1	1	0		03	S13W83	E	SOLQUIET
						S17W54	1	0	0			S17W54	Q	MAGQUIET
						N08W16	0	0	0			N08W16	Q	
						N23W07	0	0	0			N23W07	Q	
						N08E02	0	0	0			N08E02	Q	
						S15E24	0	0	0			S15E24	Q	
						S16E40	1	0	0			S16E40	Q	
						S18E81	0	0	0			S18E81	Q	
004	04	03	094	141	011	N08W32	0	0	0		04	N08W32	Q	SOLQUIET
						N23W20	0	0	0			N23W20	Q	MAGQUIET
						N08W10	0	0	0			N08W10	Q	
						S15E11	0	0	0			S15E11	Q	
						S07E65	1	0	0			S07E65	Q	
						S17E65	0	0	0			S17E65	Q	
005	05	04	088	143	013	N08W46	0	0	0		05	N08W46	Q	SOLQUIET
						N07W24	0	0	0			N07W24	Q	MAGQUIET
						S15W03	0	0	0			S15W03	Q	
						S08E09	0	0	0			S08E09	Q	
						S08E53	0	0	0			S08E53	Q	
						S15E57	2	0	0			S15E57	Q	
006	06	05	132	160	009	N06W39	0	0	0		06	N06W39	Q	SOLQUIET
						S15W17	1	0	0			S15W17	Q	MAGQUIET
						S08W05	0	0	0			S08W05	Q	
						S07E40	0	0	0			S07E40	Q	
						S14E44	1	0	0			S14E44	Q	
						N11E57	1	0	0			N11E57	Q	
						S07E61	0	0	0			S07E61	Q	
						S08E77	0	0	0			S08E77	Q	
007	07	06	179	170	005	N05W42	0	0	0		07	N05W42	Q	SOLQUIET
						S16W31	2	0	0			S16W31	Q	MAGQUIET
						S18W08	0	0	0			S18W08	Q	
						S12E13	0	0	0			S12E13	Q	
						S08E26	0	0	0			S08E26	Q	
						S16E26	0	0	0			S16E26	Q	
						S15E30	6	0	0			S15E30	Q	
						N10E40	1	0	0			N10E40	Q	
						S08E48	0	0	0			S08E48	Q	
						S09E65	1	0	0			S09E65	Q	
008	08	07	120	169	006	N24W72	0	0	0		08	N24W72	Q	SOLQUIET
						N06W64	1	0	0			N06W64	Q	MAGQUIET
						S16W44	6	0	0			S16W44	E	
						S18W21	0	0	0			S18W21	Q	
						S12W00	0	0	0			S12W00	Q	
						S08E12	0	0	0			S08E12	Q	
						S16E14	0	0	0			S16E14	Q	
						S14E18	2	0	0			S14E18	E	
						N10E31	3	0	0			N10E31	E	

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Jan 83

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
JANUARY 1983

SUMMARY OF THE GEOALERT MESSAGES

NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS	
009	09	08	177	165	007	S08E35	0	0	0			S08E35	Q		
						S08E51	0	0	0			S08E51	Q		
						N06W80	0	0	0			09	N06W80	Q	SOLQUIET
						S17W58	4	0	0				S17W58	E	MAGQUIET
						S17W39	0	0	0				S17W39	Q	
						S07W02	0	0	0				S07W02	Q	
						S17E02	0	0	0				S17E02	Q	
						S13E04	4	0	0				S13E04	Q	
						N23E15	0	0	0				N23E15	Q	
						N09E16	0	0	0				N09E16	Q	
						S07E18	0	0	0				S07E18	Q	
						S09E34	11	0	0				S09E34	Q	
N22E51	0	0	0				N22E51	Q							
010	10	09	159	155	015	N06W92	0	0	0			10	N06W92	Q	SOLQUIET
						S16W71	6	0	0				S16W71	E	MAGALERT 10
						S17W52	0	0	0				S17W52	Q	
						S07W14	0	0	0				S07W14	Q	
						S17W12	3	0	0				S17W12	Q	
						S12W10	1	0	0				S12W10	Q	
						N22E00	0	0	0				N22E00	Q	
						S07E05	0	0	0				S07E05	Q	
						S08E21	1	0	0				S08E21	E	
						011	11	10	146	149	060	S16W84	1	0	0	PRESTO STRONG MAGSTORM 15		11	S16W84	E	SOLQUIET
S07W29	0	0	0	SUBSIDING 10/1435Z A>=50									S07W29	Q	MAGNIL
S17W25	5	0	0	EXPECTED 10 JANUARY 1983									S17W25	E	
S13W22	1	0	0										S13W22	E	
N09W12	1	0	0										N09W12	Q	
S07W10	1	0	0										S07W10	Q	
S09E07	3	0	0										S09W07E		
012	12	11	109	144	012	S16W39	3	0	0	PRESTO 12/0040Z MAGSTORM		12	S16W39	E	SOLQUIET
						S13W35	1	0	0	11/2309Z			S13W35	Q	MAGALERT 12
						S06W23	0	0	0				S06W23	Q	
						S08W07	1	0	0				S08W07	E	
						N15E25	0	0	0				N15E25	Q	
						S17E65	1	0	0				S17E25	Q	
013	13	12	150	140	015	S16W51	5	0	0			13	S16W51	E	SOLQUIET
						S11W50	1	0	0				S11W50	Q	MAGNIL
						N17W40	0	0	0				N17W40	Q	
						S05W38	1	0	0				S05W38	Q	
						S08W25	0	0	0				S08W25	Q	
						S09W17	0	0	0				S09W17	Q	
						N15E11	0	0	0				N15E11	Q	
						S16E51	2	0	0				S16E51	E	
						N10E68	3	0	0				N10E68	Q	
						N05E75	0	0	0				N05E75	Q	
014	14	13	154	140	008	S11W66	1	0	0			14	S11W66	E	SOLQUIET
						S17W63	0	0	0				S17W63	E	MAGQUIET
						S05W52	0	0	0				S05W52	Q	
						S08W31	0	0	0				S08W31	Q	
						N14W04	0	0	0				N14W04	Q	
						S17E39	0	0	0				S17E39	E	
						N06E44	2	0	0				N06E44	Q	
						N10E53	0	0	0				N10E53	E	
						N04E64	0	0	0				N04E64	Q	
						N09E72	0	0	0				N09E72	Q	
S12E77	1	0	0				S12E77	Q							
015	15	14	145	142	007	S11W80	0	0	0			15	S11W80	E	SOLQUIET
						S16W75	0	0	0				S16W75	E	MAGQUIET
						S05W66	0	0	0				S05W66	Q	
						S08W43	0	0	0				S08W43	Q	
						N13W18	0	0	0				N13W18	Q	
						S17E25	0	0	0				S17E25	E	

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
SUMMARY OF THE GEOALERT MESSAGES
JANUARY 1983

NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
						N06E28	0	0	0			N06E28	E	
						N10E39	0	0	0			N10E39	Q	
						N04E50	1	0	0			N04E50	E	
						N08E58	0	0	0			N08E58	E	
						S13E65	1	0	0			S13E65	E	
016	16	15	148	146	017	S05W80	0	0	0		16	S05W80	Q	SOLQUIET
						S08W56	1	0	0			S08W56	E	MAGQUIET
						N15W28	0	0	0			N15W28	Q	
						S17E12	2	0	0			S17E12	Q	
						N05E15	0	0	0			N05E15	E	
						S23E17	0	0	0			S23E17	Q	
						N04E38	0	0	0			N04E38	E	
						N08E46	2	0	0			N08E46	E	
						S13E52	2	0	0			S13E52	E	
						N16E69	0	0	0			N16E69	Q	
017	17	16	134	145	020	S09W71	0	0	0		17	S09W71	Q	SOLQUIET
						S17E00	0	0	0			S17E00	Q	MAGQUIET
						N05E02	0	0	0			N05E02	Q	
						N05E24	2	0	0			N05E24	Q	
						N08E32	5	0	0			N08E32	E	
						S13E38	0	0	0			S13E38	E	
						N16E56	0	0	0			N16E56	Q	
						S13E77	0	0	0			S13E77	Q	
018	18	17	155	143	020	S08W85	0	0	0		18	S08W85	Q	SOLQUIET
						S17W13	0	0	0			S17W13	Q	MAGALERT
						N05W12	0	0	0			N05W12	Q	MINOR 18
						N09E06	0	0	0			N09E06	Q	
						N05E10	1	0	0			N05E10	Q	
						N08E19	8	0	0			N08E19	E	
						S13E24	2	0	0			S13E24	E	
						N16E43	2	0	0			N16E43	Q	
						S12E62	0	0	0			S12E62	Q	
019	19	18	140	139	020	N04W27	0	0	0		19	N04W27	Q	SOLQUIET
						S18W26	0	0	0			S18W26	Q	MAGNIL
						N03W03	4	0	0			N03W03	Q	
						N08E06	0	0	0			N08E06	E	
						S14E11	0	0	0			S14E11	E	
						N16E29	1	0	0			N16E29	Q	
						S11E49	0	0	0			S11E49	Q	
020	20	19	135	132	014	N05W40	0	0	0		20	N05W40	Q	SOLQUIET
						S18W40	0	0	0			S18W40	Q	MAGQUIET
						N03W16	0	0	0			N03W16	Q	
						N09W08	2	0	0			N09W08	E	
						S12W02	1	0	0			S12W02	E	
						N16E16	0	0	0			N16E16	Q	
						S11E35	0	0	0			S11E35	Q	
021	21	20	119	125	015	S18W53	0	0	0		21	S18W53	Q	SOLQUIET
						N06W52	0	0	0			N06W52	Q	MAGQUIET
						N04W30	0	0	0			N04W30	Q	
						N08W21	0	0	0			N08W21	Q	
						S13W15	0	0	0			S13W15	Q	
						N16E03	0	0	0			N16E03	Q	
						S12E21	0	0	0			S12E21	Q	
022	22	21	082	120	012	S18W66	0	0	0		22	S18W66	Q	SOLQUIET
						N04W44	1	0	0			N04W44	Q	MAGQUIET
						N08W34	0	0	0			N08W34	Q	
						S13W28	0	0	0			S13W28	Q	
						N16W10	0	0	0			N16W10	Q	
						S12E09	0	0	0			S12E09	Q	
023	23	22	100	117	009	S18W80	0	0	0		23	S18W80	Q	SOLQUIET
						N04W58	1	0	0			N04W58	Q	MAGQUIET

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Jan 83

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
SUMMARY OF THE GEOALERT MESSAGES
JANUARY 1983

NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
						N09W47	0	0	0			N09W47	Q	
						S12W42	1	0	0			S12W42	Q	
						N17W25	0	0	0			N17W25	Q	
						S11W11	0	0	0			S11W11	Q	
						S11W05	0	0	0			S11W05	Q	
						S12E54	0	0	0			S12E54	Q	
024	24	23	080	119	007	N03W71	0	0	0		24	N03W71	Q	SOLQUIET
						N09W61	0	0	0			N09W61	Q	MAGQUIET
						S13W55	1	0	0			S13W55	Q	
						N17W39	0	0	0			N17W39	Q	
						S13E40	0	0	0			S13E40	Q	
						N08E84	0	0	0			N08E84	Q	
025	25	24	103	118	016	N03W84	1	0	0		25	N03W84	Q	SOLQUIET
						N09W75	1	0	0			N09W75	Q	MAGQUIET
						S13W69	1	0	0			S13W69	Q	
						N17W52	0	0	0			N17W52	Q	
						S14W27	0	0	0			S14W27	Q	
						S11E22	0	0	0			S11E22	Q	
						S07E47	1	0	0			S07E47	Q	
						N07E69	4	0	0			N07E69	Q	
026	26	25	120	127	014	N09W90	0	0	0		26	N09W90	Q	SOLQUIET
						S13W86	0	0	0			S13W86	Q	MAGQUIET
						N18W67	0	0	0			N18W67	Q	
						S12E07	0	0	0			S12E07	Q	
						S08E30	2	0	0			S08E30	Q	
						N04E33	3	0	0			N04E33	Q	
						N07E57	3	0	0			N07E57	Q	
						S18E75	1	0	0			S18E75	Q	
027	27	26	120	148	014	N18W79	0	0	0		27	N18W79	Q	SOLQUIET
						S11W08	0	0	0			S11W08	Q	MAGQUIET
						S07E16	1	0	0			S07E16	Q	STRATWARM
						N05E20	5	0	0			N05E20	Q	
						N06E43	0	0	0			N06E43	Q	
						S16E63	5	0	0			S16E63	Q	
						S13E77	0	0	0			S13E77	Q	
028	28	27	100	138	009	N24W32	0	0	0		28	N24W32	Q	SOLQUIET
						S08E02	0	0	0			S08E02	Q	MAGQUIET
						N05E06	5	0	0			N05E06	Q	STRATWARM
						N06E30	0	0	0			N06E30	Q	
						S15E52	0	0	0			S15E52	Q	
						S12E65	5	1	0			S12E65	E	
029	29	28	131	145	009	N24W47	0	0	0		29	N24W47	Q	SOLQUIET
						S12W32	0	0	0			S12W32	Q	MAGQUIET
						S08W12	4	0	0			S08W12	Q	STRATWARM
						N05W08	5	0	0			N05W08	E	
						N05E16	0	0	0			N05E16	Q	
						S16E38	0	0	0			S16E38	Q	
						S13E51	4	0	0			S13E51	E	
030	30	29	171	154	014	S11W45	1	0	0		30	S11W45	Q	SOLQUIET
						S09W26	1	0	0			S09W26	E	MAGQUIET
						N05W20	7	0	0			N05W20	E	
						N09W02	0	0	0			N09W02	Q	
						N05E03	0	0	0			N05E03	Q	
						S17E26	0	0	0			S17E26	Q	
						S14E39	4	0	0			S14E39	E	
						S18E50	1	0	0			S18E50	Q	
031	31	30	163	160	016	S11W59	0	0	0		31	S11W59	Q	SOLQUIET
						S08W38	0	0	0			S08W38	Q	MAGQUIET
						N05W33	1	0	0			N05W33	E	
						N05W10	0	0	0			N05W10	Q	
						S17E14	0	0	0			S17E14	Q	

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
SUMMARY OF THE GEOALERT MESSAGES
JANUARY 1983

NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
						S13E26	1	0	0			S13E26	E	
						S18E36	1	0	0			S18E36	E	
032	01	31	182	162	017	S08W51	4	0	0		01	S08W51	Q	SOLQUIET
						N05W47	1	0	0			N05W47	E	MAGQUIET
						N05W24	1	0	0			N05W24	Q	STRATWARM
						S17W03	0	0	0			S17W03	Q	
						S14E11	3	0	0			S14E11	E	
						S18E23	11	0	0			S18E23	E	
						N21E54	0	0	0			N21E54	Q	
						S15E71	0	0	0			S15E71	Q	

NO=MESSAGE SERIAL NUMBER, DI=DATE OF ISSUE, DO=DATE OF OBSERVATION, WOLF=WOLF NUMBER, 10CM=10CM SOLAR FLUX, A=A INDEX, LOC=LOCATION LAT-LONG, TOT=TOTAL, M=NUMBER OF M FLARES, X=NUMBER OF X FLARES, DA= DATE OF FORECAST, DE=DESCRIPTION, Q=QUIET, E=ERUPTIVE, A= ACTIVE, P=PROTON.

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)
JANUARY 1983

10 JANUARY 1983 KAKIOKA 10/0630Z MAGSTORM 09/1545Z
10 JANUARY 1983 BOULDER 10/1445Z STRONG MAGSTORM IS SUBSIDING 10/1435Z A>=50 EXPECTED 10 JANUARY
12 JANUARY 1983 KAKIOKA 12/0043Z MAGSTORM 11/2309Z

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
STRATWARM MESSAGES
JANUARY 1983

26 JANUARY STRATWARM ALERT /THURSDAY/ STRATWARM EXISTS. STRONG INCREASE IN STRATOSPHERIC TEMPERATURE 25-60 KM OVER SIBERIA. ANTICYCLONE INTENSIFYING OVER ALEUTIAN REGION AT 10 MB.
27 JANUARY STRATWARM ALERT /FRIDAY/ STRATWARM EXISTS. FURTHER INCREASE IN WARMING OVER ALASKA TO SIBERIA SLOPING WESTWARD WITH THE HEIGHT 25-60 KM ALEUTIAN ANTICYCLONE ALSO INTENSIFYING AT 10 MB AT -8 DEGREES C.
28 JANUARY STRATWARM ALERT /SATURDAY/ STRATWARM EXISTS. CONTINUED WARMING OVER ALASKA TO SIBERIA 20-60 KM SPREADING NORTHWARD.
31 JANUARY STRATWARM ALERT /TUESDAY/ STRATWARM EXISTS. TEMPERATURE GRADIENT OVER POLAR REGION REVERSED ABOVE 30 KM. STRONG ALEUTIAN ANTICYCLONE SLOPING NW WITH HEIGHT TEMPERATURES MODERATE AT STRATOSPHERIC LEVELS. LARGEST CHANGE IN LAST THREE DAYS INVOLVES MOVEMENT OF COLD POLAR LOW FROM EURASIAN ARTIC TO OVER GREENLAND.

RELATIVE SUNSPOT NUMBERS
INTERNATIONAL, R_I

DAY	1982 FINAL					PROVISIONAL				1983 PROVISIONAL		
	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
1	258	168	145	63	70	50	55	115	132	80	88	68
2	241	174	115	57	83	41	68	124	164	88	133	77
3	232	175	151	46	94	33	68	146	143	75	124	55
4	221	177	137	58	104	42	81	176	120	100	137	63
5	219	163	112	63	111	39	97	160	109	100	137	82
6	230	165	117	64	108	32	128	141	55	76	174	110
7	226	146	130	69	115	33	144	117	54	106	175	109
8	232	140	131	89	127	42	150	115	55	82	184	126
9	211	116	132	47	142	61	161	94	54	124	152	100
10	181	122	138	53	147	110	155	81	88	109	166	83
11	158	119	152	58	138	146	157	86	87	112	171	90
12	156	135	142	75	144	187	138	78	92	83	194	77
13	162	155	133	78	139	219	113	81	98	98	172	94
14	142	153	136	58	137	222	100	104	88	116	160	92
15	134	140	127	52	125	246	100	129	71	116	166	92
16	111	156	122	69	128	263	86	133	65	100	130	89
17	120	180	108	76	136	272	93	127	54	108	112	102
18	103	168	91	89	134	270	105	107	39	117	102	86
19	107	167	87	110	134	234	97	117	56	122	79	93
20	119	160	93	112	139	192	77	104	70	118	63	81
21	120	153	91	98	143	138	79	102	91	131	98	74
22	100	146	109	121	146	99	90	95	100	141	88	73
23	97	144	138	107	116	74	71	97	128	120	96	64
24	120	122	145	110	112	27	79	109	145	96	100	58
25	128	152	149	88	92	25	101	118	134	75	112	75
26	136	147	150	117	94	29	98	138	135	73	116	77
27	154	182	126	130	49	22	115	133	131	71	126	70
28	163	179	90	119	36	19	132	132	103	74	108	89
29		169	85	112	32	23	134	144	94	71	98	99
30		162	79	77	38	38	144	160	96	72	94	101
31		132		82		60	120		73		62	110
MEAN	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.3	98.5	126.4	85.8

1981 Yearly Mean = 140.4
Zurich R_Z sunspot number replaced by international R_I sunspot number beginning with January 1981 data.
Errata to SGO, 456 Part I, page 8, August issue: mean R_I should be 102.6 and not 026.

DAILY SOLAR FLUX AT 2800 MHZ
OTTAWA ARO
FLUX ADJUSTED TO 1 A.U., S_a

DAY	1982										1983	
	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
1	284.8*	231.3	172.2*	151.7	134.2	106.5	123.4	184.3*	205.2	159.6	167.8	131.4
2	279.7*	228.3	172.0*	147.4	135.1	106.9	138.2*	168.7*	209.4	154.5	166.3	131.4
3	272.9*	230.1	169.9	147.7	141.5	109.4	153.5*	171.0*	197.0	147.4	181.6	136.2
4	252.8*	238.3*	158.2	144.7	158.2*	111.5	167.3	188.1*	182.3	143.4	194.5	138.2
5	245.2	245.4*	159.9*	148.7	156.6*	114.1	180.9	179.4	163.9	136.4	195.9*	154.6
6	245.2	230.0*	165.2	153.0	149.6*	121.3	201.2	172.1	151.9	142.1	210.4	161.6*
7	239.9	228.3	164.0*	151.0	158.6*	128.2*	219.6	176.8	140.2	142.3	244.3	163.3
8	245.1*	207.1*	162.1*	150.8	167.3	150.3*	217.5*	178.5	136.9	144.8	241.7*	155.9*
9	231.7	192.2	167.3*	139.8	177.4	176.6*	212.5	179.2	137.4	147.5	258.6	150.0
10	213.7	178.9*	177.1*	130.7	196.0*	203.5*	209.5	165.6	134.8	152.9	273.5*	144.2
11	211.1*	178.2	178.7*	132.3	224.2	226.4*	205.0*	158.3	137.3	154.1	259.3*	139.3
12	204.0*	181.2	177.5*	132.3	238.3*	239.7*	195.2*	152.5*	136.4	164.9	251.1	135.7
13	194.9*	185.5	170.9	129.8	240.2	252.6*	182.9*	151.3	143.9	161.2	239.0	135.1
14	185.3	201.3	157.9	132.2	240.8	269.2*	176.8	147.4	140.4	159.5	235.6	137.2
15	180.3	207.6*	152.2	132.1	235.8	274.0	173.0	149.0*	134.1	157.0*	221.9	141.0
16	170.5	227.7	148.2	139.0	210.6*	269.4*	161.4	147.3	129.8	163.3	213.2*	140.2
17	162.5	230.4	145.9*	142.2*	206.0*	273.3	165.1	147.0*	130.1	158.0	200.5*	138.0
18	165.7	226.8	147.0	146.8	200.7*	247.2*	166.4*	143.2	132.8	170.2*	186.5	134.8
19	170.9*	219.7*	145.1	155.9	207.5	234.7	159.2	142.6*	136.7	182.3	176.8*	127.4
20	171.3	217.0	144.2	155.6*	207.1	196.5	144.7	146.9	146.2	189.2	159.2	120.5
21	165.2	212.4	145.2	165.4*	210.7	173.7*	138.6	145.4	161.4	200.9	149.4	116.1
22	163.7	213.7	156.9*	158.8	197.2*	149.5*	138.8	146.2	168.2	231.1*	150.1*	113.5
23	173.1	202.4	175.2	155.7*	187.3	128.5	141.2	152.6*	177.3	196.1	157.0*	115.4
24	185.9*	189.0	181.0	144.8*	168.2	117.8	142.9	165.4*	190.9	172.9	176.8*	114.1
25	184.1	189.9	182.6*	145.7	159.1*	108.2	158.5	170.3	196.8	164.8	170.6	122.7
26	204.0	192.8*	178.3	158.0	142.3	102.1	166.4	187.3	193.5	168.8*	168.7	132.6
27	222.1	195.4*	167.3	171.5*	127.6	97.8	180.4	191.4	187.7	158.6	166.2	133.6
28	224.0	200.6	161.0*	171.3*	123.1	96.4	181.4	196.9	181.4	160.3*	157.0	140.6
29		198.0	155.6	170.9*	111.7	97.5	183.4	204.6	170.9	161.4	147.3	148.9
30		194.5*	149.8*	142.8	108.5	112.4	174.5	202.4	166.7	164.8	142.5	154.8
31		184.1		136.7		114.4	175.0*		165.1		134.4	161.9
MEAN	208.9	208.3	162.9	147.9	177.4	164.8	172.1	167.1	160.9	163.7	193.2	137.7

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

JANUARY 1983

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U.									
			R _I	R _A		AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2895	AFGL 1415	AFGL 606	AFGL 410	AFGL 245	
1	201	8	68	59	135.9	565	278	151	131.4	126	118	88	35	15	
2	202	9	77	52	135.9	572	286	159	131.4	127	122	91	37	11	
3	203	10	55	59	140.8	579	301	161	136.2	123	126	95	40	16	
4	204	11	63	61	142.9	571	301	160	138.2	136	136	97	37	12	
5	205	12	82	80	159.9	578	298	173	154.6	150	136	101	45	24	
6	206	13	110	101	167.1*	419	284	172	161.6*	161	143	89	31	20	
7	207	14	109	108	168.9				163.3						
8	208	15	126	105	161.2*	582	295	176	155.9*	152	163	101	38	19	
9	209	16	100	91	155.1		308	170	150.0	131	137	102	38		
10	210	17	83	105	149.1				144.2						
11	211	18	90	75	144.1	540	268	158	139.3	136	133	96	32	15	
12	212	19	77	75	140.3	582	281	160	135.7	127	140	81	35	11	
13	213	20	94	86	139.7	574	300	162	135.1	130	126	83	34	15	
14	214	21	92	94	141.9	591	296	164	137.2	140	128	82	37	13	
15	215	22	92	86	145.8	565	293	167	141.0	145	132	79	33	12	
16	216	23	89	96	144.8	557	269	143	140.2	152	110	75	37	12	
17	217	24	102	99	142.6	583	266	145	138.0	143	111	83	32	12	
18	218	25	86	93	139.3	571	274	145	134.8	137	111	95	39	12	
19	219	26	93	87	131.6	573	268	134	127.4	121	104	100	39	13	
20	220	27	81	78	124.5	582	272	135	120.5	119	107	100	40	13	
21	221	1	74	66	119.9	584	269	142	116.1	112	109	86	33	14	
22	222	2	73	62	117.1	575	257	141	113.5	112	103	71	37	20	
23	223	3	64	53	119.1	502	258	142	115.4	112	104	73	33	19	
24	224	4	58	53	117.7	541	270	139	114.1	112	97				
25	225	5	75	77	126.6	567	280	149	122.7	118	104				
26	226	6	77	62	136.8	580	290	159	132.6	132	113				
27	227	7	70	75	137.7	566	291	154	133.6	128	116				
28	228	8	89	86	144.9	558	281	153	140.6	134	120				
29	229	9	99	96	153.5	564	296	163	148.9	143	116				
30	230	10	101	103	159.6	573	287	173	154.8	138	129				
31	231	11	110	120	166.7	555	298	179	161.9	153	132				
MEAN			85.8	82.0	142.3	562	283	156	137.7	133	122	89	36	15	

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

Date	SUNSPOT NUMBERS						2800 MHz FLUX Adjusted to 1 AU	
	Rz or R _I		Ra		Rs		Sa	
	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Feb 80	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153	136.0	144	144.1	151	190.8	197
Aug	135.4	150	133.0	144	121.9	150	170.3	196
Sep	155.0	150	150.0	146	138.8	152	185.9	198
Oct	164.7	150	160.8	149	157.1	154	202.9	200
Nov	147.9	148	149.9	149	168.5	153	213.4	199
Dec	174.4	143	167.5	145	174.3	150	218.8	196
Jan 81	114.0	140	115.4	144	120.5	149	169.0	195
Feb	141.3	142	143.7	146	153.5	152	199.5	198
Mar	135.5	143	149.2	149	157.5	156	203.2	202
Apr	156.4	143	169.2	149	180.7	158	224.7	204
May	127.5	143	141.3	149	152.8	159	198.9	204
Jun	90.9	142	99.0	147	112.9	158	161.9	203
Jul	143.8	140	154.3	146	152.1	157	198.2	203
Aug	158.7	141	170.4	147	182.1	158	226.0	203
Sep	167.3	143	174.5	148	177.7	158	221.9	204
Oct	162.4	142	157.0	146	178.6	156	222.8	202
Nov	137.5	139	138.8	142	157.6	151	203.3	197
Dec	150.1	138	145.0	140	155.5	149	201.4	195
Jan 82	111.2	137	110.4	139	124.2	148	173.4	195
Feb	163.6	133	161.0	134	163.6	144	208.9	191
Mar	153.8	129	155.5	130	163.0	139	208.3	186
Apr	122.0	124*	121.9	124	113.9	134	162.9	182
May	82.2	119*	82.6	120	97.7	129	147.9	177
Jun	110.4	117*	113.5	118	129.6	127	177.4	175
Jul	106.1	115*	113.3	113	116.0	125	164.8	174
Aug	107.6	109(+ 4)*	110.5	107	123.9	118	172.1	---
Sep	118.8	103(+ 6)*	117.8	101	118.5	111	167.1	---
Oct	94.3 [†]	96(+ 6)*	90.1	95	111.8	103	160.9	---
Nov	98.5 [†]	92(+ 7)*	93.2	90	114.8	98	163.7	---
Dec	126.4 [†]	88(+ 9)*	145.0	86	146.7	94	193.2	---
Jan 83	85.8 [†]	83(+10)*	---	82	86.7	89	137.7	---
Feb	---	80(+11)*	---	79	---	86	---	---
Mar	---	79(+12)*	---	77	---	84	---	---
Apr	---	77(+13)*	---	75	---	82	---	---
May	---	74(+15)*	---	73	---	78	---	---
Jun	---	71(+17)*	---	70	---	75	---	---
Jul	---	69(+19)*	---	68	---	74	---	---

*An asterisk denotes either a value of the observed 12-month running mean or a predicted 12-month average that is based on preliminary observations of the international relative sunspot number (R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

[†]R_I replaces R_z as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS FOR CYCLE 21

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	138
1982	137	133	129	124	119	117	115	109 (4)	103 (6)	96 (6)	92 (7)	88 (9)
1983	83 (10)	80 (11)	79 (12)	77 (13)	74 (15)	71 (17)	69 (19)	68 (21)	67 (22)	67 (23)	68 (24)	67 (24)
1984	65 (25)	62 (25)	58 (26)	54 (27)	52 (28)	51 (29)	50 (30)	48 (30)	46 (30)	44 (29)	42 (28)	40 (27)
1985	38 (27)	38 (26)	37 (26)	37 (25)	36 (25)	33 (24)	32 (23)	31 (22)	31 (22)	30 (23)	29 (23)	28 (24)
1986	28 (24)	27 (24)	25 (24)	24 (23)	22 (22)	20 (22)	18 (21)	16 (20)	16 (18)	16 (17)	15 (16)	15 (14)
1987	15 (12)	15 (12)	16 (12)	17 (13)	18 (14)	19 (14)	21 (15)					

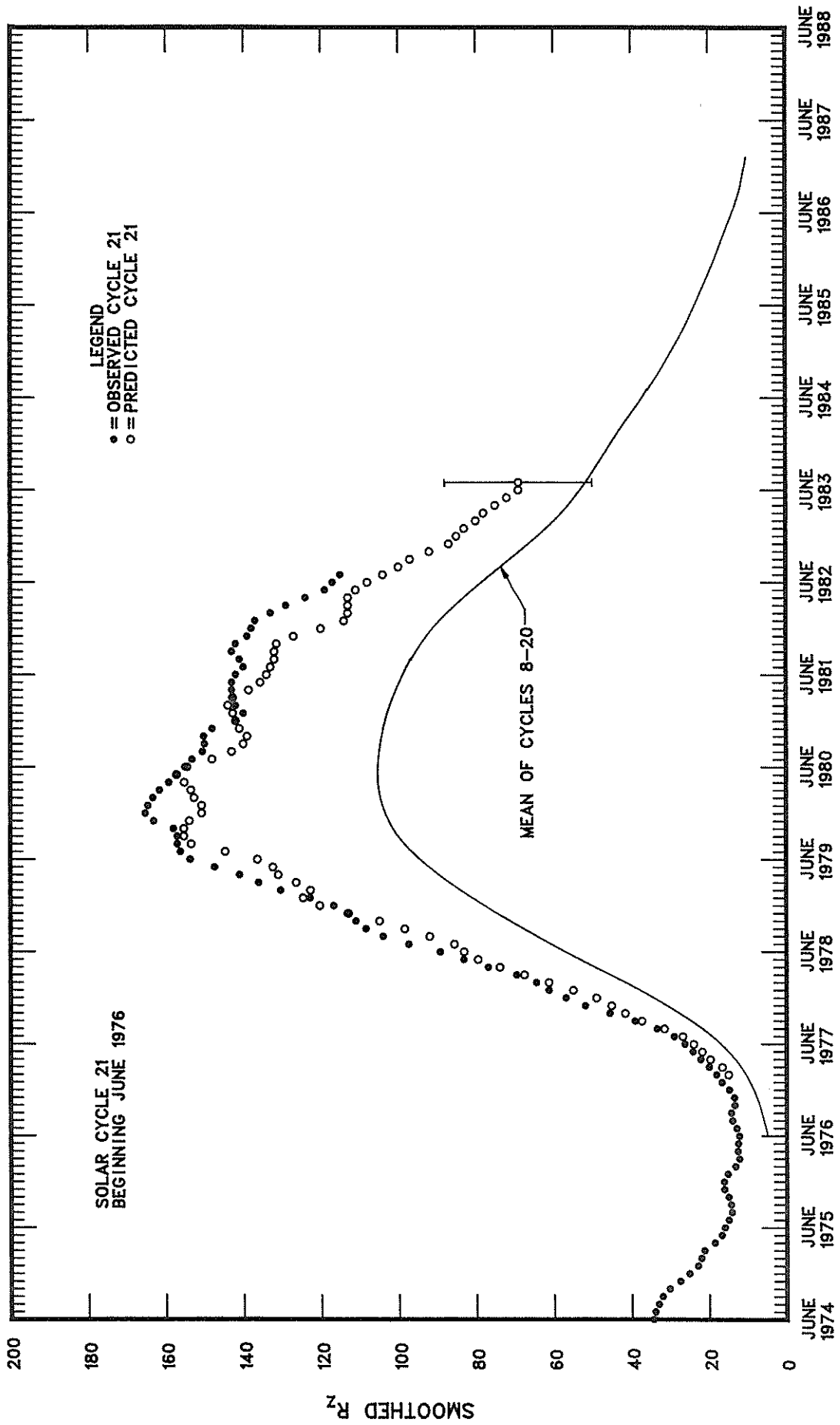
For the current solar cycle, this table gives observed smoothed sunspot numbers up to the one calculated from the most recently measured monthly mean. These smoothed observed values are based on final monthly mean Zurich numbers through 1980, on final international numbers through September 1982, and on provisional monthly mean international numbers thereafter. Some table entries after the June 1976 number will change slightly, when we incorporate final data for 1982.

The entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 10 in the February 1982 edition of the "Solar-Geophysical Data" supplement.) By adding to and subtracting from each prediction the number in parentheses, one generates the 90% confidence interval. Consider, for example, the July 1983 prediction tabulated above. There exists a 90% chance that in July 1983 the actual smoothed sunspot number will fall somewhere between 50 and 88.

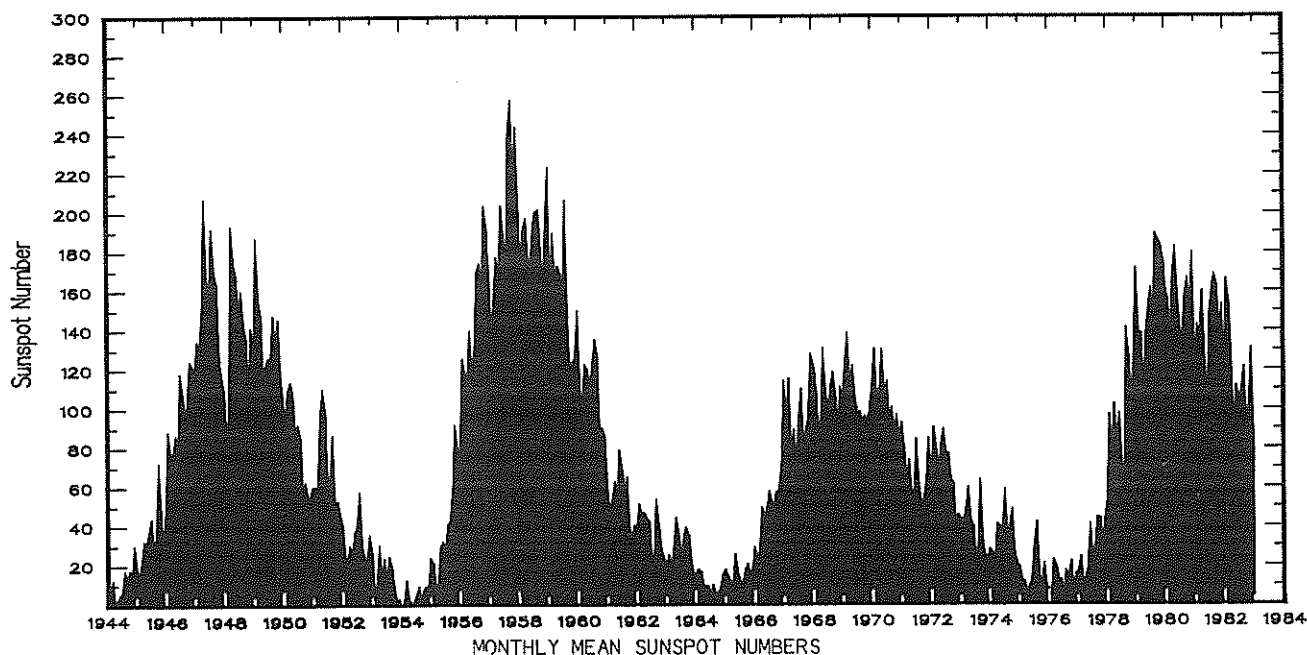
THE MCNISH-LINCOLN PREDICTION METHOD GENERATES MEANINGFUL ESTIMATES OF SMOOTHED SUNSPOT NUMBERS FOR NO MORE THAN 12 MONTHS AHEAD. Beyond a year the predictions regress rapidly toward the mean of all 13 cycles of data used in the computation. Furthermore, the method is very sensitive to the date defined as the beginning of the current sunspot cycle, that is, to the date of the most recent sunspot minimum. In "Solar-Geophysical Data," issues 390-401, we based the current cycle predictions on March 1976 as the end of cycle 20 and the onset of the new cycle 21. Later studies, including one published by M. Waldmeier, showed that June 1976 was more appropriately the minimum epoch. We therefore generated this table using the June 1976 date.

*MAXIMUM OF SUNSPOT CYCLE 21. The maximum smoothed sunspot number occurred in December 1979.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



MONTHLY MEAN SUNSPOT NUMBERS
(January 1944 - January 1983)



MONTHLY MEAN SUNSPOT NUMBERS												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1944	3.7	0.5	11.0	0.3	2.5	5.0	5.0	16.7	14.3	16.9	10.8	28.4
1945	18.5	12.7	21.5	32.0	30.6	36.2	42.6	25.9	34.9	68.8	46.0	27.4
1946	47.6	86.2	76.6	75.7	84.9	73.5	116.2	107.2	94.4	102.3	123.8	121.7
1947	115.7	133.4	129.8	149.8	201.3	163.9	157.9	188.8	169.4	163.6	128.0	116.5
1948	108.5	86.1	94.8	189.7	174.0	167.8	142.2	157.9	143.3	136.3	95.8	138.0
1949	119.1	182.3	157.5	147.0	106.2	121.7	125.8	123.8	145.3	131.6	143.5	117.6
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.9	63.6	37.7	32.6	40.0
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.5	4.7	6.1	7.4	15.1
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.3*	98.5*	126.4*
1983	85.8*											

*Provisional

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF		CMP	Dur (Min)	Imp	Obs	Area Measurement			Remarks	
							Region	Mo					Day	Time (UT)	Apparent (10 ⁻⁶ Disk)		Corr (Sq Deg)
LEAR	01	0041	0044	0124	S14	W49	4033	12	28.3	43	1N	C	7.3	3	C	250	
LEAR	01	0212	0213	0226	S11	W63	4033	12	27.3	14	SF	C	1.3	3	C	37	F
LEAR	01	0335	0337	0343	S17	W58	4033	12	27.7	8	SF	C	1.2	3	C	65	
PEKG	01	0420	0425	0430	S19	W30		12	29.9	10	SF				C	42	.5 E
LEAR	01	0421	0423	0430	S20	W29	4039	12	30.0	9	SF	C	1.0	3	C	32	
LEAR	01	0422	0422	0426	S14	W62	4033	12	27.5	4	SF			3	C	16	
LEAR	01	0703	0704	0709	S14	W65	4033	12	27.4	6	SF			3	C	29	
LEAR	01	0942	0949	1006	S12	W55	4033	12	28.3	24	1B	C	8.7	3	C	188	FH
GOES	01	1350	1406	1410						20		C	.8				
GOES	01	1526	1534	1538						12		C	1.1				
GOES	01	1729	1733	1738						9		C	.8				
HOLL	01	2254	2259	2327	S14	W58	4033	12	28.6	33	1B	C	5.9	3	C	187	FH
PALE	01	2255	2257	2258D	S16	W58	4033	12	28.6	3D	1F	C	5.9	3	C	127	
LEAR	01	2300E	2300U	2322	S16	W59	4033	12	28.5	22D	1F	C	5.9	2	C	154	F
PEKG	02	0200E	0201	0216	S11	W79		12	27.1	16D	1N	M	1.1		C	97	E
LEAR	02	0202E	0202U	0221	S12	W78	4033	12	27.2	19D	SN	M	1.1	3	C		F
GOES	02	1426	1431	1436						10		C	1.0				
RAMY	02	1511	1524	1547	S18	W49	4039	12	29.9	36	SF	C	1.0	3	C	74	
RAMY	02	1629	1636	1654	S15	E48	4047	01	6.3	25	SF			3	C	41	
GOES	02	2346	2346	2348						2		C	2.0				
GOES	03	0309	0313	0318						9		C	.9				
LEAR	03	0437	0443	0454	S08	E79		01	9.1	17	SF			3	C		
ISTA	03	0850		0859	S18	W52		12	30.4	9	SF						E
LEAR	03	0852	0852	0904	S15	W60	4039	12	29.8	12	SF	C	.7	3	C	17	
ISTA	03	0857		0915	S19	E40		01	6.4	18	SN	C	.8				E
LEAR	03	0901	0905	0920	S17	E38	4047	01	6.3	19	SF	C	.8	3	C	34	
GOES	03	1335	1348	1355						20		C	1.1				
GOES	03	1633	1636	1638						5		C	.8				
HOLL	03	1729	1734	1756	S07	E66	4049	01	8.7	27	SF	C	.8	3	C	26	
RAMY	04	1227	1242	1250	S14	E64	4048	01	9.4	23	SF			3	C	37	
GOES	04	1349	1357	1407						18		C	1.0				
GOES	04	2043	2049	2052						9		C	2.1				
HOLL	04	2338	2342	2346	S17	E56	4048	01	9.2	8	SF			3	C	49	
GOES	05	0053	0059	0107						14		C	1.1				
GOES	05	0256	0259	0301						5		C	2.2				
LEAR	05	0329	0339	0417	S13	E57	4048	01	9.4	48	SN	C	3.3	3	C	35	F
LEAR	05	0459	0525	0528D	N15	E64		01	10.1	29D	1F			2	C	113	F
GOES	05	0545	0552	0559						14		C	1.5				
GOES	05	0749	0753	0800						11		C	1.3				
GOES	05	0848	0851	0855						7		C	1.1				
GOES	05	0935	0943	0951						16		C	2.1				
GOES	05	1324	1328	1332						8		C	1.2				
RAMY	05	1724E	1726U	1728	S17	W15	4046	01	4.6	4D	SF			3	C	37	F
PALE	06	0034	0034U	0100	S14	E45	4048	01	9.4	26	SF	C	1.0	3	C	20	
PALE	06	0109	0113	0121	S12	E43	4048	01	9.3	12	SF			3	C	31	
GOES	06	0503	0548	0548			4048			45		C	1.4				
LEAR	06	0504	0504	0517	S12	E42	4048	01	9.4	13	SF			3	C	50	
GOES	06	0732	0735	0815			4051			43		C	1.8				
LEAR	06	0801	0814	0822	S11	E70	4053	01	11.6	21	SF			3	C	54	
LEAR	06	0808	0815	0830	S15	W24	4046	01	4.5	22	SF			3	C	29	F
GOES	06	1148	1154	1200						12		C	1.4				
GOES	06	1227	1239	1242						15		C	1.3				
RAMY	06	1501	1509	1535	S10	E33	4048	01	9.1	34	SN	C	1.3	3	C	47	
RAMY	06	1659	1701	1759	S12	E31	4048	01	9.0	60	SN			3	C	20	
GOES	06	1720	1730	1738						18		C	1.3				
GOES	06	2013	2021	2032						19		C	1.0				
HOLL	06	2143E	2318U	2319	S12	E32	4048	01	9.3	96D	SF			3	C	53	
PALE	06	2243E	2259U	2319D	S17	W30	4046	01	4.7	36D	SF			3	C	43	
LEAR	07	0010	0027	0034	S14	W31	4046	01	4.7	24	SF			3	C	55	
LEAR	07	0206	0206	0227	N10	E43	4051	01	10.3	21	SB	C	2.9	3	C	144	F
GOES	07	0206	0206	0227			4051			21		C	2.9				
YUNN	07	0207E	0207U	0216	N09	E44		01	10.4	9D	1N	C	2.9		P	0207	252 3.7 F
LEAR	07	0458	0501	0550	S17	W35	4046	01	4.5	52	SF	C	2.0	3	C	55	F
LEAR	07	0508	0511	0521	N13	E36	4051	01	9.9	13	SF			3	C	90	F
PEKG	07	0510	0518	0535	S17	W36		01	4.5	25	SF				P	0518	109 1.4 F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Time (UT)	Area Measurement		Remarks
																Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	
YUNN	11	0228E	0228U	0230D	S09	E04		01	11.4	2D	SN			P	0228	31	.3	
LEAR	11	0516	0516	0521	S16	E78	4058	01	17.1	5	SF		3	C				
GOES	11	0711	0727	0731						20		C 1.0						
GOES	11	1053	1100	1113						20		C .9						
GOES	11	1243	1248	1256						13		C 1.1						
RAMY	11	1441	1445	1451	S16	W31	4054	01	9.3	10	SF		3	C		32		
GOES	11	1725	1731	1738						13		C 1.0						
HOLL	11	1805	1807	1813	S13	W36	4048	01	9.0	8	SF		3	C		31		F
HOLL	11	1826	1829	1853	S13	W36	4048	01	9.0	27	SF		3	C		28		K
HOLL	11	1826	1843	1853	S13	W36	4048	01	9.0	27	SN	C 1.0	3	C		58		K
RAMY	11	1832	1848	1930D	S17	W37	4054	01	9.0	58D	SF	C 1.0	3	C		48		
PALE	11	1839	1844	1849	S16	W33	4054	01	9.3	10	SF	C 1.0	3	C		38		
PALE	11	2039	2047	2059	S15	W37	4054	01	9.1	20	SF		3	C		50		
LEAR	11	2339	2344	2358	N16	W22	4056	01	10.3	19	SF		3	C		36		
LEAR	12	0208	0210	0235	S14	W41	4054	01	9.0	27	SF		3	C		40		F
LEAR	12	0633	0633	0642	S17	E63	4058	01	17.1	9	SF		3	C		23		F
LEAR	12	0655	0655	0706	S16	W41	4054	01	9.2	11	SF		3	C		24		F
YUNN	12	0907	0908	0911	S15	E64		01	17.2	4	SN			C		47	1.1	D
WEND	12	1032	1050	1122	S09	W11		01	11.6	50	SB			C	1050	63	.7	E
RAMY	12	1247	1320	1325	S14	W43	4054	01	9.3	38	SF		3	C		26		
WEND	12	1515	1517	1519D	S16	W45		01	9.2	4D	SN			C	1517	38	.6	E
RAMY	12	1758	1758	1813	S17	W44	4054	01	9.4	15	SF	C .8	3	C		75		F
HOLL	12	1758	1759	1813	S16	W44	4054	01	9.4	15	SF	C .8	3	C		57		F
HOLL	12	1906	1912	1951	N09	E72		01	18.2	45	SN	C 3.2	4	C				
GOES	12	2004	2010	2015						11		C 1.2						
HOLL	12	2117	2120	2131	N09	E71		01	18.2	14	SF	C 5.3	3	C		25		
HOLL	12	2131E	2131U	2145	N09	E90		01	19.7	14D	SN		3	C				
HOLL	12	2250	2256	2344	S06	W33	4052	01	10.5	54	SF		3	C		91		F
HOLL	12	2319	2322	2341	S18	E53	4058	01	17.0	22	SF		3	C		17		
LEAR	12	2335	2336	2357	S11	W50	4048	01	9.2	22	SF		3	C		34		
HOLL	12	2337	2338	2348	S09	W50	4048	01	9.2	11	SF		3	C		32		
LEAR	13	0151	0154	0200D	S11	W51	4048	01	9.2	9D	SF		3	C		23		
HOLL	13	1549	1606	1630	N04	E48		01	17.2	41	SF		3	C		25		F
HOLL	13	1807	1827	1957	S16	W16		01	12.5	110	2N	C 3.9	3	C		529		UY
RAMY	13	1811	1832	1938	S16	W16		01	12.5	87	1N	C 3.9	3	C		360		F
HOLL	13	1922	1924	1931	N04	E46	4063	01	17.2	9	SF		3	C		22		
HOLL	13	2226	2226	2237	S15	E79	4065	01	19.9	11	SF		3	C				
LEAR	14	0550	0550	0554	N03	E65	4060	01	19.1	4	SF		3	C		15		
HOLL	14	1642	1648	1652	N08	E61	4064	01	19.3	10	SF		3	C		11		
PALE	14	1856E	1857U	1902	S11	E69	4065	01	20.0	6D	SF		3	C		18		
LEAR	15	0046	0052	0105	S12	W55	4061	01	10.9	19	SN	C 1.4	3	C		32		
LEAR	15	0054	0055	0058	S10	W45	4053	01	11.7	4	SF		3	C		68		F
YUNN	15	0205	0208	0217	S13	E66		01	20.1	12	SN			C		47		E
LEAR	15	0334	0334	0350	S13	E65	4065	01	20.1	16	SF		3	C		20		F
LEAR	15	0531	0533	0537	S12	E63	4065	01	20.0	6	SN		3	C		19		
RAMY	15	1336	1341	1351	S18	E21	4058	01	17.2	15	SN	C .9	3	C		90		F
GOES	15	1511	1526	1534						23		C 1.5						
RAMY	15	1626	1631	1645	N10	E48	4064	01	19.3	19	SF		3	C		37		
RAMY	15	1632	1638	1704D	S17	E19	4058	01	17.1	32D	SF		3	C		93		
GOES	15	1728	1739	1742						14		C .9						
LEAR	15	2239E	2240U	2309	N09	E44	4064	01	19.2	30D	SF		2	C		23		F
PALE	15	2254E	2258U	2304	N12	E42	4064	01	19.1	10D	SF		3	C		66		F
YUNN	16	0111	0112	0116	N16	E69		01	21.3	5	SN			C		16		D
PALE	16	0212	0217	0248	S12	W75	4061	01	10.4	36	SF		3	C		35		
YUNN	16	0214E	0214	0224	S12	W77		01	10.3	10D	SN			P		16		DG
LEAR	16	0215	0216	0226	S12	W76	4061	01	10.4	11	SF		3	C				
LEAR	16	0259	0259	0309	S12	W76	4061	01	10.4	10	SF		3	C				
PALE	16	0300	0303	0311	S13	W74	4061	01	10.5	11	SF		3	C				
PALE	16	0304	0308	0313	S08	W79	4052	01	10.2	9	SF		3	C				
GOES	16	0352	0415	0444						52		C 1.4						
YUNN	16	0510	0514	0525	N06	E36		01	18.9	15	SN			C		63	.8	D
LEAR	16	0510	0514	0533	N04	E35	4060	01	18.8	23	SN		3	C		43		F
GOES	16	0601	0620	0631						30		C 3.1						
GOES	16	0840	0848	0853						13		C 1.2						
GOES	16	1234	1242	1251						17		C 1.5						
GOES	16	1619	1625	1632						13		C 1.3						

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	Remarks
GOES	16	1645	1653	1702						17	C	1.1						
GOES	16	1744	1751	1756						12	C	1.1						
HOLL	16	1941	1941	1946	N09	E35	4064	01	19.4	5	SF		3	C		26		F
GOES	16	1952	1957	2002						10	C	1.1						
HOLL	16	2100	2100	2121	N06	E26	4060	01	18.8	21	SN		3	C		20		F
PALE	16	2103	2103	2114	N07	E26	4060	01	18.8	11	SF		3	C		37		
PALE	16	2110	2111	2113	N11	E33	4064	01	19.4	3	SF		3	C		31		
LEAR	16	2255	2259	2344	N09	E34	4064	01	19.5	49	SB	C 3.0	3	C		68		F K
LEAR	16	2255	2323	2344	N09	E34	4064	01	19.5	49	SF		3	C		24		K
HOLL	16	2256	2258	2318	N09	E32	4064	01	19.4	22	SB	C 3.0	3	C		52		F
PALE	16	2257	2258	2307	N10	E32	4064	01	19.4	10	SB	C 3.0	3	C		42		FE
HOLL	16	2323	2323	2345D	N09	E32	4064	01	19.4	22D	SN	C 4.0	3	C		19		
HOLL	16	2348	2348	0011D	N10	E31	4064	01	19.3	23D	SF	C 4.0	3	C		28		F
LEAR	16	2349	0006	0026	N10	E32	4064	01	19.4	37	SF	C 4.0	3	C		32		F
LEAR	17	0037	0039	0043	N10	E32	4064	01	19.4	6	SF		3	C		25		
LEAR	17	0119	0119	0125	N10	E32	4064	01	19.5	6	SF		3	C		20		
YUNN	17	0211	0216	0229	S12	E38		01	20.0	18	SN			P		31	.4	E
LEAR	17	0216	0220	0232	S13	E36	4065	01	19.8	16	SF		3	C		45		F
PALE	17	0219	0220	0224	S13	E36	4065	01	19.8	5	SF		3	C		42		
LEAR	17	0258	0259	0312	N09	E31	4064	01	19.5	14	SF		3	C		25		K
LEAR	17	0258	0306	0312	N09	E31	4064	01	19.5	14	SN	C 1.9	3	C		63		F K
PALE	17	0258	0306	0314	N08	E33	4064	01	19.6	16	SN	C 1.9	3	C		63		
PALE	17	0329	0331	0338	N10	E28	4064	01	19.3	9	SF		3	C		20		
YUNN	17	0330E	0331	0336D	S12	E38		01	20.0	6D	SN			P		48	.6	E
LEAR	17	0345	0345	0417	N09	E31	4064	01	19.5	32	SN	C 1.1	3	C		29		F K
LEAR	17	0345	0402	0417	N09	E31	4064	01	19.5	32	SN	C 1.0	3	C		39		K
LEAR	17	0423	0425	0436	N10	E30	4064	01	19.4	13	SN		3	C		47		
LEAR	17	0550	0550	0555	N09	E29	4064	01	19.4	5	SF		3	C		34		
LEAR	17	0558	0558	0618	N10	E29	4064	01	19.4	20	SF		3	C		33		
YUNN	17	0559E	0600	0604	N12	E29		01	19.4	5D	SN			P		113	1.4	
YUNN	17	0606	0607	0610	N11	E29		01	19.4	4	SN			C		129	1.6	
YUNN	17	0622	0623	0629	N07	E21		01	18.8	7	1N			C		193	2.2	
YUNN	17	0622	0623	0629	S15	E34		01	19.8	7	SN			C		32	.4	
YUNN	17	0654	0655	0658	S13	E36		01	20.0	4	SN			C		48	.6	E
YUNN	17	0706	0707	0719	S13	E37		01	20.1	13	SN			C		48	.6	
GOES	17	1133	1142	1204						31	C	1.4						
PALE	17	1801E	1816U	1840	N17	E47	4067	01	21.3	39D	SF		3	C		153		
PALE	17	1814	1816	1826	S12	E28	4065	01	19.9	12	SF		3	C		23		F
PALE	17	1919	1921	1934	N16	E45	4067	01	21.2	15	SF		3	C		23		
PALE	18	0312	0312	0320	N07	E08	4060	01	18.7	8	SF		3	C		21		
LEAR	18	0343	0343	0450	N05	E09	4060	01	18.8	67	SN	C .9	3	C		45		K
LEAR	18	0343	0413	0450	N05	E09	4060	01	18.8	67	SF	C .9	3	C		52		K
LEAR	18	0505	0505	0512	N06	E08	4060	01	18.8	7	SF		3	C		28		
GOES	18	1307	1311	1315						8	C	.7						
GOES	18	1339	1411	1510						91	C	1.1						
RAMY	18	1511	1534	1544	N16	E35	4067	01	21.3	33	SF		3	C		76		
GOES	19	0021	0024	0027						6	C	.7						
LEAR	19	0054	0055	0105	N08	E03	4064	01	19.3	11	SF		3	C		41		
LEAR	19	0625	0625	0629	S16	E09	4065	01	20.0	4	SF		3	C		51		F
GOES	19	0826	0843	0902						36	C	2.3						
LEAR	19	0854	0857	0900	N10	W01	4064	01	19.3	6	SF		3	C		24		
GOES	20	1638	1845	1917						159	C	.5						
GOES	20	1843	1846	1850						7	C	.5						
LEAR	21	0638	0639	0652	N05	W32	4060	01	18.9	14	SF	C 1.8	3	C		72		F
LEAR	21	0638	0639	0729	N06	W35	4062	01	18.7	51	SN	C 1.8	3	C		98		FH
PEKG	21	0640	0642	0705	N07	W38		01	18.4	25	SF	C 1.8		P	0642	105	1.4	F
WEND	22	1358	1408	1414	S16	W41		01	19.5	16	SF			C	1408	75	1.1	
PALE	22	2222E	2321U	0022D	N06	W60	4060	01	18.4	120D	SF	C 2.1	3	C		19		F
HOLL	22	2345	2350	2358	S14	W46	4065	01	19.5	13	SF		3	C		37		
LEAR	23	0219	0242	0311	S09	W02	4068	01	22.9	52	SF	C 1.4	3	C		124		FH
PEKG	23	0220E	0222	0300	S10	W04		01	22.8	40D	SF	C 1.4		C	0222	189	2.0	F
GOES	23	0534	0543	0552						18	C	1.1						
LEAR	23	0552	0552	0604	N05	E73		01	28.7	12	SF		3	C				H
WEND	23	0917	0922	0934	N08	W71		01	18.1	17	SF			C	0922	38		G

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JANUARY 1983

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo Day	Dur (Min)	Imp Opt Xray	Obs See Type	Time (UT)	Area Measurement		Remarks	
													Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)		
WEND	23	1111	1115	1136	N14	W57		01 19.2	25	SF		C	1115	38	.7	G
WEND	23	1124	1128	1132	N18	W41		01 20.4	8	SF		C	1128	25	.4	G
GOES	23	1221	1233	1256					35		C .8					
LEAR	24	0123E	0123U	0125	S13	W60	4065	01 19.5	2D	SF		3 C		61		
PEKG	24	0220E	0220	0220D	N22	E75		01 29.9	2D	SF		P	0220	17		D
GOES	24	0555	0558	0608					13		C .7					
LEAR	24	0737	0738	0744	N06	E76	4071	01 30.0	7	SF	C 1.1	3 C				
GOES	24	0807	0811	0817					10		C .8					
WEND	24	0910		0939	N12	E80		01 30.4	29	SF		C	0922	19		
WEND	24	0914	0916	0924	N07	E75		01 30.0	10	SF	C 3.0	C	0916	25		
YUNN	24	0915E	0917	0920	N07	E77		01 30.2	5D	1N	C 3.0	C		64		D
LEAR	24	0916	0919	0923	N07	E73	4071	01 29.9	7	SF	C 3.0	3 C				
GOES	24	0947	0958	1007			4071		20		C 3.1					
WEND	24	0958	1001	1016	N07	E77		01 30.2	18	SF	C 3.1	C	1001	44		
LEAR	24	1001	1001	1005	N10	E75	4071	01 30.1	4	SF	C 3.1	3 C				
WEND	24	1056	1103	1122	N07	E76		01 30.2	26	SF		C	1003	25		
GOES	24	1158	1159	1204					6		C .7					
HOLL	24	1611	1611	1619	N06	W79	4060	01 18.8	8	SF	C .6	3 C				
HOLL	24	1744	1803	1824D	N10	W69	4064	01 19.6	40D	SF	C 1.2	3 C		34		
HOLL	24	1802	1805	1807	S09	E48		01 28.4	5	SF		3 C		44		
GOES	24	1954	1959	2006					12		C 1.1					
GOES	24	2120	2128	2133					13		C 2.0					
GOES	24	2303	2306	2310					7		C .6					
PALE	25	0021E		0021	S06	E29	4072	01 27.2	7D	SF		3 C		21		F
LEAR	25	0256	0303	0308	N07	E66	4071	01 30.1	12	SF		3 C		14		
LEAR	25	0459	0501	0505	N07	E63	4071	01 29.9	6	SF	C 1.0	3 C		14		
GOES	25	0642	0649	0659					17		C 1.5					
GOES	25	0808	0810	0813					5		C .8					
LEAR	25	0820	0822	0834	N07	E61	4071	01 29.9	14	SF		3 C		28		
LEAR	25	0932	0934	0956D	N04	E41		01 28.5	24D	SF		3 C		18		
GOES	25	0956	1000	1004					8		C 1.2					
GOES	25	1015	1017	1020					5		C 1.1					
GOES	25	1232	1239	1243					11		C .7					
RAMY	25	1319	1323	1346	N05	E40		01 28.5	27	SF		3 C		50		
RAMY	25	1515	1516	1528	S16	E87		02 1.2	13	SF		3 C				
HOLL	25	1645E	1645U	1718	N02	E37		01 28.5	33D	SF	C .9	3 C		131		
GOES	25	1925	1947	1952					27		C 1.1					
PALE	25	2221	2221	2232	S08	E30	4072	01 28.2	11	SF		3 C		19		
LEAR	26	0112	0116	0120	N06	E34	4073	01 28.6	8	SF		3 C		20		
PALE	26	0213	0230	0232D	N04	E32	4073	01 28.5	19D	SF	C 1.2	3 C		41		F
LEAR	26	0219	0220	0224	N05	E33	4073	01 28.6	5	SF		3 C		22		F
PALE	26	0319	0321	0328	S07	E27	4072	01 28.2	9	SF		3 C		39		F
LEAR	26	0336	0336	0341	S08	E27	4072	01 28.2	5	SF		3 C		25		F
LEAR	26	0527	0528	0532	S17	E77	4074	02 1.1	5	SF	C 1.0	3 C				F
LEAR	26	0619	0620	0627	N06	E30	4073	01 28.5	8	SF		3 C		33		F
GOES	26	0805	0825	0829					24		C 1.3					
GOES	26	0950	1002	1008					18		C 1.0					
RAMY	26	1355	1356	1411	N05	E28	4073	01 28.7	16	SN		3 C		29		F
HOLL	26	1605	1616	1626	N03	E27	4073	01 28.7	21	SF		3 C		40		F
HOLL	26	1626	1626	1633	S17	E72	4074	02 1.2	7	SF		3 C		25		
HOLL	26	1637	1637	1654	S18	E70	4074	02 1.0	17	SF		3 C		25		
HOLL	26	1739	1741	1804	S18	E70	4074	02 1.1	25	SF	C 1.0	3 C		34		
GOES	26	1754	1804	1811					17		C 1.2					
HOLL	26	1920	1922	1930	S19	E72	4074	02 1.3	10	SF		3 C		11		
GOES	26	1959	2004	2011					12		C 1.0					
GOES	26	2112	2116	2123					11		C 1.2					
HOLL	26	2125E	2129	2140	N03	E12	4073	01 27.8	15D	SF		2 C		40		H
GOES	26	2219	2223	2227					8		C 1.3					
LEAR	27	0237	0243	0256	S16	E75	4075	02 1.8	19	SF	C 2.5	3 C				F
PALE	27	0241	0246	0255	S12	E79	4075	02 2.1	14	SF	C 2.5	3 C				
YUNN	27	0300	0302	0305	N08	E20		01 28.6	5	SN		C		161	1.8	D
PEKG	27	0301E	0302	0304	N07	E19		01 28.5	3D	SF		P	0302	84	.9	D
LEAR	27	0301	0303	0307	N06	E19	4073	01 28.5	6	SF		3 C		62		
PALE	27	0301	0302	0307	N07	E18	4073	01 28.5	6	SF		3 C		36		F
PALE	27	0310	0325	0328D	S12	E78	4075	02 2.0	18D	SF		3 C				
PALE	27	0311	0326	0328D	N07	E18	4073	01 28.5	17D	SF		3 C		31		F
LEAR	27	0330	0338	0357	S15	E73	4075	02 1.7	27	1N	M 1.2	3 C				F

H - ALPHA SOLAR FLARES

JANUARY 1983

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/USAF		Dur (Min)	Imp Opt	Xray	Obs See	Type	Time (UT)	Area Measurement		Remarks
							Region	Mo Day							Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)	
PEKG	27	0334E	0336	0348	S16	E72		02	1.6	14D	SN M	1.2	P	0336	71		DK
PEKG	27	0334E	0341	0348	S15	E72		02	1.6	14D	SN M	1.2	P	0341	59		E
LEAR	27	0535	0536	0541	N05	E20	4073	01	28.7	6	SF		2	C	80		F
GOES	27	0638	0641	0643						5	C	2.0					
GOES	27	0747	0752	0806						19	C	2.2					
LEAR	27	0829	0829	0842	S14	E74	4075	02	2.0	13	SF		3	C	11		
GOES	27	1119	1124	1129						10	C	1.0					
GOES	27	1148	1152	1155						7	C	1.0					
GOES	27	1235	1239	1243						8	C	1.0					
GOES	27	1830	1834	1842						12	C	1.4					
GOES	27	1917	1925	1929						12	C	.9					
PALE	27	2124	2132	2155	S14	E64	4075	02	1.7	31	SN C	.9	3	C	104		
PALE	27	2127	2129	2132	N03	E12	4073	01	28.8	5	SF		2	C	33		
HOLL	27	2131	2140	2144	S17	E61	4075	02	1.5	13	SF		2	C	22		
HOLL	27	2158	2158	2201	N06	E06	4073	01	28.4	3	SF		3	C	32		F
LEAR	28	0041	0043	0047	N06	E05	4073	01	28.4	6	SF C	.8	3	C	41		F
YUNN	28	0042	0046	0048	N07	E05		01	28.4	6	SN C	.8		P	80	.9	E
PALE	28	0215	0225	0233	S17	E67	4075	02	2.2	18	SF		2	C	43		F
LEAR	28	0305	0305	0310	N07	E04	4073	01	28.4	5	SF		3	C	23		
YUNN	28	0604	0608	0620	N03	E01		01	28.3	16	SN			P	113	1.2	E
LEAR	28	0606	0607	0634	N02	E02	4073	01	28.4	28	SF		3	C	39		
YUNN	28	0750	0752	0800	S08	W08		01	27.7	10	SN C	.8		C	113	1.2	
LEAR	28	0750	0751	0805	S09	W08	4072	01	27.7	15	SF C	.9	3	C	51		
GOES	28	1119	1124	1129						10	C	1.0					
RAMY	28	1435	1436	1445	S09	W04	4072	01	28.3	10	SN C	.9	3	C	103		
HOLL	28	1638	1640	1650	N06	W02	4073	01	28.5	12	SF		3	C	67		
HOLL	28	1727	1729	1737	S16	E59	4075	02	2.2	10	SF		3	C	15		
RAMY	28	1834	1836	1844	N07	W04	4073	01	28.5	10	SN		3	C	50		
HOLL	28	1834	1835	1910	N06	W04	4073	01	28.5	36	SF		3	C	63		F
HOLL	28	2101	2106	2143	S09	W12	4072	01	28.0	42	SF		3	C	78		
HOLL	28	2224	2227	2240	S17	E55	4075	02	2.1	16	SF C	.8	3	C	61		F
HOLL	28	2308	2309	2314	S12	W11	4072	01	28.1	6	SN C	1.3	3	C	130		F
LEAR	28	2309E	2309U	2317	S12	W12	4072	01	28.1	8D	SF C	1.3	3	C	95		F
GOES	29	0354	0356	0359			4075			5	C	.8					
LEAR	29	0401	0402	0418	S15	E50	4075	02	2.0	17	SF		3	C	45		
GOES	29	0503	0507	0511			4075			8	C	1.8					
YUNN	29	0509E	0512	0516	S15	E44		02	1.5	7D	1N C	1.8		P	161	2.3	
LEAR	29	0509E	0513U	0537	S15	E44	4075	02	1.5	28D	SN C	1.8	3	C	52		F
LEAR	29	0531	0532	0544	N04	W12	4073	01	28.3	13	SF		3	C	33		
YUNN	29	0641	0645	0653	N05	W13		01	28.3	12	SN			C	113	1.2	
LEAR	29	0643	0644	0654	N03	W12	4073	01	28.4	11	SF		3	C	43		F
GOES	29	0716	0721	0726						10	C	.8					
GOES	29	0816	0830	0838						22	C	.9					
LEAR	29	0906	0910	0935	N03	W12	4073	01	28.5	29	SF		3	C	59		F
GOES	29	1056	1103	1107						11	C	1.0					
RAMY	29	1510	1510	1541	S15	E48	4075	02	2.3	31	SF C	.9	3	C	43		
HOLL	29	1540	1543	1608	N06	W15	4073	01	28.5	28	SF		3	C	37		
HOLL	29	1629	1630	1640	S10	W42	4070	01	26.5	11	SF		3	C	28		F
RAMY	29	1639	1647	1703	N04	W17	4073	01	28.4	24	SN C	2.3	3	C	183		F
HOLL	29	1639	1647	1659	N05	W17	4073	01	28.4	20	SN C	2.3	3	C	201		F
RAMY	29	1745	1757	1813	S19	E57		02	3.1	28	SF		3	C	15		
HOLL	29	1757	1805	1814	S07	W23	4072	01	28.0	17	SF		3	C	37		
GOES	29	1840	1843	1848						8	C	1.1					
GOES	29	1931	1935	1939			4075			8	C	3.7					
HOLL	29	1937E	1937U	1958D	N07	W17	4073	01	28.5	21D	SF		3	C	54		
HOLL	29	1937E	1937U	1958D	S15	E37	4075	02	1.6	21D	SN		3	C	98		F
LEAR	29	2354	0003	0010	N03	W22	4073	01	28.4	16	SF C	1.0	3	C	26		
GOES	30	0105	0108	0113						8	C	1.0					
GOES	30	0343	0350	0358						15	C	1.0					
YUNN	30	0500	0502	0516	N04	W25		01	28.3	16	SN C	1.0		C	64	.7	
LEAR	30	0502	0502	0514	N03	W23	4073	01	28.5	12	SF C	1.0	3	C	26		
LEAR	30	0622	0622	0632	S20	E46	4077	02	2.8	10	SF		3	C	19		
GOES	30	1337	1341	1347						10	C	1.0					
GOES	30	1831	1836	1849						18	C	.9					
PALE	30	2301	2303	2314	S11	E80		02	6.0	13	SF C	1.9	3	C			
PALE	30	2355	2355	0004	S16	E23	4075	02	1.7	9	SF		3	C	32		
PALE	31	0019	0019	0024	S18	E36	4077	02	2.8	5	SF		3	C	24		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF/ Region	CMP Mo	Day	Dur (Min)	Imp Opt	Xray	See	Obs Type	Area Measurement			Remarks	
															Time (UT)	Apparent (10 ⁻⁶ Disk)	Corr (Sq Deg)		
[	LEAR	31	0106	0106	0120	S19 E36	4077	02	2.8	14	SF	C	.9	2	C		29		F
	PALE	31	0106	0106	0119	S18 E35	4077	02	2.7	13	SF	C	.9	3	C		27		
[	LEAR	31	0146	0154	0207	S19 E36	4077	02	2.8	21	SF			2	C		42		F
	PALE	31	0152	0155	0207	S17 E35	4077	02	2.7	15	SF			3	C		28		F
[	LEAR	31	0157	0157	0200	N06 W12	4071	01	30.2	3	SF			2	C		30		
	PALE	31	0157	0158	0200	N07 W12	4071	01	30.2	3	SF			3	C		43		FH
	LEAR	31	0350	0352	0356	S18 E35	4077	02	2.8	6	SF			3	C		35		
	LEAR	31	0411	0417	0427	S18 E34	4077	02	2.8	16	SF	C	1.0	3	C		42		F
	LEAR	31	0417	0418	0425	S14 E21	4075	02	1.8	8	SF			3	C		26		
	LEAR	31	0448	0457	0536	S09 W42	4072	01	28.0	48	SF			3	C		71		
	LEAR	31	0455	0456	0501	S16 E32	4077	02	2.6	6	SF	C	.9	3	C		26		
	RAMY	31	1144E	1145U	1150	S08 W43	4072	01	28.3	6D	SN	C	2.1	3	C		89		
	RAMY	31	1248	1259	1308	N05 W41	4073	01	28.5	20	SF			3	C		26		
	PALE	31	1822	1828	1846	S18 E26	4077	02	2.7	24	SF			3	C		47		
	PALE	31	1853	1903	1941	S16 E23	4077	02	2.5	48	SF	C	1.9	3	C		82		
	PALE	31	1946	1949	1955	S10 W52	4072	01	27.9	9	SF			3	C		18		
	RAMY	31	2031	2037	2042	S18 E25	4077	02	2.8	11	SN			3	C		58		
	GOES	31	2156	2158	2204		4077			8		C	1.0						
	PALE	31	2200	2203	2212	S15 E26	4077	02	2.9	12	SF	C	1.0	3	C		159		
	PALE	31	2228	2230	2242	S15 E26	4077	02	2.9	14	SF			3	C		60		
	PALE	31	2316	2320	2326	S13 E16	4075	02	2.2	10	SF			3	C		39		

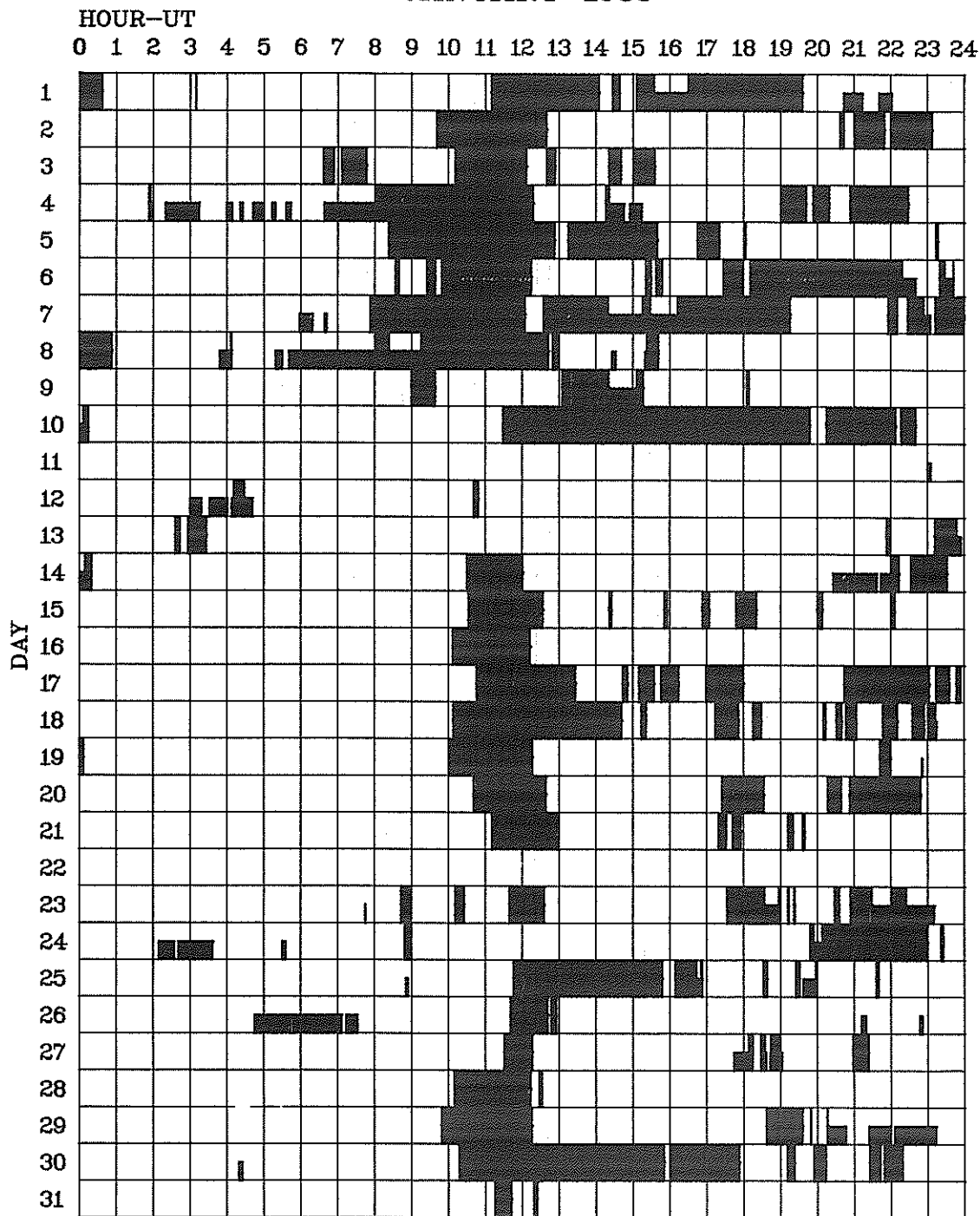
"Remarks":

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

O = Observations have been made in the H and K lines of Call.
 P = Flare shows helium D3 in emission.
 Q = Flare shows Balmer continuum in emission.
 R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
 S = Brightness follows disappearance of filament in same position.
 T = Region active all day.
 U = Two bright branches, parallel or converging.
 V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
 W = Great increase in area after time of maximum intensity.
 X = Unusually wide H-alpha line.
 Y = System of loop-type prominences.
 Z = Major sunspot umbra covered by flare.

The 4-digit number appearing under "Remarks" denotes the calcium plage region number assigned by the Space Environment Services Center in Boulder, Colorado.

INTERVALS OF NO FLARE PATROL OBSERVATION FOR PRECEDING SOLAR FLARE TABLE JANUARY 1983



Observatories included in total patrol:

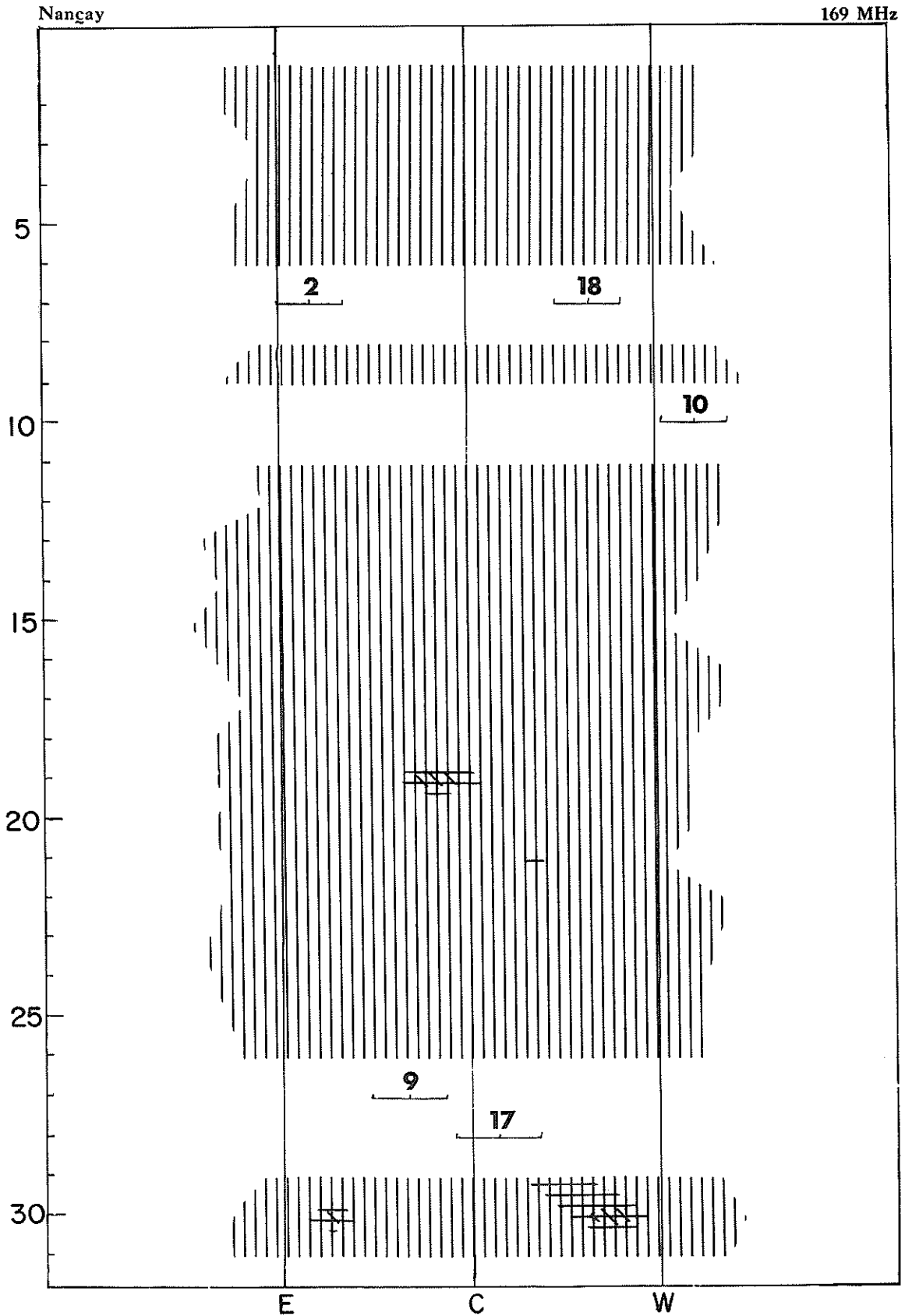
Bucharest	Istanbul	Monte Mario	Peking	Wendelstein
Holloman	Learmonth	Palehua	Ramey	

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).

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Jan 83

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATION

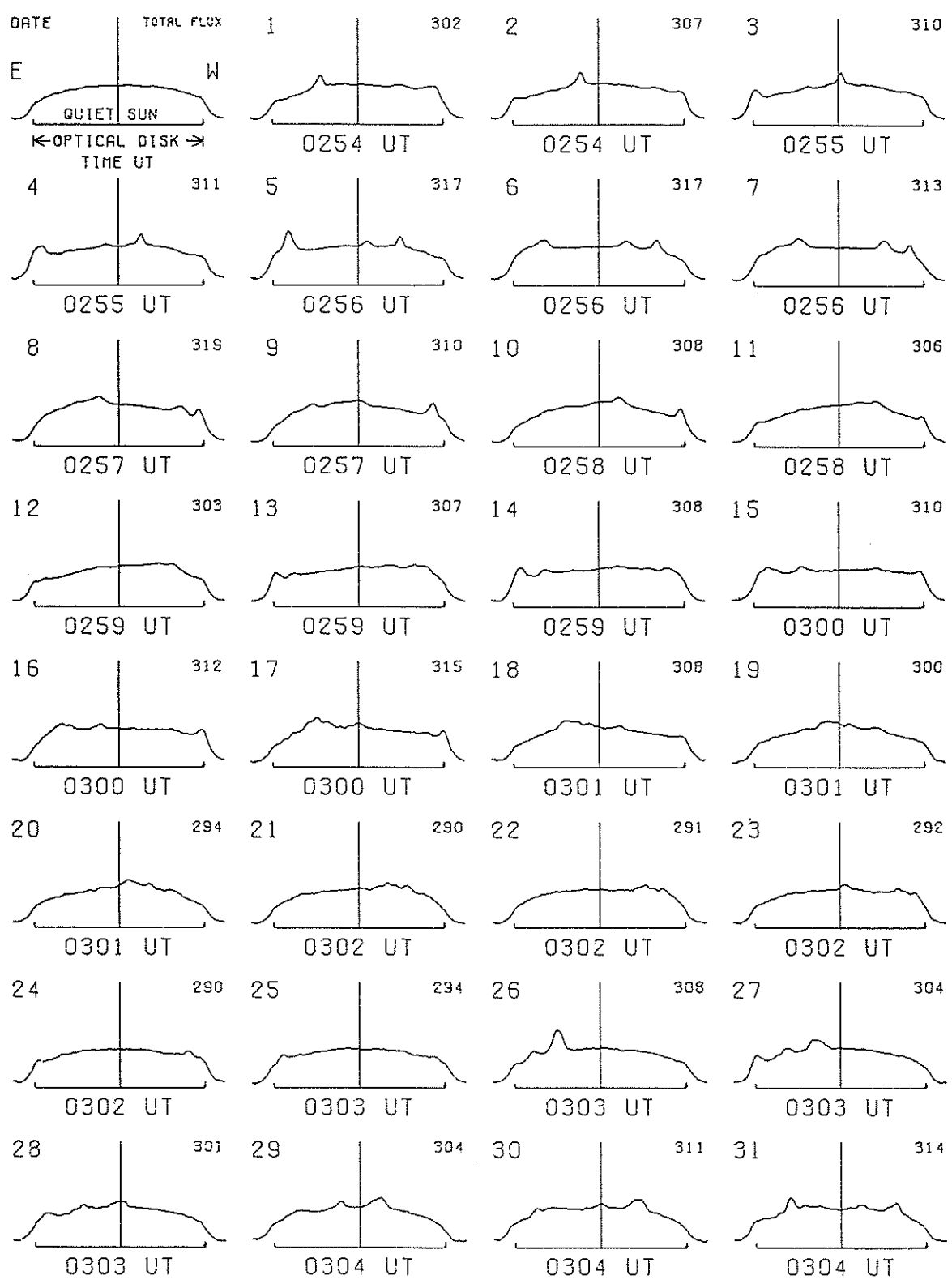
JANUARY 1983



EAST-WEST SOLAR SCANS JANUARY 1983

TOYOKAWA, JAPAN

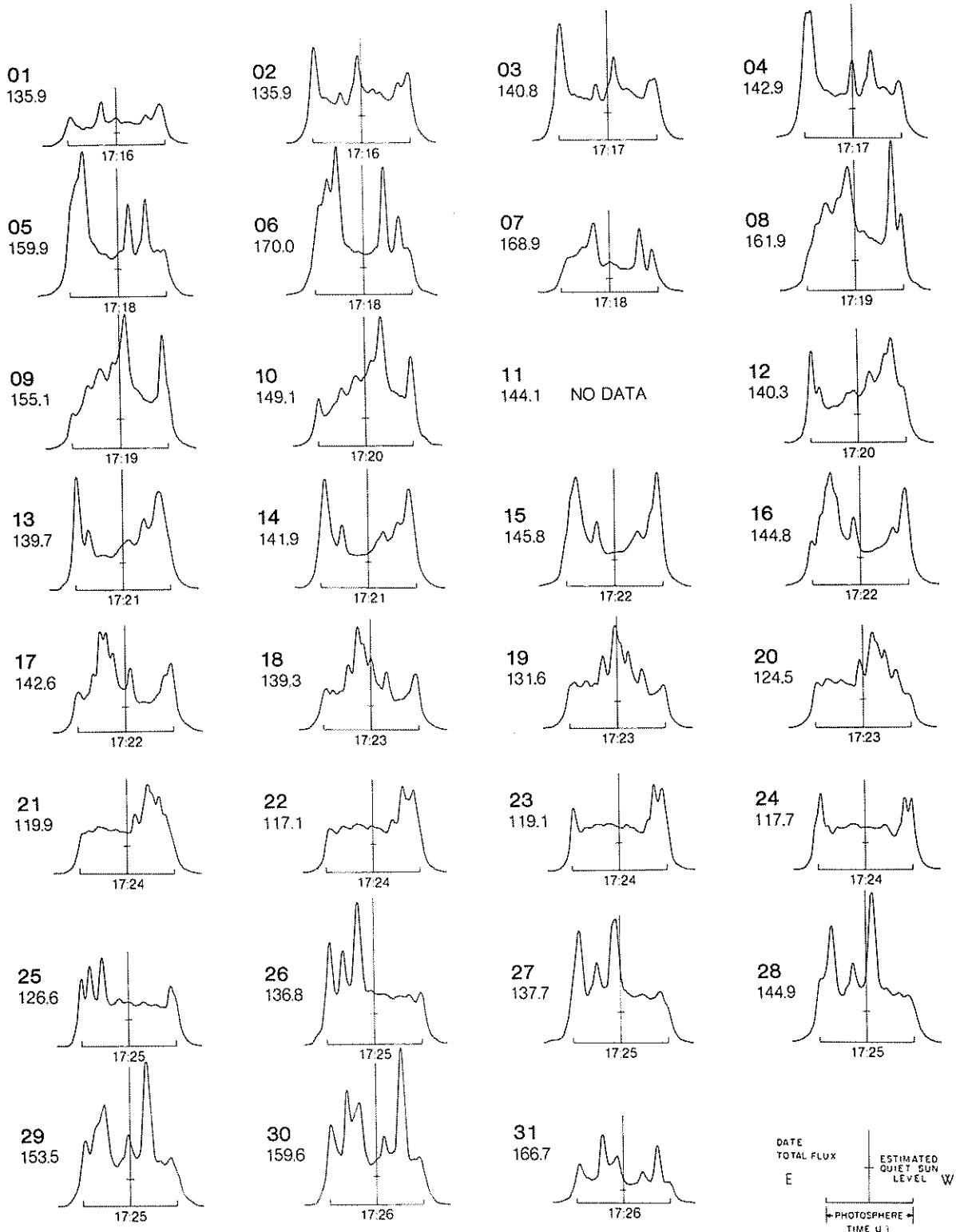
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST-WEST SOLAR SCANS
JANUARY 1983

ALGONQUIN RADIO OBSERVATORY
CANADA

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

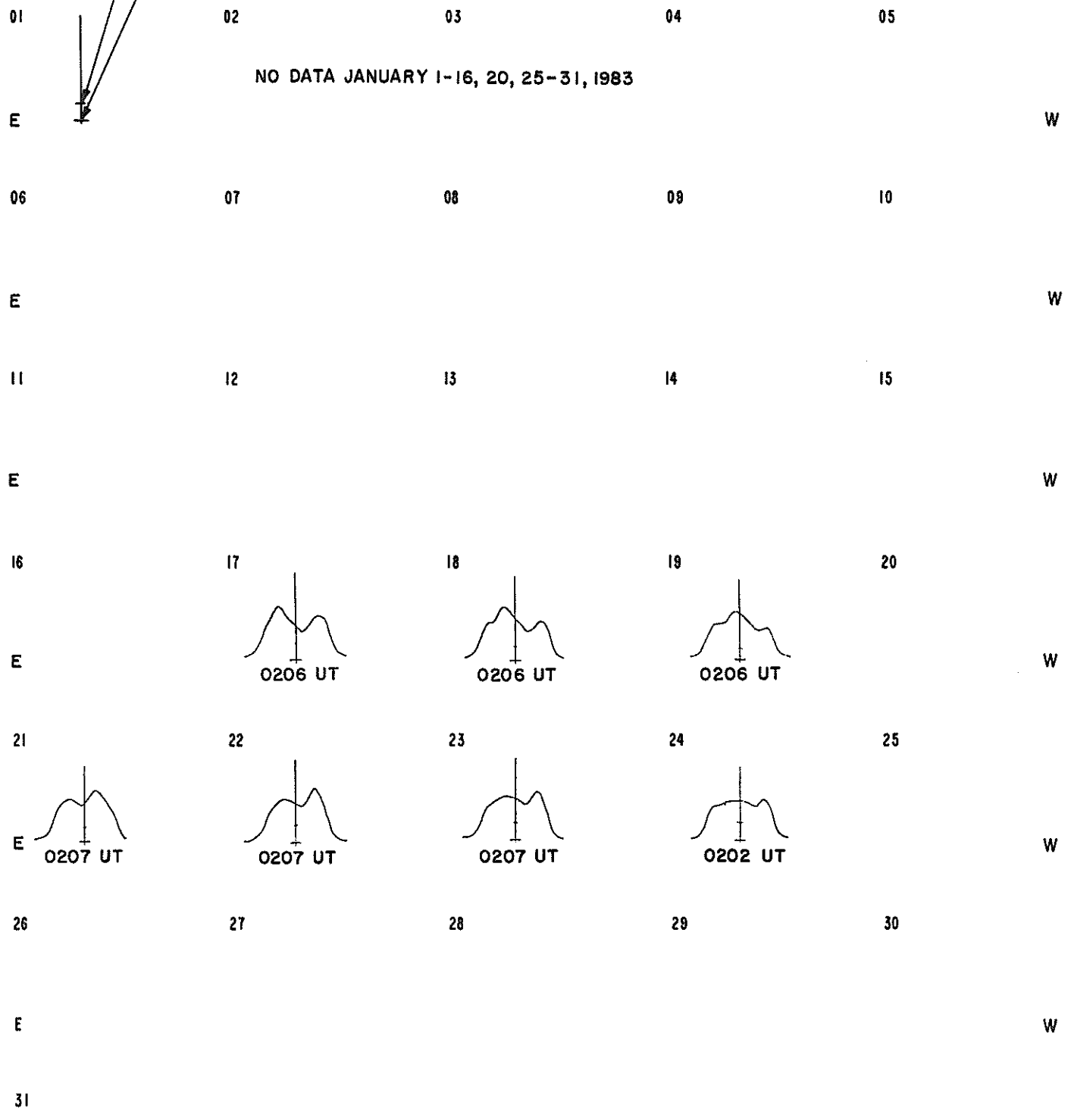


EAST-WEST SOLAR SCANS JANUARY 1983

Flours, Australia

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

Estimated Quiet Sun Level
Cold Sky Level



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Jan 83

EAST-WEST SOLAR SOLAR SCANS

JANUARY 1983

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

Flours, Australia

Estimated Quiet Sun Level
Cold Sky Level

01

02

03

04

05

E

W

NO DATA JANUARY 1-16, 20, 21, 25-31, 1983

06

07

08

09

10

E

W

11

12

13

14

15

E

W

16

17

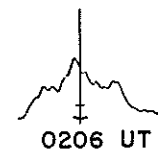
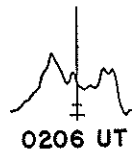
18

19

20

E

W



21

22

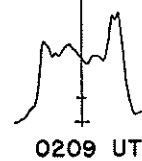
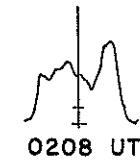
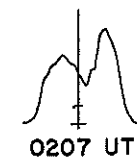
23

24

25

E

W



26

27

28

29

30

E

W

31

E

W

S O L A R R A D I O E M I S S I O N
S E L E C T E D F I X E D F R E Q U E N C Y E V E N T S

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Jan 83

J A N U A R Y 1 9 8 3

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 ⁻²² W/m ² Hz)	Mean		
01	2695	LEAR	4 S/F	0041.8	0042.5	3.3	39.0			QL=6 ST=2 TYP=3
	8800	LEAR	47 GB	0041.8	0043.1	3.5	72.0			QL=6 ST=2 TYP=5
	8800	PALE	47 GB	0042.1	0043.1	3.2	72.0			QL=6 ST=2 TYP=5
	2695	ATHN	4 S/F	0942.3	0945.0	3.5	33.0			QL=2 ST=2 TYP=3
	2800	OTTA	1 S	1853.0	1854.5	7.0	2.4	0.9		
	2695	LEAR	4 S/F	2256.1	2257.8	3.9	10.0			QL=6 ST=2 TYP=3
02	2695	LEAR	4 S/F	0156.1	0159.0	6.7	23.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	0157.3	0158.3	4.3	17.0			QL=6 ST=2 TYP=3
	8800	PALE	8 S	0158.3	0158.5	.3	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	240 R	1505.0	1520.0	15.0	2.8	1.4		
04	2800	OTTA	1 S	2045.0	2046.0	4.0	2.4	0.8		
05	2800	OTTA	20 GRF	1755.0	1820.0	65.0	2.4	1.2		
06	2800	OTTA	21 GRF	1500.0	1700.0	270.0	5.2	3.4		
	2800	OTTA	20 GRF	1718.0	1722.0	27.0	2.6	1.3		
	2695	PALE	8 S	1805.5	1805.6	.3	17.0			QL=6 ST=2 TYP=3
	8800	PALE	8 S	1805.6	1805.6	.5	32.0			QL=6 ST=2 TYP=3
07	2695	LEAR	47 GB	0205.0	0206.1	2.6	52.0			QL=6 ST=2 TYP=5
	2695	PALE	47 GB	0205.6	0206.1	.7	61.0			QL=6 ST=2 TYP=5
	8800	LEAR	8 S	0516.1	0516.3	.5	16.0			QL=6 ST=2 TYP=5
	2800	OTTA	26A FAL	1440.0	1715.0	155.0	-6.6	-3.3		
	2800	OTTA	1 S	1526.0	1528.0	4.0	2.6	1.2		
	2800	OTTA	20 GRF	1600.0	1605.0	30.0	2.6	1.3		
08	2800	OTTA	21 GRF	1340.0	1350.0	20.0	3.8	1.9		
	2800	OTTA	4 S/F	1344.0	1345.2	2.0	12.4			
	2800	OTTA	22 GRF	1410.0	1440.0	150.0	9.8	3.8		
	2800	OTTA	20 GRF	1645.0	1700.0	35.0	2.6	1.3		
09	2695	LEAR	4 S/F	0215.8	0217.3	3.8	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	20 GRF	0216.0	0239.8	26.0D	10.0			QL=6 ST=2 TYP=2
	2800	OTTA	240 R	1600.0	1620.0	20.0	4.6	3.0		
10	2800	OTTA	2 S/F	1351.8	1352.1	1.2	4.6	2.3		
	2800	OTTA	20 GRF	1725.0	1745.0	85.0	4.6	2.3		
11	2800	OTTA	20 GRF	1635.0	1735.0	135.0	2.8	1.3		
12	2800	OTTA	240 R	1425.0	1500.0	35.0	3.0	1.5		
	2800	OTTA	1 S	1757.0	1758.2	4.0	3.0	1.4		
	2800	OTTA	22 GRF	1910.0	2025.0	100.0	2.0			
	2695	PENT	1 S	2128.0	2129.0	2.0	2.4	.2		
13	2800	OTTA	20 GRF	1800.0	1910.0	235.0	16.6	8.3		
14	2695	LEAR	20 GRF	0655.6	0700.0	17.4	11.0			QL=6 ST=2 TYP=2
	8800	PALE	8 S	2052.6	2052.6	.5	44.0			QL=6 ST=2 TYP=3
15	2800	OTTA	240 R	1445.0	1555.0	70.0	5.4	2.4		
	2800	OTTA	20 GRF	1745.0	1800.0	40.0	2.4	1.2		
16	2800	OTTA	240 R	1445.0	1448.0	3.0	1.6	.8		
	2800	OTTA	240 R	1620.0	1635.0	15.0	1.6	.8		
17	8800	LEAR	8 S	0257.5	0257.6	1.1	24.0			QL=6 ST=2 TYP=3
	2800	OTTA	1 S	1832.0	1832.5	1.0	2.8	1.2		
	2695	SGMR	8 S	1832.1	1832.3	.4	19.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	2025.0	2110.0	55.0	2.2	1.2		
	2695	PENT	2 S/F	2129.5	2130.9	3.3	6.4	3.2		
20	2800	OTTA	20 GRF	1837.0	1839.0	20.0	1.8	.9		
21	8800	LEAR	4 S/F	0638.0	0638.8	5.1	23.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0638.0	0638.8	13.8	34.0			QL=6 ST=2 TYP=3
24	2800	OTTA	240AR	1545.0	1620.0	35.0	2.4	1.2		
	2800	OTTA	1 S	1557.0	1559.2	10.0	2.4	1.0		

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Jan 83

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JANUARY 1983

Day	Freq Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
						Peak (10 -22 W/m ² Hz)	Mean		
24	2800 OTTA	20 GRF	1700.0	1825.0	140.0	3.4	1.5		
	2695 PENT	1 S	2122.0	2124.0	5.0	2.6	1.0		
26	2800 OTTA	20 GRF	1535.0	1617.0	575.0	2.6	1.3		
	2695 PENT	22 GRF	2110.0	2155.0	60.0	2.4	1.0		
27	8800 LEAR	20 GRF	0333.0	0336.1	12.0	11.0			QL=6 ST=2 TYP=2
	2800 OTTA	20 GRF	1800.0	1927.0	125.0	2.6	1.3		
	2800 OTTA	2 S/F	2125.0	2125.2	1.0	6.2	1.6		
28	2800 OTTA	240AR	1430.0	1440.0	10.0	2.8			
	2800 OTTA	3 S	1434.2	1434.7	4.0	11.4	2.8		
	2695 SGMR	8 S	1434.5	1434.6	.3	13.0			QL=6 ST=2 TYP=3
	2695 PENT	1 S	2309.0	2309.1	1.2	7.8	1.9		
29	2800 OTTA	240 R	1839.0	1842.0	3.0	2.8	1.2		
	2800 OTTA	23 GRF	1910.0	1934.0	120.0	6.0			
	2800 OTTA	3 S	1932.5	1933.0	1.2	10.4	5.0		
	2695 SGMR	8 S	1932.8	1932.8	.5	19.0			QL=6 ST=2 TYP=3
30	2800 OTTA	1 S	1547.0	1549.0	7.0	2.2	1.1		
31	2800 OTTA	240 R	1620.0	1645.0	25.0	5.0	2.5		
	2800 OTTA	20 GRF	1845.0	1900.0	75.0	4.6	2.3		

Observatories:

BERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
LEAR = Learmonth ATHN = Athens PALE = Palehua

Explanation of Type Code:

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

BOULDER GEOMAGNETIC
SUBSTORM LOG
January 1983

DATE	ONSET TIME	DIR	COMMENTS	DATE	ONSET TIME	DIR	COMMENTS
01/01			Field Intermittently unsettled with no distinctive substorm activity.	01/17			Field intermittently unsettled.
01/02	1310	West	Field slightly unsettled.		0915 1200 1300	West West West	Several injections.
01/03	1210		Field unsettled 0600-1700 UT. Moderate substorm Anchorage to College.	01/18			Field intermittently active.
01/04	0905 1225	West West	Field Intermittently unsettled.		0810 1015 1120 1310	West West West West	Weak substorm. Strong substorm.
01/05	0835 1335		Field unsettled 0700-1600 UT. Weak substorm. Weak substorm.				Several injections with recovery near 1630 UT.
01/06			Field slightly unsettled.	01/19			Field intermittently unsettled.
01/07			Field slightly unsettled.		0925 1245	West West	Several injections with recovery near 1730 UT.
01/08	1225	West	Field Intermittently unsettled.	01/20	0545		Field unsettled all day. Localized substorm Norman Wells to Inuvik.
01/09	0905 1545	SSC	Substorm response along auroral oval only. Immediate onset of strong substorm, several injections with recovery near 1900 UT. Field unsettled balance of day.		0825	West	
01/10	0330 0450 0925	East Center West	Field active at high latitudes and storm level at mid/low latitudes through 1200 UT. Strong ring current established by 0600 UT with slow recovery through 1800 UT.	01/21			Field intermittently unsettled. Weak substorm.
01/11	2305		Field slightly unsettled. Positive impulse H-component all mid/low latitude stations.	01/22	0505	East	Field intermittently unsettled. Weak substorm.
01/12	0450 0910 1305	East West West	Field Intermittently unsettled.	01/23			Field unsettled 0600-1500 UT.
01/13	1500	West	Field intermittently unsettled.		0630 0900 1140	West West	Localized substorm vicinity College with several injections.
01/14	0720 1310	West	Field intermittently unsettled. Weak substorm.	01/24	0450	Center	Field intermittently unsettled. Weak substorm Norman Wells to Inuvik.
01/15	1045 1440 1525	West	Field Intermittently active. Weak substorm. Strong injection into existing substorm.	01/25			Field unsettled all day.
01/16	0440 0800 0940 1150 1525	East West West	Field Intermittently active. Weak substorm, several minor injections. Weak substorm. Initial onset at College. Slow expansion northward and eastward.	01/26	0535 0950 1305	West West	Field intermittently active.
				01/27			Localized substorm Norman Wells to Inuvik.
				01/28	0740 1345	West	Field intermittently unsettled. Weak substorm.
				01/29	1120 1525	West	Field with no distinctive substorm activity.
				01/30	0650 0800 1035	Center West West	Weak substorm. Moderate substorm, several injections with recovery near 1900 UT.
				01/31	1320		Weak substorm.
							Field unsettled all day. Weak substorm.

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
2023	JUL 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2024	AUG 26	-	-	-	TA	TA	-	-	-	-	TA	-	-	-	-	TA	-	-	-	-	-	-	-	-	-	-	-	-
2025	SEP 22	-	-	-	-	-	-	-	AT	TA	-	-	-	TA	-	TA	-	-	-	AT	-	-	TA	TA	TA	TA	TA	TA
2026	OCT 19	AT	TA	TA	-	-	-	-	TA	TA	-	-	-	-	-	TA	-	-	-	-	-	-	-	-	-	-	-	-
2027	NOV 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2028	DEC 12	TA	-	-	-	-	-	-	-	AT	TA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2029	1982 JAN 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2030	FEB 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2031	MAR 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2032	MAR 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2033	APR 26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2034	MAY 23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2035	JUN 19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2036	JUL 16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2037	AUG 12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2038	SEP 8	TA	AT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2039	OCT 5	-	AT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2040	NOV 1	AT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2041	NOV 28	TA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2042	DEC 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2043	1983 JAN 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

☐ = definitely towards the sun ☐ = definitely away from the sun

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

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD

BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2028	DEC 7	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2029	1982 JAN 3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2030	JAN 30	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2031	FEB 26	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2032	MAR 25	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2033	APR 21	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2034	MAY 18	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2035	JUN 14	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2036	JUL 11	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2037	AUG 7	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2038	SEP 3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2039	SEP 30	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2040	OCT 27	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2041	NOV 23	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2042	DEC 20 1983	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2043	JAN 16	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

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

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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

1983

1982

day	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
01	-20	-19	.	-6	.	.	49	89	22	-31	42	-9
02	-44	-9	.	-6	33	85	19	102	53	-15	.	.
03	-29	-20	.	23	38	75	19	84	37	-18	.	-89
04	-3	-39	-17	43	54	71	52	66	18	-38	10	-81
05	9	-44	3	48	80	53	85	68	-6	.	-42	-73
06	19	-21	38	16	82	35	105	55	-41	-63	.	-22
07	43	.	60	41	77	29	81	30	-54	-61	-90	-2
08	64	-2	57	69	80	42	63	-27	-76	-58	-64	.
09	.	.	24	74	68	54	59	-55	-90	.	-29	53
10	15	16	.	70	54	63	33	-74	-93	-54	-20	46
11	24	34	61	65	50	87	-30	-93	-96	-21	26	37
12	33	35	46	79	58	79	-87	-124	-100	1	29	53
13	.	.	.	87	.	43	-118	-125	-70	19	43	84
14	.	.	.	77	78	9	-121	-120	-35	34	28	84
15	.	.	86	72	51	-39	-144	-112	-7	37	.	.
16	14	21	93	51	-13	-112	-149	.	-1	52	8	39
17	16	.	71	38	-51	-164	-141	-49	4	.	57	10
18	5	4	46	27	-93	-193	-124	-28	-43	.	.	.
19	15	20	28	-15	-184	-201	-93	-14	55	.	64	-87
20	27	31	-6	-57	-237	-189	-59	12	33	22	32	-119
21	38	25	-38	-68	-225	.	-32	40	.	33	.	.
22	48	22	-78	-93	-170	-128	-16	44	.	.	.	.
23	41	14	-113	-132	-123	-71	-12	26	17	.	.	-25
24	28	-2	-107	-158	-69	-29	5	10	45	12	.	-3
25	10	-26	-93	-151	-56	-5	32	8	.	-1	.	31
26	-3	.	-104	-118	-40	12	39	18	54	-31	.	31
27	-34	-61	-117	-26	11	28	47	36	55	-58	-31	3
28	.	-56	-122	-26	37	38	46	72	34	.	42	-14
29	.	-53	-77	-10	46	48	25	57	20	.	59	-51
30	.	.	-26	19	59	61	39	52	11	.	35	-91
31	.	.	.	46	.	53	64	.	-11	.	.	.

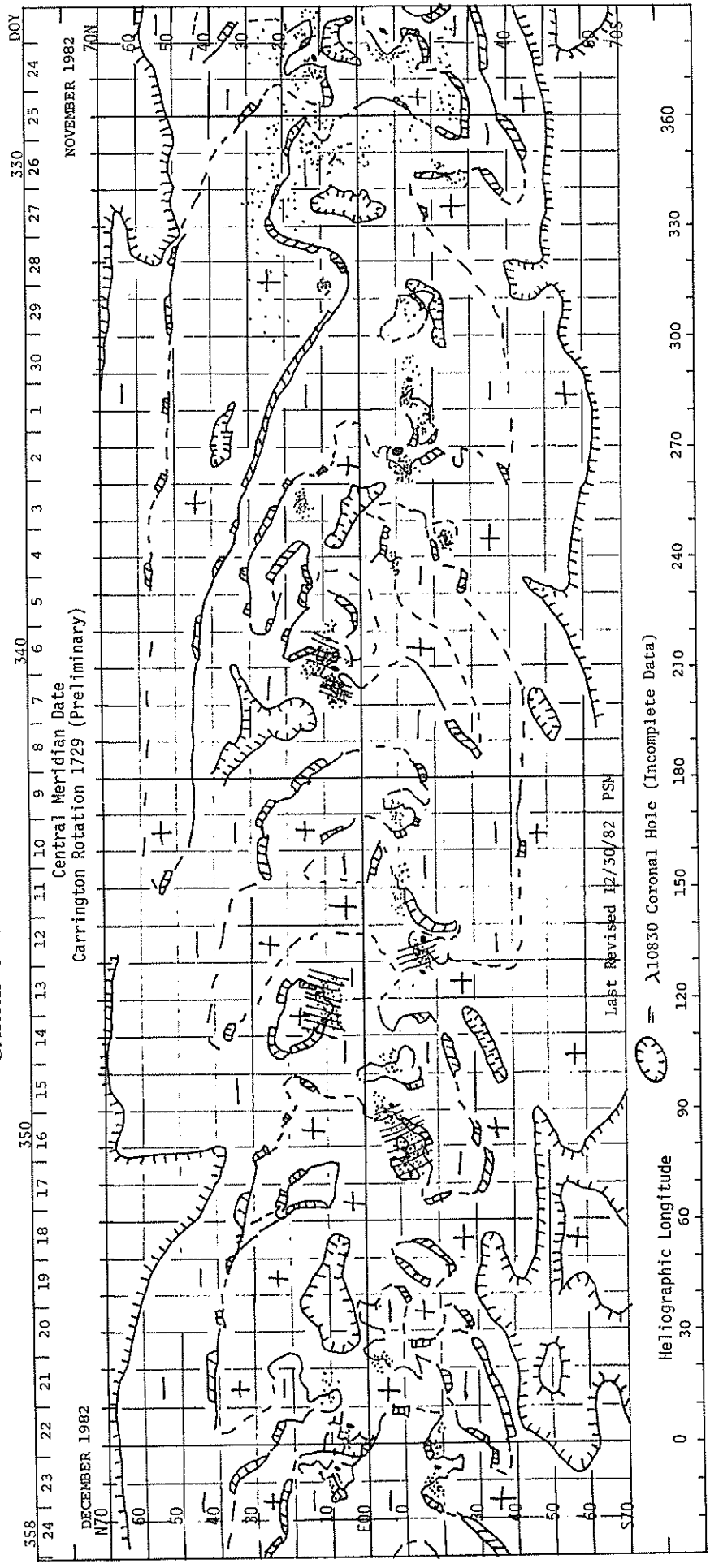
DECEMBER 1982 DATA

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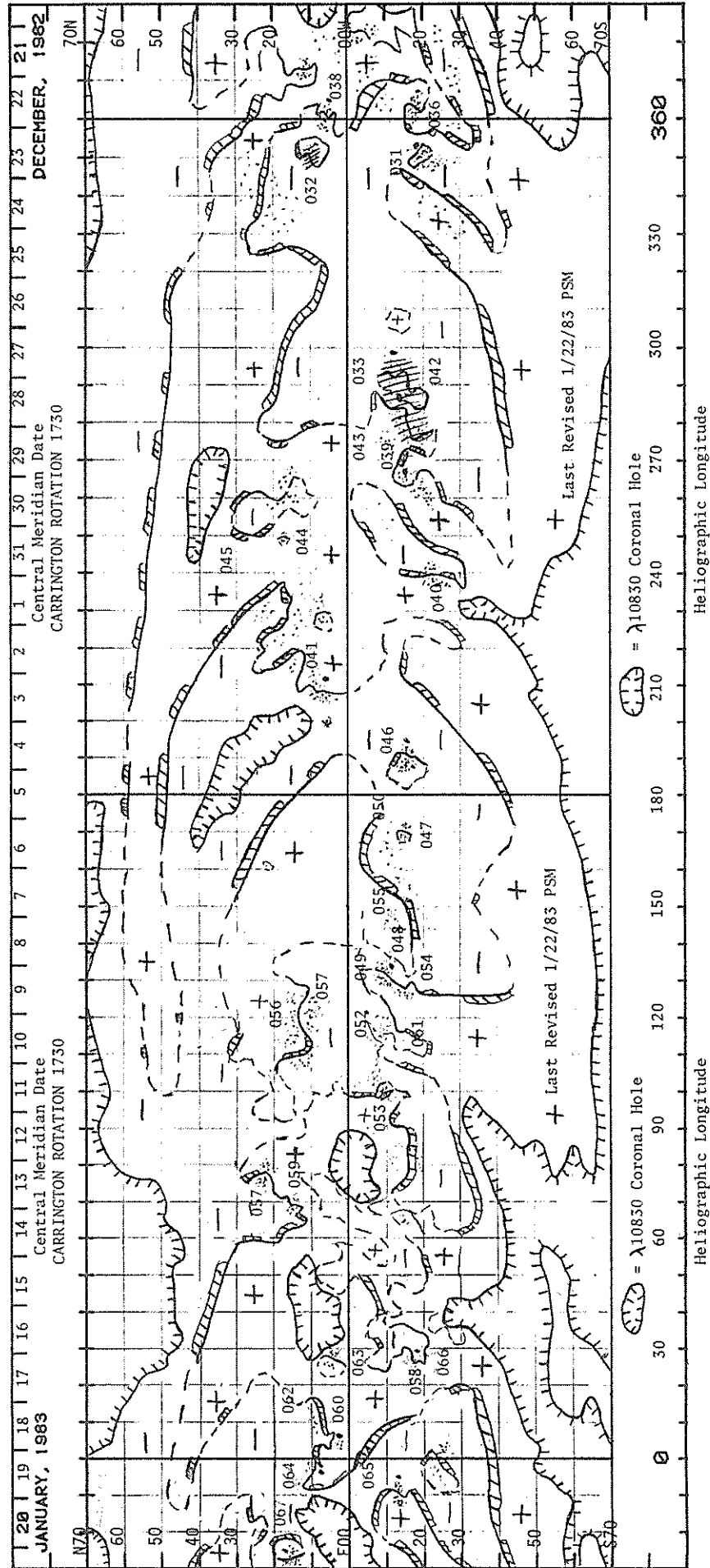
H α SYNOPTIC CHART

CARRINGTON ROTATION 1729 (PRELIMINARY)



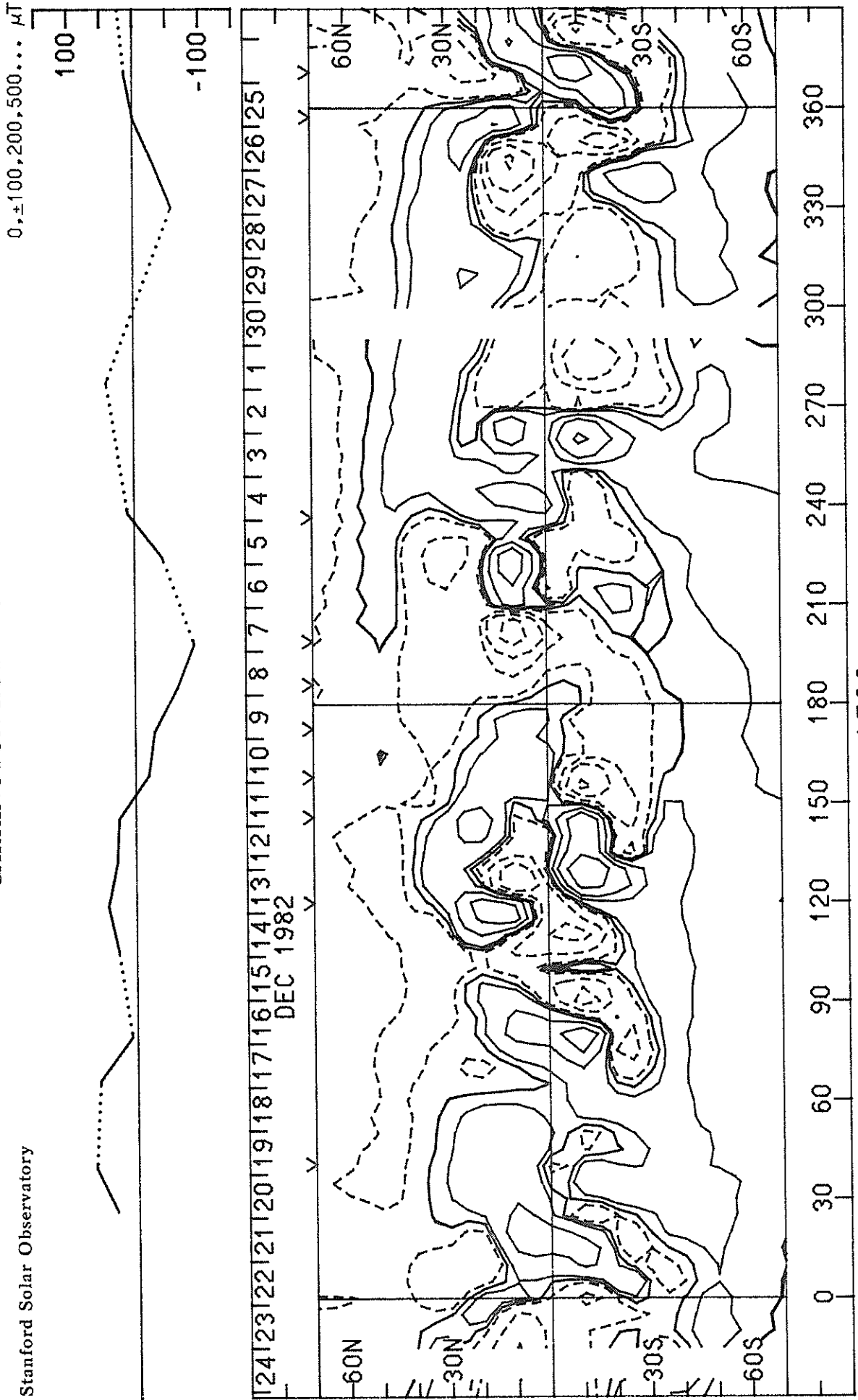
H α SYNOPTIC CHART

CARRINGTON ROTATION 1730 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1729

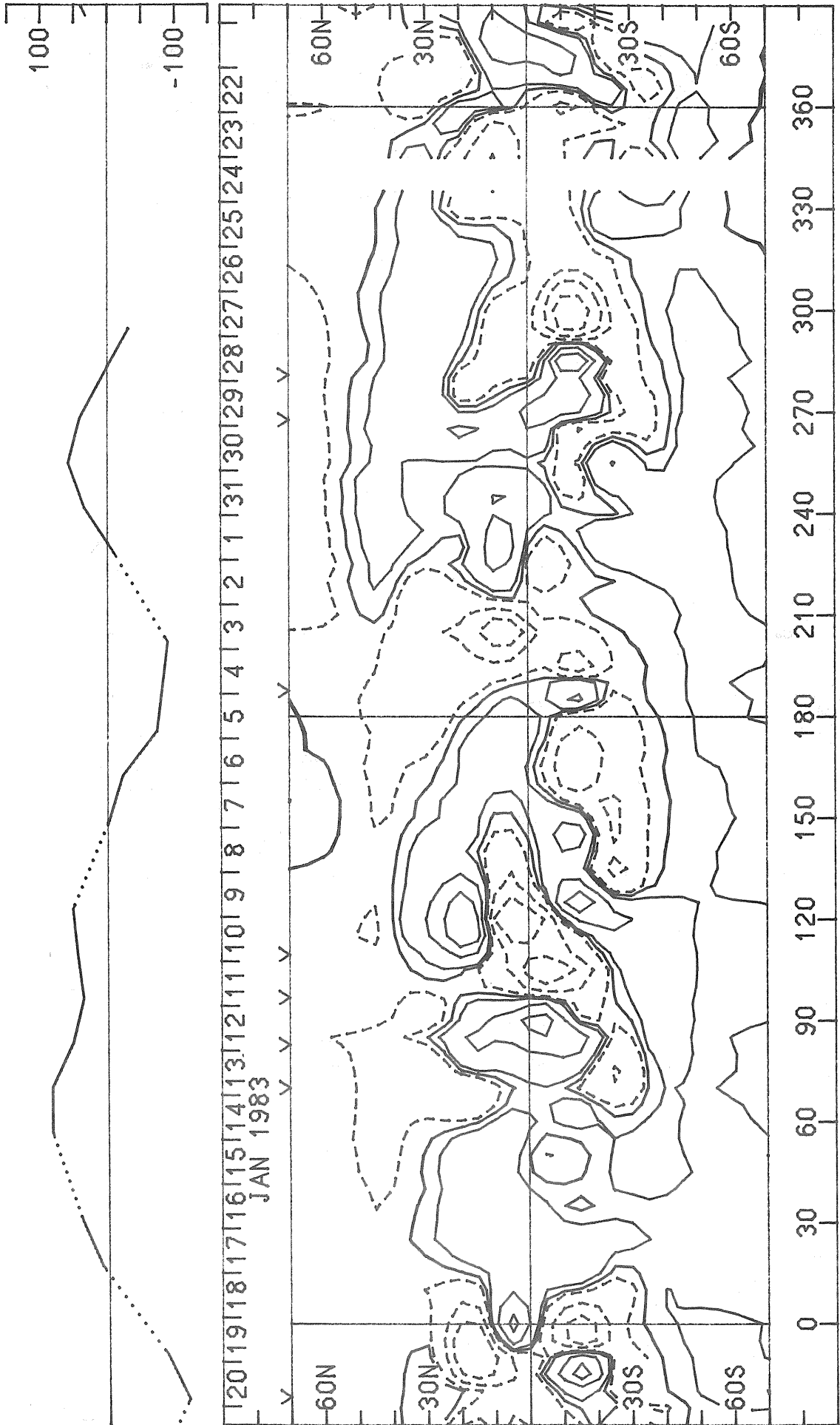
Stanford Solar Observatory



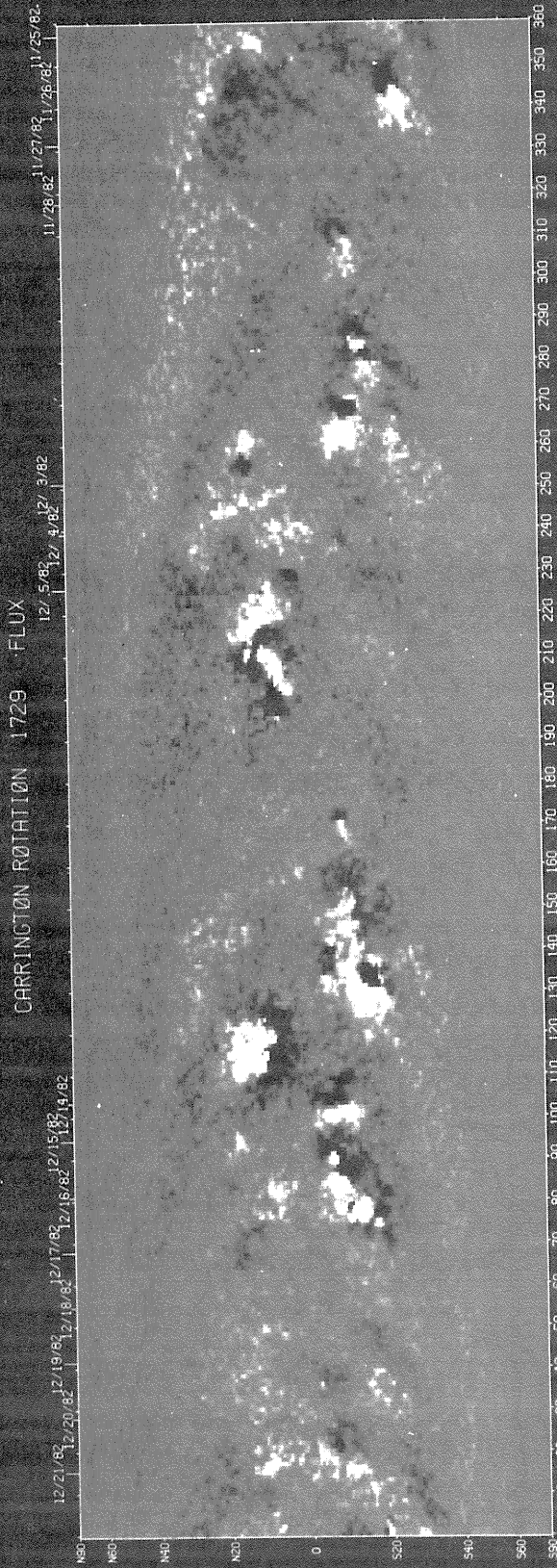
SOLAR MAGNETIC FIELD SYNOPTIC CHART
 CARRINGTON ROTATION 1730

Stanford Solar Observatory

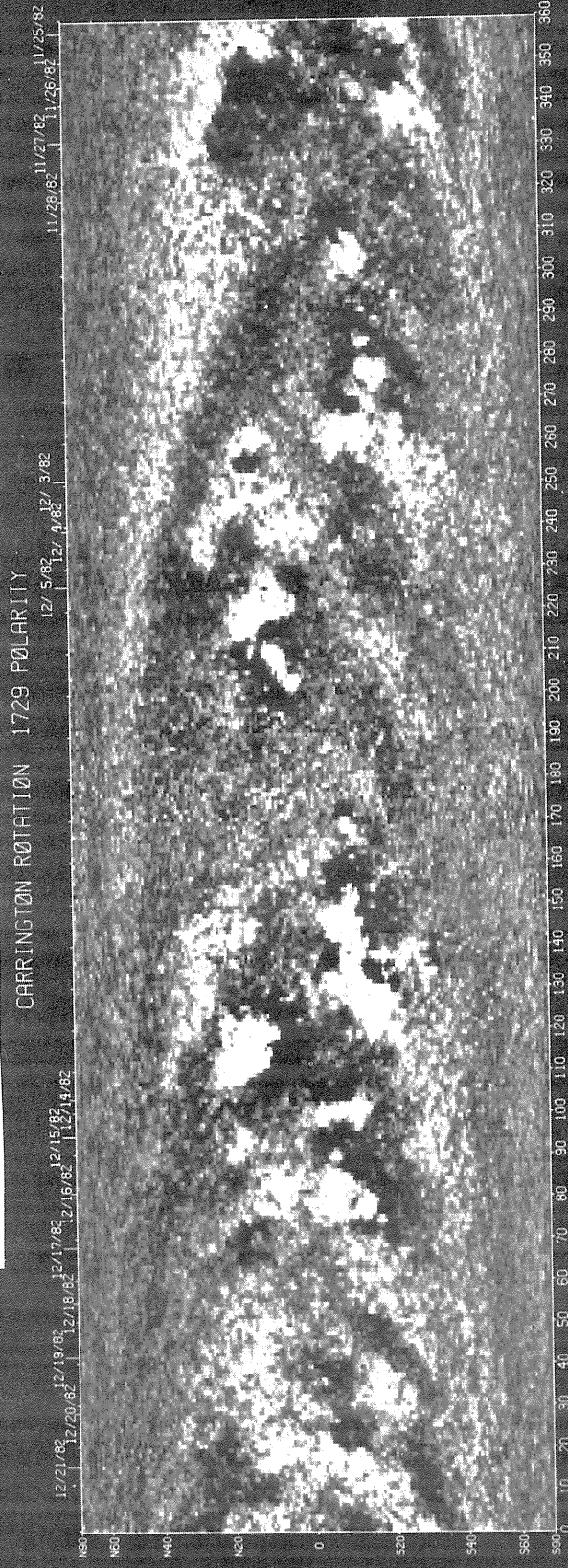
0, ±100, 200, 500... μT

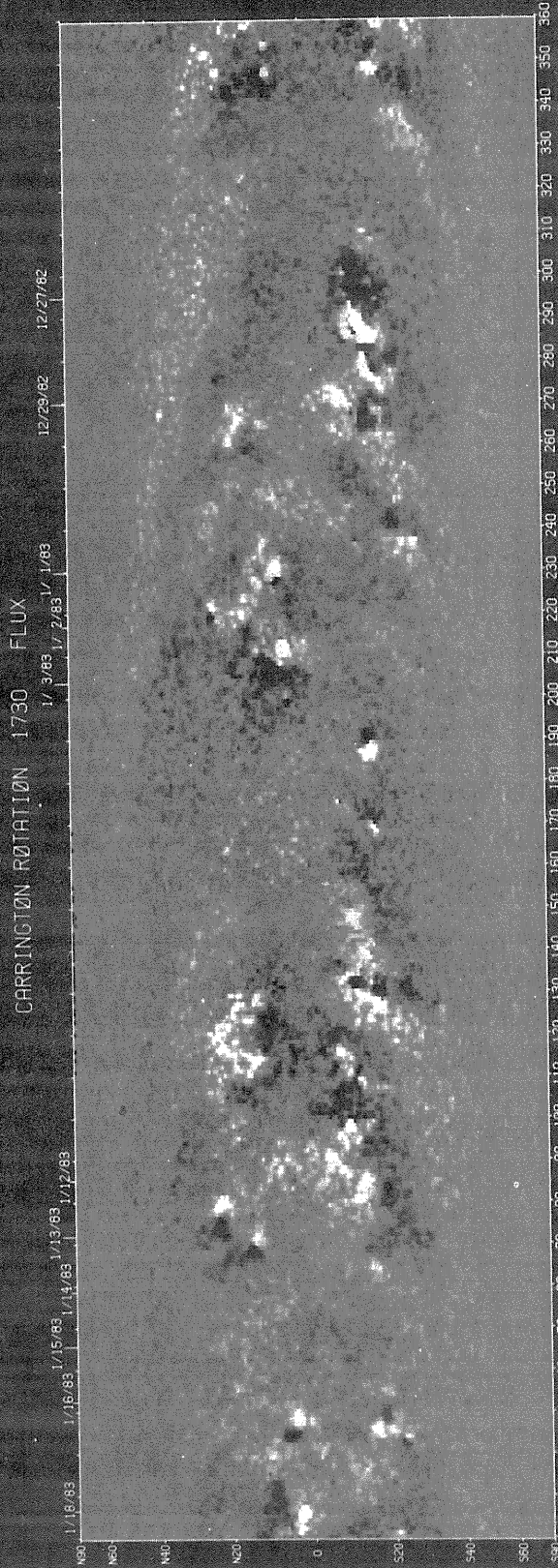


1730

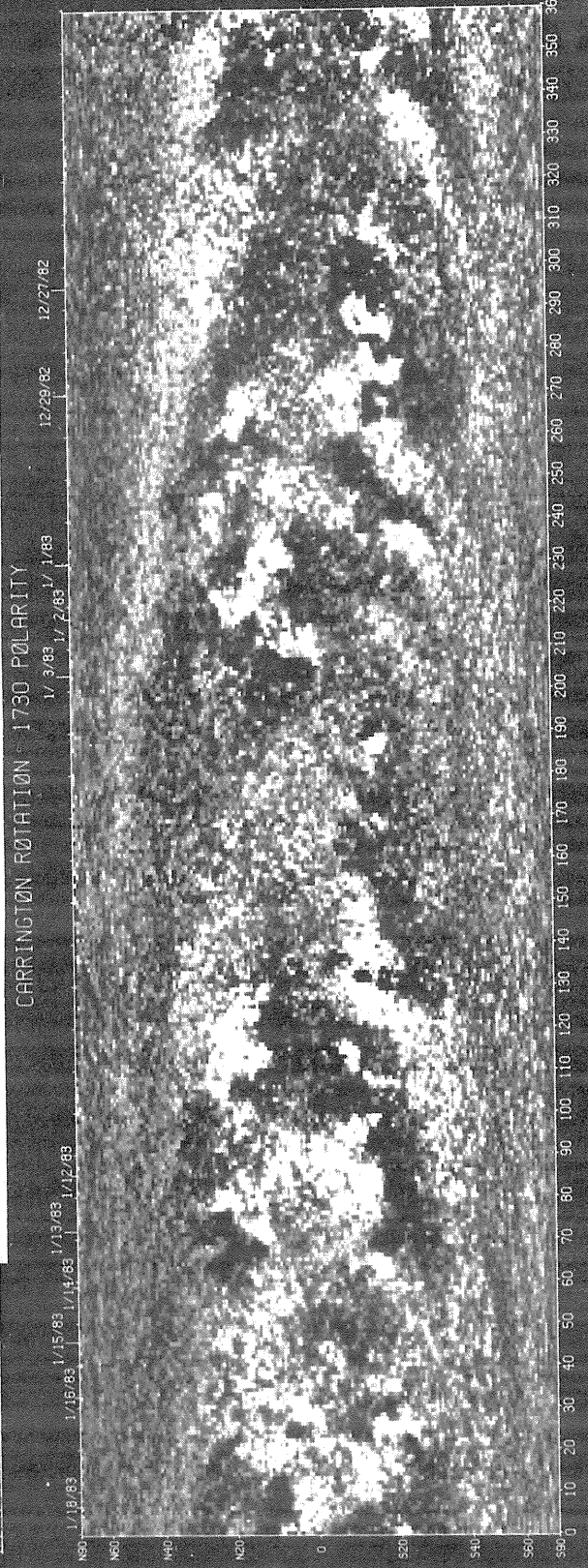


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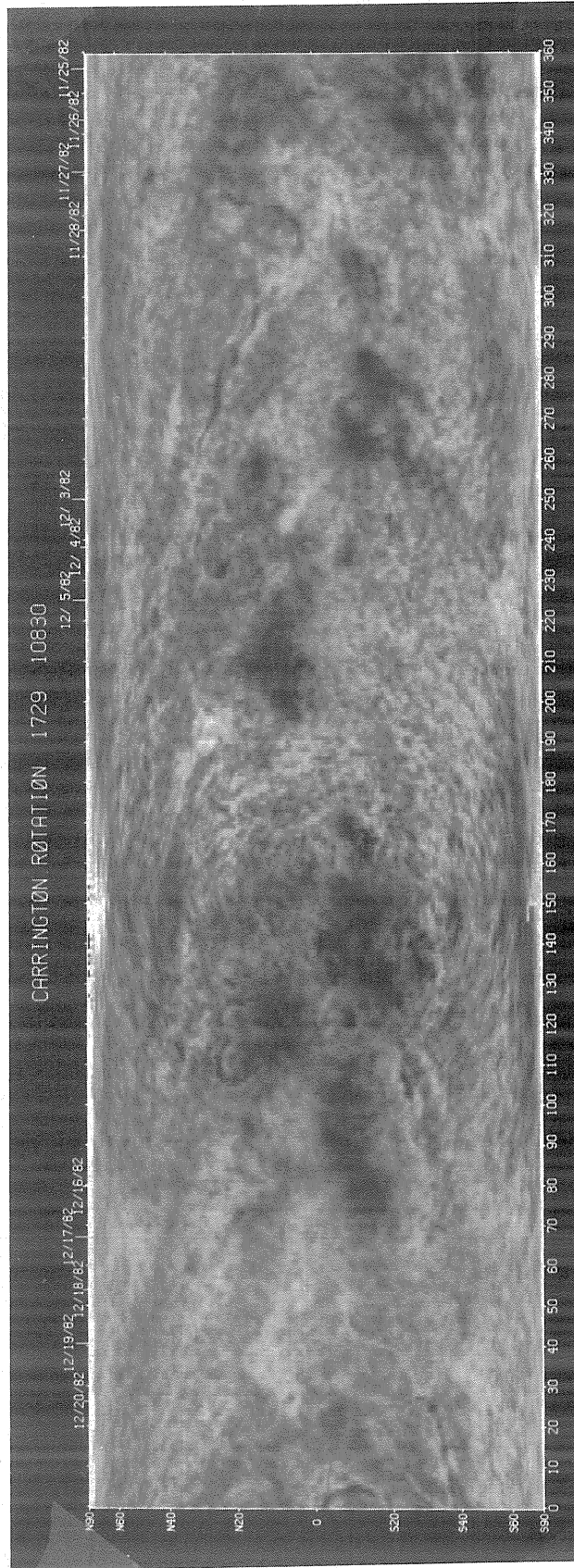


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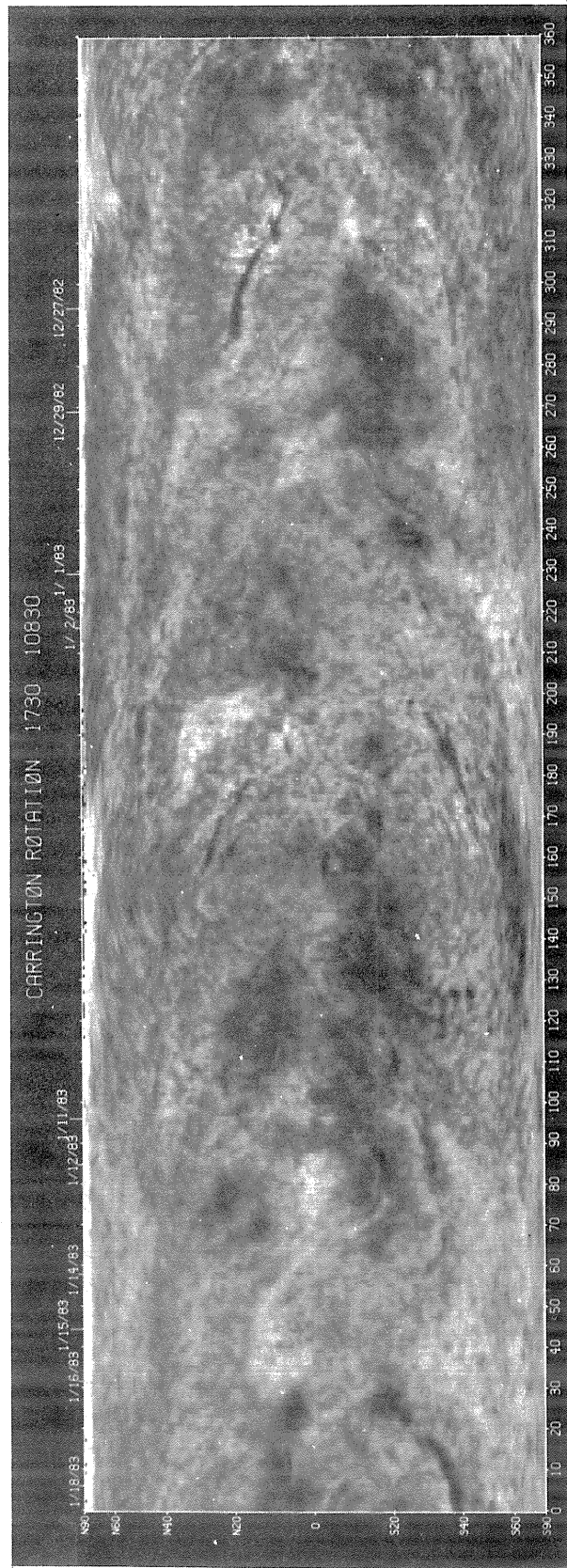
HELIUM 10830Å SYNOPTIC MAPS CARRINGTON ROTATION 1729

KITT PEAK NATIONAL OBSERVATORY



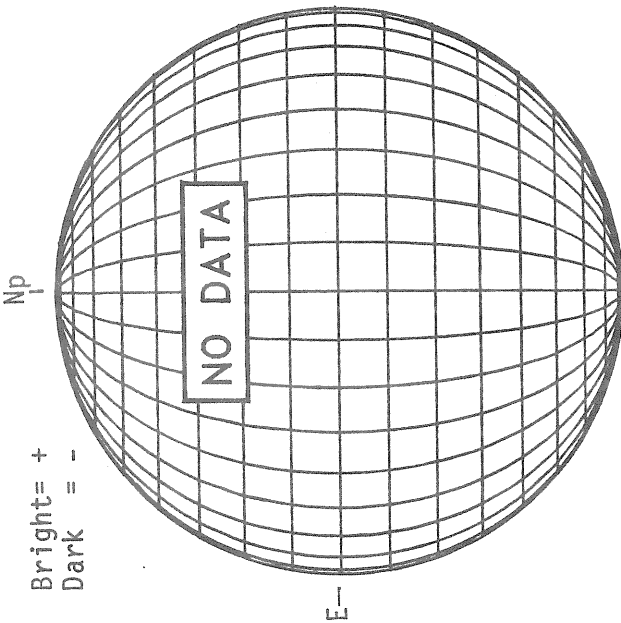
HELIUM 10830Å SYNOPTIC MAPS
CARRINGTON ROTATION 1730

KITT PEAK NATIONAL OBSERVATORY

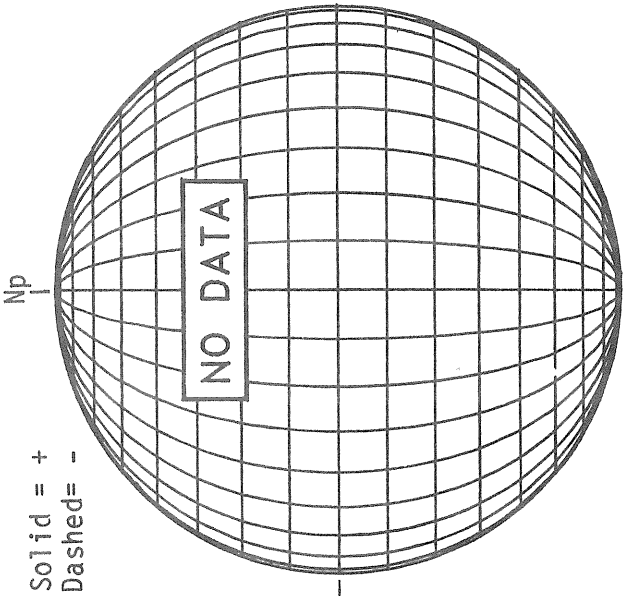


DECEMBER 01, 1982 (P= 16.24, B₀= 0.89, L₀= 287.74)

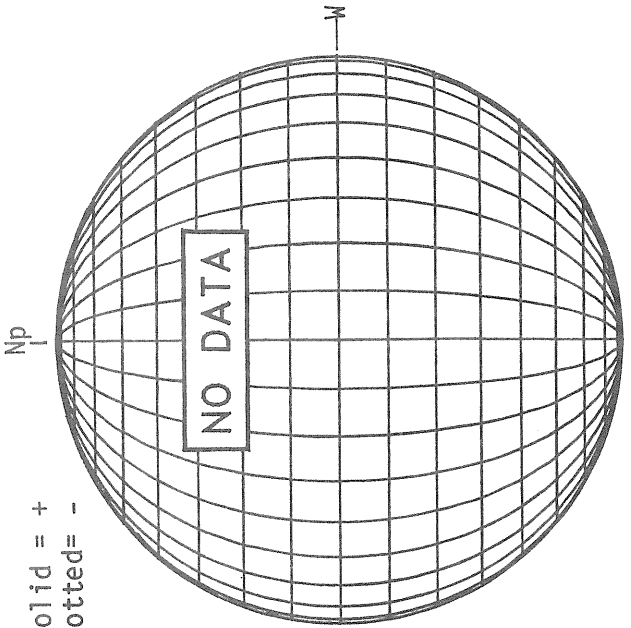
KITT PEAK MAGNETOGRAM



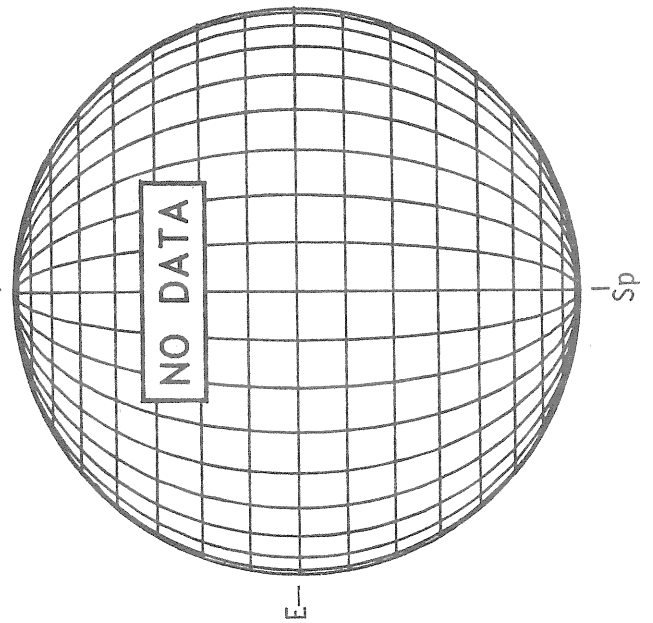
STANFORD MAGNETOGRAM



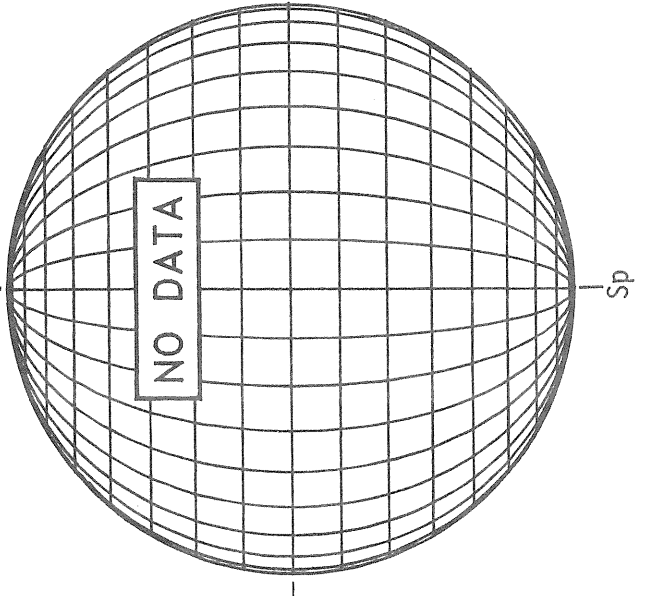
MT. WILSON MAGNETOGRAM



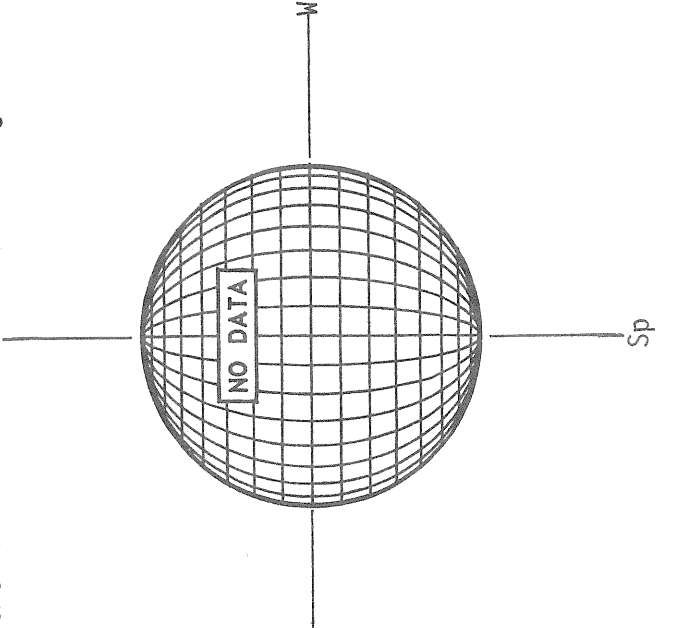
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

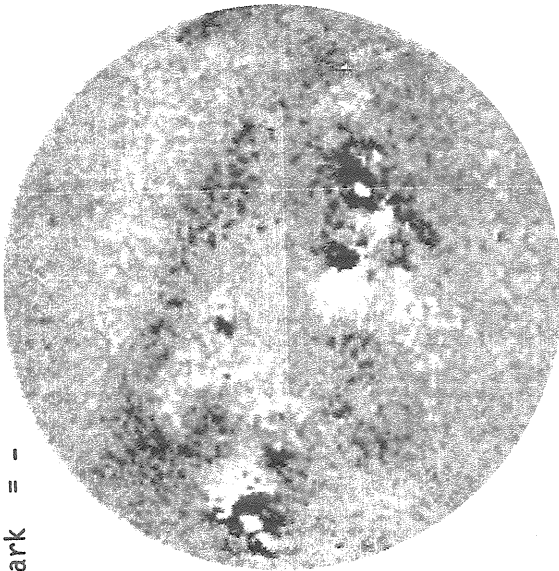


D E C E M B E R 0 2 , 1 9 8 2 (P = 1 5 . 8 6 , B₀ = 0 . 7 6 , L₀ = 2 7 4 . 5 6)

MT. WILSON MAGNETOGRAM

Np

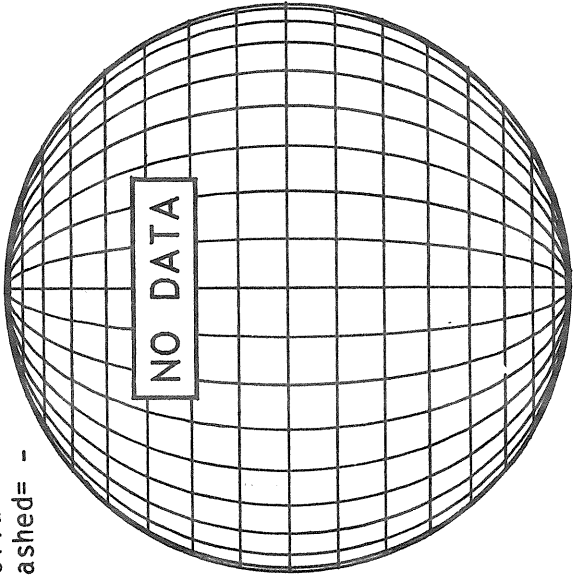
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Dark = -



STANFORD MAGNETOGRAM

Np

Solid = +
Dashed = -

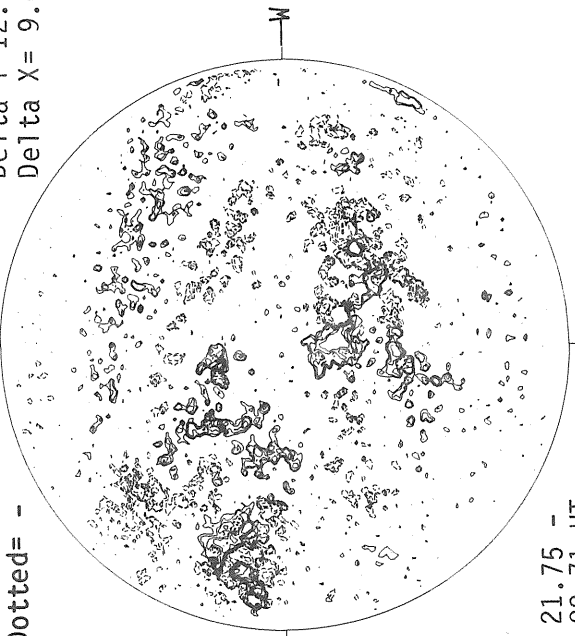


MT. WILSON MAGNETOGRAM

Np

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Dotted = -

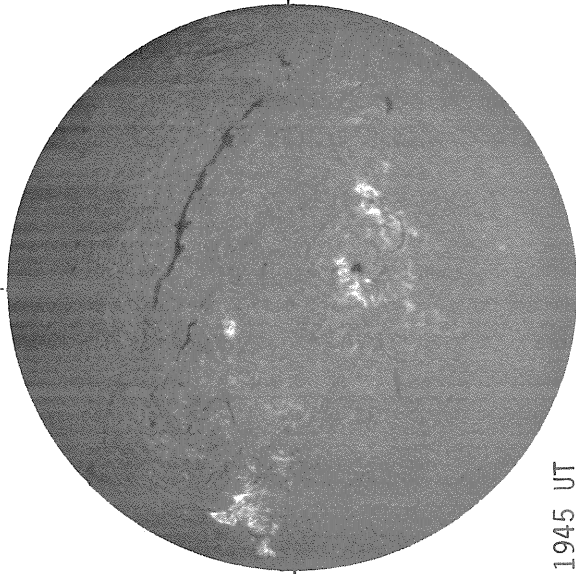
Delta Y = 12.7
Delta X = 9.6



21.75 -
22.71 UT

HOLLOMAN H-ALPHA

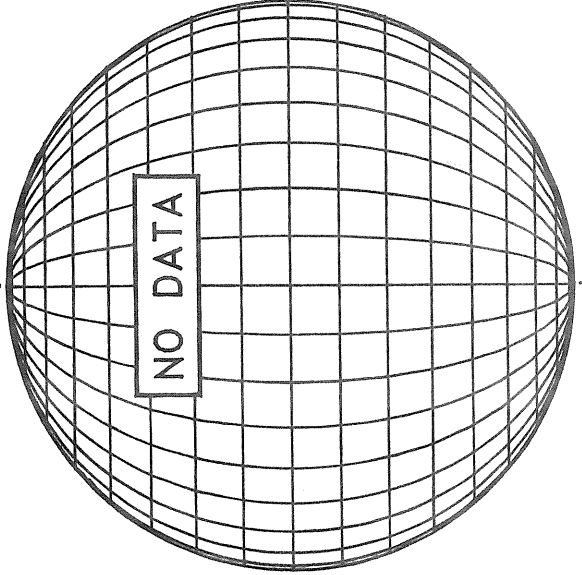
20.4-21.3 UT



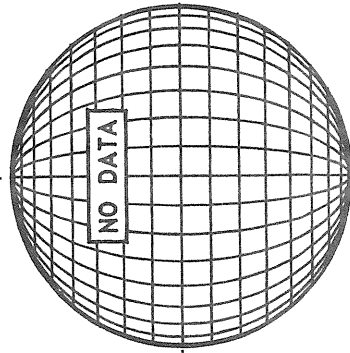
E

1945 UT

BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

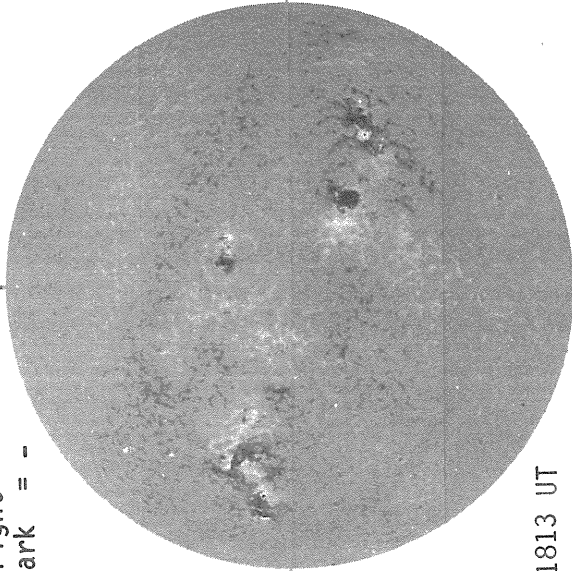


DECEMBER 03, 1982 (P= 15.46, B₀= 0.63, L₀= 261.38)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

Np

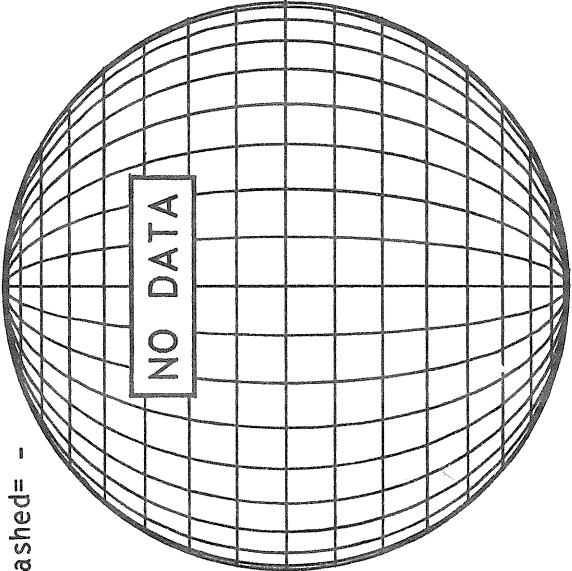


1813 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

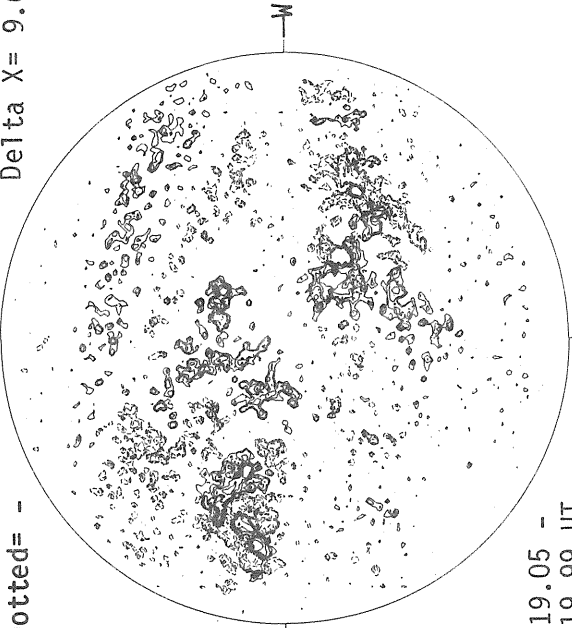
Np



MT. WILSON MAGNETOGRAM

Solid = +
Dotted = -

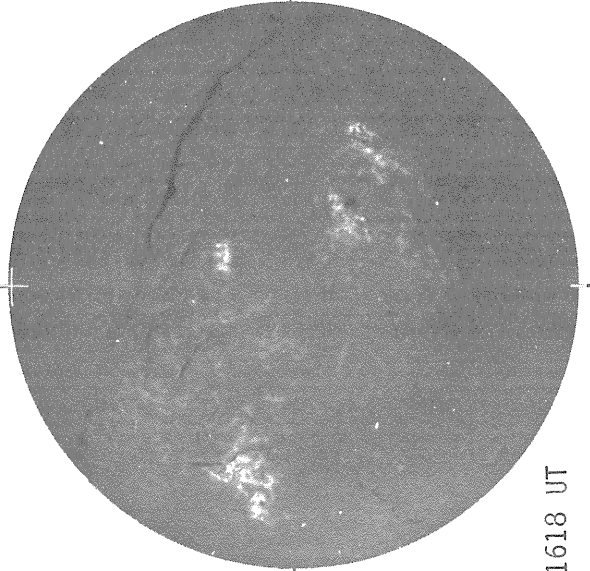
Np



19.05 -
19.99 UT

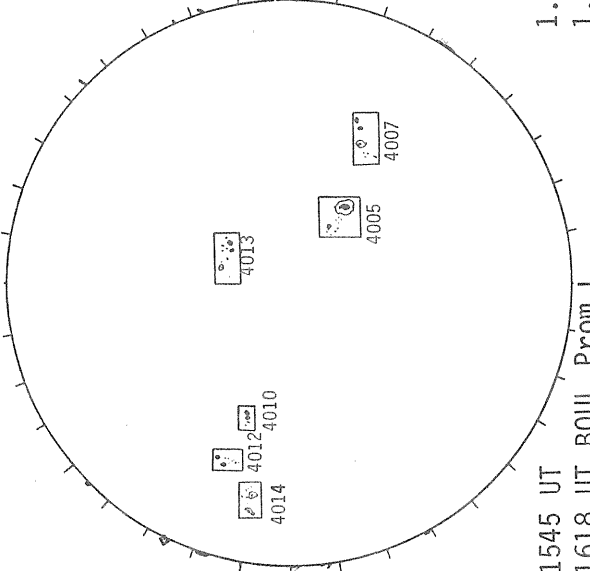
Delta Y=12.7
Delta X= 9.6

BOULDER H-ALPHA



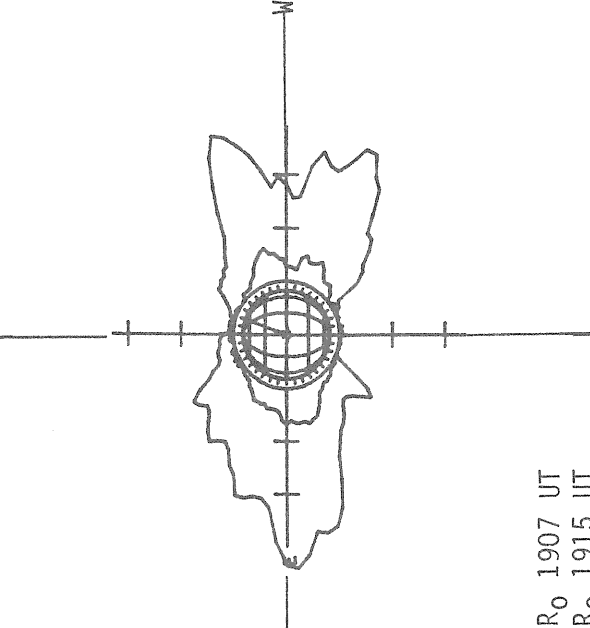
1618 UT

BOULDER SUNSPOTS



1545 UT
1618 UT BOUL Prom

SACRAMENTO PEAK CORONA (5303 Angstrom)



1.15 R₀ 1907 UT
1.35 R₀ 1915 UT

Sp

Sp

Sp

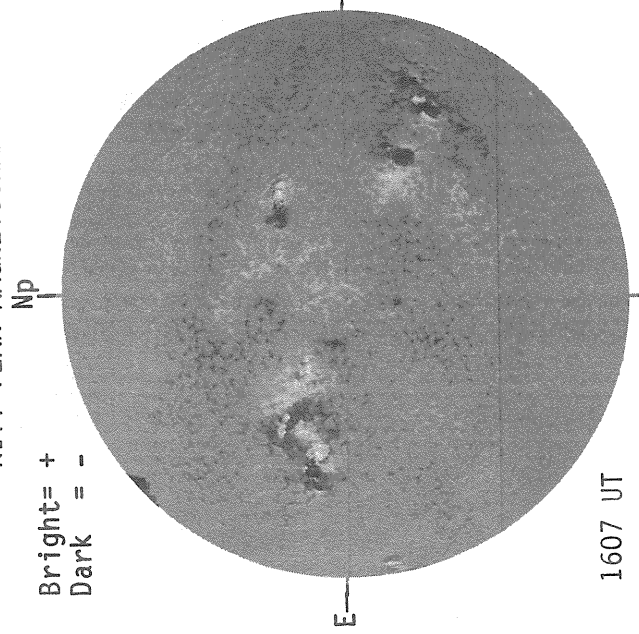
E

E

DECEMBER 04, 1982 (P= 15.07, B₀= 0.51, L₀= 248.20)

KITT PEAK MAGNETOGRAM

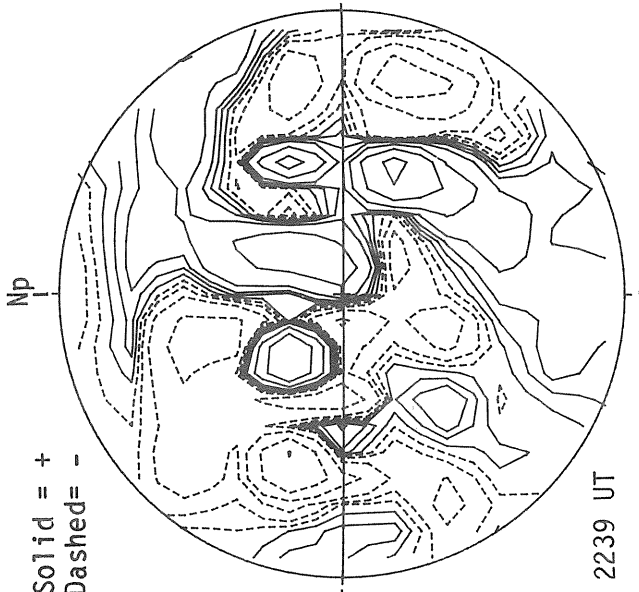
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Dark = -



1607 UT

STANFORD MAGNETOGRAM

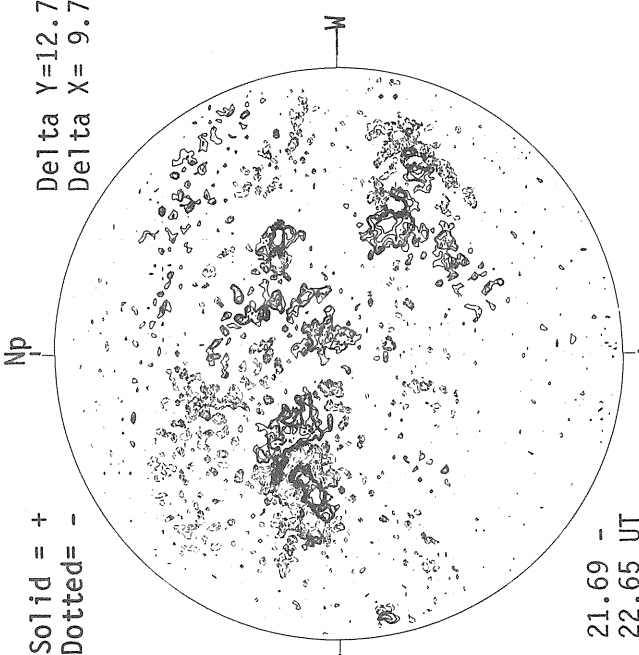
Solid = +
Dashed = -



2239 UT

MT. WILSON MAGNETOGRAM

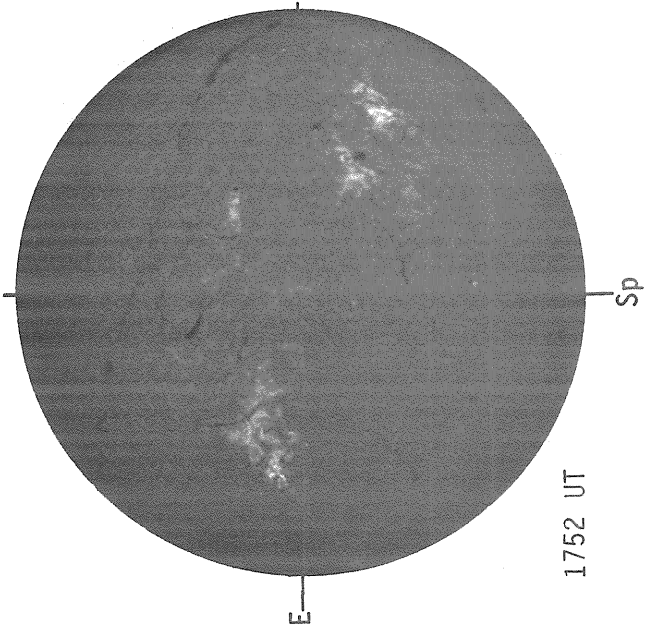
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Dotted = -



21.69 -
22.65 UT

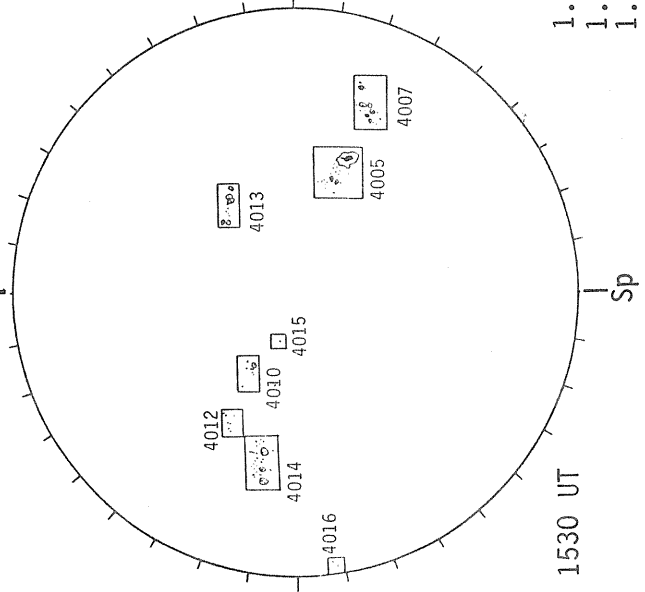
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Delta X= 9.7

HOLLOMAN H-ALPHA



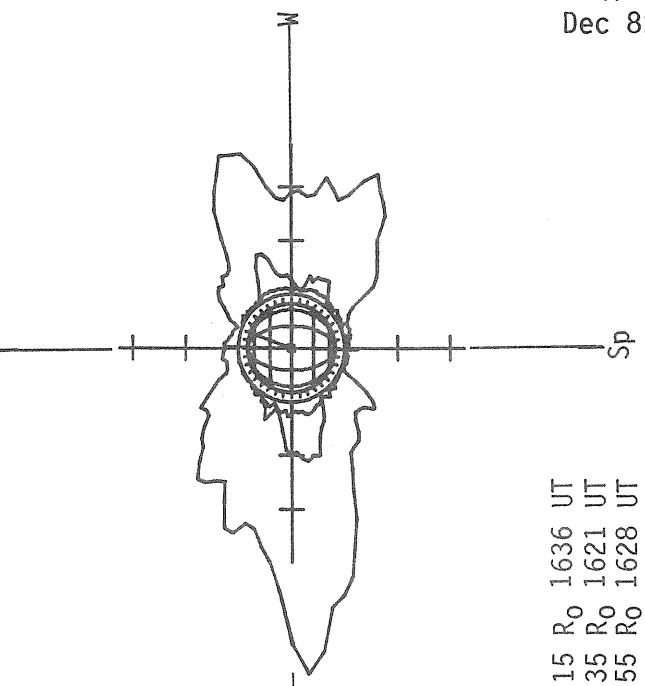
1752 UT

BOULDER SUNSPOTS



1530 UT

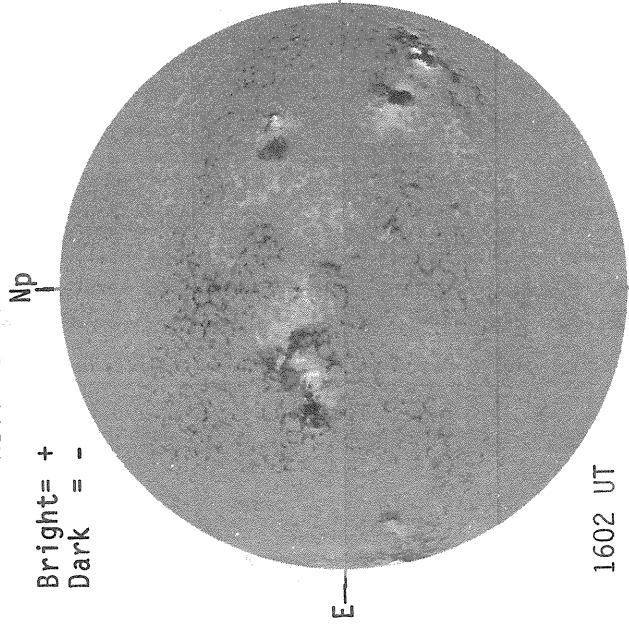
SACRAMENTO PEAK CORONA (5303 Angstrom)



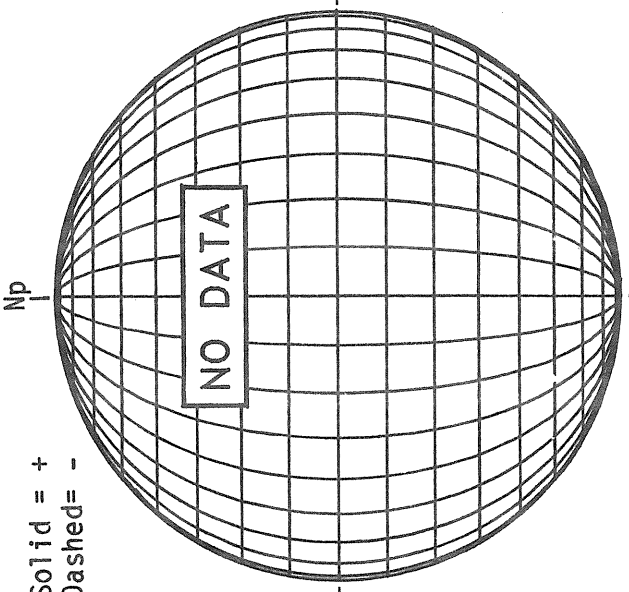
1.15 R₀ 1636 UT
1.35 R₀ 1621 UT
1.55 R₀ 1628 UT

D E C E M B E R 05, 1 9 8 2 (P= 14.66, B₀= 0.38, L₀= 235.03)

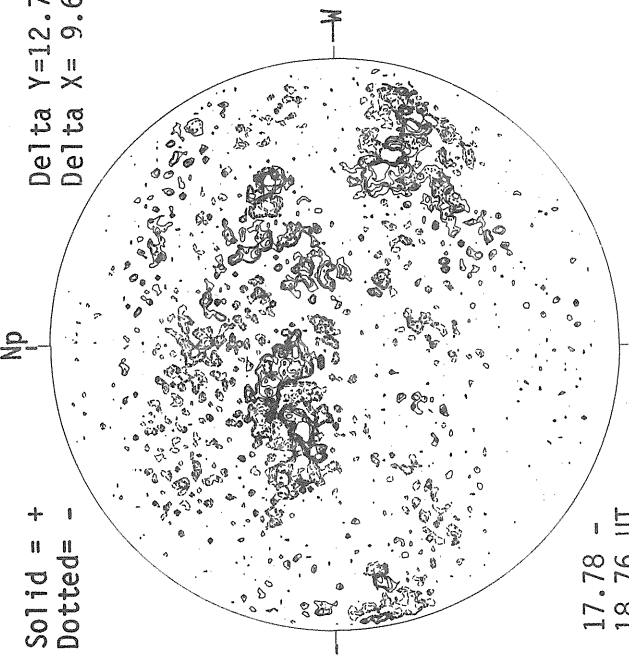
KITT PEAK MAGNETOGRAM



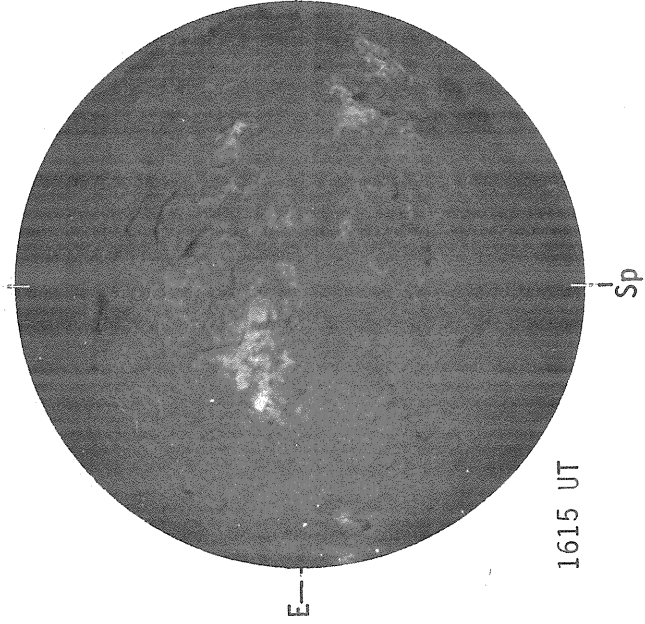
STANFORD MAGNETOGRAM



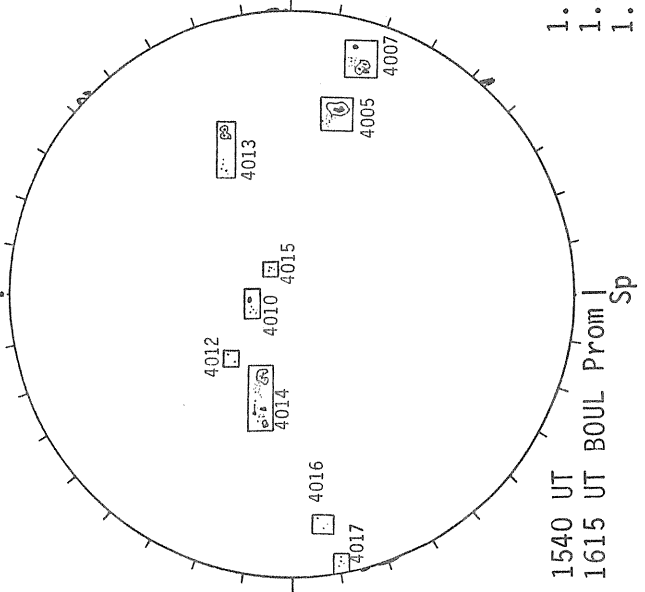
MT. WILSON MAGNETOGRAM



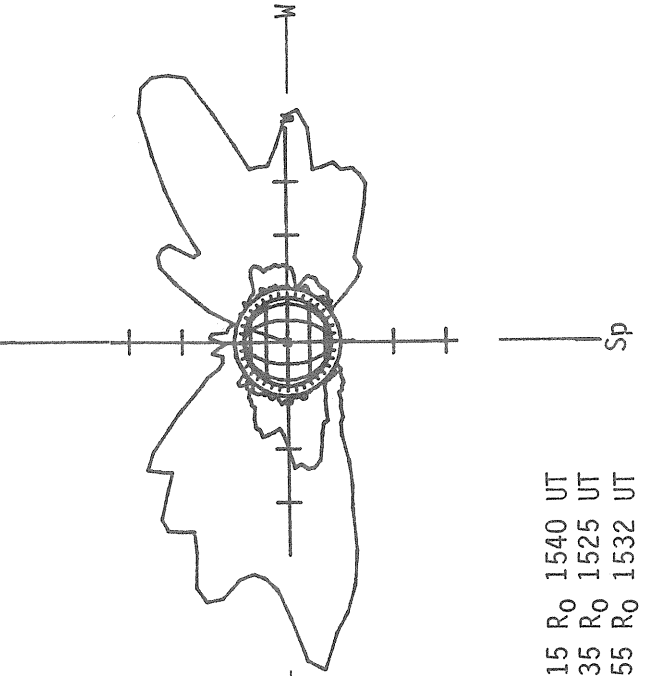
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

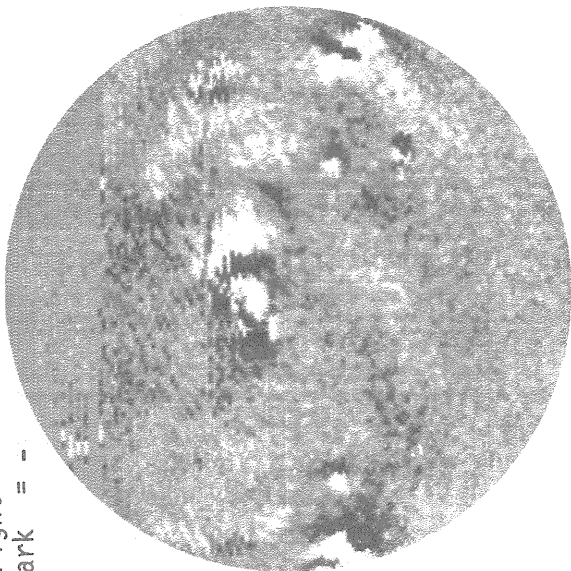


D E C E M B E R 06, 1 9 8 2 (P= 14.25, B₀= 0.25, L₀= 221.85)

MT. WILSON MAGNETOGRAM

Np

Bright= +
Dark = -



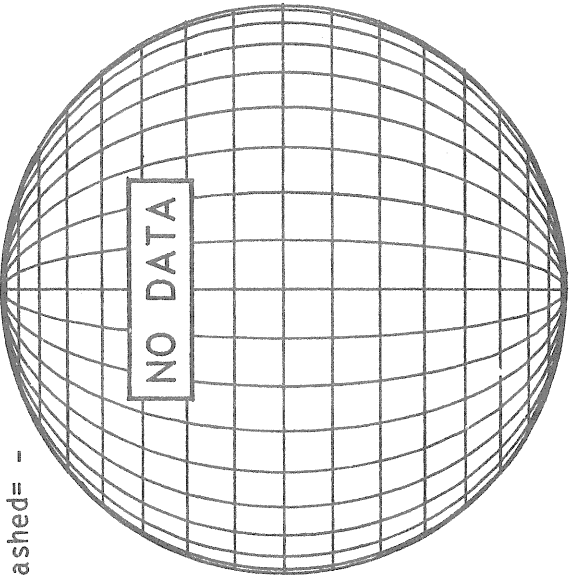
E

20.4-21.3 UT

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed = -

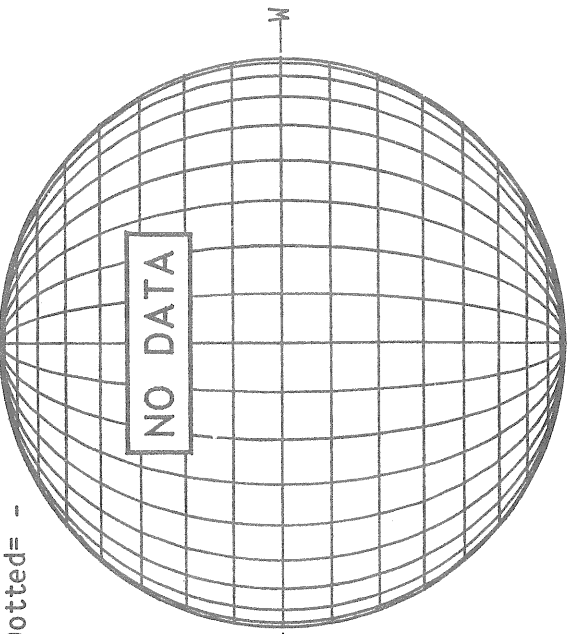


NO DATA

MT. WILSON MAGNETOGRAM

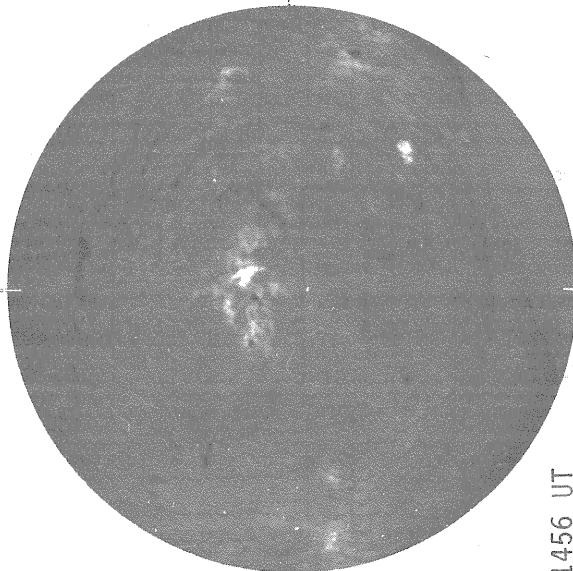
Np

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NO DATA

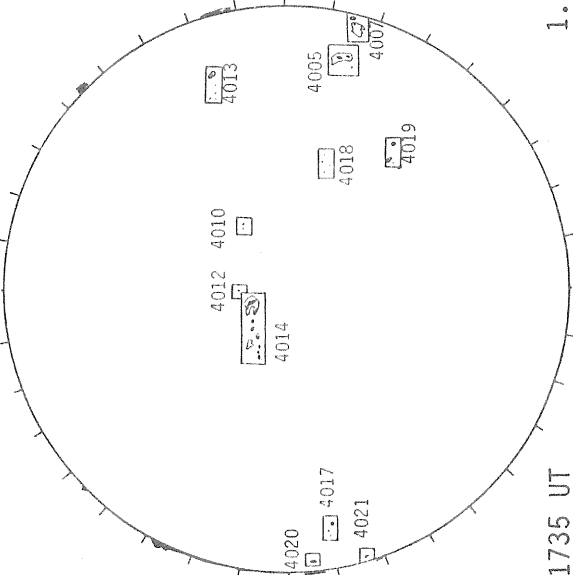
BOULDER H-ALPHA



E

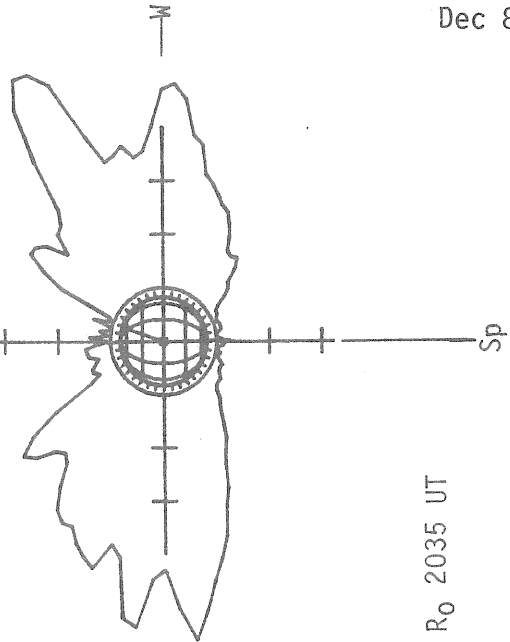
1456 UT

BOULDER SUNSPOTS



1735 UT
2030 UT BOUL Prom Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)

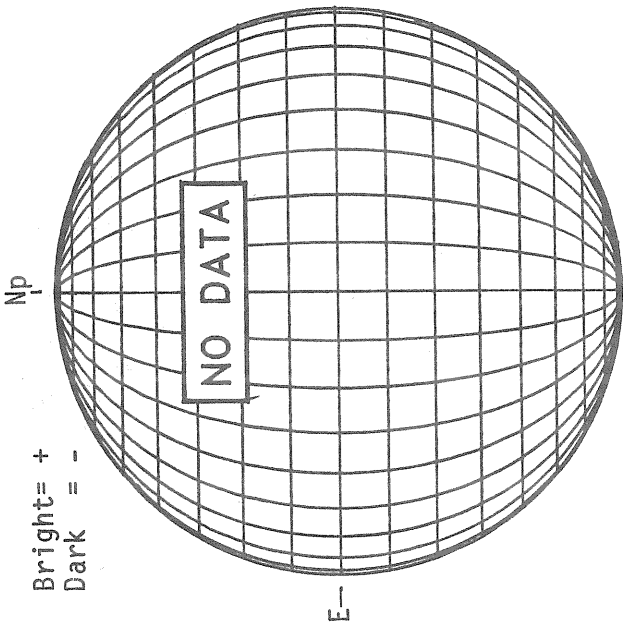


1.15 R₀ 2035 UT

Sp

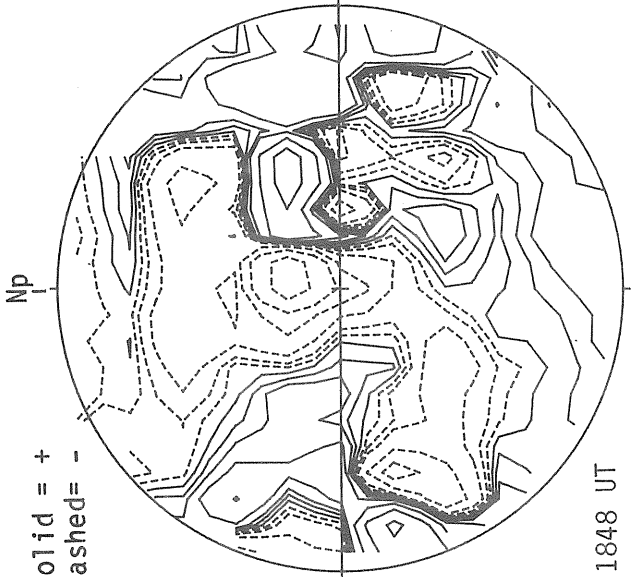
D E C E M B E R 07, 1 9 8 2 (P= 13.84, B₀= 0.12, L₀= 208.67)

KITT PEAK MAGNETOGRAM



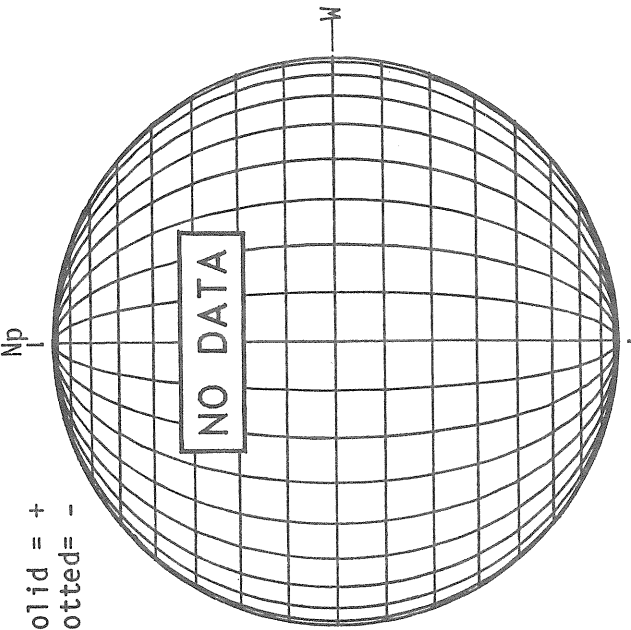
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Dark = -

STANFORD MAGNETOGRAM



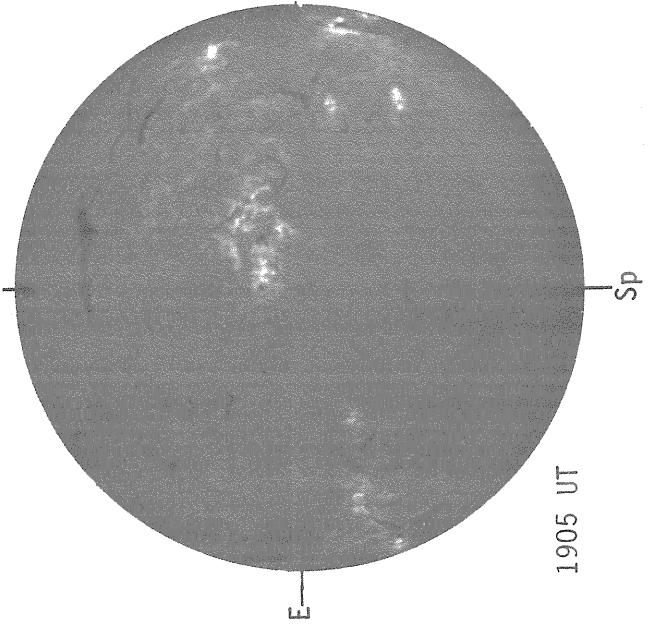
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MT. WILSON MAGNETOGRAM



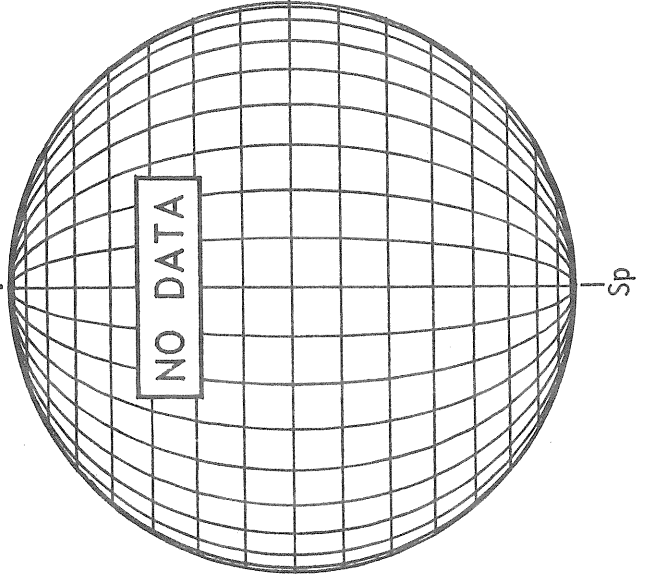
Solid = +
Dotted = -

HOLLOMAN H-ALPHA

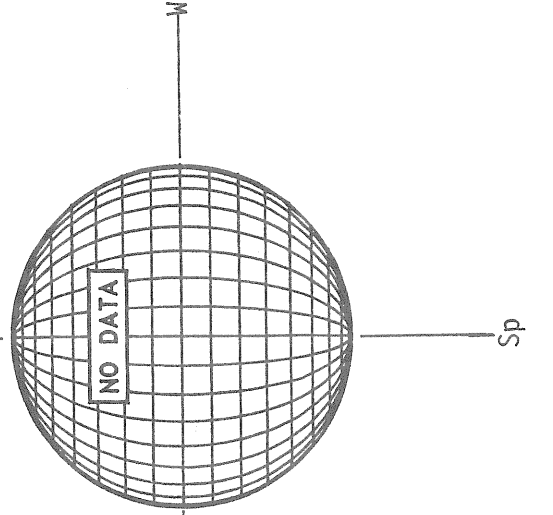


1905 UT

BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

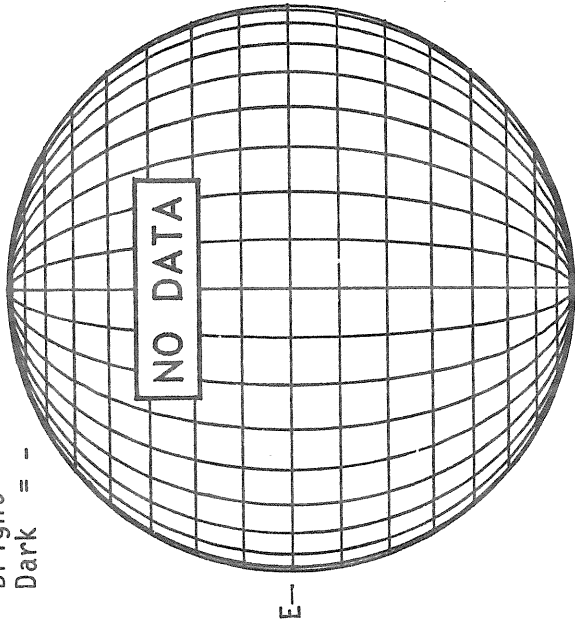


DECEMBER 08, 1982 (P= 13.42, B₀=-0.01, L₀= 195.49)

KITT PEAK MAGNETOGRAM

Np

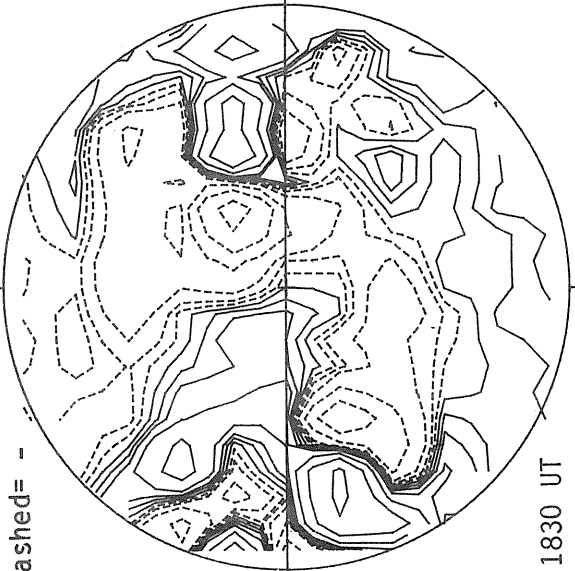
Bright= +
Dark = -



STANFORD MAGNETOGRAM

Np

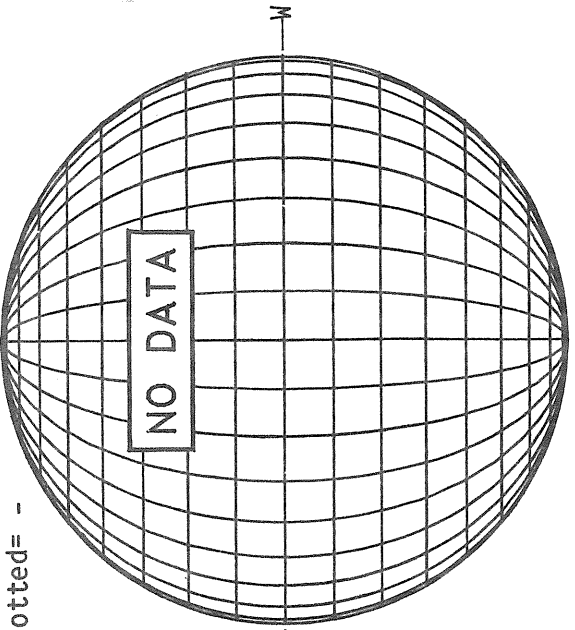
Solid = +
Dashed = -



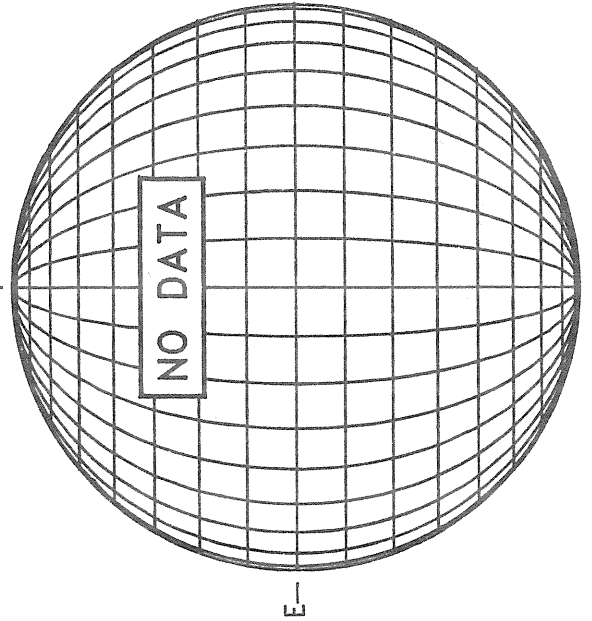
MT. WILSON MAGNETOGRAM

Np

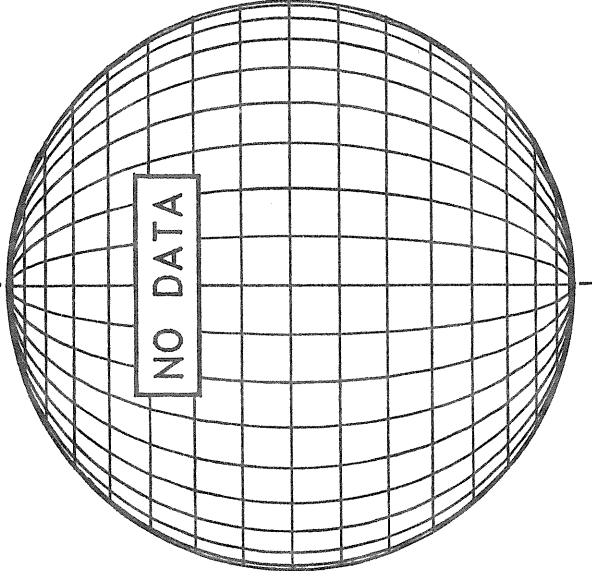
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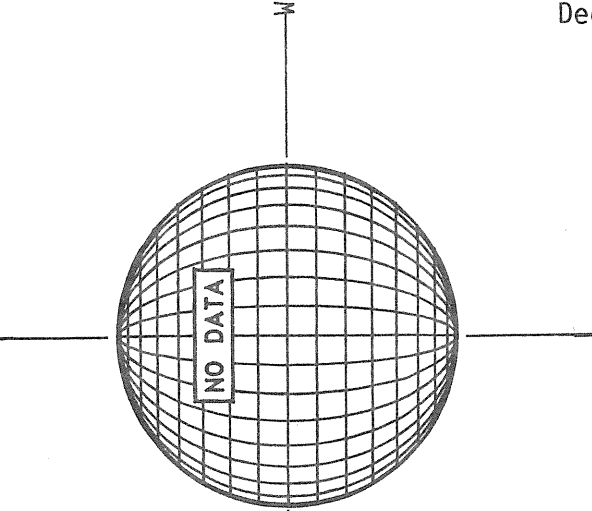
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



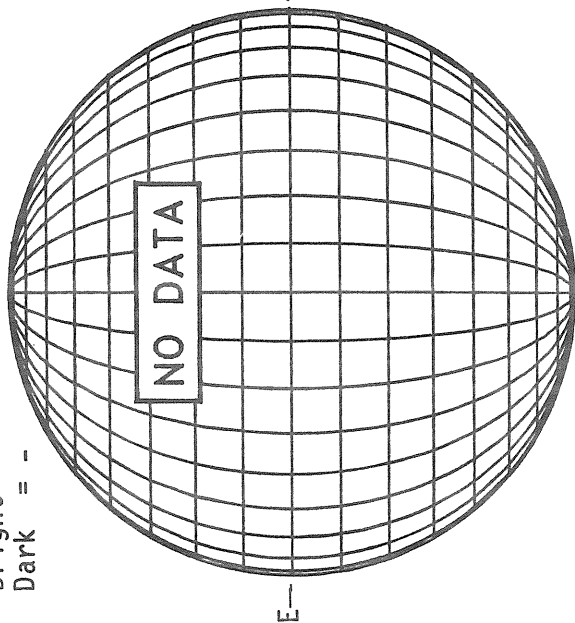
SACRAMENTO PEAK CORONA (5303 Angstrom)



D E C E M B E R 09, 1 9 8 2 (P= 13.00, B₀=-0.13, L₀= 182.32)

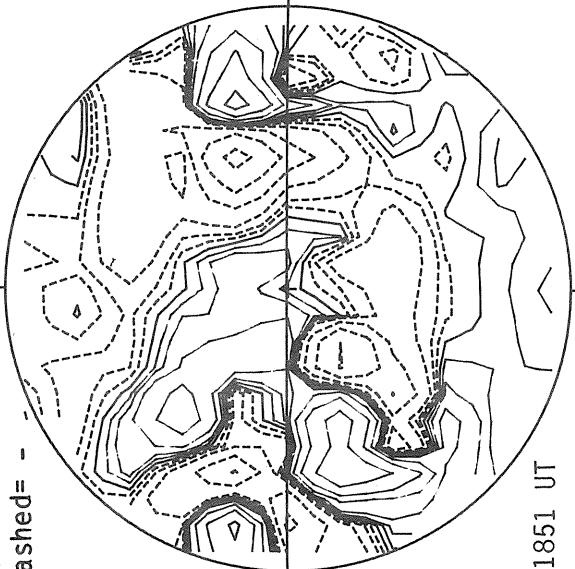
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



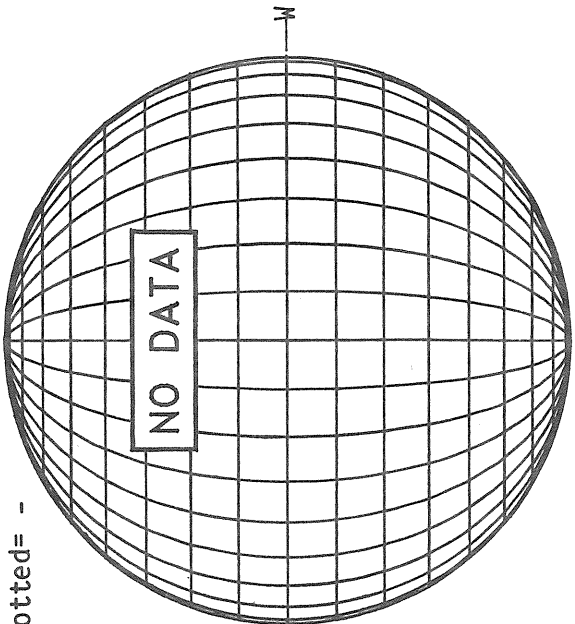
STANFORD MAGNETOGRAM

Solid = +
Dashed = -

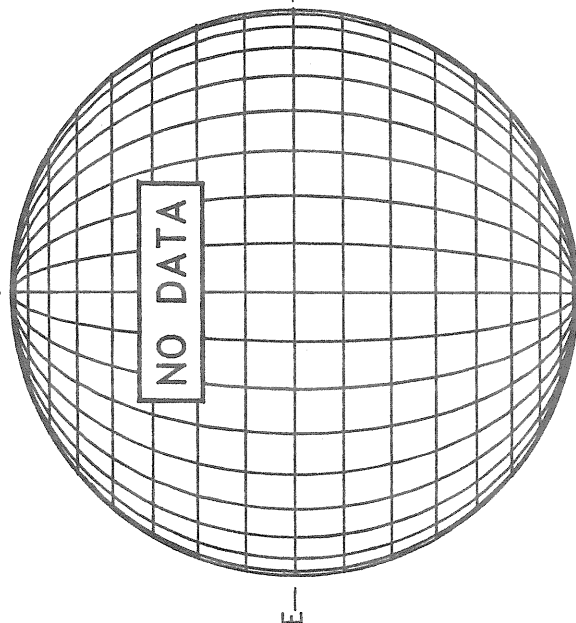


MT. WILSON MAGNETOGRAM

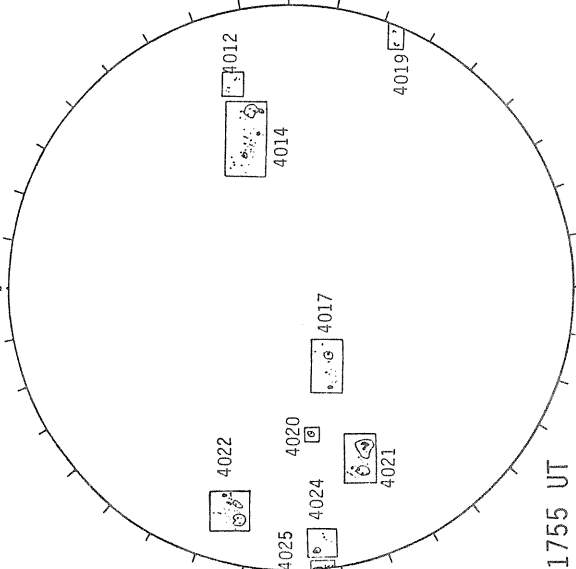
Solid = +
Dotted = -



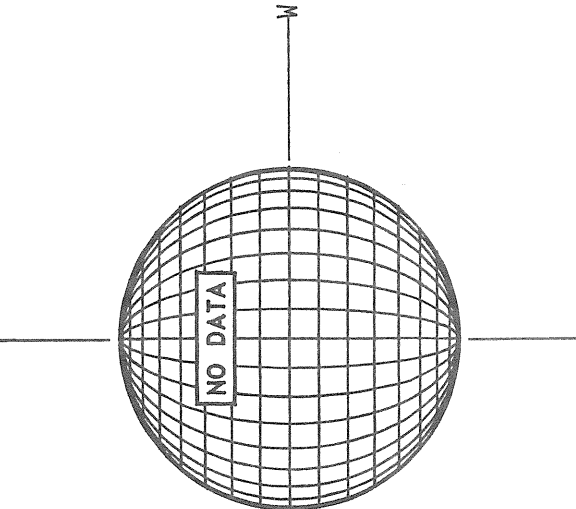
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

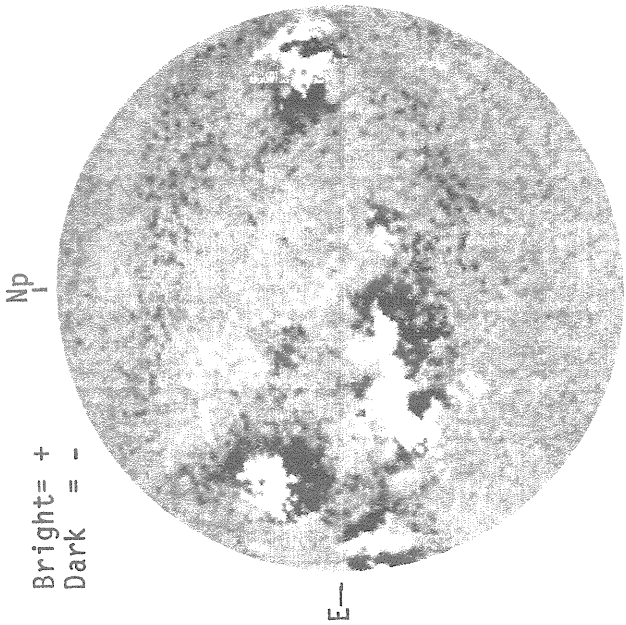


SACRAMENTO PEAK CORONA (5303 Angstrom)

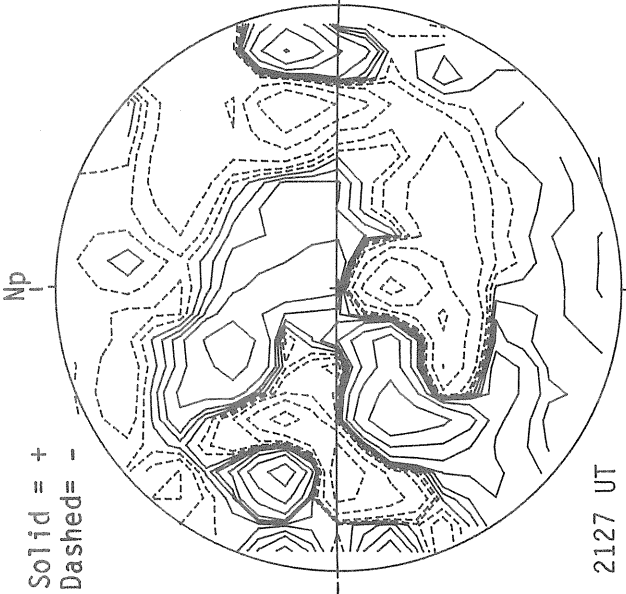


DECEMBER 10, 1982 (P= 12.57, B₀=-0.26, L₀= 169.14)

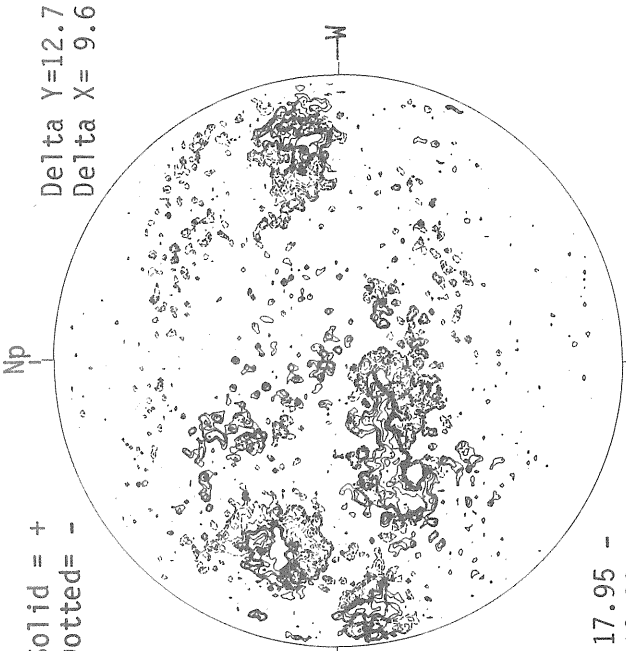
MT. WILSON MAGNETOGRAM



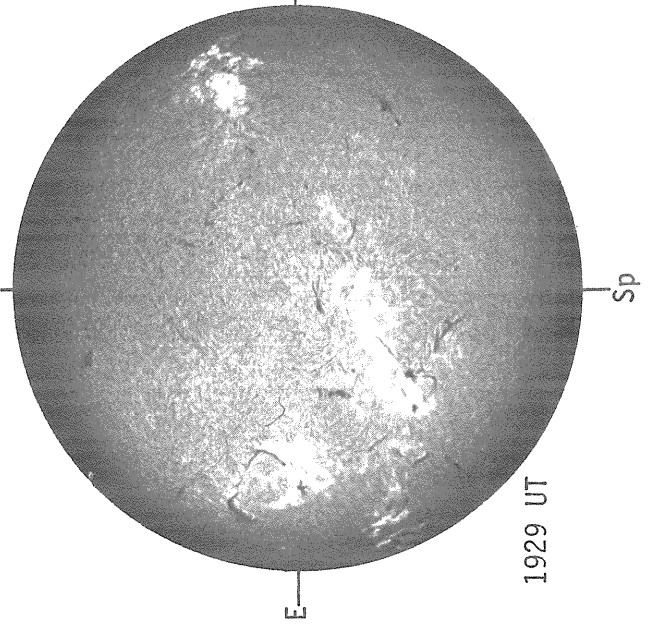
STANFORD MAGNETOGRAM



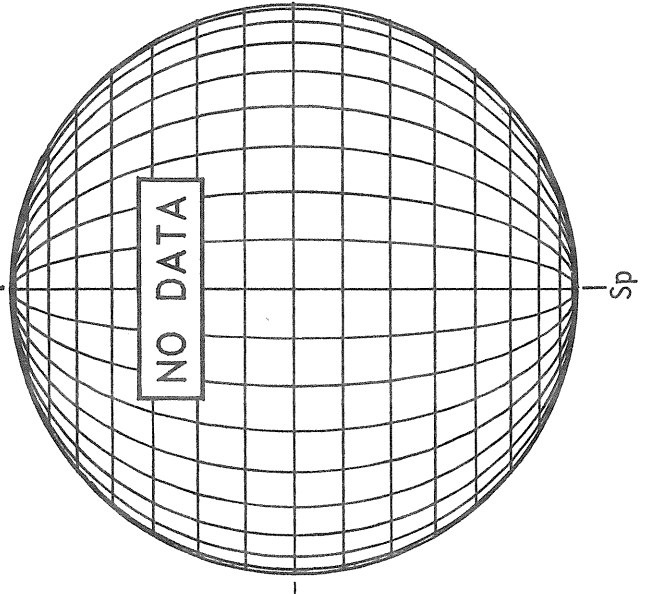
MT. WILSON MAGNETOGRAM



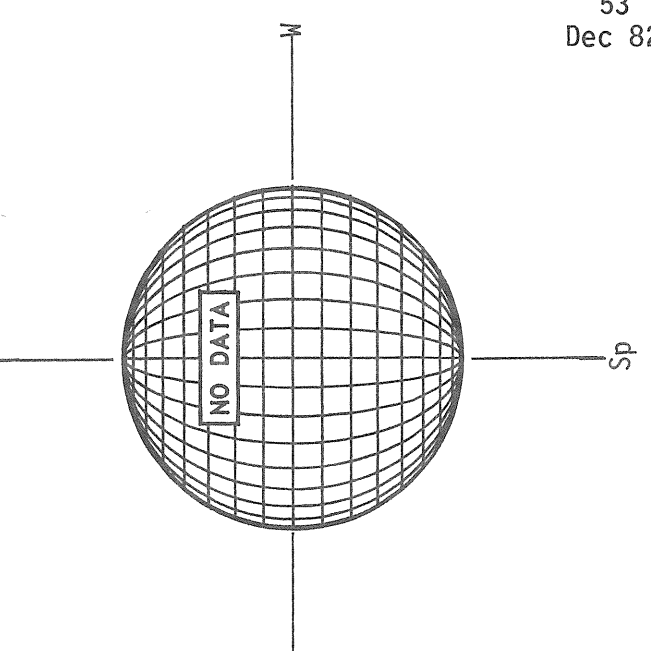
SAN FERNANDO H-ALPHA



BOULDER SUNSPOTS

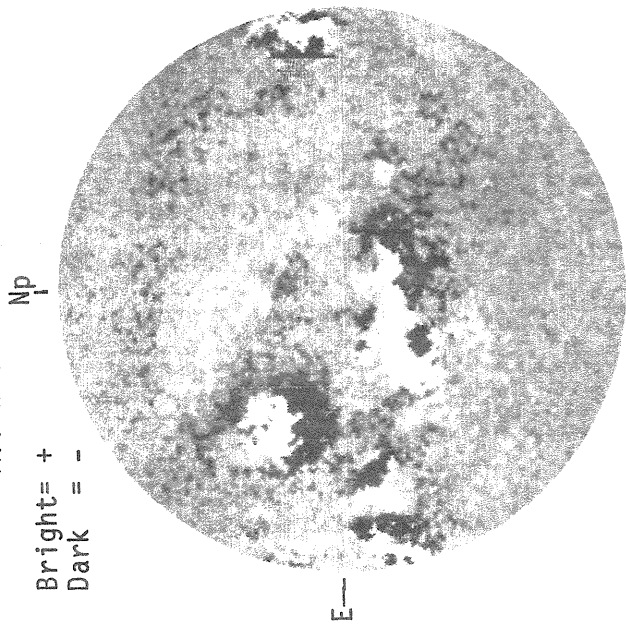


SACRAMENTO PEAK CORONA (5303 Angstrom)



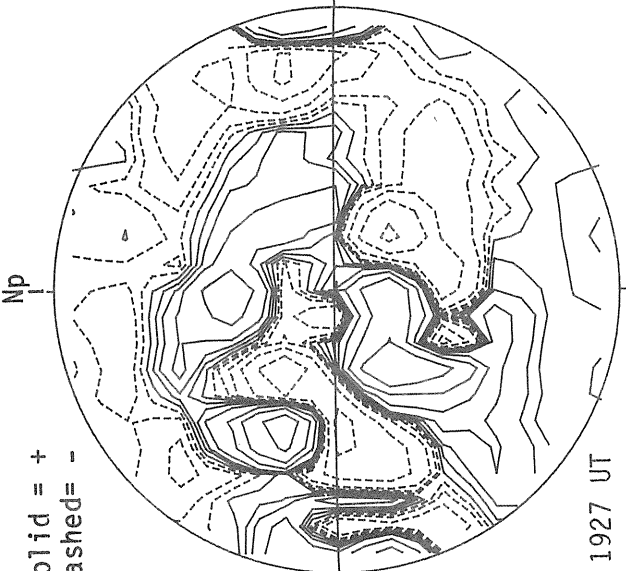
D E C E M B E R 11, 1 9 8 2 (P= 12.14, B₀=-0.39, L₀= 155.96)

MT. WILSON MAGNETOGRAM



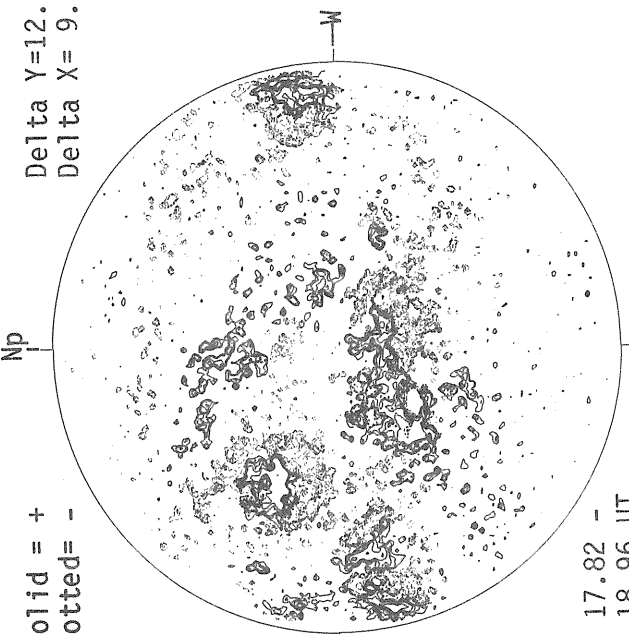
Bright= +
Dark = -

STANFORD MAGNETOGRAM



Solid = +
Dashed = -

MT. WILSON MAGNETOGRAM

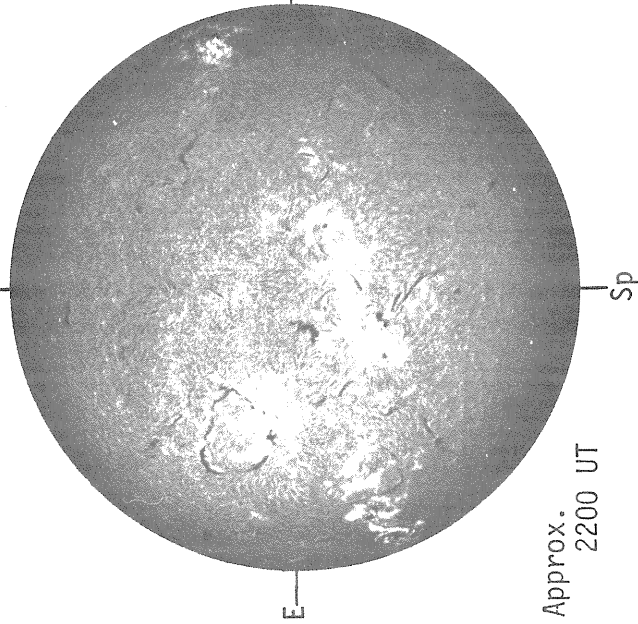


Solid = +
Dotted = -

Delta Y=12.7
Delta X= 9.6

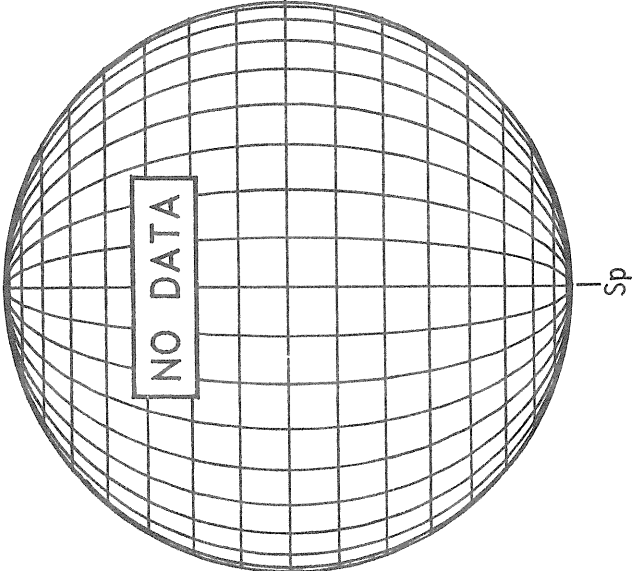
17.82 -
18.96 UT

SAN FERNANDO H-ALPHA

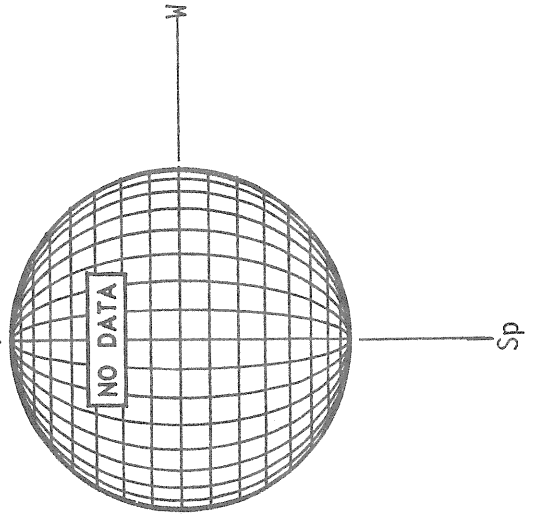


Approx.
2200 UT

BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

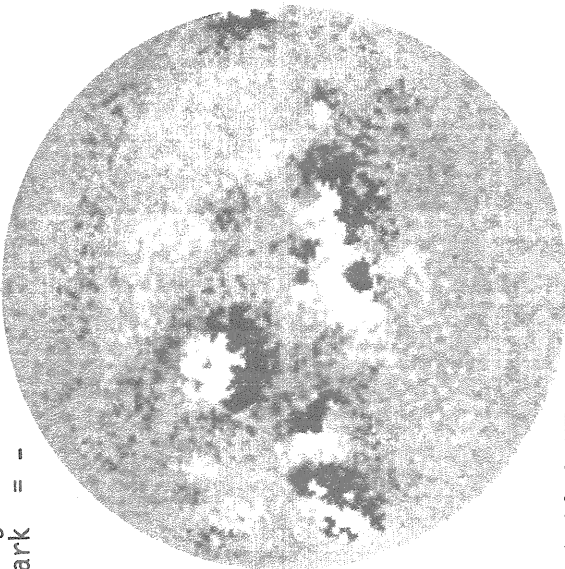


DECEMBER 12, 1982 (P= 11.70, B₀=-0.52, L₀= 142.79)

MT. WILSON MAGNETOGRAM

Np

Bright= +
Dark = -

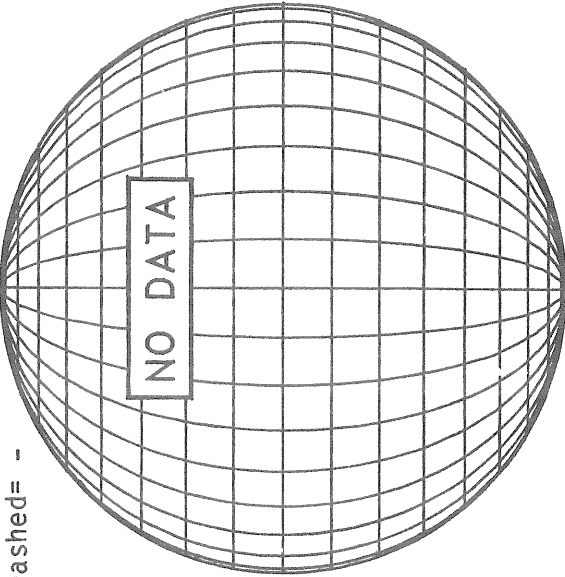


18.1-19.1 UT

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed = -

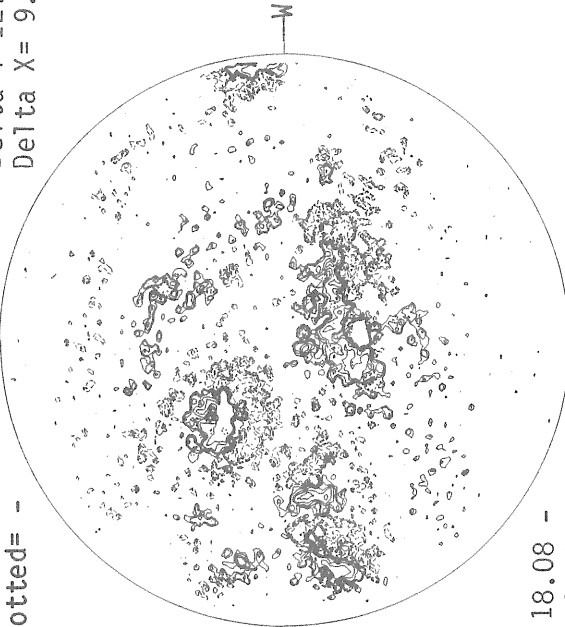


18.08 -
19.11 UT

MT. WILSON MAGNETOGRAM

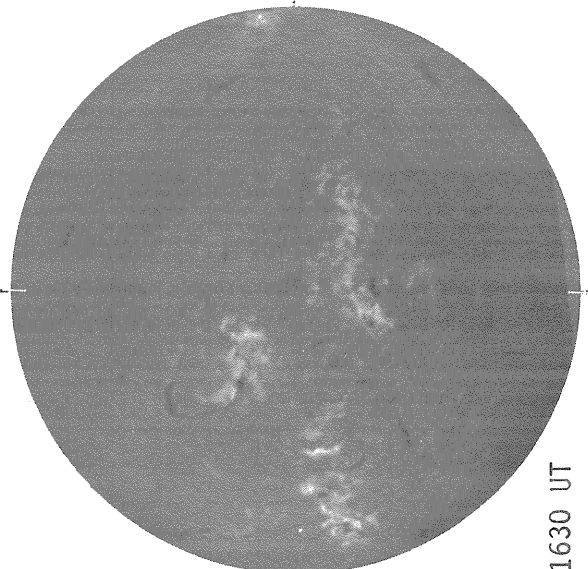
Np

Solid = +
Dotted = -



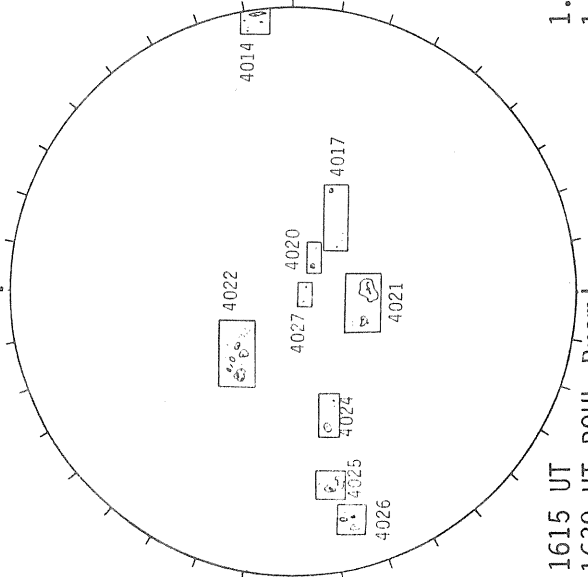
Delta Y=12.7
Delta X= 9.6

BOULDER H-ALPHA



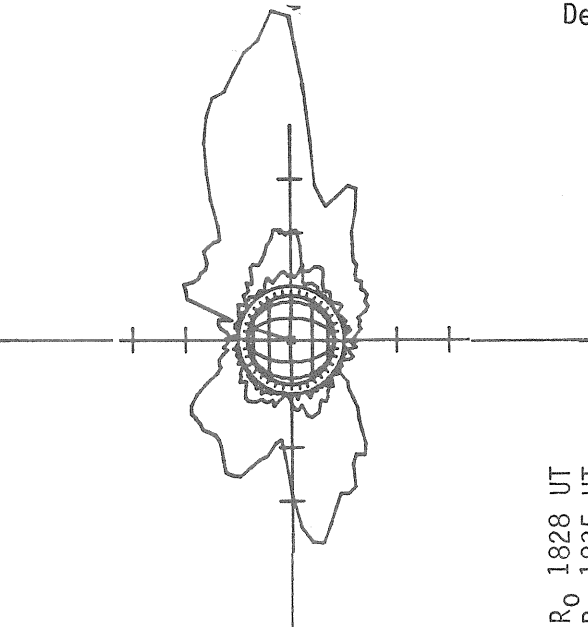
1630 UT

BOULDER SUNSPOTS



1615 UT
1630 UT BOUL Prom
Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)

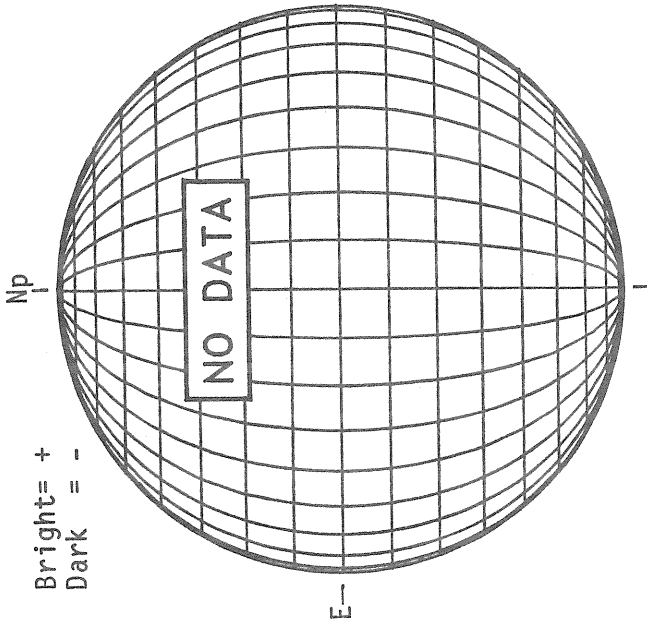


1.15 R₀ 1828 UT
1.35 R₀ 1835 UT
1.55 R₀ 1841 UT
Sp

D E C E M B E R 13, 1 9 8 2 (P= 11.25, B₀=-0.65, L₀= 129.61)

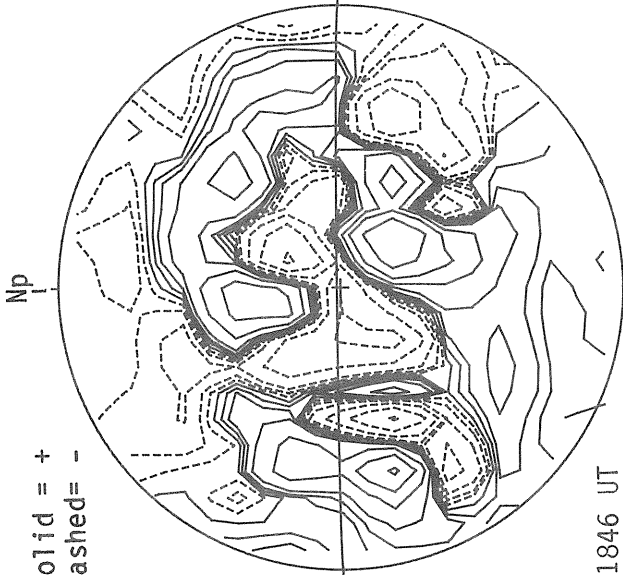
KITT PEAK MAGNETOGRAM

Bright = +
Dark = -



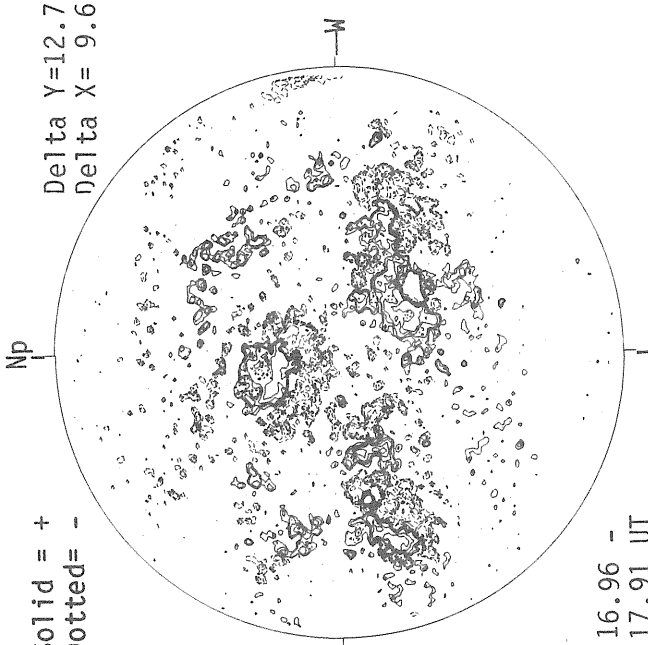
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



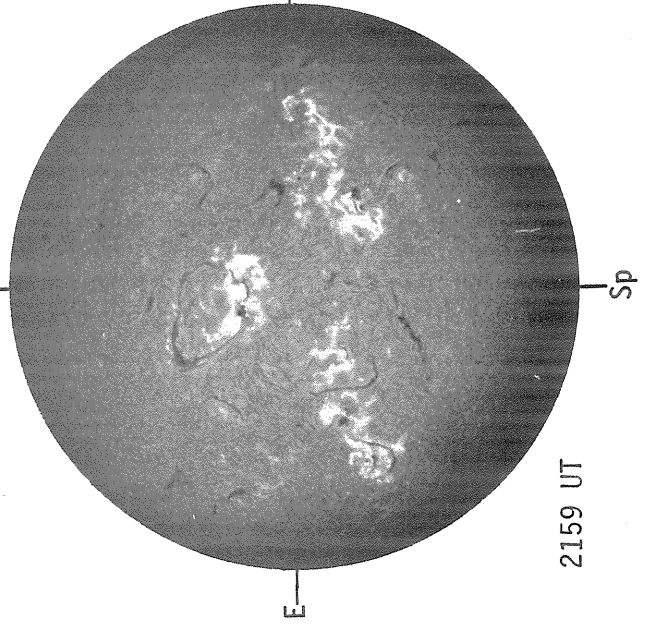
MT. WILSON MAGNETOGRAM

Solid = +
Dotted = -



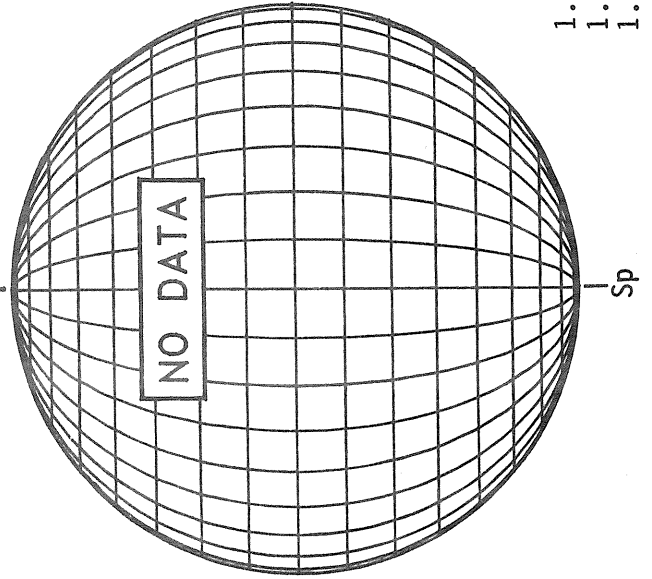
16.96 -
17.91 UT

SAN FERNANDO H-ALPHA

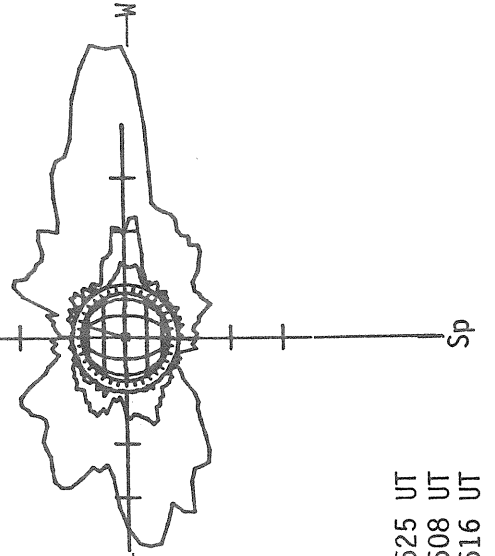


2159 UT

BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



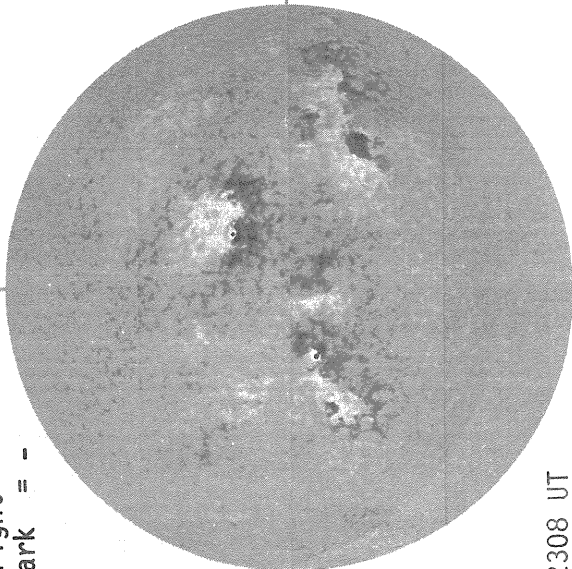
1.15 R₀ 1625 UT
1.35 R₀ 1608 UT
1.55 R₀ 1616 UT

DECEMBER 14, 1982 (P= 10.81, B₀=-0.77, L₀= 116.44)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

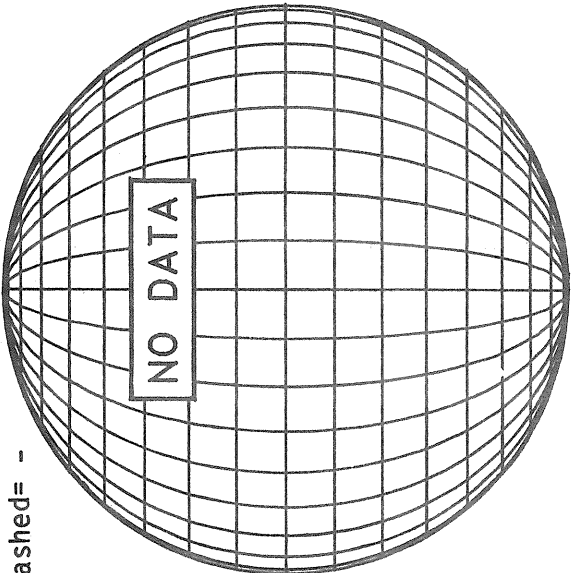


2308 UT

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed = -

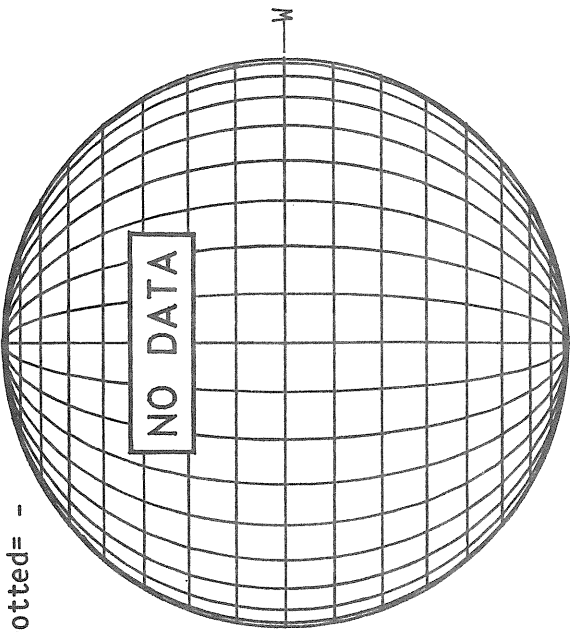


NO DATA

MT. WILSON MAGNETOGRAM

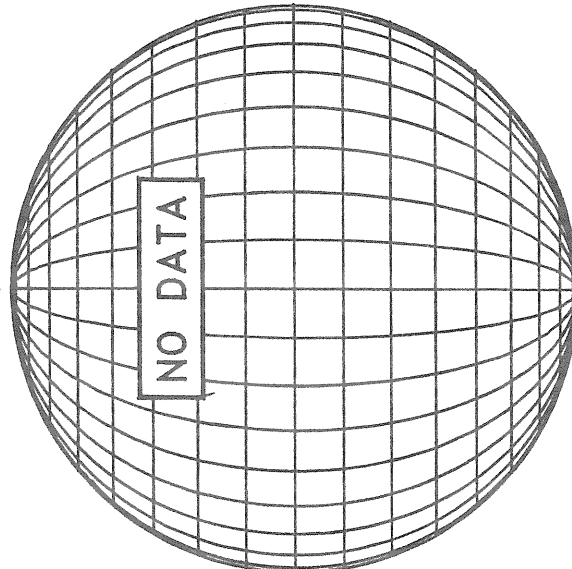
Np

Solid = +
Dotted = -



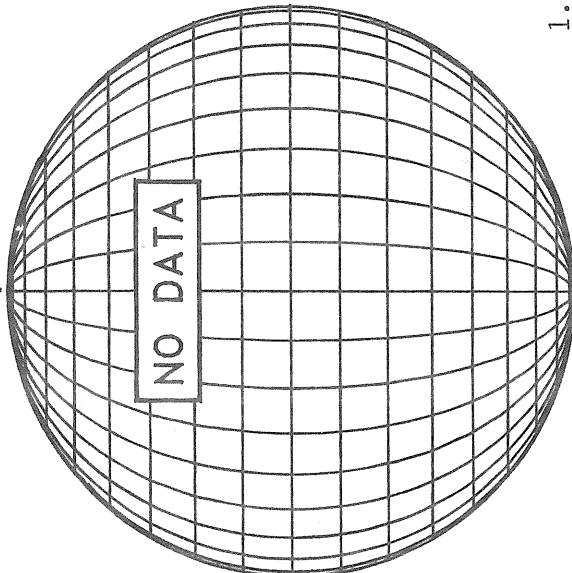
NO DATA

SACRAMENTO PEAK H-ALPHA



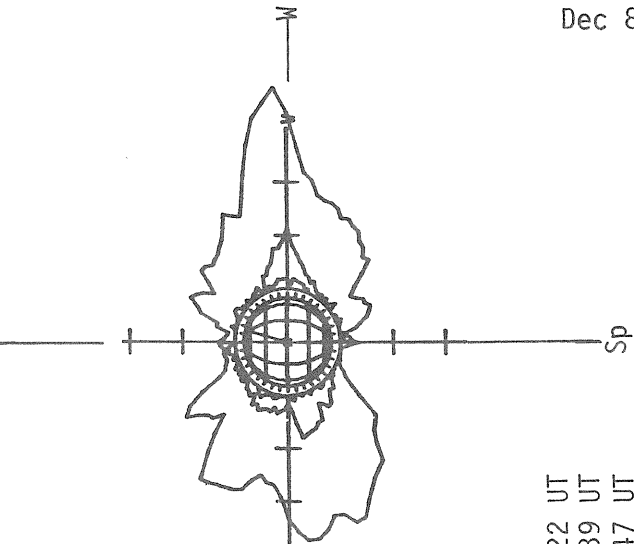
NO DATA

BOULDER SUNSPOTS



NO DATA

SACRAMENTO PEAK CORONA (5303 Angstrom)

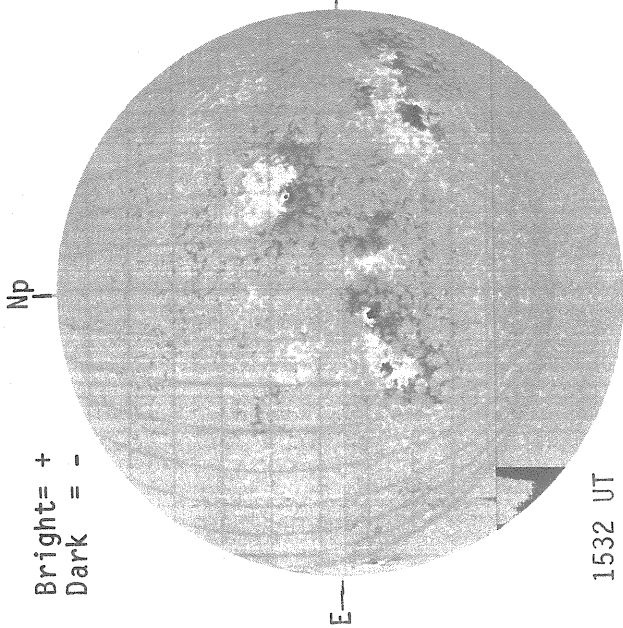


NO DATA

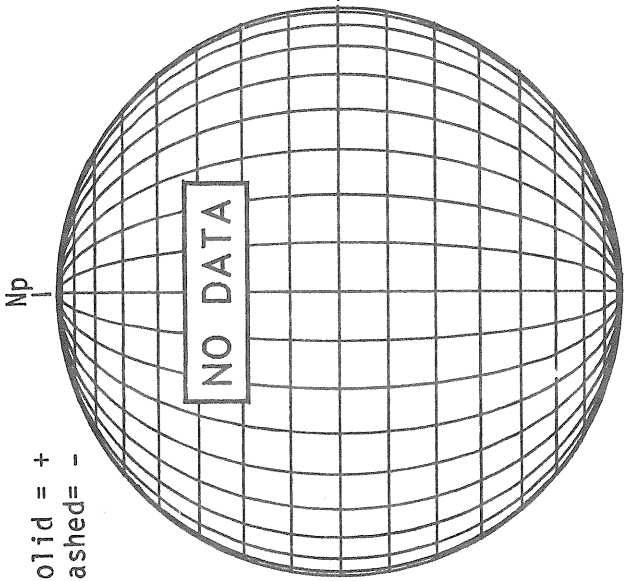
1.15 R₀ 1522 UT
1.35 R₀ 1539 UT
1.55 R₀ 1547 UT

D E C E M B E R 1 5 , 1 9 8 2 (P= 10.36, B₀=-0.90, L₀= 103.26)

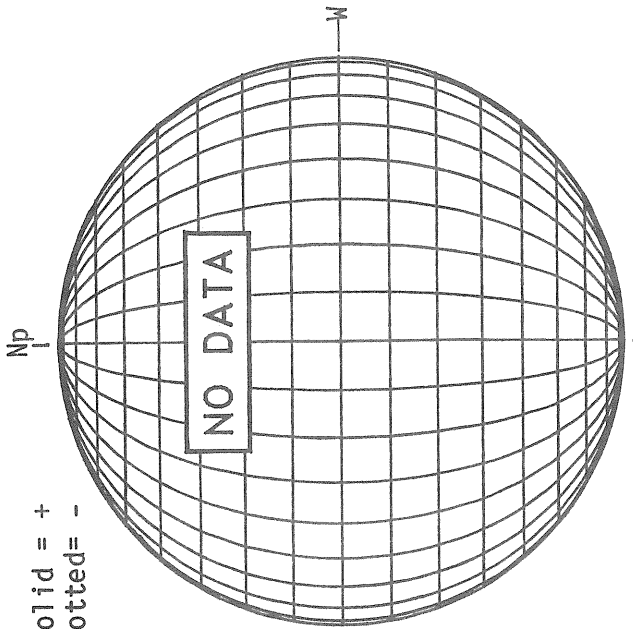
KITT PEAK MAGNETOGRAM



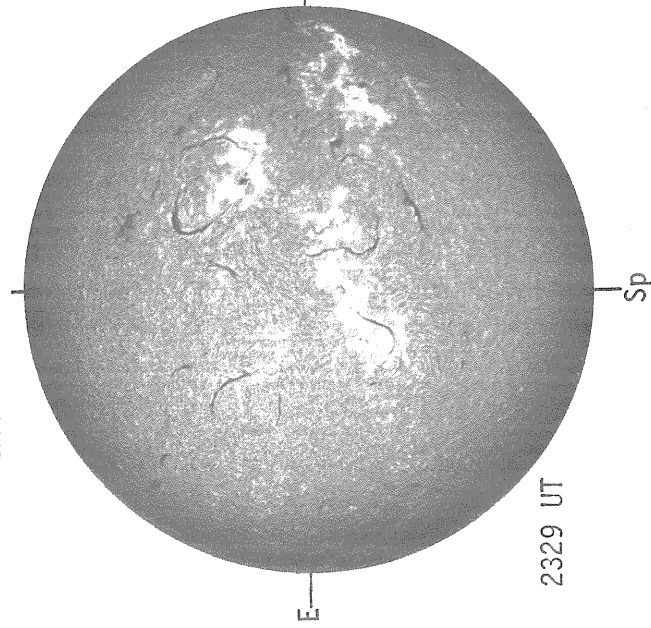
STANFORD MAGNETOGRAM



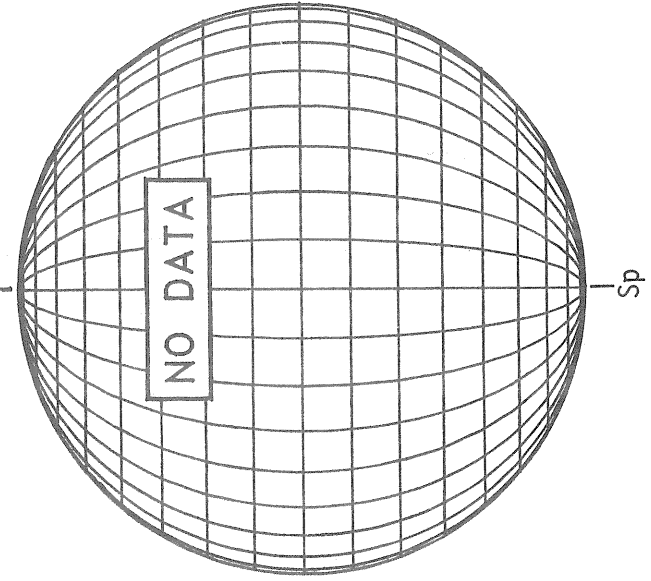
MT. WILSON MAGNETOGRAM



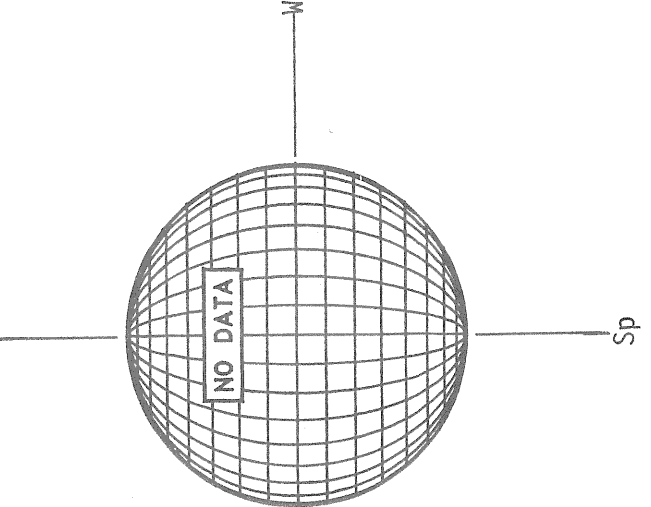
SAN FERNANDO H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

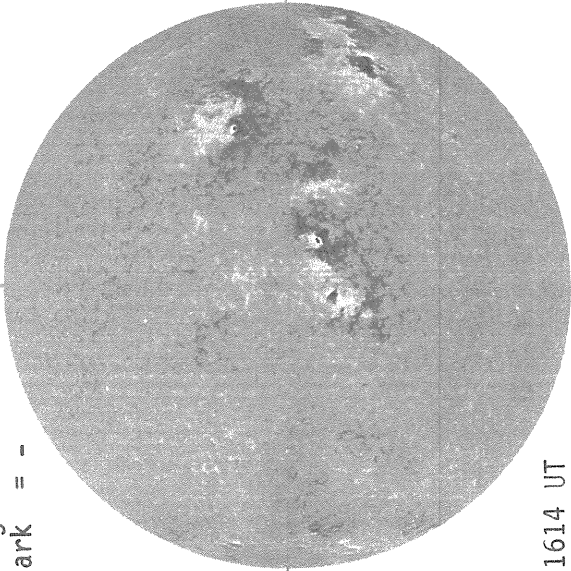


D E C E M B E R 16, 1 9 8 2 (P= 9.90, B₀=-1.03, L₀= 90.09)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

Np

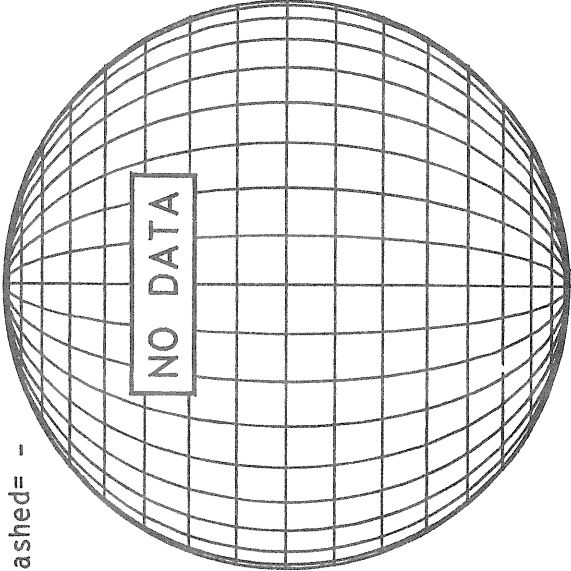


1614 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

Np

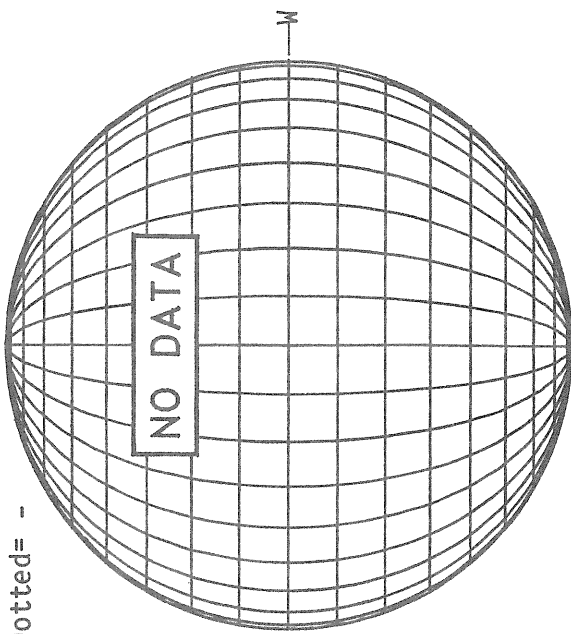


NO DATA

MT. WILSON MAGNETOGRAM

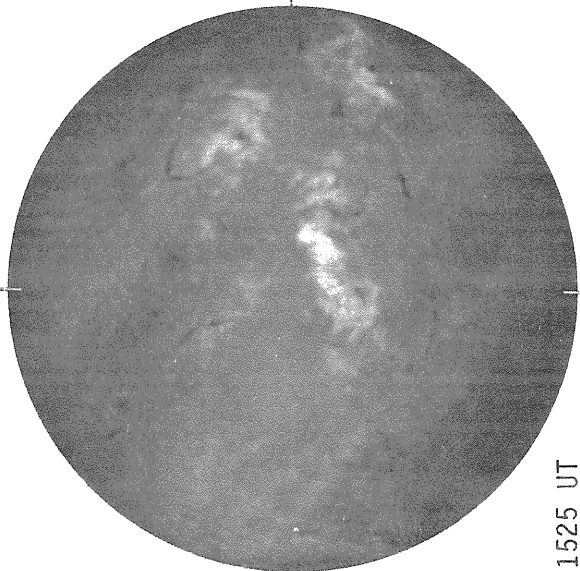
Solid = +
Dotted = -

Np



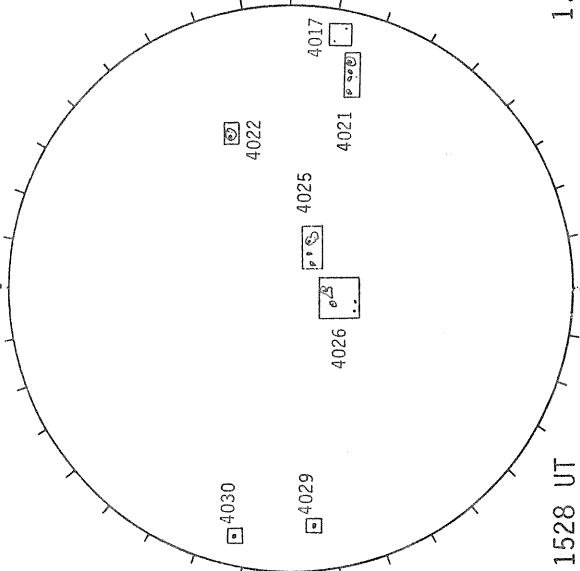
NO DATA

BOULDER H-ALPHA



1525 UT

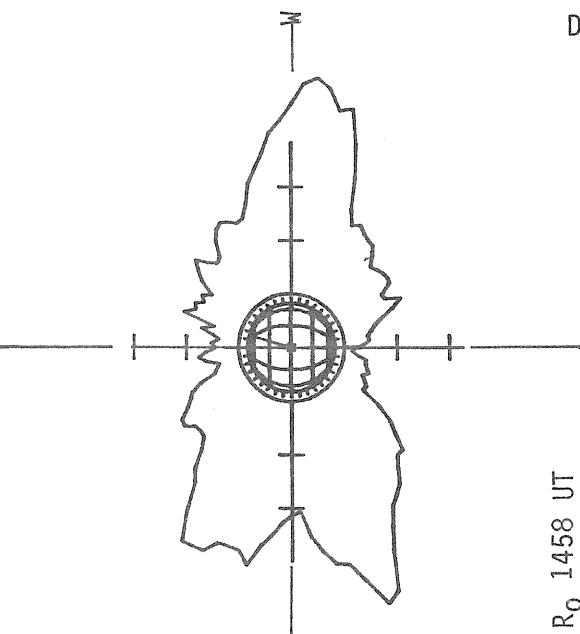
BOULDER SUNSPOTS



1528 UT

1525 UT BOUL Prom¹ Sp

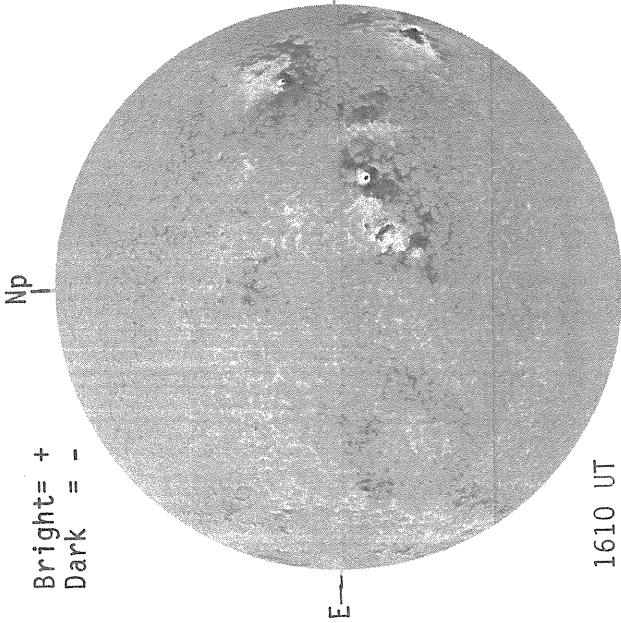
SACRAMENTO PEAK CORONA (5303 Angstrom)



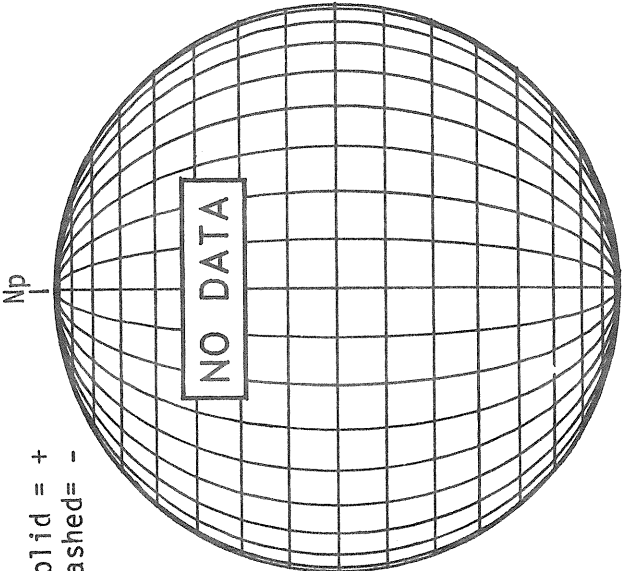
1.15 R₀ 1458 UT

DECEMBER 17, 1982 (P= 9.45, B₀=-1.16, L₀= 76.91)

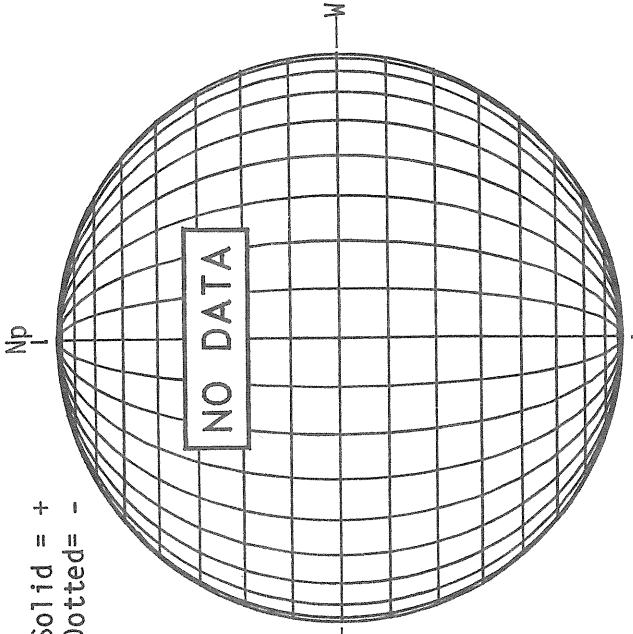
KITT PEAK MAGNETOGRAM



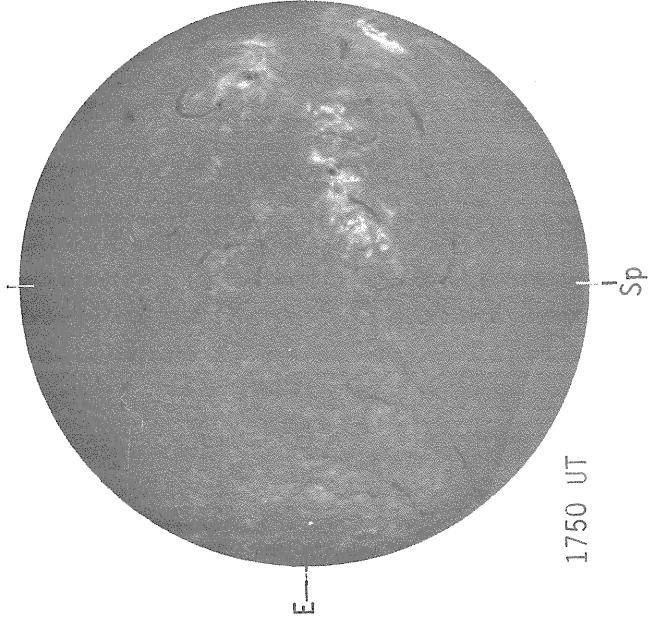
STANFORD MAGNETOGRAM



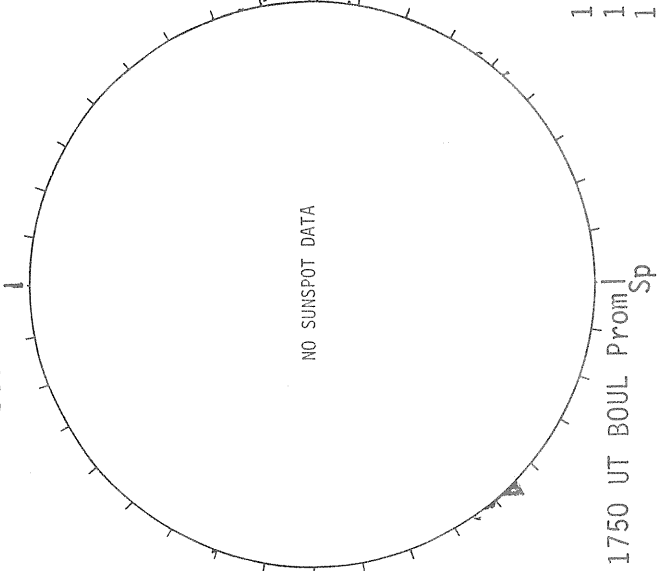
MT. WILSON MAGNETOGRAM



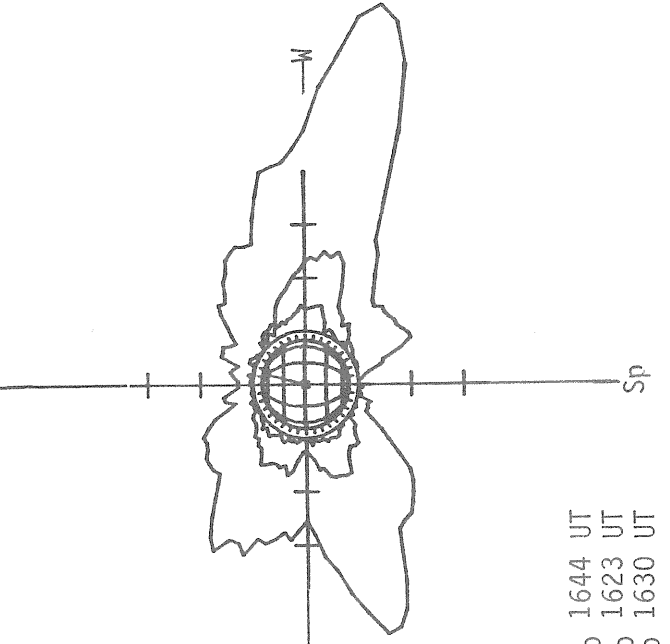
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



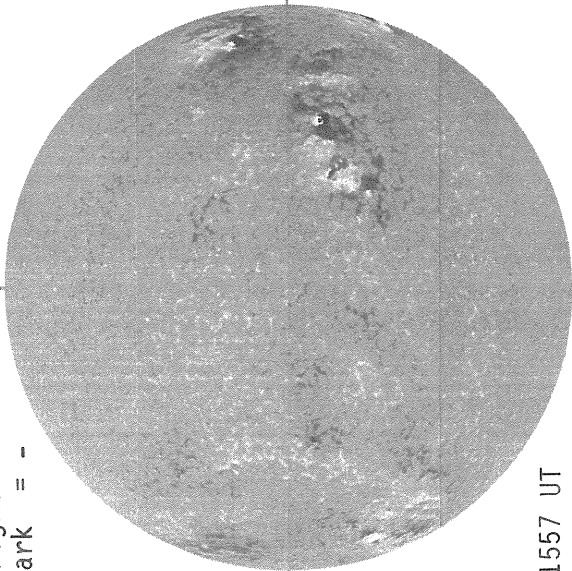
1.15 R₀ 1644 UT
1.35 R₀ 1623 UT
1.55 R₀ 1630 UT

DECEMBER 18, 1982 (P= 8.99, B₀=-1.28, L₀= 63.74)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

Np

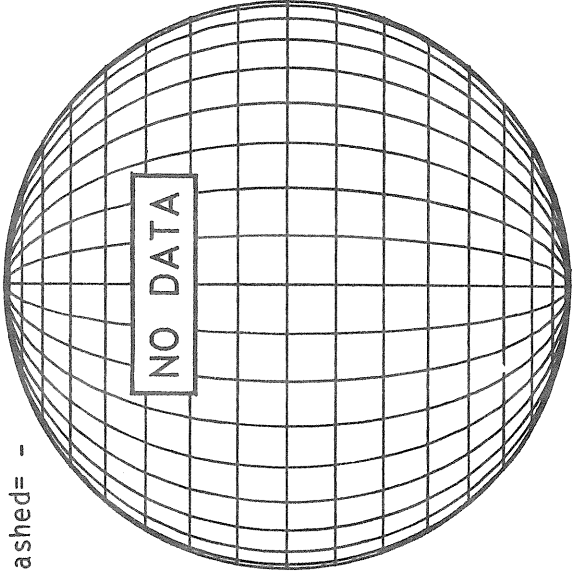


1557 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed = -

Np

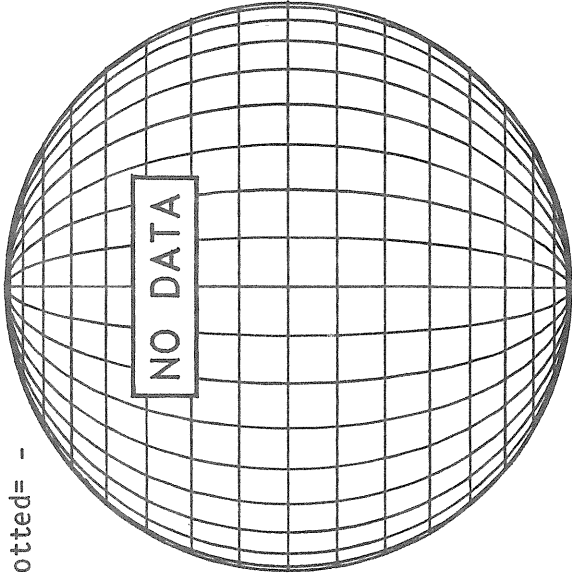


NO DATA

MT. WILSON MAGNETOGRAM

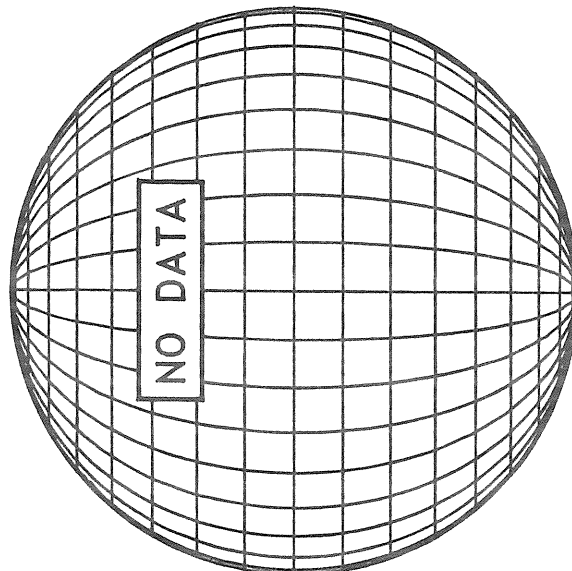
Solid = +
Dotted = -

Np



NO DATA

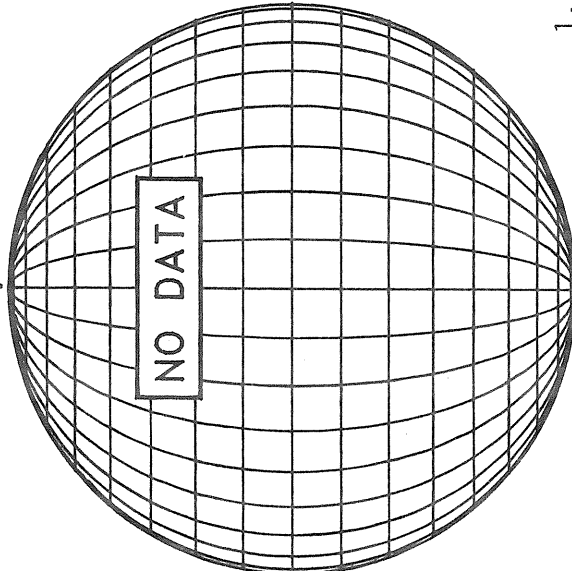
SACRAMENTO PEAK H-ALPHA



NO DATA

E

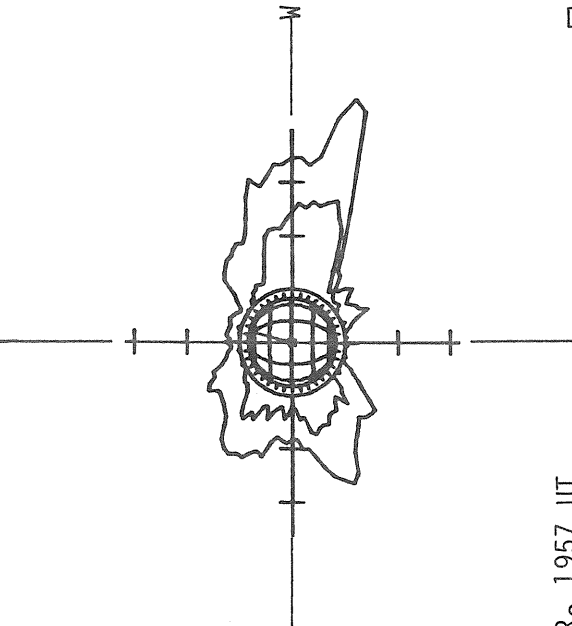
BOULDER SUNSPOTS



NO DATA

Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)



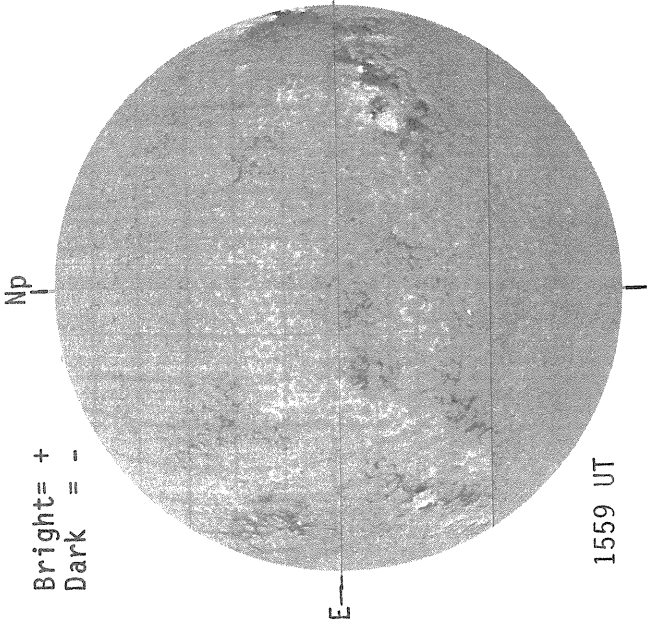
Sp

1.15 R₀ 1957 UT
1.35 R₀ 2004 UT

D E C E M B E R 19, 1 9 8 2 (P= 8.52, B₀=-1.41, L₀= 50.57)

KITT PEAK MAGNETOGRAM

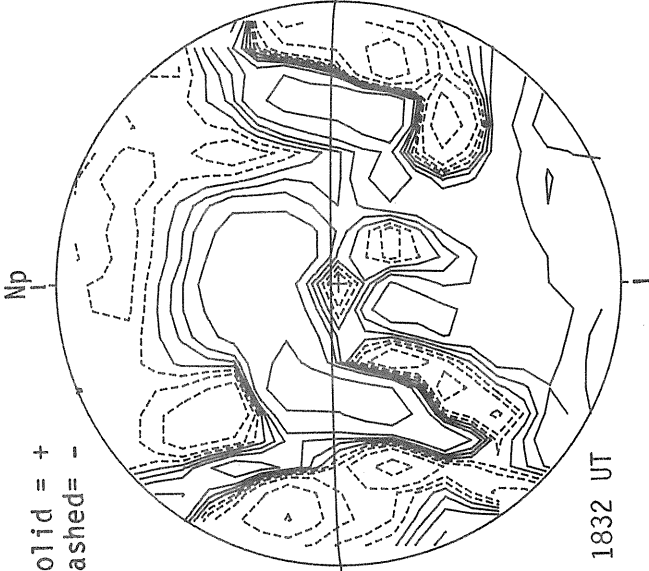
Bright= +
Dark = -



1559 UT

STANFORD MAGNETOGRAM

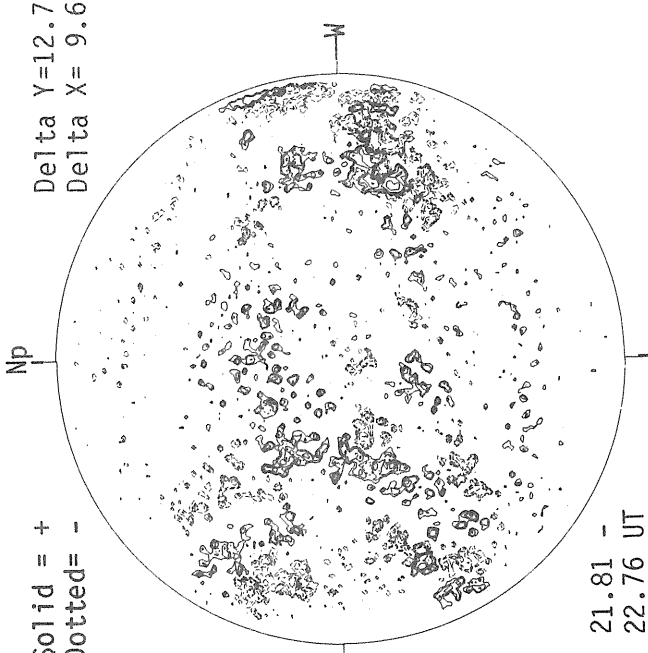
Solid = +
Dashed = -



1832 UT

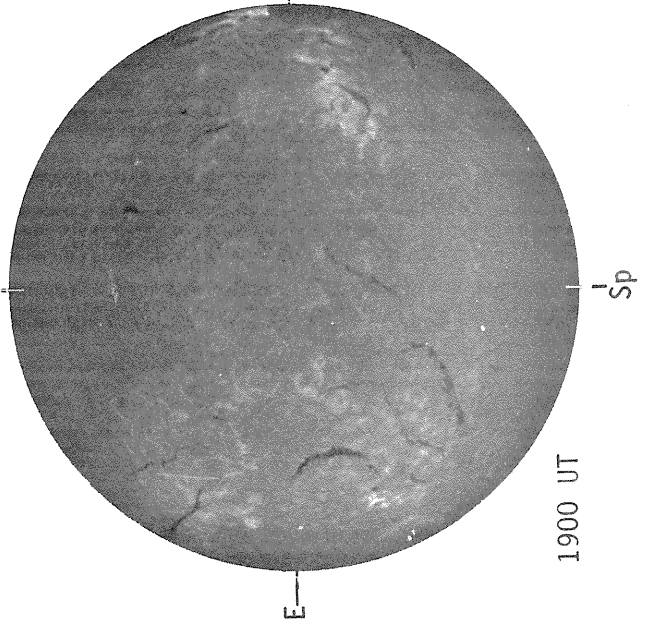
MT. WILSON MAGNETOGRAM

Solid = +
Dotted = -



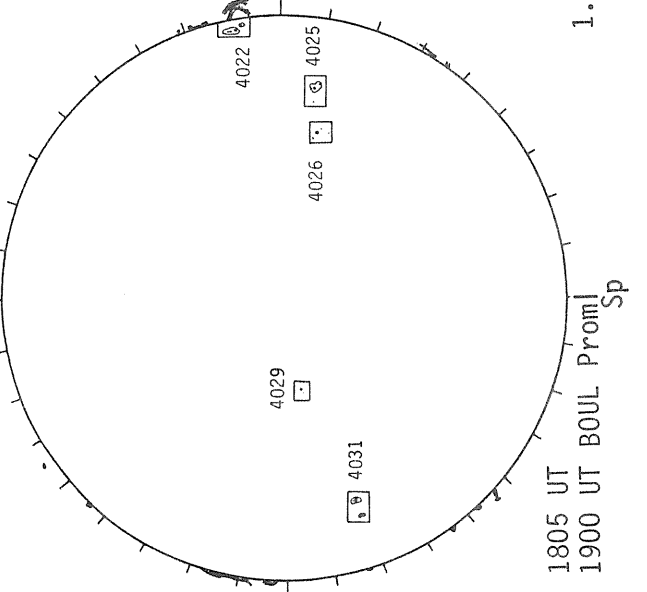
21.81 -
22.76 UT

BOULDER H-ALPHA



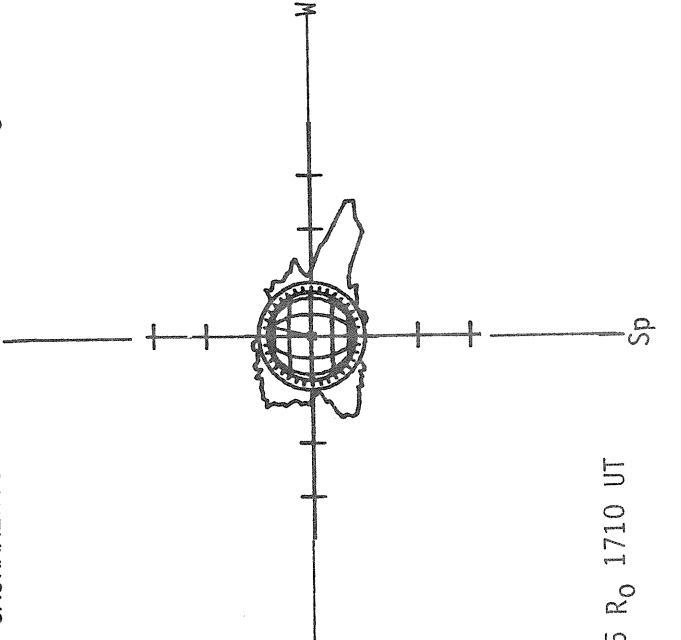
1900 UT

BOULDER SUNSPOTS



1805 UT
1900 UT BOUL Prom! Sp

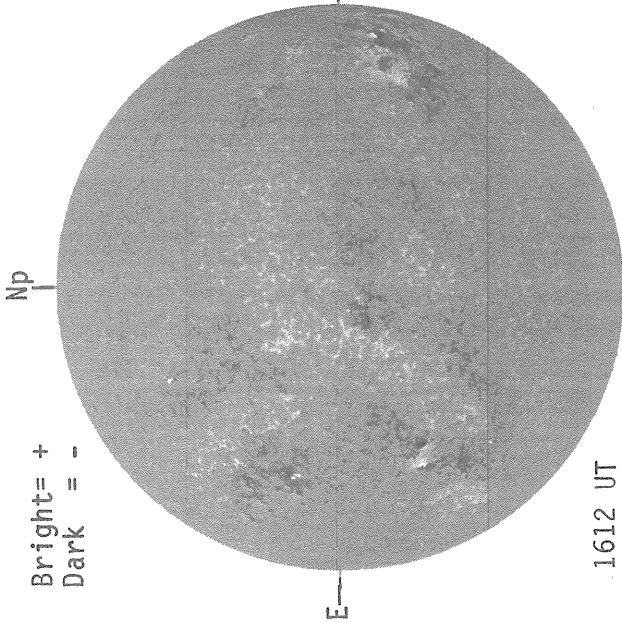
SACRAMENTO PEAK CORONA (5303 Angstrom)



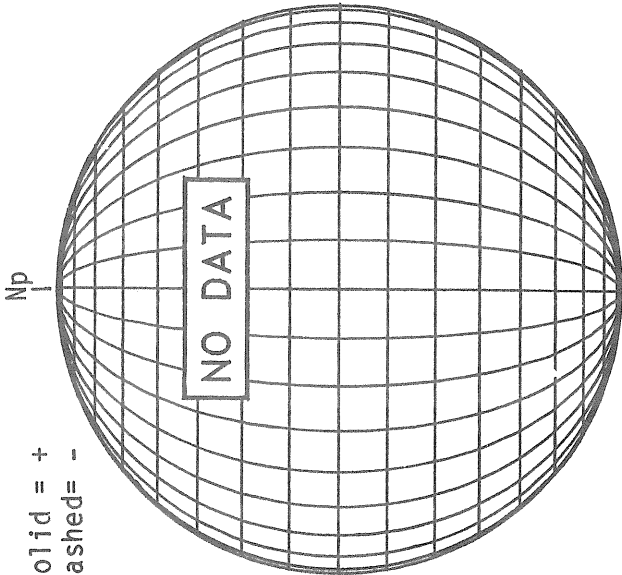
1.35 R₀ 1710 UT

DECEMBER 20, 1982 (P= 8.05, B₀=-1.53, L₀= 37.39)

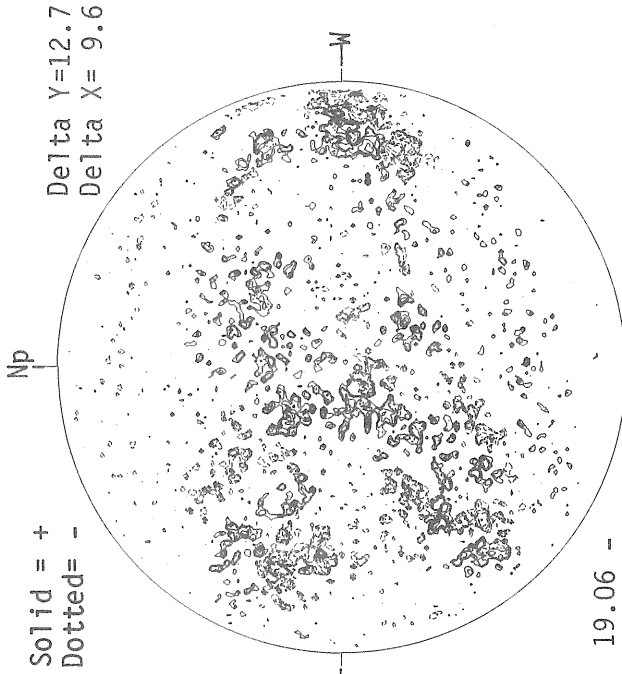
KITT PEAK MAGNETOGRAM



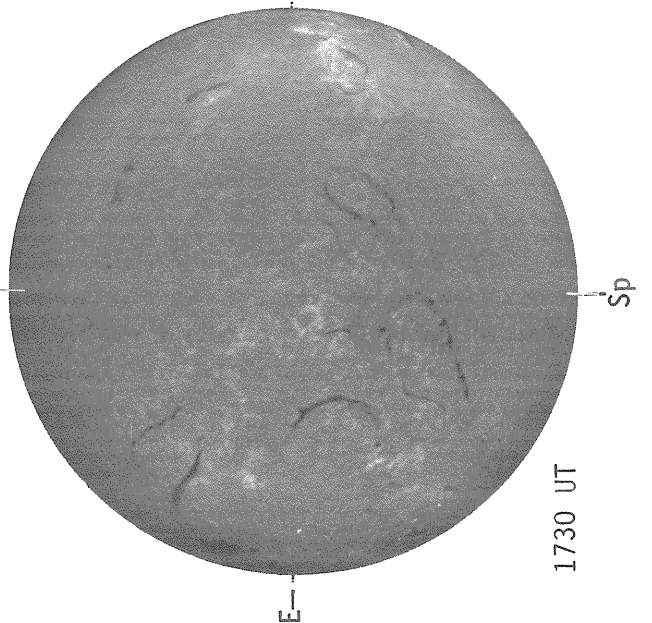
STANFORD MAGNETOGRAM



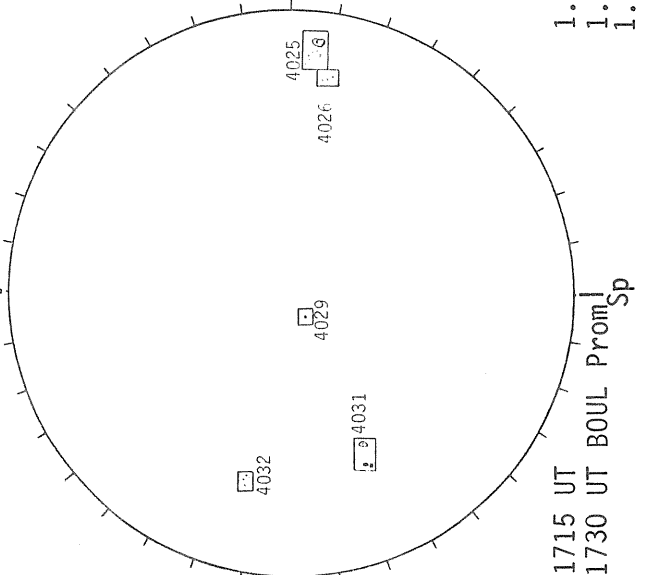
MT. WILSON MAGNETOGRAM



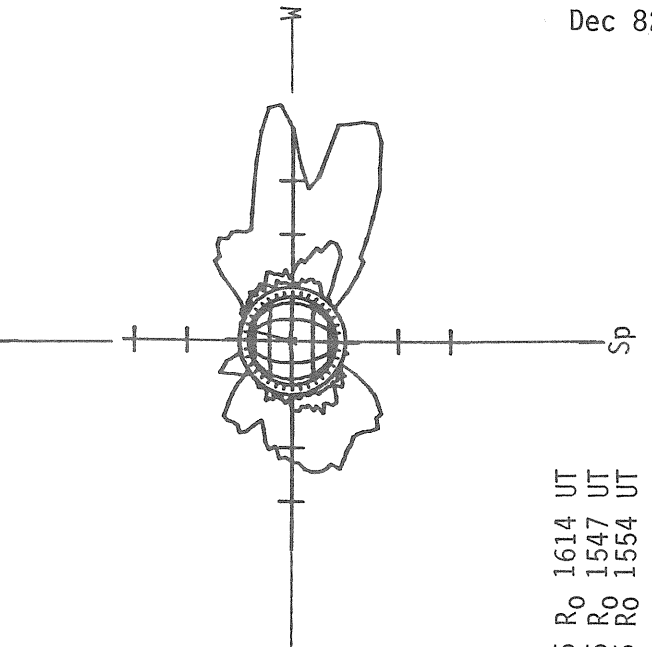
BOULDER H-ALPHA



BOULDER SUNSPOTS



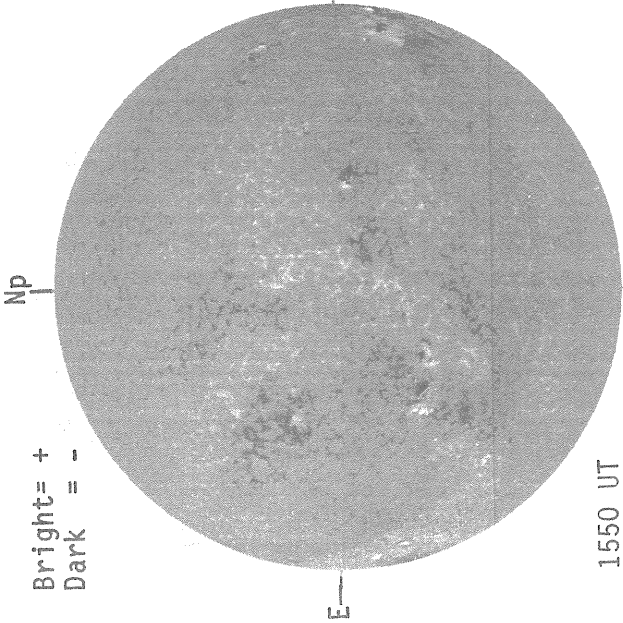
SACRAMENTO PEAK CORONA (5303 Angstrom)



DECEMBER 21, 1982 (P= 7.59, B₀=-1.66, L₀= 24.22)

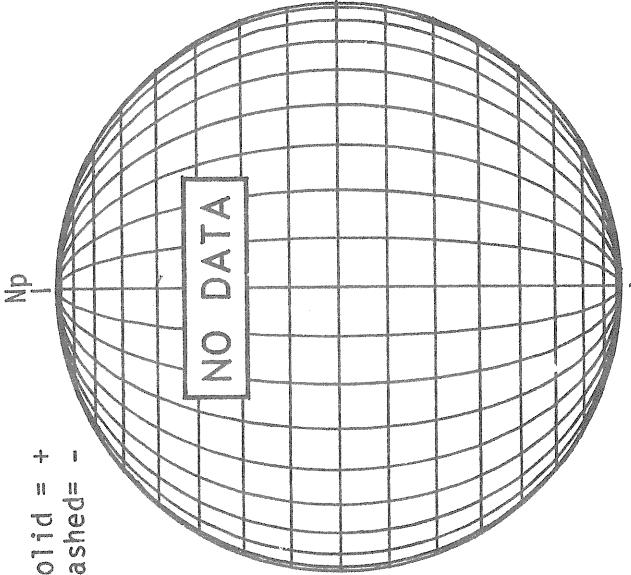
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



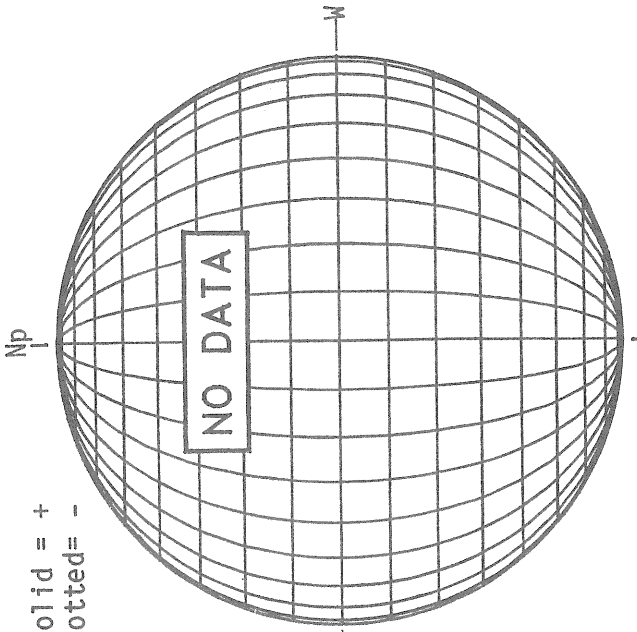
STANFORD MAGNETOGRAM

Solid = +
Dashed = -



MT. WILSON MAGNETOGRAM

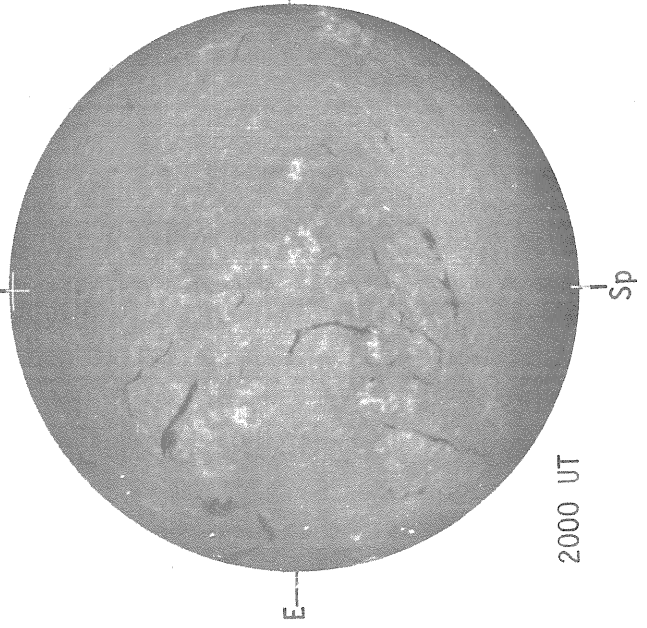
Solid = +
Dotted = -



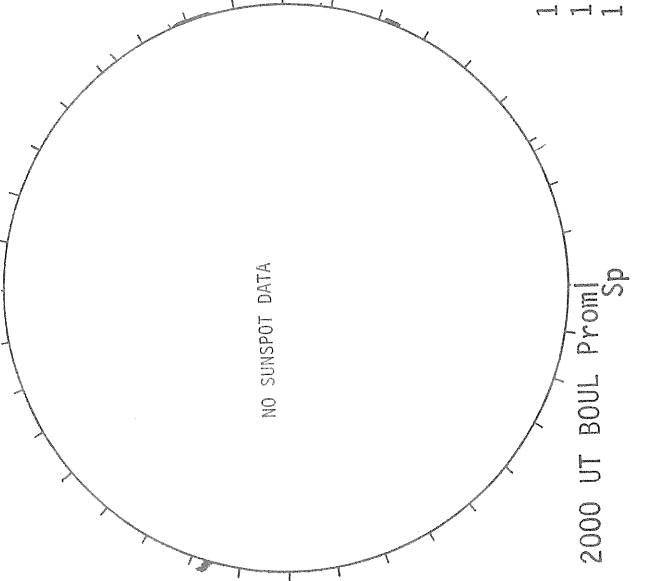
NO DATA

NO DATA

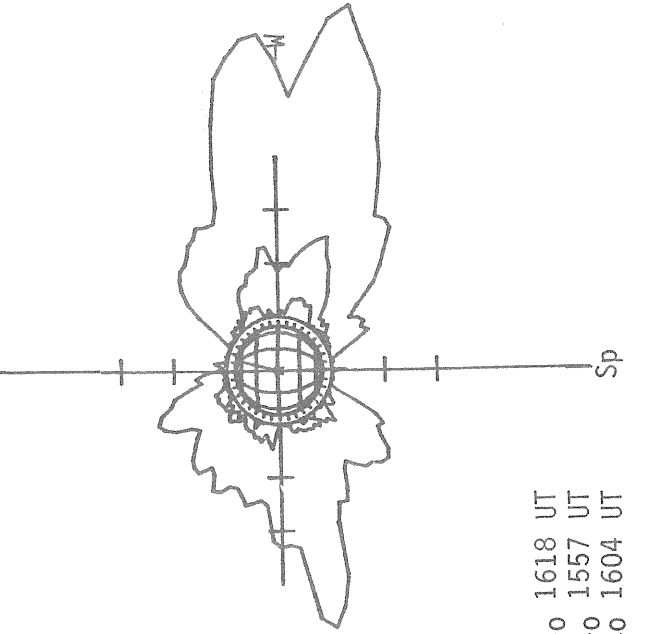
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



1.15 R₀ 1618 UT
1.35 R₀ 1557 UT
1.55 R₀ 1604 UT

2000 UT BOUL Prom | Sp

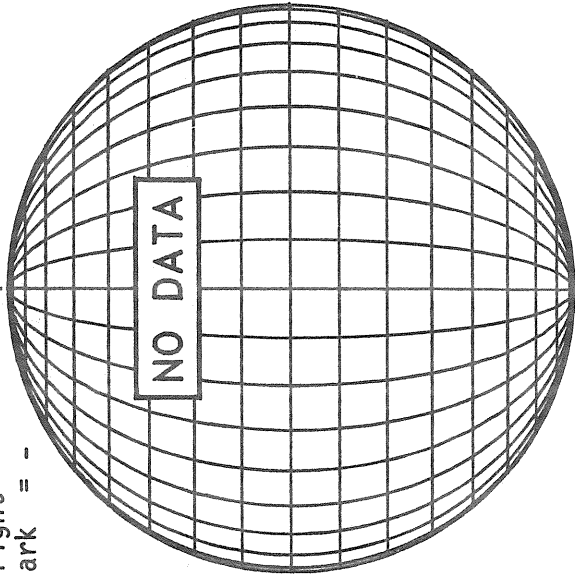
2000 UT

DECEMBER 22, 1982 (P= 7.11, B₀=-1.78, L₀= 11.05)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

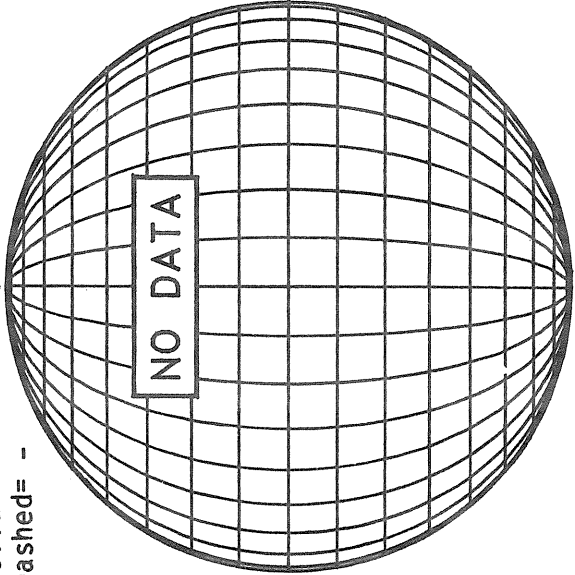
Np



STANFORD MAGNETOGRAM

Solid = +
Dashed = -

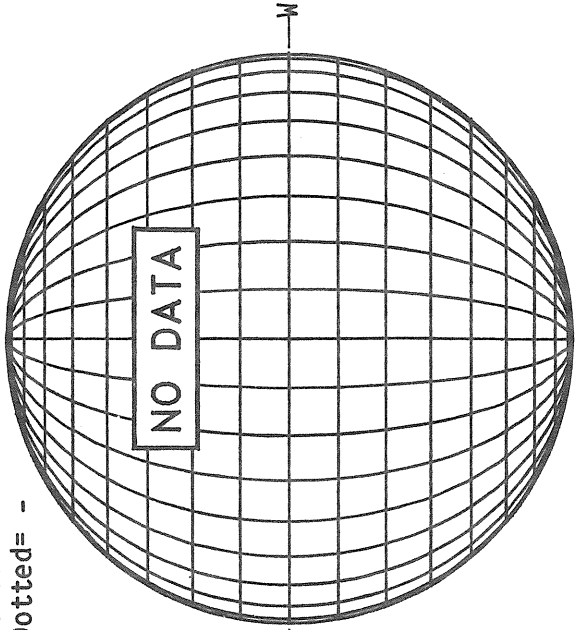
Np



MT. WILSON MAGNETOGRAM

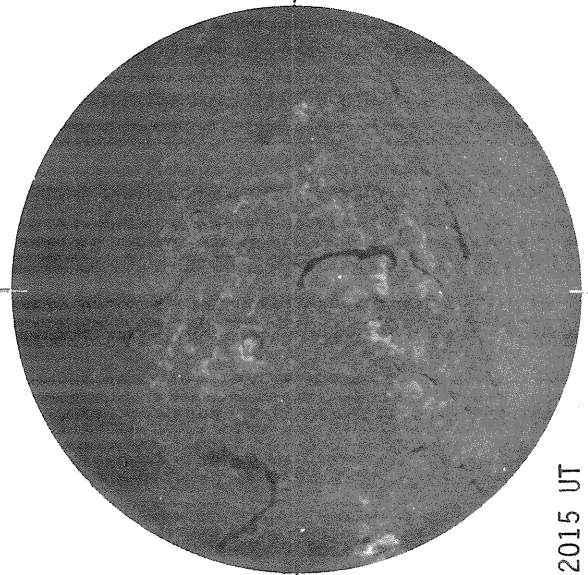
Solid = +
Dotted = -

Np



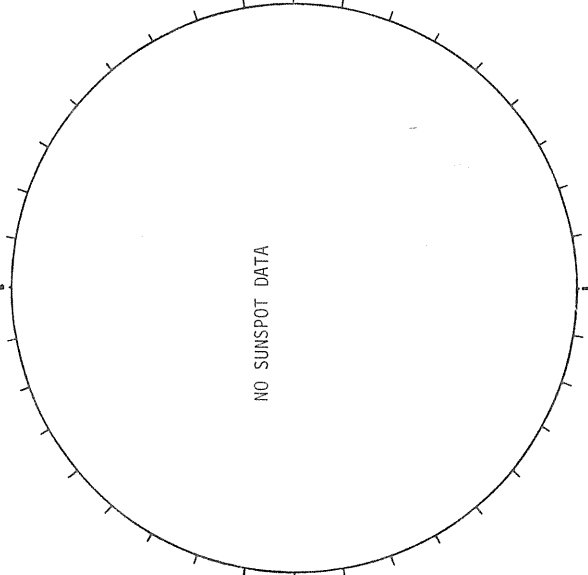
E

BOULDER H-ALPHA



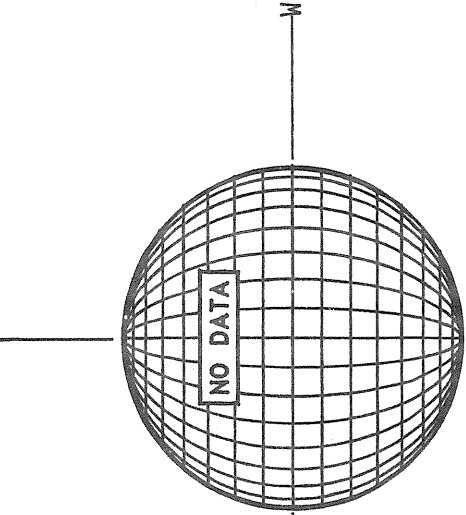
E

BOULDER SUNSPOTS



2015 UT BOUL Prom Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)



Sp

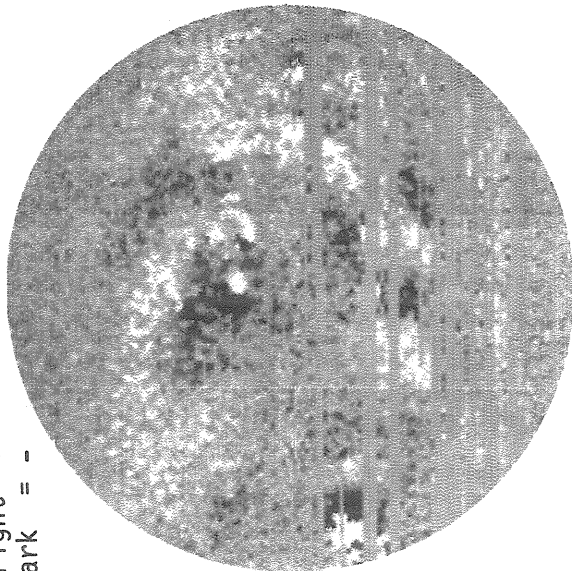
2015 UT

DECEMBER 23, 1982 (P= 6.64, B₀=-1.91, L₀= 357.87)

MT. WILSON MAGNETOGRAM

Np

Bright= +
Dark = -

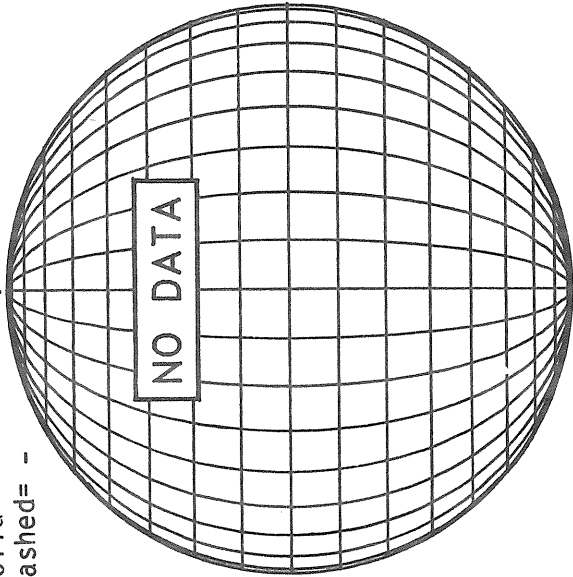


17.7-18.7 UT

STANFORD MAGNETOGRAM

Np

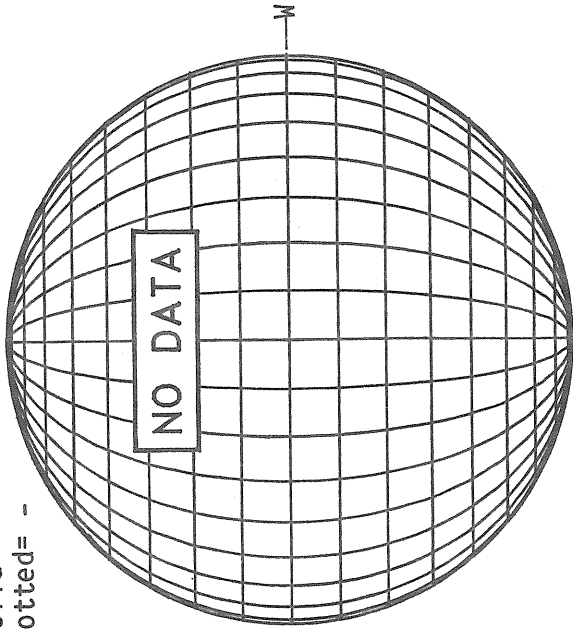
Solid = +
Dashed = -



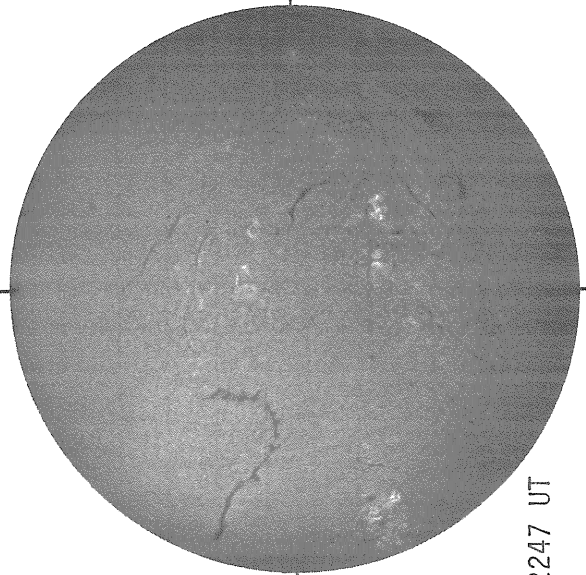
MT. WILSON MAGNETOGRAM

Np

Solid = +
Dotted = -



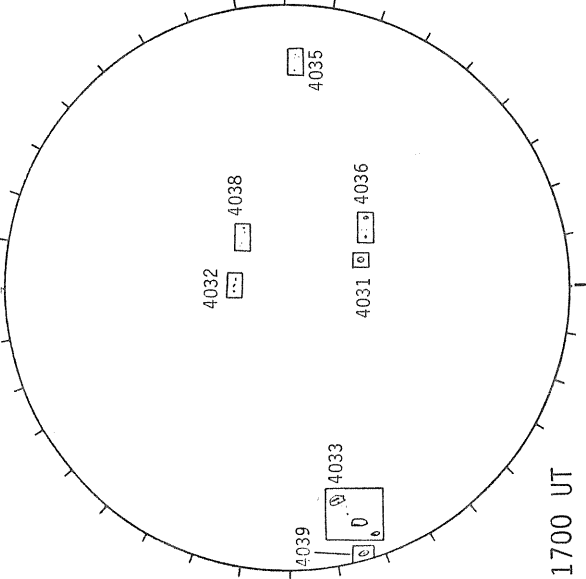
SAN FERNANDO H-ALPHA



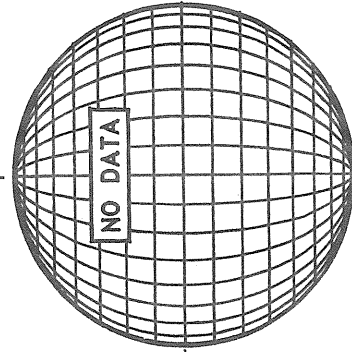
2247 UT

BOULDER SUNSPOTS

SACRAMENTO PEAK CORONA (5303 Angstrom)



1700 UT



Sp

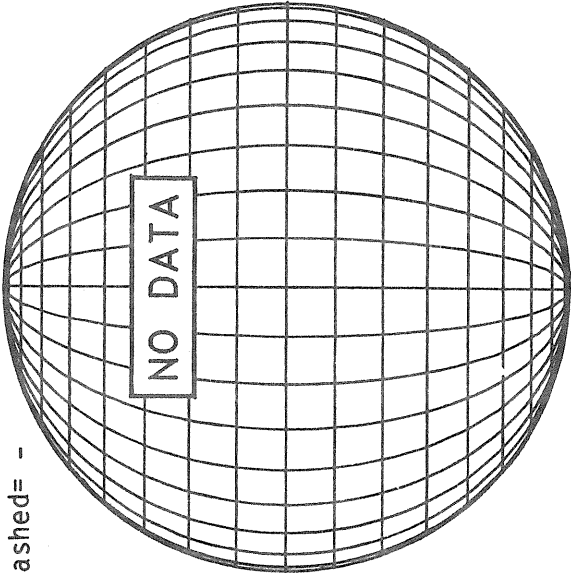
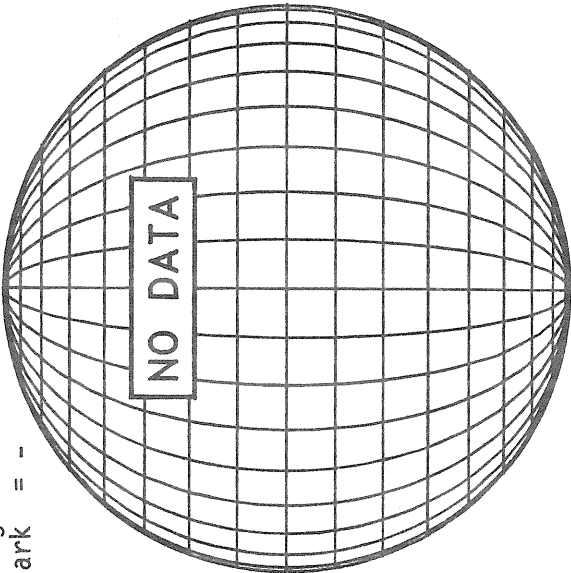
D E C E M B E R 24, 1 9 8 2 (P= 6.16, B₀=-2.03, L₀= 344.70)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

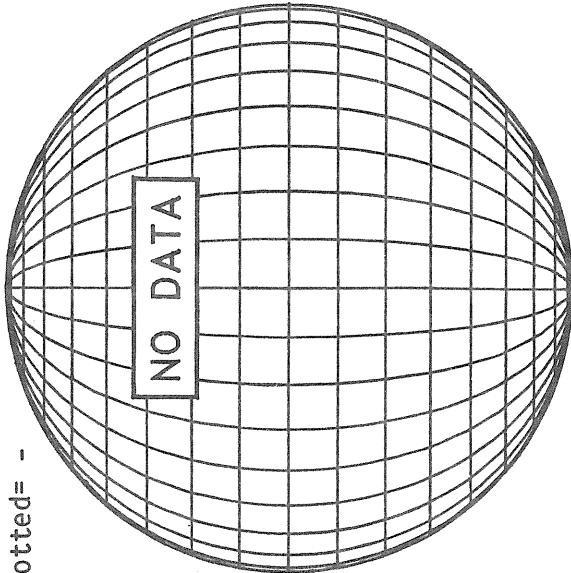
Solid = +
Dashed = -

Np



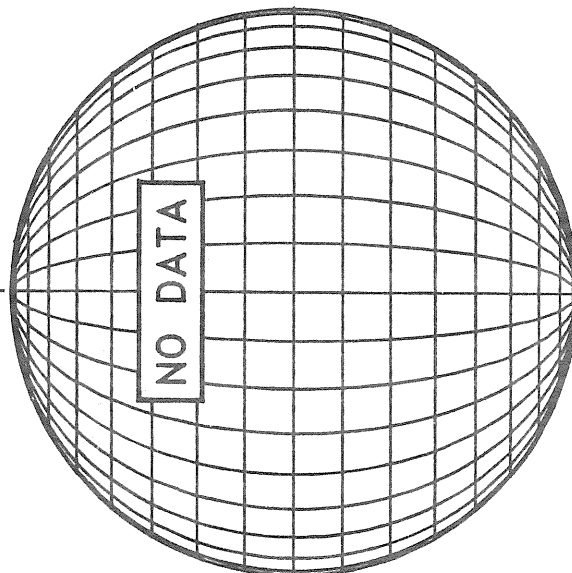
Solid = +
Dotted = -

Np

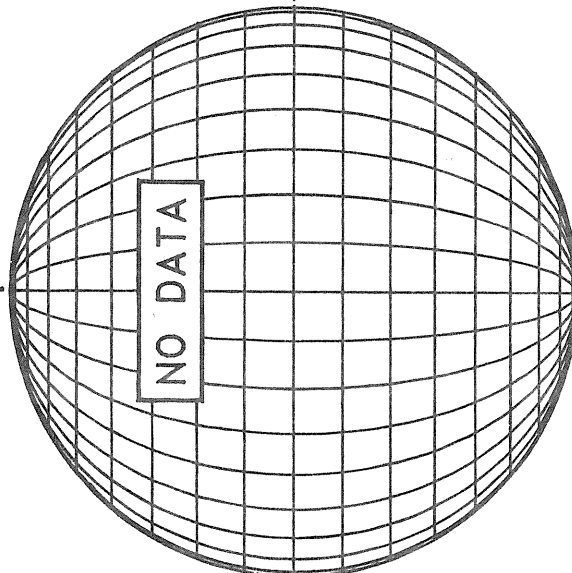


MT. WILSON MAGNETOGRAM

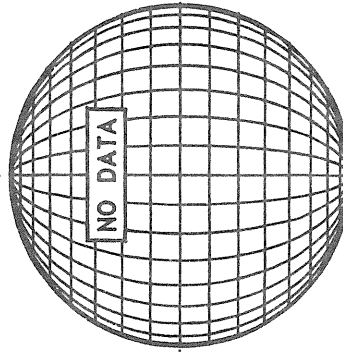
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

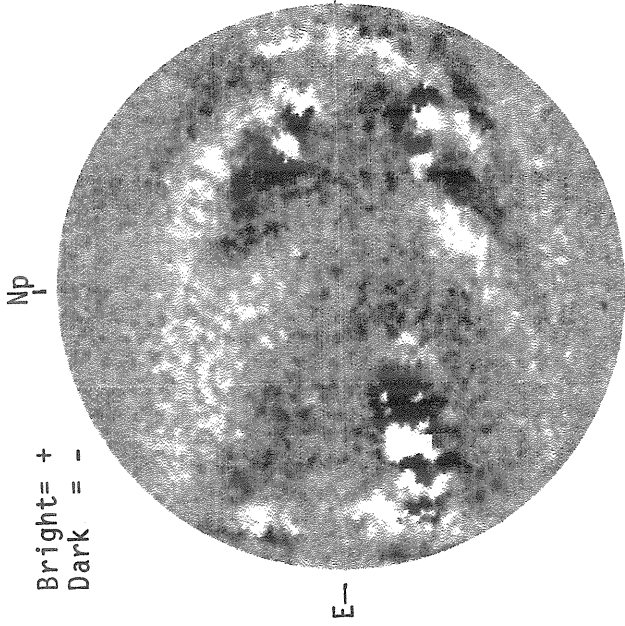


SACRAMENTO PEAK CORONA (5303 Angstrom)

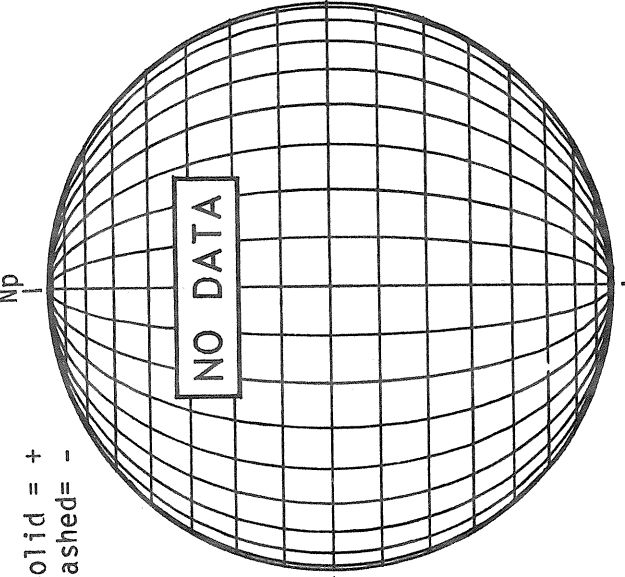


D E C E M B E R 25, 1 9 8 2 (P= 5.68, B₀=-2.16, L₀= 331.53)

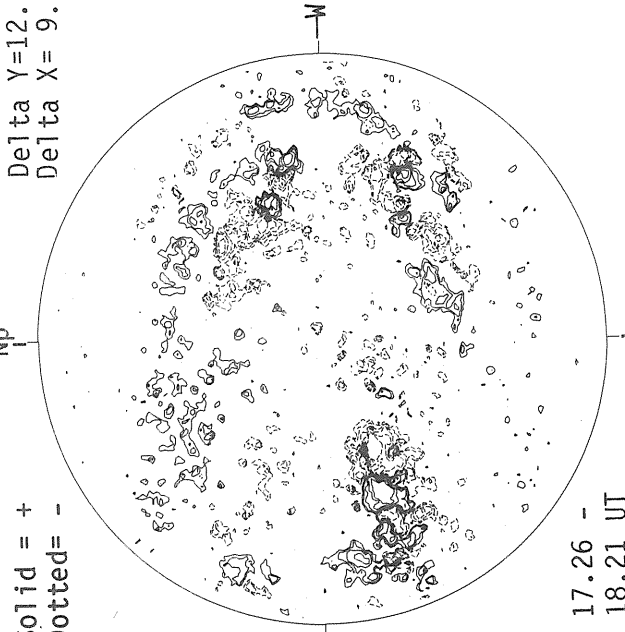
MT. WILSON MAGNETOGRAM



STANFORD MAGNETOGRAM

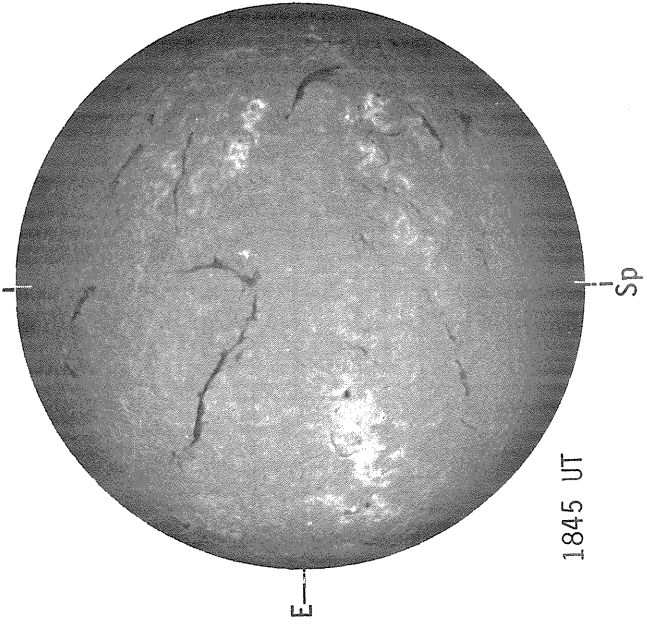
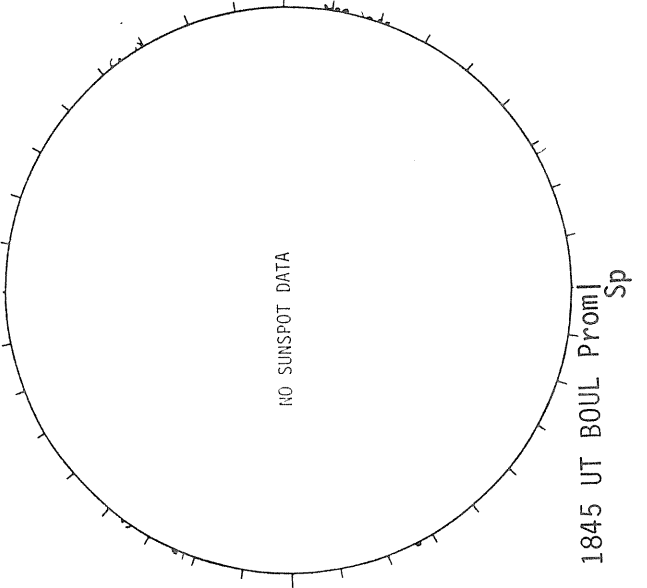


MT. WILSON MAGNETOGRAM



BOULDER SUNSPOTS

SACRAMENTO PEAK CORONA (5303 Angstrom)



1845 UT BOUL Prom

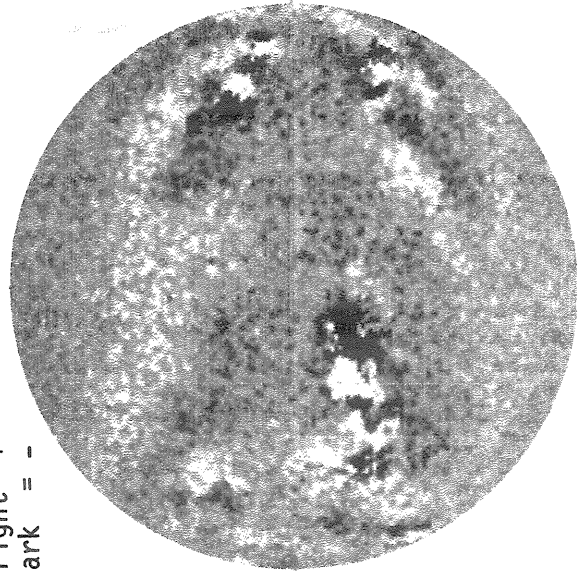
1845 UT

DECEMBER 26, 1982 (P= 5.21, B₀=-2.28, L₀= 318.36)

MT. WILSON MAGNETOGRAM

Bright= +
Dark = -

Np



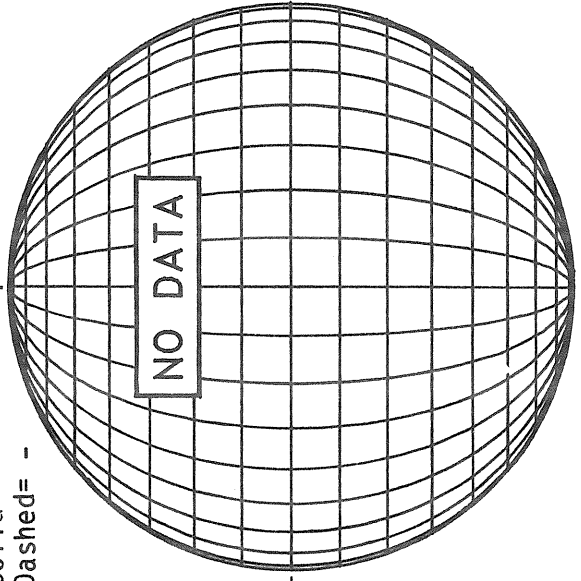
E-

18.6-19.6 UT

STANFORD MAGNETOGRAM

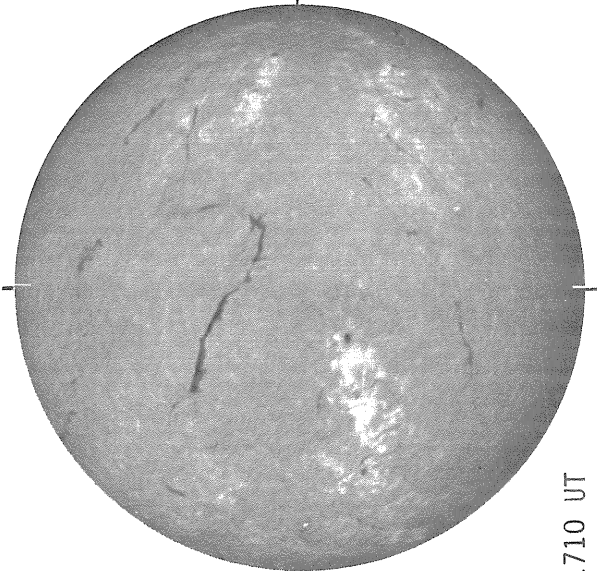
Solid = +
Dashed = -

Np



NO DATA

BOULDER H-ALPHA



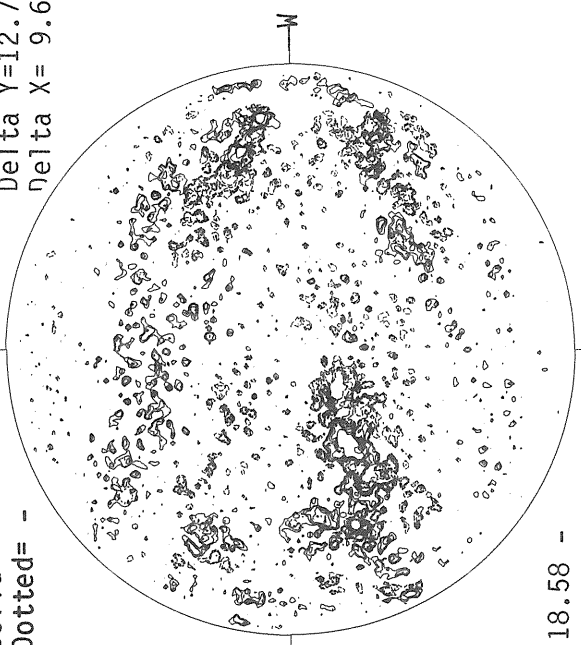
E-

1710 UT

MT. WILSON MAGNETOGRAM

Solid = +
Dotted = -

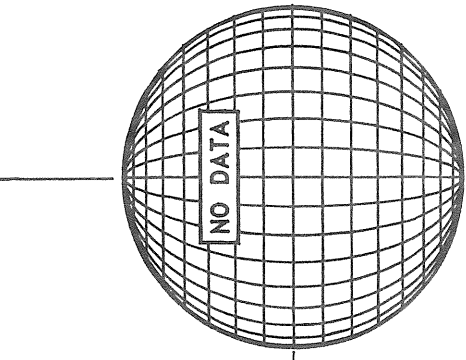
Np



NO DATA

18.58 -
19.56 UT

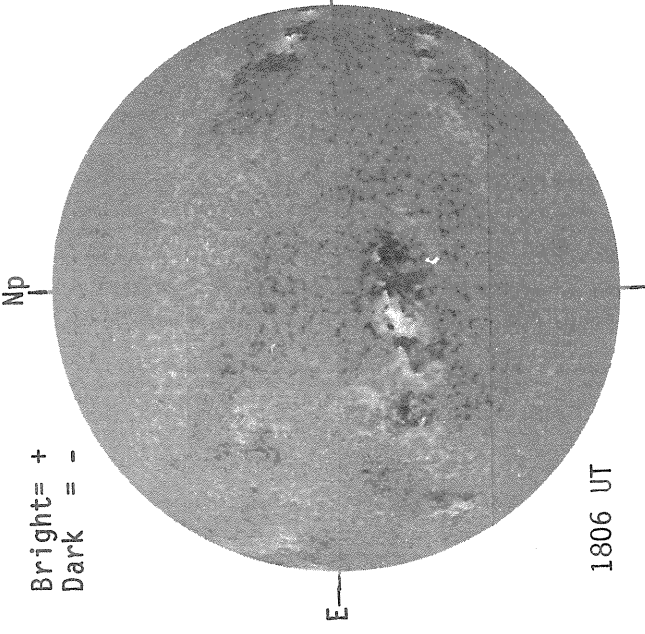
SACRAMENTO PEAK CORONA (5303 Angstrom)



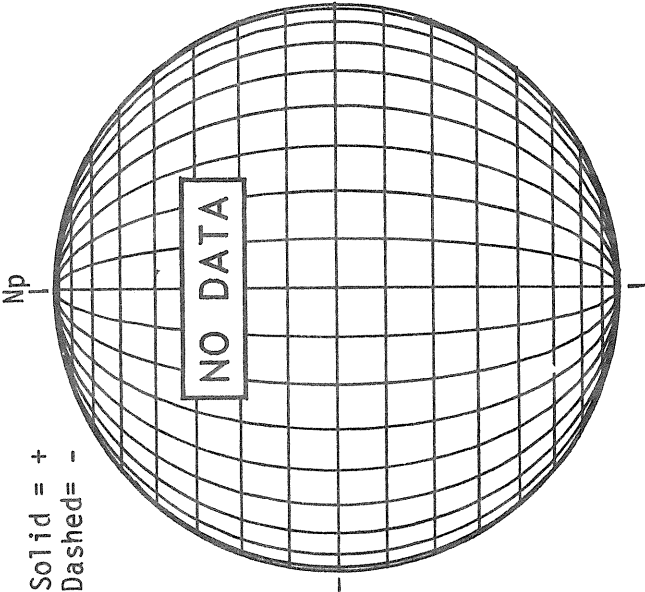
NO DATA

DECEMBER 27, 1982 (P= 4.72, B₀=-2.40, L₀= 305.18)

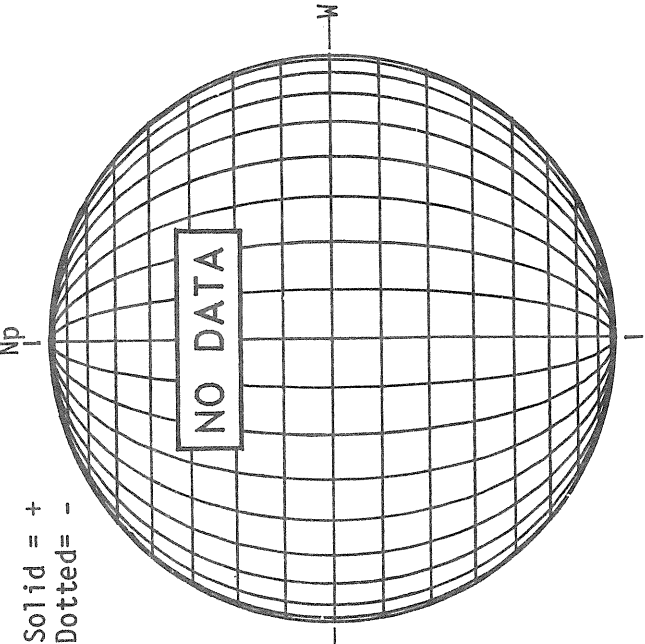
KITT PEAK MAGNETOGRAM



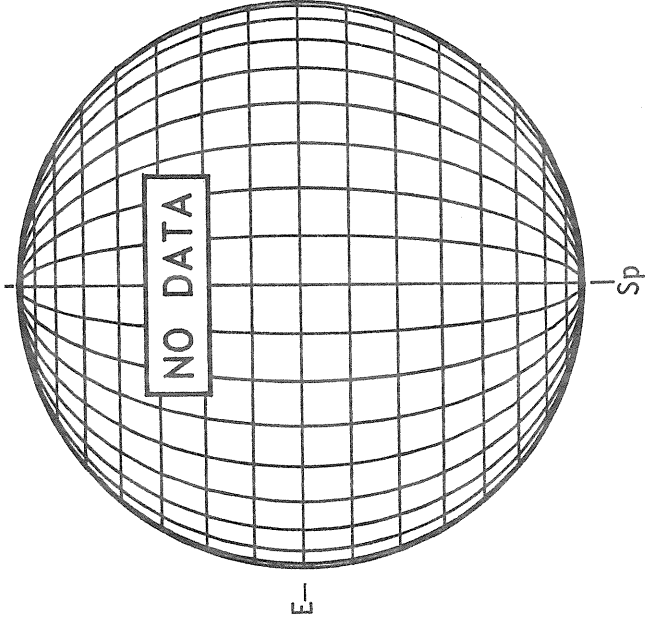
STANFORD MAGNETOGRAM



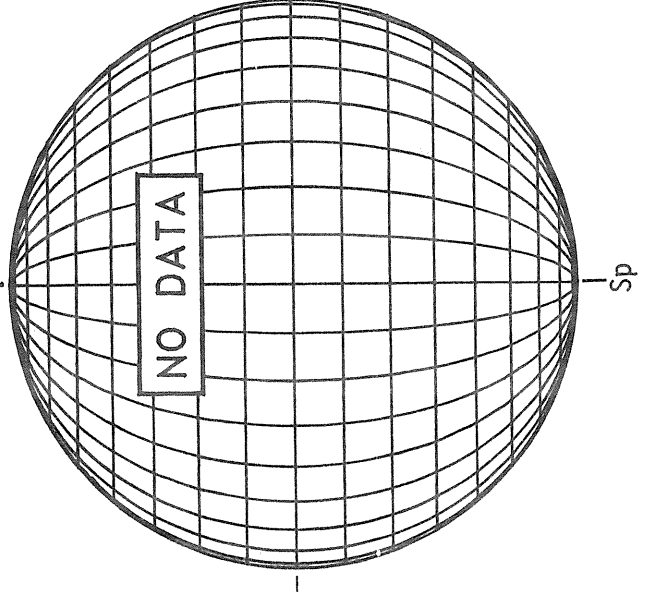
MT. WILSON MAGNETOGRAM



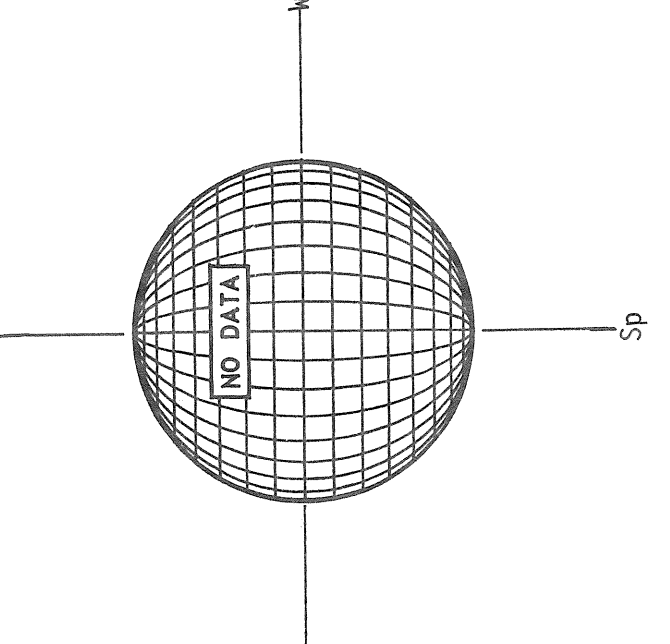
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS

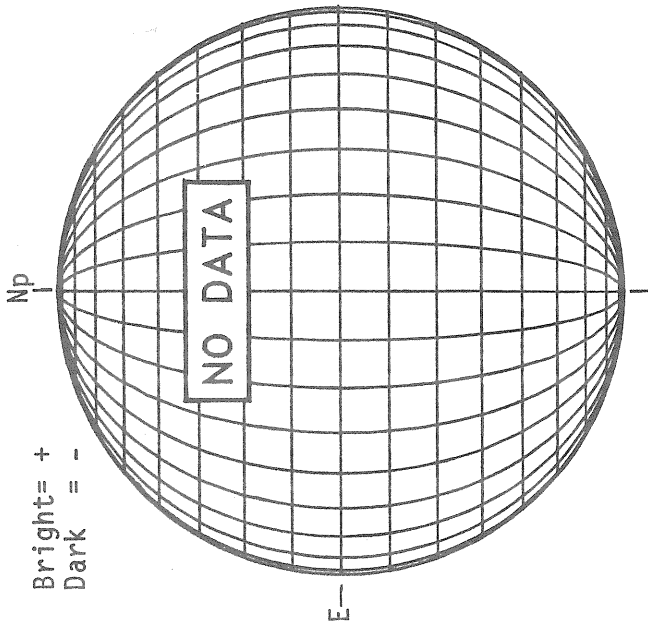


SACRAMENTO PEAK CORONA (5303 Angstrom)

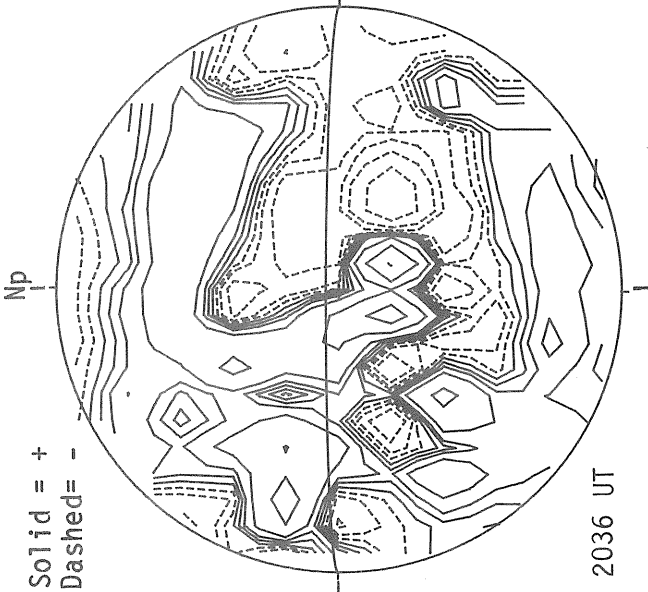


DECEMBER 28, 1982 (P= 4.24, B₀=-2.52, L₀= 292.01)

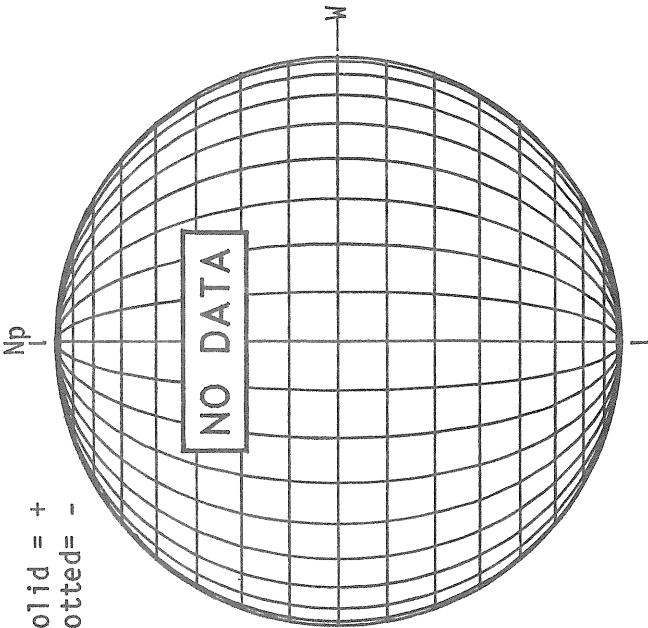
KITT PEAK MAGNETOGRAM



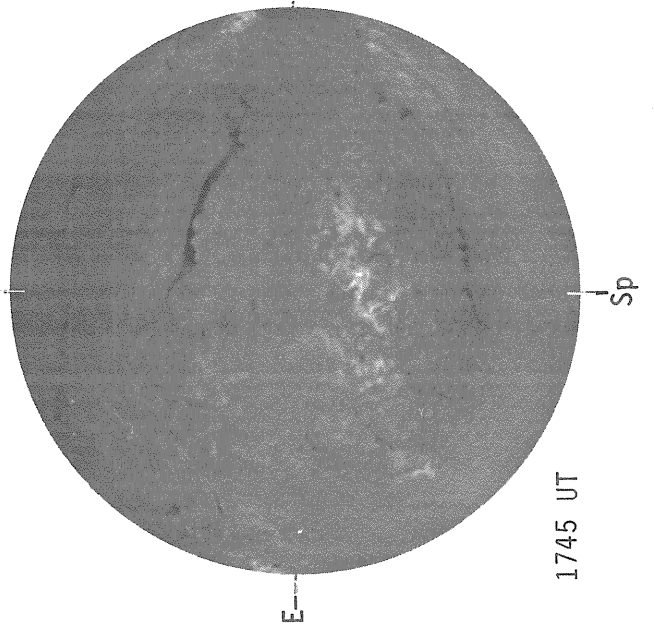
STANFORD MAGNETOGRAM



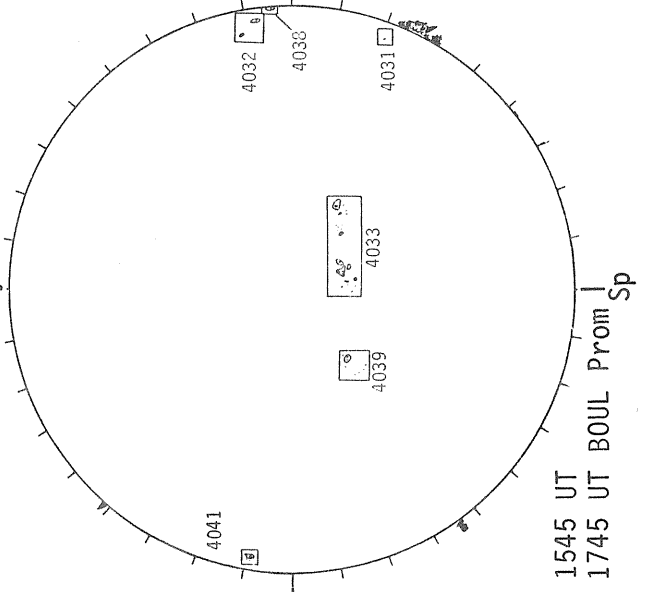
MT. WILSON MAGNETOGRAM



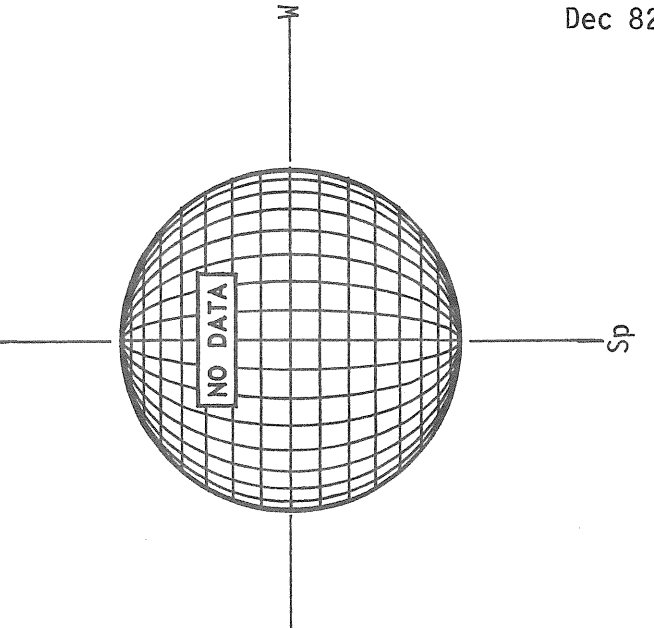
BOULDER H-ALPHA



BOULDER SUNSPOTS

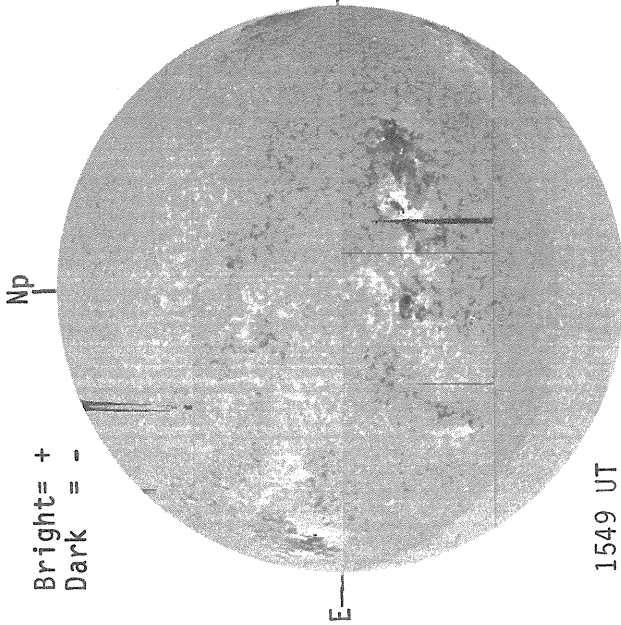


SACRAMENTO PEAK CORONA (5303 Angstrom)

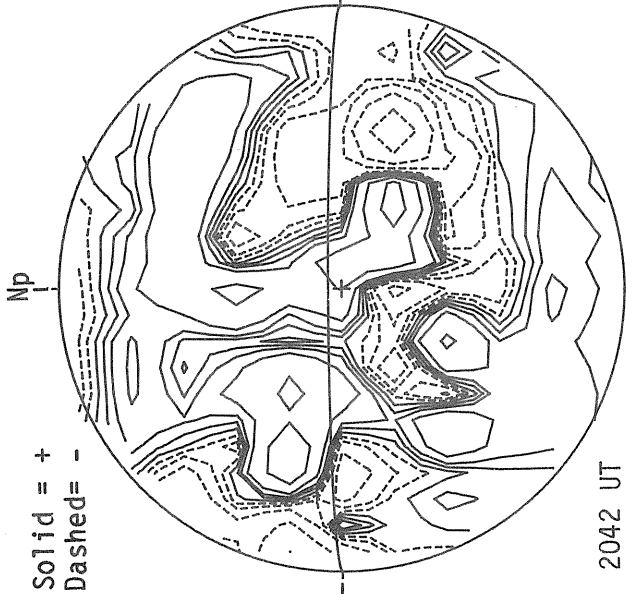


DECEMBER 29, 1982 (P= 3.76, B₀=-2.64, L₀= 278.84)

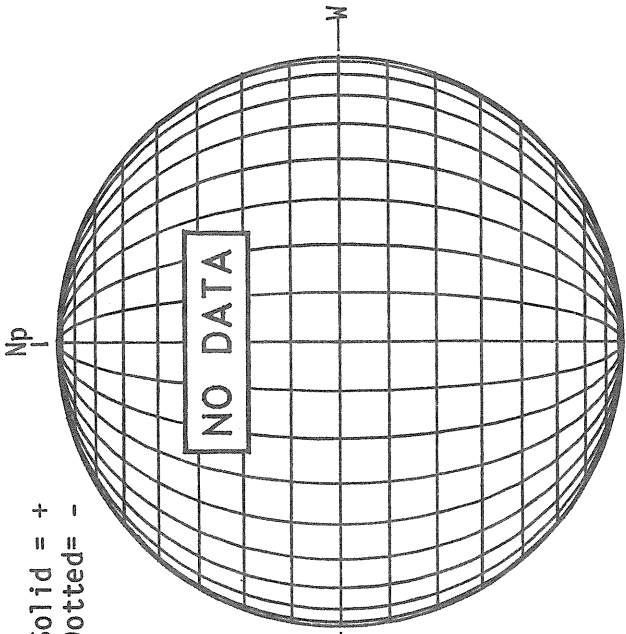
KITT PEAK MAGNETOGRAM



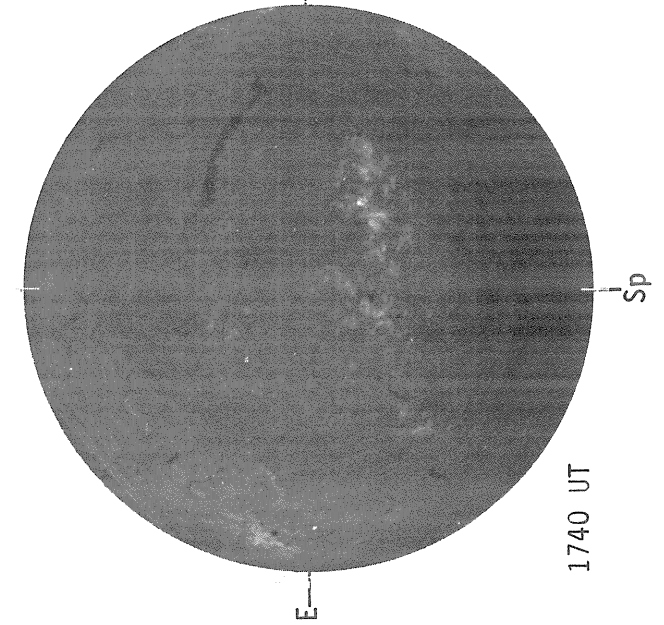
STANFORD MAGNETOGRAM



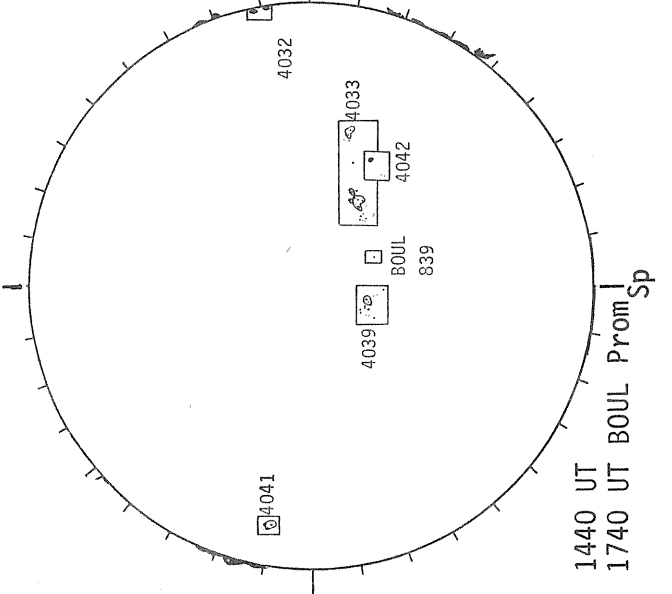
MT. WILSON MAGNETOGRAM



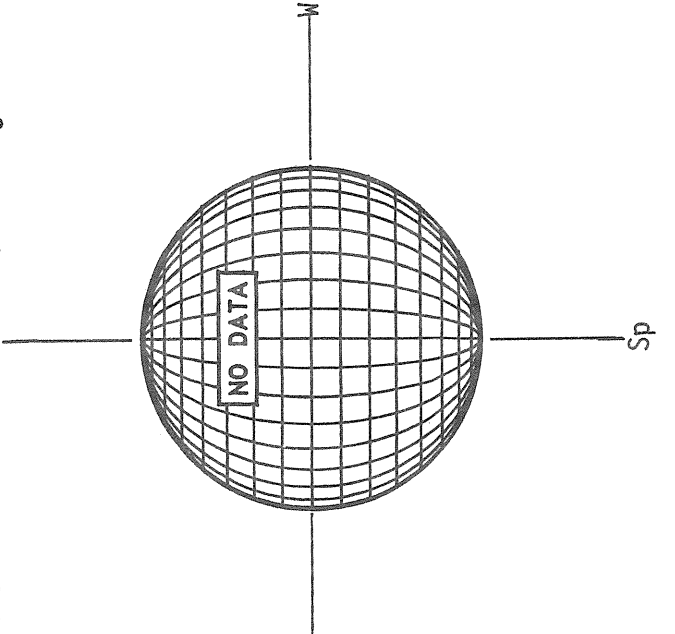
BOULDER H-ALPHA



BOULDER SUNSPOTS



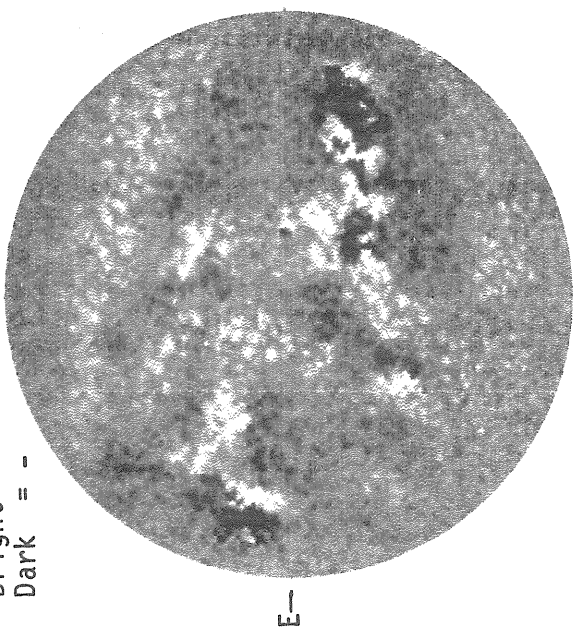
SACRAMENTO PEAK CORONA (5303 Angstrom)



DECEMBER 30, 1982 (P= 3.27, B₀--2.76, L₀= 265.67)

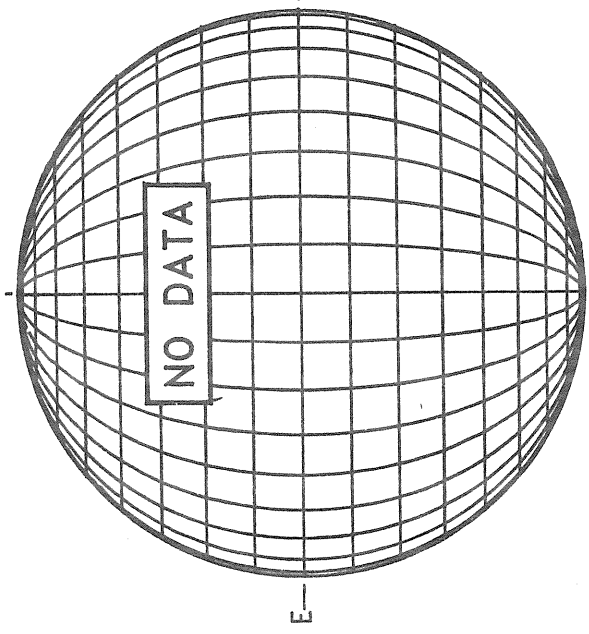
MT. WILSON MAGNETOGRAM

Bright= +
Dark = -



16.3-17.2 UT

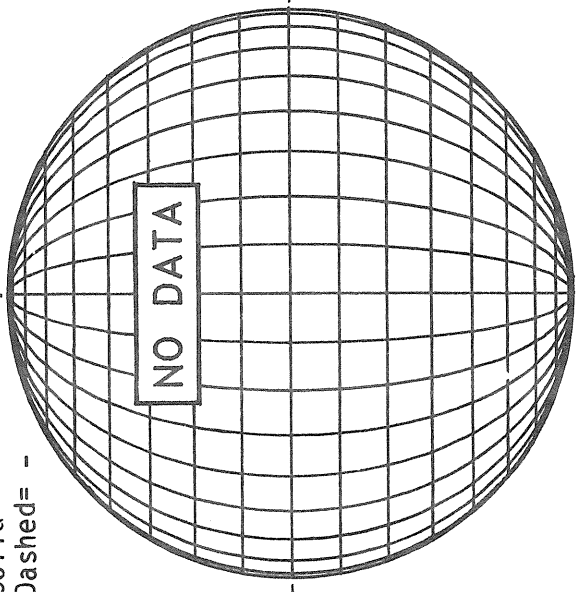
SACRAMENTO PEAK H-ALPHA



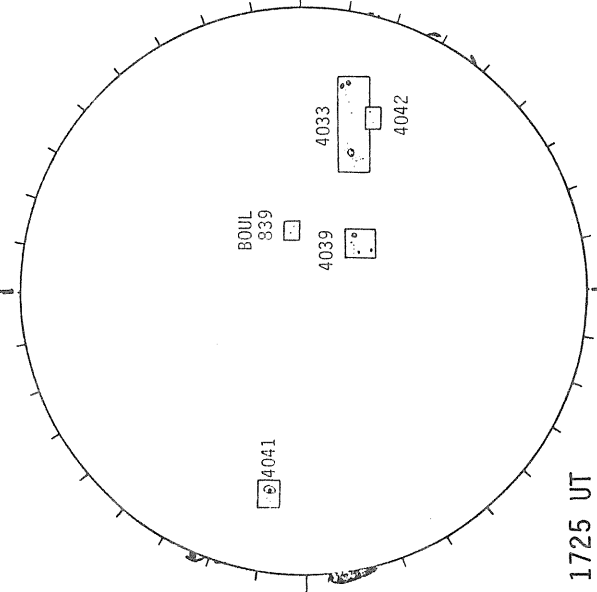
Sp

STANFORD MAGNETOGRAM

Solid = +
Dashed = -



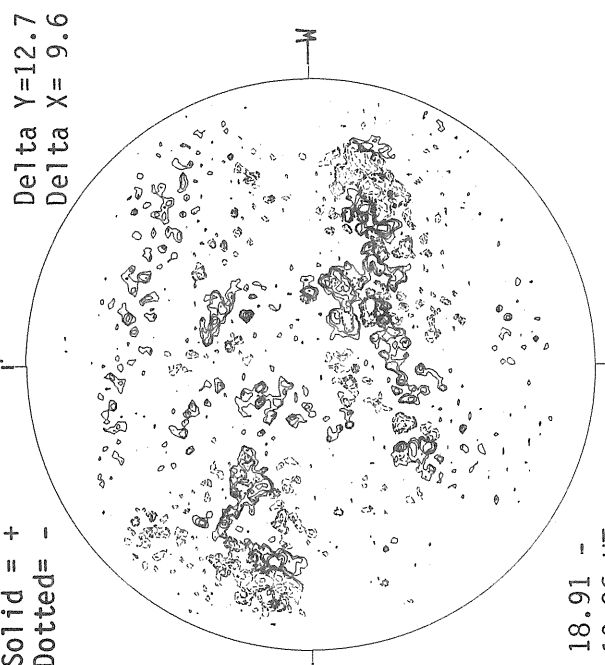
BOULDER SUNSPOTS



1725 UT
2030 UT BOUL Prom Sp

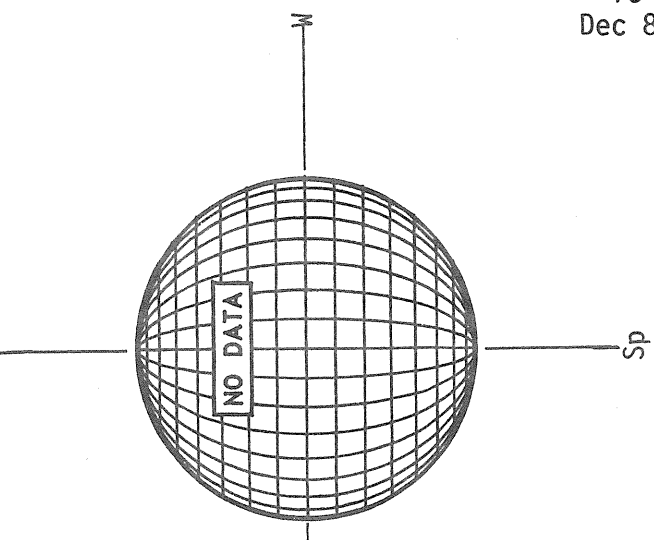
MT. WILSON MAGNETOGRAM

Solid = +
Dotted = -



18.91 -
19.86 UT

SACRAMENTO PEAK CORONA (5303 Angstrom)

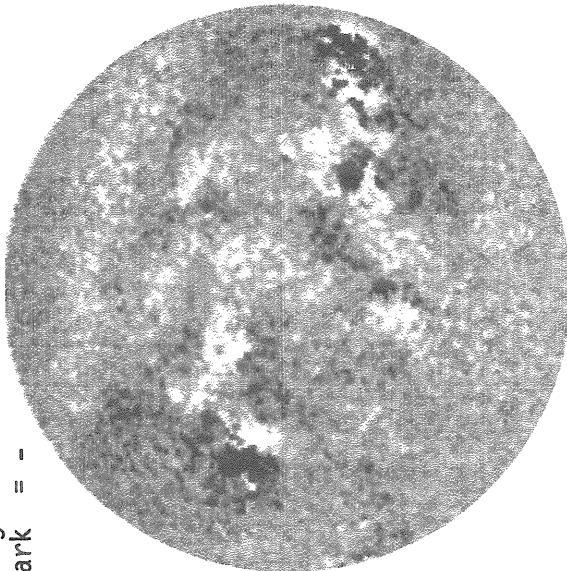


D E C E M B E R 31, 1 9 8 2 (P= 2.79, B₀=-2.88, L₀= 252.50)

MT. WILSON MAGNETOGRAM

Np

Bright= +
Dark = -

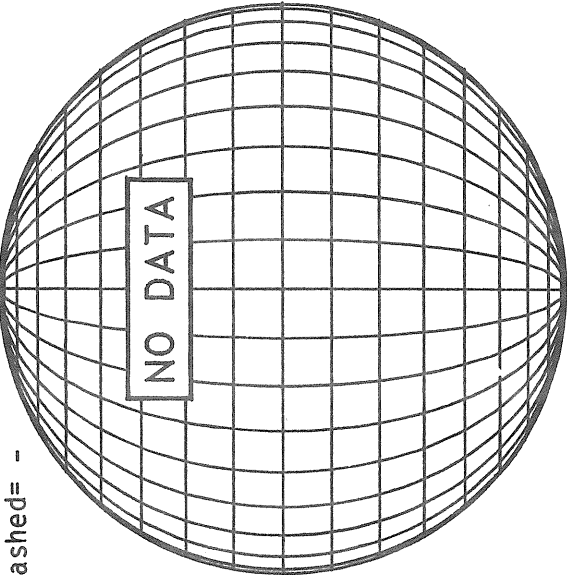


E

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed = -

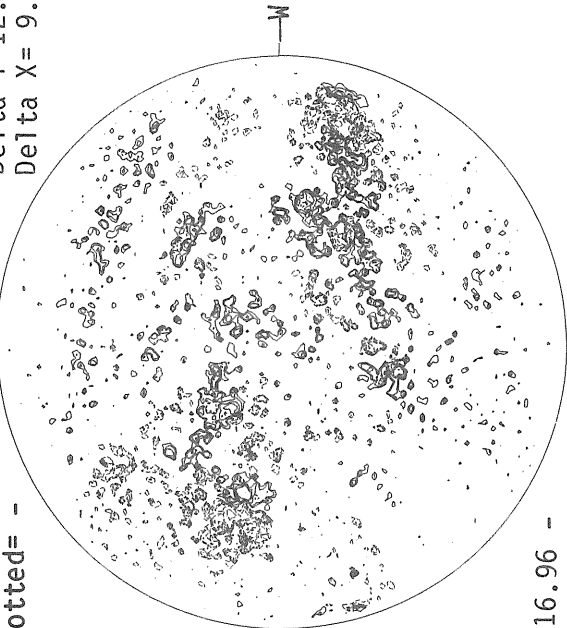


NO DATA

MT. WILSON MAGNETOGRAM

Np

Solid = +
Dotted = -

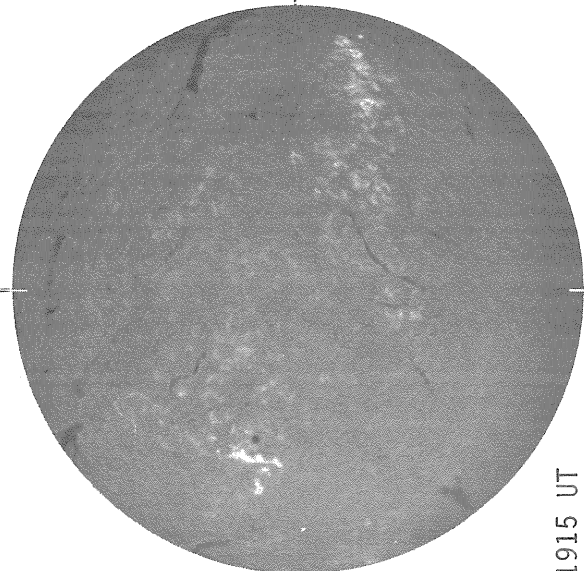


NO DATA

Delta Y=12.7
Delta X= 9.6

16.96 -
17.95 UT

BOULDER H-ALPHA

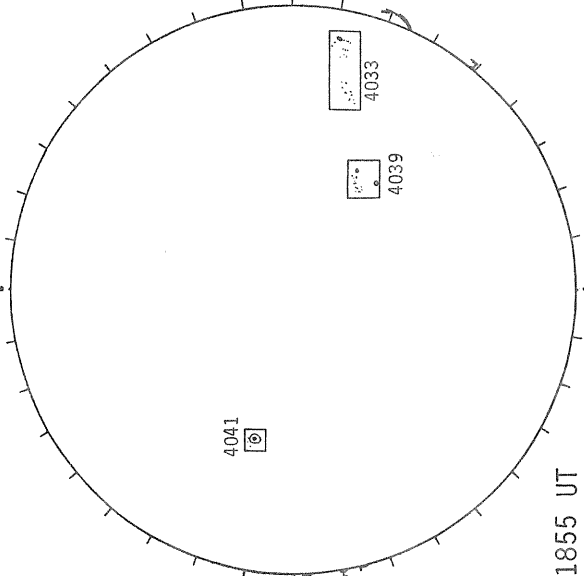


E

1915 UT

Sp

BOULDER SUNSPOTS



4041

4039

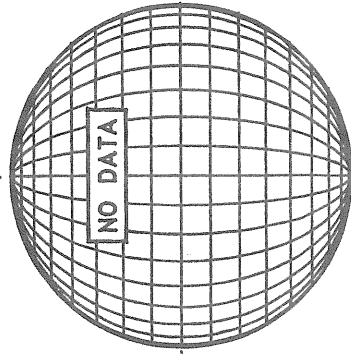
4033

1855 UT

1915 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)



Sp

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

75
Dec 82

DECEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation			Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual	
			Mo	Day	Time (UT)										
4007		LEAR	11	26	0125	S12 E77	12	1.9	A	AXX		1		3	
4007		LEAR	11	27	0012	S13 E55	12	1.2	B	BXO	10	3	3	3	
4007		MANI	11	27	0205	S13 E58	12	1.5		BXO	10	4	2	3	
4007	23453	MWIL	11	27	1545	S15 E49	12	1.4	3	(B)					
4007		HOLL	11	27	1818	S14 E46	12	1.2		B	BXO	20	6	4	4
4007		LEAR	11	28	0018	S15 E44	12	1.3		B	DAO	70	13	9	3
4007		RAMY	11	28	1400	S13 E34	12	1.2		B	CAO	70	11	5	2
4007		HOLL	11	28	1427	S13 E33	12	1.1		B	DAO	120	11	5	2
4007		BOUL	11	28	1600	S12 E29	11	30.9		B	DSO	120	8	5	1
4007		MANI	11	29	0001	S13 E28	12	1.1		B	DSO	180	15	7	3
4007		LEAR	11	29	0021	S14 E29	12	1.2		BD	DAI	210	25	10	3
4007		RAMY	11	29	1415	S16 E24	12	1.4		B	EAO	140	30	12	2
4007		BOUL	11	29	1530	S13 E18	12	1.0		BG	ESI	150	35	12	2
4007		HOLL	11	29	1550	S13 E20	12	1.2		BG	EAI	240	29	11	3
4007		MANI	11	29	2348	S15 E17	12	1.3			DSO	230	22	10	2
4007		LEAR	11	30	0110	S14 E16	12	1.3		BG	EAI	200	31	12	3
4007		RAMY	11	30	1350	S15 E08	12	1.2		B	EAO	210	25	11	2
4007		HOLL	11	30	1715	S15 E05	12	1.1		BG	EAI	190	21	11	3
4007		MANI	11	30	2321	S15 E01	12	1.0			EAO	200	26	12	3
4007	MANI	12	01	0001	S15 E01	12	1.1		B	EAO	200	26	12	3	
4007	LEAR	12	01	0210	S14 E02	12	1.2		BG	EAI	2030	22	13	3	
4007	RAMY	12	01	1320	S13 W03	12	1.3		BG	EAI	270	27	15	4	
4007	23453	MWIL	12	01	1600	S14 W07	12	1.1	4	(B)					
4007		LEAR	12	02	0031	S15 W13	12	1.0		BG	FAI	230	31	16	3
4007	RAMY	12	02	1255	S13 W17	12	1.3		B	EKO	300	19	14	3	
4007	23453	MWIL	12	02	1600	S14 W20	12	1.2	5	(BY)					
4007		HOLL	12	02	1918	S15 W23	12	1.1		BG	DAO	250	11	8	2
4007	LEAR	12	03	0057	S15 W25	12	1.1		BG	EAI	290	31	14	3	
4007	BOUL	12	03	1545	S13 W31	12	1.3		B	ESO	190	8	11	2	
4007	23453	MWIL	12	03	1630	S15 W33	12	1.2	5	(D)					
4007		HOLL	12	03	1745	S15 W33	12	1.2		BG	ESO	300	25	12	3
4007	MANI	12	03	2310	S15 W37	12	1.2			EAO	180	11	10	2	
4007	LEAR	12	04	0048	S13 W36	12	1.3		BG	EAI	290	17	11	3	
4007	BOUL	12	04	1530	S14 W42	12	1.5		BG	EAI	200	26	11	1	
4007	HOLL	12	04	1543	S16 W45	12	1.2		BG	EAI	120	20	11	3	
4007	RAMY	12	04	1545	S14 W43	12	1.4		BGD	EAO	310	25	11	3	
4007	23453	MWIL	12	04	1630	S16 W44	12	1.3	5	(BY)					
4007		LEAR	12	05	0018	S15 W48	12	1.4		BGD	EKI	680	29	11	3
4007	MANI	12	05	0111	S15 W50	12	1.3			EAI	580	24	11	3	
4007	RAMY	12	05	1320	S15 W56	12	1.3		BGD	EKO	680	26	12	3	
4007	BOUL	12	05	1540	S13 W56	12	1.4		B	EKC	950	25	13	3	
4007	23453	MWIL	12	05	1600	S17 W56	12	1.4	5	(D)					
4007		HOLL	12	05	1800	S15 W60	12	1.2		BG	EKI	1100	15	13	3
4007	PALE	12	05	1915	S15 W60	12	1.3			EKO	520	8	11	2	
4007	MANI	12	06	0001	S15 W63	12	1.2			EKO	970	15	12	3	
4007	LEAR	12	06	0635	S15 W65	12	1.3		BGD	EKI	560	13	12	2	
4007	RAMY	12	06	1506	S14 W72	12	1.2		BGD	EKO	540	15	11	2	
4007	HOLL	12	06	1545	S16 W72	12	1.2		BGD	EKI	820	14	14	4	
4007	23453	MWIL	12	06	1630	S17 W69	12	1.4	4	(D)					
4007		BOUL	12	06	1735	S14 W72	12	1.3		BGD	EKC	490	7	14	1
4007	MANI	12	07	0015	S15 W76	12	1.3			EKC	1360	5	14	3	
4007	LEAR	12	07	0115	S15 W75	12	1.4		BD	EKO	800	6	12	3	
4007	RAMY	12	07	1422	S14 W75	12	1.9		BGD	EKO	260	4	11	2	
4007	23453	MWIL	12	07	1600	S16 W80	12	1.6	4	B					
4007		HOLL	12	07	1906	S16 W80	12	1.7		BGD	DKC	200	4	5	3
4007		PALE	12	07	2020	S15 W85	12	1.4			CAO	130	5	8	2
4007		LEAR	12	08	0119	S16 W88	12	1.4		B	DSO	80	2	7	3
0001		MANI	11	29	0001	S18 E35	12	1.7		A	AXX	10	1		3
0001	23457	MWIL	12	01	1600	S18 E01	12	1.7	3	(BF)					
0001	23457	MWIL	12	02	1600	S18 W13	12	1.7	3	(AF)					
4008		LEAR	11	27	0012	S22 E70	12	2.4		A	AXX		1		3
4008	23454	MANI	11	27	0205	S23 E71	12	2.6			AXX	10	1		3
4008		MWIL	11	27	1545	S21 E62	12	2.4	3	(B)					
4008		HOLL	11	27	1818	S22 E61	12	2.5		A	AXX		1		4
4008		LEAR	11	28	0018	S22 E60	12	2.6		B	CRO	10	3	4	3
4008		RAMY	11	28	1400	S21 E49	12	2.3		A	AXX	20	1	1	2
4008		HOLL	11	28	1427	S22 E49	12	2.4		A	AXX	10	1		2
4008		BOUL	11	28	1600	S22 E50	12	2.5		A	AXX		1		1
4008		MANI	11	29	0001	S23 E46	12	2.5		A	AXX	10	1		3

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

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NOAA/ USAF Region	Mt Wilson Region	Observation Time (UT)	Mo	Day	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual
4008		LEAR	11	29	0021	S22 E44	12	2.4		A	AXX		1		3
4005		LEAR	11	26	0125	S10 E85	12	2.5		A	HKX	350	1	4	3
4005		RAMY	11	26	1350	S11 E79	12	2.5		B	CKO	380	9	9	3
4005		BOUL	11	26	1520	S11 E74	12	2.2		A	HKX	360	3	4	3
4005	23449	MWIL	11	26	1600	S11 E77	12	2.5	3	(AP)					
4005		LEAR	11	27	0012	S11 E74	12	2.6		B	DKI	590	7	9	3
4005		MANI	11	27	0205	S12 E75	12	2.7			DKI	790	7	10	3
4005	23449	MWIL	11	27	1545	S10 E64	12	2.5	5	(D)					
4005		HOLL	11	27	1818	S11 E63	12	2.5		B	DKI	430	18	10	4
4005		LEAR	11	28	0018	S11 E61	12	2.6		BD	DKI	870	16	11	3
4005		RAMY	11	28	1400	S10 E54	12	2.6		BGD	EKO	600	21	11	2
4005		HOLL	11	28	1427	S10 E52	12	2.5		BGD	DKI	690	12	10	2
4005		BOUL	11	28	1600	S10 E47	12	2.2		B	CHO	750	11	7	1
4005		MANI	11	29	0001	S11 E48	12	2.6		BD	DHO	870	17	10	3
4005		LEAR	11	29	0021	S11 E47	12	2.6		BD	DKI	850	25	10	3
4005		RAMY	11	29	1415	S12 E41	12	2.7		BGD	EKO	820	23	11	2
4005		BOUL	11	29	1530	S08 E37	12	2.4		BD	DKI	620	22	9	2
4005		HOLL	11	29	1550	S10 E38	12	2.5		BGD	EKI	770	25	11	3
4005		MANI	11	29	2348	S11 E35	12	2.6			DKI	810	24	10	2
4005		LEAR	11	30	0110	S11 E34	12	2.6		BD	DKI	800	22	10	3
4005		RAMY	11	30	1350	S11 E27	12	2.6		B	EKO	680	28	11	2
4005		HOLL	11	30	1715	S11 E25	12	2.6		BG	DKI	730	26	10	3
4005		MANI	11	30	2321	S11 E21	12	2.6			DKI	640	28	10	3
4005		MANI	12	01	0001	S11 E21	12	2.6		B	DKI	640	28	10	3
4005		LEAR	12	01	0210	S11 E20	12	2.6		B	DKI	710	24	9	3
4005		RAMY	12	01	1320	S10 E15	12	2.7		BG	EKI	680	43	10	4
4005	23449	MWIL	12	01	1600	S10 E12	12	2.6	5	(B)					
4005		LEAR	12	02	0031	S10 E08	12	2.6		B	DKI	590	24	9	3
4005		RAMY	12	02	1255	S11 W00	12	2.5		BG	DKI	580	37	10	3
4005	23449	MWIL	12	02	1600	S10 W00	12	2.7	6	(B)					
4005		HOLL	12	02	1918	S11 W03	12	2.6		B	DHO	680	19	8	2
4005		LEAR	12	03	0057	S10 W06	12	2.6		B	DHI	620	41	9	3
4005		BOUL	12	03	1545	S09 W14	12	2.6		B	DHO	480	12	8	2
4005	23449	MWIL	12	03	1630	S11 W15	12	2.6	6	(B)					
4005		HOLL	12	03	1745	S10 W15	12	2.6		B	EHO	560	21	11	3
4005		MANI	12	03	2310	S11 W18	12	2.6			DHO	570	15	9	2
4005		LEAR	12	04	0048	S10 W19	12	2.6		B	DHI	680	27	9	3
4005		BOUL	12	04	1530	S09 W26	12	2.7		B	DHO	470	25	10	1
4005		HOLL	12	04	1543	S11 W28	12	2.5		B	DHO	580	16	8	3
4005		RAMY	12	04	1545	S09 W26	12	2.7		B	DKI	550	33	8	3
4005	23449	MWIL	12	04	1630	S11 W28	12	2.6	6	(B)					
4005		LEAR	12	05	0018	S11 W32	12	2.6		B	DHI	650	13	8	3
4005		MANI	12	05	0111	S11 W32	12	2.6			CHO	700	20	9	3
4005		RAMY	12	05	1320	S11 W38	12	2.7		B	DKO	520	23	8	3
4005		BOUL	12	05	1540	S10 W41	12	2.6		BG	CHO	660	17	7	3
4005	23499	MWIL	12	05	1600	S12 W41	12	2.6	6	(BP)					
4005		HOLL	12	05	1800	S11 W42	12	2.6		B	DKI	600	13	8	3
4005		PALE	12	05	1915	S11 W42	12	2.6			DKO	580	6	9	2
4005		MANI	12	06	0001	S11 W45	12	2.6			DKO	810	6	9	3
4005		LEAR	12	06	0635	S12 W48	12	2.7		B	CHI	490	10	8	2
4005		RAMY	12	06	1506	S11 W55	12	2.5		B	DKO	530	13	7	2
4005		HOLL	12	06	1545	S11 W55	12	2.5		BG	DKI	980	9	8	4
4005	23449	MWIL	12	06	1630	S12 W55	12	2.5	5	(BP)					
4005		BOUL	12	06	1735	S12 W57	12	2.4		B	CHO	540	3	6	1
4005		MANI	12	07	0015	S11 W59	12	2.6			DHO	810	2	7	3
4005		LEAR	12	07	0115	S12 W58	12	2.7		B	CKO	570	10	8	3
4005		RAMY	12	07	1422	S10 W69	12	2.4		B	DKO	980	7	6	2
4005	23449	MWIL	12	07	1600	S12 W67	12	2.6	5	BP					
4005		HOLL	12	07	1906	S13 W69	12	2.6		B	CKO	540	7	5	3
4005		PALE	12	07	2020	S12 W70	12	2.6			DKO	580	7	5	2
4005		LEAR	12	08	0119	S12 W72	12	2.6		B	DKO	550	6	6	3
4005		RAMY	12	08	1222	S11 W78	12	2.6		B	DKO	440	12	6	3
4005		LEAR	12	09	0042	S12 W87	12	2.5		A	HKX	200	3	5	2
4013		RAMY	12	02	1255	N14 E09	12	3.2		B	DAO	60	14	6	3
4013	23460	MWIL	12	02	1600	N13 E07	12	3.2	3	(BY)					
4013		HOLL	12	02	1918	N14 E06	12	3.3		B	DAO	50	10	7	2
4013		LEAR	12	03	0057	N14 E04	12	3.3		B	CAO	50	10	7	3
4013		BOUL	12	03	1545	N13 W06	12	3.2		B	DSO	90	14	7	2
4013	23460	MWIL	12	03	1630	N13 W06	12	3.2	5	(B)					

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time (UT)		Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual		
4013		HOLL	12	03	1745	N14 W06	12	3.3	B	DAO	80	16	8	3	
4013		MANI	12	03	2310	N10 W10	12	3.2		EAO	150	12	7	2	
4013		LEAR	12	04	0048	N15 W11	12	3.2	B	DAI	210	23	8	3	
4013		BOUL	12	04	1530	N13 W17	12	3.4	B	DAI	160	20	8	1	
4013		HOLL	12	04	1543	N13 W19	12	3.2	B	DAI	140	17	9	3	
4013		RAMY	12	04	1545	N14 W17	12	3.4	A	AXX	20	2	1	3	
4013		RAMY	12	04	1545	N14 W17	12	3.4	B	DAO	240	23	8	3	
4013	23460	MWIL	12	04	1630	N13 W20	12	3.2	5	(B)					
4013		LEAR	12	05	0018	N14 W24	12	3.2		B	DAI	190	17	8	3
4013		MANI	12	05	0111	N14 W24	12	3.2		B	DAI	200	19	9	3
4013		RAMY	12	05	1320	N13 W31	12	3.2		B	DAO	160	21	8	3
4013		BOUL	12	05	1540	N14 W31	12	3.3		B	CAO	160	16	12	3
4013	23460	MWIL	12	05	1600	N13 W33	12	3.2	5	(B)					
4013		HOLL	12	05	1800	N13 W35	12	3.1		B	DAI	230	15	9	3
4013		PALE	12	05	1915	N14 W35	12	3.2		DSO	120	10	9	2	
4013		MANI	12	06	0001	N14 W37	12	3.2		DSO	190	9	10	3	
4013		LEAR	12	06	0635	N14 W41	12	3.2		B	DAO	260	11	8	2
4013		RAMY	12	06	1506	N15 W45	12	3.2		B	DAO	230	23	9	2
4013		HOLL	12	06	1545	N14 W55	12	2.5		B	DKI	250	17	9	4
4013	23460	MWIL	12	06	1630	N14 W46	12	3.2	4	(B)					
4013		BOUL	12	06	1735	N15 W47	12	3.2		B	CSO	60	5	9	1
4013		MANI	12	07	0015	N14 W50	12	3.2		B	DSO	210	10	10	3
4013		RAMY	12	07	1422	N15 W60	12	3.1		B	DAO	260	14	10	2
4013	23460	MWIL	12	07	1600	N14 W59	12	3.2	5	B					
4013		HOLL	12	07	1906	N14 W63	12	3.0		B	DSO	100	12	9	3
4013		PALE	12	07	2020	N15 W64	12	3.0		DSO	80	10	9	2	
4013		LEAR	12	08	0119	N15 W65	12	3.1		B	CAO	110	8	9	3
4013		RAMY	12	08	1222	N16 W72	12	3.1		B	DKO	280	15	10	3
4013		LEAR	12	09	0042	N15 W78	12	3.1		B	DSO	100	5	6	2
4023		HOLL	12	02	1918	N15 E17	12	4.1		A	AXX		1		2
4023	23470	MWIL	12	07	1600	N13 W47	12	4.1	1	X					
4023		RAMY	12	08	1222	N14 W59	12	4.1		B	CAO	40	2	2	3
4023		LEAR	12	09	0042	N15 W68	12	3.9		B	BXO		2	5	2
4019		HOLL	12	05	1800	S22 W18	12	4.4		A	AXX		1		3
4019		LEAR	12	06	0635	S23 W23	12	4.5		B	BXO	10	10	10	2
4019		RAMY	12	06	1506	S22 W30	12	4.3		B	DAO	120	18	6	2
4019		HOLL	12	06	1545	S22 W30	12	4.3		B	DAI	80	13	7	4
4019	23466	MWIL	12	06	1630	S23 W30	12	4.4	5	(BY)					
4019		BOUL	12	06	1735	S23 W31	12	4.3		B	DSO	50	5	5	1
4019		MANI	12	07	0015	S23 W35	12	4.3		DSO	110	8	7	3	
4019		LEAR	12	07	0115	S22 W35	12	4.4		B	DAO	120	15	6	3
4019		RAMY	12	07	1422	S23 W44	12	4.2		B	DAO	90	9	9	2
4019	23466	MWIL	12	07	1600	S23 W42	12	4.4	4	B					
4019		HOLL	12	07	1906	S23 W45	12	4.3		B	DSO	170	12	8	3
4019		PALE	12	07	2020	S23 W46	12	4.3		DAO	140	6	8	2	
4019		LEAR	12	08	0119	S23 W47	12	4.4		B	DAO	220	12	9	3
4019		RAMY	12	08	1222	S23 W55	12	4.3		B	DKO	190	15	10	3
4019		LEAR	12	09	0042	S24 W61	12	4.3		B	DSO	150	8	9	2
4019		RAMY	12	09	1730	S22 W69	12	4.4		B	DAO	190	3	8	3
4019		BOUL	12	09	1755	S22 W70	12	4.4		B	DRO	100	6	9	2
4019		LEAR	12	10	0038	S23 W72	12	4.5		B	DAO	100	6	10	3
4019		RAMY	12	10	1405	S24 W79	12	4.5		A	HAX	130	1	3	3
4019	23466	MWIL	12	10	1600	S25 W78	12	4.6	3	(AF)					
4019		MANI	12	11	0123	S23 W87	12	4.4		DRO	90	2	2	2	
4018		HOLL	12	05	1800	S09 W12	12	4.8		A	AXX	10	2		3
4018		PALE	12	05	1915	S09 W13	12	4.8		BXO	20	3	3	2	
4018		MANI	12	06	0001	S09 W15	12	4.9		CRO	20	4	3	3	
4018		LEAR	12	06	0635	S09 W20	12	4.8		B	CRO	20	11	5	2
4018		RAMY	12	06	1506	S08 W25	12	4.8		B	DAO	140	11	6	2
4018		HOLL	12	06	1545	S09 W26	12	4.7		B	DSO	60	10	5	4
4018	23467	MWIL	12	06	1630	S09 W26	12	4.7	4	(B)					
4018		BOUL	12	06	1735	S08 W26	12	4.8		B	BXO	10	4	4	1
4018		MANI	12	07	0015	S09 W30	12	4.8		BXO	30	7	7	3	
4018		LEAR	12	07	0115	S09 W31	12	4.7		B	BXO	30	11	4	3
4018		RAMY	12	07	1422	S09 W38	12	4.7		B	CAO	50	7	4	2
4018	23467	MWIL	12	07	1600	S09 W37	12	4.9	3	B					
4018		HOLL	12	07	1906	S09 W40	12	4.8		B	CRO	30	8	3	3
4018		PALE	12	07	2020	S09 W41	12	4.8		BXO	20	4	4	2	

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4018		LEAR	12	08	0119	S09 W43	12 4.8	B	BX0	10	6	5	3	
4018		RAMY	12	08	1222	S08 W50	12 4.8	B	DRO	30	3	4	3	
4018		LEAR	12	09	0042	S08 W57	12 4.8	B	BX0		2	5	2	
4015		MAN I	11	30	2321	N03 E60	12 5.5		AXX		1		3	
4015		MAN I	12	01	0001	N03 E60	12 5.5	A	AXX		1		3	
4015		LEAR	12	02	0031	N04 E44	12 5.3	A	AXX	10	1		3	
4015		LEAR	12	04	0048	N01 E14	12 5.1	A	AXX		1		3	
4015		BOUL	12	04	1530	N04 E10	12 5.4	A	AXX		1		1	
4015		HOLL	12	04	1543	N04 E11	12 5.5	A	AXX		1		3	
4015	23463	MWIL	12	04	1630	N02 E09	12 5.4	2	(AF)					
4015		LEAR	12	05	0018	N03 E05	12 5.4	A	AXX		1		3	
4015		MAN I	12	05	0111	N04 E04	12 5.3		AXX		1		3	
4015		RAMY	12	05	1320	N02 W02	12 5.4	A	AXX	10	3	1	3	
4015		BOUL	12	05	1540	N05 W06	12 5.2	A	AXX	10	4	2	3	
4015	23463	MWIL	12	05	1600	N02 W04	12 5.4	3	(AF)					
4015		HOLL	12	05	1800	N03 W06	12 5.3	A	AXX		1		3	
4015	23463	MWIL	12	06	1630	N02 W17	12 5.4	1	AP					
4010		RAMY	11	29	1415	N07 E88	12 6.2	A	HKX	60	1	5	2	
4010		BOUL	11	29	1530	N08 E80	12 5.6	A	HAX	80	1	2	2	
4010		HOLL	11	29	1550	N08 E83	12 5.9	A	HAX	60	1	2	3	
4010		MAN I	11	29	2348	N09 E80	12 6.0		HSX	220	1	2	2	
4010		LEAR	11	30	0110	N08 E78	12 5.9	A	HSX	70	1	2	3	
4010		RAMY	11	30	1350	N08 E70	12 5.8	A	HAX	190	2	5	2	
4010		HOLL	11	30	1715	N10 E75	12 6.4	B	ESO	90	4	12	3	
4010		MAN I	11	30	2321	N08 E67	12 6.0		HSX	130	2	2	3	
4010		MAN I	12	01	0001	N08 E67	12 6.0	A	HSX	130	2	2	3	
4010		LEAR	12	01	0210	N10 E70	12 6.4	B	ESO	110	5	13	3	
4010		RAMY	12	01	1320	N09 E65	12 6.4	B	EAO	390	8	13	4	
4010	23458	MWIL	12	01	1600	N08 E57	12 5.9	4	(AP)					
4010		LEAR	12	02	0031	N09 E51	12 5.9	A	HAX	140	4	2	3	
4010		RAMY	12	02	1255	N08 E45	12 5.9	B	DAO	90	3	3	3	
4010	23458	MWIL	12	02	1600	N09 E43	12 5.9	4	(AP)					
4010		HOLL	12	02	1918	N08 E40	12 5.8	B	DSO	100	3	3	2	
4010		LEAR	12	03	0057	N08 E38	12 5.9	A	HKX	110	4	3	3	
4010		BOUL	12	03	1545	N10 E28	12 5.8	B	DSO	60	5	4	2	
4010	23458	MWIL	12	03	1630	N08 E29	12 5.9	5	(BP)					
4010		HOLL	12	03	1745	N09 E29	12 5.9	B	DSO	70	10	4	3	
4010		MAN I	12	03	2310	N09 E26	12 5.9		DSO	140	7	7	2	
4010		LEAR	12	04	0048	N10 E25	12 5.9	B	CSO	100	13	7	3	
4010		BOUL	12	04	1530	N10 E18	12 6.0	B	CAI	60	8	6	1	
4010		HOLL	12	04	1543	N09 E17	12 5.9	B	DAO	30	8	6	3	
4010		RAMY	12	04	1545	N09 E19	12 6.1	B	CAO	40	14	6	3	
4010	23458	MWIL	12	04	1630	N08 E15	12 5.8	4	(BP)					
4010		LEAR	12	05	0018	N08 E11	12 5.8	B	DSO	50	10	7	3	
4010		MAN I	12	05	0111	N09 E13	12 6.0		DSO	60	10	6	3	
4010		RAMY	12	05	1320	N07 E05	12 5.9	B	CAO	40	10	4	3	
4010		BOUL	12	05	1540	N09 E03	12 5.9	B	CRO	20	11	3	3	
4010	23458	MWIL	12	05	1600	N08 E03	12 5.9	4	(AP)					
4010		HOLL	12	05	1800	N08 E03	12 6.0	B	CAO	40	6	5	3	
4010		PALE	12	05	1915	N08 E02	12 6.0		CRO	30	4	4	2	
4010		MAN I	12	06	0001	N09 W00	12 6.0		CSO	50	8	5	3	
4010		LEAR	12	06	0635	N08 W07	12 5.7	B	CSO	30	6	4	2	
4010		RAMY	12	06	1506	N09 W10	12 5.9	B	CSO	80	9	4	2	
4010		HOLL	12	06	1545	N07 W03	12 6.4	B	BX0	10	2	3	4	
4010		HOLL	12	06	1545	N08 W11	12 5.8	B	CSO	20	6	4	4	
4010	23458	MWIL	12	06	1630	N08 W11	12 5.9	4	(BP)					
4010		BOUL	12	06	1735	N09 W13	12 5.8	B	CSO	20	2	3	1	
4010		MAN I	12	07	0015	N08 W15	12 5.9		CSO	20	2	4	3	
4010		LEAR	12	07	0115	N08 W17	12 5.8	A	AXX	10	2	1	3	
4010		RAMY	12	07	1422	N08 W22	12 5.9	B	CSO	30	3	2	2	
4010	23458	MWIL	12	07	1600	N07 W23	12 5.9	3	AP					
4010		HOLL	12	07	1906	N08 W21	12 6.2	B	CSO	20	8	9	3	
4010		PALE	12	07	2020	N07 W25	12 6.0		HRX	20	1	1	2	
4010		LEAR	12	08	0119	N07 W28	12 6.0	A	AXX		1		3	
4010		RAMY	12	08	1222	N08 W34	12 6.0	A	HAX	10	1	1	3	
0002	23471	MWIL	12	07	1600	N11 W18	12 6.3	2	X					
0002	23471	MWIL	12	10	1600	N10 W59	12 6.2	4	(B)					
0002	23471	MWIL	12	11	1630	N09 W71	12 6.4	3	(B)					

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time		Lat	CMP	Max	Mag	Spot	Corrected	Spot	Long.	Qual	
			Mo	Day	UT	CMD	Mo	Day	H	Class	Area (10 ⁻⁶ Hemi)	Count	Extent (Deg)	
0003	23461	MWIL	12	02	1600	N07 E55	12	6.8	3	(AP)				
0003	23461	MWIL	12	03	1630	N07 E41	12	6.8	3	(B)				
0003	23461	MWIL	12	04	1630	N08 E24	12	6.5	2	(AP)				
0003	23461	MWIL	12	05	1600	N09 E12	12	6.6	2	(AF)				
4012		MANI	12	01	0001	N09 E81	12	7.1		B CRO	170	3	2	3
4012	23459	MWIL	12	01	1600	N11 E69	12	6.9	3	(AP)				
4012		LEAR	12	02	0031	N12 E69	12	7.2		B EAO	120	12	12	3
4012		RAMY	12	02	1255	N13 E58	12	6.9		B DAO	90	16	5	3
4012	23459	MWIL	12	02	1600	N13 E56	12	6.9	4	(D)				
4012		HOLL	12	02	1918	N12 E55	12	7.0		BG DAI	130	15	5	2
4012		LEAR	12	03	0057	N12 E50	12	6.8		BGD DAI	140	18	8	3
4012		BOUL	12	03	1545	N13 E39	12	6.6		BG DSO	80	10	6	2
4012	23459	MWIL	12	03	1630	N12 E40	12	6.7	4	(D)				
4012		HOLL	12	03	1745	N12 E42	12	6.9		BG DAO	150	17	6	3
4012		MANI	12	03	2310	N12 E38	12	6.8		DAO	130	17	5	2
4012		LEAR	12	04	0048	N12 E36	12	6.7		BG DAI	150	21	9	3
4012		BOUL	12	04	1530	N13 E28	12	6.8		B CRI	40	9	4	1
4012		HOLL	12	04	1543	N12 E27	12	6.7		B DSI	40	12	4	3
4012		RAMY	12	04	1545	N13 E29	12	6.8		B CAO	20	11	15	3
4012	23459	MWIL	12	04	1630	N12 E27	12	6.7	3	(D)				
4012		LEAR	12	05	0018	N13 E23	12	6.7		BG CRI	40	13	6	3
4012		MANI	12	05	0111	N12 E26	12	7.0		CSO	60	13	10	3
4012		RAMY	12	05	1320	N11 E15	12	6.7		B BXO	10	4	3	3
4012		BOUL	12	05	1540	N12 E12	12	6.6		B BXO		2	3	3
4012	23459	MWIL	12	05	1600	N13 E13	12	6.6	3	(BY)				
4012		HOLL	12	05	1800	N15 E13	12	6.7		B CRO	20	18	5	3
4012		PALE	12	05	1915	N13 E12	12	6.7		BXO	10	2	3	2
4012		MANI	12	06	0001	N13 E10	12	6.8		CRO	30	3	3	3
4012		LEAR	12	06	0635	N11 E05	12	6.7		B BXO	10	7	5	2
4012		RAMY	12	06	1506	N09 W01	12	6.6		B BXO	40	7	6	2
4012		HOLL	12	06	1545	N13 W00	12	6.7		A AXX		1		4
4012	23459	MWIL	12	06	1630	N13 W01	12	6.6	4	(AF)				
4012		BOUL	12	06	1735	N10 E01	12	6.8		A AXX		1		1
4012		MANI	12	07	0015	N13 W05	12	6.6		AXX	10	1		3
4012		RAMY	12	07	1422	N11 W12	12	6.7		B BXO	30	5	3	2
4012		PALE	12	07	2020	N10 W18	12	6.5		BXO	20	2	3	2
4012		LEAR	12	08	0119	N12 W24	12	6.2		B BXO		2	3	3
4012		RAMY	12	08	1222	N11 W30	12	6.3		B DAO	50	11	4	3
4012		LEAR	12	09	0042	N11 W37	12	6.2		B BXO	10	7	4	2
4012		RAMY	12	09	1730	N12 W46	12	6.3		B CAO	60	6	4	3
4012		BOUL	12	09	1755	N12 W47	12	6.2		B CRO	50	7	5	2
4012		LEAR	12	10	0038	N11 W50	12	6.3		B DRO	80	8	6	3
4012		RAMY	12	10	1405	N12 W59	12	6.1		B CAO	160	6	5	3
4012		LEAR	12	11	0006	N11 W64	12	6.2		B DRO	30	4	4	3
4012		MANI	12	11	0123	N10 W65	12	6.2		DSO	100	4	3	2
4012		RAMY	12	11	1350	N09 W71	12	6.2		A HAX	130	1	2	3
4012		PALE	12	11	1900	N09 W74	12	6.2		B CSO	60	3	3	3
4012		HOLL	12	11	2104	N09 W77	12	6.1		A AXX		1	1	3
4012		MANI	12	11	2342	N09 W78	12	6.1		AXX	20	1	1	3
4012		LEAR	12	12	0130	N09 W79	12	6.1		A HRX	20	1	1	3
	23477	MWIL	12	11	1630	N13 W63	12	6.9	3	(AF)				
		RAMY	12	06	1506	N03 E05	12	7.0		B BXO	40	8	5	2
		MANI	11	30	2321	N09 E81	12	7.1		CRO	170	3	2	3
4014		RAMY	12	02	1255	N05 E64	12	7.3		B EAO	130	15	13	3
4014	23462	MWIL	12	02	1600	N08 E68	12	7.8	3	(BF)				
4014		HOLL	12	02	1918	N06 E64	12	7.6		B CSO	60	1	6	2
4014		LEAR	12	03	0057	N08 E62	12	7.7		B DAI	180	16	7	3
4014		BOUL	12	03	1545	N08 E50	12	7.4		B DAO	240	11	8	2
4014	23462	MWIL	12	03	1630	N06 E52	12	7.6	5	(D)				
4014		HOLL	12	03	1745	N07 E51	12	7.6		BGD EKI	360	16	11	3
4014		MANI	12	03	2310	N07 E48	12	7.6		EAI	430	11	10	2
4014		LEAR	12	04	0048	N07 E46	12	7.5		BG ESI	370	17	11	3
4014		BOUL	12	04	1530	N08 E39	12	7.6		BGD EAI	360	36	12	1
4014		HOLL	12	04	1543	N07 E37	12	7.4		BG EAI	210	33	11	3
4014		RAMY	12	04	1545	N06 E39	12	7.6		BGD EAI	260	38	12	3
4014	23462	MWIL	12	04	1630	N06 E36	12	7.4	5	(D)				

REGIONS OF SUNSPOT ACTIVITY
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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time			Lat	CMD	CMP		Max H	Mag Class	Spot Class	Corrected Area		Spot Count†	Long. Extent (Deg)	Qual
			Mo	Day	UT			Mo	Day				(10 ⁻⁶	HemI)			
4014		LEAR	12	05	0018	N07	E32	12	7.4		B	ESI	510	39	12	3	
4014		MANI	12	05	0111	N06	E32	12	7.4			EAI	440	36	12	3	
4014		RAMY	12	05	1320	N06	E26	12	7.5		BG	EA0	370	44	12	3	
4014		BOUL	12	05	1540	N08	E21	12	7.2		BG	EKI	450	47	12	3	
4014	23462	MWIL	12	05	1600	N07	E23	12	7.4	5	(BY)						
4014		HOLL	12	05	1800	N08	E22	12	7.4		BG	EAI	610	33	13	3	
4014		PALE	12	05	1915	N07	E22	12	7.5			EKI	440	30	12	2	
4014		MANI	12	06	0001	N07	E19	12	7.4			EKI	640	28	13	3	
4014		LEAR	12	06	0635	N07	E15	12	7.4		BG	EKI	640	61	13	2	
4014		RAMY	12	06	1506	N08	E10	12	7.4		BG	EKI	440	52	15	2	
4014		HOLL	12	06	1545	N08	E09	12	7.3		BGD	FKI	660	48	16	4	
4014	23462	MWIL	12	06	1630	N07	E09	12	7.4	5	(D)						
4014		BOUL	12	06	1735	N07	E08	12	7.3		BG	EKI	510	16	14	1	
4014		MANI	12	07	0015	N08	E04	12	7.3			EKI	690	29	15	3	
4014		LEAR	12	07	0115	N07	E04	12	7.4		BG	EKI	670	26	14	3	
4014		RAMY	12	07	1422	N08	W05	12	7.2		BGD	EKI	580	68	13	2	
4014	23462	MWIL	12	07	1600	N07	W05	12	7.3	5	(BY)						
4014		HOLL	12	07	1906	N07	W06	12	7.3		BGD	EHI	700	50	14	3	
4014		PALE	12	07	2020	N07	W07	12	7.3			EKI	630	37	15	2	
4014		LEAR	12	08	0119	N07	W08	12	7.5		BG	EKI	680	44	14	3	
4014		RAMY	12	08	1222	N08	W16	12	7.3		BGD	EKI	580	69	15	3	
4014		LEAR	12	09	0042	N07	W22	12	7.4		BG	EKI	490	44	14	2	
4014		RAMY	12	09	1730	N07	W32	12	7.3		BGD	EKI	350	49	15	3	
4014		BOUL	12	09	1755	N09	W32	12	7.3		BGD	EKI	460	48	15	2	
4014		LEAR	12	10	0038	N07	W37	12	7.3		BG	EKI	710	50	15	3	
4014		RAMY	12	10	1405	N07	W44	12	7.3		BGD	EKI	470	50	15	3	
4014	23462	MWIL	12	10	1600	N06	W46	12	7.2	5	(D)						
4014		LEAR	12	11	0006	N07	W50	12	7.3		BGD	EKI	980	51	13	3	
4014		MANI	12	11	0123	N08	W51	12	7.2			EKC	790	35	13	2	
4014		RAMY	12	11	1350	N06	W56	12	7.4		BGD	EKO	600	17	15	3	
4014	23462	MWIL	12	11	1630	N05	W60	12	7.2	5	(D)						
4014		PALE	12	11	1900	N06	W61	12	7.2		BGD	EKO	420	24	14	3	
4014		HOLL	12	11	2104	N06	W62	12	7.2		BGD	EKI	500	18	15	3	
4014		MANI	12	11	2342	N06	W65	12	7.1			EKO	1090	23	14	3	
4014		LEAR	12	12	0130	N07	W65	12	7.2		BG	EKI	690	17	13	3	
4014		RAMY	12	12	1243	N08	W72	12	7.1		BGD	EKO	750	22	15	4	
4014		BOUL	12	12	1615	N08	W73	12	7.2		BG	CSO	420	5	12	2	
4014	23462	MWIL	12	12	1630	N05	W71	12	7.4	4	(BY)						
4014		LEAR	12	13	0100	N07	W78	12	7.2		B	EKO	350	8	13	2	
4014		HOLL	12	13	1834	N06	W88	12	7.2		A	AXX		1		2	
4016		BOUL	12	04	1530	S08	E77	12	10.4		B	BXO		2	4	1	
4016		HOLL	12	04	1543	S09	E72	12	10.1		B	BXO	10	4	5	3	
4016		RAMY	12	04	1545	S09	E70	12	9.9		B	BXO	30	2	6	3	
4016	23464	MWIL	12	04	1630	S09	E70	12	9.9	3	(B)						
4016		LEAR	12	05	0018	S09	E63	12	9.7		B	BXO	10	3	4	3	
4016		MANI	12	05	0111	S09	E66	12	10.0			BXO	40	4	5	3	
4016		RAMY	12	05	1320	S10	E58	12	9.9		B	BXO	20	2	5	3	
4016		BOUL	12	05	1540	S07	E55	12	9.8		B	BXO	10	3	3	3	
4016	23464	MWIL	12	05	1600	S08	E57	12	9.9	2	(B)						
4016		HOLL	12	05	1800	S08	E55	12	9.9		B	BXO	30	4	6	3	
4016		LEAR	12	06	0635	S09	E47	12	9.8		B	BXO	10	3	3	2	
4016		HOLL	12	06	1545	S08	E40	12	9.7		A	AXX	10	2		4	
4016	23464	MWIL	12	06	1630	S08	E40	12	9.7	2	(AP)						
4016		MANI	12	07	0015	S09	E36	12	9.7			AXX	10	2	1	3	
4016		LEAR	12	07	0115	S09	E35	12	9.7		A	AXX	10	3	1	3	
4016		RAMY	12	07	1422	S09	E28	12	9.7		B	CSO	50	4	3	2	
4016	23464	MWIL	12	07	1600	S08	E28	12	9.8	4	B						
4016		HOLL	12	07	1906	S09	E27	12	9.8		B	BXO	20	5	3	3	
4016		PALE	12	07	2020	S09	E25	12	9.7			CSO	20	3	3	2	
4016		LEAR	12	08	0119	S09	E22	12	9.7		B	BXO	10	5	3	3	
4016		RAMY	12	08	1222	S08	E16	12	9.7		B	CAO	20	8	4	3	
4016		LEAR	12	09	0042	S09	E11	12	9.9		A	AXX		2	1	2	
4017		RAMY	12	05	1320	S11	E78	12	11.4		B	BXO	30	2	4	3	
4017		BOUL	12	05	1540	S10	E71	12	11.0		B	BXO	20	4	5	3	
4017	23465	MWIL	12	05	1600	S09	E73	12	11.1	2	(AP)						
4017		HOLL	12	05	1800	S09	E72	12	11.2		A	AXX	10	2	1	3	
4017		LEAR	12	06	0635	S10	E65	12	11.2		B	BXO	10	4	4	2	
4017		RAMY	12	06	1506	S09	E60	12	11.1		P	DSO	60	6	5	2	
4017		HOLL	12	06	1545	S09	E60	12	11.2		B	CRO	30	6	4	4	

REGIONS OF SUNSPOT ACTIVITY
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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo Day	Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual
4017	23465	MWIL	12 06 1630	S09 E59	12 11.1	3	(B)					
4017		BOUL	12 06 1735	S09 E58	12 11.1		B	CSO	40	3	5	1
4017		MANI	12 07 0015	S09 E57	12 11.3			DSO	110	7	6	3
4017		LEAR	12 07 0115	S09 E56	12 11.3		B	DAO	140	10	6	3
4017		RAMY	12 07 1422	S10 E48	12 11.2		B	DAO	130	13	7	2
4017	23465	MWIL	12 07 1600	S09 E47	12 11.2	4	B					
4017		HOLL	12 07 1906	S09 E45	12 11.2		B	CAO	140	13	6	3
4017		PALE	12 07 2020	S10 E45	12 11.2			DAO	110	10	6	2
4017		LEAR	12 08 0119	S09 E42	12 11.2		B	CSO	90	12	6	3
4017		RAMY	12 08 1222	S10 E35	12 11.1		B	DHO	100	16	7	3
4017		LEAR	12 09 0042	S09 E27	12 11.1		B	CSO	90	9	6	2
4017		RAMY	12 09 1730	S08 E19	12 11.2		B	DAO	130	19	8	3
4017		BOUL	12 09 1755	S08 E17	12 11.0		B	DSI	100	19	9	2
4017		LEAR	12 10 0038	S09 E14	12 11.1		B	DAO	160	15	9	3
4017		RAMY	12 10 1405	S09 E08	12 11.2		B	CAO	80	12	7	3
4017	23465	MWIL	12 10 1600	S09 E05	12 11.0	5	(BY)					
4017		LEAR	12 11 0006	S09 E04	12 11.3		B	DSO	140	18	10	3
4017		MANI	12 11 0123	S09 E01	12 11.1			DSO	80	10	7	2
4017		RAMY	12 11 1350	S09 W07	12 11.1		B	CAO	40	6	2	3
4017	23465	MWIL	12 11 1630	S10 W05	12 11.3	5	(B)					
4017		PALE	12 11 1900	S10 W07	12 11.3		B	CSO	120	11	10	3
4017		HOLL	12 11 2104	S10 W07	12 11.4		B	CSO	100	11	12	3
4017		MANI	12 11 2342	S10 W08	12 11.4			CSO	120	9	10	3
4017		LEAR	12 12 0130	S10 W09	12 11.4		B	DSO	80	11	10	3
4017		RAMY	12 12 1243	S09 W21	12 11.0		A	HAX	50	3	2	4
4017		BOUL	12 12 1615	S09 W12	12 11.8		B	CSI	30	8	12	2
4017	23465	MWIL	12 12 1630	S10 W23	12 11.0	5	(BP)					
4017		LEAR	12 13 0100	S11 W19	12 11.6		B	CSO	110	23	15	2
4017		RAMY	12 13 1322	S11 W30	12 11.3		B	EAO	60	14	12	4
4017	23465	MWIL	12 13 1545	S10 W35	12 11.0	4	(BP)					
4017		HOLL	12 13 1834	S11 W32	12 11.4		B	DSO	80	7	13	2
4017		PALE	12 13 2000	S10 W33	12 11.4		B	CAO	40	6	13	2
4017		LEAR	12 14 0341	S09 W42	12 11.0		A	HSX	30	2	1	2
4017		MANI	12 14 0400	S10 W39	12 11.2			CSO	50	2	5	3
4017		RAMY	12 14 1259	S13 W44	12 11.2		B	CAO	30	7	9	4
4017		HOLL	12 14 1628	S11 W44	12 11.4		B	CSO	30	8	12	3
4017		PALE	12 14 1933	S09 W51	12 11.0		A	HAX	20	1	1	3
4017		LEAR	12 15 0131	S12 W51	12 11.2		B	BXO	10	4	10	2
4017		HOLL	12 15 1537	S13 W52	12 11.7		B	BXO	30	4	8	3
4017		PALE	12 15 2008	S13 W56	12 11.6		B	CAO	30	4	5	4
4017		MANI	12 16 0015	S13 W58	12 11.6			CRO	40	4	4	3
4017		LEAR	12 16 0022	S12 W57	12 11.7		B	DSO	50	3	4	3
4017		BOUL	12 16 1528	S11 W65	12 11.8		B	BXO	10	2	7	1
4017		HOLL	12 16 1805	S13 W68	12 11.6		B	BXO	20	2	5	4
4017		PALE	12 16 1915	S12 W68	12 11.7			CRO	20	2	6	3
4017		LEAR	12 17 0015	S12 W70	12 11.7		B	DRO	10	2	4	2
	23482	MWIL	12 12 1630	S20 W19	12 11.2	3	(AP)					
4028	23473	MWIL	12 10 1600	S13 E21	12 12.3	3	(AF)					
4028	23478	MWIL	12 11 1630	S13 E03	12 11.9	4	(B)					
4028		RAMY	12 12 1243	S10 W11	12 11.7		B	BXO	40	13	4	4
4028	23478	MWIL	12 12 1630	S12 W12	12 11.8	3	(B)					
4028		RAMY	12 13 1322	S13 W19	12 12.1		B	DAO	30	8	4	4
4028	23484	MWIL	12 13 1545	S13 W20	12 12.1	2	(B)					
4028	23478	MWIL	12 13 1545	S13 W25	12 11.8	3	(B)					
4028		HOLL	12 13 1834	S13 W23	12 12.0		B	CRO	30	3	3	2
4028		PALE	12 13 2000	S12 W21	12 12.3		B	BXO	20	3	3	2
4028		LEAR	12 14 0341	S12 W31	12 11.8		B	BXO	10	10	6	2
4028		MANI	12 14 0400	S13 W29	12 12.0			DRO	40	8	10	3
4028		RAMY	12 14 1259	S13 W32	12 12.1		B	BXO	10	8	4	4
4028		HOLL	12 14 1628	S13 W34	12 12.1		B	CRO	20	3	3	3
4028		LEAR	12 15 0131	S13 W39	12 12.1		B	BXO	10	4	3	2
4028		RAMY	12 16 1310	S14 W65	12 11.6		B	DAO	100	4	6	2
4020		LEAR	12 06 0635	S05 E79	12 12.2		A	HSX	60	1	2	2
4020		RAMY	12 06 1506	S05 E76	12 12.3		A	HSX	60	1	2	2
4020		HOLL	12 06 1545	S05 E72	12 12.0		A	HSX	140	1	1	4
4020	23468	MWIL	12 06 1630	S05 E75	12 12.3	3	(AP)					
4020		BOUL	12 06 1735	S05 E73	12 12.2		A	HSX	50	1	1	1
4020		MANI	12 07 0015	S05 E70	12 12.2			HSX	110	1	1	3

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

DECEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time			CMP		Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual	
			Mo	Day	(UT)	Lat	CMD	Mo	Day						
4020		LEAR	12	07	0115	S05	E69	12	12.2	A	HSX	60	1	1	3
4020		RAMY	12	07	1422	S06	E61	12	12.2	A	HAX	60	1	2	2
4020	23468	MWIL	12	07	1600	S05	E61	12	12.2	4	AP				
4020		HOLL	12	07	1906	S06	E58	12	12.1	A	HSX	60	1	2	3
4020		PALE	12	07	2020	S05	E59	12	12.3		HSX	70	1	1	2
4020		LEAR	12	08	0119	S05	E55	12	12.2	A	HSX	60	1	1	3
4020		RAMY	12	08	1222	S06	E49	12	12.2	A	HHX	90	1	2	3
4020		LEAR	12	09	0042	S05	E42	12	12.2	A	HSX	60	1	1	2
4020		RAMY	12	09	1730	S06	E34	12	12.3	A	AAX	70	2	2	3
4020		BOUL	12	09	1755	S04	E32	12	12.1	A	HSX	60	3	1	2
4020		LEAR	12	10	0038	S05	E29	12	12.2	A	HSX	30	1	1	3
4020		RAMY	12	10	1405	S05	E22	12	12.2	A	HAX	40	1	2	3
4020	23468	MWIL	12	10	1600	S05	E22	12	12.3	5	(AP)				
4020		LEAR	12	11	0006	S04	E18	12	12.4	B	CSO	50	2	7	3
4020		MANI	12	11	0123	S04	E16	12	12.3		HSX	50	1	1	2
4020		RAMY	12	11	1350	S06	E09	12	12.3	A	HAX	40	1	2	3
4020	23468	MWIL	12	11	1630	S06	E07	12	12.2	5	(AP)				
4020		PALE	12	11	1900	S05	E09	12	12.5	B	CSO	60	5	9	3
4020		HOLL	12	11	2104	S06	E04	12	12.2	A	HSX	50	1	2	3
4020		MANI	12	11	2342	S05	E07	12	12.5		DSO	90	6	9	3
4020		LEAR	12	12	0130	S05	E02	12	12.2	B	CSO	50	3	3	3
4020		RAMY	12	12	1243	S05	E03	12	12.8	B	DAO	40	8	5	4
4020		BOUL	12	12	1615	S05	W07	12	12.2	B	CSO	20	2	4	2
4020	23468	MWIL	12	12	1630	S07	W07	12	12.2	4	(BP)				
4020		LEAR	12	13	0100	S05	W07	12	12.5	B	ESO	60	9	12	2
4020		RAMY	12	13	1322	S06	W16	12	12.4	B	DHO	70	2	6	4
4020	23468	MWIL	12	13	1545	S06	W17	12	12.4	4	(AP)				
4020		HOLL	12	13	1834	S06	W21	12	12.2	A	HSX	30	1	2	2
4020		PALE	12	13	2000	S06	W20	12	12.3	B	CSO	30	4	3	2
4020		LEAR	12	14	0341	S05	W26	12	12.2	A	HSX	30	1	1	2
4020		MANI	12	14	0400	S06	W23	12	12.4		CSO	40	4	7	3
4020		RAMY	12	14	1259	S07	W32	12	12.1	B	CSO	50	12	4	4
4020		HOLL	12	14	1628	S06	W34	12	12.1	B	CSO	50	6	4	3
4020		PALE	12	14	1933	S07	W36	12	12.1	B	CSO	30	4	3	3
4020		LEAR	12	15	0131	S07	W38	12	12.2	B	CSO	40	3	4	2
4020		HOLL	12	15	1537	S06	W45	12	12.3	A	HSX	20	1	1	3
4020		PALE	12	15	2008	S05	W47	12	12.3	A	HSX	20	1	1	4
4020		MANI	12	16	0015	S05	W50	12	12.3		HAX	20	2	1	3
4020		LEAR	12	16	0022	S05	W49	12	12.3	A	HSX	40	2	1	3
4020		RAMY	12	16	1310	S07	W57	12	12.3	A	HAX	40	3	1	2
4020		HOLL	12	16	1805	S06	W60	12	12.3	A	AAX	10	1	1	3
4020		PALE	12	16	1915	S06	W60	12	12.3		AAX	10	1	1	3
4020		LEAR	12	17	0015	S05	W64	12	12.2	A	HRX	20	1	1	2
4027		MANI	12	11	0123	S03	E22	12	12.7		AAX	10	1		2
4027	23479	MWIL	12	11	1630	S05	E14	12	12.7	4	(B)				
4027		HOLL	12	11	2104	S05	E12	12	12.8	B	BX0	10	4	3	3
4027		RAMY	12	12	1243	S05	W05	12	12.2	B	DAO	40	9	5	4
4027		BOUL	12	12	1615	S04	E01	12	12.8	B	C	30	2	3	2
4027	23479	MWIL	12	12	1630	S05	E01	12	12.8	4	(B)				
4027		RAMY	12	13	1322	S05	W09	12	12.9	B	CA0	20	4	3	4
4027	23479	MWIL	12	13	1545	S05	W11	12	12.8	2	(AF)				
4027		HOLL	12	13	1834	S06	W12	12	12.9	A	AAX	10	2	2	2
4027		HOLL	12	14	1628	S05	W23	12	13.0	A	AAX	0	0		3
4027		LEAR	12	15	0131	S05	W33	12	12.6	B	BX0	3	3	3	2
4021		RAMY	12	06	1506	S17	E79	12	12.6	A	HSX	30	1	2	2
4021		HOLL	12	06	1545	S17	E79	12	12.7	A	HSX	100	1	1	4
4021	23469	MWIL	12	06	1630	S16	E79	12	12.7	3	(AP)				
4021		BOUL	12	06	1735	S17	E78	12	12.7	A	HSX	30	1	1	1
4021		MANI	12	07	0015	S17	E76	12	12.8		HSX	200	1	2	3
4021		LEAR	12	07	0115	S16	E75	12	12.7	A	HSX	100	1	1	3
4021		RAMY	12	07	1422	S17	E67	12	12.7	B	DKO	390	8	6	2
4021	23469	MWIL	12	07	1600	S16	E68	12	12.8	4	BP				
4021		HOLL	12	07	1906	S16	E68	12	13.0	B	DSO	230	17	8	3
4021		PALE	12	07	2020	S16	E67	12	12.9		DKO	370	7	7	2
4021		LEAR	12	08	0119	S16	E64	12	12.9	B	DKO	410	8	10	3
4021		RAMY	12	08	1222	S17	E56	12	12.8	BG	DKO	670	25	10	3
4021		LEAR	12	09	0042	S16	E50	12	12.8	B	DHI	730	25	9	2
4021		RAMY	12	09	1730	S17	E42	12	12.9	BG	EKO	830	21	13	3
4021		BOUL	12	09	1755	S15	E40	12	12.8	BG	EHO	700	30	10	2

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation			CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hem1)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day	Time (UT)									Lat	CMD
4021		LEAR	12	10	0038	S15	E37		890	14	11	3	
4021		RAMY	12	10	1405	S15	E29		790	26	14	3	
4021	23469	MWIL	12	10	1600	S16	E29	5	(B)				
4021		LEAR	12	11	0006	S16	E24		1000	28	11	3	
4021		MANI	12	11	0123	S15	E23		900	30	11	2	
4021		RAMY	12	11	1350	S17	E18		920	32	12	3	
4021	23469	MWIL	12	11	1630	S17	E15	6	(BY)				
4021		PALE	12	11	1900	S17	E13		1200	31	12	3	
4021		HOLL	12	11	2104	S15	E13		1010	31	11	3	
4021		MANI	12	11	2342	S16	E11		1140	28	12	3	
4021		LEAR	12	12	0130	S16	E12		990	38	10	3	
4021		RAMY	12	12	1243	S17	E05		830	54	12	4	
4021		BOUL	12	12	1615	S15	E03		810	13	11	2	
4021	23469	MWIL	12	12	1630	S17	E04	5	(B)				
4021		LEAR	12	13	0100	S16	W02		970	27	10	2	
4021		RAMY	12	13	1322	S17	W09		930	51	13	4	
4021	23469	MWIL	12	13	1545	S17	W10	5	(B)				
4021		HOLL	12	13	1834	S15	W12		960	49	11	2	
4021		PALE	12	13	2000	S17	W12		770	33	12	2	
4021		LEAR	12	14	0341	S16	W18		700	26	12	2	
4021		MANI	12	14	0400	S17	W17		860	26	12	3	
4021		RAMY	12	14	1259	S17	W23		820	53	13	4	
4021		HOLL	12	14	1628	S16	W24		790	40	13	3	
4021		PALE	12	14	1933	S16	W26		720	25	13	3	
4021		LEAR	12	15	0131	S17	W30		730	30	11	2	
4021		HOLL	12	15	1537	S17	W37		660	26	11	3	
4021		PALE	12	15	2008	S16	W39		430	24	11	4	
4021		MANI	12	16	0015	S16	W42		670	15	10	3	
4021		LEAR	12	16	0022	S15	W42		800	24	11	3	
4021		RAMY	12	16	1310	S18	W48		560	25	10	2	
4021		BOUL	12	16	1528	S13	W50		270	5	10	1	
4021		HOLL	12	16	1805	S16	W51		610	17	11	4	
4021		PALE	12	16	1915	S17	W52		560	20	11	3	
4021		LEAR	12	17	0015	S15	W55		620	21	10	2	
4021		RAMY	12	17	1245	S15	W62		800	18	8	3	
4021		HOLL	12	17	1621	S17	W63		430	11	10	3	
4021		LEAR	12	18	0318	S16	W70		600	5	7	2	
4021		HOLL	12	18	1730	S16	W81		620	6	11	3	
4021		PALE	12	18	1910	S17	W82		250	6	12	3	
4021		LEAR	12	19	0118	S16	W85		220	1	5	3	
4022		RAMY	12	07	1422	N10	E85		1240	7	12	2	
4022	23472	MWIL	12	07	1600	N11	E80	3	B				
4022		HOLL	12	07	1906	N11	E80		1010	7	15	3	
4022		PALE	12	07	2020	N12	E82		530	4	10	2	
4022		LEAR	12	08	0119	N12	E75		1170	10	9	3	
4022		RAMY	12	08	1222	N10	E70		910	26	13	3	
4022		LEAR	12	09	0042	N12	E64		1140	27	11	2	
4022		RAMY	12	09	1730	N12	E58		970	43	14	3	
4022		BOUL	12	09	1755	N12	E55		900	38	12	2	
4022		LEAR	12	10	0038	N11	E51		1140	30	13	3	
4022		RAMY	12	10	1405	N13	E45		910	41	14	3	
4022	23472	MWIL	12	10	1600	N12	E43	5	(D)				
4022		LEAR	12	11	0006	N12	E38		840	41	13	3	
4022		MANI	12	11	0123	N12	E37		900	48	11	2	
4022		RAMY	12	11	1350	N11	E32		590	37	13	3	
4022	23472	MWIL	12	11	1630	N11	E30	5	(D)				
4022		PALE	12	11	1900	N12	E28		820	62	12	3	
4022		HOLL	12	11	2104	N12	E26		650	44	12	3	
4022		MANI	12	11	2342	N12	E24		780	43	12	3	
4022		LEAR	12	12	0130	N12	E24		640	63	13	3	
4022		BOUL	12	12	1615	N11	E15		400	30	11	2	
4022	23472	MWIL	12	12	1630	N10	E16	6	(D)				
4022		LEAR	12	13	0100	N12	E11		520	51	12	2	
4022		RAMY	12	13	1322	N10	E06		420	69	17	4	
4022	23472	MWIL	12	13	1545	N11	E03	5	(D)				
4022		HOLL	12	13	1834	N10	E02		600	39	15	2	
4022		PALE	12	13	2000	N11	E02		540	40	13	2	
4022		LEAR	12	14	0341	N11	W04		460	21	11	2	
4022		MANI	12	14	0400	N12	W05		400	23	12	3	
4022		RAMY	12	14	1259	N10	W08		420	55	17	4	

REGIONS OF SUNSPOT ACTIVITY
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DECEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time (UT)			Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual
4022		HOLL	12	14	1628	N11	W09	12	14.0		BD	EKI	420	23	14	3
4022		PALE	12	14	1933	N12	W12	12	13.9		BD	EKI	370	28	11	3
4022		LEAR	12	15	0131	N11	W15	12	13.9		BD	EKO	400	43	11	2
4022		HOLL	12	15	1537	N10	W25	12	13.8		BD	EKO	470	27	14	3
4022		PALE	12	15	2008	N10	W25	12	14.0		G	CKO	340	6	10	4
4022		MANI	12	16	0015	N11	W27	12	14.0			CHO	390	8	9	3
4022		LEAR	12	16	0022	N11	W26	12	14.1		BD	EKI	450	20	10	3
4022		RAMY	12	16	1310	N09	W34	12	14.0		BD	CKO	320	11	8	2
4022		BOUL	12	16	1528	N12	W33	12	14.2		A	HSX	180	3	2	1
4022		HOLL	12	16	1805	N09	W38	12	13.9		BD	CHO	410	13	10	4
4022		PALE	12	16	1915	N10	W38	12	13.9			CKO	360	12	8	3
4022		LEAR	12	17	0015	N10	W41	12	13.9		BD	DKI	440	9	10	2
4022		RAMY	12	17	1245	N10	W43	12	14.3		BD	CKO	400	11	5	3
4022		HOLL	12	17	1621	N09	W47	12	14.2		BD	DKI	380	7	5	3
4022		LEAR	12	18	0318	N10	W53	12	14.2		BD	DHI	440	8	5	2
4022		HOLL	12	18	1730	N10	W61	12	14.1		BD	DKC	660	4	4	3
4022		PALE	12	18	1910	N10	W61	12	14.2			DKO	520	3	5	3
4022		LEAR	12	19	0118	N09	W66	12	14.1		BD	DHI	400	11	5	3
4022		MANI	12	19	0750	N11	W69	12	14.1			DKO	480	5	5	3
4022		RAMY	12	19	1232	N11	W72	12	14.1		BD	DKO	550	6	5	2
4022		HOLL	12	19	1524	N09	W75	12	14.0		BD	DKI	290	6	7	3
4022	23472	MWIL	12	19	1600	N10	W73	12	14.2	5	(AP)					
4022		BOUL	12	19	1805	N10	W73	12	14.3		B	DHO	510	4	9	1
4022		LEAR	12	20	0018	N09	W79	12	14.1		BD	DHI	360	6	6	3
	23483	MWIL	12	12	1630	N18	E22	12	14.4	2	(AP)					
4024		LEAR	12	09	0042	S06	E75	12	14.6		B	CSO	100	3	7	2
4024		BOUL	12	09	1755	S06	E66	12	14.7		B	CSO	180	6	7	2
4024		LEAR	12	10	0038	S06	E62	12	14.7		B	CSO	120	3	8	3
4024		RAMY	12	10	1405	S07	E56	12	14.8		B	CAO	80	3	8	3
4024	23474	MWIL	12	10	1600	S06	E55	12	14.8	4	(AP)					
4024		LEAR	12	11	0006	S07	E50	12	14.8		B	CAO	140	6	7	3
4024		MANI	12	11	0123	S05	E49	12	14.7			CSO	100	9	9	2
4024		RAMY	12	11	1350	S07	E43	12	14.8		B	CAO	110	7	8	3
4024	23474	MWIL	12	11	1630	S07	E44	12	15.0	5	(AP)					
4024		PALE	12	11	1900	S07	E39	12	14.7		B	CHO	160	8	8	3
4024		HOLL	12	11	2104	S07	E37	12	14.7		B	CSO	120	6	9	3
4024		MANI	12	11	2342	S07	E37	12	14.8			CSO	120	6	9	3
4024		LEAR	12	12	0130	S07	E36	12	14.8		B	CSO	120	11	7	3
4024		RAMY	12	12	1243	S07	E29	12	14.7		B	CSO	90	13	7	4
4024		BOUL	12	12	1615	S07	E25	12	14.6		B	CSO	110	9	8	2
4024	23474	MWIL	12	12	1630	S08	E28	12	14.8	4	(AP)					
4024		LEAR	12	13	0100	S07	E23	12	14.8		B	CAO	80	4	6	2
4024		RAMY	12	13	1322	S08	E18	12	14.9		B	DKO	50	9	3	4
4024	23474	MWIL	12	13	1545	S07	E18	12	15.0	3	(BP)					
4024		HOLL	12	13	1834	S06	E17	12	15.0		B	CSO	50	5	6	2
4024		PALE	12	13	2000	S07	E15	12	15.0		B	CSO	50	3	2	2
4024		LEAR	12	14	0341	S06	E11	12	15.0		B	CRO	40	14	9	2
4024		MANI	12	14	0400	S07	E09	12	14.8			CSO	60	6	5	3
4024		RAMY	12	14	1259	S08	E07	12	15.1		B	CAO	40	13	8	4
4024		HOLL	12	14	1628	S06	W00	12	14.7		B	CRO	30	11	8	3
4024		PALE	12	14	1933	S09	E02	12	15.0		B	CAO	20	5	4	3
4024		LEAR	12	15	0131	S07	W03	12	14.8		B	CRO	20	9	6	2
4024		HOLL	12	15	1537	S05	W08	12	15.1		B	BXO	20	6	6	3
4024		PALE	12	15	2008	S06	W10	12	15.1		B	BXO	20	8	6	4
4024		MANI	12	16	0015	S06	W12	12	15.1			BXO	10	10	6	3
4024		LEAR	12	16	0022	S05	W13	12	15.0		B	CRO	40	13	6	3
4024		HOLL	12	16	1805	S07	W23	12	15.0		B	BXO	10	3	4	4
4024		LEAR	12	17	0015	S06	W26	12	15.1		B	BXO	10	3	3	2
4024		LEAR	12	18	0318	S07	W40	12	15.1		A	AXX	10	1		2
0004	23480	MWIL	12	11	1630	S18	E49	12	15.4	2	(B)					
0004		RAMY	12	13	1322	S18	E21	12	15.2		A	AXX	10	1	1	4
4025		BOUL	12	09	1755	S06	E86	12	16.2		B	DAO	240	4	7	2
4025		LEAR	12	10	0038	S07	E78	12	15.9		B	DHI	290	2	8	3
4025		RAMY	12	10	1405	S07	E72	12	16.0		B	DAO	310	10	5	3
4025	23475	MWIL	12	10	1600	S08	E77	12	16.4	4	(B)					
4025		LEAR	12	11	0006	S09	E71	12	16.3		BG	FKO	770	11	16	3
4025		MANI	12	11	0123	S06	E69	12	16.2			DKI	490	4	5	2

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time (UT)	Lat	CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual
4025		RAMY	12 11 1350	S10	E66	12 16.5		BG	FAO	800	13	20	3
4025	23475	MWIL	12 11 1630	S07	E58	12 16.0	6	(D)					
4025		PALE	12 11 1900	S09	E62	12 16.4		BG	FAO	560	17	17	3
4025		HOLL	12 11 2104	S07	E55	12 16.0		BD	DKO	330	9	6	3
4025		MANI	12 11 2342	S06	E55	12 16.1			DKI	520	6	6	3
4025		LEAR	12 12 0130	S07	E53	12 16.0		B	DAO	400	8	4	3
4025		RAMY	12 12 1243	S06	E47	12 16.0		BD	CKO	390	9	4	4
4025		BOUL	12 12 1615	S08	E44	12 16.0		BD	DKO	420	7	4	2
4025	23475	MWIL	12 12 1630	S07	E44	12 16.0	5	(D)					
4025		LEAR	12 13 0100	S07	E39	12 16.0		BD	DKC	360	12	4	2
4025		RAMY	12 13 1322	S06	E34	12 16.1		B	DKO	300	1	6	4
4025	23475	MWIL	12 13 1545	S07	E30	12 15.9	5	(BP)					
4025		HOLL	12 13 1834	S06	E30	12 16.0		B	DSO	320	12	5	2
4025		PALE	12 13 2000	S06	E30	12 16.1		B	DKO	320	3	4	2
4025		LEAR	12 14 0341	S06	E25	12 16.0		B	DAC	360	5	5	2
4025		MANI	12 14 0400	S06	E24	12 16.0			DKO	310	5	5	3
4025		RAMY	12 14 1259	S08	E19	12 16.0		B	DKI	390	25	8	4
4025		HOLL	12 14 1628	S06	E16	12 15.9		B	DSO	400	16	7	3
4025		PALE	12 14 1933	S07	E16	12 16.0		B	DKO	340	8	5	3
4025		LEAR	12 15 0131	S07	E12	12 16.0		B	DHC	380	13	5	2
4025		HOLL	12 15 1537	S07	E04	12 16.0		B	DKO	500	21	9	3
4025		PALE	12 15 2008	S08	E04	12 16.1		B	DKO	560	19	8	4
4025		MANI	12 16 0015	S08	E01	12 16.1			DKI	450	16	8	3
4025		LEAR	12 16 0022	S07	E01	12 16.1		BD	DKI	530	24	8	3
4025		RAMY	12 16 1310	S08	W06	12 16.1		BG	DKO	360	31	10	2
4025		BOUL	12 16 1528	S05	W08	12 16.0		BD	DKI	220	5	7	1
4025		HOLL	12 16 1805	S06	W09	12 16.1		BGD	EKI	430	28	11	4
4025		PALE	12 16 1915	S07	W09	12 16.1			DKI	450	27	10	3
4025		LEAR	12 17 0015	S06	W14	12 16.0		BD	DKI	540	30	9	2
4025		RAMY	12 17 1245	S06	W18	12 16.2		BGD	DKI	440	37	9	3
4025		HOLL	12 17 1621	S07	W12	12 16.8		BD	DKI	500	21	10	3
4025		LEAR	12 18 0318	S06	W27	12 16.1		BGD	DKI	480	17	9	2
4025		HOLL	12 18 1730	S06	W36	12 16.0		BGD	EKI	450	15	11	3
4025		PALE	12 18 1910	S07	W36	12 16.1			DKI	330	18	9	3
4025		LEAR	12 19 0118	S07	W39	12 16.1		BGD	DKO	310	12	7	3
4025		MANI	12 19 0750	S07	W43	12 16.1			DKO	360	9	8	3
4025		RAMY	12 19 1232	S07	W45	12 16.1		BGD	CKO	330	14	9	2
4025		HOLL	12 19 1524	S07	W46	12 16.2		BGD	DKI	320	13	9	3
4025	23475	MWIL	12 19 1600	S07	W48	12 16.1	5	(D)					
4025		BOUL	12 19 1805	S07	W47	12 16.2		BG	CKO	220	6	8	1
4025		LEAR	12 20 0018	S08	W52	12 16.1		BD	DKO	310	10	7	3
4025		HOLL	12 20 1548	S08	W61	12 16.1		BGD	DKI	300	10	9	3
4025	23475	MWIL	12 20 1615	S09	W60	12 16.2	4	(D)					
4025		BOUL	12 20 1715	S06	W59	12 16.3		BGD	CAO	320	12	10	2
4025		RAMY	12 20 1905	S06	W62	12 16.2		BGD	CAO	230	10	10	2
4025		MANI	12 20 2343	S07	W65	12 16.1			CAO	380	10	10	3
4025		LEAR	12 21 0042	S08	W66	12 16.1		BD	DKO	260	10	8	3
4025		RAMY	12 21 1715	S06	W77	12 16.0		BD	CKO	190	4	4	2
4025		HOLL	12 21 1720	S08	W78	12 15.9		BD	DHI	110	3	5	3
4025		PALE	12 21 1937	S07	W79	12 15.9		A	HKX	170	2	4	4
4025		MANI	12 21 2337	S07	W74	12 16.4			HAX	150	2	5	2
4025		LEAR	12 22 0139	S08	W80	12 16.1		BD	CHI	170	3	4	3
0005	23476	MWIL	12 10 1600	S13	E79	12 16.6	2	(AP)					
0005		MANI	12 11 0123	S12	E78	12 16.9			HRX	20	2	2	2
0005	23476	MWIL	12 11 1630	S14	E65	12 16.6	4	(AP)					
0005		MANI	12 11 2342	S13	E63	12 16.7			HRX	20	1	1	3
0005	23476	MWIL	12 12 1630	S14	E52	12 16.6	4	(AP)					
0005	23476	MWIL	12 13 1545	S13	E39	12 16.6	2	(AP)					
4026		RAMY	12 10 1405	S09	E85	12 17.0		B	CAO	130	4	5	3
4026		MANI	12 11 0123	S07	E80	12 17.1			DKI	420	5	3	2
4026	23481	MWIL	12 11 1630	S10	E70	12 17.0	5	(D)					
4026		HOLL	12 11 2104	S12	E67	12 16.9		BD	DKI	700	13	9	3
4026		MANI	12 11 2342	S10	E67	12 17.0			DKI	670	10	7	3
4026		LEAR	12 12 0130	S11	E63	12 16.8		BGD	DKC	830	18	8	3
4026		RAMY	12 12 1243	S10	E48	12 16.1		BD	DKO	630	24	9	4
4026		BOUL	12 12 1615	S11	E58	12 17.0		BD	DAO	390	12	7	2
4026	23481	MWIL	12 12 1630	S10	E57	12 17.0	5	(D)					
4026		LEAR	12 13 0100	S11	E51	12 16.9		BGD	DKI	430	19	6	2
4026		RAMY	12 13 1322	S11	E45	12 16.9		BGD	DKO	390	26	9	4

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

DECEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time (UT)		Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual
4026	23481	MWIL	12	13	1545	S11 E42	12 16.8	5	(D)				
4026		HOLL	12	13	1834	S11 E40	12 16.8		BGD DK1	410	13	8	2
4026		PALE	12	13	2000	S10 E41	12 16.9		BGD DAO	350	11	9	2
4026		LEAR	12	14	0341	S11 E35	12 16.8		BGD DK1	370	24	6	2
4026		MANI	12	14	0400	S11 E35	12 16.8		DAO	390	17	9	3
4026		RAMY	12	14	1259	S11 E32	12 17.0		BGD DK1	420	34	9	4
4026		HOLL	12	14	1628	S11 E28	12 16.8		BGD DK1	400	27	8	3
4026		PALE	12	14	1933	S12 E28	12 16.9		BGD DAI	310	24	7	3
4026		LEAR	12	15	0131	S11 E23	12 16.8		BGD DK1	330	27	7	2
4026		HOLL	12	15	1537	S11 E16	12 16.9		BGD DK1	310	32	10	3
4026		PALE	12	15	2008	S12 E15	12 17.0		BGD DAO	220	19	5	4
4026		MANI	12	16	0015	S11 E12	12 16.9		DAI	290	26	8	3
4026		LEAR	12	16	0022	S11 E11	12 16.8		BGD DAI	360	23	7	3
4026		RAMY	12	16	1310	S14 E06	12 17.0		BGD DAI	200	38	8	2
4026		BOUL	12	16	1528	S12 E03	12 16.9		BGD DK0	290	5	10	1
4026		HOLL	12	16	1805	S12 E03	12 17.0		BGD EKI	280	34	11	4
4026		PALE	12	16	1915	S13 E03	12 17.0		DK1	260	30	8	3
4026		LEAR	12	17	0015	S11 W02	12 16.9		BGD DK1	290	26	8	2
4026		RAMY	12	17	1245	S13 W07	12 17.0		BGD DAI	140	46	7	3
4026		HOLL	12	17	1621	S12 W09	12 17.0		BG EAI	280	36	12	3
4026		LEAR	12	18	0318	S13 W16	12 16.9		BGD DAI	310	34	7	2
4026		HOLL	12	18	1730	S12 W23	12 17.0		BGD EAI	170	28	14	3
4026		PALE	12	18	1910	S13 W23	12 17.1		EAI	140	26	12	3
4026		LEAR	12	19	0118	S12 W28	12 16.9		BG DSI	130	20	7	3
4026		MANI	12	19	0750	S10 W31	12 17.0		CAO	50	16	8	3
4026		RAMY	12	19	1232	S11 W35	12 16.9		BGD CAO	130	18	8	2
4026		HOLL	12	19	1524	S10 W36	12 16.9		B CRO	50	12	5	3
4026	23481	MWIL	12	19	1600	S09 W37	12 16.9	4	(B)				
4026		BOUL	12	19	1805	S08 W37	12 17.0		B BXO	30	4	4	1
4026		LEAR	12	20	0018	S11 W41	12 16.9		B DRO	30	7	5	3
4026		HOLL	12	20	1548	S09 W50	12 16.9		B BXO	10	2	1	3
4026	23481	MWIL	12	20	1615	S10 W50	12 16.9	2	(B)				
4026		BOUL	12	20	1715	S08 W49	12 17.0		B BXO	10	3	2	2
4026		RAMY	12	20	1905	S07 W52	12 16.9		B BXO	20	2	1	2
4026		MANI	12	20	2343	S08 W55	12 16.9		B BXO	10	2	1	3
4026		LEAR	12	21	0042	S09 W54	12 17.0		B BXO		2	3	3
4026		RAMY	12	21	1715	S07 W64	12 16.9		B BXO	20	4	3	2
4026		PALE	12	21	1937	S09 W66	12 16.9		A AXX	10	1	1	4
4026		MANI	12	21	2337	S08 W68	12 16.9		A AXX	10	1		2
4026		LEAR	12	22	0139	S09 W68	12 17.0		A AXX		1		3
4034	23487	MWIL	12	20	1615	N16 W42	12 17.5	3	(AF)				
4034		RAMY	12	20	1905	N16 W45	12 17.4		B BXO	20	2	2	2
4034		LEAR	12	21	0042	N16 W49	12 17.3		B CRO	20	3	3	3
4034		RAMY	12	21	1715	N16 W59	12 17.2		B CAO	40	2	5	2
4034		HOLL	12	21	1720	N15 W58	12 17.3		B BXO	10	2	5	3
4034		PALE	12	21	1937	N15 W63	12 17.0		A AXX	10	1	1	4
4034		LEAR	12	22	0139	N15 W63	12 17.3		B BXO		2	5	3
4034		HOLL	12	22	1612	N13 W74	12 17.1		A AXX		1		3
4035		MANI	12	20	2343	S03 W13	12 20.0		B BXO	10	4	3	3
4035		RAMY	12	21	1715	S03 W23	12 20.0		B DAO	40	14	5	2
4035		HOLL	12	21	1720	S03 W23	12 20.0		B BXO	40	10	5	3
4035		PALE	12	21	1937	S03 W24	12 20.0		CRO	30	8	5	4
4035		MANI	12	21	2337	S03 W27	12 20.0		DRO	60	8	5	2
4035		LEAR	12	22	0139	S04 W28	12 20.0		B DRO	30	13	5	3
4035		HOLL	12	22	1612	S03 W37	12 19.9		B BXO	70	15	6	3
4035		PALE	12	22	1845	S03 W37	12 20.0		B BXO	70	11	6	4
4035		LEAR	12	23	0123	S03 W42	12 19.9		B BXO	70	13	6	3
4035		MANI	12	23	0149	S03 W42	12 19.9		CRO	70	9	6	2
4035		BOUL	12	23	1700	S03 W51	12 19.9		B BXO	10	4	5	1
4035	23489	MWIL	12	23	1700	S04 W49	12 20.0	3	(BP)				
4035		RAMY	12	23	1725	S04 W50	12 20.0		B BXO	70	9	7	2
4035		LEAR	12	24	0047	S03 W55	12 19.9		B BXO	20	9	6	4
4035		MANI	12	24	0215	S03 W55	12 20.0		B BXO	30	4	4	2
4029		RAMY	12	14	1259	S04 E87	12 21.0		A HAX	90	1	3	4
4029		HOLL	12	14	1628	S05 E85	12 21.0		A HSX	40	1	2	3
4029		PALE	12	14	1933	S06 E85	12 21.2		A HSX	20	1	1	3
4029		LEAR	12	15	0131	S05 E78	12 20.9		A HSX	40	1	1	2
4029		HOLL	12	15	1537	S04 E71	12 21.0		A HSX	20	1	2	3

REGIONS OF SUNSPOT ACTIVITY
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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation		Lat	CMD	CMP		Max H	Mag Class	Spot Class	Corrected Area		Spot Count	Long. Extent (Deg)	Qual
			Mo	Day			Time (UT)	Mo				Day	(10-6				Heml)
4029		PALE	12	15	2008	S06	E70	12	21.1		A	HSX	60	1	1	4
4029		MANI	12	16	0015	S06	E67	12	21.0			BXO	80	1	2	3
4029		LEAR	12	16	0022	S06	E66	12	21.0		A	HSX	30	1	1	3
4029		RAMY	12	16	1310	S06	E60	12	21.0		A	HAX	40	1	1	2
4029		BOUL	12	16	1528	S06	E57	12	20.9		A	HRX	10	1	1	1
4029		HOLL	12	16	1805	S04	E57	12	21.0		A	HSX	40	1	1	4
4029		PALE	12	16	1915	S05	E57	12	21.1			HAX	30	1	1	3
4029		LEAR	12	17	0015	S06	E53	12	21.0		A	HSX	40	1	1	2
4029		RAMY	12	17	1245	S06	E46	12	21.0		A	HAX	30	2	1	3
4029		HOLL	12	17	1621	S05	E44	12	21.0		A	HSX	30	1	1	3
4029		LEAR	12	18	0318	S06	E38	12	21.0		A	HSX	40	2	1	2
4029		HOLL	12	18	1730	S05	E32	12	21.1		A	HSX	30	2	2	3
4029		PALE	12	18	1910	S06	E31	12	21.1			CSO	20	3	2	3
4029		LEAR	12	19	0118	S05	E26	12	21.0		B	CRO	10	2	1	3
4029		MANI	12	19	0750	S05	E23	12	21.0			CSO	20	2	2	3
4029		RAMY	12	19	1232	S05	E21	12	21.1		A	HAX	40	2	2	2
4029		HOLL	12	19	1524	S05	E19	12	21.1		A	AXX	10	3	2	3
4029	23485	MWIL	12	19	1600	S06	E19	12	21.1	4	(AP)					
4029		BOUL	12	19	1805	S05	E19	12	21.2		A	AXO	10	2	1	1
4029		LEAR	12	20	0018	S06	E14	12	21.1		A	HRX	10	1	1	3
4029		HOLL	12	20	1548	S05	E04	12	21.0		B	BXO		2	4	3
4029	23485	MWIL	12	20	1615	S05	E04	12	21.0	3	(AP)					
4029		BOUL	12	20	1715	S05	E05	12	21.1		A	AXX	10	1	1	2
4029		RAMY	12	20	1905	S06	E03	12	21.0		A	AXX	10	1	1	2
4029		MANI	12	20	2343	S06	E01	12	21.1			AXX		1		3
4029		LEAR	12	21	0042	S06	E01	12	21.1		A	AXX		1		3
4029		HOLL	12	22	1612	S07	W19	12	21.3		A	AXX	10	3	2	3
4029		PALE	12	22	1845	S07	W21	12	21.2		A	AXX	10	2	2	4
4029		RAMY	12	23	1725	S06	W33	12	21.3		B	BXO	30	5	4	2
4030		HOLL	12	15	1537	N11	E78	12	21.5		A	HSX	30	1	2	3
4030		PALE	12	15	2008	N09	E77	12	21.6		A	HRX	20	1	1	4
4030		MANI	12	16	0015	N10	E75	12	21.6			HSX	70	1	1	3
4030		LEAR	12	16	0022	N10	E73	12	21.5		A	HSX	20	1	1	3
4030		RAMY	12	16	1310	N09	E68	12	21.7		A	HAX	50	1	1	2
4030		BOUL	12	16	1528	N12	E63	12	21.4		A	HSX	20	1	1	1
4030		HOLL	12	16	1805	N11	E64	12	21.6		A	HSX	60	1	1	4
4030		PALE	12	16	1915	N10	E64	12	21.6			HSX	30	1	1	3
4030		LEAR	12	17	0015	N10	E58	12	21.4		A	HSX	30	1	1	2
4030		RAMY	12	17	1245	N10	E53	12	21.5		A	HAX	40	2	1	3
4030		HOLL	12	17	1621	N12	E51	12	21.5		A	HSX	20	1	1	3
4030		LEAR	12	18	0318	N10	E45	12	21.5		A	HSX	40	2	1	2
4030		HOLL	12	18	1730	N12	E37	12	21.5		A	HSX	30	1	1	3
4030		PALE	12	18	1910	N10	E37	12	21.6			CSO	30	2	1	3
4030		LEAR	12	19	0118	N11	E33	12	21.5		A	HSX	20	1	1	3
4030		MANI	12	19	0750	N11	E30	12	21.6			AXX	20	2	1	3
4030		RAMY	12	19	1232	N11	E27	12	21.6		A	HAX	20	2	2	2
4030		HOLL	12	19	1524	N12	E26	12	21.6		A	AXX	10	3	2	3
4030		HOLL	12	20	1548	N11	E11	12	21.5		A	AXX		1		3
4036		RAMY	12	21	1715	S19	E13	12	22.7		B	BXO	20	9	5	2
4036		HOLL	12	21	1720	S18	E13	12	22.7		B	BXO	40	9	5	3
4036		PALE	12	21	1937	S19	E13	12	22.8			CRI	40	13	5	4
4036		MANI	12	21	2337	S19	E19	12	23.4			DRO	50	4	3	2
4036		LEAR	12	22	0139	S19	E08	12	22.7		B	CAO	30	12	5	3
4036		HOLL	12	22	1612	S18	E01	12	22.8		B	CRO	70	14	6	3
4036		PALE	12	22	1845	S18	W00	12	22.8		B	CRO	60	10	7	4
4036		LEAR	12	23	0123	S18	W04	12	22.8		B	BXO	70	17	5	3
4036		MANI	12	23	0149	S18	W04	12	22.8			CRO	40	12	6	2
4036		BOUL	12	23	1700	S18	W11	12	22.9		B	CSO	40	5	5	1
4036	23490	MWIL	12	23	1700	S18	W13	12	22.7	4	(B)					
4036		RAMY	12	23	1725	S18	W14	12	22.7		B	DAO	90	8	8	2
4036		LEAR	12	24	0047	S18	W17	12	22.7		B	DAO	110	23	7	4
4036		MANI	12	24	0215	S18	W19	12	22.6			CRO	100	13	6	2
4036	23490	MWIL	12	24	1700	S19	W27	12	22.6	4	(AP)					
4036		MANI	12	25	0016	S18	W31	12	22.6			DSO	120	15	6	3
4036		LEAR	12	26	0008	S19	W44	12	22.6		B	DSO	160	7	8	3
4036		MANI	12	26	0030	S18	W44	12	22.7			DSO	160	12	8	3
4036	23490	MWIL	12	26	1700	S19	W54	12	22.6	3	(B)					
4036		LEAR	12	27	0049	S19	W59	12	22.5		B	DSO	110	4	8	3
4036		MANI	12	27	0100	S19	W58	12	22.6			DSO	160	7	8	3

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

DECEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time (UT)			Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4036		RAMY	12	27	1355	S17	W65	12	22.6		B	DAO	150	7	9	3
4036		HOLL	12	27	1624	S19	W67	12	22.6		B	CSO	110	3	7	3
4036	23490	MWIL	12	27	1830	S20	W69	12	22.5	4	BP					
4036		PALE	12	27	2305	S20	W70	12	22.6		B	CSO	120	5	12	2
4036		LEAR	12	28	0031	S19	W71	12	22.6		B	DSO	130	4	6	3
4036	23490	MWIL	12	28	1700	S19	W85	12	22.2	2	(AP)					
4036		HOLL	12	28	1857	S18	W86	12	22.2		A	AXX	20	1	1	3
		PALE	12	22	1845	N14	E03	12	23.0		B	BXO	20	3	3	4
4038		HOLL	12	22	1612	N04	E03	12	22.9		A	AXX	10	2	2	3
4038		PALE	12	22	1845	N07	E03	12	23.0		A	AXX		1		4
4038		LEAR	12	23	0123	N07	W01	12	23.0		B	BXO	20	4	4	3
4038	23491	MWIL	12	23	1700	N07	W09	12	23.0	3	(BP)					
4038		BOUL	12	23	1700	N08	W10	12	23.0		B	BXO	10	4	5	1
4038		RAMY	12	23	1725	N06	W10	12	23.0		B	CRO	30	5	5	2
4038		LEAR	12	24	0047	N07	W14	12	23.0		B	BXO	30	8	5	4
4038		MANI	12	24	0215	N08	W15	12	23.0			BXO	30	7	3	2
4038	23491	MWIL	12	24	1700	N06	W24	12	22.9	4	(3)					
4038		MANI	12	25	0016	N08	W28	12	22.9			CRO	80	15	5	3
4038		LEAR	12	26	0008	N06	W42	12	22.9		B	DSO	130	12	8	3
4038		MANI	12	26	0030	N06	W42	12	22.9			DSO	150	11	8	3
4038		BOUL	12	26	1640	N06	W55	12	22.6		BG	CSO	170	3	9	3
4038	23491	MWIL	12	26	1700	N05	W54	12	22.7	4	(BP)					
4038		PALE	12	26	1834	N05	W53	12	22.8		B	CSO	120	4	5	4
4038		LEAR	12	27	0049	N05	W59	12	22.6		B	DSO	260	6	5	3
4038		MANI	12	27	0100	N06	W58	12	22.7			CSO	190	8	6	3
4038		RAMY	12	27	1355	N07	W58	12	22.5		B	CKO	200	6	4	3
4038		HOLL	12	27	1624	N05	W69	12	22.5		B	CKO	80	3	3	3
4038	23491	MWIL	12	27	1830	N05	W70	12	22.5	4	AP					
4038		PALE	12	27	2305	N06	W73	12	22.5		B	CKO	80	2	4	2
4038		LEAR	12	28	0031	N05	W71	12	22.7		B	CAO	170	6	8	3
4038		BOUL	12	28	1545	N05	W85	12	22.3		A	HSX	90	1	1	2
4038	23491	MWIL	12	28	1700	N05	W84	12	22.4	4	(AP)					
4038		HOLL	12	28	1857	N05	W82	12	22.7		A	HSX	50	1	2	3
4038		MANI	12	29	0028	N05	W79	12	23.1			HHX	380	2	2	3
4038		RAMY	12	29	1255	N07	W85	12	23.2		B	CKO	60	2	10	3
4031		HOLL	12	18	1730	S15	E63	12	23.5		B	DSO	40	3	5	3
4031		PALE	12	18	1910	S16	E63	12	23.6			DSO	30	3	6	3
4031		LEAR	12	19	0118	S17	E57	12	23.4		B	DAO	130	4	6	3
4031		MANI	12	19	0750	S16	E56	12	23.6			DSO	170	4	6	3
4031		RAMY	12	19	1232	S18	E53	12	23.6		B	DHO	390	9	7	2
4031		HOLL	12	19	1524	S16	E51	12	23.5		B	DSO	260	6	7	3
4031	23486	MWIL	12	19	1600	S17	E51	12	23.5	4	(3)					
4031		BOUL	12	19	1805	S15	E50	12	23.5		B	DAO	220	3	6	1
4031		LEAR	12	20	0018	S17	E46	12	23.5		B	DSO	200	4	6	3
4031		HOLL	12	20	1548	S17	E38	12	23.5		B	DAO	190	4	6	3
4031	23486	MWIL	12	20	1615	S17	E37	12	23.5	4	(3)					
4031		BOUL	12	20	1715	S18	E36	12	23.5		B	DSO	110	3	7	2
4031		RAMY	12	20	1905	S18	E35	12	23.5		B	DAO	180	6	7	2
4031		MANI	12	20	2343	S18	E33	12	23.5			DAO	230	5	8	3
4031		LEAR	12	21	0042	S18	E32	12	23.5		B	DSO	200	8	7	3
4031		RAMY	12	21	1715	S18	E24	12	23.5		B	DAO	140	6	7	2
4031		HOLL	12	21	1720	S17	E23	12	23.5		B	DAO	130	9	7	3
4031		PALE	12	21	1937	S18	E23	12	23.6			DAO	130	9	7	4
4031		MANI	12	21	2337	S18	E20	12	23.5			DSO	130	7	7	2
4031		LEAR	12	22	0139	S18	E18	12	23.4		B	DSO	130	13	7	3
4031		HOLL	12	22	1612	S17	E12	12	23.6		B	CSO	110	4	7	3
4031		PALE	12	22	1845	S17	E11	12	23.6		B	C O	100	6	7	4
4031		LEAR	12	23	0123	S18	E06	12	23.5		B	CSO	120	10	7	3
4031		MANI	12	23	0149	S18	E06	12	23.5			CSO	120	7	7	2
4031	23486	MWIL	12	23	1700	S17	W04	12	23.4	4	(3P)					
4031		BOUL	12	23	1700	S17	W05	12	23.3		B	HSX	60	1	2	1
4031		RAMY	12	23	1725	S17	W05	12	23.3		A	HSX	70	3	2	2
4031		LEAR	12	24	0047	S18	W05	12	23.6		B	CSO	110	9	7	4
4031		MANI	12	24	0215	S18	W09	12	23.4			CSO	70	4	4	2
4031	23486	MWIL	12	24	1700	S18	W17	12	23.4	4	(3P)					
4031		MANI	12	25	0016	S18	W21	12	23.4			DSO	40	6	3	3
4031		LEAR	12	26	0008	S13	W33	12	23.5		B	CSO	70	6	5	3
4031		MANI	12	26	0030	S18	W33	12	23.5			CSO	80	7	5	3

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time (UT)			Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Heml)	Spot Count	Long. Extent (Deg)	Qual
4031		BOUL	12	26	1540	S18 W50	12 22.9		B	ESI	200	6	11	3
4031	23486	MWIL	12	26	1700	S18 W44	12 23.4	4	(AP)					
4031		PALE	12	26	1834	S19 W51	12 22.9		B	ESO	180	6	12	4
4031		LEAR	12	27	0049	S18 W49	12 23.3		A	HSX	40	2	1	3
4031		MANI	12	27	0100	S18 W49	12 23.3			HSX	80	2	2	3
4031		RAMY	12	27	1355	S17 W54	12 23.5		B	DAO	90	7	4	3
4031		HOLL	12	27	1624	S18 W56	12 23.4		B	CSO	40	5	5	3
4031	23486	MWIL	12	27	1830	S20 W57	12 23.4	4	AP					
4031		PALE	12	27	2305	S19 W59	12 23.5		B	CSO	30	3	3	2
4031		LEAR	12	28	0031	S19 W60	12 23.4		B	CSO	40	6	3	3
4031		BOUL	12	28	1545	S20 W68	12 23.5		A	HRX	20	1	1	2
4031	23486	MWIL	12	28	1700	S19 W70	12 23.4	4	(AP)					
4031		HOLL	12	28	1857	S18 W71	12 23.4		A	HSX	60	1	2	3
4031		MANI	12	29	0028	S18 W77	12 23.2			HSX	80	1	2	3
4031		LEAR	12	29	0035	S19 W76	12 23.2		A	HSX	80	1	1	2
4031		RAMY	12	29	1255	S19 W82	12 23.3		A	HAX	60	1	5	3
4031		HOLL	12	29	1555	S18 W82	12 23.4		A	HSX	30	1	2	4
4031		MANI	12	29	2336	S18 W89	12 23.2			AXX	70	1		3
4032		HOLL	12	19	1524	N08 E57	12 23.9		A	AXX		1		3
4032		LEAR	12	20	0018	N07 E35	12 22.6		A	AXX		1		3
4032		HOLL	12	20	1548	N08 E43	12 23.9		B	CRO	20	3	3	3
4032	23488	MWIL	12	20	1615	N09 E42	12 23.8	3	(B)					
4032		BOUL	12	20	1715	N08 E42	12 23.9		B	BXO	20	4	4	2
4032		RAMY	12	20	1905	N07 E41	12 23.9		B	DAO	30	5	4	2
4032		MANI	12	20	2343	N08 E38	12 23.8			DRO	40	6	4	3
4032		LEAR	12	21	0042	N08 E38	12 23.9		B	DRO	30	4	4	3
4032		RAMY	12	21	1715	N08 E29	12 23.9		B	BXO	10	3	4	2
4032		HOLL	12	21	1720	N09 E28	12 23.8		B	BXO	20	4	4	3
4032		PALE	12	21	1937	N08 E27	12 23.8		B	BXO	20	4	5	4
4032		MANI	12	21	2337	N08 E25	12 23.9			BXO	10	6	4	2
4032		LEAR	12	22	0139	N08 E23	12 23.8		B	BXO	10	5	5	3
4032		HOLL	12	22	1612	N08 E15	12 23.8		B	BXO	10	3	5	3
4032		PALE	12	22	1845	N08 E13	12 23.8		A	AXX	10	2	2	4
4032		LEAR	12	23	0123	N08 E09	12 23.7		B	BXO	20	6	6	3
4032		MANI	12	23	0149	N08 E09	12 23.8			BXO	20	3	4	2
4032	23488	MWIL	12	23	1700	N09 E01	12 23.8	3	(B)					
4032		BOUL	12	23	1700	N09 W00	12 23.7		B	BXO	10	5	4	1
4032		RAMY	12	23	1725	N09 E00	12 23.7		B	CRO	30	5	4	2
4032		LEAR	12	24	0047	N08 W04	12 23.7		B	BXO	30	7	5	4
4032		MANI	12	24	0215	N08 W05	12 23.7			BXO	30	5	4	2
4032	23488	MWIL	12	24	1700	N09 W13	12 23.7	4	(B)					
4032		MANI	12	25	0016	N08 W18	12 23.7			DRO	80	9	4	3
4032		LEAR	12	26	0008	N09 W31	12 23.7		B	DSO	130	15	8	3
4032		MANI	12	26	0030	N10 W31	12 23.7			DSO	150	15	8	3
4032		BOUL	12	26	1640	N09 W40	12 23.7		B	CSO	130	6	9	3
4032	23488	MWIL	12	26	1700	N08 W44	12 23.4	5	(B)					
4032		PALE	12	26	1834	N09 W42	12 23.6		B	CSO	120	11	11	4
4032		LEAR	12	27	0049	N09 W47	12 23.5		B	DAO	160	10	10	3
4032		MANI	12	27	0100	N09 W46	12 23.6			ESO	190	17	12	3
4032		RAMY	12	27	1355	N12 W56	12 23.4		B	EKO	240	16	11	3
4032		HOLL	12	27	1624	N09 W54	12 23.6		B	CSO	200	12	11	3
4032	23488	MWIL	12	27	1830	N08 W57	12 23.5	5	B					
4032		PALE	12	27	2305	N08 W58	12 23.6		B	DSO	260	11	9	2
4032		LEAR	12	28	0031	N09 W59	12 23.6		B	DSO	260	10	10	3
4032		BOUL	12	28	1545	N08 W67	12 23.6		B	DSO	180	2	8	2
4032	23488	MWIL	12	28	1700	N08 W69	12 23.5	5	(B)					
4032		HOLL	12	28	1857	N08 W69	12 23.6		B	DSO	390	3	10	3
4032		MANI	12	29	0028	N08 W71	12 23.7			HSX	40	1	1	3
4032		LEAR	12	29	0035	N09 W74	12 23.5		B	DSO	330	4	11	2
4032		RAMY	12	29	1255	N10 W75	12 23.9		A	HAX	60	1	2	3
4032		BOUL	12	29	1440	N08 W82	12 23.5		B	DSO	180	2	9	2
4032		HOLL	12	29	1555	N10 W82	12 23.5		B	CSO	40	3	9	4
4032		PALE	12	29	1930	N09 W82	12 23.7		A	HSX	20	1	2	3
4032		MANI	12	29	2336	N08 W83	12 23.8			AXX	30	1		3
	23498	MWIL	12	31	1630	S16 W52	12 27.7	2	(AP)					
4033		RAMY	12	21	1715	S15 E81	12 27.9		B	CKO	250	5	10	2
4033		HOLL	12	21	1720	S13 E82	12 27.9		B	EK1	390	3	11	3
4033		PALE	12	21	1937	S13 E84	12 28.2			EAO	300	7	12	4

REGIONS OF SUNSPOT ACTIVITY
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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time (UT)			Lat CMD	CMP Mo Day	Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual
4033		MANI	12	21	2337	S13 E80	12 28.0		EKI	990	4	12	2	
4033		LEAR	12	22	0139	S15 E78	12 28.0		B	580	12	14	3	
4033		HOLL	12	22	1612	S14 E70	12 28.0		BG FKI	580	20	17	3	
4033		PALE	12	22	1845	S14 E70	12 28.1		BG FKI	470	16	18	4	
4033		LEAR	12	23	0123	S15 E65	12 28.0		BG FKI	560	24	17	3	
4033		MANI	12	23	0149	S14 E65	12 28.0		FKI	950	14	17	2	
4033	23492	MWIL	12	23	1700	S13 E58	12 28.1	5	(B)					
4033		BOUL	12	23	1700	S16 E60	12 28.3		B FKI	950	14	20	1	
4033		RAMY	12	23	1725	S14 E58	12 28.1		BG EK1	1300	34	14	2	
4033		LEAR	12	24	0047	S15 E53	12 28.0		BG FKI	970	39	13	4	
4033		MANI	12	24	0215	S14 E52	12 28.0		FKI	350	28	16	2	
4033	23492	MWIL	12	24	1700	S13 E43	12 28.0	5	(BY)					
4033		MANI	12	25	0016	S14 E39	12 28.0		FKI	700	28	16	3	
4033		LEAR	12	26	0008	S13 E26	12 28.0		BG FKI	880	51	19	3	
4033		MANI	12	26	0030	S14 E25	12 27.9		FKI	740	47	17	3	
4033		BOUL	12	26	1640	S13 E16	12 27.9		B FKC	900	50	20	3	
4033	23492	MWIL	12	26	1700	S13 E15	12 27.8	5	(3Y)					
4033		PALE	12	26	1834	S12 E17	12 28.1		BG FKC	860	57	20	4	
4033		LEAR	12	27	0049	S12 E11	12 27.9		BG FKI	900	61	20	3	
4033		MANI	12	27	0100	S13 E14	12 28.1		FKI	1000	71	19	3	
4033		RAMY	12	27	1355	S13 E06	12 28.0		BGD FKI	840	82	21	3	
4033		HOLL	12	27	1624	S12 E03	12 27.9		BGD FKI	350	69	21	3	
4033	23492	MWIL	12	27	1830	S13 E01	12 27.8	6	D					
4033		PALE	12	27	2305	S13 E01	12 28.0		BGD FKI	880	40	23	2	
4033		LEAR	12	28	0031	S12 W01	12 27.9		BGD FKI	330	60	21	3	
4033		BOUL	12	28	1545	S12 W10	12 27.9		BG FKO	380	30	19	2	
4033	23492	MWIL	12	28	1700	S13 W12	12 27.8	5	(D)					
4033		HOLL	12	28	1857	S12 W12	12 27.9		BGD FKI	610	49	20	3	
4033		MANI	12	29	0028	S12 W16	12 27.8		FAO	690	38	19	3	
4033		LEAR	12	29	0035	S13 W15	12 27.9		BGD FKI	770	37	21	2	
4033		RAMY	12	29	1255	S14 W23	12 27.8		BGD FKI	430	62	22	3	
4033		BOUL	12	29	1440	S12 W25	12 27.7		BGD FKO	490	39	20	2	
4033		HOLL	12	29	1555	S13 W25	12 27.8		BGD FKI	560	62	20	4	
4033		PALE	12	29	1930	S13 W26	12 27.8		BGD FKO	550	46	20	3	
4033		MANI	12	29	2336	S12 W29	12 27.8		FAO	560	36	21	3	
4033		LEAR	12	30	0022	S13 W29	12 27.8		BGD FKI	550	37	21	2	
4033		RAMY	12	30	1254	S14 W37	12 27.7		BGD FKO	310	52	23	2	
4033		BOUL	12	30	1725	S12 W38	12 27.9		BGD FAO	260	32	22	2	
4033		PALE	12	30	1930	S13 W41	12 27.7		BGD FAO	420	38	22	4	
4033	23492	MWIL	12	30	2145	S13 W42	12 27.7	4	(B)					
4033		MANI	12	30	2334	S13 W43	12 27.7		FAO	340	33	20	3	
4033		LEAR	12	31	0012	S13 W41	12 27.9		BGD FKI	400	30	20	2	
4033		RAMY	12	31	1517	S14 W54	12 27.6		BGD FAO	770	30	21	2	
4033	23492	MWIL	12	31	1630	S13 W51	12 27.8	4	(3Y)					
4033		BOUL	12	31	1855	S11 W51	12 27.9		BGD FAO	230	26	22	2	
4033		PALE	12	31	2000	S13 W56	12 27.6		BGD FAO	350	21	22	2	
4033		LEAR	01	01	0120	S13 W56	12 27.8		BG FAO	220	14	20	3	
4033		BOUL	01	01	1414	S13 W64	12 27.8		BG FAO	250	21	21	3	
4033	23492	MWIL	01	01	1630	S13 W67	12 27.6	4	(3Y)					
4033		HOLL	01	01	1712	S13 W66	12 27.7		BG FAO	210	21	24	2	
4033		PALE	01	01	2000	S12 W68	12 27.7		BG FAO	180	13	24	3	
4033		LEAR	01	02	0030	S13 W70	12 27.7		B GSO	80	10	21	3	
4033	23492	MWIL	01	02	1630	S13 W82	12 27.5	1	AF					
4042	23496	MWIL	12	28	1700	S20 W12	12 27.8	2	(AP)					
4042		HOLL	12	28	1857	S19 W13	12 27.8		A	10	2	2	3	
4042		MANI	12	29	0028	S20 W17	12 27.7		BXO	30	3	3	3	
4042		LEAR	12	29	0035	S19 W18	12 27.6		B DSO	50	5	4	2	
4042		RAMY	12	29	1255	S21 W23	12 27.8		A AXX	10	2	1	3	
4042		BOUL	12	29	1440	S18 W26	12 27.6		B CRO	30	3	6	2	
4042		HOLL	12	29	1555	S18 W27	12 27.6		B CAO	30	4	6	4	
4042		PALE	12	29	1930	S19 W28	12 27.7		B CRO	30	5	5	3	
4042		MANI	12	29	2336	S20 W30	12 27.7		BXO	20	3	4	3	
4042		LEAR	12	30	0022	S19 W31	12 27.6		B GSO	10	2	4	2	
4042		RAMY	12	30	1254	S18 W37	12 27.7		A AXX	10	1	1	2	
4042		BOUL	12	30	1725	S17 W39	12 27.8		B BXO	10	2	2	2	
4042		PALE	12	30	1930	S18 W42	12 27.6		B BXO	10	3	5	4	
4042		MANI	12	30	2334	S19 W42	12 27.8		BXO	10	2	2	3	
4042		LEAR	12	31	0012	S19 W43	12 27.7		B BXO	10	3	4	2	
		MANI	12	21	2337	S17 E79	12 28.0		HAX	50	2	1	2	

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

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Dec 82

DECEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time			Lat	CMD	CMP		Max H	Mag Class	Spot Class	Corrected Area (10 ⁻⁶ Hemi)	Spot Count	Long. Extent (Deg)	Qual
			Mo	Day	(UT)			Mo	Day							
		BOUL	12	29	1440	S16	W06	12	29.2		A	AXX		1		2
4043		BOUL	12	30	1725	S01	W12	12	29.8		A	AXX	10	2	2	2
4043		PALE	12	30	1930	S02	W15	12	29.7		A	AXX	10	3	2	4
4043		MANI	12	30	2334	S02	W18	12	29.6		A	AXX	10	2		3
4043		LEAR	12	31	0012	S02	W18	12	29.7		A	AXX		2	1	2
4039		BOUL	12	23	1700	S15	E81	12	29.8		A	HHX	120	1	4	1
4039	23493	MWIL	12	23	1700	S15	E82	12	29.9	4	(AP)					
4039		RAMY	12	23	1725	S14	E78	12	29.6		A	HKX	140	1	4	2
4039		LEAR	12	24	0047	S16	E75	12	29.7		A	HHX	140	1	4	4
4039		MANI	12	24	0215	S15	E76	12	29.9			HHX	320	1	2	2
4039	23493	MWIL	12	24	1700	S15	E68	12	29.9	4	(AP)					
4039		MANI	12	25	0016	S15	E63	12	29.8			HSX	170	1	2	3
4039		LEAR	12	26	0008	S16	E50	12	29.8		B	CSO	170	5	3	3
4039		MANI	12	26	0030	S16	E50	12	29.8			CSO	200	7	3	3
4039		BOUL	12	26	1640	S15	E41	12	29.8		B	HSO	140	2	4	3
4039	23493	MWIL	12	26	1700	S15	E40	12	29.7	5	(BP)					
4039		PALE	12	26	1834	S14	E40	12	29.8		A	HSX	150	2	2	4
4039		LEAR	12	27	0049	S15	E36	12	29.8		B	CSO	180	4	6	3
4039		MANI	12	27	0100	S15	E36	12	29.8			CSO	190	3	5	3
4039		RAMY	12	27	1355	S17	E30	12	29.9		B	DHO	200	9	7	3
4039		HOLL	12	27	1624	S15	E28	12	29.8		B	CAO	190	10	8	3
4039	23493	MWIL	12	27	1830	S17	E28	12	29.9	5	BP					
4039		PALE	12	27	2305	S17	E26	12	29.9		B	DSO	200	7	7	2
4039		LEAR	12	28	0031	S16	E25	12	29.9		B	DSO	200	9	6	3
4039		BOUL	12	28	1545	S15	E15	12	29.8		B	CSO	100	8	4	2
4039	23493	MWIL	12	28	1700	S16	E15	12	29.8	5	(BP)					
4039		HOLL	12	28	1857	S17	E14	12	29.9		B	CSO	130	6	6	3
4039		MANI	12	29	0028	S16	E12	12	29.9			CSO	100	8	6	3
4039		LEAR	12	29	0035	S17	E12	12	29.9		B	DSO	200	8	4	2
4039		RAMY	12	29	1255	S15	E04	12	29.8		B	CAO	140	13	7	3
4039		BOUL	12	29	1440	S15	E02	12	29.8		B	CSI	160	13	7	2
4039		HOLL	12	29	1555	S14	E02	12	29.8		B	DAO	160	17	7	4
4039		PALE	12	29	1930	S15	E01	12	29.9		B	CAO	150	18	6	3
4039		MANI	12	29	2336	S16	W00	12	30.0			CAO	160	14	5	3
4039		LEAR	12	30	0022	S16	W01	12	29.9		B	DSO	190	9	5	2
4039		RAMY	12	30	1254	S16	W08	12	29.9		B	DAO	160	18	6	2
4039		BOUL	12	30	1725	S13	W09	12	30.0		B	CSO	140	9	5	2
4039		PALE	12	30	1930	S16	W12	12	29.9		B	DSO	110	12	5	4
4039	23493	MWIL	12	30	2145	S17	W13	12	29.9	3	(BP)					
4039		MANI	12	30	2334	S16	W14	12	29.9			DAO	190	16	5	3
4039		LEAR	12	31	0012	S17	W14	12	29.9		B	DAO	190	14	5	2
4039		RAMY	12	31	1517	S16	W22	12	30.0		B	DAO	100	14	6	2
4039	23493	MWIL	12	31	1630	S17	W23	12	29.9	4	(BP)					
4039		BOUL	12	31	1855	S17	W22	12	30.1		B	DSO	90	13	6	2
4039		PALE	12	31	2000	S17	W26	12	29.9		B	DSO	90	8	6	2
4039		LEAR	01	01	0120	S17	W27	12	30.0		B	DAO	130	13	5	3
4039		BOUL	01	01	1414	S17	W35	12	29.9		B	DAO	50	10	6	3
4039	23493	MWIL	01	01	1630	S17	W37	12	29.9	4	(BP)					
4039		HOLL	01	01	1712	S16	W37	12	29.9		B	CAO	40	10	6	2
4039		PALE	01	01	2000	S16	W39	12	29.9		B	CSO	40	5	5	3
4039		LEAR	01	02	0030	S17	W41	12	29.9		B	DSO	60	5	6	3
4039		BOUL	01	02	1615	S14	W50	12	29.9		B	BXO	10	2	2	3
4039	23493	MWIL	01	02	1630	S17	W51	12	29.8	3	(BP)					
4040		BOUL	12	26	1640	S20	E65	12	31.7		A	AXX		1		3
4040	23494	MWIL	12	26	1700	S20	E65	12	31.7	3	(AP)					
4040		PALE	12	26	1834	S20	E65	12	31.7		A	AXX	10	1	1	4

S U D D E N I O N O S P H E R I C D I S T U R B A N C E S

December 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type					Known Flare	NOAA/SESC Region
						SWF	SEA	SPA	LF-SPA	SES		
01	0114	0130	0157	1-	1			1			NF	
01	0200	0216	0240U	1-	3			1	1		NF	
01	0342	0352	0434	1-	1				1		NF	
01	0640	0705	0749	1-	1			1			NF	
01	1010	1020	1100	1	3		2				*	
01	1241	1243	1315	1	3		2				NF	
01	1732	1733	1745	1-	1					1	NF	
01	1822	1823	1843	1-	3					2	NF	
01	2010	2015	2030	1	3					2	NF	
01	2110	2122	2209	1	1			1			*	
01	2240	2304	2353	1-	1			1			NF	
02	0252	0259	0322	1-	1			1			0249	4005
02	0614	0622	0640	1-	1			1			0613	No data
02	0642	0700	0848	1-	3			1	1	1	0642	No data
02	0932	0940	1022	1			2				NF	
02	1745	1751	1830	1	3	2				8	1733	4012
02	2115	2123	2141	1	3	2				6	2107	4005
02	2240	2304	2349	1-	1			1			2237	4012
03	0111	0125	0300	2+	5	1		1	1	4	0109	No data
03	0313	0330	0415	1-	3			1	1		NF	
03	0603	0609	0640	1-	3		1	1	1	2	0603	X-ray
03	0900	0912	0954D	2	5	1	3	1	1	4	0900	4014
03	0955	1007	1045	2	3		1	1	1		0953	X-ray
03	2259	2305	0051	1	5	1		1		6	2300	4014
04	0120	0139	0228	1-	1			1			0115E	No data
04	0316	0326	0336U	1-	1				1		0328E	No data
04	0524	0532	0557	1-	3			1	1	1	0526	4005
04	0606	0610	0630	1-	3			1	1	1	0606	4014
04	0802	0808	0857	1-	3			1		1	0800	X-ray
04	0913	0917	0945	1	5	1		1	1	3	0911	No data
04	1040	1046	1055	1-	3				1	2	NF	
04	1203	1211	1245	2	5	1	4	1	1	2	1200	X-ray
04	1717	1731	1758	1+	3	1				12	1713	X-ray
04	1957	2008	2030	1-	3					3	1954	4017
04	2118	2126	2218	1-	3			1		3	2120	4017
05	0027	0035	0112	1-	3			1	1	1	0025	X-ray
05	0201	0209	0243	1-	3			1	1		0201	X-ray
05	0244	0250	0307D	1-	3			1	1		0248	No data
05	0308	0316	0328D	1-	3			1	1		0320E	4013
05	0423	0440	0526D	1	3			1		3	0427	4014
05	0612	0628	0748	1	3			1		2	0609	4014
05	0748	0759	0826	1	3		2				NF	
05	0806	0821	0920	1	3			1		2	0807	X-ray
05	1001	1008	1049	2+	5		4	1	1	1	0958	X-ray
05	1618	1623	1642	1	3	2				4	1615	4014
05	1632	1637	1700	1	3					2	NF	
05	1924	2020	2145	3	3					3	NF	
06	0152	0221	0322	1-	3			1	1		NF	
06	0503	0522	0620	1-	3			1	1		0502	X-ray
06	0808	0820	0946	2+	5	1		1	1	4	0813E	4012
06	1910	1917	1940	1-	3					2	1911E	4007
06	2026	2041	2100	1+	3					2	2029	4014
06	2115	2120	2300	1+	5	1		1		10	2104	X-ray
06	2352E	0016	0123	1-	3			1		2	2346	4021
07	0210	0214	0230D	1-	3	1		1	1		0208	X-ray
07	0250E	0312	0526	2	3			1	1		0245	No data
07	0444E	0500	0507D	1-	3			1	1	2	0426	4013
07	0538	0542	0558D	1-	3				1	1	0537	4014
07	0829	0835	0858	1-	3			1		1	0828	4013
07	1317	1322	1340	1-	3	1			1	4	1316	X-ray

S U D D E N I O N O S P H E R I C D I S T U R B A N C E S

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December 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type					Known Flare	NOAA/SESC Region
						SWF	SEA	SPA	LF-SPA	SES		
07	1640	1712	1748	1+	3					3	1639	4022
07	1748	1752	1807	1-	3					9	1748	4019
07	1808	1809	1845	1	3					9	1811E	4007
07	2322	2355	0248D	3+	3	1		1		6	2325	4017
08	0221	0231	0245	1-	3					3	0227	4013
08	0250E	0314	0530D	3	3	1		1		1	0253	No data
08	0700	0715	0730	1-	3					2	NF	
08	0824E	0841	0956	2	3		2	1		4	0828	4022
08	1110	1124	1252	1	5	1	4	1	1	2	1106	X-ray
08	1336	1346	1440	2	5	4	4		1	1	1328	4017
08	1429	1455	1624	3	3					5	NF	
08	1937	1946	2015	1	3					8	1935	X-ray
09	0000	0008	0025	1-	3			1	1		NF	
09	0235	0303	0446	1	3	1		1	1	2	0235	4014
09	0254	0300	0340	1-	3				1	1	0255E	No data
09	0447	0453	0636D	2+	3	1		1	1	3	0447	No data
09	0637	0640	0722	1-	3			1		2	0637	No data
09	0935	0947	1000	2	3	1	2	1	1		NF	
09	1038	1049	1140	1+	3	1	2	1	1		1031	X-ray
09	1125	1137	1321	2+	3	2	4		1	1	1123	X-ray
09	1353	1359	1410	1-	3	1	3		1	1	1345	X-ray
09	1415	1419	1440	1-	3					2	1413	X-ray
09	1600	1606	1630	1	3					10	NF	
09	1635	1641	1645	1-	3	2				8	1612	4022
09	1737	1803	1830	1+	3	2				7	1736	4022
09	1902	1907	1917	1	3	2				9	1900	4022
09	2112	2115	2130	1-	3					6	*	
09	2140	2209	2259D	2	5	3		1		4	2145	X-ray
09	2302	2311	2319	1-	3			1		3	2257	4014
09	2319	2326	0000	1	3					4	2315	X-ray
10	0017E	0031	0115D	2+	3	2		1		3	0016	X-ray
10	0035		0042	1	1					1	0037	4022
10	0115E	0122	0156D	2+	3	1			1	2	0114	X-ray
10	0156E	0207	0237D	2	3			1	1		0156E	4022
10	0237E	0250	0357D	3+	3	1		1	1	3	0237	4022
10	0401	0431	0617	2+	3	1		1	1	3	0402	No data
10	0800	0805	0830	1	5			1	1	4	0800	4014
10	1317	1332	1350	2	5	1	2		1	3	1316	No data
10	1617	1630	1645	1	3	2				8	1602	4014
10	1705	1714	1731	1	3					3	NF	
10	1750	1800	1815	1	3	1				8	1748	X-ray
10	1815	1826	1845	1	3	1				9	1814	X-ray
10	2209	2212	2251	1-	1			1			2208	X-ray
10	2252	2300	2341	1-	1			1			2254	X-ray
11	0031	0049	0140D	1-	3			1	1	1	0029	X-ray
11	0139	0144	0214	1-	3	1		1	1	1	0142	No data
11	0222	0241	0312D	2	3	1		1	1	1	0226	No data
11	0248	0251	0320	1-	3			1		1	0247	No data
11	0344E	0408	0437D	1	3			1	1	1	0343	4021
11	0402	0408	0433	1-	3				1	1	0402E	No data
11	0438	0450	0600	3	3	1		1	1	4	0439	4025
11	0545	0546	0600	1-	1					1	0544	4021
11	0612E	0625	0728D	2	3			1	1	1	0608	4012
11	0730	0731	0745	1-	3			1		1	0720	4014
11	0948	0953	1015	1	3			1	1	1	0949	4014
11	1545	1547	1600	1+	3					3	1548	4022
11	1829	1835	1910	1	3					2	1829	X-ray
11	1958	2001	2015	1-	3					2	1948	4022
11	2108	2113	2139	1-	3	1		1		1	NF	
11	2337	2344	0036	1-	3			1		3	2341	4022
12	0147	0152	0242	1-	3			1	1	1	0159E	No data

S U D D E N I O N O S P H E R I C D I S T U R B A N C E S

December 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type					Known Flare	NOAA/SESC Region
						SWF	SEA	SPA	LF-SPA	SES		
12	0249	0256	0330	1-	3			1	1	3	0250	No data
12	0640	0648	0720	1-	3			1	1	2	0637	No data
12	1322	1327	1335	1-	3		2		1	1	1322	4014
12	1657	1715	1750	1	3					4	1656	X-ray
13	0322	0333	0446D	3+	3	1		1	1		0321	4026
13	0448	0502	0538	1	1			1			0502E	No data
13	0802	0812	1014	3	5	1	3	1	2	3	0802	4026
13	1803	1807	1845	1	3					4	1809	4022
13	1853	1859	1940	1-	3					4	NF	
13	1955	2000	2005	1	3	2				6	1957E	4026
13	2102	2123	2145	1	3					3	2112	4022
14	0350	0400	0500	1-	3			1	1	3	0345	X-ray
14	0628	0642	0720	1-	3			1	1	2	0630	X-ray
14	0738	0751	0912	1-	3			1		1	0740	4026
14	1602	1613	1640	1-	1					1	1606	4026
14	2017	2030	2120	1	3					3	2015	4026
15	0157	0204	0536	3+	5	2		1	1	4	0157	4026
15	1630	1640	1705	2	3	2				13	1620	4026
15	2044	2052	2146D	2	5	3		1		10	2045E	4025
15	2146E	2159	0050	2+	5	3		1		9	2153	X-ray
16	0058	0105	0128	1-	1			1			0058	4022
16	0305	0310	0330	1-	3			1	1	1	0306	4026
16	0544	0600	0621	1-	1			1			0543	No data
16	0621	0625	0712	1-	3			1	1	1	0621	4026
16	1004	1014	1154	2+	5	1	2	1	1	2	1007	4026
16	1416	1428	1448	1	3		1			2	1418	4026
16	1455	1508	1550	2	5	2	3		1	12	1453	4025
16	1928	1944	2000	1	3	1				3	1927	4026
16	2210	2214	2248	1-	1			1			2211	4021
17	0109	0112	0123D	1-	3			1	1		*	
17	0144	0155	0348	3	5	2		1	1	4	0153E	4026
17	0221	0229	0251	1+	1					1	0221	No data
17	0420	0452	0626	2	3			1	1	4	0421	4022
17	0804	0818	0856	1-	3			1		4	0806	X-ray
17	1001	1012	1148	2	5		2	1	1	2	1002	X-ray
17	1650	1700	1820	1+	3	2				11	1643	4026
17	1820	1855	2025	3	1					1	1820	4025
17	1848	1902	2030	2+	5	3				12	1848	4017
17	2030	2036	2050	1-	1					1	2028	4026
17	2106	2118	2146D	1	5	2		1		9	2106	4026
17	2148	2155	2201	1+	5	2		1		7	2144	X-ray
17	2249	2255	2312	2+	5	2		1		5	2250	4021
18	0222	0241	0342	1-	3			1	1		0235	No data
18	0302	0310	0340	1-	1				1		0304	No data
18	0602	0622	0800	1	3			1	1		0602	4026
18	0821	0827	0953	3+	5	2	4	1	1	5	0822	4026
18	0954	0959	1030	1	3	1	4	1	1	2	0953	4022
18	1401	1406	1410	1-	3	1	2		1		NF	
18	1503	1509	1530	1-	5	2	4		1	9	1504	4026
18	2122	2123	2135	1-	3					2	2120	X-ray
18	2248	2252	2349	1-	1			1			2249	4022
18	2349	0004	0032D	1-	1			1			2349	X-ray
19	0032	0058	0134D	1+	3	1		1	1	3	0032	X-ray
19	0048	0057	0115	1	1					1	0046	4025
19	0134E	0144	0227D	2+	3	1		1	1	4	0135	No data
19	0228E	0236	0420	1+	3			1		3	0230	No data
19	0452	0456	0526	1-	3			1	1	1	0453	4026
19	0622	0626	0700	1-	3			1	1		0623	No data
19	0905	0910	0920	1-	3		1		1	1	0855	4026

S U D D E N I O N O S P H E R I C D I S T U R B A N C E S

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Dec 82

December 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide- spread Index	Number of Station Reports by Type					Known Flare	NOAA/SESC Region
						SWF	SEA	SPA	LF- SPA	SES		
19	0948	0954	1015	1-	3				1	1	0949	4022
19	1240	1250U	1330	1	3		2				NF	
19	1540	1645	1830	2+	3					7	1541	4022
19	2228	2236	0007	1-	5	1		1		5	2230	4022
20	0013	0027	0056	1	3	2		1	1		0019	4022
20	0101E	0111	0214	1-	3			1	1		0100	X-ray
20	0215	0223	0412	1	3	1		1	1	1	0216	4022
20	0711	0719	0810	1	1			1			0710	X-ray
20	0858	0908	0938	1-	1			1			0849	4026
20	1247	1252	1315	1-	3		1		1		1244	X-ray
20	1602	1608	1630	1	3					7	1602	4025
20	1703	1706	1800	1+	3					9	1702	4033
20	2339	2340	0000	1-	3			1		1	2338	X-ray
21	0211	0219	0419	2+	3	1		1	1		0209	X-ray
21	0420	0513	0646D	3+	3			1	1	1	0421	X-ray
21	0454	0507	0750	1+	3	1		1	1	3	0458	X-ray
21	0641E	0650	0826	2+	3			1		1	0643	X-ray
21	0702	0713	0730	1	3					2	NF	
21	1846	1850	1900	1-	1					1	1845	X-ray
21	2038	2040	2119	1	3					2	2033	X-ray
21	2119	2120	2152	1+	3					2	2123	X-ray
21	2310	2338	0047	1-	3			1			2311	X-ray
21	2327	2333	2346	1-	3	1		1		1	NF	
22	0132	0150	0202U	1-	3				1	1	0128	4033
22	0208	0222	0300	1-	3			1	1	2	0208	4026
22	0314	0321	0408	1-	3			1	1		0312E	4025
22	0632	0712	0745	1-	3			1		2	0631	4025
22	0823	0834	1023	3+	5	3	4	1	1	4	0826	4025
22	2241	2246	2306	1-	3			1		2	2241	4033
23	0511	0516	0630	1-	3			1	1	1	0509	4025
23	0728	0744	0854	1-	3			1		2	0729	4033
23	1650	1700	1730	2	1					1	NF	
24	0122	0128	0223	1-	1			1			0125	4033
24	1014	1021	1135	1-	3			1		1	1008	X-ray
24	1424	1430	1445	1	1					1	*	
24	1644	1700	1750	2+	3	1				2	*	
24	1930	1943	2030	1	3					7	1912	X-ray
25	0327	0333	0420	1-	3			1	1	3	0325E	No data
25	0446	0521	0608	1-	3			1	1	1	0445	X-ray
25	0614	0632	0715D	2	3			1	1	4	0618E	No data
25	0716E	0755	0938	3	3			1	1	1	0711E	No data
25	0749	0755	0809	2	3	2			1		0743	X-ray
25	1241	1243	1255	1	3		2				*	
25	1630	1645	1824	3	3					2	*	
25	1758	1803	1815	1-	3	1				4	1753	X-ray
26	0012	0018	0119	1+	3	1		1	1	2	0011	4033
26	0105	0120	0135	1-	3	1				1	0103	4031
26	0119	0126	0139D	1	3			1	1	1	0117	X-ray
26	0150	0200	0330	1+	3	1		1	1	4	0150E	4033
26	0932	0940	1054	2	3			1	1	5	0909	4033
26	1510	1515	1528	1-	3	1				1	1456	X-ray
27	0525	0531	0656	1-	3			1	1	1	0524	4033
27	1148	1200	1222	1	1		1				1148	X-ray
27	1427	1430	1450	1-	1					1	1427	4032
27	1644	1647	1750	2+	1					1	1647	4032
27	1821	1824	1843	1	1					1	1821	4032
27	2020	2024	2050	1-	5			1		9	2020	4033
27	2200	2208	2230	1-	3					2	NF	

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S U D D E N I O N O S P H E R I C D I S T U R B A N C E S

December 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide- spread Index	Number of Station Reports by Type					Known Flare	NOAA/SESC Region
						SWF	SEA	SPA	LF- SPA	SES		
28	0128	0136	0222	1-	3			1	1	1	0127E	No data
28	0407	0412	0439	1-	1			1			0408	X-ray
28	0849	0852	0910	1-	1			1			0845E	4032
28	1206	1212	1228	1-	3		1	1		1	1158	X-ray
28	1559	1600	1621	1	3	1				5	1551	X-ray
29	0136	0144	0232	1-	3	1		1	1		0137	4041
29	0644	0649	0933	3+	3	1	2	1	1		0644	4033
29	2000	2007	2020	1-	3					2	2008	4032
29	2222	2355	0142	1-	1			1			*	
30	0142	0159	0352	3+	3	1		1	1	1	0140	4033
30	0607	0611	0644	1-	3			1		1	0604	4033
30	0919	0923	0957	1-	3			1		2	0915	X-ray
30	1808	1812	1825	1-	3	1				7	*	
30	1845	1857	1920	1	3					7	1844	4040
30	2223	2237	2338	1-	3			1		5	2223	4033
30	2300		2315	1-	1		1				2258	4042
31	0014	0026	0100	2	3	1	1	1	1	1	0014	4033
31	0310	0403	0640	1-	1			1			NF	
31	0512	0524	0649	1-	3			1	1	2	0514	No data

* = No Flare Patrol
 NF = No Flare Reported
 X-ray = Event observed only at X-ray wavelengths

OBSERVATORIES REPORTING FOR DECEMBER 1982*

Ayrshire, Scotland (AY)	SES	Maul, Hawaii, USA (MI)	SWF
Darmstadt, GFR (DA)	SWF	Mayfield Village, Ohio, (USA) (A28)	SES
Edenvale, South Africa (A52)	SES	Missoula, Montana, USA (A31)	SES, SWF
Frenchtown, Montana, USA (A56)	SES	Panska Ves, Czechoslovakia (PU)	SEA, SWF
Glenorchy, Tasmania, Australia (GH)	SES	Paterson, New Jersey, USA (A46)	SES
Hiraiso, Japan (HI)	SWF	Portage, Michigan, USA (A51)	SES
Hobart, Tasmania, Australia (TA)	SEA	San Antonio, Texas, USA (SA)	SES
Houston, Texas, USA (A50)	SES	Sofia, Bulgaria (SF)	SES
Huancayo, Peru (HU)	SWF	St. Cloud, Minnesota, USA (SC)	SES
Inubo, Japan (IN)	SPA	Tavares, Florida, USA (A49)	SES
Juliusruh, GDR (JU)	SWF	Trenton, New Jersey, USA (NJ)	SES
Kuhlungsborn, GDR (KU)	SPA, SEA	Upice, Czechoslovakia (UI)	SEA
Lake Hiawatha, New Jersey, USA (A32)	SES	Valley Cottage, New York, USA (A01)	SES
Latrobe, Pennsylvania, USA (A19)	SES	Vsetin, Czechoslovakia (VS)	SEA
Lintong, China (LT)	SPA	Walla Walla, Washington, USA (A55)	SES
Los Alamos, New Mexico, USA	SES		

*Observations are not necessarily continuous for each reporting station.

SIDs by NOAA/SESC REGION

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Region Number																																
4005		2		1																												
4007							1	1																								
4012		2				1					1																					
4013				1			2	1																								
4014		2	1	3	1	1			2	2	2	1																				
4017			2				1	1									1															
4019							1																									
4021						1					2					1	1															
4022							1	1	3	3	3		2			1	1	2	3	2												
4025											1				1	1	1		1	1		3	1									
4026													3	3	2	5	4	3	2	1												
4031																											1					
4032																																
4033																				1		2	1	1				3	2	1	1	
4040																																1
4041																															1	
4042																																1
X-Ray		2	3	4	2	2	2	6	6	2	1			2	1		3	2	1	4	8			2	3	2	1	3		1		
No Flare	9	1	1	1	3	1		2	3	1	1		1						1	1		2		1		2		1			1	
No Flare Patrol	2								1								1						2						1	1		
No Data		2	1	3	1		1	1	3	2	4	3	1			1	1	2	3					3				1			1	
Event Totals	11	7	6	11	12	7	10	8	18	14	16	5	7	5	4	9	13	10	11	9	10	6	3	5	8	6	7	5	4	7	3	

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

DECEMBER 1982

Observation			Decimetric Band			Metric Band			Dekametric Band			Spectral Type		
Day	Start (UT)	End (UT)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)			
01	0000	0720	CULG			0000.0	0025.0	1				IS		
			CULG	0008.5	0029.5	2	0028.5	0030.0	3	0028.5	0031.0	2	IIIG,V	
			LEAR				0026.3	0026.5	1				III	
			LEAR				0028.3	0029.6	2				III	
			LEAR				0029.6	0031.0	2				V	
			LEAR				0035.0	0044.8	1				CONT	
			LEAR				0044.8	0050.3	2				III	
			LEAR				0044.8	0212.0	2				CONT	
			CULG				0045.0	0050.0	3	0045.0	0047.5	1	IIIGG	
			CULG				0139.5	0704.0	1				IIIN	
			CULG	0307.5	0715.0	1							IN	
			CULG				0344.5	0542.0	2				IIIN	
			LEAR				0522.0	0613.5	1				G	
	LEAR				0703.6	0704.0	1				III			
	0740	1500	BLEN				0804.5	0804.7	1			IIIB		
	0718	1449	WEIS				1231.9	1232.4	3			IIIB		
			WEIS				2037.0	2038.0	2			IIIG		
	2020	2400	CULG				2121.5		1			IIIB		
			CULG	2121.5	2332.5	1						IN		
			CULG				2231.5		1			IIIB		
02	0000	0721	CULG	0014.0	0721.0	1						IS,DC		
			CULG				0208.0	0350.5	1				IIIN	
			LEAR				0208.0	0210.6	1				III	
			CULG				0221.5		2				IIIB	
			LEAR				0317.5	0353.0	1				CONT	
			CULG				0319.0	0344.5	1				II	
			LEAR				0631.5	1037.0	2				CONT	
			CULG				0641.0	0647.5	3				IIIGG	
			CULG				0649.0	0657.5	3				II	
			CULG				0655.0	0721.0	1				IS	
			0734	0834	WEIS				0749.0	1440.0	2			IS
			0740		BLEN				0921.2	0924.5	2			IIIG
			0844	1350	WEIS				0922.7	0923.7	2			IIIG,RS
			BLEN				1045.5	1500.0D	1			IN		
	1411	1448	WEIS									IS		
	2027	2400	CULG	2043.5	2400.0	1	2027.0	2151.5	1			IS		
			CULG	2110.0	2113.0	1	2106.0	2115.5	3			IIIGG		
			CULG				2119.5	2135.5	3			II		
			CULG	2125.0	2126.0	1	2124.5	2125.5	1			IIIG		
	03	0000	0721	CULG	0000.0	0210.0	1						IS	
LEAR							0012.6	0012.8	1				III	
LEAR							0124.3	0124.6	1				III	
CULG				0210.0	0500.0	1							IN	
LEAR							0250.1	0255.1	1				III	
CULG							0252.5	0313.0	1				IIIN	
LEAR							0301.8	0315.5	1				CONT	
CULG				0500.0	0710.0	1	0427.0	0617.0	1				IS	
0736				1448	WEIS				1201.7	1202.0	3			IIIG
1101				1445	BLEN									IIIB
					BLEN	1409.1	1409.1						2	IS,DC
					CULG	2021.5	2400.0	2						IN
2021				2400	CULG				2021.5	2359.5	1			IN
			CULG				2022.0	2132.5	1			IIIS		
			CULG				2221.5	2353.5	1			IIIN		
			LEAR				2300.1	2306.5	2			III		
			CULG				2303.0	2307.0	3			IIIGG		
		LEAR				2328.8	0533.0	1			CONT			
04	0000	0722	CULG	0000.0	0130.0	1	0000.0	0230.0	1			IS,C,DC		
			CULG				0010.5	0013.0	2				IIIGG	
			CULG				0014.0	0014.5	3				IIIB	
			CULG				0015.0	0110.0					IIIS,W	
			CULG				0118.5	0128.5	1				IIIS	
			CULG				0124.0	0717.0	2				IIIN	
			CULG	0130.0	0450.0	2	0230.0	0535.5	2				IS	
			CULG				0244.0	0250.0	1				IIIS	
			CULG				0411.5	0413.0	2				IIIG	
			CULG				0427.0	0530.0	1				IIIS	

S O L A R R A D I O E M I S S I O N
S P E C T R A L O B S E R V A T I O N S

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Dec 82

D E C E M B E R 1 9 8 2

Observation			Decimetric Band			Metric Band			Dekametric Band			Spectral Type
Day	Start (UT)	End (UT)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
04			0450.0	0722.0	1							IN
						0535.5	0722.0	1				IS
						0618.5	0619.0	1				III
						0640.8	0641.1	1				III
						0706.8	1038.0	1				CONT
	0737	1430				0746.0	1430.0	3				IN
						0747.7	0747.9	2				IIIB
						0803.2	0807.4	1				IIIG
						0809.7	0813.7	2				IIIG
						0825.4	0825.7	3				IIIG
						0825.5	0825.8	2				III
	0810	1450				0901.0	1430.1	1				IN
						0907.8	0908.0	1				IIIB
						1011.9	1012.7	1				IIIG
						1024.6	1024.9	1				IIIB
						1027.3	1027.8	3				IIIG
						1109.7	1109.9	1				IIIB
						1206.4	1209.3	3				IIIGG
			1208.2	1208.9		1206.6	1208.9	3				IIIG
						1214.7	1214.8	1				IIIB
						1226.6	1227.8	3				IIIG
						1245.3	1245.4	2				IIIG
						1245.3	1245.4	2				DCIM
						1255.4	1258.2	3				IIIG
			1257.4	1258.3	2	1257.4	1257.9	3				IIIG
						1301.3	1312.5	2				IIIG
						1318.7	1319.3	3				IIIG
						1327.0	1430.0	2				IIIS
						1343.7	1343.4	2				IIIG
						1343.7	1345.6	2				DCIM
						1425.2	1425.5	2				IIIG
						2022.0	2400.0					IIIS,W
	2022	2400				2022.0	2400.0	1				IS,C
												IIIG
			2159.5	2200.0	2							IS,C
			2212.0	2400.0	1							CONT
						2302.5	1039.0	1				DC,M
			2305.5		1							IIIN
			2311.0	2314.0	1							IIIN
						2323.5	2216.0	1				IIIN
05	0000	0722	0000.0	0722.0	1	0000.0	0722.0	1				IS,C,DC
						0005.5	0720.5	1				IIIN
						0025.5	0028.0	3	0026.0	0028.0	1	IIIGG
						0025.6	0028.0	2				III
						0105.0	0420.0					IIIS,W
						0620.6	0624.0	2				III
						0620.5	0624.0	3	0620.5	0623.0	2	IIIGG
	0810	1447	0621.0	0623.0	1	0810.0E	1447.0D	2				I
	0738	1447				0836.0	1445.0	2				IS
						1030.8	1032.1	1				IIIG
						1030.9	1032.3	3				IIIGG
						1110.4	1124.4	1				IIIG
						1208.8	1209.3	2				IIIG
						1444.8	1445.0	2				IIIB
						2022.0	2400.0	1				IIIS
	2022	2400	2022.0	2400.0	1	2022.0	2328.0	3				IS,C,DC
						2024.5	2356.0	1				RSDP,N
						2028.5	2242.0	2				IIIN
						2150.0	0947.0	1				CONT
						2328.0	2400.0	2				IS,C,DC
						2330.5	2332.0	3	2330.5	2332.0	2	IIIG
						2330.6	2332.3	2				III
06	0000	0723	0000.0	0723.0	1	0000.0	0723.0	1				IIIS
						0000.0	0723.0	1				IS,C,DC
						0001.0	0719.5	1				RSDP,N
						0200.0	0306.5	2	0200.0	0306.5	1	IIIN
						0200.0	0340.0	2				IS,C,DC
						0200.6	0201.1	1				III
						0228.6	0236.6	2				III
						0303.0		3	0303.0		1	IIIB

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Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
06			LEAR				0417.0	0417.6	1				III
			LEAR				0443.3	0447.8	3				III
			CULG				0444.0	0447.0	3	0444.0	0447.0	1	IIIGG
			LEAR				0622.6	0623.1	1				III
			CULG				0649.5		2				IIIB
			LEAR				0731.8	0741.1	2				III
	0740	1447	WEIS				0745.0	1445.0	3				IS,DC
	0822	1450	BLEN				0822.0E	1450.0D	2				IC
			WEIS				0825.7	0825.8	1				IIIB
			WEIS				0910.3	0913.9	1				IIIG
			LEAR				0932.8	0934.1	1				III
			WEIS				0932.8	0933.4	2				IIIG
			WEIS				0935.0	0935.1	1				IIIB
			WEIS				0942.2	0943.4	2				IIIG
			WEIS				0945.0	0948.9	2				IIIG
			WEIS				1002.1	1002.2	1				IIIB
			LEAR				1005.6	1007.0	2				III
			WEIS				1005.7	1007.4	3				IIIG
			BLEN				1005.8	1006.4	3				IIIV
			WEIS				1009.4	1013.8	2				IIIG
			WEIS				1027.2	1027.3	1				IIIB
			BLEN				1031.0	1331.5	2				III
			WEIS				1031.2	1031.6	2				DCIM
			WEIS				1056.0	1059.3	1				IIIG
			WEIS				1106.2	1106.8	1				IIIG
			WEIS				1120.6	1123.7	1				IIIG
			WEIS				1150.7	1153.3	2				IIIG
			WEIS				1253.1	1255.8	2				IIIG
			WEIS				1304.1	1305.5	2				DCIM
			BLEN				1304.2	1305.2	3				III
			BLEN	1304.2	1305.5	2							DCIM
			WEIS				1304.4	1306.2	2				IIIG
			SGMR				1304.6	1305.3	1				V
			WEIS				1341.7	1344.9	1				IIIG
			WEIS				1348.0	1348.2	2				IIIB
			WEIS				1356.3	1357.0	1				IIIG
			BLEN				1409.1	1416.6	2				IIIG
			WEIS				1409.1	1410.6	2				IIIG
			WEIS				1416.4	1417.1	3				IIIG
			SGMR				1806.1	1806.3	1				V
		SGMR				1841.3	1842.1	1				V	
		SGMR				1938.5	1940.0	1				III	
2023	2400	CULG	2023.0	2044.5	1							IN	
		CULG	2026.0	2027.0	3	2026.0	2113.5	3	2059.0	2059.5	3	IIIG,N	
		SGMR				2026.3	2026.6	1				III	
		LEAR				2258.3	2307.1	1				III	
		CULG				2303.5		2				IIIB	
		CULG				2323.0	2400.0	1				IS,DC	
		CULG				2323.5	2355.5	1				IIIN	
		LEAR				2332.1	2333.1	1				III	
		LEAR				2343.1	2343.3	1				III	
		LEAR				2355.5	2355.8	1				III	
07	0000	0723	CULG				0000.0	0723.0	1				IS,DC
			LEAR				0000.1	0001.3	2				III
			CULG				0000.5	0001.5	3	0000.5	0001.0	1	IIIG
			CULG				0001.5	0707.0	1				IIIN
			LEAR				0003.0	1040.0	1				CONT
			CULG				0017.5	0633.5	2				IIIN
			CULG				0138.0	0139.0	3	0138.0	0139.0	1	IIIG
			LEAR				0138.0	0139.8	2				III
			CULG	0357.0	0412.0	1							IIIG,N
			CULG				0411.0	0411.5	3	0411.0	0411.5	1	IIIG
			CULG	0440.5	0501.0	1							IS
			CULG	0450.0	0451.0	2							DC,M
			LEAR				0631.6	0633.3	2				III
			CULG				0632.0	0647.0	3				IIIG,N
			LEAR				0637.8	0647.0	2				III
			LEAR				0700.1	0708.6	3				III
			CULG				0700.5	0705.5	3				IIIGG
CULG				0708.0	0708.5	3				IIIG			

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Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
07	0741	1327	WEIS				0744.7	0745.9	2				IIIG
	1331	1446	WEIS				0757.0	1423.0	2				IN
			LEAR				0809.1	0810.8	3				III
	0809	1453	BLEN				0809.4E	1453.0D	2				I
			WEIS				0809.4	0810.6	3				IIIG
			WEIS				0826.0	0827.7	3				IIIG
			LEAR				0826.5	0836.3	2				III
			BLEN				0827.1	0834.9	2				IIIG
			WEIS				0833.4	0836.4	3				IIIG
			WEIS				0847.7	0848.3	1				IIIG
			LEAR				0904.5	0905.5	2				III
			WEIS				0904.7	0905.8	2				IIIG
			LEAR				0913.8	0935.0	3				II
			WEIS				0913.8	0933.2	3				II
			WEIS				0922.0	0923.6	2				IIIG
			BLEN				0922.2	0934.9	2				IIIGG
			BLEN				1015.5	1016.3	2				IIIG
			WEIS				1015.7	1016.1	1				IIIG
			WEIS				1034.4	1034.7	2				IIIG
			WEIS				1102.7	1103.2	2				IIIG
			WEIS				1134.6	1135.3	3				IIIG
			BLEN				1153.4	1153.5	1				III
			WEIS				1153.4	1153.9	2				IIIG
			WEIS				1203.7	1205.6	1				IIIG
			WEIS				1209.6	1209.7	1				IIIB
			BLEN	1219.5	1219.8	3							III
			WEIS	1219.5	1219.7	2							U
			BLEN	1223.3	1223.5	2							III
			WEIS	1223.3	1223.5	1							DCIM
			WEIS				1252.7	1253.2	3				IIIG
			WEIS				1314.2	1315.9	2				IIIB
	2023	2400	CULG				2023.5	2400.0					IS
			CULG				2024.0	2210.0					IIIS,W
		CULG	2026.0	2315.0	1							IN	
		CULG	2031.0	2306.0	2	2029.0	2342.0	1				IIIN	
		SGMR				2031.0	2335.5	3	2031.0	2317.0	3	IIIG,V,N	
		CULG	2034.5	2316.0	3	2031.3	2033.0	2				V	
		CULG				2104.0	2343.0	2				DCIM,N	
		LEAR				2156.0	2203.6	1				IIIN	
		LEAR				2221.8	2224.1	1				III	
		LEAR				2257.8	2244.8	1				III	
		LEAR				2258.6	2340.0	2				G	
		CULG	2340.0	2400.0	3	2343.0	2400.0	3				IV	
		CULG							2341.0	2400.0	3	SWF	
		LEAR				2342.3	2344.1	1				III	
		LEAR				2343.1	2343.3	1				III	
		CULG	2344.0	2346.0	3	2343.5	2400.0	3	2350.0	2400.0	3	II	
		LEAR				2344.1	0021.6	3				IV	
08		CULG							0000.0	0045.0	3	SWF	
		CULG										IS,DC	
	0000	0723	CULG	0000.0	0025.0	3	0000.0	0030.0	3			IV	
			CULG				0000.0	0023.5	3	0000.0	0013.5	3	II
			CULG				0003.0	0625.5	3				IIIN
			CULG				0017.0	0431.5	3	0017.0	0431.5	3	IIIG,N
			LEAR				0021.6	0000.0	1				CONT
			LEAR				0030.5	0030.8	2				III
			LEAR				0119.1	0124.0	3				III
			CULG	0119.5	0123.5	2	0119.0	0124.0	3	0119.5	0123.5	3	IIIGG,V
			CULG	0119.5	0124.0	3							DCIM
			CULG	0119.5	0533.5	2	0022.0	0719.5	2				IIIN
			CULG	0142.0	0638.5	1	0041.5	0721.5	1				IIIN
			CULG	0205.5	0208.5	3							DCIM
			LEAR				0205.6	0208.1	2				III
			CULG	0206.0	0208.0	1	0206.0	0208.0	3	0206.0	0208.0	2	IIIGG
			CULG				0210.5	0702.0	1				RSDP,N
		LEAR				0228.1	0233.1	3				III	
		CULG	0228.5	0234.0	3							DCIM	
		CULG	0229.5	0232.0	2	0228.0	0233.0	3	0228.5	0233.0	3	IIIGG	
		CULG				0233.5	0723.5	2				IS,DC	

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Observation		Decimetric Band			Metric Band			Dekametric Band			Spectral Type		
Day	Start (UT)	End (UT)	Sta	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)				
08			CULG					0255.0	0335.0	1	SWF		
			CULG	0358.0	0401.5	2					DC1M		
			LEAR				0421.1	0424.0	3		V		
			CULG	0421.5	0617.5	2					DC1M,N		
			LEAR				0430.3	0431.6	2		111		
			LEAR				0616.3	0626.1	2		111		
			LEAR				0725.8	0731.6	3		111		
			WE1S				0746.0	1416.0	2		IN		
	0741	0831	WE1S				0756.4	0756.7	2		111G		
			WE1S				0759.6	0759.9	2		DP		
			WE1S				0801.7	0803.7	1		111G		
			WE1S				0816.6	0817.3	2		111G		
			LEAR				0833.6	0837.1	2		111		
	0821	1457	BLEN				0833.8	0834.1	2		111		
			LEAR				0837.8	0841.8	3		111		
	0836	1445	WE1S				0837.8	0839.6	3		111GG		
			BLEN	0838.0	0838.8		0837.8	0838.9	3		111G,V		
			WE1S				0841.7	0841.9	3		111B		
			BLEN	0902.1	0902.2	1					111B		
			WE1S				0902.2	0902.4	2		111G		
			WE1S				0936.7	0937.3	1		111G		
			BLEN	0939.2	0942.2	2					111GG		
			WE1S				0943.7	0943.0	1		111G		
			BLEN	0955.6	0955.7	1					111B		
			BLEN	1001.3	1001.4	1					111B		
			WE1S				1010.6	1011.2	2		111G		
			WE1S				1022.4	1022.5	1		111B,DP		
			WE1S				1024.3	1026.3	3		111G		
			BLEN				1025.7	1026.0	2		111B		
			BLEN				1030.0	1457.0D			IN		
			WE1S				1031.7	1034.1	1		111G		
			WE1S				1036.7	1039.7	3		111G		
			WE1S				1042.9	1043.9	2		111G		
			BLEN	1108.4	1108.8	1					111		
			BLEN	1115.6	1116.0	3					111GG		
			WE1S				1115.6	1116.0	2		DC1M		
			WE1S				1202.7	1202.3	2		111B		
			BLEN				1209.1	1209.3			111		
			WE1S				1209.1	1209.3	3		111GU		
			WE1S	1216.3	1216.7	1					DC1M		
			BLEN	1230.5	1230.6	2					111		
			WE1S				1254.6	1254.9	2		111G		
			BLEN	1338.4	1357.8	3					DC1M		
			WE1S	1347.5	1358.0	2					DC1M,CONT		
			BLEN				1412.9	1457.0D	3		IV		
			WE1S				1421.4	1445.0	3		IV		
			WE1S				1421.8	1421.9	2		111B		
			WE1S				1424.7	1424.8	2		111B		
			WE1S				1426.6	1441.0	3		111GG		
			WE1S				1440.8	1445.0	3		CONT		
	2023	2400	CULG				2024.0	2314.0	1		RSDP,N		
			CULG	2029.0	2349.0	1	2038.5	2342.0	1		IN		
			CULG				2050.0	2302.0	1		111N		
			CULG				2051.0	2052.0	3		111G,U		
			CULG				2143.5		3		111B,U		
			LEAR				2240.0	1041.0	1		CONT		
			LEAR				2258.6	2340.0	2		G		
			CULG	2300.5	2302.5	1					111G		
			LEAR				2342.3	2344.1	1		111		
			CULG				2359.0	2359.5	2		111G		
09	0000	0724	CULG				0021.0	0724.0	1		IS		
			CULG	0033.0	0451.0	1					IN		
			CULG				0057.5	0721.0	1		RSDP,N		
			CULG	0155.0		1					111B		
			CULG	0232.0		3					111B		
			LEAR				0356.3	0359.6	2		111		
			CULG				0356.5	0358.5	3	0356.5	0358.0	2	111G,V
			LEAR				0404.3	0404.6	1			111	
			CULG	0404.5		3	0404.5		3			111B	
			CULG	0423.5	0459.5	2	0406.0	0644.0	2			111N	

S O L A R R A D I O E M I S S I O N
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Observation			Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
Day	Start (UT)	End (UT)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)		
09						0440.0	0441.0	3				IIIG,U	
	0830	1453				0904.3	0907.3	2				IIIG	
	0744	1445				0906.9	0907.1	2				IIIB	
						0916.2	0916.3	1				IIIB	
						0950.0	1453.0D	2				IN	
						1001.2	1001.3	2				IIIB	
						1028.3	1039.9	1				DP	
						1105.9	1108.7	2				IDP	
						1130.8	1131.0	2				IIIG	
						1132.9	1135.2	1				II	
						1158.8	1203.8	1				II	
						1254.0	1300.0	1				DP	
						1405.8	1406.0	2				IIIB	
	2024	2400				2024.0	2400.0	1				IS	
				2026.0		1	2026.0	2026.5	3				IIIG
				2031.0	2031.5	1	2029.0	2031.5	2				IIIN
							2243.0	1042.0	1				CONT
			2301.0		1							IIIG	
						2338.0	2339.0	1				IIIG	
10	0000	0724				0000.0	0536.5	1				IS	
						0017.5	0019.5	2	0017.5	0018.5	1	IIIG,V	
						0017.5	0022.0	2				III	
									0024.0	0028.5		SWF,W	
						0029.0	0031.5	1				II	
						0046.5		3				IIIG,U	
						0046.5	0046.6	1				III	
						0133.0	0722.0	1				RSDP,N	
						0210.0		2				IIIB	
				0235.0	0722.5	1						IN	
									0244.0	0255.0	1	SWF	
							0251.6	0252.0	1			III	
							0358.0	0359.0	3	0358.5	0359.0	3	IIIB
							0358.1	0358.6	2				III
										0408.0	0440.0	2	SWF
							0439.5	0716.0	2				IIIN
				0442.5		1	0442.5	0443.0	3				IIIG,U
							0532.0	0532.5	3	0532.5		3	IIIG
							0536.5	0724.5	2				IS
				0541.5	0544.0	2							DCIM
							0630.3	0631.0	2				III
	0745	1232											WEIS
							0809.8	0809.9	1				IIIB
	0830	1349					0830.0	1349.0					IN
	1254	1446					1336.0	1417.0	2				IN
							1340.5	1341.3	2				IIIG
							1730.0	0305.0	2				CONT
						2013.3	2013.8	2				III	
						2024.5	2400.0	3	2110.0	2146.5	2	IS,C	
2024	2400					2024.5	2400.0					IIIS,W	
						2026.0	2400.0	2				RSDP,N	
						2032.5	2345.0	3	2033.0	2034.5	3	IIIG,V	
						2032.8	2034.3	2				V	
			2057.5	2334.0	1							IIIN	
						2116.5		1	2116.5		1	IIIB	
			2147.0	2147.5	1	2147.5	2149.0	3	2148.5	2149.5	2	IIIG	
						2151.0	1042.0	1				CONT	
11	0000	0725				0000.0	0515.0					IIIS,W	
						0000.0	0725.0	2				IS,C	
						0001.0	0724.0	2				RSDP,N	
						0002.0	0515.0	1				IIIN	
						0003.0	0102.0	2	0003.0	0651.0	2	IIIN	
						0003.0	0003.3	1				III	
						0031.8	0032.6	3				III	
						0031.8	0032.5	3				V	
						0032.0	0032.5	3	0032.0	0325.0	2	IIIG,V	
				0033.5	0147.0	1							IS
							0102.0	0137.0	2				IIIS
							0122.0		3				IIIB,U
							0137.0	0515.0	2				IIIN

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Observation		Decimetric Band			Metric Band			Dekametric Band			Spectral Type	
Day	Start (UT) End (UT) Sta	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)		
11	CULG	0141.0	0142.0	3	0141.0	0142.0	3				11IG	
	CULG	0147.0	0702.0	1							IN	
	CULG				0352.0			3	0352.0		1	11IB
	LEAR				0439.1	0443.3	3					11I
	CULG	0439.5	0442.0	2	0439.0	0443.0	3		0439.0	0443.0	3	11IGG,V
	CULG								0443.0	0505.0	2	SWF
	CULG				0446.0	0508.0	3					11
	CULG				0500.0	0725.0	3					RSDP,N
	CULG				0515.0	0725.0	1					11IS
	CULG				0623.5			3				11IB
	WEIS				0749.0	1444.0	3					IS
	0746 1444	WEIS				0749.0	1444.0	2				CONT
		WEIS				0918.0	1343.0	2				11IN,DP
	0835 1456	BLEN	0929.7	0930.1	2							11IG
		LEAR				0947.8	0952.0	2				11I
		WEIS				0948.0	0951.9	3				11IGG
		BLEN	0949.4	0949.9	2							11IG
		SGMR				1401.1	1807.6	1				CONT
		SGMR				1405.5	1409.1	1				V
		SGMR				1536.3	1538.0	3				V
	SGMR				1946.6	1957.1	2				V	
	CULG				2025.0	2400.0					11IS,W	
2025 2400	CULG	2025.0	2210.0	1	2025.0	2400.0	3				IS,C,DC	
	CULG				2025.0	2148.5	2				S,RSDP	
	CULG				2049.5	2050.0	2				11IG	
	CULG				2057.0	2111.0	3	2056.5	2109.0	2	11IS	
	CULG				2112.0	2132.0	3				11	
	LEAR				2151.0	1043.0	2				CONT	
	CULG	2201.5	2202.0	1							11IG	
12	0000 0713	CULG			0000.0	0713.0	3				IS,C,DC	
		CULG	0421.5	0713.0	1						IS	
		WEIS				0809.0	1445.0	2				ISDP
	0747 1445	WEIS				0809.0	1436.0	2				CONT
		WEIS				1037.4	1037.9	1				11IB
		WEIS				1051.8	1051.9	2				DCIM
	0838 1246	BLEN	1055.2	1055.3	2							11IB
		WEIS				1055.2	1055.3	2				11IB
		BLEN	1132.7	1132.9	2							11IG
		WEIS				1132.7	1133.2	2				11IG
		BLEN	1147.1	1147.2	2							11IB
		WEIS				1147.1	1147.3	2				11IG
		WEIS				1149.3	1149.6	1				DCIM
		BLEN	1204.0	1204.1	2							11IB
		WEIS	1204.0	1204.3	2							DCIM
		PALE				1706.0	0300.0	2				CONT
		PALE				1930.0	0322.0	2				CONT
		CULG				2026.0	2400.0	1				11IS
	2026 2400	CULG	2026.0	2400.0	1	2026.0	2400.0	3				IS,C,DC
		CULG				2027.5	2400.0	1				RSDP,S
	CULG				2050.5	2353.0	2				11IN	
	CULG	2136.0	2137.5	1							11IN	
	LEAR				2152.0	1044.0	1				CONT	
	CULG	2311.0	2311.5	3	2311.5		3				11IG	
13	0000 0726	CULG			0000.0	0649.0	1				11IS	
		CULG	0000.0	0726.0	1	0000.0	0726.0	2				IS,C,DC
		CULG				0004.5	0649.5	1				RSDP,N
		CULG				0010.0	0649.0	2				11IN
		CULG	0134.5	0136.0	2							11IG
		CULG	0257.5	0258.0	3	0257.5	0258.0	3				11IG
		LEAR				0323.8	0330.0	3				V
		CULG	0324.0	0327.5	3	0324.0	0329.5	3	0324.0	0329.0	3	11IGG,V,Z
		CULG	0325.5	0328.0								CONT,W
		CULG							0327.5	0342.0	2	SWF
		LEAR				0347.3	0352.8	1				11I
		CULG				0403.5	0404.5	2	0404.0	0404.5	1	11IG
		CULG				0641.5	0724.5	2				RSDP,N
		CULG				0649.0	0726.0	2				11IS
	0740 1134	WEIS				0753.0	1445.0	3				CONT
1140 1445	WEIS				0758.0	1439.0	2				IDP	

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Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
15			CULG						2153.0	2205.0	1	SWF	
			CULG	2159.5	2400.0	1						IS	
			CULG				2201.0	2223.5	1			IIIS	
			CULG	2201.5	2202.0	2						CONT	
			LEAR				2227.0	0249.0	1			CONT	
16	0000	0727	CULG	0000.0	0334.0	1						IN	
			CULG				0000.0	0105.0	1			IS,C,DC	
			CULG				0105.0	0206.0				IS,W,C	
			CULG				0320.5	0539.0	1			IIIN	
			LEAR				0423.0	0425.8	1			III	
			LEAR				0524.1	0532.1	1			III	
			CULG				0524.5		3			IIIG	
			CULG	0535.5	0538.0	2						IS	
			CULG	0625.0	0729.5		0617.5	0729.5				IS,W	
			LEAR				0724.6	0725.0	1			III	
			LEAR				0739.8	0740.3	1			III	
			LEAR				0814.3	0816.3	1			III	
	0830	1455	BLEN				0950.5	1455.00	2			IN	
	0750	1122	WEIS				0951.3	0956.3	2			IIIG	
			LEAR				0952.1	0955.5	1			III	
			WEIS				0959.8	1026.0	3			DCIM	
			BLEN	1002.7	1020.9	2	1002.7	1115.0	3			IV	
			WEIS				1002.8	1026.2	3			IIIGG	
			LEAR				1004.1	1025.0	2			GG	
			WEIS				1004.3	1050.0	3			IV	
			WEIS				1129.3	1443.5	2			IN	
	1129	1445	WEIS				1144.0	1244.0	2			IIIN	
			WEIS				1209.6	1216.2	3			IIIGG	
			BLEN	1214.5	1215.6	2						IIIGG	
			BLEN				1240.3	1244.3	3			IIIGG	
			WEIS				1418.2	1427.1	3			IIIGG	
			SGMR				1418.3	1420.5	1			V	
			BLEN	1419.2	1426.8	3	1418.0	1435.2	3			IIIGG,V	
			WEIS				1435.0	1435.3	2			IIIG	
			SGMR				1522.5	1622.1	1			CONT	
			SGMR				1653.6	1654.1	1			V	
			SGMR				1720.6	1720.8	1			III	
			PALE				1730.0	0322.0	2			CONT	
	2027	2400	CULG				2035.0	2050.0	2			IIIS	
			CULG	2040.5	2041.0	2						IS	
			CULG				2102.0	2321.5	1			IIIN	
			CULG				2106.0	2118.5	2	2111.5	2118.5	1	IIIG,N
			LEAR				2250.5	2250.8	1			III	
17	0000	0727	CULG				0145.5	0158.0	3	0146.5	0159.0	3	IIIS
			LEAR	0145.5	0149.5	3	0146.1	0146.6	2			III	
			CULG							0147.0	0205.0		SWF,W
			CULG	0147.5	0151.5	3	0149.5	0153.5	3			II	
			LEAR				0148.1	0201.6	3			GG	
			PALE				0148.1	0158.1	3			II	
			CULG	0148.5	0158.0	2						CONT	
			CULG				0201.5	0236.0	1	0208.0	0212.5	1	IIIS
			LEAR				0204.6	0835.0	1			CONT	
			CULG				0307.5	0308.5	1			DC	
			CULG				0325.0	0727.5				IS,W,C	
			CULG				0440.0	0442.5	2			IIIG	
			CULG	0519.5	0521.0	1						DCIM	
			CULG				0701.0	0701.5	3			IIIG	
			LEAR				0701.1	0701.5	2			III	
	0750	1009	WEIS									IIIG	
	1053	1445	WEIS				1108.3	1108.6	1			IIIG	
			WEIS				1134.8	1135.4	3			IIIGG	
	0830	1455	BLEN				1134.9	1135.3	3			IIIG	
			WEIS				1253.3	1253.6	1			IIIG	
			PALE				1900.6	1906.6	2			II	
			SGMR				1900.6	1913.8	2			V	
			CULG				2032.5	2045.0	3			II	
	2030	2400	CULG	2033.5	2057.5	1	2030.0	2157.0	2			IS,C	
			CULG	2111.5	2150.5	2						CONT	

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	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
17			CULG				2116.0	2159.5	3	2126.0	2159.0	2	IIIS CONT V
			CULG	2146.5	2148.0	1							
			LEAR				2146.5	2150.0	2				
			CULG				2148.0	2155.0	3				II
			CULG							2150.0	2158.0		SWF,W
			CULG							2251.0	2310.0		SWF,W
18	0000	0728	LEAR				0001.8	0002.3	1				III
			CULG				0117.5	0120.0	2	0117.5	0120.0	1	IIIG
			LEAR				0117.5	0119.8	1				III
			CULG				0210.0	0542.5	2	0210.0	0421.5	2	IIIN
			LEAR				0210.0	0231.3	1				G
			CULG				0226.0	0635.0	1				IIIN
			CULG	0301.0	0302.5	1							DCIM
			CULG				0301.5	0302.0	3	0301.5	0302.5	2	IIIG
			LEAR				0301.5	0308.3	1				V
			CULG				0353.0	0353.5	3				IIIB
			LEAR				0353.1	0400.3	1				V
			LEAR				0420.6	0421.1	1				III
			CULG	0447.5	0455.0	1							DCIM,N
			CULG	0500.5	0702.0	1							IN
			LEAR				0508.3	0518.6	1				CONT
			LEAR				0542.0	1047.0	1				CONT
			CULG				0551.0	0615.5	2				IIIS
			CULG				0559.0	0633.5	3	0633.0	0633.5	3	IIIN
			CULG	0633.5	0635.0	1	0622.0	0635.0	2				IIIN
			LEAR				0816.1	0836.3	3				GG
1082	1505		BLEN				0823.2	0827.8	3				IIIGG
			BLEN				0831.2	0832.0	2				I
			BLEN	0832.7	0834.9	3	0832.7	0834.9					II
0843	1207		WEIS										IIIG
			BLEN	0907.8	0980.2	3							DCIM
			BLEN	0913.3	0936.4	3	0913.3	0936.4	3				IN
			BLEN				0954.8	1505.00					DCIM
			BLEN	1247.8	1305.5	3	1247.8	1305.5	3				DCIM
1257	1427		WEIS										DCIM
			BLEN	1352.2	1411.4	3	1356.6	1409.2	3				V
			SGMR				1357.1	1358.0	1				III
			SGMR				1359.8	1400.0	2				III
			SGMR				1504.1	1509.6	2				III
			PALE				1722.0	0000.0	2				CONT
			PALE				1723.0	0310.0	2				CONT
2028	2400		CULG				2034.0	2349.5	1				IN
			CULG	2053.0		1	2053.0		1				IIIB
			CULG				2122.5	2356.5	1	2320.0	2359.0	1	IIIN
			CULG	2152.5		3	2152.5		1				IIIG
			LEAR				2159.0	1047.0	1				CONT
			CULG				2200.0	2201.0	2				IIIGV
			CULG	2240.5	2241.0	2	2241.0	2245.5	2				IIIN
			CULG	2241.0	2357.5	1							DCIM,N
19	0000	0728	CULG	0059.0	0100.5	2							DCIM
			CULG				0122.5	0644.5	1				IIIN
			LEAR				0133.3	0140.6	2				GG
			CULG				0133.5	0141.0	3	0133.5	0140.0	3	IIIS
			CULG	0134.0	0139.0	1	0134.0	0140.0	3				IS
			CULG	0136.0	0140.0	3							CONT
			CULG							0138.0	0146.0		SWF,W
			CULG	0140.0	0156.0	1							IV
			CULG				0141.5	0144.0	1				II
			LEAR				0225.6	0232.5	2				III
			CULG	0226.0	0232.5	2	0225.5	0232.5	3	0226.0	0232.5	3	IIIG,N
			LEAR				0447.6	0455.1	2				V
			CULG	0448.5	0449.0	2	0448.5	0450.0	3	0448.5	0450.0	3	IIIG,V
			CULG				0452.5	0455.0	2				IIIG,G
			CULG	0453.0	0454.5	2							DCIM
			CULG	0453.0	0454.5	2							IS
			CULG				0503.0	0720.0	2				IIIN
			CULG	0526.5	0720.0	3							DCIM,N
			CULG				0614.5	0724.5	3	0614.5	0724.5	2	IIIG,N
			LEAR				0624.1	0624.6	2				III

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Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
19			LEAR				0635.1	0642.0	2				III
			LEAR				0644.3	0654.0	3				III
			CULG				0645.5	0654.0	3	0646.0	0653.0	3	IIIG,G,N
			LEAR				0719.1	0720.1	2				III
			LEAR				0852.8	0911.0	2				GG
	0831	1052	WEIS				0853.0	0906.3	3				IIIG
	0820	1505	BLEN				0854.1	0907.3	3				IIIGG
			BLEN	0904.6	0913.6	3							DCIM,C
	1105	1445	WEIS										
			PALE				1722.0	0315.0	2				CONT
			SGMR				2006.3	2007.1	1				V
	2029	2400	CULG				2119.5	2121.5	2				IIIG
			CULG	2250.0	2258.5	1							DCIM,N
			CULG				2250.5	2251.0	2				IIIG
		LEAR				2250.6	2252.1	1				III	
		LEAR				2257.0	2322.0	1				CONT	
		CULG				2258.0	2258.5	1	2258.0	2258.5	1	IIIG	
20	0000	0729	CULG				0000.5	0001.5	2	0001.0	0002.0	1	IIIG
			LEAR				0000.6	0001.1	1				III
			CULG							0023.0	0027.0		SWF,W
			LEAR				0049.8	0054.5	1				III
			CULG				0050.0	0235.0	1				IIIN
			CULG				0125.0	0128.0	3				IIIG,V
			LEAR				0126.0	0128.1	2				V
			LEAR				0128.8	0147.6	2				II
			CULG				0129.0	0143.0	3				II
			LEAR				0234.6	0235.1	1				H
			LEAR				0244.3	0244.6	1				III
			CULG				0244.5	0245.0	2	0244.5	0245.0	2	IIIB
			LEAR				0330.0	0331.3	1				III
			LEAR				0339.0	0342.6	3				V
			CULG				0339.5		2				IIIB
			CULG	0340.5	0341.0	3	0340.5	0342.5	3	0340.5	0342.5	3	IIIG,V
			LEAR				0357.3	0359.6	1				III
			CULG				0357.5	0359.5	2	0357.5	0359.5	2	IIIG
			LEAR				0416.3	0417.6	1				III
			CULG	0417.0		1	0416.5	0418.0	3	0416.5	0418.0	3	IIIG
			LEAR				0655.3	0655.6	1				III
			CULG				0655.5		2				IIIB
			LEAR				0701.1	0702.3	1				III
			CULG				0701.5	0703.0	1				IS
			LEAR				0709.3	0710.8	1				III
			CULG				0709.5	0710.5	2				IIIG
			LEAR				0713.5	0759.0	1				CONT
	0801	1444	WEIS				0854.6	0855.3	2				IIIG
	0820	1505	BLEN	0858.2	0901.6	2	0859.4	0904.5	3				DCIM,IIIGG
			LEAR				0859.0	0911.1	2				GG
			WEIS				0859.4	0901.1	3				IIIGG
			WEIS				0903.9	0906.3	3				IIIG
			WEIS				0923.3	0925.3	3				IIIG,RS
		BLEN				0924.3	0925.4	3				IIIG	
		LEAR				0924.3	0926.1	1				III	
2030	2400	CULG				2226.0	2337.0	2				IIIG,N	
		LEAR				2226.1	2227.3	1				III	
		LEAR				2251.3	2252.1	1				III	
		CULG				2251.5		3				IIIB	
		LEAR				2303.5	2304.0	1				III	
21	0000	0730	LEAR				0039.8	0040.6	1				III
			CULG				0040.0	0040.5	3				IIIG
			CULG				0042.0	0638.0	2				IIIN
			CULG				0043.0	0637.0	1				IIIN
			LEAR				0112.8	0113.1	1				III
			LEAR				0202.5	0204.3	1				III
			LEAR				0212.0	0216.3	2				V
			CULG				0213.0	0215.0	3	0213.0	0214.0	2	IIIG
			CULG							0214.0	0221.0	2	SWF
			LEAR				0254.0	0254.3	1				III
			LEAR				0325.3	0325.6	1				III
			LEAR				0452.6	0500.6	1				III

S O L A R R A D I O E M I S S I O N
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Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	
21			CULG				0506.0	0508.0	1	0502.5	0522.0	2	SWF
			CULG				0518.0	0534.0	1				II
			LEAR				0525.0	0532.0	1				CONT
			CULG				0612.5	0615.0	3	0613.0	0614.5	1	II
			CULG				0612.5	0614.3	2				IIIG,G
			LEAR				0624.6	0625.0	1				III
			LEAR				0636.6	0637.1	1				III
			LEAR				0637.6	0638.1	1				III
			CULG				0645.5	0649.0	3	0646.0	0647.0	3	IIIG,V
			LEAR				0645.6	0649.6	3				V
	0815	1505	BLEN				1117.2	1117.4	2				IIIG
	0754	1447	WEIS				2055.0	2056.0	2				IIIG
	2050	2400	CULG				2116.0	2117.5	2				IIIG
			CULG				2308.0	2310.0	1				IIIG
			LEAR				2309.5	2312.6	1				III
			CULG				2310.0		2				IIIB
			CULG				2312.0	2312.5	3	2312.0	2312.5	3	IIIG
			CULG				2326.0	2337.0	1				IIIN
			LEAR				2328.0	2329.1	1				III
			LEAR				2358.8	0000.5	1				III
			CULG				2359.0	2359.5	2	2359.0	2400.0	2	IIIG
22	0000	0730	CULG				0002.0	0002.5	1				IIIG
			CULG				0107.0		2				IIIB,U
			CULG				0133.0	0134.5	3	0134.0	0135.0	2	IIIG,V
			LEAR				0133.1	0139.5	2				III
			CULG	0207.0	0209.0	1	0207.0	0209.0	3	0207.5	0209.5	2	IIIG,G,V
			LEAR				0207.3	0209.8	2				V
			CULG				0421.0	0421.5	1				IIIG
			LEAR				0421.3	0421.8	1				III
			LEAR				0514.6	0515.3	1				III
			LEAR				0538.5	0542.0	1				III
			CULG				0541.5	0542.0	2				IIIG
			CULG				0705.0	0711.0	1				IIIN
			LEAR				0708.8	0711.3	1				III
			LEAR				0845.6	0853.8	1				III
			LEAR				0915.3	0915.5	1				III
			LEAR				0924.3	0933.6	1				III
	0815	1510	BLEN				0932.2	0933.4	2				IIIG
	0754	1422	WEIS				0932.2	0933.7	2				IIIG
	1427	1447	WEIS				0937.7	0938.2	1				IIIG
			WEIS				1024.9	2025.7	3				IIIG
			LEAR				1025.1	1025.6	1				III
			BLEN	1032.2	1033.1	2							III
			WEIS	1032.2	1033.2	2							DCIM
			WEIS				1034.9	1035.1	2				IIIB
			WEIS				1242.9	1244.2	1				IIIG
			BLEN				1413.2	1414.0	2				IIIG
			SGMR				1413.3	1414.1	1				V
			WEIS				1413.3	1414.4	3				IIIG
	1427	1447	WEIS				2049.0	2121.0	1				IIIN
	2031	2400	CULG				2119.5	2242.0	2				IIIN
			CULG				2241.1	2242.0	1				III
			LEAR				2346.0	2347.0	3	2346.5	2347.0	1	IIIG
			CULG	2346.0	2347.0	1	2346.0	2347.0	3				III
			LEAR				2346.3	2347.0	2				III
23	0000	0731	CULG				0016.5	0537.0	2	0017.0	0018.0	1	IIIN
			LEAR				0016.6	0018.3	1				III
			CULG				0027.0	0231.5	1				IIIN
			LEAR				0213.3	0213.6	1				III
			CULG				0229.5	0230.0	3	0229.5	0230.0	2	IIIG
			LEAR				0229.5	0230.0	2				III
			LEAR				0508.0	0510.3	2				III
			CULG	0508.5	0509.0	2	0508.0	0510.0	3	0508.0	0510.0	3	IIIG,V
			CULG				0516.5	0558.0	1				IIIN
			LEAR				0526.6	0527.5	1				III
			LEAR				0535.8	0541.1	1				III
			CULG				0728.0	0730.0	3				IIIG

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23						0728.0	0731.8	1				III
						0746.3	0748.3	1				III
						0856.0	0856.6	2				III
	0750	1448				0856.1	0856.6	3				IIIG
						1143.8	1144.4	2				IIIG
						1147.2	1150.6	2				IIIG
	0815	1301				1155.3	1155.9	2				IIIG
						1155.6	1155.8	2				IIIG
						1427.9	1429.0	3				IIIG,U
						1428.0	1428.5	1				III
	2031	2400				2038.0	2038.5	2				IIIG
			2239.5	2240.0	2	2239.0	2240.5	2	2240.0		1	IIIG
						2239.8	2240.3	1				III
						2258.5	2335.5	1				IIIN
						2331.8	2334.1	1				III
						2333.0		2				IIIB
						2346.3	2347.0	2				III
24	0000	0731				0047.0	0129.5	2				IIIN
						0047.1	0047.8	1				III
						0115.0	0311.5	1				IIIN
						0115.3	0115.6	1				III
						0124.3	0129.3	2				III
						0124.5	0126.5	3	0125.0	0126.0	3	IIIGV
						0124.6	0125.6	2				V
						0126.5	0127.5	3	0127.0	0127.5	1	IIIG
						0147.0	0149.0	1				IIIG
						0147.0	0149.1	2				V
			0148.0		1	0148.0		3	0148.0		2	IIIB
						0208.5	0209.0	1				III
						0303.1	0303.3	1				III
						0303.5		2				IIIB
						0453.5	0454.5	3				IIIG,U,V
						0453.8	0454.5	1				III
						0542.0		2				IIIB
	1021	1448				1202.3	1206.3	2				IIIG
						1212.5	1212.8	2				IIIB
						1214.7	1215.7	2				IIIG
						1243.3	1244.4	3				IIIG
						1248.1	1249.3	2				IIIG
						1313.9	1314.2	2				IIIG
						1316.6	1316.9	3				IIIB
						1318.5	1319.0	3				IIIG
						1928.8	1929.1	2				III
						1937.8	1940.1	2				III
	2032	2400				2032.0	2255.0	1				IIIN
						2107.5	2256.5	2				IIIN
						2108.5	2125.0	3	2124.0	2125.0	3	IIIN,U
						2108.5	2110.3	1				III
						2124.3	2124.8	2				III
						2253.0	2256.5	1				III
						2338.0	2338.5	3				IIIB,U
						2344.0	2345.0	3				IIIG,U
						2344.1	2345.0	1				III
25	0000	0732				0127.8	0129.1	2				III
			0128.5	0129.0	1	0128.0	0129.0	3	0128.5	0129.0	1	IIIG
						0147.1	0147.5	1				III
						0147.5	0520.5	1				IIIN
						0206.0	0210.3	1				III
						0209.5	0656.0	2				IIIN
			0243.5	0244.0	1	0243.5	0244.0	3				IIIG,U
						044.1	0244.3	1				III
			0410.5		1	0410.0	0410.5	3				IIIG,U
			0418.5	0505.0	1							IN
						0649.3	0649.5	1				III
						0654.0	0655.0	3				IIIG
						0654.1	0655.1	1				III
						0759.0	0911.0	1				IN
	0756	1334				0759.0	0847.0	3				CONT
						0841.6	0842.0	2				DCIM,U

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25						1155.1	1155.5	2				IIIG	
						1203.1	1204.9	2				IIIG	
						1207.6	1207.8	1				IIIG	
						1223.3	1223.8	2				IIIG	
						1250.7	1252.7	3				IIIG	
						1251.3	1252.1	1				III	
						1255.3	1255.7	2				IIIG	
						1309.8	1310.0	2				IIIB	
						1345.0	1346.5	1				V	
	1336	1449				1444.8	1446.9	3				IIIG	
						1454.3	1454.7	2				DCIM,RS	
						1754.1	1758.5	1				V	
						1754.3	1758.8	1				III	
						1947.6	1947.8	1				III	
						2009.8	2010.8	2				V	
						2032.0	2400.0					IIIS,W	
	2032	2400				2032.0	2400.0	1				IS,DC	
						2034.5	2353.0	1				IIIN	
						2059.0	2359.0	3		2131.5	2358.0	3	IIIG,N
						2129.5	2219.5	2					IIIN
				2129.5	2138.0	1							IIIS
						2131.1	2132.0	2					III
						2218.1	2218.8	3					III
						2218.3	2218.6	2					III
						2330.0	1051.0	1					CONT
					2344.1	2345.0	1					III	
					2357.3	2358.5	2					III	
					2357.3	2357.6	1					III	
26						0000.0	0732.0					IIIS,W	
	0000	0732				0000.0	0732.0	1				IS,DC	
						0001.5	0726.0	1				RSDP,N	
						0011.0	0015.5	3				III	
						0011.1	0015.0	3				II	
				0011.5	0015.5	2	0010.5	0015.5	3	0011.0	0015.5	3	IIIGG,V
				0012.0	0014.5	2							CONT
				0012.0	0015.0	2							DCIM
									0015.0	0018.0			SWF,W
							0019.0	0021.5	2				IIIG
							0148.0	0729.0	1				IIIN
							0254.5	0255.0	2				IIIG
							0254.8	0255.1	1				III
				0700.0		2							IIIG
	0756	1450					0803.0	1450.0	2				IS
							0807.0	1336.0	2				IIIN,DP
							0929.0	0937.0	3				III
							0929.1	0937.0	3				IIIGG
							0954.3	0956.5	2				III
							0955.4	0957.6	3				IIIG
							1035.4	1035.6	2				IIIG
							1037.8	1043.6	3				IIIGG
							1039.8	1041.1	2				III
							1042.2	1043.3	2				IIIG
	1020	1508					1139.3	1144.2	2				IIIG
						1143.9	1144.8	3				IIIG	
						1159.3	1200.8	3				IIIG	
						1254.9	1311.2	2				IIIGG	
						1256.2	1311.2	1				IIIG	
						1404.7	1404.9	2				IIIB	
						1404.8	1405.0	1				III	
						1416.2	1416.4	1				IIIG	
						1416.2	1416.9	2				IIIG	
						1416.6	1417.0	1				V	
						1430.1	1430.4	1				DCIM	
						1432.4	1434.7	2				IIIGG	
			1433.5	1433.7	3	1430.0	1434.4	2				IIIGG	
						1454.3	1454.6	1				III	
						1459.7	1508.0	2				IN	
						1459.8	1510.8	2				V	
						1924.5	1925.1	1				III	
						1924.5	1925.0	1				V	

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26						2025.8	2032.1	1				III
	2032	2400				2032.0	2400.0	1				IIIS
						2032.0	2400.0	2				IS,C,DC
						2032.5	2356.5	1				RSDP,N
						2034.5	2356.5	2				IIIN
			2044.0	2400.0	1							IN
						2217.5	2308.5	3	2243.0	2259.0	1	IIIG
						2218.3	2218.6	1				III
						2240.0	1051.0	1				CONT
						2258.3	2258.8	1				III
						2258.3	2258.6	2				III
27						0000.0	0732.5					IIIS,W
	0000	0732				0000.0	0732.5	1				IS,C,DC
			0000.0	0725.0	1							IN
						0003.0	0639.0	1				RSDP,N
						0012.5	0707.0	2				IIIN
						0029.5	0654.0	1				IIIN
						0054.5	0732.0	3				IIIN
						0119.8	0120.0	1				III
			0159.5	0200.0	3	0159.5	0200.0	1				IIIG
						0311.8	0317.0	2				III
						0312.0	0317.0	3	0312.0	0317.0	2	IIIGG
						0316.5	0316.8	2				III
						0432.0	0436.0	3				IIIG
						0432.1	0435.8	2				III
						0455.5	0512.0	1				II
						0523.5	0529.6	3				III
			0524.0	0528.5	3	0523.5	0529.5	3	0523.5	0529.0	3	IIIGG
			0524.0	0529.5	3							DCIM
0756	1449											IS,DC
						0814.3	0824.0	2				III
						0814.4	0816.3	3				IIIGG
						0820.0	0824.3	3				IIIG
						0842.6	0843.3	2				IIIG
0830	1500					0900.0	1500.0D					IC
						0905.6	0905.7					IIIB
						0947.7	0947.8	1				IIIB
						0949.0	1405.0	2				CONT
						1005.2	1005.9	1				IIIG
						1128.7	1138.8	3				IIIGG,DCIM
			1134.3	1136.3	3	1129.7	1137.7	2				IIIGG
						1143.3	1143.9	2				IIIG
						1202.9	1203.0	2				IIIG
			1232.1	1233.8	2							DCIM
			1232.2	1233.8	3							IIIG
						1244.0	1249.8	2				IIIG,DCIM
			1249.2	1249.8	2							IIIG
						1325.3	1325.4	2				IIIB
						1838.3	1838.6	2				III
						1838.5	1838.8	2				V
						1842.0	1842.3	2				V
						1842.0	1842.3	1				V
						1944.3	1944.6	2				III
						2033.0	2400.0	1				IIIS
2033	2400					2033.0	2400.0	2				IS,C,DC
			2037.0	2318.5	1							IN
			2037.5	2038.0	1	2037.5	2308.0	3				IIIN
						2042.5	2359.5	1				RSDP,N
						2044.0	2233.0	2				IIIN
						2051.6	2052.3	2				V
						2159.0	1051.0	1				CONT
			2236.0	2339.5	2	2236.0	2340.0	3	2236.0	2339.5	2	IIIG,N
						2236.0	2237.8	2				III
						2236.0	2237.6	3				III
						2249.8	0325.0	2				CONT
						2304.3	2305.6	1				III
						2331.8	2332.5	1				III
						2338.3	2339.8	2				III
						2339.3	2339.6	2				III
28						0000.0	0733.0	1				IIIS

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28	0000	0733	CULG				0000.0	0647.5	2				IS,C,DC				
			CULG				0012.5	0710.0	1				RSDP,N				
			CULG				0015.5	0717.5	2	0145.5	0600.0	1	III N				
			LEAR				0027.5	0030.5	2				III				
			CULG	0028.5	0036.5	1	0027.5	0033.0	3	0027.5	0340.0	1	IIIG,N				
			CULG	0139.0	0704.5	1							IN				
			LEAR				0212.1	0213.3	2				III				
			CULG	0256.0	0311.0	2	0212.0	0304.0	3				IIIG,N				
			LEAR				0257.3	0304.1	1				III				
			LEAR				0543.8	0544.1	2				III				
	0757	1428	WEIS	CULG	0544.0	0619.0	2	0537.5	0652.0	3	0544.0	0608.0	2	IIIG,N			
				LEAR				0606.5	0608.5	3				V			
				LEAR				0618.8	0619.1	1				III			
				CULG				0647.5	0733.0	3				IS,C,DC			
				LEAR				0652.0	0652.3	2				III			
				1433	1451	WEIS	WEIS				0801.0	1451.0	2				IN,DPRSDC
							WEIS				0803.0	1144.0	2				CONT
							WEIS				0822.0	1303.0	2				III N
							WEIS				0834.3	0836.6	3				IIIGG
							0830	1455	BLEN	LEAR				0834.4	0840.7	2	
	LEAR										0834.5	0836.5	2				III
	LEAR										0839.6	0839.8	1				III
	WEIS										0839.7	0839.9	2				IIIG
	LEAR										0856.6	0857.8	2				III
	BLEN										0856.7	0857.2	2				IIIG
	WEIS				0856.8	0857.3				3				IIIG			
	WEIS				0934.8	0937.1				2				IIIG			
	BLEN				0936.2	0936.8				1				III			
	WEIS				1132.2	1136.1				3				IIIGG			
	BLEN				1132.5	1135.9	2				IIIGG						
	BLEN				1158.3	1201.8	2				IIIG						
	WEIS				1158.4	1158.7	3				IIIG						
WEIS				1201.4	1201.9	3				IIIG							
SGMR				1422.0	0000.0	1					CONT						
BLEN				1430.4	1431.5	2					IIIGG						
SGMR				1430.8	1431.5	1					III						
WEIS				1433.0	1451.0	2					CONT						
SGMR				1451.1	1457.3	1					III						
SGMR				1551.0	1553.1	1					III						
CULG				2033.5	2400.0	1					IIIS						
2033	2400	CULG	CULG				2033.5	2400.0	2				IS,C,DC				
			CULG				2037.5	2248.5	1				RSDP,N				
			CULG				2045.0	2356.5	3	2045.0	2322.5	2	IIIG,N				
			CULG				2052.5	2351.0	2				III N				
			LEAR				2202.0	1052.0	1				CONT				
			LEAR				2225.3	2226.1	1				III				
			CULG	2236.5	2238.0	3							III N				
			CULG	2245.0	2349.0	2							III N				
			PALE				2249.8	0000.0	2				CONT				
			CULG	2259.0	2300.0	1							IS				
29	0000	0733	CULG				0000.0	0235.0	2				IS,C,DC				
			CULG				0000.0	0733.5	1				IIIS				
			CULG				0024.5	0027.5	3	0024.5	0028.0	2	IIIG				
			LEAR				0024.5	0027.6	2				III				
			PALE				0024.5	0028.1	2				III				
			CULG				0036.5	0732.5	2				III N				
			CULG				0235.0	0733.5	1				IS,C,DC				
			CULG	0244.0	0244.5		0244.0	0245.0	3	0244.0	0245.0	3	IIIG				
			LEAR				0244.0	0245.1	2				III				
			PALE				0244.3	0244.5	2				III				
			CULG				0350.0	0351.0	3				IIIG,U				
			LEAR				0612.3	0614.0	2				III				
			CULG				0612.5	0613.5	3	0612.5	0613.5	3	IIIG				
			LEAR				0629.8	0631.8	2				III				
			CULG				0630.0	0631.5	3	0631.0	0631.5	3	IIIG				
			CULG	0644.5	0645.5	3	0644.5	0645.0	2				IIIG				
			CULG	0644.5	0659.5	3							IV				
			CULG							0645.0	0652.0	1	SWF				
CULG				0645.5	0711.0	3				II							
LEAR				0647.6	0711.5	2				II							

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Day	Start (UT)		End (UT)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	
29												IV
	0757	1452	0659.5	0733.5	2	0822.0	1332.0	1				IN
						0840.5	0907.0	3				G
						0840.6	0840.9	2				IIIG
						0843.6	0845.8	3				IIIG
						0847.4	0848.1	2				IIIG
						0852.6	0856.6	3				IIIG
						0859.4	0901.2	3				IIIG
	0830	1455	0859.5	0901.1	2	0844.9	0906.9	2				IIIGG
						0906.6	0906.9	2				IIIG
						0951.1	0951.8	2				IIIG
						0951.1	0951.9	3				IIIG
						0953.4	0953.7	1				U
						1021.2	1021.6	1				IIIG
						1034.9	1036.6	3				IIIG
						1035.3	1044.0	2				IIIGG
						1038.0	1045.4	3				IIIGG
						1108.1	1109.1	3				IIIG
						1111.7	1114.7	3				IIIGG
						1112.0	1336.5	1				IN
						1135.1	1135.2	2				IIIB
						1137.2	1137.4	1				IIIB
						1224.4	1225.6	2				IIIG
						1231.8	1232.4	2				IIIG
						1236.6	1236.7	2				IIIB
						1249.3	1255.3	2				IIIB
						1303.9	1312.4	3				IIIGG
						1307.0	1312.0	2				IIIGG
						1332.1	1332.3	2				IIIB
						1409.6	1412.5	2				IIIB
						1415.3	1415.4	1				IIIB
						1930.3	1931.1	2				III
	2034	2400				2034.0	2103.0	1				IN
						2034.5	2053.0	3				IIIS
						2034.5	2038.5	1				III
						2040.0	2043.8	2				III
			2042.5	2043.0	1							IIIG
						2123.5	2248.0	1				IIIN
						2135.1	2140.8	1				III
						2140.5	2149.0	3				IIIGG
			2141.0	2149.0	1	2129.0	2137.0	3				IIIG,N
						2142.3	0324.0	2				CONT
						2223.0	2257.5	2				IIIN
						2302.8	2303.1	1				III
						2345.1	2354.5	2				III
						2347.3	2351.0	3				III
						2347.5	2352.5	3	2348.0	2351.5	2	IIIGG
			2348.0	2349.5	3							DCIM
30						0000.3	0003.1	1				III
	0000	0734				0001.5	0630.0	1				IIIN
						0136.0	0715.0	2				IIIN
						0136.1	0139.8	1				III
									0148.0	0205.0	2	SWF
			0148.0	0149.0	1							DCIM
			0153.0	0158.0	1							II
						0156.5	0158.5	3				IIIGG
						0156.6	0206.3					III
						0217.1	0220.8	2				III
			0219.0	0220.5	2	0217.0	0221.0	3	0217.5	0220.5	2	IIIG,N
						0335.5	0412.0	3	0337.0	0338.0	2	IIIG,N
						0336.3	0338.6	2				III
						0359.5	0417.0	1				G
						0415.0	0417.0	2				IIIG
						0602.1	0607.0	3				III
			0603.5	0604.0	1	0603.5	0606.0	3	0604.0	0606.0	3	IIIG,V
						0629.0	0633.1	1				III
			0709.5	0710.5	3	0709.0	0711.0	3	0709.5	0710.5	3	IIIN
						0709.6	0711.0	3				III
						0714.8	0715.3	1				III
						0802.1	0802.5	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

115
Dec 82

DECEMBER 1982

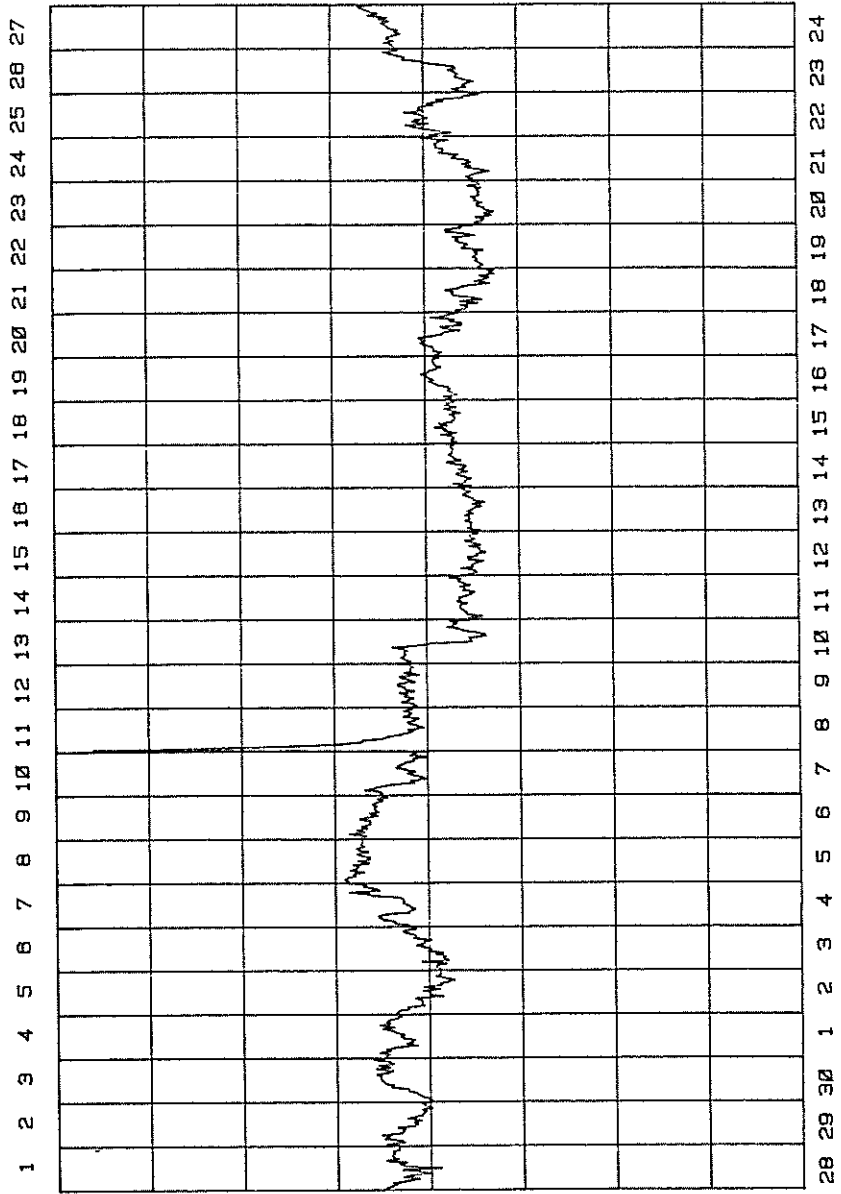
Day	Observation		Sta	Decimetric Band			Metric Band			Dekametric Band			Spectral Type		
	Start (UT)	End (UT)		Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)	Start (UT)	End (UT)	Int (1-3)			
30	0756	1453	LEAR				0902.6	0911.8	2				III		
			WEIS				0902.8	0903.6	2				IIIB		
			WEIS				0905.7	0905.8	2				IIIB		
			WEIS				0909.2	0911.9	1				IIIG		
			WEIS				1001.8	1004.9	1				IIIG		
	0840	1455	BLEN				1013.8	1455.0D	2				IN		
			LEAR				1013.8	1014.1	1				III		
			WEIS				1013.8	1014.6	2				IIIG		
			WEIS				1029.8	1030.2	1				IIIG		
			WEIS				1035.7	1036.2	2				IIIG		
			WEIS				1042.2	1043.4	2				IIIG		
			WEIS				1206.8	1208.6	3				IIIG		
			WEIS				1335.3	1336.8	3				IIIG		
			WEIS				1340.4	1342.9	3				IIIGG		
			BLEN				1341.0	1351.4	2				IIIGG		
			WEIS				1346.6	1352.8	3				IIIGG		
			SGMR				1346.8	1350.6	1				III		
			BLEN	1410.4	1410.5	1								III	
			WEIS	1410.4	1410.7	1								DCIM	
			2035	2400	CULG				2046.5	2312.0	1				IIIN
	CULG						2120.5	2311.5	3				IIIN		
	CULG						2155.0	2357.5	2				IIIG,N		
	CULG	2218.0			2227.0	1							DCIM		
	LEAR						2310.5	2311.5	1				III		
	LEAR						2345.1	2354.5	2				III		
	LEAR						2355.5	0002.1	2				III		
	CULG						2358.0	2400.0	3	2358.5	2400.0	2		IIIGG,V	
	CULG	2359.0			2400.0	1								IS	
	31	0000			0206	CULG				0001.0	0002.0	1			
			CULG	0016.0		0019.0	1							DCIM	
0230		0735	LEAR				0217.6	0220.6	1				III		
			CULG				0233.0	0247.5	2				IIIN		
			LEAR				0233.0	0234.8	1				III		
			LEAR				0240.6	0245.3	2				III		
			CULG				0317.0	0735.0	1				IIIN		
			LEAR				0327.8	0330.1	1				III		
			CULG				0328.0	0535.0	2				IIIN		
			LEAR				0431.3	0437.3	1				III		
			LEAR				0524.8	0536.1	1				G		
			CULG				0536.0		3				IIIB		
			LEAR				0554.3	0554.6	1				III		
			CULG				0729.5	0730.0	3				IIIG		
			LEAR				0729.5	0730.1	2				III		
			LEAR				0801.6	0807.5	1				III		
			0757	1359	WEIS				0807.3	0807.5	2				IIIB,U
LEAR							0828.3	0831.6	1				III		
LEAR							0908.1	0908.3	1				III		
0840		1340			BLEN				1010.6	1310.3	2				IN
					LEAR				1010.6	1011.0	2				III
			WEIS				1010.7	1011.6	3				IIIG		
			WEIS				1033.9	1034.2	2				IIIG		
			WEIS				1101.3	1101.5	2				IIIB,U		
WEIS					1126.3	1126.6	2				IIIG				
WEIS					1128.2	1130.3	3				IIIG				
WEIS					1156.1	1156.6	3				IIIG				
WEIS					1239.7	1240.2	2				IIIG				
WEIS					1308.3	1310.7	2				IIIG				
BLEN					1331.2	1331.5	3				IIIGG				
WEIS					1331.2	1331.9	3				IIIG				
1426		1455	BLEN												
			WEIS				1446.9	1447.1	2				IIIG		
1418		1453	WEIS				1448.2	1448.5	1				IIIB		
			WEIS				1452.1	1452.3	1				IIIB		
			PALE				1927.8	1928.8	1				III		
2035		2400	PALE				1958.1	2000.8	2				III		
			CULG				2040.0	2346.0	1				IIIN		
			CULG				2127.5	2317.0	2				IIIN		
			CULG				2216.5	2227.5	1				IIIS		
			LEAR				2219.8	2220.0	1				III		
			CULG				2220.0		2				IIIB		
			LEAR				2316.8	2317.1	1				III		
			LEAR				2355.5	0002.1	2				III		

C O S M I C R A Y I N D I C E S
(Neutron Monitors)
December 1982

Dec	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	3906	6336.1	5871.8	5361.6	---	3438.7	1687.0
2	3836	6218.0	5855.3	5325.4	---	3444.5	1684.6
3	3839	6191.7	5859.3	5343.5	---	3447.6	1689.3(38)
4	3919	6342.4	6001.5	5467.7	---	3489.7	1710.4
5	3979	6446.7	6063.7	5512.5	3524.7(6)	3509.2	1721.8
6	3954	6411.5	6038.2	5509.8	3495.9	3505.7	1719.9
7	3884	6295.4	5966.3	5406.6	3449.0	3477.5	1700.8
8	3944	6394.8	6064.7	5445.1	3483.7(30)	3478.2	1706.5
9	3876	6289.3	5997.8	5411.4	3439.2(12)	3480.3	1705.8
10	3809	6184.8	5881.5	5339.8	3378.7	3445.9	1686.0
11	3758	6090.3	5781.7	5221.0	3309.9	3395.9	1667.5
12	3738	6067.5	5764.7	5201.0	3285.9	3388.9	1664.3
13	3744	6068.1	5792.2	5224.5	3299.8	3409.2	1667.5
14	3769	6092.4	5787.5	5269.2	3326.8	3433.0	1674.7
15	3785	6109.3	5784.9	5248.5	3318.0	3446.1	1683.8
16	3810	6153.5	5828.5	5283.0	3349.7	3449.8	1693.3
17	3803	6148.7	5861.2	5312.1	3363.5	3450.8	1696.4
18	3739	6055.8	5756.9	5209.8	3288.1	3391.6	1676.3
19	3746	6069.4	5735.9	5202.6	3280.0	3371.8	1677.0
20	3722	6030.0	5699.3	5180.3	3263.8	3407.2	1675.6(38)
21	3770	6104.1	5763.0	5242.1	3304.8	3437.6	1690.3
22	3818	6177.5	5826.0	5304.2	3344.0	3445.2	1689.7
23	3807	6146.5	5805.3	5273.1	3346.3	3426.2	1691.0
24	3918	6319.3	5947.5	5427.9	3471.1	3479.9	1712.8
25	3923	6307.6	5953.0	5429.2	3461.8	3479.5	1710.5
26	3902	6299.3	5955.0	5406.0	3452.9	3417.6	1706.8
27	3883	6271.6	5909.0	5407.0	3402.5	3450.9	1694.5
28	3806	6166.3	5771.0	5266.8	3318.2	3427.6	1677.9
29	3795	6127.0	5802.4	5276.5	3334.7	3404.5	1685.2
30	3829	6151.5	5876.3	5315.1	3373.5	3427.3	1691.0(28)
31	3878	6236.9	5925.7	5383.3	3408.4	3432.2	---
Mean	3835	6203.4	5868.6	5329.2	3364.8	3441.6	1691.4

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

THULE NEUTRON MONITOR



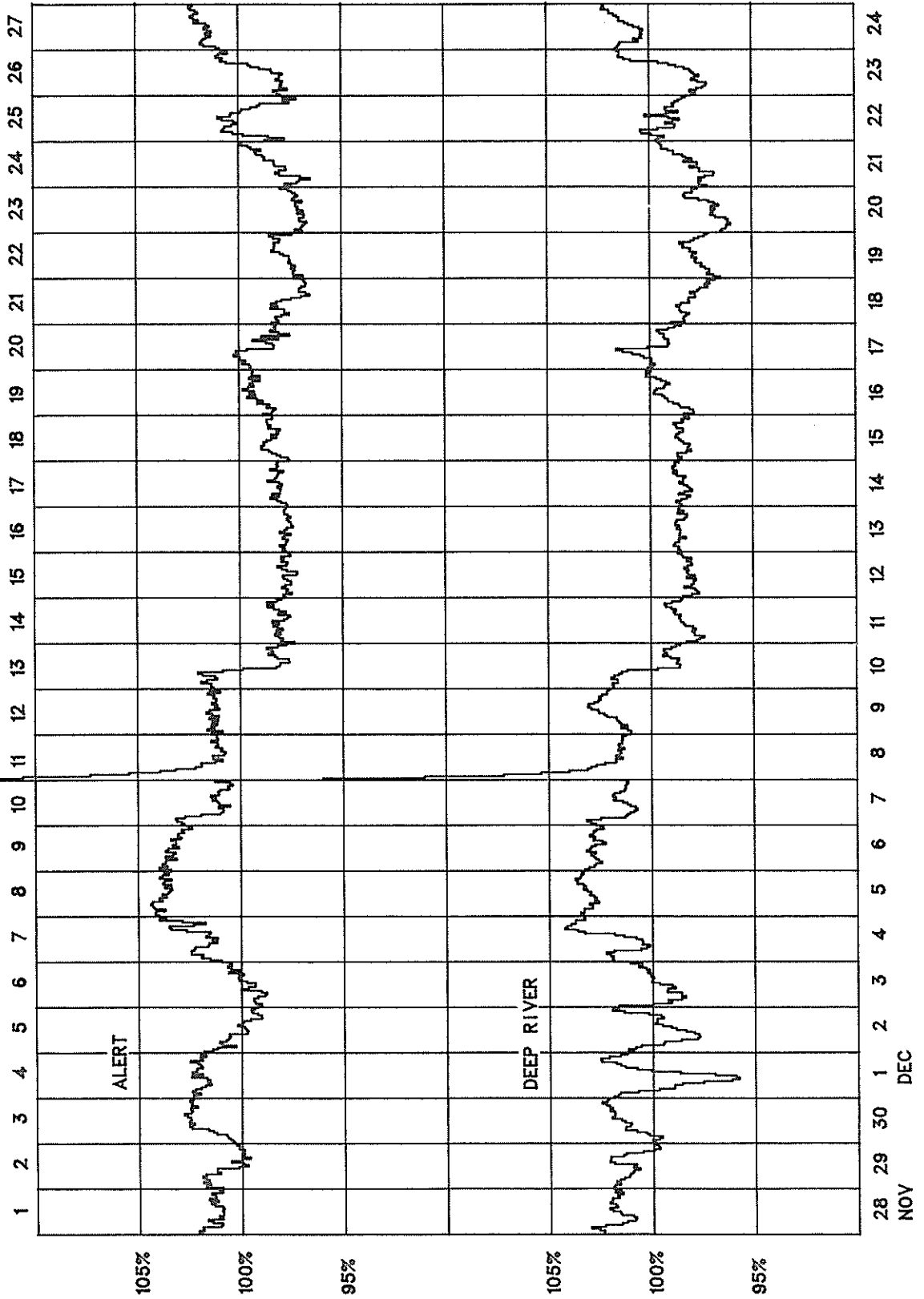
NOV 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 DEC 1982

BARTELS ROTATION 2041

105%
100%
95%

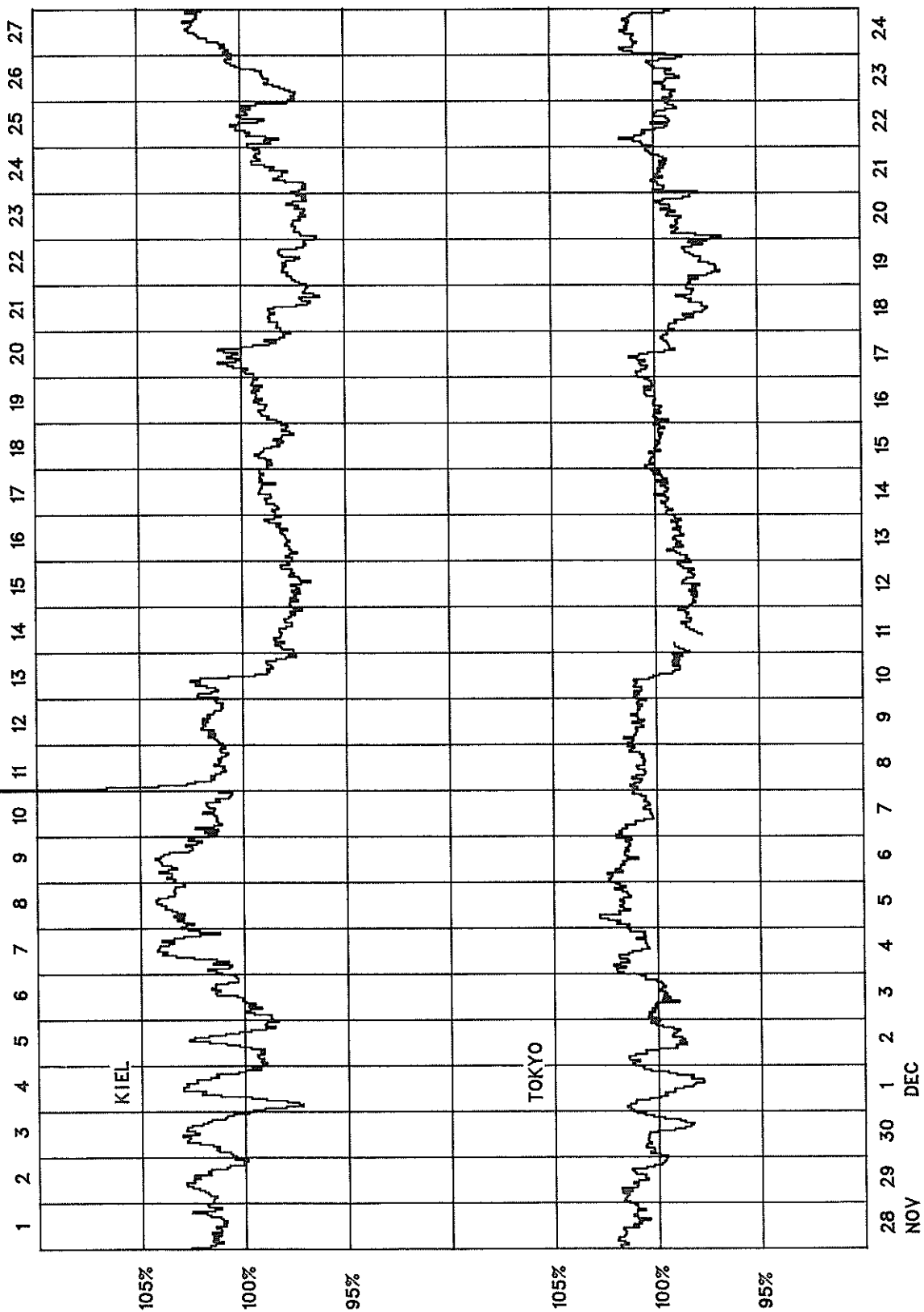
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2041 (November 1982-December 1982)



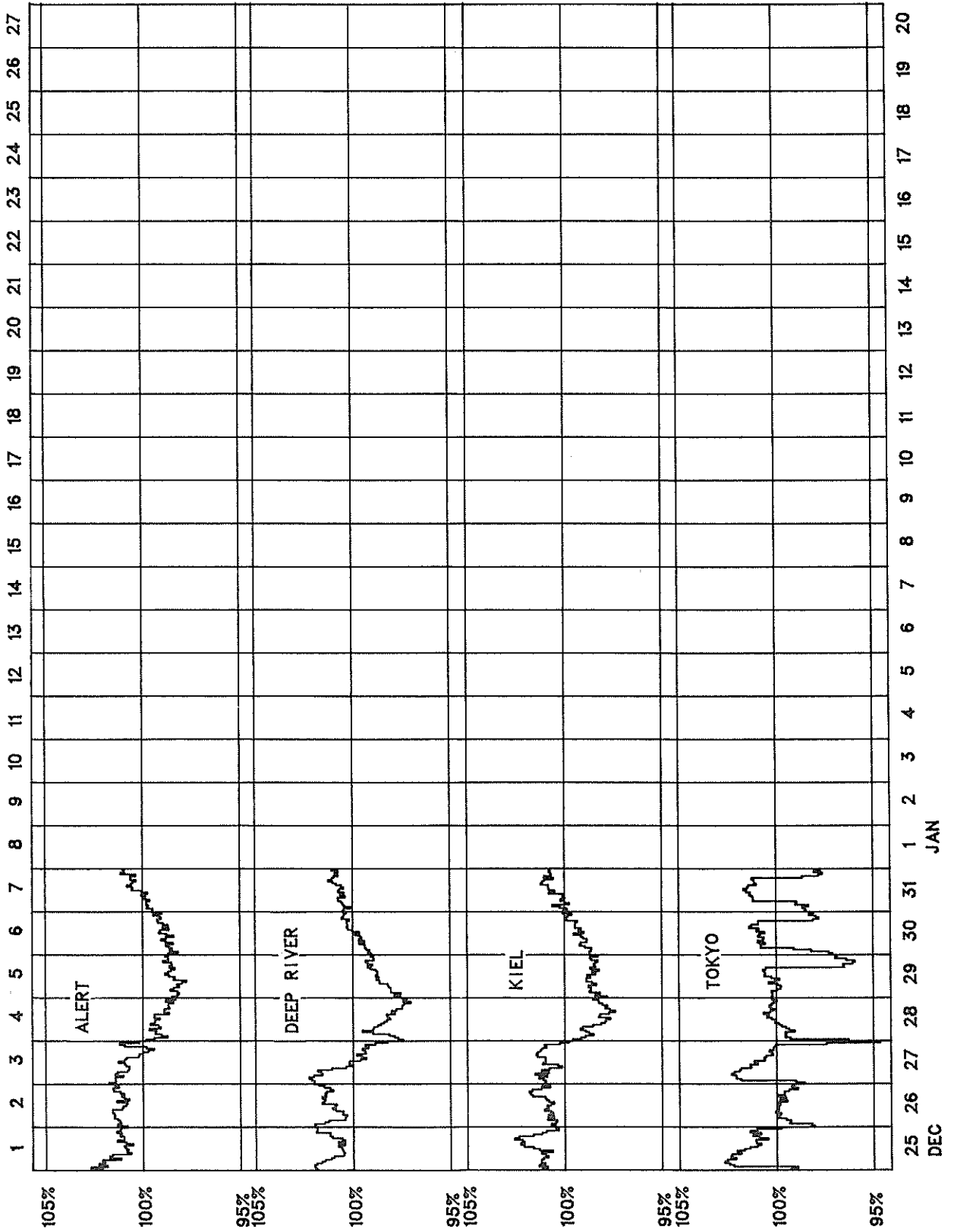
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2041 (November 1982-December 1982)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2042 (December 1982-January 1983)



DAILY AVERAGE INDICES Ap

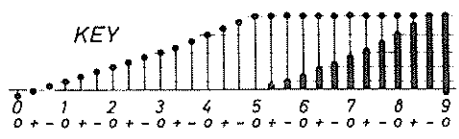
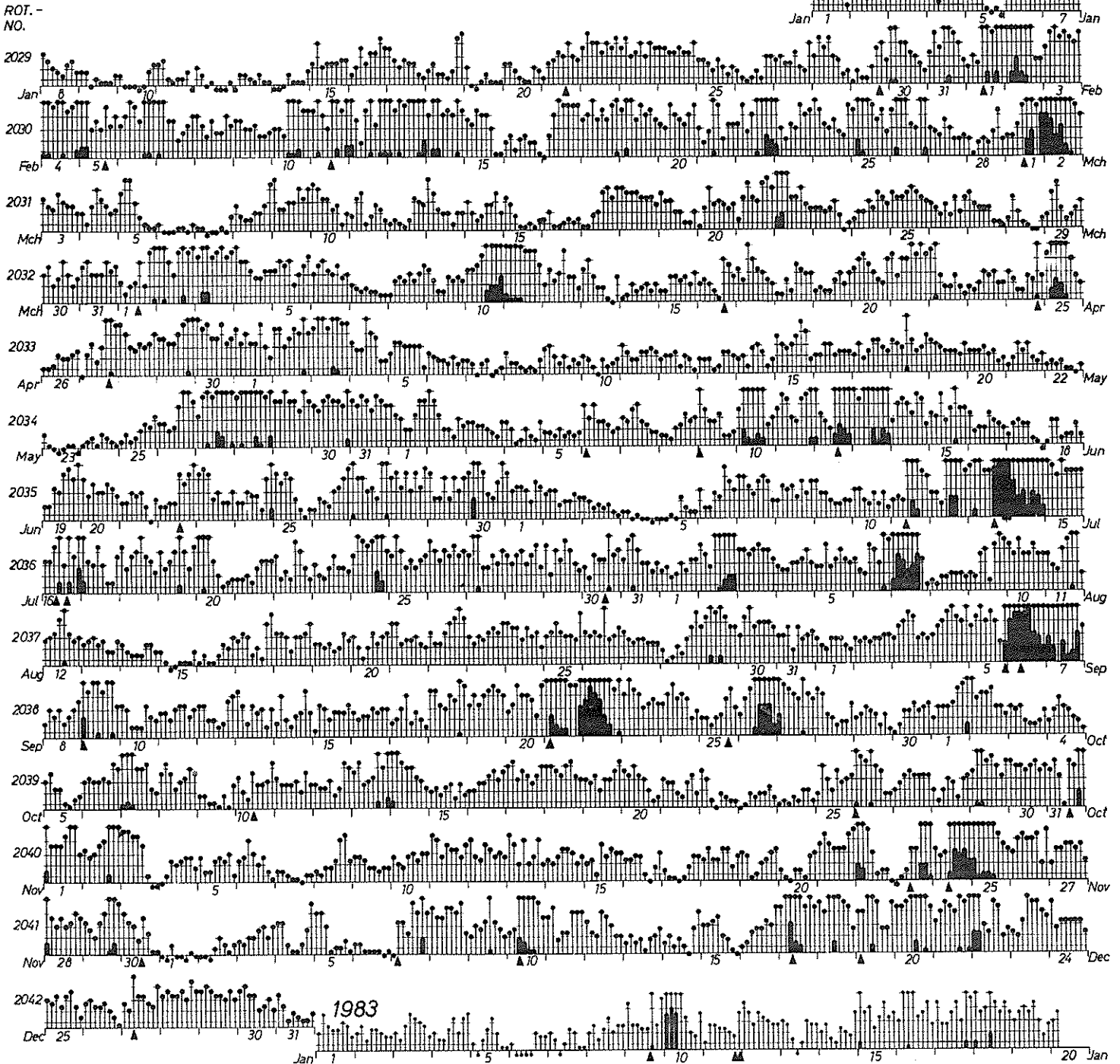
DAY	1982 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9	41	68	20	22	20	18	12	9	28	36	2
2	9	60	107	42	30	18	10	55	12	24	32	4
3	20	35	13	48	45	9	6	26	21	10	21	9
4	12	49	12	22	19	7	2	15	32	10	8	13
5	4	37	16	21	14	6	4	18	39	9	9	11
6	10	39	3	18	6	14	15	25	199	19	11	3
7	12	26	3	5	4	14	21	107	88	35	4	29
8	9	18	11	12	5	9	15	6	12	21	12	27
9	4	15	20	10	8	16	10	23	50	6	8	18
10	4	35	16	61	5	51	10	27	10	15	11	46
11	5	45	10	47	9	32	36	28	13	14	20	20
12	2	41	8	15	6	59	48	22	14	15	16	14
13	4	54	13	11	6	62	144	10	15	34	18	6
14	3	42	11	6	8	24	153	7	14	30	12	8
15	12	18	7	10	20	26	36	3	12	8	13	11
16	17	6	4	11	10	10	50	6	12	14	9	13
17	10	30	14	19	12	6	24	16	11	21	6	62
18	13	34	20	12	20	7	24	16	30	23	12	41
19	3	36	10	8	12	24	28	10	28	17	10	34
20	6	26	12	20	8	18	24	12	24	14	6	46
21	14	21	23	32	8	9	11	15	76	11	25	37
22	27	51	38	18	4	20	16	24	135	8	30	42
23	22	29	8	9	2	20	12	17	26	5	36	26
24	21	24	12	15	4	21	50	18	22	5	83	19
25	9	42	20	52	8	17	22	20	13	15	54	14
26	7	43	11	7	24	16	27	20	84	30	26	9
27	13	12	9	24	54	32	27	11	42	16	17	18
28	17	10	6	21	56	27	21	12	14	10	28	21
29	11		13	31	35	19	22	38	9	35	32	20
30	27		15	30	35	39	23	28	12	27	13	15
31	34		20		31		25	16		34		7
Mean	12	33	18	22	17	22	30	21	36	18	21	21

GEOMAGNETIC ACTIVITY INDICES

DAYS IN SOLAR ROTATION INTERVAL

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

1982



▲ = sudden commencement

PLANETARY MAGNETIC
THREE - HOUR - RANGE INDICES
Kp 1982

(preliminary indices to 1983 January 20)

R9	Rot. No.	1st day	C9
888 888 888	19	D28	456 525 575 564 4... 432 352 346 566 534
888 788 888	79	J24	566 534 432 225 242 222 342 332 542 766 644
876 888 888		F20	76 644 564 353 646 475 222 352 312 734
887 787 557	1991	M18	3... 734 565 674 566 777 333 232 434 543 ...
765 677 788	92	A15	543 ... 575 483 667 654 ... 324 452 223 312
887 777 788	93	M12	222 312 353 362 666 436 312 ... 66 444 312
887 777 788	94	J8	444 312 224 4... 465 22 532 22 42 256 212
887 778 888	95	J5	256 212 344 443 443 522 ... 453 622 432 425
777 677	96	A1	432 425 322 225 722 22 675 312 543 274 322
888 888 888	97	A28	374 322 224 4... 24 223 243 755 11 455 444
888 888 888	98	S24	455 444 532 322 666 542 232 222 342 342
888 888 888	99	O21	342 342 222 14 332 23 452 326 422 212 212
888 778	2000	N17	212 212 542 ... 42 224 212 222 222 223 312
887 778 888	01	O14	223 312 224 ... 334 652 635 432 ... 312 522
888 777 888	19	J10	312 522 222 ... 666 222 ... 624 312
888 777 888		F6	634 312 ... 566 322 22 444 432 ... 222 222
875 547 888	80	M4	112 212 212 ... 222 254 212 262 222 512 222
888 888 878	2005	M31	512 222 654 556 652 532 ... 222 222 222 222
888 888 888	06	A27	112 222 ... 322 526 544 ... 222 222 362 212
888 888 888	07	M24	262 ... 345 222 465 467 666 312 222 222 222
766 668	08	J20	112 324 212 222 22 433 422 312 212 642 242
887 775 568	09	J17	642 242 764 222 252 253 322 222 222 635
888 888 888	2010	A13	112 635 632 312 352 ... 222 333 222 312 542
776 888 887	11	S9	312 542 224 222 222 222 222 222 222 432 456
888 888 788	12	O6	432 456 312 412 522 257 452 ... 362 312 212
888 777 788	13	N2	312 112 224 532 354 344 432 234 555 455 252
887 788	2014	N29	455 252 ... 233 442 234 475 632 ... 312 234
888 677 756	19	O26	112 234 422 422 222 222 222 222 222 222 222
778 888 887	81	J22	222 222 442 545 426 754 532 312 332 222 222
878 888 877		F18	112 222 566 536 623 735 312 367 54 552 222
678 888 888	2018	M17	552 222 664 3 546 534 312 222 222 862 454
766 888	19	A13	862 454 777 665 577 452 422 ... 36 674 357
887 666 654	2020	M10	674 357 747 573 556 222 312 222 412 474 212
456 767 788	21	J8	474 212 ... 352 222 222 344 326 445 222 542
756 888 888	22	J3	223 542 223 522 26 223 66 387 622 225 453
877 788 888	23	J30	225 453 442 224 422 222 652 243 764 265 544
888 888 888	24	A26	265 544 522 342 332 53 332 225 622 422 365
888 888 888	2025	S22	422 365 442 564 222 665 673 475 252 576 765
767 788	26	O18	576 765 523 533 222 222 256 466 66 546 644
765 478	27	N15	546 644 435 262 ... 222 222 222 532 212
655 557 776	2028	O12	532 ... 422 222 222 222 222 222 222 222 222
645 876 888	19	J8	212 ... 34 342 465 522 234 366 776 766 654
887 778 888	82	F4	766 654 677 775 666 665 766 773 378 434 212
887 888 888		M3	434 222 543 223 224 532 562 353 212 455 775
887 887 668	2032	M30	455 775 552 222 742 222 532 565 247 265 665
754 555 467	33	A26	265 665 675 412 222 222 222 222 222 222 677
776 677 888	34	M23	222 677 666 552 224 424 767 766 212 652 555
875 333 488	35	J19	652 555 446 656 532 224 542 267 766 765 662
885 222 688	36	J16	765 662 437 566 555 637 645 682 566 532 212
766 567 788	37	A12	532 ... 4 423 464 555 336 642 356 687 373 444
667 777 888	38	S8	272 444 433 366 678 653 774 236 623 256 514
556 546 876	39	O5	256 544 446 624 554 432 224 643 666 665 223
667 777 775	2040	N1	665 223 322 354 533 223 322 666 764 663 212
578 888 756	41	N28	663 ... 322 665 754 222 477 676 765 425 554
76	19	O25	425 554 232 332 222 573 522 666 65
	83	J21	preliminary
		F17	

Symbol	1-15	16-30	31-45	46-60	61-80	81-100	101-130	131-170	171...	
R9, C9 =	0	1	2	3	4	5	6	7	8	9
Cp =	a0-a1	a2-a3	a4-a5	a6-a7	a8-a9	10-11	12-14	15-18	19	20-25

DAILY GEOMAGNETIC
CHARACTER FIGURES C9 AND
3-DAY MEAN SUNSPOT NUMBERS R9

For explanation and previous years see J. Bartels, *Abhandlungen der Akademie der Wissenschaften zu Göttingen, Beiträge zum I.G.J., Heft 3 (1958)* (may be requested from Institut für Geophysik, Postfach 876, 34 Göttingen, Germany)

PRINCIPAL MAGNETIC STORMS

DECEMBER 1982

Sta	Geomag Lat	Commencement		Type	SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	K (Min)	Ranges			End Hour Day (UT)
		Day	Time (UT)		D (Min)	H (Gamma)	Z (Gamma)			D (Min)	H (Gamma)	Z (Gamma)	
HYB	07.6N	02	1100	..	..	..	..	03(5,6) 04(8)	4	3	137	30	05 08
COL	64.6N	07	0329	SC*	- 7	121	--	07(5) 09(5)	7	259	1330	910	09 16
SIT	60.0N	07	0330	SC*	- 2	37	*	4	7			570	10 22
WIT	54.2N	07	0329	SC*	- 3	*	12	0	7	40	155	100	08 04
FRD	49.6N	07	0330	SC	- 1	18	- 2	10(3,4)	6	31	165	72	12 20
HON	21.1N	07	0329	SC	--	11	5	07(5,6,7)	4	8	67	34	08 23
JAI	17.3N	07	0330	SC	- 5.3	15	- 4			6	220	29	08 21
SHL	14.7N	07	0330	SC	- 0.1	25	3			5	213	38	08 21
UJJ	13.5N	07	0330	SC	- .3	21	- 6			6	218	25	07 21
ABG	09.5N	07	0330	SC	- 0.6	19	- 5	07(5)	7	6	232	30	08 21
HYB	07.6N	07	0330	SC	- 0.3	25	- 2	07(5,6)	7	6	246	34	09 22
GUA	04.0N	07	0329	SC*	--	26	- 17	07(2)	4				08 23
GUA	04.0N	07	1100	..	..	..	..	07(5)	6	10	210	50	08 23
HUA	00.6S	07	0329	SC	1	24	4	07(6,7)	7	15	426	55	07 24
TRD	01.1S	07	0330	SC	- 0.3	44	42			5	305	164	07 21
PMG	18.6S	07	0330	SC	0.5	22	21	07(5,6,8) 08(5,7)09(5)	5	10	190	60	09 21
HER	33.7S	07	0329	..	..	..	..	07(7) 09(5)	5	34	164	139	09 21
GNA	43.2S	07	0331	SC	1.3	5	5	07(7) 08(1)	6	26	140	150	09 00
CNB	43.9S	07	0328	SC*	0.3	30	*	3	5	22	152	58	08 23
KGL	56.5S	07	0329	SC	5	19	11	07(5,6,7) 08(5)	7	133	890	370	08 23
HUA	00.6S	08	0039	..	..	..	..	08(5,6)	6	10	236	67	08 22
COL	64.6N	10	05--	..	..	..	..	12(4)	7	200	1560	1050	12 21
WIT	54.2N	10	0721	SC*	- 4	*	45	*	5	24	130	95	11 01
HON	21.1N	10	0719	SC	--	19	8	10(3,4,5,6,7)	5	5	110	34	11 00
JAI	17.3N	10	0718	SC	- 2.1	30	- 10	10(4,5)		7	129	41	10 22
SHL	14.7N	10	0718	SC	- 0.2	29	3			6	111	35	10 22
UJJ	13.5N	10	0718	SC	- 1.3	36	- 12			5	145	37	10 22
ABG	09.5N	10	0718	SC	- 1.8	33	- 20	10(4)	6	5	149	49	10 22
HYB	07.6N	10	0722	SC	- 1.3	39	- 5	10(4)	6	4	154	21	12 02
GUA	04.0N	10	0721	SC	--	16	- 4	10(4)	6		120	40	10 24
HUA	00.6S	10	0721	SC	1	40	7	10(5,6)	8	17	460	55	10 22
TRD	01.1S	10	0718	SC	0.2	96	--			3	287	164	10 22
PMG	18.6S	10	0620	SC	0.4	27	28	10(4)	6	5	150	100	12 02
HER	33.7S	10	0722	SC	2	8	7	10(4)	6	25	123	92	10 22
CNB	43.9S	10	0720	SC*	.1	68	*	6	6	16	171	67	10 22
KGL	56.5S	10	0721	SC	13	16	12	10(6) 11(7)	7	45	504	220	12 12
HYB	07.6N	14	2000	..	..	..	..	14(8) 15(4)	4	4	76	16	15 19
COL	64.6N	16	06--	..	..	..	..	17(3)	9	444	3370	1970	22 19
SIT	60.0N	16	06--	..	..	..	..	17(5)	8				23 21
WIT	54.2N	16	22--	..	..	..	..	17(3)	7	38	325	100	18 20
FRD	49.6N	17	0807	SC	- 5	17	- 2	22(2)	7	55	180	82	25 --
HON	21.1N	17	0806	SC	--	25	8	17(3) 18(4)	6	7	104	26	18 19
JAI	17.3N	17	0806	SC	- 3.0	19	- 7			6	155	32	18 20
UJJ	13.5N	17	0806	SC	- 1.2	23	- 5			5	201	35	18 20
ABG	09.5N	17	0806	SC	- 1.5	19	- 15	17(4,6)	6	7	157	52	18 20
HYB	07.6N	17	0806	SC	- 1.0	24	- 4	17(5)	7	6	206	46	18 23
GUA	04.0N	17	0806	SC	--	18	- 6	18(1)	5		190	30	18 05
HUA	00.6S	17	0806	SC	1	25	5	17(6,7)	7	18	487	70	18 23
TRD	01.1S	17	0806	SC	- 1.0	90	97			5	271	177	18 20
PMG	18.6S	17	0805	SC	0.5	25	20	19(1,3,4,5) 20(1)	6	12	250	170	22 06
HER	33.7S	17	0806	SC	4	9	5	17(3)	6	37	176	124	18 20
GNA	43.2S	17	0850	SC*	5.3	* 51	24	* 17(4)	6	21	120	150	18 20
CNB	43.9S	17	0804	SC	1.3	61	6	17(3) 18(4)	6	23	206	56	18 19
KGL	56.5S	17	0805	SC	17	79	24	17(4,5,6) 18(6)	7	95	568	324	19 01
GUA	04.0N	18	0738	..	..	..	..	18(4)	6		100	20	18 21
HON	21.1N	19	02--	SC	1	47	21	19(8)	6	5	118	55	21 00
JAI	17.3N	19	0254	SC	- 1.7	59	- 16			7	227	33	21 00
UJJ	13.5N	19	0254	SC	--	--	--						21 00
ABG	09.5N	19	0254	SC	- 1.7	62	- 27	19(4)	7	8	238	56	21 00
HYB	07.6N	19	0255	SC	- 1.1	72	- 8	19(4)	7	6	247	38	22 20
GUA	04.0N	19	0100	..	..	..	..						19 20
GUA	04.0N	19	0254	SC*	1	98	- 30	19(1)	6	10	260	50	19 20
GUA	04.0N	19	2219	SC	--	33	- 10	20(1)	6		170	40	20 24

PRINCIPAL MAGNETIC STORMS

DECEMBER 1982

Sta	Geomag Lat	Commencement		Type	SC Amplitudes			Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges			End Hour Day (UT)	
		Day	Time (UT)		D (Min)	H (Gamma)	Z (Gamma)		K	D (Min)	H (Gamma)		Z (Gamma)
HUA	00.6S	19	0254	SC	2	88	15	19(5)	7	12	466	85	20 24
TRD	01.1S	19	0254	SC	- 1.3	129	--			6			21 00
HER	33.7S	19	0254	SC	3	39	32	19(4)	6	31	212	153	21 01
GNA	43.2S	19	0254	SC*	- 7.7	59	* - 25	19(4)	6	29	150	170	21 01
CNB	43.9S	19	0252	SC	1.8	120	18	19(1,3)	6	27	282	80	22 05
KGL	56.5S	19	0253	SC	10	31	11	19(4)	6	45	203	159	19 22
KGL	56.5S	19	2219	SC	11	58	15	20(5)	8	134	1092	417	22 10
WIT	54.2N	20	11--	..	..	..	..	20(5,7) 21(6,7) 22(1)	6	32	175	145	22 06
HER	33.7S	21	17--	..	..	..	..	21(7)	5	21	94	125	22 12
GUA	04.0N	22	0041	..	..	..	..	22(2)	5		140	30	22 08
COL	64.6N	23	07--	..	..	..	..	23(4,5)	7	319	1260	1110	25 19
HYB	07.6N	23	0500	..	..	..	..	23(6)	5	5	149	18	24 20
KGL	56.5S	23	0900	..	..	..	..	23(6)	8	70	616	215	24 03
COL	64.6N	27	0714	SC*	- 7	393	- 74	27(4) 28(3,5) 30(4)	6	124	1320	490	31 13
FRD	49.6N	27	0715	SC	- 1	51	- 8	27(3) 28(7) 29(2)	4	19	102	30	30 06
HYB	07.6N	27	0715	SC	- 0.2	45	- 5	27(3)	6	4	185	26	30 20
GUA	04.0N	27	0714	SC*	--	18	- 5	27(3)	5		100	30	27 18
PMG	18.6S	27	0715	SC	1.4	44	47	27(3)	5	5	110	80	27 18
HER	33.7S	27	07--	..	..	..	..	27(3)	5	21	92	50	27 13
KGL	56.5S	27	0713	SC	14	57	23	28(7)	6		186		29 03

Reports were received from the following observatories:

ALIBAG	HERMANUS	PORT MORESBY
CANBERRA	HONOLULU	SHILLONG
COLLEGE	HUANCAYO	SITKA
FREDERICKSBURG	HYDERABAD	TRIVANDRUM
GNANGARA	JAIPUR	UJJAIN
GUAM	KERGUELEN	WITTEVEEN

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

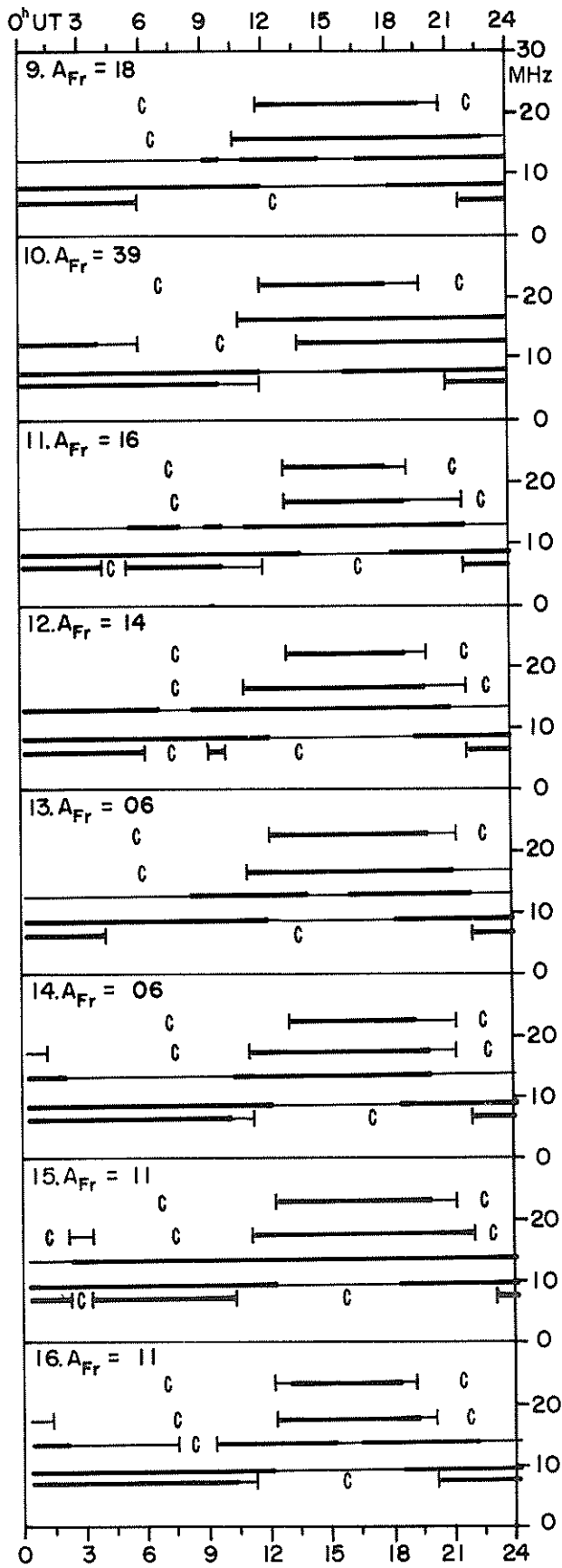
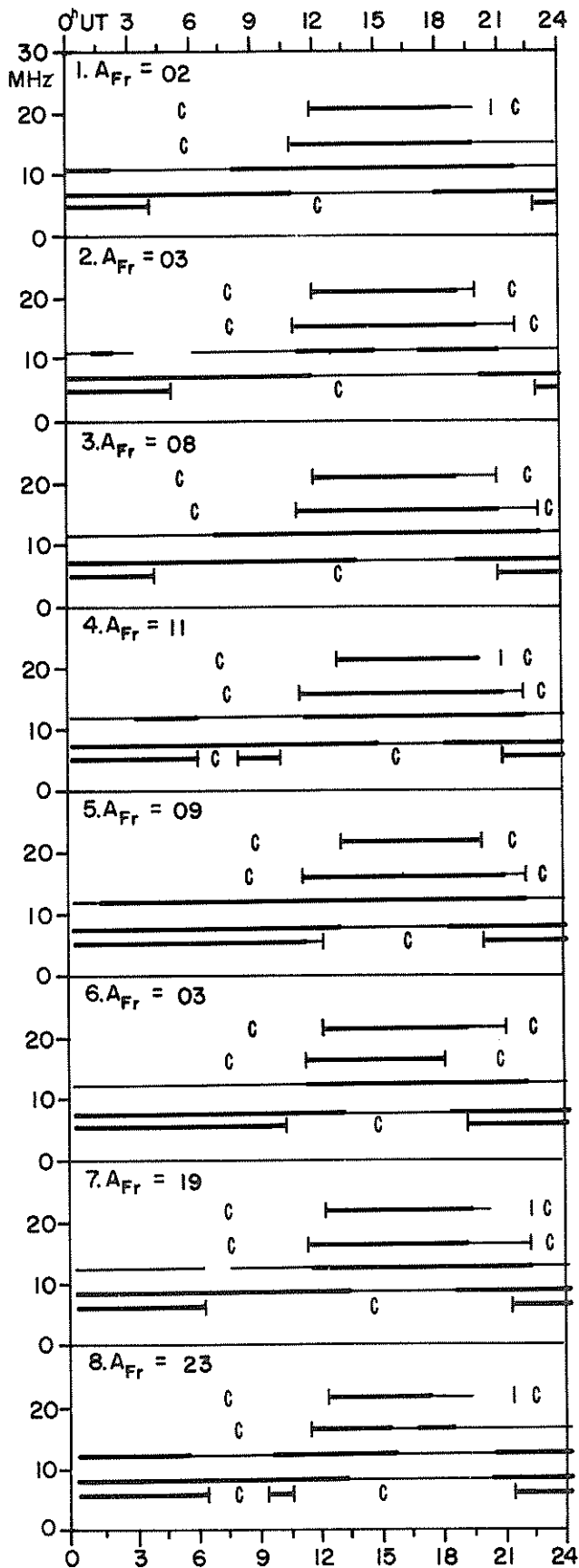
DECEMBER 1982

PRELIMINARY REPORT ON RAPID VARIATIONS

Sudden Commencements (ssc)		Solar Flare Effects (sfe)
7 03 29	A: SOD COI HUA; B: DOB WNG DOU	5 10 00 - 10 06 MPO
	HRB MMB AQU TOL FRD KAK HTY	7 19 12 - 19 20 HUA?
	KNY LNP PMG MPO GNA DUM; C:	<u>9 11 25 - 12 25</u> HAD
	WIT NGK VAL HAD CLF EBR AMS	10 02 52 - 03 00 LNP
CZT KGL		
10 07 21	A: DOB WNG HAD DOU HRB COI LNP	<u>11 04 38 - 05 30</u> MMB KAK HTY
	HUA; B: WIT NGK VAL CLF AQU EBR	13 03 15 - 03 24 LNP
	TOL KNY PMG MPO GNA CZT KGL; C:	14 11 12 - 11 19 MPO
	MMB KAK AMS	
17 08 06	A: SOD WNG NGK HAD HRB COI LNP	<u>15 01 58 - 02 55</u> MMB KAK HTY KNY LNP
	HUA MPO KGL DUM; B: DOU CLF MMB	(ssc: B: PMG DUM)
	AQU EBR TOL FRD KAK KNY GNA AMS	<u>17 01 45 - 01 57</u> HTY
	CZT; C: VAL HTY	
19 02 54	A: SOD COI HTY KNY LNP HUA MPO	22 08 26 - 08 40 MPO
	AMS DUM; B: WNG WIT NGK DOU CLF	26 10 45 - 10 57 MPO
	HRB MMB AQU EBR TOL KAK GNA CZT	<u>29 06 44 - 07 10</u> KAK HTY KNY LNP MPO
	KGL; C: VAL HAD	
19 22 20	B: MMB KAK KNY KGL; C: WNG AMS CZT DUM (si: A: CLF HRB)	
27 07 15	A: SOD WNG DOU HRB EBR COI TOL FRD HUA MPO DUM; B: WIT NGK VAL HAD CLF AQU LNP PMG AMS CZT KGL; C: MMB KNY	

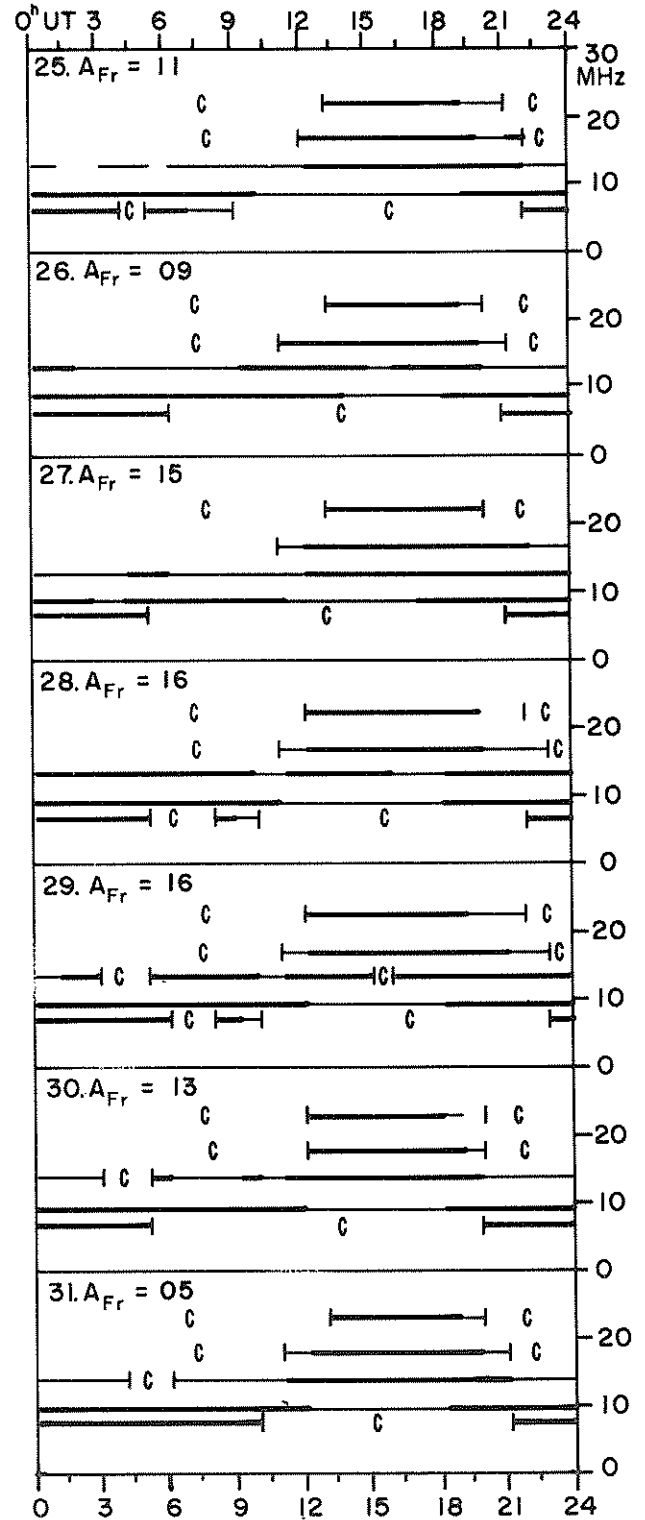
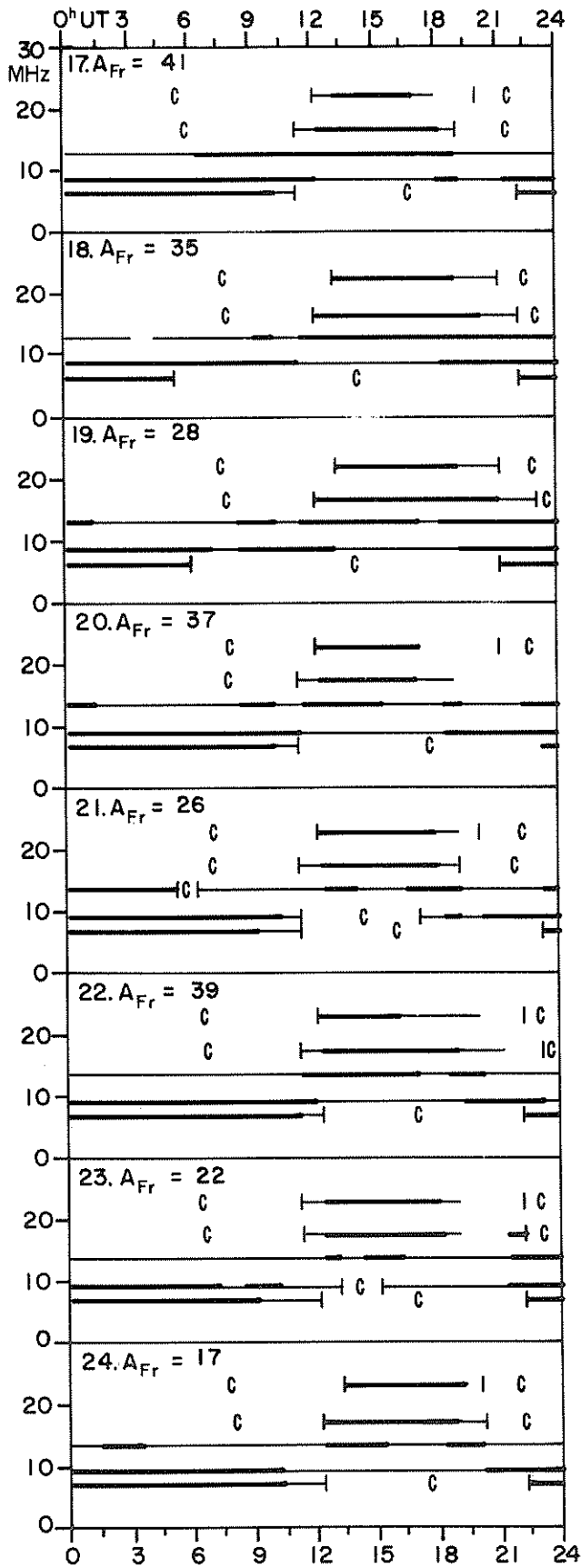
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

DECEMBER 1982



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

DECEMBER 1982



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Norddeich-New York circuit are represented above. Heavy solid lines represent field strengths > -12 dB above $1 \mu\text{V/m}$ (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above $1 \mu\text{V/m}$ and -40 dB above $1 \mu\text{V/m}$ are represented by the fine line.

RADIO PROPAGATION QUALITY INDICES

December 1982

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	3.6	5.6	2.2	4.3	3.1
2	2.7	5.5	5.7	5.0	3.9
3	4.8	6.4	0.9	5.5	5.3
4	5.2	5.7	0.0	6.4	6.4
5	5.6	5.4	5.4	5.1	6.3
6	5.8	5.8	3.7	5.4	5.0
7	3.6	5.2	4.7	6.1	6.5
8	5.1	4.4	0.0	5.8	6.1
9	4.4	5.7	0.0	6.2	6.2
10	4.9	5.4	7.9	6.2	6.8
11	6.2	5.4	2.6	6.9	7.1
12	4.6	4.8	7.3	5.6	5.7
13	4.9	6.2	4.5	5.6	5.4
14	5.3	4.5	2.4	5.3	4.1
15	5.3	6.9	0.6	6.0	4.8
16	4.9	5.7	5.0	6.4	7.3
17	4.3	3.0	4.0	4.4	3.1
18	5.2	5.6	3.5	5.8	5.0
19	5.7	6.0	7.6	6.9	6.4
20	5.2	3.5	7.4	6.8	6.4
21	5.2	2.6	3.8	6.1	5.9
22	4.5	3.2	0.0	3.8	3.0
23	3.9	2.0	0.9	5.8	5.4
24	3.0	3.1	2.0	5.1	3.7
25	3.5	4.1	6.0	4.5	3.8
26	4.3	4.8	1.8	4.2	4.8
27	5.7	6.5	5.9	4.9	5.5
28	4.7	6.2	0.0	5.2	4.8
29	5.0	6.9	5.7	6.6	5.5
30	6.7	6.2	3.5	6.5	4.8
31	5.0	5.6	3.8	5.8	5.2
Mean	4.8	5.1	3.4	5.6	5.3

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceding 27 days.

Scale for Quality Indices

- 0.0 - 1.0 = very poor
- 1.1 - 3.0 = poor
- 3.1 - 5.0 = fair
- 5.1 - 7.0 = normal
- 7.1 - 9.0 = good
- 9.1 - 9.9 = very good

SGD 462 Part I (Prompt)

LATE DATA

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Late
Nov 82

P I O N E E R X I I
(VENUS ORBITER)
INTERPLANETARY MAGNETIC FIELD
MAGNITUDES

November 1982

DAY	TIME	BMAG (GAMMAS)
1	---	---
2	---	---
3	---	---
4	---	---
5	---	---
6	---	---
7	---	---
8	---	---
9	---	---
10	---	---
11	---	---
12	---	---
13	---	---
14	---	---
15	---	---
16	---	---
17	---	---
18	---	---
19	---	---
20	15:30:40	14.48
21	15:32:30	14.10
22	16:19:00	17.00
23	20:01:00	11.58
24	16:21:40	19.20
25	13:34:30	20.90
26	16:28:40	20.90
27	13:33:10	16.22
28	---	---
29	---	---
30	---	---
31	---	---

C O S M I C R A Y I N D I C E S
(Neutron Monitors)

1982	June 1982		July 1982		August 1982		September 1982	
	CLIMAX	HUANCAYO	HUANCAYO	Average (cts/h)/100	CLIMAX	HUANCAYO	CLIMAX	HUANCAYO
1	3807.2	1724.5	1699.3	1691.9	3491.9	1691.2	3422.5	1681.9
2	3812.2	1727.3	1695.7	3477.6	1689.0	1685.0	3435.9	1683.9
3	3811.2	1730.2	1695.9	3453.0	1682.7(34)	1682.2(36)	3445.0	1682.2(36)
4	3811.1	1727.9(38)	1693.1	3454.5	1686.8	1689.5	3438.0	1689.5
5	3813.8	1728.5	1700.4	3455.2	1688.3	1689.0	3436.7	1689.0
6	3798.8	1726.0	1688.9	3448.0	1682.6	1646.1	3297.0	1646.1
7	3777.5	1722.4	1698.3	3340.4	1658.4	1633.6	3200.7	1633.6
8	3778.7	1715.6	1698.4	3309.2	1654.2	1641.1	3231.2	1641.1
9	3668.9	1686.6	1705.3	3341.8	1660.9	1643.9	3260.9	1643.9
10	3585.2	1666.3	1698.4	3321.0	1661.6	1653.5	3323.2	1653.5
11	3550.6	1667.9	1690.4	3299.4	1658.0	1661.2	3338.6	1661.2
12	3559.0	1673.0	1655.9	3308.4	1661.7	1663.8	3347.4	1663.8
13	3461.8	1650.6	1638.4(38)	3344.1	1668.5(38)	1668.2	3372.1	1668.2
14	3402.0	1646.6	1511.8	3372.2	1672.0	1650.5	3343.5	1650.5
15	3383.8	1652.3	1557.9	3408.7	1681.8	1656.3	3389.1(28)	1656.3
16	3402.0	1661.4	1584.8(38)	3427.2	1682.5	1654.0	3378.7	1654.0
17	3436.4	1673.5	1594.0	3438.9	1676.3	1654.7(26)	3412.8	1654.7(26)
18	3485.7	1683.6	1613.5	3457.9	1674.3	1657.4	3433.0	1657.4
19	3533.3	1698.9	1627.8	3458.8	1672.2	1660.1	3394.4	1660.1
20	3525.0	1695.4	1657.5	3454.2	1669.7	1660.3	3353.5	1660.3
21	3516.2	1682.6	1664.4	3464.0	1674.2	1647.1	3221.4	1647.1
22	3534.0	1692.5	1661.1	3474.0	1673.8	1625.2	3135.6	1625.2
23	3566.0	1707.2	1672.1(38)	3459.1	1674.0	1637.8	3188.3	1637.8
24	3582.5	1700.4	1672.3	3448.5	1673.8	1646.1(36)	3229.0	1646.1(36)
25	3587.6	1693.9	1676.3	3439.8	1677.7	1647.9	3246.9	1647.9
26	3586.4	1693.5	1689.0	3443.6	1677.4	1649.7	3252.9	1649.7
27	3613.6	1700.6	1695.9	3421.4	1680.1(28)	1654.5	3284.0	1654.5
28	3612.6	1701.0	1695.7	3416.5	1684.4	1657.3	3287.5	1657.3
29	3584.9	1698.1	1695.5	3404.5	1683.2	1662.0	3298.0	1662.0
30	3597.3	1698.1	1690.6	3407.4	1681.5	1671.2	3327.0	1671.2
31			1686.0	3409.9	1679.3			
MEAN	3607.3	1694.1	1665.0	3414.5	1675.2		3323.1	1657.5

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

C O S M I C R A Y I N D I C E S
(Neutron Monitors)

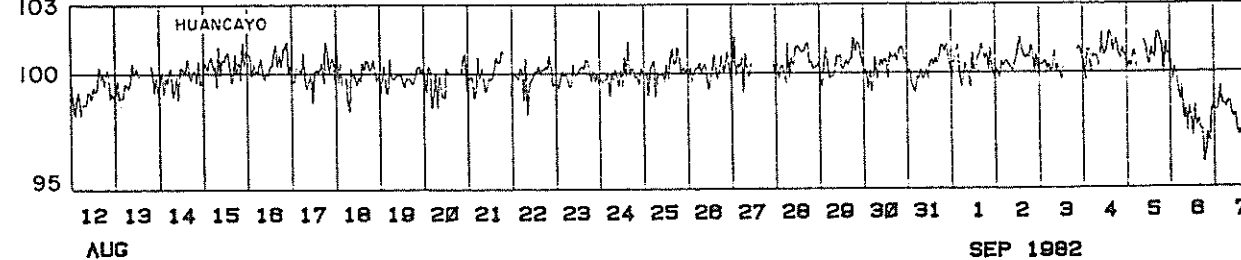
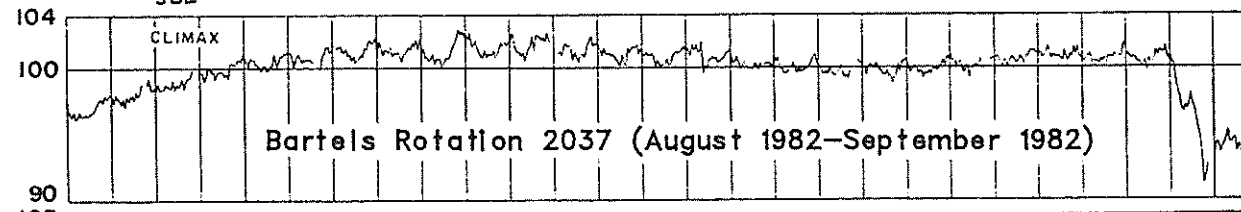
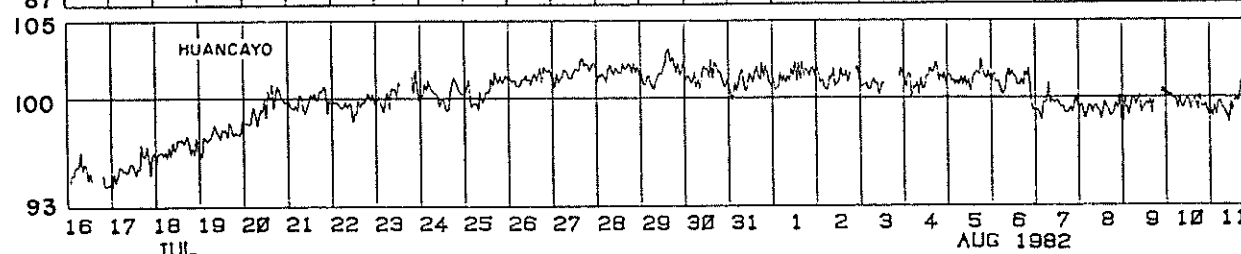
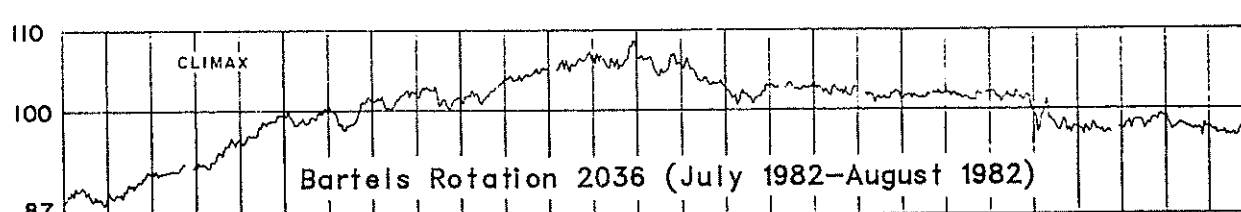
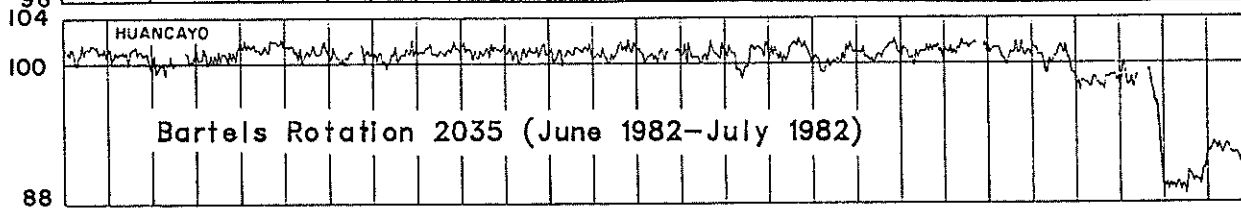
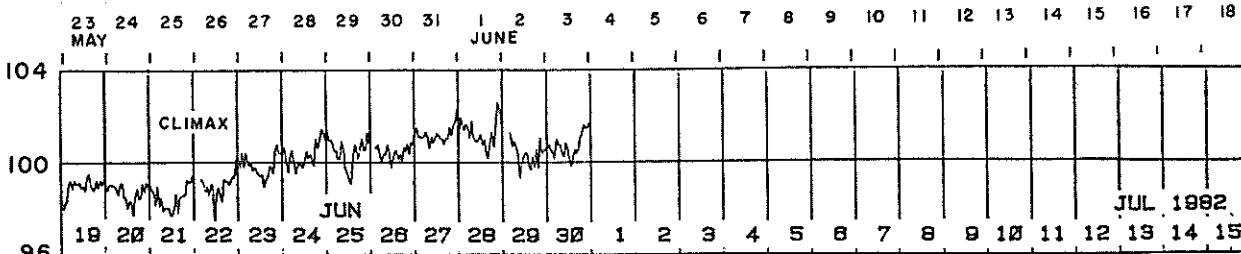
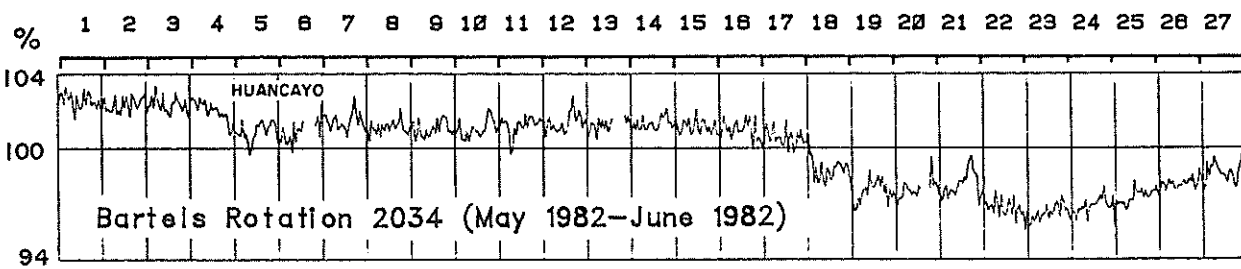
November 1982

October 1982

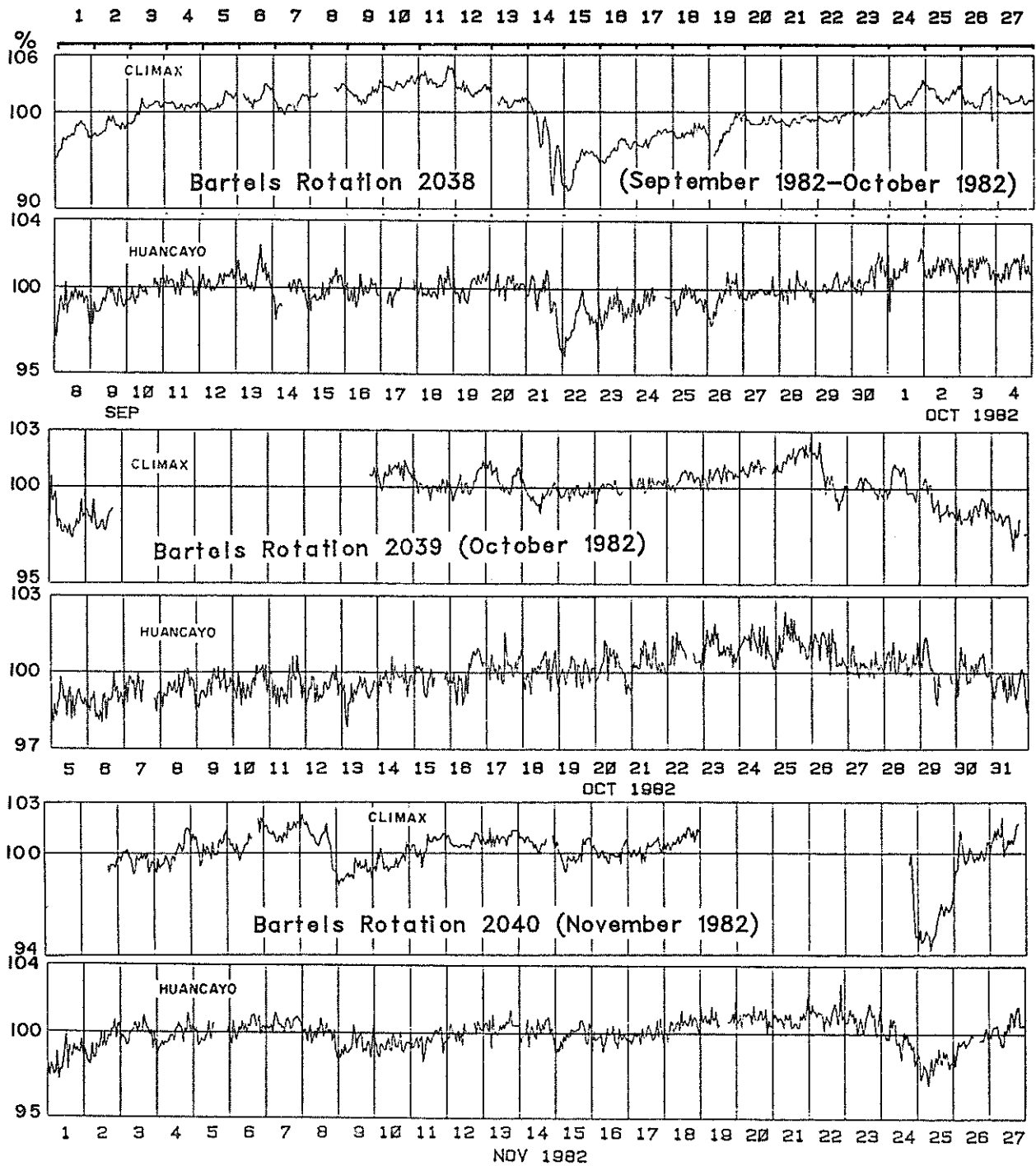
1982	CLIMAX		HUANCAYO		ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	CLIMAX Average (cts/h)/100	HUANCAYO Average (cts/h)/100
	Average (cts/h)/100	Average (cts/h)/100	Average (cts/h)/100	Average (cts/h)/100				
1	3368.0	1676.9(34)	6097.0	5808.2	3323.5(4)	1681.4		
2	3382.8	1679.4	6183.0	5851.9	3404.4(14)	1696.9		
3	3361.7	1680.3	6280.8	5905.2	3417.4	1706.8		
4	3600.0	1678.7	6325.8	5946.7	3428.5	1704.5		
5	3409.5	1677.8	6324.7	5987.6	3442.5	1706.0(34)		
6	3354.6(38)	1677.6	6349.3	6013.5	3453.0	1712.7		
7	---	1685.5(36)	6391.1	6047.9	3473.2	1716.7		
8	---	1687.6	6360.2	6017.1	3460.1	1706.3		
9	---	1688.3	6248.2	5937.4	3390.8	1695.1		
10	---	1690.1	6249.6	5975.4	3412.8	1695.3		
11	---	1688.9	6298.1	5974.0	3445.6	1700.2		
12	---	1687.6	6327.5	5977.5	3451.4	1708.9		
13	3432.4(10)	1684.3	6335.5	6020.5	3460.9	1714.6		
14	3435.8	1693.3	6353.5	6045.9	3452.4	1710.6		
15	3411.7	1693.6(36)	6292.8	5985.7	3428.3	1705.8		
16	3417.9	1697.7	6291.9	5974.7	3430.1	1703.0		
17	3427.4	1702.0	6298.3	5991.2	3436.8	1706.8		
18	3398.1	1698.7	6325.5	6024.0	3459.0	1716.2		
19	3402.8	1698.7	6383.0	6059.2	---	1723.1		
20	3409.1	1700.8	6410.8	6072.7	---	1723.4		
21	3416.2	1704.6	6392.2	6048.3	---	1722.6		
22	3425.1	1709.3	6396.7	6063.2	---	1727.7		
23	3433.2	1714.3	6366.2	6022.0	---	1721.6		
24	3444.9	1716.0	6160.9	5840.9	3342.8(12)	1702.3		
25	3464.5	1718.9	6053.5	5719.9	3287.2	1677.6		
26	3428.3	1712.4	6315.8	5944.8	3425.5	1698.8		
27	3413.8	1702.1	6333.7	6008.0	3462.9	1714.3		
28	3419.9	1704.9	6291.5	5982.9	3460.9	1712.4		
29	3385.9	1700.3(32)	6253.2	5943.3	3463.1	1712.7		
30	3369.0	1699.8	6330.4	5952.0	3435.6(30)	1705.0		
31	3347.7	1688.4	---	---	---	---		
MEAN	3414.9	1694.9	6300.7	5971.4	3433.1	1707.6		

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

COSMIC RAY INDICES
(Neutron Monitor)

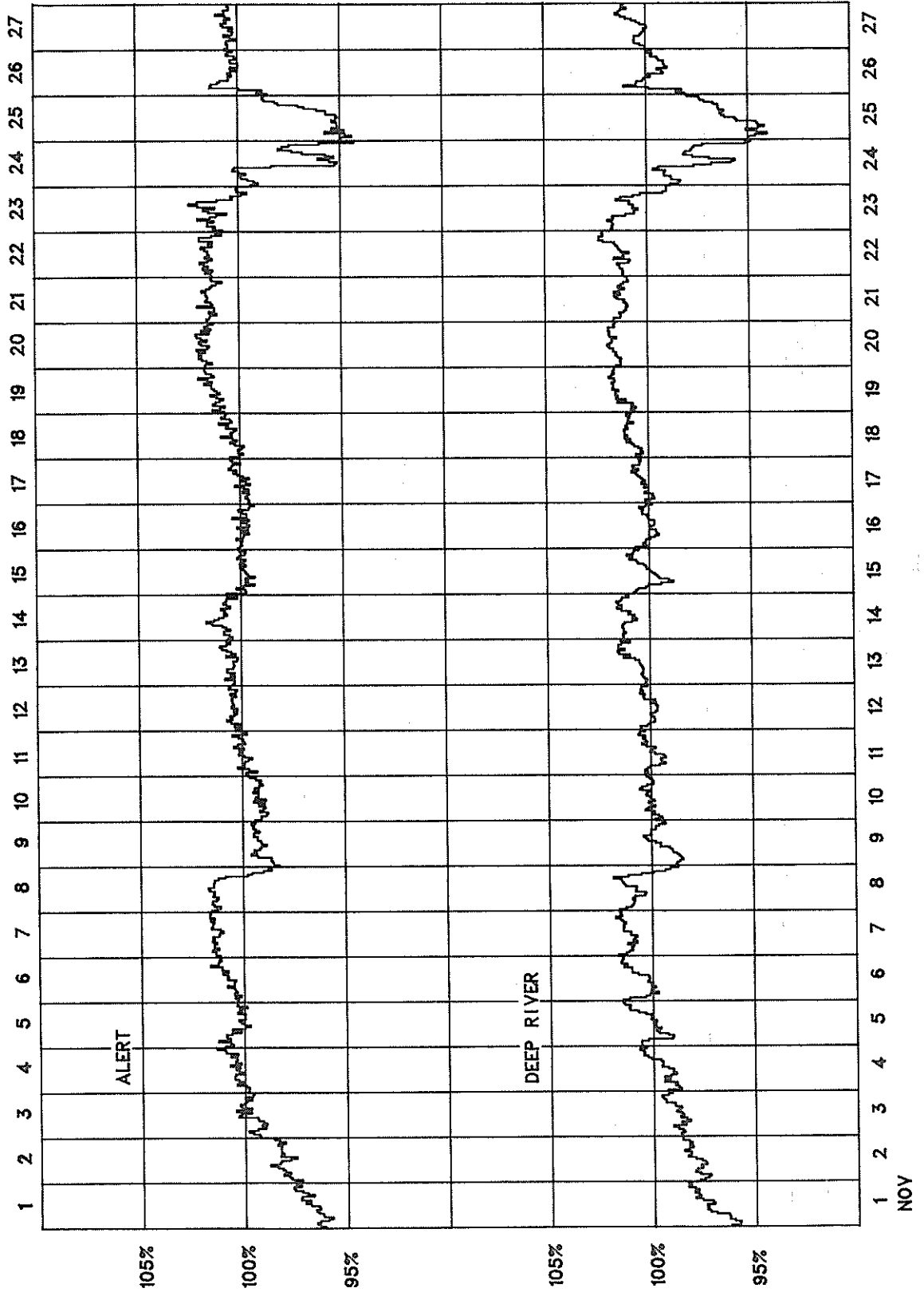


COSMIC RAY INDICES (Neutron Monitor)



COSMIC RAY INDICES
(Neutron Monitor)

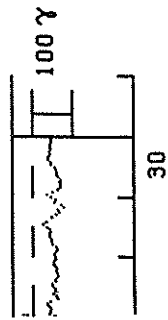
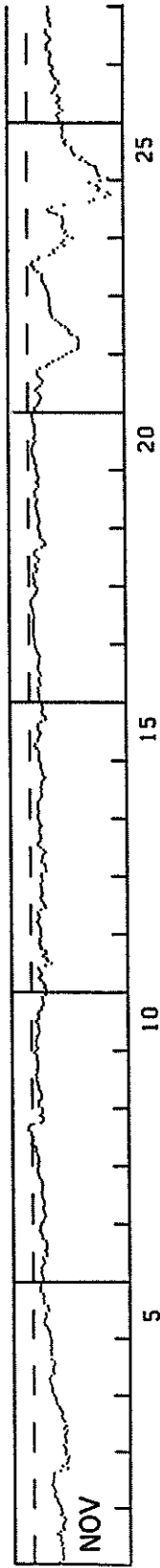
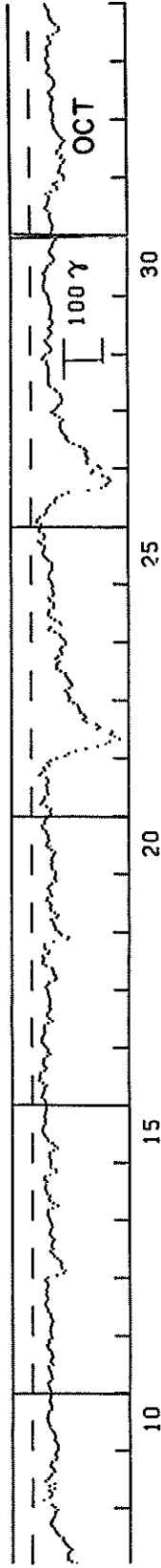
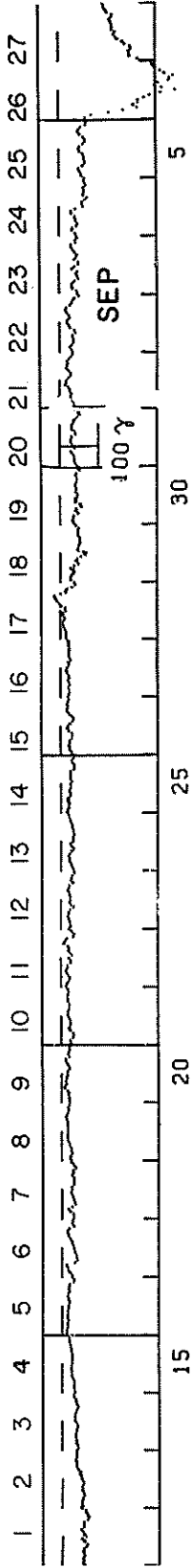
Bartels Rotation 2040 (November 1982)



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



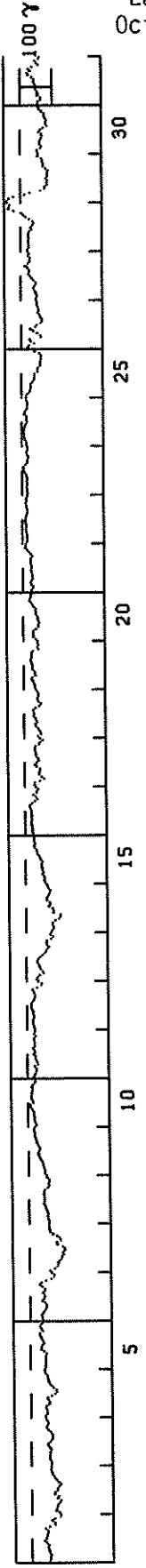
Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

OCTOBER 1982

DAY	(Time-UT)																								(Units-Gommas)
	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	-55	-58	-59	-60	-56	-53	-51	-50	-53	-45	-39	-44	-47	-48	-51	-49	-42	-55	-72	-71	-63	-71	-89	-90	
2	-65	-75	-78	-80	-82	-88	-91	-81	-84	-71	-73	-80	-82	-86	-91	-84	-78	-73	-70	-65	-64	-61	-62	-62	
3	-64	-64	-59	-57	-58	-60	-63	-63	-59	-53	-52	-59	-64	-68	-67	-65	-60	-53	-47	-50	-54	-52	-48	-45	
4	-45	-51	-50	-50	-47	-50	-58	-59	-53	-52	-65	-76	-80	-79	-70	-64	-59	-56	-54	-53	-52	-46	-44	-43	
5	-47	-46	-47	-47	-47	-48	-49	-50	-41	-33	-34	-37	-42	-40	-36	-33	-30	-30	-39	-31	-32	-32	-38	-40	
6	-39	-38	-36	-41	-45	-50	-52	-53	-47	-38	-44	-46	-45	-40	-46	-48	-38	-31	-36	-50	-67	-75	-76	-68	
7	-64	-78	-86	-89	-89	-94	-100	-101	-106	-104	-110	-110	-103	-85	-84	-57	-94	-86	-73	-65	-64	-62	-61	-62	
8	-63	-62	-59	-58	-61	-57	-55	-52	-50	-46	-49	-49	-48	-48	-46	-48	-51	-60	-65	-62	-64	-63	-57	-56	
9	-51	-50	-50	-48	-45	-44	-42	-37	-36	-32	-31	-33	-36	-35	-31	-28	-26	-24	-22	-20	-20	-19	-19	-21	
10	-27	-24	-21	-20	-21	-19	-18	-17	-12	-7	-7	-17	-16	-12	-11	-13	-13	-14	-16	-12	-17	-24	-25	-22	
11	-20	-24	-28	-29	-29	-23	-33	-31	-28	-25	-25	-20	-25	-22	-18	-24	-23	-23	-20	-22	-27	-21	-24	-25	
12	-23	-21	-19	-19	-22	-23	-20	-20	-21	-16	-13	-14	-14	-18	-23	-25	-27	-22	-21	-18	-32	-45	-47	-36	
13	-31	-35	-41	-53	-50	-43	-41	-38	-34	-34	-38	-43	-50	-58	-62	-66	-71	-65	-63	-63	-77	-84	-75	-78	
14	-80	-86	-85	-81	-83	-91	-103	-108	-108	-85	-85	-82	-71	-76	-74	-66	-65	-69	-72	-75	-76	-70	-68	-65	
15	-60	-58	-59	-58	-53	-55	-53	-51	-50	-49	-53	-48	-44	-41	-36	-36	-34	-28	-28	-31	-28	-27	-27	-25	
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19	-35	-35	-32	-30	-26	-27	-37	-35	-34	-27	-27	-26	-26	-23	-23	-26	-26	-26	-26	-30	-42	-47	-44	-44	
20	-38	-32	-32	-31	-32	-40	-48	-47	-50	-46	-45	-45	-40	-41	-38	-39	-33	-29	-25	-20	-22	-24	-25	-27	
21	-27	-32	-33	-27	-25	-29	-32	-30	-29	-28	-26	-27	-28	-26	-24	-25	-27	-31	-25	-20	-14	-8	-9	-10	
22	-15	-16	-16	-15	-13	-12	-11	-12	-13	-11	-9	-10	-11	-13	-16	-17	-15	-13	-12	-11	-13	-12	-15	-17	
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24	-14	-14	-11	-8	-7	-6	-5	-6	-8	-11	-12	-17	-16	-16	-8	-8	-9	-14	-17	-17	-18	-17	-14	-14	
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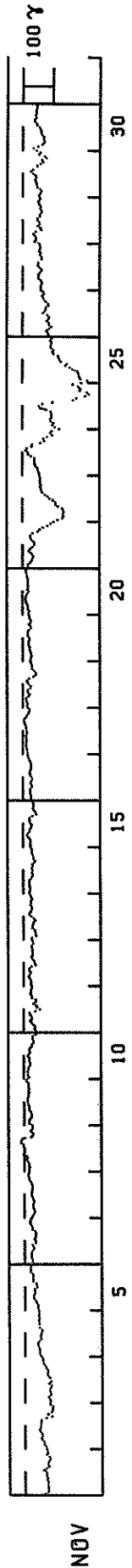


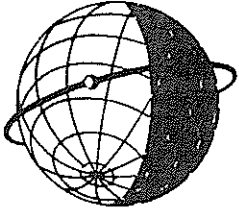
HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

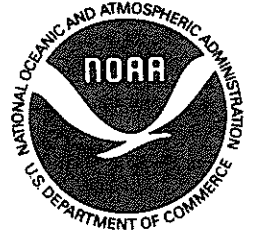
NOVEMBER 1982

DAY	(Time-UT)																								(Units--Gammass)
	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	-68	-76	-78	-76	-75	-74	-77	-71	-75	-69	-71	-69	-61	-70	-78	-75	-76	-79	-83	-79	-70	-75	-72	-70	
2	-69	-84	-62	-61	-54	-53	-54	-54	-50	-47	-51	-51	-52	-51	-54	-71	-89	-75	-86	-90	-89	-92	-83	-82	
3	-84	-80	-77	-85	-84	-81	-81	-85	-87	-79	-85	-89	-80	-75	-73	-76	-74	-69	-67	-61	-59	-58	-57	-53	
4	-49	-48	-48	-47	-44	-42	-42	-47	-54	-51	-52	-53	-56	-55	-47	-45	-47	-46	-46	-48	-45	-47	-47	-43	
5	-43	-43	-42	-39	-36	-31	-29	-31	-35	-34	-33	-41	-40	-38	-28	-28	-27	-29	-26	-19	-20	-19	-21	-24	
6	-27	-26	-24	-22	-23	-22	-27	-32	-29	-26	-37	-37	-33	-37	-37	-38	-34	-27	-26	-23	-19	-19	-20	-24	
7	-28	-31	-34	-33	-30	-28	-29	-32	-30	-29	-25	-24	-24	-26	-26	-27	-26	-23	-19	-16	-15	-13	-15	-17	
8	-15	-18	-17	-15	-12	-8	-11	-8	2	-2	-2	2	3	9	8	4	4	-24	-30	-29	-21	-27	-26	-26	
9	-18	-17	-19	-25	-26	-25	-22	-18	-17	-16	-14	-11	-13	-10	-15	-14	-17	-15	-17	-14	-14	-13	-7	-11	
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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."