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Solar - Geophysical Data

Part I (Prompt Reports)

NO. 474 FEBRUARY 1984

DATA FOR
JANUARY 1984
DECEMBER 1983

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

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S O L A R - G E O P H Y S I C A L D A T A

NUMBER 474

(Issued in Two Parts)

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*Solar radio noise bursts observed at Athens, Learmonth, Manila, Palehua and Sagamore Hill during Aug 1979 through Oct 1980 appear in SOLAR-GEOPHYSICAL DATA, No. 461, Part II, pages 103-235.

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Prompt Reports DATA FOR JANUARY 1984 Number 474 Part I

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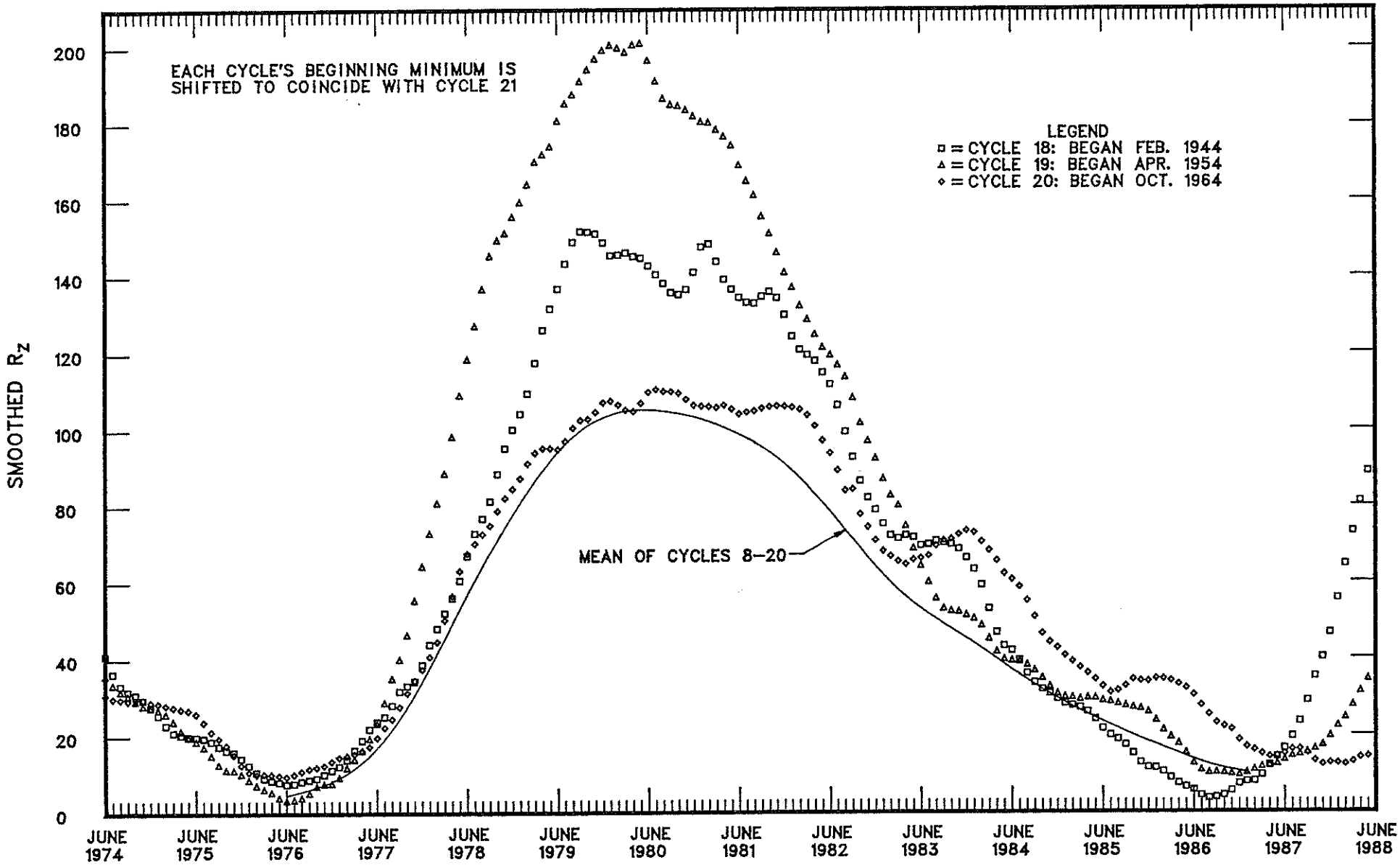


ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SUMMARY OF THE GEOALERT MESSAGES JANUARY 1984

NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
001	01	31	011	087	018	N14W11	1	0	0		01	N14W11	Q	SOLQUIET MAGALERT MINOR 01/02
002	02	01	015	087	024	N14W25	1	0	0		02	N14W25	Q	SOLQUIET MAGALERT MINOR 02/XX
003	03	02	021	091	021	N15W41	6	0	0		03	N15W41	Q	SOLQUIET MAGALERT MINOR 03/XX
004	04	03	022	093	017	N15W55	6	0	0		04	N15W55	Q	SOLQUIET MAGNIL
005	05	04	021	095	022	N16W69	1	0	0		05	N16W69	Q	SOLQUIET MAGQUIET
006	06	05	046	092	022	N16W82	0	0	0		06	N16W82	Q	SOLQUIET
						S10E27	0	0	0			S10E27	Q	MAGALERT
						S09E82	1	0	0			S09E82	Q	MINOR 06/XX
007	07	06	038	089	010	S10E02	0	0	0		07	S10E02	Q	SOLQUIET
						S11E14	0	0	0			S11E14	Q	MAGALERT
						S03E64	2	0	0			S03E64	Q	MINOR 07/08 RECURRENCE
008	08	07	056	090	005	S14W01	0	0	0		08	S14W01	Q	SOLQUIET
						S05E10	0	0	0			S05E10	Q	MAGALERT
						S10E14	0	0	0			S10E14	Q	MINOR 08/09
						S04E50	0	0	0			S04E50	Q	RECURRENCE
009	09	08	053	092	004	S16W15	0	0	0		09	S16W15	Q	SOLQUIET
						S06W02	0	0	0			S06W02	Q	MAGNIL
						S04E36	2	0	0			S04E36	Q	
010	10	09	078	098	003	S12W42	0	0	0		10	S12W42	Q	SOLQUIET
						S15W28	1	0	0			S15W28	Q	MAGQUIET
						S06W16	0	0	0			S06W16	Q	
						S04E22	0	0	0			S04E22	Q	
						S12E68	0	0	0			S12E68	Q	
011	11	10	067	099	013	S17W41	0	0	0		11	S17W41	Q	SOLQUIET
						S04E10	0	0	0			S04E10	Q	MAGQUIET
						S13E59	1	0	0			S13E59	Q	
						S15E75	3	0	0			S15E75	Q	
012	12	11	070	100	007	S17W55	0	0	0		12	S17W55	Q	SOLQUIET
						S03W04	0	0	0			S03W04	Q	MAGQUIET
						S12E44	0	0	0			S12E44	Q	
						S15E62	12	0	0			S15E62	Q	
013	13	12	079	105	008	S17W69	0	0	0		13	S17W69	Q	SOLQUIET
						S04W17	0	0	0			S04W17	Q	MAGQUIET
						S12E32	3	0	0			S12E32	Q	
						S16E48	8	0	0			S16E48	E	
014	14	13	069	106	013	S03W30	0	0	0		14	S03W30	Q	SOLQUIET
						S14E18	2	0	0			S14E18	E	MAGQUIET
						S16E32	11	0	0			S16E32	E	
015	15	14	076	103	005	S05W41	0	0	0		15	S05W41	Q	SOLQUIET
						S13E05	3	0	0			S13E05	Q	MAGQUIET
						S15E18	2	0	0			S15E18	E	
016	16	15	070	101	009	S05W52	0	0	0		16	S05W52	Q	SOLQUIET
						S13W09	2	0	0			S13W09	Q	MAGQUIET

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SUMMARY OF THE GEOALERT MESSAGES JANUARY 1984

NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
						S16E06	0	0	0			S16E06	E	
017	17	16	068	101	008	S13W22	0	0	0		17	S13W22	Q	SOLQUIET
						S16W08	4	0	0			S16W08	E	MAGQUIET
						S04E72	0	0	0			S04E72	Q	
018	18	17	070	098	008	S13W34	3	0	0		18	S13W34	Q	SOLQUIET
						S16W20	0	0	0			S16W20	E	MAGQUIET
						S04E60	0	0	0			S04E60	Q	
						S16E67	0	0	0			S16E67	Q	
019	19	18	061	098	008	S13W48	1	0	0		19	S13W48	Q	SOLQUIET
						S17W33	1	0	0			S17W33	Q	MAGQUIET
						S04E45	2	0	0			S04E45	Q	
						S16E52	0	0	0			S16E52	Q	
020	20	19	062	097	019	S13W62	0	0	0		20	S13W62	Q	SOLQUIET
						S17W46	7	0	0			S17W46	Q	MAGQUIET
						S04E33	2	0	0			S04E33	Q	
						S17E39	0	0	0			S17E39	Q	
021	21	20	103	097	011	S13W75	1	0	0		21	S13W75	Q	SOLQUIET
						S16W59	10	1	0			S16W59	Q	MAGALERT
						S05E09	5	0	0			S05E09	Q	MINOR 22/23
						S05E20	0	0	0			S05E20	Q	
						S16E23	0	0	0			S16E23	Q	
						N17E75	0	0	0			N17E75	Q	
022	22	21	125	107	014	S13W87	0	0	0		22	S13W87	Q	SOLQUIET
						S16W72	6	0	0			S16W72	Q	MAGALERT
						S05W03	0	0	0			S05W03	E	MINOR 23
						S05E06	0	0	0			S05E06	Q	
						S16E13	0	0	0			S16E13	Q	
						N16E69	0	0	0			N16E69	Q	
						N14E78	0	0	0			N14E78	Q	
023	23	22	105	114	011	S16W84	3	0	0		23	S16W84	Q	SOLQUIET
						S05W17	2	0	0			S05W17	Q	MAGALERT
						S05W07	0	0	0			S05W07	Q	MINOR 23
						S16W01	0	0	0			S16W01	Q	RECURRENCE
						N17E55	2	0	0			N17E55	Q	
						N15E64	0	0	0			N15E64	Q	
						N15E87	1	0	0			N15E87	Q	
024	24	23	116	117	006	S17W93	0	0	0		24	S17W93	Q	SOLQUIET
						S05W30	0	0	0			S05W30	Q	MAGNIL
						S04W16	0	0	0			S04W16	Q	
						S18W10	0	0	0			S18W10	Q	
						N17E40	0	0	0			N17E40	Q	
						N15E51	3	0	0			N15E51	Q	
						N12E71	11	0	0			N12E71	E	
025	25	24	121	133	009	S05W44	4	0	0		25	S05W44	Q	SOLQUIET
						S04W27	0	0	0			S04W27	Q	MAGQUIET
						N17E26	0	0	0			N17E26	Q	
						N16E37	5	0	0			N16E37	E	
						N08E45	0	0	0			N08E45	Q	
						N13E60	9	0	0			N13E60	A	
026	26	25	157	152	010	S06W59	10	0	0	PRESTO TENFLARE 280 FLUX UNITS	26	S06W59	Q	SOLALERT
						S05W39	0	0	0	26/0035Z DURATION 25 MINUTES		S05W39	Q	26/XX
						N07W24	0	0	0			N07W24	Q	MAGQUIET
						N15E11	3	0	0			N15E11	E	
						N15E23	11	0	0			N15E23	A	
						N07E31	0	0	0			N07E31	Q	
						N12E45	7	0	0			N12E45	E	
						S12E66	1	0	0			S12E66	Q	

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SUMMARY OF THE GEOALERT MESSAGES JANUARY 1984

NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
027	27	26	144	165	019	S06W71	8	1	0		27	S06W71	A	SOLALERT
						N15W01	7	0	0			N15W01	E	27/XX
						N15E10	8	1	0			N15E10	A	MAGQUIET
						N07E20	0	0	0			N07E20	Q	
						N12E32	7	0	0			N12E32	E	
						S14E54	0	0	0			S14E54	Q	
028	28	27	169	178	010	S06W87	4	0	0	PRESTO TENFLARE 190 FLUX UNITS	28	S06W87	E	SOLALERT
						N07W53	0	0	0	27/0653Z DURATION 10 MINUTES		N07W53	Q	28/XX
						N15W15	3	0	0			N15W15	E	MAGALERT
						N14W03	14	1	0			N14W03	A	MINOR 28/XX
						N07E06	1	0	0			N07E06	Q	
						N12E19	10	0	0			N12E19	E	
						S15E39	0	0	0			S15E39	Q	
						N13E43	1	0	0			N13E43	Q	
029	29	28	160	174	020	N16W38	0	0	0		29	N16W38	Q	SOLALERT
						N15W29	0	0	0			N15W29	Q	29/XX
						N14W17	8	0	0			N14W17	A	MAGALERT
						N07W08	0	0	0			N07W08	Q	MINOR 29/XX
						N12E05	2	0	0			N12E05	E	
						N13E30	1	0	0			N13E30	Q	
030	30	29	189	180	022	N15W51	3	0	0		30	N15W51	E	SOLALERT
						N16W43	1	0	0			N16W43	Q	30/XX
						N14W30	6	0	0			N14W30	A	MAGALERT
						N12W08	5	0	0			N12W08	A	30/XX
						S18W07	0	0	0			S18W07	Q	
						S13E11	0	0	0			S13E11	Q	
						N13E15	0	0	0			N13E15	Q	
						S15E28	0	0	0			S15E28	Q	
031	31	30	171	167	024	N15W65	2	0	0		31	N15W65	Q	SOLALERT
						N16W55	2	0	0			N16W55	Q	31/XX
						S15W54	0	0	0			S15W54	Q	MAGALERT
						N14W45	6	0	0			N14W45	A	31/XX
						N12W21	7	1	0			N12W21	A	
						S18W20	0	0	0			S18W20	Q	
						N15E01	0	0	0			N15E01	Q	
						S15E15	0	0	0			S15E15	Q	
032	01	31	136	174	019	N15W76	0	0	0	PRESTO TENFLARE 220 FLUX UNITS	01	N15W76	Q	SOLALERT
						N16W68	3	1	0	31/0705Z DURATION 35 MINUTES		N16W68	Q	01/XX
						S15W65	0	0	0			S15W65	Q	MAGALERT
						N15W57	8	0	0			N15W57	A	MINOR 01/XX
						N12W35	7	0	0			N12W35	E	
						N13W12	3	0	0			N13W12	E	
						S12E08	0	0	0			S12E08	Q	
						S12E76	0	0	0			S12E76	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, TOT=TOTAL NUMBER OF FLARES, M=NUMBER OF M FLARES, X=NUMBER OF X FLARES, DA=DATE OF FORECAST, DE=DESCRIPTION, Q=QUIET, E=ERUPTIVE, A=ACTIVE, P=PROTON

JANUARY PRESTO MESSAGES

PRESTO TOYOKAWA 26/0130Z TENFLARE 280 FLUX UNITS 26/0035Z DURATION 25 MINUTES
PRESTO BOULDER 26/0204Z TENFLARE 280 FLUX UNITS 26/0036Z DURATION 37 MINUTES
PRESTO TOYOKAWA 27/0900Z TENFLARE 190 FLUX UNITS 27/0653Z DURATION 10 MINUTES
PRESTO TOYOKAWA 31/0800Z TENFLARE 220 FLUX UNITS 31/0705Z DURATION 35 MINUTES
PRESTO BOULDER 31/0750Z TENFLARE 330 FLUX UNITS 31/0723Z DURATION 21 MINUTES

INTERNATIONAL* (R_I) RELATIVE SUNSPOT NUMBERS

Day	1983 Final Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	1983 Prov Oct	Nov	Dec	1984 Jan
01	103	109	53	114	61	62	131	46	32	17	29	10
02	85	93	70	104	72	59	128	56	51	25	23	16
03	88	86	61	94	73	61	105	59	63	37	17	17
04	94	93	53	85	68	87	103	69	74	51	17	18
05	82	113	36	95	77	80	79	84	65	66	21	26
06	71	88	49	88	85	79	49	78	75	68	35	29
07	72	77	64	92	104	79	60	72	87	84	41	37
08	63	68	59	98	100	82	70	68	99	90	54	36
09	39	74	59	110	100	69	69	74	106	70	68	50
10	26	55	64	114	86	59	63	70	108	68	82	44
11	21	49	69	101	73	68	88	65	130	56	76	48
12	18	32	65	114	66	86	103	41	122	47	66	51
13	11	12	64	132	72	85	104	36	100	40	66	45
14	10	24	64	125	88	88	97	36	75	29	52	46
15	24	44	53	130	92	92	93	42	72	28	50	44
16	17	63	54	99	84	93	80	33	61	38	35	46
17	22	74	63	93	79	96	72	35	60	31	34	51
18	32	88	75	99	78	98	71	45	63	36	36	49
19	33	82	110	88	103	96	54	40	46	26	27	51
20	32	82	90	105	117	101	40	32	26	13	25	69
21	39	87	87	110	117	109	52	36	18	13	25	76
22	33	70	83	104	136	114	50	38	22	0	15	69
23	40	66	91	102	143	95	51	42	22	0	19	70
24	50	60	92	111	122	105	35	46	20	0	17	70
25	67	48	123	98	122	85	52	42	18	0	21	99
26	70	70	118	100	110	58	53	50	22	0	27	98
27	88	72	126	85	92	49	51	51	12	8	12	105
28	98	48	146	68	83	40	55	48	11	12	10	106
29		44	142	88	68	73	63	43	16	19	11	118
30		54	137	68	63	89	59	33	15	24	13	110
31		37		60		110	45		19		10	82
Mean	51	66	81	99	91	82	72	50	55	33	33	58

*International sunspot numbers have replaced the Zurich values since January 1981.
The yearly mean sunspot number equaled 115.9 in 1982.

DAILY SOLAR FLUX AT 2800 MHz (10.7 CM) ADJUSTED TO 1 AU

ALGONQUIN RADIO OBSERVATORY, OTTAWA

Day	Feb 83	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 84
01	162.6	145.4	100.7	142.0	131.3	124.1*	151.1	110.5*	117.5	98.3	90.5	84.3
02	156.5*	138.7	101.2	145.4	139.0*	125.4	145.4*	110.9	120.4	97.6	88.9	87.4
03	145.5	141.0	101.4*	139.4	139.3	131.5	139.4*	106.4	123.1	96.9	88.5	89.5
04	156.8	143.7	100.8	132.9	149.2	137.2	136.5	110.5	125.1	103.1	91.9	91.0
05	154.3*	146.6	98.7	130.8	167.9*	132.1	136.5	117.6	126.6*	105.1	92.0	88.2
06	152.3	139.3	99.5	125.8*	191.4	132.4	142.0	120.7	132.7	---	97.1*	85.6
07	142.2	132.3	102.2	117.4	179.5	132.7	141.9	118.6	133.9	108.5	98.6	86.5
08	133.3	128.1	104.1*	127.0	173.7	127.9	141.0	118.4	131.1*	103.5	98.3	92.3
09	121.9	122.0	106.1	132.2*	159.5*	123.1	142.9	115.3	130.4	99.2	108.2	94.4
10	113.4	115.1	103.3	143.5*	150.5*	123.1	151.6	109.7	133.6*	100.8	108.0	95.2
11	106.9	103.0	104.4	159.3*	139.2	125.7	151.3	110.5	138.3	96.7	101.7*	96.8
12	99.8	99.5*	107.7	160.4*	134.5	124.7	156.7*	104.9*	133.7	89.6	101.1	101.1
13	95.5	95.8	109.1	154.4	128.3	123.5	147.3	104.4	133.5*	91.9	100.8	102.1
14	91.7	95.9	111.7	153.5*	126.4*	124.4	141.6*	105.2	131.5*	91.0	96.5	99.2
15	88.5	100.6*	103.6	145.7	128.7	124.6	135.8*	106.3*	127.0	90.9	92.2	97.8
16	89.7	107.8	105.1	134.0*	128.8*	121.3	132.1	106.3*	117.2A	90.6	93.5*	96.6*
17	91.9	114.5	113.5	131.7*	130.7	120.0	126.8	105.1	110.9*	85.6	92.0	95.2
18	97.2	117.7	120.7	137.6	130.5	116.4*	122.2	102.5	103.6	84.4	90.1	95.0
19	94.6	118.3	125.0	146.8	133.8	119.5	117.7	101.2	105.2	82.3	86.2	93.4
20	97.3	120.7	127.4	151.8*	136.9	125.1	118.7	100.4	99.1	80.3	83.6	102.2
21	101.6	118.8*	133.3	149.8	144.0	128.1*	114.2	103.0	89.3	79.3	82.3	103.3
22	106.2	117.2	139.7	152.0	148.9	138.9	110.8	106.0	87.2	80.1	82.9	110.5
23	112.0	116.2	140.4	143.7	149.8	132.9*	110.8	112.6	87.8	78.2	83.0	113.3
24	114.3	117.1	142.7	140.5	141.7*	136.3*	108.7	111.8	88.6	78.8	83.1	126.4*
25	120.3	114.2*	145.6	138.8	141.4	136.7*	104.2	110.5*	89.2	79.2	82.4*	146.8
26	126.2	114.7*	146.8	132.3	144.1A	128.9*	105.8	114.6*	89.1	80.4	82.9	164.8*
27	138.3	109.6	149.6	130.5	137.1	123.1	103.7	119.8	88.9	84.4	85.5	172.3
28	137.6	104.9	156.4*	133.1	129.4*	127.1	102.8	114.8	90.4	86.6	80.7	168.9
29		98.9	148.4	139.0	128.9	138.5*	105.7	114.5	90.7	89.4	81.1	174.6
30		100.7	147.2	135.4*	126.8	144.3	104.0	113.0	92.6	90.0	81.3	161.5
31		98.7		138.0*		153.1*	104.2		95.5*		83.8	169.3
Mean	119.6	117.3	119.9	140.2	143.0	129.1	127.5	110.2	111.7	90.4	90.5	112.4

A = Interpolated value; --- = no observation.
*Adjusted for burst in progress at time of measurement.
The yearly mean 2800 MHz flux adjusted to 1 astronomical unit equaled 119.8 in 1983.

DAILY SOLAR INDICES

JANUARY 1984

Day	Julian Day	Bartels Cycle Day	Sunspot Numbers R_I	Sunspot Numbers $R_{A'}$	Obs Flux Ottawa (2800)	Solar Flux Adjusted to 1 Astronomical Unit: SGMR (15400)	SGMR (8800)	SGMR (4995)	Ottawa (2800)	SGMR (2695)	SGMR (1415)	SGMR (606)	SGMR (410)	SGMR (245)
01	1	22	10	5	87.2	529	268	114	84.3	83	74	75	30	15
02	2	23	16	17	90.4	560	277	118	87.4	81	78	71	30	14
03	3	24	17	17	92.6	561	267	112	89.5	86	77	72	29	14
04	4	25	18	18	94.1	565	272	119	91.0	86	79	71	28	15
05	5	26	26	19	91.2	571	267	111	88.2	84	84	67	28	14
06	6	27	29	21	88.5	542	272	110	85.6	85	81	62	28	14
07	7	1	37	24	89.5	551	256	109	86.5	83	74	69	28	14
08	8	2	36	35	95.5	574	281	116	92.3	82	85	65	29	16
09	9	3	50	46	97.6	577	274	119	94.4	90	82	77	32	15
10	10	4	44	48	98.5	554	257	108	95.2	96	80	71	29	15
11	11	5	48	42	100.1	583	289	119	96.8	96	80	69	29	14
12	12	6	51	47	104.5	586	296	131	101.1	102	84	75	32	27
13	13	7	45	43	105.6	570	291	131	102.1	104	83	71	34	26
14	14	8	46	36	102.6	467	283	123	99.2	96	80	68	49	57
15	15	9	44	39	101.1	577	283	122	97.8	93	82	66	34	25
16	16	10	46	44	99.8*	591	290	123	96.6*	91	83	66	28	31
17	17	11	51	50	98.3	---	---	---	95.2	---	---	--	--	--
18	18	12	49	50	98.1	568	282	119	95.0	92	80	70	27	14
19	19	13	51	53	96.5	583	278	116	93.4	87	77	69	27	14
20	20	14	69	66	105.6	589	300	132	102.2	98	85	73	36	20
21	21	15	76	63	106.7	---	---	---	103.3	---	---	--	--	--
22	22	16	69	65	114.0	536	295	136	110.5	104	85	64	32	14
23	23	17	70	66	116.9	591	300	142	113.3	104	87	68	32	20
24	24	18	70	81	130.4*	---	---	---	126.4*	---	---	--	--	--
25	25	19	99	96	151.5	592	344	179	146.8	131	113	77	37	27
26	26	20	98	106	170.1*	625	381	217	164.8*	167	114	99	68	47
27	27	21	105	103	177.6	595	390	235	172.3	161	122	94	59	60
28	28	22	106	96	174.1	621	393	223	168.9	164	117	96	47	54
29	29	23	118	111	180.0	625	428	241	174.6	169	123	109	62	19
30	30	24	110	86	166.5	507	392	220	161.5	161	115	87	38	33
31	31	25	82	91	174.4	593	324	186	169.3	155	108	59	44	88
Mean			58	54	116.1	571	305	143	112.4	108	90	74	35	33

*Adjusted for burst in progress at time of measurement.

The observed and the adjusted Ottawa fluxes tabulated above are the "Series C" daily values reported by the Algonquin Radio Observatory, Ottawa, Ontario, Canada. The letter "A" following an entry designates an interpolated flux. Numbers in parentheses in the column headings denote frequencies in MHz.

Equipment problems produced the gaps shown here in the Air Weather Service's Sagamore Hill (SGMR) observations.

The international and American sunspot numbers shown above are preliminary values.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

JANUARY 1984

Date	RELATIVE SUNSPOT NUMBERS: Zurich or Internat (R_I) Monthly Mean	Zurich or Internat (R_I) Smoothed	American (R_A) Monthly Mean	American (R_A) Smoothed	Derived (R_S) Monthly Mean	Derived (R_S) Smoothed	2800 MHz RADIO FLUX Adjusted to 1 AU (S_a) Monthly Mean	2800 MHz RADIO FLUX Adjusted to 1 AU (S_a) 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	111.1	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	120	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	117	116.0	125	164.8	174
Aug	107.6	109	110.5	111	123.9	120	172.1	168
Sep	118.8	101	117.8	103	118.5	112	167.1	161
Oct	94.7	96	90.1	97	111.8	106	160.9	155
Nov	98.1	95	93.2	95	114.8	103	163.7	153
Dec	127.0	95	145.0	95	146.7	101	193.2	151
Jan 83	84.3	93	82.8	93	86.7	98	137.7	148
Feb	51.0	90	53.4	90	67.2	94	119.6	145
Mar	66.5	86	60.5	85	64.7	90	117.3	141
Apr	80.7	82*	74.5	81	67.5	85	119.9	136
May	99.2	77*	97.7	77	86.1	80	137.1	131
Jun	91.1	70*	93.1	69	92.4	72	143.0	124
Jul	82.1†	66*	82.2	68	77.4	66	129.1	118
Aug	71.9†	**65(4)***	69.2	**67**	75.7	**65**	127.5	---
Sep	50.9†	**64(6)***	47.4	**66**	57.0	**65**	110.2	---
Oct	55.2†	**63(8)***	52.3	**66**	58.6	**64**	111.7	---
Nov	33.2†	**63(10)***	30.2	**65**	35.6	**63**	90.4	---
Dec	33.4†	**62(11)***	32.3	**64**	35.7	**62**	90.5	---
Jan 84	57.6†	**61(12)***	---	**63**	59.4	**61**	112.4	---
Feb	---	**59(12)***	---	**61**	---	**59**	---	---
Mar	---	**56(14)***	---	**58**	---	**56**	---	---
Apr	---	**53(17)***	---	**54**	---	**53**	---	---
May	---	**51(18)***	---	**52**	---	**51**	---	---
Jun	---	**50(20)***	---	**52**	---	**50**	---	---
Jul	---	**49(21)***	---	**50**	---	**49**	---	---

*An asterisk marks either a value of the observed 12-month running mean or of a predicted 12-month average that is based in part on preliminary observations.

Boldface entries indicate predicted values and parentheses enclose the absolute value of the 90% confidence limits. All tabulated entries of the American sunspot number are final values. The two columns headed "Derived" represent a sunspot number computed from a linear regression equation between the 2800 MHz solar flux (adjusted to 1 astronomical unit) and the Zurich sunspot number.

†International numbers replaced the Zurich values in January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS FOR CYCLE 21

JANUARY 1984

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1976	15	13	12	13	13	12(m)	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(M)
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	101	96	95	95
1983	93	90	86	82	77	71	66	65 (4)	64 (6)	63 (8)	63 (10)	62 (11)
1984	61 (12)	59 (12)	56 (14)	53 (17)	51 (18)	50 (20)	49 (21)	47 (21)	45 (21)	43 (21)	41 (21)	39 (21)
1985	38 (21)	36 (21)	35 (20)	34 (20)	33 (21)	31 (20)	30 (19)	29 (19)	28 (18)	27 (19)	26 (20)	26 (20)
1986	25 (20)	25 (20)	24 (20)	22 (19)	21 (18)	19 (18)	18 (17)	16 (17)	16 (16)	15 (15)	15 (14)	14 (12)

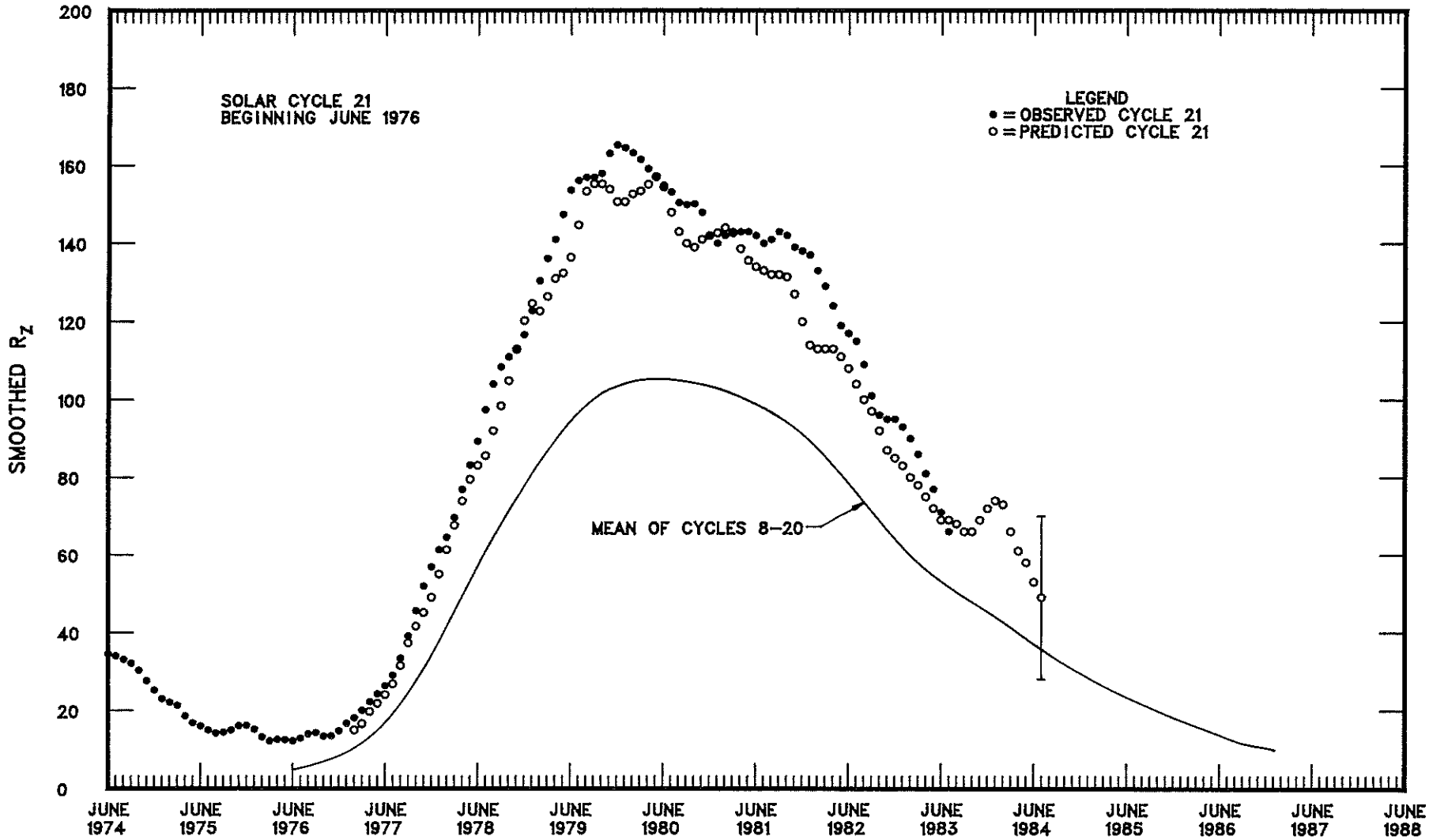
The letter m in parentheses marks the minimum of Sunspot Cycle 21 and M marks the maximum.

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 1983, and on provisional international numbers thereafter. Some table entries after the June 1976 value will change slightly, when we incorporate final data for 1983.

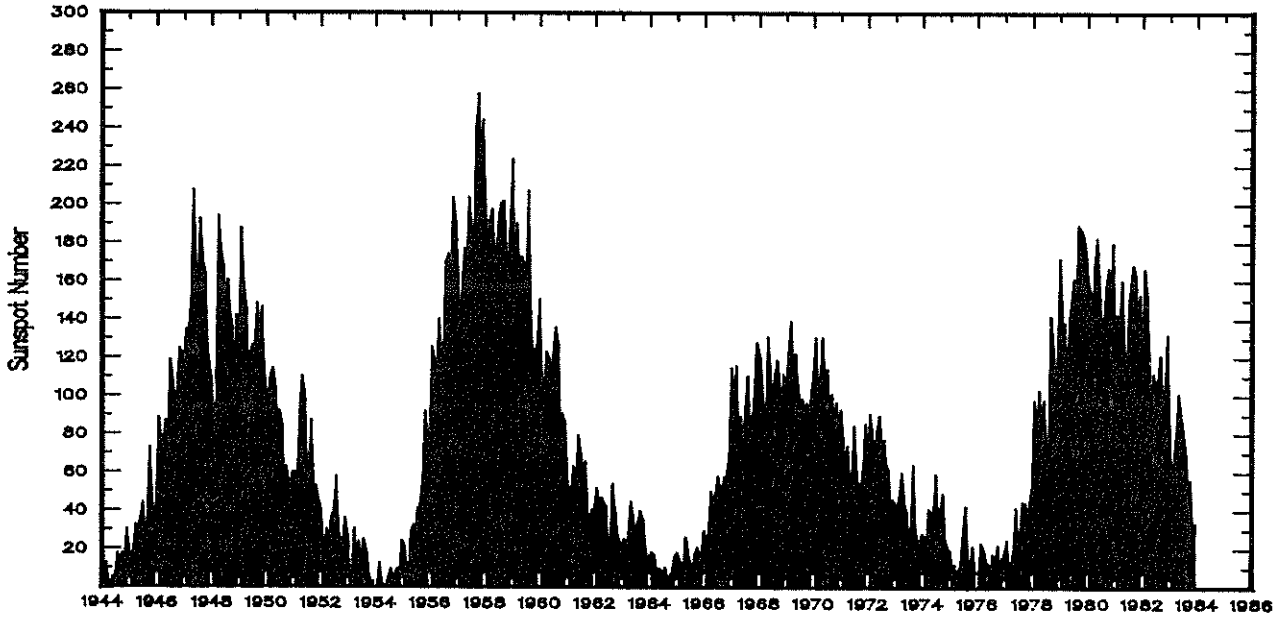
The entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 9 in the February 1983 edition of the "Solar-Geophysical Data" supplement.) By adding to and subtracting from each prediction the number in parentheses, one generates the 90% confidence interval. Consider, for example, the July 1984 prediction tabulated above. There exists a 90% chance that in July 1984 the actual smoothed sunspot number will fall somewhere between 28 and 70.

THE MCNISH-LINCOLN PREDICTION METHOD GENERATES USEFUL 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.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



MONTHLY MEAN SUNSPOT NUMBERS
January 1944 – January 1984



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	9.3	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	94.7	98.1	127.0
1983	84.3	51.0	66.5	80.7	99.2	91.1	82.2	71.8	50.3	55.2*	33.2*	33.4*
1984	57.6*											

*Provisional

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JANUARY 1984

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	01	2301	2307	2317	N15	W26	4384	12	31.0	16	SF		3	C		31		FH
LEAR	02	0120	0120	0123	N14	W28	4384	12	30.9	3	SF		3	C		25		F
LEAR	02	0412	0414	0422	N14	W31	4384	12	30.8	10	SF		3	C		21		
LEAR	02	0438	0454	0527	N12	W02	4387	01	2.0	49	SF		3	C		75		U
LEAR	02	0521	0527	0534	N13	W29	4384	12	31.0	13	SF		3	C		32		
LEAR	02	0750	0751	0755	N13	W33	4384	12	30.8	5	SF		3	C		22		
LEAR	02	0804	0804	0809	N13	W33	4384	12	30.8	5	SF		3	C		37		
RAMY	02	1303	1303	1327	N14	W36	4384	12	30.8	24	SF		3	C		23		
RAMY	03	1338	1340	1353	N13	W47	4384	12	31.0	15	SF		3	C		28		
RAMY	03	1656	1700	1710	N13	W48	4384	12	31.1	14	SN		3	C		24		
PALE	03	1851	1854	1858	N14	W51	4384	12	30.9	7	SF		3	C		20		F
LEAR	03	2338	2339	2341	N14	W53	4384	12	31.0	3	SF		3	C		31		
LEAR	03	2354	0004	0011	N15	W54	4384	12	30.9	17	SN		3	C		30		K
LEAR	03	2354	2356	0011	N15	W54	4384	12	30.9	17	SF		3	C		66		K
LEAR	04	0449	0455	0455	N16	W60	4384	12	30.7	6	SF		3	C		24		F
GOES	05	0435	0450	0510						35		C 1.2						
ISTA	05	0813		0820	N14	W76		12	30.6	7	SF							D
RAMY	05	1434	1435	1449	N14	W49	4387	01	1.9	15	SF		3	C		21		
GOES	05	1710	1726	1730			4384			20		C 2.1						
HOLL	05	2103	2104	2113	S06	E80	4389	01	11.9	10	SF		3	C		22		
GOES	06	1604	1610	1614						10		C 1.8						
RAMY	06	1648	1651	1655	S04	E65	4389	01	11.6	7	SN		3	C		26		
RAMY	06	1936	1936	1948	S02	E66	4389	01	11.7	12	SF		3	C		18		
LEAR	08	0937	0939	0940	S06	E48	4389	01	12.0	3	SF		3	C		25		
LEAR	08	0954	0955	1000	S06	E48	4389	01	12.0	6	SF		3	C		20		
GOES	08	2016	2026	2033						17		C 2.5						
RAMY	09	1922	1922	1929	S16	W26	4388	01	7.8	7	SF		3	C		33		
PALE	09	1923	1925	1932	S17	W26	4388	01	7.8	9	SF		3	C		30		
GOES	10	0943	0953	1021						38		C 1.1						
LEAR	10	0946E	0953	0959D	S06	E21	4389	01	12.0	13D	SN		2	C		167		ZF
RAMY	10	1201	1204	1221	S15	E68	4392	01	15.6	20	SF		3	C		52		F
RAMY	10	1834	1848	1925	S15	E81		01	16.9	51	SF		3	C		40		
PALE	10	1846	1848	1856	S15	E77		01	16.6	10	SF		3	C		13		
HOLL	10	2021	2026	2040	S17	E82	4393	01	17.1	19	SF		3	C		20		
PALE	10	2022	2026	2101D	S15	E78		01	16.8	39D	SF		3	C		25		
HOLL	10	2337	2338	2340	S17	E75	4393	01	16.7	3	SF		3	C		19		
LEAR	11	0327	0436	0617	S16	E74	4393	01	16.8	170	SF		3	C		54		
RAMY	11	1247	1312	1357	S16	E69	4393	01	16.8	70	SN		3	C		24		
RAMY	11	1359	1448	1605	S16	E68	4393	01	16.7	126	SN		3	C		49		K
RAMY	11	1359	1543	1605	S16	E68	4393	01	16.7	126	SN		3	C		43		K
HOLL	11	1519	1545	1605	S16	E69	4393	01	16.9	46	SF		3	C		82		
RAMY	11	1640	1645	1659	S16	E67	4393	01	16.8	19	SN		3	C		17		
PALE	11	1822	1834	1858	S14	E66	4393	01	16.8	36	SN		3	C		114		F
HOLL	11	1826	1837	1901	S17	E67	4393	01	16.9	35	SN	C 2.9	3	C		59		
RAMY	11	1829	1837	1856	S16	E67	4393	01	16.9	27	SN	C 2.9	3	C		30		F
HOLL	11	1918	1921	1945	S17	E66	4393	01	16.8	27	SF		3	C		27		
RAMY	11	1924	1934	1941	S16	E64	4393	01	16.7	17	SN		3	C		13		F
RAMY	11	2008	2025	2045	S16	E65	4393	01	16.8	37	SN		3	C		27		F
HOLL	11	2134	2141	2202	S17	E64	4393	01	16.8	28	SN	C 1.8	3	C		62		K
HOLL	11	2134	2151	2202	S17	E64	4393	01	16.8	28	SN		3	C		60		K
HOLL	11	2240	2244	2249	S15	E64	4393	01	16.8	9	SF		3	C		33		
LEAR	11	2301	0206	0209D	S16	E62	4393	01	16.7	188D	1N		3	C		236		K
LEAR	11	2301	2304	0209D	S16	E62	4393	01	16.7	188D	SF		3	C		109		K
HOLL	11	2303	2307	2313	S17	E64	4393	01	16.8	10	SF		3	C		20		
YUNN	12	0204	0206	0215	S16	E62		01	16.8	11	1N			C		141	3.1	
GOES	12	0350	0358	0404						14		C 1.3						
YUNN	12	0416	0420	0437	S17	E60		01	16.7	21	1N			C		110	2.3	T
GOES	12	0417	0420	0423						6		C 1.1						
YUNN	12	0456	0459	0512	S16	E60		01	16.8	16	1N			C		126	2.6	T
YUNN	12	0612	0615	0630	S16	E60		01	16.8	18	1N			C		126	2.6	T
YUNN	12	0826	0830	0846	S16	E57		01	16.7	20	1N			P		126	2.4	DT

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
YUNN	12	0834	0840	0846	S16	E57		01	16.7	12	SN			P		94	1.8	DT
GOES	12	0848	0851	0853						5		C 2.0						
RAMY	12	1222	1225	1252	S16	E56	4393	01	16.8	30	SF		3	C		45		F
RAMY	12	1617	1623	1716	S18	E38	4392	01	15.6	59	SN		3	C		60		
HOLL	12	1623	1640	1650	S18	E38	4392	01	15.6	27	SF		3	C		41		F
HOLL	12	1731	1733	1742	S17	E55	4393	01	16.9	11	SF	C 1.3	3	C		20		
RAMY	12	1831	1832	1841	S12	E38	4392	01	15.6	10	SN		3	C		76		F
HOLL	12	1831	1832	1839	S12	E38	4392	01	15.6	8	SN		3	C		52		F
RAMY	12	1845	1845	1852	S16	E51	4393	01	16.6	7	SN		3	C		17		
HOLL	12	1911	1917	1920D	S17	E52	4393	01	16.8	9D	SN	C 3.4	3	C		32		F
RAMY	12	1912	1919	1940	S16	E52	4393	01	16.7	28	SB	C 3.4	3	C		26		FE
RAMY	12	1920	1922	1936	S11	E38	4392	01	15.7	16	SN		3	C		57		
PALE	12	2057	2106	2112	S15	E51	4393	01	16.7	15	SF		3	C		18		
RAMY	12	2058	2103	2128	S16	E50	4393	01	16.7	30	SN		3	C		16		K
RAMY	12	2058	2114	2128	S16	E50	4393	01	16.7	30	SB	C 1.2	3	C		21		FEK
HOLL	12	2100E	2105	2116D	S17	E50	4393	01	16.7	16D	SN		3	C		149		K
HOLL	12	2100E	2115	2116D	S17	E50	4393	01	16.7	16D	SB	C 1.2	3	C		20		FK
GOES	12	2133	2146	2203			4393			30		C 6.8						
RAMY	12	2135	2138	2138D	S15	E50	4393	01	16.7	3D	SB		3	C		126		
HOLL	12	2317	2339	2358	S17	E50	4393	01	16.8	41	SN	C 1.4	3	C		49		F
PALE	12	2324	2346	2348	S15	E49	4393	01	16.7	24	SF		3	C		42		F
LEAR	12	2329	2335	2357	S16	E49	4393	01	16.7	28	SF	C 1.4	2	C		35		F
LEAR	13	0002	0009	0013	S16	E50	4393	01	16.8	11	SF		2	C		41		FH
MANI	13	0011	0015	0022	S16	E51		01	16.9	11	SF		1	V		30	.5	F
PURP	13	0114E	0142	0309	S17	E45		01	16.5	115D	SN			C	0142	79	1.2	K
PURP	13	0114E	0247	0309	S17	E45		01	16.5	115D	SB			C	0247	106	1.6	
LEAR	13	0137	0140	0210	S15	E46	4393	01	16.5	33	SN	C 1.8	3	C		46		
LEAR	13	0218	0224	0227	S16	E46	4393	01	16.6	9	SN		3	C		30		
YUNN	13	0234	0244	0300	S15	E47		01	16.7	26	1B	C 6.4		P		189	2.9	FT
LEAR	13	0234	0245	0301	S15	E48	4393	01	16.7	27	SB	C 6.4	3	C		99		FH
LEAR	13	0417	0426	0442	S16	E45	4393	01	16.6	25	SF		3	C		47		FZ
YUNN	13	0443	0446	0448	S16	E46		01	16.7	5	1F			C		157	2.3	T
LEAR	13	0457	0524	0609	S17	E31	4392	01	15.6	72	SF		3	C		98		UF
YUNN	13	0500	0521	0553	S16	E31		01	15.6	53	SB			P		126	1.5	F
MANI	13	0516E	0522	0555	S16	E32		01	15.6	39D	SF		1	V		60	.8	
LEAR	13	0537	0537	0541	S16	E45	4393	01	16.6	4	SF		3	C		21		
LEAR	13	0615	0627	0649	S16	E46	4393	01	16.7	34	SN	C 3.3	3	C		94		ZFK
LEAR	13	0615	0644	0649	S16	E46	4393	01	16.7	34	SN		3	C		50		K
PURP	13	0618	0631	0653	S17	E45		01	16.7	35	SN			C	0631	93	1.4	
YUNN	13	0621	0629	0650	S15	E46		01	16.7	29	1B			C		189	2.8	ET
YUNN	13	0825	0829	0837	S16	E45		01	16.8	12	SN			C		126	1.8	ET
LEAR	13	0825	0833	0836	S16	E45	4393	01	16.8	11	SF		3	C		22		
GOES	13	0937	0950	0956						19		C 1.0						
RAMY	13	1505	1512	1526	S16	E41	4393	01	16.7	21	SN		4	C		28		F
RAMY	13	1610	1611	1620	S16	E40	4393	01	16.7	10	SF		3	C		32		
RAMY	13	1659	1701	1719	S16	E41	4393	01	16.8	20	SB	C 1.8	3	C		70		FE
GOES	13	2007	2027	2029						22		C 1.3						
LEAR	14	0517	0520	0529	S14	E14	4392	01	15.3	12	SF		3	C		33		
GOES	14	1127	1133	1140						13		C 1.1						
RAMY	14	1202E		1209	S14	E10	4392	01	15.3	7D	SF		3	C		34		
RAMY	14	1510	1513	1534	S16	E27	4393	01	16.7	24	SB	C 1.8	3	C		94		FE
RAMY	14	1705	1710	1720	S13	E08	4392	01	15.3	15	SN		3	C		49		
RAMY	14	2017	2018	2027	S16	E20	4393	01	16.4	10	SF		2	C		96		F
HOLL	14	2017	2018	2035	S16	E26	4393	01	16.8	18	SF		3	C		97		F
RAMY	15	1244	1244	1257	S13	W03	4392	01	15.3	13	SN		3	C		21		F
RAMY	15	1541	1541	1551	S13	W05	4392	01	15.3	10	SN		3	C		27		
LEAR	16	0128	0135	0204	S16	W00	4393	01	16.1	36	SF		3	C		32		K
LEAR	16	0128	0145	0204	S16	W00	4393	01	16.1	36	SF		3	C		37		K
YUNN	16	0140	0145	0145D	S16	W02		01	15.9	5D	SN			P		110	1.2	DT
LEAR	16	0336	0359	0421	S17	E00	4393	01	16.1	45	SF		3	C		65		Z
YUNN	16	0350	0354	0405	S16	W02		01	16.0	15	SN			C		110	1.2	DT
RAMY	16	1658	1701	1756	S16	W08	4393	01	16.1	58	SN		3	C		50		F
HOLL	16	1659	1706	1722	S15	W08	4393	01	16.1	23	SF		3	C		39		F
HOLL	16	1926	1931	1936	S15	W01	4393	01	16.7	10	SF		3	C		36		F
LEAR	17	0200	0201	0204	S13	W19	4392	01	15.6	4	SF		3	C		24		
RAMY	17	1737	1742	1749	S14	W31	4392	01	15.4	12	SN		3	C		59		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	17	1917	1922	1958	S16	W28	4392	01	15.7	41	SF		4	C		73		F
HOLL	17	1920	1930	1942	S15	W27	4392	01	15.8	22	SF		3	C		29		F
YUNN	18	0454	0457	0512	S03	E57		01	22.5	18	SN			C		63	1.2	
LEAR	18	0458	0500	0521	S02	E57	4394	01	22.5	23	SN		3	C		34		F
RAMY	18	1345	1346	1356	S12	W45	4392	01	15.2	11	SF		3	C		29		
RAMY	18	1403	1406	1415	S15	W33	4393	01	16.1	12	SF		3	C		32		F
RAMY	18	1647	1653	1707	S03	E50	4394	01	22.4	20	SF		3	C		32		
HOLL	18	1655	1655	1703	S05	E50	4394	01	22.4	8	SF		3	C		18		F
LEAR	19	0440E	0445U	0451D	S18	W38	4393	01	16.3	11D	SF		3	C		20		
ISTA	19	0716	0718	0735	N30	E90		01	26.4	19	SN							
RAMY	19	1155	1212	1234	S03	E38	4394	01	22.3	39	SF		3	C		38		F
RAMY	19	1345	1346	1426	S04	E37	4394	01	22.3	41	SB	C 1.6	3	C		123		
RAMY	19	1358	1400	1418	S15	W49	4393	01	15.9	20	SF		3	C		37		
HOLL	19	1830E	1830U	1832	S16	W44	4393	01	16.4	2D	SF		3	C		33		
HOLL	19	1834	1837	1841	S16	W44	4393	01	16.4	7	SF		3	C		30		
HOLL	19	1849	1851	1901	S14	W50	4393	01	16.0	12	SF		3	C		18		
PALE	19	2012	2012	2037	S15	W50	4393	01	16.1	25	SF		3	C		20		F
GOES	19	2040	2151	2208			4393			88		C 2.1						
PALE	19	2043	2100	2116D	S15	W50	4393	01	16.1	33D	SF		3	C		28		
PALE	19	2219	2220	2226	S15	W55	4393	01	15.8	7	SF		3	C		28		
LEAR	20	0544	0544	0553	S16	W53	4393	01	16.2	9	SF		3	C		18		F
ISTA	20	0832		0847	S06	E18		01	21.7	15	SF							D
LEAR	20	0857	0858	0905	S16	W56	4393	01	16.1	8	SN	C 1.4	3	C		35		
LEAR	20	1005	1005	1010	S05	E17		01	21.7	5	SF		3	C		34		F
RAMY	20	1332	1401	1604	S17	W63	4393	01	15.8	152	1N	M 1.0	3	C		217		FK
RAMY	20	1332	1410	1604	S17	W63	4393	01	15.8	152	1N		3	C		313		K
RAMY	20	1350	1352	1532	S12	W70	4392	01	15.3	102	SN		3	C		37		
RAMY	20	1737	1740	1759	S15	W63	4393	01	16.0	22	SN	C 2.4	3	C		41		
HOLL	20	1756	1757	1800	S13	W62	4393	01	16.1	4	SF		3	C		30		
RAMY	20	1930	1932	1941	S05	E12		01	21.7	11	SN		3	C		24		
RAMY	20	1959	2008	2017	S18	W59	4393	01	16.3	18	SF		3	C		18		
HOLL	20	2005	2007	2017	S13	W62	4393	01	16.2	12	SF		3	C		20		
GOES	20	2102	2106	2111						9		C 1.4						
PALE	20	2130	2137	2143D	S04	E12	4396	01	21.8	13D	SF		3	C		52		
HOLL	20	2132E	2143U	2153	S15	W64	4393	01	16.1	21D	SF		3	C		22		F
GOES	20	2150	2157	2206						16		C 1.1						
HOLL	20	2159	2159	2203	S18	W60	4393	01	16.3	4	SF		3	C		16		F
HOLL	20	2204	2218	2223	S05	E09	4396	01	21.6	19	SF		3	C		24		
HOLL	20	2243	2254	2309	S18	W61	4393	01	16.3	26	SF		3	C		25		
HOLL	20	2309	2310	2313	S06	E10	4396	01	21.7	4	SF	C 1.2	3	C		31		
LEAR	20	2310	2312	2318	S07	E10	4396	01	21.7	8	SF	C 1.2	3	C		55		
HOLL	20	2320	2327	2336	S13	W64	4393	01	16.1	16	SF		3	C		49		
LEAR	20	2323	2326	2339	S16	W67	4393	01	15.9	16	SF		3	C		22		UF
GOES	20	2335	2341	2346						11		C 4.6						
LEAR	21	0019	0022	0034	S16	W66	4393	01	16.0	15	SF		4	C		17		F
LEAR	21	0342	0354	0444	S16	W69	4393	01	15.9	62	SF	C 1.8	3	C		38		
GOES	21	0546	0550	0601						15		C 1.2						
LEAR	21	0605	0610	0617	S16	W70	4393	01	15.9	12	SF		3	C		38		
GOES	21	0637	0640	0642						5		C 1.8						
LEAR	21	0721	0727	0734	S17	W70	4393	01	16.0	13	SF		3	C		39		
YUNN	21	0726E	0726U	0730	S18	W71		01	15.9	4D	SN			P	0726	47		
GOES	21	0742	0812	0815						33		C 2.3						
GOES	21	1759	1801	1806						7		C 1.0						
PALE	21	1835	1840	1846	S17	W75	4393	01	16.1	11	SF		3	C		16		
HOLL	21	1835	1840	1845	S14	W74	4393	01	16.2	10	SF		3	C		18		
RAMY	21	1949	1950	1957	S15	W79	4393	01	15.8	8	SF	C 1.3	3	C		20		
LEAR	22	0141	0141	0147	S17	W80	4393	01	16.0	6	SN	C 1.1	3	C		24		
PALE	22	0141	0141	0147	S16	W80	4393	01	16.0	6	SF	C 1.1	3	C		18		
GOES	22	0158	0201	0203						5		C 2.0						
GOES	22	0220	0227	0235						15		C 4.0						
YUNN	22	0309	0311	0325	N17	E68		01	27.3	16	SN			C		47		E
LEAR	22	0310	0311	0319	N14	E61	4397	01	26.7	9	SF		3	C		19		
LEAR	22	0432	0438	0440	S17	W82	4393	01	16.0	8	SF		3	C		20		
YUNN	22	0433	0437	0440	S15	W89		01	15.5	7	1N			P		47		
LEAR	22	0503	0503	0506	S17	W84	4393	01	15.8	3	SN		3	C		14		
GOES	22	0609	0612	0620						11		C 2.2						

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	22	0733	0736	0740						7		C 1.1						
GOES	22	1146	1150	1153						7		C 1.0						
GOES	22	1202	1205	1208						6		C 1.2						
GOES	22	1532	1542	1546			4399			14		C 1.2						
RAMY	22	1548	1549	1612	N13	E89		01	29.4	24	SN	C 1.3	3	C		22		
GOES	22	1834	1837	1839						5		C 1.5						
RAMY	22	1931	1931	1953	N19	E56	4397	01	27.1	22	SF		3	C		14		
RAMY	22	1948	1952	2004	S05	W12	4396	01	21.9	16	SN		3	C		34		
GOES	22	2053	2058	2101						8		C 2.1						
RAMY	22	2107	2111	2136D	S05	W12	4396	01	22.0	29D	SN		3	C		41		K
RAMY	22	2107	2124	2136D	S05	W12	4396	01	22.0	29D	SN		3	C		54		FK
PALE	22	2108	2126	2141	S06	W12	4396	01	22.0	33	SF		3	C		56		F
GOES	23	0119	0122	0124						5		C 1.6						
LEAR	23	0140	0142	0147	N15	E64	4398	01	27.9	7	SF		3	C		67		
PALE	23	0142	0142	0156	N15	E60	4398	01	27.6	14	SF		3	C		51		
LEAR	23	0144	0147	0158	N19	E53	4397	01	27.1	14	SF		3	C		22		
YUNN	23	0245	0250	0254	N12	E83		01	29.4	9	SN			C		31		A
PALE	23	0248	0250	0256	N13	E83	4399	01	29.4	8	SN		3	C		20		
GOES	23	0336	0341	0344						8		C 2.6						
YUNN	23	0414	0417	0425	N11	E80		01	29.2	11	SN	C 3.1		C		31		A
LEAR	23	0417	0418	0428	N12	E84	4399	01	29.5	11	SN	C 3.1	3	C		32		
GOES	23	0503	0506	0508						5		C 1.0						
LEAR	23	0518	0518	0529	N12	E86	4399	01	29.7	11	SN		3	C		38		
LEAR	23	0545	0545	0603	N12	E83	4399	01	29.5	18	SF		3	C		15		
LEAR	23	0601	0601	0613	N16	E50	4397	01	27.0	12	SF		3	C		24		
LEAR	23	0745	0745	0754	N13	E87	4399	01	29.9	9	SF		3	C		14		
LEAR	23	0825	0833	0854	N13	E85	4399	01	29.8	29	1B	C 9.9	3	C		95		
ISTA	23	0829	0833	0849	N11	E83		01	29.6	20	2B	C 9.9						CD
YUNN	23	0833E	0834U	0846	N10	E74		01	28.9	13D	1B	C 9.9		P	0834	173		W
LEAR	23	0928	0931	0936	N13	E83	4399	01	29.7	8	SF		3	C		26		
GOES	23	1034	1040	1046						12		C 1.9						
GOES	23	1148	1156	1159						11		C 1.2						
HOLL	23	1456	1537	1607	N08	E88	4399	01	30.2	71	SN	C 2.0	3	C		28		F
RAMY	23	1533	1537	1547	N12	E77	4399	01	29.4	14	SN		3	C		13		
GOES	23	1538	1541	1543			4399			5		C 1.3						
RAMY	23	1555	1602	1613	N05	E90	4399	01	30.4	18	SN	C 1.9	3	C		34		
GOES	23	1647	1652	1656						9		C 2.4						
PALE	23	1856	1905	1913	N13	E75	4399	01	29.4	17	SF		3	C		14		
HOLL	23	1903	1915	1925	N11	E76	4399	01	29.5	22	SF		3	C		15		
PALE	23	1916	1926	1935	N15	E52	4398	01	27.7	19	SF		3	C		20		
HOLL	23	1921	1921	1932	N13	E55	4398	01	28.0	11	SF		3	C		17		
GOES	23	1931	1942	1945						14		C 1.0						
HOLL	23	2029	2107	2138	N07	E68	4399	01	28.9	69	SF		3	C		35		K
HOLL	23	2029	2129	2138	N07	E68	4399	01	28.9	69	SN	C 1.7	3	C		12		K
HOLL	23	2031	2031	2045	N13	E52	4398	01	27.8	14	SF		3	C		21		
GOES	23	2236	2239	2243						7		C 1.2						
LEAR	24	0011	0014	0023	N13	E74	4399	01	29.6	12	SF		3	C		13		
LEAR	24	0159	0200	0206	N12	E72	4399	01	29.5	7	SF		3	C		33		
GOES	24	0159	0203	0205						6		C 1.1						
LEAR	24	0408	0411	0416	N11	E72	4399	01	29.6	8	SF	C 3.2	3	C		25		F
LEAR	24	0420	0421	0423	N12	E71	4399	01	29.5	3	SF		3	C		27		F
GOES	24	0500	0504	0506			4398			6		C 1.3						
LEAR	24	0545	0545	0552	N12	E46	4398	01	27.7	7	SF		3	C		38		
LEAR	24	0622	0628	0634	S05	W29	4396	01	22.1	12	SF	C 2.2	3	C		64		
LEAR	24	0711	0714	0726	N16	E48	4398	01	27.9	15	SF	C 1.0	3	C		49		
LEAR	24	0721	0723	0725	N12	E69	4399	01	29.5	4	SF		3	C		22		
LEAR	24	0804	0806	0817	N17	E47	4398	01	27.9	13	SF	C 2.3	3	C		119		F
LEAR	24	0823	0824	0830	N12	E66	4399	01	29.3	7	SF		3	C		19		
LEAR	24	0845	0900	0918	N17	E46	4398	01	27.9	33	1F	C 3.4	3	C		177		
YUNN	24	0859E	0859U	0909	N16	E44		01	27.7	10D	SN	C 3.4		P	0859	31	.5	D
LEAR	24	0947	0951	0955	N15	E44	4398	01	27.7	8	SF	C 1.9	1	C		47		
LEAR	24	0950	0952	0955	N14	E66	4399	01	29.4	5	SF		1	C		19		
GOES	24	1202	1214	1217						15		C 1.1						
GOES	24	1409	1417	1418						9		C 1.2						
HOLL	24	1818	1820	1827	N10	E63	4399	01	29.5	9	SF		3	C		14		
GOES	24	1941	1941	1949						8		C 1.6						
PALE	24	2022	2022	2033	S06	W37	4396	01	22.1	11	SN	C 1.1	3	C		93		H
HOLL	24	2022	2022	2030	S05	W37	4396	01	22.1	8	SF	C 1.1	3	C		62		F
HOLL	24	2132	2134	2148	S04	W39	4396	01	22.0	16	SF		3	C		28		F

H - ALPHA S O L A R F L A R E S

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	24	2210	2210	2216	S04	W38	4396	01	22.1	6	SF		3	C		21		
LEAR	24	2335E	2335	2342	N13	E60	4399	01	29.5	7D	SF		3	C		22		
PALE	25	0058	0101	0110	N12	E58	4399	01	29.4	12	SF		3	C		44		
LEAR	25	0104	0106	0113	N11	E58	4399	01	29.4	9	SF		3	C		29		
LEAR	25	0140	0143	0147	S06	W41	4396	01	22.0	7	SF	C 1.1	3	C		37		
YUNN	25	0141	0145	0154	N13	E35		01	27.7	13	SN			C		63	.8	ET
LEAR	25	0143	0146	0202	N13	E36	4398	01	27.8	19	SF		3	C		53		F
LEAR	25	0210	0217	0220	N12	E57	4399	01	29.4	10	SF	C 1.0	3	C		36		
PALE	25	0210	0212	0222	N10	E60	4399	01	29.6	12	SF	C 1.0	3	C		62		
GOES	25	0236	0249	0255			4398			19		C 1.7						
PALE	25	0242	0247	0259	S06	W42	4396	01	22.0	17	SF		3	C		44		F
PALE	25	0249	0249	0258	N16	E37	4398	01	27.9	9	SF		3	C		34		F
YUNN	25	0250E	0250U	0252	N13	E35		01	27.8	2D	SN			P	0250	47	.6	DT
LEAR	25	0250	0251	0259	N16	E38	4398	01	28.0	9	SF		3	C		34		
LEAR	25	0253	0256	0259	N10	E57	4399	01	29.4	6	SF		3	C		30		
PALE	25	0303	0307	0311D	S08	W49	4396	01	21.5	8D	SF		3	C		52		F
PALE	25	0306	0309	0311D	N15	E35	4398	01	27.8	5D	SF		3	C		23		F
PALE	25	0309	0310	0311D	N12	E56	4399	01	29.4	2D	SF		3	C		16		
YUNN	25	0325	0329	0341	N15	E36		01	27.9	16	SN			P		31	.4	DT
LEAR	25	0332	0333	0336	N16	E36	4398	01	27.9	4	SF		3	C		33		F
LEAR	25	0343	0345	0403	N17	E37	4398	01	28.0	20	SF		3	C		36		F
YUNN	25	0345E	0345U	0350	S09	W41		01	22.1	5D	SN			P	0345	94	1.3	T
LEAR	25	0345	0345	0350	S10	W49	4396	01	21.5	5	SF		3	C		35		
GOES	25	0656	0702	0708						12		C 1.2						
YUNN	25	0714	0717	0721	N13	E31		01	27.6	7	SN			C		126	1.6	FT
LEAR	25	0717	0718	0722	N12	E32	4398	01	27.7	5	SF		3	C		30		
YUNN	25	0734	0737	0803D	N15	E28		01	27.4	29D	1N			P		236	2.9	ETW
LEAR	25	0738	0757	0839	N16	E27	4398	01	27.4	61	1N	C 3.9	3	C		331		ZU
LEAR	25	0756	0757	0804	N15	E19	4397	01	26.8	8	SF		3	C		52		
GOES	25	1011	1014	1016						5		C 1.9						
GOES	25	1101	1106	1111						10		C 1.9						
RAMY	25	1416	1416	1431	S07	W57	4396	01	21.3	15	SF		3	C		19		
RAMY	25	1523	1621	1704	S08	W58	4396	01	21.3	101	SN		3	C		30		
GOES	25	1534	1600	1620						46		C 3.1						
RAMY	25	1538	1545	1631	N14	E28	4398	01	27.8	53	SN		3	C		65		F
HOLL	25	1538E	1547	1632	N14	E30	4398	01	27.9	54D	SN		3	C		72		F
HOLL	25	1709	1712	1812	N14	E17	4397	01	27.0	63	SN	C 1.8	3	C		69		
RAMY	25	1710	1712	1724	N13	E14	4397	01	26.8	14	SN	C 1.8	3	C		56		F
HOLL	25	1740	1741	1801	S15	E75		01	31.4	21	SF		3	C		8		
HOLL	25	1754	1754	1806	N10	E50	4399	01	29.5	12	SN		3	C		24		
GOES	25	1754	1759	1813						19		C 2.8						
HOLL	25	1755	1755	1821	N12	E27	4398	01	27.8	26	SN		3	C		38		F
RAMY	25	1827	1835	1909	N15	E24	4398	01	27.6	42	SN		3	C		61		
HOLL	25	1827	1832	1906	N15	E31	4398	01	28.1	39	SN		3	C		33		F
PALE	25	1837	1852	1859	S09	W59	4396	01	21.3	22	SF		3	C		29		
PALE	25	1838	1844	1908	N14	E28	4398	01	27.9	30	SF		3	C		67		
HOLL	25	1926	1926	1935	S06	W58	4396	01	21.5	9	SF		3	C		17		F
HOLL	25	1956	2010	2138	N14	E28	4398	01	27.9	102	SF		3	C		137		K
HOLL	25	1956	2031	2138	N14	E28	4398	01	27.9	102	SF		3	C		99		FK
RAMY	25	2058	2058	2104	N12	E47	4399	01	29.4	6	SN		3	C		38		
HOLL	25	2059	2104	2115	N11	E50	4399	01	29.6	16	SF		3	C		32		
RAMY	25	2105	2107	2117	N10	E44	4399	01	29.2	12	SN		3	C		27		
HOLL	25	2155	2158	2207	S05	W61	4396	01	21.4	12	SN	C 2.0	3	C		44		
GOES	25	2227	2230	2234						7		C 1.8						
GOES	25	2249	2300	2306						17		C 2.8						
HOLL	25	2252	2254	2306	N16	E19	4397	01	27.4	14	SN		3	C		103		F
PALE	25	2253	2253	2304	N18	E16	4397	01	27.2	11	SF		3	C		34		F
HOLL	25	2255	2311		S06	W61	4396	01	21.4		SF		3	C		66		K
HOLL	25	2255	2324		S06	W61	4396	01	21.4		SF		3	C		76		K
PALE	25	2258	2301	2311	N10	E44	4399	01	29.3	13	SN		3	C		31		F
HOLL	25	2258	2259	2316	N09	E46	4399	01	29.4	18	SN		3	C		47		F
LEAR	25	2328E		2340D	S08	W62	4396	01	21.3	12D	SF		3	C		37		
LEAR	26	0038E	0053	0138	N16	E28	4398	01	28.2	60D	SB		3	C		152		FE
PALE	26	0038	0046	0126	N16	E26	4398	01	28.0	48	SB	M 3.6	3	C		120		FE
LEAR	26	0100	0107	0109	N18	E09	4397	01	26.7	9	SF		3	C		29		
LEAR	26	0115	0115	0121	S07	W64	4396	01	21.3	6	SF		3	C		27		F
LEAR	26	0129	0202	0213	N10	E44	4399	01	29.4	44	SF		3	C		61		F
LEAR	26	0259	0301	0321	N14	E09	4397	01	26.8	22	SF	C 2.3	3	C		145		F
PALE	26	0300	0301	0316D	N14	E08	4397	01	26.7	16D	SN	C 2.3	3	C		88		F

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
YUNN	26	0301E	0301U	0313	N13	E08		01	26.7	12D	1N	C 2.3		P	0301	189	2.1	ET
LEAR	26	0341	0341	0347	N16	E23	4398	01	27.9	6	SF		3	C		20		
LEAR	26	0442	0442	0445	N13	E24	4398	01	28.0	3	SF		3	C		49		
LEAR	26	0448	0450	0505	N10	E42	4399	01	29.4	17	SN	C 2.0	3	C		53		F
LEAR	26	0541	0601	0607	N14	E44	4399	01	29.6	26	SN	C 2.5	3	C		71		F
LEAR	26	0753	0754	0804	S05	W48	4394	01	22.7	11	SF		3	C		33		
GOES	26	0858	0901	0903						5		C 1.9						
GOES	26	0900	0903	0905						5		C 1.8						
RAMY	26	1148	1200	1240	N15	E07	4397	01	27.0	52	SF	C 1.6	3	C		36		F
RAMY	26	1202	1202	1209	N14	E16	4398	01	27.7	7	SN		3	C		31		
RAMY	26	1252	1254	1305	N14	E40	4399	01	29.6	13	SF	C 1.8	3	C		28		
RAMY	26	1302	1302	1309	N15	E18	4398	01	27.9	7	SN		3	C		20		F
GOES	26	1411	1413	1421						10		C 1.6						
GOES	26	1437	1439	1445						8		C 1.3						
HOLL	26	1440	1445	1522	N12	W00	4398	01	26.6	42	SN		3	C		119		F
GOES	26	1509	1512	1514						5		C 2.1						
RAMY	26	1531E	1535	1546	N14	E14	4398	01	27.7	15D	SN		3	C		81		F
RAMY	26	1532	1534	1655	S08	W62	4396	01	22.0	83	SN	C 4.2	3	C		51		
HOLL	26	1533E	1533U	1540	S06	W70	4396	01	21.4	7D	SF	C 4.2	3	C		28		
HOLL	26	1533E	1535U	1544	N14	E15	4398	01	27.8	11D	SN		3	C		57		F
HOLL	26	1542	1542	1559	N14	E06	4397	01	27.1	17	SN		3	C		20		
HOLL	26	1551	1601	1739	N12	E37	4399	01	29.4	108	SN		3	C		75		K
HOLL	26	1551	1642U	1739	N12	E37	4399	01	29.4	108	SN		3	C		52		FK
HOLL	26	1621	1621	1626	N17	E00	4397	01	26.7	5	SN		3	C		21		F
HOLL	26	1622	1629	1646	S06	W70	4396	01	21.4	24	SB	M 2.1	3	C		73		ZF
HOLL	26	1721	1724	1738	S06	W69	4396	01	21.6	17	SN		3	C		27		
HOLL	26	1747	1756	1806	N14	E13	4398	01	27.7	19	SF		3	C		44		
HOLL	26	1920	1921	1929	N10	E34	4399	01	29.4	9	SN		3	C		26		
GOES	26	2023	2025	2028						5		C 1.5						
HOLL	26	2035	2039	2100	N14	E04	4397	01	27.2	25	SF		3	C		36		F
HOLL	26	2057	2057	2102	S03	W74	4396	01	21.3	5	SN		3	C		19		
HOLL	26	2100	2111	2138	N15	E13	4398	01	27.9	38	SN	C 2.9	3	C		101		F
HOLL	26	2123	2123	2126	S04	W75	4396	01	21.3	3	SN		3	C		16		
GOES	26	2303	2306	2314						11		C 1.5						
LEAR	26	2324	2335	2358	N10	E32	4399	01	29.4	34	SF		3	C		52		
HOLL	26	2324	2332	2348	S05	W74	4396	01	21.4	24	SF		3	C		12		K
HOLL	26	2324	2345	2348	S05	W74	4396	01	21.4	24	SN		3	C		13		HK
LEAR	26	2326	2333	0015	S08	W74	4396	01	21.4	49	SF		3	C		21		K
LEAR	26	2326	2344	0015	S08	W74	4396	01	21.4	49	SN		3	C		22		K
GOES	26	2326	2329	2331						5		C 2.0						
HOLL	26	2329	2329	0008	N14	E01	4397	01	27.1	39	SF		3	C		43		K
HOLL	26	2329	2341	0008	N14	E01	4397	01	27.1	39	SB	C 3.7	3	C		156		FEK
LEAR	26	2333	2338	0007	N14	E01	4397	01	27.1	34	SB	C 3.7	3	C		184		F
HOLL	26	2354	0005	0010	S05	W74	4396	01	21.5	16	SN		3	C		17		
PALE	26	2356E	2356U	0006	N13	E00	4397	01	27.0	10D	SF		3	C		52		F
PALE	27	0002	0005	0008	S05	W74	4396	01	21.5	6	SF		3	C		15		
LEAR	27	0027	0032	0057	S08	W76	4396	01	21.3	30	SF		3	C		33		
PALE	27	0042	0042	0104	N11	E28	4399	01	29.1	22	SF		3	C		37		
LEAR	27	0044	0049	0057	N10	E32	4399	01	29.4	13	SF		3	C		23		
LEAR	27	0053	0054	0107	N14	E02	4397	01	27.2	14	SF		3	C		40		
PALE	27	0055	0058	0103	N14	E02	4397	01	27.2	8	SF		3	C		26		
LEAR	27	0101	0108	0109	N15	E09	4398	01	27.7	8	SF		3	C		51		
LEAR	27	0120	0123	0137	S08	W76	4396	01	21.4	17	SF		3	C		14		
LEAR	27	0137	0146	0207	S08	W77	4396	01	21.3	30	SF		3	C		24		
LEAR	27	0208	0208	0224	S07	W79	4396	01	21.2	16	SF		3	C		17		K
LEAR	27	0208	0223	0224	S07	W79	4396	01	21.2	16	SF		3	C		20		K
GOES	27	0214	0231	0238			4396			24		C 3.6						
LEAR	27	0258	0307	0323	N13	W04	4397	01	26.8	25	SF		3	C		77		
LEAR	27	0317	0329	0351	N15	E08	4398	01	27.7	34	SN	C 5.2	3	C		73		
YUNN	27	0319	0329	0341	N14	E07		01	27.7	22	SN	C 5.2		C		126	1.4	E
LEAR	27	0331	0333	0358	N13	E33	4399	01	29.6	27	SF		3	C		26		
GOES	27	0440	0443	0448						8		C 1.8						
LEAR	27	0529	0533	0536	N07	E15	4400	01	28.4	7	SF		3	C		32		F
YUNN	27	0655	0709	0735	N15	E09		01	28.0	40	1B	M 1.1		C		377	4.2	F
LEAR	27	0655	0659	0752	N16	E10	4398	01	28.0	57	SB	M 1.1	3	C		106		F
WEND	27	1009	1013	1026	S07	W85		01	21.1	17	SN			C	1013	15		
GOES	27	1010	1019	1023						13		C 2.8						
WEND	27	1012	1013	1022	S06	W64		01	22.6	10	SF			C	1013	18	.4	
GOES	27	1156	1200	1202						6		C 5.2						
RAMY	27	1235	1254	1333	N13	E02	4398	01	27.7	58	1B	C 5.1	3	C		249		FE

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
RAMY	27	1403	1404	1432	N14	E03	4398	01	27.8	29	SB	C 2.4	3	C		84		
RAMY	27	1439	1441	1525	N13	W00	4398	01	27.6	46	SN	C 3.0	3	C		67		K
RAMY	27	1439	1446	1525	N13	W00	4398	01	27.6	46	SB	C 3.0	3	C		123		FEK
RAMY	27	1547	1549	1551	N10	E20	4399	01	29.2	4	SN		3	C		29		
HOLL	27	1548	1548	1552	N10	E21	4399	01	29.2	4	SF		3	C		24		
HOLL	27	1631	1631	1636	N11	E17	4399	01	29.0	5	SF		3	C		40		
HOLL	27	1656	1656	1709	N11	E24	4399	01	29.5	13	SF	C 2.2	3	C		33		
HOLL	27	1710	1710	1718	N14	E01	4398	01	27.8	8	SF		3	C		25		
HOLL	27	1724	1725	1757	N14	E00	4398	01	27.7	33	SF	C 1.8	3	C		57		
HOLL	27	1808	1819	1927	N14	E01	4398	01	27.8	79	SF		3	C		59		K
HOLL	27	1808	1904	1927	N14	E01	4398	01	27.8	79	SN		3	C		164		FK
RAMY	27	1809	1818	1827	N14	E00	4398	01	27.8	18	SN		3	C		45		
RAMY	27	1839	1840	1849	N14	W01	4398	01	27.7	10	SN	C 2.4	3	C		46		
HOLL	27	1841	1842	1852	N12	E25	4399	01	29.7	11	SF		3	C		23		F
HOLL	27	1847	1848	1903	N13	E46		01	31.3	16	SF		3	C		26		
RAMY	27	1848	1848	1859	N13	E46		01	31.3	11	SF		3	C		31		
RAMY	27	1903	1903	1935	N14	W01	4398	01	27.7	32	SB	C 3.6	3	C		89		
HOLL	27	1948	1949	2003	N11	E20	4399	01	29.3	15	SF		3	C		25		F
GOES	27	2044	2047	2049						5		C 2.0						
RAMY	27	2059	2103	2123	N13	W05	4398	01	27.5	24	SN	C 2.1	3	C		36		
HOLL	27	2101	2103	2124	N14	W02	4398	01	27.7	23	SN	C 2.1	3	C		36		F
HOLL	27	2200	2206	2225	N12	E14	4399	01	29.0	25	SF	C 2.7	3	C		52		FH
HOLL	27	2242	2242	2257	N14	W02	4398	01	27.8	15	SN		3	C		29		F
PALE	27	2249E	2252U	2259	N14	W03	4398	01	27.7	10D	SF		3	C		44		F
HOLL	27	2259	2303	2333	N10	E16	4399	01	29.2	34	SF		3	C		54		F
LEAR	28	0023	0026	0053	N10	E16	4399	01	29.2	30	SF		3	C		64		F
PALE	28	0027E	0043U	0110	N13	W07	4398	01	27.5	43D	SF		3	C		66		F
LEAR	28	0036	0053	0101	N11	W06	4398	01	27.6	25	SF		3	C		42		
GOES	28	0150	0153	0155						5		C 2.0						
GOES	28	0403	0406	0415						12		C 1.6						
GOES	28	0600	0603	0605						5		C 1.8						
LEAR	28	0715	0717	0751	N13	W07	4398	01	27.8	36	SF	C 4.0	3	C		93		F
GOES	28	0815	0818	0824						9		C 1.8						
GOES	28	1045	1048	1050						5		C 1.9						
GOES	28	1224	1227	1229						5		C 1.9						
RAMY	28	1243	1250	1312	N12	W11	4398	01	27.7	29	SN		3	C		51		
GOES	28	1358	1408	1412						14		C 2.1						
RAMY	28	1535	1539	1552	N12	W14	4398	01	27.6	17	SN		3	C		25		
HOLL	28	1536	1543	1602	N14	W15	4398	01	27.5	26	SF		3	C		30		F
GOES	28	1748	1800	1810						22		C 3.2						
RAMY	28	1913	1916	1934	N13	E34	4403	01	31.4	21	SB	C 2.0	3	C		87		
HOLL	28	1915	1917	1927	N12	E35	4403	01	31.4	12	SN	C 2.0	3	C		59		F
HOLL	28	2002	2012	2102	N14	W14	4398	01	27.8	60	SF		3	C		37		K
HOLL	28	2002	2032	2102	N14	W14	4398	01	27.8	60	SN		3	C		69		FK
PALE	28	2036	2036	2059	N10	W17	4398	01	27.6	23	SF		3	C		31		
HOLL	28	2154	2155	2214	N15	W15	4398	01	27.8	20	SB	C 3.7	3	C		102		FE
GOES	28	2341	2344	2349						8		C 2.1						
HOLL	28	2344	2344	2356	N15	W18	4398	01	27.6	12	SF		3	C		29		F
GOES	29	0127	0130	0132						5		C 1.7						
LEAR	29	0202	0214	0349	N14	W37	4404	01	26.3	107	SN		3	C		88		K
LEAR	29	0202	0231	0349	N14	W37	4404	01	26.3	107	SN	C 2.1	3	C		132		K
PALE	29	0206	0233	0250	N14	W38	4404	01	26.2	44	SF	C 2.1	3	C		91		
GOES	29	0229	0232	0234			4404			5		C 2.0						
LEAR	29	0319	0319	0330	N17	W16	4398	01	27.9	11	SF	C 1.8	3	C		59		F
LEAR	29	0350	0355	0403	N14	W40	4404	01	26.1	13	SF		3	C		31		
LEAR	29	0545	0546	0603	N17	W19	4398	01	27.8	18	SF		3	C		28		K
LEAR	29	0545	0554	0603	N17	W19	4398	01	27.8	18	SN	C 1.9	3	C		64		K
LEAR	29	0730	0731	0735	N08	E02	4399	01	29.5	5	SF		3	C		27		H
LEAR	29	0825	0852	0907	N11	W24	4398	01	27.5	42	SF		3	C		49		
LEAR	29	0946	0946	0953	N10	E03	4399	01	29.6	7	SF		3	C		29		
WEND	29	1206	1212	1232	N12	E01		01	29.6	26	SN			C	1212	25	.3	
RAMY	29	1206	1206	1228	N12	W01	4399	01	29.4	22	SN		3	C		28		F
GOES	29	1224	1232	1244			4397			20		C 2.1						
RAMY	29	1225	1230	1318	N14	W41	4404	01	26.4	53	SN		3	C		66		K
RAMY	29	1225	1247	1318	N14	W41	4404	01	26.4	53	SN		3	C		29		FK
WEND	29	1228	1235	1304	N14	W44		01	26.2	36	SN			C	1235	50	.7	
RAMY	29	1301	1325	1348	N16	W21	4398	01	27.9	47	SF	C 2.0	3	C		73		F
WEND	29	1322	1326	1331	N18	W20		01	28.0	9	SF	C 2.0		C	1326	28	.3	
RAMY	29	1421	1421	1434	S19	W01		01	29.5	13	SF		3	C		21		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
RAMY	29	1849	1900U	1945	N13	W29	4398	01	27.6	56	SF		3	C		36		
GOES	29	1909	1912	1916			4397			7		C 1.8						
HOLL	29	1914E	1915	1921	N10	W07	4399	01	29.3	7D	SF		3	C		23		F
HOLL	29	2057E	2057U	2123D	N15	W42	4398	01	26.7	26D	SB		3	C		45		F
PALE	29	2129	2130	2138	N05	W25	4398	01	28.0	9	SF		3	C		24		F
HOLL	29	2129	2130	2138	N06	W24	4398	01	28.1	9	SF		3	C		31		F
GOES	29	2222	2232	2238						16		C 2.8						
HOLL	29	2223	2230	2343	N11	W07	4399	01	29.4	80	SF		3	C		128		K
HOLL	29	2223	2245	2343	N11	W07	4399	01	29.4	80	SN	C 4.7	3	C		135		FK
LEAR	29	2258	2258	2310	N11	W10	4399	01	29.2	12	SF		3	C		60		F
LEAR	30	0052	0052	0057	N15	W38	4397	01	27.2	5	SF		3	C		43		
LEAR	30	0136	0139	0206	N17	W55	4404	01	25.9	30	SF		3	C		37		
PALE	30	0203	0206	0209	N13	W36	4398	01	27.4	6	SF	C 3.8	3	C		33		
LEAR	30	0205	0206	0209	N13	W35	4398	01	27.4	4	SN	C 3.8	3	C		35		
PALE	30	0323	0326U	0327D	N09	W11	4399	01	29.3	4D	SF		3	C		36		
GOES	30	0325	0328	0334			4399			9		C 1.6						
LEAR	30	0430	0431	0512	N09	W12	4399	01	29.3	42	SB		3	C		87		K
LEAR	30	0430	0438	0512	N09	W12	4399	01	29.3	42	1B	M 2.9	3	C		309		FK
LEAR	30	0710	0724	0758	N11	W38	4398	01	27.4	48	SF	C 2.3	3	C		118		
LEAR	30	0906	0912	0917	N14	W40	4398	01	27.4	11	SN	C 1.9	3	C		162		F
LEAR	30	0910	0915	0922	N08	W16	4399	01	29.2	12	SN		3	C		47		F
GOES	30	1045	1055	1107						22		C 2.6						
GOES	30	1233	1244	1249						16		C 1.4						
RAMY	30	1310	1310	1354	N12	W38	4398	01	27.7	44	SN	C 2.9	3	C		27		F
RAMY	30	1408	1410	1447	N10	W17	4399	01	29.3	39	SN		3	C		46		F
RAMY	30	1422	1433	1519	N13	W38	4398	01	27.7	57	SF		3	C		22		K
RAMY	30	1422	1453	1519	N13	W38	4398	01	27.7	57	SN		3	C		55		K
RAMY	30	1607	1607	1625	N08	W20	4399	01	29.2	18	SF	C 1.1	3	C		25		
RAMY	30	1828	1830	1843	N09	W22	4399	01	29.1	15	SN	C 1.1	3	C		51		
RAMY	30	2008	2019	2042	N14	W63	4404	01	26.1	34	SF		3	C		13		
HOLL	30	2030	2031	2113D	N13	W40	4398	01	27.8	43D	SB	C 2.2	3	C		45		
RAMY	30	2053	2057	2133	N15	W42	4398	01	27.7	40	SB		3	C		45		FE
PALE	30	2056E	2059U	2133	N12	W44	4398	01	27.6	37D	SN		3	C		45		F
HOLL	30	2057E	2057U	2103D	N13	W40	4398	01	27.9	6D	SB		3	C		45		
PALE	30	2124	2126	2137	N08	W23	4399	01	29.2	13	SF		3	C		42		
RAMY	30	2124	2126	2137	N11	W20	4399	01	29.4	13	SN		2	C		55		F
LEAR	30	2351	2357	0001	N16	W50	4397	01	27.2	10	SF		3	C		25		
PALE	31	0042	0047	0101	N15	W51	4397	01	27.2	19	SN	C 2.1	3	C		57		F
LEAR	31	0049E		0110	N16	W50	4397	01	27.2	21D	SF	C 2.1	3	C		76		H
PALE	31	0129	0135	0145	N14	W45	4398	01	27.7	16	SF		3	C		40		F
GOES	31	0351	0354	0356						5		C 2.1						
LEAR	31	0420	0450	0509	N13	W48	4398	01	27.6	49	SN	C 3.1	3	C		71		F
LEAR	31	0539	0539	0540D	N17	W56	4398	01	27.0	1D	1N	C 8.1	3	C		179		
LEAR	31	0710E	0711	0714D	N09	W45	4398	01	27.9	4D	SF		2	C		25		
GOES	31	0710	0733	0748						38		M 1.7						
LEAR	31	0711E	0714	0714D	N11	W25	4399	01	29.4	3D	SF		2	C		34		
ISTA	31	0730E		0754	N16	W56		01	27.1	24D	SB							D
ISTA	31	0730E		0754	N18	W51		01	27.4	24D	SN							D
ISTA	31	0730E		0757	N11	W24		01	29.5	27D	SB							E
ISTA	31	0730E		0855D	N19	W54		01	27.2	85D	1B							U
ISTA	31	0750E		0758	S18	W65		01	26.4	8D	SF							D
RAMY	31	1137	1204	1357	N17	W55	4398	01	27.3	140	SN		3	C		68		K
RAMY	31	1137	1300	1357	N17	W55	4398	01	27.3	140	SB		3	C		122		ESK
RAMY	31	1239	1247	1252	N09	W30	4399	01	29.3	13	SF		3	C		23		
RAMY	31	1256	1258	1258D	N16	W62	4397	01	26.8	2D	1B		3	C		270		
RAMY	31	1256	1300	1303D	N15	W58	4397	01	27.1	7D	1B	M 1.2	3	C		248		F
HOLL	31	1952	1956	2015	N12	W31	4399	01	29.5	23	SF	C 2.0	3	C		29		F
HOLL	31	2008	2010	2030	N12	W09	4403	01	31.2	22	SF		3	C		21		
RAMY	31	2012	2012	2021	N12	W09	4403	01	31.2	9	SF		3	C		36		
RAMY	31	2053	2053	2110	N11	W33	4399	01	29.4	17	SB		3	C		29		
HOLL	31	2053	2054	2110	N10	W33	4399	01	29.4	17	SN		3	C		25		
RAMY	31	2110	2113	2125	N15	W58	4398	01	27.5	15	SN		3	C		33		
RAMY	31	2129	2136	2143	N14	W59	4398	01	27.4	14	SF		3	C		26		
HOLL	31	2213	2213	2218	N10	W35	4399	01	29.3	5	SF	C 2.3	3	C		27		
HOLL	31	2248	2249	2259	N13	W10	4403	01	31.2	11	SF		3	C		35		
HOLL	31	2252	2253	2308	N11	W34	4399	01	29.4	16	SN		3	C		32		
PALE	31	2256E	2256U	2314	N10	W35	4399	01	29.3	18D	SF		3	C		28		
LEAR	31	2311	2314	2338	N14	W10	4403	01	31.2	27	SF		3	C		35		
MANI	31	2312E	2314	2335	N14	W10		01	31.2	23D	SF		1	V		30	.3	

H - ALPHA SOLAR FLARES

JANUARY 1984

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
MANI	31	2325	2326U	0003	N15	W57		01	27.7	38	SN		1	V		25	.5	
HOLL	31	2325	2326	0005	N15	W57	4398	01	27.7	40	SN		3	C		33		K
HOLL	31	2325	2336	0005	N15	W57	4398	01	27.7	40	SN		3	C		72		K
LEAR	31	2334	2336	2340	N15	W63	4397	01	27.2	6	SN	C 2.2	3	C		77		
MANI	31	2334	2335	2338	N15	W63		01	27.2	4	SN	C 2.2	1	V		55	1.1	

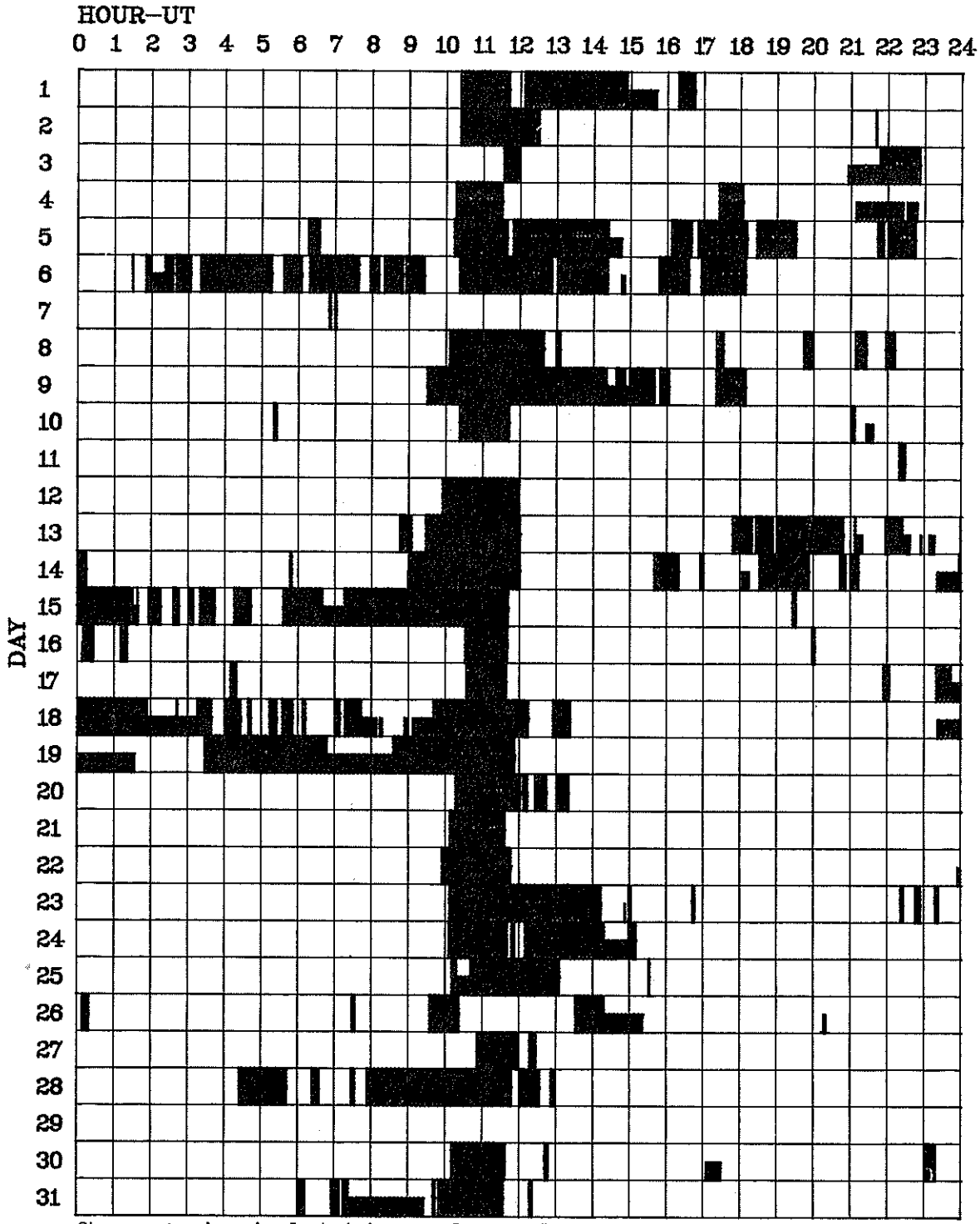
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by 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 Ca II.
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.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

JANUARY 1984



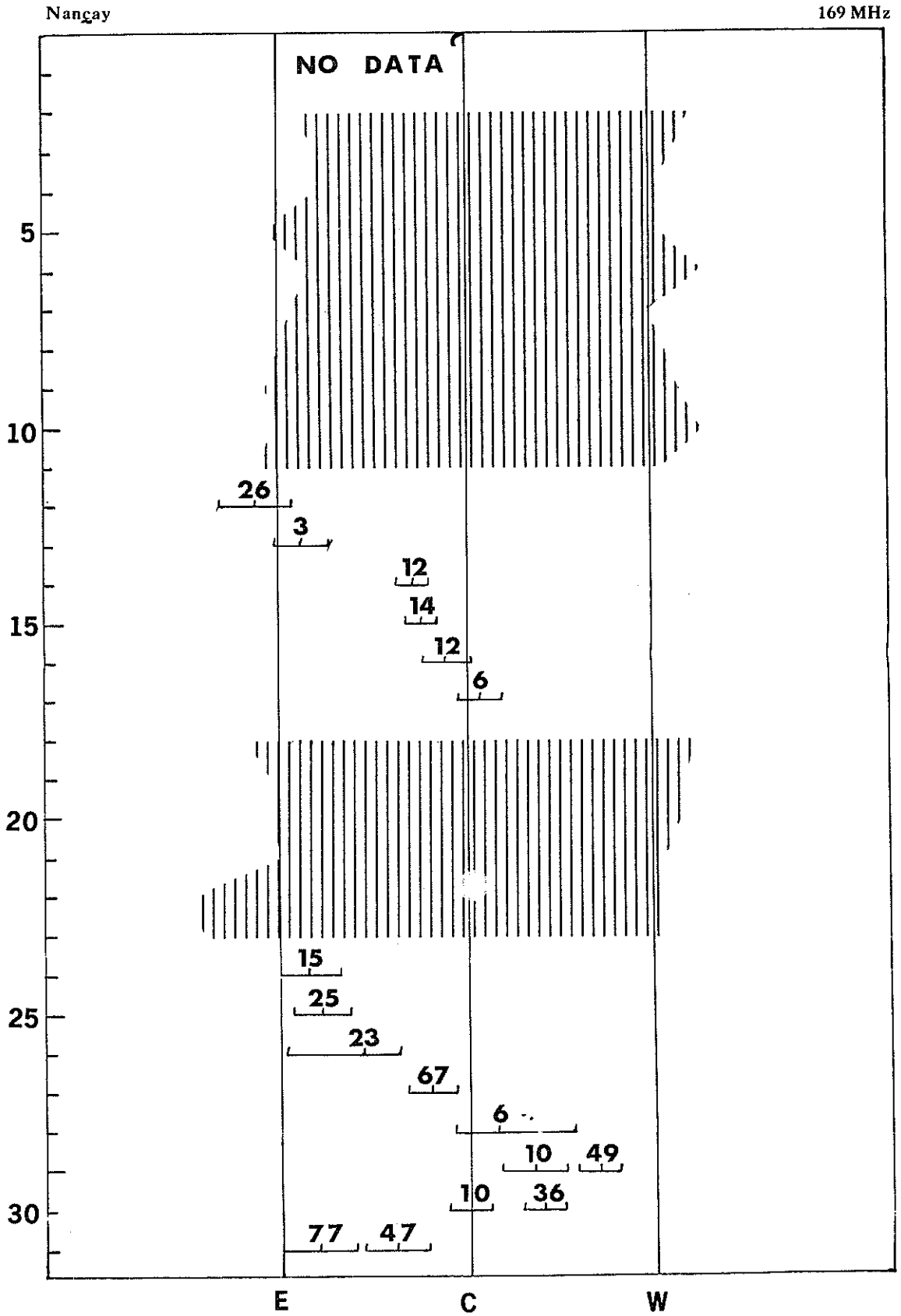
Observatories included in total patrol:

Bucharest	Holloman	Learmonth	Monte Mario	Ramey
	Istanbul	Manila	Palehua	Wendelstein

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

24
Jan 84

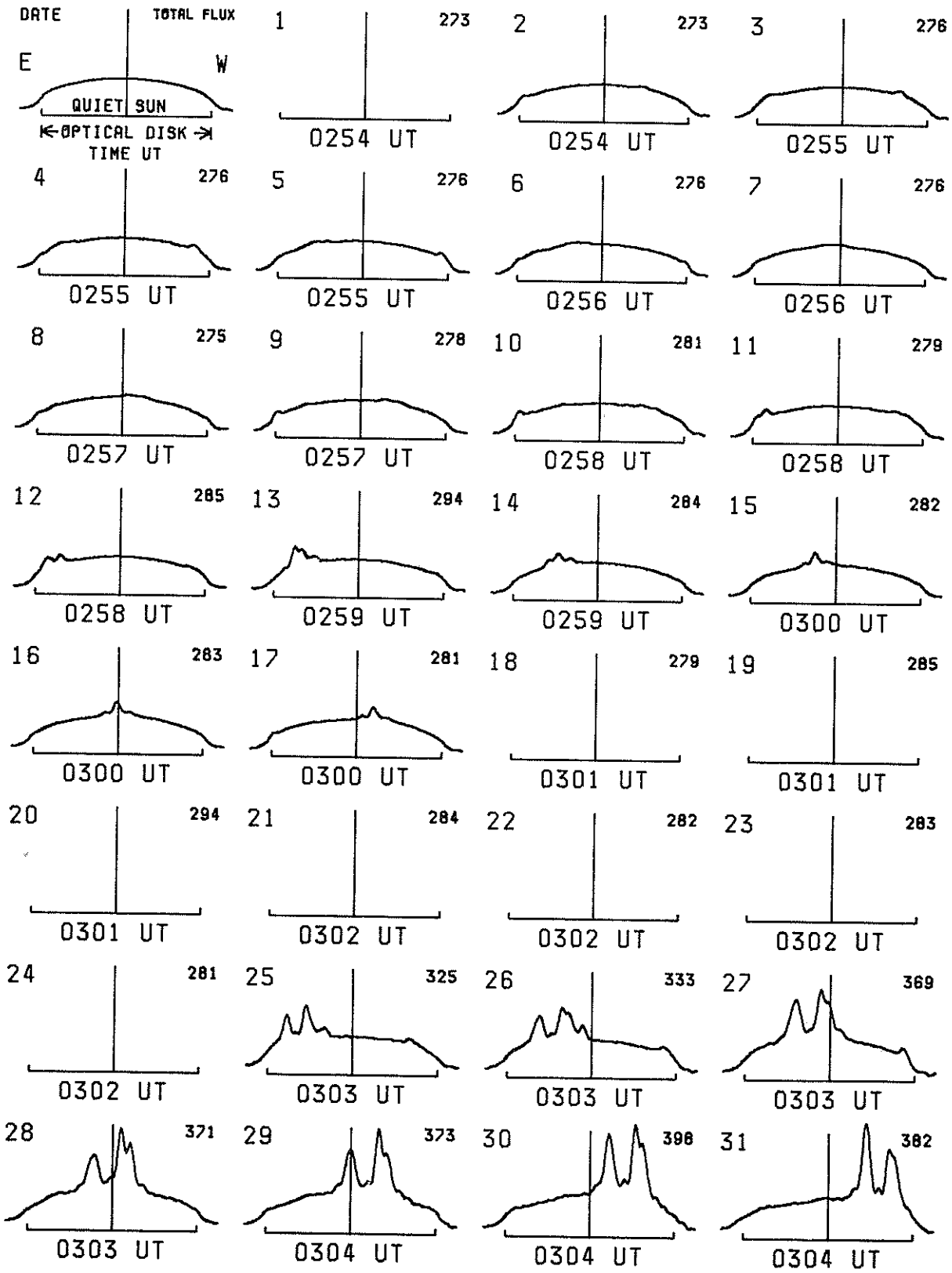
SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION
JANUARY 1984



EAST-WEST SOLAR SCANS
JANUARY 1984

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



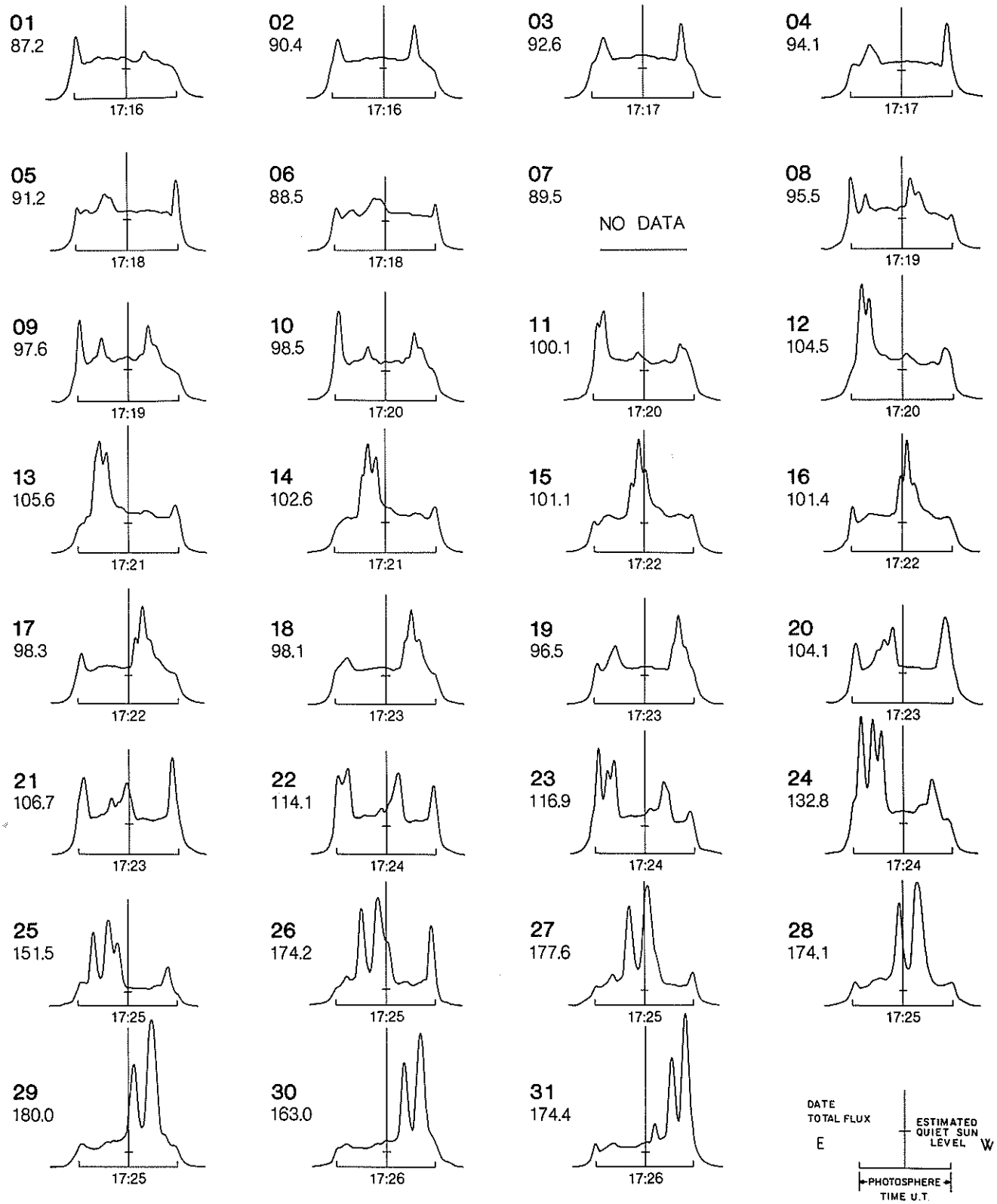
26
Jan 84

EAST-WEST SOLAR SCANS

JANUARY 1984

ALGONQUIN RADIO OBSERVATORY
CANADA

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



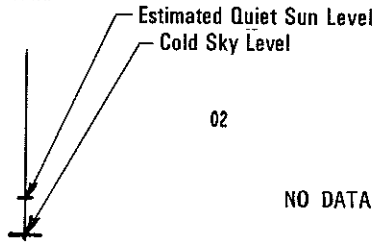
EAST-WEST SOLAR SCANS

27
Jan 84

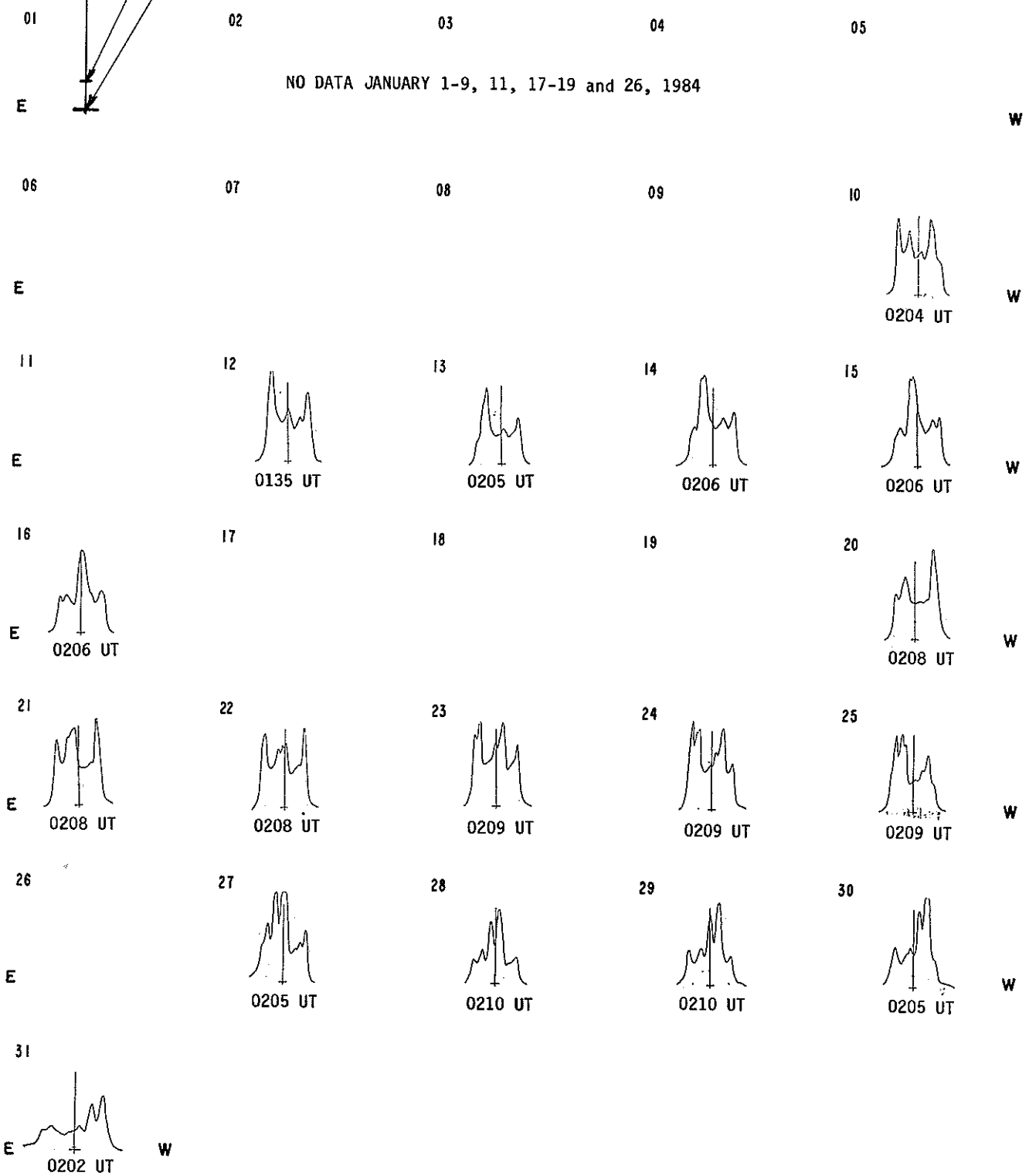
Fleurs, Australia

JANUARY 1984

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



NO DATA JANUARY 1-9, 11, 17-19 and 26, 1984



EAST-WEST SOLAR SCANS

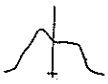
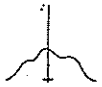
Fleurs, Australia

JANUARY 1984

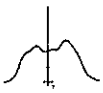
43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution

NO DATA JANUARY 1-3, 6-9, 11, 14-19, 26 and 28, 1984.

01 02 03 04 05

E  0205 UT  0206 UT W

06 07 08 09 10

E  0204 UT W

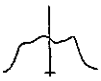
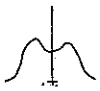
11 12 13 14 15

E 0130 UT 0205 UT W

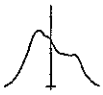
16 17 18 19 20

E 0208 UT W

21 22 23 24 25

E 0208 UT  0208 UT 0208 UT 0209 UT  0209 UT W

26 27 28 29 30

E  0209 UT 0210 UT 0210 UT W

31

E 0210 UT W

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JANUARY 1984

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
03	2800	OTTA	20	GRF	1710.0	1745.0	50.0	1.4	0.7		
	2695	PENT	1	S	2013.5	2014.0	2.0	1.0	0.5		
06	2695	PENT	240	R	1518.0	1520.0	2.0	1.4	0.7		
	2695	PENT	1	S	2113.0	2113.3	2.0	2.4	0.8		
07	2695	PENT	1	S	2200.0	2200.3	1.0	2.4	1.2		
	2695	PENT	1	S	2209.5	2209.9	1.0	2.4	1.2		
08	2800	OTTA	1	S	1658.5	1659.5	3.0	6.8	2.3		
	2800	OTTA	21	GRF	2015.0	2025.0	45.0	4.2	2.1		
	2800	OTTA	1	S	2022.0	2023.2	3.0	3.8	1.4		
09	2800	OTTA	1	S	1920.0	1924.0	5.0	2.0	1.0		
10	2695	LEAR	8	S	0945.8	0946.0	1.0	41.0			QL=2 ST=2 TYP=3
11	8800	SGMR	20	GRF	1620.8	1624.1	26.8	33.0			QL=5 ST=2 TYP=2
	2695	SGMR	20	GRF	1622.0	1623.1	1.1	13.0			QL=5 ST=2 TYP=2
	2800	OTTA	20	GRF	1830.0	1900.0	130.0	2.2	1.2		
	2695	PENT	240	R	2042.0	2050.0	8.0	1.8	0.9		
12	2800	OTTA	20	GRF	1905.0	2015.0	130.0	1.8	1.3		
13	8800	LEAR	20	GRF	0235.6	0252.1	30.7	20.0			QL=6 ST=2 TYP=2
	2695	SGMR	47	GB	1735.6	1735.8	.9	62.0			QL=6 ST=2 TYP=5
	2800	OTTA	20	GRF	1950.0	2030.0	130.0	4.4	2.2		
14	2800	OTTA	3	S	1509.0	1511.6	4.0	12.6	4.2		
	8800	ATHN	47	GB	1509.1	1511.8	3.9	100.0			QL=4 ST=2 TYP=5
	2695	ATHN	4	S/F	1510.6	1511.6	2.5	42.0			QL=4 ST=2 TYP=3
	2695	SGMR	8	S	1511.3	1511.8	.8	17.0			QL=6 ST=2 TYP=3
	2800	OTTA	29	PBI	1513.0	1513.0	17.0	2.0	1.0		
15	2800	OTTA	1	S	1942.0	1944.0	5.0	1.6	0.8		
16	8800	LEAR	8	S	0045.3	0046.0	1.3	9.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	0045.8	0045.8	.3	15.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1425.0	1445.0	125.0	2.0	1.0		
	2800	OTTA	20	GRF	1635.0	1710.0	90.0	2.0	1.0		
	2800	OTTA	20	GRF	1810.0	1935.0	170.0	2.8	1.3		
17	8800	PALE	47	GB	0232.3	0232.6	.8	82.0			QL=1 ST=2 TYP=5
	2800	OTTA	8	S	1737.2	1737.5	.5	1.4	0.7		
	2800	OTTA	20	GRF	1915.0	1930.0	80.0	1.6	0.8		
19	2800	OTTA	1	S	1344.5	1345.0	1.5	3.4	1.7		
20	2800	OTTA	21	GRF	1335.0	1425.0	290.0	18.4	8.0		
	2695	SGMR	4	S/F	1359.8E	1400.3	2.3D	32.0			QL=2 ST=2 TYP=3
	2800	OTTA	3	S	1359.9	1400.2	4.0	19.4	6.6		
	8800	SGMR	8	S	1400.1E	1400.3	.7D	19.0			QL=2 ST=2 TYP=3
	2800	OTTA	40	F	1407.5	1412.5	6.0	4.0			
	2800	OTTA	1	S	1415.5	1417.0	5.0	9.6	4.8		
	2800	OTTA	240	R	1835.0	1930.0	55.0	2.8	1.2		
	2695	PENT	1	S	2105.0	2105.3	1.0	2.2	1.1		
21	2695	LEAR	20	GRF	0133.6	0140.0	29.5	15.0			QL=5 ST=2 TYP=2
	2695	PENT	20	GRF	1710.0	1810.0	90.0	2.0	1.0		
22	8800	LEAR	8	S	0139.8	0140.3	1.0	8.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0221.0	0222.3	3.8	13.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	0221.6	0222.3	1.2	20.0			QL=6 ST=2 TYP=3
	2695	LEAR	20	GRF	0608.3	0610.1	3.7	6.0			QL=2 ST=2 TYP=2
	8800	LEAR	4	S/F	0609.1	0610.3	3.9	17.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	0609.5	0610.6	2.1	20.0			QL=6 ST=2 TYP=3
	2695	PENT	22	GRF	1809.0	1814.0	90.0	1.8	1.1		
23	2800	OTTA	240	R	1555.0	1630.0	35.0	2.6	1.3		
24	8800	LEAR	8	S	0409.0	0409.3	.5	13.0			QL=6 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JANUARY 1984

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
24	8800	LEAR	8 S	0804.5	0804.8	.6	31.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	0856.0	0856.8	1.3	30.0			QL=6 ST=2 TYP=3
	2695	LEAR	8 S	0856.8	0858.0	1.3	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1555.0	1655.0	80.0	2.4	1.3		
	2800	OTTA	240 R	1735.0	1830.0	55.0	4.8	2.8		
	2800	OTTA	2 S/F	2021.7	2022.0	1.5	9.4	3.2		
25	8800	LEAR	4 S/F	0135.8	0136.1	2.3	13.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0231.8	0236.1	5.8	11.0			QL=2 ST=2 TYP=3
	8800	LEAR	4 S/F	0232.6	0234.8	3.0	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	0247.8	0249.1	4.8	17.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0248.3	0248.8	2.8	10.0			QL=2 ST=2 TYP=3
	8800	PALE	8 S	0248.8	0249.0	.3	22.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0755.8	0756.8	3.0	10.0			QL=6 ST=2 TYP=3
	8800	ATHN	4 S/F	1012.1	1014.0	5.4	15.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	1012.3	1013.1	1.3	25.0			QL=6 ST=2 TYP=3
	2695	LEAR	8 S	1013.1	1013.3	.4	13.0			QL=6 ST=2 TYP=3
	2695	LEAR	8 S	1051.3	1051.6	.8	45.0			QL=6 ST=2 TYP=3
	8400	BERN	3 S	1207.5	1208.4	7.0	49.0			
	8800	ATHN	4 S/F	1207.6	1209.0	4.2	29.0			QL=6 ST=2 TYP=3
	2695	ATHN	4 S/F	1208.3	1209.0	4.2	24.0			QL=6 ST=2 TYP=3
	2800	OTTA	22 GRF	1500.0	1605.0	115.0	6.0	3.0		
	8800	SGMR	8 S	1717.6	1718.1	1.0	21.0			QL=6 ST=2 TYP=3
	2800	OTTA	23 GRF	1740.0	1830.0	155.0	7.8	3.9		
	2800	OTTA	4 S/F	1835.5	1837.0	5.0	10.0	5.0		
	8800	PALE	47 GB	1909.1	1911.6	3.5	260.0			QL=6 ST=2 TYP=5
	8800	PALE	8 S	1949.6	1949.8	1.0	45.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	2258.0	2258.3	2.3	10.0			QL=6 ST=2 TYP=3
26	8800	PALE	49 GB	0035.3	0039.3	50.3	840.0			QL=6 ST=2 TYP=6
	2695	PALE	47 GB	0036.1	0039.3	37.5	160.0			QL=6 ST=2 TYP=5
	8800	LEAR	49 GB	0036.1	0039.5	30.7	530.0			QL=6 ST=2 TYP=6
	2695	LEAR	47 GB	0036.8	0039.5	21.8	219.0			QL=2 ST=2 TYP=5
	8400	BERN	3 S	1120.6	1121.6	5.0	36.0			
	8800	ATHN	4 S/F	1121.0	1121.6	3.3	21.0			QL=6 ST=3 TYP=3
	2800	OTTA	240AR	1425.0	1535.0	70.0	9.8	4.9		
	8800	SGMR	47 GB	1530.6	1531.3	12.0	139.0			QL=6 ST=2 TYP=5
	2800	OTTA	1 S	1530.8	1531.3	2.0	2.6	1.3		
	2800	OTTA	20 GRF	1540.0	1545.0	25.0	2.2	1.4		
	2800	OTTA	21 GRF	1615.0	1630.0	165.0	5.4	3.8		
	2800	OTTA	40 F	1618.0	1621.0	13.0	4.8			
	8800	SGMR	8 S	1628.8	1629.1	.5	16.0			QL=6 ST=2 TYP=3
	2800	OTTA	22 GRF	1723.0	1727.0	12.0	9.2	4.4		
	2800	OTTA	1 S	2024.0	2024.5	1.0	2.6	1.3		
	2800	OTTA	3 S	2046.0	2046.3	1.2	15.8	7.0		
	2695	PALE	8 S	2046.1	2046.3	.5	22.0			QL=6 ST=2 TYP=3
	8800	PALE	8 S	2046.3	2046.3	.3	21.0			QL=6 ST=2 TYP=3
	8800	SGMR	8 S	2046.3	2046.3	.5	21.0			QL=6 ST=2 TYP=3
	2695	SGMR	8 S	2046.3	2046.5	.5	21.0			QL=6 ST=2 TYP=3
	2695	PENT	20 GRF	2055.0	2110.0	30.0	2.8	1.4		
	8800	PALE	47 GB	2059.6	2100.3	4.7	88.0			QL=6 ST=2 TYP=5
27	8800	LEAR	49 GB	0652.3	0657.1	25.0	690.0			QL=6 ST=2 TYP=6
	8800	ATHN	49 GB	0653.3	0657.1	18.7	540.0			QL=6 ST=3 TYP=6
	2695	ATHN	47 GB	0653.6	0657.3	12.5	57.0			QL=2 ST=2 TYP=5
	2695	LEAR	47 GB	0655.1	0657.1	6.0	139.0			QL=6 ST=2 TYP=5
	8400	BERN	41 F	1249.0U	1251.8	130.0U	66.0U			
	8800	ATHN	47 GB	1250.1	1252.0	4.9	54.0			QL=6 ST=2 TYP=5
	8800	SGMR	47 GB	1250.3	1251.8	12.0	81.0			QL=6 ST=2 TYP=5
	8800	ATHN	8 S	1344.3	1344.6	1.0	24.0			QL=6 ST=2 TYP=3
	8800	SGMR	8 S	1344.5	1344.8	.8	29.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1355.0	1430.0	65.0	4.2	2.1		
	8800	ATHN	4 S/F	1402.5	1403.5	3.3	33.0			QL=6 ST=2 TYP=3
	8800	SGMR	4 S/F	1403.1	1403.6	2.5	43.0			QL=6 ST=2 TYP=3
	8800	ATHN	47 GB	1444.0	1445.3	5.1	67.0			QL=6 ST=2 TYP=5
	8800	SGMR	47 GB	1444.1	1445.3	5.7	99.0			QL=6 ST=2 TYP=5
	2800	OTTA	240 R	1550.0	1630.0	40.0	3.4	1.7		
	8800	SGMR	8 S	1724.1	1724.6	.9	18.0			QL=6 ST=2 TYP=3
	2695	PALE	8 S	1807.3	1807.5	.5	17.0			QL=5 ST=2 TYP=3
	8800	PALE	47 GB	1807.3	1808.8	5.8	219.0			QL=5 ST=2 TYP=5
	2800	OTTA	20 GRF	1840.0	1845.0	30.0	3.6	1.8		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JANUARY 1984

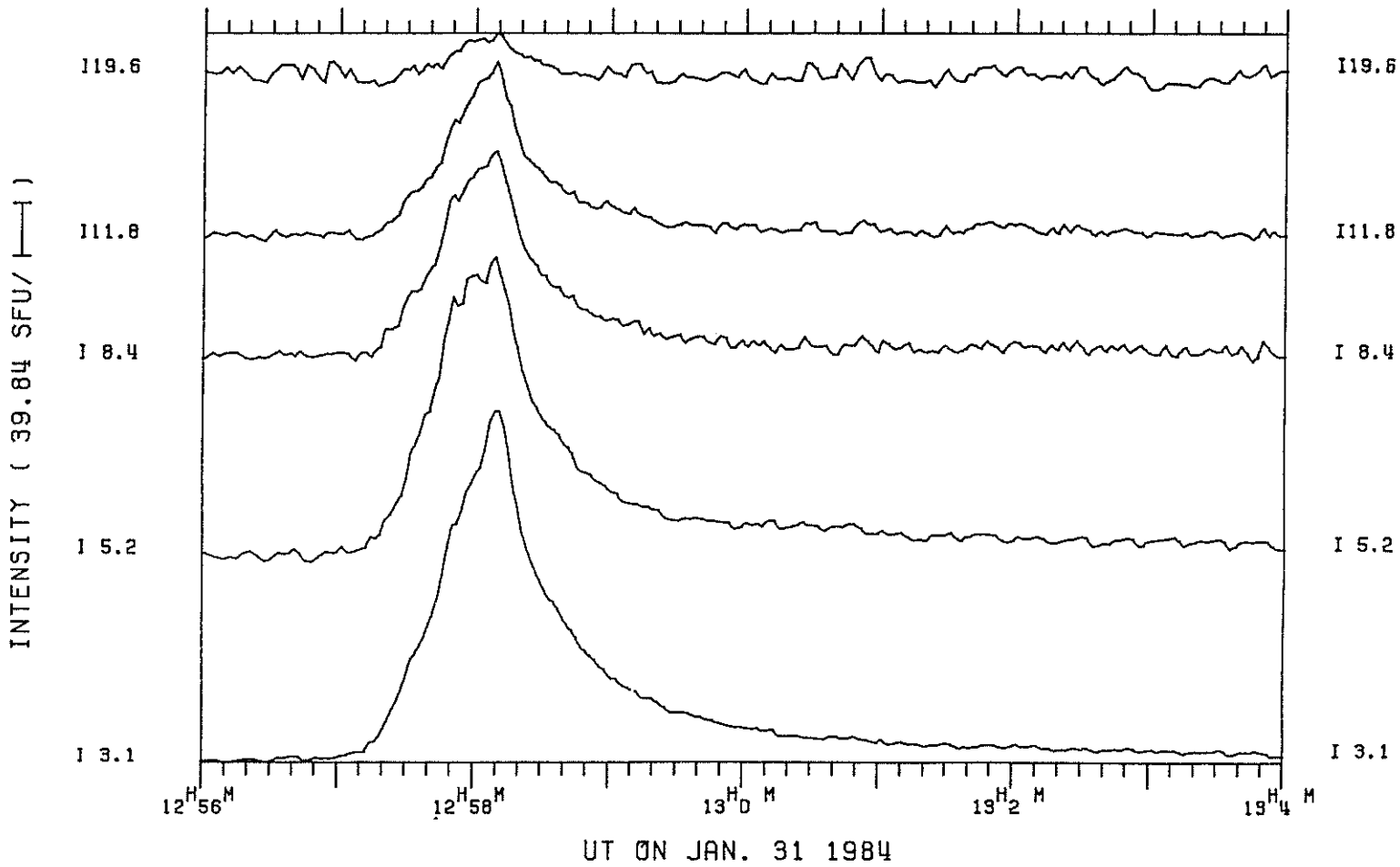
Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10^{-22} W/m^2 Hz)	Flux Density Mean (10^{-22} W/m^2 Hz)	Int	Remarks
27	8800	PALE	47	GB	1902.8	1903.1	2.2	91.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1902.8	1903.3	1.8	87.0			QL=6 ST=2 TYP=5
	2695	PENT	22	GRF	2035.0	2140.0	110.0	5.6	2.8		
28	8800	LEAR	4	S/F	0303.1	0304.6	4.2	26.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0311.5	0311.8	2.6	48.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0403.1	0412.0	14.9	29.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0454.6	0457.5	4.0	8.0			QL=2 ST=3 TYP=3
	8800	LEAR	4	S/F	0455.6	0456.3	2.7	7.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0557.1	0557.8	2.9	34.0			QL=6 ST=2 TYP=3
	8800	ATHN	47	GB	0712.5	0714.8	7.0	119.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0713.8	0714.8	6.0	119.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0714.6	0715.6	3.0	10.0			QL=2 ST=2 TYP=3
	8800	LEAR	4	S/F	0729.8	0732.0	12.3	20.0			QL=6 ST=3 TYP=3
	2800	OTTA	21	GRF	1335.0	1410.0	200.0	10.6	5.3		
	2800	OTTA	20	GRF	1533.0	1535.0	60.0	3.6	2.0		
	2800	OTTA	20	GRF	1800.0	1830.0	40.0	2.4	1.2		
	2800	OTTA	22	GRF	1905.0	2010.0	230.0	12.0	5.0		
	8800	PALE	47	GB	2153.8	2154.3	4.3	420.0			QL=6 ST=2 TYP=5
	8800	LEAR	4	S/F	2342.1	2343.8	7.7	27.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	2343.1	2343.6	1.2	47.0			QL=6 ST=2 TYP=3
29	8800	LEAR	4	S/F	0006.8	0007.1	5.5	16.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0047.0	0047.3	2.1	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0115.8	0120.3	8.5	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0127.0	0128.1	5.3	45.0			QL=6 ST=2 TYP=3
	8800	PALE	47	GB	0127.8	0128.1	.8	52.0			QL=6 ST=2 TYP=5
	2695	PALE	47	GB	0311.0	0311.1	.5	52.0			QL=6 ST=2 TYP=5
	8800	LEAR	8	S	0513.8	0515.3	1.7	13.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0552.8	0553.0	.5	22.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0553.0	0553.1	.3	15.0			QL=6 ST=2 TYP=3
	8800	ATHN	47	GB	1302.6E	1311.6	27.9D	77.0			QL=5 ST=3 TYP=5
	8800	SGMR	8	S	1305.1	1305.3	.5	25.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	1305.1	1305.3	.5	15.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1420.0	1430.0	35.0	3.4	2.0		
	2800	OTTA	1	S	1804.0	1805.0	5.0	2.8	1.4		
	2695	PENT	22	GRF	2030.0	2130.0	100.0	4.2	1.8		
	8800	LEAR	8	S	2312.6	2312.8	.7	11.0			QL=6 ST=2 TYP=3
30	8800	LEAR	4	S/F	0201.0	0205.1	7.1	18.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0202.8	0205.1	3.0	22.0			QL=5 ST=2 TYP=3
	8800	PALE	8	S	0204.8	0205.1	.7	26.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0429.1	0430.1	36.7	110.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0429.3	0430.1	9.5	15.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1330.0	1355.0	105.0	6.0	3.2		
	2800	OTTA	22	GRF	1600.0	1638.0	90.0	5.2	2.4		
	8800	PALE	20	GRF	2053.8	2056.8	5.0	29.0			QL=6 ST=2 TYP=2
	2800	OTTA	1	S	2054.0	2055.0	6.0	2.2			
	2695	PENT	260	FAL	2125.0	2140.0	15.0	-3.8	-1.9		
	2695	PENT	1	S	2230.0	2232.5	7.0	7.2	3.2		
31	8800	LEAR	8	S	0046.8	0048.1	1.7	33.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0046.8	0049.5	2.8	26.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	0047.1	0047.1	1.7	35.0			QL=6 ST=2 TYP=3
	2695	PALE	8	S	0047.1	0047.3	1.5	19.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0419.3	0420.1	2.3	57.0			QL=6 ST=2 TYP=5
	8800	LEAR	8	S	0439.3	0439.3	.5	19.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	0536.1	0538.6	5.4	15.0			QL=2 ST=2 TYP=3
	2695	LEAR	47	GB	0536.8	0539.0	4.0	100.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0536.8	0539.1	4.0	110.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0707.6	0709.1	14.4	24.0			QL=6 ST=2 TYP=5
	8800	LEAR	8	S	0718.6	0719.1	.7	18.0			QL=6 ST=2 TYP=3
	8400	BERN	4	S/F	0720.0U	0728.3	30.0U	116.0			
	2695	ATHN	47	GB	0721.0	0728.5	21.3	56.0			QL=6 ST=2 TYP=5
	8800	ATHN	47	GB	0721.0	0728.5	20.5	210.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0722.5	0728.1	21.5	330.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0722.5	0728.3	22.6	310.0			QL=6 ST=2 TYP=5
	2695	LEAR	8	S	0856.8	0857.1	1.0	34.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0909.1	0909.3	19.2	31.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0940.8	0942.5	7.2	38.0			QL=6 ST=2 TYP=3
	8800	ATHN	47	GB	1256.8	1258.1	7.3	119.0			QL=6 ST=2 TYP=5
	8400	BERN	3	S	1256.8	1258.1	7.0	155.0			
	2800	OTTA	20	GRF	1320.0	1350.0	210.0D	17.2			
	8800	PALE	8	S	2052.6	2052.8	1.5	25.0			QL=6 ST=2 TYP=3

SELECTED SOLAR NOISE BURSTS

JANUARY 31, 1984

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND

INTEGRATION TIME= 2000 MS



BOULDER GEOMAGNETIC SUBSTORM LOG

January 1984

DATE	ONSET TIME	DIR	COMMENTS
01/01			Minor magstorm conditions 0700-1500 UT. Field intermittently active balance of day.
01/02			Field intermittently active through 1600 UT.
	0620	Center	
	1120	West	
	1340	West	
01/03			Field active 0700-1800 UT.
	0725	Center	
	1350	West	Response confined mostly to oval stations. Initial onset at College. Strong response in Alaska.
01/04			Field unsettled all day.
	0625	West	Moderate substorm, several injections with recovery near 0930 UT.
	1115	West	Weak substorm.
01/05			Field unsettled all day.
	0220	East	
	0540	Center	Initial onset, numerous injections with recovery near 0900 UT.
	1140	West	Initial onset, moderate substorm; several injections with recovery near 1430 UT.
01/06			Field intermittently unsettled.
	0315	East	Weak substorm.
	0905	West	Moderate substorm response in Alaska.
	1415	West	
01/07			Field slightly unsettled.
01/08			Field slightly unsettled.
01/09			Field slightly unsettled.
01/10			Field intermittently unsettled.
	1745	West	Boulder in partial ring current sector.
01/11			Field unsettled all day with no distinctive substorm activity.
01/12			Field intermittently unsettled with no distinctive substorm activity.
01/13			Field slightly unsettled except for one substorm.
	1410	West	Moderate substorm.
01/14			Field slightly unsettled.
	1200	West	
01/15			Field slightly unsettled.
	0700	East	
	1400		Weak substorm.
01/16			Field slightly unsettled.
	1410		Weak substorm.
	1445	West	Weak substorm.
01/17			Field slightly unsettled.
	0125	East	Boulder in partial ring current sector.
01/18			Field slightly unsettled.
01/19			Field unsettled through 1630 UT.
	0950	West	
	1110	West	Moderate substorm at College; numerous minor injections with recovery near 1630 UT.
01/20			Field slightly unsettled.
	0920	West	
	1000	West	
01/21			Field intermittently unsettled through 1200 UT.
	0435	East	
	0925	West	Several injections with recovery near 1130 UT.
01/22			Field intermittently unsettled.
	0150	East	
	0645	West	
	0940	West	
	1335		Weak substorm.
01/23			Field slightly unsettled.
01/24			Field slightly unsettled through 0730 UT, quiet rest of day.
	0125	East	Boulder in partial ring sector.
	0550	East	Weak substorm.
01/25			Field intermittently unsettled.
	0745	West	Initial onset, several minor injections, weak substorm.
	1655	West	
01/26			Field intermittently active.
	0415		Initial onset, several minor injections followed by moderate injection at 0600 UT. Recovery near 0745 UT.
	1320	West	Initial onset, numerous injections with recovery near 1830 UT.
01/27			Field slightly unsettled.
	0325	East	Weak substorm at NAQ.*
	1410	West	Weak substorm.
01/28			Field unsettled all day.
	0615	East	Weak substorm.
	1010	West	Moderate substorm, recovery near 1200 UT.
	1440	West	Moderate substorm, recovery near 1700 UT. Field slightly unsettled.
01/29			Field intermittently unsettled.
	0025	East	Boulder in partial ring current sector.
	0720	West	Weak substorm.
	1005	West	
	1125	West	
01/30			Field at storm level 0900-1800 UT and unsettled balance of day.
01/31			Data not analyzed.

* Note: Narsarssuaq became operational on 19 April 1983. For convenience, it will be identified by the call letters NAQ.

INFERRED IP MAGNETIC FIELD

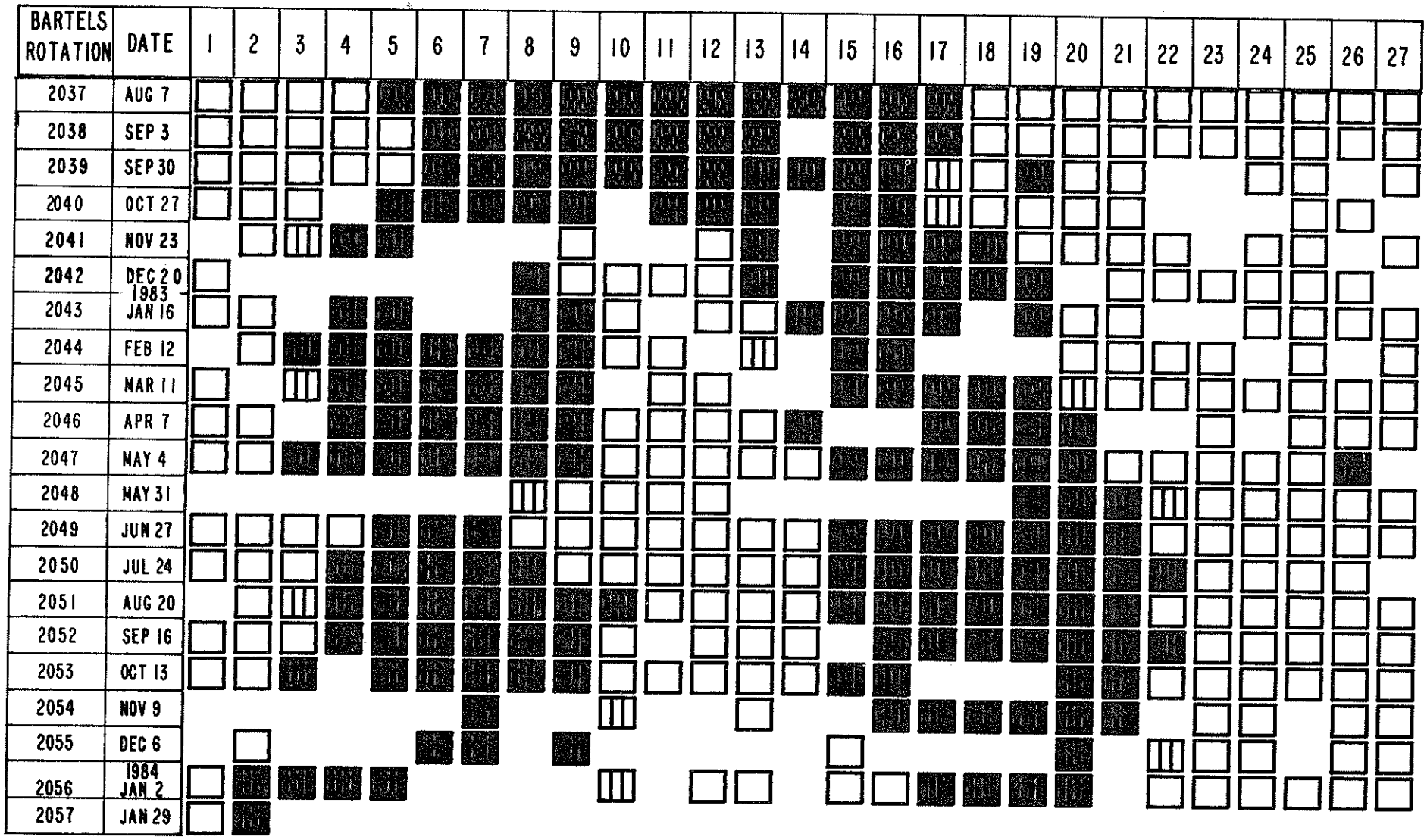
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2035	JUN 19	-	-	-	-	-	-	-	-	-	- - -	-	-	TA -	-	- - -	-	- -	-	-	-	- -	-	TA -	-	-	-	-
2036	JUL 16	-	- -	-	-	- -	TA -	-	-	-	-	AT -	-	- - -	- -	AT -	- -	- -	- -	- -	-	- -	- -	* -	-	- - -	- -	* -
2037	AUG 12	-	-	-	-	- -	-	- -	-	TA -	-	- -	TA -	TA -	TA -	-	- -	-	TA -	-	TA -	-	-	-	-	-	-	-
2038	SEP 8	TA -	AT -	-	-	-	-	-	-	-	-	-	-	-	TA -	-	AT -	-	-	-	-	-	TA -	-	-	-	-	-
2039	OCT 5	-	AT -	-	AT -	-	-	-	-	-	AT -	TA -	-	-	-	-	AT -	-	-	-	-	-	-	-	TA -	-	-	-
2040	NOV 1	AT -	-	-	-	AT -	-	-	-	-	AT -	-	-	-	-	AT -	-	-	TA -	-	-	- -	-	-	TA -	AT -	-	-
2041	NOV 28	TA -	-	- -	- -	-	AT -	-	-	-	-	-	-	TA -	TA -	-	-	-	-	-	-	-	AT -	AT -	-	-	-	-
2042	DEC 25	-	-	-	AT -	AT -	-	-	-	TA -	-	-	-	-	-	-	-	-	TA -	TA -	-	-	-	AT -	-	-	-	-
2043	1983 JAN 21	- -	-	-	-	-	-	-	-	-	-	TA -	-	-	-	TA -	AT -	-	-	-	-	-	-	-	- -	-	-	-
2044	FEB 17	-	-	-	-	-	-	-	-	-	-	TA -	-	-	TA -	-	TA -	TA -	-	AT -	TA -	TA -	-	TA -	-	-	-	-
2045	MAR 16	- -	- -	AT -	AT -	AT -	-	-	-	-	-	AT -	- -	-	-	-	AT -	-	TA -	-	-	-	-	-	-	-	- -	- -
2046	APR 12	-	-	TA -	- -	-	-	- -	- -	-	-	-	-	TA -	-	-	-	AT -	TA -	AT -	-	-	-	-	AT -	AT -	AT -	-
2047	MAY 9	-	-	AT -	-	-	AT -	-	-	-	AT -	AT -	- -	-	-	-	-	- -	AT -	-	-	- -	- -	- -	AT -	-	- -	AT -
2048	JUN 5	- -	- -	AT -	-	AT -	-	AT -	AT -	-	AT -	AT -	- -	-	AT -	AT -	AT -	-	-	AT -	-	- -	- -	AT -	- -	- -	- -	- -
2049	JUL 2	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-	-	AT -	- -	-	AT -	-	- -	AT -	-	AT -	-	-	- -	- -	- -
2050	JUL 29	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	AT -	AT -	-	-
2051	AUG 25	- -	- -	- -	AT -	- -	- -	-	-	-	-	-	-	-	-	AT -	-	-	-	-	AT -	-	AT -	-	-	-	-	AT -
2052	SEP 21	-	AT -	-	AT -	-	-	-	- -	- -	- -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2053	OCT 18	-	-	-	-	-	-	-	-	-	- - -	- -	- -	- -	- -	-	-	-	TA -	-	-	-	-	-	-	-	-	-
2054	NOV 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- -	- -	- -	-	-	-	-	-	-	-	-	TA -	-
2055	DEC 11	AT -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AT -	- -	- -	- -	- -	- -	-	-	-	* -	-	-
2056	1984 JAN 7	-	-	-	-	-	-	-	-	-	* -	* -	* -	TA -	-	-	-	-	-	TA -	* -	AT -	-	-	-	-	-	

= definitely towards the sun = definitely away from the sun

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

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

STANFORD MEAN SOLAR MAGNETIC FIELD



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

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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

day	83 Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	84 Jan.
01	-81	.	25	69	.	-23	9	41	-51	-63	54	41
02	.	.	38	65	.	-50	16	35	-104	-27	79	11
03	-8	11	52	52	.	-28	3	-3	-117	32	.	-2
04	15	33	61	35	.	15	13	-59	-100	75	56	-16
05	45	38	63	12	.	44	20	-99	-68	70	24	-29
06	.	51	50	-3	.	51	22	-109	-37	57	.	-50
07	.	.	29	-15	0	39	-12	-109	-9	35	3	.
08	54	65	21	-43	12	17	-49	-89	38	23	.	.
09	84	.	.	-51	30	33	-81	-42	55	.	.	.
10	93	48	-15	-45	45	27	-91	10	46	.	.	.
11	69	30	-44	-27	28	-4	-83	33	25	.	-59	-1
12	.	.	-48	-3	.	-60	-73	52	19	.	-50	.
13	16	2	-43	10	.	-108	-60	60	10	.	.	47
14	-19	-25	-29	27	.	-120	-10	58	4	.	-9	56
15	-22	-44	-11	31	.	-107	19	42	-7	-53	.	.
16	-104	-62	9	10	.	-89	56	29	.	.	.	37
17	-102	-27	16	5	.	-20	14	20	-47	.	.	20
18	-67	-19	13	-9	-91	7	78	5	-68	0	.	-3
19	-37	-5	15	-69	-56	27	.	-18	-62	.	.	-14
20	-7	.	-11	-87	-28	41	.	-37	-54	.	29	-28
21	24	19	.	-96	-1	97	8	-63	-20	66	.	-34
22	27	15	.	-47	23	96	1	-66	10	.	.	.
23	.	.	-66	-11	53	82	-17	-54	25	.	.	24
24	-1	.	-59	6	72	25	-34	-17	57	-52	.	43
25	.	-23	-34	36	101	9	-76	12	72	-78	-6	33
26	-49	-34	-15	64	67	11	-78	.	48	-94	.	25
27	-66	-42	.	101	23	-4	-36	52	-9	-82	1	23
28	.	-17	.	117	27	-35	-28	71	-58	-59	40	21
29		-20	36	-12	33	-37	-12	54	.	-20	60	10
30		1	.	.	26	-39	7	.	.	.	.	-13
31		18		.		-21	28		.		47	-22

C O N T E N T S

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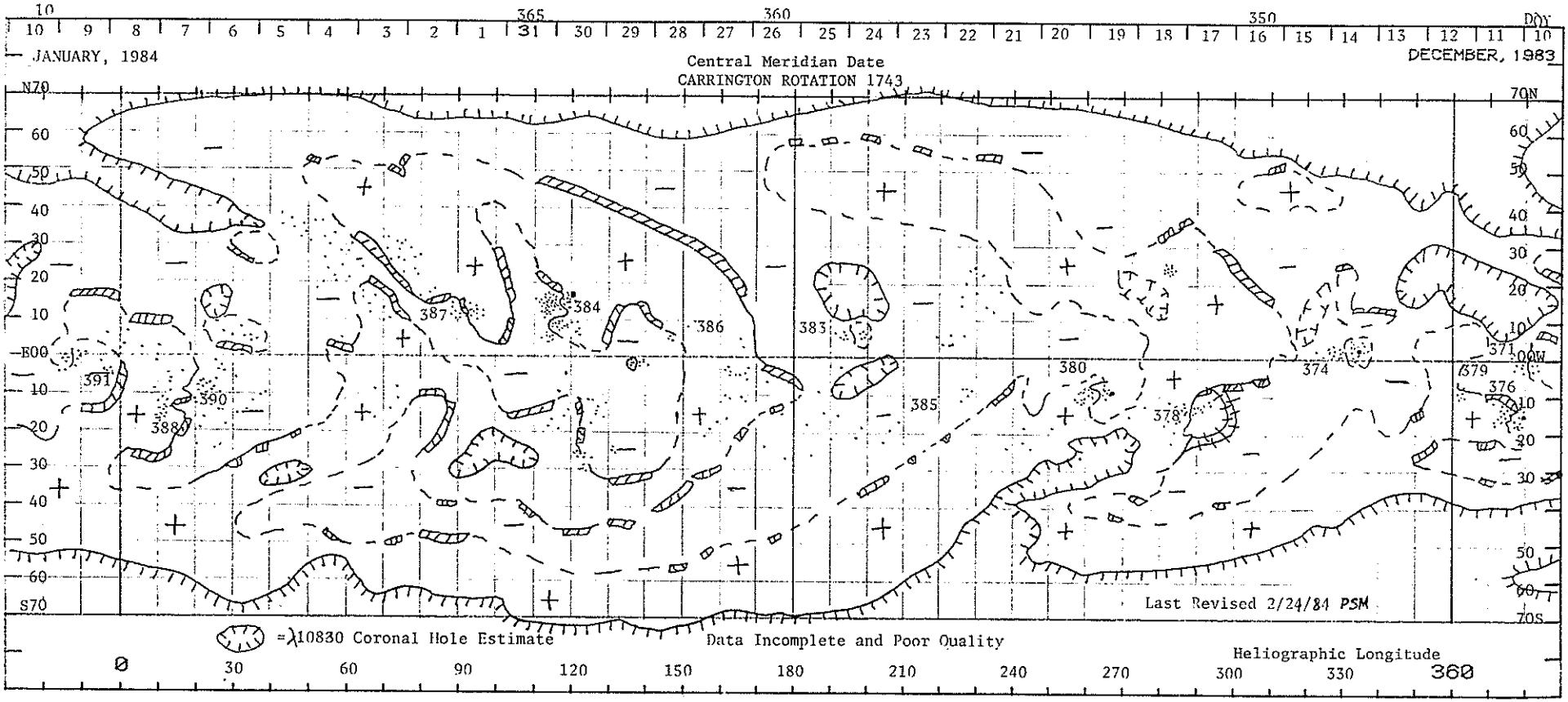
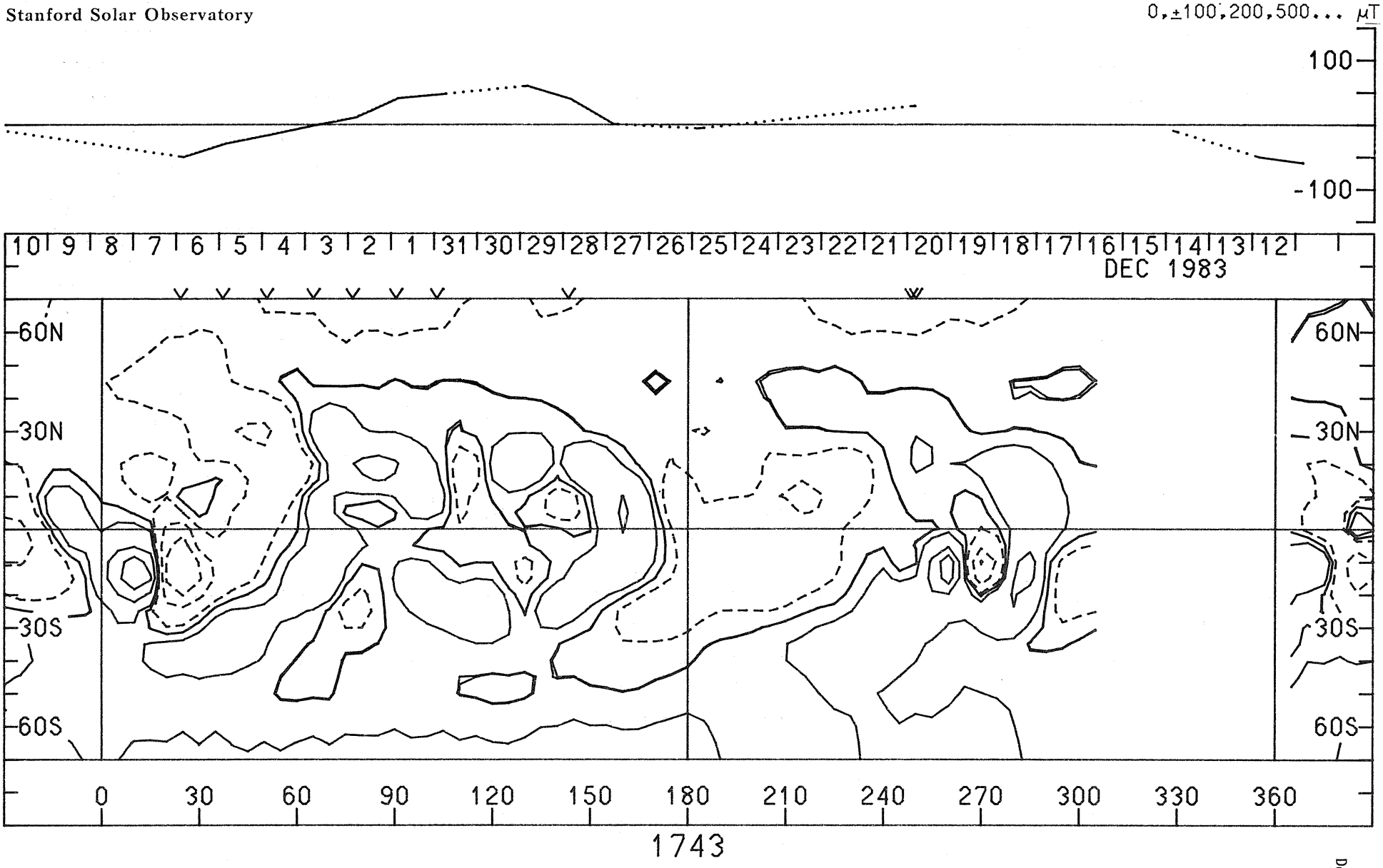
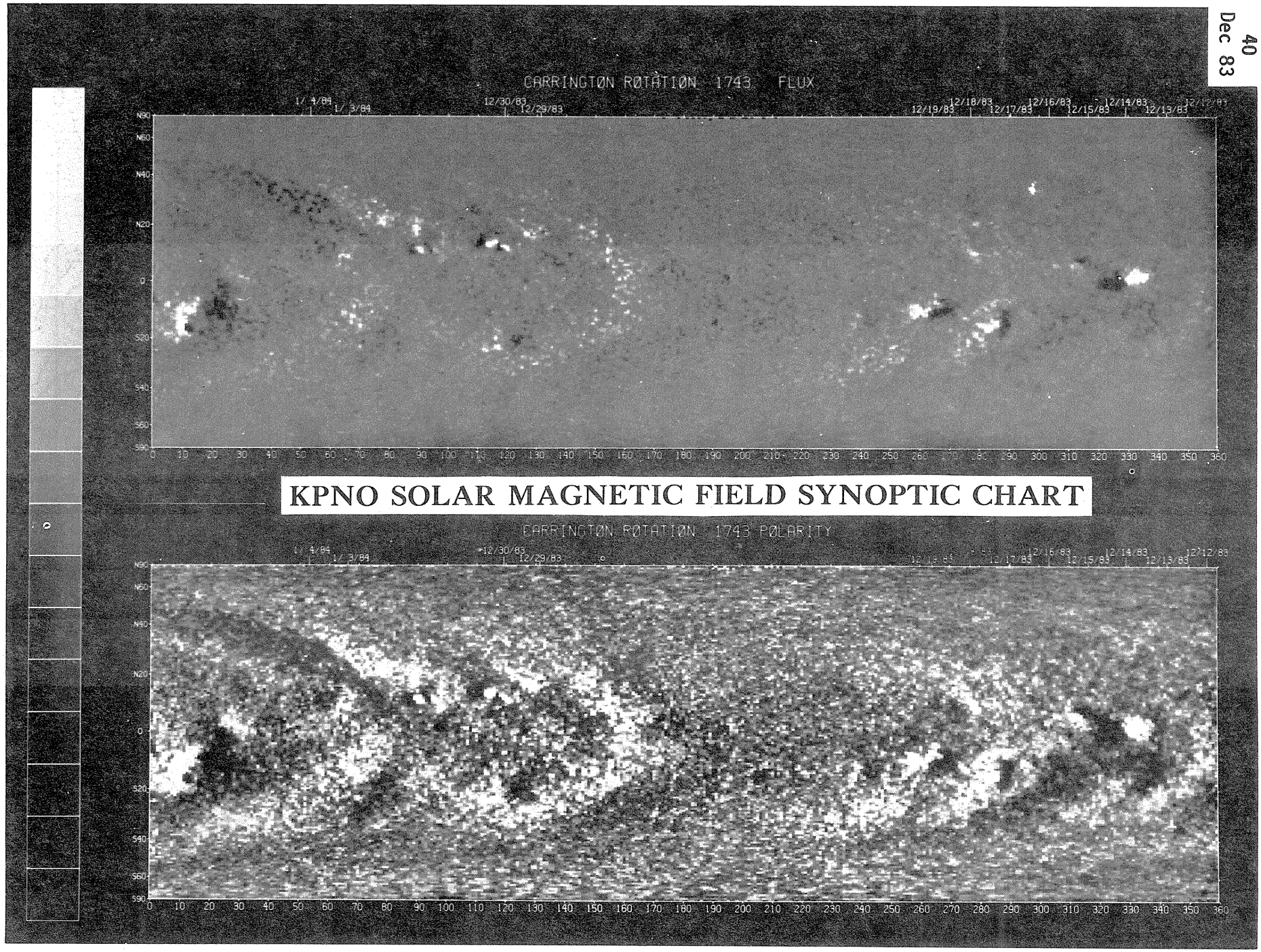


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1743

Stanford Solar Observatory





KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

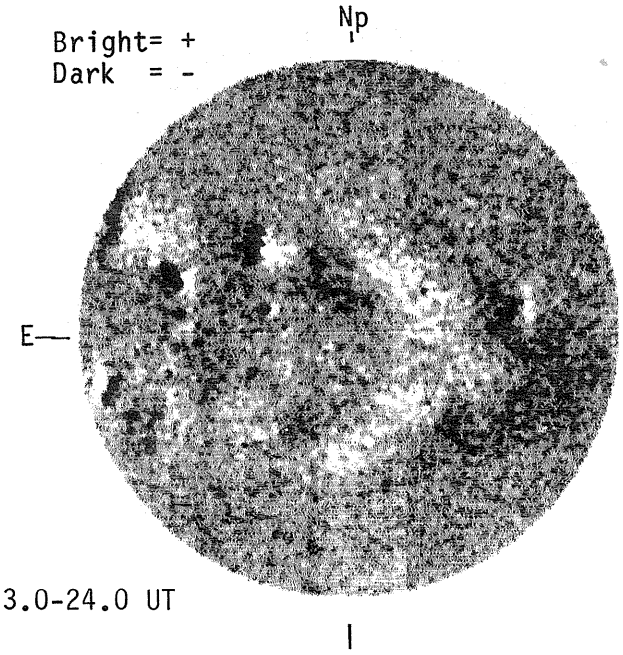
HELIUM 10830Å SYNOPTIC MAPS
CARRINGTON ROTATION 1743

KITT PEAK NATIONAL OBSERVATORY

D E C E M B E R 01, 1 9 8 3 (P= 16.34, B_0= 0.92, L_0= 150.17)

MT. WILSON MAGNETOGRAM

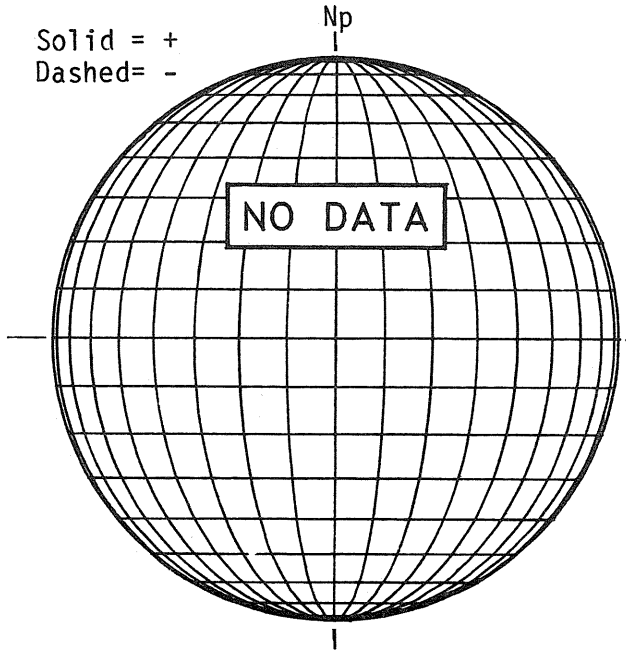
Bright= +
Dark = -



23.0-24.0 UT

STANFORD MAGNETOGRAM

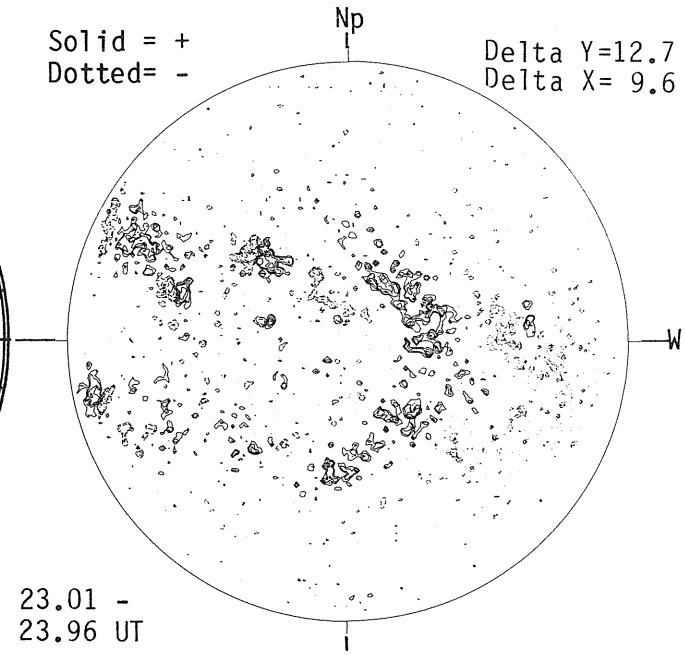
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

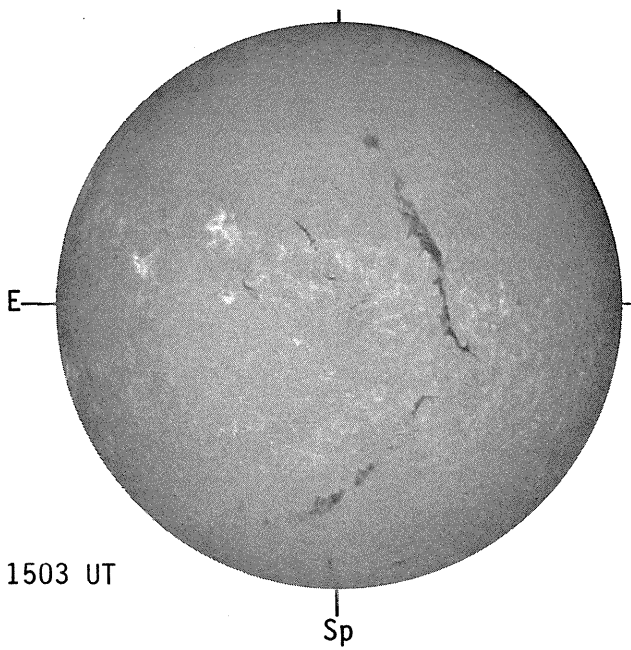
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6



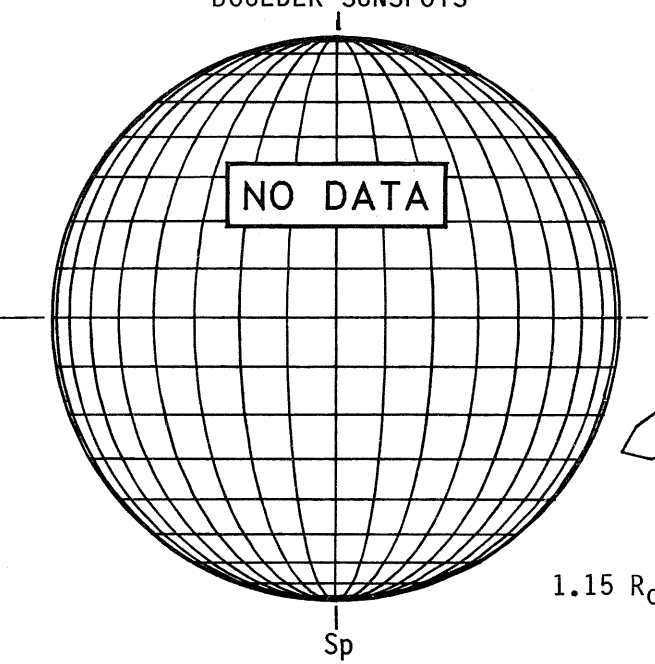
23.01 -
23.96 UT

SACRAMENTO PEAK H-ALPHA

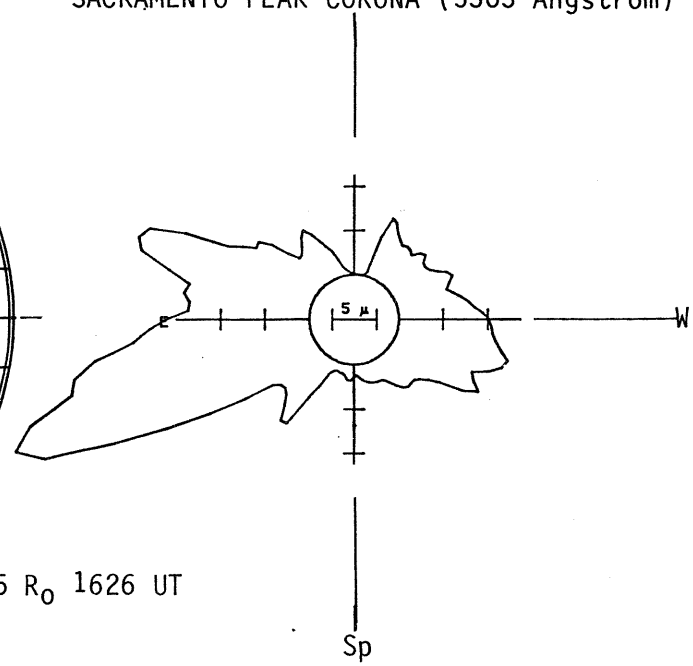


1503 UT

BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

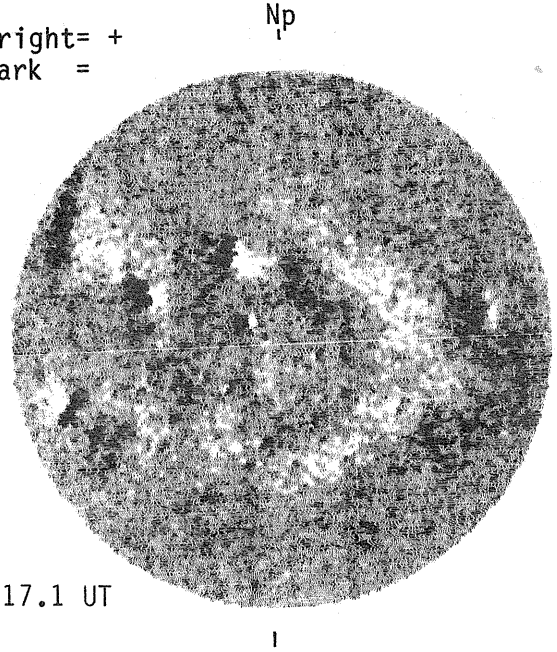


1.15 R_0 1626 UT

D E C E M B E R 02, 1 9 8 3 (P= 15.95, B_0= 0.79, L_0= 137.00)

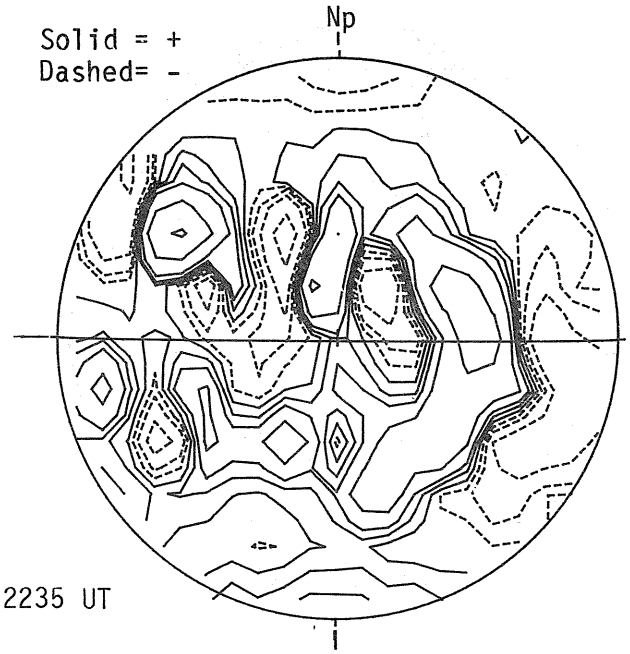
MT. WILSON MAGNETOGRAM

Bright= +
Dark =



STANFORD MAGNETOGRAM

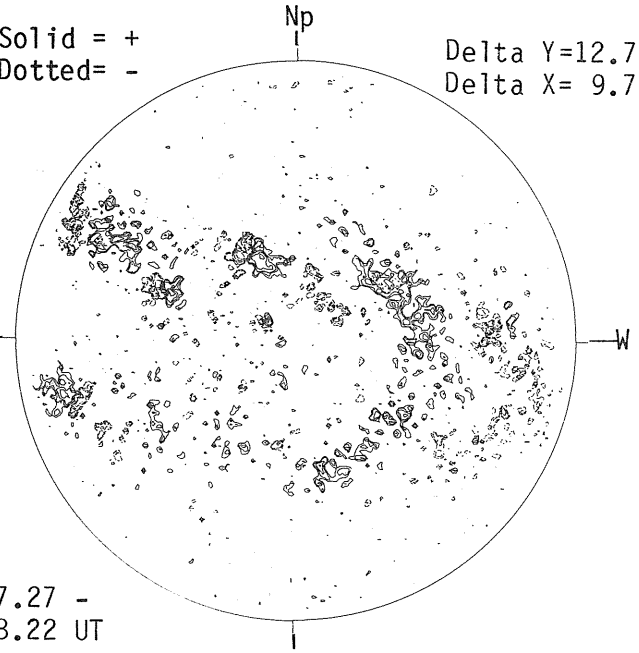
Solid = +
Dashed= -



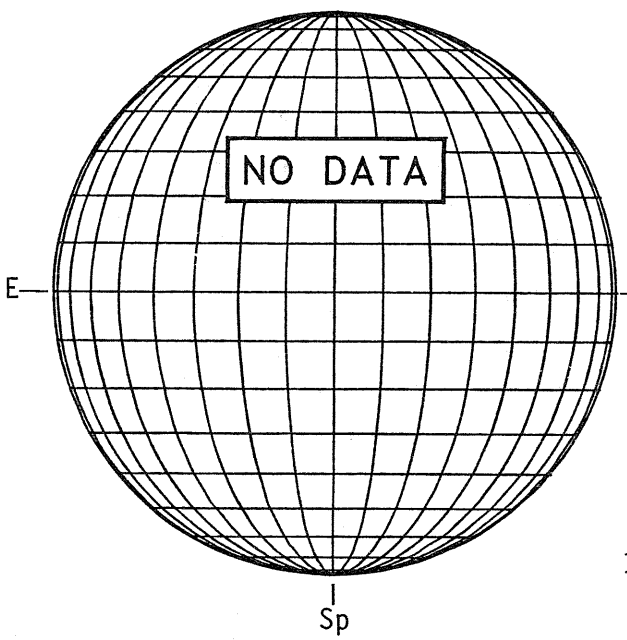
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

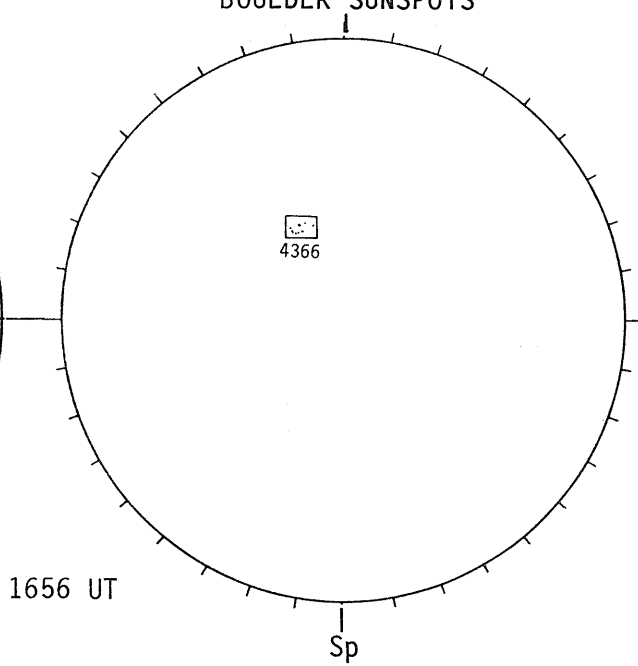
Delta Y=12.7
Delta X= 9.7



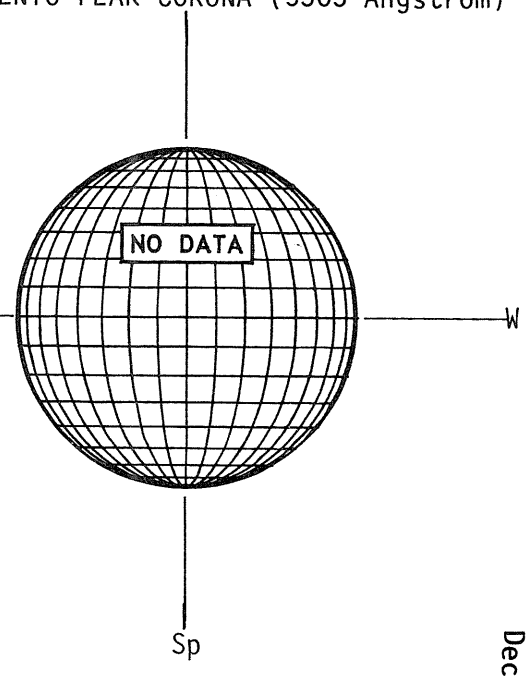
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



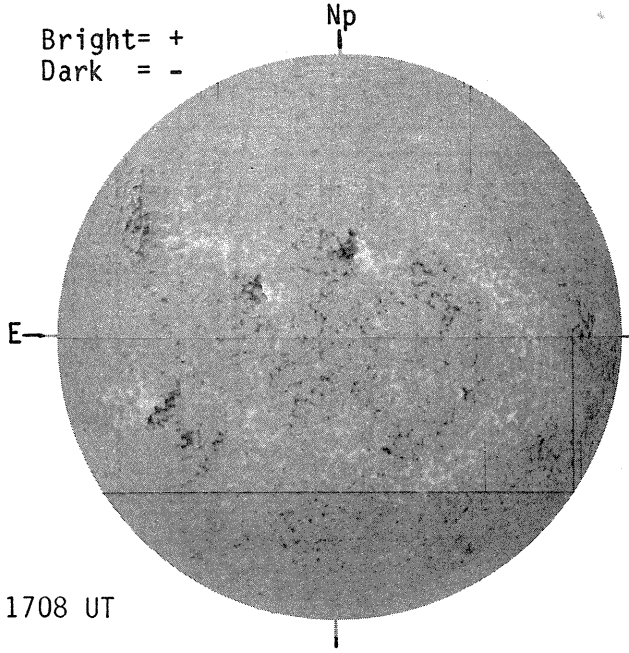
SACRAMENTO PEAK CORONA (5303 Angstrom)



DECEMBER 03, 1983 (P= 15.56, B_0= 0.67, L_0= 123.82)

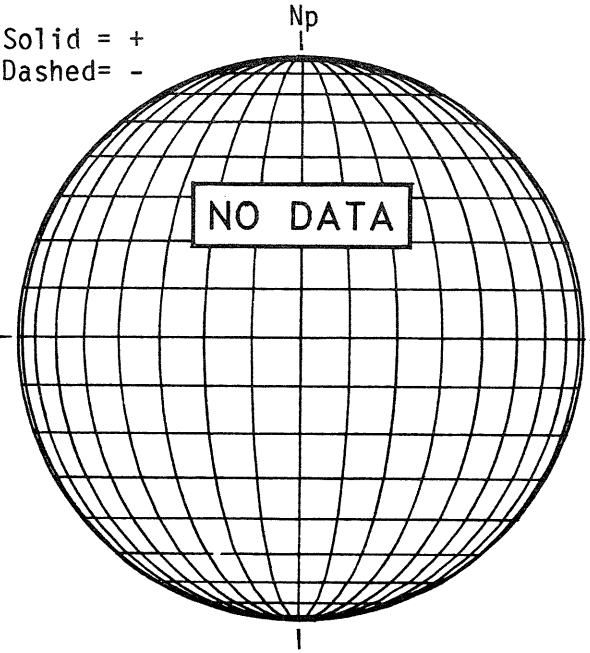
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



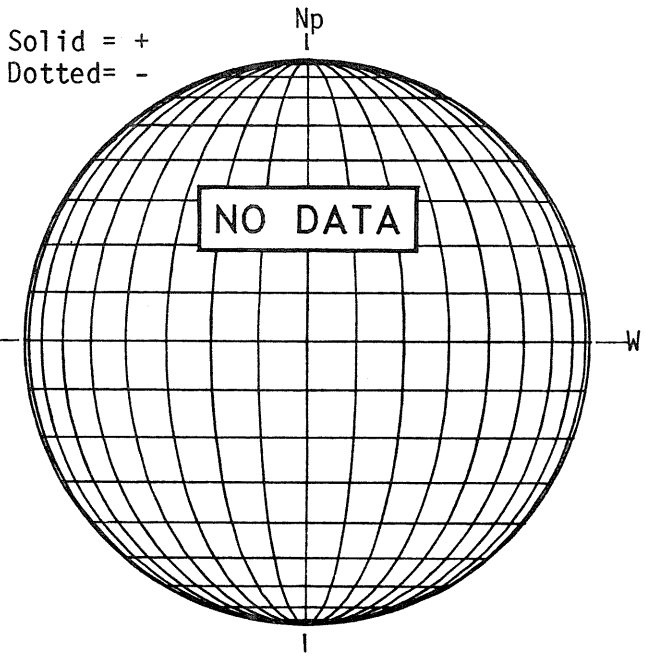
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

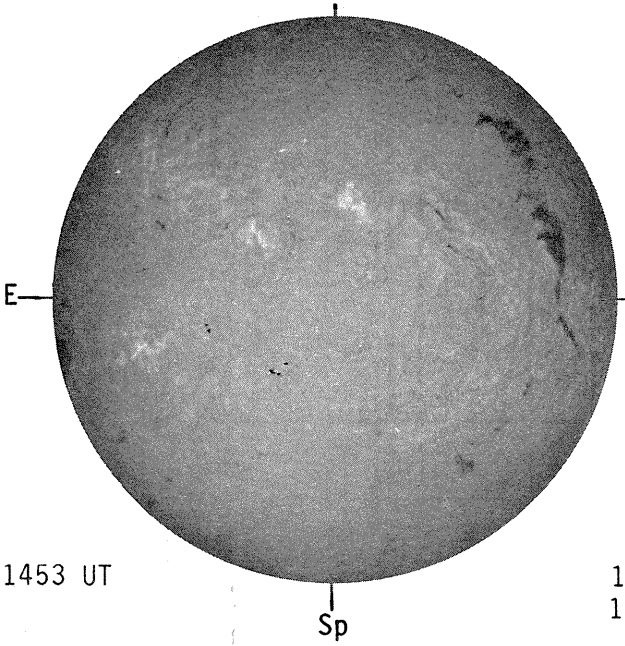


MT. WILSON MAGNETOGRAM

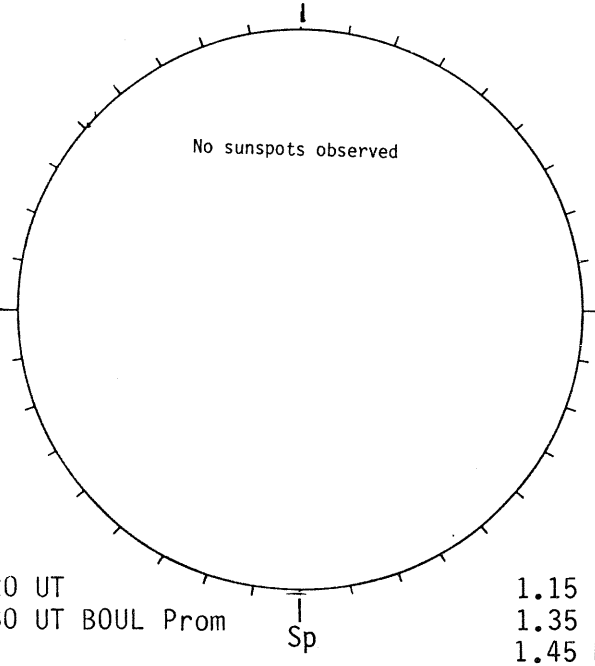
Solid = +
Dotted= -



SACRAMENTO PEAK H-ALPHA

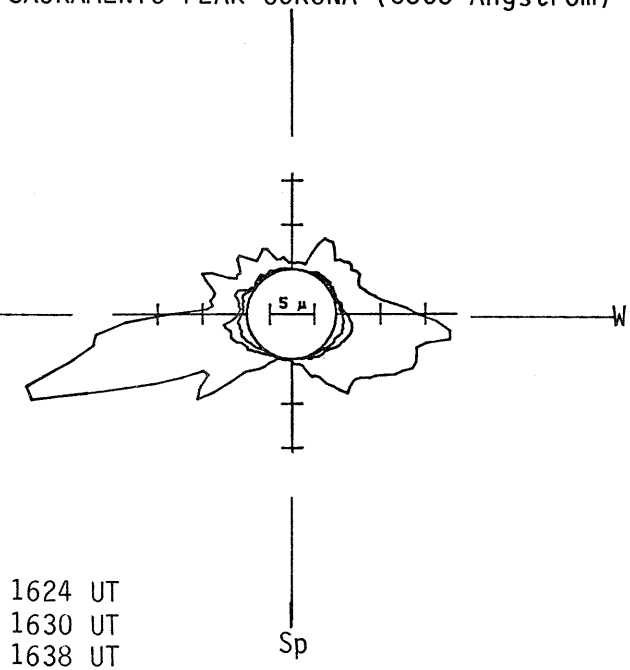


BOULDER SUNSPOTS



1720 UT
1730 UT BOUL Prom

SACRAMENTO PEAK CORONA (5303 Angstrom)

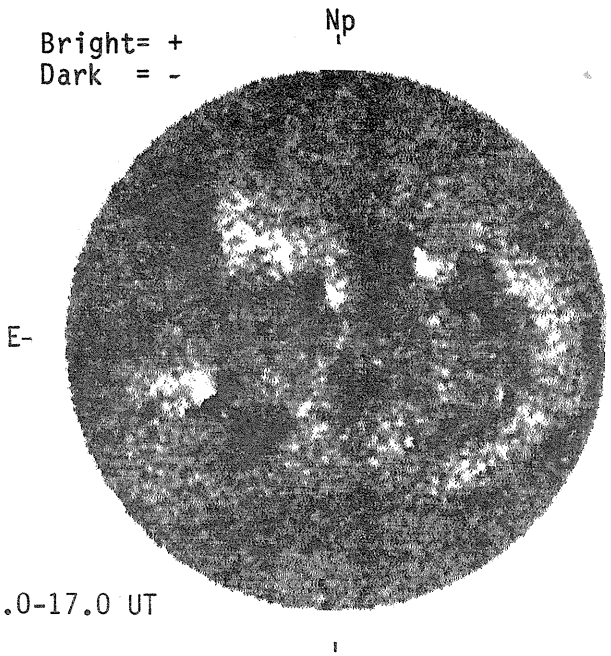


1.15 R_0 1624 UT
1.35 R_0 1630 UT
1.45 R_0 1638 UT

D E C E M B E R 04, 1 9 8 3 (P= 15.16, B_0= 0.54, L_0= 110.64)

MT. WILSON MAGNETOGRAM

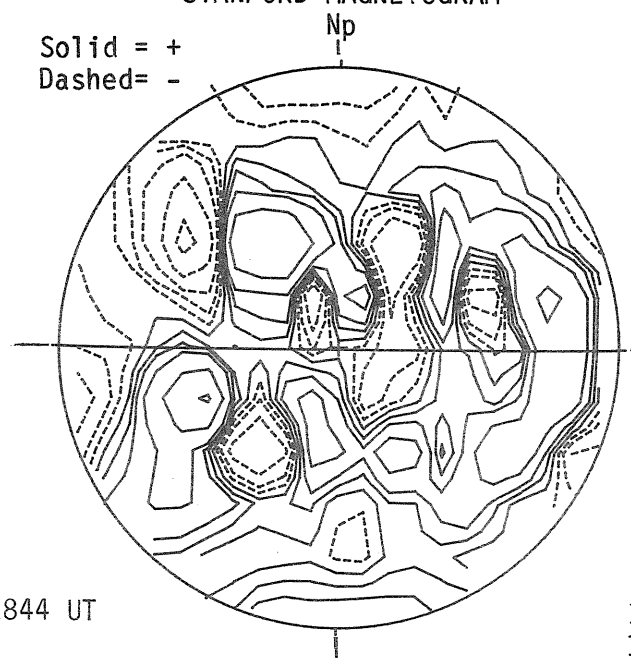
Bright= +
Dark = -



16.0-17.0 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed= -

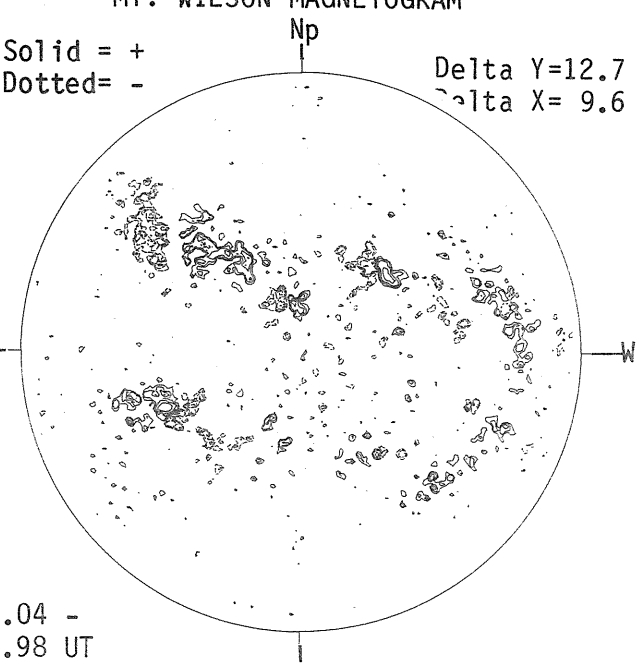


1844 UT

MT. WILSON MAGNETOGRAM

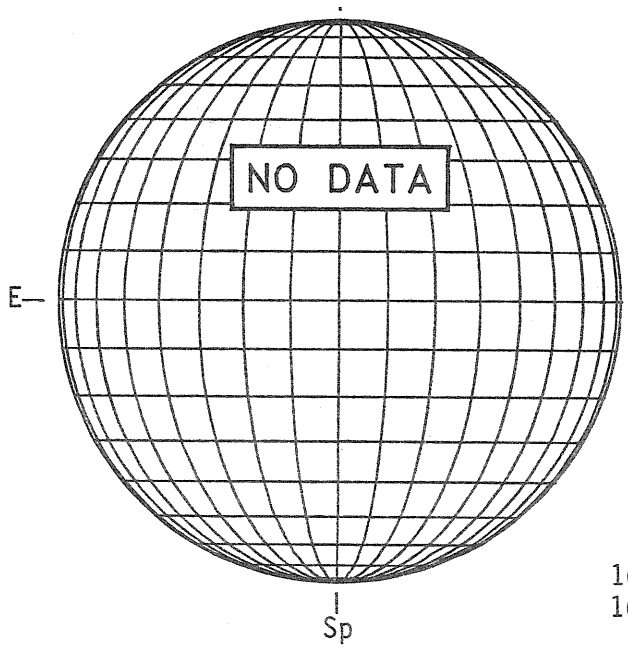
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6

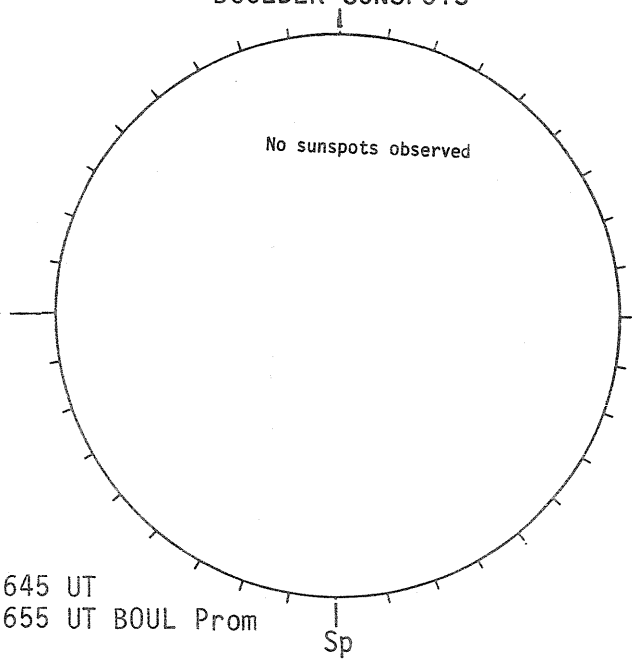


16.04 -
16.98 UT

BOULDER H-ALPHA

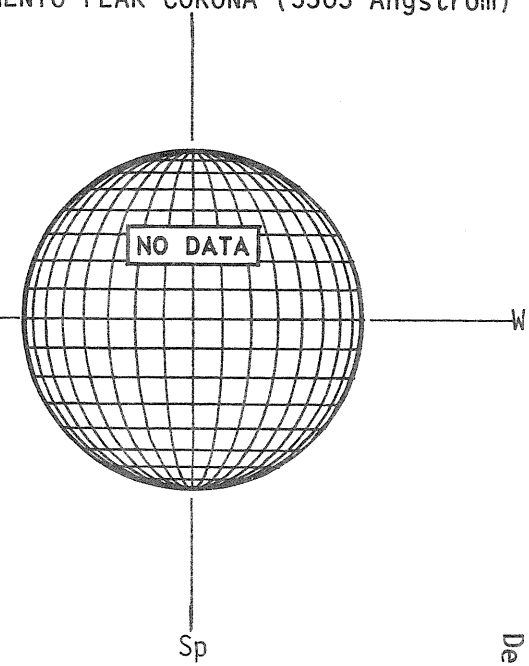


BOULDER SUNSPOTS



1645 UT
1655 UT BOUL Prom

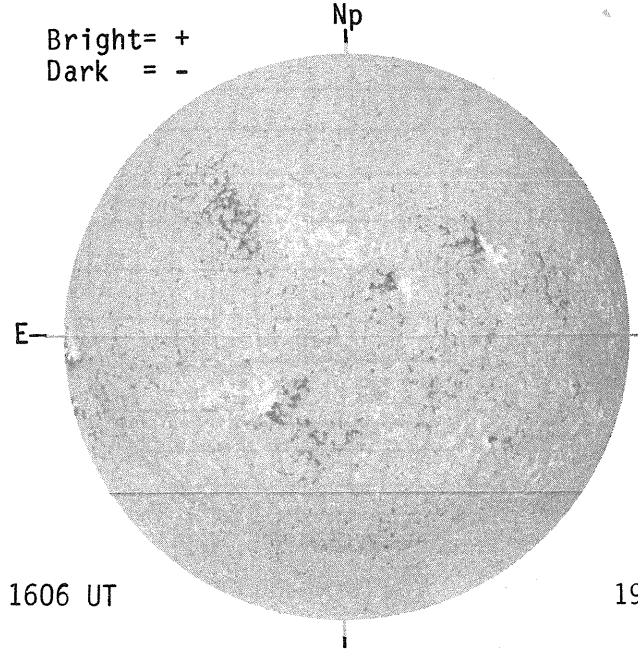
SACRAMENTO PEAK CORONA (5303 Angstrom)



D E C E M B E R 05, 1 9 8 3 (P= 14.76, B_0= 0.41, L_0= 97.46)

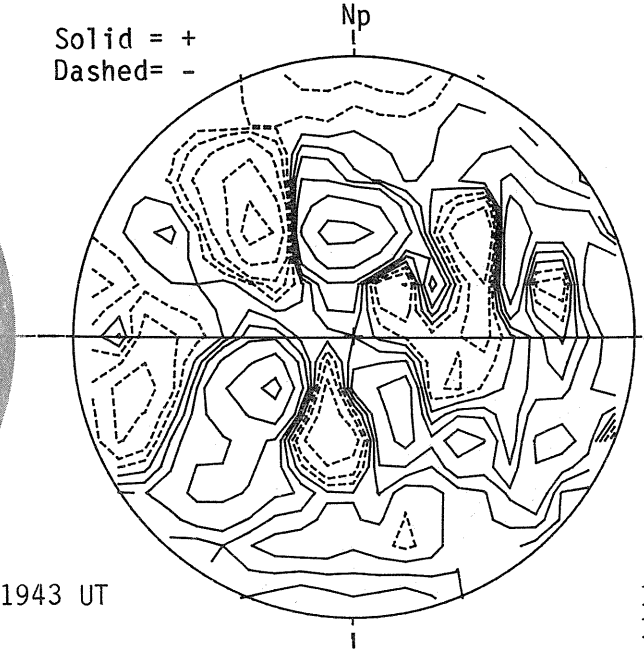
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

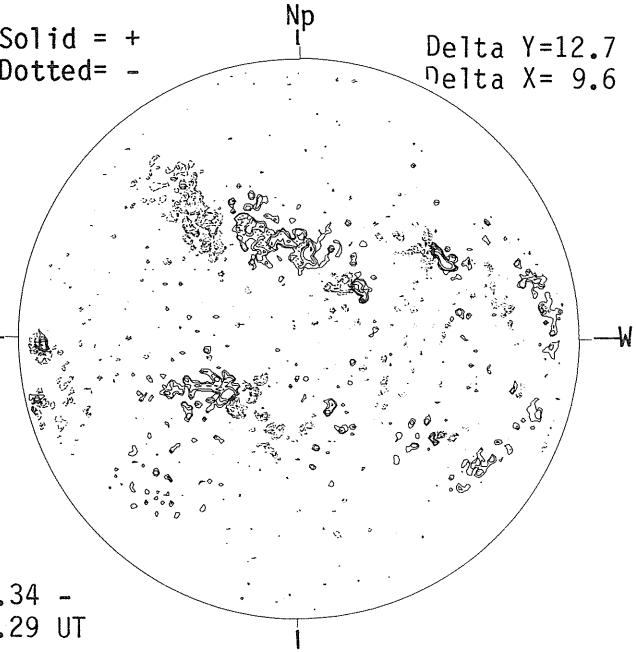
Solid = +
Dashed= -



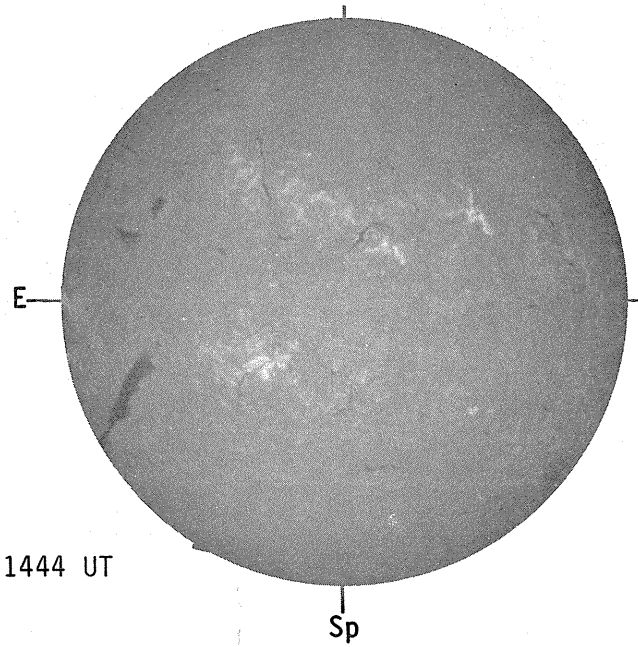
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

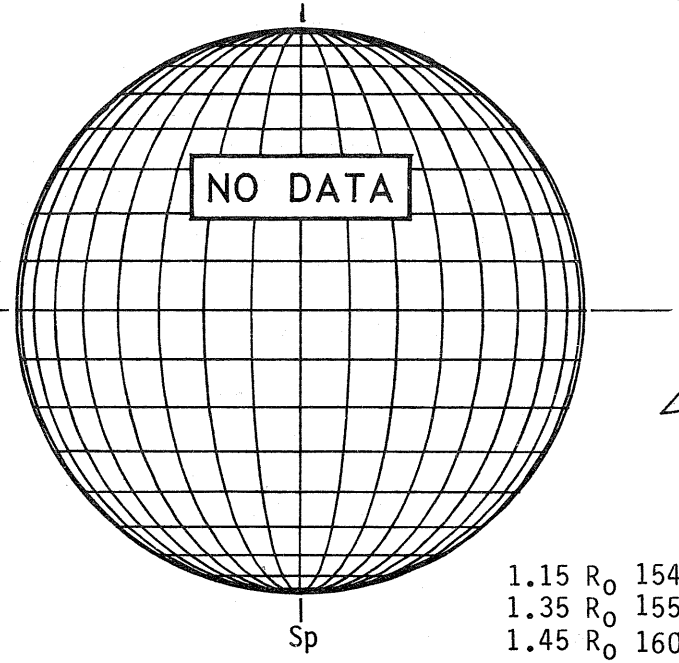
Delta Y=12.7
Delta X= 9.6



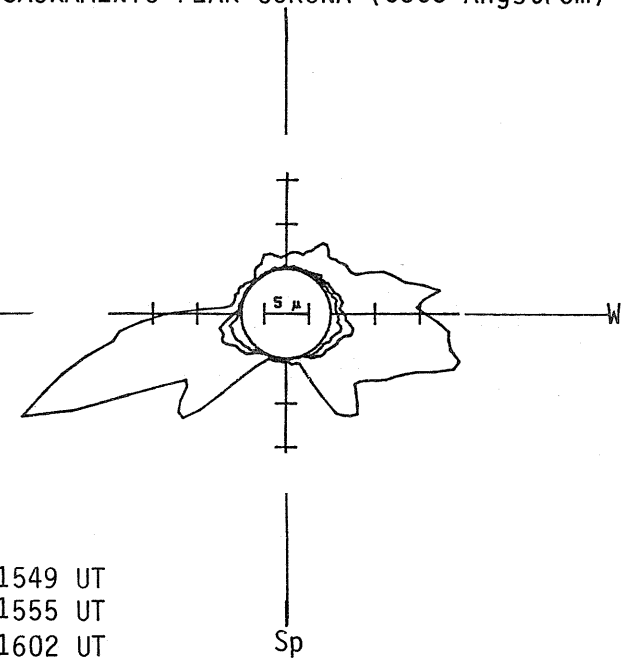
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

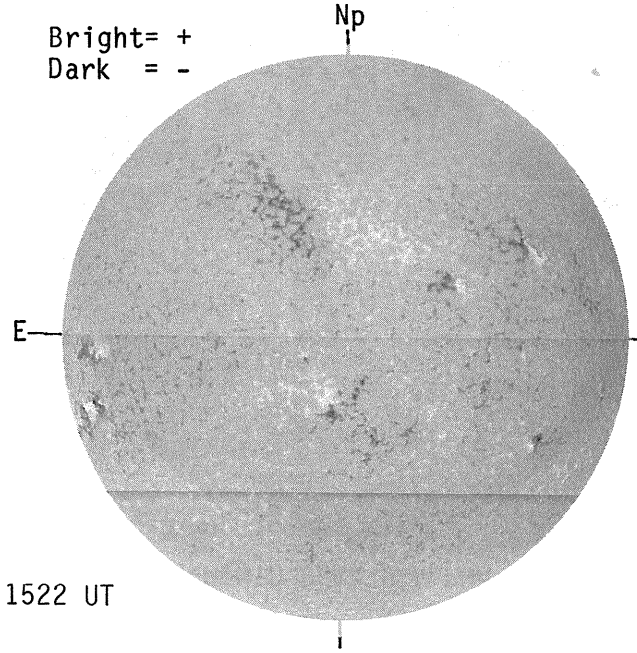


1.15 R_0 1549 UT
1.35 R_0 1555 UT
1.45 R_0 1602 UT

DECEMBER 06, 1983 (P= 14.35, B_0= 0.28, L_0= 84.29)

KITT PEAK MAGNETOGRAM

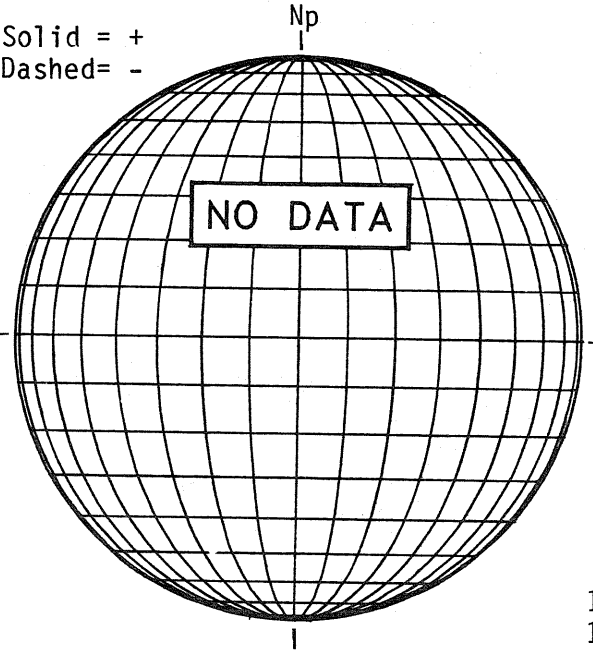
Bright= +
Dark = -



1522 UT

STANFORD MAGNETOGRAM

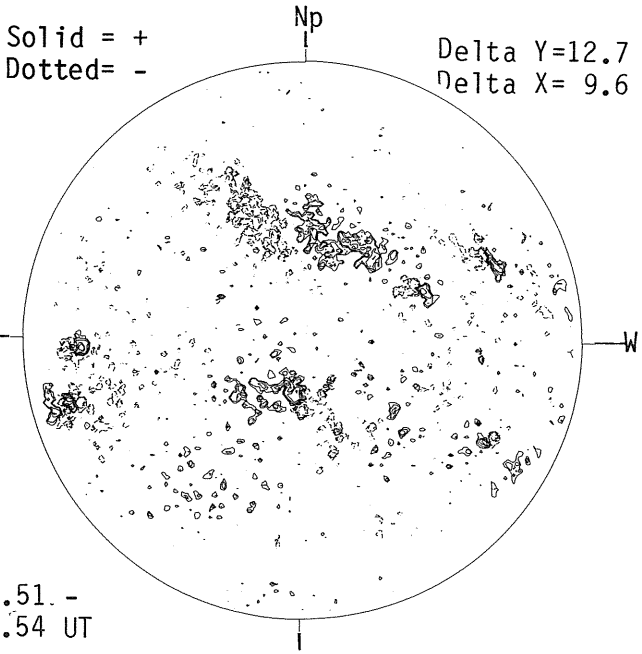
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

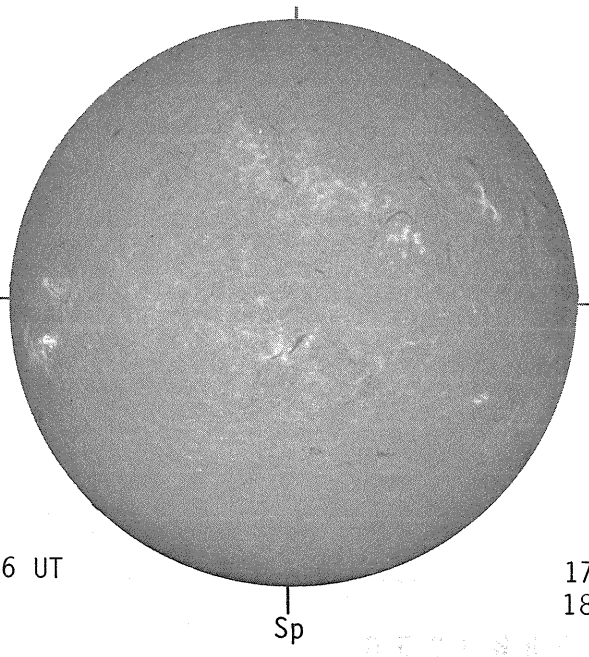
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6



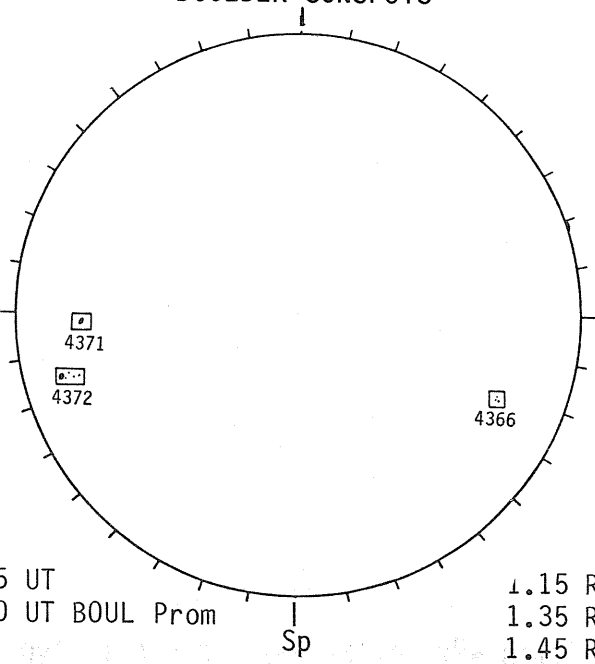
17.51 -
18.54 UT

SACRAMENTO PEAK H-ALPHA



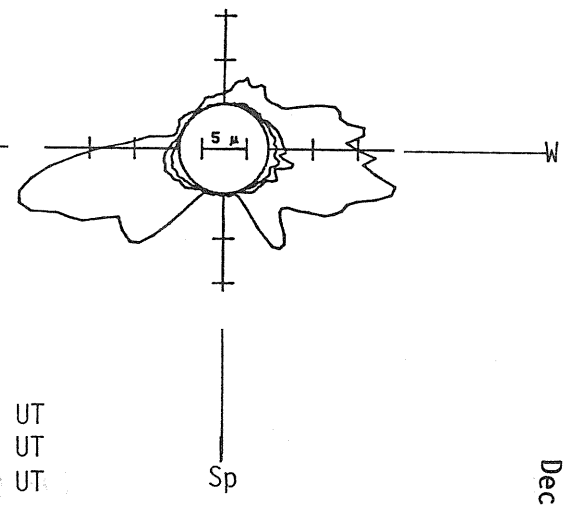
1506 UT

BOULDER SUNSPOTS



1735 UT
1800 UT BOUL Prom

SACRAMENTO PEAK CORONA (5303 Angstrom)

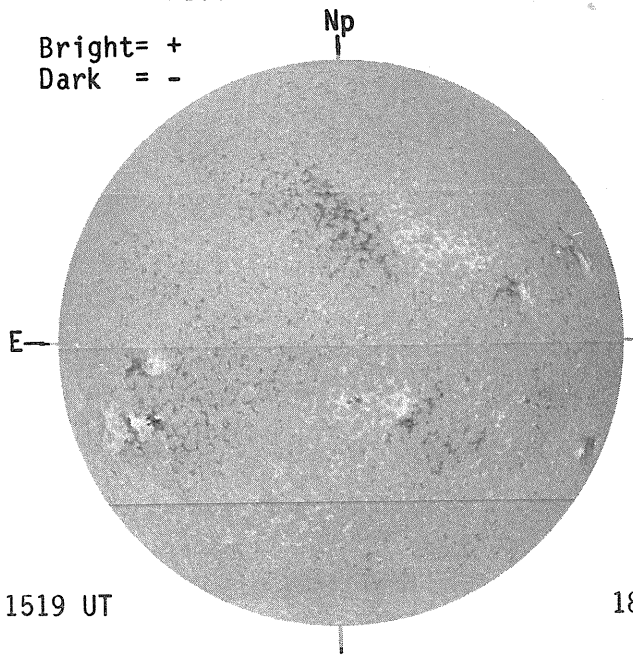


1.15 R_0 1608 UT
1.35 R_0 1614 UT
1.45 R_0 1620 UT

D E C E M B E R 07, 1 9 8 3 (P= 13.94, B_0= 0.16, L_0= 71.11)

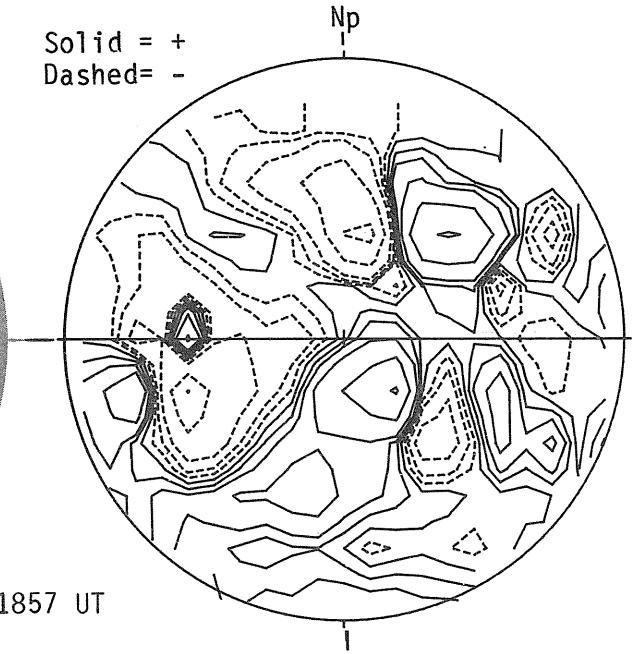
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

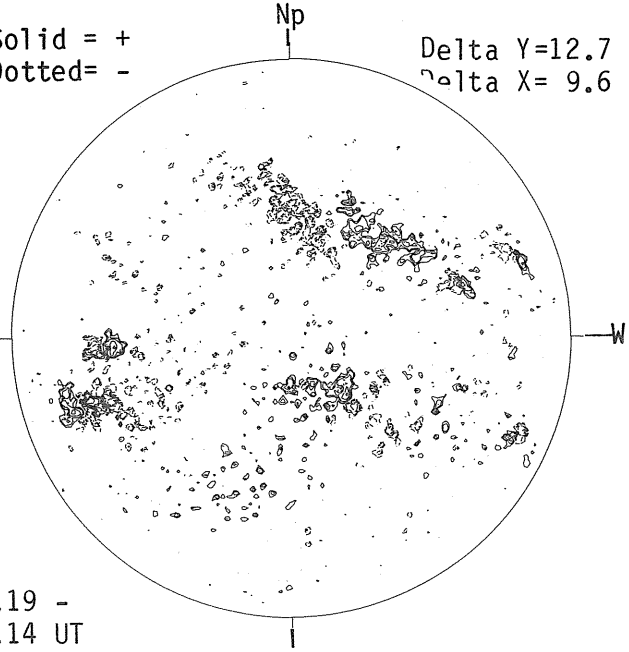
Solid = +
Dashed= -



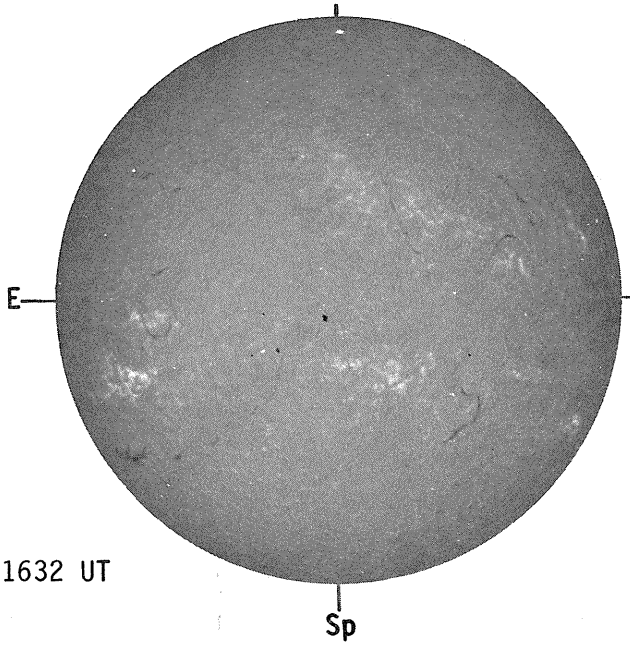
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

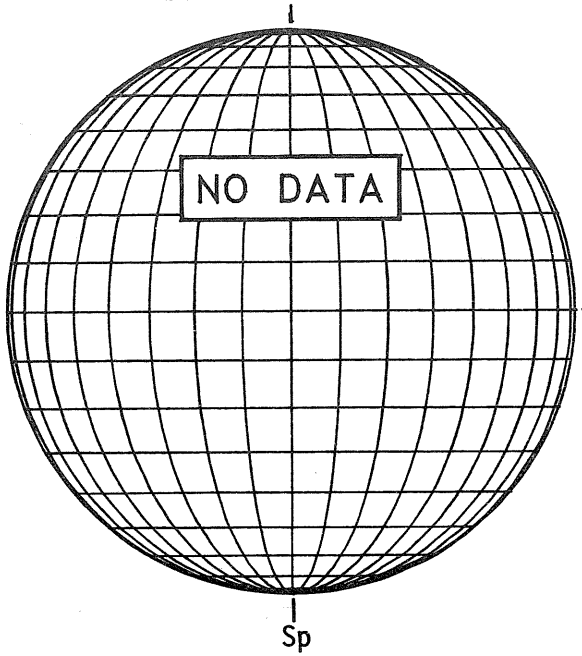
Delta Y=12.7
Delta X= 9.6



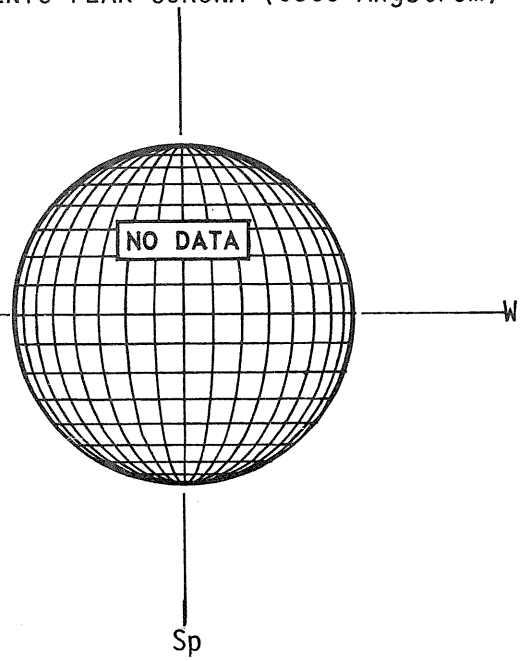
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



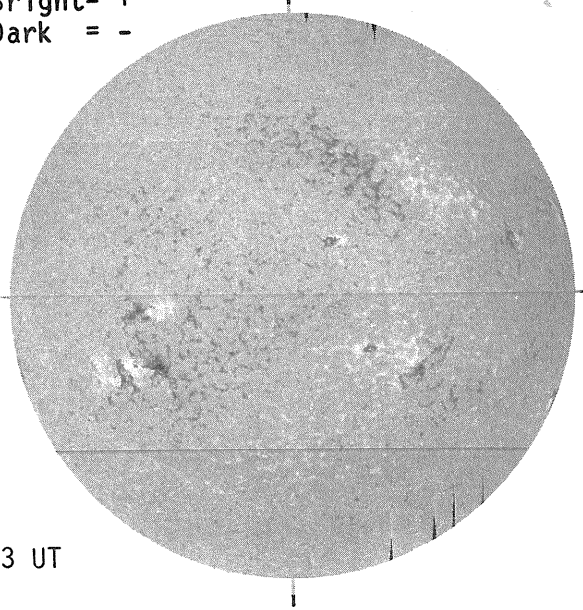
SACRAMENTO PEAK CORONA (5303 Angstrom)



D E C E M B E R 08, 1 9 8 3 (P= 13.52, B_0= 0.03, L_0= 57.93)

KITT PEAK MAGNETOGRAM

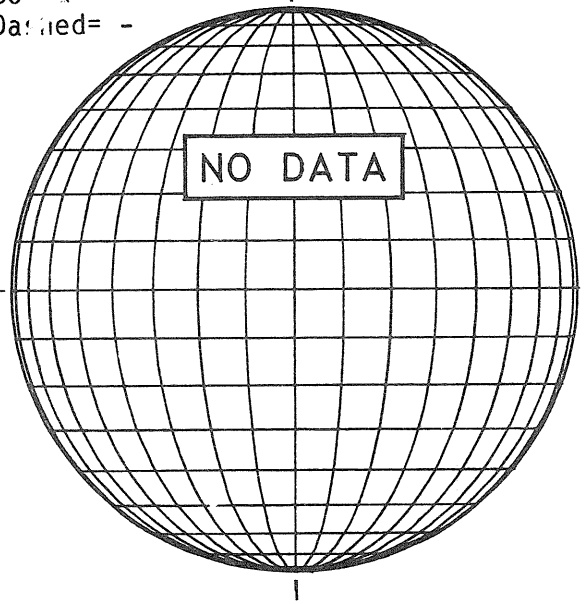
Bright= +
Dark = -



1553 UT

STANFORD MAGNETOGRAM

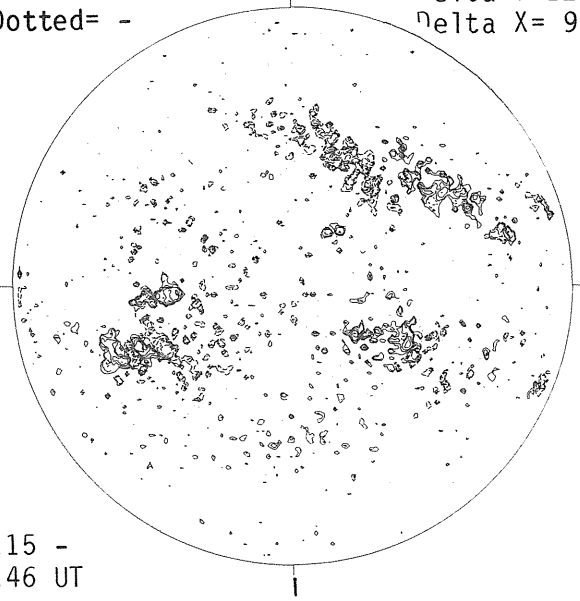
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

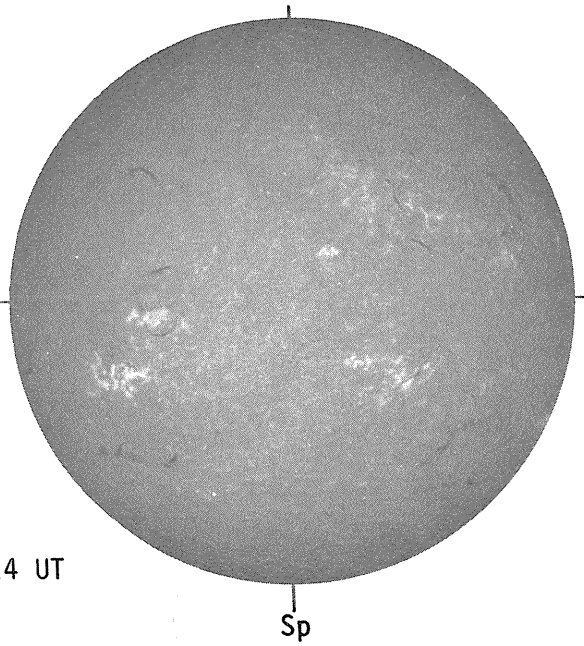
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6



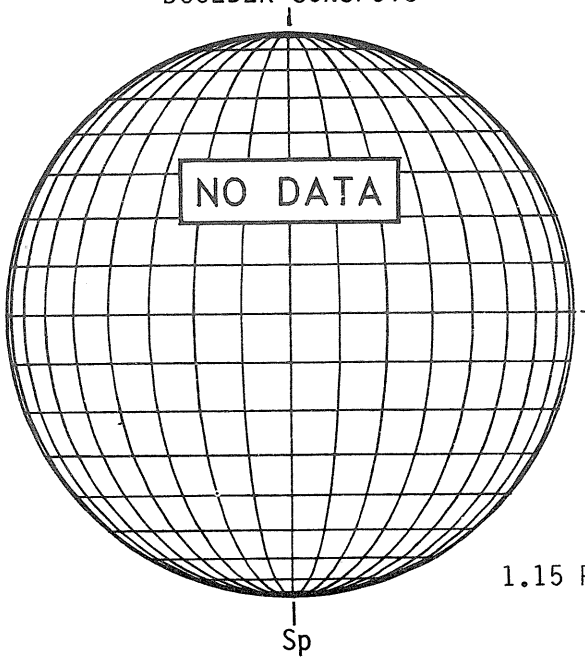
17.15 -
18.46 UT

SACRAMENTO PEAK H-ALPHA

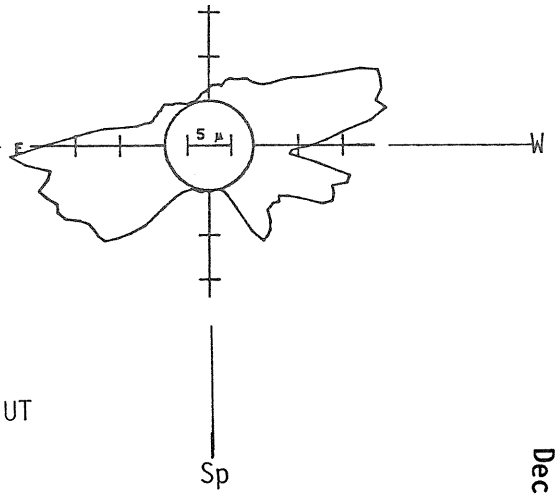


1514 UT

BOULDER SUNSPOTS

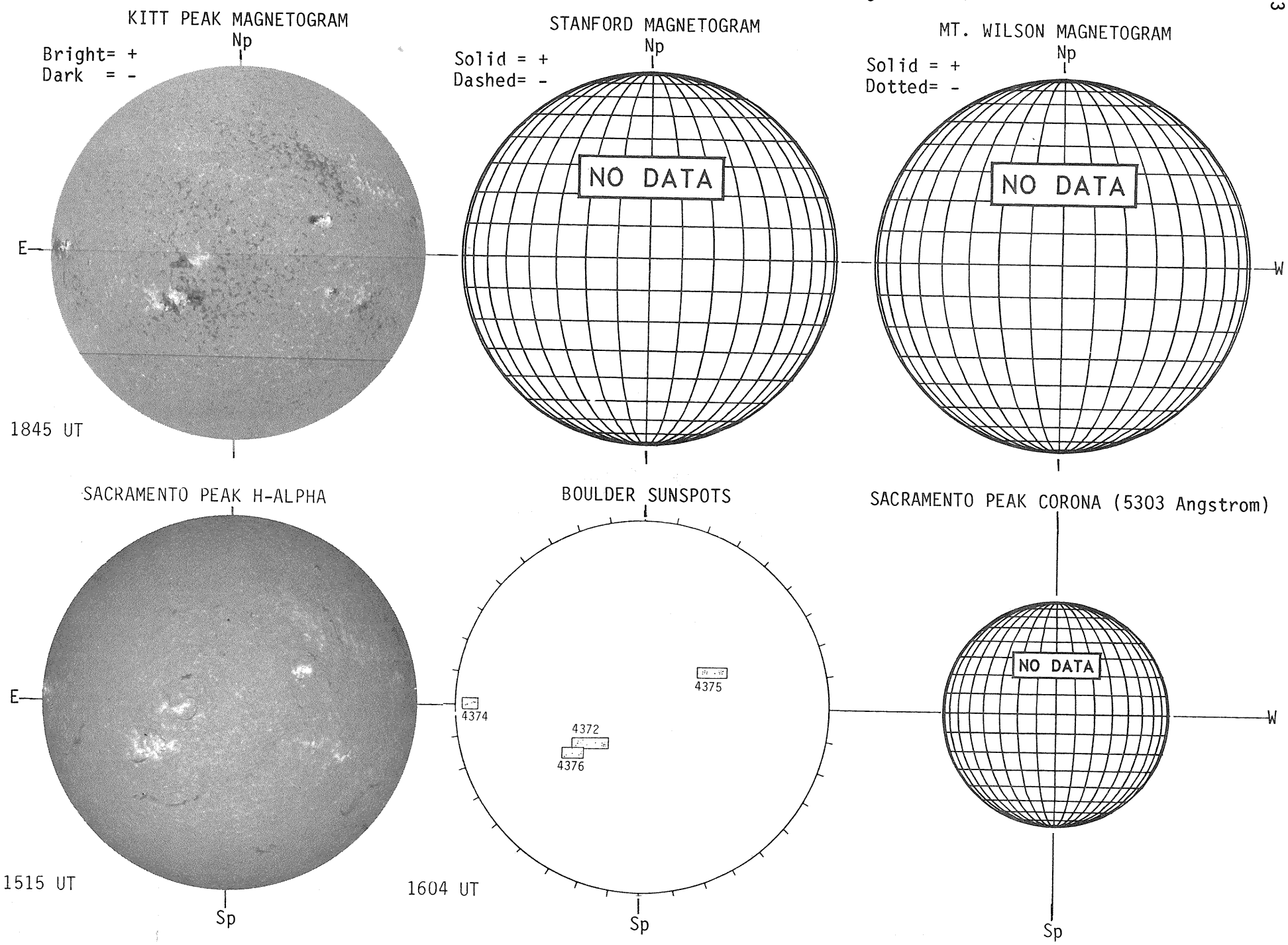


SACRAMENTO PEAK CORONA (5303 Angstrom)



1.15 R_0 1616 UT

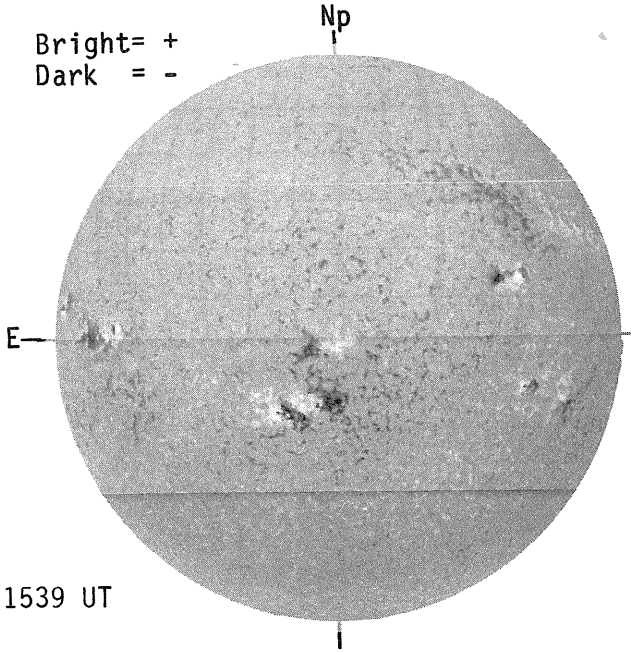
D E C E M B E R 09, 1 9 8 3 (P= 13.10, B_0=-0.10, L_0= 44.76)



D E C E M B E R 10, 1 9 8 3 (P= 12.67, B_0=-0.23, L_0= 31.58)

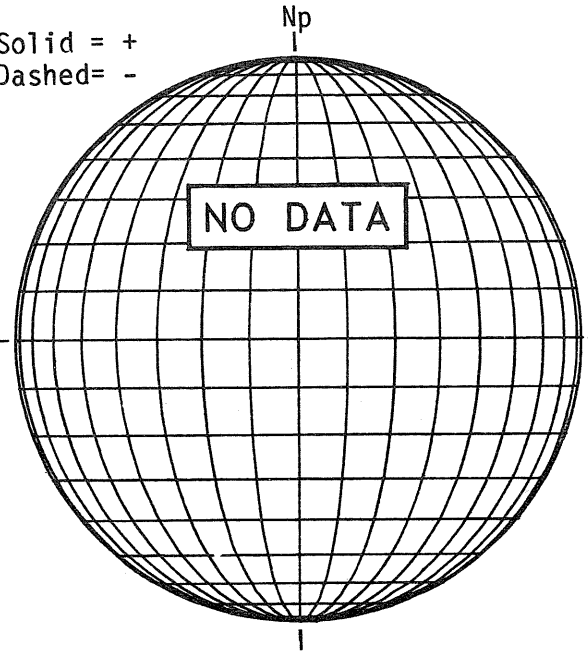
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

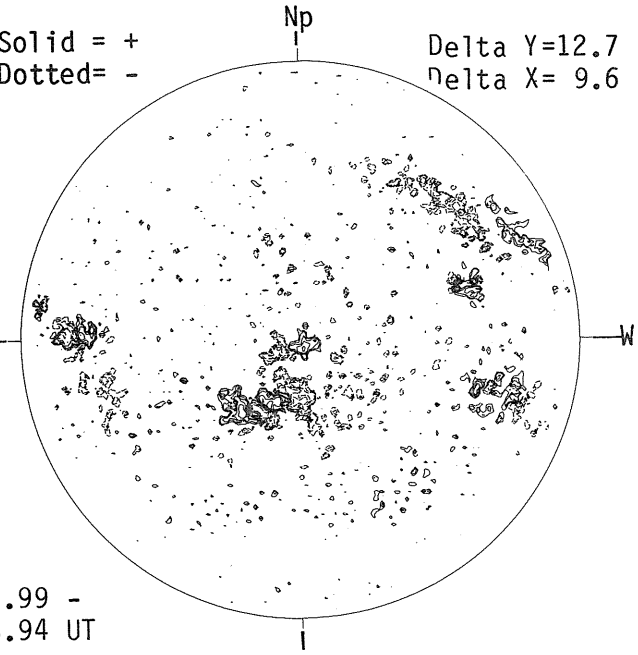
Solid = +
Dashed= -



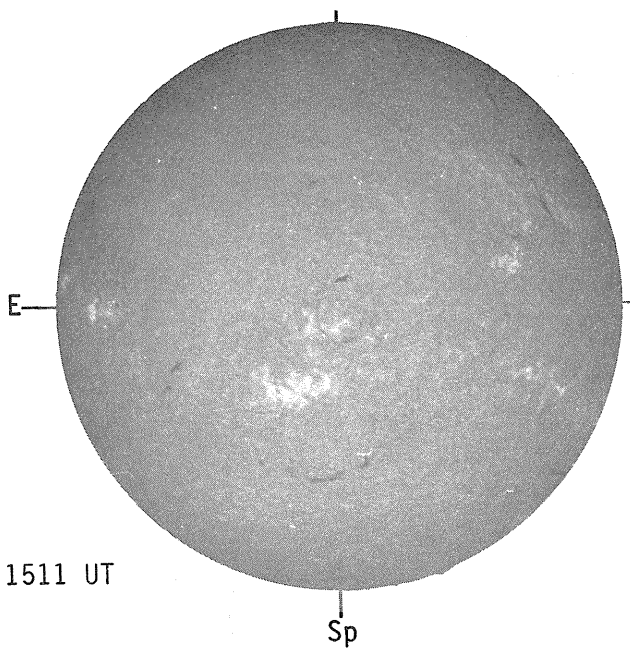
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

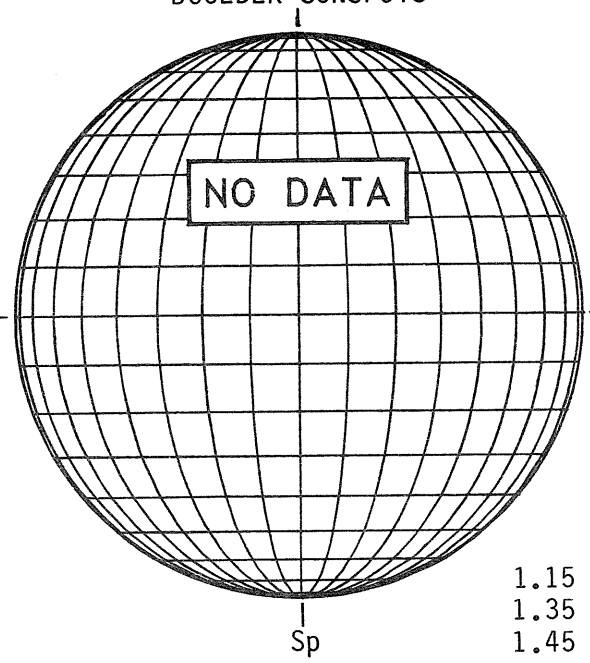
Delta Y=12.7
Delta X= 9.6



SACRAMENTO PEAK H-ALPHA

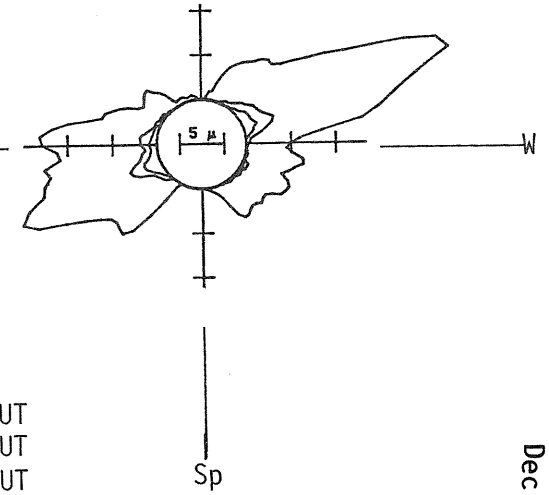


BOULDER SUNSPOTS



1.15 R_0 1823 UT
1.35 R_0 1843 UT
1.45 R_0 1850 UT

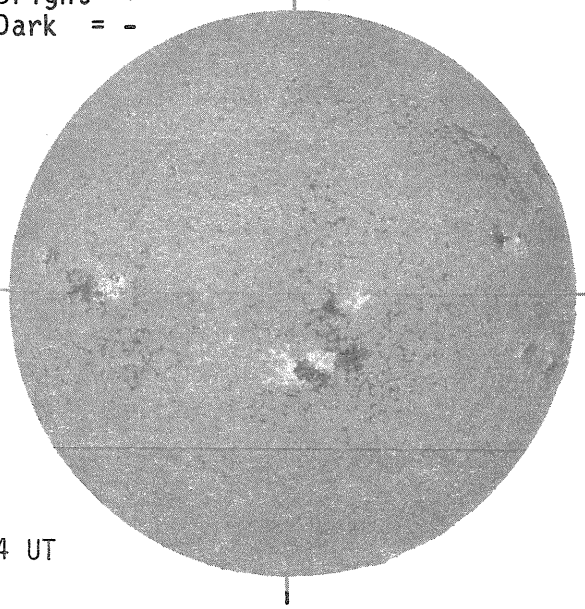
SACRAMENTO PEAK CORONA (5303 Angstrom)



DECEMBER 11, 1983 (P= 12.24, B_0=-0.36, L_0= 18.40)

KITT PEAK MAGNETOGRAM

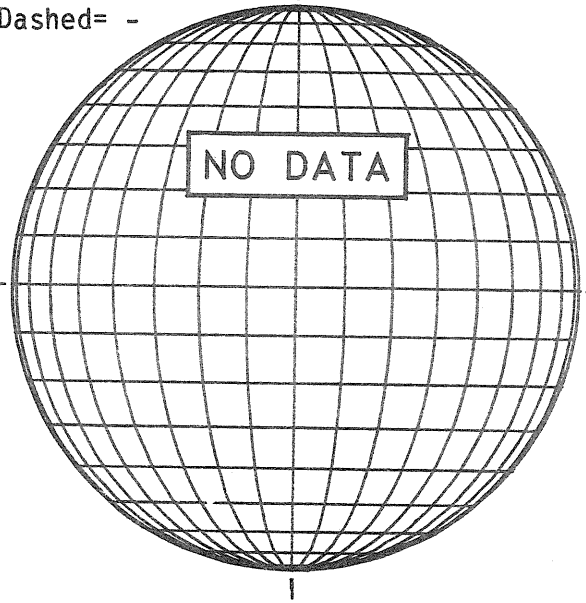
Bright= +
Dark = -



1514 UT

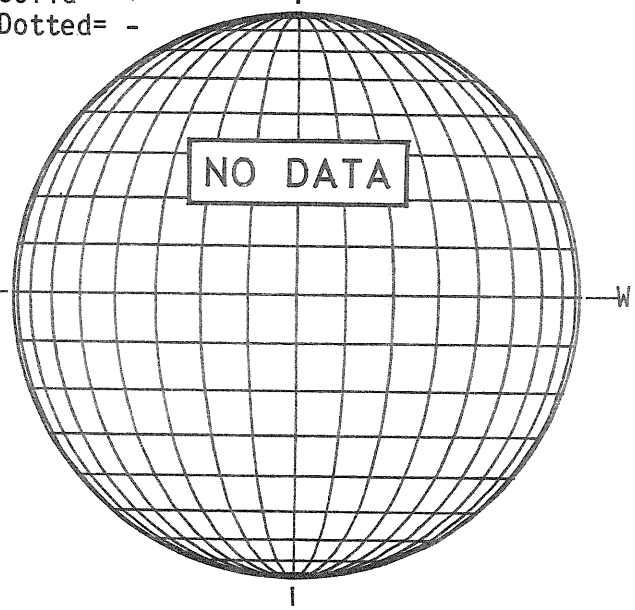
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

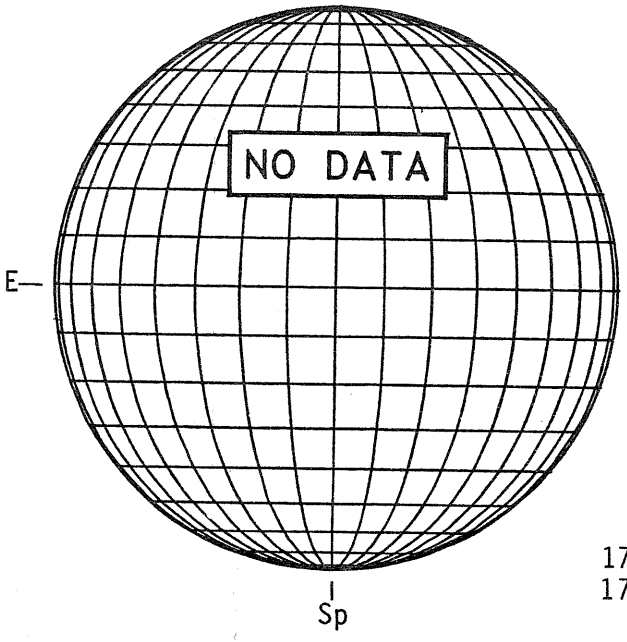


MT. WILSON MAGNETOGRAM

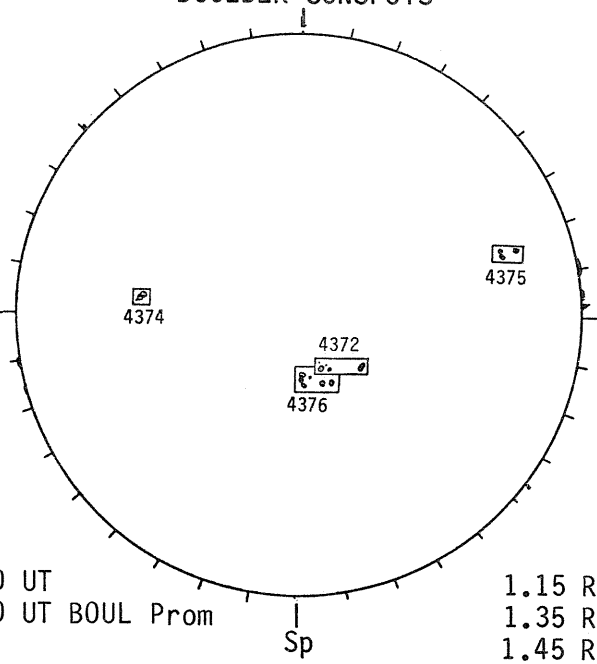
Solid = +
Dotted= -



BOULDER H-ALPHA

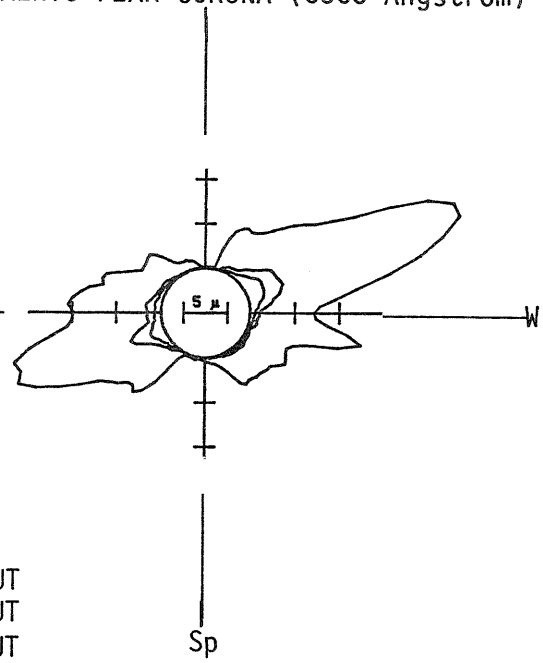


BOULDER SUNSPOTS



1740 UT
1750 UT BOUL Prom

SACRAMENTO PEAK CORONA (5303 Angstrom)

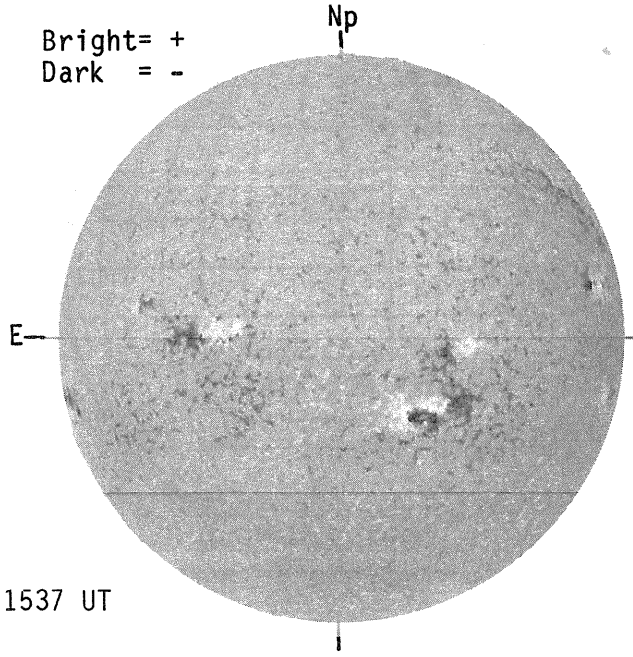


1.15 R_0 1722 UT
1.35 R_0 1728 UT
1.45 R_0 1734 UT

DECEMBER 12, 1983 (P= 11.80, B_0=-0.49, L_0= 5.23)

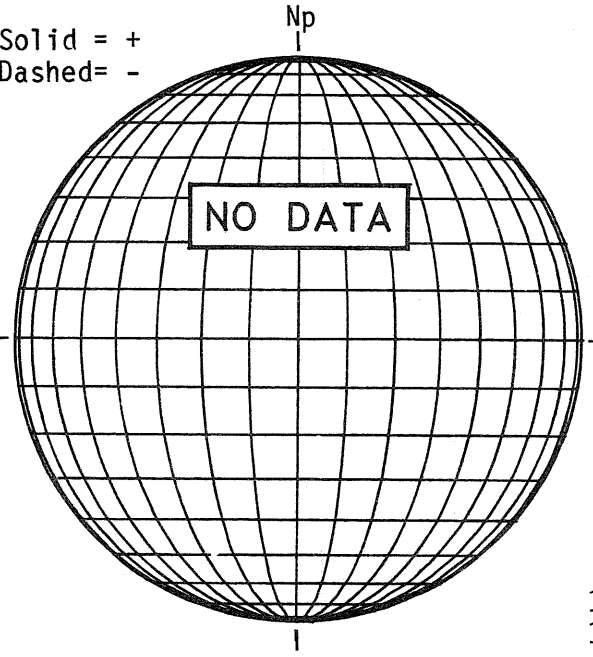
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

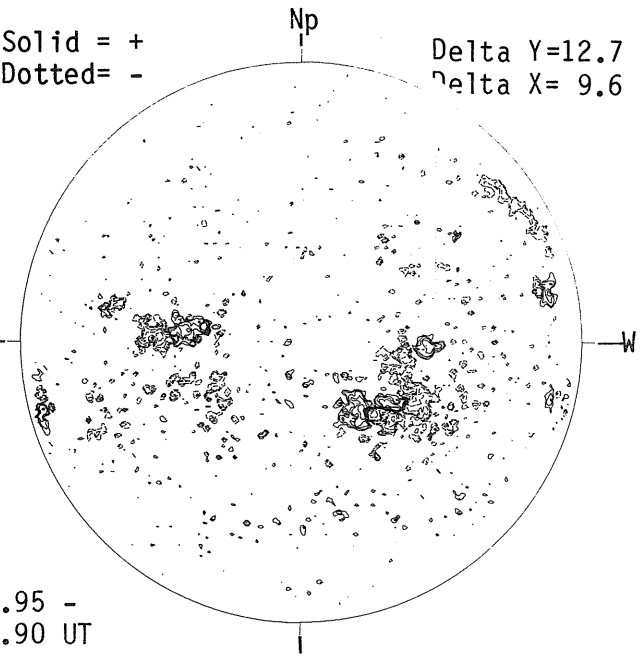
Solid = +
Dashed= -



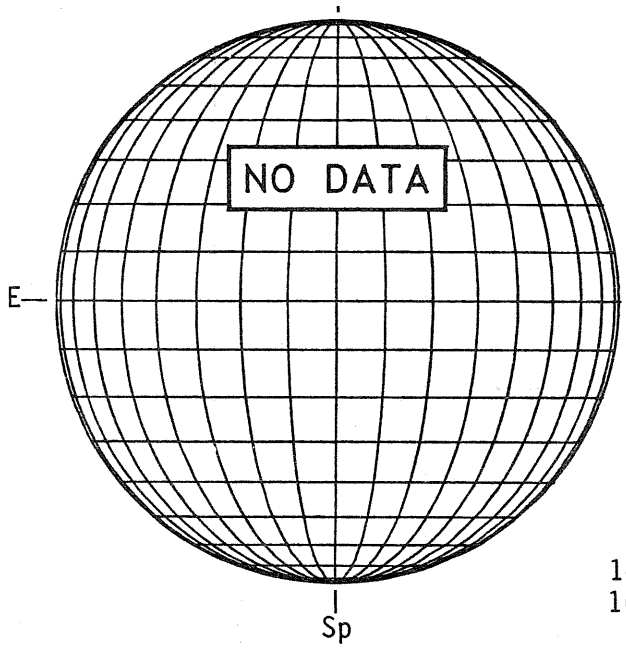
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

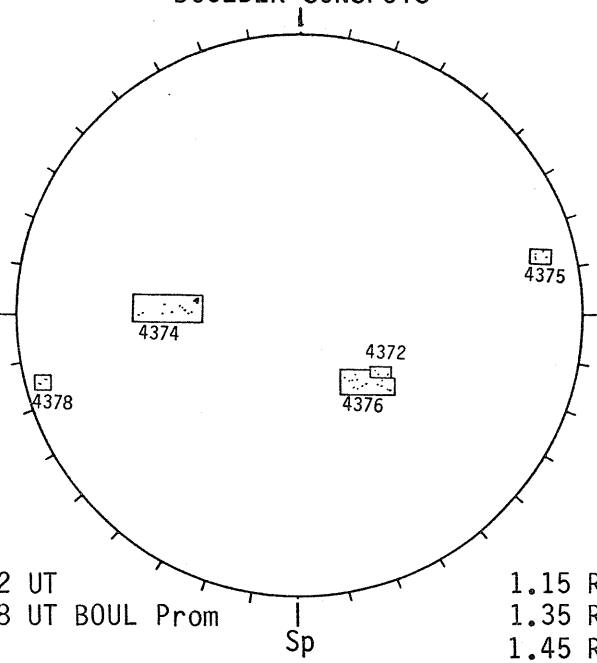
Delta Y=12.7
Delta X= 9.6



BOULDER H-ALPHA

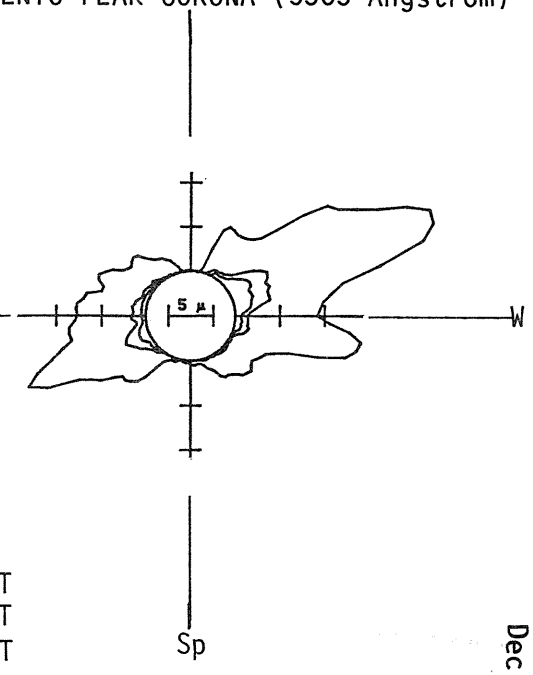


BOULDER SUNSPOTS



1452 UT
1658 UT BOUL Prom

SACRAMENTO PEAK CORONA (5303 Angstrom)

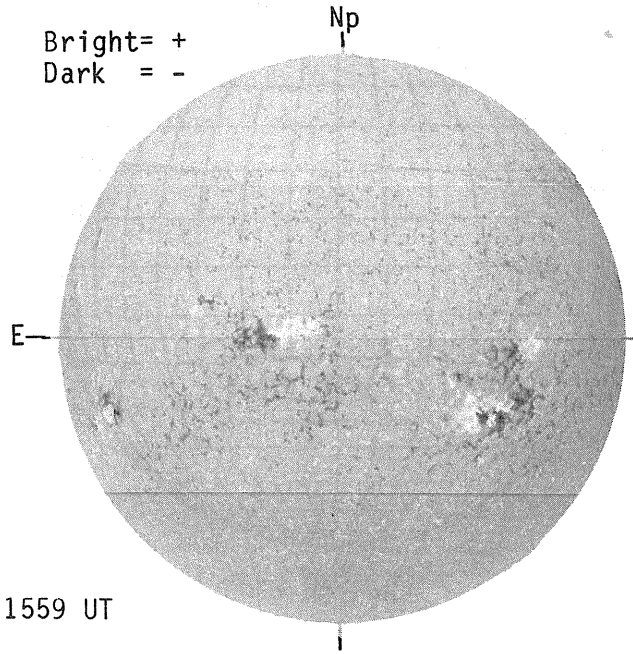


1.15 R_0 1829 UT
1.35 R_0 1834 UT
1.45 R_0 1847 UT

D E C E M B E R 13, 1 9 8 3 (P= 11.36, B_0=-0.61, L_0= 352.05)

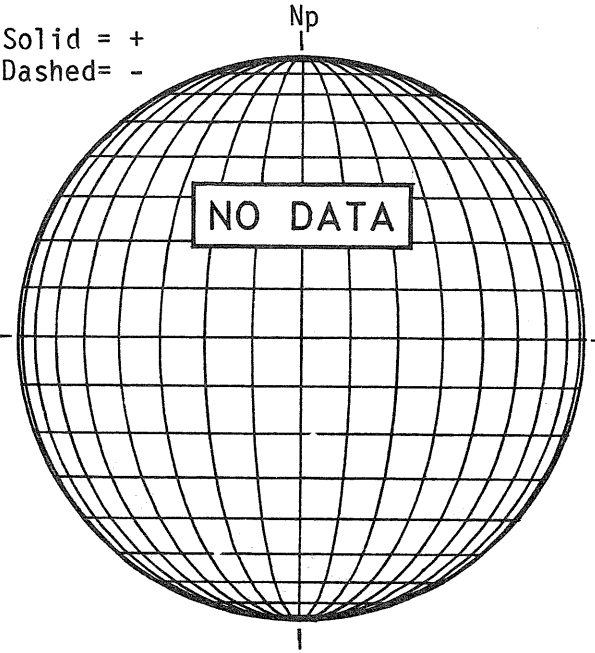
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



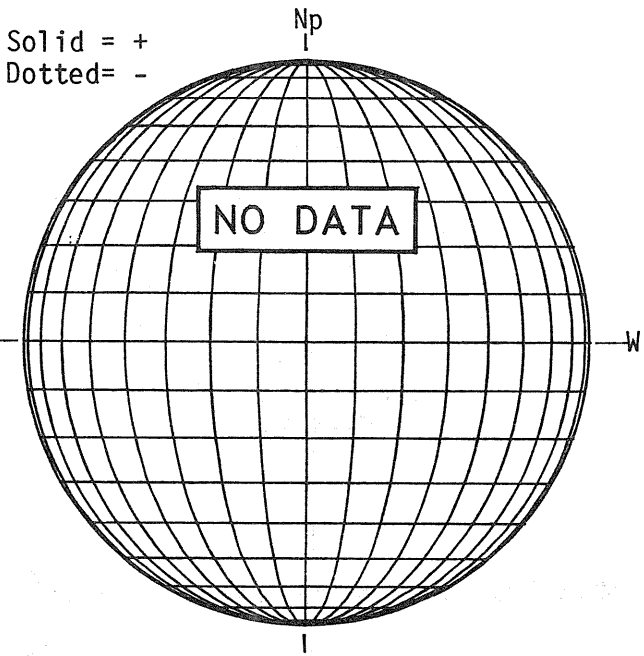
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

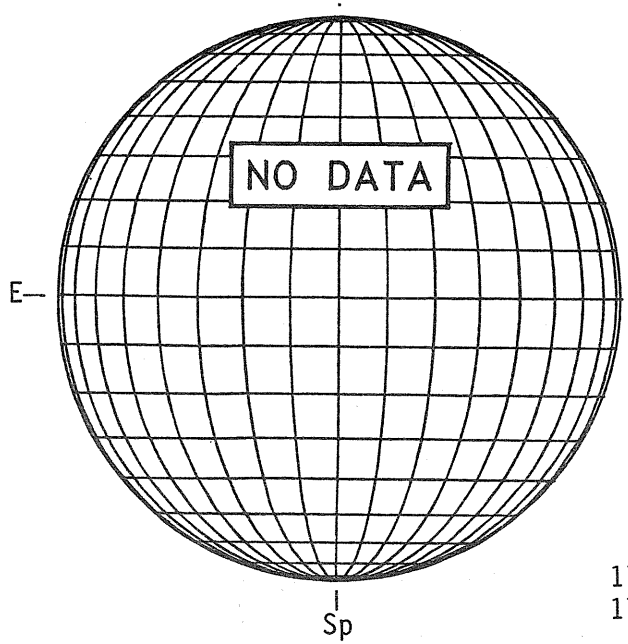


MT. WILSON MAGNETOGRAM

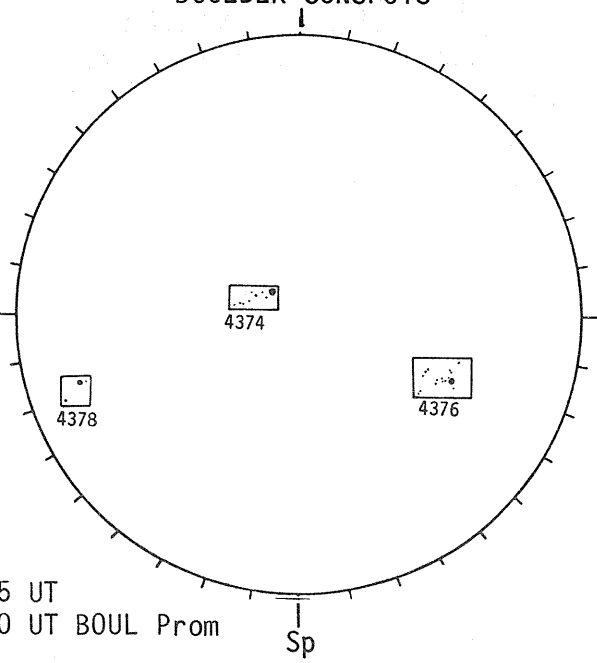
Solid = +
Dotted= -



BOULDER H-ALPHA

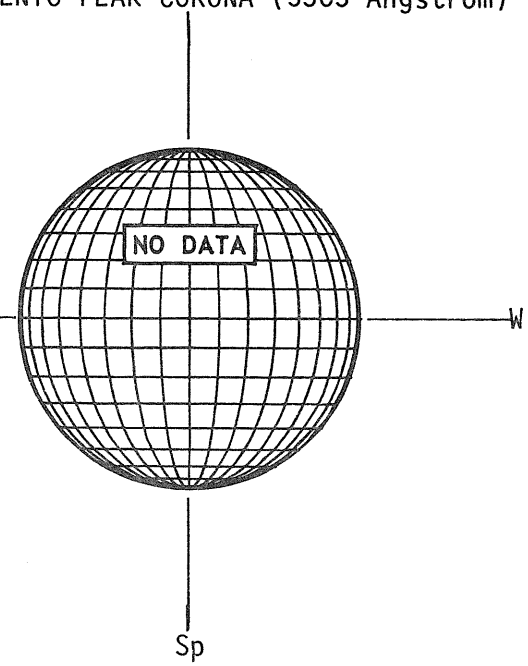


BOULDER SUNSPOTS



1715 UT
1730 UT BOUL Prom

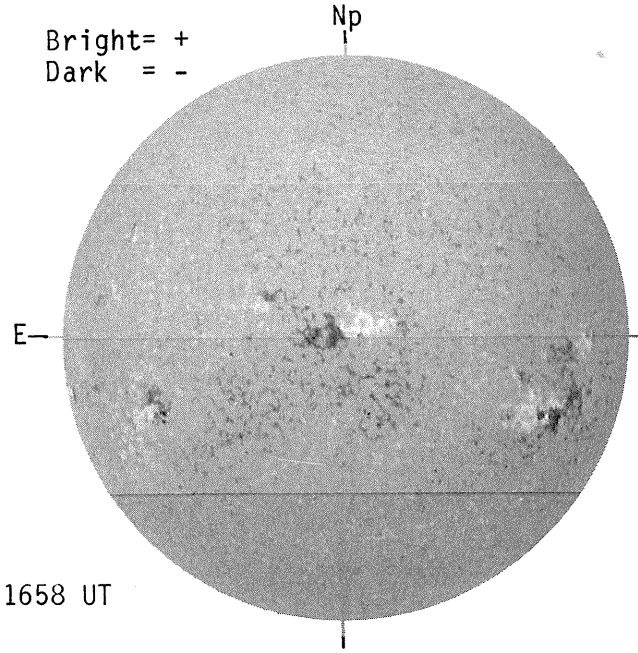
SACRAMENTO PEAK CORONA (5303 Angstrom)



D E C E M B E R 14, 1 9 8 3 (P= 10.92, B_0=-0.74, L_0= 338.88)

KITT PEAK MAGNETOGRAM

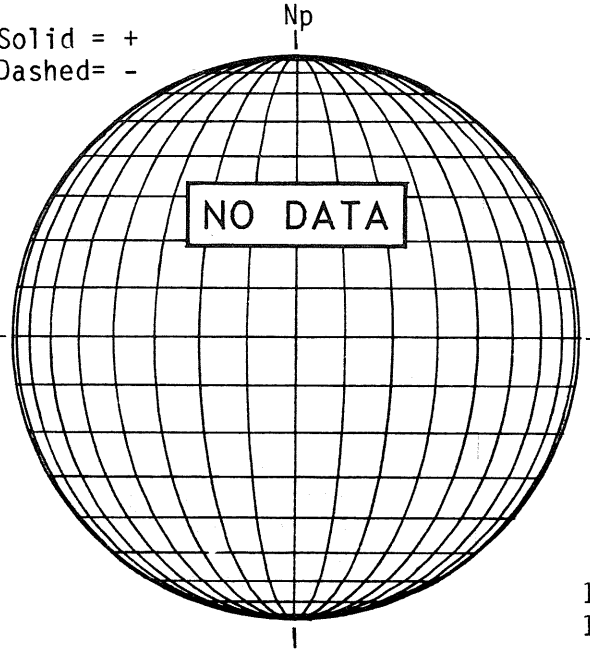
Bright= +
Dark = -



1658 UT

STANFORD MAGNETOGRAM

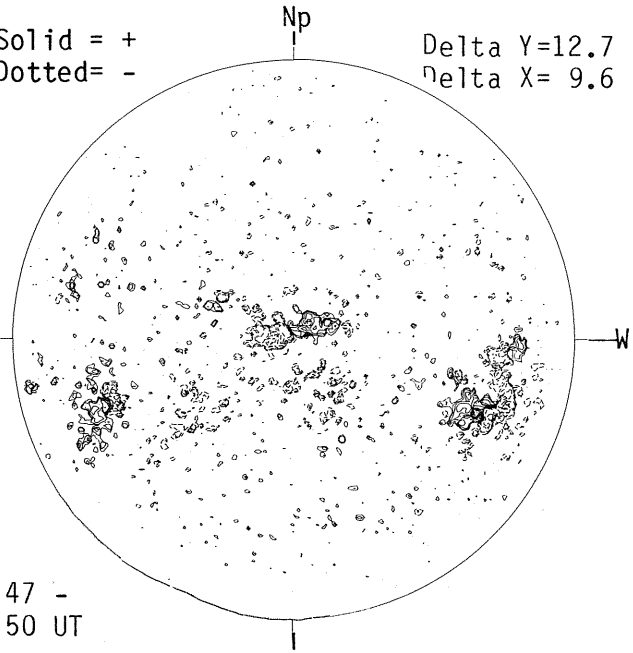
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

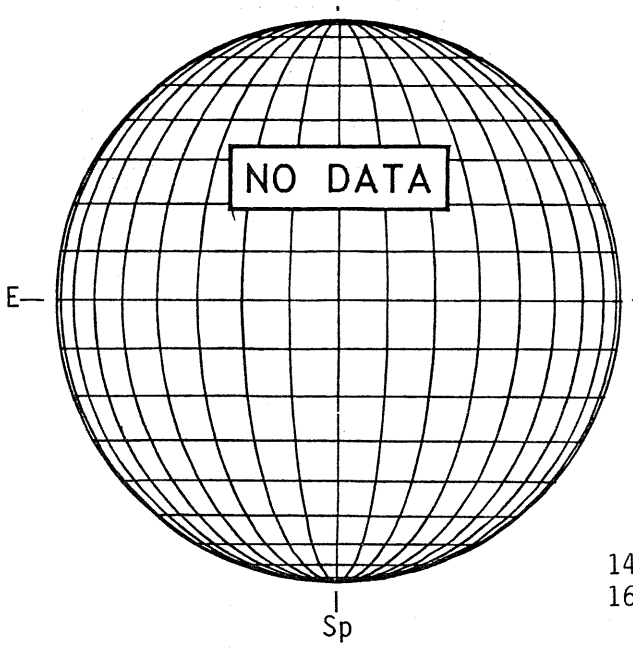
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6

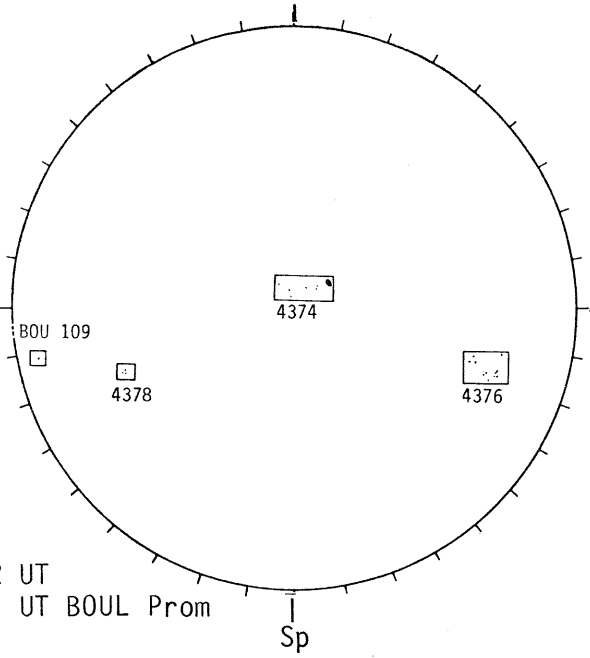


17.47 -
18.50 UT

BOULDER H-ALPHA

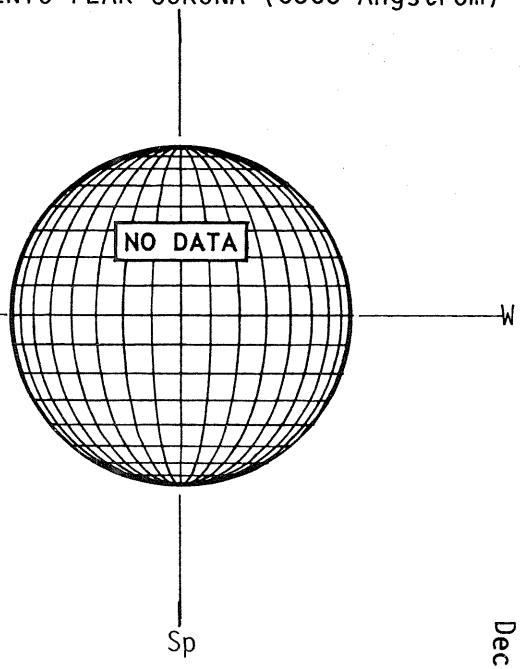


BOULDER SUNSPOTS



1452 UT
1611 UT BOUL Prom

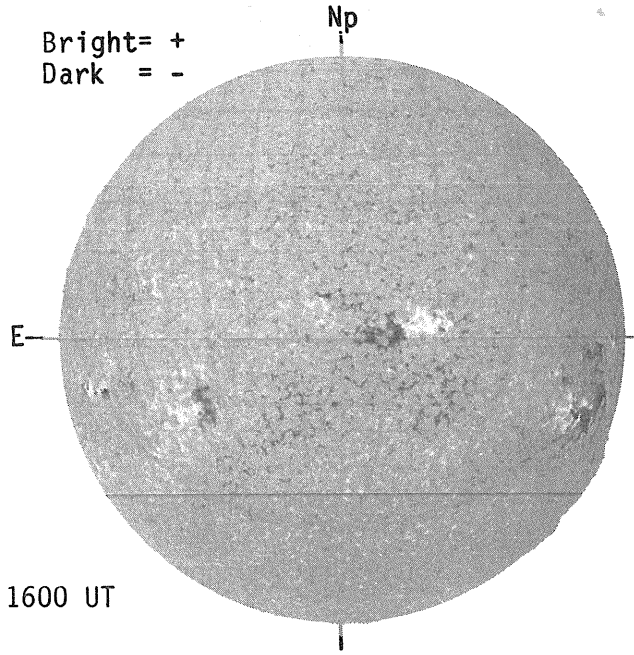
SACRAMENTO PEAK CORONA (5303 Angstrom)



D E C E M B E R 15, 1 9 8 3 (P= 10.47, B_0=-0.87, L_0= 325.70)

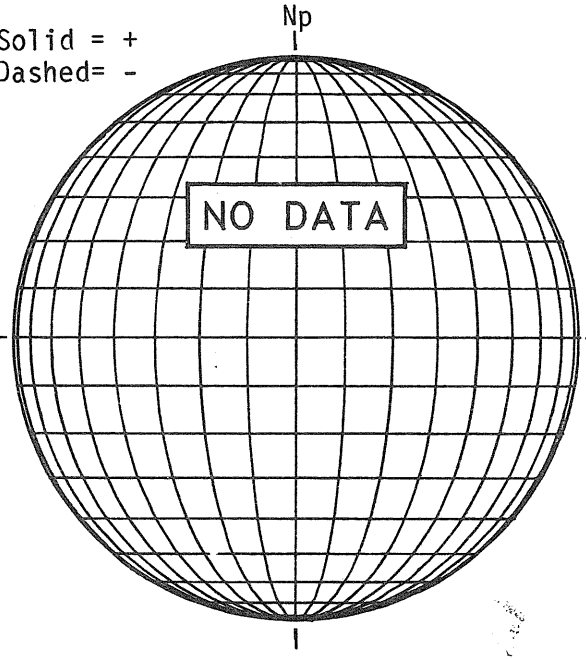
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

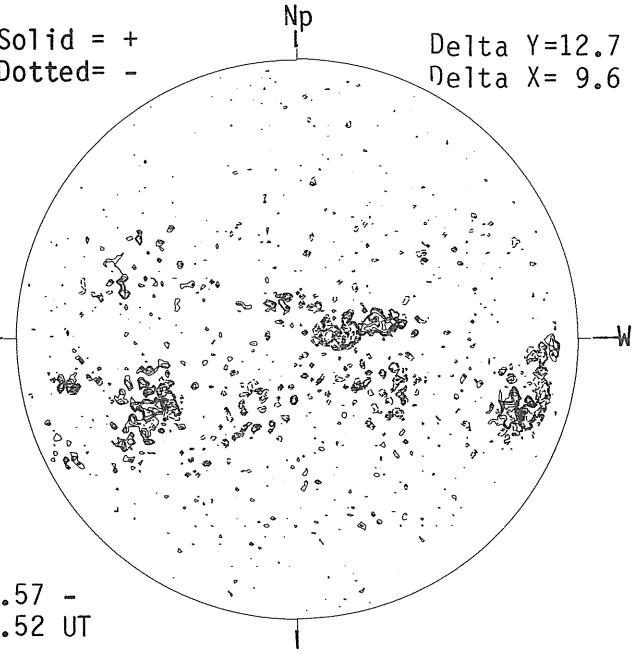
Solid = +
Dashed= -



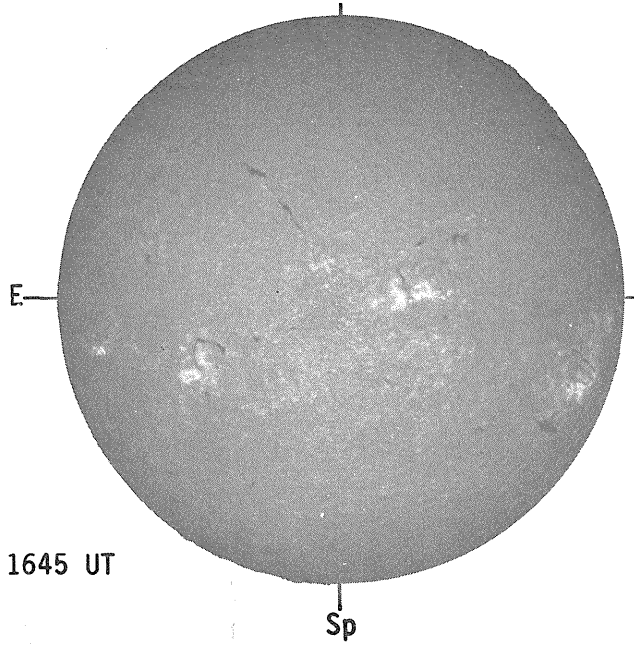
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

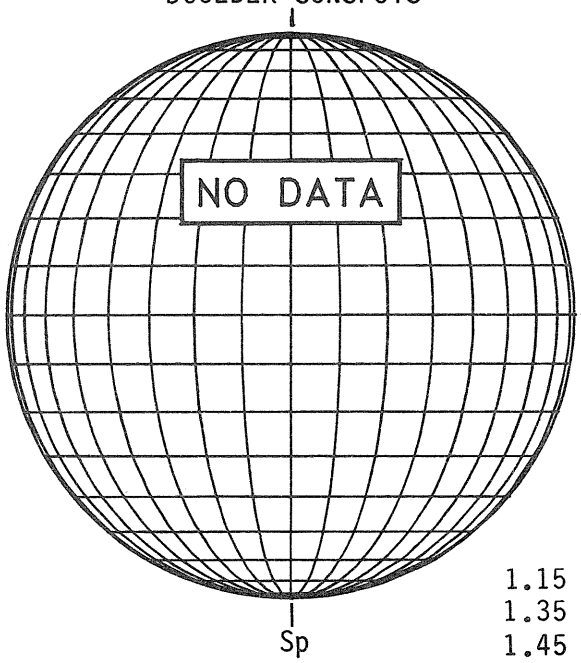
Delta Y=12.7
Delta X= 9.6



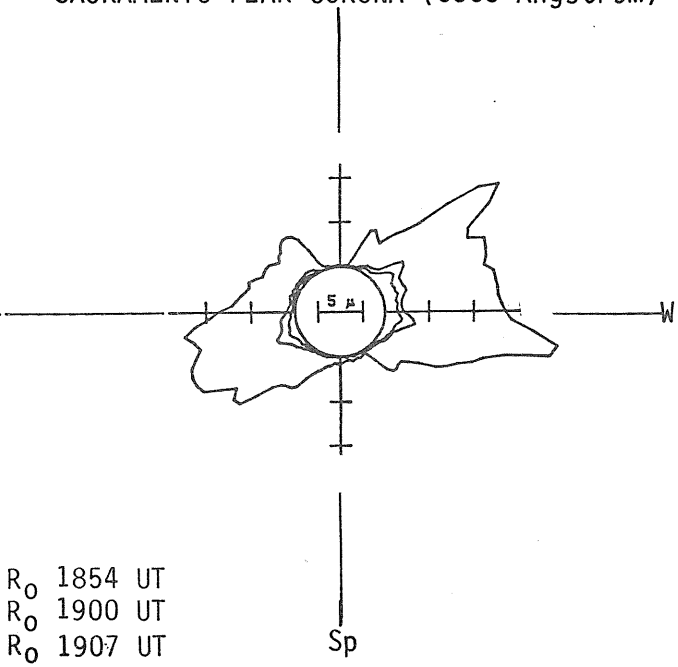
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

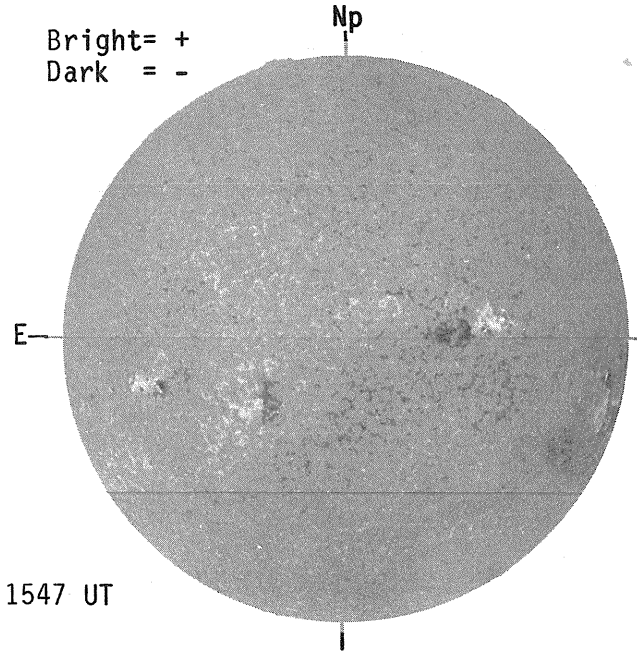


1.15 R_0 1854 UT
1.35 R_0 1900 UT
1.45 R_0 1907 UT

DECEMBER 16, 1983 (P= 10.01, B_0=-1.00, L_0= 312.53)

KITT PEAK MAGNETOGRAM

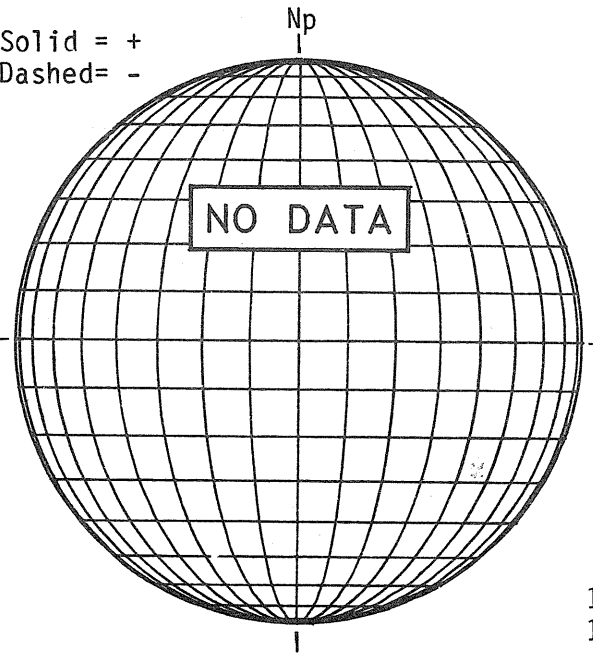
Bright= +
Dark = -



1547 UT

STANFORD MAGNETOGRAM

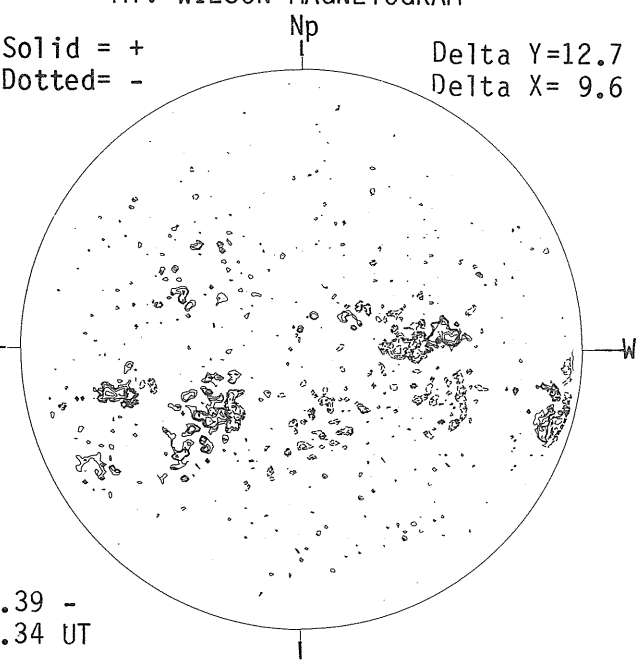
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

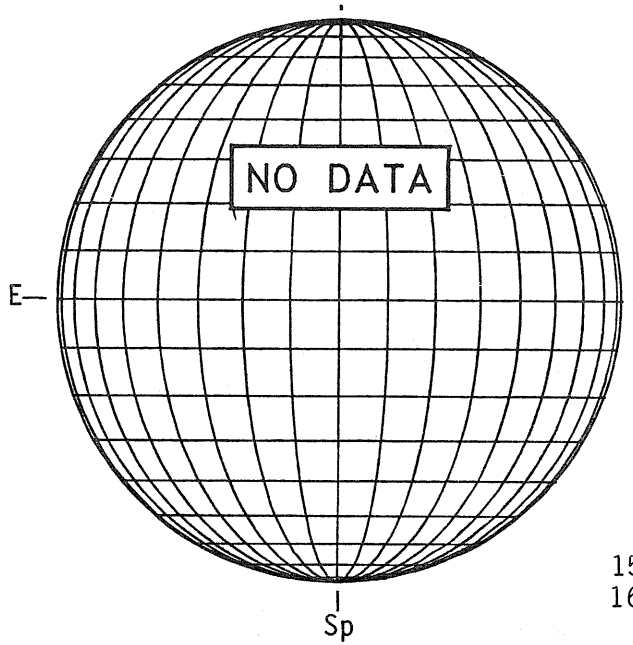
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6

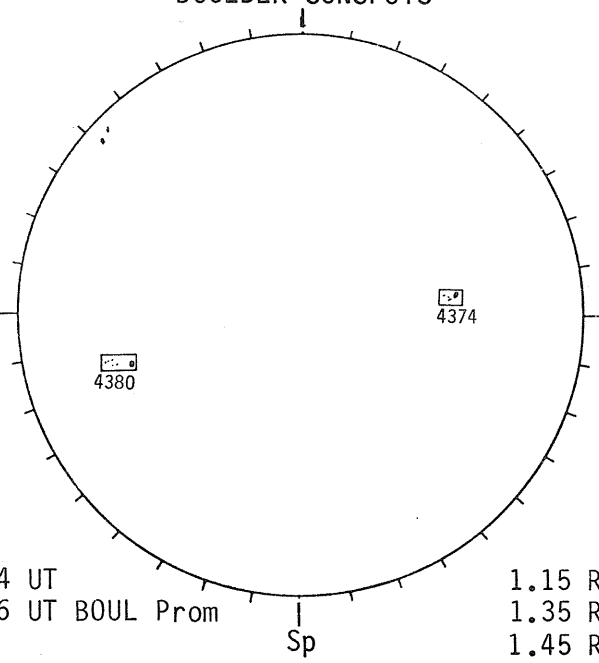


17.39 -
18.34 UT

BOULDER H-ALPHA

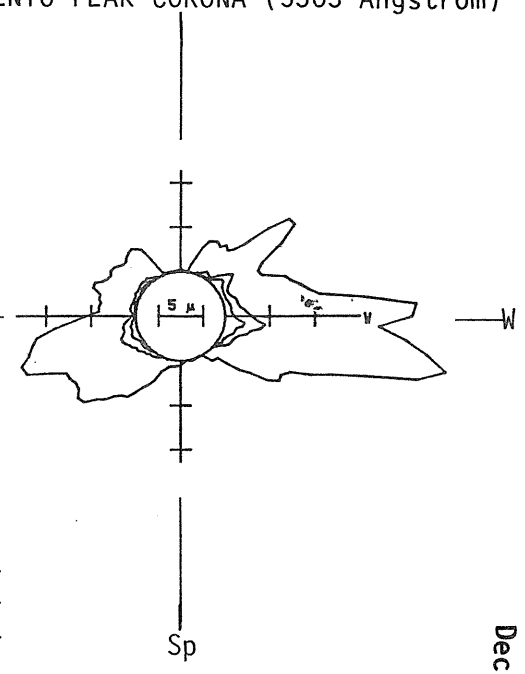


BOULDER SUNSPOTS



1514 UT
1646 UT BOUL Prom

SACRAMENTO PEAK CORONA (5303 Angstrom)

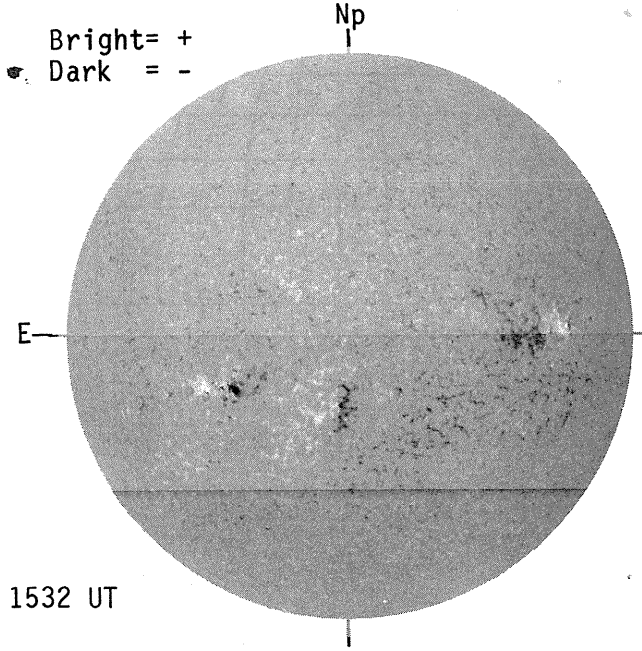


1.15 R_0 1833 UT
1.35 R_0 1838 UT
1.45 R_0 1844 UT

D E C E M B E R 17, 1 9 8 3 (P= 9.56, B_0=-1.12, L_0= 299.35)

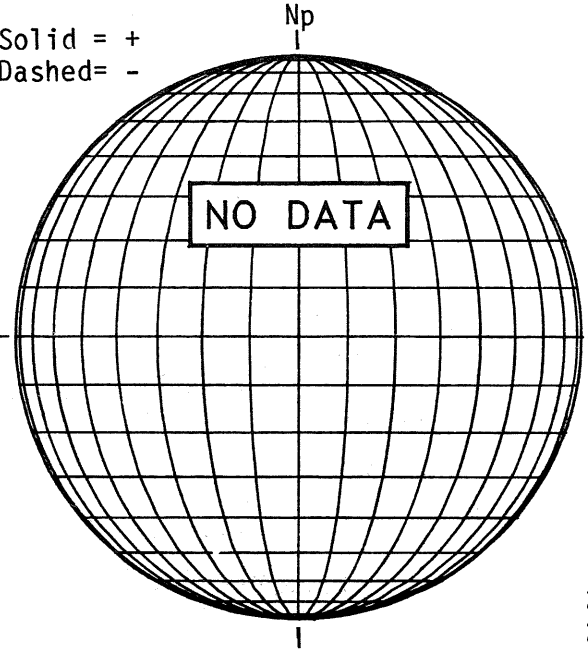
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

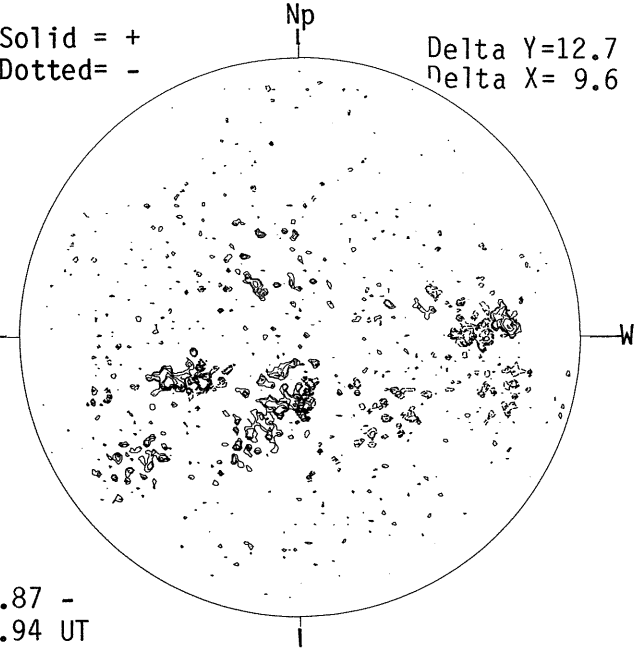
Solid = +
Dashed= -



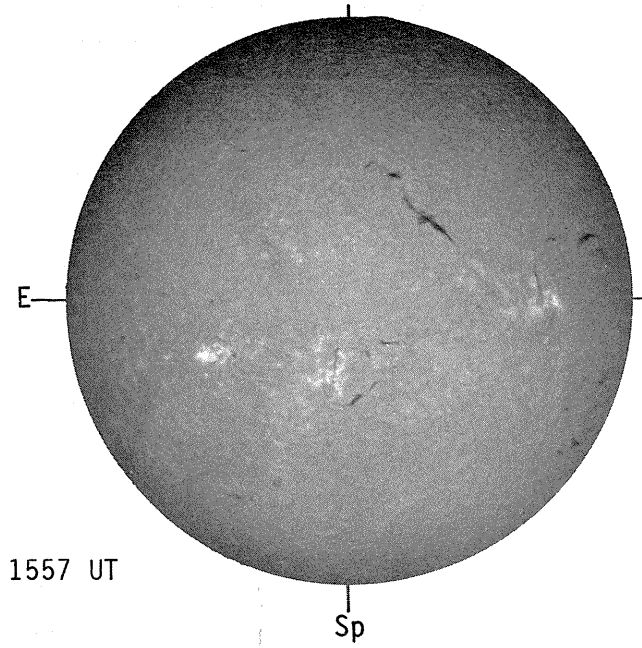
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

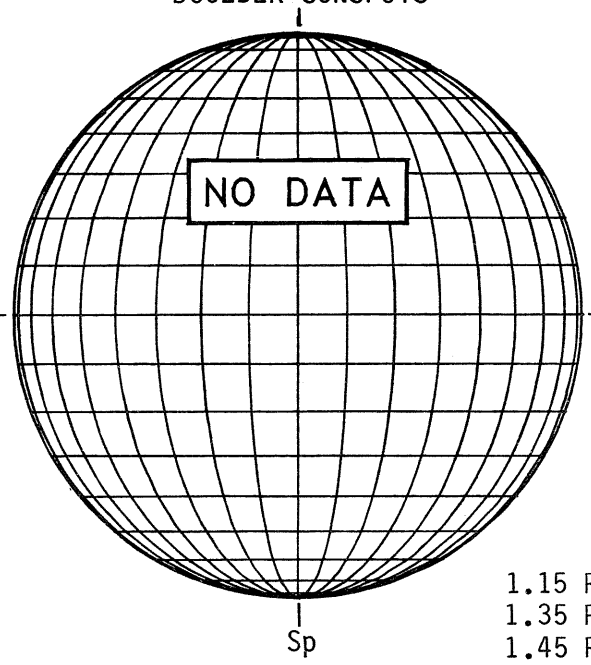
Delta Y=12.7
Delta X= 9.6



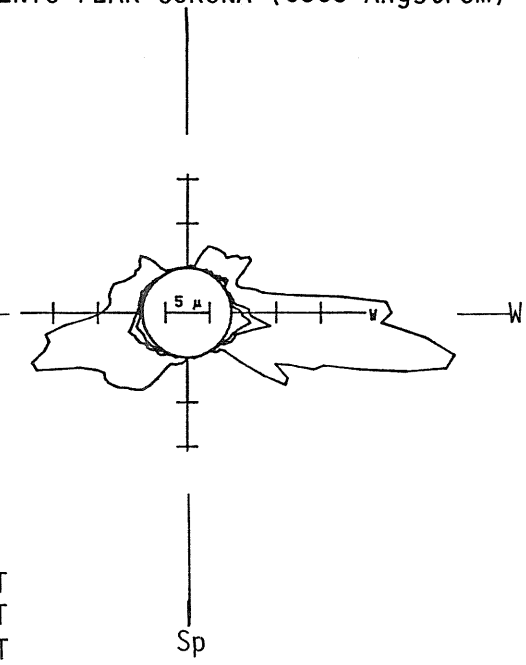
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

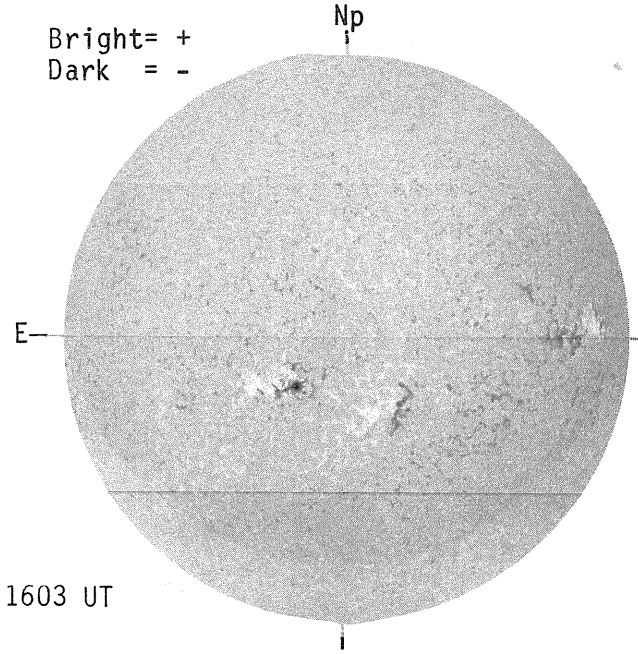


1.15 R_0 1612 UT
1.35 R_0 1527 UT
1.45 R_0 1606 UT

DECEMBER 18, 1983 (P= 9.10, B_0=-1.25, L_0= 286.18)

KITT PEAK MAGNETOGRAM

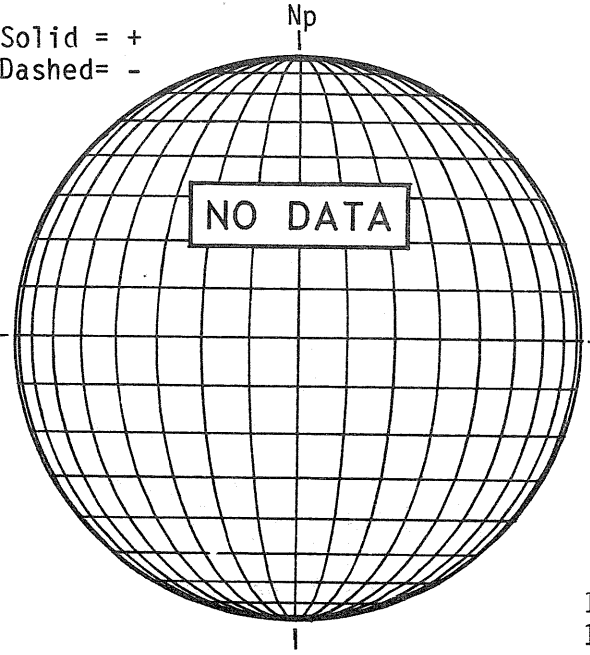
Bright= +
Dark = -



1603 UT

STANFORD MAGNETOGRAM

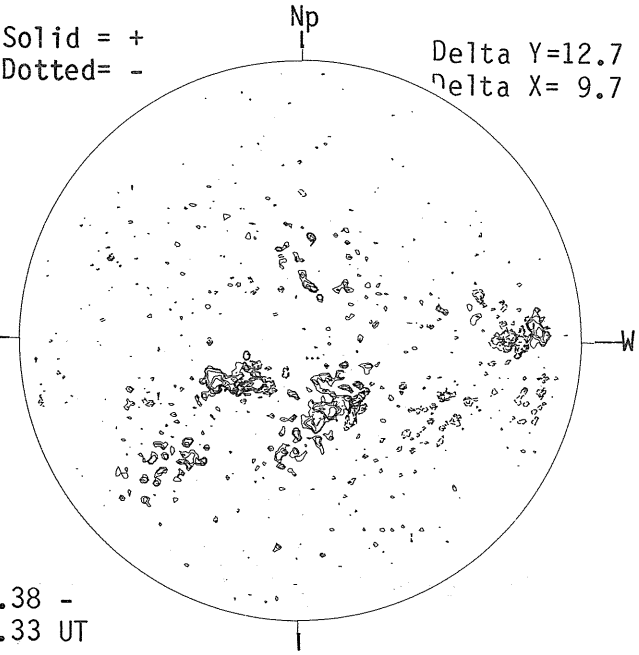
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

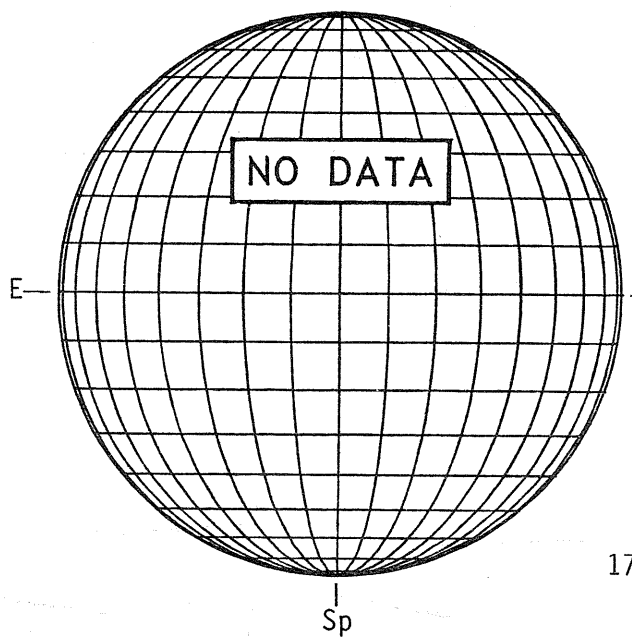
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.7



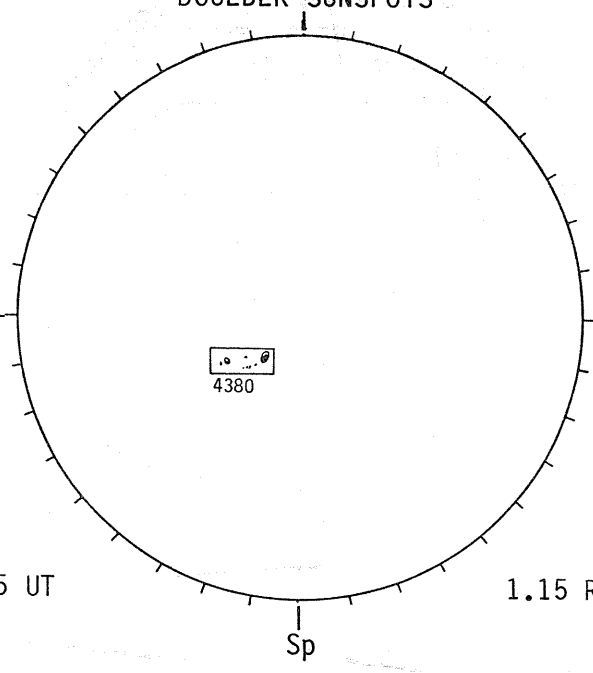
17.38 -
18.33 UT

SACRAMENTO PEAK H-ALPHA



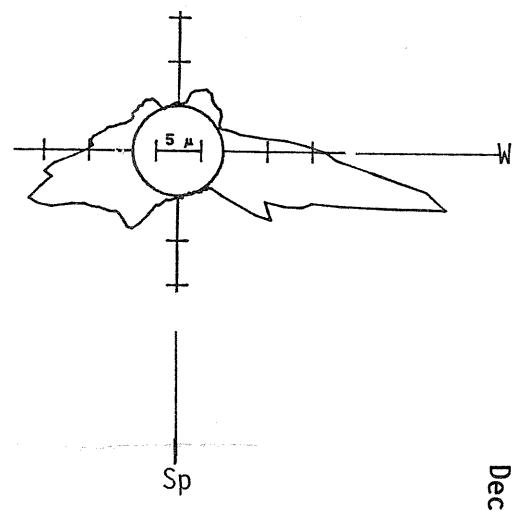
1755 UT

BOULDER SUNSPOTS



1.15 R_0 1507 UT

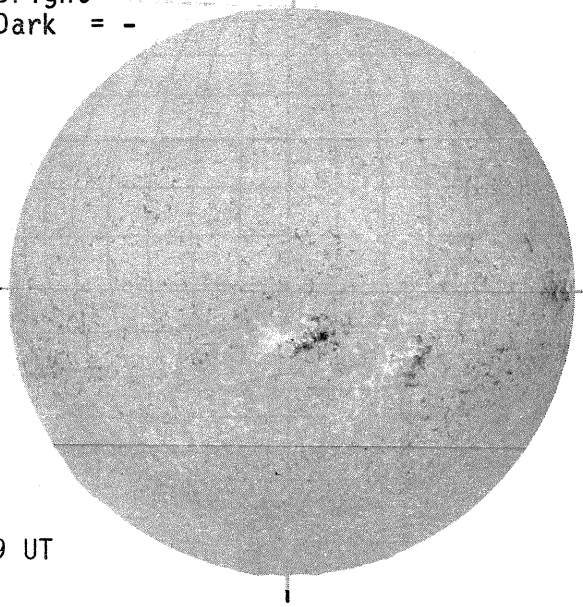
SACRAMENTO PEAK CORONA (5303 Angstrom)



DECEMBER 19, 1983 (P= 8.64, B_0=-1.38, L_0= 273.00)

KITT PEAK MAGNETOGRAM

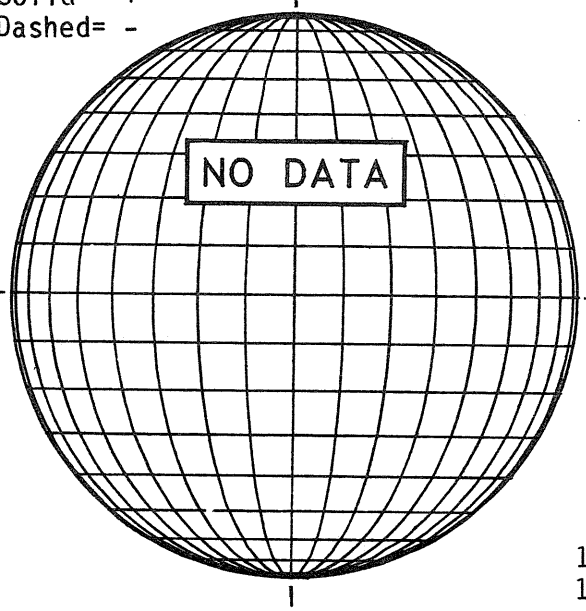
Bright= +
Dark = -



1529 UT

STANFORD MAGNETOGRAM

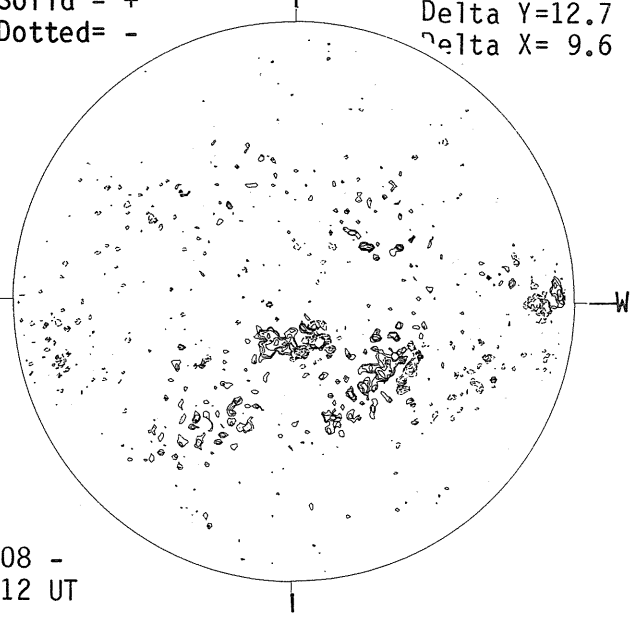
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

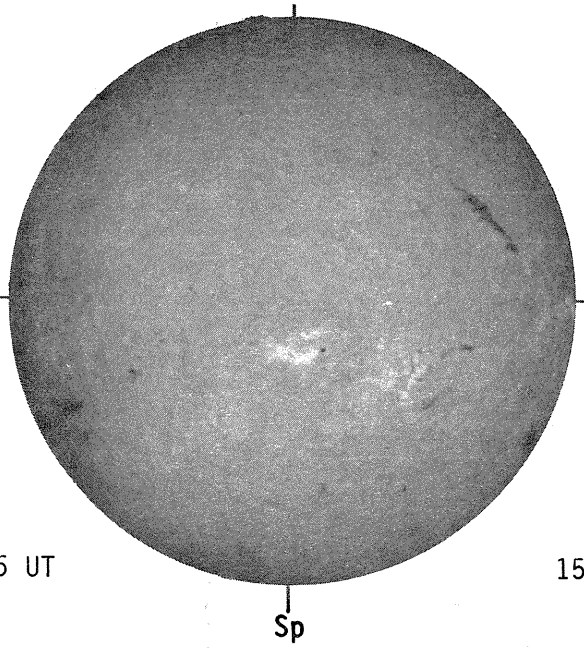
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6



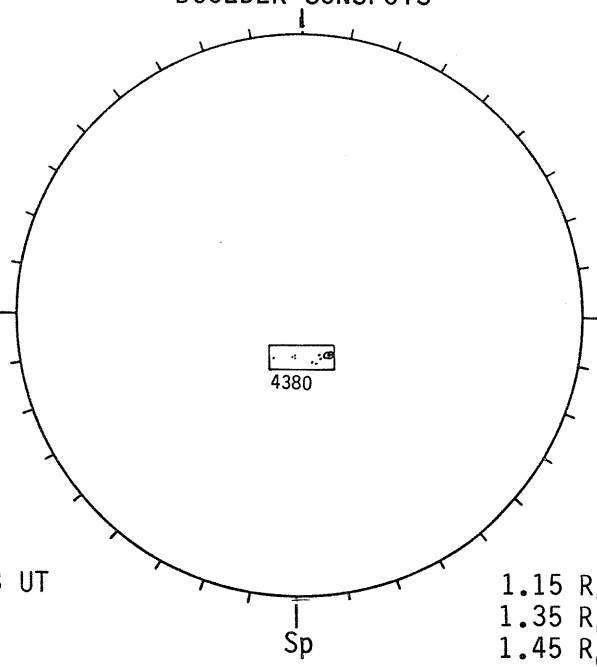
17.08 -
18.12 UT

SACRAMENTO PEAK H-ALPHA



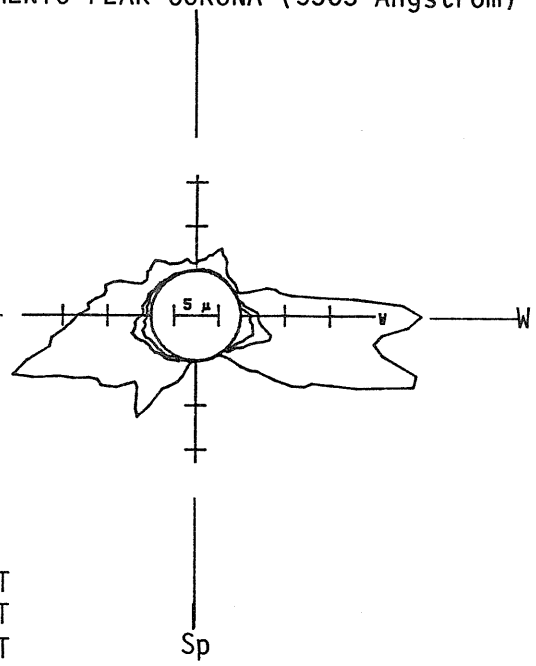
1756 UT

BOULDER SUNSPOTS



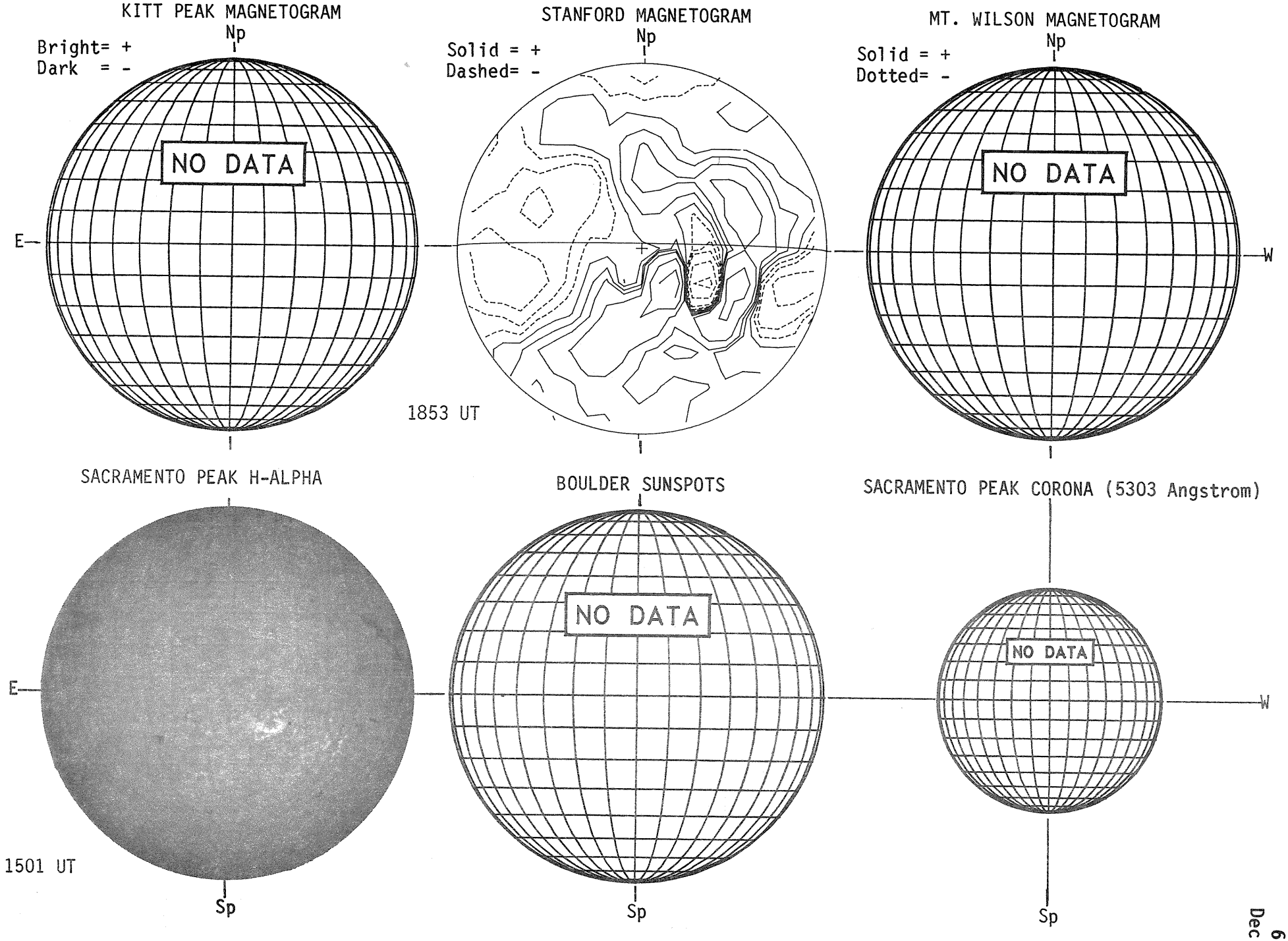
1548 UT

SACRAMENTO PEAK CORONA (5303 Angstrom)

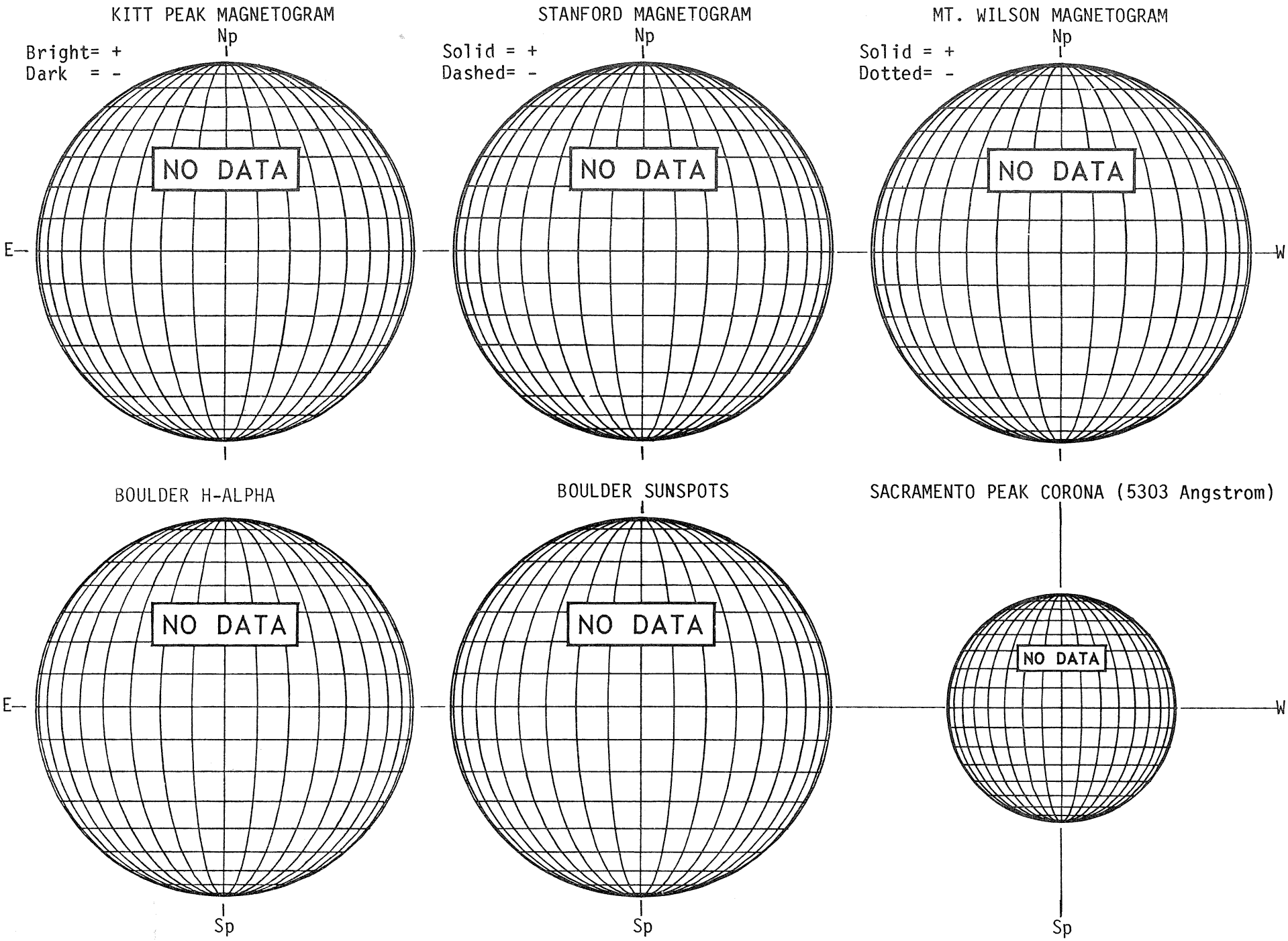


1.15 R_0 1923 UT
1.35 R_0 1929 UT
1.45 R_0 1936 UT

DECEMBER 20, 1983 (P= 8.17, B_0=-1.50, L_0= 259.83)



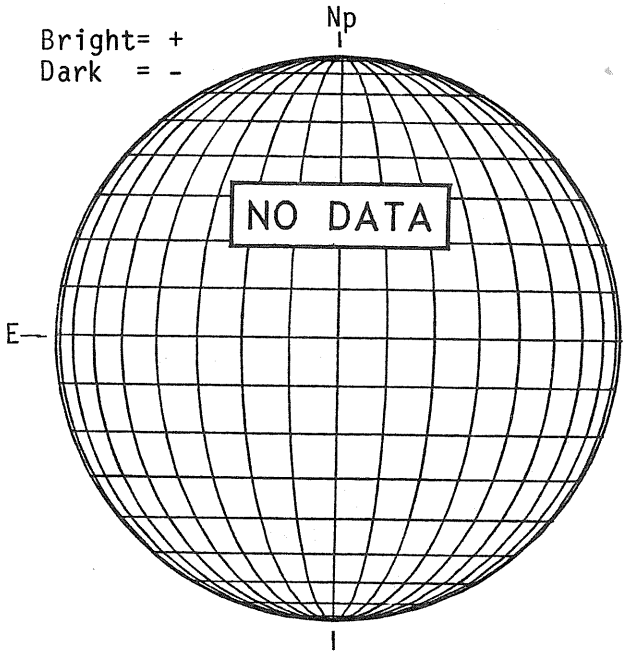
D E C E M B E R 21, 1 9 8 3 (P= 7.70, B_0=-1.63, L_0= 246.65)



DECEMBER 22, 1983 (P= 7.23, B_0=-1.75, L_0= 233.48)

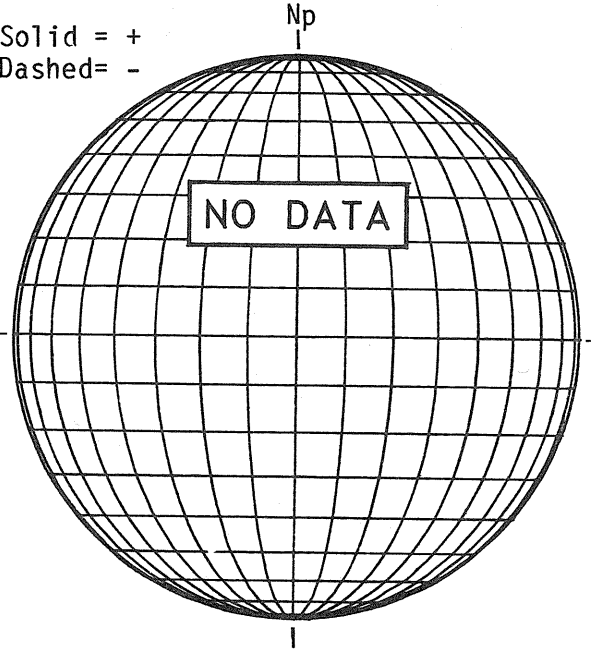
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



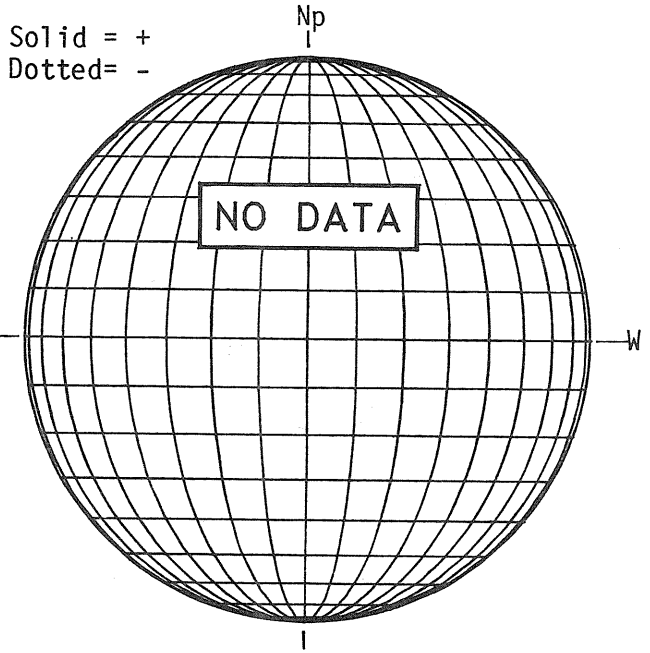
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

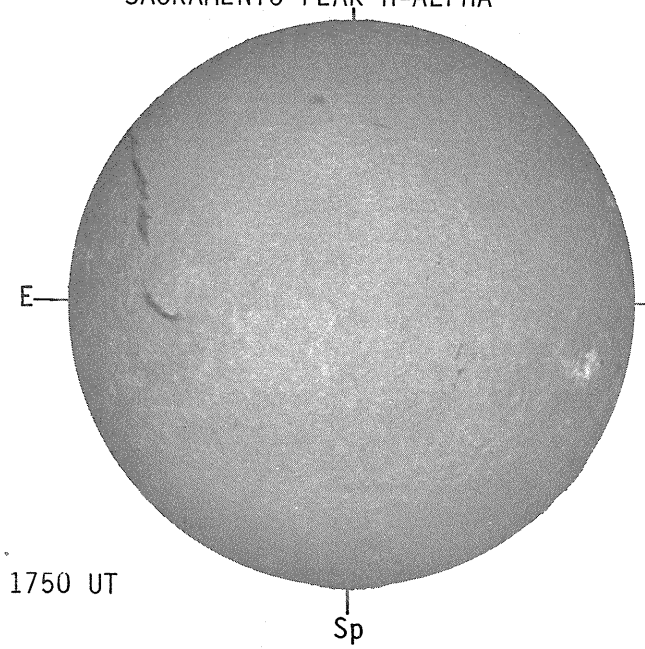


MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

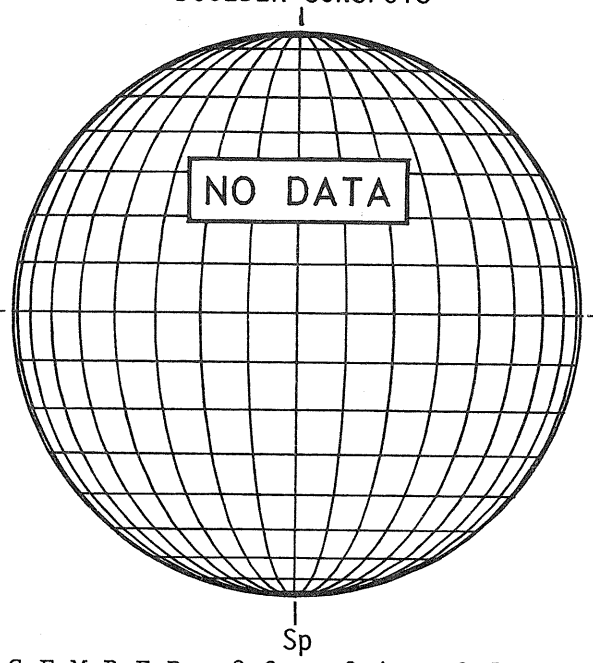


SACRAMENTO PEAK H-ALPHA

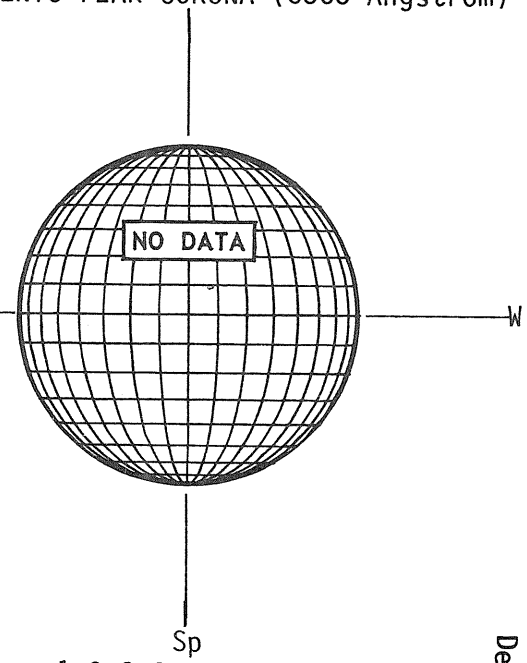


1750 UT

BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)

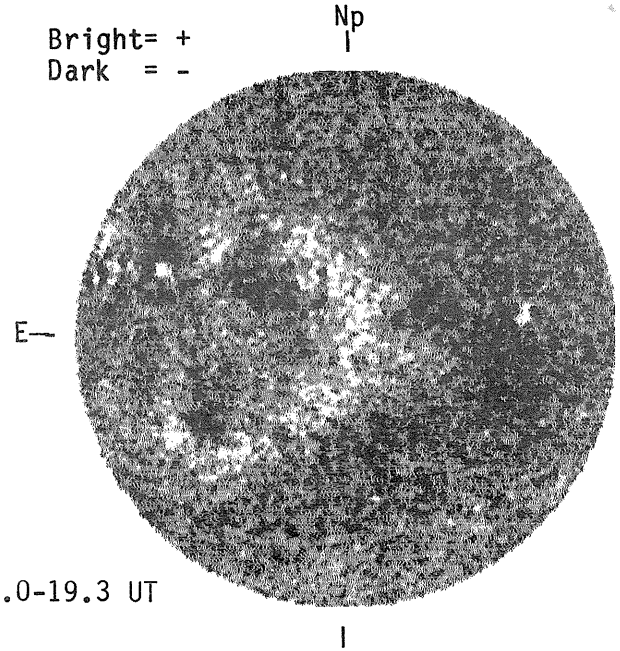


NO DATA DECEMBER 23, 24, 25 AND 26, 1983.

D E C E M B E R 27, 1 9 8 3 (P= 4.84, B_0=-2.37, L_0= 167.62)

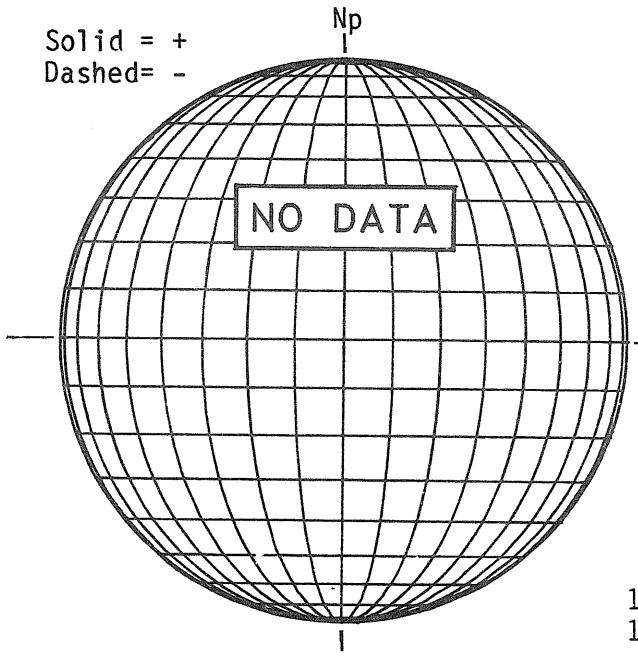
MT. WILSON MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

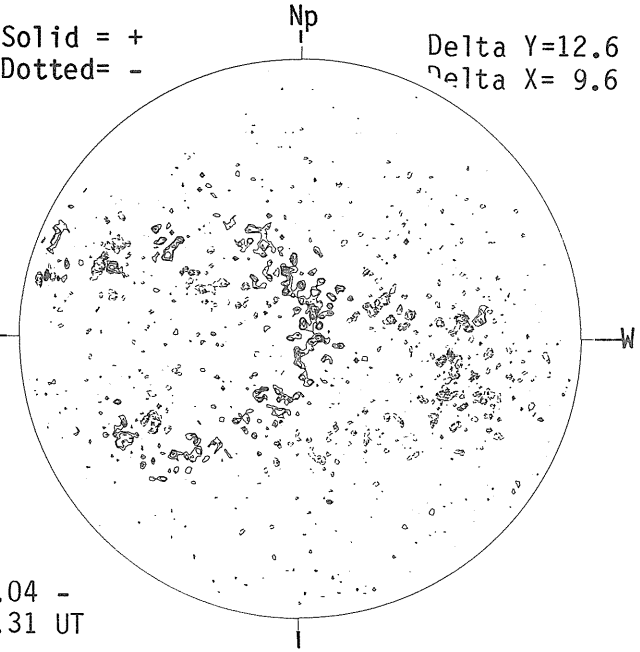
Solid = +
Dashed= -



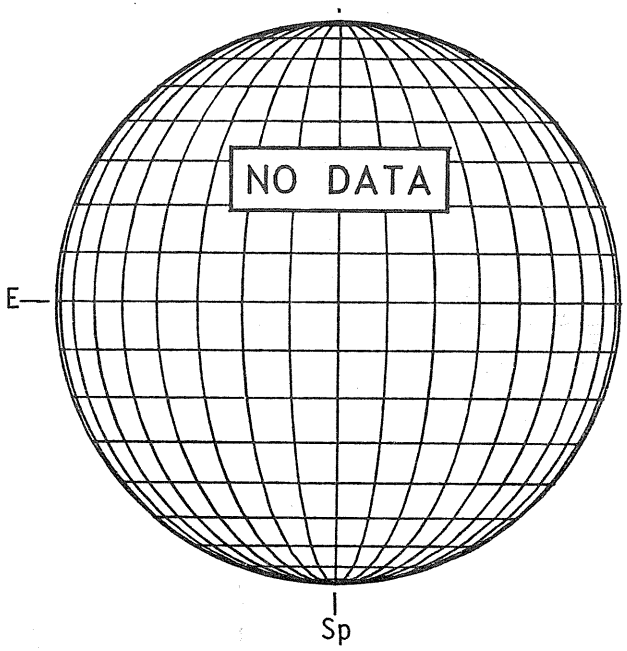
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

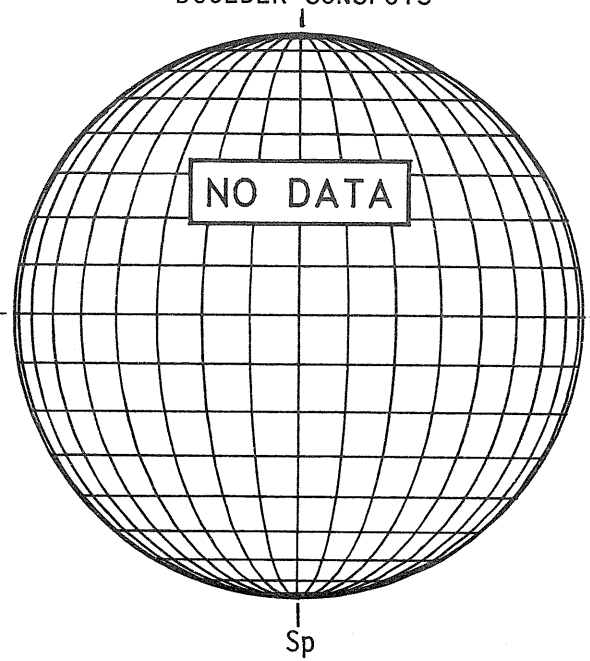
Delta Y=12.6
Delta X= 9.6



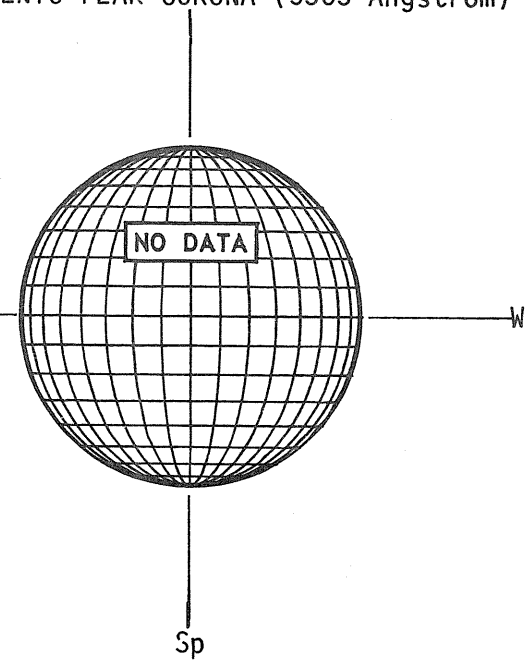
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



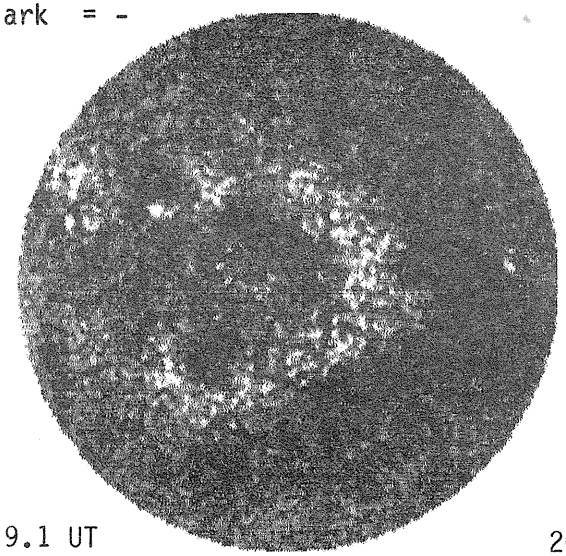
SACRAMENTO PEAK CORONA (5303 Angstrom)



DECEMBER 28, 1983 (P= 4.36, B_0=-2.49, L_0= 154.45)

MT. WILSON MAGNETOGRAM

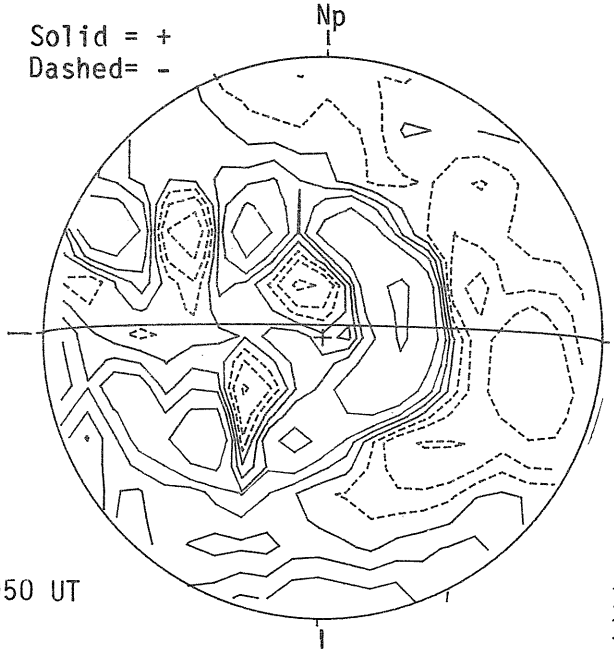
Bright= +
Dark = -



18.2-19.1 UT

STANFORD MAGNETOGRAM

Solid = +
Dashed= -

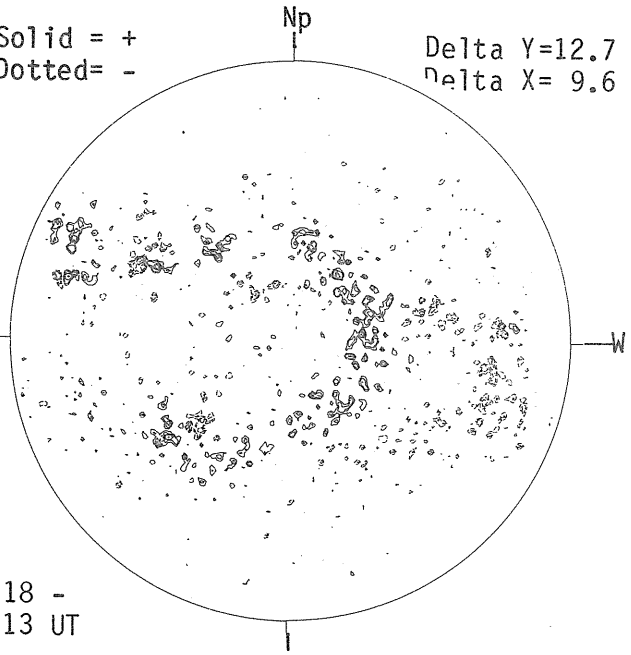


2050 UT

MT. WILSON MAGNETOGRAM

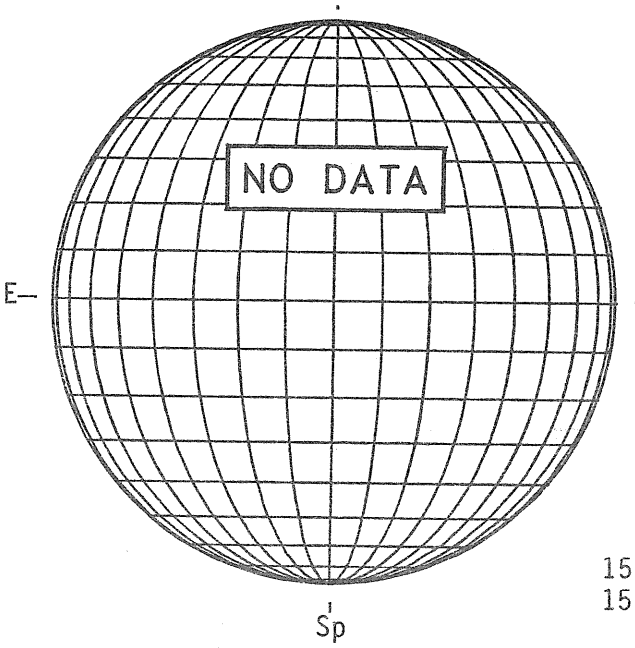
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6

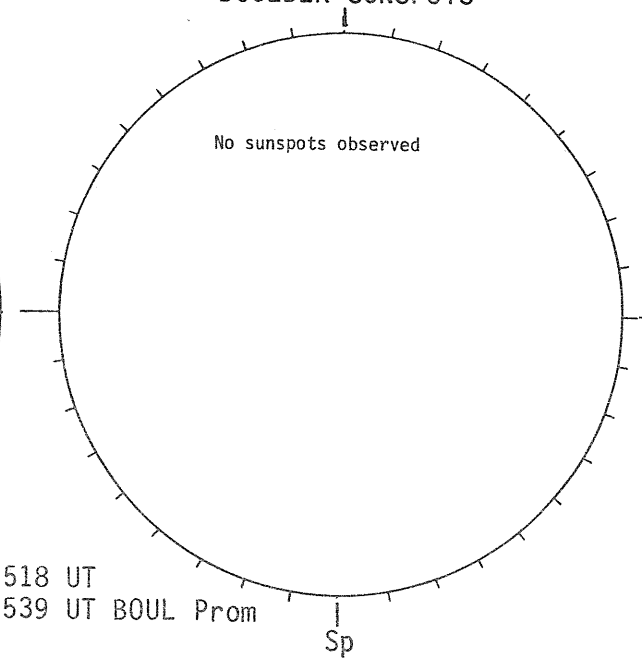


18.18 -
19.13 UT

BOULDER H-ALPHA

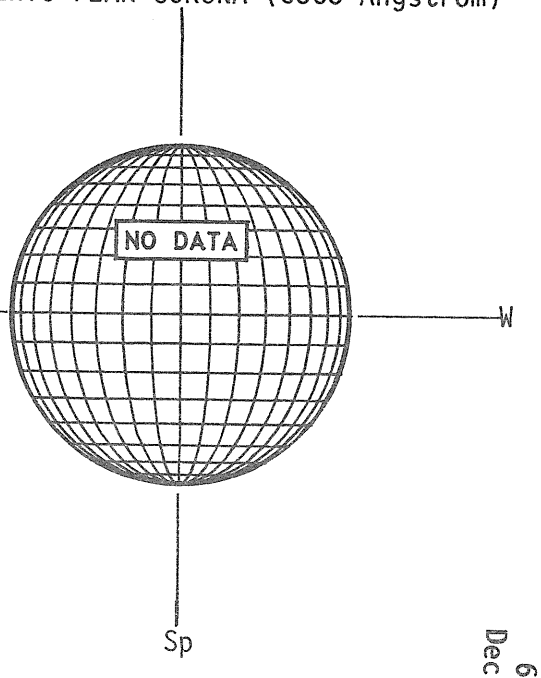


BOULDER SUNSPOTS



1518 UT
1539 UT BOUL Prom

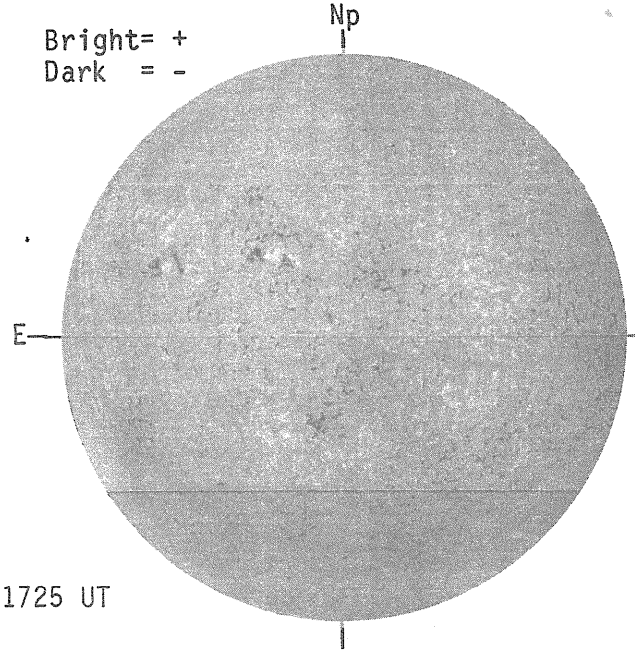
SACRAMENTO PEAK CORONA (5303 Angstrom)



D E C E M B E R 29, 1 9 8 3 (P= 3.88, B_0=-2.61, L_0= 141.27)

KITT PEAK MAGNETOGRAM

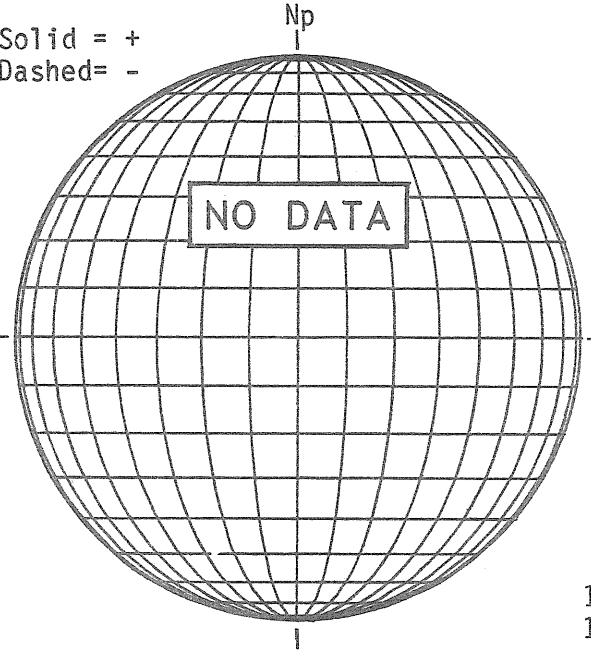
Bright= +
Dark = -



1725 UT

STANFORD MAGNETOGRAM

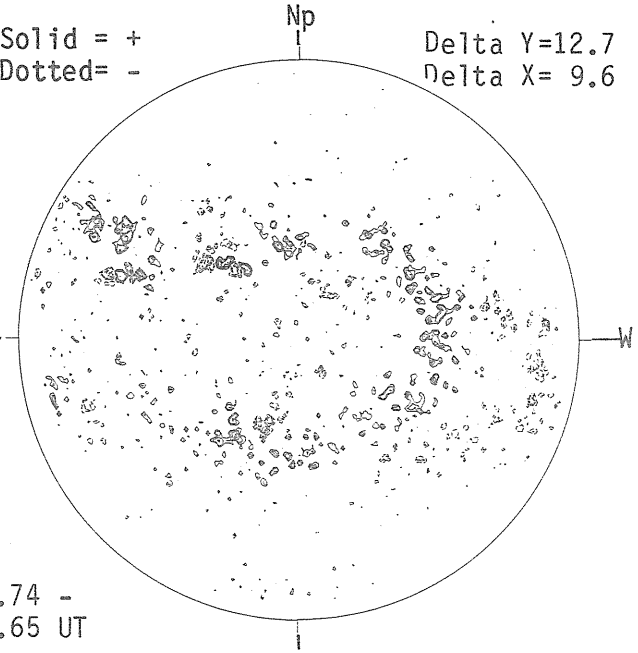
Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

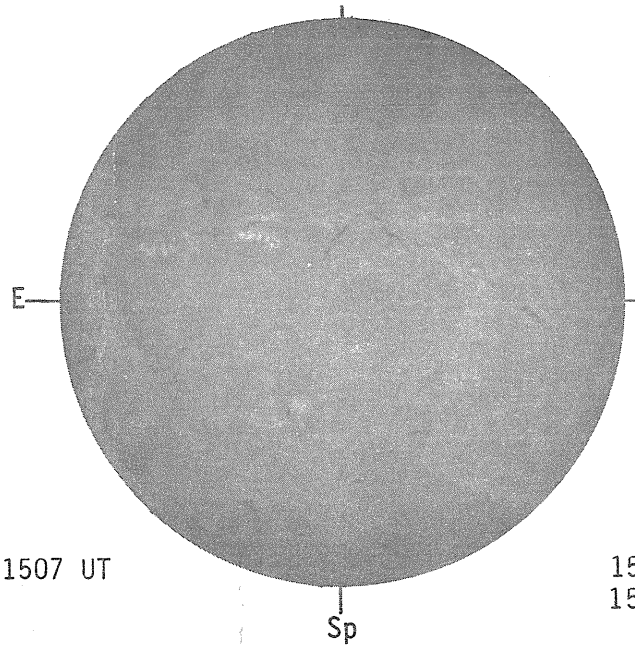
Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6



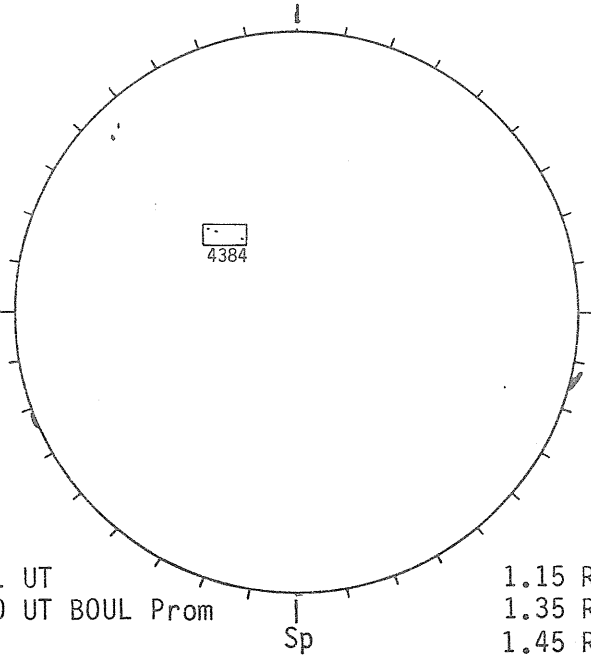
18.74 -
19.65 UT

SACRAMENTO PEAK H-ALPHA



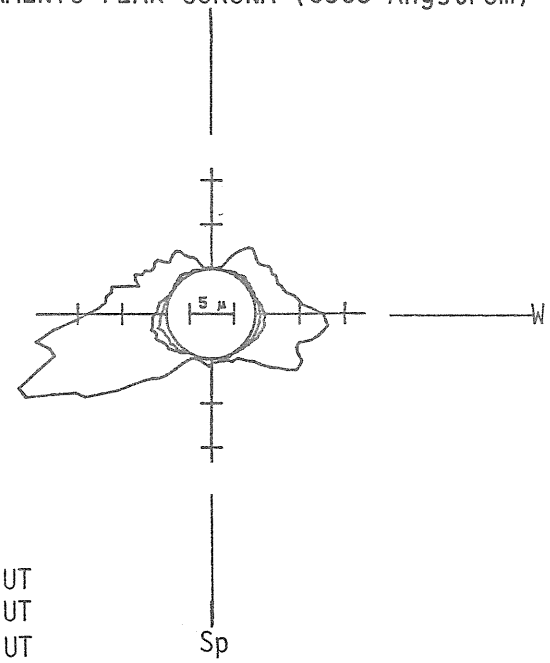
1507 UT

BOULDER SUNSPOTS



1511 UT
1520 UT BOUL Prom

SACRAMENTO PEAK CORONA (5303 Angstrom)

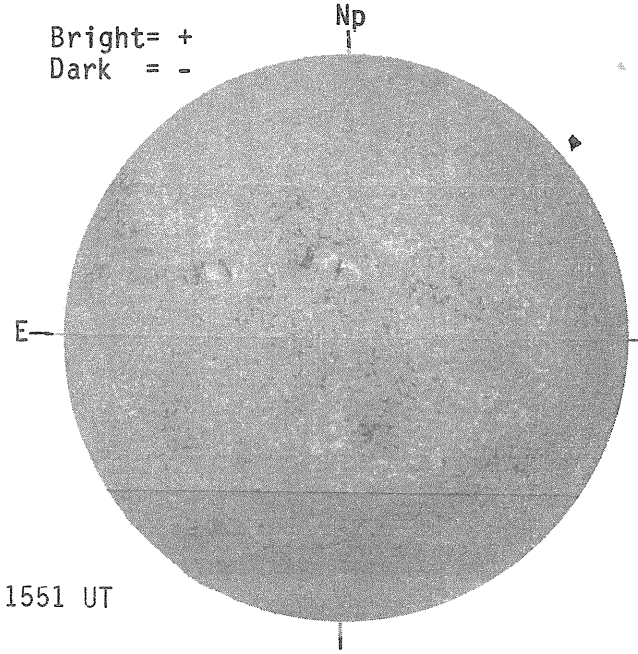


1.15 R_0 2045 UT
1.35 R_0 2051 UT
1.45 R_0 2057 UT

DECEMBER 30, 1983 (P= 3.39, B_0=-2.73, L_0= 128.10)

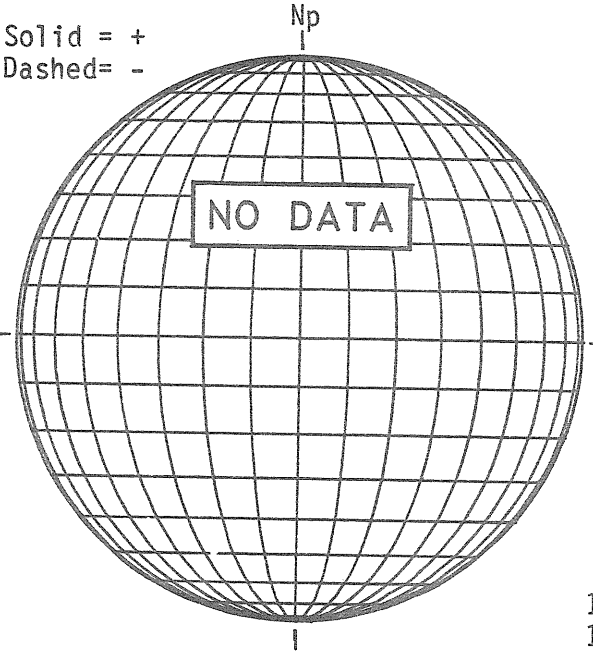
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

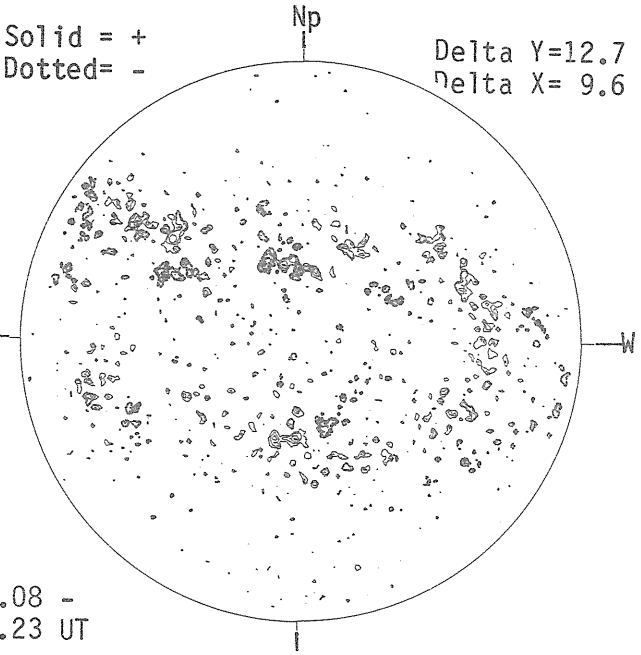
Solid = +
Dashed= -



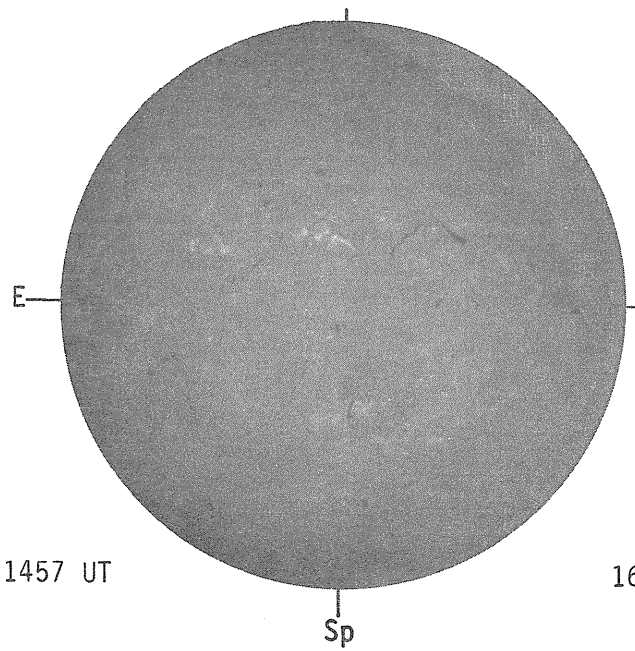
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

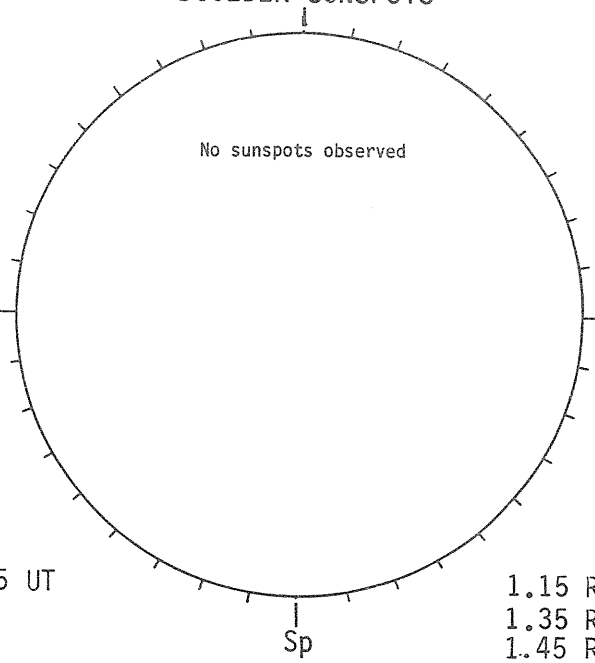
Delta Y=12.7
Delta X= 9.6



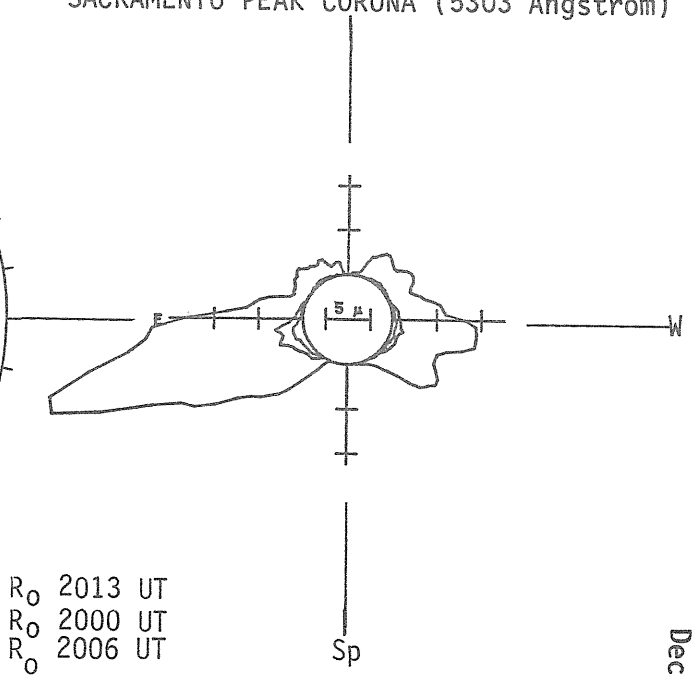
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



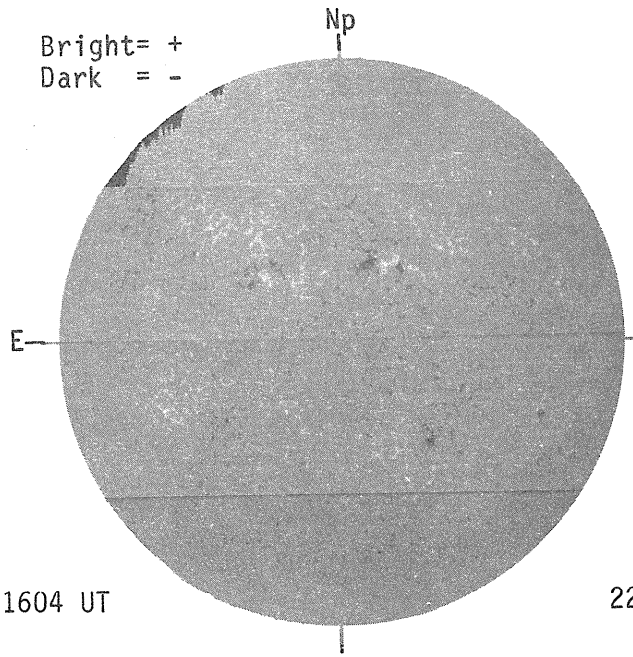
SACRAMENTO PEAK CORONA (5303 Angstrom)



D E C E M B E R 31, 1 9 8 3 (P= 2.91, B_0=-2.85, L_0= 114.93)

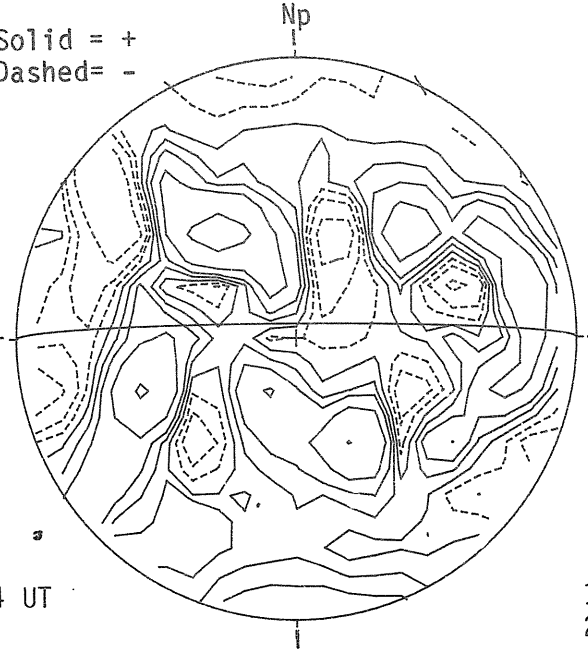
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

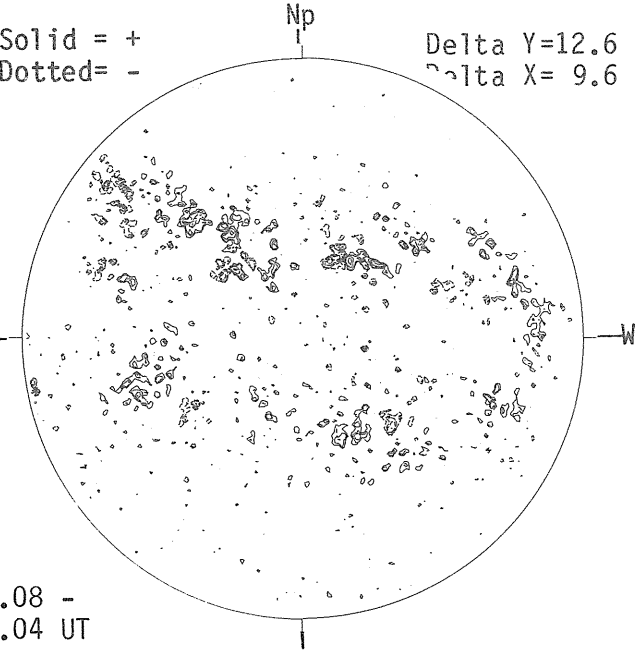
Solid = +
Dashed= -



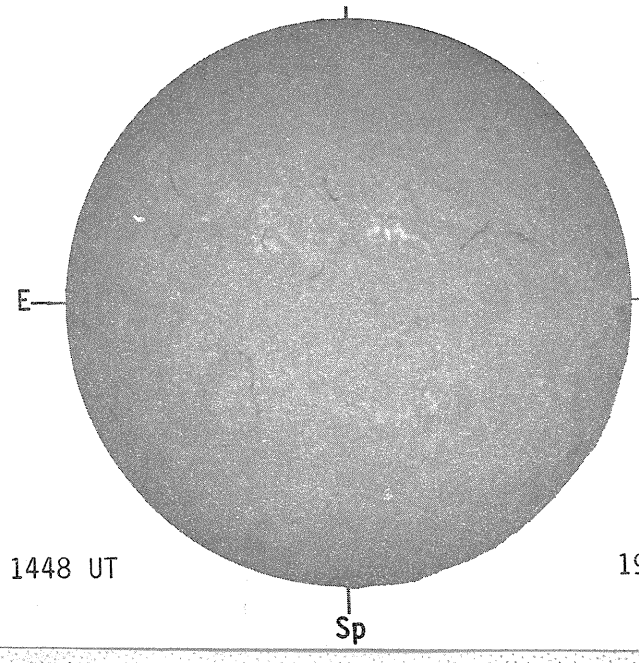
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

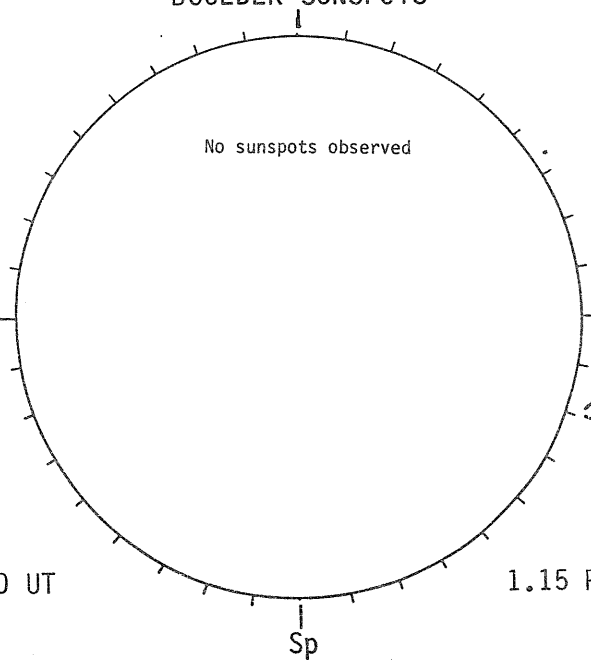
Delta Y=12.6
Delta X= 9.6



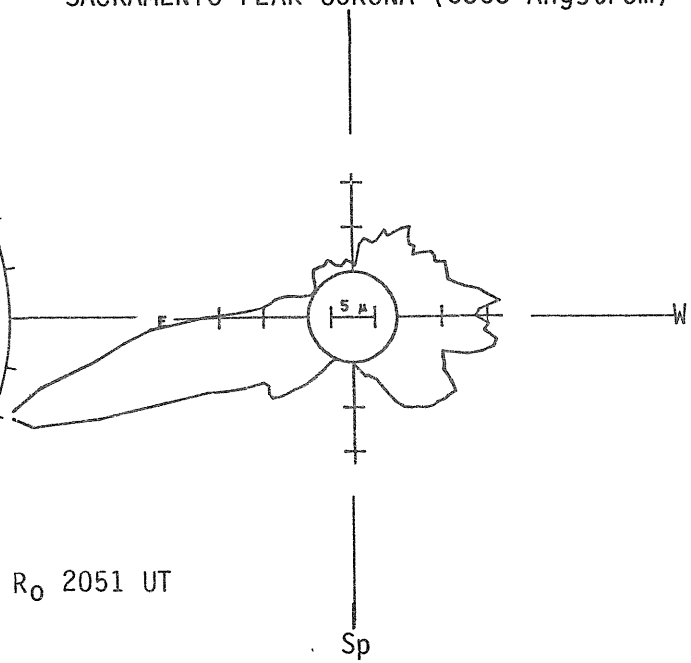
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



R E G I O N S O F S U N S P O T A C T I V I T Y
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

DECEMBER 1983

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
0001	23893	MWIL	11	30	2115	S05	E16	12	2.1	2	(AP)					
0001		LEAR	12	01	0153	S03	E14	12	2.1		A	AXX	10	1	1	2
		HOLL	12	03	1535	N16	W16	12	2.4		A	AXX		1		4
4369		RAMY	12	01	1230	N05	E23	12	3.2		B	BXO	10	3	2	4
4369		HOLL	12	01	1607	N06	E21	12	3.2		A	AXX	10	3	2	2
4369	23893	MWIL	12	01	2230	N05	E16	12	3.1	2	X					
4369		PALE	12	01	2258	N06	E17	12	3.2		A	AXX	10	1		2
4369		LEAR	12	02	0011	N05	E16	12	3.2		A	AXX		1		3
4369		PALE	12	02	1935	N07	E02	12	3.0		A	AXX	10	2	2	3
4373	23895	MWIL	12	05	1600	S20	W31	12	3.3	3	(B)					
4373		HOLL	12	05	1621	S21	W31	12	3.3		B	BXO		3	3	3
4373		RAMY	12	05	1650	S20	W31	12	3.3		B	DAO	3020	4		3
4373		PALE	12	05	1820	S21	W33	12	3.2		B	BXO	20	4	3	3
4373		LEAR	12	06	0026	S21	W35	12	3.3		B	DSX	50	5	3	4
4373		RAMY	12	06	1240	S20	W43	12	3.2		B	CAO	30	4	4	3
4373		HOLL	12	06	1525	S20	W46	12	3.1		B	BXO	20	3	4	3
4373	23895	MWIL	12	06	1600	S21	W46	12	3.1	4	(B)					
4373		PALE	12	06	1820	S21	W48	12	3.1		B	CRO	20	2	3	4
4373		LEAR	12	07	0127	S20	W42	12	3.8		B	CSO	30	4	4	3
4373		ATHN	12	07	1000	S18	W50	12	3.6		B	BSO	50	2	3	2
4373		RAMY	12	07	1230	S20	W58	12	3.1		B	DAO	40	6	6	4
4373	23895	MWIL	12	07	1600	S21	W59	12	3.1	5	(B)					
4373		HOLL	12	07	1603	S20	W60	12	3.1		B	BXO	20	3	4	4
4373		PALE	12	07	1809	S21	W62	12	3.0		B	BXO	20	4	4	4
4373		MANI	12	08	0020	S21	W64	12	3.1			CRO	20	2	4	2
4373		LEAR	12	08	0055	S20	W64	12	3.1		B	DSO	30	4	6	3
4373		RAMY	12	08	1245	S20	W70	12	3.2		B	BXO	30	2	5	4
4373		HOLL	12	08	1515	S23	W69	12	3.3		A	AXX		1		3
4373	23895	MWIL	12	08	1545	S23	W70	12	3.3	2	(AF)					
4373		PALE	12	08	1800	S22	W72	12	3.2		A	AXX	10	1	1	3
4366		LEAR	11	27	0015	N17	E71	12	2.4		B	BXO	20	4	6	2
4366		HOLL	11	27	1550	N17	E78	12	3.6		B	BXO	10	2	3	3
4366	23891	MWIL	11	27	1600	N19	E79	12	3.7	2	B					
4366		LEAR	11	28	0015	N17	E71	12	3.4		B	BXO	20	4	6	2
4366		RAMY	11	28	1137	N17	E62	12	3.2		B	DRO	90	9	6	3
4366		HOLL	11	28	1541	N18	E64	12	3.5		B	CRO	40	8	9	2
4366	23891	MWIL	11	28	1545	N18	E63	12	3.5	3	(B)					
4366		BOUL	11	28	1548	N18	E64	12	3.5		B	BXO	80	6	9	2
4366		LEAR	11	29	0121	N18	E57	12	3.4		B	CRO	10	4	6	3
4366		ATHN	11	29	0700	N13	E55	12	3.4		B	HXO	30	2	7	2
4366		RAMY	11	29	1225	N18	E53	12	3.6		B	DAO	70	10	9	4
4366	23891	MWIL	11	29	1545	N19	E48	12	3.3	4	(B)					
4366		HOLL	11	29	1554	N17	E50	12	3.5		B	BXO	10	11	8	3
4366		LEAR	11	30	0054	N18	E44	12	3.4		B	DAO	80	12	7	4
4366		RAMY	11	30	1227	N18	E38	12	3.4		B	CAO	30	12	8	4
4366		HOLL	11	30	1519	N18	E37	12	3.5		B	BXO	10	5	7	3
4366		PALE	11	30	1835	N18	E36	12	3.5		B	BXO	20	8	7	3
4366	23891	MWIL	11	30	2115	N19	E35	12	3.6	3	(B)					
4366		LEAR	12	01	0153	N18	E29	12	3.3		B	BXO	20	6	5	2
4366		ATHN	12	01	0945	N17	E26	12	3.4		B	BXO	20	4	3	2
4366		RAMY	12	01	1230	N18	E25	12	3.4		B	CRO	20	16	9	4
4366		HOLL	12	01	1607	N18	E22	12	3.3		B	BXO	30	6	6	2
4366	23891	MWIL	12	01	2230	N18	E18	12	3.3	3	B					
4366		PALE	12	01	2258	N18	E19	12	3.4		B	BXO	30	5	6	2
4366		LEAR	12	02	0011	N18	E18	12	3.4		B	DSO	50	14	5	3
4366	23891	MWIL	12	02	1530	N18	E10	12	3.4	3	(B)					
4366		BOUL	12	02	1656	N19	E10	12	3.5		B	BXO	10	11	6	2
4366		PALE	12	02	1935	N19	E08	12	3.4		B	BXO	30	9	7	3
4366		LEAR	12	03	0044	N18	E06	12	3.5		B	DSO	50	10	5	2
4366		HOLL	12	03	1535	N18	W03	12	3.4		B	BXO	20	9	6	4
4366		PALE	12	03	1825	N18	W04	12	3.5		B	BXO	30	9	6	3
4366		LEAR	12	04	0047	N18	W09	12	3.3		B	BXO	10	3	6	3
4366		MANI	12	04	0049	N18	W08	12	3.4			BXO	10	3	5	3
4366		RAMY	12	04	1236	N17	W15	12	3.4		B	BXO	30	7	5	3
4366		LEAR	12	05	0303	N17	W25	12	3.2		A	AXX		1		2
4366		RAMY	12	05	1650	N18	W32	12	3.3		A	AXX	10	1	1	3
4366		LEAR	12	06	0026	N17	W36	12	3.3		B	BXO	20	4	4	4

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

DECEMBER 1983

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4366		HOLL	12	08	1515	N18	W68	12	3.5		A	AXX		1		3
4367		HOLL	11	28	1541	N11	E82	12	4.8		A	AXX	10	1		2
4367		LEAR	11	29	0121	N10	E75	12	4.7		A	AXX		1	1	3
4367		RAMY	11	29	1225	N10	E70	12	4.8		B	CAO	60	4	4	4
4367	23892	MWIL	11	29	1545	N11	E69	12	4.8	3	(B)					
4367		HOLL	11	29	1554	N10	E68	12	4.8		B	BXO		3	5	3
4367		LEAR	11	30	0054	N11	E63	12	4.8		B	BXO	10	5	6	4
4367		RAMY	11	30	1227	N10	E58	12	4.9		B	CAO	40	7	5	4
4367		HOLL	11	30	1519	N12	E56	12	4.9		B	BXO	10	7	4	3
4367		PALE	11	30	1835	N12	E55	12	4.9		B	CRO	30	8	5	3
4367	23892	MWIL	11	30	2115	N11	E53	12	4.9	3	(B)					
4367		LEAR	12	01	0153	N11	E51	12	4.9		B	DSO	30	5	4	2
4367		ATHN	12	01	0945	N10	E47	12	4.9		B	BXO	30	3	3	2
4367		RAMY	12	01	1230	N11	E46	12	5.0		B	CAO	30	10	6	4
4367		HOLL	12	01	1607	N12	E42	12	4.8		B	CRO	20	5	4	2
4367	23892	MWIL	12	01	2230	N12	E40	12	5.0	4	B					
4367		PALE	12	01	2258	N11	E40	12	5.0		B	BXO	20	3	3	2
4367		LEAR	12	02	0011	N11	E38	12	4.9		B	CSO	40	5	3	3
4367		PALE	12	02	1935	N11	E26	12	4.8		A	AXX		1		3
4367		RAMY	12	04	1236	N09	E04	12	4.8		B	BXO	20	5	4	3
0002		RAMY	12	07	1230	S11	W10	12	6.8		A	AXX	10	2	1	4
0002	23898	MWIL	12	07	1600	S12	W11	12	6.8	3	(AF)					
		LEAR	12	06	0026	N19	E16	12	7.2		A	AXX		1		4
4370		HOLL	12	03	1535	S12	E44	12	7.0		A	AXX		1		4
4370		LEAR	12	04	0047	S12	E40	12	7.0		A	AXX		1		3
4370		MANI	12	04	0049	S11	E41	12	7.1			AXX		1		3
4370		LEAR	12	05	0303	S14	E32	12	7.5		A	AXX		1		2
4370		RAMY	12	07	1230	S10	E03	12	7.7		B	BXO	10	5	3	4
4370	23899	MWIL	12	07	1600	S09	E01	12	7.7	2	(AF)					
4370		PALE	12	07	1809	S09	W00	12	7.8		A	AXX		1		4
4370		RAMY	12	08	1245	S09	W12	12	7.6		B	BXO	10	11	3	4
4370		HOLL	12	08	1515	S09	W12	12	7.7		B	BXO	10	5	3	3
4370	23899	MWIL	12	08	1545	S10	W13	12	7.7	4	(B)					
4370		PALE	12	08	1800	S10	W15	12	7.6		B	BXO	10	3	3	3
4370		RAMY	12	09	1220	S09	W23	12	7.8		A	AXX	10	2	2	4
4370	23899	MWIL	12	09	1600	S10	W25	12	7.8	3	(AF)					
4370		LEAR	12	10	0006	S09	W32	12	7.6		B	CRO	20	4	3	3
4370		ATHN	12	10	0800	S08	W32	12	7.9		B	CSO	30	2	4	2
4370		RAMY	12	10	1313	S09	W39	12	7.6		B	CAO	30	5	4	4
4370	23899	MWIL	12	10	1545	S10	W39	12	7.7	4	(BF)					
4370		HOLL	12	10	1621	S10	W42	12	7.5		B	BXO	10	2	4	2
4370		PALE	12	10	1825	S11	W43	12	7.5		B	BXO	10	2	5	3
4370		LEAR	12	11	0001	S10	W46	12	7.5		B	CRO	10	2	5	2
4370		ATHN	12	11	0700	S09	W47	12	7.8		B	CSO	30	2	3	1
4370		RAMY	12	11	1240	S09	W50	12	7.8		A	HAX	30	1	1	4
4370		HOLL	12	11	1608	S10	W53	12	7.7		A	AXX		1		3
4370		PALE	12	11	1806	S10	W53	12	7.8		A	AXX		1		3
4375		RAMY	12	08	1245	N12	W08	12	7.9		B	CRO	10	7	3	4
4375		HOLL	12	08	1515	N12	W08	12	8.0		B	BXO	10	7	4	3
4375	23900	MWIL	12	08	1545	N11	W08	12	8.1	4	(B)					
4375		PALE	12	08	1800	N12	W10	12	8.0		B	BXO	20	5	3	3
4375		RAMY	12	09	1220	N12	W21	12	7.9		B	DAO	170	31	8	4
4375		RAMY	12	09	1220	N12	W21	12	7.9		B	EAO	170	31	11	4
4375	23900	MWIL	12	09	1600	N11	W23	12	7.9	5	(B)					
4375		BOUL	12	09	1604	N12	W23	12	7.9		B	DSO	60	14	6	1
4375		HOLL	12	09	1610	N12	W23	12	7.9		B	DAO	170	17	6	3
4375		PALE	12	09	1820	N10	W25	12	7.9		B	DAO	110	18	7	3
4375		LEAR	12	10	0006	N12	W27	12	8.0		B	DAO	190	19	7	3
4375		ATHN	12	10	0800	N13	W28	12	8.2		B	DAO	150	8	7	2
4375		RAMY	12	10	1313	N12	W35	12	7.9		B	DAO	110	13	6	4
4375	23900	MWIL	12	10	1545	N11	W36	12	7.9	5	(B)					
4375		HOLL	12	10	1621	N11	W36	12	8.0		B	DAO	90	8	6	2
4375		PALE	12	10	1825	N11	W37	12	8.0		B	DAO	110	9	7	3
4375		LEAR	12	11	0001	N11	W42	12	7.8		B	DAO	110	6	6	2
4375		ATHN	12	11	0700	N12	W44	12	8.0		B	DAO	80	6	8	1
4375		RAMY	12	11	1240	N12	W47	12	8.0		B	DAO	120	20	7	4

R E G I O N S O F S U N S P O T A C T I V I T Y
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

DECEMBER 1983

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4375		HOLL	12	11	1608	N11	W49	12	8.0		B	DAO	80	9	6	3
4375		BOUL	12	11	1740	N13	W48	12	8.1		B	DAO	90	3	5	2
4375		PALE	12	11	1806	N11	W50	12	8.0		B	DAO	110	8	6	3
4375		LEAR	12	12	0128	N12	W54	12	8.0		B	DAO	120	5	6	2
4375		ATHN	12	12	0700	N12	W58	12	7.9		B	DRO	70	4	8	3
4375		RAMY	12	12	1215	N12	W59	12	8.1		B	DAO	80	4	5	4
4375		BOUL	12	12	1452	N14	W65	12	7.7		B	BXO	60	5	6	3
4375	23900	MWIL	12	12	1600	N11	W62	12	8.0	3	(B)					
4375		HOLL	12	12	1638	N11	W62	12	8.0		B	CSO	20	4	6	2
4375		LEAR	12	13	0117	N12	W68	12	7.9		B	CSO	20	4	6	2
4375		RAMY	12	13	1230	N12	W73	12	8.0		B	BXO	30	4	5	4
0003		HOLL	12	04	1605	S02	E81	12	10.7		A	HAX	40	2	2	2
0003		PALE	12	04	2000	S03	E78	12	10.7		B	BXO	10	2	3	2
4372	23897	MWIL	12	05	1600	S12	E72	12	11.1	2	(AP)					
4372		RAMY	12	05	1650	S13	E73	12	11.2		B	CRO	30	3	2	3
4372		PALE	12	05	1820	S12	E70	12	11.0		B	CRO	40	3	6	3
4372		LEAR	12	06	0026	S13	E67	12	11.1		B	DAO	50	9	6	4
4372		RAMY	12	06	1240	S13	E59	12	11.0		B	DAO	110	14	7	3
4372		HOLL	12	06	1525	S13	E58	12	11.0		B	CRO	100	13	8	3
4372	23897	MWIL	12	06	1600	S12	E58	12	11.0	4	(B)					
4372		BOUL	12	06	1735	S13	E57	12	11.0		B	DSO	50	7	7	1
4372		PALE	12	06	1820	S12	E56	12	11.0		B	DSO	180	8	9	4
4372		LEAR	12	07	0127	S13	E53	12	11.1		B	DKI	100	13	8	3
4372		ATHN	12	07	1000	S15	E52	12	11.4		B	DAO	170	10	10	2
4372		RAMY	12	07	1230	S14	E46	12	11.0		B	DAO	220	26	8	4
4372	23897	MWIL	12	07	1600	S12	E45	12	11.1	5	(B)					
4372		HOLL	12	07	1603	S13	E44	12	11.0		B	CAI	160	19	9	4
4372		PALE	12	07	1809	S13	E44	12	11.1		BG	DAI	210	29	8	4
4372		PALE	12	07	1809	S13	E49	12	11.5		BG	DAI	210	29	8	4
4372		MANI	12	08	0020	S12	E41	12	11.1			DAI	230	15	10	2
4372		LEAR	12	08	0055	S13	E41	12	11.1		B	DSO	210	25	10	3
4372		RAMY	12	08	1245	S14	E35	12	11.2		B	EAO	200	44	14	4
4372		HOLL	12	08	1515	S14	E33	12	11.1		BG	DAO	190	28	9	3
4372	23897	MWIL	12	08	1545	S13	E32	12	11.1	5	(BY)					
4372		PALE	12	08	1800	S13	E32	12	11.2		BG	ESO	160	20	12	3
4372		RAMY	12	09	1220	S14	E23	12	11.3		BG	FAO	240	43	16	4
4372	23897	MWIL	12	09	1600	S13	E18	12	11.0	4	(B)					
4372		BOUL	12	09	1604	S11	E15	12	10.8		B	CSO	80	17	9	1
4372		HOLL	12	09	1610	S13	E18	12	11.0		B	DAO	150	18	9	3
4372		PALE	12	09	1820	S13	E17	12	11.0		B	DSO	110	19	9	3
4372		LEAR	12	10	0006	S13	E14	12	11.1		B	DAO	100	20	10	3
4372		ATHN	12	10	0800	S12	E12	12	11.2		B	DAO	110	16	10	2
4372		RAMY	12	10	1313	S13	E06	12	11.0		BG	EAO	190	39	11	4
4372	23897	MWIL	12	10	1545	S13	E05	12	11.0	4	(B)					
4372		HOLL	12	10	1621	S12	E04	12	11.0		B	DAO	50	16	10	2
4372		PALE	12	10	1825	S13	E03	12	11.0		B	DAO	110	21	10	3
4372		LEAR	12	11	0001	S12	E00	12	11.0		B	DAO	80	16	10	2
4372		ATHN	12	11	0700	S13	W06	12	10.8		B	CSO	20	8	3	1
4372		RAMY	12	11	1240	S13	W07	12	11.0		B	DAO	80	25	10	4
4372		HOLL	12	11	1608	S12	W08	12	11.1		B	BXO	20	14	9	3
4372		BOUL	12	11	1740	S10	W09	12	11.1		B	CSO	70	6	10	2
4372		PALE	12	11	1806	S13	W09	12	11.1		B	BXO	40	12	9	3
4372		LEAR	12	12	0128	S13	W15	12	10.9		B	CSO	60	8	11	2
4372		ATHN	12	12	0700	S11	W21	12	10.7		B	BXO	10	2	2	3
4372		RAMY	12	12	1215	S13	W18	12	11.2		B	BXO	20	9	12	4
4372		BOUL	12	12	1452	S11	W18	12	11.3		A	AXX	10	3	3	3
4372		HOLL	12	12	1638	S13	W18	12	11.3		A	AXX	20	5	3	2
4372		LEAR	12	13	0117	S14	W25	12	11.2		A	AXX	10	2	1	2
4372		RAMY	12	13	1230	S12	W35	12	10.9		B	BXO	10	4	3	4
4372		HOLL	12	13	1550	S12	W33	12	11.2		B	BXO	20	4	5	2
4372	23905	MWIL	12	14	1630	S13	W50	12	10.9	3	(AP)					
4372		RAMY	12	17	1225	S08	W74	12	12.0		A	HAX	60	1	1	4
4371		LEAR	12	05	0303	S02	E74	12	10.7		B	CAO	50	4	5	2
4371	23896	MWIL	12	05	1600	S01	E66	12	10.6	3	(AF)					
4371		HOLL	12	05	1621	S02	E66	12	10.6		B	CRI	20	3	3	3
4371		RAMY	12	05	1650	S03	E66	12	10.6		B	CAO	60	5	3	3
4371		PALE	12	05	1820	S03	E65	12	10.6		B	CSO	60	3	3	3
4371		LEAR	12	06	0026	S03	E62	12	10.7		B	CKI	70	5	4	4

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

DECEMBER 1983

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4371		RAMY	12	06	1240	S03	E55	12	10.6		B	CAO	40	4	3	3
4371		HOLL	12	06	1525	S02	E53	12	10.6		A	AXX	20	5	2	3
4371	23896	MWIL	12	06	1600	S01	E52	12	10.6	4	(AF)					
4371		BOUL	12	06	1735	S02	E51	12	10.5		A	HSX	10	1	1	1
4371		PALE	12	06	1820	S02	E51	12	10.6		B	CSO	30	4	3	4
4371		LEAR	12	07	0127	S03	E48	12	10.6		B	CAO	60	5	3	3
4371		ATHN	12	07	1000	S05	E45	12	10.8		B	BXO	10	3	2	2
4371		RAMY	12	07	1230	S03	E41	12	10.6		B	CRO	10	1	1	4
4371	23896	MWIL	12	07	1600	S01	E39	12	10.6	4	(BP)					
4371		HOLL	12	07	1603	S02	E39	12	10.6		A	AXX	10	2	1	4
4371		PALE	12	07	1809	S02	E37	12	10.5		B	BXO	20	7	3	4
4371		LEAR	12	08	0055	S03	E36	12	10.7		B	CSO	30	5	3	3
4371		RAMY	12	08	1245	S03	E30	12	10.8		B	BXO	10	4	4	4
4371		HOLL	12	08	1515	S01	E30	12	10.9		B	BXO	10	8	4	3
4371	23896	MWIL	12	08	1545	S01	E29	12	10.8	4	(B)					
4371		PALE	12	08	1800	S03	E28	12	10.8		B	BXO	10	5	5	3
4371		RAMY	12	09	1220	S02	E21	12	11.1		B	BXO	30	7	3	4
4371	23896	MWIL	12	09	1600	S02	E17	12	10.9	4	B					
4371		HOLL	12	09	1610	S02	E18	12	11.0		B	BXO	10	5	3	3
4371		PALE	12	09	1820	S03	E14	12	10.8		B	BXO	20	5	7	3
4371		LEAR	12	10	0006	S02	E14	12	11.0		A	AXX		2	1	3
4371		ATHN	12	10	0800	S01	E12	12	11.2		B	BXO	20	3	2	2
4371		RAMY	12	10	1313	S03	E07	12	11.1		B	BXO	40	9	3	4
4371	23896	MWIL	12	10	1545	S03	E06	12	11.1	3	(AP)					
4371		HOLL	12	10	1621	S03	E04	12	11.0		A	AXX		2	1	2
4371		PALE	12	10	1825	S02	E04	12	11.1		A	AXX	10	3	2	3
4371		LEAR	12	11	0001	S02	E01	12	11.1		A	AXX	10	3	1	2
		HOLL	12	12	1638	S23	W17	12	11.4		A	AXX		1		2
4376	23901	MWIL	12	08	1545	S15	E38	12	11.5	4	(B)					
4376	23901	MWIL	12	09	1600	S16	E24	12	11.5	4	(B)					
4376		BOUL	12	09	1604	S14	E23	12	11.4		B	BXO	60	7	6	1
4376		HOLL	12	09	1610	S16	E25	12	11.6		B	CRO	50	12	6	3
4376		PALE	12	09	1820	S17	E23	12	11.5		B	CRO	30	9	7	3
4376		LEAR	12	10	0006	S16	E19	12	11.4		B	DRO	40	7	7	3
4376		ATHN	12	10	0800	S16	E17	12	11.6		B	DSO	40	8	6	2
4376		RAMY	12	10	1313	S14	E16	12	11.8		B	EAO	150	32	14	4
4376	23901	MWIL	12	10	1545	S15	E11	12	11.5	4	(B)					
4376		HOLL	12	10	1621	S14	E11	12	11.5		B	DAI	50	18	9	2
4376		PALE	12	10	1825	S14	E10	12	11.5		B	CSI	50	16	8	3
4376		LEAR	12	11	0001	S15	E06	12	11.5		B	DAI	100	21	7	2
4376		ATHN	12	11	0700	S15	E05	12	11.7		B	DSO	40	17	9	1
4376		RAMY	12	11	1240	S15	W01	12	11.5		B	DAO	60	22	7	4
4376		HOLL	12	11	1608	S15	W03	12	11.4		B	CAO	80	18	8	3
4376		BOUL	12	11	1740	S13	W03	12	11.5		B	DAO	80	6	7	2
4376		PALE	12	11	1806	S15	W04	12	11.5		B	CSO	80	21	7	3
4376		LEAR	12	12	0128	S15	W08	12	11.5		B	DAI	150	16	9	2
4376		ATHN	12	12	0700	S15	W11	12	11.5		B	DAO	90	14	8	3
4376		RAMY	12	12	1215	S16	W14	12	11.4		B	DAO	60	23	8	4
4376		BOUL	12	12	1452	S15	W13	12	11.6		B	CSO	70	14	10	3
4376	23901	MWIL	12	12	1600	S15	W16	12	11.5	3	(B)					
4376		HOLL	12	12	1638	S16	W16	12	11.5		B	CAO	80	17	10	2
4376		LEAR	12	13	0117	S14	W22	12	11.4		B	CAO	100	16	9	2
4376		RAMY	12	13	1230	S16	W28	12	11.4		B	DAO	110	33	8	4
4376		HOLL	12	13	1550	S15	W28	12	11.5		B	CAO	80	15	8	2
4376		BOUL	12	13	1715	S13	W30	12	11.5		BG	CSO	50	17	12	2
4376	23901	MWIL	12	13	2300	S17	W35	12	11.3	5	B					
4376		LEAR	12	14	0015	S15	W35	12	11.4		BG	DSO	100	13	8	3
4376		ATHN	12	14	0830	S13	W35	12	11.7		B	CSO	70	3	4	1
4376		RAMY	12	14	1300	S14	W43	12	11.3		B	EAO	90	20	12	4
4376		BOUL	12	14	1452	S12	W47	12	11.1		B	BXO	70	12	10	3
4376		HOLL	12	14	1548	S13	W45	12	11.3		BG	EAO	70	7	11	2
4376	23901	MWIL	12	14	1630	S17	W46	12	11.2	4	(B)					
4376		LEAR	12	15	0029	S15	W46	12	11.5		B	DSO	90	10	10	3
4376		RAMY	12	15	1251	S16	W54	12	11.4		B	ERO	90	12	11	4
4376		HOLL	12	15	1553	S14	W56	12	11.4		B	BXO	10	5	7	3
4376	23901	MWIL	12	15	1845	S17	W58	12	11.4	3	(AP)					
4376		LEAR	12	16	0050	S16	W65	12	11.1		A	AXX		1		3
4376		MANI	12	16	0810	S14	W66	12	11.4			AXX	10	1	1	2
4376	23901	MWIL	12	16	1630	S13	W67	12	11.6	2	AF					

R E G I O N S O F S U N S P O T A C T I V I T Y
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

DECEMBER 1983

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4376		LEAR	12	17	0013	S13	W70	12	11.7		A	AXX		1		4
4376	23901	MWIL	12	17	1745	S08	W81	12	11.7	3	AF					
4379		RAMY	12	13	1230	S08	W19	12	12.1		B	BXO	10	3	3	4
4379		HOLL	12	13	1550	S08	W21	12	12.1		A	AXX		1		2
4379		LEAR	12	17	0013	S08	W69	12	11.8		B	CRO	10	2	3	4
4379		HOLL	12	17	1618	S08	W79	12	11.8		A	HSX	20	1	2	3
4379		LEAR	12	18	0056	S08	W82	12	11.9		A	HSX	20	1	1	3
4379		MANI	12	18	0347	S09	W83	12	11.9			HSX	40	1	2	2
4374		RAMY	12	08	1245	N00	E80	12	14.5		B	CAO	60	2	3	4
4374		HOLL	12	08	1515	N02	E78	12	14.5		A	HSX	50	1	2	3
4374	23902	MWIL	12	08	1545	N02	E78	12	14.5	3	(AP)					
4374		PALE	12	08	1800	N02	E77	12	14.5		A	HSX	40	1	2	3
4374		RAMY	12	09	1220	N00	E68	12	14.6		B	CAO	70	4	4	4
4374	23902	MWIL	12	09	1600	N02	E65	12	14.5	4	(BP)					
4374		BOUL	12	09	1604	N02	E67	12	14.7		B	CRO	40	5	8	1
4374		HOLL	12	09	1610	N01	E60	12	14.2		B	CSO	70	7	8	3
4374		PALE	12	09	1820	N02	E65	12	14.6		B	CSO	80	10	9	3
4374		LEAR	12	10	0006	N01	E60	12	14.5		B	DSO	100	8	9	3
4374		ATHN	12	10	0800	N01	E60	12	14.8		B	CSO	50	4	4	2
4374		RAMY	12	10	1313	N00	E58	12	14.9		B	CAO	210	14	11	4
4374	23902	MWIL	12	10	1545	N03	E52	12	14.5	4	(BP)					
4374		HOLL	12	10	1621	N02	E57	12	14.9		B	CSO	80	9	12	2
4374		PALE	12	10	1825	N02	E54	12	14.8		B	CSO	90	12	12	3
4374		LEAR	12	11	0001	N02	E47	12	14.5		B	CSO	110	6	8	2
4374		ATHN	12	11	0700	N02	E43	12	14.5		B	CSO	50	3	4	1
4374		RAMY	12	11	1240	N03	E38	12	14.4		B	DAO	100	12	5	4
4374		HOLL	12	11	1608	N03	E37	12	14.4		B	CSO	70	13	6	3
4374		BOUL	12	11	1740	N04	E34	12	14.3		B	HSX	80	3	2	2
4374		PALE	12	11	1806	N03	E36	12	14.4		B	CAO	80	10	5	3
4374		LEAR	12	12	0128	N03	E36	12	14.8		B	DSO	160	9	7	2
4374		ATHN	12	12	0700	N03	E28	12	14.4		B	DSO	100	14	10	3
4374		RAMY	12	12	1215	N01	E24	12	14.3		B	DAO	70	11	5	4
4374		BOUL	12	12	1452	N02	E27	12	14.6		B	CSO	60	12	14	3
4374	23902	MWIL	12	12	1600	N02	E23	12	14.4	4	(BP)					
4374		HOLL	12	12	1638	N02	E25	12	14.6		B	CSO	110	14	12	2
4374		LEAR	12	13	0117	N02	E17	12	14.3		B	DSO	100	6	7	2
4374		RAMY	12	13	1230	N02	E14	12	14.6		B	EAO	120	22	12	4
4374		HOLL	12	13	1550	N02	E11	12	14.5		B	CSO	70	11	9	2
4374		BOUL	12	13	1715	N03	E10	12	14.5		B	CSO	60	9	10	2
4374	23902	MWIL	12	13	2300	N02	E06	12	14.4	5	BP					
4374		ATHN	12	14	0830	N04	E06	12	14.8		B	CSO	50	7	10	1
4374		RAMY	12	14	1300	N02	E00	12	14.5		B	FAO	90	26	18	4
4374		BOUL	12	14	1452	N04	W06	12	14.2		B	CSO	50	10	11	3
4374		HOLL	12	14	1548	N02	W04	12	14.4		B	CSO	50	6	9	2
4374	23902	MWIL	12	14	1630	N02	W04	12	14.4	5	(BP)					
4374		LEAR	12	15	0029	N02	W08	12	14.4		B	DSO	70	16	6	3
4374		RAMY	12	15	1251	N02	W15	12	14.4		B	CAO	90	17	7	4
4374		HOLL	12	15	1553	N02	W18	12	14.3		B	CSO	40	7	7	3
4374	23902	MWIL	12	15	1845	N02	W19	12	14.4	4	(AP)					
4374		LEAR	12	16	0050	N02	W23	12	14.3		B	CSO	40	7	5	3
4374		ATHN	12	16	0735	N04	W28	12	14.2		B	DRO	30	3	5	2
4374		MANI	12	16	0810	N03	W26	12	14.4			CSO	80	10	9	2
4374		BOUL	12	16	1514	N04	W33	12	14.2		B	BXO	40	5	4	2
4374		HOLL	12	16	1625	N02	W32	12	14.3		B	DSO	60	11	6	3
4374	23902	MWIL	12	16	1630	N02	W32	12	14.3	4	(AP)					
4374		PALE	12	16	1845	N01	W30	12	14.5		B	CSO	60	10	10	3
4374		LEAR	12	17	0013	N02	W36	12	14.3		B	CSO	40	9	5	4
4374		RAMY	12	17	1225	N02	W44	12	14.2		B	DAO	80	5	3	4
4374		HOLL	12	17	1618	N02	W46	12	14.2		B	CRO	30	3	4	3
4374	23902	MWIL	12	17	1745	N02	W47	12	14.2	4	(AP)					
4374		LEAR	12	18	0056	N03	W51	12	14.2		B	CRO	60	2	3	3
4374		MANI	12	18	0347	N02	W51	12	14.3			CSO	60	6	4	2
4374	23902	MWIL	12	18	1630	N02	W60	12	14.2	4	(AP)					
4374		HOLL	12	18	2034	N03	W62	12	14.2		B	BXO	10	2	3	4
4374		PALE	12	18	2223	N02	W63	12	14.2		B	BXO	20	3	3	2
4374		LEAR	12	19	0112	N02	W65	12	14.2		A	HXO	10	2	3	3
4374		ATHN	12	19	0715	N03	W68	12	14.2		B	BAO	40	2	2	3
4374		RAMY	12	19	1430	N02	W73	12	14.2		B	CRO	20	2	2	3
4374	23902	MWIL	12	19	1615	N02	W73	12	14.2	3	(AP)					

REGIONS OF SUNSPOT ACTIVITY
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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4374		PALE	12	19	1833	N03	W75	12	14.2		A	AXX		1		2
4374		HOLL	12	19	1921	N03	W74	12	14.3		A	AXX		1	1	2
4374		LEAR	12	20	0010	N10	W78	12	14.1		A	AXX	10	1	1	3
0004		RAMY	12	21	1224	N20	W76	12	15.7		A	AXX	30	1	1	4
0004		HOLL	12	21	1525	N22	W78	12	15.6		B	BXO		2	3	2
0005		RAMY	12	10	1313	N05	E73	12	16.0		B	BXO	60	3	3	4
0005	23903	MWIL	12	10	1545	N07	E70	12	15.9	2	(AP)					
0005		HOLL	12	10	1621	N06	E70	12	15.9		A	AXX		1		2
0005		PALE	12	10	1825	N06	E70	12	16.0		A	AXX		1		3
4378		RAMY	12	11	1240	S15	E85	12	18.0		A	HAX	10	1	2	4
4378		LEAR	12	12	0128	S14	E74	12	17.7		A	AXX		2	2	2
4378		RAMY	12	12	1215	S15	E69	12	17.7		A	HAX	60	1	1	4
4378		BOUL	12	12	1452	S14	E67	12	17.7		A	AXX	20	2	4	3
4378	23904	MWIL	12	12	1600	S14	E67	12	17.7	3	(B)					
4378		HOLL	12	12	1638	S15	E71	12	18.1		B	CAO	30	2	8	2
4378		LEAR	12	13	0117	S17	E63	12	17.8		B	CAO	20	3	8	2
4378		RAMY	12	13	1230	S16	E59	12	18.0		B	DAO	80	8	8	4
4378		HOLL	12	13	1550	S16	E57	12	18.0		B	CRO	20	4	8	2
4378		BOUL	12	13	1715	S16	E55	12	17.9		B	CSO	30	3	9	2
4378	23904	MWIL	12	13	2300	S15	E54	12	18.0	5	BP					
4378		LEAR	12	14	0015	S17	E52	12	18.0		B	ESO	20	4	11	3
4378		ATHN	12	14	0830	S13	E48	12	18.0		B	BXO	20	2	1	1
4378		RAMY	12	14	1300	S17	E46	12	18.0		B	CAO	50	6	8	4
4378		BOUL	12	14	1452	S13	E49	12	18.3		A	AXX	10	3	2	3
4378		HOLL	12	14	1548	S16	E46	12	18.1		B	BXO	10	3	9	2
4378	23904	MWIL	12	14	1630	S15	E42	12	17.9	4	(BP)					
4378		LEAR	12	15	0029	S16	E40	12	18.1		B	CSO	20	3	9	3
4378		RAMY	12	15	1251	S15	E33	12	18.0		B	CRO	30	7	7	4
4378		HOLL	12	15	1553	S16	E30	12	17.9		B	BXO	10	3	6	3
4378	23904	MWIL	12	15	1845	S15	E28	12	17.9	3	(B)					
4378		LEAR	12	16	0050	S15	E23	12	17.8		A	AXX	10	3	2	3
4378		MANI	12	16	0810	S16	E21	12	17.9			BXO	10	5	6	2
4378		LEAR	12	17	0013	S15	E13	12	18.0		B	BXO	10	4	6	4
4378		RAMY	12	17	1225	S15	E04	12	17.8		B	BXO	20	2	3	4
4378		LEAR	12	18	0056	S14	W01	12	18.0		B	BXO	10	3	6	3
4378		MANI	12	18	0347	S15	W03	12	17.9			BXO	10	3	5	2
4381		LEAR	12	23	0154	N23	W63	12	18.2		A	AXX		1	1	3
4381		RAMY	12	23	1430	N23	W71	12	18.1		A	HRX	30	1	1	3
4381		HOLL	12	23	1754	N24	W77	12	17.8		A	AXX		1		2
4380		RAMY	12	14	1300	S12	E71	12	19.9		A	HAX	30	2	1	4
4380		BOUL	12	14	1452	S11	E68	12	19.7		A	AXX	20	1	1	3
4380		HOLL	12	14	1548	S11	E70	12	19.9		A	AXX		1		2
4380	23906	MWIL	12	14	1630	S11	E69	12	19.9	3	(AP)					
4380		LEAR	12	15	0029	S11	E64	12	19.8		B	CSO	10	4	4	3
4380		RAMY	12	15	1251	S09	E58	12	19.9		B	DRO	60	6	6	4
4380		HOLL	12	15	1553	S10	E57	12	19.9		B	DRO	20	5	7	3
4380	23906	MWIL	12	15	1845	S10	E55	12	19.9	4	(B)					
4380		LEAR	12	16	0050	S10	E51	12	19.9		B	DAO	70	11	7	3
4380		ATHN	12	16	0735	S10	E48	12	19.9		B	DRO	110	4	9	2
4380		MANI	12	16	0810	S10	E47	12	19.9			DSO	170	13	8	2
4380		BOUL	12	16	1514	S12	E40	12	19.6		B	CSO	80	8	8	2
4380		HOLL	12	16	1625	S10	E42	12	19.8		B	DAO	140	7	8	3
4380	23906	MWIL	12	16	1630	S10	W42	12	13.5	5	(B)					
4380		PALE	12	16	1845	S10	E41	12	19.9		B	DAO	130	8	8	3
4380		LEAR	12	17	0013	S10	E37	12	19.8		B	DSO	210	15	8	4
4380		RAMY	12	17	1225	S10	E30	12	19.8		B	DAO	230	11	9	4
4380		HOLL	12	17	1618	S10	E28	12	19.8		B	DAO	180	11	8	3
4380	23906	MWIL	12	17	1745	S10	E26	12	19.7	5	(B)					
4380		LEAR	12	18	0056	S09	E23	12	19.8		B	DHX	230	14	10	3
4380		MANI	12	18	0347	S10	E21	12	19.7			EAO	190	25	11	2
4380	23906	MWIL	12	18	1630	S10	E13	12	19.7	5	(B)					
4380		BOUL	12	18	1755	S10	E13	12	19.7		B	DSO	200	7	10	2
4380		HOLL	12	18	2034	S10	E11	12	19.7		B	CSO	220	22	11	4
4380		PALE	12	18	2223	S10	E11	12	19.8		B	ESO	140	12	11	2
4380		LEAR	12	19	0112	S10	E08	12	19.7		B	DHO	280	22	11	3
4380		ATHN	12	19	0715	S09	E06	12	19.8		B	EAO	220	16	11	3

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

DECEMBER 1983

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4380		RAMY	12	19	1430	S10	E01	12	19.7		B	EAO	220	28	13	3
4380		BOUL	12	19	1548	S10	W01	12	19.6		B	CSO	110	11	12	2
4380	23906	MWIL	12	19	1615	S11	W03	12	19.5	5	(B)					
4380		PALE	12	19	1833	S10	W01	12	19.7		B	ESO	190	23	11	2
4380		HOLL	12	19	1921	S10	W02	12	19.7		B	ESO	160	15	12	2
4380		LEAR	12	20	0010	S09	W05	12	19.6		B	ESO	160	17	12	3
4380		ATHN	12	20	0636	S07	W08	12	19.7		B	DSO	110	10	10	2
4380		RAMY	12	20	1245	S09	W13	12	19.6		B	EAO	190	27	12	3
4380	23906	MWIL	12	20	1600	S09	W08	12	20.1	5	(BP)					
4380		HOLL	12	20	1711	S12	W15	12	19.6		B	CSO	160	17	13	3
4380		PALE	12	20	1830	S12	W16	12	19.6		B	CSO	140	16	12	3
4380		LEAR	12	21	0015	S08	W20	12	19.5		B	ESO	180	20	12	3
4380		ATHN	12	21	0745	S09	W26	12	19.4		B	CHO	110	7	6	2
4380		RAMY	12	21	1224	S11	W25	12	19.6		BG	EAO	250	28	13	4
4380		HOLL	12	21	1525	S11	W29	12	19.5		B	ESO	150	9	11	2
4380	23906	MWIL	12	21	1545	S10	W32	12	19.3	4	(AP)					
4380		PALE	12	21	2117	S11	W31	12	19.6		B	CSO	110	11	10	2
4380		LEAR	12	22	0010	S07	W33	12	19.5		B	EHO	220	24	13	3
4380		MANI	12	22	0050	S10	W33	12	19.6			ESO	240	9	11	2
4380		RAMY	12	22	1345	S11	W41	12	19.5		BG	DAO	140	16	10	3
4380	23906	MWIL	12	22	1715	S11	W46	12	19.3	3	(AP)					
4380		LEAR	12	23	0154	S11	W46	12	19.6		B	CSO	130	8	10	3
4380		ATHN	12	23	0715	S11	W50	12	19.5		B	EAO	150	5	11	2
4380		RAMY	12	23	1430	S10	W54	12	19.5		BG	EAO	120	11	13	3
4380	23906	MWIL	12	23	1545	S10	W60	12	19.1	3	(AP)					
4380		HOLL	12	23	1754	S10	W58	12	19.4		B	CSO	90	5	11	2
4380		PALE	12	23	1858	S11	W58	12	19.4		B	CSO	90	4	10	3
4380		LEAR	12	24	0048	S12	W60	12	19.5		B	CSO	70	3	9	3
4380		RAMY	12	24	1307	S13	W78	12	18.7		BG	CSO	80	3	9	3
4380		MANI	12	24	2317	S12	W74	12	19.4			CSO	120	3	9	2
4380		LEAR	12	25	0115	S12	W75	12	19.4		B	CSO	70	2	8	3
4380		RAMY	12	25	1311	S12	W85	12	19.1		B	EAO	60	2	11	3
4380		LEAR	12	26	0003	S13	W88	12	19.4		A	HSX		1	1	4
4385		LEAR	12	26	0003	S17	W42	12	22.8		A	AXX	10	4	2	4
4385		ATHN	12	26	0705	S18	W44	12	22.9		A	AXX	10	1	1	2
4385		RAMY	12	26	1248	S18	W49	12	22.8		B	CAO	20	3	2	4
4385		HOLL	12	26	1550	S16	W50	12	22.9		A	AXX		1		3
4385		MANI	12	27	0008	S16	W56	12	22.8			AXX		1		2
4385		LEAR	12	27	0037	S16	W57	12	22.7		A	AXX		1		3
4383		LEAR	12	24	0048	N03	E14	12	25.1		B	BXO	10	2	2	3
4383		ATHN	12	24	0700	N01	E08	12	24.9		B	CSO	30	2	3	1
4383		RAMY	12	24	1307	N02	E07	12	25.1		B	CAO	30	7	3	3
4383		MANI	12	24	2317	N03	E01	12	25.0			CSO	40	5	4	2
4383		LEAR	12	25	0115	N03	E02	12	25.2		B	CSO	30	4	4	3
4383		ATHN	12	25	1115	N02	W04	12	25.2		B	CAO	30	3	3	3
4383		RAMY	12	25	1311	N03	W07	12	25.0		B	DRO	20	3	5	3
4383		LEAR	12	26	0003	N03	W14	12	25.0		B	BXO	10	3	4	4
4383		ATHN	12	26	0705	N02	W16	12	25.1		B	BXO	20	2	4	2
4383		RAMY	12	26	1248	N04	W23	12	24.8		B	CRO	20	3	2	4
4383		MANI	12	27	0008	N03	W27	12	25.0			AXX		1		2
4383		LEAR	12	27	0037	N03	W27	12	25.0		A	AXX		1		3
0006		LEAR	12	26	0003	N13	E26	12	28.0		A	AXX		1		4
0006		RAMY	12	26	1248	N13	E18	12	27.9		A	AXX	10	3	1	4
0006		HOLL	12	26	1550	N13	E17	12	27.9		A	AXX	10	1		3
	23908	MWIL	12	29	1645	N17	W01	12	29.6	2	(AF)					
4384		RAMY	12	25	1311	N13	E71	12	30.9		A	AXX	30	1	1	3
4384		LEAR	12	26	0003	N13	E67	12	31.1		B	BXO		2	5	4
4384		RAMY	12	26	1248	N13	E62	12	31.2		A	AXX	10	2	2	4
4384		HOLL	12	26	1550	N12	E60	12	31.2		B	BXO	10	2	3	3
4384		LEAR	12	29	0045	N13	E26	12	31.0		B	BXO	10	2	7	3
4384		RAMY	12	29	1410	N13	E18	12	30.9		B	DRO	30	3	8	4
4384		BOUL	12	29	1511	N14	E16	12	30.8		B	BXO	20	3	8	2
4384		HOLL	12	29	1608	N12	E17	12	31.0		B	BXO	10	2	8	3
4384	23909	MWIL	12	29	1645	N12	E16	12	30.9	3	(B)					
4384		PALE	12	29	2000	N12	E14	12	30.9		B	BXO	20	5	9	3
4384		LEAR	12	29	2330	N12	E13	12	31.0		B	BXO	10	5	9	3

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

DECEMBER 1983

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10-6 Hemi)	Spot Count	Long. Extent (Deg)	Qual
4384		MANI	12	29	2349	N12	E13	12	31.0			BXO	20	7	9	3
4384		RAMY	12	30	1418	N13	E06	12	31.0		B	BXO	20	3	7	4
4384	23909	MWIL	12	30	1630	N12	E04	12	31.0	4	(B)					
4384		LEAR	12	30	2340	N13	E01	12	31.1		B	BXO	10	3	8	3
4384	23909	MWIL	12	31	1615	N13	W06	12	31.2	3	(AF)					
4384		HOLL	12	31	1640	N14	W07	12	31.2		A	AXX		1		4
4384		LEAR	01	01	0104	N13	W12	12	31.1		B	BXO	10	2	2	3
4384		MANI	01	01	0352	N14	W13	12	31.2			AXX		1		2
4384		HOLL	01	01	1613	N14	W20	12	31.2		B	BXO	20	5	4	3
4384	23909	MWIL	01	01	1700	N13	W22	12	31.0	2	(B)					
4384		BOUL	01	01	1734	N14	W23	12	31.0		B	BXO	20	4	3	3
4384		RAMY	01	01	1753	N13	W23	12	31.0		B	CAO	20	6	3	3
4384		PALE	01	01	2252	N14	W24	12	31.1		B	BXO	10	3	4	3
4384		LEAR	01	02	0053	N14	W26	12	31.1		B	BXO	60	11	6	3
4384		ATHN	01	02	0700	N15	W25	12	31.4		B	BXO	30	8	5	3
4384		RAMY	01	02	1310	N14	W35	12	30.9		B	DAO	90	19	7	3
4384		BOUL	01	02	1542	N16	W36	12	30.9		B	BXO	50	11	9	3
4384		PALE	01	02	1819	N15	W38	12	30.9		B	CRO	50	12	9	3
4384		HOLL	01	02	1831	N14	W38	12	30.9		B	CRO	40	10	8	2
4384	23909	MWIL	01	02	1930	N13	W40	12	30.8	4	(AP)					
4384		LEAR	01	03	0008	N15	W42	12	30.8		B	DSO	160	17	9	2
4384		ATHN	01	03	0700	N15	W44	12	31.0		B	DSO	70	8	9	3
4384		RAMY	01	03	1305	N15	W50	12	30.8		B	DAO	80	11	9	4
4384		BOUL	01	03	1525	N16	W52	12	30.7		B	BXO	30	4	8	2
4384	23909	MWIL	01	03	1630	N13	W51	12	30.8	3	(AP)					
4384		PALE	01	03	1830	N15	W51	12	30.9		B	DSO	90	18	10	3
4384		HOLL	01	03	2146	N14	W55	12	30.8		B	DAI	30	13	8	3
4384		LEAR	01	04	0020	N16	W56	12	30.8		B	DSO	100	18	8	3
4384		ATHN	01	04	0700	N15	W59	12	30.8		B	DSO	90	8	10	2
4384		BOUL	01	04	1535	N16	W64	12	30.8		B	DSO	150	4	10	1
4384	23909	MWIL	01	04	1715	N14	W64	12	30.9	3	(B)					
4384		HOLL	01	04	1809	N16	W66	12	30.8		B	ESO	200	8	11	3
4384		PALE	01	04	1824	N15	W65	12	30.8		B	DSO	210	12	10	3
4384		LEAR	01	05	0004	N16	W66	12	31.0		BD	ESO	320	11	11	3
4384		ATHN	01	05	0700	N16	W73	12	30.8		BD	DAO	140	5	10	2
4384		RAMY	01	05	1450	N15	W78	12	30.7		BD	DAO	250	12	10	2
4384		HOLL	01	05	1542	N16	W78	12	30.7		B	DAO	130	3	9	2
4384		BOUL	01	05	1625	N17	W77	12	30.8		B	CAO	400	2	7	2
4384	23909	MWIL	01	05	1630	N15	W76	12	30.9	4	(B)					
4384		LEAR	01	06	0114	N16	W78	12	31.1		B	DSO	40	3	6	3

(95% Reproduction)

SUDDEN IONOSPHERIC DISTURBANCES

DECEMBER 1983

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Known Flare	NOAA/SESC Region
03	0502	0513	0600		1				1		NF	
04	0500	0505	0515		1				1		NF	
05	0500	0506	0516		1				1		NF	
06	0705	0739	0900	2+	3			1		3	0657	4372
06	0724	0736	0815	1	1				1		0726	X-ray
06	1006	1017	1135	1-	3		1	1		1	1003	X-ray
06	1543	1544	1600	2	3					7	1530	4372
06	1555	1558	1644	2+	1					1	1530	4372
06	1752	1753	1810	1-	3					3	1747	4372
06	1929	1938	2015	1	3			1		3	1929	4372
06	2017	2021	2040	1-	3			1		1	2012	X-ray
06	2224	2242	2327D	1	3			1		2	2225	4372
06	2240	2247	2330	2+	1					1	2226	4372
06	2327	2332	2352	1-	1			1			2319	4372
07	0042	0103	0210	2+	3	1		1	1	2	0042	4372
07	0055	0057	0140	2-	3	1				2	0053	X-ray
07	0548	0556	0620D	1-	3			1	1		0543	X-ray
07	0619	0621	0640	1-	3			1	1		0618	4372
08	1018	1037	1108	1-	1			1			1015	X-ray
09	0140	0150	0200U	1-	1				1		*	
09	0232	0237	0316	1-	3			1	1		0229	4375
09	1852	1858	1915	1	1					1	1910E	4375
10	0501	0506	0515		1				1		NF	
11	1218	1323	1329	1	3		2				*	
13	0145	0151	0221	1-	3			1	1	1	0145	4372
15	0519	0528	0600	1-	1			1			0519	4376
16	1540	1542	1620	2	3	2				7	1538	4380
16	1756	1758	1825	1+	1					1	1756	4380
17	0527	0532	0604	1-	3			1		2	0527	4380
17	0620	0626	0700	1-	3			1		2	*	
17	0738	0748	0830	1	3			1	1	2	0736	4380
17	1222	1226	1315	1	1					1	NF	
17	1401	1403	1411	1-	3	1				4	1400	4380
17	1600	1602	1620	1-	3					8	1556	4380
17	1841	1843	1900	2	3	1				8	1834	4380
17	2031	2032	2100	1+	1					1	2033E	4380
17	2242	2247	0023	1-	3			1		2	NF	
18	1112	1120	1214	1	1		1				*	
19	1144	1145	1200	1-	1					1	NF	
21	1216	1233U	1255	1	1		1				NF	
21	1401	1409U	1454	1	1		1				*	
24	1112	1121U	1151	1	3		2				1117	X-ray
26	0248	0252	0300		1				1		NF	
26	0540	0628	0545	1-	1			1			0536	X-ray
26	0846	0852	0911	1-	1			1			0840	X-ray

SIDs by NOAA/SESC REGION

December 1983

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																															
4372						8	2						1																		
4375									2																						
4376															1																
4380																2	6														
X-Ray						3	2	1																1		2					
No Flare			1	1	1					1							2		1		1					1					
No Flare Patrol									1		1						1	1			1										
No Data																															
Event Totals			1	1	1	11	4	1	3	1	1		1		1	2	9	1	1		2			1		3					

OBSERVATORIES REPORTING FOR DECEMBER 1983*

Ayrshire, Scotland (AY)	SES	Louisville, Kentucky, USA (A26)	SES
Darmstadt, GFR (DA)	SWF	Maui, Hawaii, USA (MI)	SWF
Cleveland, Ohio, USA (A28)	SES	Panska Ves, Czechoslovakia (PU)	SEA, SWF
Edenvale, South Africa (A52)	SES	Patterson, New Jersey, USA (A46)	SES
Glenorchy, Tasmania, Australia (GN)	SES	San Antonio, Texas, USA (SA)	SES
Hiraiso, Japan (HI)	SWF	Sofia, Bulgaria (SF)	SES
Hobart, Tasmania, Australia (TA)	SEA	St. Cloud, Minnesota, USA (SC)	SES
Houston, Texas, USA (A50)	SES	Tavares, Florida, USA (A49)	SES
Huancayo, Peru (HU)	SWF	Tucson, Arizona USA (A09)	SES
Inubo, Japan (IN)	SPA	Trenton, New Jersey, USA (NJ)	SES
Lake Hiawatha, New Jersey, USA (A32)	SES	Upice, Czechoslovakia (UI)	SEA
Latrobe, Pennsylvania, USA (A19)	SES	Valley Cottage, New York, USA (A01)	SES
Lintong, China (LT)	SPA	Vsetin, Czechoslovakia (VS)	SEA

*Observations are not necessarily continuous for each reporting station.

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

DECEMBER 1983

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
01	0736	0841	WEIS										
02	0733	1448	WEIS										
03	0733	1237	WEIS										
	1424	1448	WEIS										
04			LEAR				0128.1	0129.3	2				V
	0735	1447	WEIS										
05	0736	1447	WEIS				1238.6	1238.7	1				III B
06			LEAR				0005.8	0006.1	1				III
			LEAR				0036.0	0036.1	1				III
			LEAR				0303.5	0314.8	1				V
			LEAR				0703.8	0706.5	2				III
			LEAR				0821.3	0822.1	1				III
	0738	1301	WEIS				0821.4	0821.9	2				III GG
			LEAR				0831.3	0831.8	1				III
			LEAR				0839.0	0839.6	1				III
			WEIS				0931.7	0932.4	1				III G
			WEIS				1238.2	1238.5	2				III B
	1308	1446	WEIS				1322.8	1323.8	2				III G
			SGMR				1323.0	1323.3	1				V
			WEIS				1432.4	1433.2	2				III G
			SGMR				1432.5	1433.1	1				V
07			LEAR				0030.0	1040.0	1				CONT
	0739	1446	WEIS				0954.8	0955.4	2				III G
			WEIS				1037.8	1038.3	2				III G
			WEIS				1114.5	1114.7	3				III G
			WEIS				1118.3	1120.3	3				III GG
			WEIS				1121.4	1121.7	1				III G
			WEIS				1122.4	1123.2	2				III GG
			WEIS				1126.3	1131.7	2				III GG
			WEIS				1241.7	1244.3	3				III GG
			WEIS				1246.3	1247.4	2				III G
			WEIS				1248.7	1250.1	3				III GG
			WEIS				1412.2	1412.7	3				III G
			LEAR				2350.3	2356.3	1				III
08			LEAR				0101.8	0102.0	1				III
			LEAR				0127.0	0900.0	1				CONT
	0740	1445	WEIS										
09	0743	1149	WEIS										
	1153	1445	WEIS										
			SGMR				1851.8	1852.0	1				III
			LEAR				2141.1	2141.5	1				III
			LEAR				2159.3	2201.5	1				III
10	1009	1445	WEIS										
11	1038	1445	WEIS										
12	0748	1444	WEIS										
13			PALE				0029.1	0030.6	1				V
			LEAR				0029.3	0030.3	2				III
			LEAR				0102.1	0102.5	2				III
			PALE				0102.1	0102.6	1				III
	0747	0914	WEIS										
	0920	1445	WEIS										
14	0748	1444	WEIS										
15	0750	1445	WEIS										
16	0751	0813	WEIS										
	0819	1445	WEIS										
17			LEAR				0352.5	0353.3	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

DECEMBER 1983

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
17			LEAR				0552.8	0555.3	2				V
			LEAR				0613.6	0618.0	2				V
			LEAR				0744.8	0751.5	1				V
	0802	1445	WEIS										
			PALE				2034.3	2034.8	1				III
			PALE				2132.1	2134.1	2				V
			LEAR				2348.5	2349.0	1				III
18			LEAR				0020.0	0020.5	1				III
			PALE				0020.3	0020.5	1				III
			PALE				0049.1	0052.3	1				V
			LEAR				0049.5	0052.5	2				V
			LEAR				0207.8	0213.5	1				III
			LEAR				0234.6	0235.0	1				III
			LEAR				0304.6	0304.8	1				III
	0752	1446	WEIS				1240.2	1240.9	2				DCIM
			WEIS				1330.4	1330.7	2				IIIG
			PALE				2127.1	2128.1	1				III
			LEAR				2348.5	2349.0	1				III
19			LEAR				0013.8	0018.0	2				III
			PALE				0015.8	0019.0	2				V
			LEAR				0225.8	0226.1	2				III
			LEAR				0555.3	0555.6	1				III
	0752	0815	WEIS										
	0845	1407	WEIS										
	1417	1446	WEIS										
20			LEAR				0432.5	0432.6	1				III
			LEAR				0521.1	0524.3	1				III
	0753	1200	WEIS										
	1354	1445	WEIS										
21			LEAR				0230.1	0230.6	1				III
	0754	1447	WEIS										
			SGMR				1644.0	1645.5	1				III
22	0754	0926	WEIS										
	0930	1447	WEIS										
23	0757	1448	WEIS										
24	1141	1448	WEIS										
25	0755	1243	WEIS										
26	0804	1448	WEIS										
27	0756	1450	WEIS										
			SGMR				1819.0	1819.1	1				V
			SGMR				1820.0	1820.1	1				V
28			LEAR				0944.1	0947.5	2				V
	0756	1431	WEIS				0944.4	0947.2	3				IIIGG
	1434	1450	WEIS										
29	0757	1451	WEIS										
30	0757	1452	WEIS										
31	0857	1359	WEIS										

COSMIC RAY INDICES
(Neutron Monitor)

December 1983

Day	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	PREDIGTSTUHL Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1		6840.8	6506.8	5870.9		1144		
2		6824.7	6512.7	5872.0		1147		
3		6841.6	6525.0	5889.0		1150		
4		6882.4	6560.6	5912.1		1153		
5		6844.1	6498.4	5869.2		1148		
6		6802.6	6447.8	5847.8		1143		
7		6795.5	6453.1	5832.8		1143		
8		6822.3	6486.2	5849.9		1130		
9		6810.8	6472.5	5862.9		1123		
10		6751.1	6404.5	5803.4		1118		
11		6765.0	6410.0	5779.8		1114		
12		6736.7	6355.3	5766.3		1112		
13		6736.4	6374.3	5762.0		1114		
14		6769.3	6410.4	5790.0		1124		
15		6801.0	6412.0	5801.9		1133		
16		6757.0	6414.2	5807.1		1130		
17		6783.9	6442.4	5826.0		1135		
18		6815.8	6476.0	5844.2		1136		
19		6801.8	6464.5	5841.6		1134		
20		6807.9	6500.0	5840.8		1132		
21		6782.8	6508.5	5867.8		1136		
22		6868.5	6496.3	5885.0		1140		
23		6852.5	6530.6	5894.3		1141		
24		6876.0	6567.3	5883.2		1139		
25		6913.0	6576.5	5875.9		1139		
26		6956.1	6561.5	5895.4		1149		
27		6918.2	6525.1	5869.6		1150		
28		6908.1	6522.0	5867.7		1148		
29		6938.9	6559.0	5916.7		1158		
30		6873.0	6509.0	5872.1		1153		
31		6800.0	6469.2	5830.1		1149		
Mean		6828.4	6482.3	5849.3		1138		

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

GEOMAGNETIC ACTIVITY INDICES

December 1983

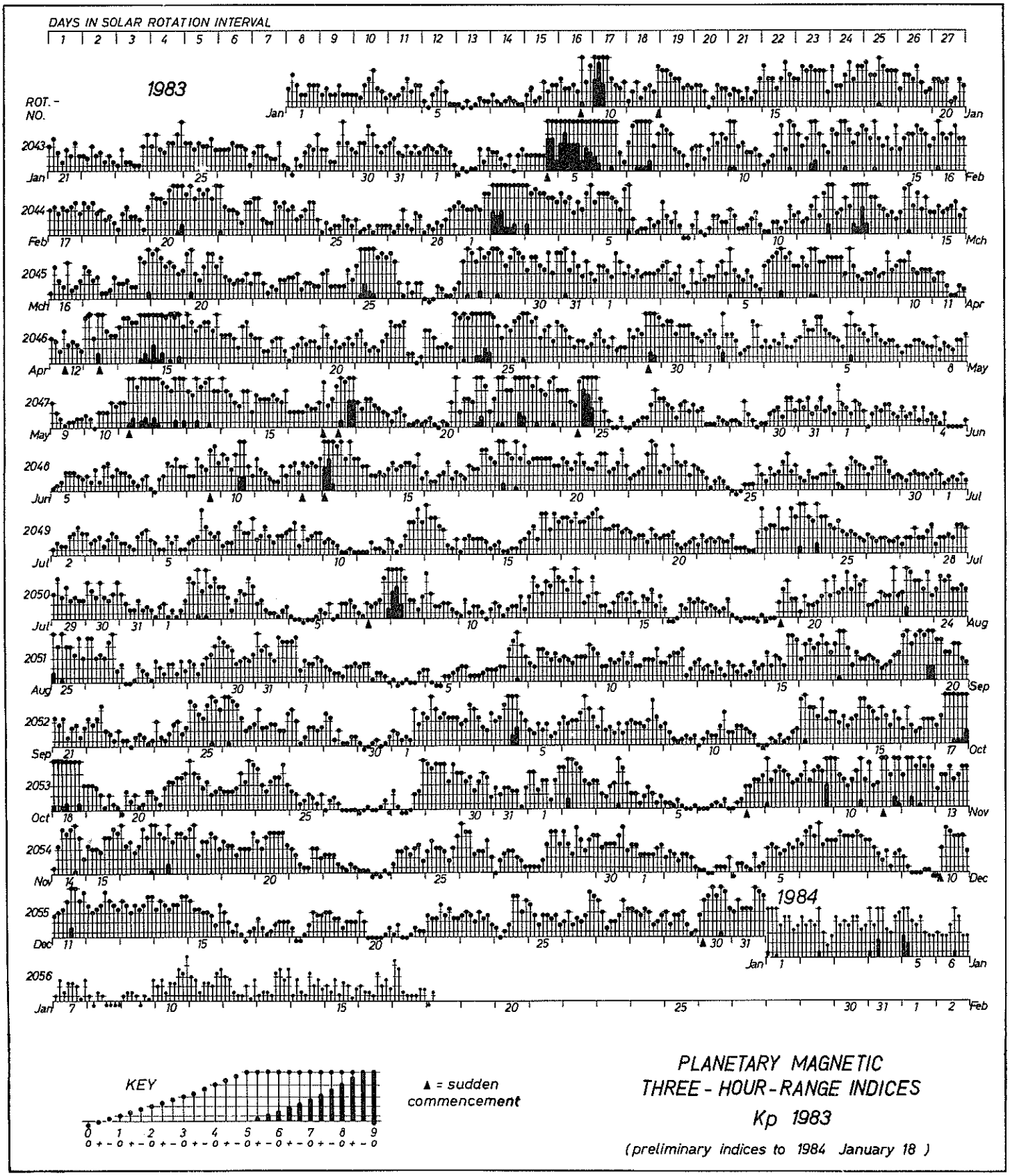
Day		Kp Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km Three-Hourly Indices 1	2	3	4	5	6	7	8	Am	aa Provisional N	S	M	
1		3+	3+	2+	2+	2+	2+	3	3+	22+	13	0.8	3-	2+	3-	2+	2	3-	3+	3	23	29	19	23	27	
2	Q9A	2	3-	2+	2-	2+	2+	2	1	16+	8	0.4	2	2	2	2-	3-	3-	2	1+	16	15	19	16	19	
3	Q3	1-	1-	0+	0+	1	1	1	2	7	4	0.1	1	1-	0+	0+	2-	1+	1	2-	7	9	7	4	12	CC
4	Q4	0	1+	1+	1	1-	2+	1	1+	9	4	0.2	0	1	1+	1-	1	2+	2-	2	9	8	12	9	12	C
5		3	3+	3	2+	3-	3+	3	4-	24+	16	0.9	3-	3	3	3+	3	4-	4-	3+	33	32	27	25	34	
6	D3	3+	4+	5-	4	5	3+	4-	4-	32	28	1.2	3	3+	3	4+	5-	3	4	3+	45	62	36	40	59	
7	D5	4-	4+	4	4	4	4+	4	4-	32	27	1.2	3	4-	3+	4-	4-	4	4+	4-	46	48	36	38	46	
8		4-	3	2+	2-	3-	1	2+	3-	19+	11	0.6	3+	2+	2+	2	3	2-	3-	3+	23	20	14	16	19	
9	Q1	2	1	0+	0+	0+	1-	1-	0	5+	3	0.1	2+	2-	1-	1-	1-	1-	1+	1-	8	4	7	8	4	C
10		0	3	5-	4+	4	4	4	3-	27-	22	1.1	1-	3	4-	3+	4-	4-	4+	3-	38	47	39	38	48	
11	D2	3-	3	3+	4	6	5	4	5-	33-	33	1.3	3-	2+	3+	4	6-	5-	4	4-	56	59	44	31	72	
12		4-	3	3+	4-	5-	4	4-	3+	29+	23	1.1	3+	3-	3-	4-	5-	4-	4-	3	40	46	34	25	55	
13		4	4-	3	4-	3+	4-	4+	4+	30	24	1.1	4-	3	3-	4-	3+	4-	4	4	43	45	37	32	50	
14		3+	4	4-	3+	4-	4-	4+	4+	30+	24	1.2	3	3	3+	4-	3+	3	5-	4+	44	47	39	41	45	
15		4	3+	3+	3	3	3-	2-	4-	25-	17	0.9	4-	3	3	3	3	2+	2-	3	27	31	21	27	25	
16	Q6K	3	2	1	2-	1-	0	1	1+	11-	6	0.2	2+	1+	1	1+	1-	0+	1+	1+	8	11	7	11	8	CK
17	Q7	2+	1+	1-	1	2-	2	2	2	13	6	0.3	1+	1+	0+	1+	2	2	2	2	11	11	11	9	13	CC
18	Q8A	1+	0	0	1-	2-	3	3-	3-	12	7	0.3	1+	0+	0	1-	2+	3	3-	3	16	16	12	4	24	
19		3	3	2+	2+	1+	2	2	2	18	9	0.5	3	3-	3-	3-	2-	2+	2+	2-	20	19	17	21	16	
20	Q5K	3	2	0+	0+	0+	0+	1-	1+	8+	5	0.2	3-	2-	0+	1-	0+	0+	1-	1+	8	11	4	10	6	CC
21	Q2	1-	2-	0+	0+	1-	1+	1	1	7	4	0.1	1	1-	0+	0+	1-	2-	1+	1+	6	7	4	4	8	CK
22		3-	2+	2+	4-	3-	3+	2+	2+	22-	12	0.7	3-	3-	2+	4-	3-	3+	2+	2+	26	25	21	21	25	
23		3-	3	3-	2	3	2+	3-	2-	20	11	0.6	2+	3-	2+	2-	3	2	3	1+	28	24	17	18	23	
24		1+	0+	1	2-	4+	4+	3	4	20	15	0.9	1+	1-	2-	2+	4+	4	3	3+	30	34	28	11	51	
25		4-	3-	2-	3-	3-	2+	3-	2-	20	11	0.7	3	2	2-	3-	3	2+	3-	2-	21	19	15	16	19	
26		2	3	2-	2+	2	3-	5-	4+	23-	16	0.9	2+	2+	2+	2+	2+	3-	4	4	28	42	21	23	41	
27		4	3	1+	2	2	3-	4	3+	22+	15	0.8	4	2+	1+	2	3-	3-	4-	3	27	29	17	15	32	
28		3+	3	3-	3+	3	2-	2	3-	22-	13	0.7	3-	2	3-	3	3+	2+	2	2+	22	25	19	26	19	
29	Q10A	3	2-	3-	3-	3	2-	1-	1	16+	9	0.5	3-	2-	3	3-	3	2-	1+	1	18	17	19	22	15	
30	D1	3-	4	4+	5	4+	5+	5-	3+	34-	33	1.3	2	3+	4+	4	4+	5+	4+	3	56	64	42	38	68	
31	D4	3	4	3+	3+	3+	5	5-	4+	31	27	1.2	3-	3+	3	3	3	5	4+	4	46	50	50	37	64	
Mean											15	0.71									26.4	29.3	22.6	26.0		

Day	Kn Three-Hourly Indices 1	2	3	4	5	6	7	8	An	Ks Three-Hourly Indices 1	2	3	4	5	6	7	8	As	S_a	Prov R_I	R_a	R_s	IMF	
1	3-	3-	2	2+	2+	2+	3+	3	23	3	2+	3	2	2	3-	3+	3	24	90.5	29	21	36	T	-
2	2	2	2	2	3-	2+	2	1	15	2	2+	2+	2-	3-	3-	2+	2-	16	88.9	23	25	34	T	-
3	1-	0+	0	0	1+	1+	1	2	6	1	1-	1-	0+	2-	1	1	2-	7	88.5	17	13	34	T	-
4	0	1	1+	0+	1	3-	2	2-	9	0+	1	1	1	1	2	1	2+	8	91.9	17	8	37	T	-
5	3-	3-	3+	3	3	4-	3+	4-	35	3	3	3-	3+	3-	3+	4-	3	32	92.0	21	19	37	A	-
6	3	4-	3+	5-	5	3+	4+	3+	53	2+	3+	3	4	4-	3-	4-	3+	38	97.1*	35	40	43	A	-
7	3	4	4-	4	4	4	5-	4	52	3	3	3	4-	4-	3	4-	3+	49	98.6	41	42	44	A	-
8	4-	2+	2+	2	3+	1+	3-	3	25	3-	2+	2	2	3-	2	2+	3+	22	98.3	54	49	44	A	-
9	2+	1+	0+	0	0+	1-	1-	0	5	3-	2	1+	1+	1	1	2	1+	12	108.2	68	69	55	TA	-
10	0	3	4	3+	4	4-	4+	2+	39	1+	3	3+	4-	4-	4-	4+	3	37	108.0	82	85	55	A	-
11	3-	3-	3+	4-	6	5	4	4	61	3-	2+	4-	4+	5+	4	4	3+	51	101.7*	76	76	48	AT	-
12	3+	3-	3-	4-	5-	4	4-	3	43	3+	2+	3	3+	5-	3+	3+	3	38	101.1	66	67	47	T	-
13	4-	3+	3-	4-	4-	3+	4	4	43	3+	3	3	4-	3	4-	4	4+	43	100.8	66	61	47	T	-
14	3	3	3+	4-	3	3	4	4-	38	3+	3	3+	4-	4-	3+	5-	5	49	96.5	52	51	42	T	-
15	3+	3	4-	3+	3+	2+	2-	3	30	4-	3-	3-	3-	3-	2	2-	3-	24	92.2	50	50	38	A	-
16	3-	1+	1	1+	1-	0+	1+	1+	9	2	1+	1-	1	1-	0+	1+	1+	8	93.5*	35	37	39	T	-
17	1+	1+	0	1	2	2	2+	2-	11	1+	1+	0+	2-	2-	2	2-	2+	11	92.0	34	42	37	T	-
18	1	0+	0	0+	2+	3	3-	2+	13	1+	1-	0	1	2+	3	3	3+	17	90.1	36	36	35	T	-
19	3-	3-	2+	2+	1+	2	2+	2-	17	3	3-	3-	3-	2	3-	2+	2	22	86.2	27	34	31	T	-
20	2+	2-	0	0+	0+	0+	1	1+	7	3-	2-	0+	1	0+	0+	1-	2-	8	83.6	25	27	28	T	-
21	1-	1	0	0+	1	2-	1	1	5	2-	0+	1-	1-	0+	1+	1+	1+	7	82.3	25	24	27	T	-
22	3-	2+	3-	4	3-	4-	3-	2+	28	2+	3-	2	3+	2	3	2	3-	22	82.9	15	16	28	A	-
23	2+	3-	3-	2	3+	2	3	1+	21	3-	2+	2	2-	3-	2+	3	1+	19	83.0	19	17	28	A	-
24	1+	0+	1+	2	4+	4+	3+	4-	31	1	1	2-	3-	4+	4	3	3+	28	83.1	17	23	28	A	-
25	3+	2	2-	3-	3+	3-	3	2	24	3-	2	2-	2	3-	2+	3-	2-	17	82.4*	21	23	27	A	-
26	3-	2+	2-	2+	2+	3-	4	4-	28	2-	3-	3-	2+	2+	3-	4	4+	29	82.9	27	20	28	AT	-
27	4-	2+	1+	2	2+	3-	4-	3	26	4	2+	1+	2	3-	3-	4-	3+	28	83.5	12	3	28	T	-
28	3-	2	3-	3-	3+	2	2	2	21	3-	2	3	3	3+	2+	2	2+	23	80.7	10	1	25	-	-
29	3	1+	3	3-	3+	2	1	1	19	3-	2-	3	3-	3-	2-	1+	1+	18	81.1	11	6	26	-	-
30	2	3+	4	4+	4	6-	4+	3	57	2-	4-	4+	4	5-	5	4+	3	54	81.3	13	11	26	-	-
31	3-	3+	3	3	3	5	4+	4	46	3-	3+	3	3	3	5-	5-	4+	47	83.8	10	6	29	-	-
Mean									27.1									25.8	90.5	33.4	32.3	35.7		

DAILY AVERAGE INDICES Ap

DAY	1983 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	11	11	21	20	24	13	6	5	17	11	19	13
2	7	5	86	16	14	8	9	33	6	23	35	8
3	11	7	36	15	10	6	8	17	6	18	20	4
4	9	59	26	16	26	3	8	5	3	43	7	4
5	6	143	28	17	24	6	6	2	3	8	3	16
6	3	47	12	35	14	11	14	6	5	22	3	28
7	4	43	7	34	8	6	14	18	22	11	12	27
8	9	18	6	25	11	12	10	62	15	16	27	11
9	20	18	8	19	6	20	12	11	16	5	43	3
10	78	23	7	22	8	37	5	5	12	7	29	22
11	11	24	24	8	50	10	4	6	12	6	40	33
12	18	33	53	11	52	16	16	26	13	4	44	23
13	8	35	24	36	37	70	19	25	7	30	24	24
14	8	28	26	45	23	12	6	9	6	22	28	24
15	22	25	15	59	20	17	5	10	21	19	23	17
16	25	30	11	33	9	8	21	4	26	13	30	6
17	25	16	11	19	64	17	26	6	25	48	38	6
18	32	14	20	11	12	37	20	2	11	51	27	7
19	17	10	28	9	5	20	9	9	54	8	18	9
20	14	41	32	13	10	17	7	11	22	6	26	5
21	12	36	12	12	29	20	6	25	11	16	9	4
22	8	21	9	17	51	20	10	15	13	19	6	12
23	10	17	9	17	38	17	23	32	4	21	2	11
24	22	14	10	61	77	6	40	23	9	22	12	15
25	16	6	50	32	11	5	12	36	33	6	16	11
26	12	5	13	28	10	13	7	26	28	3	22	16
27	10	7	3	14	11	8	10	5	13	2	7	15
28	10	8	37	12	5	12	11	8	10	10	15	13
29	16		40	39	5	13	15	17	8	34	23	9
30	19		27	26	9	7	18	18	3	19	22	33
31	13		28		11		7	29		10		27
MEAN	16	27	23	24	22	16	12	16	14	17	21	15

GEOMAGNETIC ACTIVITY INDICES



HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

DECEMBER 1983

(Time-UT)

(Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-24	-25	-25	-24	-21	-19	-21	-20	-17	-12	-13	-12	-11	-6	-5	-6	-5	-8	-12	-12	-10	-6	-4	-8
2	-13	-15	-14	-11	-15	-12	-13	-13	-8	-3	-2	-2	-6	-9	-11	-11	-10	-8	-12	-12	-13	-10	-8	-11
3	-8	-8	-9	-9	-10	-7	-8	-8	-7	-5	-5	-4	-4	-7	-7	-4	-3	-1	-2	-5	-4	-4	0	1
4	1	1	-3	-4	-8	-8	-7	-5	-2	-1	0	1	3	4	4	3	1	-2	0	4	10	15	18	19
5	14	12	8	-5	-5	-5	-6	-2	-6	-11	-10	-3	6	5	4	0	1	-2	-10	-11	-9	-13	-12	-13
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11	-34	-35	-34	-34	-32	-29	-21	-19	-11	-6	-3	-1	-12	-10	-27	-42	-31	-23	-26	-41	-50	-53	-51	-48
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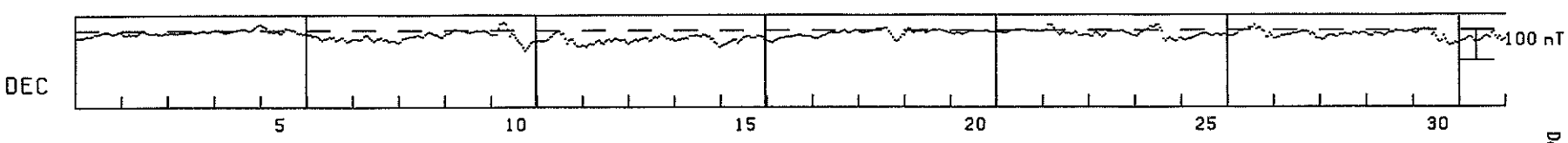

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Dec 83

P R I N C I P A L M A G N E T I C S T O R M S

DECEMBER 1983

Sta	Geomag Lat	Commencement Day	Commencement Time (UT)	Type	SC Amplitudes D (Min)	SC Amplitudes H (Gamma)	SC Amplitudes Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	Ranges H (Gamma)	Ranges Z (Gamma)	End Day	End Hour (UT)
HYB	07.6N	04	2200	..	..	..	..	06(5) 07(5)	5	4	130	18	07	23
COL	64.6N	05	06--	..	..	..	..	06(4)	7	166	1550	880	08	15
FRD	49.6N	05	----	..	..	..	..	06(5) 07(2,7) 08(1)	5	19	109	35	08	--
JAI	17.3N	06	09--	..	..	..	..			5	82	9	07	22
SHL	14.7N	06	09--	..	..	..	..			4	72	10	07	22
ABG	09.5N	06	09--	..	..	..	..	06(5)	5	4	84	23	07	22
ANN	01.5N	06	09--	..	..	..	..			4	83	41	07	22
TRD	01.1S	06	09--	..	..	..	..			3	93	66	07	22
COL	64.6N	10	0313	SC*	3	32	6	11(5)	8	271	2550	1060	15	19
SIT	60.0N	10	0815	SC*	- 3	22 *	- 7	11(5)	7	--	--	430	12	22
FRD	49.6N	10	0314	SC	1	13	- 3	11(5)	6	22	177	38	15	--
BJI	28.5N	10	0313	SC	0.8	15	1	10(3)	6	5	125	14	10	22
HON	21.1N	10	0312	SC		8	5	11(2,3,4,7)	3	3	64	5	11	04
JAI	17.3N	10	0312	SC	- .7	19	- 4			5	175	25	10	21
SHL	14.7N	10	0312	SC	- .3	16	3			4	144	29	10	21
ABG	09.5N	10	0312	SC	- .6	20	- 6	10(3,5,7)	5	5	194	25	10	21
HYB	07.6N	10	0313	SC	- 0.4	21	- 1	10(5,6)	6	4	208	28	11	01
GUA	04.0N	10	0313	..	..	..	..	10(2)	5	--	140	30	10	21
ANN	01.5N	10	0312	SC	- 1.0	20	8			4	212	62	10	21
TRD	01.1S	10	0312	SC	- .2	22	- 20			3	228	118	10	21
PMG	18.6S	10	0312	SC	0.1	21	20	11(5,6)	5	6	150	70	12	00
CNB	43.9S	10	0312	SC	- 0.6	20	6	11(5)	5	18	138	44	11	16
KGL	56.5S	10	0312	SC	- 1	8	3	10(7)	6	39	230	160	11	03
WIT	54.2N	11	0840	..	..	..	..	11(5)	6	33	207	58	12	02
BJI	28.5N	11	0852	SC	0.8	12		11(5)	5	14	106	16	15	19
JAI	17.3N	11	0554	SC	- .6	10	- 3			7	144	29	12	23
SHL	14.7N	11	0554	SC	- .2	6	0			6	105	18	12	23
ABG	09.5N	11	0554	SC	- .4	7	- 3	11(5)	6	7	146	19	12	23
HYB	07.6N	11	0500	..	..	..	..	11(5,6)	6	5	152	16	14	23
GUA	04.0N	11	0851	..	..	..	..	11(5)	5	--	70	30	12	04
ANN	01.5N	11	0554	SC	- .7	20	3			5	161	46	12	23
TRD	01.1S	11	0554	SC	0	28	- 29			3	173	125	12	23
HER	33.7S	11	08--	..	..	..	..	11(4,5,6)	5	34	135	156	12	03
GNA	43.2S	11	05--	..	..	..	..	11(5)	6	24	120	120	12	04
KGL	56.5S	11	0519	SC	2	- 4		11(5)	6	50	270	185	12	06
HER	33.7S	13	15--	..	..	..	..	13(8) 14(7)	5	16	69	66	15	02
HYB	07.6N	22	0130	..	..	..	..	22(4)	4	3	86	15	23	21
HYB	07.6N	24	0400	..	..	..	..	24(5,6)	6	4	145	25	25	20
GUA	04.0N	24	0630	..	..	..	..	24(5)	5	--	80	10	24	21
HYB	07.6N	26	0500	..	..	..	..	26(7)	4	3	72	23	28	15
HER	33.7S	26	20--	..	..	..	..	26(7)	5	14	55	63	27	01
COL	64.6N	30	0346	SC*	8	155	30	30(4,5)	7	290	1920	960	02	17
SIT	60.0N	30	0348	SC*	5 *	40 *	4 *	30(5)	7	--	--	--	02	16
WIT	54.2N	30	0347	SC*	- 3 *	7	0	30(6) 31(6,7)	6	33	162	74	01	05
FRD	49.6N	30	0347	SC	1	33	- 4	30(3,4,6) 01(1)	5	26	152	41	02	--
BJI	28.5N	30	0347	SC	1	21		31(6)	6	7	135	20	02	17
HON	21.1N	30	0348	SC		19	6	30(2,3,4,6)	4	5	70	11	31	08
JAI	17.3N	30	0345	SC	- .6	21	- 5			6	129	18	01	01
SHL	14.7N	30	0345	SC						4	113	19	01	01
ABG	09.5N	30	0345	SC	- .7	25	- 7	30(7) 31(6,7)	5	6	128	26	01	01
HYB	07.6N	30	0348	SC	- .4	28	- 3	30(5)	6	5	143	26	02	15
GUA	04.0N	30	0347	SC		5	- 2	30(6)	5	--	120	30	30	21
TRD	01.1S	30	0345	SC	- .4	49	- 50			5	159	106	01	01
PMG	18.6S	30	0347	SC	0.6	31	31	31(6)	5	6	120	80	01	00
HER	33.7S	30	0346	SC	2	16	16	30(6)	5	26	110	94	31	22
GNA	43.2S	30	0347	SC*	- 3.4*	16 *	- 10 *	30(6,7)31(6,7,8)02(5)	5	19	120	120	02	15
KGL	56.5S	30	0320	SC	- 4	- 8	- 2	30(6)	6	41	225	200	31	03
GUA	04.0N	31	1106	..	..	..	..	31(6)	5	--	60	10	31	23

RADIO PROPAGATION QUALITY INDICES

DECEMBER 1983

Day	Tokyo	New York	Teheran	Oslo	Bracknell
1	2.7	3.6	3.6	4.4	4.5
2	4.6	5.2	6.2	3.5	4.4
3	4.4	4.9	5.3	3.9	5.6
4	4.5	6.0	5.6	4.1	4.7
5	5.4	5.3	7.4	4.3	6.5
6	6.0	5.2	5.5	5.3	6.5
7	5.8	4.6	5.2	4.8	5.1
8	5.9	4.7	5.6	4.6	5.1
9	5.7	5.6	5.6	6.7	6.1
10	6.6	6.2	6.8	6.6	7.1
11	7.4	6.2	7.1	6.7	7.3
12	6.1	5.9	6.3	5.5	5.2
13	5.6	5.0	5.4	6.7	5.3
14	6.1	4.1	6.8	6.6	6.2
15	5.4	4.1	5.0	5.3	4.2
16	5.2	5.1	4.8	5.4	5.3
17	4.2	4.2	4.0	5.4	5.1
18	5.4	5.5	6.6	5.3	4.7
19	5.6	4.9	7.2	5.3	4.9
20	6.2	5.6	5.4	6.0	4.1
21	5.8	5.6	6.7	5.9	5.8
22	6.1	5.6	6.9	6.2	6.1
23	7.9	5.3	6.1	6.2	5.7
24	5.3	5.3	6.0	5.5	4.5
25	5.3	6.0	4.5	4.8	4.8
26	5.6	4.9	5.5	6.1	5.5
27	5.0	5.7	4.5	4.8	4.2
28	5.0	5.0	4.5	4.7	4.5
29	5.0	5.3	5.1	4.9	4.9
30	5.3	5.3	4.5	5.8	4.1
31	5.3	5.0	4.4	4.8	3.1
Mean	5.5	5.2	5.6	5.4	5.2

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 preceeding 27 days (1 sun rotation).

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

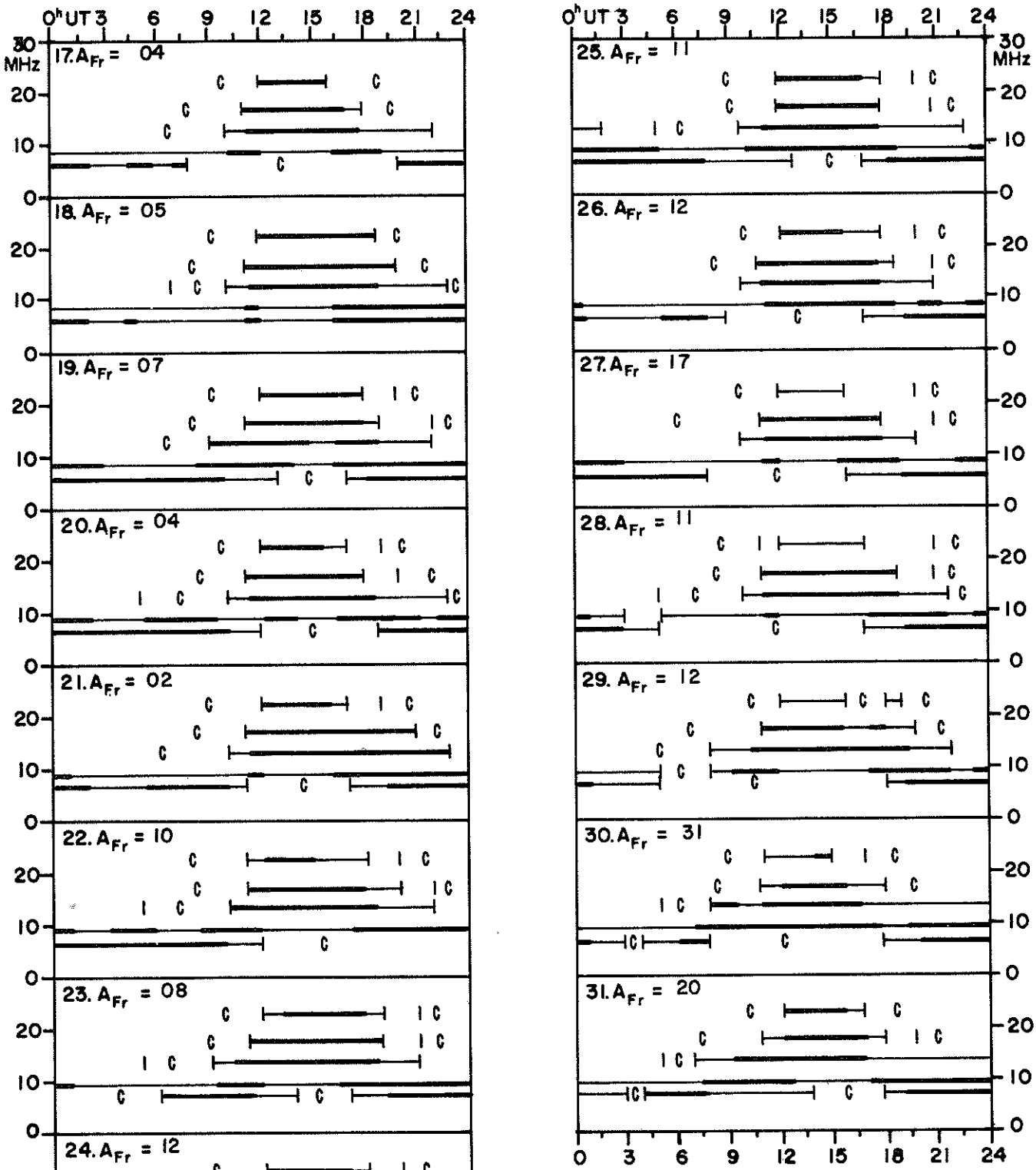
The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

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

TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

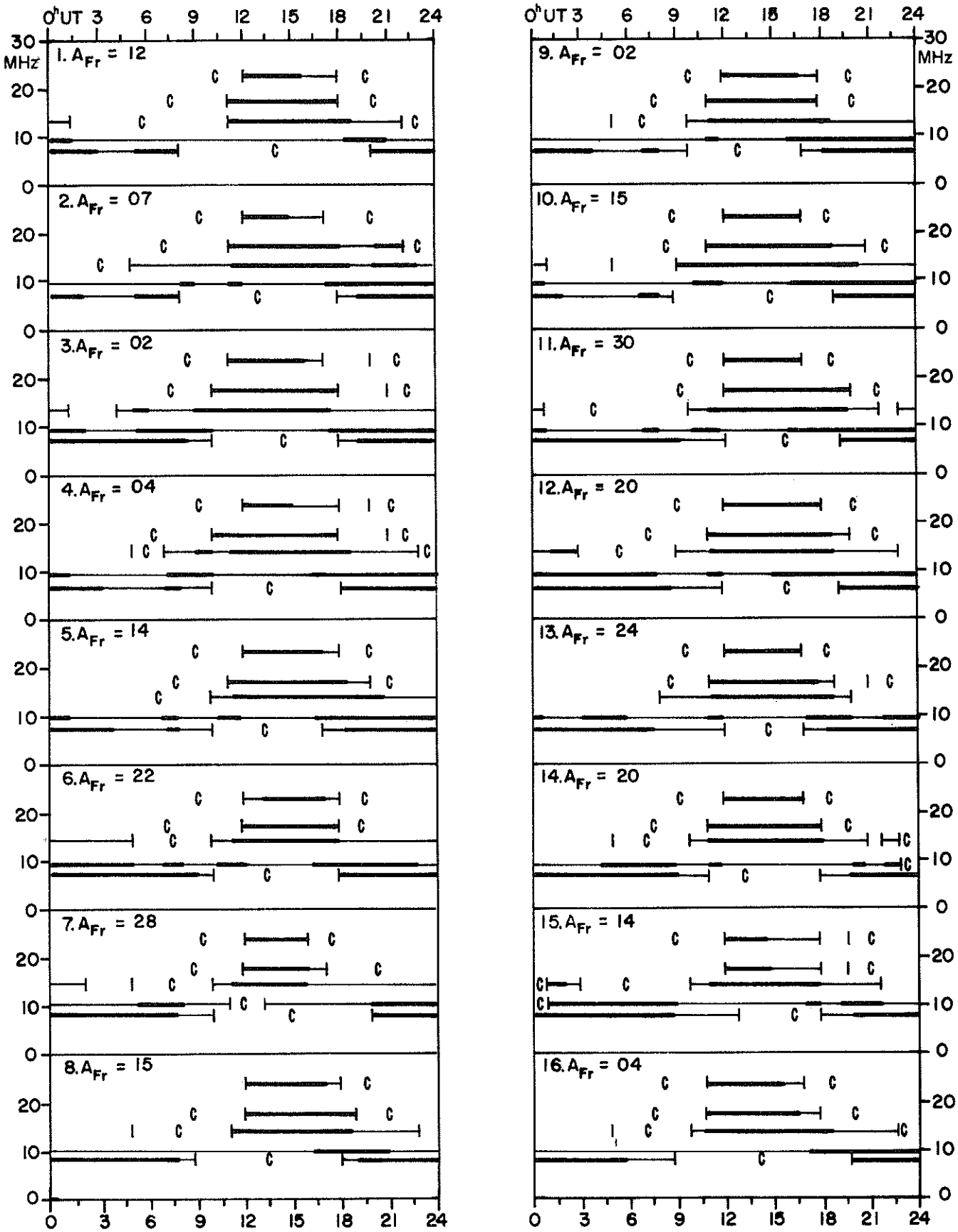
DECEMBER 1983



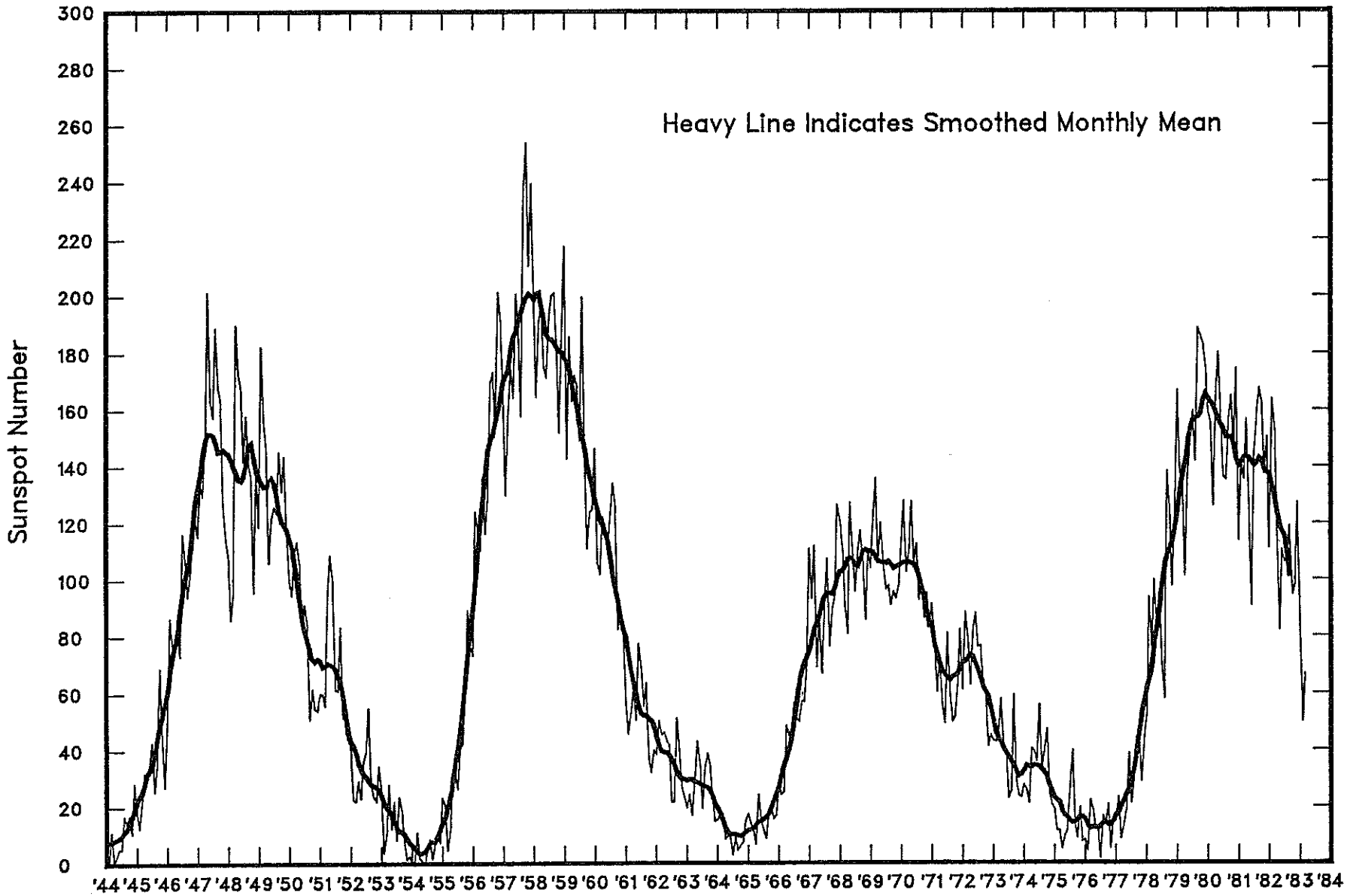
Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Lüchow New York circuit are represented above. Heavy solid lines represent field strengths ≥ -12 dB above 1μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB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

TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

DECEMBER 1983



MONTHLY MEAN SUNSPOT NUMBERS
January 1944 – March 1983



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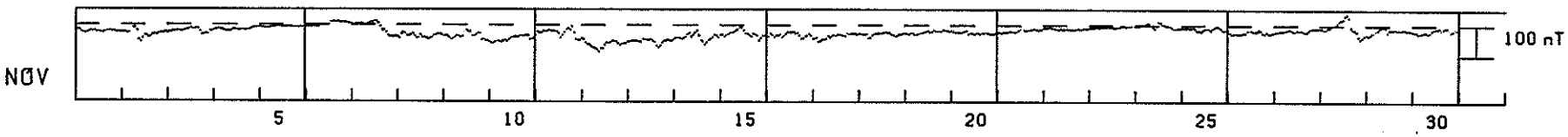
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

NOVEMBER 1983

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-16	-16	-23	-27	-27	-25	-23	-20	-21	-19	-24	-23	-25	-27	-23	-21	-20	-19	-22	-21	-24	-24	-25	-25
2	-24	-25	-28	-26	1	-10	-11	-20	-49	-56	-44	-34	-36	-41	-38	-33	-31	-32	-30	-27	-27	-26	-25	-27
3	-24	-23	-20	-21	-20	-20	-22	-20	-18	-15	-14	-11	-14	-13	-11	-13	-22	-33	-31	-29	-31	-20	-20	-17
4	-16	-14	-13	-15	-18	-20	-21	-22	-20	-15	-15	-17	-18	-17	-16	-17	-17	-16	-14	-11	-9	-9	-8	-8
5	-9	-10	-11	-11	-9	-8	-7	-6	-4	-5	-5	-5	-7	-7	-6	-6	-8	-7	-8	-8	-8	-7	-5	-6
6	-6	-5	-5	-5	-6	-6	-5	-1	-1	-1	0	2	10	10	11	10	10	7	9	8	7	5	5	2
7	1	3	4	4	5	1	-1	2	5	9	9	13	11	6	-5	-17	-17	-24	-35	-38	-38	-39	-37	-38
8	-43	-30	-25	-29	-35	-36	-32	-28	-37	-44	-40	-33	-40	-42	-44	-46	-43	-39	-34	-33	-30	-30	-32	-37
9	-36	-36	-41	-47	-44	-39	-36	-37	-40	-37	-24	-17	-22	-23	-35	-37	-32	-27	-28	-48	-46	-51	-51	-56
10	-60	-60	-55	-52	-53	-57	-51	-48	-53	-47	-42	-39	-40	-38	-38	-36	-36	-36	-35	-35	-46	-45	-41	-32
11	-22	-26	-26	-20	-21	-20	-16	-20	-20	-19	-22	-28	-42	-33	-24	-14	-11	-16	-5	-26	-47	-49	-49	-43
12	-46	-57	-63	-64	-70	-74	-76	-80	-87	-76	-76	-65	-58	-60	-57	-51	-52	-54	-60	-65	-62	-61	-60	-54
13	-53	-51	-53	-51	-52	-54	-56	-46	-47	-47	-50	-46	-52	-56	-67	-73	-67	-57	-50	-49	-47	-51	-49	-45
14	-41	-40	-41	-44	-44	-38	-30	-26	-38	-32	-25	-18	-35	-49	-55	-63	-57	-48	-44	-38	-32	-35	-40	-33
15	-32	-38	-33	-30	-25	-25	-23	-17	-14	-7	-9	-17	-28	-29	-33	-37	-29	-31	-35	-50	-41	-35	-35	-41
16	-37	-28	-33	-39	-34	-35	-31	-39	-35	-29	-23	-23	-24	-22	-28	-25	-35	-44	-42	-36	-35	-30	-35	-44
17	-43	-40	-54	-51	-47	-45	-44	-35	-40	-36	-32	-35	-30	-32	-33	-35	-37	-27	-30	-27	-28	-28	-31	-29
18	-29	-30	-31	-29	-42	-40	-33	-29	-28	-27	-26	-27	-25	-23	-24	-26	-31	-33	-37	-34	-30	-31	-27	-27
19	-28	-31	-26	-26	-31	-31	-28	-26	-25	-23	-21	-19	-24	-21	-16	-20	-19	-20	-20	-14	-17	-19	-20	-19
20	-19	-24	-23	-25	-25	-23	-20	-18	-29	-25	-28	-30	-26	-27	-29	-26	-27	-25	-27	-29	-30	-30	-27	-24
21	-24	-27	-23	-23	-23	-22	-21	-22	-24	-21	-17	-11	-13	-16	-18	-16	-15	-14	-12	-14	-16	-15	-13	-10
22	-9	-9	-7	-9	-10	-12	-13	-14	-12	-13	-13	-12	-13	-14	-15	-15	-13	-12	-13	-13	-12	-11	-11	-9
23	-7	-8	-8	-7	-7	-7	-5	-6	-6	-5	-5	-6	-9	-8	-6	-4	-2	-2	-4	-4	-3	-2	-3	-3
24	-3	-2	0	2	3	6	5	-1	-6	-11	-1	11	8	2	1	-2	-3	-2	-6	-12	-12	-10	-11	-9
25	-9	-9	-8	-10	-9	-9	-11	-18	-18	-22	-16	-12	-11	-11	-15	-11	-6	-3	-5	-10	-16	-17	-15	-17
26	-25	-30	-29	-26	-29	-30	-29	-25	-26	-18	-18	-16	-20	-22	-19	-14	-17	-26	-28	-22	-26	-28	-25	-24
27	-22	-21	-19	-19	-18	-17	-14	-12	-16	-20	-20	-17	-17	-16	-19	-23	-22	-16	-11	-11	-10	-10	-10	-10
28	-10	-14	-13	-9	-8	-2	1	3	7	14	17	20	32	37	26	-6	-13	-15	-20	-37	-44	-39	-34	-31
29	-35	-31	-26	-24	-17	-14	-9	-5	-4	-6	-22	-14	-14	-14	-12	-15	-15	-14	-14	-13	-17	-16	-17	-20
30	-22	-21	-27	-26	-25	-22	-23	-26	-23	-16	-12	-10	-11	-8	-15	-11	-8	-7	-13	-21	-17	-12	-15	-16



MAGNETIC STORM SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS
(PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS)

NOVEMBER 1983

Storm Sudden Commencements (ssc)			Solar Flare Effects (sfe)			
Day	Time	Quality: Station Group*	Day	Begin	End	Station
07	1140 UT	A: COI MPO KGL B: SOD DOM AQU LNP GNA AMS C: WIT NGK CLF GCK MMB EBR SPT KAK HTY KNY CZT	03	2041	2104 UT	SPT
			05	0412	0426 UT	HTY
			05	0839	0848 UT	MPO
11	1110 UT	B: SOD DOU CLF AQU SPT FRD MPO KGL C: WIT NGK GCK EBR CZT	07	0516	0521 UT	LNP
28	1500 UT	A: KGL C: WIT CLF AMS CZT DUM (si: B: MPO)†	08	0152	0205 UT	HTY

Underlines indicate confirming geophysical effects.

Reporting Observatories:

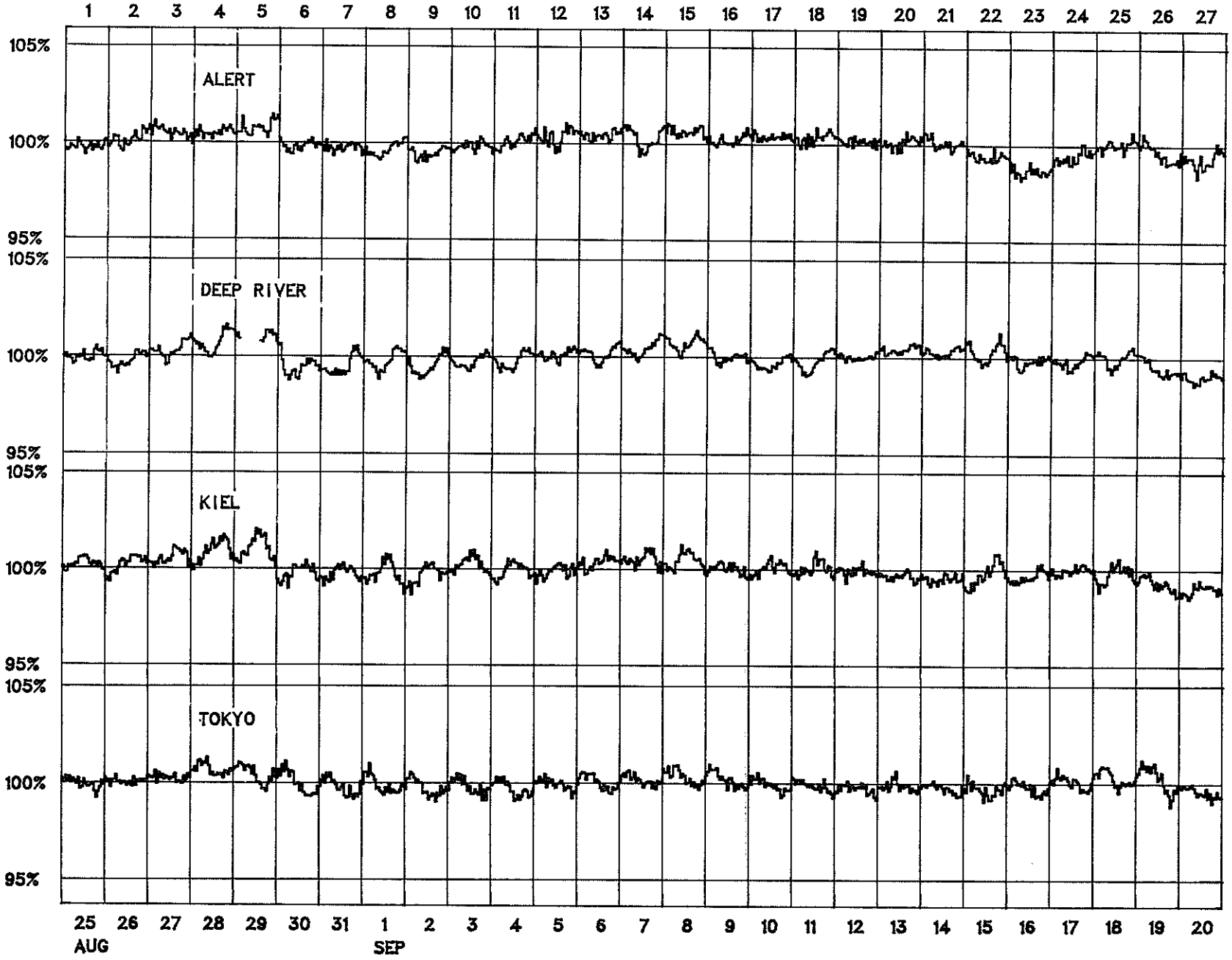
SOD DOM NUR WIT NGK HAD DOU CLF GCK MMB AQU EBR
COI SPT FRD KAK HTY KNY LNP MPO GNA AMS CZT KGL DUM

*Three-letter codes identify each observatory. Reporting stations have been grouped by the character of the observed event. The letter A means very remarkable; B means fair, ordinary, but unmistakable; and C means very poor, doubtful.

†The symbol si stands for a sudden magnetic change not calssifiable as a storm sudden commencement.

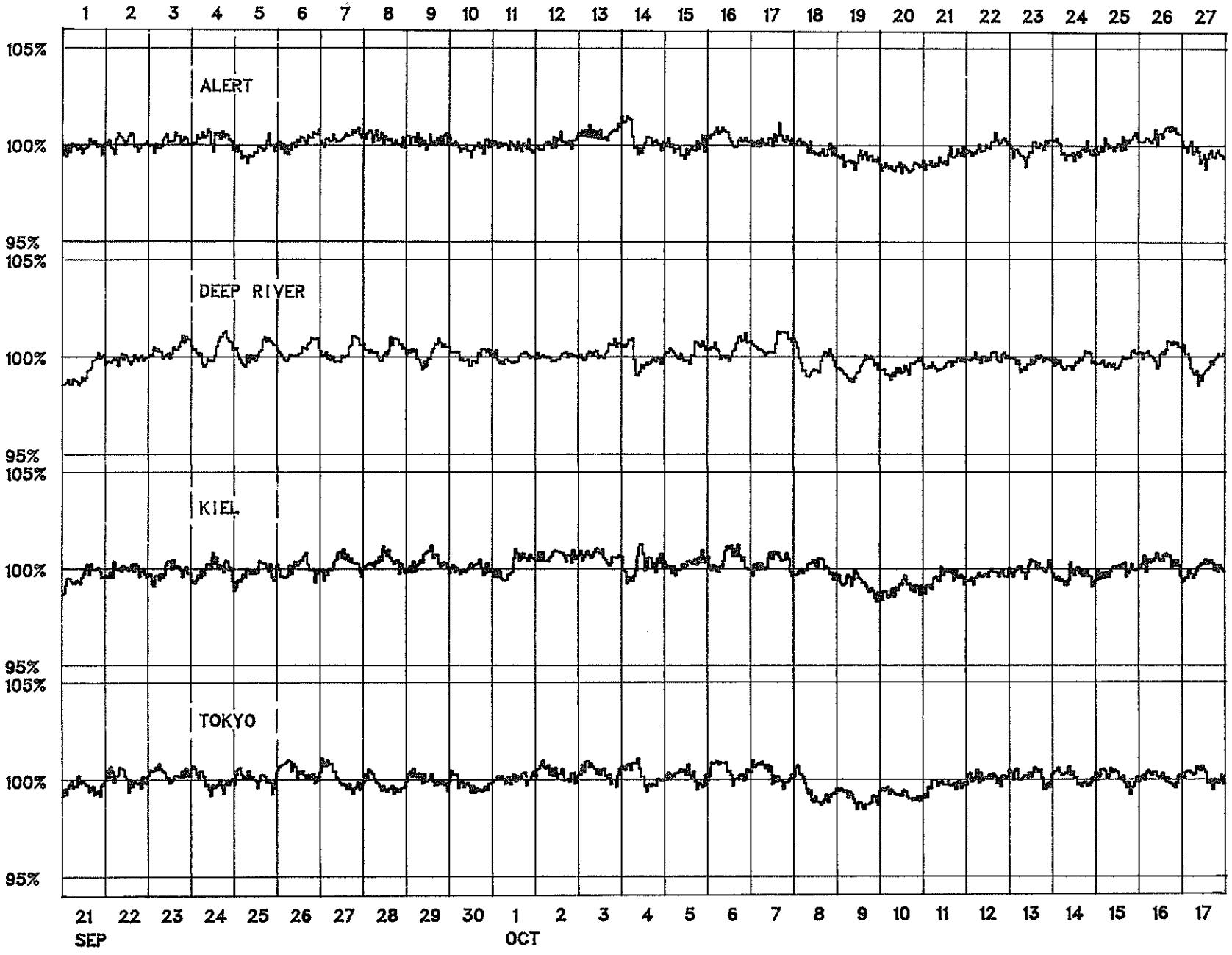
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2051 (August 1983–September 1983)



COSMIC RAY INDICES
(Neutron Monitor)

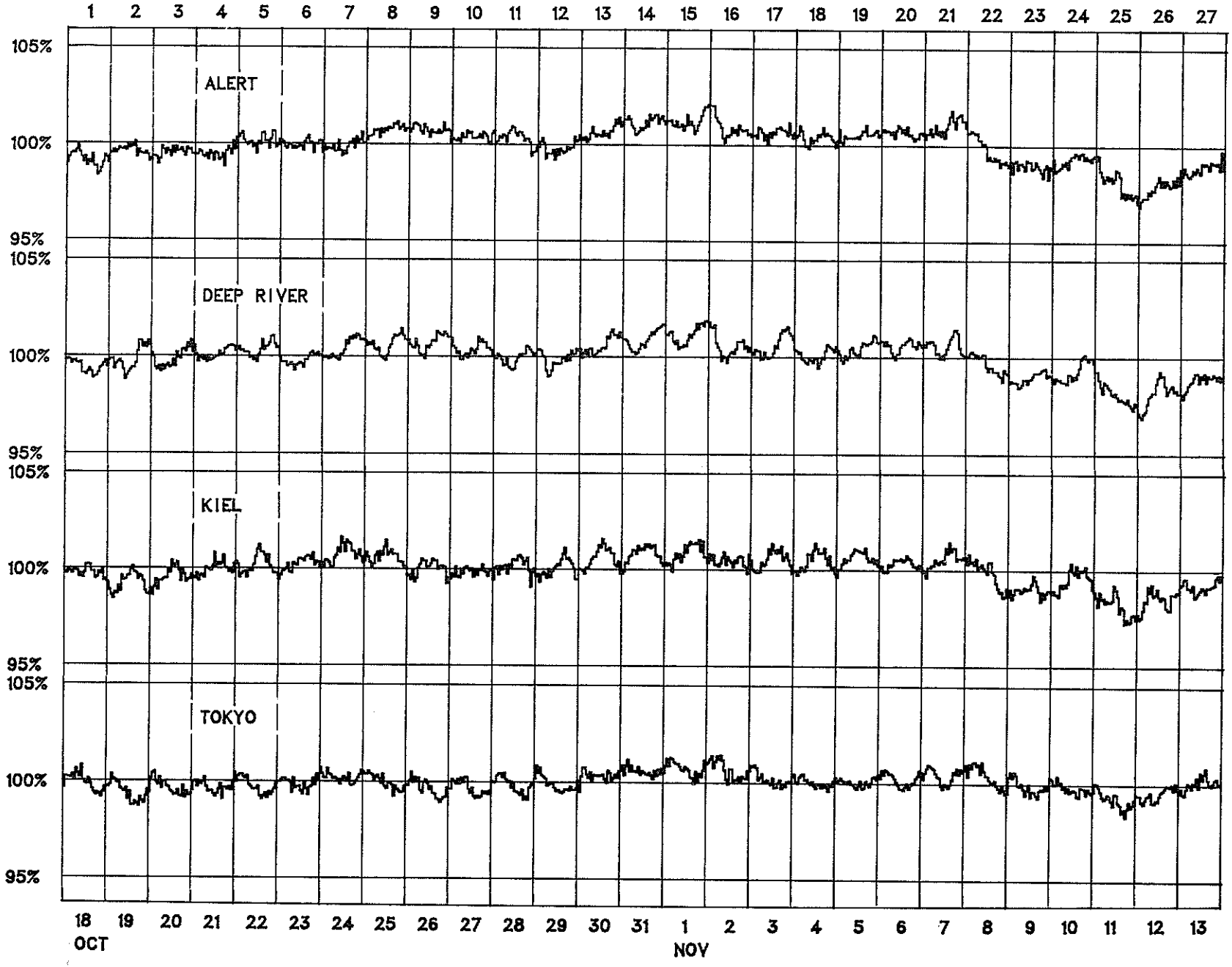
Bartels Rotation 2052 (September 1983–October 1983)



95
Late
Oct 83

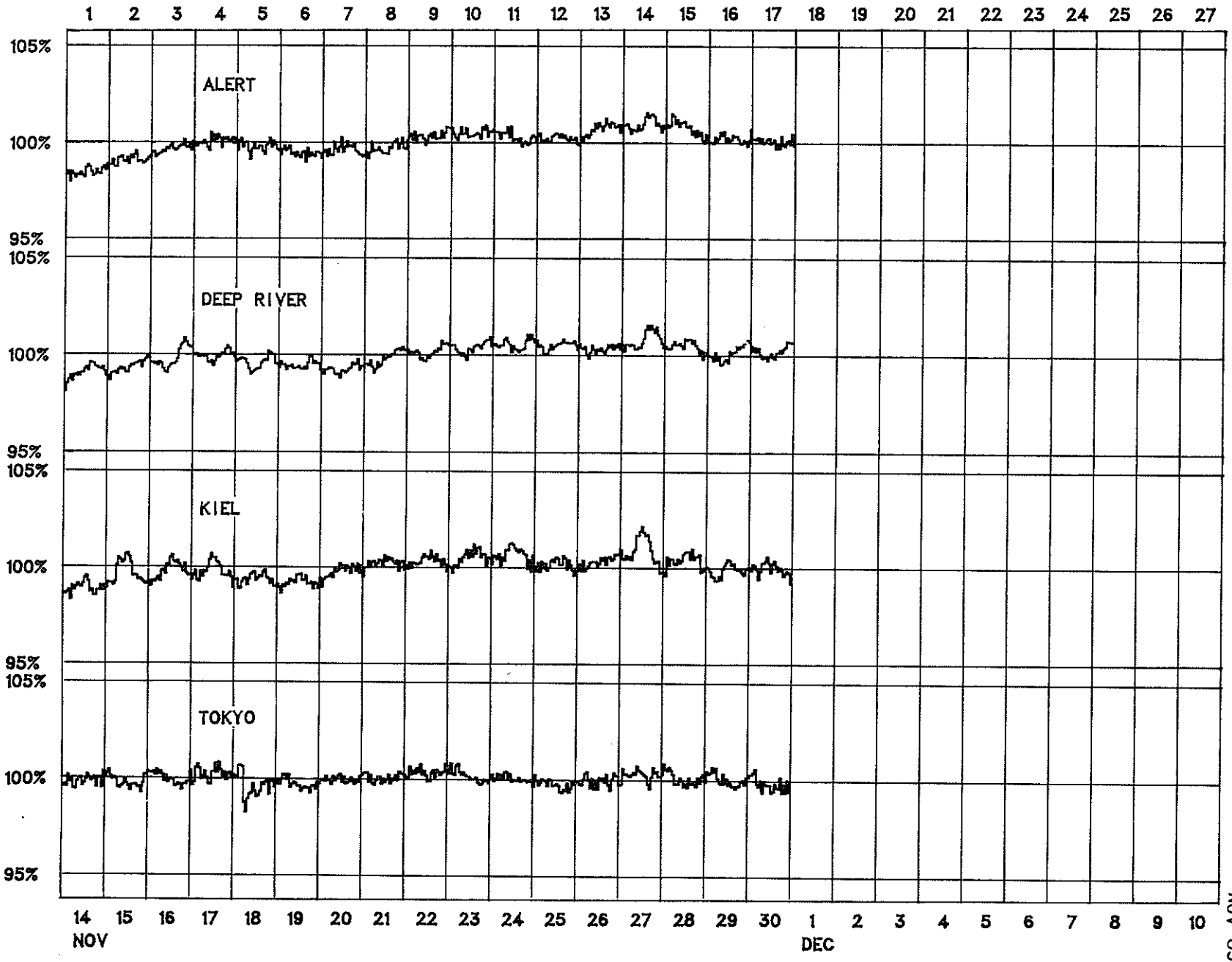
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2053 (October 1983–November 1983)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2054 (November 1983–December 1983)



97
Late
Nov 83

COSMIC RAY INDICES
(Neutron Monitor)

September 1983

Day	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)/256	HUANCAYO Average (cts/h)/100
1	4172	6740.3	6400.7	5805.4	3768.5	3540.9	1733.3(12)
2	4165	6726.3	6385.7	5799.9	3764.5	3535.5	1725.3
3	4178	6752.0	6398.7	5831.9	3780.2	3538.0	1726.8
4	4182	6769.2	6402.1	5813.5	3792.4	3534.2	1728.8
5	4197	6786.6	6422.1	5812.2	3803.7	3542.2	1729.0
6	4199	6792.1	6425.5	5839.7	3805.0	3546.2	1732.2
7	4197	6781.3	6444.2	5847.8	3817.3	3550.3	1734.5
8	4209	6804.0	6461.7	5846.2	3823.5	3555.8	1737.6(34)
9	4189	6778.2	6416.2	5821.1	3791.2	3551.9	1730.0
10	4193	6787.9	6395.1	5823.1	3786.3	3542.3	1727.4
11	4196	6786.3	6402.2	5822.2	3784.1	3540.4	1729.0
12	4194	6774.3	6418.2	5815.1	3790.7	3535.0	1724.3
13	4205	6772.0	6443.5	5799.1	3787.8	3540.1	1724.5
14	4194	6768.9	6435.5	5792.7	3777.4	3536.1	1724.2
15	4180	6723.3	6435.1	5806.0	3787.8	3533.7	1724.4
16	4160	6672.7	6406.8	5799.2	3782.1	3537.1	1722.2
17	4181	6724.7	6405.7	5818.4	3787.6	3547.2	1732.0
18	4184	6766.7	6418.2	5808.5	3803.4	3555.0	1736.6
19	4171	6737.1	6385.4	5779.7	3815.8	3554.6	1731.4
20	4158	6717.0	6354.2	5761.6	3777.8	3530.1	1727.2
21	4174	6779.3	6384.4	5791.0	3791.3	3541.2	1730.9
22	4191	6796.2	6429.5	5810.9	3791.2	3557.7	1735.6
23	4201	6799.0	6463.2	5806.9	3805.3	3565.8	1737.5
24	4204	6812.0	6460.9	5812.7	3792.0	3552.7	1737.5
25	4198	6769.5	6455.0	5802.1	3810.7	3556.4	1734.8
26	4216	6800.5	6459.1	5817.5	3830.7	3570.2	1739.8
27	4220	6814.9	6454.0	5830.3	3836.6	3557.7	1736.0
28	4217	6809.8	6463.7	5836.9	3835.4	3545.8	1736.8
29	4207	6804.9	6452.5	5838.1	3834.7	3555.2	1733.0
30	4197	6784.5	6441.4	5817.2	3820.5	3545.3	1733.6
Mean	4191	6771.1	6424.0	5817.6	3799.4	3546.5	1731.1

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

COSMIC RAY INDICES
(Neutron Monitor)

October 1983

Day	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)/256	HUANCAYO Average (cts/h)/100
1	4187	6785.5	6434.0	5824.7	3824.7	3556.5	1736.2(38)
2	4208	6795.2	6438.3	5853.8	3843.0	3566.4	1740.8
3	4226	6830.4	6454.3	5854.6	3847.5	3567.8	1741.3
4	4218	6813.9	6434.5	5827.0	3834.0	3563.2	1737.0
5	4200	6780.5	6451.4	5829.5	3824.3	3559.5	1739.8
6	4221	6817.3	6466.5	5843.0	3826.0	3569.3	1734.8
7	4220	6806.6	6480.5	5834.6	3829.9	3565.8	1736.8
8	4197	6777.3	6421.5	5817.7	3792.2	3534.0	1729.4(38)
9	4168	6740.7	6398.8	5771.2	3754.8	3519.1	1722.4
10	4160	6712.5	6397.4	5754.2	3758.6	3527.4	1726.9
11	4175	6740.8	6412.2	5786.8	3788.3	3543.3	1726.5
12	4205	6786.1	6435.2	5796.0	3799.8	3557.1	1734.9
13	4197	6776.1	6422.7	5817.9	3828.3	3559.6	1742.3(36)
14	4193	6772.1	6422.0	5793.3	3817.5	3558.4	1732.7
15	4201	6793.8	6423.7	5810.7	3816.1	3558.0	1734.0
16	---	6825.6(23)	6454.1	5838.0	3811.4	3557.3	1736.3
17	4177	6763.8	6414.5	5814.2	3802.6(28)	3560.4	1734.0
18	4179	6747.1	6413.4	5804.5	---	3564.7	1735.7
19	4196	6777.9	6440.5	5773.4	---	3547.0	1733.9
20	4194	6772.7	6441.3	5791.1	---	3555.5	1733.8
21	4198	6770.2	6456.9	5814.6	---	3555.8	1732.7
22	4225	6814.9	6472.1	5828.1	---	3558.7	1735.7
23	4192	6801.3	6436.3	5830.0	---	3563.0	1734.0
24	4206	6798.4	6477.0	5860.0	---	3575.3	1735.1
25	4225	6854.1	6490.3	5852.9	---	3567.3	1732.9
26	4208	6854.0	6496.4	5817.8	---	3556.0	1730.8
27	4170	6831.5	6474.6	5808.6	---	3556.4	1731.9
28	4167	6825.4	6446.1	5825.4	---	3562.2	1732.6
29	4153	6792.8	6442.0	5819.6	---	3564.2	1728.8
30	4191	6850.0	6488.9	5850.5	---	3579.5	1734.9
31	4215	6882.9	6507.9	5863.4	---	3589.3	1743.2
Mean	4196	6796.5	6446.6	6819.6	3811.8	3558.6	1734.2

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

COSMIC RAY INDICES
(Neutron Monitor)

November 1983

Day	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	PREDIGTSTUHL Average (cts/h)/100	TOKYO Average (cts/h)/256	HUANCAYO Average (cts/h)/100
1		6888.8	6524.5	5867.0	3862.3(38)	1170	3593.4	1742.5(38)
2		6866.1	6488.3	5843.7	3841.0	1165	3592.2	1740.5
3		6849.4	6488.5	5847.8	3829.8	1164	3575.7	1735.3(38)
4		6832.3	6456.6	5844.1	3822.4	1162	3569.8	1731.2
5		6841.9	6478.7	5851.9	3817.3	1164	3570.1	1733.8
6		6851.0	6489.6	5836.7	3813.4(38)	1163	3576.0	1735.1
7		6873.0	6488.8	5848.7	3819.8(8)	1165	3583.7	1732.4(36)
8		6790.3	6428.8	5811.2	3805.3	1162	3583.9	1731.2
9		6732.7	6383.5	5758.2	3769.0	1154	3563.6	1728.5(28)
10		6756.4	6404.9	5790.2	3771.5	1158	3562.2	1736.8(10)
11		6676.0	6331.6	5713.7	3711.1	1140	3541.2	1719.9
12		6662.1	6333.0	5730.7	3725.0	1146	3551.7	1722.8
13		6731.6	6377.0	5772.5	3751.4	1155	3571.8	1733.0
14		6752.5	6440.1	5820.2	3789.1	1169	3582.7	1737.5
15		6795.5	6456.7	5867.4	3793.8	1173	3581.5	1739.1
16		6836.5	6488.1	5873.7	3811.9(36)	1177	3587.9	1742.3
17		6863.1	6495.4	5873.1	3826.2(34)	1182	3597.5	1741.0
18		6843.2	6473.9	5848.2	3849.7	1177	3575.9	1738.3
19		6820.2	6464.2	5838.6	3850.5	1171	3579.2	1741.1
20		6832.4	6451.2	5872.5	3858.0	1171	3587.0	1741.0
21		6838.5	6487.9	5897.6	3875.5	1176	3591.4	1742.8
22		6883.5	6510.2	5904.4	3896.4	1180	3600.8	1748.0
23		6892.0	6524.0	5914.7	3908.0	1183	3595.8	1749.3
24		6877.5	6535.9	5924.2	3902.6	1183	3591.5	1748.8(36)
25		6874.0	6531.9	5894.5	3890.4	1172	3580.2	1744.6
26		6908.3	6521.6	5903.7	3913.3	1169	3588.2	1741.6
27		6923.8	6552.2	5939.0	3912.1	1170	3598.2	1745.8
28		6910.0	6531.1	5908.4	3908.7	1166	3592.7	1745.3
29		6872.5	6506.8(23)	5879.2	3908.7	1136	3590.6	1743.9
30		6863.8	6515.0	5885.0	3910.2	1136	3583.5	1739.4
Mean		6831.3	6472.0	5852.0	3840.2	1165	3581.3	1738.5

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

PIONEER XII (VENUS ORBITER) SOLAR WIND MEASUREMENTS

MARCH 1983

Day	Time (UT)	Earth-Sun Vehicle Angle	Protons Speed (km/s)	Protons Density (par/cm^3)	Protons Temp (x10^6 K)
1	0149	112°	343	40.6	0.069
2	0233		496	26.8	0.281
3	0210		593	17.6	0.450
4	0155		602	86.1	0.339
5	0226		696	8.1	0.391
6	0201		678	8.5	0.283
7	0151		685	6.6	0.185
8	0210		673	4.6	0.310
9	0204		413	16.7	0.084
10	0209		375	48.1	0.085
11	0201	107°	542	11.0	0.202
12	0209		541	13.8	0.264
13	0219		533	12.8	0.139
14	0228		486	16.7	0.366
15	0205		355	25.0	0.039
16	0045		353	32.3	0.044
17	0210		364	197.5	0.059
18	0209		368	36.7	0.109
19	0218		428	43.7	0.076
20	0216		529	17.7	0.262
21	0237	100°	492	22.1	0.285
22	0222		498	23.7	0.322
23	0212		536	8.9	0.247
24	0222		508	5.9	0.136
25	0143		354	22.4	0.265
26	0157		421	17.5	0.342
27	0150		415	62.5	0.058
28	0157		552	19.7	0.286
29	0229		510	25.4	0.398
30	0227		592	20.2	0.139
31	0202	94°	759	9.3	0.664

PIONEER XII (VENUS ORBITER) SOLAR WIND MEASUREMENTS

APRIL 1983

Day	Time (UT)	Earth-Sun Vehicle Angle	Protons Speed (km/s)	Protons Density (par/cm^3)	Protons Temp (x10^6 K)
1	0219	94°	761	6.7	0.398
2	0210		763	4.9	0.322
3	0210		748	12.0	0.213
4	0158		749	3.6	0.088
5	0224		616	5.2	0.191
6	0224		398	7.3	0.052
7	0154		317	46.5	0.118
8	0205		522	24.9	0.337
9	0205		584	12.6	0.284
10	1200	88°	515	11.7	0.211
11	1527		372	14.2	0.071
12					
13	1158		389	13.9	0.046
14	1210		350	22.5	0.024
15	1208		345	84.4	0.034
16	1123		519	31.0	0.185
17	1206		561	9.9	0.345
18	1139		559	15.7	0.346
19	1230		773	53.5	0.620
20	1201	81°	578	6.6	0.183
21	1238		461	19.4	0.187
22	1134		507	9.0	0.116
23	1248		387	10.0	0.027
24	1208		395	34.1	0.027
25	1208		500	32.2	0.150
26	1201		456	16.2	0.156
27	1203		388	24.2	0.147
28	1204		517	13.2	0.527
29	1203		576	14.4	0.453
30	1205	75°	791	2.4	0.912

PIONEER XII (VENUS ORBITER) SOLAR WIND MEASUREMENTS

MAY 1983

Day	Time (UT)	Earth-Sun Vehicle Angle	Protons Speed (km/s)	Protons Density (par/cm^3)	Protons Temp (x10^6 K)
1	1203	74°	612	2.0	0.198
2	1208		365	6.0	0.018
3	1201		444	26.0	0.213
4	1208		523	13.5	0.136
5	1202		490	14.9	0.156
6	1239		682	7.7	0.204
7	1204		743	16.3	0.104
8	1204		531	8.4	0.032
9	1219		668	66.7	0.553
10	1203	68°	589	17.4	0.045
11	1200		776	10.9	0.151
12	1209		537	8.9	0.110
13	1200		479	22.7	0.053
14	1201		339	45.9	0.082
15	1206		521	48.8	0.472
16	1203		588	7.6	0.190
17	1133		617	11.2	0.214
18	1209		539	12.3	0.368
19	1208		428	13.4	0.073
20	1205	62°	413	10.5	0.215
21	1202		532	14.9	0.125
22	1208		439	11.2	0.104
23	1203		369	28.2	0.082
24	1207		434	31.4	0.109
25	1208		452	18.9	0.176
26	1203		516	4.9	0.245
27					
28	1205		473	10.3	0.196
29	1205		487	11.4	0.135
30	1202	55°	362	23.5	0.075
31	1202		542	7.9	0.282

PIONEER XII (VENUS ORBITER) SOLAR WIND MEASUREMENTS

JUNE 1983

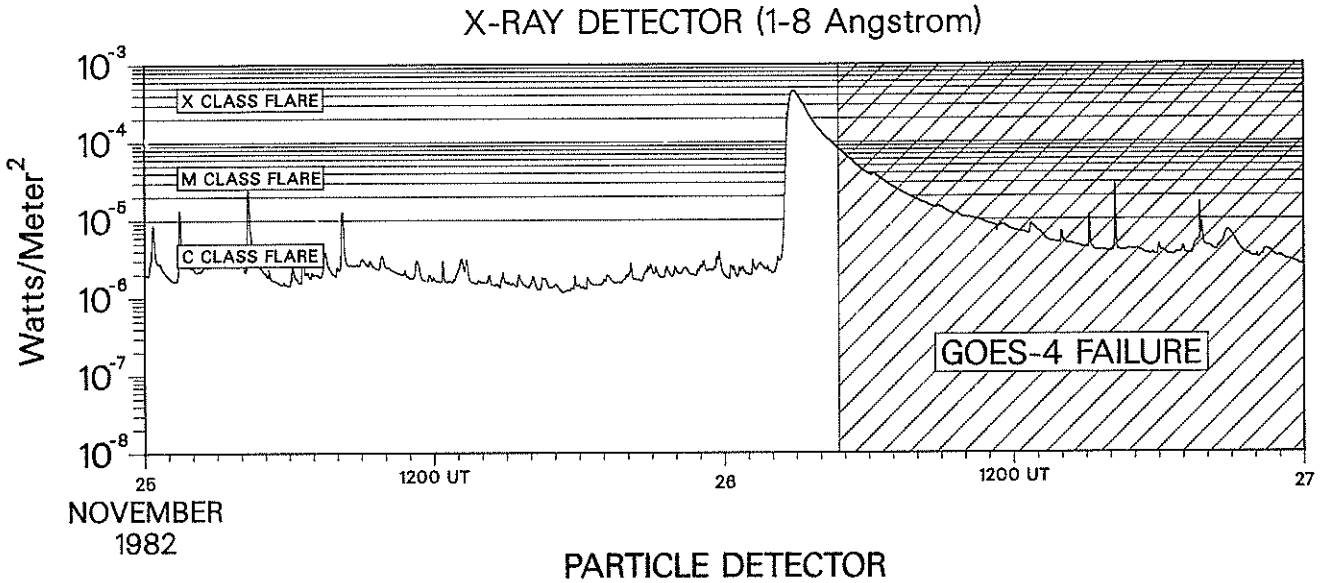
Day	Time (UT)	Earth-Sun Vehicle Angle	Protons Speed (km/s)	Protons Density (par/cm^3)	Protons Temp (x10^6 K)
1	1205	54°	425	9.1	0.103
2	1205		381	7.9	0.053
3	1208		335	94.8	0.042
4	1205		461	28.9	0.195
5	1208		460	16.6	0.079
6	1240		475	45.1	0.054
7	1209		415	43.9	0.148
8	1209		365	14.3	0.040
9	1203	48°	408	43.8	0.084
10	1203		448	10.0	0.227
11	1205		412	5.9	0.084
12	1205		366	24.7	0.038
13	1201		415	39.7	0.089
14	1202		527	19.4	0.415
15	1207		541	9.0	0.084
16	1252		425	10.1	0.033
17	1206		384	14.2	0.039
18	1200		533	7.4	0.330
19	1208	42°	363	15.9	0.028
20	1200		329	36.6	0.018
21					
22	1222		372	29.8	0.117
23					
24	1209		429	23.6	0.134
25	1204		397	36.7	0.212
26	1201		439	20.1	0.240
27	1212		449	16.3	0.172
28	1209		337	18.8	0.032
29	1208	36°	369	28.5	0.114
30	1202		325	23.0	0.036

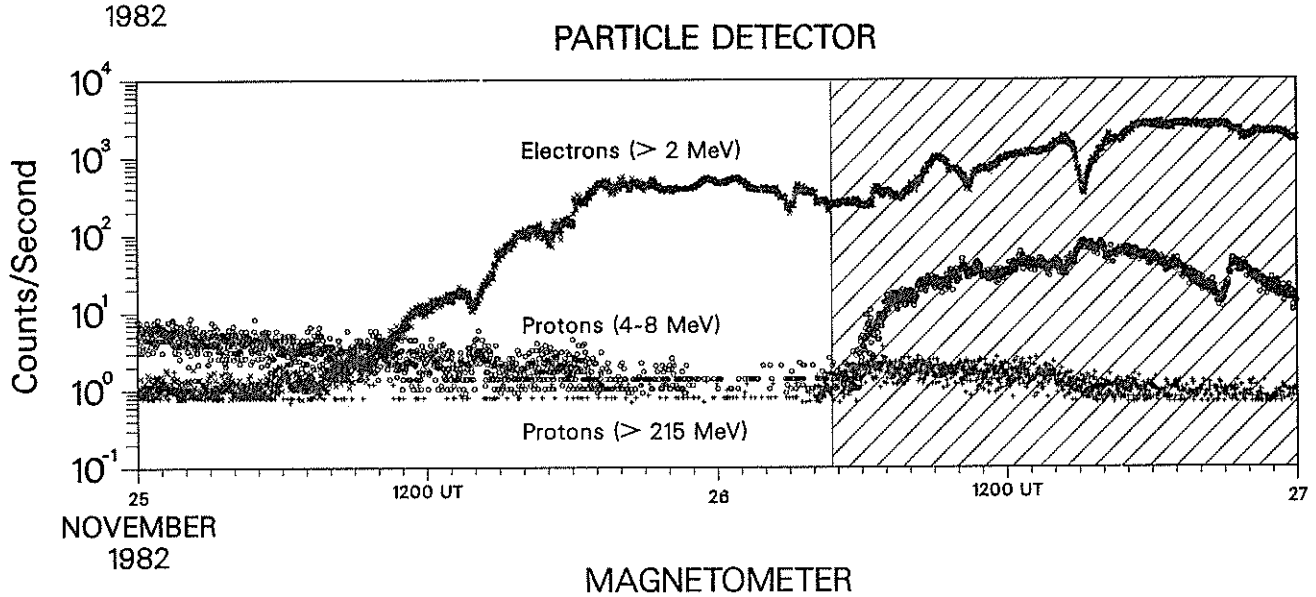
PIONEER XII (VENUS ORBITER) SOLAR WIND MEASUREMENTS

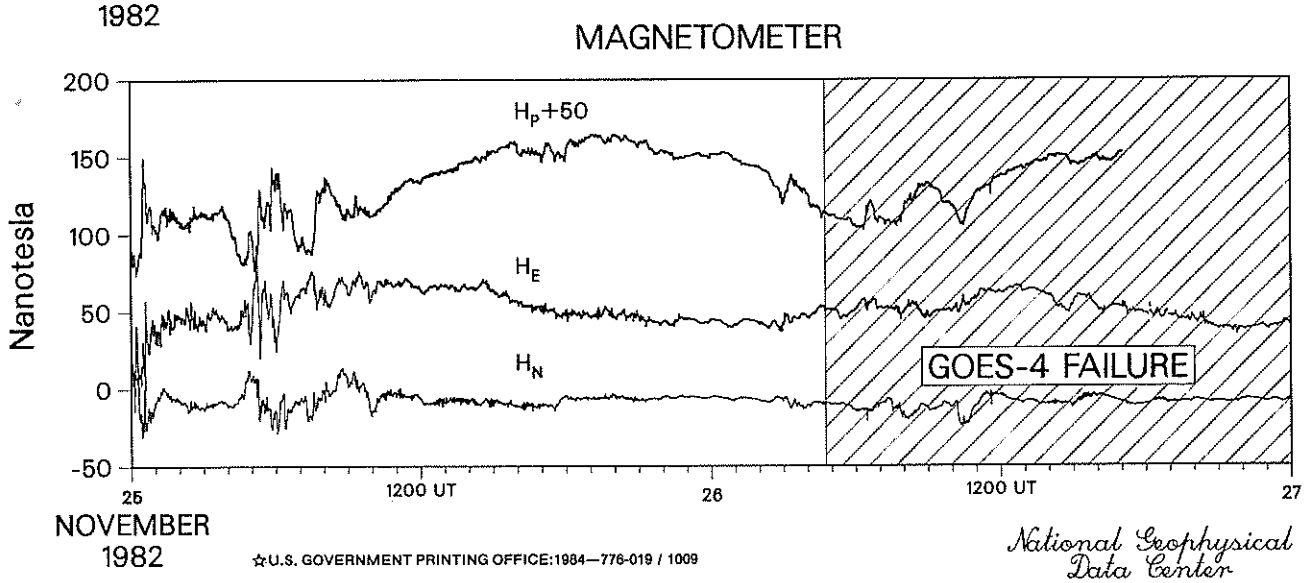
JULY 1983

Day	Time (UT)	Earth-Sun Vehicle Angle	Protons Speed (km/s)	Protons Density (par/cm^3)	Protons Temp (x10^6 K)
1	1206	34°	353	83.5	0.077
2	1200		357	59.5	0.666
3	1208		355	24.6	0.215
4	1204		362	24.2	0.069
5	1206		367	30.4	0.052
6	1204		393	21.1	0.068
7	1202		350	26.3	0.054
8	1207		298	24.4	0.048
9	1210	29°	366	18.5	0.080
10	1202		534	2.9	0.164
11	1209		317	27.1	0.177
12	1204		363	53.5	0.062
13	1204		457	32.2	0.503
14	1204		650	12.3	0.296
15	1226		531	9.2	0.127
16	1209		502	10.8	0.126
17	1203		489	8.7	0.197
18	1203	23°	349	26.8	0.101
19	1206		328	35.6	0.070
20	1204		624	11.6	0.592
21	1209		585	8.8	0.209
22	1204		544	13.4	0.164
23	1204		452	13.9	0.231
24	1209		446	15.2	0.080
25	1206		415	17.2	0.050
26	1203		392	46.0	0.027
27	1208		479	16.0	0.194
28	1204		496	24.8	0.172
29	1205	17°	395	15.7	0.135
30	1207		359	70.4	0.092
31	1204		437	24.6	0.059

GOES-2 SPACE ENVIRONMENT MONITOR
(108° West Longitude)







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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."