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Solar - Geophysical Data

NO. 436 DECEMBER 1980

Part I (Prompt Reports)

DATA FOR
NOVEMBER 1980
OCTOBER 1980

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR-GEOPHYSICAL DATA

No. 436

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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A.13d	Solar Wind from IPS Measurements	424A 37	426A146	426A 34	427A 35	428A 30	430A164	430A 37	431A 36	432A 34	433A 31	434A 34	435A 37	436A 37
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D.1f	Sudden Commencement and Solar Flare Effects	425A150	427A164	427A152	431A168	431A168	431A169	433A168	433A168	434A188	435A164	436A179		
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D.1h	Geomagnetic Substorm Log (Boulder)	424A 41	425A 38	426A 40	427A 40	428A 36	429A 37	430A 45	431A 42	432A 43	433A 41	434A 40	435A 44	436A 44
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F.1e	Cosmic Ray Neutron Counts (Alert)	427A159	427A159	428A146	429A153	429A137	430A154	432A170	433A165	434A183	434A146	435A151	436A165	
F.1h	Cosmic Ray Neutron Counts (Thule)	426A143	426A132	427A147	428A134	429A137	430A154	431A150	432A155	433A147	434A146	435A151	436A165	
F.1i	Cosmic Ray Neutron Counts (Kiel)	426A143	426A132	427A147	428A134	429A137	430A154	431A150	432A155	433A147	434A146	435A151	436A165	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	426A143	426A132	427A147	428A134	429A137	430A154	431A150	430A155	433A147	434A146	435A151	436A165	
F.1k	Cosmic Ray Neutron Counts (Kula)			---	---	---	---	---	---	---	---	---	---	
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H.	MISCELLANEOUS													
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Notes:

"425A 48" listed under 1979 Nov means that the sunspot drawings for Nov 1979 were contained in *Solar-Geophysical Data* Number 425 - Part I, beginning on page 48.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

NOVEMBER 1980 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

NOVEMBER 1980

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

03 NOVEMBER 1980	PRESTO TOYOKAWA	03/0333Z TENFLARE 100 FLUX UNITS 03/0145Z DURATION 55 MINUTES
	PRESTO SYDNEY	03/0220Z SOFLARE M3/2B N12E44 03/0158Z DURATION 18 MINUTES
	PRESTO BOULDER	03/1423Z SOFLARE M1/2B N05E10 03/1355Z DURATION 17 MINUTES
05 NOVEMBER 1980	PRESTO BOULDER	05/1500Z SOFLARE X4/2B S12E74 05/1355Z DURATION 25 MINUTES
	PRESTO MEUDON	05/1500Z METRIC BURST AT NANCAY START 05/1345Z PROBABLY SOUTH EAST LIMB
06 NOVEMBER 1980	PRESTO TOYOKAWA	06/0020Z TENFLARE 420 FLUX UNITS 05/2232Z DURATION 8 MINUTES
	PRESTO SYDNEY	06/0350Z SOFLARE CULGOORA TWO BRIGHT REGION 2779 S16E72 MAXIMUM 0348Z STRONG TYPE II
	PRESTO BOULDER	06/0408Z SOFLARE X9/2B S11E70 06/0350Z IN PROGRESS TENFLARE 1600 FLUX UNITS 06/0337Z DURATION 20 MINUTES
	PRESTO TOYOKAWA	06/0440Z TENFLARE 2400 FLUX UNITS 06/0337Z DURATION 60 MINUTES
	PRESTO TOYOKAWA	06/0705Z TENFLARE 200 FLUX UNITS 06/0648Z DURATION 7 MINUTES
	PRESTO BOULDER	06/1745Z SOFLARE M4/2B S09E65 06/1728Z DURATION 68 MINUTES
07 NOVEMBER 1980	PRESTO SYDNEY	07/0230Z SOFLARE IMPORTANCE TWO VERY BRIGHT N10W07 07/0204Z TENFLARE 772 FLUX UNITS 07/0204Z
	PRESTO TOYOKAWA	07/0240Z TENFLARE 2800 FLUX UNITS 07/0202Z DURATION 20 MINUTES
	PRESTO BOULDER	07/0406Z SOFLARE X2/2B N07W11 07/0200Z DURATION 55 MINUTES TENFLARE 07/0406Z 1100 FLUX UNITS 07/0203Z DURATION 14 MINUTES
	PRESTO SYDNEY	07/0420Z SUPPLEMENTARY CULGOORA OBSERVATORY REPORTS THAT THE FLARE NOVEMBER 07/0204Z WAS ACCOMPANIED BY STRONG MICROWAVE BURST BUT NO TYPE II OR IV.
	PRESTO MEUDON	07/1450Z VERY BRIGHT FLARE OBSERVED AT MEUDON IN REGION 2776 ON 1440Z IN PROGRESS ON 1455Z PROBABLE IMP 1
	PRESTO BOULDER	07/1744Z SOFLARE M8/2B N09W16 07/1723Z DURATION 28 MINUTES
08 NOVEMBER 1980	PRESTO BOULDER	08/1425Z SOFLARE X3/2B N11W29 08/1334Z DURATION 10 MINUTES TENFLARE 1075 FLUX UNITS 08/1335Z DURATION 16 MINUTES
09 NOVEMBER 1980	PRESTO BOULDER	09/1430Z SOFLARE M1/2B S18E02 09/0052Z DURATION 72 MINUTES
10 NOVEMBER 1980	PRESTO BOULDER	10/1415Z SOFLARE M8/2B S12W54 10/1138Z DURATION 64 MINUTES TENFLARE 520 FLUX UNITS 10/1138Z DURATION 10 MINUTES
11 NOVEMBER 1980	PRESTO BOULDER	11/1034Z SOFLARE M9/2B N10W63 11/0904Z DURATION 45 MINUTES
		11/1807Z SOFLARE M4/2B S11W70 11/1738Z DURATION 30 MINUTES
		11/1827Z TENFLARE 400 FLUX UNITS DURATION 11 MINUTES
12 NOVEMBER 1980	PRESTO BOULDER	12/0500Z SOFLARE X2/2B N10W72 12/0453Z IN PROGRESS
	PRESTO SYDNEY	12/0505Z X2/2B FLARE REGION 2776 N11W77 START 0448Z MAX 0458Z STRONG FADE MICROWAVE BURST TO 8000 MHZ AT CULGOORA
	PRESTO TOYOKAWA	12/0548Z TENFLARE 240 FLUX UNITS 12/0446Z DURATION 20 MINUTES
13 NOVEMBER 1980	PRESTO TOYOKAWA	13/0023Z TENFLARE 210 FLUX UNITS 12/2152Z DURATION 1 MINUTE
	PRESTO TOYOKAWA	13/0120Z TENFLARE 150 FLUX UNITS 13/0054Z DURATION 15 MINUTES
	PRESTO TOYOKAWA	13/0505Z TENFLARE 420 FLUX UNITS 13/0405Z DURATION 10 MINUTES
	PRESTO SYDNEY	13/0610Z TENFLARE 425 FLUX UNITS 13/0404Z DURATION 8 MINUTES
	PRESTO BOULDER	13/1423Z TENFLARE 410 FLUX UNITS 13/0405Z DURATION 9 MINUTES
	PRESTO BOULDER	13/1934Z SOFLARE M4/2B S16W32 13/1912Z DURATION 41 MINUTES
14 NOVEMBER 1980	PRESTO BOULDER	14/1557Z SOFLARE M2/2B S16W39 14/1539Z DURATION 20 MINUTES
15 NOVEMBER 1980	PRESTO BOULDER	15/0130Z SOFLARE M6/1B S14W48 14/2347Z DURATION 74 MINUTES TENFLARE 210 FLUX UNITS 14/2354Z DURATION 15 MINUTES
	PRESTO TOYOKAWA	15/0016Z TENFLARE 210 FLUX UNITS 14/2355Z DURATION 15 MINUTES
	PRESTO CULGOORA	15/0010Z SOFLARE 3 BRIGHT START 2355Z MAX 2359Z 14 NOVEMBER
	PRESTO BOULDER	15/1603Z SOFLARE X1/1B S12W53 15/1550Z IN PROGRESS 1606Z TENFLARE 358 FLUX UNITS DURATION 21 MINUTES
16 NOVEMBER 1980	PRESTO TOYOKAWA	16/0120Z TENFLARE 130 FLUX UNITS 15/0700Z DURATION 6 MINUTES
	PRESTO BOULDER	16/0921Z SOFLARE M8/2B S14W66 16/0906Z DURATION 2 MINUTES
	PRESTO TOYOKAWA	16/0117Z TENFLARE 100 FLUX UNITS 16/0052Z DURATION 15 MINUTES
20 NOVEMBER 1980	PRESTO BOULDER	20/1408Z TENFLARE 280 FLUX UNITS 20/0805Z DURATION 9 MINUTES
	PRESTO TOYOKAWA	20/0504Z TENFLARE 180 FLUX UNITS 20/0437Z DURATION 6 MINUTES
21 NOVEMBER 1980	PRESTO BOULDER	21/1057Z TENFLARE 340 FLUX UNITS 21/0805Z DURATION 32 MINUTES
	PRESTO TOYOKAWA	21/0657Z TENFLARE 230 FLUX UNITS 21/0633Z DURATION 30 MINUTES
23 NOVEMBER 1980	PRESTO TOYOKAWA	23/0050Z TENFLARE 120 FLUX UNITS 22/0528Z DURATION 27 MINUTES

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SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No. of Flares Total	Active Regions: No. of Flares M	Active Regions: No. of Flares X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
306	01	31	287	215	020	S18W46	2	0	0		01	S18W46	E	SOLQUIET
						N18W35	4	0	0			N18W35	E	MAGQUIET
						S05W31	2	0	0			S05W31	E	
						N13W21	3	0	0			N13W21	Q	
						N20W21	0	0	0			N20W21	Q	
						N08W08	2	0	0			N08W08	E	
						N16W04	0	0	0			N16W04	Q	
						N30E25	1	0	0			N30E25	E	
						N20E28	0	0	0			N20E28	Q	
						N22E40	7	0	0			N22E40	Q	
						N03E49	4	0	0			N03E49	E	
						N06E62	0	0	0			N06E62	Q	
						N12E71	4	0	0			N12E71	E	
307	02	01	279	230	019	S17W58	3	0	0		02	S17W58	E	SOLQUIET
						N19W49	0	0	0			N19W49	E	MAGQUIET
						S04W45	1	0	0			S04W45	E	
						S13W36	5	0	0			S13W36	Q	
						N18W24	1	0	0			N18W24	Q	
						N07W20	0	0	0			N07W20	E	
						N16W17	1	0	0			N16W17	E	
						N31E10	1	0	0			N31E10	E	
						N18E19	0	0	0			N18E19	Q	
						N22E28	12	0	0			N22E28	E	
						N03E36	7	0	0			N03E36	Q	
						N06E53	0	0	0			N06E53	Q	
						N12E58	4	1	0			N12E58	E	
						S14E65	5	0	0			S14E65	Q	
						S26E70	0	0	0			S26E70	Q	
308	03	02	285	238	006	S18W72	4	0	0		03	S18W72	E	SOLALERT 03/05
						N19W63	1	0	0			N19W63	E	MAGQUIET
						S04W58	2	0	0			S04W58	Q	
						N14W49	0	0	0			N14W49	E	
						N07W34	1	0	0			N07W34	E	
						N16W31	0	0	0			N16W31	Q	
						N30W02	0	0	0			N30W02	E	
						N18E03	1	0	0			N18E03	Q	
						N22E15	8	0	0			N22E15	E	
						N03E22	3	1	0			N03E22	E	
						N06E38	0	0	0			N06E38	Q	
						N12E45	1	0	0			N12E45	A	
						S12E49	2	0	0			S12E49	E	
						S26E55	0	0	0			S26E55	Q	
309	04	03	274	246	006	S17W85	1	0	0	Presto Sydney	04	S17W85	Q	SOLALERT 04/05
						N19W77	1	0	0	03/0220Z Soflare		N19W77	Q	MAGQUIET
						S05W74	1	0	0	M3/2B N12E44		S05W74	E	
						N13W67	2	0	0	03/0204Z. Presto		N13W67	Q	
						N07W48	0	0	0	Toyokawa 03/0333Z		N07W48	Q	
						N17W46	0	0	0	100 Flux Units		N17W46	Q	
						N30W14	0	0	0	03/0145Z duration		N30W14	Q	
						N18W09	0	0	0	55 minutes. Presto		N18W09	Q	
						N22W00	7	0	0	Boulder 03/1423Z		N22W00	E	
						N03E08	6	2	0	Soflare M1/2B		N03E08	A	
						N06E25	0	0	0	N05E10 03/1355Z		N06E25	Q	
						N12E31	4	1	0	Duration 17 minutes		N12E31	E	
						S11E35	2	0	0			S11E35	E	
						S25E41	0	0	0			S25E41	Q	
310	05	04	290	261	014	S16W91	1	0	0		05	S16W91	Q	SOLALERT 05/08
						N14W80	0	0	0			N14W80	Q	MAGQUIET
						N08W62	1	0	0			N08W62	Q	
						S18W62	0	0	0			S18W62	Q	
						N18W58	1	0	0			N18W58	Q	
						N31W25	0	0	0			N31W25	Q	
						N19W21	0	0	0			N19W21	Q	
						N23W11	10	1	0			N23W11	E	
						N04W05	5	1	0			N04W05	A	
						N06E12	0	0	0			N06E12	Q	
						N12E18	8	1	0			N12E18	E	
						S11E22	4	0	0			S11E22	Q	
						S24E28	4	0	0			S24E28	Q	
						N05E32	0	0	0			N05E32	Q	
						S18E54	0	0	0			S18E54	Q	
311	06	05	303	272	007	N08W78	0	0	0	Presto Boulder	06	N08W78	Q	SOLALERT 06/09
						S19W75	2	0	0	05/1500Z Soflare		S19W75	Q	MAGALERT MINOR 07/09
						N19W71	0	0	0	X4/2B 05/1355Z		N19W71	Q	
						N31W41	0	0	0	S12E74 Duration		N31W41	Q	
						N23W26	2	0	0	25 minutes.		N23W26	E	
						N04W19	2	0	0			N04W19	E	
						N07W03	0	0	0			N07W03	Q	
						N12E05	8	2	0			N12E05	A	
						S10E09	2	0	0			S10E09	E	
						S24E15	0	0	0			S24E15	Q	
						N05E16	1	0	0			N05E16	Q	
						S19E38	3	0	0			S19E38	Q	
						S12E77	11	2	1			S12E77	Q	

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312	07	06	283	230	009	S17W90 N23W37 N04W32 N06W14 N11W07 S10W04 S13E08 S19E28 S11E59	0 10 4 0 8 2 1 5 8	0 0 0 0 5 0 0 1 3	0 0 0 0 0 0 0 0 2	Presto Soflare X9/2B S16E72 06/0352Z Duration 48 Minutes. Tenflare 2400 Flux Units06/0337Z Duration 60 Minutes. Soflare X1/SB 06/1526Z S11E59 Duration 40 Minutes. Soflare 06/1947Z N06W07 M5/2B Duration 59 Minutes.	07	S17W90 N23W37 N04W32 N04W14 N11W07 S10W04 S13E08 S19E28 S11E59	Q E E Q A Q Q E A	PROTON FLARE ALERT 07/09 MAGALERT 07/09
313	08	07	297	227	010	N23W51 N03W46 N06W28 N11W21 S11W17 S13W06 S18E16 S10E46	3 0 1 15 3 0 6 16	0 0 0 6 0 0 0 4	0 0 0 0 0 0 0 0	Presto Soflare X2/2B 07/0156Z N07W11 Duration 55 Min. Tenflare 07/0204Z 1100 Flux Units Duration 14 Min. Soflare M8/2B 07/1732Z N09W16 Duration 28 Min.	08	N23W51 N03W46 N06W28 N11W21 S11W17 S13W06 S18E16 S10E46	E Q Q A Q Q E A	MAJOR FLARE ALERT 07/09 MAGALERT 08/09
314	09	08	281	227	006	N23W64 N03W64 N07W41 N12W34 S18E01 S10W31 S10E33 N07E65	2 0 1 13 6 4 14 0	0 0 0 1 0 0 2 0	0 0 0 1 0 0 0 0	Presto Soflare X3/2B N11W29 08/1334Z Duration 10 Min. Tenflare 1075 Flux Units 08/1335Z Duration 16 Min.	09	N23W64 N03W64 N07W41 N12W34 S18E01 S10W31 S10E33 N07E65	E Q Q A E E A Q	MAJOR FLARE ALERT 09/10 MAGALERT MINOR 09/XX
315	10	09	223	266	007	N23W79 N03W79 N06W56 N12W48 S11W44 S19W14 S10W08 S11E19	1 0 1 7 3 1 0 12	0 0 0 1 0 1 0 1	0 0 0 0 0 0 0 0	Presto Soflare M1/2B S18E02 09/0052Z Duration 72 Minutes	10	N23W79 N03W79 N06W56 N12W48 S11W44 S19W14 S10W08 S11E19	E Q Q A E E Q A	MAJOR FLARE ALERT 09/11 MAGALERT MINOR 09/10
316	11	10	228	271	012	N03W90 N23W86 N06W67 N12W61 S11W59 S18W28 S08W19 S13W09 S09W08 S11E08 N18E74	0 2 3 12 6 3 0 0 0 8 0	0 0 0 2 1 0 0 0 0 1 0	0 0 0 0 0 0 0 0 0 0 0	Presto Boulder Soflare M8/2B S12W54 10/1138Z Duration 64 Min. Tenflare 520 Flux Units 10/1138Z Duration 10 Min.	11	N03W90 N23W86 N06W67 N12W61 S11W59 S18W28 S08W19 S13W09 S09W08 S11E08 N18E74	Q E Q A Q E Q Q Q A Q	SOLALERT 11/14 MAGNIL
317	12	11	186	265	019	N06W81 N12W75 S11W74 S19W41 S11W32 S11W06 N17E61	2 6 1 3 0 16 0	0 2 1 0 0 6 0	0 0 0 0 0 0 0	Presto Soflare M9/2B N10W63 11/0904Z Duration 45 Minutes. Soflare M4/2B S11W70 11/1731Z Duration 30 Minutes. Tenflare 400 Flux Units 11/1723Z Duration 11 Minutes.	12	N06W81 N12W75 S11W74 S19W41 S11W32 S11W06 N17E61	Q A E E Q A Q	SOLALERT 12/16 MAGALERT MINOR 12/13
318	13	12	187	246	016	N06W94 N12W90 S10W88 S19W55 S12W43 S10W19 N17E49 N17E76	0 9 2 3 0 12 0 0	0 0 0 0 0 3 0 0	0 1 0 0 0 0 0 0	Presto Soflare X2/2B N10W72 12/0453Z.Tenflare 240 Flux Units 12/0446Z Duration 20 Minutes.	13	N06W94 N12W90 S10W88 S19W55 S12W43 S10W19 N17E49 N17E76	Q A E E Q A Q Q	SOLALERT 13/16 MAGQUIET
319	14	13	181	232	007	S18W70 S12W32 N19E33 S16E64 S16E75	0 7 0 1 0	0 3 0 0 0	0 0 0 0 0	Presto Tenflare 150 Flux Units 13/0054Z Duration 15 Minutes. Tenflare 425 Flux Units 13/0405Z Duration 8 Minutes. Soflare M4/2B S16W32 13/1912Z Duration 41 Minutes.	14	S18W70 S12W32 N19E33 S16E64 S16E75	E A Q Q Q	SOLALERT 14/XX MAGQUIET
320	15	14	148	227	009	S18W82 S11W45 N17E06 N19E20	0 17 0 1	0 4 0 0	0 0 0 0	Presto 14/1153Z SSC. Soflare M2/2B 14/1539Z Soflare M6/1B 14/2347Z	15	S18W82 S11W45 N17E06 N19E20	E A Q E	SOLALERT 15/XX MAGALERT 16/XX

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						S16E52	2	0	0	Tenflare 210 Flux		S16E52	Q	
						S17E63	0	0	0	Units 14/2347Z		S17E63	Q	
321	16	15	143	212	018	S11W58	9	5	1	Presto 15/1540Z	16	S11W58	A	SOLALERT 16/XX
						S16W39	1	0	0	Tenflare 358 Flux		S16W39	Q	MAGNIL
						N19E05	4	1	0	Units Soflare X2/1B		N19E05	E	
						S16E50	0	0	0	15/1626Z Tenflare		S16E50	Q	
										15/0700Z 130 Flux				
										Units.				
322	17	16	128	195	015	S11W70	13	6	0	Presto 16/0052Z	17	S11W70	A	SOLALERT 17/XX
						N18W12	4	2	0	Tenflare 100 Flux		N18W12	Q	MAGQUIET
						N17E27	3	0	0	Units Soflare M2/1B		N17E27	E	
						S16E37	0	0	0	16/0112Z Soflare		S16E37	Q	
						N13E73	1	0	0	M8/2B 16/0906Z		N13E73	Q	
										Tenflare 200 Flux				
										Units 16/0928Z				
323	18	17	180	189	011	S12W84	5	1	0		18	S12W84	A	SOLALERT 18/19
						N16W29	0	0	0			N16W29	Q	MAGQUIET
						N18W25	4	1	0			N18W25	A	
						S15E05	0	0	0			S15E05	Q	
						N16E12	4	2	0			N16E12	E	
						S17E22	0	0	0			S17E22	Q	
						N10E45	1	0	0			N10E45	Q	
						N12E60	1	0	0			N12E60	E	
324	19	18	199	179	012	S14W95	0	0	0		19	S14W95	A	SOLALERT 19
						N20W31	1	1	0			N20W31	A	MAGQUIET
						S15W07	0	0	0			S15W07	Q	
						N16W01	6	1	0			N16W01	A	
						S17E09	0	0	0			S17E09	Q	
						S09E20	0	0	0			S09E20	Q	
						N09E31	6	1	0			N09E31	E	
						N12E48	3	2	0			N12E48	A	
						S20E78	0	0	0			S20E78	Q	
325	20	19	174	177	013	N18W50	1	0	0		20	N18W50	A	SOLALERT 20/21
						S14W22	1	0	0			S14W22	Q	MAGQUIET
						N16W13	5	0	0			N16W13	A	
						S17W03	0	0	0			S17W03	Q	
						N09E19	2	0	0			N09E19	E	
						N12E34	10	0	0			N12E34	A	
						S12E67	0	0	0			S12E67	Q	
						S18E67	0	0	0			S18E67	Q	
326	21	20	156	166	015	N18W65	0	0	0	Presto Boulder 20/	21	N18W65	E	SOLALERT 20/21
						S15W36	0	0	0	1408Z Tenflare 280		S15W36	Q	MAGQUIET
						N16W27	2	0	0	Flux Units 20/0805Z		N16W27	E	
						S17W16	0	0	0	Duration 9 Minutes		S17W16	Q	
						N10E05	0	0	0	Presto Toyokawa 20/		N10E05	A	
						N12E19	7	2	0	0504Z Tenflare 180		N12E19	A	
						S18E54	0	0	0	Flux Units 20/0437Z		S18E54	Q	
										Duration 6 Minutes				
327	22	21	191	166	013	N17W79	0	0	0	Presto Boulder 21/	22	N17W79	Q	SOLALERT 22/XX
						N17W37	2	0	0	0805Z Tenflare 340		N17W37	E	MAGQUIET
						S17W30	0	0	0	Flux Units Duration		S17W30	Q	
						N10W08	1	0	0	32 Minutes. Presto		N10W08	E	
						N11E06	3	2	0	Toyokawa 21/0657Z		N11E06	A	
						S19E40	0	0	0	Tenflare 230 Flux		S19E40	Q	
						N14E56	0	0	0	Units Duration 30		N14E56	Q	
										Minutes.				
328	23	22	150	176	007	N17W53	1	0	0	Presto Toyokawa	23	N17W53	Q	SOLALERT
						S17W42	0	0	0	22/0528Z Tenflare		S17W42	Q	MAGQUIET
						N16W36	0	0	0	120 Flux Units		N16W36	Q	
						N10W22	7	0	0	Duration 27 Minutes		N10W22	E	
						N13W07	4	0	0			N13W07	A	
						S18E27	4	1	0			S18E27	E	
						N14E43	1	0	0			N14E43	Q	
329	24	23	194	172	008	N17W69	3	0	0		24	N17W69	Q	SOLNIL
						S17W56	0	0	0			S17W56	Q	MAGQUIET
						N17W50	2	0	0			N17W50	E	
						S08W41	0	0	0			S08W41	Q	
						N11W36	1	0	0			N11W36	E	
						N12W21	7	1	0			N12W21	E	
						S12E12	0	0	0			S12E12	Q	
						S18E14	1	0	0			S18E14	E	
						N13E30	1	0	0			N13E30	Q	
						N21E63	0	0	0			N21E63	Q	
330	25	24	226	180	010	S17W69	0	0	0		25	S17W69	Q	SOLQUIET
						N09W64	0	0	0			N09W64	Q	MAGQUIET
						N16W62	1	0	0			N16W62	Q	
						S08W56	1	0	0			S08W56	Q	
						N10W50	7	0	0			N10W50	E	
						N10W33	7	0	0			N10W33	E	

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						S13W01	0	0	0			S13W01	Q	
						S18E01	1	0	0			S18E01	Q	
						N14W16	1	0	0			N14W16	Q	
						S06E29	0	0	0			S06E29	Q	
						N21E32	0	0	0			N21E32	Q	
						S31E37	0	0	0			S31E37	Q	
						N21E51	0	0	0			N21E51	Q	
331	26	25	226	183	014	S16W83	0	0	0		26	S16W83	Q	SOLQUIET
						N10W78	0	0	0			N10W78	Q	MAGALERT MINOR 26/XX
						N16W78	1	0	0			N16W78	Q	
						S08W69	1	0	0			S08W69	E	
						N10W63	1	0	0			N10W63	E	
						N11W47	1	0	0			N11W47	E	
						S13W14	0	0	0			S13W14	Q	
						S18W13	0	0	0			S18W13	Q	
						N14E04	2	0	0			N14E04	Q	
						S06E15	0	0	0			S06E15	Q	
						N21E16	0	0	0			N21E16	Q	
						S22E25	0	0	0			S22E25	Q	
						N21E36	0	0	0			N21E36	Q	
						N15E62	0	0	0			N15E62	Q	
332	27	26	222	195	020	N17W89	0	0	0		27	N17W89	E	SOLQUIET
						S07W84	0	0	0			S07W84	E	MAGALERT MINOR 27/XX
						N09W76	2	0	0			N09W76	A	
						N09W59	0	0	0			N09W59	E	
						S12W30	0	0	0			S12W30	Q	
						S17W27	0	0	0			S17W27	Q	
						N13W08	0	0	0			N13W08	Q	
						S12W06	0	0	0			S12W06	Q	
						S06W00	0	0	0			S06W00	Q	
						N19E00	0	0	0			N19E00	Q	
						S33E12	0	0	0			S33E12	Q	
						N20E23	0	0	0			N20E23	Q	
						N14E45	0	0	0			N14E45	Q	
						N22E70	1	0	0			N22E70	Q	
						S12E77	0	0	0			S12E77	Q	
333	28	27	193	190	016	N10W84	0	0	0		28	N10W84	E	SOLQUIET
						N07W72	1	0	0			N07W72	E	MAGNIL
						S13W42	0	0	0			S13W42	Q	
						S17W39	0	0	0			S17W39	Q	
						S11W19	1	0	0			S11W19	E	
						N22W12	0	0	0			N22W12	Q	
						S33E01	0	0	0			S33E01	Q	
						N15E03	2	0	0			N15E03	E	
						N21E08	1	0	0			N21E08	Q	
						N15E32	0	0	0			N15E32	Q	
						N23E58	1	0	0			N23E58	E	
						S11E66	3	0	0			S11E66	E	
334	29	28	229	197	016	N07W87	1	0	0		29	N07W87	E	SOLQUIET
						S13W56	1	0	0			S13W56	Q	MAGQUIET
						S18W53	0	0	0			S18W53	Q	
						S11W32	0	0	0			S11W32	E	
						N21W26	1	0	0			N21W26	Q	
						S32W14	0	0	0			S32W14	Q	
						N16W09	2	0	0			N16W09	E	
						N21W04	0	0	0			N21W04	Q	
						N14E18	0	0	0			N14E18	Q	
						S07E19	0	0	0			S07E19	Q	
						N22E45	4	0	0			N22E45	E	
						S10E54	3	1	0			S10E54	E	
						N13E58	0	0	0			N13E58	Q	
335	30	29	206	220	013	S19W65	0	0	0		30	S19W65	Q	SOLQUIET
						S11W47	0	0	0			S11W47	Q	MAGQUIET
						N20W38	0	0	0			N20W38	Q	
						S32W26	0	0	0			S32W26	Q	
						N16W23	2	0	0			N16W23	E	
						N19W16	1	0	0			N19W16	Q	
						N15E05	2	0	0			N15E05	E	
						N22E30	2	0	0			N22E30	E	
						N15E42	1	0	0			N15E42	Q	
						S10E42	5	0	0			S10E42	E	
336	01	30	254	223	014	S20W79	0	0	0		01	S20W79	Q	SOLQUIET
						N20W53	2	0	0			N20W53	Q	MAGQUIET
						S34W38	2	0	0			S34W38	Q	
						N15W36	0	0	0			N15W36	E	
						N20W34	2	0	0			N20W34	Q	
						N14W08	2	0	0			N14W08	E	
						N19E09	0	0	0			N19E09	Q	
						N24E19	0	0	0			N24E19	E	
						S10E28	4	0	0			S10E28	E	
						N14E30	0	0	0			N14E30	Q	
						S10E38	1	0	0			S10E38	Q	
						S20E67	2	0	0			S20E67	Q	
						S25E76	0	0	0			S25E76	Q	

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

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

1979 FINAL 1980 PROVISIONAL

DAY	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	122	153	208	181	185	121	152	101	78	208	151	183
2	156	158	187	168	145	149	124	108	63	226	135	218
3	187	148	185	151	133	140	128	97	65	232	139	204
4	218	173	182	136	123	166	141	85	65	233	121	211
5	232	190	178	130	154	192	150	96	53	188	96	201
6	206	207	215	132	185	145	131	98	72	179	116	172
7	212	218	248	120	200	147	149	97	64	136	135	175
8	262	225	230	101	199	157	156	87	90	140	181	201
9	280	262	172	103	229	168	164	78	125	108	186	179
10	260	224	140	69	214	144	168	86	130	119	235	158
11	242	245	148	67	245	142	172	87	181	125	260	144
12	261	210	135	70	257	143	166	98	174	128	234	120
13	235	181	131	71	259	150	161	105	172	133	197	103
14	230	178	146	68	203	166	136	128	193	100	232	108
15	225	146	168	52	182	157	129	161	192	83	209	92
16	215	166	163	36	154	148	134	198	196	98	187	112
17	180	160	132	67	126	173	129	211	190	93	173	109
18	151	130	122	63	127	215	146	241	195	114	150	113
19	138	118	129	119	134	218	166	213	185	137	137	125
20	126	115	139	108	173	230	179	212	179	150	167	112
21	124	121	114	105	143	233	191	217	152	118	155	107
22	111	123	99	130	122	244	196	201	139	147	164	119
23	116	124	100	149	95	246	190	184	154	158	140	112
24	130	120	122	175	112	256	193	155	122	178	127	128
25	143	107	121	176	139	229	179	151	109	168	123	127
26	116	127	152	191	171	220	166	138	101	209	119	140
27	93	128	175	205	156	223	185	117	98	231	134	154
28	98	130	197	221	149	190	188	127	124	181	136	167
29	121	122	181	191	145	170	149	118	158	166	173	148
30	139	145		182	138	150	97	108	184	149	170	153
31	135	174		183		138		81	194		167	-
MEAN	176.3	162.2	159.3	126.5	166.6	179.7	157.2	135.0	135.4	154.5	162.9	146.5

1979 YEARLY MEAN = 155.4

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

1979 1980

DAY	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	161.9	189.1	212.6*	175.7	181.9	218.5	191.2	160.0*	131.9	213.2*	171.1	226.3
2	172.0*	199.9	217.9	172.9	181.1*	223.0	184.0	154.9	131.8	224.5*	167.9*	234.2
3	195.1*	211.9*	225.7	170.2*	176.1	221.2	178.8	147.7	133.2	232.1	174.1	241.6
4	221.0	212.4*	231.7	172.7*	184.3*	223.1*	181.5	146.7	130.9	225.1	175.2	249.9*
5	223.4*	207.7	218.9	171.8	209.7*	221.9	178.4	152.5*	132.6	215.6*	182.6	263.3*
6	223.4	222.1	221.7	169.4	238.4*	203.5	172.4	150.1	143.2*	210.9	185.3*	273.9*
7	222.6	228.0	223.9*	166.3	236.1*	203.4	165.7*	152.5	142.3	213.0	198.7*	272.7
8	228.9*	228.1*	218.7	164.9	241.7	200.2*	172.4*	152.8	146.4	200.9	212.1*	266.2*
9	232.4	240.9*	208.2*	161.3	244.7*	193.6	174.3*	155.2	156.5	189.7	223.4*	255.4*
10	230.3	253.0*	204.6*	153.9	249.0	191.1	176.1	162.3*	173.5	188.7	232.7	257.2*
11	230.6*	255.7*	213.7	147.8	249.9	191.4*	182.9	173.3	184.1	188.1	240.7	256.0*
12	232.3	245.1*	213.7	138.6	245.6	189.5	189.3*	178.0	189.6	178.9	247.8*	233.2*
13	231.7	221.6	217.9	144.6	232.8	192.9	186.5	196.8	193.3*	171.9	253.3*	226.8
14	238.3	203.8	201.0	141.2	226.3	202.9	188.8*	209.7	191.7*	163.4	251.1	218.8*
15	231.8	200.0	201.2*	139.3	206.1*	199.8	186.4	218.4	191.9	153.8	237.0	205.2*
16	216.3	188.6	200.2	137.3	192.4	202.9*	193.3	235.4*	195.7	159.6	214.9	191.1
17	202.2	186.9	182.8*	142.9	191.9	207.5*	197.4	250.2*	197.7*	158.0	201.1	181.6*
18	187.4	177.5	180.0*	147.4	201.4	214.3*	207.6	249.8*	204.3*	154.4	200.6	174.9
19	183.0	164.4	177.3	162.3	214.5*	234.2	219.8*	255.2*	201.4	160.1*	203.3	172.4
20	180.8*	156.5	174.7	162.1	215.8	244.7*	227.9*	258.0	193.0	167.5	200.5	161.6
21	176.7*	153.4	169.6	162.4	207.7	252.6	228.0	254.0	194.1	159.6	204.2	161.8
22	175.3	158.2*	167.3	162.5	199.2	276.6	250.0*	248.7	178.3*	178.6	205.3*	171.4
23	168.6	166.7	160.1	172.4*	186.2	289.5	251.5	235.1	174.1	188.7*	196.1	167.2
24	160.2	171.1*	157.2*	172.4	186.3	290.2	245.9*	222.2	164.3*	191.3	192.5	174.9*
25	162.0	171.3*	165.7	182.5*	185.9	292.8	238.8*	206.4	153.8*	183.8	182.9	176.4*
26	159.7	178.8*	169.0	185.2	186.6	284.2	226.3	197.4	154.6	184.3	180.3*	189.6
27	153.6*	190.6*	173.2	195.3*	200.6*	281.2*	212.6	188.4	159.3	183.2*	177.2	185.3
28	163.1	194.0	171.7*	203.5	203.7	280.8*	199.7*	169.5	168.3	185.2	178.2*	191.4
29	174.0	197.0	176.7*	199.9	203.5*	252.3	188.8	155.3	178.5	178.2*	186.4	206.1*
30	185.5	197.9	.	194.3*	200.9	222.7	183.4	143.3	191.4*	174.1	201.8	216.3
31	188.9	213.9*	.	187.2*	.	200.6	.	136.5	198.7*	.	211.5	.
MEAN	197.2	199.6	195.1	166.5	209.3	229.1	199.3	190.8	170.3	185.9	202.9	213.4

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

NOVEMBER 1980

	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$		AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	306	27	183	213	229.7	543	414	244	226.3	223	159		56	
2	307	1	218	212	238.0	542	419	249	234.2	226	160		61	
3	308	2	204	221	245.5	543	429	255	241.6	238	158		52	
4	309	3	211	202	254.2*	541	387	272	249.9*	249	167		48	
5	310	4	201	200	267.9*	557	414	294	263.3*	254	166		51	
6	311	5	172	198	278.9*	587	487	341	273.9*	289	175		50	
7	312	6	175	216	277.7	546	425	311	272.7	268	165		36	
8	313	7	201	204	271.4*				266.2*					
9	314	8	179	177	260.3*	537	426	289	255.4*	243	172		51	
10	315	9	158	165	262.4*	535	440	323	257.2*	242	165		46	
11	316	10	144	155	261.2*	569			256.0*		167		46	
12	317	11	120	124	238.2*	545	433	278	233.2*	240	159		44	
13	318	12	103	111	231.7	541	424	269	226.8	217	146		51	
14	319	13	108	123	223.5*	531	406	257	218.8*	211	148		47	
15	320	14	92	99	209.8*				205.2*					
16	321	15	112	123	195.4	522	361	219	191.1	185	132		42	
17	322	16	109	126	185.9*	520	350	207	181.6*	173	132		41	
18	323	17	113	125	179.0	470		195	174.9	163	122		39	
19	324	18	125	131	176.6	516	348	196	172.4	160	127		40	
20	325	19	112	124	165.6				161.6					
21	326	20	107	116	165.8	500	324	177	161.8	152	127		38	
22	327	21	119	116	175.8	523	335	191	171.4	149	127		42	
23	328	22	112	125	171.5	518	333	175	167.2	149	127		40	
24	329	23	128	131	179.6*	486	323	179	174.9*	155	129		38	
25	330	24	127	108	181.1*	505	336	192	176.4*	163	126		39	
26	331	25	140	138	194.7	542			189.6		134		42	
27	332	26	154	187	190.4	528	352	200	185.3	177	132		40	
28	333	27	167	114	196.7	398	309	192	191.4	173	143		40	
29	334	1	148	182	211.8*	529	369	219	206.1*	194	153		42	
30	335	2	153	201	222.5	513	373	231	216.3	202	159		61	
MEAN			146.5	155.6	218.1	525	384	238	213.4	204	147		45	

*ADJUSTED FOR BURST.

NOTE: DATA GAPS IN AFGL SAGAMORE HILL DATA ARE DUE TO EQUIPMENT PROBLEMS.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Dec 77	43.2	57	42.8	55	44.8	61	98.9	114
Jan 78	51.9	61	48.8	59	52.6	66	106.1	118
Feb	93.6	64	90.9	61	91.1	69	141.8	122
Mar	76.5	70	73.9	66	89.5	73	140.3	125
Apr	99.7	77	97.5	72	100.5	79	150.5	130
May	82.7	83	79.6	78	99.7	84	149.7	135
Jun	95.1	89	88.0	84	96.5	90	146.8	141
Jul	70.4	97	58.1	92	84.2	97	135.2	147
Aug	58.1	104	48.1	98	64.3	104	116.9	153
Sep	138.2	108	128.1	103	110.4	108	159.6	158
Oct	125.1	111	116.0	105	107.7	111	157.1	160
Nov	97.9	113	92.8	107	98.1	113	148.2	162
Dec	122.7	118	121.0	111	121.6	116	170.0	165
Jan 79	166.6	124	164.4	116	150.2	119	196.5	168
Feb	137.5	131	136.8	123	153.0	124	199.1	172
Mar	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	156*	140.5	145	123.1	145	171.4	192
Aug	142.2	157*	125.1	144	129.2	145	177.0	192
Sep	188.4	157*	184.0	143	156.5	144	202.3	191
Oct	186.2	158*	178.2	144	171.7	145	216.4	192
Nov	183.3	163*	176.5	149	182.9	149	226.8	196
Dec	176.3	165*	157.6	152	151.0	152	197.2	199
Jan 80	162.2*	165*	146.7	153	153.6	154	199.6	200
Feb	159.3*	163*	131.0	154	148.7	155	195.1	200
Mar	126.5*	162*	111.0	153	117.8	153	166.5	200
Apr	166.6*	159*	148.7	151	164.0	152	209.3	198
May	179.7*	157*	176.5	149	185.4	151	229.1	197
Jun	157.2*	154(± 6)*	158.8	147	153.2	149	199.3	---
Jul	135.0*	151(±12)*	144.7	144	144.1	146	190.8	---
Aug	135.4*	149(±16)*	134.5	142	121.9	144	170.3	---
Sep	154.5*	147(±17)*	151.4	140	138.8	142	185.9	---
Oct	162.9*	146(±19)*	163.0	140	157.1	141	202.9	---
Nov	146.5*	145(±22)*	155.6	139	168.5	141	213.4	---
Dec	---	144(±26)*	---	138	---	140	---	---
Jan 81	---	144(±29)*	---	138	---	140	---	---
Feb	---	144(±29)*	---	138	---	139	---	---
Mar	---	141(±28)*	---	135	---	137	---	---
Apr	---	138(±28)*	---	132	---	134	---	---
May	---	135(±30)*	---	130	---	131	---	---

*An asterisk denotes a value of the observed monthly mean, or the observed 12-month running mean, or the predicted 12-month average that is based only on preliminary observations of the Zurich relative sunspot number (Rz). Parentheses enclose the 90% confidence limits. Hatched boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

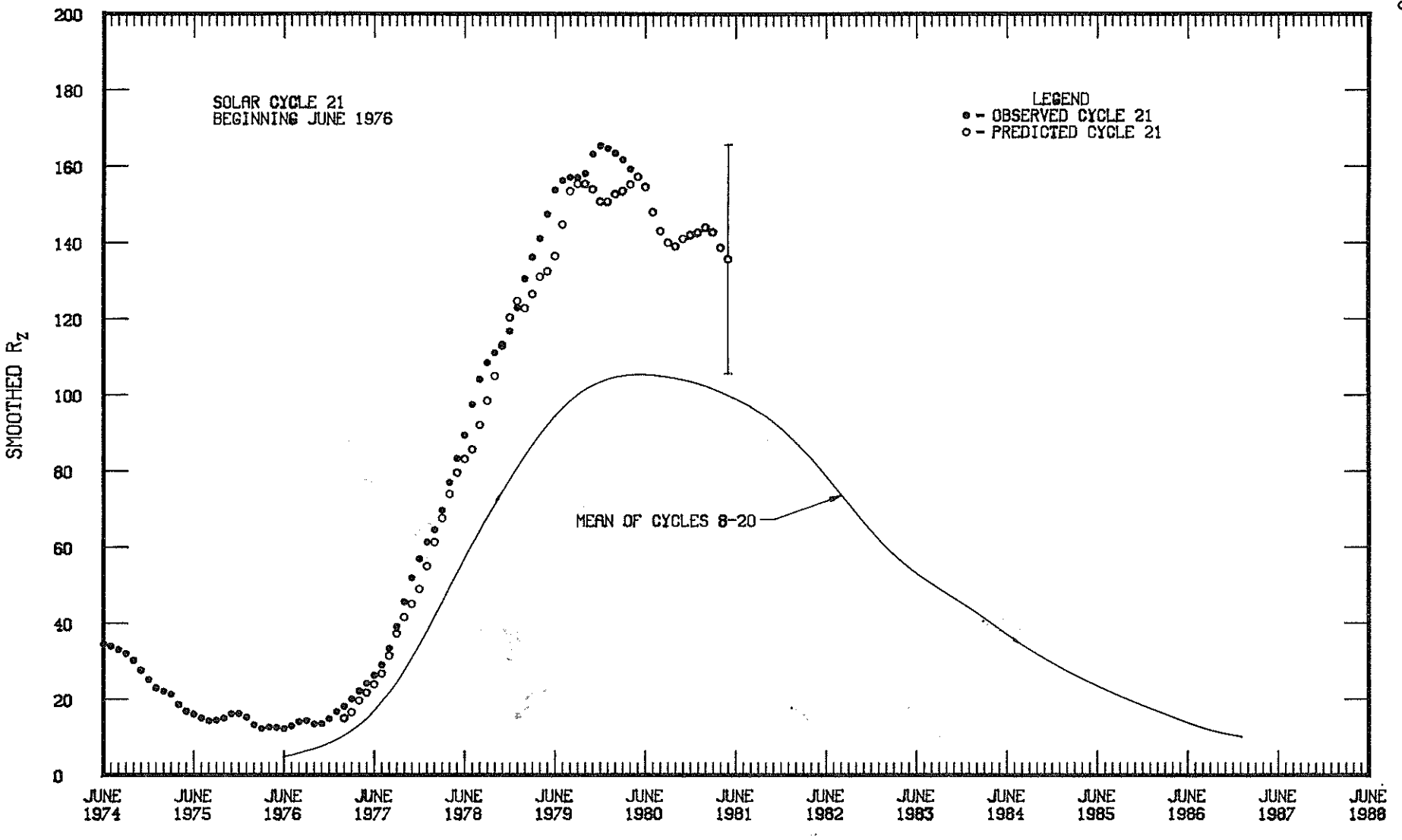
MONTH 1976	JAN 15	FEB 13	MAR 12	APR 13	MAY 13	JUN 12	JUL 13	AUG 14	SEP 14	OCT 13	NOV 14	DEC 15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	156	157	157	159	163	165*
1980	165*	163	162	159	157	[154 (6)	151 (12)	149 (16)	147 (17)	146 (19)	145 (22)	144 (26)
1981	144 (29)	144 (29)	141 (28)	138 (28)	135 (30)	132 (30)	131 (31)	130 (30)	129 (30)	127 (30)	124 (30)	121 (29)
1982	117 (27)	114 (26)	111 (25)	109 (24)	106 (23)	104 (21)	100 (19)	95 (18)	90 (18)	85 (16)	81 (15)	78 (16)
1983	74 (16)	71 (17)	69 (18)	66 (19)	64 (20)	61 (21)	59 (23)	58 (24)	56 (26)	55 (28)	55 (29)	54 (29)
1984	52 (30)	50 (29)	47 (28)	44 (29)	42 (30)	41 (31)	40 (31)	39 (31)	37 (30)	36 (29)	34 (28)	32 (27)
1985	31 (27)	30 (27)	29 (26)	29 (26)	28 (26)	27 (25)	26 (23)	25 (22)	24 (22)	23 (23)	22 (24)	22 (24)
1986	21 (24)	20 (24)	19 (24)	18 (23)	17 (22)	15 (21)	14 (20)	13 (19)	13 (18)	12 (17)	12 (15)	12 (14)
1987	12 (12)	12 (12)	13 (12)	14 (12)	15 (14)	16 (14)	17 (15)					

The table gives observed Zürich *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1979 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1980 are included. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1980). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

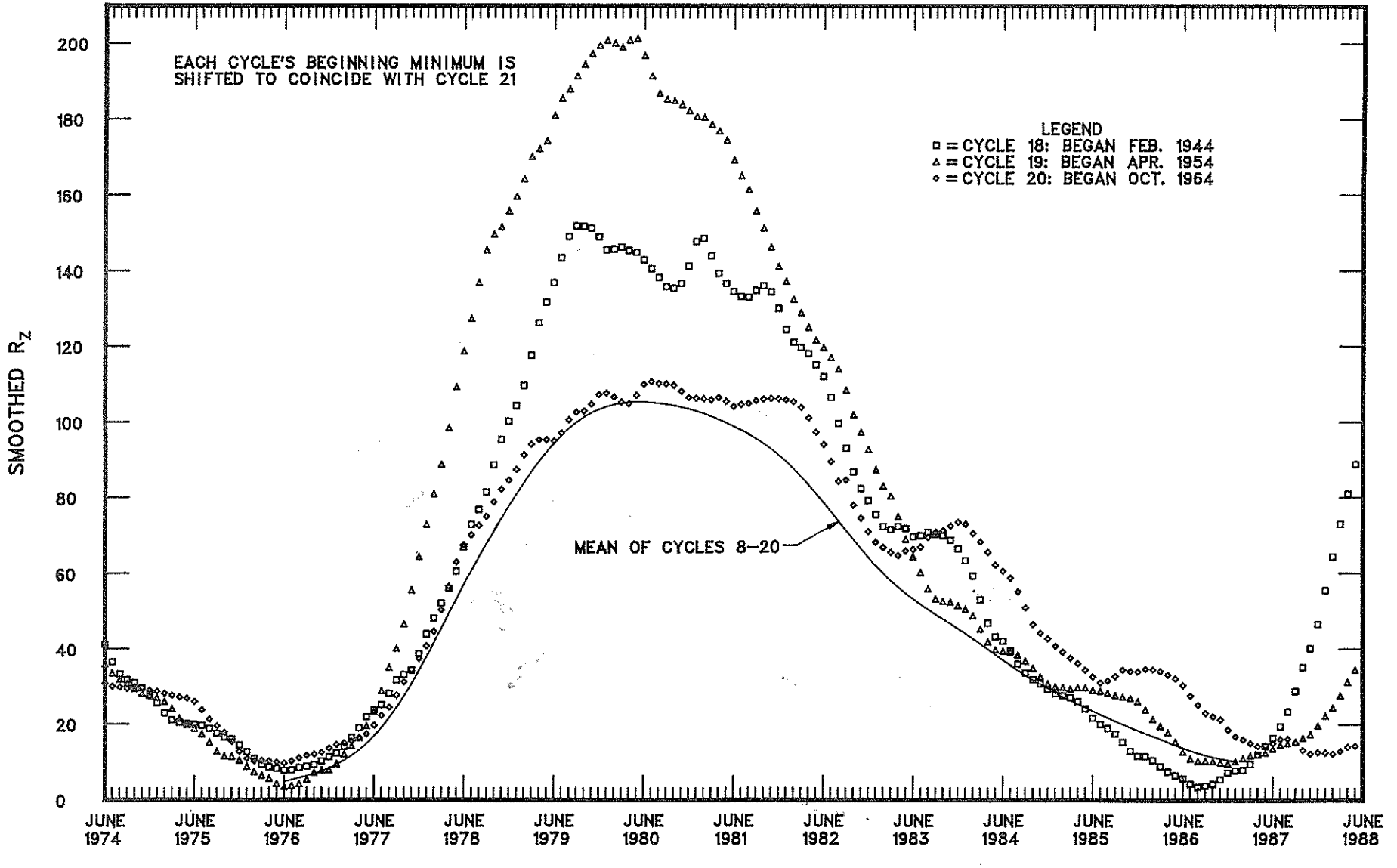
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21. The most recent observed smoothed sunspot value suggests the maximum occurred in the interval December 1979 - January 1980. The uncertainties, however, in the predicted numbers indicate it is still too early to claim these 2 months as the period in which the true peak in the curve occurred.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



15
Nov 80

Hα SOLAR FLARES

NOVEMBER 1980

OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
LEAR	01	0102	0104	0119	N16	E71	.943		6.4	17	SF	3	C		18		
LEAR	01	0236	0237	0241	S16	W47	.775		28.6	5	SF	3	C		22		
LEAR	01	0321	0321	0339	N21	E40	.672		4.1	18	SN	3	C		19		
LEAR	01	0515	0519	0521	N21	E39	.660		4.1	6	SN	3	C		29		
LEAR	01	0519	0522	0530	N30	E25	.571		3.1	11	SN	3	C		128		
LEAR	01	0606	0610	0620	N02	E46	.719		4.7	14	SF	3	C		37		
RAMY	01	1315	1320	1322	S12	E72	.958		7.0	7	SF	3	C				
RAMY	01	1316	1321	1324	S16	W53	.831		28.6	8	SF	3	C		26		
RAMY	01	1319	1326	1334	N13	W28	.484		30.5	15	SF	3	C		31		
RAMY	01	1324	1340	1348	S11	E72	.958		7.0	24	SF	3	C				
RAMY	01	1337	1342	1353	N01	E40	.644		4.6	16	SF	3	C		22		
RAMY	01	1342	1354	1411	N22	E36	.630		4.3	29	SN	3	C		33		
RAMY	01	1349	1409	1417	S12	E71	.953		6.9	28	SN	3	C				
RAMY	01	1502	1506	1509	N15	W12	.273		31.7	7	SF	3	C		26		
RAMY	01	1503	1506	1511	N02	E42	.669		4.8	8	SF	3	C		40		
HOLL	01	1615	1734	1758	N23	E33	.600		4.2	103	SN	3	C		96		
RAMY	01	1718	1719	1722	S11	E60	.880		6.2	4	SF	3	C		11		
RAMY	01	1734	1734	1741	N21	E31	.565		4.1	7	SN	3	C		39		
HOLL	01	1735	1735	1749	N13	W32	.541		30.3	14	SF	3	C		21		
HOLL	01	1738	1738	1745	N01	E39	.631		4.7	7	SF	3	C		19		
HOLL	01	1812	1833	1844	S10	E72	.957		7.2	32	SN	3	C				
HOLL	01	1817	1834	1843	N22	E30	.559		4.0	26	SF	3	C		34		
RAMY	01	1819	1830	19130	N03	E39	.629		4.7	540	SF	3	C		122		
HOLL	01	1825	1826	1901	N03	E40	.642		4.8	36	SN	3	C		50		
PALE	01	1826	1827	1834	N04	E39	.628		4.7	8	SF	3	C		28		
HOLL	01	1841	1842	1845	N18	E60	.867		6.3	4	SN	3	C		15		
HOLL	01	1856	1856	1905	N14	E62	.881		6.4	9	SN	3	C		23		
PALE	01	1857	1857	1909	N10	E64	.896		6.6	12	SF	3	C		23		
HOLL	01	1908	1913	1925	N23	E33	.600		4.3	17	SF	3	C		33		
HOLL	01	1911	1912	1925	N12	W29	.495		30.6	14	SN	3	C		80		
HOLL	01	1916	1919	1948	N17	E64	.898		6.6	32	1B	3	C		191		
PALE	01	1917	1920	1945	N13	E62	.881		6.5	28	1B	3	C		214		
HOLL	01	1943	1946	2008	N03	E38	.615		4.7	25	SN	3	C		44		
HOLL	01	2108	2108	2127	S05	W42	.682		29.7	19	SF	3	C		18		
HOLL	01	2118	2122	2132	N14	W33	.558		30.4	14	SF	3	C		22		
HOLL	01	2153	2159	2230	N19	W16	.365		31.7	37	SF	3	C		65		
HOLL	01	2330	2332	23470	N13	W18	.338		31.6	170	SN	2	C		88		
HOLL	01	2338	2342	2356	N20	E26	.496		3.9	18	SN	2	C		55		
HOLL	01	2338	2354	2357	S17	W56	.860		28.8	19	SF	3	C		26		
PALE	01	2340	2343U	2352	N22	E26	.511		3.9	12	SF	3	C		30		D
LEAR	02	0207	0211	0230	N20	E25	.484		4.0	23	SB	3	C		128		
PALE	02	0208	0211U	0222	N21	E24	.480		3.9	14	SN	3	C		106		
ATHN	02	1057E	1100U	1135	N22	E20	.442		4.0	380	SB	2	C		127		
RAMY	02	1242	1250	1251	N06	W28	.468		31.4	9	SF	3	C		47		
RAMY	02	1304	1306	1316	S04	W51	.784		29.7	12	SN	3	C		79		
RAMY	02	1345	1420	1440	S18	W65	.926		28.7	55	SN	3	C		72		
HOLL	02	1419	1419	1426	S20	W59	.889		29.2	7	SB	2	C		47		
RAMY	02	1518	1518	1529	N28	E18	.488		4.0	11	SF	3	C		82		
HOLL	02	1603	1605	1621	N25	E24	.515		4.5	18	SN	3	C		38		
HOLL	02	1615	1617	1633	S05	W51	.786		29.9	18	SF	3	C		49		
RAMY	02	1621	1623	1631	N18	W57	.842		29.4	10	SN	3	C		96		
HOLL	02	1655	1655	1705	N16	E48	.749		6.3	10	SB	3	C		20		
RAMY	02	1655	1656	1706	N15	E48	.748		6.3	11	SB	3	C		42		
RAMY	02	1708	1714	1721	N18	E06	.257		3.2	13	SF	3	C		30		
RAMY	02	1749	1752	1800	S16	W69	.946		28.6	11	SN	3	C		48		
HOLL	02	1752	1752	1759	S17	W66	.931		28.8	7	SN	3	C		30		
HOLL	02	1753	1801	1836	S11	E55	.837		6.9	43	SF	3	C		31		
HOLL	02	1852	1854	1857	N23	E25	.508		4.7	5	SF	3	C		26		
HOLL	02	1905	1910	1922	S17	W68	.942		28.7	17	SN	3	C		30		
HOLL	02	1908	1915	1931	N04	E21	.357		4.4	23	SN	3	C		47		
HOLL	02	1947	1947	1956	N23	E19	.442		4.2	9	SN	3	C		24		
HOLL	02	2230	2230	2235	S10	E49	.776		6.6	5	SF	3	C		20		
HOLL	02	2230	2241	2258	N05	E18	.308		4.3	28	SN	3	C		31		
LEAR	02	2236E	2248	2325	N04	E19	.325		4.4	490	SF	2	C		48		
HOLL	02	2330	2338	23390	N22	E17	.410		4.3	90	SN	2	C		43		
HOLL	02	2337	2337	23390	N09	E47	.730		6.5	20	SF	2	C		22		
PALE	02	2339	2339	2345	N23	E18	.431		4.3	6	SF	2	C		27		
LEAR	02	2346	2348	2358	S17	W69	.947		28.8	12	SF	3	C		11		
PALE	02	2355	0002	0026	N05	E18	.308		4.3	31	1B	2	C		208		D
LEAR	02	2356	0002	0023	N04	E17	.292		4.3	27	1B	3	C		256		

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WEND	03	1206	1207	1219	N04	E12	.207		4.4	13	SN		C	1207	44	.5	
WEND	03	1352	1402	1431	N05	E13	.225		4.6	39	SB		C	1402	163	1.7	E
ATHN	04	1104	1107	1136	N20	E02	.276		4.6	32	SB	3	C		111		D
ATHN	04	1245	1247	1254D	N04	E03	.052		4.8	9D	SB	3	C		190		D
RAMY	04	1246	1248	1311	N06	W02	.048		4.4	25	1B	3	C		253		D
ATHN	04	1337	1340	1350	N13	E30	.514		6.8	13	SB	3	C		32		D
RAMY	04	1352	1359	1406	S11	E30	.551		6.8	14	SF	3	C		33		
RAMY	04	1429	1508	1649	N22	W09	.341		3.9	140	1B	3	C		247		D
HOLL	04	1506E	1508	1545D	N23	W08	.349		4.0	39D	1B	3	C		250		
RAMY	04	1618	1619	1626	S10	E26	.492		6.6	8	SF	3	C		62		
HOLL	04	1625	1626	1629D	N04	W06	.104		4.2	4D	SN	3	C		41		
RAMY	04	1626	1630	1646	N05	W07	.123		4.2	20	SN	3	C		78		
HOLL	04	1710	1710	1736	N04	W02	.035		4.6	26	SN	3	C		81		
HOLL	04	1813	1816	1822	S11	E26	.499		6.7	9	SN	3	C		93		
HOLL	04	1831	1832	1840	N21	W08	.319		4.2	9	SN	3	C		39		
PALE	04	1954	1957	2006	N16	E17	.350		6.1	12	SF	3	C		70		
PALE	04	2006	2007	2015	N25	W06	.370		4.4	9	SF	3	C		23		
LEAR	04	2226	2227	2235	N08	W59	.855		31.5	9	SF	3	C		34		
LEAR	04	2249	2254	2303	S19	E56	.864		9.2	14	SF	3	C		23		
LEAR	04	2249	2301	2308	N15	E16	.328		6.2	19	SF	3	C		34		
LEAR	05	0009	0010	0016	N10	E23	.400		6.7	7	SN	3	C		44		
LEAR	05	0119	0121	0135	N01	W05	.101		4.7	16	SF	3	C		44		
LEAR	05	0247	0248	0257	S12	E21	.443		6.7	10	SB	3	C		69		C
LEAR	05	0441E	0447	0451	S07	E90	1.000		11.9	10D	SF	3	C				
LEAR	05	0447	0508	0522	N15	E12	.278		6.1	35	1N	3	C		234		
LEAR	05	0807	0808	0829	N13	E20	.370		6.8	22	SN	3	C		25		
ATHN	05	0857E	0859	1005	S14	E85	.998		11.7	68D	SB	3	C		64		D
LEAR	05	0903	0907	0910	S12	E78	.982		11.2	7	SN	3	C				
WEND	05	1031	1035	1044D	N02	W14	.244		4.4	13D	SF		C	1035	44	.5	E
ATHN	05	1057	1059	1124	N03	W11	.191		4.6	27	SB	3	C		48		D
ATHN	05	1057	1106	1157	S14	E85	.998		11.8	60	SB	3	C		64		D
ATHN	05	1106	1109	1121	N13	E16	.312		6.7	15	SN	3	C		32		
ATHN	05	1309	1312	1316D	S14	E85	.998		11.9	7D	SB	3	C		48		D
ATHN	05	1309	1312	1334	S14	E85	.998		11.9	25	SB	3	C		48		D
RAMY	05	1323	1324	1340	N11	E18	.328		6.9	17	SF	3	C		21		
RAMY	05	1333	1346	1348D	S06	E71	.949		10.9	15D	1B	3	C		134		
ATHN	05	1346E	1349	1400D	S14	E85	.998		11.9	14D	SB	3	C		80		D
HOLL	05	1414E	1421U	1508	S11	E77	.978		11.4	54D	2B	3	C				
RAMY	05	1451	1453	1500	S18	W70	.953		31.4	9	SF	3	C		17		
HOLL	05	1603	1640	1640D	N13	E09	.219		6.3	37D	1B	3	C		324		
HOLL	05	1603	1641	1740	N08	E11	.202		6.5	97	1B	3	C		435		D
HOLL	05	1607	1613	1718	S11	E13	.339		6.6	71	SN	3	C		66		
HOLL	05	1703	1705	1712	N04	E21	.358		7.3	9	SN	3	C		43		
HOLL	05	1711	1711	1727	S10	E74	.966		11.3	16	SN	3	C				
PALE	05	1805	1834	1849	S18	E45	.760		9.1	44	SN	2	C		41		
HOLL	05	1805	1957	2135	S18	E45	.760		9.1	21D	SB	3	C		125		
PALE	05	1812	1812	1827	N25	W18	.457		4.4	15	SF	2	C		23		
HOLL	05	1838	1941	1942D	S09	E76	.974		11.5	64D	SB	3	C				
HOLL	05	1838	2258	2324	S10	E70	.946		11.0	28D	1B	3	C		107		
HOLL	05	1838	2237	2351D	N10	E07	.160		6.3	313D	1B	3	C		446		
PALE	05	1937	1944	1953	S09	E76	.974		11.5	16	SF	2	C				
PALE	05	1954	1955	2003	S18	E44	.750		9.1	9	SF	2	C		40		
HOLL	05	2141	2231	2351D	S18	E43	.740		9.1	130D	SB	3	C		87		
HOLL	05	2144	2158	2237	S18	W73	.967		31.4	53	SF	3	C				
HOLL	05	2157	2157	2225	N21	W23	.471		4.2	28	SN	3	C		27		
LEAR	05	2226	2234	2325	N10	E08	.173		6.5	59	1B	2	C		243		D
PALE	05	2226E	2234	2355D	N11	E07	.171		6.5	89D	1B	2	C		212		D
LEAR	05	2230	2232	2235	S20	E44	.759		9.2	5	SF	3	C		23		
LEAR	05	2253	2302	2310	S12	E72	.958		11.4	17	SB	3	C				
HOLL	05	2259	2319	2335	N20	W21	.438		4.4	36	SN	3	C		70		
LEAR	05	2305	2311	2318	S18	W76	.978		31.3	13	SB	3	C				
HOLL	05	2306	2312	2320	S18	W73	.967		31.5	14	SB	3	C				C
LEAR	05	2317	2318	2334	N22	W22	.468		4.3	17	SF	3	C		27		
HOLL	05	2325	2332	2342D	S11	E68	.935		11.1	17D	1N	3	C		117		
LEAR	05	2342	2344	2349	S13	E70	.948		11.2	7	SN	3	C		24		
LEAR	05	2343	2347	0013D	N10	E07	.160		6.5	30D	SN	3	C		80		
MANI	06	0628E	0628U	0638D	S20	E41	.729		9.3	10D	SN	2	C		50		
MANI	06	0650E	0652	0700D	N09	E08	.164		6.9	10D	SN	3	C		100		
LEAR	06	0853	0855	0925	N24	W28	.554		4.3	32	SN	3	C		65		

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LEAR	07	0110	0128	0134	S09	E65	.914		11.9	24	SN	3	C		62		
PALE	07	0113	0123	0139	N07	W11	.198		6.2	26	SF	3	C		57		
MANI	07	0115E	0115U	0137D	N07	W10	.182		6.3	22D	SF	2	C		40		
MANI	07	0115E	0115U	0137D	S09	E60	.876		11.6	22D	SF	2	C		30		
PALE	07	0126	0128	0144	S09	E59	.868		11.5	18	SF	3	C		36		
PALE	07	0140	0141	0149	S20	E32	.635		9.5	9	SF	3	C		49		
MANI	07	0143E	0144	0149D	S19	E31	.617		9.4	6D	SF	2	C		50		
MANI	07	0148E	0150	0315	N10	W08	.175		6.5	87D	SF	3	C		100		
PALE	07	0156	0206	0315	N07	W11	.198		6.3	79	2B	3	C		1035		D
LEAR	07	0417	0425	0544	S11	E57	.854		11.5	87	1B	3	C		143		D
MANI	07	0450E	0450U	0502D	S10	E57	.852		11.5	12D	SN	3	C		50		
LEAR	07	0642	0643	0648	S11	E56	.845		11.5	6	SN	3	C		32		
LEAR	07	0724	0727	0734	S19	E25	.552		9.2	10	SF	3	C		29		
ISTA	07	0725E		0739	N09	W14	.256		6.3	14D	1B						F
LEAR	07	0727	0728	0806	N12	W12	.250		6.4	39	SB	3	C		134		D
ISTA	07	0732		0740	N06	W19	.327		5.9	8	SN						D
ATHN	07	0934E	0936	1003	S06	E59	.864		11.8	29D	SB	2	C		127		D
LEAR	07	0937	0937	0956	S10	E59	.869		11.8	19	SB	3	C		48		D
RAMY	07	1134	1135	1138D	S11	E50	.787		11.2	4D	SB	3	C		77		D
ATHN	07	1256E	1257	1300D	S08	E52	.801		11.4	4D	SB	3	C		95		D
ATHN	07	1255E	1257	1400D	N10	W15	.278		6.4	54D	1B	3	C		222		D
RAMY	07	1256	1304	1345	N08	W12	.219		6.6	49	1B	3	C		202		D
RAMY	07	1329	1335	1353	S09	E52	.803		11.5	24	SB	3	C		57		
RAMY	07	1413	1437	1438C	N07	W15	.263		6.5	25D	1B	3	C		295		
HOLL	07	1440	1540	1549	S07	E56	.838		11.8	69	SB	3	C		151		
RAMY	07	1441	1441	1442D	S07	E56	.838		11.8	1D	SB	3	C		58		
HOLL	07	1455	1646	1825D	S18	E19	.481		9.0	210D	SN	3	C		140		
HOLL	07	1612	1613	1622	N10	W14	.263		6.6	10	SF	2	C		24		
HOLL	07	1642	1642	1650	N08	W18	.316		6.3	8	SN	3	C		22		
RAMY	07	1645	1650	1656	S18	E20	.490		9.2	11	SF	3	C		37		
HOLL	07	1647	1647	1652	S11	W13	.336		6.7	5	SF	3	C		24		
HOLL	07	1650	1656	1704	S09	E50	.782		11.5	14	SN	3	C		46		
HOLL	07	1705	1741	1817	S10	E50	.784		11.5	72	SN	3	C		70		
HOLL	07	1708	1729	1733	S11	W15	.358		6.6	25	SF	3	C		21		
HOLL	07	1724	1741	1825C	N09	W16	.288		6.5	61D	2B	3	C		818		
RAMY	07	1726	1742	1847	N08	W18	.316		6.4	81	2B	3	C		570		D
RAMY	07	1732	1736	1744	N20	W52	.800		3.8	12	SF	3	C		20		
RAMY	07	1739	1740	1748	S18	E20	.490		9.2	9	SF	3	C		24		
PALE	07	1742E	1743U	1901	N09	W16	.288		6.5	79D	1B	3	C		460		D
PALE	07	1744E	1801	1815	N04	W25	.422		5.9	31D	SF	3	C		62		
HOLL	07	1823	2210	2337C	S10	E44	.719		11.1	314D	1B	3	C		231		
HOLL	07	1923E	1927	1954	N20	W51	.790		4.0	31D	SF	3	C		41		
HOLL	07	1943	1948	1956	N10	W16	.293		6.6	13	SF	3	C		28		
HOLL	07	1955	2001	2012	S11	W15	.358		6.7	17	SN	3	C		72		
HOLL	07	2034	2034	2042	N08	W19	.332		6.4	8	SN	3	C		23		
PALE	07	2158	2205	2256	S08	E48	.758		11.5	58	SF	3	C		44		
HOLL	07	2224	2230	2337D	N09	W18	.319		6.6	73D	SB	3	C		99		D
PALE	08	0119	0120	0152	N09	W21	.367		6.5	33	SF	3	C		60		
LEAR	08	0120	0120	0158	N10	W19	.340		6.6	38	SB	3	C		99		
MANI	08	0123E	0125U	0132D	N11	W23	.406		6.3	9D	SB	3	C		20		
LEAR	08	0350	0356	0414	N09	W21	.367		6.6	24	SF	3	C		46		
LEAR	08	0351	0356	0418	S19	E14	.447		9.2	27	SF	3	C		72		
LEAR	08	0421	0422	0438	N11	W19	.345		6.8	17	SN	3	C		46		
LEAR	08	0422	0422	0428	S19	E15	.455		9.3	6	SF	3	C		33		
LEAR	08	0459	0503	0505D	N12	W24	.425		6.4	6D	SB	3	C		58		D
LEAR	08	0459	0500	0505	N22	W53	.814		4.2	6	SF	3	C		32		
LEAR	08	0717E	0718	0831	N10	W21	.371		6.7	74D	1B	3	C		277		D
ATHN	08	0720E	0722	0814	N12	W22	.396		6.7	54D	1B	3	C		286		D
LEAR	08	0735	0736	0759	N05	W32	.529		5.9	24	SF	3	C		28		
LEAR	08	0832	0832	0838	S11	E41	.686		11.4	6	SN	3	C		38		
LEAR	08	0902	0903	0930	S07	E45	.721		11.8	28	1N	3	C		198		
ATHN	08	0903E	0905	0920	S11	E49	.776		12.1	17D	1B	3	C		190		D
ATHN	08	1125	1126	1143	S15	E43	.725		11.7	18	SB	3	C		80		D
RAMY	08	1217	1219	1231	S11	W25	.483		6.6	14	SN	3	C		23		
RAMY	08	1217	1243	1243D	N08	W29	.487		6.3	26D	SB	3	C		131		
RAMY	08	1234	1241	1308	S09	E41	.679		11.6	34	SN	3	C		89		
RAMY	08	1333	1337	1538	N08	W28	.472		6.5	125	2B	3	C		900		
ATHN	08	1335E	1337	1400D	N13	W29	.502		6.4	25D	1B	3	C		350		
RAMY	08	1351	1354	1444	S10	E37	.633		11.4	53	SN	3	C		133		
RAMY	08	1447	1451	1452	S09	E37	.629		11.4	5	SB	3	C		108		
RAMY	08	1447	1454	1505	S09	E37	.629		11.4	18	1B	3	C		202		

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OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	REMARKS
RAMY	08	1537	1539	1543	S09	E36	.616		11.4	6	SF	3	C		25		
RAMY	08	1614	1615	1623	N05	W34	.558		6.1	9	SF	3	C		35		
HOLL	08	1618	1620	1625	S08	E42	.688		11.8	7	SN	3	C		86		
RAMY	08	1618	1620	1625	S07	E41	.673		11.8	7	SN	3	C		79		
HOLL	08	1633	1638	1647	S08	E44	.712		12.0	14	SF	3	C		31		
HOLL	08	1652	1654	1658	N08	W36	.589		6.0	6	SN	3	C		61		
RAMY	08	1652	1653	1700	N07	W36	.588		6.0	8	SN	3	C		79		
HOLL	08	1728	1730	1737	S10	E36	.621		11.4	9	SF	3	C		23		
HOLL	08	1729	1729	1805	N09	W28	.474		6.6	36	SB	3	C		44		
RAMY	08	1730	1730	1758	N12	W31	.527		6.4	28	SN	3	C		43		
HOLL	08	1804	1806	1813	S10	E36	.621		11.5	9	SF	3	C		21		
HOLL	08	1815	1819	1826	S07	E44	.709		12.1	11	SN	3	C		28		
RAMY	08	1838	1840	1909	S10	W33	.582		6.3	31	SF	3	C		40		
HOLL	08	1839	1840	1910	S10	W32	.569		6.4	31	SN	3	C		43		
HOLL	08	1903	1908	1922	S18	E10	.404		9.5	19	SN	3	C		49		
RAMY	08	1908	1909	1919	S18	E09	.397		9.5	11	SF	3	C		36		
HOLL	08	1910	1914	1915	S12	W29	.542		6.6	5	SF	3	C		59		
RAMY	08	1929	1935	1942	S10	E35	.608		11.4	13	SF	3	C		25		
HOLL	08	1935	1935	1942	S19	E07	.402		9.3	7	SF	3	C		32		
RAMY	08	1942	1942	1953	S19	E06	.397		9.3	11	SF	3	C		57		
RAMY	08	1956	2008	2049	N21	W62	.888		4.2	53	1N	3	C		216		
HOLL	08	1956	2007	2039	S08	E43	.700		12.1	43	1B	3	C		208		D
RAMY	08	1957	2008	2036	S09	E35	.603		11.5	39	SB	3	C		174		D
HOLL	08	1959	2007	2009D	N23	W60	.875		4.3	10D	1B	3	C		164		D
RAMY	08	2008	2008	2019	N12	W32	.541		6.4	11	SF	3	C		21		
RAMY	08	2047	2047	2056	S13	W26	.511		6.9	9	SF	3	C		32		
HOLL	08	2054	2054	2058D	N09	W30	.504		6.6	4D	SB	3	C		21		D
HOLL	08	2109	2113	2131	N09	W30	.504		6.6	22	SB	3	C		54		
HOLL	08	2240	2247	2247D	S18	E02	.371		9.1	7D	1B	3	C		208		
MANI	08	2244E	2245U	2253D	S19	E03	.388		9.2	9D	SN	3	C		150		
LEAR	08	2250E	2252U	2317	S20	E04	.406		9.3	27D	SF	2	C		62		
PALE	08	2331	2332	2336	S08	E39	.651		11.9	5	SF	3	C		36		
HOLL	08	2331	2331	2336	S09	E39	.655		11.9	5	SB	3	C		38		D
LEAR	09	0052	0102	0204	S18	E02	.369		9.2	72	2B	3	C		529		
PALE	09	0056	0100	0131	S18	E04	.373		9.3	35	1N	3	C		216		
MANI	09	0057F	0059U	0105D	S19	E03	.387		9.3	8D	SN	3	C		120		
PALE	09	0104	0105	0110D	S08	E33	.572		11.5	6D	SF	3	C		23		
LEAR	09	0104	0106	0110	S11	E32	.574		11.4	6	SN	3	C		22		
PALE	09	0203E	0204U	0216	S08	E32	.558		11.5	13D	SF	3	C		91		
LEAR	09	0203	0205	0214	S13	E37	.647		11.9	11	SB	3	C		143		D
PALE	09	0236	0239	0251	S07	E37	.621		11.9	15	SN	3	C		81		D
LEAR	09	0237	0241	0248	S10	E35	.607		11.7	11	SB	3	C		60		D
LEAR	09	0318	0322	0334	S19	E02	.385		9.3	16	SF	3	C		123		
LEAR	09	0355	0357	0415	S19	E03	.387		9.4	20	1N	3	C		228		
LEAR	09	0402	0407	0423	N11	W32	.538		6.8	21	SB	3	C		67		D
LEAR	09	0404	0407	0415	S11	E32	.574		11.6	11	SN	3	C		40		
LEAR	09	0427	0429	0442	S09	E36	.616		11.9	15	SB	3	C		151		D
LEAR	09	0534	0538	0541	N07	W38	.615		6.4	7	SF	3	C		36		
LEAR	09	0904	0908	0918	S09	E32	.563		11.8	14	SF	3	C		47		
LEAR	09	0934	0936	0945	S20	W00	.400		9.4	11	SF	3	C		42		
LEAR	09	0956	0958U	0958D	S18	W02	.369		9.3	2D	SF	3	C		30		
RAMY	09	1230	1242	1308	S18	W04	.373		9.2	38	SN	3	C		51		
RAMY	09	1248	1307	1348	N07	W42	.668		6.4	60	SF	3	C		19		
RAMY	09	1329	1330	1348	S11	E27	.508		11.6	19	SN	3	C		97		
RAMY	09	1510	1510	1513	S11	E25	.482		11.5	3	SN	3	C		43		
RAMY	09	1526	1536	1602	S18	W01	.368		9.6	36	1N	3	C		219		
HOLL	09	1530	1538	1558	S18	W01	.368		9.6	28	SN	3	C		179		
RAMY	09	1621	1624	1633	S14	W44	.732		6.4	12	SN	3	C		39		
HOLL	09	1622	1624	1632	S15	W44	.736		6.4	10	SN	3	C		29		
HOLL	09	1711	1718	1752	S11	E21	.430		11.3	41	SN	3	C		95		
RAMY	09	1714	1719	1748	S11	E24	.469		11.5	34	SN	3	C		68		
RAMY	09	1912	1929	1957	N08	W46	.719		6.4	45	1N	3	C		257		
RAMY	09	1920	1922	1935	N04	W51	.776		6.0	15	SF	3	C		36		
RAMY	09	2003	2006	2015	S11	W49	.776		6.2	12	SF	3	C		23		
RAMY	09	2005	2007	2025	S17	W13	.410		8.9	20	SF	3	C		81		
HOLL	09	2145	2147	2202	N07	W47	.730		6.4	17	SN	3	C		61		
HOLL	09	2232	2234	2321	S17	W13	.410		9.0	49	SN	3	C		36		
HOLL	09	2310	2310	2313	S12	E22	.451		11.6	3	SN	3	C		27		
HOLL	09	2326	2329	2343D	N06	W49	.753		6.3	17D	SN	2	C		46		
HOLL	09	2339	2340	2343D	S17	W13	.410		9.0	4D	SF	2	C		25		

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OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
LEAR	10	0301	0308	0439	N10	W46	.721		6.7	98	SB	3	C		124		D
LEAR	10	0446	0450	0502	S10	W50	.783		6.4	16	SF	3	C		126		
LEAR	10	0613	0615	0627	S18	W16	.448		9.1	14	SF	3	C		61		
LEAR	10	0805	0812	1006D	S12	E14	.355		11.4	121D	1B	3	C		307		D
ATHN	10	0810E	0811U	0916D	S12	E16	.377		11.5	66D	1B	2	C		222		
LEAR	10	0823	0827	0842	N10	W49	.755		6.7	19	SF	3	C		117		
LEAR	10	0854	0855	0905	N10	W49	.755		6.7	11	SB	3	C		39		
RAMY	10	1127	1159	1200D	N12	W53	.800		6.5	33D	SB	3	C		100		D
RAMY	10	1140	1141	1321	S11	W54	.825		6.4	101	2B	3	C		740		D
RAMY	10	1141	1159	1229	N12	W53	.800		6.5	48	SB	3	C		100		D
RAMY	10	1307	1317	1416	N08	W53	.798		6.6	69	SB	3	C		95		D
RAMY	10	1336	1336	1348	S07	E16	.327		11.8	12	SN	3	C		68		
HOLL	10	1417E	1417U	1443	N15	W39	.644		7.7	26D	SF	2	C		56		
HOLL	10	1444	1452	1501	N09	W52	.787		6.7	17	SN	3	C		23		
RAMY	10	1450	1451	1502	N09	W52	.787		6.7	12	SN	3	C		24		
HOLL	10	1539	1551	1624	S11	W59	.870		6.2	45	SF	3	C		38		
RAMY	10	1559	1608	1611D	N08	W55	.818		6.5	12D	SB	3	C		93		
RAMY	10	1606	1606	1619	S12	E12	.334		11.6	13	SF	3	C		27		
HOLL	10	1608	1616	1802	N15	W50	.772		6.9	114	1N	3	C		189		
HOLL	10	1614	1616	1638	N06	W57	.837		6.4	24	SN	3	C		21		
HOLL	10	1624	1631	1634	S19	W18	.479		9.3	10	SF	3	C		35		
RAMY	10	1625	1628	1635	S19	W20	.498		9.2	10	SF	3	C		35		
HOLL	10	1731	1734	1756	N05	W59	.856		6.3	25	SF	3	C		20		
HOLL	10	1808	1808	1816	S11	E09	.292		11.4	8	SN	3	C		41		
HOLL	10	1929	1933	2022	S18	W22	.507		9.2	53	SF	3	C		60		
HOLL	10	1941	2008	2022	N04	W65	.905		5.9	41	SF	3	C		22		
HOLL	10	1959	2012	2017	N10	W57	.838		6.6	18	SF	3	C		17		
HOLL	10	2000	2008	2017	S12	W59	.871		6.4	17	SN	3	C		32		
HOLL	10	2025	2027	2047	S11	W56	.844		6.7	22	SF	3	C		21		
HOLL	10	2130	2138	2209	S10	W57	.851		6.6	39	SN	3	C		91		
HOLL	10	2145	2156	2159	N21	W87	.998		4.4	14	SF	3	C		10		
HOLL	10	2152	2157	2245D	N09	W57	.838		6.6	53D	SB	3	C		48		
PALE	10	2158E	2158	2214	N15	W55	.823		6.8	16D	SF	2	C		22		
HOLL	10	2211	2213	2217	S11	E06	.269		11.4	6	SB	3	C		95		
PALE	10	2213E	2214	2224D	S10	E06	.254		11.4	11D	SF	2	C		72		
PALE	10	2305	2305	2316	S10	E06	.254		11.4	11	SF	2	C		74		
HOLL	10	2326E	2328U	2333D	S12	E11	.324		11.8	7D	SN	3	C		39		
MANI	11	0216	0222	0241	N09	W60	.865		6.6	25	SF	3	C		80		
ATHN	11	0635E	0637U	0645	S12	E06	.283		11.7	10D	SN	3	C		127		
LEAR	11	0718	0725	0741	S12	E03	.269		11.5	23	SB	3	C		71		
ATHN	11	0718	0726	0756D	S12	E05	.278		11.7	38D	SB	3	C		159		
LEAR	11	0906	0908	0909D	N10	W63	.890		6.7	3D	1N	3	C		198		
LEAR	11	0906	0918	0958	N10	W63	.890		6.7	52	2B	3	C		705		
ATHN	11	0908	0915	0956	N13	W68	.926		6.3	48	1B	3	C		222		
WEND	11	0909	0917	1001	N16	W61	.877		6.8	52	2B		C	0917	306	6.8	I
ATHN	11	0910	0914	0947	S09	E03	.220		11.6	37	SN	3	C		175		
LEAR	11	0956	0956	1000	S16	W33	.615		8.9	4	SF	3	C		33		
LEAR	11	1001	1007U	1007D	S12	E02	.267		11.6	6D	1B	3	C		221		
WEND	11	1003	1016	1036D	S12	E00	.264		11.4	33D	1N		C	1016	275	2.9	F
ATHN	11	1006E	1008	1050	S11	E03	.253		11.6	44D	1B	3	C		382		
WEND	11	1007	1011	1041D	S11	E08	.282		12.0	34D	SB		C	1011	38	.4	EHZ
RAMY	11	1405	1447	1455D	S12	E00	.264		11.6	50D	1N	3	C		234		
HOLL	11	1430E	1725	1800	S12	E03	.269		11.8	210D	1B	3	C		313		D
WEND	11	1450E		1520D	S12	E00	.264		11.6	30D	1N		C	1456	200	2.1	FI
HOLL	11	1515	1520	1722	N10	W65	.905		6.8	127	1B	3	C		167		D
RAMY	11	1519	1520	1715	N11	W65	.905		6.8	116	1B	3	C		178		
RAMY	11	1545	1549	1549D	S12	W01	.265		11.6	4D	SB	3	C		99		
RAMY	11	1724	1725	1734	S13	E03	.286		12.0	10	1B	3	C		247		
HOLL	11	1725	1725	1729D	S12	E03	.269		12.0	4D	1B	3	C		313		D
RAMY	11	1729	1744	1745D	S11	W69	.940		6.6	16D	2B	3	C		477		D
HOLL	11	1731	1744	1925	S11	W71	.951		6.4	114	2B	3	C		404		D
PALE	11	1744E	1744	1823	S12	W69	.941		6.6	39D	1B	2	C		205		D
RAMY	11	1744	1748	1813	N03	W78	.978		5.9	29	SN	3	C		62		
RAMY	11	1859	1909	1923	N11	W69	.932		6.6	24	SN	3	C		36		
HOLL	11	1909	1909	1928	N11	W70	.938		6.5	19	SN	3	C		32		
HOLL	11	1921	2054	2157	S13	W03	.286		11.6	156	1B	3	C		268		D
HOLL	11	2042	2048	2049D	N10	W71	.944		6.5	7D	1N	3	C		222		
PALE	11	2053E	2055	2126D	S12	W03	.269		11.6	33D	SN	2	C		144		D
HOLL	11	2213	2222	2244	S19	W35	.657		9.3	31	SN	3	C		27		
HOLL	11	2238	2242	2252	S11	W07	.275		11.4	14	SN	3	C		26		
HOLL	11	2254	2259	2329D	S13	W05	.294		11.6	35D	SN	3	C		79		

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PALE	11	2259	2302	2311	S13	W04	.289		11.7	12	SF	2	C		30		
LEAR	11	2325	2334	2335D	S19	W35	.657		9.4	10D	1F	3	C		180		
LEAR	11	2338	0032	0039D	S12	W08	.297		11.4	61D	1N	3	C		225		
PALE	11	2341	2341	2359	S13	W04	.289		11.7	18	SF	2	C		88		
LEAR	12	0236	0252	0257D	S13	W06	.297		11.7	21D	1B	3	C		234		D
PALE	12	0243	0251	0309D	S12	W06	.281		11.7	26D	SN	2	C		152		D
LEAR	12	0446	0455	0455D	N10	W72	.950		6.8	9D	3B	3	C				
LEAR	12	0659	0706	0708D	S11	W05	.260		11.9	9D	SB	3	C		138		
RAMY	12	1153	1154	1207	N11	W78	.977		6.6	14	SN	3	C		67		
RAMY	12	1212	1213	1220	N09	W77	.973		6.7	8	SB	3	C				
ATHN	12	1213	1214	1229	N10	W81	.987		6.4	16	SB	3	C		48		D
RAMY	12	1213	1215	1224	S18	W48	.786		8.9	11	SF	3	C		20		
RAMY	12	1323	1324	1341	N11	W79	.980		6.6	18	SF	3	C		48		
RAMY	12	1338	1339	1412	S19	W43	.740		9.3	34	SF	3	C		20		
HOLL	12	1423E	1538	1552	S14	W10	.340		11.8	89D	SB	3	C		67		D
HOLL	12	1502	1511	1517	N07	W73	.955		7.2	15	SF	3	C		27		
RAMY	12	1504	1511	1514	N11	W80	.984		6.6	10	SF	3	C		25		
HOLL	12	1511	1514	1534	S17	W50	.802		8.9	23	SN	3	C		22		
HOLL	12	1520	1538	1539D	S14	W10	.340		11.9	19D	SB	3	C		67		
RAMY	12	1537	1538	1542	S15	W10	.354		11.9	5	SN	3	C		30		
HOLL	12	1642	1702	1718	S14	W11	.348		11.9	36	1B	3	C		275		D
RAMY	12	1658	1704	1716	S14	W12	.357		11.8	18	SB	3	C		186		
HOLL	12	1728	1738	1810	S13	W15	.375		11.6	42	SN	3	C		132		
RAMY	12	1731	1737	1801	S13	W15	.375		11.6	30	SN	3	C		115		
RAMY	12	1831	1834	1840	N07	W83	.992		6.5	9	SN	3	C				
HOLL	12	1832	1834	1843	N07	W75	.965		7.1	11	SN	3	C		67		
HOLL	12	1839	1845	1856	S13	W18	.409		11.4	17	SN	3	C		58		
PALE	12	1841	1842	1849	S11	W18	.389		11.4	8	SF	3	C		24		
HOLL	12	2102	2104	2205	S12	W19	.411		11.5	63	SN	2	C		99		
HOLL	12	2142	2144	2150	N07	W76	.969		7.2	8	SF	2	C				
HOLL	12	2228	2243	2325D	S13	W18	.409		11.6	57D	1B	2	C		374		
LEAR	12	2231	2243	2245D	S12	W19	.411		11.5	14D	1B	3	C		215		
PALE	12	2232	2247	2321	S13	W18	.409		11.6	49	1N	3	C		207		
MANI	12	2306E	2307U	2316D	N12	W18	.340		11.6	10D	1N	3	C		200		
HOLL	12	2310	2317	2320	N09	W85	.996		6.6	10	SF	2	C				
PALE	12	2337	2338	2349	S11	W20	.414		11.5	12	SF	3	C		46		D
ISTA	13	0741		0805	S16	W61	.893		8.7	24	SN						E
ISTA	13	0753		0808	S09	W19	.382		11.9	15	SF						E
ISTA	13	0835		0909	S13	W26	.506		11.4	34	SB						E
PALE	13	1858	1935	2004	S12	W29	.538		11.6	66	1N	2	C		367		D
PALE	13	1858	1919	2004	S12	W29	.538		11.6	66	1N	2	C		279		D
HOLL	13	2229	2230	2242	S13	W31	.570		11.6	13	SF	1	C		27		
LEAR	14	0408	0409	0412D	N20	E31	.569		16.5	4D	1F	3	C		206		
LEAR	14	0641	0647	0653D	S12	W38	.651		11.4	12D	1N	2	C		182		
MANI	14	0650E	0650U	0655D	S11	W34	.596		11.7	5D	SN	3	C		120		
WEND	14	0733E		0747	S15	W31	.582		12.0	14D	SN		C	0733	53	.7	
WEND	14	0839E		0901D	S17	W43	.730		11.1	22D	SF		C	0839	100	1.5	B
WEND	14	0924	0924	0935	S06	W39	.642		11.5	11	SF		C	0924	88	1.2	
WEND	14	1030		1044D	S15	W32	.594		12.0	14D	SF		C	1030	37	.5	D
WEND	14	1126	1126	1153	S15	W33	.606		12.0	27	SN		C	1126	38	.5	D
WEND	14	1253	1257	1308	S13	W41	.691		11.5	15	SN		C	1257	87	1.2	
WEND	14	1355E		1410D	S15	W34	.618		12.0	15D	SN		C	1403	50	.6	
RAMY	14	1357	1359	1457	S13	W41	.691		11.5	60	SN	3	C		70		
RAMY	14	1459	1544	1652	S16	W39	.682		11.7	113	2B	3	C		706		D
HOLL	14	1544	1544	1718	S17	W42	.720		11.5	94	2B	3	C		520		
HOLL	14	1617	1620	1632	N17	E57	.845		19.0	15	SN	2	C		16		
HOLL	14	1829	1850	1851D	S15	W44	.733		11.5	22D	1B	2	C		183		D
HOLL	14	2213	2216	2218D	S14	W43	.718		11.7	5D	SB	3	C		75		
PALE	14	2352	2359	0046	S14	W48	.772		11.4	54	1B	3	C		315		
MANI	14	2355E	0000	0008D	S11	W44	.719		11.7	13D	1N	2	C		240		
MANI	15	0727E	0727U	0742D	S12	W47	.755		11.8	15D	SF	2	C		100		
RAMY	15	1302	1312	1357	N17	E07	.271		16.1	55	1B	3	C		211		D
ATHN	15	1310E	1314	1337	N19	E13	.351		16.5	27D	SB	2	C		48		D
RAMY	15	1336	1341	1445	S16	W56	.852		11.4	69	SB	3	C		136		D
ATHN	15	1339	1342	1400D	S15	W41	.699		12.5	21D	SB	2	C		95		D
RAMY	15	1358	1358	1406	N17	E07	.271		16.1	8	SF	3	C		23		
RAMY	15	1520	1521	1528D	S16	W48	.778		12.0	8D	SB	3	C		32		
RAMY	15	1540	1550	1731D	S12	W53	.816		11.7	111D	1B	3	C		455		D

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONO.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
RAMY	15	1802	1802	1826	S13	W55	.837		11.6	24	SB	3	C		52		
PALE	15	2352	2359	0001C	S14	W48	.771		12.4	90	1B	3	C		315		
MANI	16	0052E	0054	0103D	S11	W58	.860		11.7	110	1N	3	C		180		
LEAR	16	0053	0057	0059D	S15	W53	.823		12.1	60	1B	3	C		168		D
LEAR	16	0458	0507	0539D	S12	W63	.901		11.5	410	1B	3	C		270		
MANI	16	0509E	0510	0511D	S11	W58	.860		11.9	20	SF	3	C		120		
LEAR	16	0859	0904	0907C	N16	W06	.250		15.9	80	2B	3	C		863		
ATHN	16	0903E	0905	0940	N17	W03	.251		16.2	370	1B	3	C		206		
ATHN	16	1008	1009	1032	S12	W70	.946		11.2	24	SB	3	C		48		D
RAMY	16	1217	1217	1233	S17	W59	.878		12.1	16	SN	3	C		14		
RAMY	16	1330	1334	1417	S12	W63	.901		11.8	47	SN	3	C		85		
RAMY	16	1347	1356	1414	N16	W08	.266		16.0	27	SF	3	C		44		
RAMY	16	1352	1354	1402	N15	E76	.969		22.3	10	SN	3	C				
RAMY	16	1428	1429	1430D	S14	W66	.924		11.7	20	SB	3	C		112		
RAMY	16	1517	1520	1524	S11	W72	.956		11.2	7	SF	3	C				
RAMY	16	1642	1648	1654	N16	E34	.587		19.2	12	SF	3	C		26		
RAMY	16	1735	1742	1743D	S13	W65	.916		11.9	80	1N	3	C		218		D
RAMY	16	1735	1742	1752	S18	W60	.888		12.2	17	1N	3	C		218		D
PALE	16	2145	2157	2218	N16	E29	.522		19.1	33	SF	3	C		58		
PALE	16	2149	2150	2153	S11	W71	.951		11.6	4	SF	3	C		40		
PALE	16	2303	2304	2319	N16	E28	.509		19.1	16	SF	2	C		27		
LEAR	16	2357	0008	0011D	N17	W10	.298		16.2	140	1B	3	C		395		
MANI	17	0002E	0005	0012D	N18	W12	.331		16.1	100	1B	3	C		250		
LEAR	17	0004	0005	0009D	N17	E28	.515		19.1	50	SB	3	C		74		D
PALE	17	0012	0014	0055	N17	W10	.298		16.3	43	SN	2	C		162		D
LEAR	17	0543	0551	0553D	N17	E27	.502		19.3	100	SB	3	C		128		D
MANI	17	0550E	0550U	0606	N18	E26	.496		19.2	160	SF	2	C		160		
LEAR	17	0649	0649	0654D	S11	W73	.961		11.8	50	SB	3	C		35		
MANI	17	0650E	0650U	0658D	S11	W74	.965		11.7	80	SF	2	C		20		
LEAR	17	0753	0818	0819D	N19	W14	.364		16.3	260	1B	3	C		217		D
ATHN	17	0755	0757	0910	N17	W16	.363		16.1	75	1B	3	C		286		
MANI	17	0758E	0800	0815C	N18	W19	.409		15.9	170	1F	2	C		220		
WEND	17	0846E		0908	N18	W15	.363		16.2	220	SN		C	0847	81	.9	
WEND	17	0908	0920	0954	N18	E24	.471		19.2	46	1N		C	0920	219	2.6	E
LEAR	17	0918	0924	0926D	N16	W81	.987		11.3	80	SB	3	C		79		
WEND	17	1011	1019	1108	N18	E20	.421		18.9	57	1N		C	1019	188	2.2	E
WEND	17	1134	1138	1148	N18	E21	.433		19.1	14	SN		C	1138	113	1.3	E
RAMY	17	1134	1142	1159	N16	E21	.416		19.1	25	SN	3	C		68		
RAMY	17	1207	1208	1215	S17	W69	.944		12.3	8	SF	3	C		28		
WEND	17	1238	1259	1320	N17	E21	.425		19.1	42	SF		C	1259	150	1.7	E
WEND	17	1302	1308	1323	S11	W86	.998		11.1	21	SN		C	1308	31		
WEND	17	1337		1402	S11	W80	.987		11.6	25	1N		C	1344	81		
ATHN	17	1338E	1339	1400D	S10	W77	.977		11.8	220	SB	3	C				D
RAMY	17	1546	1547	1555	S10	W87	.999		11.1	9	SF	3	C				
RAMY	17	1753	1803	1824	N17	E17	.375		19.0	31	SB	3	C		100		D
PALE	17	1801	1803	1815	N17	E18	.387		19.1	14	SF	2	C		35		
RAMY	17	1947	1951	2023	S17	W74	.968		12.3	36	SN	3	C				
RAMY	17	2023	2027	2056D	N10	E47	.734		21.4	330	SF	3	C		34		
PALE	17	2236	2238	2257	N15	E57	.843		22.2	21	SF	2	C		60		
MANI	17	2238	2240	2247	N57	E13	.823		18.9	9	SF	2	C		100		
LEAR	17	2357	0008	0011D	N17	W10	.299		17.2	140	1B	3	C		395		
LEAR	18	0210	0219	0222D	N16	E12	.308		19.0	120	SB	3	C		80		
PALE	18	0214	0217	0225	N16	E13	.319		19.1	11	SF	2	C		25		
LEAR	18	0446	0451	0454C	N13	E53	.803		22.2	80	1B	3	C		339		D
ISTA	18	0615		0620	N16	W29	.523		16.1	5	SF						D
ISTA	18	0739		0745	N16	E11	.297		19.1	6	SF						D
LEAR	18	0954	1003	1005D	N17	W28	.516		16.3	110	SB	3	C		105		
ATHN	18	0957E	0959	1022	N18	W26	.497		16.5	250	SB	2	C		111		
RAMY	18	1124	1124	1213	N09	E40	.647		21.5	49	SN	3	C		54		
RAMY	18	1141	1146	1218	N14	E48	.752		22.1	37	1B	3	C		248		D
ATHN	18	1141	1145	1221	N11	E49	.758		22.2	40	1B	2	C		175		D
RAMY	18	1306	1307	1315	N09	E37	.607		21.3	9	SB	3	C		54		
RAMY	18	1325	1329	1331	N09	E37	.607		21.3	6	SN	3	C		20		
RAMY	18	1405	1411	1431	N15	E06	.239		19.0	26	SF	3	C		35		
RAMY	18	1448	1451	1523	N16	E05	.248		19.0	35	SB	3	C		119		
RAMY	18	1553	1558	1609	N13	E46	.728		22.1	16	1N	3	C		280		
RAMY	18	1652	1653	1702	N10	E35	.581		21.3	10	SB	3	C		83		
HOLL	18	1653	1653	1716	N10	E35	.581		21.3	23	SB	4	C		90		D
RAMY	18	1726	1727	1738	N16	E04	.243		19.0	12	SF	3	C		50		

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OBSERV-ATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURA-TION MIN.	IM POR-TANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
HOLL	18	1804	1816	1825	N11	E36	.598		21.5	21	SF	3	C		74		
HOLL	18	1831	1832	1850	N16	E04	.243		19.1	19	SN	3	C		49		
RAMY	18	1836	1836	1850	N10	E36	.595		21.5	14	SF	3	C		19		
LEAR	19	0144	0149	0223	N08	E31	.520		21.4	39	2B	3	C		504		D
PALE	19	0146	0148	0211	N09	E31	.523		21.4	25	1N	2	C		192		D
LEAR	19	0211	0211	0228	N13	E41	.668		22.2	17	SF	3	C		27		
LEAR	19	0322	0335	0404	N14	E41	.671		22.2	42	1B	3	C		183		
LEAR	19	0726	0726	0745	N15	W07	.248		18.8	19	SF	3	C		22		
LEAR	19	0735E	0735U	0743	N13	E38	.630		22.2	8D	SF	3	C		20		
LEAR	19	0747	0749	0819	N11	E41	.663		22.4	32	SN	3	C		66		
LEAR	19	0845	0852	0909	N16	W03	.241		19.1	24	SB	3	C		180		D
ISTA	19	0949		1014	N13	E36	.604		22.1	25	SB						U
RAMY	19	1221	1251	1308	N09	E43	.685		22.7	47	SF	3	C		30		
RAMY	19	1224	1232	1244	N18	W41	.683		16.4	20	SF	3	C		51		
RAMY	19	1236	1238	1240D	N16	W07	.263		19.0	4D	SB	3	C		175		D
RAMY	19	1606	1630	1648	S15	W17	.410		18.4	42	SF	3	C		40		
HOLL	19	1608E	1613	1624	N11	E41	.663		22.7	16D	SF	3	C		46		
HOLL	19	1623	1637	1654	N12	E39	.640		22.6	31	SF	3	C		93		
HOLL	19	1858	1900	1904	N13	E30	.523		22.0	6	SF	3	C		44		
HOLL	19	2120	2147	2149D	N14	E28	.500		22.0	29D	1B	3	C		202		
HOLL	19	2125	2125	2141	N16	W14	.332		18.8	16	SF	3	C		21		
PALE	19	2135	2146	2210	N13	E27	.481		21.9	35	SN	3	C		75		D
LEAR	20	0445E	0445U	0448D	N13	E26	.467		22.1	3D	1N	3	C		277		
LEAR	20	0804	0812	0815D	N13	E27	.482		22.4	11D	1B	3	C		382		
WEND	20	1128	1134	1143	S16	E60	.883		25.0	15	SF		C	1134	38	.8	
RAMY	20	1241E	1243U	1301	N08	E32	.535		22.9	20D	SF	3	C		85		
WEND	20	1244	1246	1300	N08	E33	.550		23.0	16	SF		C	1246	34	.4	
RAMY	20	1523	1526	1555	N15	W24	.452		18.8	32	SF	3	C		61		
HOLL	20	1527	1527	1610	N15	W23	.438		18.9	43	SN	3	C		72		
RAMY	20	1542	1545	1602	N14	E22	.418		22.3	20	SF	3	C		38		
HOLL	20	1543	1546	1621	N12	E23	.419		22.4	38	SN	3	C		72		
RAMY	20	1739	1739	1747	N13	E22	.411		22.4	8	SN	3	C		24		
HOLL	20	1739	1740	1749	N13	E22	.411		22.4	10	SN	3	C		28		
RAMY	20	2012	2023	2037	N13	W05	.205		20.5	25	SF	3	C		47		
RAMY	20	2046	2048	2107D	N15	W27	.493		18.8	21D	SN	3	C		82		
HOLL	20	2049	2059	2147	N15	W28	.506		18.8	58	SN	3	C		120		
LEAR	21	0620	0634	0636D	N18	W30	.551		19.0	16D	SB	3	C		189		
LEAR	21	0744	0744	0805D	N12	E14	.293		22.4	21D	SB	3	C		153		
BOUL	21	2100	2110	2116	N16	W35	.604		19.3	16	SN	2	C		60		
BOUL	21	2106	2111	2114	N10	W08	.194		21.3	8	SF	2	C		40		
LEAR	22	0533	0544	0549G	S17	E40	.692		25.2	16D	1B	3	C		294		
ATHN	22	0600E	0604U	0631	S20	E39	.696		25.2	31D	SB	3	C		127		
WEND	22	1117E		1126D	N23	E59	.873		26.9	9D	SF		C	1117	94	2.0	
RAMY	22	1529	1530	1535	N08	W22	.386		21.0	6	SN	3	C		50		
HOLL	22	1537E	1640	1653	N15	W50	.777		18.9	76D	SN	3	C		20		
HOLL	22	1539E	1603	1610	N12	E47	.739		26.2	31D	SF	3	C		28		
RAMY	22	1539	1614	1632	N15	W49	.766		19.0	53	SF	3	C		86		
HOLL	22	1632	1638	1653	N09	W21	.375		21.1	21	SN	3	C		23		
HOLL	22	1651	1651	1706	N11	E01	.157		22.8	15	SF	3	C		21		
HOLL	22	1657	1719	1754	N11	W15	.299		21.6	57	SN	3	C		145		
RAMY	22	1716	1717	1732	N09	W17	.314		21.4	16	SF	3	C		40		
RAMY	22	1734	1735	1758	S17	E35	.635		25.4	24	SF	3	C		37		
HOLL	22	1734	1734	1759	S18	E34	.629		25.3	25	SF	3	C		25		
HOLL	23	1422	1428	1439	N16	W59	.864		19.2	17	SF	3	C		13		
HOLL	23	1430	1440	1443	N09	W17	.315		22.3	13	SF	3	C		28		
HOLL	23	1446	1455	1508	N15	W63	.895		18.9	22	SF	3	C		66		
HOLL	23	1459	1500	1517	N12	W17	.336		22.3	18	SN	3	C		67		
RAMY	23	1729	1742	1755	S11	W39	.654		20.8	26	SF	3	C		31		
HOLL	23	1729	1730	1758	S11	W39	.654		20.8	29	SF	3	C		57		
HOLL	23	1751	1755	1757D	N11	W18	.343		22.4	6D	1B	3	C		231		D
RAMY	23	1752	1755	2057	N11	W23	.416		22.0	185	1B	3	C		237		
PALE	23	1756E	1756	1810	N11	W18	.343		22.4	14D	SN	2	C		31		D
PALE	23	1842	1845	1930	N13	W23	.428		22.1	48	SF	2	C		125		D
RAMY	23	2029	2030	2045	N06	W33	.547		21.4	16	SF	3	C		33		
HOLL	23	2153	2156	2235	N12	W21	.393		22.3	42	SB	3	C		147		
PALE	23	2156	2157	2206	N12	W21	.393		22.3	10	SN	2	C		110		

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OBSERVATORY	OBSERVED UT DAY	START	MAX. PHASE	END	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	REMARKS
LEAR	24	0401	0411	0414D	S09	W43	.697		20.9	13D	1N	3	C		369		
ISTA	24	0712		0720	N10	W43	.688		21.1	8	SN						D
WEND	24	0845	0848	0900	N11	W22	.402		22.7	15	SF		C	0848	41	.5	E
WEND	24	0902	0904	0916	N12	E25	.451		26.3	14	SF		C	0904	53	.6	
WEND	24	0914	0929	0945	N09	W21	.376		22.8	31	SN		C	0929	150	1.7	
WEND	24	1205	1207	1211	S02	E23	.396		26.2	6	SF		C	1207	18	.2	
RAMY	24	1346	1349	1453	N07	W24	.414		22.8	67	1B	3	C		298		
WEND	24	1350E		1408D	N10	W25	.441		22.7	18D	1N		C	1355	300	3.5	U
RAMY	24	1402	1405	1412	N12	E22	.408		26.2	10	SF	3	C		48		
RAMY	24	1405	1406	1415	N14	W60	.870		20.1	10	SF	3	C		20		
RAMY	24	1412	1414	1428	N09	W45	.711		21.2	16	SF	3	C		45		
RAMY	24	1438	1438	1447	N10	W47	.736		21.1	9	SN	3	C		145		
RAMY	24	1459	1459	1516	N08	W45	.710		21.2	17	SF	3	C		27		
HOLL	24	1651	1702	1744	N09	W26	.452		22.8	53	SN	3	C		186		
RAMY	24	1653	1704	1738	N10	W27	.470		22.7	45	SN	3	C		181		
HOLL	24	1830	1831	1847	N07	W46	.721		21.3	17	SN	3	C		49		
RAMY	24	1841	1844	1858	N10	W32	.542		22.4	17	SF	3	C		27		
RAMY	24	1847	1851	1856	N09	W51	.780		21.0	9	SF	3	C		56		
HOLL	24	1849	1850	1854	N09	W50	.769		21.0	5	SF	3	C		52		
HOLL	24	2032	2038	2050	N07	W29	.490		22.7	18	SF	3	C		116		
LEAR	25	0445	0446	0452D	N15	E16	.353		26.4	70	1N	3	C		236		
WEND	25	0857	0859	0902	N17	W70	.942		20.1	5	SN		C	0859	56		
RAMY	25	1713	1713	1743	N08	W40	.647		22.7	30	SN	3	C		151		
RAMY	25	1732	1736	1753	N07	W59	.857		21.3	21	SF	3	C		29		
HOLL	25	2036	2040	2131D	S12	W70	.945		20.6	55D	1B	3	C		239		
ISTA	26	0755		0818	N13	W69	.935		21.2	23	SN						E
LEAR	26	0756	0803	0805D	N09	W66	.914		21.4	9D	SB	3	C		73		D
ISTA	26	0815		0823	N16	W79	.982		20.4	8	SN						D
HOLL	26	1925	2003	2022	N23	E69	.940		2.0	57	SB	3	C		63		
MANI	27	0747E	0747U	0755D	S11	E81	.989		3.4	8D	SN	3	C		50		
RAMY	27	1228	1237	1334	N15	E10	.289		28.3	66	SF	3	C		182		
RAMY	27	1240	1242	1255	N03	W64	.899		22.7	15	SN	3	C		18		
HOLL	27	1533	1535	1543	S11	W12	.296		26.7	10	SF	3	C		23		
HOLL	27	1813	1815	1838	S09	E72	.954		3.2	25	SF	3	C		23		
HOLL	27	1824	1831	1843	N14	W20	.398		26.3	19	SF	3	C		47		
HOLL	27	2053	2054	2111	N18	E04	.293		28.2	18	SB	3	C		60		
HOLL	27	2136	2137	2150	N14	W22	.425		26.3	14	SN	3	C		67		
HOLL	27	2141	2154	2155	N16	E04	.261		28.2	14	SF	3	C		31		
LEAR	28	0537	0542	0545D	S11	W48	.758		24.6	8D	1N	3	C		286		
MANI	28	0540E	0543	0547	S12	W46	.738		24.8	7D	SN	3	C		100		
MANI	28	0728E	0728U	0740D	N39	W16	.649		27.1	12D	SN	3	C		80		
LEAR	28	0939	0948	1021D	S13	E62	.892		3.1	42D	SB	2	C		75		D
HOLL	28	1515	1519	1522	S10	E60	.873		3.1	7	SF	2	C		16		
HOLL	28	1519	1521	1524	N14	W30	.534		26.4	5	SF	2	C		34		
MANI	29	0728E	0728U	0740D	N16	W39	.659		26.4	12D	SN	3	C		80		
RAMY	29	1229	1230	1236	N13	E11	.277		30.3	7	SN	3	C		30		
RAMY	29	1439	1441	1445	S10	E42	.685		2.8	6	SN	3	C		25		
RAMY	29	1612	1627	1658	N17	E54	.823		3.7	46	SF	3	C		88		
RAMY	29	1636	1643	1654	N13	E09	.256		30.4	18	SF	3	C		28		
RAMY	29	1847	1851	1909	S10	E48	.755		3.4	22	SF	3	C		25		
HOLL	29	2007	2010	2020	S07	E41	.665		2.9	13	SN	3	C		28		
HOLL	29	2110	2149	2304	N20	W24	.501		28.1	114	SN	3	C		101		
PALE	29	2121	2125	2139	N18	W18	.413		28.5	18	SF	2	C		52		
PALE	29	2145	2149	2214	N17	W19	.415		28.5	29	SF	2	C		32		
HOLL	29	2146	2154	2202	S09	E44	.707		3.2	16	SN	3	C		40		
MANI	29	2347E	2351	0000D	S22	E31	.617		2.3	13D	SN	3	C		150		
PALE	29	2348	2349	0004	N25	E30	.609		2.2	16	SF	2	C		86		
LEAR	29	2349E	2350U	2356D	N21	E32	.602		2.4	7D	1N	3	C		234		
LEAR	30	0109	0117	0119D	S06	E11	.226		30.9	10D	1N	3	C		402		
RAMY	30	1143E	1143U	1219	S34	W31	.714		28.2	36D	SF	3	C		24		
RAMY	30	1151	1206	1250	N20	W22	.480		28.8	59	SN	3	C		109		
RAMY	30	1236	1243	1246D	N20	W46	.752		27.1	10D	SB	3	C		84		D
RAMY	30	1413	1421	1426	N20	W46	.752		27.1	13	SF	3	C		71		
RAMY	30	1435	1436	1446	S11	E27	.491		2.6	11	SN	3	C		41		
RAMY	30	1534	1537	1539	S11	E34	.586		3.2	5	SF	3	C		39		
RAMY	30	1704	1705	1718	S34	W37	.758		27.9	14	SF	3	C		23		

Hα SOLAR FLARES

NOVEMBER 1980

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
RAMY	30	1743	1753	1800	S10	E42	.685		3.9	17	SF	3	C		33		
RAMY	30	2013	2017	2021D	S11	E28	.505		2.9	8D	1B	3	C		132		D

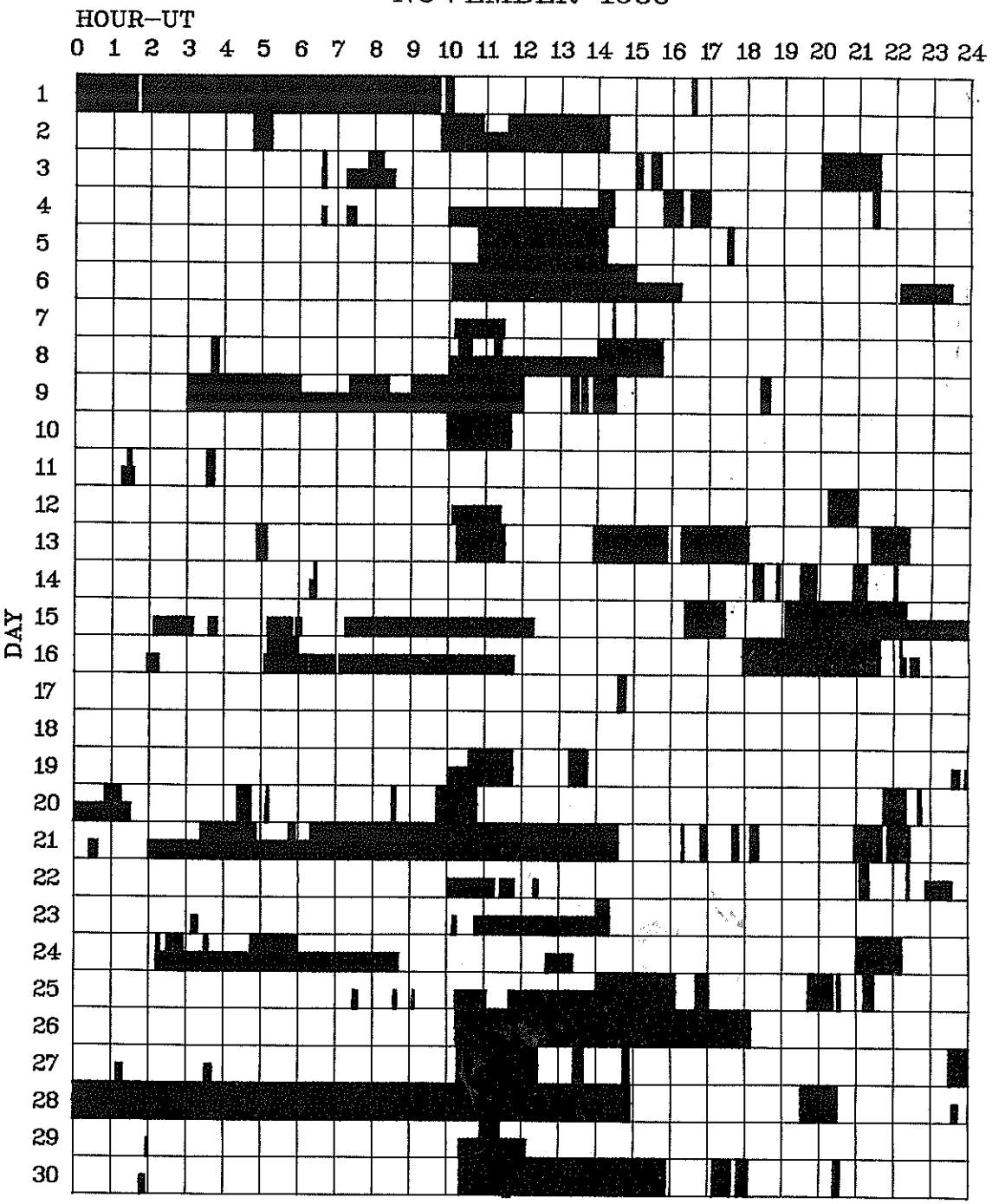
"REMARKS":

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 CaII.
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

NOVEMBER 1980



Observatories included in total patrol:

Athens	Holloman	Learmonth	Palehua	Wendelstein
Berne	Istanbul	Manila	Ramey	

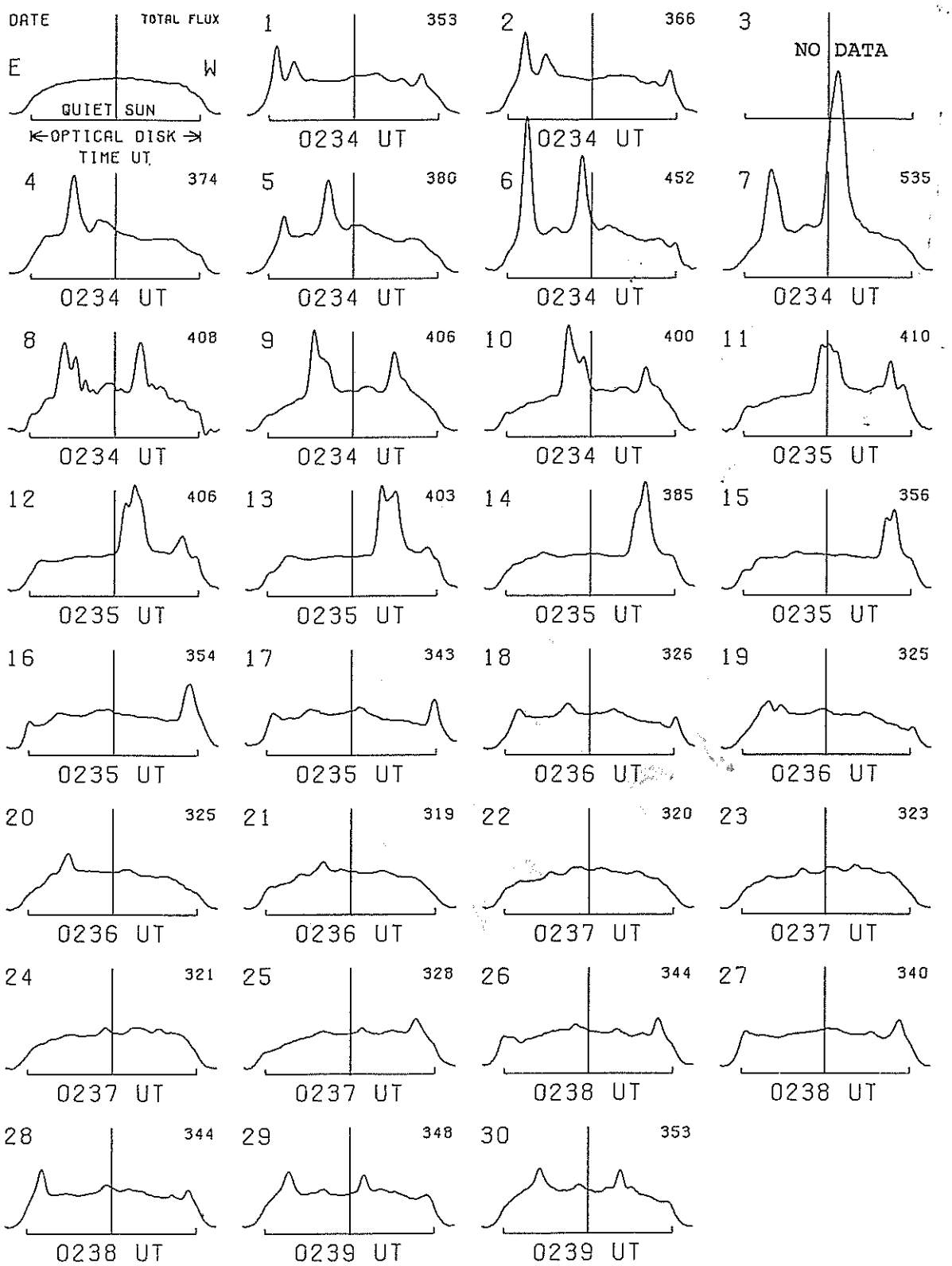
Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

EAST-WEST SOLAR SCANS

NOVEMBER 1980

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

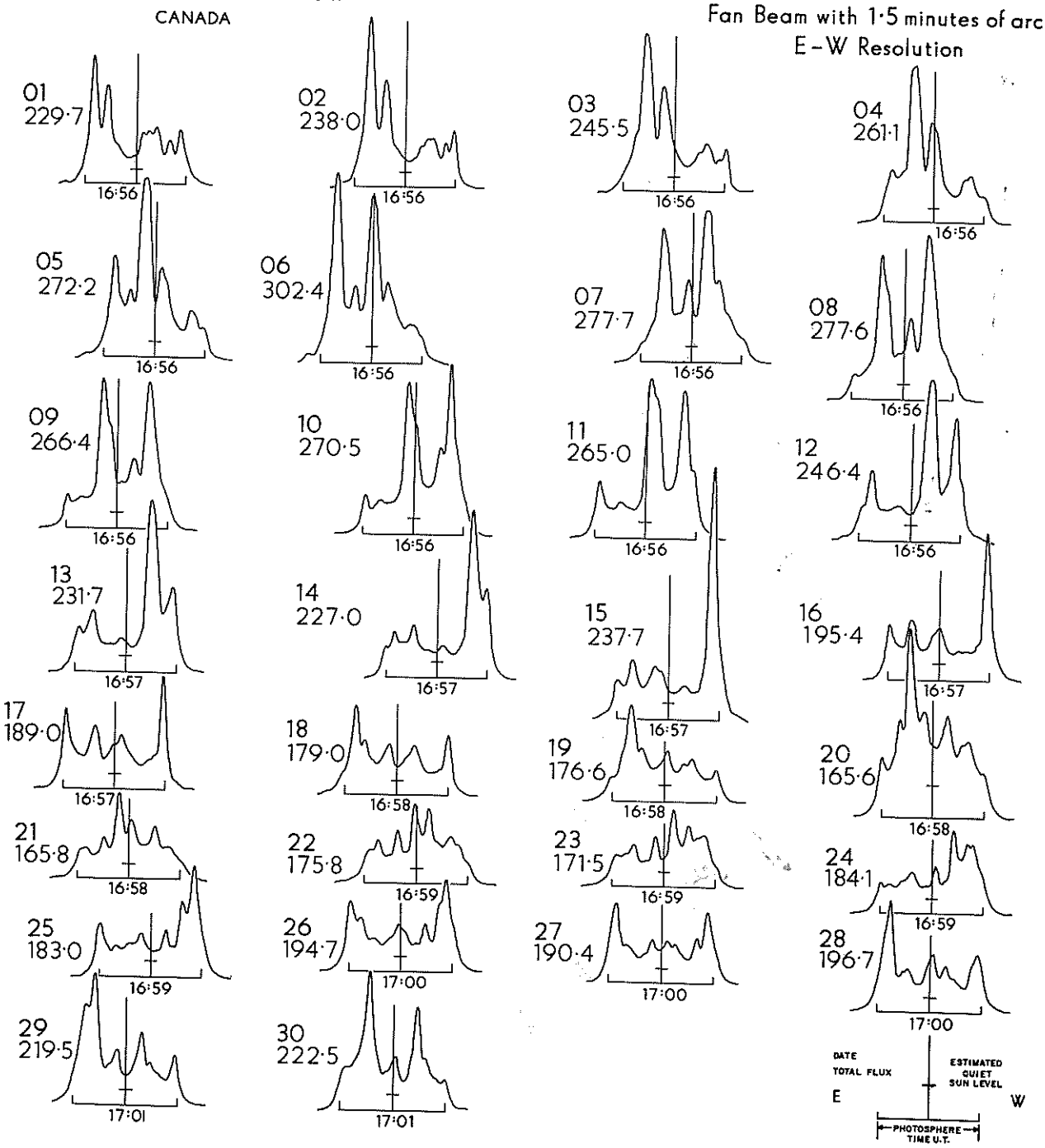


28
Nov 80

EAST-WEST SOLAR SCANS
NOVEMBER 1980

ALGONQUIN RADIO OBSERVATORY
CANADA

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

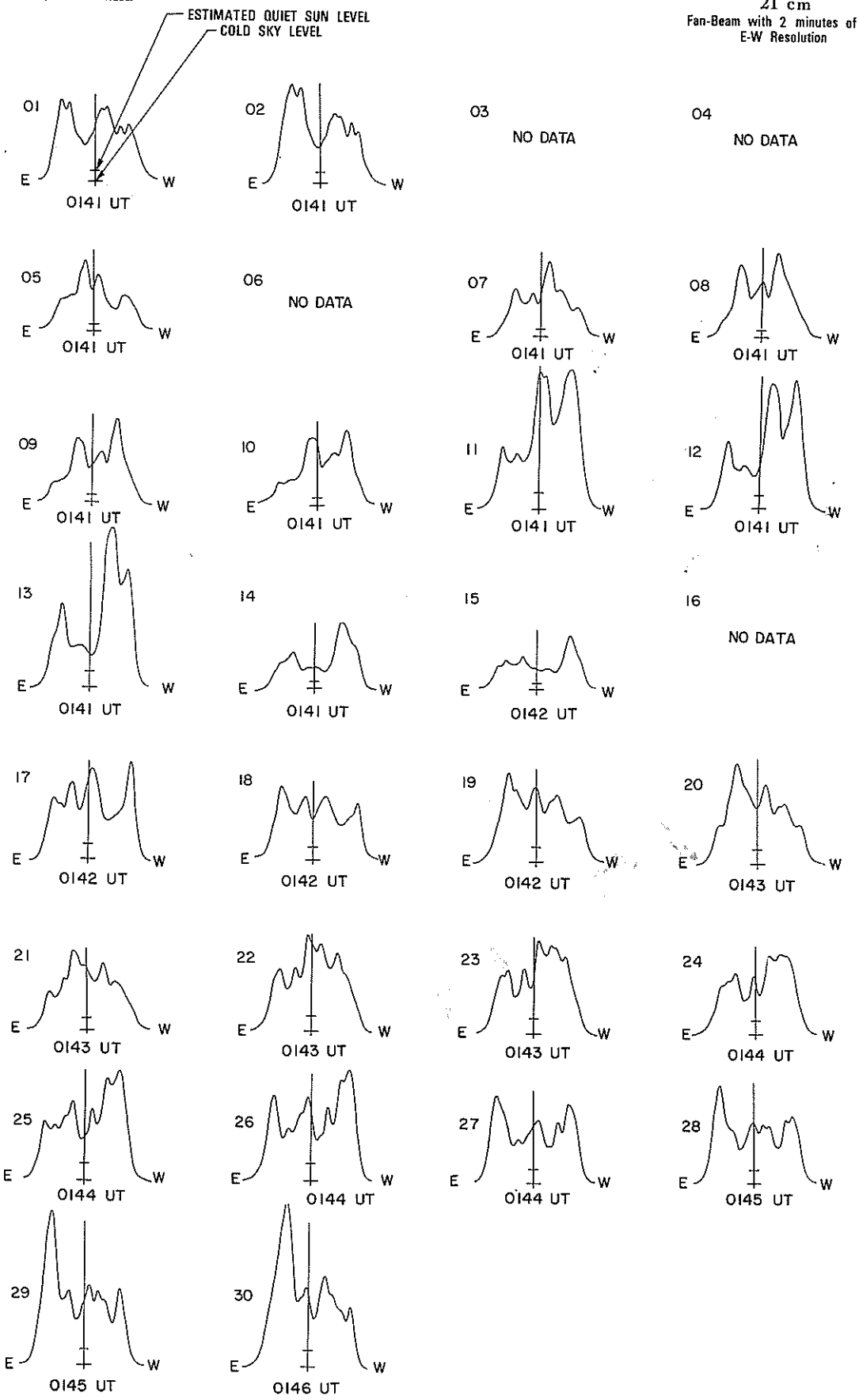


EAST-WEST SOLAR SCANS

NOVEMBER 1980

Fleurs, Australia

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



30
Nov 80

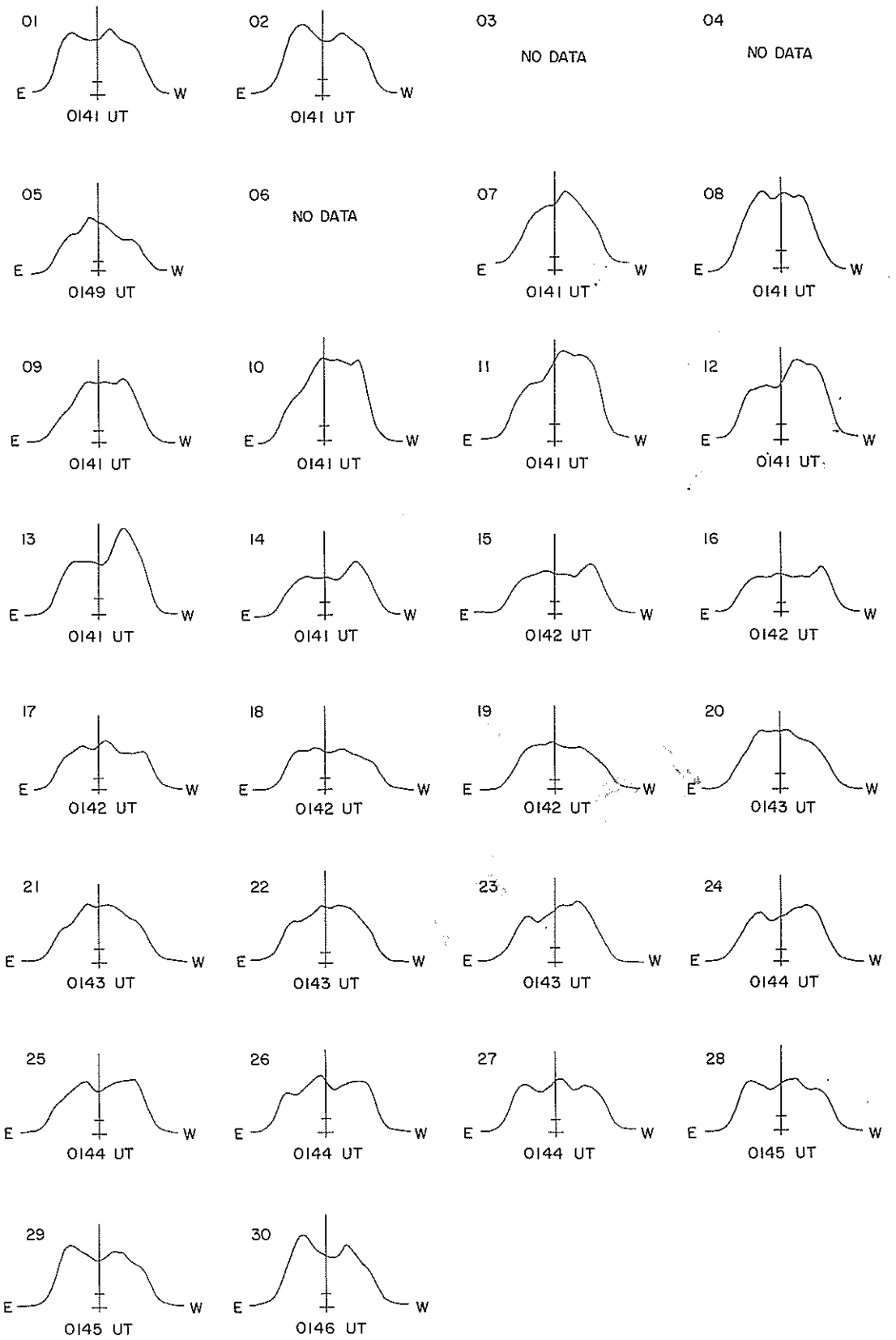
EAST-WEST SOLAR SCANS

NOVEMBER 1980

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL
COLD SKY LEVEL

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



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1980

DAY OF MONTH	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	FLUX DENSITY MEAN	INT	REMARKS
01	2800 OTTA	240 R	1315.0	1325	10.0	3.8	1.9		
	2800 OTTA	240 R	1335.0	1345	10.0	3.8	1.9		
	2800 OTTA	21 GRF	1415.0	1420	70.0	3.8	2.2		
	2800 OTTA	1 S	1503.7	1503.9	1.2	4.8	2.4		
	2800 OTTA	20 GRF	1527.0	1530	20.0	3.8	1.6		
	2800 OTTA	1 S	1732.0	1737	10.0	2.2	1.0		
	2800 OTTA	1 S	1825.0	1826	3.0	3.0	1.5		
	2800 OTTA	1 S	1856.0	1856.5	2.0	3.0	1.0		
	2800 OTTA	4 S/F	1907.5	1909.4	4.0	42.0	17.0		
	2800 OTTA	21 GRF	1915.0	1922	20.0	6.6	3.6		
02	3200 BERN	3	1118.6	1119.1	2.5	.0			OPR
	3200 BERN	3	1418.2	1419.0	1.0	.0			OPR
	8400 BERN	3	1418.2	1419.0	1.2	37.0			
	2800 OTTA	8 S	1418.8	1419	.6	16.8	8.4		
	2800 OTTA	20 GRF	1550.0	1635	110.0	4.6	2.6		
	2800 OTTA	21 GRF	1903.0	1908	25.0	2.8	1.6		
	2800 OTTA	45 C	1905.0	1905.5	2.5	10.2	2.8		
	2800 OTTA	1 S	1911.0	1911.6	1.2	3.2	1.6		
03	3200 BERN	3	1203.1	1204.5	9.0	.0			OPR
	8400 BERN	3	1203.2	1204.5	11.0	167.0			
	2800 OTTA	21 GRF	1350.0		40.0	4.6			
	3200 BERN	22	1350.0	1357.7	39.0	.0			OPR
	8400 BERN	22	1351.1	1357.7	30.0	131.0			
	2800 OTTA	4 S/F	1355.0	1358	7.0	51.0	26.0		
	2800 OTTA	21 GRF	1553.0	1554	30.0	4.2	2.1		
	2800 OTTA	3 S	1606.0	1606.5	1.0	12.0	6.0		
	2800 OTTA	20 GRF	1625.0	1633	35.0	3.2	1.8		
	2800 OTTA	22 GRF	1925.0	1950	35.0	6.2	2.0		
	2800 OTTA	20 GRF	2030.0	2045	27.0	5.0	2.5		
	2695 PENT	20 GRF	2130.0	2150	60.0	4.2	2.1		
04	3200 BERN	3	0731.3	0734.1	50.0	.0			OPR
	3200 BERN	3	0917.6	0919.3	43.0	.0			OPR
	8400 BERN	3	0917.6	0919.3	18.0	115.0			
	3200 BERN	1	1032.0	1115.5	115.0	.0			OPR
	8400 BERN	1	1100.0	1115.6	90.0	24.0			
	2800 OTTA	21 GRF	1240.0	1300	55.0	9.2	5.0		
	8400 BERN	3	1243.5	1246.5	60.0	120.0			
	3200 BERN	3	1243.5	1246.2	60.0	.0			OPR
	2800 OTTA	3 S	1245.0	1246.7	5.0	84.0	24.0		
	2800 OTTA	21 GRF	1345.0	1530	250.0	14.0	7.2		
	2800 OTTA	3 S	1349.0	1355	11.0D	15.4			
	3200 BERN	1	1349.8	1354.5	34.0	.0			OPR
	8400 BERN	1	1349.9	1355.0	26.0	18.0			
	2800 OTTA	1 S	1505.0	1505.3	2.5	9.4	4.0		
	2800 OTTA	240 R	1805.0	1840	35.0	4.6	2.3		
	2800 OTTA	24 R	1950.0	2005	15.0	4.6	2.3		
	2800 OTTA	27AFRF	1950.0		150.0	4.6	3.9		
	2800 OTTA	2 S/F	1952.0	1954.5	5.0	9.2	4.8		
	2800 OTTA	24P R	2005.0		105.0	4.6			
	2800 OTTA	26 FAL	2150.0	2220	30.0	-4.6	-2.3		
05	8400 BERN	22	0740.0	0859.1	180.0	40.0			
	3200 BERN	22	0740.0	0839.3	180.0	.0			OPR
	3200 BERN	2	1046.3	1109.8	65.0	.0			OPR
	8400 BERN	3	1046.3	1109.8	65.0	17.0			
	8400 BERN	47	1245.0	1346.5	150.0D	1320.0			
	3200 BERN	47	1245.0	1346.5	150.0	.0			OPR
	2800 OTTA	46F C	1344.0	1346.5	18.0	312.0	84.0		
	2800 OTTA	29 PBI	1402.0	1402	90.0	17.6			
	2800 OTTA	4 S/F	1545.0	1545.8	2.0	10.0	5.0		
	2800 OTTA	20 GRF	1600.0	1610	30.0	4.4	2.2		
	2800 OTTA	21 GRF	1635.0	1653	65.0	7.0	3.8		
	2800 OTTA	8 S	1636.9	1637	.5	5.6	2.8		
	2800 OTTA	4 S/F	1639.0	1640	2.5	20.0	9.6		
	2800 OTTA	240 R	1851.0	1853	2.0	5.6	2.8		
	2800 OTTA	2 S/F	1934.0	1936	10.0	5.6	2.8		
	2695 PENT	20 GRF	2015.0	2103	80.0	8.2	4.1		
	2695 PENT	20 GRF	2140.0	2200	40.0	4.4	2.2		
	2695 PENT	3 S	2232.0	2233.2	4.0	104.0	35.0		
	2695 PENT	29 PBI	2236.0	2236	9.0	14.4	7.2		
06	8400 BERN	3	0646.9	0650.9	15.0D	992.0			
	3200 BERN	3	0647.0	0651.0	60.0	.0			OPR
	3200 BERN	1	0815.0	0853.1	127.0	.0			OPR
	3200 BERN	4	1222.0	1416.2	150.0	.0			OPR
	8400 BERN	4	1230.0	1416.3	140.0	229.0			
	2800 OTTA	21 GRF	1415.0E	1642	435.0D	30.0			
	2800 OTTA		1415.0E	1416.3	30.0D	51.0			
	3200 BERN	46	1452.0	1508.2	40.0D	.0			OPR
	2800 OTTA	46F C	1457.0	1508.4	25.0	284.0	75.0		
	8400 BERN	46	1457.0	1503.2	40.0D	424.0U			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-} PEAK	FLUX DENSITY 10^{-} MEAN	INT	REMARKS
06	2800	OTTA	30	PBI	1522.0	1522	60.0	33.0	16.0		
	2800	OTTA	4	S/F	1530.5	1532	10.0	30.0	14.0		
	2800	OTTA	1	S	1602.0	1605	6.0	9.8	5.0		
	2800	OTTA	8	S	1759.0	1759	.2	45.0			
	2800	OTTA	1	S	1817.5	1818	2.0	3.4	1.2		
	2800	OTTA	21	GRF	1915.0	2000	90.0	18.6	9.3		
	2800	OTTA	3	S	1916.0	1922	18.0	20.8	10.0		
	2800	OTTA	4	S/F	1936.0	1943.5	20.0	37.2	18.0		
	2800	OTTA	4	S/F	2025.5	2025.7	1.8	13.6	10.2		
	2800	OTTA	240	R	2150.0	2210	20.0	10.6	7.0		
07	3200	BERN	22		0711.5	0726.3	185.0	.0			OPR
	8400	BERN	22		0711.5	0726.5	180.0U	56.0U			
	8400	BERN	20		1018.0	1134.7	140.3U	40.0			
	3200	BERN	20		1018.0	1140.0	140.0	.0			OPR
	8400	BERN	21		1242.5	1434.1	165.0U	253.0D			
	3200	BERN	21		1242.5	1434.1	165.0U	.0			OPR
	2800	OTTA	21	GRF	1415.0	1440	105.0	27.5	8.0		
	2800	OTTA	3	S	1433.0	1434	3.0	14.0	7.0		
	2800	OTTA	1	S	1525.5	1526.5	3.5	6.2	3.1		
	2800	OTTA	4	S/F	1536.0	1537	6.0	71.0	20.0		
	2800	OTTA	20	GRF	1610.0	1630	50.0	5.6	3.4		
	2800	OTTA	21	GRF	1727.0	1745	100.0	49.4	21.0		
	2800	OTTA	1	S	1727.9	1728.1	1.0	5.0	2.5		
	2800	OTTA	3	S	1735.5	1737.3	3.5	38.0	19.0		
	2695	PENT	23	GRF	2015.0	2240	195.0D	37.0			
	2800	OTTA	40	F	2029.0	2030	2.0	50.0			
	2695	PENT	1	S	2142.5	2143	1.5	9.8	4.8		
	2695	PENT	4	S/F	2159.5	2201	3.5	17.2	8.6		
	2695	PENT	1	S	2223.0	2224	1.5	7.4	3.7		
08	8400	BERN	20		0713.0	0718.1	72.0	81.0			
	3200	BERN	20		0715.0	0719.2	72.0	.0			OPR
	8400	BERN	4		0845.6	0902.6	55.0	124.0			
	3200	BERN	4		0851.5	0902.6	103.0	.0			OPR
	8400	BERN	47		1030.0	1335.0U	300.0U	2509.0D			
	3200	BERN	47		1030.0	1335.0U	300.0U	.0			OPR
	2800	OTTA	47	GB	1334.7	1337	15.3	1084.0	226.0		
	2800	OTTA	30	PBI	1350.0	1350	130.0	75.0	18.6		
	2800	OTTA	3	S	1447.9	1448.1	1.0	26.2	9.0		
	2800	OTTA	41	SER	1447.9	1452.3	8.1	700.0			
	2800	OTTA	4	S/F	1449.6	1450	1.5	83.0	31.0		
	2800	OTTA	4	S/F	1452.0	1452.3	4.0	465.0	54.0		
	2800	OTTA	22	GRF	1610.0	1740	190.0	10.8	5.4		
	2800	OTTA	21	GRF	1955.0	2010	90.0	10.8	4.6		
	2800	OTTA	3	S	1957.0	1959.7	5.0	34.0	15.0		
	2695	PENT	1	S	2014.5	2015.6	5.0	6.8	3.0		
09	8400	BERN	20		0725.5	0818.5	235.0	15.0			
	3200	BERN	20		0725.5	0818.5	235.0	.0			OPR
	2800	OTTA	1	S	1455.5	1456	1.0	5.0	2.5		
	2800	OTTA	21	GRF	1605.0	1725	370.0	26.0	8.6		
	2800	OTTA	1	S	1615.8	1616.5	2.0	9.4	5.7		
	2695	PENT	8	S	1703.0	1703.1	.3	5.0			
	2800	OTTA	3	S	1713.5	1715	8.0	56.0	14.0		
	2800	OTTA	1	S	1911.0	1912	3.0	3.8			
	2800	OTTA	1	S	1918.5	1920	3.0	4.4	2.2		
	2695	PENT	21	GRF	2118.0	2135	35.0	4.6	2.4		
	2695	PENT	1	S	2144.0	2146	9.0	5.4	2.5		
10	3200	BERN	20		0803.7	0808.0	130.0	.0			OPR
	8400	BERN	1		0804.0	0807.8	125.0	65.0			
	3200	BERN	46		1136.1	1141.3	80.0	.0			OPR
	8400	BERN	46		1136.5	1141.2	80.0	1029.0			
	2800	OTTA	21	GRF	1245.0E	1320	160.0D	27.0			
	2800	OTTA	3	S	1336.0	1337.5	2.5	27.4	7.0		
	2800	OTTA	1	S	1444.0	1445	3.0	8.8	4.8		
	2800	OTTA	23	GRF	1548.0	1710	145.0	15.2	6.4		
	2800	OTTA	1	S	1611.8	1612	1.0	3.8	2.0		
	2800	OTTA	1	S	1923.5	1924	3.0	2.8	1.4		
11	8400	BERN	3		0724.2	0725.0	54.0	138.0			
	3200	BERN	3		0724.3	0724.7	54.0	.0			OPR
	8400	BERN	4		0840.0	0914.3	77.0	1075.0			
	3200	BERN	4		0903.8	0914.3	52.0	.0			OPR
	8400	BERN	1		0958.0	1004.5	122.0	54.0			
	3200	BERN	1		0958.0	1005.2	122.0	.0			OPR
	8400	BERN	3		1223.5	1225.5	16.5	94.0			
	2800	OTTA	20	GRF	1310.0	1325	90.0	10.2	5.2		
	2800	OTTA	23	GRF	1441.0	1555	160.0	15.0	10.4		
	2800	OTTA	3	S	1504.0	1505	2.5	11.0	3.7		
	2800	OTTA	1	S	1519.5	1520	1.0	2.8	1.4		
	2800	OTTA	1	S	1638.5	1638.7	2.0	5.4	1.8		
	2800	OTTA	1	S	1641.6	1642.5	2.5	6.0	3.0		
	2800	OTTA	21	GRF	1722.0	1845	310.0	10.8	5.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
11	2800	OTTA	4	S/F	1723.0	1724.3	8.0	405.0	42.0		
	2800	OTTA	46F	C	1738.8	1745.5	21.0	202.0	72.0		
	2800	OTTA	20	GRF	2049.0	2056	80.0	18.4	9.2		
12	8400	BERN	1		0704.0	0706.5	120.0U	665.0			
	3200	BERN	1		0704.0	0706.5	120.00	.0			OPR
	3200	BERN	3		1211.3	1211.7	5.00	.0			OPR
	2800	OTTA	21	GRF	1235.0	1450	390.0	19.0	9.5		
	2800	OTTA	1	S	1547.0	1548	5.0	4.4	2.2		
	2800	OTTA	20	GRF	1700.0	1715	80.0	9.2	4.6		
	2800	OTTA	1	S	1821.8	1822	4.5	2.6	1.6		
	2695	PENT	21	GRF	2020.0	2210	130.0D	13.6			
	2695	PENT	3	S	2152.0	2152.9	4.0	214.0	34.2		
	2695	PENT	3	S	2156.0	2156	8.0	10.4	5.2		
13	3200	BERN	20		0819.5	0830.5	35.0	.0			OPR
	8400	BERN	45		0938.0	0948.5	210.0	427.0			OPR
	3200	BERN	45		0938.2	0946.5	210.0	.0			OPR
	2800	OTTA	23	GRF	1420.0	1446	40.0	4.4	2.4		
	8400	BERN	3		1436.1	1437.3	25.0	34.0			OPR
	3200	BERN	3		1436.1	1437.3	25.0	.0			OPR
	2800	OTTA	1	S	1437.0	1437.7	1.0	2.8	1.4		
	2800	OTTA	20	GRF	1505.0	1540	55.0	8.2	4.4		
	2800	OTTA	20	GRF	1620.0	1625	35.0	5.4	2.8		
	2800	OTTA	20	GRF	1700.0	1737	80.0	15.4	5.2		
	2800	OTTA	20	GRF	1910.0	1942	200.0	32.8	17.0		
14	3200	BERN	20		0734.3	0744.1	55.0	.0			OPR
	3200	BERN	3		1222.6	1225.6	21.0	.0			OPR
	2800	OTTA	21	GRF	1540.0	1600	100.0	17.8	9.0		
	2800	OTTA	4	S/F	1541.0	1543.6	4.5	17.2	6.0		
	2800	OTTA	3	S	1828.0	1831	12.0	174.0	62.2		
	2800	OTTA	30	PBI	1840.0	1840	75.0	18.2	6.1		
	2800	OTTA	3	S	1848.5	1849.5	6.0	14.8	3.8		
	2800	OTTA	26O	FAL	2020.0	2100	40.0	-3.8	-1.9		
	2695	PENT	26O	FAL	2135.0	2200	25.0	-6.8	-3.4		
15	3200	BERN	4		0659.00	0701.1	8.0	.0			OPR
	3200	BERN	3		0707.0	0717.5	30.0	.0			OPR
	3200	BERN	22		0941.0	1005.7	40.0	.0			OPR
	3200	BERN	20		1305.0	1340.6	105.0	.0			OPR
	2800	OTTA	45	C	1307.0	1311.5	6.0	13.8	5.6		
	2800	OTTA	1	S	1457.8	1458	3.0	3.0	1.5		
	2800	OTTA	21	GRF	1505.0	1625	340.0D	43.0			
	3200	BERN	3		1516.0	1520.0	8.0D	.0			OPR
	2800	OTTA	8	S	1517.4	1517.6	.8	6.0	3.0		
	2800	OTTA	4	S/F	1519.3	1520.1	2.7	52.0	19.0		
	2800	OTTA	3	S	1540.0	1543.5	22.0	372.0	75.0		
	2800	OTTA	4	S/F	1612.5	1614.5	10.0	173.0	30.0		
	2800	OTTA	1	S	1802.0	1802.2	1.0	7.4	3.7		
	2800	OTTA	46F	C	1958.0	2000	3.0	30.0			
16	3200	BERN	4		0858.5	0904.6	244.0	.0			OPR
	8400	BERN	4		0900.6	0904.4	210.0	318.0			
	2800	OTTA	20	GRF	1345.0	1440	100.0	4.2	2.1		
	8400	BERN	21		1427.3	1429.1	29.0	120.0			
	2800	OTTA	4	S/F	1740.5	1742	5.0	42.0	10.5		
	2800	OTTA	1	S	1933.5	1934.5	2.0	4.4	2.2		
	2800	OTTA	21	GRF	1950.0	2040	130.0D	16.0			
	2800	OTTA	4	S/F	2019.0	2022.5	9.0	54.6	21.0		
17	8400	BERN	22		0751.0	0825.5	60.0	14.0			
	3200	BERN	22		0751.0	0807.0	75.0	.0			OPR
	8400	BERN	22		0904.0	0919.0	60.0	24.0			
	3200	BERN	22		0915.0	0919.0	60.0	.0			OPR
	3200	BERN	20		1333.6	1338.2	75.0U	.0			OPR
	8400	BERN	20		1333.6	1337.7	90.0	82.0			
	2800	OTTA	3	S	1336.0	1339	7.0	19.0	12.6		
	2800	OTTA	29	PBI	1343.0	1343	140.0	8.8	6.9		
	2800	OTTA	21	GRF	1630.0	1801	260.0	7.2	3.6		
	2800	OTTA	1	S	2026.5	2027	3.0	4.0	2.0		
18	8400	BERN	4		0717.3	0718.3	93.0	101.0			
	3200	BERN	22		0950.0	0957.0	60.0	.0			OPR
	8400	BERN	22		0953.0	0957.0	60.0	76.0			
	8400	BERN	22		1138.8	1143.0	14.0	10.0			
	3200	BERN	22		1138.8	1142.8	14.0	.0			OPR
	2800	OTTA	20	GRF	1300.0	1340	95.0	5.6			
	8400	BERN	4		1447.5	1451.8	15.0	141.0			
	3200	BERN	4		1447.5	1451.8	15.0	.0			OPR
	2800	OTTA	1	S	1448.7	1449	2.0	7.8	2.6		
	2800	OTTA	1	S	1451.7	1452	1.2	6.2	3.1		
	2800	OTTA	26O	FAL	1653.0	1720	27.0	-3.6	-1.8		
	2800	OTTA	20	GRF	1827.0	1835	40.0	2.8	1.8		
	2695	PENT	1	S	2132.0	2133	2.0	2.8	1.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
19	3200	BERN	3		1235.0	1237.5	90.0	.0			OPR
	8400	BERN	3		1235.1	1237.5	90.0	51.0			
	2300	OTTA	20	GRF	1255.0	1320	65.0	7.8	4.2		
	2800	OTTA	1	S	1940.0	1941	2.0	3.8	1.8		
	2695	PENT	1	S	2001.5	2002.3	2.0	3.4	1.6		
	2695	PENT	24	OAR	2115.0	2155	40.0	8.8			
	2695	PENT	8	S	2122.9	2123	.7	4.4	2.2		
	2695	PENT	22	GRF	2133.0	2146.5	18.0	13.4	10.0		
20	8400	BERN	47		0803.0	0806.2	170.0	531.0			
	3200	BERN	47		0803.6	0806.1	170.0	.0			OPR
	2800	OTTA	20	GRF	1925.0	2000	120.0	4.2	2.1		
	2800	OTTA	22	GRF	2028.0	2047	37.0	3.4	1.7		
21	3200	BERN	22		0741.5	0743.3	90.0	.0			OPR
	3200	BERN	4		0959.0	1001.3	90.0	.0			OPR
	2800	OTTA	1	S	1416.4	1416.7	1.0	5.8	2.0		
	2800	OTTA	21	GRF	1650.0	1720	80.0	4.0			
	2800	OTTA	1	S	1749.0	1751	9.0	1.4	.7		
	2800	OTTA	20	GRF	1340.0	1847	20.0	3.2	1.6		
	2695	PENT	24	OAR	2055.0	2105	10.0	6.0			
	2695	PENT	1	S	2100.0	2101.5	2.2	4.2	2.1		
22	2800	OTTA	26	O FAL	1620.0	1650	30.0	-3.6	-1.8		
23	2800	OTTA	8	S	1459.4	1459.5	.3	7.8			
	2800	OTTA	1A	S	1750.0	1755	10.0	4.8	2.0		
	2800	OTTA	1	S	1750.2	1750.6	1.0	7.8	3.9		
	2800	OTTA	4	S/F	1833.0	1857	47.0	68.8	41.4		
	2800	OTTA	30	PBI	1920.0	1920	130.0D	30.6			
	2800	OTTA	20	GRF	1950.0	1954	17.0	6.8	3.4		
	2695	PENT	3	S	2117.0	2117.9	2.0	11.8	3.9		
24	3200	BERN	20		0838.5	0843.5	18.0	.0			OPR
	2800	OTTA	21	GRF	1330.0	1355	130.0	13.4	6.7		
	3200	BERN	41		1331.1	1348.3	55.0	.0			OPR
	2800	OTTA	4	S/F	1345.5	1348.4	6.5	16.4	7.0		
	3200	BERN	41		1433.5	1434.0	4.00	.0			OPR
	2800	OTTA	4	S/F	1433.7	1434.3	4.0	39.0	9.8		
	2800	OTTA	1	S	1458.0	1500	6.0	2.8	1.3		
	2800	OTTA	3	S	1700.0	1702	3.5	11.6	5.0		
	2800	OTTA	29	PBI	1703.5	1703.5	16.0	4.6	2.2		
	2800	OTTA	21	GRF	1928.0	1939	42.0	10.6			
	2800	OTTA	4	S/F	1930.0	1930.8	4.5	19.6	9.0		
	2800	OTTA	20	GRF	2030.0	2033.5	17.0	4.6	2.0		
	2800	OTTA	8	S	2056.7	2056.7	.1	12.0			
25	3200	BERN	4		0901.3	0901.3	3.0	.0			OPR
	2800	OTTA	20	GRF	1625.0	1740	140.0	4.0	3.2		
	2800	OTTA	24	O R	1935.0	2000	25.0	4.6			
	2695	PENT	21	GRF	2034.0	2110	60.0	4.8	2.4		
	2800	OTTA	1	S	2035.0	2040	10.0	5.4	2.8		
26	2800	OTTA	21	GRF	1435.0	1610	115.0	3.4	1.7		
	2800	OTTA	1	S	1604.0	1604.5	1.0	2.4	1.2		
28	3200	BERN	20		0935.0	0948.1	300.0	.0			OPR
	8400	BERN	20		0944.0	1127.8	200.0	72.0			
	2800	OTTA	1	S	1435.0	1437.3	6.0	8.6	3.0		
29	2800	OTTA	21	GRF	1435.0	1442	13.0	3.8	1.7		
	2800	OTTA	3	S	1440.5	1441	1.5	14.6	5.0		
	2800	OTTA	23	GRF	1555.0	1630	180.0	11.2	5.6		
	2800	OTTA	1	S	1617.8	1617.9	1.0	7.8			
	2695	PENT	22	GRF	2100.0	2112	85.0	7.8			
30	2800	OTTA	20	GRF	1535.0	1600	40.0	2.0	1.2		
	2800	OTTA	22	GRF	1635.0	1722	90.0	2.8	1.8		
	2800	OTTA	1	S	1830.0	1835	10.0	2.4	1.2		
	2800	OTTA	2	S/F	1955.3	1955.5	1.0	3.8	1.9		
	2695	PENT	24	R	2008.0	2016	8.0	10.2	5.1		
	2695	PENT	27	RF	2008.0		112.0	10.2	7.6		
	2800	OTTA	24P	R	2016.0		54.0	10.2			
	2695	PENT	26	FAL	2110.0	2200	50.0	-10.2	-5.1		

Observatories:

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

Explanation of Type Code:

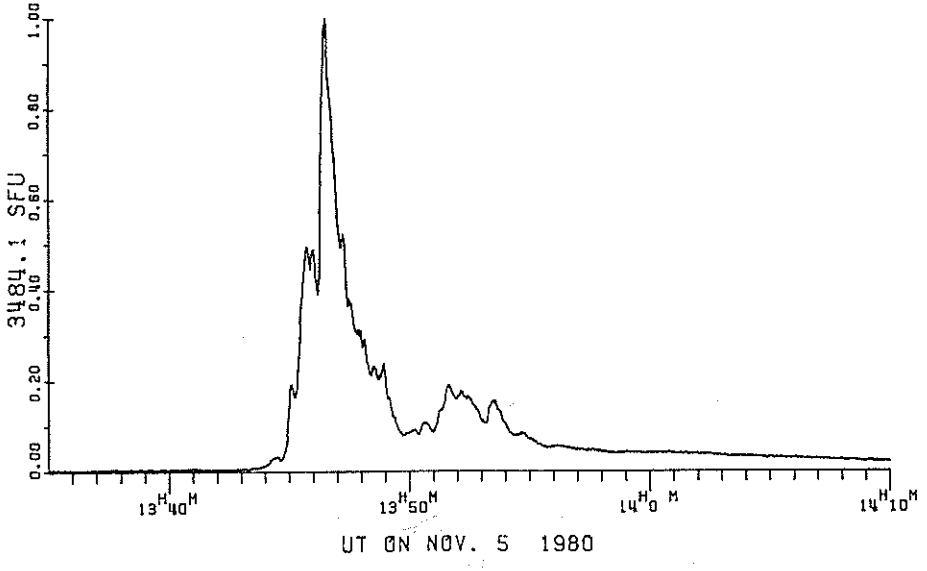
1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase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

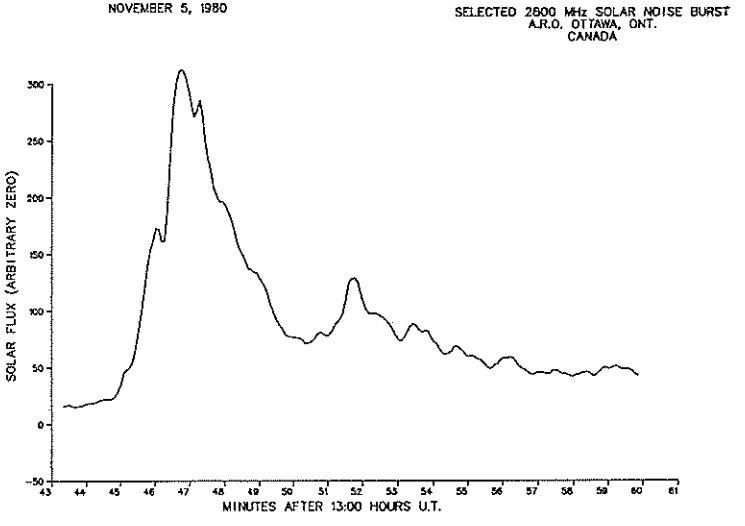
SELECTED SOLAR NOISE BURSTS

NOVEMBER 5 - 6, 1980

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

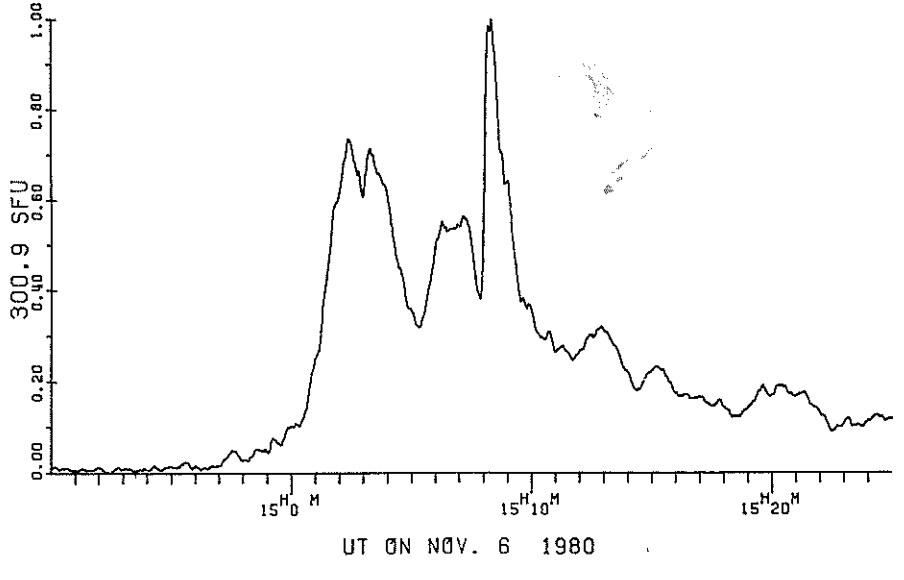
I19.6, F=19.6 GHZ, BW=600.0 MHZ, T=1.0 SEC

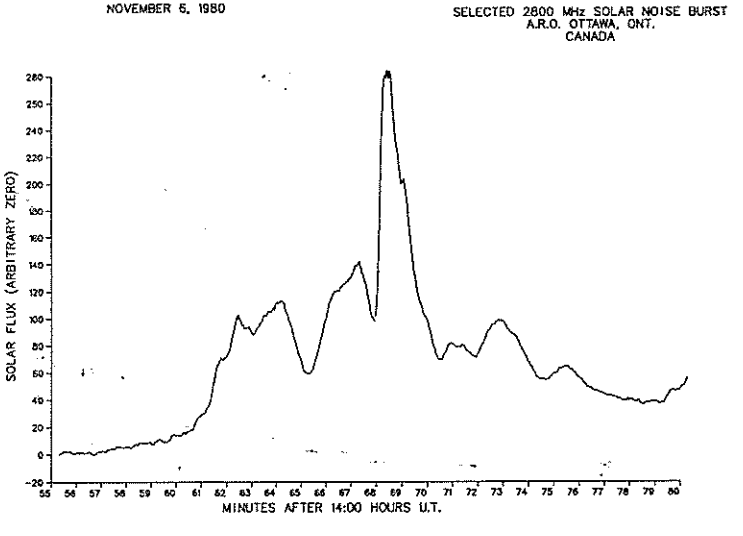




INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

I 5.2, F=5.2 GHZ, BW=100.0 MHZ, T=1.0 SEC



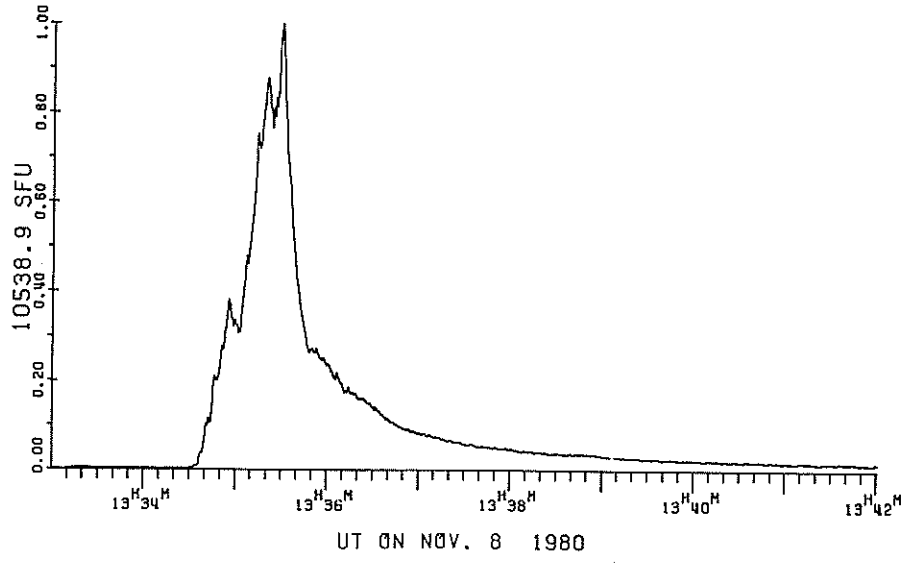


SELECTED SOLAR NOISE BURSTS

NOVEMBER 8 - 20, 1980

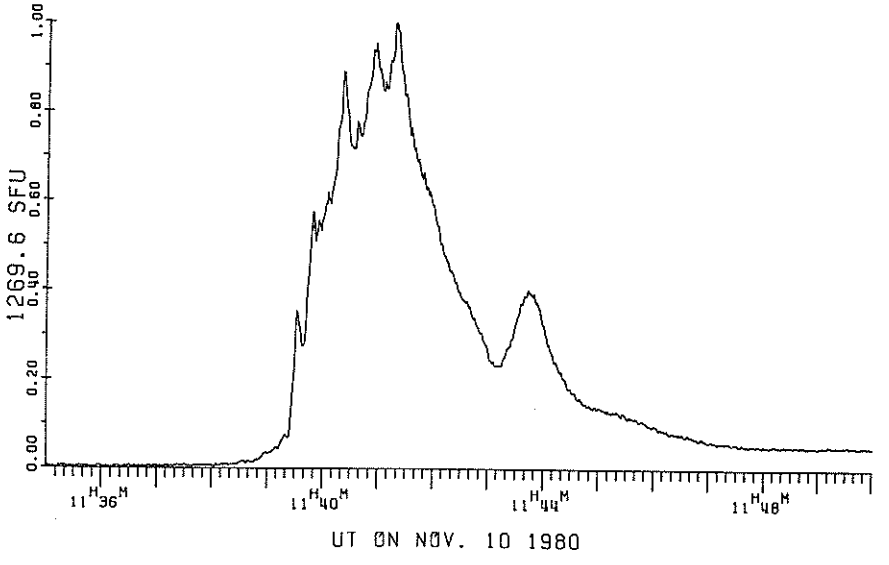
INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

I35.0, F=35.0 GHZ, BW=1000.0 MHZ, T=0.1 SEC



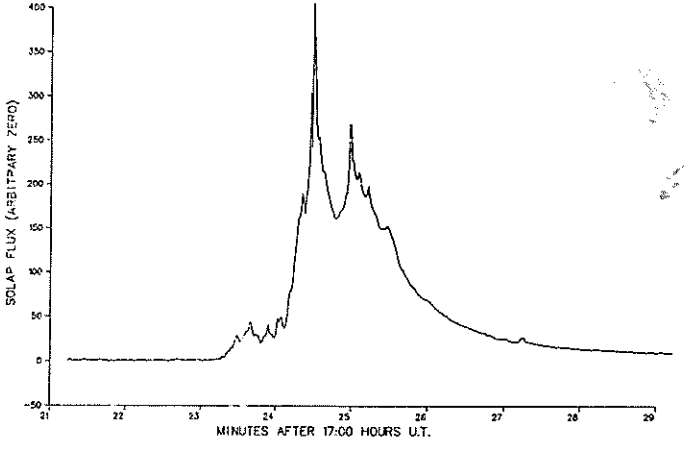
INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

I11.8, F=11.8 GHZ, BW=250.0 MHZ, T=1.0 SEC



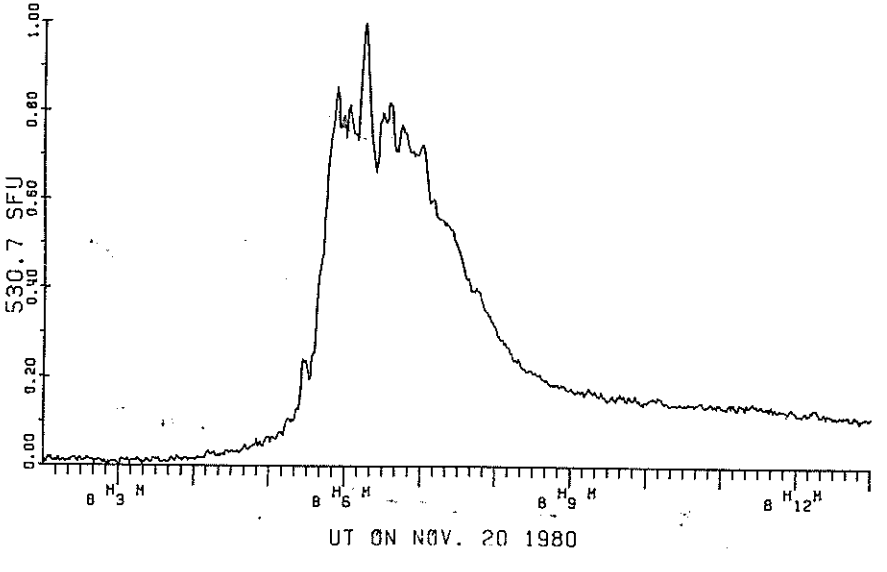
NOVEMBER 11, 1980

SELECTED 2800 MHz SOLAR NOISE BURST
A.R.O. OTTAWA, ONT.
CANADA



INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

I 8.4, F=8.4 GHZ, BW=6.0 MHZ, T=1.0 SEC



SOLAR WIND

Interplanetary Scintillations

NOVEMBER 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
801101	306	5	471	55	436	34	2	3C459	132	7	1.22	-10	0.06	1701.20
	306	8	304	17	444	234	2	3C144-	135	3	1.23	10	2.14	1701.05
	306	11	649	54	601	14	3	3C144	135	3	1.23	11	1.45	1701.20
	306	12	453	81	486	23	2	3C161	117	-4	1.17	10	1.42	1701.15
	306	15	358	45	346	115	2	3C222	75	0	0.97	17	1.09	1701.13
	306	17	316	48	267	13	2	3C273	33	6	0.54	58	1.69	1701.09
801102	307	5	303	79	358	10	2	3C459	131	7	1.22	-9	0.60	1701.14
	307	12	235	54	326	9	2	3C161	118	-4	1.17	10	2.08	1701.03
	307	17	482	15	409	13	3	3C273	34	6	0.56	57	2.58	1701.17
	307	18	448	18	464	38	2	3C283	21	-42	0.36	58	1.68	1701.19
801103	308	11	595	157	424	11	2	3C144	137	3	1.24	9	1.42	1701.26
	308	12	405	34	418	198	2	3C161	119	-4	1.18	11	1.62	1701.20
	308	15	365	110	538	53	2	3C222	77	-1	0.98	17	1.11	1701.21
	308	16	307	62	265	10	2	3C237	70	1	0.94	20	1.14	1701.17
	308	17	407	28	323	18	2	3C273	35	5	0.57	55	2.17	1701.19
	308	18	364	41	374	54	2	3C283	21	-40	0.36	58	1.10	1701.21
	308	20	339	65	519	199	2	3C298	22	51	0.37	60	1.10	1701.20
801104	309	2	301	20	306	42	2	3C409	91	16	1.05	-11	-0.58	1701.25
	309	12	259	21	328	23	2	3C161	120	-4	1.18	11	2.06	1701.13
	309	16	324	53	367	16	2	3C237	71	1	0.95	19	1.08	1701.22
	309	17	311	14	284	13	3	3C273	36	5	0.59	55	1.67	1701.19
	309	18	388	22	402	12	2	3C283	22	-38	0.37	58	1.34	1701.25
801105	310	5	354	50	351	23	2	3C459	128	7	1.21	-10	0.27	1701.29
	310	11	467	74	610	95	2	3C144	139	3	1.24	9	1.62	1701.29
	310	16	330	14	375	39	3	3C237	72	1	0.95	18	1.03	1701.26
	310	17	282	9	267	18	3	3C273	37	5	0.60	54	1.43	1701.22
	310	18	427	20	468	35	2	3C283	23	-37	0.39	57	1.63	1701.29
	310	20	298	95	318	12	2	3C298	23	47	0.39	60	0.73	1701.26
801106	311	12	527	29	489	47	2	3C161	122	-4	1.19	9	1.32	1701.36
	311	15	287	37	275	44	2	3C222	80	-1	0.99	18	1.24	1701.26
	311	15	432	70	397	38	2	3C237	73	1	0.96	18	1.15	1701.35
801107	312	2	356	103	401	82	2	3C409	89	16	1.04	-11	-0.68	1701.39
	312	4	398	28	405	29	2	3C459	126	7	1.20	-11	0.10	1701.39
	312	12	385	80	462	92	2	3C161	122	-5	1.19	9	1.53	1701.34
	312	15	357	35	356	45	2	3C237	74	0	0.96	17	1.08	1701.35
801108	313	12	443	130	576	98	2	3C161	123	-5	1.19	11	1.56	1701.40
	313	17	246	57	234	33	2	3C273	40	4	0.64	50	1.07	1701.30
	313	18	311	21	311	21	2	3C283	25	-33	0.42	-4	-3.79	1701.54
801109	314	12	440	31	521	13	2	3C161	124	-5	1.19	10	1.53	1701.44
	314	15	411	16	399	38	3	3C237	76	0	0.97	17	1.15	1701.45
	314	16	364	11	339	18	3	3C273	41	4	0.66	49	1.93	1701.40
	314	18	499	15	482	37	3	3C283	26	-32	0.44	57	2.18	1701.44
	314	20	427	10	417	18	3	3C298	26	39	0.44	59	2.01	1701.43
801110	315	15	454	69	469	21	2	3C237	77	0	0.98	19	1.28	1701.50
	315	16	491	90	346	28	2	3C273	42	4	0.67	49	2.42	1701.47
	315	18	408	14	467	21	3	3C283	27	-31	0.45	55	1.65	1701.47
	315	20	341	10	374	16	3	3C298	27	38	0.45	39	-0.08	1701.50
801111	316	16	623	69	579	44	2	3C273	43	3	0.68	48	2.62	1701.52
801112	317	4	284	31	255	98	2	3C459	121	6	1.18	-12	0.27	1701.50
	317	16	553	29	559	22	3	3C273	44	3	0.69	48	2.54	1701.55
	317	18	515	19	487	18	3	3C283	29	-29	0.48	55	2.30	1701.55
	317	20	429	9	469	13	4	3C298	28	35	0.47	59	2.10	1701.54
801113	318	4	349	79	366	12	2	3C459	120	6	1.18	-12	-0.03	1701.59
	318	13	335	12	253	105	2	3C216	104	8	1.11	15	1.72	1701.53
	318	15	545	62	544	58	2	3C237	80	0	0.99	18	1.28	1701.63
	318	16	422	19	396	20	2	3C273	45	3	0.71	46	2.18	1701.56
	318	17	489	17	505	28	3	3C283	30	-28	0.50	53	2.10	1701.59
	318	20	401	19	434	47	3	3C298	29	33	0.48	58	1.95	1701.57
801114	319	16	427	27	394	35	2	3C273	46	3	0.72	44	2.08	1701.60
	319	17	521	17	502	17	2	3C283	31	-27	0.52	53	2.26	1701.63
	319	19	403	11	391	15	4	3C298	29	32	0.48	58	1.97	1701.60
801115	320	16	381	47	397	49	2	3C273	47	3	0.73	43	1.93	1701.63

SOLAR WIND

Interplanetary Scintillations

NOVEMBER 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	320	17	577	82	571	81	2	3C283	32	-26	0.53	53	2.46	1701.67
801116	321	4	449	48	387	53	2	3C459	117	6	1.17	-12	-0.28	1701.75
	321	11	310	10	322	11	2	3C161	130	-5	1.21	7	1.80	1701.62
	321	16	494	26	448	103	2	3C273	48	2	0.74	43	2.22	1701.69
	321	17	301	12	309	10	2	3C283	32	-26	0.53	53	1.09	1701.65
801117	322	11	494	28	449	95	2	3C161	130	-5	1.21	8	1.39	1701.75
	322	16	351	13	419	24	2	3C273	49	2	0.75	42	1.82	1701.69
	322	17	364	12	408	30	2	3C283	33	-25	0.54	53	1.63	1701.70
	322	19	396	28	304	60	3	3C298	32	28	0.53	55	1.89	1701.71
801118	323	11	407	92	365	77	2	3C161	131	-5	1.22	8	1.56	1701.75
	323	17	394	*	426	*	2	3C283	34	-24	0.56	51	1.72	1701.75
	323	19	385	*	398	*	2	3C298	32	27	0.53	55	1.83	1701.74
801119	324	16	232	18	350	65	2	3C273	51	2	0.78	39	1.15	1701.69
	324	19	298	22	341	47	2	3C298	33	26	0.54	54	1.18	1701.75
801120	325	2	394	72	411	83	3	3C446	98	5	1.08	-16	-0.86	1701.89
	325	3	486	12	494	33	3	3C459	113	6	1.15	-13	-0.42	1701.92
	325	16	297	32	327	26	2	3C273	52	2	0.79	39	1.61	1701.77
	325	17	361	24	369	12	3	3C283	36	-23	0.59	51	1.66	1701.81
	325	19	353	19	356	9	3	3C298	34	25	0.56	54	1.70	1701.81
801121	326	11	392	89	477	114	2	3C161	133	-6	1.22	7	1.54	1701.86
	326	16	536	17	485	22	4	3C273	53	2	0.80	38	2.14	1701.89
	326	17	438	17	461	18	3	3C283	37	-22	0.60	49	1.96	1701.87
	326	19	403	25	375	9	3	3C298	35	24	0.57	53	1.97	1701.86
801122	327	4	490	74	498	44	2	3C459	111	6	1.14	-13	-0.46	1701.99
	327	11	477	15	551	54	2	3C161	134	-6	1.23	7	1.40	1701.93
	327	16	444	13	436	33	3	3C273	54	1	0.81	36	1.87	1701.91
	327	17	454	30	438	23	3	3C283	38	-22	0.62	48	2.04	1701.91
	327	19	323	12	352	10	3	3C298	36	23	0.59	52	1.51	1701.87
801123	328	11	329	19	331	36	2	3C161	135	-6	1.23	7	1.77	1701.89
	328	16	462	12	455	19	3	3C273	55	1	0.82	36	1.96	1701.95
	328	17	393	11	393	11	4	3C283	39	-21	0.63	47	1.78	1701.93
	328	19	338	9	376	10	3	3C298	37	22	0.60	51	1.62	1701.91
801124	329	3	501	30	515	31	3	3C459	109	6	1.13	-13	-0.53	1702.07
	329	10	389	42	403	9	2	3C161	136	-6	1.23	7	1.58	1701.96
	329	14	359	93	368	30	2	3C237	91	-1	1.05	18	1.56	1701.96
	329	15	488	18	441	16	2	3C273	56	1	0.83	35	1.95	1701.99
	329	17	421	13	413	13	4	3C283	40	-20	0.64	46	1.87	1701.98
	329	19	346	9	353	9	3	3C298	37	21	0.60	51	1.67	1701.95
801125	330	3	591	53	579	14	2	3C459	108	5	1.13	-13	-0.65	1702.13
	330	10	444	87	730	48	2	3C161	136	-6	1.23	7	1.49	1702.03
	330	16	622	22	485	17	2	3C273	57	1	0.84	34	2.08	1702.06
	330	17	404	13	473	18	2	3C283	41	-20	0.66	45	1.76	1702.01
	330	17	387	34	375	12	2	3C295	77	16	0.98	10	0.65	1702.04
801126	331	3	385	23	376	8	2	3C459	107	5	1.12	-13	-0.44	1702.10
	331	10	503	14	525	9	3	3C161	137	-6	1.24	6	1.30	1702.09
	331	11	684	20	632	71	2	3C196	125	7	1.20	10	1.30	1702.12
	331	15	418	50	444	65	2	3C273	58	1	0.85	34	1.84	1702.05
	331	16	436	21	416	29	3	3C283	42	-19	0.67	45	1.94	1702.05
801127	332	10	443	42	613	31	2	3C161	138	-6	1.24	6	1.41	1702.10
	332	18	403	57	376	53	2	3C298	40	19	0.64	48	1.97	1702.08
801128	333	10	586	84	555	61	2	3C161	138	-6	1.24	6	1.14	1702.18
	333	15	582	16	589	16	2	3C273	60	1	0.87	31	1.88	1702.16
	333	16	472	58	426	13	2	3C283	44	-18	0.69	43	2.04	1702.13
	333	19	390	25	427	10	2	3C298	41	18	0.66	47	1.90	1702.11
801129	334	3	318	16	378	168	2	3C459	104	5	1.11	-14	-0.47	1702.17
	334	11	478	27	344	39	2	3C196	127	6	1.20	11	1.56	1702.18
	334	15	642	33	620	15	2	3C273	61	0	0.87	30	1.87	1702.21
	334	16	396	18	427	41	3	3C283	45	-18	0.71	43	1.82	1702.15
	334	19	411	8	383	7	2	3C298	42	17	0.67	47	1.99	1702.15
801130	335	1	442	15	457	31	2	3C446	88	4	1.03	-16	-1.10	1702.29
	335	3	517	15	507	19	2	3C459	103	5	1.11	-14	-0.72	1702.30
	335	15	439	11	402	25	3	3C273	62	0	0.88	28	1.60	1702.21
	335	16	363	12	363	11	4	3C283	45	-18	0.71	43	1.69	1702.18
	335	18	375	11	380	20	4	3C298	43	17	0.68	46	1.86	1702.18

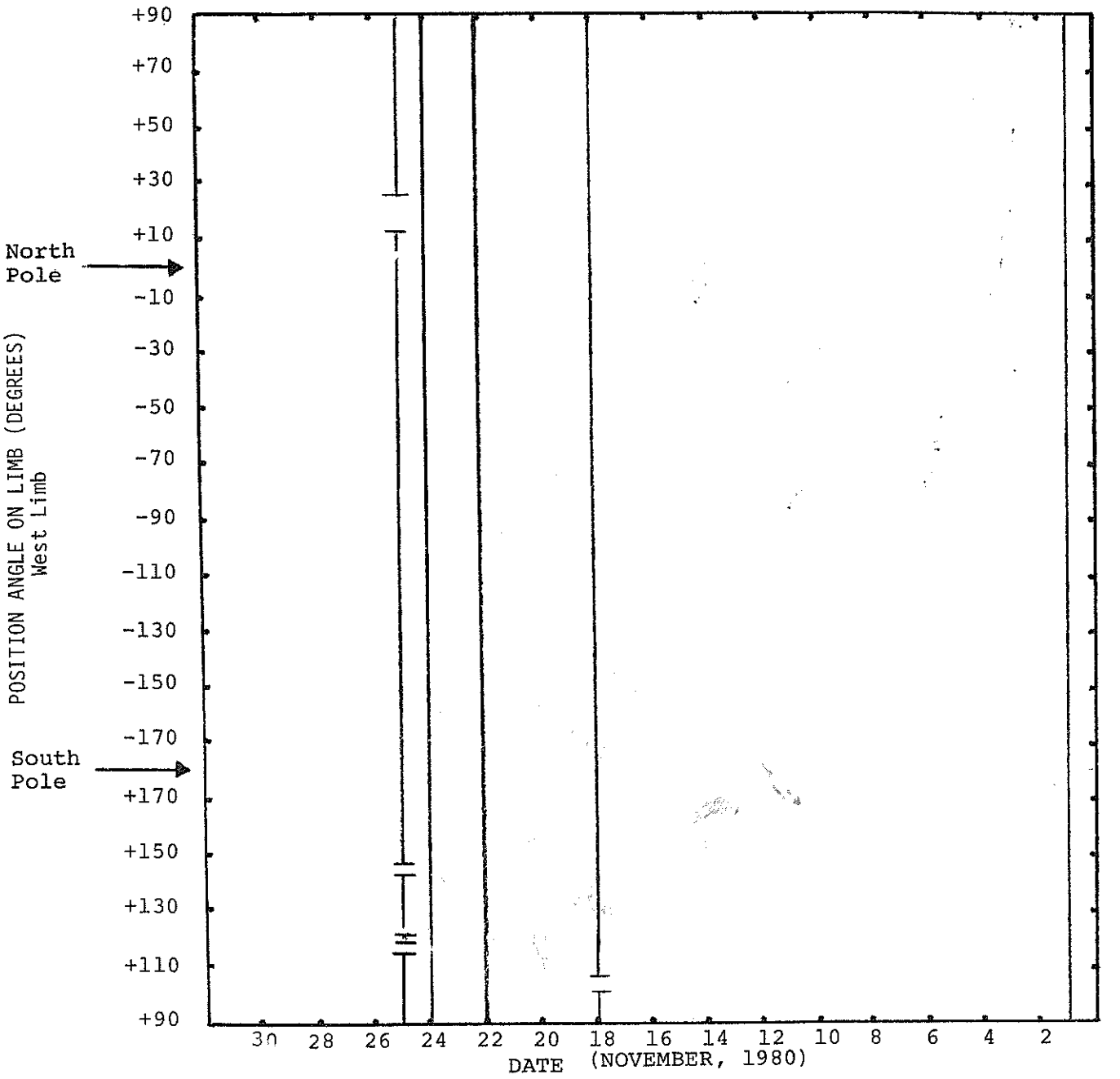
VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

NOVEMBER 1980

Big Bear Solar Observatory



INFERRED IP MAGNETIC FIELD

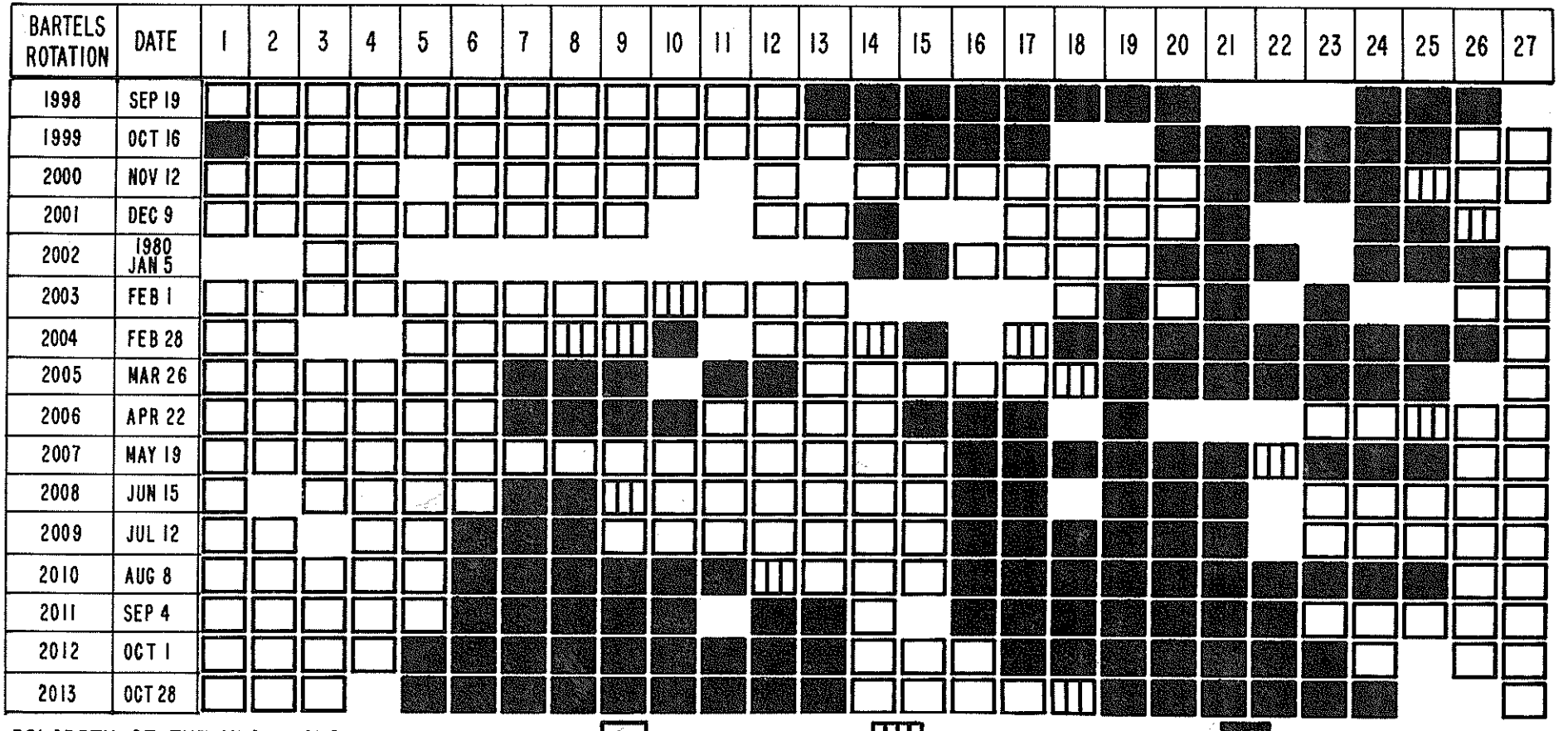
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1996	AUG 1			AT	A*	-			TA -	-	-		T*				*	-			AT					AT *		
1997	AUG 28			-	A*						AT							-		-		T*	-	AT	TA -		TA AT	
1998	SEP 24						A*		AT	-		TA		A*	*			TA		-			TA			TA	TA -	*
1999	OCT 21								T*			TA	-		-					AT	AT *		AT					
2000	NOV 17	-	TA -			AT					*				AT				AT -	TA	-		TA		-	-	-	
2001	DEC 14				-				TA		TA	-	-	AT -				AT		AT *			TA AT	T*				
2002	1980 JAN 10					AT		-		-			-	TA AT		T*		TA	AT							TA	A*	
2003	FEB 6		TA			-				A*							TA				-			*	TA	TA		
2004	MAR 4		AT		TA		AT	-	-	TA		-			T*		AT AT			TA		AT	AT TA			TA -	-
2005	MAR 31		TA	AT AT	AT		AT	TA	T*			AT				TA TA					TA		TA	AT AT	AT AT	TA TA		
2006	APR 27		AT			AT -						TA	AT		TA			TA AT	AT						TA	AT	*	TA
2007	MAY 24			AT	AT			*	* -	-	-	- -	TA		AT					* TA			-	TA		TA	- TA	
2008	JUN 20		-				AT		-	-					-	-							TA		TA		TA	
2009	JUL 17		-	AT		-						-			TA	TA	-	AT	AT		-		-	-	-	- A*	- -	
2010	AUG 13		AT					-	AT -							-		-	AT				TA		-	A*		
2011	SEP 9							TA	AT						TA	TA										TA		
2012	OCT 6							*		TA	TA		AT	A*	A*							TA			TA			
2013	NOV 2	AT					TA	TA				AT	A*								-	TA -	AT			TA		
2014	NOV 29																											

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

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

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

STANFORD MEAN SOLAR MAGNETIC FIELD



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

No box visible indicates no data available for that day.

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

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

DAY	1979 DEC.	1980 JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.
01	16	-37	94	.	-10	-7	37	-51	-5	-19	44	-41
02	-3	-28	96	.	-26	9	13	.	.	5	59	-94
03	-24	1	87	50	-21	26	-16	-25	8	8	53	-120
04	-18	.	72	53	.	55	-45	-23	7	29	26	-123
05	-6	.	72	12	-44	21	-57	-19	10	42	-4	-111
06	-1	.	57	-1	-17	-13	-42	.	24	42	-36	-84
07	18	54	49	1	9	-34	-25	8	53	23	-62	-99
08	35	59	31	-8	4	-42	-11	11	53	9	-73	-107
09	75	.	10	.	7	.	-1	13	44	-27	-72	-61
10	99	.	0	9	7	-17	-6	23	37	-68	-39	28
11	83	.	10	21	5	.	-18	44	27	-77	-41	27
12	60	.	11	1	2	.	-4	42	8	-84	-45	38
13	32	.	3	-7	-15	.	12	34	-37	-62	-10	26
14	44	.	.	.	-18	5	56	.	-63	.	10	-1
15	29	.	.	-2	-12	5	54	57	-65	-39	38	-21
16	20	.	.	-10	-14	-1	.	26	-56	-16	20	-50
17	18	.	.	-9	-8	16	63	-42	-44	7	-15	-68
18	.	-17	5	-8	-10	50	71	-69	-24	.	-8	-81
19	.	-8	-13	-18	-5	73	55	-43	1	-18	-2	-63
20	7	33	3	-42	.	78	15	5	23	-38	-16	-24
21	6	32	-7	-41	30	92	-40	32	24	-31	-14	.
22	-6	10	.	-39	95	120	-43	47	11	-15	-17	.
23	.	3	-32	-24	113	122	-1	53	-11	-7	-8	97
24	.	-12	.	-20	113	46	33	57	-31	-22	31	80
25	35	-25	.	13	100	14	49	53	-38	-21	.	70
26	40	-31	6	43	56	25	37	27	-27	8	54	31
27	27	.	43	53	8	64	46	-8	-27	18	52	28
28	23	-34	58	64	-27	57	54	-33	-18	18	48	-3
29	-18	-26	57	84	-28	62	6	-42	-14	18	44	-26
30	.	-13		75	-16	49	-22	-29	-18	25	57	.
31	.	29		25		49		-6	-10		.	

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

PIONEER XII

NOVEMBER 1980

DATE NOV 80	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$°K)
1	2120	087.1	437.	7.6	0.16
2	0502		392.	12.	.163
3	1305		330.	23.8	.036
4	1505		268.	89.9	.015
5	1912		441.	37.8	.347
6	1849		536	9.17	.374
7	2209		479.	13.7	.259
8	1206		463.	9.9	.082
9	1219		364.	24.1	.017
10	1600		341.	37.4	.016
11	1847		390.	26.7	.107
12	1257		465.	26.8	.1
13	1425		405.	25.1	.064
14	1708		357.	18.8	.114
15	1521	095.8	868.	57.7	.078
16	1554		559.	0.85	.038
17	1555		542.	7.7	.157
18	1957		476.	12.	.247
19	2157		523.	25.4	.025
20	1922		373.	15.6	.007
21	1918		397.	12.6	.045
22	1655		361.	20.7	.234
23	0331		322.	19.3	.236
24	1901		489.	11.	.239
25	2156		485.	9.2	.113
26	1508		396.	34.7	.048
27	1609		554.	17.1	.315
28	1406		577.	7.5	.171
29	1928		542.	16.3	.094
30	1257		476.	16.6	.025

BOULDER GEOMAGNETIC SUBSTORM LOG

NOVEMBER 1980

DATE	ONSET TIME	DIR	COMMENTS
11/01			Oval stations active 0600-1800 UT with numerous minor injections.
	0955	West	Slow onset.
	1445		Slow onset.
11/02			Field intermittently unsettled with no distinctive SS activity.
11/03	-	-	Field intermittently unsettled.
	0855	-	Weak SS Alaska only.
11/04	1000	East	Moderate SS, strongest at Lynn Lake.
11/05	-	-	Field essentially quiet.
11/06	-	-	Field intermittently unsettled.
11/07	-	-	Field slightly unsettled through 0600 UT then quiet balance of day.
11/08	-	-	Field essentially quiet.
11/09	1122	-	Weak positive impulse H-component all mid/low latitude stations.
	1605	-	Slow onset, slow expansion northward through Alaska.
11/10	1010		SS along auroral oval only.
	1310		SS along auroral oval only.
11/11	0815	West	Moderate SS along auroral oval.
	1720		Moderate SS, several injections with recovery near 1200 UT.
11/12	0815	West	Slow onset, several injections with recovery near 2100 UT.
11/13			Field slightly unsettled.
11/14	1105		SS along auroral oval, several injections with recovery near 1315 UT.
	1510		SS predominantly in Alaska.
11/15			Field moderately active 0800-1800 UT.
	0420	East	
	0810	East	
	1050	West	
	1310	West	Several injections with recovery near 1730 UT.
11/16			Field active 0700-1800 UT.
	0910		SS predominantly in Alaska.
	1410		SS predominantly in Alaska.
11/17	0615		SS localized Ft. Smith.
	1010		Weak SS, slow onset.
	1150		SS along auroral oval stations only.
11/18	0615	East	
	1015	West	
	1210	West	Several injections with recovery near 1530 UT.
11/19	0825	West	Several injections with recovery near 1100 UT.
	1100	West	
	1500		Slow expansion northward through Alaska.
11/20	0810	West	
	1255		SS localized in vicinity of College.
	1400		Weak SS, numerous minor injections with recovery near 1800 UT.
	2020		Sharp negative impulse H-component all mid/low latitude stations.
11/21			Field intermittently unsettled.
	0420	East	
11/22			Field slightly unsettled.
11/23			Field unsettled after 1600 UT.
11/24			Field intermittently unsettled with no distinctive SS activity.
	2258	SSC	
11/25	1320	West	
	1415	West	Alaskan Polar Cap and mid/low latitude stations became unsettled after 2200 UT.
11/26	0025		Negative impulse H-component all mid/low latitude stations. Displacement stronger over Pacific stations. Field unsettled through 1800 UT.
	0425		Sharp, short-lived positive impulse H-component all mid/low latitude stations.
	1130	West	Strong SS, sharp onset.
11/27	0645	East	
	0850	West	
	1055		Slow onset, numerous injections wih field recovery near 1545 UT
11/28	0110	East	Boulder in partial ring current sector.
	0640	≈ center	Weak SS
	0810	West	Weak SS
	0930	West	
	1130	West	
	1250		Polar Cap SS, Alaskan network.
11/29	0715	West	Moderate SS
	1110	West	Moderate SS
	1210	West	Moderate SS
11/30	0200	East	Weak SS
	1205	West	
	1745		Weak SS, Alaskan chain.

OCTOBER 1980 DATA

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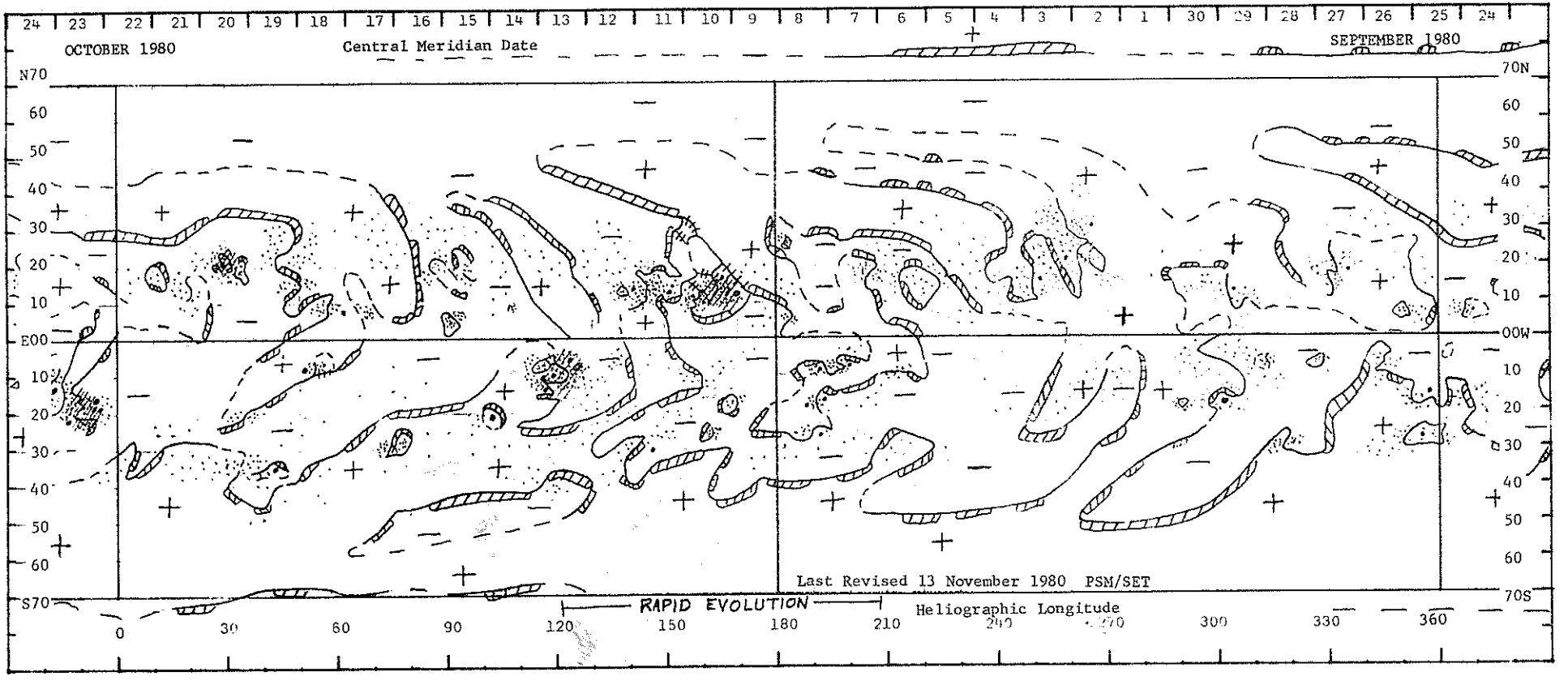
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1700 (PRELIMINARY)

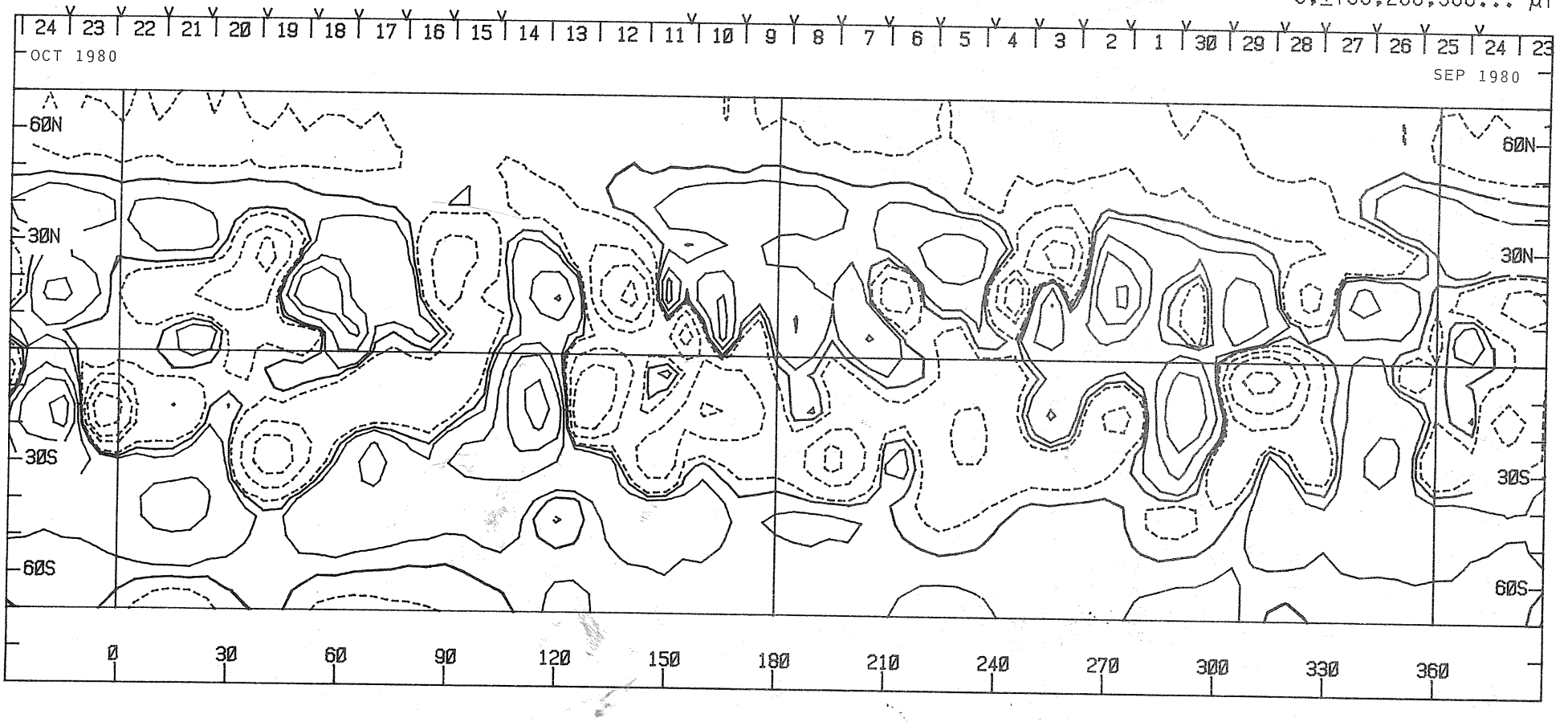


SOLAR MAGNETIC FIELD SYNOPTIC CHART

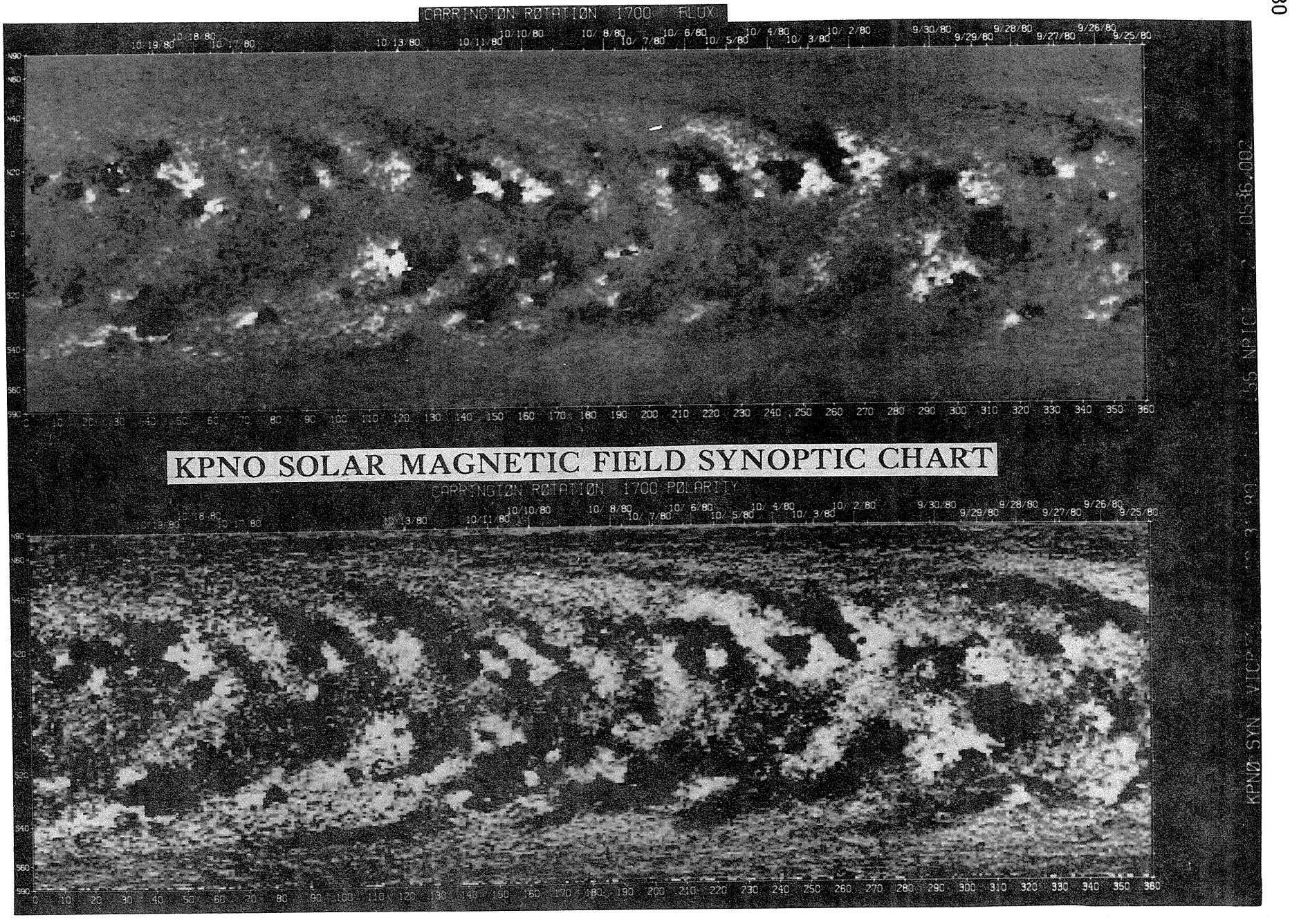
CARRINGTON ROTATION 1700

Stanford Solar Observatory

0,±100,200,500... μT



47
Oct 80

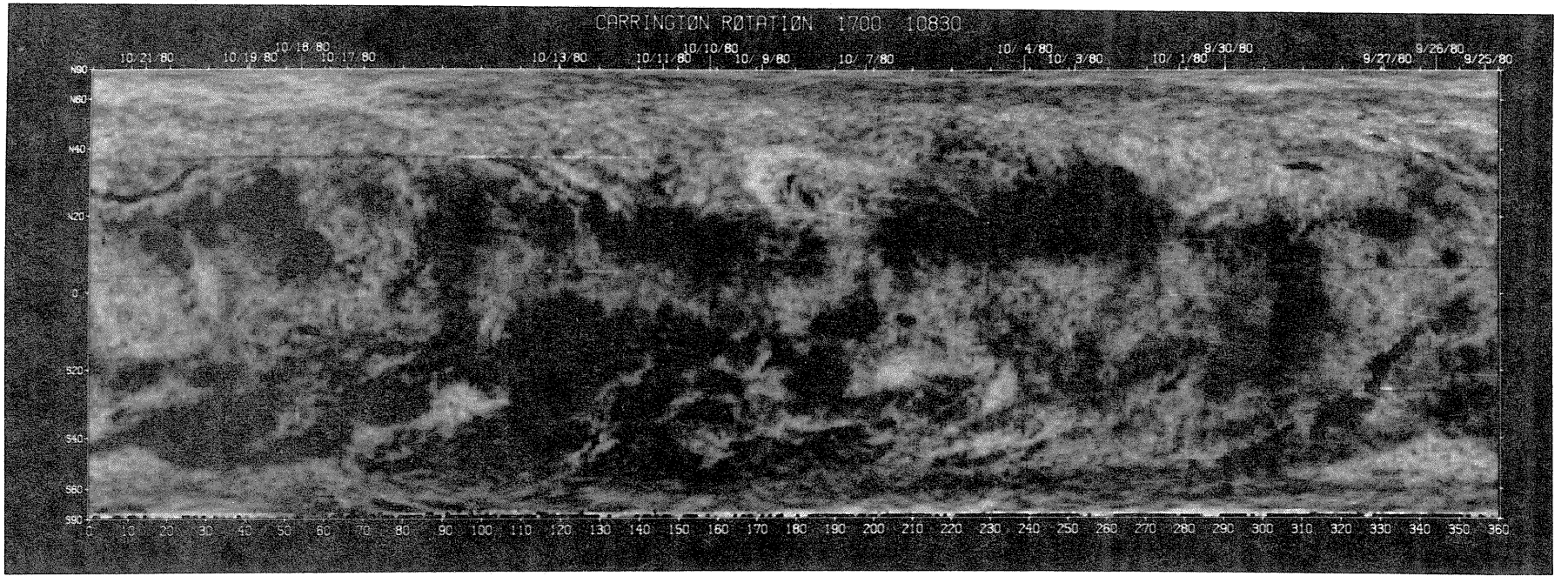


KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1700

KITT PEAK NATIONAL OBSERVATORY



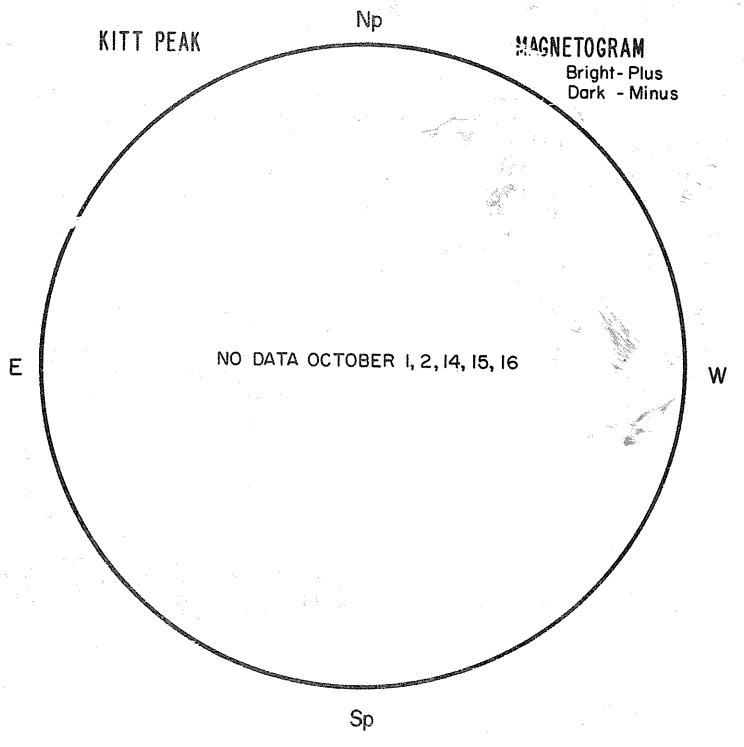
OCTOBER 1, 1980 (P = 26.02, B_o = 6.70, L_o = 287.24)

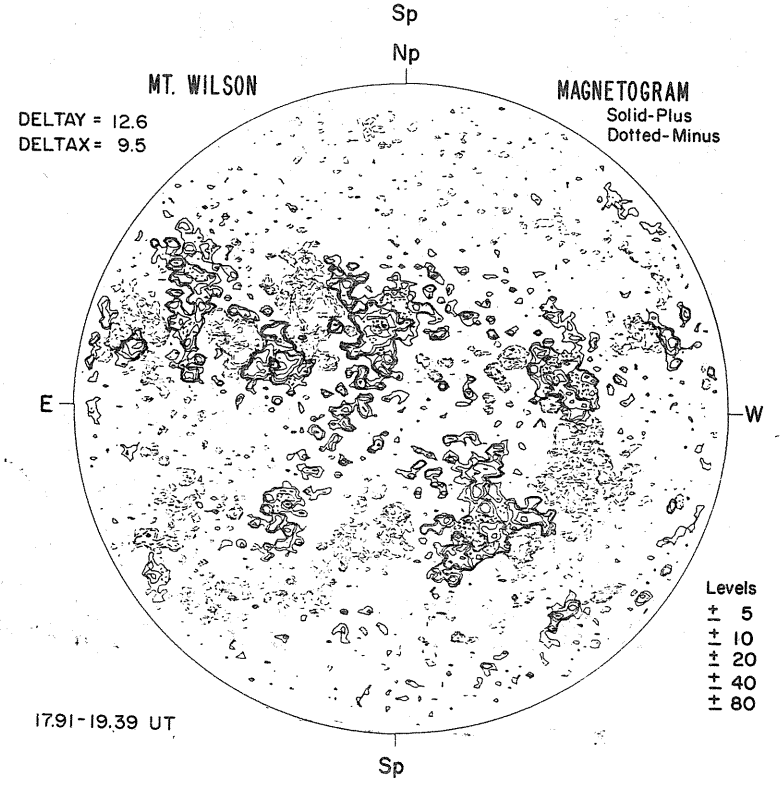
SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

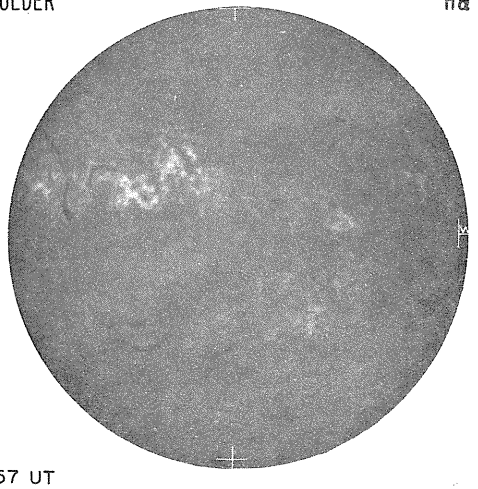
E NO DATA OCTOBER 1, 2, 6, 7, 13, 14, 15, 16, 18, 19, 20, 25, 26 W





01

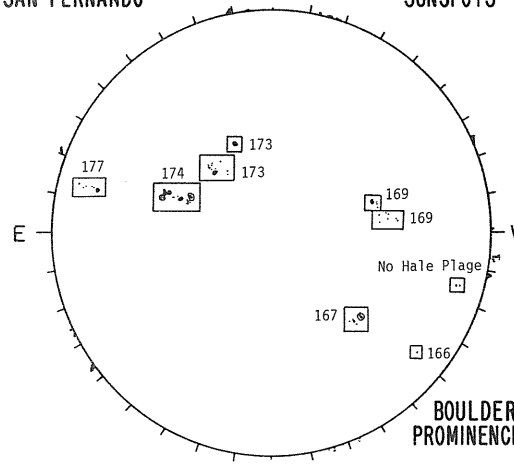
BOULDER Np Hα



E W

1557 UT Sp

SAN FERNANDO Np



E W

1845 UT Sp

SUNSPOTS Np

BOULDER PROMINENCES

1557 UT

HALE OBSERVATORIES Np

NO DATA OCTOBER 1, 7, 16, 20, 25, 28

Sp

CALCIUM REPORT

E W

NOSC LA POSTA Np 2.0 CM

NO DATA

EQUIPMENT

E W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

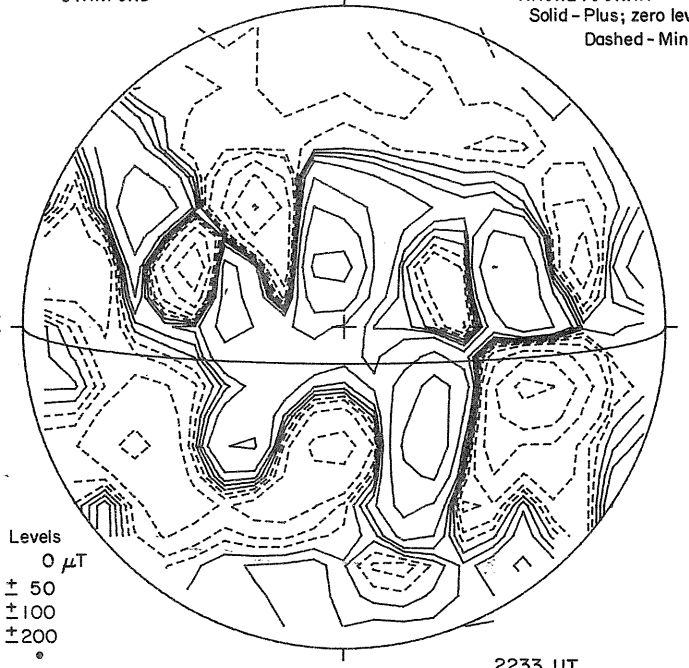
EQUIPMENT

E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
± 100
± 200
• • •

Sp 2233 UT

51
Oct 80

OCTOBER 2, 1980 (P = 26.08, B_o = 6.65, L_o = 274.04)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

NO DATA

Sp

MT. WILSON

Sp

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

E

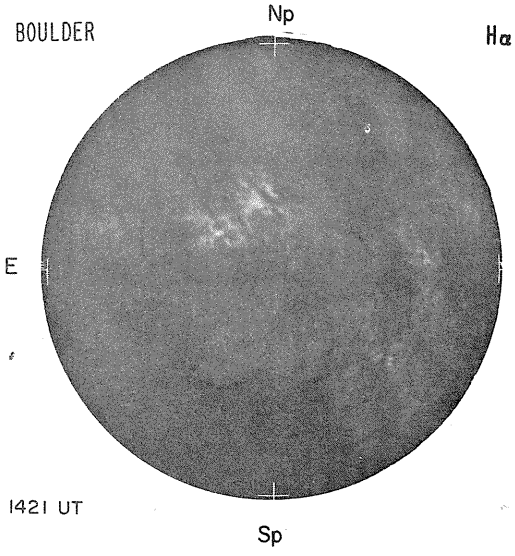
W

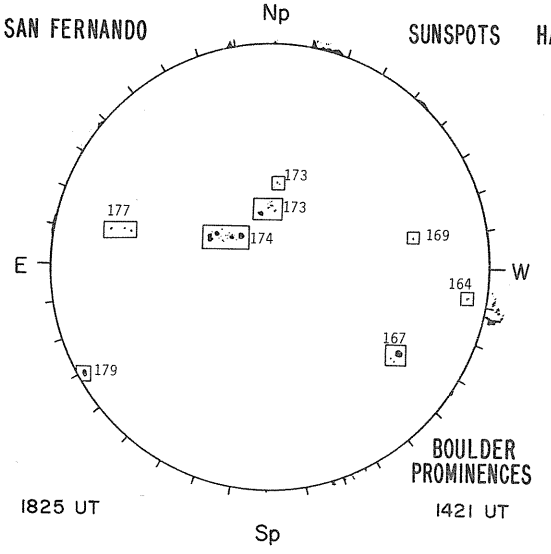
Levels
± 5
± 10
± 20
± 40
± 80

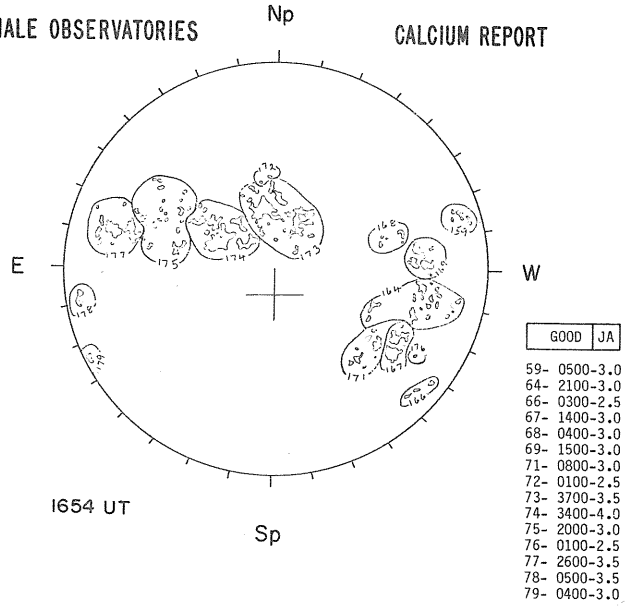
21.80-23.21 UT

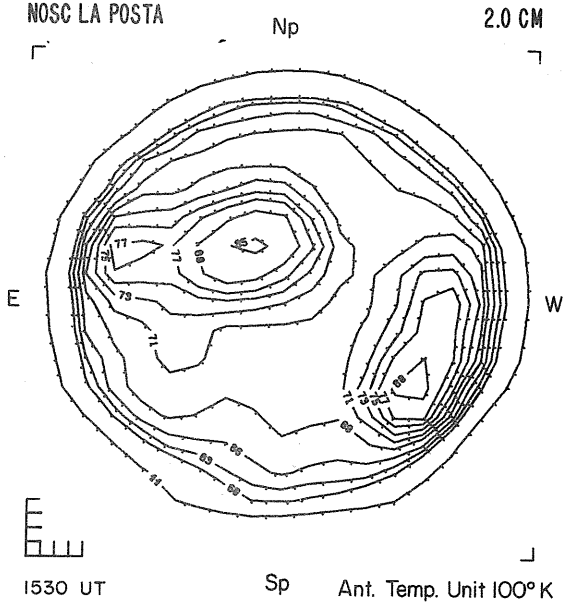
Sp

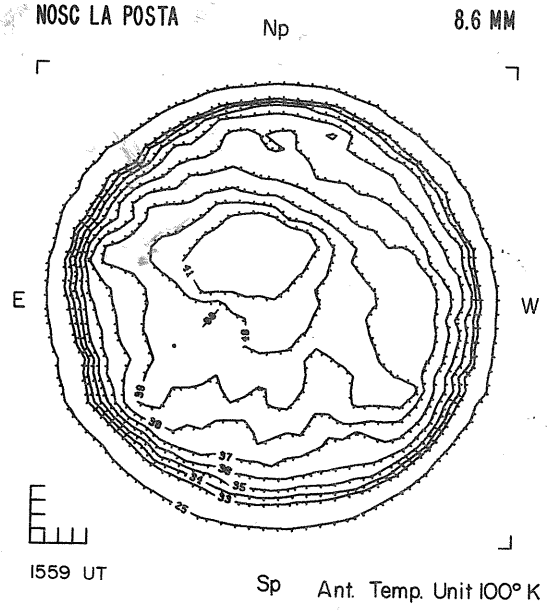
02

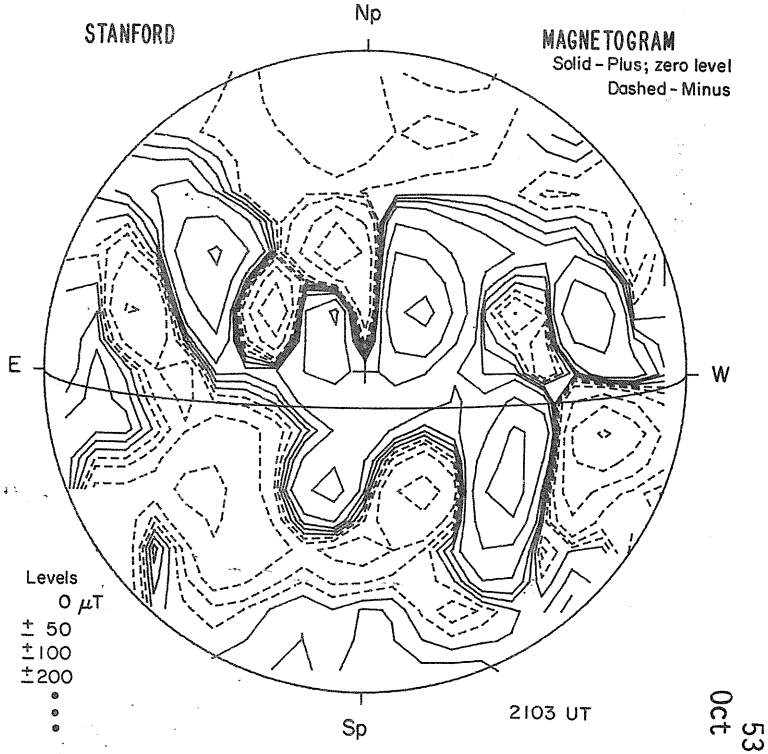

BOULDER
Np
Hα
E
W
1421 UT
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
177
173
173
174
169
164
167
179
BOULDER
PROMINENCES
1825 UT
1421 UT
Sp

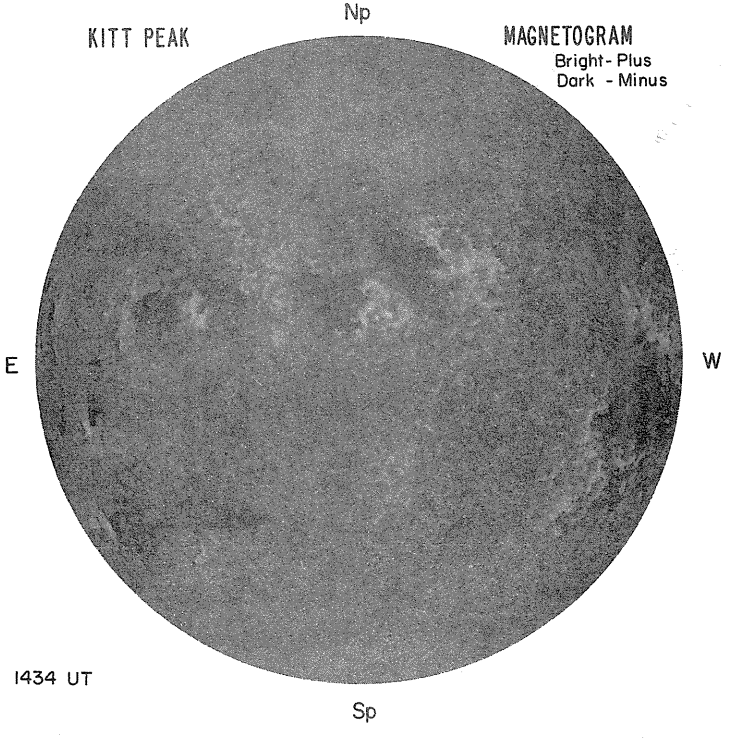

HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
1654 UT
Sp
GOOD
JA
59- 0500-3.0
64- 2100-3.0
66- 0300-2.5
67- 1400-3.0
68- 0400-3.0
69- 1500-3.0
71- 0800-3.0
72- 0100-2.5
73- 3700-3.5
74- 3400-4.0
75- 2000-3.0
76- 0100-2.5
77- 2600-3.5
78- 0500-3.5
79- 0400-3.0

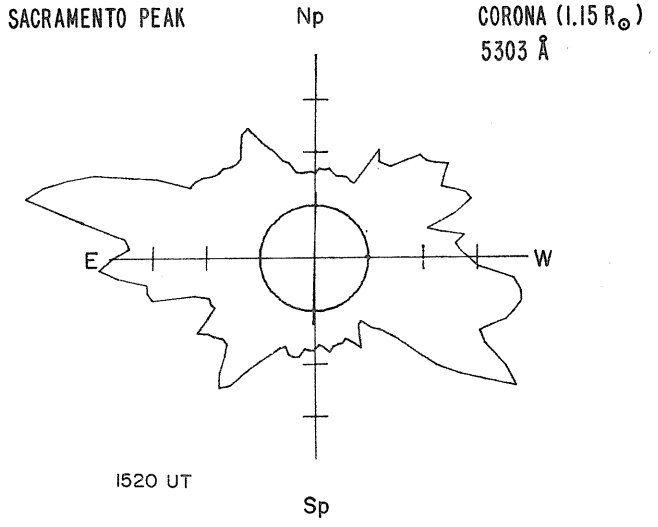

NOSC LA POSTA
Np
2.0 CM
E
W
1530 UT
Sp
Ant. Temp. Unit 100° K

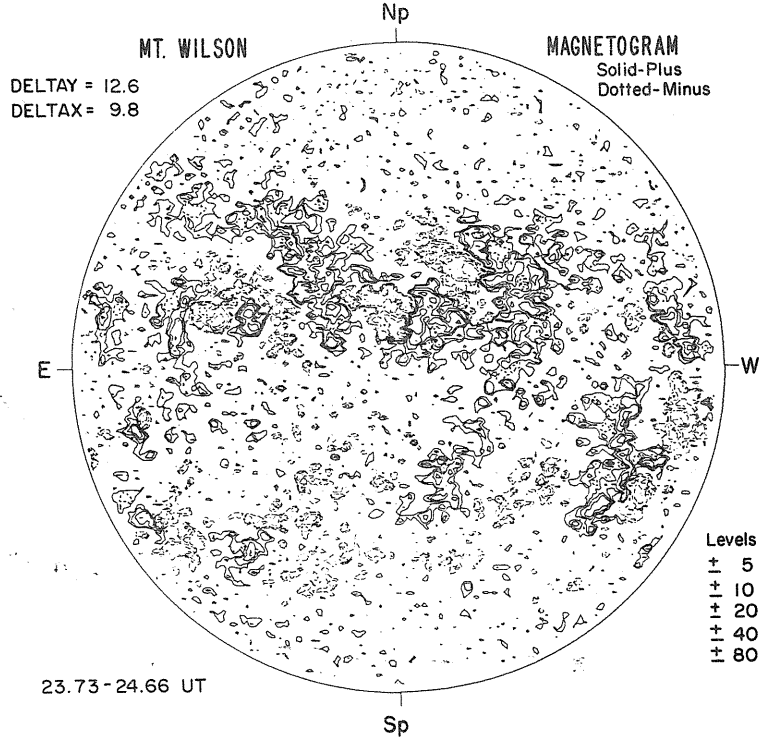

NOSC LA POSTA
Np
8.6 MM
E
W
1559 UT
Sp
Ant. Temp. Unit 100° K


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
± 100
± 200
Sp
2103 UT

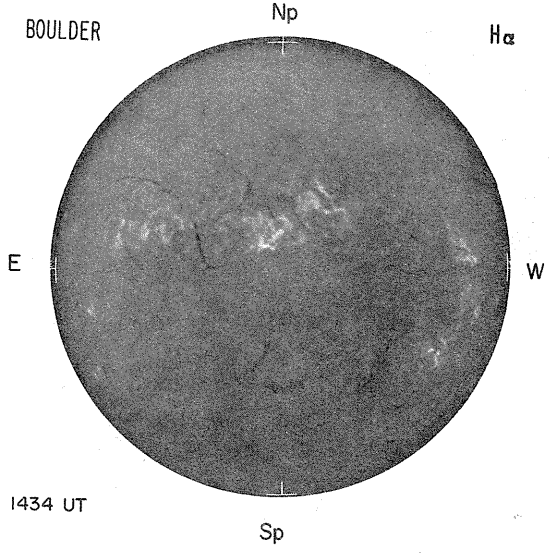
OCTOBER 3, 1980 (P = 26.14, B_o = 6.60, L_o = 260.85)

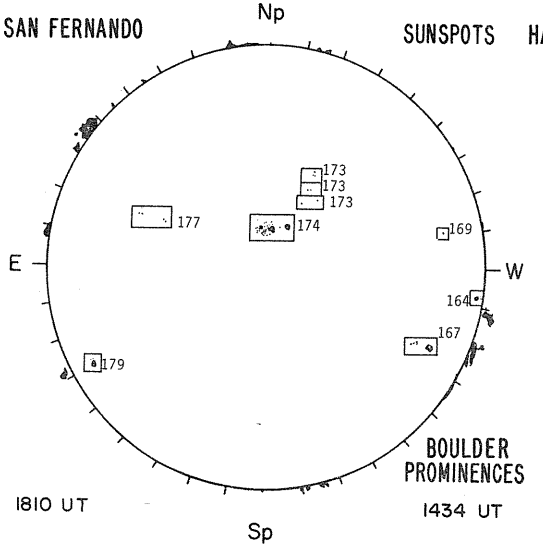


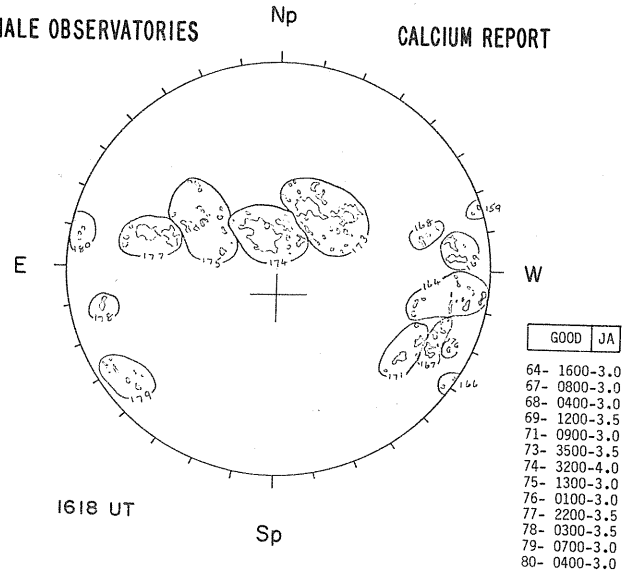


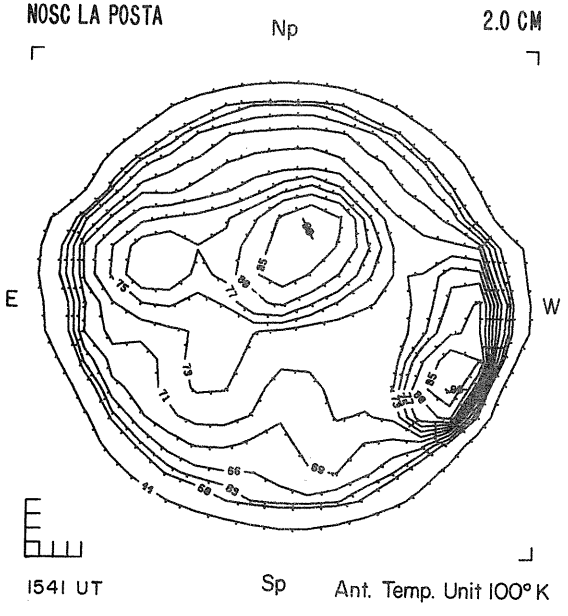


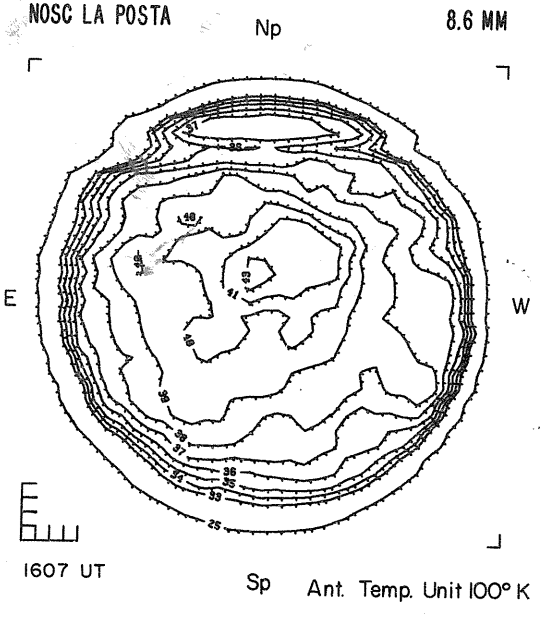
03

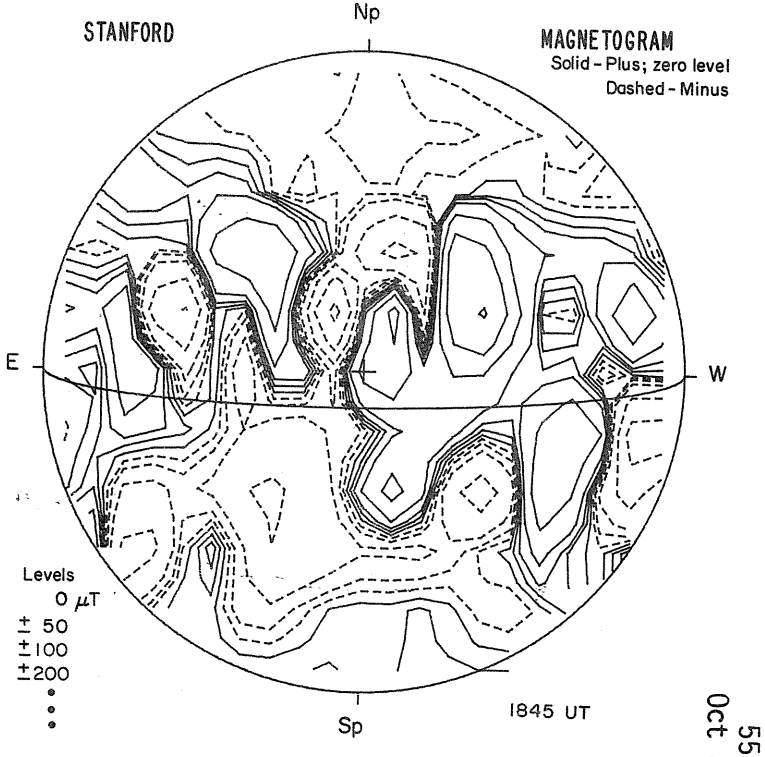

BOULDER
Np
Hα
E
W
1434 UT
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
173
173
173
177
174
169
164
167
179
BOULDER
PROMINENCES
1810 UT
1434 UT
Sp

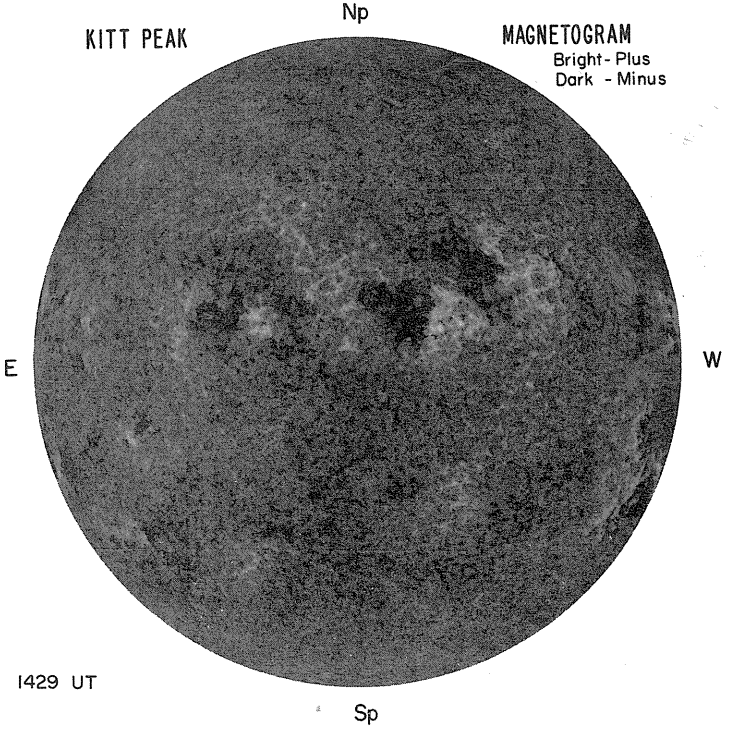

HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
1618 UT
Sp
GOOD
JA
64- 1600-3.0
67- 0800-3.0
68- 0400-3.0
69- 1200-3.5
71- 0900-3.0
73- 3500-3.5
74- 3200-4.0
75- 1300-3.0
76- 0100-3.0
77- 2200-3.5
78- 0300-3.5
79- 0700-3.0
80- 0400-3.0

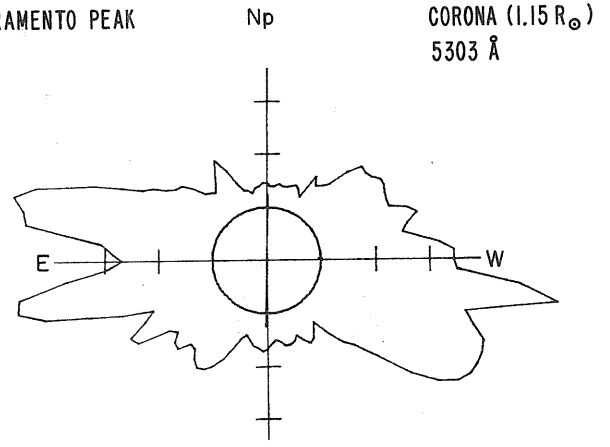

NOSC LA POSTA
Np
2.0 CM
E
W
1541 UT
Sp
Ant. Temp. Unit 100° K

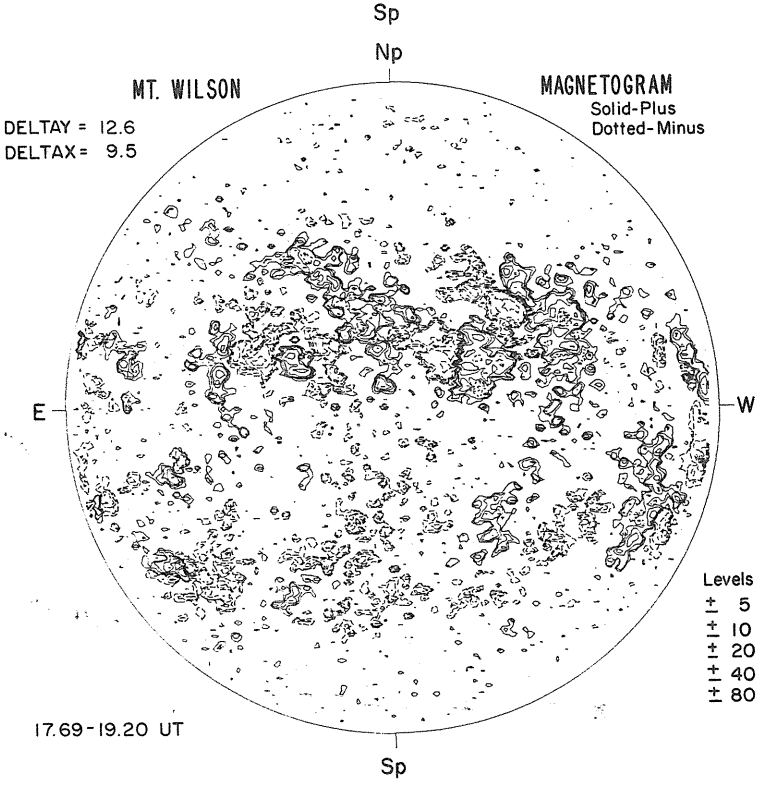

NOSC LA POSTA
Np
8.6 MM
E
W
1607 UT
Sp
Ant. Temp. Unit 100° K


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
1845 UT

OCTOBER 4, 1980 (P = 26.19, B_o = 6.54, L_o = 247.66)

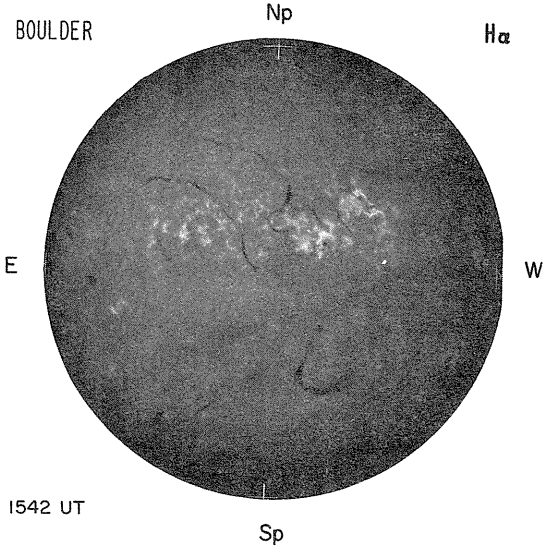






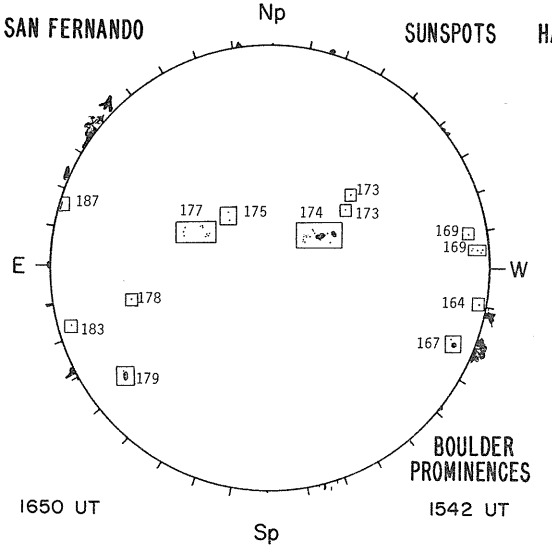
04

BOULDER Hα



1542 UT

SAN FERNANDO SUNSPOTS

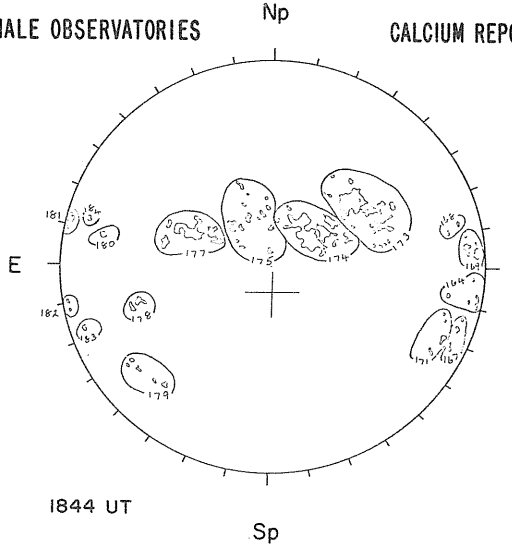


1650 UT

BOULDER PROMINENCES

1542 UT

HALE OBSERVATORIES CALCIUM REPORT

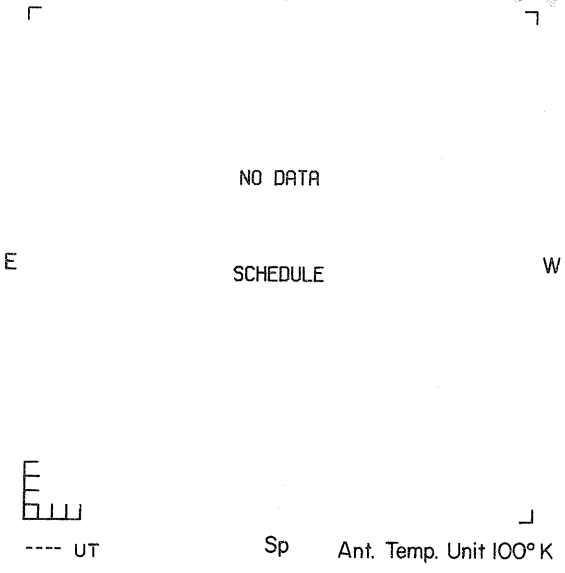


1844 UT

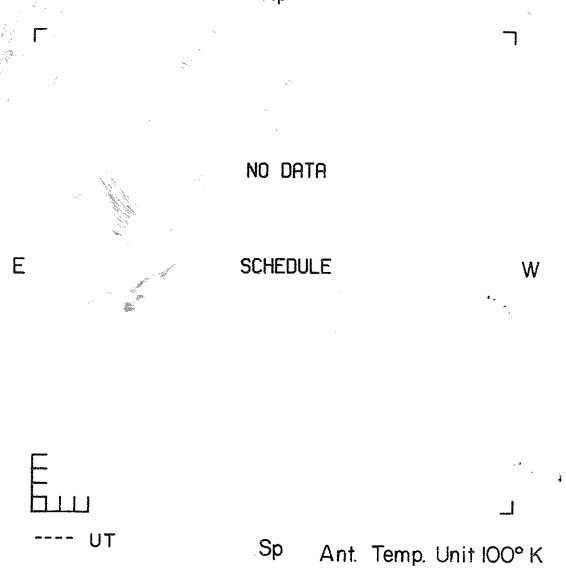
GOOD	JA

64- 0400-3.0
67- 0400-3.0
68- 0200-3.0
69- 0200-3.0
71- 0400-3.0
73- 3100-3.5
74- 3300-4.0
75- 1200-3.0
77- 2100-3.5
78- 0300-3.5
79- 0300-3.0
80- 0100-3.0
81- 0400-3.5
82- 0200-2.5
83- 0100-3.0
84- 0100-3.5

NOSC LA POSTA 2.0 CM

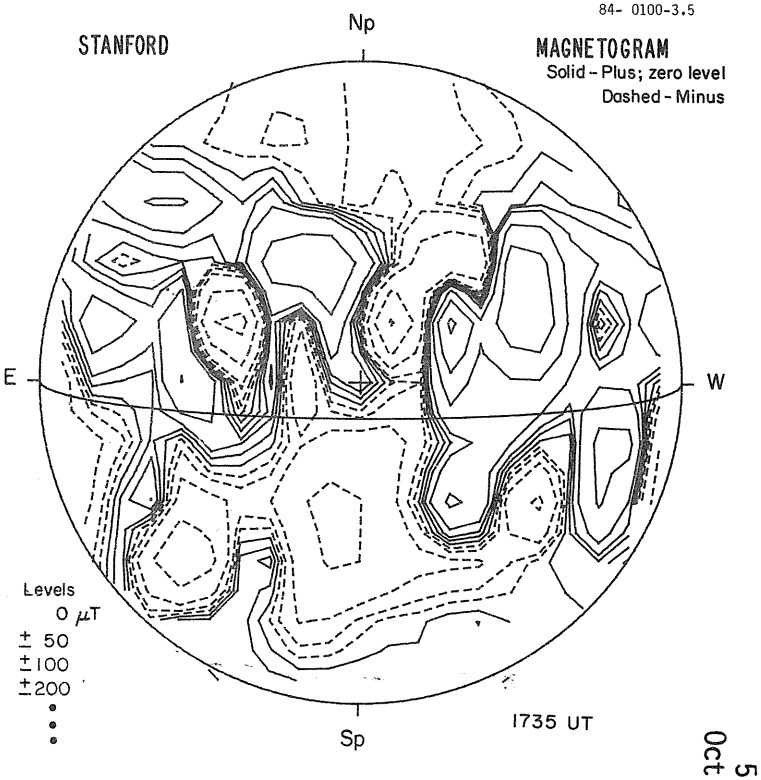


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

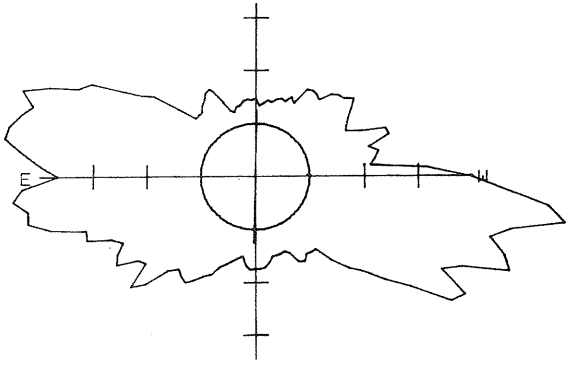


1735 UT

OCTOBER 5, 1980 (P = 26.23, B_o = 6.49, L_o = 234.46)

SACRAMENTO PEAK

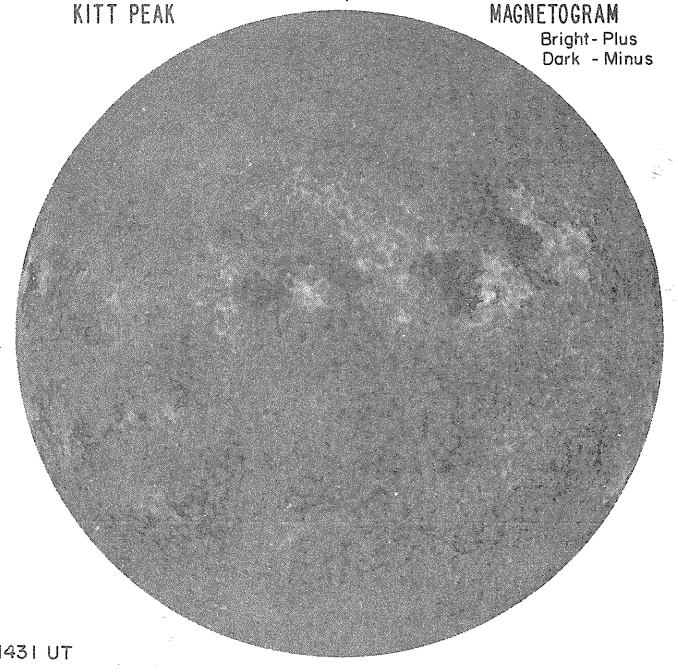
CORONA (1.15 $R_\odot$)
5303 Å



2326 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

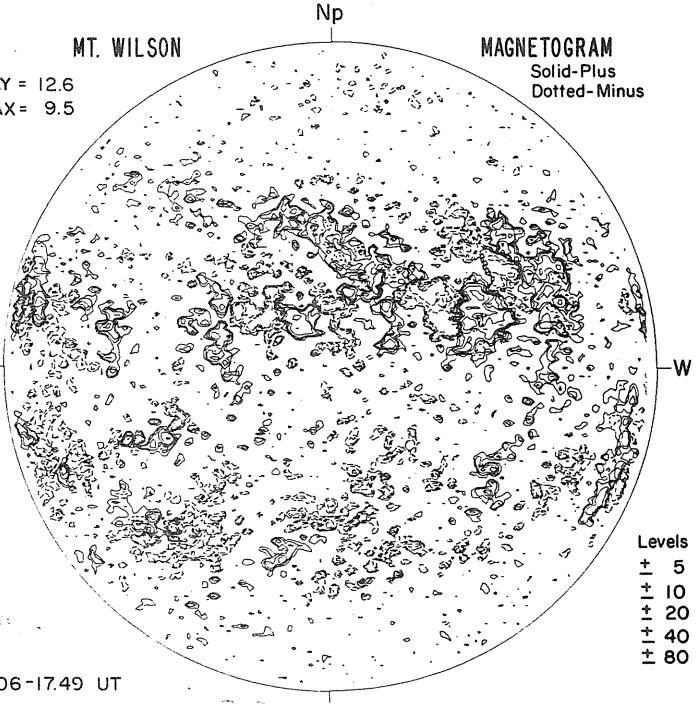


1431 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

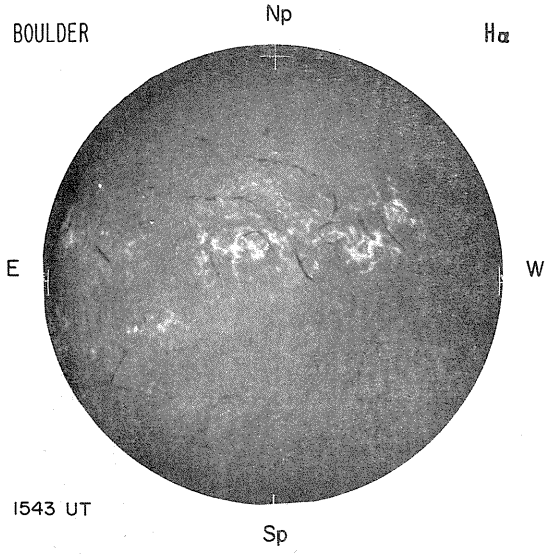
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

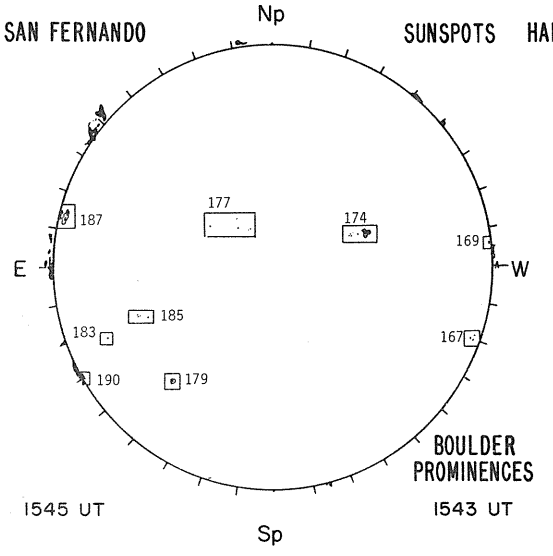
16.06-17.49 UT

BOULDER Hα



1543 UT

SAN FERNANDO SUNSPOTS

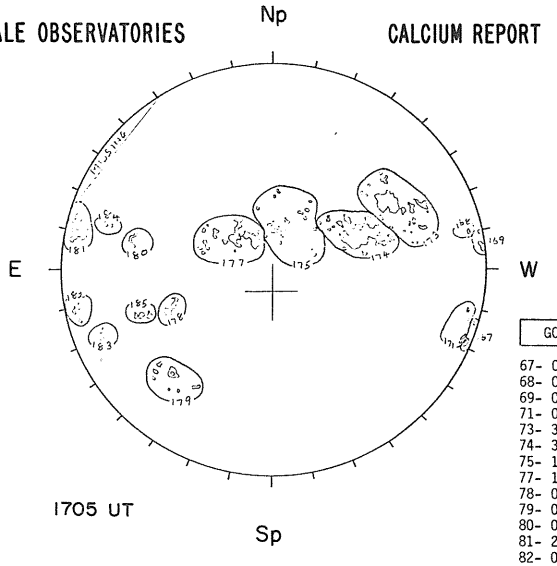


1545 UT

BOULDER PROMINENCES

1543 UT

HALE OBSERVATORIES CALCIUM REPORT



1705 UT

GOOD	JA

67- 0300-2.5
68- 0100-2.5
69- 0400-3.0
71- 0400-2.5
73- 3000-3.5
74- 3100-4.0
75- 1100-3.0
77- 1900-3.5
78- 0500-3.5
79- 0700-3.0
80- 0300-3.0
81- 2000-3.5
82- 0300-3.0
83- 0300-3.5
84- 0200-3.0
85- 0300-3.0

NOSC LA POSTA 2.0 CM

Np

NO DATA

SCHEDULE

E W

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

Np

NO DATA

SCHEDULE

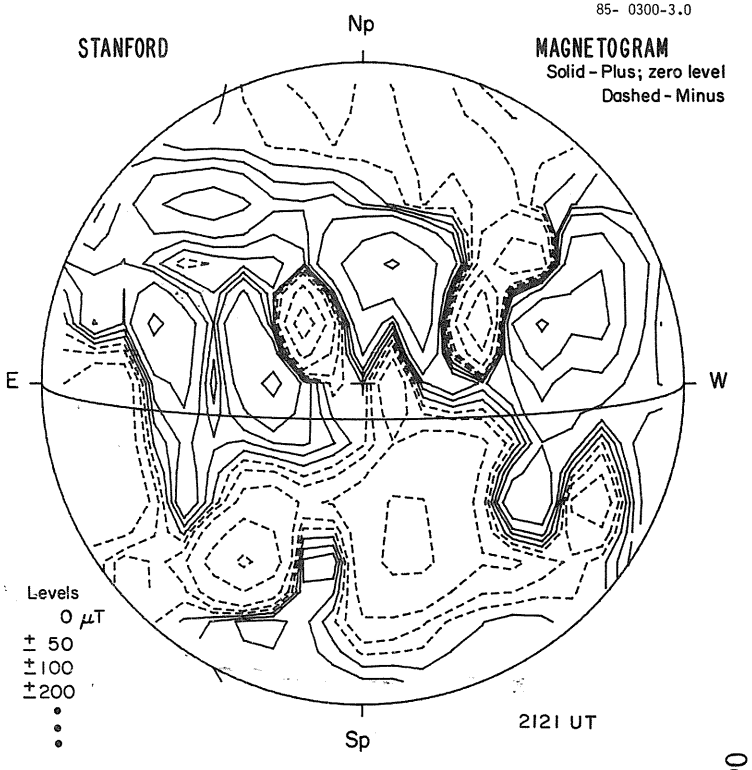
E W

---- UT

Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
± 100
± 200
•
•
•

2121 UT

OCTOBER 6, 1980 (P = 26.26, B_o = 6.43, L_o = 221.27)

SACRAMENTO PEAK

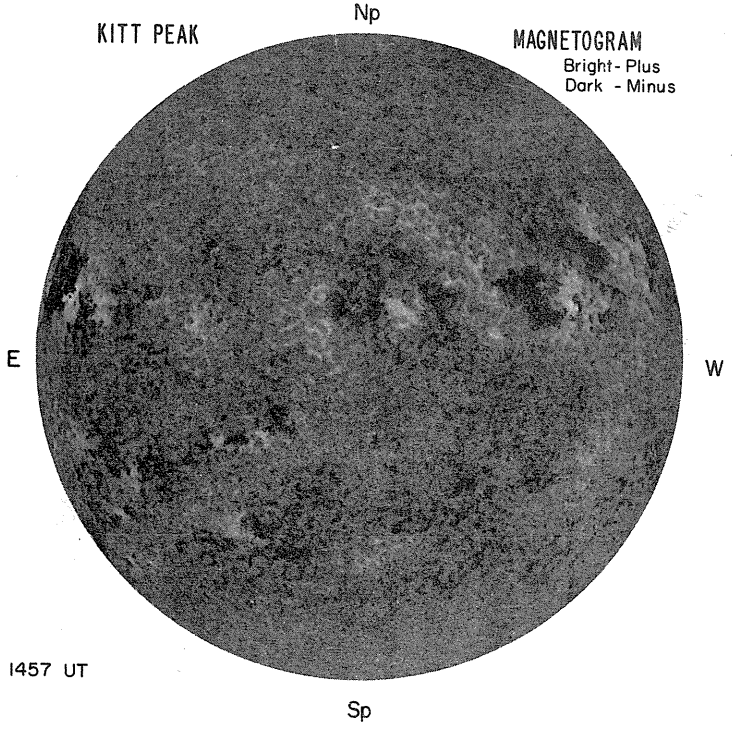
Np

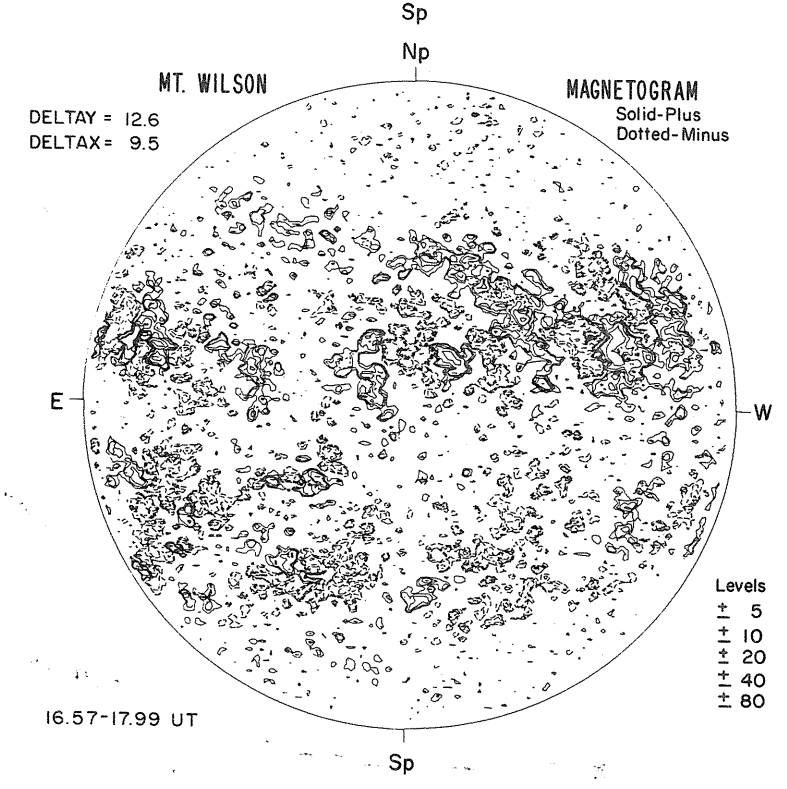
CORONA (1.15 $R_\odot$)
5303 Å

E

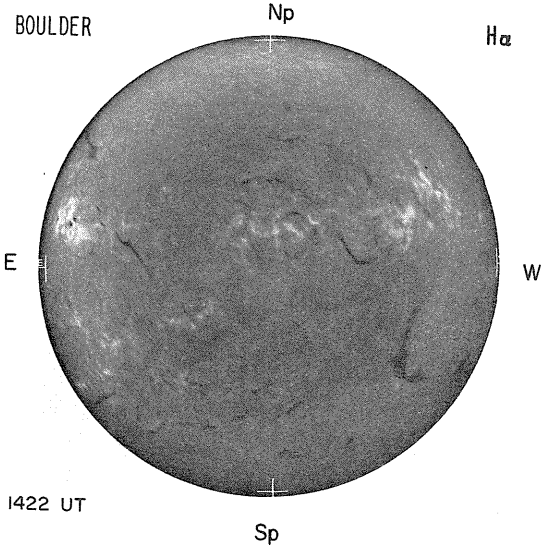
NO DATA

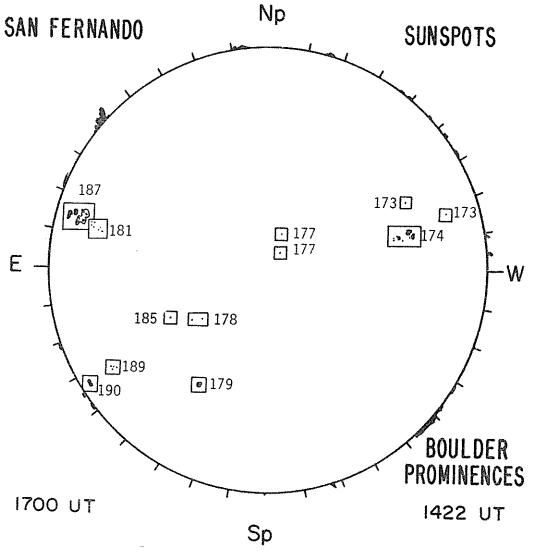
W

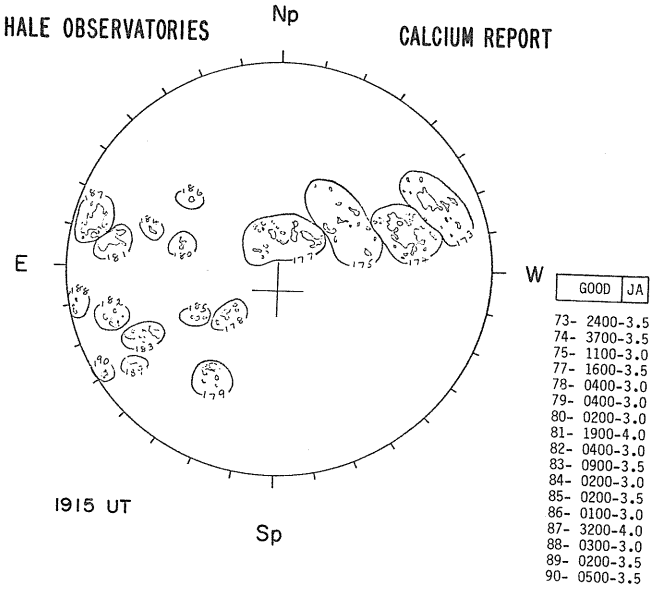


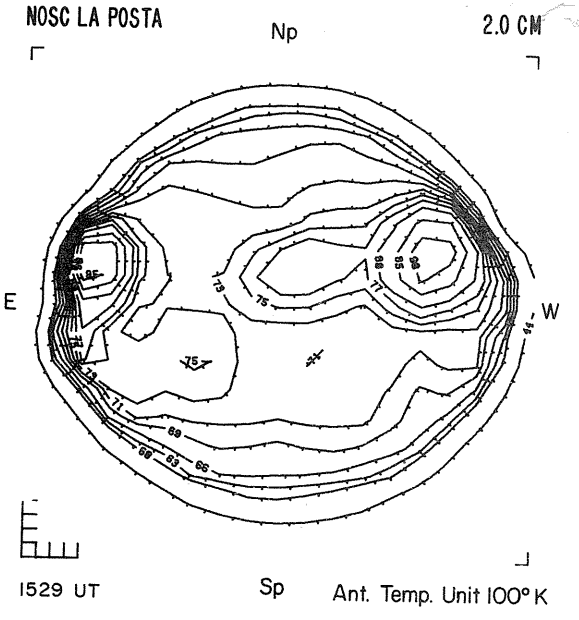


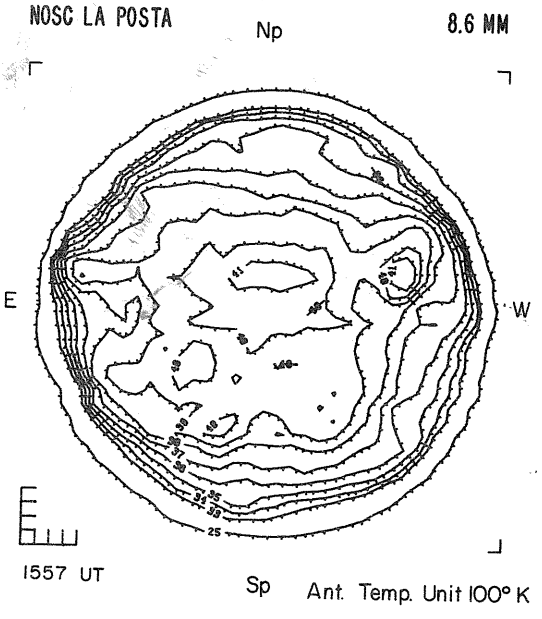
06

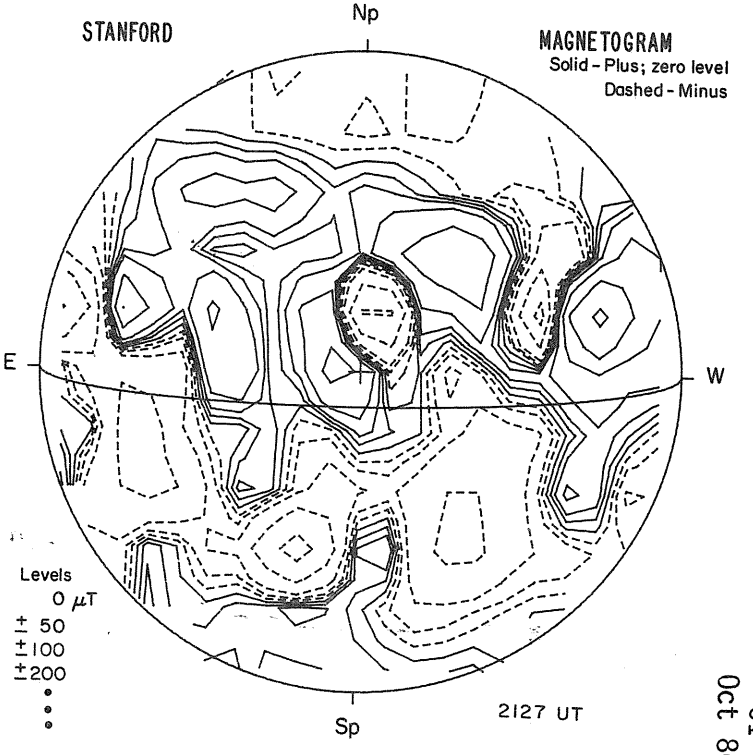

BOULDER
Np
Hα
E
W
1422 UT
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
187
181
177
177
173
173
174
185
178
189
190
179
BOULDER
PROMINENCES
1700 UT
1422 UT
Sp


HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
GOOD
JA
73- 2400-3.5
74- 3700-3.5
75- 1100-3.0
77- 1600-3.5
78- 0400-3.0
79- 0400-3.0
80- 0200-3.0
81- 1900-4.0
82- 0400-3.0
83- 0900-3.5
84- 0200-3.0
85- 0200-3.5
86- 0100-3.0
87- 3200-4.0
88- 0300-3.0
89- 0200-3.5
90- 0500-3.5
1915 UT
Sp


NOSC LA POSTA
Np
2.0 CM
E
W
1529 UT
Sp
Ant. Temp. Unit 100° K


NOSC LA POSTA
Np
8.6 MM
E
W
1557 UT
Sp
Ant. Temp. Unit 100° K

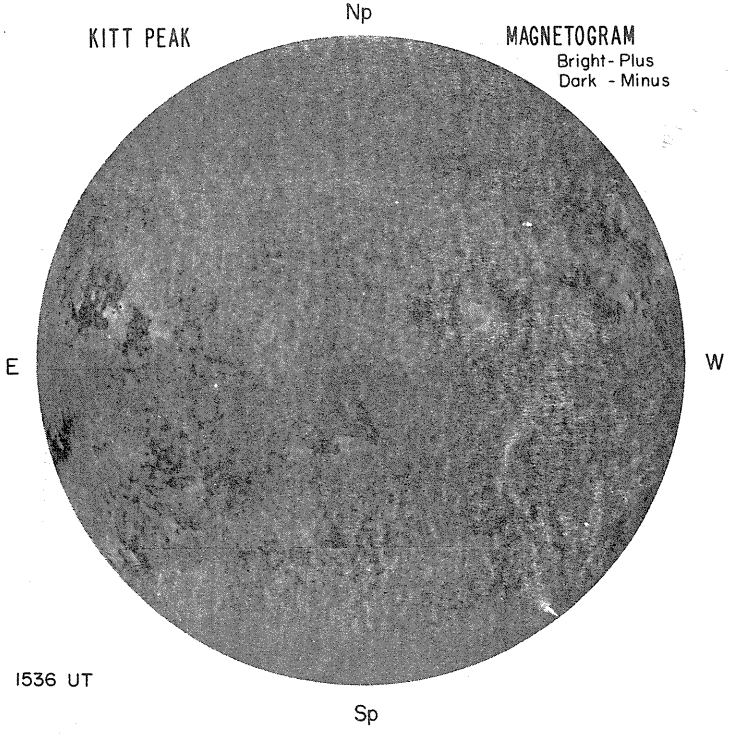

STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
2127 UT

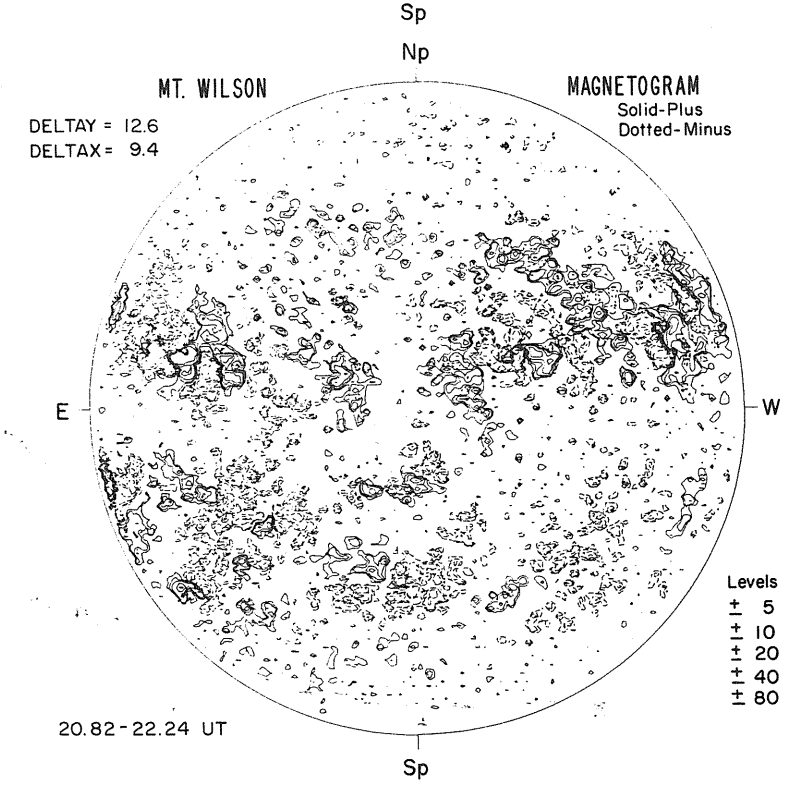
61
Oct 80

OCTOBER 7, 1980 (P = 26.29, B_o = 6.37, L_o = 208.08)

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

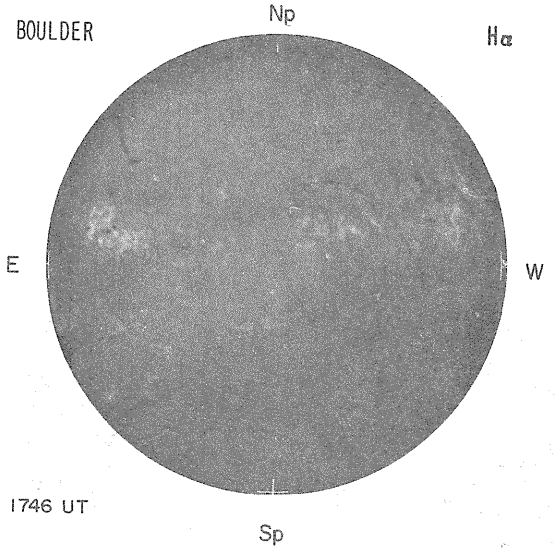
E NO DATA W



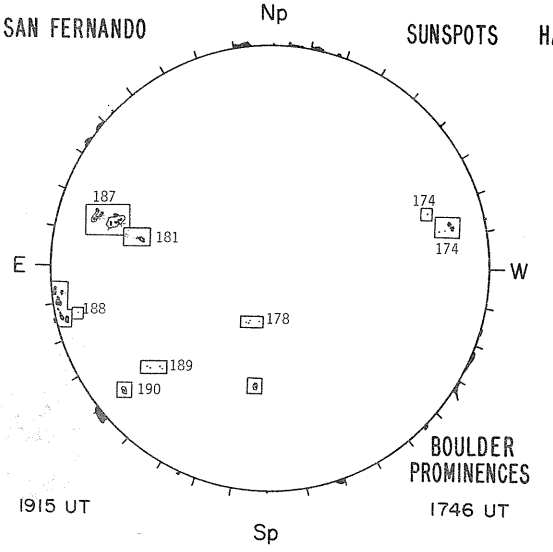


07

BOULDER



SAN FERNANDO



SUNSPOTS

BOULDER PROMINENCES

1746 UT

HALE OBSERVATORIES

Np

NO DATA

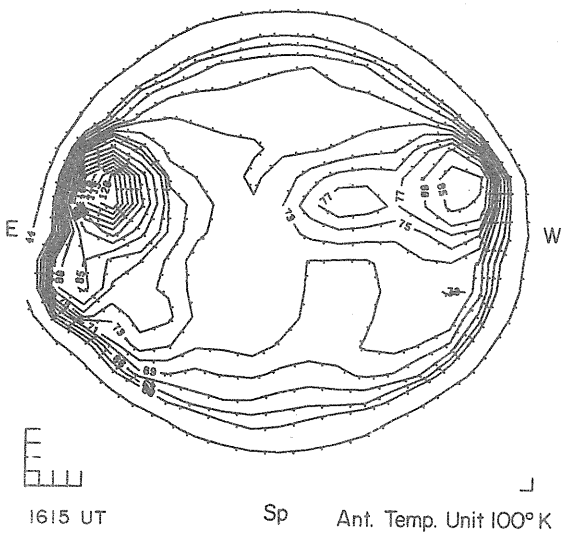
Sp

CALCIUM REPORT

W

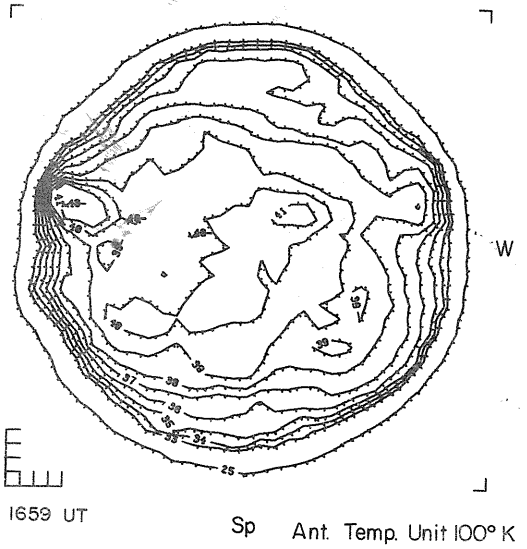
NOSC LA POSTA

2.0 CM



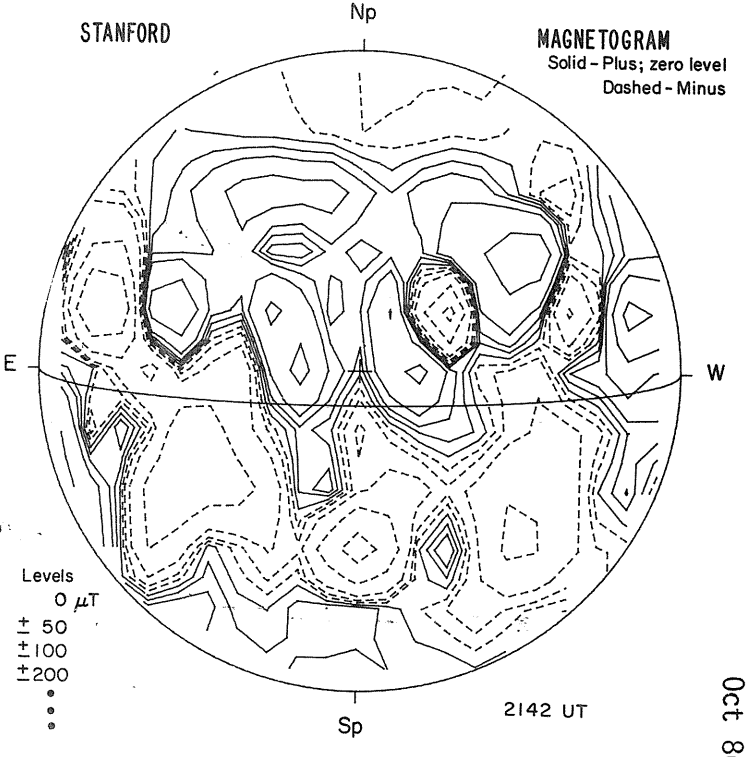
NOSC LA POSTA

8.6 MM



STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

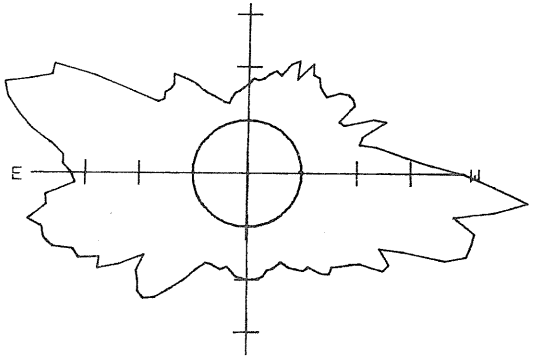


63
Oct 80

OCTOBER 8, 1980 (P = 26.31, B_o = 6.31, L_o = 194.88)

SACRAMENTO PEAK

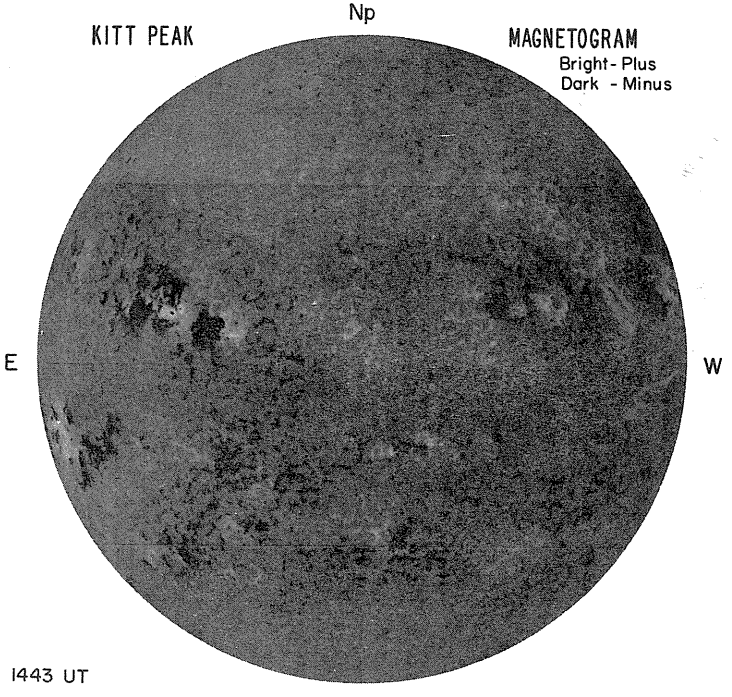
CORONA (1.15 $R_\odot$)
5303 Å



1639 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

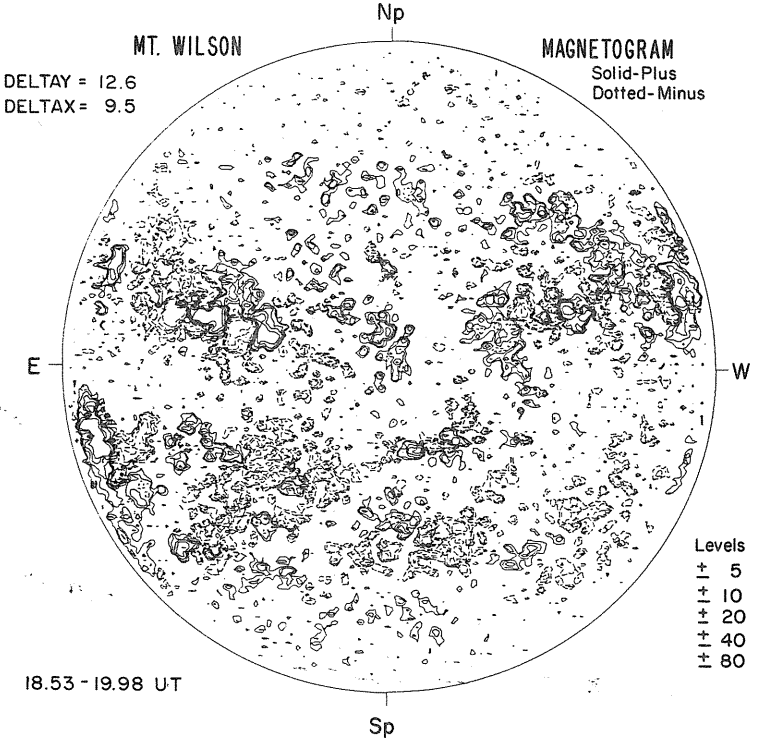


1443 UT

MT. WILSON

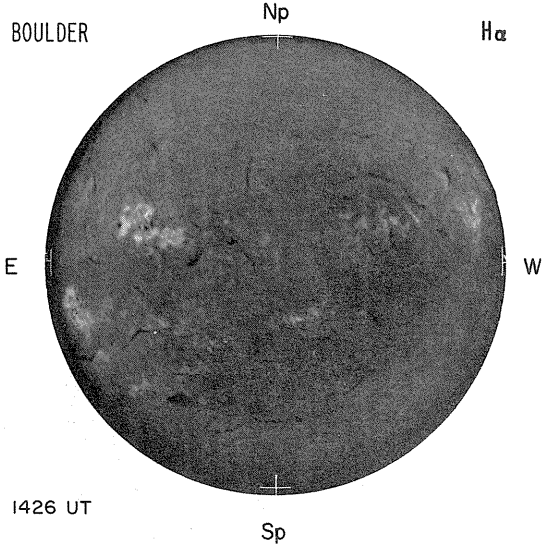
DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus



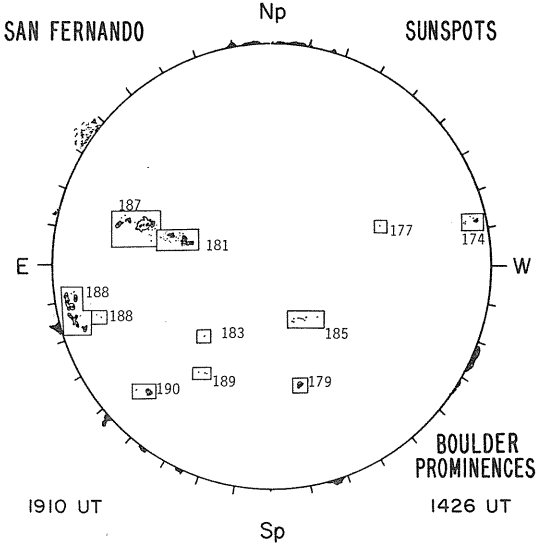
18.53 - 19.98 UT

BOULDER Hα



1426 UT

SAN FERNANDO SUNSPOTS

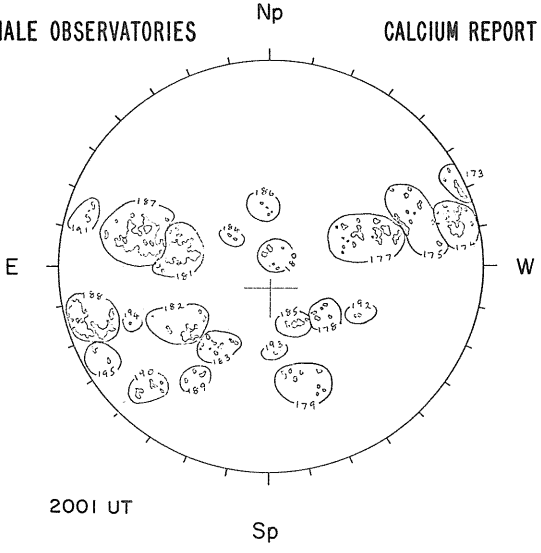


1910 UT

BOULDER PROMINENCES

1426 UT

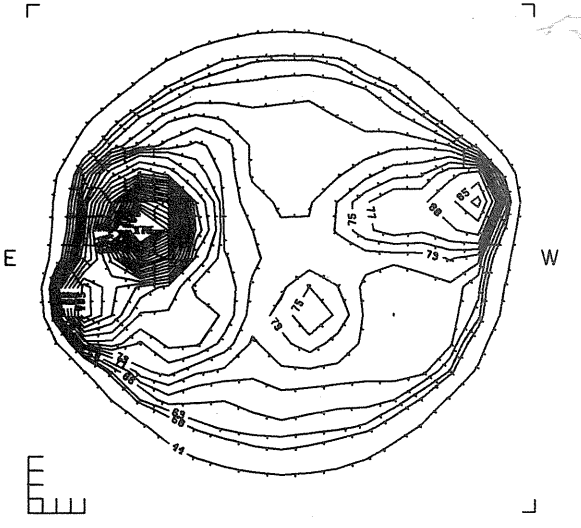
HALE OBSERVATORIES CALCIUM REPORT



2001 UT

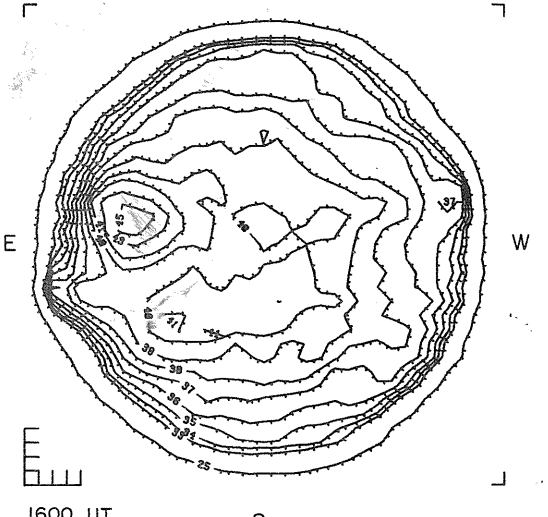
GOOD	JA
73-	0600-3.0
74-	1800-3.5
75-	1200-3.0
77-	1500-3.5
78-	0200-3.0
79-	0400-3.0
80-	0200-3.0
81-	2100-4.0
82-	0900-3.0
83-	0500-3.5
84-	0100-3.5
85-	0300-3.5
86-	0100-3.0
87-	3600-3.5
88-	3900-3.5
89-	0200-3.0
90-	0400-3.0
91-	0200-2.5
92-	0100-2.5
93-	0100-3.0
94-	0100-3.5

NOSC LA POSTA 2.0 CM



1536 UT Ant. Temp. Unit 100° K

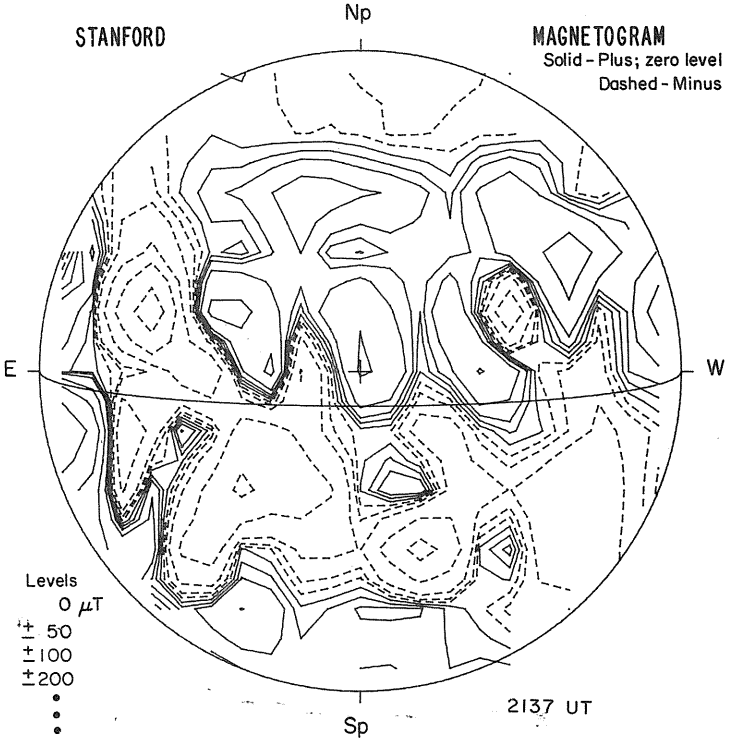
NOSC LA POSTA 8.6 MM



1600 UT Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



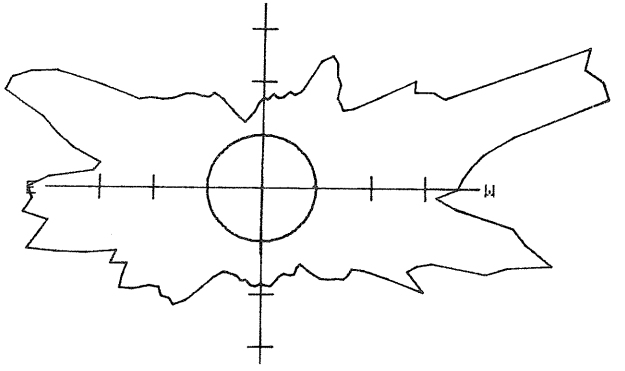
2137 UT

OCTOBER 9, 1980 (P = 26.32, B_o = 6.25, L_o = 181.69)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

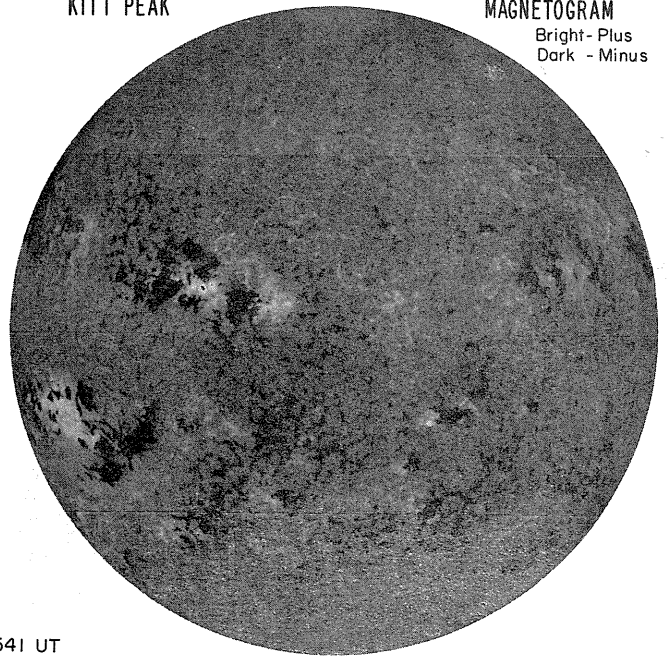


1646 UT

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1541 UT

Sp

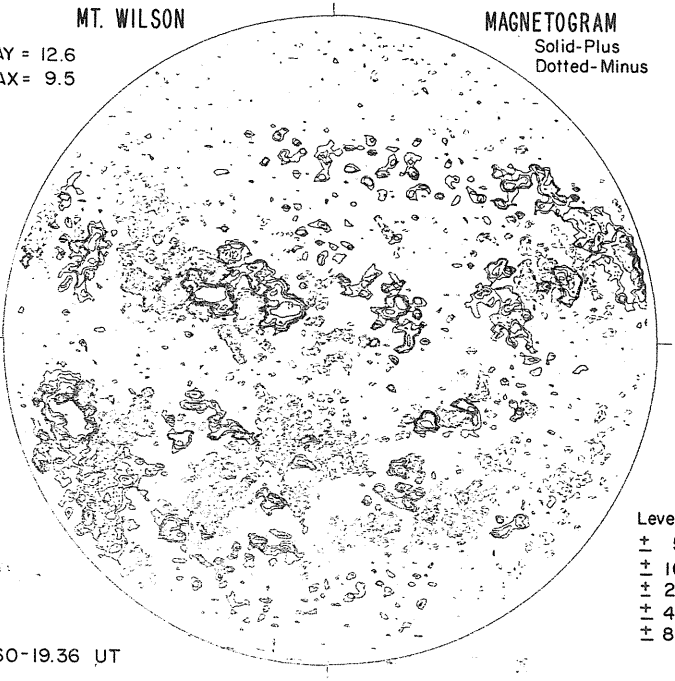
Sp

Np

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus

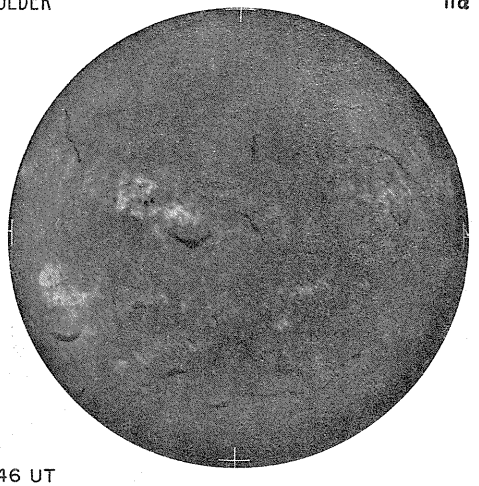


Levels
± 5
± 10
± 20
± 40
± 80

17.60-19.36 UT

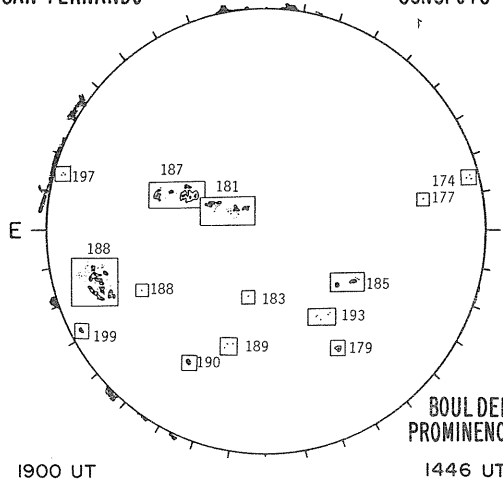
Sp

BOULDER Np Hα



1446 UT Sp

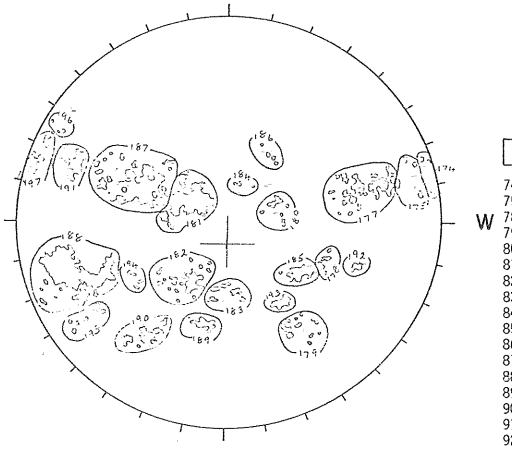
SAN FERNANDO Np SUNSPOTS



1900 UT Sp

BOULDER PROMINENCES 1446 UT

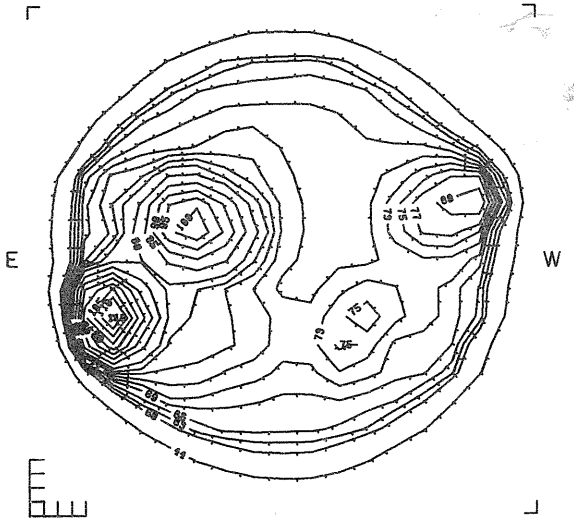
HALE OBSERVATORIES Np CALCIUM REPORT



2004 UT Sp

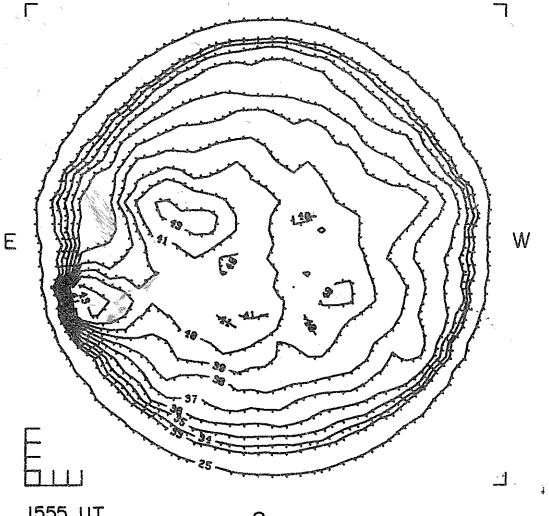
GOOD	JA
74-	2200-3.5
75-	0300-3.0
78-	0300-3.5
79-	0800-3.0
80-	0400-3.5
81-	4500-3.5
82-	1700-3.5
83-	0600-3.5
84-	0200-2.5
85-	1300-3.5
86-	0200-2.5
87-	6200-3.5
88-	7300-3.5
89-	0700-3.5
90-	1200-3.5
91-	1600-3.0
92-	0300-3.0
93-	0800-3.0
94-	0300-3.0
95-	0400-3.0
96-	0100-3.0
97-	1700-3.0

NOSC LA POSTA Np 2.0 CM



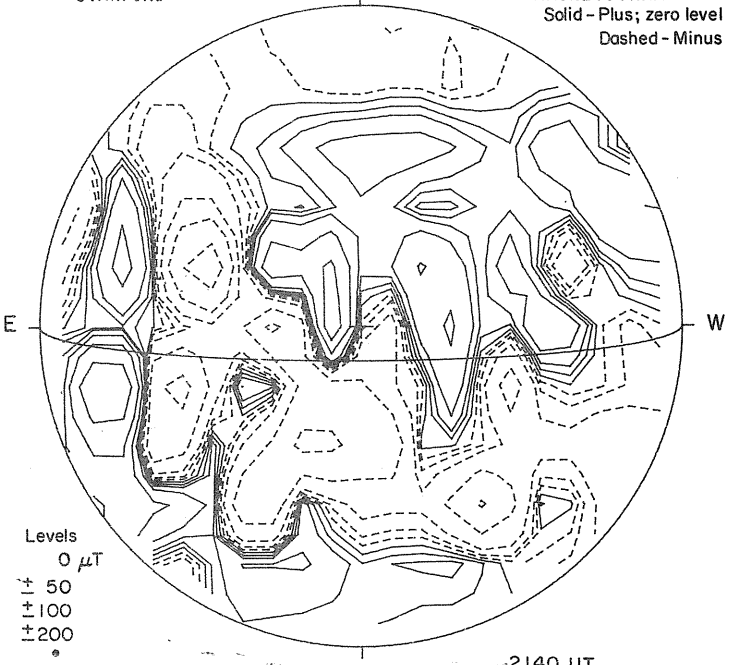
1531 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



1555 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



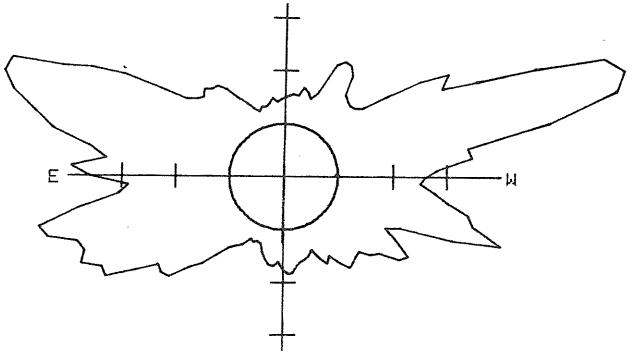
Levels
0 μT
± 50
± 100
± 200

Sp 2140 UT

OCTOBER 10, 1980 (P = 26.32, B_o = 6.19, L_o = 168.50)

SACRAMENTO PEAK

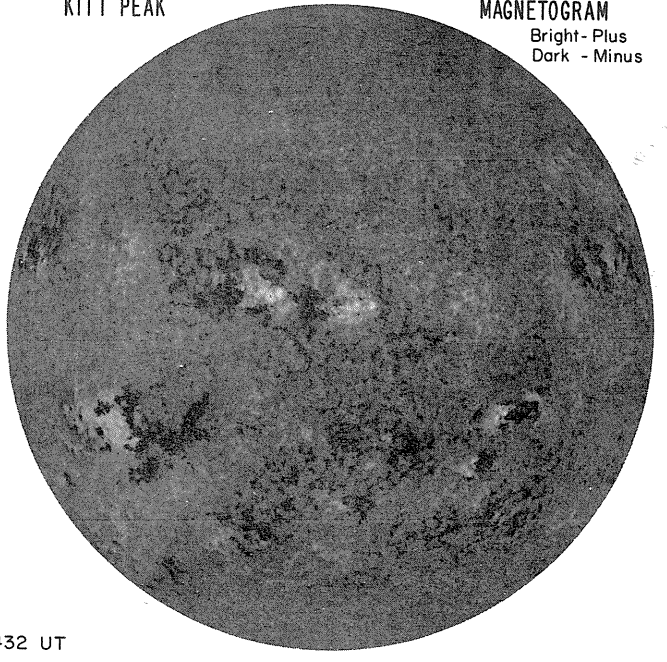
CORONA (1.15 $R_\odot$)
5303 Å



1551 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

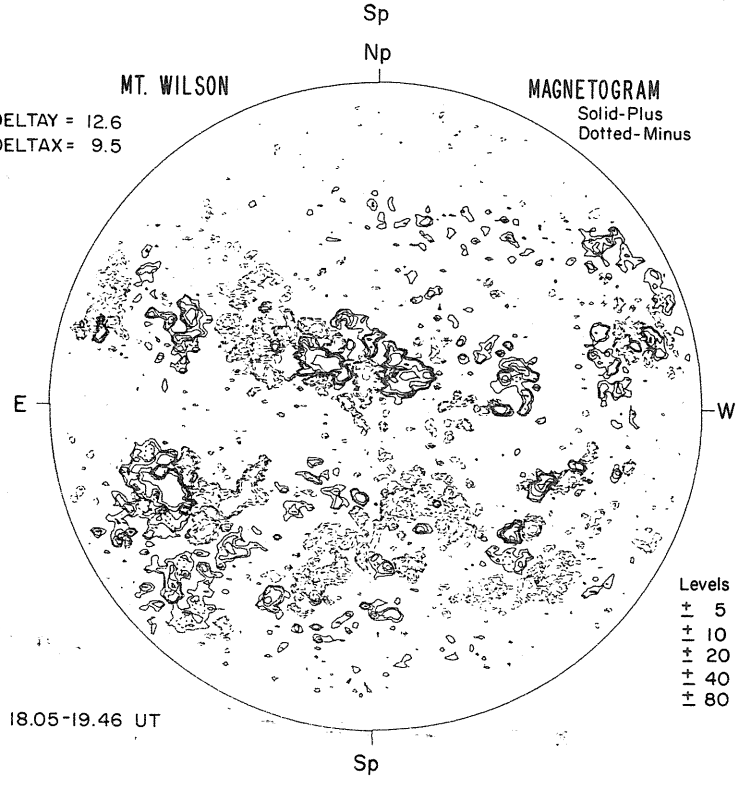


1432 UT

MT. WILSON

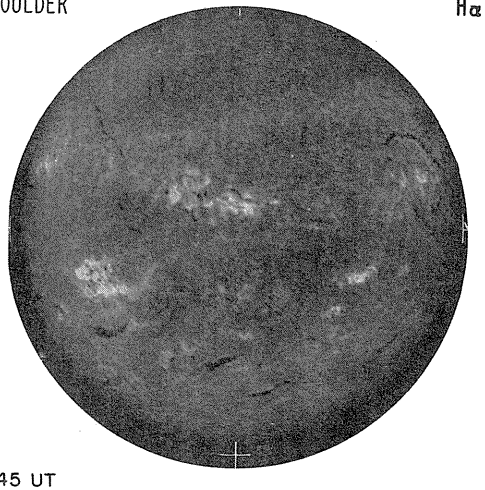
DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus



18.05-19.46 UT

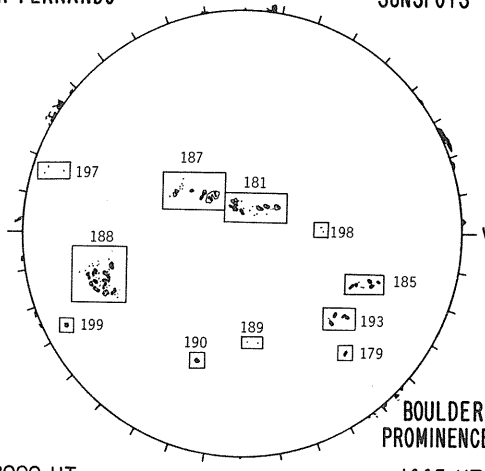
BOULDER Np Hα



E W

1445 UT Sp

SAN FERNANDO Np SUNSPOTS



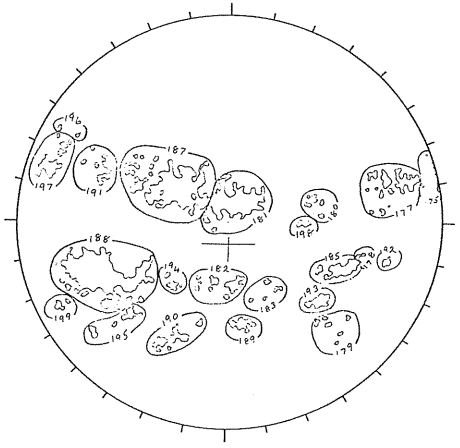
E W

2000 UT Sp

BOULDER PROMINENCES

1445 UT

HALE OBSERVATORIES Np CALCIUM REPORT



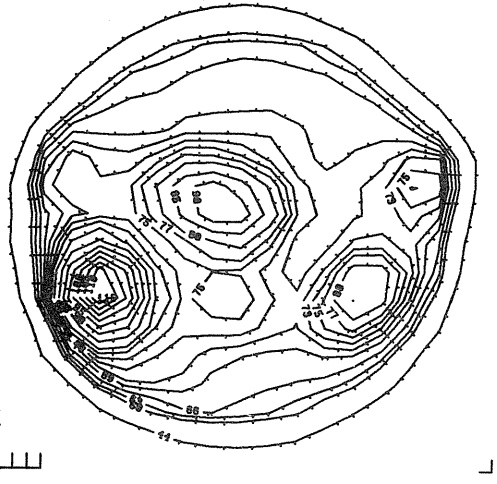
E W

1641 UT Sp

POOR	JA

77- 3300-2.0
81- 4000-4.0
82- 1400-2.5
85- 1600-3.5
87- 6700-3.5
88- 7500-3.5
89- 0700-3.0
90- 1200-2.5
91- 1400-3.0
92- 0300-2.5
93- 0800-3.5
97- 2500-3.0
98- 0200-3.5
99- 0400-3.0

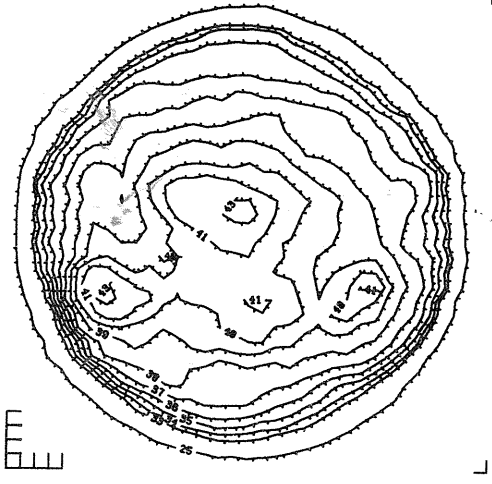
NOSC LA POSTA Np 2.0 CM



E W

1716 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

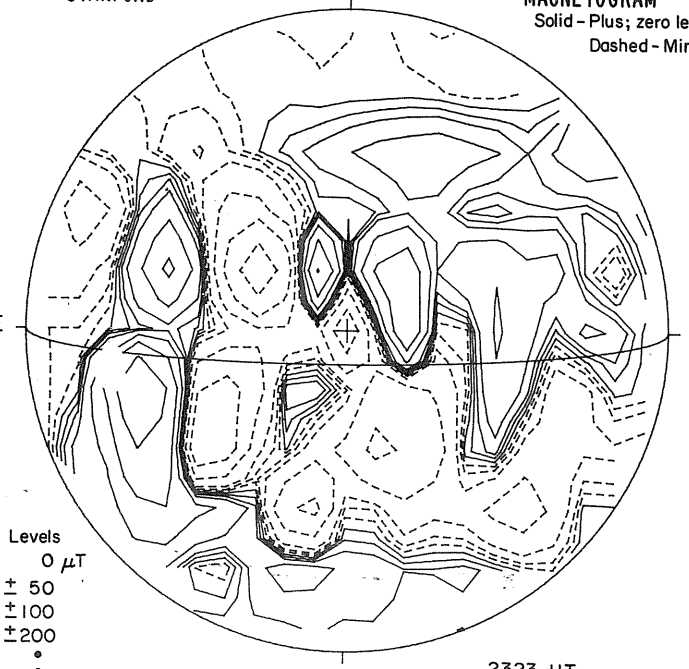


E W

1745 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



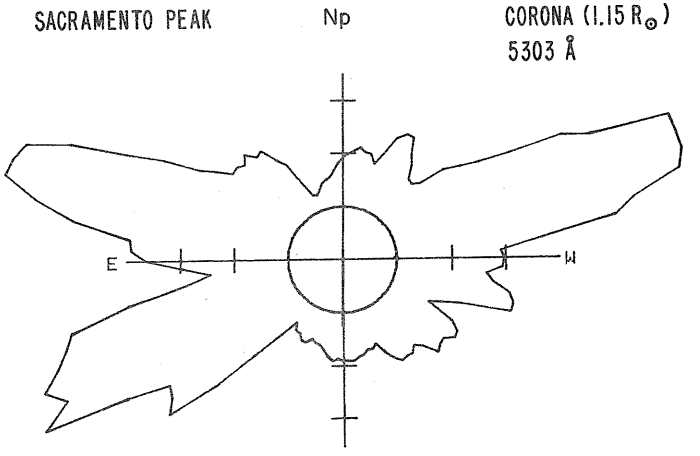
E W

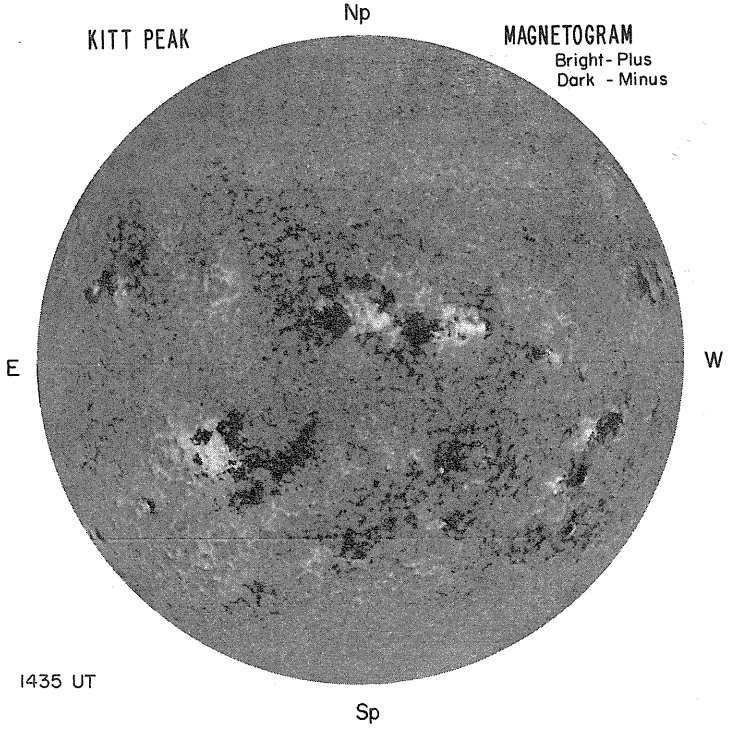
Levels
0 μT
± 50
±100
±200
•
•
•

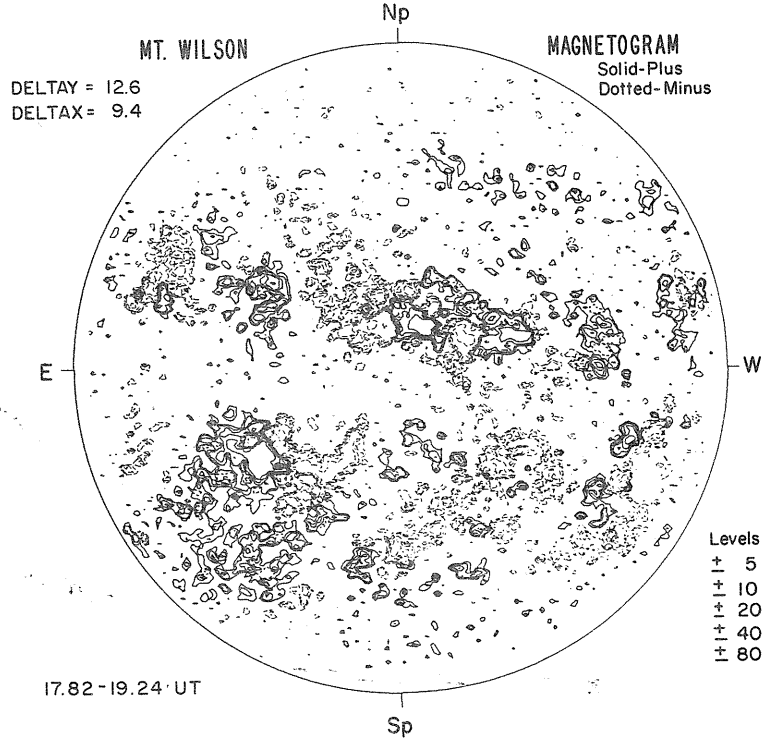
Sp 2323 UT

69
Oct 80

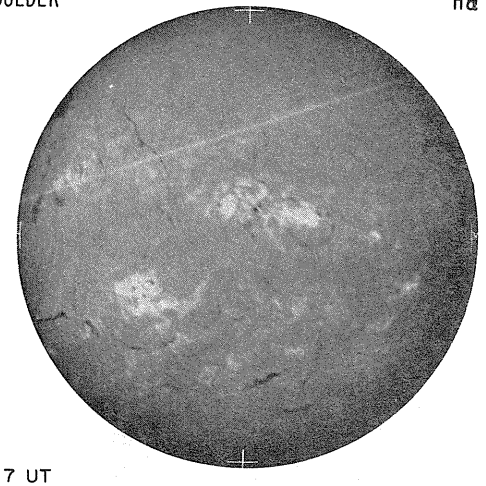
OCTOBER 11, 1980 (P = 26.32, B_o = 6.12, L_o = 155.31)







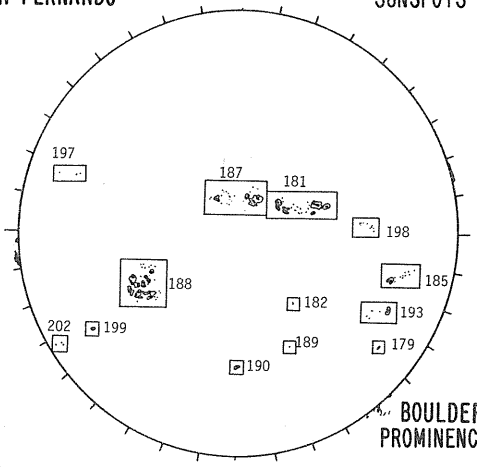
BOULDER Np Hα



E W

1517 UT Sp

SAN FERNANDO Np SUNSPOTS



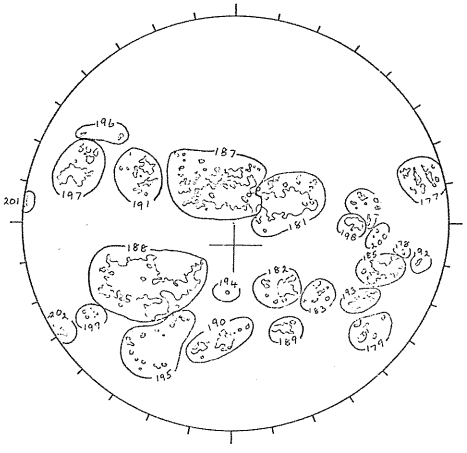
E W

1600 UT Sp

BOULDER PROMINENCES

1517 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1438 UT Sp

GOOD	JA
77-	1300-3.0
78-	0100-2.5
79-	0500-3.0
80-	0500-2.5
81-	4400-3.5
82-	1300-3.0
83-	0500-2.5
85-	1500-3.0
87-	4300-3.5
88-	8000-3.5
89-	0600-3.0
90-	1100-3.0
91-	1100-3.0
92-	0100-2.5
93-	0700-3.0
94-	0100-2.5
95-	0800-2.5
97-	2600-3.5
98-	0400-3.0
99-	0300-2.5
00-	0100-2.5
01-	0200-2.5
02-	0700-3.0

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NO DATA OCTOBER 11, 12, 13, 24, 25, 30, 31

W

Levels
0 μT
± 50
± 100
± 200
•
•
•

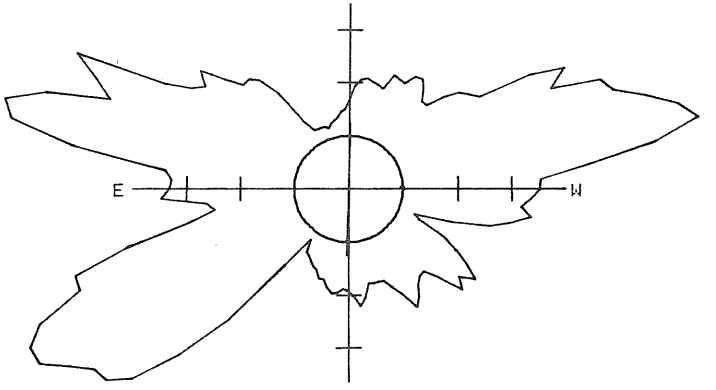
Sp

71
Oct 80

OCTOBER 12, 1980 (P = 26.31, B_o = 6.05, L_o = 142.12)

SACRAMENTO PEAK

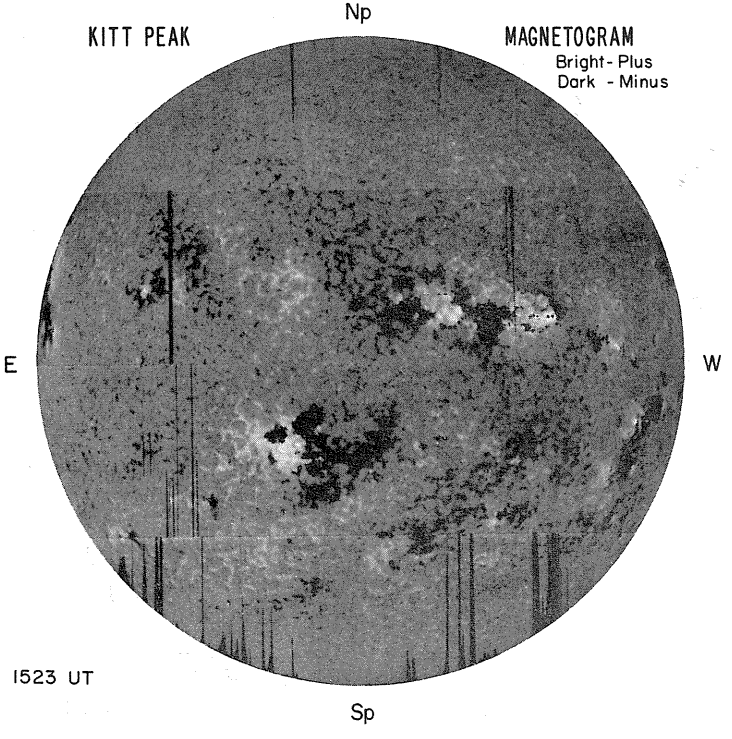
CORONA (1.15 $R_\odot$)
5303 Å



1606 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

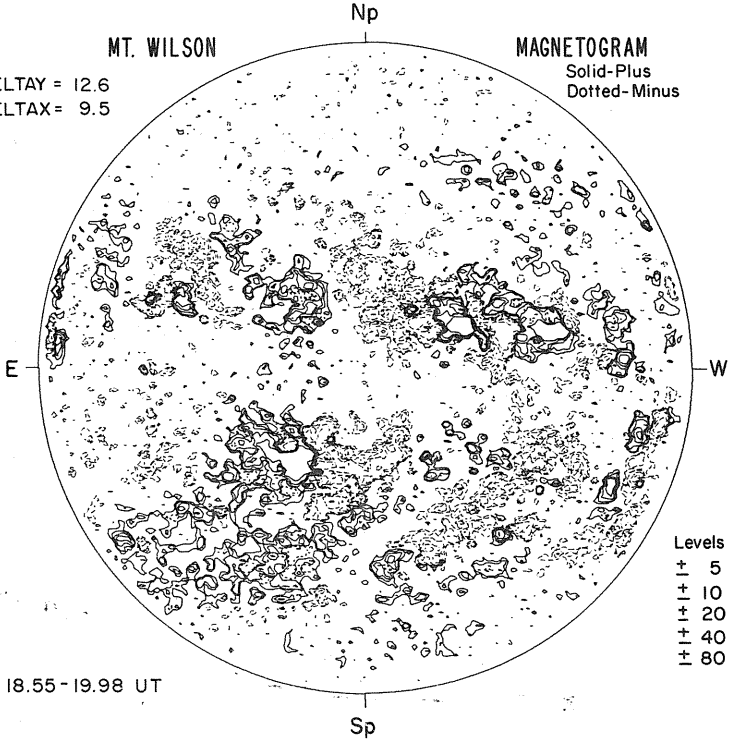


1523 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

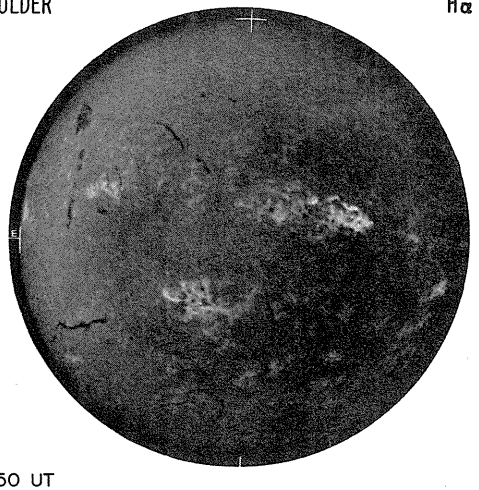
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

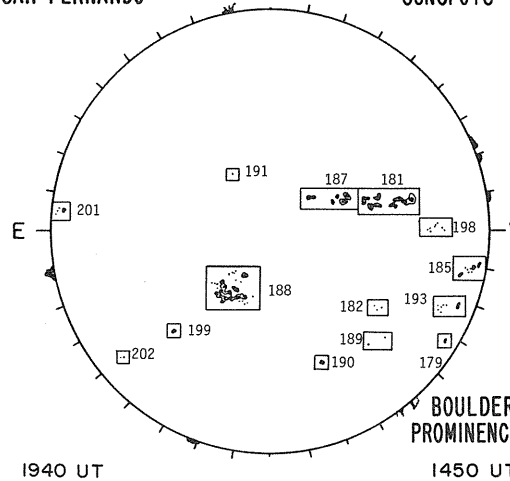
18.55 - 19.98 UT

BOULDER Np Hα



1450 UT Sp

SAN FERNANDO Np SUNSPOTS

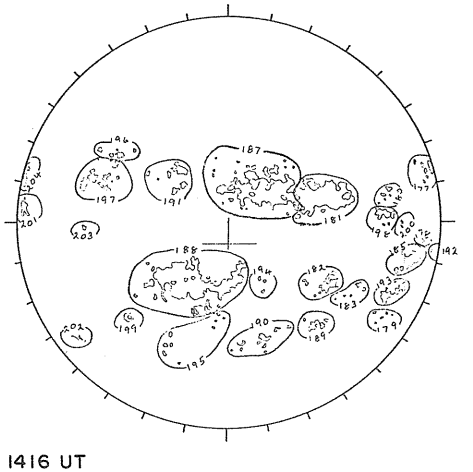


1940 UT Sp

BOULDER PROMINENCES

1450 UT

HALE OBSERVATORIES Np CALCIUM REPORT



1416 UT Sp

GOOD	JA

81- 4800-4.0
85- 1900-3.0
87- 5800-3.5
88- 7500-4.0
89- 0400-2.5
90- 0800-2.5
94- 0200-3.0
96- 0400-3.0
97- 1900-3.0
98- 0800-3.0
00- 0100-2.5
01- 1500-3.0
04- 1500-2.5

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

Levels
0 μT
± 50
± 100
± 200
•
•
•

E NO DATA W

Sp

73
Oct 80

OCTOBER 13, 1980 (P=26.29, B_o=5.98, L_o=128.92)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

KITT PEAK

Np

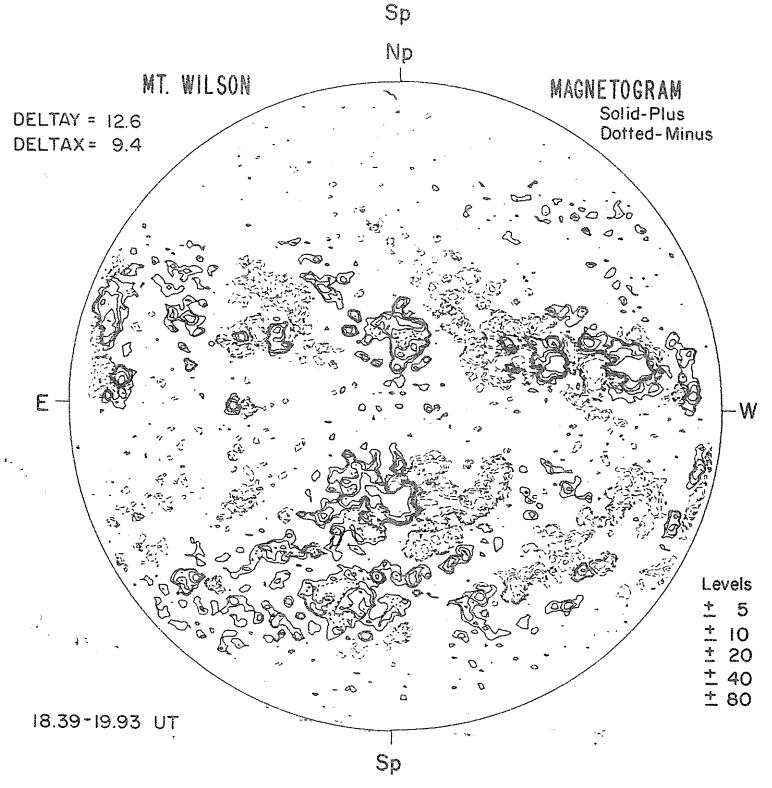
MAGNETOGRAM
Bright - Plus
Dark - Minus

E

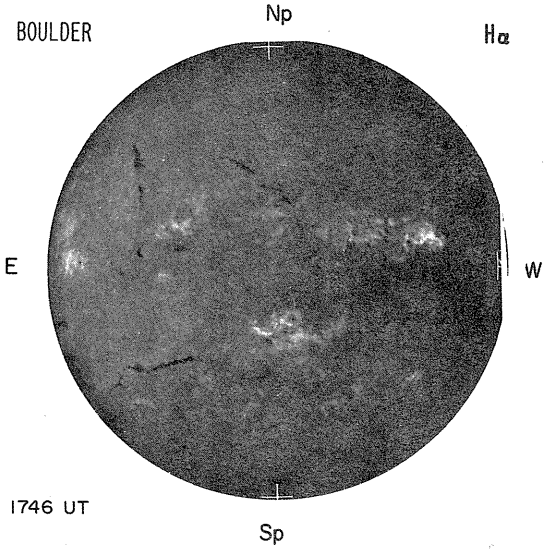
W

1443 UT

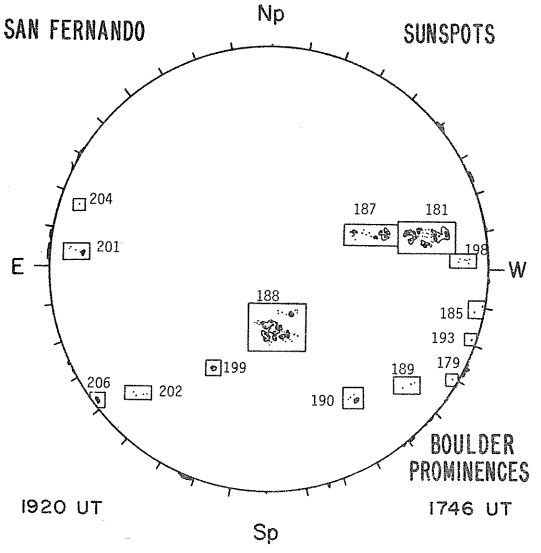
Sp



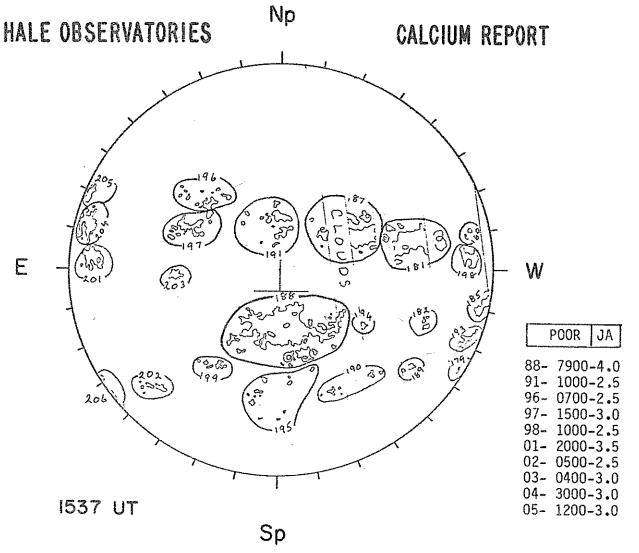
BOULDER



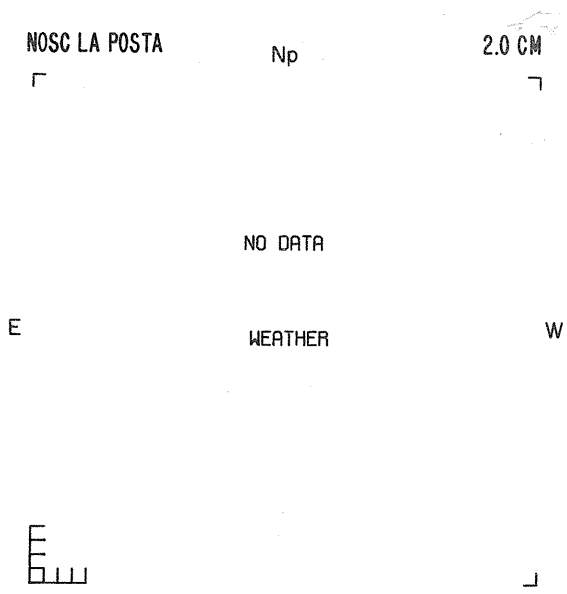
SAN FERNANDO



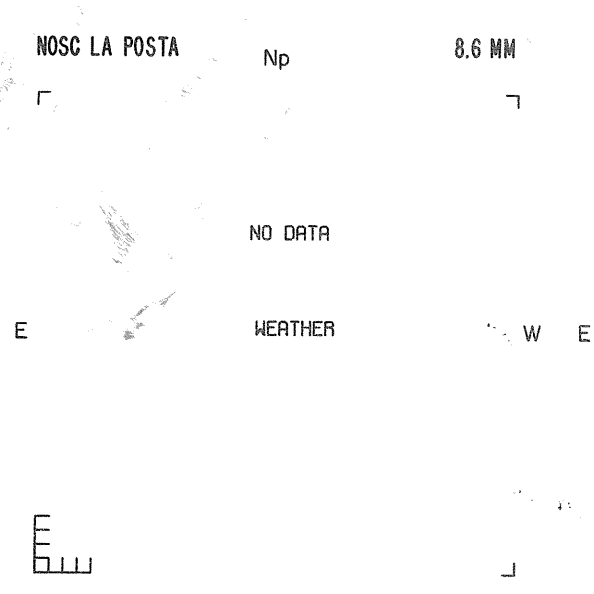
HALE OBSERVATORIES



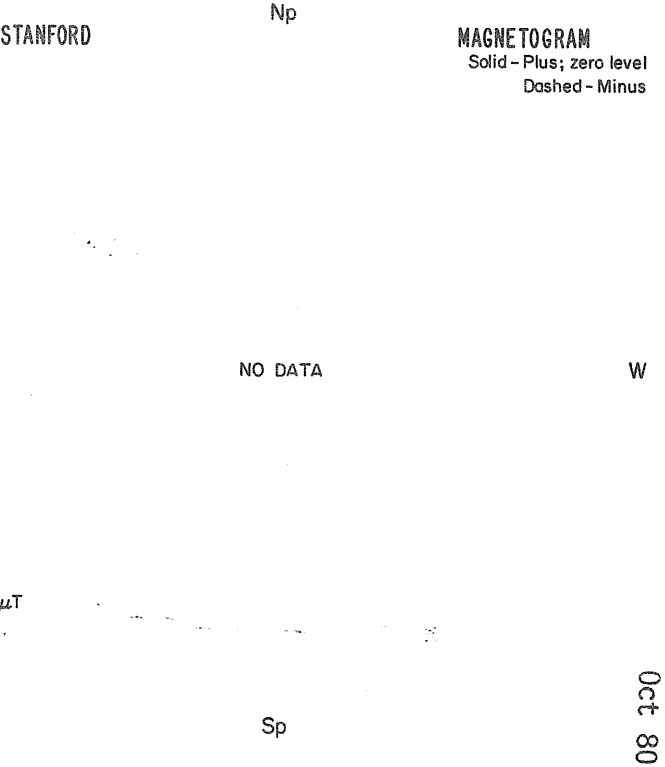
NOSC LA POSTA



NOSC LA POSTA



STANFORD



75
Oct 80

OCTOBER 14, 1980 ($P = 26.27$, $B_o = 5.91$, $L_o = 115.73$)

SACRAMENTO PEAK

Np

CORONA ($1.15\ R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

NO DATA

W

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

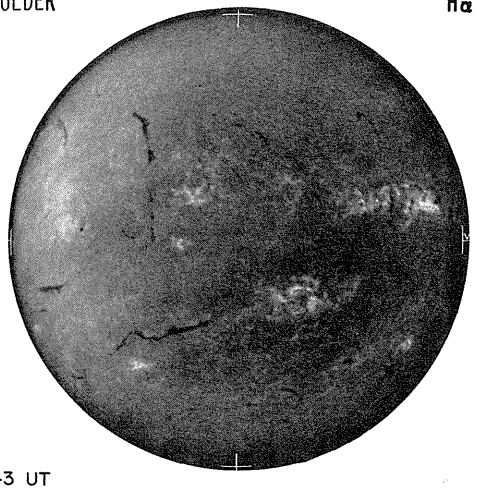
NO DATA 14, 15, 16, 22, 25, 26, 31

W

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

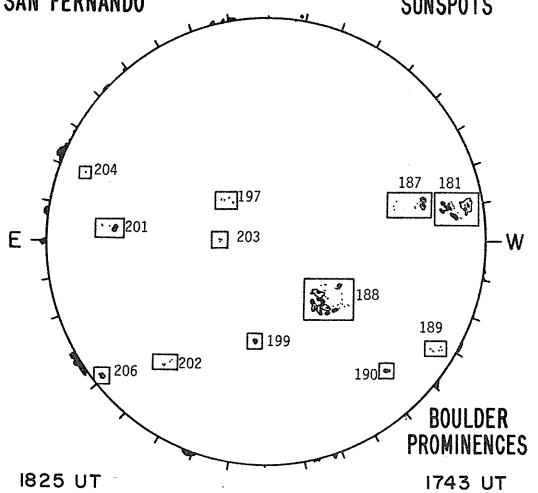
Sp

BOULDER Hα



1743 UT

SAN FERNANDO SUNSPOTS

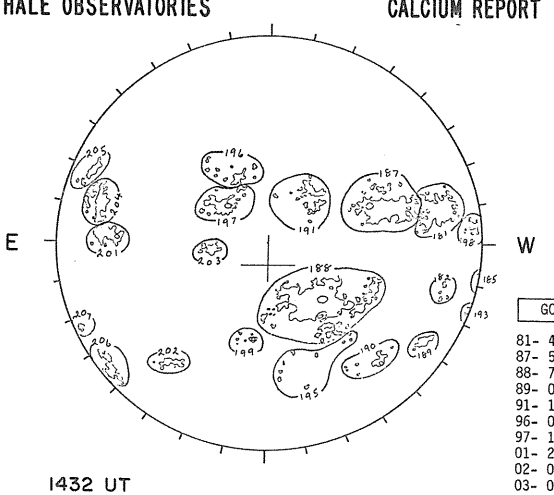


1825 UT

BOULDER PROMINENCES

1743 UT

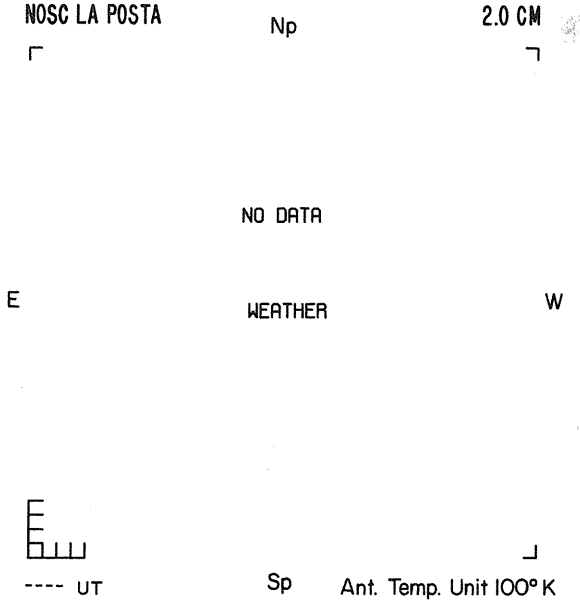
HALE OBSERVATORIES CALCIUM REPORT



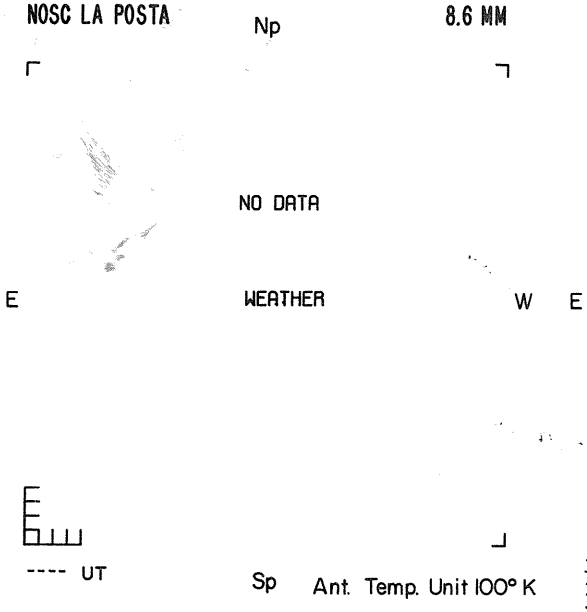
1432 UT

GOOD	JA
81-	4700-4.0
87-	5500-4.0
88-	7800-4.0
89-	0700-2.5
91-	1200-2.5
96-	0700-2.5
97-	1500-3.0
01-	2000-3.5
02-	0700-3.0
03-	0600-3.0
04-	2700-3.0
05-	1500-3.0
07-	0300-2.5

NOSC LA POSTA 2.0 CM

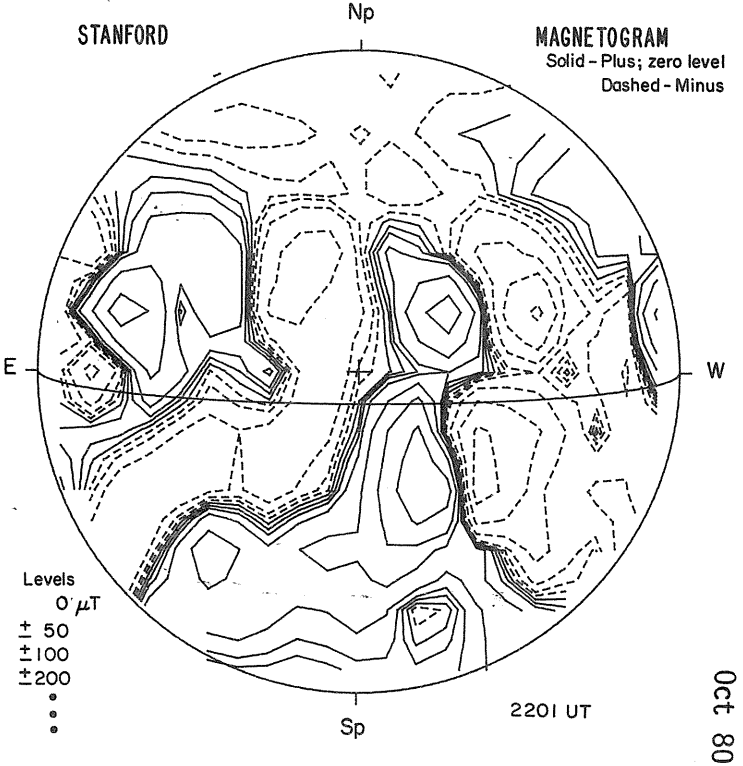


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2201 UT

77
Oct 80

OCTOBER 15, 1980 (P = 26.24, B_o = 5.84, L_o = 102.54)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

NO DATA

W

Sp

Np

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

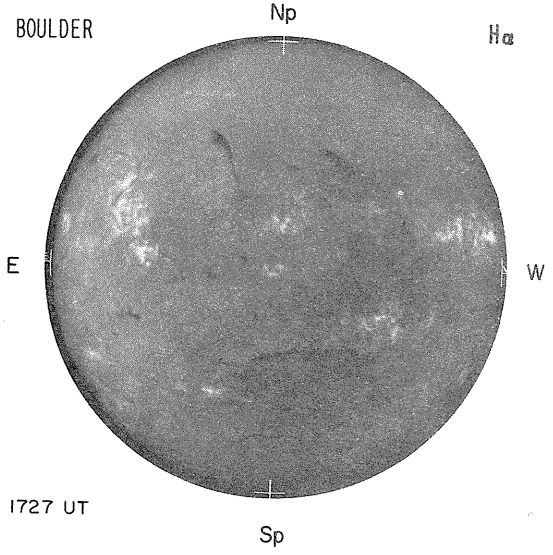
NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

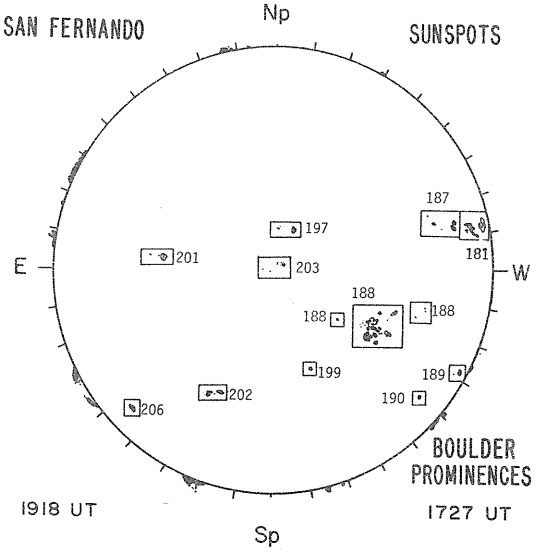
Sp

BOULDER Hα



1727 UT

SAN FERNANDO SUNSPOTS

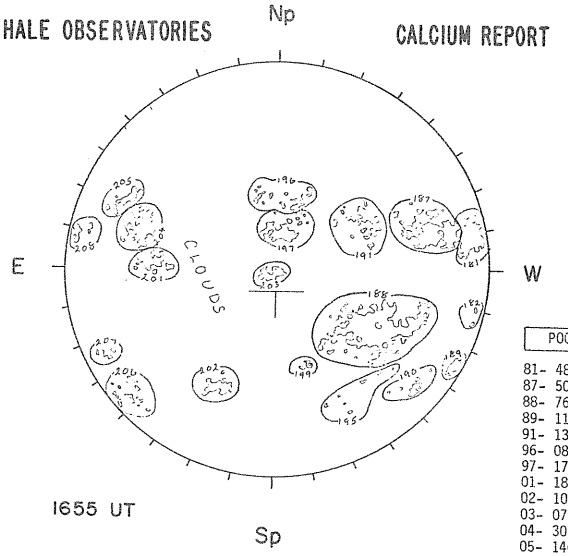


1918 UT

BOULDER PROMINENCES

1727 UT

HALE OBSERVATORIES CALCIUM REPORT

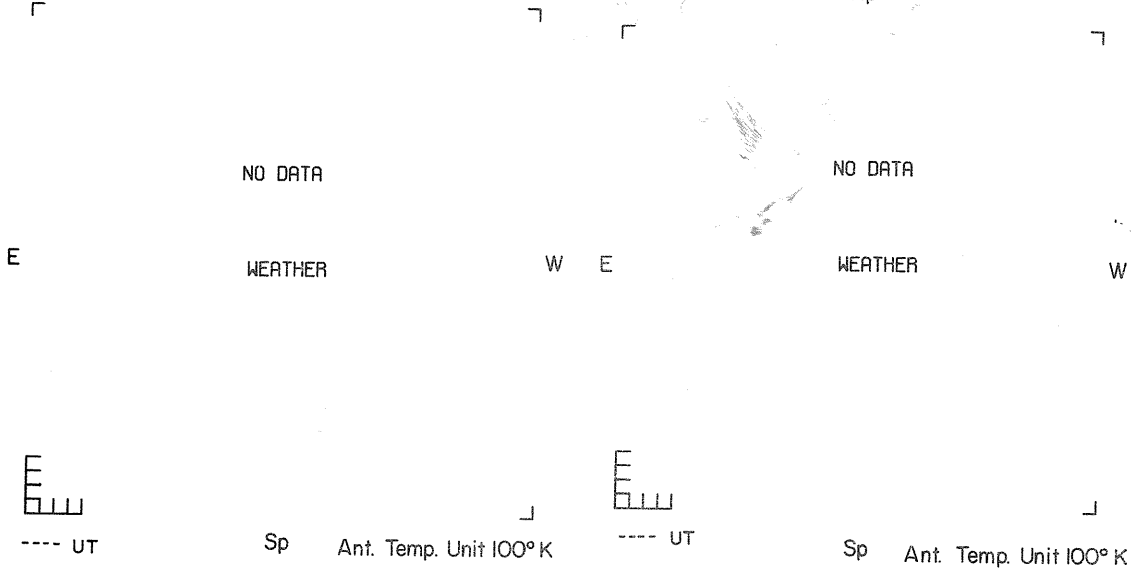


1655 UT

POOR	JA

81- 4800-4.0
87- 5000-3.5
88- 7600-4.0
89- 1100-2.5
91- 1300-3.0
96- 0800-2.5
97- 1700-3.5
01- 1800-3.5
02- 1000-3.5
03- 0700-3.0
04- 3000-3.5
05- 1400-3.0
06- 1500-2.5
07- 0400-2.5
07- 0800-3.5

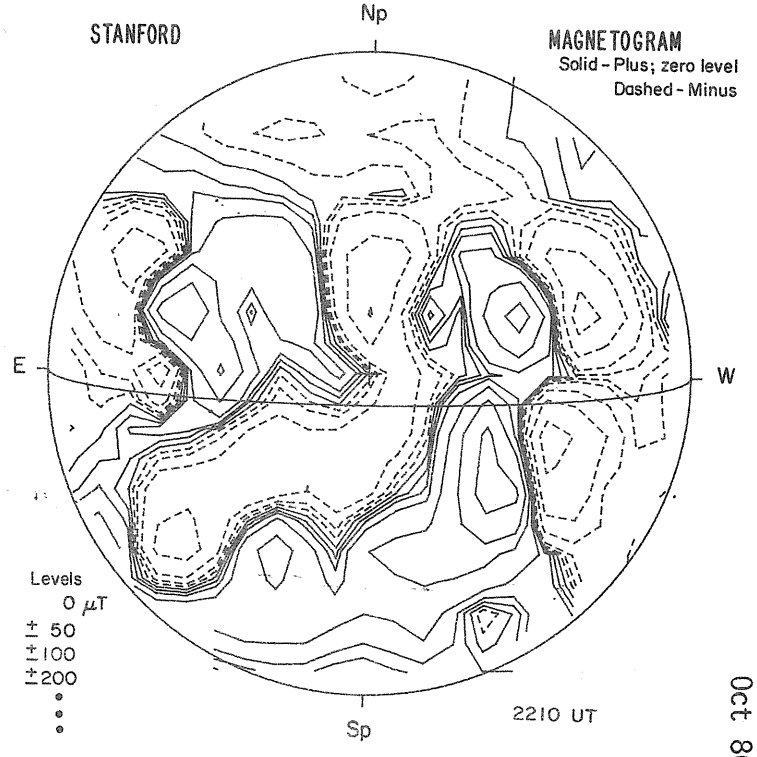
NOSC LA POSTA 2.0 CM



NOSC LA POSTA 8.6 MM

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200
•
•
•

2210 UT

79
Oct 80

OCTOBER 16, 1980 (P = 26.20, B_o = 5.76, L_o = 89.35)

80 Oct 80

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

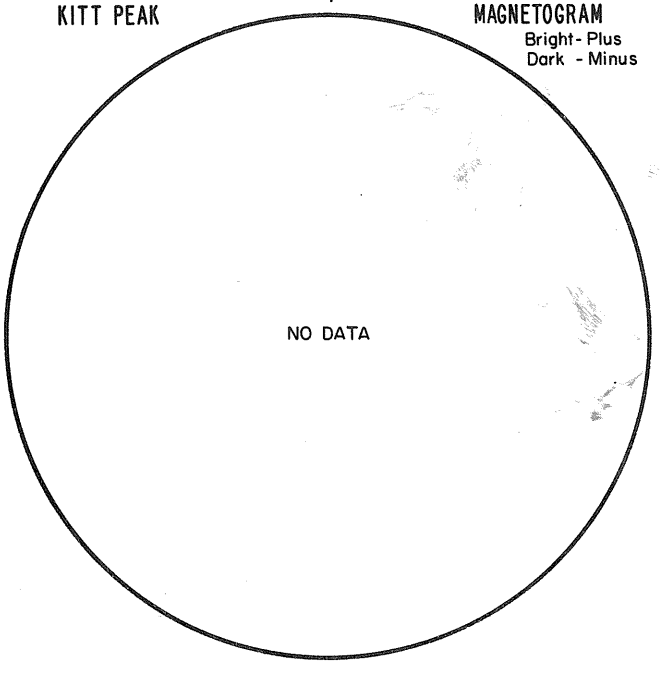
W

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

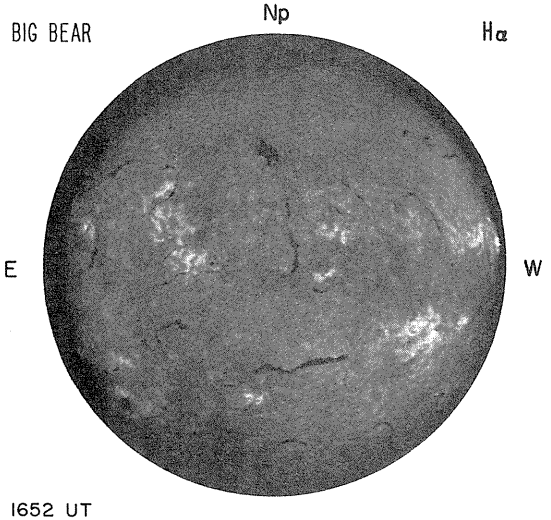
NO DATA

W

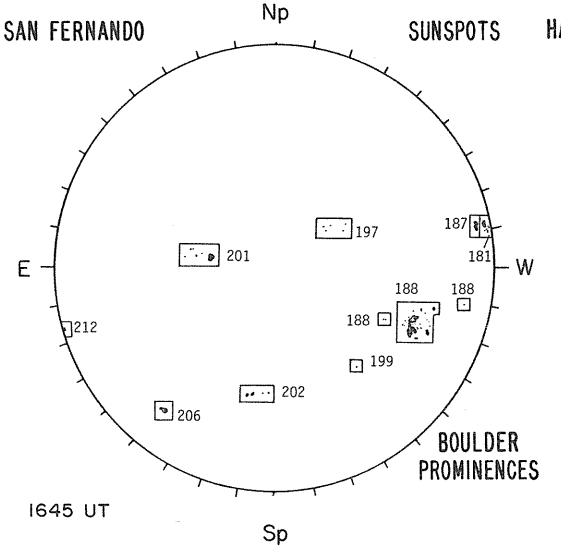
Levels
± 5
± 10
± 20
± 40
± 80

Sp

BIG BEAR

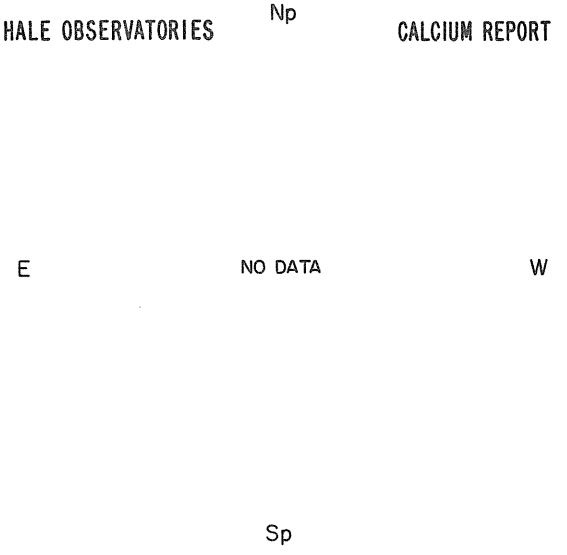


SAN FERNANDO



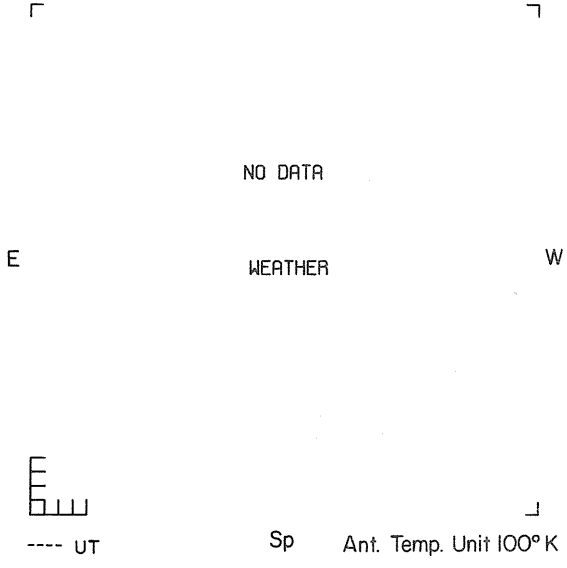
SUNSPOTS

HALE OBSERVATORIES

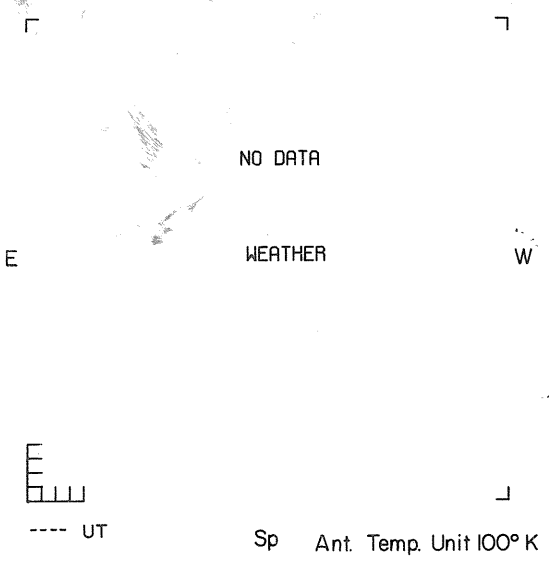


CALCIUM REPORT

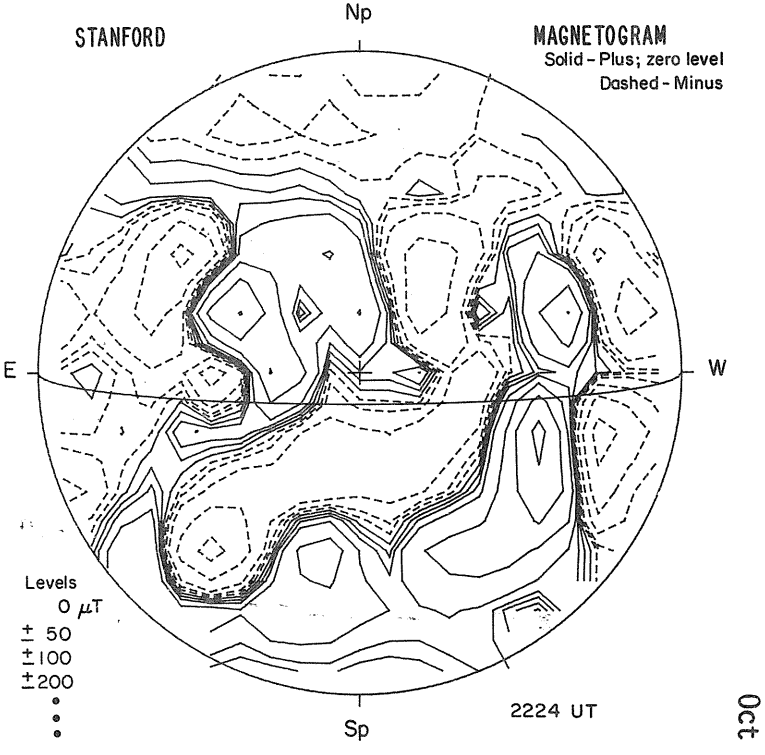
NOSC LA POSTA



NOSC LA POSTA



STANFORD

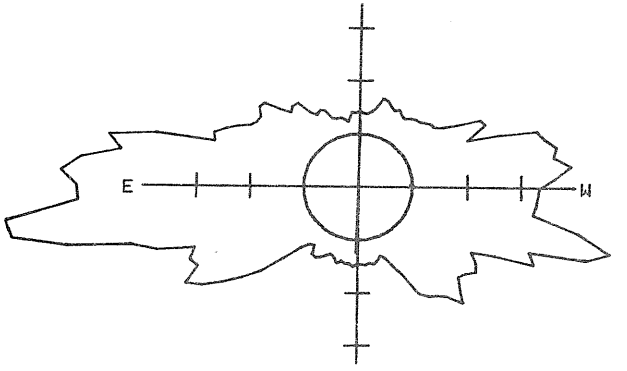


81
Oct 80

OCTOBER 17, 1980 (P = 26.15, B_o = 5.68, L_o = 76.16)

SACRAMENTO PEAK

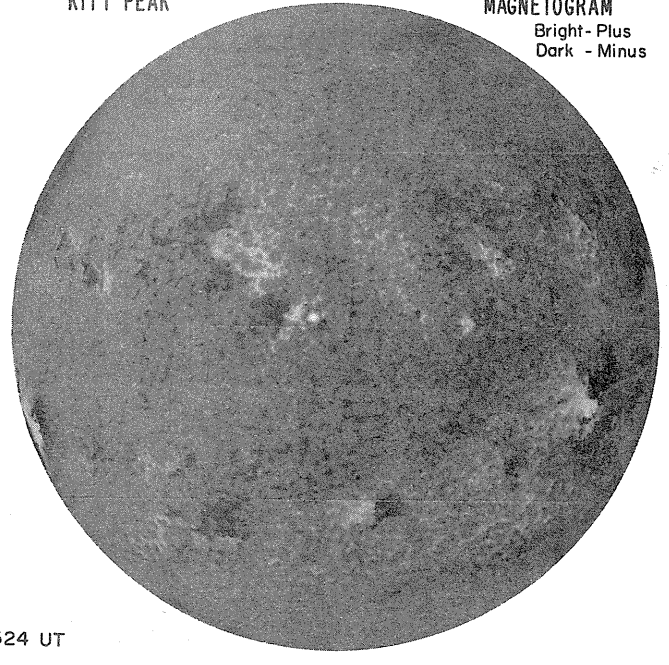
CORONA (1.15 $R_\odot$)
5303 Å



1430 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

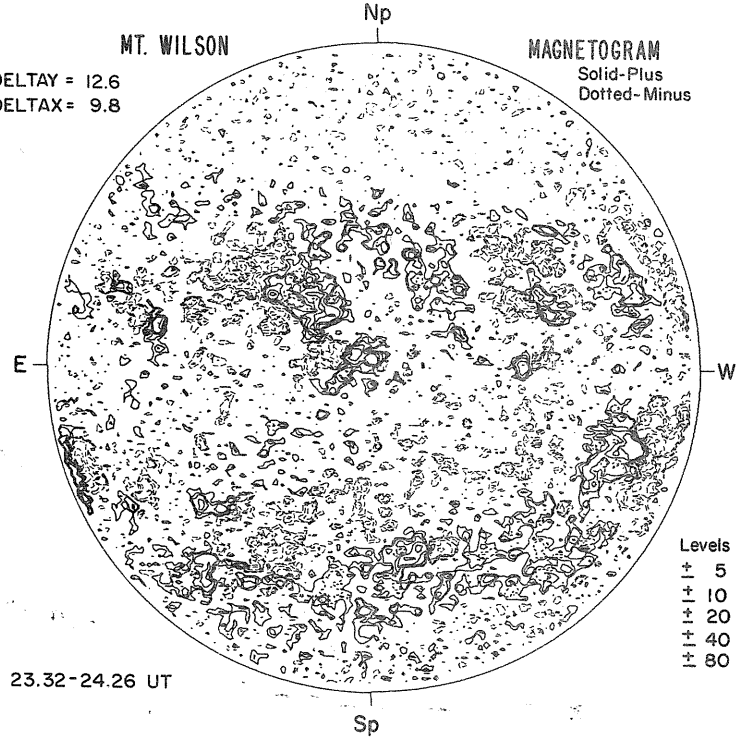


1524 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.8

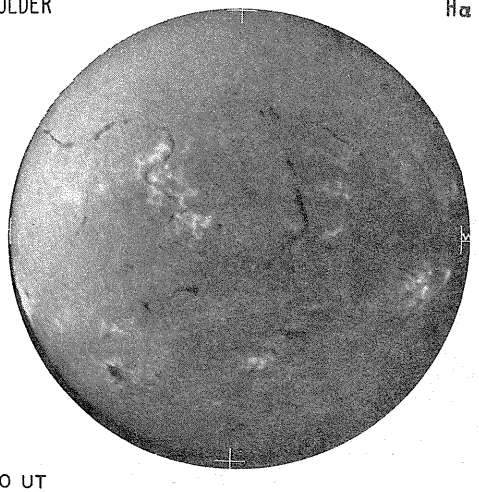
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

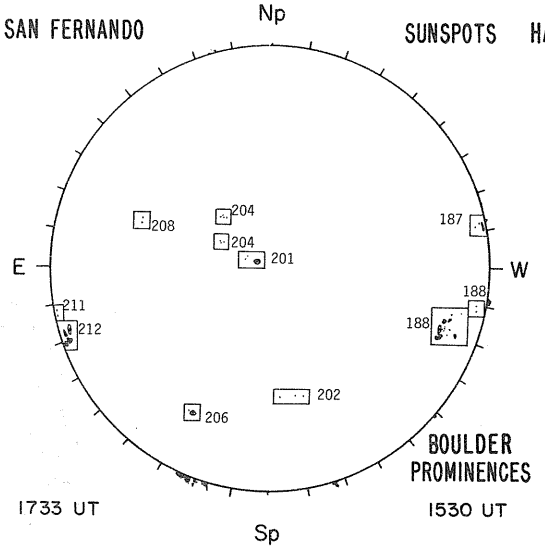
23.32-24.26 UT

BOULDER Hα



1530 UT

SAN FERNANDO SUNSPOTS

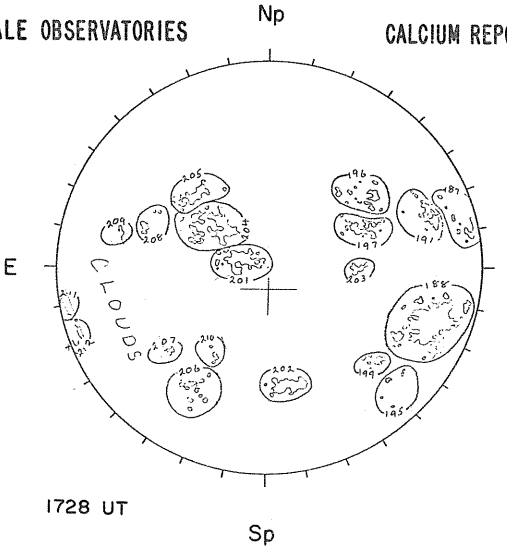


1733 UT

BOULDER PROMINENCES

1530 UT

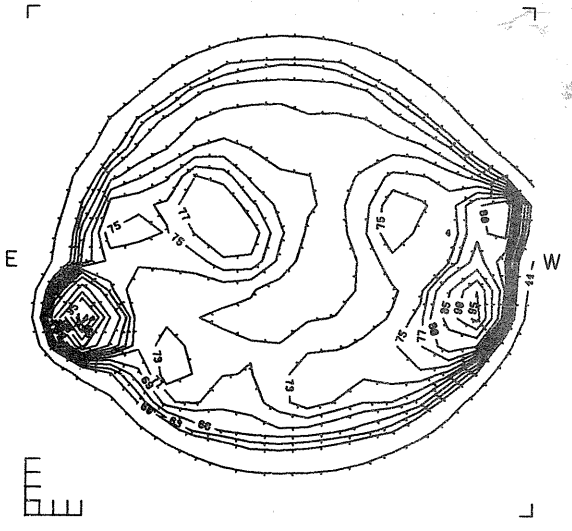
HALE OBSERVATORIES CALCIUM REPORT



1728 UT

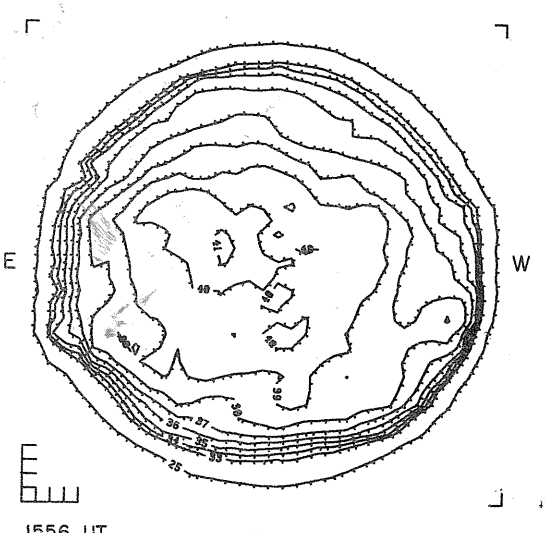
POOR	JA
87-	2000-3.0
88-	7700-4.0
91-	1400-2.5
96-	1000-2.5
97-	1500-3.5
01-	1500-3.5
02-	1500-3.0
03-	0500-3.0
04-	2700-3.5
05-	1300-2.5
08-	0500-3.5
11-	1700-3.5
12-	2000-3.5

NOSC LA POSTA 2.0 CM



1530 UT Ant. Temp. Unit 100° K

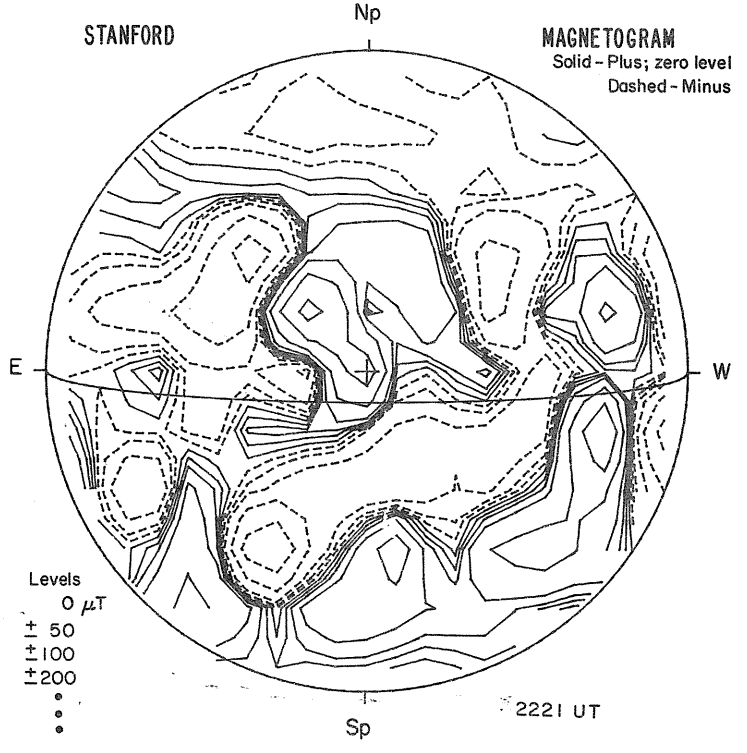
NOSC LA POSTA 8.6 MM



1556 UT Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2221 UT

83
Oct 80

OCTOBER 18, 1980 (P = 26.09, B_o = 5.61, L_o = 62.97)

SACRAMENTO PEAK

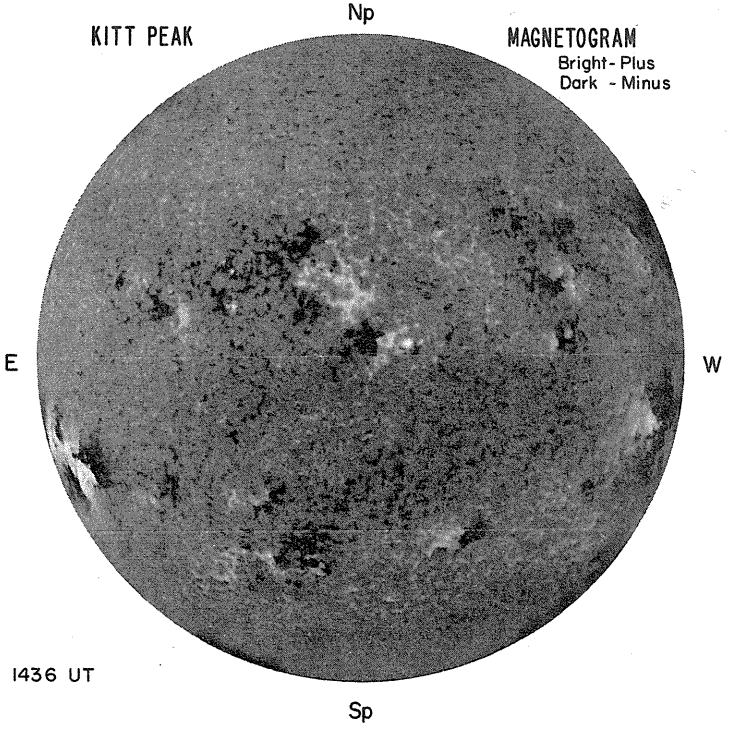
Np

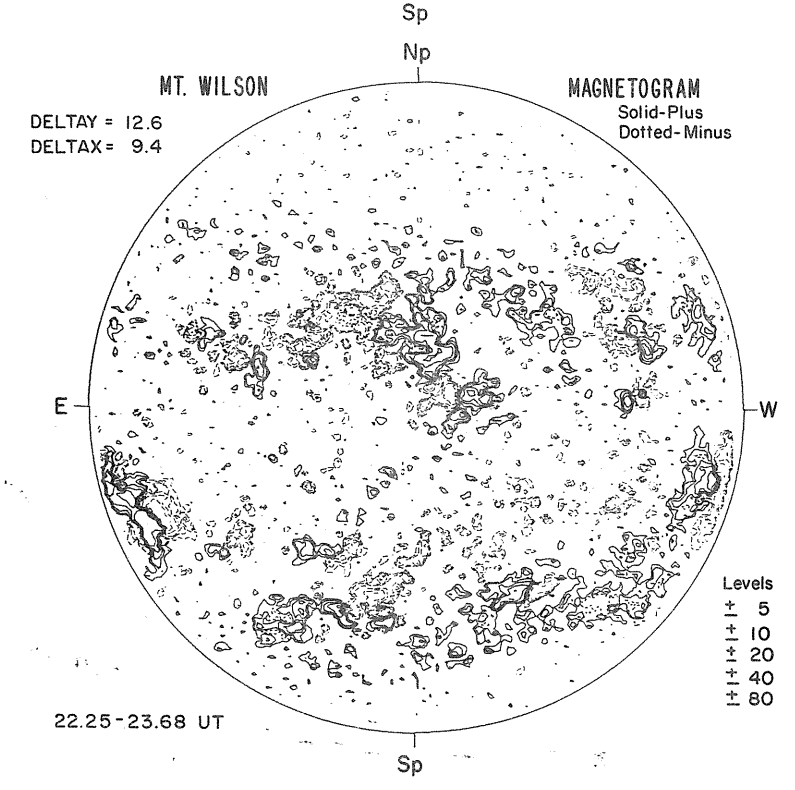
CORONA (1.15 $R_\odot$)
5303 Å

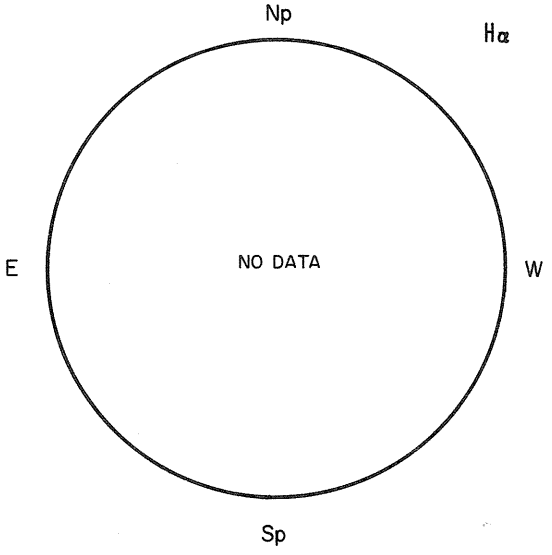
E

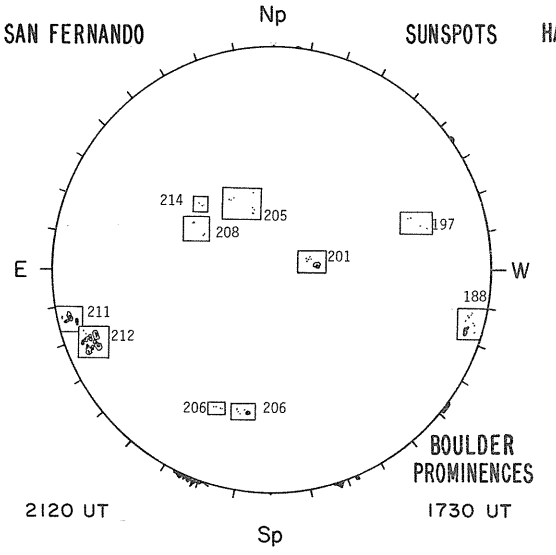
NO DATA

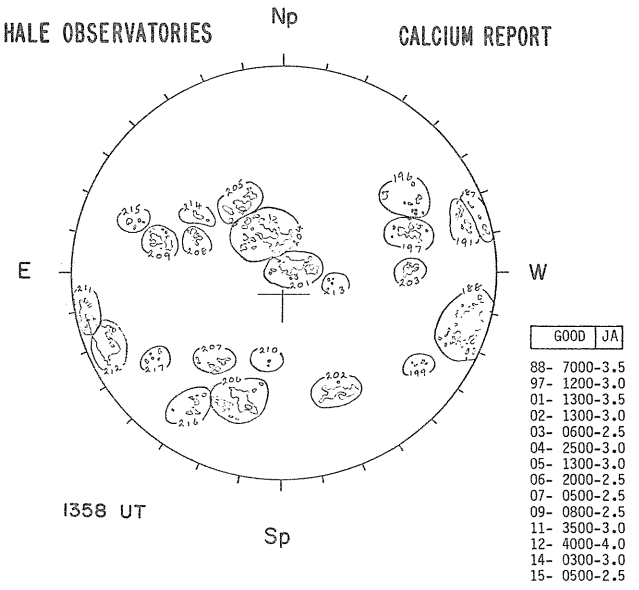
W

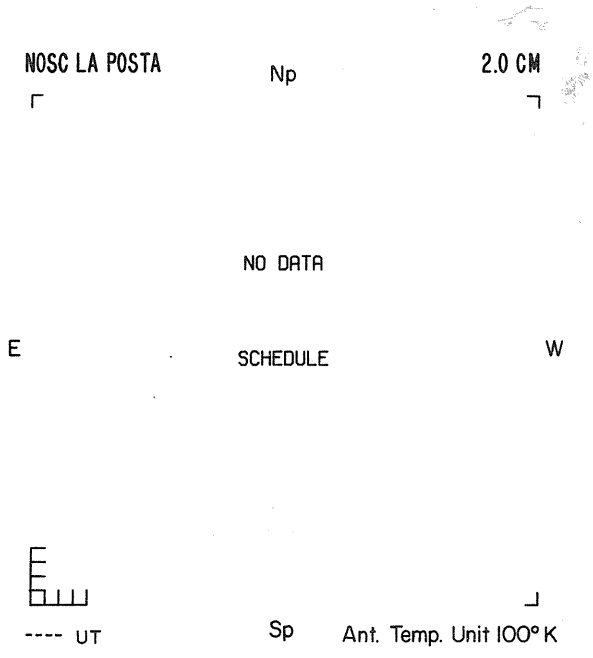


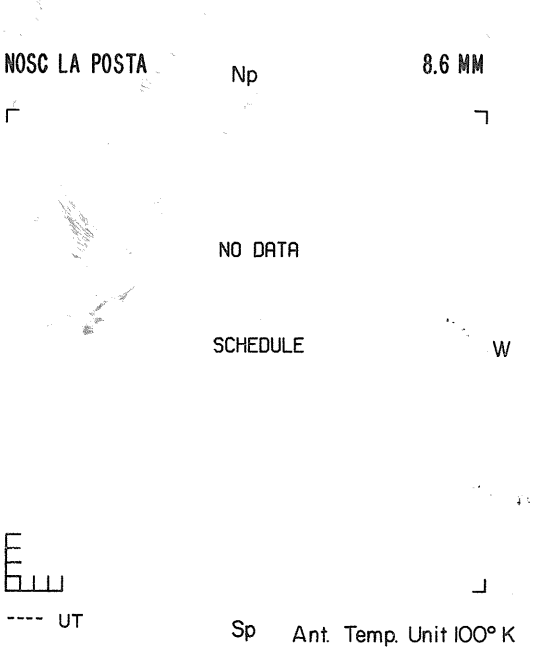


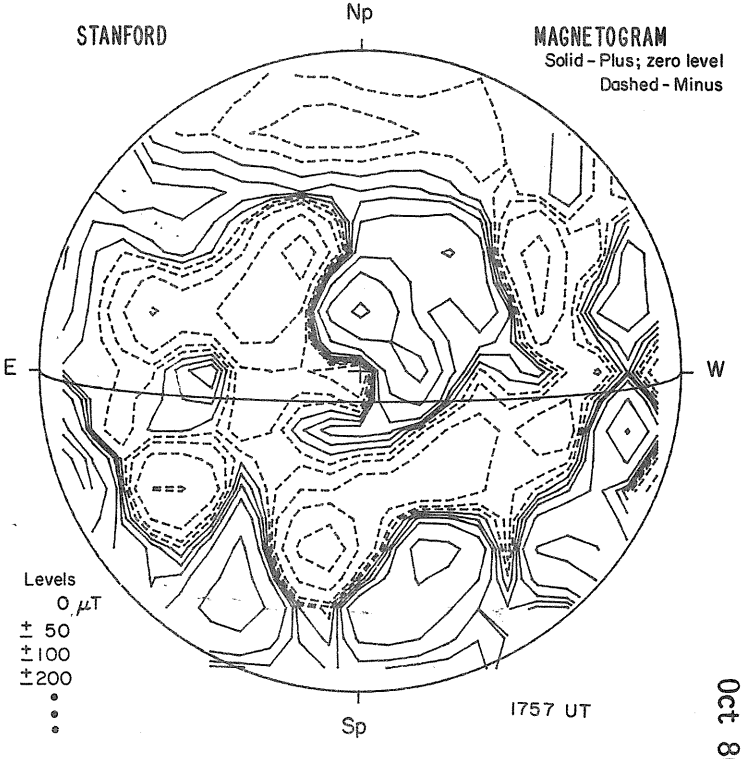

Np
Hα
E
NO DATA
W
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
214
205
208
197
201
188
211
212
206
206
BOULDER
PROMINENCES
2120 UT
Sp
1730 UT


HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
1358 UT
Sp
GOOD JA
88- 7000-3.5
97- 1200-3.0
01- 1300-3.5
02- 1300-3.0
03- 0600-2.5
04- 2500-3.0
05- 1300-3.0
06- 2000-2.5
07- 0500-2.5
09- 0800-2.5
11- 3500-3.0
12- 4000-4.0
14- 0300-3.0
15- 0500-2.5


NOSC LA POSTA
Np
2.0 CM
NO DATA
E
SCHEDULE
W
---- UT
Sp
Ant. Temp. Unit 100° K


NOSC LA POSTA
Np
8.6 MM
NO DATA
E
SCHEDULE
W
---- UT
Sp
Ant. Temp. Unit 100° K

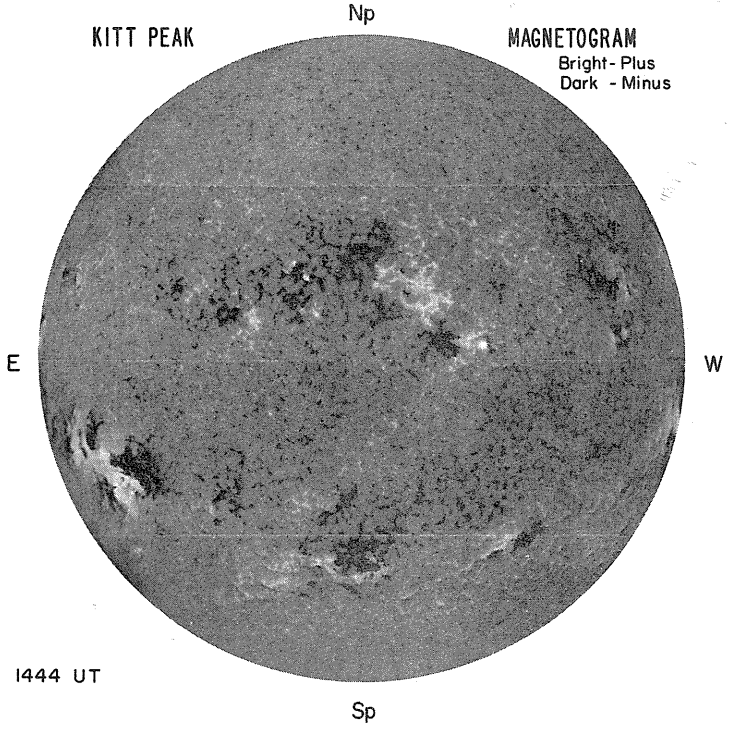

STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
± 100
± 200
Sp
1757 UT

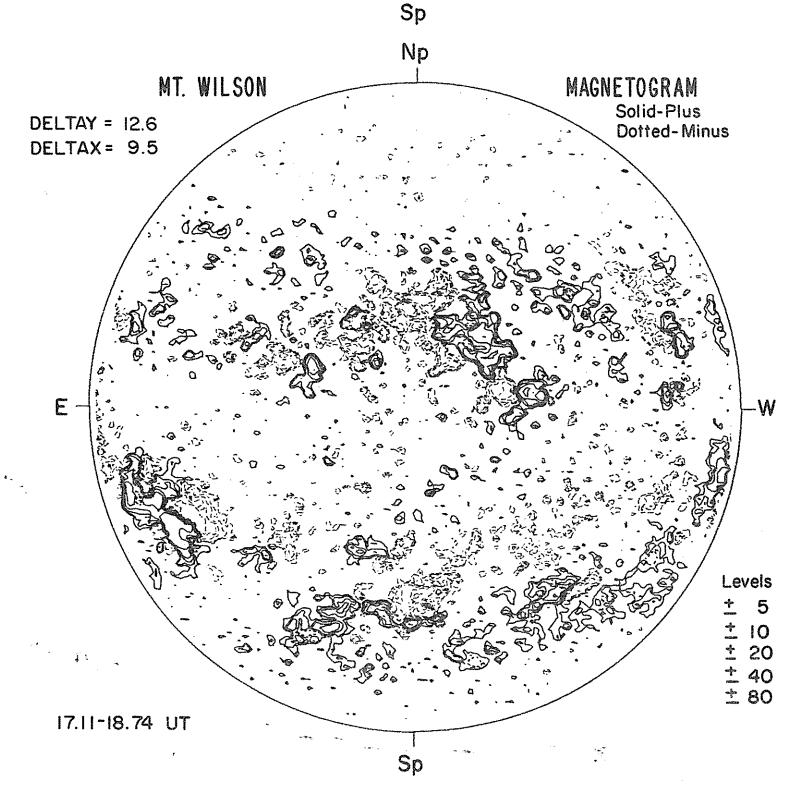
85
Oct 80

OCTOBER 19, 1980 (P = 26.03, B_o = 5.53, L_o = 49.78)

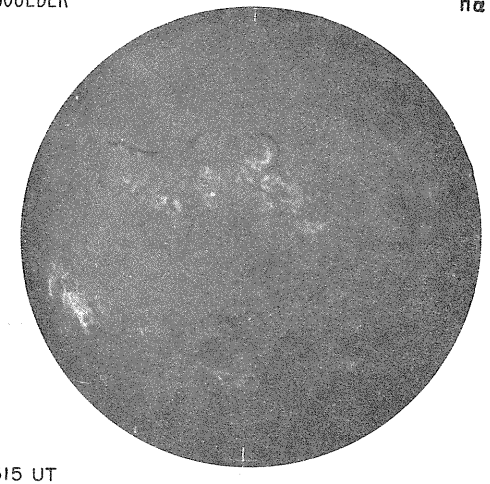
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W



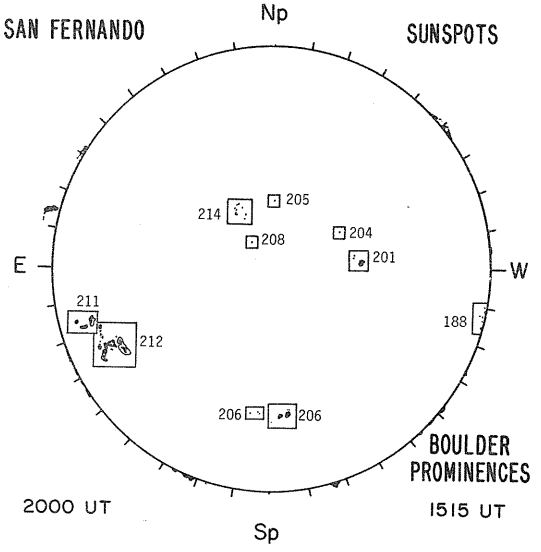


BOULDER Hα



1515 UT

SAN FERNANDO SUNSPOTS

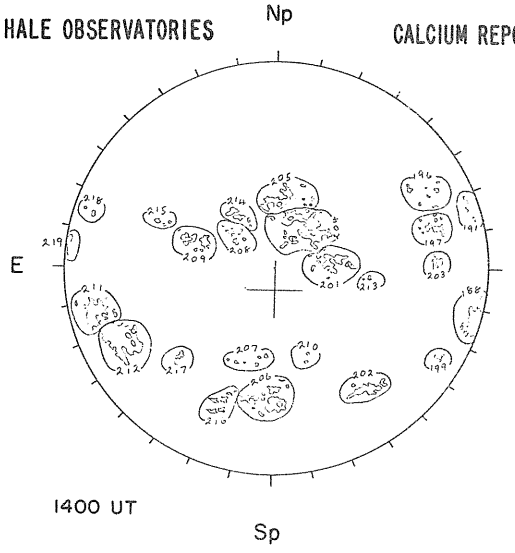


2000 UT

BOULDER PROMINENCES

1515 UT

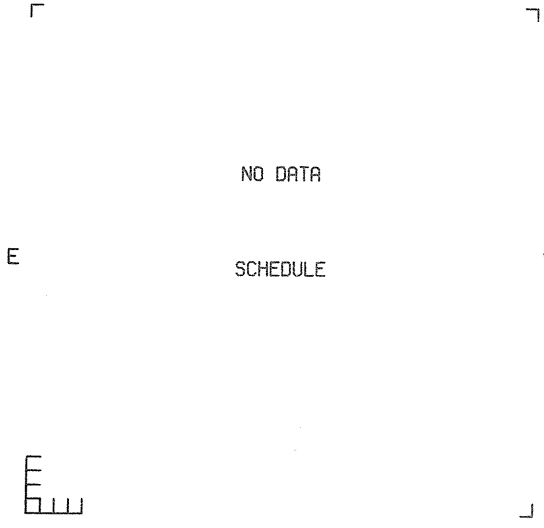
HALE OBSERVATORIES CALCIUM REPORT



1400 UT

GOOD	JA
88-	3500-3.0
97-	1200-2.5
01-	1300-3.5
02-	1300-3.0
03-	0700-2.5
04-	2500-3.0
05-	1300-3.0
06-	2000-2.5
09-	0800-2.5
11-	3400-3.5
12-	5300-3.5
14-	0500-2.5
19-	1200-3.0

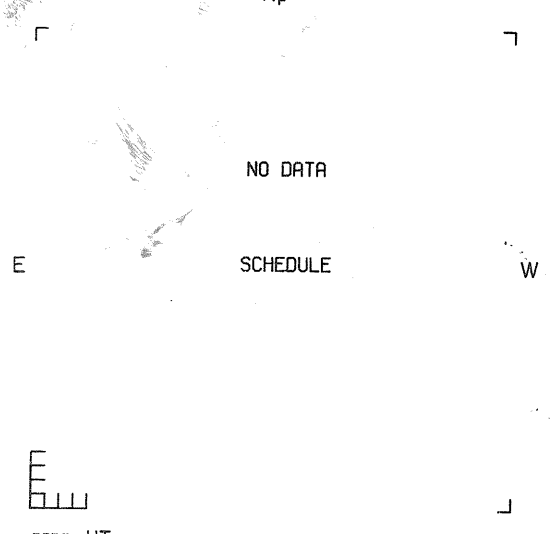
NOSC LA POSTA 2.0 CM



---- UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

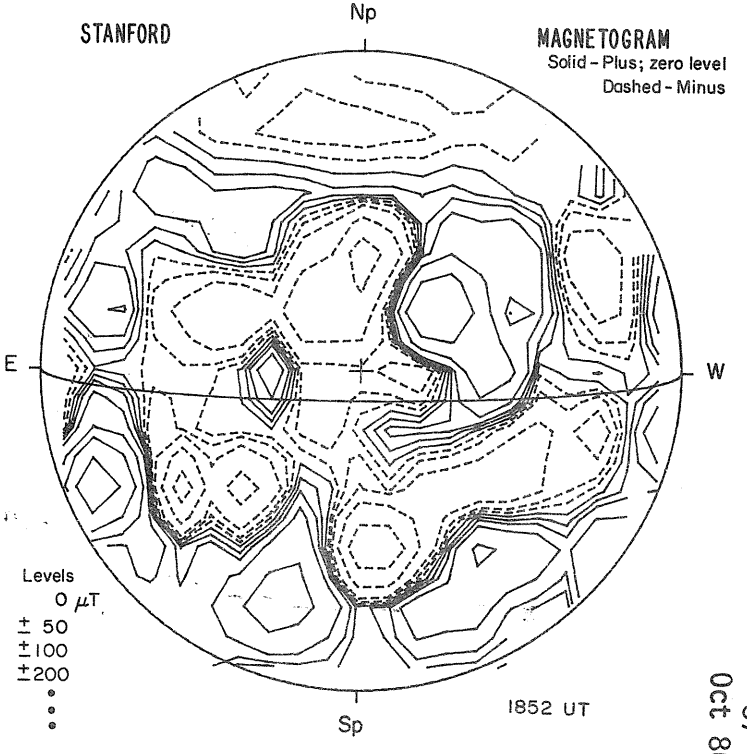


---- UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
± 100
± 200
• • •

1852 UT

87
Oct 80

OCTOBER 20, 1980 (P = 25.96, B_o = 5.44, L_o = 36.59)

SACRAMENTO PEAK

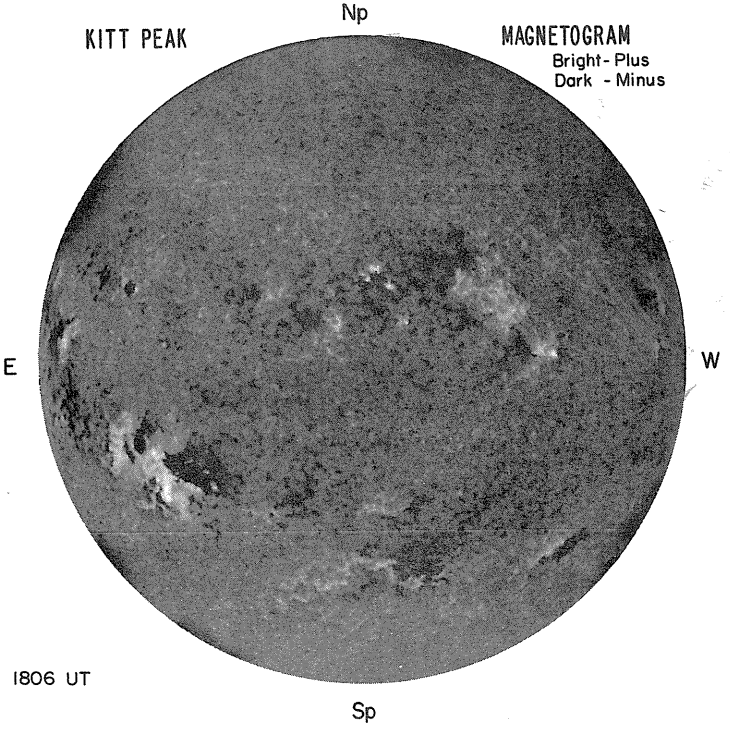
Np

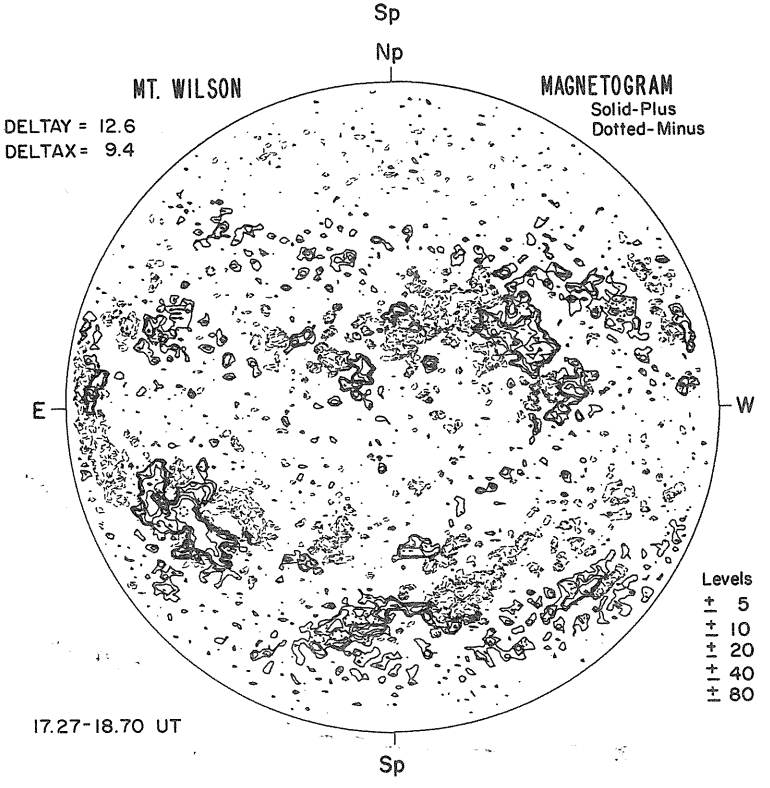
CORONA (1.15 $R_\odot$)
5303 Å

E

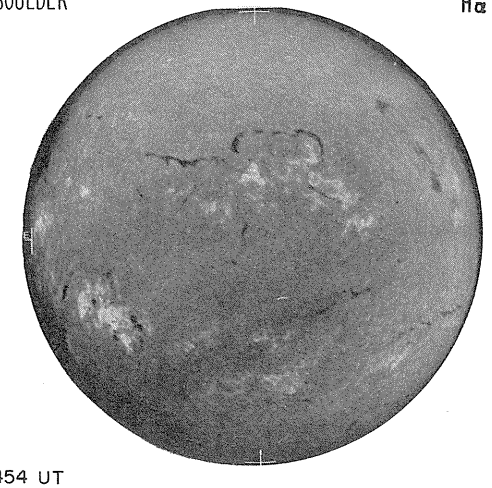
NO DATA

W



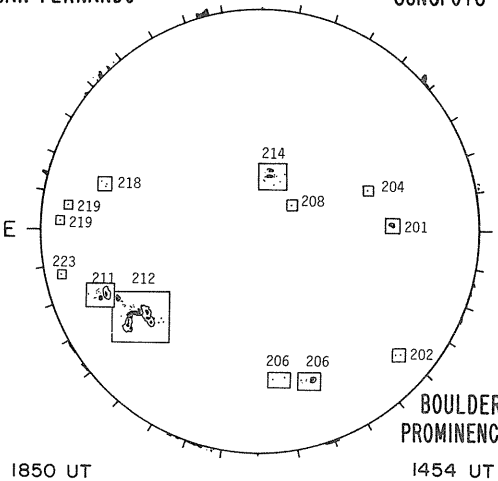


BOULDER Np Hα



1454 UT Sp

SAN FERNANDO Np SUNSPOTS



1850 UT Sp

BOULDER PROMINENCES 1454 UT

HALE OBSERVATORIES Np

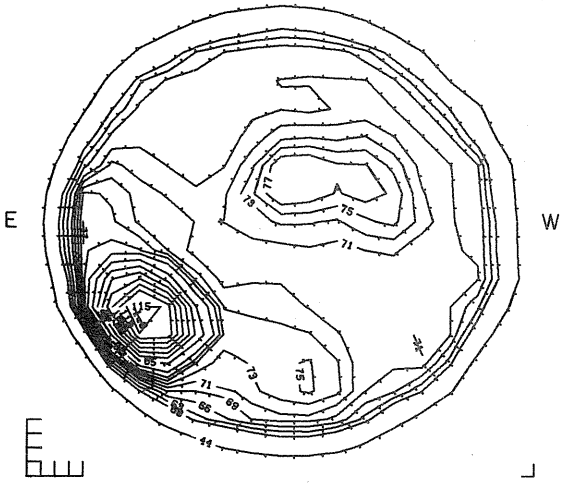
NO DATA

Sp

CALCIUM REPORT

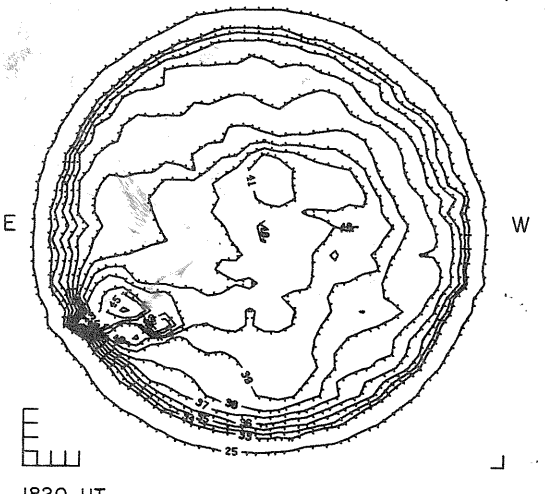
W

NOSC LA POSTA Np 2.0 CM



1750 UT Sp Ant. Temp. Unit 100° K

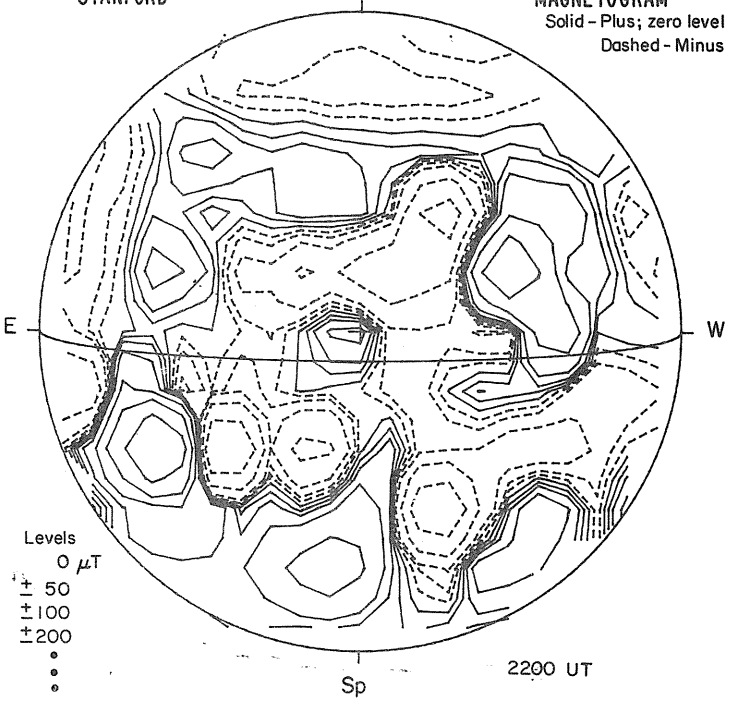
NOSC LA POSTA Np 8.6 MM



1820 UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



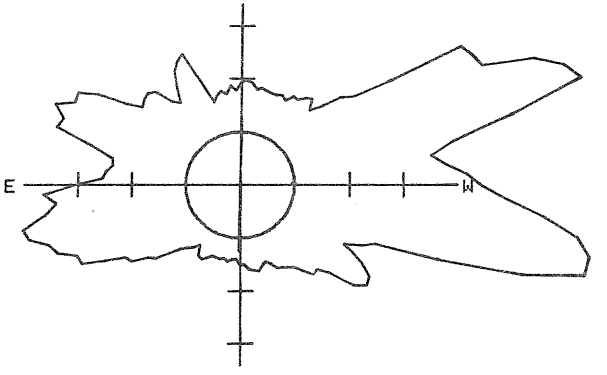
Sp 2200 UT

89
Oct 80

OCTOBER 21, 1980 (P = 25.88, B_o = 5.36, L_o = 23.40)

SACRAMENTO PEAK

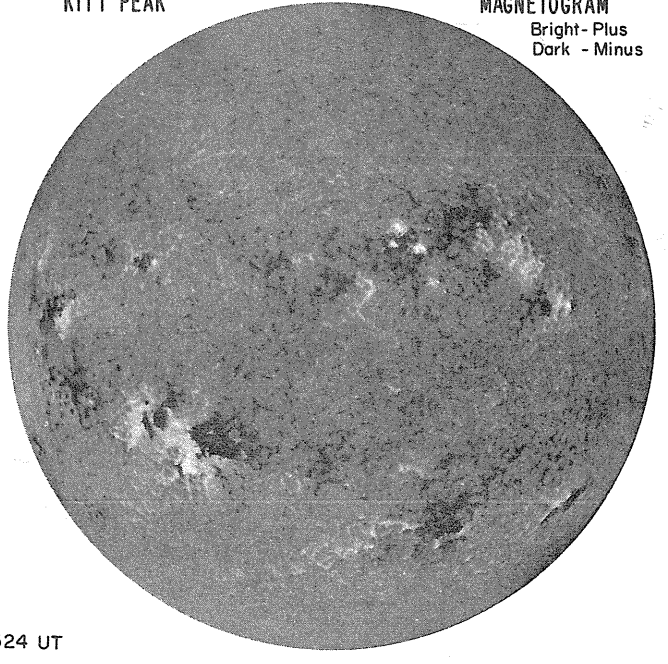
CORONA (1.15 $R_\odot$)
5303 Å



1506 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

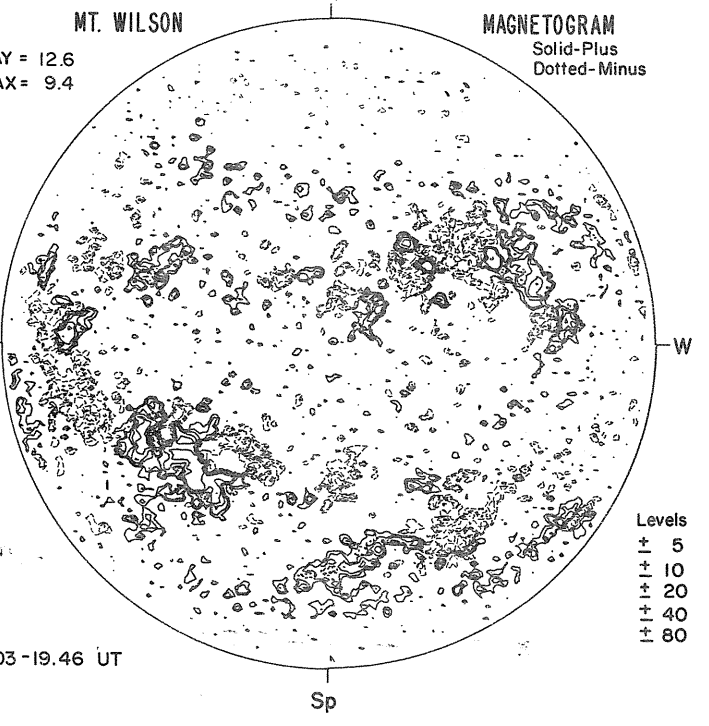


1524 UT

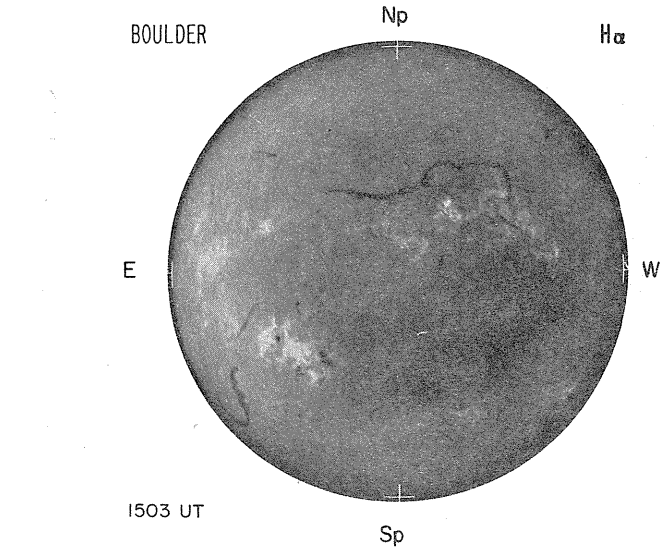
MT. WILSON

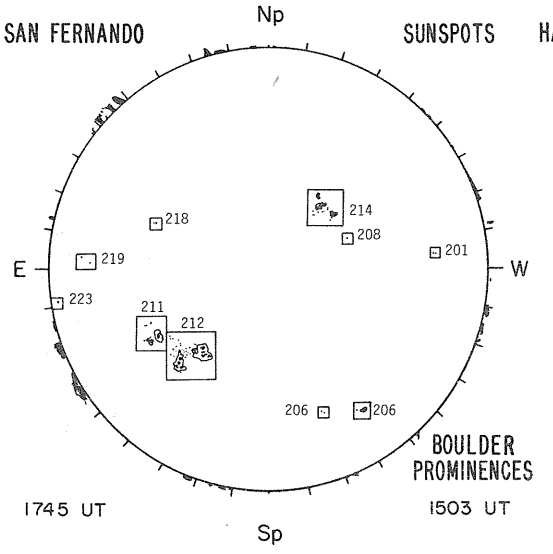
DELTAY = 12.6
DELTAX = 9.4

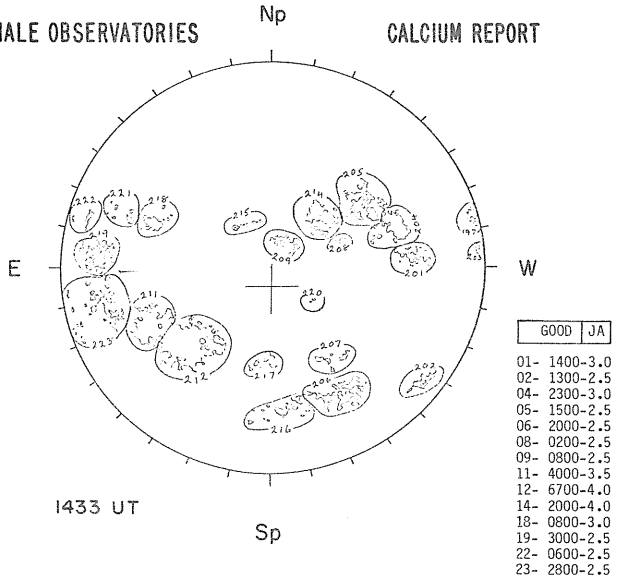
MAGNETOGRAM
Solid-Plus
Dotted-Minus

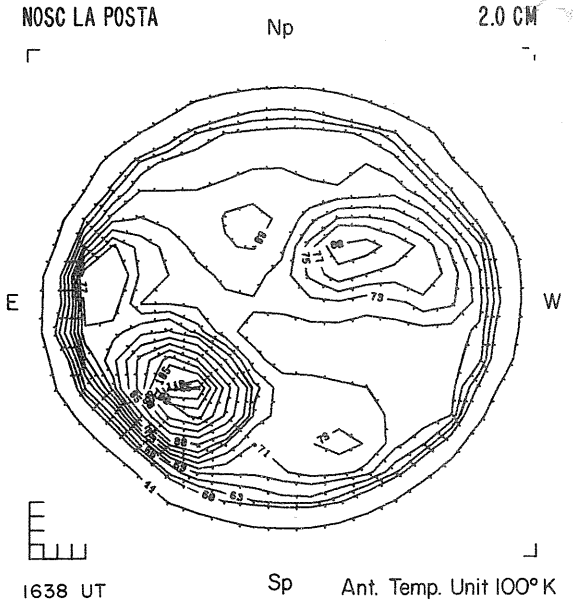


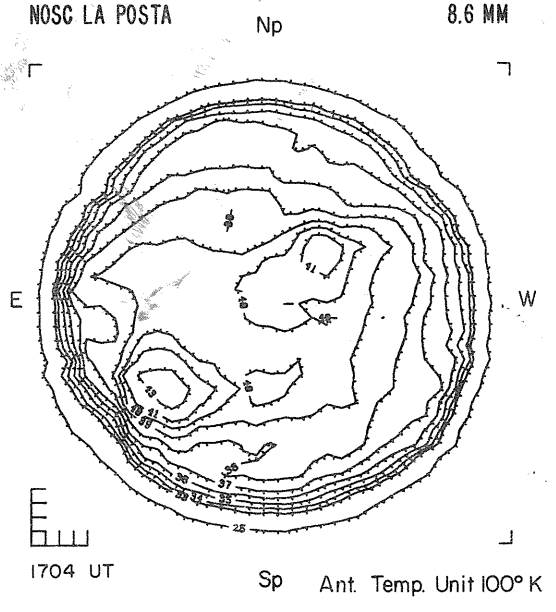
18.03 - 19.46 UT

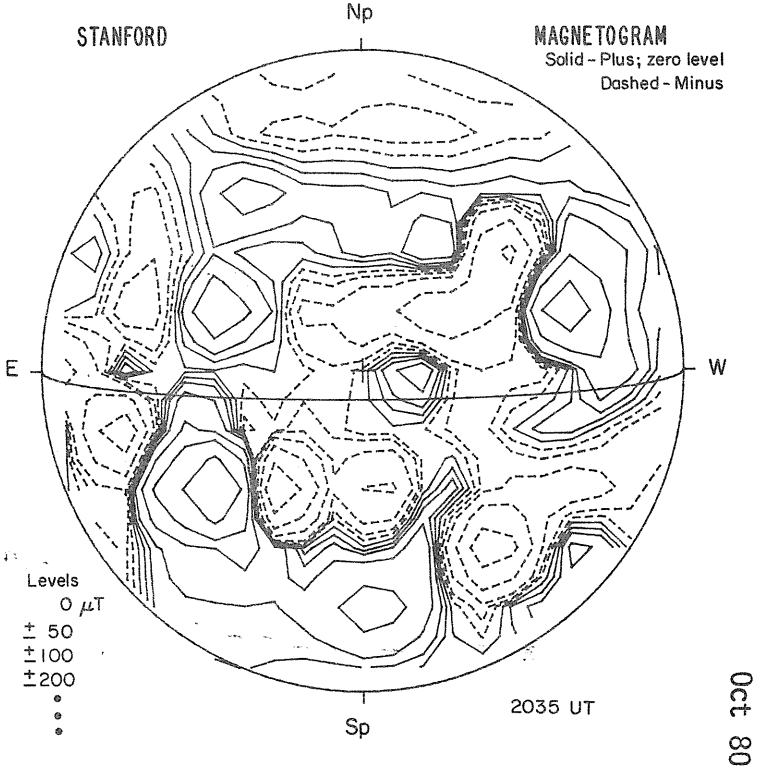

BOULDER
Np
Hα
E
W
1503 UT
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
218
214
208
201
219
223
211
212
206
206
BOULDER
PROMINENCES
1745 UT
1503 UT
Sp


HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
1433 UT
Sp
GOOD | JA
01- 1400-3.0
02- 1300-2.5
04- 2300-3.0
05- 1500-2.5
06- 2000-2.5
08- 0200-2.5
09- 0800-2.5
11- 4000-3.5
12- 6700-4.0
14- 2000-4.0
18- 0800-3.0
19- 3000-2.5
22- 0600-2.5
23- 2800-2.5


NOSC LA POSTA
Np
2.0 CM
E
W
1638 UT
Sp
Ant. Temp. Unit 100° K


NOSC LA POSTA
Np
8.6 MM
E
W
1704 UT
Sp
Ant. Temp. Unit 100° K

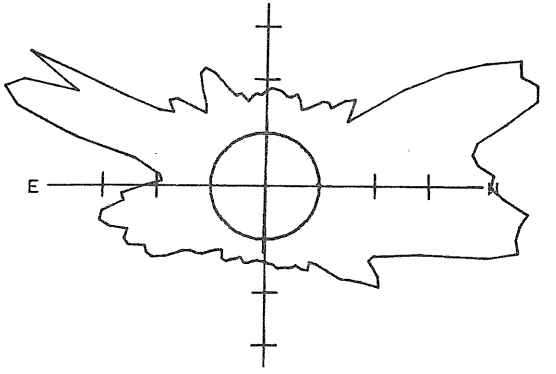

STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
2035 UT

OCTOBER 22, 1980 (P = 25.80, B_o = 5.27, L_o = 10.21)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



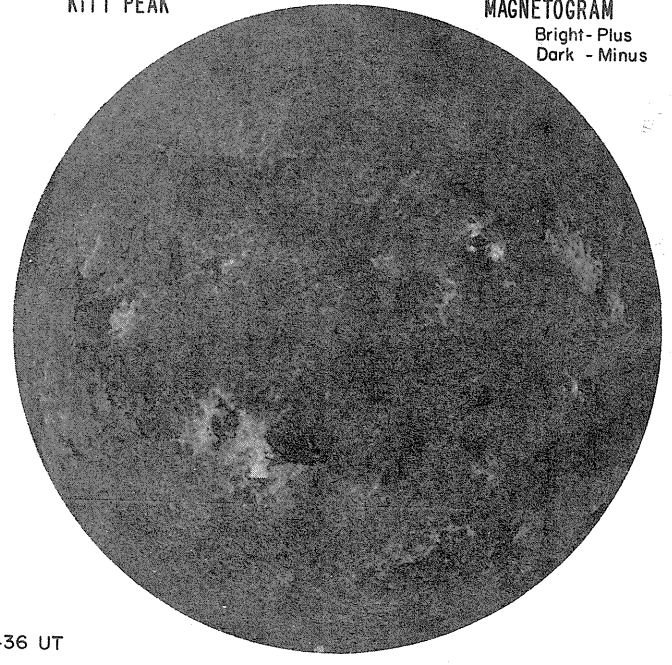
1453 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1436 UT

Sp

Np

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

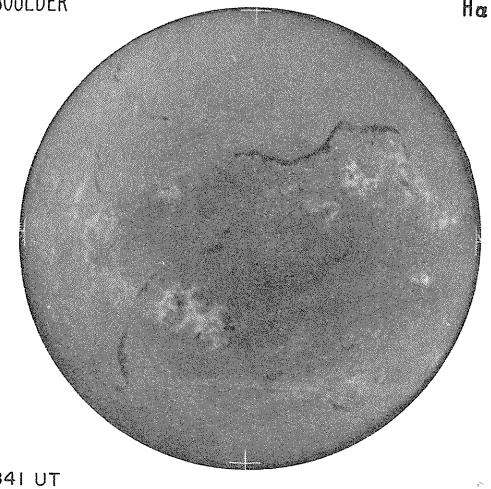
NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

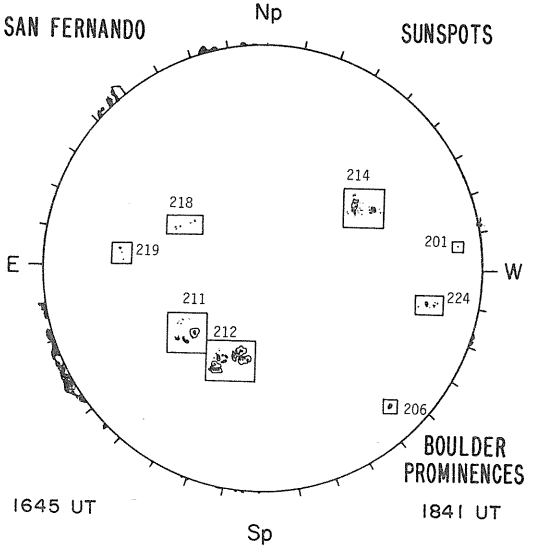
Sp

BOULDER Hα



1841 UT

SAN FERNANDO SUNSPOTS

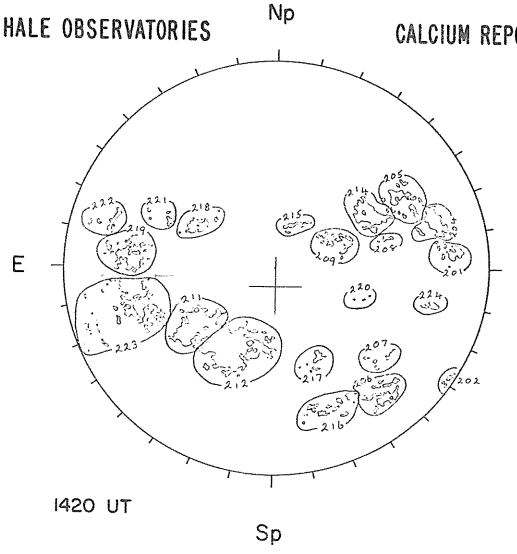


1645 UT

BOULDER PROMINENCES

1841 UT

HALE OBSERVATORIES CALCIUM REPORT

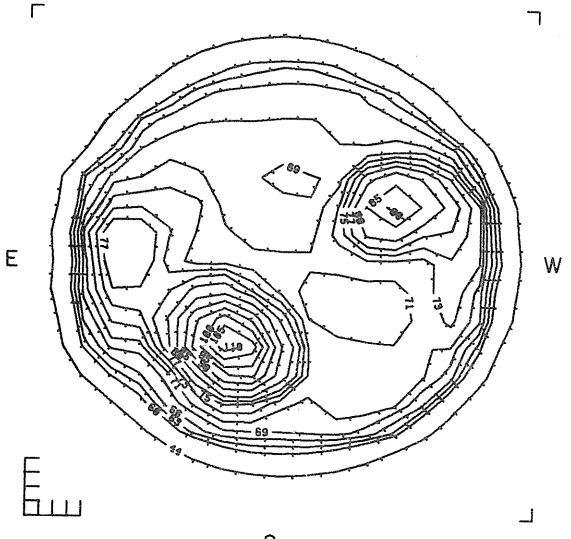


1420 UT

GOOD	JA

01- 1400-2.5
05- 1500-2.5
08- 0200-2.5
09- 0900-2.5
11- 4000-3.5
12- 6400-4.0
14- 2000-3.5
18- 0800-2.5
19- 3000-2.5
23- 3400-2.0
24- 0400-3.0

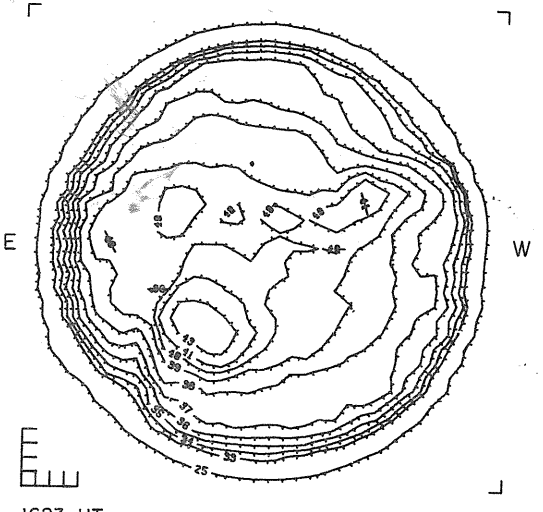
NOSC LA POSTA 2.0 CM



1548 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

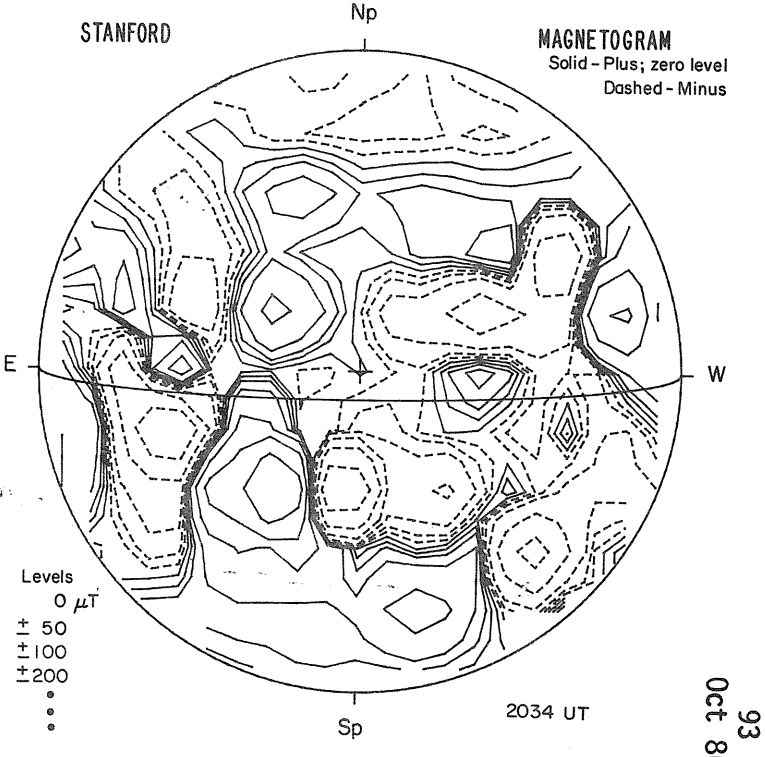


1623 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
± 100
± 200

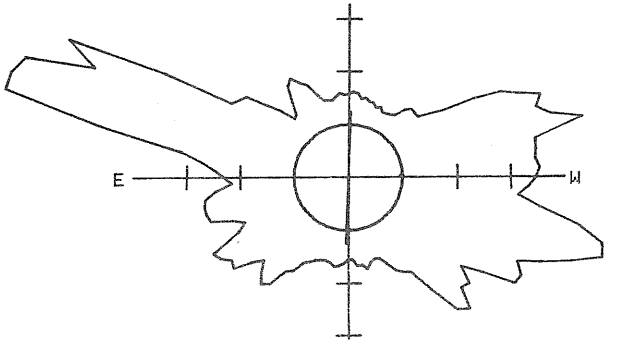
2034 UT

93
Oct 80

OCTOBER 23, 1980 (P = 25.70, B_o = 5.19, L_o = 357.02)

SACRAMENTO PEAK

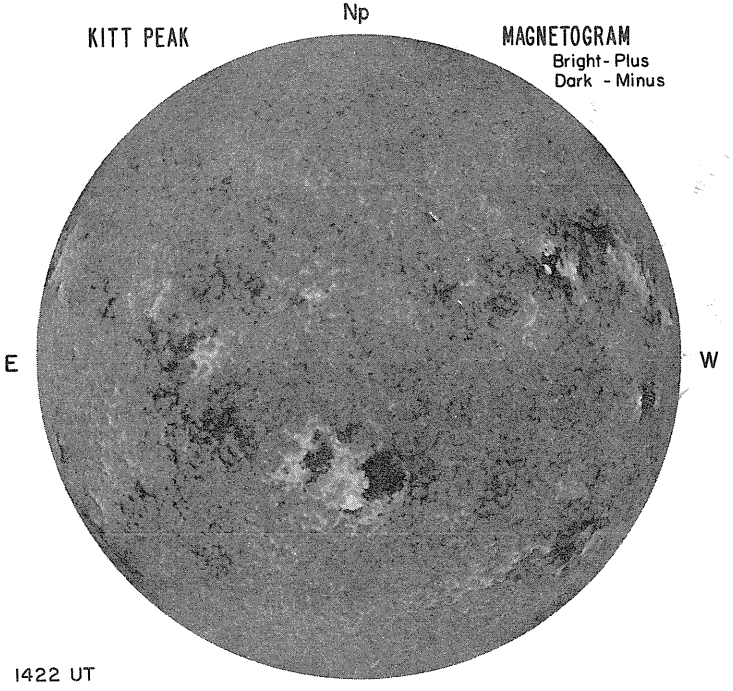
CORONA (1.15 $R_\odot$)
5303 Å



1752 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

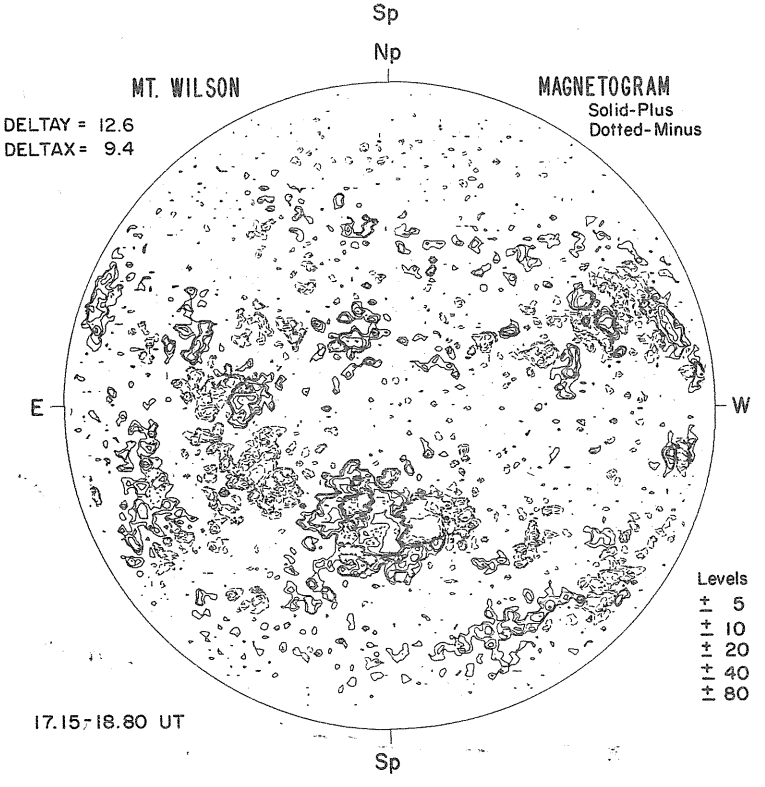


1422 UT

MT. WILSON

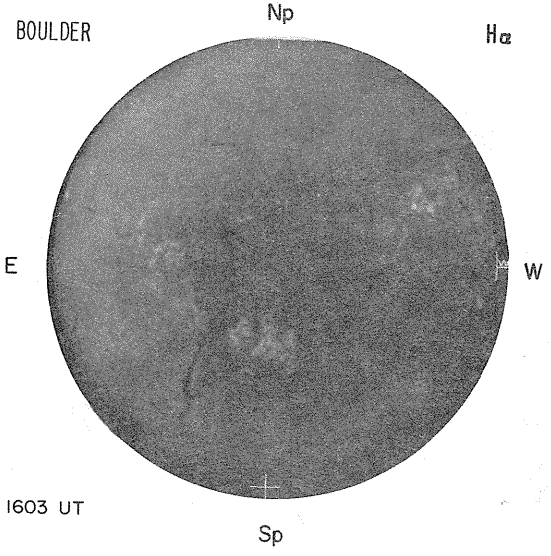
DELTAY = 12.6
DELTAX = 9.4

MAGNETOGRAM
Solid-Plus
Dotted-Minus



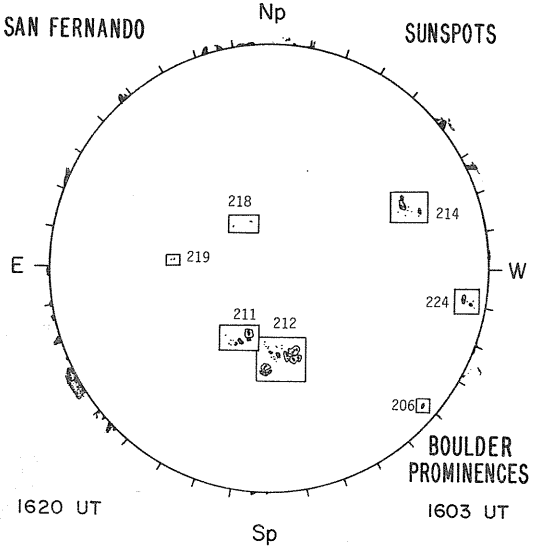
17.15-18.80 UT

BOULDER Hα



1603 UT

SAN FERNANDO SUNSPOTS

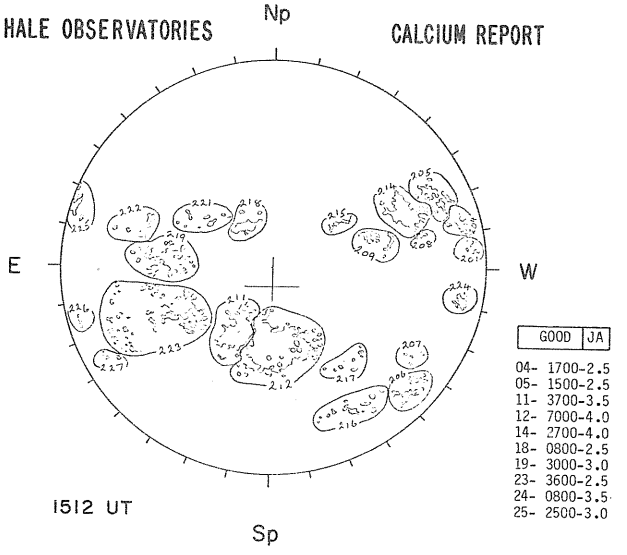


1620 UT

BOULDER PROMINENCES

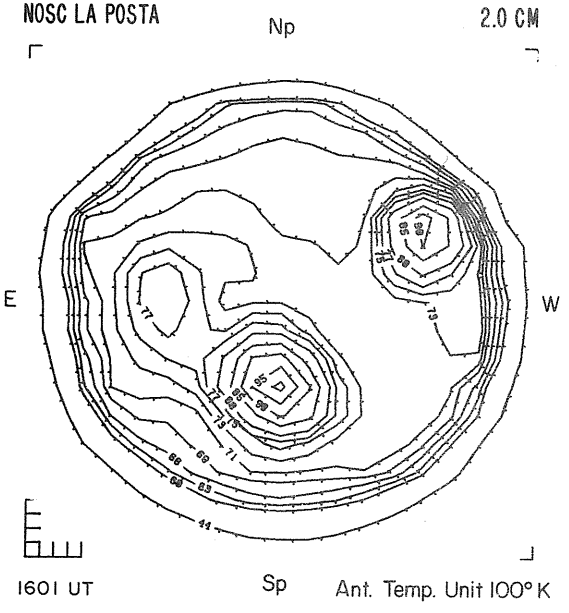
1603 UT

HALE OBSERVATORIES CALCIUM REPORT



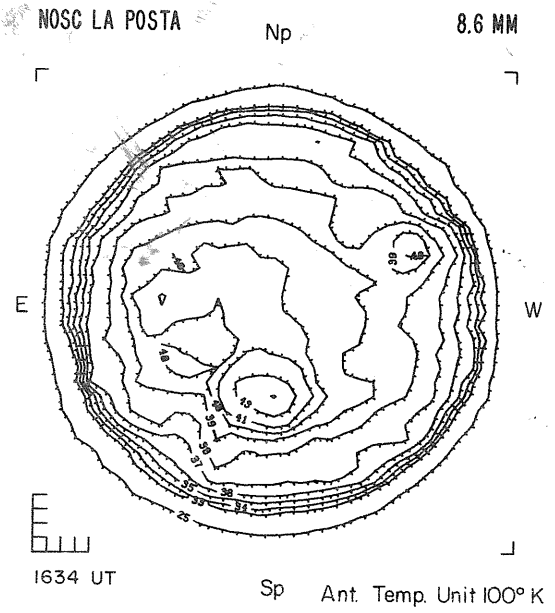
1512 UT

NOSC LA POSTA 2.0 CM



1601 UT Ant. Temp. Unit 100° K

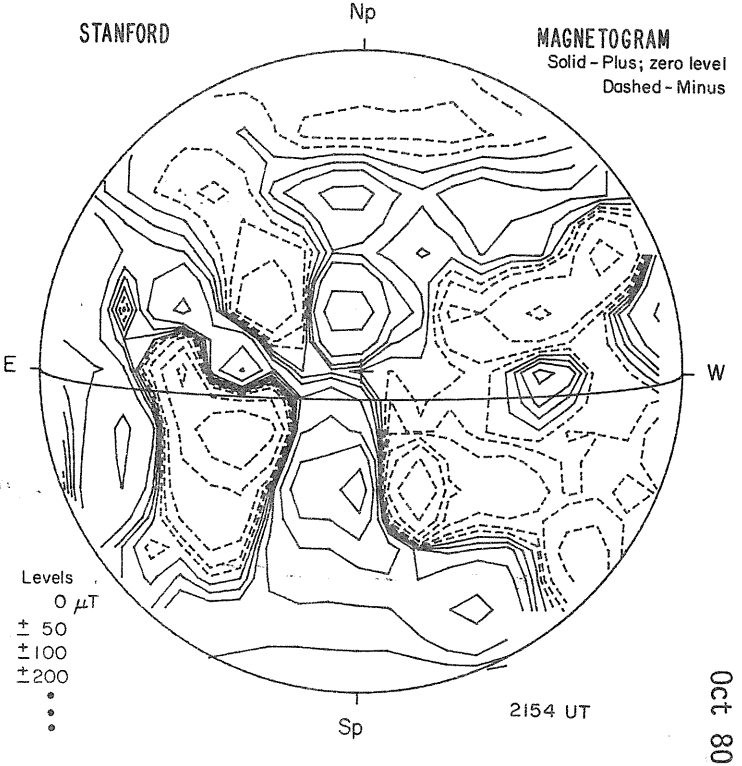
NOSC LA POSTA 8.6 MM



1634 UT Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

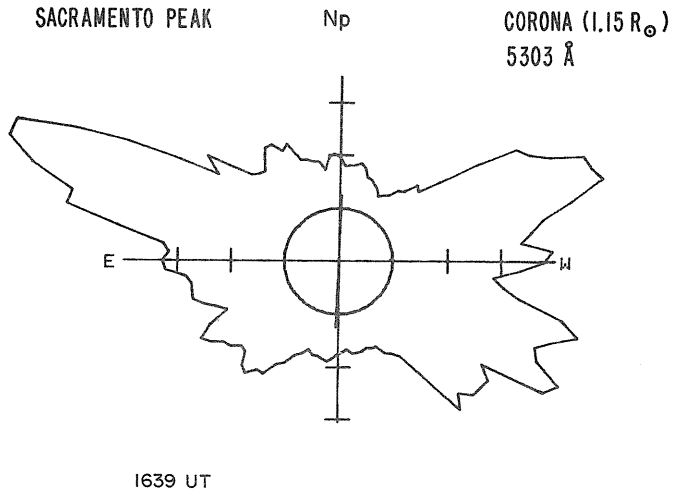
Solid - Plus; zero level
Dashed - Minus

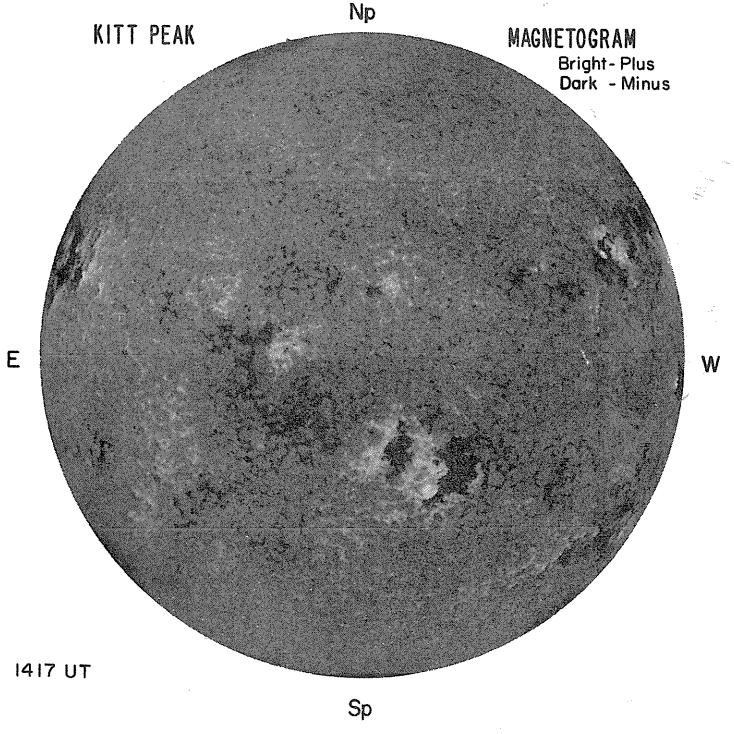


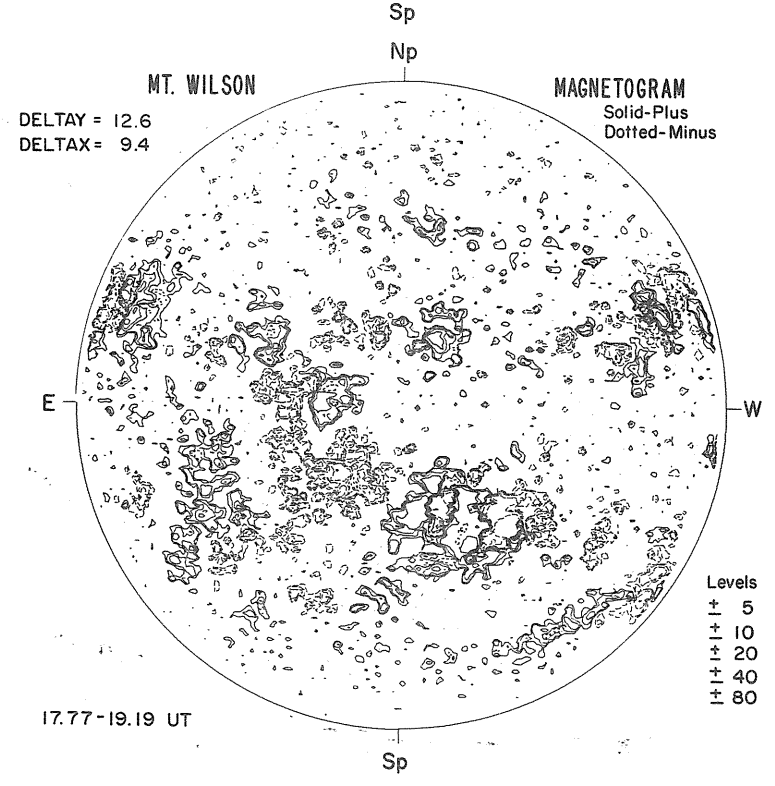
2154 UT

95
Oct 80

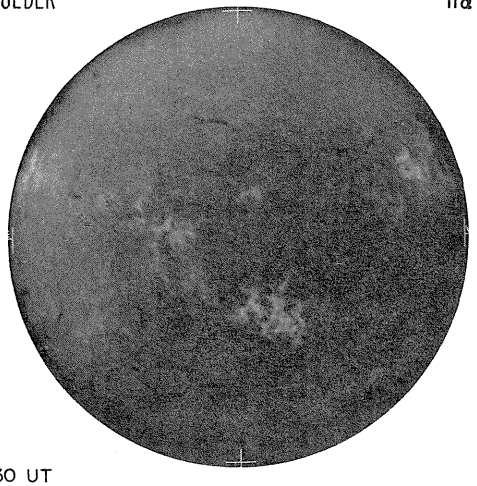
OCTOBER 24, 1980 (P = 25.60, B_o = 5.10, L_o = 343.84)







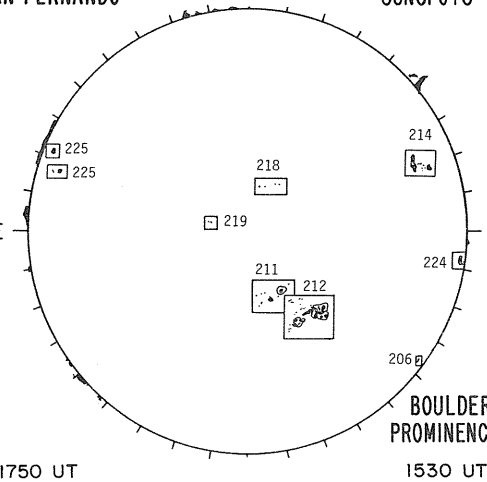
BOULDER Np Hα



E W

1530 UT Sp

SAN FERNANDO Np SUNSPOTS



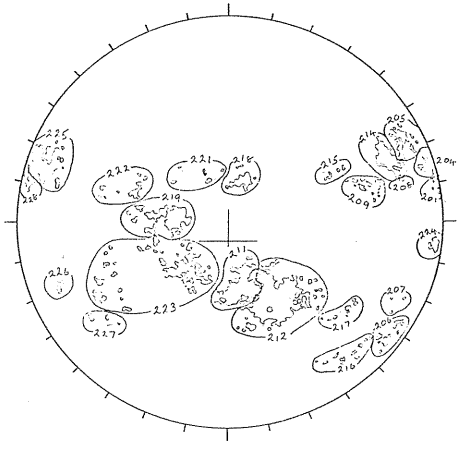
E W

1750 UT Sp

BOULDER PROMINENCES

1530 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1429 UT Sp

GOOD	JA

04- 1600-2.5
05- 1500-2.5
08- 0100-2.5
11- 3500-3.5
12- 7400-4.0
14- 2800-4.0
18- 0800-2.5
19- 2800-3.0
22- 0600-2.5
23- 3600-2.0
24- 1000-3.0
25- 5200-3.5
28- 1400-3.0

NOSC LA POSTA Np 2.0 CM

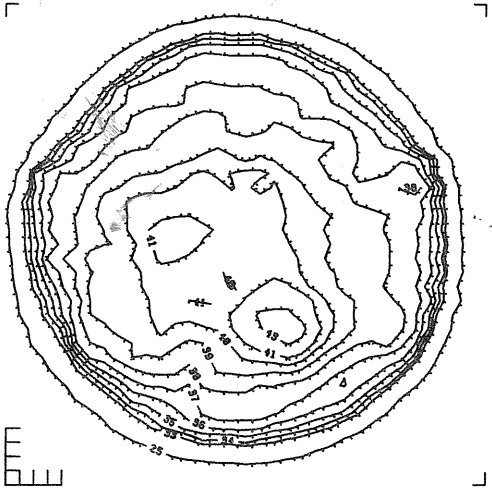
NO DATA

CALIBRATION

E W

1654 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

1718 UT Sp Ant. Temp. Unit 100° K

STANFORD Np

NO DATA

E W

Sp

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
±100
±200
•
•
•

97
Oct 80

OCTOBER 25, 1980 (P = 25.49, B_o = 5.01, L_o = 330.65)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

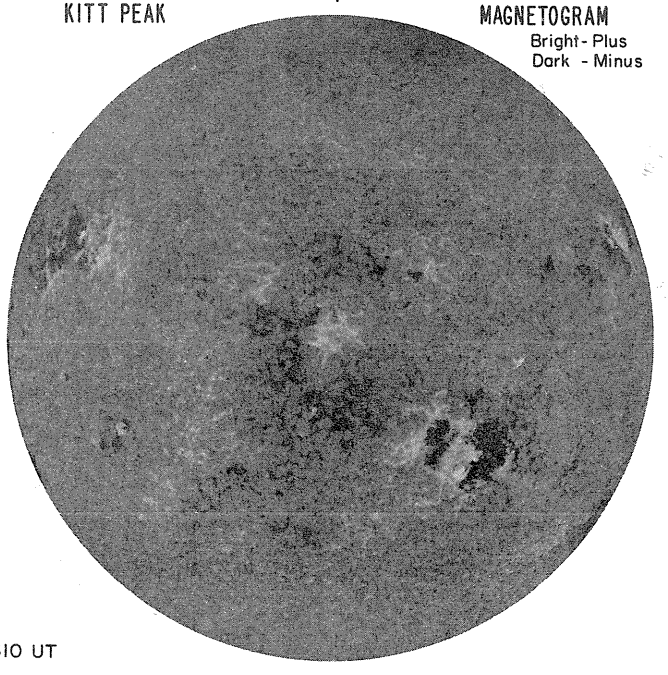
W

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1610 UT

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

NO DATA

W

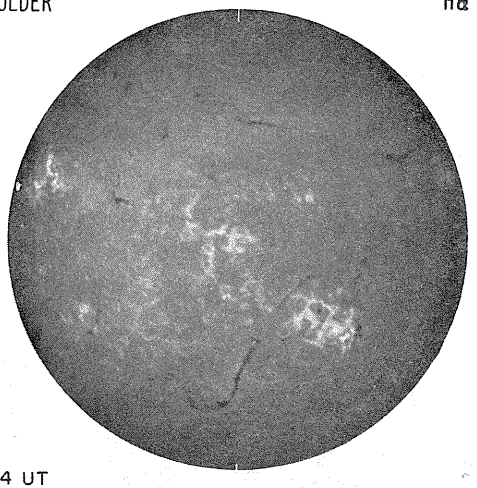
Levels
+ 5
++ 10
+++ 20
++++ 40
+++++ 80

Sp

BOULDER

Np

Hα



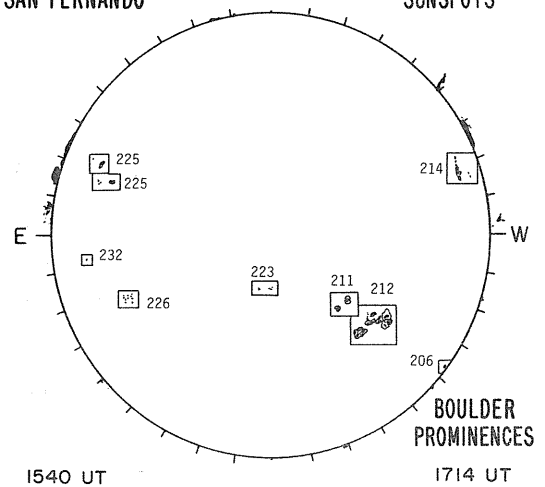
E W

1714 UT

Sp

SAN FERNANDO

Np



E W

1540 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

1714 UT

HALE OBSERVATORIES

Np

E W

NO DATA

Sp

CALCIUM REPORT

W

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

E W

NO DATA

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

± 100

± 200

W

Sp

99

Oct 80

OCTOBER 26, 1980 (P = 25.37, B_o = 4.92, L_o = 317.46)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

2341 UT

Sp

Np

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

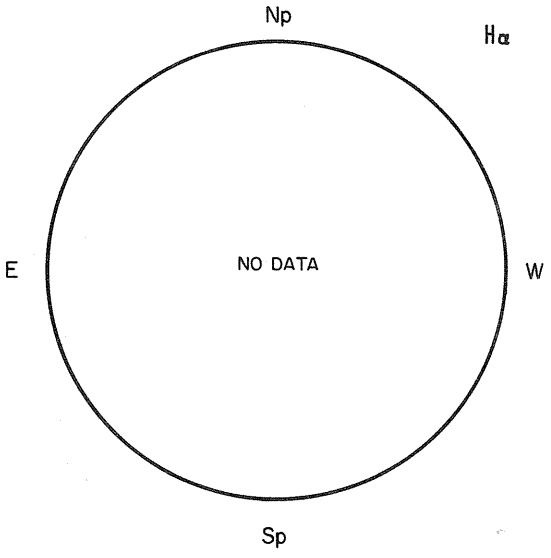
E

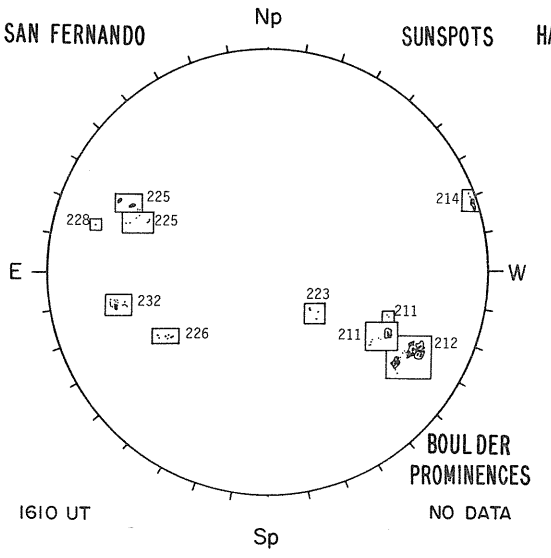
NO DATA

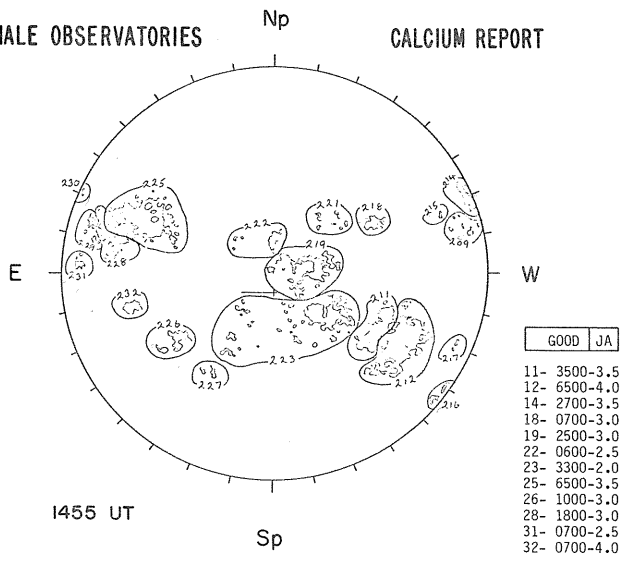
W

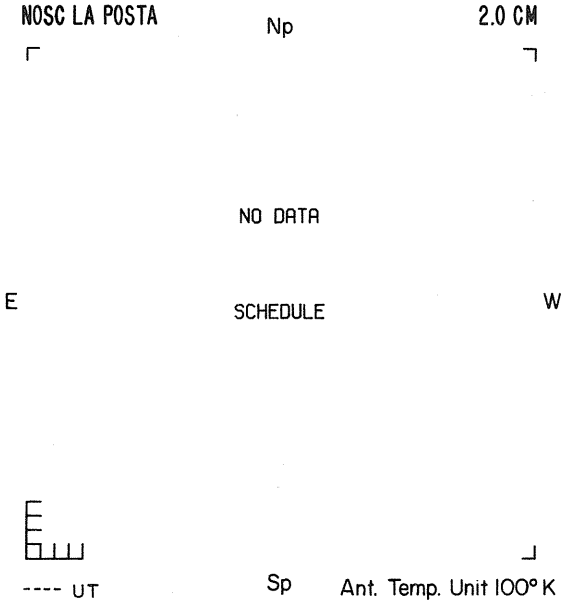
Levels
± 5
± 10
± 20
± 40
± 80

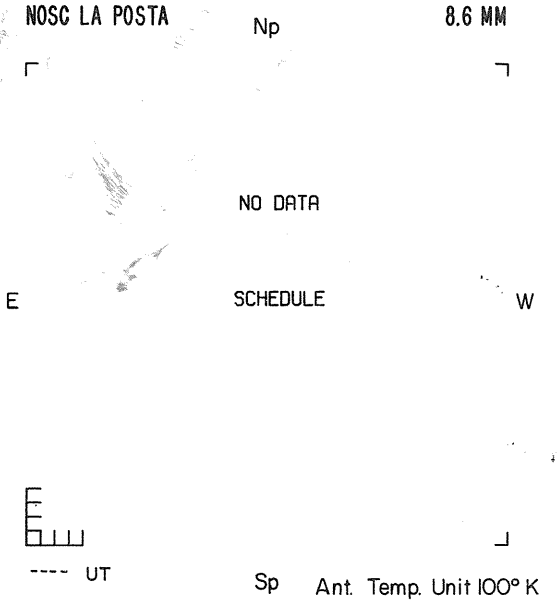
Sp

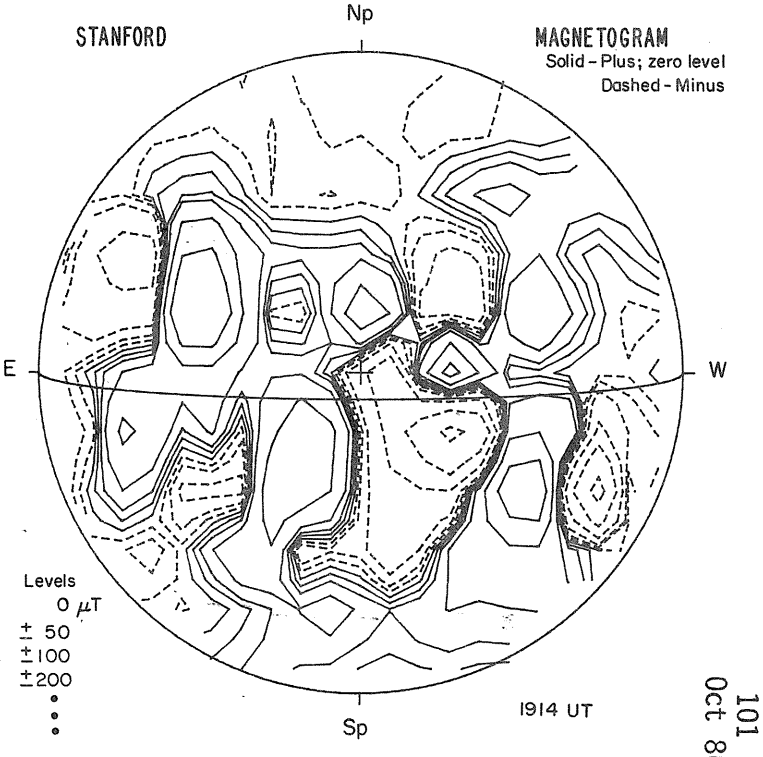

Np
Hα
NO DATA
E
W
Sp


SAN FERNANDO
Np
SUNSPOTS
225
225
228
214
232
223
211
211
212
226
E
W
BOULDER
PROMINENCES
1610 UT
NO DATA
Sp


HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
1455 UT
Sp
GOOD JA
11- 3500-3.5
12- 6500-4.0
14- 2700-3.5
18- 0700-3.0
19- 2500-3.0
22- 0600-2.5
23- 3300-2.0
25- 6500-3.5
26- 1000-3.0
28- 1800-3.0
31- 0700-2.5
32- 0700-4.0


NOSC LA POSTA
Np
2.0 CM
NO DATA
E
SCHEDULE
W
---- UT
Sp
Ant. Temp. Unit 100° K


NOSC LA POSTA
Np
8.6 MM
NO DATA
E
SCHEDULE
W
---- UT
Sp
Ant. Temp. Unit 100° K

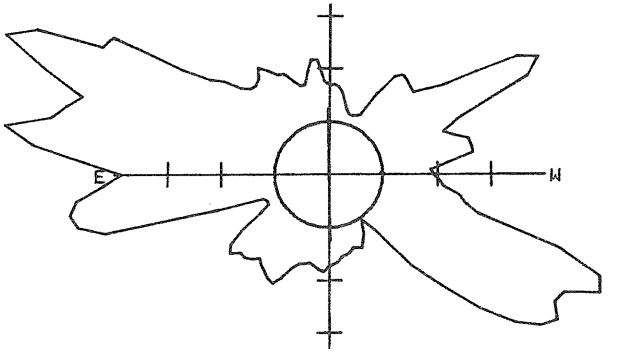

STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
1914 UT

101
Oct 80

OCTOBER 27, 1980 (P = 25.25, B_o = 4.82, L_o = 304.27)

SACRAMENTO PEAK

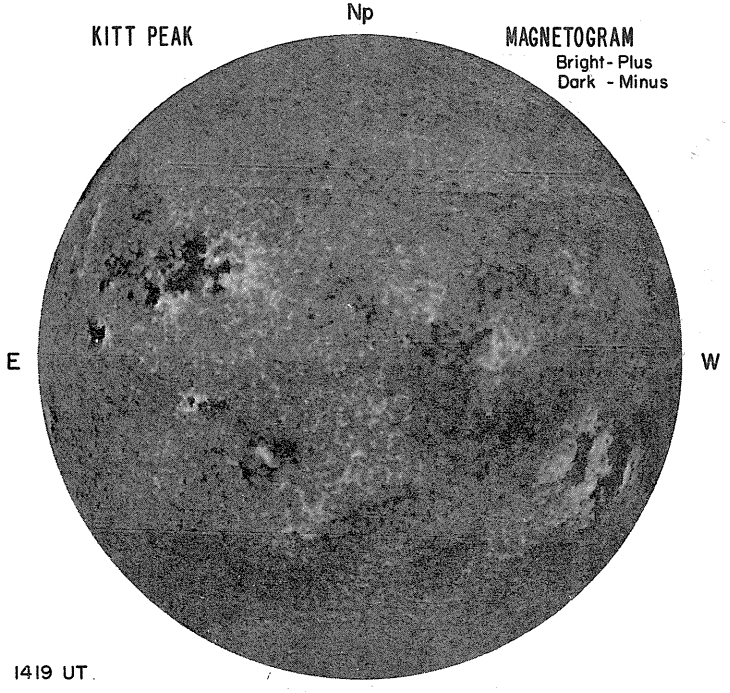
CORONA (1.15 $R_\odot$)
5303 Å



1719 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

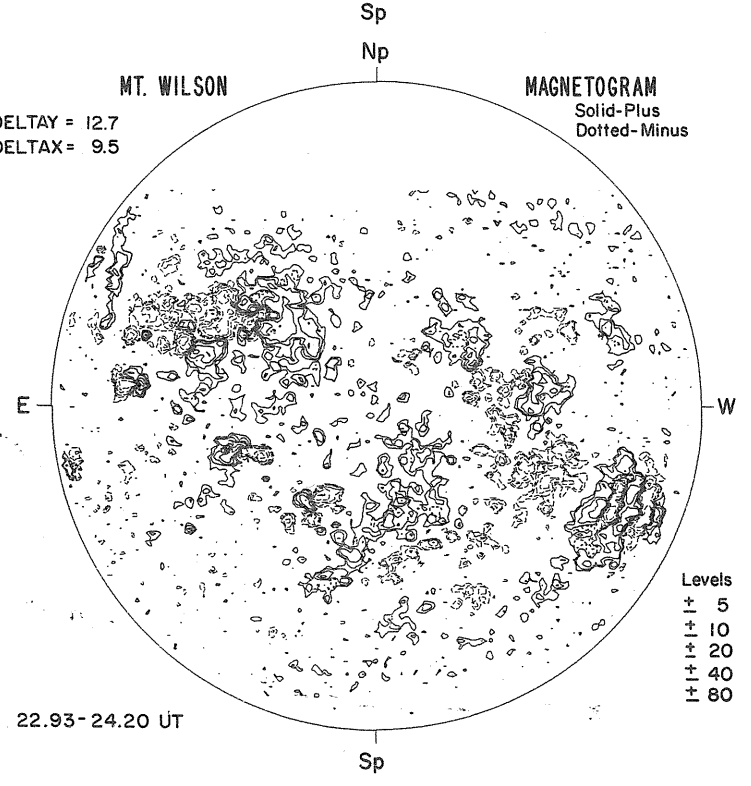


1419 UT

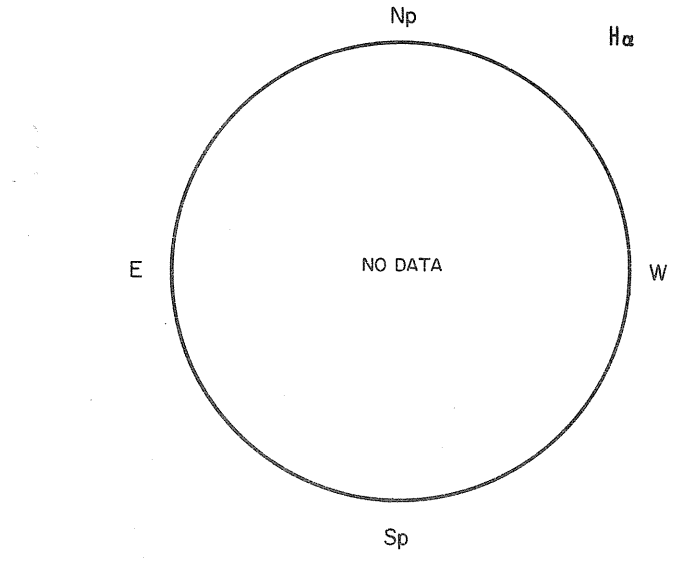
MT. WILSON

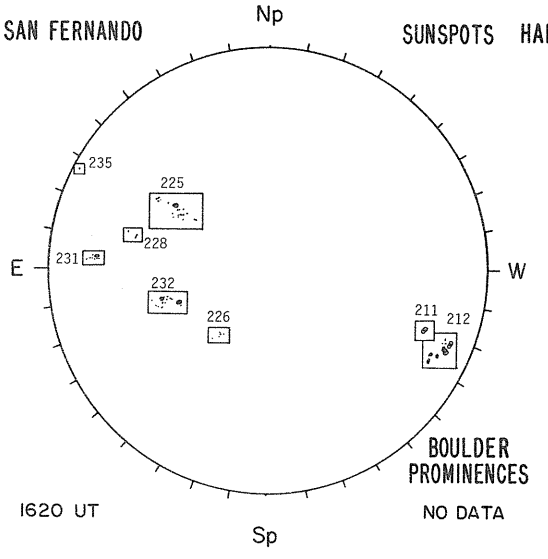
DELTAY = 12.7
DELTAX = 9.5

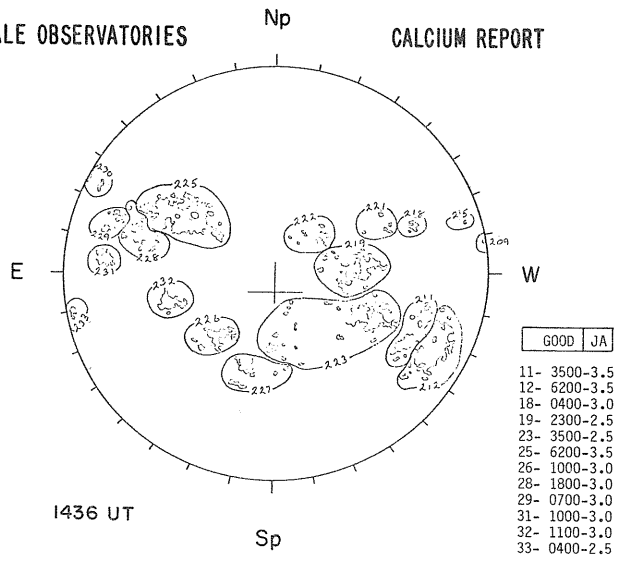
MAGNETOGRAM
Solid-Plus
Dotted-Minus

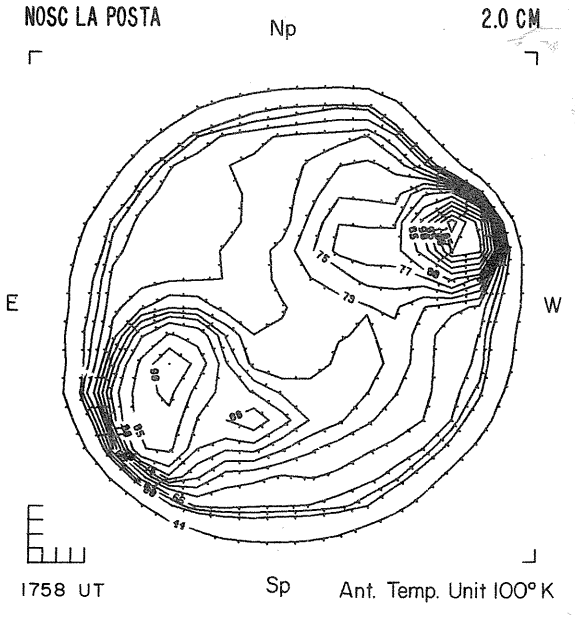


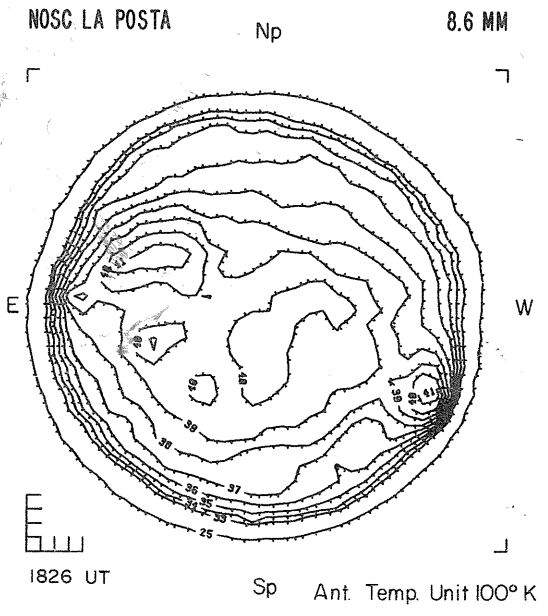
22.93-24.20 UT

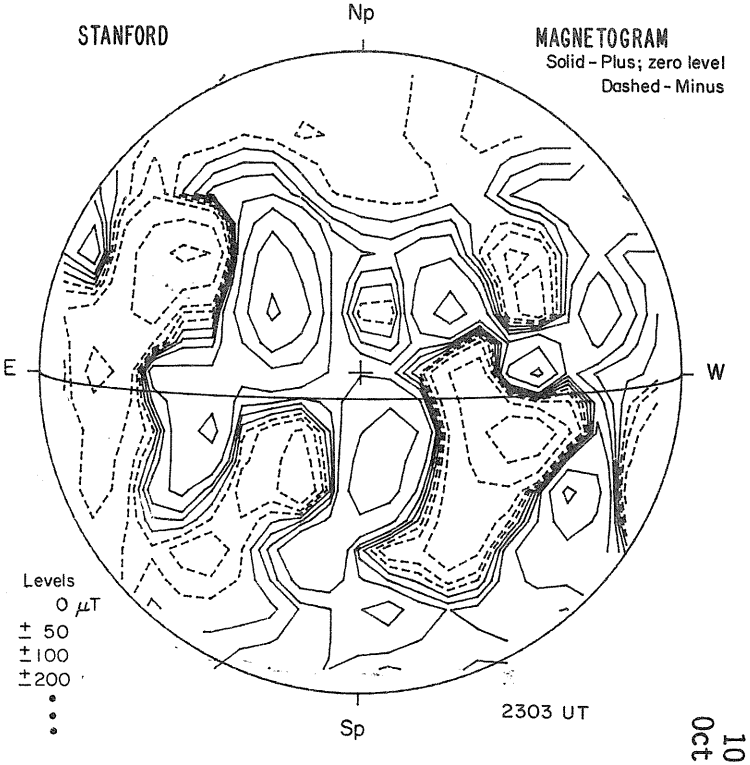

Np
Hα
E
NO DATA
W
Sp


SAN FERNANDO
Np
SUNSPOTS
E
W
235
225
228
231
232
226
211
212
BOULDER
PROMINENCES
NO DATA
1620 UT
Sp


HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
1436 UT
Sp
GOOD JA
11- 3500-3.5
12- 6200-3.5
18- 0400-3.0
19- 2300-2.5
23- 3500-2.5
25- 6200-3.5
26- 1000-3.0
28- 1800-3.0
29- 0700-3.0
31- 1000-3.0
32- 1100-3.0
33- 0400-2.5


NOSC LA POSTA
Np
2.0 CM
E
W
1758 UT
Sp
Ant. Temp. Unit 100° K


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


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
± 100
± 200
Sp
2303 UT

103
Oct 80

OCTOBER 28, 1980 (P = 25.12, B_o = 4.73, L_o = 291.08)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

2255 UT

Sp

MT. WILSON

Sp

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E

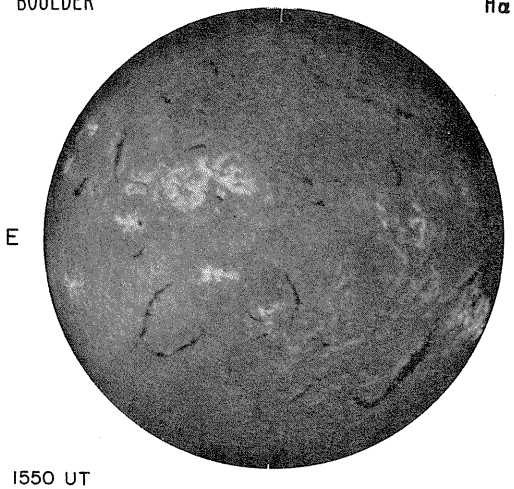
W

Levels
± 5
± 10
± 20
± 40
± 80

16.86-18.10 UT

Sp

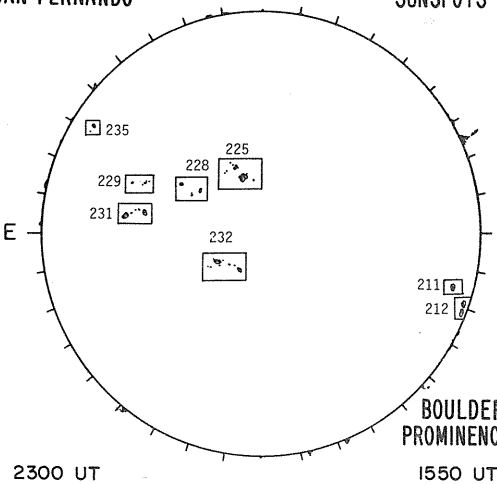
BOULDER Np Hα



E W

1550 UT Sp

SAN FERNANDO Np SUNSPOTS



E W

2300 UT Sp

BOULDER PROMINENCES

1550 UT

HALE OBSERVATORIES Np CALCIUM REPORT

E NO DATA W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

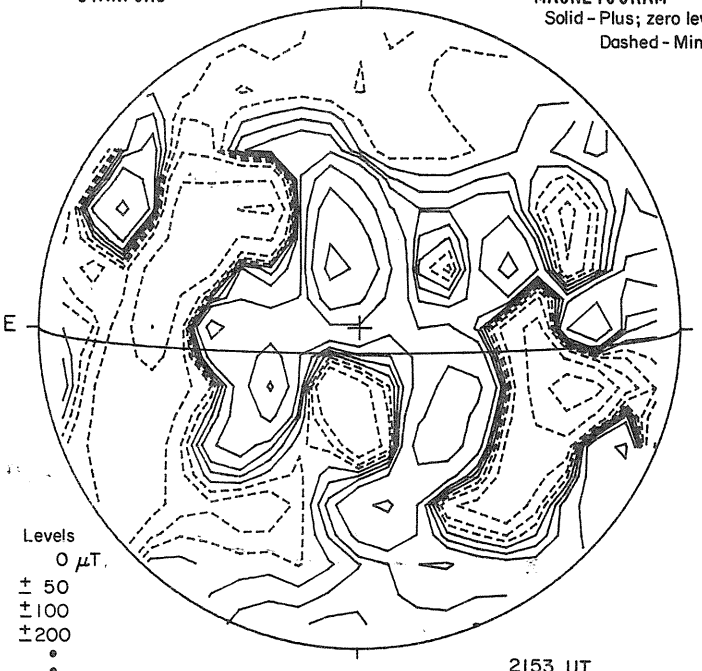
E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

± 100

± 200

Sp 2153 UT

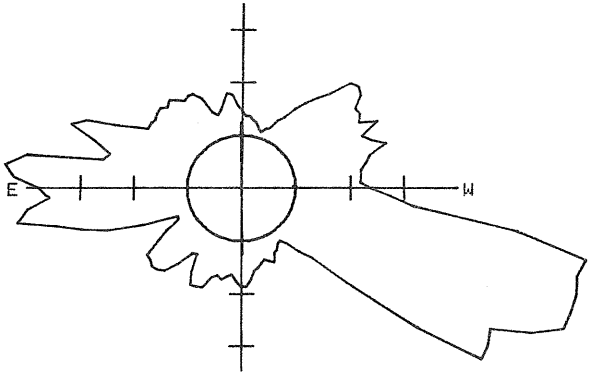
105

Oct 80

OCTOBER 29, 1980 (P = 24.98, B_o = 4.63, L_o = 277.90)

SACRAMENTO PEAK

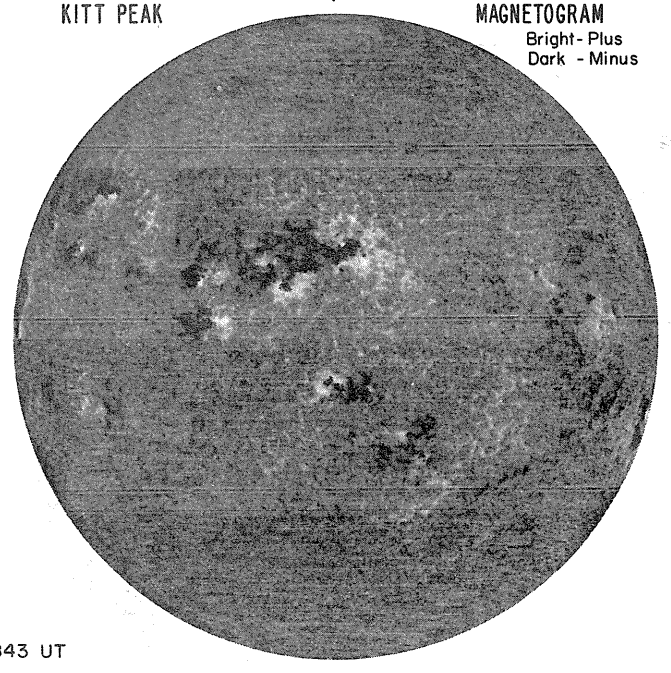
CORONA (1.15 $R_\odot$)
5303 Å



1546 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

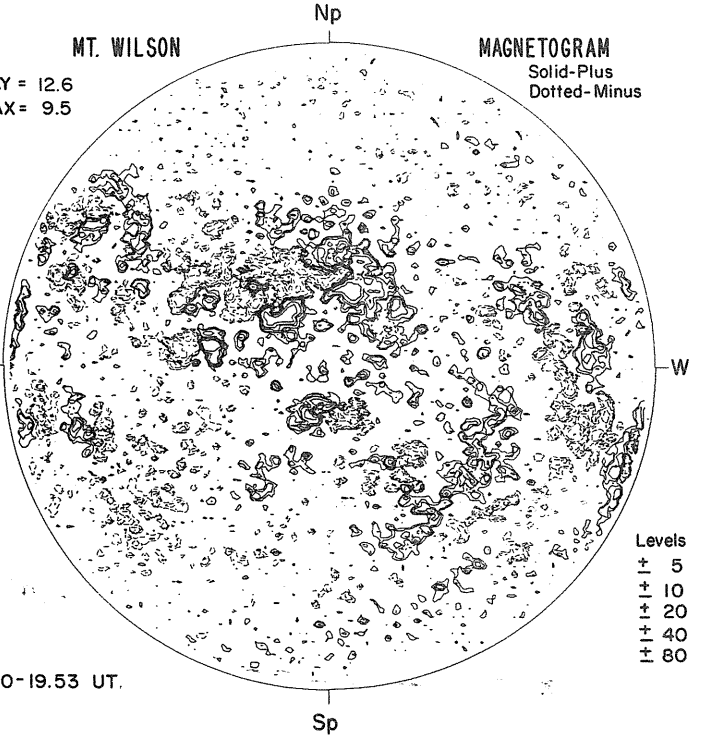


1843 UT

MT. WILSON

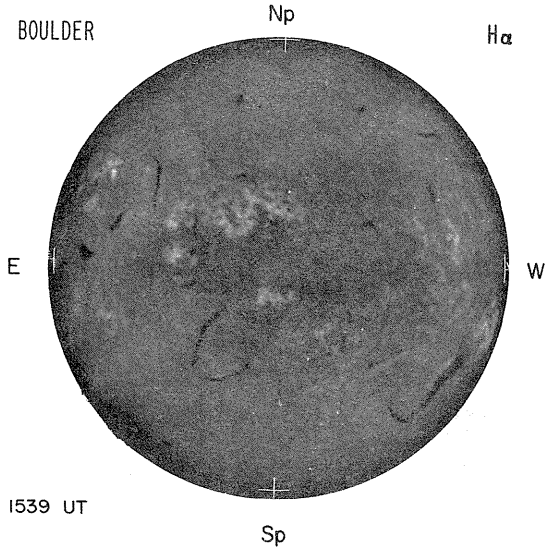
DELTAY = 12.6
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus



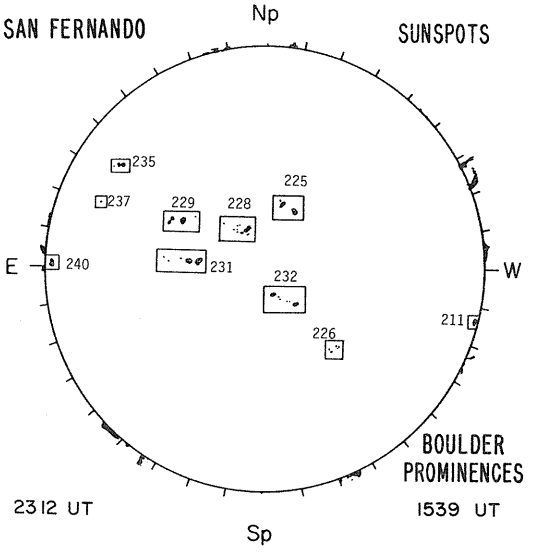
18.10-19.53 UT.

BOULDER Hα



1539 UT

SAN FERNANDO SUNSPOTS

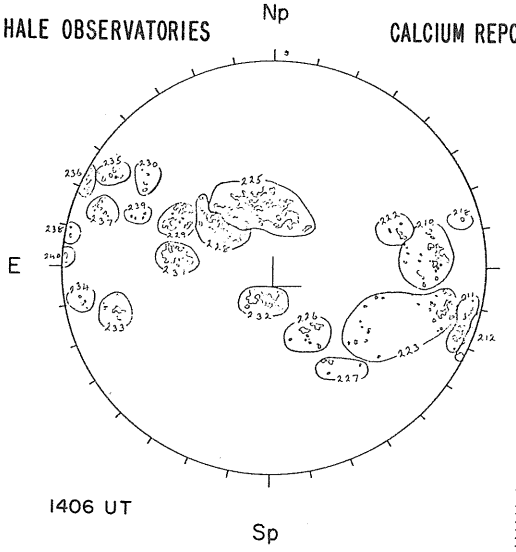


2312 UT

BOULDER PROMINENCES

1539 UT

HALE OBSERVATORIES CALCIUM REPORT

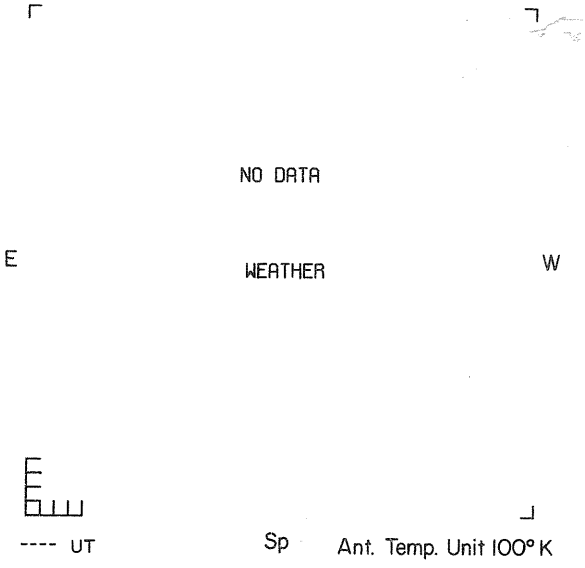


1406 UT

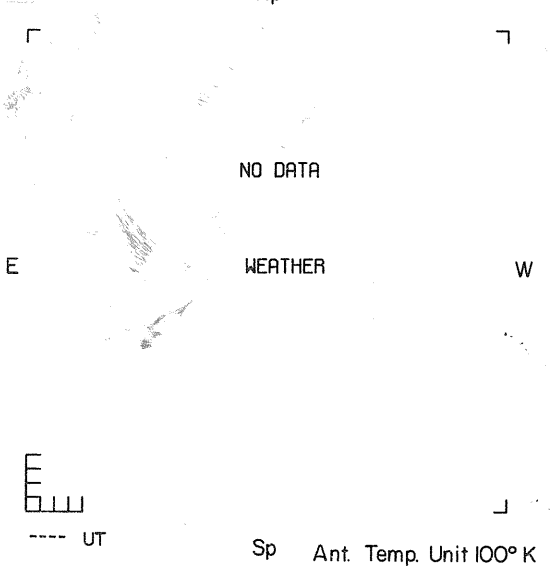
GOOD	JA

11- 2400-3.0
12- 5800-3.0
19- 1700-2.5
22- 0300-2.5
25- 5600-3.5
26- 1000-3.5
28- 1500-3.0
29- 0800-4.0
31- 1500-3.5
32- 1100-3.0
35- 0700-3.5
36- 1000-3.0
37- 0500-2.5
40- 0900-4.0

NOSC LA POSTA 2.0 CM

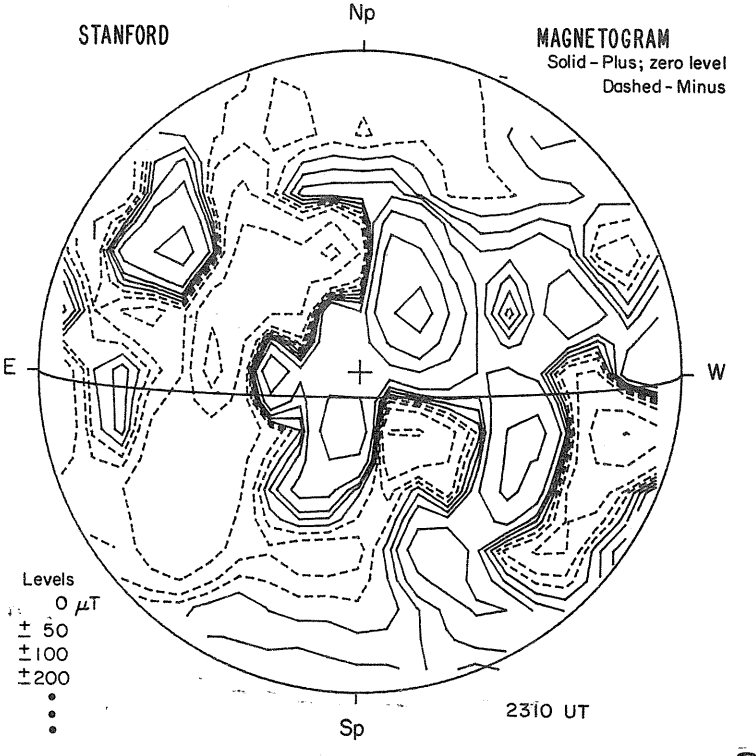


NOSC LA POSTA 8.6 MM



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

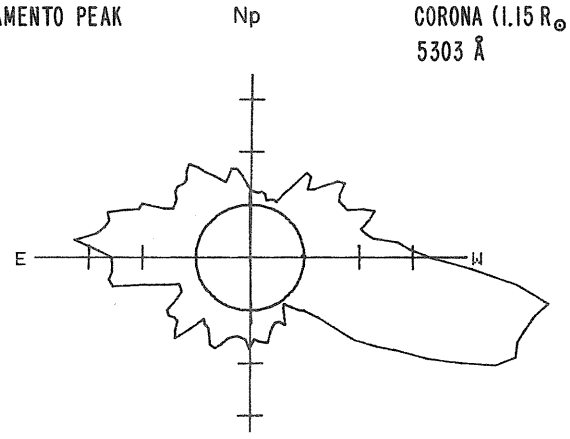


2310 UT

107
Oct 80

OCTOBER 30, 1980 (P = 24.83, B_o = 4.53, L_o = 264.71)

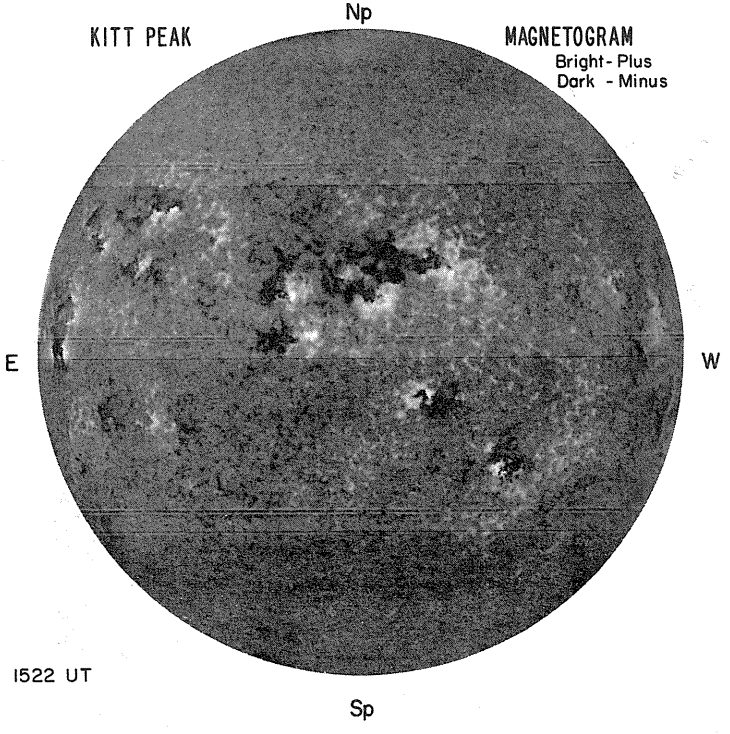
SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

2223 UT

KITT PEAK

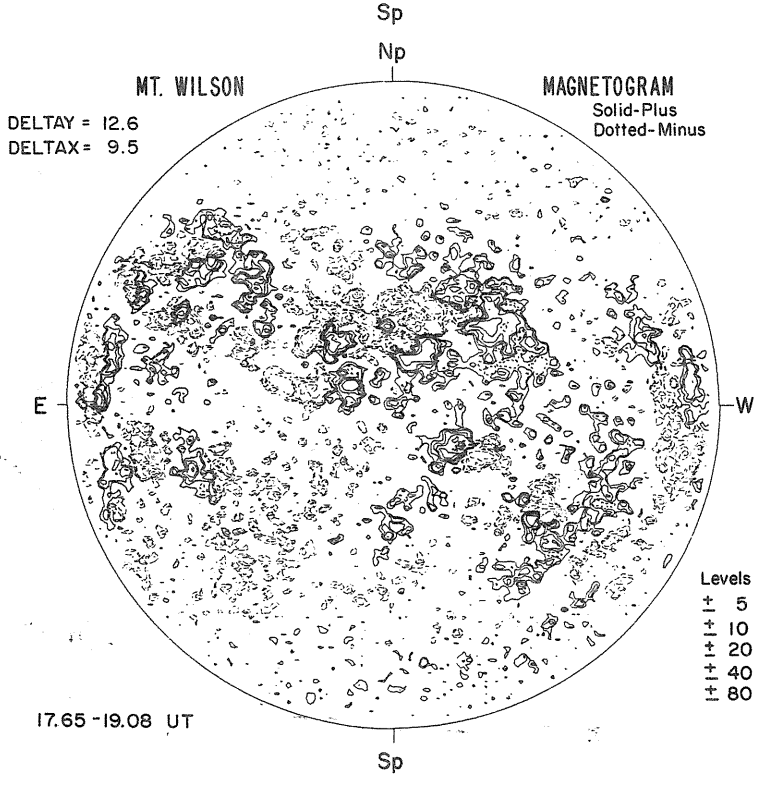


MAGNETOGRAM
Bright - Plus
Dark - Minus

1522 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

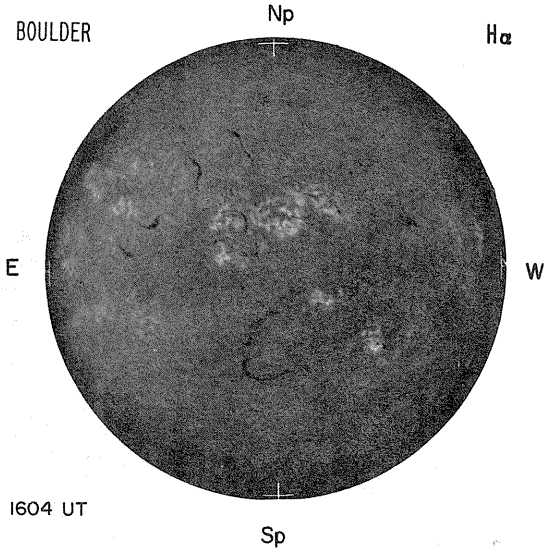


MAGNETOGRAM
Solid-Plus
Dotted-Minus

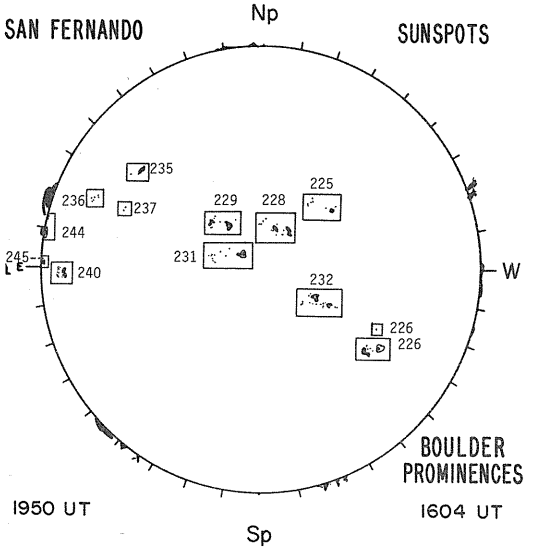
Levels
± 5
± 10
± 20
± 40
± 80

17.65 - 19.08 UT

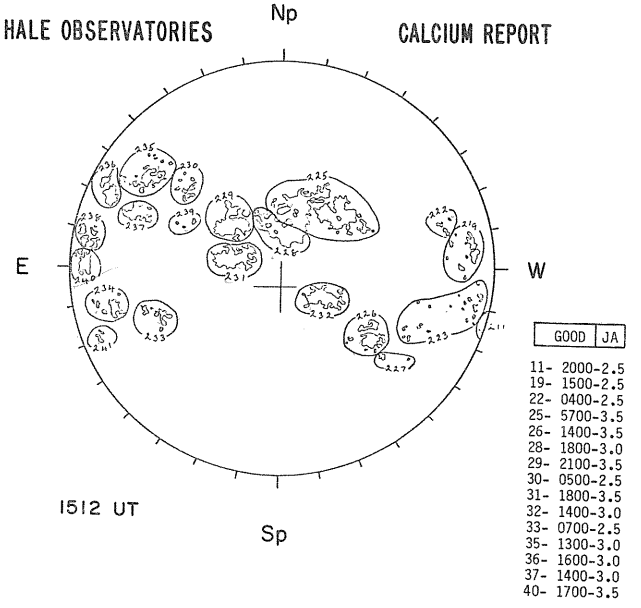
BOULDER



SAN FERNANDO



HALE OBSERVATORIES



BOULDER PROMINENCES

1604 UT

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

109

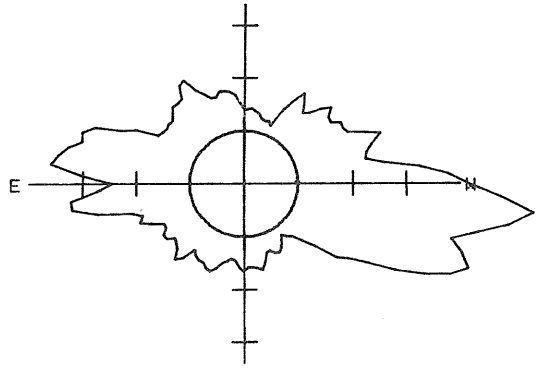
Oct 80

OCTOBER 31, 1980 (P = 24.67, B_o = 4.43, L_o = 251.52)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



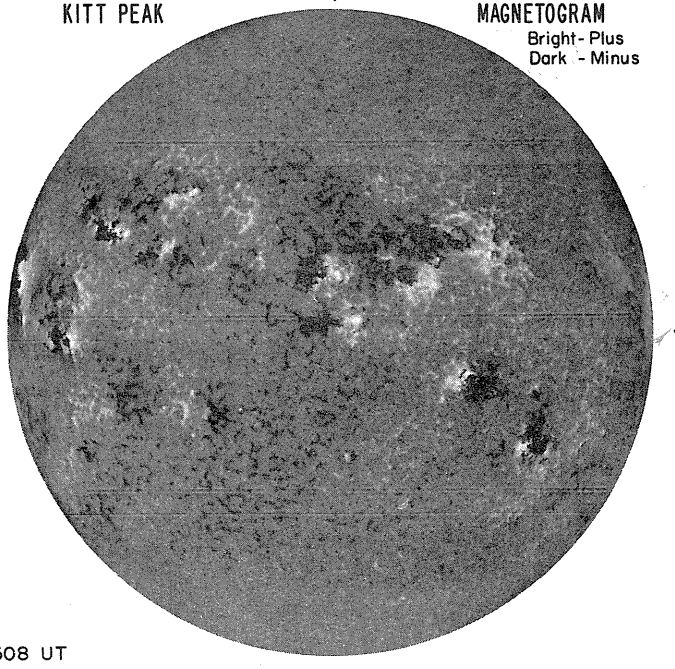
1426 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

508 UT

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Hα

Np

E NO DATA W

Sp

SAN FERNANDO SUNSPOTS

Np

E W

235 236 244 245 240 229 228 225 231 232 226

2112 UT

Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT

Np

E W

1534 UT

Sp

FAIR	JA
25-	5900-3.5
26-	1200-3.0
27-	0300-2.5
28-	2000-3.0
29-	2000-3.5
30-	0500-2.5
31-	1400-3.5
32-	1700-3.0
33-	0900-2.5
35-	1400-2.5
36-	2300-3.0
37-	1200-3.0
40-	1400-3.0
42-	0200-3.0
43-	0200-2.5
44-	4000-4.0
45-	0800-3.0

NOSC LA POSTA

Np

2.0 CM

NO DATA

E WEATHER W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E WEATHER W

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E NO DATA W

Levels

0 μT

± 50

±100

±200

Sp

111

Oct 80

REGIONS OF SOLAR ACTIVITY

OCTOBER 1980

HALE REGION 17173 CMP DATE 2.6 TRAILING PORTION IS 17092, REST IS NEW ROTATIONS 2 AND 1

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	26	17173						21775	N19	E88	256	(X)	2	R	30	7	BXO
80	09	26	17173						21774	N22	E58	286	(X)	1				
80	09	27	17173	N22	E56	271	2700	3.5	21775	N20	E70	261	(AF)	3	B	80	4	DSI
80	09	28	17173	N22	E47	267	5500	3.5	21775	N21	E58	260	(BF)	3	B	110	3	CSO
80	09	29	17173	N22	E35	268	4400	3.5	21775	N21	E45	260	(AF)	4	H	30	3	CAO
80	09	30	17173	N22	E22	267	4000	3.5	21775	N21	E30	262	(BF)	4	H	70	17	DAO
80	10	1	17173						21775	N22	E17	261	(BF)	4	H	130	30	DAI
80	10	1	17173						21788	N21	E07	271	(AP)	2	B	50	13	DSO
80	10	2	17173	N23	W01	266	3700	3.5	21788	N21	W08	273	AP	2	M	20	6	CSO
80	10	2	17173	N23	W01	266	3700	3.5	21775	N21	E03	262	(B)	3	H	80	13	DAO
80	10	3	17173	N24	W14	265	3500	3.5	21788	N21	W22	274	(AF)	2	B		1	AXX
80	10	3	17173	N24	W14	265	3500	3.5	21775	N21	W09	261	(AF)	3	H	20	3	CRO
80	10	4	17173	N23	W27	264	3100	3.5	21775	N20	W20	259	(AF)	3	H	10	2	BXO
80	10	4	17173	N23	W27	264	3100	3.5	21788	N21	W31	270	(AP)	3	H		1	AXX
80	10	5	17173	N24	W38	262	3000	3.5	21788	N22	W44	269	(AP)	2				
80	10	5	17173	N24	W38	262	3000	3.5	21802	N33	W36	261	(B)	2	B	10	1	AXX
80	10	6	17173	N24	W51	261	2400	3.5	21775	N22	W50	262	(AF)	2				
80	10	6	17173	N24	W51	261	2400	3.5	21805	N17	W57	269	(AP)	2	L		2	AXX
80	10	8	17173	N24	W76	259	600	3.0										

HALE REGION 17172 CMP DATE 3.1

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	26	17172						21773	N28	E78	266	(AP)	3	B	80	1	HSX
80	09	27	17172	N31	E64	263	300	3.0	21773	N29	E65	266	(AP)	4	B	60	1	HSX
80	09	28	17172	N31	E53	261	600	3.0	21773	N29	E52	266	(BP)	4	B	90	2	HSX
80	09	29	17172	N31	E42	261	400	2.5	21773	N29	E39	266	(AP)	4	H	50	1	HSX
80	09	30	17172	N30	E30	259	200	3.0	21773	N30	E27	265	(AP)	4	H	40	1	HSX
80	10	1	17172						21773	N29	E13	265	(AP)	4	H	40	4	HAX
80	10	2	17172	N32	E05	260	100	2.5	21773	N29	W00	265	(AP)	4	H	20	2	CSO
80	10	3	17172						21773	N29	W14	266	(AP)	2	H		1	AXX

HALE REGION 17174 CMP DATE 3.9 LEADING EDGE IS 17093, REST IS NEW ROTATIONS 2 AND 1

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	27	17174	N15	E76	251	1100	4.0	21779	N14	E80	251	(BP)	4	B	270	12	ESI
80	09	28	17174	N15	E64	250	2000	4.0	21779	N14	E69	249	(BY)	4	B	880	33	EHI
80	09	29	17174	N16	E52	251	3200	4.0	21779	N15	E55	250	(BY)	4	H	230	25	DKI
80	09	30	17174	N16	E38	251	3400	4.5	21779	N15	E42	250	(BY)	5	H	290	26	EKO
80	10	1	17174						21790	N15	E19	259	(B)	3	H	400	37	EAI
80	10	1	17174						21779	N15	E28	250	(BY)	4	H	400	37	EAI
80	10	2	17174	N15	E16	249	3400	4.0	21779	N15	E15	250	(B)	4	H	150	30	ESI
80	10	3	17174	N16	E03	248	3200	4.0	21779	N14	W00	252	(B)	4	P	220	26	DAI
80	10	4	17174	N16	W12	249	3300	4.0	21779	N13	W13	252	(BP)	4	H	140	28	DAI
80	10	5	17174	N16	W25	249	3100	4.0	21779	N13	W25	250	(B)	4	B	100	21	DRO
80	10	6	17174	N16	W37	247	3700	3.5	21779	N13	W37	249	(B)	4	B	110	18	DSI
80	10	7	17174						21779	N14	W53	252	(BP)	4	H	80	6	DSO
80	10	8	17174	N15	W66	249	1800	3.5	21779	N14	W65	251	(B)	3	B	120	5	DRO
80	10	9	17174	N15	W79	249	2200	3.5	21779	N14	W77	250	B	1	H	40	3	DAO

HALE REGION 17175 CMP DATE 5.3 17095 AND REAR OF 17096 ROTATION 2 AND 7

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	09	29	17175	N15	E75	228	500	2.5		N15	E82				H		1	AXX
80	09	30	17175	N16	E63	226	1600	3.5		N14	E72				B	10	1	HRX
80	10	2	17175	N18	E34	231	2000	3.0		N14	E44				M	70	8	ESO
80	10	3	17175	N18	E23	228	1300	3.0		N14	E33				B	30	4	CRO
80	10	4	17175	N20	E07	230	1200	3.0	21797	N17	E12	227	(AF)	4	H		1	AXX
80	10	5	17175	N18	W05	229	1100	3.0										

REGIONS OF SOLAR ACTIVITY

OCTOBER 1980

HALE REGION 17175 (CONT) CMP DATE 5.3 17095 AND REAR OF 17096 ROTATION 2 AND 7

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	6	17175	N18	W20	230	1100	3.0
80	10	8	17175	N18	W45	228	1200	3.0
80	10	9	17175	N15	W65	235	300	3.0
80	10	10	17175	N14	W78	237	1000	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21806	N19	W15	227	(AP)	3	B		1	AXX
	N13	W35				P	20	4	BXO
	N13	W73				L	50	10	EAO

HALE REGION 17177 CMP DATE 6.6

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	09	29	17177					
80	09	30	17177					
80	10	1	17177					
80	10	2	17177	N15	E51	214	2600	3.5
80	10	2	17177	N15	E51	214	2600	3.5
80	10	3	17177	N15	E37	214	2200	3.5
80	10	4	17177	N16	E23	214	2100	3.5
80	10	5	17177	N16	E11	213	1900	3.5
80	10	6	17177	N15	W03	213	1600	3.5
80	10	6	17177	N15	W03	213	1600	3.5
80	10	7	17177					
80	10	8	17177	N15	W29	212	1500	3.5
80	10	9	17177	N14	W42	212	3900	3.5
80	10	10	17177	N14	W55	214	3300	2.0
80	10	11	17177	N15	W67	214	1300	3.0
80	10	12	17177	N16	W75	209	700	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21782	N15	E85	220	X	2	H		1	AXX
21782	N15	E77	215	(B)	4	H	60	5	CAO
21782	N15	E64	214	(BF)	4	H	60	14	ESO
21782	N15	E49	216	(B)	4	H	60	13	EAO
21792	N16	E61	204	(AP)	3	M	180	10	EAO
21782	N15	E35	217	(B)	3	H	50	12	CSO
21782	N15	E22	217	(B)	3	H	30	12	BXO
21782	N16	E10	215	(B)	3	B	60	7	CSO
21782	N15	W02	214	(AF)	3	B	10	4	BXO
21807	N10	W02	214	(AF)	2	B	10	4	BXO
21782	N15	W16	215	(B)	2	H	30	7	CRO
21782	N15	W27	213	(AF)	3	R	10	5	BXO
21782	N15	W45	218	(AP)	3				
21782	N15	W59	218	AP	1	L		1	AXX

HALE REGION 17192 CMP DATE 6.9

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	8	17192	S08	W25	208	100	2.5
80	10	9	17192	S07	W38	208	300	3.0
80	10	10	17192	S07	W48	207	300	2.5
80	10	11	17192	S07	W62	209	100	2.5
80	10	12	17192	S06	W75	209	100	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21815	S07	W34	207	(AF)	2	H	10	3	BXO
21815	S07	W48	207	B	2	B	10	1	AXX

HALE REGION 17178 CMP DATE 7.9

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	2	17178	S06	E69	196	500	3.5
80	10	3	17178	S06	E56	195	300	3.5
80	10	4	17178	S06	E39	198	300	3.5
80	10	5	17178	S05	E28	196	500	3.5
80	10	6	17178	S06	E14	196	400	3.0
80	10	8	17178	S07	W15	198	200	3.0
80	10	9	17178	S05	W27	197	300	3.5
80	10	10	17178	S04	W39	198	200	1.5
80	10	11	17178	S04	W53	200	100	2.5
80	10	12	17178	S03	W67	201	100	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21796	S08	E57	195	(AP)	2	H	10	2	BXO
21798	S06	E40	199	(AP)	2				
	S10	E36				B	40	6	DSO
	S09	E23				B	10	2	BXO
	S08	W06				B	20	9	BXO
	S07	W34				H	10	3	BXO
	S07	W33				B	150	10	DAI
	S09	W46				H	110	16	DAI
	S08	W62				H	120	12	DAO

REGIONS OF SOLAR ACTIVITY

OCTOBER 1980

HALE REGION 17179 CMP DATE 8.0 RETURN OF REGION 17106 ROTATION 2 AND 6

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	2	17179	S24	E72	193	400	3.0	21793	S25	E71	194	(AP)	2	H	120	1	HSX
80	10	3	17179	S26	E55	196	700	3.0	21793	S26	E58	194	(AP)	3	H	140	2	HAX
80	10	4	17179	S26	E40	197	300	3.0	21793	S25	E45	194	(AP)	4	H	140	2	HAX
80	10	5	17179	S24	E32	192	700	3.0	21793	S26	E32	193	(AP)	4	B	80	1	HSX
80	10	6	17179	S23	E20	190	400	3.0	21793	S25	E19	193	(AP)	4	B	80	1	HSX
80	10	7	17179						21793	S26	E06	193	(AP)	3	H	50	1	HSX
80	10	8	17179	S28	W11	194	400	3.0	21793	S26	W06	192	(AP)	4	B	50	2	CSO
80	10	9	17179	S24	W24	194	800	3.0	21793	S27	W18	191	(AP)	4	H	50	1	HSX
80	10	10	17179	S25	W36	195	500	2.0	21793	S27	W31	190	(AP)	3	B	40	1	HSX
80	10	11	17179	S25	W46	193	500	3.0	21793	S27	W45	191	(AP)	4	H	20	1	HSX
80	10	12	17179	S24	W53	187	500	2.0	21793	S27	W57	190	(AP)	3	H	10	1	HAX
80	10	13	17179	S26	W70	190	200	2.0	21793	S27	W70	189	(AP)	2	L	60	1	HAX

HALE REGION 17185 CMP DATE 8.2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	5	17185	S07	E37	187	300	3.0	21803	S09	E38	187	(B)	3	B	40	6	DSO
80	10	6	17185	S08	E23	187	200	3.5	21803	S08	E20	192	(BY)	3	B	10	2	BXO
80	10	7	17185						21803	S08	E05	194	(AP)	3	H	30	2	CSO
80	10	8	17185	S10	W08	191	300	3.5	21803	S09	W07	193	(BP)	4	B	20	9	BXO
80	10	9	17185	S08	W21	191	1300	3.5	21803	S09	W18	191	(B)	4	H	60	8	DAO
80	10	10	17185	S08	W33	192	1600	3.5	21803	S09	W33	192	(B)	3	B	150	10	DAI
80	10	11	17185	S08	W46	193	1500	3.0	21803	S08	W47	193	(B)	4	H	110	16	DAI
80	10	12	17185	S07	W61	195	1900	3.0	21803	S08	W61	194	(B)	3	H	120	12	DAO
80	10	13	17185	S07	W75	195	0		21803	S07	W74	193	(B)	3	H	60	5	DAO
80	10	14	17185	S09	W88	195	800	1.5										

HALE REGION 17200 CMP DATE 8.4

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	11	17200	N02	W42	189	100	2.5		N07	W34				H	50	11	CAO
80	10	12	17200	N03	W55	189	100	2.5		N06	W47				H	50	7	CSO

HALE REGION 17193 CMP DATE 8.7

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	8	17193	S18	W02	185	100	3.0		S18	W04				M	10	3	BXO
80	10	9	17193	S17	W16	154	800	3.0	21816	S18	W13	186	(B)	3	H	30	8	CRO
80	10	10	17193	S17	W27	186	800	3.5	21816	S18	W26	185	(B)	4	B	60	12	DAO
80	10	11	17193	S17	W40	187	700	3.0	21816	S17	W41	187	(B)	4	H	70	10	CAO
80	10	12	17193	S17	W55	189	900	2.0	21816	S17	W56	189	(BP)	3	H	60	1	HAX
80	10	13	17193	S17	W68	188	800	2.0	21816	S16	W71	190	(AP)	3	H	60	1	HSX
80	10	14	17193	S18	W81	188	300	2.0										

HALE REGION 17180 CMP DATE 8.8 FRONT PART OF 17113 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	3	17180	N13	E75	176	400	3.0										
80	10	4	17180	N13	E55	182	100	3.0										
80	10	5	17180	N14	E44	180	300	3.0										
80	10	6	17180	N13	E27	183	200	3.0	21808	N12	E30	182	(AP)	3	B		1	AXX
80	10	8	17180	N09	W01	184	200	3.0										
80	10	9	17180	N09	W13	183	400	3.5		N07	W03				H	10	3	BXO
80	10	10	17180	N09	W24	183	400	2.0		N05	W22				P	40	5	ESO

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HALE REGION 17180 (CONT) CMP DATE 8.8 FRONT PART OF 17113 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	11	17180	N12	W38	185	500	2.5		N07	W34				H	50	11	CAO
80	10	12	17180	N12	W49	183	300	1.5		N07	W47				B	10	6	BXO
80	10	13	17180	N13	W64	184	200	2.0										

HALE REGION 17186 CMP DATE 8.9

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	6	17186	N24	E27	183	100	3.0		N24	E29				B		1	AXX
80	10	8	17186	N22	E01	182	100	3.0	21812	N25	E05	181	(AF)	2	P	10	2	AXX
80	10	9	17186	N24	W13	183	200	2.5		N19	W11				R	30	5	CRO

HALE REGION 17184 CMP DATE 9.5

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	4	17184	N16	E64	173	100	3.5	21799	N15	E67	172	(AP)	2				
80	10	5	17184	N17	E55	169	200	3.0										
80	10	6	17184	N16	E38	172	200	3.0										
80	10	8	17184	N14	E11	172	100	3.5		N10	E02				P	10	2	BXO
80	10	9	17184	N07	W05	175	200	2.5		N07	W03				H	10	3	BXO

HALE REGION 17183 CMP DATE 9.8

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	4	17183	S15	E65	172	100	3.0	21800	S14	E68	171	(B)	2	H	10	2	BXO
80	10	5	17183	S14	E55	169	300	3.5	21800	S14	E54	171	(AP)	2	B	10	1	AXX
80	10	6	17183	S14	E40	170	900	3.5	21800	S15	E42	170	AP	1	B		1	AXX
80	10	8	17183	S17	E15	168	500	3.5		S12	E19				B		1	AXX
80	10	9	17183	S14	W01	171	600	3.5		S11	W01				P	10	3	BXO
80	10	10	17183	S14	W10	169	400	2.0		S09	W09				B		1	AXX
80	10	11	17183	S14	W25	172	500	2.5		S12	W15				B	30	1	HSX
80	10	12	17183	S14	W37	171	300	1.0		S13	W29				H		2	BXO

HALE REGION 17189 CMP DATE 10.4

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	6	17189	S24	E48	162	200	3.5	21809	S23	E50	162	(B)	3	B	10	3	BXO
80	10	7	17189						21809	S23	E35	164	(AP)	3	H	40	5	CSO
80	10	8	17189	S26	E23	160	200	3.0	21809	S24	E21	165	(BP)	2	B	10	2	AXX
80	10	9	17189	S23	E06	164	700	3.5	21809	S24	E10	163	(B)	3	H	20	3	CRO
80	10	10	17189	S23	W04	163	700	3.0	21809	S24	W03	162	(B)	2	B	10	3	BXO
80	10	11	17189	S25	W15	162	600	3.0	21809	S24	W16	162	(B)	2	P	20	1	HRX
80	10	12	17189	S24	W27	161	400	2.5	21809	S25	W27	160	(B)	3	H	20	2	CSO
80	10	13	17189	S24	W43	163	0		21809	S25	W40	159	(B)	3	H	20	4	BXO
80	10	14	17189	S24	W55	162	700	2.5		S25	W52				H	60	6	DAO
80	10	15	17189	S24	W70	163	1100	2.5	21809	S25	W66	159	BP	3	B	60	2	CSO
80	10	16	17189							S25	W76				L	40	4	CSO

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HALE REGION 17181 CMP DATE 10.5 NEW, IN LOCATION OF 17116 ROTATION 1

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	4	17181	N14	E78	159	400	3.5		N15	E85				P	130	2	DAO
80	10	5	17181	N14	E72	152	2000	3.5		N13	E75				B	330	5	DKI
80	10	6	17181	N12	E56	154	1900	4.0		N11	E57				B	20	11	BXO
80	10	7	17181						21810	N12	E38	161	(AP)	3	H	80	9	CAO
80	10	8	17181	N10	E25	158	2100	4.0	21810	N12	E27	159	(B)	4	B	130	28	DAI
80	10	9	17181	N12	E11	159	4500	3.5	21810	N12	E13	160	(B)	4	H	200	44	EAI
80	10	10	17181	N12	W02	161	4000	4.0	21810	N12	W01	160	(BY)	4	B	260	30	EAI
80	10	11	17181	N11	W16	163	4400	3.5	21810	N11	W15	161	(BY)	4	H	360	38	FAI
80	10	12	17181	N12	W27	161	4800	4.0	21810	N12	W29	162	(D)	4	H	610	44	EKI
80	10	13	17181	N13	W41	161	0		21810	N12	W42	161	(BY)	5	H	990	40	FKI
80	10	14	17181	N13	W55	162	4700	4.0		N12	W55				H	1070	38	EKI
80	10	15	17181	N13	W70	163	4800	4.0	21810	N12	W70	163	(B)	4	B	940	10	FHO
80	10	16	17181							N12	W81				H	430	9	EKI

HALE REGION 17182 CMP DATE 10.8 FRONT HALF IS 17115, REAR IS LEADING EDGE OF 17130 ROT 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	4	17182	S08	E75	162	200	2.5		S13	E67				B	10	3	BXO
80	10	5	17182	S08	E68	156	300	3.0										
80	10	6	17182	S12	E52	158	400	3.0										
80	10	8	17182	S12	E23	160	900	3.0	21813	S13	E18	168	(B)	2	B		1	AXX
80	10	9	17182	S10	E12	158	1700	3.5	21813	S13	E04	169	(AP)	2	H	10	2	AXX
80	10	10	17182	S12	E01	158	1400	2.5	21813	S12	W08	167	(AP)	2	B		1	AXX
80	10	11	17182	S13	W15	162	1300	3.0	21813	S13	W14	160	(B)	3	H		1	AXX
80	10	12	17182	S13	W27	161	900	2.0	21813	S13	W28	161	(B)	2	H		2	BXO
80	10	13	17182	S11	W45	165	0											
80	10	14	17182	S10	W58	165	300	2.0										
80	10	15	17182	S11	W72	165	200	1.5										

HALE REGION 17187 CMP DATE 11.8 RETURN OF REGION 17117 ROTATIONS 3 AND 4

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	4	17187						21801	N14	E88	151	(X)	2	P	130	2	DAO
80	10	5	17187						21801	N14	E77	148	(AP)	3	B	330	5	DKI
80	10	6	17187	N15	E65	145	3200	4.0	21801	N14	E65	147	(BY)	4	B	900	47	EKC
80	10	7	17187						21801	N14	E53	146	(B)	4	H	760	28	EKI
80	10	8	17187	N13	E38	145	3600	3.5	21801	N19	E40	146	(D)	5	R	910	31	EKI
80	10	9	17187	N16	E26	144	6200	3.5	21801	N14	E27	146	(BY)	5	H	740	33	EKI
80	10	10	17187	N15	E16	143	6700	3.5	21801	N14	E14	145	(BY)	5	B	520	25	EKI
80	10	11	17187	N15	E02	145	4300	3.5	21801	N13	E01	145	(BY)	4	B	500	30	EKI
80	10	12	17187	N15	W11	145	5800	3.5	21801	N13	W12	145	(BY)	5	H	350	27	EKI
80	10	13	17187	N16	W23	143	0		21801	N13	W26	145	(B)	5	H	350	31	EHI
80	10	14	17187	N16	W36	143	5500	4.0		N13	W36				H	270	26	EAI
80	10	15	17187	N16	W50	143	5000	3.5	21801	N14	W52	145	(BP)	4	B	150	6	CKO
80	10	16	17187							N15	W65				H	140	6	CSO
80	10	17	17187	N16	W74	140	2000	3.0	21801	N13	W70	137	AP	2	B	140	2	CHO
80	10	18	17187	N16	W87	142	1000	1.5										

HALE REGION 17190 CMP DATE 11.8 NEW, REAR PORTION IN LOCATION OF LEADER 17132 ROTATION 1

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	5	17190						21804	S29	E79	146	(X)	2	B	20	4	BXO
80	10	6	17190	S29	E68	142	500	3.5	21804	S29	E65	147	(AP)	2	B	110	1	HSX
80	10	7	17190						21804	S30	E51	148	(AP)	4	H	130	1	HSX
80	10	8	17190	S31	E41	142	400	3.0	21804	S30	E39	147	(BP)	4	B	90	2	HAX
80	10	9	17190	S27	E25	145	1200	3.5	21804	S31	E26	147	(AP)	4	H	60	1	HSX
80	10	10	17190	S28	E15	144	1200	2.5	21804	S31	E14	145	(AP)	3	B	60	2	HSX
80	10	11	17190	S27	E03	144	1100	3.0	21804	S31	E01	145	(AP)	4	H	30	1	HSX
80	10	12	17190	S27	W12	146	800	2.5	21804	S30	W12	145	(AP)	4	H	20	2	CSO

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HALE REGION 17190 (CONT) CMP DATE 11.8 NEW, REAR PORTION IN LOCATION OF LEADER 17132 ROTATION 1

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	13	17190	S27	W25	145	0		21804	S30	W25	144	(AP)	4	H	30	1	HAX
80	10	14	17190	S27	W38	145	500	2.0		S29	W37				H	20	1	HAX
80	10	15	17190	S29	W52	145	700	2.0	21804	S30	W50	143	AP	3	B		1	AXX
80	10	16	17190							S31	W64				P	30	1	AXX
80	10	17	17190						21804	S31	W76	143	AP	1	L		1	AXX

HALE REGION 17194 CMP DATE 11.8

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	8	17194	S12	E42	141	100	3.5	21814	S08	E42	144	(AP)	2	B		1	AXX
80	10	9	17194	S10	E26	144	300	3.0	21818	S11	E37	136	(AP)	2	B		1	AXX
80	10	10	17194	S12	E16	143	300	2.0	21821	S06	E23	136	(AF)	2	M		2	BXO
80	10	11	17194	S13	E02	145	100	2.5	21818	S14	E14	132	(AP)	3	P	160	24	DAC
80	10	12	17194	S12	W10	144	200	3.0	21818	S12	W01	134	AP	1				
80	10	13	17194	S11	W24	144	0		21818	S09	W16	135	(AP)	3	B		1	AXX
80	10	15	17194						21818	S08	W42	135	AP	2	B	10	3	BXO
80	10	17	17194						21818	S07	W71	138	(AP)	3	H		1	AXX

HALE REGION 17188 CMP DATE 13.3 RETURN OF REGIONS 17120 AND 17127 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	6	17188	S11	E78	132	300	3.0										
80	10	7	17188						21811	S10	E77	122	(X)	2	H	380	11	EKI
80	10	8	17188	S12	E62	121	3900	3.5	21811	S10	E66	120	(Y)	3	B	650	18	DKO
80	10	9	17188	S13	E46	124	7300	3.5	21811	S10	E54	119	(D)	4	H	900	36	EKI
80	10	10	17188	S10	E35	124	7500	3.5	21811	S10	E40	119	(D)	4	B	360	25	EAI
80	10	11	17188	S10	E24	123	8000	3.5	21811	S10	E26	120	(D)	4	H	280	39	EKI
80	10	12	17188	S10	E09	125	7500	4.0	21811	S10	E13	120	(D)	4	H	680	61	EKC
80	10	12	17188	S10	E09	125	7500	4.0	21824	S15	E27	106	X	1	B		1	AXX
80	10	13	17188	S10	W04	124	7900	4.0	21811	S10	W00	119	(D)	5	H	760	63	EKC
80	10	14	17188	S11	W17	124	7800	4.0		S10	W15				H	660	66	EKI
80	10	15	17188	S12	W31	124	7600	4.0	21811	S10	W27	120	D	4	B	670	35	DHO
80	10	16	17188							S10	W41				H	640	42	EKI
80	10	17	17188	S12	W55	121	7700	4.0	21811	S10	W53	120	(D)	4	H	400	37	DKI
80	10	18	17188	S12	W67	122	7000	3.5	21811	S10	W69	122	(B)	3	H	70	17	DSO
80	10	19	17188	S13	W80	121	3500	3.0	21811	S11	W78	119	B	2	B	20	7	BXO

HALE REGION 17195 CMP DATE 13.6 REAR HALF OF 17132 ROTATION 6

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	8	17195	S22	E58	125	200	2.0										
80	10	9	17195	S24	E46	124	400	3.0										
80	10	10	17195	S24	E37	122	400	2.0										
80	10	11	17195	S31	E29	118	800	2.5										
80	10	12	17195	S27	E10	124	500	1.5										
80	10	13	17195	S29	W01	121	700	1.0										
80	10	14	17195	S29	W14	121	700	1.0										
80	10	15	17195	S30	W28	121	400	1.0										
80	10	17	17195	S30	W45	111	300	1.0										

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HALE REGION 17191 CMP DATE 13.8 FRONT HALF OF 17121 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	8	17191	N18	E62	121	200	2.5										
80	10	9	17191	N20	E50	120	1600	3.0										
80	10	10	17191	N20	E39	120	1400	3.0										
80	10	11	17191	N19	E28	119	1100	3.0										
80	10	12	17191	N19	E15	119	800	2.0	21823	N20	E12	121	(AP)	2	H	20	4	CAO
80	10	13	17191	N18	E02	118	1000	2.5		N21	E07				L		3	AXX
80	10	14	17191	N18	W11	118	1200	2.5										
80	10	15	17191	N18	W25	118	1300	3.0										
80	10	17	17191	N18	W52	118	1400	2.5										
80	10	18	17191	N18	W64	119	1100	2.0										
80	10	19	17191	N18	W75	116	600	2.0		N18	W80				B	10	2	BXO

HALE REGION 17199 CMP DATE 15.1

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	9	17199						21819	S22	E70	103	(AP)	2	H	60	1	HSX
80	10	10	17199	S22	E58	101	400	3.0	21819	S21	E57	102	(AP)	3	B	50	1	HSX
80	10	11	17199	S22	E46	101	300	2.5	21819	S21	E44	102	(AP)	3	H	40	1	HSX
80	10	12	17199	S21	E53	81	300	1.5	21819	S21	E31	102	(AP)	4	H	20	1	HAX
80	10	13	17199	S23	E20	100	400	1.5	21819	S21	E17	102	(AP)	4	H	20	1	HSX
80	10	14	17199	S22	E06	101	400	1.5		S21	E05				H	30	1	HSX
80	10	15	17199	S22	W08	101	400	1.5	21819	S20	W09	102	AP	3	B		1	AXX
80	10	17	17199	S22	W34	100	400	1.5		S21	W27				L		1	AXX
80	10	18	17199	S22	W45	100	200	1.0										
80	10	19	17199	S22	W58	99	300	1.5										

HALE REGION 17196 CMP DATE 15.5 NORTHERN HALF OF 17121 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	9	17196	N29	E68	102	100	3.0										
80	10	10	17196	N29	E64	95	200	1.5										
80	10	11	17196	N29	E47	100	100	2.0										
80	10	12	17196	N26	E35	99	400	3.0										
80	10	13	17196	N26	E24	96	700	2.5										
80	10	14	17196	N25	E11	96	700	2.5										
80	10	15	17196	N26	W03	96	800	2.5		N25	W09				P	10	2	AXX
80	10	17	17196	N25	W29	95	1000	2.5										
80	10	18	17196	N25	W40	95	800	2.0										
80	10	19	17196	N25	W53	94	800	2.0										

HALE REGION 17197 CMP DATE 15.5 SOUTHERN HALF OF 17121 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	9	17197	N20	E72	98	1700	3.0	21820	N16	E74	99	(AP)	3	H	20	1	AXX
80	10	10	17197	N19	E65	94	2500	3.0	21820	N17	E66	93	(BP)	3	B	40	3	CAO
80	10	11	17197	N19	E51	96	2600	3.5	21820	N17	E53	93	(AP)	3	H	20	4	CSO
80	10	12	17197	N18	E39	95	1900	3.0	21820	N17	E44	89	(AP)	3	H	20	2	HSX
80	10	13	17197	N18	E27	93	1500	3.0	21820	N17	E31	88	(AP)	2	P		1	AXX
80	10	14	17197	N17	E14	93	1500	3.0		N15	E15				H	50	9	CAO
80	10	15	17197	N17	W02	95	1700	3.5	21820	N15	W02	95	(BP)	4	B	40	7	CSO
80	10	17	17197	N17	W27	93	1500	3.5	21820	N15	W30	97	(AP)	2	H		2	BXO
80	10	18	17197	N17	W39	94	1200	3.0	21820	N15	W42	95	(B)	2	H	10	4	BXO
80	10	19	17197	N16	W52	93	1200	2.5		N16	W55				B	20	3	BXO
80	10	21	17197	N17	W78	93	1500	1.5										

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HALE REGION 17203 CMP DATE 15.8

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	12	17203	N03	E43	91	100	1.0
80	10	13	17203	N04	E30	90	400	3.0
80	10	14	17203	N04	E16	91	600	3.0
80	10	15	17203	N04	E02	91	700	3.0
80	10	16	17203					
80	10	17	17203	N05	W26	92	500	3.0
80	10	18	17203	N06	W37	92	600	2.5
80	10	19	17203	N07	W50	91	700	2.5
80	10	21	17203	N07	W77	92	700	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21825	N04	E45	88	X	1				
21825	N05	E30	89	(B)	2	H	10	4	BXO
	N05	E15				H	40	7	CAO
21825	N06	W01	94	AP	3	B	10	5	BXO
	N07	W13				H	10	5	BXO
21825	N06	W24	91	(AP)	2	H	10	3	BXO
21825	N06	W38	91	(AP)	1	B	10	1	AXX

HALE REGION 17198 CMP DATE 16.4 NEW, IN LOCATION OF 17113 ROTATION 1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	9	17198					
80	10	10	17198	N05	W20	179	200	3.5
80	10	11	17198	N05	W35	182	400	3.0
80	10	12	17198	N07	W47	181	800	3.0
80	10	13	17198	N07	W63	183	1000	2.5
80	10	14	17198	N08	W77	184	1000	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21817	N08	W04	177	(AF)	3	H	10	3	BXO
	N05	W22				P	40	5	ESO
21817	N05	W35	181	(B)	3	H	50	11	CAO
21817	N05	W48	181	(B)	3	H	50	7	CSO
21817	N06	W62	181	(B)	3	H	70	8	CAO

HALE REGION 17202 CMP DATE 17.2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	11	17202	S29	E69	78	700	3.0
80	10	12	17202	S30	E53	81	300	2.0
80	10	13	17202	S31	E42	78	500	2.5
80	10	14	17202	S30	E30	77	700	3.0
80	10	15	17202	S29	E17	76	1000	3.5
80	10	16	17202					
80	10	17	17202	S29	W07	73	1500	3.0
80	10	18	17202	S30	W18	73	1300	3.0
80	10	19	17202	S30	W31	72	1300	3.0
80	10	20	17202					
80	10	21	17202	S30	W56	71	1300	2.5
80	10	22	17202	S30	W79	81	600	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21822	S29	E70	76	(B)	3	H	10	2	BXO
21822	S29	E56	77	(B)	3	H		2	BXO
21822	S29	E42	77	(BY)	3	H	30	5	BXO
	S30	E30				H	30	4	CAO
21822	S28	E18	75	BY	3	B	50	10	CAI
	S28	E05				H	70	8	DRO
21822	S28	W07	74	(B)	3	H	40	6	DAO
	S28	W21				H	10	1	AXX
	S30	W32				H		1	AXX
21836	S29	W46	73	(B)	3	B	10	2	BXO

HALE REGION 17213 CMP DATE 17.6

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	16	17213	N03	E13	68	100	1.0
80	10	18	17213	N03	W13	68	100	1.0
80	10	19	17213	N03	W27	68	100	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N08	E22				H	170	9	DSO
	N08	W08				H	70	6	CAO
	N08	W22				H	50	3	CSO

HALE REGION 17201 CMP DATE 18.2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	11	17201	N07	E80	67	200	2.5
80	10	12	17201	N06	E75	59	1500	3.0
80	10	13	17201	N07	E64	56	2000	3.5
80	10	14	17201	N07	E50	57	2000	3.5
80	10	15	17201	N07	E35	58	1800	3.5
80	10	16	17201					
80	10	17	17201	N07	E07	59	1500	3.5
80	10	18	17201	N07	W05	60	1300	3.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21826	N07	E77	56	(B)	3	H	80	3	CAO
21826	N07	E62	57	(BP)	4	H	110	6	DSO
	N06	E46				H	70	3	CAO
21826	N06	E32	61	BP	4	B	100	3	CSO
	N08	E22				H	170	9	DSO
21826	N07	E07	60	(BP)	4	H	100	11	DSO
21826	N07	W08	61	(AP)	4	H	70	6	CAO

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HALE REGION 17201 (CONT) CMP DATE 18.2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	19	17201	N08	W17	58	1300	3.5	21826	N07	W21	62	(AP)	4	H	50	3	CSO
80	10	20	17201						21826	N06	W35	62	(AP)	4	B	80	4	CSO
80	10	21	17201	N08	W44	59	1400	3.0	21826	N07	W47	61	(BP)	3	B	40	3	CAO
80	10	22	17201	N08	W57	59	1400	2.5	21826	N07	W61	62	(AP)	3	R	70	3	CRO
80	10	23	17201	N08	W71	59	1200	2.0										
80	10	24	17201	N08	W84	59	500	2.0										

HALE REGION 17204 CMP DATE 18.9 RETURN OF REGION 17145 ROTATION 02

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	12	17204	N16	E80	54	1500	2.5		N14	E80				L	60	1	HSX
80	10	13	17204	N15	E70	50	3000	3.0	21827	N17	E70	49	(AP)	2				
80	10	14	17204	N14	E57	50	2700	3.0		N19	E61				H		1	AXX
80	10	15	17204	N15	E44	49	3000	3.5	21827	N19	E48	45	AP	2	P	10	2	AXX
80	10	16	17204							N10	E22				R	90	17	CSO
80	10	17	17204	N15	E18	48	2700	3.5	21829	N17	E16	51	(AP)	3	H		1	AXX
80	10	18	17204	N15	E05	50	2500	3.0	21829	N17	E01	52	(AP)	2	H	10	7	BXO
80	10	19	17204	N16	W09	50	2500	3.0		N15	W13				H	10	5	BXO
80	10	20	17204						21837	N15	W28	55	(AP)	2	B	10	1	AXX
80	10	21	17204	N16	W37	52	2300	3.0										
80	10	22	17204	N16	W50	52	2300	2.0										
80	10	23	17204	N17	W65	53	1700	2.5										
80	10	24	17204	N17	W78	53	1600	2.5										

HALE REGION 17210 CMP DATE 18.9 NEW, IN LOCATION OF 17148 ROTATION 1

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	17	17210	S19	E15	51	300	2.0										
80	10	18	17210	S20	E04	51	100	1.0										
80	10	19	17210	S20	W10	51	100	1.5										

HALE REGION 17224 CMP DATE 19.0

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	22	17224	S07	W47	49	400	3.0	21846	S07	W49	50	(B)	4	H	60	7	DSO
80	10	23	17224	S07	W62	50	800	3.5	21846	S07	W64	52	(B)	4	H	220	6	DSO
80	10	24	17224	S07	W75	50	1000	3.0	21846	S07	W74	48	(BF)	4	H	100	1	HKX

HALE REGION 17205 CMP DATE 19.6

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	13	17205	N23	E78	42	1200	3.0										
80	10	14	17205	N23	E65	42	1500	3.0		N19	E61				H		1	AXX
80	10	15	17205	N24	E51	42	1400	3.0		N23	E47				P	10	2	AXX
80	10	17	17205	N26	E25	41	1300	2.5		N25	E35				P	40	6	DSO
80	10	18	17205	N26	E14	41	1300	3.0	21833	N21	E11	42	(BP)	2	H	10	7	BXO
80	10	19	17205	N26	W00	41	1300	3.0	21833	N22	E03	38	(AF)	2	H	10	1	HSX
80	10	21	17205	N24	W27	42	1500	2.5	21845	N24	W24	38	(AF)	2	R	130	30	DAO
80	10	22	17205	N24	W40	42	1500	2.5										
80	10	23	17205	N24	W54	42	1500	2.5										
80	10	24	17205	N24	W67	42	1500	2.5										

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HALE REGION 17206 CMP DATE 19.7 RETURN OF REGION 17142 ROTATION 02

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	13	17206	S36	E80	40	800	2.0	21828	S34	E80	39	X	2	H	70	1	HSX
80	10	14	17206	S36	E65	42	1700	2.0		S35	E63				H	110	1	HSX
80	10	15	17206	S35	E55	38	1500	2.5	21828	S34	E49	44	AP	3	B	110	1	HAX
80	10	17	17206	S33	E28	38	0		21831	S32	E40	27	(AF)	2	B		1	AXX
80	10	17	17206	S33	E28	38	0		21828	S34	E24	43	(AP)	4	H	100	3	CSO
80	10	18	17206	S33	E15	40	2000	2.5	21834	S32	E18	35	(B)	2	H	120	9	ESO
80	10	18	17206	S33	E15	40	2000	2.5	21828	S34	E15	38	(BP)	4	H	120	9	ESO
80	10	19	17206	S34	E02	39	2000	2.5	21834	S34	E07	34	(B)	3	R	210	4	DSO
80	10	19	17206	S34	E02	39	2000	2.5	21828	S34	W00	41	(BP)	3	H	100	6	DSO
80	10	20	17206						21834	S34	W06	33	(B)	3	B	110	6	CSO
80	10	20	17206						21828	S35	W15	42	(BY)	4	B	110	6	CSO
80	10	21	17206	S34	W23	38	2000	2.5	21834	S34	W16	30	(AF)	3	R	130	5	DSO
80	10	21	17206	S34	W23	38	2000	2.5	21828	S35	W28	42	(AP)	4	B	60	4	CSO
80	10	22	17206	S34	W36	38	1800	2.0	21828	S34	W42	43	(AP)	4	H	60	1	HSX
80	10	23	17206	S34	W50	38	1500	2.0	21828	S34	W55	43	(AP)	4	H	40	1	HAX
80	10	24	17206	S34	W63	38	1700	2.0	21828	S34	W66	40	(AP)	3	H	20	1	HSX
80	10	25	17206						21828	S34	W79	40	AP	2	M	20	1	HSX

HALE REGION 17207 CMP DATE 20.2 NEW, IN LOCATION OF 17148 ROTATION 1

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	14	17207	S23	E70	37	300	2.5		S21	E68				P	10	2	AXX
80	10	15	17207	S23	E58	35	400	2.5										
80	10	17	17207	S20	E32	34	0											
80	10	18	17207	S20	E20	35	500	2.5		S19	E25				L		1	AXX
80	10	19	17207	S20	E08	33	400	2.0										
80	10	21	17207	S20	W18	33	500	2.0										
80	10	22	17207	S22	W32	34	400	2.0										
80	10	23	17207	S22	W45	33	200	2.0										
80	10	24	17207	S22	W58	33	200	1.5										

HALE REGION 17208 CMP DATE 20.2 NEW, IN LOCATION OF SOUTHERN HALF OF 17151 ROTATION 1

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	15	17208	N13	E70	23	700	3.5										
80	10	17	17208	N15	E37	29	500	3.5	21830	N16	E39	28	(B)	2	P	40	6	DSO
80	10	18	17208	N16	E25	30	400	2.0	21830	N15	E24	29	(B)	2	H	30	3	CSO
80	10	19	17208	N16	E12	29	600	2.0	21830	N13	E07	34	(AP)	2	H	20	1	HSX
80	10	20	17208						21830	N13	W06	33	(AP)	3	B	10	1	AXX
80	10	21	17208	N13	W18	33	200	2.5	21830	N13	W20	34	(AP)	3	B		1	AXX
80	10	22	17208	N13	W32	34	200	2.5		N18	W28				R	380	31	DAO
80	10	23	17208	N13	W46	34	200	2.0										
80	10	24	17208	N13	W59	34	100	2.5										

HALE REGION 17214 CMP DATE 20.4

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	18	17214	N22	E25	30	300	3.0		N20	E24				H	10	2	AXX
80	10	19	17214	N21	E12	29	500	2.5	21835	N20	E11	30	(B)	3	H	20	7	BXO
80	10	20	17214						21835	N20	W01	28	(Y)	3	B	80	24	DRI
80	10	21	17214	N19	W15	30	2000	4.0	21835	N20	W15	29	(BY)	4	B	170	25	DAI
80	10	22	17214	N19	W28	30	2000	3.5	21835	N20	W28	29	(D)	4	H	350	24	DKI
80	10	23	17214	N20	W42	30	2700	4.0	21835	N18	W43	31	(D)	4	H	160	21	DKO
80	10	24	17214	N20	W55	30	2800	4.0	21835	N18	W54	28	(D)	4	H	210	13	DKO
80	10	25	17214						21835	N19	W67	28	(D)	4	B	230	7	EAI
80	10	26	17214	N23	W80	29	2700	3.5	21835	N19	W78	26	AF	2	H	90	6	CSO

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HALE REGION 17220 CMP DATE 20.7

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	21	17220	S03	W12	27	100	1.0										
80	10	22	17220	S04	W25	27	100	1.0										

HALE REGION 17216 CMP DATE 21.2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	18	17216	S34	E30	25	400	2.0		S31	E30				M	20	4	BXO
80	10	19	17216	S34	E18	23	500	2.0										
80	10	21	17216	S36	W05	20	800	2.0										
80	10	22	17216	S36	W19	21	700	1.5										
80	10	23	17216	S36	W30	18	800	2.0										
80	10	24	17216	S36	W43	18	700	2.0										
80	10	26	17216	S34	W69	18	700	1.5										

HALE REGION 17209 CMP DATE 21.3 NEW, IN LOCATION OF 17161 ROTATION 1

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	18	17209	N14	E37	18	800	2.5		N16	E31				L	30	6	DRO
80	10	19	17209	N14	E24	17	800	2.5										
80	10	21	17209	N13	W04	19	800	2.5	21844	N13	W07	21	(AP)	2	B		1	AXX
80	10	22	17209	N13	W17	19	900	2.5										
80	10	23	17209	N13	W30	18	800	2.0										
80	10	24	17209	N13	W43	18	800	2.0										
80	10	26	17209	N15	W70	19	700	1.5		N20	W80				H	90	6	CSO
80	10	27	17209	N10	W83	19	100	1.0										

HALE REGION 17217 CMP DATE 21.8

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	18	17217	S19	E40	15	300	2.0										
80	10	19	17217	S20	E28	13	200	2.0										
80	10	20	17217						21838	S24	E18	9	(B)	2	B	10	1	AXX
80	10	21	17217	S22	E03	12	500	2.0										
80	10	22	17217	S22	W11	13	400	1.5										
80	10	23	17217	S23	W23	11	400	1.5										
80	10	24	17217	S23	W36	11	300	1.5										
80	10	26	17217	S19	W63	12	200	1.5										

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HALE REGION 17215 CMP DATE 22.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	18	17215	N18	E48	7	500	2.5
80	10	19	17215	N18	E35	6	500	2.0
80	10	21	17215	N18	E07	8	500	2.0
80	10	22	17215	N18	W06	8	300	2.0
80	10	23	17215	N18	W19	7	300	1.5
80	10	24	17215	N18	W32	7	300	1.5
80	10	26	17215	N19	W58	7	100	1.0
80	10	27	17215	N18	W69	5	100	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N19	E37				B	20	4	BXO

HALE REGION 17212 CMP DATE 23.5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	16	17212					
80	10	17	17212	S17	E76	350	2000	3.5
80	10	18	17212	S17	E63	352	4000	4.0
80	10	19	17212	S17	E50	351	5300	3.5
80	10	20	17212					
80	10	21	17212	S17	E24	351	6700	4.0
80	10	22	17212	S17	E11	351	6400	4.0
80	10	23	17212	S17	W02	350	7000	4.0
80	10	24	17212	S17	W15	350	7400	4.0
80	10	25	17212					
80	10	26	17212	S17	W40	349	6500	4.0
80	10	27	17212	S17	W52	348	6200	3.5
80	10	28	17212					
80	10	29	17212	S17	W78	347	5800	3.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S19	E85				M	210	1	HAX
21832	S17	E76	351	B	3	H	480	9	DKI
21832	S16	E65	348	(D)	4	H	1450	37	FKI
21832	S15	E52	349	(D)	4	H	380	7	ESO
21832	S18	E35	352	(D)	5	B	1800	55	FKC
21832	S18	E24	350	(D)	5	B	1250	54	EKI
21832	S18	E10	351	(B)	5	H	1260	59	EKI
21832	S18	W03	351	(B)	5	H	760	41	EKI
21832	S18	W15	349	(B)	5	H	750	29	EKI
21832	S18	W28	349	(B)	5	B	1000	21	EKI
21832	S18	W42	350	(B)	5	H	640	35	EKI
21832	S18	W66	1	(BP)	4				
21832	S18	W70	352	(AP)	4	B	340	5	EKO

HALE REGION 17211 CMP DATE 24.2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	17	17211	S12	E80	346	1700	3.5
80	10	18	17211	S10	E69	346	3500	3.0
80	10	19	17211	S10	E57	344	3400	3.5
80	10	20	17211					
80	10	21	17211	S13	E33	342	4000	3.5
80	10	22	17211	S12	E20	342	4000	3.5
80	10	23	17211	S13	E08	340	3700	3.5
80	10	24	17211	S13	W05	340	3500	3.5
80	10	25	17211					
80	10	26	17211	S13	W30	339	3500	3.5
80	10	27	17211	S13	W43	339	3500	3.5
80	10	28	17211					
80	10	29	17211	S13	W69	338	2400	3.0
80	10	30	17211	S14	W80	335	2000	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S12	E84				H	70	2	HKX
	S15	E75				B	200	9	DAO
	S15	E52				H	380	7	ESO
21839	S13	E46	341	(BP)	5	B	470	17	DHI
21839	S13	E33	341	(BP)	5	B	360	19	DSO
21839	S13	E22	339	(BP)	5	H	360	24	DKI
21839	S13	E07	341	(BP)	4	H	180	22	DKO
21839	S13	W05	339	(BP)	5	H	200	15	DKO
21839	S13	W18	339	(BP)	5	B	270	5	EHI
21839	S13	W33	341	(AP)	5	H	170	5	CHO
21839	S11	W46	341	(AP)	4	H	90	1	HAX
21839	S12	W59	341	(AP)	3	B	90	1	HAX
21839	S12	W66	334	(AP)	4				
	S13	W82				M	90	1	HSX

HALE REGION 17218 CMP DATE 24.2 RETURN OF REGION 17159 ROTATION 02

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
80	10	19	17218	N18	E70	331	300	1.5
80	10	20	17218					
80	10	21	17218	N17	E37	338	800	3.0
80	10	22	17218	N17	E23	339	800	2.5
80	10	23	17218	N17	E08	340	800	2.5
80	10	24	17218	N17	W05	340	800	2.5
80	10	25	17218					
80	10	26	17218	N17	W30	339	700	3.0
80	10	27	17218	N17	W43	339	400	3.0
80	10	29	17218	N17	W68	337	100	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N17	E74				B	10	1	AXX
21840	N15	E48	339	(AP)	3	B	30	1	HRX
21840	N16	E35	339	(B)	3	B	30	4	CAO
21840	N16	E20	341	(AP)	3	H	20	3	CRO
21840	N16	E07	341	(BP)	3	H	30	6	HSX
21840	N16	W04	338	(B)	2	H		2	BXO
21840	N16	W16	337	AF	1	B	10	1	AXX

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HALE REGION 17221 CMP DATE 25.3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	21	17221	N19	E48	327	400	2.0		N16	E43				L	20	3	CSO
80	10	22	17221	N18	E35	327	300	2.0										
80	10	23	17221	N18	E21	327	500	2.0		N17	E16				M	20	4	CSO
80	10	24	17221	N18	E09	326	500	1.5		N17	E02				M	20	5	BXO
80	10	26	17221	N19	W17	326	400	1.0										
80	10	27	17221	N18	W30	326	300	1.0										

HALE REGION 17223 CMP DATE 25.8 17164, 17167 AND 17171 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	20	17223						21843	S09	E67	320	(AP)	2	B	10	1	AXX
80	10	21	17223	S10	E60	315	2800	2.5	21843	S08	E54	320	AP	1	P		1	AXX
80	10	22	17223	S10	E47	315	3400	2.0	21843	S08	E41	320	(AP)	3	H	10	1	AXX
80	10	23	17223	S10	E34	314	3600	2.5		S08	E31				R	10	1	AXX
80	10	24	17223	S10	E20	315	3600	2.0										
80	10	25	17223						21850	S08	W00	321	(AP)	2	M	10	4	BXO
80	10	26	17223	S10	W10	319	3300	2.0	21850	S06	W12	320	AP	2	H	10	5	BXO
80	10	27	17223	S10	W23	319	3500	2.5										
80	10	29	17223	S10	W48	317	2800	2.0										
80	10	30	17223	S10	W59	314	1500	2.0										
80	10	31	17223	S10	W67	309	1000	1.0										

HALE REGION 17219 CMP DATE 25.9 17169 AND EXTREME NORTHERN TIP OF 17164 ROTATIONS 2 AND 3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	19	17219	N07	E80	321	1200	3.0										
80	10	20	17219						21841	N08	E65	322	(AF)	2	B	10	2	BXO
80	10	20	17219						21842	N05	E67	320	(AP)	2	B	10	2	BXO
80	10	21	17219	N07	E57	318	3000	2.5	21841	N06	E55	319	(B)	3	B	20	4	BXO
80	10	22	17219	N06	E44	318	3000	2.5	21841	N09	E42	319	(AF)	3	H	30	6	CRO
80	10	23	17219	N06	E32	316	3000	3.0		N09	E30				R	10	1	AXX
80	10	24	17219	N06	E19	316	2800	3.0	21847	N06	E12	322	(AP)	2	H	20	1	HAX
80	10	26	17219	N07	W09	318	2500	3.0										
80	10	27	17219	N07	W22	318	2300	2.5		N08	W26				P	20	4	AXX
80	10	29	17219	N07	W48	317	1700	2.5										
80	10	30	17219	N07	W62	317	1500	2.5		N06	W60				M	10	1	AXX
80	10	31	17219	N07	W75	317	1400	2.0										

HALE REGION 17222 CMP DATE 26.8 NEW, IN LOCATION OF 17168 ROTATION 1

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	21	17222	N17	E67	308	600	2.5										
80	10	22	17222	N16	E54	308	900	2.0										
80	10	23	17222	N15	E41	307	600	2.0										
80	10	24	17222	N15	E29	306	600	2.5										
80	10	26	17222	N15	E03	306	600	2.5										
80	10	27	17222	N15	W10	306	600	2.0										
80	10	29	17222	N15	W37	306	300	2.5										
80	10	30	17222	N14	W51	306	400	2.5										
80	10	31	17222	N15	W65	307	400	2.0										

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HALE REGION 17227 CMP DATE 28.1 SOUTHERN PART OF 17171 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	23	17227	S23	E55	293	300	1.5										
80	10	24	17227	S23	E42	293	300	1.5										
80	10	26	17227	S23	E20	289	300	1.5										
80	10	27	17227	S24	E06	290	600	1.5										
80	10	29	17227	S23	W20	289	500	1.0										
80	10	30	17227	S23	W33	288	300	2.0		S18	W27				H	200	16	DHO
80	10	31	17227	S19	W45	287	300	2.5		S18	W40				H	240	10	DKO
80	11	1	17227	S21	W60	285	100	2.5		S17	W55				H	320	11	DHO

HALE REGION 17242 CMP DATE 28.7

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	31	17242	S03	W39	281	200	3.0		S04	W29				P	90	10	DSO
80	11	1	17242	S07	W57	282	100	3.0										

HALE REGION 17226 CMP DATE 28.8

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	23	17226	S14	E68	280	300	1.5										
80	10	24	17226	S14	E55	280	300	2.0										
80	10	25	17226						21851	S12	E41	280	(B)	3	B	10	2	BXO
80	10	26	17226	S14	E29	280	1000	3.0	21851	S12	E28	280	(B)	3	H	50	6	CAO
80	10	27	17226	S14	E15	281	1000	3.0	21851	S11	E15	280	(BY)	3	H	10	5	BXO
80	10	29	17226	S13	W11	280	1000	3.5		S11	W14				B	10	2	BXO
80	10	30	17226	S14	W26	281	1400	3.5	21859	S17	W28	283	(B)	5	H	200	16	DHO
80	10	31	17226	S14	W40	282	1200	3.0	21859	S18	W40	280	(B)	5	H	240	10	DKO
80	11	1	17226	S16	W57	282	1500	4.0	21859	S18	W52	281	(B)	5	H	320	11	DHO
80	11	2	17226	S17	W67	281	1200	4.0	21859	S17	W65	281	(B)	4	H	370	5	DKO
80	11	3	17226	S17	W82	282	500	3.5	21859	S17	W77	280	B	2	H	290	3	DAO

HALE REGION 17225 CMP DATE 29.8 17173 AND LEADING EDGE OF 17174 ROTATION 3 AND 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	23	17225	N18	E80	268	2500	3.0		N22	E85				P	30	1	AXX
80	10	24	17225	N18	E68	267	5200	3.5	21849	N22	E69	265	(AP)	3	H	20	1	HSX
80	10	24	17225	N18	E68	267	5200	3.5	21848	N17	E65	269	(B)	3	H	30	3	CSO
80	10	25	17225						21848	N17	E52	269	(B)	3	B	100	2	BSO
80	10	25	17225						21849	N22	E57	264	(BP)	4	B	80	1	HSX
80	10	26	17225	N18	E41	268	6500	3.5	21849	N23	E45	263	(B)	4	H	60	4	DSO
80	10	26	17225	N18	E41	268	6500	3.5	21848	N19	E37	271	(B)	4	H	40	9	CSO
80	10	27	17225	N19	E28	268	6200	3.5	21849	N22	E31	264	(BF)	4	H	90	6	DSO
80	10	27	17225	N19	E28	268	6200	3.5	21848	N19	E25	270	(BP)	3	H	50	10	DSO
80	10	28	17225						21849	N20	E12	270	(BY)	3	B	200	31	DAI
80	10	29	17225	N20	E03	266	5600	3.5	21849	N20	W01	269	(BY)	4	B	140	34	DAI
80	10	30	17225	N20	W12	267	5700	3.5	21849	N20	W14	269	(B)	5	H	50	9	DAO
80	10	31	17225	N20	W24	266	5900	3.5	21849	N20	W31	271	(BP)	4	H	30	6	CSO
80	11	1	17225	N20	W43	268	3900	3.5	21849	N18	W45	274	(AP)	3	H	20	3	AXX
80	11	2	17225	N19	W50	264	2900	3.5	21849	N18	W58	274	(AP)	2	H		1	AXX
80	11	3	17225	N18	W61	261	2000	3.0	21849	N17	W70	273	(AP)	3	H	10	1	AXX
80	11	4	17225	N18	W79	265	500	3.0		N14	W74				H	10	1	AXX

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HALE REGION 17232 CMP DATE 29.9

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	25	17232						21852	S04	E54	267	AF	1				
80	10	26	17232	S04	E43	266	700	4.0	21852	S04	E43	265	(BF)	3	H	90	12	DSO
80	10	27	17232	S04	E30	266	1100	3.0	21852	S04	E28	267	(BF)	3	H	80	15	DAO
80	10	28	17232						21852	S03	E13	269	(B)	3	B	140	15	DAI
80	10	29	17232	S04	E04	265	1100	3.0	21852	S04	E01	267	(BY)	4				
80	10	30	17232	S04	W11	266	1400	3.0	21852	S04	W12	267	(B)	4	H	70	19	DAO
80	10	31	17232	S04	W25	267	1700	3.0	21852	S04	W27	267	(B)	4	H	70	15	DAO
80	11	1	17232	S04	W43	268	1300	3.5	21852	S04	W39	268	(B)	4	H	90	9	DSO
80	11	2	17232	S05	W55	269	1000	3.5	21852	S05	W53	269	(B)	4	H	90	8	DAO
80	11	3	17232	S04	W68	268	1000	3.0	21852	S05	W69	272	(B)	3	H	10	1	AXX
80	11	4	17232	S06	W85	271	300	3.0										

HALE REGION 17228 CMP DATE 30.7 RETURN OF REGION 17174 ROTATIONS 3 AND 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	24	17228	N13	E75	260	1400	3.0		N18	E65				H	30	3	CSO
80	10	26	17228	N13	E50	259	1800	3.0										
80	10	27	17228	N14	E39	257	1800	3.0	21853	N13	E40	255	(B)	3	H	40	4	CRO
80	10	28	17228						21853	N15	E27	255	(B)	3	B	70	4	DSO
80	10	29	17228	N15	E15	254	1500	3.0	21853	N13	E12	256	(BY)	2	B	70	28	DRI
80	10	30	17228	N15	E01	254	1800	3.0	21853	N12	W02	257	(B)	4	H	100	19	DAO
80	10	31	17228	N15	W14	256	2000	3.0		N13	W17				H	70	16	DAO
80	11	1	17228	N15	W32	257	1600	3.5	21864	N22	W32	261	(AF)	2	L	40	7	CSO
80	11	1	17228	N15	W32	257	1600	3.5	21863	N13	W30	259	(B)	3	H	50	8	CRO
80	11	2	17228	N14	W43	257	1100	3.5	21863	N14	W44	260	(B)	3	H	30	1	HAX
80	11	3	17228	N15	W54	254	1300	3.0	21863	N13	W60	263	(AP)	3	H	10	1	AXX
80	11	3	17228	N15	W54	254	1300	3.0	21871	N19	W50	253	(B)	3	H	20	3	BXO
80	11	4	17228	N15	W72	258	1000	3.0	21863	N13	W75	264	(AP)	2	H	10	1	AXX
80	[illegible]	5	17228	N17	W83	257	600	2.5										

HALE REGION 17243 CMP DATE 31.3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	31	17243	S17	W05	247	200	2.5										
80	11	1	17243	S17	W22	247	100	3.0	21865	S18	W18	247	AF	1				
80	11	2	17243	S17	W32	246	100	2.5	21865	S17	W29	245	(AF)	2	H		1	AXX

HALE REGION 17252 CMP DATE 31.3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	4	17252	S18	W61	247	100	3.0	21873	S18	W56	245	B	2	H	20	2	BXO
80	11	5	17252	S16	W72	246	200	3.5	21873	S17	W69	245	(B)	3	R	20	2	AXX

HALE REGION 17231 CMP DATE 31.6

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	26	17231	N07	E68	241	700	2.5										
80	10	27	17231	N07	E55	241	1000	3.0	21854	N07	E53	242	(AP)	3	H	100	6	DAO
80	10	28	17231						21854	N09	E40	242	(B)	4	B	130	12	DSI
80	10	29	17231	N07	E28	241	1500	3.5	21854	N06	E25	243	(B)	4	B	220	27	DSI
80	10	30	17231	N07	E14	241	1800	3.5	21854	N08	E12	243	(BP)	4	H	80	12	DAO
80	10	31	17231	N07	W01	243	1400	3.5	21854	N08	W03	243	(BP)	5	H	130	13	CKO
80	11	1	17231	N07	W20	245	1400	3.5	21854	N07	W16	245	(BP)	4	H	110	7	CAO
80	11	2	17231	N07	W30	244	1200	3.5	21854	N07	W29	245	(B)	4	H	100	7	DAO
80	11	3	17231	N07	W44	244	1000	3.0	21854	N07	W43	246	(BP)	3	H	60	6	CAO

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HALE REGION 17231 (CONT) CMP DATE 31.6

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	4	17231	N06	W57	243	700	3.5	21854	N07	W57	246	(AP)	3	H	30	1	HAX
80	11	5	17231	N07	W69	243	700	3.0	21854	N07	W69	245	(AP)	3	B	10	2	BXO
80	11	6	17231	N06	W82	241	100	2.5										

HALE REGION 17229 CMP DATE 31.7 NEW, IN LOCATION OF 17175 ROTATION 1

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	10	26	17229	N15	E63	246	500	2.0										
80	10	27	17229	N16	E52	244	700	3.0		N17	E55				H	10	2	BXO
80	10	29	17229	N17	E27	242	800	4.0	21855	N15	E27	241	(BF)	3	B	40	12	CRO
80	10	30	17229	N17	E14	241	2100	3.5	21855	N15	E15	240	(B)	5	H	90	20	DAO
80	10	31	17229	N17	E01	241	2000	3.5	21855	N15	W00	240	(BP)	5	P	140	20	DSI
80	11	1	17229	N17	W15	240	1700	3.5	21855	N15	W12	241	(B)	3	H	90	13	DAO
80	11	2	17229	N16	W28	242	1500	3.5	21855	N15	W28	244	(B)	4	R	60	4	CAO
80	11	3	17229	N16	W42	242	1200	3.5	21872	N18	W35	238	(B)	3	H	10	2	BXO
80	11	4	17229	N16	W54	240	1100	3.5	21872	N20	W51	240	B	3	H	30	5	BXO
80	11	5	17229	N17	W66	240	1100	3.0	21872	N20	W64	240	(B)	3	P	20	4	CSO
80	11	6	17229	N17	W83	242	600	3.0	21872	N20	W80	243	B	1	P	10	3	BXO

HALE REGION 17250 CMP DATE 31.7

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	11	3	17250	S08	W41	241	100	2.5										

DAILY CALCIUM PLAGE INDEX

OCTOBER 1980

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
80	10	1	*	80	10	11	83.6	80	10	21	75.6
80	10	2	50.7	80	10	12	85.7	80	10	22	71.2
80	10	3	43.4	80	10	13	49.8	80	10	23	77.4
80	10	4	35.2	80	10	14	83.0	80	10	24	77.7
80	10	5	35.9	80	10	15	77.5	80	10	25	*
80	10	6	39.9	80	10	16	*	80	10	26	73.6
80	10	7	*	80	10	17	52.9	80	10	27	68.2
80	10	8	42.7	80	10	18	53.0	80	10	28	*
80	10	9	93.5	80	10	19	52.3	80	10	29	53.2
80	10	10	88.3	80	10	20	*	80	10	30	63.5
								80	10	31	67.5

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0029	0135	0044	1-	1	1			1				0022	17175
01	1215	1222D	1222	1-	1				1		1		1212	17177
01	1250	1325	1300	1-	3				2		2		NF	
02	0156	0252	0203	1	5	2			2		1		NF	
02	0547	0635	0552	1-	1				1				NF	
02	1703	1705	1740	3	3						3		1705E	17173
02	2159	2310	2204	1-	3	1			1		2		2159	17173
02	2320	2326	2324	1-	1	1							NF	
03	0745	0800	0755	1-	3	1			1	1			NF	
03	0820	0850	0829	1	5	1		1	1	1	2		0817	17174
03	1642	1715	1648	1	3						2		1637	17174
03	2219	2247	2230	1-	3	1			1				*	
04	0249	0324	0254	1-	3				2				0249	17174
04	0433	0526	0441	1-	3			1	2				NF	
04	1439	1528	1456	1-	3				1		1		NF	
05	0441	0459	0443	1-	3				1		1		*	
05	2306	2352	2324	1-	3				1		1		*	
06	0121	0207	0126	1-	5	1			2		1		0121	17169
06	0402	0533	0421	1-	1				2				*	
06	0855	0940	0902	2+	5	2		2	1	1	2		*	
06	1331	1428	1347	1-	1				1				*	
06	1608	1612D	1612	1-	1				1				NF	
06	2155	2224	2201	1-	3				1		1		NF	
07	0029	0058	0035	1-	1				1				*	
07	0422	0557	0434	1	5	1			2		1		*	
07	0631	0645	0637	1	5				2	1	1		*	
07	0928	1025	0937	3	5	3		1	2	1	3		0922	17182
07	1411	1416D	1416	2	5	3		1	1	1	5		1414	17188
07	1430	1450	1438	1	5			1	1	1	3		1428	17188
07	1509	1520	1513	1-	3				1		1		1502	17184
07	1559	1614	1614	1	5	1			1		5		1602	17187
07	1729	1826	1739	1-	3				1		5		NF	
07	2019	2100	2029	2	3						3		2012	17177
07	2125	2155	2132	1-	3				1		2		2123	17187
07	2211	2305D	2221	1-	3				1		1		2212	17187
07	2306	2319D	2319	2+	5	3			2		2		2305	17187
08	0128	0336E	0139	1-	3	1		1					0124	17188
08	0140	0247	0149	1	3	1			1				0143	17188
08	0324	0436	0340	1-	3				2				NF	
08	1155	1240	1202	3	5	2		2	2	1	3		*	
08	1538	1551D	1551	1	5				2		5		1533	17187
08	1653	1820	1713	1-	5				1		6		1648	17174
08	1918	1935	1921	1-	3				1		5		1917	17188
08	1942	2015	1944	1-	1						1		1939	17188
08	2025	2143	2036	1	5	2			1		6		*	
08	2256	0019	2307	1-	3	1			2		1		2255	17187
09	0236	0316	0246	1-	3	1			2		1		0236	17188
09	0409	0500	0410	1	1						1		0404	17177
09	0732	0841	0746	1-	3				1		1		*	
09	1124	1207	1133	3	5	3		2	1		2		1124E	17188
09	1750	1849	1755	2+	3						4		1749	17188
09	1953	2113	2001	2+	5	2					7		1951	17188
09	2218	2312	2223	1-	3				1		2		NF	
10	0021	0126D	0039	1-	3	1			2		1		NF	
10	0126	0149	0131	1-	3	1			1				0126E	17187
10	0301	0422	0320	1-	3	1			2				0301	17187
10	0623	0838	0643	2	3				2	1			NF	
10	1049	1102D	1102	3	5	2		2	1	1	3		1049	17188
10	1128	1245	1132	1-	1						1		1128	17188
10	1308	1350	1326	1	3	1		1	1	1	1		*	
10	1714	1800	1716	2	3						4		*	
10	1945	2015	1949	1	3						3		*	
10	2107	2121	2109	1	1	1							2108E	17188
10	2156	2252	2220	1-	3				1		1		NF	

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
11	0221	0712	0402	2+	3	2			2		1		0223	17188
11	0349	0506D	0404	3	3	2		1	1		1		*	
11	0412	0430	0417	1-	1						1		0412	17187
11	0813	0901	0821	1-	3	1			2		1		0815	17188
11	1325	1353	1330	1+	3	1					2		*	
11	1741	1905	1746	2	5	1					7		NF	
11	1927	1935	1929	1-	3						4		1927	17181
11	2017	2055	2029	2	3						6		2016	17181
11	2216	2250	2230	1-	3	1				1	1		2218	17181
11	2313E	2336	2318	1-	3					1	1		NF	
11	2343	0043	2350	1-	3	2					1		2344	17181
12	0129	0156D	0142	1-	3						2		NF	
12	0156	0255	0204	1-	3	1					1		0157	17188
12	0308	0400	0324	1-	1						1		0302	17188
12	0429	0507	0433	1+	1	1							0427	17187
12	0517	0541	0522	1-	3						2		NF	
12	0717	0849	0730	1-	3						2		0709	17187
12	1521	1535	1526	1	3				1		3		1519	17187
12	2251	0025D	2316	1-	3	1			2		1		2256	17187
13	0026	0106	0035	1-	3				2				0021	17185
13	0311	0345	0325	1-	3				2				0312	17181
13	0413	0540	0421	2+	5	2			2		1		0407	17188
13	0615	0714	0622	1-	3				2				0616	17187
13	0744	0800D	0800	2	3				2				NF	
13	0820	0930	0843	2+	3				2				*	
13	0943	1050	0951	3	5	2		1	1	1	1		0941	17181
13	1150	1230	1200	1	3	1		1		1	1		NF	
13	1314	1330	1324	1	3					1	1		NF	
13	1930	2045	1936	2+	3						7		1926	17188
13	2345	0188	0000	1-	3				2		1		NF	
14	0540	0806D	0610	3	5	1			2		2		0542	17188
14	0806E	0931	0812	1	3				2				*	
14	1043	1150	1110	2+	3	1				1	1		*	
14	1401	1420	1404	1-	1						1		1401	17187
14	1801	1859 D	1816	1+	3						3		1802E	17181
14	1859	1930	1903	1	1						1		1858	17181
14	2109	2148	2120	1-	3				1		1		*	
14	2220	2318	2246	1-	1				1				NF	
15	0227	0258	0236	1-	1				1				NF	
15	0509E	0746	0542	2	3	1			1				0508	17205
15	0640	0643D	0643	1-	1						1		NF	
15	1025	1100	1029	1-	1						1		1022	17181
15	1243	1400	1254	3	5	3			1	1	1		1247	17181
15	1553	1717	1615	2+	3						4		1555E	17187
15	1734	1758	1735	1+	3						5		NF	
15	1800	2014	1825	3	3						3		*	
16	0116	0154	0121	1-	3	1			2				0116	17181
16	0333	0425	0341	1-	3				2				0330	17188
16	0744	0855	0756	1	1				1	1	1		*	
16	1025	1140	1028	1	3					1	1		*	
16	1404	1422	1405	1-	3						4		1404E	17206
16	1448	1510	1450	1	3						3		1448	17206
16	1530	1555	1539	1+	3						3		NF	
16	1655	1719	1656	1+	3						5		1647	17187
17	0041	0105	0050	1-	3				2				*	
17	0812	0835	0815	1	5	2			1	1	2		0808	17188
17	1410	1455	1416	1-	3						4		NF	
17	1505	1530	1508	1+	3						4		*	
17	1610	1632	1616	1	3						7		*	
17	1633	1725	1641	2	3						7		1633	17212
17	1733	1746	1735	1-	3						3		1731	17211
17	1758	1815D	1803	1-	3						3		1749	17212
17	1838	1855	1843	1-	3						4		NF	
17	1918	1941	1920	1-	5				1		7		*	
17	2014	2055	2021	1-	3				1		5		NF	
17	2128	2214	2146	1-	3				1		1		NF	
17	2336	0012	2340	1	5	1		1	2		1		2336	17212

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
18	0018E	0116	0034	1-	3				1		1		0012	17212
18	0138	0648	0340	1	3	1			2		1		0142E	17212
18	0238E	0319D	0245	1-	3	2			1		1		0236	17188
18	0319E	0437D	0340	1	3	1			1		1		NF	
18	0437E	0534	0444	1-	1				1				NF	
18	1040	1120	1043	1	5			1	1	1	2		*	
18	1407	1430	1411	1+	1						1		1405	17188
18	1504	1540	1510	1-	3						7		1544	17206
18	1545	1557	1546	1-	3						4		NF	
18	1645	1715	1648	1-	3						4		NF	
18	1819	1932	1839	2+	3						7		1819	17212
18	1934	2120	1942	2	3						6		1934	17212
18	2130	2238	2152	1	3				1		3		2129	17212
18	2331	0000D	2336	1-	3	1			2		1		2330	17212
19	0000E	0037D	0006	1-	3	1			1		1		0001	17212
19	0037E	0141	0040	1-	1				1				NF	
19	0151	0414	0308	1-	1				1				0150	17188
19	0302	0358	0309	1-	3				1		1		0303E	17212
19	0510	0719	0545	1-	3				2				NF	
19	0533D	0642D	0547	1	3	1			1		1		0544E	17212
19	0642E	0704	0646	1-	3				1		2		0632	17212
19	0938	1030	0945	1	5	1		2	1	1	2		0939	17212
19	1237	1320	1242	1	3	2		2		1	1		*	
19	1654	1721	1658	1	3						4		1653	17212
19	2350	0051	0004	1-	3	1		1	2				NF	
20	0414	0709	0454	1-	3				2				NF	
20	0445E	0527D	0453	1	3				1		1		0446	17212
20	0629	0705	0639	1-	1				1				NF	
20	0900	0954	0907	1-	3	1		1	1	1			0904E	17206
20	1030	1120	1040	1-	3			1	1	1			*	
20	1833	1935	1835	2	3						6		1831	17212
21	0003	0137	0045	1-	3				2				0003E	17214
21	0158	0236	0205	1-	1				1				*	
21	0956	1050	1006	1	3			1	1	1			*	
22	0508	0532	0517	1-	3			1	1				*	
22	1530	1610	1535	2	3						6		1527	17214
23	0000	0144	0018	2	3	1			2		1		0000	17214
23	0736	0840	0741	3	5	4			2	1	2		0736	17214
23	1034	1120	1036	2+	5	3			1	1	2		1035	17201
23	1220	1300	1227	2+	5	1		3		1	1		*	
23	1553	1625	1555	1	3						4		1553	17214
24	2219	2313	2233	1-	3				1		1		2219	17211
25	0406	0512	0424	1-	3				2				0410	17212
25	0537	0757	0550	2	5	1			2		1		0535	17214
25	0816	0923	0828	1	3				1		2		0802	17214
25	0945	1040	0948	3	5	3		3	1	1	2		0942	17214
25	2214	2241	2221	1-	3				1		5		2213	17212
26	0003	0026	0008	1-	3				1		1		0001	17211
26	1403	1440	1407	1-	3	2		2		1	1		NF	
26	1830	1900	1834	1	1						1		1826	17211
26	2006	2100	2013	1+	3						5		NF	
26	2239	2319	2246	1-	3				1		2		2241	17223
27	0118	0321	0228	1-	3				2				0118	17223
27	0216	0325	0230	1-	1				1				0218E	17225
27	0724	0800	0732	1	3				1	1	1		0722	17232
28	0307	0512	0316	1	3	1			2		1		*	
28	0429E	0500	0439	1-	1				1				0425	17212
28	0925	1000	0930	1	3	1		2		1	1		0923E	17230
28	1110	1140	1114	1	3					1	1		*	
28	1901	1940	1905	1-	3						5		*	
28	2217	2318	2223	1-	3				1		2		2218	17212
29	0616	0750	0622	1	1				1				NF	
29	1139	1220	1142	3	5			2	1	1			1144E	17232
29	1530	1550	1535	1-	3						7		1526E	17230
29	1644	1715	1648	1-	3						2		1643	17212
30	0207	0305	0212	1-	3				2				0206E	17232
30	0315	0418	0325	1-	3				2				0310	17232
30	0726	0817	0734	1-	1				1				0722	17211
30	2053	2149	2101	1-	3				1		5		*	
31	0205	0241	0208	1-	3				2		1		0206E	17226
31	0932	1000	0936	2+	3			1		1	1		*	
31	1348	1410	1353	1-	3			1		1			*	
31	1508	1530	1513	1	1						1		1509	17238
31	1715	1730	1717	1-	3						4		NF	

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1980

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) AND STATION	DATE	TIME (UT) AND STATION
01-19	0000-2400 Louisville	13	2327-2358 WWV
01-23	0000-2400 Mahwah	19	0425-0502 WWV
07	1000-1400 Sao Paulo	27	2048-2400 Glenorchy
10-31	0000-2400 Sao Paulo	28	0000-0518 Glenorchy

STATIONS REPORTING FOR OCTOBER 1980:

Cleveland, Ohio, USA	SES	Louisville, Kentucky, USA	SES
Darmstadt, GFR	SWF	Maui, Hawaii, USA	SWF
Glenorchy, Tasmania, Australia	SWF	Mahwah, New Jersey, USA	SES
Hiraiso, Japan	SWF	Missoula, Montana, USA	SES
Hobart, Tasmania, Australia	SEA	Panska Ves, Czechoslovakia	SWF, SEA, SES
Houston, Texas, USA	SES	Portage, Michigan, USA	SES
Inubo, Japan	SPA	Preston, United Kingdom	SEA
Juliusruh, GDR	SPA	Sao Paulo, Brasil	SES, SPA
Kasugai, Japan	SPA	Sofia, Bulgaria	SES
Kuhlungsborn, GDR	LF-SPA, SEA	St. Cloud, Minnesota, USA	SES
Lake Hiawatha, New Jersey, USA	SES	Thornwood, New York, USA	SES
Latrobe, Pennsylvania, USA	SES	Valley Cottage, New York, USA	SES

SIDs BY HALE REGION

OCTOBER 1980

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
17169						1																									
17173		2	2	1																											
17174								1																							
17175	1																														
17177	1								1																						
17181											4		2	2	2	1															
17182							1																								
17184							1																								
17185													1																		
17187							5	2		2	1	4	1	1	1	1															
17188							2	4	4	3	2	2	2	1		1	1	2	1												
17201																							1								
17205															1																
17206																2		1		1											
17211																	1							1	2	2				1	
17212																	3	6	6	2								2	1		
17214																					1	1	3		3						
17223																										1	1				
17225																											1				
17226																															1
17230																												1	1		
17232																											1		1	2	
17238																															1
NO FLARE	1	3	1	2		2	1	1	1	3	2	2	3	1	3	1	4	4	3	2						2			1		1
NO FLARE PATROL			1		2	3	3	3	1	3	1		1	3	1	2	4	1	1	1	2	1	1					3		1	2
EVENT TOTALS	2	2	2	1		1	9	7	5	5	7	6	6	4	4	5	5	9	7	3	1	1	4	1	5	3	2	2	1	1	2

MAGNETIC FIELD MAGNITUDES

OCTOBER 1980

DATE	TIME	BMAG
10/01/80		----
10/02/80	05:29:35	12.53
10/03/80	05:31:59	11.75
10/04/80	05:35:29	5.22
10/05/80	05:36:55	6.82
10/06/80	04:11:08	11.15
10/07/80		----
10/08/80		----
10/09/80	05:47:02	13.68
10/10/80	05:50:31	8.49
10/11/80	05:53:17	15.57
10/12/80	08:46:03	9.45
10/13/80	05:58:18	11.27
10/14/80	06:00:33	11.70
10/15/80		----
10/16/80	06:05:47	13.04
10/17/80	06:11:10	12.17
10/18/80	06:09:06	11.58
10/19/80		----
10/20/80	06:13:58	8.86
10/21/80	06:17:38	10.34
10/22/80		----
10/23/80	06:21:20	17.78
10/24/80	06:25:10	12.05
10/25/80	06:26:45	11.91
10/26/80	06:31:24	9.35
10/27/80	06:32:21	7.60
10/28/80	06:36:05	18.67
10/29/80	06:41:46	12.54
10/30/80	05:43:49	8.86

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0722	CULG	0006	0006.5	1							IIIG
			CULG				0006	0156					IIIN,W
			CULG	0023	0023.5	1	0022.5	0024	1				IIIG,V
			LEAR				0023.0	0028.2	2				CONT
			CULG				0023.5	0024	1				UNCLF
			CULG				0027	0028	2				IIIG,V
			PALE				0027.5	0038.6	2				S
			CULG	0036.5	0037	2	0036	0037.5	2				IIIG,V
			LEAR				0036.6	0039.3	2				CONT
			CULG	0037.5	0038.5	3	0037.5	0039	3	0038	0038.5	1	IIIG,V,U
			LEAR				0058.9	0100.7	1				CONT
			CULG	0138	0140	1	0139	0140	2				IIIG,U
			LEAR				0139.4	0140.0	1				CONT
			CULG	0156.5	0157	1	0156.5	0157.5	1				IIIG
			LEAR				0156.8	0158.1	1				V
			CULG				0536						IIIB,W
			LEAR				0536.1	0536.3	1				III
			CULG				0542	0543					IIIG,W
			CULG	0701.5		1							IIIB
			CULG				0710.5	0711.5	1				IIIG
			LEAR				0711.1	0711.8	1				CONT
	0558	1106	WEIS				0711.2	0711.4	1				IIIG
			WEIS				1025.9	1026.4	2				IIIG
			WEIS				1029.6	1030.4	2				III,DCIM
	0625	1552	BLEN	1029.6	1030.3	2	1029.6	1030.3	2				IIIG
			BLEN	1438.9	1442.7	1	1442.3	1442.7	1				IIIG
	1120	1627	WEIS				1442.7	1443.0	2				IIIG
	1318	2245	HARV	1443		1	1443		3				IIIG
			HARV	1506	1508	3	1506	1510	3				IIIGG
	0835	1605	DWIN	1506.0	1512	1						IV	
			WEIS				1506.1	1508.6	2				IIIGG,DCIM
			BLEN	1506.5	1508.4	3	1506.0	1509.7	3				IIIGG
			HARV				1507		1				IIIB
			SGMR				1507.5	1508.1	2				III
			HARV				2005	2006	2				IIIG
			HARV	2007		1							IIIG
			HARV	2104	2105	2	2104	2105	3				IIIG
	2022	2400	CULG	2104.5	2105	1	2104.5	2105	1				IIIG
			CULG	2107.5	2108		2107.5						IIIG,
			CULG				2227						IIIB,W
02	0000	0722	CULG				0114	0115	1				IIIG
			CULG				0127.5	0128					IIIG,W
			CULG	0129	0130								IIIG,W
			CULG	0309.5	0310								IIIG,W
			CULG	0312.5	0315	1							IIIGG
			CULG				0313	0313.5					IIIG,W
			CULG				0341.5						IIIB,W
			CULG	0448	0448.5		0448	0448.5					IIIG,W
			CULG	0557	0600	2	0557.5	0559.5	2				IIIGG,U
	0557	1204	WEIS				0557.5	0559.6	2				IIIG
	0612	1605	DWIN										
	0630	0712	BLEN										
	0800	1550	BLEN	0816.8	0816.9	2	0816.8	0816.9	1				IIIB,RS
			BLEN				0956.1	0956.2	1				III
			WEIS				0957.8	0958.1	1				IIIB
			BLEN				1013.1	1314.3	3				IIIG,U,RS
			WEIS				1013.7	1014.5	2				IIIG
			BLEN	1038.5	1039.6	1	1038.5	1039.6	2				IIIG
			WEIS				1038.7	1039.4	2				IIIG
			BLEN				1147.8	1148.5	2				IIIG,RS
			BLEN				1506.9	1508.7	1				IIIG
			BLEN				1549.3	1550 D	2				IIIGG,RS
	1238	1624	WEIS				1549.4	1550.5	1				III,DCIM
	1319	2240	HARV	1550		1	1549	1551	3				IIIG
	2022	2400	CULG				2106.5	2109	1				IIIGG
			PALE				2107.8	2108.9	1				V
			HARV				2108	2109	2				IIIG
			CULG	2158	2201	3	2158.5	2210	3	2159.5	2200	1	IIIGG,V
			HARV	2158	2200	2	2158	2200	3				IIIGG,V

SOLAR RADIO EMISSION
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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
02			PALE				2159.1	2208.8	2				CONT
			HARV				2200	2212	1				I
			HARV				2202	2213	3				II
			CULG				2204.5	2214	2				II,H
			CULG				2205	2221	1				IIIN
			CULG				2336.5						IIIB,W
03	0000	0721	CULG				0025.5	0026					IIIG,W
			LEAR				0026.0	0026.3	1				III
			PALE				0026.2	0026.4	1				III
			CULG	0135.5	0136		0135.5	0136					IIIG,W
			LEAR				0136.0	0136.3	1				III
			CULG	0138.5	0139								IIIG,W
			CULG	0139.5	0140.5	2	0139.5	0140.5	2	0140	0140.5	1	IIIG
			LEAR				0139.9	0140.6	2				V
			PALE				0140.0	0140.9	2				V
			LEAR				0157.7	0158.0	1				III
			CULG	0344	0344.5	1	0344		1				IIIB
			CULG	0418			0418						IIIB,W
			CULG				0421	0721					IIIN,W
			LEAR				0546.0	0617.3	1				S
			CULG				0550.5	0617	1				IIIS
			LEAR				0758.7	0759.2	2				CONT
	0740	1622	WEIS				0759.3	0759.4	2				IIIG
	0805	1020	DWIN										
			WEIS				0910.7	0913.4	2				IIIG
			LEAR				0910.9	0912.0	1				CONT
			WEIS				1002.4	1002.8	2				IIIG
			WEIS				1005.1	1005.7	1				IIIG
			WEIS				1034.7	1034.8	1				IIIG
	1125	1600	DWIN										
			WEIS				1132.9	1133.9	2				IIIG
			WEIS				1209.1	1209.4	1				IIIG
	1319	2245	HARV	1559	1600	2	1559	1600	3				IIIG
			WEIS				1559.1	1559.3	1				IIIB
			HARV				1746	1747	1				IIIG
			HARV				2113	2125	2				IIIGG
	2021	2400	CULG	2119	2120.5		2117	2120.5					IIIGG,W
			CULG				2309						IIIB,W
			CULG				2311	2312					IIIG,W
04	0000	0721	CULG				0043						IIIB
			CULG				0204.5	0205	1				IIIG
			LEAR				0204.8	0206.1	1				CONT
			CULG				0444		1				IIIB
			LEAR				0444.3	0444.4	1				III
	0615	1600	DWIN										
	0602	1620	WEIS				0621.9	0622.1	1				IIIB
			CULG				0622						IIIB
			CULG				0702.5	0703.5					IIIG,W
	1318	2245	HARV				1546	1547	1				IIIGW
			HARV	1621	1623	2	1621	1623	3				IIIG
			HARV				2041		2				IIIG
	2021	2400	CULG	2041	2042		2041						IIIB,W
			CULG				2115.5						IIIB,W
			CULG				2138	2226	1				IIIS
			CULG	2139	2219	1							IIIN
			HARV				2139	2148	2				IIIG
			PALE				2139.0	2140.5	1				CONT
			CULG				2140	2140.5	2				IIIG
			CULG	2146	2157								IV
			CULG				2153	2229	1				IS
			CULG				2153	2229	1				SLOW DRIFT
			PALE				2157.3	2239.0	1				S
			HARV				2201	2217	1				I
			HARV				2205		1				IIIG
			CULG				2212	2212.5	2	2212	2212.5	2	IIIG
			HARV	2218		1							IIIGW
			CULG				2226	2400					IIIN,W
05	0000	0721	CULG				0000	0128					IIIN,W

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
05			CULG				0102.5	0103	1				IIIG
			LEAR				0102.8	0103.3	1				CONT
			LEAR				0128.2	0128.4	1				CONT
			CULG				0406	0545					IS,W
			CULG	0410	0412		0409	0421					IIIN,W
			CULG				0520.5		1				IIIB
			CULG				0545	0720					IN,W
	0602	0651	WEIS										
	0620	1600	DWIN										
			CULG				0720.5		1				IIIB
	0741	1618	WEIS				0851.7	0851.9	1				IIIB
	1319	2330	HARV	1428	1429	1	1428	1429	2				IIIG
			HARV	1452		2	1452		3				IIIG
			HARV				1517	1728	1				INW
			HARV				1752		1				IIIG
			HARV				2010	2011	2				IIIG
			HARV				2108	2109	3				IIIG
	2021	2400	CULG				2108	2400					IIIN,W
			PALE				2110.2	2110.4	1				III
			CULG				2110.5		2				IIIB
			PALE				2117.0	2119.1	3				V
			CULG	2117.5	2119.5	2	2117	2119	3				IIIGG
			HARV	2118	2119	3	2117	2122	3				IIIGG
			CULG				2119.5	2126	1				IIIN,U
			HARV				2137	2138	2				I
			CULG				2140.5		1				IIIB
			HARV				2210		1				I
			HARV				2249	2252	3				IIIG
			CULG				2250	2250.5	1				IIIG
			CULG				2252.5		1				IIIG
			CULG	2300	2300.5	1							I
			CULG				2307.5	2308	3				IIIB
			LEAR				2307.7	2308.1	1				V
			PALE				2307.9	2308.1	1				III
			HARV				2308		3				IIIG
			HARV				2324		1				IW
			CULG				2340	2340.5	1				IIIG
			CULG	2356	2359								IIIGG,W
06	0000	0720	CULG				0001	0635					IIIN,W
			LEAR				0006.2	0014.9	2				CONT
			CULG	0008	0011	1	0006	0015	1	0008	0010.5	2	IIIS
			PALE				0008.2	0010.1	1				CONT
			CULG	0010		1	0010		2	0010.5		2	IIIB
			CULG				0030.5	0032.5	1				IIIGG
			LEAR				0030.8	0032.1	1				CONT
			CULG	0104.5		1	0104.5		1				IIIB
			CULG				0116	0123	1				N,RS,DP
			LEAR				0116.0	0123.2	2				CONT
			PALE				0116.0	0022.1	2				CONT
			CULG	0117.5	0123	2	0115.5	0123	3	0116	0122.5	2	IIIGG
			CULG				0216		1				IIIB
			LEAR				0216.1	0216.3	1				III
			CULG				0247.5	0248	1				IIIG
			CULG	0247.5	0248					0247.5	0248		IIIG,W
			LEAR				0247.6	0248.2	1				CONT
			CULG	0400.5	0403		0401.5	0404.5					CONT
			LEAR				0405.9	0406.1	2				III
			CULG				0406		1				IIIB
			LEAR				0407.3	0411.7	2				V
			CULG	0407.5	0412	1	0407	0409	2	0407.5	0408.5	2	IIIGG
			CULG	0427.5			0427.5						IIIB,W
			LEAR				0435.8	0436.0	1				V
			CULG				0436		1	0436		1	IIIB
			CULG				0500	0536					IN,W
			CULG				0502	0506.5	1				IIIGG
			CULG				0502	0506	1				N,RS,DP
			LEAR				0502.7	0506.0	1				CONT
			LEAR				0530.1	0530.5	1				V
			LEAR				0606.4	0607.0	1				V

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
06			CULG				0606.5	0608	2				IIIG
	0604	1616	WEIS				0622.9	0624.1	1				IIIG
			WEIS				0626.0	0626.3	1				IIIG
			WEIS				0633.7	0634.1	2				IIIG
			LEAR				0633.9	0634.1	1				III
			CULG				0639		2				IIIB
			LEAR				0803.1	0809.9	2				CONT
			WEIS				0803.3	0809.9	2				IIIGG,DCIM
	0712	1600	DWIN	0829.0	0833.5	1							IV
			DWIN	0855.0	0855.7	3							IIIG
			WEIS				0855.2	0855.7	3				III,DCIM
			WEIS				1005.7	1013.1	3				IIIGG
			WEIS				1016.6	1023.3	3				IIIGG
			DWIN	1019.6	1020.2	1							IV
			DWIN	1035.0	1049	2							IV P
			WEIS				1036.6	1046.3	2				IIIGG,DCIM
	1319	2245	HARV				1331		1				I
			WEIS				1342.6	1344.5	2				IIIGG
			HARV	1343		1	1343	1344	2				IIIG
			WEIS				1436.6	1441.3	3				IIIG
			HARV	1437		2	1436	1441	3				IIIGG
			HARV	1451		1	1451		2				IIIG
			WEIS				1512.7	1512.9	2				IIIG
			HARV				1513		2				IIIG
			HARV				1523	1525	2				IIIG
			WEIS				1534.8	1536.8	3				IIIG
			HARV	1535		1	1535		2				IIIG
			HARV				1557		2				I
			WEIS				1608.9	1609.0	1				IIIB
			HARV				1609		1				IIIG
			HARV				1639	1640	3				IIIG
			HARV	1645	1649	1	1645	1649	1				IIIG
			HARV				1728	1729	1				IIIGW
			HARV				1735		2				IIIB
			HARV				1825		3				IIIG,U
			PALE				1825.2	1825.8	1				III
			HARV				1830		2				IIIG
			HARV				1946	2242	1				INW
	2020	2400	CULG	2035	2400								IN,W
			CULG				2036	2343					IIIN,W
			CULG				2056	2057	1				IIIG
			HARV				2057		2				IIIB
			CULG				2059.5	2101	2				IIIG
			HARV				2100	2101	2				IIIG
07			LEAR				0050.2	0050.3	1				III
	0000	0720	CULG				0050.5		1				IIIB
			CULG	0054	0340								IN,W
			CULG				0054.5						IIIB,W
			CULG	0340	0720								IS,W
			CULG				0353	0405					IS,W
			CULG				0444	0658					IIIN,W
			LEAR				0527.8	0530.8	1				CONT
	0606	0725	WEIS										
	0620	1600	DWIN										
	0731	0807	WEIS										
	0914	1614	WEIS				0919.7	0920.4	1				IIIG
			LEAR				0919.8	0920.1	1				III
			WEIS				0933.1	0934.7	1				IIIG
			WEIS				1037.9	1038.7	3				IIIG
			WEIS	1109.7	1110.2	1							III,DCIM
			WEIS				1121.3	1121.5	2				IIIG
			WEIS				1131.7	1133.3	2				IIIG
			WEIS				1155.8	1156.1	2				IIIG
	1319	2240	HARV	1341	1342	1	1341	1342	2				IIIG
			WEIS				1342.1	1342.5	2				IIIG
			HARV				1525	1529	1				I
			HARV				1532	1536	1				IIIGW
			WEIS				1601.6	1602.9	1				IIIG
			HARV				1602	1603	2				IIIG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
07			HARV	1856		2	1856		3				IIIG
			HARV	2020	2021	1	2020	2021	1				IIIGW
	2020	2400	CULG	2020	2023								IIIN,W
			HARV				2052	2240	1				INW
			CULG				2101	2101.5					I
			CULG				2102	2400					IIIN,W
			CULG	2143	2400								IN,W
			HARV				2157	2158	3				IIIG
			CULG				2157.5		2				IIIB
			CULG	2307	2400								CONT
			CULG							2308	2330	2	SWF
			CULG	2315	2316								IIIG,W
			CULG				2316	2317.5	1				IIIG
			LEAR				2316.0	2316.6	1				CONT
			CULG				2320	2400	1				IS,C
			CULG	0000	0720								IN,W
			CULG				0000	0648					IIIN,W
	0000	0720	CULG				0000	0045	1				IS,C
			CULG				0045	0237					IS,W
			CULG	0141.5	0142.5	2	0142	0143	2				IIIG,U
			LEAR				0142.4	0142.8	1				CONT
			CULG							0144	0155	1	SWF
			CULG	0217	0217.5	1							IIIG
			LEAR				0218.0	0221.2	1				CONT
			CULG				0223	0237	2			II	
			LEAR				0223.3	0229.2	1			II	
			CULG				0226	0229	1				IIIGG
			CULG				0232	0232.5	1	0232	0232.5	1	IIIG
			LEAR				0232.2	0232.7	2				CONT
			CULG	0258.5	0259	1	0258.5	0259.5	2				IIIG
			LEAR				0258.9	0259.3	1				CONT
			CULG				0657.5	0701	1				IIIGG
	0625	1600	DWIN	1154.5	1156.2	2							IIIG
	0607	1612	WEIS	1154.7	1155.5	2							IIIRS
			DWIN	1412.5	1413.0	2							IIIG
			DWIN	1534.0	1539.0	2							IIIG
	1319	2245	HARV	1535	1536	3	1535	1536	3				IIIG
			WEIS				1535.4	1535.6	2				IIIG,DCIM
			HARV				1647	2242	1				INW
			HARV				1700	1709	2			II	
			HARV				1702	1706	2				IVP
			PALE				1915.5	1935.0	1				S
			HARV	2009	2012	1	2009	2012	2				IIIGG
	2019	2400	CULG				2019	2157					IS,W
			CULG				2020	2329					IIIN,W
			CULG	2021	2032	2	2025	2030	2				IIIGG
			HARV	2021	2031	3	2021	2031	3				IIIGG,V
			CULG	2027	2029		2026	2032					CONT
			CULG				2043		1				IIIB
			HARV				2043		1				IIIG
			CULG	2111	2400								IN,W
			CULG				2156	2157	1				DC
			CULG	2339	2342	1	2339	2343	2	2339	2342	1	IIIGG
			LEAR				2339.0	2343.3	1				V
			PALE				2340.0	2342.6	1				V
09	0000	0716	CULG	0121	0716		0203	0716					IS,W
			CULG				0225	0716					IIIN,W
			CULG	0240	0240.5	1							IIIG
			CULG	0356.5	0359								DCIM
			CULG				0459	0502	1				IIIG
			LEAR				0608.5	0608.6	1				III
	0608	0804	WEIS				0701	1550	2				IN,DC
			LEAR				0751.5	0751.6	1				III
	0808	1528	WEIS				0751.5	0751.6	1				IIIB
	1548	1609	WEIS				0756.7	0758.2	2				IIIG,DCIM
			LEAR				0756.8	0757.2	2				V
	0720	1550	DWIN	1142.4	1145.0	1							IIIG
	1319	2245	HARV				1319	1540	2				I

SOLAR RADIO EMISSION
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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
09			HARV				1411	1412	2				IIIG
			HARV				1541	2245	1				IN
			HARV				1626	1627	2				IIIG
	2019	2400	CULG				2019	2400	1				IS,DC
			CULG				2020	2400					IIIS,W
			PALE				2038.0	2039.3	1				V
			CULG				2039		2				IIIB
			HARV				2039		3				IIIB
			CULG				2047	2345	1				IIIN
			CULG				2059.5		2				IIIB
			HARV				2100		2				IIIB
			CULG	2204	2400								IN,W
			CULG				2252	2344	1				N,RS,DP
			LEAR				2310.7	2310.8	1				III
			CULG				2341.5	2343.5	1				IIIGG
			LEAR				2341.7	2343.5	1				CONT
10	0000	0719	CULG				0000	0300					IS,DC,W
			CULG				0000	0719					IIIS,W
			CULG	0000	0719								IN,W
			CULG				0023	0540	1				IIIN
			LEAR				0028.6	0058.6	1				S
			CULG				0035.5		1	0035.5		1	IIIB
			CULG				0124	0125	2	0124.5	0125	2	IIIB,V,U
			LEAR				0124.3	0125.6	2				V
			PALE				0124.5	0128.2	1				CONT
			CULG	0126.5	0127	1	0126.5	0129	2	0127.5	0128.5	2	IIIG,V
			LEAR				0126.6	0129.8	2				V
			LEAR				0133.9	0134.2	1				III
			CULG	0136	0136.5	1	0136	0136.5	1				IIIG,U
			LEAR				0203.5	0204.0	1				V
			LEAR				0214.8	0324.1	1				B
			PALE				0225.3	0228.5	2				CONT
			CULG	0226	0226.5	1	0225.5	0226.5	3	0225.5	0226.5	1	IIIG
			CULG				0239	0703					N,RS,DP
			CULG				0300	0719	1				IS,DC
			CULG	0346.5	0347	2	0346.5	0347	1				IIIG
			CULG				0411		2	0411		1	IIIB
			LEAR				0411.2	0411.4	2				V
			LEAR				0511.7	0511.9	1				III
			LEAR				0530.5	0530.7	1				III
			LEAR				0539.8	0540.0	1				III
			LEAR				0554.9	0557.1	2				CONT
			CULG				0555.5	0557	2				IIIGG
			CULG				0614.5	0615	2				IIIG
			LEAR				0614.5	0616.3	2				CONT
	0610	1638	WEIS				0614.7	0616.2	2				IIIG
			CULG				0616		2				IIIB
	0625	1310	DWIN										
			LEAR				0648.6	0649.7	1				CONT
			WEIS				0648.6	0649.7	2				IIIG
			WEIS				0941.4	0941.6	2				IIIG
			WEIS				0946.3	0946.5	2				IIIG
			WEIS				0949.7	0949.8	2				IIIB
			WEIS				0951.5	0953.3	2				IIIG
			WEIS				0954.8	0954.9	1				IIIB
			WEIS				1017.2	1017.3	1				IIIB
			WEIS				1021.6	1025.3	2				IIIG
			WEIS				1235.6	1237.0	1				IIIG
			WEIS				1305.7	1305.9	2				IIIB
			WEIS				1307.4	1307.8	1				IIIG
	1319	2245	HARV				1322	2245	1				IN
			WEIS				1341.3	1341.5	1				IIIB
			HARV				1413	1415	2				IIIG
			WEIS				1413.5	1414.7	2				IIIG
			HARV				1739		1				IIIG
			HARV				1750	1751	1				IIIG
			HARV				1803	1804	2				IIIG
	2019	2400	CULG	2019	2400								IS,W
			CULG	2021	2021.5	2	2021	2021.5	3				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
10			HARV				2021	2023	3				IIIG
			PALE				2021.2	2022.9	2				CONT
			CULG	2022.5	2023	2	2022.5	2023	2				IIIG
			CULG				2023	2400					IIIN,W
			CULG				2050	2400					IN
			CULG	2148.5	2149	1	2148.5	2149	2	2148.5	2149.5	2	IIIG
			PALE				2148.7	2154.2	2				CONT
			HARV				2149		2				IIIG
			HARV				2152	2154	3				IIIG
			CULG	2154		1	2153.5	2154	2				IIIG
			CULG	2236	2237	1							IIIG
			CULG	2254.5	2255.5	2	2254.5	2255.5	1				IIIG
			CULG	2305.5	2306	1							IIIG
			CULG				2337	2345					CONT
			CULG				2351.5		1				IIIB
			LEAR				2351.6	2351.8	1				III
11	0000	0719	CULG	0000	0719								IN,W
			CULG				0007	0702					IIIN,W
			CULG	0008	0008.5	1	0008	0008.5	1				IIIG
			LEAR				0008.3	0008.5	1				III
			CULG				0027	0125	1				N,DC
			CULG				0027	0146					IS,W
			LEAR				0035.0	0035.2	1				III
			PALE				0148.2	0150.5	1				CONT
			CULG	0357.5	0358	1							IIIG
			CULG							0358	0419	1	SWF
			CULG	0400	0401	1							IIIG
			CULG	0413	0414.5	1	0413	0415	2				IIIGG
			LEAR				0413.0	0416.2	2				CONT
			CULG				0423	0719					IN,W
			LEAR				0539.9	0541.3	2				CONT
			CULG				0540	0541.5	2				IIIGG
	0611	0807	WEIS										
	0630	1545	DWIN	0842.0	0847.5	1							IIIG
	0826	1638	WEIS				1013.9	1014.1	1				IIIB
			WEIS				1018.0	1018.1	1				IIIB
			DWIN	1323.6	1324.7	2							IIIG
	1334	2310	HARV				1334	1900	1				I
			WEIS				1356.0	1356.0	1				IIIB
			WEIS				1358.3	1358.6	1				IIIG
			WEIS				1403.7	1406.7	1				IIIG
			HARV				1404	1406	1				IIIGW
			WEIS				1409.6	1409.8	1				IIIB
			WEIS				1416.7	1439.8	2				IIIGG
			HARV				1417	1419	1				IIIG
			HARV				1624		1				IIIG
			HARV	1632		1	1632		1				IIIGW
			HARV				1725	1726	1				IIIGW
			HARV				1735	1736	2				IIIG
			HARV				1739	1740	2				IIIG
			HARV				1900	2310	2				I
			HARV				1907		1				IIIG
			HARV				1951	1952	1				IIIG
			CULG				2019	2400	1				N,DP
	2019	2400	CULG	2019	2400								IS,C,W
			CULG				2019	2400					IIIS,W
			CULG				2019	2400	2				IS,C,DC
			CULG				2019	2400	1				N,RS,DP
			LEAR				2258.0	1009.0	1				B
			HARV	2304	2305	2	2304	2305	2				IIIG
			CULG	2304.5		1							IIIB
			CULG	2305.5	2306	1							IIIG
			CULG	2344.5	2345								UNCLF
12	0000	0719	CULG				[illegible]	1300	2				IS,C,DC
			CULG	0000	0719								IS,W
			CULG				0000	0719	1				N,RS,DP
			CULG				0000	0719					N,DP
			CULG				0000	0719					IIIS,W

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
12			CULG				0028.5	0030	2	0028.5	0029	1	IIIG
			CULG	0138	0200	1	0008	0719	1				IIIN
			CULG				0148	0149.5	3				IIIG
			LEAR				0148.2	0151.0	2				CONT
			CULG				0150.5		2	0150.5		1	IIIB
			CULG				0300	0719	1				IS,C,DC
			CULG				0324		2				IIIB
			LEAR				0324.0	0324.9	2				CONT
			CULG	0404	0431	1							IIIN
			CULG				0439	0439.5	3	0439	0439.5	2	IIIG
			LEAR				0439.0	0439.4	2				V
			CULG				0539.5	0540.5	3	0539.5	0540	1	IIIB,V
			LEAR				0539.6	0540.4	2				V
			CULG	0558	0602	2							IIIN
			CULG				0646.5		2				IIIG
			CULG				0715	0717	3				IIIGG
			LEAR				0715.5	0717.0	2				CONT
	0630	1545	DWIN	0718.5	0728.6	2							IIIGG
	0645	1458	BLEN				0818.6	0819.3	1				IIIG
			DWIN	0914.3	0914.8	1							IIIG
			BLEN	0914.4	0914.7	1							DCIM
			DWIN	0923.5	0944	1							IV
	0825	1604	WEIS				0930.5	0952.3	2				IIIGG
			WEIS				1034.8	1040.8	2				IIIGG
			BLEN				1038.8	1040.8	2				IIIG
			WEIS				1043.4	1043.6	2				IIIG
			WEIS				1047.4	1049.5	1				IIIG
			WEIS				1051.4	1054.7	1				IIIG
			WEIS				1111.4	1111.5	1				IIIB
			BLEN	1120.7	1121.6	1							DCIM
			WEIS				1123.7	1123.8	1				IIIB
			WEIS				1148.9	1150.9	3				IIIGG
			BLEN				1149.1	1150.9	2				IIIG,V
			BLEN	1211.3	1219.6	1							DCIM
			WEIS				1212.3	1214.6	2				IIIGG
			WEIS				1232.2	1223.9	2				IIIB
			WEIS				1255.7	1255.8	1				IIIB
			DWIN	1320.6	1320.9	2							IIIG
			BLEN	1320.7	1323.4	2							DCIM
	1335	2245	HARV				1335	2245	1				I
			DWIN	1410.8	1411.0	1							IIIG
			WEIS				1430.4	1441.7	1				IIIG
			HARV				1437	1438	1				IIIGW
			WEIS				1446.7	1448.4	1				IIIG
			HARV				1447	1448	2				IIIG
			BLEN	1453.4	1453.7	2							DCIM
	0630	1545	DWIN	1453.4	1453.7	2							IIIG
			DWIN	1500.0	1500.5	3							IIIG
			WEIS				1518.4	1525.7	3				IIIGG,DCIM
			HARV	1519	1524	3	1518	1524	3				IIIGG,V
			DWIN	1519	1522	1							IV
			HARV				1909	1910	2				IIIG
			HARV				1929	1930	2				IIIG
	2019	2400	CULG	2019	2400	1	2019	2400	1				IS
			CULG				2019	2400					IIIN,W
			CULG	2116.5	2117	2							IIIG
			HARV				2117		2				IIIG
			CULG				2126		1				IIIB
			HARV				2126		1				IIIBW
			CULG	2132	2132.5	2	2132	2132.5	1				IIIG
			HARV				2132	2133	2				IIIG
			CULG				2156	2156.5	2				IIIG
			HARV				2156		2				IIIG
			CULG	2208.5		2	2208.5		1				IIIB
			HARV				2209		3				IIIG
			CULG	2259.5	2300.5	2	2259	2301	2	2300.5		1	IIIG
			CULG				2304	2307	1				IIIGG
			CULG				2329.5	2332	3				IIIG
			LEAR				2329.7	2333.0	2				CONT
			PALE				2329.7	2333.0	1				CONT

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12			CULG	2344		2	2344		1				IIIB
			LEAR				2345.6	2345.7	1				III
			LEAR				2350.3	2350.9	2				V
			CULG				2350.5		2				IIIB
			LEAR				2352.0	1010.0	1				B
13	0000	0718	CULG	0000	0718		0000	0718					IS,W
			CULG				0000	0718					IIIN,W
			CULG				0029	0718	1				IIIN
			LEAR				0029.4	0029.6	1				III
			CULG	0107.5	0108.5	1	0107.5	0108.5	3	0108	0108.5	2	IIIG
			PALE				0107.8	0108.6	2				V
			LEAR				0107.8	0109.1	2				V
			LEAR				0240.5	0240.9	1				V
			CULG				0240.5		2				IIIB
			LEAR				0256.3	0259.5	1				CONT
			CULG				0257.5		2	0257.5		1	IIIB
			CULG	0311.5	0312	1	0311.5	0312	1				IIIG
			LEAR				0311.8	0312.0	1				III
			CULG							0418	0426	1	SWF
			CULG				0418.5	0420	2	0418.5	0420	2	IIIG
			LEAR				0418.6	0420.0	2				CONT
			CULG				0615	0617					N,RS,DP
			LEAR				0616.1	0620.8	3				V
	0614	0655	WEIS				0616.7	0621.3	3				IIIGG/V
			CULG	0617	0620	1	0615.5	0620.5	3	0617	0619	2	IIIGG,V
			CULG	0620.5	0621.5	2	0620.5	0621.5	2				IIIG
			CULG				0623.5	0625	1				IIIGG
			WEIS				0625.3	0627.7	2				IIIG
			CULG				0625.5	0627.5	1				IIIGG
			CULG				0657		1				IIIB,U
	0701	1602	WEIS				0719.3	0720.5	2				IIIG
			LEAR				0720.3	0720.9	2				V
			WEIS				0724.6	0724.9	2				IIIG
	0730	1545	DWIN										
			WEIS				0825.6	0826.0	2				IIIG
			WEIS				0853.2	0853.3	1				IIIG
			WEIS				0854.9	0858.5	2				IIIGG
			WEIS				0953.3	0953.4	2				IIIB
			WEIS				1019.4	1019.5	1				IIIB
			WEIS				1049.6	1050.0	2				IIIG
			WEIS				1102.4	1106.3	1				IIIG
			WEIS				1109.3	1109.4	1				IIIB
			WEIS				1111.4	1113.7	3				IIIGG
			WEIS				1128.0	1128.9	1				IIIG
			WEIS				1139.8	1139.9	1				IIIG
			WEIS				1216.8	1217.3	2				IIIG
			WEIS				1223.7	1223.9	1				IIIB
			WEIS				1251.8	1251.9	2				IIIB
			WEIS				1309.6	1309.8	1				IIIB
	1335	2245	HARV				1345	2245	2				IN
			WEIS				1421.8	1421.9	1				IIIB
			WEIS				1432.6	1433.4	2				IIIG
	1350	1530	BLEN				1432.7	1432.9	1				IIIG
			HARV				1443		2				IIIG
			BLEN				1451.6	1513.5	1				I,DC
			WEIS				1520.7	1520.8	1				IIIB
			HARV				1531	2148	2				IIIN
			WEIS				1531.3	1531.5	2				IIIG
			WEIS				1542.7	1544.2	1				IIIG
			HARV				1548	1549	3				IIIG,U,V
			WEIS				1548.3	1549.5	2				IIIG
			HARV				1557		3				IIIG
			WEIS				1557.1	1557.3	2				IIIG
			HARV				1606		3				IIIG
			HARV				1640		2				IIIG,U
			HARV				1700		3				IIIB
			HARV				1730	1732	3				IIIG
			PALE				1949.8	1953.0	1				CONT
			HARV				1953		2				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			HARV	1956	2002	1	1956	2002	3				IIIGG
			PALE				1957.9	2001.9	2				V
			HARV				2003	2012	3				IIIGG
			PALE				2005.0	2012.1	2				CONT
			CULG	2018	2228	1	2018	2340	1				IS,DC
	2018	2400	CULG				2018	2030					IIIN,W
			CULG				2018.5	2019.5	3				IIIG
			PALE				2018.9	2023.3	2				V
			HARV				2019		3				IIIG
			CULG				2022.5	2023.5	3				IIIG
			HARV				2023		3				IIIG
			CULG				2030	2046	1				IIIS
			HARV				2031	2032	2				IIIGG
			CULG	2031	2036	1							I
			CULG				2031	2032.5	2				IIIG
			PALE				2031.2	2032.7	1				CONT
			CULG				2040.5		2				IIIB
			CULG				2046	2400					IIIN,W
			CULG	2137	2137.5	1	2137	2137.5	1				IIIG
			CULG				2147	2148	2				IIIG
			PALE				2147.8	2148.0	1				III
			PALE				2207.0	2207.6	2				CONT
			CULG	2228	2400								IS,W
			LEAR				2328.1	2329.1	1				CONT
			CULG				2328.5	2329	1				IIIG
			PALE				2328.7	2329.1	1				III
			CULG				2340	2400					IS,W
14	0000	0706	CULG	0000	0532		0000	0055					IS,W
			CULG				0000	0706					IIIN,W
			LEAR				0006.8	0015.2	2				CONT
			PALE				0006.8	0013.0	2				CONT
			CULG	0007	0012	1	0006.5	0013.5	2	0007	0012.5	1	IIIGG
			CULG				0022.5	0024	1				DC
			LEAR				0108.2	0109.5	1				CONT
			PALE				0108.5	0109.2	1				V
			CULG				0108.5	0109.5	1				IIIG
			LEAR				0149.8	1010.0	1				B
			CULG				0215		1				IIIB
			CULG	0229.5	0230	2	0229.5	0230	2				IIIG
			CULG	0231	0231.5	2	0231	0231.5	2				IIIG
			CULG				0311	0706	1	0326.5	0338.5	1	IIIN
			CULG				0322.5	0338.5	2				IIIS
			LEAR				0328.1	0329.2	2				CONT
			LEAR				0333.1	0338.8	3				CONT
			CULG	0337	0338	2	0337	0338.5	3	0337	0338.5	2	IIIGG
			CULG	0532	0706	2							IS,DC
			CULG							0606	0635	2	SWF
			CULG				0616	0646	1				II
			LEAR				0617.2	0622.6	1				II
	0616	1600	WEIS				0619	1559	2				IS
			CULG	0619	0620	1	0619	0621	1				IV
			WEIS				0619.2	0622.4					II HARM
			CULG				0648	0658	1				IIIS
	0648	1530	BLEN				0648 E	0745	1				I,DC
			WEIS				0648.2	0657.4	2				IIIGG
			WEIS				0701.7	0701.9	1				IIIB
			WEIS				0703.2	0703.6	1				IIIG
			WEIS				0707.7	0707.8	1				IIIB
			BLEN				0712.6	0713.0	2				IIIG
			WEIS				0712.7	0716.3	3				IIIGG
			LEAR				0712.7	0714.8	2				CONT
			LEAR				0712.7	1010.0	1				IV
			LEAR				0723.1	0726.4	2				CONT
			WEIS				0724.8	0729.2	3				IIIGG
	0635	1545	DWIN	0727.0	0728.5	1							IIIG
			LEAR				0727.1	0729.6	2				CONT
			BLEN				0727.7	0728.7	2				IIIGG
			BLEN				0755.5	0755.7	1				IIIG
			WEIS				0755.6	0755.7	2				IIIG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
14			BLEN				0917.8	0918.2	1				I,DC
			WEIS				0954.4	0954.6	2				IIIG
			BLEN				1000.2	1000.8	2				IIIG
			WEIS				1003.0	1009.0	3				IIIG
			WEIS				1017.8	1020.4	2				IIIGG
			WEIS				1051.6	1051.7	1				IIIB
			WEIS				1055.2	1057.3	1				IIIG
			WEIS				1059.8	1105.4	1				IIIGG
			WEIS				1108.2	1108.3	1				IIIB
			WEIS				1112.7	1112.8	1				IIIB
			BLEN				1119.8	1120.0	1				I,DC
			WEIS				1123.6	1126.3	3				IIIG
			WEIS				1129.0	1130.4	1				IIIG
			WEIS				1137.6	1138.7	1				IIIG
			WEIS				1158.3	1158.9	2				IIIG
			BLEN				1158.3	1209.3	1				IIIG
			WEIS				1206.9	1209.5	3				IIIGG
			WEIS				1211.6	1212.9	1				IIIG
			WEIS				1221.1	1221.2	1				IIIB
			WEIS				1227.2	1227.2	1				IIIB
			WEIS				1230.5	1230.7	1				IIIG
			WEIS				1252.5	1252.9	2				IIIG
			BLEN				1302.7	1302.9	1				IIIG
			BLEN				1327.3	1327.6	1				IIIG
			WEIS				1327.4	1328.6	2				IIIG
	1334	2245	HARV				1334	1710	2				I
			HARV				1335	1440	2				I
			WEIS				1352.3	1352.6	1				IIIG
			HARV				1401	2148	2				IIIN
			WEIS				1404.4	1404.6	2				IIIB
			HARV	1426	1620	1							INW
			WEIS				1428.2	1428.3	1				IIIB
			WEIS				1449.2	1449.3	1				IIIB
			HARV				1453		2				IIIG
			HARV				1504		2				IIIG
			WEIS				1555.2	1556.3	1				IIIG
			HARV	1610		1	1610		3				IIIG
			HARV				1733	1734	3				IIIG
			PALE				1733.5	1733.7	2				III
			HARV	1800	1920	1	1710	1920	3				I
			HARV	1800	2245	1							INW
			HARV				1838		3				IIIG
			HARV				1847		3				IIIG
			HARV	1920	2245	1	1920	2245	2				I
			PALE				1950.0	1950.2	1				III
	2052	2400	CULG										
			CULG				2052	2400					IIIN,W
			CULG	2052	2400	1	2052	2220	1				IS,DC
			CULG	2054		1							IIIB
			CULG				2146.5		1				IIIB
			CULG	2153.5	2154.5	2	2154		1				IIIG
			HARV	2154		2	2154		3				IIIG
			HARV	2157		3	2157		3				IIIG
			CULG	2157	2157.5	2							IIIG
			CULG				2220	2335					IS,W
15	0000	0718	CULG	0000	0159								IS,W
			CULG				0015.5	0019.5	1				IIIGG
			LEAR				0015.9	0036.2	1				S
			LEAR				0017.4	0018.0	2				CONT
			PALE				0017.5	0017.7	2				III
			CULG				0017.5		2				IIIB,V
			CULG				0026	0508					IIIN,W
			CULG	0035.5	0036	1	0035.5		1				IIIG
			CULG				0131	0648	1				IIIN
			LEAR				0131.0	0131.2	1				III
			CULG	0159	0718	1							IS
			CULG				0235	0510					IN,W
			LEAR				0236.0	0241.1	2				CONT
			CULG	0236.5	0238.5	1	0236	0239	1	0237	0238	2	IIIGG

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15			CULG				0236.5	0237	2				IIIG
			PALE				0236.9	0237.1	1				III
			CULG				0240	0241	1	0240.5	0241	1	IIIG
			LEAR				0242.8	0243.1	1				III
			LEAR				0314.9	0315.3	1				V
			CULG				0321	0323	1	0321.5	0322.5	1	IIIG
			LEAR				0321.5	0323.5	2				V
			LEAR				0341.9	0343.4	2				V
			CULG	0342	0342.5	2	0342	0343.5	2				IIIGG
			LEAR				0418.5	0422.4	1				CONT
			CULG							0420	0421		IIIG,W
			CULG	0420.5	0421.5	1	0419	0422.5	1				IIIGG
			CULG				0508	0555					IIIS,W
			CULG	0509.5	0514								N,DCIM
			CULG				0510	0718					IS,W
			LEAR				0513.3	0730.0	1				B
			CULG				0514	0542				IV	W
			CULG				0515	0520					N,DP,W
			CULG				0519.5	0549	2			II	
			LEAR				0522.6	0530.8	2				CONT
			CULG	0554	0554.5	3	0554	0554.5	1				IIIG
			CULG				0555	0718					IIIN,W
			CULG	0555.5	0556	2	0555.5		1				IIIG
	0617	0627	WEIS										
			WEIS				0625.5	0625.7	2				IIIG
			WEIS				0634.9	0635.3	2				IIIG
	0635	1550	DWIN										
	0629	1558	WEIS				0636	1558	3				IS,DC
			WEIS				0647.4	0647.7	2				IIIG
	0650	1530	BLEN				0650 E	1530 D	1				I,DC
			WEIS				0713.7	0713.8	1				IIIB
			WEIS				0721.4	0721.5	1				IIIB
			WEIS				0909.9	0911.2	1				IIIG
			WEIS				0943.9	0944.1	1				IIIB
			WEIS				1114.0	1548.3	1				IIIN
			WEIS				1141.6	1143.0	2				IIIG
	1335	2245	HARV	1335	2245	1							INW
			HARV				1404	2239	2				IIIN
			HARV				1440	1800	3				I
			PALE				1645.0	0142.5	1				B
			HARV				1800	2245	2				I
			PALE				1837.7	1839.1	2				III
			HARV				1839		3				IIIG,V
			HARV				1846		3				IIIG
			HARV				1918	1920	2				IIIG
			PALE				1930.1	1934.6	3				CONT
			HARV	1934		1	1930	1934	3				IIIGG
			HARV				2021		2				IIIG
			HARV				2035		3				IIIG
			CULG	2052	2400	1							IS,DC
	2052	2400	CULG				2052	2255	2				IS,C,DC
			CULG				2136.5		2				IIIB
			CULG				2137	2400					IIIN,W
			CULG				2152.5		2				IIIB
			CULG				2219.5		1				IIIB
			CULG	2219.5	2222	2							IIIG,N
			HARV	2220		1	2219	2220	3				IIIG
			CULG				2239		1				IIIB
			LEAR				2239.1	2239.5	1				V
			CULG				2255	2400	1				IS,DC
			CULG				2256	2257.5	2				RS,DC
16	0000	0718	CULG				0000	0220					IS,W
			CULG				0000	0718					IIIN,W
			CULG	0000	0718	1							IS,DC
			CULG				0023	0024	1				IIIG
			LEAR				0023.7	0024.9	1				CONT
			LEAR				0046.8	0047.9	1				CONT
			LEAR				0056.4	0057.0	1				CONT
			LEAR				0111.9	0113.1	1				CONT

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
16			LEAR				0130.3	0131.4	1				CONT
			CULG				0220	0252	1				IS,DC
			CULG				0226		1				IIIG
			LEAR				0226.2	0226.6	1				V
			CULG				0252	0653					IS,W
			LEAR				0311.5	0355.2	1				S
			CULG	0344.5	0635	1	0344.5	0633	1				IIIN
			LEAR				0420.9	0459.2	1				S
			CULG	0430.5	0431	2							IIIG
			CULG	0447.5		2	0447.5		1				IIIB
			CULG	0453.5	0454	2	0453.5	0454.5	2				IIIG
			CULG	0456.5	0457	2	0456.5		2				IIIG
			LEAR				0456.8	0456.9	2				III
			CULG	0505.5	0506	2	0505.5	0506	1				IIIG
			CULG				0556.5		2				IIIB,U
			CULG				0558.5	0559	2				IIIG
			LEAR				0558.6	0602.8	2				CONT
			CULG				0600.5	0603	2				IIIGG
			LEAR				0610.0	0642.0	1				S
	0620	1555	WEIS				0623	1555	2				IS,DC
	0650	1530	BLEN				0650 E	1530 D	1				I,DC
			CULG				0653	0718	1				IS
			CULG				0711.5	0712	3				IIIG
			BLEN				0711.6	0714.4	2				IIIG
			WEIS				0711.6	0712.0	3				IIIG
			LEAR				0711.7	0712.0	2				CONT
			CULG	0714	0714.5	2							IIIG
			WEIS				0714.3	0714.4	2				IIIG
	0725	1600	DWIN	0725	1600	1							I
			WEIS				0752.5	0752.7	1				IIIB
			WEIS				0839.3	0844.4	3				IIIGG
			LEAR				0839.4	0844.0	1				CONT
			BLEN				0840.7	0844.3	1				IIIG
			WEIS				0922.3	0925.0	2				IIIG
			BLEN				0922.4	0924.8	1				IIIG
			WEIS				1005.3	1006.5	3				IIIG
			WEIS				1041.4	1041.7	1				IIIG
			WEIS				1052.1	1052.2	1				IIIB
			WEIS				1154.7	1155.1	2				IIIG
			WEIS				1212.0	1212.1	1				IIIB
			DWIN	1255.0	1255.4	1							IIIG
			WEIS				1315.4	1319.2	3				IIIGG
			BLEN				1319.7	1319.8	1				IIIB
	1335	2245	HARV				1335	1547	1				IN
			WEIS				1336.4	1337.3	2				IIIG
			HARV				1337	1338	3				IIIG
			BLEN				1337.4	1338.3	2				IIIB
			HARV	1348	2100	1							INW
			DWIN	1357.1		1							IIIB
			HARV				1437	2235	1				IIIN
			HARV				1547	1620	3				I
			HARV				1607	1610	3				IIIG
			HARV				1620	1820	1				IN
			HARV				1729	1730	2				IIIG
			HARV				1732	1733	2				IIIG
			HARV				1805		3				IIIG
			HARV				1820	2245	2				I
			HARV				1915	1921	3				IIIGG
			HARV	2014	2017	3	2013	2017	3				IIIGG,V
			PALE				2014.4	2015.7	2				V
			HARV	2053		3	2053		3				IIIG
	2054	2400	CULG				2054	2310					IIIS,W
			CULG				2054	2330	1				IIIN
			CULG				2054	2400					IS,W
			CULG	2054	2400	1							IS,DC
			PALE				2054.6	2054.8	1				III
			CULG	2102	2102.5	2	2102	2103.5	2				IIIG,V
			HARV				2102	2103	3				IIIGG
			HARV	2107		2	2107	2108	3				IIIG
			CULG	2107	2108	2	2107.5	2108	1				IIIGG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
16			CULG				2136.5		2				IIIB
			PALE				2136.6	2138.0	1				CONT
			CULG				2221	2222.5	2				IIIGG
			HARV				2221	2223	2				IIIGG
			LEAR				2221.5	2222.4	1				CONT
			LEAR				2249.7	2249.8	1				III
			CULG				2310	2400					IIIN,W
			CULG				2311		1				RS,DP
			CULG				2311	2312	2				IIIG,V
			LEAR				2311.0	2312.1	1				V
			CULG				2314	2314.5	2				IIIG
			LEAR				2314.2	2315.0	2				V
			LEAR				2328.4	2329.6	1				V
			CULG				2328.5	2329.5	2				IIIG
			LEAR				2353.1	2353.3	1				III
17	0000	0717	CULG	0000	0058	1							IS,DC
			CULG				0000	0717					IS,W
			CULG				0005.5		1				IIIB
			CULG				0014	0215					IIIN,W
			CULG				0053	0054	1				IIIG
			CULG	0058	0135								IS,W
			LEAR				0122.8	1011.0	1				B
			CULG	0135	0717								IN,W
			CULG				0139.5	0140	2				IIIG
			CULG				0204	0707	1				IIIN
			CULG				0215	0228	1				IIIS
			CULG				0228	0717					IIIS,W
			CULG				0514	0514.5	2				IIIG
	0620	0651	WEIS				0630	1548					IIIN
	0640	1445	DWIN										
	0655	1530	BLEN				0727.7	0727.8	1				IIIB
			WEIS				0745.0	1428	1				IN,DC
	0655	1554	WEIS				0848.9	0839.5	2				IIIG
			BLEN				0848.9	0849.2	1				IIIG
			WEIS				1003.1	1003.4	2				IIIG
			BLEN				1018	1250	1				I,DC
			BLEN				1111.6	1111.7	1				IIIG
			BLEN				1139.6	1140.9	1				IIIGG
			WEIS				1139.7	1142.1	2				IIIGG
			WEIS				1156.4	1156.6	2				IIIG
			BLEN				1156.4	1202.3	2				IIIG
			WEIS				1200.0	1202.5	3				IIIGG
	1335	2245	HARV				1335	1555	1				IN
			WEIS				1354.3	1354.6	1				U
			HARV				1429	2218	2				IIIN
			HARV	1703		3	1703	1709	3				IIIGG
			HARV				1724	1836	1				INW
			HARV				1730		3				IIIG
			HARV				1819		2				IIIG
			HARV				1847	1852	2				IIIG
			PALE				1848.3	1849.2	1				V
			HARV				2001		2				IIIG
			HARV	2003		1							IIIGW
			HARV	2005	2006	2	2005	2006	3				IIIG
			PALE				2005.0	2007.1	2				V
			HARV				2043	2208	1				IN
			HARV				2044	2046	3				IIIG
	2054	2400	CULG	2054	2220								IS,W
			CULG				2056	2400					IIIS,W
			CULG				2121	2316	1				IIIN
			CULG				2151	2207	1				IS
			CULG	2220	2400		2207	2400					IN,W
			CULG	2231	2231.5	1	2231	2232	2	2231	2232	1	IIIG
			HARV	2231		1	2231	2232	3				IIIG
			LEAR				2231.2	2231.6	1				CONT
			LEAR				2315.8	2316.2	1				V
			LEAR				2344.0	1012.0	1				B
			CULG	2353	2353.5	2	2353	2353.5	1				IIIG
			CULG				0000	0717					IIIS,W

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18	0000	0717	CULG	0000	0717		0000	0717					IN,W
			CULG				0022	0717	1				IIIN
			CULG				0134	0717					N,RS,DP
			CULG	0423	0425	1							IIIGG
			LEAR				0443.3	0445.0	2				CONT
			CULG				0444	0445	2				IIIG
			CULG	0513	0513.5	1							IIIG
	0622	1551	WEIS				0638	1501	2				IIIN
			CULG	0713.5	0714	1							IIIG
	0658	1528	BLEN				0713.7	0713.9	1				IIIG
			WEIS				0713.7	0714.1	2				IIIG
			WEIS				0731.8	0734.1	2				IIIGG
			BLEN				0732.5	0732.6	2				IIIB
			BLEN				0850.9	0855.7	2				IIIG
			WEIS				0850.9	0851.2	3				IIIG
			BLEN	0855.8	0856.3	1							UNCLF
			BLEN	0929.9	0930.2	2	0929.6	0932.6	2				IIIG
			BLEN	1043.9	1044.6	1	1043.9	1044.6	1				IIIG
			BLEN				1104.9	1105.0	1				IIIG
	0640	1545	DWIN	1151.0	1151.1	1							IIIG
			BLEN				1211.4	1211.5	1				IIIB
	1335	2250	HARV				1338	2136	2				IIIN
			HARV	1453		1	1453		3				IIIG
			WEIS				1453.2	1453.4	2				IIIG
			BLEN	1453.3	1453.4	1	1453.3	1500.3	1				IIIG
			HARV				1602		2				IIIB
			HARV				1627	1629	2				IIIG
			HARV	1821		1	1820	1821	3				IIIG
			HARV				1901		3				IIIG
			HARV	1949	1950	1	1949	1950	3				IIIG
			HARV				2049	2250	1				IN
			CULG				2057	2400					IS,C,W
	2057	2400	CULG	2057	2147								IS,W
			CULG				2059	2400					IIIS,W
			CULG	2102	2102.5	1							DCIM
			CULG				2106	2400	1				IIIN
			CULG	2128.5	2130	2	2129	2130	2				IIIG,V
			HARV	2129	2130	1	2129	2133	3				IIIGG,V
			CULG	2130	2136	1							IIIN
			CULG				2136	2140					POSS II,W
			CULG	2211	2211.5	1							IIIG
			HARV				2247	2248	3				IIIG
			CULG				2247		1	2247		1	IIIB
			CULG	2247.5	2248	2	2247.5	2248.5	2	2247.5	2248	1	IIIG
			LEAR				2247.5	2248.3	1				CONT
			CULG							2311	2311.5	1	IIIG
			CULG							2330	2400	1	IIIS
			CULG	2345.5	2346	1	2345.5	2346	1				IIIG
			PALE				2347.3	2351.6	2				CONT
			CULG				2347.5		1	2347.5		1	IIIB
			CULG							2349.5		1	IIIB
			CULG				2351	2351.5	2				IIIG
			LEAR				2351.2	2351.9	2				CONT
19			CULG				0000	0717					IS,W
			CULG							0000	0400	1	IIIS
	0000	0717	CULG				0000	0122					IIIS,W
			CULG				0001			0001			DP,W
			LEAR				0024.0	0351.0	1				B
			CULG	0046	0048	2	0046.5	0048	2				IIIG
			CULG							0047	0345		IIIN,W
			CULG				0119	0710					N,RS,DP
			CULG				0122	0132	1				IIIS
			PALE				0122.0	0348.0	1				B
			CULG	0125	0618	1							IIIN
			CULG				0132	0717					IIIS,W
			CULG				0141		1				IIIB
			CULG	0211.5	0212	2	0211.5	0212	1				IIIG
	0624	1550	WEIS				0638.9	0639.9	1				IIIG
			LEAR				0639.5	0640.1	1				CONT

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19	0640	1540	DWIN										
			LEAR				0709.8	0725.1	1				S
			WEIS				0720.4	0720.5	1				IIIB
			WEIS				0724.6	0725.1	2				IIIG
			WEIS				0726.6	0726.7	1				IIIB
			WEIS				0727.9	0728.1	1				IIIB
			WEIS				0800.4	0801.6	1				IIIG
			WEIS				0836.7	0836.8	2				RS
	0658	1525	BLEN				0836.7	0836.8	2				IIIB,RS
			WEIS				0838.6	0838.9	1				IIIG
			WEIS				0922.4	0922.5	1				IIIB
			WEIS				0956.3	0956.4	1				IIIB
			WEIS				1223.9	1225.3	2				IIIG
			WEIS				1306.2	1306.4	2				IIIG
			WEIS				1327.6	1327.9	2				IIIG
	1335	2245	HARV				1336	1520	2				I
			WEIS				1340.1	1340.2	1				IIIB
			WEIS				1426.7	1426.8	1				IIIB
			BLEN				1441	1446	1				I,DC
			HARV				1520	1755	1				IN
			HARV				1553		3				IIIG
			HARV				1845	1846	2				IIIG
			CULG				2017	2400					IIIN,W
	2017	2400	CULG				2017	2400					IS,C,W
			HARV				2017		1				IIIG
			HARV				2117	2245	1				INW
			CULG				2150	2151.5	1				IIIG,V
			CULG	2150	2400								IN,W
			PALE				2150.6	2152.2	1				V
			CULG	2151.5		1	2151.5		1				IIIB
			HARV	2152		1	2152		3				IIIG
			CULG				2244	2244.5	1				IIIG,U
			HARV				2244	2245	3				IIIG,U
			CULG				2315	2340	1				N,DC
20	0000	0717	CULG				0000	0717					IS,W
			CULG				0022	0717					IIIN,W
			CULG				0115.5		1				IIIB
			LEAR				0115.8	0116.1	1				CONT
			CULG	0139	0315								IN,W
			LEAR				0517.5	0518.3	1				CONT
			CULG				0534	0540	1			II	
			LEAR				0534.6	0542.6	1				CONT
			LEAR				0704.5	0708.2	1				CONT
			CULG				0705.5	0706.5	1				UNCLF
			LEAR				0756.5	0758.9	1				CONT
	0625	0854	WEIS				0828.4	0828.6	2				IIIG
			LEAR				0908.8	0909.7	1				CONT
	0700	1326	BLEN				0924.2	0924.4	2				IIIG
			LEAR				0924.3	0924.6	2				V
			BLEN	1115.0	1115.2	2							DCIM
	0940	1548	WEIS				1119.8	1120.0	1				IIIB
			WEIS				1127.9	1129.3	3				IIIG
			WEIS				1324.1	1328.8	1				IIIGG
	1335	2247	HARV				1338	1339	1				I
			HARV				1351	2239	2				IIIN
			WEIS				1412.7	1414.3	2				IIIG
			HARV	1414		1	1414		3				IIIG
			WEIS				1441.4	1456.9	2				IIIGG
			HARV	1453	2132	2							IIIN
	0725	1540	DWIN	1508.0	1510.5	1						IV	
			WEIS				1511.6	1512.6	2				IIIG
			HARV				1746		3	1746		2	IIIG
			HARV				1849	1850	2				IIIG
			HARV	1956	2003	1	1956	2003	3				IIIG
			PALE				2005.4	2005.9	1				V
	2017	2400	CULG				2019	2400					IIIN,W
			CULG	2024	2400	1	2043	2400	1				IIIN
			CULG				2051	2400					IS,C,W
			CULG				2055	2055.5	3				IIIG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
20			PALE				2055.1	2055.3	1				III
			CULG				2056.5	2057	2				IIIB
			HARV				2106	2109	1				I
			HARV	2157	2200	3	2157	2200	3				IIIGG
			CULG	2158.5	2159	2	2158.5	2159	2				IIIG
			HARV	2247		2	2247		3				IIIG
			CULG				2301		1	2301		1	IIIB
			LEAR				2301.8	2302.1	1				CONT
			CULG	2327	2327.5	2							IIIG
			CULG	2349.5	2350	2	2349.5	2350	2				IIIG
			LEAR				2350.3	0004.1	1				S
			CULG	2353	2353.5	1	2353	2353.5	2				IIIG
21	0000	0354	CULG				0000	0121					IS,C,W
			CULG				0000	0717					IIIN,W
			CULG				0003	0635	1				IIIN
			CULG	0020	0021	1							I
			CULG	0053.5	0055.5	2	0053.5	0055.5	2				IIIG
			CULG	0054	0717	1							IIIN
			LEAR				0105.1	0154.4	1				S
			LEAR				0219.9	0222.4	2				CONT
			CULG				0220		1	0220		1	IIIB
			CULG				0227		2				IIIB,U
			LEAR				0238.5	0239.0	1				CONT
			CULG				0251		2	0251		1	IIIB
			LEAR				0251.1	0251.5	2				V
			LEAR				0402.0	0404.1	2				CONT
	0402	0717	CULG				0403.5	0404	1	0403.5	0404	1	IIIG
			LEAR				0411.5	0412.0	1				CONT
			CULG				0434.5	0447	2				II
			LEAR				0435.3	0449.1	1				II
			LEAR				0454.8	0455.2	1				V
			CULG	0527	0535								IN,W
			LEAR				0527.4	0527.8	1				V
			CULG	0544.5	0545	2	0544.5	0545	3	0544.5	0545	2	IIIB
			LEAR				0544.6	0545.2	2				V
			LEAR				0549.9	0555.3	2				CONT
			CULG				0550	0550.5	1	0550	0550.5	1	IIIG
	0627	0817	WEIS				0629.9	0630.6	2				IIIG
			LEAR				0629.9	0636.7	2				CONT
			CULG	0630	0630.5	2	0630	0630.5	2				IIIG
			CULG				0711	0711.5	2				IIIB
			WEIS				0711.4	0711.6	1				IIIB
			LEAR				0711.4	0720.8	2				CONT
			WEIS				0716.9	0717.2	2				IIIB
			WEIS				0719.4	0720.7	2				IIIG
			WEIS				0738.6	0738.7	2				IIIB
	0821	1546	WEIS				0828.9	0829.4	2				IIIG
			LEAR				0829.2	0830.2	1				V
			WEIS				0836.4	0836.8	1				IIIG
			WEIS				0843.1	0844.7	1				IIIG
			LEAR				0843.9	0844.5	1				CONT
			LEAR				0903.7	0904.2	2				V
			WEIS				0903.9	0904.1	2				IIIB
			WEIS				0914.8	0918.3	3				IIIGG
			LEAR				0915.0	1013.0	2				S
	0901	1524	BLEN				0917.3	0917.8	1				IIIG
			WEIS				1009.6	1009.9	2				IIIGG
			WEIS				1033.5	1034.0	2				IIIG
			WEIS				1049.0	1049.2	1				IIIB
	0645	1540	DWIN	1116.5	1116.7	1							IIIG
			BLEN				1144.1	1144.4	1				IIIG
			WEIS				1144.2	1144.4	2				IIIGG,RS
			WEIS				1149.6	1149.7	1				IIIB
			WEIS				1201.7	1203.9	1				IIIG
			BLEN				1203.8	1203.9	1				IIIG
			WEIS				1216.6	1217.2	1				IIIG
			BLEN				1229.6	1254.7	2				IIIGG
			WEIS				1236.7	1237.0	2				IIIG
			WEIS				1241.2	1243.4	3				IIIGG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
21			WEIS				1246.2	1247.3	3				IIIG
			SGMR				1246.5	1246.9	1				III
			WEIS				1249.6	1250.2	2				IIIG
			WEIS				1254.4	1254.7	1				IIIG
			WEIS				1311.4	1311.8	2				IIIG
			BLEN				1311.7	1311.8	1				IIIB,
			WEIS				1317.7	1318.2	2				IIIG
			WEIS				1335.7	1336.8	2				IIIG
	1335	2245	HARV				1336	2140	2				IIIN
			WEIS				1346.9	1347.3	2				IIIG
			BLEN				1347.1	1347.2	1				IIIB
			BLEN				1402.9	1410.7	2				IIIG
			WEIS				1402.9	1403.0	3				IIIB
			HARV				1403	1411	3				IIIGG
			WEIS				1405.3	1405.6	1				IIIG
			WEIS				1407.5	1408.2	3				IIIG
			SGMR				1407.7	1408.0	1				III
			WEIS				1410.7	1410.8	2				IIIG
			HARV				1431		3				IIIG
			SGMR				1431.0	1431.5	2				III
			WEIS				1431.1	1431.8	3				IIIG
			BLEN				1431.1	1431.4	2				IIIG
			HARV				1446	1540	1				IN
			WEIS				1454.7	1455.9	3				IIIG
			BLEN				1454.9	1455.9	1				IIIG
			HARV				1455	1456	3				IIIG
			WEIS				1510.2	1510.3	2				IIIB
			WEIS				1515.7	1516.4	1				IIIG
			HARV				1525	1526	3				IIIG
			WEIS				1525.3	1526.4	3				IIIG
			WEIS				1534.6	1534.7	1				IIIG
			HARV	1535	1536	1	1535	1536	2				IIIG
			HARV				1603	1604	3				IIIG
			HARV				1626	1627	2				IIIG,U
			HARV	1731	1732	1	1731	1733	2				IIIG
			HARV				1800	1801	2	1800	1801	1	IIIG
			HARV				1824	1826	2	1824	1826	2	IIIG
			PALE				1824.2	1826.1	1				CONT
			HARV				1834	2240	1				INW
			HARV				1843	1856	1				IIIN
			HARV	1902	1903	2							IIIG
			HARV	1905		1	1905		1	1905		1	IIIG
	2016	2400	CULG				2016	2400					IIIS,W
			CULG	2045.5	2046	1	2045.5	2046	1				IIIG,U
			HARV	2046		1	2046		2				IIIG
			CULG				2048	2400	1				IIIN
			CULG	2104.5	2105								IIIG,W
			CULG				2109		2				IIIB
			PALE				2109.0	2109.2	1				III
			CULG				2117	2400					IN,W
			SGMR				2118.3	2119.7	2				CONT
			CULG	2155	2155.5								I
			HARV	2155		2							IIIG
			HARV	2159		2	2159		2				IIIG
			CULG	2247.5	2248								IIIG,W
			CULG	2322	2322.5	1	2322	2322.5	1				IIIG
			CULG	2353	2353.5	1							IIIG
			CULG				2355	2355.5	2	2355	2355.5	2	IIIG
			PALE				2355.1	2355.5	1				V
22	0000	0717	CULG				0000	0319					IIIS,W
			CULG	0015	0017	1	0015	0017	3	0015	0016.5	2	IIIGG,U
			LEAR				0015.0	0017.0	2				V
			PALE				0015.1	0017.0	2				V
			CULG				0035.5		1	0035.5		1	IIIB
			CULG	0113	0113.5								I,W
			CULG				0122	0126	1				SLOW DRIFT
			CULG				0144	0145	1				IIIG
			CULG	0150.5	0151.5	1	0150.5	0151.5	2	0150.5	0151.5	1	IIIG
			PALE				0150.8	0151.0	1				III

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22			CULG	0225	0225.5	1	0225	0225.5	2	0225	0225.5	1	IIIG
			LEAR				0225.2	0225.8	2				V
			CULG				0305	0350.5	1				IS
			CULG				0319	0334	2				IIIS
			CULG				0334	0717					IIIS,W
			CULG				0355	0717	1				IIIN
			CULG				0403.5	0404.5	2				IIIG
			CULG	0421	0421.5	1	0421	0422	3	0421.5	0422	2	IIIG,V,U
			CULG				0459.5		2				IIIB
			CULG	0509	0717								IN,W
			CULG				0553.5	0554.5	2				IIIG
	0630	1538	WEIS				0638	1532	1				IIIN
			CULG				0648		2				IIIB
			CULG				0655.5		2				IIIB
	0700	1532	BLEN				0756.9	0800.7	1				IIIG
			WEIS				0757.7	0800.3	2				IIIG
			WEIS				0947.6	0948.5	3				IIIG
			BLEN				0948.1	0948.3	1				IIIG
			WEIS				1010.3	1011.6	2				IIIGG
			WEIS				1044.0	1044.3	1				IIIB
			WEIS				1115.7	1116.1	2				IIIG
			BLEN				1115.8	1116.0	1				IIIG
	1335	2245	HARV				1339	1800	1				IN
			HARV				1340	1341	3				IIIG
			BLEN				1340.3	1341.2	2				IIIG
			HARV				1405	1408	3				IIIGG
			BLEN				1405.4	1405.6	1				IIIG
			BLEN				1420.2	1421.3	1				IIIG
			HARV	1421		1	1417	1425	3				IIIGG
			HARV	1448		2	1448	1451	3				IIIG
			BLEN				1448.0	1455.5	2				IIIGG,RS
			HARV	1455	1456	1	1455	1456	3				IIIG
			HARV				1504	2152	2				IIIN
			HARV	1509	1510	1	1506	1511	3				IIIGG
			BLEN				1509.7	1510.2	2				IIIG
	0725	1545	DWIN	1529.0	1541.0	2							IV
			HARV	1530	1542	3	1528	1542	3	1530	1533	2	IIIGG
			BLEN				1530.1	1531.4	2				IIIG
			HARV				1621	1629	3	1622	1629	2	IIIGG
			HARV				1737		1	1737		1	IIIB
			HARV				1745	1748	3				IIIG
			HARV	1809	2147	1							IIINW
			HARV				1902	1903	1	1902	1903	1	IIIG
			PALE				1915.9	1918.5	2				CONT
			HARV				1916	1918	3	1916	1918	3	IIIG
			HARV				2007	2245	1				IN
			PALE				2012.4	2013.2	1				III
			CULG				2016	2400					IS,W
	2016	2400	CULG				2016	2025	1				IIIS
			PALE				2022.5	2024.6	1				CONT
			CULG				2025	2400					IIIS,W
			CULG				2031	2400	1				IIIN
			CULG	2031	2346								IN,W
			CULG				2049	2049.5	2				IIIG
			HARV				2113		3				IIIG
			CULG	2146.5	2147	1	2146.5	2147	1				IIIG
			HARV	2237	2238	1	2237	2238	2				IIIG
			LEAR				2237.0	1013.0	2				B
			PALE				2237.3	2238.1	2				V
			LEAR				2237.3	2242.0	2				CONT
			CULG	2237.5	2238	1	2237	2238	3	2237	2238	1	IIIGG
			CULG				2239.5		2				IIIB
			LEAR				2302.0	2358.0	1				B
			CULG	2312									IIIB,W
			CULG				2358	2400	1				IIIGG,U
			LEAR				2358.4	0021.0	2				IV
			PALE				2358.6	2359.9	1				CONT
23			CULG	0000	0053	2							IV,P
			CULG				0000	0330					IS,W

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23	0000	0716	CULG				0000	0020	2	0001	0015	1	IIIS
			CULG	0000	0716								IN,W
			LEAR				0001.0	0009.0	2				CONT
			PALE				0001.1	0101.1	1				S
			CULG				0003	0209	1			IV	
			CULG				0004	0010					POSS II
			CULG							0005	0025		SWF,W
			LEAR				0009.0	0146.0	1			IV	
			LEAR				0014.8	0016.0	2				CONT
			CULG				0020	0716					IIIS,W
			LEAR				0021.0	0110.0	2				B
			CULG				0043	0716	1				IIIN
			CULG	0049	0050.5	1							IIIG
			PALE				0101.1	0345.0	1				B
			LEAR				0110.1	1014.0	1				B
			CULG	0126.5	0127.5	1	0127	0128	2	0127	0128	2	IIIG,V
			LEAR				0127.0	0128.1	2				V
			CULG	0134	0200	3							IIIS
			CULG				0142	0142.5	1	0142		1	IIIG
			LEAR				0328.5	0339.7	2				S
			CULG				0330	0350	2				IS
			CULG				0331.5	0339	2				IIIS
			CULG	0333	0336	1							IIIG
			CULG				0350	0716					IS,W
			CULG				0405	0405.5	2	0405	0405.5	2	IIIB
			LEAR				0405.8	0406.5	2				V
			CULG				0431	0447	2				IS
			LEAR				0431.0	0445.0	2				B
			CULG	0439	0453	2	0431	0447	2				IIIS
			CULG	0539	0542	2							IIIGG
			CULG				0601.5		2				IIIB
			CULG				0632.5	0633	2				IIIG
	0630	0941	WEIS				0653	1541	1				IIIN
			LEAR				0717.3	0718.5	3				CONT
	0700	1525	BLEN				0717.3	0717.6	2				IIIG
	0945	1542	WEIS				0717.4	0717.7	3				IIIG
	0650	1600	DWIN	0730	0752	2						IV	P
			WEIS				0731.8	0749.8	3				IIIGG,DCIM
			BLEN				0732.1	0742.6	2				IIIGG
			LEAR				0734.0	0737.7	3				CONT
			BLEN				0735.5	0749.4	2			IV	P
			LEAR				0737.8	0743.5	3				CONT
			LEAR				0745.5	0750.0	2				CONT
			LEAR				0750.0	0820.0	1			IV	
			LEAR				0821.6	0822.0	2				CONT
			WEIS				0821.6	0821.9	3				IIIG
			BLEN				0918.4	0932.3	1				IIIGG
			WEIS				0927.7	0928.0	2				IIIG
			WEIS				0929.7	0930.3	3				IIIGG
			LEAR				0930.1	0930.3	2				CONT
			BLEN				1023.6	1023.8	1				IIIG
			WEIS				1023.7	1024.0	2				IIIG
			WEIS				1032.4	1045.4	3				IIIGG,DCIM
			DWIN	1042.8	1055	2						IV	
			BLEN	1043.2	1044.4	1							DCIM
			DWIN	1219.0	1220.0	1						IV	
			BLEN	1219.1	1221.3	1							DCIM
			WEIS				1219.3	1229.8	3				IIIGG,DCIM
			DWIN	1221.0	1230.0	2						IV	P
			BLEN	1225.6	1226.9	2	1225.6	1227.3	2				IIIGG
	1335	2245	HARV				1337	2245	1				IN
			HARV				1418	2242	2				IIIN
			BLEN	1441.8	1442.4	1							DCIM
			HARV	1442	2035	2							IIIN
			DWIN	1458.4	1503.0	1						IV	
			WEIS				1459.6	1502.8	3				IIIGG
			HARV	1500	1501	1	1500	1501	2	1500	1501	2	IIIG
			HARV	1549	1558	3	1549	1603	2	1603		1	IIIGG
			DWIN	1549.8	1558.5	2						IV	
			HARV				1707		2	1707		2	IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
23			HARV				1754	1755	2	1754	1755	1	IIIB
			HARV							1805	2035	2	IIIN
			HARV				1824		3	1824		3	IIIG
			PALE				1824.1	1824.3	1				III
	2016	2400	CULG				2016	2327	2				IIIN
			CULG				2016	2400	1	2034	2054	1	IIIS
			CULG	2016	2400		2016	2400					IS,W
			CULG	2035	2035.5	2	2035	2036	2	2035	2036	2	IIIGG
			CULG				2125.5	2126.5	2	2125.5	2126	1	IIIG
			CULG							2223	2330	1	IIIN
			LEAR				2229.0	1014.0	2				B
24	0000	0716	CULG				0000	0450					IIIS,W
			CULG				0000	0450	1	0000	0716	1	IIIN
			CULG	0000	0716		0000	0716					IS,W
			LEAR				0029.0	0032.3	2				CONT
			PALE				0029.9	0032.0	1				CONT
			CULG	0030	0032	2	0028.5	0032.5	2	0029.5	0032.5	2	IIIGG
			CULG							0116.5	0117.5	2	IIIG
			CULG				0134.5	0716	1				N,RS,DP
			CULG				0134.5		2	0134.5		1	IIIB
			CULG				0450	0716	2				IIIN
			CULG				0450	0716	1				IIIS
			LEAR				0450.9	0451.1	2				III
			CULG				0559.5		2				IIIB,U
	0632	1541	WEIS				0637	1537	2				IIIN
	0655	1445	DWIN										
	0700	1000	BLEN										
	1017	1231	BLEN				1041.8	1041.9	1				IIIG
			BLEN				1049	1231 D	2				I,DC,C
			BLEN				1144.3	1145.6	2				IIIG
			WEIS				1157	1517	3				IS,DC
	1335	2320	HARV				1335	1400	3				I
	1350	1512	BLEN				1350 E	1512 D	2				I,DC,C
			HARV				1400	1700	2				I
			HARV				1529	2230	2	1529	2230	2	IIIN
			HARV				1700	2320	2				IN
			CULG				2018	2400					IIIS,W
	2018	2400	CULG	2018	2025	1							IS
			CULG				2022	2352	1				IIIN
			CULG	2025	2400								IS,W
			CULG				2033.5		2				IIIB
			HARV				2034		2	2034		1	IIIB
			CULG				2038	2400	1				N,RS,DP
			CULG							2110.5			IIIB,W
			CULG				2149.5		1	2149.5		1	IIIB
			CULG				2150.5		2	2150.5		2	IIIB
			CULG	2222	2225	1							IIIG U
			CULG				2223		1	2223		1	IIIB
			CULG				2224	2230	1				UNCLF
			LEAR				2228.4	2230.6	1				CONT
			CULG				2228.5	2229	2				IIIG
			CULG				2229	2340				IV	
			LEAR				2238.8	1015.0	1				B
25	0000	0716	CULG	0000	0716								IS,W
			CULG				0000	0716					IIIS,W
			CULG				0015.5		2				IIIB
			CULG				0020	0716	1				IIIN
			CULG				0116	0600					N,RS,DP
			CULG				0425	0700					IS,W
			CULG				0436	0448	1				IIIGG
			CULG							0437	0547		IIIN,W
			LEAR				0534.0	0534.6	2				CONT
			CULG				0534.5		2	0534.5		1	IIIB
			CULG				0539	0540.5	3	0539.5	0540	1	IIIGG
			LEAR				0539.6	0540.8	2				V
			CULG				0629	0629.5	1				IIIG,U
	0634	1101	WEIS				0637.0	0637.3	2				IIIG
			WEIS				0639	0738	1				IN

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
25	1105	1539	WEIS				0654.5	0655.8	1				IIIG
	0700	1510	BLEN				0700 E	1255	1				I,DC,C
			CULG				0700	0716	1				IS
			WEIS				0701.9	0702.0	1				IIIB
			WEIS				0706.8	0706.9	2				IIIB
			WEIS				0748.5	0823.1	2				IIIGG
	0655	1530	DWIN	0754.0	0810	2							IV
			BLEN	0759.1	0808.7	2							DCIM
			LEAR				0800.0	0823.3	2				S
			DWIN	0819.0	0823.0	1							IV
			WEIS				0829.4	0829.7	2				IIIG
			BLEN				0829.4	0829.6	2				IIIG
			WEIS				0835.9	0836.1	1				IIIB
			WEIS				0838.7	0838.8	1				IIIB
			WEIS				0847.6	0847.7	1				IIIB
			WEIS				0911.7	0917.4	1				IIIG
			WEIS				0920.4	0922.4	1				IIIG
			WEIS				0931.2	0931.3	1				IIIB
			WEIS				0937.2	1001.0	3				IIIGG,RS
			DWIN	0939.0	0953.0	3							IV
			BLEN	0940.7	0948.5	3							DCIM
			LEAR				0947.1	0951.2	2				CONT
			BLEN	0947.6	0950.7	3	0947.2	0952.3	3				IIIGG
			WEIS				1008.1	1008.2	1				IIIB
			DWIN	1028.1	1029.9	1							IV
			BLEN	1029.6	1029.8	1							DCIM
			WEIS				1029.9	1030.4	2				IIIG
			WEIS				1035.0	1035.3	2				IIIB
			WEIS				1044.5	1044.9	1				IIIB
			WEIS				1120.0	1121.6	2				IIIG
			WEIS				1132.4	1132.5	2				IIIB
			WEIS				1142.8	1143.0	2				IIIB
	1335	2300	HARV				1348	1756	1				IN
			BLEN				1452.6	1452.7	2				IIIG
			HARV				1453		2				IIIG
			HARV				1455	1456	2				IIIG
			WEIS				1455.1	1455.7	2				IIIG
			HARV				1539		1				IIIB
			HARV				1653		2	1653		2	IIIB
			HARV	1657		1	1657		2				IIIB
			HARV				2013	2014	3				IIIG
	2016	2400	CULG				2016	2400					IIIN,W
			CULG				2041.5	2042	1				IIIG
			CULG				2052		1				IIIB
			HARV				2114	2300	1				IN
			CULG	2238	2240								I,W
			LEAR				2352.8	2354.1	1				CONT
			CULG				2353.5		1				IIIG,Z
26	0000	0716	CULG				0000	0716					IIIN,W
			CULG	0030	0034	3							IIIG,N
			LEAR				0101.9	0102.1	1				III
			CULG							0102			IIIB,W
			CULG				0102		2				IIIB
			LEAR				0131.9	0132.1	1				III
			CULG	0145	0700	1							IIIN
			CULG				0219	0320					IN,W
			CULG				0307.5		1				IIIB,U
			CULG				0435	0450	1				IIIN
			LEAR				0435.2	0436.1	1				V
			CULG				0604.5	0606	2				IIIGG
	0710	1507	BLEN	0713.9	0718.5	3	0714.4	0717.4	2				IIIGG
	0635	1537	WEIS				0713.9	0717.4	2				IIIG
			CULG	0714	0715	3	0714.5	0715	1				IIIG
	0655	1530	DWIN	0716.6	0718.5	1							IIIG
			LEAR				0738.0	0740.6	2				CONT
			WEIS				0738.1	0748.0	3				IIIG
			BLEN				0738.5	0738.6	1				IIIG
			BLEN				0759.4	0759.5	1				IIIB
			BLEN				0811.1	0811.6	2				IIIG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
26			BLEN				0851.3	0851.4	1				IIIB
			WEIS				0851.4	0851.6	1				IIIG
			BLEN				0852	1507 D	1				I,DC
			WEIS				0857.0	0857.3	1				IIIG
			LEAR				0857.0	0857.2	1				III
			WEIS				0919.8	0922.5	3				IIIGG
			BLEN				0920.7	0930.8	3				IIIGG
			LEAR				0920.8	0931.3	2				S
			WEIS				0930.7	0932.7	3				IIIGG
			WEIS				0958.7	0959.3	2				IIIG
			WEIS				1017.3	1017.4	1				IIIB
			WEIS				1020.3	1020.4	1				IIIB
			BLEN				1031.2	1032.1	1				IIIG
			WEIS				1031.5	1031.9	1				IIIG
			BLEN				1052.3	1053.2	2				IIIG,RS
			BLEN				1102.1	1102.4	2				IIIG,RS
			BLEN	1118.0	1125.9	3	1116.2	1125.9	3				IIIGG
			WEIS	1118.1	1119.6	2							III,DCIM
			DWIN	1119.5	1119.7	1							IIIG
			WEIS				1125.6	1125.8	1				IIIDCIM
			BLEN				1149.9	1150.0	2				IIIB
			WEIS				1151.2	1151.4	2				IIIG
			BLEN				1202.4	1209.2	1				IIIG
			WEIS				1228.5	1228.7	2				IIIG
			WEIS				1251.7	1252.8	2				IIIG
	1335	0000	HARV	1347		2							IIIB
			DWIN	1404.3	1405.0	2							IIIG
			BLEN	1404.4	1404.9	2							DCIM
			HARV				1405	2322	2				IN
			HARV	1435	1450	3	1435	1450	3				IIIGG
			BLEN	1435.1	1449.9	3	1434.5	1449.9	2				IIIGG
			DWIN	1435.8	1445.2	2							IIIG
			WEIS				1435.9	1439.4	2				IIIG,DCIM
			HARV				1521	1522	1				IIIG
			HARV				1524		1				IIIG
			HARV	1855	1856	3							IIIG
	2016	2400	CULG	2016	2400								IN,W
			CULG				2016	2400					IIIN,W
			CULG	2024	2215	2							IIIN
			HARV	2025	2027	2	2025	2027	2				IIIG
			HARV	2037	2039	3	2037	2039	1				IIIG
			HARV				2100		1				IIIB
			CULG				2200		1				IIIB
			CULG				2206		1				IIIB
			HARV	2208		3	2206	2208	3				IIIG
			CULG	2208	2208.5	1	2207.5	2209	2				IIIG,V
			LEAR				2208.2	2208.8	1				CONT
			HARV	2209	2214	3	2209	2214	3				IIIGG
			HARV				2229		1				IIIB
			CULG				2236.5	2237	1				IIIG
			LEAR				2236.7	2237.4	1				CONT
			CULG	2309.5		1	2309.5	2310.5	2				IIIG
			LEAR				2309.6	2310.5	1				CONT
27			CULG				0000	0716					IIIN,W
	0000	0716	CULG	0000	0250								IN,W
			LEAR				0038.9	0039.9	1				CONT
			CULG				0039	0040	1				IIIG
			CULG	0250	0716								IS,W
			CULG				0342						IIIB,U
			CULG				0431.5	0434	3	0433	0433.5	1	IIIGG,U
			LEAR				0431.8	0433.6	2				CONT
			CULG				0441.5		1				IIIB
			CULG				0606		1				IIIB
			LEAR				0606.1	0606.8	1				V
			LEAR				0648.1	0710.4	1				S
			CULG				0649		2				IIIB
			CULG				0708.5	0709.5	1				IIIG
	0637	1256	WEIS				0708.7	0709.8	2				IIIG
	0712	1506	BLEN										

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
27			BLEN				0712 E	1037	1				I,DC
			BLEN	0812.2	0812.4	2							IIIG
			LEAR				0904.4	0904.6	1				III
			BLEN	0907.1	0910.3	2							IIIGG
			WEIS				0907.2	0907.9	2				IIIG
			LEAR				0907.2	0925.9	2				S
	0724	1530	DWIN	0909.5	0910.3	1							IIIG
			WEIS				0922.4	0922.8	2				IIIG
			BLEN				0922.4	0925.5	2				IIIG
			WEIS				0925.3	0926.0	2				IIIG
			WEIS				1009.7	1010.9	3				IIIG
			BLEN	1009.8	1010.8	1	1009.7	1010.9	3				IIIGG,RS
			BLEN	1023.5	1023.7	1	1023.3	1024.5	2				IIIG
			WEIS				1114.1	1114.2	2				IIIB
			BLEN				1150.8	1151.0	2				IIIG
			DWIN	1241		1							IIIB
	1259	1535	WEIS				1311.3	1312.4	1				IIIG
	1335	2345	HARV				1506	2054	1				IIIN
			WEIS				1506.4	1506.6	1				IIIG
			HARV				1522	1552	1				IN
	2016	2400	CULG				2023	2400					IIIN,W
			HARV				2026	2027	3	2026	2027	2	IIIG
			CULG				2026	2028	1				IIIG
			PALE				2026.2	2027.3	2				V
			CULG				2037	2400	1				IIIN
			CULG				2046	2054	1				POSS II
			PALE				2054.6	2106.0	1				S
			HARV				2056	2057	2	2056	2057	1	IIIG
			HARV				2104		1	2104		1	IIIG
			CULG				2104	2104.5	2				IIIG
			CULG	2106	2129								IN,W
			CULG				2141.5	2142.5	2				IIIG,Z
			HARV				2202		1				IIIB
			HARV				2205		2				IIIB
			CULG	2205.5		1	2205.5		1				IIIB
			LEAR				2328.9	2329.1	1				III
			LEAR				2355.7	0000.6	1				CONT
28	0000	0716	CULG				0005	0716					IIIN,W
			CULG				0020	0246	1				IIIN
			LEAR				0020.6	0021.1	1				V
			LEAR				0036.8	0043.5	1				CONT
			CULG				0043	0043.5	2	0043	0043.5	1	IIIG
			LEAR				0120.8	0121.5	1				CONT
			LEAR				0135.8	0141.3	1				CONT
			CULG	0136	0210								IS,W
			PALE				0151.8	0152.3	1				V
			LEAR				0151.8	0154.4	2				CONT
			CULG				0152	0152.5	2				IIIG
			CULG				0154		2				IIIB
			CULG				0217	0218.5	2	0217.5	0218	1	IIIG,V,Z
			LEAR				0217.3	0220.5	2				CONT
			CULG	0440	0716		0305	0345					IN,W
			CULG				0518	0519					IIIG
			LEAR				0518.9	0519.5	1				CONT
			CULG	0556		1	0556	0556.5	1				IIIG
			CULG				0635	0716					IN,W
	0713	0910	BLEN				0729.3	0729.9	2				IIIG
	0638	1533	WEIS				0729.4	0729.8	2				IIIG,U
			BLEN				0741.1	0743.5	2				IIIG
			WEIS				0743.2	0743.3	2				IIIG
			WEIS				0755.3	0755.8	2				IIIG
			BLEN				0802.5	0802.6	1				IIIB
			WEIS				0849.8	0850.1	2				IIIB
			LEAR				0849.8	0850.0	1				III
			WEIS				0926.2	0930.8	2				IIIGG
			LEAR				0926.4	0930.8	2				CONT
	0700	1530	DWIN	1020.1	1022.1	1							IIIG
			WEIS				1036.8	1037.6	2				IIIG
			DWIN	1238.6	1240.6	2							IV P

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
28			WEIS				1238.7	1239.6	2				IIIGG,DCIM
			WEIS				1327.2	1327.5	2				IIIG
			WEIS				1405.8	1407.5	3				IIIGG
	1335	2345	HARV				1406	1407	2				IIIG
			WEIS				1415.9	1416.2	2				IIIB
			HARV				1416		1				IIIG
			WEIS				1418.8	1419.4	3				IIIG
			HARV				1419	1423	3				IIIGG
			WEIS				1420.9	1423.6	3				IIIGG
			WEIS				1431.2	1432.1	2				IIIG
			HARV				1531		2				IIIG
			WEIS				1531.2	1531.6	2				IIIG
			HARV				1552	1554	2				IIIG
			HARV				1600		3				IIIG
			HARV	1619		1							IIIG
			HARV				1730	1731	1				IIIG,U
			HARV	1806	1811	3	1806	1811	3				IIIG
			PALE				1809.5	1809.6	1				III
			HARV				1841	1843	3	1841	1843	3	IIIG,V
			SGMR				1841.6	1842.2	1				III
			PALE				1841.7	1843.1	2				V
			SGMR				1847.6	1858.0	2				III
			HARV	1954		2	1954		2				IIIG
			PALE				1957.6	1958.7	2				V
			HARV				1958		3	1958		3	IIIG,V
			HARV				2012		1				IIIG
			HARV				2016		2				IIIB
	2016	2400	CULG				2016	2400					IIIN,W
			CULG				2021.5		1				IIIB
			CULG	2023	2030								IIIG,N,W
			HARV				2024	2029	1				IIIGG
			CULG	2032	2225								IN,W
			CULG				2035.5	2036	2				IIIB
			PALE				2035.5	2036.8	2				V
			HARV				2036		2	2036		2	IIIG
			HARV				2038	2345	1				IN
			PALE				2057.6	2058.7	2				V
			CULG				2130	2255					IS,W
			CULG				2147	2200	1				POSS II
			CULG				2217	2400	1				CONT
			CULG				2255	2400	1				IS,DC
			PALE				2310.9	2311.3	1				III
			CULG							2345	2400		SWF,W
			CULG				2357.5	2358.5	2	2358	2358.5	2	IIIG
			LEAR				2357.6	2358.7	2				CONT
			PALE				2357.6	2358.8	2				V
29			CULG				0000	0620	1				IIIN
	0000	0620	CULG				0000	0210	1				CONT
			CULG				0000	0309	1				IS,DC
			CULG							0000	0325		SWF,W
			CULG	0026	0620								IN,W
			PALE				0119.5	0120.1	1				V
			LEAR				0119.5	0120.2	1				V
			LEAR				0127.5	0143.5	1				S
			LEAR				0209.8	0227.7	1				S
			CULG							0223.5	0224		IIIG,W
			LEAR				0229.9	0237.1	2				CONT
			CULG				0230	0230.5	2	0230	0230.5	2	IIIG
			PALE				0230.0	0233.8	1				CONT
			CULG				0233.5		2	0233.5		1	IIIB
			CULG				0234	0235	1				IIIG
			CULG	0234									IIIB,W
			CULG	0236	0236.5	1	0237.5		2				IIIB
			CULG				0244	0245	3	0244	0244.5	2	IIIG,V
			LEAR				0244.1	0245.3	2				CONT
			PALE				0244.2	0244.8	2				III
			PALE				0258.9	0259.1	1				III
			LEAR				0258.9	0259.3	2				CONT
			CULG				0259	0259.5	2	0259	0259.5	1	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
29			LEAR				0301.7	0301.8	1				III
			CULG				0309	0620					IS,W
			LEAR				0320.5	0320.9	1				CONT
			LEAR				0322.3	0322.7	2				CONT
			CULG				0322.5		2	0322.5		2	IIIB
			CULG				0335.5	0336	2	0335.5	0336	2	IIIG
			LEAR				0335.5	0336.3	2				CONT
			CULG							0351	0445		IIIN,W
			CULG				0444		2				IIIB
			CULG				0507.5	0508	2				IIIG
			LEAR				0507.8	0508.2	2				V
	0640	1516	WEIS				0743.3	0743.4	2				IIIB
			WEIS				0749.8	0750.4	2				IIIG
			WEIS				0836.8	0837.6	2				IIIG
			LEAR				0836.8	0840.3	1				CONT
			WEIS				0848.3	0848.5	2				IIIG
			WEIS				0853.6	0853.9	2				IIIG
	0700	1540	DWIN	0927.6	0928.4	2							IIIG
			WEIS				1123.6	1123.7	2				IIIG
			WEIS				1129.2	1129.3	2				IIIB
			DWIN	1139.9	1141.6	2							IIIG
	1129	1505	BLEN	1140.6	1142.3	2							DCIM
			WEIS				1209.7	1211.7	2				IIIG,U
			BLEN	1228.4	1228.6	1							DCIM
			WEIS				1233.2	1233.8	2				IIIG
			WEIS				1248.5	1248.7	2				IIIB
			WEIS				1316.9	1317.2	3				IIIB,U
			WEIS				1320.5	1320.7	2				IIIG
	1335	2345	HARV				1410		2				IIIG
			WEIS				1410.3	1411.4	2				IIIG
			BLEN				1414.7	1414.8	1				IIIG
			WEIS				1414.8	1415.0	2				IIIG
			HARV				1415		2				IIIG
			HARV				1437		2				IIIG
			WEIS				1437.2	1437.4	2				IIIG
	1519	1530	WEIS				1511.0	1520.1	2				IIIGG
			HARV				1512	1520	2				IIIGG
			WEIS				1525.7	1530.0	2				IIIGG
			HARV	1534	1537	3	1526	1537	3	1532	1537	1	IIIGG
			DWIN	1534.4	1534.7	1							IIIG
			HARV				1606	1700	1				IN
			HARV				1609		2				IIIG
			HARV				1612	1613	2	1613		1	IIIG
			HARV				1617		2				IIIG
			HARV				1623	1624	1				IIIBW
			HARV				1630		2	1630		1	IIIB
			HARV				1848		1				IIIB
			HARV				1903	1906	3	1904	1905	2	IIIG
			HARV				1908		3	1908		3	IIIG,V
			HARV				1910	1912	3	1910	1912	3	IIIG
			HARV				2007	2009	2				IIIG
	2017	2400	CULG	2229			2229						IIIB,W
			LEAR				2303.7	1017.0	1				B
30	0000	0716	CULG				0010	0716					IIIN,W
			LEAR				0123.0	0145.4	1				S
			CULG	0125	0126								IIIG,W
			CULG				0127		1				IIIB
			CULG				0142	0145.5	2				IIIGG
			PALE				0145.0	0145.4	1				III
			LEAR				0205.0	0206.8	2				CONT
			CULG	0205.5	0206	2	0205	0206.5	3	0205.5	0206	2	IIIG
			PALE				0205.6	0206.6	2				III
			LEAR				0236.6	0241.5	2				CONT
			CULG				0238.5	0239	1				IIIG
			CULG	0241	0241.5	1	0241	0241.5	1				IIIG
			LEAR				0257.2	0257.4	1				V
			CULG	0305	0305.5								IIIG,W
			CULG				0410.5	0413.5	1	0410.5	0411	1	IIIG,U
			LEAR				0410.5	0413.4	2				CONT

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OCTOBER 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
30			CULG				0418	0513	1				IIIN
			LEAR				0429.9	0432.4	1				CONT
			CULG	0431.5	0432.5	2	0431.5	0432	1				IIIG
			LEAR				0510.5	0512.5	1				CONT
	0700	1530	DWIN										
			CULG				0714.5	0716	3				IIIG
	0642	1529	WEIS				0714.7	0720.4	3				IIIGG
			LEAR				0714.7	0720.3	1				CONT
	0715	1505	BLEN				0714.8	0720.7	2				IIIGG
			BLEN				0736.8	0743.6	1				IIIGG
			WEIS				0736.9	0737.2	2				IIIG
			LEAR				0814.0	0817.3	1				CONT
			WEIS				0814.4	0814.5	2				IIIB
			BLEN				0817.3	0818.4	1				IIIG
			WEIS				0817.7	0818.2	1				IIIG
			WEIS				0854.4	0857.5	2				IIIG
			BLEN				0855.4	0857.3	2				IIIGG,RS
			WEIS				0947.2	0950.0	2				IIIGG
			BLEN				0949.5	1000.2	2				IIIGG
			BLEN				1017.0	1017.2	1				IIIG
			WEIS				1017.1	1020.0	2				IIIG
			WEIS				1032.9	1033.7	2				IIIG
			WEIS				1044.2	1044.6	2				IIIG
			WEIS				1145.6	1147.2	2				IIIG
	1335	2345	HARV				1445	2020	2	1655	1938	1	IIIN
			BLEN				1448.4	1450.5	1				IIIG
			WEIS				1448.5	1448.7	2				IIIG
			WEIS				1450.6	1450.8	1				IIIB
			HARV	1512	1513	2							IIIG
			HARV				1526	1530	2				IIIGG
			HARV	1614	1615	1	1614	1615	3				IIIG
			HARV	1617		1	1617		3	1617		3	IIIG
			HARV	1634		1	1634		3	1634		3	IIIG
			HARV				1638	1640	2	1638	1642	2	IIIG
			HARV	1645	1646	1	1642	1647	3	1642	1647	2	IIIG
			HARV	1657	1658	1	1657	1658	3	1657	1658	2	IIIG
			PALE				1842.9	1849.0	1				CONT
			HARV				1843	1846	3	1843	1846	2	IIIGG
			PALE				1903.9	1908.2	2				CONT
			HARV	1908		2	1904	1908		1904	1908	2	IIIGG
			HARV				1917		3				IIIG
			HARV				1930		3	1930		3	IIIG
			PALE				1930.2	1934.5	3				CONT
			HARV	1933	1934	3	1933	1934		1933	1934	3	IIIG,V
			PALE				1938.0	1938.3	1				III
			CULG				2016	2400					IIIN,W
	2016	2400	CULG	2016	2135								IS,W
			CULG	2019.5	2020	1	2019.5	2020	1				IIIG
			HARV				2020	2022	2	2021	2022	1	IIIG
			CULG				2021	2021.5	2				IIIG
			CULG				2329.5	2330	1	2330	2330.5	1	IIIG
			LEAR				2329.8	2330.0	1				III
			PALE				2329.8	2330.0	1				III
			HARV				2330	2331	2				IIIG
			CULG	2346	2346.5	1							IIIG
31	0000	0716	CULG				0007	0716					IIIN,W
			LEAR				0007.7	0007.8	1				III
			CULG	0018	0018.5	2							IIIG
			CULG				0018	0535	1				IIIN
			LEAR				0018.5	0035.0	1				S
			PALE				0018.6	0023.1	1				CONT
			PALE				0018.6	0340.0	1				B
			CULG	0020	0716								IN,W
			CULG							0048	0716	1	IIIN
			LEAR				0048.0	0052.3	2				CONT
			CULG				0049.5	0050.5	2	0049.5	0050.5	2	IIIG
			CULG	0117	0207	3	0117	0208	3	0117	0208	3	IIIG,N
			LEAR				0117.4	0122.2	3				CONT
			CULG	0119	0136	1							IIIN

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
31			CULG				0214	0302	2	0214.5	0302	2	IIIG,N
			LEAR				0300.4	0302.4	2				CONT
			LEAR				0307.3	0338.5	1				S
			CULG	0343.5	0345.5	1							IIIN
			LEAR				0357.9	0359.0	2				CONT
			CULG	0358.5	0359	2	0358.5	0359	3	0358.5	0359	3	IIIG
			CULG	0458.5	0500	2							IIIG
			LEAR				0517.9	0534.5	1				S
			CULG				0531	0532.5	2	0531.5	0532.5	1	IIIGG
			LEAR				0531.5	0533.0	2				V
			LEAR				0621.8	0633.1	1				S
			LEAR				0651.1	0709.7	2				S
	0644	1527	WEIS				0653.7	0657.6	2				IIIG
			CULG				0658.5	0659.5	2				IIIG
			CULG				0701.5	0706	2				IIIGG
			WEIS				0704.4	0705.7	2				IIIG
			LEAR				0728.9	0803.6	2				S
			WEIS				0729.2	0730.3	2				IIIG
	0725	1505	BLEN				0732.6	0742.9	2				IIIGG
			WEIS				0732.7	0734.3	3				IIIG
			WEIS				0741.7	0743.0	3				IIIG
			WEIS				0752.8	0752.9	1				IIIB
			WEIS				0754.3	0754.4	1				IIIB
			WEIS				0755.8	0758.6	3				IIIGG
			BLEN				0755.9	0757.2	2				IIIGG
			WEIS				0821.7	0826.7	3				IIIGG
			BLEN				0823.7	0823.8	1				IIIB
			LEAR				0824.5	0833.1	1				CONT
			WEIS				0832.7	0833.0	2				IIIG
			WEIS				0851.7	0852.1	2				IIIG
			LEAR				0851.7	0858.1	2				CONT
			WEIS				0857.7	0858.0	3				IIIG
			WEIS				0903.3	0904.4	3				IIIG
			BLEN	0903.4	0904.4	3	0851.7	0904.4	3				IIIGG
			LEAR				0903.4	0903.9	1				CONT
			LEAR				0912.2	0955.4	2				S
			WEIS				0926.1	0927.2	3				IIIG
			WEIS				0928.9	0929.9	3				IIIG
			WEIS				0931.3	0934.1	3				IIIG
	0705	1430	DWIN	0931.3	0933.2	2							IIIG
			LEAR				0932.6	0933.5	3				V
			BLEN	0932.7	0937.4	2	0926.7	0955.1	3				IIIGG
			WEIS				0936.7	0939.9	3				IIIGG
			DWIN	0937.1	0937.3	2							IIIG
			WEIS				0943.0	0944.6	3				IIIG
			WEIS				0952.6	0952.8	2				IIIG
			WEIS				0953.9	0958.6	2				IIIG
			WEIS				1001.4	1001.6	1				IIIB
			WEIS				1009.8	1010.4	1				IIIG
			WEIS				1051.9	1053.1	2				IIIG
			WEIS				1058.6	1101.3	2				IIIG
			BLEN				1121.7	1121.9	1				IIIG
			WEIS				1121.7	1125.7	3				IIIG
			WEIS				1128.6	1129.9	3				IIIGG
			BLEN				1135.2	1135.5	1				IIIG
			WEIS				1147.2	1151.0	3				IIIGG
			WEIS				1152.9	1153.6	3				IIIG
			BLEN	1152.9	1159.9	2	1147.1	1208.7	3				IIIGG
			DWIN	1152.9	1153.2	2							IIIG
			DWIN	1159.1	1200.0	2							IIIG
			WEIS				1159.3	1200.0	3				IIIGG
			WEIS				1201.3	1204.6	3				IIIGG
			WEIS				1207.7	1209.2	3				IIIGG
			WEIS				1211.3	1211.5	2				IIIB
			WEIS				1225.1	1225.3	1				IIIB
			WEIS				1234.0	1235.5	3				IIIG
			BLEN	1234.2	1234.3	2	1234.2	1234.3	2				IIIG
			SGMR				1234.2	1305.4	2				S
			DWIN	1250.6	1251.1	2							IIIG
			BLEN	1250.7	1304.6	3	1250.7	1304.8	3				IIIGG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
31			WEIS				1250.8	1251.5	3				IIIGG
			WEIS				1253.3	1254.9	3				IIIGG
			DWIN	1254.3	1254.7	2							IIIG
			WEIS				1300.4	1300.5	1				IIIB
			DWIN	1303.5	1304.6	2							IIIG
			WEIS				1303.7	1305.2	3				IIIGG
			BLEN	1311.2	1311.5	3							DCIM
	1335	2345	HARV				1335	1520	1				INW
			DWIN	1402.0	1402.4	2							IIIG
			BLEN	1402.1	1402.4	2	1402.1	1402.4	2				IIIG
			BLEN	1406.8	1407.5	2							DCIM
			SGMR				1417.6	1418.0	1				III
			WEIS				1417.7	1418.2	2				IIIG
			HARV				1418		3				IIIG
			HARV				1501	1502	1				IIIG
			BLEN				1501.3	1501.7	1				IIIG
			WEIS				1501.4	1501.9	1				IIIG
			HARV				1526	1527	2				IIIG
			HARV				1839	1840	1				IIIG
			HARV				1955	1956	2				IIIG
			HARV				2000	2340	1				INW
			HARV				2012		1				IIIG
			CULG				2016	2400					IIIN,W
	2016	2400	CULG	2016	2400								IN,W
			HARV				2019	2020	2				IIIG
			CULG				2019.5	2020	1				UNCLF
			CULG				2109	2109.5	1				IIIG
			HARV				2109		1				IIIG
			CULG				2116	2116.5	3	2116	2116.5	1	IIIB
			HARV				2116		3				IIIG
			PALE				2116.3	2117.1	2				V
			HARV	2127	2128	2	2127	2128	1				IIIG
			CULG	2127	2127.5	2							IIIG
			CULG				2137	2251					IS,W
			CULG	2151.5		1							IIIB
			HARV				2152		2				IIIB
			HARV				2302		1				IIIG
			CULG				2310		1	2310		1	IIIB
			CULG				2340.5			2340.5			IIIB,W
			CULG	2342	2343	2	2342	2343	1				IIIG

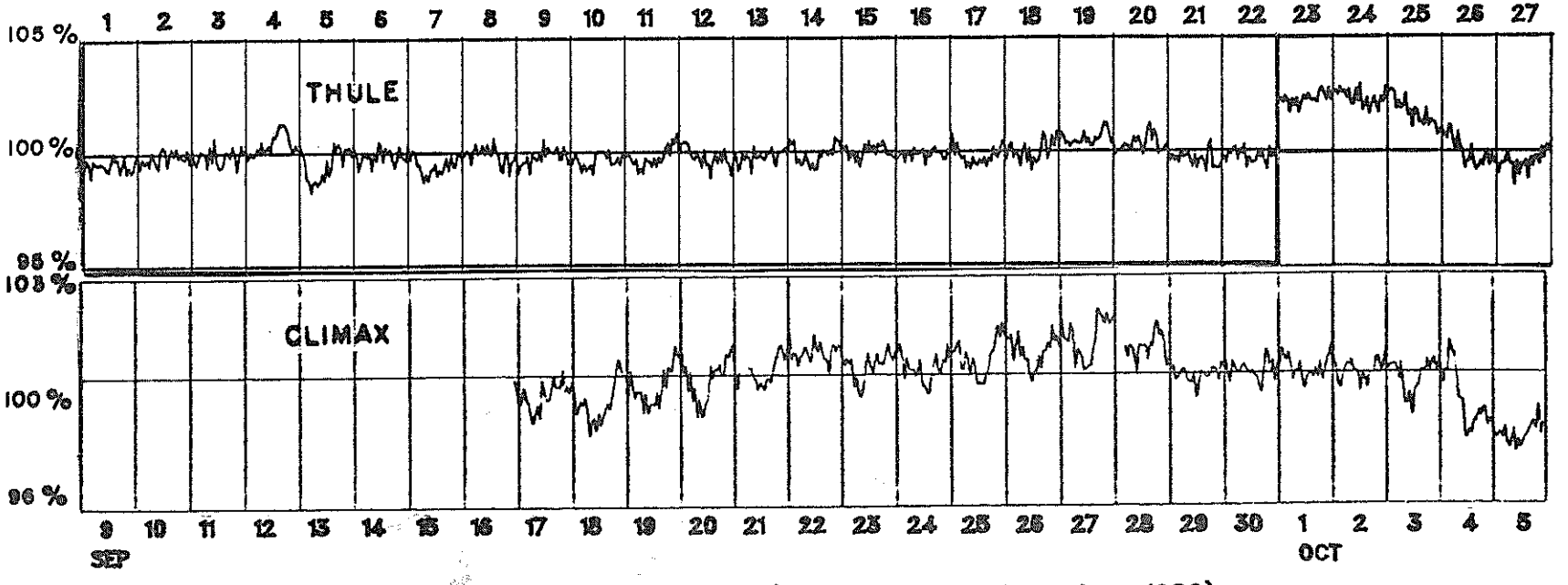
The symbols used under the column heading SPECTRAL TYPE have the following definitions:

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

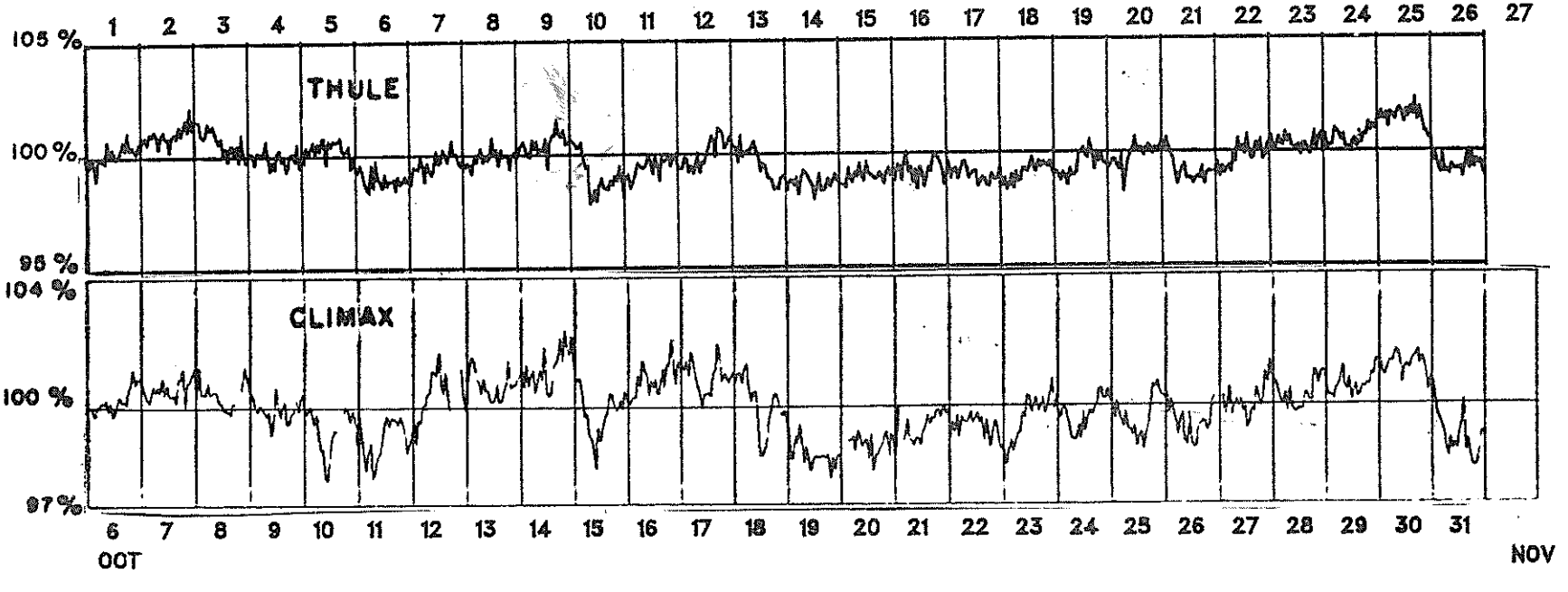
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

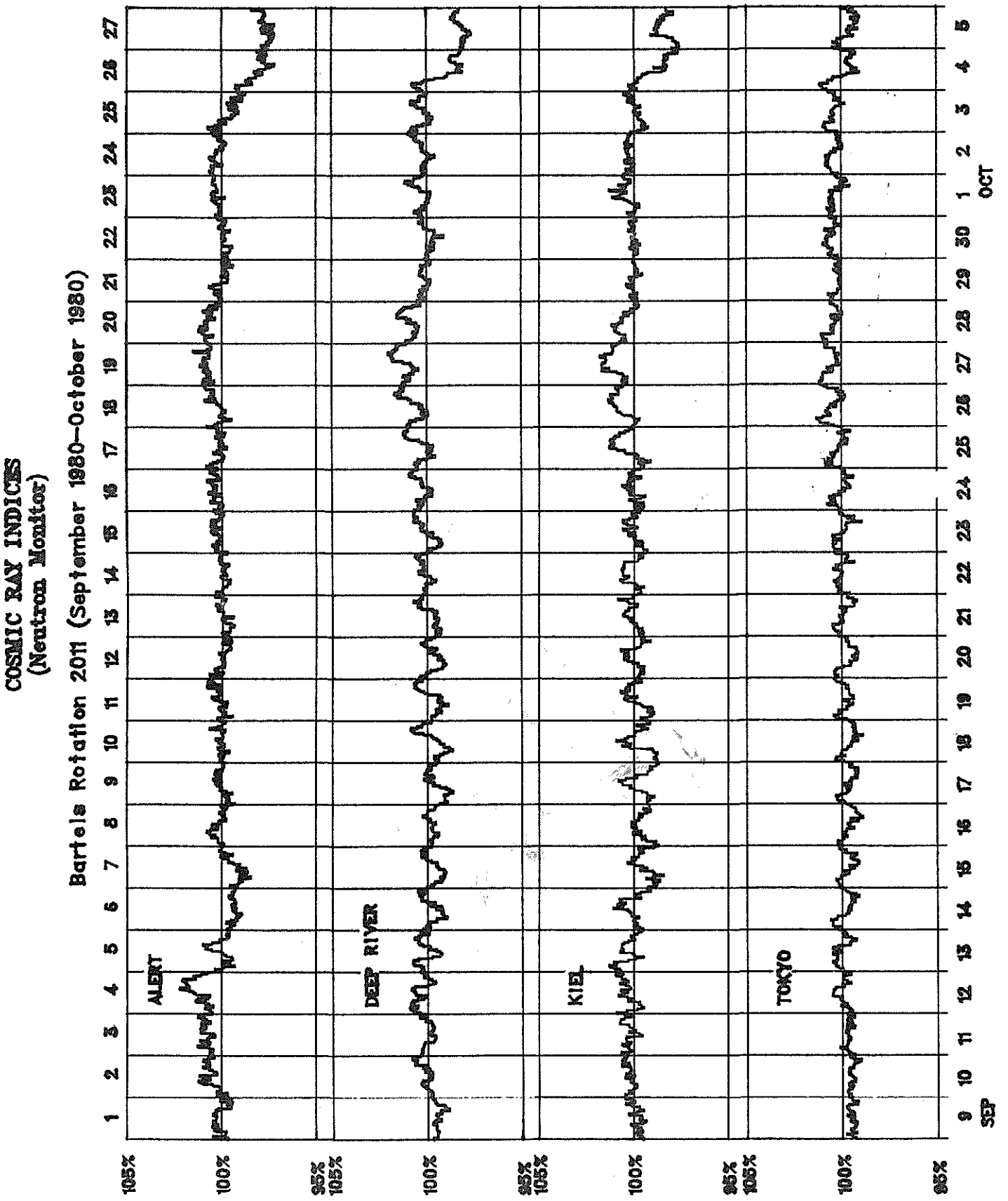
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2011 (September 1980–October 1980)



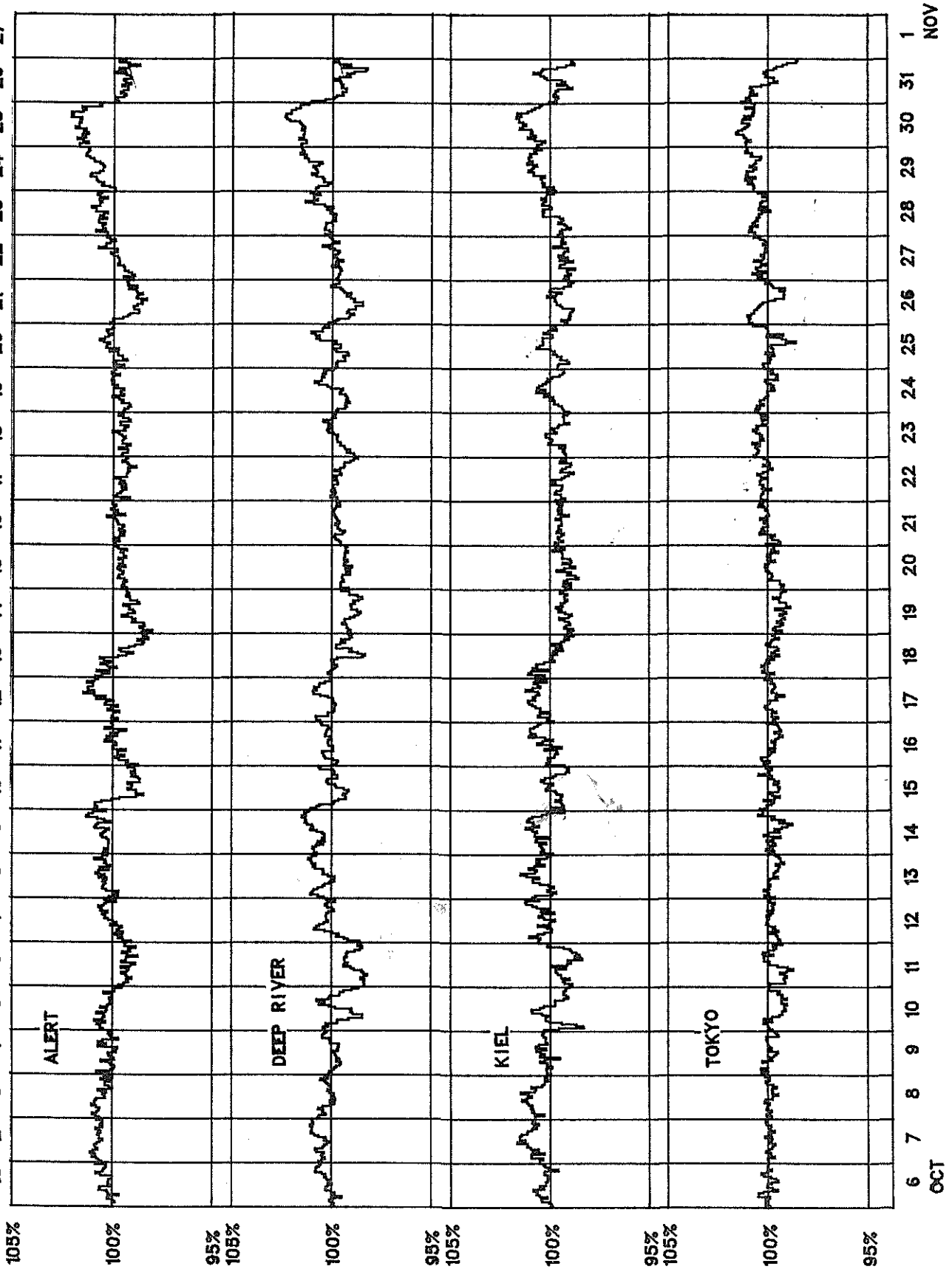
Bartels Rotation 2012 (October 1980–November 1980)




COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2011 (September 1980—October 1980)
ALERT
DEEP RIVER
KIEL
TOKYO
105%
100%
95%
SEP
OCT

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2012 (October 1980–November 1980)



COSMIC RAY INDICES

(Neutron Monitors)

OCTOBER 1980

October 1980	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	CALGARY Average (cts/h/100	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	4128	6669.8	6308.7	Data not available at time of publication.	5714.8	3764.0	3555.1	Data not available at time of publication.
2	4129	6669.3	6302.8		5711.4	3760.3	3558.1	
3	4101	6625.9	6308.1		5687.8	3753.8	3558.9	
4	4033	6531.6	6234.1		5638.4	3726.8	3541.6	
5	4016	6497.3	6176.1		5600.5	3687.4	3530.8	
6	4041	6533.0	6193.9		5615.8	3678.6	3527.1	
7	4077	6562.9	6221.0		5654.2	3700.4	3523.5	
8	4061	6551.7	6194.0		5644.2	3693.1	3523.5	
9	4033	6526.2	6174.9		5615.4	3676.4	3524.1	
10	4046	6535.7	6159.4		5586.4	3652.7	3511.1	
11	3993	6468.1	6105.3		5557.9	3643.1	3512.2	
12	4022	6517.2	6184.8		5624.7	3652.3	3519.1	
13	4030	6539.5	6217.7		5629.5	3704.1	3516.6	
14	4055	6549.0	6236.3		5631.3	3722.8	3516.8	
15	3999	6476.5	6175.7		5582.2	3672.5	3520.0	
16	4010	6503.4	6190.6		5614.3	3709.6	3517.8	
17	4037	6549.7	6200.3		5634.3	3711.9	3517.7	
18	4018	6491.4	6150.5		5598.1	3680.3	3521.6	
19	3983	6449.2	6120.4		5557.9	3624.4	3503.0	
20	3995	6487.3	6139.5		5555.2	3635.5	3518.1	
21	4005	6503.0	6164.1		5572.3	3654.9	3528.7	
22	3997	6480.1	6159.6		5567.1	3653.5	3532.6	
23	4000	6483.2	6165.2		5575.8	3664.8	3541.4	
24	4013	6498.1	6173.2		5592.8	3667.9	3527.8	
25	4029	6518.7	6180.8		5594.0	3665.9	3520.0	
26	4003	6456.3	6137.3		5564.5	3658.3	3531.0	
27	4028	6503.0	6170.9		5559.4	3682.7	3537.4	
28	4048	6557.2	6204.8		5591.3	3690.0	3542.3	
29	4060	6569.1	6237.4		5635.5	3699.8	3555.5	
30	4093	6619.8	6285.6		5657.4	3721.2	3564.1	
31	4008	6482.2	6151.5		5582.4	3642.0	3530.7	
MEAN	4035	6529.2	6194.4		5611.2	3686.2	3529.9	

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

GEOMAGNETIC ACTIVITY INDICES

OCTOBER 1980

Day	Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km								Am	aa				
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M	
1	Q2	0	0	0	1-	1+	1	1-	1	5-	2	0.0	0	0	0	1-	2-	1-	1	1	4	5	5	2 8	CC
2	Q7	1	1+	2-	2-	2+	1+	0+	0	10-	5	0.2	1+	1+	2-	2	2+	1	0+	0	9	8	7	8 7	CC
3	Q0K	0	0	1-	1	1-	2	2	3	9+	5	0.2	1-	0+	1-	1-	1-	1+	2	3+	10	13	9	5 17	K
4	D4	3	4+	3+	3+	4	5	4	4-	31-	26	1.2	3	4	3	3	4	5-	4-	4-	46	38	49	38 50	
5		5-	4+	4	3+	4-	3	3-	3-	28+	22	1.1	4	4-	3	3+	4-	3-	3-	3-	35	32	33	41 25	
6		3	3+	4-	4-	2	3-	2+	2	23-	14	0.8	2+	3-	3+	3+	2-	3-	3-	2+	23	26	19	28 17	
7		4-	3	3-	2+	3+	2	2+	2-	21	12	0.7	3	3-	3-	3-	3+	2	2+	2-	22	24	25	26 23	
8		2-	3-	3	2-	3-	3	3+	3	21	12	0.7	2-	3-	3-	2	2+	3-	3	3	22	22	20	19 24	
9		4-	3-	4-	3+	2+	3	4-	2	24+	16	0.9	3+	2+	3	3+	2	3-	3	2+	27	28	23	30 21	
10		3	3-	2	2+	3-	4-	3+	6	26-	22	1.1	3	2+	2	2	3	3+	3+	5	35	31	30	17 44	
11	D2	5-	6-	6	5+	5	2+	2+	2+	34-	40	1.4	4+	4+	5	4+	5-	2+	2-	2+	52	48	47	70 26	
12		2-	3-	3+	1+	3+	2+	3-	2	19+	11	0.6	2	3	3-	2-	3	3-	2+	3-	22	18	19	19 19	
13	Q9	1	1	2	2-	2	1+	1+	1+	12-	5	0.2	1	1	1+	1+	2-	1+	1+	1+	9	9	8	11 7	CC
14		2-	2-	2	2-	1+	3	4	3	18+	11	0.6	2-	2-	2+	1+	1+	3-	4	3	20	20	17	11 26	
15		3+	4-	4-	3+	2+	2	2+	3-	23+	15	0.8	3	3	3	3+	3-	2+	3-	3-	27	24	32	36 20	
16	Q6	2+	1-	1-	0+	0+	0+	1-	1-	6	3	0.1	2-	1-	1-	0	0	0+	0+	1	5	6	5	5 6	CC
17	Q8	0	1+	2-	2-	2-	1	2-	2	11	5	0.2	0+	1	2-	1+	1+	1+	1+	3-	10	10	14	10 14	C
18		3+	4+	4+	4-	2+	3+	4+	2	28-	21	1.1	4	4-	4-	4-	2+	3	4-	2+	38	36	45	50 32	
19		2	2-	2+	3-	2+	3-	3+	3	20	11	0.6	1+	2-	2	3-	2+	2+	3+	3	21	22	17	13 27	
20	Q5	1+	2-	0+	1	1	1	0+	1+	8	4	0.1	1+	1+	0	1	1+	1+	1	1+	7	6	9	7 9	C
21		1+	2+	2	2	2+	2+	2	2-	16	7	0.4	1+	2	1+	2	2+	3-	2-	2	14	14	17	13 19	
22		2-	3+	3-	4-	3+	3-	5-	5+	27+	23	1.1	2-	2+	3-	3+	3+	3-	4+	5	37	39	42	28 53	
23	D1	3+	4+	6-	6-	6	4+	5-	3	37	44	1.5	3+	3	5-	5	5+	5-	4+	3+	67	50	71	72 50	
24		3-	2+	2	3	4-	2	3+	3+	22+	14	0.8	2+	2	2-	3-	3	2+	3	4-	25	25	21	18 29	
25	D5	4	2+	4	4-	3+	4	4	4+	30-	24	1.1	4	2	3	4-	3	4-	4-	4	39	45	44	39 50	
26		4	3	4	3	2-	2-	1+	0+	19	13	0.7	3+	2+	4-	3-	2	1+	1+	1-	20	20	24	37 7	
27	Q4	0+	1-	1	1-	1-	1-	1+	0+	6-	3	0.1	0+	1-	1	0+	1-	1-	1+	0	4	4	4	4 4	CC
28	Q1	0	0	0+	0+	0+	0+	1-	1-	3-	2	0.0	0	0	0	0	0	0	0+	1+	2	3	3	2 4	CC
29	Q3	1-	0	1-	0+	1-	1	1+	1-	5+	3	0.1	1-	1-	1-	0	1-	1	2-	1+	6	5	7	4 8	CC
30		2	3	3-	1+	0+	3	2	3+	18-	10	0.6	2-	2+	2	1+	1-	3	2+	4-	20	17	20	15 22	
31	D3	3+	3+	4	3+	5+	5	4	4	32+	30	1.3	3-	3	3+	3	5-	5-	4	4-	47	45	49	34 60	
										Mean	14	0.65									23.4	22.4	23.7	23.2	

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	0	0	0	1-	2-	1-	1-	1	4	0	0+	0	1-	1+	0+	1	1	4
2	1	1	2-	2	3-	1+	0+	0	9	1+	1+	2-	2+	2+	1	0+	0+	10
3	0+	0	1-	1-	0+	2-	2-	3+	9	1	1-	1	1-	1-	1	2	3+	11
4	3-	3+	3	3+	4	5-	4-	3+	44	3+	4+	3	3	4-	5-	4-	4-	48
5	4-	4-	3	4-	4-	3-	2+	2+	34	4+	4-	3	3	3+	3	3	3-	36
6	2+	3-	3	3+	2	3-	2+	2+	23	3-	2+	3+	3	2-	3-	3-	2+	24
7	3-	2	2+	3-	3+	2	2	1+	20	3	3	3-	3-	3	2	3-	2	24
8	1+	2+	3-	2	2+	3-	3	3	21	2+	3	3-	2-	2+	3-	3	3+	24
9	3	2+	3	3	2	3-	3	2	24	3+	3-	3	4-	2	3	3+	3-	30
10	2+	2	2	2	3-	3	3+	5	31	4-	2+	2-	2	3+	3+	3+	5+	40
11	4-	4+	5	4+	5-	2+	2	2+	50	5-	4+	5	5-	5-	2	2-	2+	54
12	2-	2+	3-	1+	3	3-	3-	2+	20	2+	3+	3-	2	3	3-	2+	3-	24
13	1	1	1+	1+	2-	1	1+	1+	8	1	1+	2-	1+	2-	1+	1+	2-	10
14	2-	1	2+	1+	1+	3	4-	3	20	2-	2+	2+	1+	1+	3-	4	3	22
15	3-	3	3	3	2+	2+	3	3-	26	3	3	3	4-	3-	2+	2+	3-	28
16	2	0+	1-	0+	0	0+	0+	1	5	1+	1	1	0	0	0	1-	1	4
17	0+	1	2-	2-	2-	1+	1+	2+	10	1-	1+	1+	1+	1+	2-	2-	3-	11
18	3+	3+	4-	3+	3-	3-	4-	2	32	5-	4+	4	4-	2	3	3+	3-	43
19	1+	1+	2-	3-	3-	2+	3+	3-	20	1+	2-	2+	3-	2+	3-	3+	3+	22
20	1+	1+	0	1	1+	1	1	1	7	2-	1+	0	1	1	1+	1	1+	8
21	1	1+	1+	2-	2+	2+	2-	2-	13	1+	2+	2-	2	3-	3-	2-	2+	17
22	1+	2	3-	3+	3	2+	4-	5-	33	2	2+	3-	3	3+	3	5-	5	41
23	3	3	5-	5	5	4	5-	3	61	4-	3	5-	5	6-	5	4+	4-	73
24	2	2-	2-	3-	3	2	3	3+	22	3-	2+	2	2+	3	3-	3+	4	28
25	4-	2-	3+	3	3	3	3	4	34	4+	3-	3	4-	3	4-	4-	4	44
26	3+	2+	3+	3-	2	1+	1+	0+	18	3+	3-	4	3-	2-	1+	1+	1-	22
27	0+	1-	1-	0+	1-	1-	1	0	4	0+	1	1+	1-	1-	1-	2-	0+	6
28	0	0	0	0	0	0	0+	1-	2	0	0	0	0	0	0+	0+	1+	2
29	0+	0+	1-	0+	1	1	1+	1	5	1-	1	1-	0	1-	1+	2	2-	7
30	1+	2	2+	1+	0+	3	2+	3+	17	2	3-	2	1	1	3+	2	4+	22
31	3-	3	3+	3+	5-	4+	4	4-	44	3	3	4-	3	5-	5-	4	4	50
								Mean	21.6									25.5

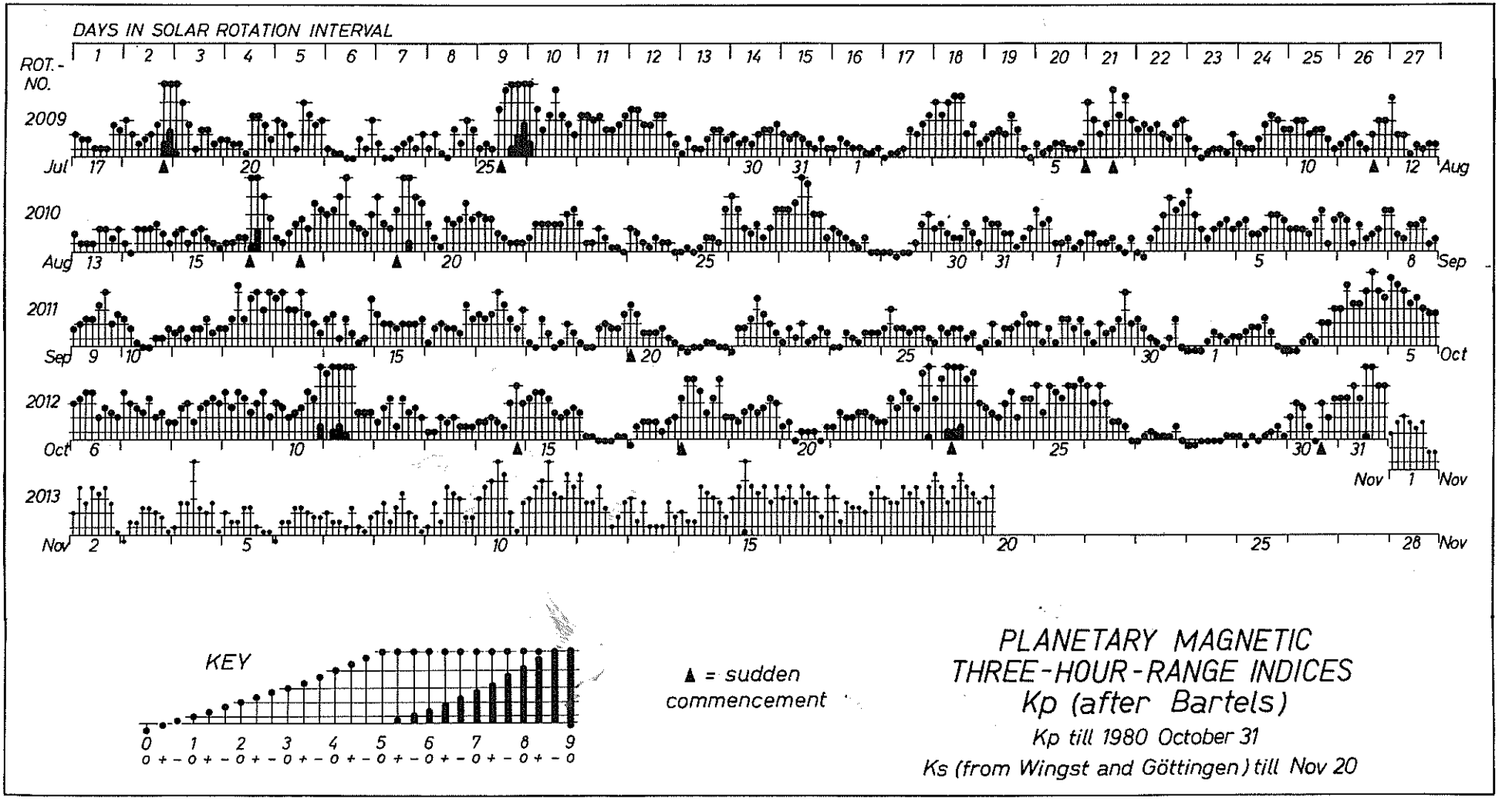
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp≥30 or two Kp values≥3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

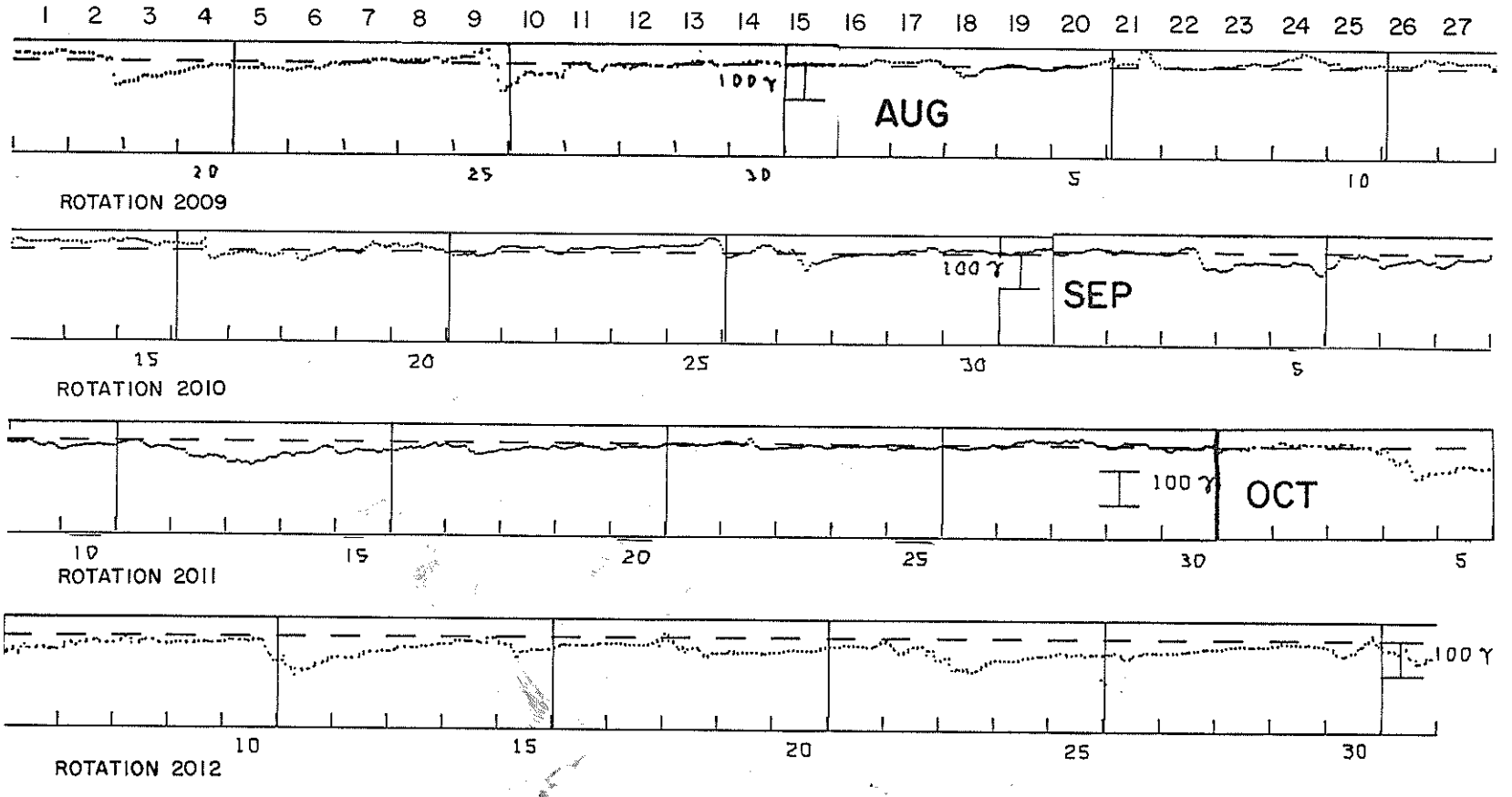
DAILY AVERAGE INDICES Ap

	1979		1980									
DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	16	9	24	10	3	4	8	22	5	4	7	2
2	12	11	12	9	3	3	4	7	3	7	4	5
3	10	9	18	3	5	7	3	9	4	20	12	5
4	10	16	16	4	5	11	4	5	7	8	12	26
5	2	7	12	3	7	7	7	4	15	4	10	22
6	3	6	8	33	9	28	12	16	10	21	9	14
7	12	4	5	12	7	18	9	27	13	10	10	12
8	14	10	6	17	6	17	7	23	14	4	8	12
9	19	7	3	11	7	20	18	14	8	9	12	16
10	6	5	3	4	4	22	8	33	4	9	4	22
11	10	5	11	4	4	30	38	59	10	8	6	40
12	7	4	4	3	1	28	23	32	5	8	18	11
13	35	4	23	2	7	18	14	27	9	6	16	5
14	13	4	9	18	5	10	17	10	9	6	8	11
15	3	9	6	33	2	20	6	5	6	5	8	15
16	12	10	9	40	4	12	3	9	6	26	8	3
17	8	13	13	6	5	11	3	3	6	10	14	5
18	4	7	4	10	4	4	4	3	30	18	4	21
19	7	6	4	10	10	5	8	8	16	28	6	11
20	10	4	6	6	4	6	5	6	9	10	7	4
21	6	4	6	4	18	5	4	6	14	8	2	7
22	2	15	5	4	16	9	6	6	5	10	8	23
23	4	3	5	9	6	6	11	6	4	5	5	44
24	24	7	5	6	4	7	12	13	7	4	4	14
25	15	2	7	13	6	9	34	8	46	5	7	24
26	4	10	6	14	30	5	7	15	26	12	5	13
27	4	12	24	14	7	5	3	3	15	22	6	3
28	2	16	27	10	7	4	4	3	14	4	6	2
29	4	32	26	7	8	6	6	5	6	4	9	3
30	15	20	10		11	8	10	8	8	6	5	10
31		9	5		21		16		6	7		30
MEAN	10	9	10	11	8	11	10	13	11	10	8	14

GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES
Hourly Equatorial Dst
by Bartels Rotation



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

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

OCTOBER 1980

(Units-Gammas)

(Time-UT)

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	-12	-9	-8	-6	-3	0	1	0	-2	-5	-6	-9	-11	-5	-4	1	4	4	3	1	0	3	3	3
2	3	4	7	14	15	11	11	5	2	6	2	-2	9	10	6	6	2	1	1	2	1	1	3	3
3	2	2	2	0	2	6	8	12	8	5	5	3	-1	-4	-3	0	2	-5	-5	-4	-9	-13	-17	-20
4	-16	-6	1	-16	-35	-37	-40	-51	-48	-41	-38	-35	-38	-53	-68	-91	-89	-85	-78	-78	-78	-74	-69	-76
5	-74	-69	-67	-68	-72	-74	-67	-64	-66	-59	-54	-57	-52	-56	-54	-55	-58	-63	-60	-62	-66	-61	-60	-57
6	-55	-49	-45	-42	-41	-35	-39	-50	-56	-36	-27	-40	-42	-40	-38	-34	-33	-32	-35	-41	-43	-41	-40	-41
7	-45	-41	-36	-27	-22	-18	-18	-28	-33	-27	-20	-23	-26	-15	-13	-16	-12	-12	-12	-21	-26	-24	-25	-24
8	-24	-23	-23	-16	-14	-12	-4	-11	-16	-25	-25	-25	-22	-17	-14	-13	-11	-15	-16	-18	-23	-26	-25	-25
9	-29	-24	-22	-20	-19	-18	-18	-23	-20	-22	-26	-24	-18	-16	-16	-18	-17	-14	-20	-23	-20	-19	-17	-20
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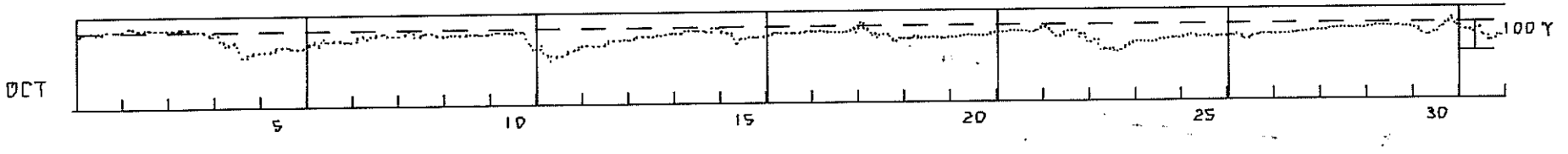


PRINCIPAL MAGNETIC STORMS

OCTOBER 1980

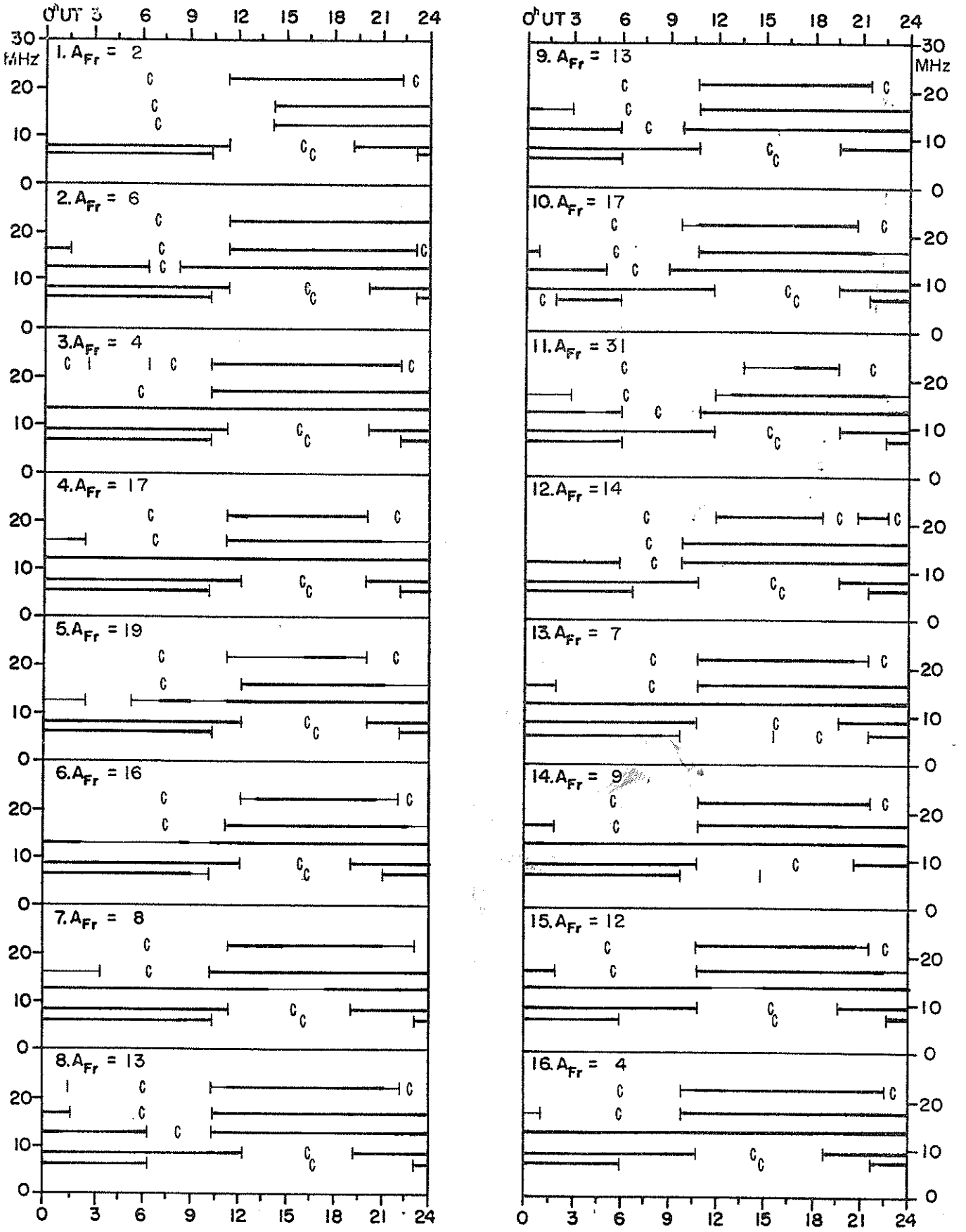
OBS. 3 letter code	GEOMAGNETIC LATITUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
NEW	55.1N	03	22--	..	..	..	..	05(3)	5	27	110	156	07	18
FRD	49.6N	03	20--	..	..	..	..	05(1)	5	20	121	50	07	--
JAI	17.3N	03	20--	..	..	..	..		-	8	161	40	06	19
SHL	14.6N	03	20--	..	..	..	..		-	8	187	42	06	19
UJJ	13.5N	03	20--	..	..	..	..		-	7	183	46	06	19
ABG	09.5N	03	20--	..	..	..	..	04(5)	6	6	193	51	06	19
HYB	07.6N	03	1500	..	..	..	..	04(6)	6	6	207	33	05	23
ANN	01.5N	03	20--	..	..	..	..		-	--	--	--	06	19
TRD	01.1S	03	20--	..	..	..	..		-	3	--	131	06	19
PMG	18.6S	03	22--	..	..	..	..	04(5,6)	5	10	190	70	05	20
COL	64.6N	04	01--	..	..	..	..	04(4,6) 05(2,4)	6	267	980	680	05	21
GUA	04.0N	04	0113	..	..	..	..	04(5)	5	10	210	30	--	--
TOO	46.7S	04	02--	..	..	..	..	04(5)	5	23	110	50	05	19
HYB	07.6N	06	0500	..	..	..	..	06(3,4,6) 07(3,5)	3	6	143	37	07	20
HYB	07.6N	08	0300	..	..	..	..	08(2,3) 09(4)	4	5	124	32	09	21
COL	64.6N	10	07--	..	..	..	..	11(3)	7	181	1270	940	11	17
SIT	60.0N	10	22--	..	..	..	..	11(3)	7	--	--	600	11	23
NEW	55.1N	10	2147	SC	10	44	..	11(3)	7	59	298	357	13	01
WIT	54.2N	10	19--	..	..	..	..	10(8)	6	30	230	55	11	15
FRD	49.6N	10	20--	..	..	..	..	11(3)	6	29	99	85	13	--
JAI	17.3N	10	13--	..	..	..	..		-	7	139	35	12	23
SHL	14.6N	10	13--	..	..	..	..		-	5	180	29	12	23
UJJ	13.5N	10	13--	..	..	..	..		-	6	145	32	12	23
ABG	09.5N	10	13--	..	..	..	..	11(2,3,5)	5	6	147	40	12	23
HYB	07.6N	10	0000	..	..	..	..	11(3)	6	6	231	30	12	23
GUA	04.0N	10	2034	..	..	..	..	11(5)	6	10	190	50	11	16
ANN	01.5N	10	13--	..	..	..	..		-	5	231	84	12	23
TRD	01.1S	10	13--	..	..	..	..		-	--	--	--	12	23
PMG	18.6S	10	00--	..	..	..	..	11(2,4,5)	5	13	220	110	12	00
HER	33.7S	10	2000	..	..	..	..	10(8)	5	22	95	67	11	15
TOO	46.7S	10	12--	..	..	..	..	11(3,4)	5	24	160	80	11	15
FRD	49.6N	14	1952	SC*	1	19	- 5	14(7) 18(2,3)	4	14	100	38	20	--
JAI	17.3N	14	1951	SC	- .8	29	- 6		-	7	68	48	16	01
SHL	14.6N	14	1951	SC	- .4	26	5		-	8	87	47	16	01
UJJ	13.5N	14	1951	SC	- .5	33	- 7		-	6	70	42	16	01
ABG	09.5N	14	1951	SC	- .6	25	- 5	14(7)	5	5	76	45	16	01
HYB	07.6N	14	1953	SC	- .3	27	- 2	14(7)	5	5	93	31	16	01
ANN	01.5N	14	1951	SC	- 1.1	32	17		-	3	140	82	16	01
TRD	01.1S	14	1951	SC	.1	24	33		-	2	192	107	16	01
KGL	56.5S	14	1952	SC	18	30	14	15(4)	4	--	--	--	15	18
SHL	14.6N	17	22--	..	..	..	..		-	6	133	43	19	23
UJJ	13.5N	17	22--	..	..	..	..		-	6	144	39	19	23
ABG	09.5N	17	22--	..	..	..	..	18(1,3,6)	5	5	153	40	19	23
ANN	01.5N	17	22--	..	..	..	..		-	4	235	69	19	23
TRD	01.1S	17	22--	..	..	..	..		-	3	275	153	19	23
HYB	07.6N	18	0114	SC	- .7	22	- 1	18(1,2)	5	5	173	25	19	23
GUA	04.0N	18	0113	SC	..	32	- 9	18(2)	5	--	180	40	18	20
HER	33.7S	18	0000	..	..	..	..	18(1,4)	5	25	122	78	18	22
TOO	46.7S	18	0114	SC	.4	8	..	18(2,3)	5	19	120	40	18	20
KGL	56.5S	18	0114	SC*	35	-21	-10	18(1,7)	5	--	--	--	18	23
KGL	56.5S	19	2040	SC	24	24	6	19(7)	5	--	--	--	20	00
NEW	55.1N	21	2146	SC	2	7	..	23(3,4,5)	6	44	324	292	26	22
COL	64.6N	22	03--	..	..	..	..	23(3,4,5)	7	254	1630	020	23	23
SIT	60.0N	22	04--	..	..	..	..	23(3)	8	--	--	650	26	11
WIT	54.2N	22	1014	SC*	- 4 *	21 *	0	22(7,8) 23(3,5,6,7)	5	27	190	90	23	21
FRD	49.6N	22	----	..	..	..	..	23(4)	6	25	130	91	26	--
SHL	14.6N	22	12--	..	..	..	..		-	5	162	23	24	01
UJJ	13.5N	22	12--	..	..	..	..		-	6	145	31	24	01
ABG	09.5N	22	12--	..	..	..	..	23(3)	6	7	155	36	24	01
HYB	07.6N	22	0100	..	..	..	..	23(5)	6	5	215	28	24	16
GUA	04.0N	22	2106	..	..	..	..	23(4)	6	10	190	40	24	14
ANN	01.5N	22	12--	..	..	..	..		-	6	198	49	24	01
TRD	01.1S	22	12--	..	..	..	..		-	3	224	129	24	01
PMG	18.6S	22	10--	..	..	..	..	23(4)	6	12	150	90	24	04
HER	33.7S	22	1800	..	..	..	..	22(7,8)	5	20	126	73	24	03
GNA	43.2S	22	06--	..	..	..	..	22(8) 23(4,5,6)	5	21	130	150	24	00
TOO	46.7S	22	04--	..	..	..	..	23(4)	6	28	150	70	26	12
HYB	07.6N	24	2200	..	..	..	..	25(6,8) 26(2,3)	4	6	124	47	26	21
ABG	09.5N	29	18--	..	..	..	..	31(5)	6	4	155	35	01	19
ANN	01.5N	29	18--	..	..	..	..		-	4	217	61	01	19
TRD	01.1S	29	18--	..	..	..	..		-	3	251	114	01	19
COL	64.6N	30	1519	SC*	- 8	-73	-23	01(3)	6	--	--	--	01	19
COL	64.6N	30	1418	SC*	..	..	..	31(5,6)	6	188	990	920	01	19
NEW	55.1N	30	1520	SC	4	11	3	31(3)	5	26	101	104	02	01
WIT	54.2N	30	1520	SC	- 4	35	0	31(5,6)	5	26	135	62	31	23
FRD	49.6N	30	1520	SC	1	5	- 1	31(5)	5	14	105	41	--	--
HYB	07.6N	30	1519	SC	- .4	19	- 1	31(5,6)	6	4	175	29	01	20
GUA	04.0N	30	1520	..	..	..	..	31(5)	5	10	150	30	01	16
GNA	43.2S	30	1522	SC	1.3	18	9	30(8) 31(6)	5	19	80	120	01	18
TOO	46.7S	30	1521	SC	1.2	22	5	31(6)	5	20	110	30	01	18
KGL	56.5S	30	1521	SC	15	25	20	31(5)	6	--	--	--	01	18

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HYDERABAD JAIPUR
KERGUELEN NEWPORT PORT MORESBY SHILLONG SITKA TOOLANGI TRIVANDRUM UJJAIN WITTEVEEN

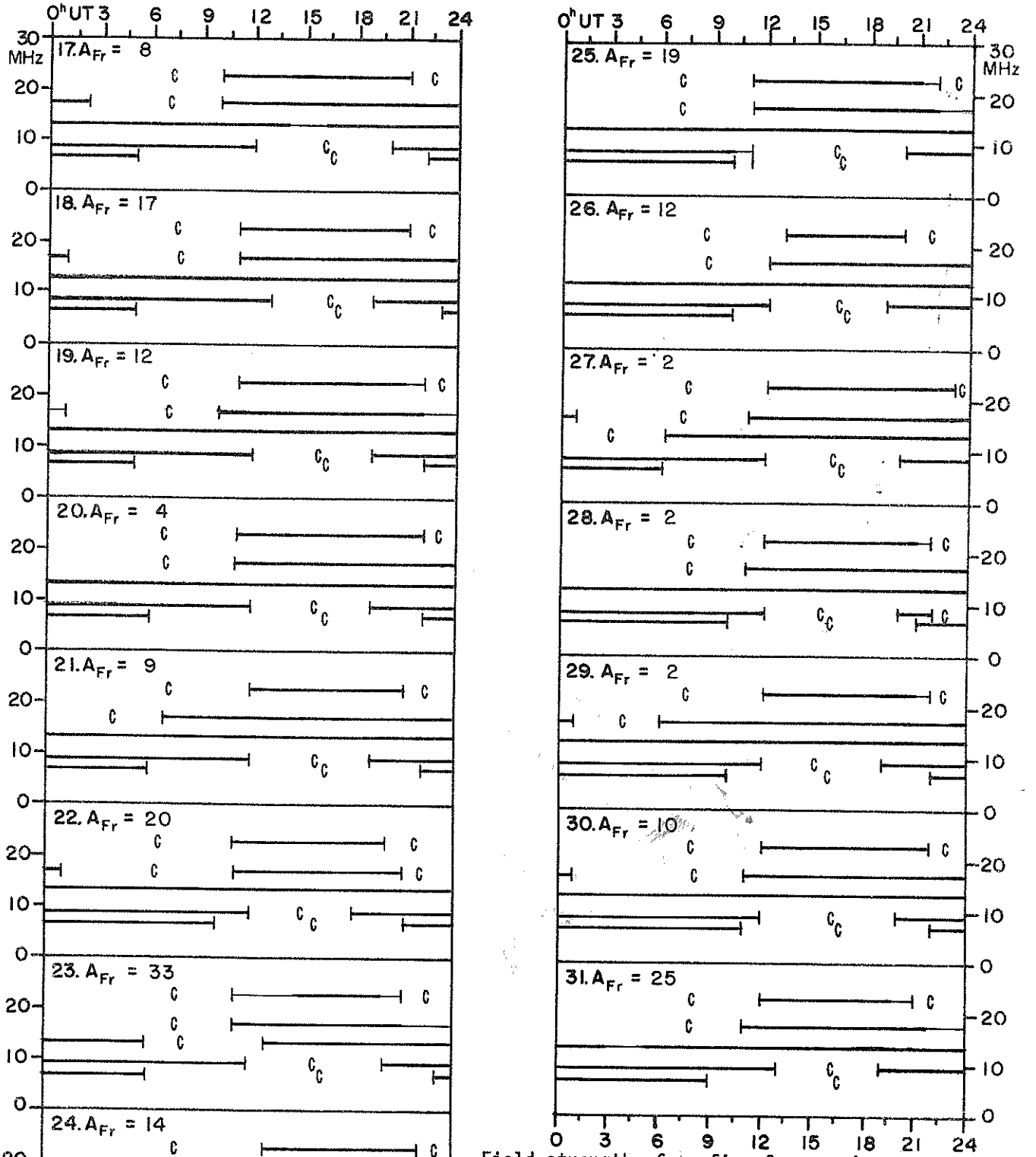
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

OCTOBER 1980



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

OCTOBER 1980



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

USCOMM - ERL

RADIO PROPAGATION QUALITY INDICES

OCTOBER 1980

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	6.2	9.6	7.9	12.8	15.3
2	6.2	9.9	7.1	13.0	15.3
3	5.9	9.5	8.0	12.4	15.3
4	4.9	8.8	6.9	11.4	14.6
5	4.5	8.2	8.0	11.7	14.6
6	5.2	8.8	7.6	11.5	14.2
7	5.6	9.1	8.0	11.6	14.7
8	5.8	9.3	8.0	12.5	14.9
9	5.6	9.4	7.8	12.6	14.8
10	5.5	9.0	7.5	12.5	14.8
11	4.8	8.3	7.7	12.0	14.4
12	5.8	9.1	8.0	12.6	15.0
13	6.3	9.2	8.0	12.5	15.1
14	5.7	9.1	8.3	12.6	15.4
15	4.9	9.3	7.6	13.2	15.0
16	5.5	9.3	7.6	12.4	14.8
17	6.1	8.7	7.6	12.9	14.9
18	5.3	8.8	7.7	12.5	15.0
19	5.3	8.4	8.8	11.7	14.5
20	5.6	9.1	8.2	12.2	14.8
21	5.8	9.1	7.6	12.9	15.0
22	5.4	8.7	5.4	12.6	14.3
23	4.5	7.9	7.4	11.7	14.4
24	4.9	8.9	7.9	13.4	14.9
25	5.1	8.3	6.9	12.9	14.9
26	4.8	8.7	7.6	11.9	14.7
27	5.3	9.1	7.3	13.2	14.8
28	5.1	9.0	7.5	13.0	15.0
29	5.2	9.4	7.7	12.9	15.0
30	4.9	9.1	7.3	12.6	14.9
31	5.2	8.8	8.4	12.0	14.7
MEAN	5.4	9.0	7.7	12.4	14.8

SGD 436 Part I (Prompt)

LATE DATA

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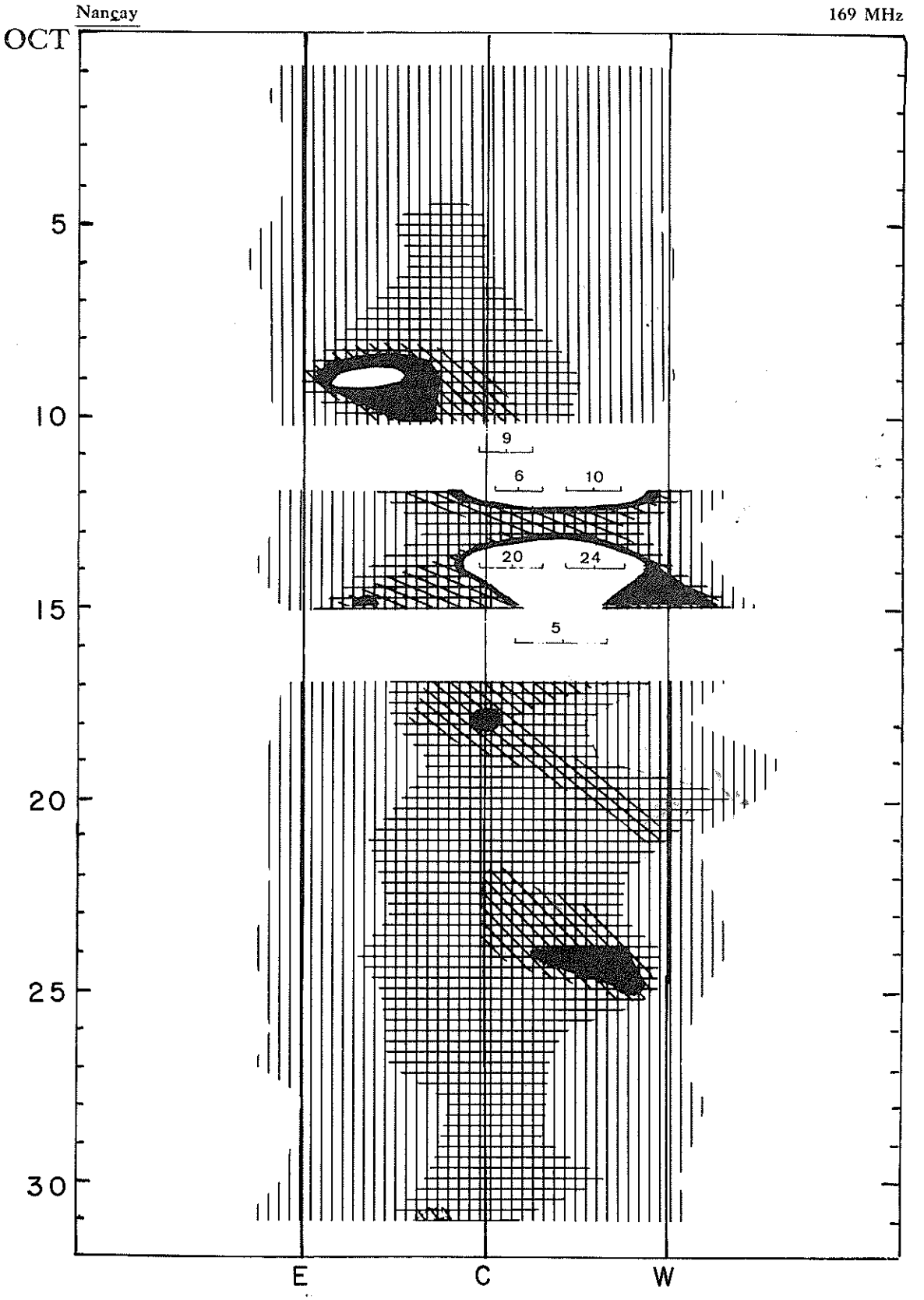
Late
Oct 80

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

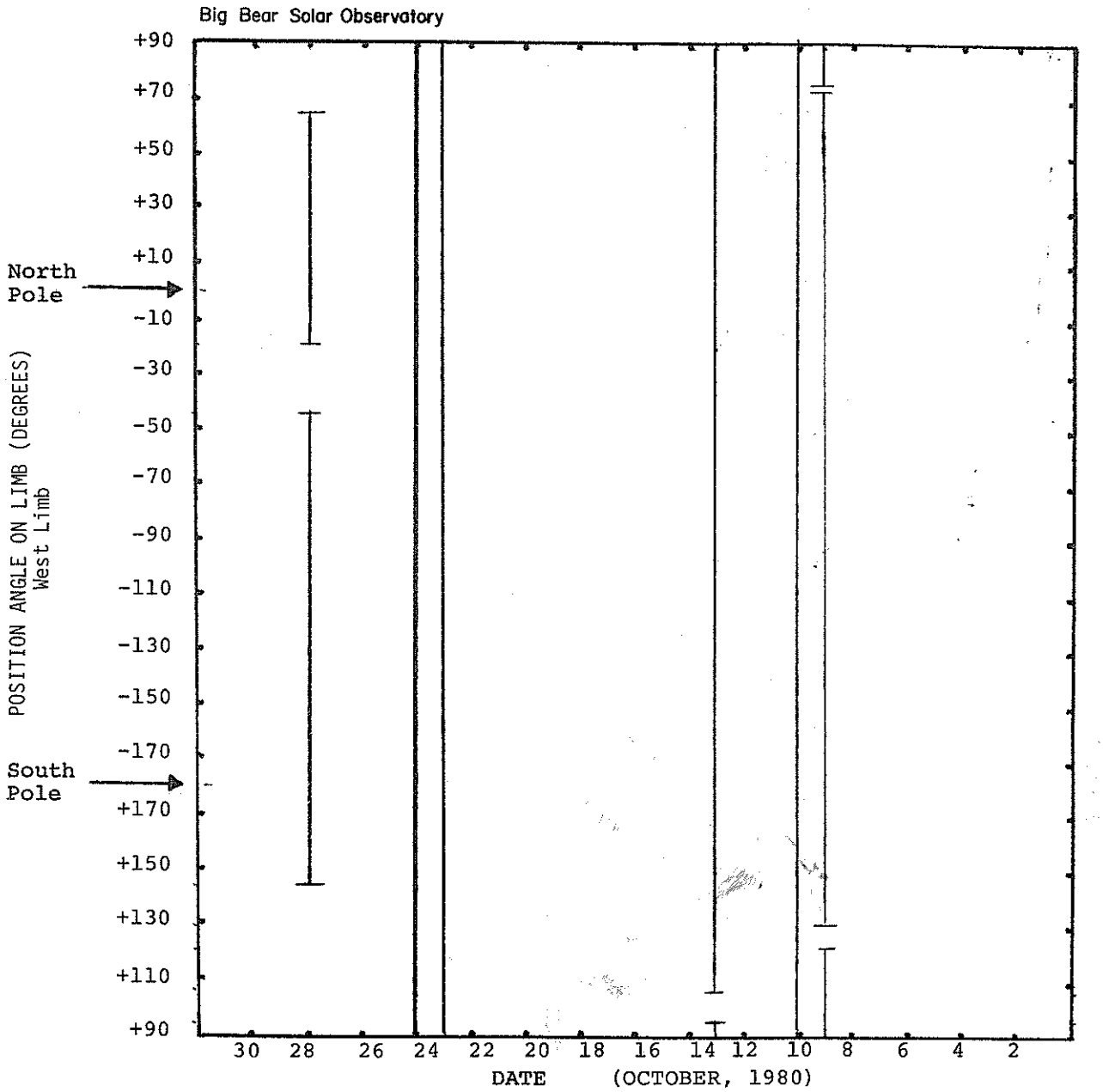
OCTOBER 1980



CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

OCTOBER 1980



SEPTEMBER 1980

D3 limb observations were made during 2 days only in September 1980. These data are presented below numerically rather than graphically.

Position Angles of Coronal Hole Boundaries (in degrees):

Date	North	South
01 Sep 1980	-20° to -11° 59° to 51°	
11 Sep 1980	-40° to -45° 48° to 65°	

HOURLY EQUATORIAL DST VALUES (PROVISIONAL

NASA/GODDARD SPACE FLIGHT CENTER

SEPTEMBER 1980

(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	-6	-11	-11	-11	-9	-8	-8	-2	0	-3	-4	-3	-1	0	4	5	7	9	8	9	8	6	5	3
2	1	-1	-10	-11	-4	1	5	3	2	1	0	-2	-8	-9	-9	-8	-7	-7	-6	-7	-7	-10	-10	-10
3	-12	-13	-11	-9	-6	-3	0	6	10	11	13	14	11	14	8	-3	-20	-34	-47	-51	-47	-44	-43	-45
4	-53	-56	-49	-48	-51	-46	-42	-36	-31	-30	-29	-29	-30	-34	-34	-31	-27	-29	-29	-27	-28	-32	-33	-34
5	-30	-30	-31	-35	-38	-39	-37	-33	-31	-25	-25	-30	-32	-31	-30	-30	-30	-38	-46	-56	-62	-65	-60	-50
6	-42	-39	-38	-35	-29	-18	-8	-14	-11	-11	-16	-16	-14	-10	-2	-13	-5	-9	-14	-17	-19	-17	-21	-38
7	-43	-40	-32	-30	-30	-28	-27	-25	-23	-21	-22	-19	-22	-19	-18	-14	-13	-17	-25	-30	-32	-29	-22	-25
8	-35	-38	-41	-36	-33	-30	-27	-22	-18	-13	-14	-15	-17	-19	-16	-19	-17	-13	-12	-13	-13	-15	-12	-9
9	-8	-9	-11	-7	-11	-8	-11	-8	-4	-3	-10	-15	-16	-20	-23	-21	-18	-12	-16	-18	-21	-26	-31	-33
10	-28	-26	-22	-21	-19	-18	-18	-17	-16	-14	-14	-14	-14	-14	-13	-12	-12	-14	-15	-15	-17	-19	-18	-15
11	-12	-9	-7	-7	-4	-1	-2	0	-1	-3	-10	-16	-20	-24	-27	-26	-19	-17	-16	-19	-20	-20	-22	-25
12	-28	-30	-32	-32	-33	-33	-40	-47	-48	-51	-48	-50	-52	-53	-50	-42	-45	-47	-43	-43	-50	-53	-49	-55
13	-64	-63	-64	-61	-55	-61	-66	-64	-61	-65	-70	-68	-60	-56	-58	-61	-55	-50	-46	-49	-50	-47	-41	-37
14	-35	-34	-35	-39	-45	-41	-35	-34	-33	-34	-36	-34	-32	-30	-28	-24	-20	-16	-14	-14	-15	-19	-24	-34
15	-38	-40	-35	-34	-32	-29	-31	-24	-22	-23	-26	-27	-26	-25	-28	-30	-31	-34	-35	-31	-23	-24	-25	-23
16	-24	-25	-25	-20	-20	-16	-18	-16	-14	-18	-17	-15	-14	-20	-15	-12	-10	-8	-3	-7	-15	-11	-8	-6
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20	-17	-13	-6	-9	-15	-14	-12	-10	-10	-9	-12	-13	-10	-12	-12	-11	-16	-15	-14	-14	-10	-7	-3	-2
21	-2	-2	-1	-2	-7	-11	-10	-7	-5	-5	-4	-4	-5	-6	-3	-5	-5	-5	-2	-3	-2	0	3	2
22	4	6	6	7	2	2	0	-6	-11	-8	4	12	14	0	-8	-13	-17	-16	-19	-18	-18	-17	-13	-13
23	-12	-14	-12	-12	-11	-9	-11	-12	-13	-11	-12	-7	-3	-2	-2	-5	-6	-7	-7	-12	-15	-14	-12	-10
24	-9	-7	-5	-6	-7	-7	-8	-7	-7	-6	-7	-7	-5	-5	-6	-8	-6	-4	-3	-3	-4	-3	-4	-8
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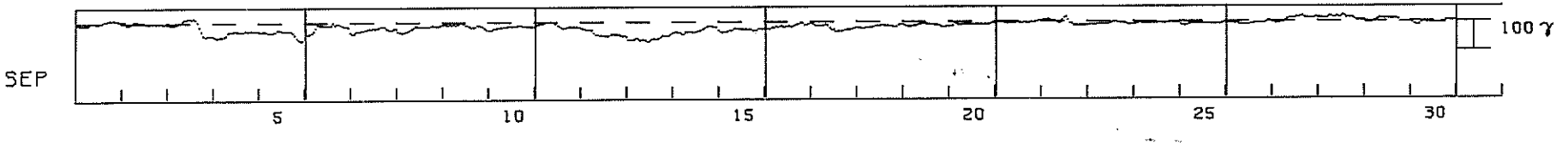
30	-11	-15	-18	-20	-13	-7	-4	-6	-6	-5	-7	-8	-10	-11	-10	-9	-8	-4	3	3	-4	1	2	-2



Note: The baselines for H for the Dst observatories have been changed from those used in the calculation of Provisional Hourly Equatorial Dst Values for August 1980. Therefore the discontinuity in the Dst value from the last hour of August 31 to the first hour of September 1 is artificial.

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

SEPTEMBER 1980

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h, page 106-116.
Times of ssc are mean values.

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

03 1336: A: HUA; B: DOU AQU TOL; C: EBR (b:B: MPO)

20 0139: A: MPO; B: WNG WIT DOU VIC FUR AQU DUM; C: NGK CZT KGL (si: A: EBR HUA; C: TOL)

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

01 0522 - 0548 HAZ KNY

01 1927 - 1937 HUA

02 0644 - 0722 HAZ

02 0757 - 0806 MPO

03 0400 - 0444 HAZ

04 0157 - 0212 HAZ (bp: A: MPO; B: TOL)

04 2214 - 2224 HUA

08 0455 - 0520 MMB

08 0502 - 0517 KAK HAZ KNY

08 0524 - 0557 MMB KAK HAZ KNY

08 1911 - 1917 HUA

09 1617 - 1646 TOL

17 1006 - 1013 MPO (ssc: C: KGL)

23 0439 - 0455 HAZ KNY

27 0120 - 0132 KAK HAZ

27 0818 - 0833 MPO

WORLD DATA CENTER A
FOR
SOLAR-TERRESTRIAL PHYSICS

The ICSU Panel on WDCs has recommended that it would be appropriate courtesy to acknowledge in publications that data were obtained from the originating station or investigator through the intermediary of the WDCs. The following statement is suggested:

"Data used in this study were provided by WDC-A for Solar-Terrestrial Physics, NOAA E/GC2, 325 Broadway, Boulder Colorado 80303, USA."